



DRIVING SUCCESS  
**A DISCUSSION ON  
ADOT'S FIRST  
PROGRESSIVE DESIGN-  
BUILD PROJECT**

*Rest Area Truck Parking Improvements —  
I-40 & I-17, Northern Arizona*



**SUNDT**

**Kimley»Horn**

**ARIZONA**  
— DEPARTMENT OF —  
**TRANSPORTATION**

# AGENDA

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- Why Integrated (Progressive) Design-Build
- The Approach
- Value During Design
- Value During Construction
- Lessons Learned
- Questions

# Meet the Panel



Myrna Bondoc  
ADOT Major Projects Division  
Project Manager



Allen Hathcock  
Kimley-Horn & Associates  
Design Manager



Grant Larson  
Sundt Construction  
Preconstruction Manager

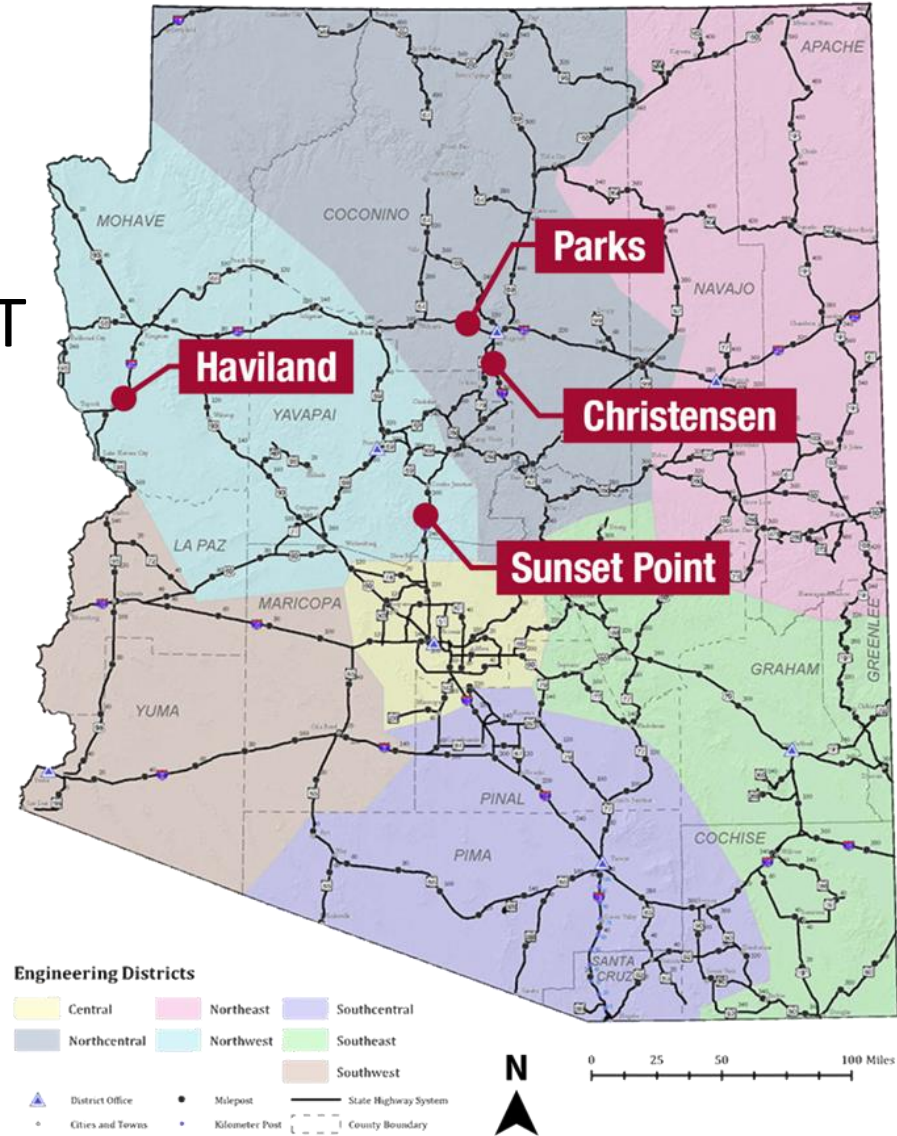
# Project Snapshot

## TRUCK PARKING EXPANSION PROJECT

*Four rest areas, seven total sites*

### ► The Project Scope

- Expand existing truck parking areas
- Rehabilitate amenities
- Reopen closed sites
- Pavement rehabilitation



# Why Integrated (Progressive) Design-Build

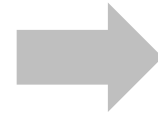
## THE CONDITIONS

Four rest areas, seven total sites



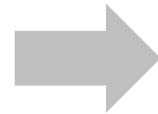
Integrated Resource Co-manager engagement during design development

Locations are remote and far apart



Varying ADOT district input and supplier availability

Weather conditions varied



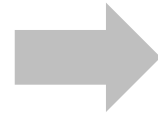
Allows various standards, schedule needs and design applications

Early Start, begin construction in one year



Faster Procurement and Project Delivery  
Coordinated Environmental Documentation and Permitting

Limited budget



Limits risk exposure and flexible GMP development to monitor and maintain overall budget

# Values: Roles & Integration

***What?***



***Why?***



***How?***



**Integration**

# Value: Preconstruction & Construction

## THE DESIGNER

- Project goals vs project submittals
- Documentation agreed upon as the project develops
- Innovations, option menus, and brainstorming available with contractor input
- Flexibility and pivoting each week bringing latest design and questions to the team
- Streamlined submittals, specifications, and plans
  - Shop drawings
  - Milestone management

# Value: Quality Added and Risk Reduced

## THE DESIGNER

- Partnering Reviews with Contractor
- Cost decisions during design
- Constant VE
- Risk reduction
  - GMPs much later than DB (limits late project litigation)
  - Selection based on qualification
  - E & O are reduced with Contractor input
  - RFIs and Change Orders no more

# Value: Preconstruction & Construction

## THE CONTRACTOR

- Providing ADOT the “What”
- Iterative Budget Validation
- Scoping for Function & Budget
- Accelerated Design & Estimating
- Innovation
- Iterative Process – multiple GMP’s
- Accelerated NTP



SUNSET POINT REST AREA												
	AC	PCCP	ABC	Sub. Improvement Alt	LITHTEC	TRUEGRID	Subtotal Cost	Subtotal \$/SY	Design Life	Maintenance Cost	Total Cost	Preferred Alt
	Depth (In.)	Depth (In.)	Depth (In.)		Depth (In.)	Y/N						
Option 1	8"	-	14"	Scarified Subgrade or Imported Fill ( R-Value = 20 or more)	-	N	\$ 1,053,117.57	\$ 174.42	20 Yrs	\$ 220,534.00	\$ 1,273,651.57	
Option 2	5"	-	9"	Stabilized with cement or lime (Minimum = 9	-	N	\$ 766,925.38	\$ 127.02	20 Yrs	\$ 209,448.00	\$ 976,373.38	
Option 3	5"	-	-	Stabilized with LithTec	12"	N	\$ 697,530.22	\$ 115.53	20 Yrs	\$ 209,448.00	\$ 906,978.22	
Option 4	-	9"	4"	Scarified Subgrade or Imported Fill ( R-	-	N	\$ 884,706.76	\$ 146.53	20 Yrs	\$ 75,475.00	\$ 960,181.76	
Option 5	-	-	12"	12" Prepared subgrade	-	Y	\$ 493,926.61	\$ 81.81	10 yrs	\$ 246,936.00	\$ 740,862.61	
Option 6 *	-	8"	4"	Scarified Subgrade (Min. 8 inches) or Imported Fill ( R-Value = 20 or more)	-	N	\$ 829,519.44	\$ 137.39	20 Yrs	\$ 72,456.00	\$ 901,975.44	

CLIENT: ADOT  
PROJECT: AzTRAX IDB

SUNDT / KIMLEY-HORN

ROM ESTIMATE - BREAKDOWN BY SELECT AREAS & INNOVATION

HWY	REST AREA	STALLS	R/LCA (COST/STAL L) "SELECTED"	COST BASIS	PSS 1 7" AC / 8" AB	PSS 2 12" PCCP / 4" AB	PSS 3 6" AC / 10" AB	PSS 4 7.5" PCCP / 6" AB	PSS 5 3" MILL / 3" AC (REHAB)	PSS 6 LITHTEC - 3" AC (REHAB/NEW)	PSS 7 LITHTEC / 8" AB (NEW)	PSS 8 8" AB - STAB (NEW)	TOTAL PRICE
I-17	CHRISTENSEN (SB) - 16 REQ												
	AREA 1	16	\$ 106,178	STALL	\$ 27,054	\$ 35,804	\$ 26,188	\$ 29,980	\$ 47/SY	\$ 64/SY			
			\$ 1,638,848	TOTAL	\$ 432,864	\$ 572,864	\$ 419,008	\$ 479,680	\$ 177,869	\$ 243,090			\$ 2,763,553
I-17	CHRISTENSEN (NB) - 13 REQ												
	AREA 1	4	\$ 103,989	STALL	\$ 27,823	\$ 34,664	\$ 27,181	\$ 30,185	\$ 47/SY	\$ 64/SY			
			\$ 415,956	TOTAL	\$ 111,292	\$ 138,656	\$ 108,724	\$ 120,740	\$ 223,564	\$ 304,354			
	AREA 2	9	\$ 76,011	STALL	\$ 40,569	\$ 51,169	\$ 39,104	\$ 43,636					
			\$ 684,099	TOTAL	\$ 365,121	\$ 460,521	\$ 351,936	\$ 392,724					
	AREA 3	4		STALL	\$ 19,642	\$ 25,704	\$ 19,036	\$ 22,528	\$ 47/SY	\$ 64/SY			
				TOTAL	\$ 78,568	\$ 102,816	\$ 76,144	\$ 90,112	\$ 93,930	\$ 128,365			
	<b>TOTAL STALLS:</b>	<b>13</b>											\$ 3,439,551
I-40	HAVILAND (WB) - 27 REQ												
	AREA 1	30	\$ 33,444	STALL	\$ 35,848	\$ 52,393	\$ 34,502	\$ 44,107		\$ 28,179	\$ 18,621	\$ 12,506	
			\$ 1,003,300	TOTAL	\$ 1,075,440	\$ 1,571,790	\$ 1,035,060	\$ 1,323,210		\$ 845,370	\$ 558,630	\$ 375,180	\$ 1,632,098
I-40	HAVILAND (EB) - 31 REQ												
	ALT 1	31	\$ 34,581	STALL	\$ 31,724	\$ 47,337	\$ 24,824	\$ 39,999		\$ 25,886	\$ 17,086	\$ 11,340	
			\$ 1,072,011	TOTAL	\$ 983,444	\$ 1,467,447	\$ 769,544	\$ 1,239,969		\$ 802,466	\$ 529,666	\$ 351,540	
	ALT 2	32		STALL	\$ 33,690	\$ 50,550	\$ 33,225	\$ 42,102		\$ 26,499	\$ 17,180	\$ 11,343	
				TOTAL	\$ 1,078,080	\$ 1,617,600	\$ 1,063,200	\$ 1,347,264		\$ 847,968	\$ 549,760	\$ 362,976	\$ 1,743,868
I-40	PARKS (EB) - 19 REQ												
	AREA 1	20	\$ 71,820	STALL	\$ 33,072	\$ 44,346	\$ 32,077	\$ 37,120	\$ 47/SY	\$ 64/SY			
			\$ 1,436,400	TOTAL	\$ 661,440	\$ 886,920	\$ 641,540	\$ 742,400	\$ 370,337	\$ 508,386			
	AREA 2	9		STALL	\$ 17,656	\$ 23,594	\$ 17,015	\$ 19,737	\$ 47/SY	\$ 64/SY			
				TOTAL	\$ 158,904	\$ 212,346	\$ 153,135	\$ 177,633	\$ 157,188	\$ 215,957			\$ 4,005,266
<b>TOTAL STALLS:</b>	<b>20</b>												
I-40	PARKS (WB) - 14 REQ												
	AREA 1	26	\$ 48,033	STALL	\$ 22,147	\$ 29,659	\$ 21,486	\$ 24,826	\$ 47/SY	\$ 64/SY			
			\$ 1,248,858	TOTAL	\$ 575,822	\$ 771,134	\$ 558,636	\$ 645,476	\$ 299,625	\$ 408,670			
	AREA 2	11		STALL	\$ 20,798	\$ 30,244	\$ 20,175	\$ 23,260		\$ 16,268			
				TOTAL	\$ 228,778	\$ 332,684	\$ 221,925	\$ 255,860		\$ 178,948			
	AREA 3	10		STALL	\$ 32,086	\$ 43,030	\$ 31,135	\$ 36,017	\$ 47/SY	\$ 64/SY			
				TOTAL	\$ 320,860	\$ 430,300	\$ 311,350	\$ 360,170	\$ 109,740	\$ 150,450			\$ 4,127,856
<b>TOTAL STALLS:</b>	<b>26</b>												
I-17	SUNSET - 2 REQ												
	AREA 1	20	\$ 102,807	STALL	\$ 74,776	\$ 92,559	\$ 73,266	\$ 80,028		\$ 61,793	\$ 45,530	\$ 36,940	
			\$ 2,056,140	TOTAL	\$ 1,495,520	\$ 1,851,180	\$ 1,465,320	\$ 1,600,580		\$ 1,235,860	\$ 910,600	\$ 738,800	\$ 3,344,781
													<b>TOTAL PRICE: \$ 21,056,973</b>

< > BASE ALL AREA-STANDARD SELECT AREAS ONLY ALL AREAS-VE SELECT AREAS-VE + :

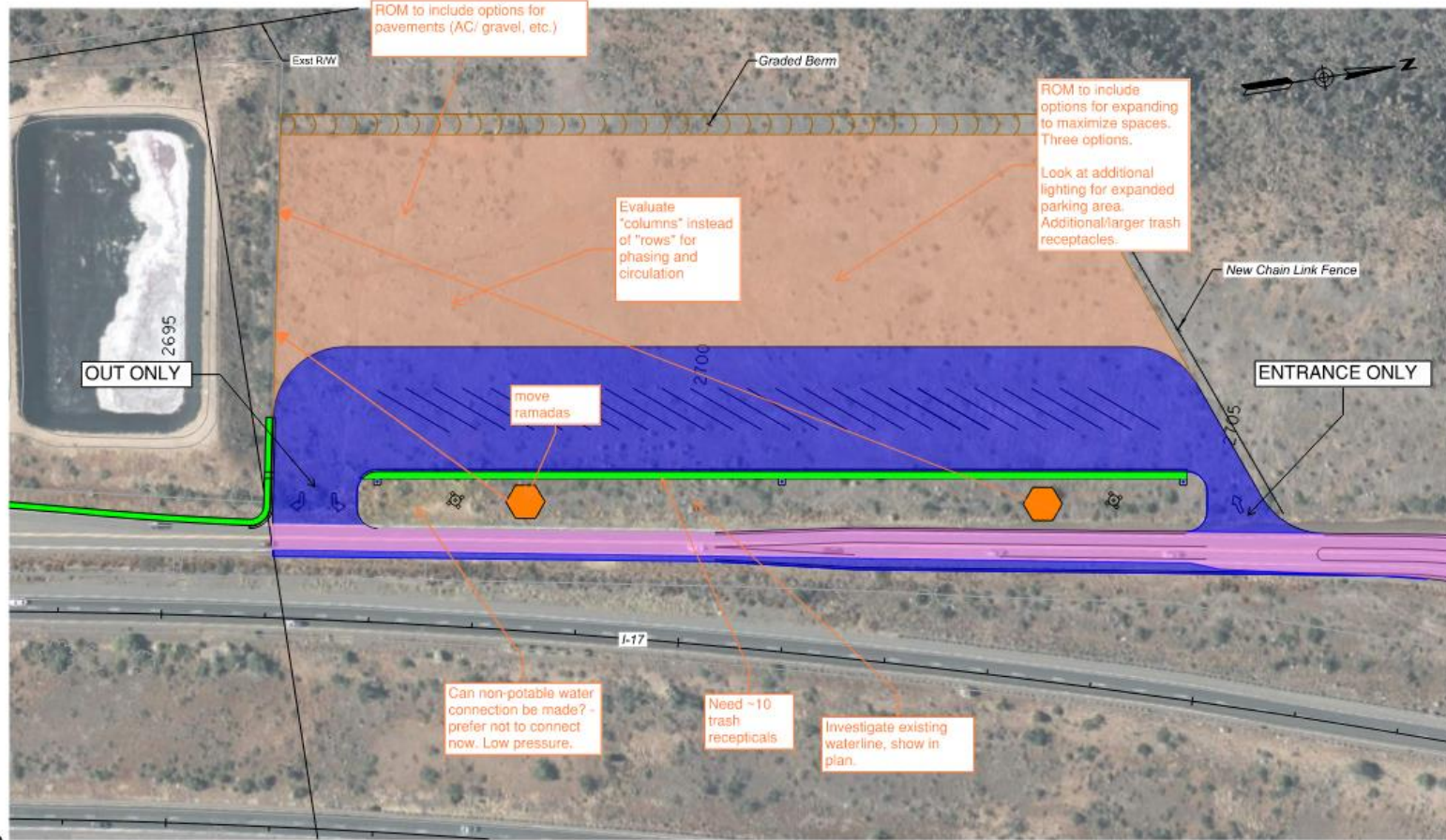


Kimley»Horn



Area - 1 = 25 Additional Spaces

60 Requested Spaces



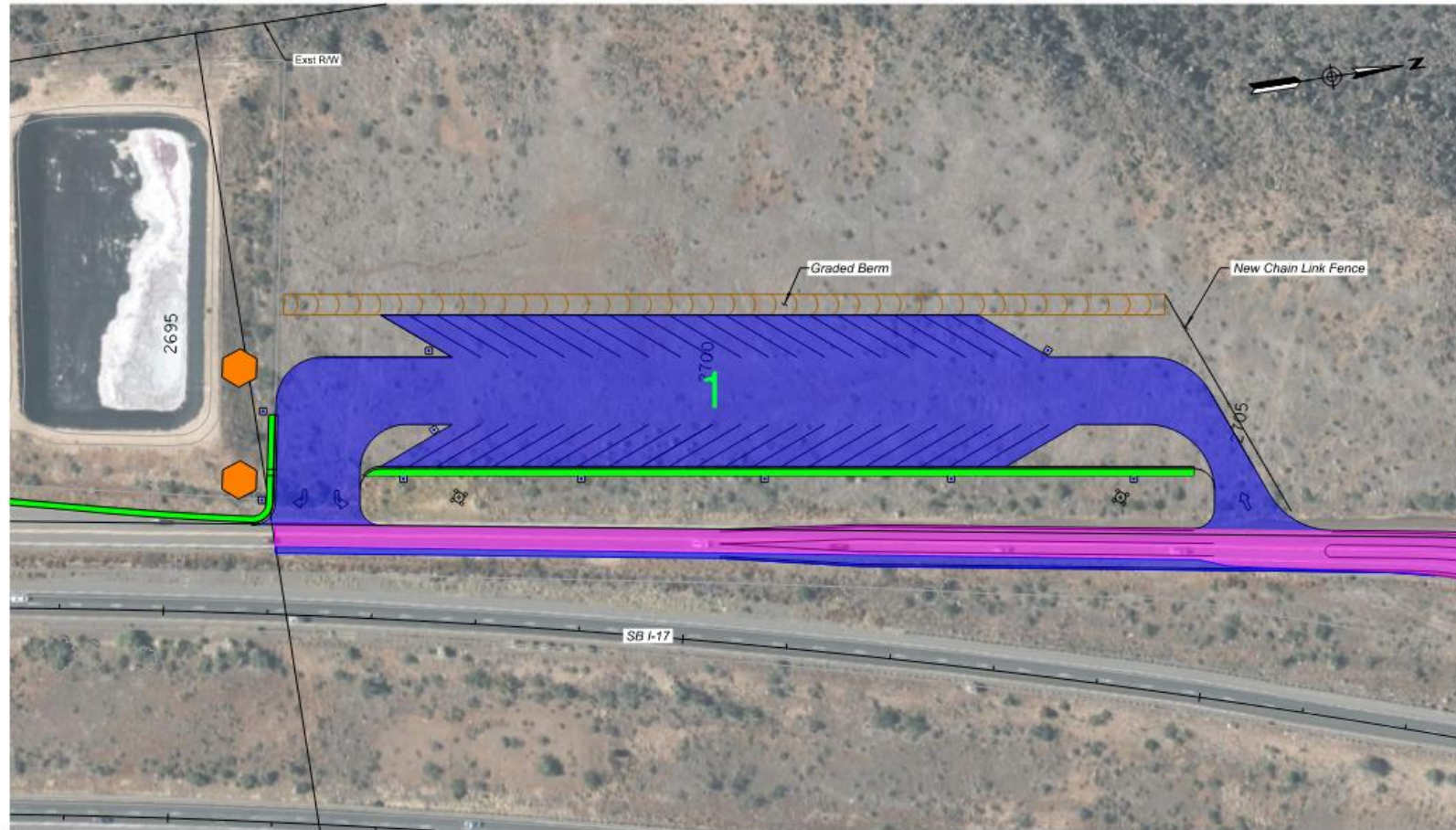
LEGEND

- New Pavement
- Sidewalk
- AC Rehab
- Grading
- Light Pole
- New Ramada
- 3'x3' Concrete Pads for Trash Recepticals

<p>PRELIMINARY <b>STAGE -</b> Review NOT FOR CONSTRUCTION OR RECORDING</p>	DESIGN	TITLE	DATE	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION PROJECT MANAGEMENT GROUP	STATE	PROJECT NO.	FEDERAL #/NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
	CONCEPT	APP. & TDR	-204		ARIZ.	-	-	-	-	-
	CONCEPT	APP.	-204		-	-	-	-	-	-
Kimley»Horn				SUNSET REST AREA	COUNTY: I-17	TRACS NO. F0696 01C		SHEET NO. _____ OF _____		

Area 1 - 44 Additional Spaces

Additional Spaces Required - 2



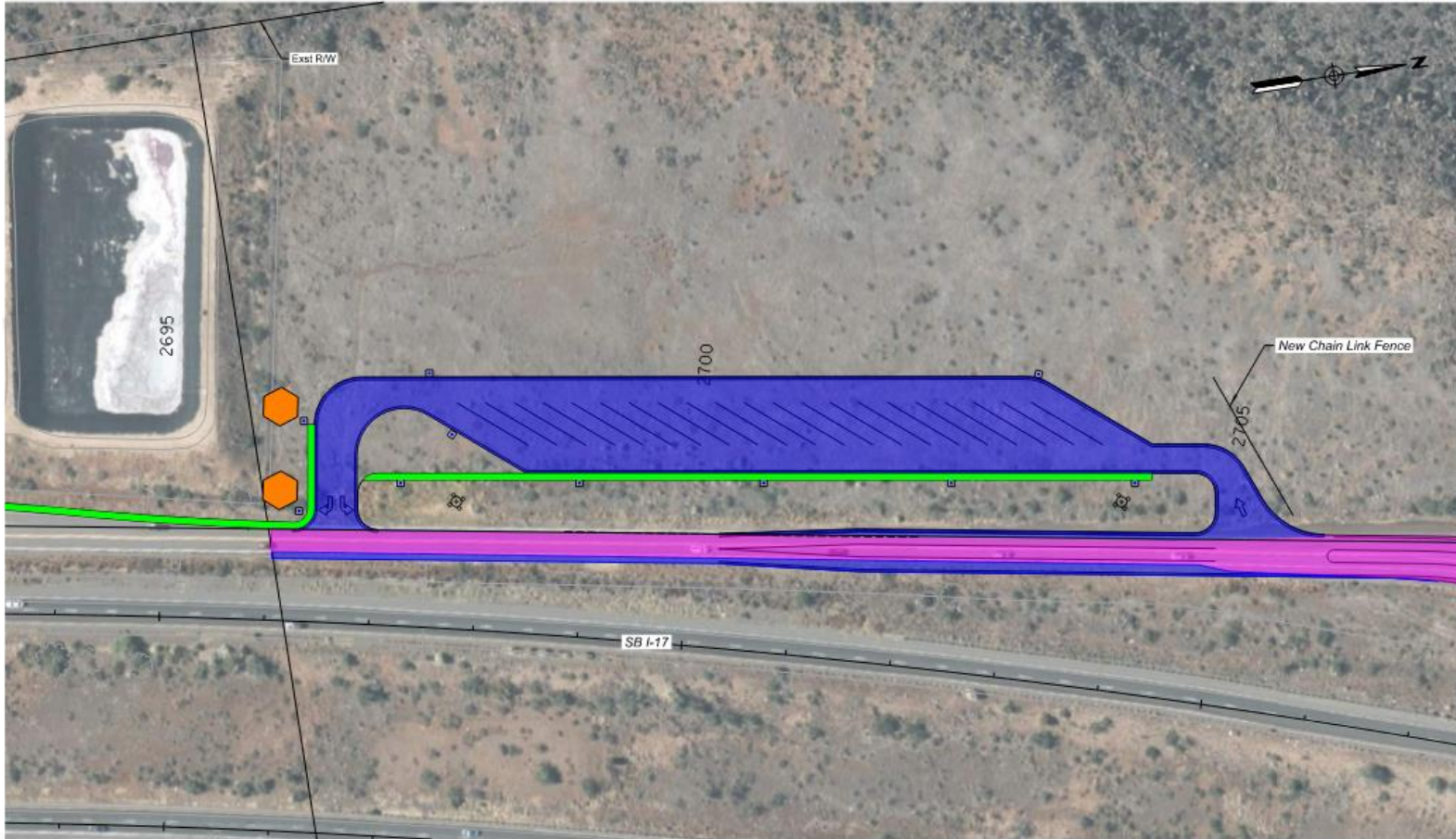
LEGEND

- New Pavement
- Sidewalk
- AC Rehab
- Lighting
- New Ramada
- 3'x3' Concrete Pads for Trash Receptacles

PRELIMINARY <b>STAGE -</b> Review NOT FOR CONSTRUCTION OR RECORDING	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>DATE</th> <th>BY</th> <th>REVISION</th> </tr> <tr> <td>2018-08-24</td> <td>TRD</td> <td>ISSUED FOR PERMIT</td> </tr> <tr> <td>2018-08-24</td> <td>TRD</td> <td>ISSUED FOR BIDDING</td> </tr> <tr> <td>2018-08-24</td> <td>TRD</td> <td>ISSUED FOR CONSTRUCTION</td> </tr> </table>	DATE	BY	REVISION	2018-08-24	TRD	ISSUED FOR PERMIT	2018-08-24	TRD	ISSUED FOR BIDDING	2018-08-24	TRD	ISSUED FOR CONSTRUCTION	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION <b>PROJECT MANAGEMENT GROUP</b>	SHEET <b>252</b> OF 252	FJLWJA Arizona Division ARIZ.	STATE ARIZ.	PROJECT NO. -	FEDERAL ID NO. N/A	SHEET NO. 8	TOTAL SHEETS 8	RECORDED DRAWING NO.
	DATE	BY	REVISION																			
2018-08-24	TRD	ISSUED FOR PERMIT																				
2018-08-24	TRD	ISSUED FOR BIDDING																				
2018-08-24	TRD	ISSUED FOR CONSTRUCTION																				
<b>Kimley»Horn</b> <small>CONSULTING ENGINEERS</small>	SUNSET REST AREA	LOCATION: I-17 TRACS NO. F0696 01C	DRAWING REVISIONS _____ OF _____																			

Area 1 - 20 Additional Spaces

Additional Spaces Required - 2



LEGEND

- New Pavement
- Sidewalk
- AC Rehab
- Lighting
- New Ramada
- 3'x3' Concrete Pads for Trash Recepticals

PRELIMINARY  
**STAGE -**  
 Review  
 NOT FOR  
 CONSTRUCTION  
 OR RECORDING

DESIGN	DATE
DRYDEN	08/11/2017
CHECKED	08/11/2017

**Kimley»Horn**  
 CONSULTING ENGINEERS

ARIZONA DEPARTMENT OF TRANSPORTATION  
 INFRASTRUCTURE DELIVERY AND OPERATIONS  
 PROJECT MANAGEMENT GROUP

PROJECT  
**I-17**  
 SHEET  
 252

FHWA, Arizona Division  
 ARIZ.  
 PROJECT NO.  
 FEDERAL FUND  
 N/A

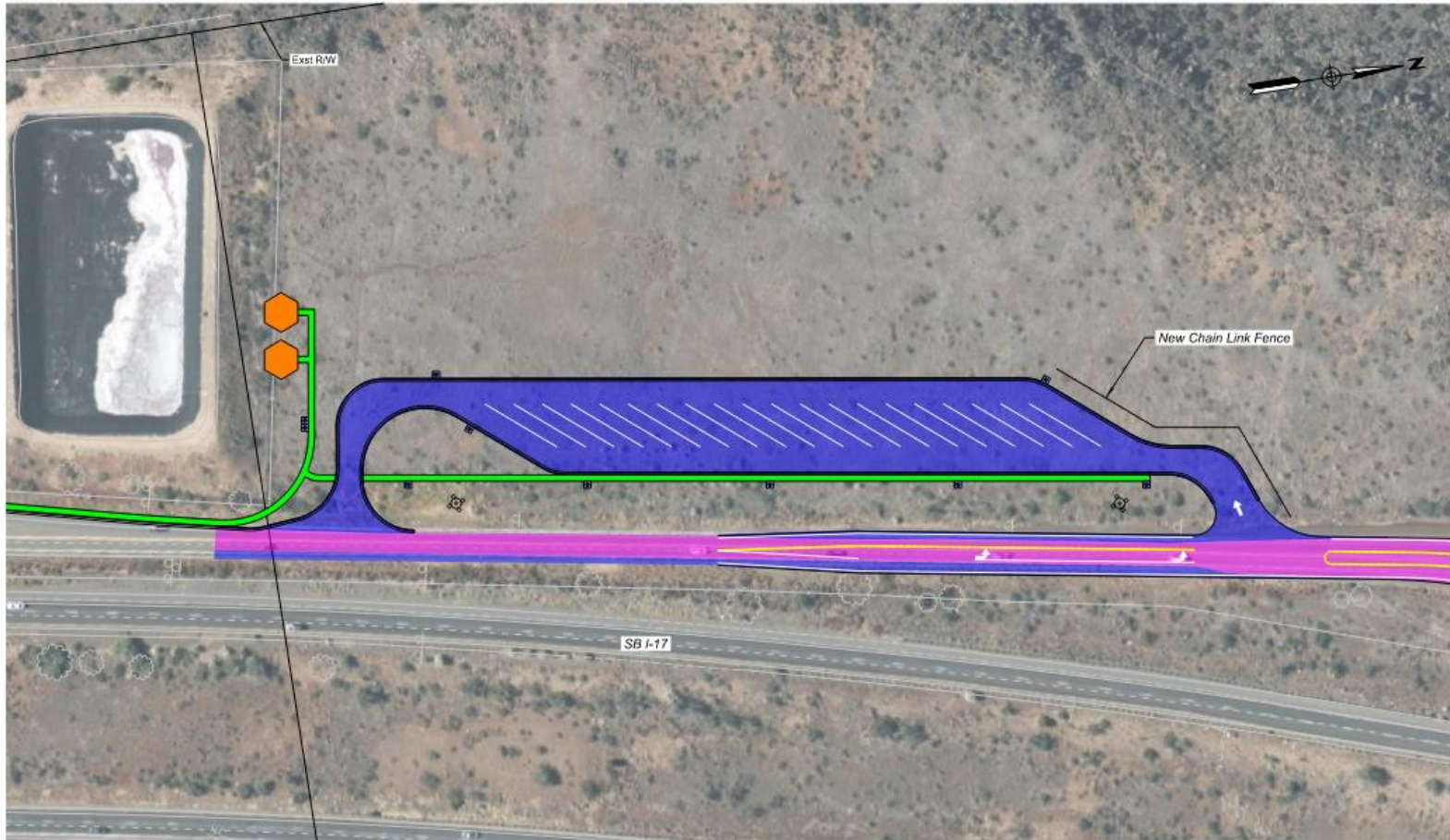
SHEET NO.	TOTAL SHEETS	RECORD DRAWING
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DATE: 08/11/2017  
 DRAWN BY: [blank]  
 TRACS NO. FD696 01C  
 OF \_\_\_\_

Area 1 - 20 Additional Spaces



Additional Spaces Required - 2



LEGEND

- New Pavement
- Sidewalk
- AC Rehab
- Lighting
- New Ramada
- 3'x3' Concrete Pads for Trash Recepticals

PRELIMINARY  
STAGE I  
NOT FOR  
CONSTRUCTION  
OR RECORDING

DESIGN	DATE
TNS	4/24
DESIGN	6/27 & 7/8
CHECKED	AMB
	4/24



ARIZONA DEPARTMENT OF TRANSPORTATION  
INFRASTRUCTURE DESIGN AND OPERATIONS DIVISION  
ALTERNATIVE DELIVERY & MAJOR PROJECTS

PROJECT  
I-17  
SHEET  
252

STATE  
FJLWA, Arizona Division  
ARIZ.

PROJECT NO.  
-

FEDERAL FUND.  
N/A

SHEET NO.  
7

TOTAL SHEETS  
7

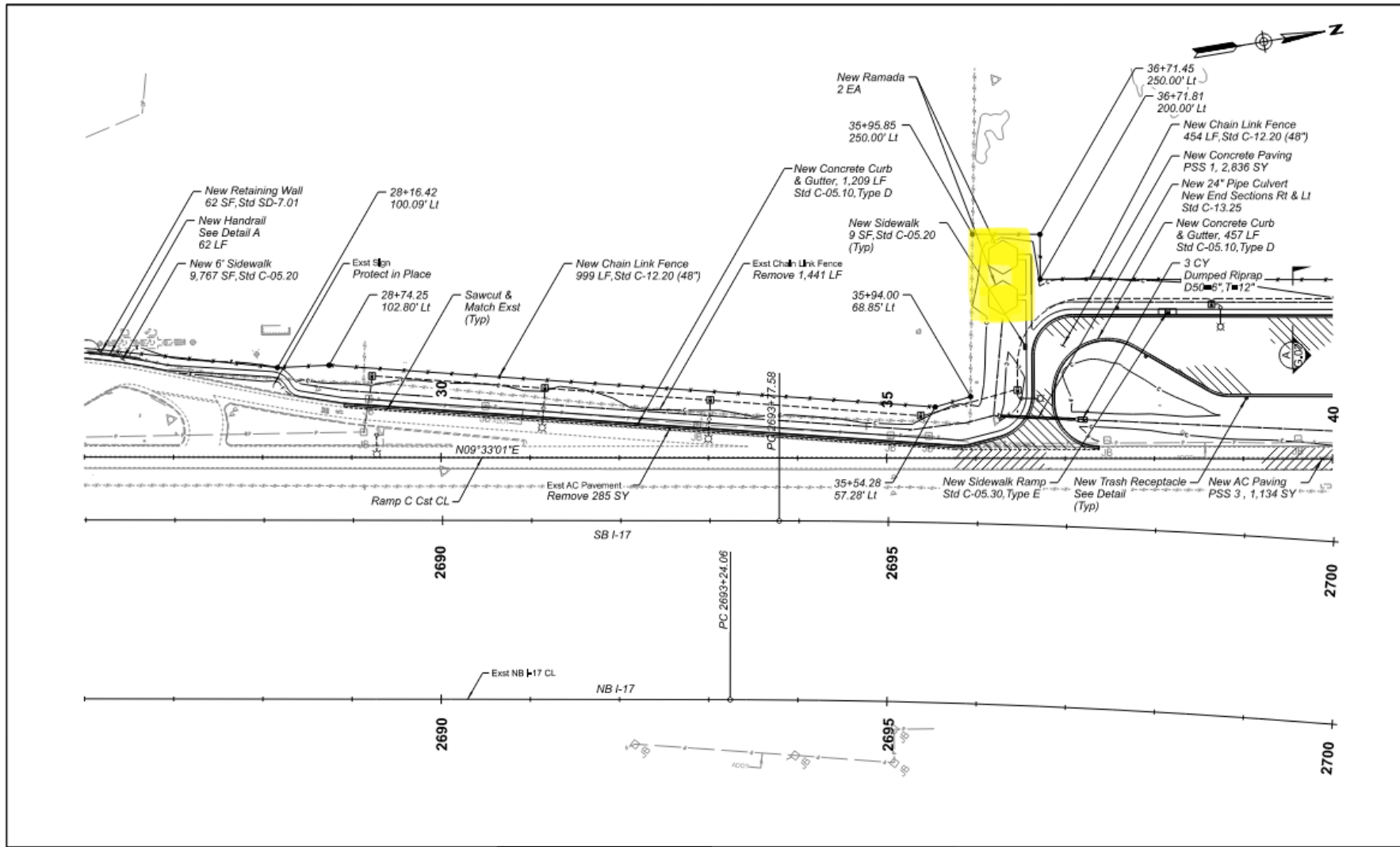
RECORD DRAWING

LOCATION  
I-17

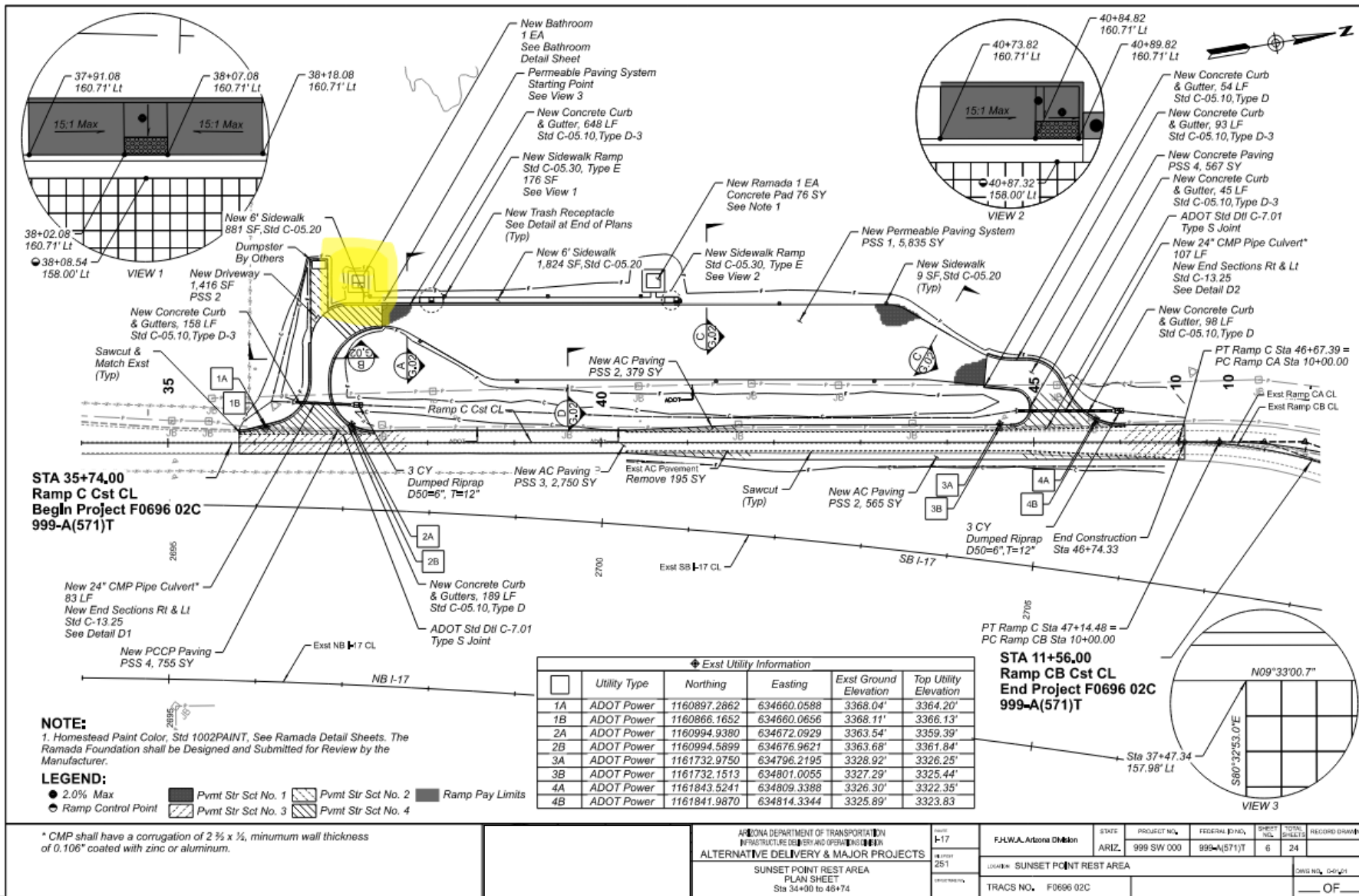
TRACS NO. F0696 01C

CONCEPTUAL DESIGN

DWG NO. 7  
OF



	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION <b>ALTERNATIVE DELIVERY &amp; MAJOR PROJECTS</b>		STATE ARIZ.	PROJECT NO. 017 YV 251	FEDERAL ID NO. 999(A)(57)T	SHEET NO. 8	TOTAL SHEETS 20	RECORD DRAWING	
	SUNSET POINT REST AREA PLAN SHEET Sta 28+00 to 40+00							TRACS NO. F0696 01C	<b>ADOT</b>
	SUNSET POINT REST AREA PLAN SHEET Sta 28+00 to 40+00							TRACS NO. F0696 01C	<b>ADOT</b>





# When PDB Is the Right Fit

- Scope is defined enough to start, but options remain to be developed
- Owner values transparency and shared problem-solving
- Schedule benefits from early packaging and overlap
- Funding authorization has fiscal years constraints and/or strict funding caps
- Constraints (logistics, weather, operations) drive design choices
- Success depends on fast, disciplined decisions











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# QUESTIONS?

