



Public Works / Engineering Department

July 14th, 2017

Cheney Improvement Area Alternative 1

Flood Control District of Maricopa County
CIP Prioritization Procure Submittal



July 14th, 2017

Planning and Project Management Division
Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, AZ 85268

Attn: Don Rerick, P.E., Division Manager

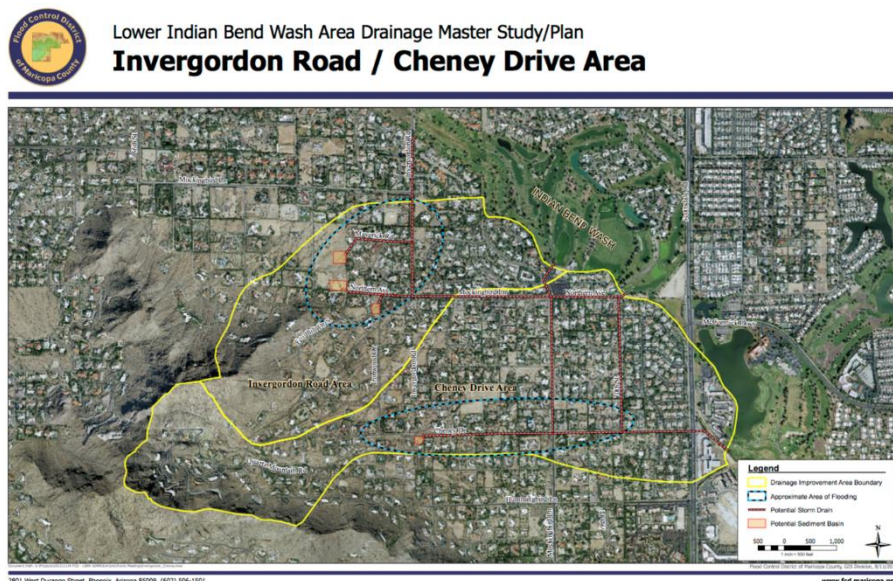
Cheney Improvement Area Alternative 1 (64th Street and Cheney to eastern Town Limits)

Project Description

The Cheney Drainage Improvement Area (see Figure 1: Project Location Map) is bound by the Indian Bend Wash to the east encompassing one square mile of the bowl like valley below the slope line of Mummy Mountain. The areas primary conveyance corridor is the Cheney Wash which roughly runs west to east and parallels Cheney Drive. This area is a Drainage Improvement Area as identified in the Flood Control District's on-going Lower Indian Bend Wash (LIBW) Area Drainage Master Study (ADMS). The existing hydrologic and hydraulic conditions analysis confirmed that the properties adjacent to the wash, while not in a mapped floodplain or floodway, are susceptible to flooding.

The proposed project includes a sedimentation basin on the south side of Cheney Drive near the 64th Street alignment before the wash is intercepted by a 60" storm drain in Cheney Drive. At the intersection of Cheney Drive and Mockingbird Lane a 78" storm drain is proposed north to Northern Avenue. From the intersection of Mockingbird Lane and Northern Avenue a 72" storm drain is proposed east in Northern Avenue, discharging into the Indian Bend Wash on the east side of Scottsdale Road.

Figure 1:
Project Location Map



1. Funding Commitment and Agency Priority

This project is the Town's second priority for the District's current year Prioritization Procedure and is one of two flood control projects the Town is submitting for the District's CIP Prioritization. This project is the Town's second priority and second project submitted to the District during the past decade. Please see the attached (Appendix A) signed Letter of Intent (LOI).

As such, this project and Town funding of this project is identified in the Town's adopted FY2018-2022 Capital Improvement Plan (Appendix B) and is ready to enter into an Intergovernmental Agreement. The project identified in the adopted CIP, FCD Invergordon Improvements Alternative 1 can be reprioritized while the funding identified will remain to fund this project. No project schedule for implementation, including anticipated milestones and deliverables, has been developed at this point.

Total Project Cost:

The project design and construction is anticipated to cost \$7,430,000, as shown in the attached cost estimate (Appendix C). Depending on the design, it is possible land may need to be purchased or acquired by easement for a sedimentation basin for this project.

2. Flood Control / Drainage Master Plan Element

The Flood Control District's on-going Lower Indian Bend Wash Area Drainage Master Study has identified the proposed project as a preferred alternative. The preferred alternative, Cheney Improvement Area Alternative 1 is attached (Appendix D).

3. Flooding Threat

The Cheney Drainage Improvement Area is bound by Indian Bend Wash to the east encompassing the bowl like valley below the slope line of Mummy Mountain. The area includes one square mile and its primary conveyance corridor is the Cheney Wash which roughly runs west to east and parallels Cheney Drive.

The area protected by the proposed storm drain includes up to 16 structures which are subject to probable flooding as identified in the preliminary FLO-2D analysis for the Invergordon Road and Cheney Drive FHA (see Appendix E). None of these structures are currently in a mapped floodway or floodplain but several documented flooding events and complaints are known to exist (see Appendix F). The analysis indicates a max discharge of 590 cfs where the Cheney Wash intersects with Cheney Drive at 64th Street for a 100-year 6-hour storm event.

4. Level of Protection

This project will protect homes, places of worship, and roadways from potential flooding at the 10-year, 6-hour storm event.

5. Area Protected

The area protected by the proposed improvements includes low density residential development. Development has occurred in the area since the early 1940's. None of the single family residences are located into a delineated floodway or floodplain. The preliminary FLO-2D analysis for the Paradise Valley Wash FHA indicates there are as many as 16 structures subject to probable flooding.

In addition to structural benefits, several roadways will benefit from the improvements. They include Cheney Drive, Mockingbird Lane, and Northern Avenue. All of the existing roadways carry 100% of the stormwater flows in the area and the proposed improvements would make them passable during 10 year storm events which will indirectly benefit a large percentage of the population who travel in the area as well as provide for emergency access.

6. Ancillary Benefits

Ancillary benefits include the addition of inlet structures which will improve water quality leaving the Town of Paradise Valley. Additionally, the project presents opportunities for implementing low impact development methods that are currently being considered with the adoption of the Town's Storm Drainage Design Manual.

7. Level of Partner Participation

The Town proposes to be the lead design and construction agent and anticipates funding 50% of the design and construction cost of this project. The project and funds have been identified in the town's adopted FY2018-22 Capital Improvement Plan. Depending on design, it is possible land may need to be purchased or acquired by easement for a sedimentation basin for this project.

8. Operations and Maintenance Costs to the District

The Town will be financially responsible for all future operation and maintenance for this project, after the initial contractor warranty period. There will be no on-going operation and maintenance costs borne by the District.

Appendices

- A. Signed Letter of Intent
- B. Town of Paradise Valley Adopted Capital Improvement Plan
- C. Cost Estimate
- D. Selected Pages from the Lower Indian Bend Wash Area Drainage Master Study
- E. Invergordon Road and Cheney Drive FHA
- F. Resident Flooding Complaints

Don Rerick
Flood Control District of Maricopa County
July 14th, 2017

APPENDIX A
SIGNED LETTER OF INTENT



Flood Control Capital Project Letter of Intent

Project Name: Cheney Improvement Area Alternative 1
Name of Submitting Agency: Town of Paradise Valley

1. General

A. Project Area 64th Street and Cheney Drive, east to Mockingbird Lane, north to Northern Avenue, east to the eastern town limits.

B. Summary Project Description 10-year, 6-hour storm drainage improvements in public right-of-way.

C. Estimated Project Cost \$7,430,000

2. Proposed Lead Agency by Task (For each task, indicate "District", City/Agency name, or "Not Applicable")

A. Design Town of Paradise Valley

B. Rights-of-Way Acquisition Town of Paradise Valley

C. Construction Town of Paradise Valley

D. Operations and Maintenance Town of Paradise Valley

3. Proposed Cost Share

	District	City/Agency	Other	Total
A. Percentage	50%	50%	0%	0
B. Dollars	\$3,715,000	\$3,715,000	0	0

4. Estimated Availability of City/Agency Funding (Dollars)

	FY 2018/19	FY 2019/20	FY 2020/21	FY 2021/22	FY 2022/23	Later FYs
	[]	[]	\$1,300,000	\$2,415,000	[]	[]

5. Master Plan/Study Applicable to Submitted Project

A. Title (if applicable) Lower Indian Bend Wash Area Drainage Master Study

B. Adopted by City/Agency? Adopted Not Adopted Pending Not Applicable

6. Agency Approval (City Engineer, Public Works Director, or Agency Manager)

Kevin Burke July 14th, 2017
 Signature Date

Kevin Burke Town Manager
 Printed Name Title

Submittals must adhere to the CIP Prioritization Procedure guidelines - in particular: (1) Explicitly and quantitatively address the evaluation criteria identified by the CIP Prioritization Procedure, giving particular attention to quantifying flood control benefits; (2) include maps and other graphic attachments demonstrating the conceptual components of the project; (3) provide eight copies of each project submittal (accompanied by corresponding signed letters of intent); (4) if a non-District study generated the project, provide one copy of the study.

Don Rerick
Flood Control District of Maricopa County
July 14th, 2017

APPENDIX B

TOWN OF PARADISE VALLEY ADOPTED CAPITAL IMPROVEMENT PLAN

Town of Paradise Valley, Arizona

Capital Improvement Plan

2018 thru 2022

PROJECTS BY DEPARTMENT

Department	Project #	2018	2019	2020	2021	2022	Total
Facility Improvement							
Town Hall Remodel	2017-01	210,000	775,000	775,000			1,760,000
Police and PW Dept Backup Power	2017-02	300,000					300,000
Town Hall Chiller Replacement	2019-02			100,000			100,000
Police Department Remodel	2019-10	110,000	300,000	590,000			1,000,000
Public Works Remodel	2020-08	50,000	400,000				450,000
Town Hall Backup Power	2021-04				200,000		200,000
Facility Improvement Total		670,000	1,475,000	1,465,000	200,000		3,810,000
Master Plans/Studies							
Watershed Studies	2016-06		450,000				450,000
Iconic Visually Significant Corridors, etc.	2016-08	43,000					43,000
Master Plans/Studies Total		43,000	450,000				493,000
Sidewalks							
Lincoln Drive Sidewalks	2017-05	440,000	75,000	120,000			635,000
56th St. Sidewalks (Mockingbird to Doubletree)	2018-06	100,000					100,000
N. Tatum Rd. Sidewalks (Doubletree-Mountain View)	2020-06			150,000			150,000
32nd St. Sidewalks (Stanford to Lincoln)	2021-02				300,000	2,850,000	3,150,000
Sidewalks Total		540,000	75,000	270,000	300,000	2,850,000	4,035,000
SRP Undergrounding							
SRP 44th Street & Keim Conversion	2016-01	1,224,385					1,224,385
SRP Denton Lane Conversion	2020-01			50,000	527,100		577,100
SRP 40th Street & Lincoln Drive Conversion	2022-01					300,000	300,000
SRP Undergrounding Total		1,224,385		50,000	527,100	300,000	2,101,485
Stormwater							
52nd Street Stormwater Improvements	2018-20	100,000					100,000
FCD LIBW Cheney Improvements Alt 1	2019-12		1,500,000	6,000,000			7,500,000
FCD LIBW Invergordon Improvements Alt 1	2021-05				1,300,000	5,200,000	6,500,000
Stormwater Total		100,000	1,500,000	6,000,000	1,300,000	5,200,000	14,100,000
Streets							
Lincoln Dr. (Limits to Mockingbird) - Ritz Related	2016-14.1	2,941,750					2,941,750
Indian Bend (Limits to Mockingbird) - Ritz Related	2016-14.2	1,700,000					1,700,000
Mockingbird Lane Medians - Ritz Related	2016-14.3	5,320,000					5,320,000
Mockingbird Lane Improvements (S. of Lincoln Rd.)	2018-03	200,000					200,000
Doubletree (64th St. to Scottsdale)	2018-04	300,000	3,000,000				3,300,000
Pedestrian / Bicycle Improvements	2018-07	100,000	100,000	100,000	100,000	100,000	500,000
McDonald Drive Wash Culvert Extension	2018-10	205,000					205,000
Lincoln@64th St. (Invergordon) Intersect. Realign	2019-03		150,000				150,000

Department	Project #	2018	2019	2020	2021	2022	Total
64th St. Medians (McDonald to Chaparral Rd.)	2019-04			270,000	2,430,000		2,700,000
Denton Lane Cul De Sac	2019-05			150,000			150,000
Highlands Drive Cul De Sac	2019-06		250,000				250,000
45th Street Curbs (McDonald to Valley Vista)	2020-02			100,000			100,000
Tatum Boulevard Retaining Walls	2020-03			400,000			400,000
Mockingbird Lane (56th St. to Invergordon Rd.)	2020-04				300,000	3,000,000	3,300,000
Mountain View Road Improvements (Tatum - 52nd St.)	2020-05			100,000	1,000,000		1,100,000
Streets Total		10,766,750	3,500,000	1,120,000	3,830,000	3,100,000	22,316,750
Technology							
Public Safety Communications Tower	2013-02	850,000					850,000
Network Switch Upgrade	2016-10	12,000					12,000
Implement Town-Wide Geographic Info. System (GIS)	2017-04	125,000					125,000
Telecommunications System Update	2018-01		320,000				320,000
CAD Enterprise Upgrade	2018-08	221,000					221,000
Town Hall Complex Fiber Connections	2022-05	150,000					150,000
Technology Total		1,358,000	320,000				1,678,000
Traffic Signals							
Traffic Signal (Video Detection) Upgrades	2018-05	250,000					250,000
Traffic Signals Total		250,000					250,000
Wastewater							
Sewer System Assesment	2017-06	234,200	234,200	234,200	234,200		936,800
Wastewater Total		234,200	234,200	234,200	234,200		936,800
GRAND TOTAL		15,186,335	7,554,200	9,139,200	6,391,300	11,450,000	49,721,035

Don Rerick
Flood Control District of Maricopa County
July 14th, 2017

APPENDIX C

COST ESTIMATE

Cheney Drive Storm Drain Alternative 1

Cost Estimate



3030 N. Central Ave., Suite 1530, Phoenix, Arizona 85012

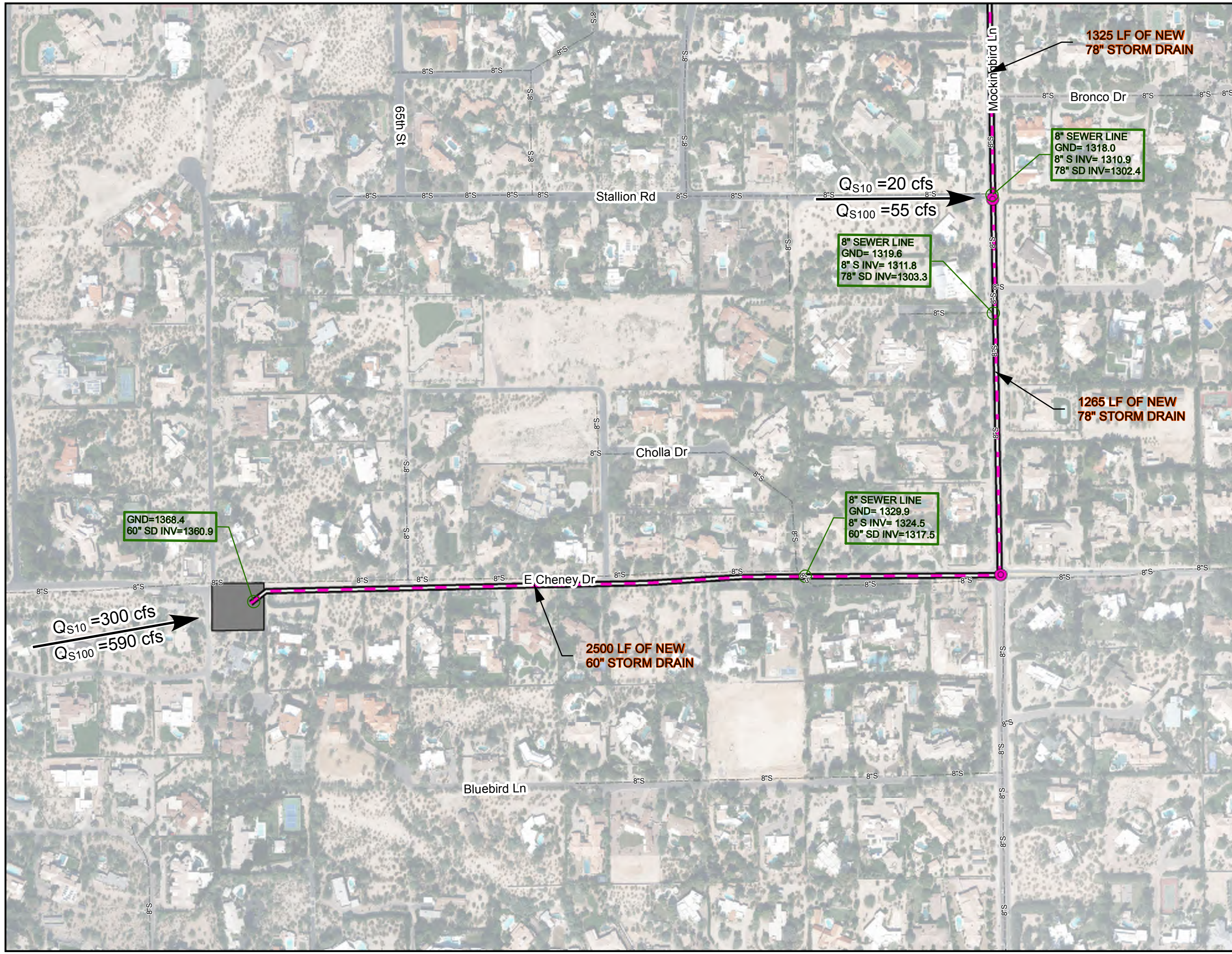
Description	Unit	Quantity	Unit Cost	Total Cost
SEDIMENT BASIN (cost includes 0.4 acre land purchase, excavation and landscaping)	LS	1	\$400,000	\$400,000
STORM DRAIN CATCH BASIN (cost includes removals, new inlet, connector pipe & pavement replacement)	EA	22	\$22,300	\$490,600
36" STORM DRAIN PIPE (cost includes trenching, new pipe and pavement replacement)	LF	1720	\$237	\$407,640
60" STORM DRAIN PIPE (cost includes trenching, new pipe and pavement replacement)	LF	2500	\$325	\$812,500
72" STORM DRAIN PIPE (cost includes trenching, new pipe and pavement replacement)	LF	1360	\$378	\$514,080
78" STORM DRAIN PIPE (cost includes trenching, new pipe and pavement replacement)	LF	2590	\$411	\$1,064,490
STORM DRAIN MANHOLE (quantity based on number of catch basins and length of storm drain pipe)	EA	15	\$8,000	\$120,000

	<u>Sub-Total =</u>	<u>\$3,809,310</u>
Utility Relocation, Surveying, Mobilization and Traffic Control (30%) =		\$1,142,793
	<u>Construction Sub-Total =</u>	<u>\$4,952,103</u>
	Contingency (20%) =	\$990,421
	<u>Total =</u>	<u>\$5,942,524</u>
Design, Plan Review, Permitting, Staff Salary, CPM Admin. & Public Art (25%) =		\$1,485,630.90
	<u>Grand Total =</u>	<u>\$7,430,000</u>

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APPENDIX D

SELECTED PAGES FROM THE LOWER INDIAN BEND WASH AREA DRAINAGE MASTER STUDY



LEGEND

Proposed Flooding Mitigation

- Storm Drain
- Sediment Basin

Peak Discharge Summary

- Existing Surface Flow

Existing Infrastructure

- Sewer Lines



KEY MAP

N

0 150 300

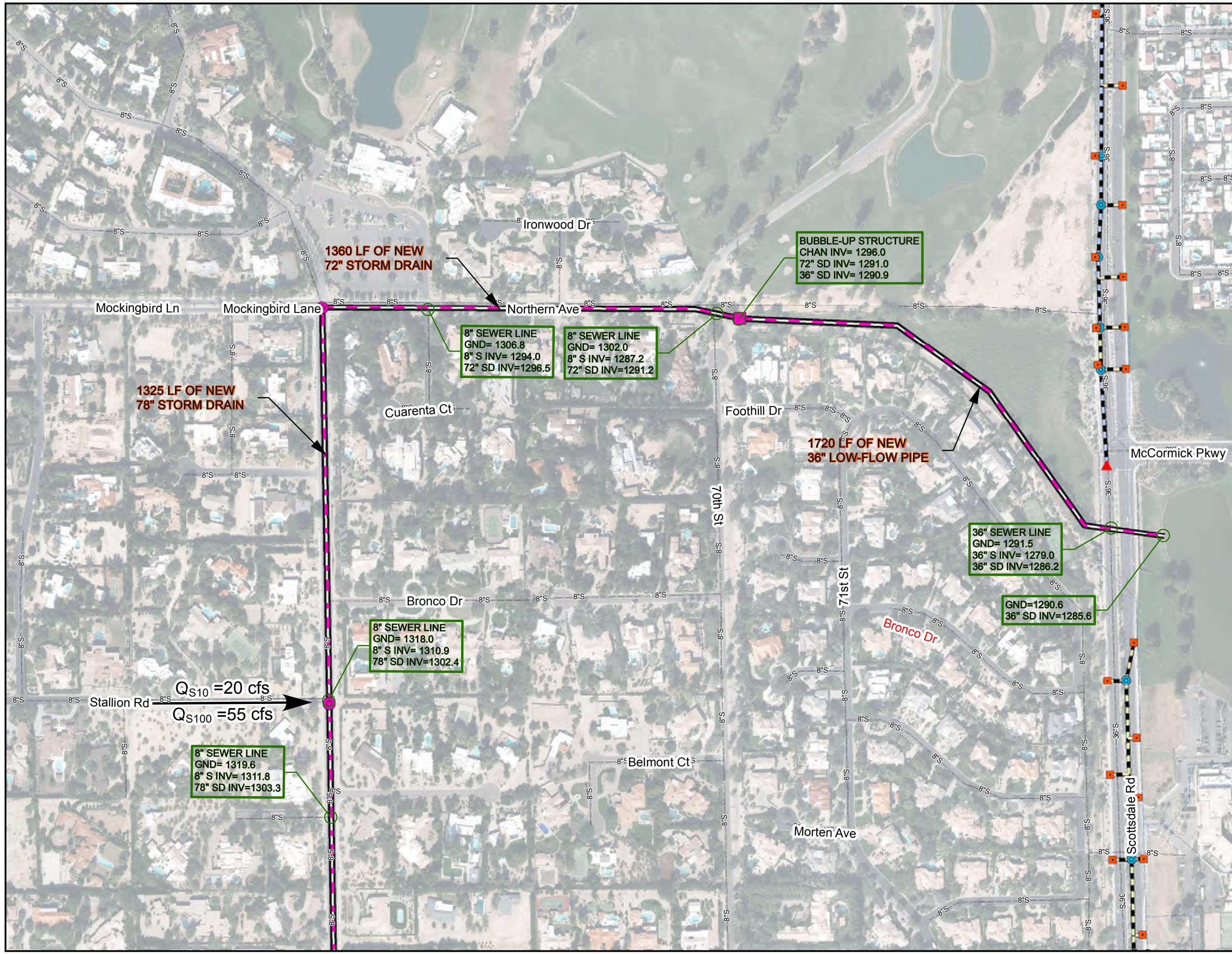
1 inch = 300 feet

Gavan & Barker Civil Engineering & Landscape Architecture
3000 North Central Avenue, Suite 1000
Palm Beach, FL 33411 Phone: 561-995-0211

TYLIN INTERNATIONAL
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**LOWER INDIAN BEND
WASH ADMS
Cheney Drive
Alternative 1- 1**

	By	Date
Prepared	Cole Cooper	1/16/2017
Checked	Reynold Kraft	1/16/2017



LEGEND

- Proposed Flooding Mitigation**
- Storm Drain
- Peak Discharge Summary**
- Existing Surface Flow
- Existing Storm Drain**
- Inlet
 - Manhole
 - Outfall
 - DIA: 27" and Smaller
 - DIA: 30" - 45"
 - DIA: 48" - 63"
- Existing Infrastructure**
- Sewer Lines
 - Water Mains



KEY MAP

North arrow pointing up.

Scale: 0, 150, 300 feet. 1 inch = 300 feet.

Gavan & Barker Civil Engineering & Landscape Architecture
3000 North Central Avenue, Suite 1000
Phoenix, AZ 85017 Phone 602-255-0211

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LOWER INDIAN BEND WASH ADMS

Cheney Drive Alternative 1- 2

	By	Date
Prepared	Cole Cooper	1/16/2017
Checked	Reynold Kraft	1/16/2017

Don Rerick
Flood Control District of Maricopa County
July 14th, 2017

APPENDIX E

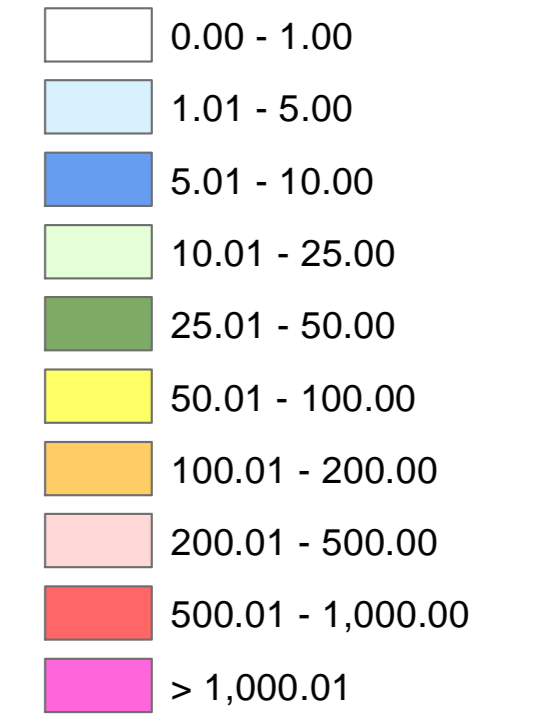
INVERGORDON ROAD AND CHENEY DRIVE FHA

LOWER INDIAN BEND WASH ADMS

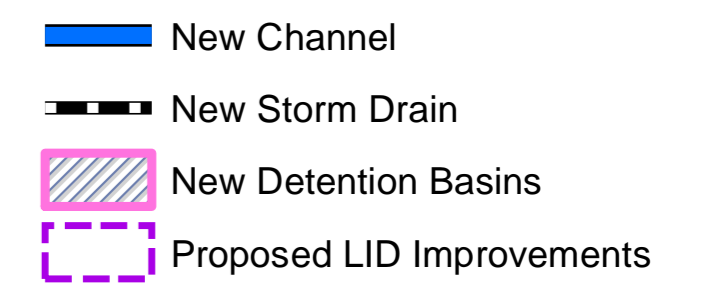
INVERGORDON ROAD & CHENEY DRIVE FLOOD HAZARD AREA

Legend

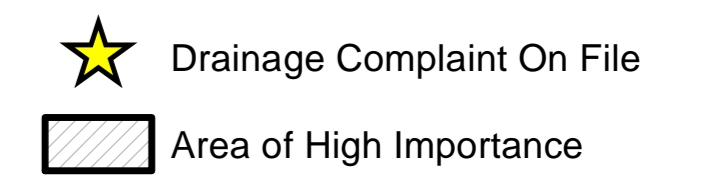
(Max Discharge in CFS)



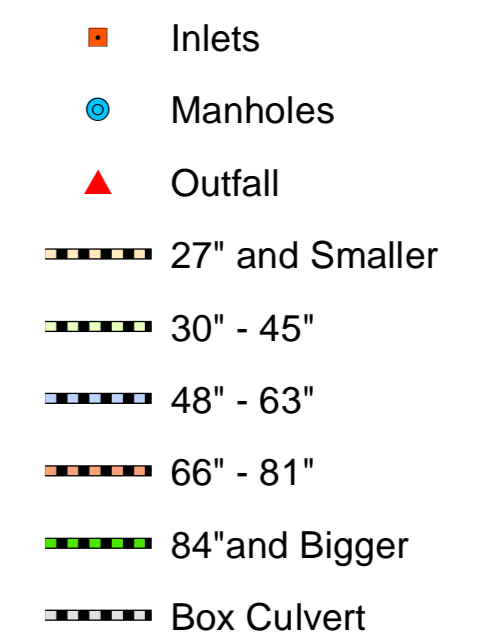
Brainstorming Results



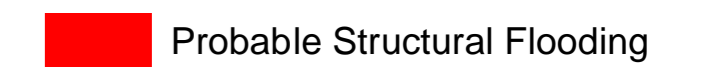
Drainage Complaint Location



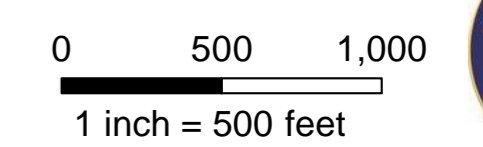
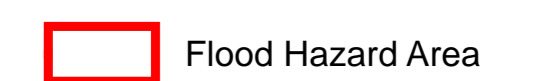
Existing Storm Drain



Flood Prone Buildings



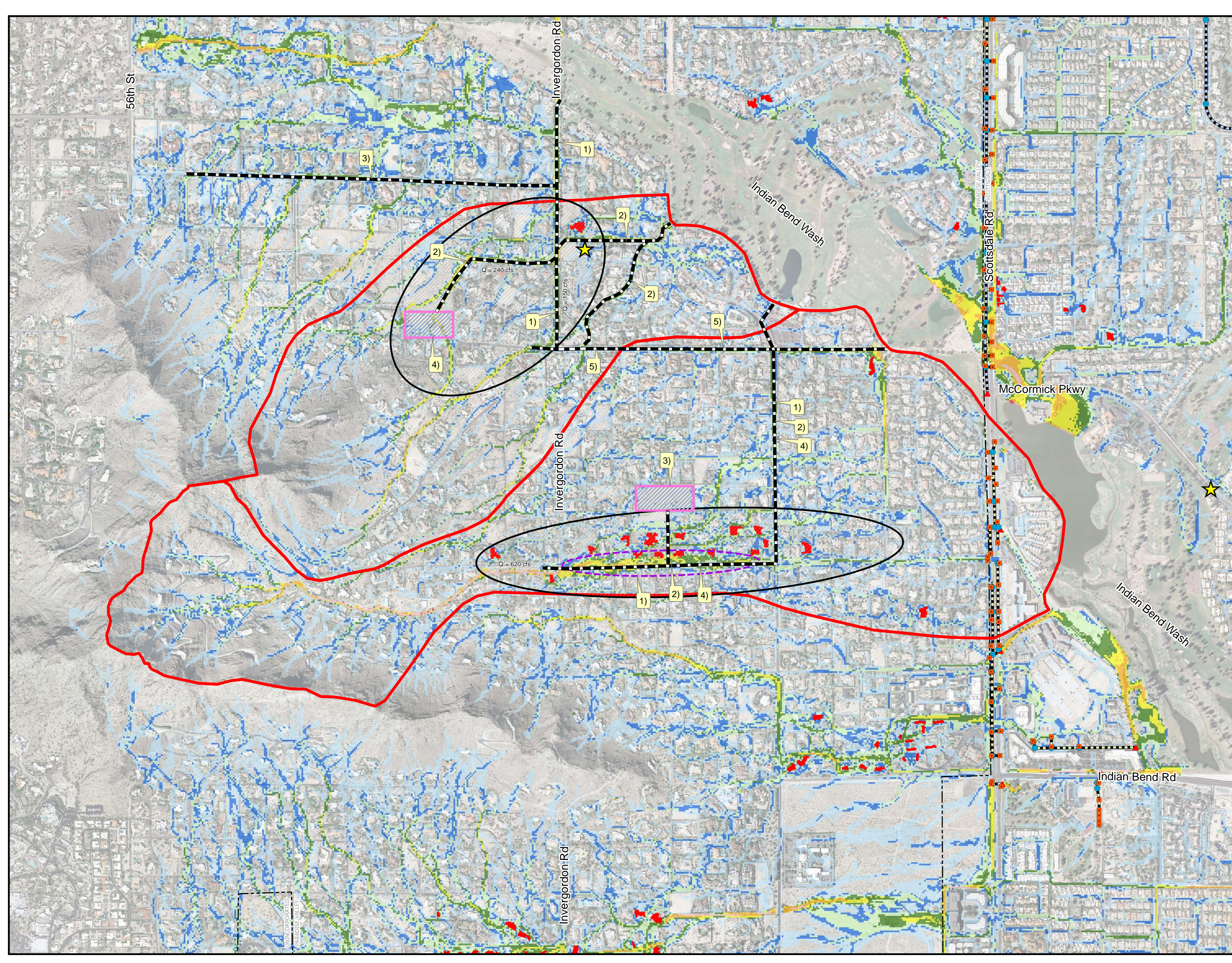
Reference Features



Gavan & Barker Civil Engineering & Landscape Architecture
 3030 North Central Avenue, Suite 1530
 Phoenix, AZ 85012 Phone: 602-200-0031

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	By	Date
Prepared	XX	9/10/2015
Checked	XX	9/10/2015



Don Rerick
Flood Control District of Maricopa County
July 14th, 2017

APPENDIX F
RESIDENT FLOODING COMPLAINTS

September 8th, 2014 Storm Event

1. 6602 E Cheney – wants to talk about some ideas about moving forward with helping with flooding issues. – JPS called and left a message at 4:00pm on 9/16/2014. We are meeting with Mr. Cole on Monday morning Sept. 22nd, 2014 at 9:00am. Richard and I met with him and a number of his neighbors on 9/22/2014 at 9am. They want the Town to take care of the flooding that they have experienced during the last couple of years. He is going to email the Town Manager and Council
2. 6649 E Cholla Drive – two neighbors flooded in the past 13 months Cheney does not have curb and gutter. Richard is going to call and discuss with her.
3. 7437 N Mockingbird – water in his house. Richard and I went and visited him and the wash and culvert off of Mockingbird goes right into the property. Told him he needed to get an Engineer to help solve. – When we visited him he had his landscape plans that showed him taking the culvert from the street right into his property.
4. 6700 E Cheney - Believes with the overlays of Cheney in the past that the street profile has been raised causing water to enter is property. Told him we will look at the road and get back with him. Richard will call and discuss with him.
5. 5841 East Hummingbird Lane – 15-20' east of the fire hydrant, the street is washed away leaving a six foot gap that has washed out underneath the street. JPS called him and told her that Richard and I inspected this area on 9/11/2014 and we will put it on the list to fix the erosion.
6. 7755 N Foothills Drive – run off from the neighbor's house that is causing the dirt to sink on my client's property and dirt is going on their driveway. Need someone to come look at it. Elsa Perez called Richard about this same property. Issue is related to water coming from neighbor and into the grass area. Richard told them the normal flows go that way and they need to get with their Engineer / builder to modify the grass area to another location and maybe make that the retention basin. 7755 Foothills Dr N-Justin Upton house (contact Elsa Perez)-R spoke with Elsa P. and the concern is storm water runoff coming of the property to the south depositing debris in front lawn. I pointed out this is a normal drainage pattern and there is also runoff that comes from the west across the street. My suggestion was to remove the lawn area between the street and the driveway and make a retention basin and desert landscaping. Would need to get with the builder and the Engineer that originally did the project. Should do a site visit. Richard and I did a site visit on 9/11/2014 and believe that the drainage is correct and the debris was what you would expect with that type of storm event. Richard called on 9/12/2014 at 3:00pm.
7. Quartz Mountain Road –Debris in Roadway.

8. 6245 E Catesby Road –Need Street Clean-up at this location. Hard Packed dirt at least a foot deep and we are unable to drive our cars over without bottoming out. The crossing is Cheney and Invergordon. It is the south side of Cheney where Invergordon turns into Catesby Road. Done on 9/15/2014.

9. 6713 E Cheney Drive - Thanks for taking the time to speak with me today. Our address is 6713 E. Cheney Dr. Our neighbor directly to the west is 6631 E. Cheney. He has installed a drainage pipe several feet from the street, which will direct water to our property. There was no approval from the Town of Paradise Valley, nor was a permit submitted. I spoke with Richard Edwards from the Town of PV today. He inspected the pipe, and deemed it was not authorized, nor neighborly. He is sending a letter to Mr. Perkins to have the pipe removed, however, there are storms approaching this week, and I am concerned that our property could become damaged. We have surveyed the pipe and it is actually on private property by about 10" to the center of the pipe. Andrew Miller advised us that we should go through the normal process to have it removed and make him comply with Town Code. Andrew Miller responded to the Mayor and the Mayor sent it to his attorney. A letter went out to the property owner to remove the pipe.

10. 6659 E Chollo Drive – Richard E and JPS met with him on October 8th, 2014 at 8:00am. He was inquiring about building a 2'-3' wall along his back wall to keep the water in the wash. We noticed that the wash along his property was really non existing and really went through his retention basin. We told him that he needed to re-grade a wash and if he wanted to install a wall that he would need to submit plans and get approval for that, but it sounded like a viable option. We also noted the opening on both ends of the wash were severely blocked by debris and on one end a chain link fence on the neighbors property that needs to be removed along with the oleanders. Richard is going to send Mr. Lennon a letter about the chain link fence and oleanders. We also noted a culvert from the front to the back that was half buried and full of debris and told him it needed to be cleaned out and some regarding needed to happen entering the culvert.