



43RD AVENUE ENGINEERING ASSESSMENT & PRELIMINARY DESIGN

ANTHEM WAY TO CIRCLE MOUNTAIN DRIVE

PRELIMINARY ENGINEERING AND
DESIGN CONCEPT REPORT

PROJECT NO. ST85100444-1

APRIL 2020

PREPARED FOR
CITY OF PHOENIX



Prepared by:



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TABLE OF CONTENTS

1.	INTRODUCTION	1
2.	PROJECT DESCRIPTION	1
	Existing Conditions.....	1
	Proposed Conditions.....	2
3.	GEOMETRIC DESIGN	3
4.	RIGHT-OF-WAY	4
5.	UTILITIES	4
6.	PRELIMINARY DRAINAGE EVALUATION	4
	On-site Evaluation.....	4
	Off-site Evaluation.....	5
	Proposed Drainage Improvements.....	5
7.	OVERALL PROJECT COST	5
8.	CONCLUSION	6

APPENDICES

- APPENDIX A 30% PRELIMINARY CONSTRUCTION DRAWINGS
- APPENDIX B POTENTIAL RIGHT-OF-WAY / EASEMENT ACQUISITIONS
- APPENDIX C EXISTING UTILITIES
- APPENDIX D DRAINAGE EXHIBITS & CALCULATIONS
- APPENDIX E COST ESTIMATES

FIGURES

- FIGURE 1 ULTIMATE CROSS-SECTION
- FIGURE 2 INTERIM CROSS-SECTION



1. INTRODUCTION

The purpose of this Design Concept Report (DCR) is to summarize and document the proposed improvements, estimated costs, and design criteria for the 43rd Avenue Improvements from Anthem Way to Circle Mountain Road. The purpose of this project is to design two road widening alternatives for the undeveloped east side of 43rd Avenue to allow for the addition of more travel lanes. The first alternative represents the ultimate roadway condition with 4 travel lanes, two-way center left turn lane, 2 bike lanes, curb and gutter, and detached sidewalk. The cross section for this alternative was based off Cross Section “C” from City of Phoenix Standard Detail P1010. The second alternative is intended to act as an interim solution that will mitigate existing traffic issues until the ultimate roadway section can be built. This alternative will provide the 4 travel lanes and two-way center left turn lane similar to the ultimate condition. However, this design does not include bike lanes, curb and gutter, or sidewalks.

2. PROJECT DESCRIPTION

Existing Conditions

Just north of Anthem Way, 43rd Avenue is built to its ultimate width extending approximately 300 feet north of Anthem Way, just past the Chevron driveway entrance, before tapering down to a 37-foot one-way crown pavement section. This half street section extends for the majority of 43rd Avenue ending at Circle Mountain Drive. 43rd Ave currently consists of two travel lanes with a two-way center left turn lane, except for the southern portion of the roadway near Anthem Way, which includes 2 additional travel lanes and dedicated right and left turn lanes. Excluding the Anthem Way intersection, there are no traffic signals within the project limits. All the existing intersections are marked with signage.

There are several different existing utilities in the area, all of which are underground. There are several dry utility manholes and junction boxes in the immediate vicinity of the existing eastern edge of pavement. Water, sewer and storm drain facilities are located on the west side of the road continuing along the entire length of the project.

The properties bordering 43rd Avenue are mostly developed. Single-family residential communities (Desert Terrace, The Canyons, Desert Foothills, The Ridge) border the site to the west and to the east are the Anthem Outlet Mall, Post Office, APS Substation, Arizona Montessori Charter School, and various commercial businesses. A portion of the eastern side of the road is still undeveloped, consisting of a plant nursery and open desert. Adjacent properties generally have their own access directly onto 43rd Avenue. The western subdivisions have multiple streets leading out to the 43rd Avenue and Anthem Outlet Mall has an entrance located on the southeastern side of the project. No



traffic analysis was performed as part of this project, but these access points have been assumed to have the highest traffic volume.

Proposed Conditions

Utility Conflicts – Generally, the existing utilities in the project area can be protected in place. There are some exceptions where manholes/valve boxes need to be adjusted to grade and fiber boxes/signs need to be relocated. Potholing wasn't a part of the scope of this project and therefore wasn't completed. Utility conflicts will need to be identified and mitigated during the final design.

Ultimate Improvements – The ultimate street improvements will provide 4 travel lanes and 2 bicycle lanes with a two-way center left turn lane. Dedicated left turn lanes have been provided at areas that are anticipated to have significant left turn traffic such as the entrance to the Anthem Outlets and existing subdivisions. The street will be widened 37' to accommodate the new travel lanes, and new curb and gutter will be installed along with a 5-foot detached sidewalk. Existing driveway locations will be maintained, and new driveways will be constructed according to City of Phoenix and ADA requirements. New curb ramps have been proposed at return type driveways and intersections, and all ramps were design to be in compliance with ADA Standards. For more information regarding the ultimate condition see **Figure 1 – Ultimate Improvements Cross Section** and **Appendix A - 30% Preliminary Construction Drawings**.

Interim Improvements – The interim improvements will provide 4 travel lanes with a two-way left turn lane and dedicated left turn lanes at specific locations. To accommodate these new travel lanes, the roadway will be widened by installing 23' of new pavement on the east side of 43rd Avenue. Curb and gutter will not be installed, instead a 3' shoulder and thickened pavement edge have been proposed. Existing driveway locations will be maintained, and new driveways will be constructed according to City of Phoenix requirements. Sidewalk is not proposed for the interim improvements and therefore curb ramps were not included in the design. For more information regarding the interim condition see **Figure 2 – Interim Improvements Cross Section** and **Appendix A - 30% Preliminary Construction Drawings**.

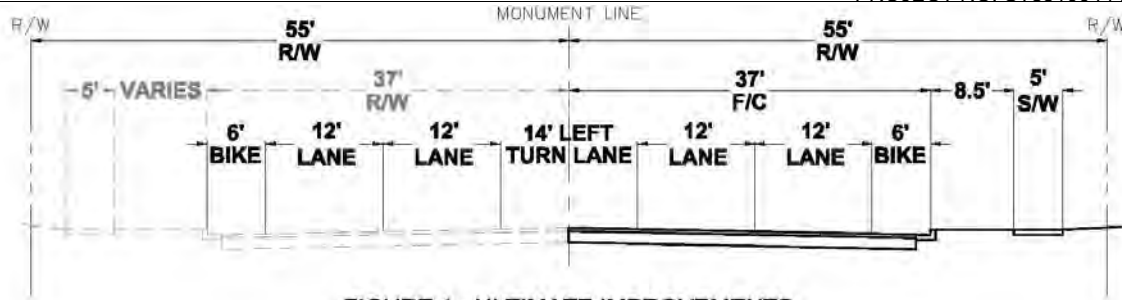


FIGURE 1 - ULTIMATE IMPROVEMENTS
CROSS SECTION
(LOOKING NORTH)

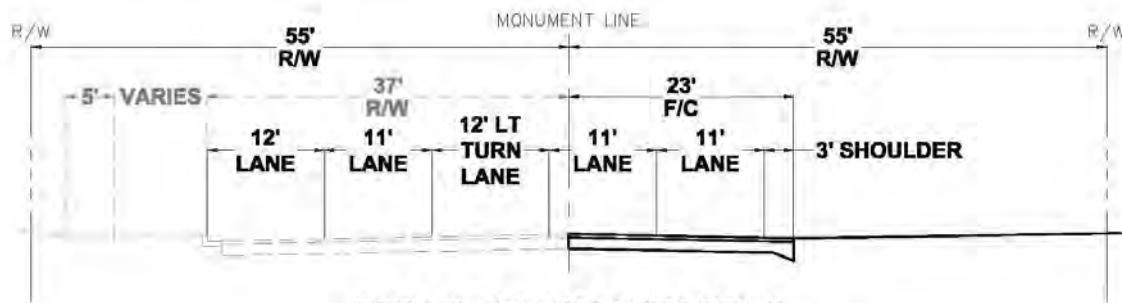


FIGURE 2 - INTERIM IMPROVEMENTS
CROSS SECTION
(LOOKING NORTH)

3. GEOMETRIC DESIGN

The 43rd Avenue proposed ultimate roadway geometry is based on arterial street cross section “C” from the City of Phoenix Supplemental Standard Details (Detail P1010). The interim roadway geometry was created based on the required width to provide the desired number of travel lanes.

The proposed roadway geometry will improve traffic circulation, safety, and increase roadway capacity by providing two additional travel lanes. The continuous center two-way center left turn lane and dedicated left turn lanes will provide storage for vehicles waiting to turn left from the northbound or southbound travel lanes. This allows through traffic to continue unimpeded in the travel lanes. The geometric layouts of the proposed improvements based on both cross sections are provided in **Appendix A**.



4. RIGHT-OF-WAY

For the interim and ultimate improvements additional right-of-way will be required at various locations to accommodate the proposed roadway improvements. Temporary construction easements may also be required along proposed improvements. The proposed right-of-way acquisitions are provided in **Appendix B**.

5. UTILITIES

Based on the information received from Arizona Blue Stake, the existing public and private utilities have been identified and incorporated into the preliminary geometric plans. A contact table that lists the utility company, type of facility, and contact name are provided in **Appendix C**.

6. PRELIMINARY DRAINAGE EVALUATION

On-site Evaluation

The existing residential developments bordering the entire western side of the project were designed to capture runoff from the existing half street. The stormwater is captured by catch basins and then routed into storm drains that convey the flow to the south and east. This storm drain system can adequately manage the on-site flows for the existing roadway; however, it is unclear at the time of this report if the system has enough capacity to convey the runoff from the new improvements.

For conceptual purposes it was assumed that the runoff from the new ultimate half street will be able to flow into the storm drain system. This assumption only applies to the ultimate condition as the interim condition does not include any additional drainage infrastructure. The interim condition allows runoff to leave the roadway matching the existing drainage patterns of the area, it has been determined that the new pavement will result in a minimal increase in peak discharge. As a result, the interim design will allow stormwater runoff to continue along historic drainage paths with a negligible increase in flow. Considering the purpose of this alternative, additional improvements were not considered to mitigate this small increase in flow.

Runoff and volume comparisons were made between the existing condition and the two alternatives using the rational method and equation 3.3 of *The Drainage Design Manual for Maricopa County, Volume I Hydrology*. The results of this comparison along with project drainage maps can be found in **Appendix D**.



According to FEMA's Flood Insurance Rate Map (FIRM) panels 04013C0445M and 04013C0835L 43rd Avenue is located within a Zone X floodplain. Zone X is classified by FEMA as "Areas of 0.2% annual chance flood; area of 1% chance flood with average depths of less than 1 foot or within drainage areas less than 1 square mile; and areas protected by levees from the 1% annual flood."

Off-site Evaluation

The residential subdivisions bordering the west side of 43rd Avenue are fully developed and designed to retain stormwater on site. The same applies to the portions of the east side of 43rd Avenue that have been developed. The Anthem Outlet Mall borders the site on the southeastern edge and a substation and post office border the northeast. These developments were designed to retain on-site stormwater.

However, a portion of the east side of 43rd Avenue is undeveloped. This area consists of a plant nursery and open desert extending from the existing edge of 43rd Avenue to the I-17 frontage road. Off-site flow from this area impacts the project site as the land naturally slopes towards 43rd Avenue and towards the New River. But due to the nature of the existing sites with minimal hardscape infrastructure (open desert and plant nursery), the off-site flow impact will be minimal. It is assumed that these flows will not be significant enough to warrant any drainage infrastructure to manage the off-site runoff and these properties will be developed in the future and should be required to retain runoff on-site.

Proposed Drainage Improvements

The existing storm drain systems were built as part of the existing half-street of 43rd Avenue. It is assumed that the existing storm drains have capacity to collect the ultimate full street drainage flows, this will need to be confirmed during final design. New catch basins will be provided at an adequate spacing (not to exceed 660 feet) determined during final design.

7. OVERALL PROJECT COST

A cost estimate for construction of each alternative was prepared based on the preliminary 30% construction drawings presented in **Appendix A**. The estimated cost for the Ultimate improvements is **\$1,786,441** and the estimate cost for the interim improvements is **\$1,141,671**. Another cost estimate was prepared for a potential scenario where the interim improvements are constructed at this time and in the future the city decides to expand 43rd Avenue to the ultimate condition. The cost to complete this work is **\$932,404**. Refer to **Appendix E** for a more detailed breakdown of the costs for each alternative.



8. CONCLUSION

The Ultimate and Interim improvements are both feasible options for the corridor from a technical engineering standpoint. Both options provide the additional travel lanes meeting the expectations of the project. Final selection of an alternative will be decided by the City based on the availability of funding and the desired date of completion.



APPENDIX A
30% Preliminary Construction Drawings



**APPENDIX B
POTENTIAL RIGHT-OF-WAY ACQUISITIONS AND TEMPORARY
CONSTRUCTION EASEMENTS**

INTERIM CONDITION

Parcel	ACQUISITION TYPE	Area (SF)
202-22-017	ROW	9,750.00
202-22-635	ROW	6,312.80
202-22-636	ROW	15,652.65
202-22-009P	ROW	6,603.10
TOTAL ROW		38,318.55

ULTIMATE CONDITION

Parcel	ACQUISITION TYPE	Area (SF)
202-22-010C	TCE	1363.00
202-22-457A	ROW	312.50
202-22-016D	ROW	312.50
202-22-007A	ROW	500.65
TOTAL ROW		1125.65
TOTAL TCE		1363.00

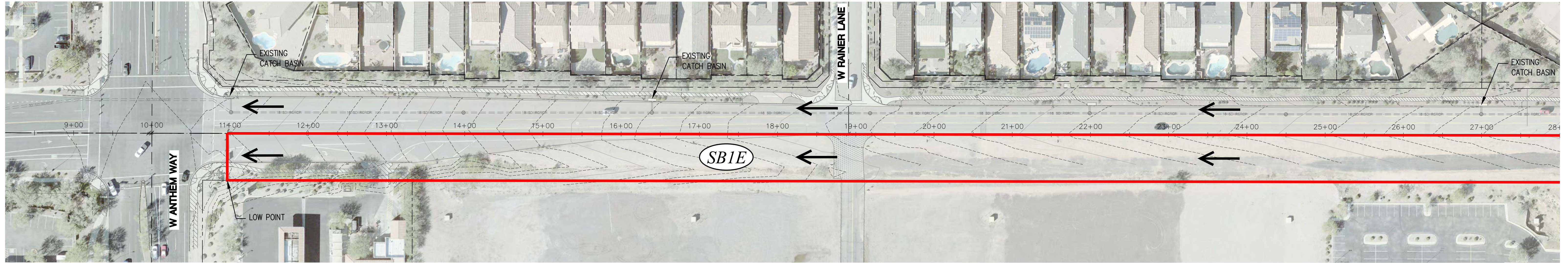


APPENDIX C EXISTING UTILITIES

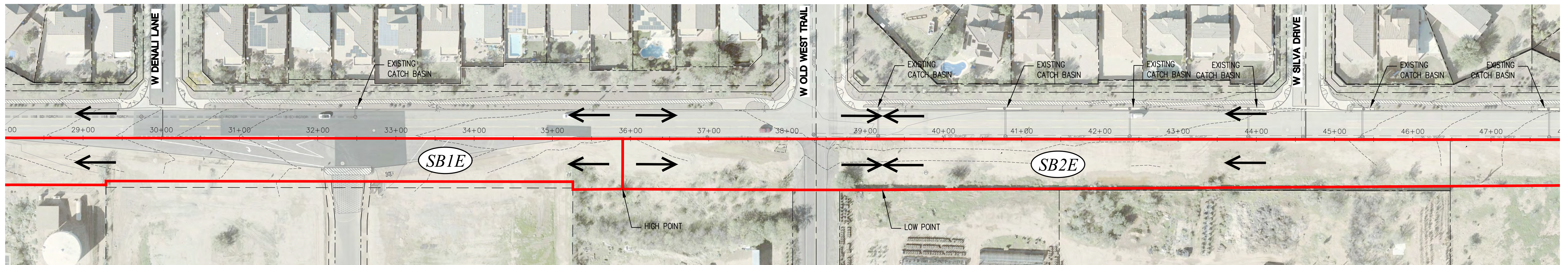
UTILITY	TYPE	CONTACT NAME
City of Phoenix	Water & Sewer	Art Nunez
City of Phoenix	Storm Drain	Conflict Review Liaison
Arizona Public Service (APS)	Underground Electric	Conflict Review Liaison
Century Link	Fiber Optic /Telephone	Conflict Review Liaison
Cox Communications	Fiber Optic /Telephone	Conflict Review Liaison
Southwest Gas	Natural Gas	Conflict Review Liaison



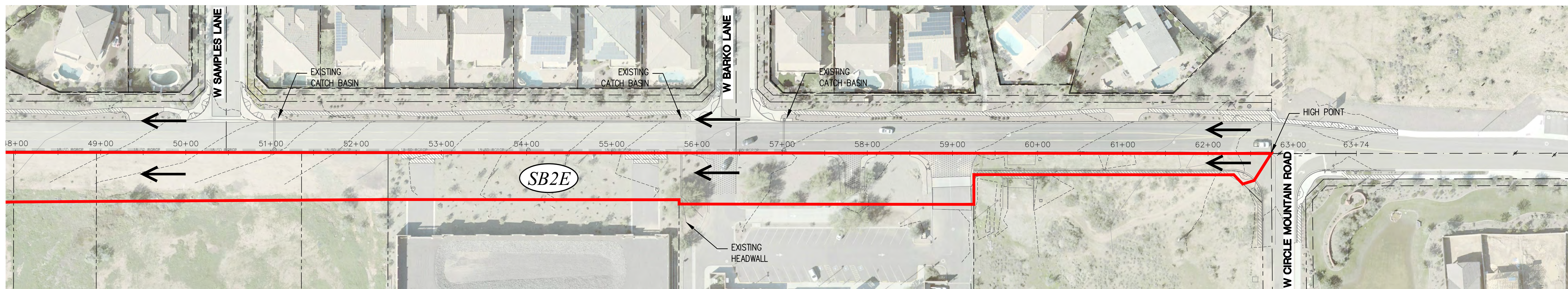
APPENDIX D DRAINAGE EXHIBITS AND CALCULATIONS



43RD AVENUE



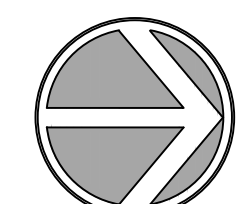
43RD AVENUE



43RD AVENUE

LEGEND

	SUB-BASIN ID		SCUPPER
	SCUPPER/CATCH BASIN		CATCH BASIN
			FLOW ARROW

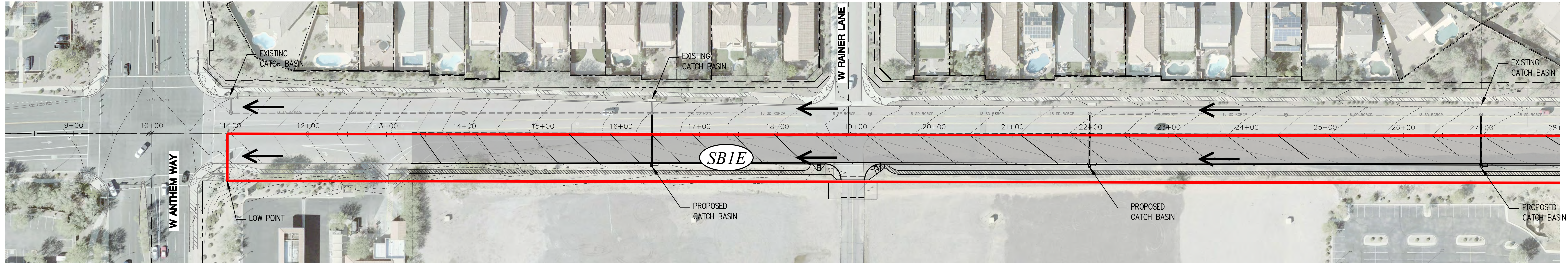


NORTH
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BAR IS ONE INCH ON ORIGINAL DRAWING

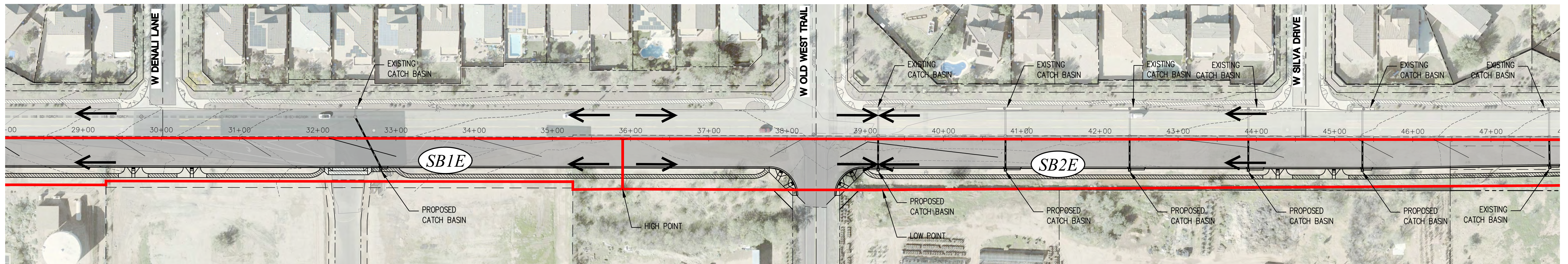
PRE-DEVELOPMENT DRAINAGE MAP



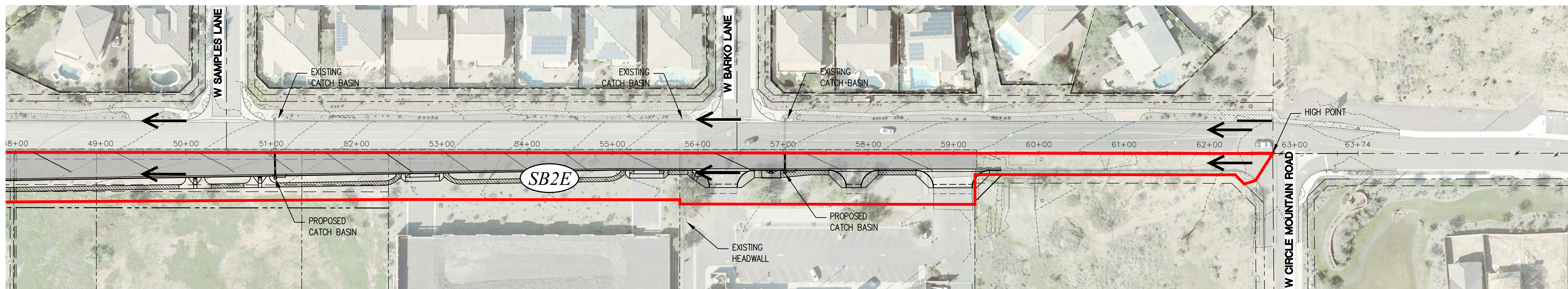
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43RD AVENUE



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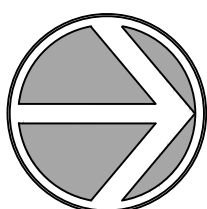


43RD AVENUE

LEGEND

	SUB-BASIN ID		SCUPPER
	SCUPPER/CATCH BASIN		CATCH BASIN
			FLOW ARROW

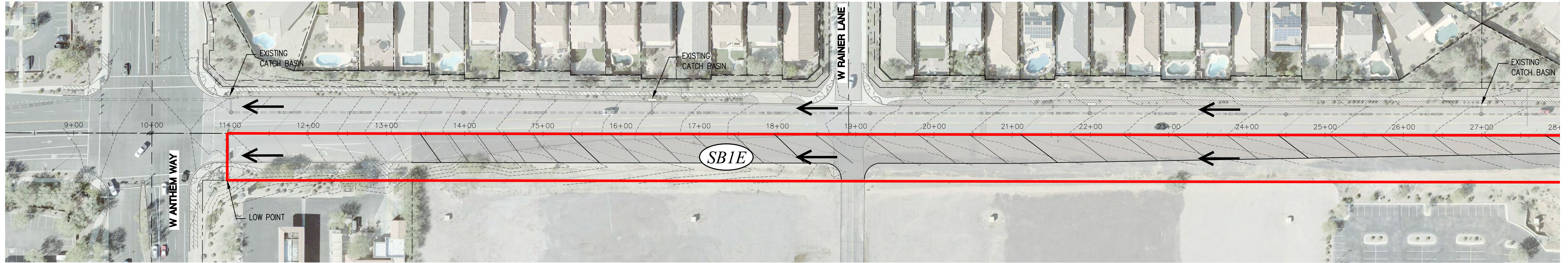
ULTIMATE CONDITION DRAINAGE MAP



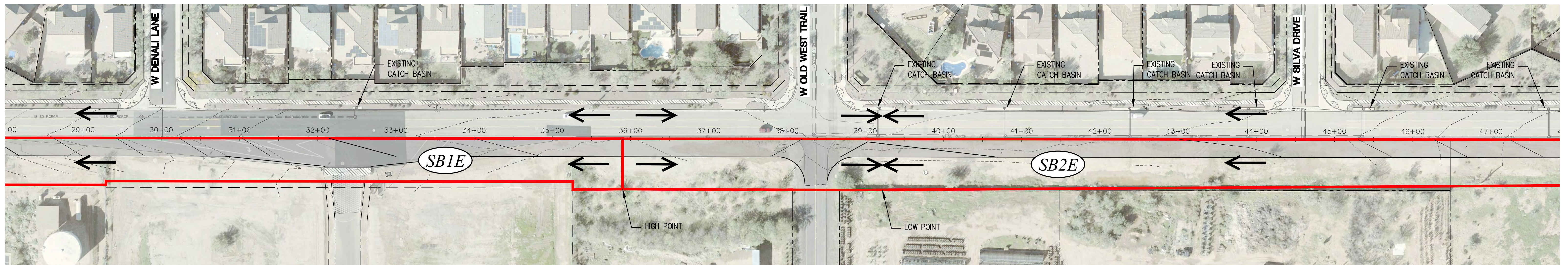
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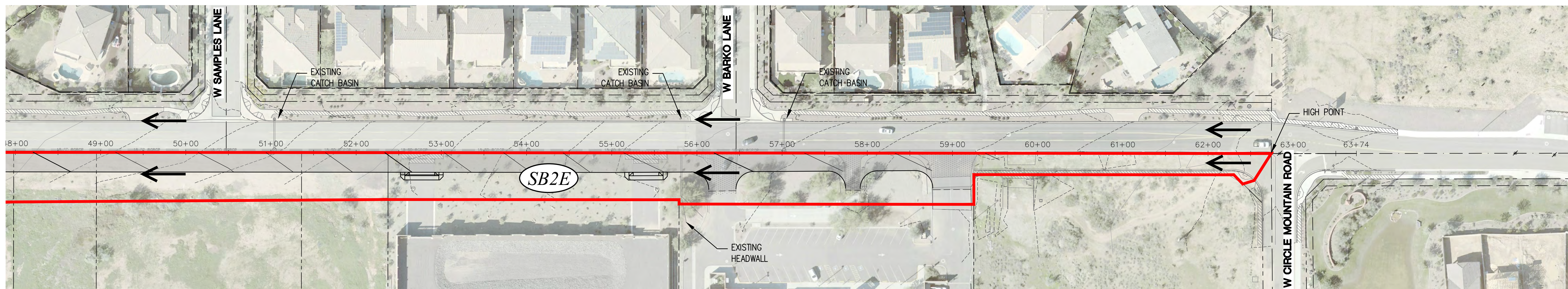
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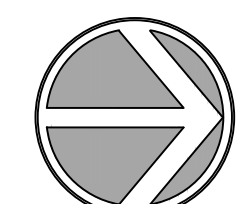
43RD AVENUE

LEGEND

	SUB-BASIN ID		SCUPPER
	SCUPPER/CATCH BASIN		CATCH BASIN
			FLOW ARROW



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NORTH
SCALE: 1"=60'
0 1"
BAR IS ONE INCH ON ORIGINAL DRAWING

INTERIM CONDITION DRAINAGE MAP



CLIENT: City of Phoenix
 JOB: 43rd Avenue Assessment

BY WCH 2/6/2020

CHECK RAS 2/6/2020

JOB NO. 115195E

RATIONAL CALCULATIONS

AreaID	Sub Basin Data											Intensity (in/hr)			Time of Concentration			Hydrology Summary		
	Total_Area	usge	dsge	length	Slope	Adj_slope	Kb	kb	C2	C10	C100	i2	i10	i100	Tc2	Tc10	Tc100	Q2	Q10	Q100
Pre-Development SB1E	3.37	1917	1884	2492	69	69	MIN	0.03670	0.63	0.63	0.75	2.19	3.93	6.81	16.8	13.5	10.9	4.6	8.3	17.2
Pre-Development SB2E	3.41	1936	1914	1845	63	63	MIN	0.03667	0.60	0.60	0.73	2.34	4.23	7.28	14.5	11.6	9.4	4.8	8.7	18.1
Ultimate Condition SB1E	3.37	1917	1884	2492	69	69	MIN	0.03670	0.81	0.81	0.88	2.19	3.93	6.81	16.8	13.5	10.9	6.0	10.7	20.2
Ultimate Condition SB2E	3.41	1936	1914	1845	63	63	MIN	0.03667	0.78	0.78	0.86	2.34	4.23	7.28	14.5	11.6	9.4	6.2	11.3	21.3
Interim Condition SB1E	3.37	1917	1884	2492	69	69	MIN	0.03670	0.75	0.75	0.84	2.19	3.93	6.81	16.8	13.5	10.9	5.5	9.9	19.3
Interim Condition SB2E	3.41	1936	1914	1845	63	63	MIN	0.03667	0.72	0.72	0.81	2.34	4.23	7.28	14.5	11.6	9.4	5.7	10.4	20.1

PROJECT #: ST87100444-1 **PROJECT:** 43rd Avenue Assessment
ENTELLUS PROJECT #: 115195E **SUBJECT:** Pre-Development Runoff Volume

Sub basin ID	A (Acres)	C (100 yr)	C x A
SB1E	3.37	0.75	2.53
SB2E	3.41	0.73	2.49
Totals	6.78	0.74	5.02

Rainfall Depth (P) **2.73** Inches
 Total Area = 295,511 ft²
 Total Area = 6.78 acre
 C Value = 0.74 weighted runoff coefficient

$$V_{req} = C \times \left(\frac{P}{12}\right) \times A$$

V_{req} = **1.14** acre-feet
 V_{req} = **49,746** ft³

PROJECT #: ST87100444-1

PROJECT: 43rd Avenue Assessment

ENTELLUS PROJECT #: 115195E

SUBJECT: Ultimate Runoff Volume

Sub basin ID	A (Acres)	C (100 yr)	C x A
SB1E	3.37	0.88	2.97
SB2E	3.41	0.86	2.93
Totals	6.78	0.87	5.90

Rainfall Depth (P) **2.73** Inches
 Total Area = 295,511 ft²
 Total Area = 6.78 acre
 C Value = 0.87 weighted runoff coefficient

$$V_{req} = C \times \left(\frac{P}{12}\right) \times A$$

V_{req} = **1.34** acre-feet

V_{req} = **58,485** ft³

PROJECT #: ST87100444-1

PROJECT: 43rd Avenue Assessment

ENTELLUS PROJECT #: 115195E

SUBJECT: Interim Runoff Volume

Sub basin ID	A (Acres)	C (100 yr)	C x A
SB1E	3.37	0.84	2.83
SB2E	3.41	0.81	2.76
Totals	6.78	0.82	5.60

Rainfall Depth (P) **2.73** Inches
 Total Area = 295,511 ft²
 Total Area = 6.78 acre
 C Value = 0.82 weighted runoff coefficient

$$V_{req} = C \times \left(\frac{P}{12}\right) \times A$$

$V_{req} =$ **1.27** acre-feet

$V_{req} =$ **55,458** ft³

Project: 43rd Avenue Assessment
Composite C Value Calculations

(1) Composite C Values were calculated per Maricopa County Drainage policies and Standards Equation 6.5b

(2) Input C Values are based off the City of Phoenix Stormwater Policies and Standards Manual, Table 6.2.2

Basin ID	Land Use Code	Area (SF)	Area (acres)	Area (%)	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year	Description
SB1E PRE-DEV	730	111302	2.56	75.8%	0.55	0.55	0.55	0.61	0.66	0.69	Passive Open Desert Space
	600	35626	0.82	24.2%	0.90	0.90	0.90	0.95	0.95	0.95	General Transportation (Paved Roads and Sidewalks)
Composite C Value			3.37		0.63	0.63	0.63	0.69	0.73	0.75	

SB2E PRE-DEV	730	127912	2.94	86.1%	0.55	0.55	0.55	0.61	0.66	0.69	Passive Open Desert Space
	600	20671	0.47	13.9%	0.90	0.90	0.90	0.95	0.95	0.95	General Transportation (Paved Roads and Sidewalks)
Composite C Value			3.41		0.60	0.60	0.60	0.66	0.70	0.73	

SB1E ULTIMATE CONDITION	730	38811	0.89	26.4%	0.55	0.55	0.55	0.61	0.66	0.69	Passive Open Desert Space
	600	108117	2.48	73.6%	0.90	0.90	0.90	0.95	0.95	0.95	General Transportation (Paved Roads and Sidewalks)
Composite C Value			3.37		0.81	0.81	0.81	0.86	0.87	0.88	

SB2E ULTIMATE CONDITION	730	50790	1.17	34.2%	0.55	0.55	0.55	0.61	0.66	0.69	Passive Open Desert Space
	600	97793	2.25	65.8%	0.90	0.90	0.90	0.95	0.95	0.95	General Transportation (Paved Roads and Sidewalks)
Composite C Value			3.41		0.78	0.78	0.78	0.83	0.85	0.86	

SB1E INTERIM CONDITION	730	63915	1.47	43.5%	0.55	0.55	0.55	0.61	0.66	0.69	Passive Open Desert Space
	600	83012	1.91	56.5%	0.90	0.90	0.90	0.95	0.95	0.95	General Transportation (Paved Roads and Sidewalks)
Composite C Value			3.37		0.75	0.75	0.75	0.80	0.82	0.84	

SB2E INTERIM CONDITION	730	78501	1.80	52.8%	0.55	0.55	0.55	0.61	0.66	0.69	Passive Open Desert Space
	600	70100	1.61	47.2%	0.90	0.90	0.90	0.95	0.95	0.95	General Transportation (Paved Roads and Sidewalks)
Composite C Value			3.41		0.72	0.72	0.72	0.77	0.80	0.81	



APPENDIX E COST ESTIMATE

43rd Avenue From Anthem Way to Circle Mountain Road
 30% Engineers Estimate of Probable Cost
 City of Phoenix Project No. ST85100444-1
 Entellus Project No. 115.195E
 April 27, 2020

ULTIMATE CONDITION

Item No.	Item Description	Unit	Quantity	Unit Cost	Total Cost
M3500060	Remove Existing Pavement	S.Y.	4721	\$3.00	\$14,163
M3500025	Remove Existing Concrete Driveway/Sidewalk	S.F.	1829	\$3.00	\$5,487
M3010001	Subgrade Preparation	SY	18313	\$3.00	\$54,939
M3210120	Install New Pavement Section (2-IN of D-1/2)	Tons	1856	\$120.00	\$222,720
M3210120	Install New Pavement Section (6-IN of C-3/4)	Tons	5566	\$115.00	\$640,090
M3402200	Install Type "A" Curb & Gutter Per MAG 220-1	L.F.	4302	\$17.00	\$73,134
M3400400	Install Sidewalk per MAG 230	S.F.	18919	\$4.50	\$85,136
M3400543	Install Return Type Driveway with Truncated Domes per COP P1243	S.F.	2718	\$12.00	\$32,616
M3400555	Install Driveway Entrance per COP P1255-1	S.F.	1390	\$12.00	\$16,680
M3450020	Adjust Existing Manhole Frame and Cover per MAG 422	Ea.	15	\$500.00	\$7,500
M3500307	Relocate Existing Sign	Ea.	20	\$250.00	\$5,000
M3450000	Relocate Existing Water Meter	Ea.	3	\$1,200.00	\$3,600
M3515046	Relocate Existing Cable Box	Ea.	3	\$1,500.00	\$4,500
M4400004	Relocate Private Irrigation	L.S.	1	\$3,000.00	\$3,000
M3210100	Install 3" ACSC	Tons	17	\$200.00	\$3,400
M3400490	Install Sidewalk Ramp per COP P1237	S.F.	1000	\$9.00	\$9,000
M5051524	Install Catch Basin per COP P1569	Ea.	12	\$5,000.00	\$60,000
M6181024	Install Storm Drain Pipe (18-IN RGRCP)	L.F.	529	\$75.00	\$39,675
M6180520	Connect to Existing Storm Drain Manhole	Ea.	12	\$1,200.00	\$14,400
M3453016	Adjust Survey Monument per MAG 120 type "B"	Ea.	3	\$500.00	\$1,500
M3400480	Install Mid-Block Sidewalk Ramp Per COP P1241-2	S.F.	2364	\$15.00	\$35,460
M3400480	Install Modified Mid-Block Sidewalk Ramp Per COP P1241-2	S.F.	340	\$15.00	\$5,100
M3400543	Return Type Driveway with Custom Ramps	S.F.	2753	\$15.00	\$41,295
M3400417	Detectable Warning Strip	L.S.	1	\$3,200.00	\$3,200
M3400480	Install Mid-Block Sidewalk Ramp Per COP P1241-1	S.F.	196	\$15.00	\$2,940
	Subtotal Construction Cost				\$1,384,535
M1002005	Mobilization	L.S.	1	\$50,000.00	\$50,000
M4012000	Traffic Control Devices	L.S.	1	\$60,000.00	\$60,000
M4013000	Uniformed, Off-duty Law Enforcement Officer	L.S.	1	\$15,000.00	\$15,000
	Contingency (20%)				\$276,907
	Total Construction Cost (2020)				\$1,786,441

43rd Avenue From Anthem Way to Circle Mountain Road
 30% Engineers Estimate of Probable Cost
 City of Phoenix Project No. ST85100444-1
 Entellus Project No. 115.195E
 April 27, 2020

INTERIM CONDITION

Item No.	Item Description	Unit	Quantity	Unit Cost	Total Cost
M3500060	Remove Existing Pavement	S.Y.	4712	\$3.00	\$14,136
M3500025	Remove Existing Concrete Driveway/Sidewalk	S.F.	1198	\$3.00	\$3,594
M3010001	Subgrade Preparation	SY	15805	\$3.00	\$47,415
M3210120	Install New Pavement Section (2-IN of D-1/2)	Tons	1577	\$120.00	\$189,240
M3210120	Install New Pavement Section (6-IN of C-3/4)	Tons	4731	\$115.00	\$544,065
	Construct Thickened Edge per MAG 201 Type "A"	L.F.	4422	\$5.00	\$22,110
M3400555	Install Driveway Entrance per COP P1255-1	S.F.	868	\$12.00	\$10,416
M3450020	Adjust Existing Manhole Frame and Cover per MAG 422	Ea.	14	\$500.00	\$7,000
M3453016	Adjust Survey Monument per MAG 120 type "B"	Ea.	3	\$500.00	\$1,500
M3500307	Relocate Existing Sign	Ea.	19	\$250.00	\$4,750
M4400004	Relocate Private Irrigation	L.S.	1	\$3,000.00	\$3,000
	Subtotal Construction Cost				\$847,226
M1002005	Mobilization	L.S.	1	\$50,000.00	\$50,000
M4012000	Traffic Control Devices	L.S.	1	\$60,000.00	\$60,000
M4013000	Uniformed, Off-duty Law Enforcement Officer	L.S.	1	\$15,000.00	\$15,000
	Contingency (20%)				\$169,445
	Total Construction Cost (2020)				\$1,141,671

43rd Avenue From Anthem Way to Circle Mountain Road
 30% Engineers Estimate of Probable Cost
 City of Phoenix Project No. ST85100444-1
 Entellus Project No. 115.195E
 April 27, 2020

**EXPANSION TO ULTIMATE CONDITION (ASSUMING INTERIM
 CONDITION HAS BEEN CONSTRUCTED)**

Item No.	Item Description	Unit	Quantity	Unit Cost	Total Cost
M3500060	Remove Existing Pavement	S.Y.	1766	\$3.00	\$5,298
M3500025	Remove Existing Concrete Driveway/Sidewalk	S.F.	1829	\$3.00	\$5,487
M3010001	Subgrade Preparation	SY	4187	\$3.00	\$12,561
M3210120	Install New Pavement Section (2-IN of D-1/2)	Tons	458	\$120.00	\$54,960
M3210120	Install New Pavement Section (6-IN of C-3/4)	Tons	1373	\$115.00	\$157,895
M3402200	Install Type "A" Curb & Gutter Per MAG 220-1	L.F.	4302	\$17.00	\$73,134
M3400400	Install Sidewalk per MAG 230	S.F.	18919	\$4.50	\$85,136
M3400543	Install Return Type Driveway with Truncated Domes per COP P1243	S.F.	2718	\$12.00	\$32,616
M3400555	Install Driveway Entrance per COP P1255-1	S.F.	1390	\$12.00	\$16,680
M3450020	Adjust Existing Manhole Frame and Cover per MAG 422	Ea.	3	\$500.00	\$1,500
M3500307	Relocate Existing Sign	Ea.	20	\$250.00	\$5,000
M3450000	Relocate Existing Water Meter	Ea.	3	\$1,200.00	\$3,600
M3515046	Relocate Existing Cable Box	Ea.	3	\$1,500.00	\$4,500
M3210100	Install 3" ACSC	Tons	17	\$200.00	\$3,400
M3400490	Install Sidewalk Ramp per COP P1237	S.F.	1000	\$9.00	\$9,000
M5051524	Install Catch Basin per COP P1569	Ea.	12	\$5,000.00	\$60,000
M6181024	Install Storm Drain Pipe (18-IN RGRCP)	L.F.	529	\$75.00	\$39,675
M6180520	Connect to Existing Storm Drain Manhole	Ea.	12	\$1,200.00	\$14,400
M3400480	Install Mid-Block Sidewalk Ramp Per COP P1241-2	S.F.	2364	\$15.00	\$35,460
M3400480	Install Modified Mid-Block Sidewalk Ramp Per COP P1241-2	S.F.	340	\$15.00	\$5,100
M3400543	Return Type Driveway with Custom Ramps	S.F.	2753	\$15.00	\$41,295
M3400417	Detectable Warning Strip	L.S.	1	\$3,200.00	\$3,200
M3400480	Install Mid-Block Sidewalk Ramp Per COP P1241-1	S.F.	196	\$15.00	\$2,940
	Subtotal Construction Cost				\$672,837
M1002005	Mobilization	L.S.	1	\$50,000.00	\$50,000
M4012000	Traffic Control Devices	L.S.	1	\$60,000.00	\$60,000
M4013000	Uniformed, Off-duty Law Enforcement Officer	L.S.	1	\$15,000.00	\$15,000
	Contingency (20%)				\$134,567
	Total Construction Cost (2020)				\$932,404