



**APPENDIX P
FREEWAY MANAGEMENT SYSTEM & SIGNAGE
LIGHTING CRITERIA MEMORANDUM
FHWA COMMENTS AND RESPONSES**



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DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO. DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260

- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 4 Install 6 6'x6' Detector Loops, and Detection Cabinet
- 5 Install 2-3" Conduits
- 6 Install 8 6'x6' Detector Loops, and Detection Cabinet
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Install 4-3" Conduits
- 9 Existing Structure, DMS to Remain
- 10 Install 12 6'x6' Detector Loops, and Detection Cabinet
- 11 Install 10 6'x6' Detector Loops, and Detection Cabinet
- 12 Remove Existing DMS Structure, DMS
- 13 Install 4 6'x6' Detector Loops, and Detection Cabinet
- 14 Install 2 6'x6' Detector Loops, and Detection Cabinet
- 15 Install New SONET Node Building
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Ramp Meter/Detection Cabinet
- 17 Install Wrong Way Driving Detection System
- 18 Existing No. 9 Pull Box to Remain
- 19 Existing ITS Conduit to Remain

- 20 Install 6 6'x6' Detector Loops
- 21 Install 8 6'x6' Detector Loops
- 22 Install 10 6'x6' Detector Loops
- 23 Install 4 6'x6' Detector Loops

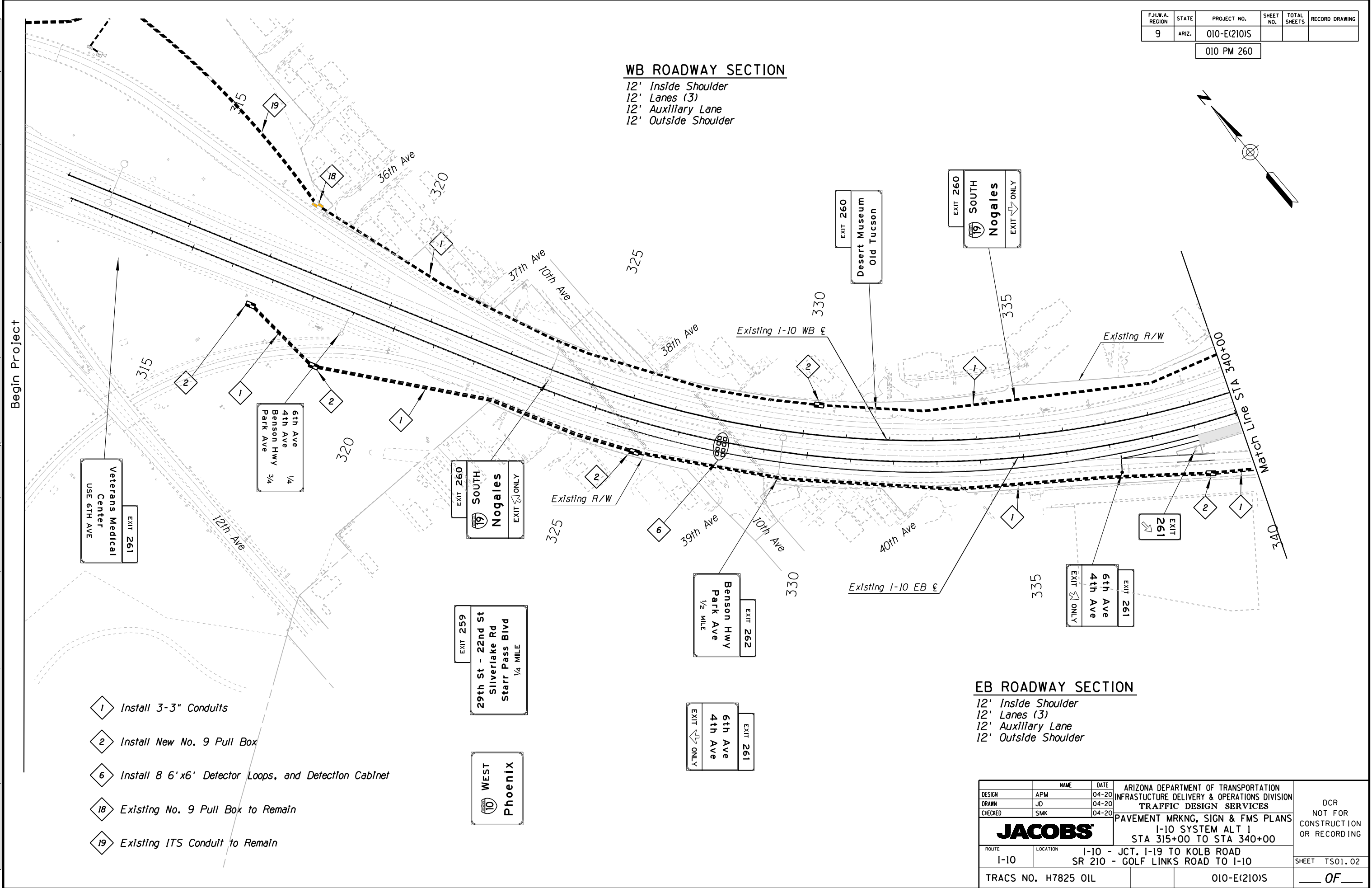
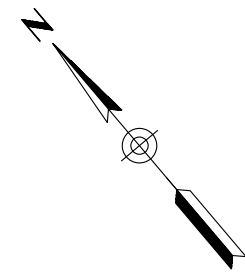
DESIGN	APM	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES JACOBS PAVEMENT MRKNG, SIGN & FMS PLANS I-10/SR210 Constructioin Notes I-10 SYSTEM ALT 1	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	04-20		
CHECKED	SMK	04-20		
ROUTE	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD		SHEET TS01.01
I-10	SR 210 - GOLF LINKS ROAD TO I-10			
TRACS NO. H7825 01L			010-E(210)S	OF

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260

WB ROADWAY SECTION

12' Inside Shoulder
 12' Lanes (3)
 12' Auxillary Lane
 12' Outside Shoulder



SURVEY NO. _____ DATE _____ LOCATION _____ REVISIONS _____ FINISHED PLANS _____ SURVEY NO. _____ DATE _____ LOCATION _____ REVISIONS _____ FINISHED PLANS _____

- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 6 Install 8 6' x 6' Detector Loops, and Detection Cabinet
- 18 Existing No. 9 Pull Box to Remain
- 19 Existing ITS Conduit to Remain

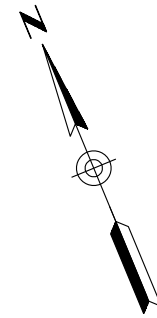
EB ROADWAY SECTION

12' Inside Shoulder
 12' Lanes (3)
 12' Auxillary Lane
 12' Outside Shoulder

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING	
DRAWN	JD	DATE	04-20			
CHECKED	SMK	DATE	04-20			
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 1 STA 315+00 TO STA 340+00		
ROUTE	I-10	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		SHEET	TS01.02
TRACS NO.	H7825 OIL		010-E(210)S		OF	

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260

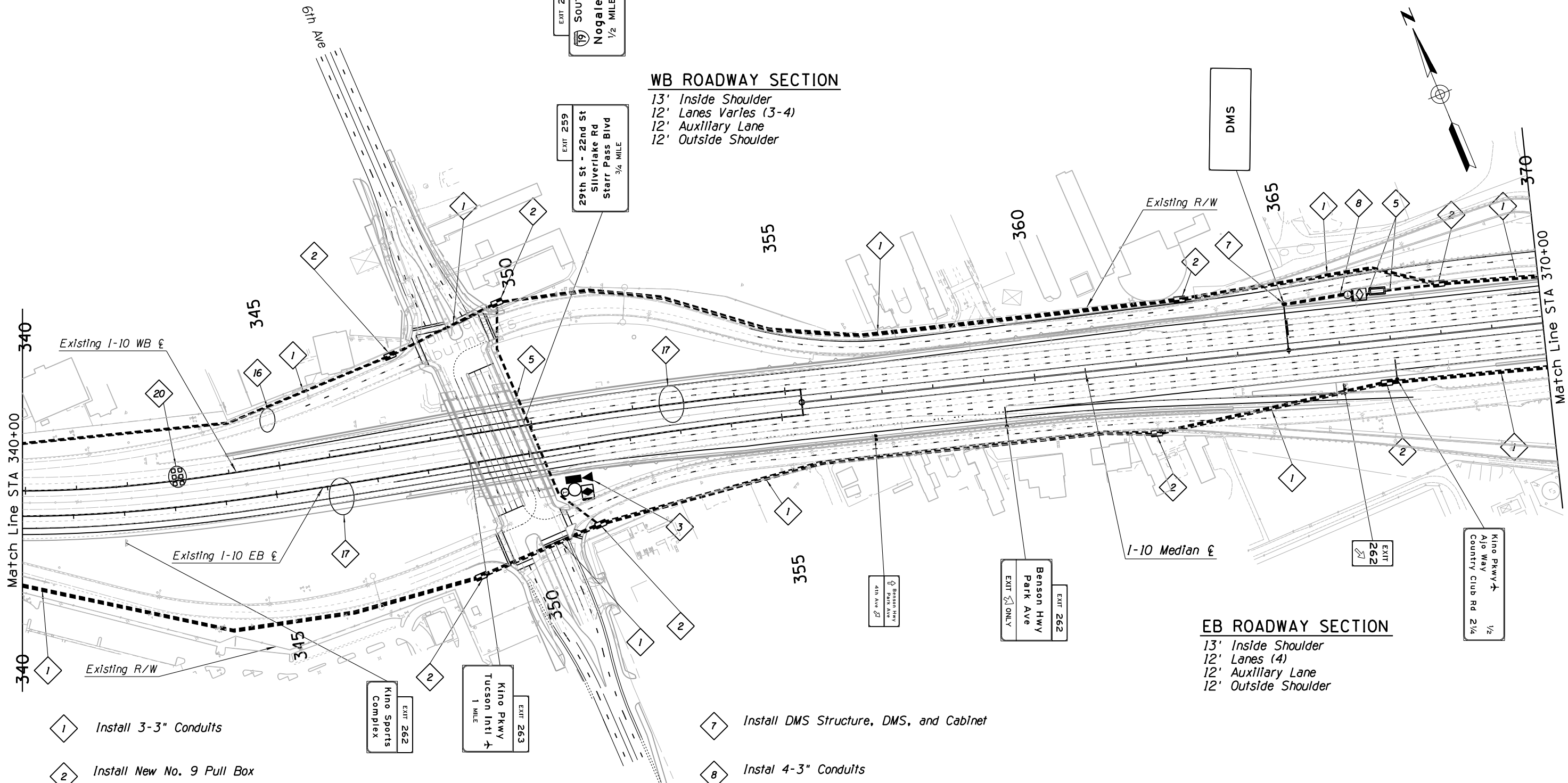


WB ROADWAY SECTION

13' Inside Shoulder
 12' Lanes Varies (3-4)
 12' Auxiliary Lane
 12' Outside Shoulder

EB ROADWAY SECTION

13' Inside Shoulder
 12' Lanes (4)
 12' Auxiliary Lane
 12' Outside Shoulder



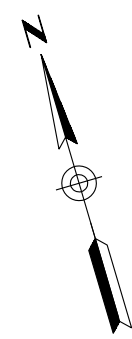
- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 5 Install 2-3" Conduits
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Install 4-3" Conduits
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Ramp Meter/Detection Cabinet
- 17 Install Wrong Way Driving Detection
- 20 Install 6 6'x6' Detector Loops

DESIGN	NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
APM		04-20		
JD		04-20		
SMK		04-20	PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 1 STA 340+00 TO STA 370+00	SHEET TS01.03
ROUTE LOCATION I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10			010-E(210)S	OF

SURVEY NO. FINISHED PLANS DATE REVISIONS LOCATION DATE FINISHED PLANS SURVEY NO. REVISIONS LOCATION DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260

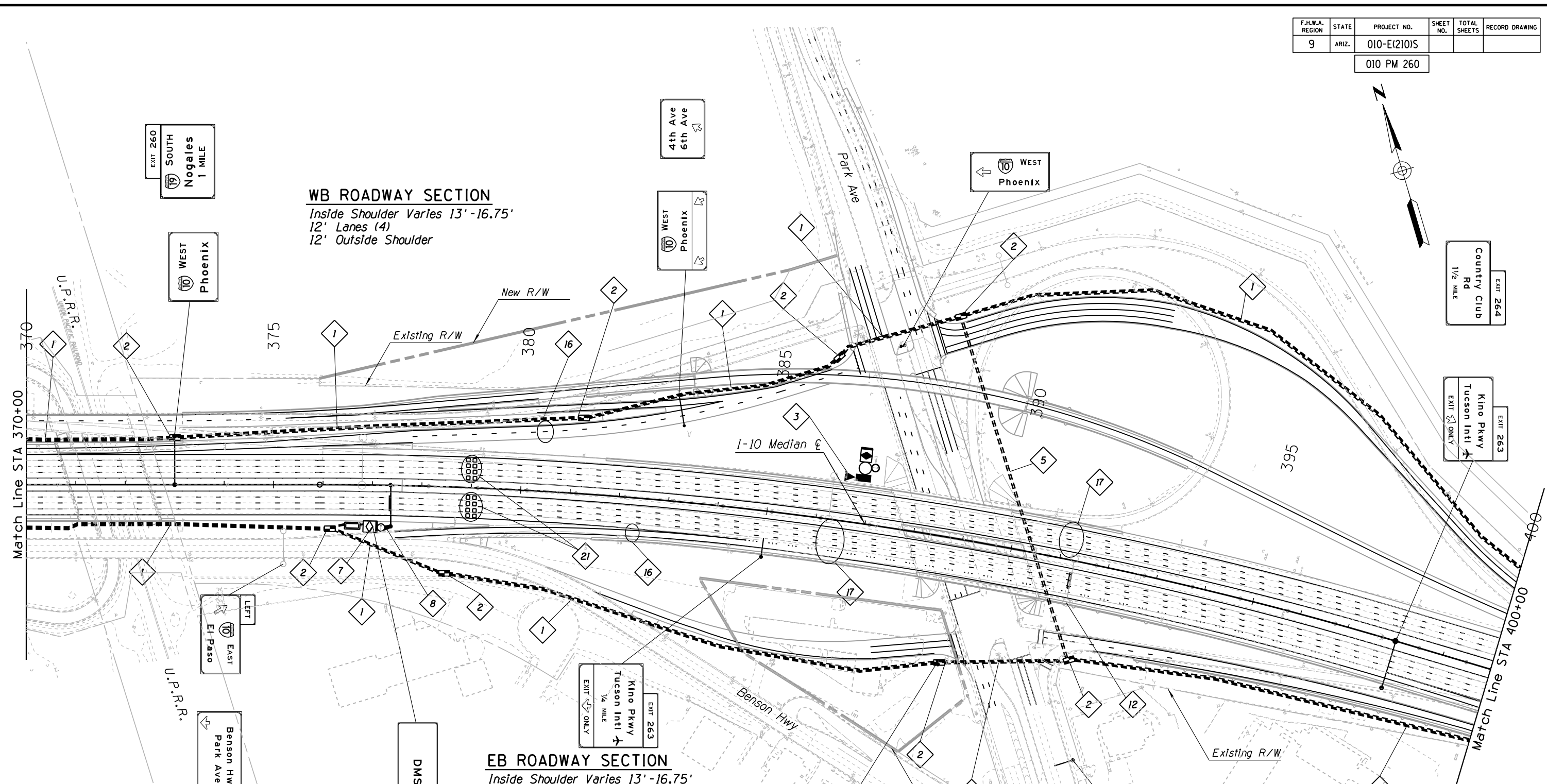


WB ROADWAY SECTION

Inside Shoulder Varies 13'-16.75'
12' Lanes (4)
12' Outside Shoulder

EB ROADWAY SECTION

Inside Shoulder Varies 13'-16.75'
12' Lanes (4)
12' Auxiliary Lane
12' Outside Shoulder



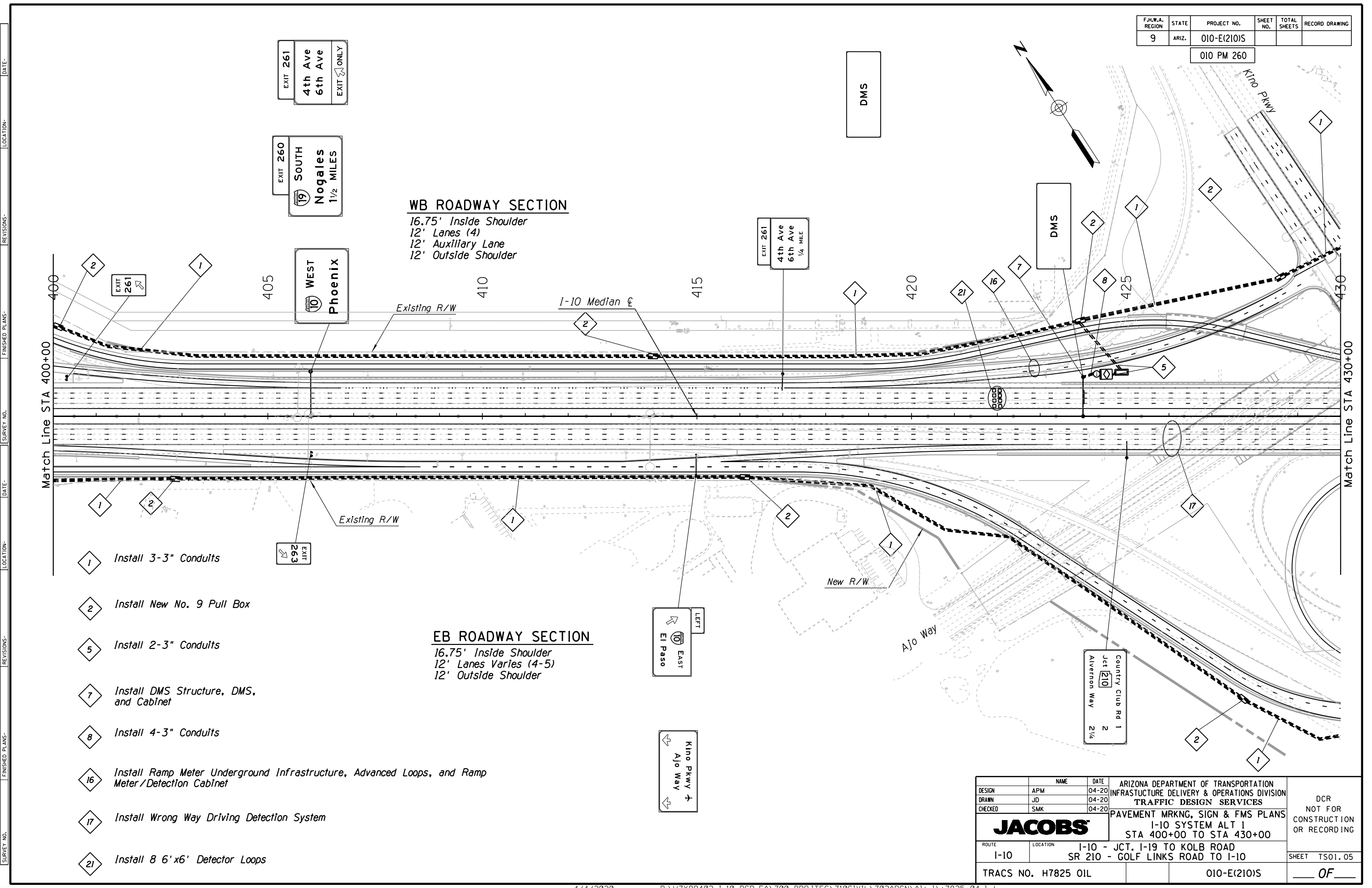
- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Losing Device, and Cabinet
- 5 Install 2-3" Conduits
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Install 4-3" Conduits
- 12 Remove Existing DMS Structure, DMS
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Ramp Meter/Detection Cabinet
- 17 Install Wrong Way Driving Detection System
- 21 Install 8 6' x6' Detector Loops

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING	
DRAWN	JD	DATE	04-20			
CHECKED	SMK	DATE	04-20			
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 1 STA 370+00 TO STA 400+00		
ROUTE	I-10	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		SHEET	TS01.04
TRACS NO.	H7825 OIL		010-E(210)S		OF	

SURVEY NO. FINISHED PLANS DATE LOCATION REVISIONS FINISHED PLANS DATE LOCATION REVISIONS SURVEY NO. FINISHED PLANS DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



WB ROADWAY SECTION

16.75' Inside Shoulder
12' Lanes (4)
12' Auxiliary Lane
12' Outside Shoulder

EB ROADWAY SECTION

16.75' Inside Shoulder
12' Lanes Varies (4-5)
12' Outside Shoulder

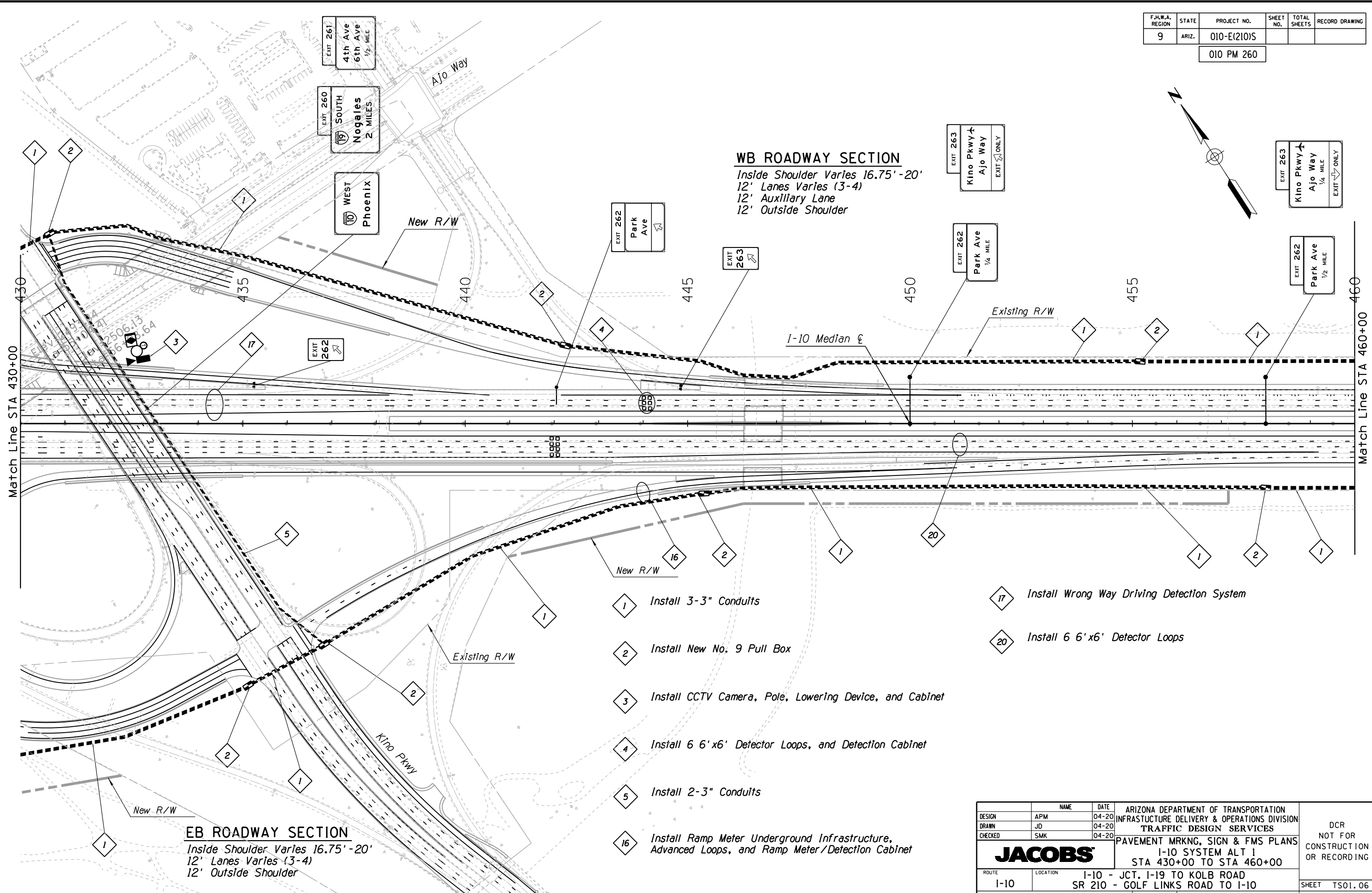
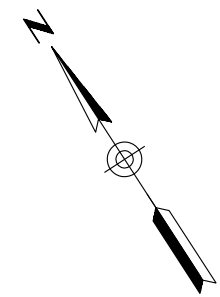
- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 5 Install 2-3" Conduits
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Install 4-3" Conduits
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Ramp Meter/Detection Cabinet
- 17 Install Wrong Way Driving Detection System
- 21 Install 8 6'x6' Detector Loops

DESIGN	NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES		DCR NOT FOR CONSTRUCTION OR RECORDING
APM		04-20	JACOBS PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 1 STA 400+00 TO STA 430+00		
DRAWN	JD	04-20			
CHECKED	SMK	04-20			
ROUTE		LOCATION		SHEET	
I-10		I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		TS01.05	
TRACS NO. H7825 OIL			010-E(210)S		
					OF

SURVEY NO. FINISHED PLANS DATE REVISIONS LOCATION DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



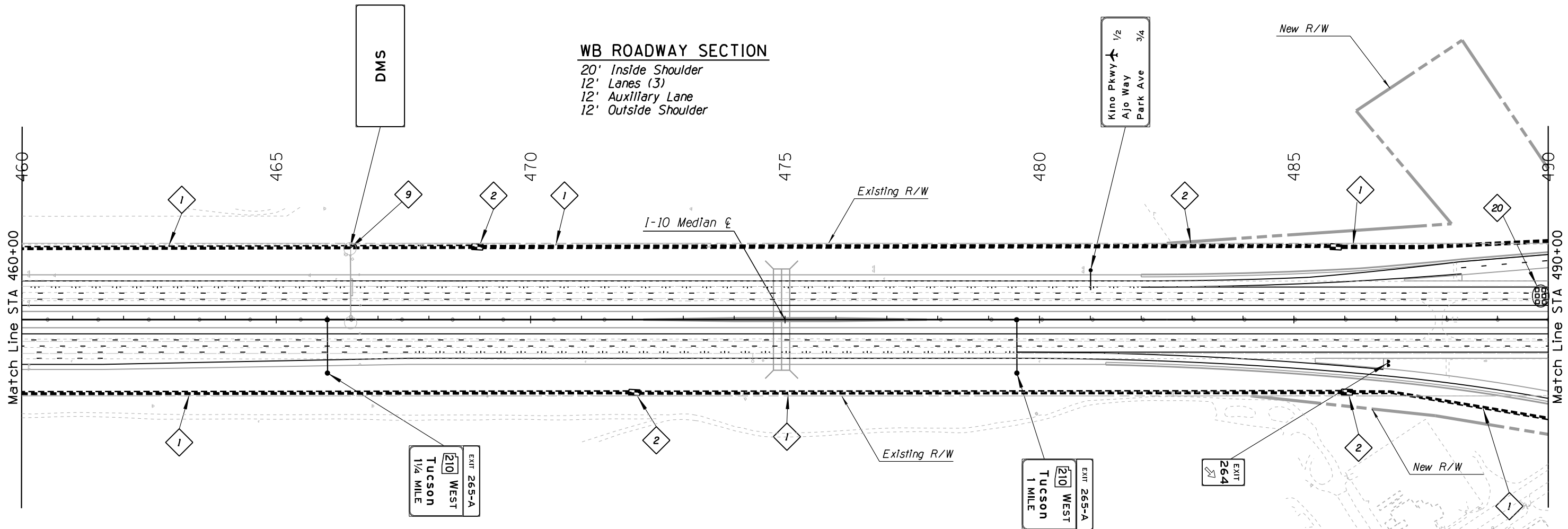
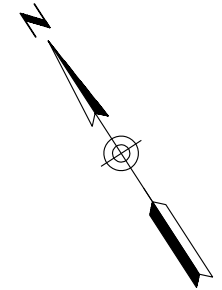
- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 4 Install 6 6'x6' Detector Loops, and Detection Cabinet
- 5 Install 2-3" Conduits
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Ramp Meter/Detection Cabinet
- 17 Install Wrong Way Driving Detection System
- 20 Install 6 6'x6' Detector Loops

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	04-20		
CHECKED	SMK	DATE	04-20		
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 1 STA 430+00 TO STA 460+00	
ROUTE	I-10	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		SHEET TS01.06
TRACS NO. H7825 OIL			010-E(210)S		OF

SURVEY NO. FINISHED PLANS. DATE. LOCATION. REVISIONS. FINISHED PLANS. DATE. SURVEY NO. FINISHED PLANS. DATE. LOCATION. REVISIONS. FINISHED PLANS. DATE.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



WB ROADWAY SECTION

20' Inside Shoulder
 12' Lanes (3)
 12' Auxiliary Lane
 12' Outside Shoulder

EB ROADWAY SECTION

20' Inside Shoulder
 12' Lanes (3)
 12' Auxiliary Lane
 12' Outside Shoulder

- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 9 Existing Structure, DMS to Remain
- 20 Install 6 6'x6' Detector Loops

EXIT 265-A
 210 WEST
 Tucson
 1/4 MILE

EXIT 264
 Country Club
 Rd
 1/4 MILE
 EXIT ONLY

EXIT 265-A
 210 WEST
 Tucson
 1 MILE

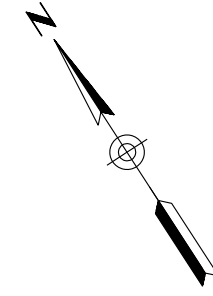
EXIT 264
 Country Club
 Rd
 EXIT ONLY

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING	
DRAWN	JD	DATE	04-20			
CHECKED	SMK	DATE	04-20			
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 1 STA 460+00 TO STA 490+00		
ROUTE	I-10	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		SHEET	TS01.07
TRACS NO.	H7825 OIL		010-E(210)S		OF	

SURVEY NO. FINISHED PLANS. DATE. LOCATION. REVISIONS. FINISHED PLANS. DATE. SURVEY NO.

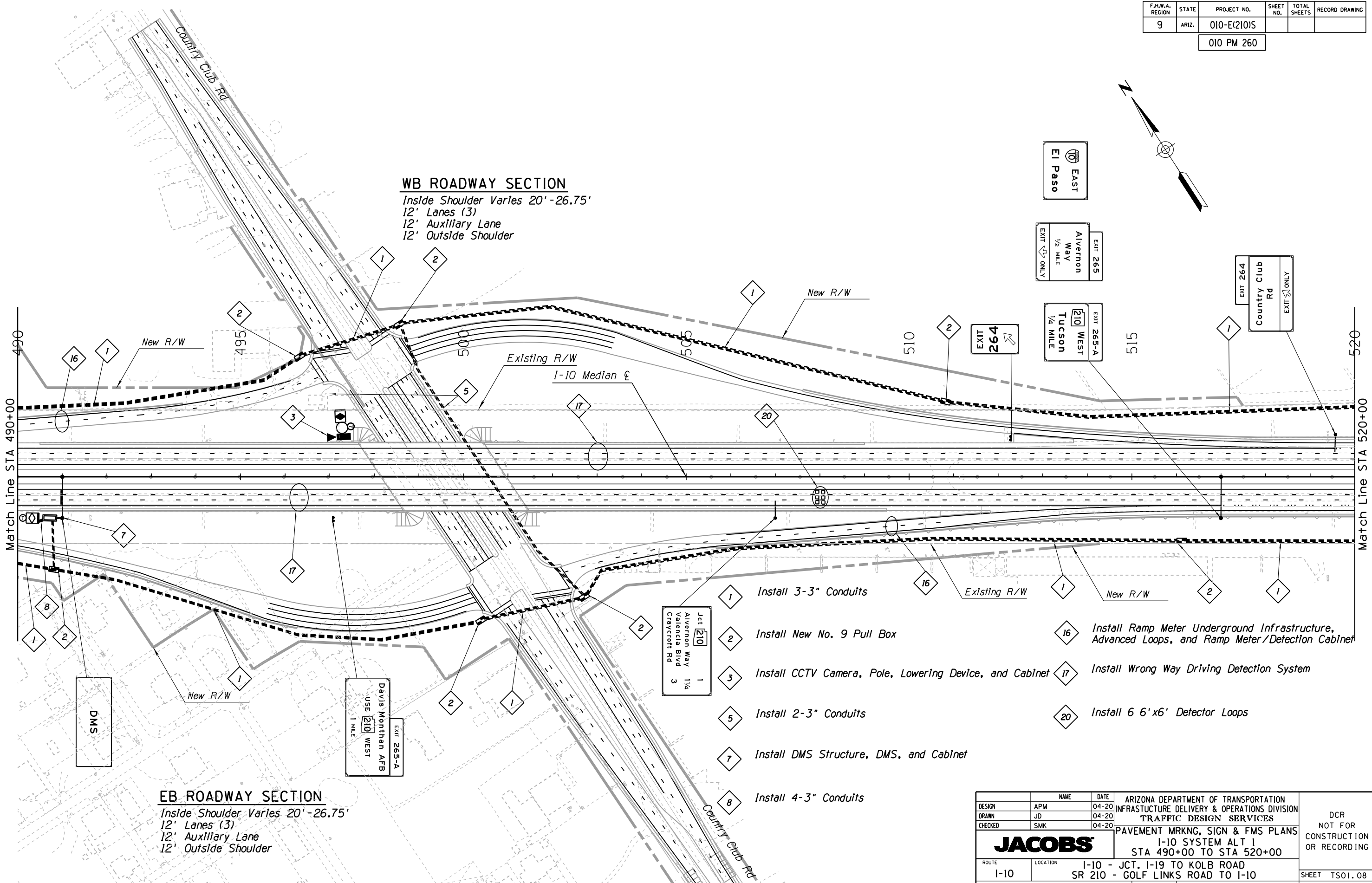
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



WB ROADWAY SECTION

Inside Shoulder Varies 20' - 26.75'
 12' Lanes (3)
 12' Auxiliary Lane
 12' Outside Shoulder



EB ROADWAY SECTION

Inside Shoulder Varies 20' - 26.75'
 12' Lanes (3)
 12' Auxiliary Lane
 12' Outside Shoulder

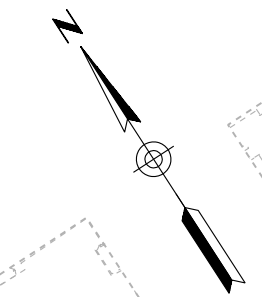
- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 5 Install 2-3" Conduits
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Install 4-3" Conduits
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Ramp Meter/Detection Cabinet
- 17 Install Wrong Way Driving Detection System
- 20 Install 6 6'x6' Detector Loops

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	04-20		
CHECKED	SMK	DATE	04-20		
JACOBS		PAVEMENT MRKNG, SIGN & FMS PLANS		I-10 SYSTEM ALT 1	
ROUTE		LOCATION		STA 490+00 TO STA 520+00	
I-10		I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		SHEET TS01.08	
TRACS NO. H7825 OIL			010-E(210)S		
			OF		

SURVEY NO. FINISHED PLANS DATE REVISIONS LOCATION DATE FINISHED PLANS SURVEY NO. REVISIONS LOCATION DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260

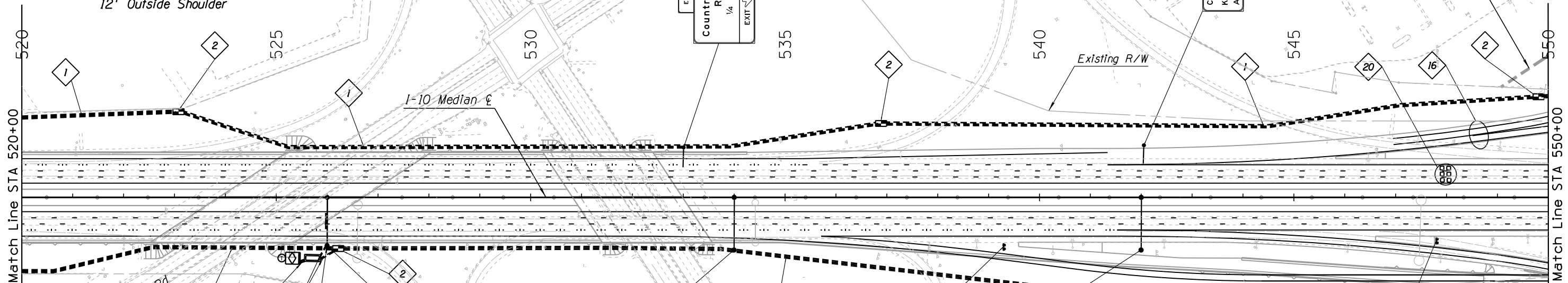


WB ROADWAY SECTION

26.75' Inside Shoulder
 12' Lanes (3)
 12' Auxiliary Lane
 12' Outside Shoulder

EB ROADWAY SECTION

26.75' Inside Shoulder
 12' Lanes (3)
 12' Auxiliary Lane
 12' Outside Shoulder



- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 5 Install 2-3" Conduits
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Install 4-3" Conduits
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Ramp Meter / Detection Cabinet
- 20 Install 6 6' x6' Detector Loops

DMS

Existing R/W

EXIT 264
 Country Club Rd
 1/4 MILE
 EXIT ONLY

EXIT 265
 Alvernon Way
 1/4 MILE
 EXIT ONLY

EXIT 265-A
 WEST
 TUCSON

EXIT 265A

EXIT 265
 EAST
 El Paso

EXIT 267
 Valencia Rd
 Craycroft Rd
 2 MILES

EXIT 265
 Alvernon Way
 EXIT ONLY

New R/W

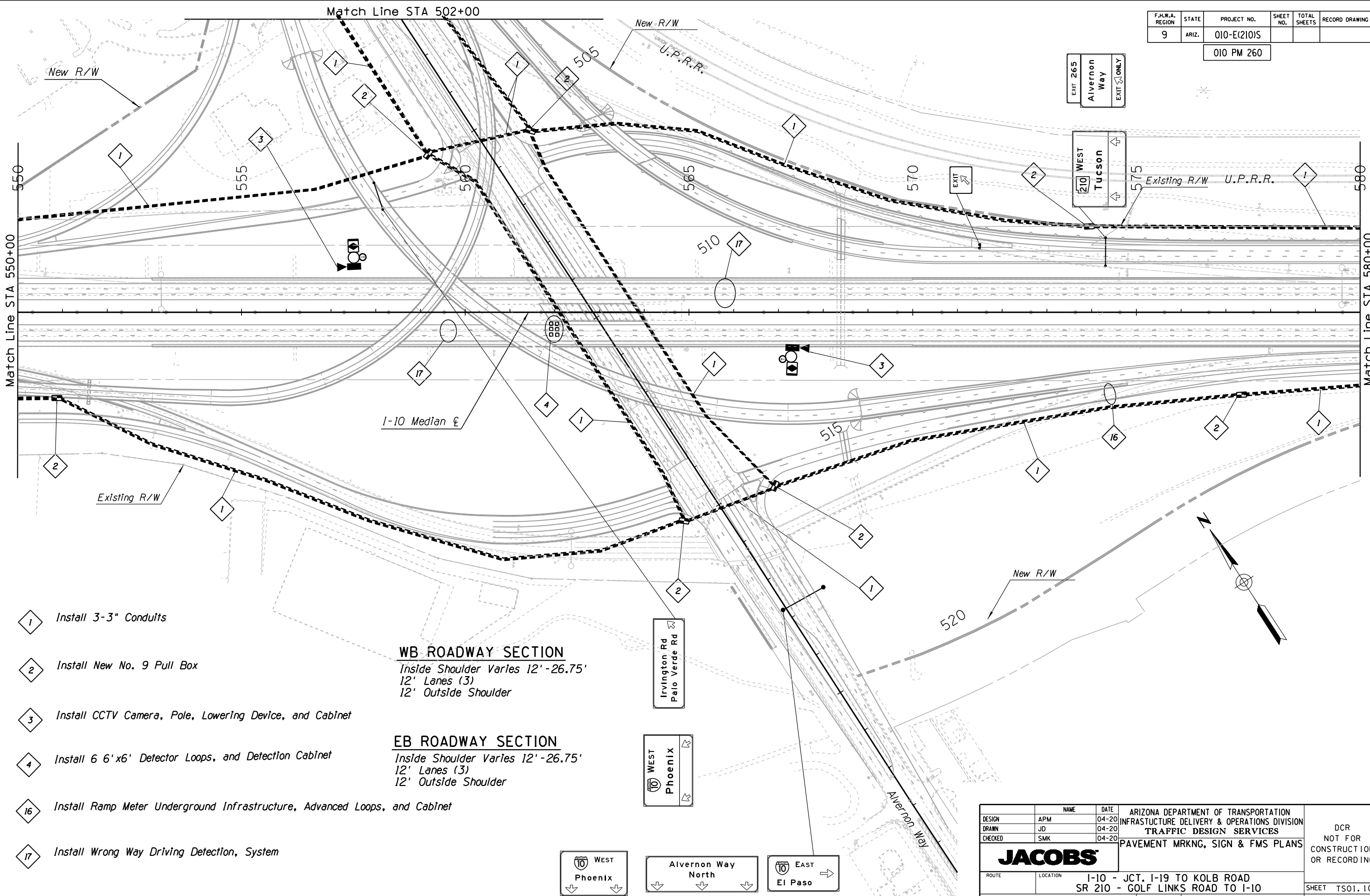
Existing R/W

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	04-20		
CHECKED	SMK	DATE	04-20		
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 1 STA 520+00 TO STA 550+00	
ROUTE	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD			SHEET TS01.09
I-10	SR 210 - GOLF LINKS ROAD TO I-10				
TRACS NO. H7825 OIL			010-E(210)S		
					OF

SURVEY NO. FINISHED PLANS DATE LOCATION REVISIONS FINISHED PLANS DATE SURVEY NO. FINISHED PLANS DATE LOCATION REVISIONS FINISHED PLANS DATE SURVEY NO.

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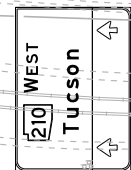
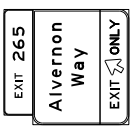
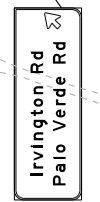
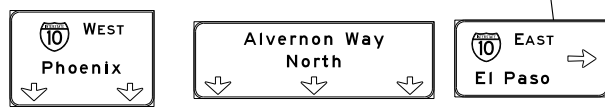
010 PM 260



- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 4 Install 6' 6" x 6' Detector Loops, and Detection Cabinet
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Cabinet
- 17 Install Wrong Way Driving Detection, System

WB ROADWAY SECTION
 Inside Shoulder Varies 12' - 26.75'
 12' Lanes (3)
 12' Outside Shoulder

EB ROADWAY SECTION
 Inside Shoulder Varies 12' - 26.75'
 12' Lanes (3)
 12' Outside Shoulder



DESIGN	NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES
APM		04-20	PAVEMENT MRKNG, SIGN & FMS PLANS
JD		04-20	
SMK		04-20	

JACOBS

ROUTE	LOCATION	SHEET	DCR NOT FOR CONSTRUCTION OR RECORDING
	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10	TS01.10	

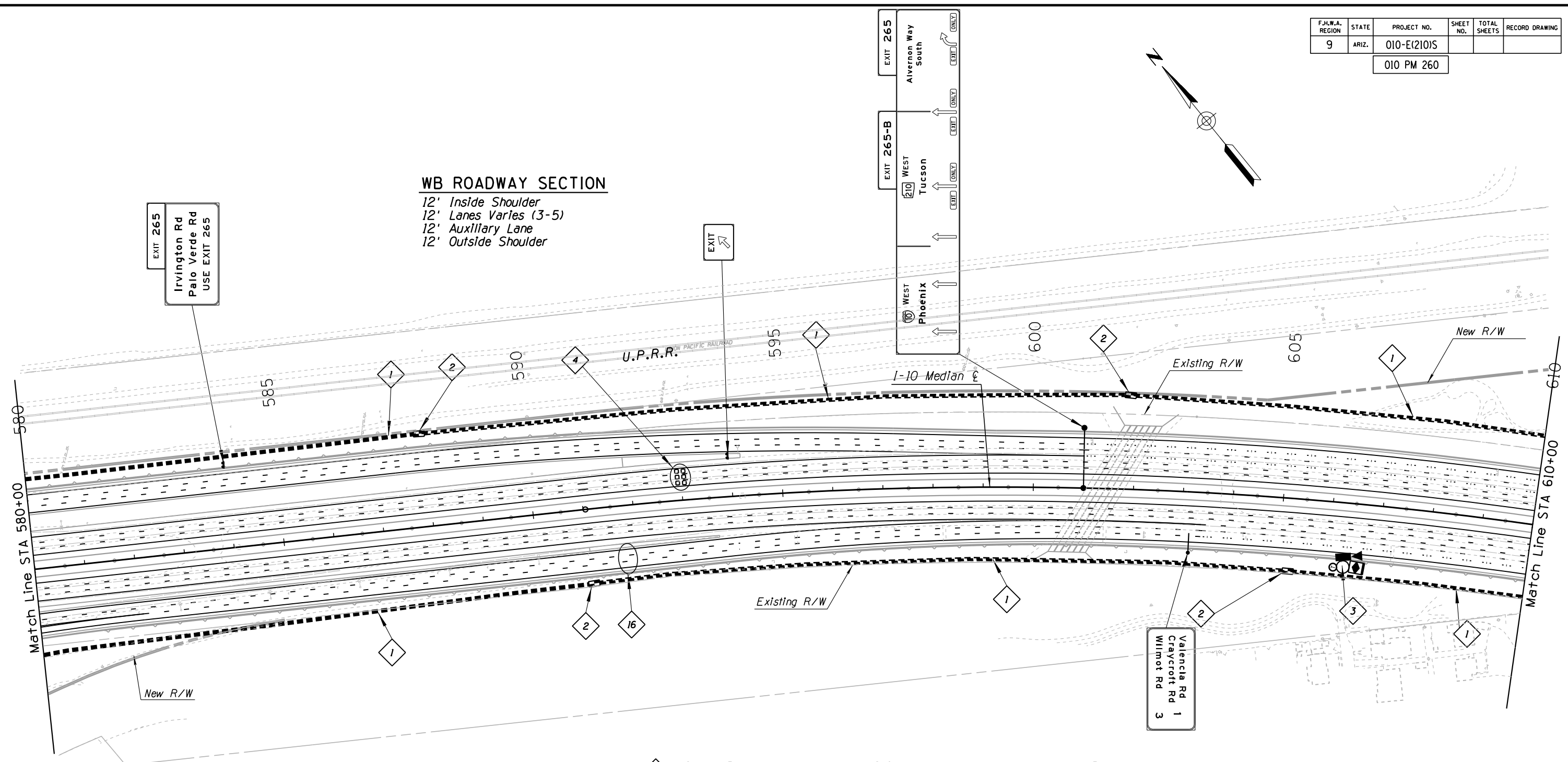
TRACS NO. H7825 OIL	010-E(210)S	OF
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9	ARIZ.	010-E(210)S			
010 PM 260					

WB ROADWAY SECTION

12' Inside Shoulder
 12' Lanes Varies (3-5)
 12' Auxiliary Lane
 12' Outside Shoulder



EXIT 265
 Irvington Rd
 Palo Verde Rd
 USE EXIT 265

EXIT 266
 Alvernon Way South

EXIT 265-B
 WEST Tucson

WEST Phoenix

Valencia Rd 1
 Craycroft Rd 1
 Wilmot Rd 3

1 Install 3-3" Conduits

16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Ramp Meter / Detection Cabinet

2 Install New No. 9 Pull Box

3 Install CCTV Camera, Pole, Lowering Device, and Cabinet

4 Install 6' x 6' Detector Loops, and Detection Cabinet

5 Install 2-3" Conduits

EB ROADWAY SECTION

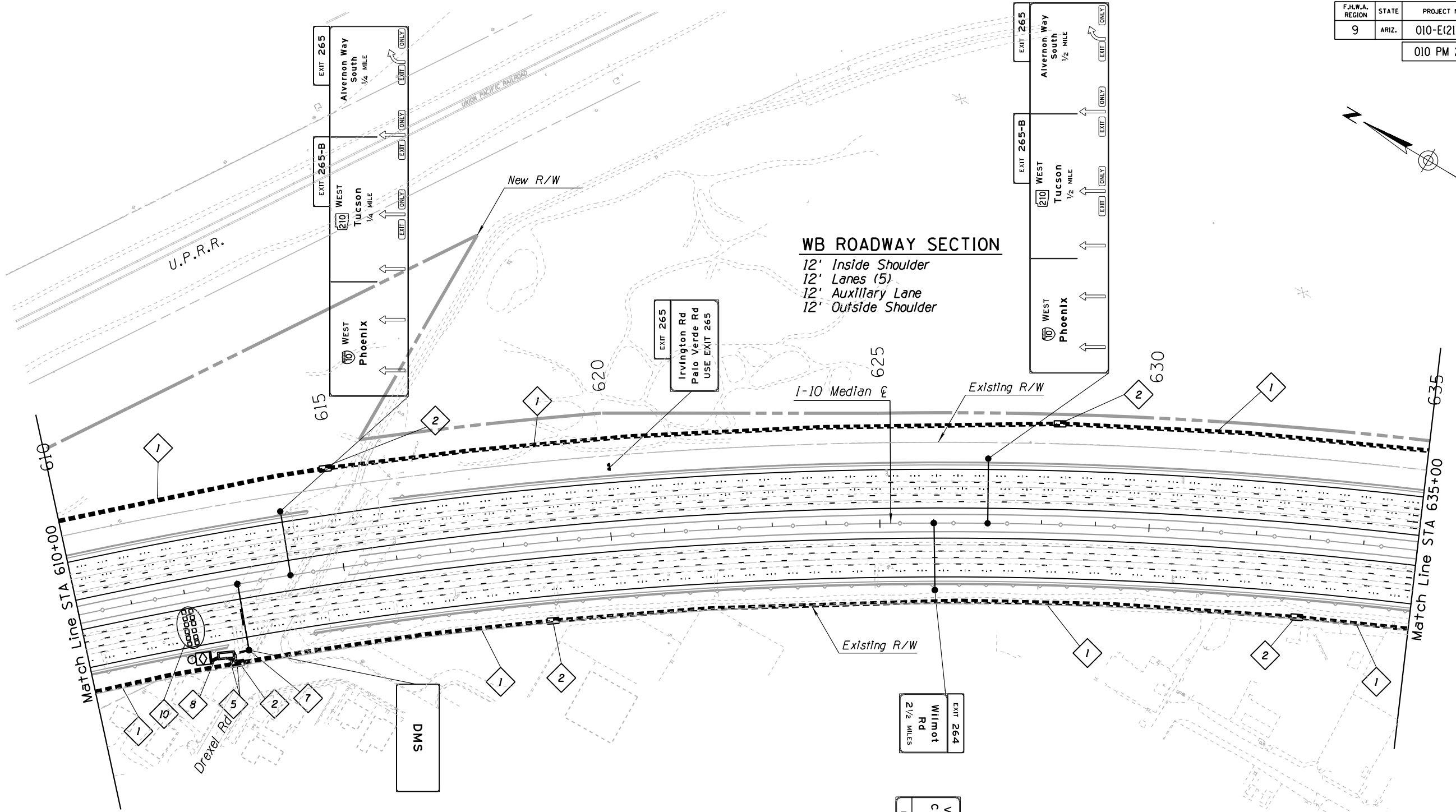
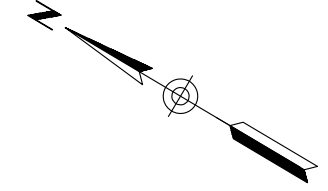
12' Inside Shoulder
 12' Lanes Varies (3-5)
 12' Auxiliary Lane
 12' Outside Shoulder

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING	
DRAWN	JD	DATE	04-20			
CHECKED	SMK	DATE	04-20			
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 1 STA 580+00 TO STA 610+00		
ROUTE	I-10	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		SHEET	TS01.11
TRACS NO.	H7825 OIL		010-E(210)S		OF	

DATE: LOCATION: REVISIONS: FINISHED PLANS: SURVEY NO. DATE: LOCATION: REVISIONS: FINISHED PLANS: SURVEY NO.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



WB ROADWAY SECTION
 12' Inside Shoulder
 12' Lanes (5)
 12' Auxillary Lane
 12' Outside Shoulder

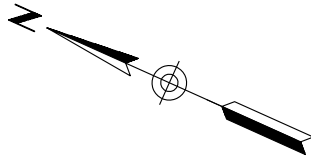
EB ROADWAY SECTION
 12' Inside Shoulder
 12' Lanes (5)
 12' Auxillary Lane
 12' Outside Shoulder

- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 5 Install 2-3" Conduits
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Install 4-3" Conduits
- 10 Install 10 6'x6' Detector Loops, and Detection Cabinet

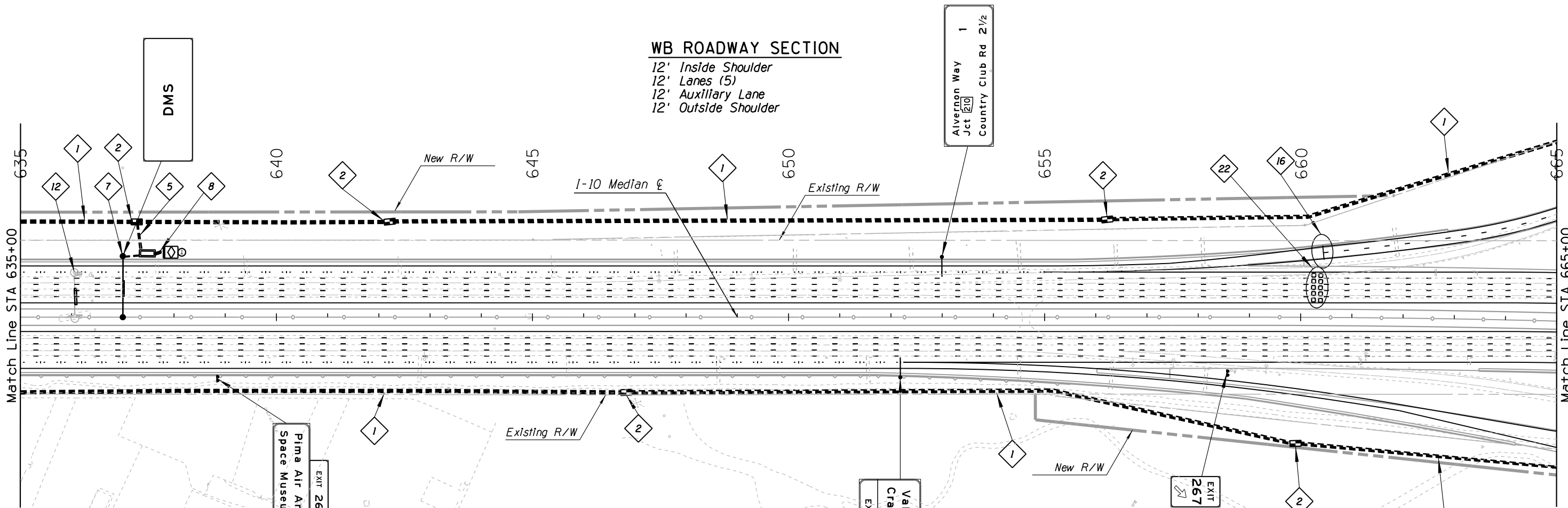
DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	04-20		
CHECKED	SMK	DATE	04-20		
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 1 STA 610+00 TO STA 635+00	
ROUTE	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD			SHEET TS01.12
I-10	SR 210 - GOLF LINKS ROAD TO I-10				
TRACS NO. H7825 01L			010-E(210)S		
					OF

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



WB ROADWAY SECTION
 12' Inside Shoulder
 12' Lanes (5)
 12' Auxiliary Lane
 12' Outside Shoulder



EB ROADWAY SECTION
 12' Inside Shoulder
 12' Lanes (5)
 12' Auxiliary Lane
 12' Outside Shoulder

- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 5 Install 2-3" Conduits
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Install 4-3" Conduits
- 11 Install 10 6'x6' Detector Loops, and Detection Cabinet
- 12 Remove DMS Structure, DMS
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Cabinet
- 22 Install 10 6'x6' Detector Loops

Pima Air And Space Museum
EXIT 267

Valencia Rd Craycroft Rd
EXIT ONLY
EXIT 267

EXIT 267

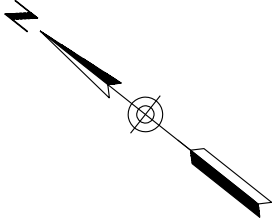
DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES JACOBS PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 1 STA 635+00 TO STA 665+00	DCR NOT FOR CONSTRUCTION OR RECORDING	
DRAWN	JD	DATE	04-20			
CHECKED	SMK	DATE	04-20			
ROUTE	I-10	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10	SHEET	TS01.13	
TRACS NO.	H7825 OIL			PROJECT NO.	010-E(210)S	
					DATE	OF

SURVEY NO. FINISHED PLANS. DATE. REVISIONS. LOCATION. DATE. FINISHED PLANS. SURVEY NO. REVISIONS. LOCATION. DATE. FINISHED PLANS.

SURVEY NO. FINISHED PLANS DATE REVISIONS LOCATION DATE FINISHED PLANS SURVEY NO. REVISIONS LOCATION DATE FINISHED PLANS SURVEY NO.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



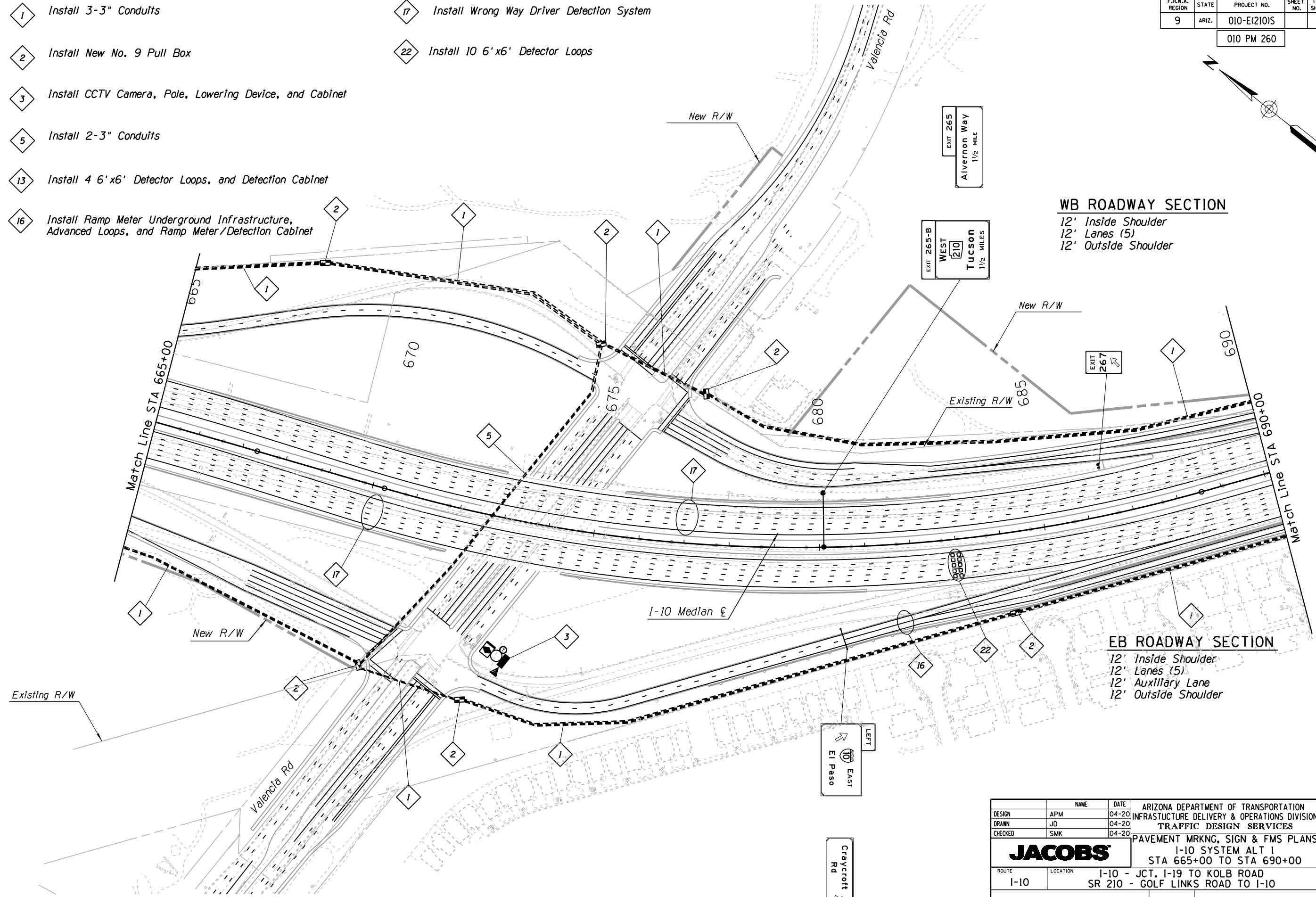
- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 5 Install 2-3" Conduits
- 13 Install 4 6'x6' Detector Loops, and Detection Cabinet
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Ramp Meter/Detection Cabinet
- 17 Install Wrong Way Driver Detection System
- 22 Install 10 6'x6' Detector Loops

WB ROADWAY SECTION

12' Inside Shoulder
 12' Lanes (5)
 12' Outside Shoulder

EB ROADWAY SECTION

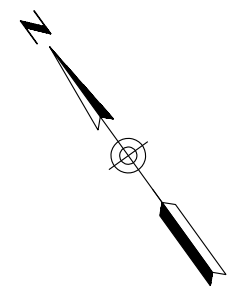
12' Inside Shoulder
 12' Lanes (5)
 12' Auxiliary Lane
 12' Outside Shoulder



DESIGN	NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
APM		04-20	JACOBS PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 1 STA 665+00 TO STA 690+00	
DRAWN	JD	04-20		
CHECKED	SMK	04-20		
ROUTE	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		SHEET TS01.14
TRACS NO. H7825 OIL		010-E(210)S		OF

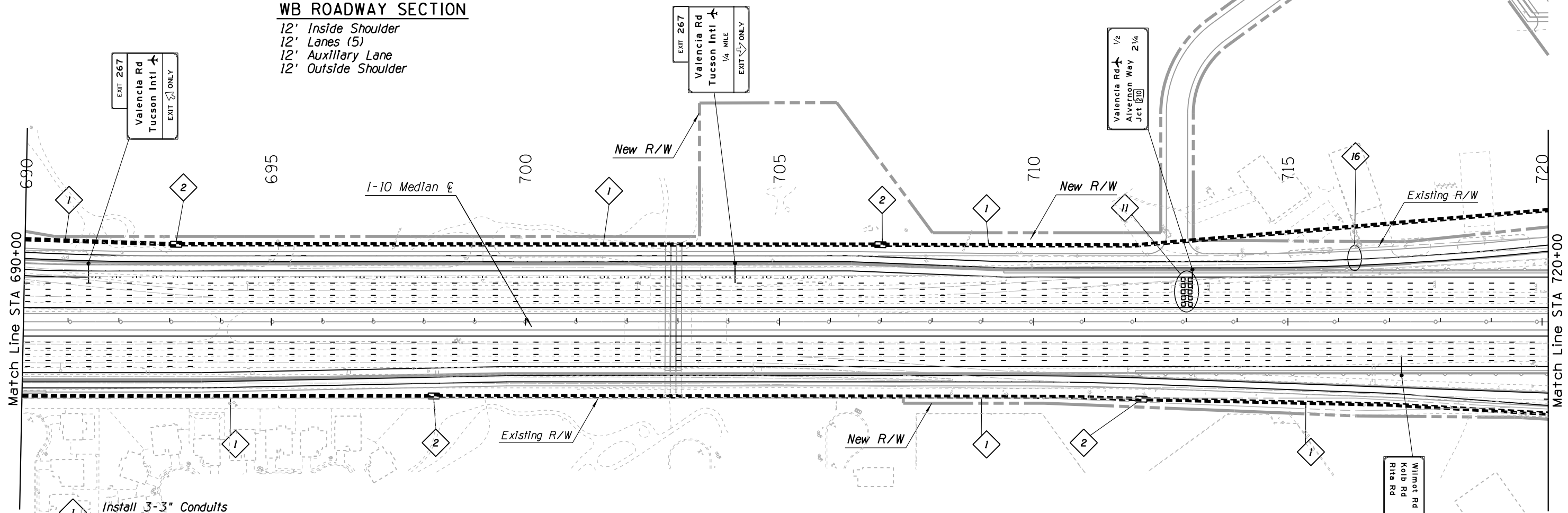
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



WB ROADWAY SECTION

- 12' Inside Shoulder
- 12' Lanes (5)
- 12' Auxillary Lane
- 12' Outside Shoulder



EB ROADWAY SECTION

- 12' Inside Shoulder
- 12' Lanes (5)
- 12' Auxillary Lane
- 12' Outside Shoulder

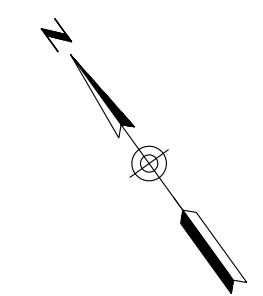
- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 11 Install 10 6'x6' Detector Loops, and Detection Cabinet
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Cabinet

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING	
DRAWN	JD	DATE	04-20			
CHECKED	SMK	DATE	04-20			
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 1 STA 690+00 TO STA 720+00		
ROUTE	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10			SHEET	TS01.15
TRACS NO. H7825 01L			010-E(210)S			OF

SURVEY NO. FINISHED PLANS REVISIONS LOCATION DATE SURVEY NO. FINISHED PLANS REVISIONS LOCATION DATE SURVEY NO. FINISHED PLANS REVISIONS LOCATION DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



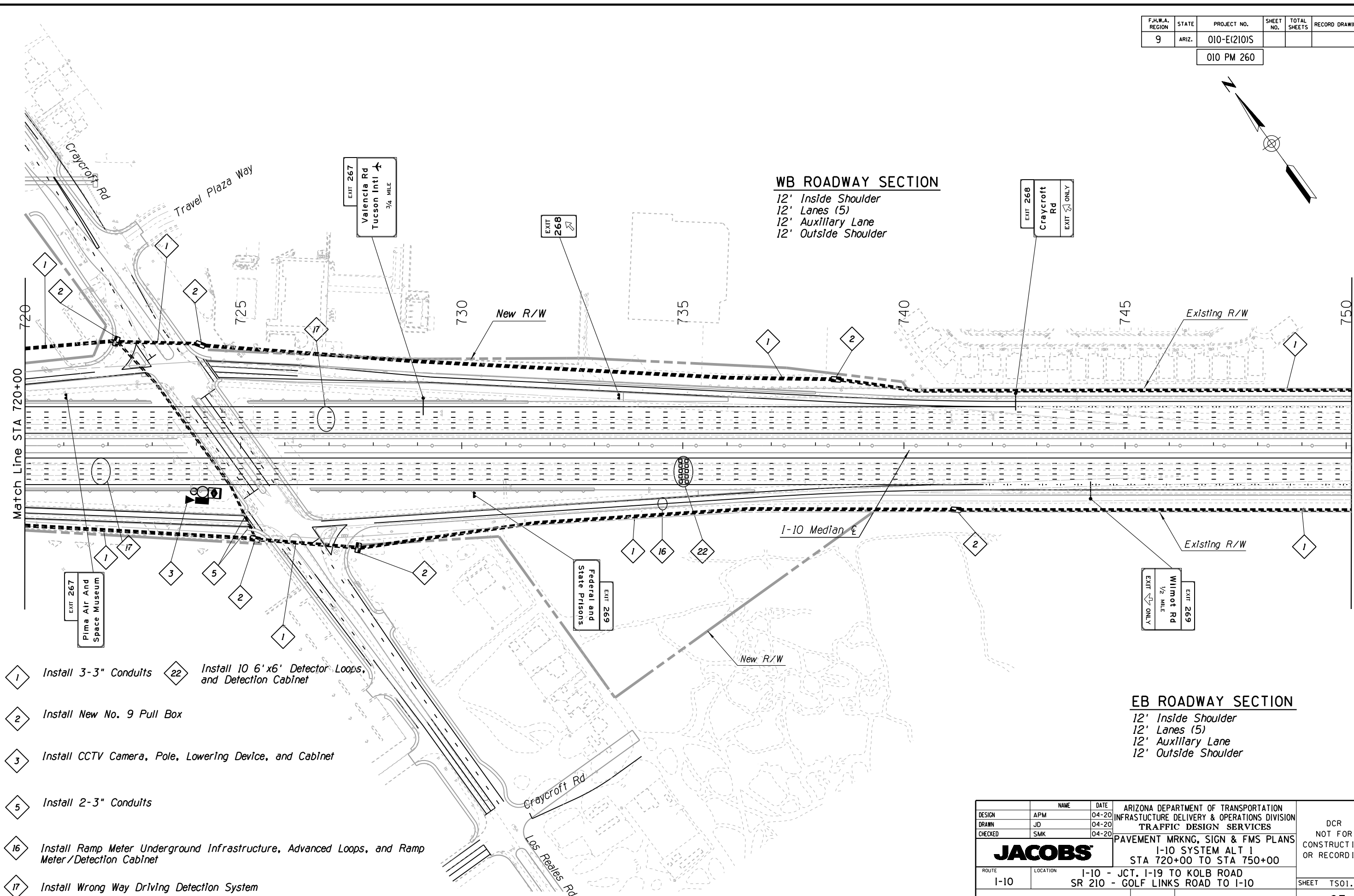
WB ROADWAY SECTION

12' Inside Shoulder
 12' Lanes (5)
 12' Auxiliary Lane
 12' Outside Shoulder

I-10 Median

EB ROADWAY SECTION

12' Inside Shoulder
 12' Lanes (5)
 12' Auxiliary Lane
 12' Outside Shoulder



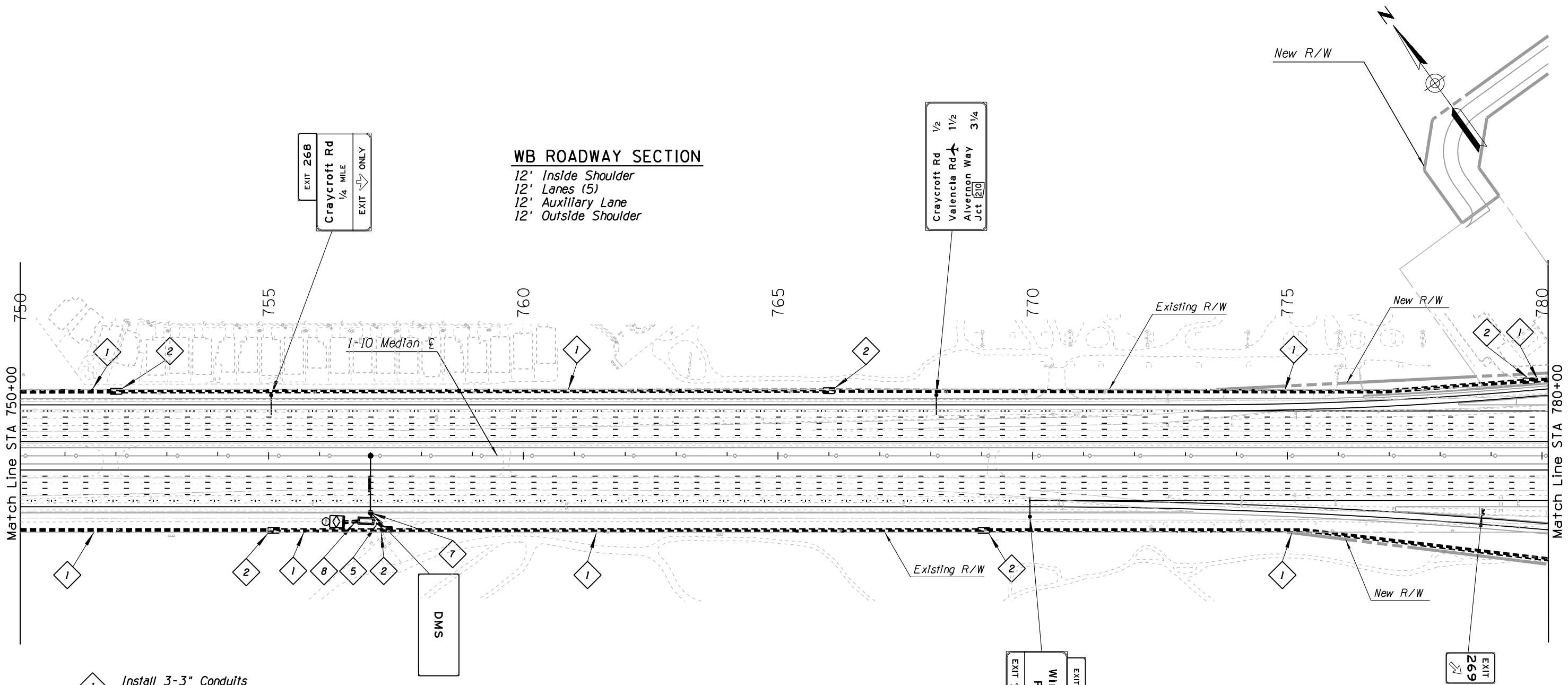
- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 5 Install 2-3" Conduits
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Ramp Meter/Detection Cabinet
- 17 Install Wrong Way Driving Detection System
- 22 Install 10 6'x6' Detector Loops, and Detection Cabinet

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING	
DRAWN	JD	DATE	04-20			
CHECKED	SMK	DATE	04-20			
JACOBS		PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 1 STA 720+00 TO STA 750+00				
ROUTE	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10			SHEET	TS01.16
TRACS NO. H7825 OIL			010-E(210)S		OF	

SURVEY NO. FINISHED PLANS DATE LOCATION REVISIONS FINISHED PLANS DATE SURVEY NO. FINISHED PLANS DATE LOCATION

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



WB ROADWAY SECTION

12' Inside Shoulder
12' Lanes (5)
12' Auxiliary Lane
12' Outside Shoulder

EB ROADWAY SECTION

12' Inside Shoulder
12' Lanes (5)
12' Auxiliary Lane
12' Outside Shoulder

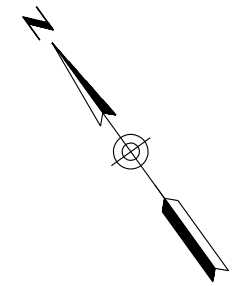
- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 5 Install 2-3" Conduits
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Install 4-3" Conduits

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	04-20		
CHECKED	SMK	DATE	04-20		
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS	
I-10 - JCT. I-19 TO KOLB ROAD				I-10 SYSTEM ALT 1	
SR 210 - GOLF LINKS ROAD TO I-10				STA 750+00 TO STA 780+00	
ROUTE	I-10			SHEET	TS01.17
TRACS NO.	H7825 OIL			PROJECT NO.	010-E(210)S
				DATE	0F

SURVEY NO. FINISHED PLANS. DATE. REVISIONS. LOCATION. DATE. FINISHED PLANS. SURVEY NO.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



WB ROADWAY SECTION

12' Inside Shoulder
12' Lanes (5)
12' Outside Shoulder

EB ROADWAY SECTION

12' Inside Shoulder
12' Lanes Varies (4-5)
12' Auxiliary Lane
12' Outside Shoulder

Match Line STA 780+00

Match Line STA 810+00

- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 5 Install 2-3" Conduits
- 11 Install 10 6'x6' Detector Loops, and Detection Cabinet
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Cabinet
- 17 Install Wrong Way Driving Detection System

EXIT 270
Kolb Rd
1 MILE

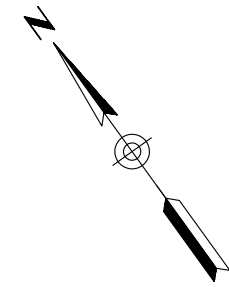
EXIT 270
Kolb Rd
1/2 MILE
EXIT ONLY

DESIGN	NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES		DCR NOT FOR CONSTRUCTION OR RECORDING
APM		04-20	JACOBS PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 1 STA 780+00 TO STA 810+00		
DRAWN	JD	04-20			
CHECKED	SMK	04-20			
ROUTE		LOCATION		SHEET	
I-10		I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		TS01.18	
TRACS NO. H7825 OIL			010-E(210)S		
					OF

SURVEY NO. FINISHED PLANS DATE REVISIONS LOCATION DATE SURVEY NO. FINISHED PLANS DATE REVISIONS LOCATION DATE SURVEY NO. FINISHED PLANS DATE

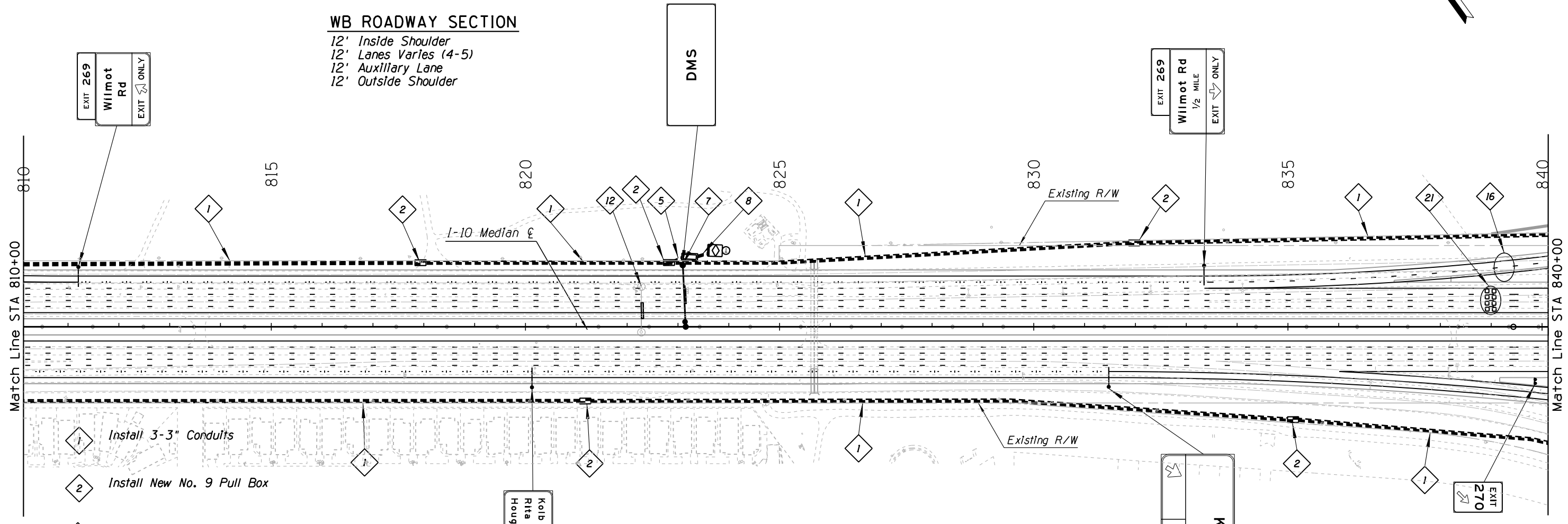
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



WB ROADWAY SECTION

12' Inside Shoulder
 12' Lanes Varies (4-5)
 12' Auxiliary Lane
 12' Outside Shoulder



EB ROADWAY SECTION

12' Inside Shoulder
 12' Lanes Varies (4)
 12' Auxiliary Lane (2)
 12' Outside Shoulder

- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 5 Install 2-3" Conduits
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Install 4-3" Conduits
- 12 Remove DMS Structure, DMS
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Ramp Meter / Detection Cabinet
- 21 Install 8 6' x 6' Loop Detectors

Kolb Rd
 Rita Rd
 Houghton Rd 5 1/2

EXIT ONLY
 Kolb Rd
 EXIT ONLY
 EXIT 270

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	04-20		
CHECKED	SMK	DATE	04-20		
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 1 STA 810+00 TO STA 840+00	
ROUTE	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD			SHEET TS01.19
I-10	SR 210 - GOLF LINKS ROAD TO I-10				
TRACS NO. H7825 01L			010-E(210)S		
					OF

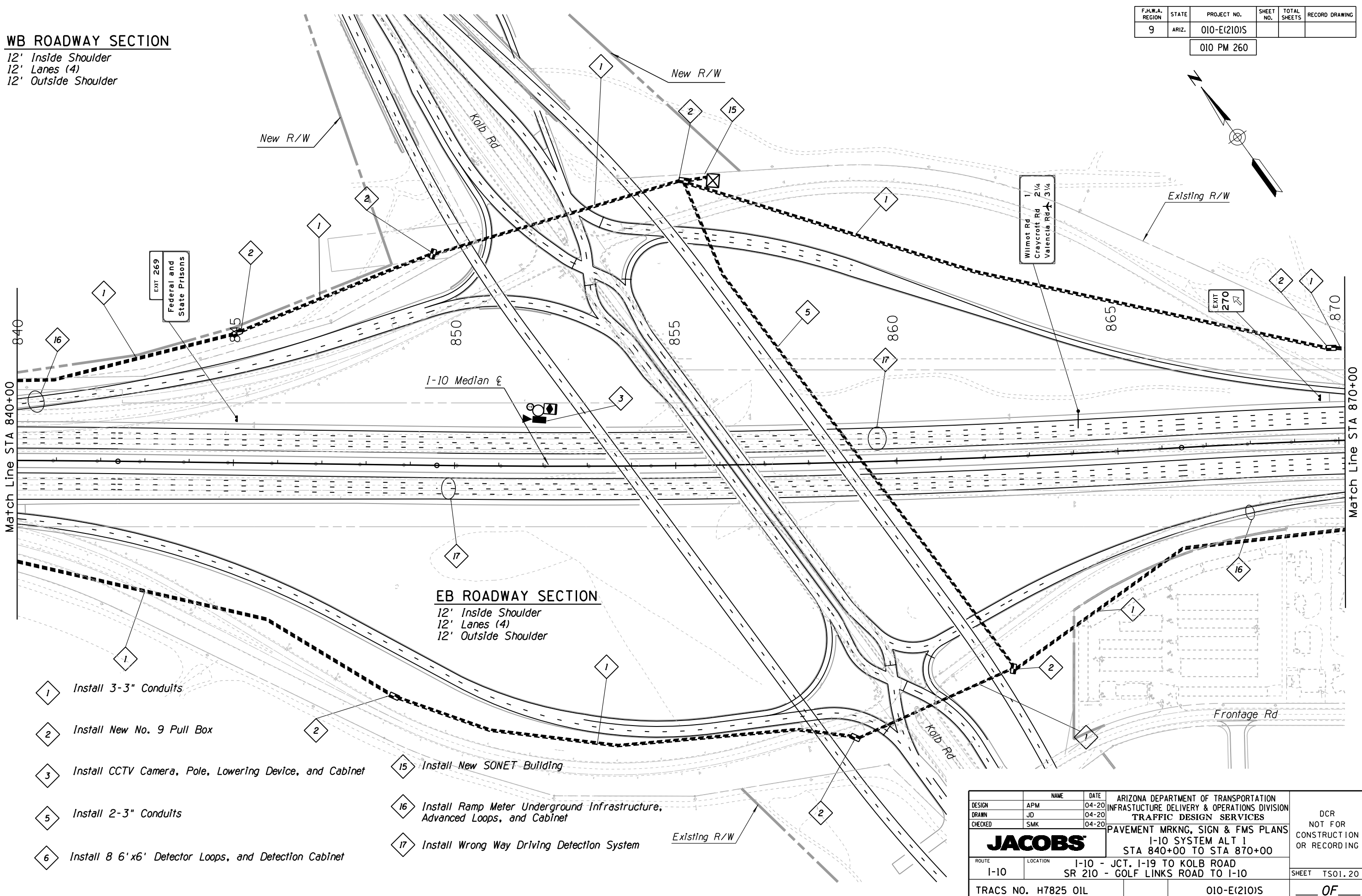
SURVEY NO. FINISHED PLANS DATE REVISIONS LOCATION DATE FINISHED PLANS SURVEY NO. REVISIONS LOCATION DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260

WB ROADWAY SECTION

12' Inside Shoulder
12' Lanes (4)
12' Outside Shoulder



EB ROADWAY SECTION

12' Inside Shoulder
12' Lanes (4)
12' Outside Shoulder

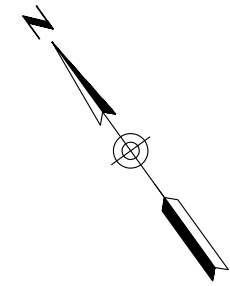
- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 5 Install 2-3" Conduits
- 6 Install 8 6' x6' Detector Loops, and Detection Cabinet
- 15 Install New SONENT Building
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Cabinet
- 17 Install Wrong Way Driving Detection System

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING	
DRAWN	JD	DATE	04-20			
CHECKED	SMK	DATE	04-20			
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 1 STA 840+00 TO STA 870+00		
ROUTE	I-10	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		SHEET	TS01.20
TRACS NO.	H7825 OIL		010-E(210)S		OF	

DATE: LOCATION: REVISIONS: FINISHED PLANS: SURVEY NO. DATE: LOCATION: REVISIONS: FINISHED PLANS: SURVEY NO.

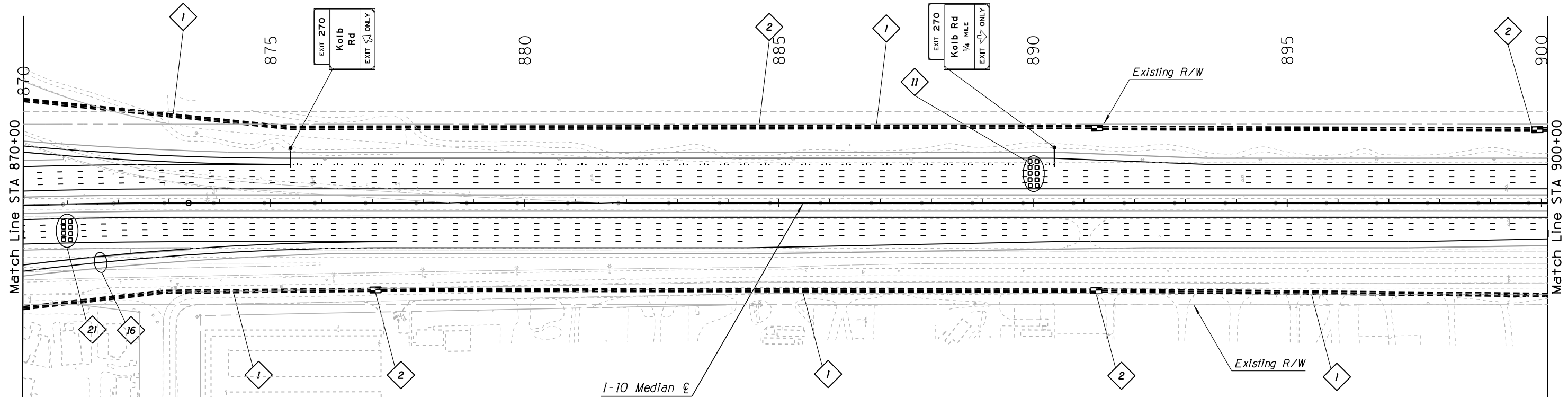
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



WB ROADWAY SECTION

12' Inside Shoulder
 12' Lanes (4)
 12' Auxiliary Lane
 12' Outside Shoulder



EB ROADWAY SECTION

12' Inside Shoulder
 12' Lanes (4)
 12' Auxiliary Lane
 12' Outside Shoulder

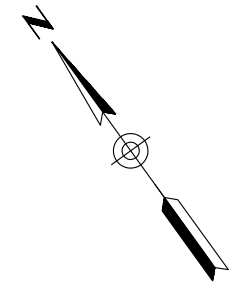
- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 11 Install 10 6'x6' Detector Loops, and Detection Cabinet
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Ramp Meter/Detection Cabinet
- 21 Install 8 6'x6' Detector Loops

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	04-20		
CHECKED	SMK	DATE	04-20		
JACOBS		PAVEMENT MRKNG, SIGN & FMS PLANS		I-10 SYSTEM ALT 1	
ROUTE		LOCATION		I-10 - JCT. I-19 TO KOLB ROAD	
I-10		SR 210 - GOLF LINKS ROAD TO I-10		SHEET TS01.21	
TRACS NO. H7825 01L			010-E(210)S		
			OF		

SURVEY NO. FINISHED PLANS DATE LOCATION REVISIONS FINISHED PLANS DATE SURVEY NO. FINISHED PLANS DATE LOCATION REVISIONS FINISHED PLANS DATE SURVEY NO.

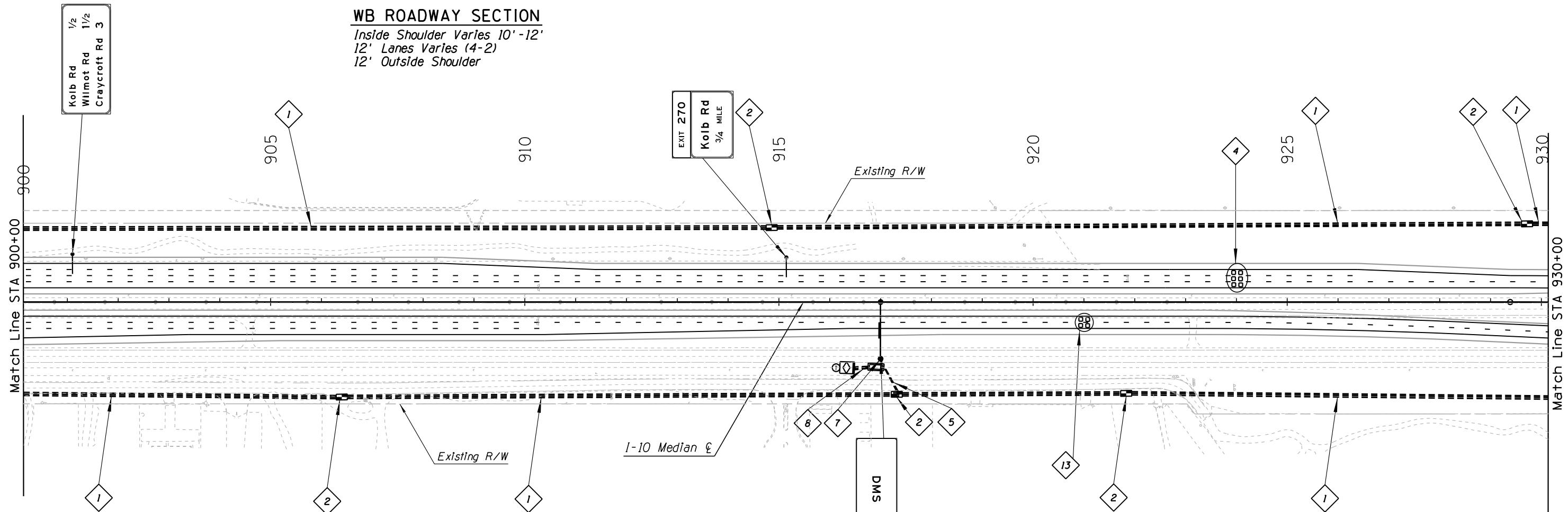
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



WB ROADWAY SECTION

Inside Shoulder Varies 10'-12'
12' Lanes Varies (4-2)
12' Outside Shoulder



EB ROADWAY SECTION

Inside Shoulder Varies 4'-12'
12' Lanes Varies (2-4)
12' Outside Shoulder

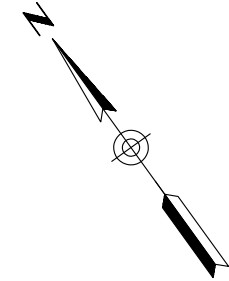
- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 4 Install 6 6'x6' Detector Loops, and Detection Cabinet
- 5 Install 2-3" Conduits
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Install 4-3" Conduits
- 13 Install 4 6'x6' Detector Loops, and Detection Cabinet

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	04-20		
CHECKED	SMK	DATE	04-20		
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 1 STA 900+00 TO STA 930+00	
ROUTE	I-10	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		SHEET
TRACS NO.	H7825 OIL		010-E(210)S		TS01.22
					OF

SURVEY NO. FINISHED PLANS DATE REVISIONS LOCATION DATE REVISIONS FINISHED PLANS SURVEY NO. DATE REVISIONS LOCATION DATE

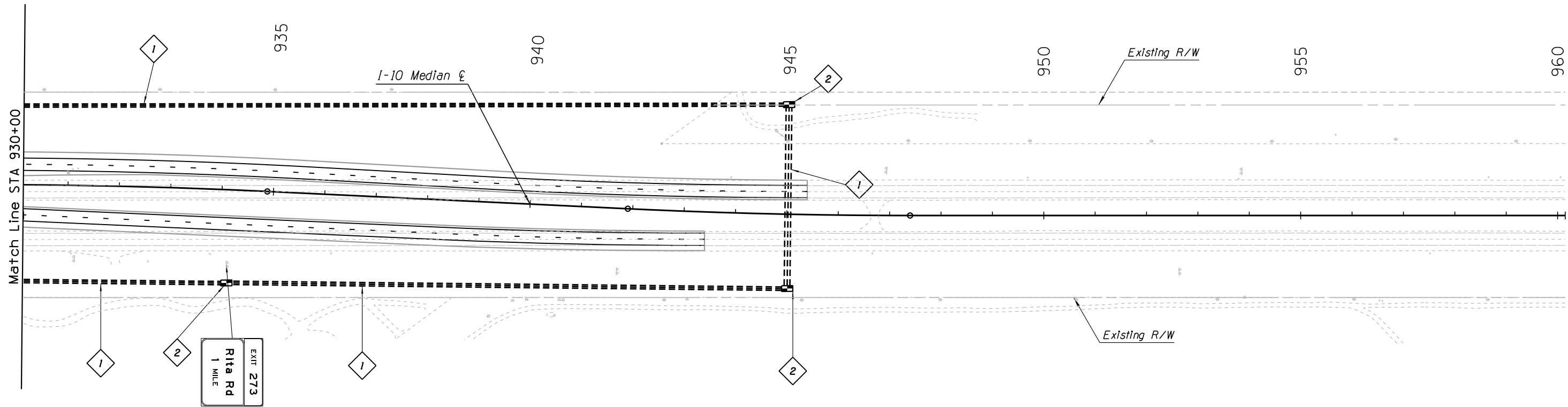
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



WB ROADWAY SECTION

Inside Shoulder Varies 4' - 10'
 12' Lanes (2)
 12' Auxiliary Lane
 12' Outside Shoulder



EB ROADWAY SECTION

4' Inside Shoulder
 12' Lanes (2)
 12' Auxiliary Lane
 12' Outside Shoulder

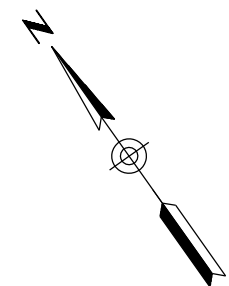
- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING	
DRAWN	JD	DATE	04-20			
CHECKED	SMK	DATE	04-20			
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 1 STA 930+00 TO STA 960+00		
ROUTE	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10			SHEET	TS01.23
TRACS NO. H7825 01L			010-E(210)S			OF

SURVEY NO. LOCATION DATE FINISHED PLANS REVISIONS LOCATION DATE FINISHED PLANS REVISIONS LOCATION DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



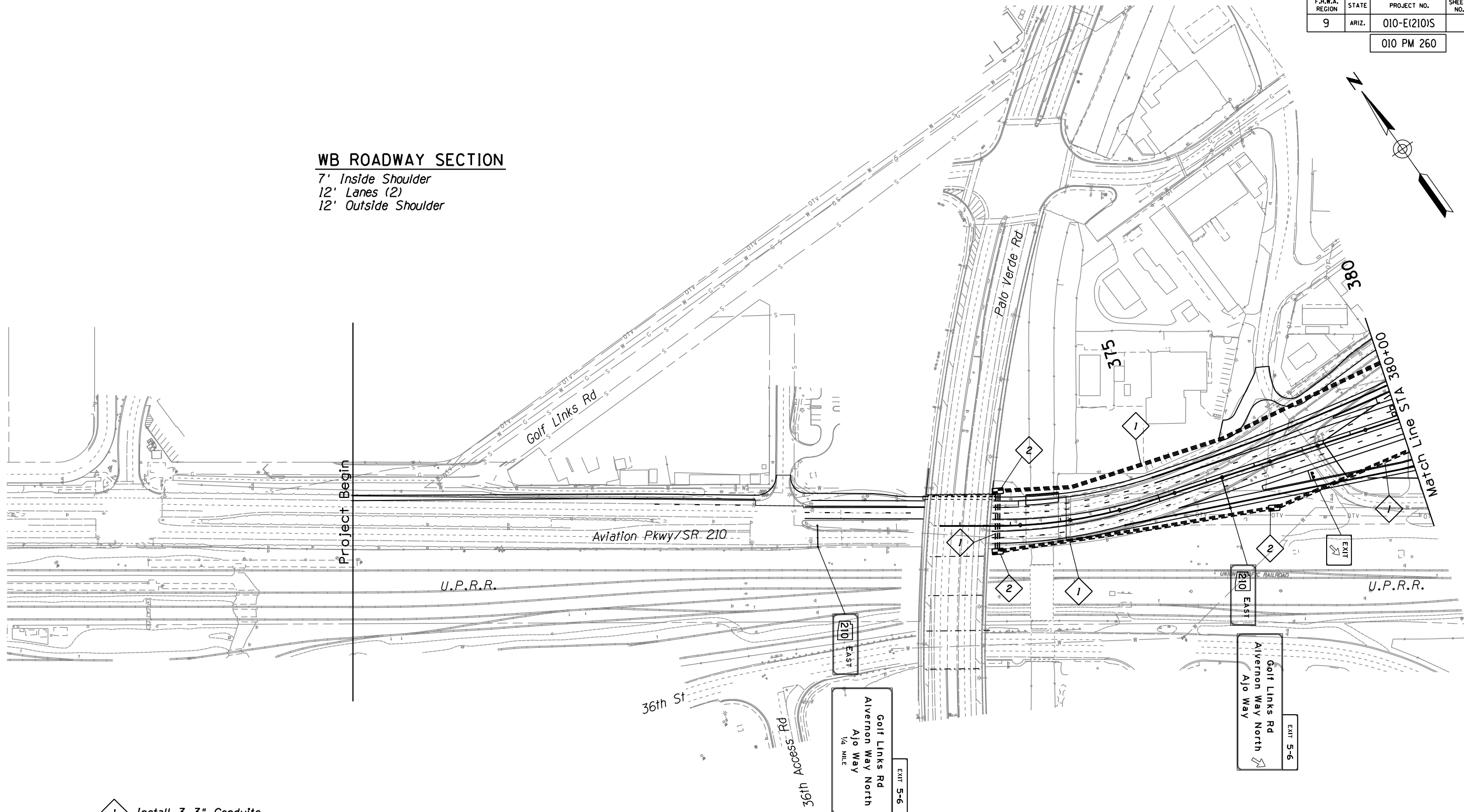
WB ROADWAY SECTION

7' Inside Shoulder
12' Lanes (2)
12' Outside Shoulder

EB ROADWAY SECTION

7' Inside Shoulder
12' Lanes (2)
12' Outside Shoulder

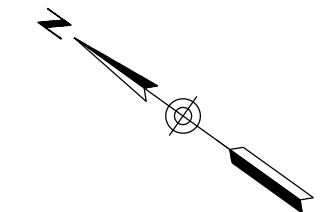
- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box



DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	04-20		
CHECKED	SMK	DATE	04-20		
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS SR 210 SYSTEM ALT 1 STA 370+00 TO STA 380+00	
ROUTE	SR 210	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		SHEET TS01.24
TRACS NO.	H7825 OIL		010-E(210)S		OF

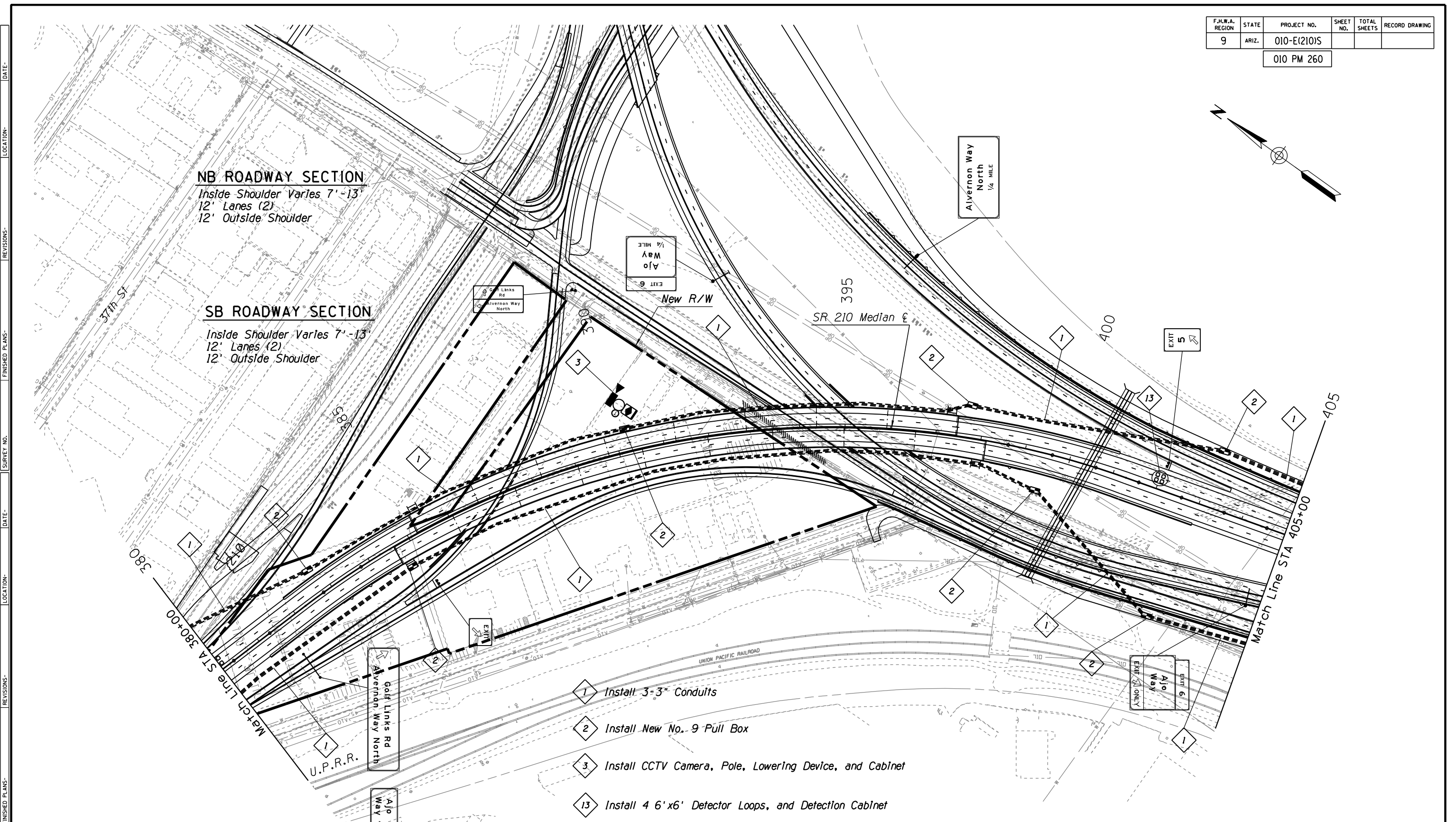
SURVEY NO. DATE FINISHED PLANS REVISIONS LOCATION DATE FINISHED PLANS REVISIONS LOCATION DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			
010 PM 260					



NB ROADWAY SECTION
 Inside Shoulder Varies 7'-13'
 12' Lanes (2)
 12' Outside Shoulder

SB ROADWAY SECTION
 Inside Shoulder Varies 7'-13'
 12' Lanes (2)
 12' Outside Shoulder



- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 13 Install 4 6' x 6' Detector Loops, and Detection Cabinet

SURVEY NO. FINISHED PLANS DATE LOCATION REVISIONS FINISHED PLANS DATE SURVEY NO. FINISHED PLANS DATE LOCATION REVISIONS FINISHED PLANS DATE SURVEY NO.

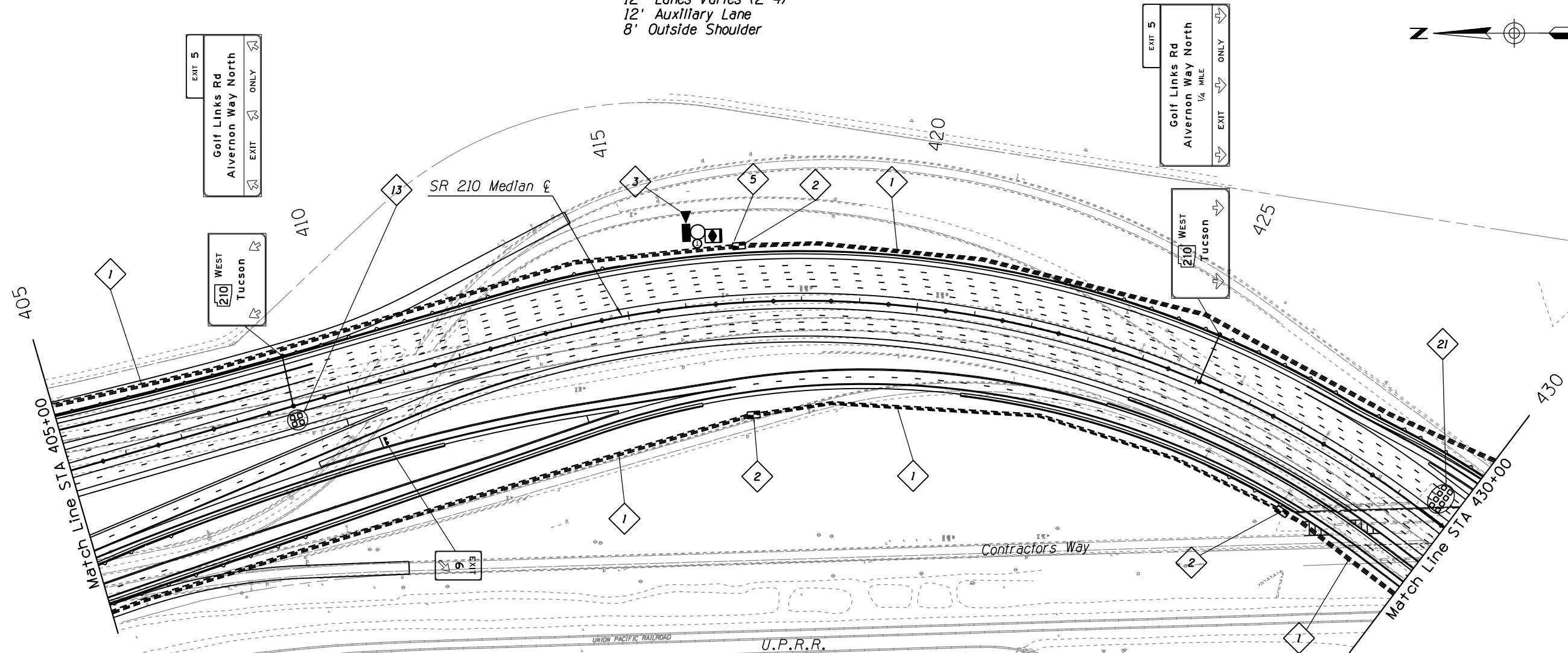
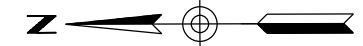
DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	04-20		
CHECKED	SMK	DATE	04-20		
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS SR 210 SYSTEM ALT 1 STA 380+00 TO STA 405+00	
ROUTE	SR 210	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		SHEET TS01.25
TRACS NO. H7825 OIL			010-E(210)S		OF

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260

NB ROADWAY SECTION

13' Inside Shoulder
 12' Lanes Varies (2-4)
 12' Auxillary Lane
 8' Outside Shoulder



- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 5 Install 2-3" Conduits
- 13 Install 4 6'x6' Detector Loops, and Detection Cabinet
- 21 Install 8 6'x6' Detector Loops

SB ROADWAY SECTION

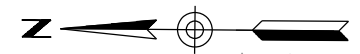
Inside Shoulder Varies 7'-13'
 12' Lanes Varies (2-4)
 Outside Shoulder Varies 8'-10'

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING	
DRAWN	JD	DATE	04-20			
CHECKED	SMK	DATE	04-20			
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS SR 210 SYSTEM ALT 1 STA 405+00 TO STA 430+00		
ROUTE	SR 210	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		SHEET	TS01.26
TRACS NO.	H7825 OIL			010-E(210)S		OF

SURVEY NO. FINISHED PLANS DATE LOCATION REVISIONS DATE FINISHED PLANS SURVEY NO. DATE LOCATION REVISIONS DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



NB ROADWAY SECTION

13' Inside Shoulder
12' Lanes (4)
Outside Shoudler Varies 10'-12'

Contractors Way

U.P.R.R.

New R/W

New R/W

455

460

Match Line STA 460+00

SR 210 Median

New R/W

Ajo Way

Alvernon Way
South
El Paso-Phoenix
1 MILE

SB ROADWAY SECTION

13' Inside Shoulder
12' Lanes (4)
Outside Shoudler Varies 10'-12'

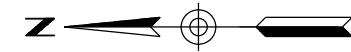
- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 6 Install 8 6'x6' Detector Loops, and Detection Cabinet
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 5 Install 2-3" Conduits
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Install 4-3" Conduits
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Ramp Meter /Detection Cabinet
- 17 Install Wrong Way Driving Detection System
- 21 Install 8 6'x6' Loop Detectors

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	04-20		
CHECKED	SMK	DATE	04-20		
JACOBS		PAVEMENT MRKNG, SIGN & FMS PLANS		SR 210 SYSTEM ALT 1 STA 430+00 TO STA 460+00	
ROUTE	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD			SHEET TS01.27
SR 210		SR 210 - GOLF LINKS ROAD TO I-10			
TRACS NO. H7825 OIL		010-E(210)S		OF	

SURVEY NO. FINISHED PLANS DATE LOCATION REVISIONS FINISHED PLANS DATE SURVEY NO.

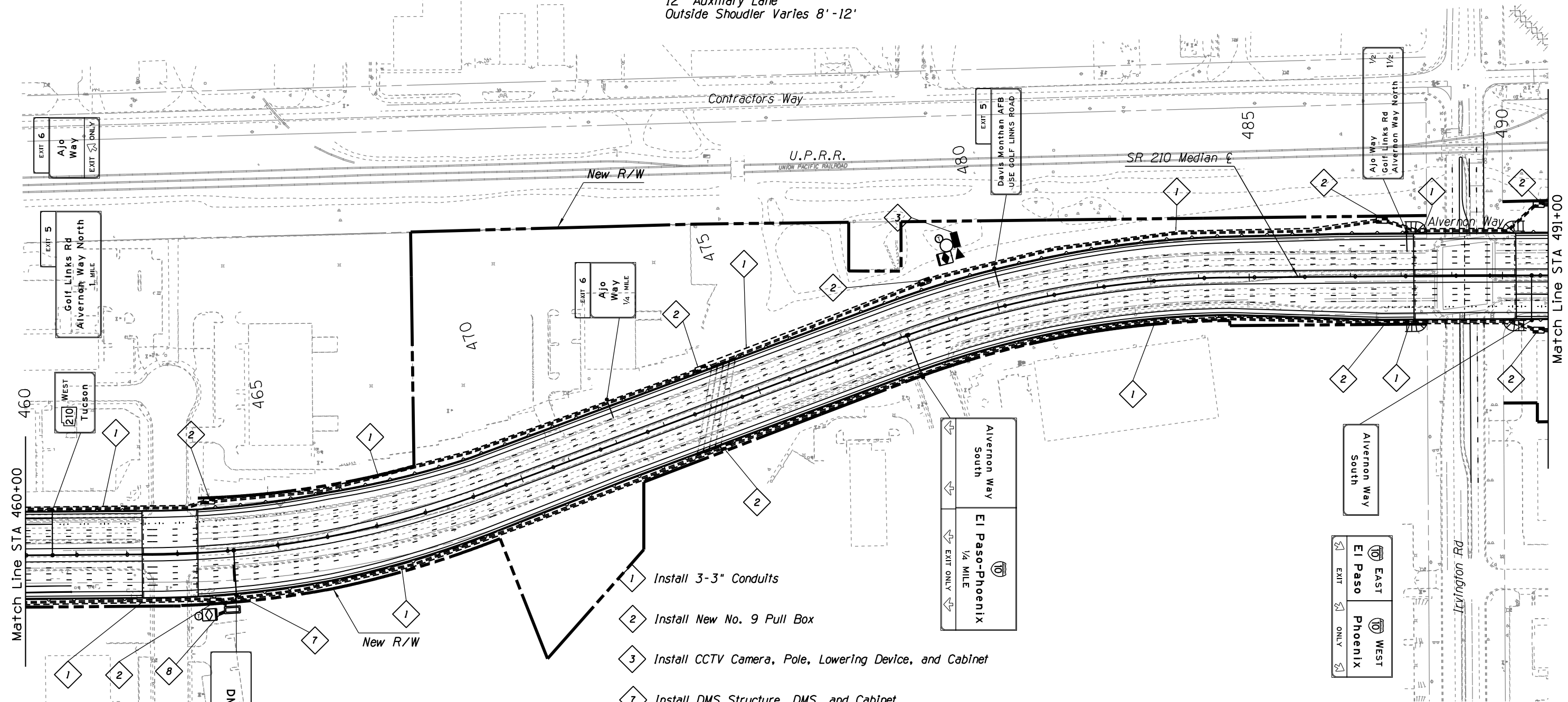
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



NB ROADWAY SECTION

13' Inside Shoulder
 12' Lanes (4)
 12' Auxiliary Lane
 Outside Shoudler Varies 8'-12'



- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Install 4-3" Conduits

SB ROADWAY SECTION

13' Inside Shoulder
 12' Lanes (4)
 12' Auxiliary Lane
 Outside Shoudler Varies 8'-12'

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING	
DRAWN	JD	DATE	04-20			
CHECKED	SMK	DATE	04-20			
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS SR 210 SYSTEM ALT 1 STA 460+00 TO STA 491+00		
ROUTE	SR 210	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		SHEET	TS01.28
TRACS NO. H7825 OIL			010-E(210)S		OF	

SURVEY NO. FINISHED PLANS DATE LOCATION REVISIONS FINISHED PLANS SURVEY NO. DATE LOCATION REVISIONS FINISHED PLANS DATE LOCATION

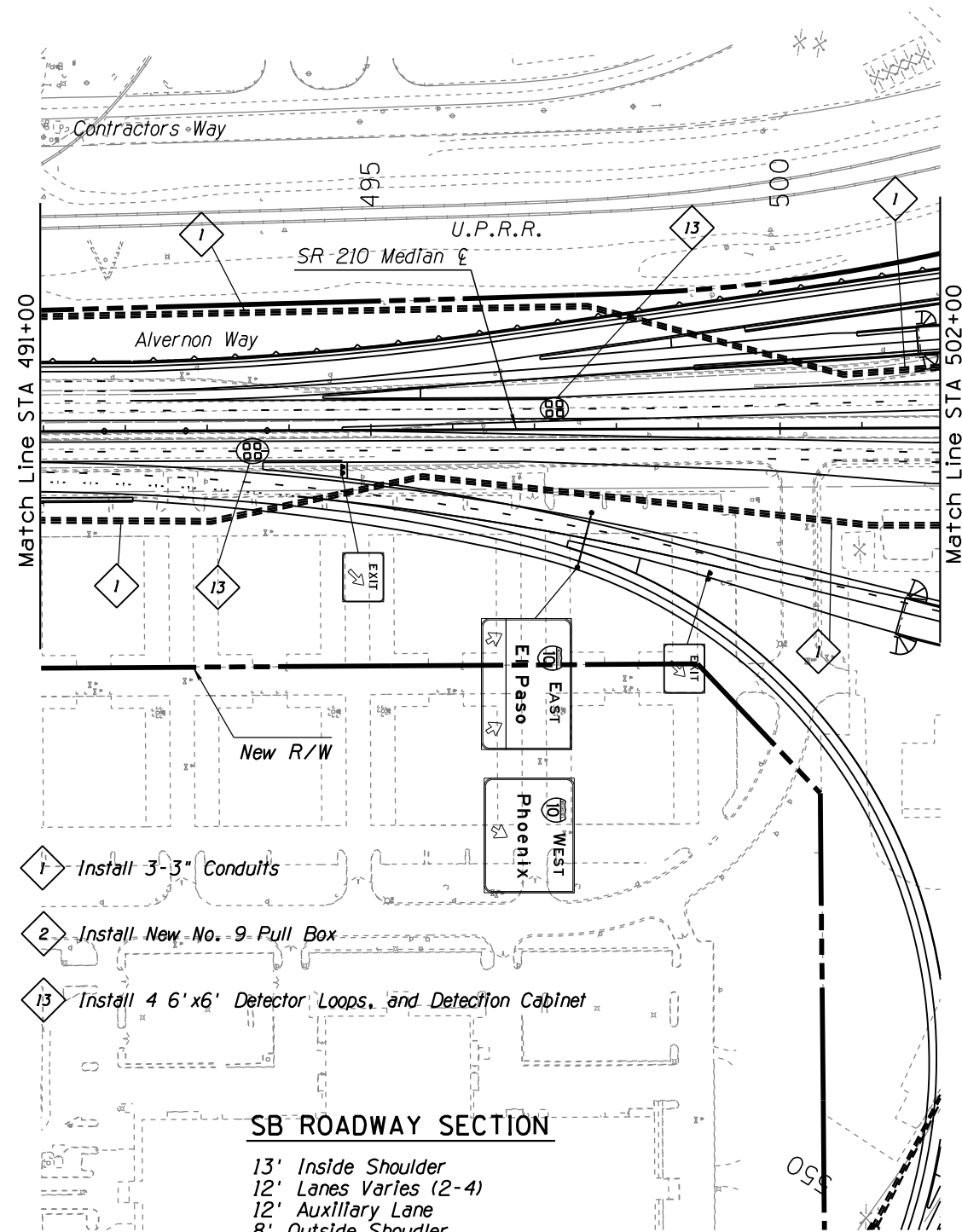
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



NB ROADWAY SECTION

13' Inside Shoulder
 12' Lanes Varies (2-5)
 8' Outside Shoudler



SB ROADWAY SECTION

13' Inside Shoulder
 12' Lanes Varies (2-4)
 12' Auxillary Lane
 8' Outside Shoudler

DESIGN	APM	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	04-20		
CHECKED	SMK	04-20		
JACOBS			PAVEMENT MRKNG, SIGN & FMS PLANS SR 210 SYSTEM ALT 1 STA 491+00 TO STA 502+00	
ROUTE	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - SR 210 - GOLF LINKS ROAD TO I-10		SHEET TS01.29
TRACS NO.	H7825 01L	010-E(210)S		OF

SURVEY NO. FINISHED PLANS REVISIONS LOCATION DATE SURVEY NO. FINISHED PLANS REVISIONS LOCATION DATE SURVEY NO. FINISHED PLANS REVISIONS LOCATION DATE

DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO. DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260

- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 4 Install 6 6'x6' Detector Loops, and Detection Cabinet
- 5 Install 2-3" Conduits
- 6 Install 8 6'x6' Detector Loops, and Detection Cabinet
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Install 4-3" Conduits
- 9 Existing Structure, DMS to Remain
- 10 Install 12 6'x6' Detector Loops, and Detection Cabinet
- 11 Install 10 6'x6' Detector Loops, and Detection Cabinet
- 12 Remove Existing DMS Structure, DMS
- 13 Install 4 6'x6' Detector Loops, and Detection Cabinet
- 14 Install 2 6'x6' Detector Loops, and Detection Cabinet
- 15 Install New SONET Node Building
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Ramp Meter/Detection Cabinet
- 17 Install Wrong Way Driving Detection System
- 18 Existing No. 9 Pull Box to Remain
- 19 Existing ITS Conduit to Remain

- 20 Install 6 6'x6' Detector Loops
- 21 Install 8 6'x6' Detector Loops
- 22 Install 10 6'x6' Detector Loops
- 23 Install 4 6'x6' Detector Loops

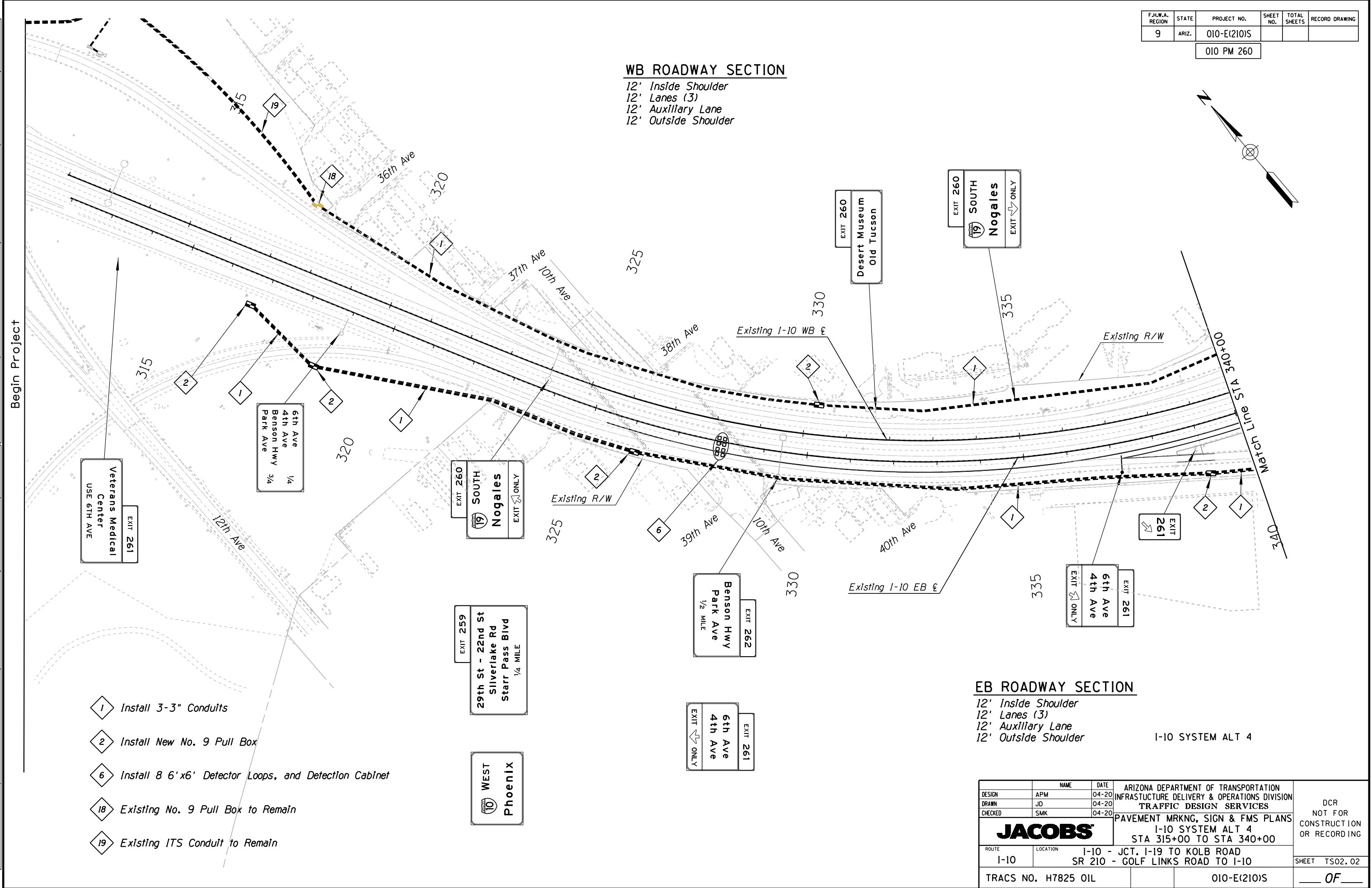
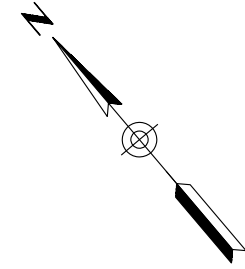
DESIGN	APM	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES JACOBS PAVEMENT MRKNG, SIGN & FMS PLANS I-10/SR210 Constructioin Notes I-10 SYSTEM ALT 4	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	04-20		
CHECKED	SMK	04-20		
ROUTE	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD		SHEET TS02.01
I-10	SR 210 - GOLF LINKS ROAD TO I-10			
TRACS NO. H7825 OIL			010-E(210)S	OF

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260

WB ROADWAY SECTION

12' Inside Shoulder
 12' Lanes (3)
 12' Auxillary Lane
 12' Outside Shoulder



SURVEY NO. FINISHED PLANS DATE LOCATION REVISIONS FINISHED PLANS DATE LOCATION REVISIONS FINISHED PLANS DATE LOCATION

- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 6 Install 8 6' x 6' Detector Loops, and Detection Cabinet
- 18 Existing No. 9 Pull Box to Remain
- 19 Existing ITS Conduit to Remain

EB ROADWAY SECTION

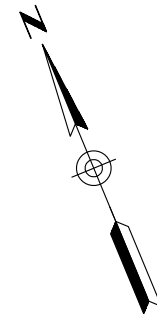
12' Inside Shoulder
 12' Lanes (3)
 12' Auxillary Lane
 12' Outside Shoulder

I-10 SYSTEM ALT 4

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING	
DRAWN	JD	DATE	04-20			
CHECKED	SMK	DATE	04-20			
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 4 STA 315+00 TO STA 340+00		
ROUTE	I-10	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		SHEET	TS02.02
TRACS NO.	H7825 OIL		010-E(210)S		OF	

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260

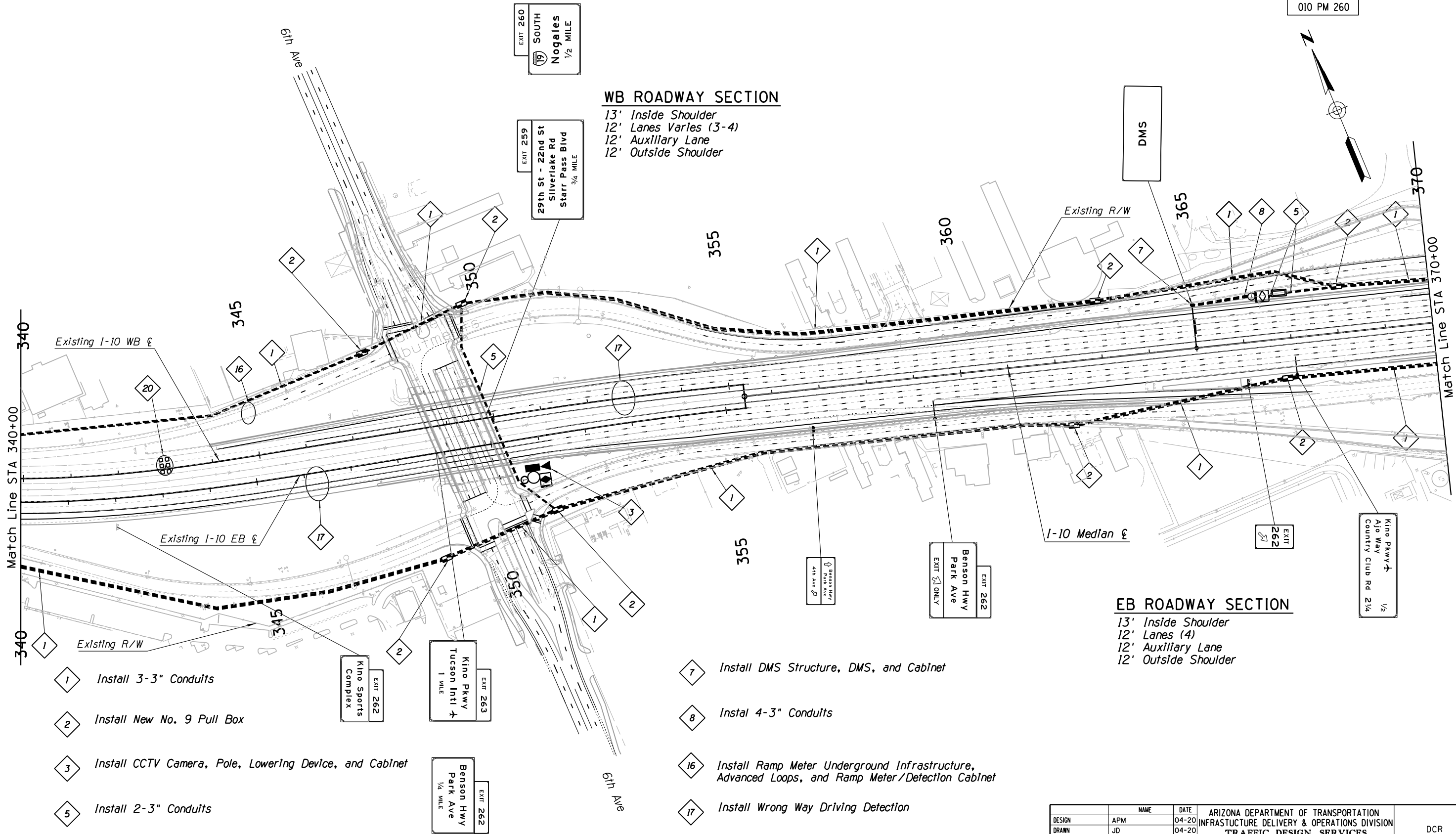


WB ROADWAY SECTION

13' Inside Shoulder
 12' Lanes Varies (3-4)
 12' Auxiliary Lane
 12' Outside Shoulder

EB ROADWAY SECTION

13' Inside Shoulder
 12' Lanes (4)
 12' Auxiliary Lane
 12' Outside Shoulder



- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 5 Install 2-3" Conduits

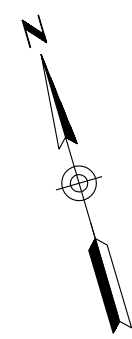
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Instal 4-3" Conduits
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Ramp Meter/Detection Cabinet
- 17 Install Wrong Way Driving Detection
- 20 Install 6 6' x6' Detector Loops

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING	
DRAWN	JD	DATE	04-20			
CHECKED	SMK	DATE	04-20			
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 4 STA 340+00 TO STA 370+00		
ROUTE	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10			SHEET	TS02.03
TRACS NO. H7825 OIL			010-E(210)S			OF

SURVEY NO. FINISHED PLANS DATE REVISIONS LOCATION DATE FINISHED PLANS SURVEY NO. REVISIONS LOCATION DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260

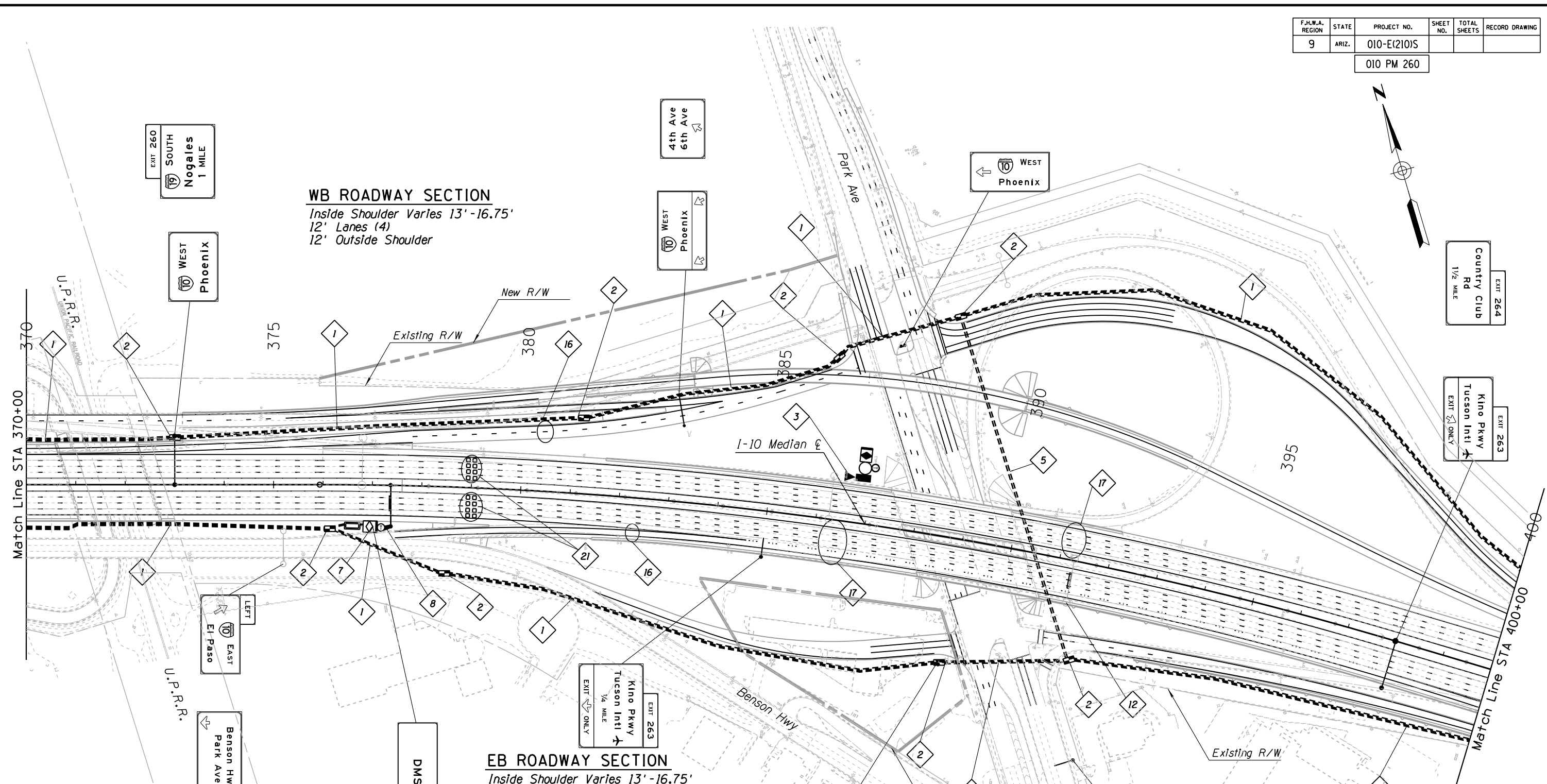


WB ROADWAY SECTION

Inside Shoulder Varies 13'-16.75'
12' Lanes (4)
12' Outside Shoulder

EB ROADWAY SECTION

Inside Shoulder Varies 13'-16.75'
12' Lanes (4)
12' Auxiliary Lane
12' Outside Shoulder



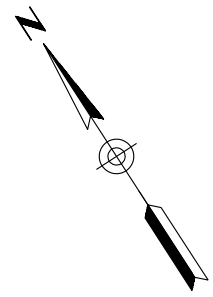
- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Losing Device, and Cabinet
- 5 Install 2-3" Conduits
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Install 4-3" Conduits
- 12 Remove Existing DMS Structure, DMS
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Ramp Meter/Detection Cabinet
- 17 Install Wrong Way Driving Detection System
- 21 Install 8 6' x6' Detector Loops

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING	
DRAWN	JD	DATE	04-20			
CHECKED	SMK	DATE	04-20			
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 4 STA 370+00 TO STA 400+00		
ROUTE	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10			SHEET	TS02.04
TRACS NO. H7825 OIL			010-E(210)S			OF

SURVEY NO. FINISHED PLANS. DATE. LOCATION. REVISIONS. FINISHED PLANS. DATE. LOCATION. REVISIONS. FINISHED PLANS. DATE.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260

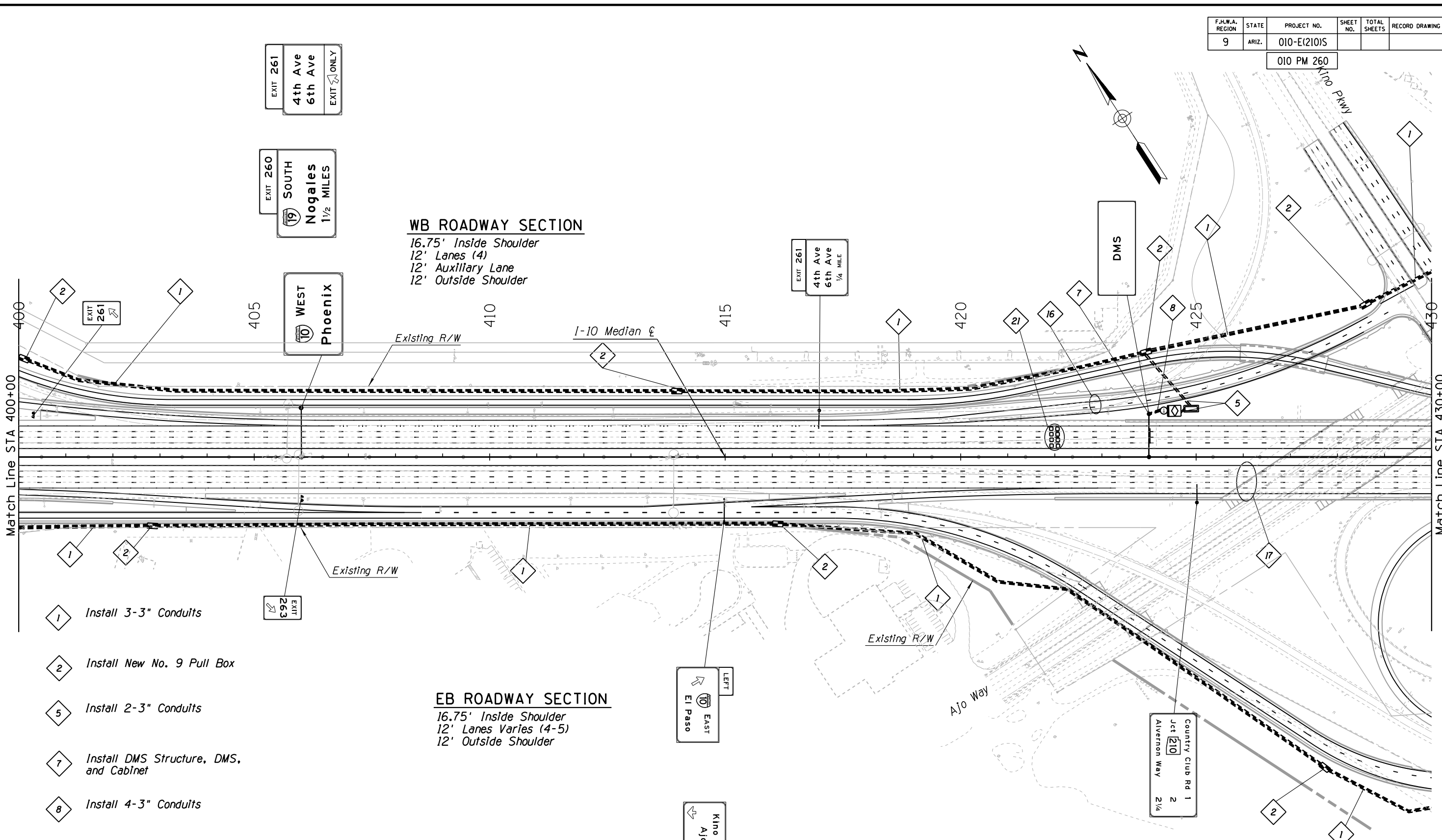


WB ROADWAY SECTION

16.75' Inside Shoulder
 12' Lanes (4)
 12' Auxiliary Lane
 12' Outside Shoulder

EB ROADWAY SECTION

16.75' Inside Shoulder
 12' Lanes Varies (4-5)
 12' Outside Shoulder



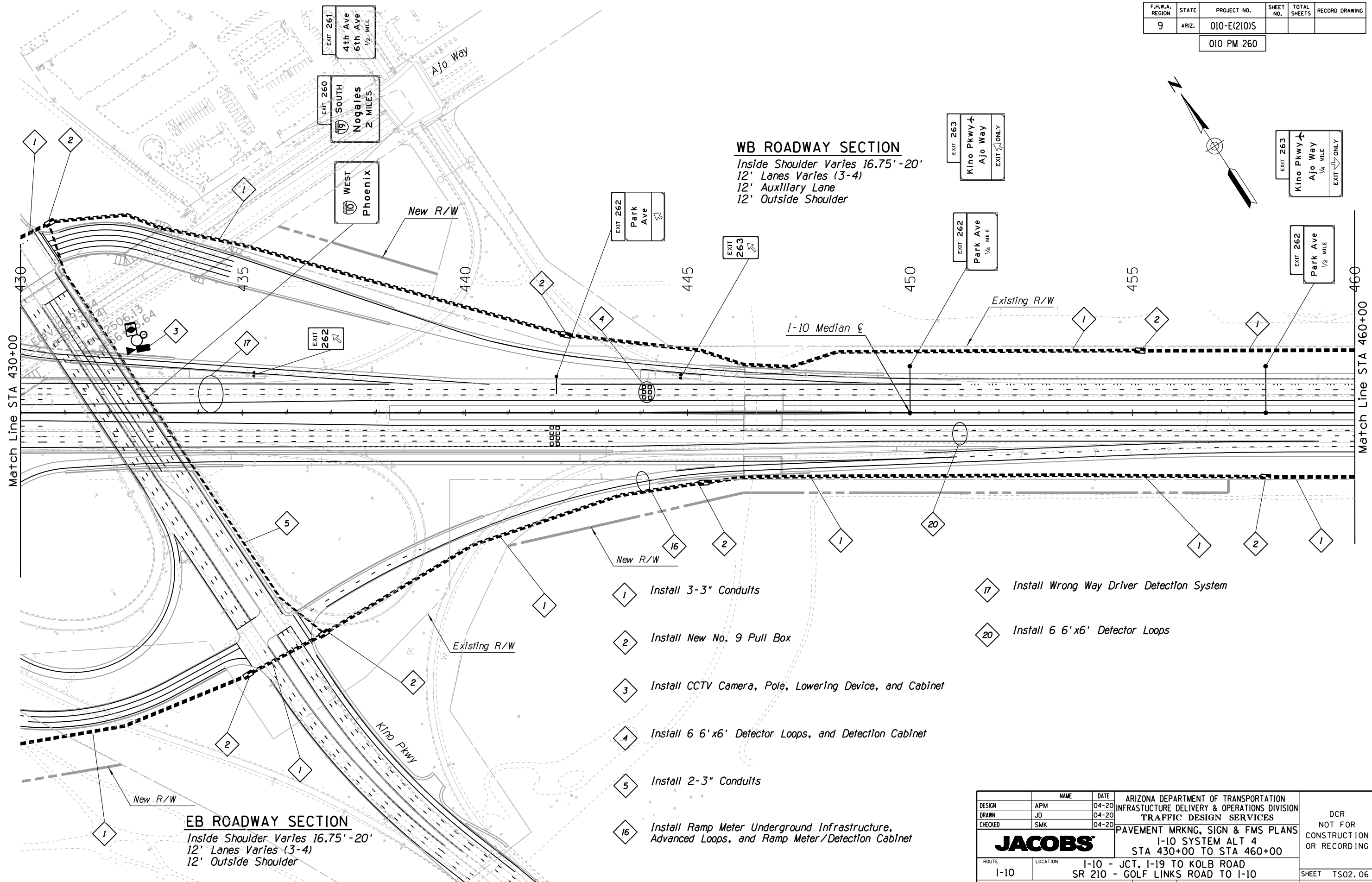
- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 5 Install 2-3" Conduits
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Install 4-3" Conduits
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Ramp Meter/Detection Cabinet
- 17 Install Wrong Way Driving Detection System
- 21 Install 8 6'x6' Detector Loops

DESIGN	NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
APM		04-20		
JD		04-20		
SMK		04-20	PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 4 STA 400+00 TO STA 430+00	SHEET TS02.05
JACOBS ROUTE I-10 LOCATION I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10				
TRACS NO. H7825 01L			010-E(210)S	OF

SURVEY NO. FINISHED PLANS DATE LOCATION REVISIONS FINISHED PLANS DATE SURVEY NO. FINISHED PLANS DATE LOCATION REVISIONS FINISHED PLANS DATE SURVEY NO.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



WB ROADWAY SECTION
 Inside Shoulder Varies 16.75' - 20'
 12' Lanes Varies (3-4)
 12' Auxillary Lane
 12' Outside Shoulder

EB ROADWAY SECTION
 Inside Shoulder Varies 16.75' - 20'
 12' Lanes Varies (3-4)
 12' Outside Shoulder

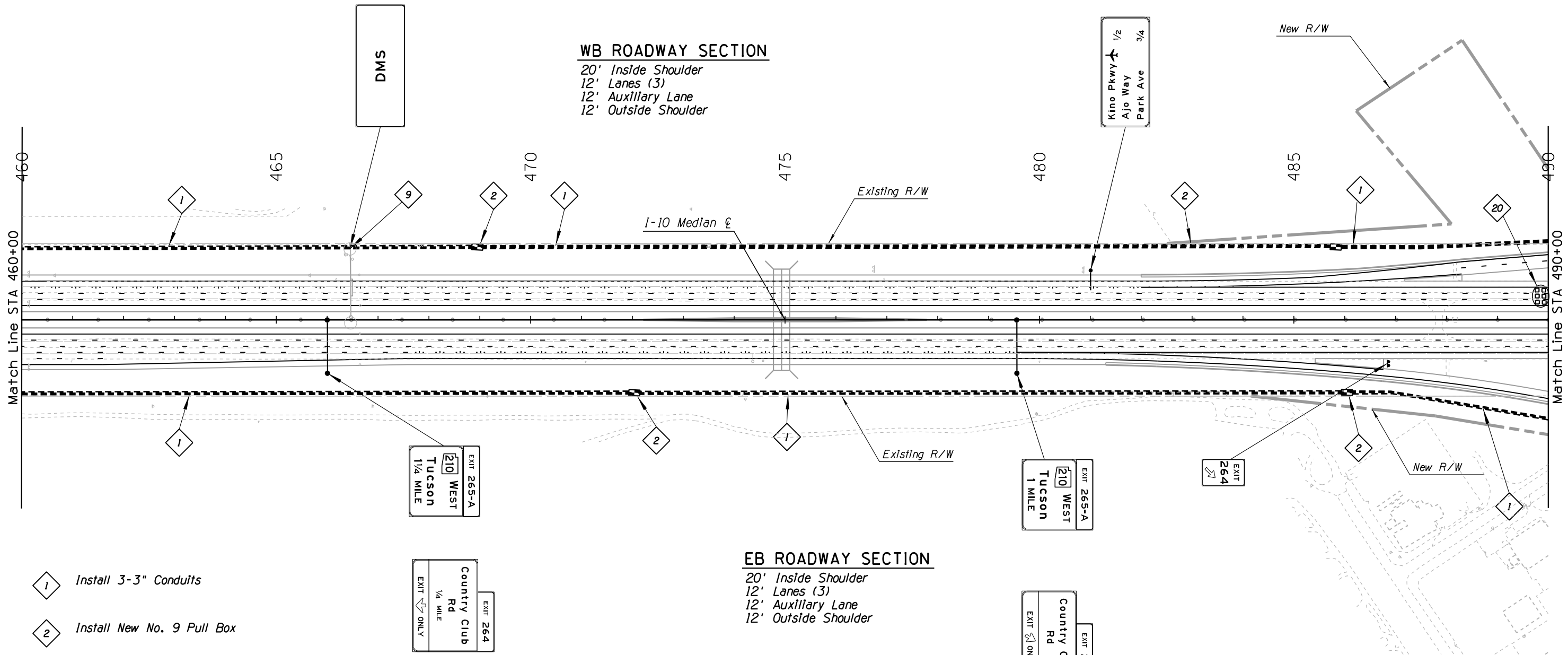
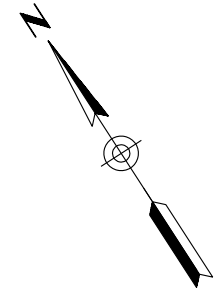
- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 4 Install 6 6'x6' Detector Loops, and Detection Cabinet
- 5 Install 2-3" Conduits
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Ramp Meter/Detection Cabinet
- 17 Install Wrong Way Driver Detection System
- 20 Install 6 6'x6' Detector Loops

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	04-20		
CHECKED	SMK	DATE	04-20		
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 4 STA 430+00 TO STA 460+00	
ROUTE	I-10	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		SHEET TS02.06
TRACS NO. H7825 OIL			010-E(210)S		OF

SURVEY NO. FINISHED PLANS REVISIONS LOCATION DATE SURVEY NO. FINISHED PLANS REVISIONS LOCATION DATE SURVEY NO. FINISHED PLANS REVISIONS LOCATION DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



WB ROADWAY SECTION

20' Inside Shoulder
 12' Lanes (3)
 12' Auxiliary Lane
 12' Outside Shoulder

EB ROADWAY SECTION

20' Inside Shoulder
 12' Lanes (3)
 12' Auxiliary Lane
 12' Outside Shoulder

- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 9 Existing Structure, DMS to Remain
- 20 Install 6 6'x6' Detector Loops

DESIGN	APM	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING	
DRAWN	JD	04-20			
CHECKED	SMK	04-20			
JACOBS			PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 4 STA 460+00 TO STA 490+00		
ROUTE	I-10	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10	SHEET	TS02.07
TRACS NO.	H7825 OIL		010-E(210)S		OF

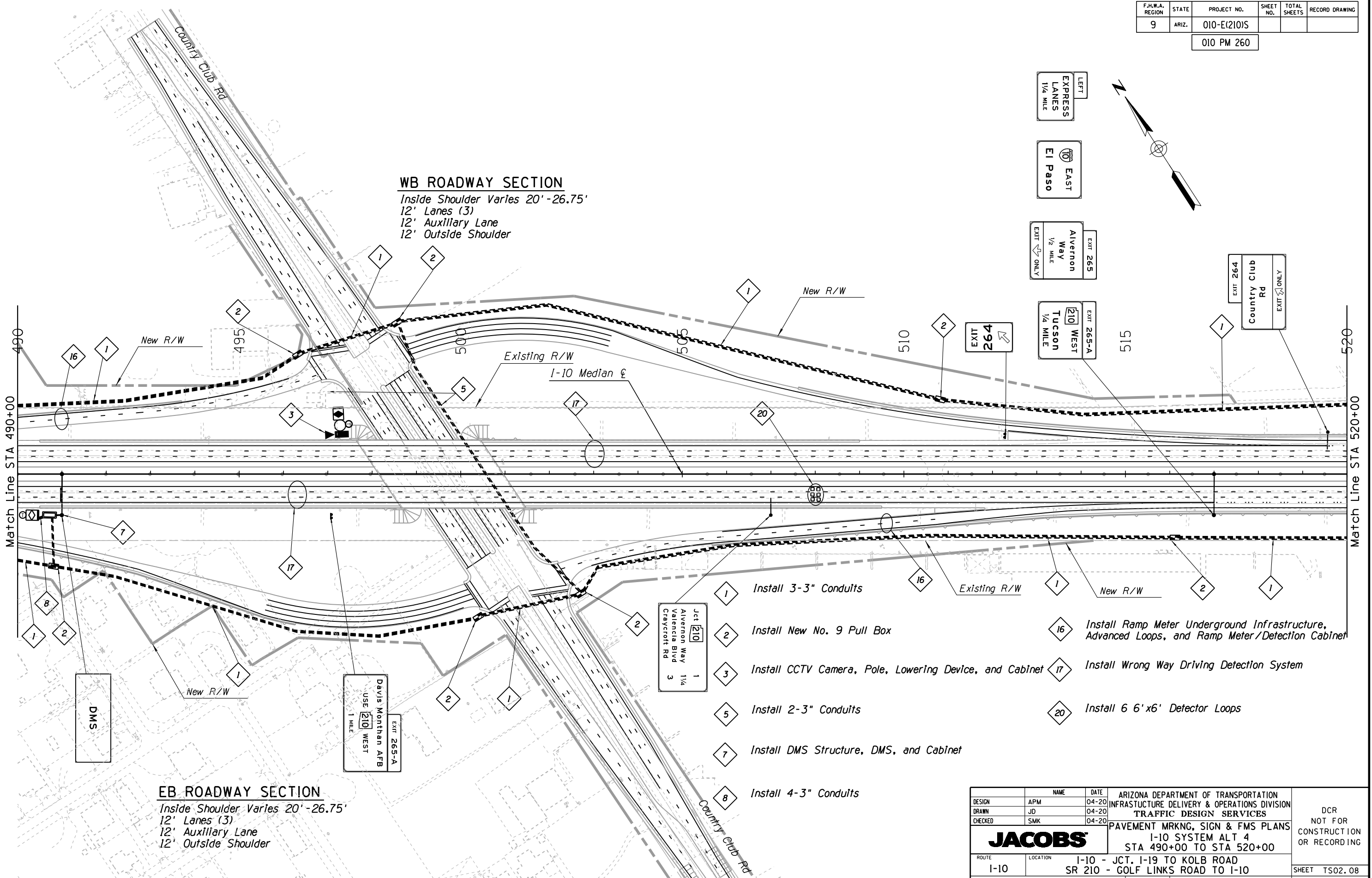
SURVEY NO. FINISHED PLANS DATE REVISIONS LOCATION DATE FINISHED PLANS SURVEY NO. DATE REVISIONS LOCATION DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260

WB ROADWAY SECTION

Inside Shoulder Varies 20' - 26.75'
 12' Lanes (3)
 12' Auxiliary Lane
 12' Outside Shoulder



EB ROADWAY SECTION

Inside Shoulder Varies 20' - 26.75'
 12' Lanes (3)
 12' Auxiliary Lane
 12' Outside Shoulder

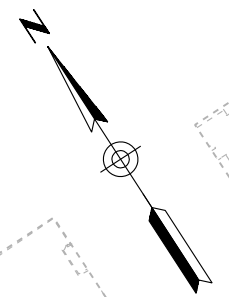
- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 5 Install 2-3" Conduits
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Install 4-3" Conduits
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Ramp Meter/Detection Cabinet
- 17 Install Wrong Way Driving Detection System
- 20 Install 6 6'x6' Detector Loops

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	04-20		
CHECKED	SMK	DATE	04-20		
JACOBS		PAVEMENT MRKNG, SIGN & FMS PLANS		I-10 SYSTEM ALT 4 STA 490+00 TO STA 520+00	
ROUTE	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD			SHEET TS02.08
I-10	SR 210 - GOLF LINKS ROAD TO I-10				
TRACS NO. H7825 OIL		010-E(210)S		OF	

SURVEY NO. FINISHED PLANS DATE REVISIONS LOCATION DATE SURVEY NO. FINISHED PLANS DATE REVISIONS LOCATION DATE SURVEY NO. FINISHED PLANS DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



WB ROADWAY SECTION

Inside Shoulder Varies (12' - 28')
 12' Lanes (3)
 12' Auxiliary Lane
 12' Outside Shoulder

EB ROADWAY SECTION

Inside Shoulder Varies (12' - 28')
 12' Lanes (3)
 12' Auxiliary Lane
 12' Outside Shoulder

Match Line STA 520+00

Match Line STA 550+00

- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 5 Install 2-3" Conduits
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Install 4-3" Conduits
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Ramp Meter / Detection Cabinet
- 20 Install 6 6' x 6' Detector Loops

DMS

Existing R/W

EXIT 264
 Country Club Rd
 1/4 MILE
 EXIT ONLY

EXIT EAST
 El Paso

EXIT 265
 Alvernon Way
 1/4 MILE
 EXIT ONLY

EXIT 265-A
 WEST
 Tucson

EXIT 265A

LEFT
 EXPRESS LANES
 1/2 MILE

EXIT EAST
 El Paso

EXIT 267
 Valencia Rd
 2 MILES

EXIT 265
 Alvernon Way
 EXIT ONLY

Country Club Rd 1/2
 Kino Pkwy 1/4
 Alo Way

DESIGN	APM	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	04-20		
CHECKED	SMK	04-20		

JACOBS
 PAVEMENT MRKNG, SIGN & FMS PLANS
 I-10 SYSTEM ALT 4
 STA 520+00 TO STA 550+00

ROUTE	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10	SHEET	TS02.09
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TRACS NO.	H7825 OIL	010-E(210)S	OF
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SURVEY NO. FINISHED PLANS DATE REVISIONS LOCATION DATE FINISHED PLANS SURVEY NO. REVISIONS LOCATION DATE

Match Line STA 502+00

WB ROADWAY SECTION

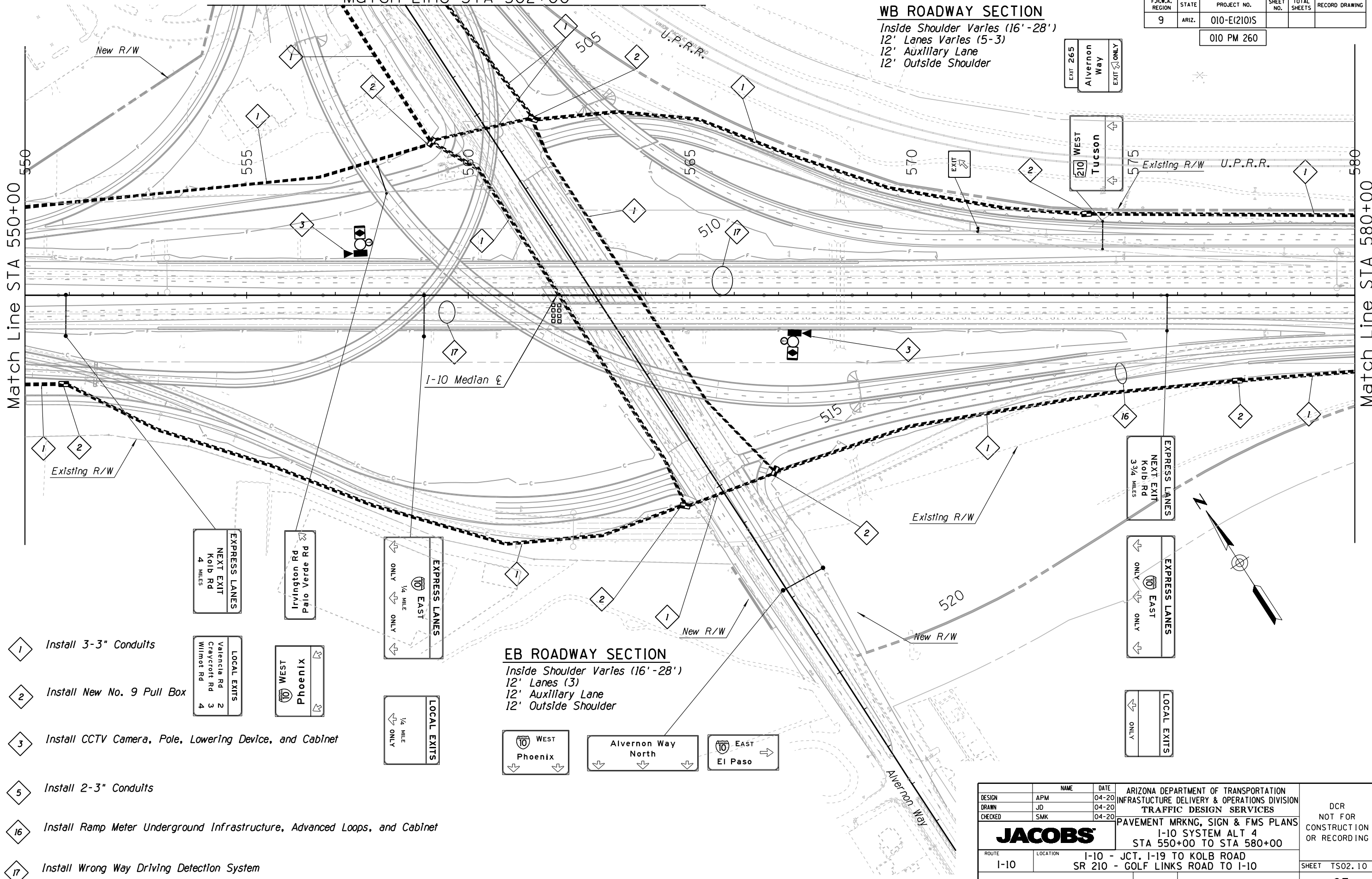
Inside Shoulder Varies (16'-28')
 12' Lanes Varies (5-3)
 12' Auxiliary Lane
 12' Outside Shoulder

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

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Match Line STA 550+00

Match Line STA 580+00



EB ROADWAY SECTION

Inside Shoulder Varies (16'-28')
 12' Lanes (3)
 12' Auxiliary Lane
 12' Outside Shoulder



- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 5 Install 2-3" Conduits
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Cabinet
- 17 Install Wrong Way Driving Detection System

EXPRESS LANES
 NEXT EXIT
 Kolb Rd
 4 MILES

Irvington Rd
 Palo Verde Rd

EXPRESS LANES
 10 EAST
 1/4 MILE
 ONLY

LOCAL EXITS
 Valencia Rd
 Craycroft Rd
 Wilnot Rd
 2
 3
 4

WEST
 10
 Phoenix

LOCAL EXITS
 1/4 MILE
 ONLY

EXPRESS LANES
 NEXT EXIT
 Kolb Rd
 3 3/4 MILES

EXPRESS LANES
 10 EAST
 ONLY

LOCAL EXITS
 ONLY

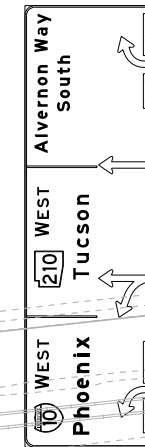
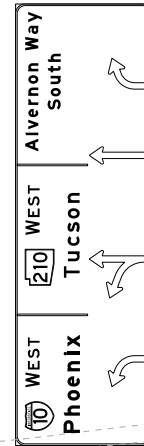
DESIGN	NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES		DCR NOT FOR CONSTRUCTION OR RECORDING
APM		04-20	JACOBS PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 4 STA 550+00 TO STA 580+00		
DRAWN	JD	04-20			
CHECKED	SMK	04-20			
ROUTE		LOCATION		SHEET	
I-10		I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		TS02.10	
TRACS NO. H7825 OIL			010-E(210)S		
					OF

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

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WB ROADWAY SECTION

- 16' Inside Shoulder
- 12' Lanes (3)
- 12' Auxiliary Lane
- 12' Outside Shoulder
- 12' Exit Lanes Varies (3-2)



END EXPRESS LANES

U.P.R.R.

I-10 Median

Match Line STA 580+00

Match Line STA 610+00

EXIT 265
Irvington Rd
Palo Verde Rd
USE EXIT 265

EXIT

Valencia Rd 1
Craycroft Rd 2
Wilmot Rd 3/4

New R/W

Existing R/W

Existing R/W

New R/W

- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 4 Install 6 6'x6' Detector Loops, and Detection Cabinet
- 5 Install 2-3" Conduits

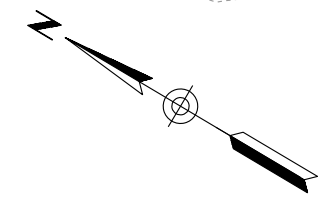
EB ROADWAY SECTION

- 16' Inside Shoulder
- 12' Lanes (3)
- 12' Auxiliary Lane
- 12' Outside Shoulder
- 12' Exit Lanes Varies (3-2)

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	04-20		
CHECKED	SMK	DATE	04-20		
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 4 STA 580+00 TO STA 610+00	
ROUTE	I-10	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		SHEET TS02.11
TRACS NO.	H7825 OIL		010-E(210)S		OF

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

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WB ROADWAY SECTION

- 16' Inside Shoulder
- 12' Lanes (3)
- 12' Auxiliary Lane
- 12' Outside Shoulder
- 12' Exit Lanes (2)

EXIT 265
Ailvernon Way
1/2 MILE
EXIT ONLY

EXIT 265-B
WEST
Tucson
1/2 MILE
EXIT ONLY

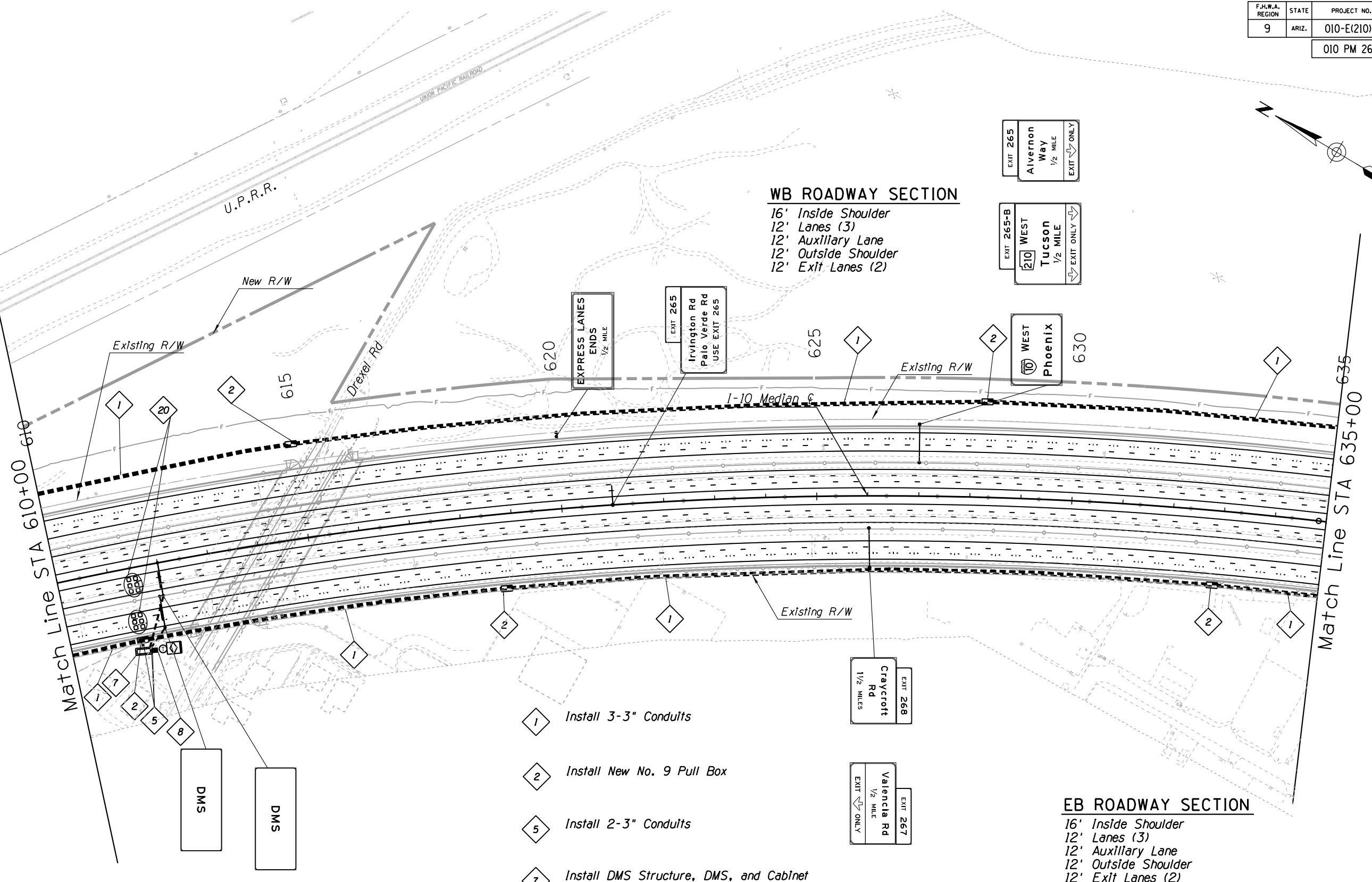
WEST
Phoenix

EXPRESS LANES
ENDS
1/2 MILE

EXIT 265
Irvington Rd
Palo Verde Rd
USE EXIT 265

EXIT 268
Craycroft Rd
1/2 MILES

EXIT 267
Valencia Rd
1/2 MILE
EXIT ONLY



- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 5 Install 2-3" Conduits
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Install 4-3" Conduits
- 20 Install 6 6' x6' Detector Loops

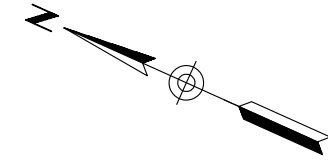
EB ROADWAY SECTION

- 16' Inside Shoulder
- 12' Lanes (3)
- 12' Auxiliary Lane
- 12' Outside Shoulder
- 12' Exit Lanes (2)

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	04-20		
CHECKED	SMK	DATE	04-20		
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 4 STA 610+00 TO STA 635+00	
ROUTE	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD			SHEET TS02.12
I-10	SR 210 - GOLF LINKS ROAD TO I-10				
TRACS NO. H7825 01L			010-E(210)S		
					OF

SURVEY NO. FINISHED PLANS DATE LOCATION REVISIONS FINISHED PLANS DATE LOCATION REVISIONS FINISHED PLANS DATE

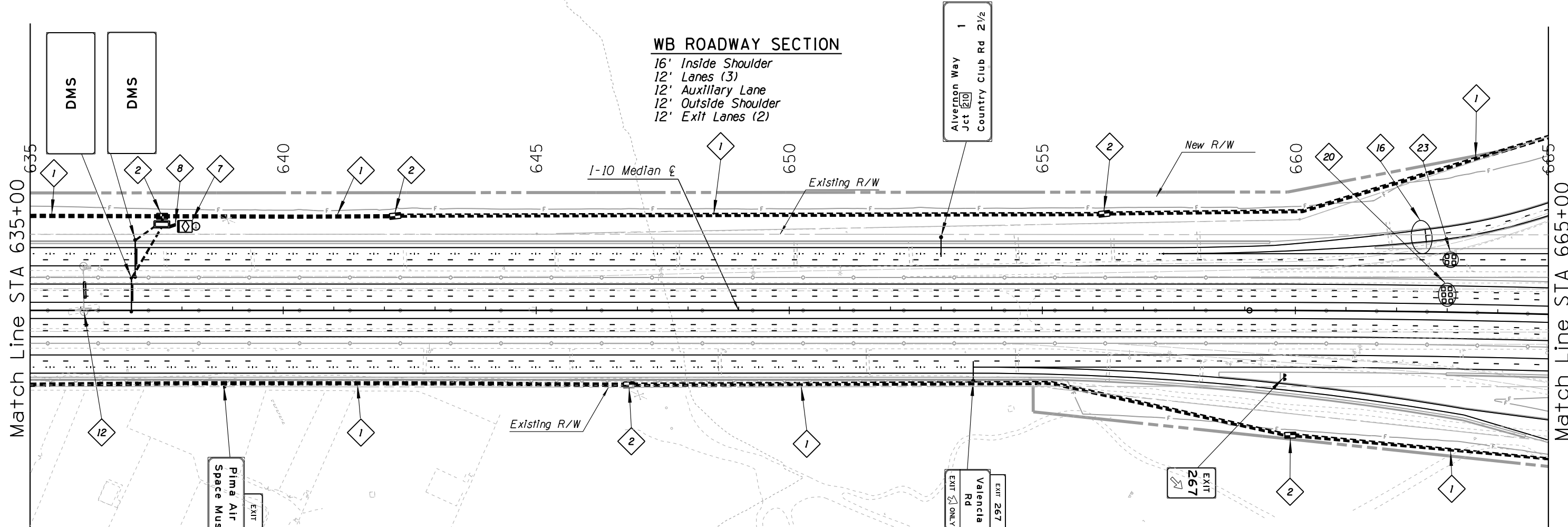
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			
010 PM 260					



WB ROADWAY SECTION

- 16' Inside Shoulder
- 12' Lanes (3)
- 12' Auxiliary Lane
- 12' Outside Shoulder
- 12' Exit Lanes (2)

Alverson Way Jct 210
Country Club Rd 2 1/2



EB ROADWAY SECTION

- 16' Inside Shoulder
- 12' Lanes (3)
- 12' Auxiliary Lane
- 12' Outside Shoulder
- 12' Exit Lanes (2)

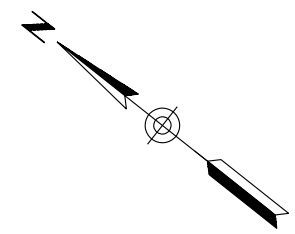
- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Install 4-3" Conduits
- 12 Remove DMS Structure, DMS
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Cabinet
- 20 Install 6 6'x6' Detector Loops
- 23 Install 4 6'x6' Detector Loops

DESIGN	NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES		DCR NOT FOR CONSTRUCTION OR RECORDING
APM		04-20	JACOBS PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 4 STA 635+00 TO STA 665+00		
DRAWN	JD	04-20			
CHECKED	SMK	04-20			
ROUTE	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD		SHEET	TS02.13
		SR 210 - GOLF LINKS ROAD TO I-10			
TRACS NO.	H7825 01L		010-E(210)S	OF	

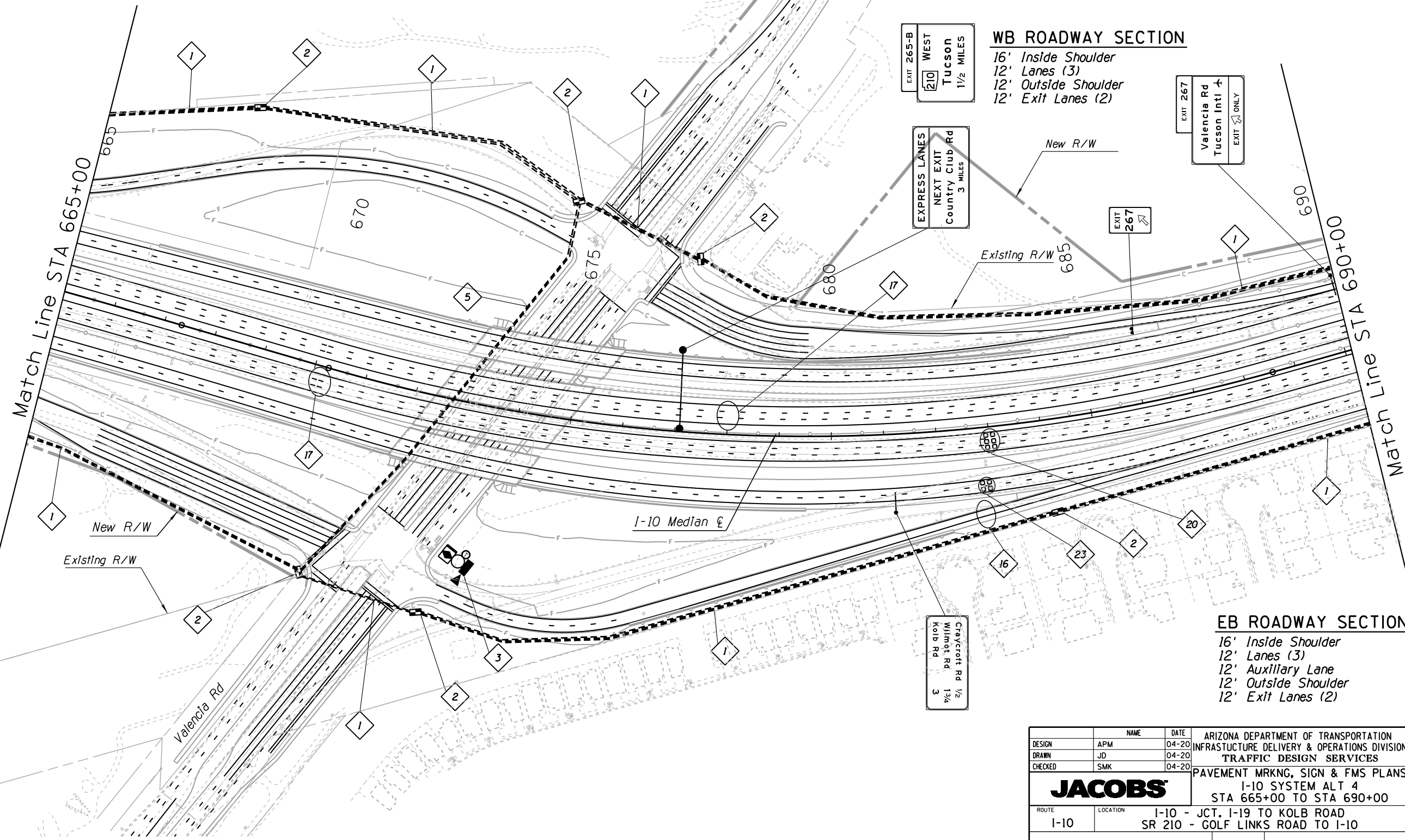
DATE: _____ LOCATION: _____ REVISIONS: _____ FINISHED PLANS: _____ SURVEY NO. _____

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 13 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Cabinet
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Ramp Meter/Detection Cabinet
- 17 Install Wrong Way Driver Detection System
- 20 Install 6 6'x6' Detector Loops
- 23 Install 4 6'x6' Detector Loops



WB ROADWAY SECTION

- 16' Inside Shoulder
- 12' Lanes (3)
- 12' Outside Shoulder
- 12' Exit Lanes (2)

EXIT 265
Alvernon Way
1 1/2 MILE

EXIT 265-B
WEST
Tucson
1 1/2 MILES

EXPRESS LANES
NEXT EXIT
Country Club Rd
3 MILES

EXIT 267
Valencia Rd
Tucson Intl
EXIT ONLY

Cravcroft Rd 1/2
Wilcox Rd 1 1/4
Kolb Rd 3

EB ROADWAY SECTION

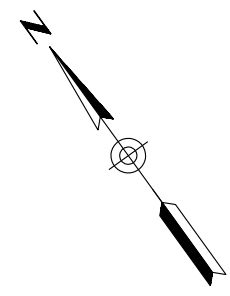
- 16' Inside Shoulder
- 12' Lanes (3)
- 12' Auxiliary Lane
- 12' Outside Shoulder
- 12' Exit Lanes (2)

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	04-20		
CHECKED	SMK	DATE	04-20		
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 4 STA 665+00 TO STA 690+00	
ROUTE	I-10	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		SHEET TS02.14
TRACS NO.	H7825 OIL	010-E(210)S		OF	

SURVEY NO. FINISHED PLANS REVISIONS DATE LOCATION FINISHED PLANS REVISIONS DATE SURVEY NO.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



WB ROADWAY SECTION

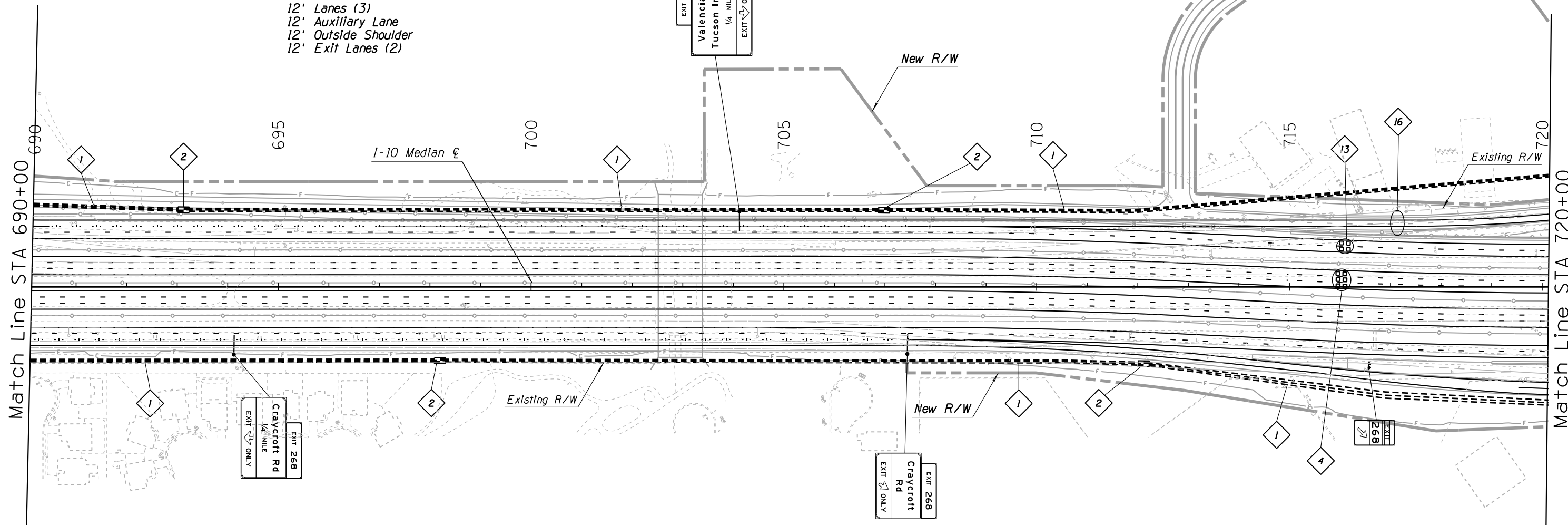
- 16' Inside Shoulder
- 12' Lanes (3)
- 12' Auxiliary Lane
- 12' Outside Shoulder
- 12' Exit Lanes (2)

EXIT 267
Valencia Rd
Tucson Intl
1/4 MILE
EXIT ONLY

EXIT 268
Craycroft Rd
1/4 MILE
EXIT ONLY

EXIT 268
Craycroft Rd
EXIT ONLY

EXIT 268



- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 4 Install 6 6'x6' Detector Loops, and Detection Cabinet
- 13 Install 4 6'x6' Detector Loops, and Detection Cabinet
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Cabinet

EB ROADWAY SECTION

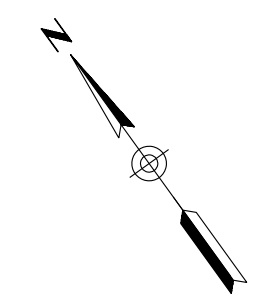
- 16' Inside Shoulder
- 12' Lanes (3)
- 12' Auxiliary Lane
- 12' Outside Shoulder
- 12' Exit Lanes (2)

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	04-20		
CHECKED	SMK	DATE	04-20		
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 4 STA 690+00 TO STA 720+00	
ROUTE	I-10	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		SHEET TS02.15
TRACS NO.	H7825 OIL		010-E(210)S		OF

SURVEY NO. DATE LOCATION FINISHED PLANS REVISIONS DATE LOCATION FINISHED PLANS REVISIONS DATE

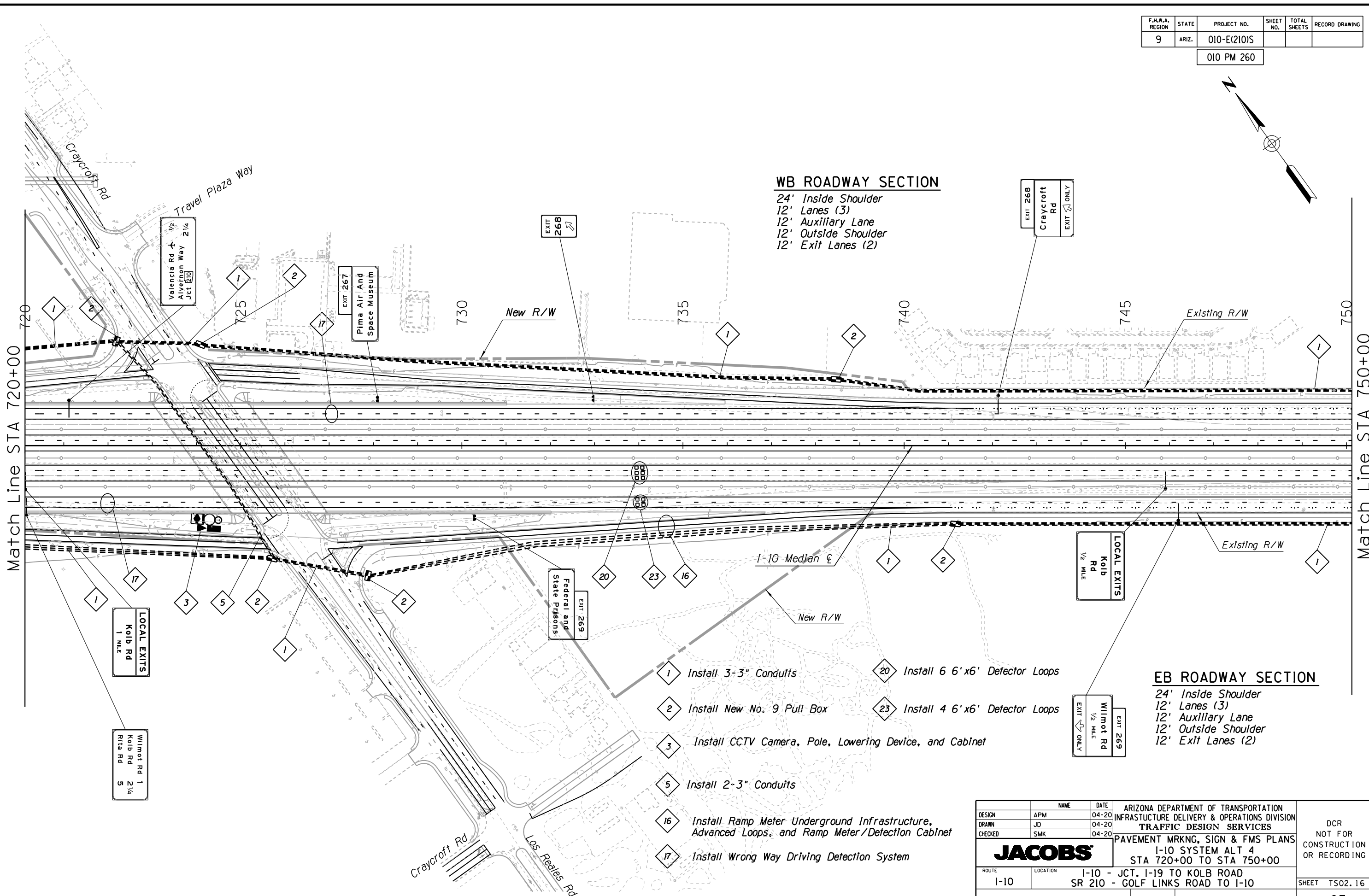
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



WB ROADWAY SECTION

- 24' Inside Shoulder
- 12' Lanes (3)
- 12' Auxiliary Lane
- 12' Outside Shoulder
- 12' Exit Lanes (2)



EB ROADWAY SECTION

- 24' Inside Shoulder
- 12' Lanes (3)
- 12' Auxiliary Lane
- 12' Outside Shoulder
- 12' Exit Lanes (2)

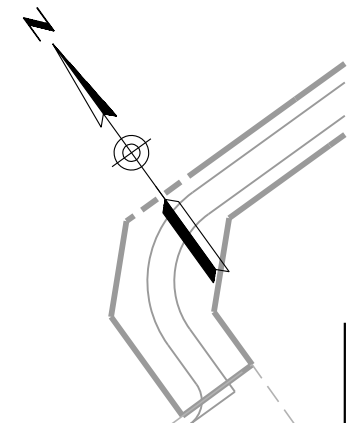
- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 5 Install 2-3" Conduits
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Ramp Meter/Detection Cabinet
- 17 Install Wrong Way Driving Detection System
- 20 Install 6 6'x6' Detector Loops
- 23 Install 4 6'x6' Detector Loops

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING	
DRAWN	JD	DATE	04-20			
CHECKED	SMK	DATE	04-20			
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 4 STA 720+00 TO STA 750+00		
ROUTE	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10			SHEET	TS02.16
TRACS NO. H7825 OIL			010-E(210)S			OF

SURVEY NO. FINISHED PLANS DATE LOCATION REVISIONS FINISHED PLANS DATE SURVEY NO. LOCATION REVISIONS DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

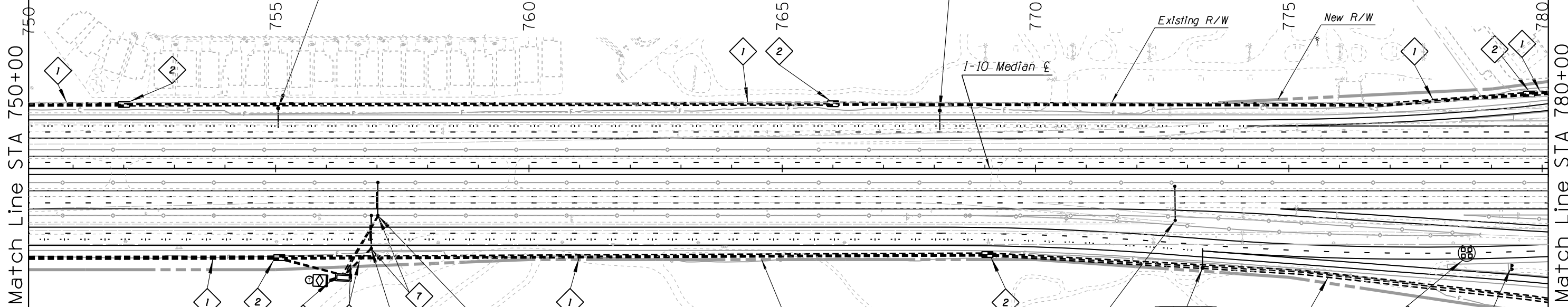
010 PM 260



WB ROADWAY SECTION

24' Inside Shoulder
 12' Lanes (3)
 12' Auxiliary Lane
 12' Outside Shoulder
 12' Exit Lanes (2)

EXIT 268
 Craycroft Rd
 1/2 MILE
 EXIT ONLY



- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 5 Install 2-3" Conduits
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Install 4-3" Conduits

EB ROADWAY SECTION

24' Inside Shoulder
 12' Lanes (3)
 12' Auxiliary Lane
 12' Outside Shoulder
 12' Exit Lanes (2)

EXPRESS LANES
 EAST
 ONLY

LOCAL EXITS
 Kolb Rd
 EXIT 270

EXIT 269
 Wilmot Rd
 EXIT ONLY

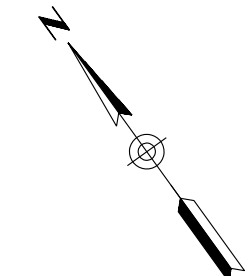
EXIT 269

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING	
DRAWN	JD	DATE	04-20			
CHECKED	SMK	DATE	04-20			
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 4 STA 750+00 TO STA 780+00		
ROUTE	I-10	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		SHEET	TS02.17
TRACS NO.	H7825 OIL		010-E(210)S		OF	

SURVEY NO. FINISHED PLANS DATE LOCATION REVISIONS DATE FINISHED PLANS SURVEY NO. LOCATION REVISIONS DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

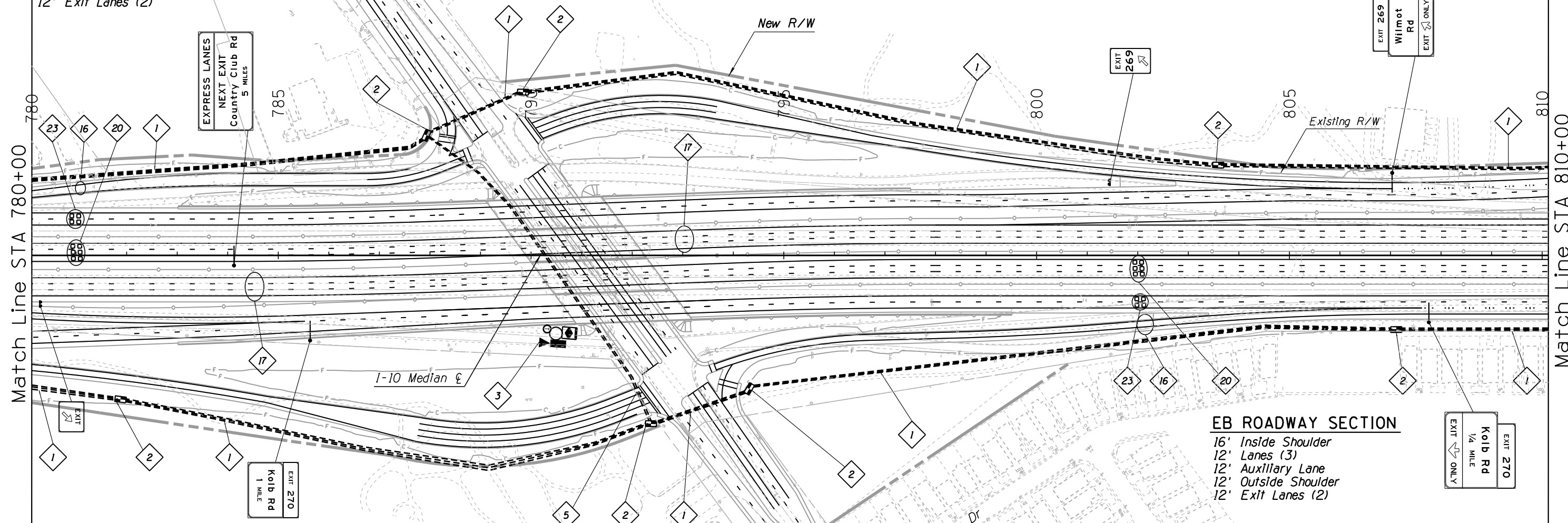
010 PM 260



WB ROADWAY SECTION

- 16' Inside Shoulder
- 12' Lanes (3)
- 12' Auxiliary Lane
- 12' Outside Shoulder
- 12' Exit Lanes (2)

EXPRESS LANES
NEXT EXIT
Country Club Rd
5 MILES



EB ROADWAY SECTION

- 16' Inside Shoulder
- 12' Lanes (3)
- 12' Auxiliary Lane
- 12' Outside Shoulder
- 12' Exit Lanes (2)

EXIT 270
Kolo Rd
1/4 MILE
EXIT ONLY

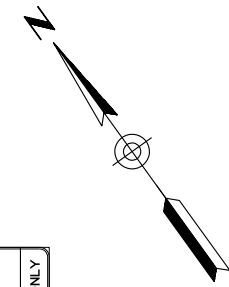
- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 5 Install 2-3" Conduits
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Cabinet
- 17 Install Wrong Way Driving Detection System
- 20 Install 6 6'x6' Detector Loops
- 23 Install 4 6'x6' Detector Loops

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	04-20		
CHECKED	SMK	DATE	04-20		
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 4 STA 780+00 TO STA 810+00	
ROUTE	I-10	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10	SHEET TS02.18	
TRACS NO.	H7825 OIL	010-E(210)S		OF	

SURVEY NO. FINISHED PLANS DATE LOCATION REVISIONS DATE FINISHED PLANS SURVEY NO. DATE LOCATION REVISIONS DATE FINISHED PLANS SURVEY NO.

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

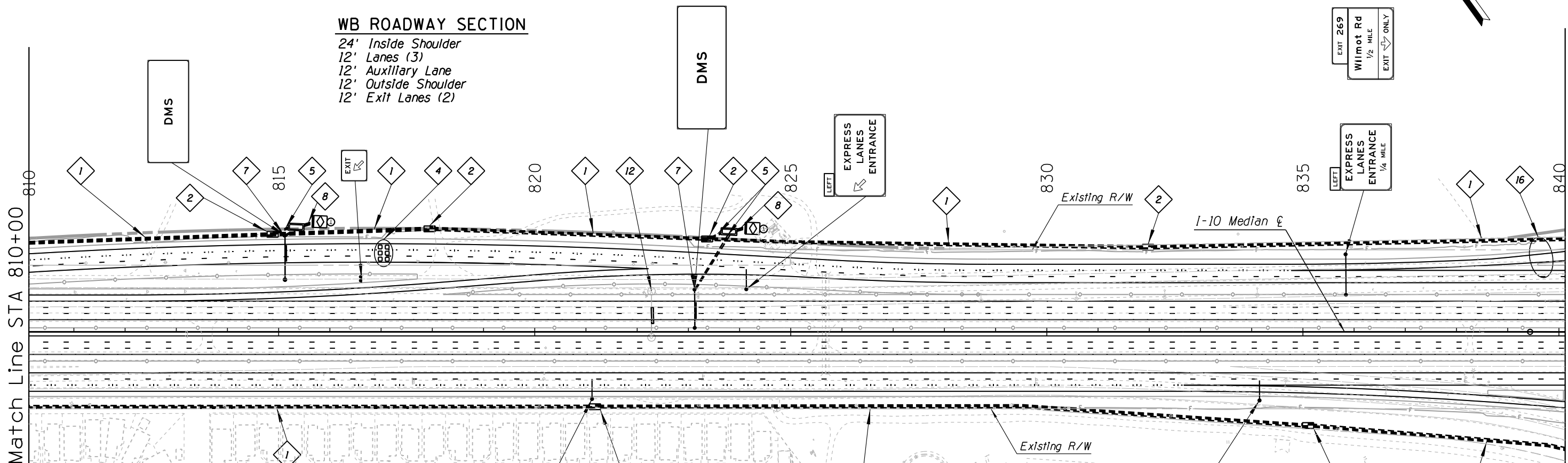
010 PM 260



WB ROADWAY SECTION

24' Inside Shoulder
 12' Lanes (3)
 12' Auxiliary Lane
 12' Outside Shoulder
 12' Exit Lanes (2)

DMS



EXIT 269
 Wilmot Rd
 1/2 MILE
 EXIT ONLY

EXIT
 EXPRESS LANES
 ENTRANCE
 1/4 MILE

EXIT
 Kolb Rd
 EXIT 270
 ONLY

EB ROADWAY SECTION

24' Inside Shoulder
 12' Lanes (3)
 12' Auxiliary Lane
 12' Outside Shoulder
 12' Exit Lanes (2)

- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 5 Install 2-3" Conduits
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Install 4-3" Conduits
- 12 Remove Existing DMS Structure, DMS
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Ramp Meter/Detection Cabinet

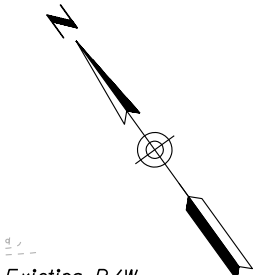
Kolb Rd
 Rita Rd
 Houghton Rd
 1/4
 3
 5/2

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING	
DRAWN	JD	DATE	04-20			
CHECKED	SMK	DATE	04-20			
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 4 STA 810+00 TO STA 840+00		
ROUTE	I-10	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		SHEET	TS02.19
TRACS NO.	H7825 OIL		010-E(210)S		OF	

SURVEY NO. FINISHED PLANS DATE REVISIONS LOCATION DATE FINISHED PLANS SURVEY NO. REVISIONS LOCATION DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



WB ROADWAY SECTION

16' Inside Shoulder
 12' Lanes (5)
 12' Outside Shoulder
 12' Exit Lanes (2)

EB ROADWAY SECTION

16' Inside Shoulder
 12' Lanes (5)
 12' Outside Shoulder
 12' Exit Lanes Varies (2-1)

Match Line STA 840+00

Match Line STA 870+00

- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 4 Install 6 6' x6' Detector Loops, and Detection Cabinet
- 5 Install 2-3" Conduits
- 13 Install 4 6' x6' Detector Loops, and Detection Cabinet
- 14 Install 2 6' x6' Detector Loops, and Detection Cabinet
- 15 Install New SONET Node Building
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Cabinet
- 17 Install Wrong Way Driving Detection System
- 20 Install 6 6' x6' Detector Loops

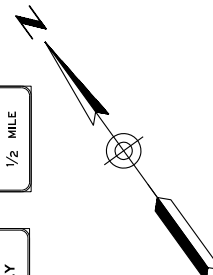
DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 4 STA 840+00 TO STA 870+00	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	04-20		
CHECKED	SMK	DATE	04-20		
JACOBS		ROUTE	I-10	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10
TRACS NO. H7825 OIL		010-E(210)S		SHEET	TS02.20
					OF

SURVEY NO. FINISHED PLANS. DATE. LOCATION. REVISIONS. FINISHED PLANS. DATE. SURVEY NO.

SURVEY NO. FINISHED PLANS DATE LOCATION REVISIONS FINISHED PLANS DATE LOCATION REVISIONS FINISHED PLANS DATE

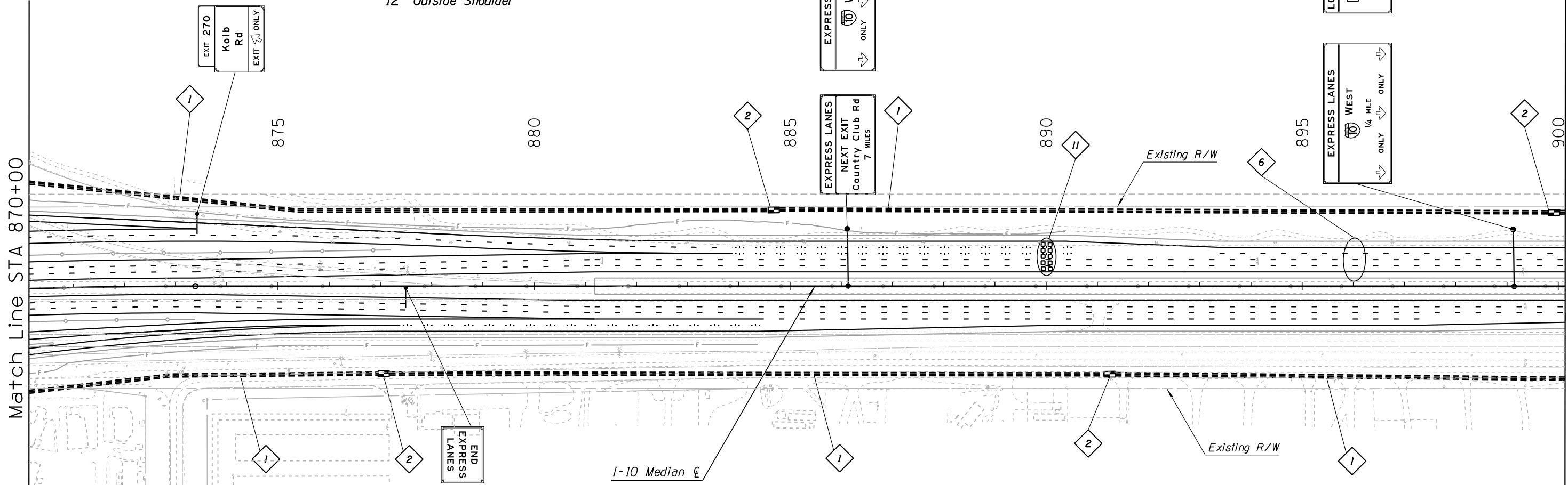
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



WB ROADWAY SECTION

Inside Shoulder Varies (12'-28')
 12' Lanes Varies (4-3)
 12' Auxilliary Lanes (2)
 12' Outside Shoulder



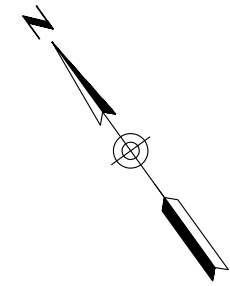
EB ROADWAY SECTION

Inside Shoulder Varies (12'-28')
 12' Lanes Varies (3)
 12' Auxilliary Lane
 12' Outside Shoulder

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES JACOBS PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 4 STA 870+00 TO STA 900+00	DCR NOT FOR CONSTRUCTION OR RECORDING	
DRAWN	JD	DATE	04-20			
CHECKED	SMK	DATE	04-20			
ROUTE	I-10	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		SHEET	TS02.21
TRACS NO.	H7825 01L		010-E(210)S		OF	

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



WB ROADWAY SECTION
Inside Shoulder Varies (10'-12')
12' Lanes Varies (4-2)
12' Outside Shoulder

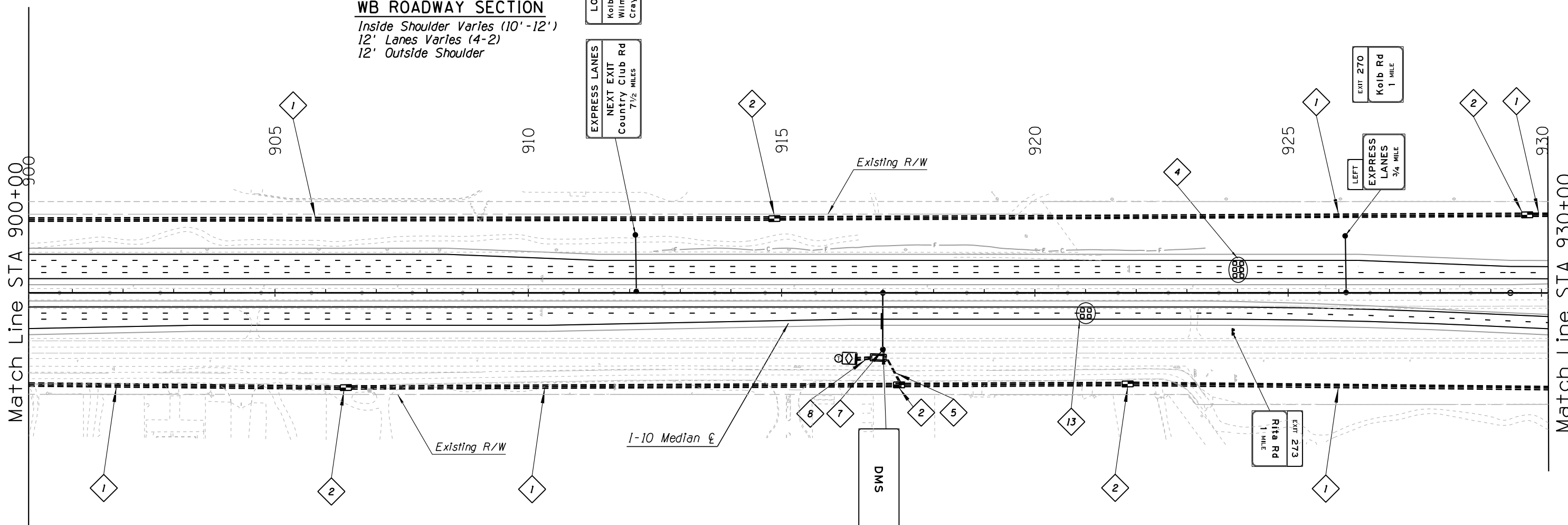
LOCAL EXITS
 Kolb Rd 3/4
 Wilmot Rd 2
 Craycroft Rd 3 3/4

EXPRESS LANES
 NEXT EXIT
 Country Club Rd
 7 1/2 MILES

EXIT 270
 Kolb Rd
 1 MILE

LEFT EXPRESS LANES
 3/4 MILE

EXIT 273
 Rita Rd
 1 MILE



- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 4 Install 6 6'x6' Detector Loops, and Detection Cabinet
- 5 Install 2-3" Conduits
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Install 4-3" Conduits
- 13 Install 4 6'x6' Detector Loops, and Detection Cabinet

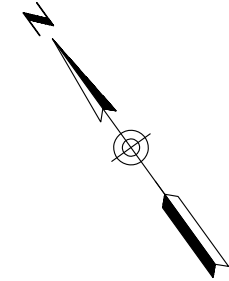
EB ROADWAY SECTION
Inside Shoulder Varies (4'-12')
12' Lanes Varies (3-2)
12' Outside Shoulder

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	04-20		
CHECKED	SMK	DATE	04-20		
JACOBS			PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 4 STA 900+00 TO STA 930+00		
ROUTE	I-10	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		
TRACS NO.	H7825 OIL		010-E(210)S	SHEET	TS02.22
					OF

SURVEY NO. FINISHED PLANS DATE LOCATION REVISIONS DATE FINISHED PLANS SURVEY NO. DATE LOCATION REVISIONS DATE

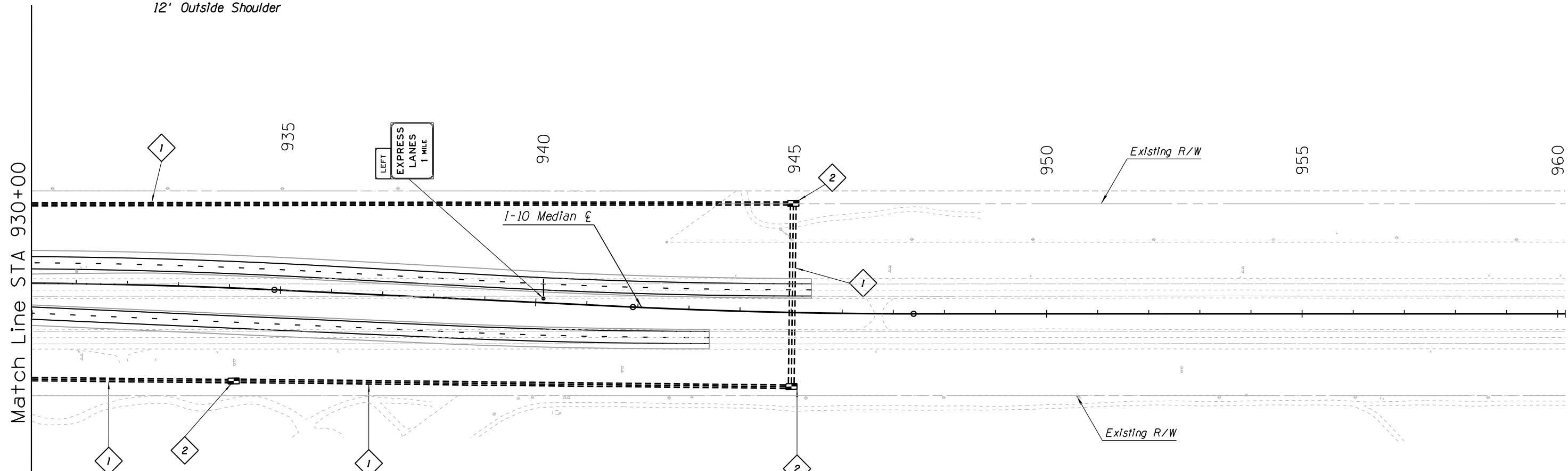
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



WB ROADWAY SECTION

Inside Shoulder Varies (4' - 10')
12' Lanes (2)
12' Outside Shoulder



EB ROADWAY SECTION

4' Inside Shoulder
12' Lanes (2)
12' Outside Shoulder

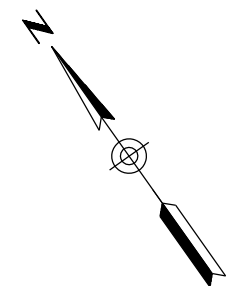
- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box

DESIGN	APM	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	04-20		
CHECKED	SMK	04-20		
JACOBS			PAVEMENT MRKNG, SIGN & FMS PLANS I-10 SYSTEM ALT 4 STA 930+00 TO STA 960+00	
ROUTE	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		SHEET TS02.23
TRACS NO. H7825 01L			010-E(210)S	OF

SURVEY NO. REVISIONS- FINISHED PLANS- LOCATION- DATE- REVISIONS- FINISHED PLANS- SURVEY NO. DATE- REVISIONS- FINISHED PLANS- LOCATION- DATE-

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



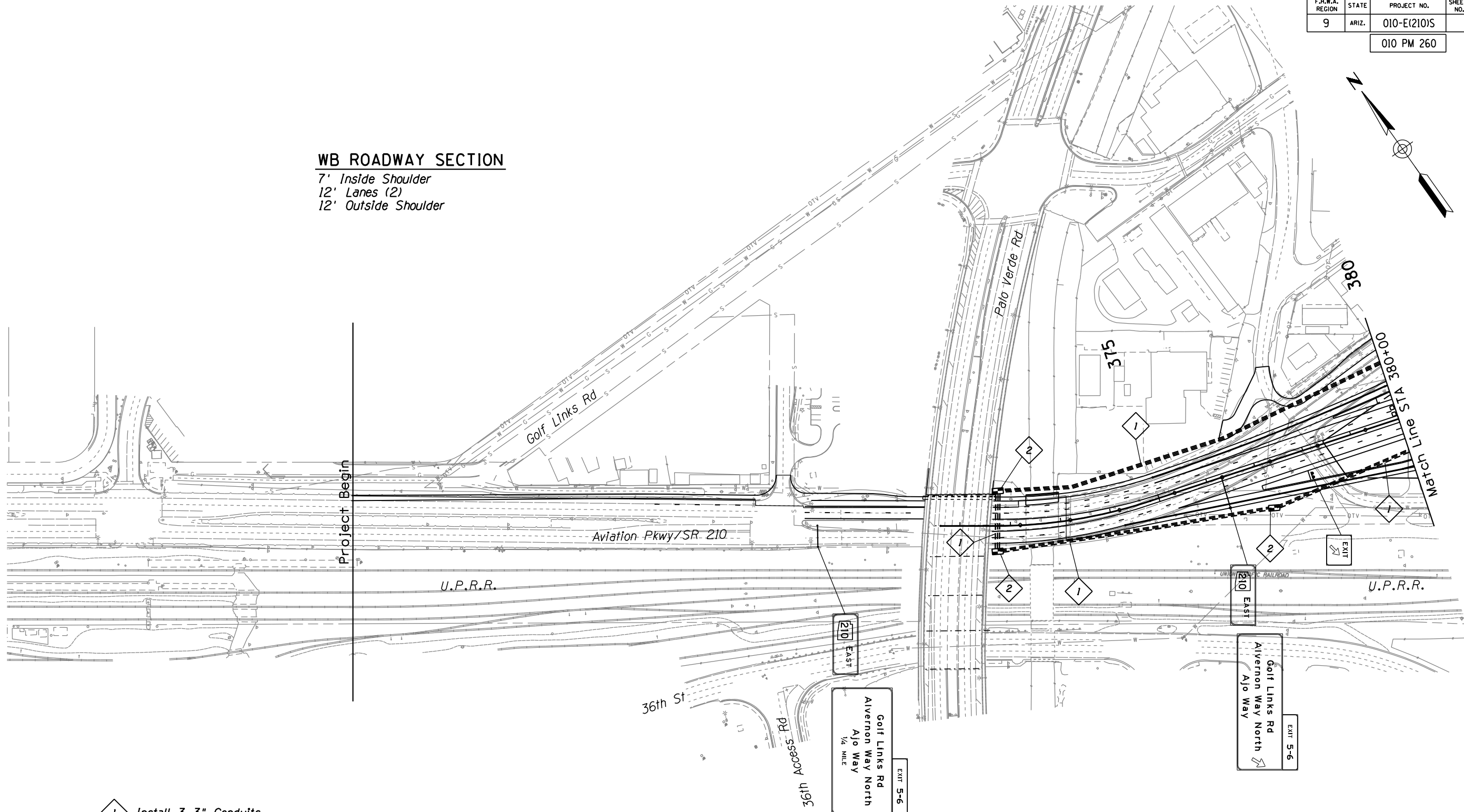
WB ROADWAY SECTION

7' Inside Shoulder
12' Lanes (2)
12' Outside Shoulder

EB ROADWAY SECTION

7' Inside Shoulder
12' Lanes (2)
12' Outside Shoulder

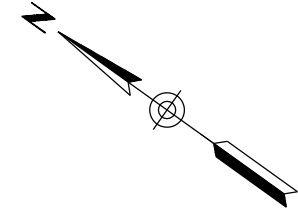
- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box



DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	04-20		
CHECKED	SMK	DATE	04-20		
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS	
SR 210 SYSTEM ALT 4 STA 370+00 TO STA 380+00					
ROUTE	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD			SHEET TS01.24
SR 210		SR 210 - GOLF LINKS ROAD TO I-10			
TRACS NO. H7825 OIL			010-E(210)S		
					OF

SURVEY NO. DATE FINISHED PLANS REVISIONS LOCATION DATE FINISHED PLANS REVISIONS LOCATION DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			
010 PM 260					

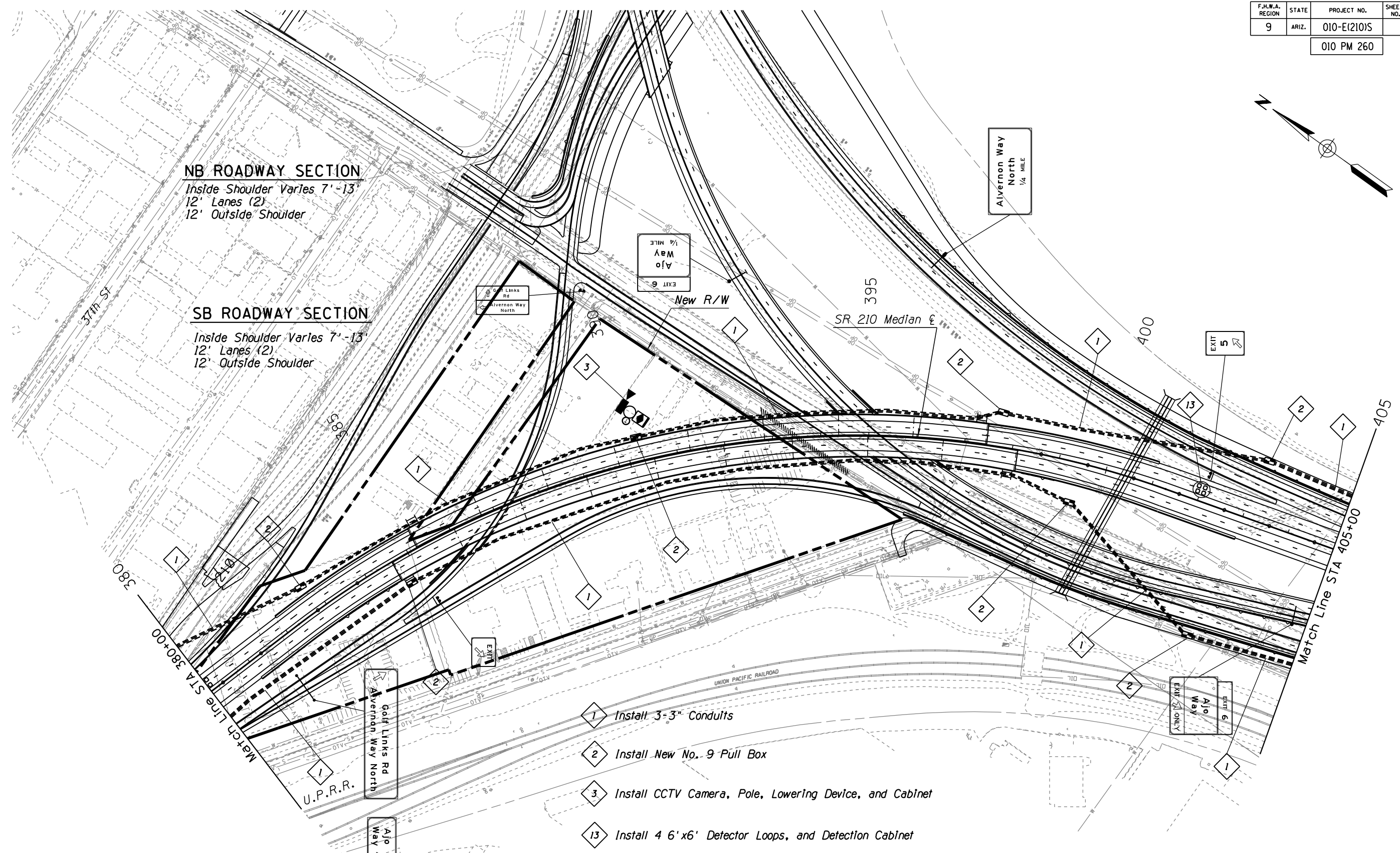


NB ROADWAY SECTION

Inside Shoulder Varies 7'-13'
12' Lanes (2)
12' Outside Shoulder

SB ROADWAY SECTION

Inside Shoulder Varies 7'-13'
12' Lanes (2)
12' Outside Shoulder



- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 13 Install 4 6' x 6' Detector Loops, and Detection Cabinet

SURVEY NO. FINISHED PLANS DATE LOCATION REVISIONS FINISHED PLANS DATE SURVEY NO. FINISHED PLANS DATE LOCATION REVISIONS FINISHED PLANS DATE SURVEY NO.

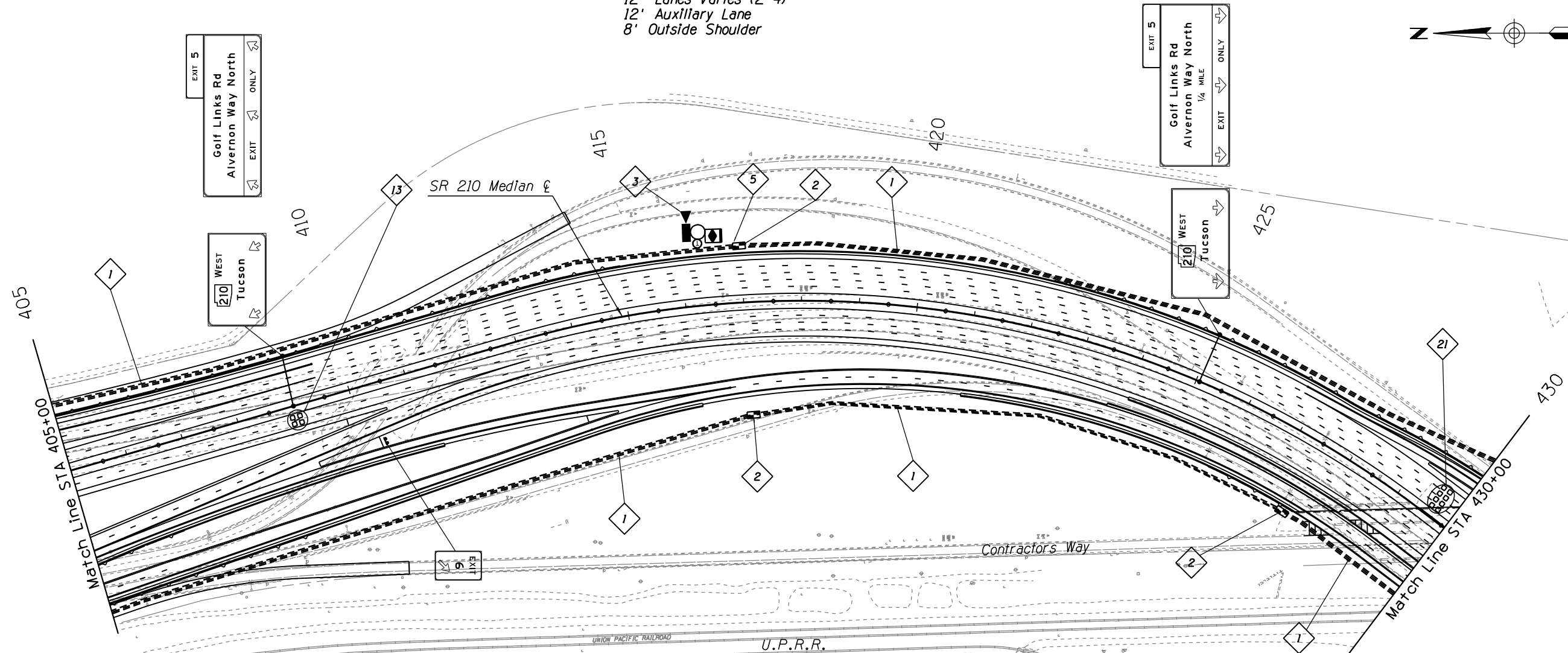
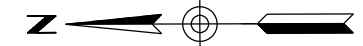
DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	04-20		
CHECKED	SMK	DATE	04-20		
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS SR 210 SYSTEM ALT 4 STA 380+00 TO STA 405+00	
ROUTE	SR 210	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10	SHEET TS01.25	
TRACS NO. H7825 OIL			010-E(210)S		
			OF		

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260

NB ROADWAY SECTION

13' Inside Shoulder
 12' Lanes Varies (2-4)
 12' Auxillary Lane
 8' Outside Shoulder



- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 5 Install 2-3" Conduits
- 13 Install 4 6'x6' Detector Loops, and Detection Cabinet
- 21 Install 8 6'x6' Detector Loops

SB ROADWAY SECTION

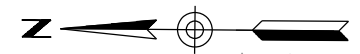
Inside Shoulder Varies 7'-13'
 12' Lanes Varies (2-4)
 Outside Shoulder Varies 8'-10'

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING	
DRAWN	JD	DATE	04-20			
CHECKED	SMK	DATE	04-20			
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS SR 210 SYSTEM ALT 4 STA 405+00 TO STA 430+00		
ROUTE	SR 210	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		SHEET	TS01.26
TRACS NO.	H7825 OIL			010-E(210)S		OF

SURVEY NO. FINISHED PLANS DATE LOCATION REVISIONS DATE FINISHED PLANS SURVEY NO. DATE LOCATION REVISIONS DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260

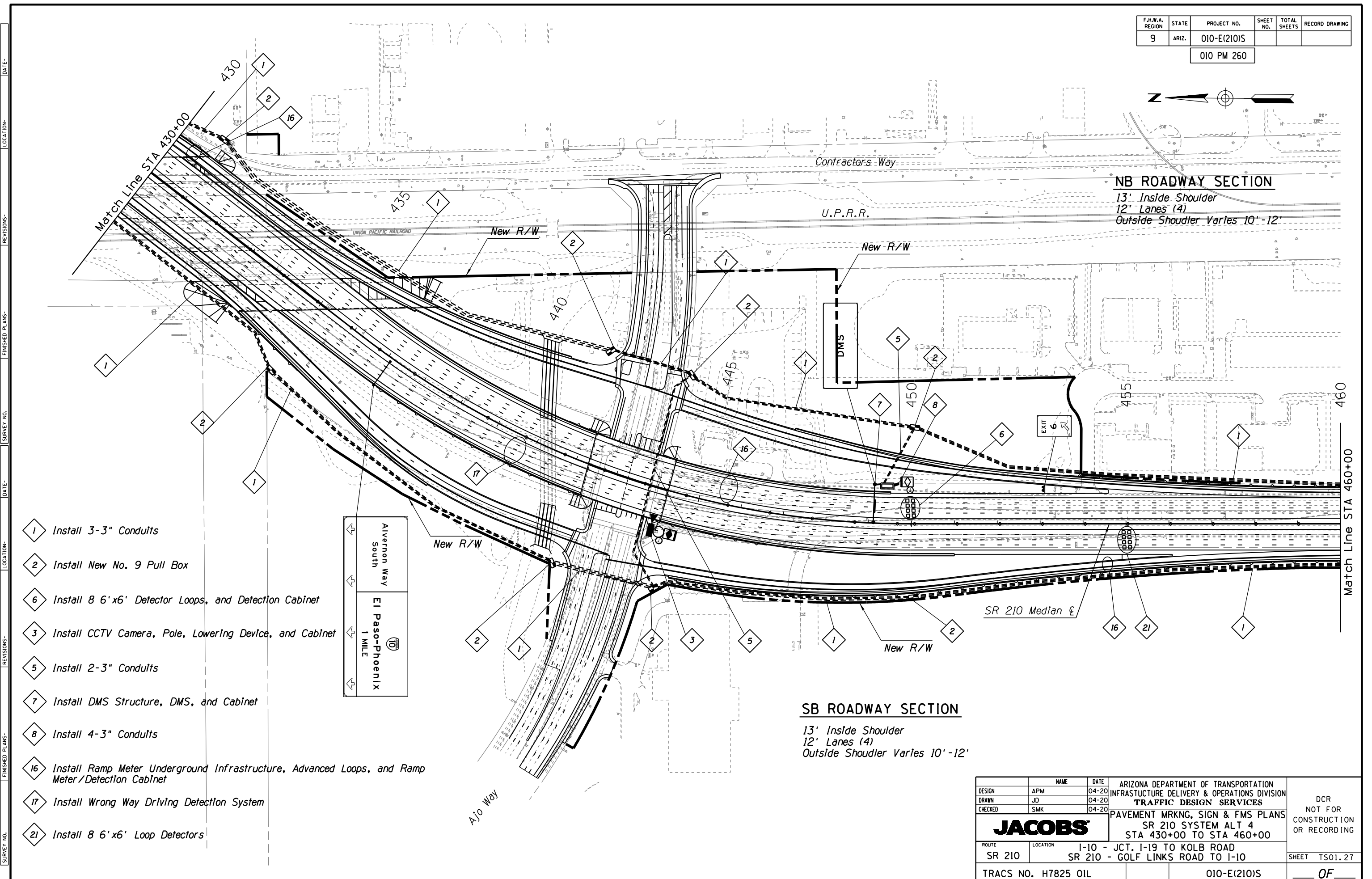


NB ROADWAY SECTION
 13' Inside Shoulder
 12' Lanes (4)
 Outside Shoudler Varies 10'-12'

SB ROADWAY SECTION
 13' Inside Shoulder
 12' Lanes (4)
 Outside Shoudler Varies 10'-12'

- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 6 Install 8 6'x6' Detector Loops, and Detection Cabinet
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 5 Install 2-3" Conduits
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Install 4-3" Conduits
- 16 Install Ramp Meter Underground Infrastructure, Advanced Loops, and Ramp Meter /Detection Cabinet
- 17 Install Wrong Way Driving Detection System
- 21 Install 8 6'x6' Loop Detectors

← Alvernon Way South
 ← El Paso-Phoenix 1 MILE
 ←

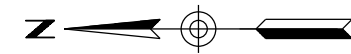


DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	04-20		
CHECKED	SMK	DATE	04-20		
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS SR 210 SYSTEM ALT 4 STA 430+00 TO STA 460+00	
ROUTE	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD			SHEET TS01.27
SR 210		SR 210 - GOLF LINKS ROAD TO I-10			
TRACS NO. H7825 OIL			010-E(210)S		
					OF

SURVEY NO. FINISHED PLANS. DATE. LOCATION. REVISIONS. FINISHED PLANS. DATE. LOCATION. REVISIONS. SURVEY NO.

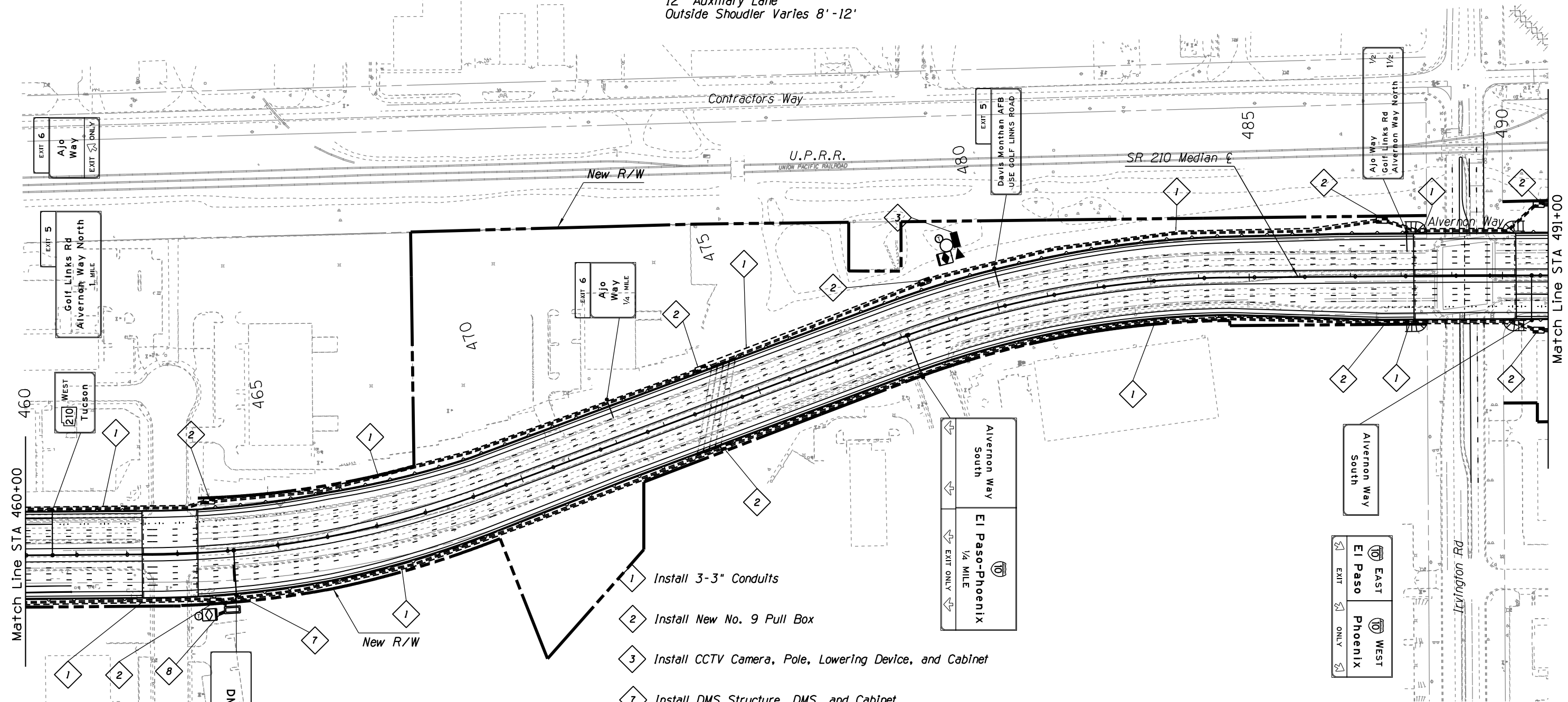
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



NB ROADWAY SECTION

13' Inside Shoulder
 12' Lanes (4)
 12' Auxiliary Lane
 Outside Shoudler Varies 8'-12'



- 1 Install 3-3" Conduits
- 2 Install New No. 9 Pull Box
- 3 Install CCTV Camera, Pole, Lowering Device, and Cabinet
- 7 Install DMS Structure, DMS, and Cabinet
- 8 Install 4-3" Conduits

SB ROADWAY SECTION

13' Inside Shoulder
 12' Lanes (4)
 12' Auxiliary Lane
 Outside Shoudler Varies 8'-12'

DESIGN	APM	DATE	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING	
DRAWN	JD	DATE	04-20			
CHECKED	SMK	DATE	04-20			
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS SR 210 SYSTEM ALT 4 STA 460+00 TO STA 491+00		
ROUTE	SR 210	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS ROAD TO I-10		SHEET	TS01.28
TRACS NO. H7825 OIL			010-E(210)S		OF	

SURVEY NO. FINISHED PLANS DATE LOCATION REVISIONS FINISHED PLANS DATE LOCATION REVISIONS FINISHED PLANS DATE LOCATION REVISIONS

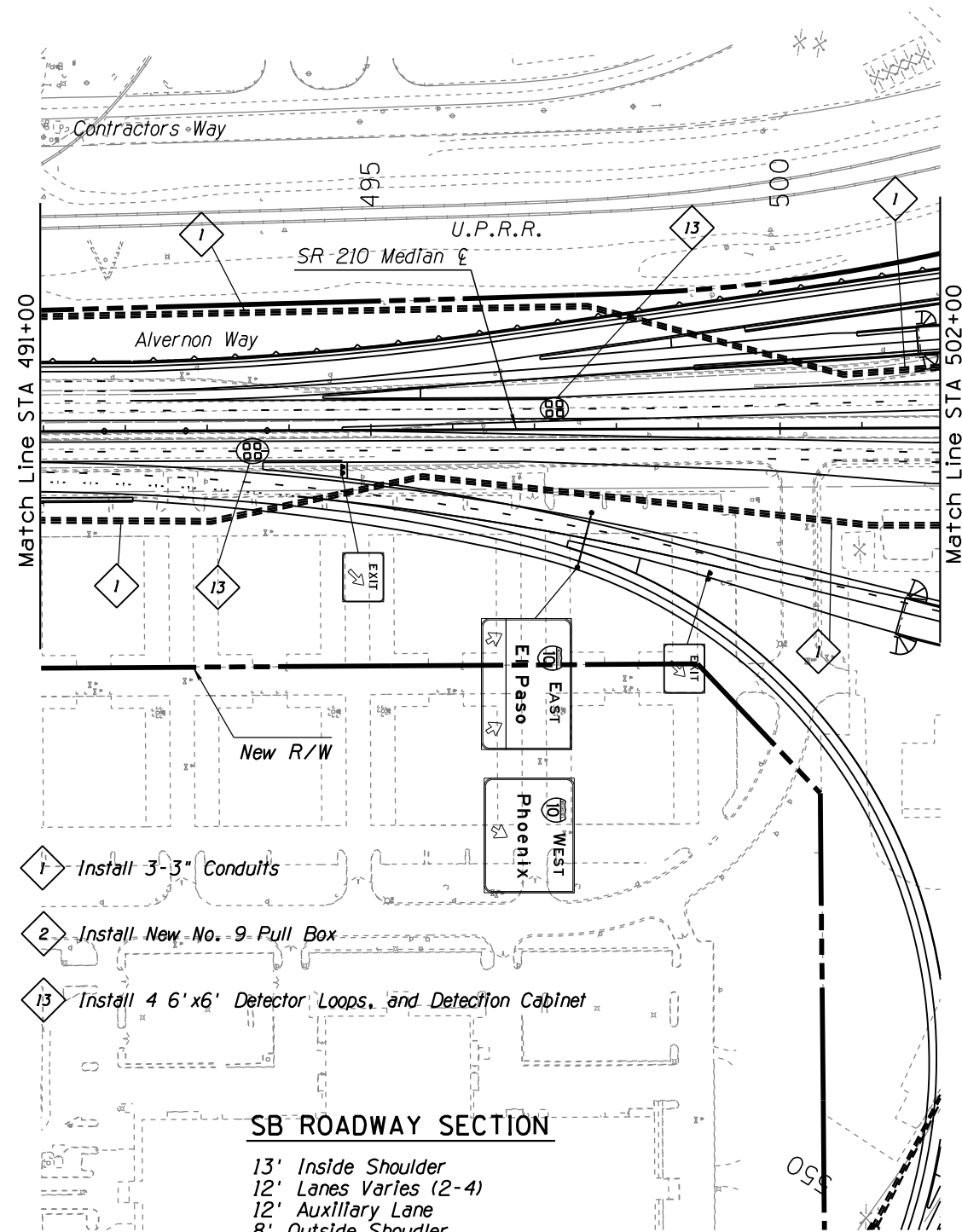
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)S			

010 PM 260



NB ROADWAY SECTION

13' Inside Shoulder
 12' Lanes Varies (2-5)
 8' Outside Shoudler



SB ROADWAY SECTION

13' Inside Shoulder
 12' Lanes Varies (2-4)
 12' Auxillary Lane
 8' Outside Shoudler

DESIGN	APM	04-20	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	04-20		
CHECKED	SMK	04-20		
JACOBS			PAVEMENT MRKNG, SIGN & FMS PLANS SR 210 SYSTEM ALT 4 STA 491+00 TO STA 502+00	
ROUTE	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - SR 210 - GOLF LINKS ROAD TO I-10		SHEET TS01.29
TRACS NO. H7825 01L			010-E(210)S	OF

SURVEY NO. FINISHED PLANS REVISIONS LOCATION DATE SURVEY NO. FINISHED PLANS REVISIONS LOCATION DATE SURVEY NO. FINISHED PLANS REVISIONS LOCATION DATE

**LIGHTING CRITERIA MEMORANDUM
FOR
INTERSTATE 10 FROM I-19 TO KOLB ROAD /
STATE ROUTE 210 FROM GOLF LINKS ROAD TO I-10
DESIGN CONCEPT REPORT**

**ADOT TRACS No: H7825 01L
FEDERAL AID No: 010-E(210)A**

January 2019

Prepared for:

Arizona Department of Transportation

Prepared by:

101 North First Avenue, Suite 2600
Phoenix, AZ 85003
602.253.1200 (P)
602.253.1202 (F)

Lighting Analysis Basis of Design

Introduction

The Arizona Department of Transportation (ADOT) in cooperation with the Federal Highway Administration (FHWA) prepared a Feasibility Study to identify and evaluate alternatives for the improvement of Interstate 10 (I-10) from the Junction of I-19 to State Route 83 (SR 83) and the extension of the Barraza-Aviation Parkway (State Route 210) from Golf Links Road to I-10 in 2012. Two System Alternatives were identified as viable. Due to dramatic changes in the economic and growth outlook for the region, the 2012 Feasibility Study had to be updated to reflect these changes and to identify the effects these changes had on System Alternatives I and II. The Updated Feasibility Study presented the new analysis results for the new System IV concept, developed after the 2012 Feasibility Report was completed.

The Study area is located in the ADOT Southcentral District within the City of Tucson, the City of South Tucson and Pima County. A brief description of the proposed system alternatives is shown below:

Alternative I

In System Alternative I, SR 210 is extended southerly along Alvernon Way alignment to connect to I-10 at a system interchange. The extension is classified as an urban freeway and is elevated from north of the Union Pacific Railroad (UPRR) overpass to south of Irvington Road. Access to Ajo Way is provided via a diamond TI. SR 210 is grade-separated over Irvington Road.

Alternative IV

In System Alternative IV, SR 210 is extended southerly along the Alvernon Way alignment to connect to I-10 at a system interchange. The extension is classified as an urban freeway and is elevated from north of the UPRR overpass to south of Irvington Road. Access to Ajo Way is provided via a diamond TI. SR 210 is grade-separated over Irvington Road. Additionally, System Alternative IV involves the addition of collector distributor (CD) roadways adjacent to both the eastbound and westbound I-10 mainline roadway from Alvernon Way easterly through the Kolb Road TI.

Lighting Assumptions

1. LED luminaires will be used throughout the project limits.
2. Pole foundations, poles, mast arms, and junction boxes will comply with ADOT standard details.
3. The Light Loss Factor (LLF) for all LED lighting is 0.8.
4. RP-8-00 Illuminance standard for freeway class B
 - Average Illuminance of 0.6 (cd/m²)
 - Avg/Min Illum Ratio of 4:1
 - Minimum Illuminance of 0.2

Lighting Options

Upon review of the two roadway system alternatives, two separate lighting options were created for each alternative. It is to be noted that all lighting options described below use American Electric Luminaire with 10ft mast arms atop 30ft type G poles, for all ramps.

System Alternative I Lighting Option 1

In this option, American Electric Luminaires are mounted with 20-foot mast arms atop 40-foot type H poles on opposite sides of roadway in a staggered formation along the shoulders.

System Alternative I Lighting Option 2

In this option, Holophane high mast luminaires are mounted with twin luminaires atop 50-foot type U poles along the median.

System Alternative IV Lighting Option 1

In System Alternative IV Option 1, American Electric Luminaires are mounted with 20-foot mast arms atop 40-foot type H poles on opposite sides of roadway in a staggered formation along the shoulders, except for the roadway section with the collector distributor. For the roadway section with the collector distributor, American Electric Luminaires are mounted with 20 ft mast arms atop 40 ft H poles on opposite sides of roadway along the shoulders and Holophane high mast luminaires mounted with twin luminaires atop 50-foot type U poles along the median, in a staggered formation.

System Alternative IV Lighting Option 2

In System Alternative IV Option 2, on I-10, Holophane High Mast luminaires are mounted on the outer medians (between the mainline and the collector-distributor road for each direction) with twin luminaire brackets atop 50-foot type U poles. On SR210, Holophane high mast luminaires are mounted with twin luminaire brackets atop 69 ft type U poles along the Median.

A depiction of the scenarios described above is included in **Appendix A** of this memorandum.

Lighting Analysis

Analysis to determine the layout of the luminaires was conducted by determining cross sectional lengths of the roadways lane configurations. **AGI32-17.5** software was utilized to determine spacing of the luminaires along the project limits for each system alternative. Table 1 and Table 2 show the roadway cross section widths for each roadway section and the typical pole spacing and the number of poles for the options 1 and 2 of system alternative I. Table 3 and Table 4 show the roadway cross section widths for each roadway section and the typical pole spacing and the number of poles for the options 1 and 2 of system alternative IV. Table 5 shows the pole spacing and the total number of poles for each type of ramp configuration.

Table 1: Alt I Option 1 roadway configuration and pole spacing on the I-10 and SR210.

I-10 lighting Alt I Option 1							
Station Numbers		Length of Section (ft)	WB Width (ft)	Median (ft)	EB Width (ft)	Typical Pole Spacing (ft)	Number of H Poles
325+35	355+42	3008	72	8	72	215	28
355+42	359+00	359	100	2	112	205	4
359+00	370+00	1100	117.4	2	112	205	12
370+00	375+93	594	112	2	100	205	6
375+93	397+99	2206	75	6	87	195	24
397+99	430+50	3251	76	4	76	215	32
430+50	438+30	780	86	4	86	185	10
438+30	591+05	15274	60	32	60	220	140
591+05	692+00	10095	96	32	96	205	100
692+00	715+00	2300	110	32	106	205	24
715+00	877+50	16250	84	32	84	205	160
877+50	892+10	1460	84	32	84	205	16
892+10	902+10	1000	72	32	72	195	12
902+10	911+40	930	72	32	60	195	10
911+40	925+00	1360	60	32	48	220	14
SR 210 lighting Alt I Option 1							
413+04	426+70	1366	83	4	69	200	14
426+70	460+50	3380	69	4	71	235	30
460+50	470+00	950	72	4	83	200	10
470+00	484+60	1460	71	4	71	235	14
484+60	490+15	555	83	4	72	200	6
490+15	494+60	445	79	4	39	210	6
494+60	496+95	235	37	4	37	425	2
496+95	499+90	295	58	4	54	270	4
499+90	502+00	210	66	4	54	300	2
502+00	506+90	490	66	4	64	300	4
506+90	513+85	695	66	4	54	300	6
Total Number of H Poles							690

Table 2: Alt I Option 2 roadway configuration and pole spacing on the I-10 and SR210.

I-10 lighting Alt I Option 2							
Station Numbers		Length of Section (ft)	WB Width (ft)	Median (ft)	EB Width (ft)	Typical Pole Spacing (ft)	Number of U Poles
325+35	355+42	3008	72	8	72	325	10
355+42	359+00	359	100	2	112	275	2
359+00	370+00	1100	117.4	2	112	240	5
370+00	375+93	594	112	2	100	270	3
375+93	397+99	2206	75	6	87	260	9
397+99	430+50	3251	76	4	76	315	11
430+50	438+30	780	86	4	86	300	3
438+30	591+05	15274	60	32	60	320	48
591+05	692+00	10095	96	32	96	275	37
692+00	715+00	2300	110	32	106	260	9
715+00	877+50	16250	84	32	84	300	55
877+50	892+10	1460	84	32	84	300	5
892+10	902+10	1000	72	32	72	300	4
902+10	911+40	930	72	32	60	300	4
911+40	925+00	1360	60	32	48	320	5
SR 210 lighting Alt I Option 2							
413+04	426+70	1366	83	4	69	315	5
426+70	460+50	3380	69	4	71	325	11
460+50	470+00	950	72	4	83	315	4
470+00	484+60	1460	71	4	71	325	5
484+60	490+15	555	83	4	72	315	2
490+15	494+60	445	79	4	39	315	2
494+60	496+95	235	37	4	37	345	1
496+95	499+90	295	58	4	54	330	1
499+90	502+00	210	66	4	54	330	1
502+00	506+90	490	66	4	64	330	2
506+90	513+85	695	66	4	54	330	3
Total Number of U Poles							247

Table 3: Alt IV Option 1 roadway configuration and pole spacing on the I-10 and SR210.

I-10 lighting Alt IV Option 1								
Station Numbers		Length of Section (ft)	WB Width (ft)	Median (ft)	EB Width (ft)	Typical Pole Spacing (ft)	Number of H Poles	Number of U Poles
325+35	355+42	3008	72	8	72	215	28	0
355+42	359+00	359	100	2	112	205	4	0
359+00	370+00	1100	117.4	2	112	205	12	0
370+00	375+93	594	112	2	100	205	6	0
375+93	397+99	2206	75	6	87	195	24	0
397+99	430+50	3251	76	4	76	215	32	0
430+50	438+30	780	86	4	86	185	10	0
438+30	548+00	10970	60	32	60	220	100	0
548+00	568+80	2080	98	4	98	495	10	5
568+80	591+05	2225	86	4	132	445	10	5
591+05	634+85	4381	134	4	146	400	22	11
634+85	669+90	3505	134	4	134	440	16	8
669+90	692+00	2210	147	4	147	400	12	6
692+00	715+00	2300	134	4	132	440	12	6
715+00	877+50	16250	132	4	132	445	74	37
877+50	892+10	1460	84	32	84	205	16	0
892+10	902+10	1000	72	32	72	195	12	0
902+10	911+40	930	72	32	60	195	10	0
911+40	925+00	1360	60	32	48	220	14	0
SR 210 lighting Alt IV Option 1								
413+04	426+70	1366	83	4	69	200	14	0
426+70	460+50	3380	69	4	71	235	30	0
460+50	470+00	950	72	4	83	200	10	0
470+00	484+60	1460	71	4	71	235	14	0
484+60	490+15	555	83	4	72	200	6	0
490+15	494+60	445	79	4	39	210	6	0
494+60	496+95	235	37	4	37	425	2	0
496+95	499+90	295	58	4	54	270	4	0
499+90	502+00	210	66	4	54	300	2	0
502+00	506+90	490	66	4	64	300	4	0
506+90	513+85	695	66	4	54	300	6	0
Total Number of H Poles							522	N/A
Total Number of U Poles							N/A	78
Total Number of Poles							600	

Table 4: Alt IV Option 2 roadway configuration and pole spacing on the I-10 and SR210.

I-10 lighting Alt IV Option 2									
Station Numbers		Length of Section (ft)	WB Width (ft)	Median (ft)	EB Width (ft)	Typical Pole Spacing (ft)		Number of U Poles	
325+35	355+42	3008	72	8	72	325		10	
355+42	359+00	359	100	2	112	275		2	
359+00	370+00	1100	117.4	2	112	240		5	
370+00	375+93	594	112	2	100	270		3	
375+93	397+99	2206	75	6	87	260		9	
397+99	430+50	3251	76	4	76	315		11	
430+50	438+30	780	86	4	86	300		3	
438+30	548+00	10970	60	32	60	320		35	
548+00	568+80	2080	98	4	98	300		7	
568+80	591+05	2225	86	4	132	330		7	
Station Numbers	Length of Section (ft)	WB Width		EB Width		Typical Pole Spacing WB (ft)	Typical Pole Spacing EB (ft)	Number of U Poles	
		Outer Lanes	Inner Lanes	Inner Lanes	Outer Lanes				
591+05	634+85	4381	64	82	70	64	325	310	28
634+85	669+90	3505	64	70	70	64	325	325	22
669+90	692+00	2210	64	58	58	64	275	320	15
692+00	715+00	2300	64	68	70	64	325	330	15
715+00	877+50	16250	64	68	68	64	330	330	99
877+50	892+10	1460	84	32	84		300		5
892+10	902+10	1000	72	32	72		300		4
902+10	911+40	930	72	32	60		300		4
911+40	925+00	1360	60	32	48		320		5
SR 210 lighting Alt IV Option 2									
413+04	426+70	1366	83	4	69	315		5	
426+70	460+50	3380	69	4	71	325		11	
460+50	470+00	950	72	4	83	315		4	
470+00	484+60	1460	71	4	71	325		5	
484+60	490+15	555	83	4	72	315		2	
490+15	494+60	445	79	4	39	315		2	
494+60	496+95	235	37	4	37	345		1	
496+95	499+90	295	58	4	54	330		1	
499+90	502+00	210	66	4	54	330		1	
502+00	506+90	490	66	4	64	330		2	
506+90	513+85	695	66	4	54	330		3	
Total Number of U Poles									326

Table 5: Ramp classifications and Spacing.

Ramp Classification	Inside Shoulder (ft)	# Lanes (12')	Outside Shoulder (ft)	Ramp Width (ft)	Spacing ATBL_G (ft)	Total Length of Ramps (ft)	Number of G Poles
1 Lane	2	1	8	22	190	44085	246
2 Lanes	2	2	2	28	190	30872	188
3 Lanes	2	3	2	40	170	1410	9
Total Number of G Poles							443

Preliminary Cost Analysis

Using the Arizona Department of Transportation standards, the cost of each component within the system alternatives and each option for the lighting design of the I-10 DCR and SR210 were chosen. The quantity for each item within the lighting alternatives, were then determined, these items consist of but are not limited to: Poles, Foundations, Twin Luminaire Brackets, Mast arms, Conduits, and Conductors. Table 6, shows the construction sub-total cost for Alternative I option 1. Table 7, shows the construction sub-total cost for Alternative I option 2. Table 8 shows the construction sub-total cost for Alternative IV option 1. Lastly, Table 9, shows the construction sub-total cost for Alternative IV option 2.

Table 6: Alternative I Option 1 Cost Estimate.

Alternative I Option 1 Cost Estimate					
ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	AMOUNT
7310170	POLE (TYPE U)	EACH	0	\$ 2,800.00	\$ -
7310090	POLE (TYPE H) (STANDARD BASE)	EACH	690	\$ 1,470.00	\$ 1,014,300.00
7310071	POLE (TYPE G) (SLIP AWAY BASE)	EACH	443	\$ 2,600.00	\$ 1,151,800.00
7310350	POLE FOUNDATION (TYPE U)	EACH	0	\$ 4,000.00	\$ -
7310270	POLE FOUNDATION (TYPE H) (STANDARD BASE)	EACH	690	\$ 1,200.00	\$ 828,000.00
7310261	POLE FOUNDATION (TYPE G) (SLIP AWAY BASE)	EACH	443	\$ 2,040.00	\$ 903,720.00
7360104	LUMINAIRE (High) (LED Holophane High Mast)	EACH	0	\$ 1,400.00	\$ -
7360105	LUMINAIRE (LED American Electric Luminaire)	EACH	1,133	\$ 1,000.00	\$ 1,133,000.00
7310511	MAST ARM (10 FT.) (TAPERED)	EACH	443	\$ 370.00	\$ 163,910.00
7310551	MAST ARM (20 FT.) (TAPERED)	EACH	690	\$ 660.00	\$ 455,400.00
7310710	TWIN LUMINAIRE BRACKET	EACH	0	\$ 170.00	\$ -
7360243	LOAD CENTER CABINET TYPE IV (240/480 VOLT)	EACH	16	\$ 7,878.00	\$ 126,048.00
7360290	LOAD CENTER CABINET FOUNDATION	EACH	16	\$ 675.00	\$ 10,800.00
7320410	PULL BOX (NO. 5)	EACH	1,133	\$ 480.00	\$ 543,840.00
7320070	ELECTRICAL CONDUIT (3") (PVC)	L.FT.	165,585	\$ 11.00	\$ 1,821,435.00
7320520	CONDUCTOR (NO. 8)	L.FT.	489,790	\$ 0.60	\$ 293,874.00
7320585	CONDUCTOR (INSULATED BOND) (NO. 8 GREEN BOND)	L.FT.	244,895	\$ 0.60	\$ 146,937.00
CONSTRUCTION SUB-TOTAL					\$ 8,593,064.00

Table 7: Alternative I Option 2 Cost Estimate.

Alternative I Option 2 Cost Estimate					
ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	AMOUNT
7310170	POLE (TYPE U)	EACH	247	\$ 2,800.00	\$ 691,600.00
7310090	POLE (TYPE H) (STANDARD BASE)	EACH	0	\$ 1,470.00	\$ -
7310071	POLE (TYPE G) (SLIP AWAY BASE)	EACH	443	\$ 2,600.00	\$ 1,151,800.00
7310350	POLE FOUNDATION (TYPE U)	EACH	247	\$ 4,000.00	\$ 988,000.00
7310270	POLE FOUNDATION (TYPE H) (STANDARD BASE)	EACH	0	\$ 1,200.00	\$ -
7310261	POLE FOUNDATION (TYPE G) (SLIP AWAY BASE)	EACH	443	\$ 2,040.00	\$ 903,720.00
7360104	LUMINAIRE (High) (LED Holophane High Mast)	EACH	494	\$ 1,400.00	\$ 691,600.00
7360105	LUMINAIRE (LED American Electric Luminaire)	EACH	443	\$ 1,000.00	\$ 443,000.00
7310511	MAST ARM (10 FT.) (TAPERED)	EACH	443	\$ 370.00	\$ 163,910.00
7310551	MAST ARM (20 FT.) (TAPERED)	EACH	0	\$ 660.00	\$ -
7310710	TWIN LUMINAIRE BRACKET	EACH	247	\$ 170.00	\$ 41,990.00
7360243	LOAD CENTER CABINET TYPE IV (240/480 VOLT)	EACH	16	\$ 7,878.00	\$ 126,048.00
7360290	LOAD CENTER CABINET FOUNDATION	EACH	16	\$ 675.00	\$ 10,800.00
7320410	PULL BOX (NO. 5)	EACH	690	\$ 480.00	\$ 331,200.00
7320070	ELECTRICAL CONDUIT (3") (PVC)	L.FT.	82,793	\$ 11.00	\$ 910,723.00
7320520	CONDUCTOR (NO. 8)	L.FT.	262,186	\$ 0.60	\$ 157,311.60
7320585	CONDUCTOR (INSULATED BOND) (NO. 8 GREEN BOND)	L.FT.	131,093	\$ 0.60	\$ 78,655.80
CONSTRUCTION SUB-TOTAL					\$ 6,690,358.40

Table 8: Alternative IV Option 1 Cost Estimate.

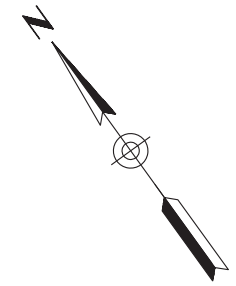
Alternative IV Option 1 Cost Estimate					
ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	AMOUNT
7310170	POLE (TYPE U)	EACH	78	\$ 2,800.00	\$ 218,400.00
7310090	POLE (TYPE H) (STANDARD BASE)	EACH	522	\$ 1,470.00	\$ 767,340.00
7310071	POLE (TYPE G) (SLIP AWAY BASE)	EACH	443	\$ 2,600.00	\$ 1,151,800.00
7310350	POLE FOUNDATION (TYPE U)	EACH	78	\$ 4,000.00	\$ 312,000.00
7310270	POLE FOUNDATION (TYPE H) (STANDARD BASE)	EACH	522	\$ 1,200.00	\$ 626,400.00
7310261	POLE FOUNDATION (TYPE G) (SLIP AWAY BASE)	EACH	443	\$ 2,040.00	\$ 903,720.00
7360104	LUMINAIRE (High) (LED Holophane High Mast)	EACH	156	\$ 1,400.00	\$ 218,400.00
7360105	LUMINAIRE (LED American Electric Luminaire)	EACH	965	\$ 1,000.00	\$ 965,000.00
7310511	MAST ARM (10 FT.) (TAPERED)	EACH	443	\$ 370.00	\$ 163,910.00
7310551	MAST ARM (20 FT.) (TAPERED)	EACH	522	\$ 660.00	\$ 344,520.00
7310710	TWIN LUMINAIRE BRACKET	EACH	78	\$ 170.00	\$ 13,260.00
7360243	LOAD CENTER CABINET TYPE IV (240/480 VOLT)	EACH	16	\$ 7,878.00	\$ 126,048.00
7360290	LOAD CENTER CABINET FOUNDATION	EACH	16	\$ 675.00	\$ 10,800.00
7320410	PULL BOX (NO. 5)	EACH	1,043	\$ 480.00	\$ 500,640.00
7320070	ELECTRICAL CONDUIT (3") (PVC)	L.FT.	165,585	\$ 11.00	\$ 1,821,435.00
7320520	CONDUCTOR (NO. 8)	L.FT.	463,890	\$ 0.60	\$ 278,334.00
7320585	CONDUCTOR (INSULATED BOND) (NO. 8 GREEN BOND)	L.FT.	231,945	\$ 0.60	\$ 139,167.00
CONSTRUCTION SUB-TOTAL					\$ 8,561,174.00

Table 9: Alternative IV Option 2 Cost Estimate.

Alternative IV Option 2 Cost Estimate					
ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	AMOUNT
7310170	POLE (TYPE U)	EACH	326	\$ 2,800.00	\$ 912,800.00
7310090	POLE (TYPE H) (STANDARD BASE)	EACH	0	\$ 1,470.00	\$ -
7310071	POLE (TYPE G) (SLIP AWAY BASE)	EACH	443	\$ 2,600.00	\$ 1,151,800.00
7310350	POLE FOUNDATION (TYPE U)	EACH	326	\$ 4,000.00	\$ 1,304,000.00
7310270	POLE FOUNDATION (TYPE H) (STANDARD BASE)	EACH	0	\$ 1,200.00	\$ -
7310261	POLE FOUNDATION (TYPE G) (SLIP AWAY BASE)	EACH	443	\$ 2,040.00	\$ 903,720.00
7360104	LUMINAIRE (High) (LED Holophane High Mast)	EACH	652	\$ 1,400.00	\$ 912,800.00
7360105	LUMINAIRE (LED American Electric Luminaire)	EACH	443	\$ 1,000.00	\$ 443,000.00
7310511	MAST ARM (10 FT.) (TAPERED)	EACH	443	\$ 370.00	\$ 163,910.00
7310551	MAST ARM (20 FT.) (TAPERED)	EACH	0	\$ 660.00	\$ -
7310710	TWIN LUMINAIRE BRACKET	EACH	326	\$ 170.00	\$ 55,420.00
7360243	LOAD CENTER CABINET TYPE IV (240/480 VOLT)	EACH	16	\$ 7,878.00	\$ 126,048.00
7360290	LOAD CENTER CABINET FOUNDATION	EACH	16	\$ 675.00	\$ 10,800.00
7320410	PULL BOX (NO. 5)	EACH	769	\$ 480.00	\$ 369,120.00
7320070	ELECTRICAL CONDUIT (3") (PVC)	L.FT.	82,793	\$ 11.00	\$ 910,723.00
7320520	CONDUCTOR (NO. 8)	L.FT.	273,246	\$ 0.60	\$ 163,947.60
7320585	CONDUCTOR (INSULATED BOND) (NO. 8 GREEN BOND)	L.FT.	136,623	\$ 0.60	\$ 81,973.80
CONSTRUCTION SUB-TOTAL					\$ 7,510,062.40

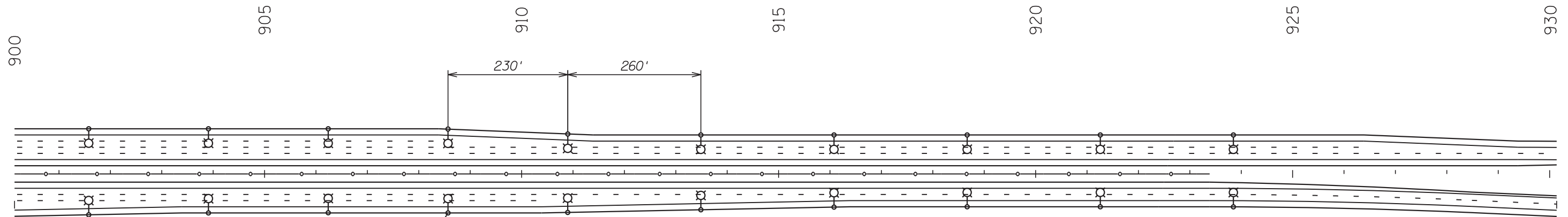
Appendix A

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)A			



WB ROADWAY SECTION

12' Inside Shoulder
 12' Lanes (5)
 12' Auxiliary Lane
 12' Outside Shoulder



American Electric Luminaire
 (45° MH) Typ.

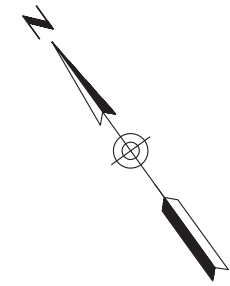
EB ROADWAY SECTION

12' Inside Shoulder
 12' Lanes (5)
 12' Auxiliary Lane
 12' Outside Shoulder

SURVEY NO. FINISHED PLANS DATE LOCATION REVISIONS DATE

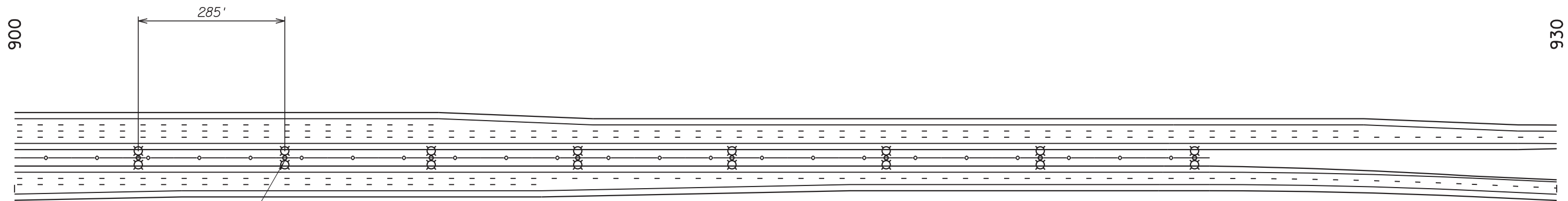
DESIGN	APM	DATE	06-17	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	06-17		
CHECKED	SMK	DATE	06-17		
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 Alt 1 Option 1 STA 900+00 TO STA 930+00	
ROUTE	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS TO I-10			SHEET
TRACS NO. H7825 OIL			010-E(210)A		OF

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)A			



WB ROADWAY SECTION

12' Inside Shoulder
 12' Lanes Varies (3-4)
 12' Outside Shoulder



Holophane High Mast
 (69' MH) Typ.

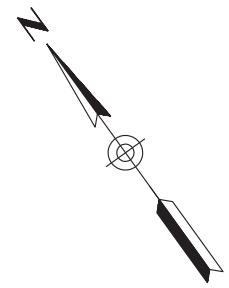
EB ROADWAY SECTION

12' Inside Shoulder
 12' Lanes Varies (3-4)
 12' Outside Shoulder

DESIGN	APM	DATE	06-17	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	06-17		
CHECKED	SMK	DATE	06-17		
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 Alt 1 Option 2 STA 900+00 TO STA 930+00	
ROUTE	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS TO I-10			SHEET
TRACS NO. H7825 OIL			010-E(210)A		OF

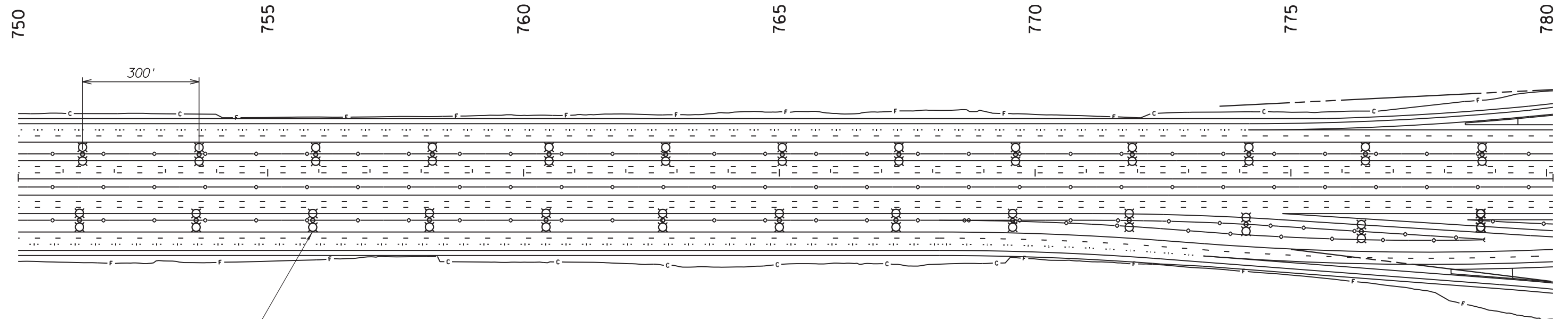
SURVEY NO. DATE FINISHED PLANS REVISIONS LOCATION DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)A			



WB ROADWAY SECTION

24' Inside Shoulder
 12' Lanes (3)
 12' Auxiliary Lane
 12' Outside Shoulder
 12' Exit Lanes (2)



EB ROADWAY SECTION

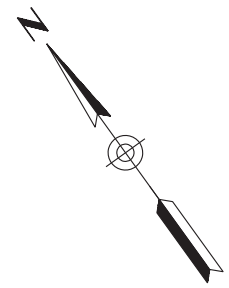
24' Inside Shoulder
 12' Lanes (3)
 12' Auxiliary Lane
 12' Outside Shoulder
 12' Exit Lanes (2)

Holophane High Mast
 (69' MH) Typ.

DESIGN	APM	DATE	06-17	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	06-17		
CHECKED	SMK	DATE	06-17		
JACOBS				PAVEMENT MRKNG, SIGN & FMS PLANS I-10 Alt IV Option 2 STA 750+00 TO STA 780+00	
ROUTE	I-10	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS TO I-10		SHEET
TRACS NO.	H7825 OIL		010-E(210)A		OF

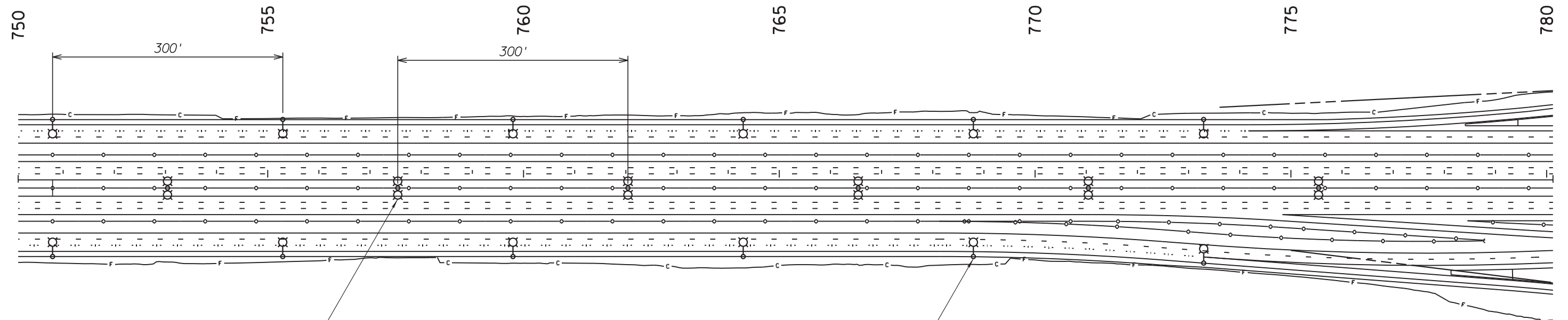
SURVEY NO. FINISHED PLANS DATE REVISIONS LOCATION DATE FINISHED PLANS REVISIONS DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)A			



WB ROADWAY SECTION

24' Inside Shoulder
 12' Lanes (3)
 12' Auxiliary Lane
 12' Outside Shoulder
 12' Exit Lanes (2)



Holophane High Mast
 (69' MH) Typ.

American Electric Luminance
 (45' MH) Typ.

EB ROADWAY SECTION

24' Inside Shoulder
 12' Lanes (3)
 12' Auxiliary Lane
 12' Outside Shoulder
 12' Exit Lanes (2)

SURVEY NO. DATE FINISHED PLANS REVISIONS LOCATION DATE FINISHED PLANS REVISIONS LOCATION DATE

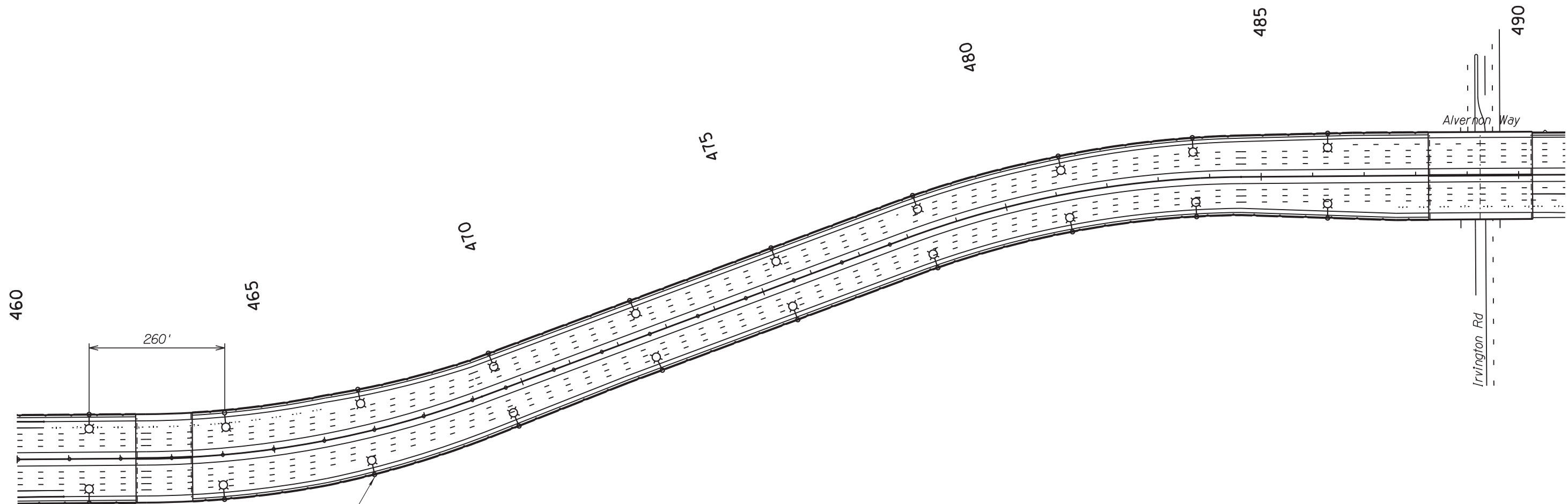
DESIGN	APM	DATE	08-17	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES PAVEMENT MRKNG, SIGN & FMS PLANS I-10 Alt IV Option I STA 750+00 TO STA 780+00	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	08-17			
CHECKED	SMK				
JACOBS		ROUTE	I-10	LOCATION	I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS TO I-10
TRACS NO. H7825 OIL		010-E(210)A		SHEET <u> </u> OF <u> </u>	

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)A			



NB ROADWAY SECTION

13' Inside Shoulder
 12' Lanes (4)
 12' Auxiliary Lane
 Outside Shoulder Varies 8' -12'



SB ROADWAY SECTION

13' Inside Shoulder
 12' Lanes (4)
 12' Auxiliary Lane
 Outside Shoulder Varies 8' -12'

American Electric Luminance
 (45' MH) Typ.

DESIGN	APM	DATE	06-17	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION TRAFFIC DESIGN SERVICES PAVEMENT MRKNG, SIGN & FMS PLANS SR 210 SYSTEM ALT 1-4 Option 1 STA 460+00 TO STA 491+00	DCR NOT FOR CONSTRUCTION OR RECORDING
DRAWN	JD	DATE	06-17		
CHECKED	SMK	DATE	06-17		
ROUTE		LOCATION		SHEET	
SR 210		I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS TO I-10			
TRACS NO. H7825 OIL			010-E(210)A		OF

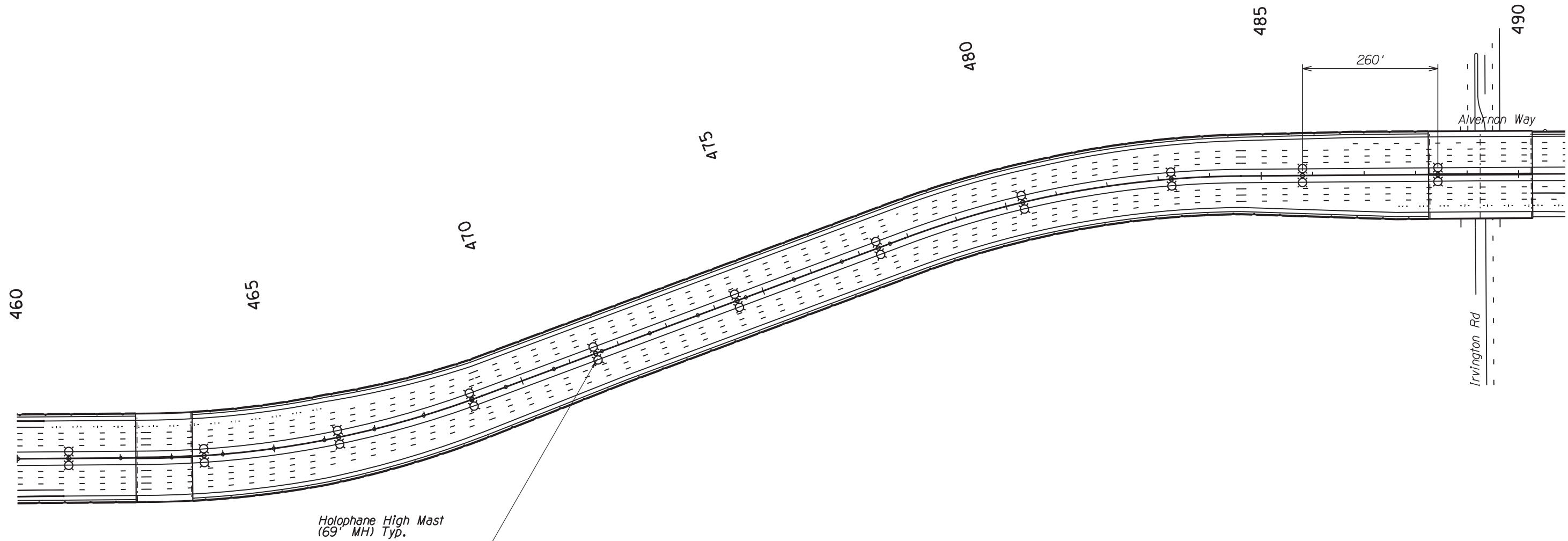
SURVEY NO. FINISHED PLANS REVISIONS LOCATION DATE FINISHED PLANS REVISIONS LOCATION DATE SURVEY NO. FINISHED PLANS REVISIONS LOCATION DATE

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	010-E(210)A			



NB ROADWAY SECTION

13' Inside Shoulder
 12' Lanes (4)
 12' Auxiliary Lane
 Outside Shoudler Varies 8'-12'



SB ROADWAY SECTION

13' Inside Shoulder
 12' Lanes (4)
 12' Auxiliary Lane
 Outside Shoudler Varies 8'-12'

DESIGN	NAME	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY & OPERATIONS DIVISION		DCR NOT FOR CONSTRUCTION OR RECORDING
APM		06-17	TRAFFIC DESIGN SERVICES		
JD		06-17	PAVEMENT MRKNG, SIGN & FMS PLANS		
SMK		06-17	SR 210 SYSTEM ALT 1-4 Option 2 STA 460+00 TO STA 491+00		
ROUTE		LOCATION		SHEET	
SR 210		I-10 - JCT. I-19 TO KOLB ROAD SR 210 - GOLF LINKS TO I-10			
TRACS NO. H7825 OIL			010-E(210)A		OF

SURVEY NO. FINISHED PLANS REVISIONS LOCATION DATE FINISHED PLANS REVISIONS LOCATION DATE SURVEY NO. FINISHED PLANS REVISIONS LOCATION DATE

**PRELIMINARY REVIEW COMMENTS
(CONTINUED)**

ARIZONA DEPARTMENT OF TRANSPORTATION

REVIEW COMMENTS

SUBMITTAL:	Signing concept review	PROJECT NAME:	I-10, I-19 to Kolb Road and SR-210, Golf Links Road to I-10 DCR/EA
RETURN DATE:	9/16/2019	PROJECT NO:	010 PM 260 H7825 01L 010-E(210)S
REVIEWED BY:	Ammon Heier (AH) Tom Deitering (TD) Aryan Lirange (AL)	TRACS NO. ROUTE NO. MILE POST NO.	H7825 I-10 260-272
DISCIPLINE/ OFFICE:	FHWA	DESIGNER/ CONSULTANT:	Jacobs Engineering
ADOT FAX NUMBER:		ADOT PROJECT MANAGER	Tazeen Dewan

ACTION CODES:
A= WILL COMPLY *B= CONSULTANT/DESIGNER TO EVALUATE
*C= ADOT TEAM TO EVALUATE *D= DESIGN TEAM RECOMMENDS NO FURTHER ACTION

*** REQUIRES A WRITTEN EXPLANATION AND FINAL DISPOSITION BY CONSULTANT/DESIGNER**

ITEM NO.	COMMENTS BY:	DWG, SHT, PAGE NO.	COMMENT	DISPOSITION	
				INIT.	FINAL
1	AH & TB	Signing Concept Review	Add Access Control lines to the graphics <i>Response: The access control lines will be added as separate plans as part of the COAR.</i>	D	D
2	AH & TB	Signing Concept Review	Add stationing to the graphics	A	A

ITEM NO.	DWG, SHT, PAGE NO.	COMMENT	DISPOSITION			
			INIT.	FINAL		
3	AH & TB	Signing Concept Review	<p>A general concern – every interchange allows potential for wrong way driving. A suggestion to look at each intersection treatment to see how wrong way entry can be made more difficult using median islands, bullnoses, striping, etc. DDIs have been shown to virtually eliminate wrong way entry. <i>Response: The project plans are preliminary and are designed to 15% level. A recommendation will be provided as part of Change of Access Report (COAR) for the final designer to address the wrong-way concerns at the interchanges during the final design process. The interchange types have been finalized as part of the DCR process and operational analysis shows they are anticipated to operate at an LOS C or better for the future build scenarios.</i></p>		D	D
4	AH & TB	Signing Concept Review	<p>EB exit sign at Exit 261 – Question appropriateness of having “4th Ave” on the sign. Consider using a secondary ground-mounted sign at the 6th Avenue intersection <i>Response: The 4th Avenue on the EB sign matches the existing signing conditions. The overall signing plan can be re-evaluated at the final design stage of the project.</i></p>		D	D
5	AH & TB	Signing Concept Review	<p>Between Kino and Park – there is a very short weave on the frontage road. It’s good that this weave is off the mainline. Can anything be done to increase the weave distance? Cover this in the Safety and Operational Analysis. <i>Response: We will evaluate the design to maximize the weaving distance to the extent possible. The final design project will need to refine the design parameters. We will evaluate this section for the safety and operational analysis.</i></p>		B/C	A
6	AH & TB	Signing Concept Review	<p>Kino - Suggested looking at a DDI. Would a DDI handle traffic and eliminate need for remaining loop ramp? <i>Response: The interchange types were evaluated during the feasibility study phase and have been reviewed/approved by the stakeholders and public. The operational analysis shows that the interchange operates at a LOS of D or better for the future build scenarios.</i></p>		D	D

**PRELIMINARY REVIEW COMMENTS
(CONTINUED)**

ITEM NO.	DWG, SHT, PAGE NO.	COMMENT	DISPOSITION	
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7	AH & TB	Signing Concept Review Kino - Does allowing left turns onto the EB I-10 on-ramp degrade efficiency of the signal? If there was no left turn, the median island could be extended and eliminate wrong way entry potential Response: The SB to EB left-turn has been removed for operational performance and update the design accordingly.	B	A
8	AH & TB	Signing Concept Review Kino - At the EB I-10 On-ramp, look at combining the loop and diamond ramps into a single lane before the Julian Wash bridge. Otherwise traffic has to merge over two lanes to stay on I-10. This would also spread out decision points Response: The project design is preliminary and has been designed to 15% level. The interchange design refinement can be evaluated during the final design process.	D	D
9	AH & TB	Signing Concept Review On SR 210, the graphics don't show what happens to some of the driveways. Also, the Contractors Way Cul de Sac has roads connecting to it. Will Alvernon/SR-210 be a controlled access facility north of I-10? Response: The cul-de-sac on Contractor's Way has two maintenance access roads for Tucson Electric Power to access their facilities along the SR-210 alignment. Alvernon Way/SR-210 is a controlled access facility between Golf Links Rd and I-10. The Ajo Way TI will be the only access point between Golf Links Road and I-10. Michigan Street and Irvington Road will cross under SR 210. Six driveways and three side street connections will be eliminated. Most of the affected parcels have alternate access points or will be acquired by this project.	D	D
10	AH & TB	Signing Concept Review Country Club – Consider a DDI to have less bridge width. Response: Several interchange types were considered during the feasibility stage. To improve driver expectancy the diamond interchange was utilized at all locations unless it was determined not to be feasible due to other constraints. The operational analysis for the I-10/Country Club Rd TI shows that the interchange operates at a LOS of D or better for the future build scenarios.	D	D

**PRELIMINARY REVIEW COMMENTS
(CONTINUED)**

ITEM NO.	DWG, SHT, PAGE NO.	COMMENT	DISPOSITION	
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11	AH & TB	Signing Concept Review Alvernon Exit-Only signs – there are two exit signs and the exit only is in the middle. Hard to understand when traveling at freeway speeds. Can you do one exit and then split after leaving I-10? This way the signs can be combined. Response: We will evaluate the EB exit to Alvernon Way and SR-210, east of Country Club Road to minimize the signing complexity for the I-10. The two exits are at least 600' apart to meet the minimum distance between consecutive ramps. The distance between the ramps can be further evaluated during the final design process.	B	D
12	AH & TB	Signing Concept Review In the WB direction, look at signing for a major diverge for traffic going to SR 210. Response: We will update the signing for I-10 in WB direction prior to the SR-210 interchange. We will evaluate adding the arrow-per-lane sign for the MUTCD guidelines.	A	A
13	AH & TB	Signing Concept Review Between Valencia and Craycroft – show access control lines. The CD roads should be within Interstate Access Control since this is a split diamond Response: Please confirm that the CD roads between Valencia Road and Craycroft Road will be access-controlled. This will limit providing access to the properties along the frontage road. The access control lines will be added as separate plans as part of the COAR.	C	D
14	AH & TB	Signing Concept Review Kolb – Have never seen a 2-lane forced exit. This again forces traffic to merge over two lanes. Response: We will update the design/operational analysis to show the GP lane past the gore point, and merge with the mainline to remove the 2-lane exit scenario.	A	A
15	AH & TB	Signing Concept Review Kolb - Suggestion that from Wilmot EB – go back to 4 lanes with 1 aux lane. Response: The number of lanes for I-10 was based on the Feasibility Report Update traffic analysis, dated Feb 2015. The Feasibility Report prepared a traffic analysis for I-10 from I-19 to SR 83 and SR 210. This was a big picture analysis for the Tucson area. Deleting a travel lane between Wilmot and Kolb Roads would require significant changes to the VISSIM travel demand model which is outside the current scope of work.	B	D

**PRELIMINARY REVIEW COMMENTS
(CONTINUED)**

ITEM NO.	DWG, SHT, PAGE NO.	COMMENT	DISPOSITION	
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16	AH & TB	Signing Concept Review Kolb - How will I-10 commuter traffic exit Kolb and headed to the Science Park Road turn right? This is very complicated and would not seem to work. Suggest relooking at the Kolb Platform Interchange. Can the platform lanes be on the inside? Response: The platform interchange on Kolb Road is for a long-term future build-out scenario when Kolb Road is anticipated to be to a Parkway to the north and south of I-10. Additional supplemental signing for local information can be added to I-10 for clarity during the final design stage. There is a slip ramp in the WB direction to provide access to the Science Park from Kolb Road.	D	D
17	AH & TB	Signing Concept Review Kolb - How will traffic exiting WB I-10 know which lane to get in to get to Science Park? This will be hard to sign. Response: Please see response to comment #16. Additional signing will be added for clarity.	D	D
18	AH & TB	Signing Concept Review Kolb - May need to relook at this interchange. Response: Please see response to comment #16.	D	D
19	AH & TB	Signing Concept Review Kolb - What is the plan south of I-10 on Kolb (6 lanes to 2?) Response: The PAG Regional Transportation Plan shows Kolb Road as a future 6-lane divided parkway. The Kolb Road concept has been designed to the ultimate foot print for the roadway. Tapers shown are providing connections to existing conditions.	D	D

**PRELIMINARY REVIEW COMMENTS
(CONTINUED)**

ITEM NO.	DWG, SHT, PAGE NO.	COMMENT	DISPOSITION	
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20	AH & TB	Signing Concept Review East of Kolb, the mainline transitions from 5 lanes to two lanes. This seems like a lot of disruption. Maybe there is no need to expand to 5 lanes? Look at the Basic Lanes discussion in Green Book. The reductions appear to be only 300-400' between each lane reduction. Suggest longer distance to allow for adequate lane reduction signing and markings. Response: The number of lanes for I-10 was based on the Feasibility Report Update traffic analysis, dated Feb 2015. The Feasibility Report prepared a traffic analysis for I-10 from I-19 to SR 83 and SR 210. On I-10, east of Kolb Road, four travel lanes plus an auxiliary lane, each direction, were shown to Rita and Houghton Roads. Tapers shown are providing connections to existing conditions. The distance between lane reductions is approximately 700 feet. 100-foot tick marks will be added to the signing plans.	D	D
21	AL	FHWA Major Projects Review It is recommended that a Cost Estimate Review be conducted within 60 days of the decision (ROD, FONSI, CE). <ul style="list-style-type: none"> An Initial Financial Plan is required prior to authorization of the first construction project. A Financial Plan Annual Update (FPAU) is required until all phases of the NEPA decision are complete. Phasing of projects is handled by placing the FPAU in inactive status until the next construction phase begins. A Project Management Plan is required prior to authorization of the first construction project. Response: Meetings between ADOT and FHWA are being planned to discuss the financial review process to be utilized moving forward. The Operationally Independent and Non-Concurrent Construction (OINCC) process is being considered.		C

**PRELIMINARY REVIEW COMMENTS
(CONTINUED)**

ITEM NO.	DWG, SHT, PAGE NO.	COMMENT	DISPOSITION	
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22	AL	FHWA Major Projects Review Option available to ADOT at this stage. <ul style="list-style-type: none"> Evaluate if an Operationally Independent and Non-Concurrent Construction (OINCC) approval by FHWA is desired. Establishes that NEPA Project is not required to follow Major Project requirements. https://www.fhwa.dot.gov/majorprojects/financial_plans/guidance14.cfm#nonconcurrent A main condition is that projects will not occur within 5 years of each other If an OINCC is approved, the initial phase will be evaluated as a single project; if over \$500M it would be a Major Project If future phases do not meet the OINCC criteria (gaps between construction), the remainder of the NEPA Project could become a Major Project. If the OINCC criteria remains, the next phase will be evaluated against the Major Project criteria. <p><i>Response: Meetings between ADOT and FHWA are being planned to discuss the financial review process to be utilized moving forward. The Operationally Independent and Non-Concurrent Construction (OINCC) process is being considered.</i></p>	C	

From: Olbert, Brad
Sent: Wednesday, July 15, 2020 12:21 PM
To: Ammon.Heier@dot.gov
Cc: Thomas Deitering (thomas.deitering@dot.gov) <thomas.deitering@dot.gov>; Tremaine Wilson (Tremaine.Wilson@dot.gov) <Tremaine.Wilson@dot.gov>; Tazeen Dewan (TDewan@azdot.gov) <TDewan@azdot.gov>
Subject: (H7825) I-10, Jct I-19 to Kolb Road and SR 210, Golf Links Road to I-10 - Review of Draft Final DCR

Hi Ammon,

Thank you for your comments. Below are our responses to your comments.

Comment 1) Pg 8 – Do you want to add recent signal projects (I think Rita, Wilmot, Kolb)?

Response: Thank you for catching the additional work. Project (H8896) Wilmot Rd TI, Kolb Rd TI and Rita Rd TI, a signalization project will be added to Table 1.2.

Comment 2) Pg 40 – Do all the ramp roadway and shoulder widths comply with the AASHTO requirements for turning roadways? We recently learned we had been interpreting this wrong in Arizona, and had to do some design exceptions on a couple of projects.

Response: Judah Cain with our office reached out to Mike DenBleyker, with ADOT, concerning the AASHTO / RDG shoulder widths and Mike responded:

Design of ramp traveled way and ramp shoulders shall at a minimum, be in accordance with the ADOT Roadway Design Guidelines. However, design exceptions will be needed if the existing or proposed ramp configurations do not meet the 2018 AASHTO Green Book.

- As outlined in Section 10.9.6.3 "Ramp Traveled Way Widths" (2018 AASHTO Green Book), "Design widths of ramp traveled ways for various conditions are given in Table 3-27." Designers may apply design width modifications based on the edge conditions at the edge of the traveled way (Table 3-28). AASHTO and FHWA recognize that there are varying interpretations on the applications of these tables and if there are questions or concepts that the designer wants to discuss, ADOT can assist in providing guidance on what has been agreed to between FHWA and ADOT.*
- As outlined in Section 10.9.6.3.2 "Shoulder Widths and Lateral Offset" (2018 AASHTO Green Book), "Where paved shoulders are provided on ramps, they should have a uniform width for the full length of ramp. A paved shoulder width of 2 to 4 ft is desirable for the left-side shoulder. A paved shoulder width of 6 to 10 ft is desirable for the right-side shoulder. For one-way operation, the combined left- and right-side shoulders should be 10 to 14 ft". ADOT and FHWA agree that a combined paved shoulder width less than 10 ft will require a Design Exception. Stabilized shoulders may be surfaced either full or partial width with stabilized materials outlined in Section 4.4 "Shoulders" (2018 AASHTO Green Book) as they apply to Traveled Way width modifications, however a design exception will be required for any combined paved shoulder width less than 10 ft.*
- Design Exceptions for Shoulder Width and/or Traveled Way Width should be justified through adequate supporting documentation including: existing safety performance, proposed safety performance, operational performance (this may include truck/vehicle turning template analysis).*

We reviewed the project and found the combined paved shoulder widths for ramps to not be less than 10 feet. However, we feel this is an important issue for future design consultants to be aware of. Under **Section 4.2.14 Design Exceptions** we will reference **Appendix P** to see comments and responses (this email) related to shoulder width requirements.

Comment 3) Pg 46-50 – Please add the blue line to the map legend. Does it represent access control? I'd like to look at the plan for each TI, but it's hard for me to read view these maps. I looked at the plan maps in Appendix C, but also wasn't sure if the A/C was marked. However, if all this will be covered in the COAR, then I'm okay with that.

Response: The Access Control will be covered in the Change of Access Report (COAR).

Comment 4) General – During my review, I found myself repeating comments that FHWA made in our Initial COAR review. I don't recall receiving a response to some of those comments, so I apologize if I'm mistaken. I've copied those additional comments below for your review.

Response: Responses regarding the rollplot discussion were handed out to FHWA during the Financial Review Process meeting that was held later. Perhaps we should have distributed it by email directly to you for the record. The comments and responses are attached.

If you have any questions or additional comments please call or email.

Thank you!

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