PARADISE VALLEY
STORM WATER MASTER PLAN

June 30, 2025



Prepared by

Kimley»Horn

Expect More. Experience Better.

I. EXECUTIVE SUMMARY

The Paradise Valley Master Plan identifies and assess areas susceptible to flooding and proposes mitigation strategies to address the highest-risk areas. This plan supports the Town's efforts to prioritize projects for Capital Improvement Program (CIP) and grant funding opportunities. Potential flood risk areas were identified through input from Town staff and residents, previous studies, and new comprehensive townwide hydrology and hydraulic modeling.

Purpose of Study

The primary objective of the study is to identify flood-prone areas and offer solutions that will assist the Town of Paradise Valley in strategic planning for flood mitigation.

Methodology

The Master Plan incorporates data from Town staff and residents, previous efforts and two-dimensional (2D) hydrologic and hydraulic modeling from the Flood Control District of Maricopa County (FCDMC) Area Drainage Master Studies/Plans (ADMP/S). These data are coupled with new town-wide 2D modeling using current rainfall, land use, topography, and hydraulic structures data to pinpoint potential flood hazards and effective mitigation strategies.

Study Location

The study covers the entire Town of Paradise Valley, encompassing approximately 15 square miles. The area is significantly impacted by runoff from surrounding mountains, including Mummy Mountain and Camelback Mountain. In addition, townwide modeling also included flow inputs from the surrounding areas in both the City of Phoenix and the City of Scottsdale. A Hydrology Report was prepared under separate cover detailing the modeling approach.

Data Collection

Data was aggregated from diverse sources, including past drainage studies, FCDMC ADMS/Ps, reports from Town staff and residents, and on-site documentation. This preliminary understanding of flooding hazards forms the foundation for the Master Plan. Housing this data in one reference was also a primary goal of the Master Plan.

Existing Infrastructure Evaluation

The Master Plan evaluates existing basin, channel, storm drain, and culvert capacities by reviewing performance during the 2-, 10-, and 100-year storm simulations per the modeling effort. This approach allows for an estimate of existing capacities as less than 2-year, between 2- and 10-year, between 10- and 100-year, and greater than 100-year. Significant findings include undersized inlets/storm drain affecting residential neighborhoods, and culverts that impede the traveling public and emergency access.

Flood Hazard Analysis

Flood analysis includes evaluating inundation risk, erosion and sediment deposition hazards, and potential risks to passenger vehicles. These insights were crucial in identifying flood hazard areas within the Town. These analyses were also coupled with staff and resident flood complaints, road closure locations, and undersized culvert locations to better develop a holistic understanding of flood hazards throughout the town. The Master Plan creates a database of each hazard that can be used in the future to plan routine maintenance and smaller scale improvement projects as part of the annual maintenance budget.

Flood Hazard Area Classification

Nineteen distinct flood hazard areas were identified and classified within the Town based on the extent and nature of flooding. Each the flood hazard for each identified area was characterized as either nuisance, moderate, or severe using the following criteria:

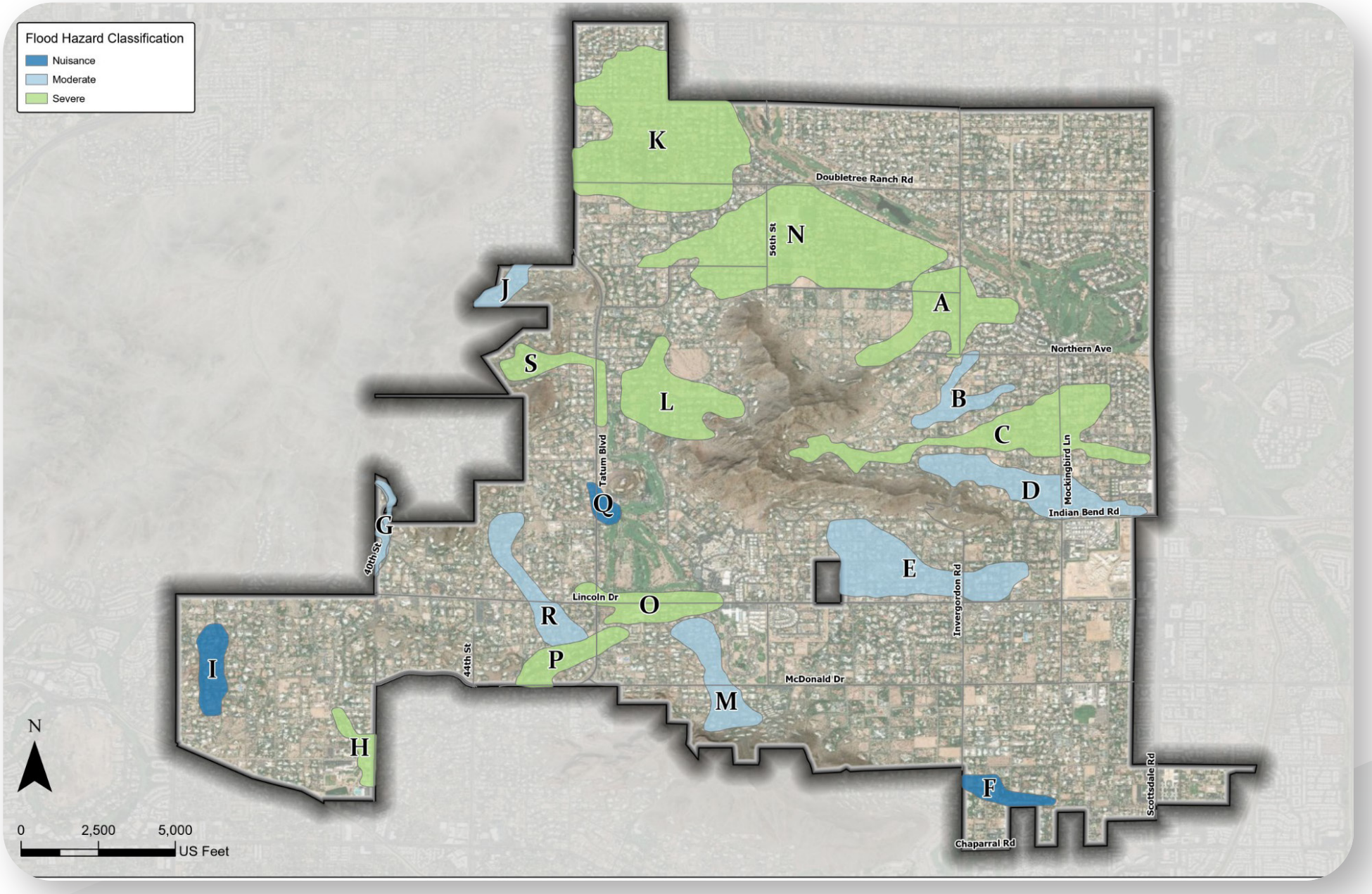
- **Nuisance Flooding:** Water depth approximately 0.5 to 1 foot along roads and adjacent to structures.
- **Moderate Flooding:** Water depth approximately 1 to 2 feet along roads and adjacent to structures.
- **Severe Flooding:** Water depth greater than 2 feet along roads and adjacent to structures.

A decision matrix is used to rank the flood hazard areas incorporating the criteria and weights shown below, allowing the plan to prioritize areas that would benefit the greatest from flood mitigation.

1. Severity of Flooding (Weight: 5)

- This criterion received a weighted score of 5, as it directly impacts the safety

Figure 7: Classifications of Flood Hazard Areas



and well-being of residents and the community. The degree of flooding, whether nuisance, moderate, or severe, influences the urgency and scale of necessary interventions.

2. Potential Structures Protected (Weight: 5)

- The number of structures that could be protected by mitigation measures was also heavily weighted. This criterion reflects the plan's focus on minimizing property damage and protecting as many residential and commercial buildings as possible.

3. Potential Streets Protected (Weight: 4)

- The number of roads (local, collector, arterial) affected by flooding and their role in community connectivity and accessibility were considered significant, but slightly less critical than the direct impact of flooding on structures and severity.

4. Impacts to Emergency Access (Weight: 3)

- Evaluating how flooding affects emergency vehicle access and response times was important, as maintaining reliable emergency services is crucial during and after flood events. This criterion was given a moderate weight.

5. Multi-Use Opportunities (Weight: 1)

- This criterion considered the potential for projects to incorporate additional community benefits beyond flood mitigation, such as recreational spaces or aesthetic enhancements. It had the lowest weight, reflecting its lower priority relative to immediate flood risk reduction.

For a detailed review of how each criterion was scored and its weight, please refer to the decision matrices included within the full text of the Master Plan and **Appendix D** where the area decision matrix and area data sheets are provided.

Snapshot of Decision Matrix (Table 6 from the Master Plan)

Criteria	Scoring Criteria	Score Range	Weighted Score
Severity of Flooding	Nuisance, Medium, Severe	1, 3, 5	5
Potential Structures Protected	1 to 30 Structures, 31-50 Structures, >51	1, 3, 5	5
Potential Streets Protected	Local Street Benefits Only, Arterial/Collector Street or Multiple Local Streets Benefits, Multiple arterial/collector & Local Street Benefits	1, 2, 4	4
Impacts to Emergency Access	No Impact to Emergency Access, Impacts to Emergency Access	1, 3	3
Multi-Use Opportunities	No Opportunities, Possible Opportunities	1, 2	1

The nine-highest ranking flood hazard areas are furthered for project alternative development. Nine areas were chosen to advance based on the scoring results and a logical breakpoint. The nine highest-ranking flood hazard areas identified are:

1. **Flood Hazard Area A:** Invergordon Road and Mockingbird Lane
2. **Flood Hazard Area C:** Cheney Wash
3. **Flood Hazard Area E:** Lincoln Wash
4. **Flood Hazard Area H:** 40th Street and Stanford Drive
5. **Flood Hazard Area K:** Mountain View Road
6. **Flood Hazard Area L:** Upstream Cherokee Wash
7. **Flood Hazard Area N:** Downstream Cherokee Wash
8. **Flood Hazard Area O:** Lincoln Drive
9. **Flood Hazard Area P:** Tatum Boulevard and McDonald Drive

Proposed Project Alternatives

For the nine highest-ranking flood hazard areas, flood mitigation projects are identified and/or developed. Identified projects are those from previous studies. These projects and new projects are further developed. Projects are categorized into maintenance projects, medium-sized projects, and large projects based on their estimated construction costs:

- **Maintenance Projects:** Costs less than $250,000.
- **Medium Projects:** Costs between $250,000 and $1.3 million. These are eligible for the Flood Control District of Maricopa County's Small Project Assistance Program (SPAP).
- **Large Projects:** Costs exceed $1.3 million. These projects qualify for other grant programs like the Flood Control District of Maricopa County's Capital Improvement Project Partnership Program (CIPPP) or other grant opportunities through FEMA.

For the nine areas, two to three medium and large-scale project alternatives are developed and proposed. Small projects are not included as these projects are more appropriate as annual maintenance projects. Project costs, benefits, and multi-use opportunities are determine such that the most effective flood mitigation strategies are recommended for each area. A decision matrix similar to the matrix used to rank flood hazard areas is used to rank the alternatives for a given area.

Snapshot of Project Prioritization Matrix (Table 8 from the Master Plan)

Criteria	Scoring Criteria	Weighted Score	Highest Possible Score	Lowest Possible Score
Potential Structures Protected	1 to 30 Structures	5	15	5
	31 to 50 Structures	5	15	5
	> 51 Structures	5	15	5
Design & Construction Cost/Benefit	Most Expensive	10	10	5
	Least Expensive	10	10	5
Potential Streets Protected	Local Street Benefit Only	4	12	4
	Arterial/Collector Street or Local Streets Benefit	4	12	4
	Multiple Arterial/Collector Streets and Local Streets Benefit	4	12	4
Green Storm Water Infrastructure	No Opportunities	1	2	1
	Some Opportunities	1	2	1
Project Partnership	Grant Funding or Partnerships Likely	4	12	4
	Local Partnership/Grant Eligible	4	12	4
	Local and Federal Partnerships/Grant Eligible	4	12	4
Multi-Use Opportunities	No Opportunities	2	4	2
	Some Opportunities	2	4	2
Operation and Maintenance Costs	Maintenance After Every Storm Event	3	6	3
	Maintenance at Standard Intervals	3	6	3
Utility Constraints	Major Constraints	3	6	3
	Minor Constraints	3	6	3

This table outlines the criteria used to prioritize projects, assigning a weighted score to each criterion to help determine the overall priority of each project, and ultimately selected a recommended project alternative.

Highest Priority Alternatives – Benefit Cost Analysis

Of the nine highest-ranking flood hazard areas identified in the Paradise Valley Master Plan, recommended alternatives for the top six are further developed into 15% conceptual plans, with engineer's opinion of probable costs (EOPC) and cost/benefit analysis also included. The top six areas and recommended alternatives are:

1. Flood Hazard Area A – Invergordon and Mockingbird Lane

- Recommended Alternative: Implementation of new storm drain systems along Invergordon Road and Maverick Road, with inlets and lateral extensions. The estimated construction cost for this alternative is approximately $11,616,355.

2. Flood Hazard Area H – 40th Street and Stanford Drive

- Recommended Alternative: Improvements to the existing roadway drainage infrastructure including curb inlets, a flood control basin at the corner of Stanford Drive and 40th Street, safety rails, staff gages, and warning signs. The estimated construction cost for this alternative is approximately $1,039,500.

3. Flood Hazard Area K – Mountain View Road

- Recommended Alternative: Construction of a detention/retention basin upstream of Mountain View Road to reduce runoff discharge at Tatum Boulevard. The estimated construction cost for this alternative is approximately $6,072,476.

4. Flood Hazard Area L – Upstream Cherokee Wash

- Recommended Alternative: Replacement of low water crossings at Crestview Drive, Arroyo Drive, and Desert Jewel Drive with box culverts and necessary road improvements. The estimated construction cost for this alternative is approximately $6,113,214.

5. Flood Hazard Area N – Downstream Cherokee Wash

- Recommended Alternative: Replacement of four low water crossings at 58th Place, 59th Place, Morning Glory Road, and 61st Place with box culverts and channel improvements. The estimated construction cost for this alternative is approximately $2,800,333.

6. Flood Hazard Area O – Lincoln Drive

- Recommended Alternative: Increase culvert capacity at Desert Fairways Drive, Lincoln Drive, and 51st Place by replacing undersized culverts with new configurations and making corresponding road improvements. The estimated construction cost for this alternative is approximately $1,979,147.

Grant Funding Opportunity

The plan identifies accessible grant funding options, including the Flood Control District of Maricopa County's (FCDMC) SPAP and CIP programs, and outlines other state and federal funding opportunities.

Prioritization

Projects were prioritized based on cost, benefit/cost ratios, and mitigation impacts. Key considerations included grant funding accessibility and overall project effectiveness. Prioritization is qualitative in nature, as both medium and large projects are included, as well as projects that benefit both roadway and residential structure. This will allow the Town to program projects into CIP planning based on funding, grant opportunities, and overall Town priorities.

Abreviation Guide

Abbreviation	Meaning
PV-SWMP	Paradise Valley Storm Water Master Plan
CIP	Capital Improvement Project
2D	Two-dimensional
FCDMC	Flood Control District of Maricopa County
ADMP/S	Area Drainage Master Plans/Studies
ACDC	Arizona Canal Diversion Channel
CIPPP	Capital Improvement Project Partnership Program
FEMA	Federal Emergency Management Agency
EOPC	Engineer's Opinion of Probable Cost
SPAP	Small Project Assistance Program
CCW	Cudia City Wash
MIBW	Middle Indian Bend Wash
LIBW	Lower Indian Bend Wash
ESC	East Shea Corridor
PE	Professional Engineer
FLO-2D	Floodplain Modeling in Two-dimensions
RCBC	Reinforced Concrete Box Culvert
CMP	Corrugated Metal Pipe
PCSWMM	Personal Computer Storm Water Management Model
GIS	Geographic Information System
USD	United States Dollar
USACE	United States Army Corps of Engineers
BCR	Benefit-Cost Ratio

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II. INTRODUCTION

A. Purpose of Study

The primary objective of the Paradise Valley Master Plan Master Plan is to identify and quantitatively assess areas vulnerable to flooding and to propose flood mitigation strategies to address areas at the highest risk. The flooding solutions proposed in this study are intended to assist the Town with prioritizing projects for Capital Improvement Program (CIP) and for identifying grant funding sources to aid in project development.

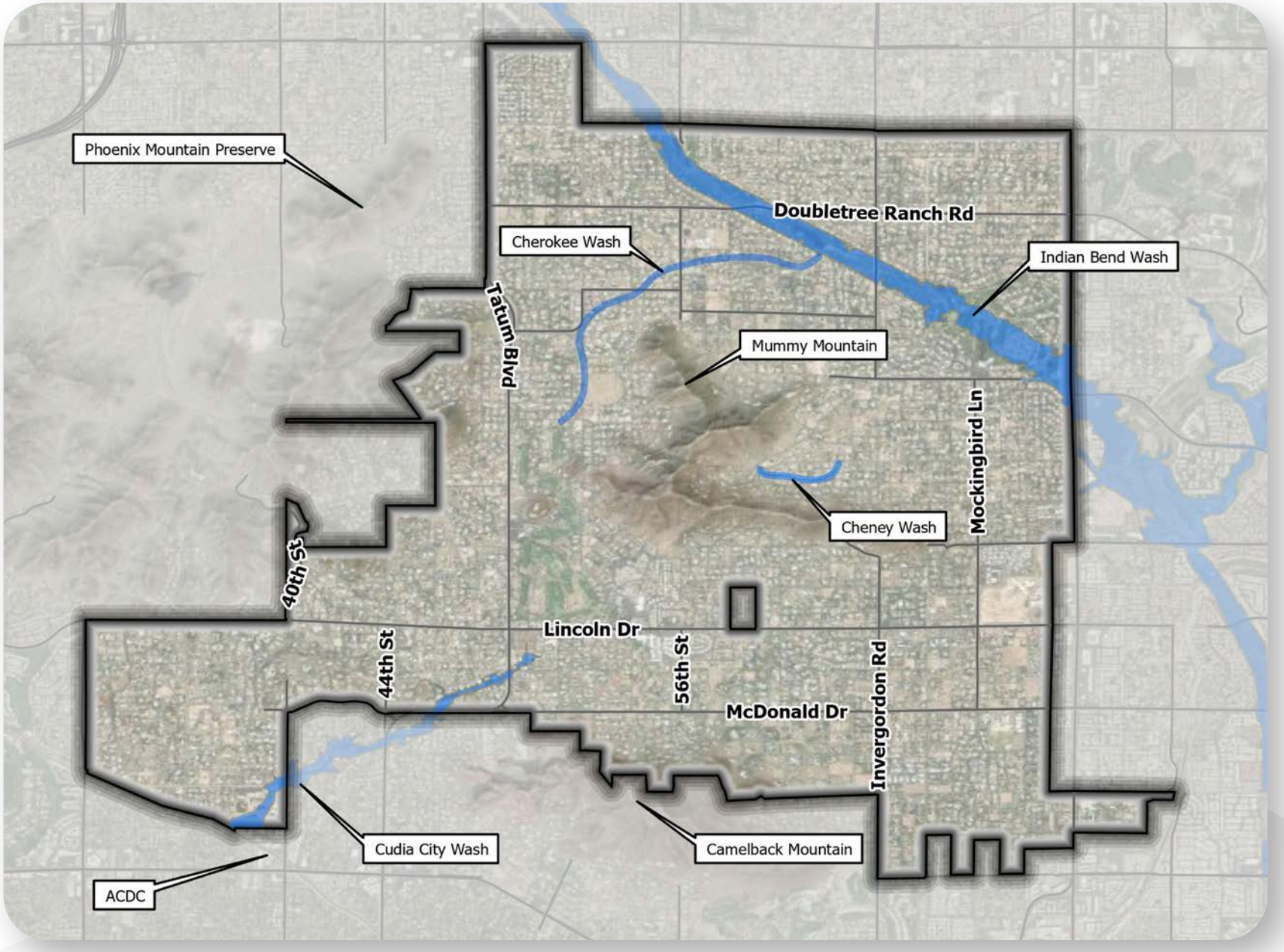
B. Methodology

The Master Plan utilized data collected by previous efforts in the Town, and two-dimensional (2D) hydrologic and hydraulic modeling from Flood Control District of Maricopa County (FCDMC) Area Drainage Master Studies/Plans (ADMP/S) for an initial assessment of flood hazards. New, comprehensive town-wide 2D modeling was also developed by incorporating up-to-date rainfall, land use, topography, and hydraulic structures data. These models serve as the basis for identifying and characterizing potential flood hazard areas, utilizing defined criteria to assess the level of risk. Subsequently, multiple drainage solutions were established for each identified area. Based on feedback and priorities provided by the Town Council, staff, and residents, the most beneficial flood mitigation projects were selected. The selected projects were further developed into conceptual plans with associated cost. With the results and recommendations derived from this comprehensive study, Paradise Valley can formulate an informed and strategic plan for effective flooding mitigation.

C. Study Location

The project area is the entire Town of Paradise Valley, approximately 15 square miles. Paradise Valley is bordered roughly by Shea Blvd to the north, Scottsdale Rd to the east, Camelback Mountain and Camelback Road to the south, and the Phoenix Mountain Preserve and Arizona Canal to the west. Flooding in the Town is primarily attributed to runoff from surrounding mountains and lack of conveyance through residential areas. Mummy Mountain, centrally located in Paradise Valley, plays a significant role in contributing runoff to the major washes in the area, namely Cherokee Wash, Cheney Wash, and Cudia City Wash. Camelback Mountain, situated along the southern border of the Town, contributes to the flow in Cudia City Wash. The western portion of the Town is impacted by runoff from the Phoenix Preserve Mountains, which flow into both Cudia City Wash and Cherokee Wash. Indian Bend Wash (IBW) is the largest flood conveyance corridor in the Town and is the ultimate outfall for the northern and southeast portion of Paradise Valley. The southwest portion of the Town primarily drains to Cudia City Wash and then to the Arizona Canal Diversion Channel (ACDC). The location and major features within Paradise Valley are shown in **Figure 1 and Appendix A.**

Figure 1: Location Map



III. DATA COLLECTION

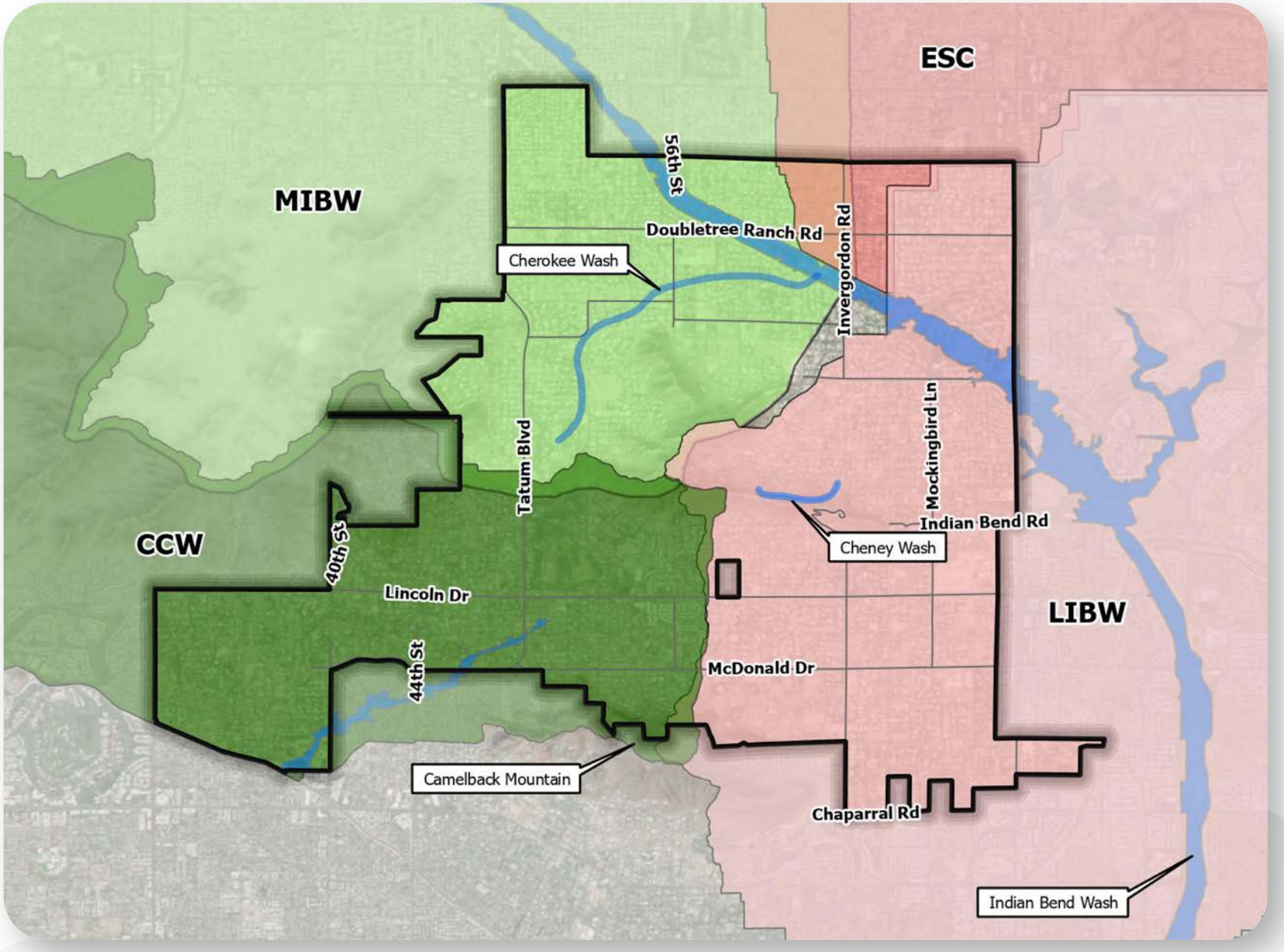
The data collected for the Paradise Valley Master Plan was from multiple sources and consisted of both qualitative and quantitative flood related information. These sources included past drainage studies and FCDMC ADMS/Ps with corresponding modeling results, reports of flooding issues from Town staff and residents, and on-site documentation. By incorporating and analyzing these diverse sources of data, a preliminary understanding of the extent of flooding hazards existing within the Town was developed. This comprehensive approach forms the basis for the creation of an effective and tailored Master Plan.

A. Existing Studies

The Flood Control District of Maricopa County previously completed five Area Drainage Master Studies or Plans that cover portions of Paradise Valley. These studies were completed between 2017 and 2022. In addition, Paradise Valley conducted several studies and evaluations focused on flood hazard identification. In combination, these studies were used to compile information on existing drainage infrastructure and previously proposed solutions for flooding. They also formed the basis for the updated FLO-2D modeling. For more details on the town-wide FLO-2D modeling, please refer to the Hydrology & Hydraulics report. See **Figure 2 and Appendix A** for a map of the previous study boundaries. The studies incorporating portions of the Town include:

- Cudia City Wash (CCW) ADMS (Michael Baker, 2020)
- Middle Indian Bend Wash (MIBW) ADMS (Kimley-Horn, 2019)
- Lower Indian Bend Wash (LIBW) ADMS (Gavin & Barker, 2017)
- East Shea Corridor (ESC) ADMS (Wilson, 2023)
- Paradise Valley Cheney Watershed Hazards Identification (Dibble, 2017)
- Paradise Valley Identified Drainage Problem Areas Technical Memorandum (Kimley-Horn, 2019)
- Cudia City Wash (CCW) Zone 4 Drainage Concept Report (JE Fuller, 2021)

Figure 2: Previous FCDMC ADMS/Ps



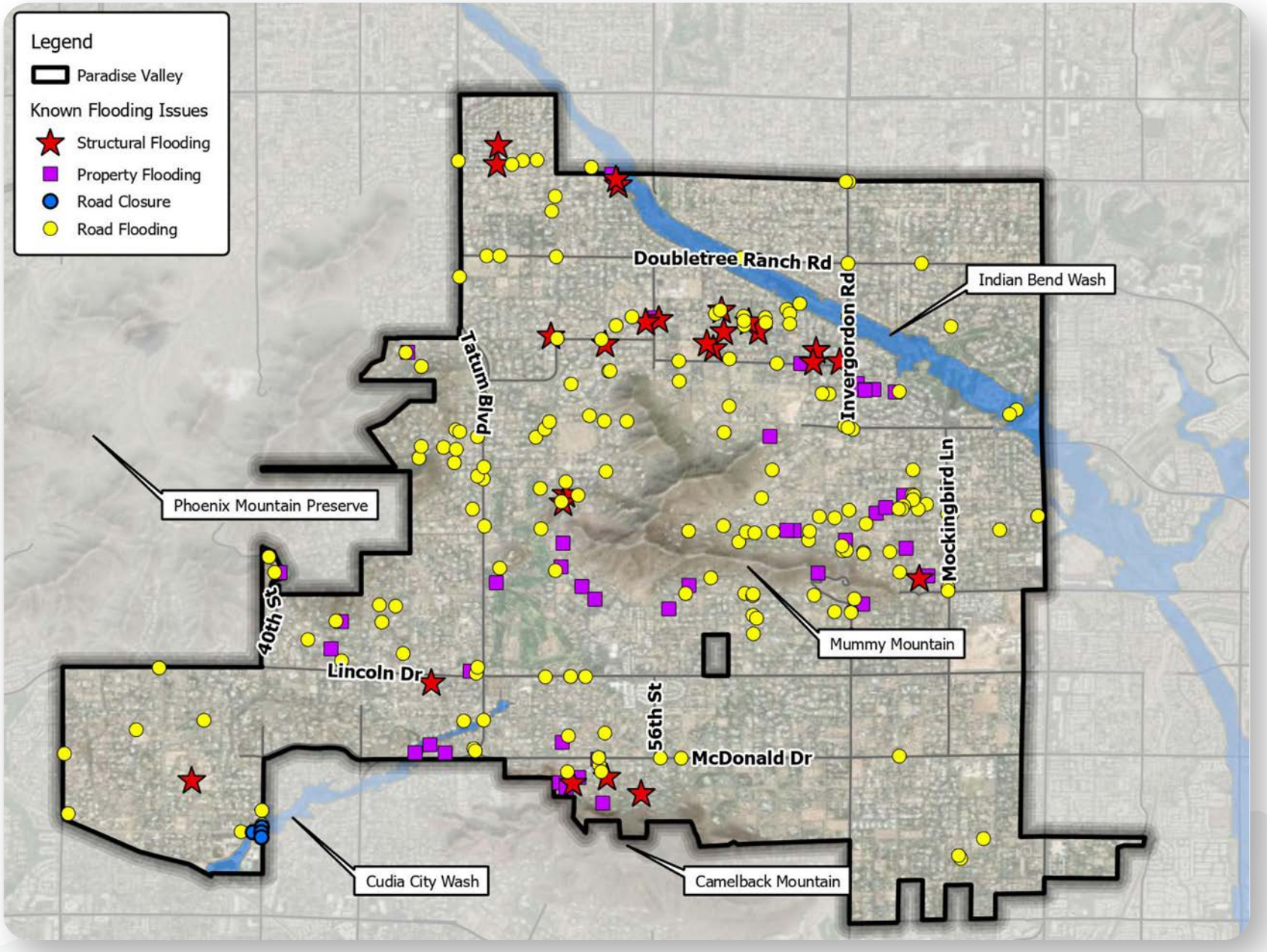
B. Known Flooding Issues

Reports of flooding issues from Town staff and residents played a vital role in capturing direct experiences and observations, ensuring that the Master Plan addressed the concerns of those directly impacted by flooding events.

Past flood complaints from both Town staff and residents were catalogued. Documentation of flooding issues was provided by the Town, including records from Engineering and Public Work's maintenance logs. Records of documented road closure locations were also included. Residents' complaints were extracted from the CivicPlus Portal, an online hub specifically designed for residents to submit issues and receive feedback from the Town.

To enhance the understanding of the frequency and qualitative impacts of flooding throughout the town, the past complaints were categorized accordingly. The categorization was based on both the source of reporting, whether from Town staff or residents, and the type of flooding reported. The types of flooding considered included road flooding, property flooding, and structural flooding. Based on the location of the report, it was noted that the majority of flooding issues occurred at the washes or directly downstream of the Phoenix Mountain preserve. For a detailed list and map of known flooding issues, refer to **Appendix A. Figure 3** shows the location and type of flooding for each past reported or documented issue.

Figure 3: Known Flooding Issues



C. As-Built and Design Plans

Information about drainage infrastructure that has recently been built or is currently in design was not included in past studies. Therefore, coordination was conducted to receive as-builts or Professional Engineer (PE) sealed plans to include recent drainage infrastructure in the updated, town-wide FLO-2D models. **Table 1** contains the information received.

D. Field Assessment

Field assessments were conducted to bridge data gaps as needed to support the modeling effort and to supplement the Town's geodatabase. During these visits, culverts and inlets were measured and assessed to evaluate the Town's existing infrastructure sizes and conditions. A collection of photos documenting the visited sites is included on the following **Pages 9-15.**

Table 1: As-Builts and Plans Received for Data Collection

Type of Document	Consultant	Project	Location
As-Built	TY LIN International 07/28/2021	Roadway and Utility Improvements on Lincoln Drive, Mockingbird Lane and Indian Bend Road	N 68th Street from E Meadowlark Lane to E Lincoln Drive
Drainage Plan Sealed by PE	Coe & Van Loo Consultants, Inc. 05/24/2019	Ritz-Carlton	Between N 68th Street and N Scottsdale from E Lincoln Drive to E Indian Bend Road
Drainage Plan Sealed by PE	Kimley-Horn, Inc. 08/01/2024	Mockingbird Lane Drainage and Roadway Improvements	Mockingbird Lane from N 56th Street and N Invergordon Road

Field Assessment Sheets

STRUCTURE ID: N-23



Number of Barrels: **2**
Barrel Height: **4 ft**
Barrel Width: **10 ft**
Culvert Type: **RCBC**
Culvert Length: **49 ft**

Location: **70th Street & Foothill Drive**
Juristiction: **Paradise Valley**

Inlet Sediment: **Clean**
Inlet Vegetation: **None**
Inlet Protection: **Concrete/Riprap**
Inlet Scour: **None**
Inlet Invert: **1297.90**

Outlet Sediment: **Little to none**
Outlet Vegitation: **None**
Outlet Protection: **Concrete/Riprap**
Outlet Scour: **None**
Outlet Invert: **1297.75**

Inlet Photo



Upstream Photo



Outlet Photo



Downstream Photo



STRUCTURE ID: N-27



Number of Barrels: **3**
Barrel Height: **1.5 ft**
Barrel Width: **26 ft**
Culvert Type: **RCBC**
Culvert Length: **170 ft**

Location: **Scottsdale Road & Hummingbird Lane**
Juristiction: **Paradise Valley**

Inlet Sediment: **Little to none**
Inlet Vegetation: **Moderate**
Inlet Protection: **Grate**
Inlet Scour: **None**
Inlet Invert: **1290.17**

Outlet Sediment: **Little to none**
Outlet Vegitation: **None**
Outlet Protection: **Riprap**
Outlet Scour: **None**
Outlet Invert: **1291.17**

Inlet Photo



Upstream Photo



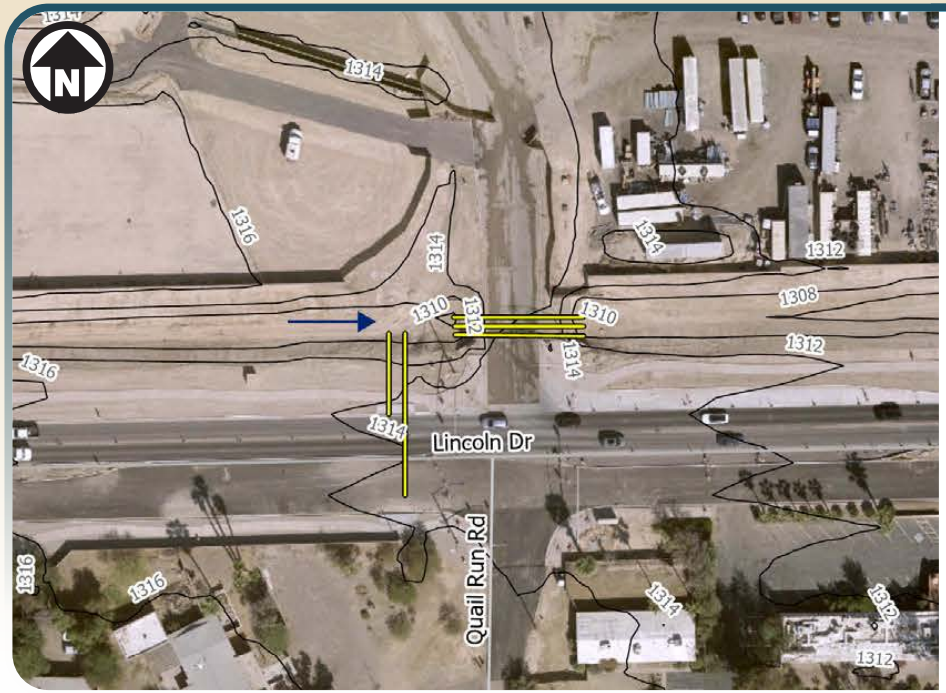
Outlet Photo



Downstream Photo



STRUCTURE ID: S-149



Number of Barrels: **3**
Barrel Height: **3 ft**
Barrel Width: **8 ft**
Culvert Type: **RCBC**
Culvert Length: **64 ft**

Location: **Lincoln Drive & Quail Run Road**
Juristiction: **Paradise Valley**

Inlet Sediment: **Little to none**
Inlet Vegetation: **None**
Inlet Protection: **Riprap**
Inlet Scour: **None**
Inlet Invert: **1309.30**

Outlet Sediment: **Little to none**
Outlet Vegitation: **Little to none**
Outlet Protection: **None**
Outlet Scour: **None**
Outlet Invert: **1308.48**

Inlet Photo



Upstream Photo



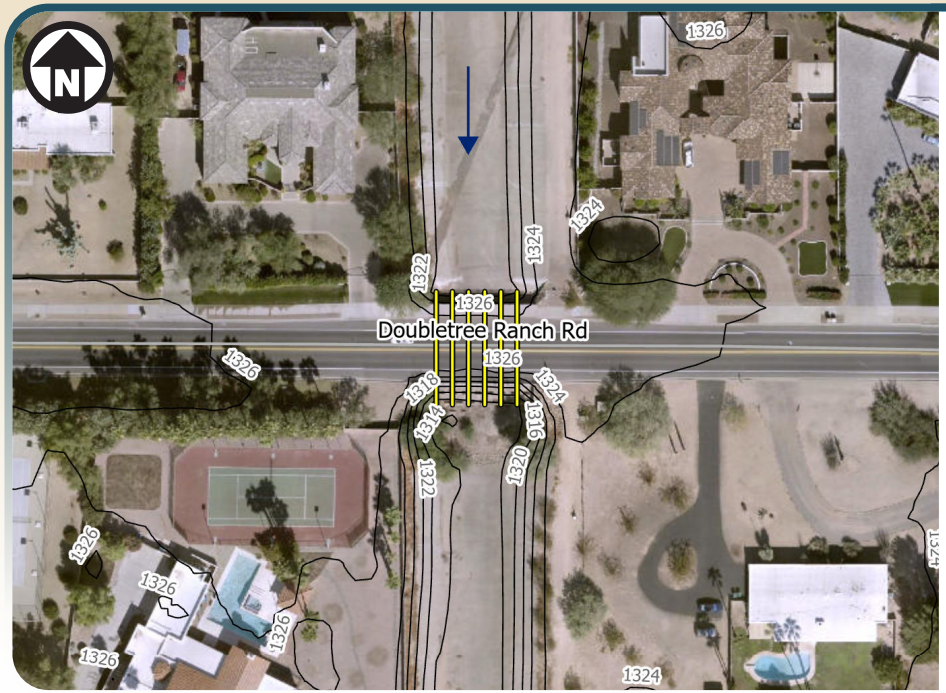
Outlet Photo



Downstream Photo



STRUCTURE ID: N-26



Number of Barrels: **6**
Barrel Height: **4 ft**
Barrel Width: **10 ft**
Culvert Type: **RCBC**
Culvert Length: **54 ft**

Location: **Along Berneil Ditch**
Juristiction: **Paradise Valley**

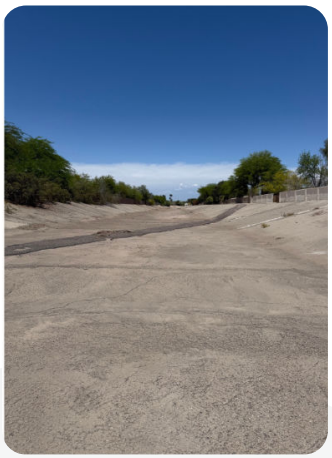
Inlet Sediment: **Clean**
Inlet Vegetation: **None**
Inlet Protection: **Concrete**
Inlet Scour: **None**
Inlet Invert: **1320.10**

Outlet Sediment: **Moderate**
Outlet Vegitation: **Little to none**
Outlet Protection: **Energy Dissipaters**
Outlet Scour: **None**
Outlet Invert: **1318.75**

Inlet Photo



Upstream Photo



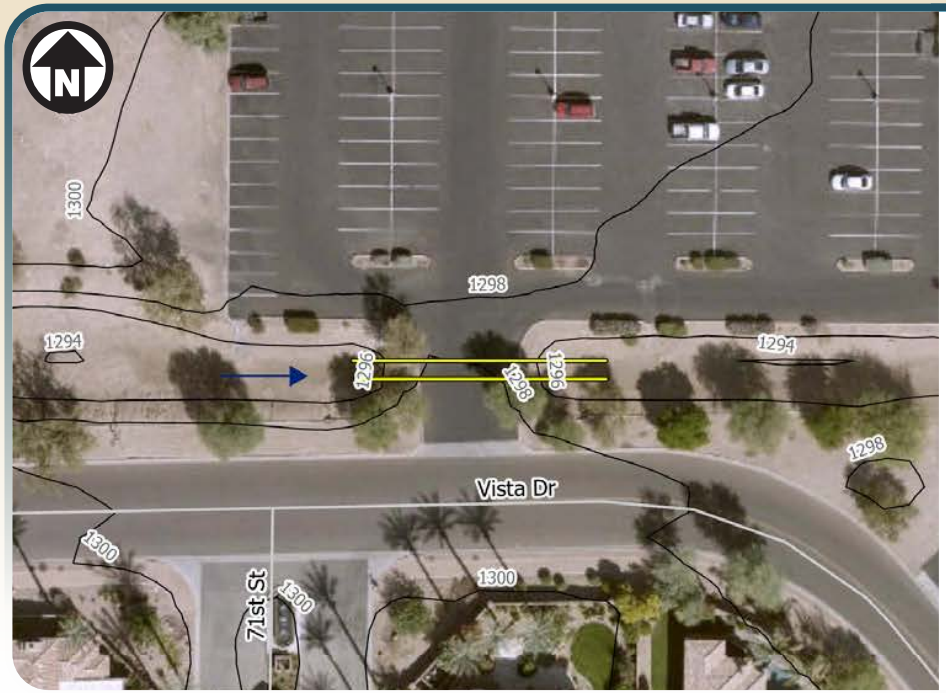
Outlet Photo



Downstream Photo



STRUCTURE ID: S-144



Number of Barrels: **2**
Barrel Height: **1.5 ft**
Barrel Width: **1.5 ft**
Culvert Type: **CMP**
Culvert Length: **99 ft**

Location: **Lincoln Drive & Scottsdale Road**
Juristiction: **Paradise Valley**

Inlet Sediment: **Moderate**
Inlet Vegetation: **None**
Inlet Protection: **Riprap**
Inlet Scour: **None**
Inlet Invert: **1294.18**

Outlet Sediment: **Moderate**
Outlet Vegitation: **None**
Outlet Protection: **Riprap**
Outlet Scour: **None**
Outlet Invert: **1294.08**

Inlet Photo



Upstream Photo



Outlet Photo



Downstream Photo



STRUCTURE ID: N-26



Number of Barrels: **3**
Barrel Height: **5.5 ft**
Barrel Width: **10 ft**
Cilvert Type: **RCBC**
Culvert Length: **99 ft**

Location: **Indian Bend Rd & Scottsdale Rd**
Juristiction: **Scottsdale**
Comment: **Inlet in closed off construction zone**

Inlet Sediment: **N/A**
Inlet Vegetation: **N/A**
Inlet Protection: **N/A**
Inlet Scour: **N/A**
Inlet Invert: **1291.40**

Outlet Sediment: **Little to none**
Outlet Vegitation: **Little**
Outlet Protection: **Grate**
Outlet Scour: **None**
Outlet Invert: **1291.10**

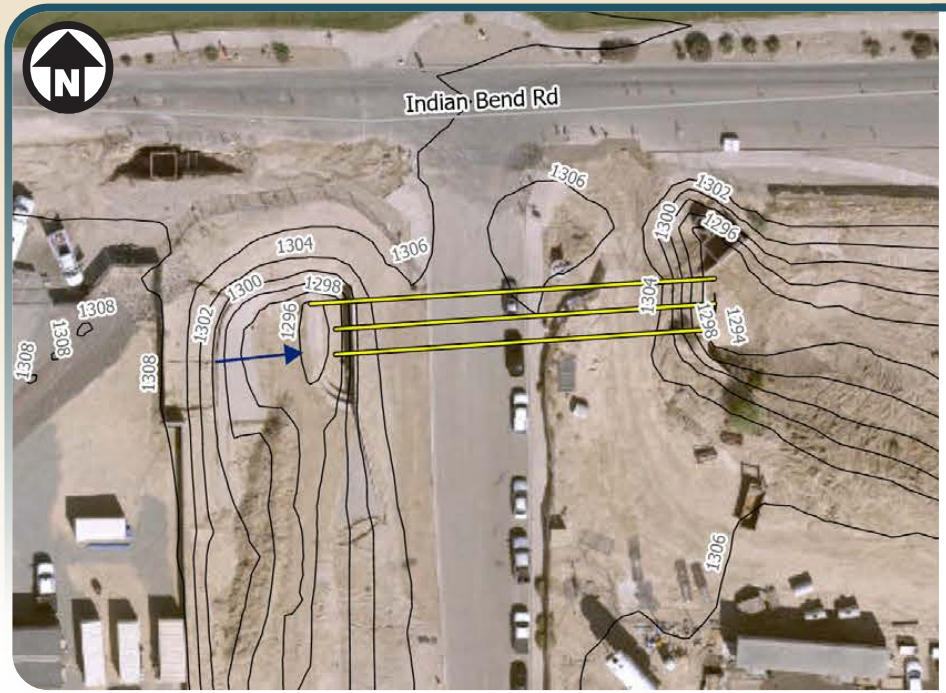
Outlet Photo



Downstream Photo



STRUCTURE ID: N-25



Number of Barrels: **3**
Barrel Height: **3 ft**
Barrel Width: **8 ft**
Cilvert Type: **RCBC**
Culvert Length: **156 ft**

Location: **Indian Bend Rodd & Palmerai Boulevard**
Juristiction: **Paradise Valley**
Comment: **Outlet in closed off construction zone**

Inlet Sediment: **None**
Inlet Vegetation: **None**
Inlet Protection: **Gabion Mattress**
Inlet Scour: **None**
Inlet Invert: **1294.50**

Outlet Sediment: **N/A**
Outlet Vegitation: **N/A**
Outlet Protection: **N/A**
Outlet Scour: **N/A**
Outlet Invert: **1293.80**

Inlet Photo



Inlet/Channel Protection



Upstream Photo



IV. EXISTING STORM WATER INFRASTRUCTURE EVALUATION

The results of the FLO-2D modeling were used to determine the level of protection provided by the existing drainage infrastructure within the Town. The hydraulic structures were considered existing if they were constructed or are currently contracted to be constructed. This assumption provides the most up to date modeling results. Basins, channels, storm drains, and culverts were evaluated for capacity limitations.

A. Storm Drain

The majority of storm drain in Town of Paradise Valley is north of Mummy Mountain and directs storm water to IBW. The largest storm drain system runs along or is connected to Doubletree Ranch Rd. The capacity of the outfall of this system was evaluated using PCSWMM and is shown on the storm drain outfall capacity figure in **Appendix B**. Storm drain that reduce flows to less than half a foot of water are considered to provide sufficient storm protection. All existing storm drain provide at least 2-year storm protection with the exception of four inlets along the Doubletree Ranch Road storm drain system. Identifying undersized inlets was also used to evaluate the capacity constraints of this storm drain system. Undersized inlets are defined as inlets where a maximum depth greater than 1 foot occurs during the 2-year storm. The 2-year storm was used as the basis of the assessment because of the frequency of occurrence. Three undersized inlets were identified in the storm drain system at Doubletree Ranch Road and one at the corner of Butler Road and 52nd Street. The undersized inlets are shown on the Storm Drain Undersized Inlet figure in **Appendix B.**

B. Culverts

Culverts in the public right-of-way are located throughout the Town, with a large concentration in the southwest quadrant, conveying runoff from the Phoenix Mountain Preserve and ultimately to CCW. Culverts typically convey flow under roadways with culverts sized for smaller storm events resulting in flood flows overtopping the road during larger storms.

Existing culvert capacity was evaluated based on several criteria. A culvert was initially considered undersized if during the 10-year storm, the roadway was overtopped by 0.5 ft of water or more. This criterion was developed based on culvert design guidance from the Maricopa County Drainage Policies and Standards. Based on these standards, culverts should be designed to convey, at a minimum, the storm frequency peak discharge listed below for each street classification with no flow overtopping the roadway. (FCDMC, 2018).

- Arterial and All-Weather Access Streets: 50-year design storm
- Collector Streets: 25-year frequency
- Local Streets: 10-year storm frequency

Based on these criteria, any culvert that overtops during a 10-year storm would be classified as undersized. The threshold depth of 0.5 feet for all streets was used because 0.5 feet of water will reach the bottom of most passenger cars and can cause loss of control. A map of undersized culverts throughout the Town can be seen below.

Impacts to surrounding structures and emergency access restrictions due to road overtopping were also assessed. Culverts with flood flows that overtop the road by more than 3 feet during a 100-year storm were considered undersized due to potential emergency vehicle access impacts. The threshold of three feet was chosen because according to the depth-velocity relationship curve discussed in the Potential Risk to Passenger Vehicles section of this report, depths greater than 3 feet are indicative of a high danger zone where all vehicles cannot safely pass. Additionally, culverts that caused a backwater water surface elevation during a 100-year storm event of at least 0.5 feet against adjacent structures were also catalogued as undersized. The figures on Pages 18-20 show culvert sizes and levels of storm protection throughout the Town with additional maps in **Appendix B.** Undersized culverts and their potential impacts are also listed in **Table 2** below. Of the 195 culverts analyzed, 36 culverts were identified as undersized.

C. Basins

In the southern portion of the Town there is one major basin, the CCW outfall basin. This basin is sufficiently sized for the local watershed, as it effectively contains the 100-year, 6-hour storm event. There is no overtopping and flooding of adjacent structures. In the northern portion of the Town, there are no large basins. This is mainly because of the proximity of the IBW, which functions as the ultimate outfall for a large portion of north Paradise Valley.

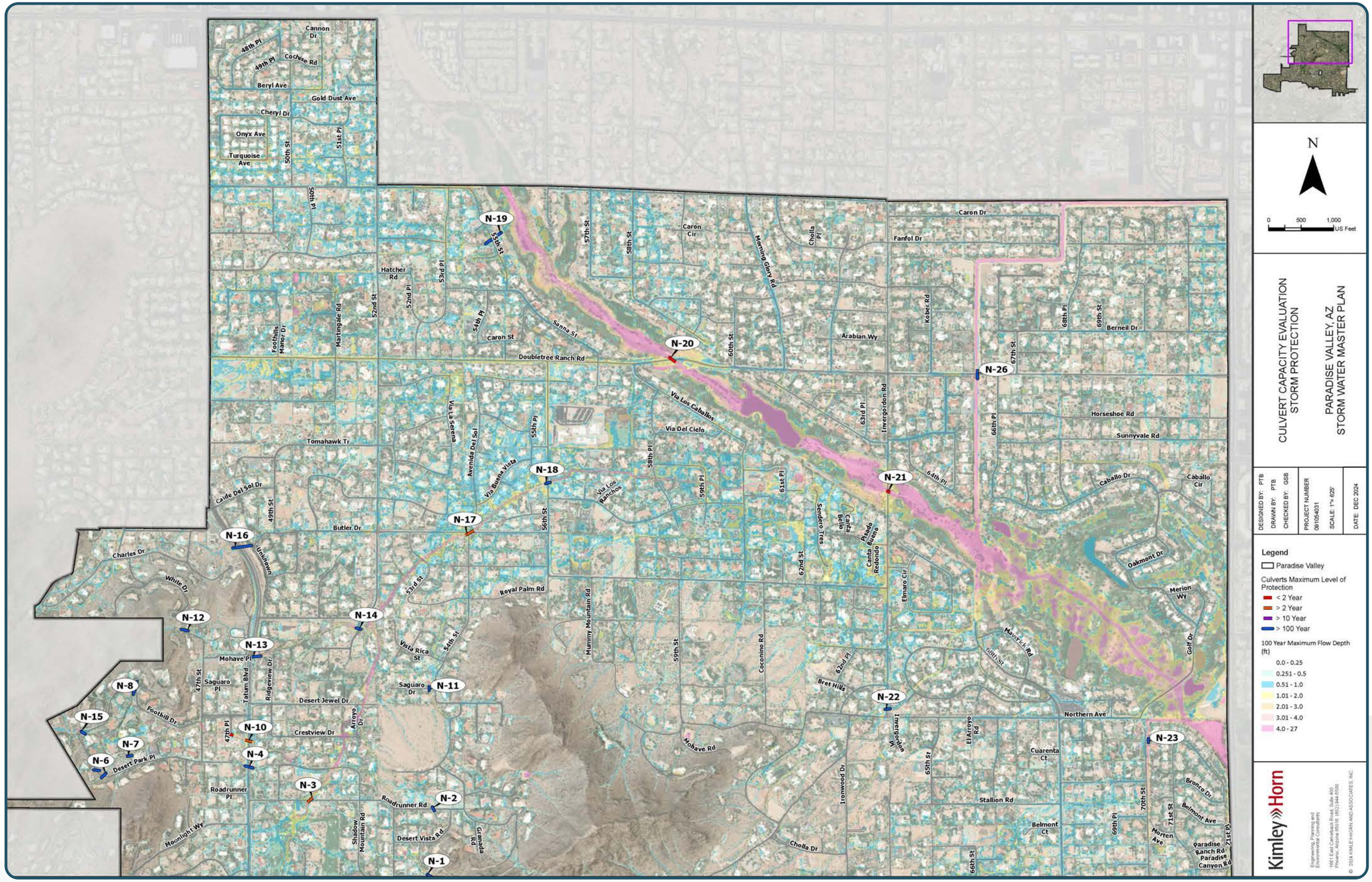
D. Channels

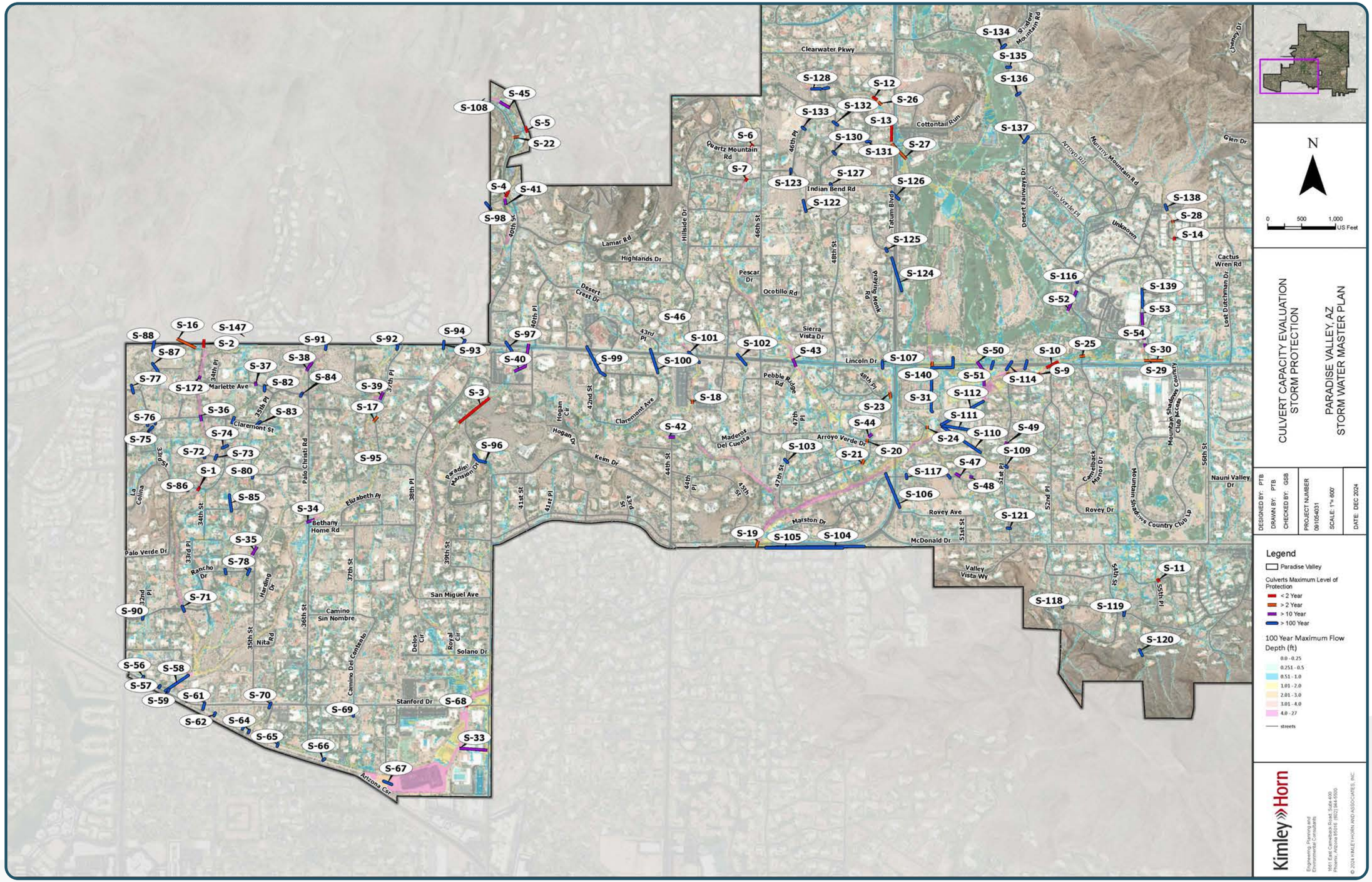
Channels are limited in the Town and flows tend to follow the paths of the existing washes. The largest manmade channel is the Berniel Ditch, a concrete lined channel within both the jurisdictions of City of Phoenix and the Town of Paradise Valley. The section of the ditch within the Town of Paradise Valley is approximately 2 miles long and outfalls into the IBW. This channel is sufficiently sized, as it contains the 100-year, 6-hour storm. It should be noted that yearly maintenance is necessary at the section of the channel just downstream of Double Tree Ranch Road. Excess sediment is deposited on the channel's energy dissipators at the downstream side of the culvert. Photos of this sedimentation can be found in the Site Assessment Data Sheets above.

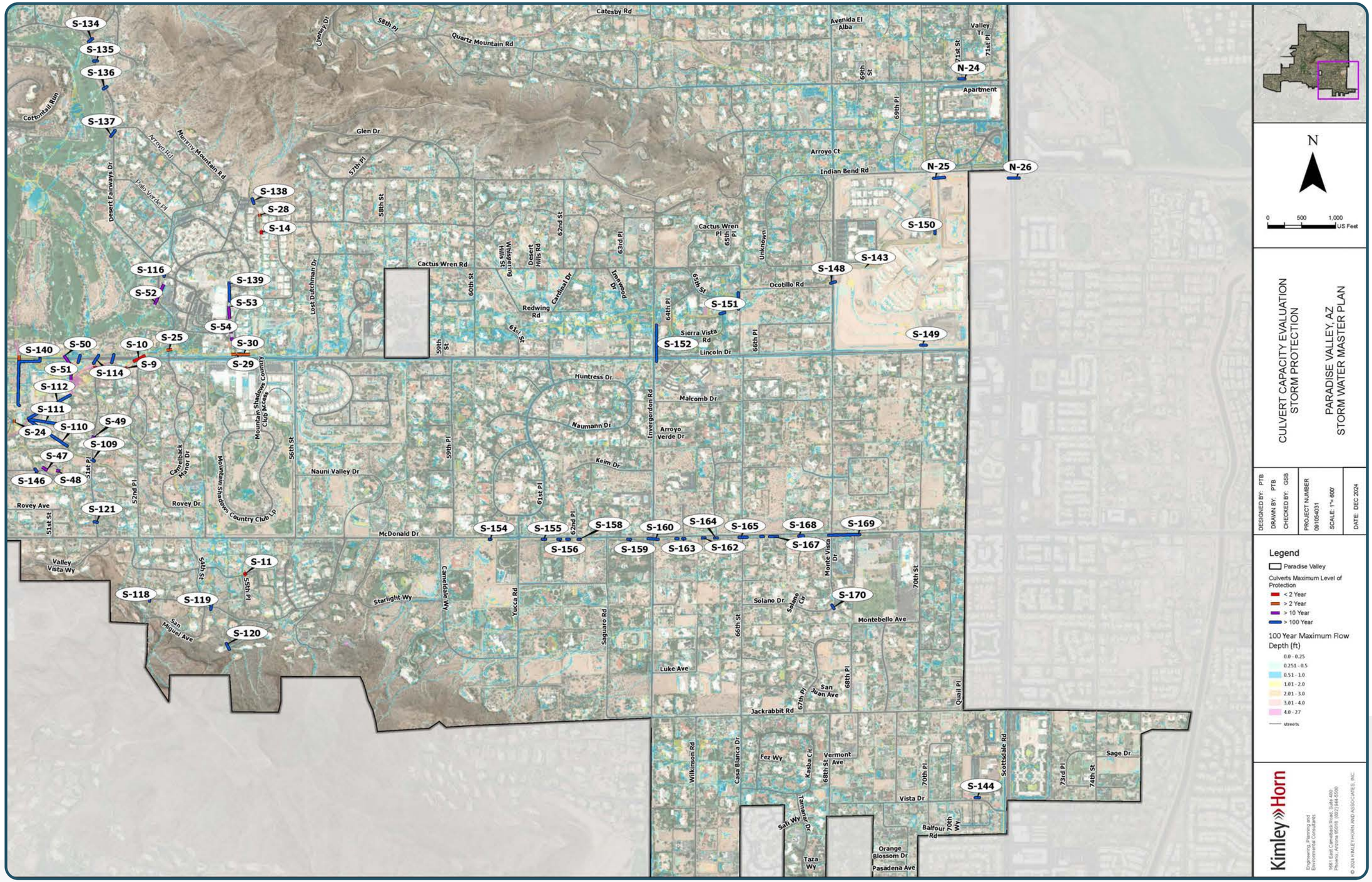
Table 2: Under Sized Culvert Summary Table

Culvert ID	Depth Over Road for 10-Year Storm (ft)	Depth Over Road for 100-Year Storm (ft)	Road Classification	Impacts to Emergency Access	Structures Impacted by Backwater
S-1	>1	>1	Residential	No	No
S-2	>1	>1	Collector	No	No
S-3	>4	>4	Residential	Yes	No
S-4	>2	>3	Residential	Yes	No
S-5	>0.5	>1	Residential	No	Yes
S-6	>1	>2	Residential	No	No
S-7	>2	>3	Residential	Yes	Yes
S-8	>2	>3	Residential	Yes	Yes
S-9	>2	>3	Residential	Yes	No
S-10	>1	>1	Collector	No	No
S-11	>0.5	>1	Residential	No	No
S-12	>0.5	>1	*	No	Yes
S-13	>0.5	>1	*	No	No
S-14	>0.5	>1	Residential	No	No
S-15	>0.5	>0.5	Residential	No	No
N-16	>0.5	>1	Collector	No	No
S-17	>0.5	>0.5	Residential	No	Yes
S-18	>0.5	>1	Local	No	No
S-19	>0.5	>2	Collector	No	Yes
S-20	>0.5	>1	Residential	No	No
S-21	>0.5	>0.5	Residential	No	No
S-22	>1	>1	Residential	No	Yes
S-23	>0.5	>1	Residential	No	No
S-24	>0.5	>0.5	Residential	No	No
S-25	>0.5	>1	Residential	No	No
S-26	>0.5	>0.5	Residential	No	Yes
S-27	>0.5	>0.5	Collector	No	No
S-28	>0.5	>1	Residential	No	Yes
S-29	>1	>2	Residential	No	Yes
S-30	>0.5	>0.5	*	No	Yes
S-31	>1	>2	Collector	No	No
N-10	>1	>1	Collector	No	No
N-17	>1	>1	Collector	No	Yes
N-20	>1	>1	Collector	No	No
N-21	>4	>4	Collector	Yes	No
N-3	>1	>1	Residential	No	Yes

*Indicates a culvert that connects under a structure other than the road such as a wall or roadside covered ditch


N
0 500 1,000 US Feet
CULVERT CAPACITY EVALUATION
STORM PROTECTION
PARADISE VALLEY, AZ
STORM WATER MASTER PLAN
DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB
PROJECT NUMBER 091054031
SCALE: 1"= 625'
DATE: DEC 2024
Legend
Paradise Valley
Culverts Maximum Level of Protection
< 2 Year
> 2 Year
> 10 Year
> 100 Year
100 Year Maximum Flow Depth (ft)
0.0 - 0.25
0.251 - 0.5
0.51 - 1.0
1.01 - 2.0
2.01 - 3.0
3.01 - 4.0
4.0 - 27
Kimley»Horn
Engineering, Planning and Environmental Consultants
1661 East Camelback Road, Suite 400
Phoenix, Arizona 85016 (602) 944-5500
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Cannon Dr
48th Pl
49th Pl
Cochise Rd
Beryl Ave
Gold Dust Ave
Cheryl Dr
Onyx Ave
Turquoise Ave
50th St
51st Pl
50th Pl
Hatcher Rd
52nd Pl
53rd Pl
52nd St
54th Pl
Martingale Rd
Foothills Manor Dr
Caron St
Sanna St
Doubletree Ranch Rd
Caron Cir
57th St
58th St
Morning Glory Rd
Cholla Pl
Caron Dr
Fanfol Dr
Arabian Wy
60th St
Kober Rd
67th St
68th Pl
69th St
Berneil Dr
Via Los Caballos
Via Del Cielo
63rd Pl
Invergordon Rd
66th Pl
Horseshoe Rd
Sunnyvale Rd
Tomahawk Tr
Via La Serena
Avenida Del Sol
55th Pl
Via Buena Vista
58th Pl
59th Pl
61st Pl
Via Los Ranchos
64th Pl
Caballo Dr
Caballo Cir
Caide Del Sol Dr
49th St
Butler Dr
56th St
Sendero Tres
Canta Bello
Canta Bueno
Redondo
62nd St
Oakmont Dr
Merion Wy
Charles Dr
White Dr
Underdown
53rd St
Royal Palm Rd
Mummy Mountain Rd
Elmaro Cir
Golf Dr
Vista Rica St
54th St
59th St
Coconino Rd
62nd Pl
Bret Hills
Maverick Rd
65th St
Mohave Pl
47th St
Saguaro Pl
Tatum Blvd
Ridgeview Dr
Saguaro Dr
Desert Jewel Dr
Foothill Dr
47th Pl
Crestview Dr
Arroyo Dr
Mohave Rd
Inverness Pl
El Arroyo Rd
Northern Ave
Cuarenta Ct
Desert Park Pl
Roadrunner Pl
Roadrunner Rd
Moonlight Wy
Shadow Mountain Rd
Desert Vista Rd
Granada Rd
Ironwood Dr
Stallion Rd
Belmont Ct
Cholla Dr
66th St
69th Pl
70th St
71st St
Bronco Dr
Belmont Ave
Morten Ave
Paradise Ranch Rd
Paradise Canyon Rd
71st Pl


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Clearwater Pkwy
Shadow Mountain Rd
Quartz Mountain Rd
Cottontail Run
Arroyo Rd
Nunnery Mountain Rd
Glen Dr
Indian Bend Rd
Tatum Blvd
Desert Fairways Dr
Palo Verde Pl
Unknown
Cactus Wren Rd
Lost Dutchman Dr
Lamar Rd
Highlands Dr
Hillside Dr
46th St
48th St
Pescar Dr
Ocotillo Rd
Desert Crest Dr
Painted Monk Rd
Sierra Vista Dr
Lincoln Dr
Pebble Ridge Rd
48th Pl
Mountain Shadows Country Club Access
Arroyo Verde Dr
Madeira Del Cuenta
Keim Dr
Hogan Cir
42nd St
Claremont Ave
47th Pl
44th St
44th Pl
45th St
47th St
51st Pl
52nd Pl
Camelback Manor Dr
Rovey Ave
Rovey Dr
Marston Dr
McDonald Dr
Mountain Shadows Country Club Dr
56th St
Nauni Valley Dr
Valley Vista Wy
54th St
55th Pl
Paradise Mansion Dr
Palo Christi Rd
La Colina
34th St
33rd Pl
Palo Verde Dr
Rancho Dr
Harding Dr
32nd Pl
Bethany Home Rd
Elizabeth Pl
38th Pl
41st St
41st Pl
39th St
37th St
36th St
35th St
Nita Rd
Camino Sin Nombre
Camino Del Contento
San Miguel Ave
Delos Cir
Royal Cir
Solano Dr
Stanford Dr
Arizona Cir
40th Pl
40th St
43rd Pl
42nd Pl
37th Pl
35th Pl
34th Pl
33rd St
Marlette Ave
Claremont St
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0 500 1,000 US Feet
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STORM PROTECTION
PARADISE VALLEY, AZ
STORM WATER MASTER PLAN
DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB
PROJECT NUMBER 091054031
SCALE: 1"= 800'
DATE: DEC 2024
Legend
Paradise Valley
Culverts Maximum Level of Protection
< 2 Year
> 2 Year
> 10 Year
> 100 Year
100 Year Maximum Flow Depth (ft)
0.0 - 0.25
0.251 - 0.5
0.51 - 1.0
1.01 - 2.0
2.01 - 3.0
3.01 - 4.0
4.0 - 27
streets
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Catesby Rd
Quartz Mountain Rd
Avenida El Alba
Valley Tr
71st St
71st Pl
69th St
69th Pl
Apartment
Cottontail Run
Arroyo Rd
Mummy Mountain Rd
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Cardinal Dr
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Sierra Vista Rd
Lincoln Dr
66th Pl
59th St
Huntress Dr
Malcomb Dr
Naumann Dr
Invergordon Rd
Arroyo Verde Dr
Keim Dr
Nauni Valley Dr
Mountain Shadows Country Club
Mountain Shadows Country Club Dr
Camelback Manor Dr
56th St
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61st Pl
62nd Pl
52nd Pl
51st St
Rovey Ave
Rovey Dr
McDonald Dr
Valley Vista Wy
54th St
55th Pl
San Miguel Ave
Starlight Wy
Camelsdale Wy
Yucca Rd
Saguaro Rd
66th St
Solano Dr
Solano Cir
Monte Vista Dr
70th St
Montebello Ave
Luke Ave
San Juan Ave
67th Pl
68th Pl
Quail Pl
Jackrabbit Rd
Wilkinson Rd
Casa Blanca Dr
Fez Wy
Kaaba Cir
Vermont Ave
68th St
70th Pl
Vista Dr
Scottsdale Rd
73rd Pl
74th St
Sage Dr
Safi Wy
Tamerlane Dr
Taza Wy
Balfour Rd
70th Wy
Orange Blossom Dr
Pasadena Ave
N
0
500
1,000
US Feet
CULVERT CAPACITY EVALUATION
STORM PROTECTION
PARADISE VALLEY, AZ
STORM WATER MASTER PLAN
DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB
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V. FLOOD HAZARD ANALYSIS

Flood hazard analysis was conducted by developing maximum flow depth (ft), velocity (ft/s), and discharge (ft3/s) results datasets for the 2-year, 10-year, and 100-year storm events from the FLO-2D model results. These datasets, along with anecdotal data from Town staff and residents, served as the basis for the in-depth flood hazard analysis. The flood hazard analysis includes building inundation risk, erosion and sediment hazard potential, and passenger vehicle risk. The results of these analyses provide valuable insights to locations with the greatest flooding risk and were used to evaluate distinct flood hazards areas in the Town. The flood hazard analysis exhibits are included in **Appendix C.**

A. Building Inundation Analysis

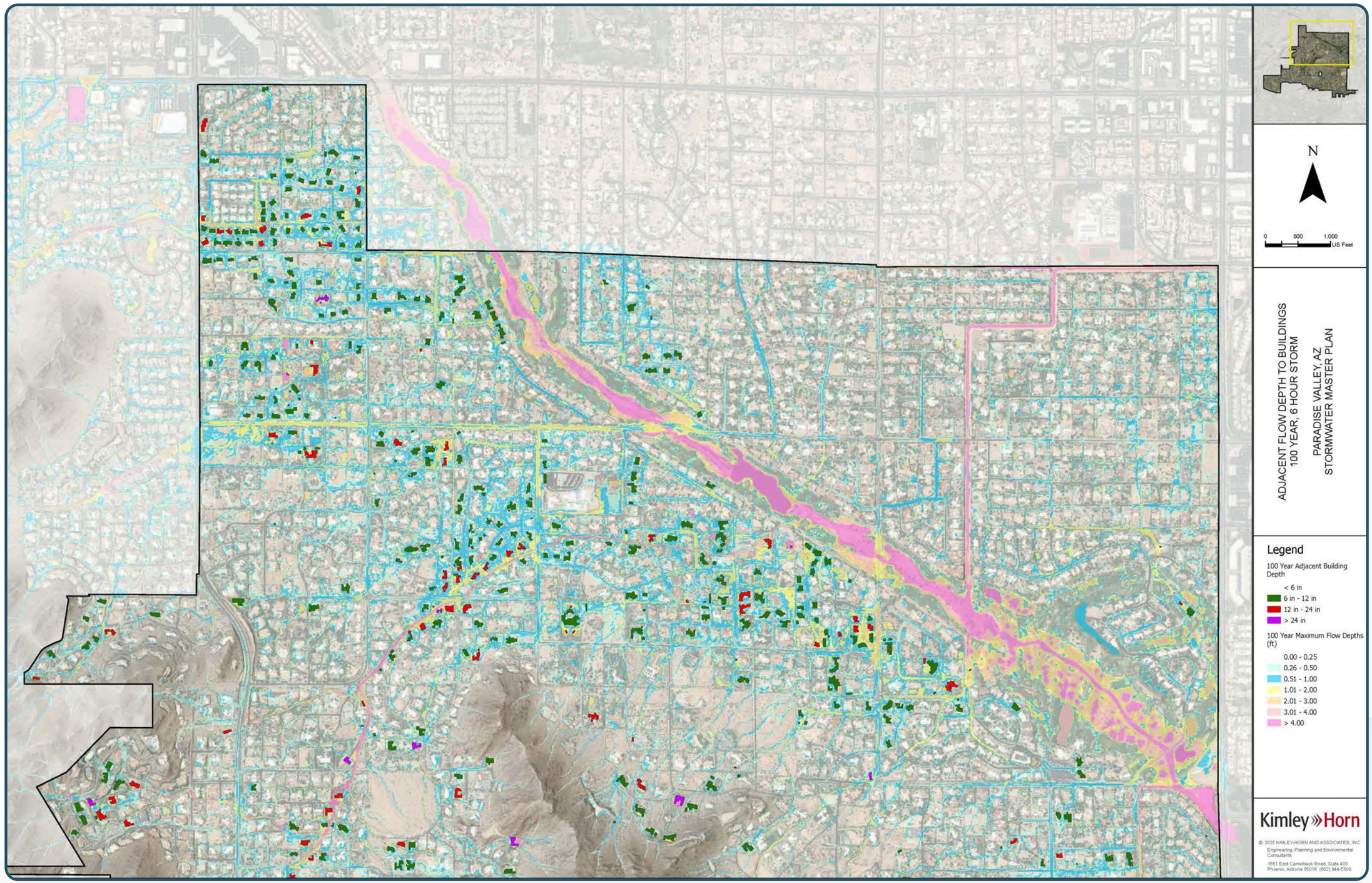
Utilizing the building footprint Geographic Information System (GIS) data provided by the Maricopa County Assessor, structures were assessed for flood risk potential based on adjacent flood depths per the FLO-2D modeling results. The GIS data was reviewed to ensure consistency with current aerial imagery. Within Paradise Valley, there are approximately 8,272 building structures classified as civil, commercial, education, outbuilding, religious, residential, and service. Flooding potential for each structure was assessed for the 100-year, 10-year, and 2-year storm events. The methodology applied to categorize structures for the three hypothetical storm events using the maximum flow depth modeling results and the building GIS data was as follows:

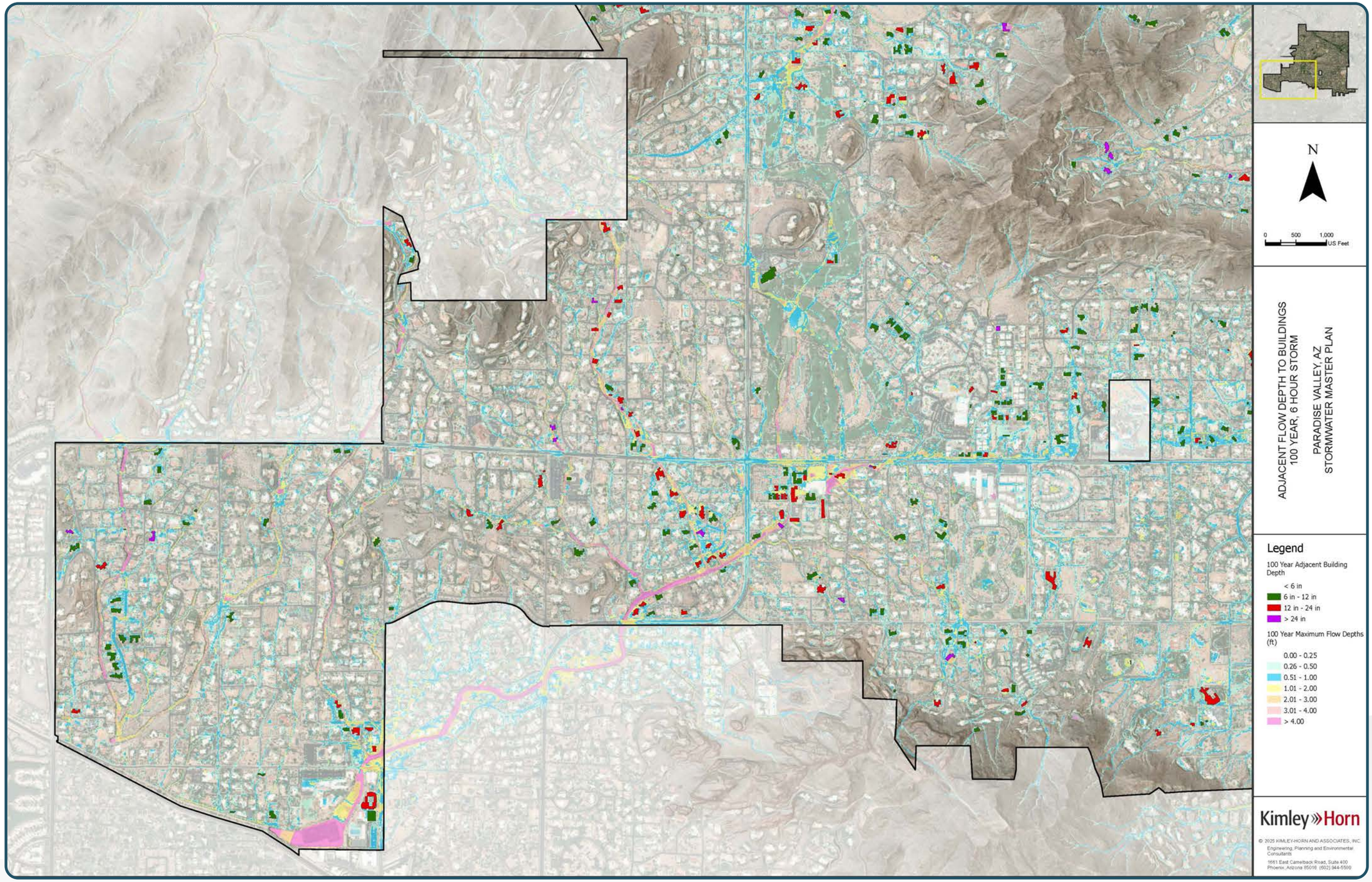
1. Building structures impacted by at least 0.5 feet of water depth for at least 20% of the building perimeter.
2. Building structures impacted by at least 1 foot of water depth for at least 15% of the building perimeter.
3. Building structures impacted by at least 2 feet of water depth for at least 10% of the building perimeter.

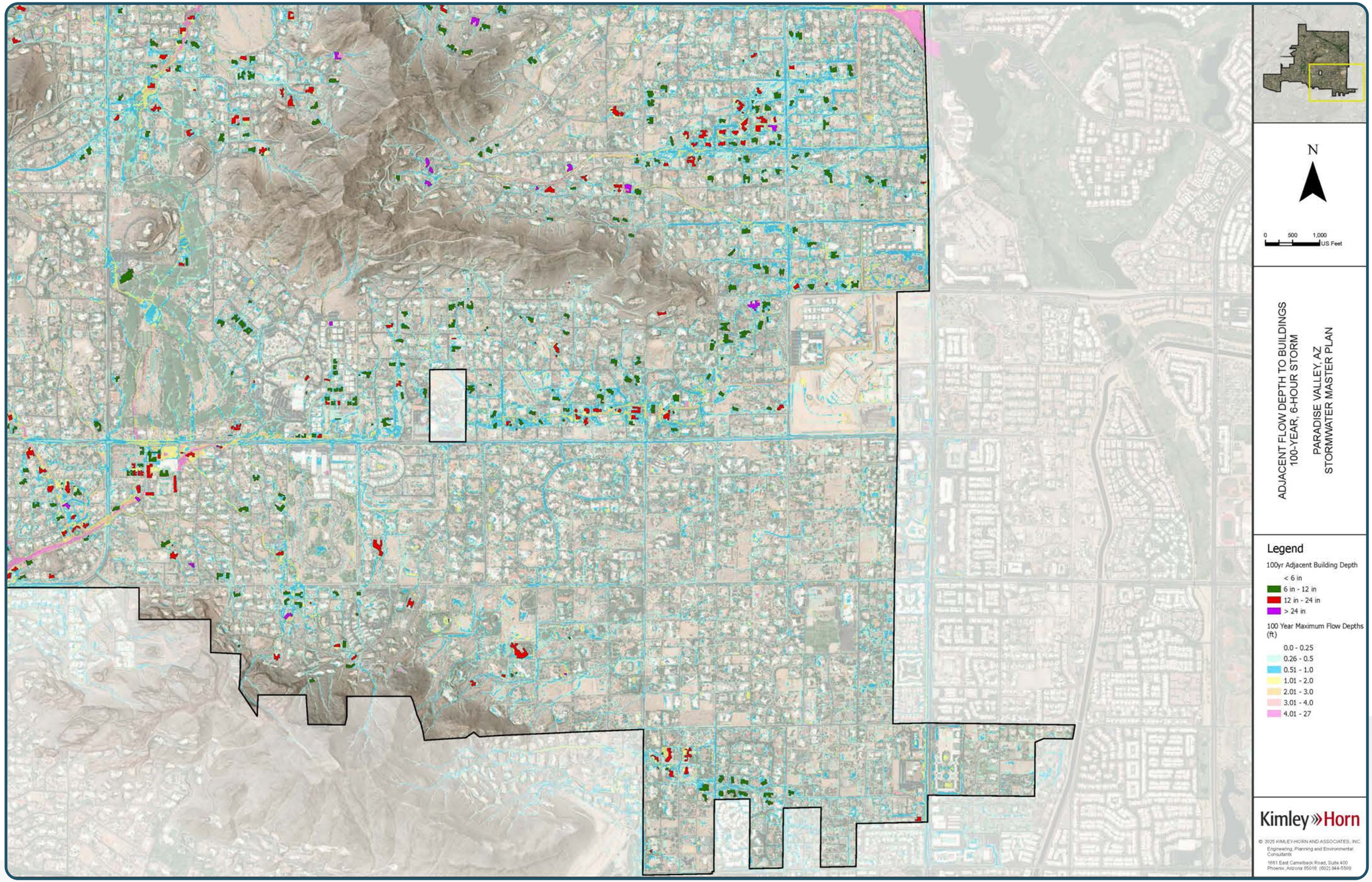
The 100-year results of these analyses are shown in exhibits on Pages 21-23 with 10-year and 2-year maps included in **Appendix C. Table 3** includes the number of buildings impacted for each criterion and storm event. It should be noted that the number of buildings identified for each scenario was refined manually to exclude structures where the flood potential is likely not accurately represented in the model results. These conditions include structures where adjacent flooding was associated with backyards or confined areas that are not near stream tributaries. In these cases, the hydraulic modeling falsely indicates trapped water where in practice flooding would likely not occur.

Table 3: Building Inundation Summary Table

Methodology	Number of Buildings Impacted Per Storm Event		
	2-Year	10-Year	100-Year
>0.5 feet of flow depth for at least 20% of the building	43	304	857
>1 foot of flow depth for at least 15% of the building	11	43	283
>2 feet of flow depth for at least 10% of the building	6	9	52
Total Structures Impacted	60	356	1,192


N
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500
1,000
US Feet
ADJACENT FLOW DEPTH TO BUILDINGS
100 YEAR, 6 HOUR STORM
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
Legend
100 Year Adjacent Building Depth
< 6 in
6 in - 12 in
12 in - 24 in
> 24 in
100 Year Maximum Flow Depths (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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Phoenix, Arizona 85016 (602) 944-5500


N
0 500 1,000
US Feet
ADJACENT FLOW DEPTH TO BUILDINGS
100 YEAR, 6 HOUR STORM
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
Legend
100 Year Adjacent Building Depth
< 6 in
6 in - 12 in
12 in - 24 in
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100 Year Maximum Flow Depths (ft)
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0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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N
0 500 1,000
US Feet
ADJACENT FLOW DEPTH TO BUILDINGS
100-YEAR, 6-HOUR STORM
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
Legend
100yr Adjacent Building Depth
< 6 in
6 in - 12 in
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100 Year Maximum Flow Depths (ft)
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1.01 - 2.0
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3.01 - 4.0
4.01 - 27
Kimley»Horn
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B. Erosion and Sediment Deposition Hazard

The methodologies used to identify sediment erosion and deposition potential are based on the procedure outlined in Hazard Risk Mapping: Detailed Description of Approach Memo written by West Consultants for the FCDMC in July of 2019 (West Consultants, Inc., 2019). The methodologies developed were deemed appropriate for the Paradise Valley Master Plan because the approach is based on the typical major storms that are specific to the south-central Arizona region, and the memo was written as part of the Carefree Area Drainage Master Plan. Additionally, the methodology similarly uses the same storm events, the 100-year, 6-hour and 10-year, 6-hour, as the basis of assessment.

The erosion hazard methodology provides predictions of the severity of damage and the types of erosion that are likely to take place. By associating ranges of numerical velocities with the likelihood of qualitative results, risks to residents and property can be more easily evaluated. The four categories of erosion potential and the associated velocity ranges in feet per second are listed below.

- Low Erosion Potential: Velocities between 1 and 2.5
  - 10% annual risk of some erosion of desert landscaping (scour of gravel surfaces, potential removal of small plants).
  - Minor scour to the downstream of culverts likely
  - Low risk of scour in washes
  - Low risk to roadways
  - Sand and fine gravel likely washed away during storm events with a recurrence interval > 2 years
- Moderate Erosion Potential: Velocities between 2.5 and 4
  - 10% annual risk of moderate erosion of desert landscaping (scour of sandy surfaces, some risk of damage to small plants).
  - Some scour downstream of culverts likely
  - Potential for scour in major washes
  - Larger gravel and short grass at risk of erosion during storm events with a recurrence interval > 2 years
  - Potential risk to gravel roadways and/or roads with unpaved shoulders during storm events with a recurrence interval > 2 year. Proceed with caution.
- High Erosion Potential: Velocities between 4 and 5.5
  - 10% annual risk of significant erosion of desert landscaping (gravel surfaces likely scoured, small plants likely damaged or removed, larger plants at risk).
  - 10% annual risk of significant scour downstream of culverts
  - High potential for ongoing scour and avulsions in major washes
  - Small cobbles and long grass are at risk of erosion during major storm events.
  - High risk to gravel roadways and/or roads with unpaved shoulders storm events with a recurrence interval> 10 years.
- Extreme Erosion Potential: Velocities greater than 5.5
  - 90% annual risk of significant erosion of desert landscaping (all plants in danger of removal, surface treatments likely scoured away).
  - 90% annual risk of significant scour downstream of culverts
  - Culvert installations in danger of failure during major storm events.
  - Wash instability likely due to significant scour and avulsion potential
  - All grass types likely scoured during large storm events.
  - Gravel roadway surfaces likely to fail and should be avoided during storm events with a recurrence interval> 10 years.

The 100-year result maps of each of the storm events' erosion hazard potential are included on Pages 26-28, with the 10-year and 2-year results maps in **Appendix C.** Extreme erosion potential is predicted within some washes, near some major roadways, and downstream of culverts within the Town. The number of road crossings on collector, arterial, and residential roads that are subject to extreme potential erosion hazards are summarized in **Table 4.**

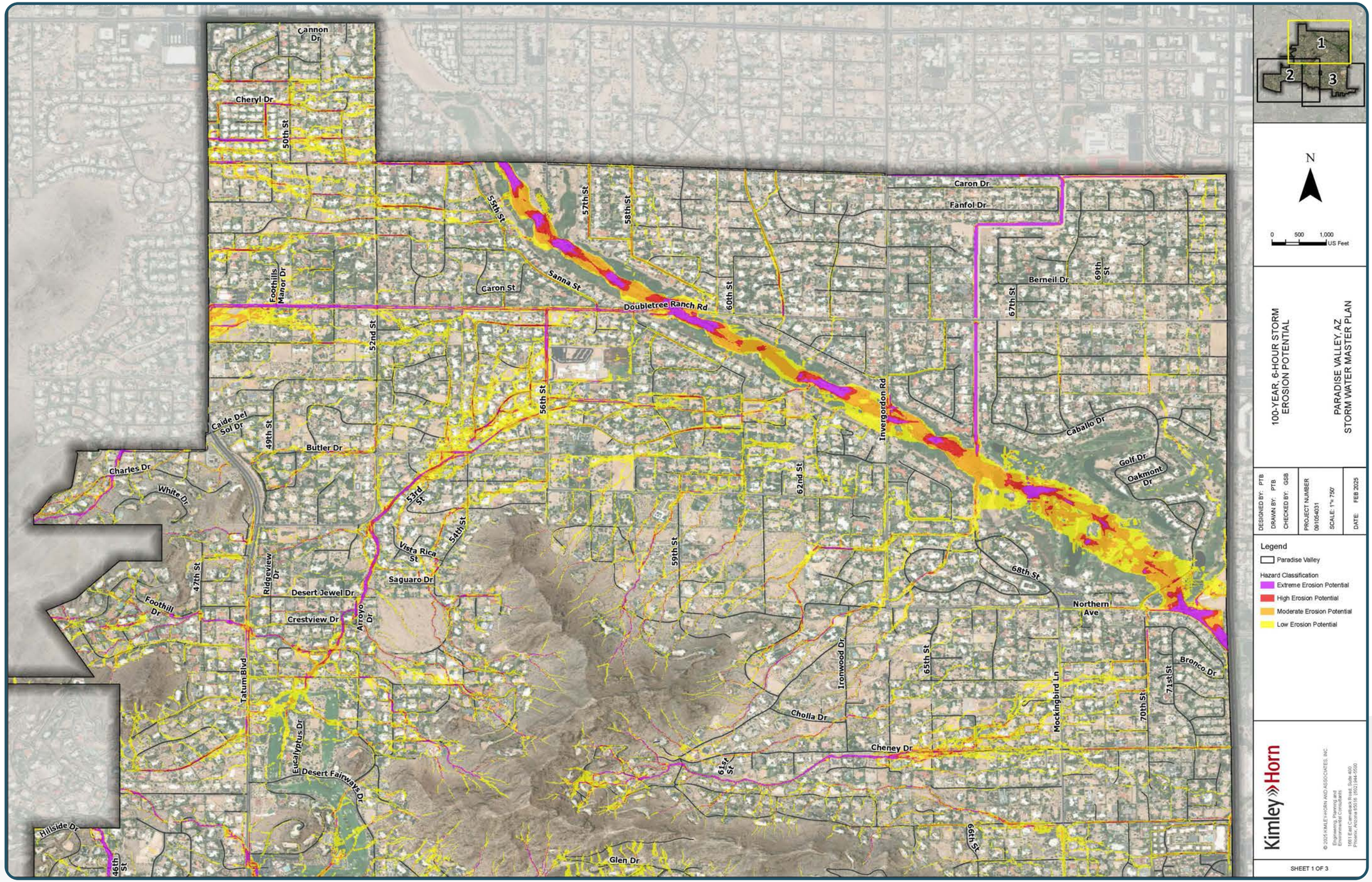
The sediment potential hazard methodology provides predictions of the severity of damage and the types of sedimentation that are likely to take place. Sedimentation potential is based on unit discharge of model cells, obtained by dividing each cell's maximum discharge by the size of the cell. By associating ranges of unit discharge with the likelihood of specific outcomes, risks to residents and property can be more easily understood. The four categories of sediment potential and the associated unit discharge ranges in cubic feet per second are listed below. It should be noted that unit discharges with a magnitude of less than 0.5 were excluded from the results.

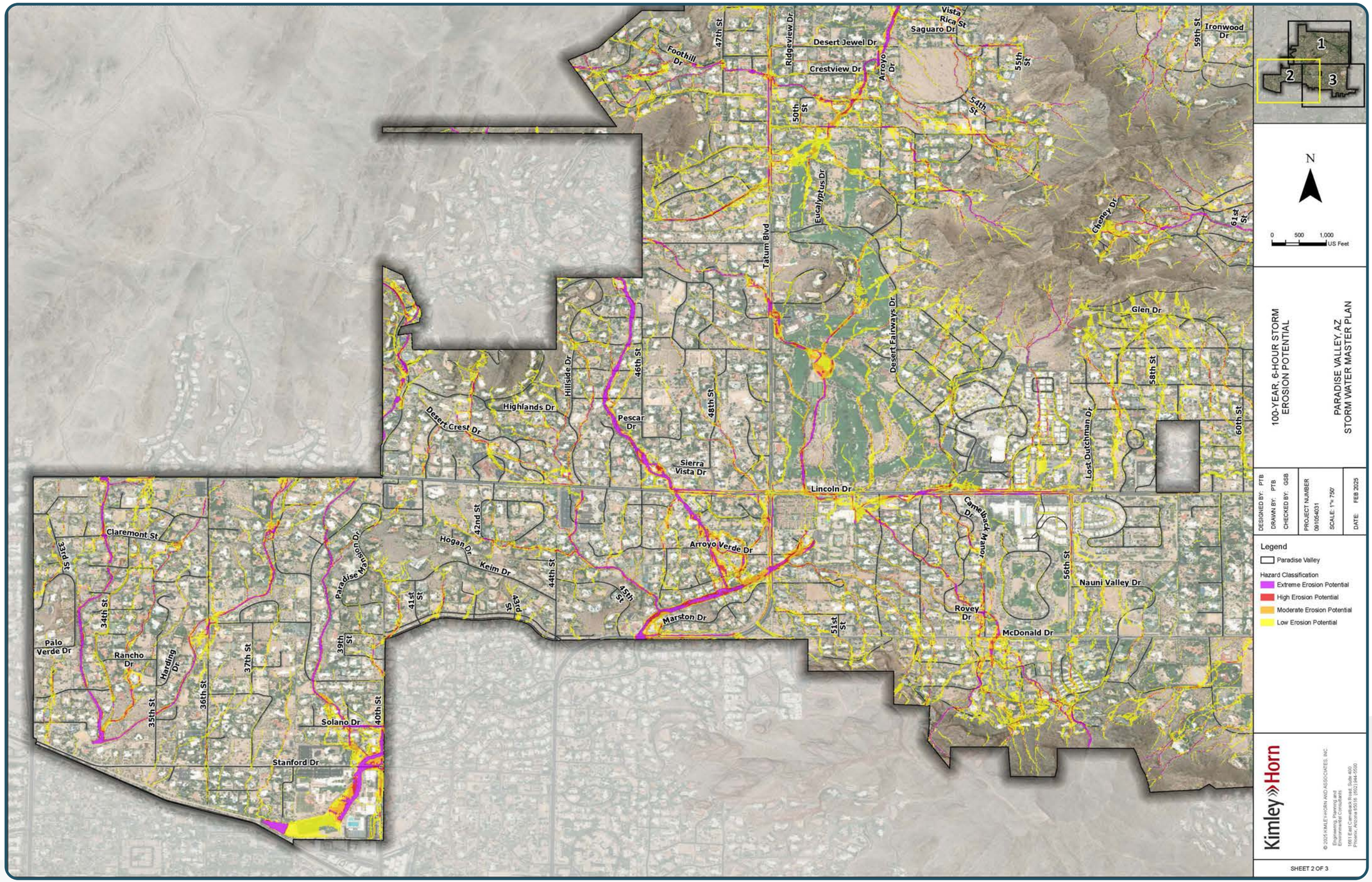
- Low Deposition Potential (q > 10)
  - Low potential of significant deposition of silty sand.
  - Some deposition upstream of culverts may occur.
  - Low risk to roadways.
- Moderate Deposition Potential (10>q>7)
  - Moderate potential of significant deposition of sands, silts, and gravel.
  - Some deposition upstream of culverts is likely. Smaller culverts may clog.
  - Proceed with caution at roadways.

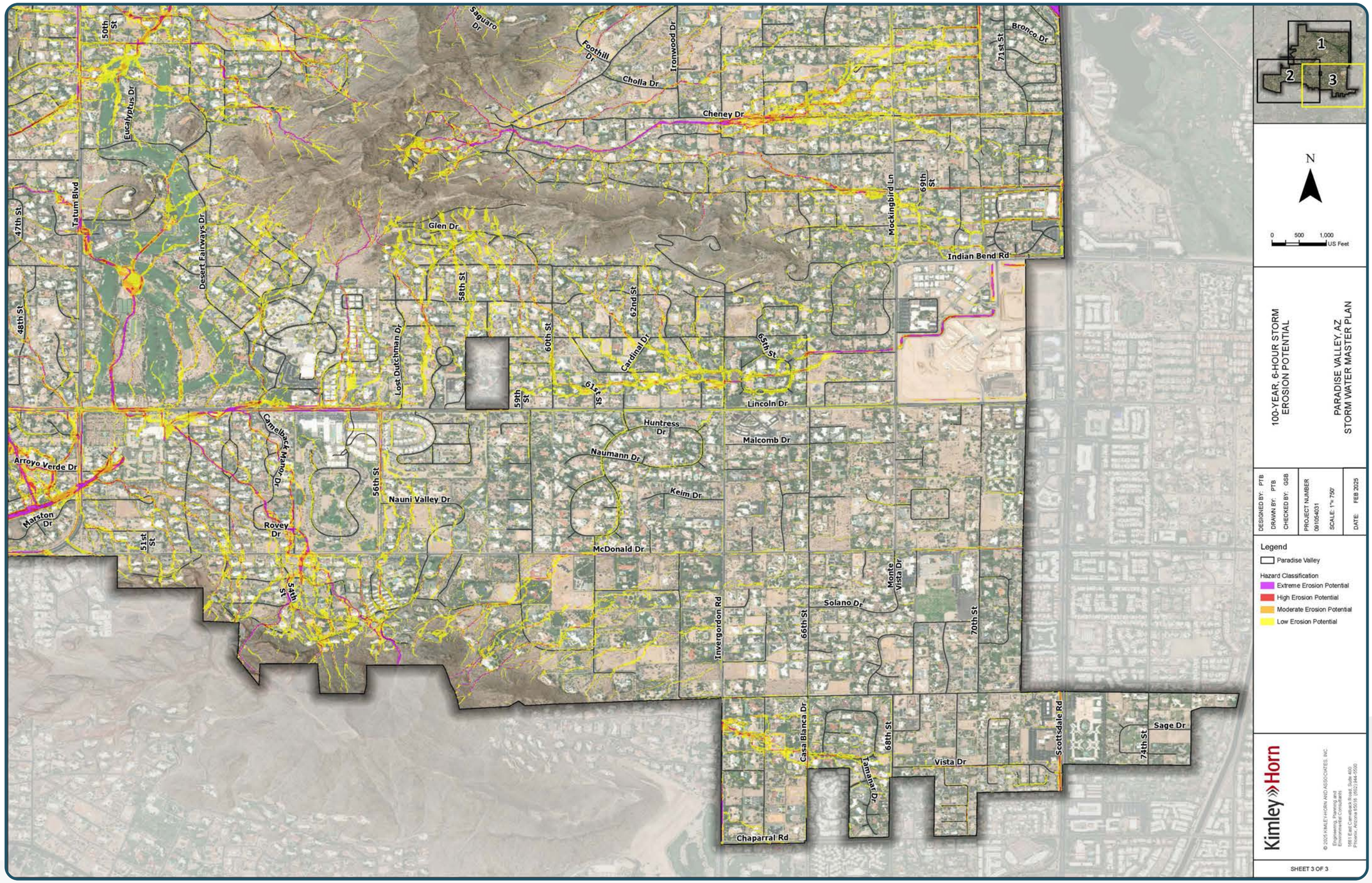
- High Deposition Potential (7>q >3)
  - High potential for sand and gravel deposition; moderate risk of cobble deposition.
  - Significant deposition of culverts likely. High clogging potential at all culverts.
  - Proceed with caution at roadways.
- Extreme Deposition Potential (3>q)
  - Extreme potential for deposition of sands, silts, gravels, and cobbles.
  - Culvert installation in danger due to likelihood of clogging.
  - Proceed with extreme caution at roadways.

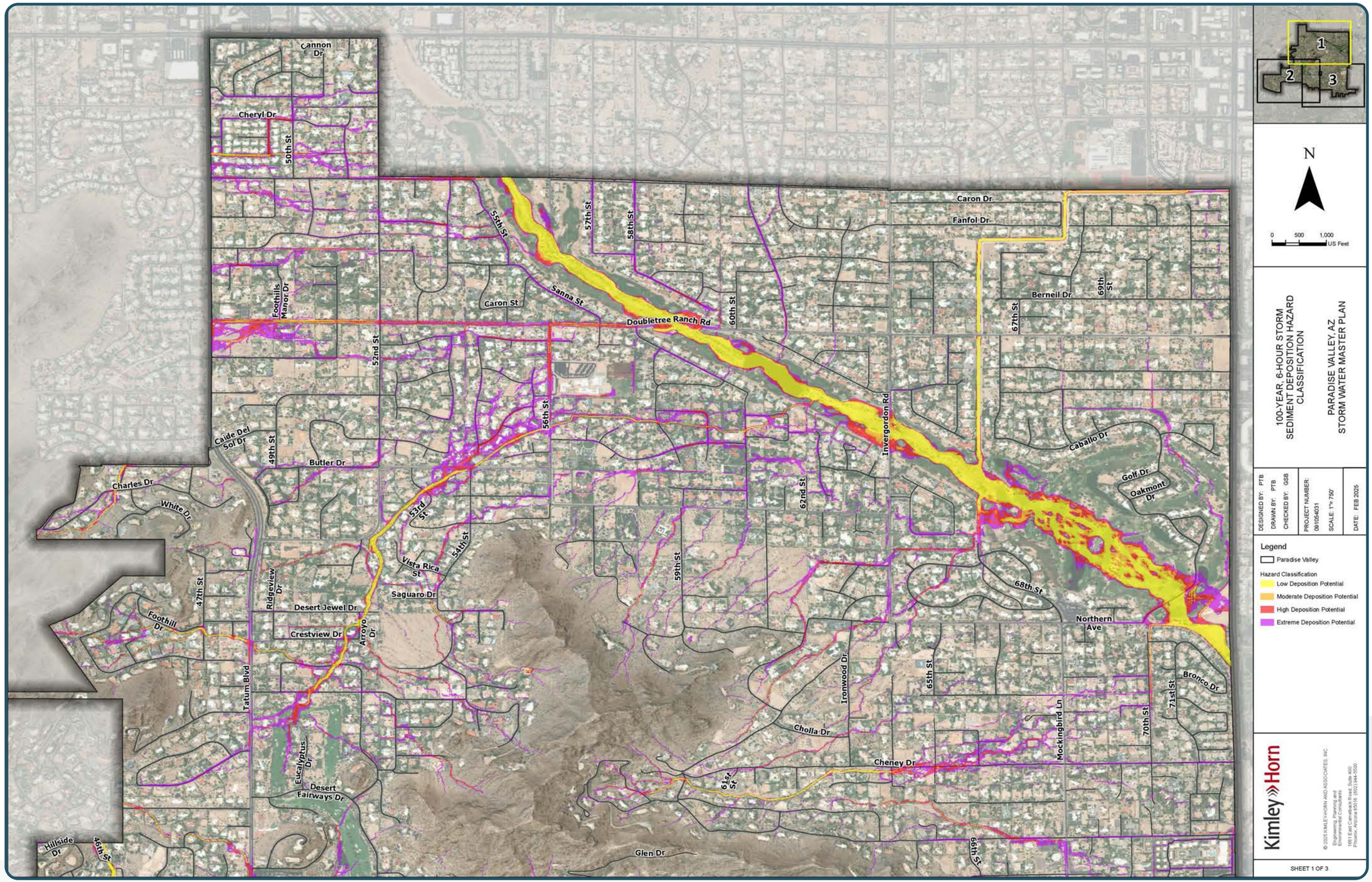
The 100-year result maps of each of the storm events' deposition hazard potential are included on Pages 29-31, with the 10-year and 2-year results maps in **Appendix C**. Extreme sediment deposition potential is predicted within some washes, along some major roadways, and downstream of culverts within the Town. The number of road crossings on arterial, collector and residential roads that are subject to extreme potential deposition hazards are summarized in **Table 4.**

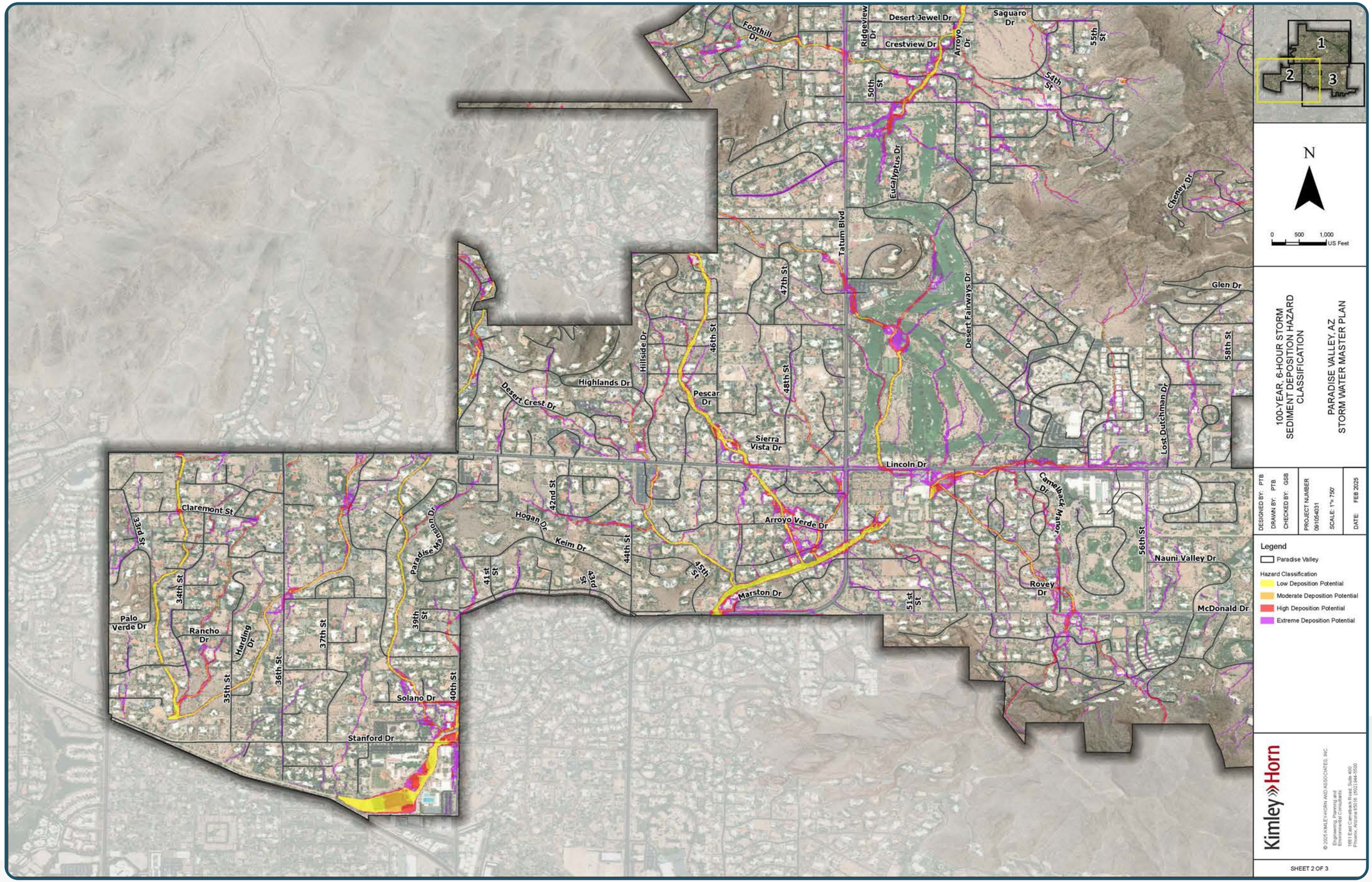
Storm Event	Street Type	Extreme Erosion Risk Locations	Extreme Sediment Risk Locations
100-Year	Arterial	6	28
	Collector	29	144
	Residential	245	989
10-Year	Arterial	2	14
	Collector	12	65
	Residential	92	352

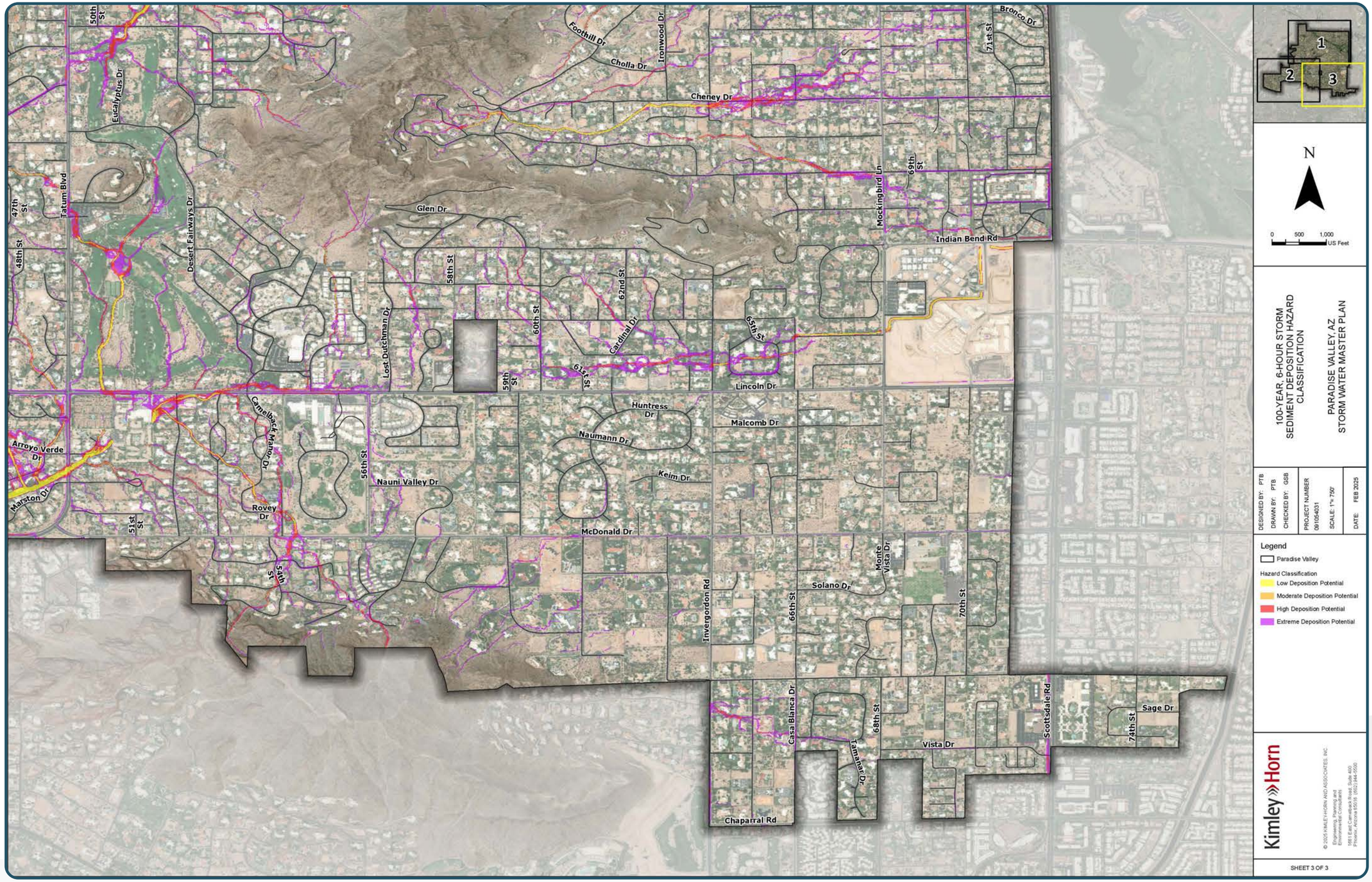

Cannon Dr
Cheryl Dr
50th St
55th St
57th St
58th St
Caron Dr
Fanfol Dr
Foothills Manor Dr
Caron St
Sanna St
Doubletree Ranch Rd
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Berneil Dr
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Invergordon Rd
Caballo Dr
Caide Del Sol Dr
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Butler Dr
Golf Dr
Oakmont Dr
Charles Dr
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Vista Rica St
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Ridgeview Dr
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Desert Jewel Dr
Foothill Dr
Crestview Dr
Arroyo Dr
Northern Ave
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Ironwood Dr
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Bronco Dr
71st St
Mockingbird Ln
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Cholla Dr
Eucalyptus Dr
Cheney Dr
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Desert Fairways Dr
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0 500 1,000 US Feet
100-YEAR, 6-HOUR STORM EROSION POTENTIAL
PARADISE VALLEY, AZ STORM WATER MASTER PLAN
DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB
PROJECT NUMBER 091054031
SCALE: 1"= 750'
DATE: FEB 2025
Legend
Paradise Valley
Hazard Classification
Extreme Erosion Potential
High Erosion Potential
Moderate Erosion Potential
Low Erosion Potential
Kimley»Horn
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Engineering, Planning and Environmental Consultants
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SHEET 1 OF 3


Foothill Dr
47th St
Ridgeview Dr
Desert Jewel Dr
Vista Rica St
Saguaro Dr
Crestview Dr
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100-YEAR, 6-HOUR STORM
EROSION POTENTIAL
PARADISE VALLEY, AZ
STORM WATER MASTER PLAN
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SHEET 2 OF 3


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100-YEAR, 6-HOUR STORM
SEDIMENT DEPOSITION HAZARD
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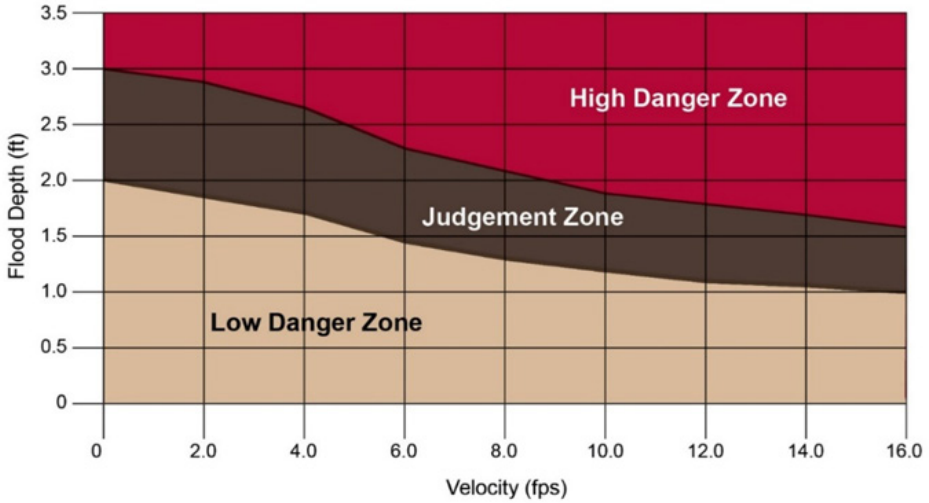
C. Potential Risk to Passenger Vehicles

During large storm events in Town of Paradise Valley, roads such as Doubletree Ranch Road and 40th Street have been closed for passenger vehicle safety. Data obtained from the Town revealed an incident in which a car had been swept off the road at the CCW low water crossing on 40th St. Given the issues identified, risk to passenger safety was an important hazard to evaluate in the Paradise Valley Master Plan.

The methodology used to identify potential risk to passenger vehicles is based on the depth-velocity flood danger level relationship for passenger vehicles developed in ACER Technical Memorandum No. 11: Downstream Hazard Classification Guidelines, (U.S. Department of the Interior Bureau of Reclamation, 1988). The memorandum presents the relationship, created between both the depth and velocity of flood water on a roadway, that is used to classify road conditions as a low danger zone, judgment zone, and high danger zone. **Figure 4** shows the graphical representation of this relationship. Each zone provides predictions of the severity of risk to passenger vehicles.

- **Low Danger Zone –** In this zone, almost all passenger vehicles can safely navigate on the road. The risk categorization is based on the ranges of the depth and velocity relationship shown in **Figure 4**. It should be noted that depths lower than 0.5 feet were removed from this zone due to the negligible effect on passenger vehicles. The depth of 0.5 feet was chosen as the minimum, because at this height, water will begin to reach the bottom of many passenger vehicles.
- **Judgement Zone –** In this zone, roadway flooding with a combination of depths and velocities shown in **Figure 4** present a highly significant hazard to most passenger vehicles. The ranges of depth outlined in this category are 2 to 3 feet of water. At these depths, emergency vehicles should proceed with caution, and passenger vehicles should be blocked from proceeding.
- **High Danger Zone –** In this zone, flood hazards are extreme for all passenger vehicles. The associated depths and velocities of this zone, shown in **Figure 4**, will block access to emergency vehicles.

Figure 4: Depth Times Velocity Graph for Passenger Vehicles (USBR 1988)



Analyses of passenger vehicular risk were conducted for the 10-year and 100-year storm events. Using modeling results, areas of the Town were categorized into each flood zone type. The resulting passenger vehicle flood hazard layer was intersected with the centerline of all roads within Paradise Valley. Two methodologies were utilized to display and quantify the results of the intersection. The polyline method serves to quantify what percentage of roads in the Town are located within the high danger zone risk category, while the point method quantifies the total number of roadway wash crossings subject to the same risk category.

The 100-year result maps of potential risk to passenger vehicles are shown on Pages 35-37, with the 10-year results maps included in **Appendix C**. Examples of the polyline and point methods are shown in **Figures 5 and 6. Table 5** contains the percentage and number of roadway segments that are located within high danger zones for passenger vehicles.

Figure 5: Example of Polyline Shapefile for Passenger Vehicles Risks

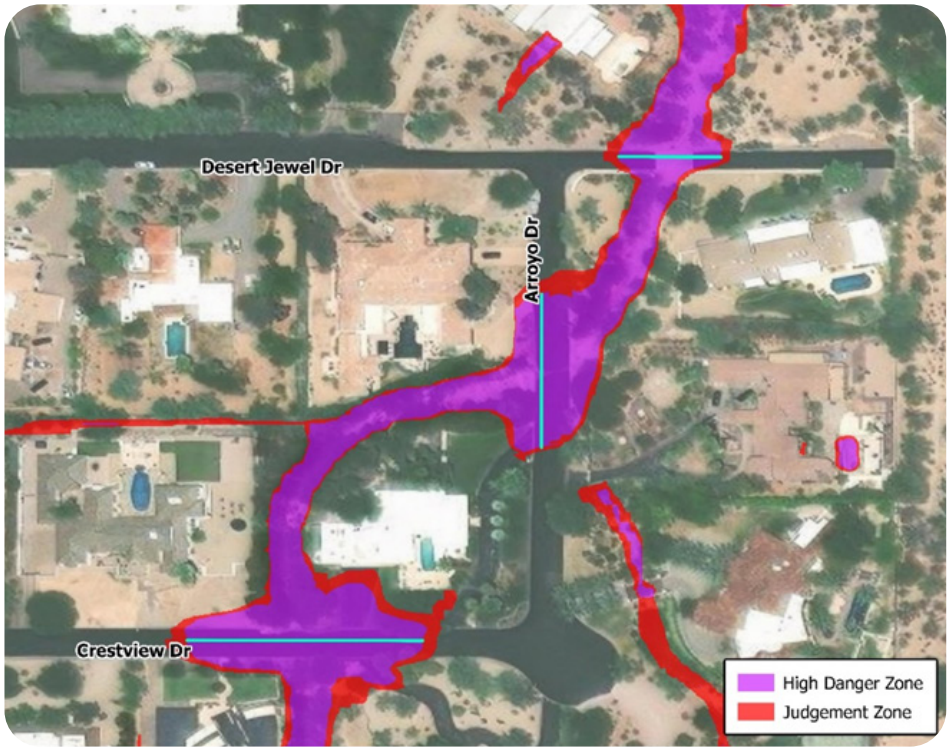


Figure 6: Example of Point Shapefile for Passenger Vehicles Risks

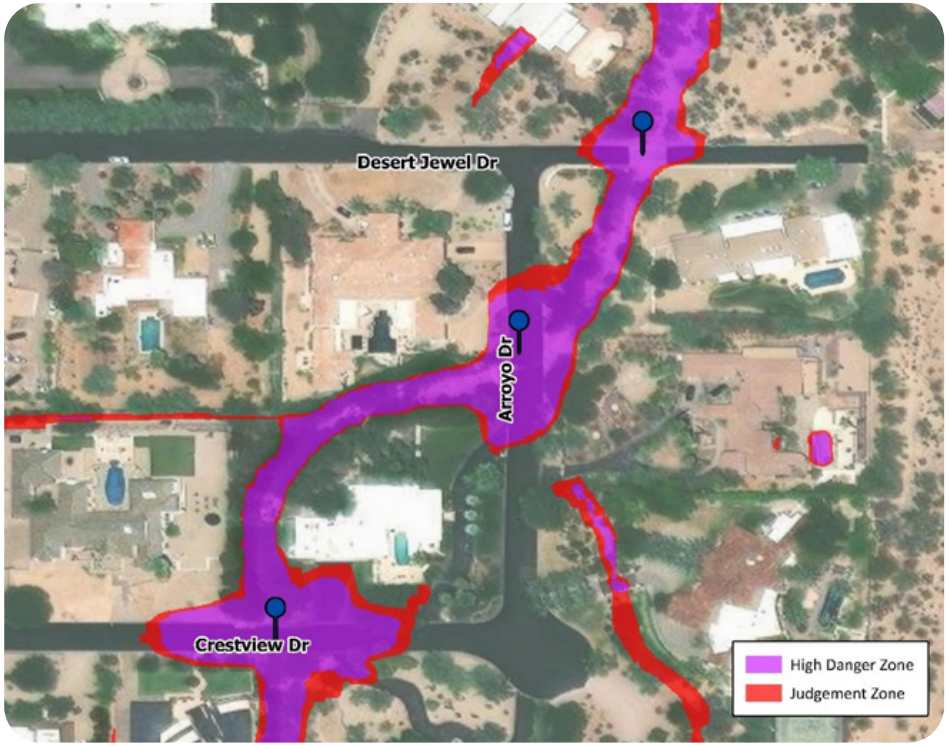
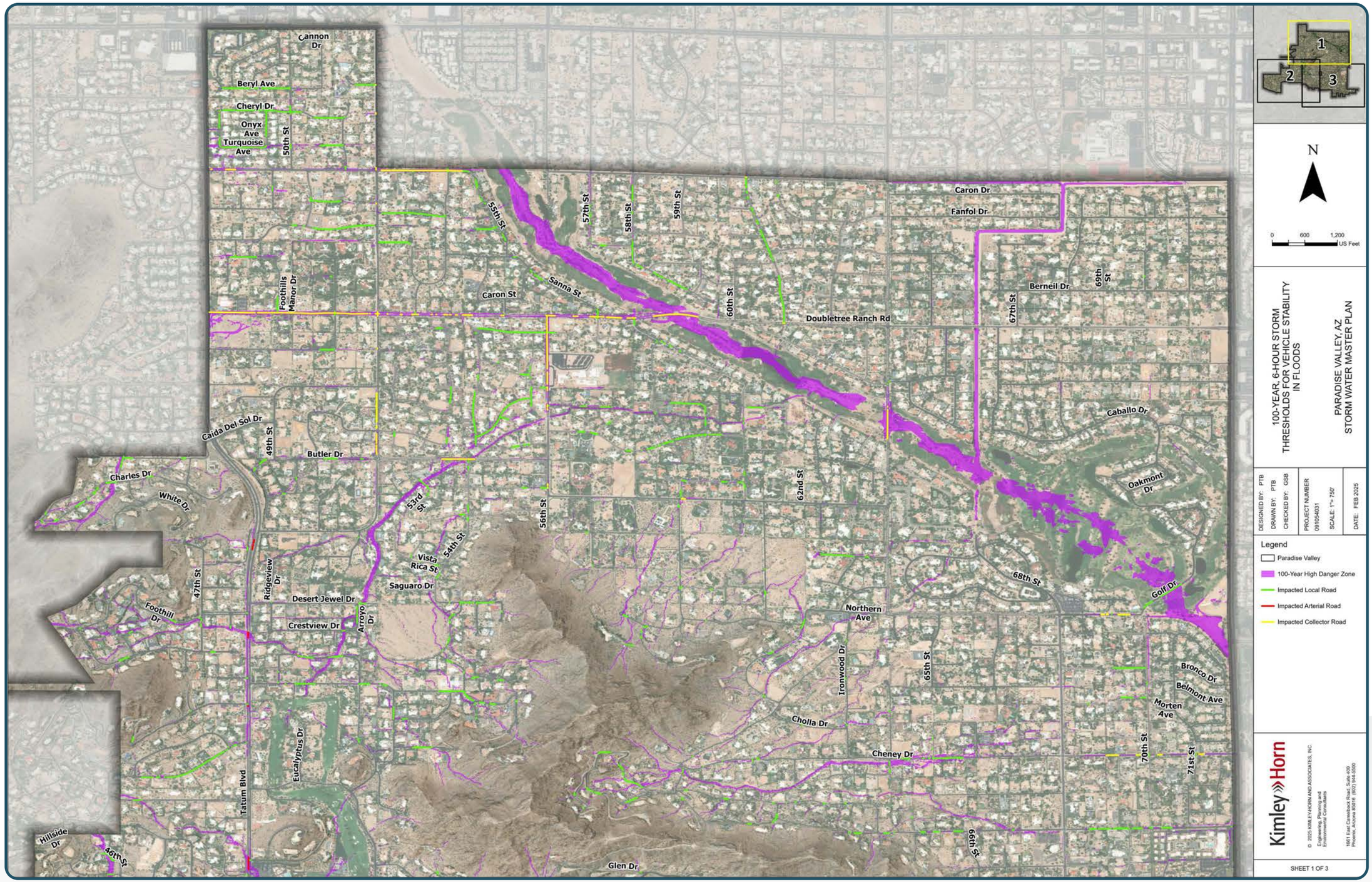
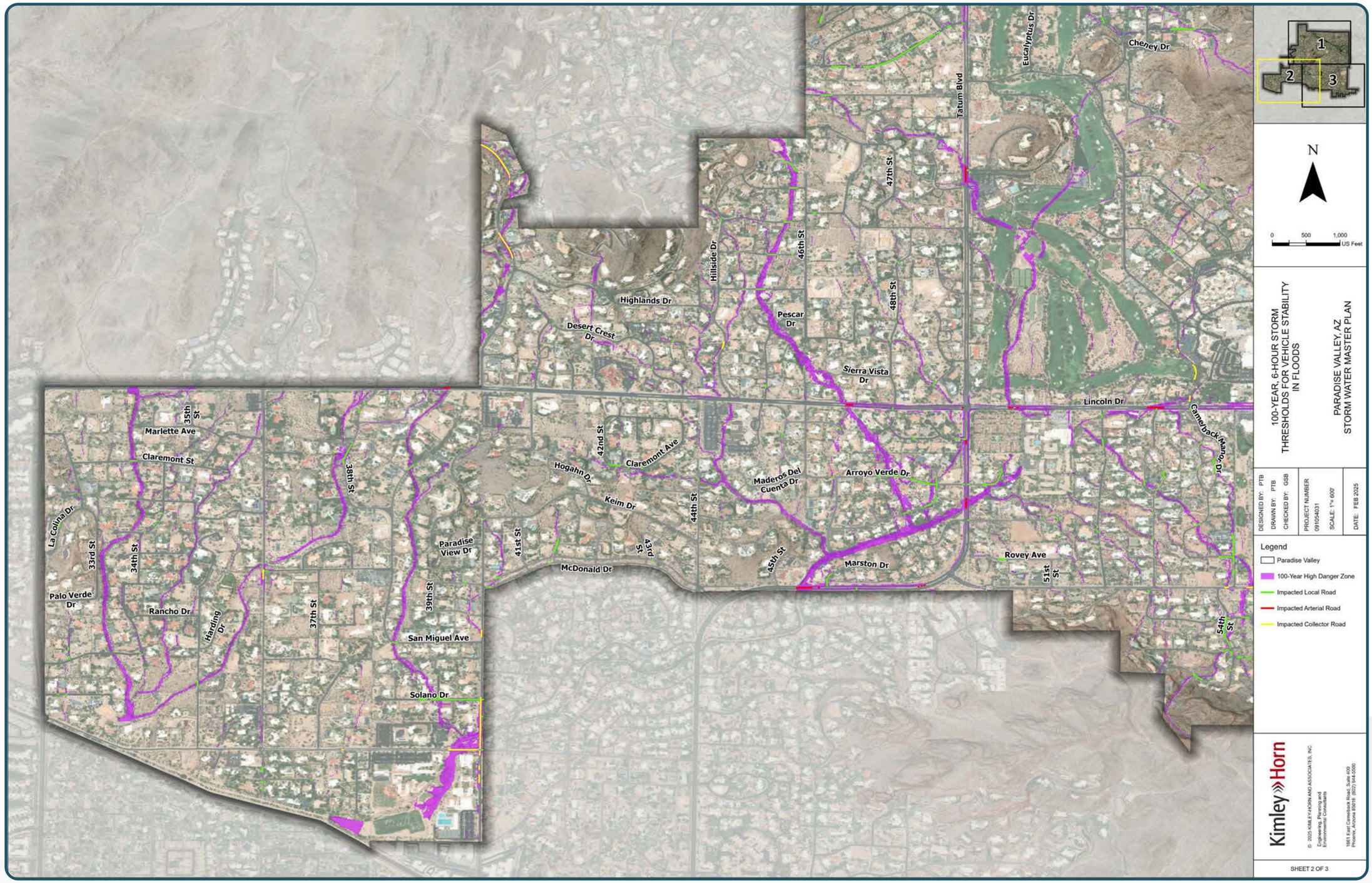
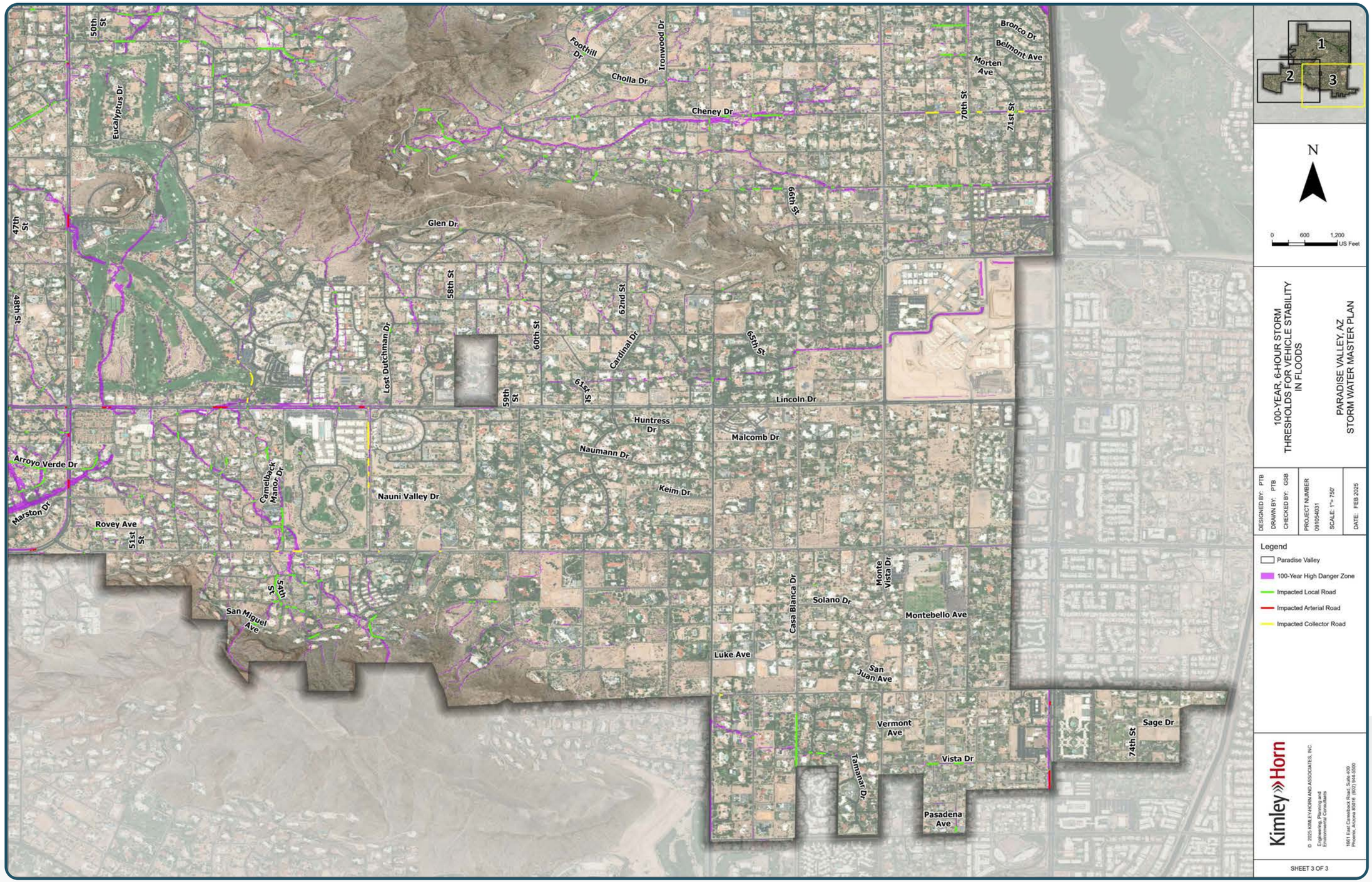


Table 5: Road Flooding Hazard Risk

Storm Event	Street Type	High Danger Zone for Passenger Vehicles
100-Year	Arterial	29 Crossings
		3.9% of Arterial Streets
	Collector	79 Crossings
		9.7% of Collector Streets
	Residential	931 Crossings
		7.0% of Residential Streets
10-Year	Arterial	12 Crossings
		1.2% of Arterial Streets
	Collector	29 Crossings
		3.4% of Collector Streets
	Residential	220 Crossings
		1.6% of Residential Streets


Cannon Dr
Beryl Ave
Cheryl Dr
Onyx Ave
Turquoise Ave
50th St
55th St
57th St
58th St
59th St
Caron Dr
Fanfol Dr
Foothills Manor Dr
Caron St
Sanna St
60th St
Doubletree Ranch Rd
Berneil Dr
67th St
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Caballo Dr
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Cheney Dr
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71st St
Tatum Blvd
Eucalyptus Dr
Hillside Dr
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600
1,200
US Feet
100-YEAR, 6-HOUR STORM
THRESHOLDS FOR VEHICLE STABILITY
IN FLOODS
PARADISE VALLEY, AZ
STORM WATER MASTER PLAN
DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB
PROJECT NUMBER
091004031
SCALE: 1"= 750'
DATE: FEB 2025
Legend
Paradise Valley
100-Year High Danger Zone
Impacted Local Road
Impacted Arterial Road
Impacted Collector Road
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SHEET 1 OF 3


Tatum Blvd
Eucalyptus Dr
Cheney Dr
47th St
46th St
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Hillside Dr
Highlands Dr
Desert Crest Dr
Pescar Dr
Sierra Vista Dr
Lincoln Dr
Camelback Manor Dr
35th St
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Claremont Ave
Hogahn Dr
Keim Dr
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Maderos Del Cuenta Dr
Arroyo Verde Dr
La Colina Dr
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Palo Verde Dr
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Paradise Valley
100-Year High Danger Zone
Impacted Local Road
Impacted Arterial Road
Impacted Collector Road
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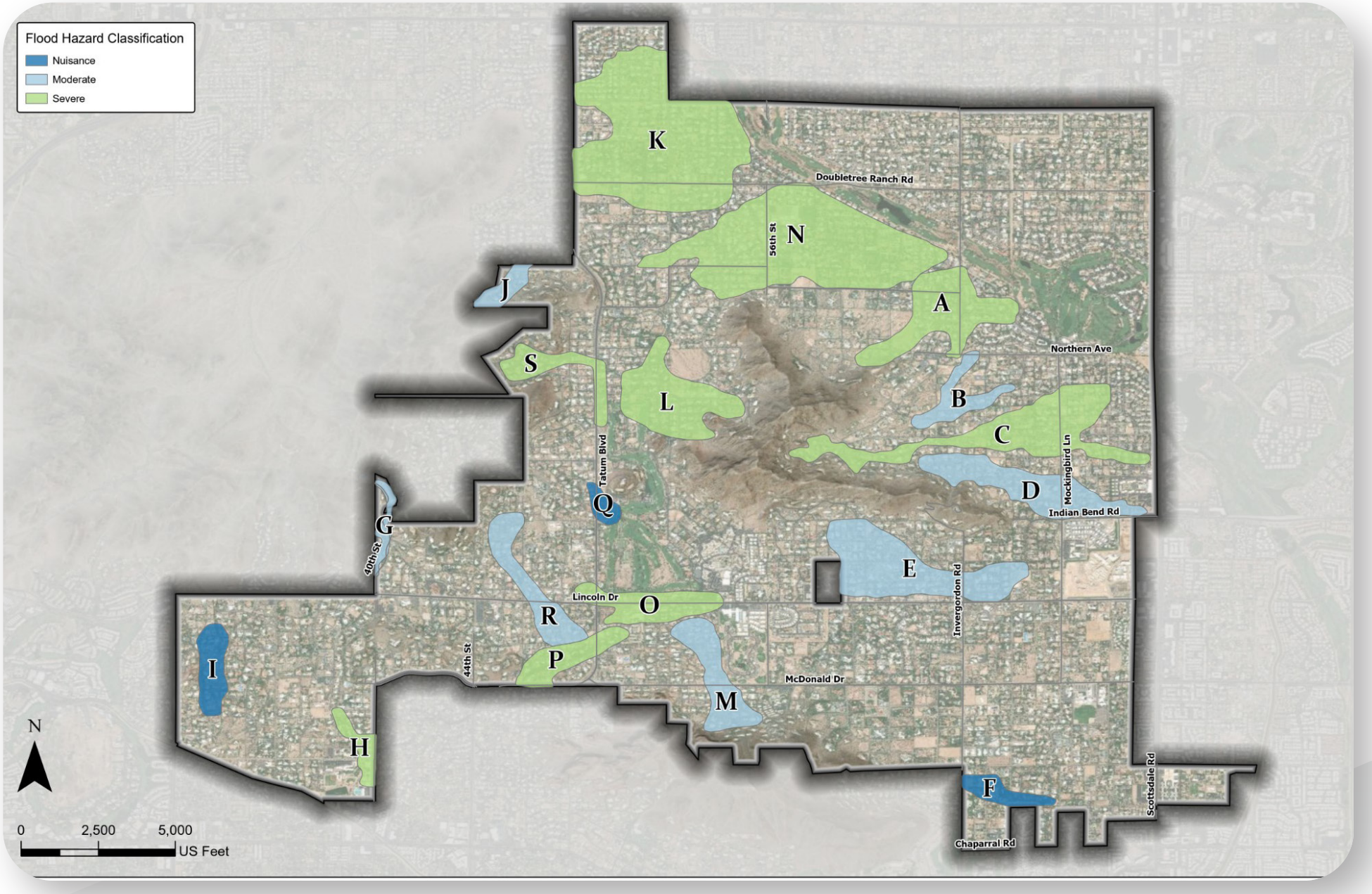

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Monte Vista Dr
Montebello Ave
Luke Ave
San Juan Ave
Vermont Ave
Tamanaki Dr
Vista Dr
Pasadena Ave
74th St
Sage Dr
1
2
3
N
0
600
1,200
US Feet
100-YEAR, 6-HOUR STORM
THRESHOLDS FOR VEHICLE STABILITY
IN FLOODS
PARADISE VALLEY, AZ
STORM WATER MASTER PLAN
DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB
PROJECT NUMBER
091054031
SCALE: 1"= 750'
DATE: FEB 2025
Legend
Paradise Valley
100-Year High Danger Zone
Impacted Local Road
Impacted Arterial Road
Impacted Collector Road
Kimley»Horn
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Engineering, Planning and
Environmental Consultants
1661 East Camelback Road, Suite 400
Phoenix, Arizona 85016 (602) 944-5500
SHEET 3 OF 3

VI. FLOOD HAZARD AREA CLASSIFICATION

Areas of significant flood potential have been identified in several past studies as outlined in the Data Collection section of this report. Utilizing the updated town-wide comprehensive FLO-2D results, these areas were reevaluated and refined, with new areas added as applicable. Areas were either revalidated or added to the list of 'Flood Hazard Areas' based on a combination of factors. Actual reported flooding by Town staff and residents was evaluated against the town-wide modeling results to identify areas with a common flooding source, or areas with clusters of complaints. These areas could allow for mitigation solutions that would benefit multiple structures or roadways at a neighborhood level. In addition, the results of the flood hazard analysis as outlined in the previous section were also used.

Nineteen areas were identified as having some level of flood potential. These areas were further classified based on the potential level of flooding as nuisance, moderate and severe flooding. Areas were classified as nuisance flooding if modeling results showed approximately 0.5' to 1' of water depth along roads and against structures. Moderate flooding was designated if the area showed approximately 1' to 2' of water depth along roads and against structures. Severe flooding was designated to areas with greater than 2' at road and structures. **Figure 7** shows the flood classifications of each of the flood hazard areas.

Figure 7: Classifications of Flood Hazard Areas



Flood hazard areas with moderate and severe classifications were ranked in a decision matrix based on five criteria, as outlined in **Table 6**. Classification of the severity of flooding and the potential number of structures that could be benefited in the area were the criteria that were given the greatest weight within the matrix with a weighted score of 5. Structures that could be benefitted were defined as any structure with adjacent flood depths of 0.5 feet. The number of streets inundated with at least 0.5 feet of depth was another variable considered in the matrix and was given a weighted score of 4. Impacts to emergency access and the potential for multi-use opportunities were considered in the matrix as well with priority scores of 3 and 1, respectively. The results of the area decision matrix and area data sheets are provided in **Appendix D.**

Table 7 includes the location, the severity designation, the number of buildings impacted, and potential impacts to emergency access for each flood hazard area. Of the 16 areas classified as having severe or moderate flood potential, the top 9 were selected to develop flood mitigation alternatives. The three areas classified as having nuisance flooding potential were not included in the ranking, but can be evaluated further by Town maintenance or engineering staff as annual maintenance budgets allow.

Table 6: Flood Hazard Area Prioritization Criteria

Criteria	Scoring Criteria	Weighted Score	Highest Possible Score	Lowest Highest Score
Severity of Flooding	1- Nuisance	5	15	5
	2- Medium			
	3- Severe			
Potential Structures Protected	1- 1 to 30 Structures	5	15	5
	2- 31-50 Structures			
	3- >51 Structures			
Potential Streets Protected	1- Local Street Benefits Only	4	12	4
	2- Arterial/Collector Street or Multiple Local Streets Benefits			
	3- Multiple arterial/collector & Local Street Benefits			
Restriction to Emergency Access	0- No Impact to Emergency Access	3	6	0
	2- Impacts to Emergency Access			
Multi-Use Opportunities	1- No Opportunities	1	2	1

Table 7: Flood Hazard Area Ranking and Characteristics

Flood Hazard Area	Matrix Score	Severity of Flooding	Structures with Adjacent Depths of at Least 0.5 ft	Streets Impacted by at Least 0.5 ft Depths	Potential Impact to Emergency Access
N	49	Severe	123	2 Collector; 8 Local	Yes
A	45	Severe	43	2 Collector; 6 Local	Yes
O	45	Severe	22	2 Collector; 4 Local	Yes
K	43	Severe	141	2 Collector; 13 Local	No
L	41	Severe	35	0 Collector; 5 Local	Yes
H	40	Severe	9	2 Collector; 2 Local	Yes
P	39	Severe	17	1 Collector; 2 Local	Yes
C	39	Moderate	70	1 Collector; 2 Local	No
E	38	Moderate	52	2 Collector; 5 Local	No
S	36	Severe	14	1 Collector; 1 Local	Yes
R	36	Severe	27	1 Collector; 5 Local	Yes
D	33	Severe	20	2 Collector; 1 Local	No
G	32	Severe	2	0 Collector; 2 Local	Yes
M	25	Moderate	19	1 Collector; 6 Local	No
B	25	Moderate	4	1 Collector; 2 Local	No
J	21	Moderate	8	0 Collector; 3 Local	No

Flood Mitigation Alternatives Developed

VII. PROPOSED PROJECT ALTERNATIVES

For the nine flood hazard areas that scored highest, proposed project alternatives were developed. Previously identified conceptual projects from past studies were first evaluated, as many of these fell within the nine flood hazard areas. These projects were either classified as maintenance projects, medium sized projects, or large projects based on estimated construction costs. Maintenance project costs were less than 250,000 USD and were not considered for the alternatives evaluation as they typically do not mitigate wider spread flooding. Projects with construction costs between 250,000 and 1.3 million USD were designated as medium sized as they are eligible for FCDMC's Small Project Assistance Program (SPAP) as a cost share opportunity. Large projects were designated as having construction costs that exceed 1.3 million USD and could qualify for other grant programs like FCDMC's Capital Improvement Project Partnership Program (CIPPP) or other grant opportunities through the Federal Emergency Management Agency (FEMA). Medium and/or large projects were proposed for each of the nine areas. These projects were either previously proposed, previously proposed and further refined, or developed specifically for this master plan. Two or three alternatives were developed in each area. A decision matrix was used to select a recommended alternative for each area. The project variables and their weighted score are shown in **Table 8**. See **Appendix E** for the project alternatives decision matrix for each flood hazard area. It should be noted that because of the direction that all improvements should be confined within existing Town right-of-way, most alternatives are variations of storm drain or culvert configurations. Because of this, cost became the overwhelming determining factor in the scoring matrix for determining the recommended alternative.

Pages 43-76 detail the flood mitigation alternatives developed for each of the nine flood hazard areas studied. Each area has a description of the alternatives developed, including the project sizes (medium or large), and which is the recommended alternative. Schematics of the project alternatives are also included.

Table 8: Project Prioritization Criteria

Criteria	Scoring Criteria	Weighted Score	Highest Possible Score	Lowest Possible Score
Potential Structures Protected	1- 1 to 30 Structures	5	15	5
	2- 31 to 50 Structures			
	3- > 51 structures			
Design & Construction Cost/Benefit	1- Most Expensive	5	10	5
	2- Least Expensive			
Potential Streets Protected	1- Local Street Benefit Only	4	12	4
	2- Arterial/Collector Street or Local Streets Benefit			
	3- Multiple Arterial/Collector Streets and Local Streets Benefit			
Green Storm Water Infrastructure	1- No Opportunities	1	2	1
	2- Some Opportunities			
Project Partnership	1- Grant Funding or Partnerships Likely	4	12	4
	2- Local Partnership/Grant Eligible			
	3- Local and Federal Partnerships/Grant Eligible			
Multi-Use Opportunities	1- No Opportunities	2	4	2
	2- Some Opportunities			
Operation and Maintenance Costs	1- Maintenance After Every Storm Event	3	6	3
	2- Maintenance at Standard Intervals			
Utility Constraints	1- Major Constraints	3	6	3
	2- Minor Constraints			

A. Flood Hazard Area A – Invergordon Road and Mockingbird Lane

Summary and Description

The source of flooding in this area is runoff from the north and east side of Mummy Mountain, including Maverick Wash and Ironwood Wash flowing northeast toward IBW. Insufficient drainage infrastructure results in road and property flooding. The major roads affected by runoff include Northern Avenue, Invergordon Road, Maverick Road, and El Maro Circle. Invergordon Road has the greatest level of flooding, due to additional flooding from Cherokee Wash. During the 100-year storm, a maximum water depth of 3.7 feet per modeling results from this study occurs on Invergordon Road. This poses risks to emergency vehicle access, passenger vehicles, and to the adjacent properties. Maverick Road also has flooding issues 0.5-1-foot water depths for the length of the street between 62nd Place and Invergordon Road. Several smaller washes flow through private property and across public roads with inadequate conveyance capacity. Several residents south of El Maro Circle and north of Maverick Road on the east side of Invergordon Road, residents have reported property flooding. Flooding in this area has been documented in the Cheney Watershed Hazards Identification Report and the Lower Indian Bend Wash Area Drainage Master Study/Plan (LIBW ADMS/P).

Alternative 1 (Large, Recommended)

The first proposed alternative for this area consists of the implementation of new storm drain. 60" RCP storm drain would begin north of the intersection of Invergordon Road and Northern Avenue and have an inlet to capture a portion of the flows from Ironwood Wash. The inlet would be located on the left side of Invergordon Road to alleviate the magnitude of flows through the culvert crossing the road. The storm drain would extend north towards Mockingbird Lane and would connect to the existing 12' by 3' RCBC currently being designed and constructed as part of the Mockingbird Lane project. A 48" RCP lateral would extend west at Maverick Road to capture flows from Maverick Wash. Inlets would be placed at the cul-de-sac to account for the concentrated discharge. The design and construction cost of Alternative 1 is estimated to be **4,145,670 USD**. See **Appendix E** for a detailed cost estimate of the project.

Table 9: Alternative 1 Opportunities and Constraints

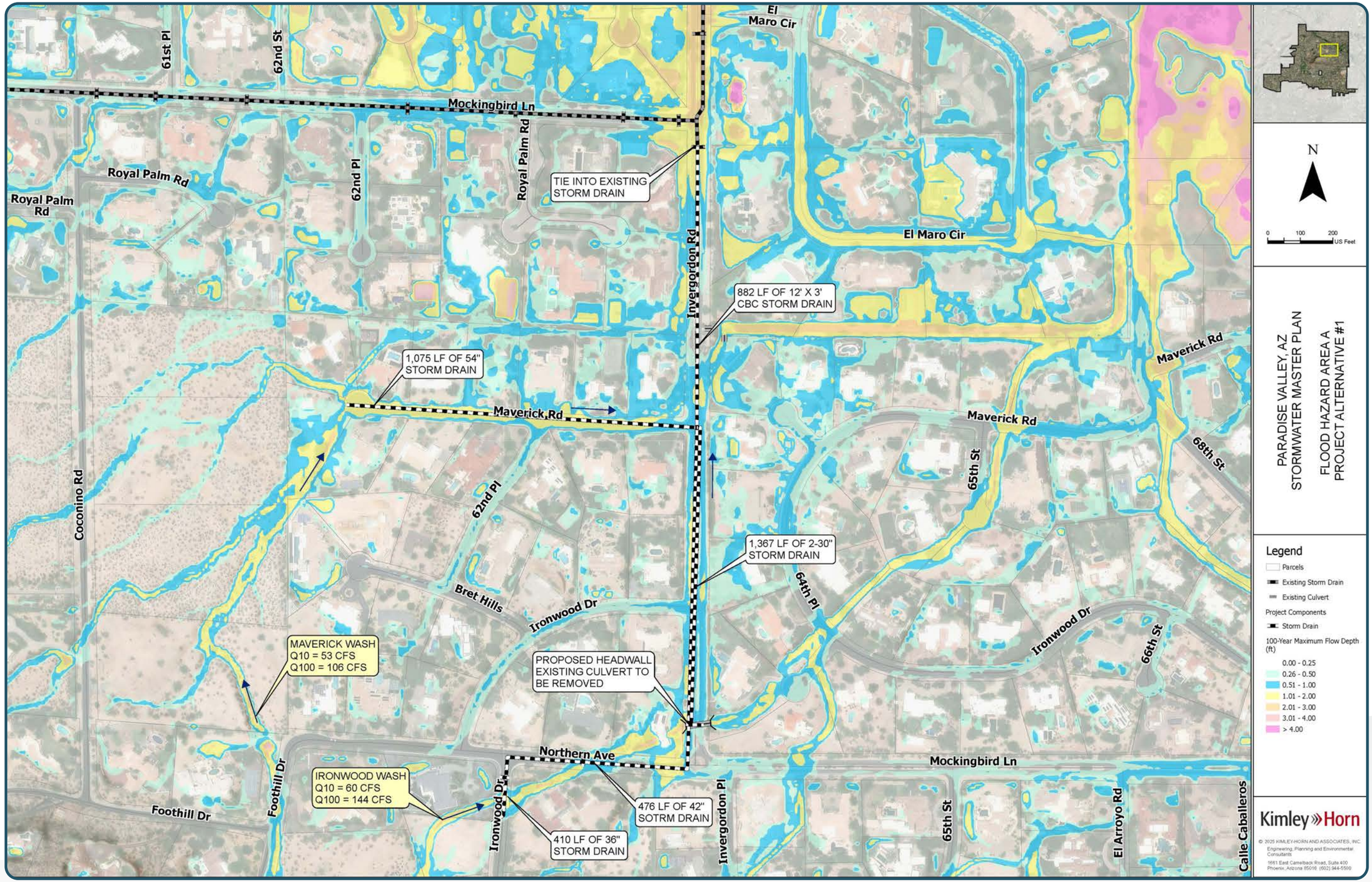
Alternative 1 Opportunities	Alternative 1 Constraints
Most Cost-effective alternative	Utility conflicts likely
Reduces discharge entering undersized existing channels that flow through private properties	Potential for sediment issues at Maverick Road that would require routine maintenance
Large area of flood mitigation	Major traffic disruptions to Invergordon Road

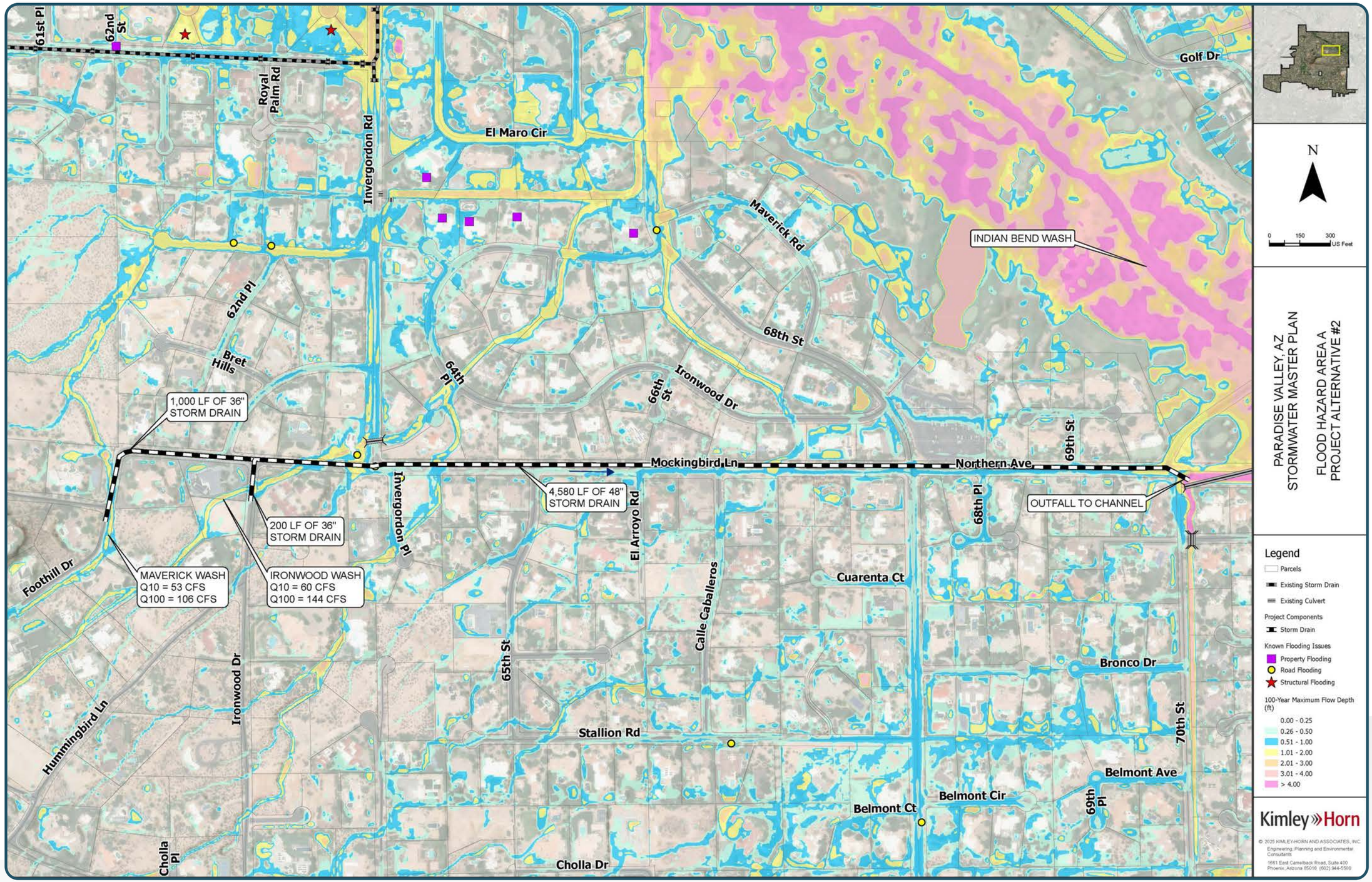
Alternative 2 (Large)

The second proposed alternative for Area A is also the implementation of new storm drain but in a different configuration. The proposed 48" RCP storm drain begins on Foothill Drive, where Maverick Wash overtops the road, and would continue north and turn east on Northern Avenue. Approximately two hundred feet of 48" RCP storm drain would be located on Ironwood Drive and would connect to the main line on Northern Avenue. This would intercept a portion of the discharge from Ironwood Wash. At Calle Caballeros, the storm drain would expand to 60" RCP and would continue east to outfall at the existing channel east of Golf Drive. The channel ultimately outfalls to IBW. The design and construction cost of Alternative 2 is estimated to be **7,083,913 USD**. See **Appendix E** for a detailed cost estimate of the project.

Table 10: Alternative 2 Opportunities and Constraints

Alternative 2 Opportunities	Alternative 2 Constraints
Captures flows from Ironwood Wash and Maverick Wash	Major traffic disruptions to Northern Avenue
Large area of flood mitigation	Utility conflicts likely
Reduce discharge entering undersized existing channels that flow through private property	More expensive alternative


61st Pl
62nd St
62nd Pl
Mockingbird Ln
Royal Palm Rd
Royal Palm Rd
Royal Palm Rd
El Maro Cir
El Maro Cir
Invergordon Rd
TIE INTO EXISTING STORM DRAIN
882 LF OF 12' X 3' CBC STORM DRAIN
1,075 LF OF 54" STORM DRAIN
Maverick Rd
Maverick Rd
Maverick Rd
68th St
65th St
Coconino Rd
62nd Pl
Bret Hills
Ironwood Dr
1,367 LF OF 2-30" STORM DRAIN
64th Pl
Ironwood Dr
66th St
MAVERICK WASH
Q10 = 53 CFS
Q100 = 106 CFS
PROPOSED HEADWALL
EXISTING CULVERT TO
BE REMOVED
Northern Ave
Mockingbird Ln
IRONWOOD WASH
Q10 = 60 CFS
Q100 = 144 CFS
Foothill Dr
Foothill Dr
Ironwood Dr
476 LF OF 42" SOTRM DRAIN
410 LF OF 36" STORM DRAIN
Invergordon Pl
65th St
El Arroyo Rd
Calle Caballeros
N
0 100 200 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
FLOOD HAZARD AREA A
PROJECT ALTERNATIVE #1
Legend
Parcels
Existing Storm Drain
Existing Culvert
Project Components
Storm Drain
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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61st Pl
62nd St
Royal Palm Rd
Invergordon Rd
El Maro Cir
Golf Dr
Maverick Rd
INDIAN BEND WASH
62nd Pl
Bret Hills
64th Pl
66th St
Ironwood Dr
68th St
69th St
1,000 LF OF 36" STORM DRAIN
Mockingbird Ln
Northern Ave
4,580 LF OF 48" STORM DRAIN
OUTFALL TO CHANNEL
200 LF OF 36" STORM DRAIN
Invergordon Pl
El Arroyo Rd
68th Pl
MAVERICK WASH
Q10 = 53 CFS
Q100 = 106 CFS
IRONWOOD WASH
Q10 = 60 CFS
Q100 = 144 CFS
Foothill Dr
Calle Caballeros
Cuarenta Ct
Bronco Dr
Ironwood Dr
65th St
70th St
Hummingbird Ln
Stallion Rd
Belmont Ave
Belmont Cir
Belmont Ct
69th Pl
Cholla Pl
Cholla Dr
N
0 150 300 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
FLOOD HAZARD AREA A
PROJECT ALTERNATIVE #2
Legend
Parcels
Existing Storm Drain
Existing Culvert
Project Components
Storm Drain
Known Flooding Issues
Property Flooding
Road Flooding
Structural Flooding
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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B. Flood Hazard Area C – Cheney Wash

Summary and Description

The source of flooding in this area is Cheney Wash. Runoff from the east side of Mummy Mountain flows east and parallel to Cheney Drive. Once the wash reaches Invergordon Road, there is no infrastructure to convey the discharge to an outfall. The water fans out onto the street and the adjacent neighborhood properties until it reaches Indian Bend Wash (IBW). As the water crosses Cheney Drive, a maximum water depth of 1.4 ft occurs during the 100-year storm event per the FLO-2D modeling results from this study. Town residents and staff have reported flooding issues in this area. The Lower Indian Bend Wash Area Drainage Master Study/Plan (LIBW ADMS/P) and Cheney Watershed Hazards Identification Report have also identified flood hazards in this area.

Alternative 1 (Large)

The first alternative proposed for Area C consists of storm drain to route runoff from Cheney Wash to IBW. Runoff from Cheney Wash will be intercepted by a 60" storm drain routed from Invergordon Road to 68th Street. Large inlets are proposed at Invergordon Road, as this area contains the highest concentration of discharge. A sediment basin was initially recommended for this alternative, as it would facilitate controlled discharge release. However, large capacity inlets were selected because a sediment basin would require a significant acquisition of land. A 36" lateral of storm drain along 66th Street will connect from the north to the 60" storm drain trunkline along Cheney Drive. The storm drain size increases to 78" at the intersection of Cheney Drive and 68th Street and is routed north until it reaches Northern Avenue. East along Northern Avenue, a 72" storm drain will carry flows east towards 70th Street where it then outfalls into the existing channel running parallel to the IBW. A catch basin and bubble-up structure are proposed at the 70th Street discharge location to dissipate the high discharges in the shallow channel. The design and construction cost of Alternative 1 is estimated to be **14,251,950 USD**. See **Appendix E** for a detailed cost estimate of the project.

Table 11: Alternative 1 Opportunities and Constraints

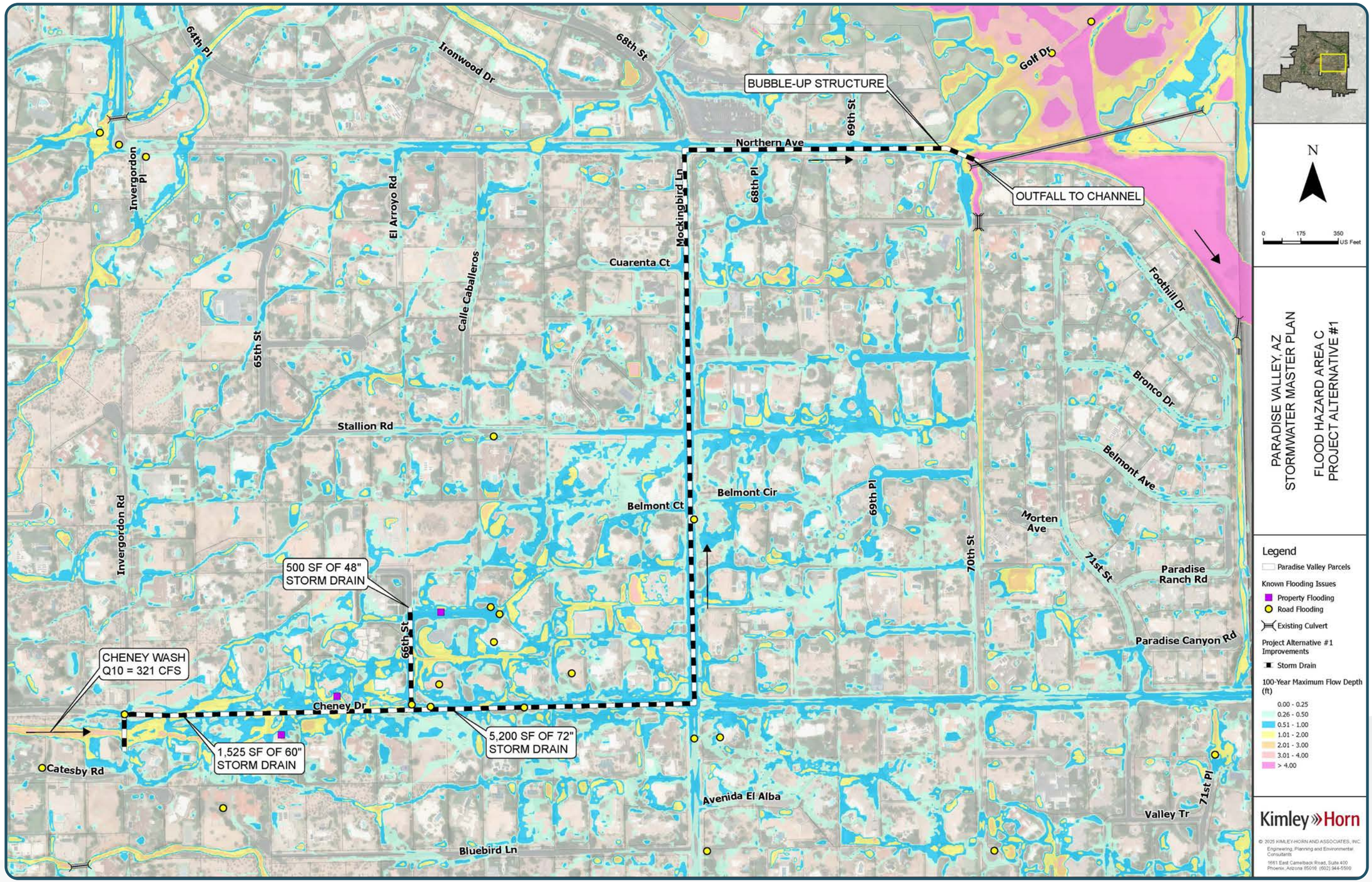
Alternative 1 Opportunities	Alternative 1 Constraints
No major land acquisition required	Utility conflicts likely
Intercepts additional flow on Northern Avenue	Cost exceeds 15 million USD
Improvements would benefit a large area of streets and structures	Potential for sediment issues at Invergordon Road that would require routine maintenance

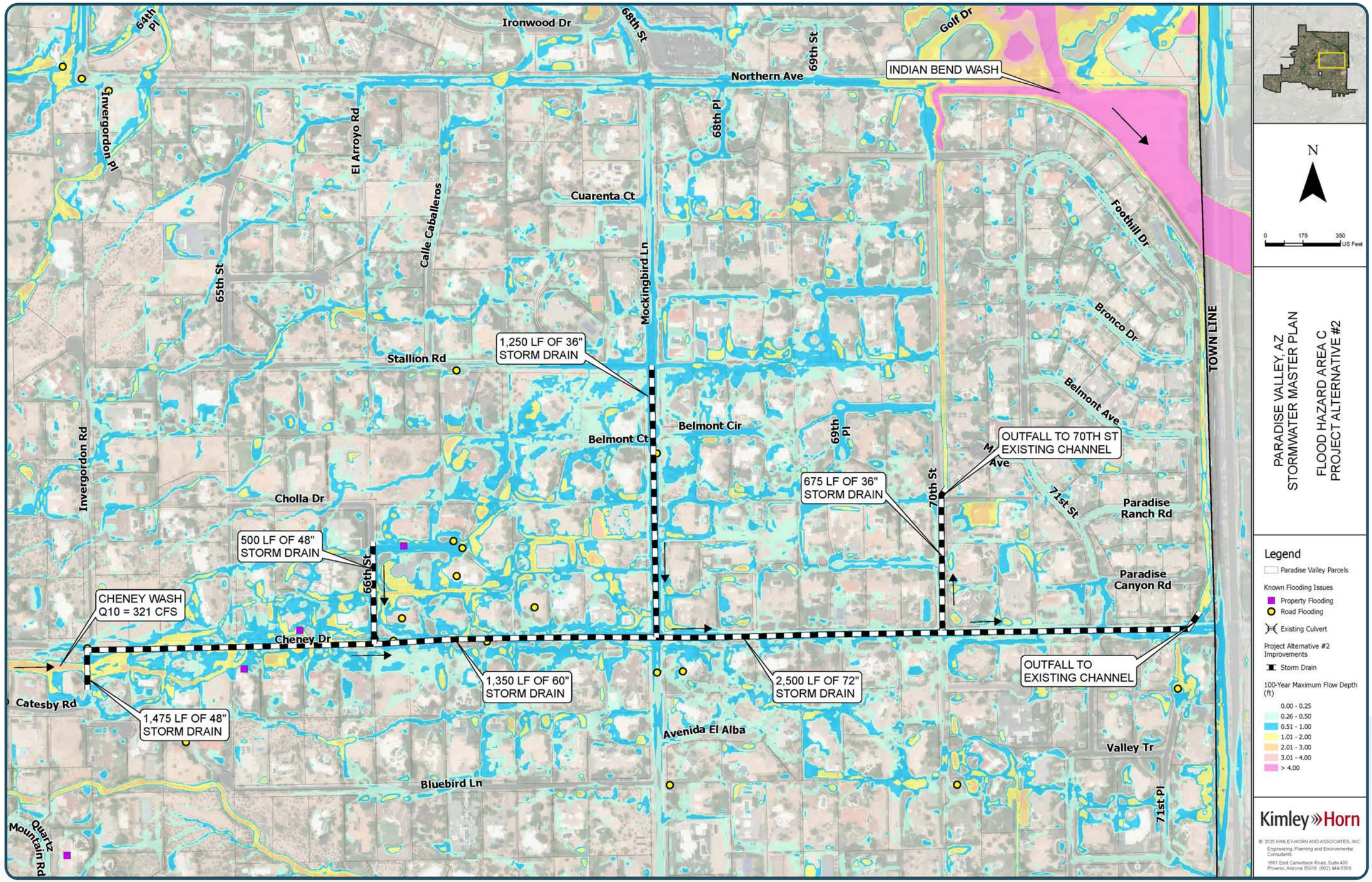
Alternative 2 (Large, Recommended)

The second alternative proposed for this area is similar to the first alternative. The 60" storm drain begins at the same location as Alternative 1, Cheney Drive, but extends past 70th Street to the existing channel west of Scottsdale Road. Along this section of storm drain there are two laterals. As in Alternative 1, a 36" lateral is located on 66th Street. On 68th Street, a 36" lateral also extends 1,250 feet to Stallion Road. At 70th Street, the storm drain on Cheney Drive splits off towards two outfalls. 72" storm drain is directed north on 70th Street where it outfalls into the existing channel on the east side of the road. That channel continues north, ultimately outfalling to Indian Bend Wash. The second outfall is located at the existing channel on the west side of Scottsdale Road. The design and construction cost of Alternative 2 is estimated to be **11,177,860 USD**. See **Appendix E** for a detailed cost estimate of the project.

Table 12: Alternative 2 Opportunities and Constraints

Alternative 2 Opportunities	Alternative 2 Constraints
Improvements would benefit a large area of streets and structures	Potential for sediment issues at Invergordon Road that would require routine maintenance
Most cost-effective alternative	Utility conflicts likely


64th Pl
Ironwood Dr
68th St
Golf Dr
BUBBLE-UP STRUCTURE
69th St
Northern Ave
Invergordon Pl
El Arroyo Rd
Calle Caballeros
Mockingbird Ln
68th Pl
OUTFALL TO CHANNEL
Cuarenta Ct
Foothill Dr
65th St
Bronco Dr
Stallion Rd
Belmont Ave
Belmont Cir
Belmont Ct
69th Pl
Morten Ave
70th St
71st St
Paradise Ranch Rd
Invergordon Rd
500 SF OF 48" STORM DRAIN
66th St
Paradise Canyon Rd
CHENEY WASH Q10 = 321 CFS
Cheney Dr
1,525 SF OF 60" STORM DRAIN
5,200 SF OF 72" STORM DRAIN
Catesby Rd
Avenida El Alba
71st Pl
Valley Tr
Bluebird Ln
N
0 175 350 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
FLOOD HAZARD AREA C
PROJECT ALTERNATIVE #1
Legend
Paradise Valley Parcels
Known Flooding Issues
Property Flooding
Road Flooding
Existing Culvert
Project Alternative #1 Improvements
Storm Drain
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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Phoenix, Arizona 85016 (602) 944-5500


Ironwood Dr
64th Pl
68th St
69th St
Golf Dr
Northern Ave
INDIAN BEND WASH
Invergordon Pl
El Arroyo Rd
Calle Caballeros
68th Pl
Cuarenta Ct
65th St
Mockingbird Ln
Foothill Dr
Bronco Dr
TOWN LINE
1,250 LF OF 36" STORM DRAIN
Stallion Rd
Belmont Ave
Belmont Cir
Belmont Ct
69th Pl
OUTFALL TO 70TH ST EXISTING CHANNEL
Invergordon Rd
Cholla Dr
675 LF OF 36" STORM DRAIN
70th St
71st St
Paradise Ranch Rd
500 LF OF 48" STORM DRAIN
66th St
Paradise Canyon Rd
CHENEY WASH Q10 = 321 CFS
Cheney Dr
OUTFALL TO EXISTING CHANNEL
1,350 LF OF 60" STORM DRAIN
2,500 LF OF 72" STORM DRAIN
Catesby Rd
1,475 LF OF 48" STORM DRAIN
Avenida El Alba
Valley Tr
Bluebird Ln
71st Pl
Quartz Mountain Rd
N
0 175 350 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
FLOOD HAZARD AREA C
PROJECT ALTERNATIVE #2
Legend
Paradise Valley Parcels
Known Flooding Issues
Property Flooding
Road Flooding
Existing Culvert
Project Alternative #2 Improvements
Storm Drain
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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C. Flood Hazard Area E – Lincoln Wash

Summary and Description

The source of flooding in this area is Lincoln Wash. The areas of interest are located north of Lincoln Drive, between 60th Street and Mockingbird Lane. The wash overtops several roads as flow moves towards Indian Bend Wash (IBW) to the east. Routine maintenance of these streets is required after major storm events. A maximum depth of 1.2 ft occurs at Invergordon Road during the 100-year storm event per FLO-2D model results from this study. The Lower Indian Bend Wash Area Drainage Master Study/Plan (LIBW ADMS/P) has also identified this area as a flooding issue.

Alternative 1 (Large)

The first alternative proposed for Area E consists of storm drain located from 60th Street to Mockingbird Lanew along Lincoln Drive. Lateral storm drains would be placed along roads north of Lincoln Drive to capture flow from Lincoln Wash. Three laterals extend north from Lincoln Drive at 60th Street, 61st Street, and Invergordon Road to intercept flows that overtop these roads. At the intersection of Lincoln Drive and Mockingbird Lane, a diversion structure splits the flow towards the two outfalls identified in this alternative. One outfall is located east of the diversion structure, where flow enters an existing 90" storm drain system along Scottsdale Road. A second outfall is located north of the diversion structure. Once the water level in the system reaches a certain height at the structure, flow will spill north to a storm drain system along Mockingbird Lane and towards the second outfall at the Ritz-Carlton Channel. The design and construction cost of Alternative 1 is estimated to be **14,912,386 USD**. See **Appendix E** for a detailed cost estimate of the project.

Table 14: Alternative 1 Opportunities and Constraints

Alternative 1 Opportunities	Alternative 1 Constraints
Partially in Scottsdale boundaries	Utility conflicts likely
Improvements would benefit a large area of streets and structures	Cost exceeds 14 million USD
	Least cost-effective alternative

Alternative 2 (Large)

The second alternative proposed for Area E is similar to Alternative 1. The storm drain along Lincoln Drive would have the same configuration as in Alternative 1 but would differ at the intersection of Mockingbird Lane and Lincoln Drive. In this alternative, storm drain will not turn north along Mockingbird Lane to outfall towards the Ritz-Carlton Channel. Rather, the storm drain turns north along Casa Blanca Drive to outfall into the Ritz-Carlton Channel parallel to Ocotillo Road. This alternative does not call for a diversion structure, and all flow would be routed along Casa Blanca Drive via storm drain to the Channel. The design and construction cost of Alternative 2 is estimated to be **9,523,912 USD**. See **Appendix E** for a detailed cost estimate of the project.

Table 15: Alternative 2 Opportunities and Constraints

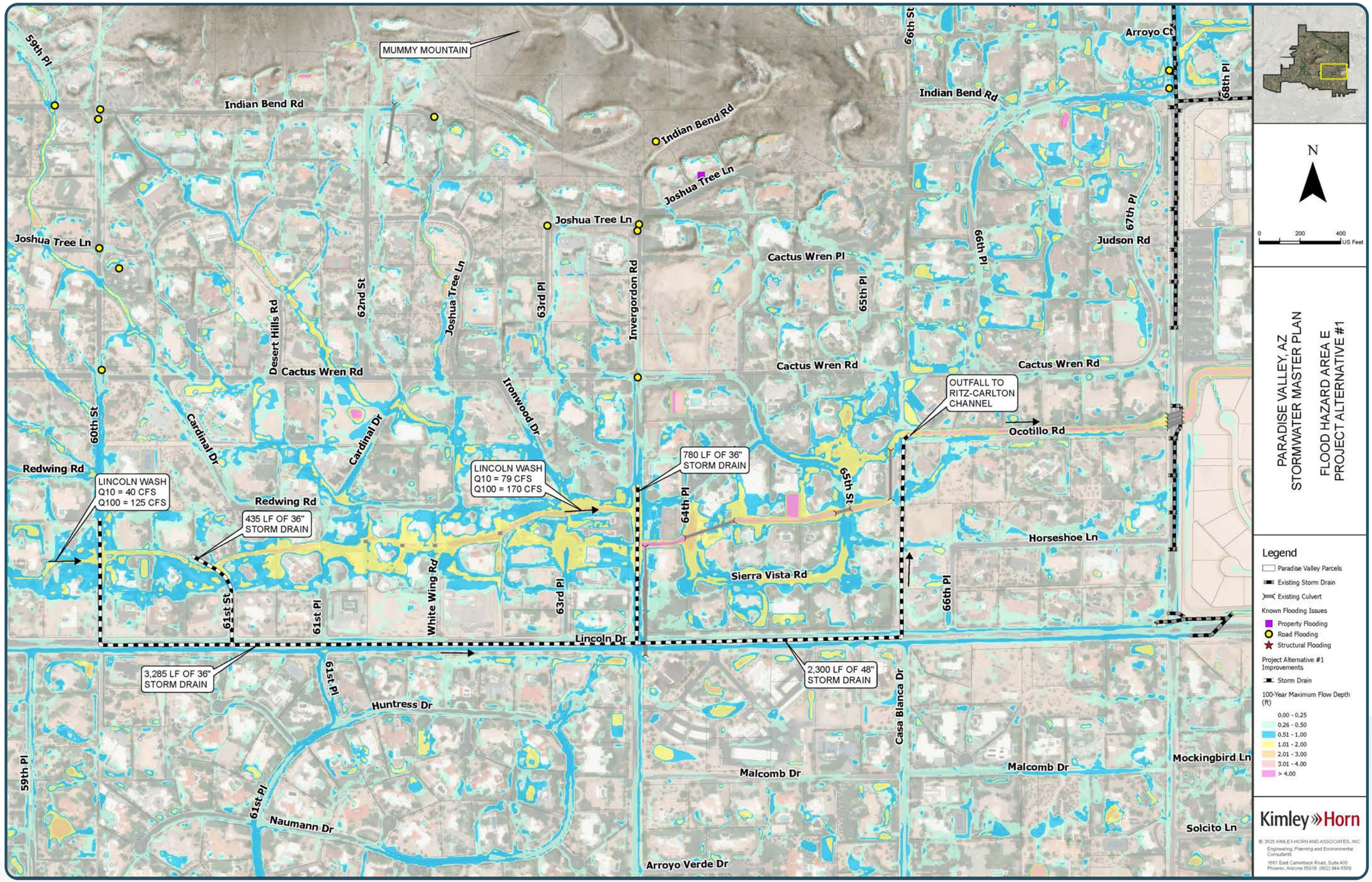
Alternative 2 Opportunities	Alternative 2 Constraints
Improvements would benefit a large area of streets and structures	Cost analysis exceeds 9 million USD
Fully within the Town's boundaries as compared to Alternative 1	Utility conflicts likely
More cost-effective alternative compared to Alternative 1	

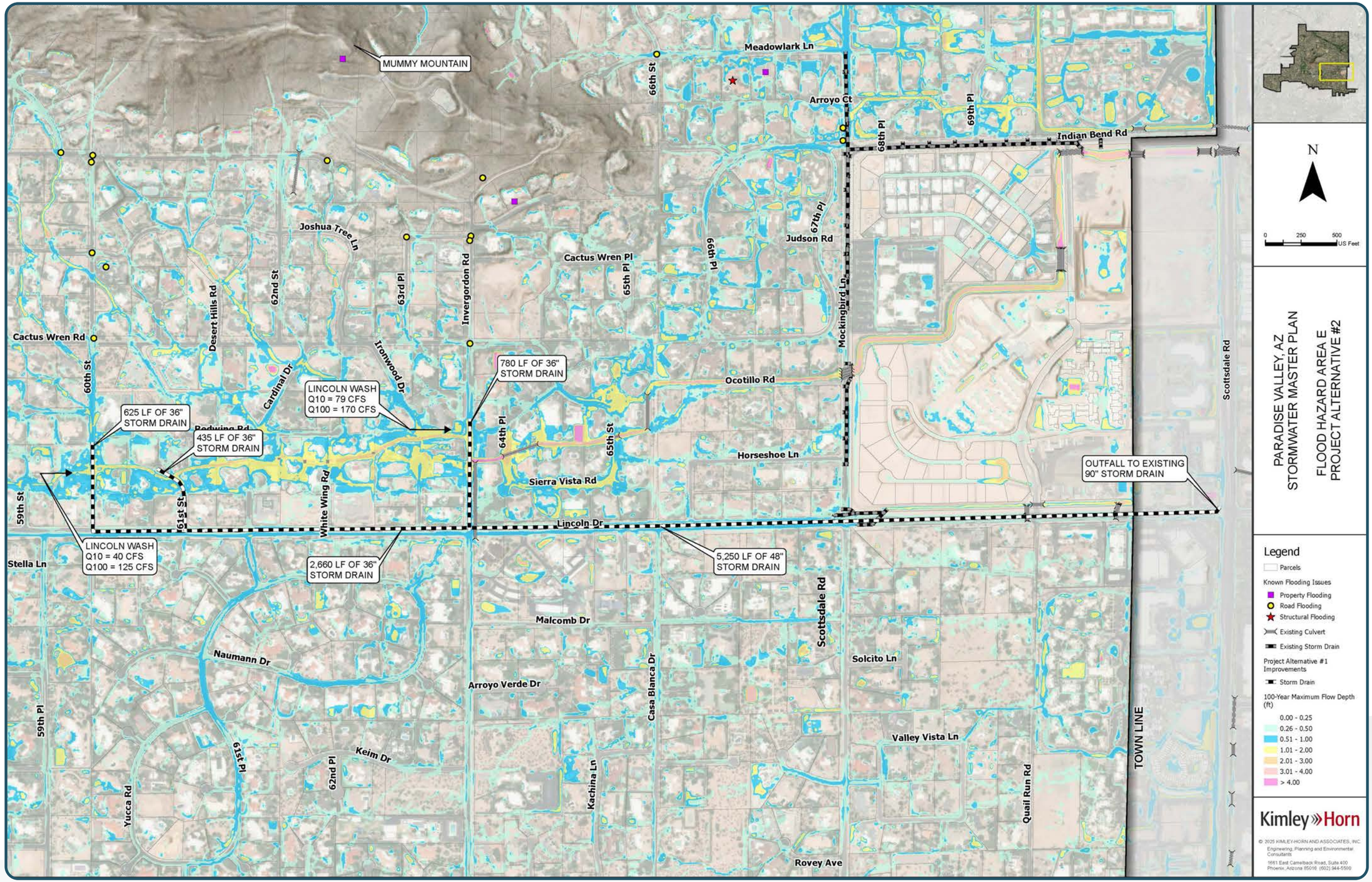
Alternative 3 (Medium/Large, Recommended)

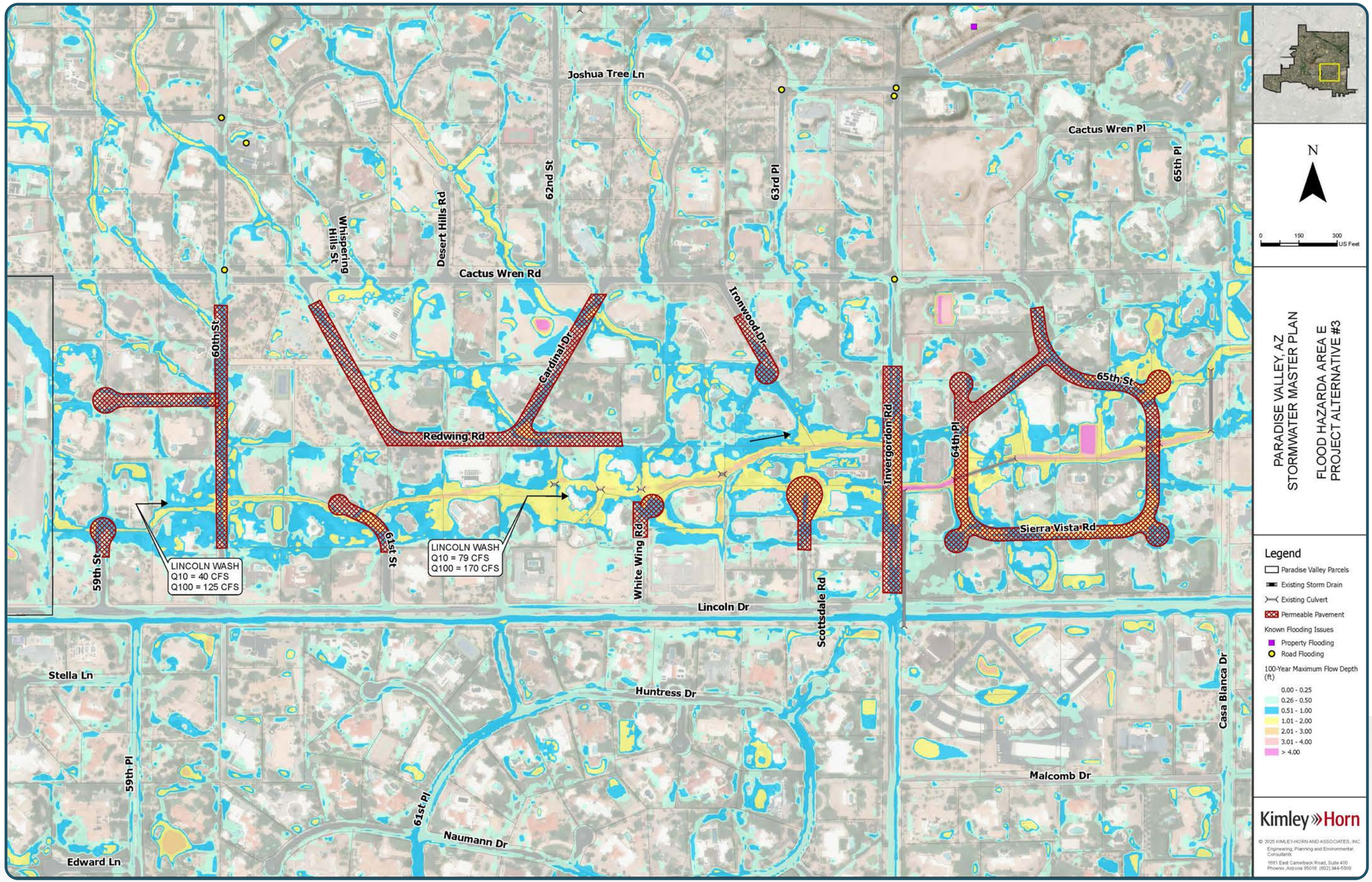
The third alternative proposed for Area E is different from Alternatives 1 & 2, because it focuses on utilizing Green Stormwater Infrastructure (GSI) rather than storm drain. North of Lincoln Drive, all sections of neighborhood pavement that are inundated by at least half a foot of water in the 100-year storm event would be replaced with permeable pavement. Therefore, as the wash overtops roads, water will naturally seep into the pavement, reducing the volume of runoff. Periodic vacuum sweep maintenance is necessary to improve infiltration rates, although less maintenance is required for cracks and potholes in comparison to traditional pavements (NPDES, 2021). The lifespan of permeable pavement is on par with that of traditional pavements and can serve as a durable, low-maintenance alternative to conventional impermeable pavements. The design and construction cost of Alternative 2 is estimated to be **1,358,798 USD**. See **Appendix E** for a detailed cost estimate of the project.

Table 16: Alternative 3 Opportunities and Constraints

Alternative 3 Opportunities	Alternative 3 Constraints
Improvements would benefit a large area of streets and structures	May not be as effective
Most cost-effective alternative	Requires specialized maintenance
Utilizes GSI	


MUMMY MOUNTAIN
59th Pl
Indian Bend Rd
Joshua Tree Ln
Desert Hills Rd
62nd St
Cactus Wren Rd
Joshua Tree Ln
63rd Pl
Invergordon Rd
Cactus Wren Pl
65th Pl
66th St
66th Pl
67th Pl
68th Pl
Arroyo Ct
Judson Rd
Cactus Wren Rd
Ironwood Dr
Cardinal Dr
60th St
Redwing Rd
LINCOLN WASH
Q10 = 40 CFS
Q100 = 125 CFS
435 LF OF 36"
STORM DRAIN
LINCOLN WASH
Q10 = 79 CFS
Q100 = 170 CFS
780 LF OF 36"
STORM DRAIN
OUTFALL TO
RITZ-CARLTON
CHANNEL
Ocotillo Rd
64th Pl
65th St
Horseshoe Ln
Sierra Vista Rd
61st St
61st Pl
White Wing Rd
63rd Pl
Lincoln Dr
3,285 LF OF 36"
STORM DRAIN
2,300 LF OF 48"
STORM DRAIN
Casa Blanca Dr
Huntress Dr
Naumann Dr
Malcomb Dr
Mockingbird Ln
Solcito Ln
Arroyo Verde Dr
N
0 200 400 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
FLOOD HAZARD AREA E
PROJECT ALTERNATIVE #1
Legend
Paradise Valley Parcels
Existing Storm Drain
Existing Culvert
Known Flooding Issues
Property Flooding
Road Flooding
Structural Flooding
Project Alternative #1 Improvements
Storm Drain
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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MUMMY MOUNTAIN
Meadowlark Ln
66th St
Arroyo Ct
68th Pl
69th Pl
Indian Bend Rd
Joshua Tree Ln
Cactus Wren Pl
65th Pl
66th Pl
67th Pl
Judson Rd
Mockingbird Ln
Scottsdale Rd
Cactus Wren Rd
60th St
Desert Hills Rd
62nd St
63rd Pl
Invergordon Rd
Ironwood Dr
Cardinal Dr
780 LF OF 36" STORM DRAIN
LINCOLN WASH Q10 = 79 CFS Q100 = 170 CFS
Ocotillo Rd
625 LF OF 36" STORM DRAIN
Redwing Rd
435 LF OF 36" STORM DRAIN
64th Pl
65th St
Horseshoe Ln
Sierra Vista Rd
OUTFALL TO EXISTING 90" STORM DRAIN
59th St
61st St
White Wing Rd
Lincoln Dr
LINCOLN WASH Q10 = 40 CFS Q100 = 125 CFS
2,660 LF OF 36" STORM DRAIN
5,250 LF OF 48" STORM DRAIN
Stella Ln
Malcomb Dr
Naumann Dr
Arroyo Verde Dr
Casa Blanca Dr
Solcito Ln
Valley Vista Ln
59th Pl
61st Pl
62nd Pl
Keim Dr
Yucca Rd
Kachina Ln
Quail Run Rd
TOWN LINE
Rovey Ave
N
0 250 500 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
FLOOD HAZARD AREA E
PROJECT ALTERNATIVE #2
Legend
Parcels
Known Flooding Issues
Property Flooding
Road Flooding
Structural Flooding
Existing Culvert
Existing Storm Drain
Project Alternative #1 Improvements
Storm Drain
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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Joshua Tree Ln
Cactus Wren Pl
65th Pl
62nd St
63rd Pl
Desert Hills Rd
Whispering Hills St
Cactus Wren Rd
60th St
Cardinal Dr
Ironwood Dr
65th St
Redwing Rd
Invergordon Rd
64th Pl
Sierra Vista Rd
LINCOLN WASH
Q10 = 40 CFS
Q100 = 125 CFS
59th St
61st St
LINCOLN WASH
Q10 = 79 CFS
Q100 = 170 CFS
White Wing Rd
Lincoln Dr
Scottsdale Rd
Stella Ln
Huntress Dr
Casa Blanca Dr
59th Pl
61st Pl
Malcomb Dr
Naumann Dr
Edward Ln
N
0 150 300
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
FLOOD HAZARDA AREA E
PROJECT ALTERNATIVE #3
Legend
Paradise Valley Parcels
Existing Storm Drain
Existing Culvert
Permeable Pavement
Known Flooding Issues
Property Flooding
Road Flooding
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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D. Flood Hazard Area H – 40th Street and Stanford Drive

Summary Description

The source of flooding in this area is Cudia City Wash (CCW). The existing low water crossing at 40th Street is consistently inundated during storm events, with a maximum depth of approximately 5 ft during the 100-year storm event. The roadway flooding leads to road closures that significantly disrupt traffic and impact emergency vehicle access. The crossing poses a hazard to passenger vehicles with at least one vehicle having been swept off the road and into the bollards downstream of 40th Street in a past storm event. The bollards on the downstream side of the crossing build up significant debris after storms and require routine maintenance. The existing curb inlet at Stanford Drive is also a flooding issue. The capacity of the inlet is limited and leads to ponding on the road. Town residents and staff have reported flooding issues in this area. The CCW Area Drainage Master Study/Plan (ADMS/P) and the CCW Design Concept Report (DCR) have also documented this flood hazard. Alternatives 2 and 3 have been studied in detail and proposed as part of the CCW DCR.

Alternative 1 (Medium)

The first project alternative consists of improvements to existing roadway drainage infrastructure. The existing combination curb and grate inlet at Stanford Drive lacks the capacity required to alleviate roadway ponding. This alternative proposes removing this inlet and replacing the outlet with a 36" pipe to allow for larger draining capacity. The existing inlet is a combination curb opening and grate type and sediment often clogs the opening of the grate. It is recommended that the grate inlet be replaced with a larger curb and gutter type inlet. Bollards at the 40th Street crossing would be removed and replaced with safety rails that will continue to prevent cars from entering the wash, while allowing sediment and debris to pass. The implementation of a safety rail will reduce the need for maintenance after storms. For public safety, it is also recommended that a "Do Not Enter When Flooded" warning sign be placed on the north side of the wash, as there is currently only a sign on the south side of the wash. A staff gage is proposed to be placed along the wash to further discourage passenger vehicles and pedestrians from attempting to cross during storms. The design and construction cost of Alternative 1 is estimated to be 68,232 USD. See **Appendix E** for a detailed cost estimate of the project.

Table 17: Alternative 1 Opportunities and Constraints

Alternative 1 Opportunities	Alternative 1 Constraints
Improves existing roadway drainage infrastructure	The level of flood mitigation is limited in comparison to Alternative 2 &3
Improvements would reduce sedimentation on 40th Street	
Least expensive alternative	

Alternative 2 (Medium, Recommended)

This project alternative involves modifying the curb inlet at Stanford Drive, improving the inlet capacity for the culvert crossing under Stanford Drive, and installing a flood control basin on the corner of Stanford Drive and 40th Street. Alternative 2 consists of all items proposed in Alternative 1 including warning signs and safety railing on 40th Street, as well as inlet modifications on Stanford Drive. In tandem with the aforementioned improvements, an offline flood control basin on the northwest corner of Standard Drive and 40th Street is also proposed. A diversion weir is proposed to facilitate overtopping into the basin once water surface elevations exceed a desired height. A 48" drain pipe on the southeast corner of the basin will release stormwater back into Cudia City Wash north of Stanford Drive. The FCDMC owns this parcel of land, so land acquisition would not be required. The design and construction cost of Alternative 2 is estimated to be 880,650 USD. See **Appendix E** for a detailed cost estimate of the project.

Table 18: Alternative 2 Opportunities and Constraints

Alternative 2 Opportunities	Alternative 2 Constraints
Improvements would improve flood conditions for Stanford Drive and 40th Street	Maintenance of the flood control basin may be required after every major storm event
Basin area owned by FCDMC	
This alternative may qualify for the Small Project Assistance Program (SPAP) grant	

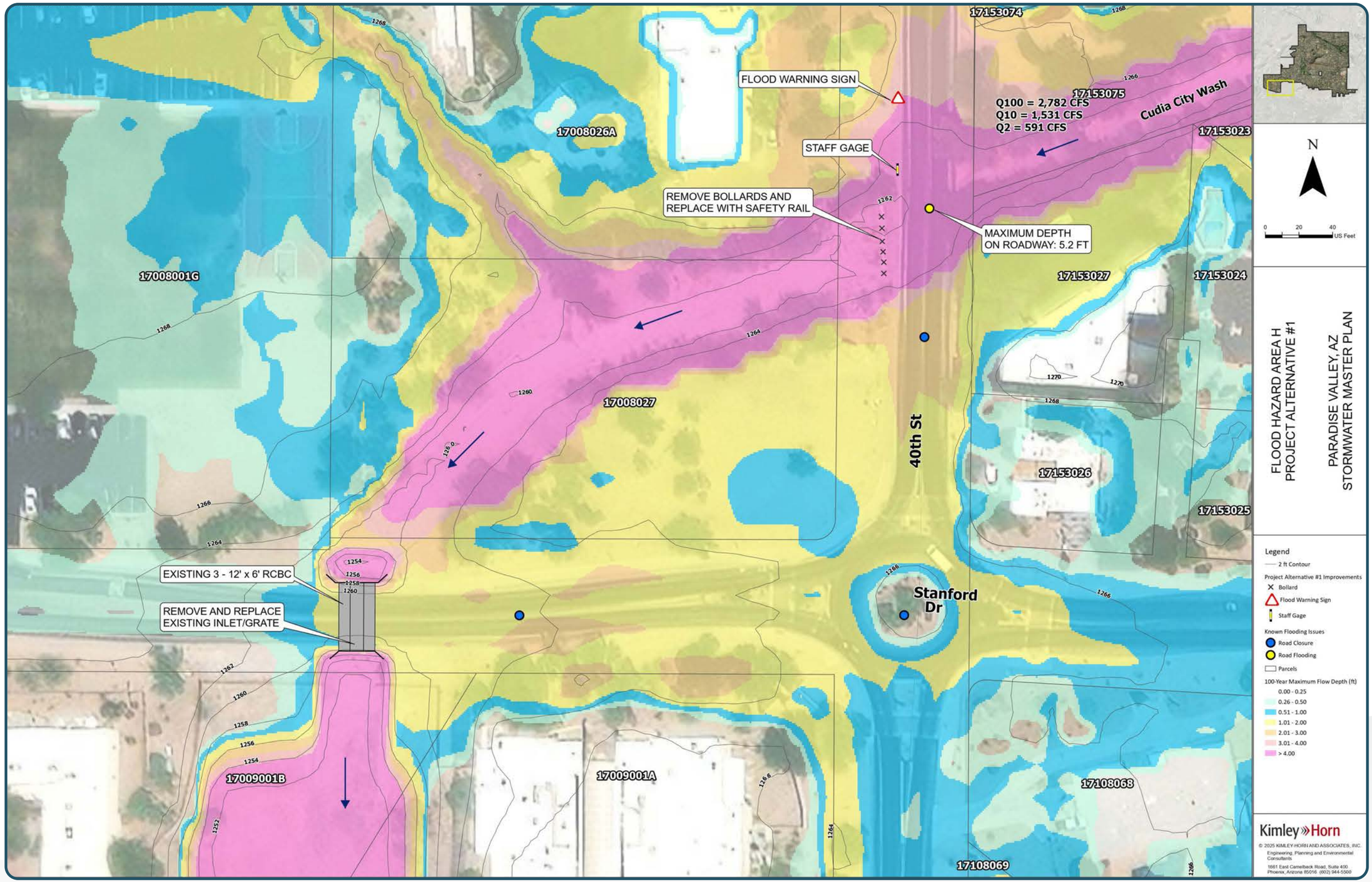
Alternative 3 (Large)

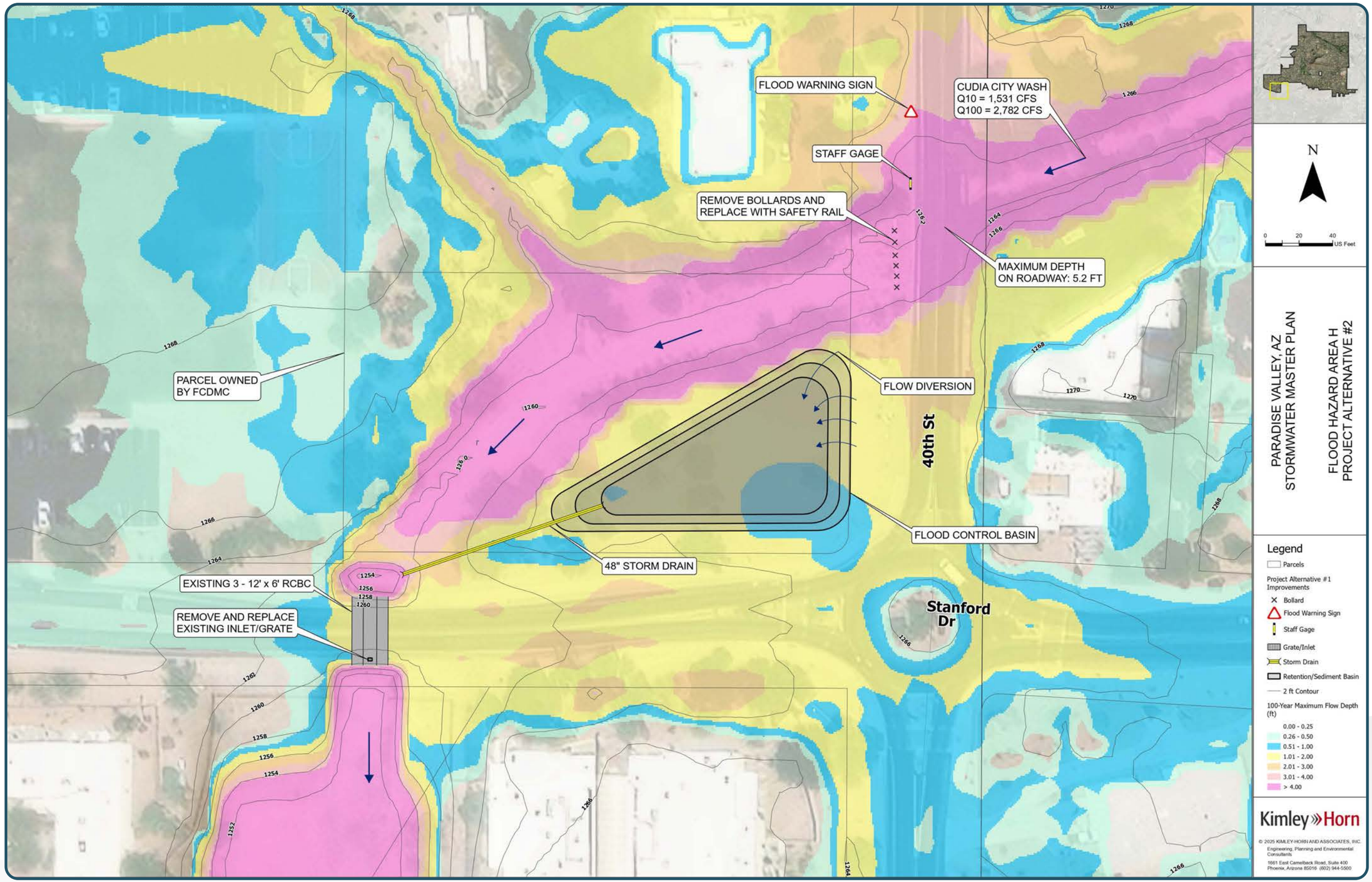
Alternative 3 proposes the replacement of the low water crossing at 40th Street with a concrete box culvert to convey Cudia City Wash under the road. Analysis

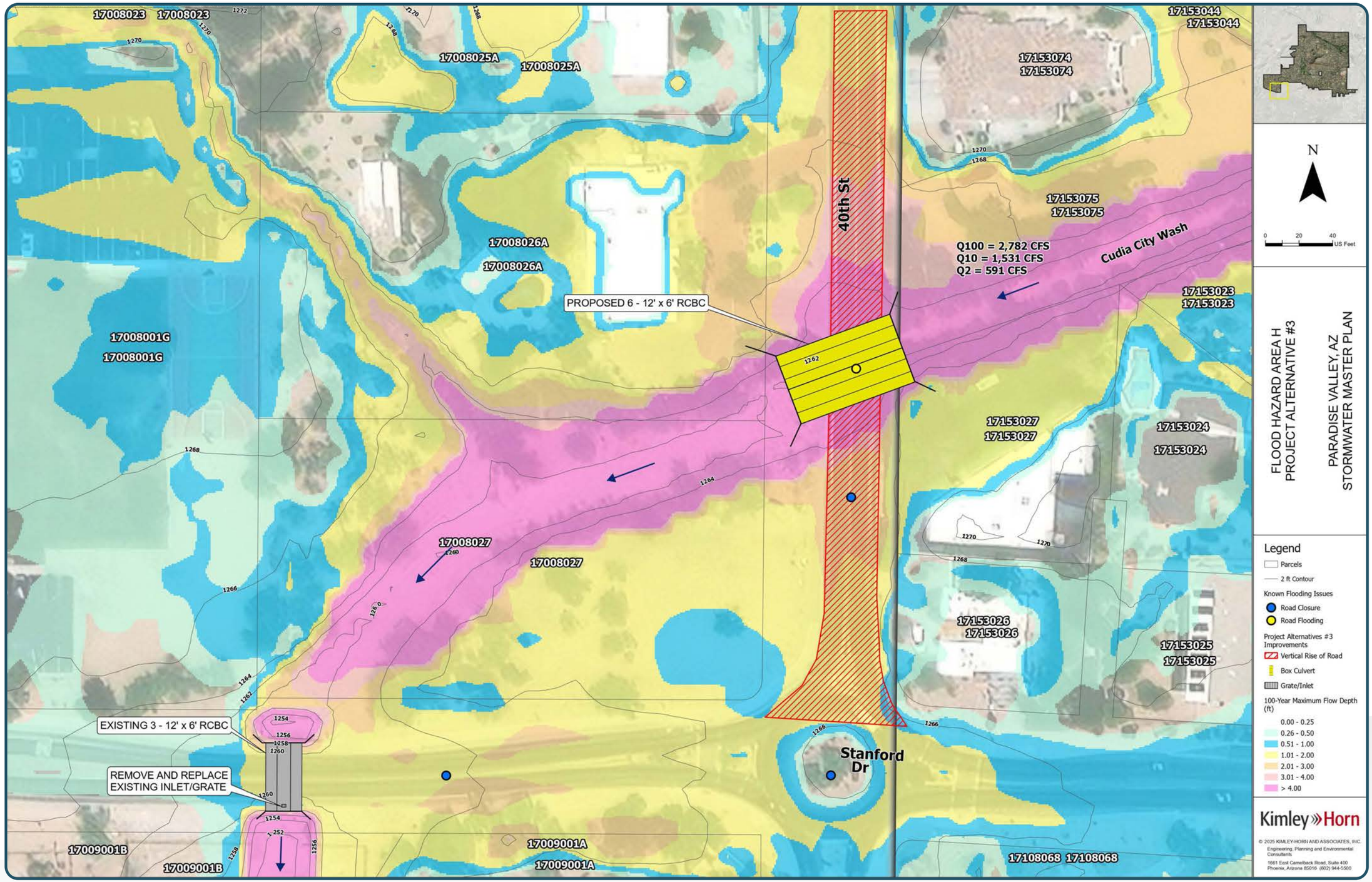
cited in the CCW DCR determined the optimal culvert configuration under 40th Street to be a six barrel 12' x 4' reinforced concrete box culvert. This configuration is wider than the channel bottom and would only partially convey the 100-year storm discharge. This culvert design would effectively convey the 25-year storm. The City of Phoenix's drainage standards require box culverts to have a height of 6 feet due to maintenance considerations. A six barrel 12' x 6' configuration would be required, with two feet of the barrels being buried below the channel invert. Roadwork at 40th Street would be required for this configuration to raise the road. This alternative also proposes modifying the inlet on Stanford Drive (as in Alternative 1) to reduce roadway flooding. The design and construction cost of Alternative 3 is estimated to be 2,240,419 USD. See **Appendix E** for a detailed cost estimate of the project.

Table 19: Alternative 3 Opportunities and Constraints

Alternative 3 Opportunities	Alternative 3 Constraints
Improvements would improve flood conditions for Standford Drive and 40th Street	The culvert can only convey the 25-year storm event and Stanford Drive flooding may still occur
40th Street would no longer need to be closed during storm events	Backwater effects would cause a rise in water surface elevation for the 100-year storm event upstream and east of 40th Street


FLOOD WARNING SIGN
STAFF GAGE
REMOVE BOLLARDS AND REPLACE WITH SAFETY RAIL
MAXIMUM DEPTH ON ROADWAY: 5.2 FT
Q100 = 2,782 CFS
Q10 = 1,531 CFS
Q2 = 591 CFS
Cudia City Wash
EXISTING 3 - 12' x 6' RCBC
REMOVE AND REPLACE EXISTING INLET/GRATE
40th St
Stanford Dr
17153074
17153075
17153023
17153027
17153024
17153026
17153025
17008026A
17008001G
17008027
17009001B
17009001A
17108068
17108069
N
0 20 40 US Feet
FLOOD HAZARD AREA H
PROJECT ALTERNATIVE #1
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
Legend
2 ft Contour
Project Alternative #1 Improvements
Bollard
Flood Warning Sign
Staff Gage
Known Flooding Issues
Road Closure
Road Flooding
Parcels
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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FLOOD WARNING SIGN
CUDIA CITY WASH
Q10 = 1,531 CFS
Q100 = 2,782 CFS
STAFF GAGE
REMOVE BOLLARDS AND
REPLACE WITH SAFETY RAIL
MAXIMUM DEPTH
ON ROADWAY: 5.2 FT
PARCEL OWNED
BY FCDMC
FLOW DIVERSION
40th St
FLOOD CONTROL BASIN
48" STORM DRAIN
EXISTING 3 - 12' x 6' RCBC
REMOVE AND REPLACE
EXISTING INLET/GRATE
Stanford
Dr
N
0 20 40
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
FLOOD HAZARD AREA H
PROJECT ALTERNATIVE #2
Legend
Parcels
Project Alternative #1
Improvements
Bollard
Flood Warning Sign
Staff Gage
Grate/Inlet
Storm Drain
Retention/Sediment Basin
2 ft Contour
100-Year Maximum Flow Depth
(ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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17008023
17008023
17008025A
17008025A
17008026A
17008026A
17008001G
17008001G
17008027
17008027
17009001B
17009001B
17009001A
17009001A
17153044
17153044
17153074
17153074
17153075
17153075
17153023
17153023
17153027
17153027
17153024
17153024
17153026
17153026
17153025
17153025
17108068
17108068
40th St
PROPOSED 6 - 12' x 6' RCBC
EXISTING 3 - 12' x 6' RCBC
REMOVE AND REPLACE EXISTING INLET/GRATE
Q100 = 2,782 CFS
Q10 = 1,531 CFS
Q2 = 591 CFS
Cudia City Wash
Stanford Dr
N
0 20 40 US Feet
FLOOD HAZARD AREA H
PROJECT ALTERNATIVE #3
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
Legend
Parcels
2 ft Contour
Known Flooding Issues
Road Closure
Road Flooding
Project Alternatives #3 Improvements
Vertical Rise of Road
Box Culvert
Grate/Inlet
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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E. Flood Hazard Area K – Mountain View Road

Summary and Description

The source of flooding in this area is runoff from the east side of the Phoenix Mountain Preserve. Runoff flows east past Tatum Boulevard and breaks out into the neighborhood on the east side of Tatum Boulevard, resulting in flood hazards to roads and private parcels. This occurs both at Mountain View Road and Doubletree Ranch Road. Existing storm drain along Doubletree Ranch Road mitigates flooding, while Mountain View Road lacks the required infrastructure to alleviate flooding issues. In particular, Turquoise Avenue is subject to water depths of up to 2.4 feet during the 100-year storm per FLO-2D modeling results from this study, posing a potential hazard to passenger vehicles and residents. The area has been identified by Town staff and residents as a flood hazard to the road, property, and homes.

Alternative 1 (Large)

Alternative 1 consists of the construction of a storm drain system to reduce flooding on local and collector roads. The storm drain begins on Tatum Blvd and is routed east on Mountain View Road to ultimately outfall to IBW. Additional laterals would extend north along 50th Street and 51st Place, and south along 53rd Place. The likely storm drain sizes would be 36", 48", and 60" RCP, increasing progressively in size. The design and construction cost of Alternative 1 is estimated to be **7,472,758 USD**. See **Appendix E** for a detailed cost estimate of the project.

Table 20: Alternative 1 Opportunities and Constraints

Alternative 1 Opportunities	Alternative 1 Constraints
Large area of flood mitigation	Utility conflicts likely
Improvements reduce flood hazards to roads and passenger vehicles	More expensive alternative
	Major traffic disruptions to Tatum Boulevard and Mountain View Road

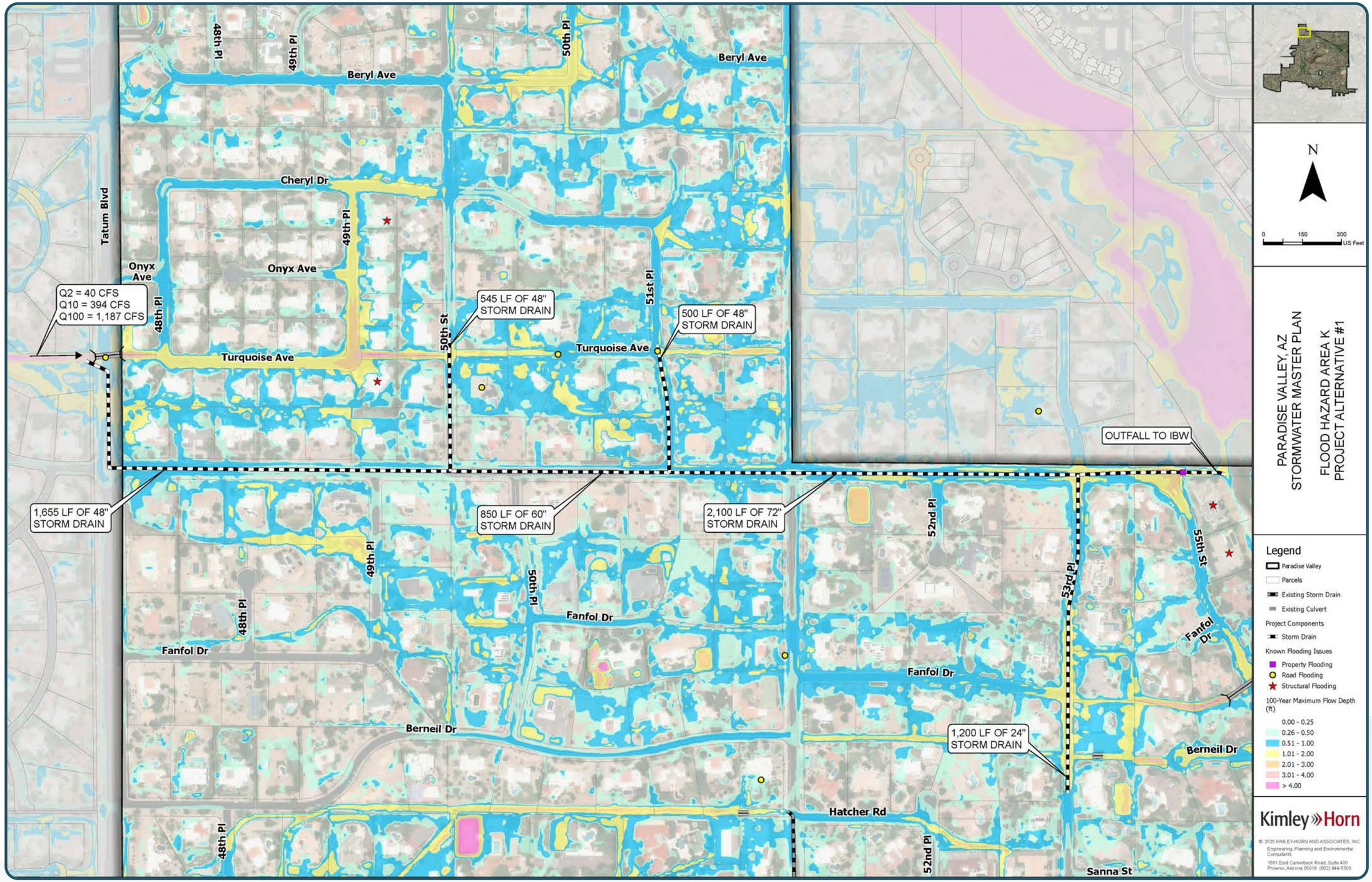
Alternative 2 (Large, Recommended)

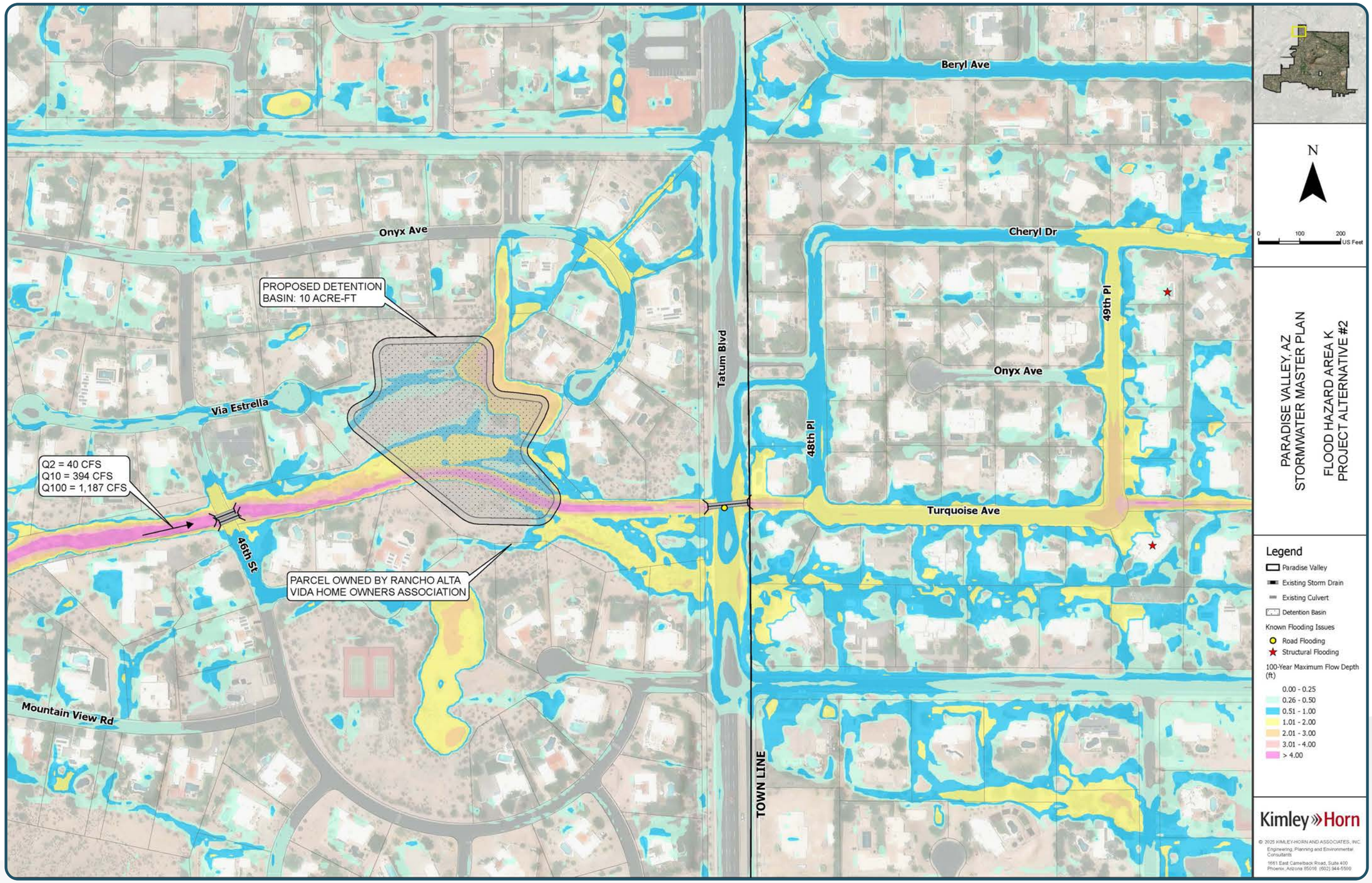
The second proposed alternative for Area K is the implementation of a detention or retention basin prior to the channel breakout on the upstream side of Tatum Boulevard. The basin is proposed on parcel 168-15-128 and is owned by Rancho Alta Vida Homeowners Association. This parcel is upstream of the channel breakout on Tatum Boulevard and would assist in reducing discharge through the existing culvert on Tatum Boulevard. The design and construction cost of Alternative 2 is estimated to be **2,192,073 USD**. See **Appendix E** for a detailed cost estimate of the project.

Table 21: Alternative 2 Opportunities and Constraints

Alternative 2 Opportunities	Alternative 2 Constraints
Most cost-effective alternative	Requires easement from the homeowner's association
Reduces discharge at Tatum Boulevard	Outside of Paradise Valley boundaries

*The recommended alternative may not be feasible due to the property constraints. It is recommended because of effectiveness and cost. Further evaluation may be required before advancing to a design concept or design phase.


48th Pl
49th Pl
Beryl Ave
50th Pl
Beryl Ave
Cheryl Dr
Tatum Blvd
Onyx Ave
Onyx Ave
48th Pl
49th Pl
Q2 = 40 CFS
Q10 = 394 CFS
Q100 = 1,187 CFS
50th St
545 LF OF 48" STORM DRAIN
51st Pl
500 LF OF 48" STORM DRAIN
Turquoise Ave
Turquoise Ave
OUTFALL TO IBW
1,655 LF OF 48" STORM DRAIN
850 LF OF 60" STORM DRAIN
2,100 LF OF 72" STORM DRAIN
49th Pl
50th Pl
52nd Pl
55th St
48th Pl
Fanfol Dr
Fanfol Dr
Fanfol Dr
Fanfol Dr
53rd Pl
Berneil Dr
1,200 LF OF 24" STORM DRAIN
Berneil Dr
Hatcher Rd
48th Pl
52nd Pl
Sanna St
N
0
150
300
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
FLOOD HAZARD AREA K
PROJECT ALTERNATIVE #1
Legend
Paradise Valley
Parcels
Existing Storm Drain
Existing Culvert
Project Components
Storm Drain
Known Flooding Issues
Property Flooding
Road Flooding
Structural Flooding
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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PROPOSED DETENTION
BASIN: 10 ACRE-FT
Q2 = 40 CFS
Q10 = 394 CFS
Q100 = 1,187 CFS
PARCEL OWNED BY RANCHO ALTA
VIDA HOME OWNERS ASSOCIATION
Onyx Ave
Via Estrella
Mountain View Rd
46th St
Tatum Blvd
TOWN LINE
Beryl Ave
Cheryl Dr
Onyx Ave
Turquoise Ave
48th Pl
49th Pl
N
0
100
200
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
FLOOD HAZARD AREA K
PROJECT ALTERNATIVE #2
Legend
Paradise Valley
Existing Storm Drain
Existing Culvert
Detention Basin
Known Flooding Issues
Road Flooding
Structural Flooding
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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F. Flood Hazard Area L – Upstream Cherokee Wash

Summary and Description

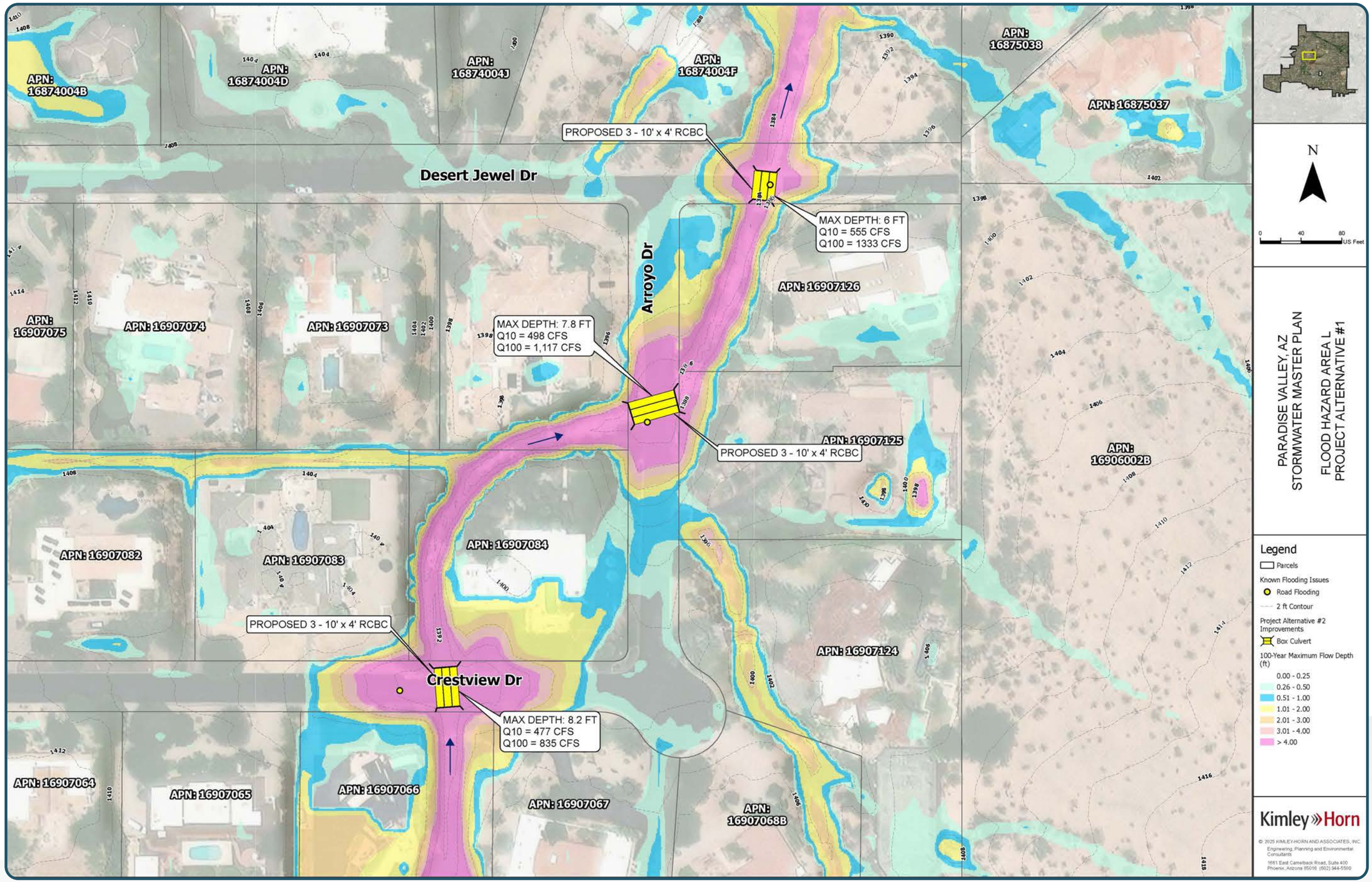
The source of flooding in Area L is runoff from the west side of Mummy Mountain and from the east of the Phoenix Mountain Preserve. This area is the collection point of discharges that contribute to the beginning of Cherokee Wash. The wash is routed through private parcels and crosses several roads over existing low water crossings in multiple areas. These crossings are undersized resulting in the deposition of sediment and debris that requires maintenance after each storm event. The maximum water depth at road crossings during the 100-year storm in this area is 8.2 feet per FLO-2D modeling results, affecting emergency vehicle access and posing a safety risk to residents and property. Area L has been identified as an issue in the Identified Drainage Problem Areas Technical Memorandum (Michael Baker, 2019). It has also been identified by Town staff and residents as a flood prone area who live adjacent to Cherokee Wash.

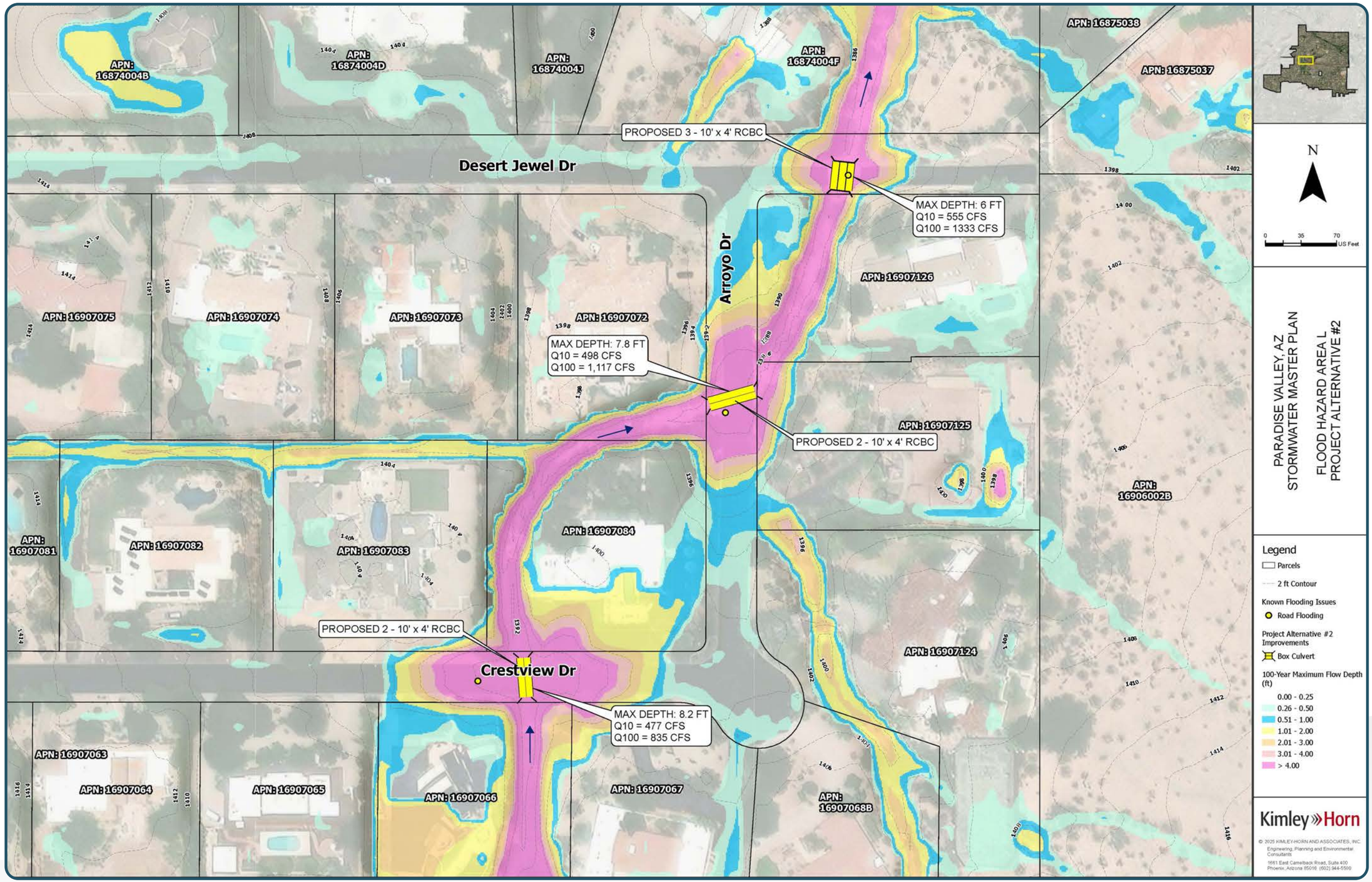
Alternative 1 & 2 (Large/Medium, Both Recommended Depending on the Desired Level of Protection)

The alternatives proposed for Area L consist of the replacement of low water crossings with culverts to convey Cherokee Wash under three roads. There are three low water crossings that would be replaced: crossings at Crestview Drive, Arroyo Drive, and Desert Jewel Drive. Alternative 1 proposes that at each crossing, a three barrel 10' by 4' reinforced concrete box culvert would be constructed. This culvert configuration would provide the necessary capacity for the 50-year storm event. Alternative 2 proposes the same improvements as Alternative 1, only varying in the configuration size of the culvert to a two barrel 10' by 4' culvert, providing 10-year storm event protection. In both alternatives, road improvements would be required to accommodate the culvert size. The design and construction cost of Alternative 1 and 2 is estimated to be **1,467,265 USD** and **1,163,369 USD**, respectively. See **Appendix E** for a detailed cost estimate of the project.

Table 22: Alternative 1&2 Opportunities and Constraints

Alternative 1 & 2 Opportunities	Alternative 1 & 2 Constraints
Reduces safety hazards to residents, passenger vehicles, and emergency vehicles	Construction would be disruptive for residents
Protects existing flow path of Cherokee Wash	Small overall area of mitigation impact
Reduces maintenance issues due to sediment deposition	


PROPOSED 3 - 10' x 4' RCBC
MAX DEPTH: 6 FT
Q10 = 555 CFS
Q100 = 1333 CFS
Desert Jewel Dr
Arroyo Dr
MAX DEPTH: 7.8 FT
Q10 = 498 CFS
Q100 = 1,117 CFS
PROPOSED 3 - 10' x 4' RCBC
PROPOSED 3 - 10' x 4' RCBC
Crestview Dr
MAX DEPTH: 8.2 FT
Q10 = 477 CFS
Q100 = 835 CFS
APN: 16874004B
APN: 16874004D
APN: 16874004J
APN: 16874004F
APN: 16875038
APN: 16875037
APN: 16907075
APN: 16907074
APN: 16907073
APN: 16907126
APN: 16907125
APN: 16906002B
APN: 16907082
APN: 16907083
APN: 16907084
APN: 16907124
APN: 16907064
APN: 16907065
APN: 16907066
APN: 16907067
APN: 16907068B
N
0 40 80 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
FLOOD HAZARD AREA L
PROJECT ALTERNATIVE #1
Legend
Parcels
Known Flooding Issues
Road Flooding
2 ft Contour
Project Alternative #2 Improvements
Box Culvert
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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APN: 16874004B
APN: 16874004D
APN: 16874004J
APN: 16874004F
APN: 16875038
APN: 16875037
Desert Jewel Dr
PROPOSED 3 - 10' x 4' RCBC
MAX DEPTH: 6 FT
Q10 = 555 CFS
Q100 = 1333 CFS
Arroyo Dr
APN: 16907126
APN: 16907075
APN: 16907074
APN: 16907073
APN: 16907072
MAX DEPTH: 7.8 FT
Q10 = 498 CFS
Q100 = 1,117 CFS
APN: 16907125
PROPOSED 2 - 10' x 4' RCBC
APN: 16906002B
APN: 16907081
APN: 16907082
APN: 16907083
APN: 16907084
PROPOSED 2 - 10' x 4' RCBC
Crestview Dr
APN: 16907124
MAX DEPTH: 8.2 FT
Q10 = 477 CFS
Q100 = 835 CFS
APN: 16907063
APN: 16907064
APN: 16907065
APN: 16907066
APN: 16907067
APN: 16907068B
N
0 35 70 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
FLOOD HAZARD AREA L
PROJECT ALTERNATIVE #2
Legend
Parcels
2 ft Contour
Known Flooding Issues
Road Flooding
Project Alternative #2 Improvements
Box Culvert
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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G. Flood Hazard Area N – Downstream Cherokee Wash

Summary and Description

The source of flooding in Area N is Cherokee Wash. Runoff from Mummy Mountain and the Phoenix Mountain Preserve contribute to Cherokee Wash. The wash flows northeast, turning east and at 56th Street ultimately outfalling IBW. The wash is routed through private parcels and crosses several roads. During large storm events, Cherokee Wash does not have the full capacity required to contain flows, thereby resulting in road overtopping and property flooding. The low water crossings at 58th Place, 59th Place, Morning Glory Road, and 61st Place are inundated during storms, resulting in flooding hazards to residents and passenger vehicles. In particular, the crossing at Morning Glory Road is subject to water depths of up to 5.3 feet during the 100-year storm per FLO-2D modeling results from this study, posing a potential hazard for emergency vehicle access. Area N potential flooding conditions have been modeled in the Middle Indian Bend Wash Area Drainage Master Study/Plan (MIBW ADMS/P) (Gavin & Barker, 2017) and the Lower Indian Bend Wash Area Drainage Master Study/Plan (LIBW ADMS/P) (Kimley-Horn, 2019). The area has also been identified by Town staff and residents as a flooding hazard to the road, property, and homes.

Alternative 1 (Large, Recommended)

The first alternative proposed for this area is the construction of multiple reinforced concrete box culverts where Cherokee Wash over tops roads coupled with corresponding channel improvements. Low water crossings at 58th Place, 59th Place, Morning Glory Road, and 61st Place would be replaced with four barrel 10' by 4' reinforced concrete box culverts. Grouted riprap would be placed on the downstream side of the culverts to reduce erosion potential. At each of the four locations, road improvements will be required to accommodate the culvert. Downstream of the proposed culverts on 58th Place and 59th Place, channel improvements including clearing vegetation and grading would be required to increase conveyance. Drainage easements have been previously acquired at these locations and improvements would remain within the boundaries of the easement. Channel improvements are needed at these two locations to mitigate channel breakouts that could potentially flood the adjacent homes. The design and construction cost of Alternative 1 is estimated to be **2,800,333 USD**. See **Appendix E** for a detailed cost estimate of the project.

Table 23: Alternative 1 Opportunities and Constraints

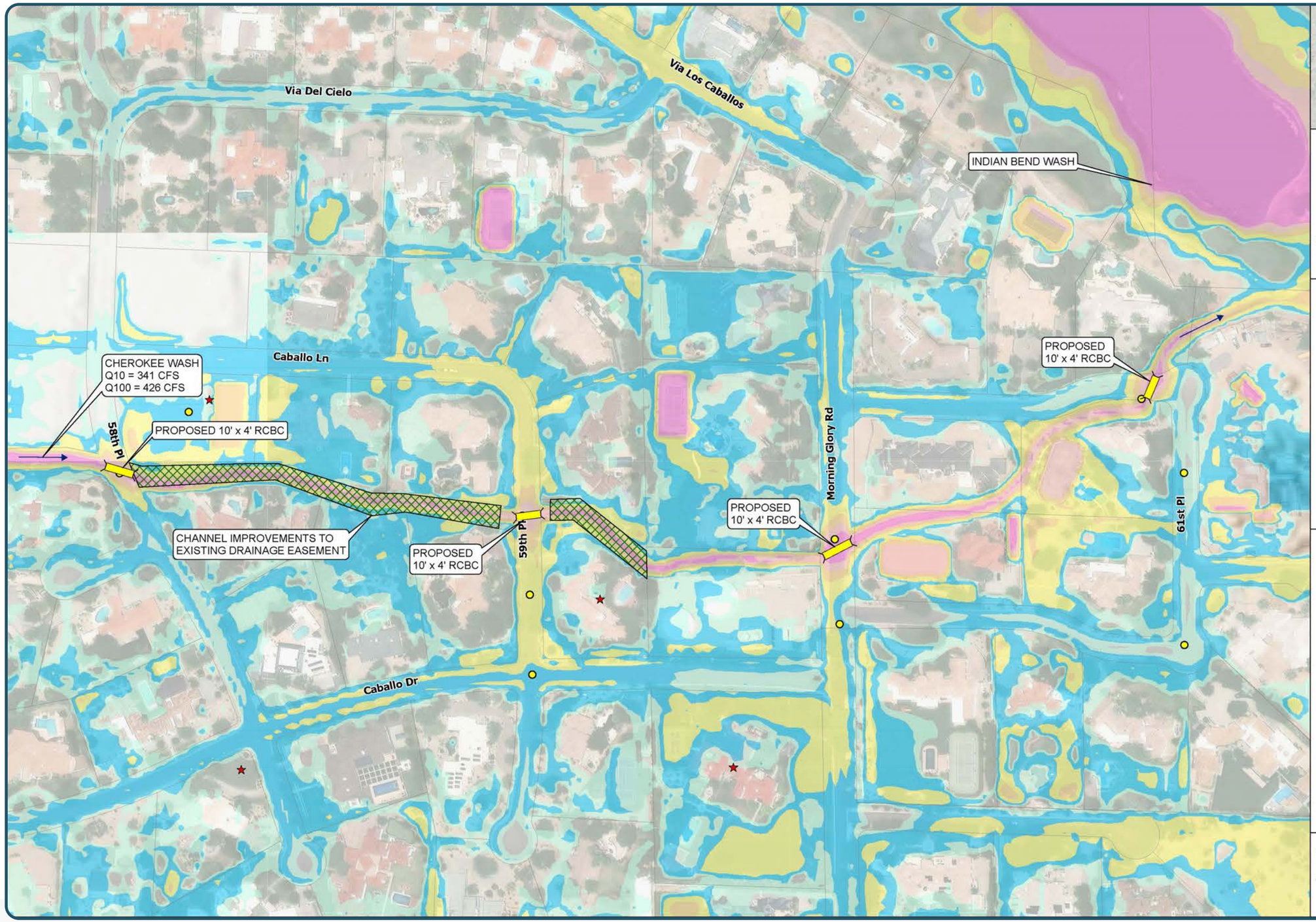
Alternative 1 Opportunities	Alternative 1 Constraints
More cost-effective alternative	Construction could be disruptive for residents
Reduces flood hazards to residents, passenger vehicles, and emergency vehicles	The total area of flood mitigation is smaller than that of Alternative 2
Provides safe road crossings during runoff event	Utility conflicts likely

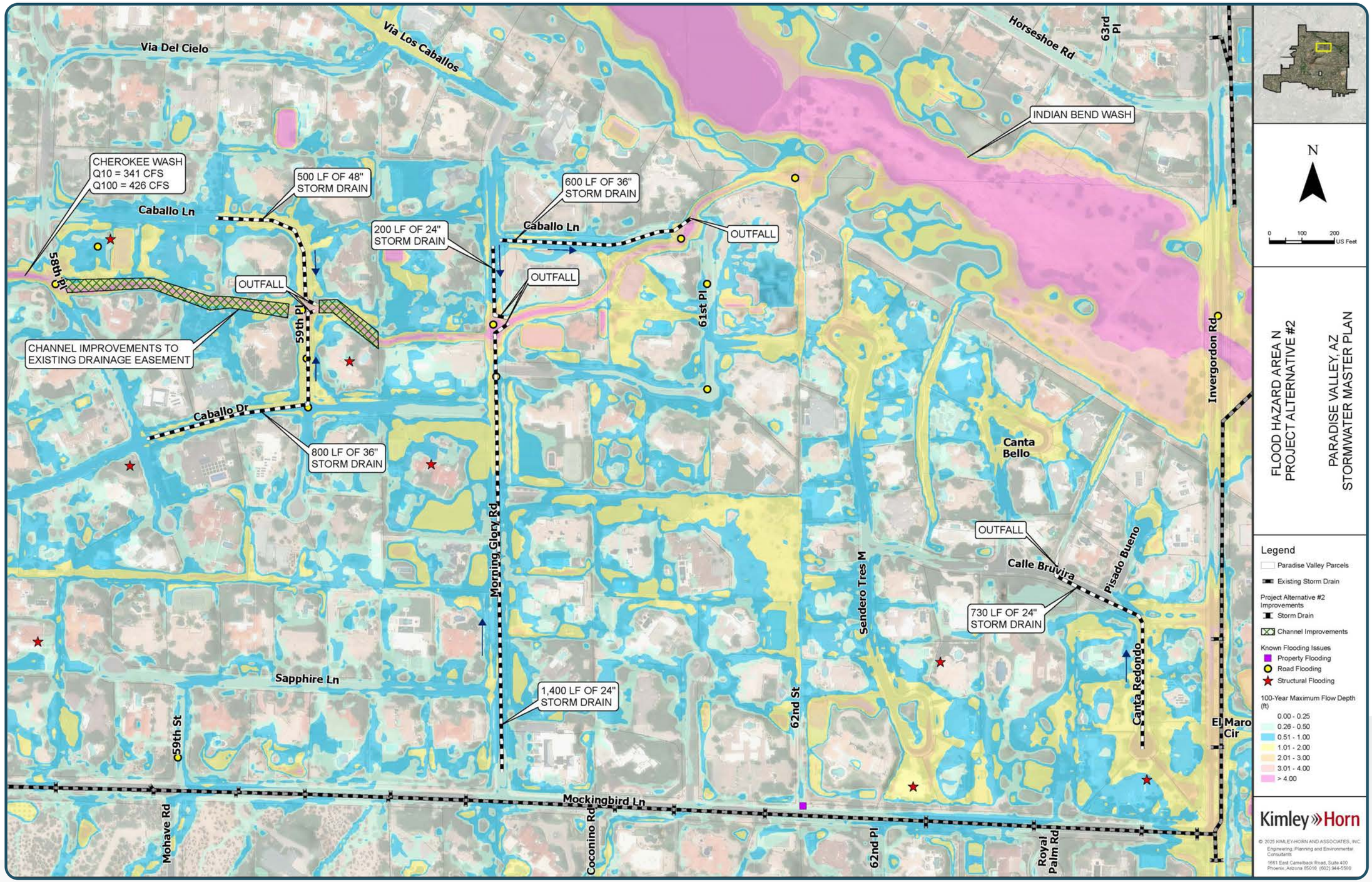
Alternative 2 (Large)

Alternative 2 for Area N consists of several small storm drain systems designed to reduce flooding on local streets. This flooding is mostly attributed to overflow from Cherokee Wash or runoff from Mummy Mountain as it flows towards Cherokee Wash. Strom drains would likely ranges in size from 36" to 48". Outfalls would further downstream along Cherokee Wash from breakout points, or at existing drainage corridors. This alternative would also include channel conveyance improvements along Cherokee Wash where existing ROW or improvements are in place. Refer to the Area N Alternative #2 exhibit on the following. The design and construction cost of Alternative 2 is estimated to be **3,956,897 USD**. See **Appendix E** for a detailed cost estimate of the project.

Table 24: Alternative 2 Opportunities and Constraints

Alternative 2 Opportunities	Alternative 2 Constraints
Larger overall area of flood mitigation in comparison to Alternative 1	More expensive alternative
Reduces flood hazards to residents, passenger vehicles, and emergency vehicles	Road crossings at Cherokee Wash may still be impassable during storm events
	Utility conflicts likely


Via Del Cielo
Via Los Caballos
INDIAN BEND WASH
PROPOSED
10' x 4' RCBC
Caballo Ln
CHEROKEE WASH
Q10 = 341 CFS
Q100 = 426 CFS
58th Pl
PROPOSED 10' x 4' RCBC
CHANNEL IMPROVEMENTS TO
EXISTING DRAINAGE EASEMENT
PROPOSED
10' x 4' RCBC
59th Pl
Morning Glory Rd
PROPOSED
10' x 4' RCBC
61st Pl
Caballo Dr
N
0 75 150
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
FLOOD HAZARD AREA N
PROJECT ALTERNATIVE #1
Legend
Paradise Valley Parcels
Existing Storm Drain
Existing Culvert
Known Flooding Issues
Road Flooding
Structural Flooding
Project Alternative #1 Improvements
Box Culvert
Channel Improvements
100-Year Maximum Flow Depth (ft)
Value
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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Via Del Cielo
Via Los Caballos
Horseshoe Rd
63rd Pl
INDIAN BEND WASH
CHEROKEE WASH
Q10 = 341 CFS
Q100 = 426 CFS
500 LF OF 48"
STORM DRAIN
Caballo Ln
200 LF OF 24"
STORM DRAIN
600 LF OF 36"
STORM DRAIN
OUTFALL
58th Pl
OUTFALL
59th Pl
OUTFALL
61st Pl
CHANNEL IMPROVEMENTS TO
EXISTING DRAINAGE EASEMENT
Caballo Dr
800 LF OF 36"
STORM DRAIN
Invergordon Rd
Canta
Bello
Morning Glory Rd
Sendero Tres M
OUTFALL
Calle Bruvira
Pisado Bueno
730 LF OF 24"
STORM DRAIN
Canta Redondo
Sapphire Ln
1,400 LF OF 24"
STORM DRAIN
62nd St
El Maro
Cir
C59th St
Mockingbird Ln
Mohave Rd
Coconino Rd
62nd Pl
Royal
Palm Rd
N
0 100 200
US Feet
FLOOD HAZARD AREA N
PROJECT ALTERNATIVE #2
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
Legend
Paradise Valley Parcels
Existing Storm Drain
Project Alternative #2
Improvements
Storm Drain
Channel Improvements
Known Flooding Issues
Property Flooding
Road Flooding
Structural Flooding
100-Year Maximum Flow Depth
(ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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H. Flood Hazard Area O – Lincoln Drive

Summary and Description

The source of flooding in Area O is the runoff from the south side of Mummy Mountain contributing runoff to the upstream reach of Cudia City Wash (CCW). Runoff flows southwest from Mummy Mountain, through existing development, towards Lincoln Drive. Once the water reaches Lincoln Drive from the north, it flows under the road through existing culverts. Some culverts along Lincoln Drive do not have the required capacity to contain discharge, and the road overtops at 52nd Place with depths greater than 1 foot during the 100-year storm per the FLO-2D modeling results from this study. South of Lincoln Drive, water flows west across private parcels and under 51st Place through an existing culvert. This culvert is undersized and a maximum water depth of 4 feet occurs per modeling results. The crossing poses a hazard to passenger vehicles and impacts emergency vehicle access. Town residents and staff have reported flooding issues in this area. The CCW Area Drainage Master Study/Plan (ADMS/P) has also identified flood hazards in this area.

Alternative 1 (Large)

The first alternative proposed for Area O consists of improvements to existing roadway drainage infrastructure on Lincoln Drive. The existing culvert at Lincoln Drive and 52nd Place lacks the capacity required to prevent roadway flooding during a 100-year event. This alternative proposes a new storm drain along Lincoln Drive at 52nd Place to the outfall of three existing culverts just east of the Omni Resort on the south side of Lincoln Drive. The storm drain inlet would be adjacent to the existing culvert's inlet north of Lincoln Drive and 52nd Place, and would redirect a portion of the discharge to a separate outfall. Curb and gutter inlets would also be placed at this location to capture discharge coming from the east along Lincoln Drive. At the outfall, discharges would be captured by an existing culvert and routed south to ultimately outfall to Cudia City Wash. The design and construction cost of Alternative 1 is estimated to be **2,321,033 USD**. See **Appendix E** for a detailed cost estimate of the project.

Table 25: Alternative 1 Opportunities and Constraints

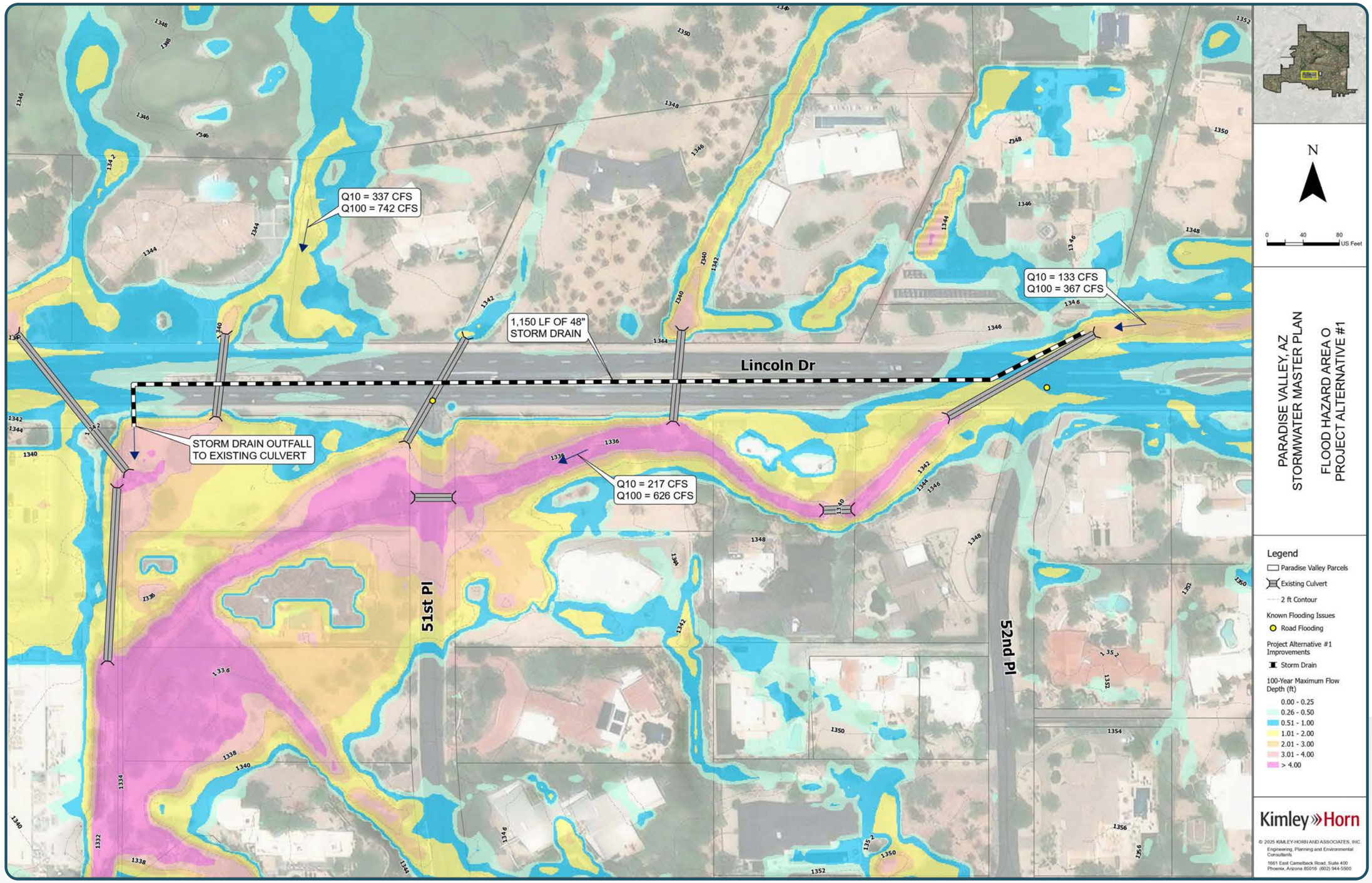
Alternative 1 Opportunities	Alternative 1 Constraints
Improves existing roadway drainage infrastructure	Major roadway impacts to Lincoln Drive during construction
Reduces discharge for undersized portions of Cudia City Wash	Utility conflicts likely
	More expensive alternative

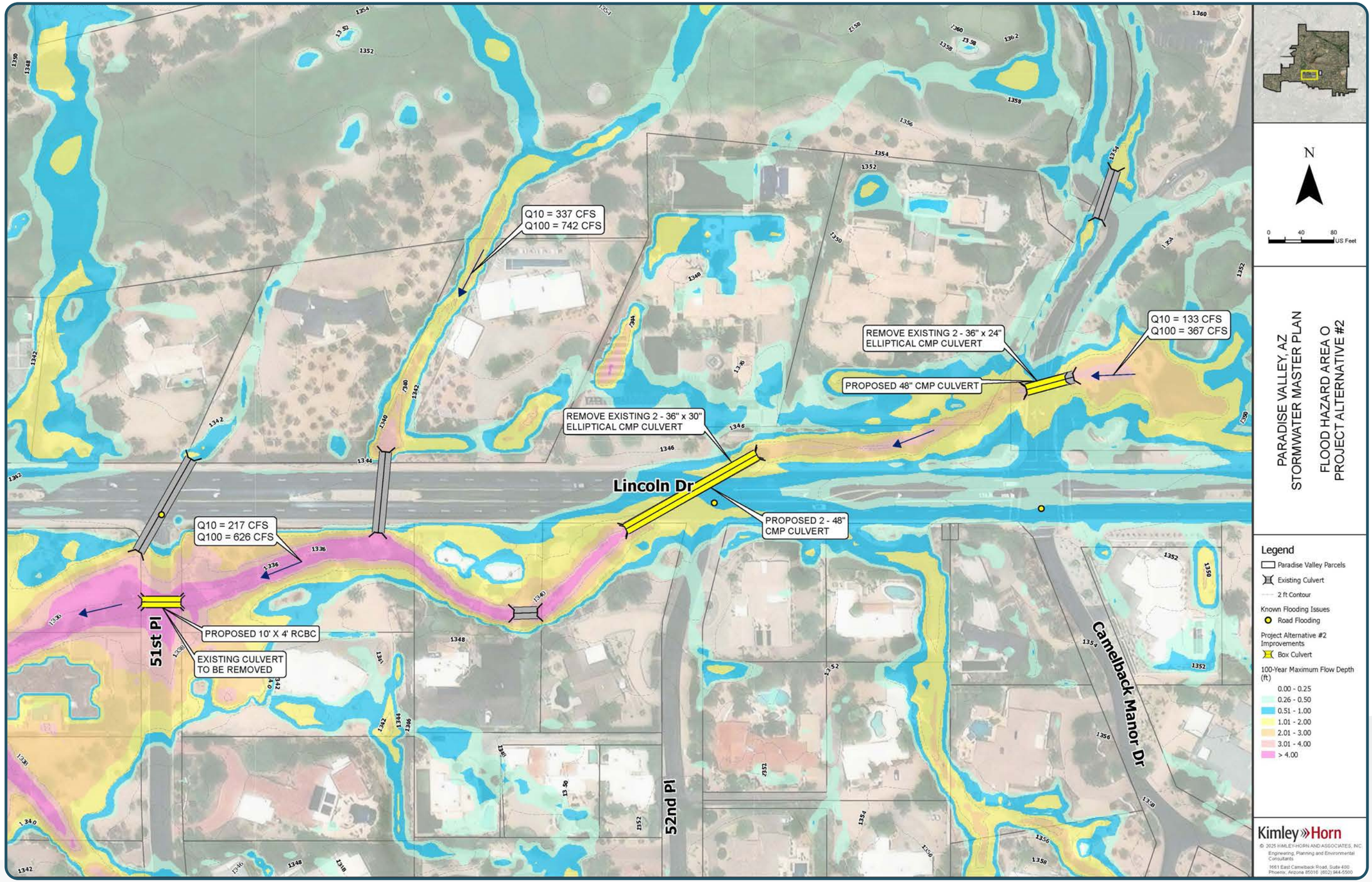
Alternative 2 (Medium, Recommended)

The second alternative proposed is the increase in existing culvert capacity at flood prone locations. Three culvert expansions or replacements are proposed upstream and downstream of Lincoln Drive. At Desert Fairways Drive, the existing box culvert would be removed and replaced with a 10' by 4' reinforced concrete box culvert (RCBC). Flows passing through this box culvert continue west and cross Lincoln Drive at the existing culvert at 52nd Place. This culvert would be replaced with a three barrel 48" reinforced concrete pipe culvert to mitigate roadway overtopping. The culvert at 51st Place is particularly undersized and would be replaced with a two barrel 10' by 4' RCBC. The proposed configuration at 51st Place is a 2 barrel 10' by 4' RCBC. Road improvements would also be required to accommodate the increased height of the new culverts. The design and construction cost of Alternative 2 is estimated to be **1,159,731 USD**. See **Appendix E** for a detailed cost estimate of the project.

Table 26: Alternative 2 Opportunities and Constraints

Alternative 2 Opportunities	Alternative 2 Constraints
Less expensive alternative	Utility conflicts likely
Improves emergency vehicle access on 51st Place	Major roadway impacts to Lincoln Drive during construction
Improvements maintain current flow paths	Would not reduce flows on parcels adjacent to Lincoln Drive
	Smaller area of flooding mitigation


Q10 = 337 CFS
Q100 = 742 CFS
1,150 LF OF 48"
STORM DRAIN
Lincoln Dr
Q10 = 133 CFS
Q100 = 367 CFS
STORM DRAIN OUTFALL
TO EXISTING CULVERT
Q10 = 217 CFS
Q100 = 626 CFS
51st Pl
52nd Pl
N
0 40 80 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
FLOOD HAZARD AREA O
PROJECT ALTERNATIVE #1
Legend
Paradise Valley Parcels
Existing Culvert
2 ft Contour
Known Flooding Issues
Road Flooding
Project Alternative #1 Improvements
Storm Drain
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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Q10 = 337 CFS
Q100 = 742 CFS
REMOVE EXISTING 2 - 36" x 24"
ELLIPTICAL CMP CULVERT
Q10 = 133 CFS
Q100 = 367 CFS
PROPOSED 48" CMP CULVERT
REMOVE EXISTING 2 - 36" x 30"
ELLIPTICAL CMP CULVERT
Lincoln Dr
PROPOSED 2 - 48"
CMP CULVERT
Q10 = 217 CFS
Q100 = 626 CFS
51st Pl
PROPOSED 10' X 4' RCBC
EXISTING CULVERT
TO BE REMOVED
52nd Pl
Camelback Manor Dr
N
0 40 80
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
FLOOD HAZARD AREA O
PROJECT ALTERNATIVE #2
Legend
Paradise Valley Parcels
Existing Culvert
2 ft Contour
Known Flooding Issues
Road Flooding
Project Alternative #2 Improvements
Box Culvert
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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I. Flood Hazard Area P – Tatum Boulevard and McDonald Drive

Summary and Description

The source of flooding in this area is Cudia City Wash (CCW). The wash flows across private parcels and overtops Tatum Boulevard and McDonald Drive as it flows southeast through Area P. At Tatum Boulevard, a maximum water depth over the road of 2.9 feet occurs during the 100-year storm per FLO-2D modeling results from this study. This poses safety hazards to passenger vehicles and sediment and debris deposition on the road, requiring frequent maintenance. The existing culverts under McDonald Drive are also undersized resulting in road overtopping during the 100-year storm. residents have reported property and roadway flooding at both crossings. This area has also been identified as a flooding hazard by the CCW Area Drainage Master Study/Plan (ADMS/P) and the CCW Design Concept Report (DCR). Two alternatives were developed as described below, each divided into three phases for flexibility with cost allocations. The CCW DCR also recommended the establishment of an improvement district as a funding source for construction and maintenance. The DCR also recommended acquiring a drainage easement along the wash corridor between Tatum Boulevard and McDonald Drive. A drainage easement would facilitate more regular maintenance of the channel improving the overall function of the wash.

Alternative 1 (Large/Medium/Maintenance, Recommended)

Alternative 1, Phase 1 proposed for Area P is a segment of storm drain along Tatum Boulevard and McDonald Road. The storm drain would capture flows from CCW from an inlet on the east side of Tatum Boulevard. The water would be routed south and west along the road where it would discharge back into CCW just north of McDonald Road. This would reduce the overall flow in the wash between the two road crossings. The design and construction cost of Alternative 1 is estimated to be **6,848,094 USD.** See **Appendix E** for a detailed cost estimate of Alternative 1.

Alternative 1, Phase 2 consists of increasing the existing culvert capacity at McDonald Drive. At McDonald Drive, a three barrel 10' by 4' culvert conveys CCW south under the road. This configuration does not convey the full capacity of the wash during the 100-year storm, and roadway overtopping occurs. This alternative proposes constructing an additional barrel to the culvert. The design and construction cost of Alternative 1, Phase 2 is estimated to be **789,801 USD.**

Alternative 1, Phase 3 proposes drainage improvements to mitigate the roadway overtopping that occurs on Valley Vista Lane. Flows from the north that converge at CCW overtop Valley Vista Lane prior to entering the wash. Placing a culvert under the road at the location of the wash crossing would reduce the erosion and sediment deposition in this area. The design and construction cost of Alternative 1 is estimated to be **55,823 USD.**

Table 27: Alternative 1 Opportunities and Constraints

Alternative 1, Phase 1 Opportunities	Alternative 1, Phase 1 Constraints
No large land acquisition required	Utility conflicts likely
Improvements reduce discharge for undersized portions of Cudia City Wash	High cost alternative in comparison to Alternative 2, Phase 1
	Major roadway impacts to Tatum Blvd during construction
Alternative 1, Phase 2 Opportunities	**Alternative 1, Phase 2 Constraints**
Creates a road crossing that reduces road overtopping frequency	Major roadway impacts to Tatum Blvd during construction
More cost-effective Alternative in comparison to Alternative 2, Phase 2	Does not reduce discharge entering the wash
No large land acquisition required	Utility conflicts likely
Alternative 1, Phase 3 Opportunities	**Alternative 1, Phase 3 Constraints**
Slightly more effective cost alternative in comparison to Alternative 2, Phase 3	Construction would be disruptive for residents
Improvements reduce safety hazards and maintain requirements	

Alternative 2 (Large/Medium/Maintenance)

Alternative 2, Phase 1 proposes a reinforced concrete box culvert under Tatum Boulevard. The existing road crossing on Tatum Boulevard would be replaced with a four barrel 10' by 4' box culvert to mitigate roadway flooding. Road improvements would be required to accommodate the height of the culverts. The design and construction cost of Alternative 2 is estimated to be **1,974,030 USD**. See **Appendix E** for a detailed cost estimate of Alternative 2.

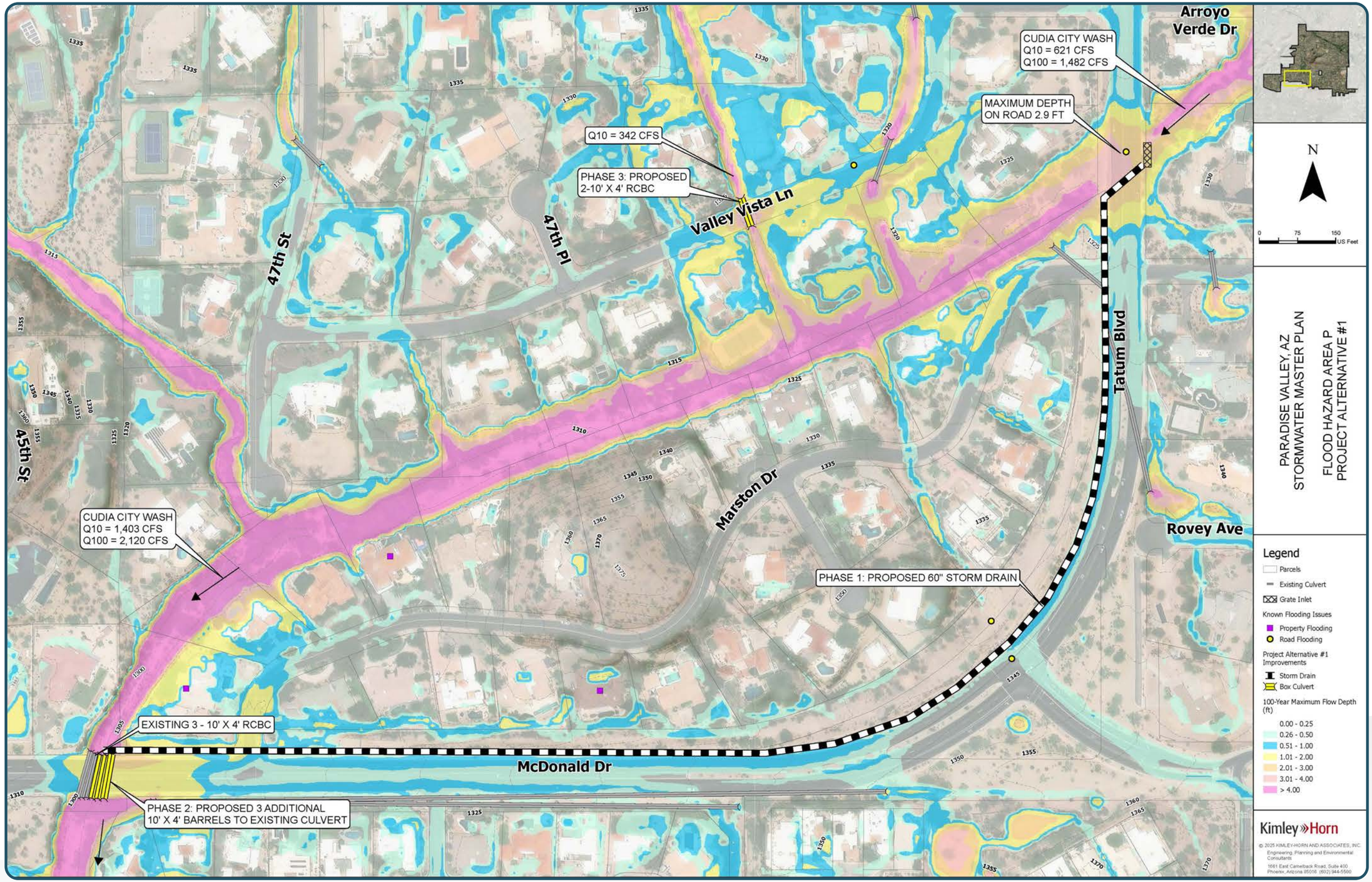
Alternative 2, Phase 2 replaces existing infrastructure. The existing box culvert under McDonald Drive would and be removed entirely replaced with a bridge, allowing the wash to flow without obstruction. This would reduce backwater effects and the water surface elevation north of the culvert. This area has been known to flood residential properties; therefore this improvement may not only improve roadway conditions, but also property conditions along the wash. The design and construction cost of Alternative 2 is estimated to be **3,341,890 USD.**

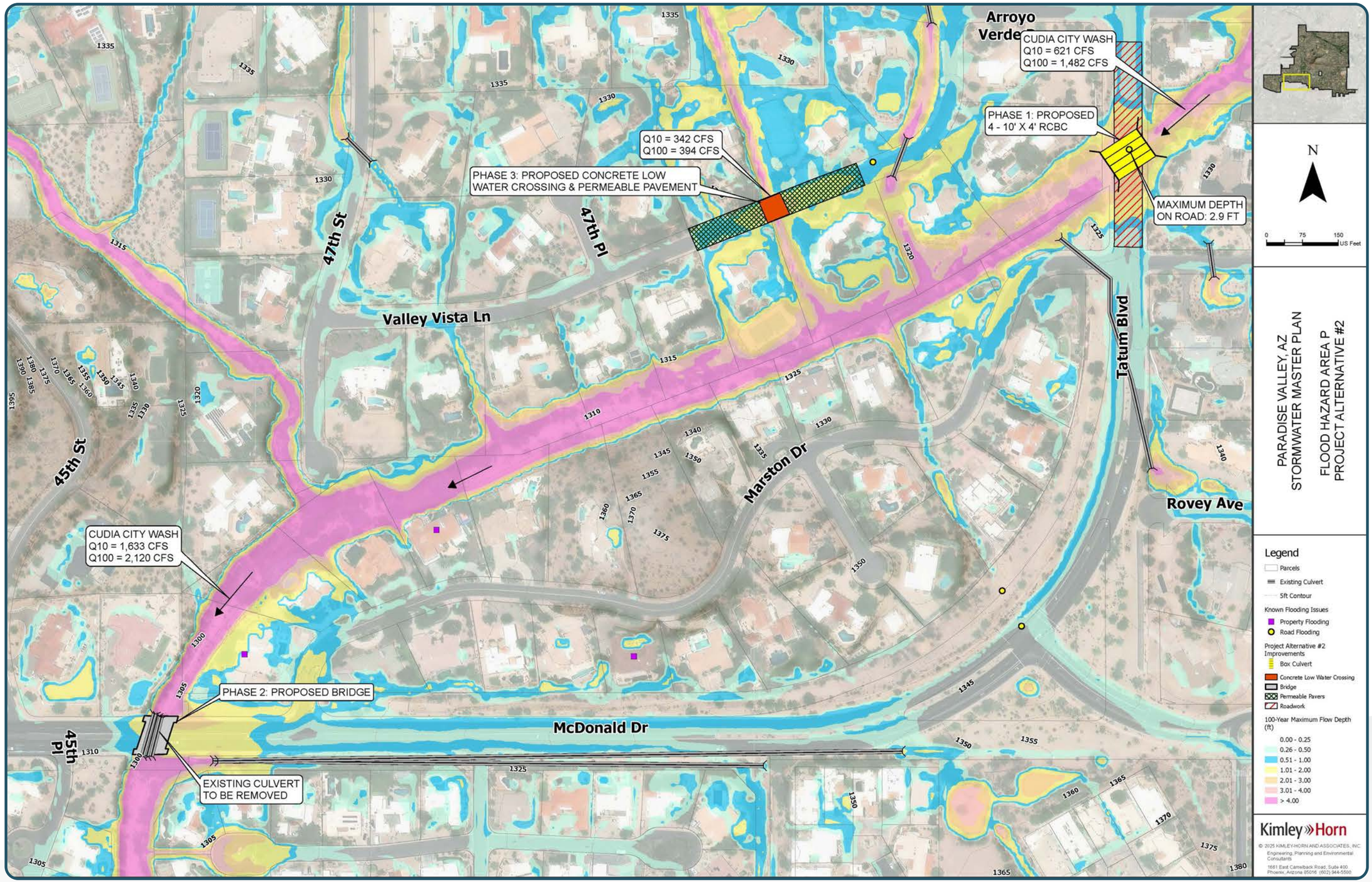
Alternative 2, Phase 3 utilizes Green Stormwater Infrastructure as a tool to reduce flooding. At the location where flows cross Valley Vista Lane, it is proposed that a low water crossing be implemented. The low water crossing would consist of concrete and grouted riprap to prevent erosion and sediment deposition on the road. It is also proposed that permeable pavement span 150 feet on either side of the crossing to help reduce the local ponding on the road. The design and construction cost of Alternative 2 is estimated to be **57,020 USD.**

CCW overtop Valley Vista Lane prior to entering the wash. Placing a culvert under the road at the location of the wash crossing would reduce the erosion and sediment deposition in this area. The design and construction cost of Alternative 1 is estimated to be **55,823 USD.**

Table 28: Alternative 2 Opportunities and Constraints

Alternative 2, Phase 1 Opportunities	Alternative 2, Phase 1 Constraints
More cost-effective alternative in comparison to Alternative 1, Phase 1	Major roadway impacts to McDonald Drive during construction
Improvement to existing infrastructure	Utility conflicts likely
Improvements would reduce roadway flooding on McDonald Drive	
Alternative 2, Phase 2 Opportunities	**Alternative 2, Phase 2 Constraints**
Improvements would mitigate roadway flooding on McDonald Drive	Higher cost alternative in comparison to Alternative 1, Phase 2
May reduce backwater issues north of McDonald Drive	Major roadway impacts to McDonald Drive during constriction
No large land acquisition required	Utility conflicts likely
Alternative 2, Phase 3 Opportunities	**Alternative 2, Phase 3 Constraints**
Improvements include GSI benefits	Construction would be disruptive for residents
Improvements reduce safety hazards and maintenance requirements	Higher cost alternative in comparison to Alternative 1, Phase 3


CUDIA CITY WASH
Q10 = 621 CFS
Q100 = 1,482 CFS
MAXIMUM DEPTH
ON ROAD 2.9 FT
Q10 = 342 CFS
PHASE 3: PROPOSED
2-10' X 4' RCBC
Arroyo
Verde Dr
47th St
47th Pl
Valley Vista Ln
Tatum Blvd
Marston Dr
Rovey Ave
45th St
CUDIA CITY WASH
Q10 = 1,403 CFS
Q100 = 2,120 CFS
PHASE 1: PROPOSED 60" STORM DRAIN
EXISTING 3 - 10' X 4' RCBC
McDonald Dr
PHASE 2: PROPOSED 3 ADDITIONAL
10' X 4' BARRELS TO EXISTING CULVERT
N
0 75 150
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
FLOOD HAZARD AREA P
PROJECT ALTERNATIVE #1
Legend
Parcels
Existing Culvert
Grate Inlet
Known Flooding Issues
Property Flooding
Road Flooding
Project Alternative #1
Improvements
Storm Drain
Box Culvert
100-Year Maximum Flow Depth
(ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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CUDIA CITY WASH
Q10 = 621 CFS
Q100 = 1,482 CFS
PHASE 1: PROPOSED
4 - 10' X 4' RCBC
Q10 = 342 CFS
Q100 = 394 CFS
PHASE 3: PROPOSED CONCRETE LOW
WATER CROSSING & PERMEABLE PAVEMENT
MAXIMUM DEPTH
ON ROAD: 2.9 FT
CUDIA CITY WASH
Q10 = 1,633 CFS
Q100 = 2,120 CFS
PHASE 2: PROPOSED BRIDGE
EXISTING CULVERT
TO BE REMOVED
Arroyo Verde
47th St
47th Pl
45th St
45th Pl
Valley Vista Ln
McDonald Dr
Marston Dr
Tatum Blvd
Rovey Ave
N
0 75 150
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
FLOOD HAZARD AREA P
PROJECT ALTERNATIVE #2
Legend
Parcels
Existing Culvert
5ft Contour
Known Flooding Issues
Property Flooding
Road Flooding
Project Alternative #2 Improvements
Box Culvert
Concrete Low Water Crossing
Bridge
Permeable Pavers
Roadwork
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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VIII. HIGHEST PRIORITY ALTERNATIVES – BENEFIT COST ANALYSIS

The selected alternatives for the six highest ranking flooding issue areas were further developed into 15% plans and detailed conceptual cost estimates. Pages 78-113 contain a further description of each area, cost/benefit analysis results, conceptual plans, and figures depicting 10-year pre-project, post-project, and depth-difference results. The detailed conceptual cost estimates can be found in **Appendix G**. Projects were developed using constraints and preferences provided by Town Council. Constraints included restricting projects to available right-of-way. Projects were designed to provide protection from the 10-year storm. Pre-project, post-project, and depth-difference maps for other storm events are included in **Appendix F.**

The selected alternative(s) and ranking score for each of the nine flood hazard areas is summarized in **Table 29**. Of these, the top six were developed for the Master Plan per Town project development requirements. Analyses were split into two methodologies based on the project type and flood reduction impacts. The benefits for Areas A and K were determined by incorporating the proposed drainage improvements into proposed conditions FLO-2D modeling and comparing the pre- and post-project flow depth conditions adjacent to the impacted buildings. By using the U.S. Army Corps of Engineers (USACE) depth-damage curves for the building structures and building contents, a damage reduction or benefit per building was determined for the 10- and 100-year storms. Areas A and K have the biggest positive impacts on potential residential structure flooding. The USACE depth-damage curve and the corresponding calculations for the two areas are provided in **Appendix I**. For Areas H, L, N, and O, benefits were determined by evaluating the total reduction of water surface elevation from road crossings and the potential for improving emergency vehicle access. Projects in these areas mainly benefit transportation corridors and ingress/egress.

Table 29: Prioritized Projects Summary

Top Ranking Six

Area Identification	Selected Alternative	Ranking Score
N	Alternative 1	49
A	Alternative 1	45
O	Alternative 2	45
K	Alternative 2	43
L	Alternative 1 & 2	41
H	Alternative 2	40
P	Alternative 1	39
C	Alternative 2	39
E	Alternative 3	38

A. Flood Hazard Area A – Invergordon and Mockingbird Lane

Description

Alternative 1 was selected from the project decision matrix. This project includes storm drain lines from 18" laterals up to a 12' x 3' storm drain box at the outfall. The storm drain upstream at Northern Avenue starts as a 36" pipe and transitions to a 42" storm drain downstream. Due to a sewer line crossing in Invergordon Road, a 2-30" pipe system was designed to provide clearance over the sewer line. This is an existing shallow sewer line crossing north of Maverick Road that is unavoidable. This sewer line is proposed to be rerouted by 300 feet to the north and tie into the adjacent system to avoid the conflict with the proposed storm drain box culvert. The sewer line reroute ultimately goes to the same location but the proposed realigned sewer to the north is lower allowing the storm drain to clear the existing sewer line. The Maverick Road storm drain trunk line is a 54" pipe that connects to the Invergordon trunk line. This project is estimated to cost 11,616,355 USD. Conceptual plans are shown on the following pages with the detailed cost estimate included in **Appendix G**.

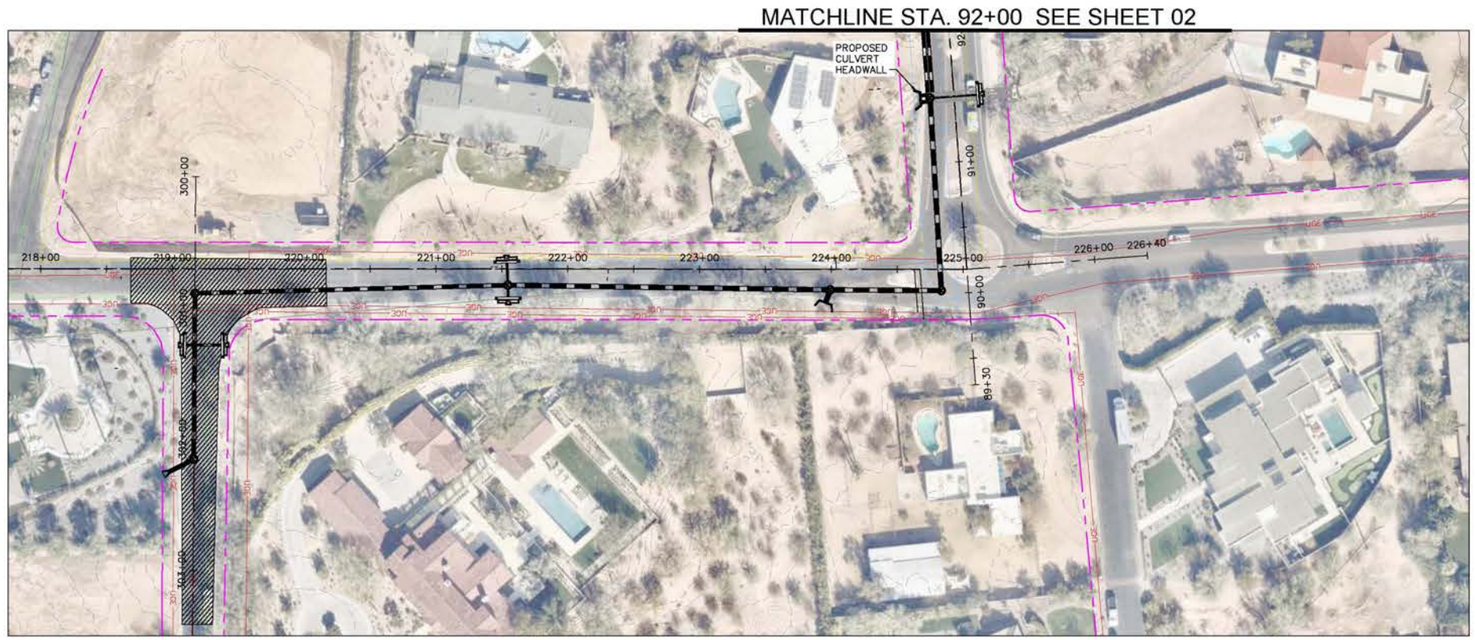
Benefits

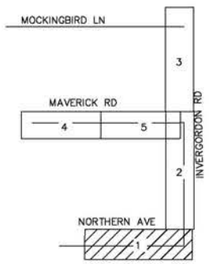
The potential benefits for the 10-year and 100-year storms were developed for the project and are shown in **Table 30**. The benefits were determined by incorporating the proposed drainage improvements into the FLO-2D model and comparing the pre and post project flow depth conditions adjacent to the impacted buildings. By using the U.S. Army Corps of Engineers (USACE) depth-damage curves for the building structures and building contents, a damage reduction or benefit per building was determined for the 10- and 100-year storms. The USACE depth damage curves can be seen in **Appendix H**. If the storm drain system is built, it is expected to have a life cycle of 75-years, and total benefits of about 23 million USD when assuming seven 10-year storms and one 100-year storm occurring during the infrastructure life span.

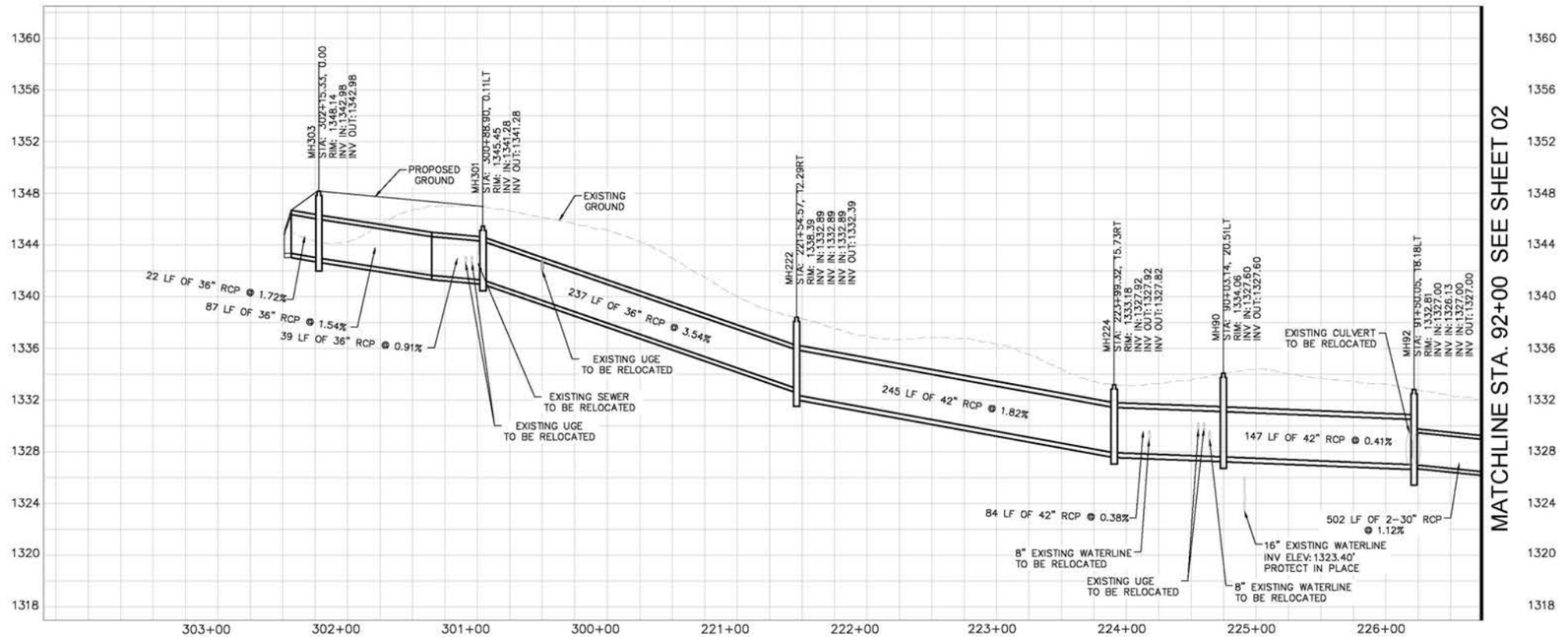
Table 30: Area A Benefit Cost Ratio Summary

Number of Properties Impacted		220
Approximate Population1		550
Benefit with Drainage Improvements in Place ($)	Damage Reduction	21,394,816
	Social Benefits	1,978,900
	Total	23,293,796
Construction Cost		11,616,355
Benefit-Cost Ratio (BCR)		2.01

1Assumed 2.5 people per household from U.S. Census for the Town of Paradise Valley.
2Social benefits are based on the number of residents impacted and are calculated using FEMA's Benefit Cost Analysis toolkit. This would account for traffic closures, interruptions to work, etc.
3Assumed at least seven 10-year storms and one 100- year storm occur during the 75-year life span of the improvements.







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SCALE (H): 1"=50'
SCALE (V): 1"=5'
DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB
DATE: 05/2025

PARADISE VALLEY SWMP
AREA A SELECTED ALTERNATIVE 15% PLANS

NORTH

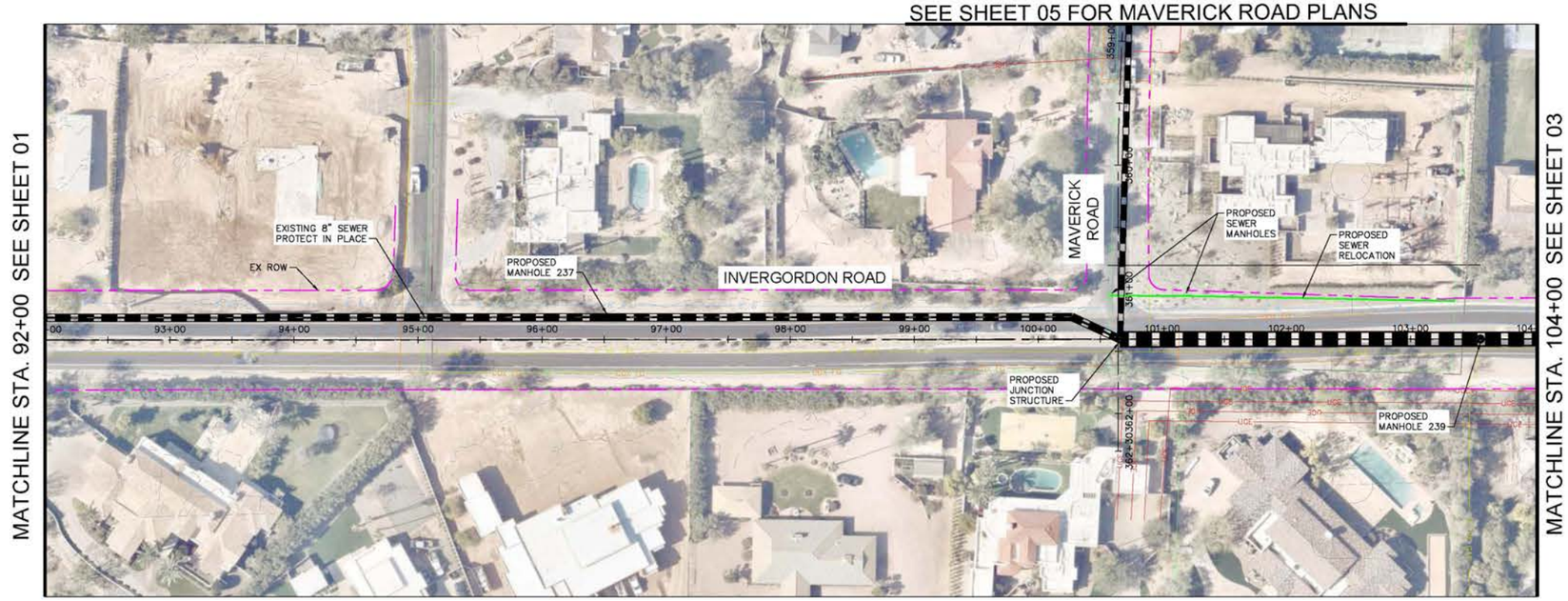
PROJECT NO.
091054031

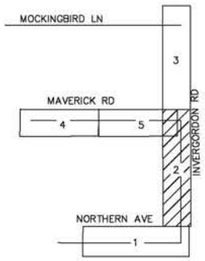
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AREA A

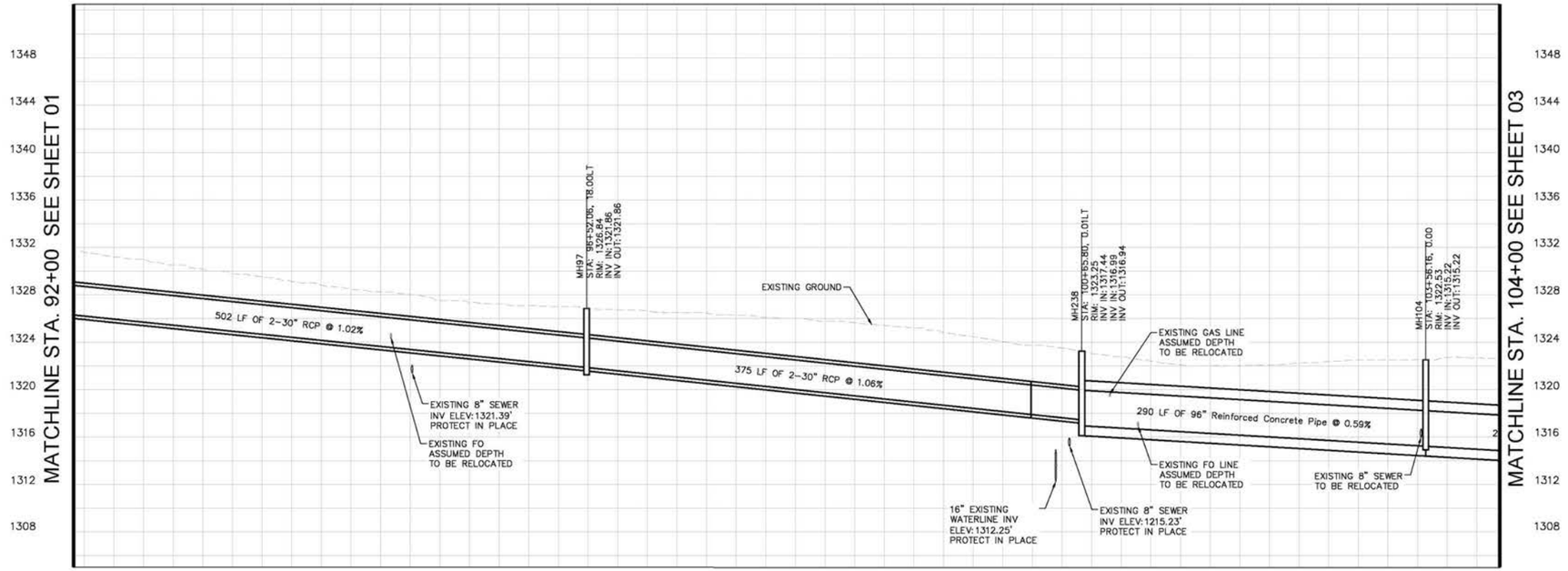
1 OF 6

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SEE SHEET 05 FOR MAVERICK ROAD PLANS







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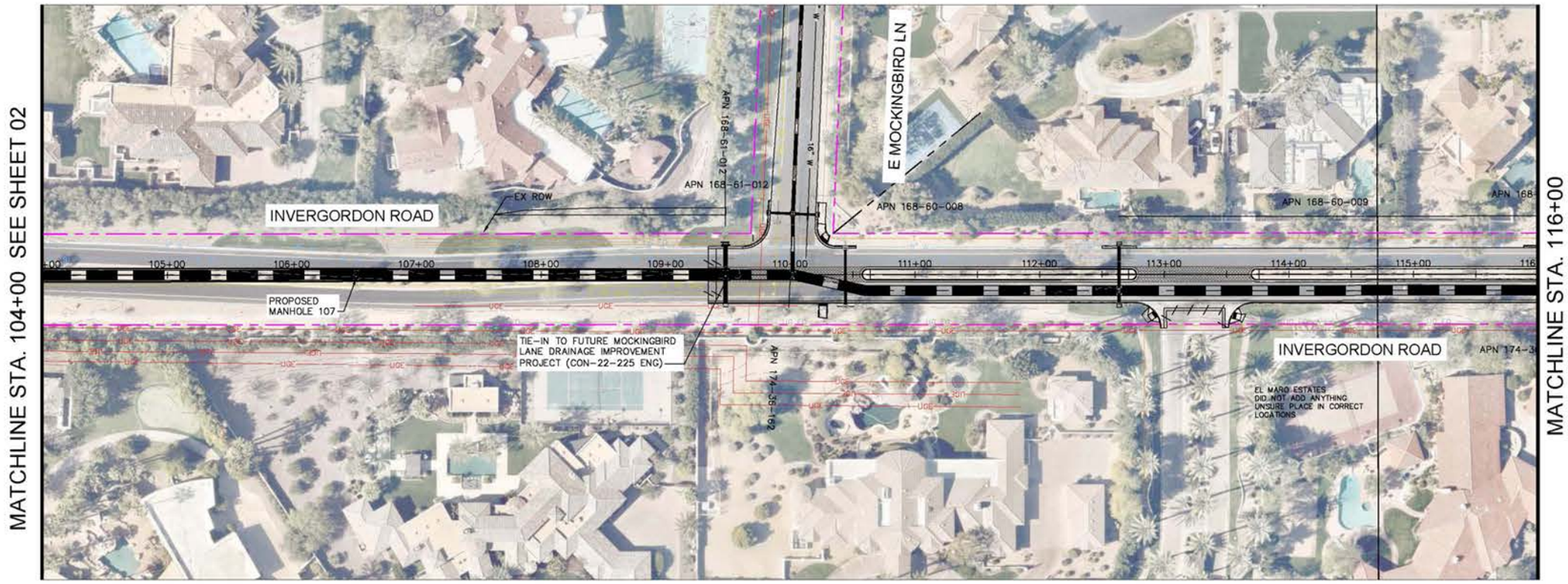
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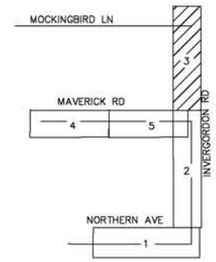
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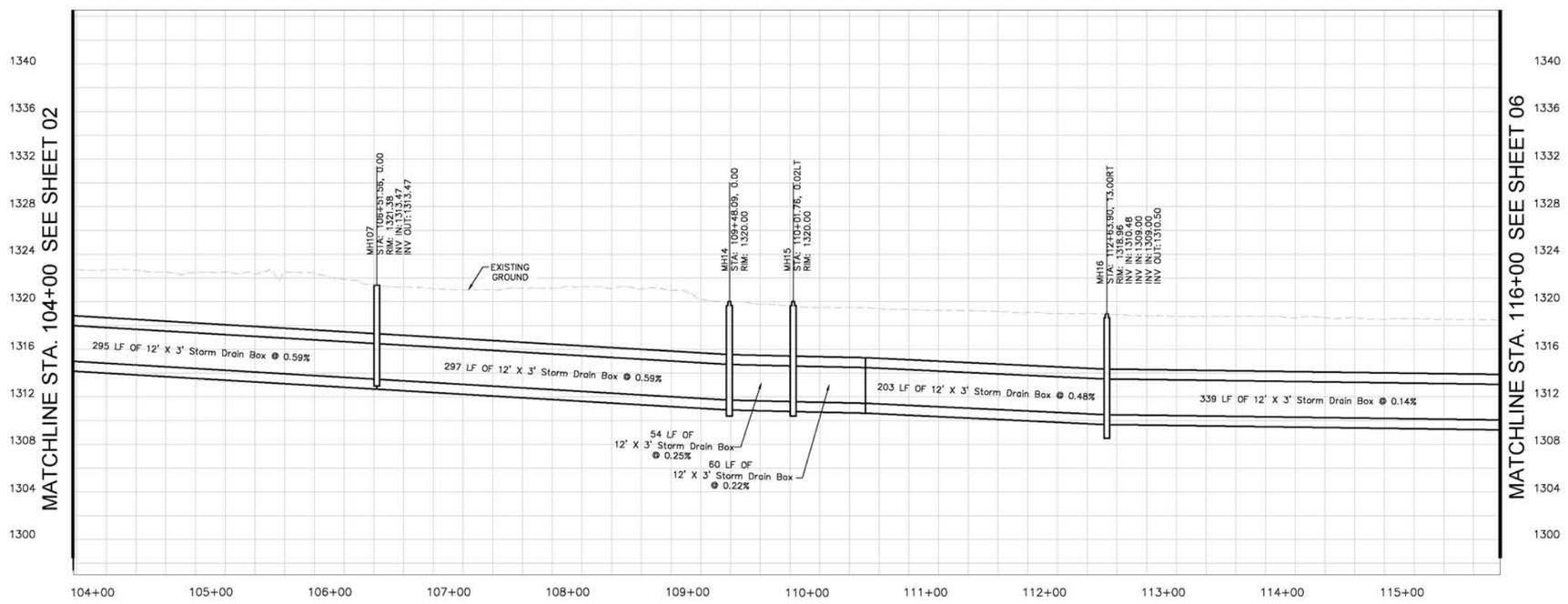
PROJECT NO.
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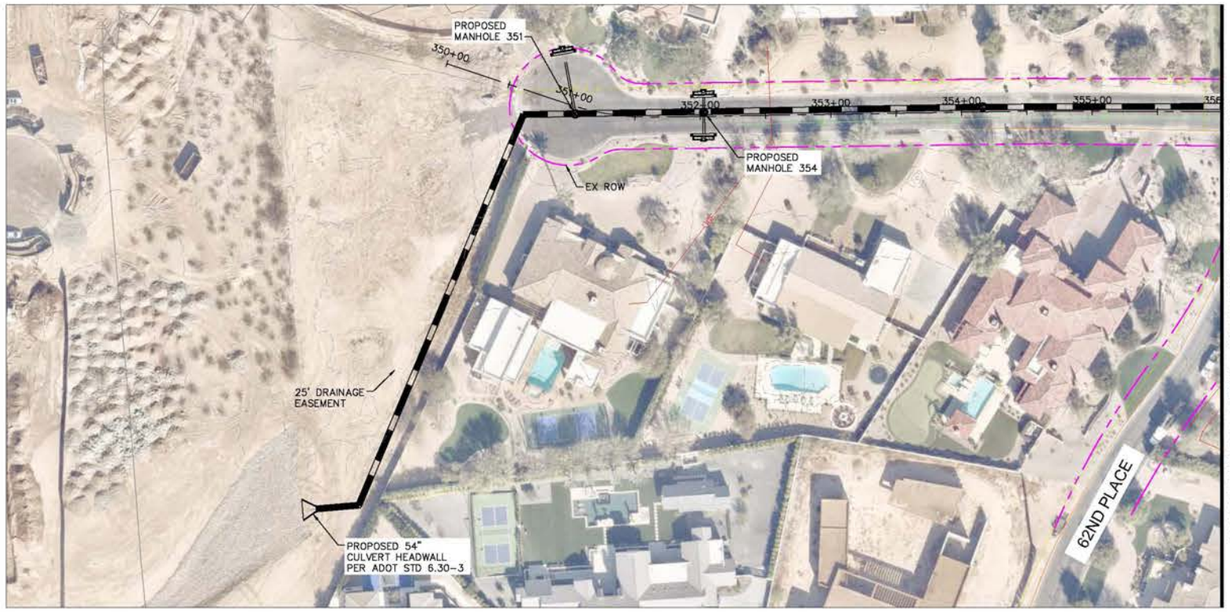
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AREA A SELECTED ALTERNATIVE 15% PLANS

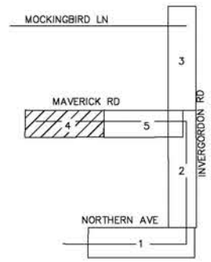
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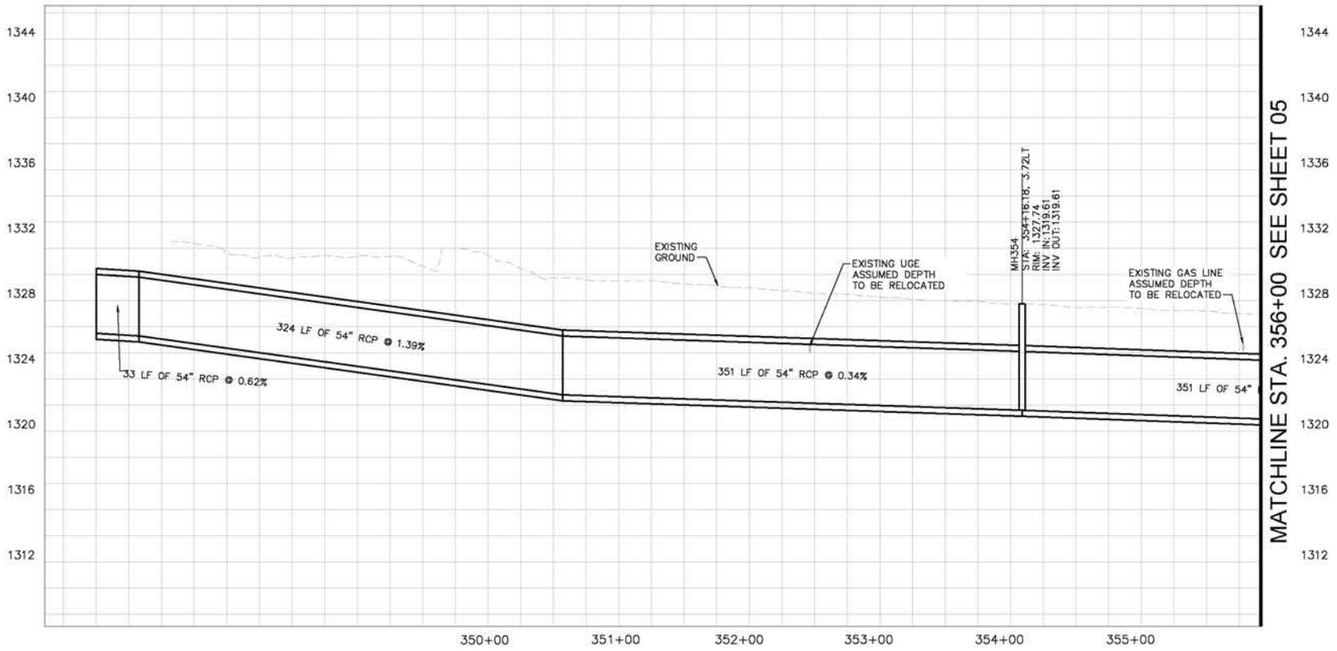
PROJECT NO.
091054031

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AREA A

3 OF 6







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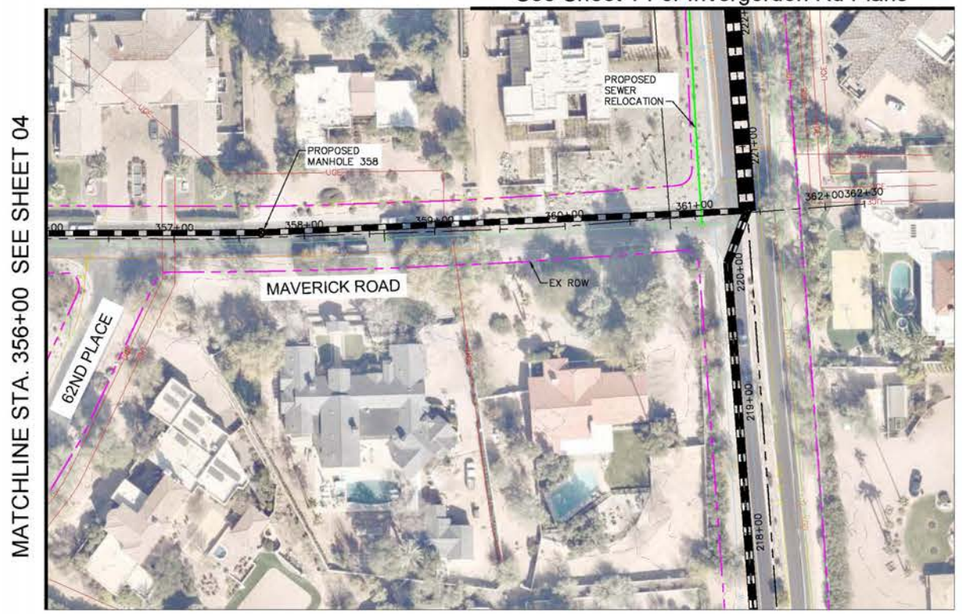
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SCALE (V): 1"=5'
DESIGNED BY: PTB
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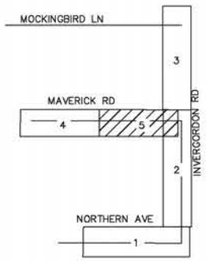
PARADISE VALLEY SWMP
AREA A SELECTED ALTERNATIVE 15% PLANS

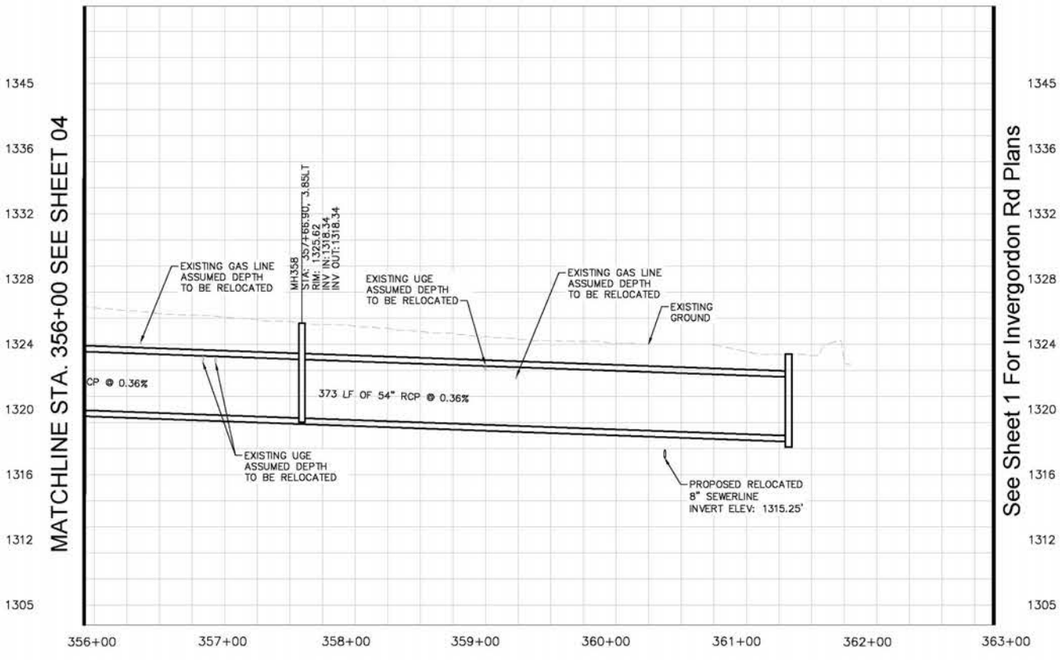
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PROJECT NO.
091054031
DRAWING NAME
AREA A
4 OF 6

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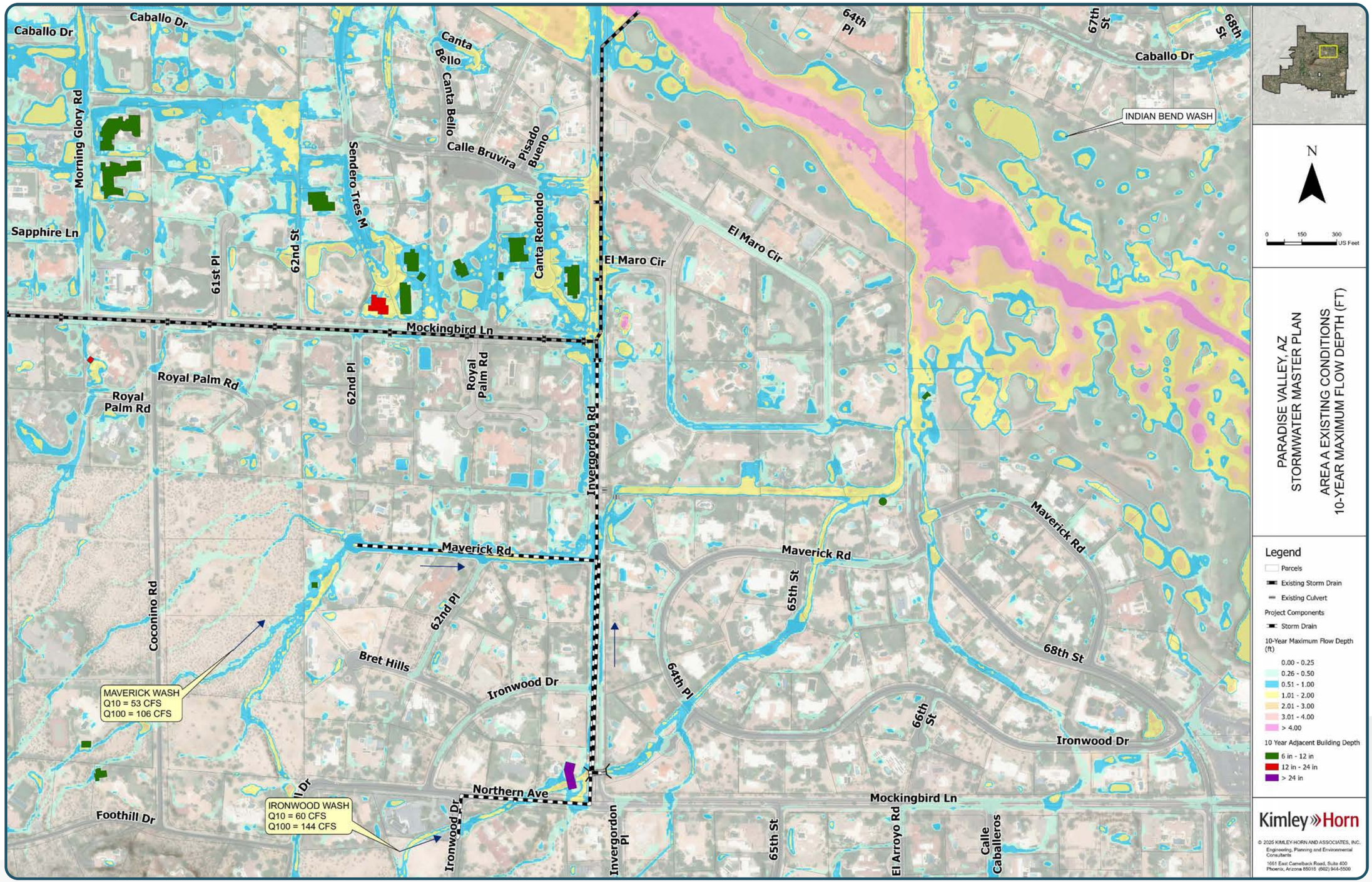
PARADISE VALLEY SWMP
AREA A SELECTED ALTERNATIVE 15% PLANS

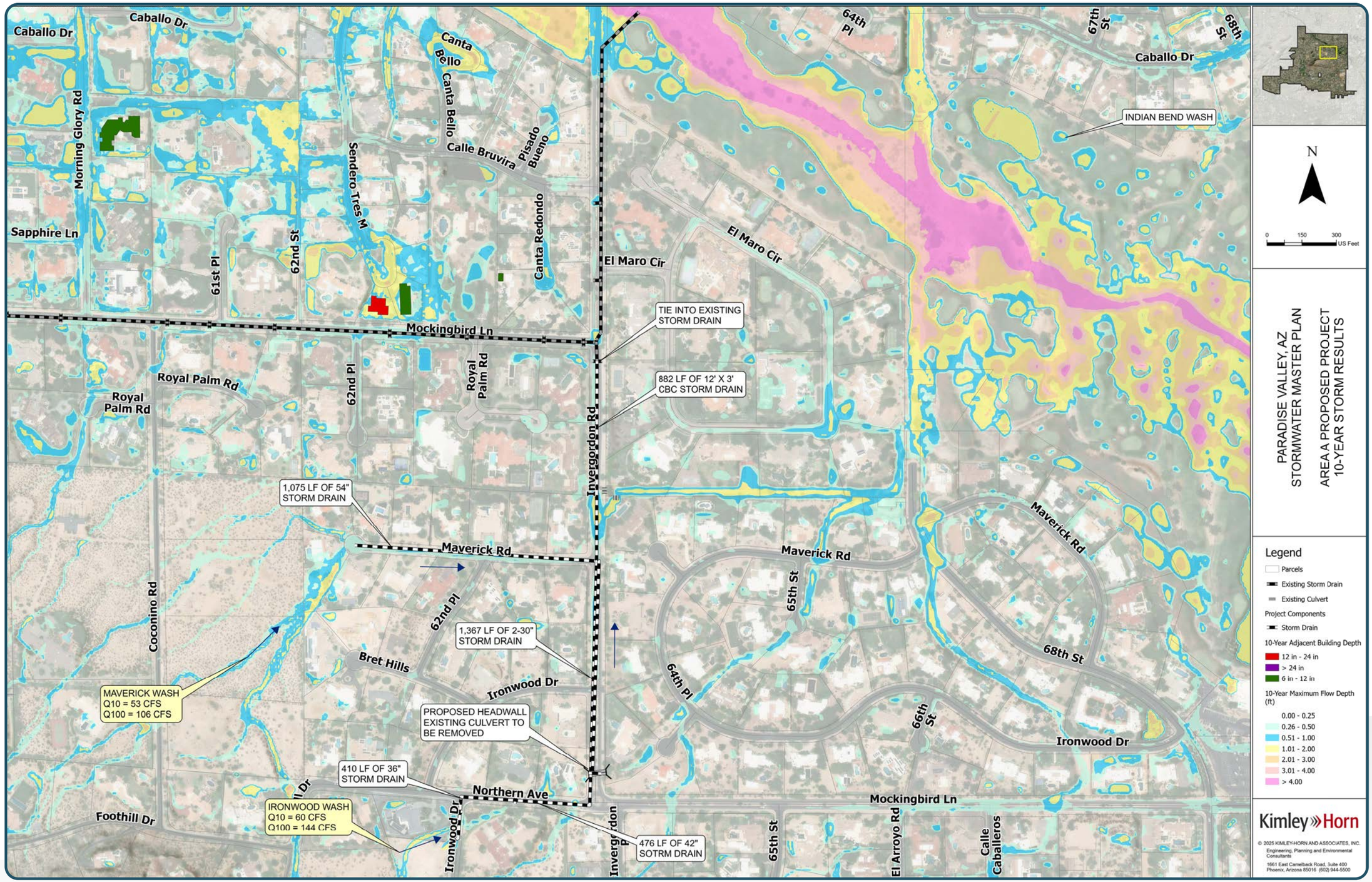
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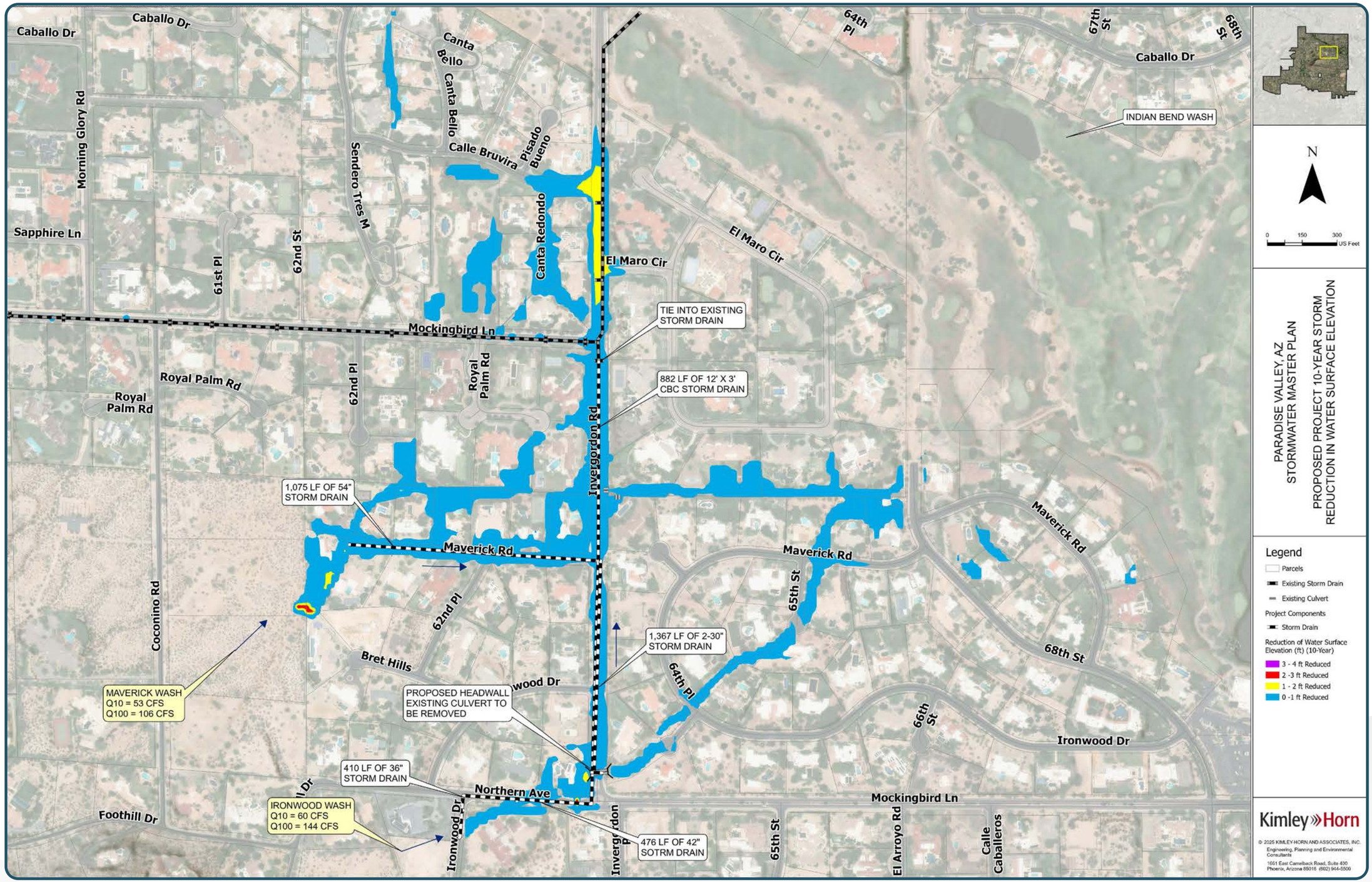
PROJECT NO.
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DRAWING NAME
AREA A

5 OF 6


Caballo Dr
Caballo Dr
Morning Glory Rd
Sapphire Ln
61st Pl
62nd St
Sendero Tres M
Canta Bello
Canta Bello
Calle Bruvira
Pisado Bueno
Canta Redondo
El Maro Cir
El Maro Cir
Mockingbird Ln
Royal Palm Rd
Royal Palm Rd
62nd Pl
Royal Palm Rd
Invergordon Rd
64th Pl
67th St
68th St
Caballo Dr
INDIAN BEND WASH
Maverick Rd
Maverick Rd
Maverick Rd
62nd Pl
65th St
68th St
Coconino Rd
Bret Hills
Ironwood Dr
64th Pl
66th St
Ironwood Dr
MAVERICK WASH
Q10 = 53 CFS
Q100 = 106 CFS
IRONWOOD WASH
Q10 = 60 CFS
Q100 = 144 CFS
Northern Ave
Foothill Dr
Ironwood Dr
Invergordon Pl
65th St
Mockingbird Ln
El Arroyo Rd
Calle Caballeros
N
0
150
300
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
AREA A EXISTING CONDITIONS
10-YEAR MAXIMUM FLOW DEPTH (FT)
Legend
Parcels
Existing Storm Drain
Existing Culvert
Project Components
Storm Drain
10-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
10 Year Adjacent Building Depth
6 in - 12 in
12 in - 24 in
> 24 in
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Caballo Dr
Morning Glory Rd
Sapphire Ln
61st Pl
62nd St
Sendero Tres M
Canta Bello
Calle Bruvira
Pisado Bueno
Canta Redondo
El Maro Cir
Mockingbird Ln
Royal Palm Rd
62nd Pl
Invergordon Rd
64th Pl
67th St
68th St
INDIAN BEND WASH
TIE INTO EXISTING STORM DRAIN
882 LF OF 12' X 3' CBC STORM DRAIN
1,075 LF OF 54" STORM DRAIN
Maverick Rd
65th St
66th St
1,367 LF OF 2-30" STORM DRAIN
Bret Hills
Ironwood Dr
MAVERICK WASH
Q10 = 53 CFS
Q100 = 106 CFS
PROPOSED HEADWALL
EXISTING CULVERT TO
BE REMOVED
410 LF OF 36" STORM DRAIN
Northern Ave
IRONWOOD WASH
Q10 = 60 CFS
Q100 = 144 CFS
476 LF OF 42" SOTRM DRAIN
Foothill Dr
Coconino Rd
El Arroyo Rd
Calle Caballeros
N
0 150 300 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
AREA A PROPOSED PROJECT
10-YEAR STORM RESULTS
Legend
Parcels
Existing Storm Drain
Existing Culvert
Project Components
Storm Drain
10-Year Adjacent Building Depth
12 in - 24 in
> 24 in
6 in - 12 in
10-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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Caballo Dr
Caballo Dr
Morning Glory Rd
Canta Bello
Canta Bello
Calle Bruvira
Pisado Bueno
Sendero Tres M
Canta Redondo
64th Pl
67th St
68th St
Caballo Dr
INDIAN BEND WASH
Sapphire Ln
61st Pl
62nd St
El Maro Cir
El Maro Cir
Mockingbird Ln
TIE INTO EXISTING STORM DRAIN
882 LF OF 12' X 3' CBC STORM DRAIN
Royal Palm Rd
Royal Palm Rd
62nd Pl
Royal Palm Rd
Invergordon Rd
1,075 LF OF 54" STORM DRAIN
Maverick Rd
Maverick Rd
Maverick Rd
62nd Pl
65th St
Coconino Rd
Bret Hills
1,367 LF OF 2-30" STORM DRAIN
64th Pl
68th St
MAVERICK WASH
Q10 = 53 CFS
Q100 = 106 CFS
PROPOSED HEADWALL
EXISTING CULVERT TO
BE REMOVED
66th St
Ironwood Dr
410 LF OF 36" STORM DRAIN
Northern Ave
Mockingbird Ln
IRONWOOD WASH
Q10 = 60 CFS
Q100 = 144 CFS
Foothill Dr
Ironwood Dr
65th St
El Arroyo Rd
Calle Caballeros
476 LF OF 42" SOTRM DRAIN
N
0 150 300 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
PROPOSED PROJECT 10-YEAR STORM
REDUCTION IN WATER SURFACE ELEVATION
Legend
Parcels
Existing Storm Drain
Existing Culvert
Project Components
Storm Drain
Reduction of Water Surface Elevation (ft) (10-Year)
3 - 4 ft Reduced
2 -3 ft Reduced
1 - 2 ft Reduced
0 -1 ft Reduced
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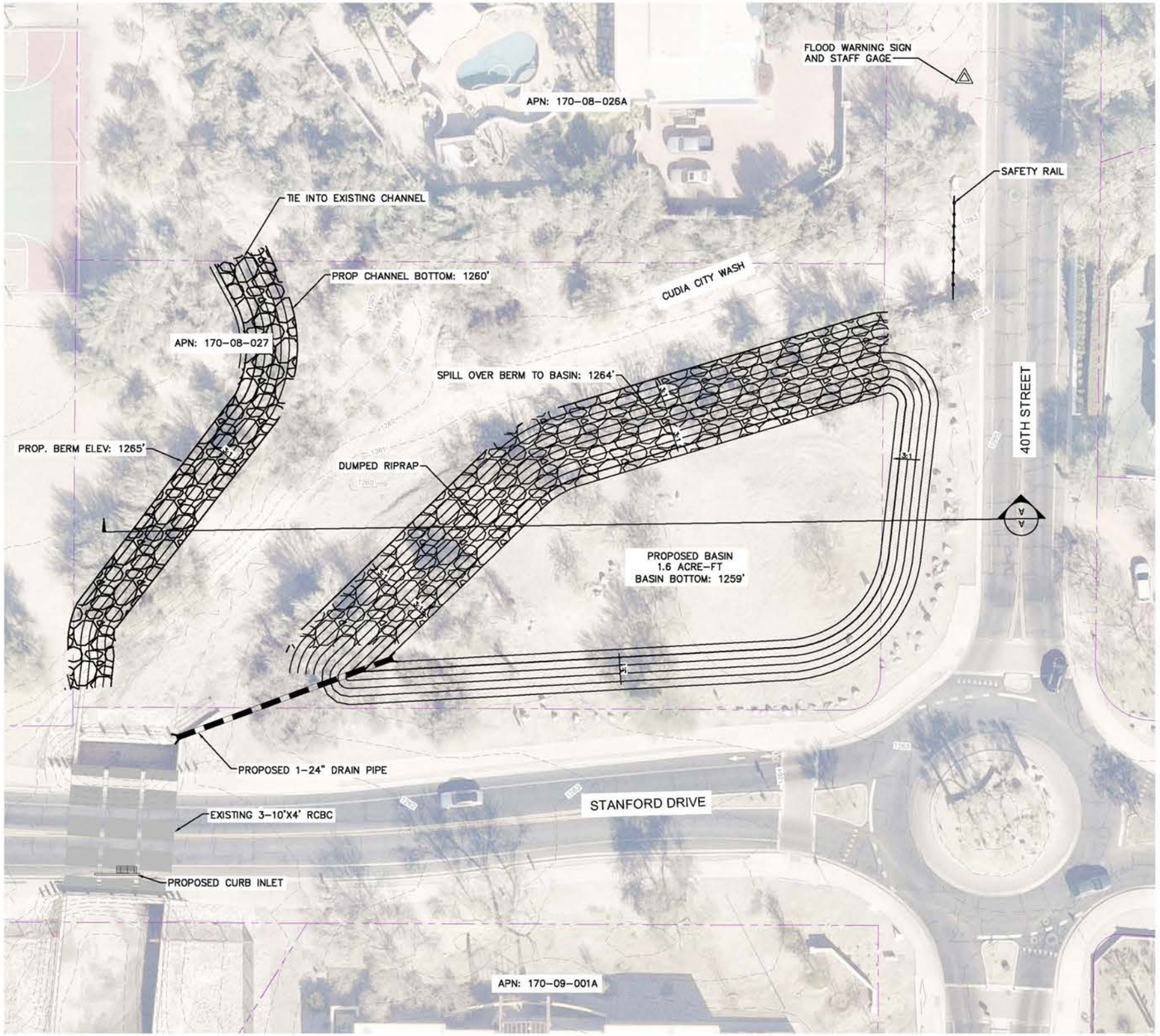
B. Flood Hazard Area H – 40th Street and Standford Drive

Description

Alternative 2 was selected from the three alternatives evaluated in the project matrix. This alternative involved making 2-year storm improvements to the existing wash running through 40th Street and Stanford Drive, the inclusion of a flood control basin, and the expansion of the curb inlet on Stanford Drive. The proposed channel was further refined with the following improvements: the channel bottom would be lowered to an elevation of 1260', and the side slopes would be graded at 3 to 1 to an elevation of 1265' on the north side of the channel. The south side of the channel would only be graded to an elevation of 1264' and would function as a spill over to the adjacent flood control basin. The basin was designed to use as much space as possible within the parcel and ROW. It would have 3 to 1 side slopes and a bottom elevation of 1259'. This would give the basin a height of 5 ft and provide a storage volume of 1.6 acre-ft. A 24" drain pipe located at the southeast corner of the basin would drain water to the existing culvert inlet on the north side of Stanford Drive. To reduce flooding along Stanford Drive, the existing curb inlet would be expanded to increase its capacity to drain water from the road. Safety measures including a staff gage, flood warning signage, and safety rails would be placed on 40th Street. This project is estimated to cost 1,039,500 USD. Conceptual plans are shown on the following pages with the detailed cost estimate include in **Appendix G**.

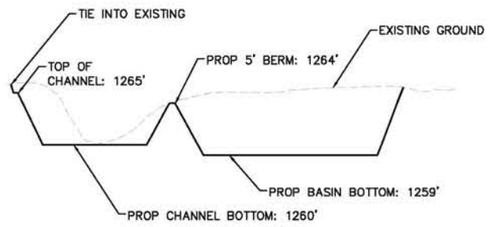
Benefits

The implementation of this project would allow for decreased frequency of road closures at this intersection. In existing conditions, the entire intersection must typically be shut down for the 2-year storm. Stanford Drive becomes inundated with 1 to 3 feet of water and 40th Street with up to 5 feet of water according to modeling results. Recorded instances of the intersection being shut down have been confirmed and recorded by Town Staff. In 2-year and 10-year storm proposed conditions, Stanford Drive could remain open with closures being limited to the 40th Street wash crossing. This project would improve emergency and passenger vehicle access. A cost/benefit ratio was not calculated for this project as the benefits are entirely improved transportation function and emergency vehicle access improvement. 10-year existing conditions, proposed conditions, and depth difference maps, along with conceptual plans, are shown on the following pages. Additional storm events results are included in **Appendix F.**



SECTION A-A

SCALE: 1"=50'



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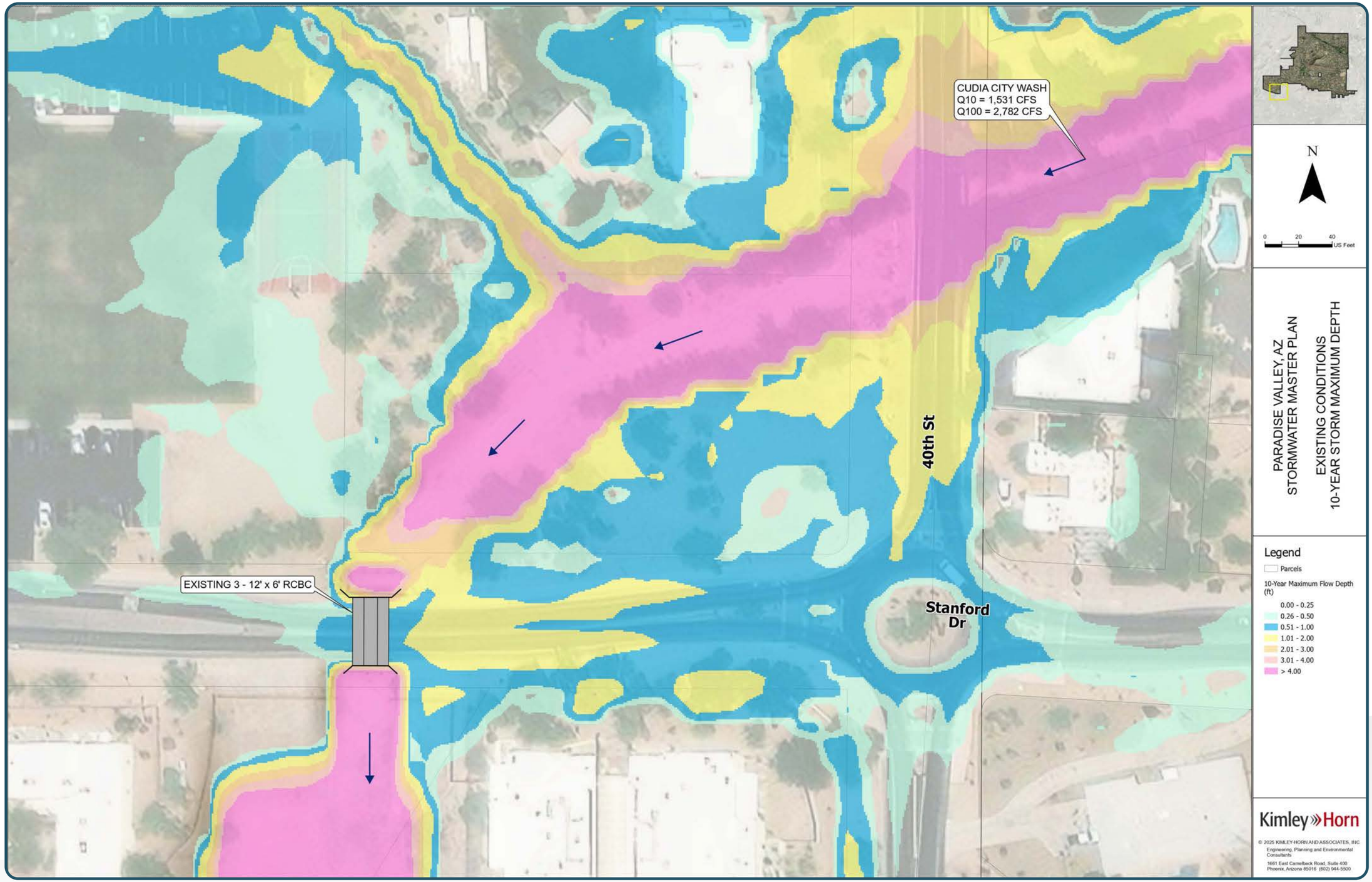
PARADISE VALLEY SWMP
AREA H SELECTED ALTERNATIVE 15% PLANS

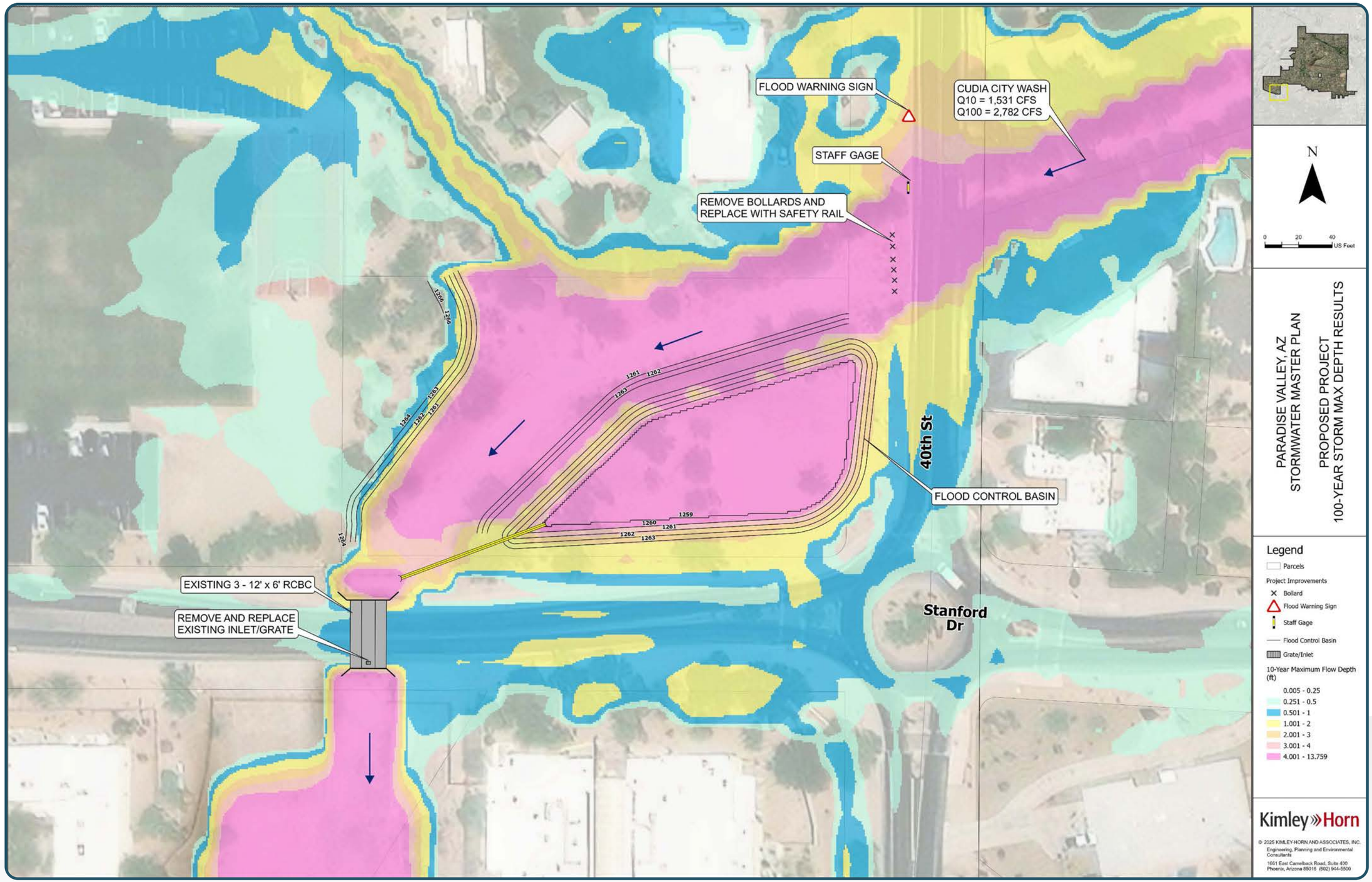
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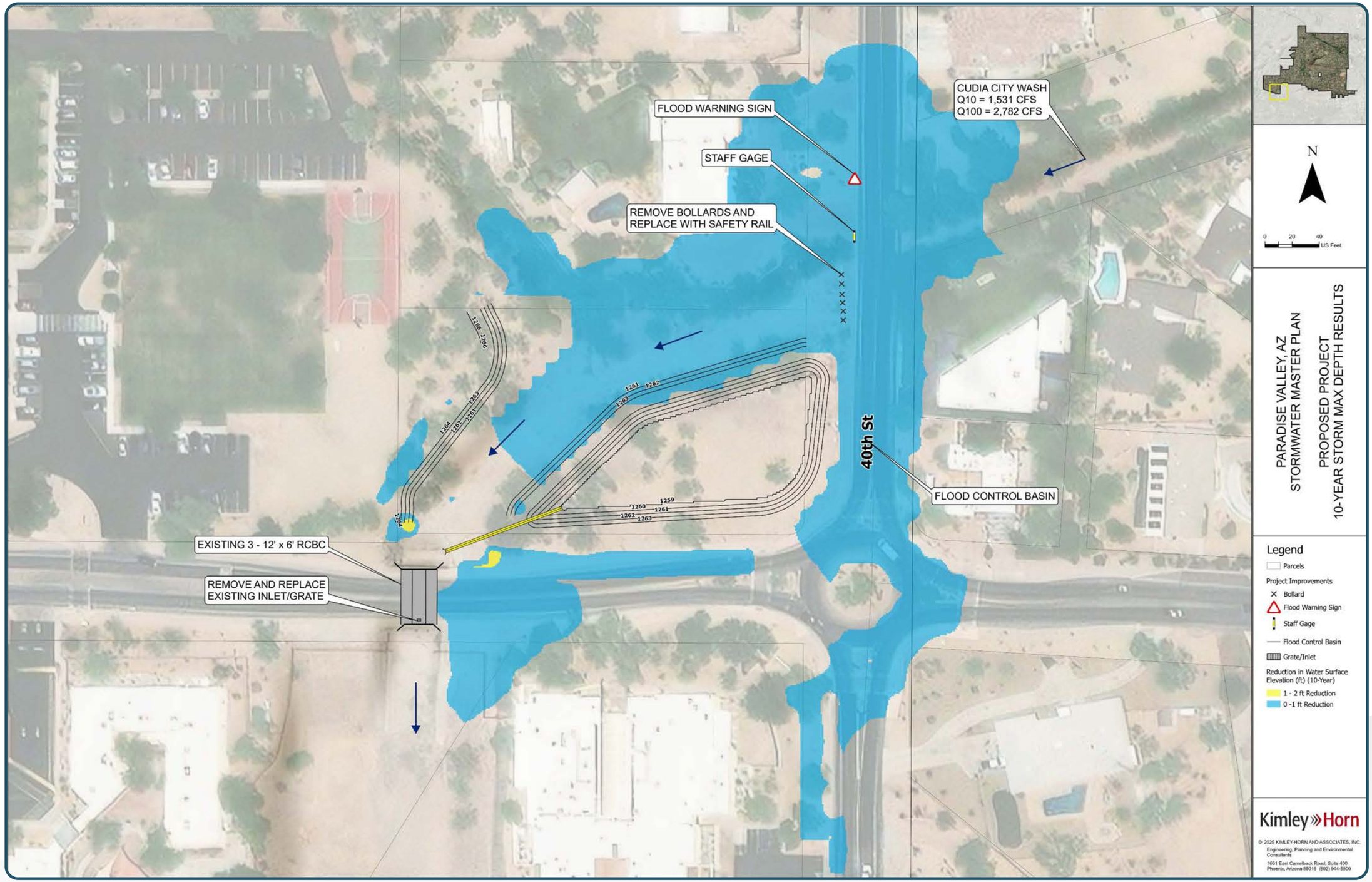
PROJECT NO.
091054031

DRAWING NAME
AREA H

1 OF 1


CUDIA CITY WASH
Q10 = 1,531 CFS
Q100 = 2,782 CFS
EXISTING 3 - 12' x 6' RCBC
40th St
Stanford Dr
N
0 20 40
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
EXISTING CONDITIONS
10-YEAR STORM MAXIMUM DEPTH
Legend
Parcels
10-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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Phoenix, Arizona 85016 (602) 944-5500


FLOOD WARNING SIGN
CUDIA CITY WASH
Q10 = 1,531 CFS
Q100 = 2,782 CFS
STAFF GAGE
REMOVE BOLLARDS AND
REPLACE WITH SAFETY RAIL
40th St
FLOOD CONTROL BASIN
EXISTING 3 - 12' x 6' RCBC
REMOVE AND REPLACE
EXISTING INLET/GRATE
Stanford
Dr
N
0 20 40
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
PROPOSED PROJECT
100-YEAR STORM MAX DEPTH RESULTS
Legend
Parcels
Project Improvements
Bollard
Flood Warning Sign
Staff Gage
Flood Control Basin
Grate/Inlet
10-Year Maximum Flow Depth (ft)
0.005 - 0.25
0.251 - 0.5
0.501 - 1
1.001 - 2
2.001 - 3
3.001 - 4
4.001 - 13.759
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FLOOD WARNING SIGN
STAFF GAGE
REMOVE BOLLARDS AND REPLACE WITH SAFETY RAIL
CUDIA CITY WASH
Q10 = 1,531 CFS
Q100 = 2,782 CFS
40th St
FLOOD CONTROL BASIN
EXISTING 3 - 12' x 6' RCBC
REMOVE AND REPLACE EXISTING INLET/GRATE
N
0 20 40
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
PROPOSED PROJECT
10-YEAR STORM MAX DEPTH RESULTS
Legend
Parcels
Project Improvements
Bollard
Flood Warning Sign
Staff Gage
Flood Control Basin
Grate/Inlet
Reduction in Water Surface Elevation (ft) (10-Year)
1 - 2 ft Reduction
0 -1 ft Reduction
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C. Flood Hazard Area K – Mountain View Road

Description

Alternative 2 was selected from the two alternatives evaluated in the project matrix. This alternative involves constructing a retention basin upstream of Mountain View Road. The basin was sized with 3 to 1 slopes, a top elevation of 1396, and a bottom of elevation of 1388. This configuration provides 32.6 acre-ft of water storage, containing the 10-year hydrograph. The basin outfalls to a spillover weir on the west side of Tatum Boulevard. This project is estimated to cost 6,072,476 USD. Conceptual plans are shown on the following pages with the detailed cost estimate included in **Appendix G.**

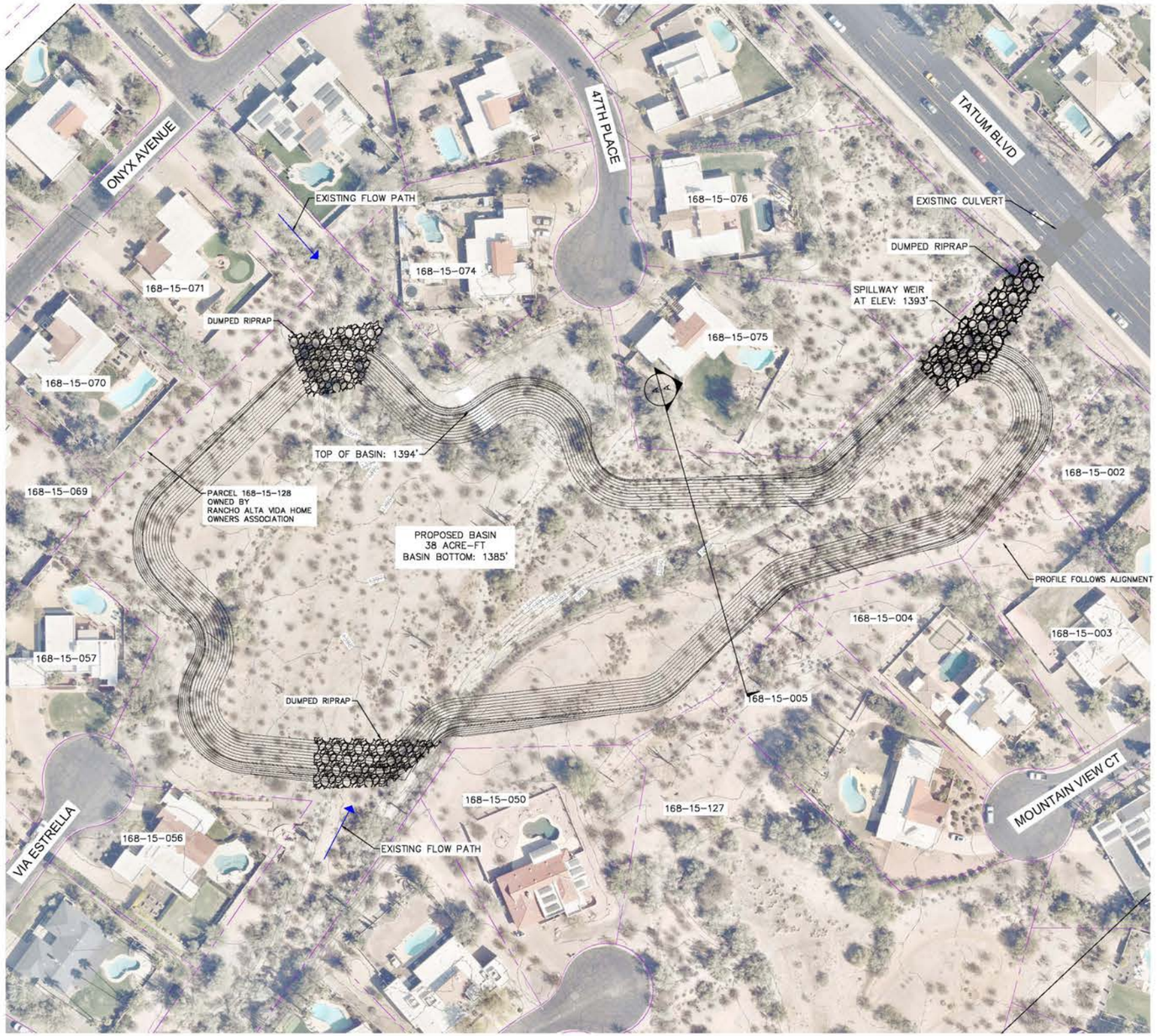
Benefits

The potential benefits for the 10-year and 100-year storms were developed for the project and are shown in **Table 31**. The benefits were determined by incorporating the proposed drainage improvements into the FLO-2D model and comparing the pre and post project flow depth conditions adjacent to the impacted buildings. By using the U.S. Army Corps of Engineers (USACE) depth-damage curves for the building structures and building contents, a damage reduction or benefit per building was determined for the 10- and 100-year storms. The USACE depth damage curves can be seen in **Appendix H**. If the detention basin is built, it is expected to have a life cycle of 75-years, and total benefits of about 18.7 million USD when assuming seven 10-year storms and one 100-year storm occurring during the infrastructure life span

Table 31: Area K Benefit Cost Ratio Summary

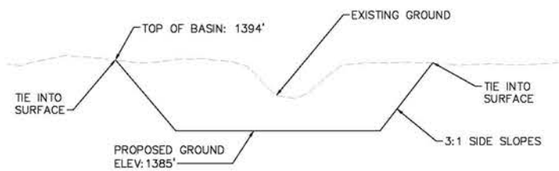
Number of Properties Impacted		220
Approximate Population1		550
Benefit with Drainage Improvements in Place ($)	Damage Reduction	21,394,816
	Social Benefits	1,978,900
	Total	23,293,796
Construction Cost		11,616,355
Benefit-Cost Ratio (BCR)		2.01

1Assumed 2.5 people per household from U.S. Census for the Town of Paradise Valley.
2Social benefits are based on the number of residents impacted and are calculated using FEMA's Benefit Cost Analysis toolkit. This would account for traffic closures, interruptions to work, etc.
3Assumed at least seven 10-year storms and one 100- year storm occur during the 75-year life span of the improvements.



SECTION A-A

SCALE: 1"=30'



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NO. REVISION DATE

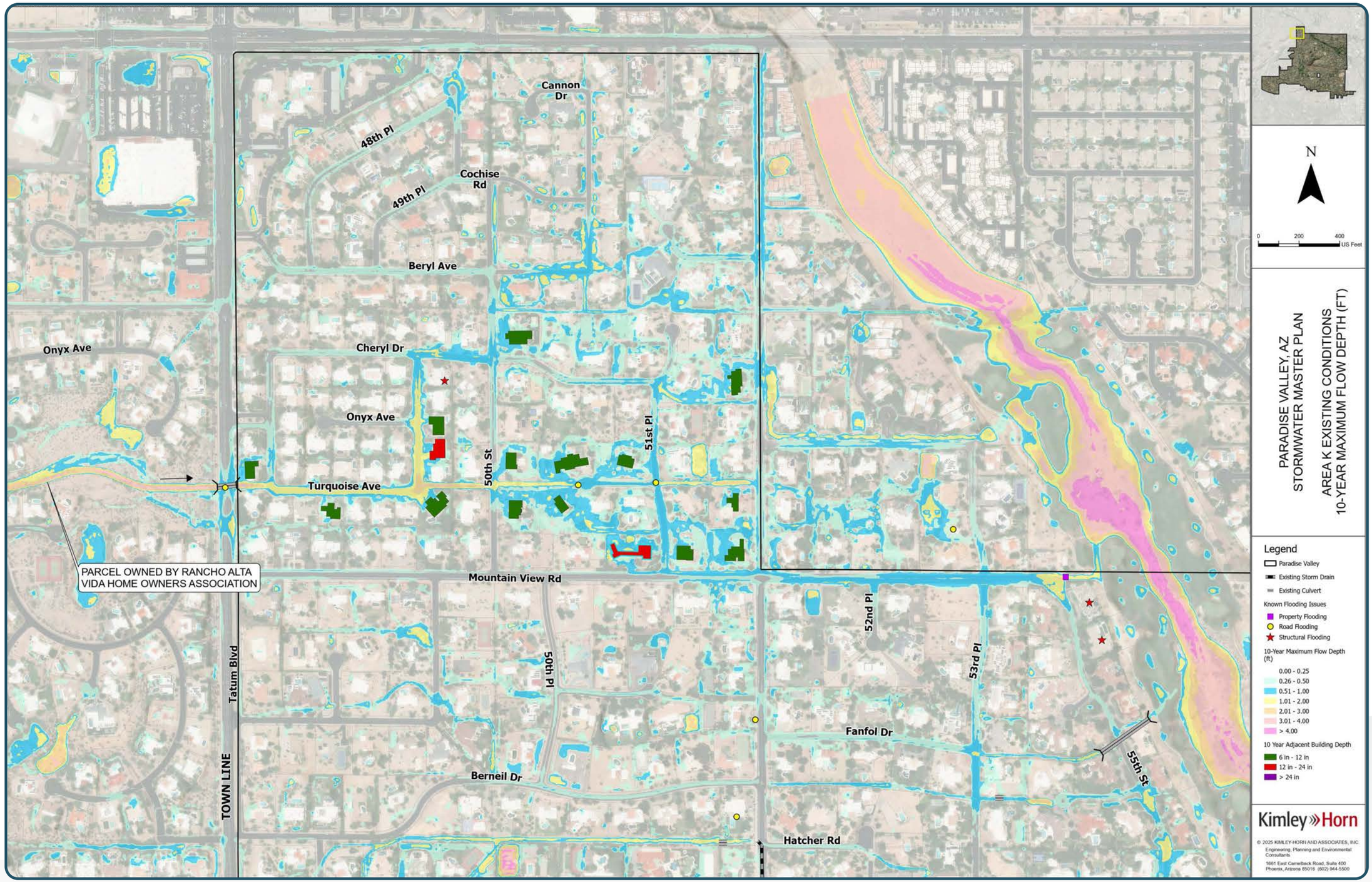
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SCALE (V): 1"=2'
DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB
DATE: 03/25

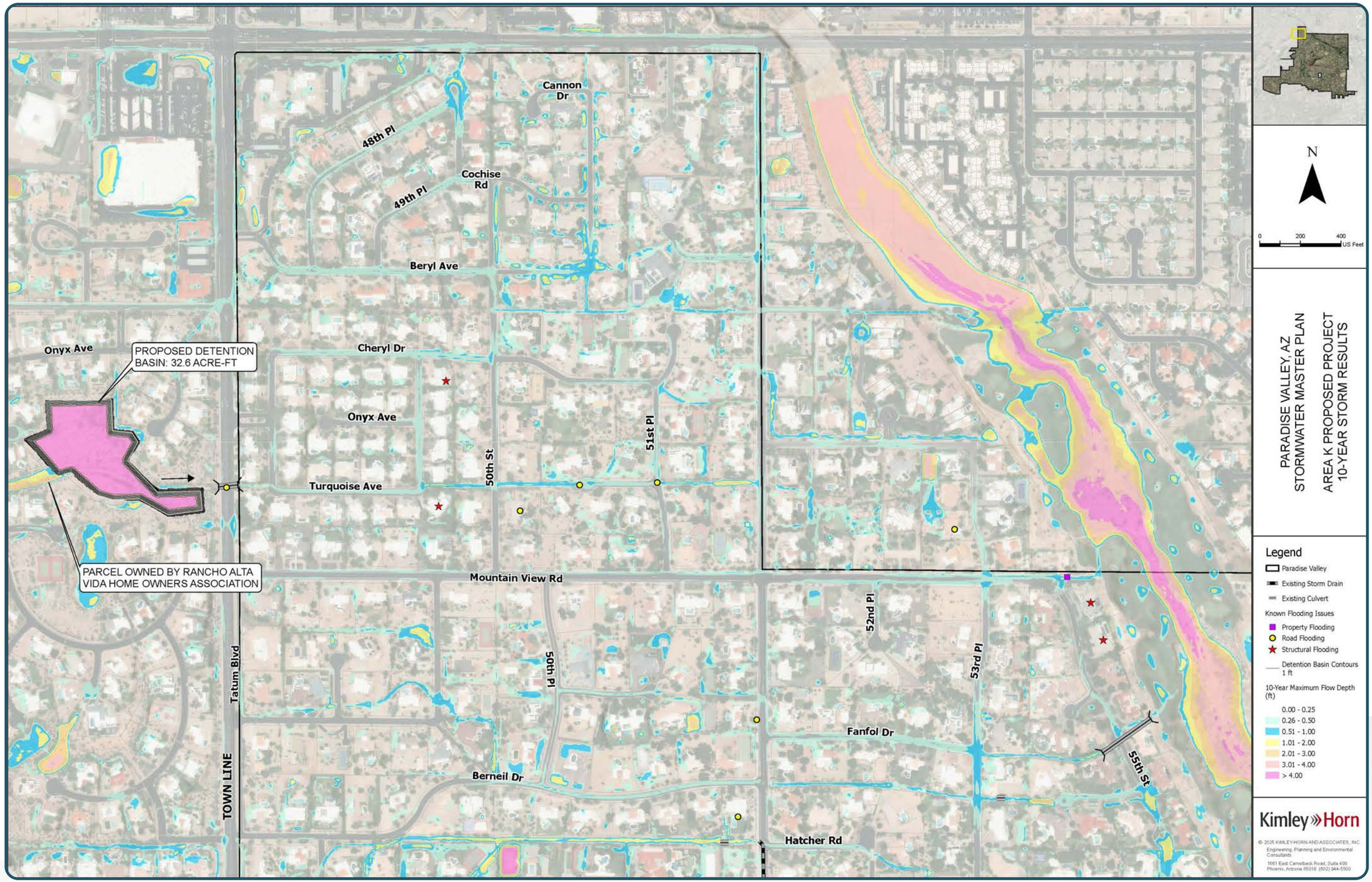
PARADISE VALLEY SWMP
AREA K SELECTED ALTERNATIVE 15% PLANS

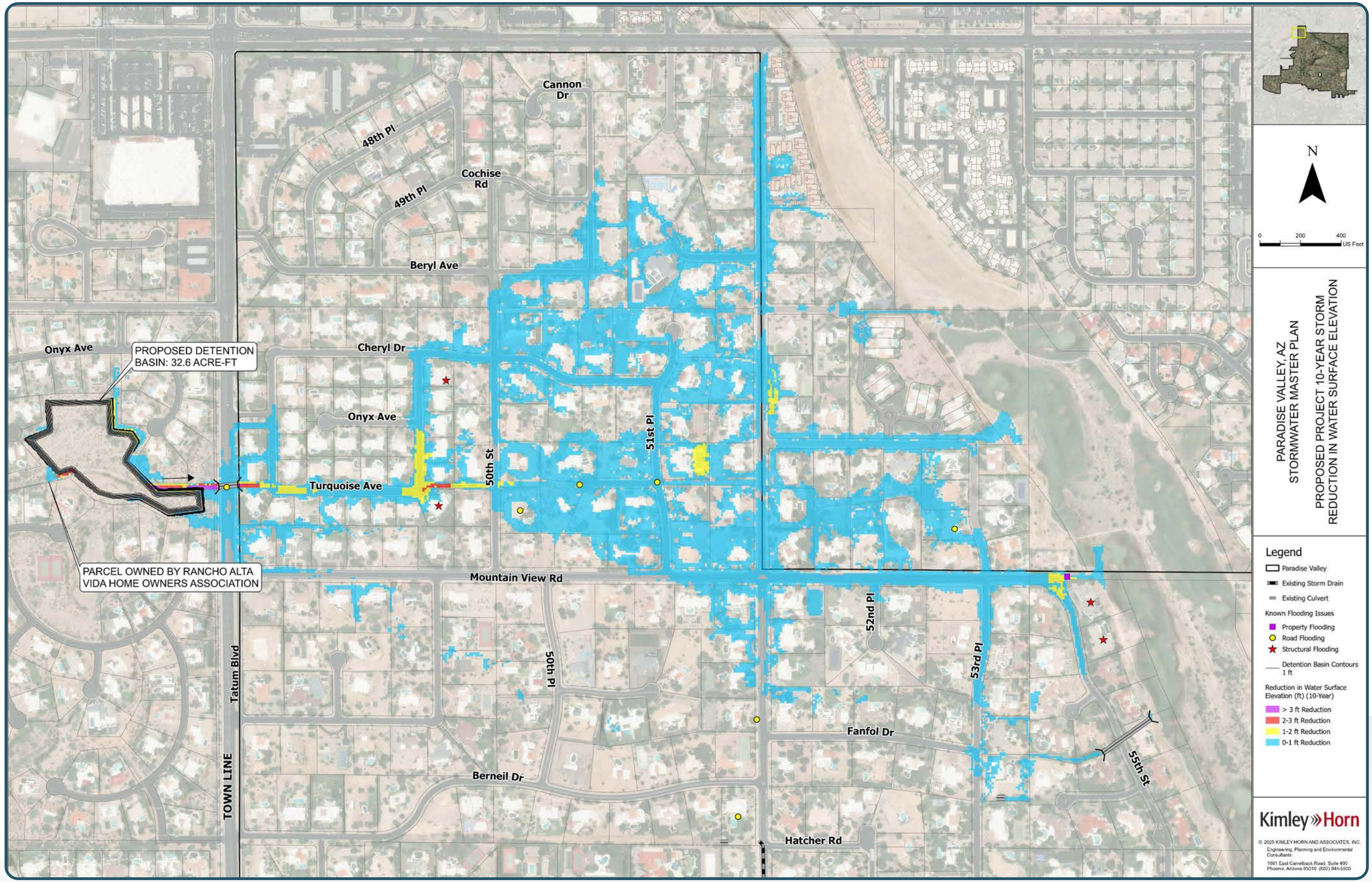
NORTH

PROJECT NO.
091054031

DRAWING NAME
AREA A


Cannon Dr
48th Pl
49th Pl
Cochise Rd
Beryl Ave
Onyx Ave
Cheryl Dr
Onyx Ave
51st Pl
50th St
Turquoise Ave
PARCEL OWNED BY RANCHO ALTA VIDA HOME OWNERS ASSOCIATION
Mountain View Rd
Tatum Blvd
TOWN LINE
50th Pl
52nd Pl
53rd Pl
Fanfol Dr
55th St
Berneil Dr
Hatcher Rd
N
0 200 400 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
AREA K EXISTING CONDITIONS
10-YEAR MAXIMUM FLOW DEPTH (FT)
Legend
Paradise Valley
Existing Storm Drain
Existing Culvert
Known Flooding Issues
Property Flooding
Road Flooding
Structural Flooding
10-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
10 Year Adjacent Building Depth
6 in - 12 in
12 in - 24 in
> 24 in
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Phoenix, Arizona 85016 (602) 944-5500


Cannon Dr
48th Pl
Cochise Rd
49th Pl
Beryl Ave
Onyx Ave
PROPOSED DETENTION BASIN: 32.6 ACRE-FT
Cheryl Dr
Onyx Ave
50th St
51st Pl
Turquoise Ave
PARCEL OWNED BY RANCHO ALTA VIDA HOME OWNERS ASSOCIATION
Mountain View Rd
Tatum Blvd
TOWN LINE
50th Pl
52nd Pl
53rd Pl
Fanfol Dr
Berneil Dr
55th St
Hatcher Rd
N
0 200 400 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
AREA K PROPOSED PROJECT
10-YEAR STORM RESULTS
Legend
Paradise Valley
Existing Storm Drain
Existing Culvert
Known Flooding Issues
Property Flooding
Road Flooding
Structural Flooding
Detention Basin Contours 1 ft
10-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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Cannon Dr
48th Pl
49th Pl
Cochise Rd
Beryl Ave
Onyx Ave
PROPOSED DETENTION BASIN: 32.6 ACRE-FT
Cheryl Dr
Onyx Ave
50th St
51st Pl
Turquoise Ave
PARCEL OWNED BY RANCHO ALTA VIDA HOME OWNERS ASSOCIATION
Mountain View Rd
Tatum Blvd
TOWN LINE
50th Pl
52nd Pl
53rd Pl
Fanfol Dr
Berneil Dr
55th St
Hatcher Rd
N
0
200
400
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
PROPOSED PROJECT 10-YEAR STORM
REDUCTION IN WATER SURFACE ELEVATION
Legend
Paradise Valley
Existing Storm Drain
Existing Culvert
Known Flooding Issues
Property Flooding
Road Flooding
Structural Flooding
Detention Basin Contours 1 ft
Reduction in Water Surface Elevation (ft) (10-Year)
> 3 ft Reduction
2-3 ft Reduction
1-2 ft Reduction
0-1 ft Reduction
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D. Flood Hazard Area L – Upstream Cherokee Wash

Description

Alternative 2 was selected from the two alternatives evaluated in the project decision matrix. The alternative involves replacing three low water crossings with culverts. This alternative requires raising the road to accommodate the culvert configuration. The proposed culverts were developed with the following improvements: the extent of roadway grading necessary for the construction of the culverts was determined and optimized by creating a 3D profile. The profiles provided the required length, invert elevations, and road elevation of the proposed culverts. Using these variables, the 10-year storm water surface elevation passing through the culvert was determined by normal depth calculations. The culvert profiles are included in **Appendix H.** The final configuration for the culverts is 2-10' x 4' on Crestview Drive and Arroyo Drive and a 3-10'x4' on Desert Jewel Drive. Safety rails based on MAG Standard Detail 145 were included in conceptual design. This project is estimated to cost 6,113,214 USD. See **Appendix G** for the associated conceptual cost estimate.

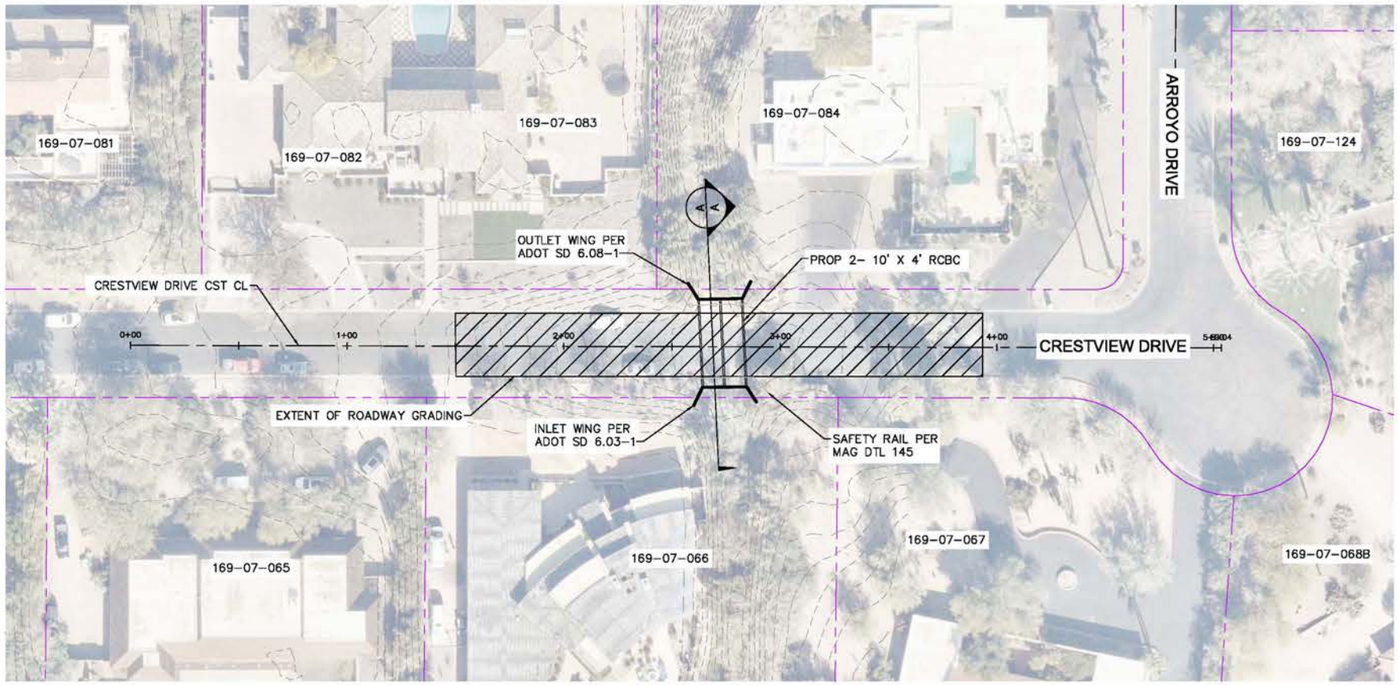
Benefits

The completion of this project would improve public safety and reduce obstruction to emergency vehicle access. In 10-year existing conditions, the maximum flow depths through Crestview Drive, Arroyo Drive, and Desert Jewel Drive are 6 ft, 6.1 ft, and 4.2 ft, respectively per modeling results. These water crossings are hazards to emergency vehicle access and the traveling public. The culvert configuration contains the 2-year storm, and obstructions to emergency vehicles are reduced in the 10-year storm. A cost/benefit ratio was not calculated for this project as the benefits are entirely improved transportation function and emergency access improvement. 10-year existing condition, proposed condition, and depth difference maps, along with conceptual plans, are shown on the following pages. Additional storm event results are included in **Appendix F.**

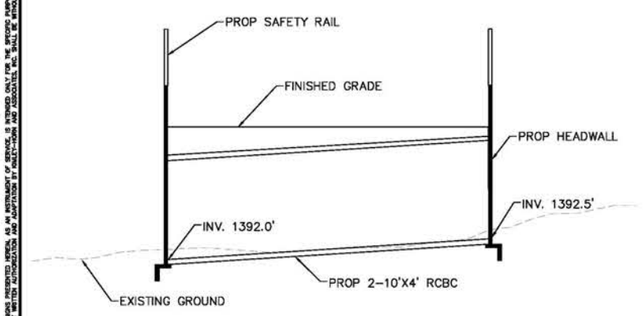
NORTH

GRAPHIC SCALE IN FEET
0 15 30 60

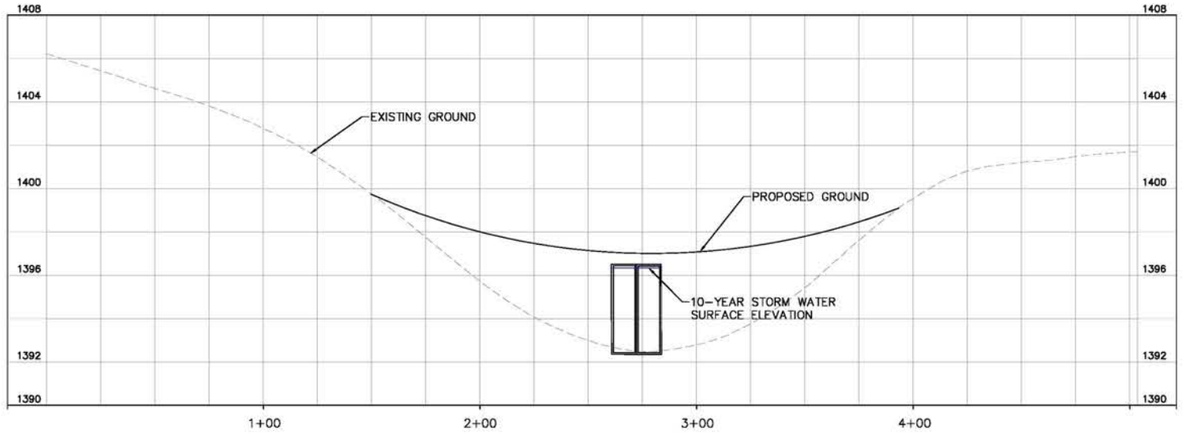
PROFILE VIEW
VERT SCALE: 1"=4'



SECTION A-A
SCALE: 1"=15'



CULVERT PROFILE



NO. | REVISION | DATE

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SCALE (H): 1"=30'
SCALE (V): 1"=4'
DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB
DATE: 03/2025

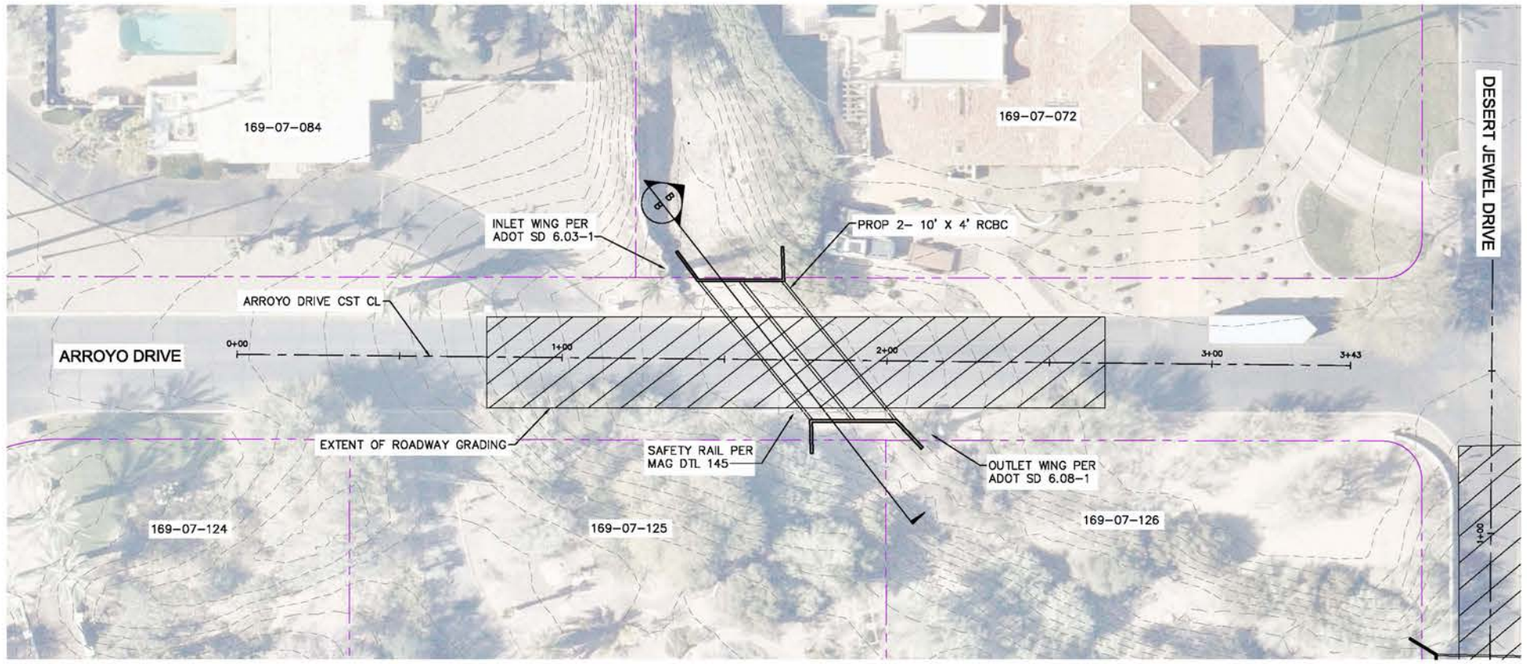
PARADISE VALLEY SWMP
AREA L SELECTED ALTERNATIVE 15% PLANS

PROJECT NO.
091054031
DRAWING NAME
AREA L
1 OF 3

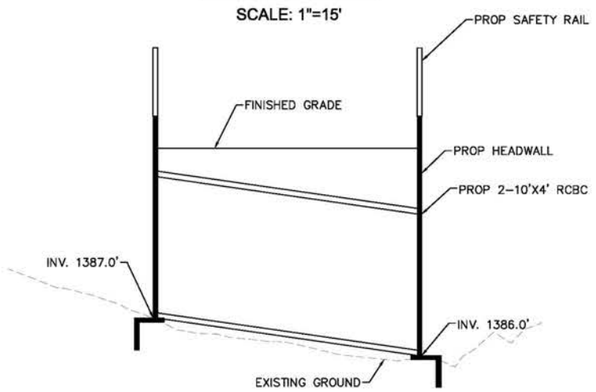
NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

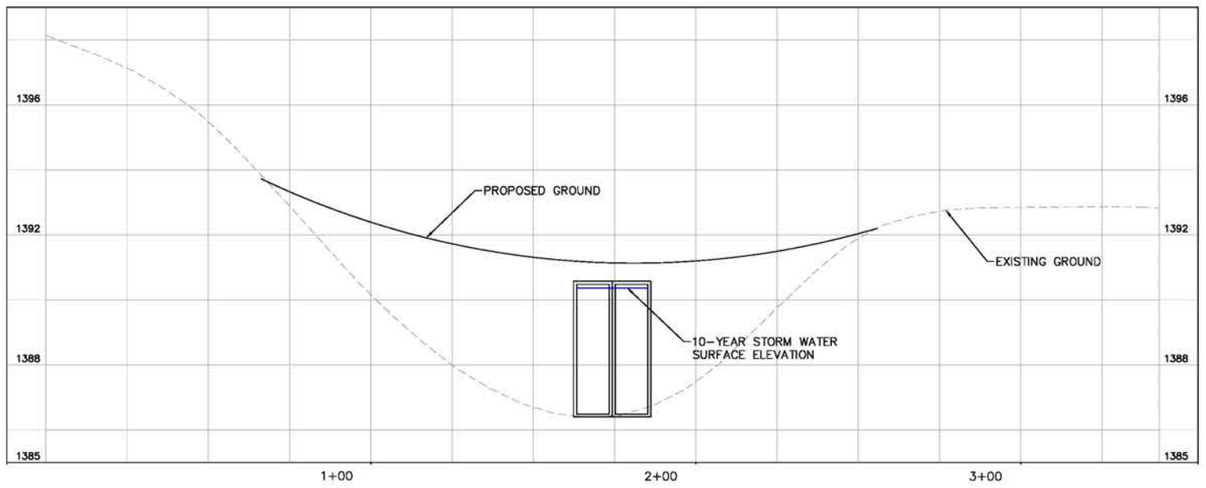
PROFILE VIEW
VERT SCALE: 1"=4'



SECTION B-B
SCALE: 1"=15'



CULVERT PROFILE



NO. | REVISION | DATE

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SCALE (H): 1"=30'
SCALE (V): 1"=4'
DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB
DATE: 03/2025

PARADISE VALLEY SWMP
AREA L SELECTED ALTERNATIVE 15% PLANS

PROJECT NO.
091054031
DRAWING NAME
AREA L
2 OF 3

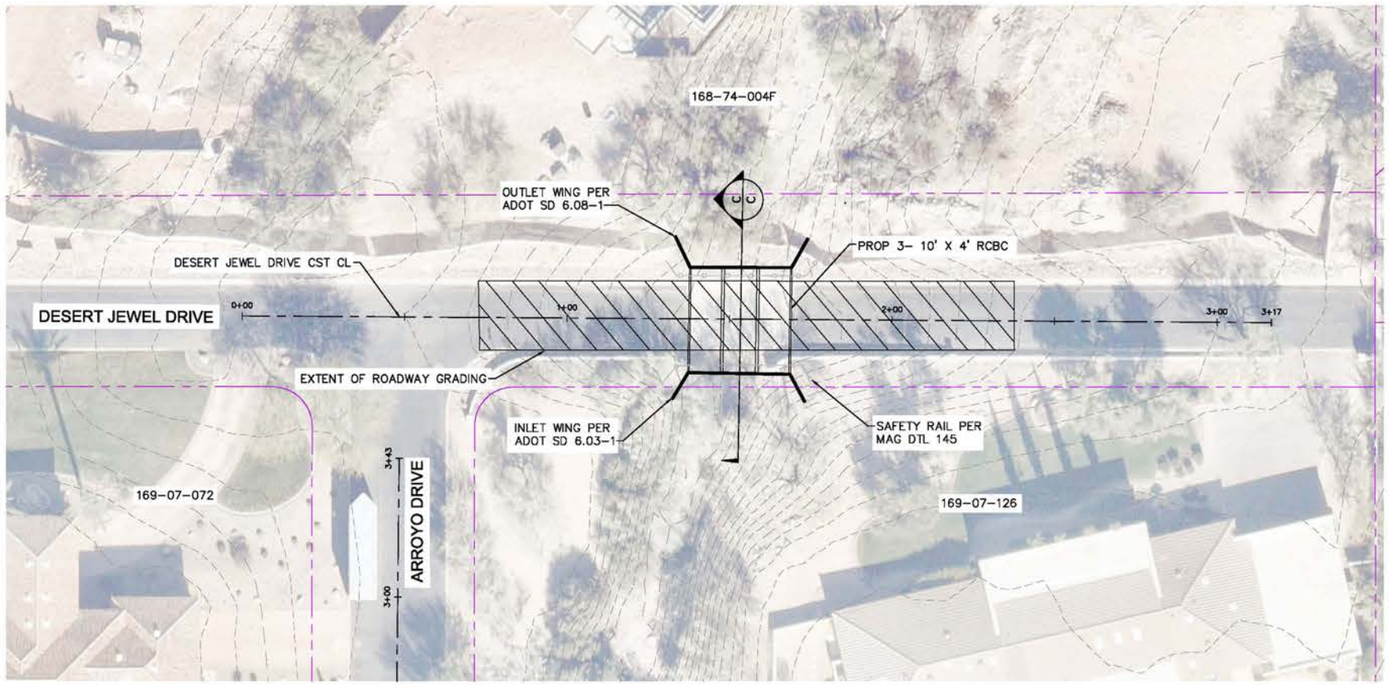
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THESE PLANS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.

NORTH

GRAPHIC SCALE IN FEET
0 15 30 60

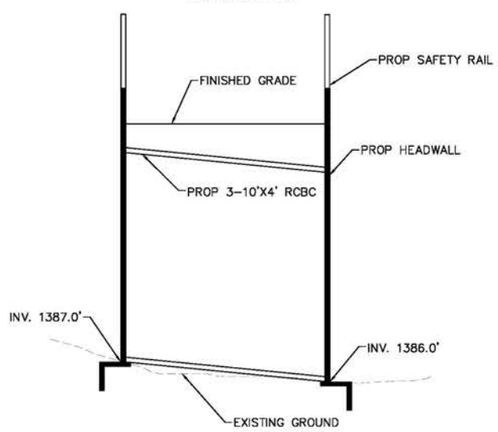
PROFILE VIEW

VERT SCALE: 1"=4'

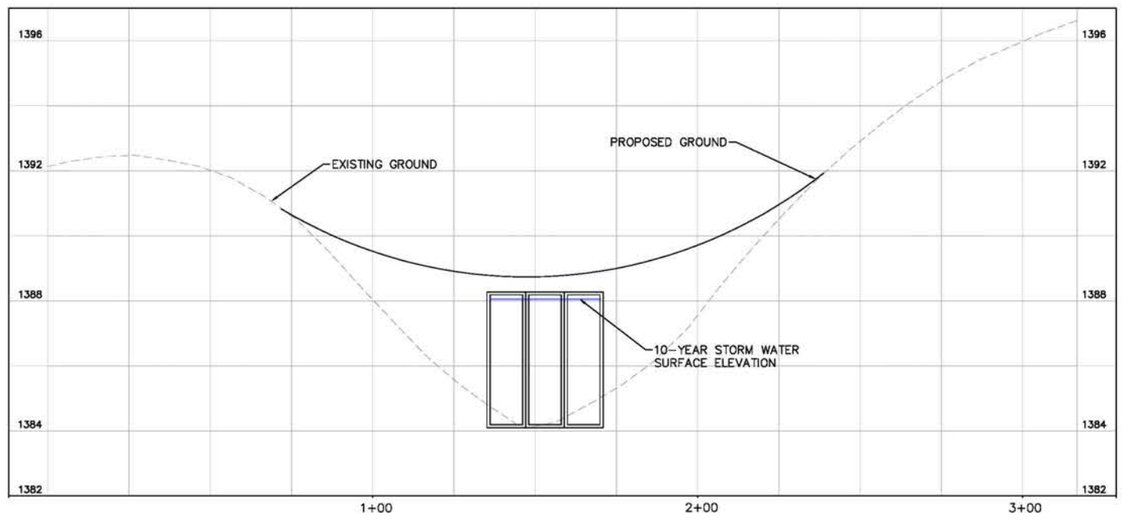


SECTION C-C

SCALE: 1"=15'



CULVERT PROFILE



NO.	REVISION	DATE

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SCALE (H): 1"=30'
SCALE (V): 1"=4'
DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB
DATE: 03/2025

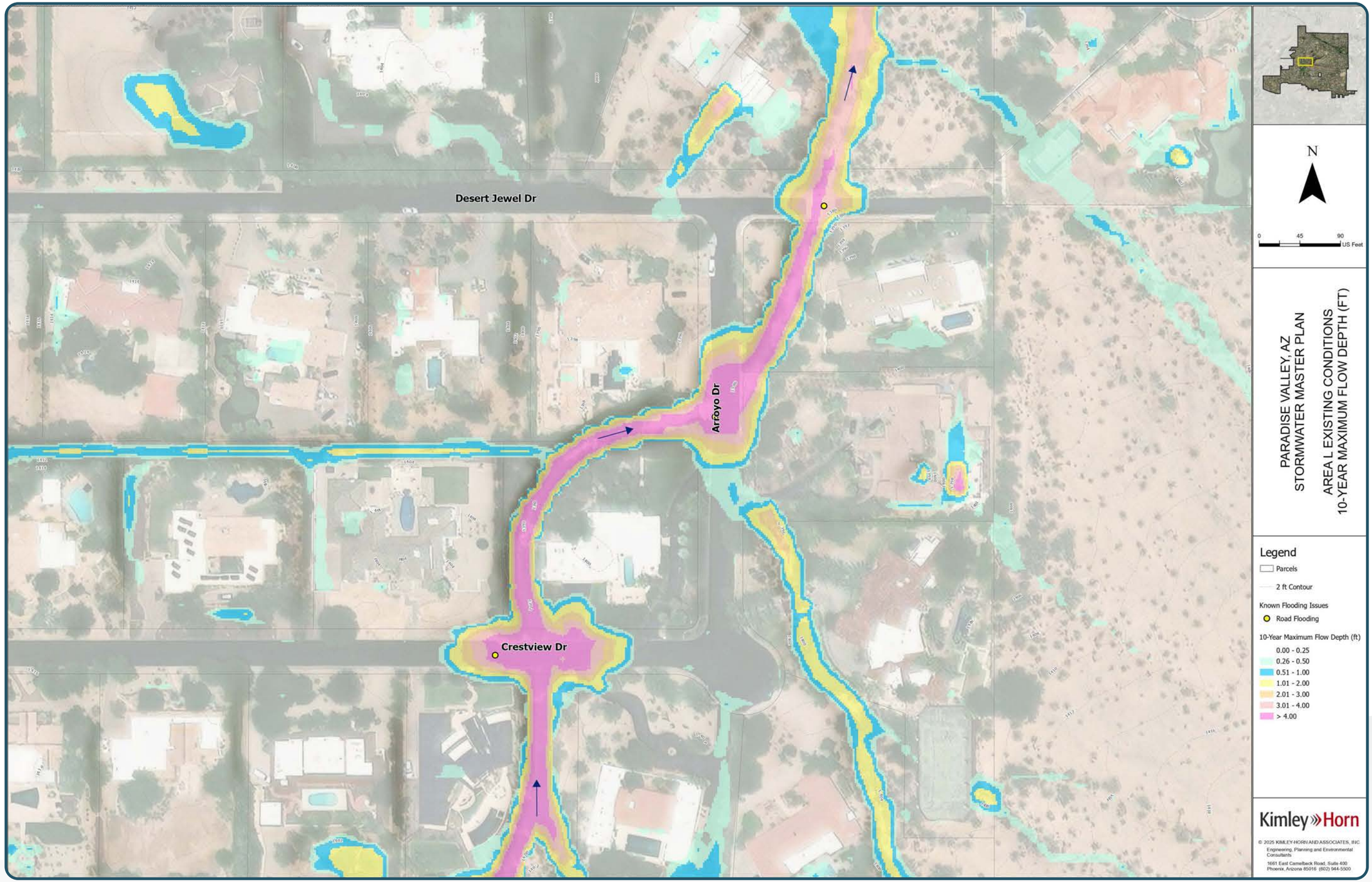
PARADISE VALLEY SWMP
AREA L SELECTED ALTERNATIVE 15% PLANS

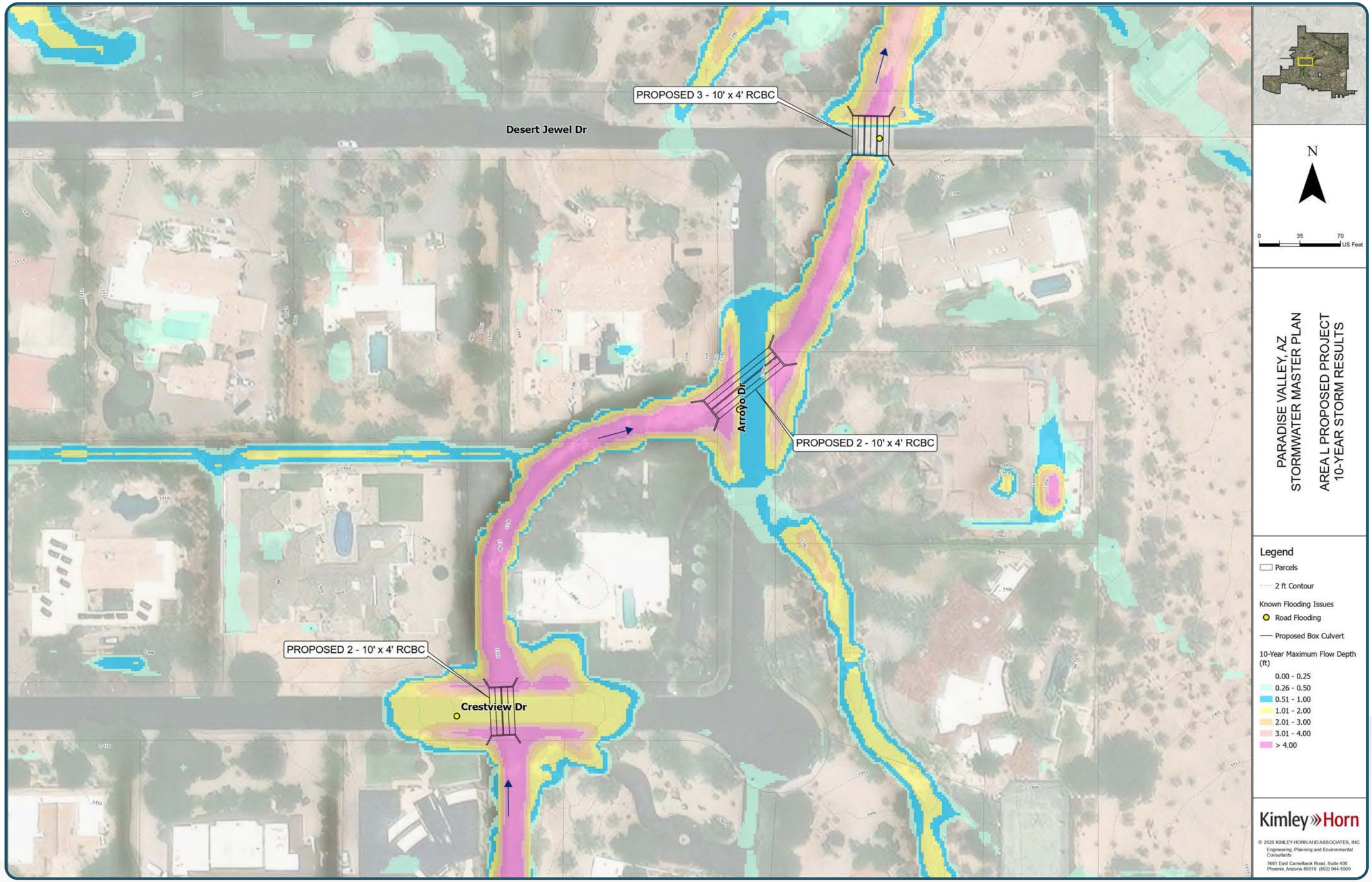
PROJECT NO.
091054031

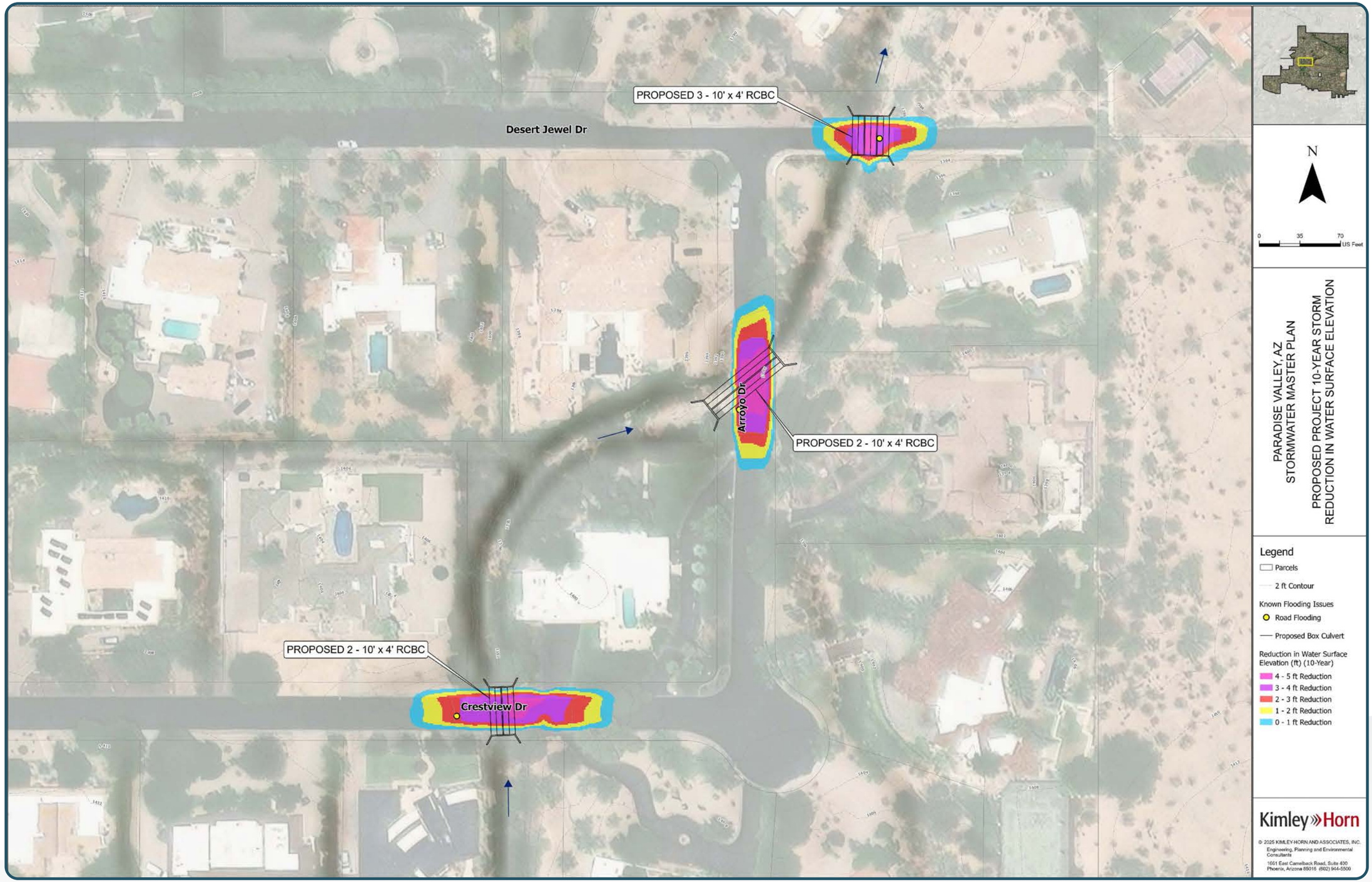
DRAWING NAME
AREA L

3 OF 3

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Desert Jewel Dr
Arroyo Dr
Crestview Dr
N
0
45
90
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
AREA L EXISTING CONDITIONS
10-YEAR MAXIMUM FLOW DEPTH (FT)
Legend
Parcels
2 ft Contour
Known Flooding Issues
Road Flooding
10-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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PROPOSED 3 - 10' x 4' RCBC
Desert Jewel Dr
Arroyo Dr
PROPOSED 2 - 10' x 4' RCBC
PROPOSED 2 - 10' x 4' RCBC
Crestview Dr
N
0
35
70
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
AREA L PROPOSED PROJECT
10-YEAR STORM RESULTS
Legend
Parcels
2 ft Contour
Known Flooding Issues
Road Flooding
Proposed Box Culvert
10-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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PROPOSED 3 - 10' x 4' RCBC
Desert Jewel Dr
Arroyo Dr
PROPOSED 2 - 10' x 4' RCBC
PROPOSED 2 - 10' x 4' RCBC
Crestview Dr
N
0
35
70
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
PROPOSED PROJECT 10-YEAR STORM
REDUCTION IN WATER SURFACE ELEVATION
Legend
Parcels
2 ft Contour
Known Flooding Issues
Road Flooding
Proposed Box Culvert
Reduction in Water Surface Elevation (ft) (10-Year)
4 - 5 ft Reduction
3 - 4 ft Reduction
2 - 3 ft Reduction
1 - 2 ft Reduction
0 - 1 ft Reduction
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Phoenix, Arizona 85016 (602) 944-5500

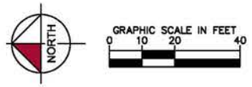
E. Flood Hazard Area N – Downstream Cherokee Wash

Description

Alternative 1 was selected from the two alternatives evaluated in the project decision matrix. The alternative involves replacing four low water crossings with culverts. This alternative requires raising the road to accommodate the culvert configuration. The proposed culverts were developed with the following improvements: the extent of roadway grading necessary for the construction of the culverts was determined and optimized by creating a 3D profile. The profiles provided the required length, invert elevations, and road elevation of the proposed culverts. Using these variables, the 10-year storm water surface elevation passing through the culvert was obtained by performing normal depth calculations. The culvert configuration has the capacity for the 10-year storm. The culvert profiles are included in **Appendix F.** The final configuration for the culverts is a 10-year storm design and consisted of 2-10' x 4' for each culvert location. This project is estimated to cost 1,989,729 USD. See **Appendix G** for the associated conceptual cost estimate

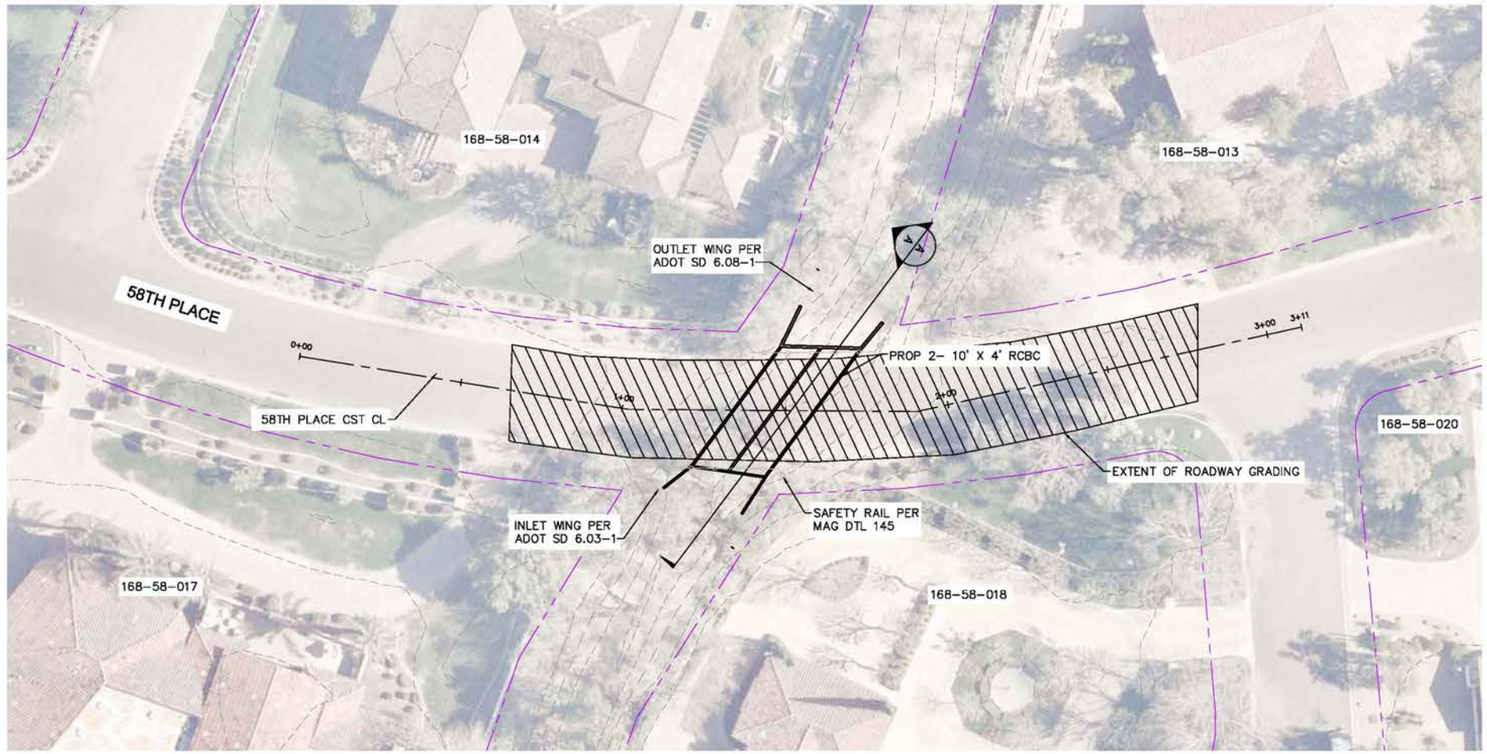
Benefits

The completion of this project would improve public safety and reduce obstruction to emergency vehicle access. In 10-year existing conditions, the maximum flow depths through 58th Place, 59th Place, Morning Glory Rd, and Caballo Lane are 3.9 ft, 3.5 ft, 4.7, and 4.4 ft, respectively per modeling results. In 10-year proposed conditions, maximum flow depths are 0.1 ft, 0.6 ft, 0.6 ft, and 0.2 ft, respectively. A cost/benefit ratio was not calculated for this project as the benefits are entirely improved transportation function and emergency access improvement. 10-year existing condition, proposed condition, and depth difference maps, along with conceptual plans, are shown on the following pages. Additional storm event results are included in **Appendix F.**



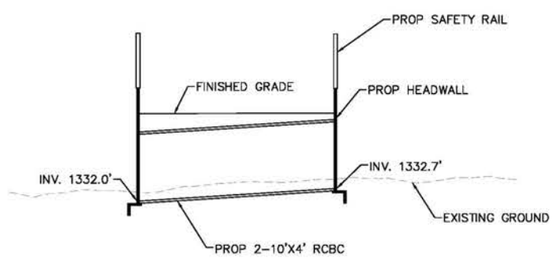
PROFILE VIEW

VERT SCALE: 1"=4'

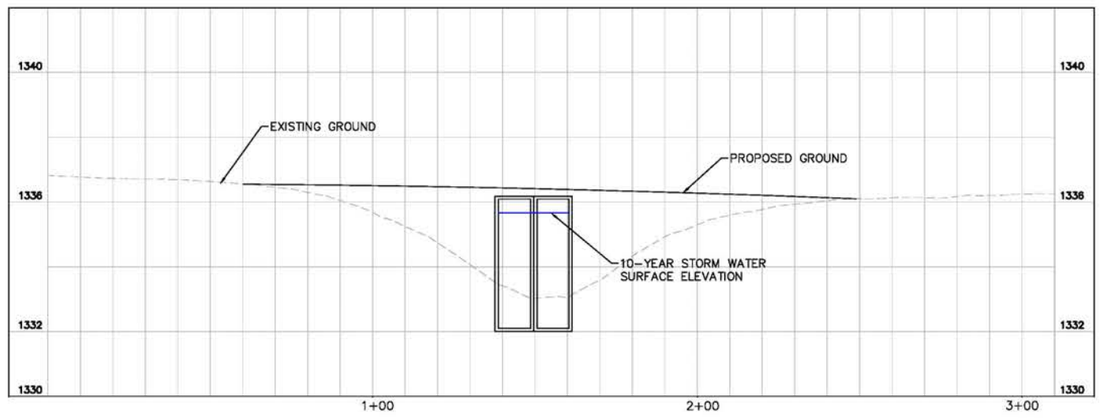


SECTION A-A

SCALE: 1"=15'



CULVERT PROFILE



NO.	REVISION	DATE

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SCALE (H): 1"=20'
SCALE (V): 1"=4'
DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB
DATE: 03/2025

PARADISE VALLEY SWMP
AREA N SELECTED ALTERNATIVE 15% PLANS

PROJECT NO.
091054031

DRAWING NAME
AREA N

1 OF 4

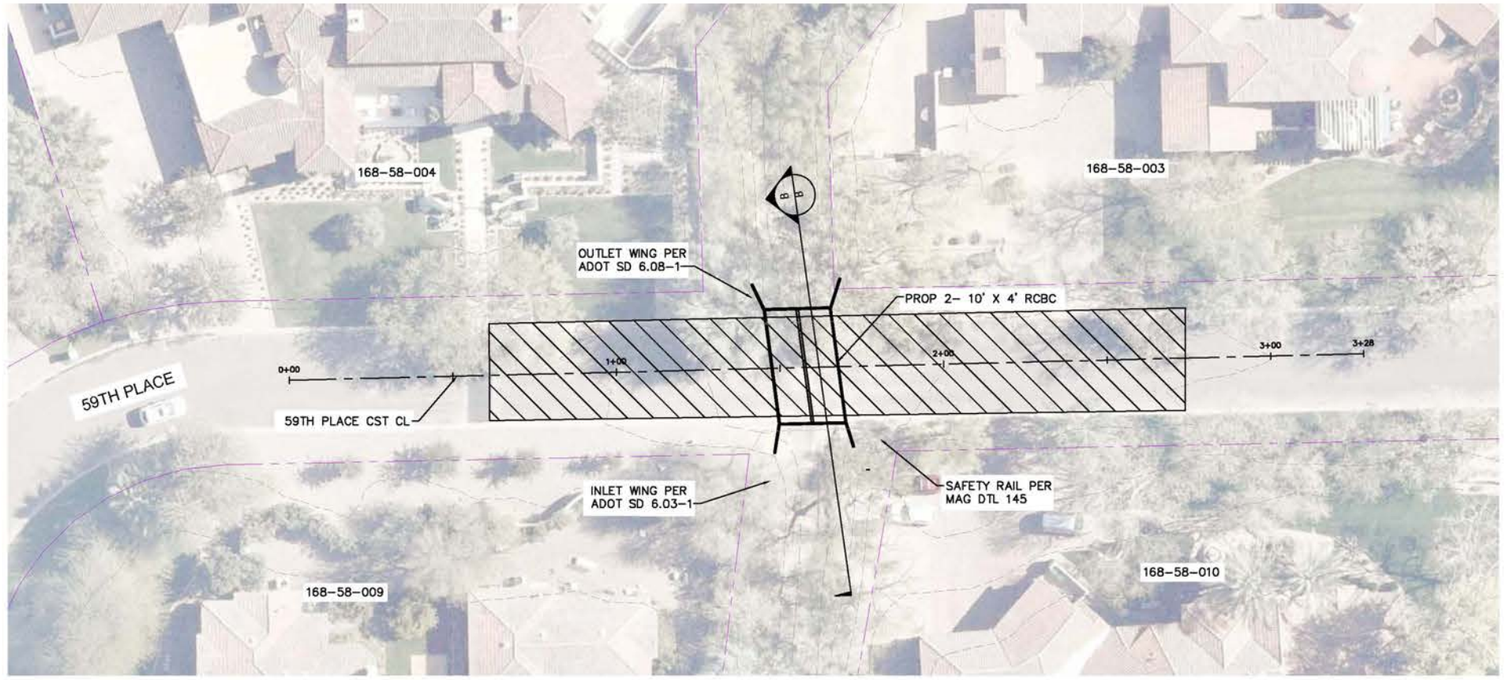
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GRAPHIC SCALE IN FEET
0 10 20 40

NORTH

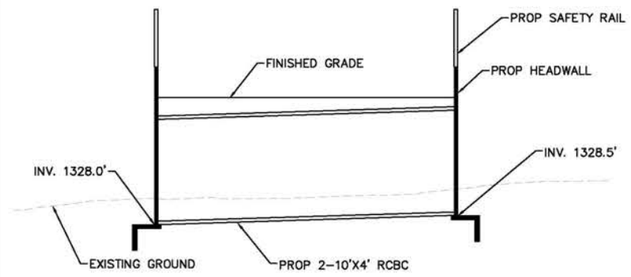
PROFILE VIEW

VERT SCALE: 1"=4'

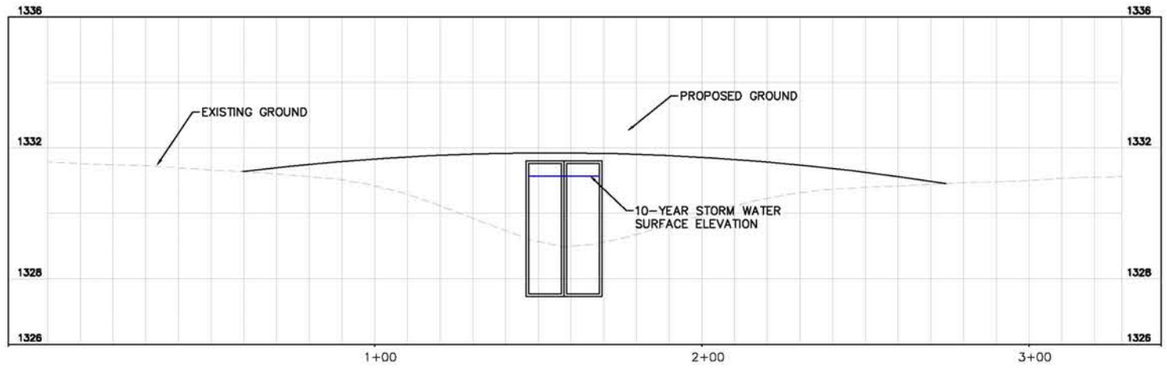


SECTION B-B

SCALE: 1"=10'



CULVERT PROFILE



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NO.	REVISION	DATE

SCALE (H): 1"=20'
SCALE (V): 1"=4'
DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB
DATE: 03/2025

PARADISE VALLEY SWMP
AREA N SELECTED ALTERNATIVE 15% PLANS

PROJECT NO.
091054031

DRAWING NAME
AREA N

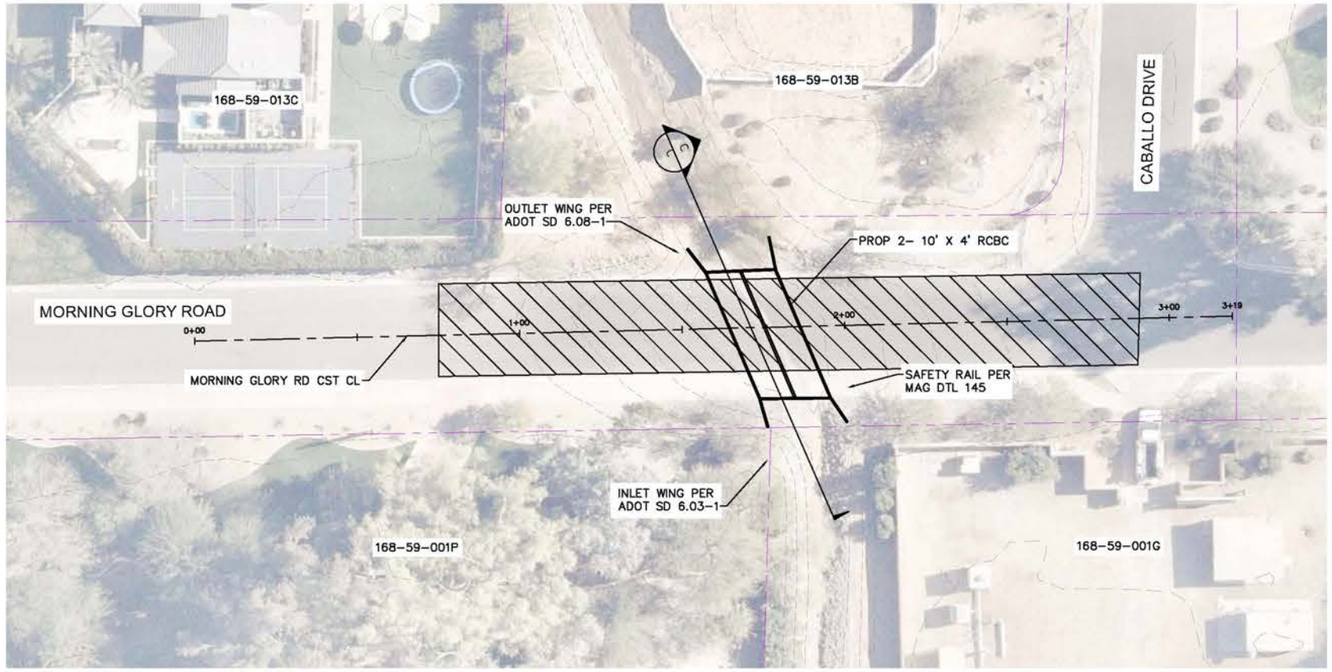
2 OF 4

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

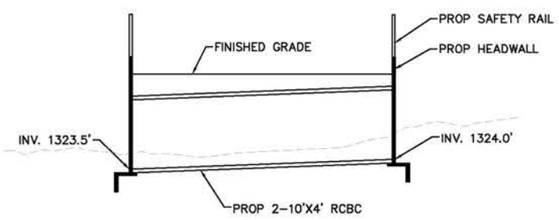
PROFILE VIEW

VERT SCALE: 1"=4'



SECTION C-C

SCALE: 1"=10'



CULVERT PROFILE



NO.	REVISION	DATE

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PARADISE VALLEY SWMP
AREA N SELECTED ALTERNATIVE 15% PLANS

PROJECT NO.
091054031

DRAWING NAME
AREA N

3 OF 4

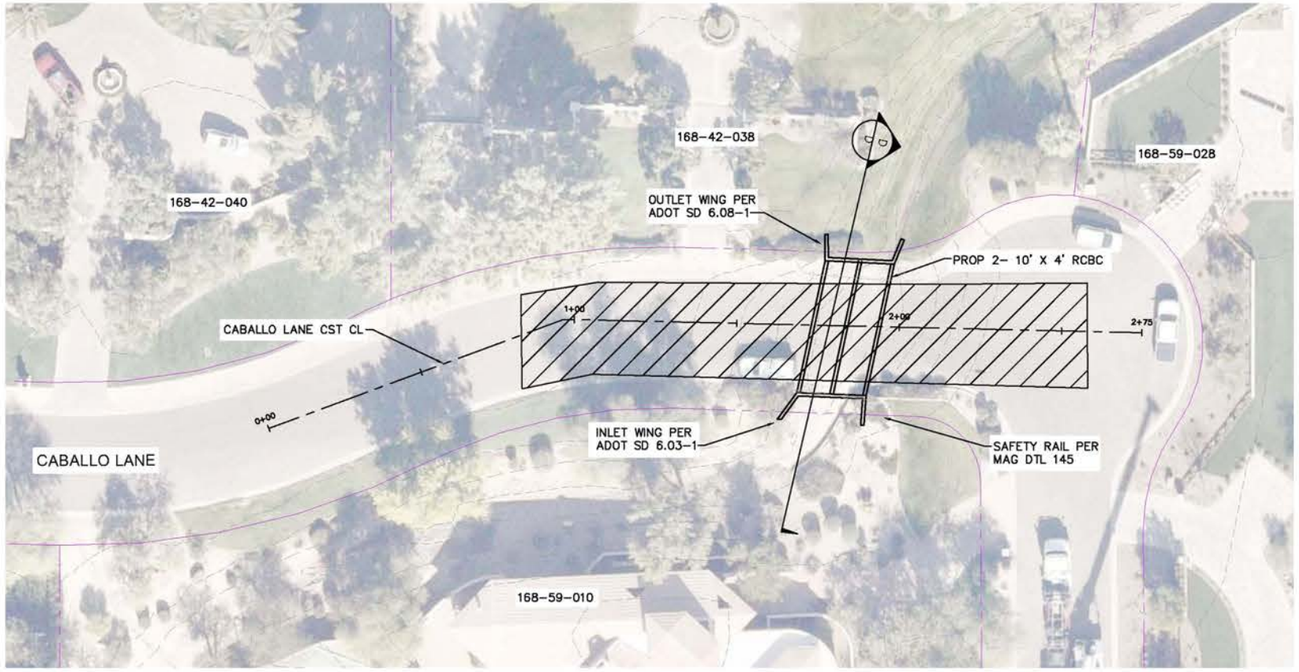
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NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

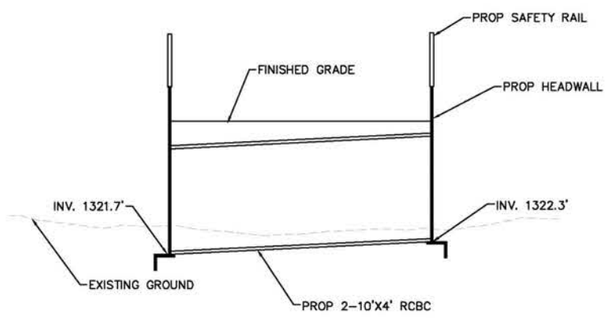
PROFILE VIEW

VERT SCALE: 1"=4'



SECTION D-D

SCALE: 1"=10'



CULVERT PROFILE



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DATE: 03/2025

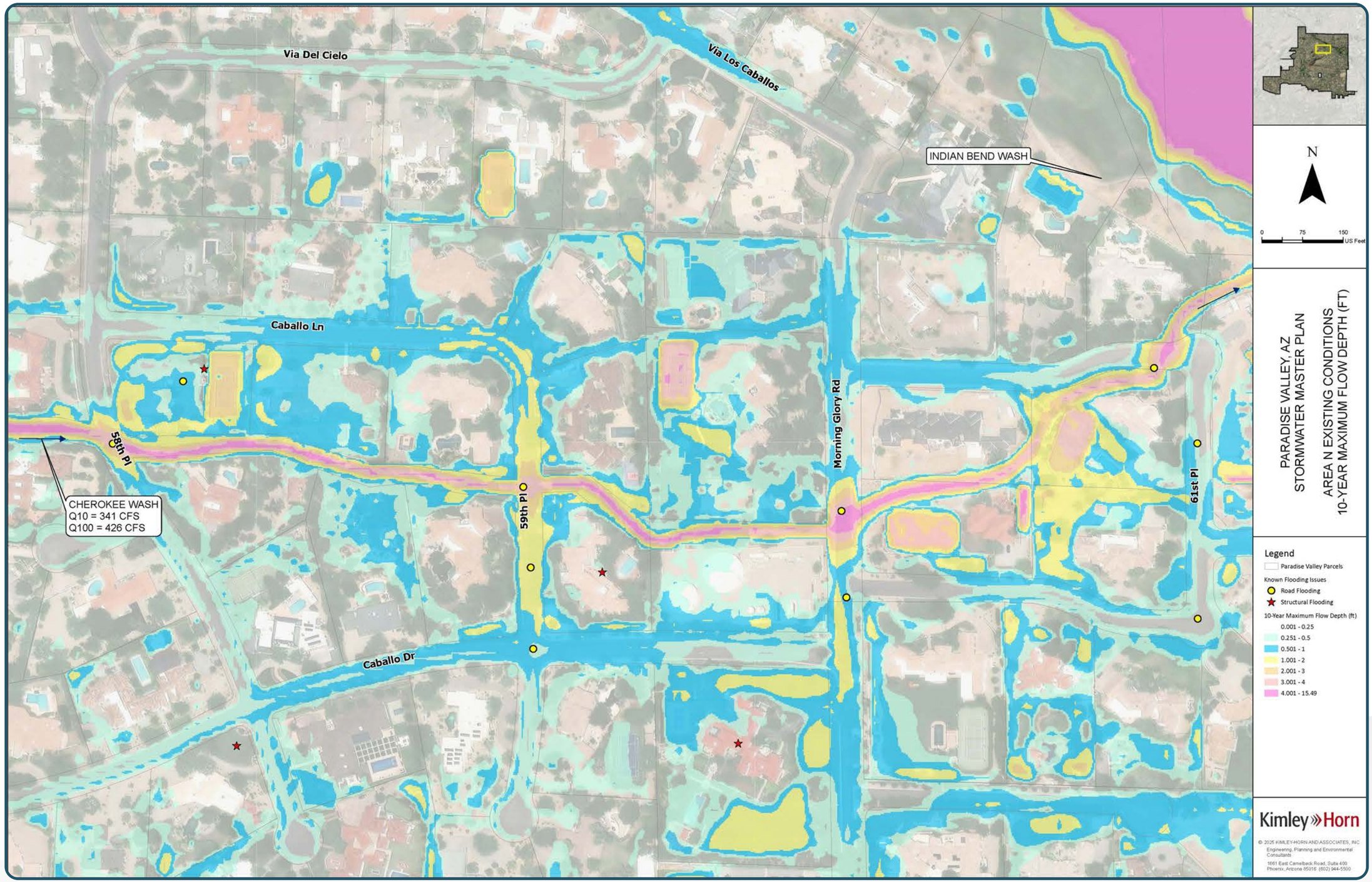
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AREA N SELECTED ALTERNATIVE 15% PLANS

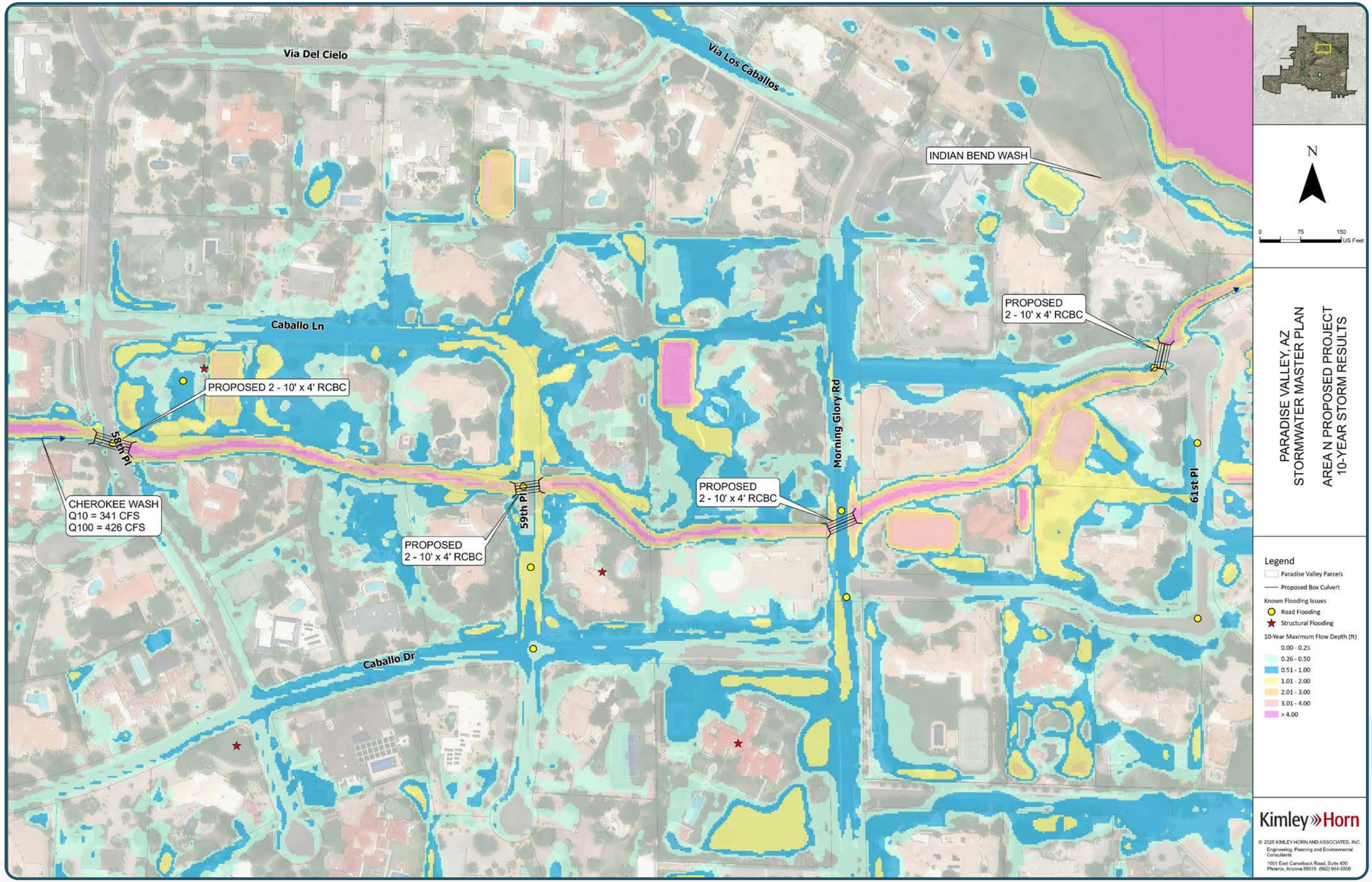
PROJECT NO.
091054031

DRAWING NAME
AREA N

4 OF 4

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Via Del Cielo
Via Los Caballos
INDIAN BEND WASH
Caballo Ln
58th Pl
CHEROKEE WASH
Q10 = 341 CFS
Q100 = 426 CFS
59th Pl
Morning Glory Rd
61st Pl
Caballo Dr
N
0 75 150
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
AREA N EXISTING CONDITIONS
10-YEAR MAXIMUM FLOW DEPTH (FT)
Legend
Paradise Valley Parcels
Known Flooding Issues
Road Flooding
Structural Flooding
10-Year Maximum Flow Depth (ft)
0.001 - 0.25
0.251 - 0.5
0.501 - 1
1.001 - 2
2.001 - 3
3.001 - 4
4.001 - 15.49
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Via Del Cielo
Via Los Caballos
INDIAN BEND WASH
PROPOSED
2 - 10' x 4' RCBC
Caballo Ln
PROPOSED 2 - 10' x 4' RCBC
58th Pl
CHEROKEE WASH
Q10 = 341 CFS
Q100 = 426 CFS
59th Pl
PROPOSED
2 - 10' x 4' RCBC
Morning Glory Rd
PROPOSED
2 - 10' x 4' RCBC
61st Pl
Caballo Dr
N
0 75 150
US Feet
TOWN OF PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
AREA N PROPOSED PROJECT
10-YEAR STORM RESULTS
Legend
Paradise Valley Parcels
Proposed Box Culvert
Known Flooding Issues
Road Flooding
Structural Flooding
10-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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Via Del Cielo
Via Los Caballos
Caballo Ln
Caballo Dr
Morning Glory Rd
61st Pl
59th Pl
INDIAN BEND WASH
PROPOSED
2 - 10' x 4' RCBC
PROPOSED 2 - 10' x 4' RCBC
CHEROKEE WASH
Q10 = 341 CFS
Q100 = 426 CFS
PROPOSED
2 - 10' x 4' RCBC
PROPOSED
2 - 10' x 4' RCBC
N
0 75 150
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
PROPOSED PROJECT 10-YEAR STORM
REDUCTION IN WATER SURFACE ELEVATION
Legend
Paradise Valley Parcels
Proposed Box Culvert
Known Flooding Issues
Road Flooding
Structural Flooding
Reduction in Water Surface Elevation (ft) (10-Year)
4 - 5 ft Reduction
3 - 4 ft Reduction
2 - 3 ft Reduction
1 - 2 ft Reduction
0 - 1 ft Reduction
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F. Flood Hazard Area O – Lincoln Drive

Description

Alternative 2 was selected from the two alternatives evaluated in the project decision matrix. The alternative involves replacing three undersized culverts at 51st Place, Lincoln Drive, and Desert Fairways Drive. This alternative requires raising the road to accommodate the culvert configuration at two of the locations, 51st Street and Desert Fairways Drive. The proposed culverts were developed with the following improvements: the extent of roadway grading necessary for the construction of the culverts was determined and optimized by creating a 3D profile. The profiles provided the required length, invert elevations, and road elevation of the proposed culverts. Using these variables, the 10-year storm water surface elevation passing through the culvert was determined by performing normal depth calculations. The culvert configurations has the capacity for the 10-year storm. The culvert profiles are included in **Appendix F.** The final configuration for the culverts is a 10-year storm design and consisted of 2-10' x 4' at 51st Place and a 12'x3' culvert at both Lincoln Drive and Desert Fairways Drive. The culvert profiles and 15% plans are included in **Appendix H.** This project is estimated to cost 1,979,147 USD. See **Appendix G** for the associated conceptual cost estimate.

Benefits

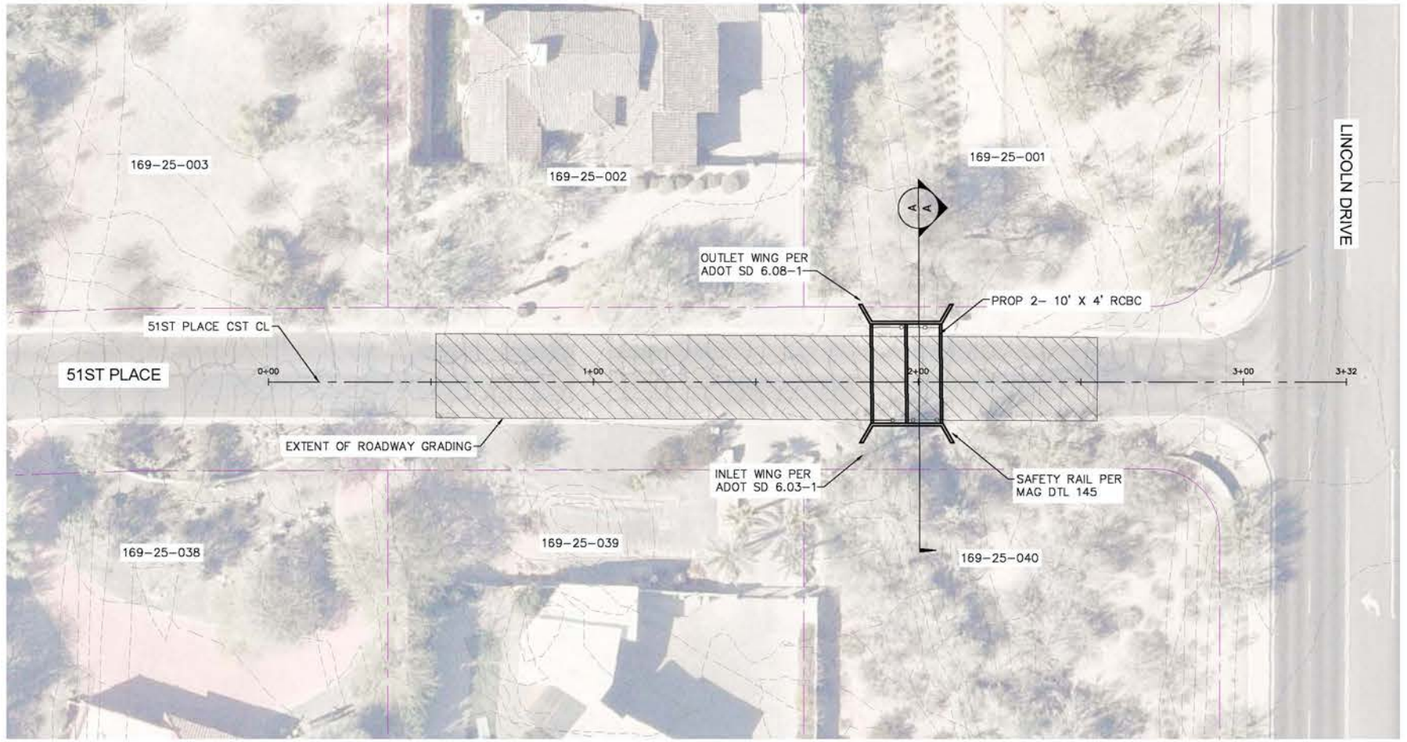
The completion of this project would improve public safety and reduce obstructions to emergency vehicle access. In 10-year existing conditions, the maximum flow depths through 51st Place, Lincoln Drive, and Desert Fairways Drive are 3 ft, 0.9 ft, and 1.3 ft, respectively per modeling results. In 10-year proposed conditions, maximum flow depths are 0.8 ft, 0.6 ft, and 0.8 ft, respectively. In the 2-year storm there is no overtopping of the culverts. A cost/benefit ratio was not calculated for this project as the benefits are entirely improved transportation function and emergency access improvement. 10-year existing condition, proposed condition, and depth difference maps, along with conceptual plans, are shown on the following pages. Additional storm event results are included in **Appendix F.**

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

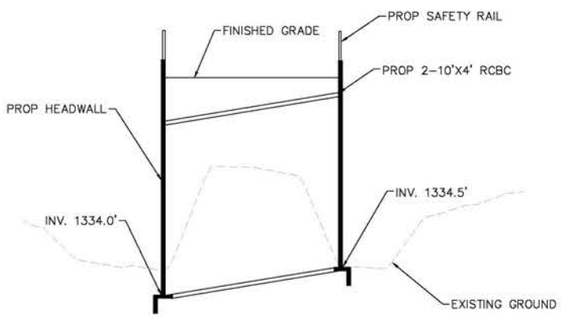
PROFILE VIEW

VERT SCALE: 1"=4'

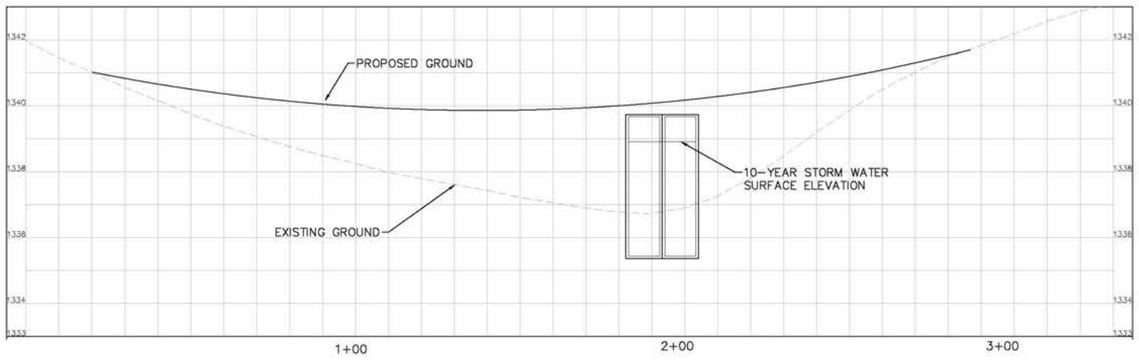


SECTION A-A

SCALE: 1"=15'



CULVERT PROFILE



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CHECKED BY: GSB
DATE: 03/2025

PARADISE VALLEY SWMP
AREA O SELECTED ALTERNATIVE 15% PLANS

PROJECT NO.
091054031

DRAWING NAME
AREA O

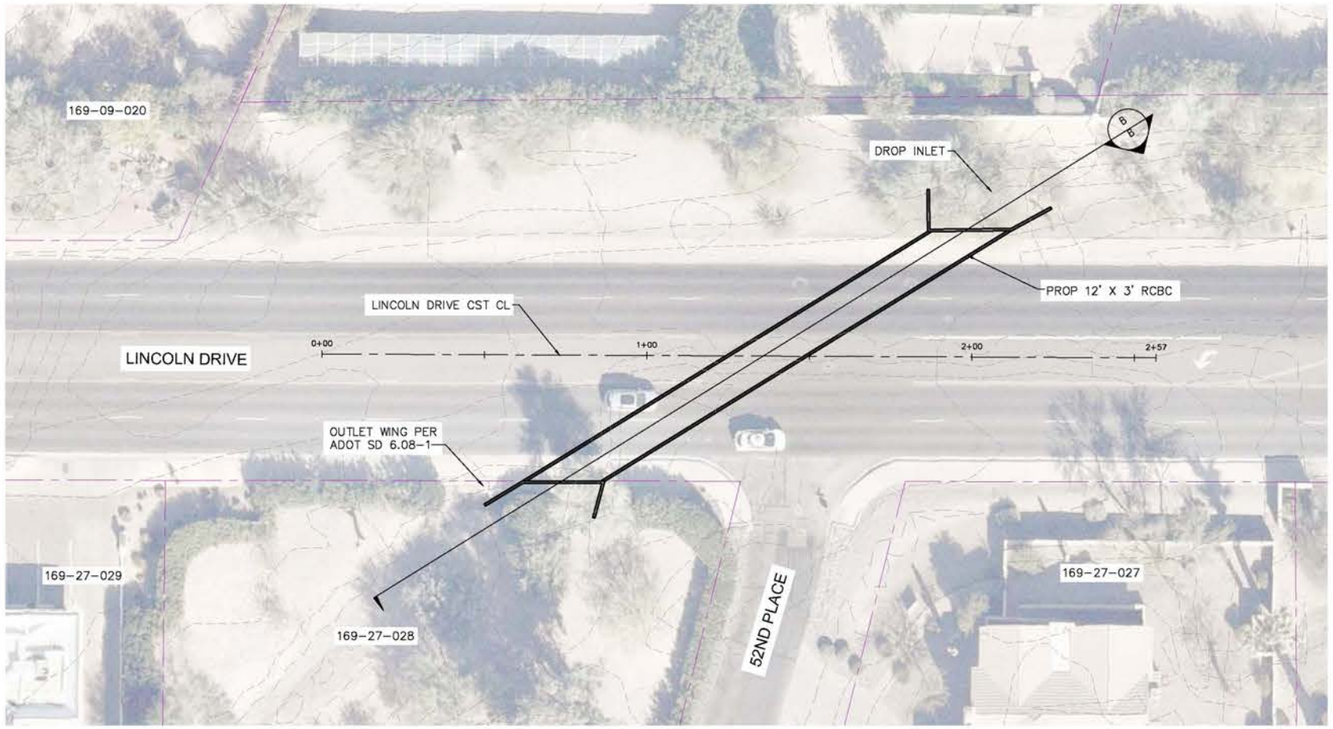
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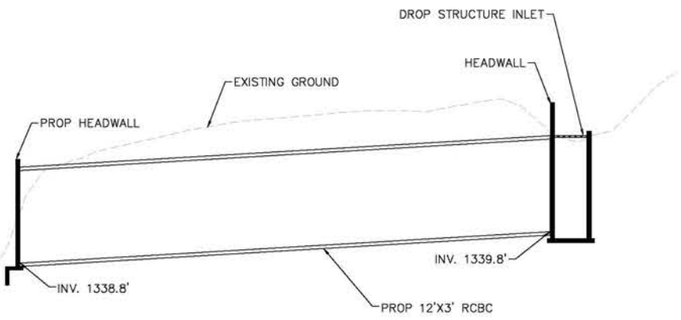
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GRAPHIC SCALE IN FEET
0 10 20 40

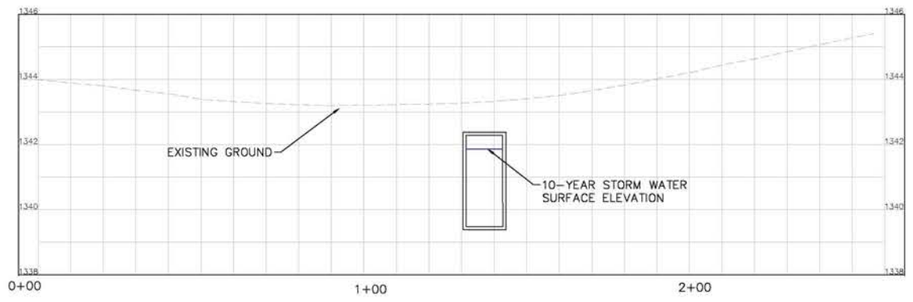
PROFILE VIEW
VERT SCALE: 1"=4'



SECTION B-B
SCALE: 1"=30'



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SCALE (H): 1"=20'
SCALE (V): 1"=4'
DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB
DATE: 05/2025

PARADISE VALLEY SWMP
AREA O SELECTED ALTERNATIVE 15% PLANS

PROJECT NO.
091054031

DRAWING NAME
AREA O

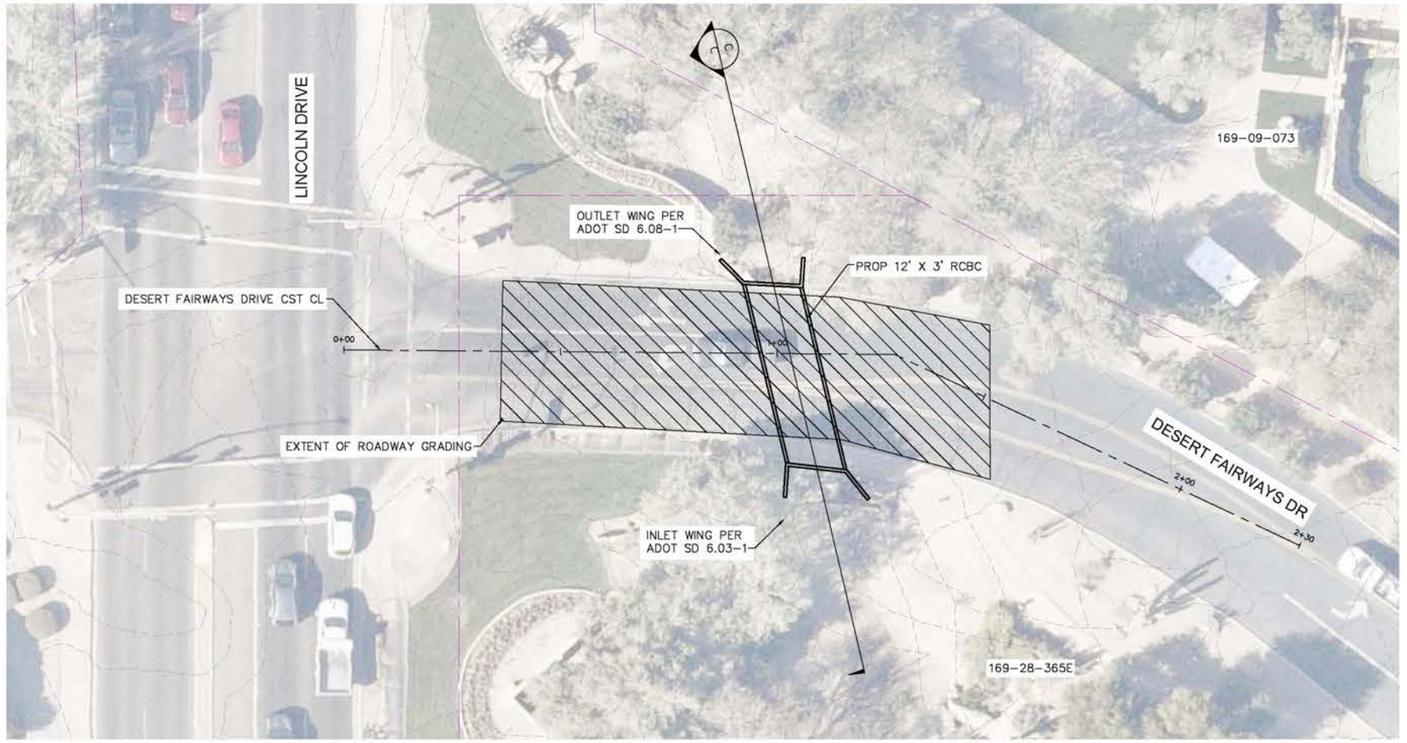
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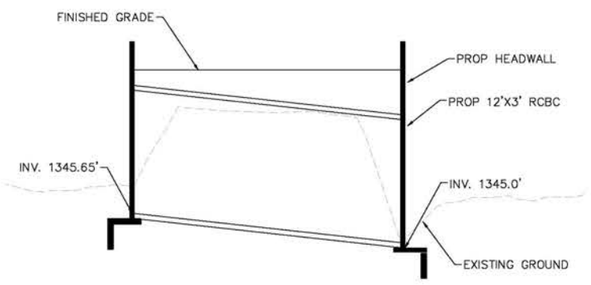
NORTH

GRAPHIC SCALE IN FEET
0 7.5 15 30

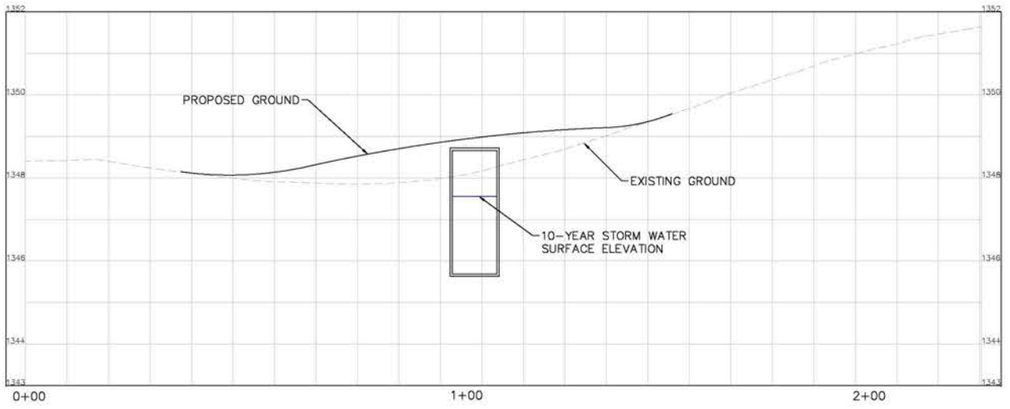
PROFILE VIEW
VERT SCALE: 1"=4'



SECTION C-C
SCALE: 1"=15'



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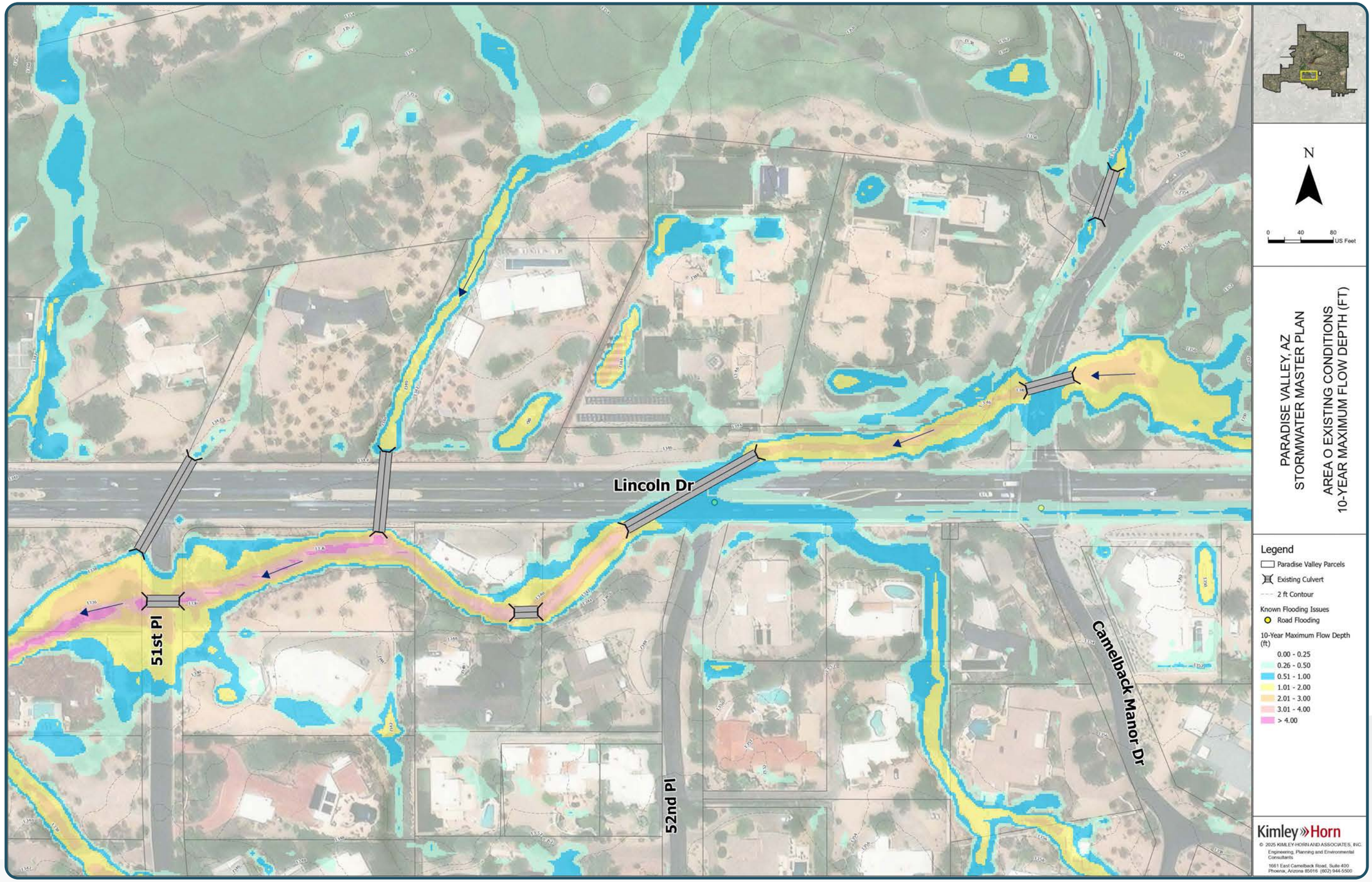
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AREA O SELECTED ALTERNATIVE 15% PLANS

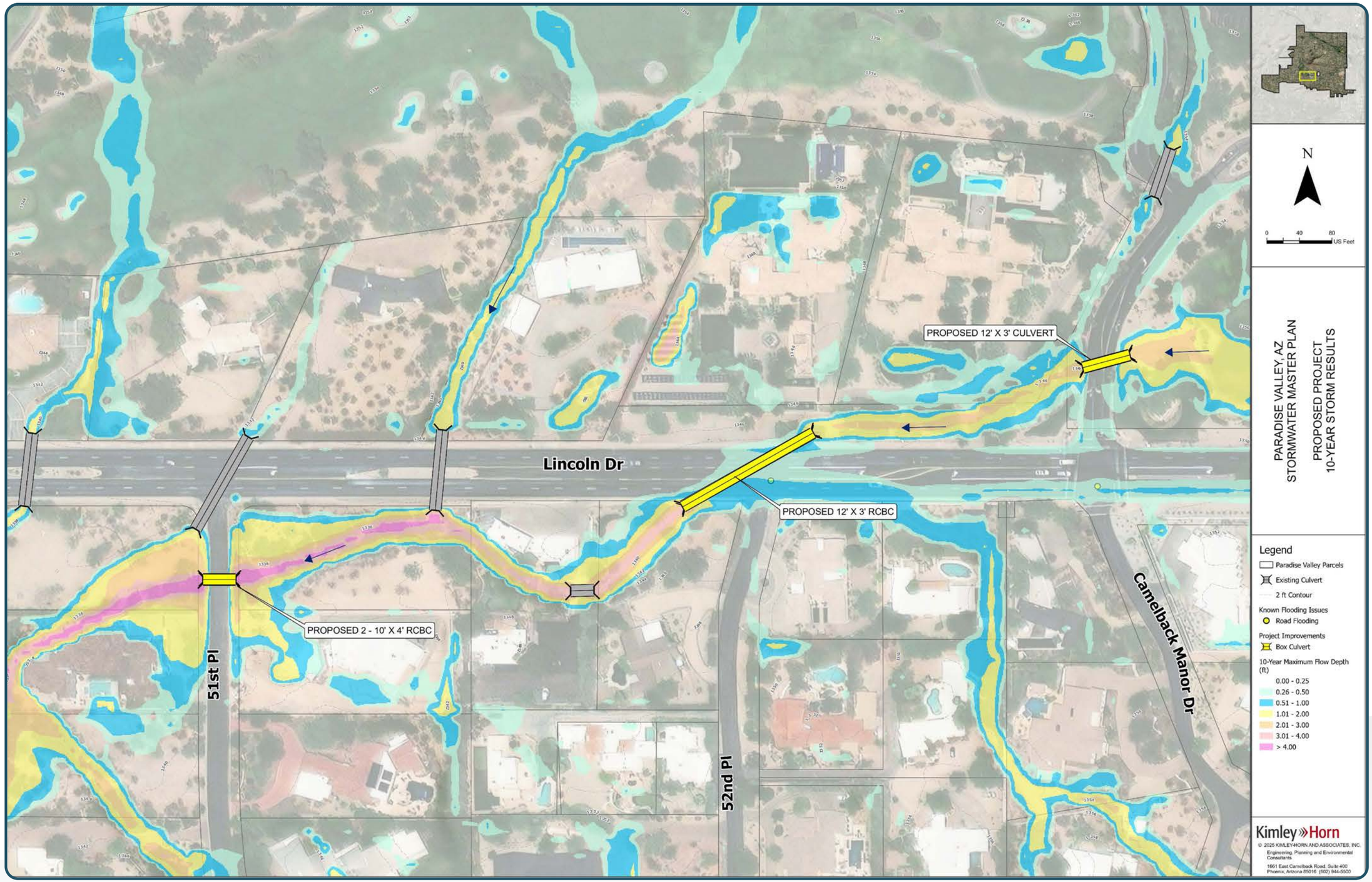
PROJECT NO.
091054031

DRAWING NAME
AREA O

3 OF 3

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Lincoln Dr
51st Pl
52nd Pl
Camelback Manor Dr
N
0 40 80
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
AREA O EXISTING CONDITIONS
10-YEAR MAXIMUM FLOW DEPTH (FT)
Legend
Paradise Valley Parcels
Existing Culvert
2 ft Contour
Known Flooding Issues
Road Flooding
10-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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Engineering, Planning and Environmental Consultants
1661 East Camelback Road, Suite 400
Phoenix, Arizona 85016 (602) 944-5500


PROPOSED 12' X 3' CULVERT
Lincoln Dr
PROPOSED 12' X 3' RCBC
PROPOSED 2 - 10' X 4' RCBC
51st Pl
52nd Pl
Camelback Manor Dr
N
0 40 80
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
PROPOSED PROJECT
10-YEAR STORM RESULTS
Legend
Paradise Valley Parcels
Existing Culvert
2 ft Contour
Known Flooding Issues
Road Flooding
Project Improvements
Box Culvert
10-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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PROPOSED 12' X 3' CULVERT
Lincoln Dr
PROPOSED 12' X 3' RCBC
PROPOSED 2 - 10' X 4' RCBC
51st Pl
52nd Pl
Camelback Manor Dr
N
0 40 80
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
PROPOSED PROJECT 10-YEAR STORM
REDUCTION IN WATER SURFACE ELEVATION
Legend
Paradise Valley Parcels
Existing Culvert
2 ft Contour
Known Flooding Issues
Road Flooding
Project Improvements
Box Culvert
Reduction in Water Surface Elevation (ft) (10-Year)
2 - 3 ft Reduction
1 - 2 ft Reduction
0 - 1 ft Reduction
Kimley»Horn
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IX. GRANT FUNDING OPPORTUNITY

The most accessible grant funding opportunities, both of which the Town has utilized in the past are the Flood Control District of Maricopa County's Small Project Assistance Program (SPAP) and Capital Improvement Project (CIP) cost shares. These programs have limits and are structures as follows:

SPAP

- 75/25 cost share between FCDMC and agency
- $1M limit for design and construction (with some flexibility up to $1.3M)
- Less than 24-month duration for design and construction
- Agency lead

CIP

- 65/35 cost share between FCDMC and agency
- Larger projects (>$1.3M)
- Longer duration for design and construction (>24 months)
- Can be FCDMC lead

In addition to these County sponsored programs, grant funding opportunities are also available at the state and federal level. While programs are constantly evolving and changing, **Table 32** lists opportunities available as of the date of this report, with some of the parameters, due dates, funding levels etc. included.

Table 32: Summary of Grant Funding Opportunities

Grant Name	Agency	Funding Maximum	Required Match	Priorities	Types of Projects
Hazard Pre-Disaster Mitigation Grant Program	FEMA	Up to 10 M USD	75% grant, 25% match	Implementation of sustainable cost-effective measures designed to reduce the risk to individuals and property from future natural hazards.	Hazard mitigation projects and management costs
Hazard Mitigation Grant Program	FEMA	Varies	75% grant, 25% match	Development of hazard mitigation plans and rebuilding in a way that reduces, or mitigates, future disaster losses.	Flood mitigation planning and projects
Safeguarding Tomorrow Revolving Loan Fund Program	FEMA	25% of project total	n/a	Empowerment of entities. Innovative funding solutions.	Hazard mitigation from natural disasters
Flood Mitigation Assistance Program	FEMA	300,000 USD for individual projects and 900,000 USD for community projects	75% grant, 25% match	Reduce or mitigate the risk of repetitive flood damage to buildings ensured by the National Flood Insurance Program	Localized flood control, floodwater storage and diversion, stream restoration, stormwater management
Community Development Block Grant Program	U.S. Department of Housing and Urban Development	Up to 450,000 USD	No Match Required	Assisting under privileged communities	Acquisition, relocation/ demolition, rehabilitation of structures, construction of public facilities, renewable energy resources
Water Infrastructure Finance and Innovation Act Program	EPA	Varies	n/a	Supporting water infrastructure projects	Mitigate impacts of drought, manage stormwater, updating aging infrastructure, PFAS water mitigation

Grant Name	Agency	Funding Maximum	Required Match	Priorities	Types of Projects
Corps Water Infrastructure Financing Program	U.S. Army Corps of Engineers	Provide loans of up 49%	n/a	Supporting water infrastructure projects	Dam safety projects
Public Works and Economic Adjustment Assistance Application Submission and Program	U.S. Economic Development Administration	49% of total project costs	49% grant, 51% match	promoting innovation and competitiveness, preparing American regions for economic growth and success in the worldwide economy	Water and sewer improvements
Sewer Overflow and Stormwater Reuse Municipal Grants program	EPA	344,000 USD	80% grant, 20% match	Facilitating the development of infrastructure capable of coping with the changing climate's impacts, such as precipitation events	Construction of critical stormwater infrastructure, combined sewer overflows, sanitary sewer overflows
Defense Community Infrastructure Program	Department of Defense	Between 250,000 and 20 Million USD	70% grant, 30% match	Addressing deficiencies in community infrastructure supportive of a military installation	Utility Infrastructure, transportation

X. PRIORITIZATION

Prioritization of projects can consider several factors. Project costs can determine which grant funding opportunities may be available. Benefit/cost ratios can determine eligibility for federal opportunities. Mitigation impacts can also influence Town priorities. Give these factors, **Table 33** lists each of the six projects where conceptual plans and cost were developed as part of this Master Plan, with prioritization considerations listed.

Table 33: Project Prioritization

Flood Hazard Area Designation	Project Size (Medium or Large)	Primary Benefit	Cost	BCR	Project Considerations
K	Large	Residential Structures	~ $6.1 M	3.08	The recommended project alternative for Area K has the highest BCR for the projects that primarily benefit residential structures. It is also potentially more cost effective than the Area A project. Because of this, it is ranked as the highest priority large project benefiting private property.
A	Large	Residential Structures	~ $11.6M	2.01	recommended project alternative ties into the ongoing Mockingbird Lane drainage improvements, creating an overall flood mitigation project for the area.
H	Medium	Arterial Roadways	~ $1M	n/a	Area H recommended project alternative may fall within the SPAP cost criteria, making it eligible for a 75% cost share with FCDMC. Because of this, Area H was ranked as the highest priority roadway-oriented project.
O	Large	Arterial and Residential Roadways	~ $2M	n/a	Area O recommended project alternative benefits both an arterial roadway (Lincoln Drive) and residential streets. Because of this, it was ranked higher than Areas L and N.
N	Large	Residential Roadways	~ $2M	n/a	Area N was ranked higher than Area L because of the lower cost for construction.
L	Large	Residential Roadways	~ $6.1M	n/a	Area L benefits residential streets only.

XI. CONCLUSION

The Paradise Valley Master Plan has identified and assessed areas vulnerable to flooding within the Town of Paradise Valley. By using records of flooding from residents and Town staff, previous studies, and comprehensive two-dimensional hydrologic and hydraulic modeling, this report provides detailed insights into flood risks and mitigation strategies for the entire 15-square-mile area.

Based on data collection and flood hazard analyses, the Master Plan identifies nineteen flood hazard areas, with nine prioritized for mitigation based on severity, impact on structures, streets, and emergency access. The nine were designated as the highest-ranking via a decision matrix ranking process. Recommended alternatives have been developed for each of these areas, ensuring efficient use of resources and strategic mitigation of flood hazards.

The six highest-ranking of the nine areas were designated as high-priority, with the recommended alternative for these areas further developed into 15% conceptual plans with an EOPC and cost/benefit analysis. The high-priority areas include Invergordon Road and Mockingbird Lane, 40th Street and Stanford Drive, Mountain View Road, upstream Cherokee Wash, downstream Cherokee Wash, and Lincoln Drive.

The benefit-cost analysis, prioritization, and thorough planning realized in this report offer Paradise Valley a robust framework for flood mitigation. Utilization of grant funding opportunities from local, state, and federal programs can significantly support the implementation of these projects.

In conclusion, this Master Plan sets the stage for Paradise Valley to strategically address flooding issues, assuring community resilience and safety through well-informed, high-priority flood mitigation projects. The Town's commitment to proactive flood hazard management will reduce risks, safeguard property, improve emergency access, and enhance the overall quality of life for its residents.

XII. REFERENCES

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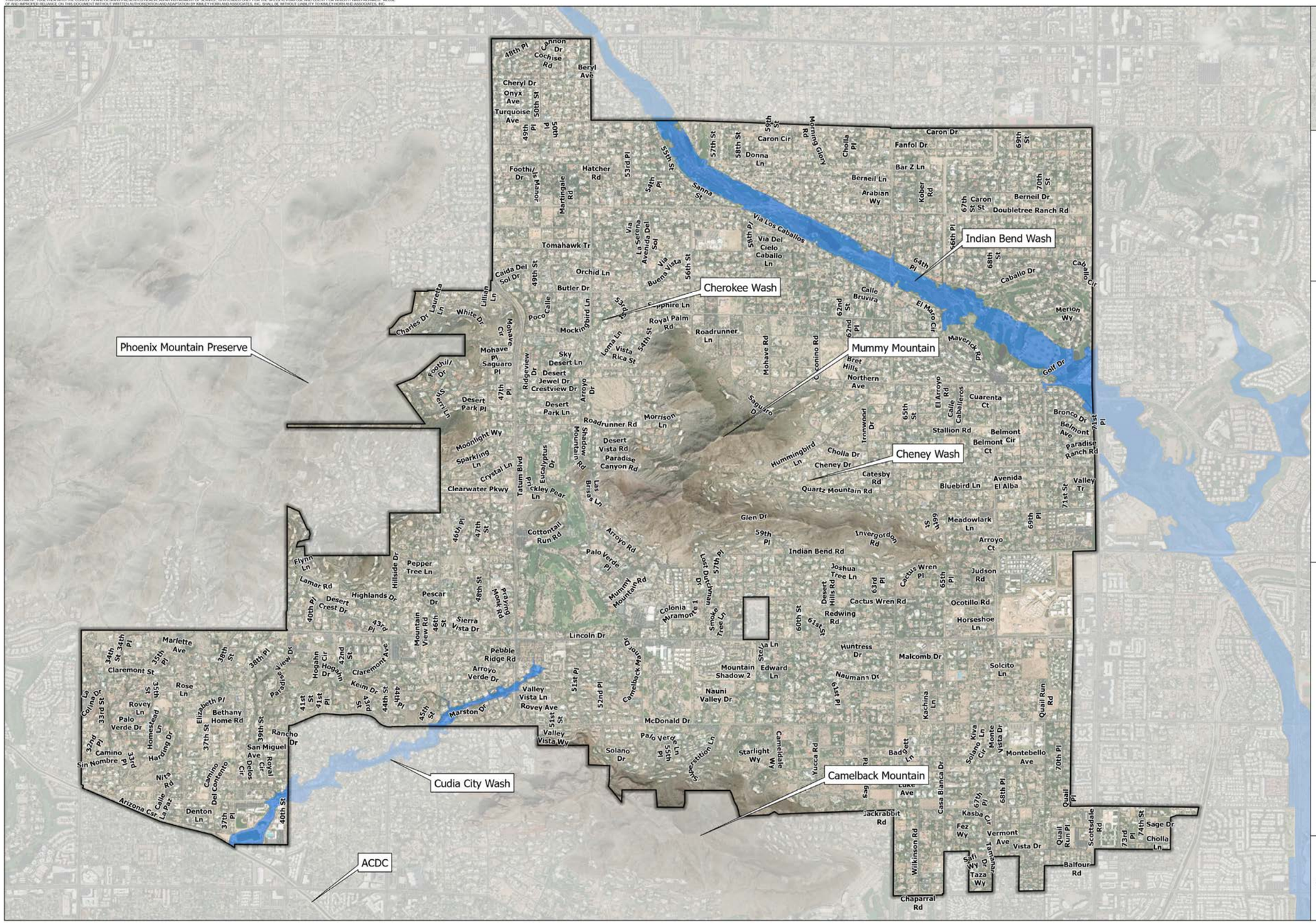
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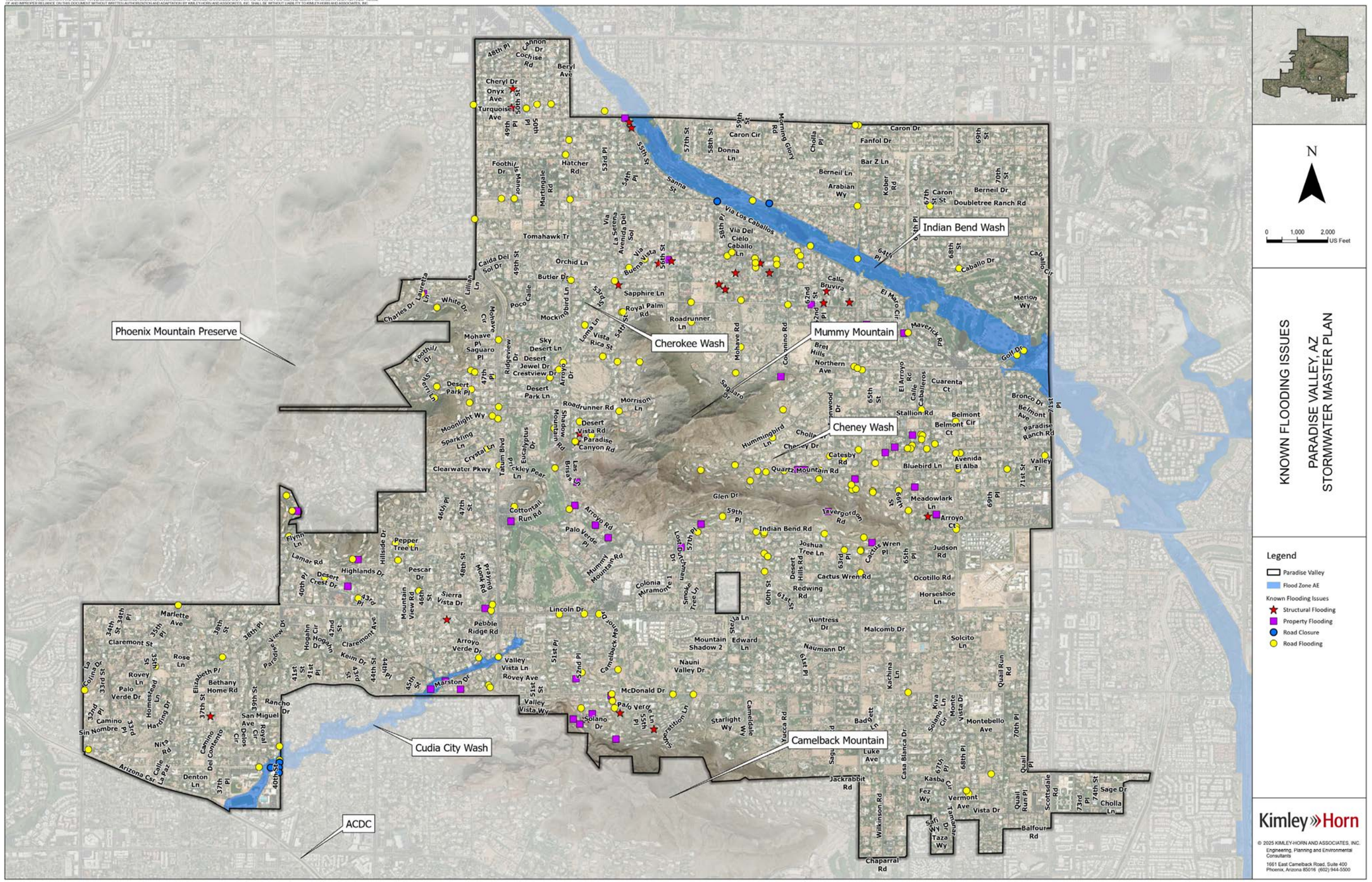
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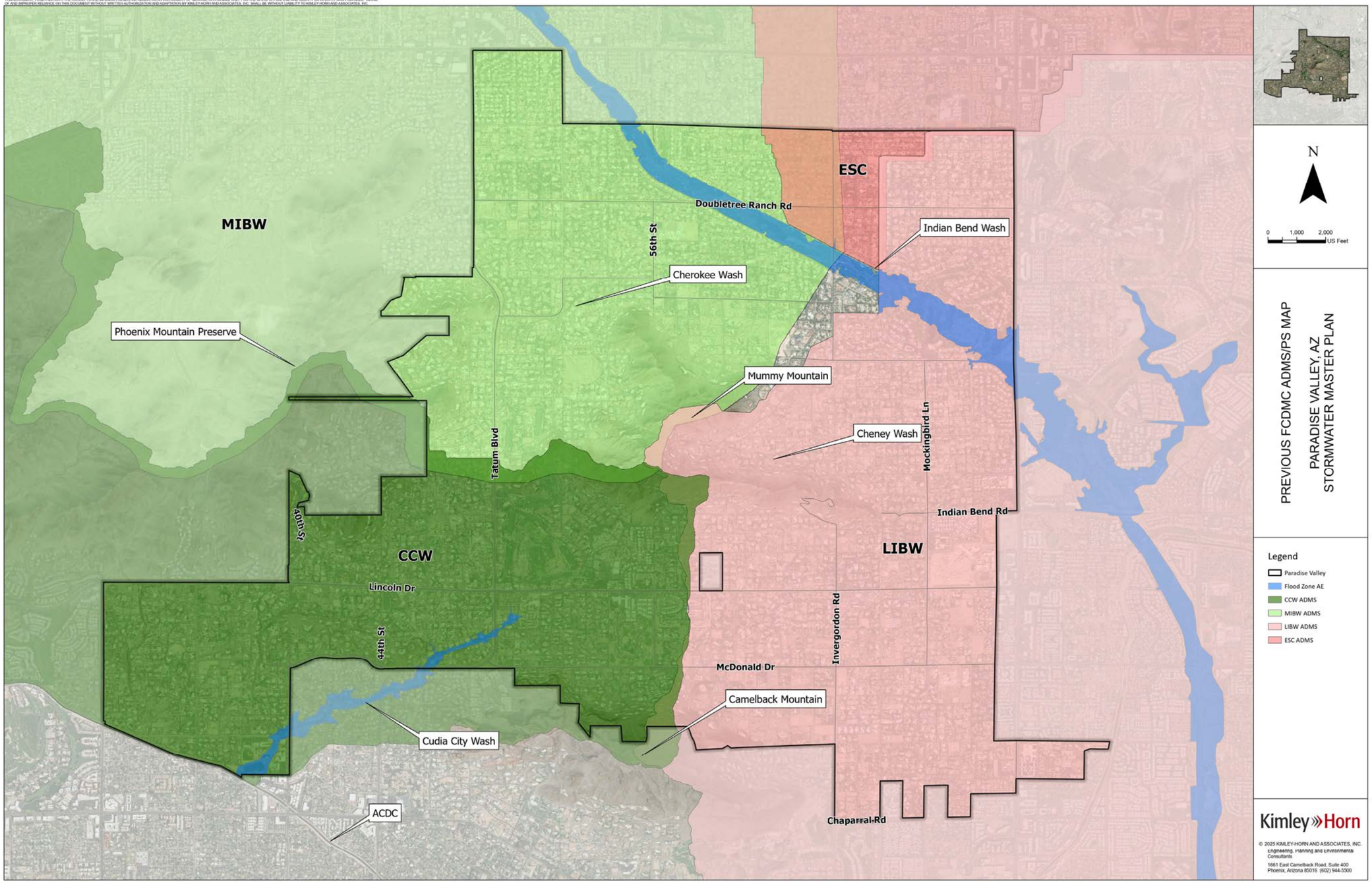
XIII. APPENDIX A – DATA COLLECTION

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.


Phoenix Mountain Preserve
Cherokee Wash
Indian Bend Wash
Mummy Mountain
Cheney Wash
Cudia City Wash
Camelback Mountain
ACDC
Caron Dr
Caron Cir
Fanfol Dr
Bar Z Ln
Berneil Ln
Berneil Dr
Doubletree Ranch Rd
Arabian Wy
Via Los Caballos
Via Del Cielo Caballo Ln
Caballo Dr
Caballo Ct
Merion Wy
Golf Dr
Maverick Pl
Tomahawk Tr
Orchid Ln
Butler Dr
Royal Palm Rd
Roadrunner Ln
Mockingbird Ln
Sky Desert Ln
Desert Jewel Dr
Crestview Dr
Desert Park Ln
Desert Park Pl
Roadrunner Rd
Morrison Ln
Desert Vista Rd
Paradise Canyon Rd
Moonlight Wy
Sparkling Ln
Crystal Ln
Clearwater Pkwy
Northern Ave
Bret Hills
Stallion Rd
Belmont Cir
Belmont Ct
Cuarenta Ct
Bronco Dr
Paradise Ranch Rd
Hummingbird Ln
Cholla Dr
Cheney Dr
Catesby Rd
Quartz Mountain Rd
Bluebird Ln
Avenida El Alba
Valley Tr
Glen Dr
Meadowlark Ln
Arroyo Ct
Indian Bend Rd
Invergordon Rd
Cottontail Run Rd
Arroyo Rd
Palo Verde Pl
Mummy Mountain Rd
Joshua Tree Ln
Cactus Wren Rd
Cactus Wren Pl
Judson Rd
Ocotillo Rd
Horseshoe Ln
Redwing Rd
Desert Hills Rd
Colonia Miramonte 1
Lincoln Dr
Pebble Ridge Rd
Arroyo Verde Dr
Mountain Shadow 2
Edward Ln
Huntress Dr
Malcomb Dr
Solcito Ln
Naumann Dr
Nauni Valley Dr
McDonald Dr
Valley Vista Ln
Rovey Ave
Valley Vista Wy
Marston Dr
Solano Dr
Starlight Wy
Camelback Rd
Yucca Rd
Badgett Ln
Casa Blanca Dr
Kasba Ct
Fez Wy
Vermont Ave
Vista Dr
Jackrabbit Rd
Chaparral Rd
Wilkinson Rd
Taza Wy
Sage Dr
Cholla Ln
Quail Run Rd
Quail Run Pl
Quail Pl
Montebello Ave
Avenida
Valley
Meadowbrook Ln
Arizona Csr
Denton Ln
Del Contento
Camino Sin Nombre
Rancho Dr
San Miguel Ave
Bethany Home Rd
Palo Verde Dr
Rovey Ln
Rose Ln
Claremont St
Claremont Ave
Marlette Ave
Pescar Dr
Highlands Dr
Desert Crest Dr
Lamar Rd
Flynn Ln
Hillside Dr
Pepper Tree Ln
Sierra Vista Dr
Mountain View Rd
Hogahn Dr
Keim Dr
Paradise View Dr
Colina Dr
Elizabeth Pl
Harding Dr
Homestead Ln
Camino Del Contento Cir
Camino Real Cir
Foothill Dr
Shea Blvd
Tatum Blvd
Eucalyptus Dr
Prickly Pear Ln
Cholla Pl
Donna Ln
Sanna St
Kober Rd
Nursing Glory Rd
Hatcher Rd
Martingale Rd
Foothill Manor Dr
Via La Serena
Via Avenida Del Sol
Via Buena Vista
Caida Del Sol Dr
Lillian Ln
Charles Dr
Lauretta Ln
White Dr
Poco Calle
Mohave Cir
Mohave Pl
Saguaro Pl
Ridgeview Dr
Arroyo Dr
Shadow Mountain Dr
Lomita Ln
Vista Rica St
Sapphire Ln
Roadrunner Ln
Mohave Rd
Coconino Rd
El Arroyo Rd
Tramonto Dr
Golf Dr
Maverick Pl
El Mirlo Cir
Caballo Dr
Caballo Ct
Merion Wy
Doubletree Ranch Rd
Berneil Dr
Caron St
Caron Dr
Fanfol Dr
Bar Z Ln
Berneil Ln
Arabian Wy
Kober Rd
Nursing Glory Rd
Cholla Pl
Donna Ln
Caron Cir
Sanna St
Via Los Caballos
Via Del Cielo Caballo Ln
Caballo Dr
Caballo Ct
Merion Wy
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Maverick Pl
El Mirlo Cir

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MIBW
ESC
CCW
LIBW
Doubletree Ranch Rd
56th St
Indian Bend Wash
Cherokee Wash
Phoenix Mountain Preserve
Mummy Mountain
Cheney Wash
Tatum Blvd
Mockingbird Ln
40th St
Indian Bend Rd
Lincoln Dr
44th St
Invergordon Rd
McDonald Dr
Camelback Mountain
Cudia City Wash
ACDC
Chaparral Rd
N
0 1,000 2,000 US Feet
PREVIOUS FCDMC ADMS/PS MAP
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
Legend
Paradise Valley
Flood Zone AE
CCW ADMS
MIBW ADMS
LIBW ADMS
ESC ADMS
Kimley»Horn
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Engineering, Planning and Environmental Consultants
1661 East Camelback Road, Suite 400
Phoenix, Arizona 85016 (602) 944-5500

Flooding Issue Tracker

ID	Flooding Issue	Source	Origin	Location	Notes from Source
1	Structural Flooding	Civics Plus - Resident Request	Resident	3711 E. Rancho Dr	Erosion to their landscaping and flooding into driveway and garage
2	Structural Flooding	Hillside Meeting	Resident	6641 E Meadow Lark Lane	Flooding in front yard and in-house flooding
3	Structural Flooding	Cheney Watershed Analysis Report	Resident	6641 E Meadowlark Ln	No additional data included
4	Road Flooding	Hillside Meeting	Resident	5302 N 68th Place	Flooding at N/W Corner of 68th Place and Vermont
5	Road Flooding	Hillside Meeting	Resident	69th Place and Jackrabbit (N/E corner)	Flooding at 69th Place and Jackrabbit (N/E)
6	Road Flooding	Hillside Meeting	Town Staff	67th and Doubletree Ranch	67th and Doubletree Ranch - Severe roadway flooding
7	Road Flooding	Hillside Meeting	Resident	Quartz Mountain Road from La Place Du Sommet to 64th Place	Site conditions for the areas in La Place restrict retention upgrades, offsite flows lead to flood risks on the lower sections of Quartz Mountain Rd
8	Road Flooding	Hillside Meeting	Resident	Hummingbird Lane from 58th Place to 64th place	Offsite flows coming from Quartz Mountain leads to flooding
9	Road Flooding	Hillside Meeting	Resident	7011 N Invergordon Road	Flood Risk to Invergordon Rd. and Joshua Tree Ln.
10	Road Flooding	Road Closure by Town Staff	Town Staff	the Intersection of 40th St and Stanford Dr	Culvert under bridge likely the source of flooding, also noted as 8A in ADMP Cudia City Wash (ongoing)
11	Road Flooding	Road Closure by Town Staff	Town Staff	Doubletree Ranch Rd closed from Via Los Caballos to 60th Street	Located in the Indian Bend Wash Area
12	Road Flooding	Public Works Storm Cleanup Priority List	Town Staff	Stanford Dr and 40th Street	Cudia Wash Crossing on 40th Street. Debris gets stuck in barricade poles
13	Road Flooding	Public Works Storm Cleanup Priority List	Town Staff	Golf Drive at Indian Bend Wash Crossing	Road Inundation/Debris
14	Road Flooding	Public Works Storm Cleanup Priority List	Town Staff	Invergordon Rd at Indian Bend Wash Crossing	Road Inundation/Debris
15	Road Flooding	Public Works Storm Cleanup Priority List	Town Staff	Morning Glory & E Caballo Drive	Road Inundation/Debris
16	Road Flooding	Public Works Storm Cleanup Priority List	Town Staff	N Lauretta Lane and E Charles Drive	Road Inundation/Debris
17	Road Flooding	Public Works Storm Cleanup Priority List	Town Staff	E Quartz Mountain Rd	Road Inundation/Debris
18	Road Flooding	Public Works Storm Cleanup Priority List	Town Staff	N Mohave Road	Road Inundation/Debris
19	Road Flooding	Public Works Storm Cleanup Priority List	Town Staff	Foothills Dr and 47th St	Road Inundation/Debris. Also noted as #7 in ADMP Middle Indian Bend Wash (Ongoing) and Cherokee Wash
20	Road Flooding	Public Works Storm Cleanup Priority List	Town Staff	E Desert Park Place from 47th St to N Sherri Lane	Road Inundation/Debris
21	Road Flooding	Public Works Storm Cleanup Priority List	Town Staff	54th Street and Desert Jewel	Road Inundation/Debris
22	Road Flooding	Public Works Storm Cleanup Priority List	Town Staff	Invergordon Rd and Joshua Tree Lane	Road Inundation/Debris
23	Road Flooding	Public Works Storm Cleanup Priority List	Town Staff	60th Street and Indian Bend Road	Road Inundation/Debris

24	Road Flooding	Public Works Storm Cleanup Priority List	Town Staff	6533 N Praying Monk Road	Road Inundation/Debris
25	Road Flooding	Public Works Storm Cleanup Priority List	Town Staff	Hummingbird Lane and N 66th St	Road Inundation/Debris
26	Road Flooding	Public Works Storm Cleanup Priority List	Town Staff	E Crestview Dr	Road Inundation/Debris. Also noted as 4B in ADMP Middle Indian Bend Wash (Ongoing) and Cherokee Wash
27	Road Flooding	Public Works Storm Cleanup Priority List	Town Staff	Doubletree Ranch Rd and 52nd Street	Road Inundation/Debris
28	Road Flooding	Civics Plus - Resident Request	Resident	6354 E Hummingbird Lane	Edge of street washed out by erosion
29	Road Flooding	Civics Plus - Resident Request	Resident	5024 E Turquoise Ave	8/4/2022 (same place on another date) requested street cleaner
30	Road Flooding	Civics Plus - Resident Request	Resident	5300 Mountain View	Requested street cleaner
31	Road Flooding	Civics Plus - Resident Request	Resident	5024 E Turquoise Ave	9/6/2022 (same place on another date)requested street cleaner
32	Road Flooding	Civics Plus - Resident Request	Resident	6534 N 46th St	Requested street cleaner
33	Road Flooding	Civics Plus - Resident Request	Resident	3201 San Miguel Pl	Requested street cleaner
34	Road Flooding	Civics Plus - Resident Request	Resident	3511 East Rose Lane	Noted water ponding on road in front of house
35	Road Flooding	Civics Plus - Resident Request	Resident	3201 E San Miguel	Requested street cleaner
36	Road Flooding	Civics Plus - Resident Request	Resident	Hummingbird Lane and Quartz Mountain (near the entrance of Le Summit)	Storm drain clogged. Stormwater Runoff from Mummy mountain to the east collects at the intersection. Runoff has eroded the road embankment on the downstream side of Hummingbird Ln. Road Damage has occured along the the shoulder and will continue to cut into the road section. The roadway embankment consists of unprotected native material.
37	Road Flooding	Civics Plus - Resident Request	Resident	8100 N Tatum Blvd	Blocked storm drain grate
38	Road Flooding	Civics Plus - Resident Request	Resident	6217 E. Quartz Mountain Rd	Storm Drain in front of house is clogged
39	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	Quartz Mountain Road from Hummingbird to Hummingbird	Additional information not included
40	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	Hummingbird from Quartz Mountain Rd to Quartz Mountain Rd	Additional information not included
41	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	64th Place and Hummingbird	Additional information not included
42	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	Catesby Rd off of Cheney Dr	Additional information not included
43	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	66th St off of Cheney Dr.	Additional information not included
44	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	Mohave off of Mockingbird	Additional information not included
45	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	Coconino off of Mockingbird	Additional information not included
46	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	Mummy Mountain Rd off of Mockingbird	Additional information not included
47	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	Mummy Mountain Rd and Roadrunner	Additional information not included
48	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	Royal Palm and 54th St	Additional information not included
49	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	54th St from Royal Palm to Mockingbird	Additional information not included

50	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	61st St and Caballo	Additional information not included
51	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	59th Place and Caballo	Additional information not included
52	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	Charles & Lauretta	Additional information not included
53	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	54th St and Desert Jewel.	Additional information not included
54	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	54th St and Roadrunner Rd.	Additional information not included
55	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	55th St and Desert Jewel.	Additional information not included
56	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	Desert Fairways and Shadow Mountain Rd.	Additional information not included
57	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	Desert Fairways and Arroyo Rd.	Additional information not included
58	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	Desert Fairways from Lincoln Dr to Tatum Blvd.	Additional information not included
59	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	Roadrunner Rd from 54th St to Tatum Blvd.	Additional information not included
60	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	7837 N 47th St.	Additional information not included
61	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	7701 N Moonlight Ln.	Additional information not included
62	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	Desert Park Pl from 47th St to Sherri Ln.	Additional information not included
63	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	6533 N Praying Monk	Additional information not included
64	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	Invergordon and Cactus Wren	Additional information not included
65	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	Invergordon and Joshua Tree Ln.	Additional information not included
66	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	Joshua Tree Ln and N 63rd Pl.	Additional information not included
67	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	Cactus Wren from Invergordon to 60th St.	Additional information not included
68	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	60th St and Indian Bend Rd.	Additional information not included
69	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	Joshua Tree Ln and 60th St.	Additional information not included
70	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	Indian Bend Rd from 60th St to Dead End.	Additional information not included
71	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	59th Pl and Indian Bend	Additional information not included
72	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	57th Pl and Indian Bend.	Additional information not included
73	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	McDonald Dr from Scottsdale Rd to Tatum Blvd.	Additional information not included
74	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	54th St. from McDonald Dr. to San Miguel Ave.	Additional information not included
75	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	San Miguel Ave. from 54th St to Solano Dr.	Additional information not included
76	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	Solano Dr from San Miguel Ave to 54th St.	Additional information not included
77	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	Camelback Manor Drive from Lincoln to McDonald	Additional information not included
78	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	52nd Place from McDonald to Lincoln	Additional information not included
79	Road Flooding	Staff Documented Storm Cleanup Locations	Town Staff	51st Place from McDonald to Lincoln	Additional information not included

80	Road Flooding	Work Order Listing By Street Report	Town Staff	Mcdonald Dr from Nauni Valley to the roundabout by Tatum Blvd	Storm clean up required
81	Road Flooding	Work Order Listing By Street Report	Town Staff	Invergordon Rd and Mountain View Rd	Cleaned out storm drain trash rack
82	Road Flooding	Work Order Listing By Street Report	Town Staff	7629 Foothill Dr	Filled and compacted erosion
83	Road Flooding	Work Order Listing By Street Report	Town Staff	Tatum and Mcdonald Rd	Filled in erosion by guard rail
84	Road Flooding	Work Order Listing By Street Report	Town Staff	White Dr	Erosion repair
85	Road Flooding	Work Order Listing By Street Report	Town Staff	5913 N La Colina Dr	Storm clean up, erosion repair
86	Road Flooding	Work Order Listing By Street Report	Town Staff	6015 E Joshua Tree	Storm clean up
87	Road Flooding	Work Order Listing By Street Report	Town Staff	4050 E Desert Crest Dr	Storm clean up
88	Road Flooding	Work Order Listing By Street Report	Town Staff	Caballos and 68th St	Cleared debris from wash
89	Road Flooding	Work Order Listing By Street Report	Town Staff	On Mcdonald Rd, east of Casa Blanca	Concrete spill cleaned up
90	Road Flooding	Drainage Improvement Areas - Technical Memo	Town Staff	E. Quartz Mountain Rd South of Cheney Wash	Road receives shallow flows with high velocity that cause erosion and sediment transport/deposits. Repetitive roadway Maintenance issues and public safety complaints.
91	Road Flooding	Drainage Improvement Areas - Technical Memo	Town Staff	7555 N. Hummingbird Ln	Existing low water crossing east of Mummy Mountain that has repetitive maintenance issues and public complaints. Stormwater runoff crosses ove Hummingbird Ln. from south to north and deposits sediment in the roadway.
92	Road Flooding	Drainage Improvement Areas - Technical Memo	Town Staff	5959 E. Hummingbird Ln	Existing low water crossing east of mummy mountain where high velocity flows cross Hummingbird Ln. Road damage has occurred due to the under cutting of the roadway embankment which has caused a dip east of the driveway of 5959 E. Hummingbird Ln. demonstrated in the field observations. The roadway embankment consists of unprotected native material.
93	Road Flooding	Drainage Improvement Areas - Technical Memo	Town Staff	6324 E. Quartz Mountain Rd	Overland sheet flow from the southwest and roadway drainage along Quartz Mountain Rd. combine at this location and are routed to the northwest adjacent to 6324 E. Quartz Mountain Rd by a drainage swale. After a storm event, sediment deposits have to be removed from Quartz Mountain Rd. This is a repetitive maintenance location.
94	Road Flooding	Drainage Improvement Areas - Technical Memo	Town Staff	58th Pl. South of Caballo Ln.	Existing low water crossing near the confluence with Indian Bend Wash that has repretitive maintenance issues.

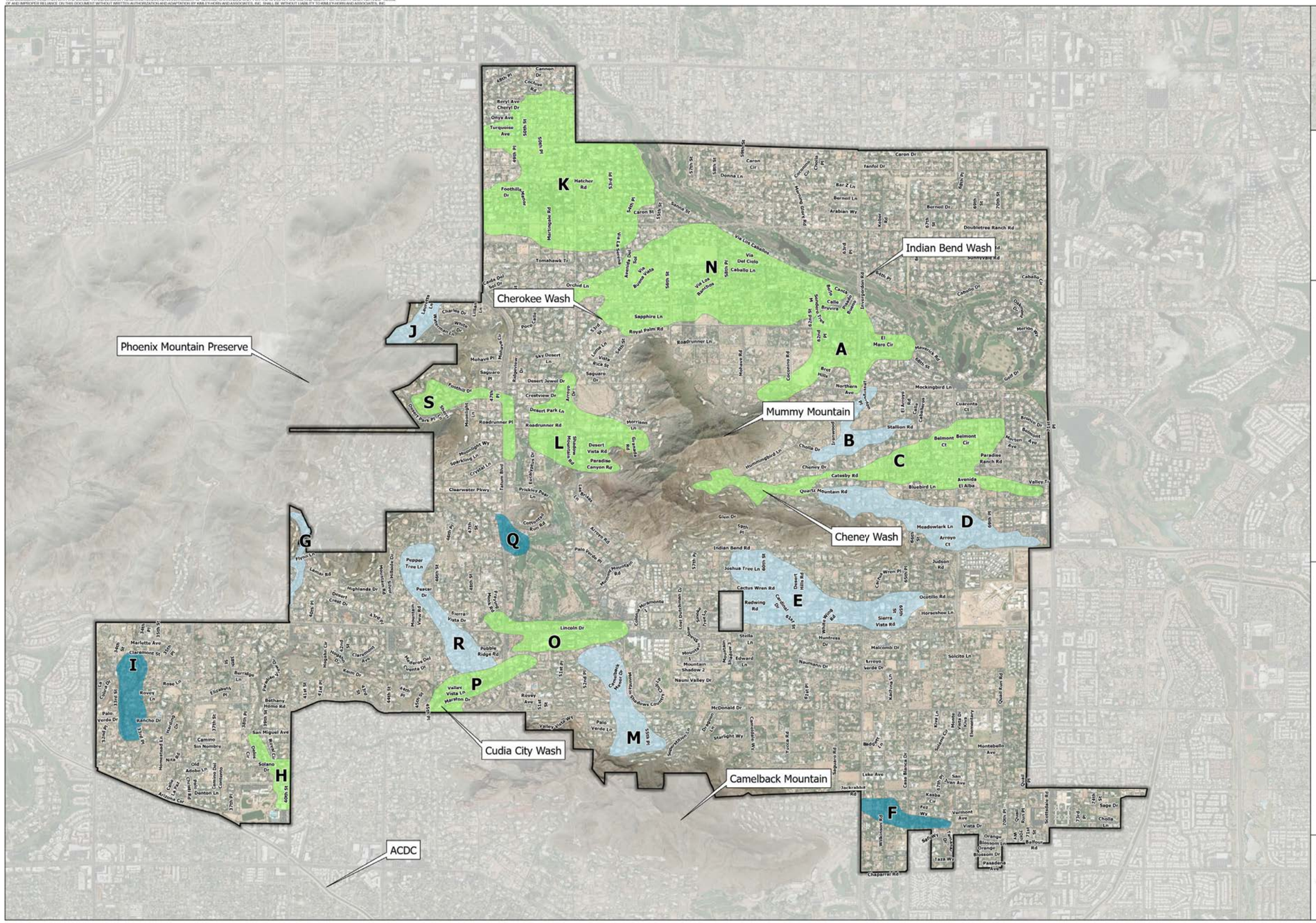
95	Road Flooding	Drainage Improvement Areas - Technical Memo	Town Staff	59th Pl. South of Caballo Ln.	Existing low water crossing near the confluence with Indian Bend Wash that has repretitive maintenance issues.
96	Road Flooding	Drainage Improvement Areas - Technical Memo	Town Staff	Caballo Ln east of Morning Glory Rd	Existing low water crossing near the confluence with Indian Bend Wash that has repretitive maintenance issues.
97	Road Flooding	Drainage Improvement Areas - Technical Memo	Town Staff	E Desert Jewel Dr and N Arroyo Dr	Low water crossing along Cherokee Wash. Repetitive maintenance issues.
98	Road Flooding	Drainage Improvement Areas - Technical Memo	Town Staff	N Arroyo Dr	Low water crossing along Cherokee Wash. Repetitive maintenance issues.
99	Road Flooding	Drainage Improvement Areas - Technical Memo	Town Staff	N 57th Pl and E Glen Dr	High velocity flows that cause erosion, and sediment deposition. Runoff flows south through private property and public roads
100	Road Flooding	Drainage Improvement Areas - Technical Memo	Town Staff	9438 N. 52nd St	Low point on the west side of the road that collects nuisance flows
101	Road Flooding	Drainage Improvement Areas - Technical Memo	Town Staff	3800 E. Berridge Ln. west of N. 38th Pl.	Berridge Ln road is super elevated along the horizontal roadway curve where the eastbound lane is higher than the westbound lane, trapping water from draining into the adjacent wash to the southwest, and causing nuisance ponding and roadway maintenance issues.
102	Road Flooding	Cudia City Wash ADMS	Town Staff	Solano Dr.	Low water crossing causes routine debris and obstructions
103	Road Flooding	Cheney Watershed Analysis Report	Resident	E Mcdonald Dr & N 56th St	Sediment left on road after storm
104	Road Flooding	Cheney Watershed Analysis Report	Resident	E Lincoln Dr & N 51st Pl	Sediment left on road after storm
105	Road Flooding	Cheney Watershed Analysis Report	Resident	E Stanford Dr & Cudia City Wash	Sediment left on road after storm
106	Road Flooding	Cheney Watershed Analysis Report	Resident	Invergordon and Cheney Rd	Additional information not included
107	Road Flooding	Cheney Watershed Analysis Report	Resident	N 66th St and E Cholla Dr	Additional information not included
108	Road Flooding	Cheney Watershed Analysis Report	Resident	N 66th St & E Meadowlark Ln	Additional information not included
109	Road Flooding	Cheney Watershed Analysis Report	Resident	N 68th St & E Bluebird Ln	Additional information not included
110	Road Flooding	Cheney Watershed Analysis Report	Resident	N 68th St & E Cheney Dr	Additional information not included
111	Road Flooding	Cheney Watershed Analysis Report	Resident	N 70th St and E Ave ElAlba	Additional information not included
112	Road Flooding	Cheney Watershed Analysis Report	Resident	N 71st Pl & E Valley Trail	Additional information not included
113	Road Flooding	Cheney Watershed Analysis Report	Resident	E Maverick Rd & N 68th St	Additional information not included
114	Property Flooding	Hillside Meeting	Resident	6659 E Meadow Lark Lane	Flooding in front yard
115	Property Flooding	Hillside Meeting	Resident	7401 N Las Brisas to 7404 N Las Brisas	Flooding Risk from 7401 N Las Brisas
116	Property Flooding	Hillside Meeting	Resident	6006 and 6001E Foothill Dr.	Flood risk to 6006 and 6001E Foothill Dr

117	Property Flooding	Hillside Meeting	Resident	6418 E Joshua Tree Lane	Flooding risk from 7011 N Invergordon and flows west down Joshua Tree onto Invergordon
118	Property Flooding	Hillside Meeting	Resident	7045 N Invergordon Road	Flood risk to Joshua Tree Lane and any homes south on Invergordon
119	Property Flooding	Public Works Storm Cleanup Priority List	Town Staff	54th Street from Mcdonald Drive to San Miguel / San Miguel Ave from 54th St to Solano Drive / Solano Dr from San Miguel to 54th St	Road Inundation/Debris
120	Property Flooding	Drainage Improvement Areas - Technical Memo	Town Staff	7002 N 57th Pl	High velocity flows that cause erosion, and sediment deoposition. Runoff Flows South Through Private Property and public roads
121	Property Flooding	Drainage Improvement Areas - Technical Memo	Town Staff	N 56th St and E Caballo Dr	Existing box culvert crossing at 56th st and cherokee wash and a catch basin inlet at 56th St and Caballo Dr. The roadway drainage along 56th St has overtopped the vertical curb and damaged the adjacent properties.
122	Property Flooding	Drainage Improvement Areas - Technical Memo	Town Staff	Mockingbird Ln and 62nd St	Offsite runoff cascades through properties before reaching the Indian Bend Wash to the north east
123	Property Flooding	Cudia City Wash ADMS	Resident	4741 E Marston Dr	Offsite Flows from the channel impact these homes
124	Property Flooding	Cudia City Wash ADMS	Resident	4700 E Marston Dr	Offsite Flows from the channel impact these homes
125	Property Flooding	Cudia City Wash ADMS	Resident	4730 E Marston Dr	Offsite Flows from the channel impact these homes
126	Property Flooding	Cudia City Wash ADMS	Resident	5501 E San Miguel Ave	Mountain Run-off
127	Property Flooding	Cudia City Wash ADMS	Resident	5200 E Solano Dr	Mountain Run-off
128	Property Flooding	Cudia City Wash ADMS	Resident	5228 E Solano Dr	Mountain Run-off
129	Property Flooding	Cudia City Wash ADMS	Resident	5301 E Palo Verde Dr	Mountain Run-off
130	Property Flooding	Cudia City Wash ADMS	Resident	5401 E Palo Verde Dr	Mountain Run-off
131	Property Flooding	Cudia City Wash ADMS	Resident	E San Miguel Ave	Mountain Run-off
132	Property Flooding	Cudia City Wash ADMS	Resident	E Solano Dr	Mountain Run-off
133	Property Flooding	Cheney Watershed Analysis Report	Resident	6515 E Cheney Dr	Additional information not included
134	Property Flooding	Cheney Watershed Analysis Report	Resident	6520 E Cheney Dr	Additional information not included
135	Property Flooding	Cheney Watershed Analysis Report	Resident	6602 E Cholla Dr	Additional information not included
136	Property Flooding	Cheney Watershed Analysis Report	Resident	6340 E Quartz Mountain Rd	Additional information not included
137	Property Flooding	Cheney Watershed Analysis Report	Resident	6612 E Hummingbird Ln	Additional information not included
138	Property Flooding	Cheney Watershed Analysis Report	Resident	6112 E Quartz Mountain Rd	Additional information not included
139	Property Flooding	Cheney Watershed Analysis Report	Resident	6122 E Quartz Mountain Rd	Additional information not included
140	Property Flooding	Cheney Watershed Analysis Report	Resident	6659 E Meadowlark Ln	Additional information not included
141	Property Flooding	Cheney Watershed Analysis Report	Resident	6451 E El Maro Cir	Additional information not included
142	Property Flooding	Cheney Watershed Analysis Report	Resident	6424 E Maverick Rd	Additional information not included

143	Property Flooding	Cheney Watershed Analysis Report	Resident	6460 E Maverick Rd	Additional information not included
144	Property Flooding	Cheney Watershed Analysis Report	Resident	6532 E Maverick Rd	Additional information not included
145	Property Flooding	Cheney Watershed Analysis Report	Resident	6001 E Foothill Dr N	Additional information not included
146	Structural Flooding	Middle Indian Bend Wash	Town Staff	Mountain View Rd and IBW	Flooding in house before trash rack removed
147	Structural Flooding	Middle Indian Bend Wash	Town Staff	Mountain View Rd and IBW	Flooding in house before trash rack removed
148	Structural Flooding	Middle Indian Bend Wash	Town Staff	Mountain View Rd and IBW	Maintenance yard frequently has debris on property. Local trash rack is clogged
149	Structural Flooding	Middle Indian Bend Wash	Town Staff	Turquoise Ave and 52nd St	Flooding in Home
150	Property Flooding	Middle Indian Bend Wash	Town Staff	Turquoise Ave Cul De Sac	Flooding in Garages in nearby homes
151	Structural Flooding	Middle Indian Bend Wash	Town Staff	49th Pl and Turquoise Ave	Flooding in Home
152	Structural Flooding	Middle Indian Bend Wash	Town Staff	49th Pl and Cheryl Dr	Flooding in Home
153	Road Flooding	Middle Indian Bend Wash	Town Staff	Mockingbird Lane and Mummy Mountain Road	Debris in intersection
154	Structural Flooding	Middle Indian Bend Wash	Town Staff	Cherokee Wash and 55th Pl	Flooding in Home
155	Structural Flooding	Middle Indian Bend Wash	Town Staff	Cherokee Wash and 56th Street	Flooding in Home
156	Structural Flooding	Middle Indian Bend Wash	Town Staff	Mockingbird Lane and 54th Street	Flooding in Home
157	Road Flooding	Middle Indian Bend Wash	Town Staff	Mockingbird Lane and 54th Street	Heavy debris crossing street during storm events
158	Structural Flooding	Middle Indian Bend Wash	Town Staff	Senderostres M and Mockingbird Lane	Flooding in homes
159	Road Flooding	Middle Indian Bend Wash	Town Staff	62nd Street and Inidan Bend Wash	Raised golf cart path creates bowl for flooding
160	Road Flooding	Middle Indian Bend Wash	Town Staff	Morning Glory Rd and Caballo Dr	Major flooding with debris. Car has been stuck here in the past
161	Structural Flooding	Middle Indian Bend Wash	Town Staff	Morning Glory Rd and Caballo Dr	Flooding in homes
162	Structural Flooding	Middle Indian Bend Wash	Town Staff	59th Pl and Caballo Dr	Flooding in homes
163	Road Flooding	Middle Indian Bend Wash	Town Staff	59th Pl and Cherokee Wash	Significant mud and debris during common events
164	Structural Flooding	Middle Indian Bend Wash	Town Staff	58th Pl and Caballo Dr	Flooding in homes
165	Road Flooding	Middle Indian Bend Wash	Town Staff	58th Pl and Cherokee Wash	Significant mud and debris during common events
166	Structural Flooding	Middle Indian Bend Wash	Town Staff	58th Pl and Cherokee Wash	Flooding in homes
167	Road Flooding	Middle Indian Bend Wash	Town Staff	Doubletree Ranch Rd and Indian Bend Wash	Reported flood depths larger than four feet
168	Road Flooding	Middle Indian Bend Wash	Town Staff	Wash Crossing Desert Vista Rd	Debris causing flooding
169	Structural Flooding	Middle Indian Bend Wash	Town Staff	Paradise Canyon Rd and Las Brisas Ln	Flooding in homes
170	Structural Flooding	Middle Indian Bend Wash	Town Staff	Desert Vista Rd and Las Brisas Ln	Flooding in homes
171	Road Flooding	Middle Indian Bend Wash	Town Staff	Desert Vista Rd and Las Brisas Ln	Significant mud and debris during common events
172	Road Flooding	Middle Indian Bend Wash	Town Staff	Invergordon Road and Indian Bend Wash	Roadway overtopping
173	Structural Flooding	Middle Indian Bend Wash	Town Staff	Canta Redondo and Mockingbird Lane	Flooding in homes
174	Road Flooding	Middle Indian Bend Wash	Town Staff	Morning Glory Rd and Caballo Dr	Significant mud and debris are common during storm events
175	Structural Flooding	Middle Indian Bend Wash	Town Staff	Senderostres M and Calle Bruvira	Flooding in homes

176	Structural Flooding	Middle Indian Bend Wash	Town Staff	Mockingbird Lane and 54th Street	Flooding in homes
177	Road Flooding	Middle Indian Bend Wash	Town Staff	53rd Pl and Grovers Ave	Sediment and Debris
178	Road Flooding	Middle Indian Bend Wash	Town Staff	56th Street and Via Buena Vista	Sediment and Debris
179	Road Flooding	Middle Indian Bend Wash	Town Staff	Las Brisas Lane and Paradise Canyon Road	Sediment and Debris
180	Road Flooding	Middle Indian Bend Wash	Town Staff	Tatum Blvd and Foothill Drive	Sediment and Debris
181	Road Flooding	Middle Indian Bend Wash	Town Staff	52nd Street and Berniel Drive	Sediment and Debris
182	Road Flooding	Middle Indian Bend Wash	Town Staff	59th Street and Foothill Drive	Sediment and Debris
183	Road Flooding	Middle Indian Bend Wash	Town Staff	Crystal Ln and Sparkling Ln	Sediment and Debris
184	Road Flooding	Middle Indian Bend Wash	Town Staff	Via Buena Vista and 55th Pl	Sediment and Debris
185	Road Flooding	Middle Indian Bend Wash	Town Staff	Caballo Ln and 58th Pl	Sediment and Debris
186	Road Flooding	Middle Indian Bend Wash	Town Staff	Ave Del Sol and Via Buena Vista	Sediment and Debris
187	Road Flooding	Middle Indian Bend Wash	Town Staff	Mockingbird Lane and 52nd Pl	Sediment and Debris
188	Road Flooding	Middle Indian Bend Wash	Town Staff	59th Pl and Caballo Dr	Sediment and Debris
189	Road Flooding	Middle Indian Bend Wash	Town Staff	Shadow Mountain Rd and Roadrunner Rd	Sediment and Debris
190	Road Flooding	Middle Indian Bend Wash	Town Staff	53rd Street and Loma Ln	Sediment and Debris
191	Road Flooding	Middle Indian Bend Wash	Town Staff	Sherri Lane and Desert Park Pl	Sediment and Debris
192	Road Flooding	Middle Indian Bend Wash	Town Staff	Tatum Blvd and Moonlight Way	Sediment and Debris
193	Road Flooding	Middle Indian Bend Wash	Town Staff	50th St and Mountain View Rd	Sediment and Debris
194	Road Flooding	Public Works Storm Cleanup Priority List	Resident	7039 E Fanfol Dr	Road Inundation/Debris
195	Road Flooding	Reported by Resident	Resident	68th and Vermont	Road Inundation/Debris
196	Road Flooding	Reported by Resident	Resident	69th and Jackrabbit	Road Inundation/Debris

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.





N

0 1,000 2,000 US Feet

FLOOD HAZARD AREAS
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN

Legend

- Paradise Valley
- Flood Hazard Area Flooding Severity
  - Moderate
  - Nuisance
  - Severe

Kimley»Horn

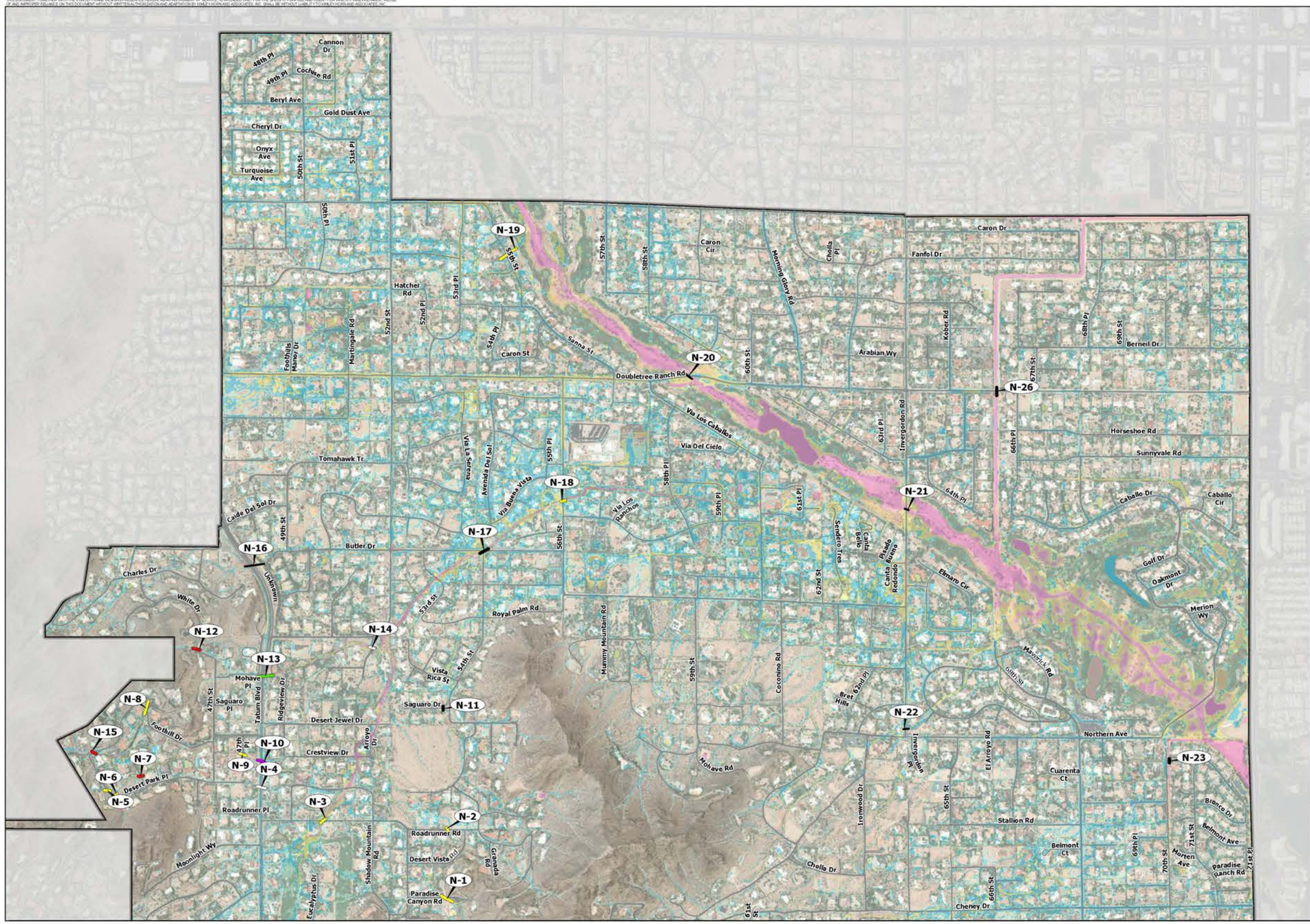
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Engineering, Planning and Environmental Consultants
1661 East Camelback Road, Suite 400
Phoenix, Arizona 85016 (602) 944-5500

XIV. APPENDIX B – EXISTING INFRASTRUCTURE

EXISTING CULVERT IDENTIFICATION, STORM LEVEL PROTECTION, AND POTENTIAL IMPACTS TO EMERGENCY VEHICLE ACCESS

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.



N

0 500 1,000 US Feet

EXISTING CULVERT SIZE

PARADISE VALLEY, AZ
STORM WATER MASTER PLAN

DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB

PROJECT NUMBER 091054031
SCALE: 1"= 800'

DATE: DEC 2024

Legend

- Paradise Valley

Culvert Size (in)

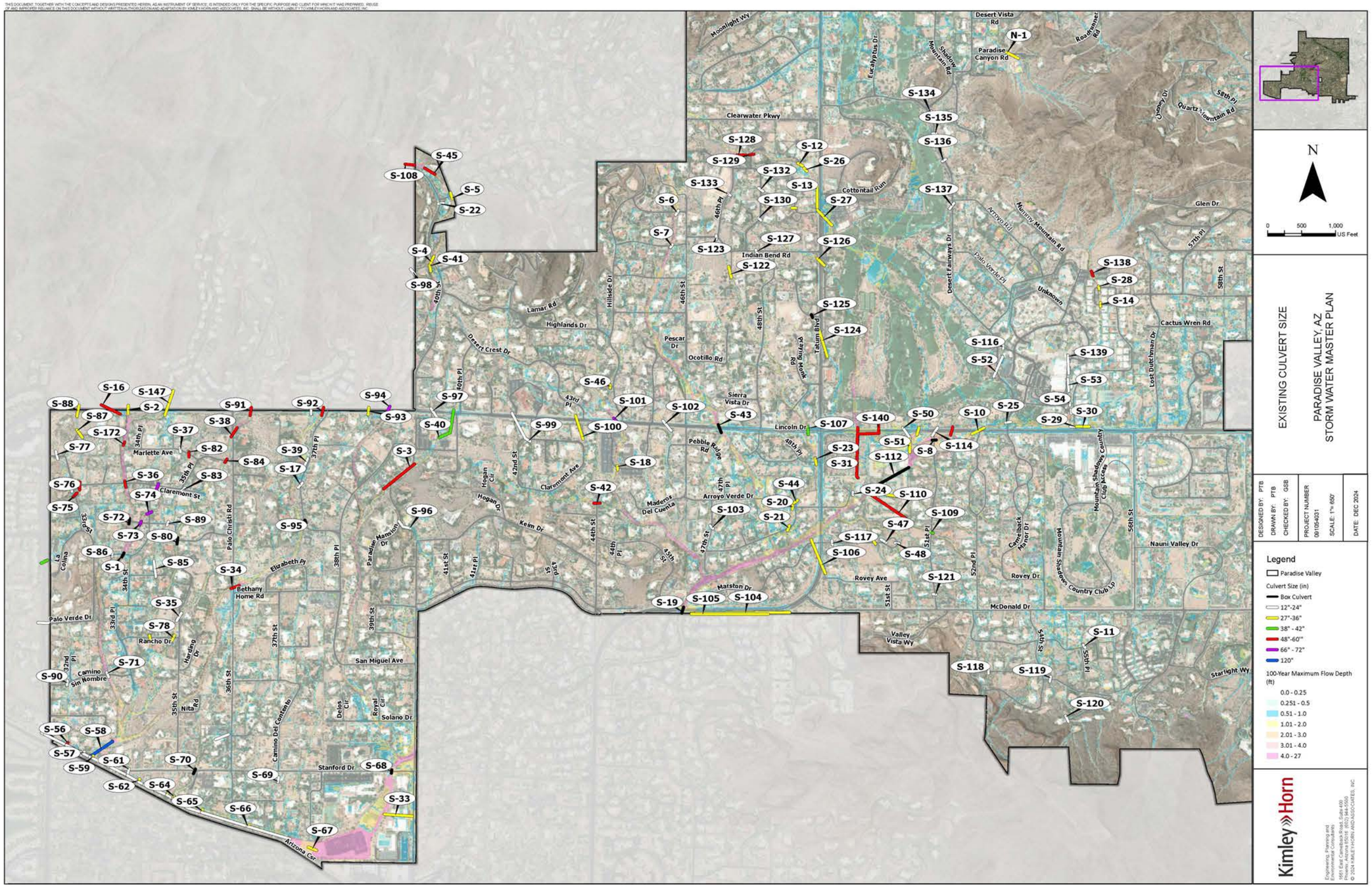
- Box Culvert
- 12"-24"
- 27"-36"
- 38" - 42"
- 48"-60""
- 66" - 72"
- 120"

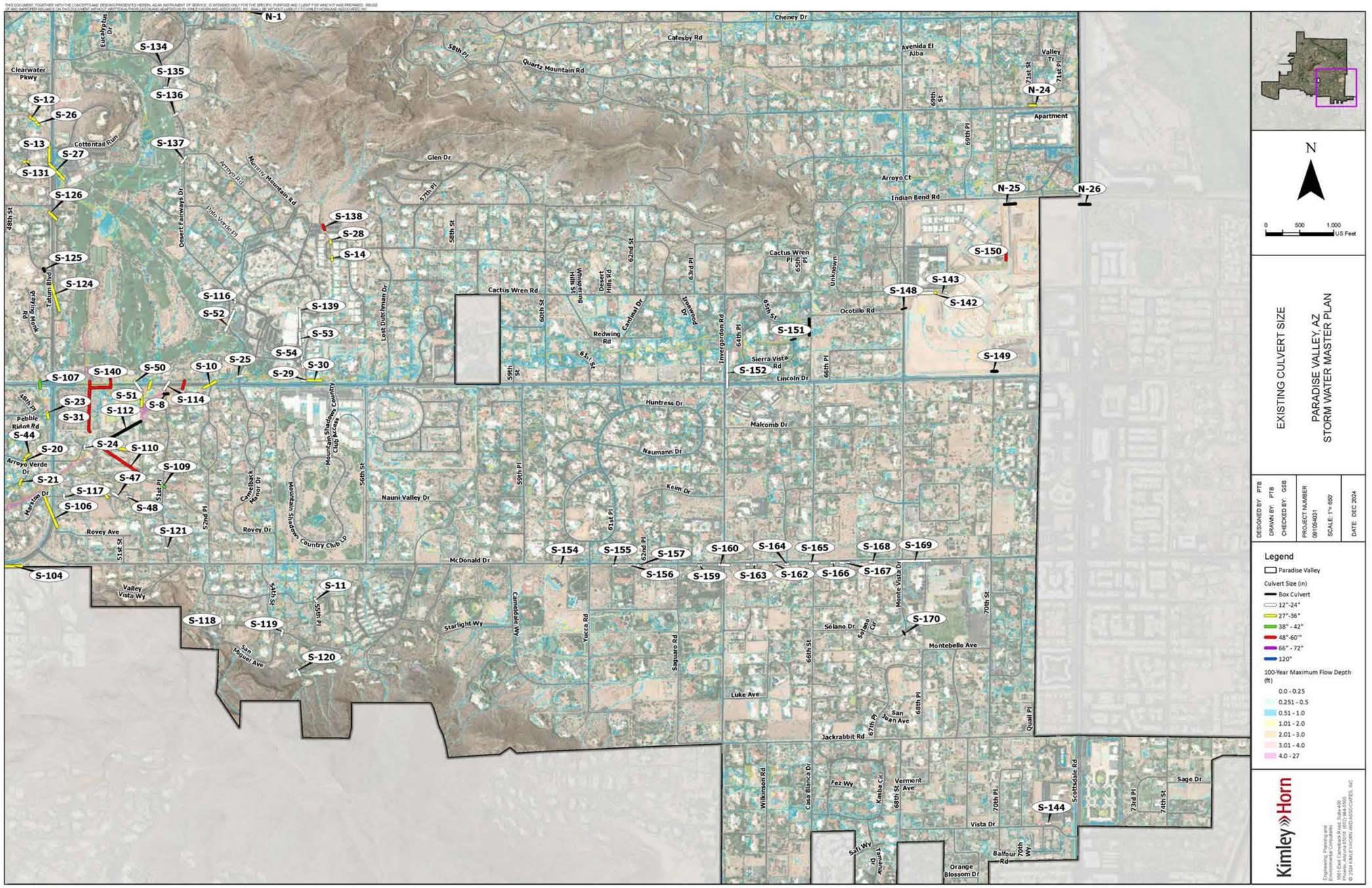
100-Year Maximum Flow Depth (ft)

- 0.0 - 0.25
- 0.251 - 0.5
- 0.51 - 1.0
- 1.01 - 2.0
- 2.01 - 3.0
- 3.01 - 4.0
- 4.0 - 27

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Phoenix, Arizona 85016 (602) 944-5500

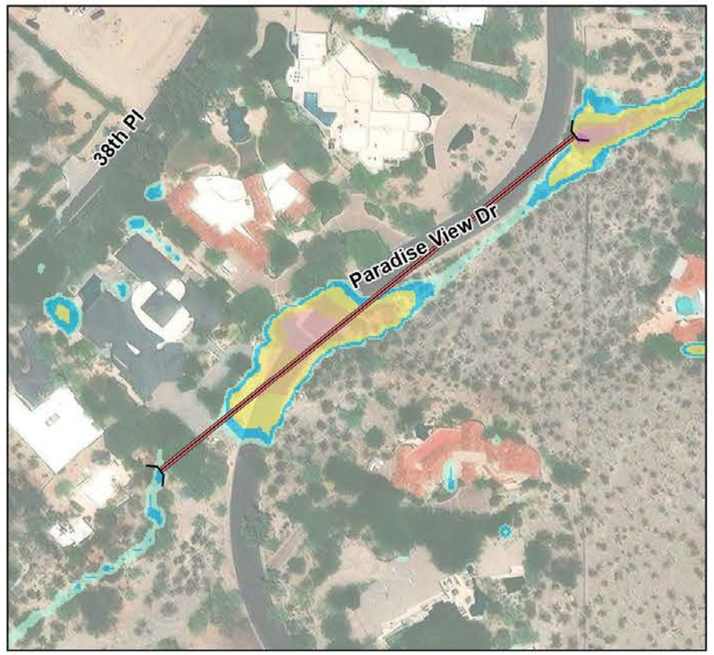
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N
0 500 1,000 US Feet
EXISTING CULVERT SIZE
PARADISE VALLEY, AZ
STORM WATER MASTER PLAN
DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB
PROJECT NUMBER 091064031
SCALE: 1"= 600'
DATE: DEC 2024
Legend
Paradise Valley
Culvert Size (in)
Box Culvert
12"-24"
27"-36"
38" - 42"
48"-60"
66" - 72"
120"
100-Year Maximum Flow Depth (ft)
0.0 - 0.25
0.251 - 0.5
0.51 - 1.0
1.01 - 2.0
2.01 - 3.0
3.01 - 4.0
4.0 - 27
Kimley»Horn
Engineering, Planning and Environmental Consultants
Clarendon Hills, Illinois 60514 (630) 944-5500
© 2024 KIMLEY-HORN AND ASSOCIATES, INC.
Desert Vista Rd
Paradise Canyon Rd
Moonlight Wy
Clearwater Pkwy
Eucalyptus Dr
Shadow Mountain Rd
Roadrunner Rd
Quartz Mountain Rd
58th Pl
Cholla Dr
Glen Dr
57th Pl
58th St
Cactus Wren Rd
Lost Dutchman Dr
Cottontail Run
Arroyo Rd
Mummy Mountain Rd
Desert Fairways Dr
Palo Verde Pl
Unknown
Indian Bend Rd
Tatum Blvd
Monk Springs Rd
Pescar Dr
Ocotillo Rd
Sierra Vista Dr
Lincoln Dr
Pebble Beach Rd
Arroyo Verde Dr
Madonna Del Cuenta
Hillside Dr
Highlands Dr
Lamar Rd
Desert Crest Dr
Claremont Ave
Hogan Cir
Hogan St
Kesin Dr
Paradise Mansion Dr
Elizabeth Pl
Bethany Home Rd
Palo Christi Rd
Marlette Ave
Claremont St
Palo Verde Dr
Rancho Dr
Camino Sin Nombre
Harding Dr
Nita Rd
Camino Del Contento
Delos Cir
Royal Cir
Solano Dr
San Miguel Ave
Stanford Dr
Arizona Csr
Matson Dr
Rovey Ave
Rovey Dr
McDonald Dr
Valley Vista Wy
Starlight Wy
Nauni Valley Dr
Mountain Shadows Country Club Lp
Mountain Shadows Country Club Access
Cactusback Manor Dr
Lo La Colina
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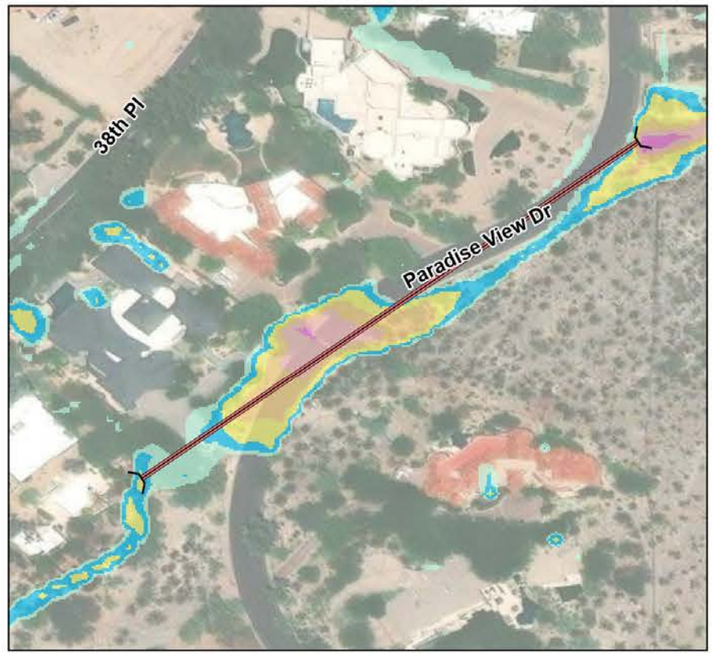

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S-144
S-170
N-24
N-25
N-26
Apartment
Cheney Dr
Catesby Rd
Quartz Mountain Rd
Avenida El Alba
Valley Tr
71st St
71st Pl
69th St
69th Pl
Arroyo Ct
Indian Bend Rd
Glen Dr
Cottontail Run
Arroyo Rd
Mummy Mountain Rd
Palo Verde Pl
Desert Fairways Dr
Clearwater Pkwy
Eucalyptus Dr
48th St
Tatum Blvd
Pebble Ridge Rd
Arroyo Verde Dr
Marston Dr
Rovey Ave
Rovey Dr
51st St
51st Pl
52nd Pl
Camelback Manor Dr
Mountain Shadows Country Club Dr
Mountain Shadows Country Club Acres
56th St
57th Pl
58th St
58th Pl
59th Pl
60th St
61st St
62nd St
62nd Pl
63rd Pl
64th Pl
65th Pl
66th Pl
66th St
67th Pl
68th St
68th Pl
70th Pl
70th St
70th Wy
73rd Pl
74th St
Cactus Wren Rd
Cactus Wren Pl
Desert Hills Rd
Whispering Hills St
Cardinal Dr
Redwing Rd
Lost Dutchman Dr
Ironwood Dr
Invergordon Rd
Unknown
Ocotillo Rd
Sierra Vista Rd
Lincoln Dr
Huntress Dr
Malcomb Dr
Naumann Dr
Keim Dr
Nauni Valley Dr
McDonald Dr
Valley Vista Wy
Starlight Wy
San Miguel Ave
Camelback Wy
Yucca Rd
Saguaro Rd
Monte Vista Dr
Solano Dr
Solano Cir
Montebello Ave
Luke Ave
San Juan Ave
Jackrabbit Rd
Quail Pl
Wilkinson Rd
Casa Blanca Dr
Fez Wy
Kasba Cir
Vermont Ave
Scottsdale Rd
Sage Dr
Vista Dr
Saf l Wy
Miramar Dr
Balfour Rd
Orange Blossom Dr
N
0
500
1,000
US Feet
EXISTING CULVERT SIZE
PARADISE VALLEY, AZ
STORM WATER MASTER PLAN
DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB
PROJECT NUMBER 061054031
SCALE: 1"= 800'
DATE: DEC 2024
Legend
Paradise Valley
Culvert Size (in)
Box Culvert
12"-24"
27"-36"
38" - 42"
48"-60"
66" - 72"
120"
100-Year Maximum Flow Depth (ft)
0.0 - 0.25
0.251 - 0.5
0.51 - 1.0
1.01 - 2.0
2.01 - 3.0
3.01 - 4.0
4.0 - 27
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Phoenix, Arizona 85016 (602) 944-5500
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Possible Emergency Vehicle Access Restriction Areas: S-3

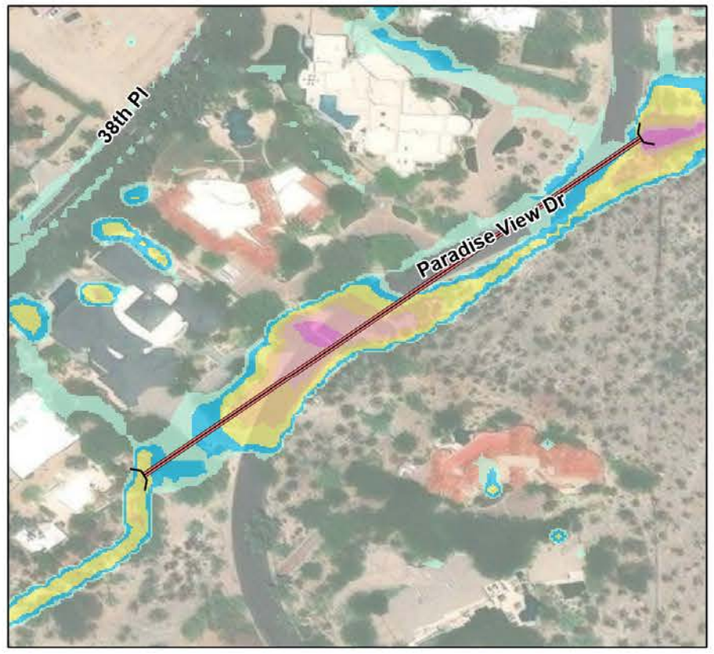
2-Year, 6-Hour



10-Year, 6-Hour



100-Year, 6-Hour



100-Year Maximum Depth Overtopping the Road : 4.3 ft

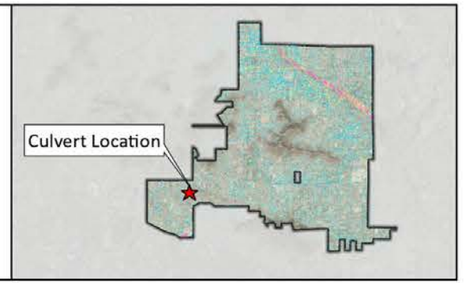
N

0 75 150 300 Feet

Legend

Hydraulic Structures
Culvert

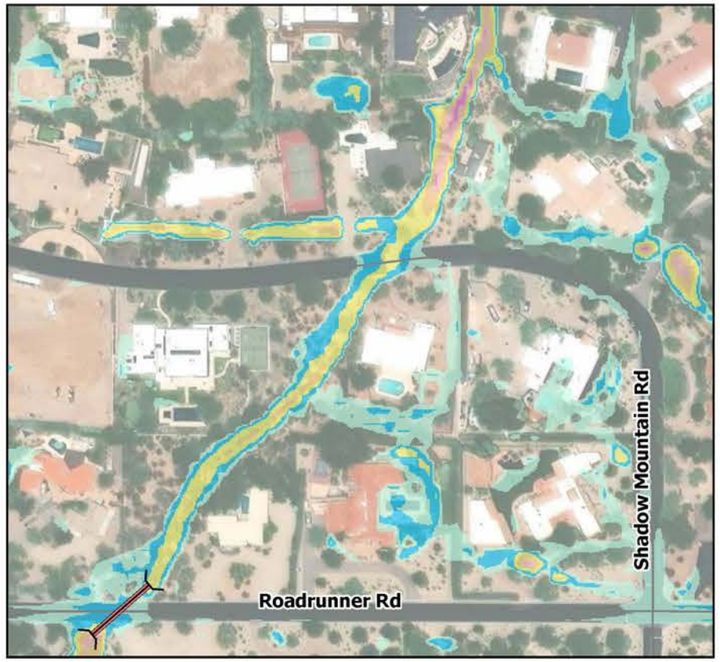
Maximum Water Depth (ft)
0.0 - 0.25
0.251 - 0.5
0.51 - 1.0
1.01 - 2.0
2.01 - 3.0
3.01 - 4.0
4.0 - 27



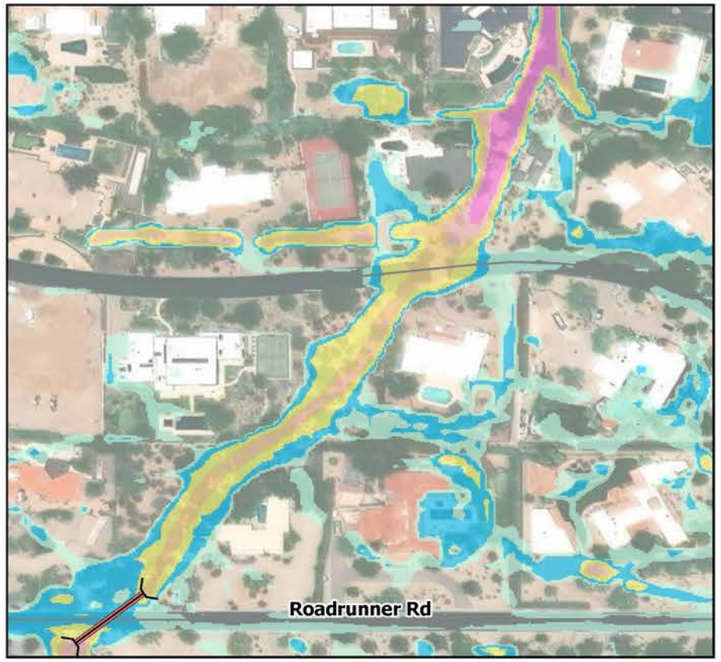
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Engineering, Planning and Environmental Consultants

Possible Emergency Vehicle Access Restriction Areas: Shadow Mountain Rd Low Water Crossing

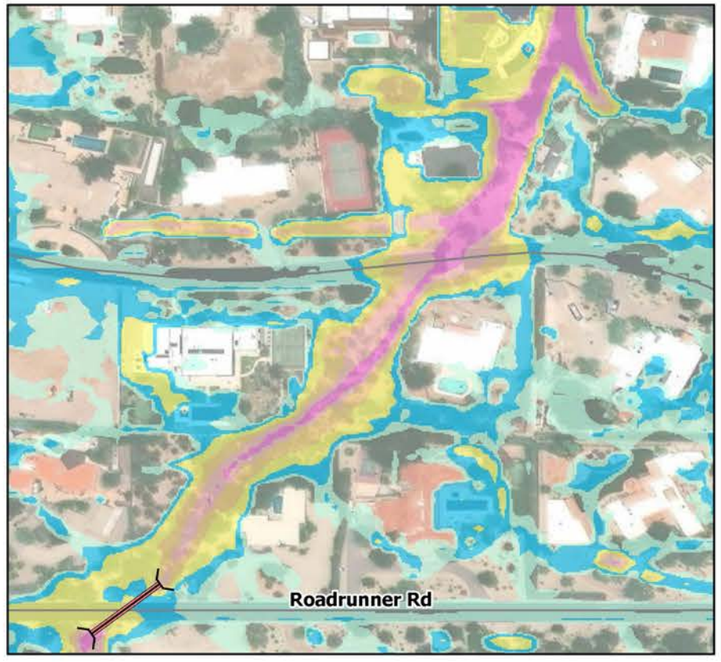
2-Year, 6-Hour



10-Year, 6-Hour



100-Year, 6-Hour



100-Year Maximum Depth Overtopping the Road : 5.1 ft

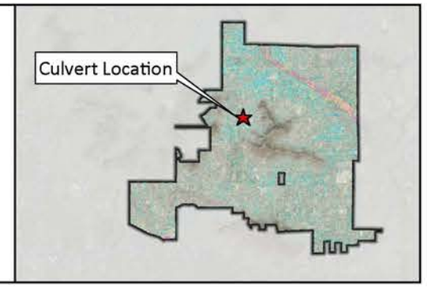
N

0 100 200 400 Feet

Legend

Hydraulic Structures
- Culvert

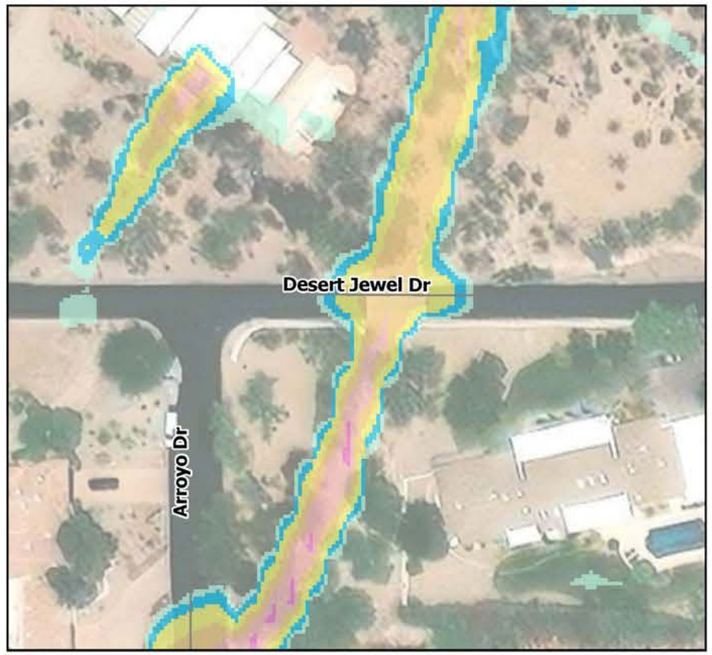
Maximum Water Depth (ft)
- 0.0 - 0.25
- 0.251 - 0.5
- 0.51 - 1.0
- 1.01 - 2.0
- 2.01 - 3.0
- 3.01 - 4.0
- 4.0 - 27



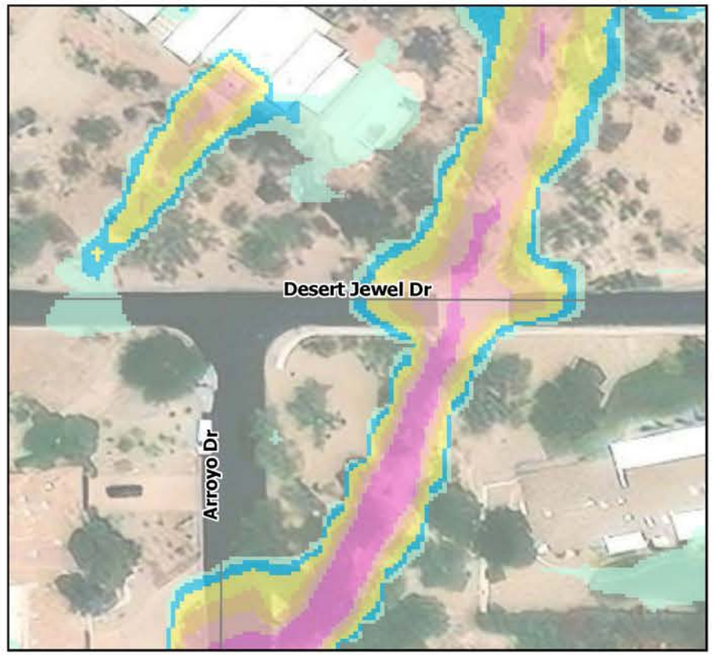
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Engineering, Planning and Environmental Consultants

Possible Emergency Vehicle Access Restriction Areas: Desert Jewel Dr Low Water Crossing

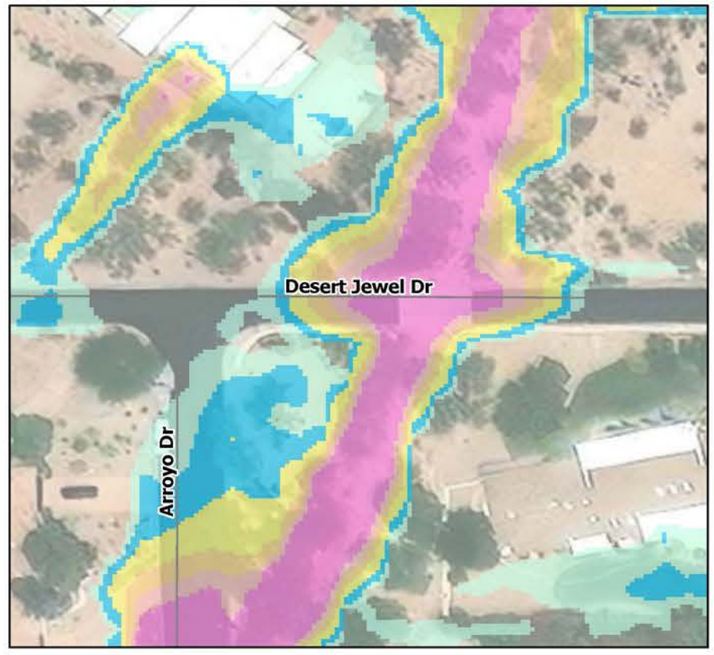
2-Year, 6-Hour



10-Year, 6-Hour



100-Year, 6-Hour



100-Year Maximum Depth Overtopping the Road : 6.1 ft

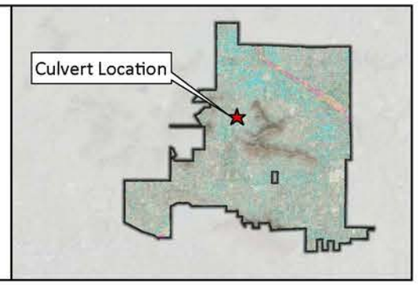
N

0 37.5 75 150 Feet

Legend

Hydraulic Structures
- Culvert

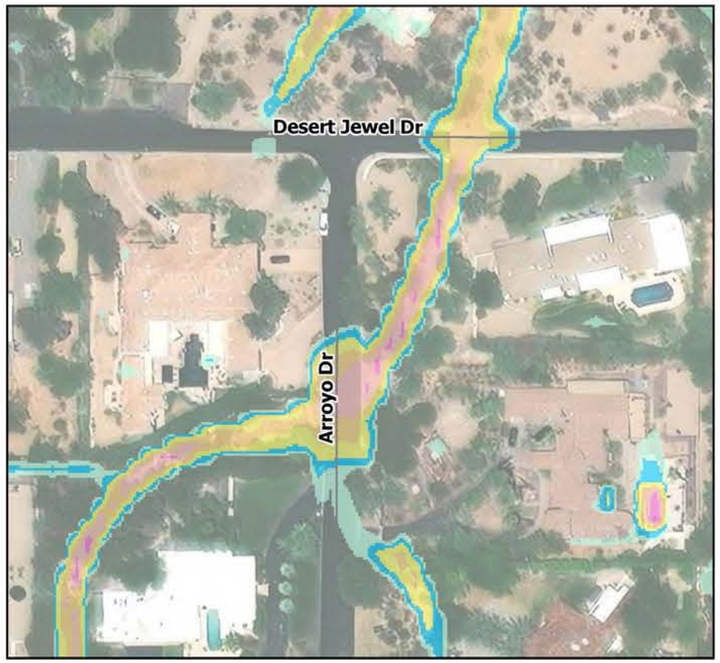
Maximum Water Depth (ft)
- 0.0 - 0.25
- 0.251 - 0.5
- 0.51 - 1.0
- 1.01 - 2.0
- 2.01 - 3.0
- 3.01 - 4.0
- 4.0 - 27



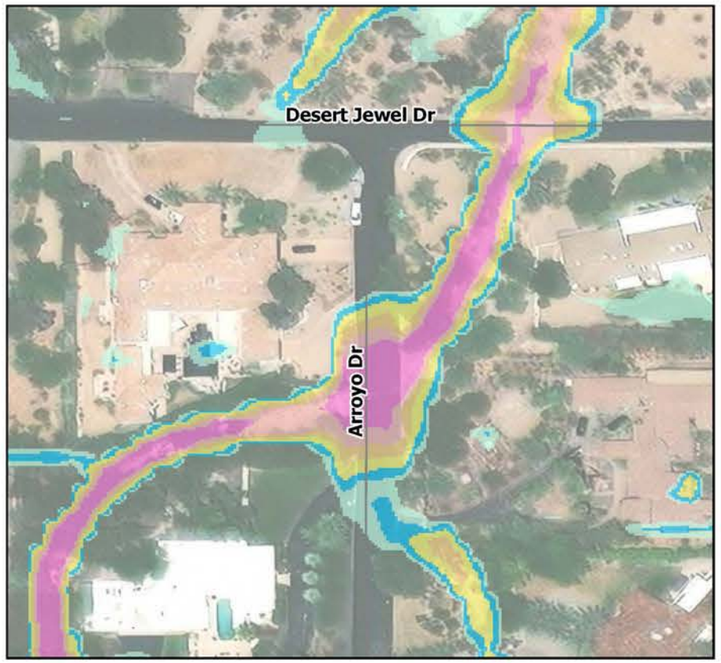
2024 KIMLEY-HORN AND ASSOCIATES, INC.
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Possible Emergency Vehicle Access Restriction Areas: Arroyo Dr Low Water Crossing

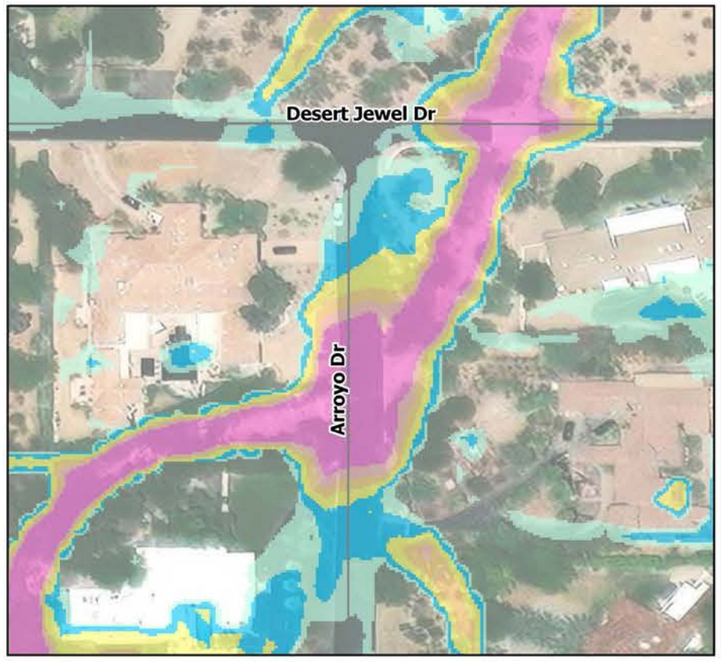
2-Year, 6-Hour



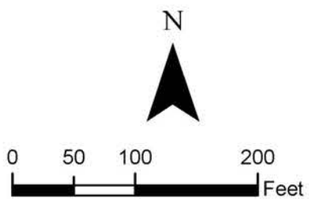
10-Year, 6-Hour



100-Year, 6-Hour

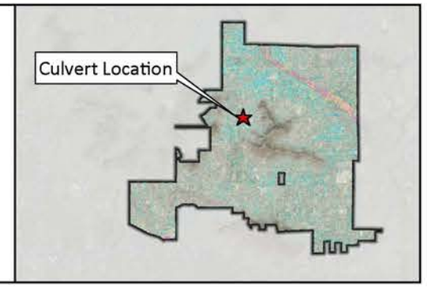


100-Year Maximum Depth Overtopping the Road : 8.0 ft



Legend

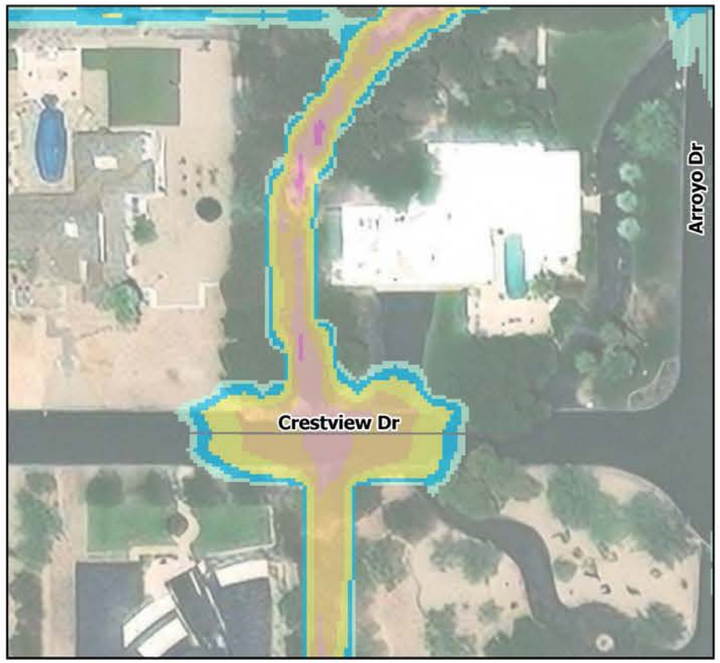
Hydraulic Structures	Maximum Water Depth (ft)	
Culvert	0.0 - 0.25	1.01 - 2.0
	0.251 - 0.5	2.01 - 3.0
	0.51 - 1.0	3.01 - 4.0
		4.0 - 27



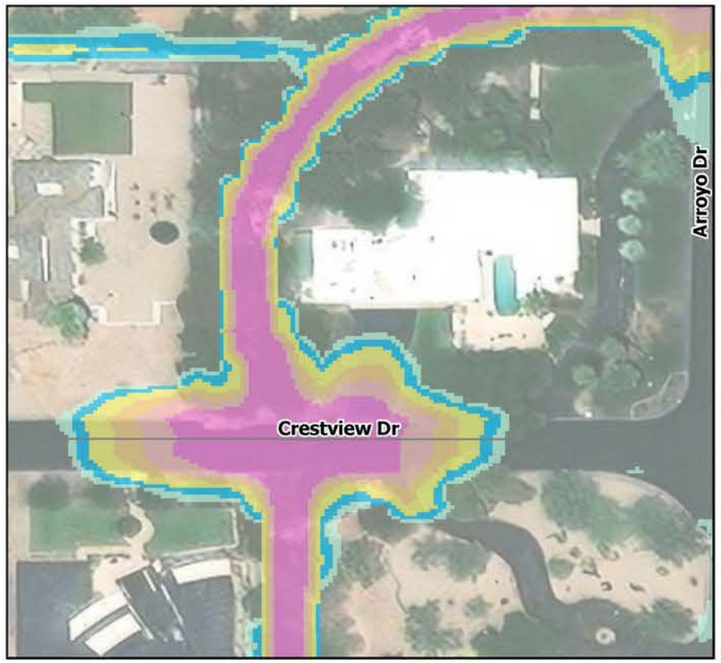
2024 KIMLEY-HORN AND ASSOCIATES, INC.
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Possible Emergency Vehicle Access Restriction Areas: Crestview Dr Low Water Crossing

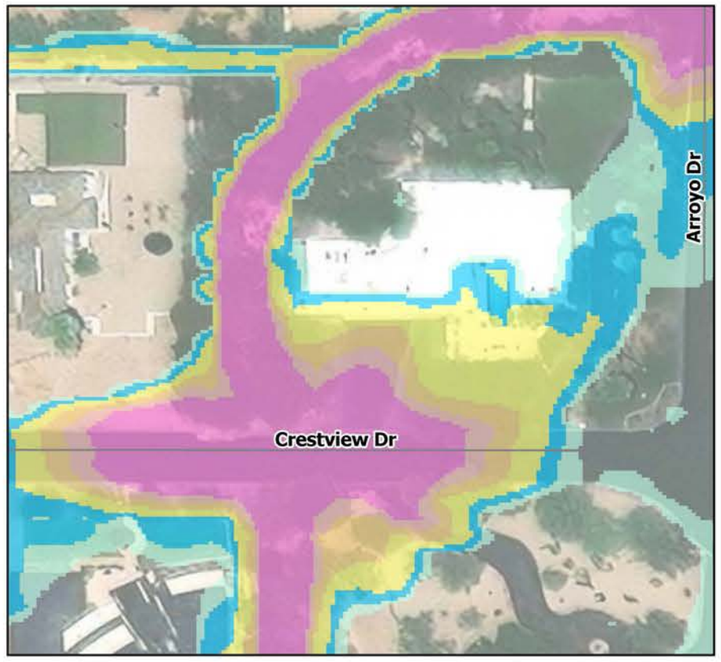
2-Year, 6-Hour



10-Year, 6-Hour



100-Year, 6-Hour



100-Year Maximum Depth Overtopping the Road : 8.4 ft

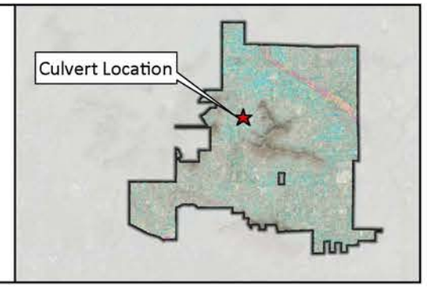
N

0 37.5 75 150 Feet

Legend

Hydraulic Structures
- Culvert

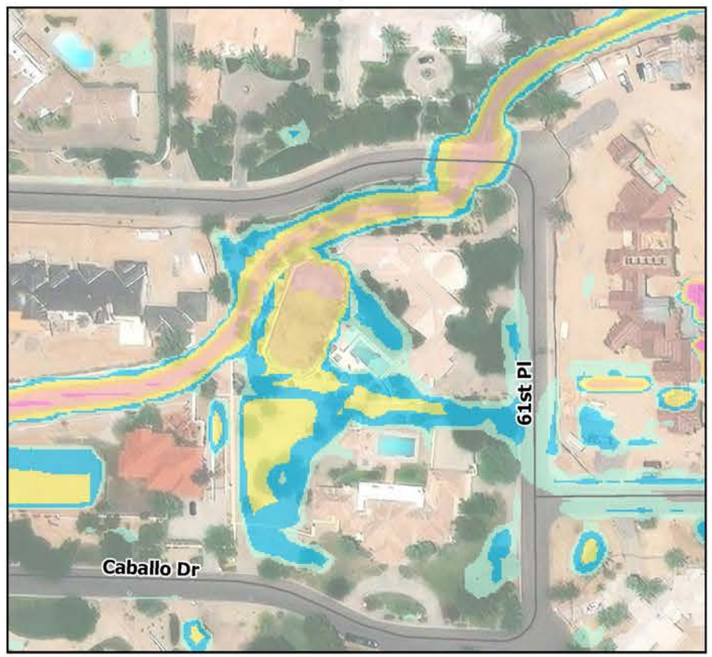
Maximum Water Depth (ft)
- 0.0 - 0.25
- 0.251 - 0.5
- 0.51 - 1.0
- 1.01 - 2.0
- 2.01 - 3.0
- 3.01 - 4.0
- 4.0 - 27



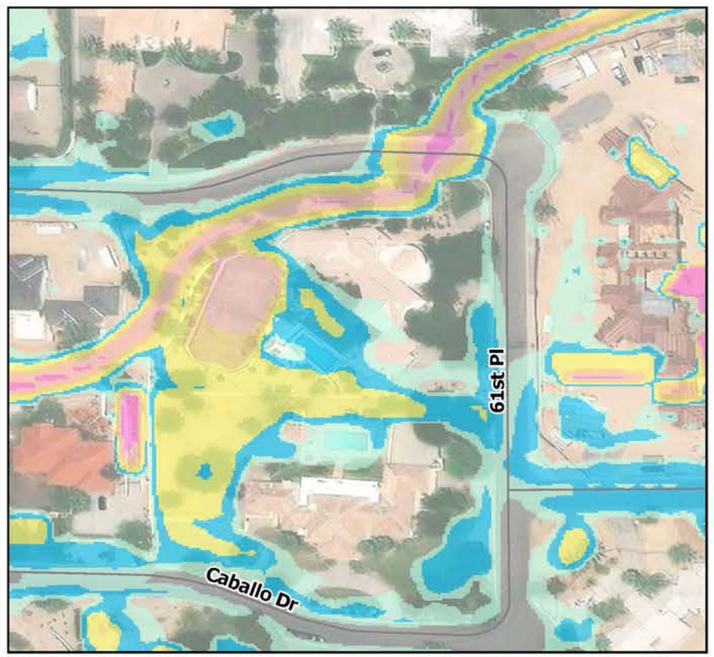
2024 KIMLEY-HORN AND ASSOCIATES, INC.
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Possible Emergency Vehicle Access Restriction Areas: Caballo Ln

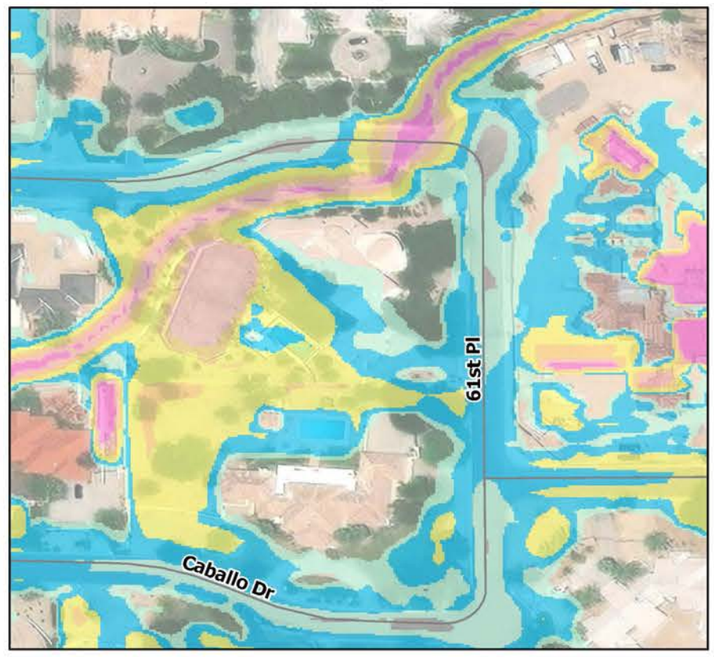
2-Year, 6-Hour



10-Year, 6-Hour



100-Year, 6-Hour



100-Year Maximum Depth Overtopping the Road : 4.7 ft

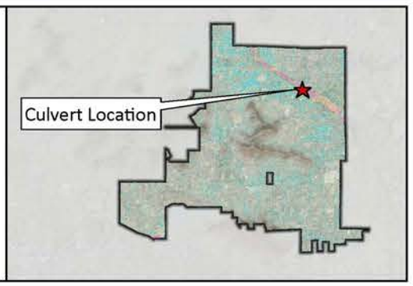
N

0 75 150 300 Feet

Legend

Hydraulic Structures
- Culvert

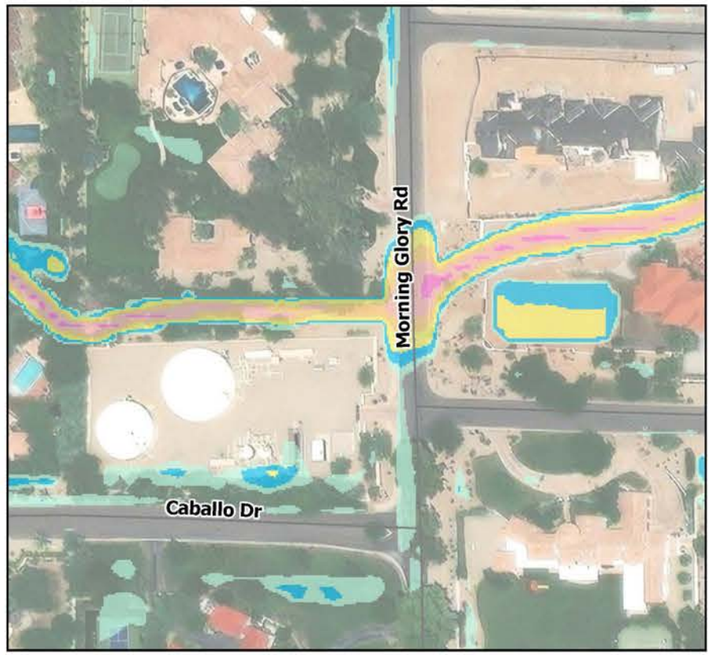
Maximum Water Depth (ft)
- 0.0 - 0.25
- 0.251 - 0.5
- 0.51 - 1.0
- 1.01 - 2.0
- 2.01 - 3.0
- 3.01 - 4.0
- 4.0 - 27



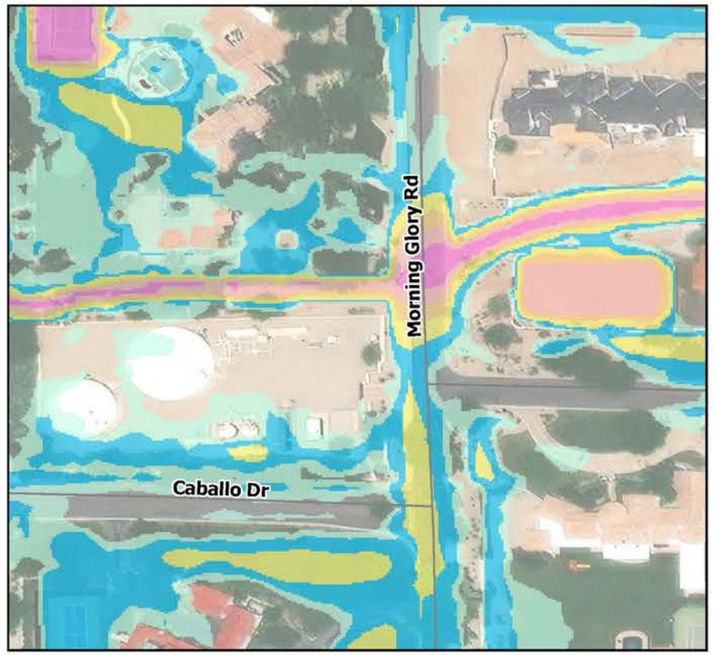
2024 KIMLEY-HORN AND ASSOCIATES, INC.
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Possible Emergency Vehicle Access Restriction Areas: Morning Glory Rd Low Water Crossing

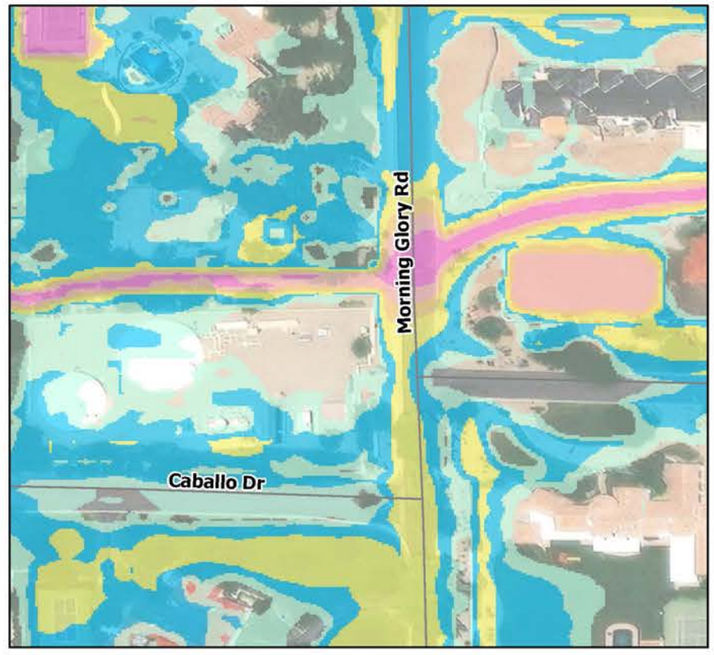
2-Year, 6-Hour



10-Year, 6-Hour



100-Year, 6-Hour



100-Year Maximum Depth Overtopping the Road : 5.3 ft

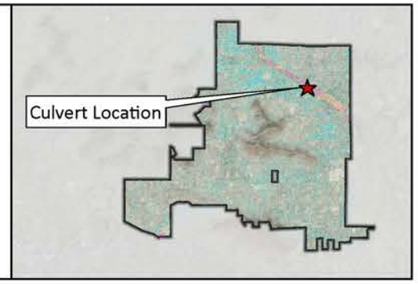
N

0 75 150 300 Feet

Legend

Hydraulic Structures
- Culvert

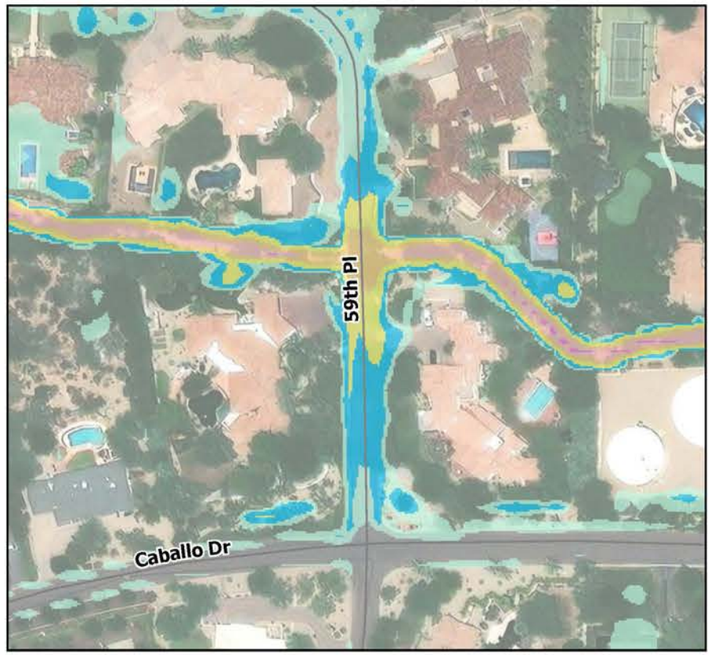
Maximum Water Depth (ft)
- 0.0 - 0.25
- 0.251 - 0.5
- 0.51 - 1.0
- 1.01 - 2.0
- 2.01 - 3.0
- 3.01 - 4.0
- 4.0 - 27



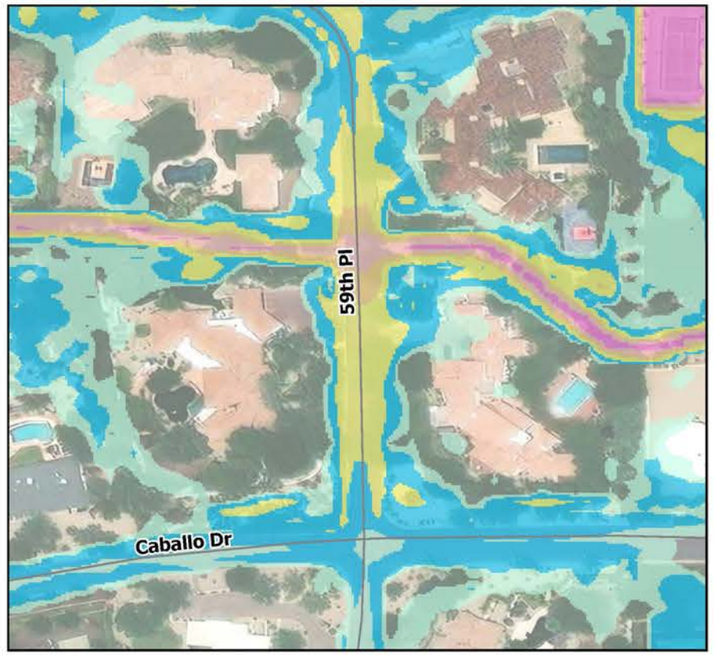
2024 KIMLEY-HORN AND ASSOCIATES, INC.
Engineering, Planning and Environmental Consultants

Possible Emergency Vehicle Access Restriction Areas: 59th Pl Low Water Crossing

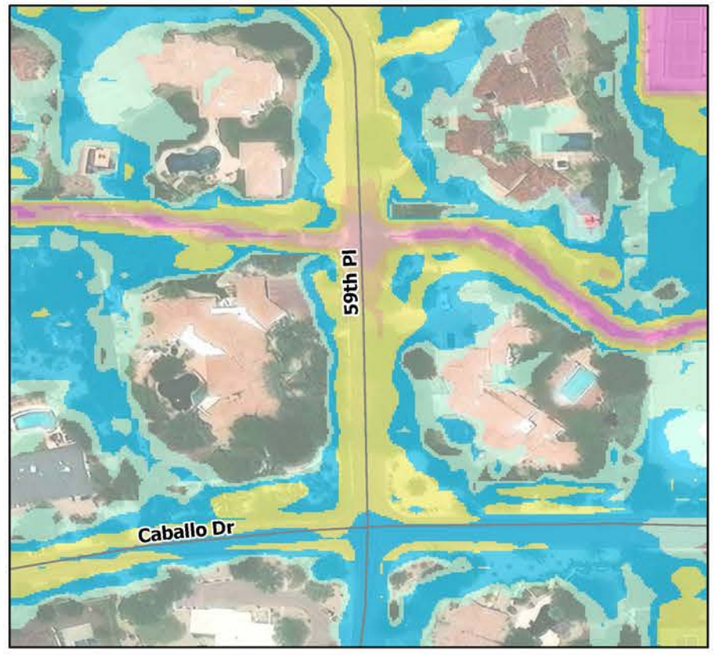
2-Year, 6-Hour



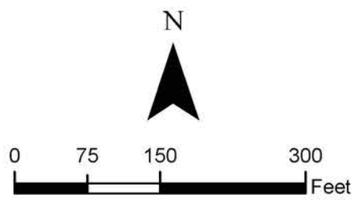
10-Year, 6-Hour



100-Year, 6-Hour

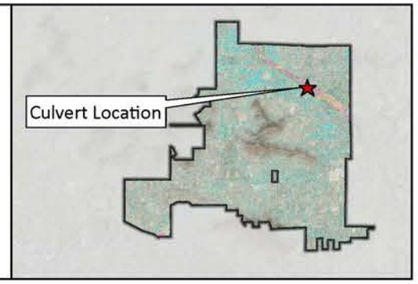


100-Year Maximum Depth Overtopping the Road : 3.8 ft



Legend

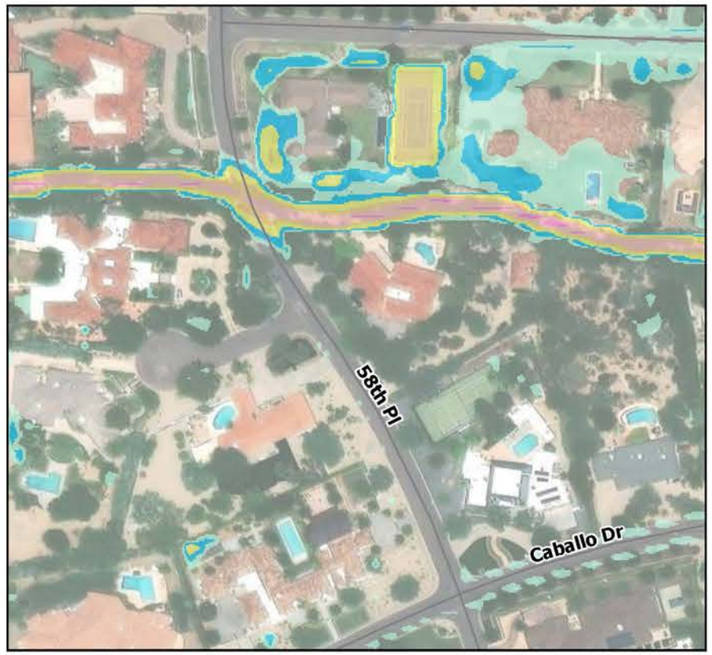
Hydraulic Structures	Maximum Water Depth (ft)	
Culvert	0.0 - 0.25	1.01 - 2.0
	0.251 - 0.5	2.01 - 3.0
	0.51 - 1.0	3.01 - 4.0
		4.0 - 27



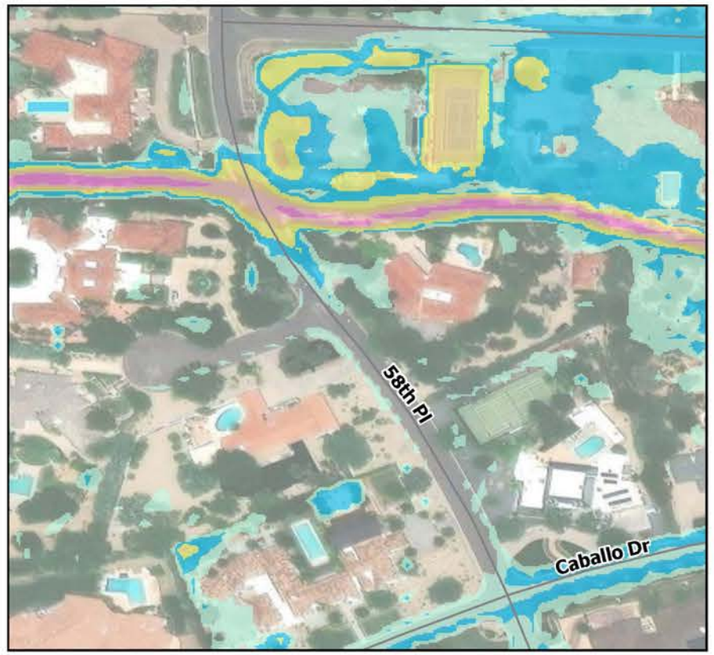
2024 KIMLEY-HORN AND ASSOCIATES, INC.
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Possible Emergency Vehicle Access Restriction Areas: 58th Pl Low Water Crossing

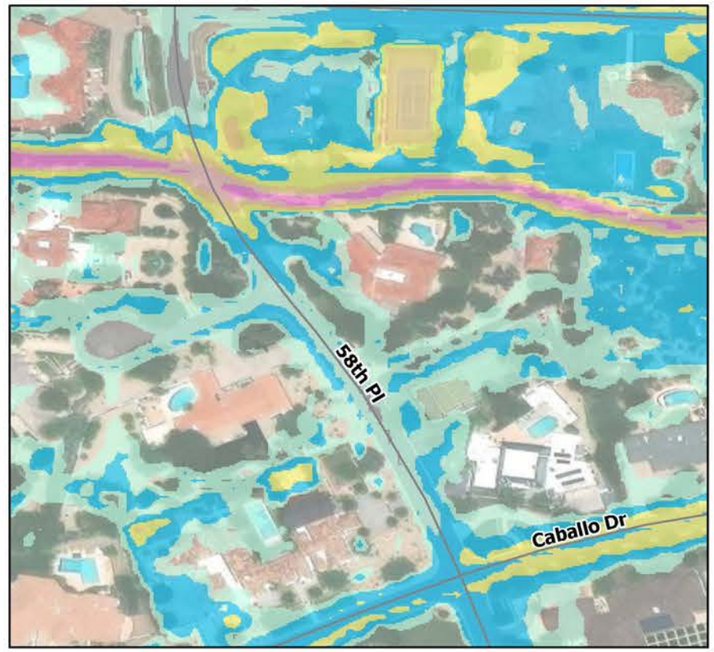
2-Year, 6-Hour



10-Year, 6-Hour



100-Year, 6-Hour



100-Year Maximum Depth Overtopping the Road : 4.2 ft

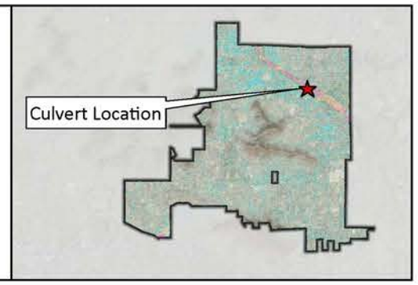
N

0 75 150 300 Feet

Legend

Hydraulic Structures
- Culvert

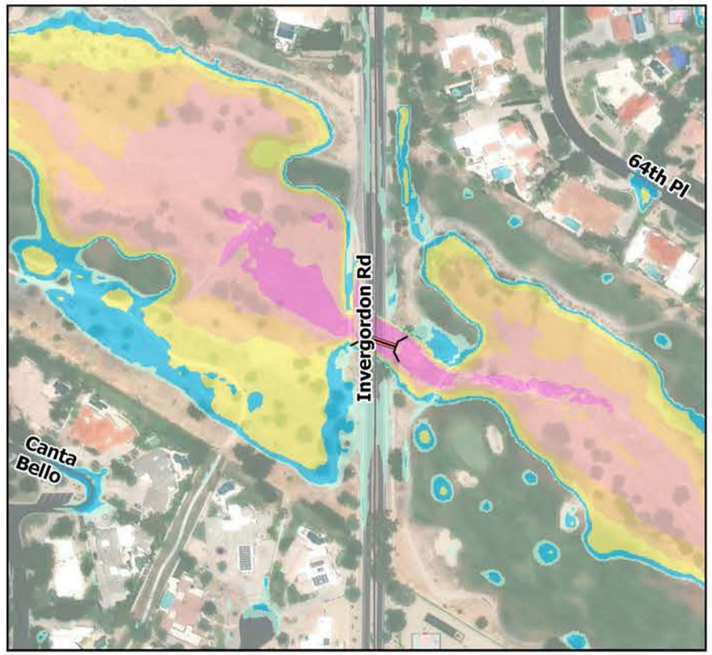
Maximum Water Depth (ft)
- 0.0 - 0.25
- 0.251 - 0.5
- 0.51 - 1.0
- 1.01 - 2.0
- 2.01 - 3.0
- 3.01 - 4.0
- 4.0 - 27



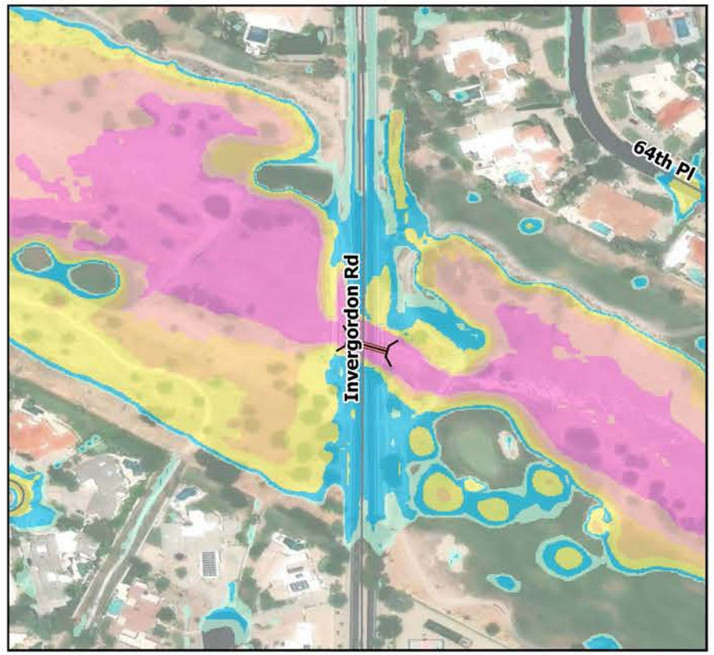
2024 KIMLEY-HORN AND ASSOCIATES, INC.
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Possible Emergency Vehicle Access Restriction Areas: N-21

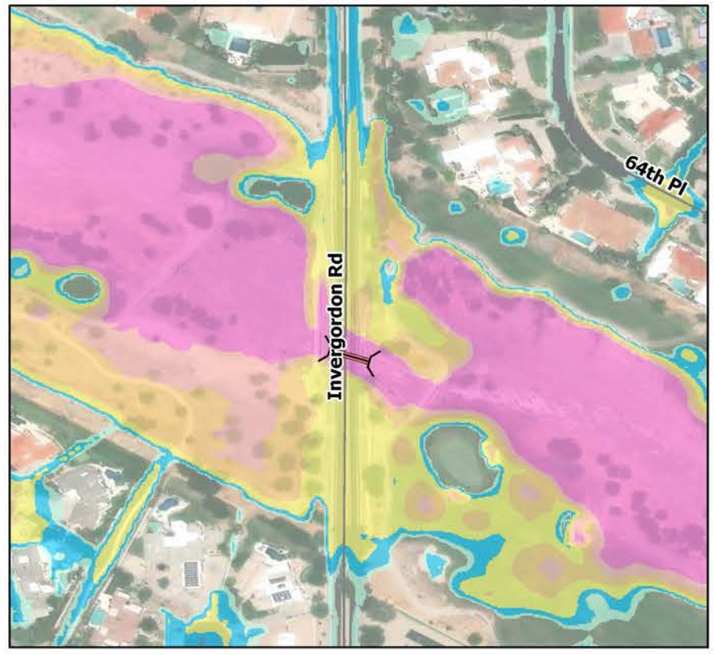
2-Year, 6-Hour



10-Year, 6-Hour



100-Year, 6-Hour



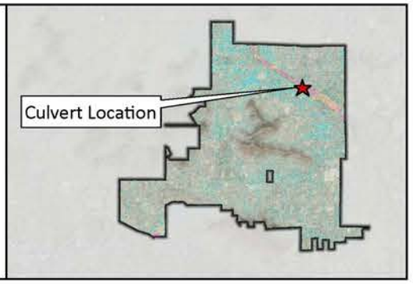
100-Year Maximum Depth Overtopping the Road : 11 ft

N

0 75 150 300
Feet

Legend

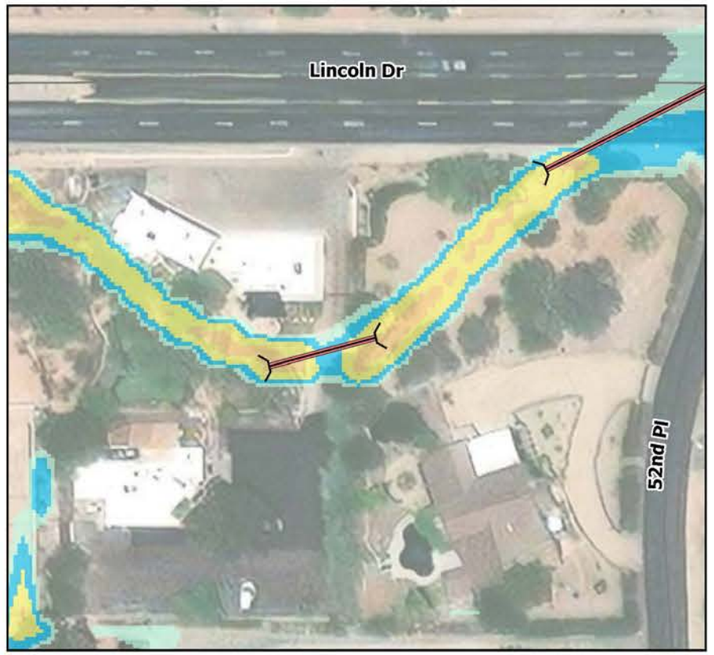
Hydraulic Structures	Maximum Water Depth (ft)	
Culvert	0.0 - 0.25	1.01 - 2.0
	0.251 - 0.5	2.01 - 3.0
	0.51 - 1.0	3.01 - 4.0
		4.0 - 27



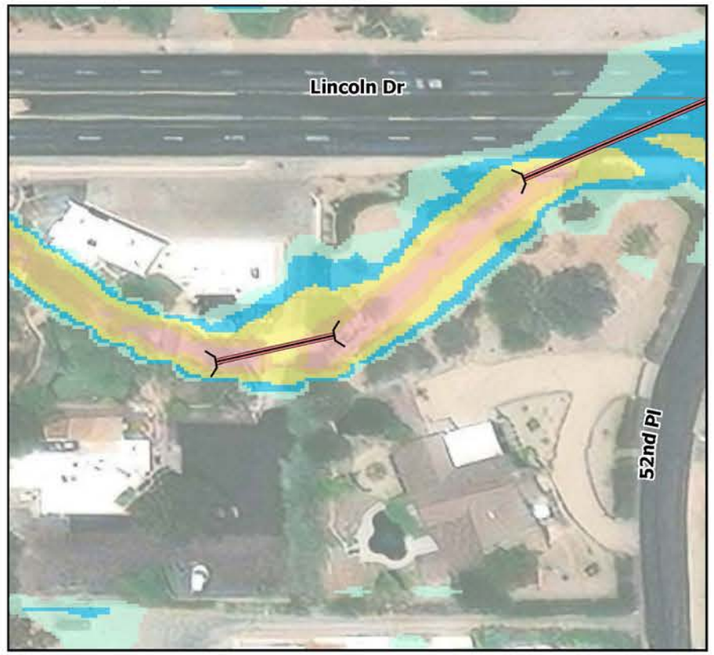
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Possible Emergency Vehicle Access Restriction Areas: S-9

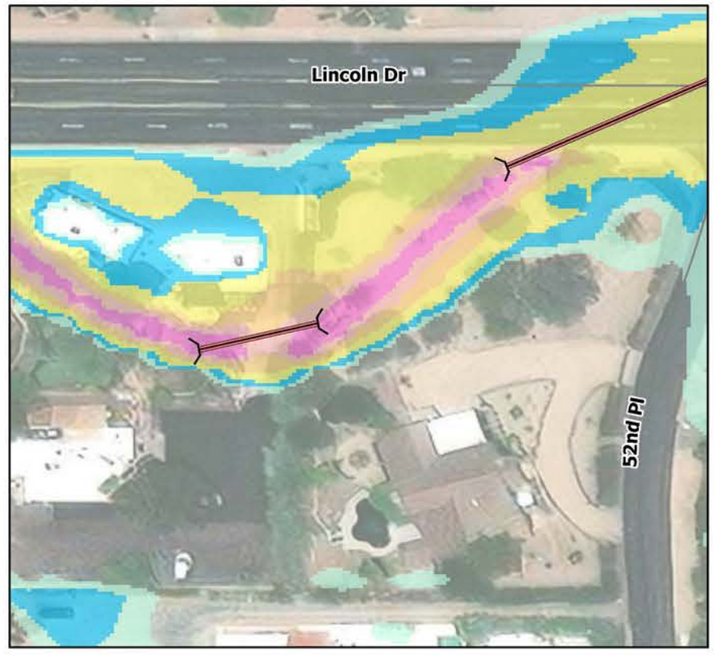
2-Year, 6-Hour



10-Year, 6-Hour



100-Year, 6-Hour



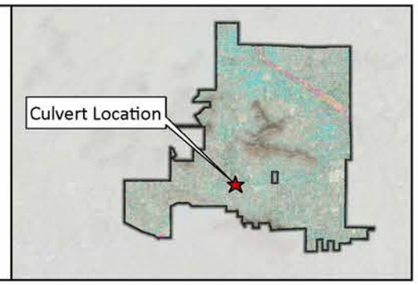
100-Year Maximum Depth Overtopping the Road : 3.6

N

0 37.5 75 150 Feet

Legend

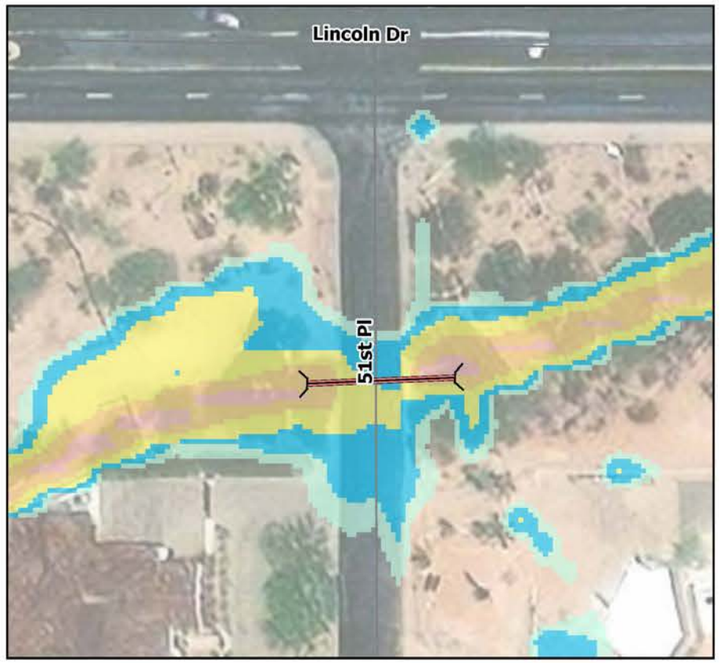
Hydraulic Structures	Maximum Water Depth (ft)	
Culvert	0.0 - 0.25	1.01 - 2.0
	0.251 - 0.5	2.01 - 3.0
	0.51 - 1.0	3.01 - 4.0
		4.0 - 27



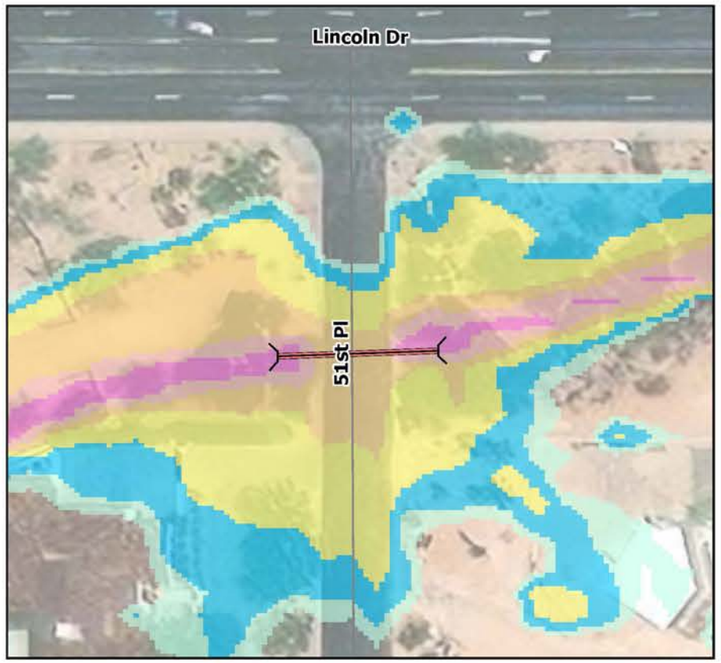
2024 KIMLEY-HORN AND ASSOCIATES, INC.
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Possible Emergency Vehicle Access Restriction Areas: S-8

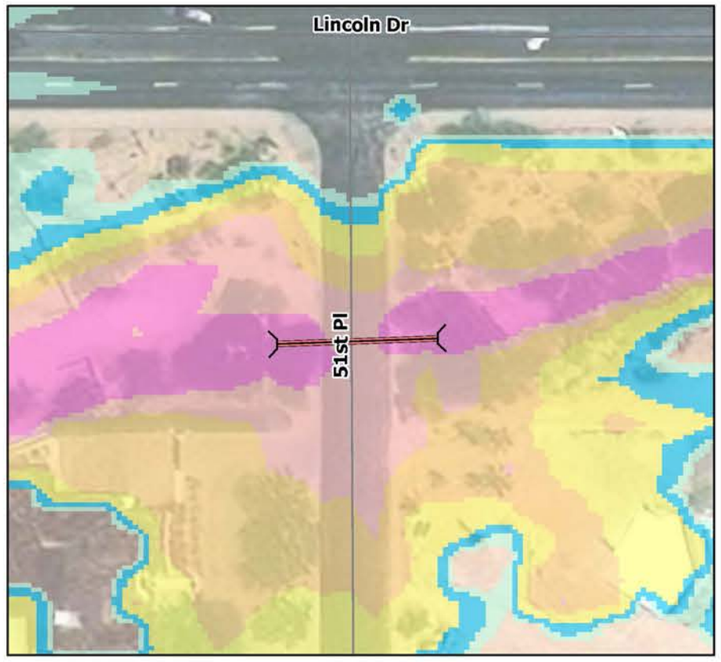
2-Year, 6-Hour



10-Year, 6-Hour



100-Year, 6-Hour



100-Year Maximum Depth Overtopping the Road : 4.8 ft

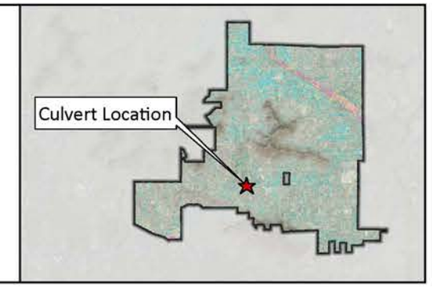
N

0 50 100 200 Feet

Legend

Hydraulic Structures
Culvert

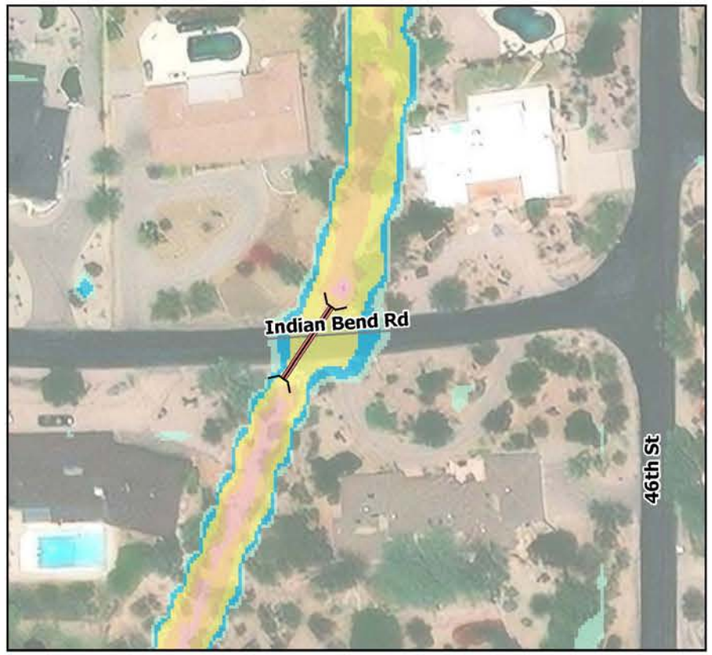
Maximum Water Depth (ft)
0.0 - 0.25
0.251 - 0.5
0.51 - 1.0
1.01 - 2.0
2.01 - 3.0
3.01 - 4.0
4.0 - 27



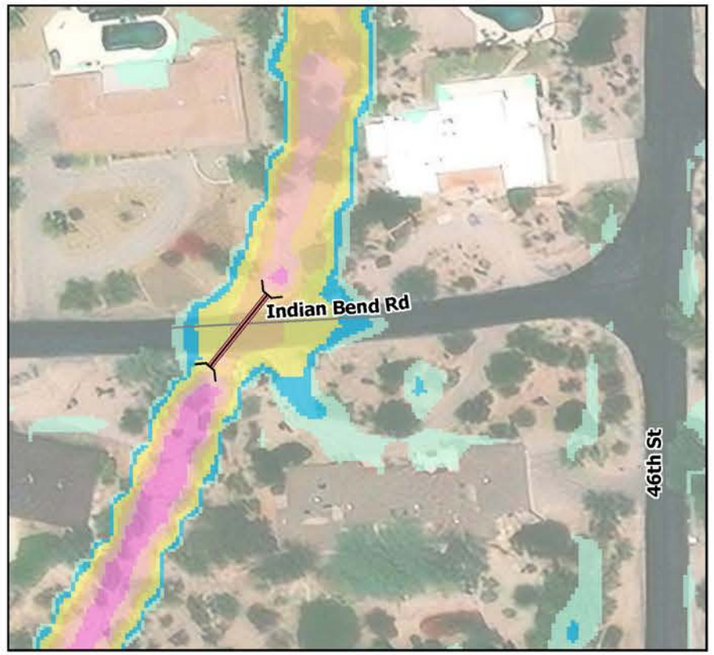
2024 KIMLEY-HORN AND ASSOCIATES, INC.
Engineering, Planning and Environmental Consultants

Possible Emergency Vehicle Access Restriction Areas: S-7

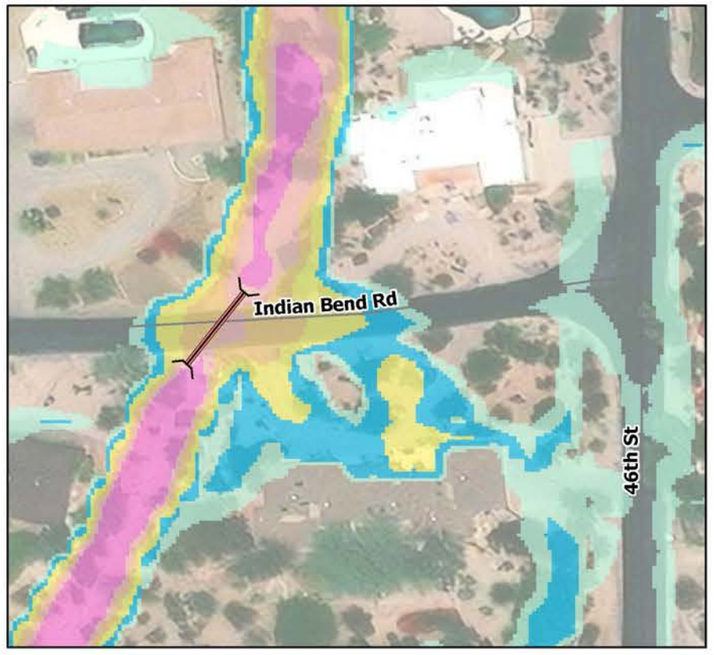
2-Year, 6-Hour



10-Year, 6-Hour



100-Year, 6-Hour



100-Year Maximum Depth Overtopping the Road : 3.6 ft

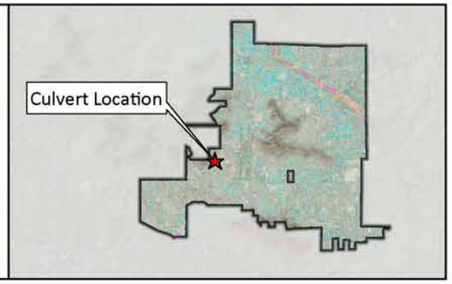
N

0 37.5 75 150
Feet

Legend

Hydraulic Structures
Culvert

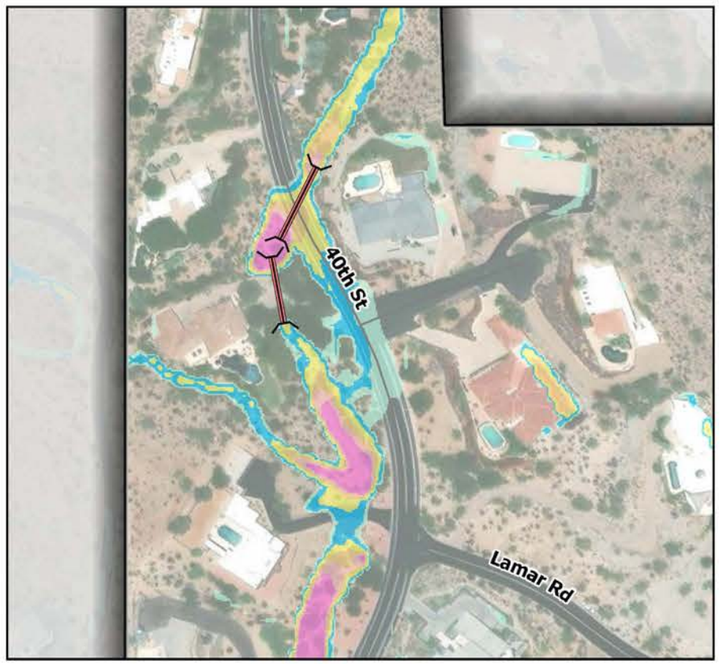
Maximum Water Depth (ft)
0.0 - 0.25
0.251 - 0.5
0.51 - 1.0
1.01 - 2.0
2.01 - 3.0
3.01 - 4.0
4.0 - 27



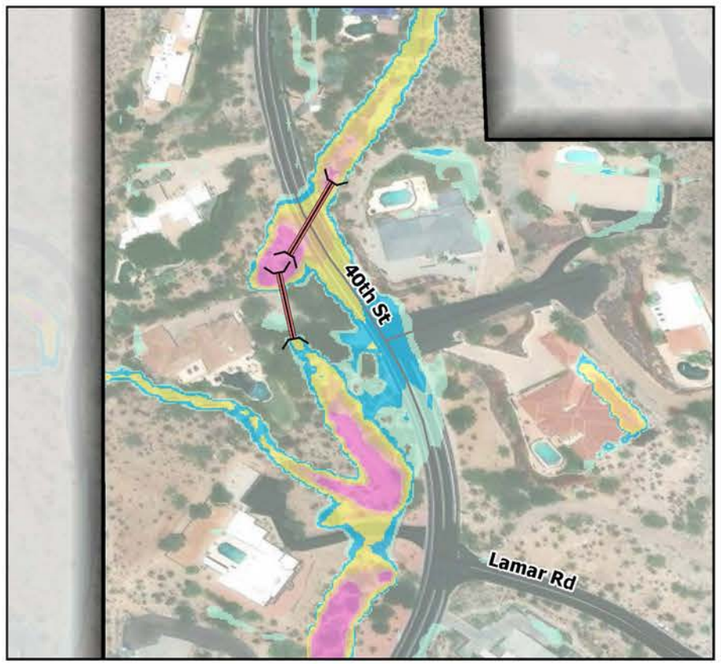
2024 KIMLEY-HORN AND ASSOCIATES, INC.
Engineering, Planning and Environmental Consultants

Possible Emergency Vehicle Access Restriction Areas: S-3

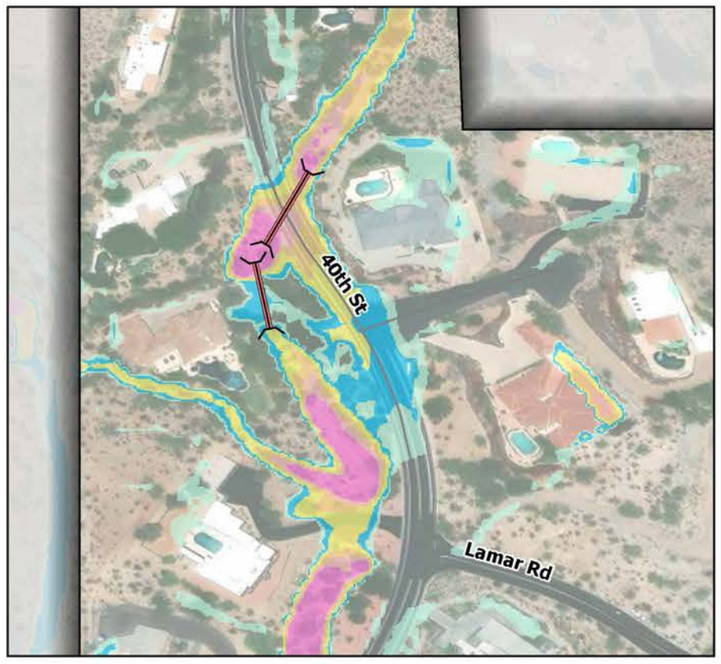
2-Year, 6-Hour



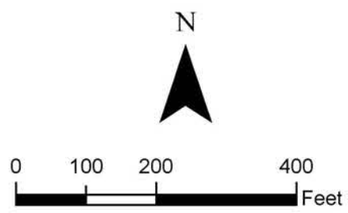
10-Year, 6-Hour



100-Year, 6-Hour



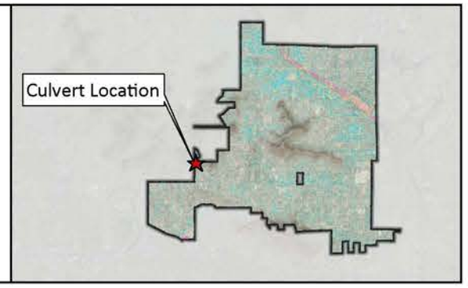
100-Year Maximum Depth Overtopping the Road : 3.9 ft



Legend

Hydraulic Structures
- Culvert

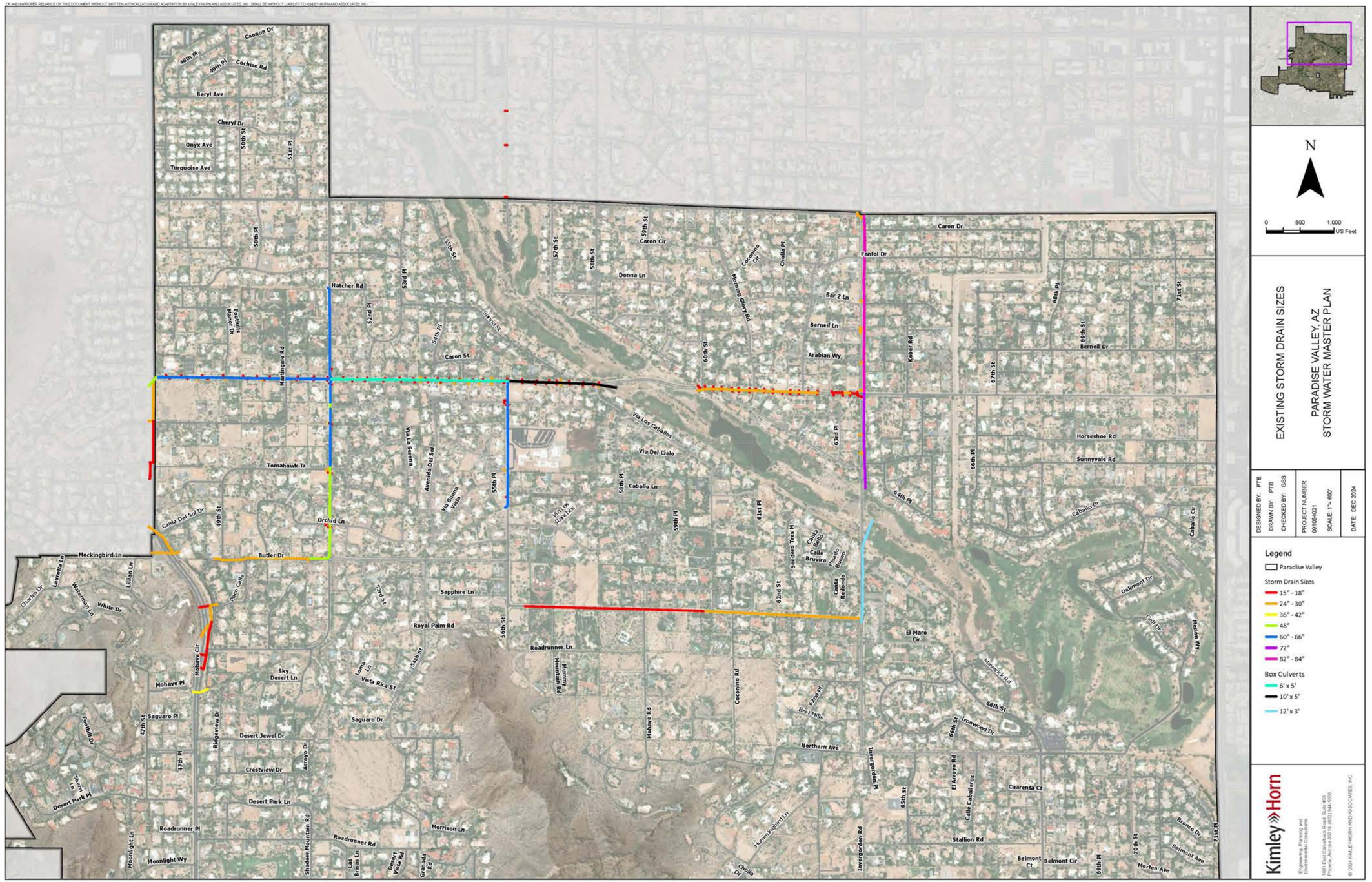
Maximum Water Depth (ft)
- 0.0 - 0.25
- 0.251 - 0.5
- 0.51 - 1.0
- 1.01 - 2.0
- 2.01 - 3.0
- 3.01 - 4.0
- 4.0 - 27



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Engineering, Planning and Environmental Consultants

XIV. APPENDIX B – EXISTING INFRASTRUCTURE

STORM DRAIN IDENTIFICATION, CAPACITY, AND UNDERSIZED INLETS



EXISTING STORM DRAIN SIZES

PARADISE VALLEY, AZ
STORM WATER MASTER PLAN

DESIGNED BY: PTB	PROJECT NUMBER 081054031
DRAWN BY: PTB	SCALE: 1"= 600'
CHECKED BY: GSB	DATE: DEC 2024

Legend

- Paradise Valley

Storm Drain Sizes

- 15" - 18"
- 24" - 30"
- 36" - 42"
- 48"
- 60" - 66"
- 72"
- 82" - 84"

Box Culverts

- 6' x 5'
- 10' x 5'
- 12' x 3'

Kimley»Horn

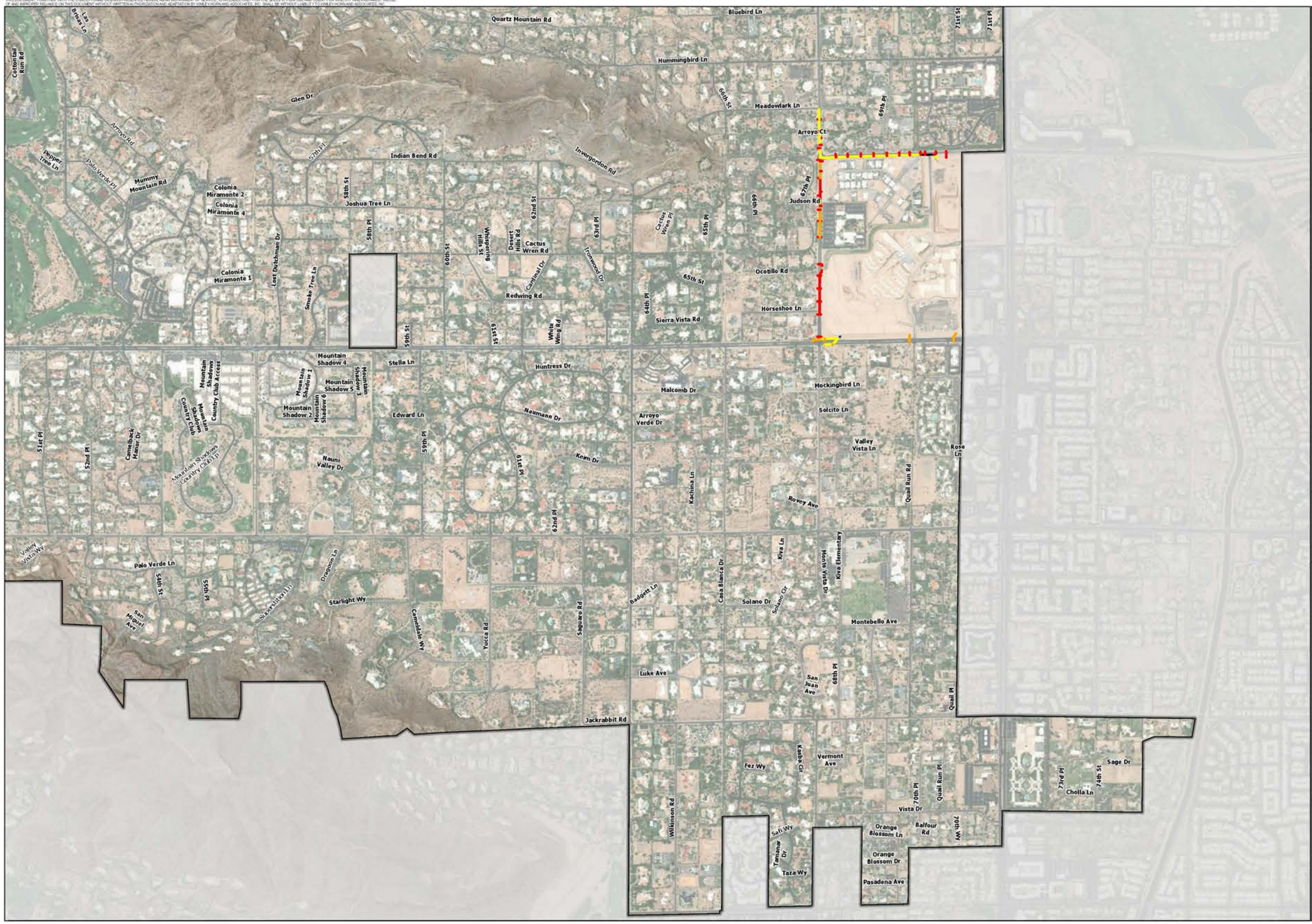
Engineering, Planning and Environmental Consultants

1661 East Camelback Road, Suite 400
Phoenis, Arizona 85016 (602) 944-5500

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EXISTING STORM DRAIN SIZES

PARADISE VALLEY, AZ
STORM WATER MASTER PLAN

DESIGNED BY: PTB	PROJECT NUMBER 091054031		DATE: DEC 2024
DRAWN BY: PTB			
CHECKED BY: GSB	SCALE: 1"= 600'		

Legend

- Paradise Valley

Storm Drain Sizes

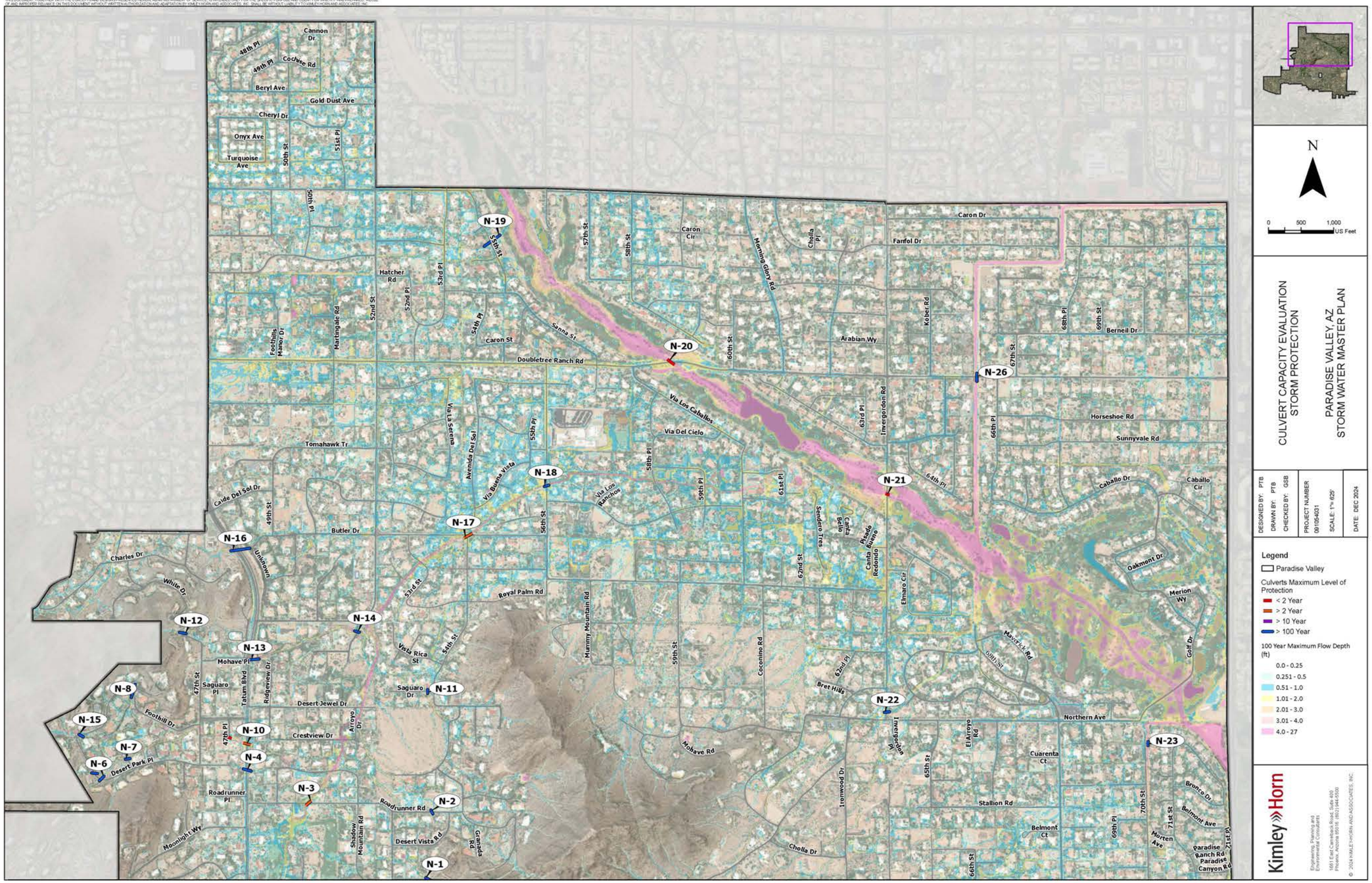
- 15" - 18"
- 24" - 30"
- 36" - 42"
- 48"
- 60" - 66"
- 72"
- 82" - 84"

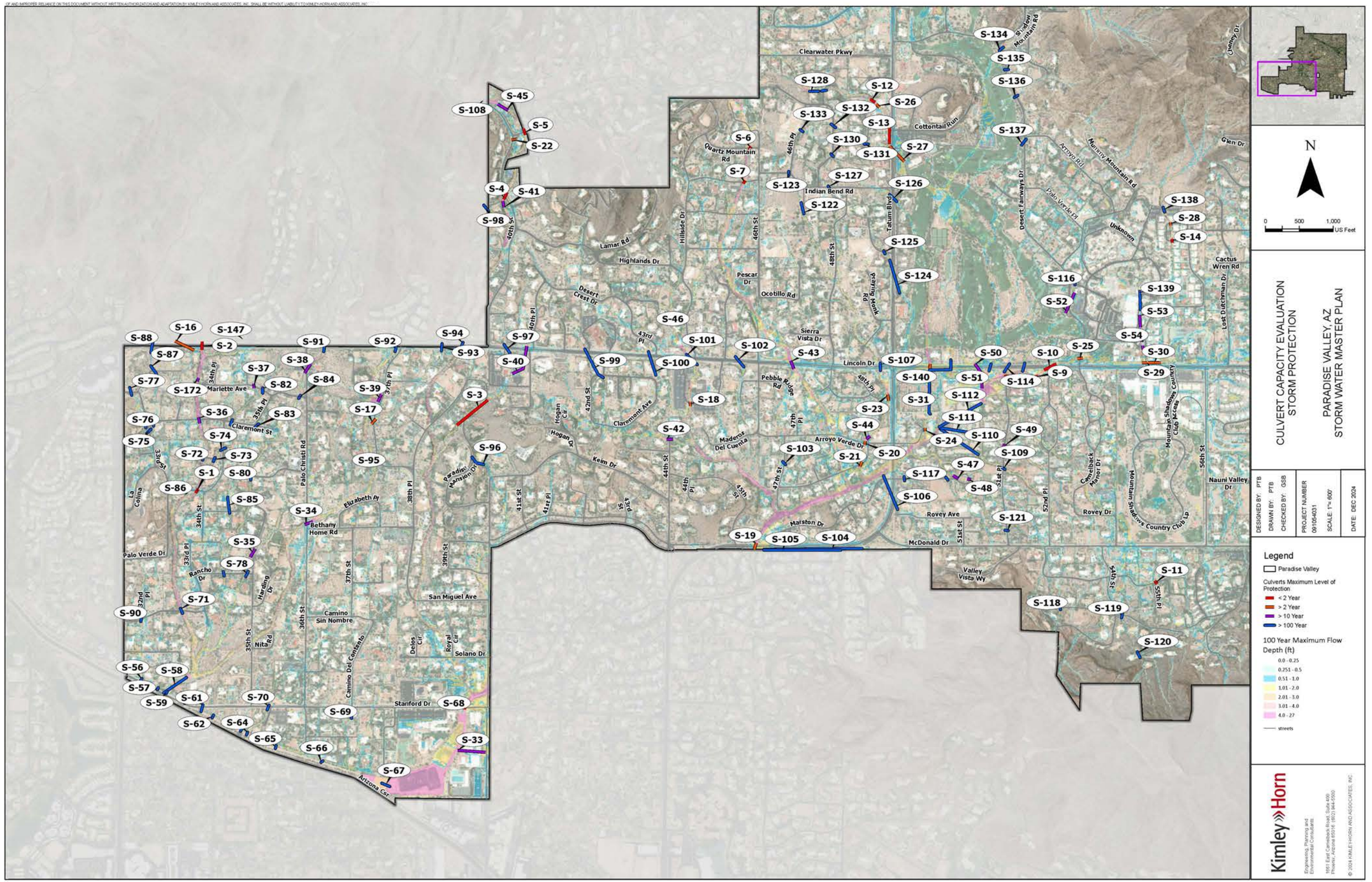
Box Culverts

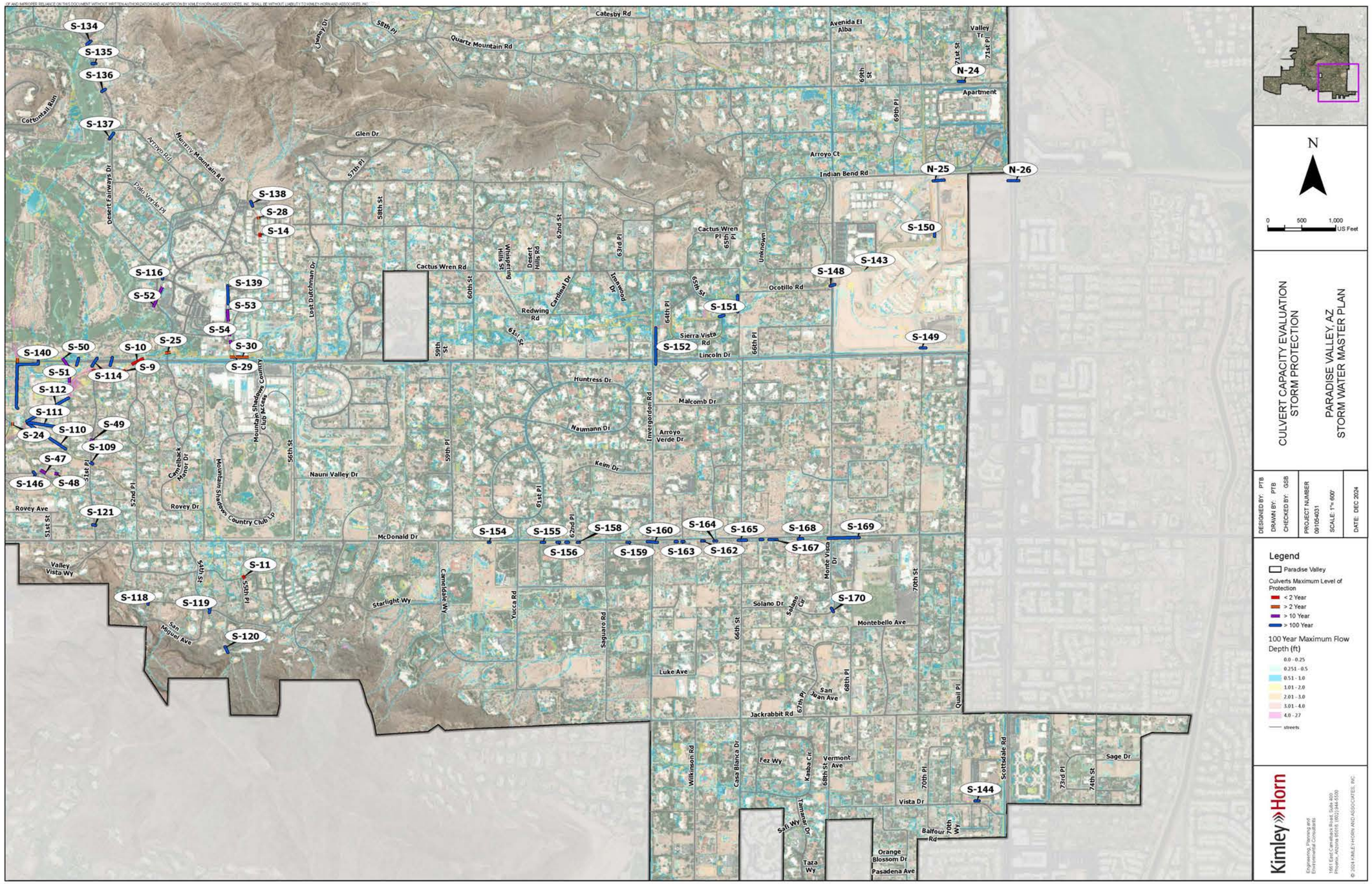
- 6' x 5'
- 10' x 5'
- 12' x 3'

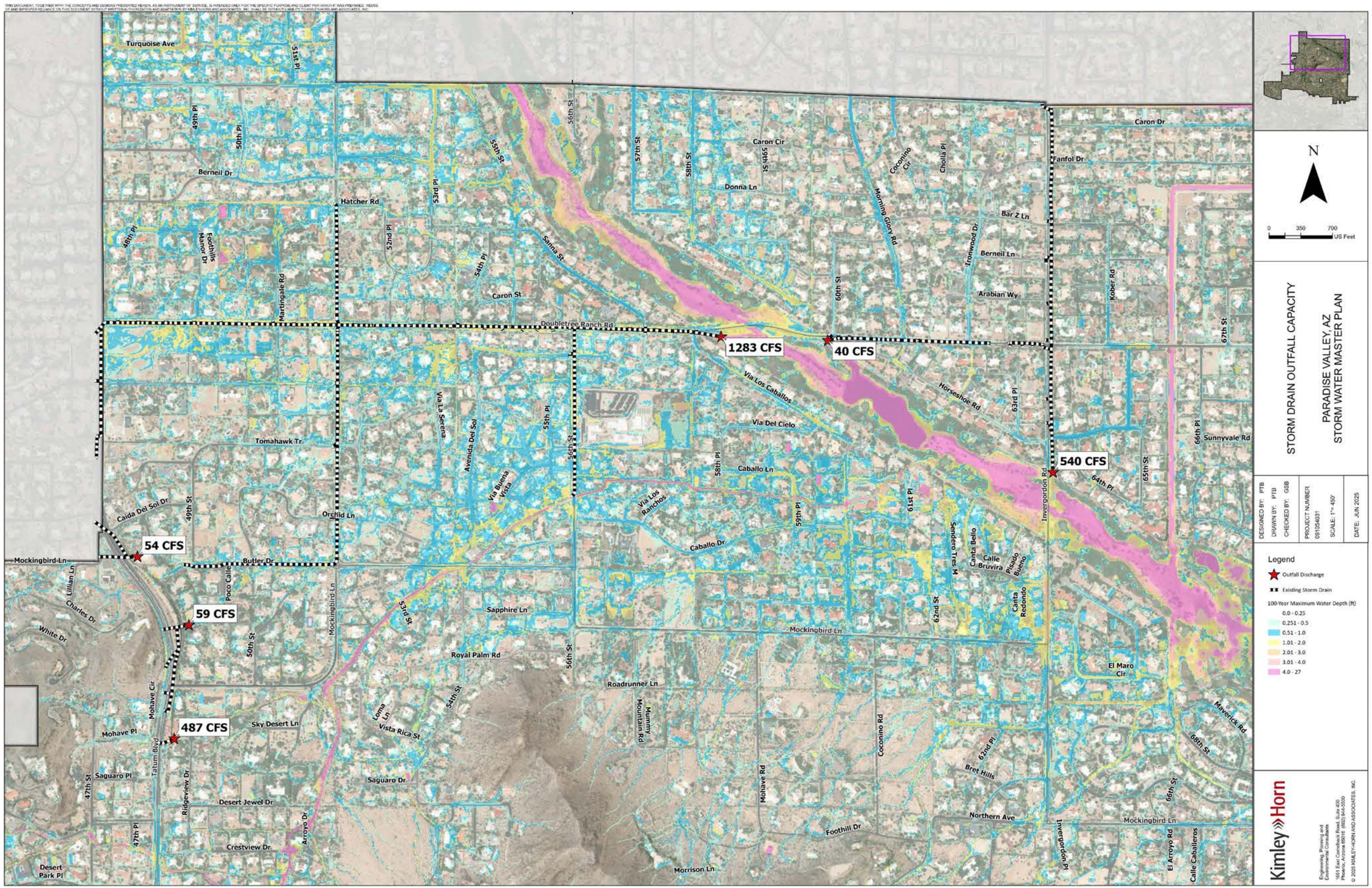
Kimley»Horn
Engineering, Planning and Environmental Consultants
1661 East Camelback Road, Suite 400
Phoenix, Arizona 85016 (602) 944-5500

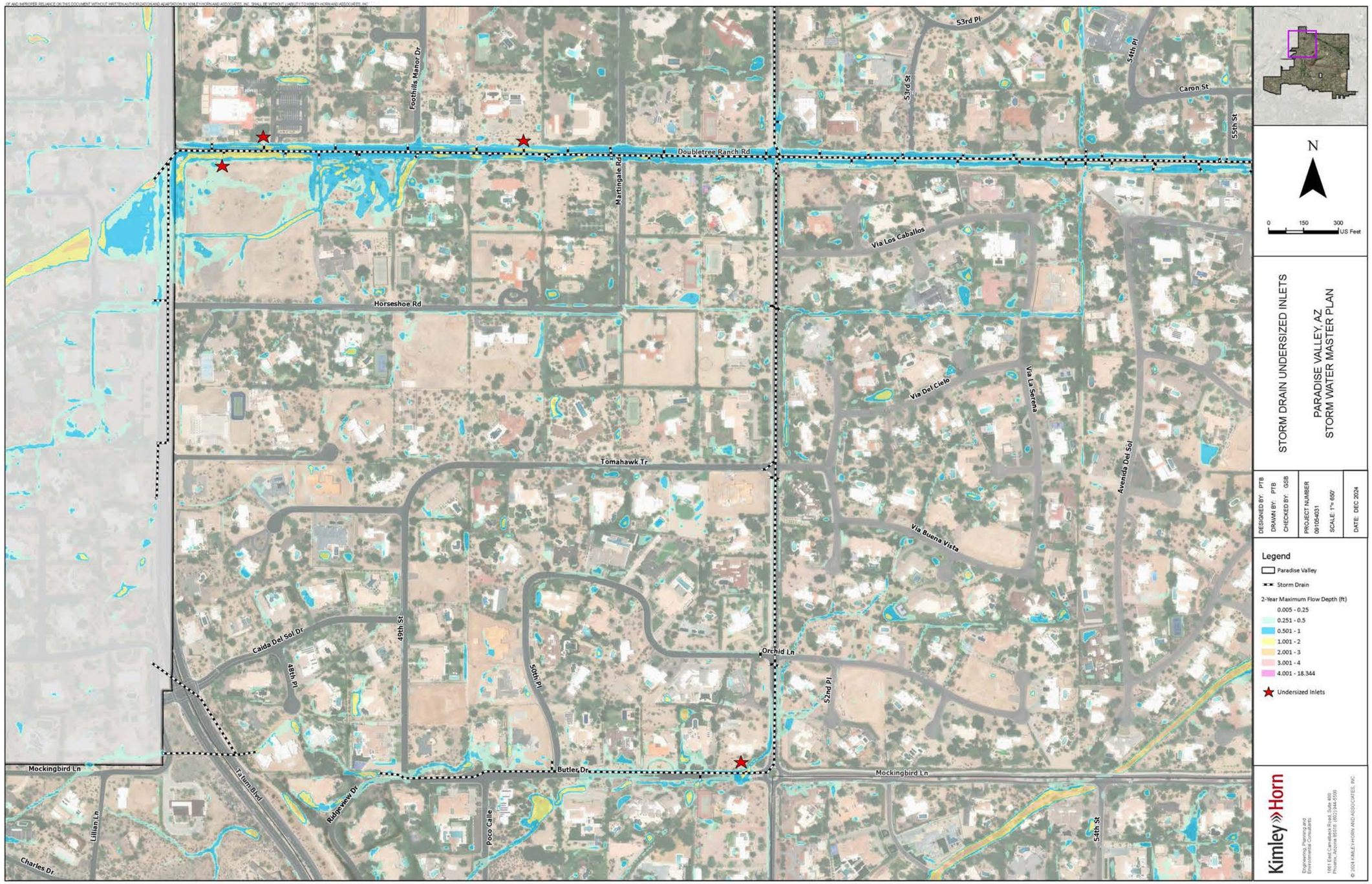
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N
0 500 1,000 US Feet
CULVERT CAPACITY EVALUATION
STORM PROTECTION
PARADISE VALLEY, AZ
STORM WATER MASTER PLAN
DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB
PROJECT NUMBER 061054031
SCALE: 1"= 800'
DATE: DEC 2024
Legend
Paradise Valley
Culverts Maximum Level of Protection
< 2 Year
> 2 Year
> 10 Year
> 100 Year
100 Year Maximum Flow Depth (ft)
0.0 - 0.25
0.251 - 0.5
0.51 - 1.0
1.01 - 2.0
2.01 - 3.0
3.01 - 4.0
4.0 - 27
N-1
N-2
N-3
N-4
N-6
N-7
N-8
N-10
N-11
N-12
N-13
N-14
N-15
N-16
N-17
N-18
N-19
N-20
N-21
N-22
N-23
N-26
Cannon Dr
48th Pl
49th Pl
Cochise Rd
Beryl Ave
Gold Dust Ave
Cheryl Dr
Onyx Ave
Turquoise Ave
50th St
51st Pl
50th Pl
Hatcher Rd
52nd Pl
53rd Pl
54th Pl
55th St
57th St
58th St
Caron Cir
Morning Glory Rd
Cheila Pl
Caron Dr
Fanfol Dr
Kobet Rd
68th Pl
69th St
Berneil Dr
Arabian Wy
60th St
67th St
Horseshoe Rd
Sunnyvale Rd
66th Pl
63rd Pl
Invergordon Rd
Caballo Dr
Caballo Cir
Oakmont Dr
Merion Wy
Golf Dr
Mayfield Rd
Northern Ave
Cuarenta Ct
Stallion Rd
Belmont Ct
Bronco Dr
Belmont Ave
Morten Ave
70th St
71st St
Paradise Ranch Rd
Paradise Canyon Rd
Ironwood Dr
El Arroyo Rd
Indigo Dr
Bret Hills
62nd Pl
Sanna St
Caron St
Doubletree Ranch Rd
Via Los Caballos
Via Del Cielo
Via La Serena
Avenida Del Sol
Via Buena Vista
55th Pl
58th Pl
59th Pl
61st Pl
62nd St
Via Los Ranchos
Sendero Tres
Calle Lado
Rancho Canta Redondo
Elmaro Cir
64th Pl
56th St
Tomahawk Tr
Calle Del Sol Dr
49th St
Butler Dr
Charles Dr
Unknown
White Dr
53rd St
Royal Palm Rd
Hummy Mountain Rd
59th St
Coconino Rd
62nd Pl
Vista Rica St
54th St
Saguaro Pl
Saguaro Dr
Desert Jewel Dr
Mohave Pl
Tatum Blvd
Ridgeview Dr
47th St
47th Pl
Foothills Mesa Dr
Martingale Rd
52nd St
Foothill Dr
Desert Park Pl
Moonlight Wy
Crestview Dr
Arroyo Dr
Roadrunner Pl
Roadrunner Rd
Desert Vista Rd
Shadow Mountain Rd
Granada Rd
Cholla Dr
Mohave Rd
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Clearwater Pkwy
Lamar Rd
Highlands Dr
Desert Crest Dr
Pescar Dr
Ocotillo Rd
Sierra Vista Dr
Pebble Ridge Rd
Lincoln Dr
Indian Bend Rd
Cottontail Run
Quartz Mountain Rd
Arroyo Rd
Mummy Mountain Rd
Glen Dr
Desert Fairways Dr
Palo Verde Pl
Unknown
Cactus Wren Rd
Lost Dutchman Dr
Tatum Blvd
Hillside Dr
Pueblo Rd
Madeira Del Cuenta
Arroyo Verde Dr
Marston Dr
Rovey Ave
Rovey Dr
McDonald Dr
Valley Vista Wy
Mountain Shadows Country Club Lp
Mountain Shadows Country Club Access
Camelback Manor Dr
Nauni Valley Dr
Claremont St
Marlette Ave
Hogan Cir
Hogan Dr
Keim Dr
Paradise Mansion Dr
Palo Christi Rd
Elizabeth Pl
Bethany Home Rd
Palo Verde Dr
Rancho Dr
Harding Dr
Nita Rd
Camino Sin Nombre
Camino Del Contento
San Miguel Ave
Delos Cir
Royal Cir
Solano Dr
Stanford Dr
Arizona Cir
Legend
Paradise Valley
Culverts Maximum Level of Protection
< 2 Year
> 2 Year
> 10 Year
> 100 Year
100 Year Maximum Flow Depth (ft)
0.0 - 0.25
0.251 - 0.5
0.51 - 1.0
1.01 - 2.0
2.01 - 3.0
3.01 - 4.0
4.0 - 27
streets
N
0 500 1,000 US Feet
CULVERT CAPACITY EVALUATION
STORM PROTECTION
PARADISE VALLEY, AZ
STORM WATER MASTER PLAN
DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB
PROJECT NUMBER 069064031
SCALE: 1"= 600'
DATE: DEC 2024
Kimley»Horn
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S-134
S-135
S-136
S-137
S-138
S-28
S-14
S-116
S-52
S-139
S-53
S-54
S-25
S-30
S-29
S-10
S-9
S-114
S-50
S-140
S-51
S-112
S-111
S-110
S-24
S-49
S-109
S-47
S-146
S-48
S-121
S-11
S-118
S-119
S-120
S-154
S-155
S-156
S-158
S-159
S-160
S-163
S-164
S-162
S-165
S-167
S-168
S-169
S-170
S-150
S-143
S-148
S-151
S-152
S-149
S-144
N-24
N-25
N-26
Catesby Rd
Quartz Mountain Rd
Glen Dr
Arroyo Rd
Mummy Mountain Rd
Desert Fairways Dr
Palo Verde Pl
Cottontail Run
Cactus Wren Rd
Lost Dutchman Dr
Whispering Hills St
Desert Hills Rd
Cardinal Dr
Redwing Rd
Ironwood Dr
Indian Bend Rd
Arroyo Ct
Avenida El Alba
Valley Tr
Apartment
Ocotillo Rd
Sierra Vista Rd
Lincoln Dr
Huntress Dr
Malcomb Dr
Naumann Dr
Keim Dr
Nauni Valley Dr
Arroyo Verde Dr
Inverigordon Rd
Mountain Shadows Country Club Access
Mountain Shadows Country Club Dr
Camelback Manor Dr
Rovey Ave
Rovey Dr
McDonald Dr
Valley Vista Wy
San Miguel Ave
Starlight Wy
Camelback Rd
Yucca Rd
Saguaro Rd
Luke Ave
Jackrabbit Rd
San Juan Ave
Monte Vista Dr
Solano Dr
Solano Cir
Montebello Ave
Fez Wy
Kasba Cir
Vermont Ave
Vista Dr
Balfour Rd
Orange Blossom Dr
Pasadena Ave
Taza Wy
Sahl Wy
Tamalpais Dr
Casa Blanca Dr
Wilkinson Rd
Scottsdale Rd
Sage Dr
Quail Pl
Unknown
N
0
500
1,000
US Feet
CULVERT CAPACITY EVALUATION
STORM PROTECTION
PARADISE VALLEY, AZ
STORM WATER MASTER PLAN
DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB
PROJECT NUMBER
091054031
SCALE: 1"= 600'
DATE: DEC 2024
Legend
Paradise Valley
Culverts Maximum Level of Protection
< 2 Year
> 2 Year
> 10 Year
> 100 Year
100 Year Maximum Flow Depth (ft)
0.0 - 0.25
0.251 - 0.5
0.51 - 1.0
1.01 - 2.0
2.01 - 3.0
3.01 - 4.0
4.0 - 27
streets
Kimley»Horn
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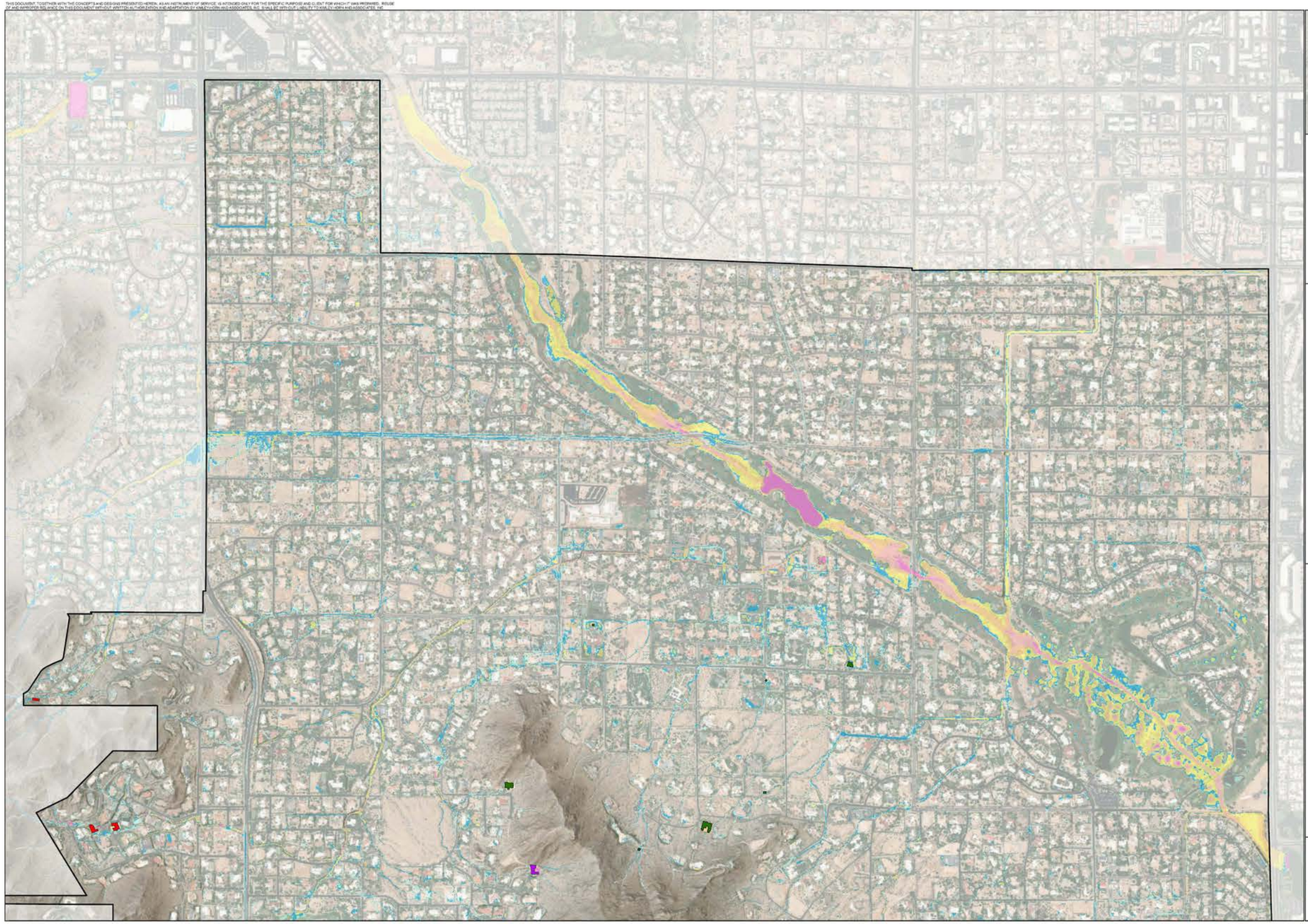

Turquoise Ave
51st Pl
49th Pl
50th Pl
Berneil Dr
Hatcher Rd
48th Pl
Foothills Manor Dr
Martingale Rd
52nd Pl
53rd Pl
55th St
54th Pl
Salma St
Caron St
Doubletree Ranch Rd
56th St
57th St
58th St
59th St
Caron Cir
Donna Ln
Coconino Cir
Cholla Pl
Morning Glory Rd
Ironwood Dr
Bar Z Ln
Berneil Ln
Arabian Wy
60th St
Fanfol Dr
Caron Dr
Kober Rd
67th St
1283 CFS
40 CFS
Via Los Caballos
Via Del Cielo
Horseshoe Rd
63rd Pl
Tomahawk Tr
Via La Serena
Avenida Del Sol
55th Pl
56th St
Via Buena Vista
58th Pl
Caballo Ln
Via Los Ranchos
59th Pl
61st Pl
Caballo Dr
Sendero Tres M
Canta Bello
Calle Brúvira
Brisado Bueno
Canta Redondo
Invergordon Rd
64th Pl
65th St
540 CFS
66th Pl
Sunnyvale Rd
Caida Del Sol Dr
49th St
Orchid Ln
54 CFS
Mockingbird Ln
Butler Dr
Poco Calle
Lillian Ln
Charles Dr
White Dr
59 CFS
50th St
Mockingbird Ln
53rd St
Sapphire Ln
Royal Palm Rd
Roadrunner Ln
Mummy Mountain Rd
Mockingbird Ln
62nd St
El Maro Cir
Maverick Rd
68th St
Mohave Cir
Mohave Pl
Sky Desert Ln
487 CFS
Tatum Blvd
Loma Ln
Vista Rica St
54th St
Saguaro Dr
Mohave Rd
Coconino Rd
62nd Pl
Bret Hills
Saguaro Pl
47th St
Ridgeview Dr
Desert Jewel Dr
Arroyo Dr
Crestview Dr
47th Pl
Desert Park Pl
Foothill Dr
Morrison Ln
Northern Ave
Inverurie Dr
El Arroyo Rd
Calle Caballeros
66th St
Mockingbird Ln
N
0 350 700 US Feet
STORM DRAIN OUTFALL CAPACITY
PARADISE VALLEY, AZ
STORM WATER MASTER PLAN
DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB
PROJECT NUMBER 091054031
SCALE: 1"= 450'
DATE: JUN 2025
Legend
Outfall Discharge
Existing Storm Drain
100-Year Maximum Water Depth (ft)
0.0 - 0.25
0.251 - 0.5
0.51 - 1.0
1.01 - 2.0
2.01 - 3.0
3.01 - 4.0
4.0 - 27
Kimley»Horn
Engineering, Planning and Environmental Consultants
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Phoenix, Arizona 85016 (602) 944-5500
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Foothills Manor Dr
Doubletree Ranch Rd
Martingale Rd
53rd Pl
53rd St
54th Pl
Caron St
55th St
Via Los Caballos
Horseshoe Rd
Via Del Cielo
Via La Serena
Avenida Del Sol
Tomahawk Tr
Via Buena Vista
Caida Del Sol Dr
48th Pl
49th St
50th Pl
Orchid Ln
52nd Pl
Mockingbird Ln
Butler Dr
Tatum Blvd
Ridgeview Dr
Poco Calle
54th St
Lillian Ln
Charles Dr
N
0 150 300 US Feet
STORM DRAIN UNDERSIZED INLETS
PARADISE VALLEY, AZ
STORM WATER MASTER PLAN
DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB
PROJECT NUMBER 091054031
SCALE: 1"= 650'
DATE: DEC 2024
Legend
Paradise Valley
Storm Drain
2-Year Maximum Flow Depth (ft)
0.005 - 0.25
0.251 - 0.5
0.501 - 1
1.001 - 2
2.001 - 3
3.001 - 4
4.001 - 18.344
Undersized Inlets
Kimley»Horn
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XV. APPENDIX C – FLOOD HAZARD ANALYSIS

ADJACENT FLOW DEPTH TO BUILDINGS

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY»HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY»HORN AND ASSOCIATES, INC.





N

0 500 1,000 US Feet

ADJACENT FLOW DEPTH TO BUILDINGS
2 YEAR, 6 HOUR STORM

PARADISE VALLEY, AZ
STORMWATER MASTER PLAN

Legend

Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

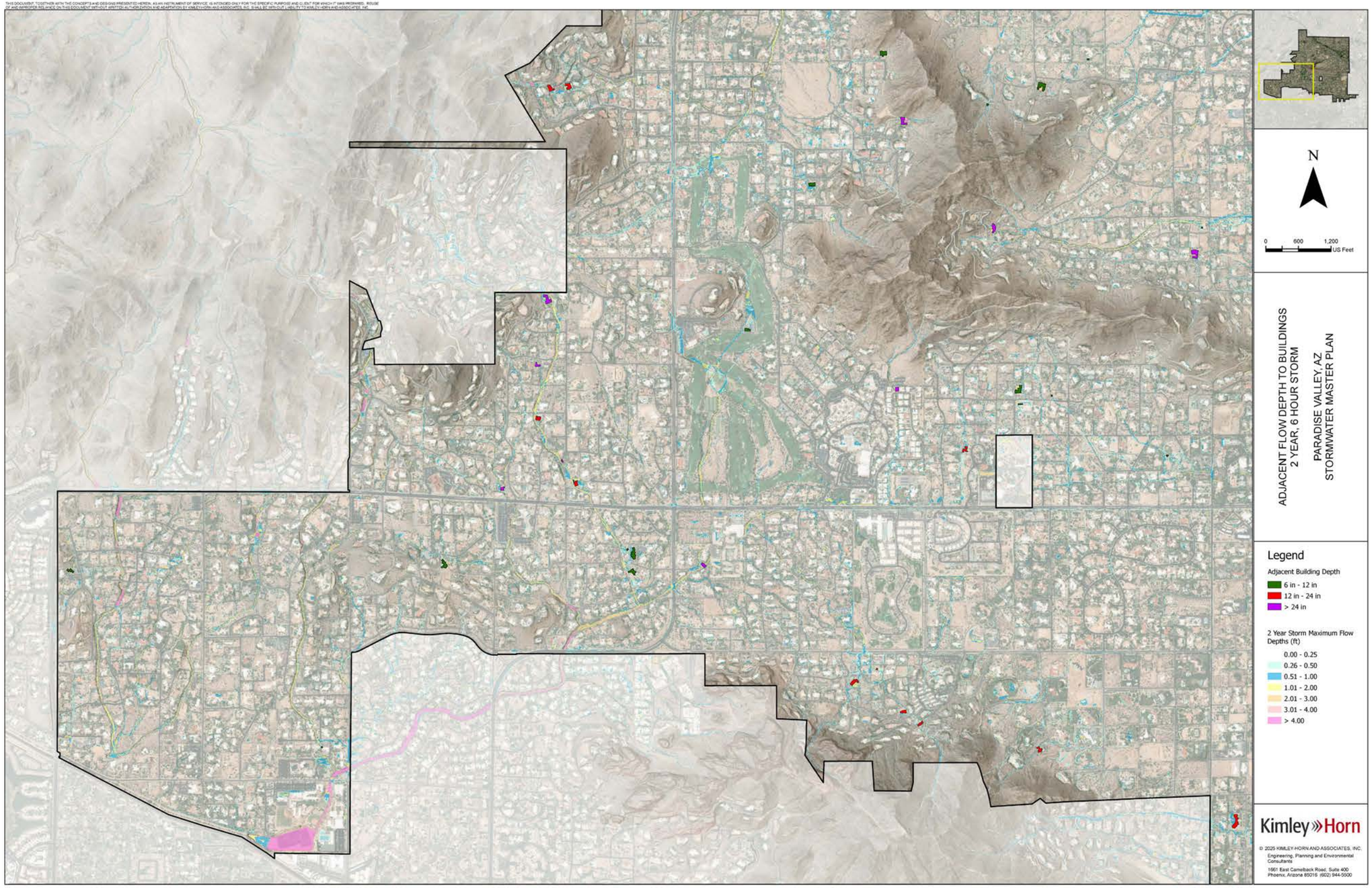
2 Year Storm Maximum Flow Depths (ft)
- 0.00 - 0.25
- 0.26 - 0.50
- 0.51 - 1.00
- 1.01 - 2.00
- 2.01 - 3.00
- 3.01 - 4.00
- > 4.00

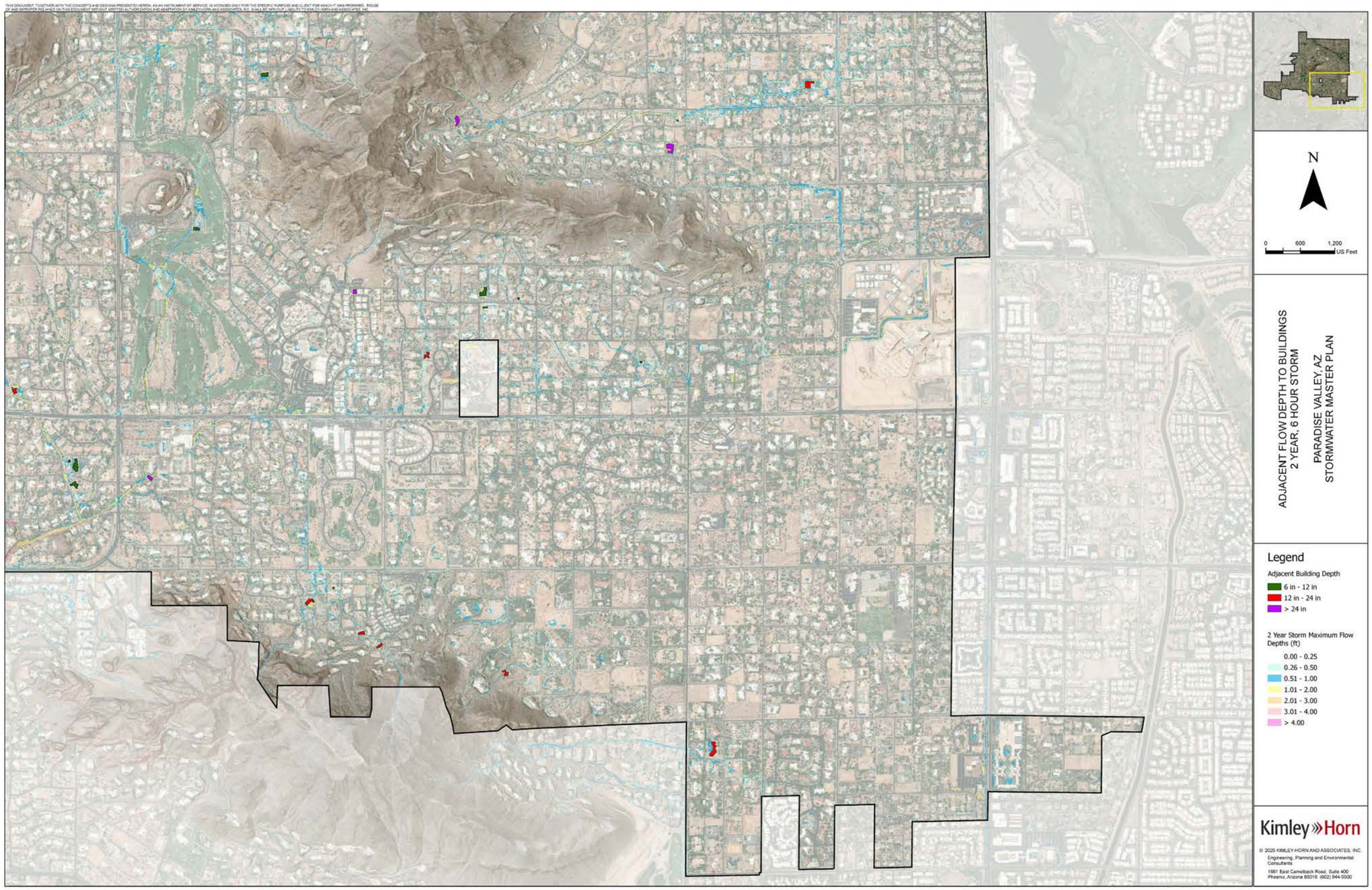
Kimley»Horn

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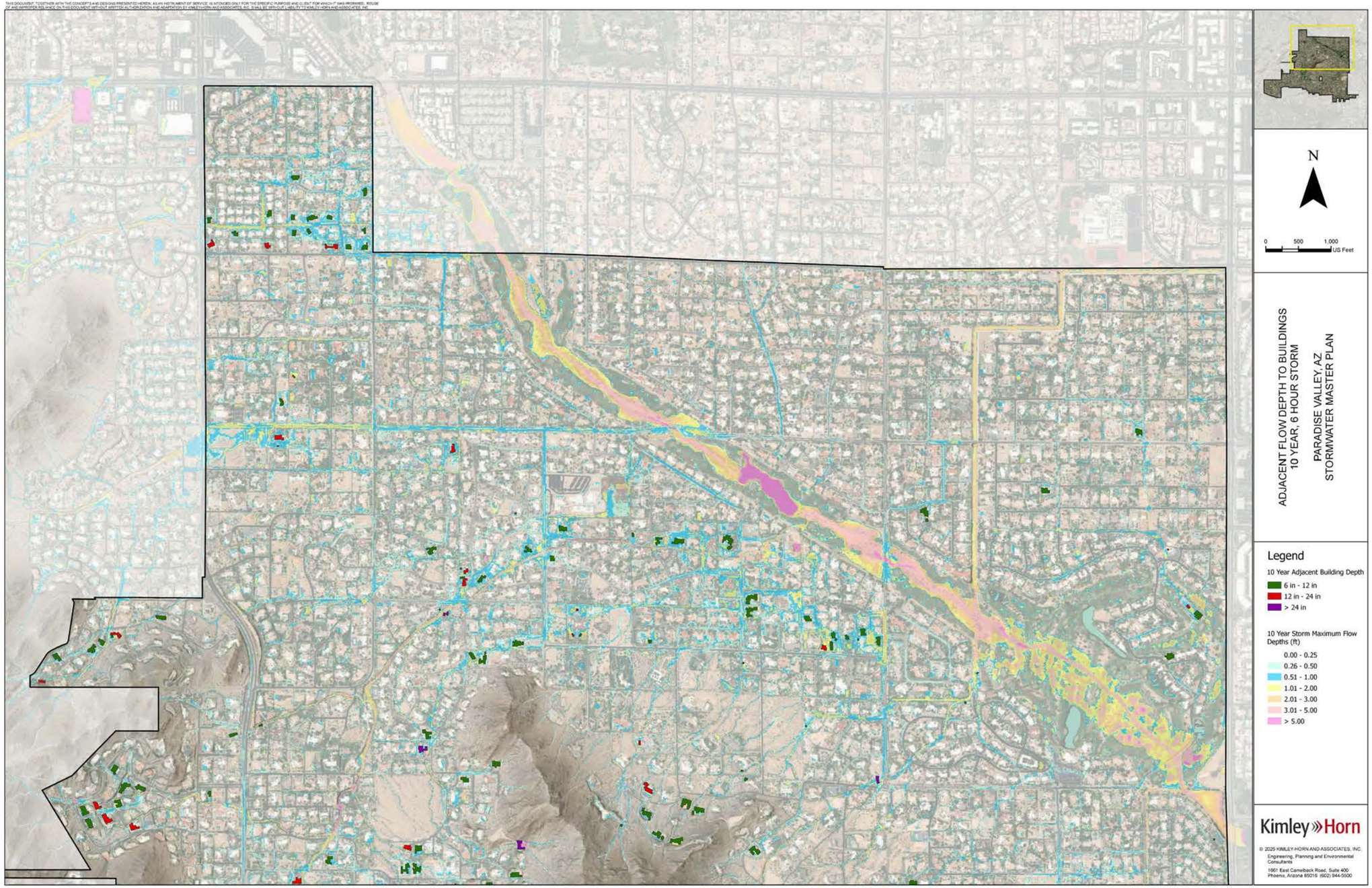
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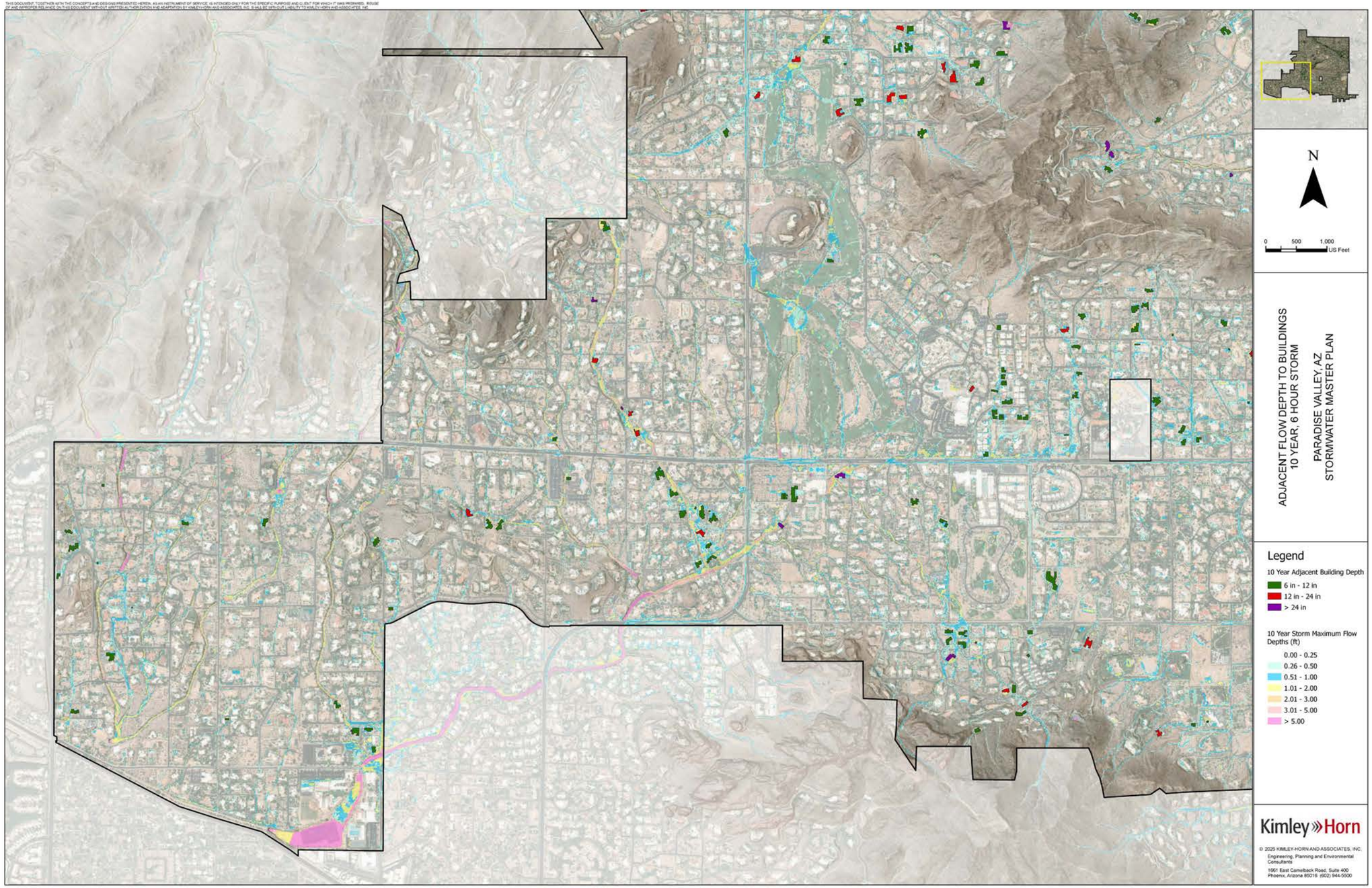



N
0 600 1,200
US Feet
ADJACENT FLOW DEPTH TO BUILDINGS
2 YEAR, 6 HOUR STORM
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
Legend
Adjacent Building Depth
6 in - 12 in
12 in - 24 in
> 24 in
2 Year Storm Maximum Flow Depths (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
Kimley»Horn
© 2025 KIMLEY-HORN AND ASSOCIATES, INC.
Engineering, Planning and Environmental Consultants
1961 East Camelback Road, Suite 400
Phoenix, Arizona 85016 (602) 944-5500

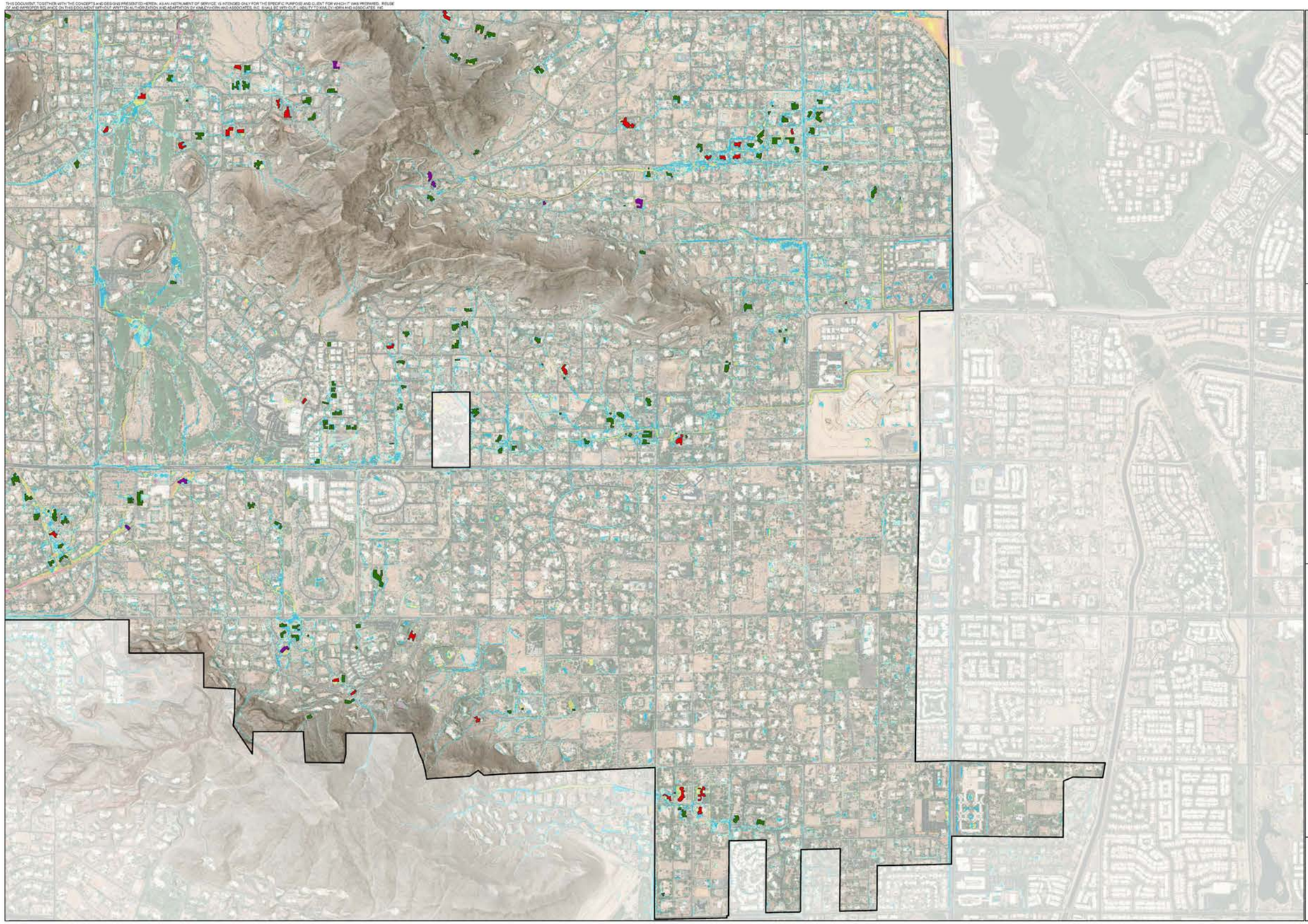
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N

0 600 1,200
US Feet

ADJACENT FLOW DEPTH TO BUILDINGS
10 YEAR, 6 HOUR STORM
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN

Legend

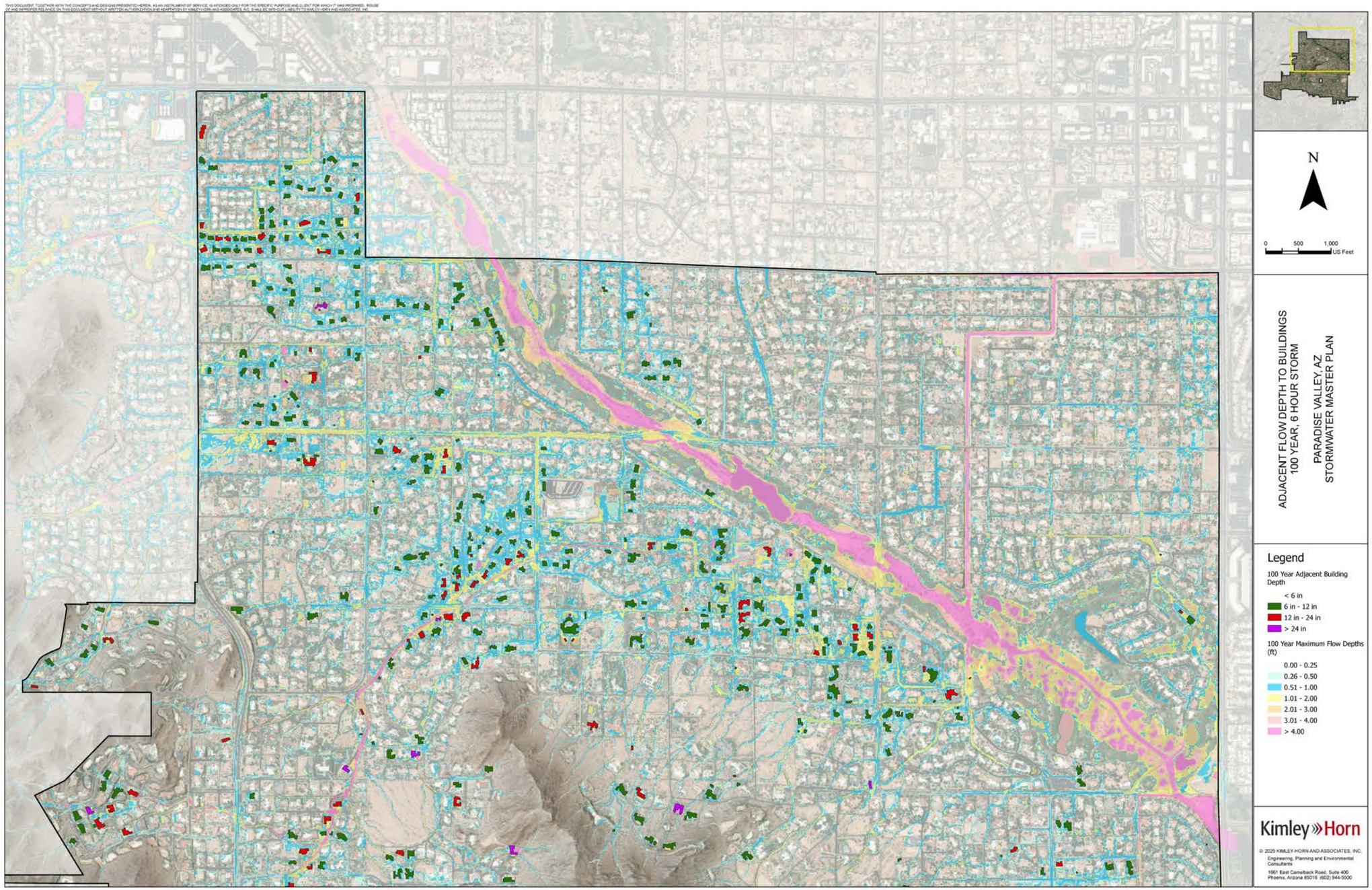
10 Year Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

10 Year Storm Maximum Flow Depths (ft)
- 0.00 - 0.25
- 0.26 - 0.50
- 0.51 - 1.00
- 1.01 - 2.00
- 2.01 - 3.00
- 3.01 - 5.00
- > 5.00

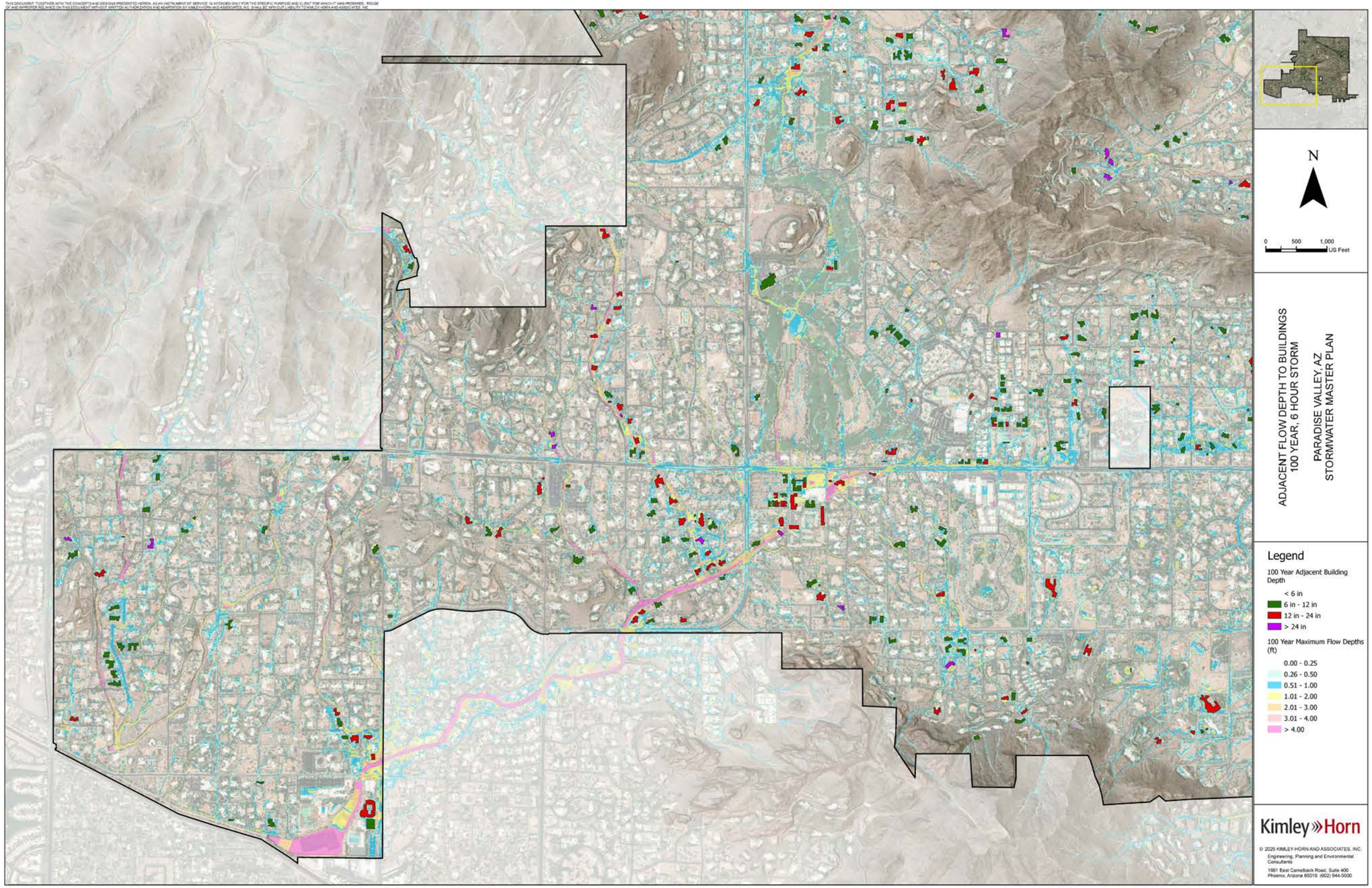
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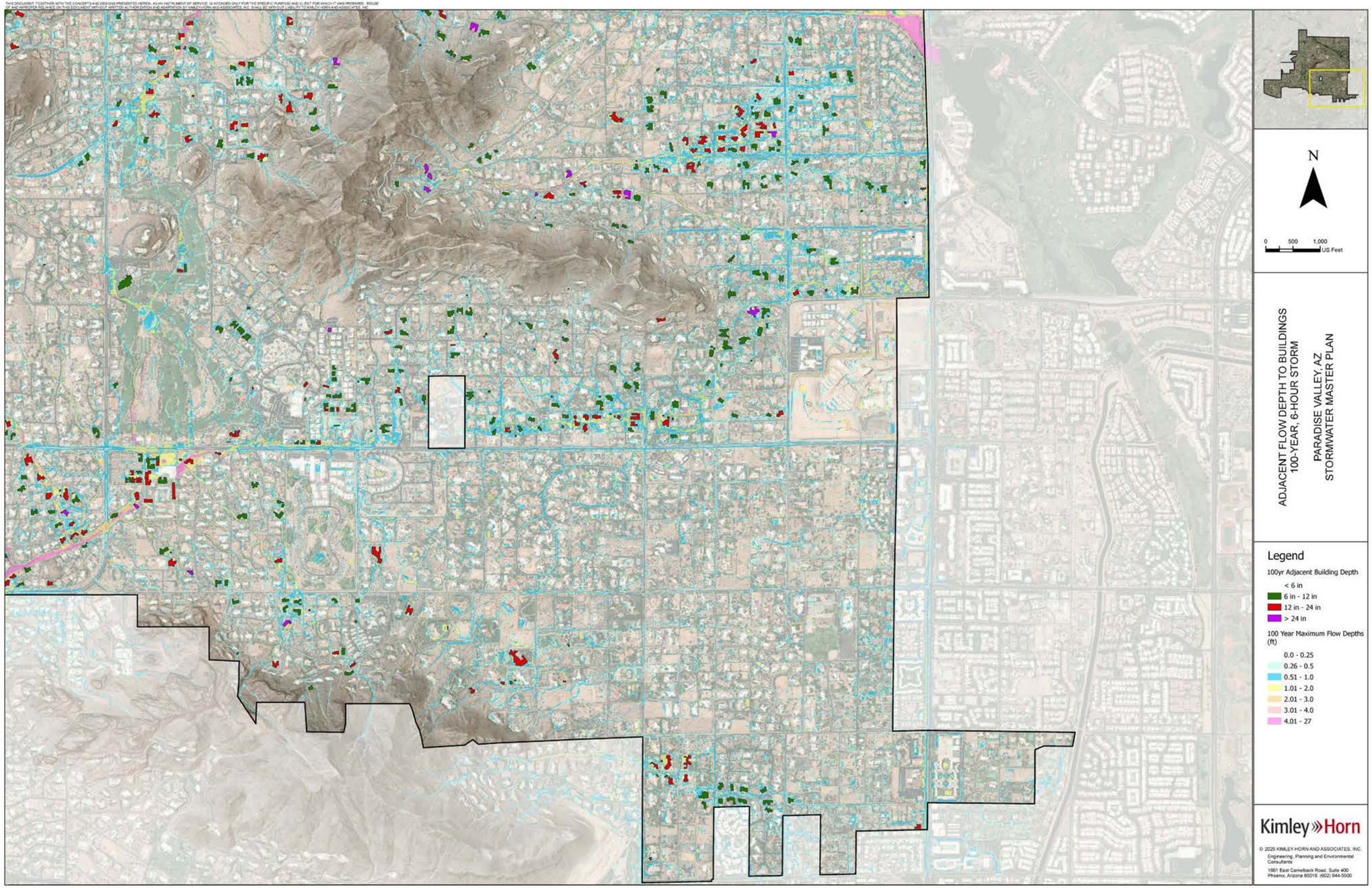
Engineering, Planning and Environmental Consultants
1661 East Camelback Road, Suite 400
Phoenix, Arizona 85016 (602) 944-5500


N
0 500 1,000
US Feet
ADJACENT FLOW DEPTH TO BUILDINGS
100 YEAR, 6 HOUR STORM
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
Legend
100 Year Adjacent Building Depth
< 6 in
6 in - 12 in
12 in - 24 in
> 24 in
100 Year Maximum Flow Depths (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
Kimley»Horn
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N

0 500 1,000
US Feet

ADJACENT FLOW DEPTH TO BUILDINGS
100-YEAR, 6-HOUR STORM
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN

Legend

100yr Adjacent Building Depth
- < 6 in
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

100 Year Maximum Flow Depths (ft)
- 0.0 - 0.25
- 0.26 - 0.5
- 0.51 - 1.0
- 1.01 - 2.0
- 2.01 - 3.0
- 3.01 - 4.0
- 4.01 - 27

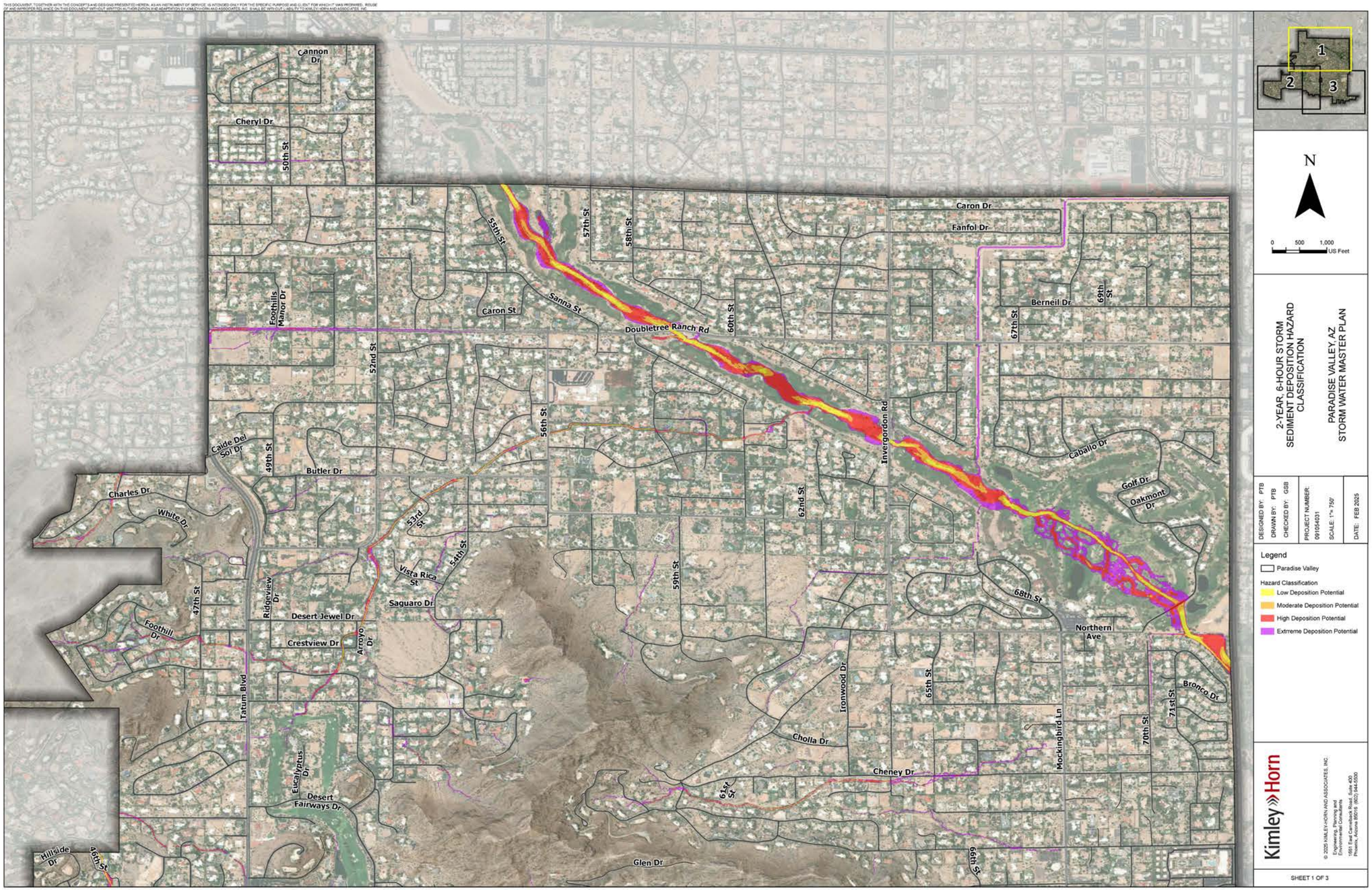
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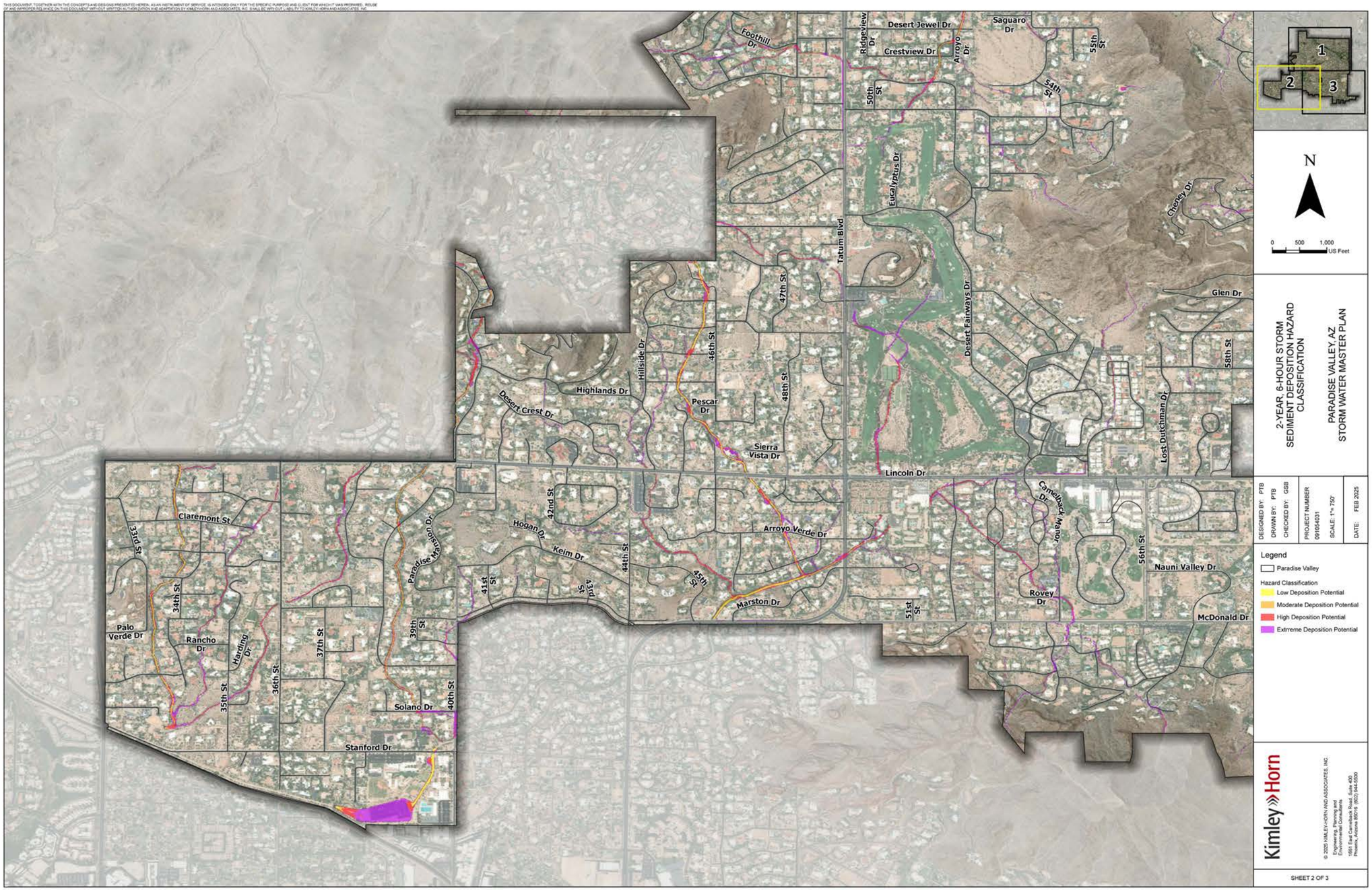
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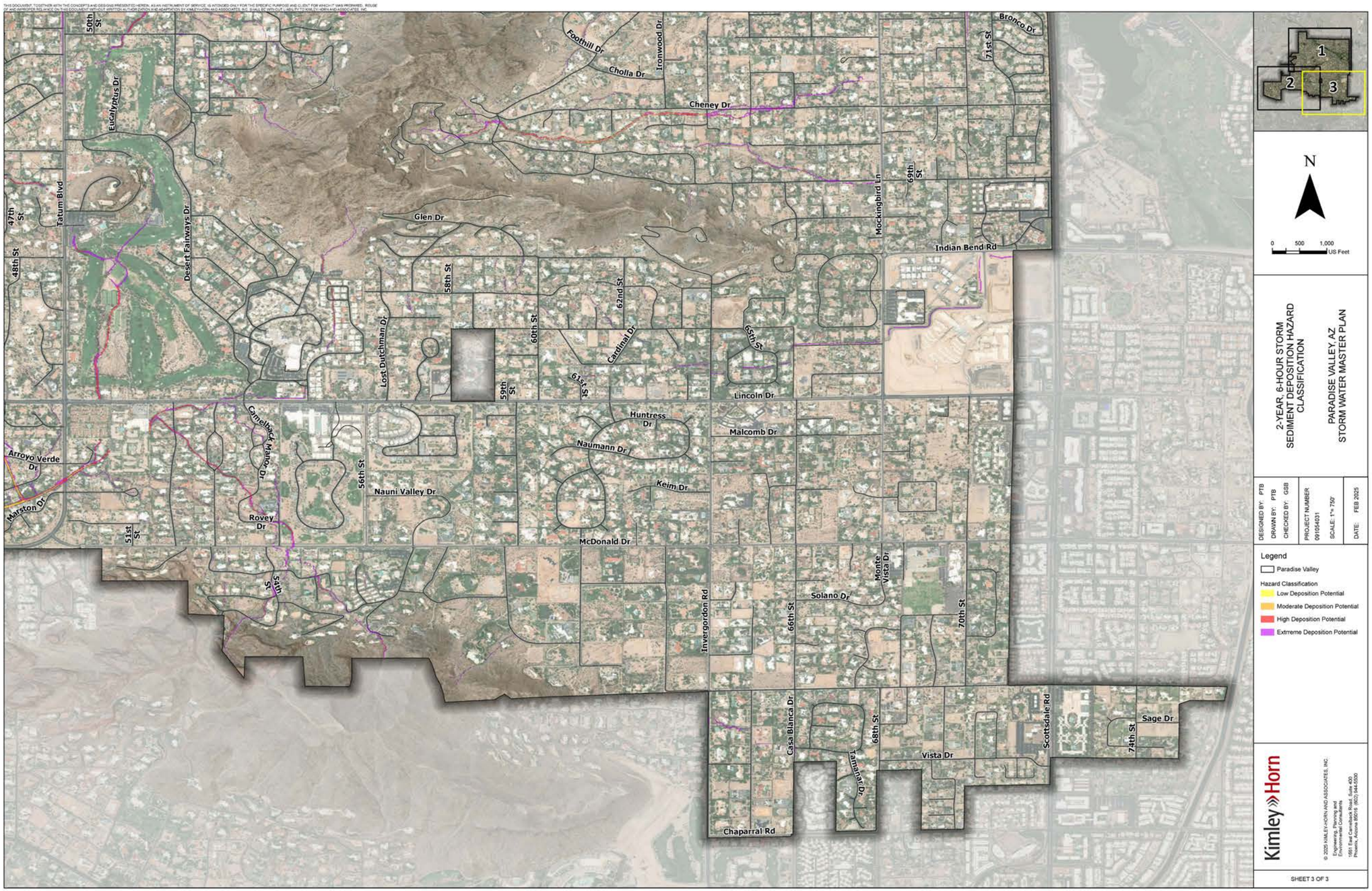
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Phoenix, Arizona 85016 (602) 944-5500

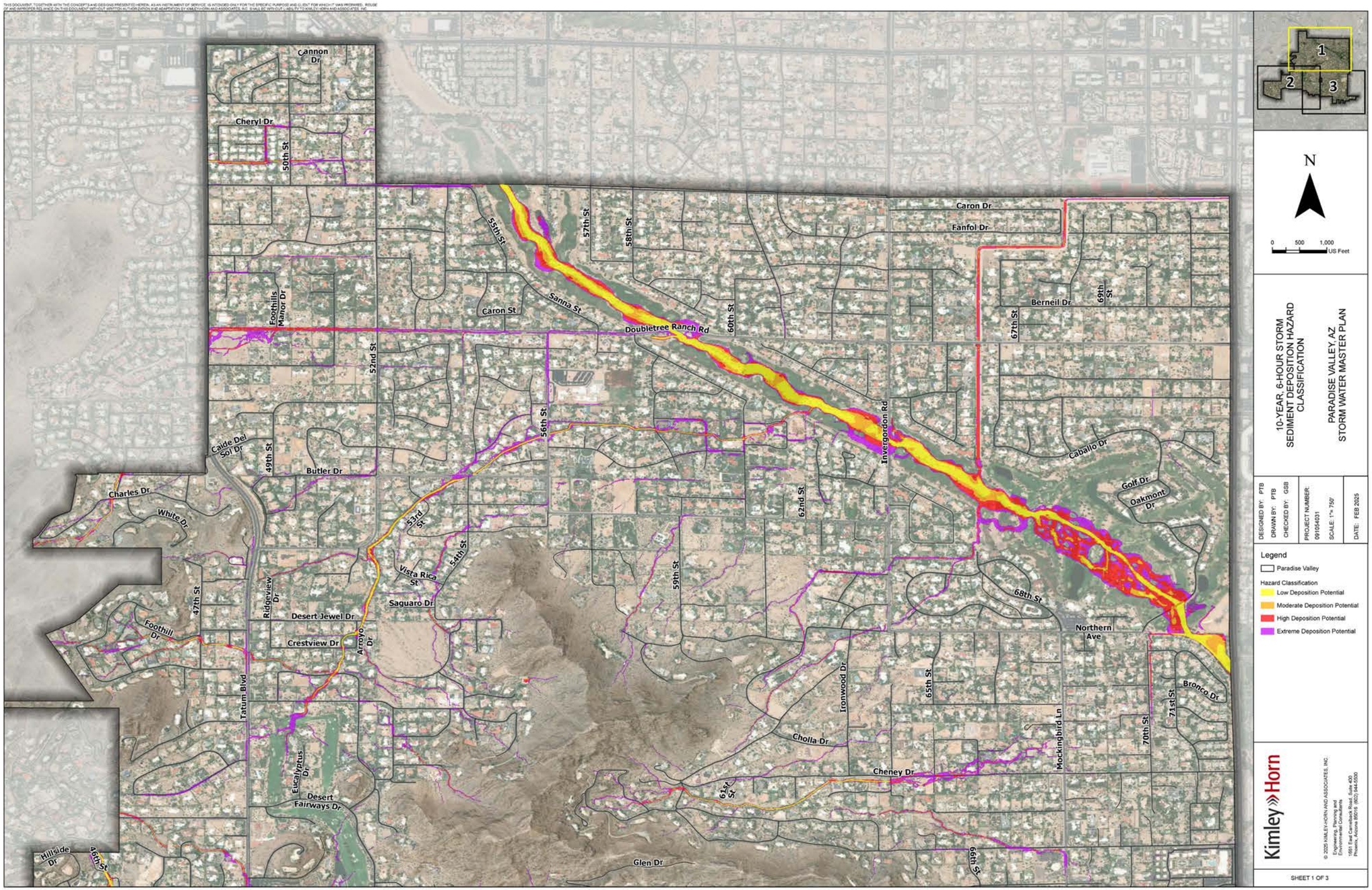
XV. APPENDIX C – FLOOD HAZARD ANALYSIS

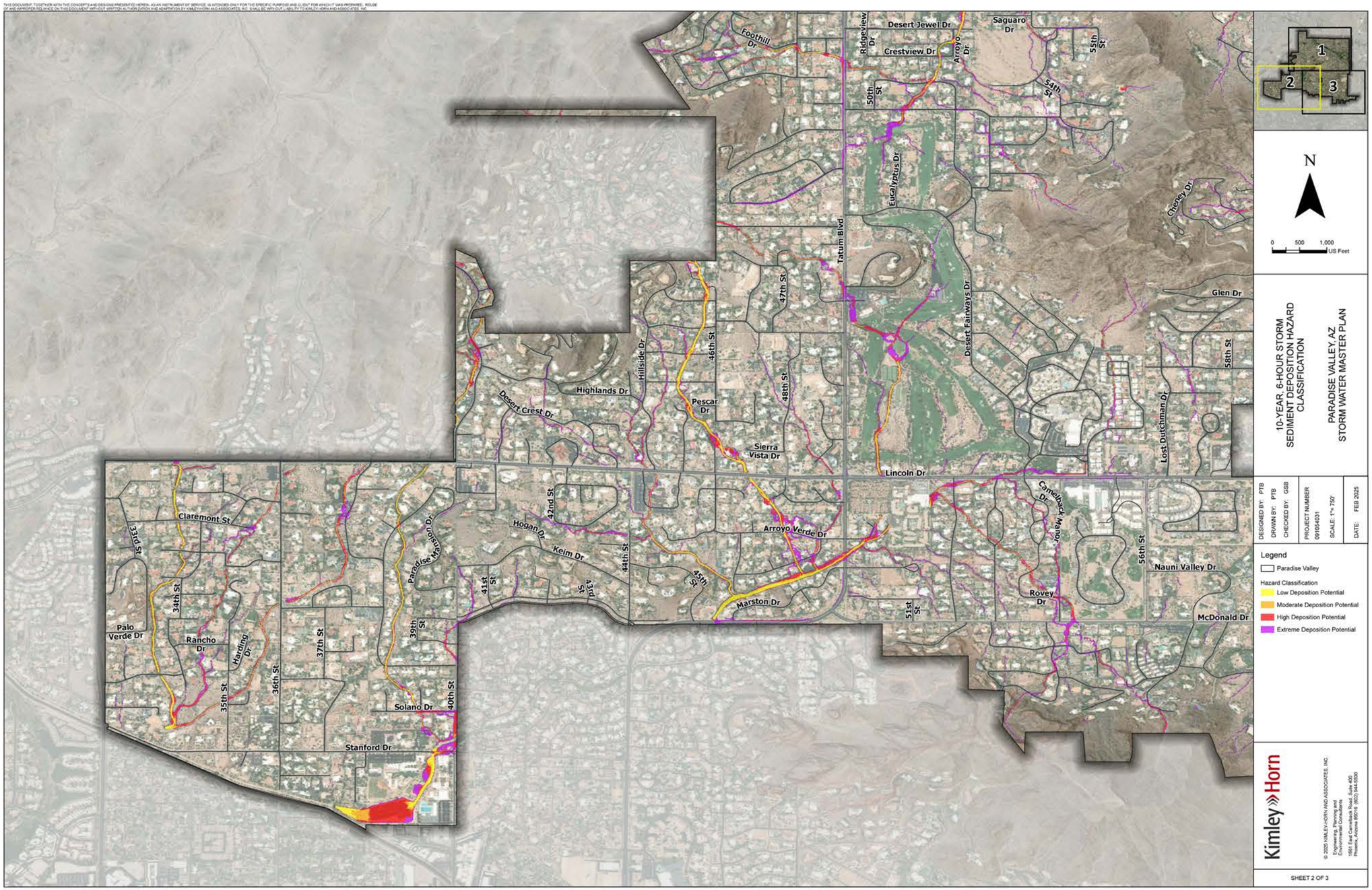
SEDIMENT AND EROSION RISK

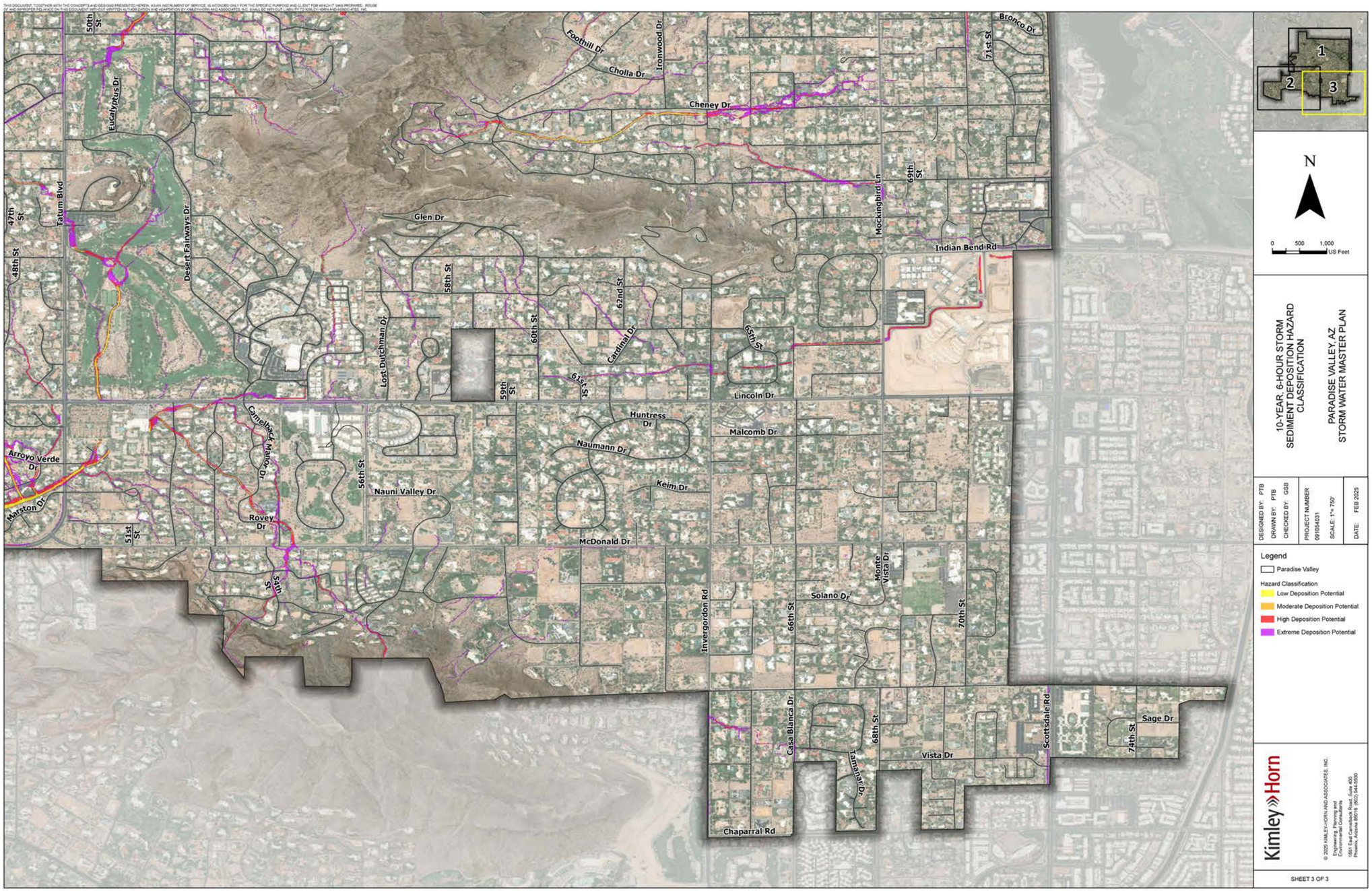

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57th St
58th St
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Foothills Manor Dr
Caron St
Sanna St
Doubletree Ranch Rd
60th St
Berneil Dr
67th St
69th St
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56th St
Invergordon Rd
Caballo Dr
Golf Dr
Oakmont Dr
Calde Del Sol Dr
49th St
Butler Dr
Charles Dr
White Dr
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Vista Rica St
62nd St
59th St
68th St
Northern Ave
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Ridgeview Dr
Saguaro Dr
Desert Jewel Dr
Foothill Dr
Crestview Dr
Arroyo Dr
Tatum Blvd
Ironwood Dr
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Bronco Dr
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Cholla Dr
Mockingbird Ln
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Eucalyptus Dr
Desert Fairways Dr
Cheney Dr
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Hillside Dr
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Glen Dr
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N
0 500 1,000 US Feet
2-YEAR, 6-HOUR STORM
SEDIMENT DEPOSITION HAZARD
CLASSIFICATION
PARADISE VALLEY, AZ
STORM WATER MASTER PLAN
DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB
PROJECT NUMBER: 091054031
SCALE: 1"= 750'
DATE: FEB 2025
Legend
Paradise Valley
Hazard Classification
Low Deposition Potential
Moderate Deposition Potential
High Deposition Potential
Extreme Deposition Potential
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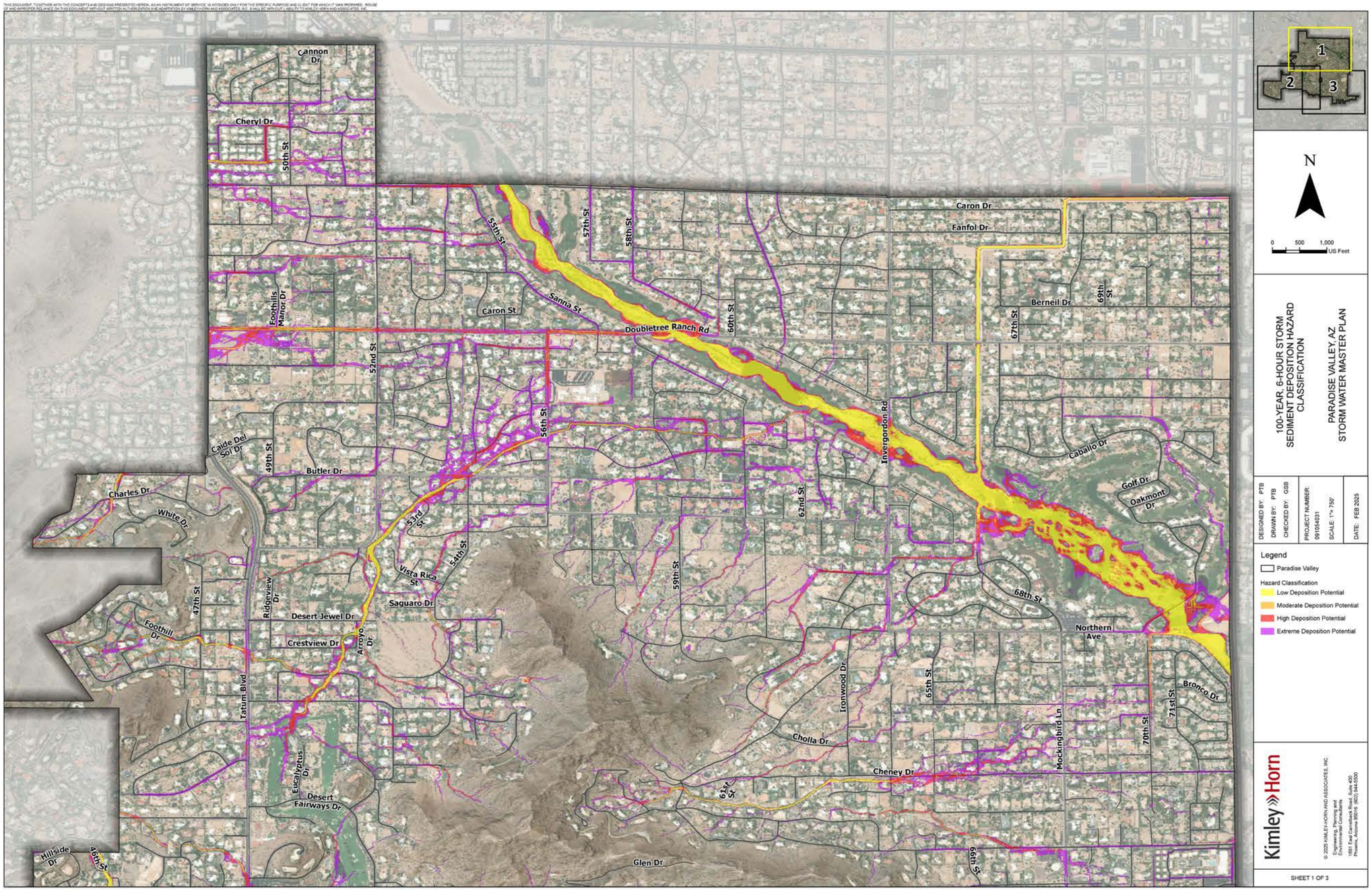

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Hillside Dr
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Highlands Dr
Desert Crest Dr
Pescar Dr
48th St
Sierra Vista Dr
Lost Dutchman Dr
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Claremont St
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34th St
Palo Verde Dr
Rancho Dr
Harding Dr
35th St
36th St
37th St
Paradise Mansion Dr
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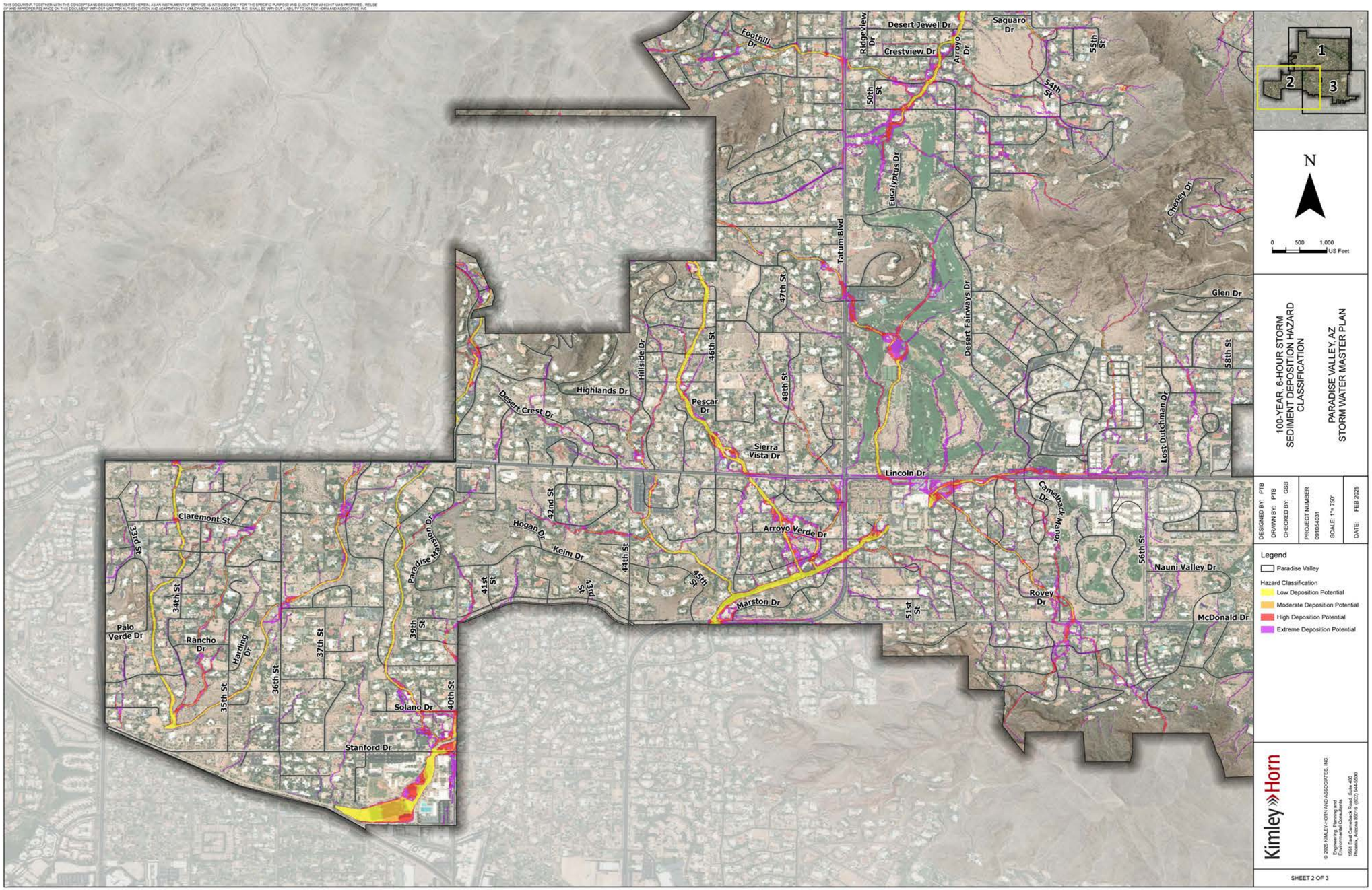

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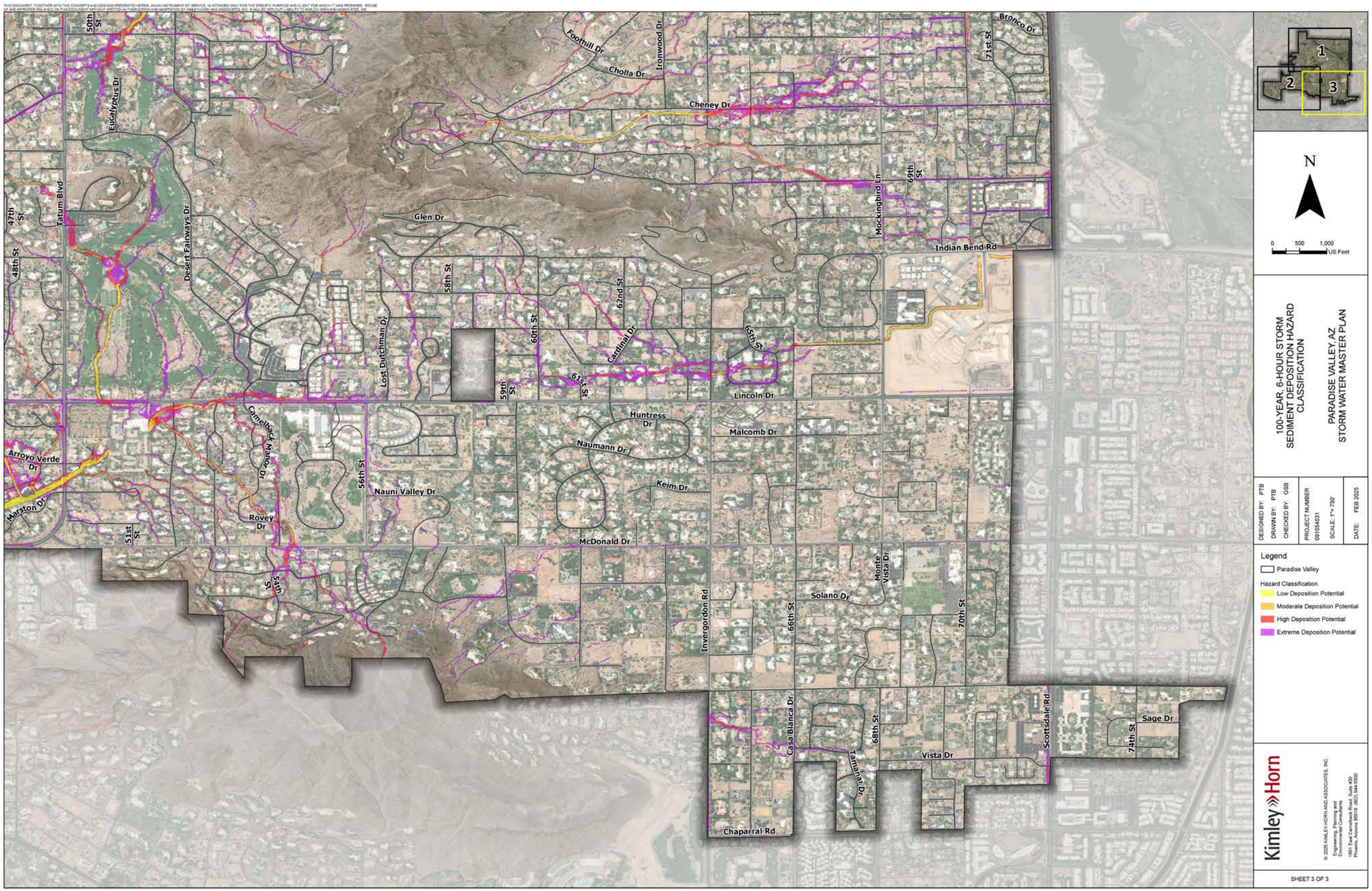

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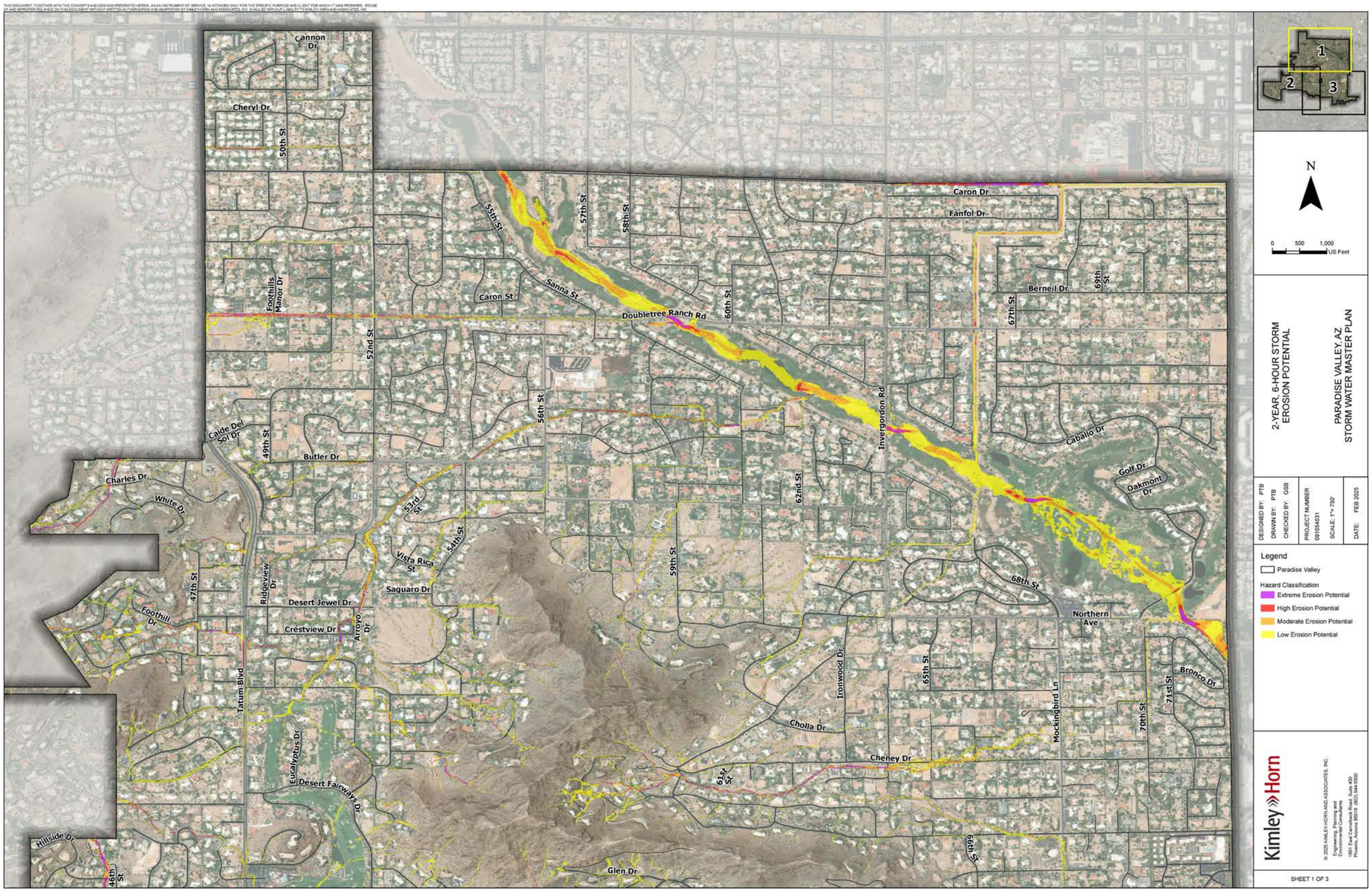

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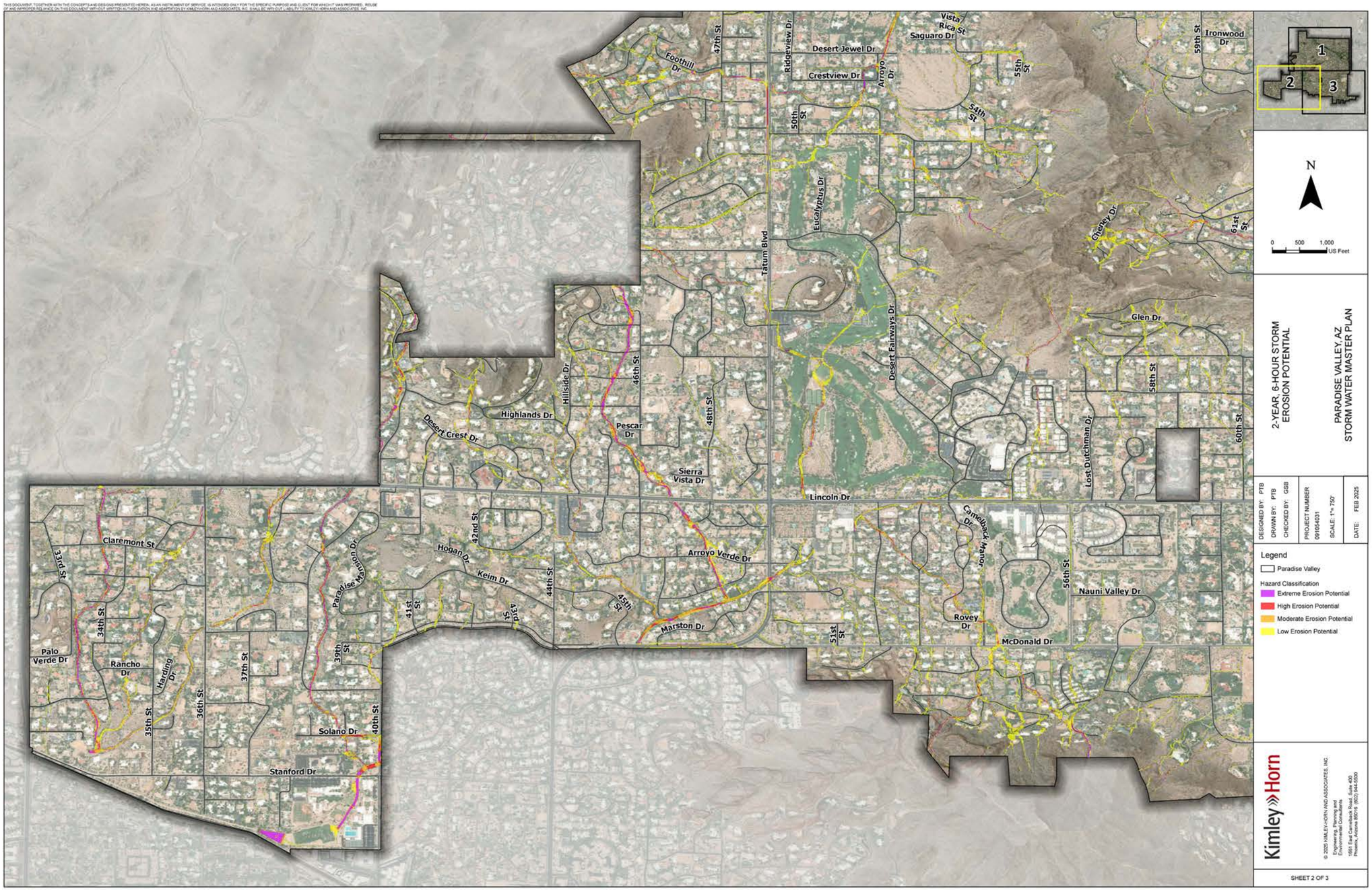

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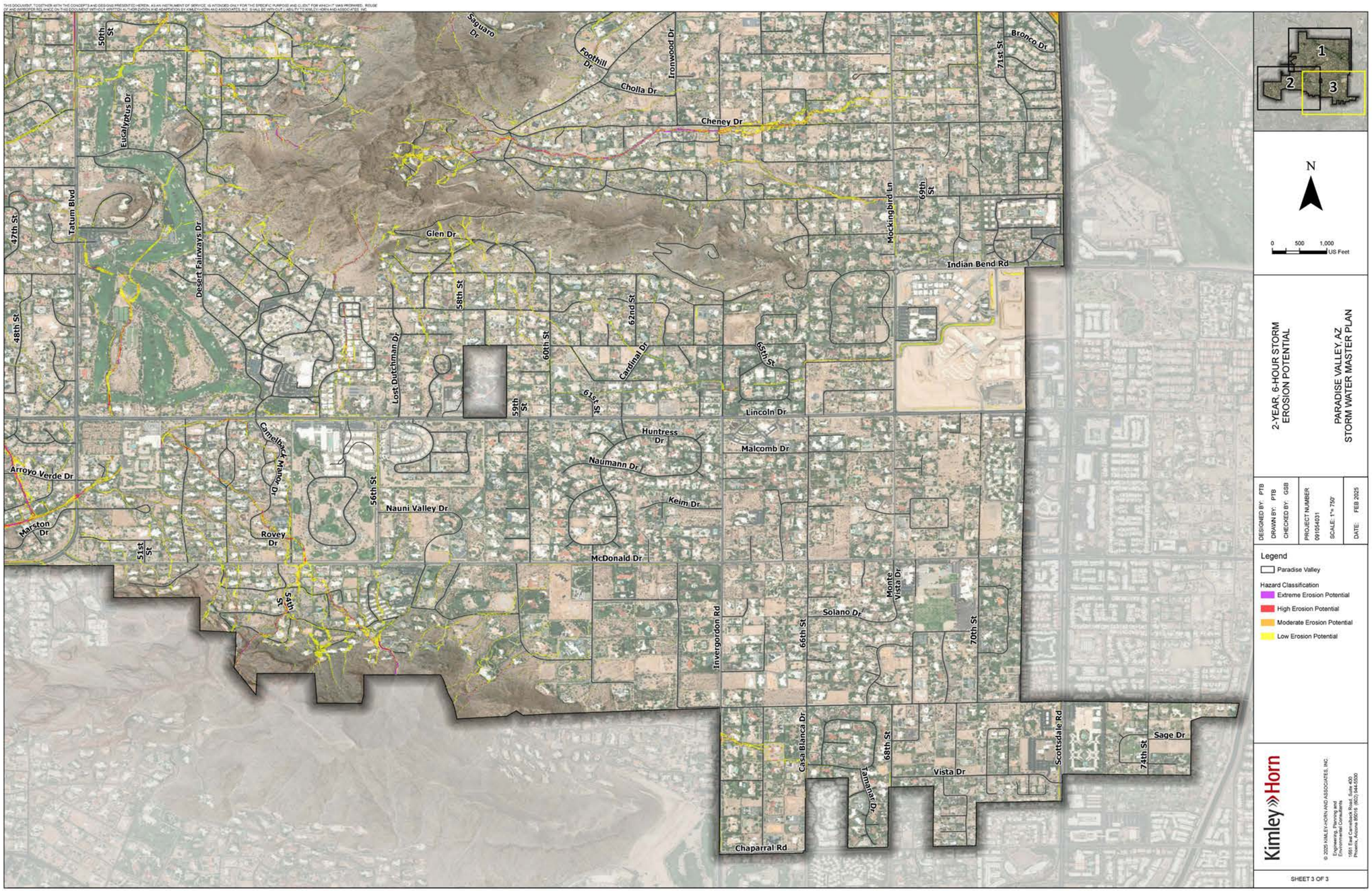

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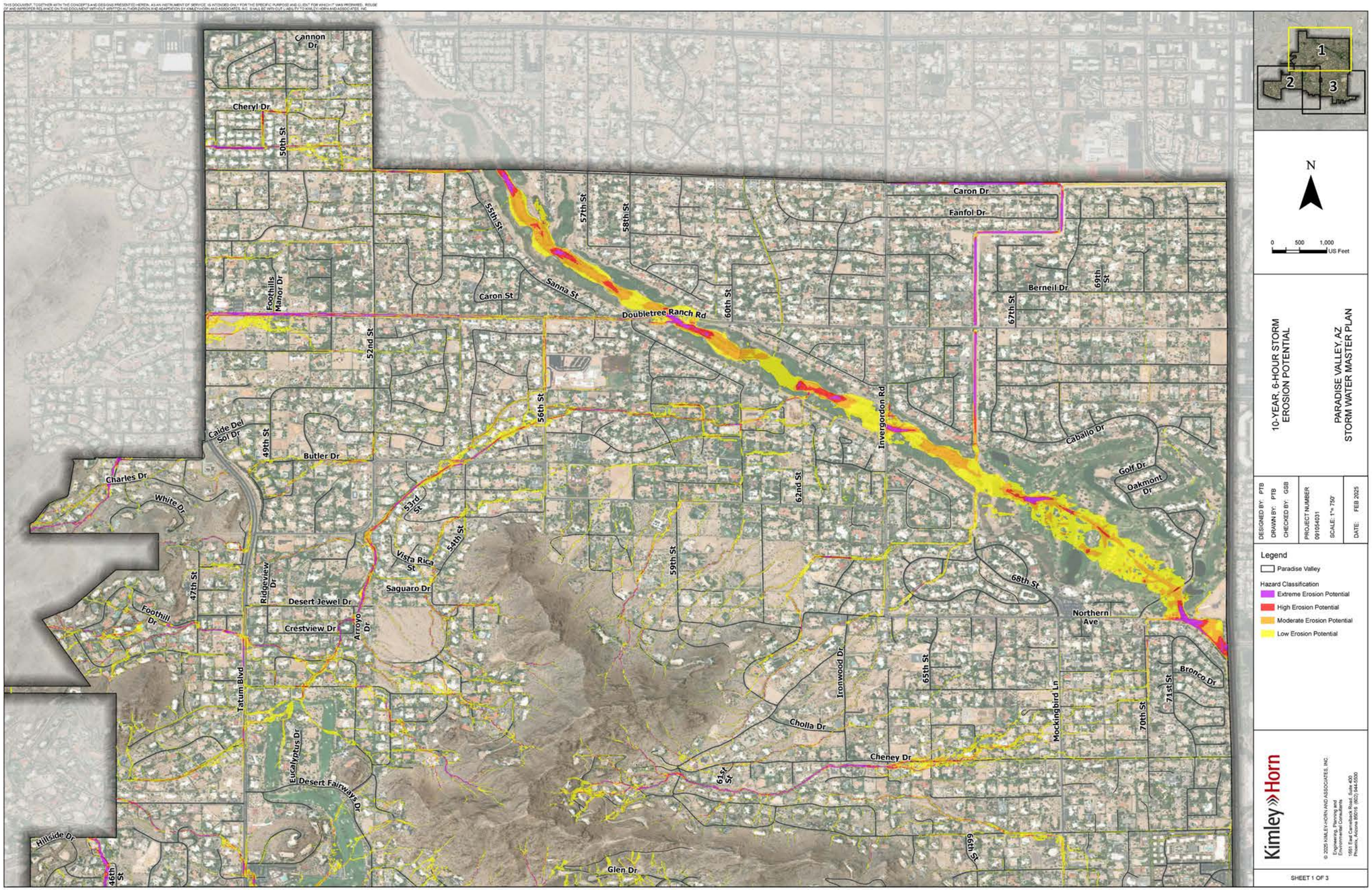

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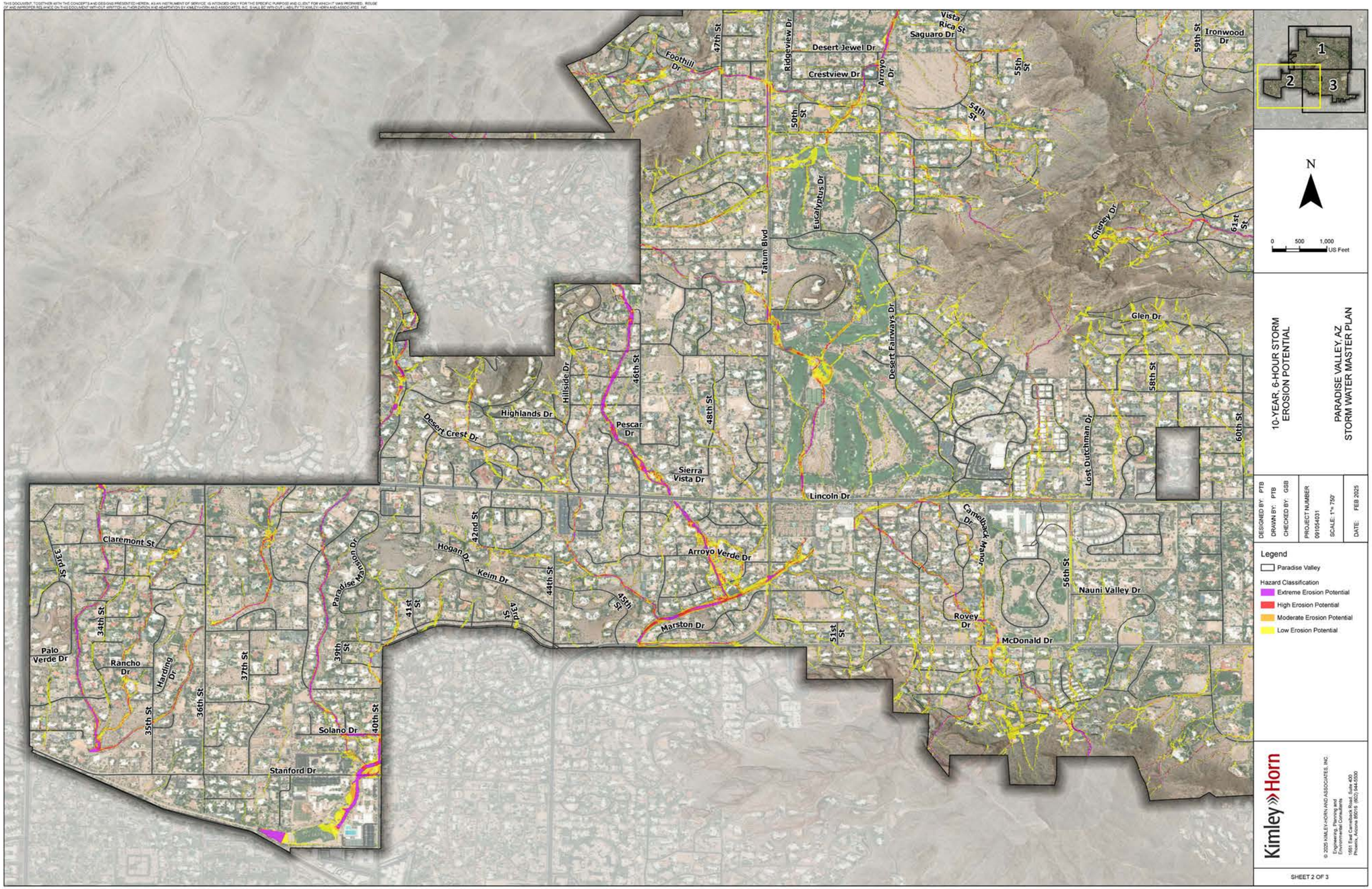

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Doubletree Ranch Rd
60th St
Berneil Dr
69th St
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56th St
Invergordon Rd
Caballo Dr
Golf Dr
Oakmont Dr
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Ridgeview Dr
Saguaro Dr
Desert Jewel Dr
Foothill Dr
Crestview Dr
Arroyo Dr
Ironwood Dr
65th St
Bronco Dr
71st St
Tatum Blvd
Eucalyptus Dr
Desert Fairways Dr
Cholla Dr
Cheney Dr
Mockingbird Ln
70th St
61st St
Hillside Dr
46th St
Glen Dr
66th St
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3
N
0 500 1,000 US Feet
2-YEAR, 6-HOUR STORM
EROSION POTENTIAL
PARADISE VALLEY, AZ
STORM WATER MASTER PLAN
DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB
PROJECT NUMBER
091064031
SCALE: 1"= 750'
DATE: FEB 2025
Legend
Paradise Valley
Hazard Classification
Extreme Erosion Potential
High Erosion Potential
Moderate Erosion Potential
Low Erosion Potential
Kimley»Horn
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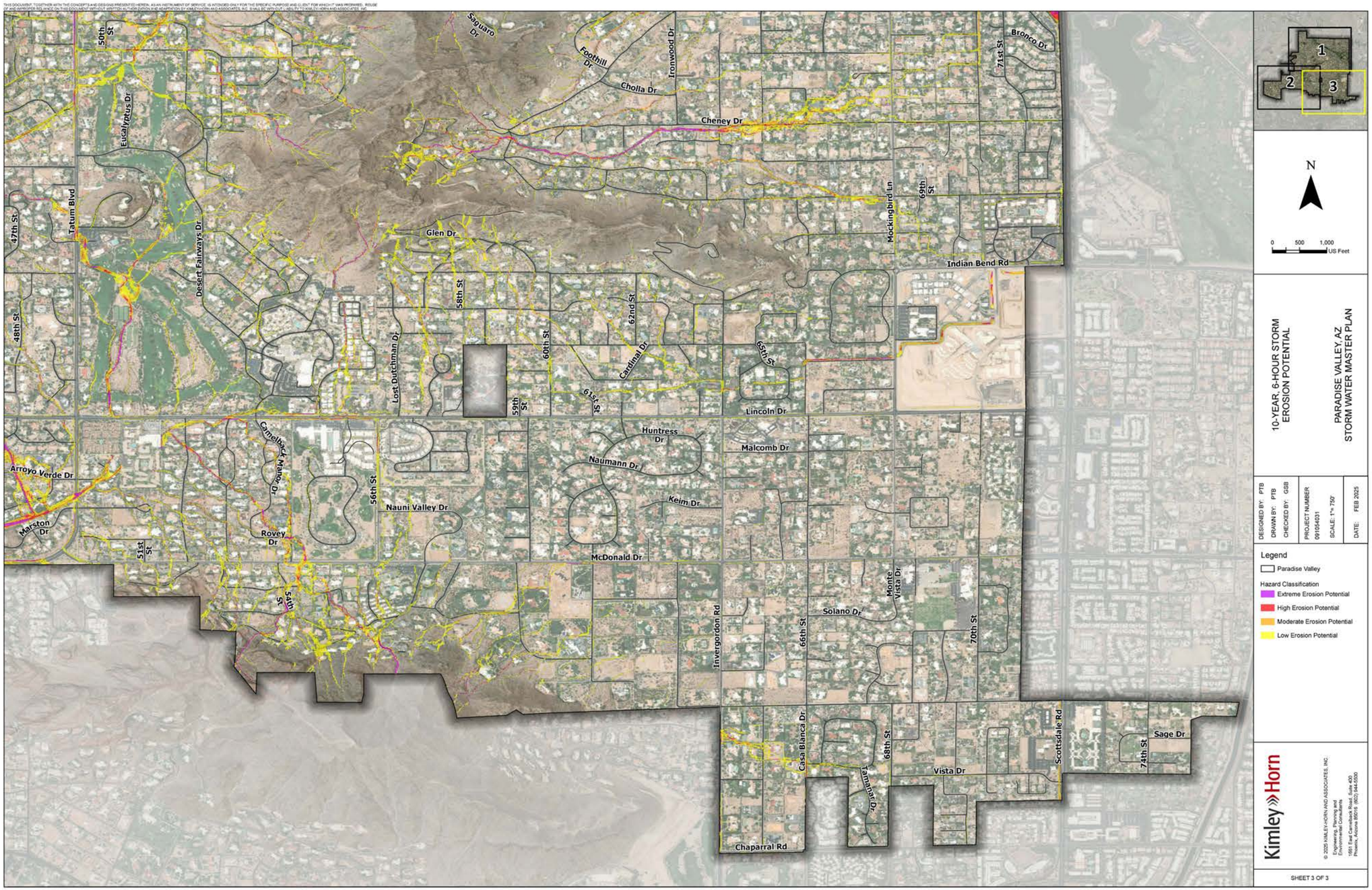

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Highlands Dr
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Desert Crest Dr
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Lincoln Dr
Camelback Manor Dr
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Palo Verde Dr
Rancho Dr
Harding Dr
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Paradise Mansion Dr
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Keim Dr
43rd St
44th St
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Arroyo Verde Dr
Marston Dr
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Nauni Valley Dr
Rovey Dr
McDonald Dr
Solano Dr
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2-YEAR, 6-HOUR STORM
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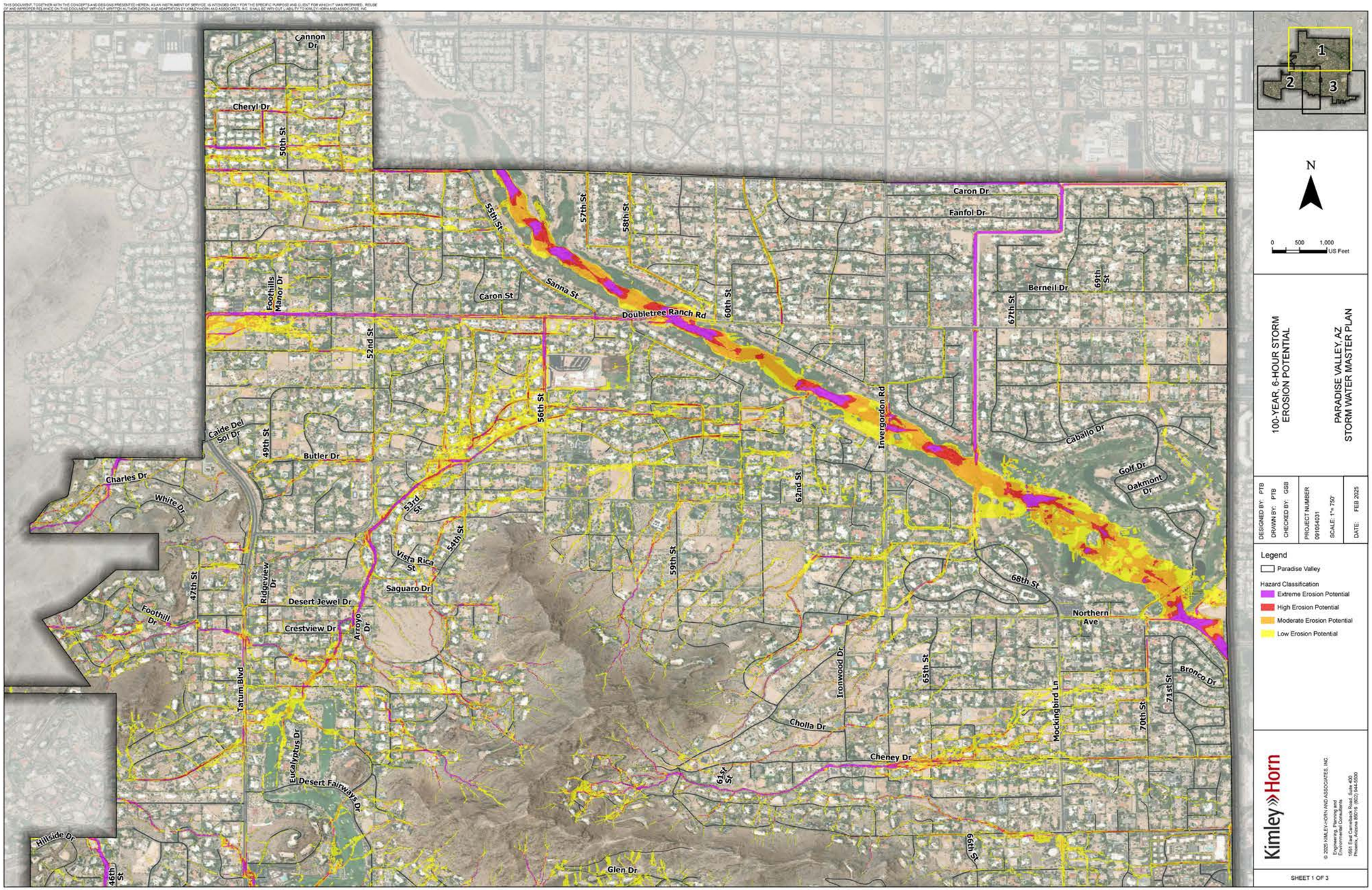

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Cardinal Dr
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Lost Dutchman Dr
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Lincoln Dr
Huntress Dr
Malcomb Dr
Naumann Dr
Camelback Manor Dr
Arroyo Verde Dr
56th St
Nauni Valley Dr
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Rovey Dr
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Solano Dr
Invergordon Rd
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Sage Dr
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Vista Dr
Chaparral Rd
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US Feet
2-YEAR, 6-HOUR STORM
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SHEET 3 OF 3


Cannon Dr
Cheryl Dr
50th St
55th St
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Caron Dr
Fanfol Dr
Foothills Manor Dr
Caron St
Sanna St
Doubletree Ranch Rd
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Berneil Dr
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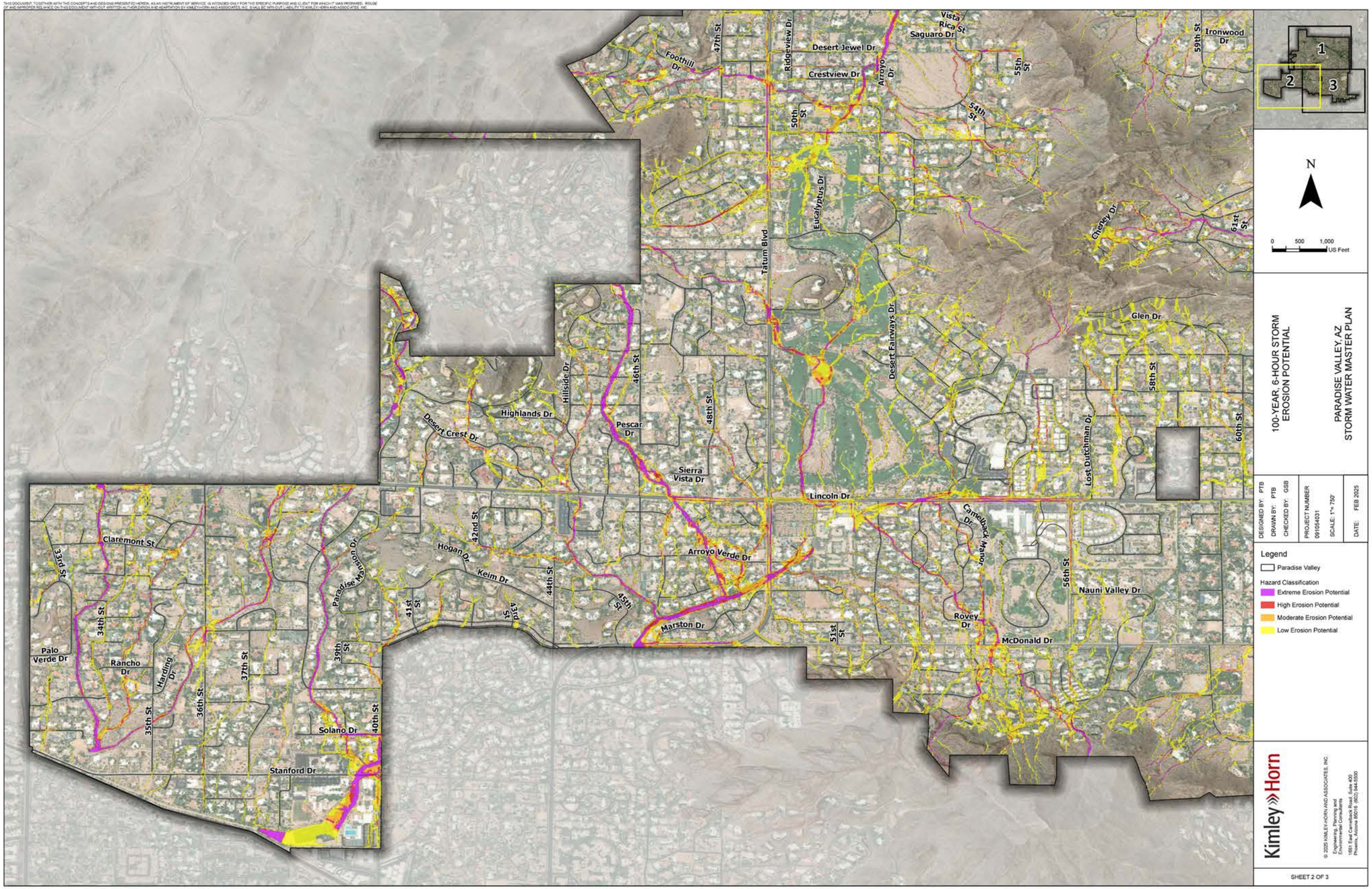
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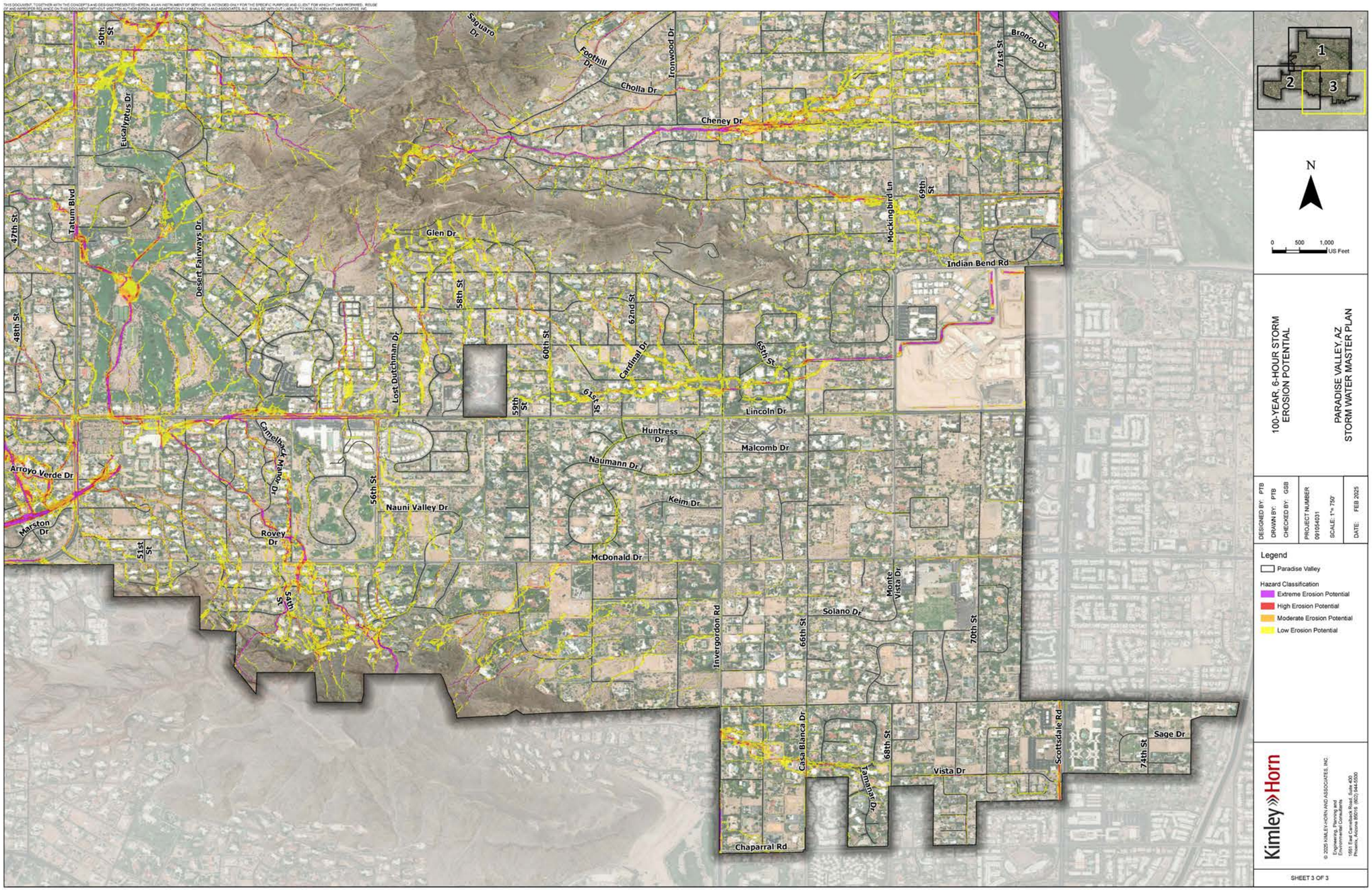



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Arroyo Verde Dr
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Rovey Dr
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Monte Vista Dr
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Casa Blanca Dr
68th St
Tamanisk Dr
Scottsdale Rd
Sage Dr
74th St
Vista Dr
Chaparral Rd
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0 500 1,000 US Feet
10-YEAR, 6-HOUR STORM EROSION POTENTIAL
PARADISE VALLEY, AZ STORM WATER MASTER PLAN
DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB
PROJECT NUMBER 091554031
SCALE: 1" = 750'
DATE: FEB 2025
Legend
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Hazard Classification
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Moderate Erosion Potential
Low Erosion Potential
Kimley»Horn
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Cannon Dr
Cheryl Dr
50th St
55th St
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Caron Dr
Fanfol Dr
Foothills Manor Dr
Caron St
Sanna St
Doubletree Ranch Rd
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Invergordon Rd
Caballo Dr
Golf Dr
Oakmont Dr
Caide Del Sol Dr
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Butler Dr
Charles Dr
White Dr
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Vista Rica St
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Desert Jewel Dr
Foothill Dr
Crestview Dr
Arroyo Dr
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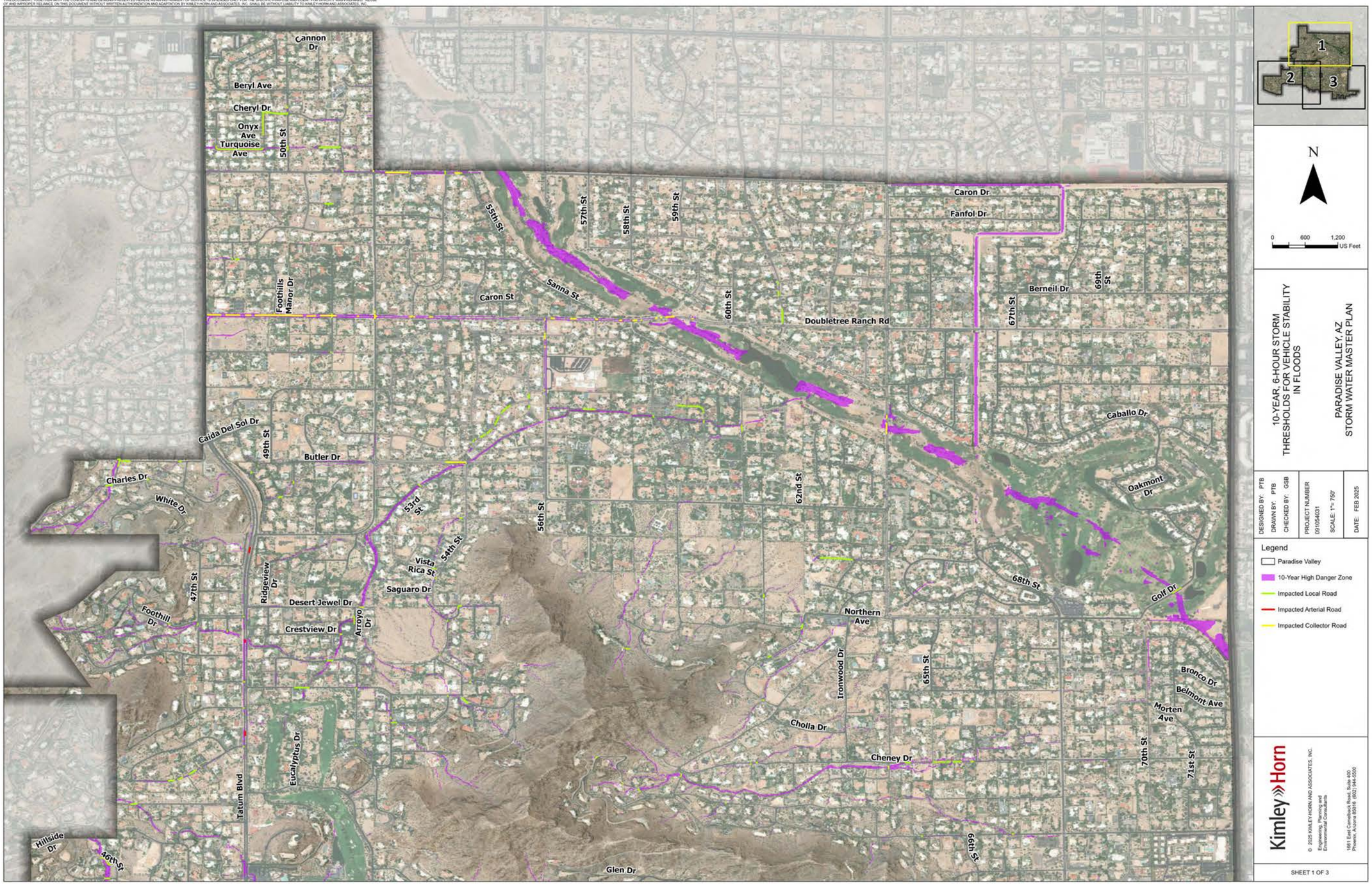



50th St
Eucalyptus Dr
Saguaro Dr
Foothill Dr
Cholla Dr
Ironwood Dr
Cheney Dr
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Bronco Dr
47th St
Tatum Blvd
Desert Fairways Dr
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Cardinal Dr
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Malcomb Dr
Naumann Dr
Camelback Mountain Dr
Arroyo Verde Dr
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Nauni Valley Dr
Keim Dr
Marston Dr
Rovey Dr
51st St
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McDonald Dr
Monte Vista Dr
Invergordon Rd
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Solano Dr
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Casa Blanca Dr
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Tamarisk Dr
Scottsdale Rd
Vista Dr
74th St
Sage Dr
Chaparral Rd
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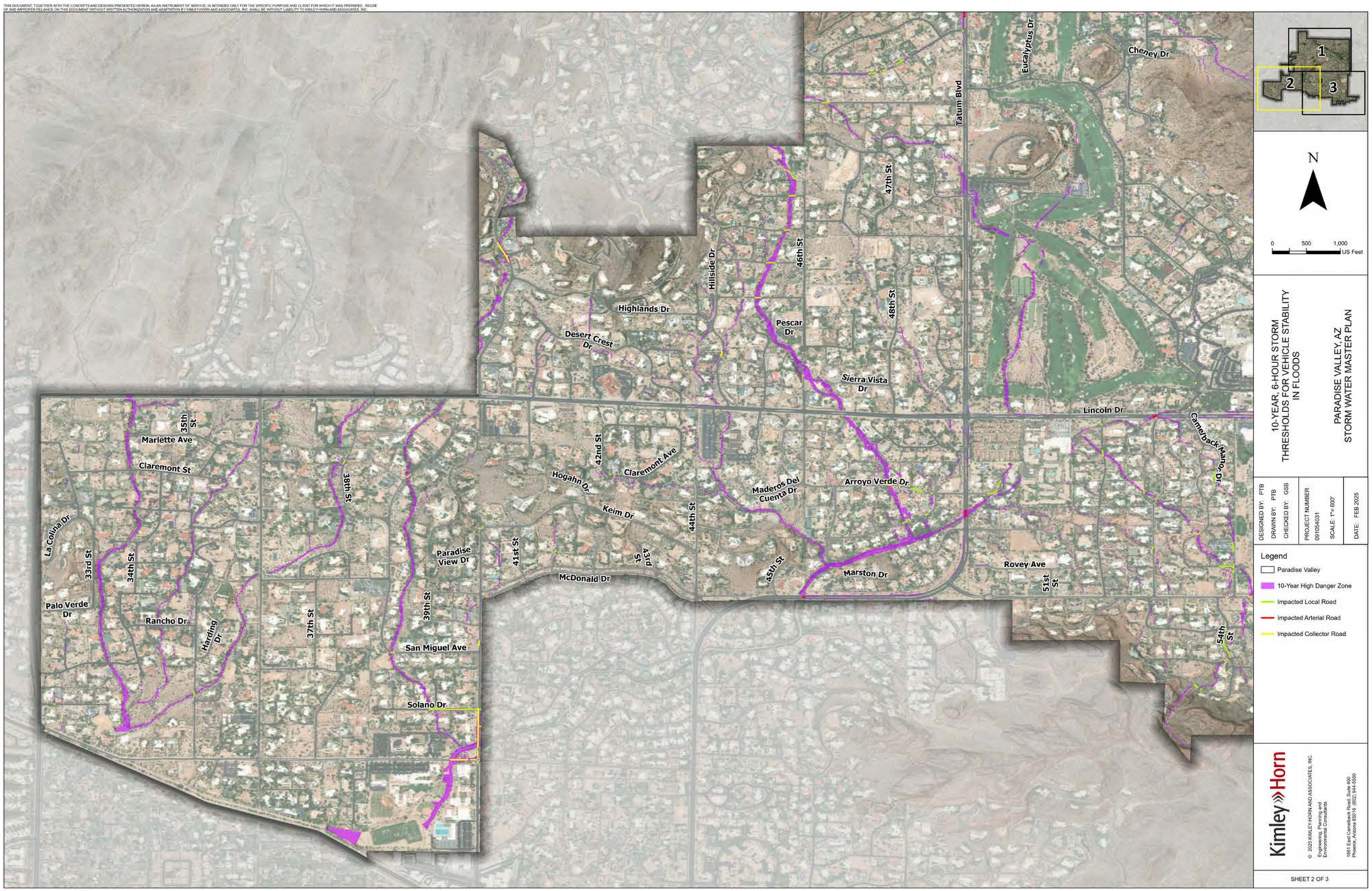
XV. APPENDIX C – FLOOD HAZARD ANALYSIS

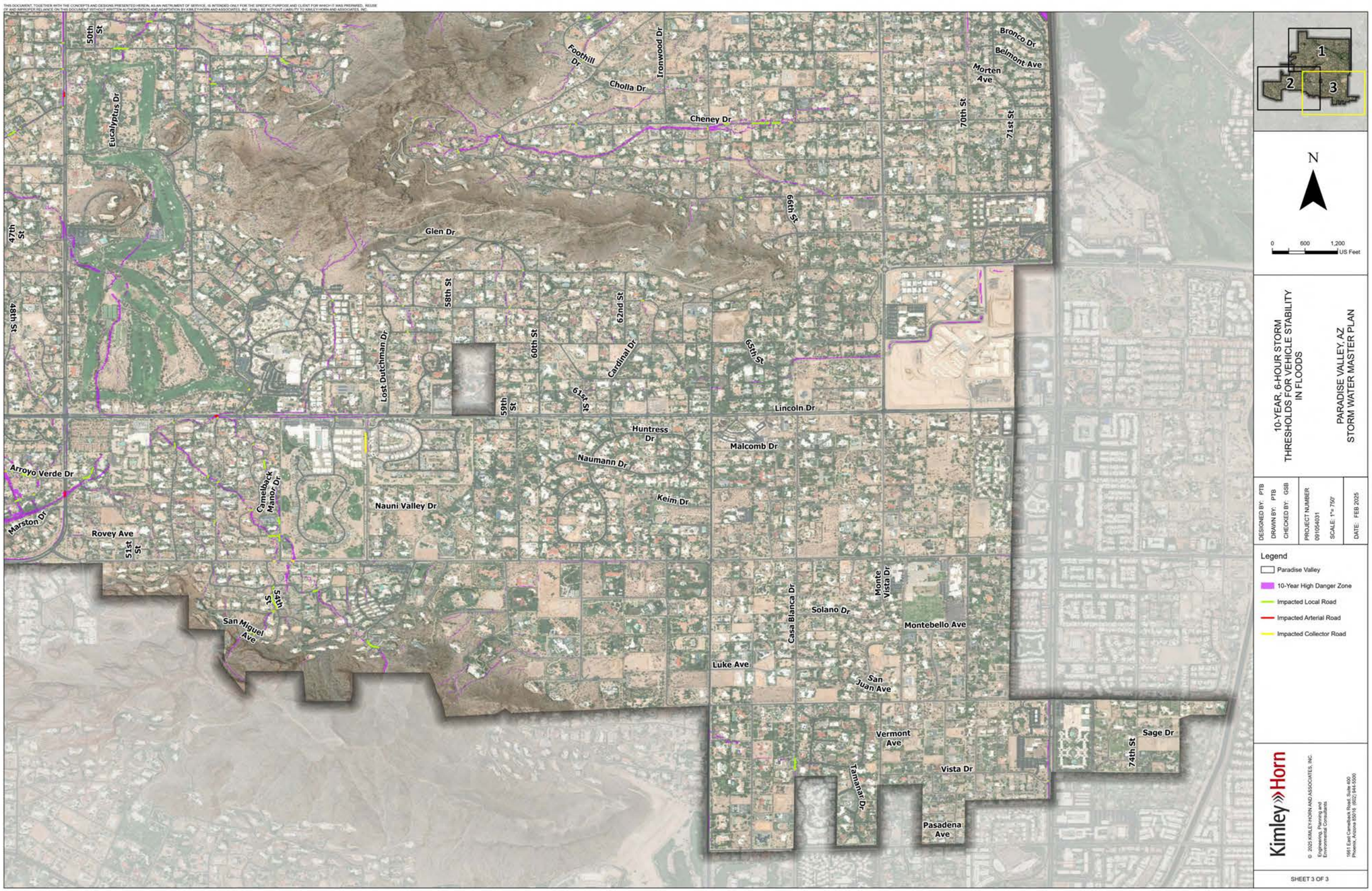
PASSENGER VEHICLE RISK

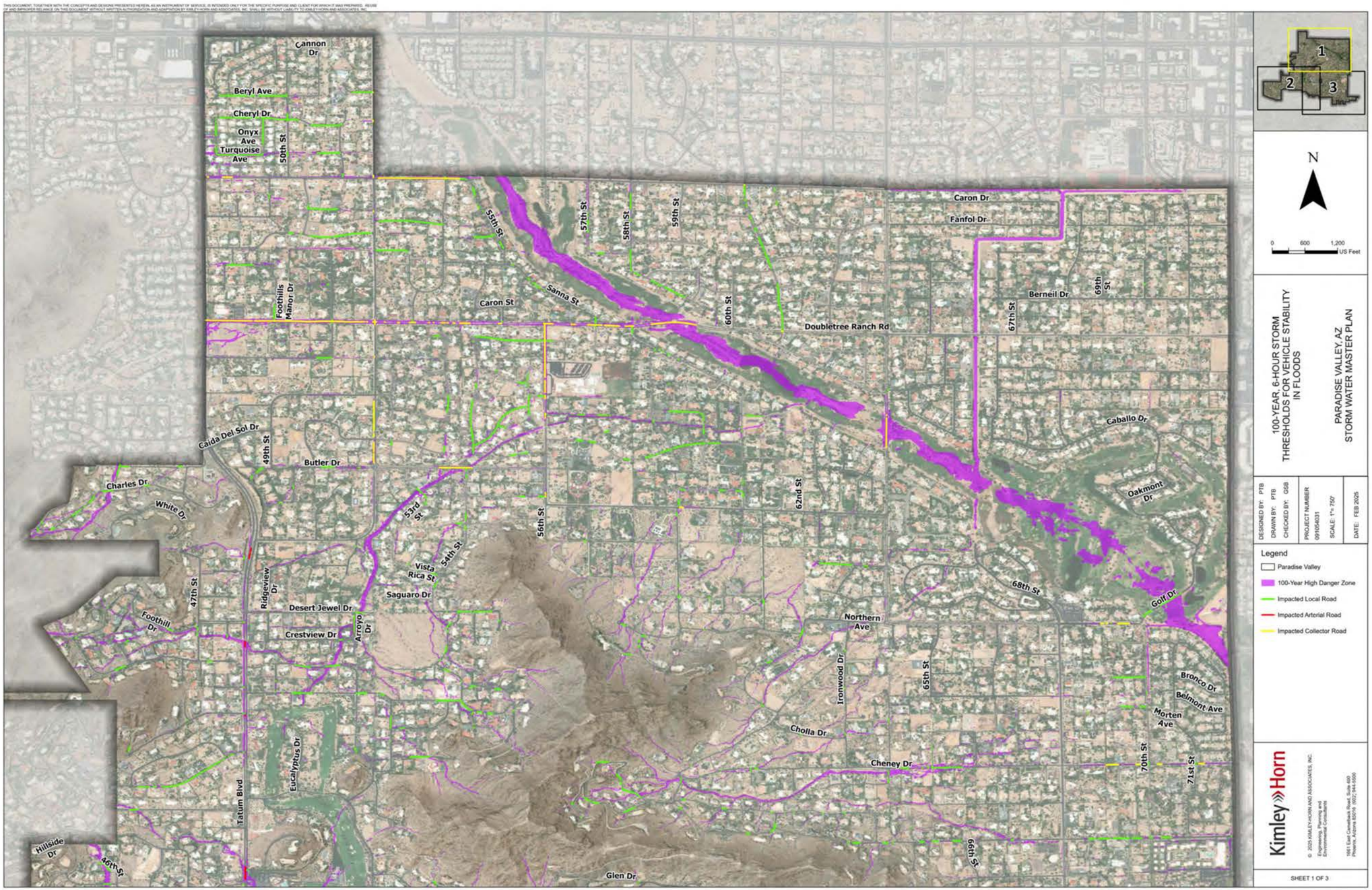
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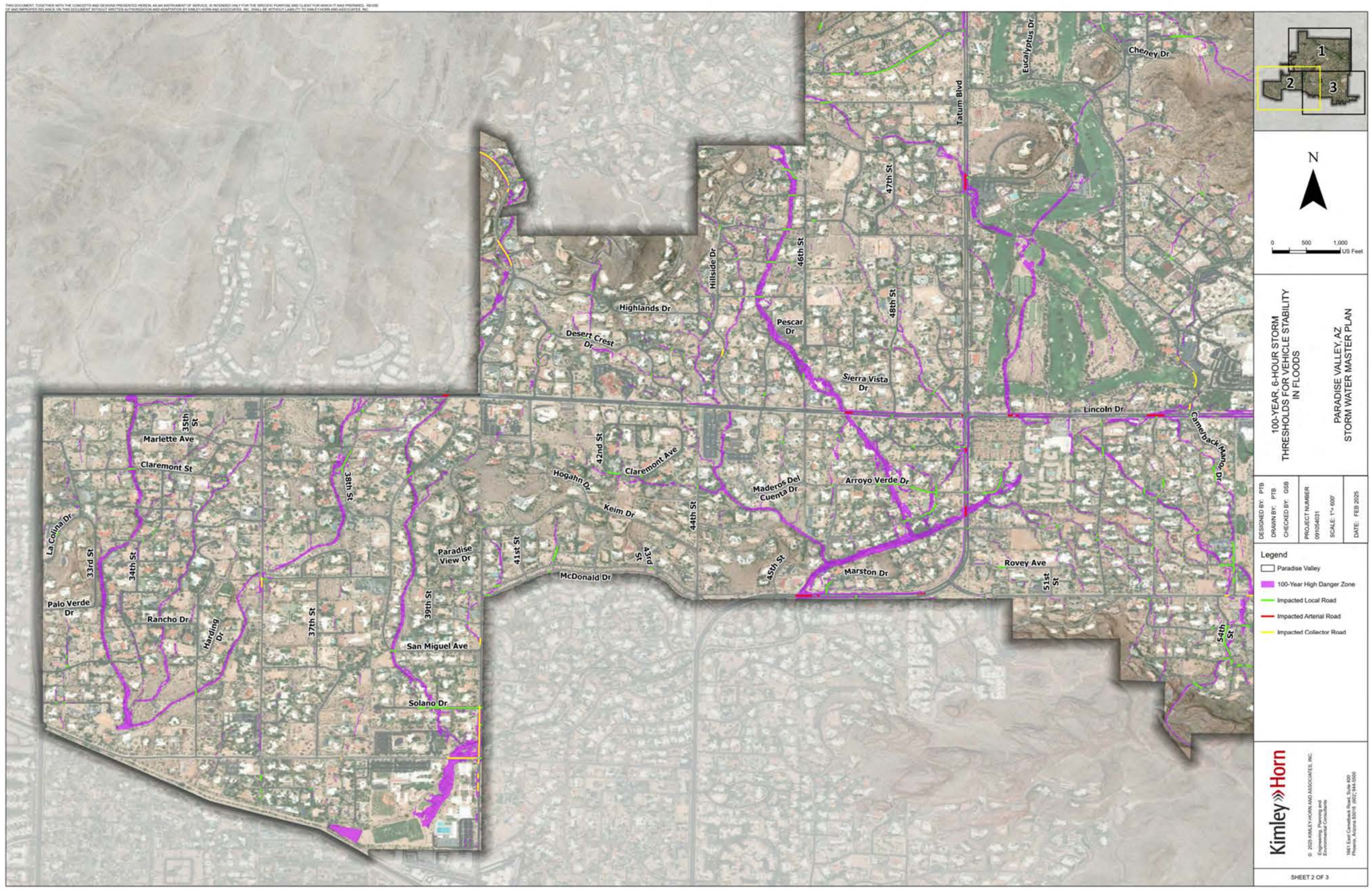


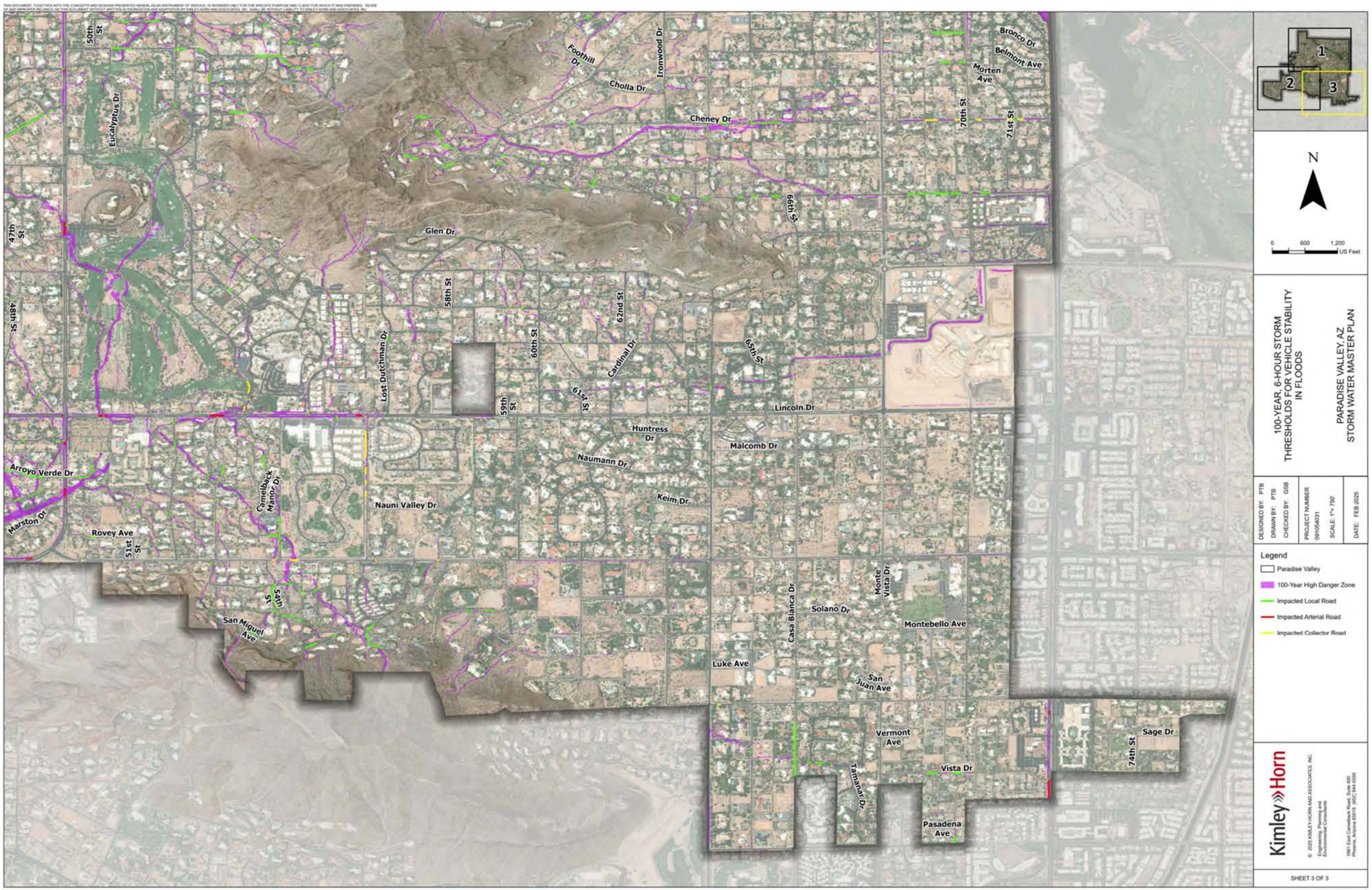
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50th St
Eucalyptus Dr
Foothill Dr
Cholla Dr
Ironwood Dr
Cheney Dr
Bronco Dr
Belmont Ave
Morten Ave
70th St
71st St
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48th St
Glen Dr
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Cardinal Dr
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Camelback Manor Dr
Nauni Valley Dr
Marston Dr
Rovey Ave
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54th St
San Miguel Ave
Luke Ave
Casa Blanca Dr
Solano Dr
Monte Vista Dr
Montebello Ave
San Juan Ave
Vermont Ave
Tamanaar Dr
Vista Dr
Pasadena Ave
74th St
Sage Dr
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1,200
US Feet
10-YEAR, 6-HOUR STORM
THRESHOLDS FOR VEHICLE STABILITY
IN FLOODS
PARADISE VALLEY, AZ
STORM WATER MASTER PLAN
DESIGNED BY: PTB
DRAWN BY: PTB
CHECKED BY: GSB
PROJECT NUMBER
091064031
SCALE: 1"= 750'
DATE: FEB 2025
Legend
Paradise Valley
10-Year High Danger Zone
Impacted Local Road
Impacted Arterial Road
Impacted Collector Road
Kimley»Horn
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SHEET 3 OF 3


Cannon Dr
Beryl Ave
Cheryl Dr
Onyx Ave
Turquoise Ave
50th St
Foothills Manor Dr
55th St
57th St
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Caron Dr
Fanfol Dr
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Berneil Dr
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Butler Dr
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Tatum Blvd
Eucalyptus Dr
Cheney Dr
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Hillside Dr
Highlands Dr
Desert Crest Dr
Pescar Dr
Sierra Vista Dr
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Camelback Rd
Arroyo Verde Dr
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Claremont Ave
Hogahn Dr
Keim Dr
McDonald Dr
Paradise View Dr
Marlette Ave
Claremont St
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La Colina Dr
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34th St
Palo Verde Dr
Rancho Dr
Harding Dr
37th St
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San Miguel Ave
Solano Dr
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XVI. APPENDIX D – FLOOD HAZARD AREAS

FLOOD HAZARD AREA PRIORITY MATRIX

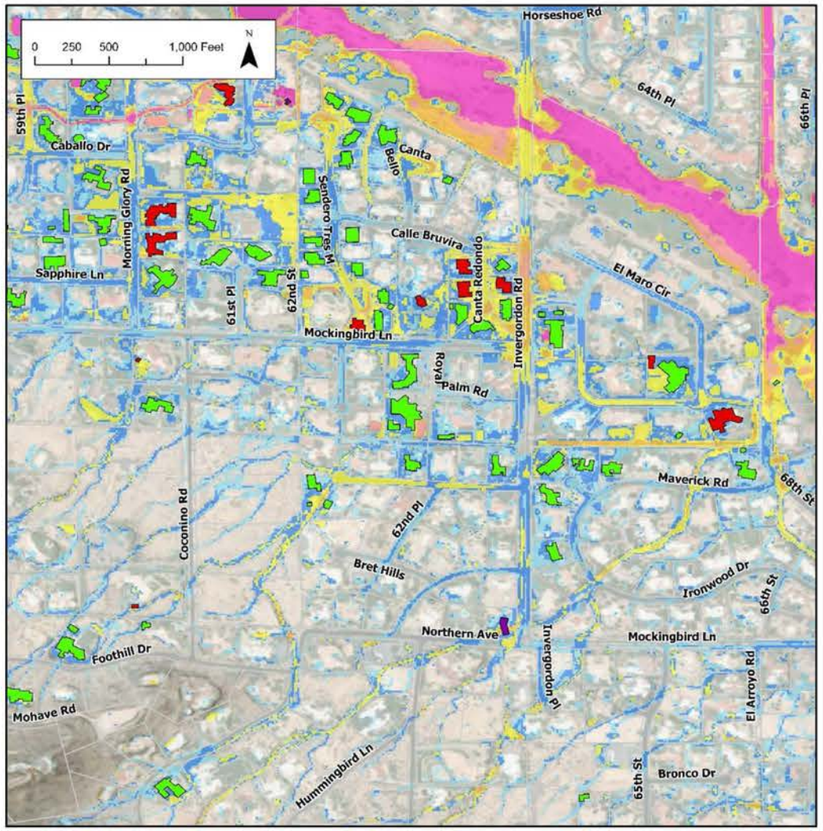
	Severity of Flooding	Potential Stuctures Protected	Potential Streets Protected	Emergency Access	Multi-use Oppurtunities	Total Raw Score	Total Weighted Score
Priority Weighting 1 - 5	5	5	4	3	1		
Area N	3	3	3	2	1	12	49
Area A	3	2	3	2	2	12	45
Area O	3	2	3	2	2	12	45
Area K	3	3	3	0	1	10	43
Area L	3	2	2	2	2	11	41
Area H	3	1	3	2	2	11	40
Area P	3	1	3	2	1	10	39
Area C	2	3	3	0	2	10	39
Area E	2	3	3	0	1	9	38
Area S	3	1	2	2	2	10	36
Area R	3	1	2	2	2	10	36
Area D	2	2	3	0	1	8	33
Area G	3	1	1	2	2	9	32
Area M	2	1	2	0	2	7	25
Area B	2	1	2	0	2	7	25
Area J	2	1	1	0	2	6	21

XVI. APPENDIX D – FLOOD HAZARD AREAS

FLOOD HAZARD AREA DATA SHEETS

PARADISE VALLEY STORM WATER MASTER PLAN

FLOOD HAZARD AREA: A

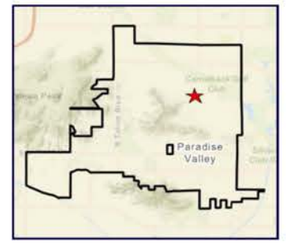


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

100yr, 6hr Max Flow Depths (ft)
- 0.0 - 0.25
- 0.26 - 0.5
- 0.51 - 1.0
- 1.01 - 2.0
- 2.01 - 3.0
- 3.01 - 4.0
- 4.01 - 27

LOCATION DESCRIPTION

LOCATION: *Invergordon Road and Mockingbird Lane*



PROBLEM DESCRIPTION:

- *Identified as a problem in the 2017 Cheney Watershed Study and remains a significant flood hazard*
- *Flow breakout with depths over 3 ft at Invergordon Road and Calle Bruvira*

FLOOD HAZARD IMPACT: *Road overtopping, structure/property flooding, potential impact to emergency services*

PROPERTY OWNERSHIP: *Residential and Town Right of Way*

POTENTIAL UTILITY CONFLICTS: *Invergordon Road and Mockingbird Lane storm drains/dry utilities*

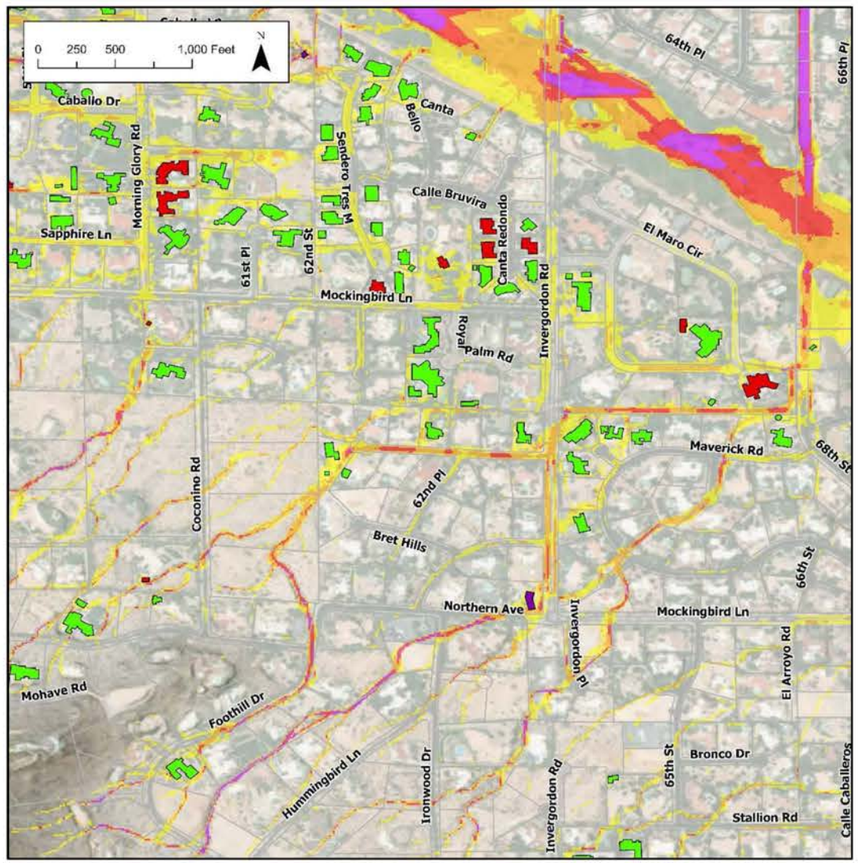
POTENTIAL MITIGATION ALTERNATIVES

- *Storm Drain*
- *Sedimentation Basins*
- *Roadside Ditch*

IDENTIFIED FLOOD RISKS AND HAZARD CHARACTERIZATIONS

Number of Impacted Structures	43
Number of Hydraulic Structures Identified as Undersized	0
Maximum Depth on Road	3.67 ft
Streets Overtopped by > 0.5 ft	6 Local; 2 Collector
Potential Impact to Emergency Service Access	Yes
Flood Hazard Designation	Severe Flooding

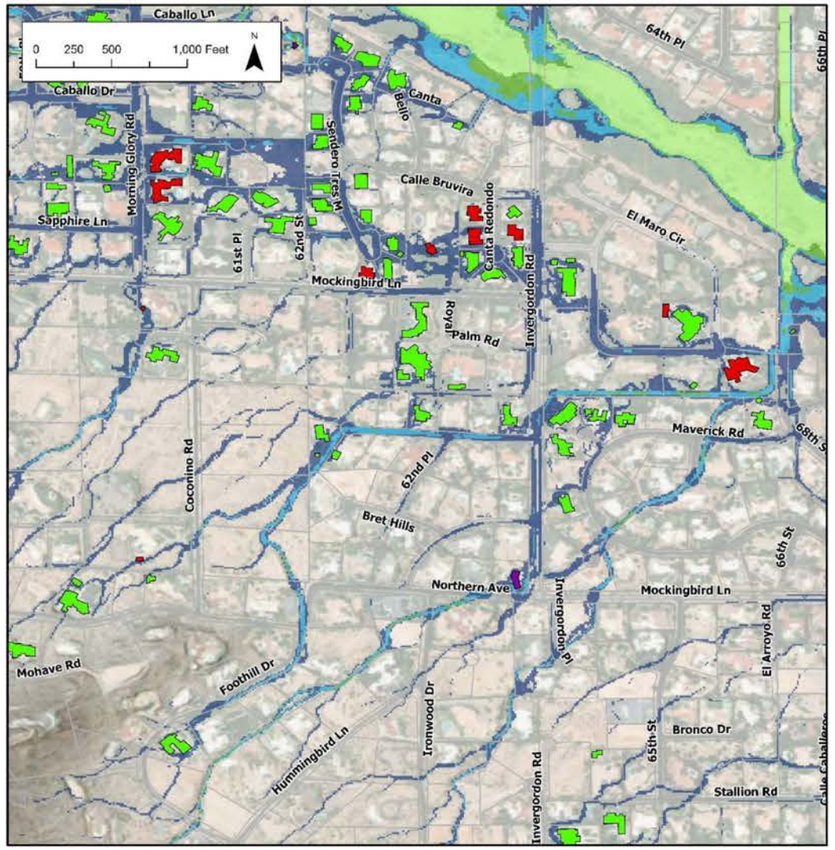
AREA A EROSION POTENTIAL MAP



100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Erosion Potential
- Extreme Erosion Potential
- High Erosion Potential
- Moderate Erosion Potential
- Low Erosion Potential

AREA A SEDIMENT DEPOSTION POTENTIAL MAP

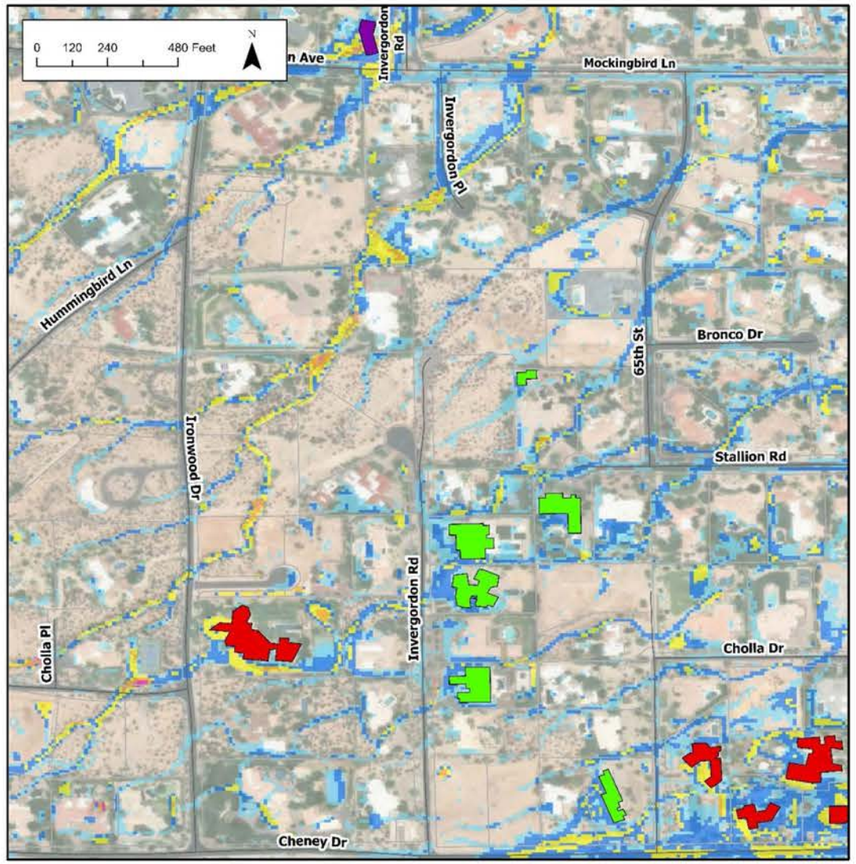


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Sediment Deposition Potential
- Low Deposition Potential
- Moderate Deposition Potential
- High Deposition Potential
- Extreme Deposition Potential

PARADISE VALLEY STORM WATER MASTER PLAN

FLOOD HAZARD AREA: B



100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

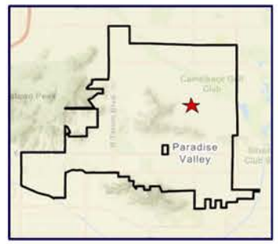
100yr, 6hr Max Flow Depths (ft)
- 0.0 - 0.25
- 0.26 - 0.5
- 0.51 - 1.0
- 1.01 - 2.0
- 2.01 - 3.0
- 3.01 - 4.0
- 4.01 - 27

LOCATION DESCRIPTION

LOCATION: *Ironwood Drive and Cholla Place*

PROBLEM DESCRIPTION:

- *Identified as a problem in the 2017 Cheney Watershed Study and flooding remains a nuisance to residents*
- *Flows from Mummy Mountain overtop multiple streets and deposit sediment*



FLOOD HAZARD IMPACT: *Road overtopping and post-storm clean up, structure/property flooding*

PROPERTY OWNERSHIP: *Residential and Town Right of Way*

POTENTIAL UTILITY CONFLICTS: *Mockingbird Lane storm drains, dry utilities*

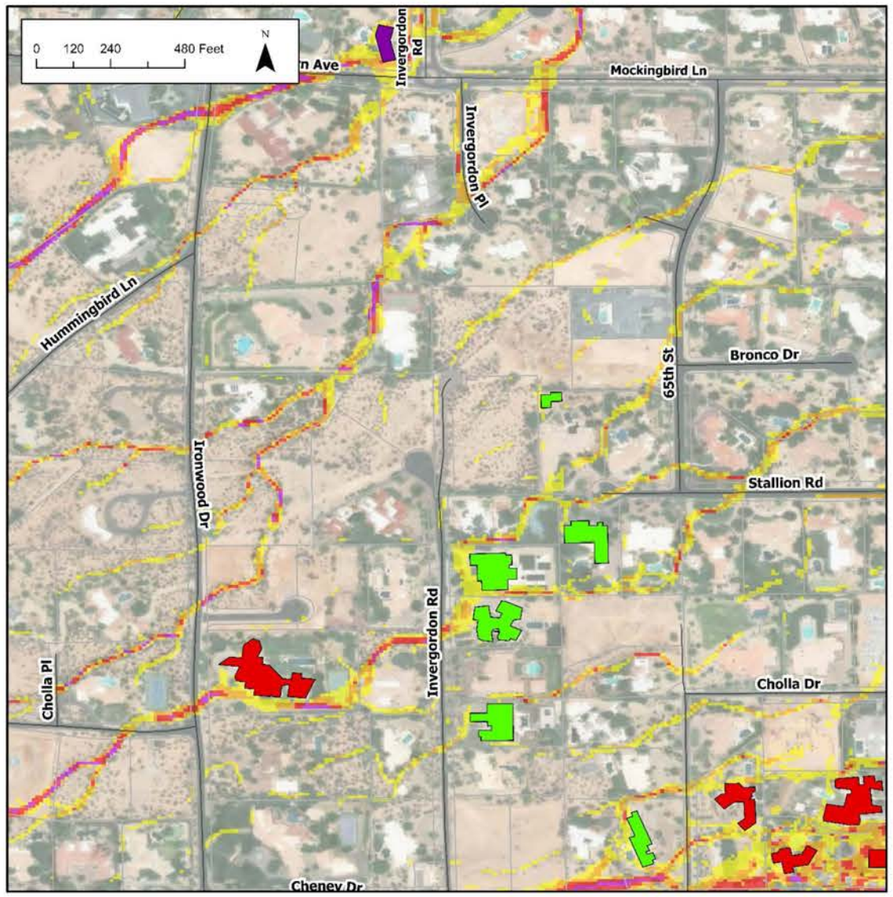
POTENTIAL MITIGATION ALTERNATIVES

- *Storm Drain*
- *Sediment Basins*

IDENTIFIED FLOOD RISKS AND HAZARD CHARACTERIZATIONS

Number of Potentially Impacted Structures	4
Number of Hydraulic Structures Identified as Undersized	0
Maximum Depth on Roads	0.71 ft
Streets Overtopped by > 0.5 ft	2 Local; 1 Collector
Potential to Impact Emergency Service Access	No
Flood Hazard Designation	Moderate Flooding

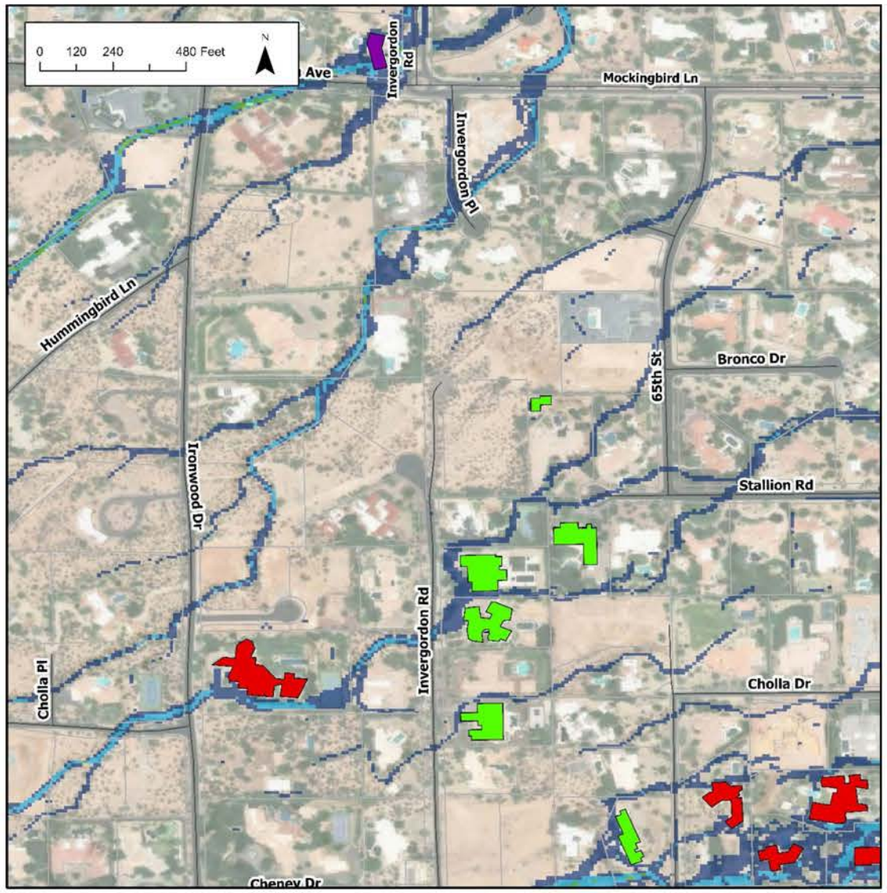
AREA B EROSION POTENTIAL MAP



100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Erosion Potential
- Extreme Erosion Potential
- High Erosion Potential
- Moderate Erosion Potential
- Low Erosion Potential

AREA B SEDIMENT DEPOSTION POTENTIAL MAP

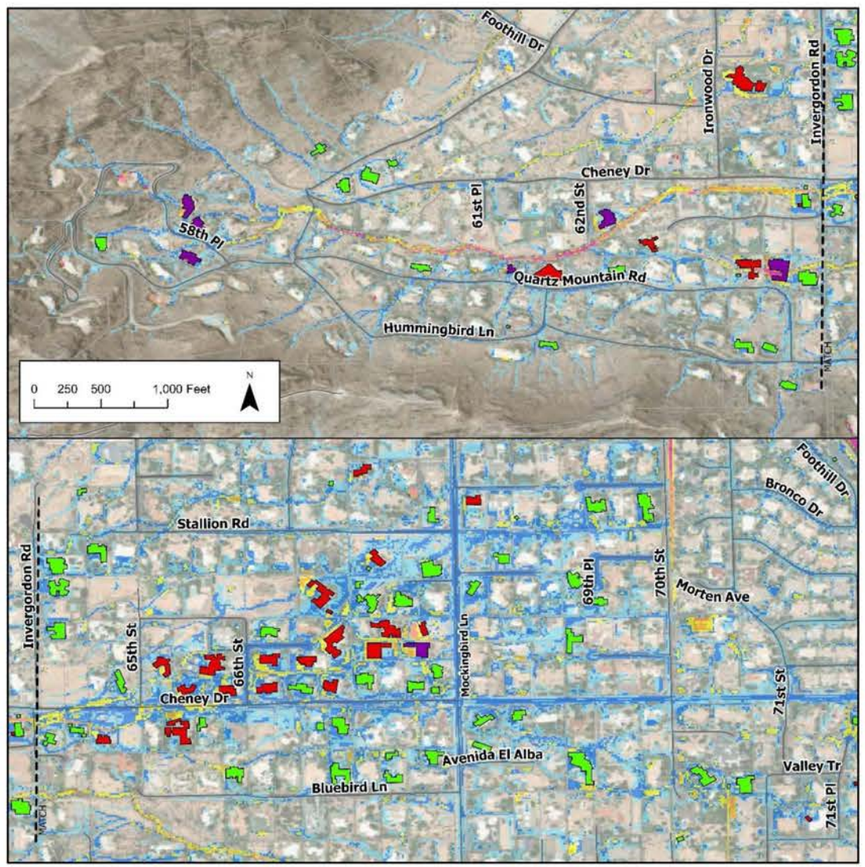


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Sediment Deposition Potential
- Low Deposition Potential
- Moderate Deposition Potential
- High Deposition Potential
- Extreme Deposition Potential

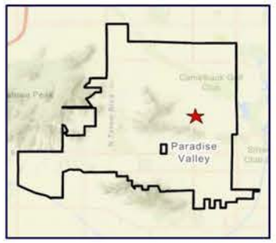
PARADISE VALLEY STORM WATER MASTER PLAN

FLOOD HAZARD AREA: C



LOCATION DESCRIPTION

LOCATION: *Along Cheney Dr from 58th Place to 71st Place*



PROBLEM DESCRIPTION:

- *Identified as a problem in the 2017 Cheney Watershed Study and in the 2017 LIBW ADMP, it and remains a significant flood hazard*
- *Flows from Cheney Wash break out at Invergordon Road and fan out into the surrounding neighborhood*

FLOOD HAZARD IMPACT: *Road overtopping, structure/property flooding*

PROPERTY OWNERSHIP: *Residential and Town Right of Way*

POTENTIAL UTILITY CONFLICTS: *Cheney Drive and Mockingbird Lane dry utilities*

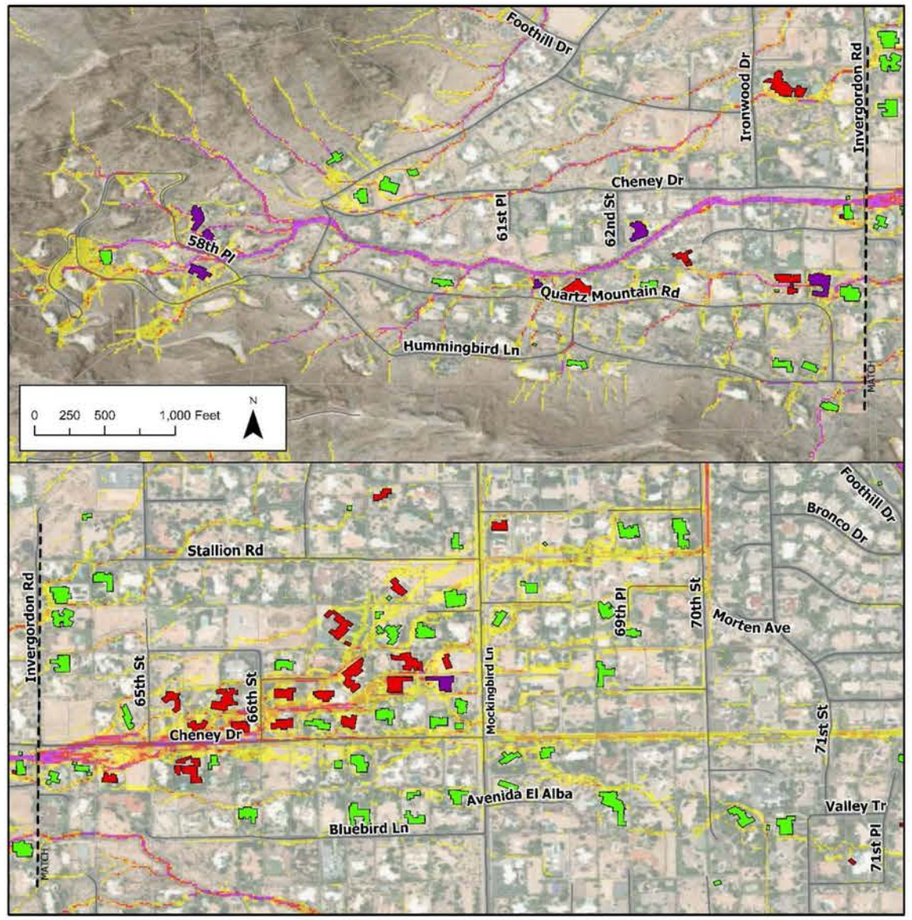
POTENTIAL MITIGATION ALTERNATIVES

- *Storm Drain*
- *Channel Embankments*
- *Sediment Basins*

IDENTIFIED FLOOD RISKS AND HAZARD CHARACTERIZATIONS

Number of Potentially Impacted Structures	70
Number of Hydraulic Structures Identified as Undersized	0
Maximum Depth on Roads	1.37 ft
Streets Overtopped by > 0.5 ft	2 Local; 1 Collector
Potential to Impact Emergency Service Access	No
Flood Hazard Designation	Moderate Flooding

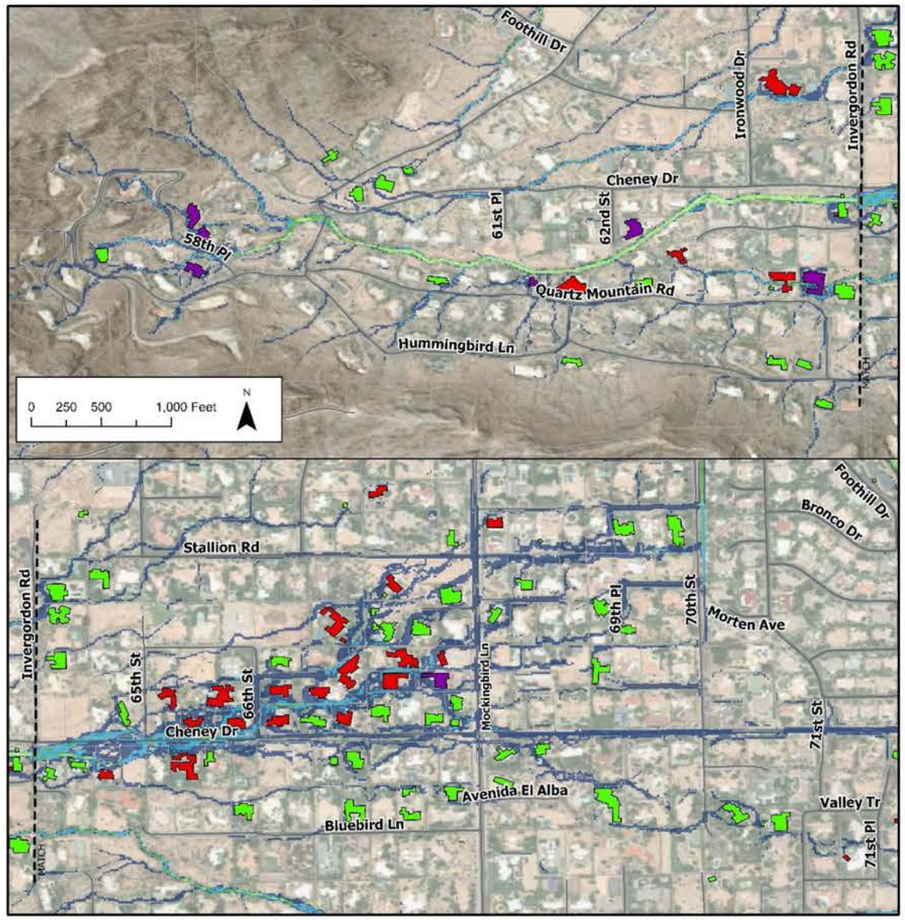
AREA C EROSION POTENTIAL MAP



100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Erosion Potential
- Extreme Erosion Potential
- High Erosion Potential
- Moderate Erosion Potential
- Low Erosion Potential

AREA C SEDIMENT DEPOSTION POTENTIAL MAP

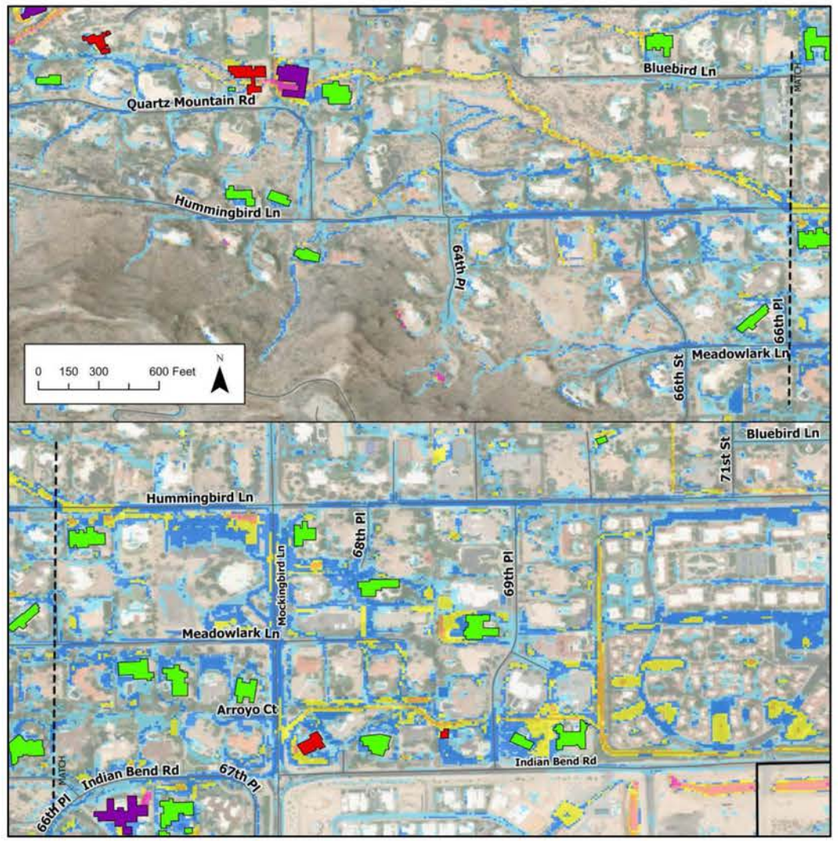


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Sediment Deposition Potential
- Low Deposition Potential
- Moderate Deposition Potential
- High Deposition Potential
- Extreme Deposition Potential

PARADISE VALLEY STORM WATER MASTER PLAN

FLOOD HAZARD AREA: D

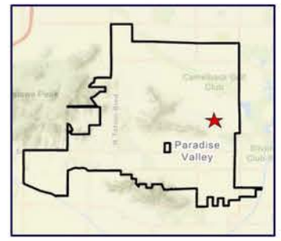


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

100yr, 6hr Max Flow Depths (ft)
- 0.0 - 0.25
- 0.26 - 0.5
- 0.51 - 1.0
- 1.01 - 2.0
- 2.01 - 3.0
- 3.01 - 4.0
- 4.01 - 27

LOCATION DESCRIPTION

LOCATION: *Hummingbird Ln and Mockingbird Lane*



PROBLEM DESCRIPTION:

- *Identified as a problem in the 2017 LIBW ADMP and the 2017 Cheney Watershed Study, remains a flood hazard*
- *Flows from Mummy Mountain breakout with depths of 1 ft at Hummingbird Ln and fans out into the surrounding neighborhood*

FLOOD HAZARD IMPACT: *Road overtopping, structure/property flooding*

PROPERTY OWNERSHIP: *Residential and Town Right of Way*

POTENTIAL UTILITY CONFLICTS: *Mockingbird storm drains, dry utilities*

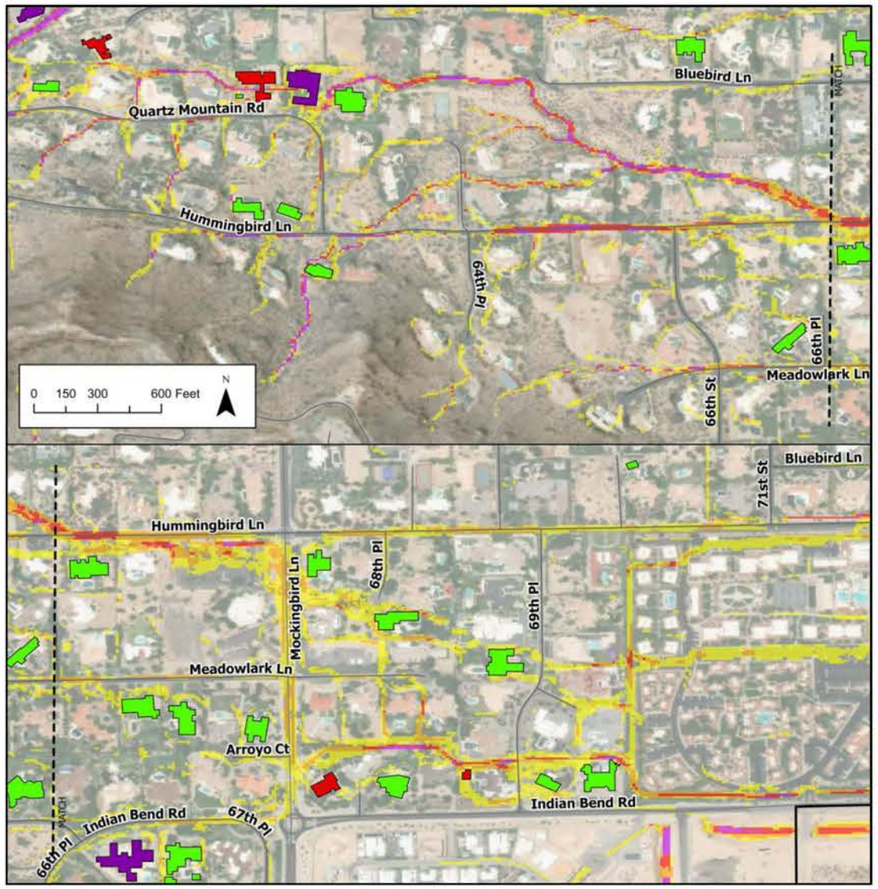
POTENTIAL MITIGATION ALTERNATIVES

- *Storm Drain*
- *Sedimentation Basin*

IDENTIFIED FLOOD RISKS AND HAZARD CHARACTERIZATIONS

Number of Impacted Structures	*20*
Number of Hydraulic Structures Identified as Undersized	0
Maximum Depth on Roads	1.16 ft
Streets Overtopped by > 0.5 ft	1 Local; 2 Collector
Potential to Impact Emergency Service Access	No
Flood Hazard Designation	Moderate Flooding

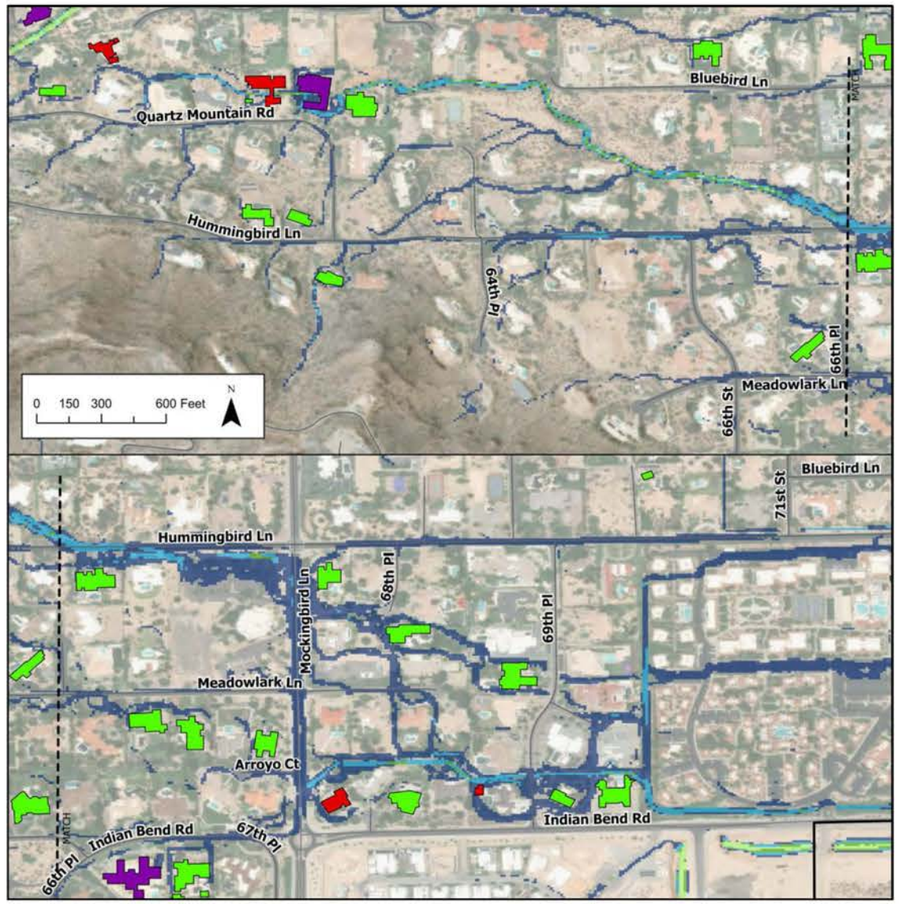
AREA D EROSION POTENTIAL MAP



100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Erosion Potential
- Extreme Erosion Potential
- High Erosion Potential
- Moderate Erosion Potential
- Low Erosion Potential

AREA D SEDIMENT DEPOSTION POTENTIAL MAP

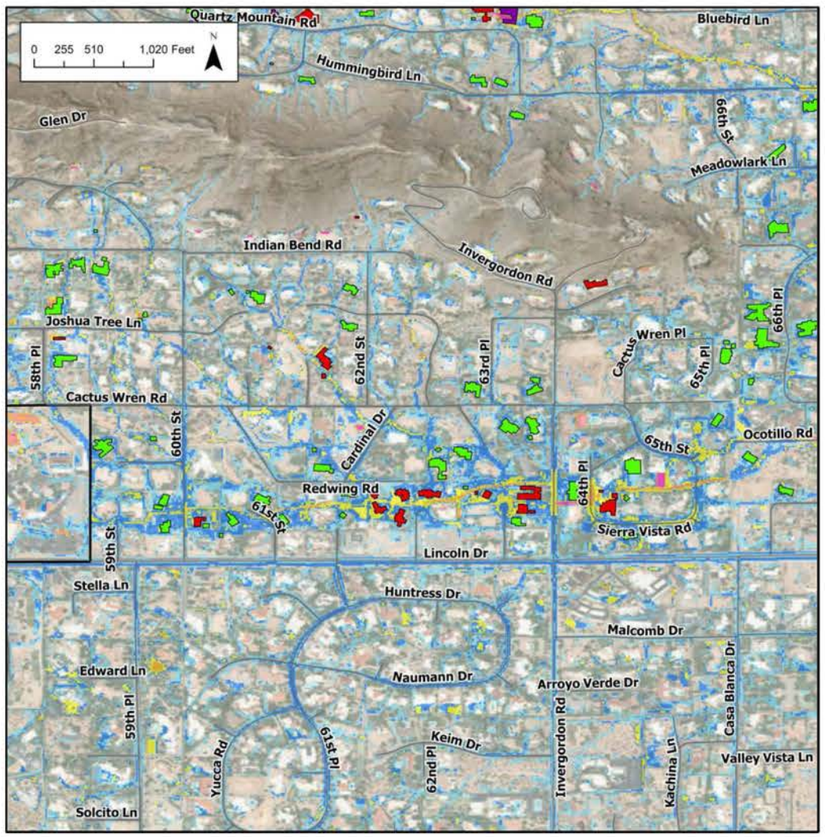


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Sediment Deposition Potential
- Low Deposition Potential
- Moderate Deposition Potential
- High Deposition Potential
- Extreme Deposition Potential

PARADISE VALLEY STORM WATER MASTER PLAN

FLOOD HAZARD AREA: E

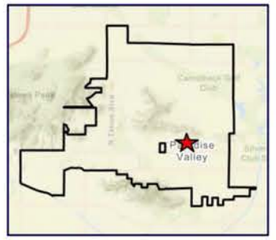


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

100yr, 6hr Max Flow Depths (ft)
- 0.0 - 0.25
- 0.26 - 0.5
- 0.51 - 1.0
- 1.01 - 2.0
- 2.01 - 3.0
- 3.01 - 4.0
- 4.01 - 27

LOCATION DESCRIPTION

LOCATION: *Lincoln Drive from 58th Place to 66th Place*



PROBLEM DESCRIPTION:

- *Identified as a problem in the 2017 LIBW ADMP and remains a flood hazard*
- *Flows from Mummy Mountain collect and travel east through the neighborhood just north of Lincoln Dr. and overtops Invergordon Rd and 60th St by over 1 ft*

FLOOD HAZARD IMPACT: *Road overtopping, structure/property flooding*

PROPERTY OWNERSHIP: *Residential and Town Right of Way*

POTENTIAL UTILITY CONFLICTS: *Invergordon Rd storm drain/dry utilities, 60th St dry utilities*

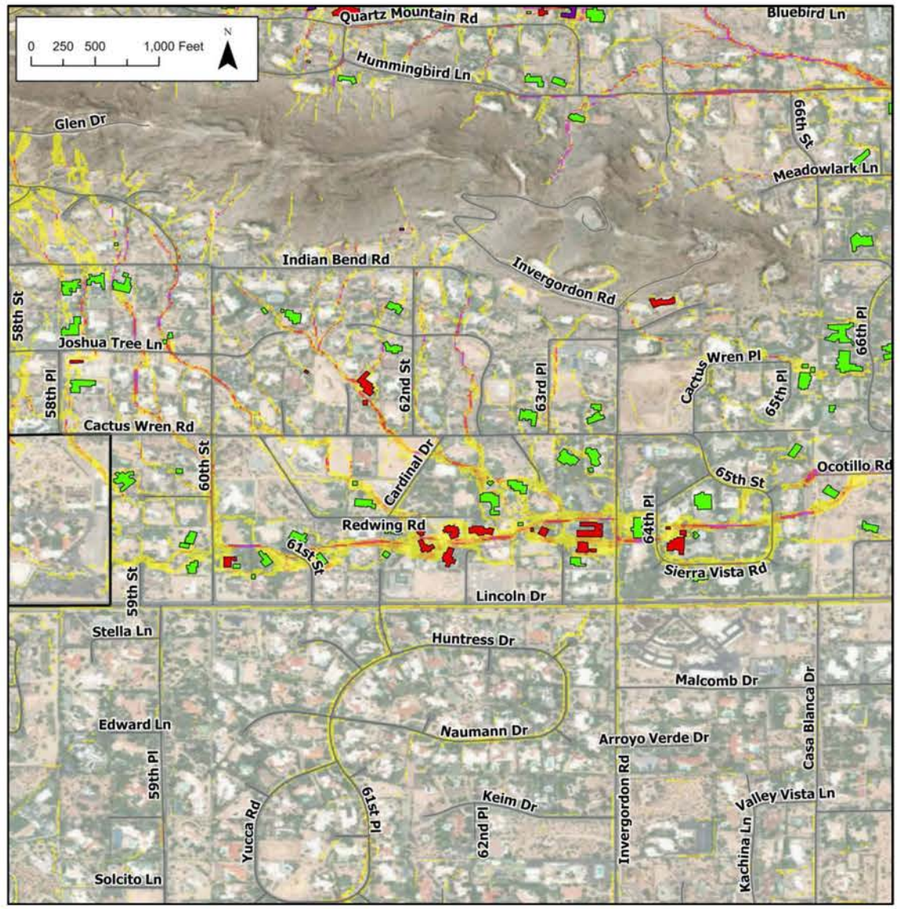
POTENTIAL MITIGATION ALTERNATIVES

- *Storm Drain*
- *Permeable Pavement*

IDENTIFIED FLOOD RISKS AND HAZARD CHARACTERIZATIONS

Number of Impacted Structures	*52*
Number of Hydraulic Structures Identified as Undersized	0
Maximum Depth on Roads	1.19 ft
Streets Overtopped by > 0.5 ft	5 Local; 2 Collector
Potential to Impact Emergency Service Access	No
Flood Hazard Designation	Moderate Flooding

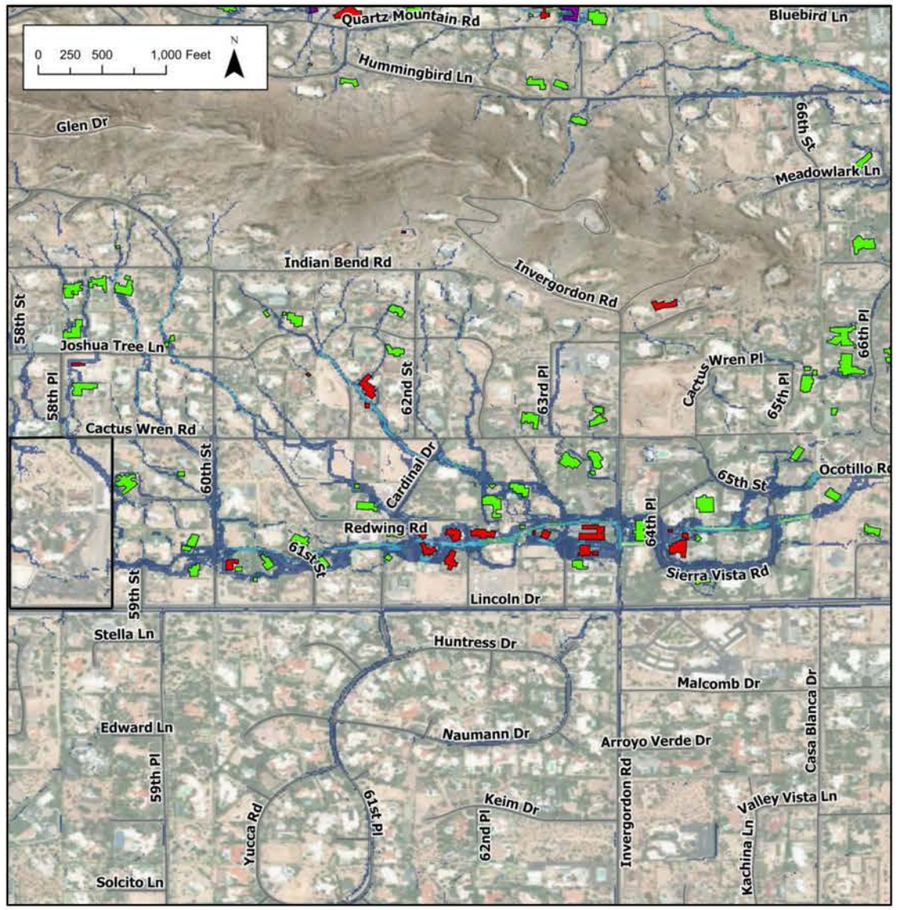
AREA E EROSION POTENTIAL MAP



100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Erosion Potential
- Extreme Erosion Potential
- High Erosion Potential
- Moderate Erosion Potential
- Low Erosion Potential

AREA E SEDIMENT DEPOSTION POTENTIAL MAP

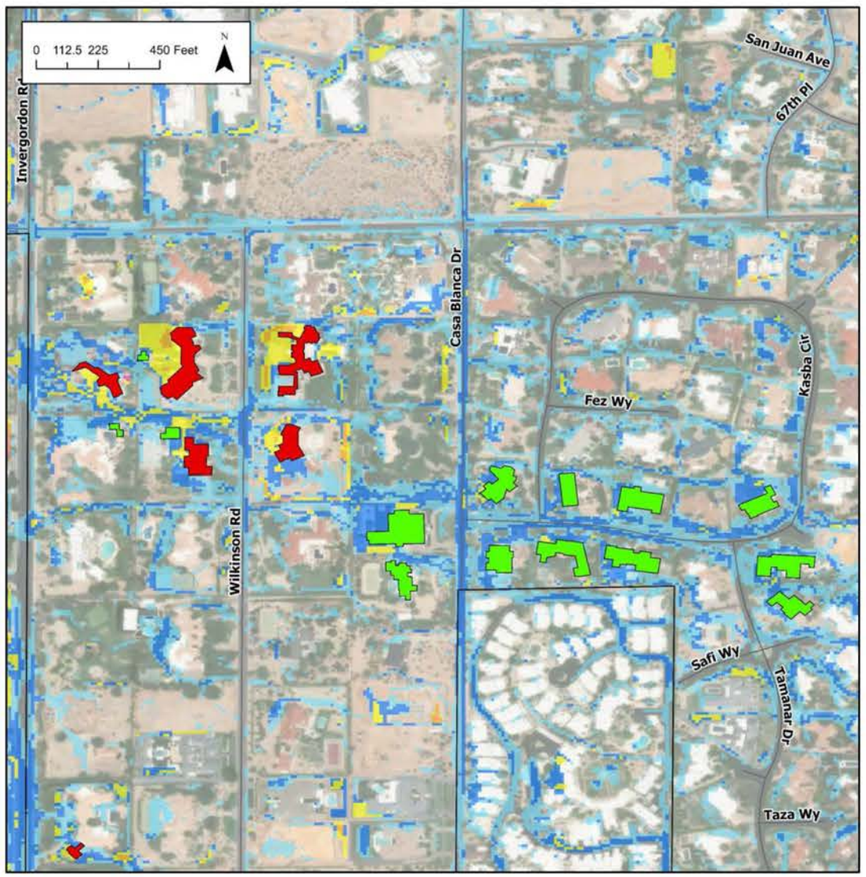


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Sediment Deposition Potential
- Low Deposition Potential
- Moderate Deposition Potential
- High Deposition Potential
- Extreme Deposition Potential

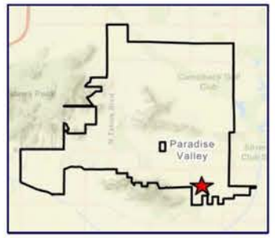
PARADISE VALLEY STORM WATER MASTER PLAN

FLOOD HAZARD AREA: F



LOCATION DESCRIPTION

LOCATION: *Jackrabbit Road from Invergordon Road to 67th Place*



PROBLEM DESCRIPTION:

- *Identified as a problem in the 2017 LIBW ADMP and remains a flooding nuisance*
- *Flows from Camelback Mountain collect and travel east through the neighborhood just South of Jackrabbit Rd.*

FLOOD HAZARD IMPACT: *Road overtopping, structure/property flooding*

PROPERTY OWNERSHIP: *Residential and Town Right of Way*

POTENTIAL UTILITY CONFLICTS: *Casa Blanca Dr dry utilities*

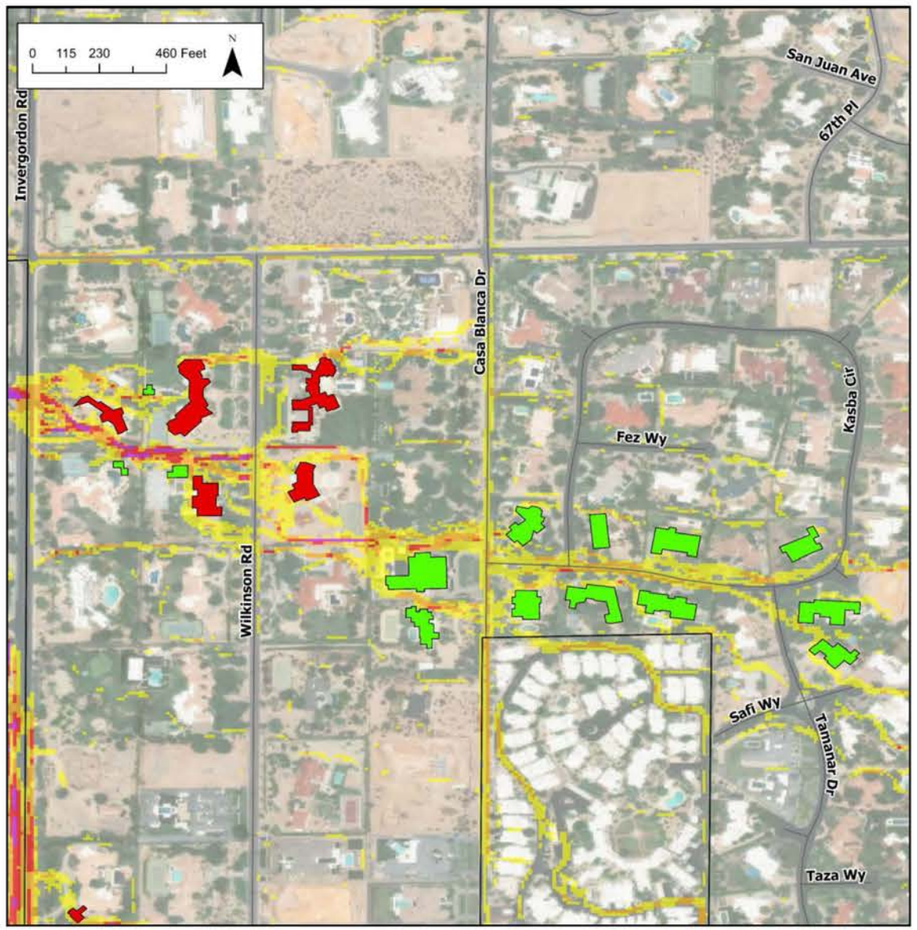
POTENTIAL MITIGATION ALTERNATIVES

- *Storm Drain*

IDENTIFIED FLOOD RISKS AND HAZARD CHARACTERIZATIONS

Number of Impacted Structures	*15*
Number of Hydraulic Structures Identified as Undersized	0
Maximum Depth on Roads	0.8 ft
Streets Overtopped by > 0.5 ft	5 Local; 0 Collector
Potential to Impact Emergency Service Access	No
Flood Hazard Designation	Nuisance Flooding

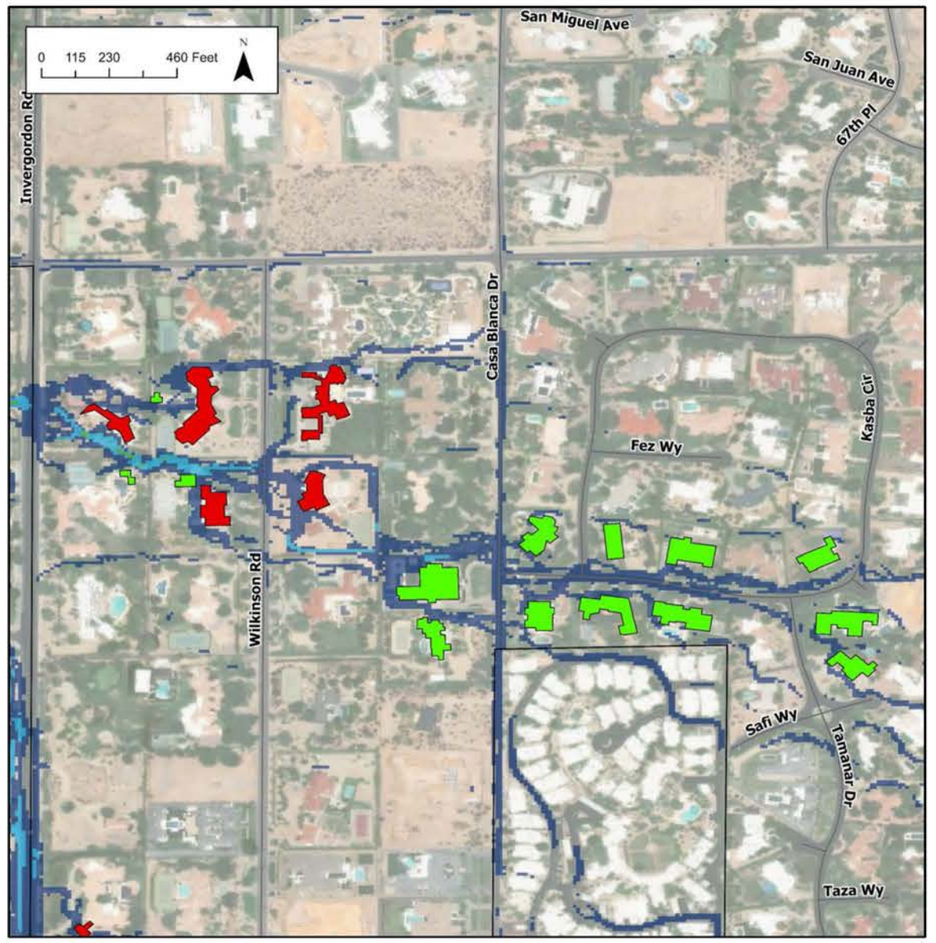
AREA F EROSION POTENTIAL MAP



100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Erosion Potential
- Extreme Erosion Potential
- High Erosion Potential
- Moderate Erosion Potential
- Low Erosion Potential

AREA F SEDIMENT DEPOSTION POTENTIAL MAP

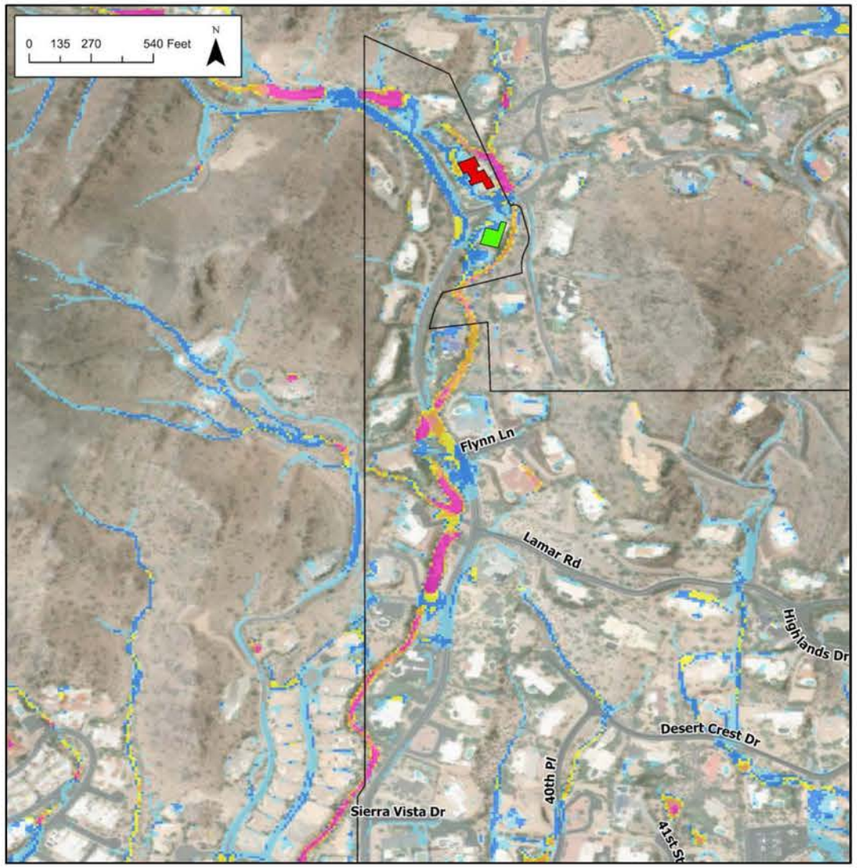


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Sediment Deposition Potential
- Low Deposition Potential
- Moderate Deposition Potential
- High Deposition Potential
- Extreme Deposition Potential

PARADISE VALLEY STORM WATER MASTER PLAN

FLOOD HAZARD AREA: G



LOCATION DESCRIPTION

LOCATION: *40th Street and Flynn Lane*



PROBLEM DESCRIPTION:

- *Identified as a problem in the 2020 Cudia City Wash ADMS and remains a flooding hazard*
- *Flows from Piestewa Mountain overtop 40th St by over 2 ft*

FLOOD HAZARD IMPACT: *Road overtopping, structure/property flooding*

PROPERTY OWNERSHIP: *Residential and Town Right of Way*

POTENTIAL UTILITY CONFLICTS: *40th St dry utilities*

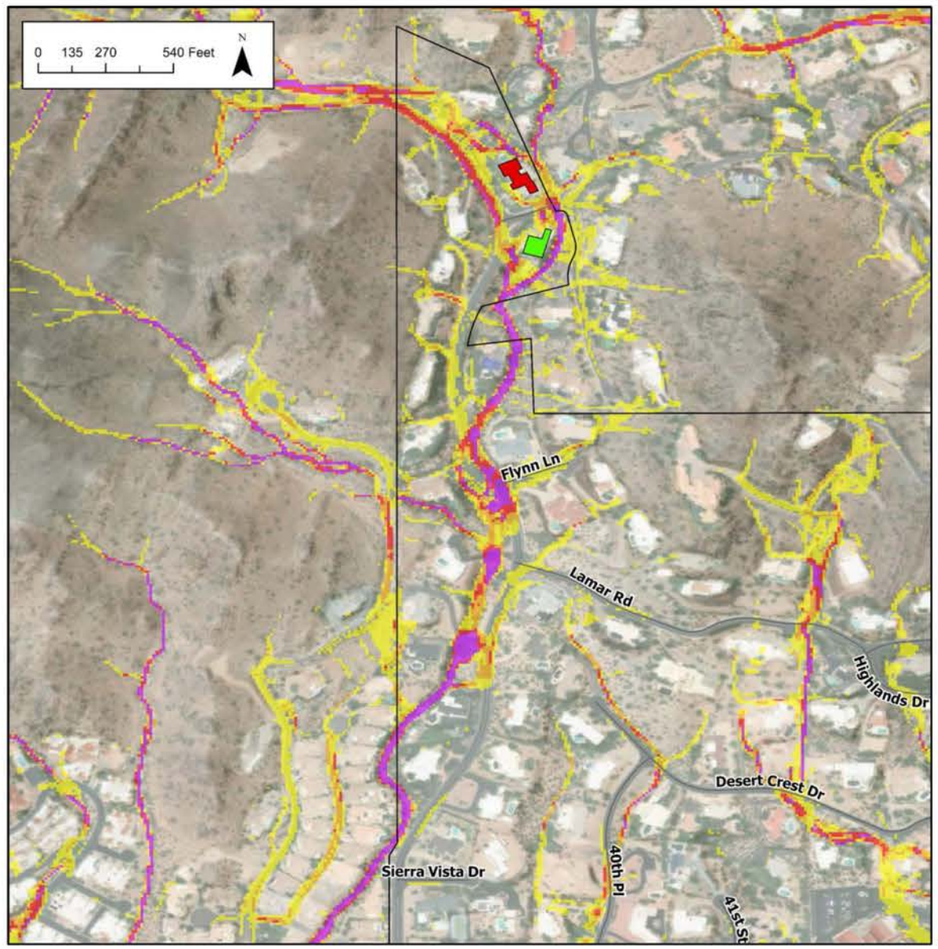
POTENTIAL MITIGATION ALTERNATIVES

- *Storm Drain*
- *Culverts*

IDENTIFIED FLOOD RISKS AND HAZARD CHARACTERIZATIONS

Number of Impacted Structures	*2*
Number of Hydraulic Structures Identified as Undersized	3
Maximum Depth on Roads	2.21 ft
Streets Overtopped by > 0.5 ft	2 Local; 0 Collector
Potential to Impact Emergency Service Access	No
Flood Hazard Designation	Moderate Flooding

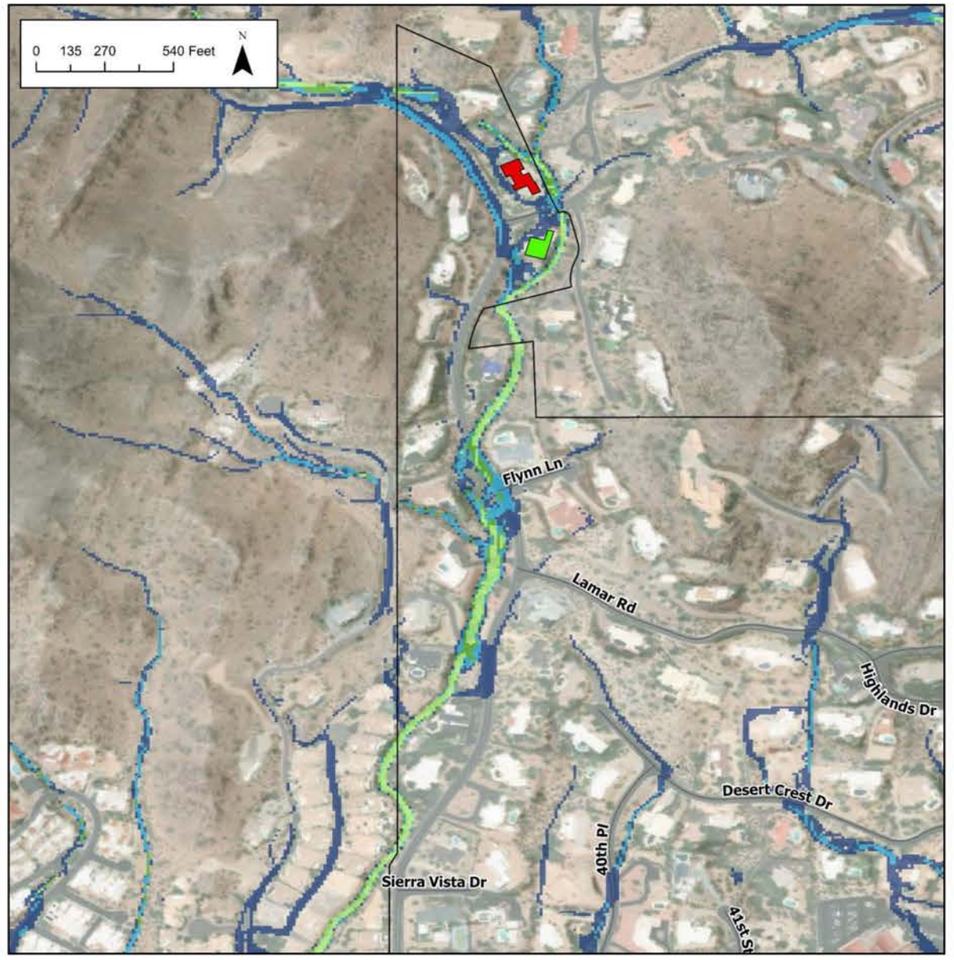
AREA G EROSION POTENTIAL MAP



100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Erosion Potential
- Extreme Erosion Potential
- High Erosion Potential
- Moderate Erosion Potential
- Low Erosion Potential

AREA G SEDIMENT DEPOSTION POTENTIAL MAP

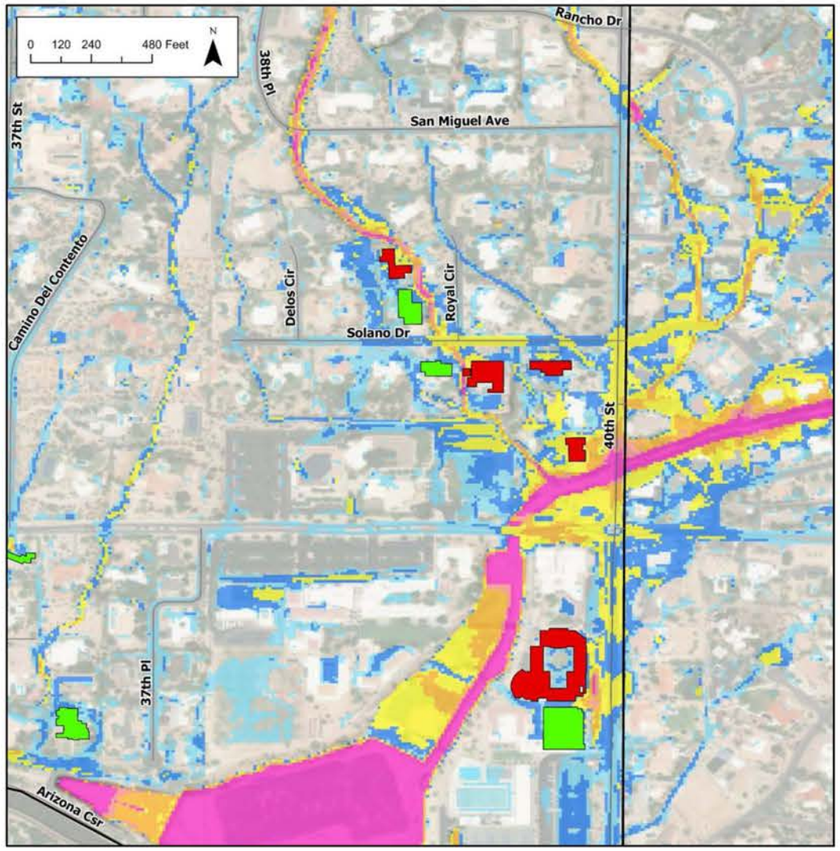


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Sediment Deposition Potential
- Low Deposition Potential
- Moderate Deposition Potential
- High Deposition Potential
- Extreme Deposition Potential

PARADISE VALLEY STORM WATER MASTER PLAN

FLOOD HAZARD AREA: H



100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

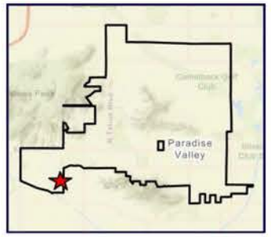
100yr, 6hr Max Flow Depths (ft)
- 0.0 - 0.25
- 0.26 - 0.5
- 0.51 - 1.0
- 1.01 - 2.0
- 2.01 - 3.0
- 3.01 - 4.0
- 4.01 - 27

LOCATION DESCRIPTION

LOCATION: *40th Street and Stanford Drive*

PROBLEM DESCRIPTION:

- *Identified as a problem in the 2020 Cudia City Wash ADMS and remains a significant flooding hazard. Vehicles have been stuck in the low water crossing during flooding*
- *Cudia City Wash overtop 40th St by greater than 4 ft*
- *Road closures during major flood events*



FLOOD HAZARD IMPACT: *Road overtopping, structure/property flooding*

PROPERTY OWNERSHIP: *Residential and Town Right of Way*

POTENTIAL UTILITY CONFLICTS: *40th St and Stanford Dr dry utilities*

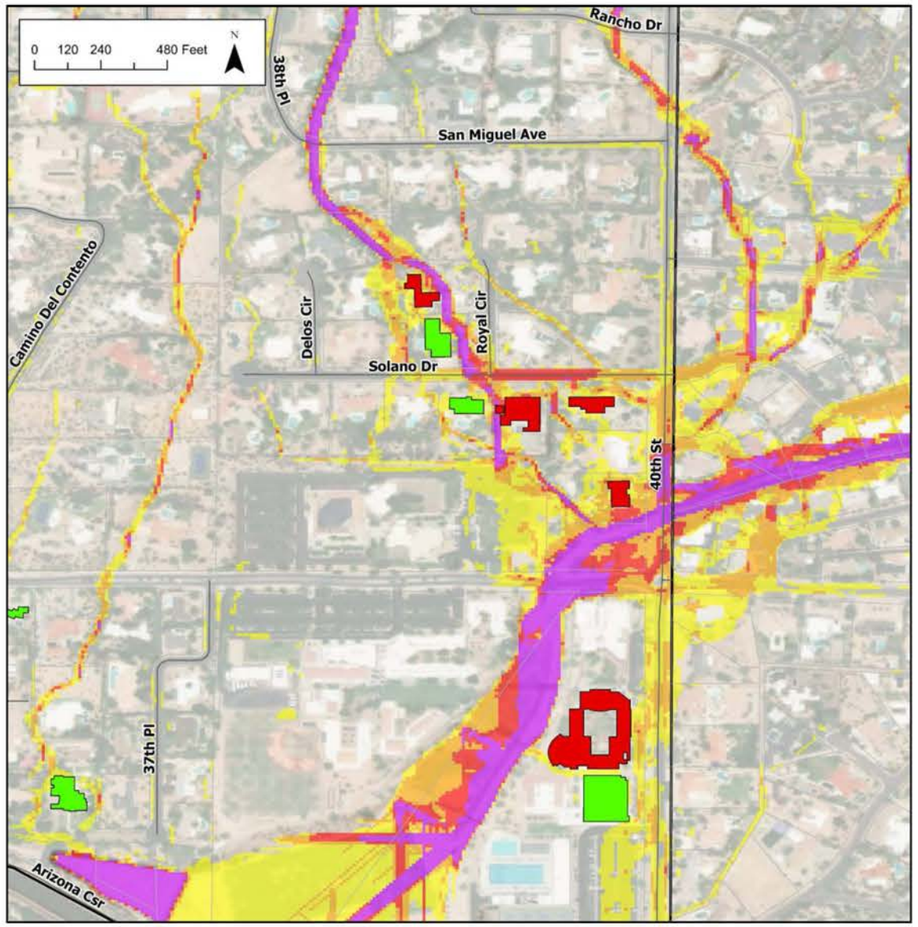
POTENTIAL MITIGATION ALTERNATIVES

- *Storm Drain*
- *Culverts*

IDENTIFIED FLOOD RISKS AND HAZARD CHARACTERIZATIONS

Number of Impacted Structures	*9*
Number of Hydraulic Structures Identified as Undersized	1
Maximum Depth on Roads	5.23 ft
Streets Overtopped by > 0.5 ft	2 Local; 2 Collector
Potential to Impact Emergency Service Access	Yes
Flood Hazard Designation	Severe Flooding

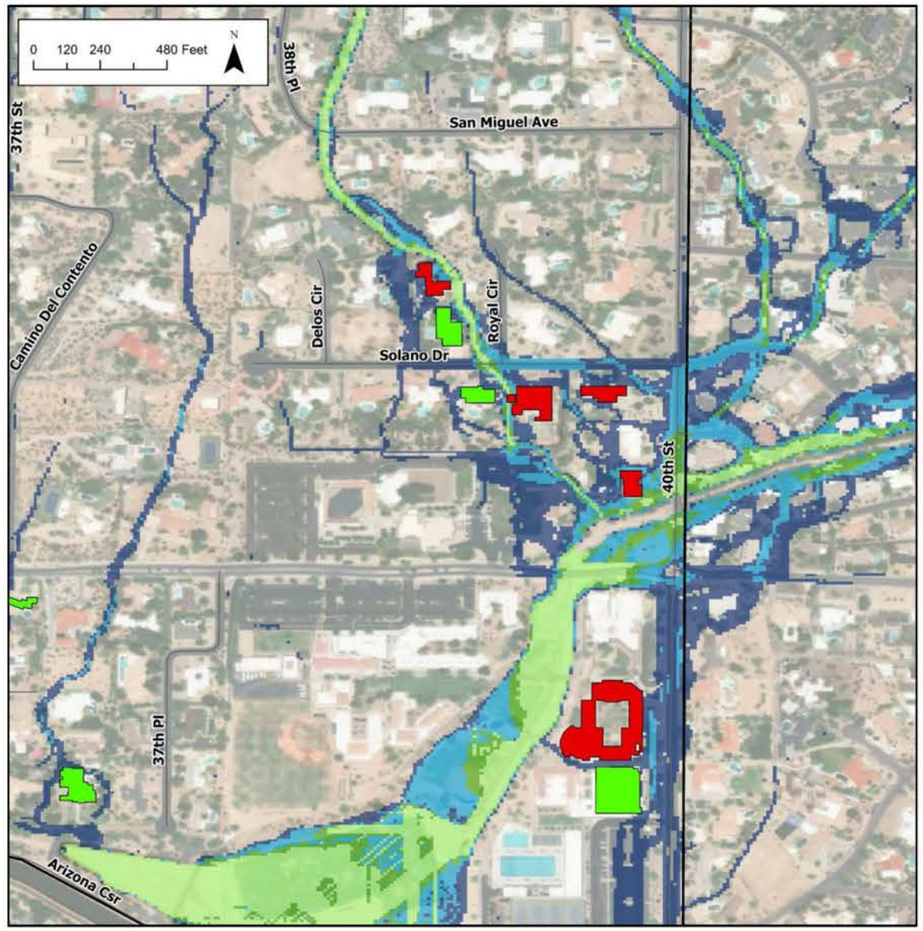
AREA H EROSION POTENTIAL MAP



100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Erosion Potential
- Extreme Erosion Potential
- High Erosion Potential
- Moderate Erosion Potential
- Low Erosion Potential

AREA H SEDIMENT DEPOSTION POTENTIAL MAP

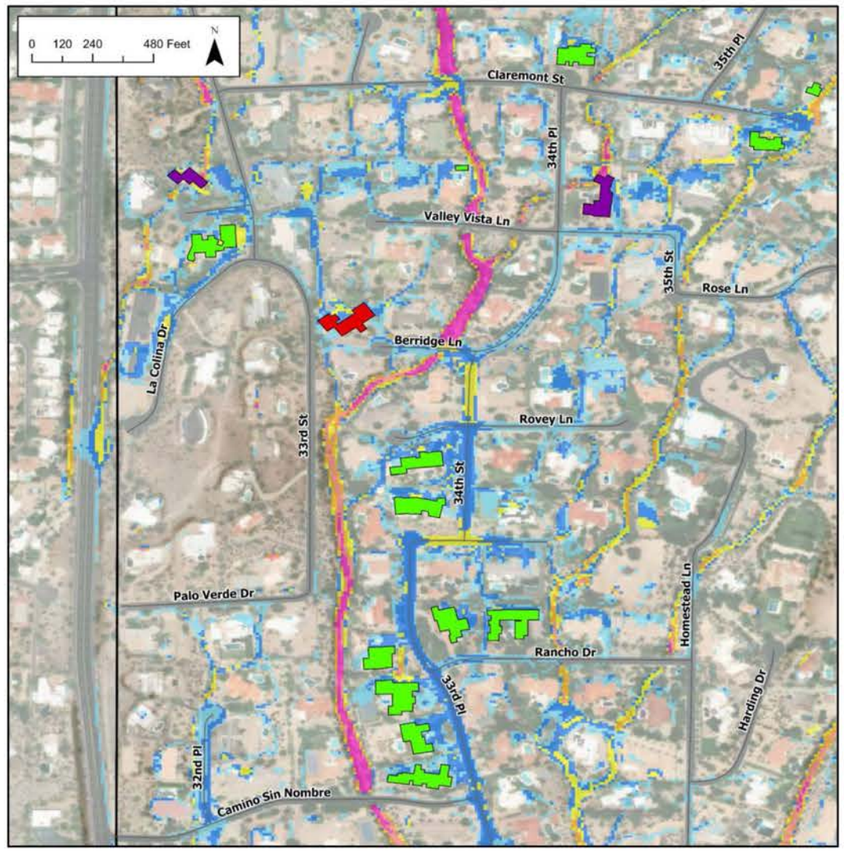


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Sediment Deposition Potential
- Low Deposition Potential
- Moderate Deposition Potential
- High Deposition Potential
- Extreme Deposition Potential

PARADISE VALLEY STORM WATER MASTER PLAN

FLOOD HAZARD AREA: I

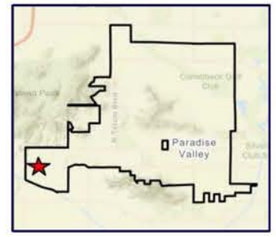


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

100yr, 6hr Max Flow Depths (ft)
- 0.0 - 0.25
- 0.26 - 0.5
- 0.51 - 1.0
- 1.01 - 2.0
- 2.01 - 3.0
- 3.01 - 4.0
- 4.01 - 27

LOCATION DESCRIPTION

LOCATION: *Claremont Street and 34th Place*



PROBLEM DESCRIPTION:

- *Identified as a problem in the 2020 Cudia City Wash ADMS and remains a nuisance flooding hazard.*
- *Undersized existing infrastructure*

FLOOD HAZARD IMPACT: *Road overtopping, structure/property flooding*

PROPERTY OWNERSHIP: *Residential and Town Right of Way*

POTENTIAL UTILITY CONFLICTS: *Claremont Street dry utilities*

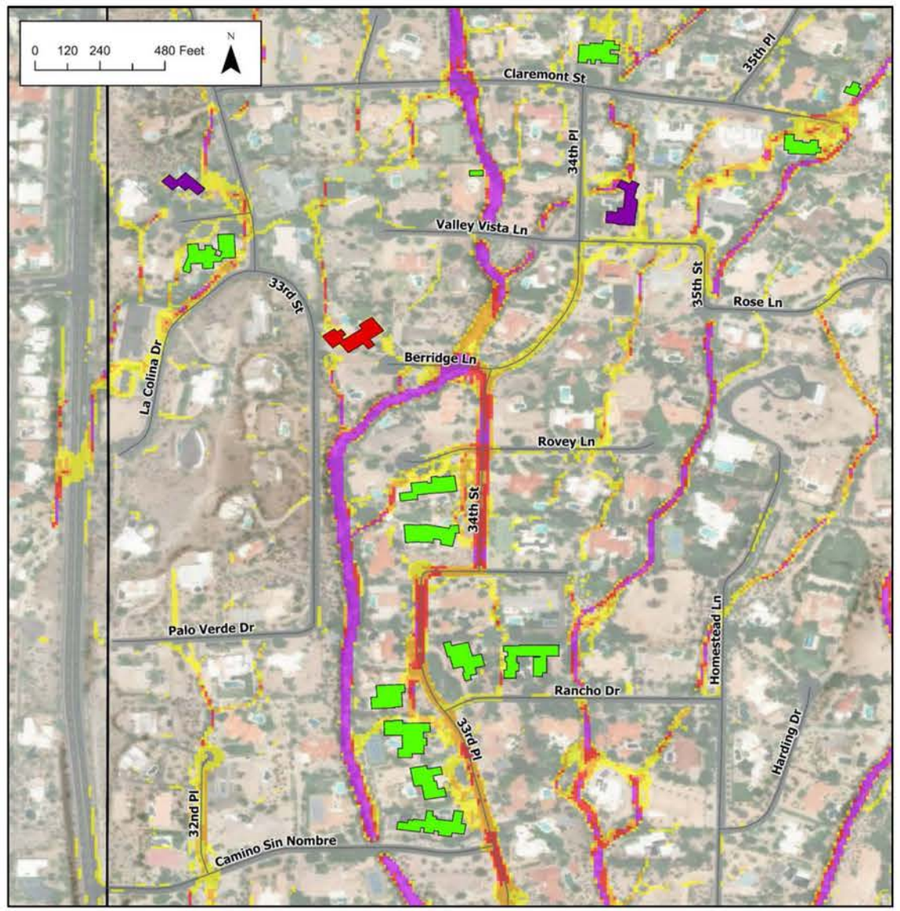
POTENTIAL MITIGATION ALTERNATIVES

- *Storm Drain*
- *Culverts*

IDENTIFIED FLOOD RISKS AND HAZARD CHARACTERIZATIONS

Number of Impacted Structures	*10*
Number of Hydraulic Structures Identified as Undersized	3
Maximum Depth on Roads	0.8 ft
Streets Overtopped by > 0.5 ft	4 Local; 0 Collector
Potential to Impact Emergency Service Access	No
Flood Hazard Designation	Nuisance Flooding

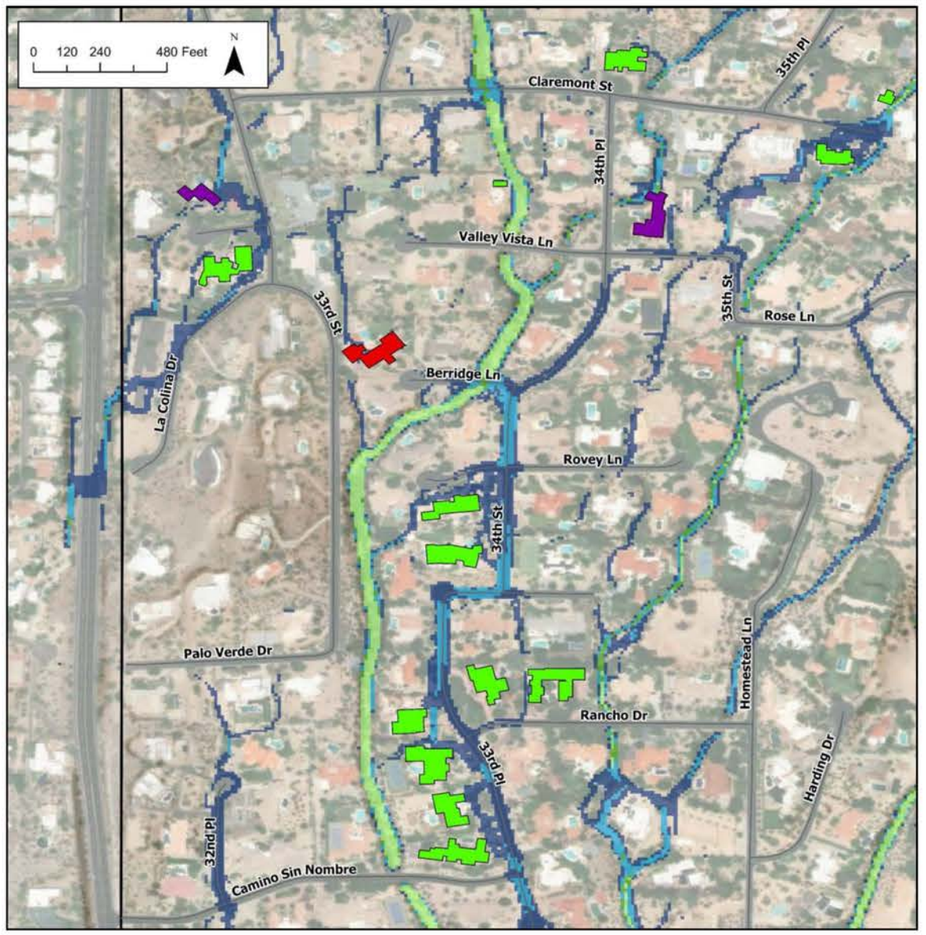
AREA I EROSION POTENTIAL MAP



100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Erosion Potential
- Extreme Erosion Potential
- High Erosion Potential
- Moderate Erosion Potential
- Low Erosion Potential

AREA I SEDIMENT DEPOSTION POTENTIAL MAP

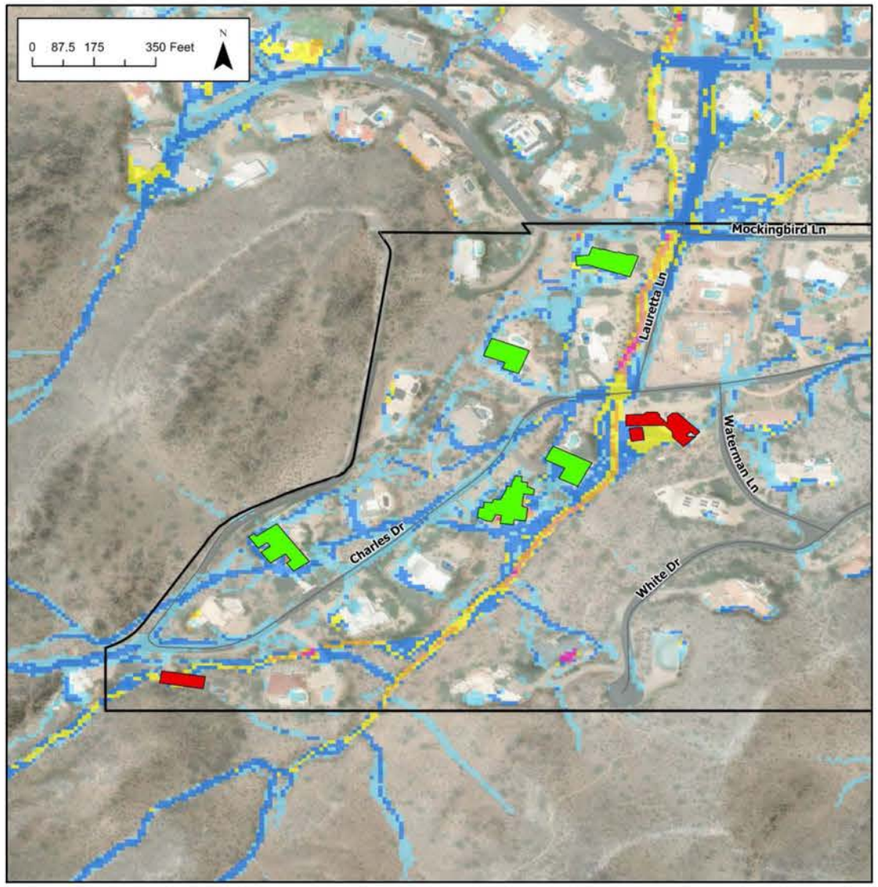


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Sediment Deposition Potential
- Low Deposition Potential
- Moderate Deposition Potential
- High Deposition Potential
- Extreme Deposition Potential

PARADISE VALLEY STORM WATER MASTER PLAN

FLOOD HAZARD AREA: J

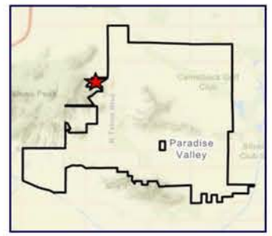


LOCATION DESCRIPTION

LOCATION: *40th Street and Charles Drive and Lauretta Lane*

PROBLEM DESCRIPTION:

- *Identified as a problem in the 2019 Drainage Improvement Areas Technical Memorandum*
- *The existing low water crossing conveys runoff from the Phoenix Mountain Preserve. The crossing has led to erosion and sediment deposition that required routine roadway maintenance.*



FLOOD HAZARD IMPACT: *Road overtopping, structure/property flooding*

PROPERTY OWNERSHIP: *Residential and Town Right of Way*

POTENTIAL UTILITY CONFLICTS: *Charles Drive dry utilities*

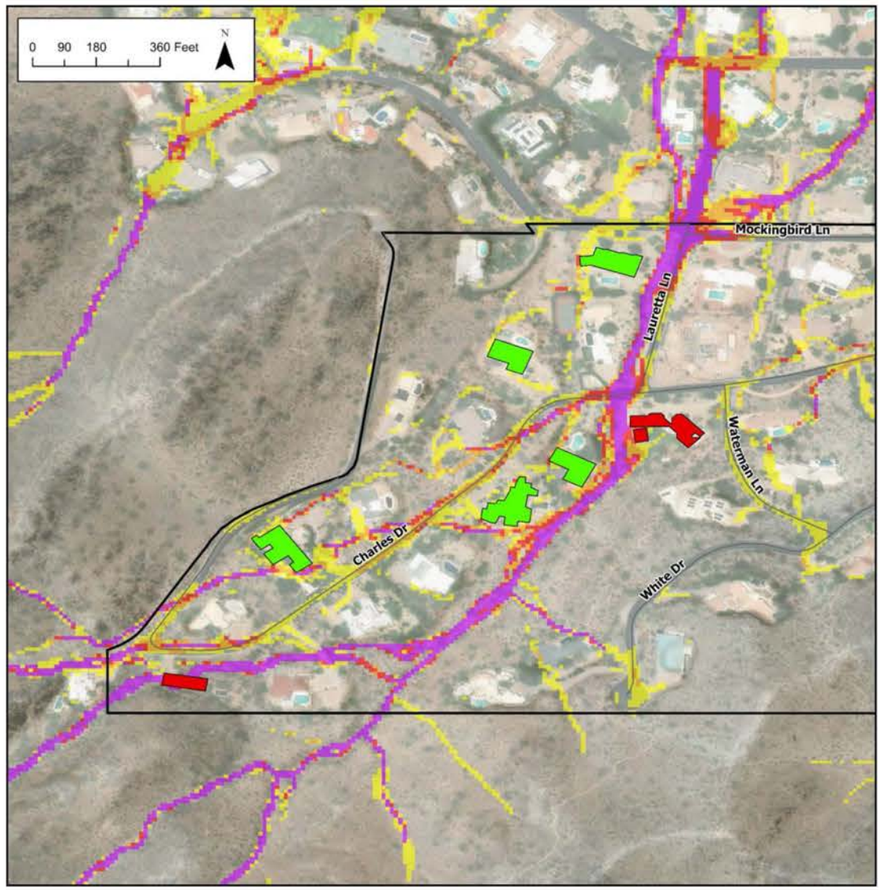
POTENTIAL MITIGATION ALTERNATIVES

- *Storm Drain*
- *Culverts*

IDENTIFIED FLOOD RISKS AND HAZARD CHARACTERIZATIONS

Number of Impacted Structures	*8*
Number of Hydraulic Structures Identified as Undersized	0
Maximum Depth on Roads	1.16 ft
Streets Overtopped by > 0.5 ft	3 Local; 0 Collector
Potential to Impact Emergency Service Access	No
Flood Hazard Designation	Moderate Flooding

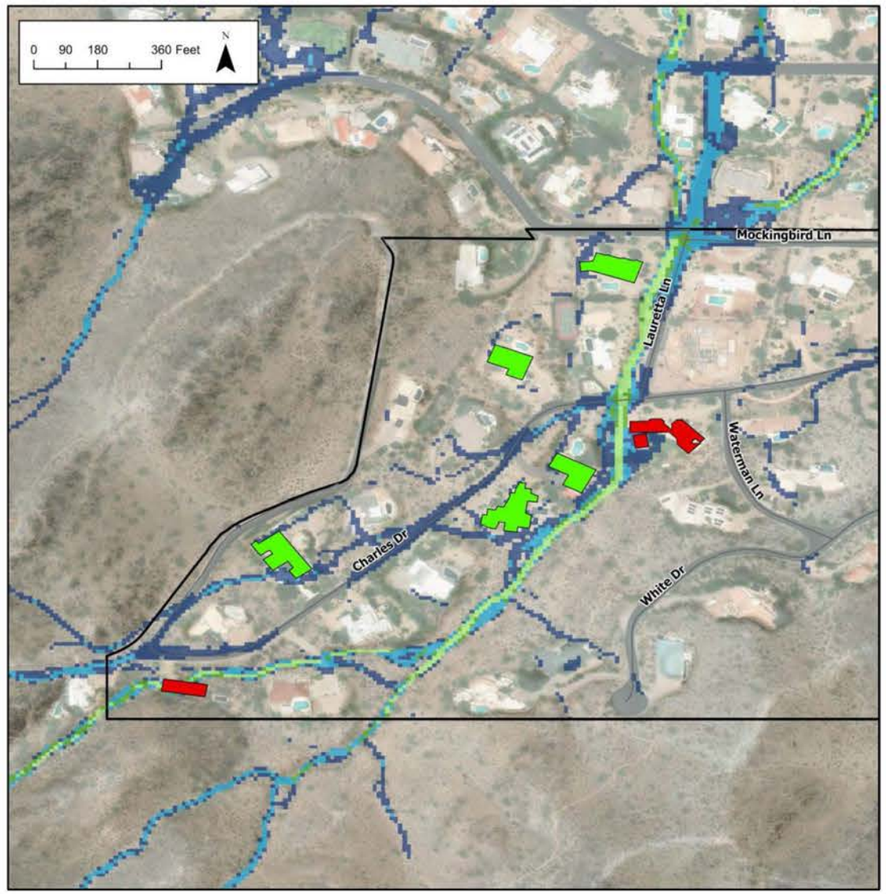
AREA J EROSION POTENTIAL MAP



100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Erosion Potential
- Extreme Erosion Potential
- High Erosion Potential
- Moderate Erosion Potential
- Low Erosion Potential

AREA J SEDIMENT DEPOSTION POTENTIAL MAP

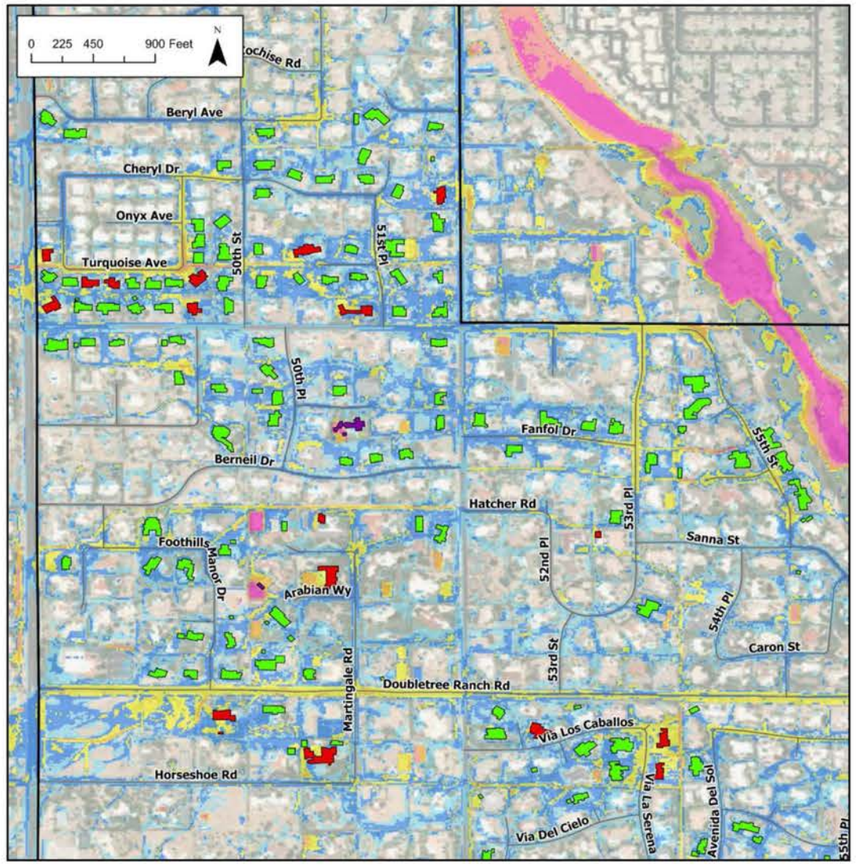


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Sediment Deposition Potential
- Low Deposition Potential
- Moderate Deposition Potential
- High Deposition Potential
- Extreme Deposition Potential

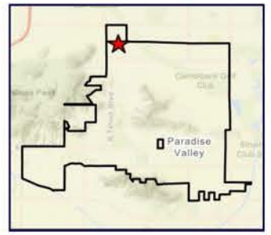
PARADISE VALLEY STORM WATER MASTER PLAN

FLOOD HAZARD AREA: K



LOCATION DESCRIPTION

LOCATION: *52nd St and Doubletree Ranch Rd*



PROBLEM DESCRIPTION:

- *Significant flows coming from Piestewa Mountain flow through the neighborhood in Northern Paradise Valley, especially along Turquoise Ave. Little existing infrastructure is currently present to relieve the flooding in this area*
- *In the southern section of Area K, Existing storm drain was identified as under sized*

FLOOD HAZARD IMPACT: *Road overtopping, structure/property flooding*

PROPERTY OWNERSHIP: *Residential and Town Right of Way*

POTENTIAL UTILITY CONFLICTS: *Doubletree Ranch Rd storm drains, 52nd St dry utilities*

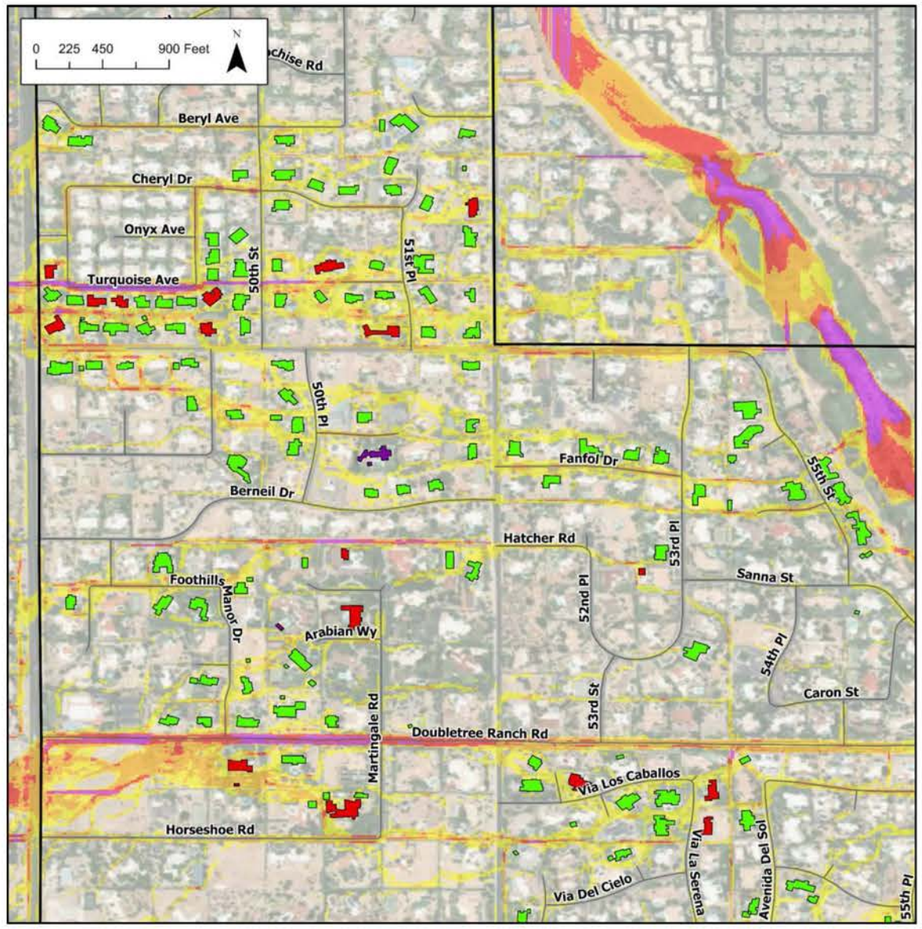
POTENTIAL MITIGATION ALTERNATIVES

- *Storm Drain*
- *Culverts*

IDENTIFIED FLOOD RISKS AND HAZARD CHARACTERIZATIONS

Number of Impacted Structures	*141*
Number of Hydraulic Structures Identified as Undersized	1
Maximum Depth on Roads	2.37 ft
Streets Overtopped by > 0.5 ft	13 Local; 2 Collector
Potential to Impact Emergency Service Access	No
Flood Hazard Designation	Severe Flooding

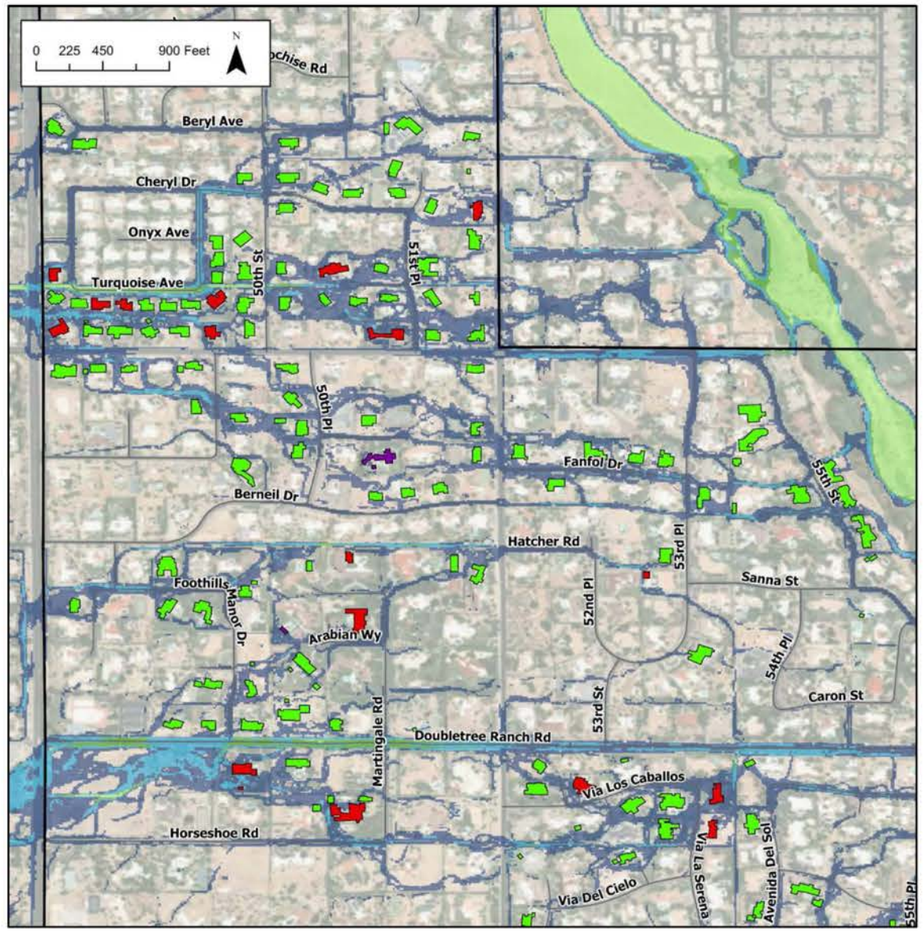
AREA K EROSION POTENTIAL MAP



100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Erosion Potential
- Extreme Erosion Potential
- High Erosion Potential
- Moderate Erosion Potential
- Low Erosion Potential

AREA K SEDIMENT DEPOSTION POTENTIAL MAP

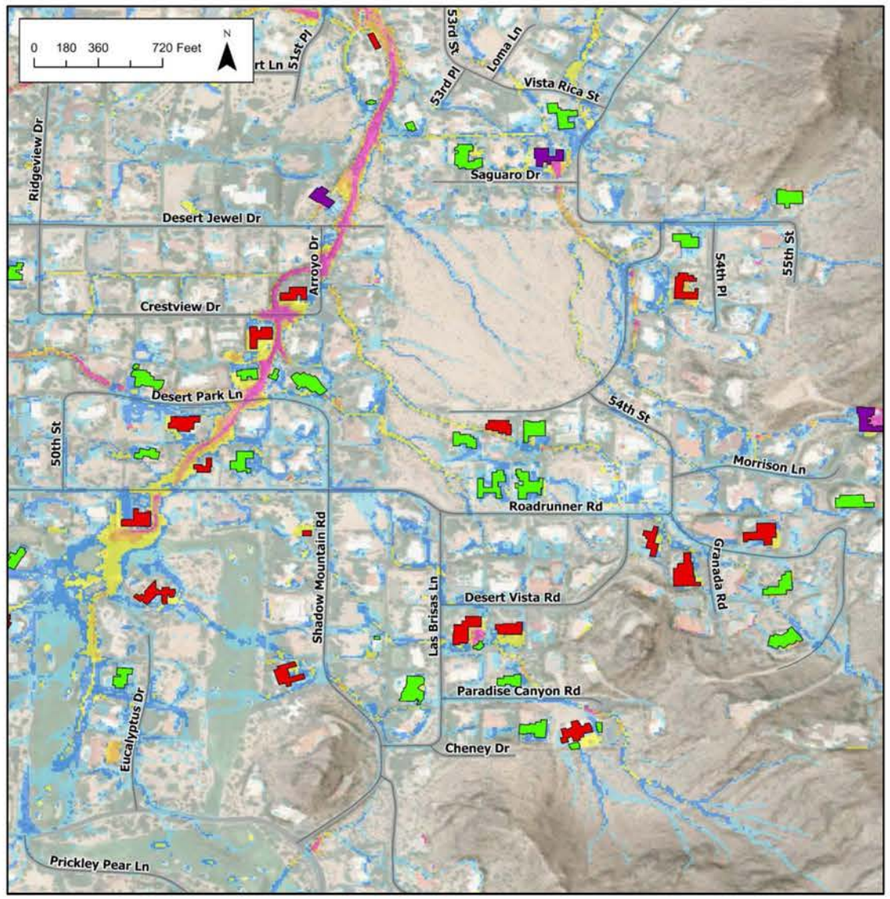


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Sediment Deposition Potential
- Low Deposition Potential
- Moderate Deposition Potential
- High Deposition Potential
- Extreme Deposition Potential

PARADISE VALLEY STORM WATER MASTER PLAN

FLOOD HAZARD AREA: L



100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

100yr, 6hr Max Flow Depths (ft)
- 0.0 - 0.25
- 0.26 - 0.5
- 0.51 - 1.0
- 1.01 - 2.0
- 2.01 - 3.0
- 3.01 - 4.0
- 4.01 - 27

LOCATION DESCRIPTION

LOCATION: *40th Desert Jewel Dr and Arroyo Dr*



PROBLEM DESCRIPTION:

- *Identified as a problem in the 2019 Drainage Improvement Area Technical Memorandum*
- *Existing low water crossings are undersized to carry the discharge from Cherokee Wash and lead to frequent road maintenance*

FLOOD HAZARD IMPACT: *Road overtopping, structure/property flooding*

PROPERTY OWNERSHIP: *Residential and Town Right of Way*

POTENTIAL UTILITY CONFLICTS: *Desert Jewel Dr, Arroyo Dr, and Crestview Dr dry utilities*

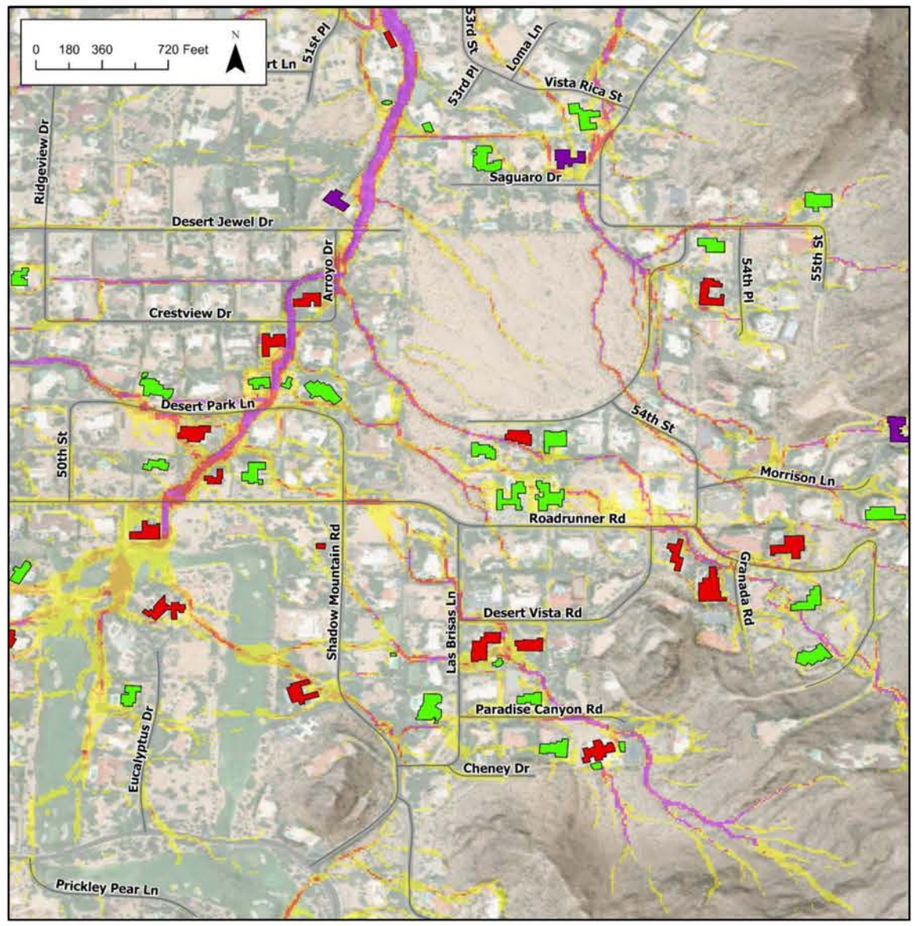
POTENTIAL MITIGATION ALTERNATIVES

- *Storm Drain*
- *Culverts*

IDENTIFIED FLOOD RISKS AND HAZARD CHARACTERIZATIONS

Number of Impacted Structures	*35*
Number of Hydraulic Structures Identified as Undersized	1
Maximum Depth on Roads	6.7 ft
Streets Overtopped by > 0.5 ft	5 Local; 0 Collector
Potential to Impact Emergency Service Access	Yes
Flood Hazard Designation	Severe Flooding

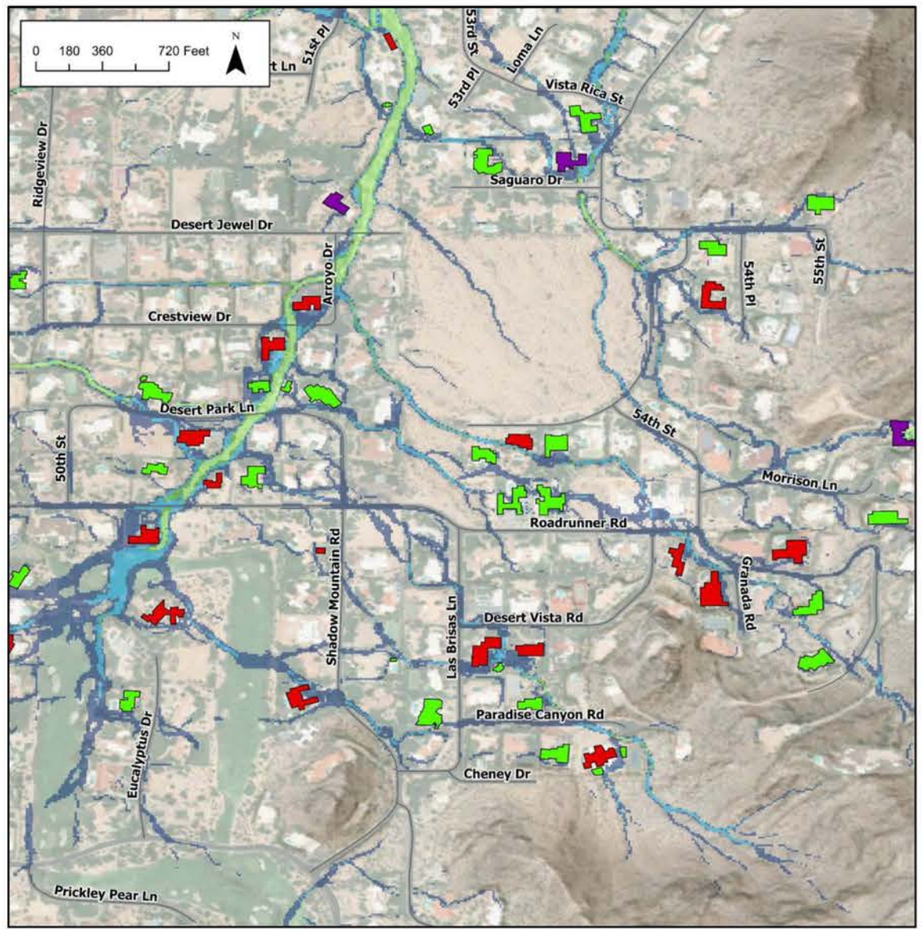
AREA L EROSION POTENTIAL MAP



100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Erosion Potential
- Extreme Erosion Potential
- High Erosion Potential
- Moderate Erosion Potential
- Low Erosion Potential

AREA L SEDIMENT DEPOSTION POTENTIAL MAP

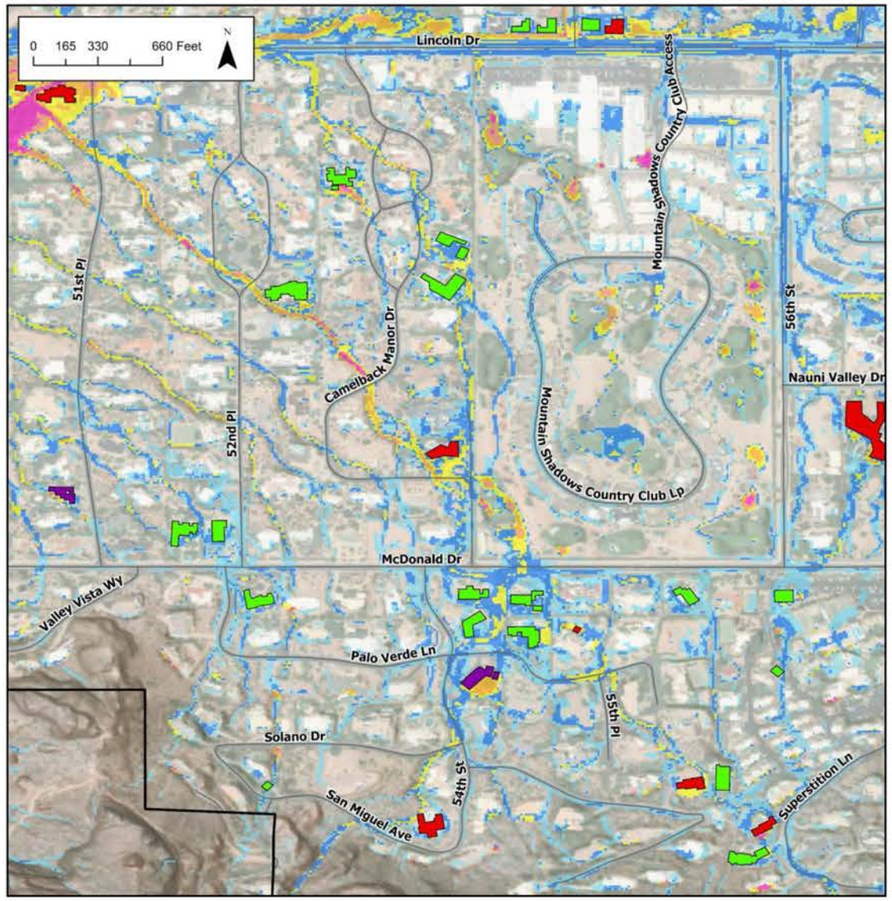


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Sediment Deposition Potential
- Low Deposition Potential
- Moderate Deposition Potential
- High Deposition Potential
- Extreme Deposition Potential

PARADISE VALLEY STORM WATER MASTER PLAN

FLOOD HAZARD AREA: M

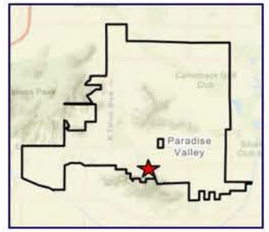


LOCATION DESCRIPTION

LOCATION: *McDonald Drive and 54th Street*

PROBLEM DESCRIPTION:

- *Identified as a problem in the 2020 Cudia City Wash ADMS and the 2019 Drainage Improvement Areas Technical Memorandum, remains a flooding nuisance*
- *Flows from Camelback Mountain overtop local roads, depositing sediment and debris*



FLOOD HAZARD IMPACT: *Road overtopping, structure/property flooding*

PROPERTY OWNERSHIP: *Residential and Town Right of Way*

POTENTIAL UTILITY CONFLICTS: *McDonald Dr dry utilities*

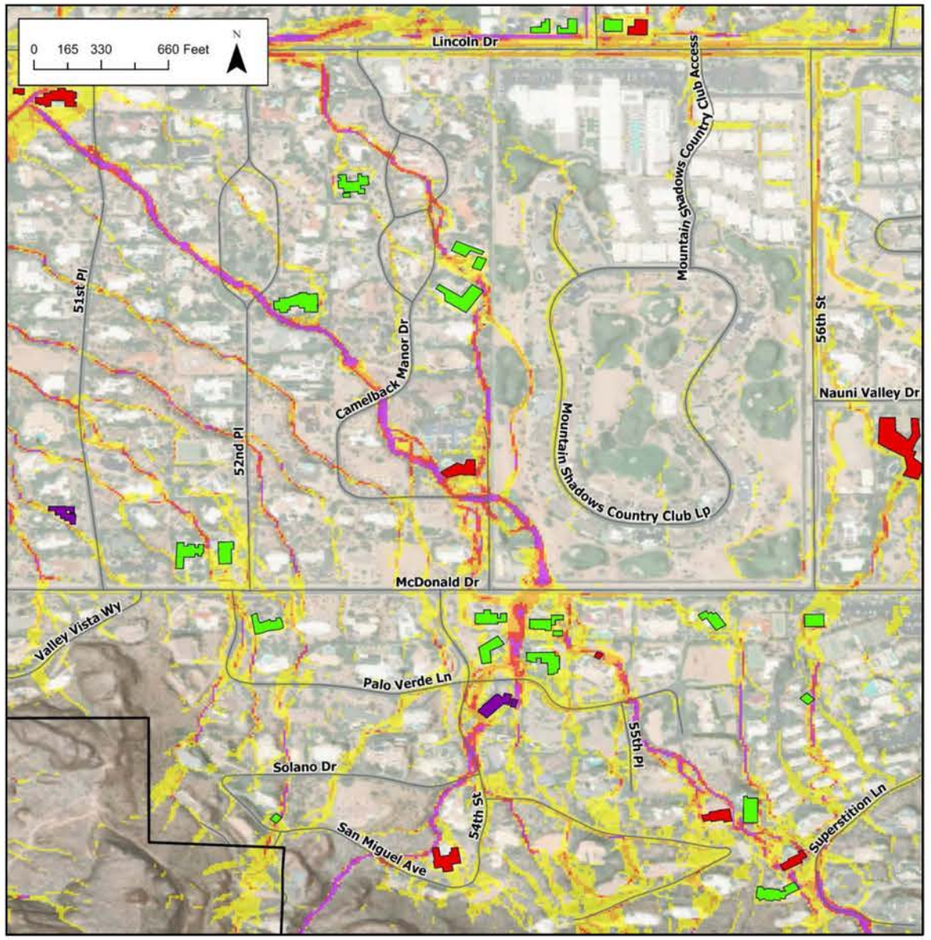
POTENTIAL MITIGATION ALTERNATIVES

- *Storm Drain*
- *Culverts*

IDENTIFIED FLOOD RISKS AND HAZARD CHARACTERIZATIONS

Number of Impacted Structures	*19*
Number of Hydraulic Structures Identified as Undersized	1
Maximum Depth on Roads	1.0 ft
Streets Overtopped by > 0.5 ft	6 Local; 1 Collector
Potential to Impact Emergency Service Access	No
Flood Hazard Designation	Moderate Flooding

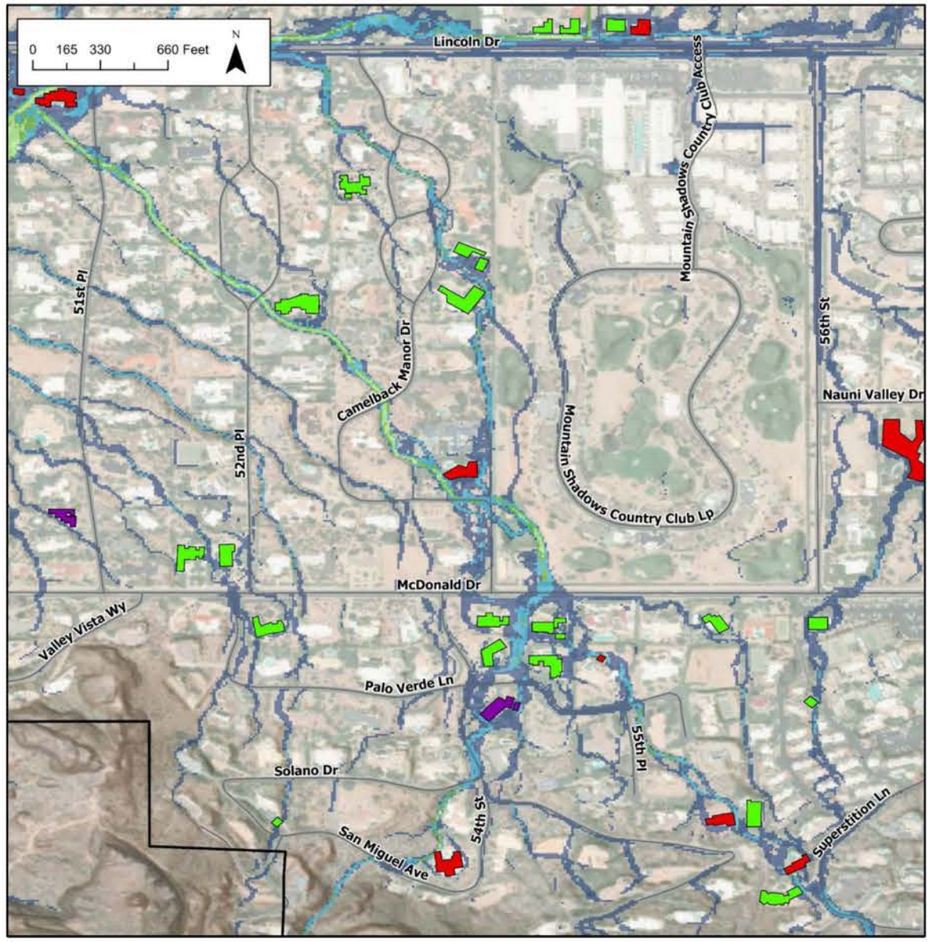
AREA M EROSION POTENTIAL MAP



100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Erosion Potential
- Extreme Erosion Potential
- High Erosion Potential
- Moderate Erosion Potential
- Low Erosion Potential

AREA M SEDIMENT DEPOSTION POTENTIAL MAP

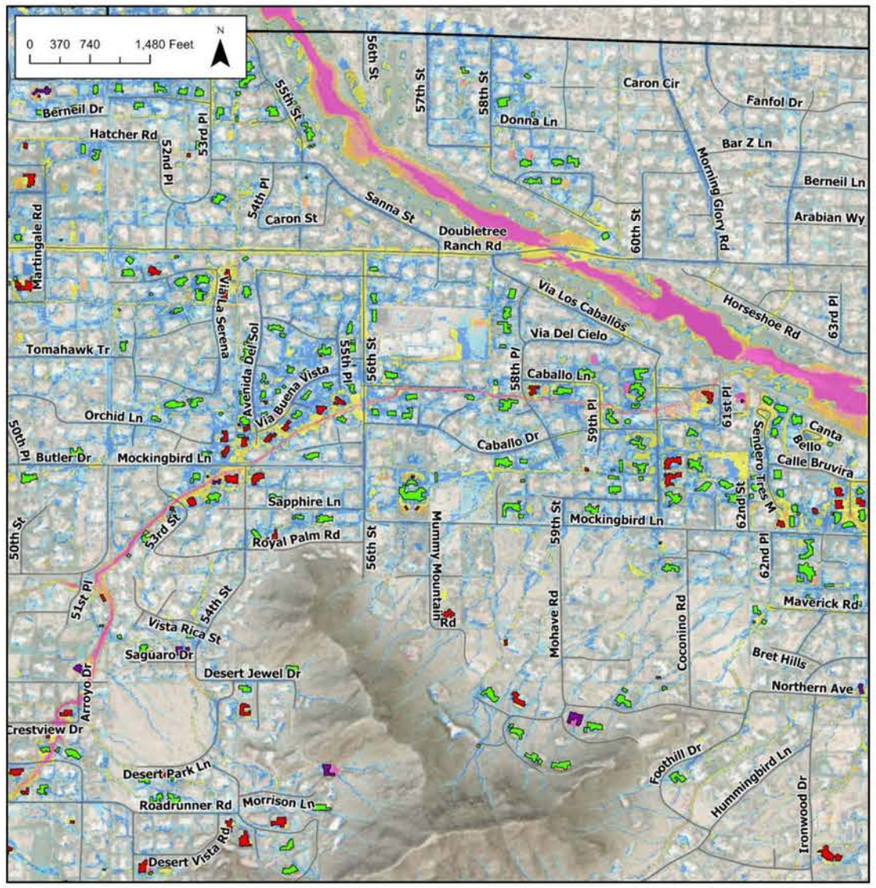


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Sediment Deposition Potential
- Low Deposition Potential
- Moderate Deposition Potential
- High Deposition Potential
- Extreme Deposition Potential

PARADISE VALLEY STORM WATER MASTER PLAN

FLOOD HAZARD AREA: N

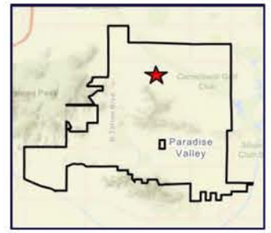


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

100yr, 6hr Max Flow Depths (ft)
- 0.0 - 0.25
- 0.26 - 0.5
- 0.51 - 1.0
- 1.01 - 2.0
- 2.01 - 3.0
- 3.01 - 4.0
- 4.01 - 27

LOCATION DESCRIPTION

LOCATION: *56th Street and Mockingbird Lane*



PROBLEM DESCRIPTION:

- *Identified as a problem by residents and town staff. Breakouts from Cherokee Wash flood homes and streets before out falling to Indian Bend Wash*
- *Existing Infrastructure identified as undersized*

FLOOD HAZARD IMPACT: *Road overtopping, structure/property flooding*

PROPERTY OWNERSHIP: *Residential and Town Right of Way*

POTENTIAL UTILITY CONFLICTS: *Mockingbird Lane and 56th Street storm drains, dry utilities*

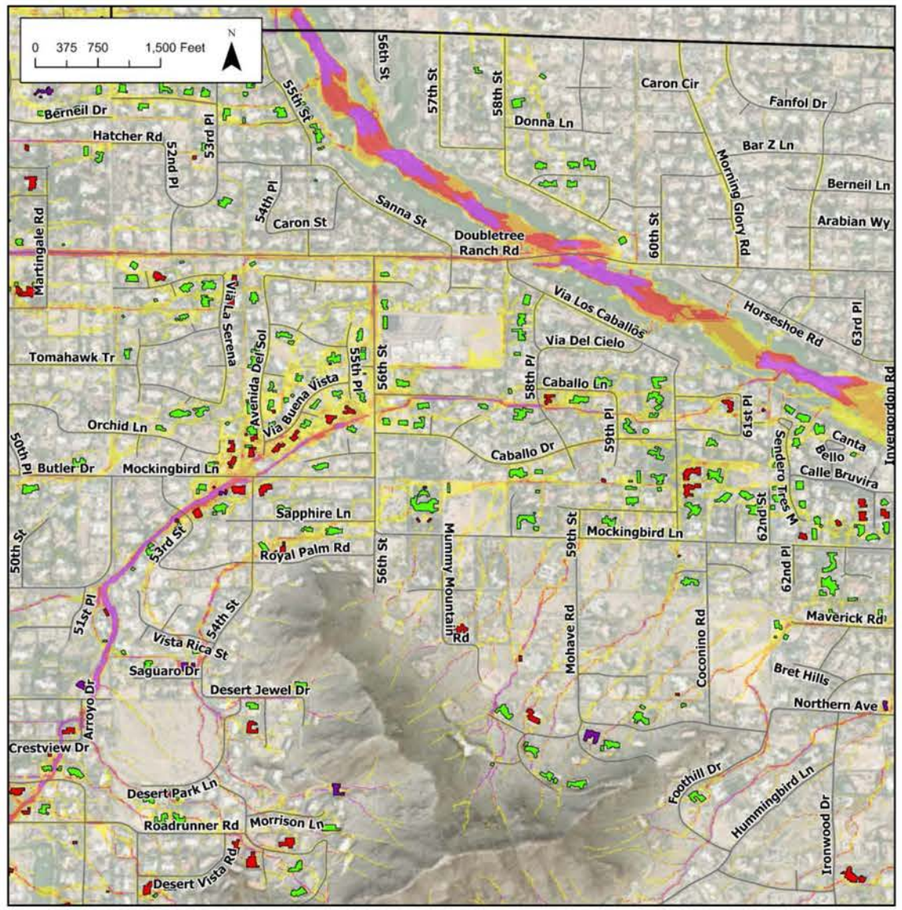
POTENTIAL MITIGATION ALTERNATIVES

- *Storm Drain*
- *Culverts*

IDENTIFIED FLOOD RISKS AND HAZARD CHARACTERIZATIONS

Number of Impacted Structures	*123*
Number of Hydraulic Structures Identified as Undersized	1
Maximum Depth on Roads	3.67 ft
Streets Overtopped by > 0.5 ft	8 Local; 2 Collector
Potential to Impact Emergency Service Access	Yes
Flood Hazard Designation	Severe Flooding

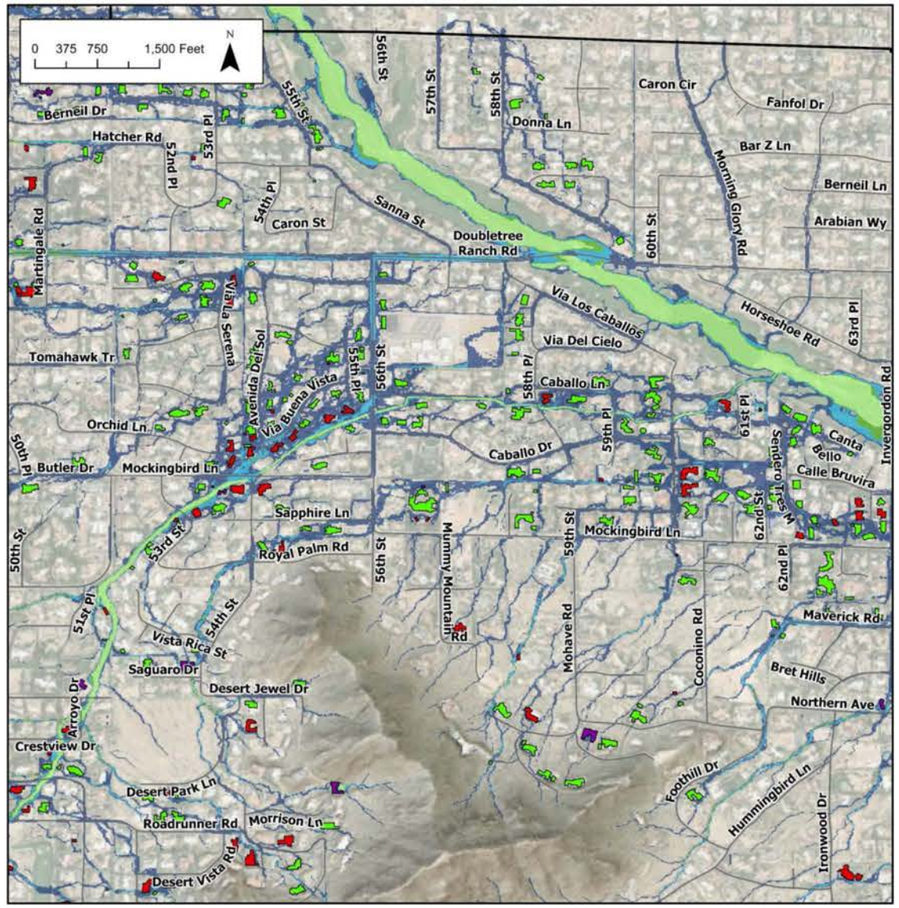
AREA N EROSION POTENTIAL MAP



100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Erosion Potential
- Extreme Erosion Potential
- High Erosion Potential
- Moderate Erosion Potential
- Low Erosion Potential

AREA N SEDIMENT DEPOSTION POTENTIAL MAP

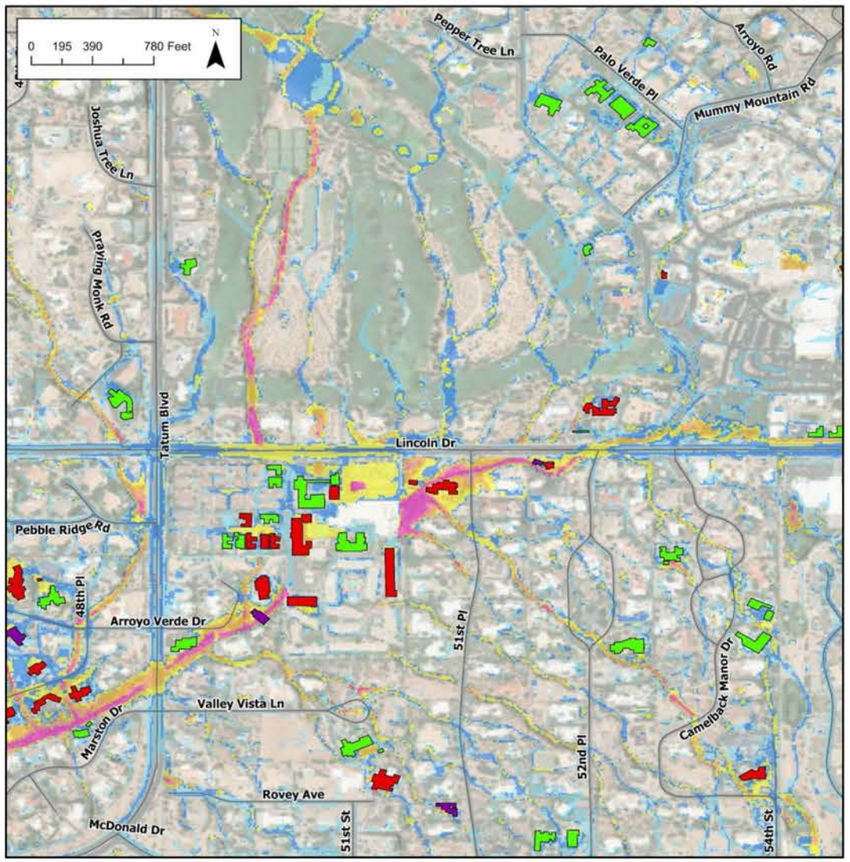


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Sediment Deposition Potential
- Low Deposition Potential
- Moderate Deposition Potential
- High Deposition Potential
- Extreme Deposition Potential

PARADISE VALLEY STORM WATER MASTER PLAN

FLOOD HAZARD AREA: O

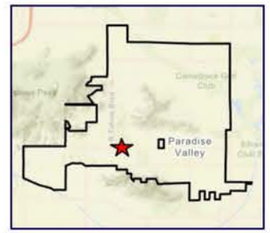


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

100yr, 6hr Max Flow Depths (ft)
- 0.0 - 0.25
- 0.26 - 0.5
- 0.51 - 1.0
- 1.01 - 2.0
- 2.01 - 3.0
- 3.01 - 4.0
- 4.01 - 27

LOCATION DESCRIPTION

LOCATION: *Lincoln Drive and 51st Place*



PROBLEM DESCRIPTION:

- *Identified as a problem in the 2020 Cudia City Wash ADMS and remains a significant flooding hazard. Sediment deposition makes maintenance and cleanup routine after storm events*
- *Cudia City Wash overtop 40th St by greater than 4 ft*

FLOOD HAZARD IMPACT: *Road overtopping, structure/property flooding*

PROPERTY OWNERSHIP: *Residential and Town Right of Way*

POTENTIAL UTILITY CONFLICTS: *Lincoln Dr and Tatum Blvd dry utilities*

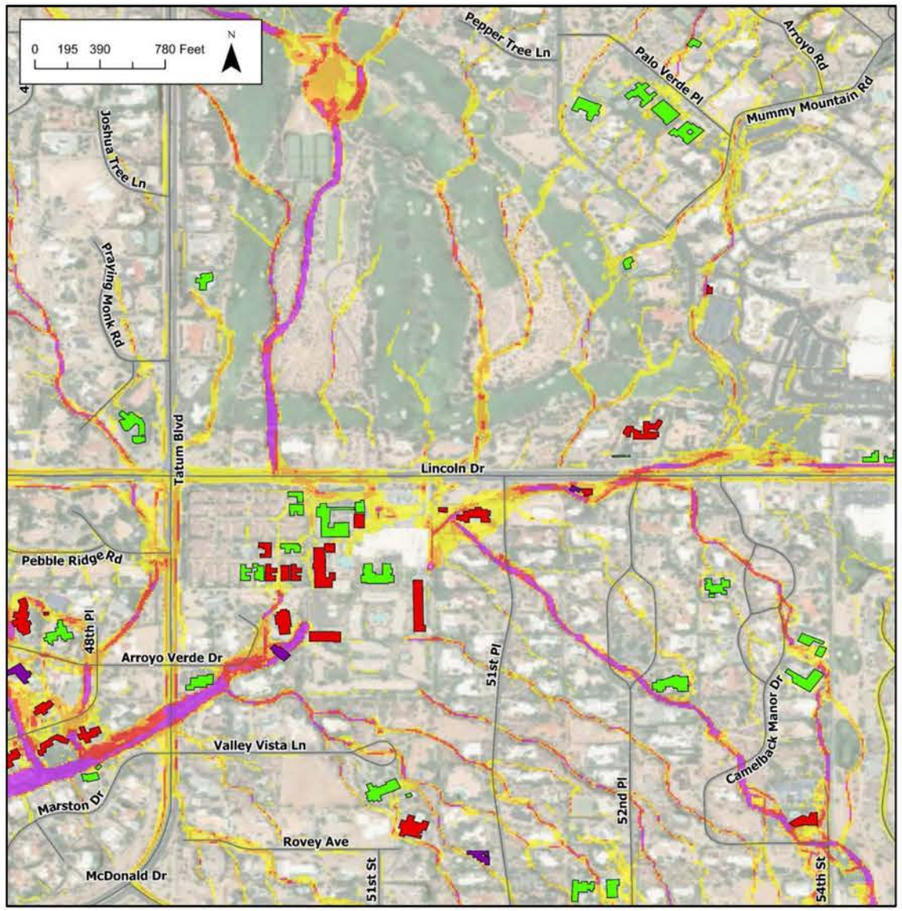
POTENTIAL MITIGATION ALTERNATIVES

- *Storm Drain*
- *Culverts*

IDENTIFIED FLOOD RISKS AND HAZARD CHARACTERIZATIONS

Number of Impacted Structures	*22*
Number of Hydraulic Structures Identified as Undersized	6
Maximum Depth on Roads	3.18 ft
Streets Overtopped by > 0.5 ft	4 Local; 2 Collector
Potential to Impact Emergency Service Access	No
Flood Hazard Designation	Severe Flooding

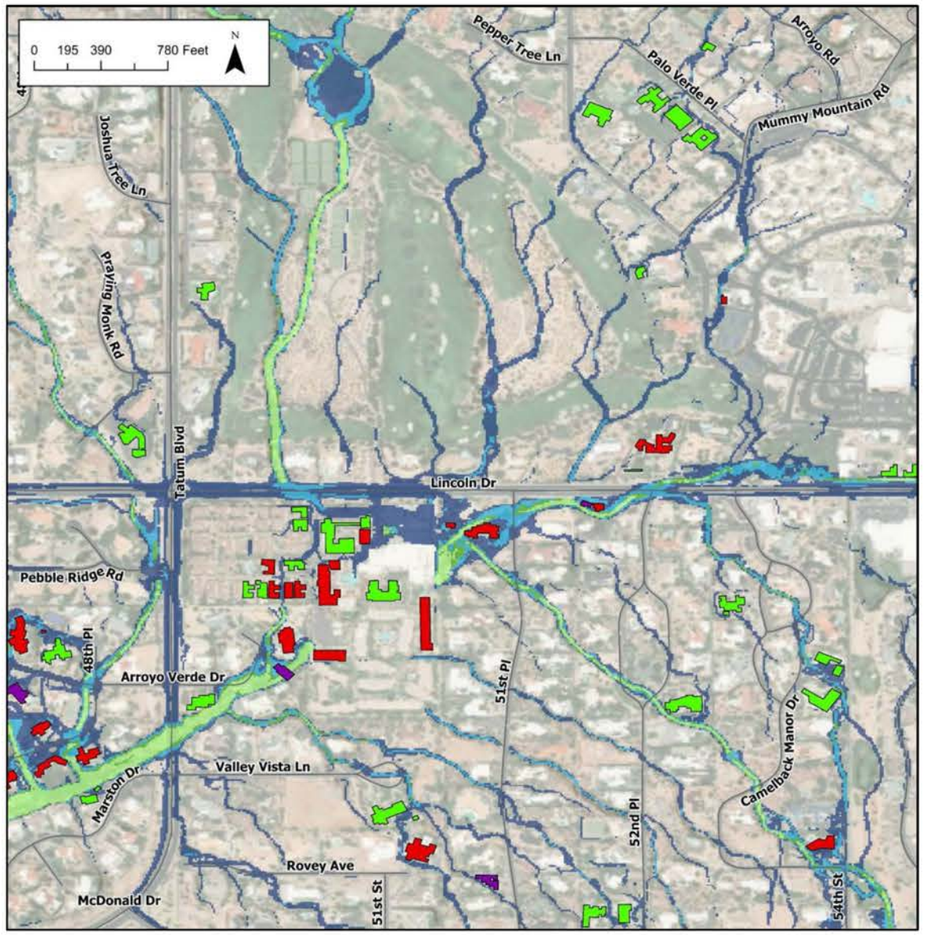
AREA O EROSION POTENTIAL MAP



100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Erosion Potential
- Extreme Erosion Potential
- High Erosion Potential
- Moderate Erosion Potential
- Low Erosion Potential

AREA O SEDIMENT DEPOSTION POTENTIAL MAP

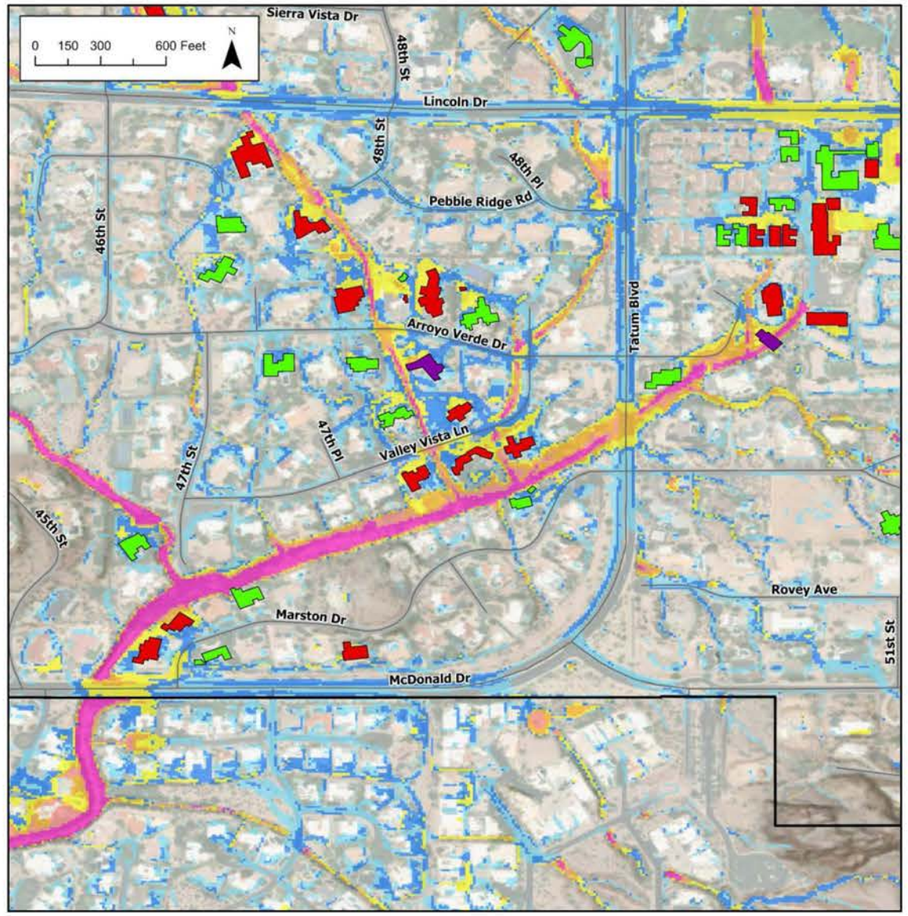


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Sediment Deposition Potential
- Low Deposition Potential
- Moderate Deposition Potential
- High Deposition Potential
- Extreme Deposition Potential

PARADISE VALLEY STORM WATER MASTER PLAN

FLOOD HAZARD AREA: P



100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

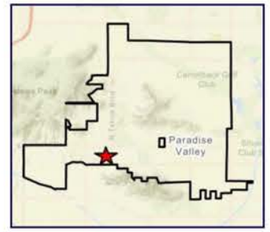
100yr, 6hr Max Flow Depths (ft)
- 0.0 - 0.25
- 0.26 - 0.5
- 0.51 - 1.0
- 1.01 - 2.0
- 2.01 - 3.0
- 3.01 - 4.0
- 4.01 - 27

LOCATION DESCRIPTION

LOCATION: *Tatum Blvd and McDonald Dr*

PROBLEM DESCRIPTION:

- *Identified as a problem in the 2020 Cudia City Wash ADMS and remains a significant flooding hazard.*
- *Existing low water crossing at Tatum Blvd becomes inundated with significant sediment deposition. The existing culvert at McDonald Rd identified as undersized*



FLOOD HAZARD IMPACT: *Road overtopping, structure/property flooding*

PROPERTY OWNERSHIP: *Residential and Town Right of Way*

POTENTIAL UTILITY CONFLICTS: *Tatum Blvd and McDonald Dr dry utilities*

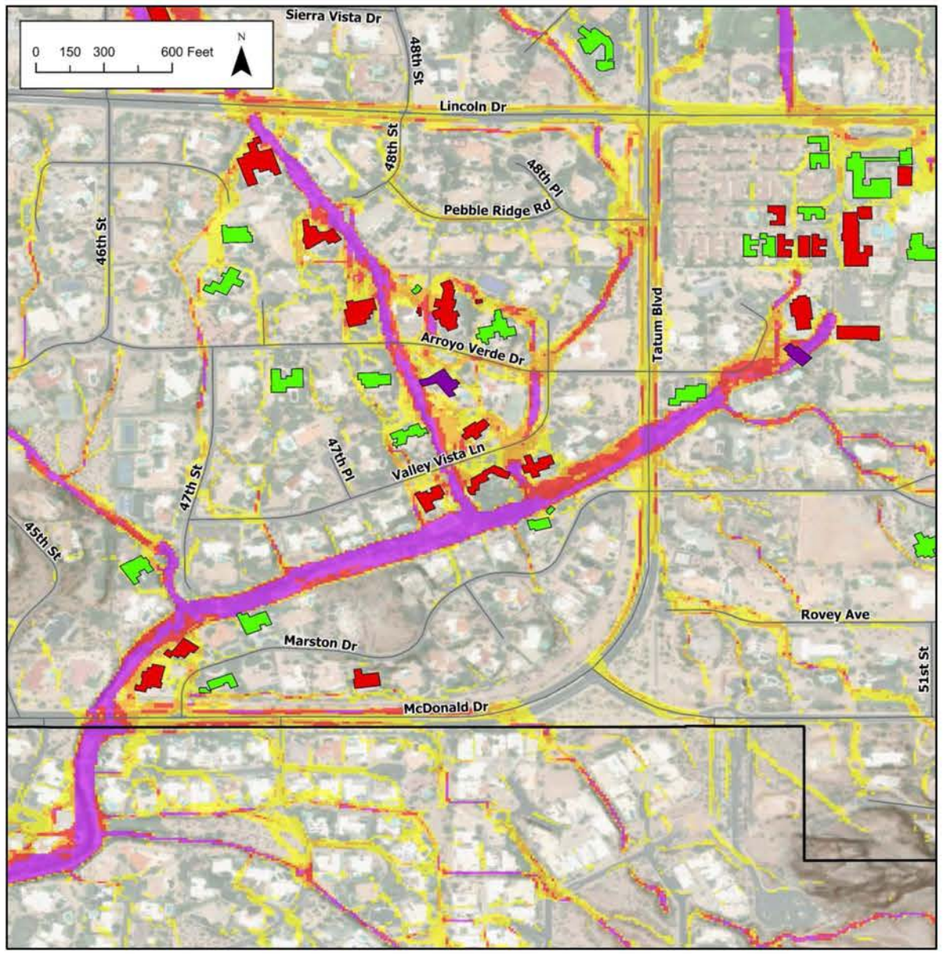
POTENTIAL MITIGATION ALTERNATIVES

- *Storm Drain*
- *Culverts*

IDENTIFIED FLOOD RISKS AND HAZARD CHARACTERIZATIONS

Number of Impacted Structures	*17*
Number of Hydraulic Structures Identified as Undersized	3
Maximum Depth on Roads	2.9 ft
Streets Overtopped by > 0.5 ft	2 Local; 1 Collector
Potential to Impact Emergency Service Access	No
Flood Hazard Designation	Severe Flooding

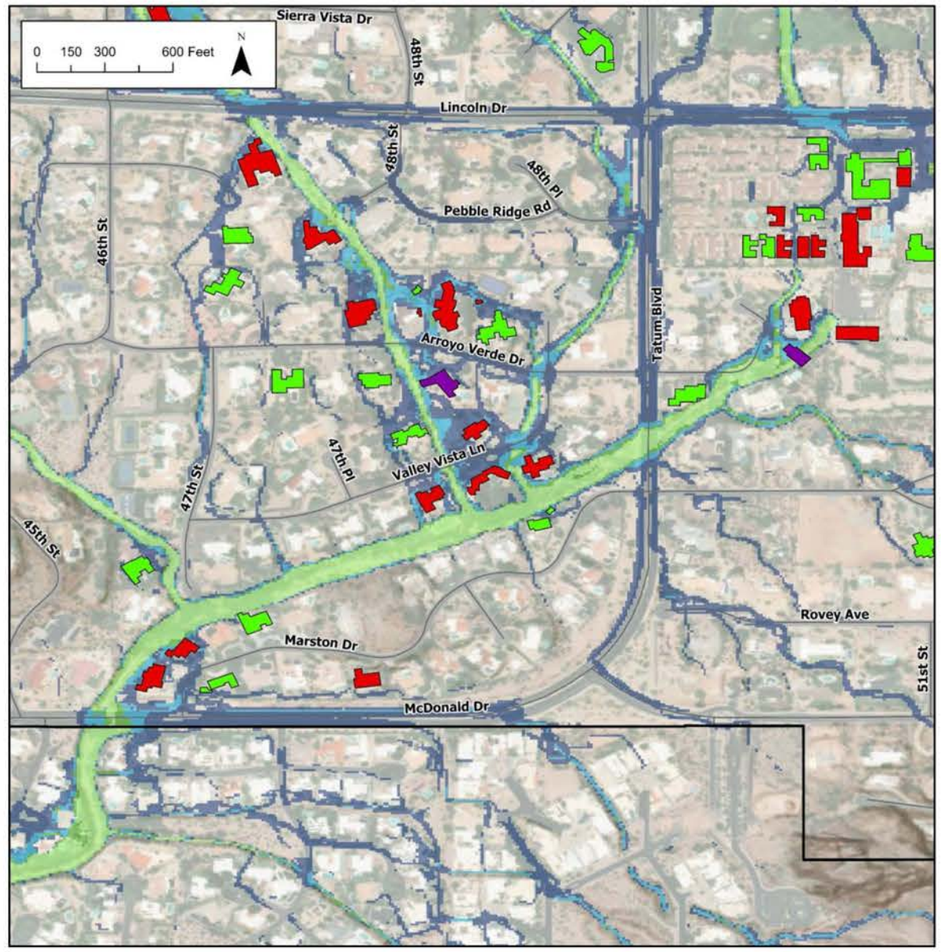
AREA P EROSION POTENTIAL MAP



100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Erosion Potential
- Extreme Erosion Potential
- High Erosion Potential
- Moderate Erosion Potential
- Low Erosion Potential

AREA P SEDIMENT DEPOSTION POTENTIAL MAP

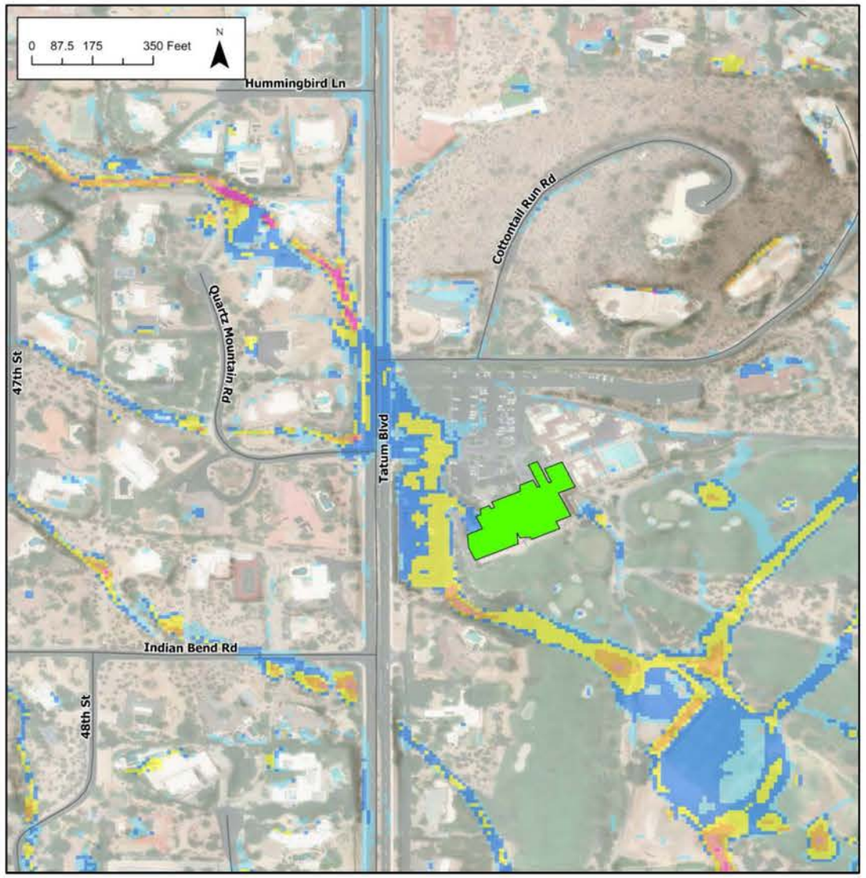


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Sediment Deposition Potential
- Low Deposition Potential
- Moderate Deposition Potential
- High Deposition Potential
- Extreme Deposition Potential

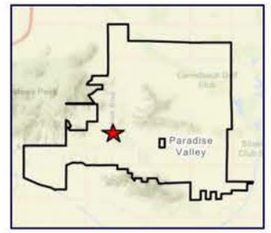
PARADISE VALLEY STORM WATER MASTER PLAN

FLOOD HAZARD AREA: Q



LOCATION DESCRIPTION

LOCATION: *Tatum Blvd and Cottontail Run Rd*



PROBLEM DESCRIPTION:

- *Identified as a problem in the 2020 Cudia City Wash ADMS and remains a significant flooding hazard. Vehicles have been stuck in the low water crossing during flooding*

FLOOD HAZARD IMPACT: *Road overtopping, structure/property flooding*

PROPERTY OWNERSHIP: *Residential and Town Right of Way*

POTENTIAL UTILITY CONFLICTS: *Tatum Blvd dry utilities*

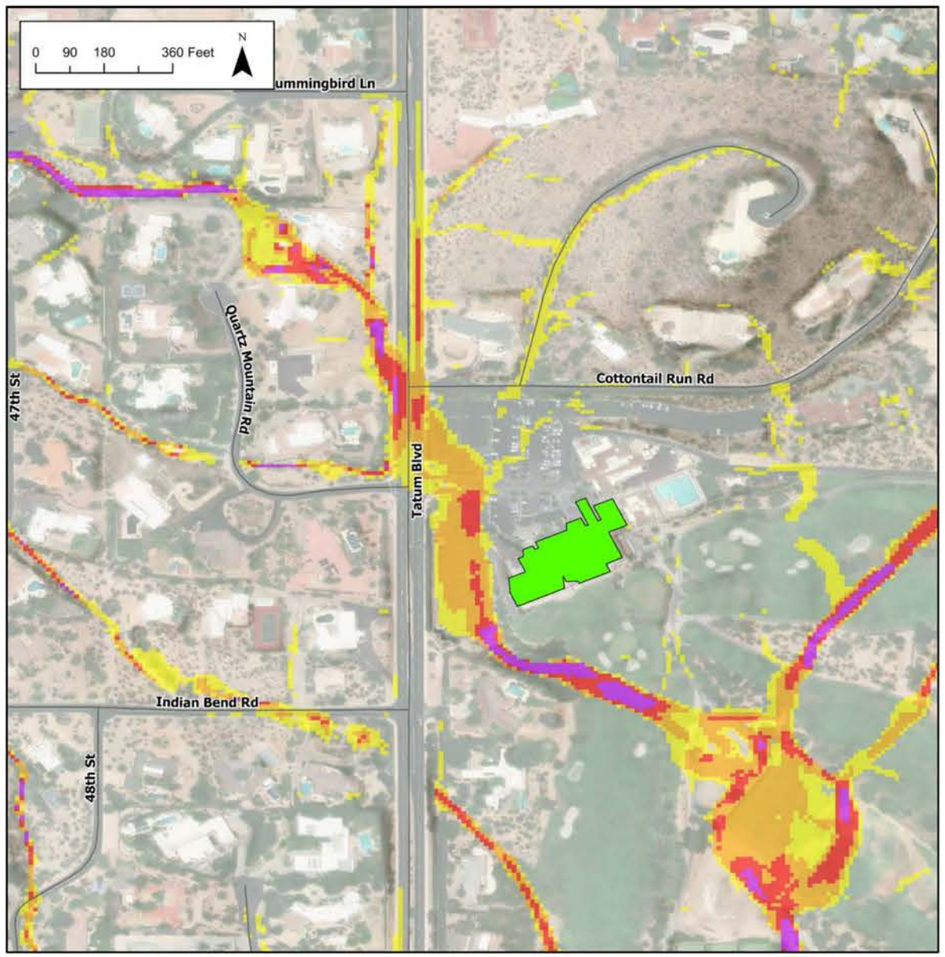
POTENTIAL MITIGATION ALTERNATIVES

- *Storm Drain*
- *Culverts*

IDENTIFIED FLOOD RISKS AND HAZARD CHARACTERIZATIONS

Number of Impacted Structures	*0*
Number of Hydraulic Structures Identified as Undersized	2
Maximum Depth on Roads	0.78 ft
Streets Overtopped by > 0.5 ft	0 Local; 1 Collector
Potential to Impact Emergency Service Access	No
Flood Hazard Designation	Nuisance Flooding

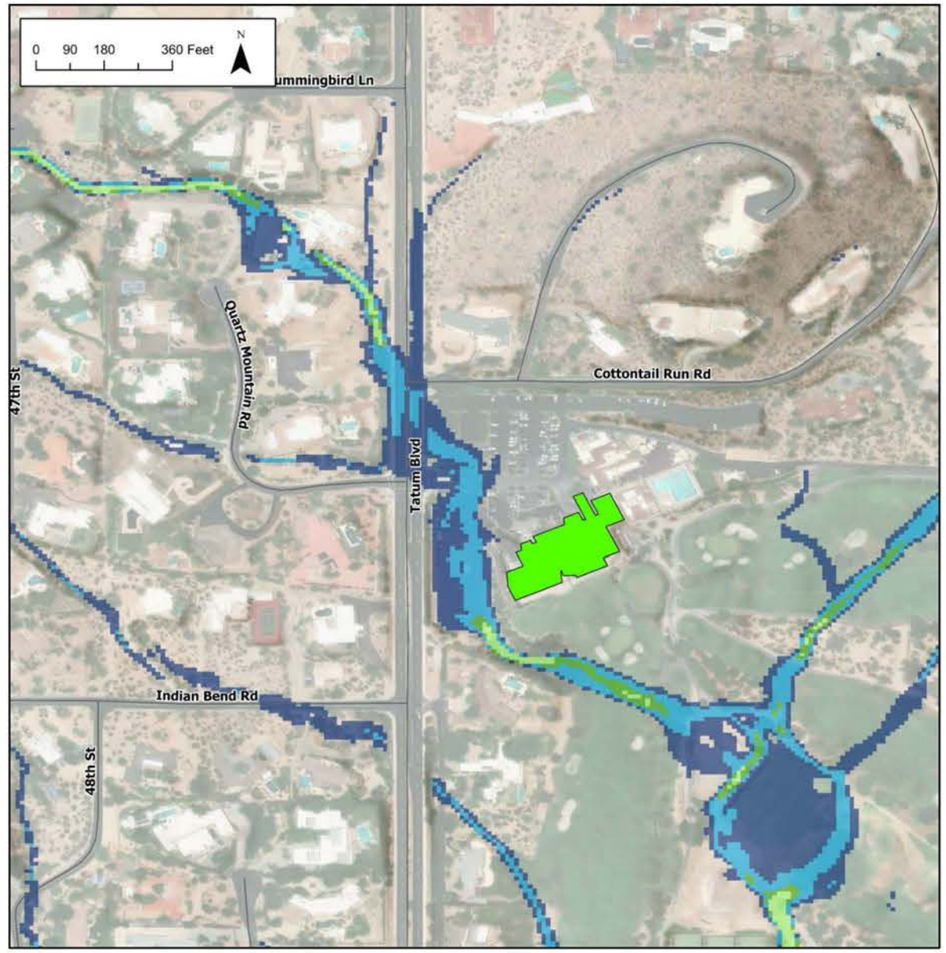
AREA Q EROSION POTENTIAL MAP



100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Erosion Potential
- Extreme Erosion Potential
- High Erosion Potential
- Moderate Erosion Potential
- Low Erosion Potential

AREA Q SEDIMENT DEPOSTION POTENTIAL MAP

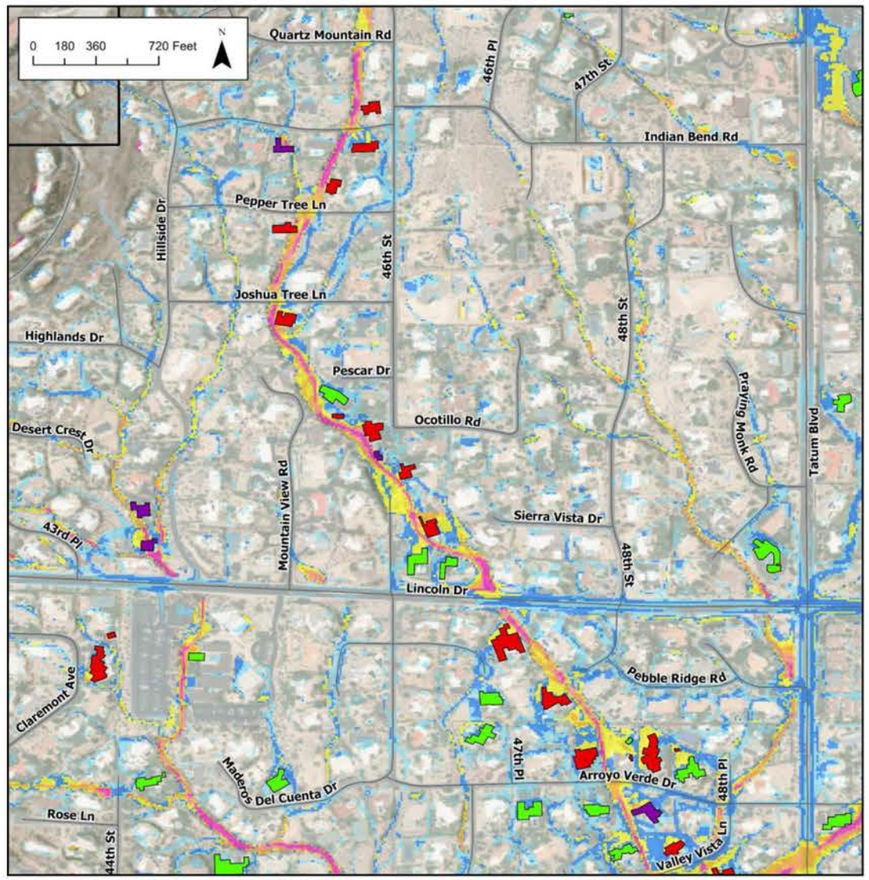


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Sediment Deposition Potential
- Low Deposition Potential
- Moderate Deposition Potential
- High Deposition Potential
- Extreme Deposition Potential

PARADISE VALLEY STORM WATER MASTER PLAN

FLOOD HAZARD AREA: R

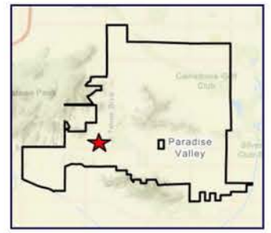


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

100yr, 6hr Max Flow Depths (ft)
- 0.0 - 0.25
- 0.26 - 0.5
- 0.51 - 1.0
- 1.01 - 2.0
- 2.01 - 3.0
- 3.01 - 4.0
- 4.01 - 27

LOCATION DESCRIPTION

LOCATION: *46th Street and Lincoln Drive*



PROBLEM DESCRIPTION:

- *Identified as a problem in the 2020 Cudia City Wash ADMS and remains a flooding hazard.*
- *Existing drainage infrastructure is undersized*

FLOOD HAZARD IMPACT: *Road overtopping, structure/property flooding*

PROPERTY OWNERSHIP: *Residential and Town Right of Way*

POTENTIAL UTILITY CONFLICTS: *Lincoln Dr dry utilities*

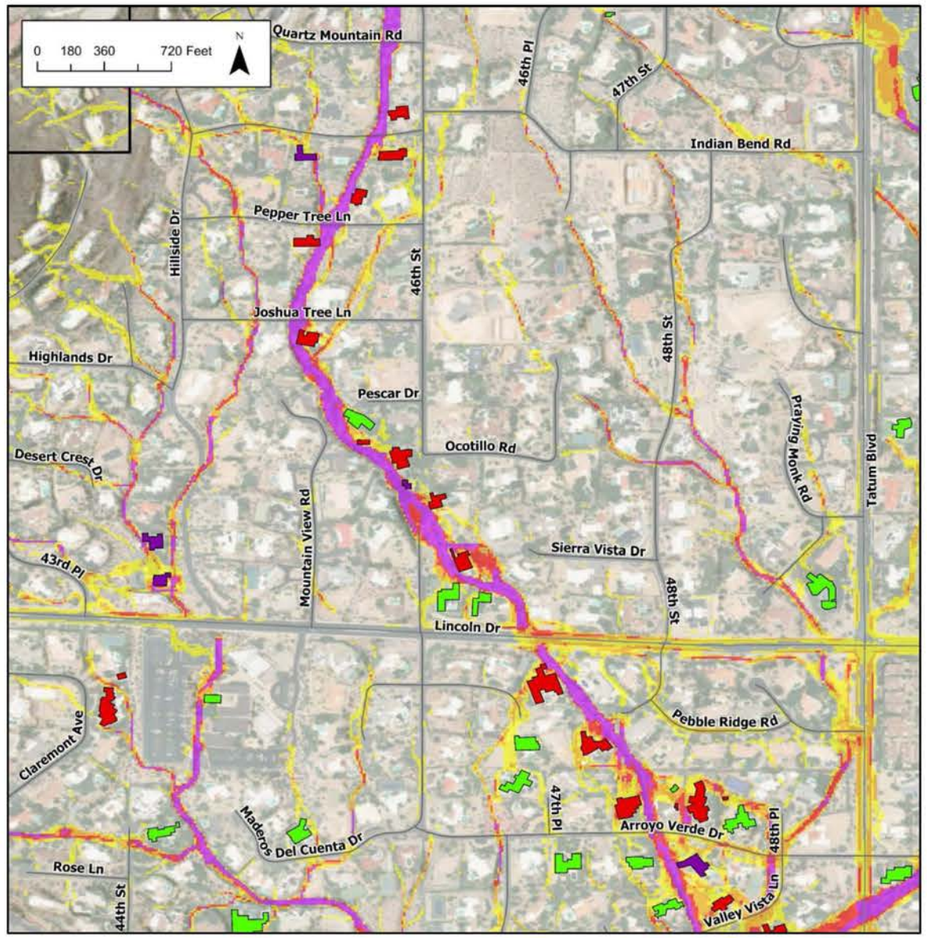
POTENTIAL MITIGATION ALTERNATIVES

- *Storm Drain*
- *Culverts*

IDENTIFIED FLOOD RISKS AND HAZARD CHARACTERIZATIONS

Number of Impacted Structures	*27*
Number of Hydraulic Structures Identified as Undersized	3
Maximum Depth on Roads	2.13 ft
Streets Overtopped by > 0.5 ft	5 Local; 1 Collector
Potential to Impact Emergency Service Access	No
Flood Hazard Designation	Moderate Flooding

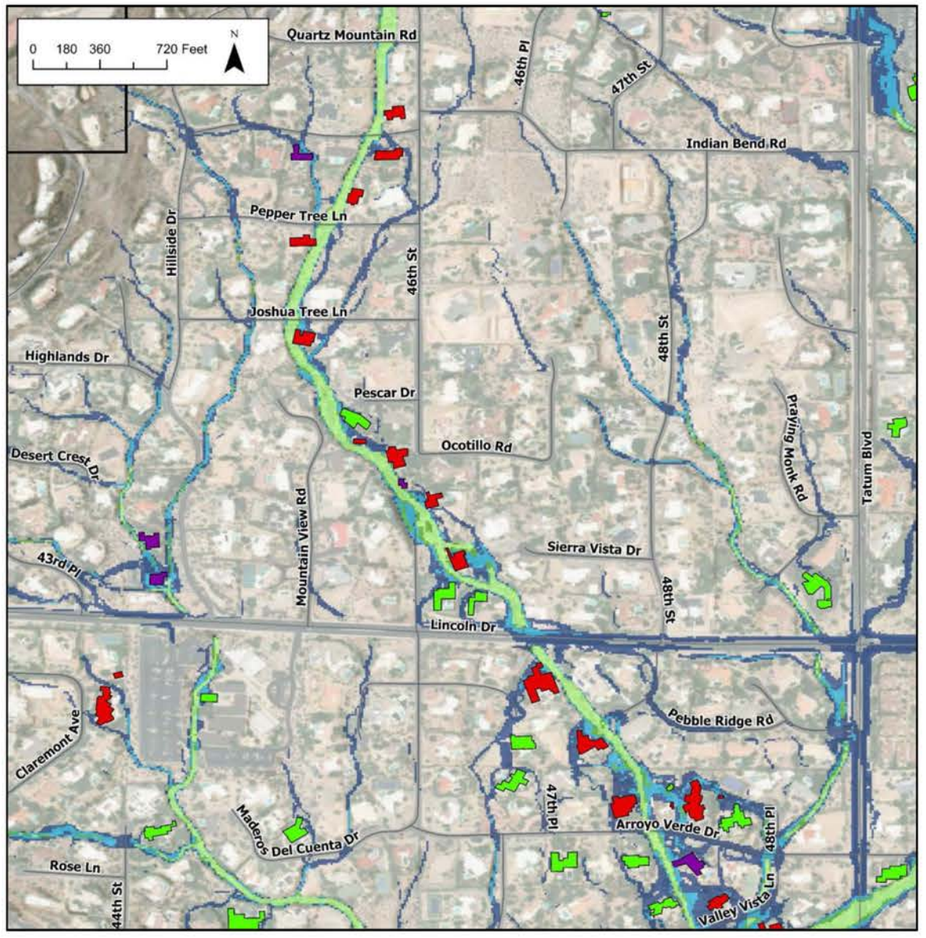
AREA R EROSION POTENTIAL MAP



100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Erosion Potential
- Extreme Erosion Potential
- High Erosion Potential
- Moderate Erosion Potential
- Low Erosion Potential

AREA R SEDIMENT DEPOSTION POTENTIAL MAP

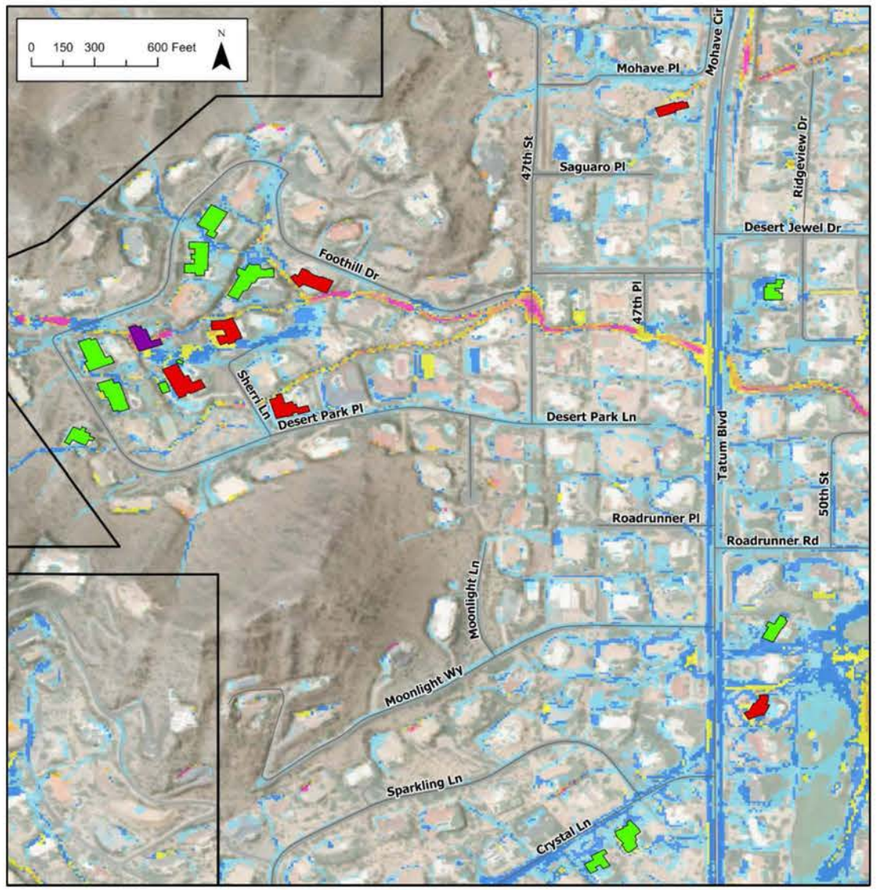


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Sediment Deposition Potential
- Low Deposition Potential
- Moderate Deposition Potential
- High Deposition Potential
- Extreme Deposition Potential

PARADISE VALLEY STORM WATER MASTER PLAN

FLOOD HAZARD AREA: S

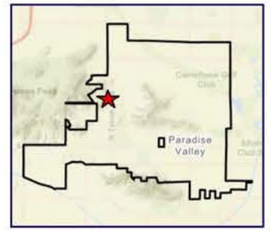


100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

100yr, 6hr Max Flow Depths (ft)
- 0.0 - 0.25
- 0.26 - 0.5
- 0.51 - 1.0
- 1.01 - 2.0
- 2.01 - 3.0
- 3.01 - 4.0
- 4.01 - 27

LOCATION DESCRIPTION

LOCATION: *47th Street and Foothill Drive*



PROBLEM DESCRIPTION:

- *Identified as a problem in the 2019 Drainage Problem Areas Technical Memorandum, remaining a significant flooding hazard during major flood events*
- *Mountain runoff overtops 47th St by greater than 4 ft*

FLOOD HAZARD IMPACT: *Road overtopping, structure/property flooding*

PROPERTY OWNERSHIP: *Residential and Town Right of Way*

POTENTIAL UTILITY CONFLICTS: *Tatum Blvd storm drain and dry utilities*

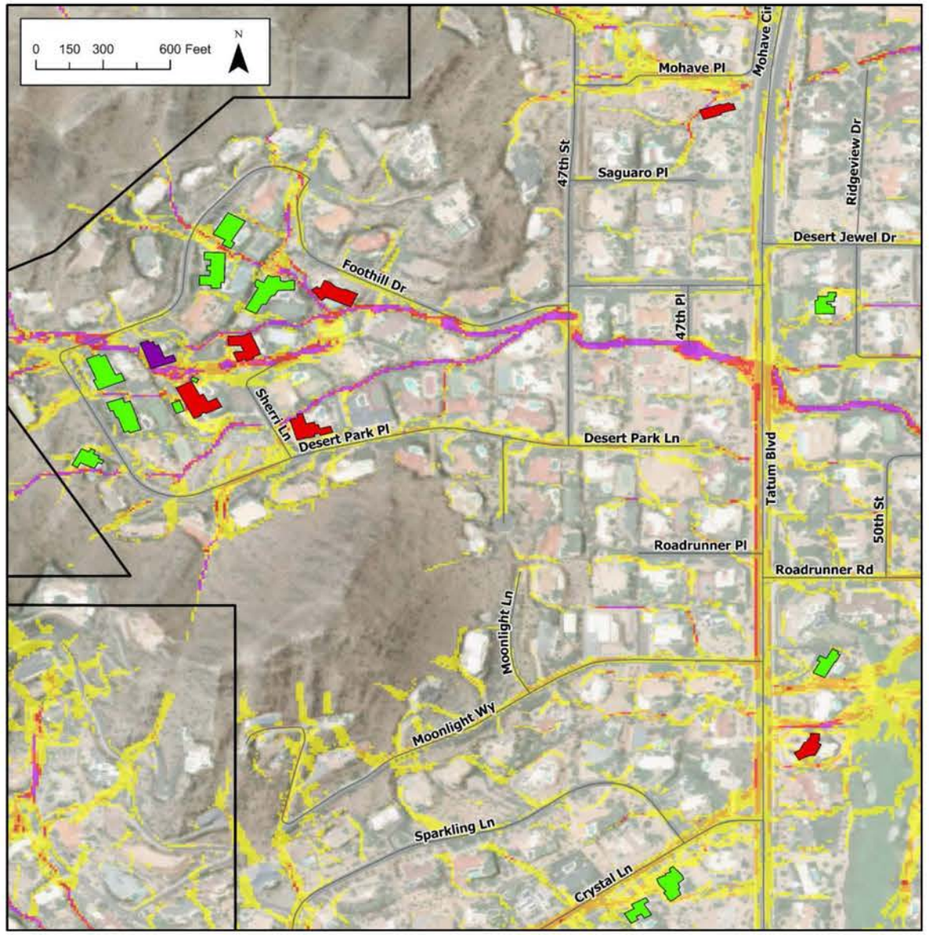
POTENTIAL MITIGATION ALTERNATIVES

- *Storm Drain*
- *Culverts*

IDENTIFIED FLOOD RISKS AND HAZARD CHARACTERIZATIONS

Number of Impacted Structures	*14*
Number of Hydraulic Structures Identified as Undersized	2
Maximum Depth on Roads	4.32 ft
Streets Overtopped by > 0.5 ft	1 Local; 1 Collector
Potential to Impact Emergency Service Access	Yes
Flood Hazard Designation	Severe Flooding

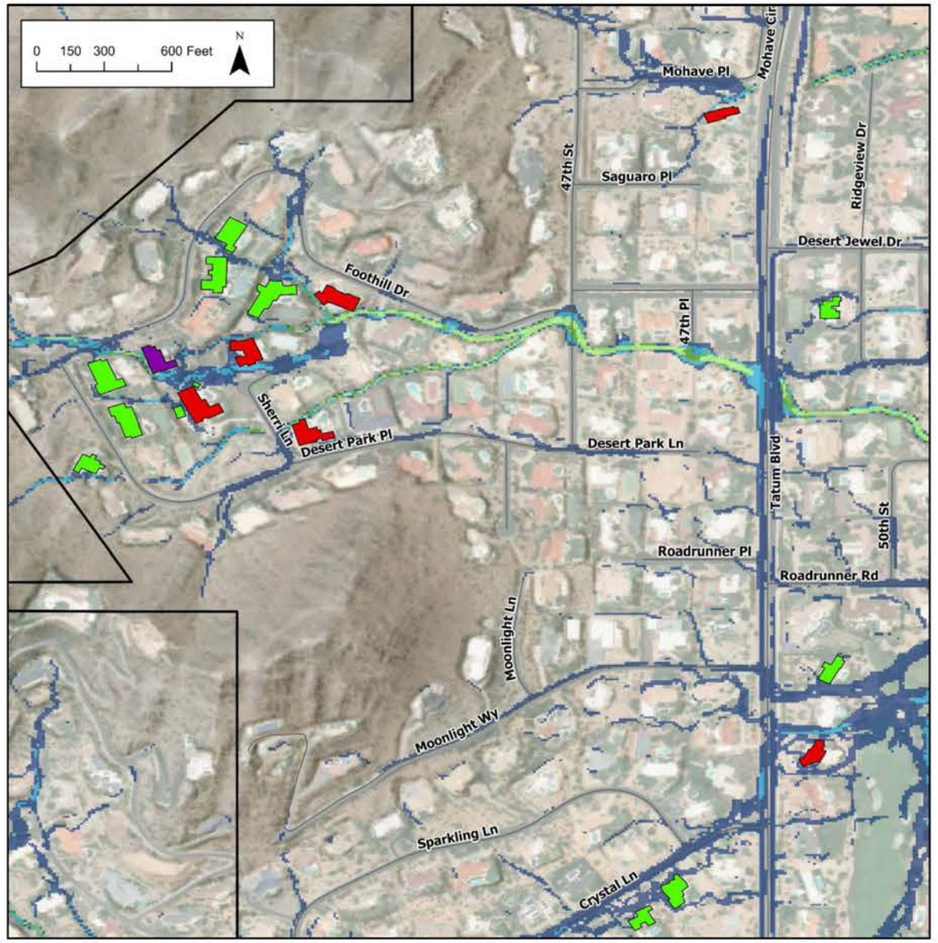
AREA S EROSION POTENTIAL MAP



100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Erosion Potential
- Extreme Erosion Potential
- High Erosion Potential
- Moderate Erosion Potential
- Low Erosion Potential

AREA S SEDIMENT DEPOSTION POTENTIAL MAP



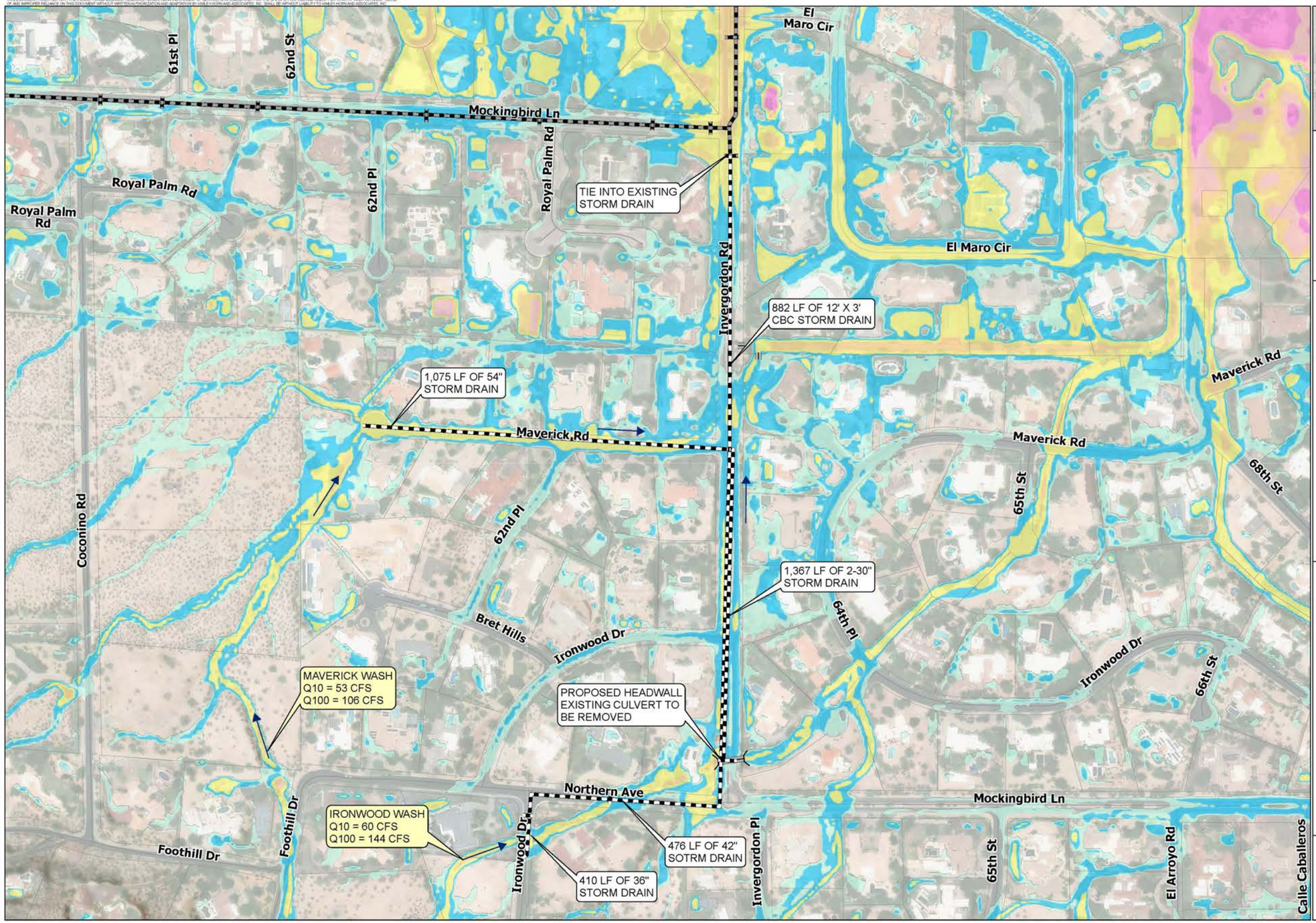
100yr Adjacent Building Depth
- 6 in - 12 in
- 12 in - 24 in
- > 24 in

Sediment Deposition Potential
- Low Deposition Potential
- Moderate Deposition Potential
- High Deposition Potential
- Extreme Deposition Potential

XVII. APPENDIX E – PROJECT ALTERNATIVES, EOPC, AND MATRIX

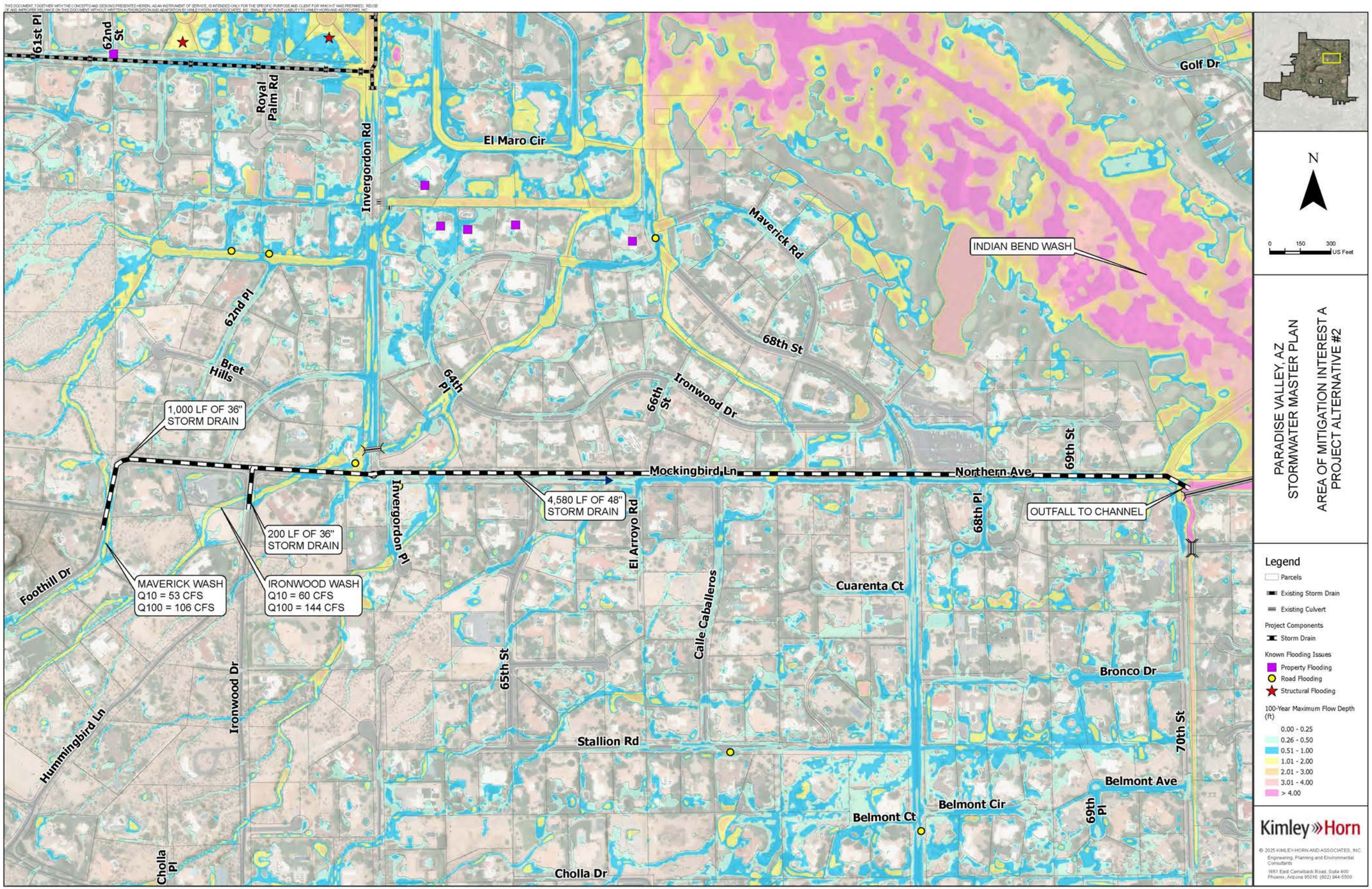
FLOOD HAZARD AREA A ALTERNATIVES

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.



Conceptual Cost Estimate for Alternative 1

Item	Description	Unit	Quantity	Unit Price	Cost
1	12' x 3' RCBC	LF	1,770	$1,250	$2,212,500
2	36" RCP Storm Drain	LF	1,050	$320	$336,000
3	Storm Drain Connection	EA	1	$3,500	$3,500
4	Catch Basin	EA	21	$12,000	$252,000
5	Manhole	EA	25	$10,000	$250,000
6	Inlet Structure	EA	2	$25,000	$50,000
				Subtotal	3,104,000
7	SWPPP (2%)	LS	1	$62,080	$62,080
8	Mobilization/Demobilization (10%)	LS	1	$310,400	$310,400
9	Design (12%)	LS	1	$372,480	$372,480
10	Construction Management (10%)	LS	1	$310,400	$310,400
11	Utilities (3%)	LS	1	$93,120	$93,120
12	Traffic Control (3%)	LS	1	$93,120	$93,120
				Subtotal	$4,345,600
				Contingency (15%)	$651,840
				Total	$4,997,440



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Engineering, Planning and Environmental Consultants
1661 East Camelback Road, Suite 400
Phoenix, Arizona 85016 (602) 944-5500

Conceptual Cost Estimate for Alternative 2

Item	Description	Unit	Quantity	Unit Price	Cost
1	36" RCP Storm Drain	LF	1,200	$320	$384,000
2	48" RCP Storm Drain	LF	4,580	$525	$2,404,500
3	Outlet Structure	EA	1	$2,100	$2,100
4	Catch Basin	EA	27	$12,000	$324,000
5	Manhole	EA	32	$10,000	$320,000
				Subtotal	3,434,600
6	SWPPP (1%)	LS	1	$34,346	$34,346
7	Mobilization/Demobilization (10%)	LS	1	$343,460	$343,460
8	Design (12%)	LS	1	$412,152	$412,152
9	Construction Management (10%)	LS	1	$343,460	$343,460
10	Utilities (3%)	LS	1	$103,038	$103,038
11	Traffic Control (3%)	LS	1	$103,038	$103,038
				Subtotal	$4,774,094
				Contingency (15%)	$716,114
				Total	$5,490,208

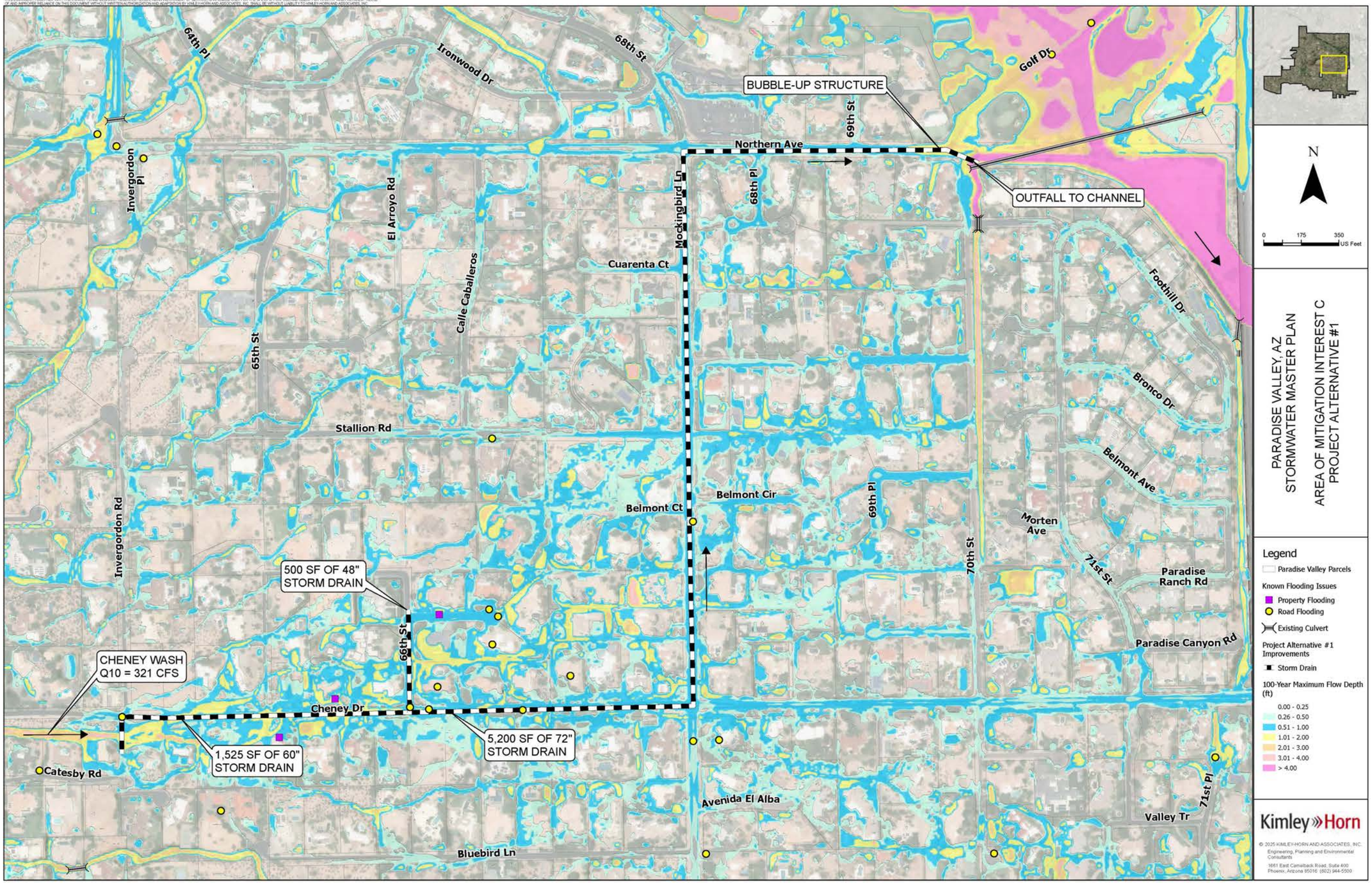
Area A Project Matrix

	Potential Stuctures Protected	Design and Construction Cost	Potential Streets Protected	GSI Benefits	Project Partnership	Multi-use Opportunities	O&M Constraints and Costs	Utility Constraints	Total Raw Score	Total Weighted Score	Significant R/W Acquisition
Priority Weighting 1 - 5	5	5	4	1	4	2	3	3			
Alternative 1	**1**	**2**	**2**	**1**	**2**	**1**	**2**	**1**	**12**	**43**	**No**
Alternative 2	**1**	**1**	**2**	**1**	**2**	**1**	**2**	**1**	**11**	**38**	**No**
Ranking Criteria	1 - 1 to 30 structures 2 - 31 to 50 structures 3 - > 51 structures	1 - Most expensive 2 - Least expensive	1 - Local street benefits only 2 - Collector street or local streets benefit 3 - Multiple collector streets and local streets benefit	1 - No opportunities 2 - Some opportunities	1 -Grant funding or partnerships unlikely 2 - Local partnerships/grant eligible 3 - Local and Federal partnerships/grant eligible	1 - No opportunities 2 - Some opportunities	1 - Maintenance after every storm event 2 - Maintenance at standard intervals	1 - Major constraints 2 - Minor constraints	19 - Highest achievable score	67 - Highest achievable score	

XVII. APPENDIX E – PROJECT ALTERNATIVES, EOPC, AND MATRIX

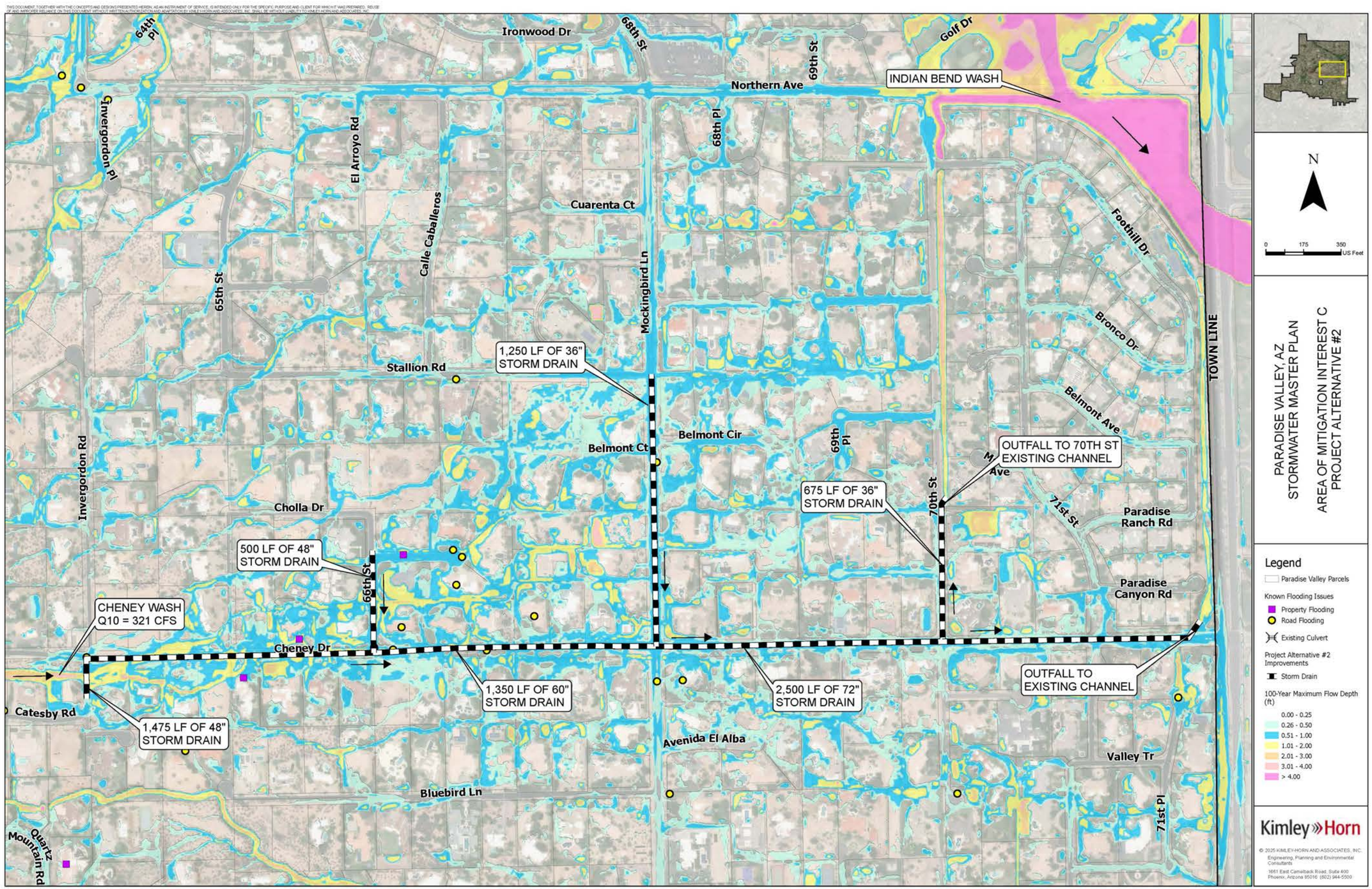
FLOOD HAZARD AREA C ALTERNATIVES

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.



Conceptual Cost Estimate for Alternative 1

Item	Description	Unit	Quantity	Unit Price	Cost
1	48" RCP	LF	500	$525	$262,500
2	60" RCP	LF	1,525	$785	$1,197,125
3	72" RCP	LF	5,200	$1,200	$6,240,000
4	Manhole	EA	37	$10,000	$370,000
5	Catch Basin	EA	22	$32,000	$704,000
6	Removal of Concrete Sidewalks and Slabs	SF	8,050	$12	$96,600
				Sub Total	$8,870,225
7	SWPPP (1%)	LS	1	$88,702	$88,702
8	Mobilization/Demobilization (15%)	LS	1	$1,330,534	$1,330,534
9	Design (10%)	LS	1	$887,023	$887,023
10	Construction Management (10%)	LS	1	$887,023	$887,023
11	Utilities (3%)	LS	1	$266,107	$266,107
12	Traffic Control (5%)	LS	1	$443,511	$443,511
				Subtotal	$12,773,124
				Contingency (15%)	$1,915,969
				Total	$14,689,093


INDIAN BEND WASH
Northern Ave
Ironwood Dr
64th Pl
Invergordon Pl
El Arroyo Rd
Calle Caballeros
65th St
68th St
68th Pl
69th St
Golf Dr
Cuarenta Ct
Mockingbird Ln
Foothill Dr
Bronco Dr
Belmont Ave
TOWN LINE
Stallion Rd
1,250 LF OF 36" STORM DRAIN
Belmont Cir
Belmont Ct
69th Pl
OUTFALL TO 70TH ST EXISTING CHANNEL
675 LF OF 36" STORM DRAIN
70th St
71st St
Paradise Ranch Rd
Paradise Canyon Rd
Invergordon Rd
Cholla Dr
500 LF OF 48" STORM DRAIN
66th St
CHENEY WASH Q10 = 321 CFS
Cheney Dr
Catesby Rd
1,475 LF OF 48" STORM DRAIN
1,350 LF OF 60" STORM DRAIN
2,500 LF OF 72" STORM DRAIN
OUTFALL TO EXISTING CHANNEL
Avenida El Alba
Valley Tr
Bluebird Ln
71st Pl
Quartz Mountain Rd
N
0 175 350 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
AREA OF MITIGATION INTEREST C
PROJECT ALTERNATIVE #2
Legend
Paradise Valley Parcels
Known Flooding Issues
Property Flooding
Road Flooding
Existing Culvert
Project Alternative #2 Improvements
Storm Drain
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
Kimley»Horn
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Engineering, Planning and Environmental Consultants
1661 East Camelback Road, Suite 400
Phoenix, Arizona 85016 (602) 944-5500

Conceptual Cost Estimate for Alternative 2

Item	Description	Unit	Quantity	Unit Price	Cost
1	60" RCP	LF	1,350	$785	$1,059,750
2	36" RCP	LF	1,950	$320	$624,000
3	48" RCP	LF	1,975	$525	$1,036,875
4	72" RCP	LF	2,500	$1,200	$3,000,000
5	Manhole	EA	36	$10,000	$360,000
6	Catch Basin	EA	24	$32,000	$768,000
7	Removal of Concrete Sidewalks and Slabs	SF	7,825	$12	$93,900
				Sub Total	$6,942,525
8	SWPPP	LS	1	$20,000	$20,000
9	Mobilization/Demobilization (15%)	LS	1	$1,041,379	$1,041,379
10	Design (12%)	LS	1	$833,103	$833,103
11	Construction Management (10%)	LS	1	$694,253	$694,253
12	Utilities (2%)	LS	1	$138,851	$138,851
13	Traffic Control (3%)	LS	1	$208,276	$208,276
				Subtotal	$9,878,386
				Contingency (15%)	$1,481,758
				Total	$11,360,143

Area C Project Matrix

	Potential Stuctures Protected	Design and Construction Cost	Potential Streets Protected	GSI Benefits	Project Partnership	Multi-use Opportunities	O&M Constraints and Costs	Utility Constraints	Total Raw Score	Total Weighted Score	Significant R/W Aqusition
Priority Weighting 1 - 5	5	5	4	1	4	2	3	3			
Alternative 1	**3**	**1**	**3**	**1**	**1**	**1**	**2**	**1**	**13**	**48**	**No**
Alternative 2	**3**	**2**	**3**	**1**	**1**	**1**	**2**	**1**	**14**	**53**	**No**
Ranking Criteria	1 - 1 to 30 structures 2 - 31 to 50 structures 3 - > 51 structures	1 - Most expensive 2 - Least expensive	1 - Local street benefits only 2 - Collector street or local streets benefit 3 - Multiple collector streets and local streets benefit	1 - No opportunities 2 - Some opportunities	1 -Grant funding or partnerships unlikely 2 - Local partnerships/grant eligible 3 - Local and Federal partnerships/grant eligible	1 - No opportunities 2 - Some opportunities	1 - Maintenance after every storm event 2 - Maintenance at standard intervals	1 - Major constraints 2 - Minor constraints	19 - Highest achievable score	67 - Highest achievable score	

XVII. APPENDIX E – PROJECT ALTERNATIVES, EOPC, AND MATRIX

FLOOD HAZARD AREA E ALTERNATIVES

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MUMMY MOUNTAIN

LINCOLN WASH
Q10 = 40 CFS
Q100 = 125 CFS

LINCOLN WASH
Q10 = 79 CFS
Q100 = 170 CFS

435 LF OF 36" STORM DRAIN

780 LF OF 36" STORM DRAIN

3,285 LF OF 36" STORM DRAIN

2,300 LF OF 48" STORM DRAIN

OUTFALL TO RITZ-CARLTON CHANNEL

59th Pl
60th St
62nd St
63rd Pl
64th Pl
65th Pl
65th St
66th Pl
66th St
67th Pl
68th Pl
Arroyo Ct
Cardinal Dr
Desert Hills Rd
Ironwood Dr
Invergordon Rd
Joshua Tree Ln
Judson Rd
Ocotillo Rd
White Wing Rd
Indian Bend Rd
Cactus Wren Rd
Cactus Wren Pl
Redwing Rd
Sierra Vista Rd
Horseshoe Ln
Lincoln Dr
Huntress Dr
Malcomb Dr
Naumann Dr
Arroyo Verde Dr
Casa Blanca Dr
Mockingbird Ln
Solcito Ln
61st Pl
61st St

N

0 200 400 US Feet

PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
AREA OF MITIGATION INTEREST E
PROJECT ALTERNATIVE #1

Legend

- Paradise Valley Parcels
- Existing Storm Drain
- Existing Culvert

Known Flooding Issues

- Property Flooding
- Road Flooding
- Structural Flooding

Project Alternative #1 Improvements

- Storm Drain

100-Year Maximum Flow Depth (ft)

- 0.00 - 0.25
- 0.26 - 0.50
- 0.51 - 1.00
- 1.01 - 2.00
- 2.01 - 3.00
- 3.01 - 4.00
- > 4.00

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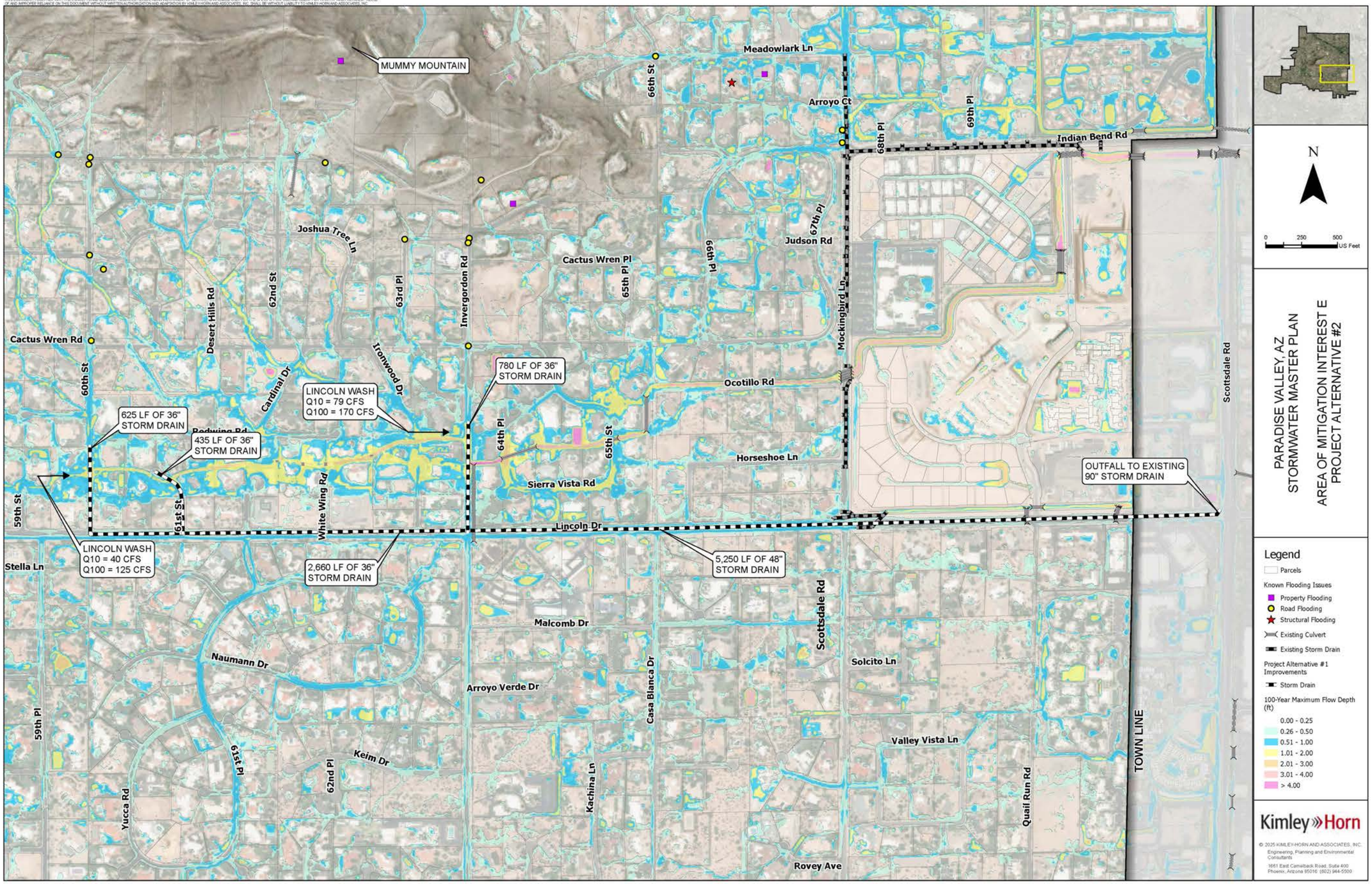
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Conceptual Cost Estimate for Alternative 1

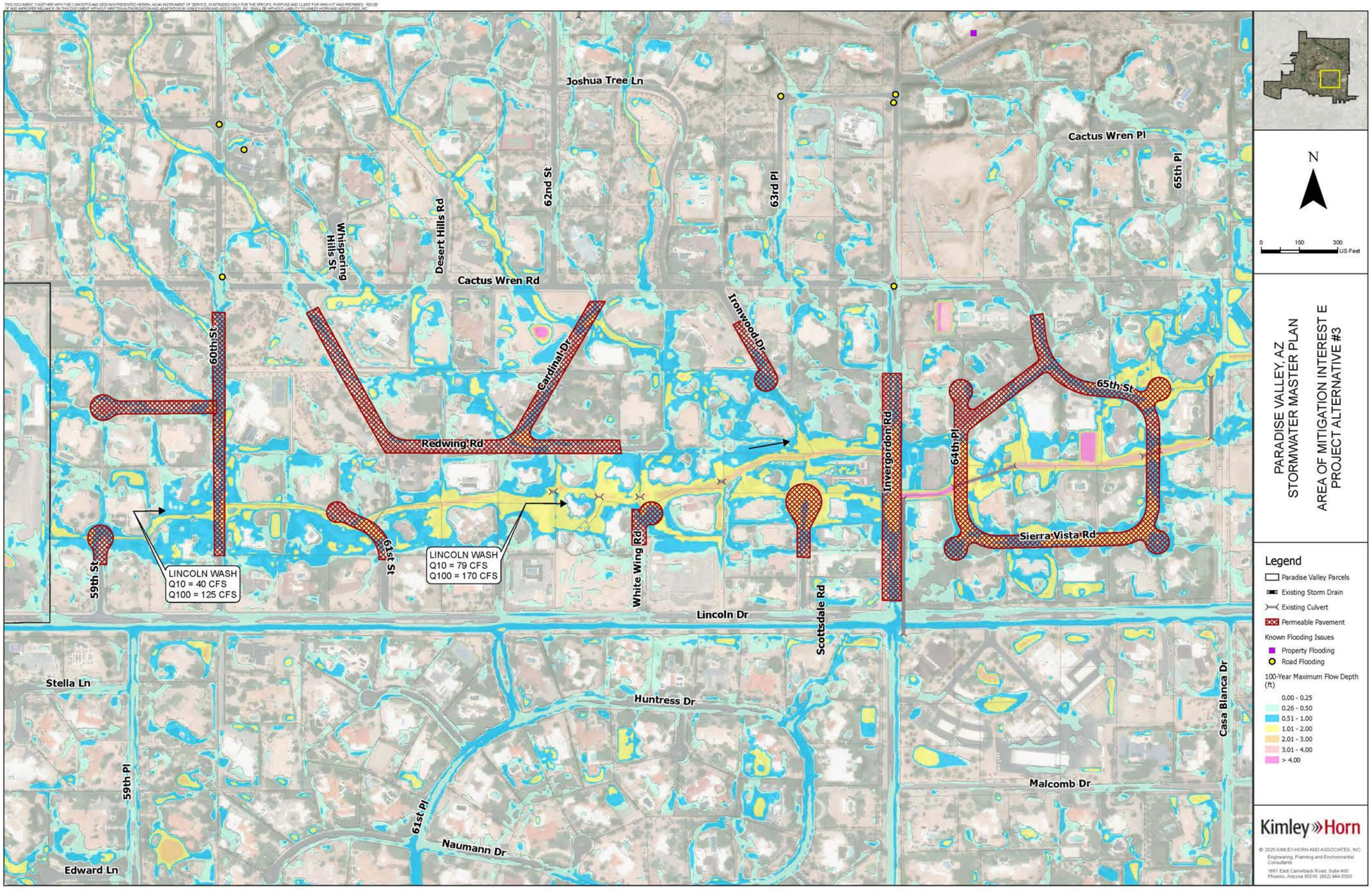
Item	Description	Unit	Quantity	Unit Price	Cost
1	36" Storm Drain Pipe	LF	4,500	$320	$1,440,000
2	48" Storm Drain Pipe	LF	2,300	$525	$1,207,500
3	Manhole	EA	45	$12,000	$540,000
4	Outlet Structure	EA	1	$1,200	$1,200
5	Catch Basin	EA	25	$10,000	$250,000
				Subtotal	$3,438,700
8	SWPPP (1%)	LS	1	$34,387	$34,387
9	Mobilization/Demobilization (15%)	LS	1	$515,805	$515,805
10	Design (12%)	LS	1	$412,644	$412,644
11	Construction Management (10%)	LS	1	$343,870	$343,870
12	Utilities (2%)	LS	1	$68,774	$68,774
13	Traffic Control (2%)	LS	1	$68,774	$68,774
				Subtotal	$4,882,954
				Contingency (20%)	$976,591
				Total	$5,859,545

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Conceptual Cost Estimate for Alternative 2

Item	Description	Unit	Quantity	Unit Price	Cost
1	36" Storm Drain Pipe	LF	4,500	$320	$1,440,000
2	48" Storm Drain Pipe	LF	5,250	$525	$2,756,250
5	Manhole	EA	52	$12,000	$624,000
6	Outlet Structure	EA	1	$1,200	$1,200
7	Catch Basin	EA	25	$10,000	$250,000
				Subtotal	$5,071,450
8	SWPPP (1%)	LS	1	$50,715	$50,715
9	Mobilization/Demobilization (15%)	LS	1	$760,718	$760,718
10	Design (12%)	LS	1	$608,574	$608,574
11	Construction Management (10%)	LS	1	$507,145	$507,145
12	Utilities (2%)	LS	1	$101,429	$101,429
13	Traffic Control (2%)	LS	1	$101,429	$101,429
				Subtotal	$7,201,459
				Subtotal	$7,201,459
				Contingency (20%)	$1,440,292
				Total	$8,641,751


Joshua Tree Ln
Cactus Wren Pl
65th Pl
62nd St
63rd Pl
Desert Hills Rd
Whispering Hills St
Cactus Wren Rd
Ironwood Dr
Cardinal Dr
60th St
Redwing Rd
65th St
64th Pl
Invergordon Rd
Sierra Vista Rd
LINCOLN WASH
Q10 = 40 CFS
Q100 = 125 CFS
59th St
61st St
LINCOLN WASH
Q10 = 79 CFS
Q100 = 170 CFS
White Wing Rd
Lincoln Dr
Scottsdale Rd
Stella Ln
Huntress Dr
Casa Blanca Dr
59th Pl
61st Pl
Naumann Dr
Malcomb Dr
Edward Ln
N
0 150 300 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
AREA OF MITIGATION INTEREST E
PROJECT ALTERNATIVE #3
Legend
Paradise Valley Parcels
Existing Storm Drain
Existing Culvert
Permeable Pavement
Known Flooding Issues
Property Flooding
Road Flooding
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
Kimley»Horn
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Conceptual Cost Estimate for Alternative 3

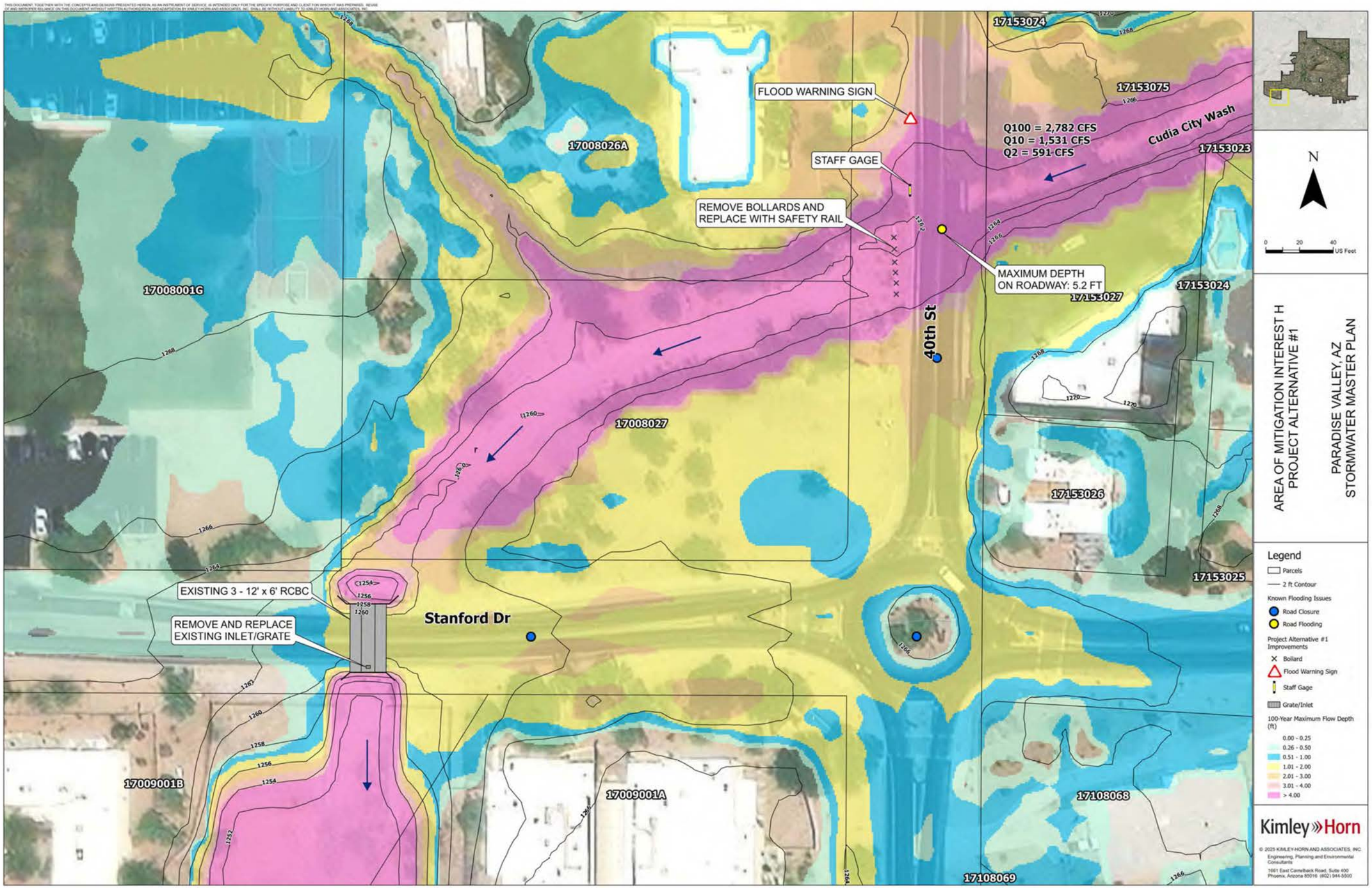
Item	Description	Unit	Quantity	Unit Price	Cost
1	Permeable Pavement	LF	7,900	$28	$221,200
2	Removal of Existing Pavement	SY	52,600	$10	$526,000
				Subtotal	$747,200
3	SWPPP (1%)	LS	1	$7,472	$7,472
4	Mobilization/Demobilization (15%)	LS	1	$112,080	$112,080
5	Design (12%)	LS	1	$89,664	$89,664
6	Construction Management (10%)	LS	1	$74,720	$74,720
7	Utilities (8%)	LS	1	$59,776	$59,776
8	Traffic Control (10%)	LS	1	$74,720	$74,720
				Subtotal	$1,165,632
				Contingency (20%)	$233,126
				Total	$1,398,758

Area E Project Matrix

	Potential Stuctures Protected	Design and Construction Cost	Potential Streets Protected	GSI Benefits	Project Partnership	Multi-use Opportunities	O&M Constraints and Costs	Utility Constraints	Total Raw Score	Total Weighted Score	Significant R/W Acquisition
Priority Weighting 1 - 5	5	5	4	1	4	2	3	3			
Alternative 1	**3**	**2**	**3**	**1**	**2**	**1**	**2**	**1**	**15**	**57**	**No**
Alternative 2	**3**	**1**	**3**	**1**	**1**	**1**	**2**	**1**	**13**	**48**	**No**
Alternative 3	**3**	**3**	**3**	**2**	**2**	**1**	**2**	**2**	**18**	**66**	**No**
Ranking Criteria	1 - 1 to 30 structures 2 - 31 to 50 structures 3 - > 51 structures	1 - Most expensive 2 - Median cost 3 - Least expensive	1 - Local street benefits only 2 - Collector street or local streets benefit 3 - Multiple collector streets and local streets benefit	1 - No opportunities 2 - Some opportunities	1 -Grant funding or partnerships unlikely 2 - Local partnerships/grant eligible 3 - Local and Federal partnerships/grant eligible	1 - No opportunities 2 - Some opportunities	1 - Maintenance after every storm event 2 - Maintenance at standard intervals	1 - Major constraints 2 - Minor constraints	20 - Maximum possible score	72 - Maximum possible score	

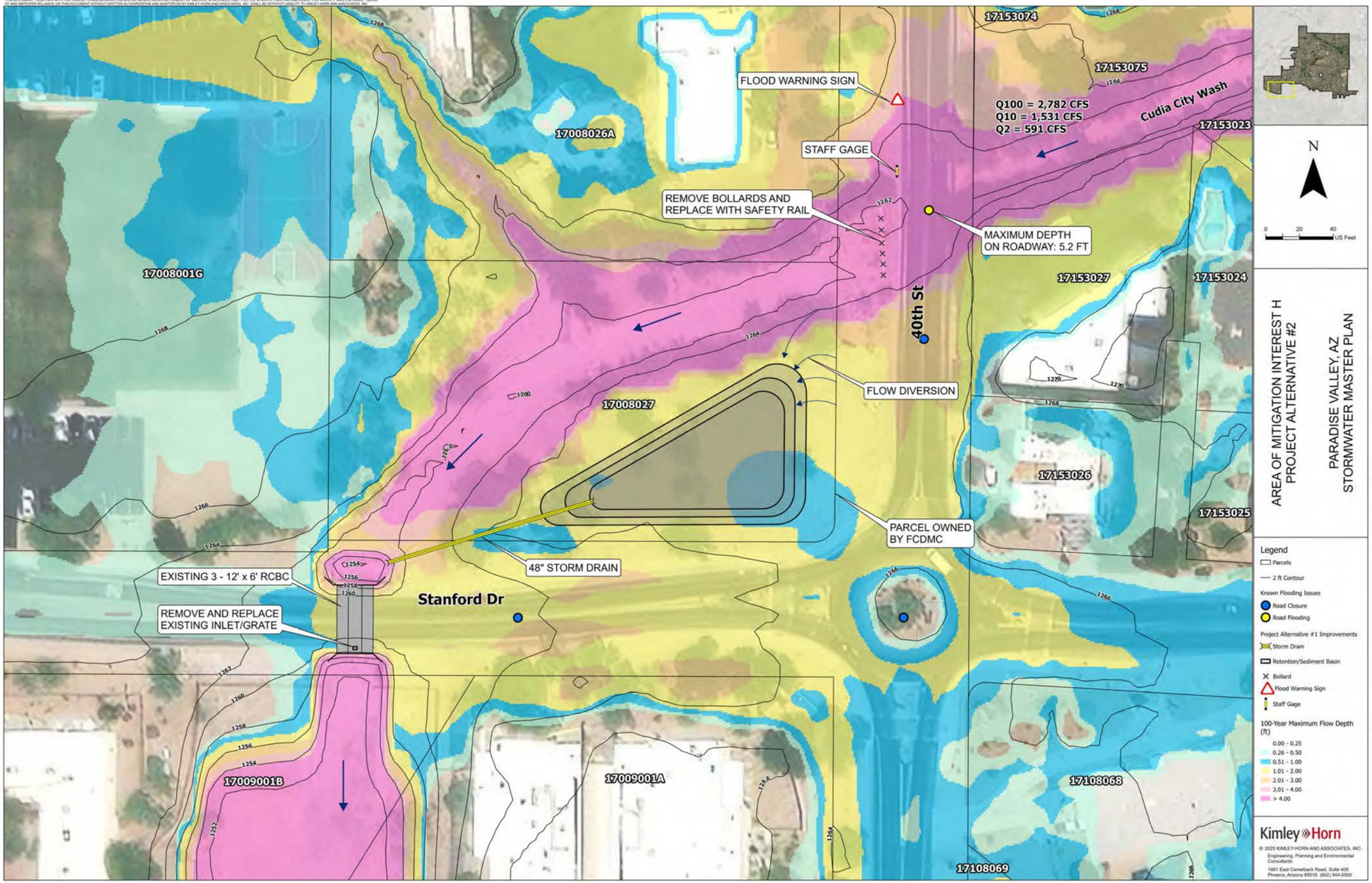
XVII. APPENDIX E – PROJECT ALTERNATIVES, EOPC, AND MATRIX

FLOOD HAZARD AREA H ALTERNATIVES


FLOOD WARNING SIGN
STAFF GAGE
REMOVE BOLLARDS AND REPLACE WITH SAFETY RAIL
MAXIMUM DEPTH ON ROADWAY: 5.2 FT
Q100 = 2,782 CFS
Q10 = 1,531 CFS
Q2 = 591 CFS
Cudia City Wash
40th St
Stanford Dr
EXISTING 3 - 12' x 6' RCBC
REMOVE AND REPLACE EXISTING INLET/GRATE
17008026A
17008001G
17008027
17009001B
17009001A
17153074
17153075
17153023
17153024
17153027
17153026
17153025
17108068
17108069
N
0 20 40 US Feet
AREA OF MITIGATION INTEREST H
PROJECT ALTERNATIVE #1
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
Legend
Parcels
2 ft Contour
Known Flooding Issues
Road Closure
Road Flooding
Project Alternative #1 Improvements
Bollard
Flood Warning Sign
Staff Gage
Grate/Inlet
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
Kimley»Horn
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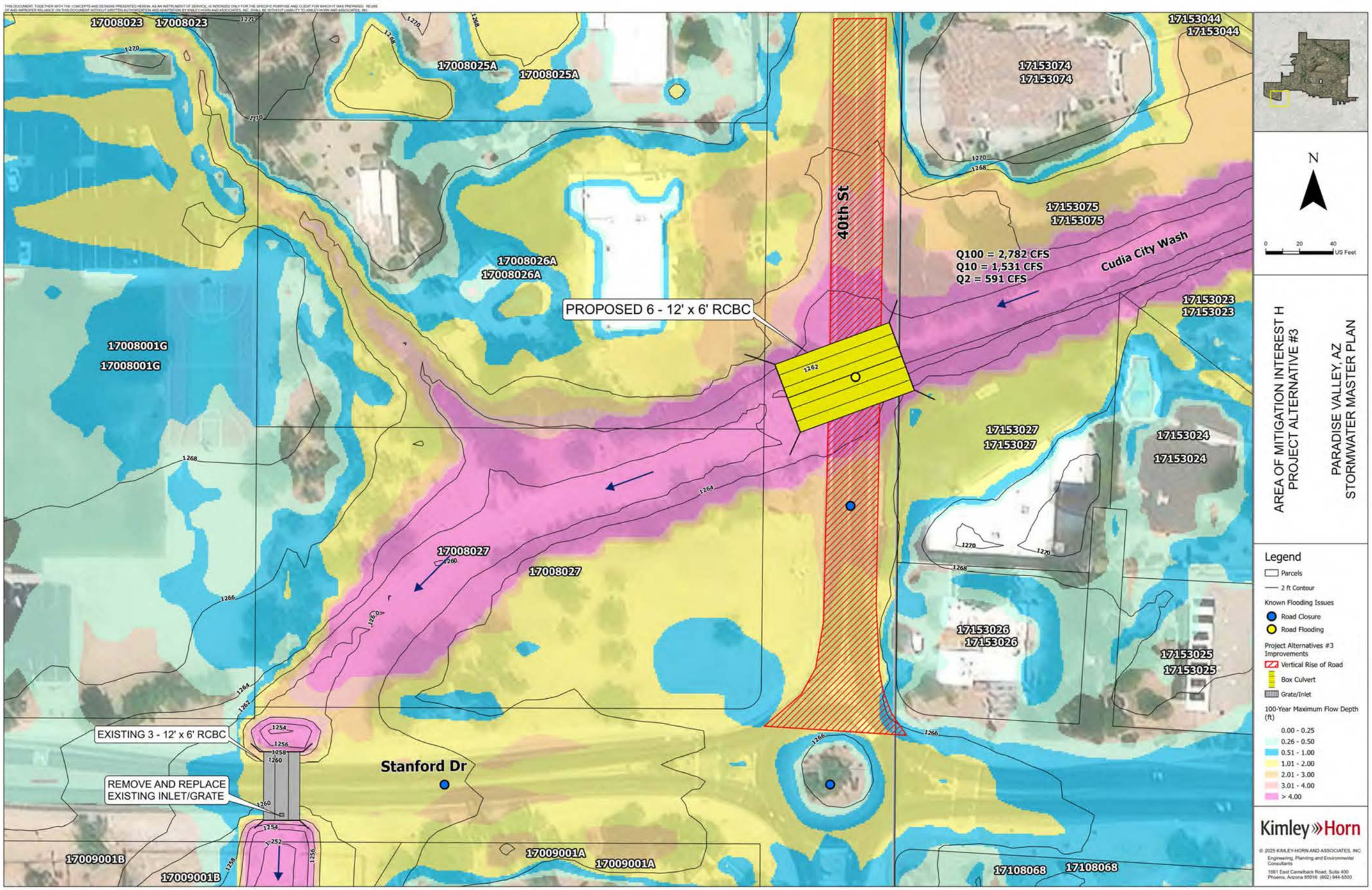
Conceptual Cost Estimate for Alternative 1

Item	Description	Unit	Quantity	Unit Price	Cost
1	Staff Gage	EA	1	$150	$150
2	Flood Warning Sign	EA	1	$250	$250
3	Protective Railing	LF	50	$175	$8,750
4	Removal of Curb and Gutter	LF	3	$250	$750
5	Curb & Gutter	LF	3	$100	$300
6	Concrete Sidewalk	SF	10	$35	$350
7	Storm Drain Pipe 36"	SF	15	$375	$5,625
8	Remove Bollards	EA	6	$260	$1,560
9	Removal of Pipe	LF	15	$75	$1,125
				Sub Total	$18,860
10	SWPPP	LS	1	$1,000	$1,000
11	Mobilization/Demobilization	LS	1	$15,000	$15,000
12	Design	LS	1	$15,000	$15,000
13	Construction Management	LS	1	$5,000	$5,000
14	Utilities	LS	1	$1,000	$1,000
15	Traffic Control	LS	1	$1,000	$1,000
				Subtotal	$56,860
				Contingency (20%)	$11,372
				Total	$68,232


FLOOD WARNING SIGN
STAFF GAGE
REMOVE BOLLARDS AND REPLACE WITH SAFETY RAIL
MAXIMUM DEPTH ON ROADWAY: 5.2 FT
Q100 = 2,782 CFS
Q10 = 1,531 CFS
Q2 = 591 CFS
Cudia City Wash
40th St
FLOW DIVERSION
PARCEL OWNED BY FCDMC
48" STORM DRAIN
EXISTING 3 - 12' x 6' RCBC
REMOVE AND REPLACE EXISTING INLET/GRATE
Stanford Dr
17008026A
17008001G
17008027
17009001B
17009001A
17153074
17153075
17153023
17153027
17153024
17153026
17153025
17108068
17108069
N
0 20 40 US Feet
AREA OF MITIGATION INTEREST H
PROJECT ALTERNATIVE #2
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
Legend
Parcels
2 ft Contour
Known Flooding Issues
Road Closure
Road Flooding
Project Alternative #1 Improvements
Storm Drain
Retention/Sediment Basin
Bollard
Flood Warning Sign
Staff Gage
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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Conceptual Cost Estimate for Alternative 2

Item	Description	Unit	Quantity	Unit Price	Cost
1	Storm Drain Outlet	EA	1	$1,500	$1,500
2	Storm Drain Pipe 48"	LF	110	$410	$45,100
3	Manhole	EA	1	$10,000	$10,000
4	Staff Gage	EA	1	$150	$150
5	Flood Warning Sign	EA	1	$250	$250
6	Protective Railing	LF	50	$175	$8,750
7	Removal of Curb and Gutter	LF	3	$250	$750
8	Curb & Gutter	LF	3	$100	$300
9	Concrete Sidewalk	SF	10	$35	$350
10	Storm Drain Pipe 36"	SF	15	$375	$5,625
11	Remove Bollards	EA	6	$260	$1,560
12	Removal of Pipe	LF	15	$75	$1,125
13	Riprap	CY	5	$120	$600
14	Channel Excavation	CY	8,595	$25	$214,875
15	Diversion Structure	LS	1	$45,000	$45,000
16	Basin Excavation	CY	8,470	$18	$152,460
17	Landscaping	LS	1	$7,000	$7,000
				Sub Total	$495,395
18	SWPPP (3%)	LS	1	$14,862	$14,862
19	Mobilization/Demobilization	LS	1	$75,000	$75,000
20	Design (15%)	LS	1	$74,309	$74,309
21	Construction Management (10%)	LS	1	$49,540	$49,540
22	Utilities (2%)	LS	1	$9,908	$9,908
23	Traffic Control (3%)	LS	1	$14,862	$14,862
				Subtotal	$733,875
				Contingency (20%)	$146,775
				Total	$880,650


17008023
17008023
17008025A
17008025A
17008026A
17008026A
17008001G
17008001G
17008027
17008027
17009001A
17009001A
17009001B
17009001B
17153044
17153044
17153074
17153074
17153075
17153075
17153023
17153023
17153027
17153027
17153024
17153024
17153026
17153026
17153025
17153025
17108068
17108068
40th St
Cudia City Wash
Q100 = 2,782 CFS
Q10 = 1,531 CFS
Q2 = 591 CFS
PROPOSED 6 - 12' x 6' RCBC
EXISTING 3 - 12' x 6' RCBC
REMOVE AND REPLACE EXISTING INLET/GRATE
Stanford Dr
N
0 20 40 US Feet
AREA OF MITIGATION INTEREST H
PROJECT ALTERNATIVE #3
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
Legend
Parcels
2 ft Contour
Known Flooding Issues
Road Closure
Road Flooding
Project Alternatives #3 Improvements
Vertical Rise of Road
Box Culvert
Grate/Inlet
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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Conceptual Cost Estimate for Alternative 3

Item	Description	Unit	Quantity	Unit Price	Cost
1	Manhole	EA	3	$10,000	$30,000
2	6 - 12' x 6' RCBC	LF	40	$21,000	$840,000
3	New Wingwalls	LS	1	$30,000	$30,000
4	Removal of Curb and Gutter	LF	3	$250	$750
5	Curb & Gutter	LF	3	$100	$300
6	Concrete Sidewalk	SF	10	$35	$350
7	Storm Drain Pipe 36"	SF	15	$375	$5,625
8	Safety Rail	LF	220	$100	$22,000
9	Removal of Pipe	LF	15	$75	$1,125
10	Riprap	CY	250	$100	$25,000
11	Channel Excavation & Haul	CY	130	$55	$7,150
12	Roadway Profile Raise	SF	13,300	$20	$266,000
				Sub Total	$1,228,300
13	SWPPP (5%)	LS	1	$61,415	$61,415
14	Mobilization/Demobilization (15%)	LS	1	$184,245	$184,245
15	Design (12%)	LS	1	$147,396	$147,396
16	Construction Management (10%)	LS	1	$122,830	$122,830
17	Utilities (5%)	LS	1	$61,415	$61,415
18	Traffic Control (5%)	LS	1	$61,415	$61,415
				Subtotal	$1,867,016
				Contingency (20%)	$373,403
				Total	$2,240,419

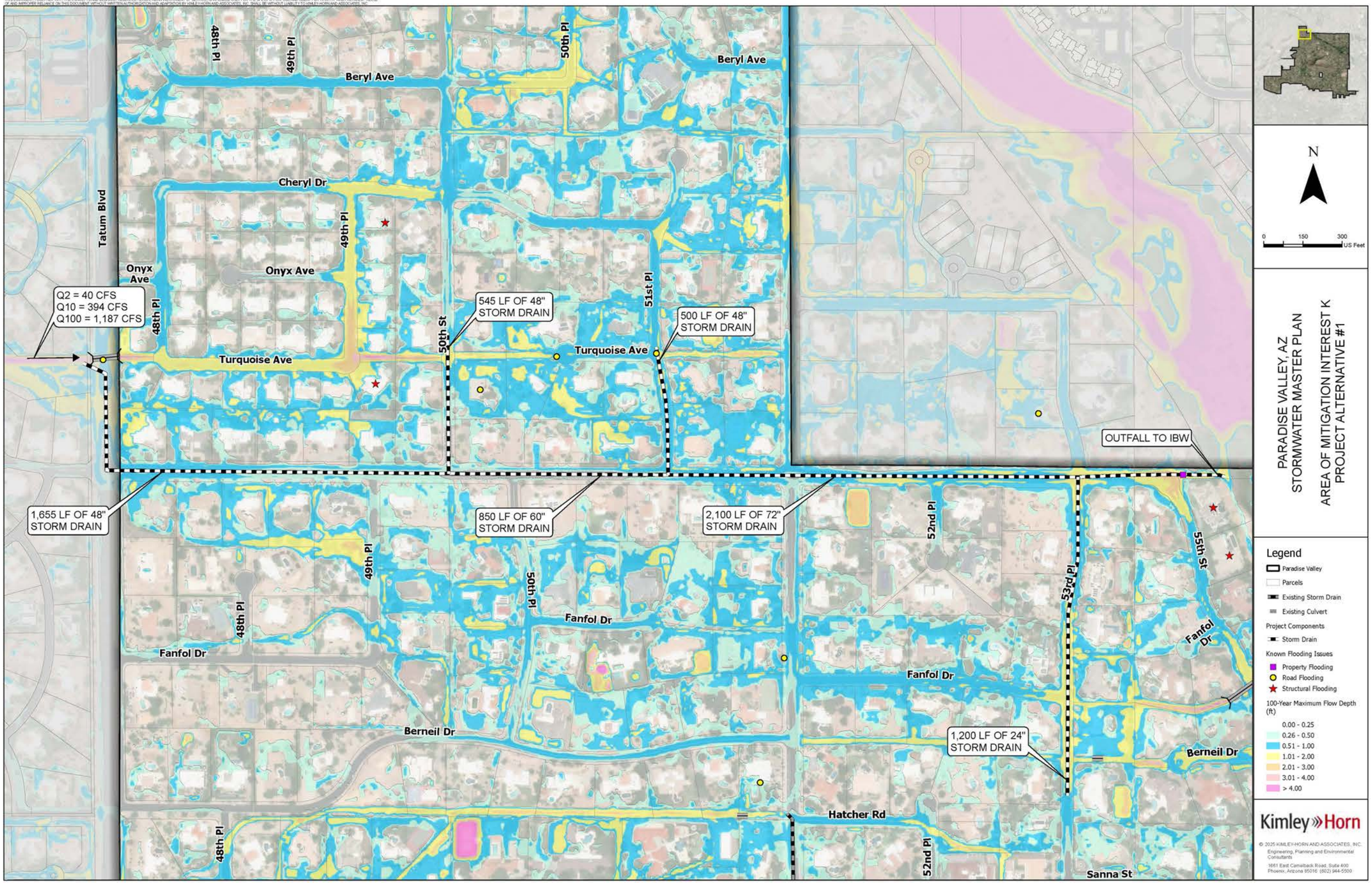
Area H Project Matrix

	Potential Stuctures Protected	Potential Streets Protected	Design and Construction Cost	GSI Benefits	Project Partnership	Multi-use Opportunities	O&M Constraints and Costs	Utility Constraints	Total Raw Score	Total Weighted Score	Significant R/W Aqusition
Priority Weighting 1 - 5	5	4	5	1	4	2	3	3			
Alternative 1	**1**	**1**	**3**	**1**	**1**	**1**	**2**	**2**	**12**	**43**	**Yes**
Alternative 2	**1**	**2**	**2**	**1**	**2**	**2**	**1**	**2**	**13**	**45**	**No**
Alternative 3	**1**	**2**	**1**	**1**	**2**	**1**	**2**	**1**	**11**	**38**	**No**
Ranking Criteria	1 - 1 to 30 structures 2 - 31 to 50 structures 3 - > 51 structures	1 - Local street benefits only 2 - Collector street or local streets benefit 3 - Multiple collector streets and local streets benefit	1 - Most expensive 2 - Median cost 3 - Least expensive	1 - No opportunities 2 - Some opportunities	1 -Grant funding or partnerships unlikely 2 - Local partnerships/grant eligible 3 - Local and Federal partnerships/grant eligible	1 - No opportunities 2 - Some opportunities	1 - Maintenance after every storm event 2 - Maintenance at standard intervals	1 - Major constraints 2 - Minor constraints	20 - Maximum Possible Score	72 - Maximum Possible Score	

XVII. APPENDIX E – PROJECT ALTERNATIVES, EOPC, AND MATRIX

FLOOD HAZARD AREA K ALTERNATIVES

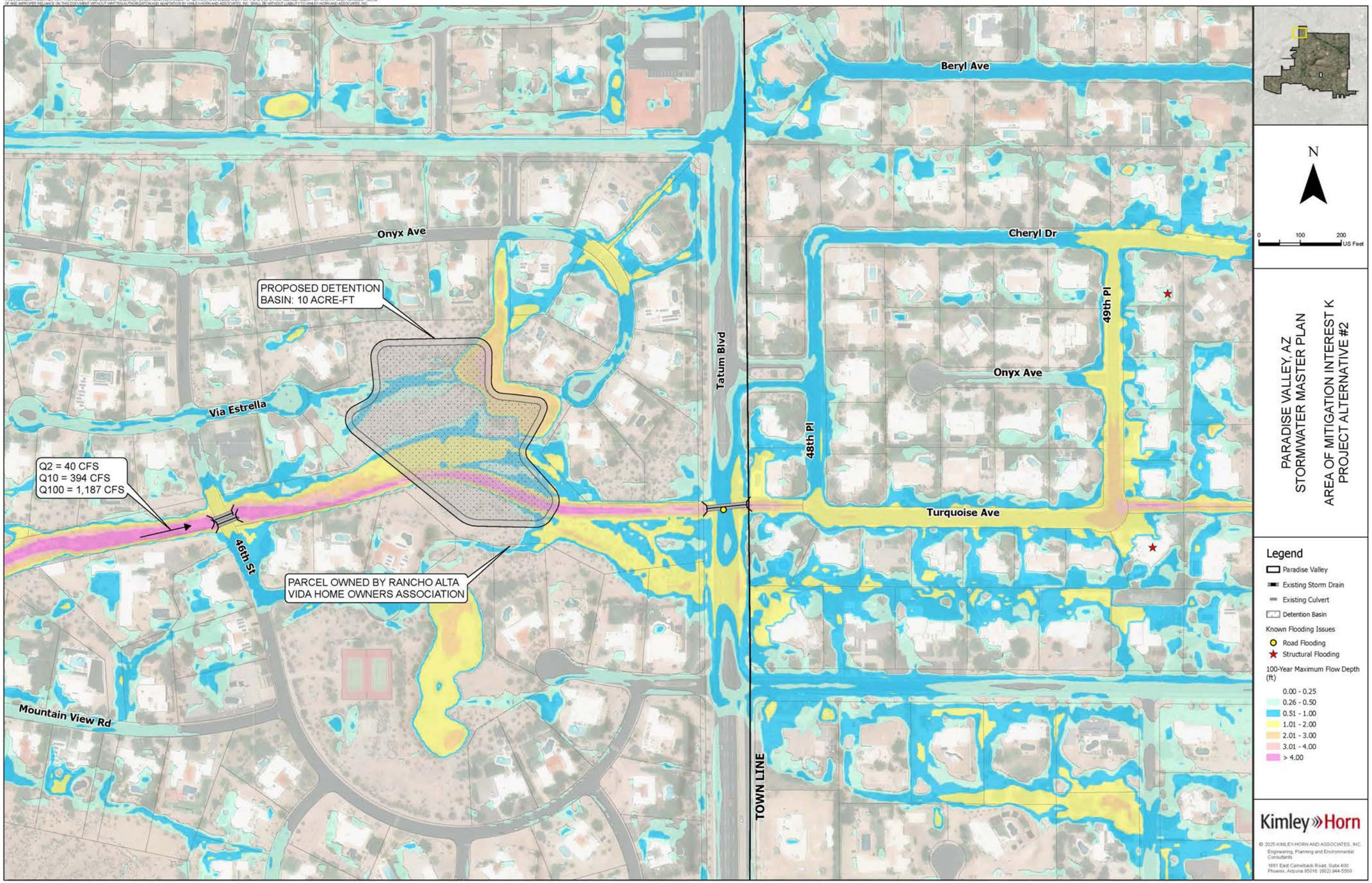
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Conceptual Cost Estimate for Alternative 1

Item	Description	Unit	Quantity	Unit Price	Cost
1	60" Storm Drain	LF	850	$785	$667,250
2	48" Storm Drain	LF	2,700	$600	$1,620,000
3	24" Storm Drain	LF	1,200	$280	$336,000
4	72" Storm Drain	LF	2,100	$975	$2,047,500
5	Inlet Structure	EA	1	$2,300	$2,300
6	Outlet Structure	EA	1	$2,300	$2,300
7	Manhole	EA	43	$10,000	$430,000
8	Catch Basin	EA	36	$12,000	$432,000
				Subtotal	$5,537,350
9	SWPPP (1%)	LS	1	$55,374	$55,374
10	Mobilization/Demobilization (10%)	LS	1	$553,735	$553,735
11	Design (7%)	LS	1	$387,615	$387,615
12	Construction Management (8%)	LS	1	$442,988	$442,988
13	Utilities (2%)	LS	1	$110,747	$110,747
14	Traffic Control (2%)	LS	1	$110,747	$110,747
				Subtotal	$7,198,555
				Contingency (15%)	$1,079,783
				Total	$8,278,338

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY KIMLEY-HORN AND ASSOCIATES, INC. SHALL BE WITHOUT LIABILITY TO KIMLEY-HORN AND ASSOCIATES, INC.



Conceptual Cost Estimate for Alternative 2

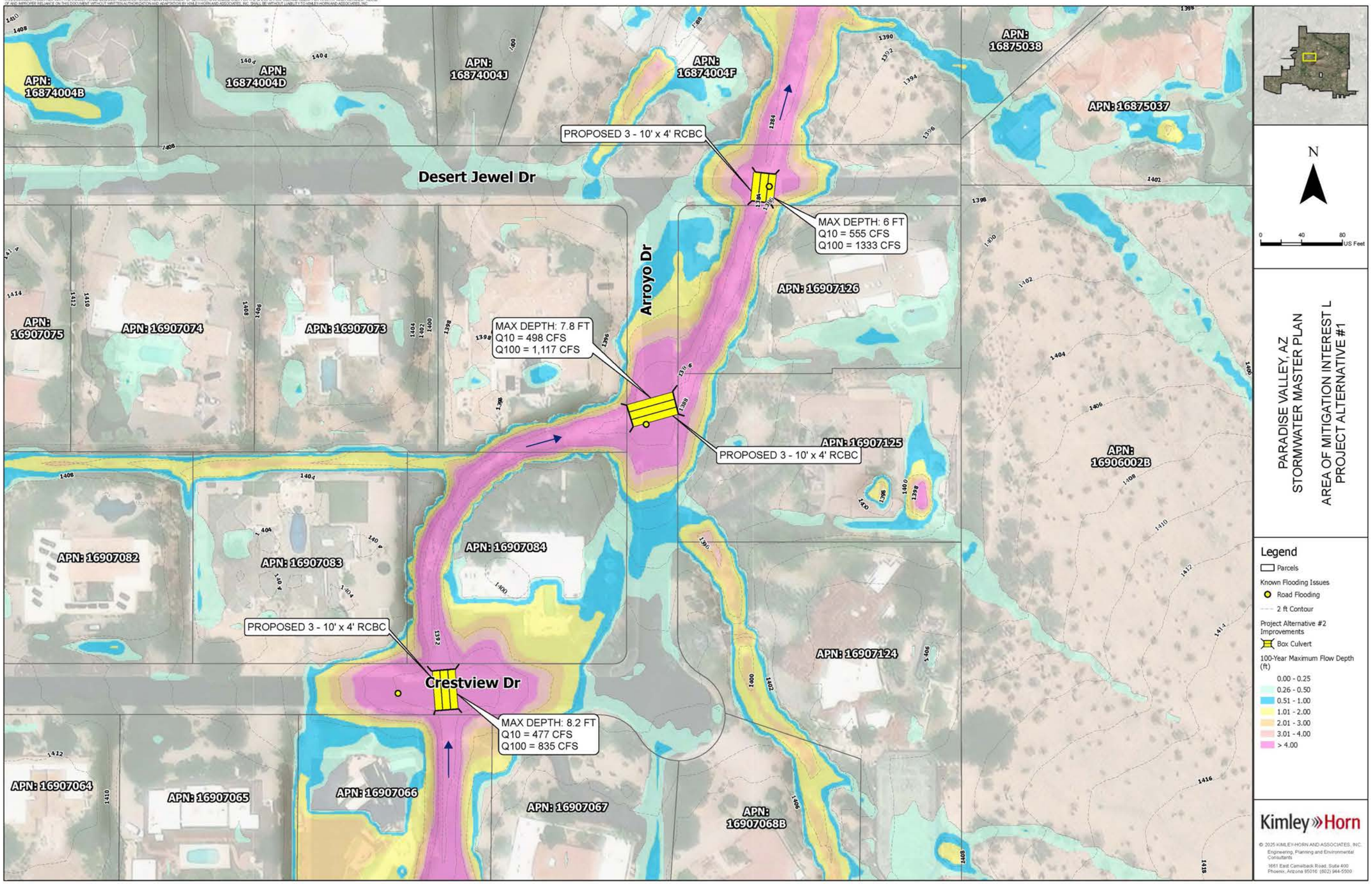
Item	Description	Unit	Quantity	Unit Price	Cost
1	Basin Excavation	CY	25,300	$42	$1,062,600
2	Landscaping	AC	4	$12,000	$48,000
3	Clearing and Grubbing	AC	4	$5,000	$20,000
				Subtotal	$1,130,600
4	SWPPP (2%)	LS	1	$22,612	$22,612
5	Mobilization/Demobilization (12%)	LS	1	$135,672	$135,672
6	Design (7%)	LS	1	$79,142	$79,142
7	Construction Management (10%)	LS	1	$113,060	$113,060
8	Utilities (2%)	LS	1	$22,612	$22,612
9	Traffic Control (1%)	LS	1	$11,306	$11,306
				Subtotal	$1,515,004
				Contingency (15%)	$227,251
				Total	$1,742,255

	Potential Stuctures Protected	Design and Construction Cost	Potential Streets Protected	GSI Benefits	Project Partnership	Multi-use Opportunities	O&M Constraints and Costs	Utility Constraints	Total Raw Score	Total Weighted Score	Significant R/W Acquisition
Priority Weighting 1 - 5	5	5	4	1	4	2	3	3			
Alternative 1	1	1	3	1	2	1	2	1	12	22	No
Alternative 2	1	2	3	2	2	2	2	2	16	26	Yes
Ranking Criteria	1 - 1 to 30 structures 2 - 31 to 50 structures 3 - > 51 structures	1 - Most expensive 2 - Least expensive	1 - Local street benefits only 2 - Collector street or local streets benefit 3 - Multiple collector streets and local streets benefit	1 - No opportunities 2 - Some opportunities	1 -Grant funding or partnerships unlikely 2 - Local partnerships/grant eligible 3 - Local and Federal partnerships/grant eligible	1 - No opportunities 2 - Some opportunities	1 - Maintenance after every storm event 2 - Maintenance at standard intervals	1 - Major constraints 2 - Minor constraints	19 - Highest achievable score	67 - Highest achievable score	

XVII. APPENDIX E – PROJECT ALTERNATIVES, EOPC, AND MATRIX

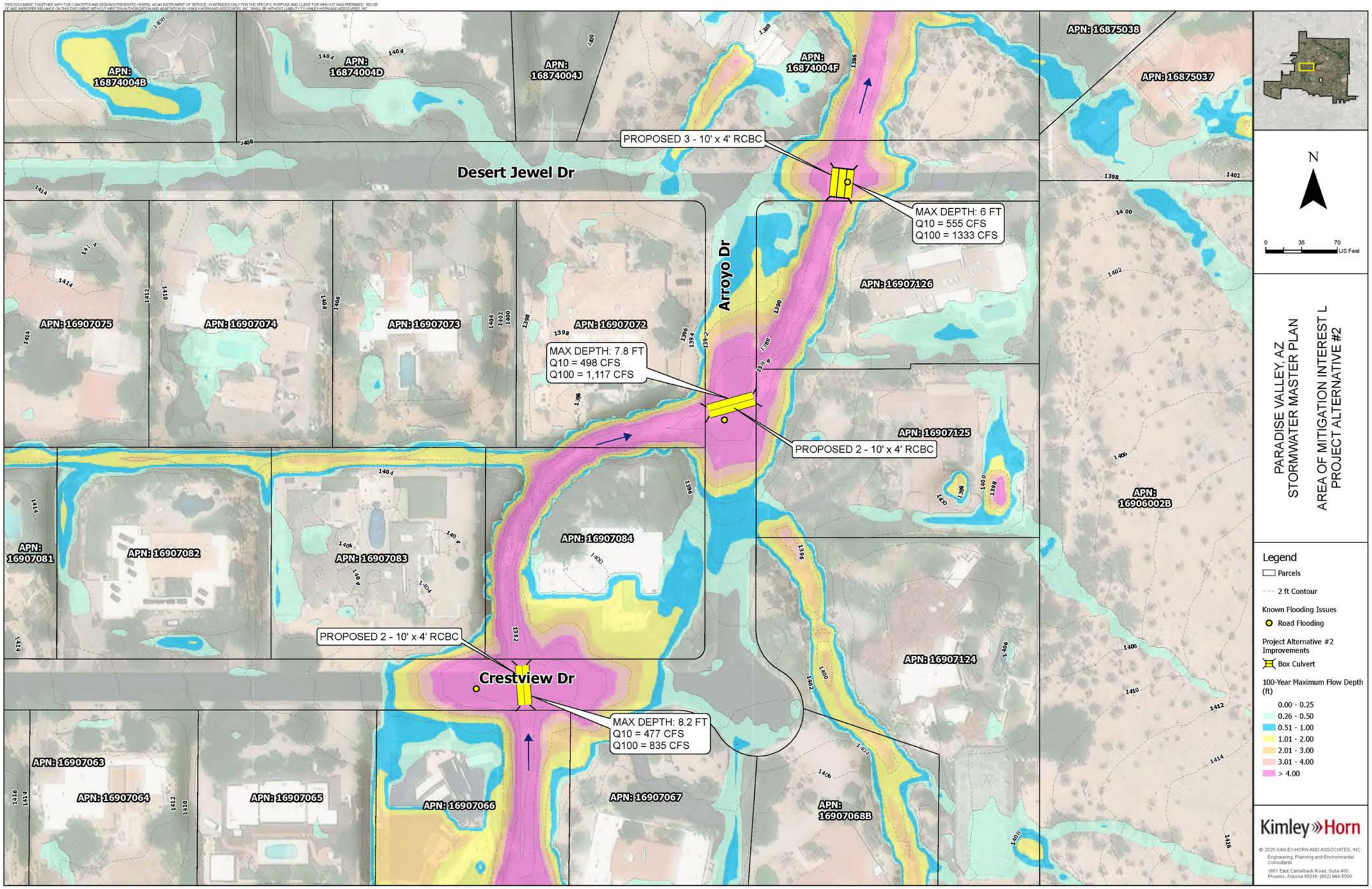
FLOOD HAZARD AREA L ALTERNATIVES

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Conceptual Cost Estimate for Alternative 1

Item	Description	Unit	Quantity	Unit Price	Cost
1	3 - 10' x 4' RCBC	LF	140	$3,400	$476,000
2	Headwalls	EA	6	$10,000	$60,000
3	Grouted Riprap	CY	21	$470	$9,870
4	Demolition	SY	501	$58	$29,058
5	Earthwork/Sediment Basin	CY	900	$45	$40,500
6	Pavement Replacement	TON	165	$475	$78,375
				Sub Total	$693,803
7	SWPPP (5%)	LS	1	$34,690	$34,690
8	Mobilization/Demobilization (15%)	LS	1	$104,070	$104,070
9	Design (15%)	LS	1	$104,070	$104,070
10	Construction Management (12%)	LS	1	$83,256	$83,256
11	Utilities (5%)	LS	1	$34,690	$34,690
12	Traffic Control (5%)	LS	1	$34,690	$34,690
				Subtotal	$1,089,271
				Contingency (20%)	$217,854
				Total	$1,307,125


APN: 16874004B
APN: 16874004D
APN: 16874004J
APN: 16874004F
APN: 16875038
APN: 16875037
Desert Jewel Dr
PROPOSED 3 - 10' x 4' RCBC
MAX DEPTH: 6 FT
Q10 = 555 CFS
Q100 = 1333 CFS
Arroyo Dr
APN: 16907126
APN: 16907075
APN: 16907074
APN: 16907073
APN: 16907072
MAX DEPTH: 7.8 FT
Q10 = 498 CFS
Q100 = 1,117 CFS
APN: 16907125
PROPOSED 2 - 10' x 4' RCBC
APN: 16906002B
APN: 16907081
APN: 16907082
APN: 16907083
APN: 16907084
PROPOSED 2 - 10' x 4' RCBC
Crestview Dr
MAX DEPTH: 8.2 FT
Q10 = 477 CFS
Q100 = 835 CFS
APN: 16907124
APN: 16907063
APN: 16907064
APN: 16907065
APN: 16907066
APN: 16907067
APN: 16907068B
N
0 35 70 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
AREA OF MITIGATION INTEREST L
PROJECT ALTERNATIVE #2
Legend
Parcels
2 ft Contour
Known Flooding Issues
Road Flooding
Project Alternative #2 Improvements
Box Culvert
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
Kimley»Horn
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Phoenix, Arizona 85016 (602) 944-5500

Conceptual Cost Estimate for Alternative 2

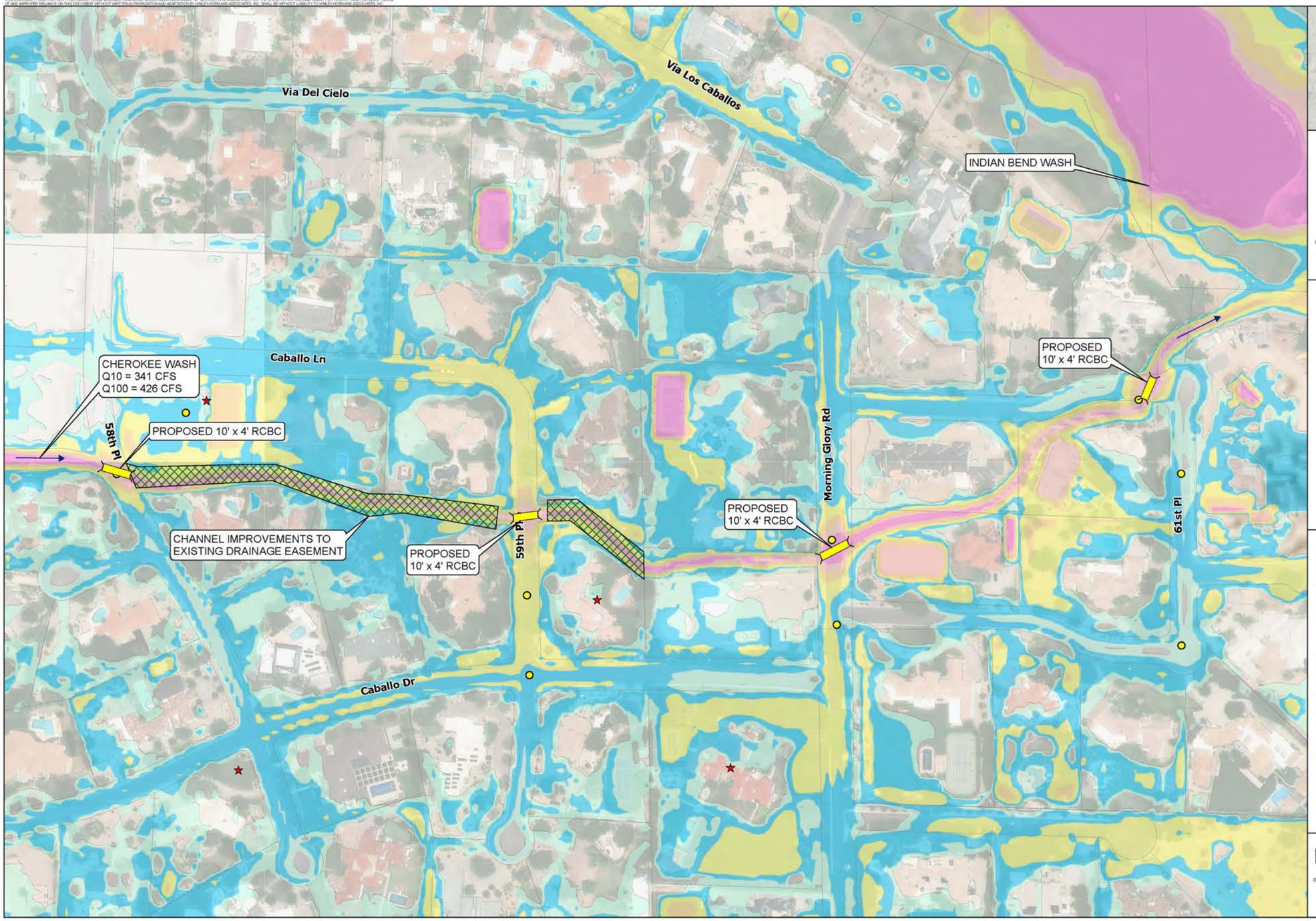
Item	Description	Unit	Quantity	Unit Price	Cost
1	2 - 10' x 4' RCBC	LF	110	$2,300	$253,000
2	3 - 10' x 4' RCBC	LF	30	$3,400	$102,000
3	Headwalls	EA	6	$10,000	$60,000
4	Grouted Riprap	CY	21	$470	$9,870
5	Demolition	SY	501	$58	$29,058
6	Earthwork/Sediment Basin	CY	780	$45	$35,100
7	Pavement Replacement	TON	165	$475	$78,375
				Sub Total	$567,403
8	SWPPP (5%)	LS	1	$28,370	$28,370
9	Mobilization/Demobilization	LS	1	$100,000	$100,000
10	Design	LS	1	$100,000	$100,000
11	Construction Management (15%)	LS	1	$85,110	$85,110
12	Utilities (5%)	LS	1	$28,370	$28,370
13	Traffic Control (5%)	LS	1	$28,370	$28,370
				Subtotal	$937,624
				Contingency (20%)	$187,525
				Total	$1,125,149

	Potential Stuctures Protected	Design and Construction Cost	Potential Streets Protected	GSI Benefits	Project Partnership	Multi-use Opportunities	O&M Constraints and Costs	Utility Constraints	Total Raw Score	Total Weighted Score	Significant R/W Acquisition?
Priority Weighting 1 - 5	5	5	4	1	4	2	3	3			
Alternative 1	1	1	1	1	2	1	2	2	11	17	No
Alternative 2	1	2	1	1	2	1	2	2	12	18	No
Ranking Criteria	1 - 1 to 30 structures 2 - 31 to 50 structures 3 - > 51 structures	1 - Most expensive 2 - Least Expensive	1 - Local street benefits only 2 - Collector street or local streets benefit 3 - Multiple collector streets and local streets benefit	1 - No opportunities 2 - Some opportunities	1 -Grant funding or partnerships unlikely 2 - Local partnerships/grant eligible 3 - Local and Federal partnerships/grant eligible	1 - No opportunities 2 - Some opportunities	1 - Maintenance after every storm event 2 - Maintenance at standard intervals	1 - Major constraints 2 - Minor constraints	19 - Maximum Possible Score	67 - Maximum Possible Score	

XVII. APPENDIX E – PROJECT ALTERNATIVES, EOPC, AND MATRIX

FLOOD HAZARD AREA N ALTERNATIVES

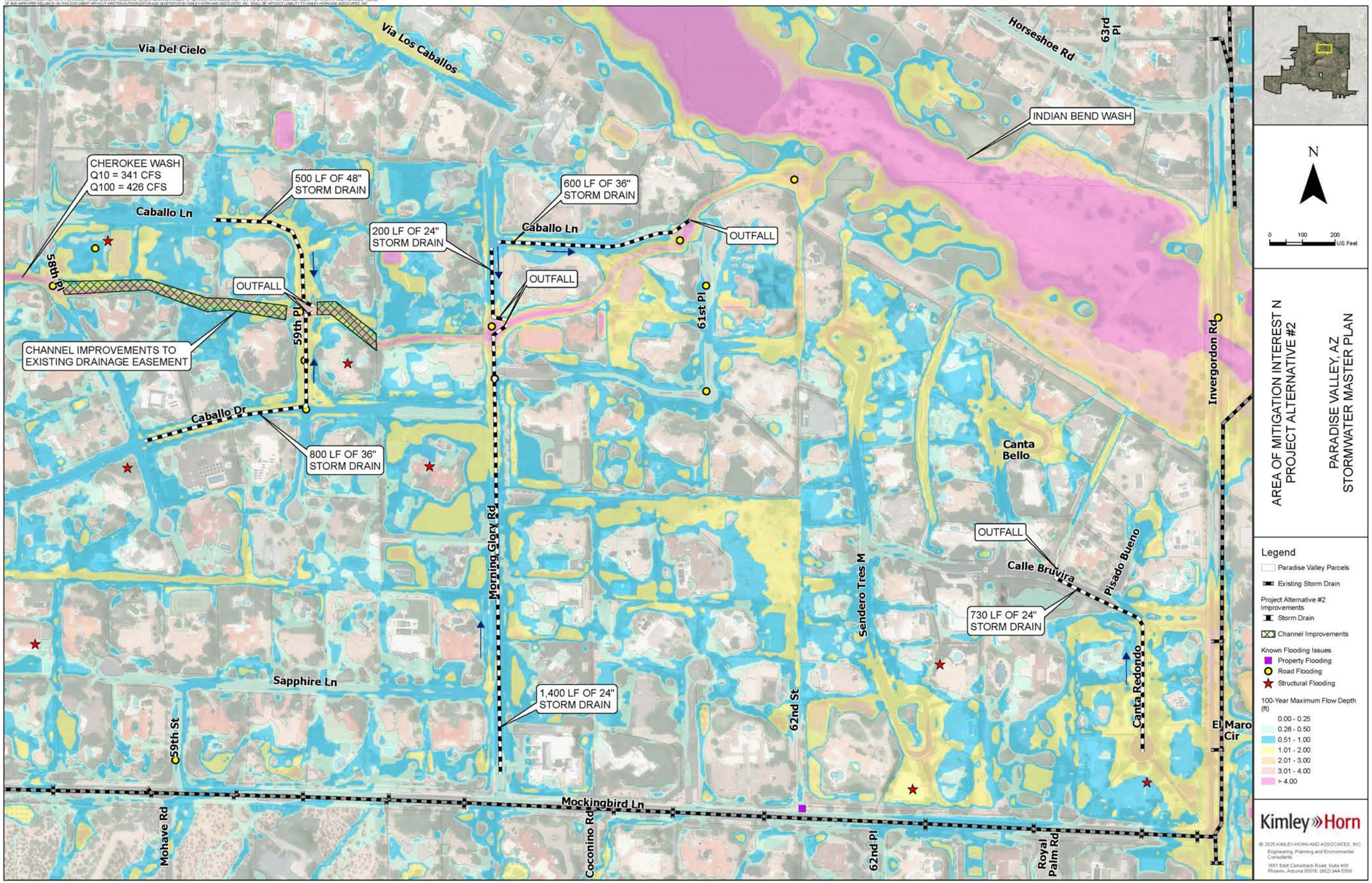
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Conceptual Cost Estimate for Alternative 1

Item	Description	Unit	Quantity	Unit Price	Cost
1	4 - 10' x 4' RCBC	LF	200	$7,200	$1,440,000
2	Headwall	EA	8	$8,000	$64,000
3	Grouted Riprap	CY	32	$480	$15,360
4	Pavement Removal and Replacement	LF	800	$150	$120,000
6	Clearing and Grubbing	AC	1	$25,000	$25,000
7	Channel Grading	LS	1	$15,000	$15,000
				Subtotal	$1,679,360
8	SWPPP (3%)	LS	1	$50,381	$50,381
9	Mobilization/Demobilization (12%)	LS	1	$201,523	$201,523
10	Design (10%)	LS	1	$167,936	$167,936
11	Construction Management (10%)	LS	1	$167,936	$167,936
12	Utilities (5%)	LS	1	$83,968	$83,968
13	Traffic Control (5%)	LS	1	$83,968	$83,968
				Subtotal	$2,435,072
				Subtotal	$2,435,072
				Contingency (15%)	$365,261
				Total	$2,800,333

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Conceptual Cost Estimate for Alternative 2

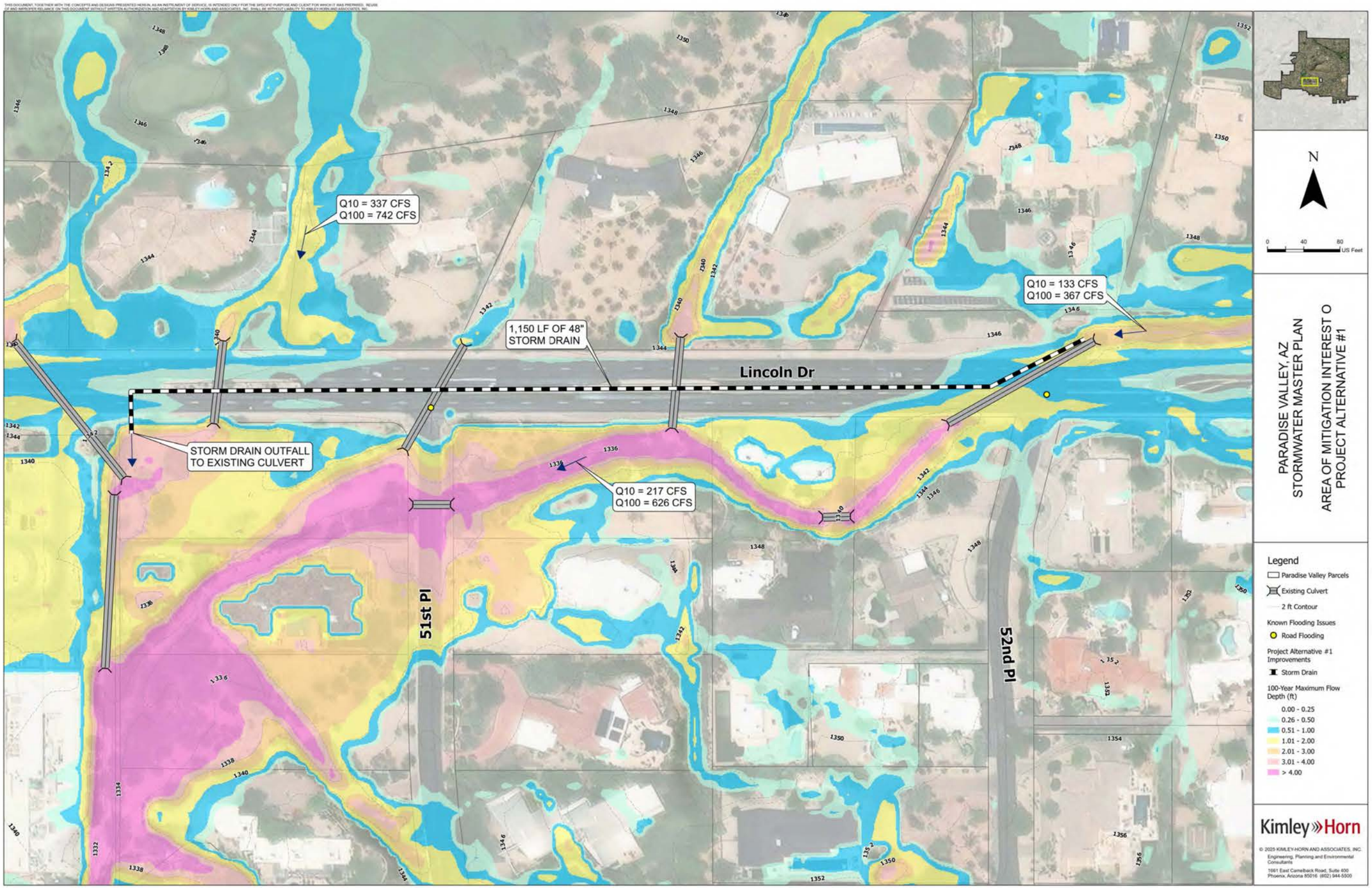
Item	Description	Unit	Quantity	Unit Price	Cost
1	36" RCP Storm Drain	LF	3,810	$420	$1,600,200
2	48" RCP Storm Drain	LF	525	$600	$315,000
3	Outlet structure	EA	5	$2,100	$10,500
4	Catch Basin	EA	21	$12,000	$252,000
5	Manhole	EA	24	$10,000	$240,000
6	Clearing and Grubbing	AC	1	$25,000	$25,000
7	Channel Grading	LS	1	$15,000	$15,000
				Subtotal	2,457,700
6	SWPPP (2%)	LS	1	$49,154	$49,154
7	Mobilization/Demobilization (10%)	LS	1	$245,770	$245,770
8	Design (12%)	LS	1	$294,924	$294,924
9	Construction Management (10%)	LS	1	$245,770	$245,770
10	Utilities (3%)	LS	1	$73,731	$73,731
11	Traffic Control (3%)	LS	1	$73,731	$73,731
				Subtotal	$3,440,780
				Contingency (15%)	$516,117
				Total	$3,956,897

Area N

	Potential Stuctures Protected	Design and Construction Cost	Potential Streets Protected	GSI Benefits	Project Partnership	Multi-use Opportunities	O&M Constraints and Costs	Utility Constraints	Total Raw Score	Total Weighted Score	Significant R/W Aqusition
Priority Weighting 1 - 5	5	5	4	1	4	2	3	3			
Alternative 1	**1**	**2**	**2**	**1**	**2**	**1**	**2**	**1**	**12**	**43**	**No**
Alternative 2	**1**	**1**	**2**	**1**	**2**	**1**	**2**	**1**	**11**	**38**	**No**
Ranking Criteria	1 - 1 to 30 structures 2 - 31 to 50 structures 3 - > 51 structures	1 - Most expensive 2 - Least expensive	1 - Local street benefits only 2 - Collector street or local streets benefit 3 - Multiple collector streets and local streets benefit	1 - No opportunities 2 - Some opportunities	1 -Grant funding or partnerships unlikely 2 - Local partnerships/grant eligible 3 - Local and Federal partnerships/grant eligible	1 - No opportunities 2 - Some opportunities	1 - Maintenance after every storm event 2 - Maintenance at standard intervals	1 - Major constraints 2 - Minor constraints	19 - Highest achievable score	67 - Highest achievable score	

XVII. APPENDIX E – PROJECT ALTERNATIVES, EOPC, AND MATRIX

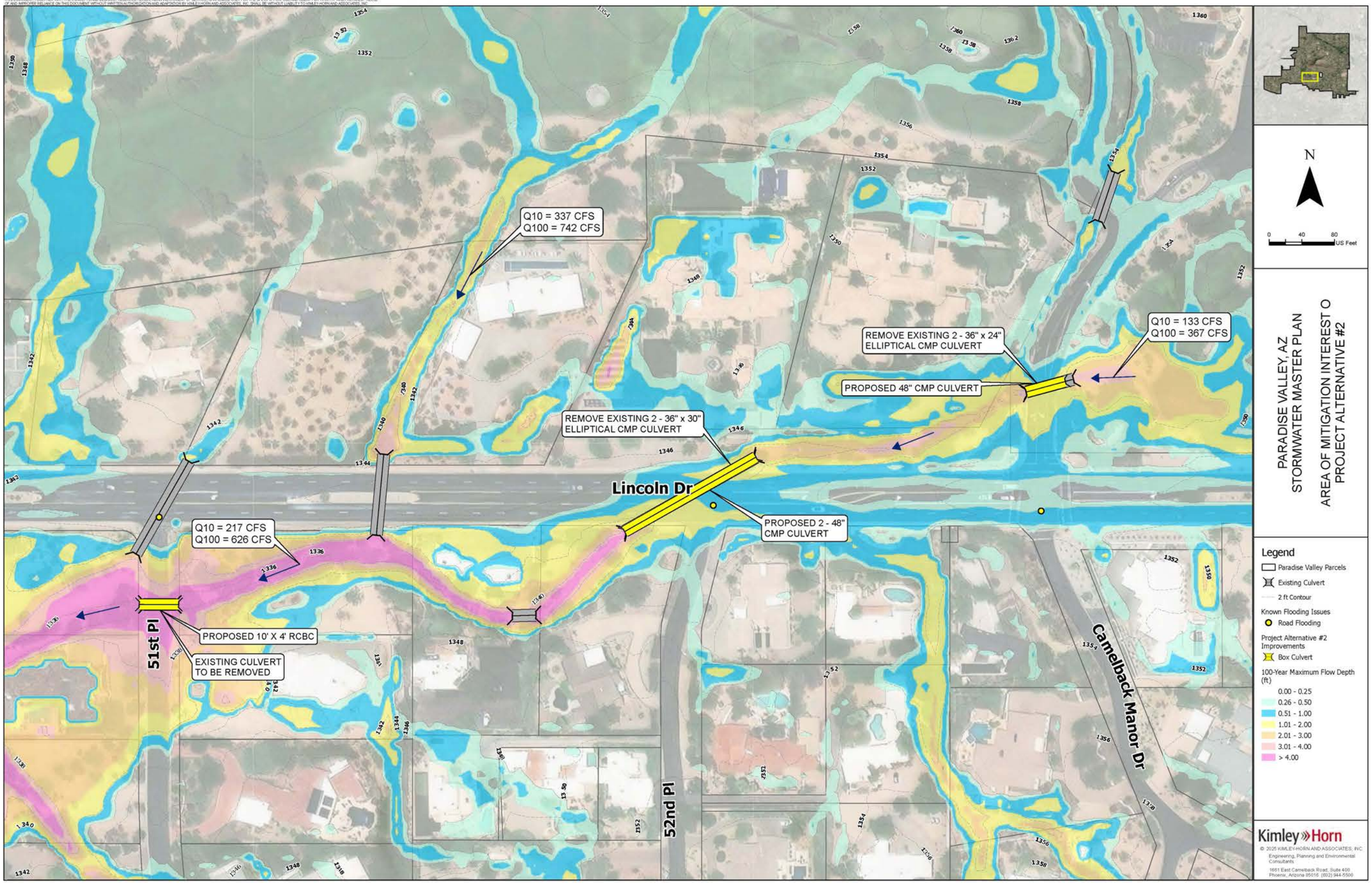
FLOOD HAZARD AREA O ALTERNATIVES


Q10 = 337 CFS
Q100 = 742 CFS
1,150 LF OF 48" STORM DRAIN
Lincoln Dr
Q10 = 133 CFS
Q100 = 367 CFS
STORM DRAIN OUTFALL TO EXISTING CULVERT
Q10 = 217 CFS
Q100 = 626 CFS
51st Pl
52nd Pl
N
0 40 80 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
AREA OF MITIGATION INTEREST O
PROJECT ALTERNATIVE #1
Legend
Paradise Valley Parcels
Existing Culvert
2 ft Contour
Known Flooding Issues
Road Flooding
Project Alternative #1 Improvements
Storm Drain
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
Kimley»Horn
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Engineering, Planning and Environmental Consultants
1661 East Camelback Road, Suite 400
Phoenix, Arizona 85016 (602) 944-5500

Conceptual Cost Estimate for Alternative 1

Item	Description	Unit	Quantity	Unit Price	Cost
1	Storm Drain 60"	LF	1,150	$780	$897,000
2	Catch Basin	EA	5	$10,000	$50,000
3	Inlet/Oulet Structure	EA	2	$3,600	$7,200
4	Remove and Replace Pavement	LF	1,200	$120	$144,000
5	Manhole	EA	6	$10,000	$60,000
				Subtotal	$1,158,200
6	SWPPP (5%)	LS	1	$57,910	$57,910
7	Mobilization/Demobilization (15%)	LS	1	$173,730	$173,730
8	Design (15%)	LS	1	$173,730	$173,730
9	Construction Management (12%)	LS	1	$138,984	$138,984
10	Utilities (10%)	LS	1	$115,820	$115,820
11	Traffic Control (10%)	LS	1	$115,820	$115,820
				Subtotal	$1,934,194
				Subtotal	$1,934,194
				Contingency (20%)	$386,839
				Total	$2,321,033

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Conceptual Cost Estimate for Alternative 2

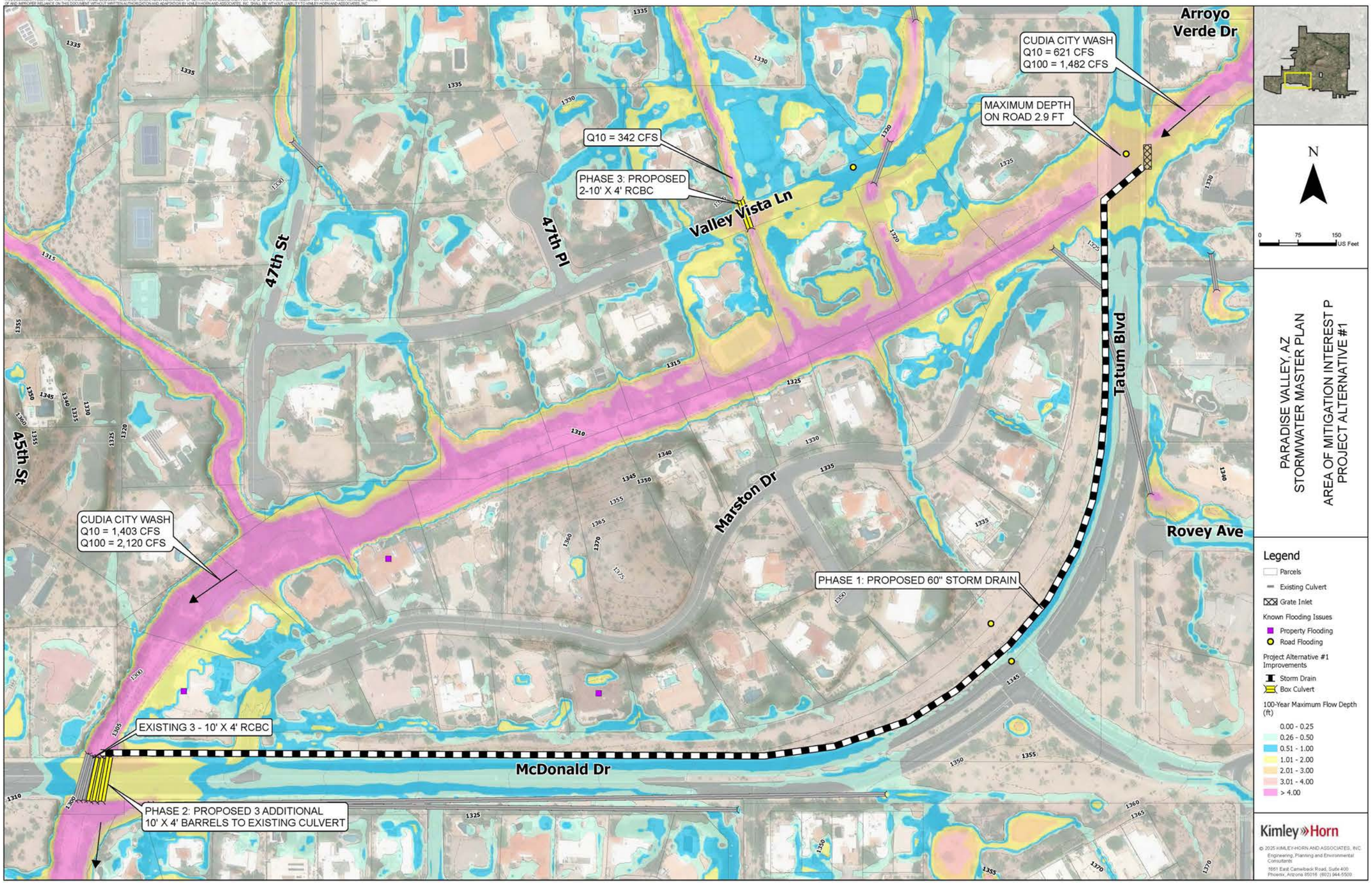
Item	Description	Unit	Quantity	Unit Price	Cost
1	10' x 4' RCBC	LF	150	$1,950	$292,500
2	48" RCP Culvert	LF	555	$570	$316,350
4	Headwalls	EA	6	$12,000	$72,000
5	Grouted Riprap	CY	22	$470	$10,340
6	Excavation	CY	1,050	$65	$68,250
7	Remove and Replace Pavement	LF	315	$220	$69,300
				Subtotal	$828,740
8	SWPPP (5%)	LS	1	$41,437	$41,437
9	Mobilization/Demobilization (15%)	LS	1	$124,311	$124,311
10	Design (10%)	LS	1	$124,311	$124,311
11	Construction Management (10%)	LS	1	$82,874	$82,874
12	Utilities (12%)	LS	1	$99,449	$99,449
13	Traffic Control (15%)	LS	1	$124,311	$124,311
				Subtotal	$1,425,433
				Contingency (25%)	$356,358
				Total	$1,781,791

Area O Project Matrix

	Potential Stuctures Protected	Design and Construction Cost	Potential Streets Protected	GSI Benefits	Project Partnership	Multi-use Opportunities	O&M Constraints and Costs	Utility Constraints	Total Raw Score	Total Weighted Score	Significant R/W Acquisition?
Priority Weighting 1 - 5	5	5	4	1	4	2	3	3			
Alternative 1	1	1	2	1	2	1	2	1	11	38	No
Alternative 2	1	2	2	1	2	1	2	1	12	43	No
Ranking Criteria	1 - 1 to 30 structures 2 - 31 to 50 structures 3 - > 51 structures	1 - Most expensive 2 - Least expensive	1 - Local street benefits only 2 - Collector street or local streets benefit 3 - Multiple collector streets and local streets benefit	1 - No opportunities 2 - Some opportunities	1 -Grant funding or partnerships unlikely 2 - Local partnerships/grant eligible 3 - Local and Federal partnerships/grant eligible	1 - No opportunities 2 - Some opportunities	1 - Maintenance after every storm event 2 - Maintenance at standard intervals	1 - Major constraints 2 - Minor constraints	19 - Maximum possible score	67 - Maximum possible score	

XVII. APPENDIX E – PROJECT ALTERNATIVES, EOPC, AND MATRIX

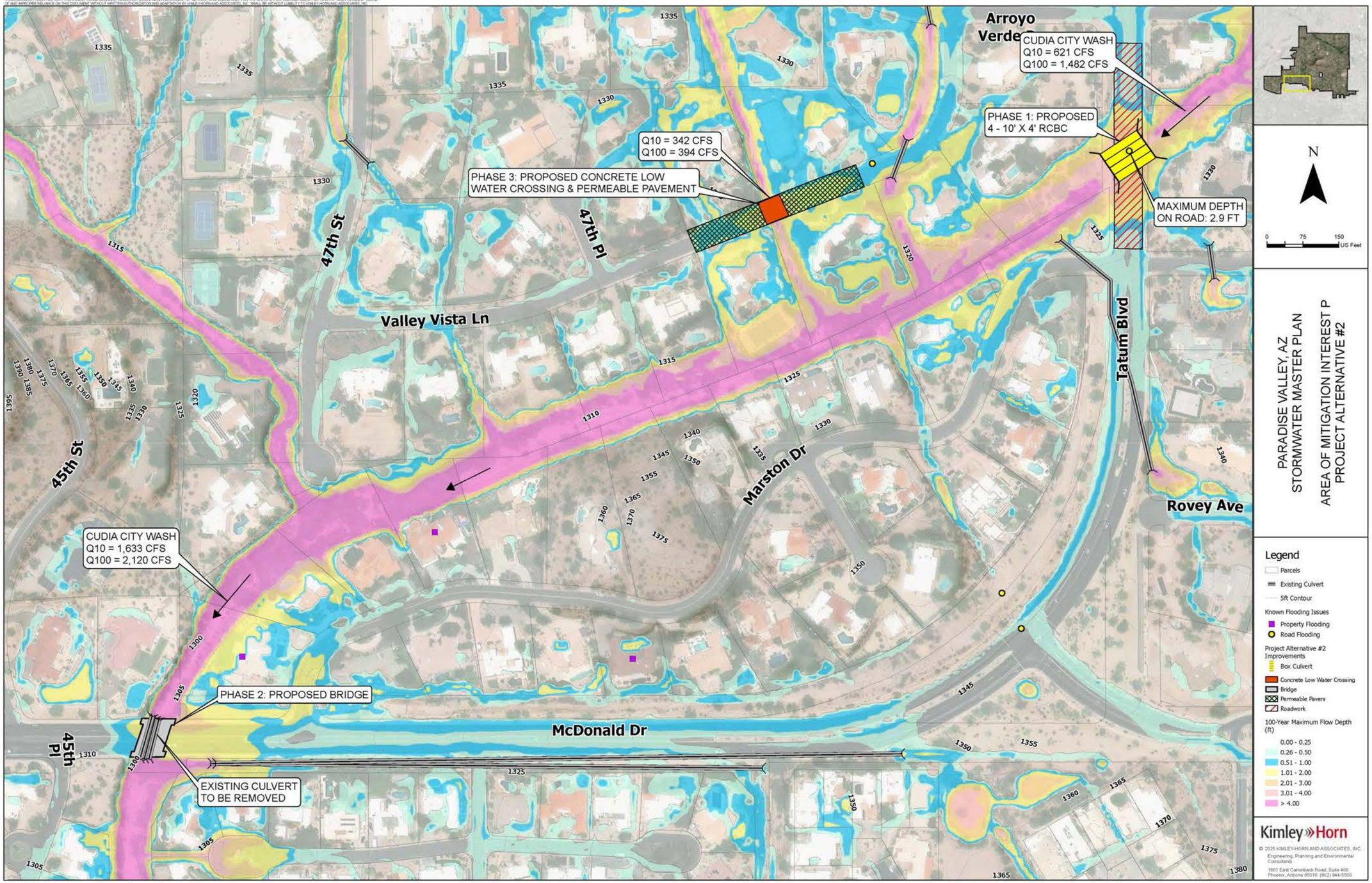
FLOOD HAZARD AREA H ALTERNATIVES


CUDIA CITY WASH
Q10 = 621 CFS
Q100 = 1,482 CFS
MAXIMUM DEPTH
ON ROAD 2.9 FT
Q10 = 342 CFS
PHASE 3: PROPOSED
2-10' X 4' RCBC
Arroyo
Verde Dr
Valley Vista Ln
47th St
47th Pl
Tatum Blvd
Marston Dr
Rovey Ave
45th St
CUDIA CITY WASH
Q10 = 1,403 CFS
Q100 = 2,120 CFS
PHASE 1: PROPOSED 60" STORM DRAIN
EXISTING 3 - 10' X 4' RCBC
McDonald Dr
PHASE 2: PROPOSED 3 ADDITIONAL
10' X 4' BARRELS TO EXISTING CULVERT
N
0
75
150
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
AREA OF MITIGATION INTEREST P
PROJECT ALTERNATIVE #1
Legend
Parcels
Existing Culvert
Grate Inlet
Known Flooding Issues
Property Flooding
Road Flooding
Project Alternative #1
Improvements
Storm Drain
Box Culvert
100-Year Maximum Flow Depth
(ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
Kimley»Horn
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Consultants
1661 East Camelback Road, Suite 400
Phoenix, Arizona 85016 (602) 944-5500

Conceptual Cost Estimate for Alternative 1

Item	Description	Unit	Quantity	Unit Price	Cost
	Phase 1: Tatum Boulevard Storm Drain				
1	Storm Drain (36") & Trenching	LF	2900	$1,300	$3,770,000
2	Outlet Structure	EA	1	$5,000	$5,000
3	Inlet Structure	EA	1	$3,500	$3,500
4	Remove and Replace Pavement	SY	35	$185	$6,475
5	Channel Excavation & Haul	CY	16,250	$20	$325,000
6	Clearing and Grubbing	AC	4.85	$4,000	$19,400
7	Landscaping	AC	4.85	$7,450	$36,133
				Subtotal	$4,165,508
8	SWPPP (1%)	LS	1	$41,655	$41,655
9	Mobilization/Demobilization (10%)	LS	1	$416,551	$416,551
10	Design (10%)	LS	1	$416,551	$416,551
11	Construction Management (10%)	LS	1	$416,551	$416,551
12	Utilities (3%)	LS	1	$124,965	$124,965
13	Traffic Control (3%)	LS	1	$124,965	$124,965
				Subtotal	$5,706,745
				Contingency (20%)	$1,141,349
				Total	$6,848,094
	Phase 2: McDonald Drive Culvert Expansion				
1	1 - 10' x 4' RCBC	LF	90	$2,200	$198,000
2	Drainage Excavation	CY	575	$185	$106,375
3	Pavement Removal and Replacment	SY	167	$185	$30,895
4	Headwall Extension	EA	2	$10,000	$20,000
				Subtotal	$355,270
5	SWPPP (5%)	LS	1	$17,764	$17,764
6	Mobilization/Demobilization	LS	1	$100,000	$100,000
7	Design	LS	1	$75,000	$75,000
8	Construction Management (15%)	LS	1	$53,291	$53,291
9	Utilities (8%)	LS	1	$28,422	$28,422
10	Traffic Control (8%)	LS	1	$28,422	$28,422
				Subtotal	$658,167
				Contingency (20%)	$131,633
				Total	$789,801
	Phase 3: Valley Vista Culvert				
1	36" RCP	LF	35	$435	$15,225
2	Headwall	EA	2	$1,200	$2,400
3	Grouted Riprap	CY	15	$270	$4,050
4	Remove and Replace Pavement	SY	20	$185	$3,700
5	Excavation	CY	32	$120	$3,840
				Subtotal	$29,215
6	SWPPP (5%)	LS	1	$1,461	$1,461
7	Mobilization/Demobilization	LS	1	$5,000	$5,000
8	Design	LS	1	$5,000	$5,000
9	Construction Management (10%)	LS	1	$2,922	$2,922
10	Utilities (5%)	LS	1	$1,461	$1,461
11	Traffic Control (5%)	LS	1	$1,461	$1,461
				Subtotal	$46,519
				Contingency (20%)	$9,304
				Total	$55,823

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Conceptual Cost Estimate for Alternative 2

Item	Description	Unit	Quantity	Unit Price	Cost
	Phase 1: Tatum Boulevard Culvert				
1	4 - 10' x 4' RCBC	LF	110	$6,400	$704,000
2	Inlet	EA	1	$20,000	$20,000
3	Outlet	EA	1	$20,000	$20,000
4	Channel Excavation & Haul	CY	1,100	$55	$60,500
5	Manhole	EA	3	$10,000	$30,000
6	Roadway Profile Raise	LF	500	$550	$275,000
7	Riprap	CY	250	$100	$25,000
				Subtotal	$1,134,500
8	SWPPP (3%)	LS	1	$34,035	$34,035
9	Mobilization/Demobilization (10%)	LS	1	$113,450	$113,450
10	Design (10%)	LS	1	$113,450	$113,450
11	Construction Management (10%)	LS	1	$113,450	$113,450
12	Utilities (7%)	LS	1	$79,415	$79,415
13	Traffic Control (5%)	LS	1	$56,725	$56,725
				Subtotal	$1,645,025
				Contingency (20%)	$329,005
				Total	$1,974,030
	Phase 2: McDonald Drive Bridge				
1	Removal of Stuctural Concrete	CY	425	$305	$129,625
2	Precast, Prestressed Concrete Bridge Member	LF	100	$850	$85,000
3	Pedestrian-Traffic Bridge Railing	LF	120	$380	$45,600
4	Structural Concrete	CY	650	$2,750	$1,787,500
				Subtotal	$2,047,725
5	SWPPP (1%)	LS	1	$20,477	$20,477
6	Mobilization/Demobilization (10%)	LS	1	$204,773	$204,773
7	Design (10%)	LS	1	$204,773	$204,773
8	Construction Management (10%)	LS	1	$204,773	$204,773
9	Utilities (3%)	LS	1	$61,432	$61,432
10	Traffic Control (2%)	LS	1	$40,955	$40,955
				Subtotal	$2,784,908
				Contingency (20%)	$556,982
				Total	$3,341,890
	Phase 3: Valley Vista Low Water Crossing				
1	Removal of Existing Pavement	SY	970	$10	$9,700
2	Permeable Pavement	LF	375	$32	$12,000
3	Portland Cement Concrete Pavement	SY	100	$120	$12,000
				Subtotal	$33,700
4	SWPPP (3%)	LS	1	$1,011	$1,011
5	Mobilization/Demobilization	LS	1	$3,370	$3,370
6	Design (10%)	LS	1	$3,370	$3,370
7	Construction Management (10%)	LS	1	$3,370	$3,370
8	Utilities (5%)	LS	1	$1,685	$1,685
9	Traffic Control (3%)	LS	1	$1,011	$1,011
				Subtotal	$47,517
				Contingency (20%)	$9,503
				Total	$57,020

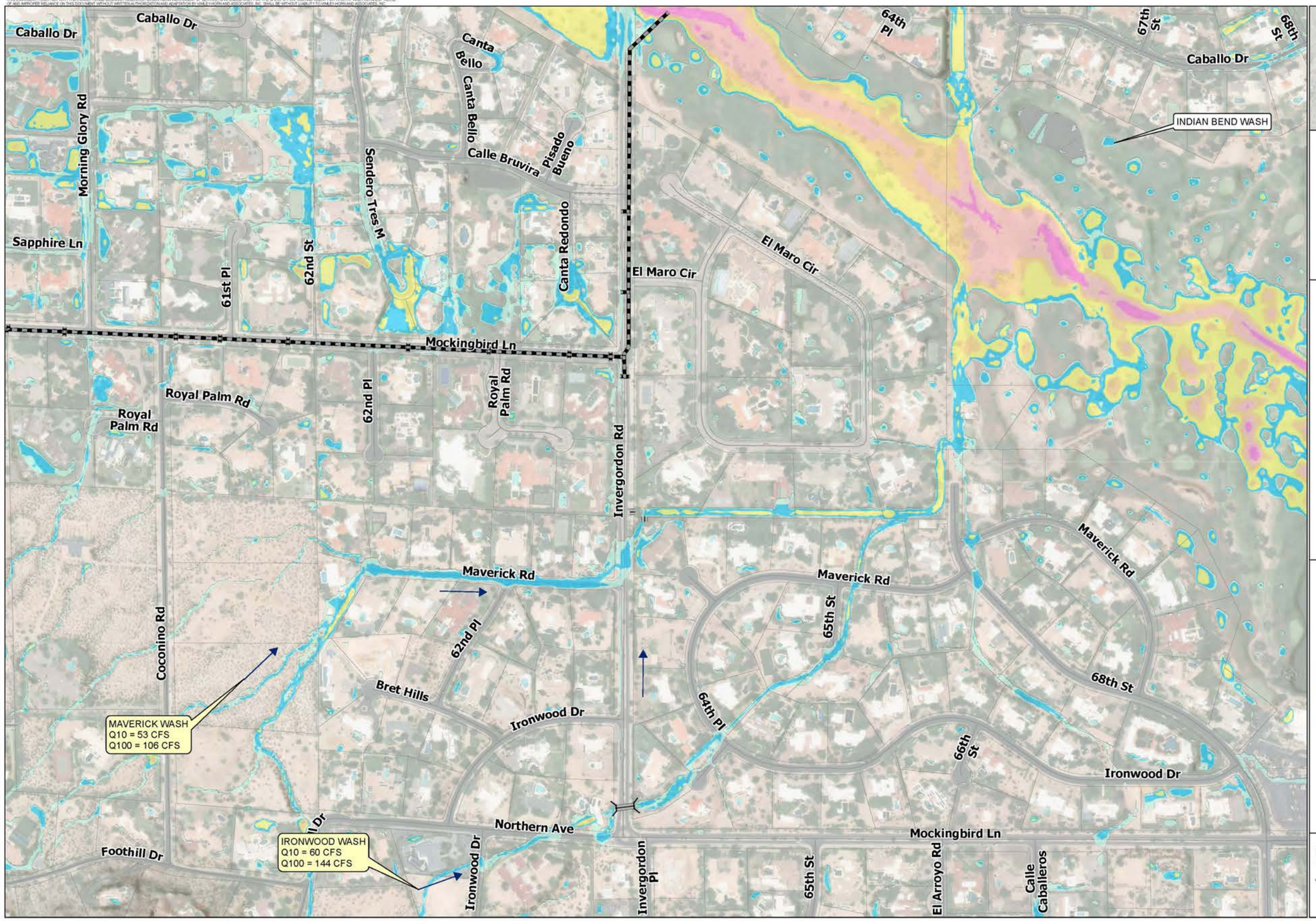
Area P Project Matrix

	Potential Stuctures Protected	Design and Construction Cost	Potential Streets Protected	GSI Benefits	Project Partnership	Multi-use Opportunities	O&M Constraints and Costs	Utility Constraints	Total Raw Score	Total Weighted Score	Significant R/W Acquisition?
Priority Weighting 1 - 5	5	5	4	1	4	2	3	3			
Phase 1: Alternative 1	1	1	2	1	2	1	2	1	11	38	No
Phase 1: Alternative 2	1	2	2	1	2	1	2	1	12	43	No
Phase 2: Alternative 1	1	2	2	1	2	1	2	1	12	43	No
Phase 2: Alternative 2	1	1	2	1	2	1	2	1	11	38	No
Phase 3: Alternative 1	1	2	1	1	2	1	2	2	12	42	No
Phase 3: Alternative 2	1	1	1	2	2	1	2	2	12	38	No
Ranking Criteria	1 - 1 to 30 structures 2 - 31 to 50 structures 3 - > 51 structures	1 - Most expensive 2 - Least expensive	1 - Local street benefits only 2 - Collector street or local streets benefit 3 - Multiple collector streets and local streets benefit	1 - No opportunities 2 - Some opportunities	1 - Grant funding or partnerships unlikely 2 - Local partnerships/grant eligible 3 - Local and Federal partnerships/grant eligible	1 - No opportunities 2 - Some opportunities	1 - Maintenance after every storm event 2 - Maintenance at standard intervals	1 - Major constraints 2 - Minor constraints	19 - Maximum Possible Score	67 - Maximum Possible Score	

XVIII. APPENDIX F – HIGHEST PRIORITY PROJECTS ANTICIPATED PERFORMANCE

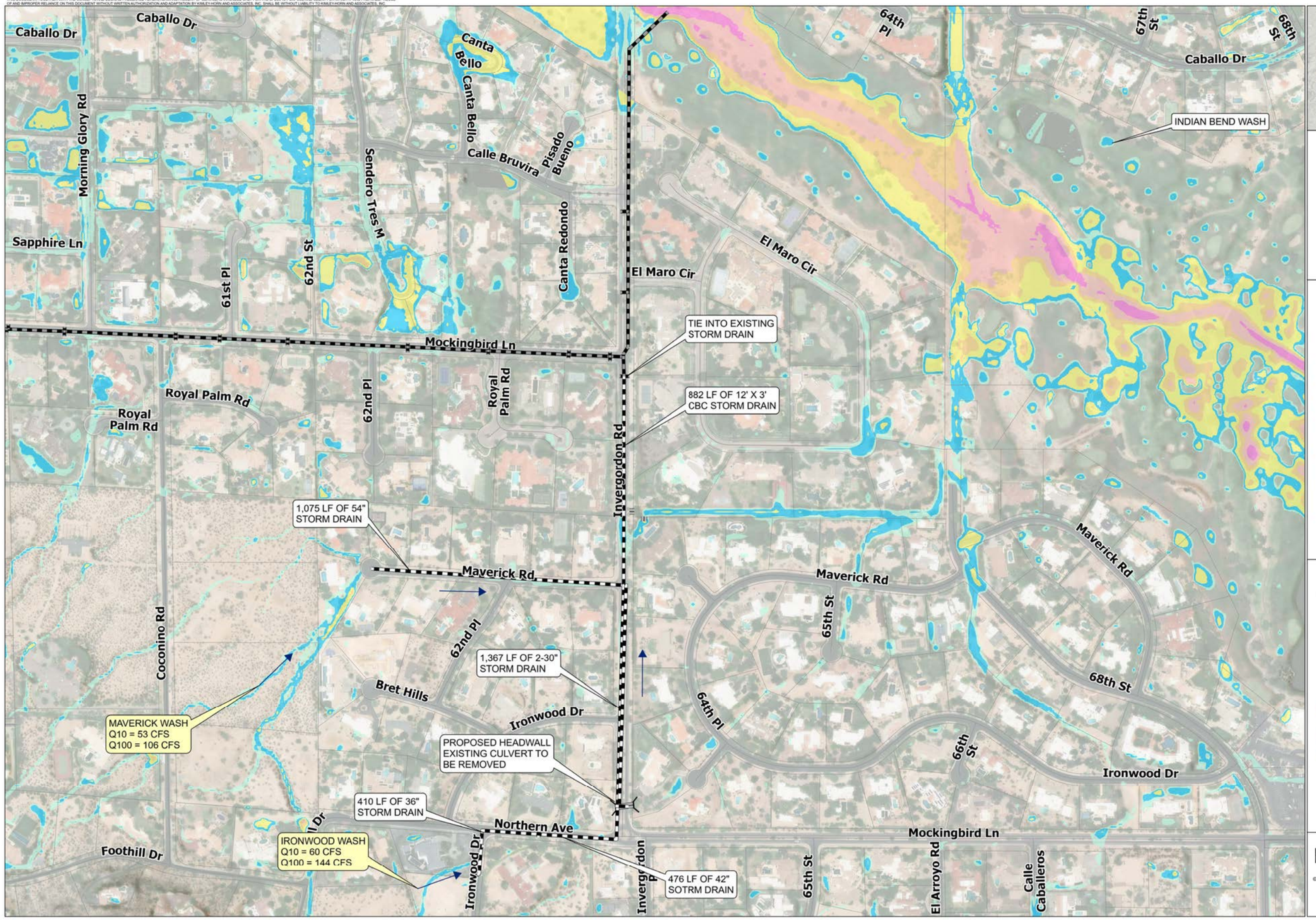
FLOOD HAZARD AREA A

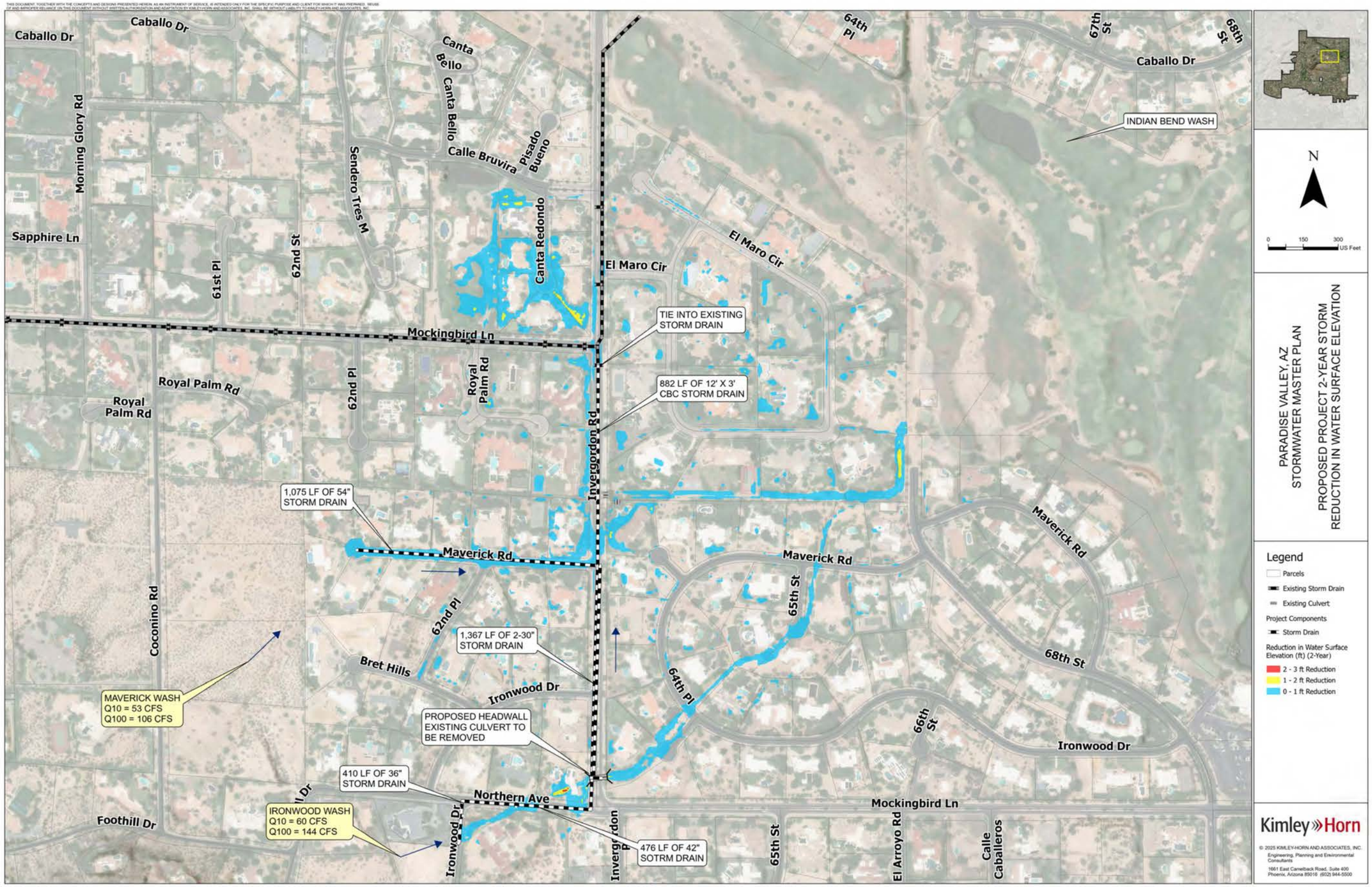
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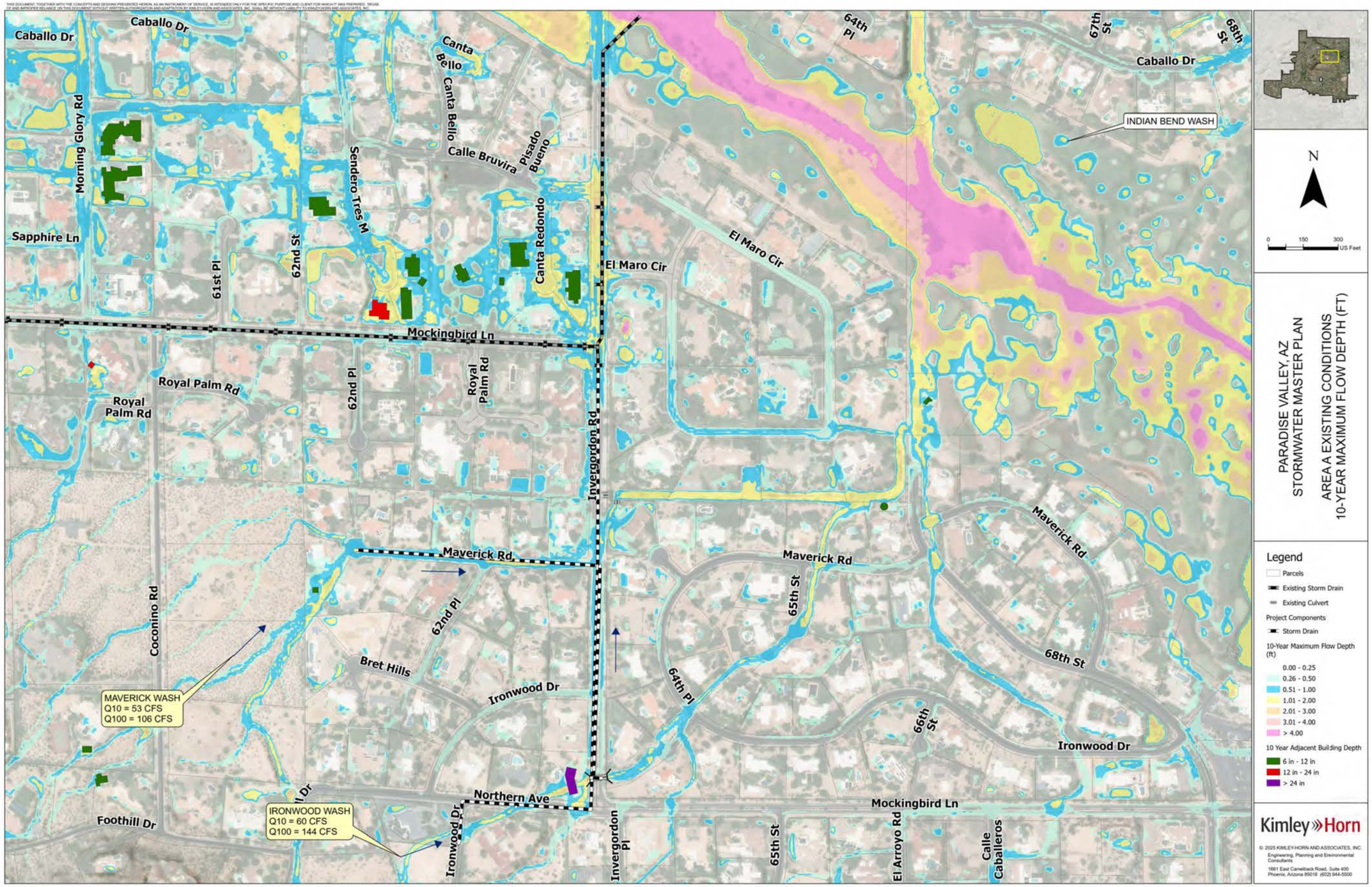


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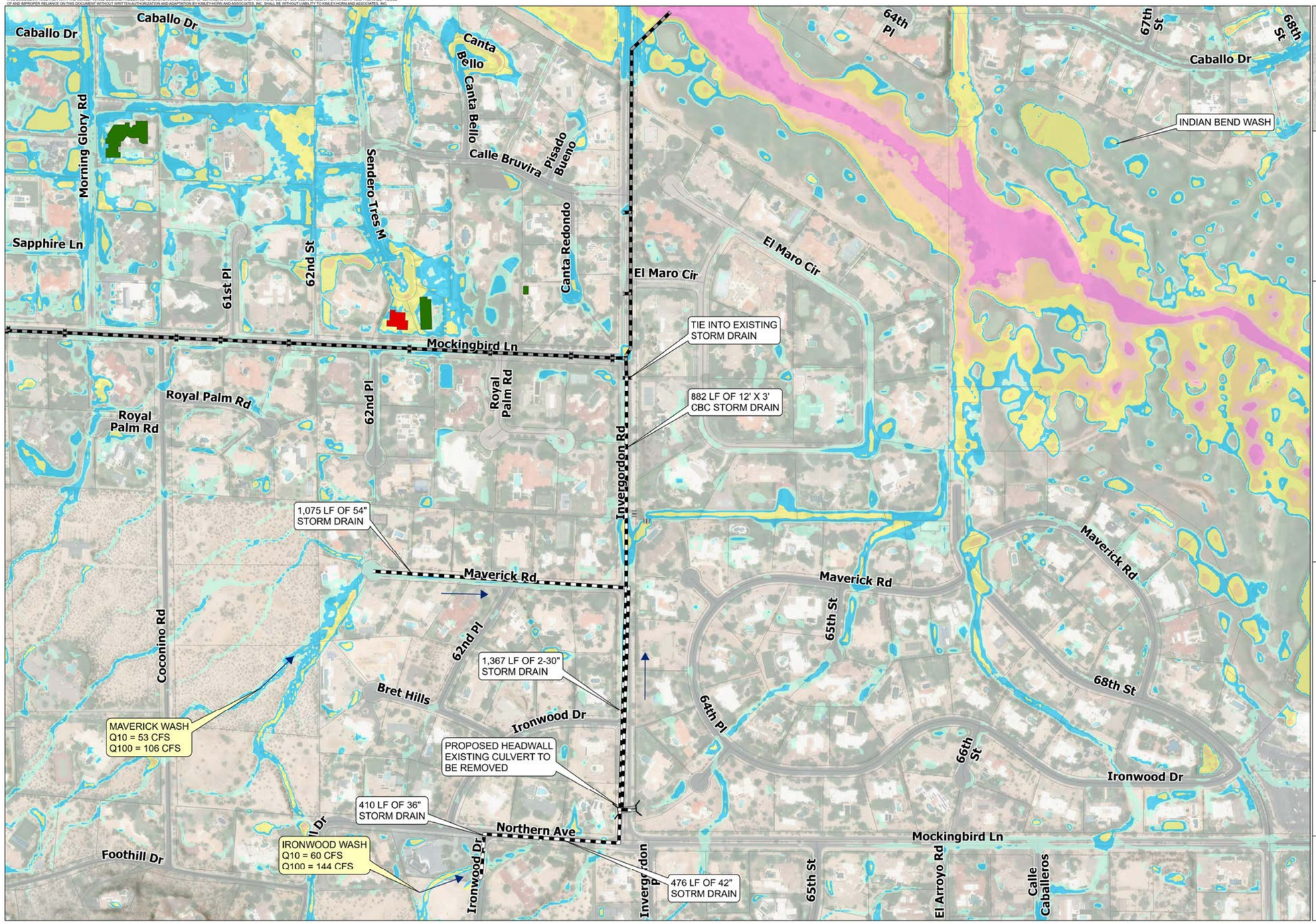
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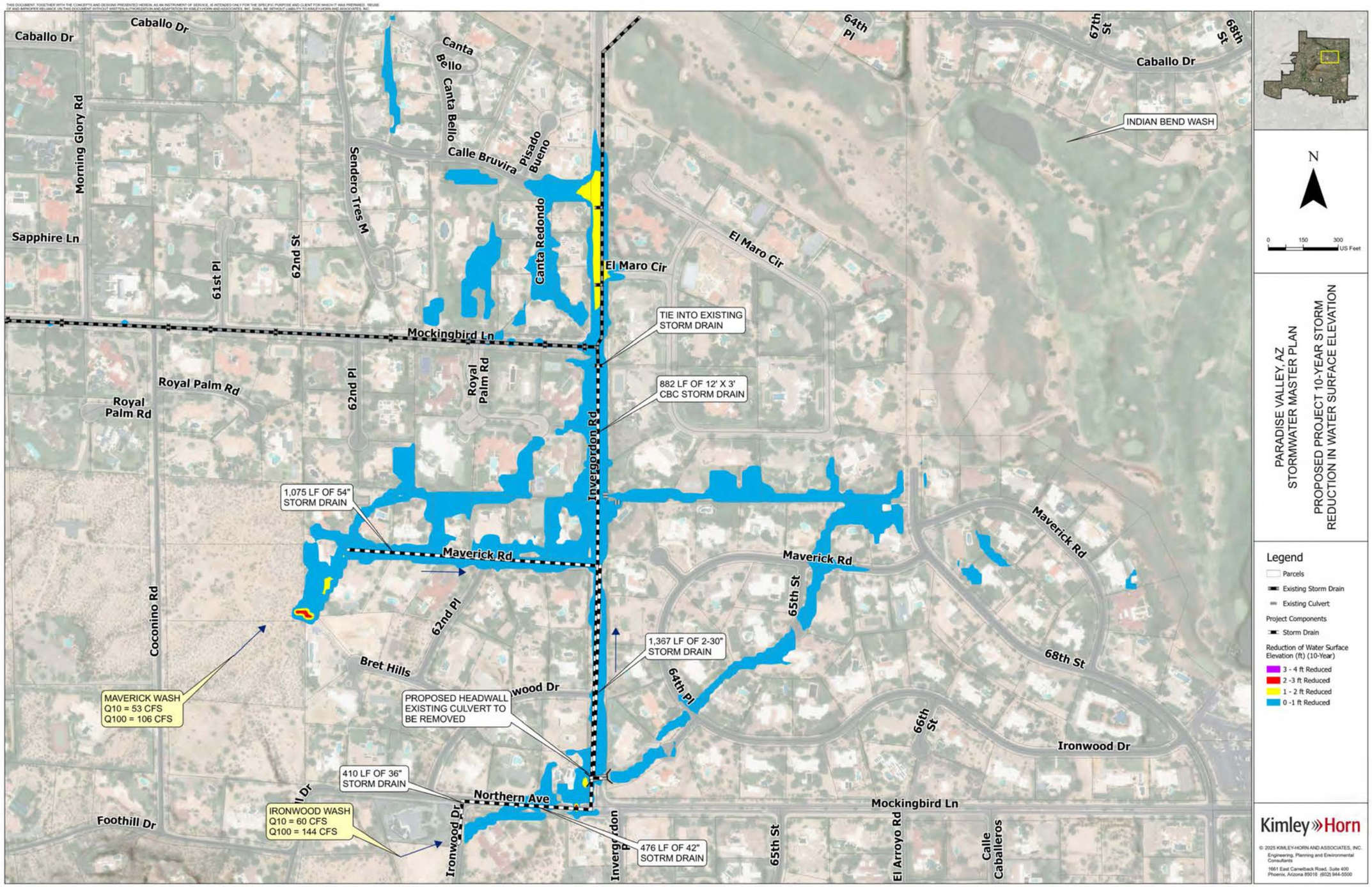


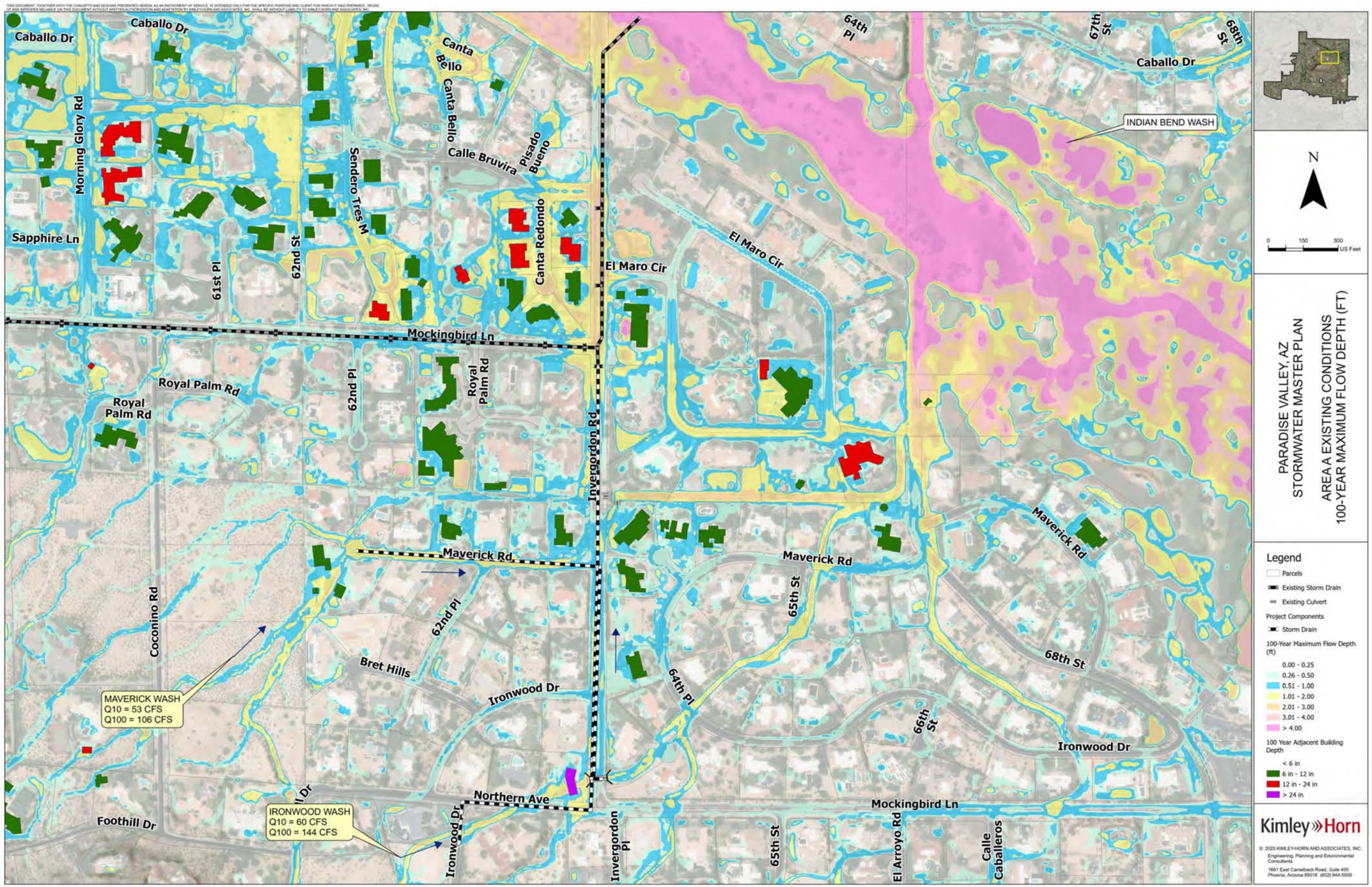

Caballo Dr
Caballo Dr
Morning Glory Rd
Canta Bello
Canta Bello
Calle Bruvira
Pisado Bueno
Sendero Tres M
Canta Redondo
64th Pl
67th St
68th St
Caballo Dr
INDIAN BEND WASH
Sapphire Ln
61st Pl
62nd St
El Maro Cir
El Maro Cir
TIE INTO EXISTING STORM DRAIN
Mockingbird Ln
882 LF OF 12' X 3' CBC STORM DRAIN
Royal Palm Rd
Royal Palm Rd
62nd Pl
Royal Palm Rd
Invergordon Rd
1,075 LF OF 54" STORM DRAIN
Maverick Rd
Maverick Rd
Maverick Rd
62nd Pl
65th St
1,367 LF OF 2-30" STORM DRAIN
Coconino Rd
Bret Hills
Ironwood Dr
64th Pl
68th St
MAVERICK WASH
Q10 = 53 CFS
Q100 = 106 CFS
PROPOSED HEADWALL EXISTING CULVERT TO BE REMOVED
66th St
Ironwood Dr
410 LF OF 36" STORM DRAIN
Northern Ave
Mockingbird Ln
IRONWOOD WASH
Q10 = 60 CFS
Q100 = 144 CFS
Foothill Dr
Ironwood Dr
Invergordon Rd
476 LF OF 42" SOTRM DRAIN
65th St
El Arroyo Rd
Calle Caballeros
N
0
150
300
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
PROPOSED PROJECT 2-YEAR STORM
REDUCTION IN WATER SURFACE ELEVATION
Legend
Parcels
Existing Storm Drain
Existing Culvert
Project Components
Storm Drain
Reduction in Water Surface Elevation (ft) (2-Year)
2 - 3 ft Reduction
1 - 2 ft Reduction
0 - 1 ft Reduction
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62nd St
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Calle Bruvira
Pisado Bueno
Canta Redondo
El Maro Cir
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67th St
68th St
INDIAN BEND WASH
Mockingbird Ln
Royal Palm Rd
62nd Pl
Invergordon Rd
Maverick Rd
65th St
66th St
Ironwood Dr
Coconino Rd
Bret Hills
Northern Ave
Foothill Dr
Calle Caballeros
El Arroyo Rd
MAVERICK WASH
Q10 = 53 CFS
Q100 = 106 CFS
IRONWOOD WASH
Q10 = 60 CFS
Q100 = 144 CFS
N
0 150 300
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
AREA A EXISTING CONDITIONS
10-YEAR MAXIMUM FLOW DEPTH (FT)
Legend
Parcels
Existing Storm Drain
Existing Culvert
Project Components
Storm Drain
10-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
10 Year Adjacent Building Depth
6 in - 12 in
12 in - 24 in
> 24 in
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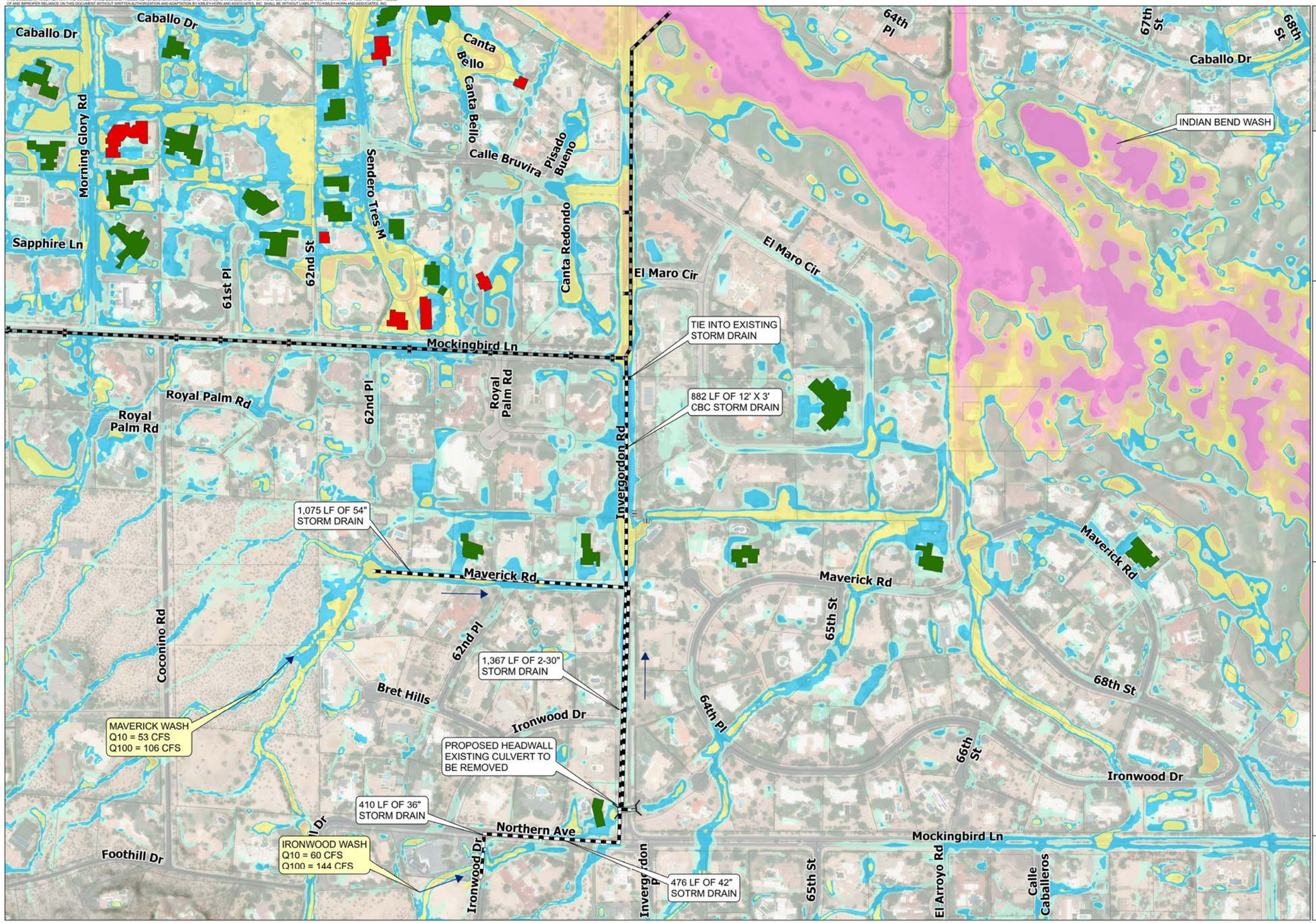
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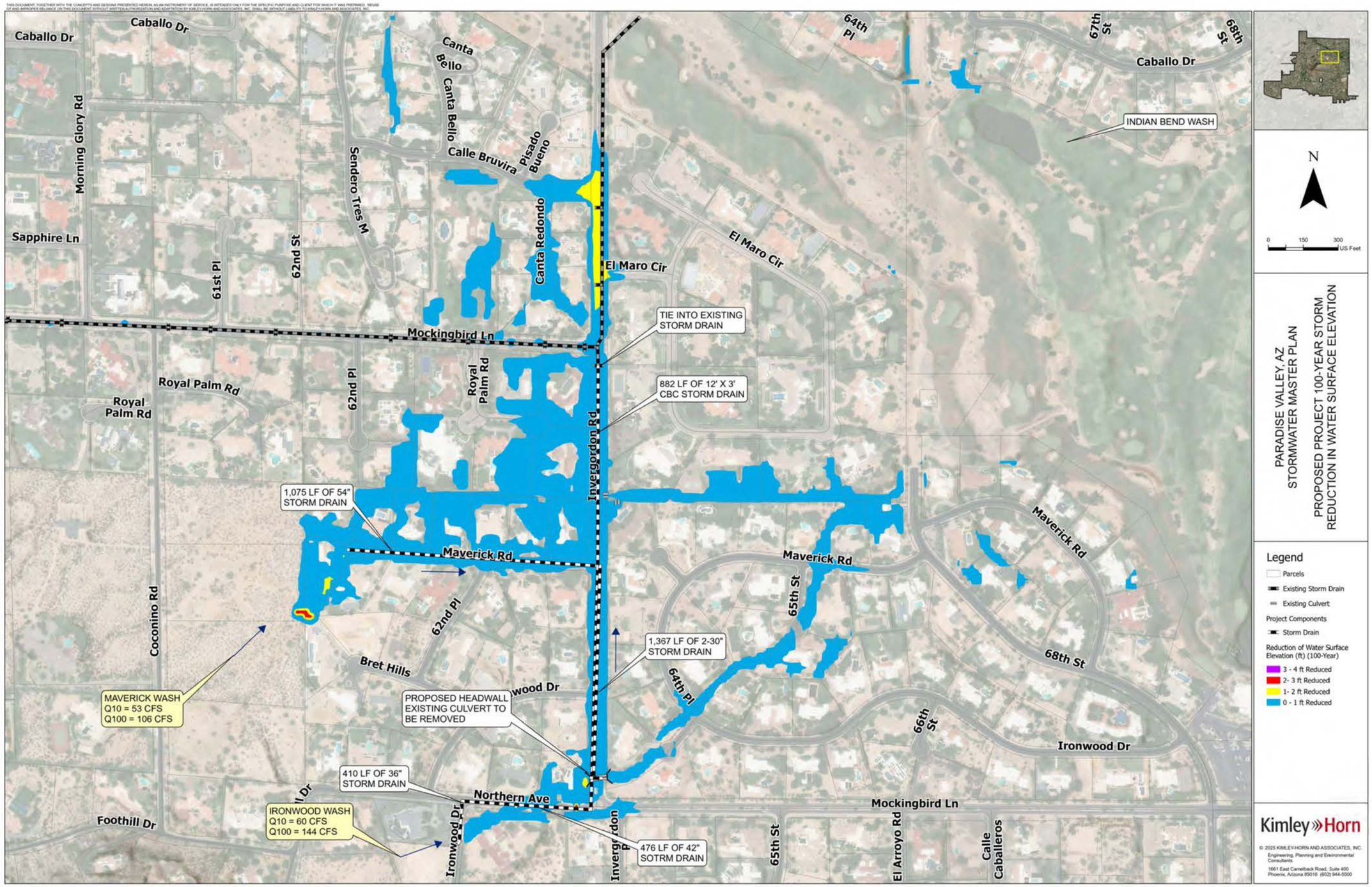

Caballo Dr
Morning Glory Rd
Sapphire Ln
61st Pl
62nd St
Sendero Tres M
Canta Bello
Calle Bruvira
Pisado Bueno
Canta Redondo
El Maro Cir
64th Pl
67th St
68th St
INDIAN BEND WASH
TIE INTO EXISTING STORM DRAIN
882 LF OF 12' X 3' CBC STORM DRAIN
Mockingbird Ln
Royal Palm Rd
62nd Pl
Invergordon Rd
1,075 LF OF 54" STORM DRAIN
Maverick Rd
65th St
1,367 LF OF 2-30" STORM DRAIN
Coconino Rd
Bret Hills
Ironwood Dr
66th St
MAVERICK WASH
Q10 = 53 CFS
Q100 = 106 CFS
PROPOSED HEADWALL
EXISTING CULVERT TO
BE REMOVED
410 LF OF 36" STORM DRAIN
Northern Ave
IRONWOOD WASH
Q10 = 60 CFS
Q100 = 144 CFS
Foothill Dr
Ironwood Dr
476 LF OF 42" SOTRM DRAIN
El Arroyo Rd
Calle Caballeros
N
0 150 300 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
PROPOSED PROJECT 10-YEAR STORM
REDUCTION IN WATER SURFACE ELEVATION
Legend
Parcels
Existing Storm Drain
Existing Culvert
Project Components
Storm Drain
Reduction of Water Surface Elevation (ft) (10-Year)
3 - 4 ft Reduced
2 -3 ft Reduced
1 - 2 ft Reduced
0 -1 ft Reduced
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Invergordon Pl
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Calle Caballeros
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Q10 = 53 CFS
Q100 = 106 CFS
IRONWOOD WASH
Q10 = 60 CFS
Q100 = 144 CFS
N
0 150 300
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
AREA A EXISTING CONDITIONS
100-YEAR MAXIMUM FLOW DEPTH (FT)
Legend
Parcels
Existing Storm Drain
Existing Culvert
Project Components
Storm Drain
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
100 Year Adjacent Building Depth
< 6 in
6 in - 12 in
12 in - 24 in
> 24 in
Kimley»Horn
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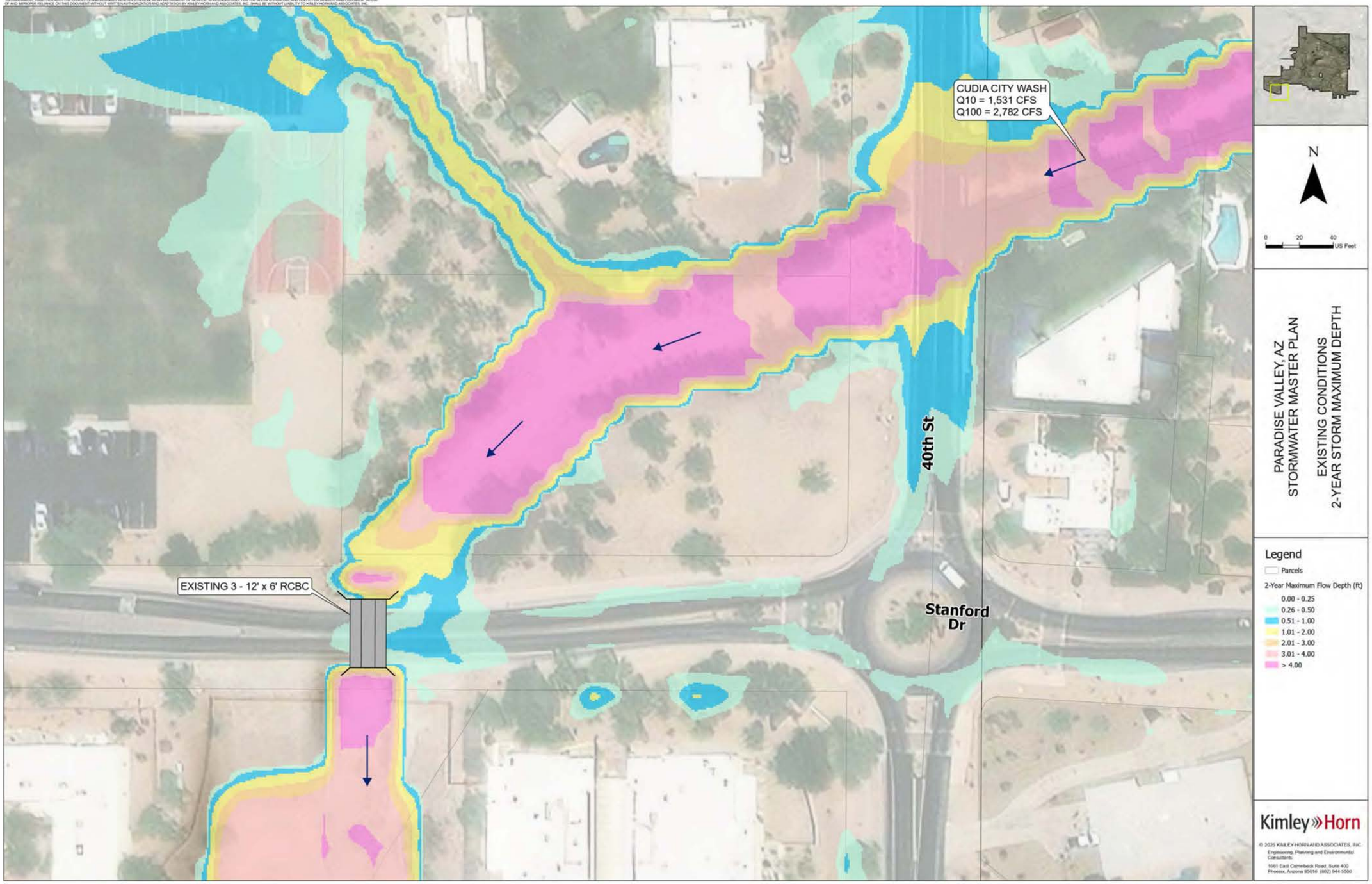
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Caballo Dr
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Calle Bruvira
Pisado Bueno
Canta Redondo
El Maro Cir
64th Pl
67th St
68th St
INDIAN BEND WASH
Mockingbird Ln
Royal Palm Rd
62nd Pl
Invergordon Rd
TIE INTO EXISTING STORM DRAIN
882 LF OF 12' X 3' CBC STORM DRAIN
1,075 LF OF 54" STORM DRAIN
Maverick Rd
65th St
66th St
Ironwood Dr
Bret Hills
1,367 LF OF 2-30" STORM DRAIN
PROPOSED HEADWALL EXISTING CULVERT TO BE REMOVED
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Q10 = 53 CFS
Q100 = 106 CFS
410 LF OF 36" STORM DRAIN
Northern Ave
IRONWOOD WASH
Q10 = 60 CFS
Q100 = 144 CFS
476 LF OF 42" SOTRM DRAIN
Foothill Dr
Coconino Rd
El Arroyo Rd
Calle Caballeros
N
0 150 300 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
PROPOSED PROJECT 100-YEAR STORM
REDUCTION IN WATER SURFACE ELEVATION
Legend
Parcels
Existing Storm Drain
Existing Culvert
Project Components
Storm Drain
Reduction of Water Surface Elevation (ft) (100-Year)
3 - 4 ft Reduced
2- 3 ft Reduced
1- 2 ft Reduced
0 - 1 ft Reduced
Kimley»Horn
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XVIII. APPENDIX F – HIGHEST PRIORITY PROJECTS ANTICIPATED PERFORMANCE

FLOOD HAZARD AREA H

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FLOOD WARNING SIGN

CUDIA CITY WASH
Q10 = 1,531 CFS
Q100 = 2,782 CFS

STAFF GAGE

REMOVE BOLLARDS AND
REPLACE WITH SAFETY RAIL

40th St

FLOOD CONTROL BASIN

EXISTING 3 - 12' x 6' RCBC

REMOVE AND REPLACE
EXISTING INLET/GRATE

Stanford
Dr

N

0 20 40 US Feet

PARADISE VALLEY, AZ
STORMWATER MASTER PLAN

PROPOSED PROJECT
2-YEAR STORM MAX DEPTH RESULTS

Legend

Parcels

Project Improvements

Bollard

Flood Warning Sign

Staff Gage

Flood Control Basin

Grate/Inlet

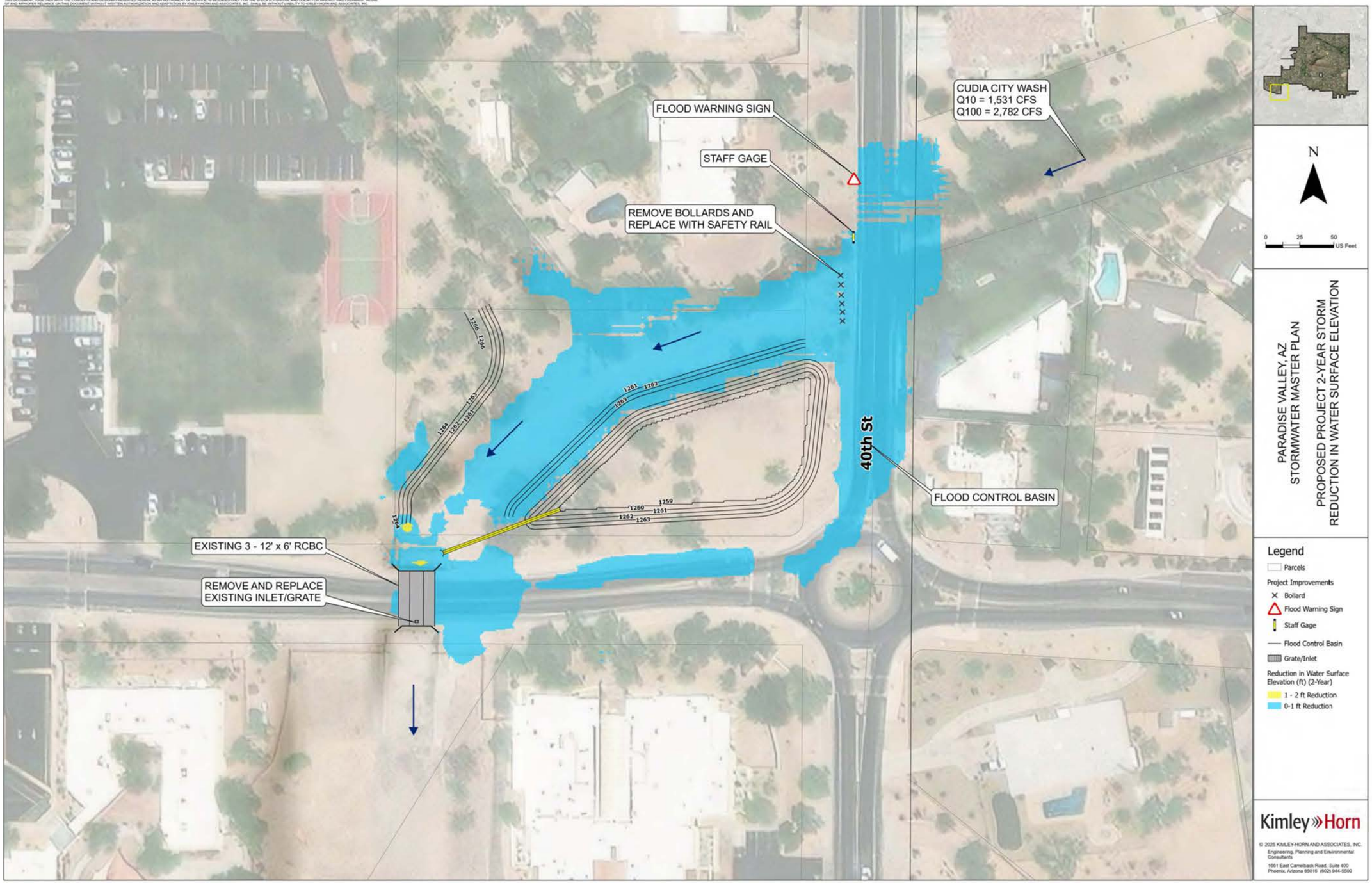
2-Year Maximum Flow Depth (ft)

0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00

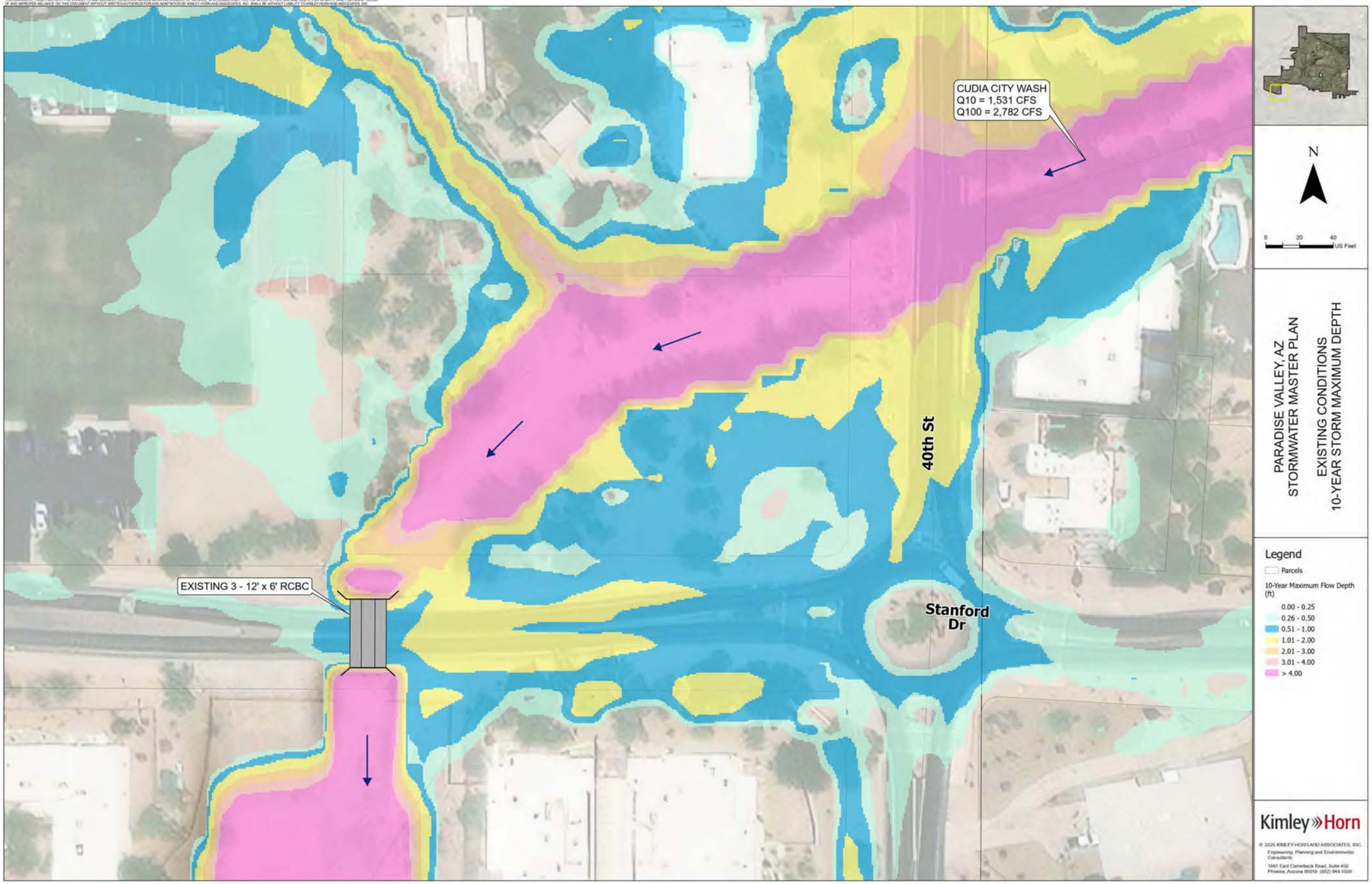
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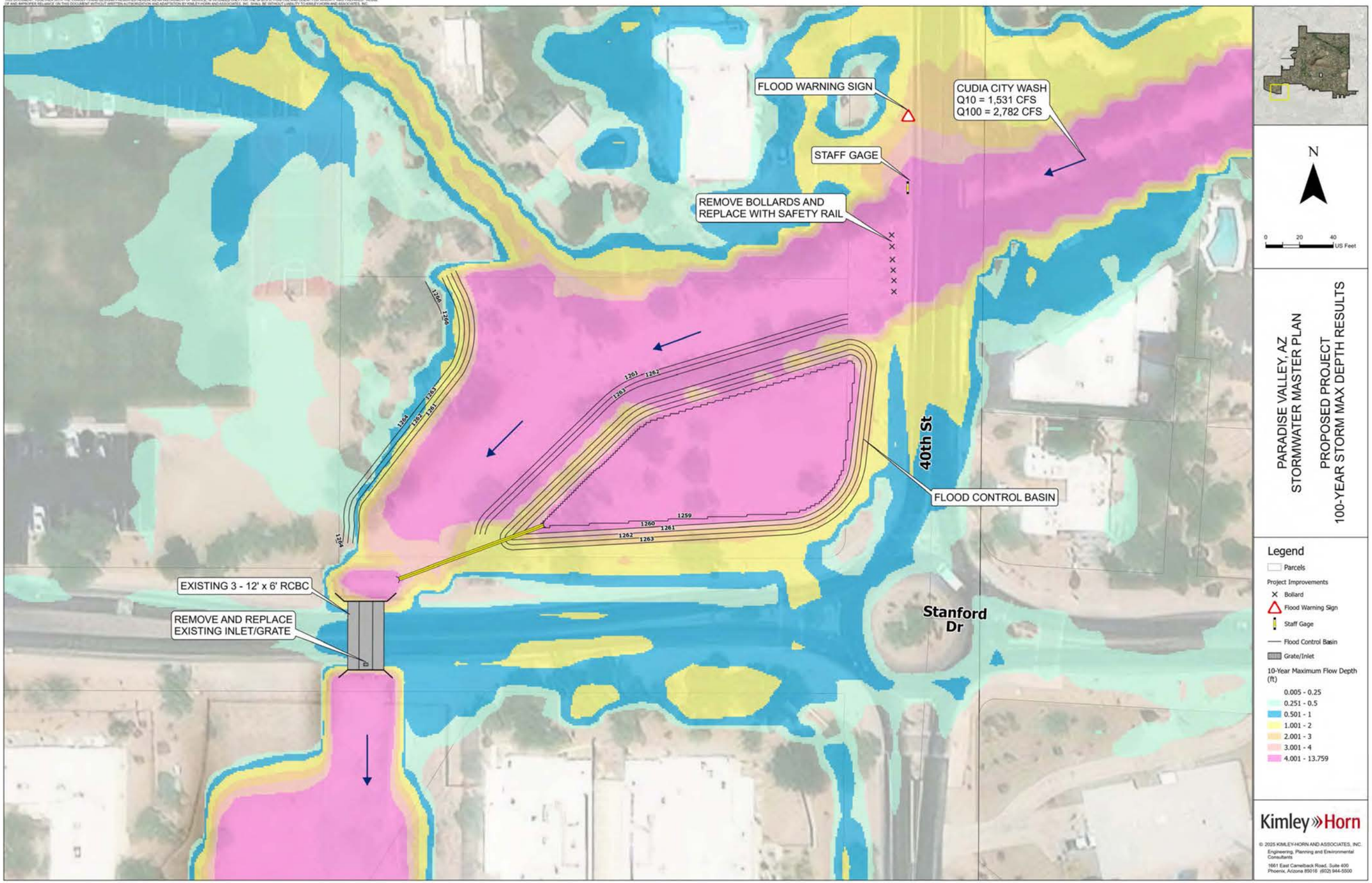
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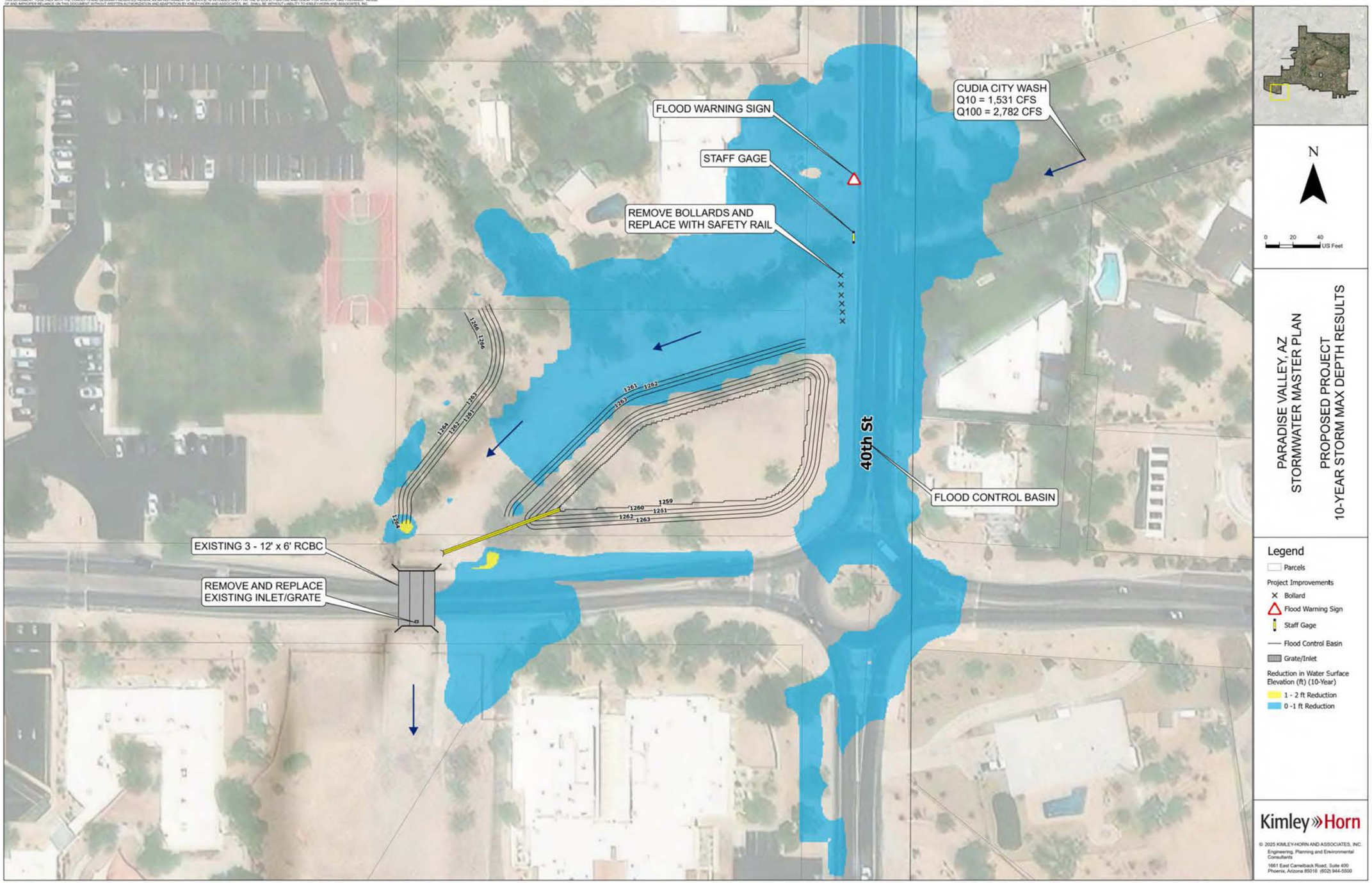

FLOOD WARNING SIGN
STAFF GAGE
REMOVE BOLLARDS AND REPLACE WITH SAFETY RAIL
CUDIA CITY WASH
Q10 = 1,531 CFS
Q100 = 2,782 CFS
40th St
FLOOD CONTROL BASIN
EXISTING 3 - 12' x 6' RCBC
REMOVE AND REPLACE EXISTING INLET/GRATE
N
0 25 50 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
PROPOSED PROJECT 2-YEAR STORM
REDUCTION IN WATER SURFACE ELEVATION
Legend
Parcels
Project Improvements
Bollard
Flood Warning Sign
Staff Gage
Flood Control Basin
Grate/Inlet
Reduction in Water Surface Elevation (ft) (2-Year)
1 - 2 ft Reduction
0-1 ft Reduction
Kimley»Horn
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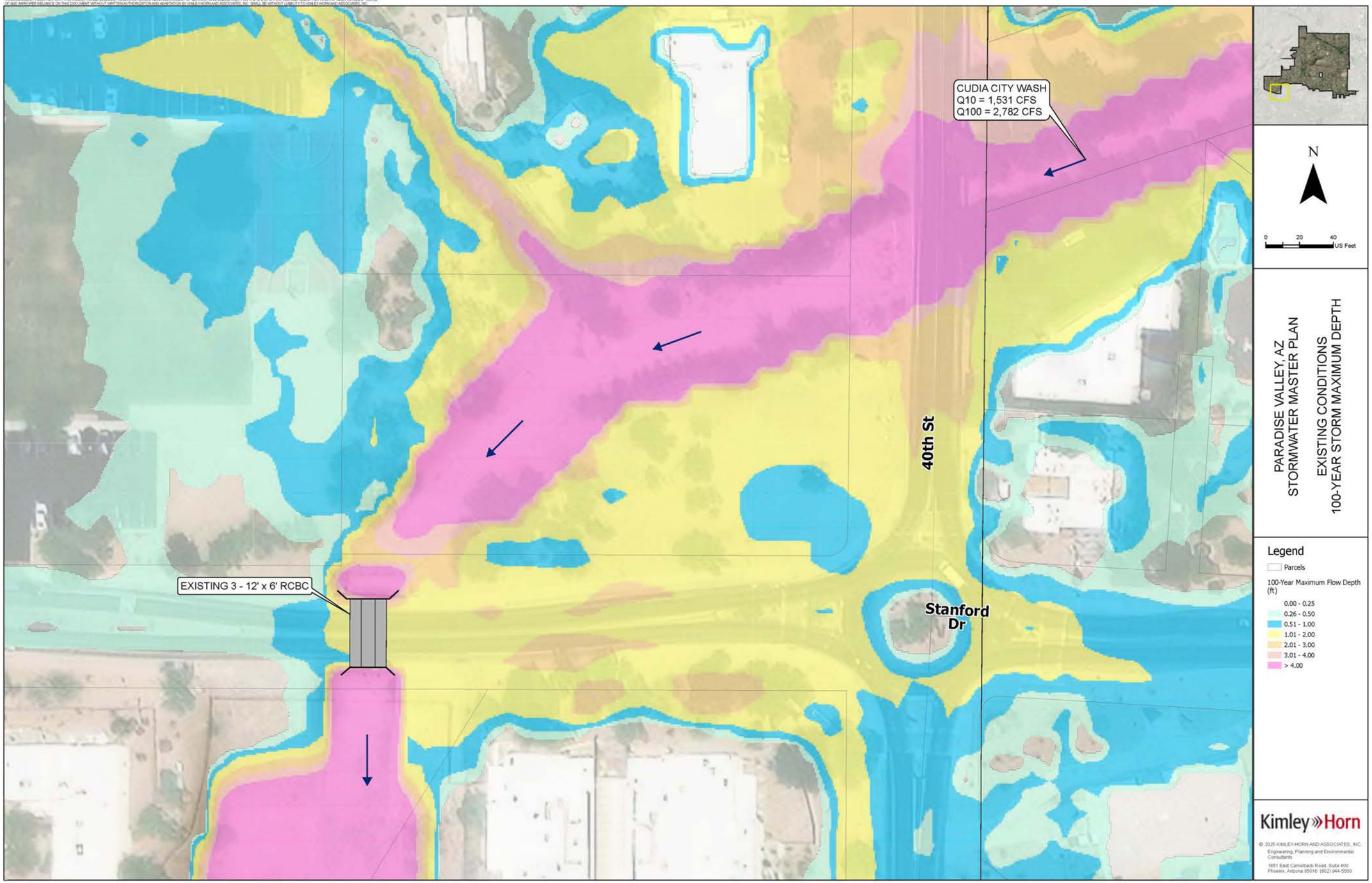


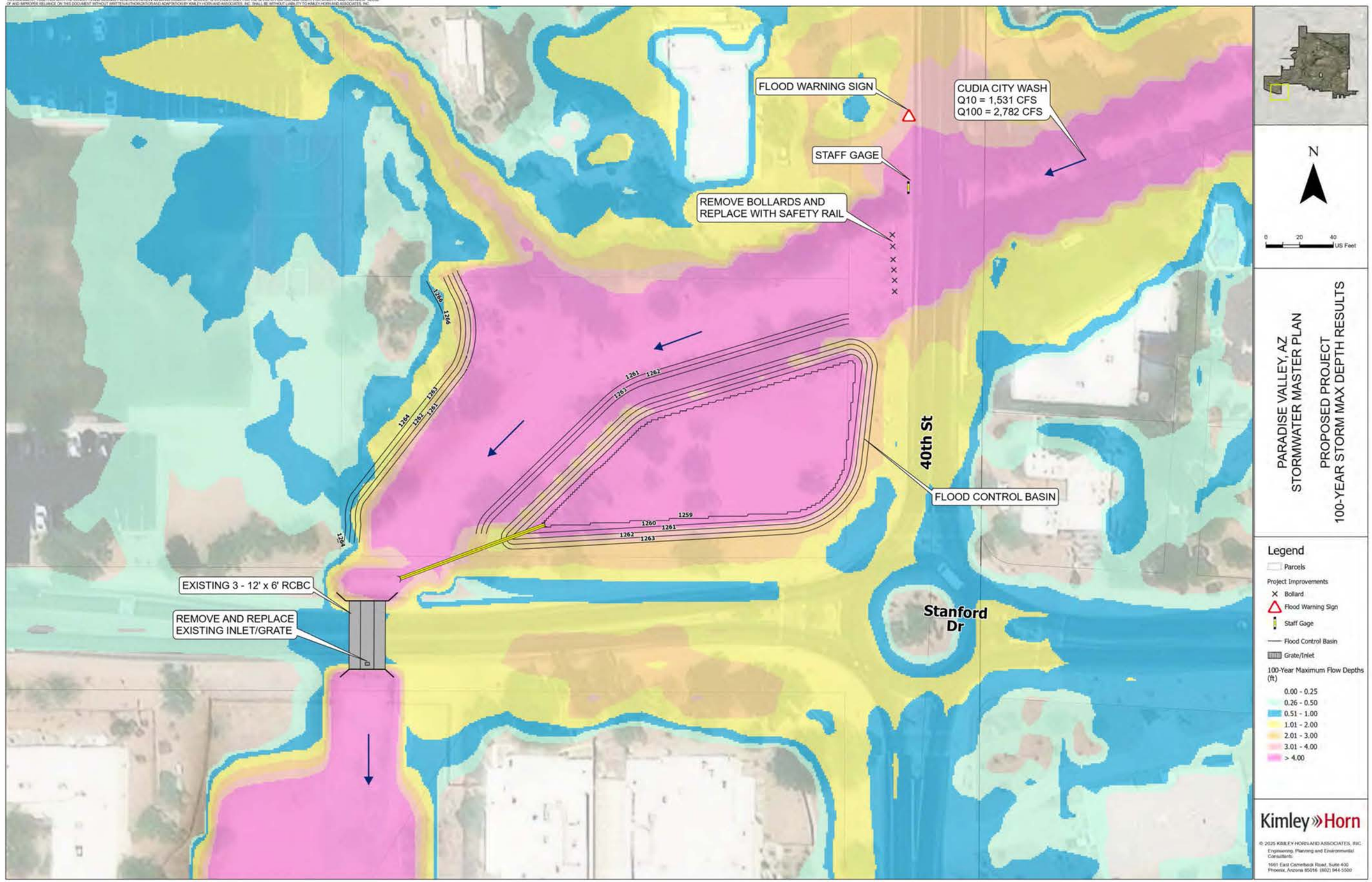

FLOOD WARNING SIGN
CUDIA CITY WASH
Q10 = 1,531 CFS
Q100 = 2,782 CFS
STAFF GAGE
REMOVE BOLLARDS AND
REPLACE WITH SAFETY RAIL
40th St
FLOOD CONTROL BASIN
EXISTING 3 - 12' x 6' RCBC
REMOVE AND REPLACE
EXISTING INLET/GRATE
Stanford
Dr
N
0 20 40
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
PROPOSED PROJECT
100-YEAR STORM MAX DEPTH RESULTS
Legend
Parcels
Project Improvements
Bollard
Flood Warning Sign
Staff Gage
Flood Control Basin
Grate/Inlet
10-Year Maximum Flow Depth (ft)
0.005 - 0.25
0.251 - 0.5
0.501 - 1
1.001 - 2
2.001 - 3
3.001 - 4
4.001 - 13.759
Kimley»Horn
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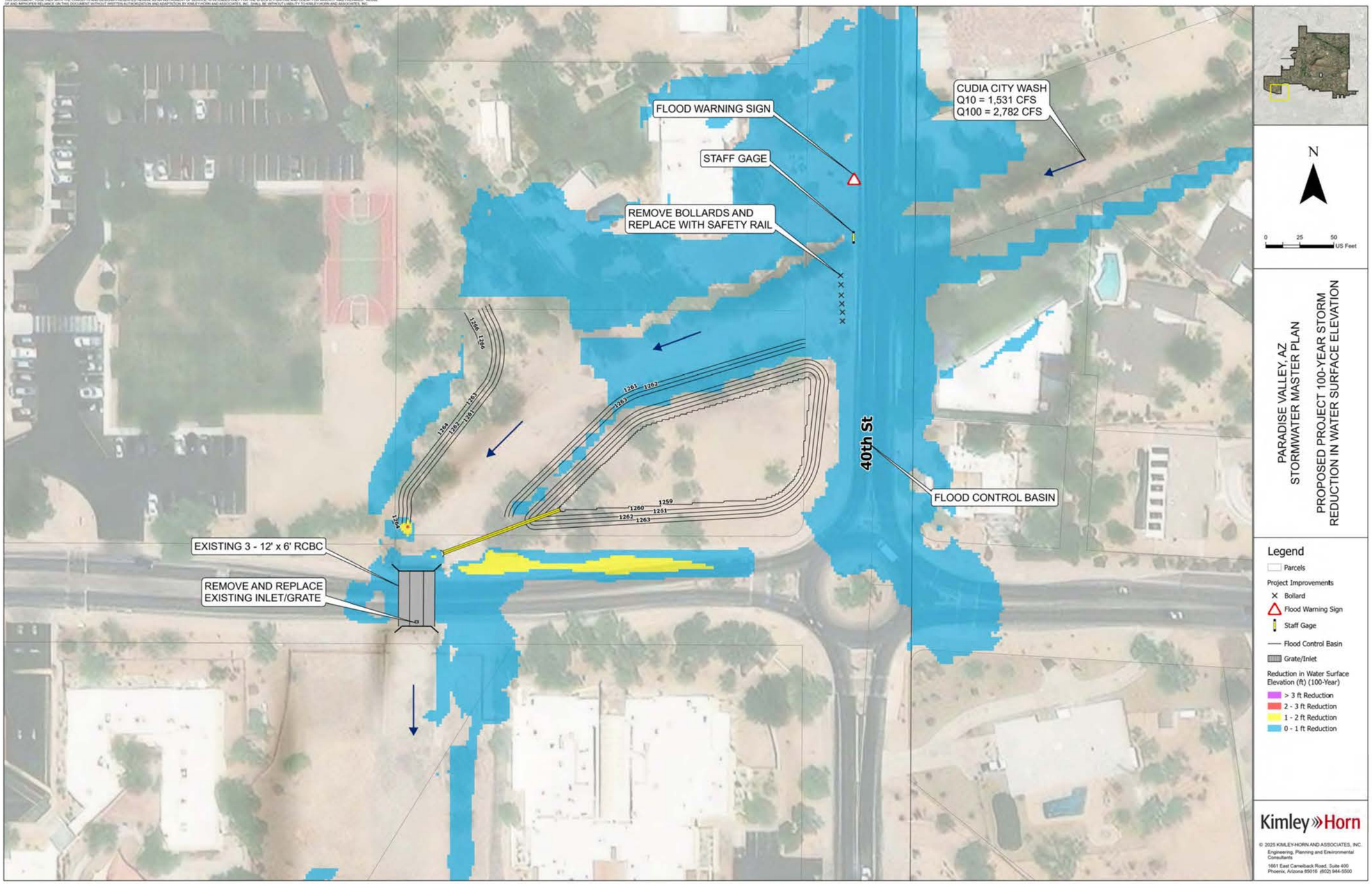


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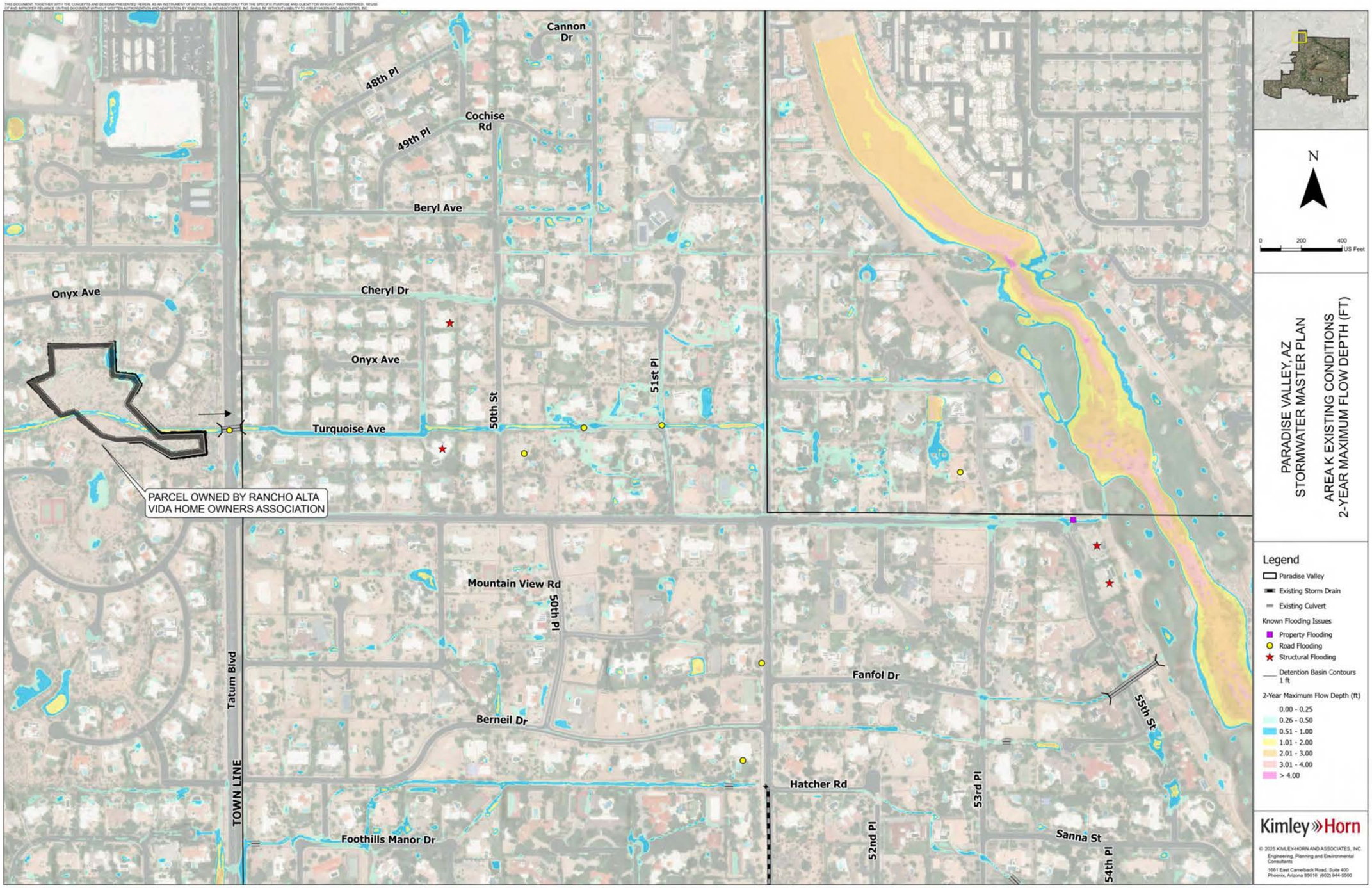

FLOOD WARNING SIGN
CUDIA CITY WASH
Q10 = 1,531 CFS
Q100 = 2,782 CFS
STAFF GAGE
REMOVE BOLLARDS AND
REPLACE WITH SAFETY RAIL
40th St
FLOOD CONTROL BASIN
EXISTING 3 - 12' x 6' RCBC
REMOVE AND REPLACE
EXISTING INLET/GRATE
Stanford
Dr
N
0 20 40
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
PROPOSED PROJECT
100-YEAR STORM MAX DEPTH RESULTS
Legend
Parcels
Project Improvements
Bollard
Flood Warning Sign
Staff Gage
Flood Control Basin
Grate/Inlet
100-Year Maximum Flow Depths (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
Kimley»Horn

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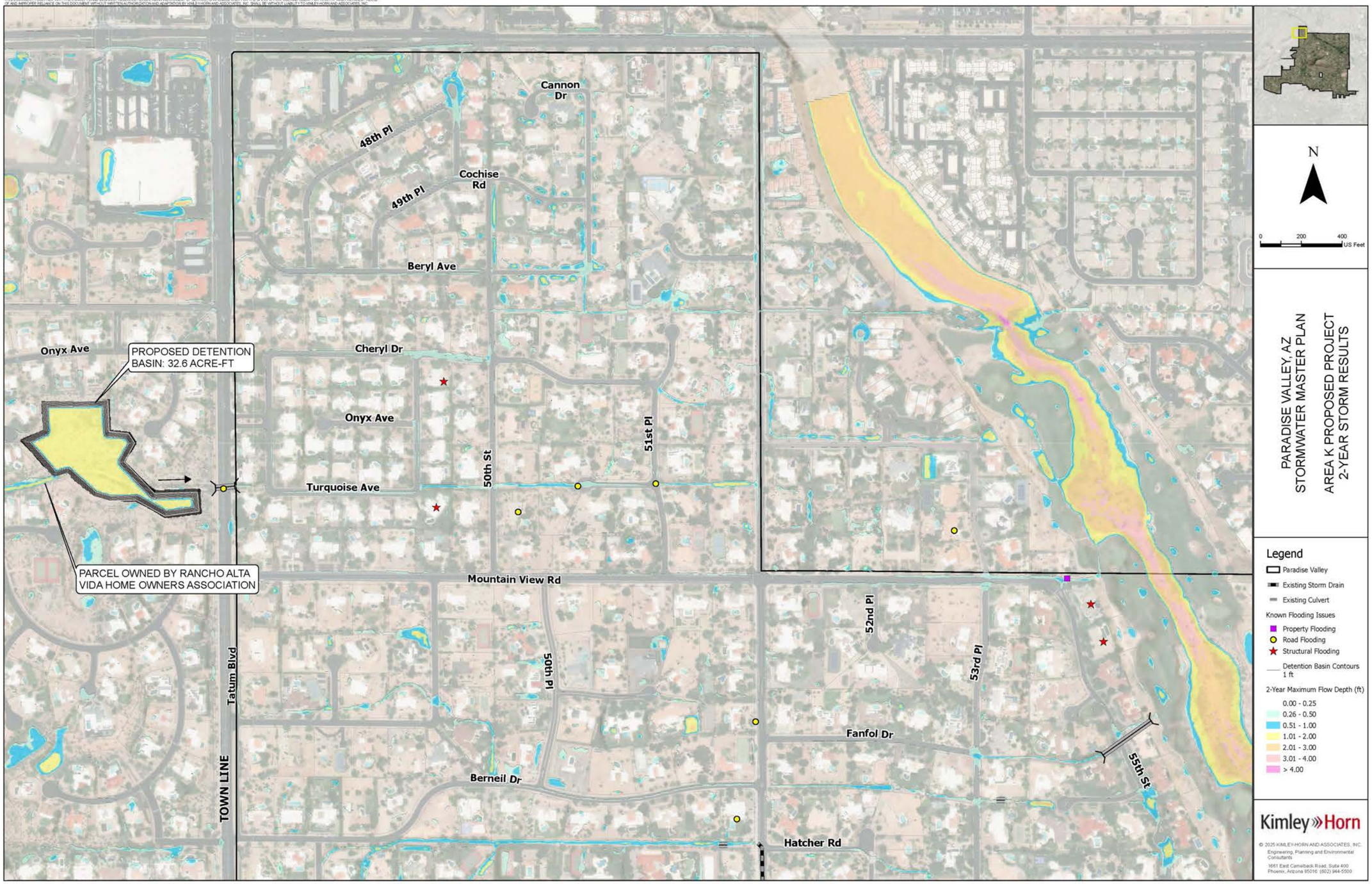


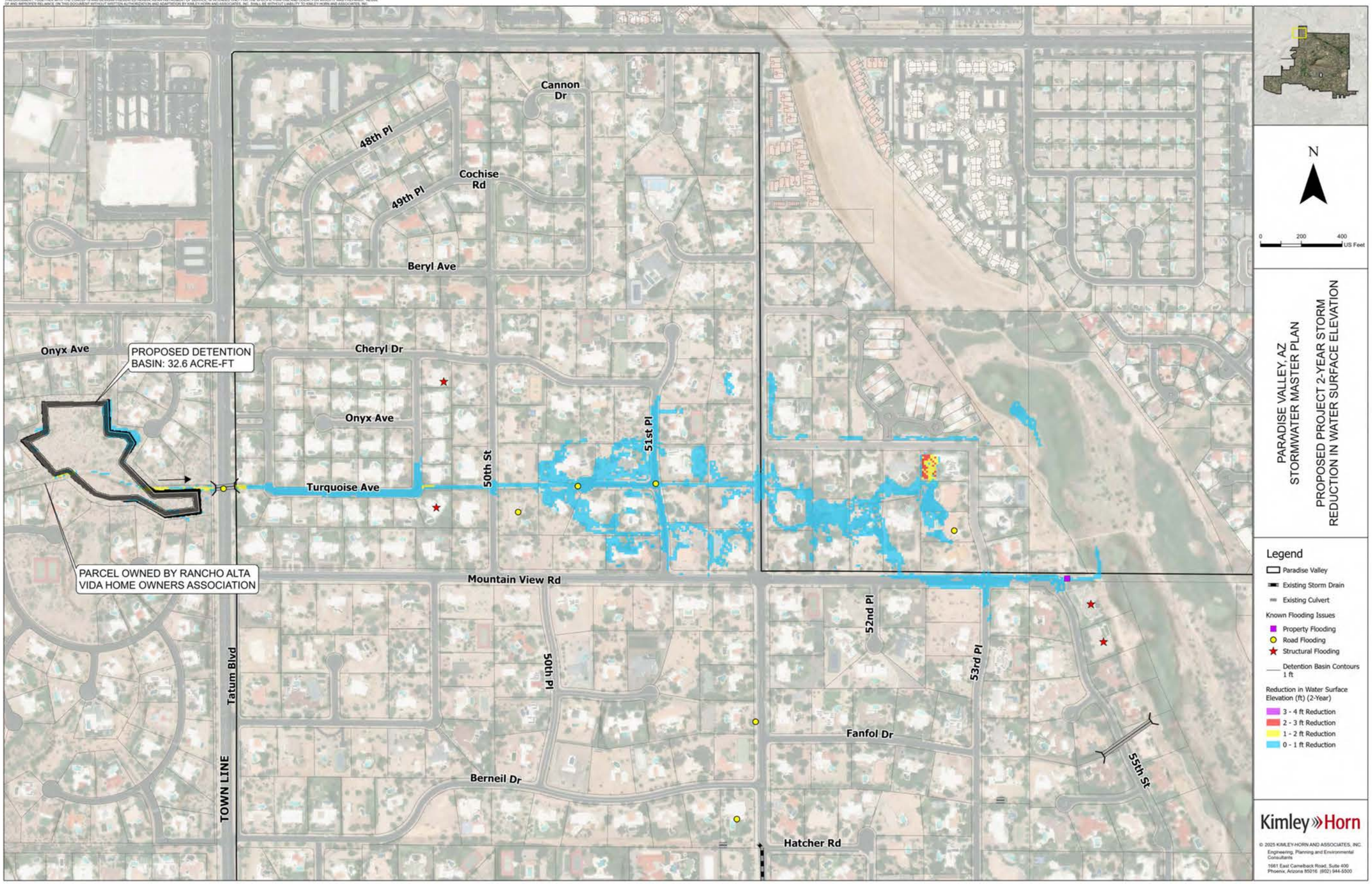
XVIII. APPENDIX F – HIGHEST PRIORITY PROJECTS ANTICIPATED PERFORMANCE

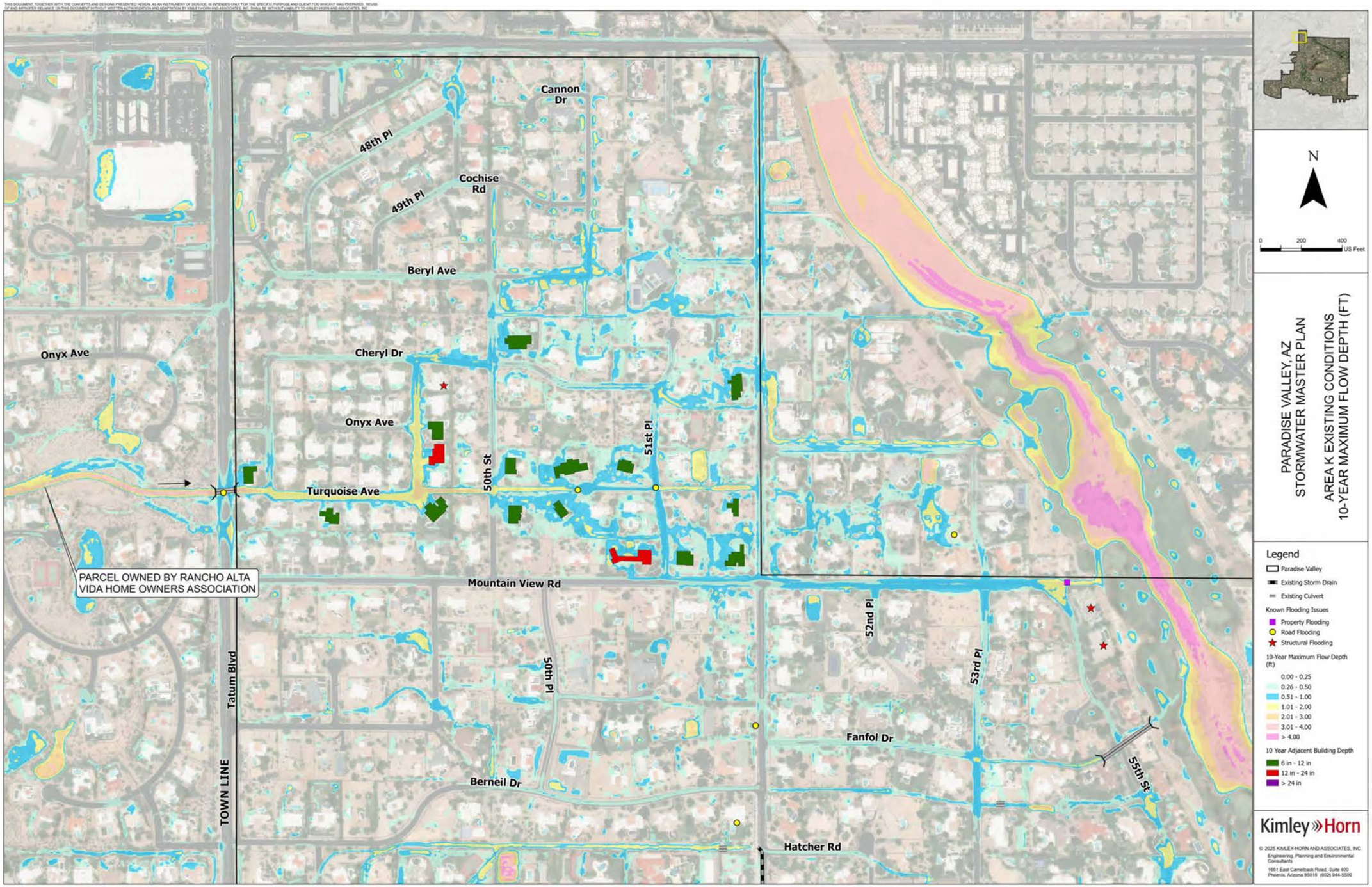
FLOOD HAZARD AREA K


Cannon Dr
48th Pl
49th Pl
Cochise Rd
Beryl Ave
Cheryl Dr
Onyx Ave
Onyx Ave
50th St
51st Pl
Turquoise Ave
PARCEL OWNED BY RANCHO ALTA VIDA HOME OWNERS ASSOCIATION
Tatum Blvd
TOWN LINE
Mountain View Rd
50th Pl
Berneil Dr
Foothills Manor Dr
Fanfol Dr
Hatcher Rd
52nd Pl
53rd Pl
55th St
Sanna St
54th Pl
N
0
200
400
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
AREA K EXISTING CONDITIONS
2-YEAR MAXIMUM FLOW DEPTH (FT)
Legend
Paradise Valley
Existing Storm Drain
Existing Culvert
Known Flooding Issues
Property Flooding
Road Flooding
Structural Flooding
Detention Basin Contours 1 ft
2-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
Kimley»Horn
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Engineering, Planning and Environmental Consultants
1661 East Camelback Road, Suite 400
Phoenix, Arizona 85016 (602) 944-5500

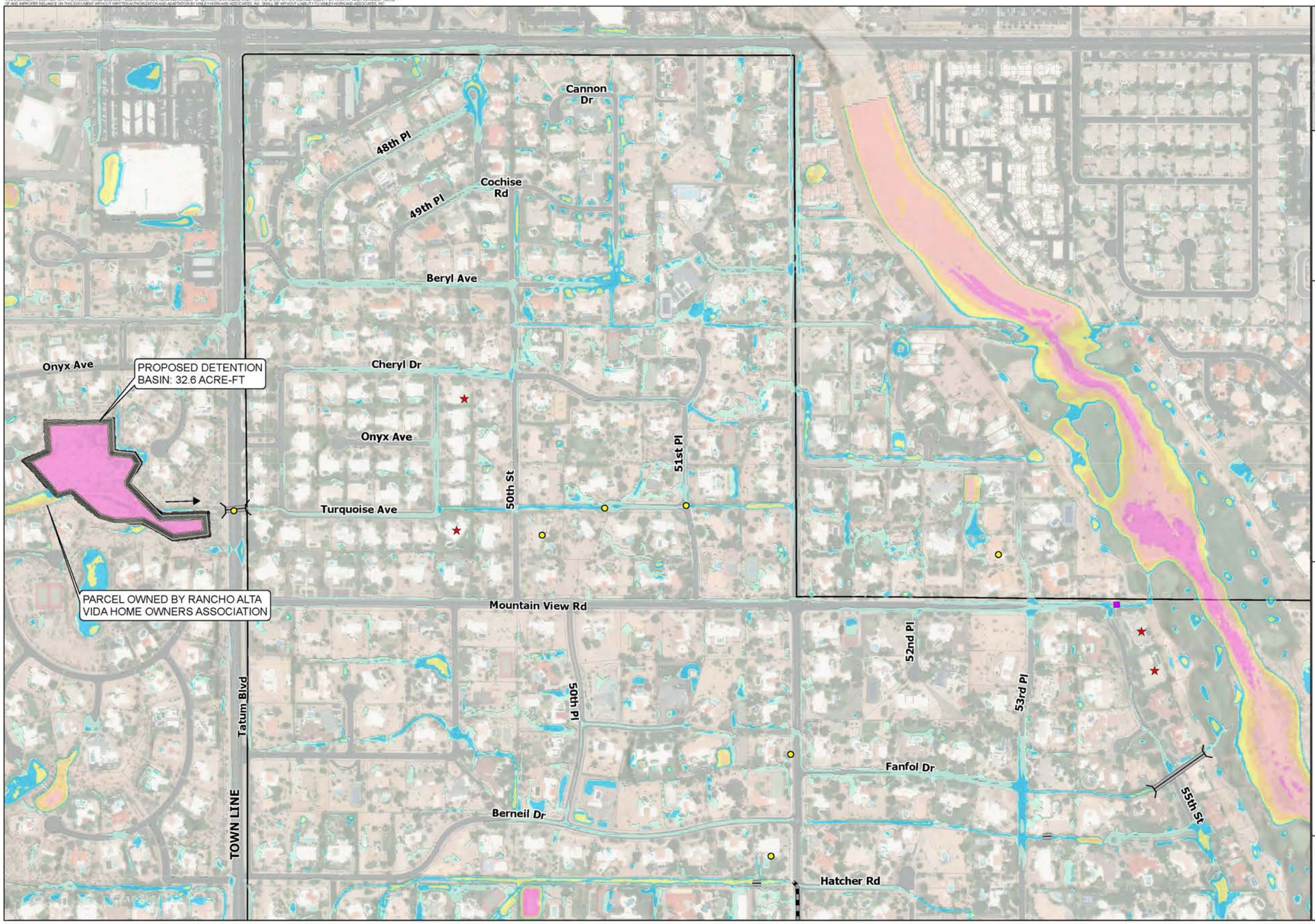
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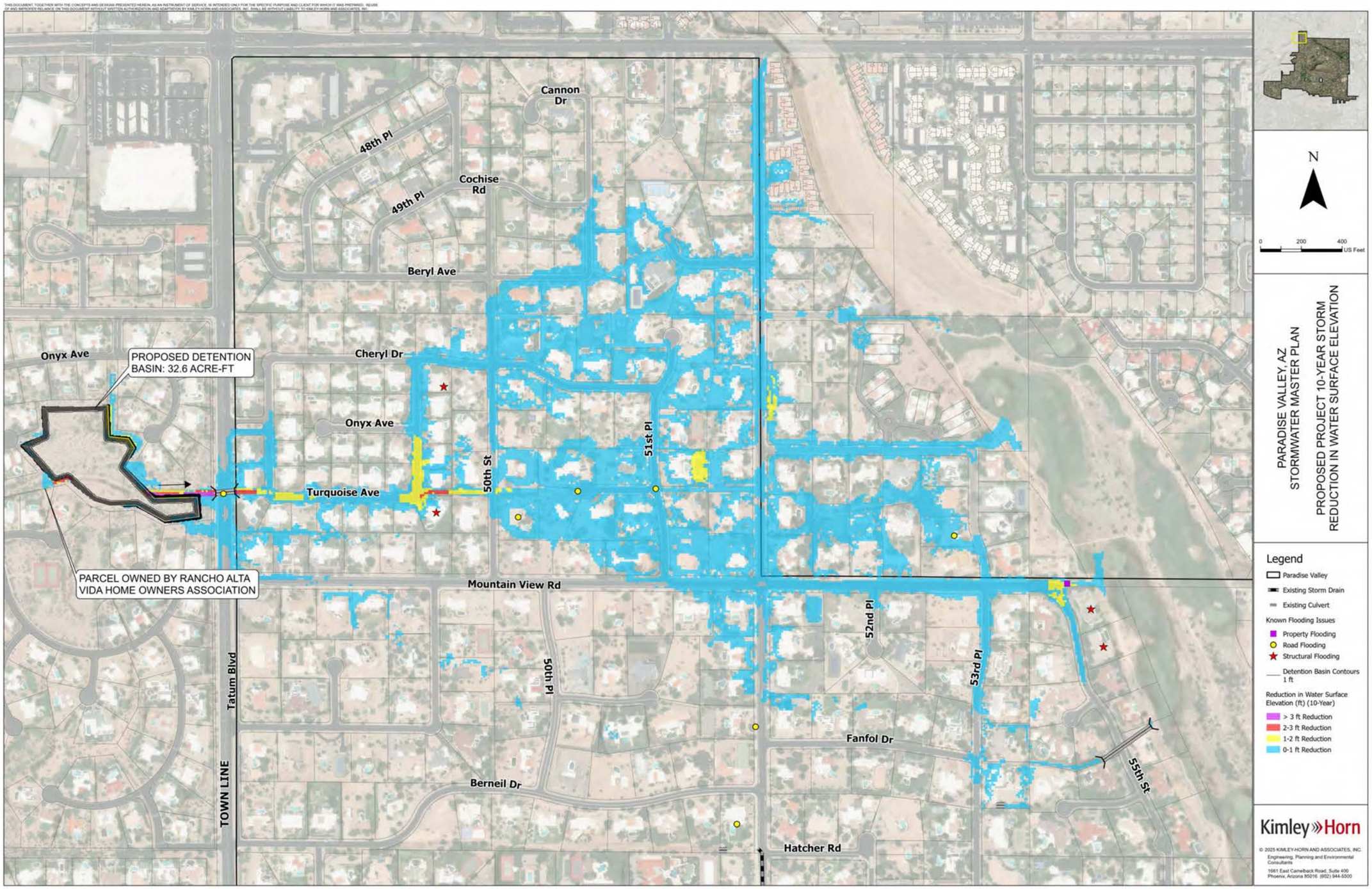


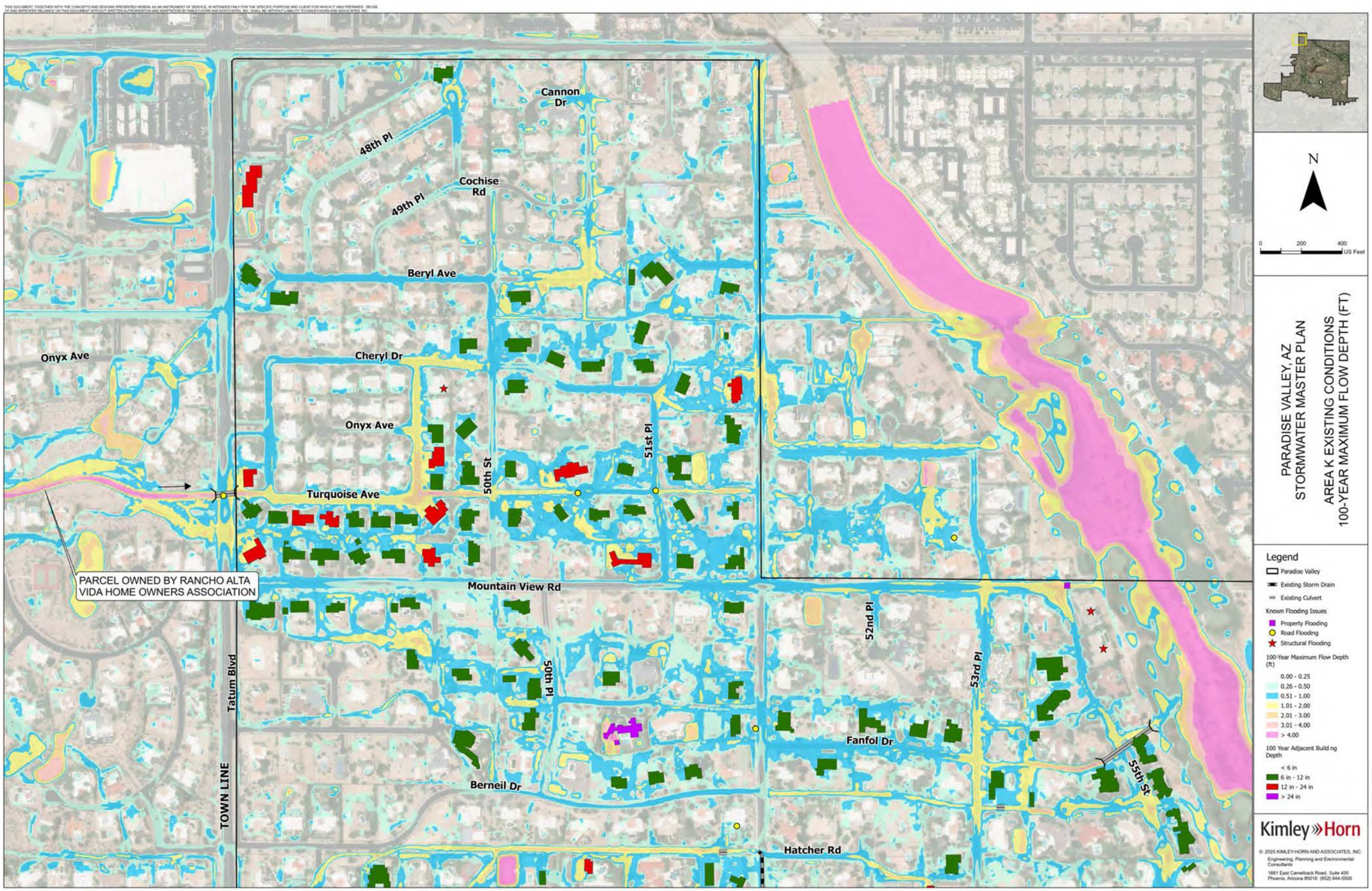

Cannon Dr
48th Pl
49th Pl
Cochise Rd
Beryl Ave
Cheryl Dr
Onyx Ave
PROPOSED DETENTION BASIN: 32.6 ACRE-FT
PARCEL OWNED BY RANCHO ALTA VIDA HOME OWNERS ASSOCIATION
Turquoise Ave
50th St
51st Pl
Mountain View Rd
52nd Pl
53rd Pl
55th St
Tatum Blvd
TOWN LINE
50th Pl
Fanfol Dr
Berneil Dr
Hatcher Rd
N
0 200 400 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
PROPOSED PROJECT 2-YEAR STORM
REDUCTION IN WATER SURFACE ELEVATION
Legend
Paradise Valley
Existing Storm Drain
Existing Culvert
Known Flooding Issues
Property Flooding
Road Flooding
Structural Flooding
Detention Basin Contours 1 ft
Reduction in Water Surface Elevation (ft) (2-Year)
3 - 4 ft Reduction
2 - 3 ft Reduction
1 - 2 ft Reduction
0 - 1 ft Reduction
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Phoenix, Arizona 85016 (602) 944-5500

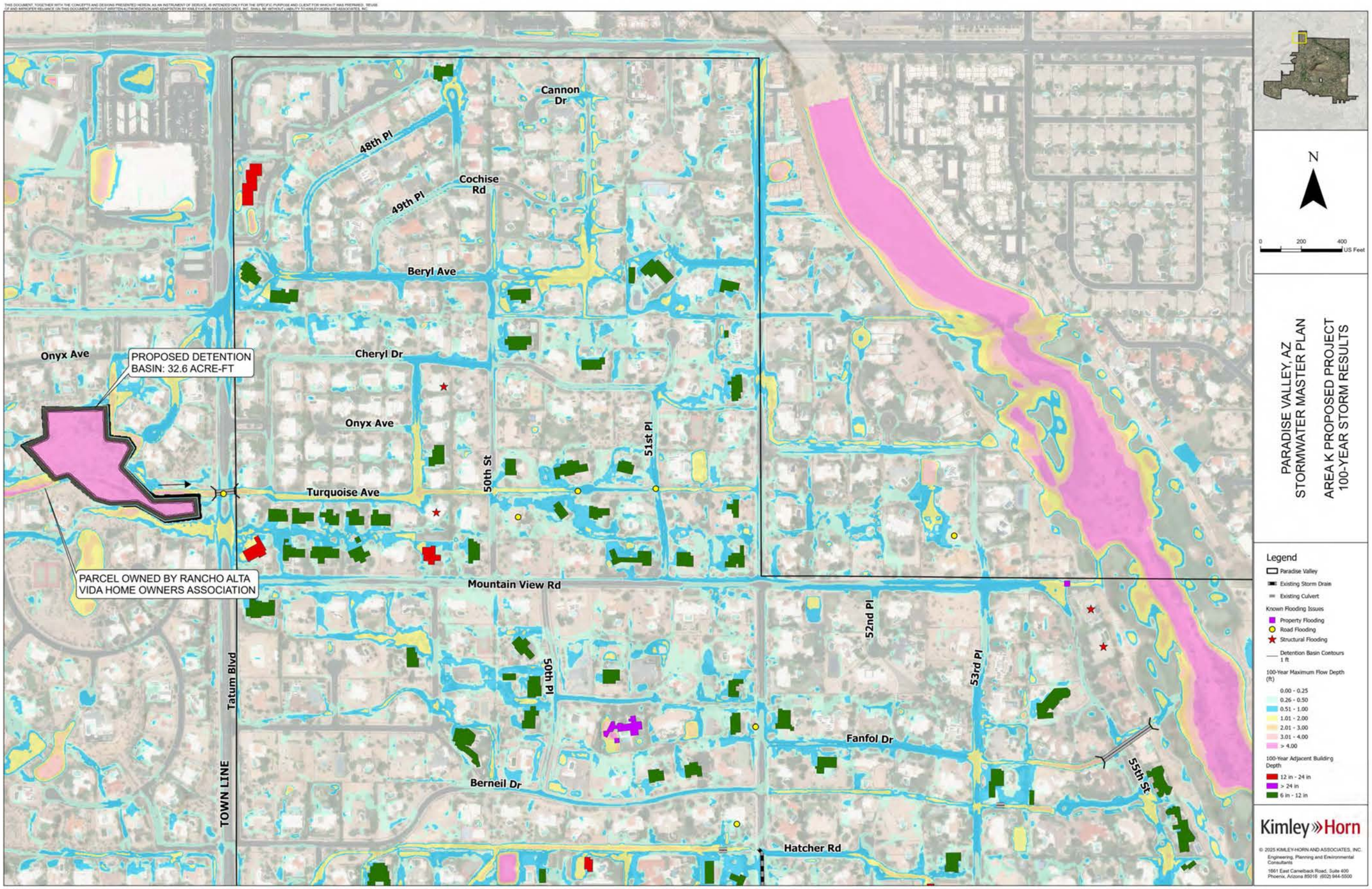

Cannon Dr
48th Pl
49th Pl
Cochise Rd
Beryl Ave
Onyx Ave
Cheryl Dr
Onyx Ave
51st Pl
50th St
Turquoise Ave
PARCEL OWNED BY RANCHO ALTA VIDA HOME OWNERS ASSOCIATION
Mountain View Rd
52nd Pl
53rd Pl
50th Pl
Tatum Blvd
TOWN LINE
Fanfol Dr
55th St
Berneil Dr
Hatcher Rd
N
0 200 400 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
AREA K EXISTING CONDITIONS
10-YEAR MAXIMUM FLOW DEPTH (FT)
Legend
Paradise Valley
Existing Storm Drain
Existing Culvert
Known Flooding Issues
Property Flooding
Road Flooding
Structural Flooding
10-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
10 Year Adjacent Building Depth
6 in - 12 in
12 in - 24 in
> 24 in
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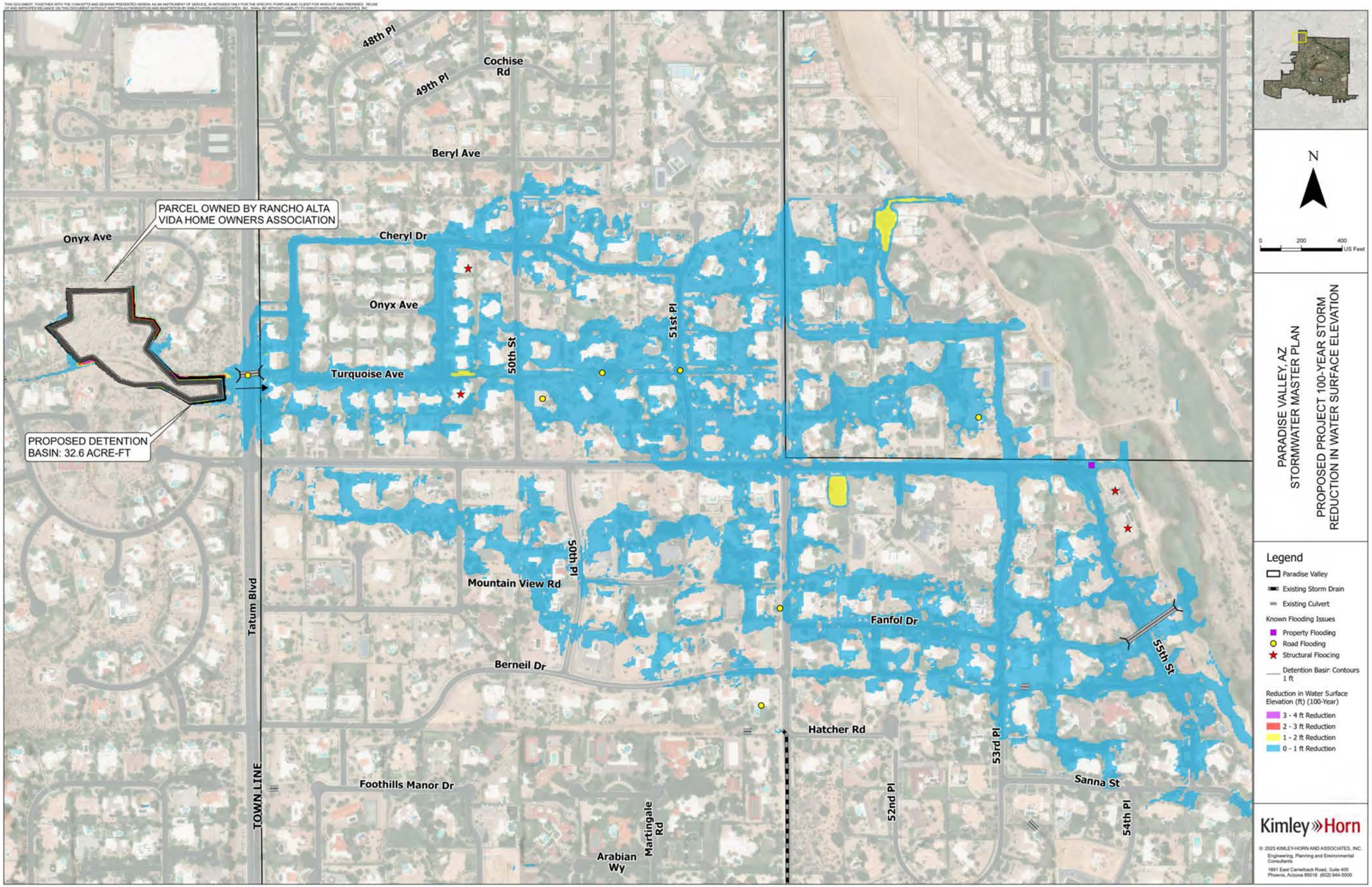
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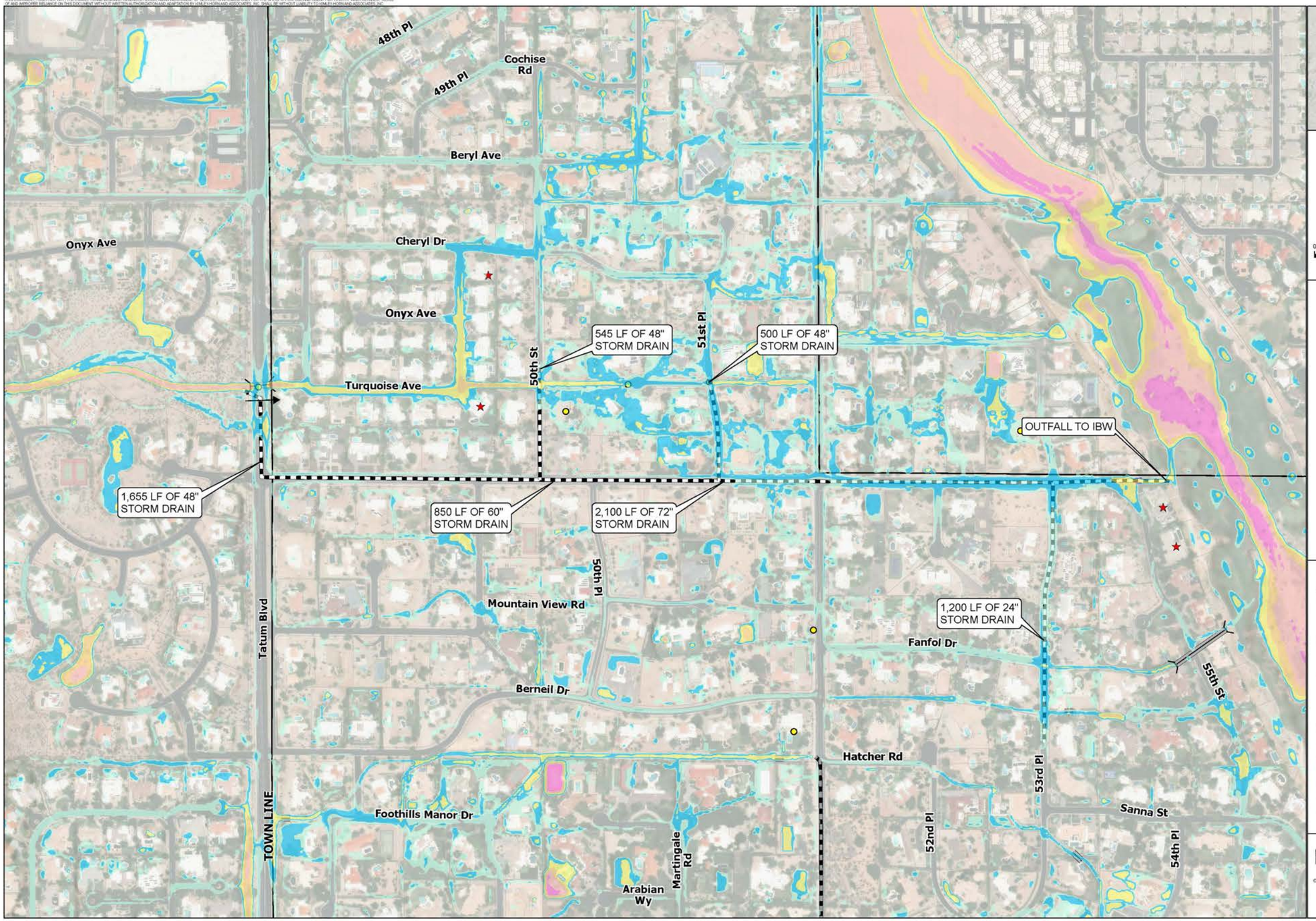

Cannon Dr
48th Pl
49th Pl
Cochise Rd
Beryl Ave
Cheryl Dr
Onyx Ave
PROPOSED DETENTION BASIN: 32.6 ACRE-FT
Onyx Ave
Turquoise Ave
50th St
51st Pl
PARCEL OWNED BY RANCHO ALTA VIDA HOME OWNERS ASSOCIATION
Mountain View Rd
Tatum Blvd
TOWN LINE
50th Pl
52nd Pl
53rd Pl
Fanfol Dr
Berneil Dr
55th St
Hatcher Rd
N
0 200 400 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
PROPOSED PROJECT 10-YEAR STORM
REDUCTION IN WATER SURFACE ELEVATION
Legend
Paradise Valley
Existing Storm Drain
Existing Culvert
Known Flooding Issues
Property Flooding
Road Flooding
Structural Flooding
Detention Basin Contours 1 ft
Reduction in Water Surface Elevation (ft) (10-Year)
> 3 ft Reduction
2-3 ft Reduction
1-2 ft Reduction
0-1 ft Reduction
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Cheryl Dr
Onyx Ave
50th St
51st Pl
Turquoise Ave
PARCEL OWNED BY RANCHO ALTA VIDA HOME OWNERS ASSOCIATION
Mountain View Rd
Tatum Blvd
TOWN LINE
50th Pl
52nd Pl
53rd Pl
Fanfol Dr
55th St
Berneil Dr
Hatcher Rd
N
0 200 400 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
AREA K EXISTING CONDITIONS
100-YEAR MAXIMUM FLOW DEPTH (FT)
Legend
Paradise Valley
Existing Storm Drain
Existing Culvert
Known Flooding Issues
Property Flooding
Road Flooding
Structural Flooding
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
100 Year Adjacent Build ng Depth
< 6 in
6 in - 12 in
12 in - 24 in
> 24 in
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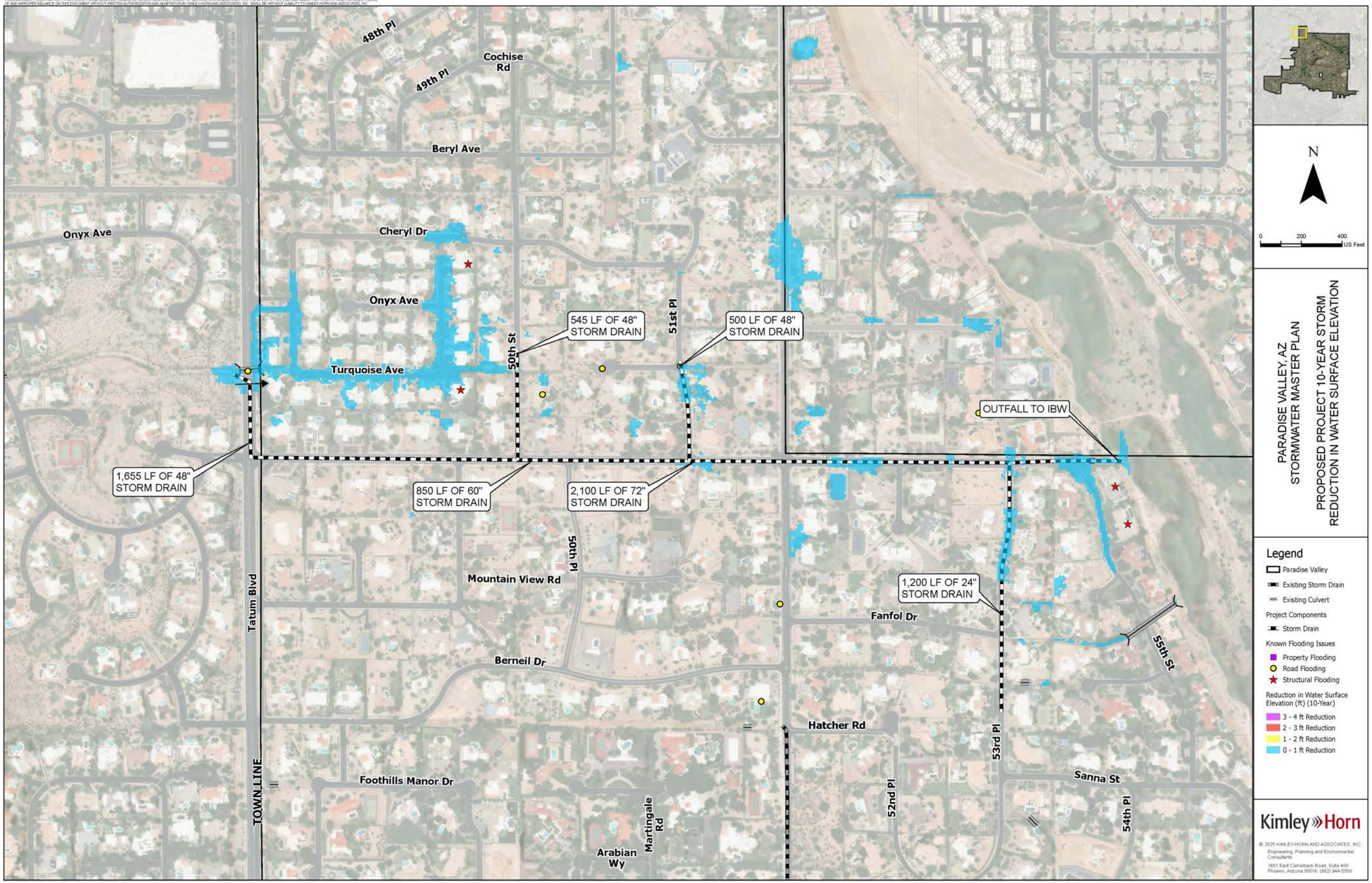

Cannon Dr
48th Pl
49th Pl
Cochise Rd
Beryl Ave
Onyx Ave
PROPOSED DETENTION BASIN: 32.6 ACRE-FT
Cheryl Dr
Onyx Ave
51st Pl
50th St
Turquoise Ave
PARCEL OWNED BY RANCHO ALTA VIDA HOME OWNERS ASSOCIATION
Mountain View Rd
Tatum Blvd
TOWN LINE
50th Pl
52nd Pl
53rd Pl
Fanfol Dr
55th St
Berneil Dr
Hatcher Rd
N
0 200 400 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
AREA K PROPOSED PROJECT
100-YEAR STORM RESULTS
Legend
Paradise Valley
Existing Storm Drain
Existing Culvert
Known Flooding Issues
Property Flooding
Road Flooding
Structural Flooding
Detention Basin Contours 1 ft
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
100-Year Adjacent Building Depth
12 in - 24 in
> 24 in
6 in - 12 in
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48th Pl
49th Pl
Cochise Rd
Beryl Ave
PARCEL OWNED BY RANCHO ALTA VIDA HOME OWNERS ASSOCIATION
Onyx Ave
Cheryl Dr
Onyx Ave
50th St
51st Pl
Turquoise Ave
PROPOSED DETENTION BASIN: 32.6 ACRE-FT
Tatum Blvd
50th Pl
Mountain View Rd
Berneil Dr
Fanfol Dr
55th St
Hatcher Rd
53rd Pl
Sanna St
TOWN LINE
Foothills Manor Dr
Martingale Rd
52nd Pl
54th Pl
Arabian Wy
N
0 200 400 US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
PROPOSED PROJECT 100-YEAR STORM
REDUCTION IN WATER SURFACE ELEVATION
Legend
Paradise Valley
Existing Storm Drain
Existing Culvert
Known Flooding Issues
Property Flooding
Road Flooding
Structural Flooding
Detention Basin Contours 1 ft
Reduction in Water Surface Elevation (ft) (100-Year)
3 - 4 ft Reduction
2 - 3 ft Reduction
1 - 2 ft Reduction
0 - 1 ft Reduction
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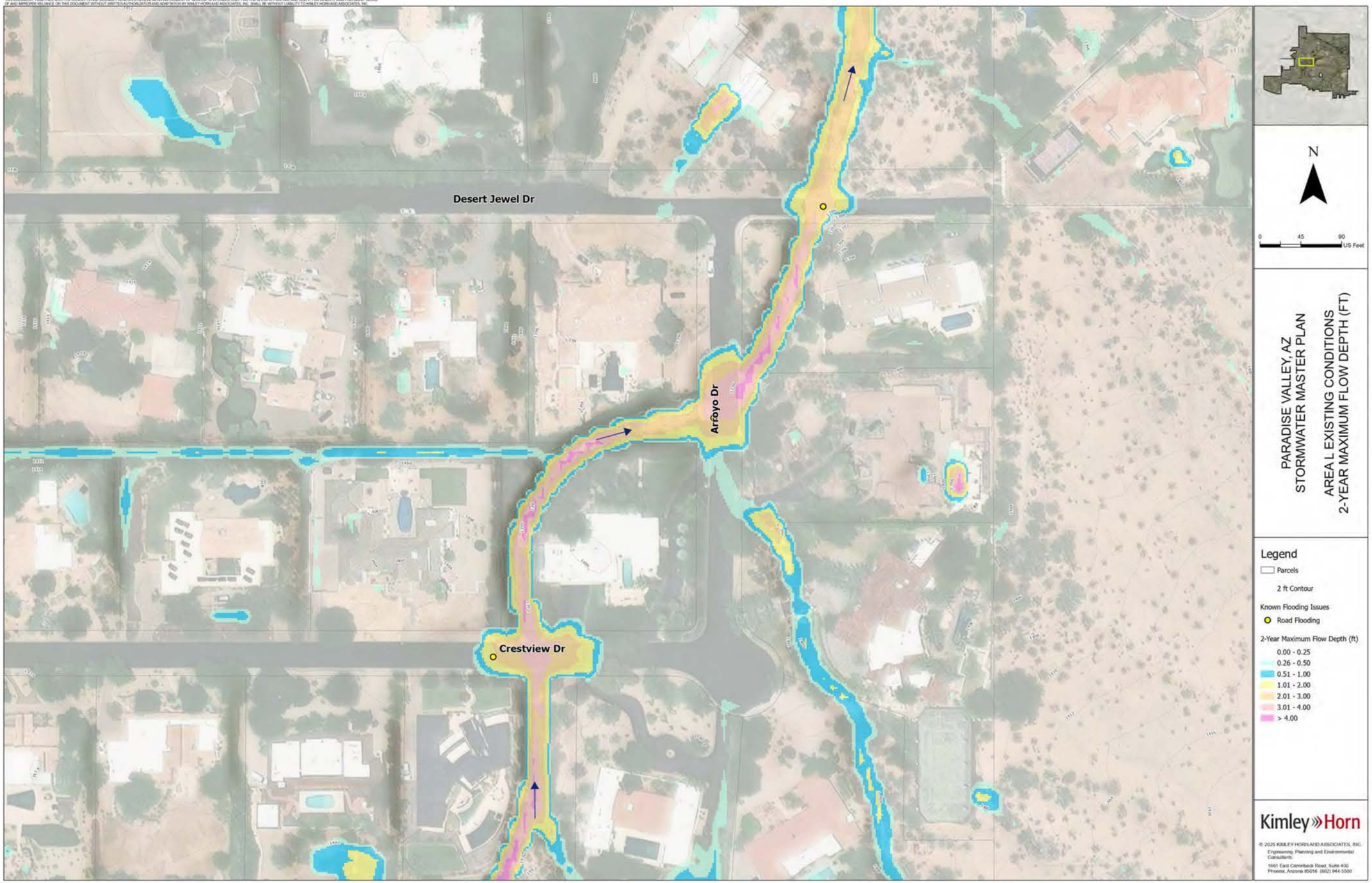
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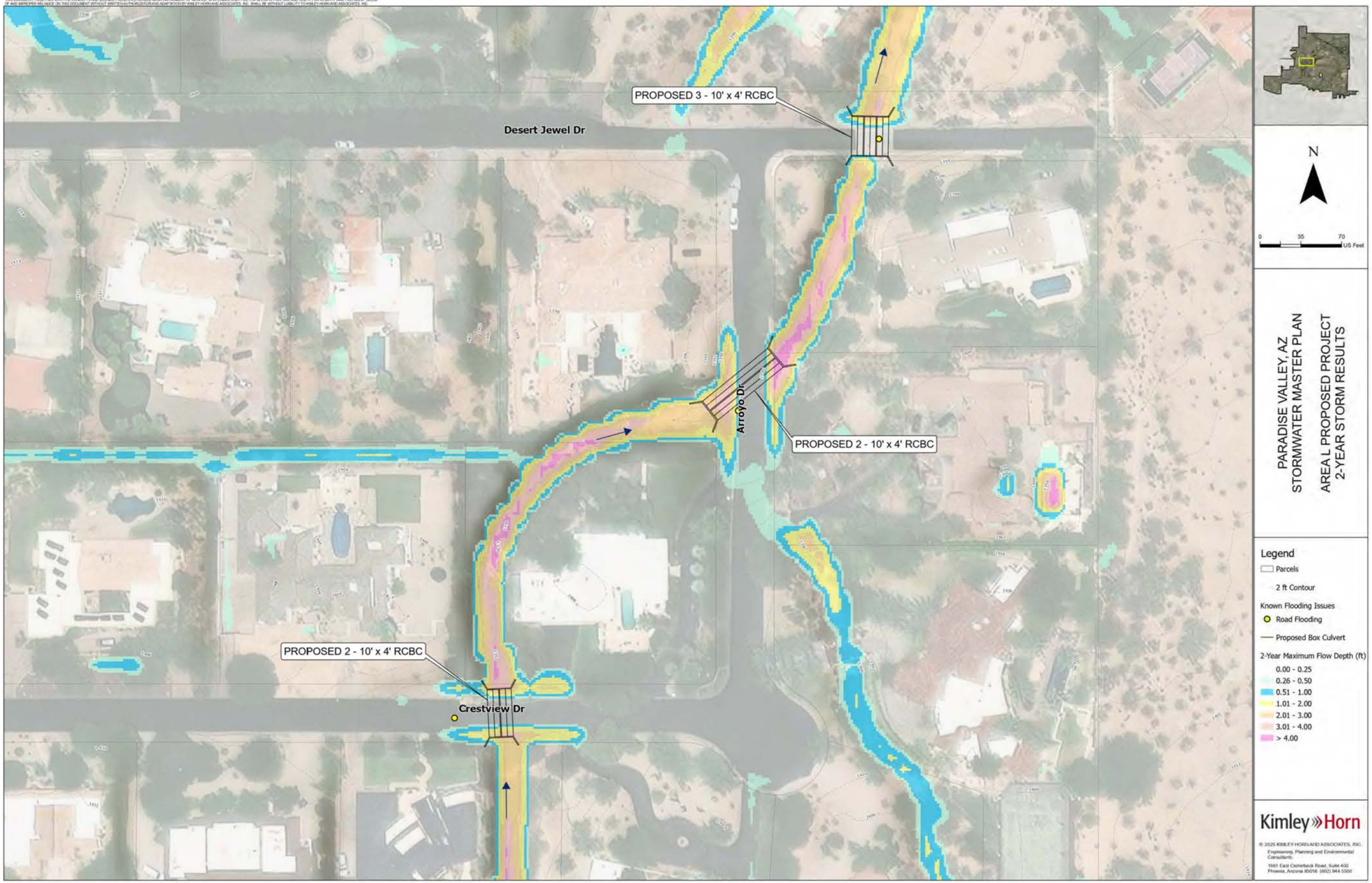
XVIII. APPENDIX F – HIGHEST PRIORITY PROJECTS ANTICIPATED PERFORMANCE

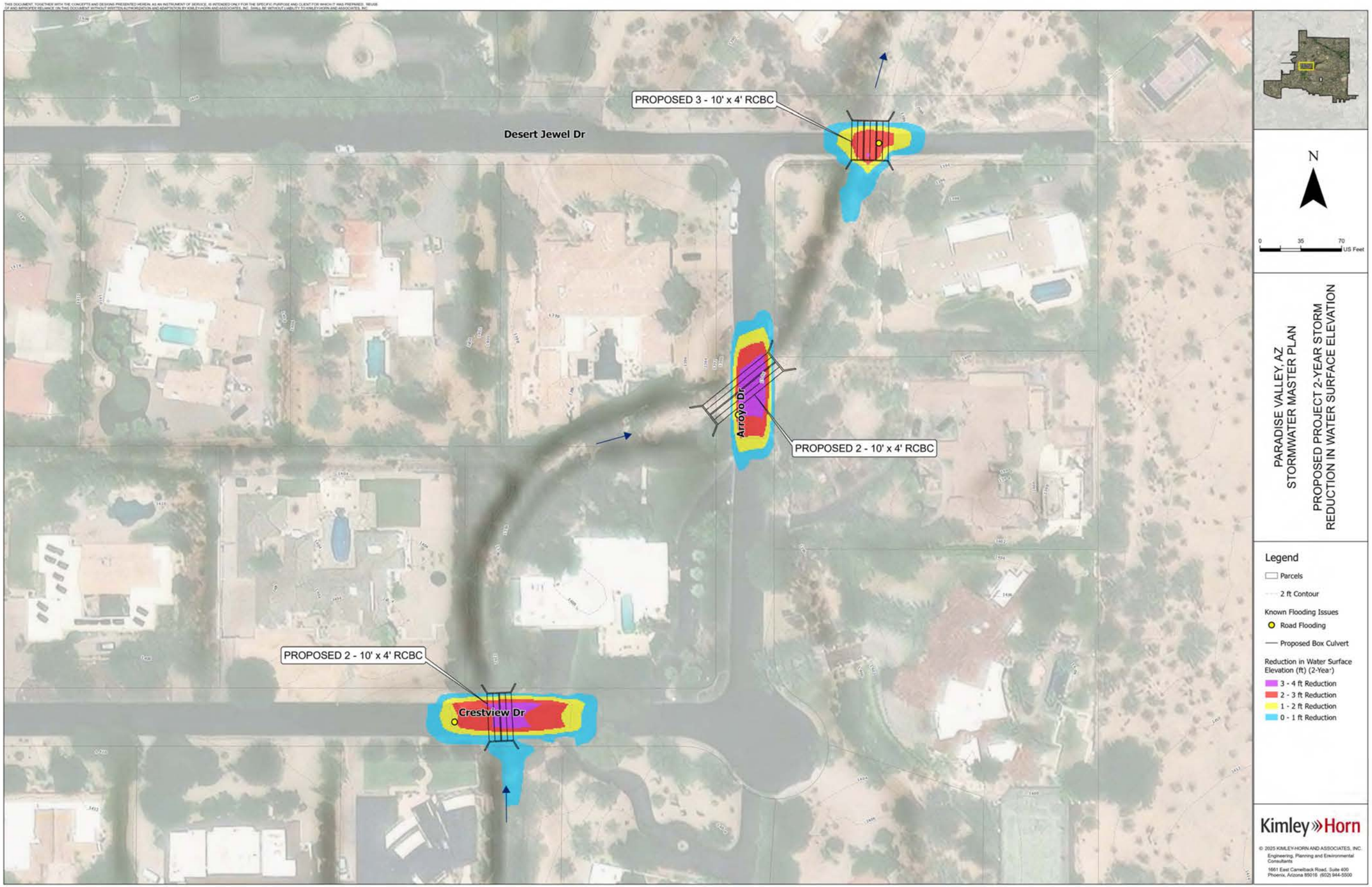
FLOOD HAZARD AREA L

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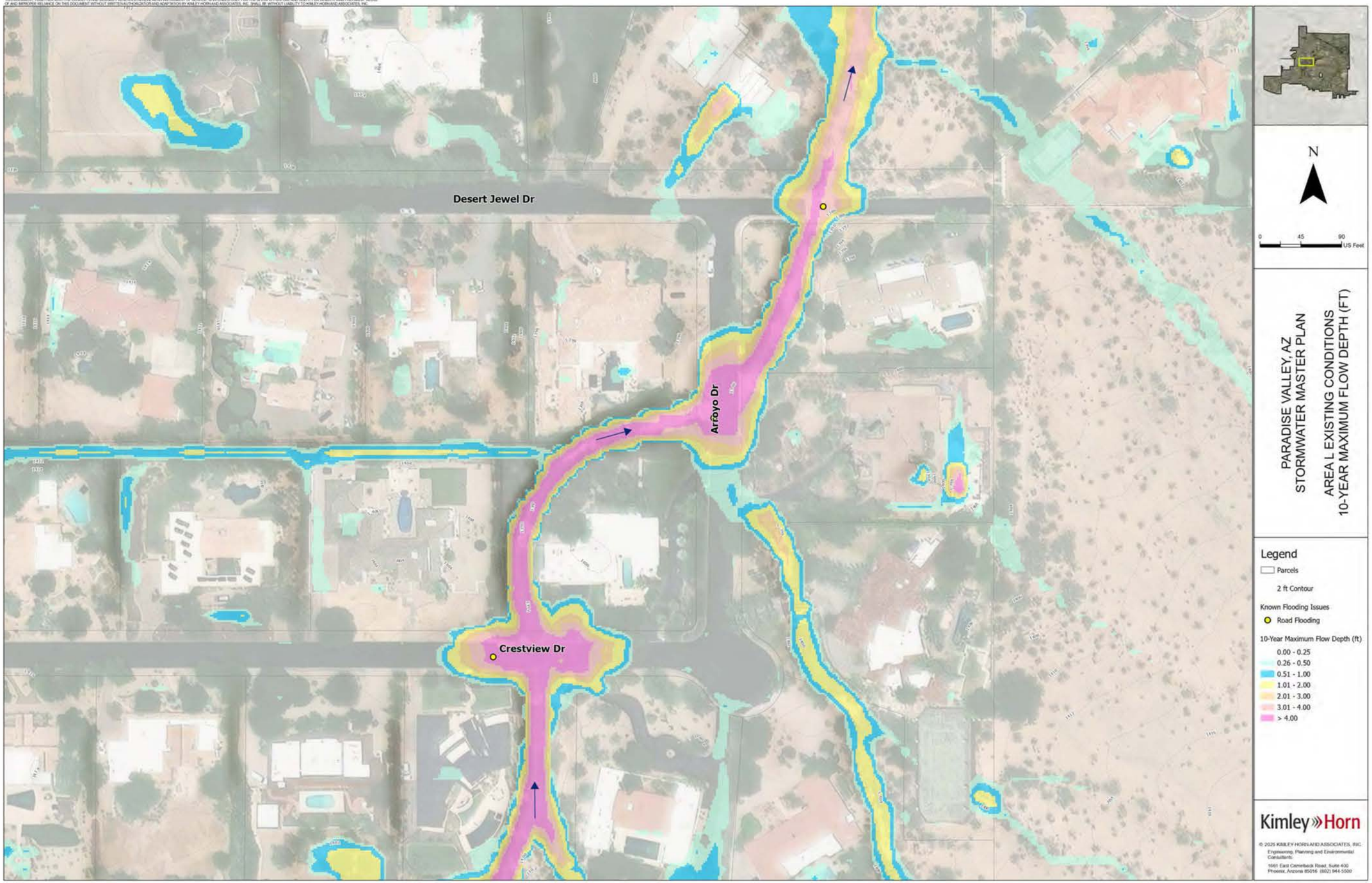


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Phoenix, Arizona 85016 (602) 944-5500


PROPOSED 3 - 10' x 4' RCBC
Desert Jewel Dr
Arroyo Dr
PROPOSED 2 - 10' x 4' RCBC
PROPOSED 2 - 10' x 4' RCBC
Crestview Dr
N
0
35
70
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
AREA L PROPOSED PROJECT
2-YEAR STORM RESULTS
Legend
Parcels
2 ft Contour
Known Flooding Issues
Road Flooding
Proposed Box Culvert
2-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
Kimley»Horn
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Phoenix, Arizona 85016 (602) 944-5500

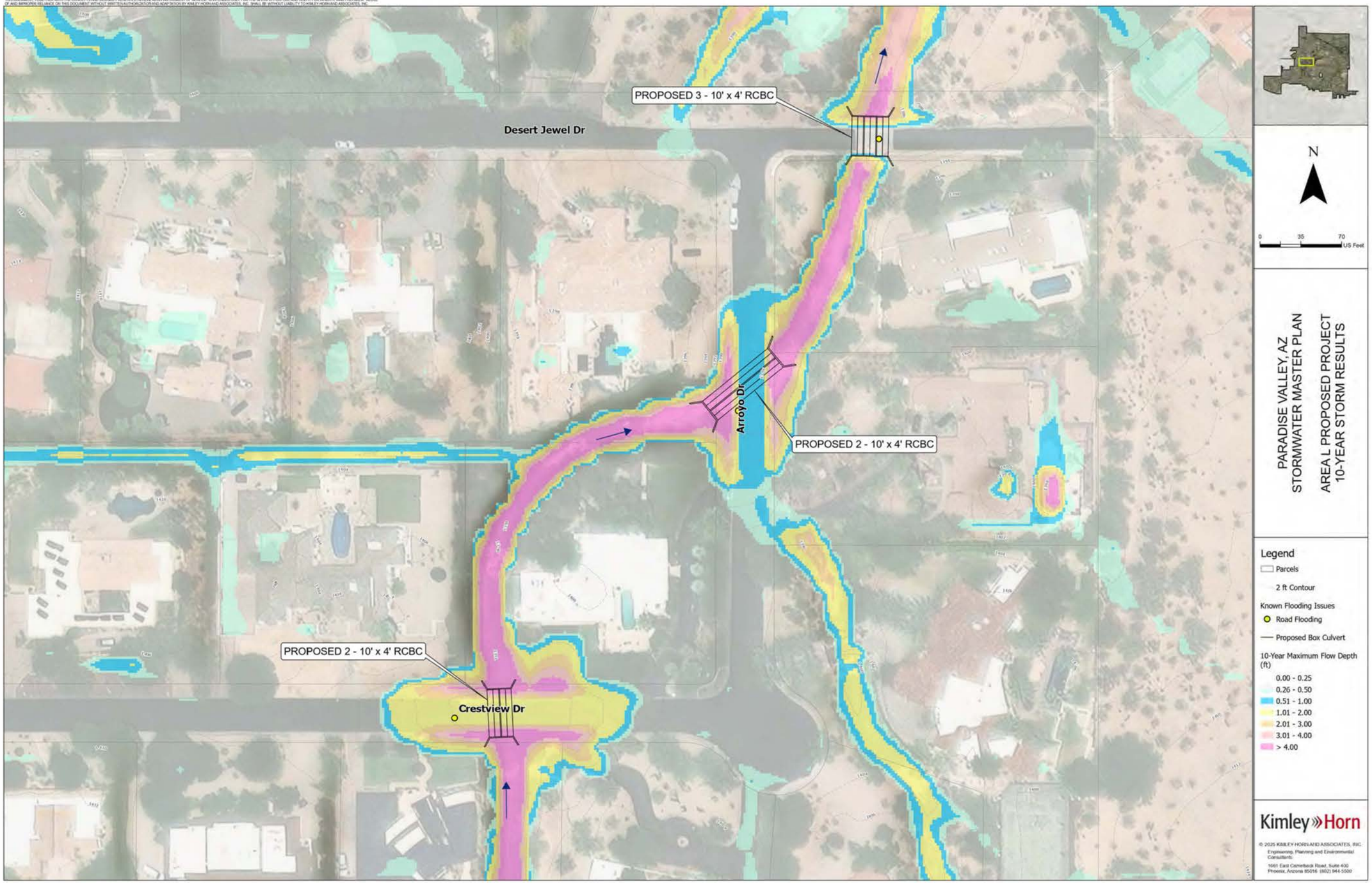

PROPOSED 3 - 10' x 4' RCBC
Desert Jewel Dr
Arroyo Dr
PROPOSED 2 - 10' x 4' RCBC
PROPOSED 2 - 10' x 4' RCBC
Crestview Dr
N
0
35
70
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
PROPOSED PROJECT 2-YEAR STORM
REDUCTION IN WATER SURFACE ELEVATION
Legend
Parcels
2 ft Contour
Known Flooding Issues
Road Flooding
Proposed Box Culvert
Reduction in Water Surface Elevation (ft) (2-Year)
3 - 4 ft Reduction
2 - 3 ft Reduction
1 - 2 ft Reduction
0 - 1 ft Reduction
Kimley»Horn
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Phoenix, Arizona 85016 (602) 944-5500

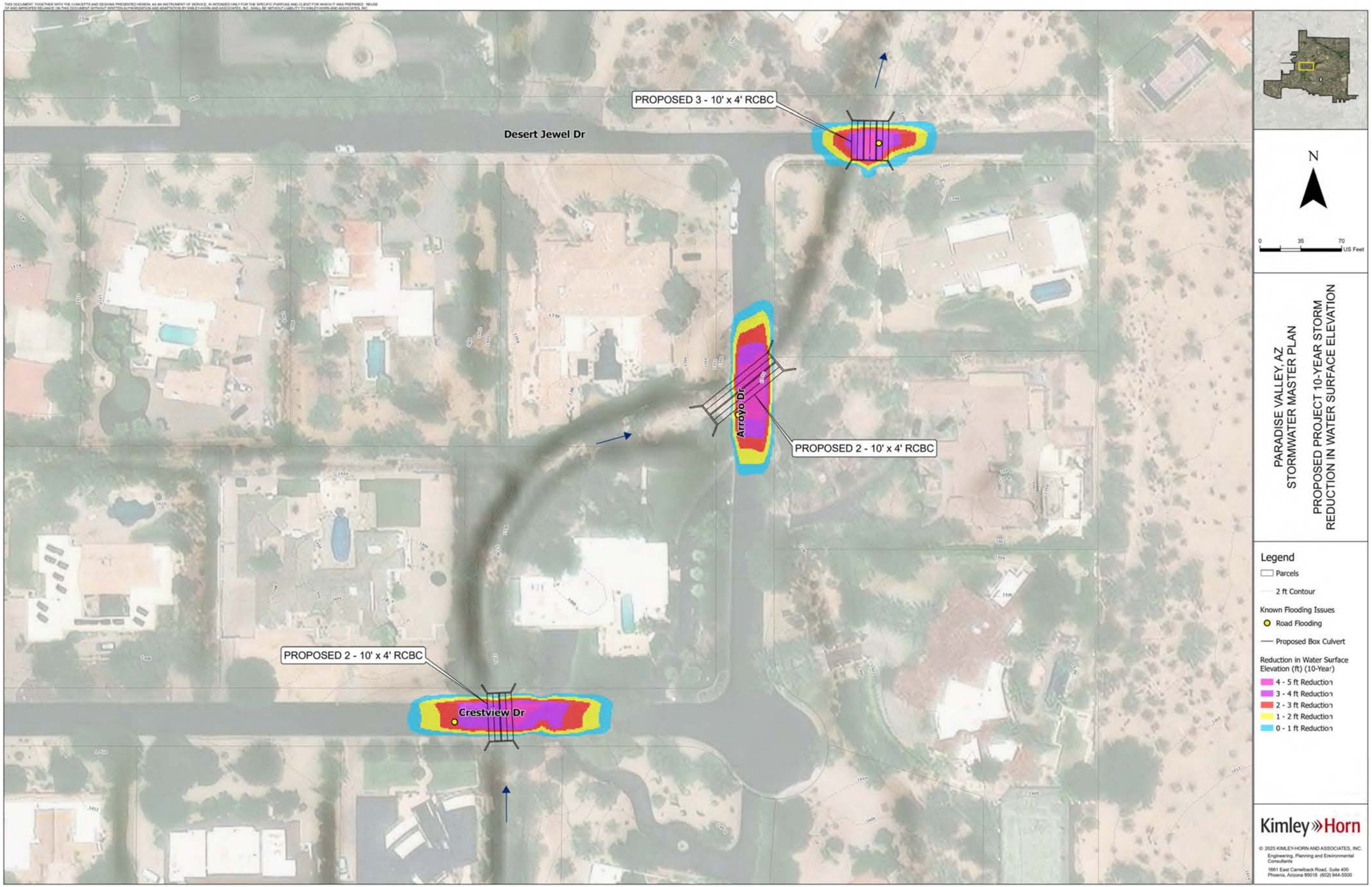
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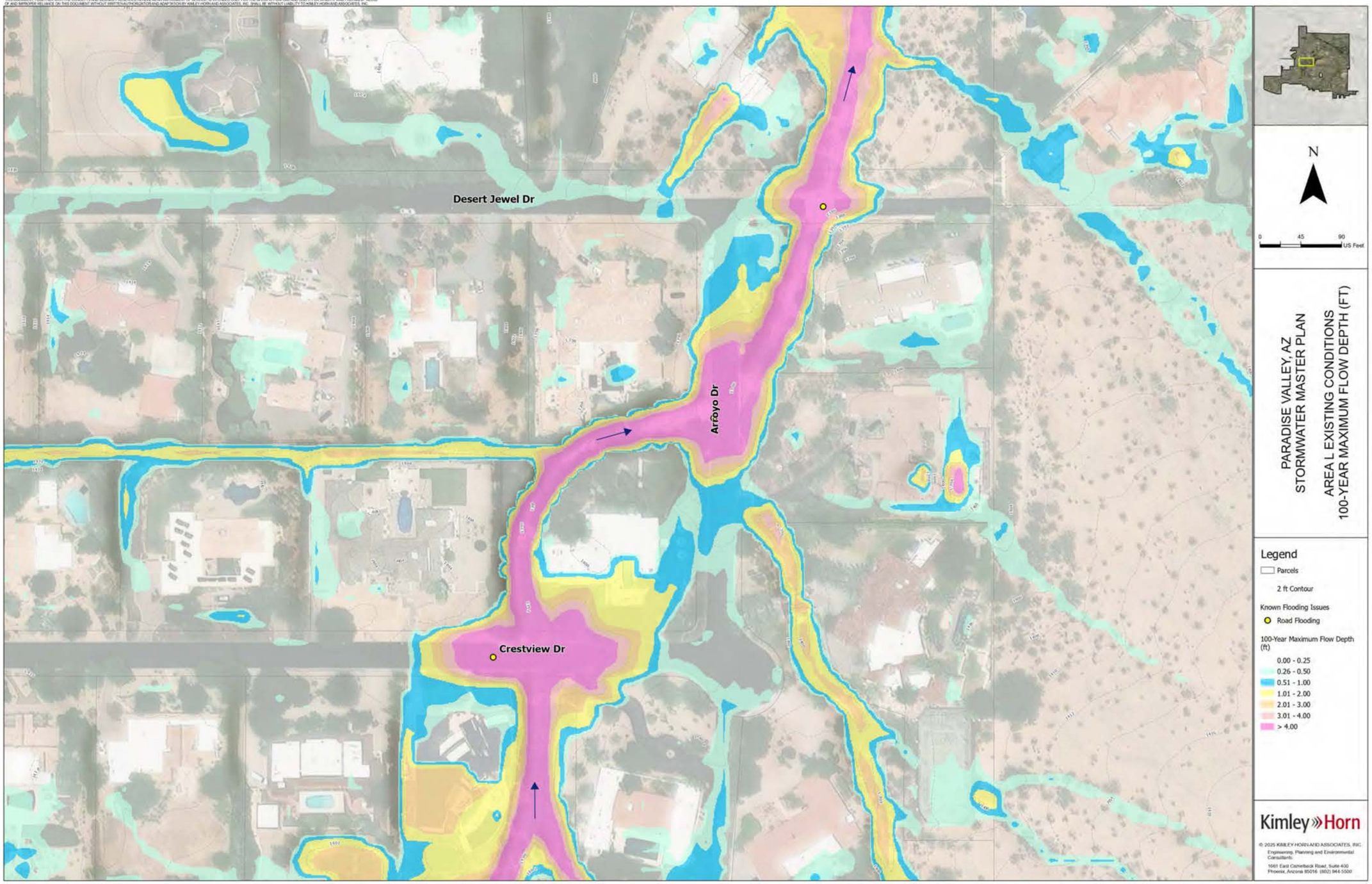
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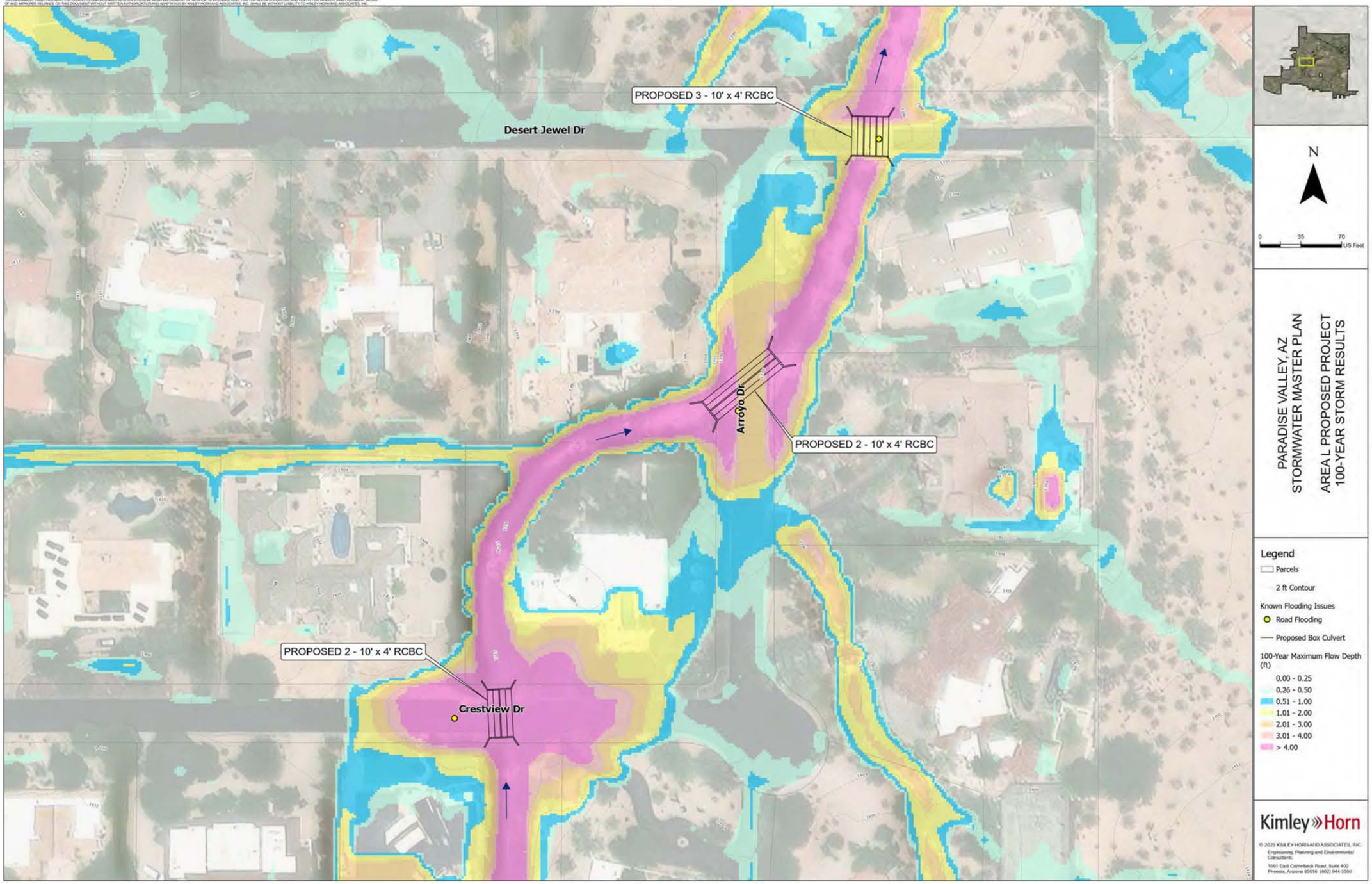


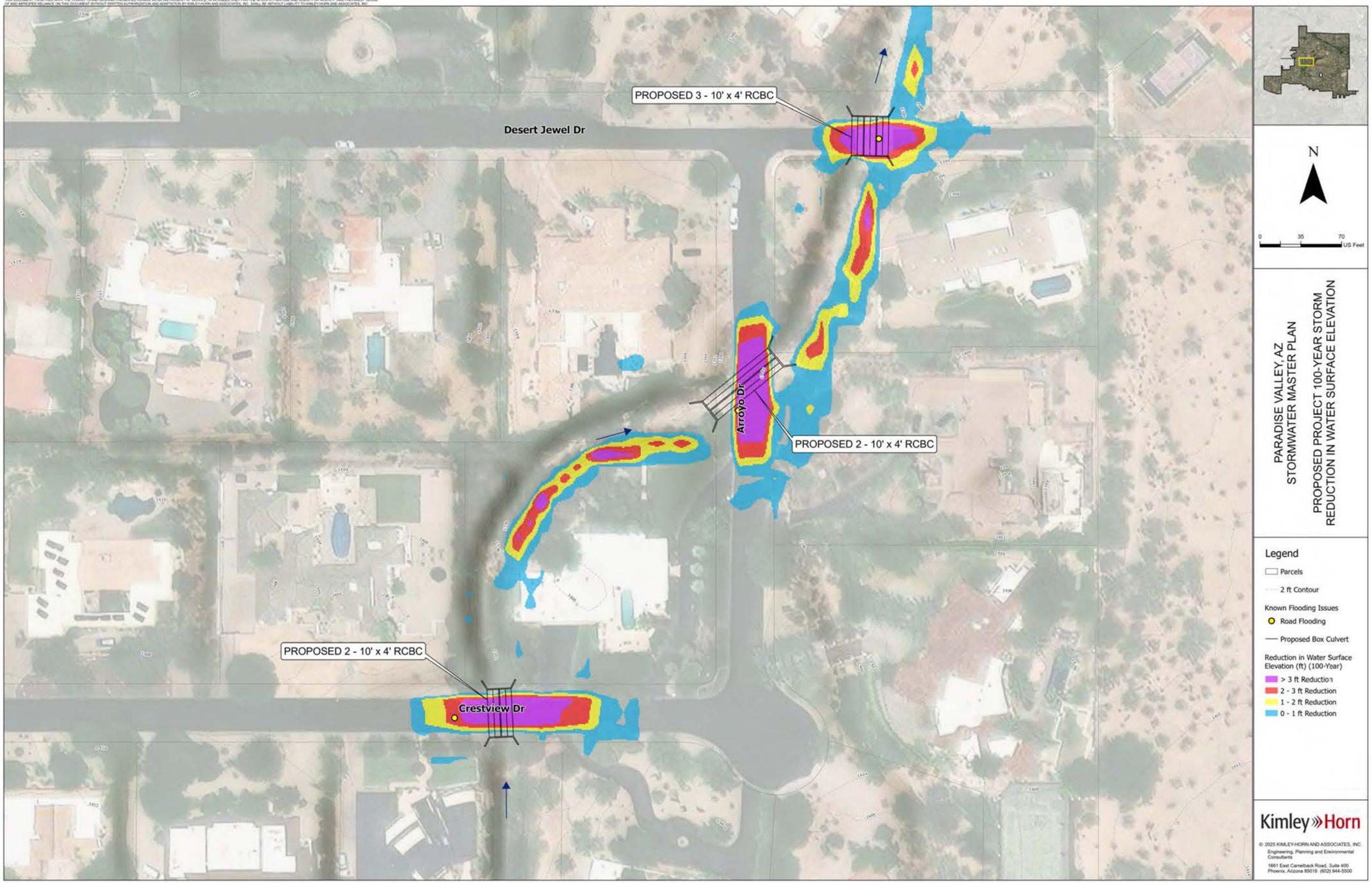

PROPOSED 3 - 10' x 4' RCBC
Desert Jewel Dr
Arroyo Dr
PROPOSED 2 - 10' x 4' RCBC
PROPOSED 2 - 10' x 4' RCBC
Crestview Dr
N
0
35
70
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
PROPOSED PROJECT 10-YEAR STORM
REDUCTION IN WATER SURFACE ELEVATION
Legend
Parcels
2 ft Contour
Known Flooding Issues
Road Flooding
Proposed Box Culvert
Reduction in Water Surface Elevation (ft) (10-Year)
4 - 5 ft Reduction
3 - 4 ft Reduction
2 - 3 ft Reduction
1 - 2 ft Reduction
0 - 1 ft Reduction
Kimley»Horn
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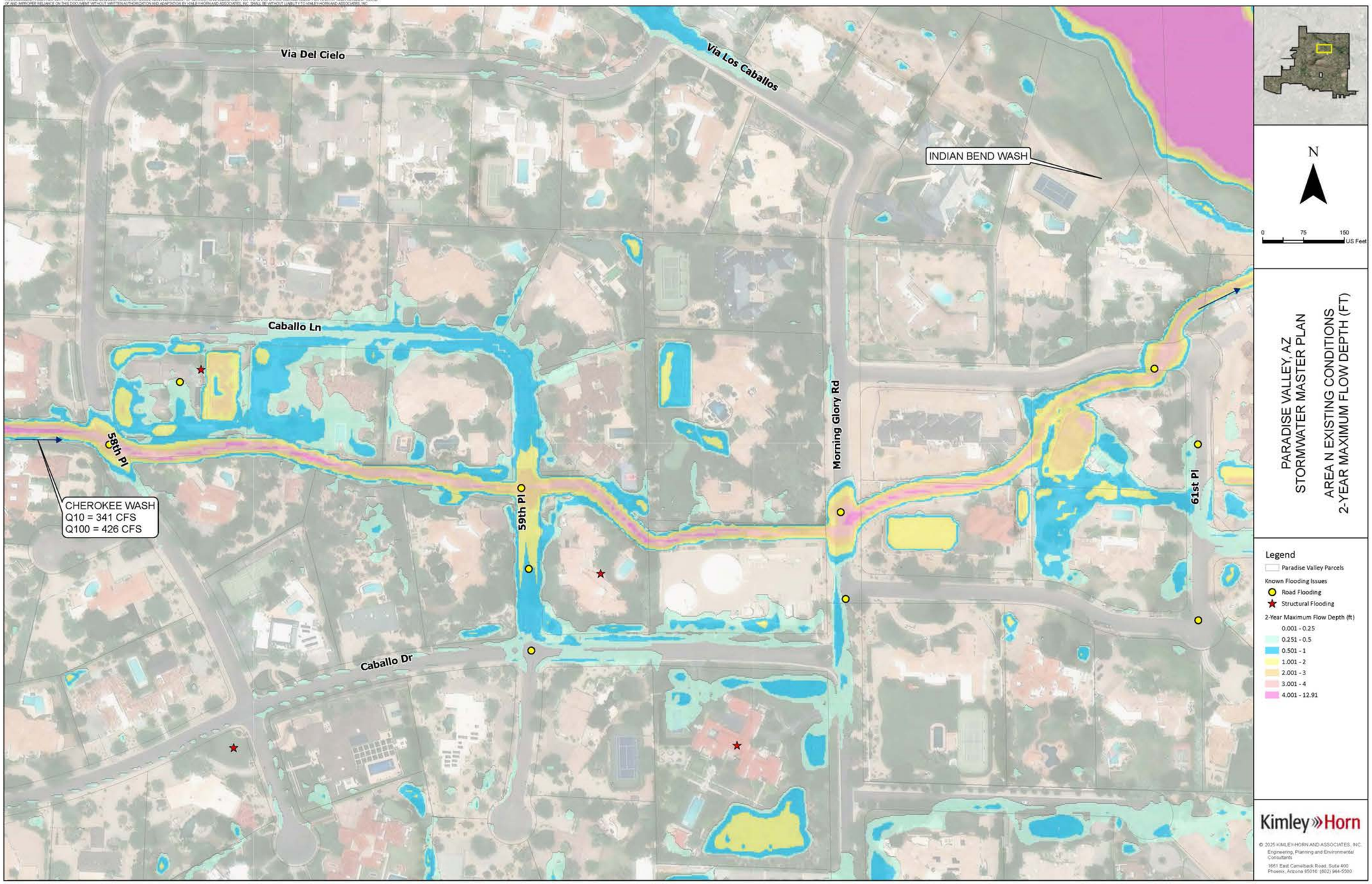

PROPOSED 3 - 10' x 4' RCBC
Desert Jewel Dr
Arroyo Dr
PROPOSED 2 - 10' x 4' RCBC
PROPOSED 2 - 10' x 4' RCBC
Crestview Dr
N
0
35
70
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
AREA L PROPOSED PROJECT
100-YEAR STORM RESULTS
Legend
Parcels
2 ft Contour
Known Flooding Issues
Road Flooding
Proposed Box Culvert
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
Kimley»Horn
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PROPOSED 3 - 10' x 4' RCBC
Desert Jewel Dr
Arroyo Dr
PROPOSED 2 - 10' x 4' RCBC
PROPOSED 2 - 10' x 4' RCBC
Crestview Dr
N
0
35
70
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
PROPOSED PROJECT 100-YEAR STORM
REDUCTION IN WATER SURFACE ELEVATION
Legend
Parcels
2 ft Contour
Known Flooding Issues
Road Flooding
Proposed Box Culvert
Reduction in Water Surface Elevation (ft) (100-Year)
> 3 ft Reduction
2 - 3 ft Reduction
1 - 2 ft Reduction
0 - 1 ft Reduction
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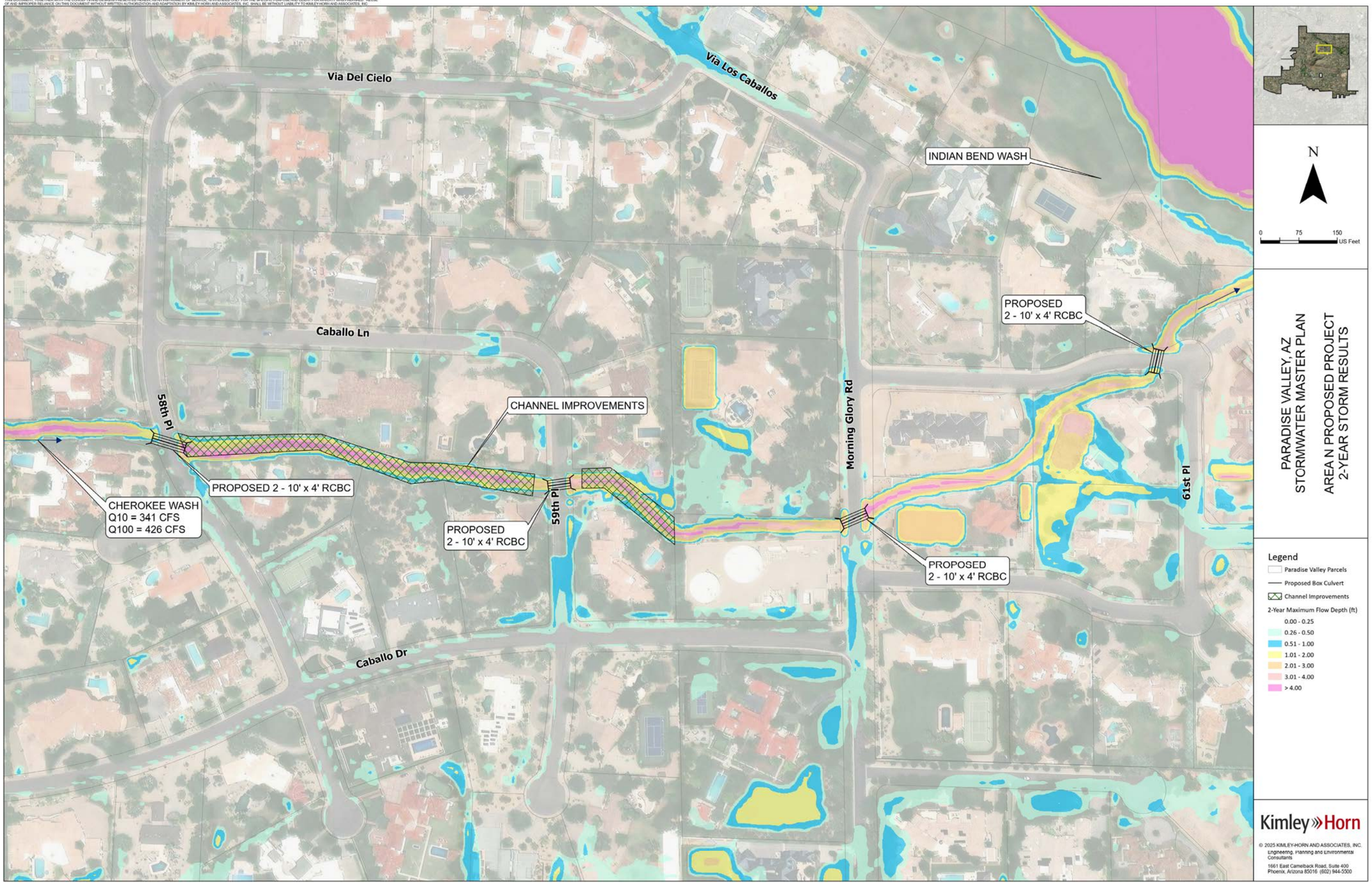
XVIII. APPENDIX F – HIGHEST PRIORITY PROJECTS ANTICIPATED PERFORMANCE

FLOOD HAZARD AREA N

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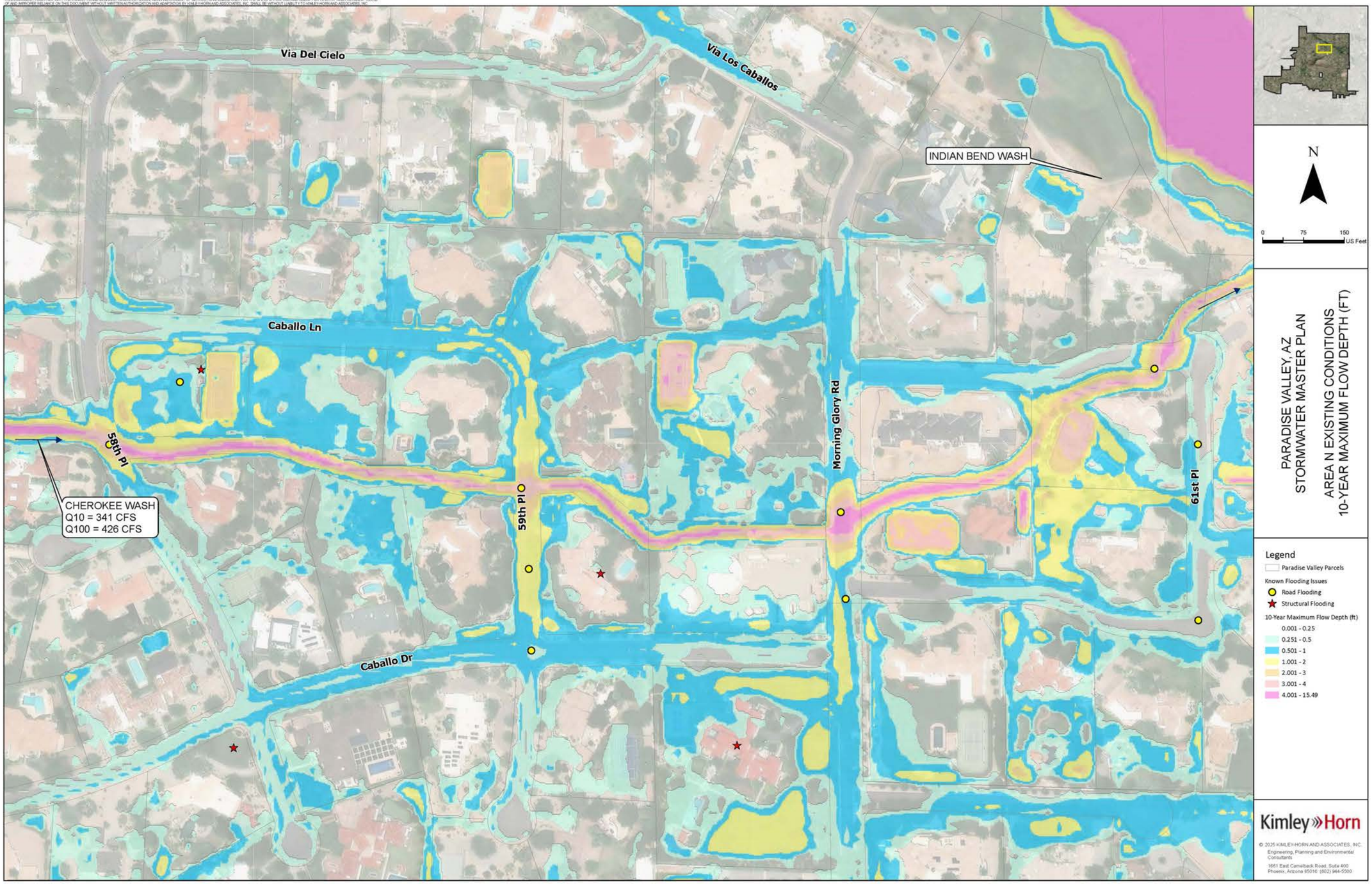


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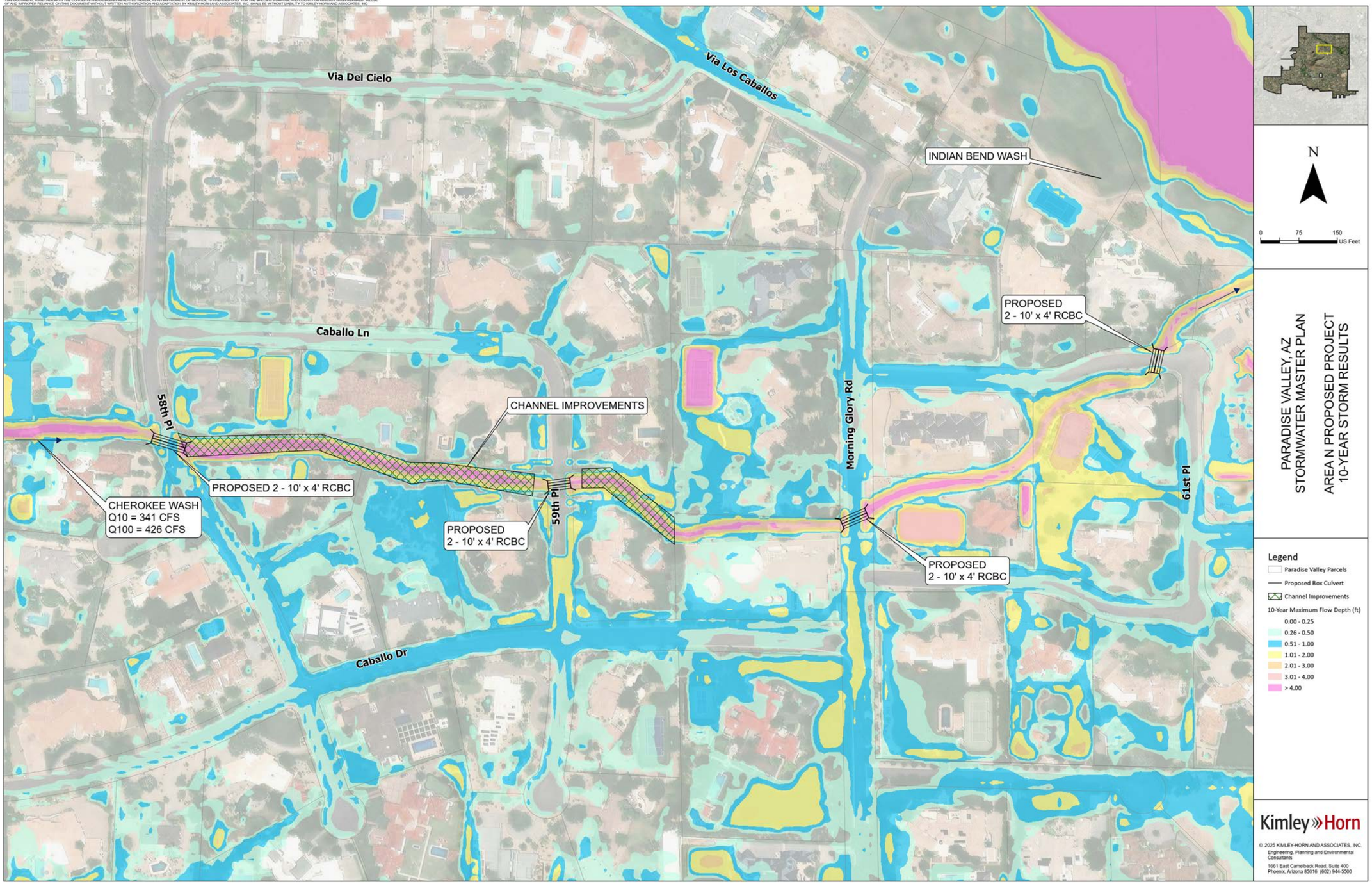



Via Del Cielo
Via Los Caballos
INDIAN BEND WASH
Caballo Ln
PROPOSED 2 - 10' x 4' RCBC
59th Pl
CHEROKEE WASH
Q10 = 341 CFS
Q100 = 426 CFS
PROPOSED
2 - 10' x 4' RCBC
59th Pl
Caballo Dr
Morning Glory Rd
PROPOSED
2 - 10' x 4' RCBC
PROPOSED
2 - 10' x 4' RCBC
61st Pl
N
0 75 150
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
PROPOSED PROJECT 2-YEAR STORM
REDUCTION IN WATER SURFACE ELEVATION
Legend
Paradise Valley Parcels
Proposed Box Culvert
Known Flooding Issues
Road Flooding
Structural Flooding
Reduction in Water Sur'ace Elevation (ft) (2-Year)
3 - 4 ft Reduction
2 - 3 ft Reduction
1 - 2 ft Reduction
0 - 1 ft Reduction
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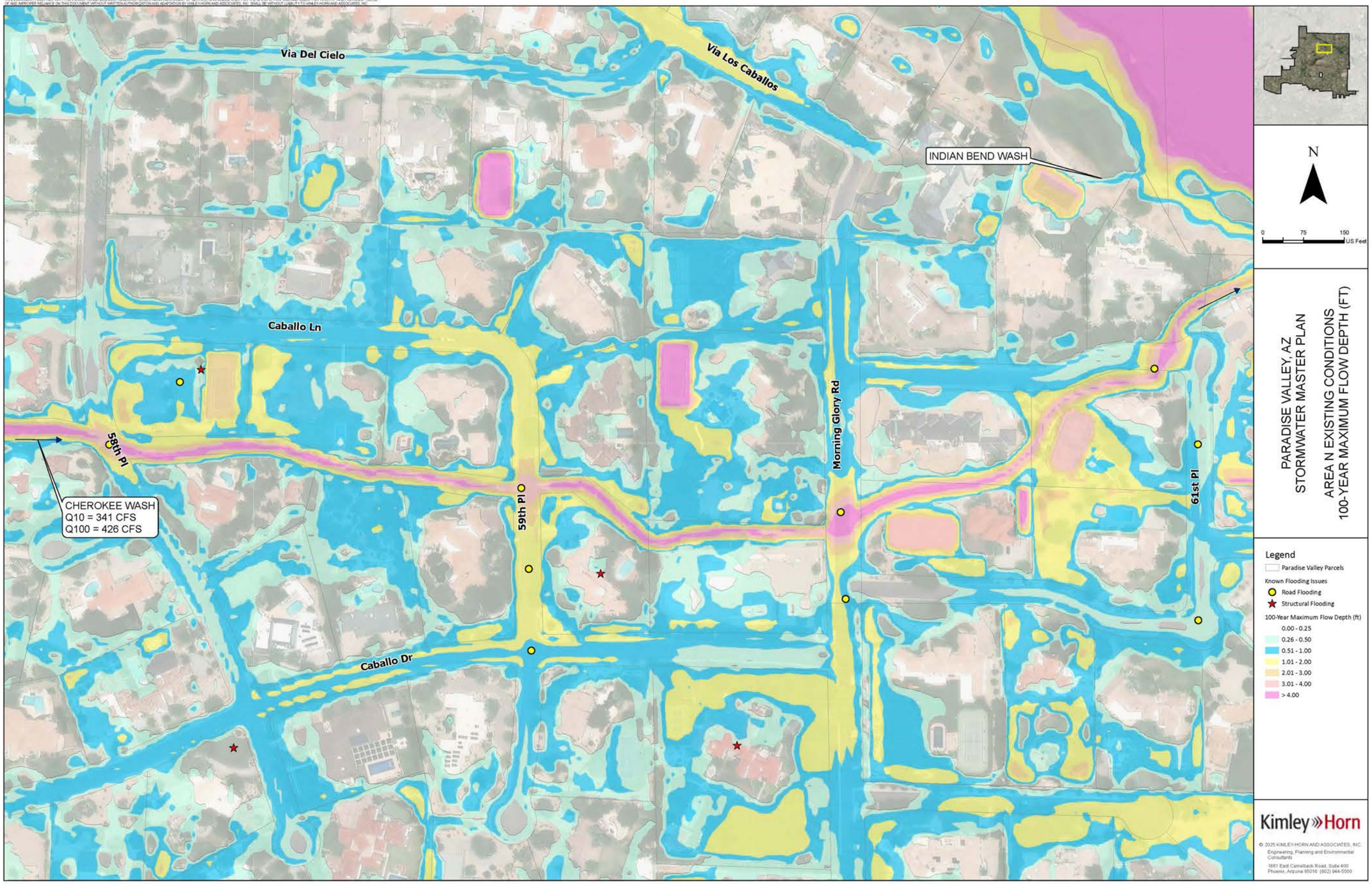


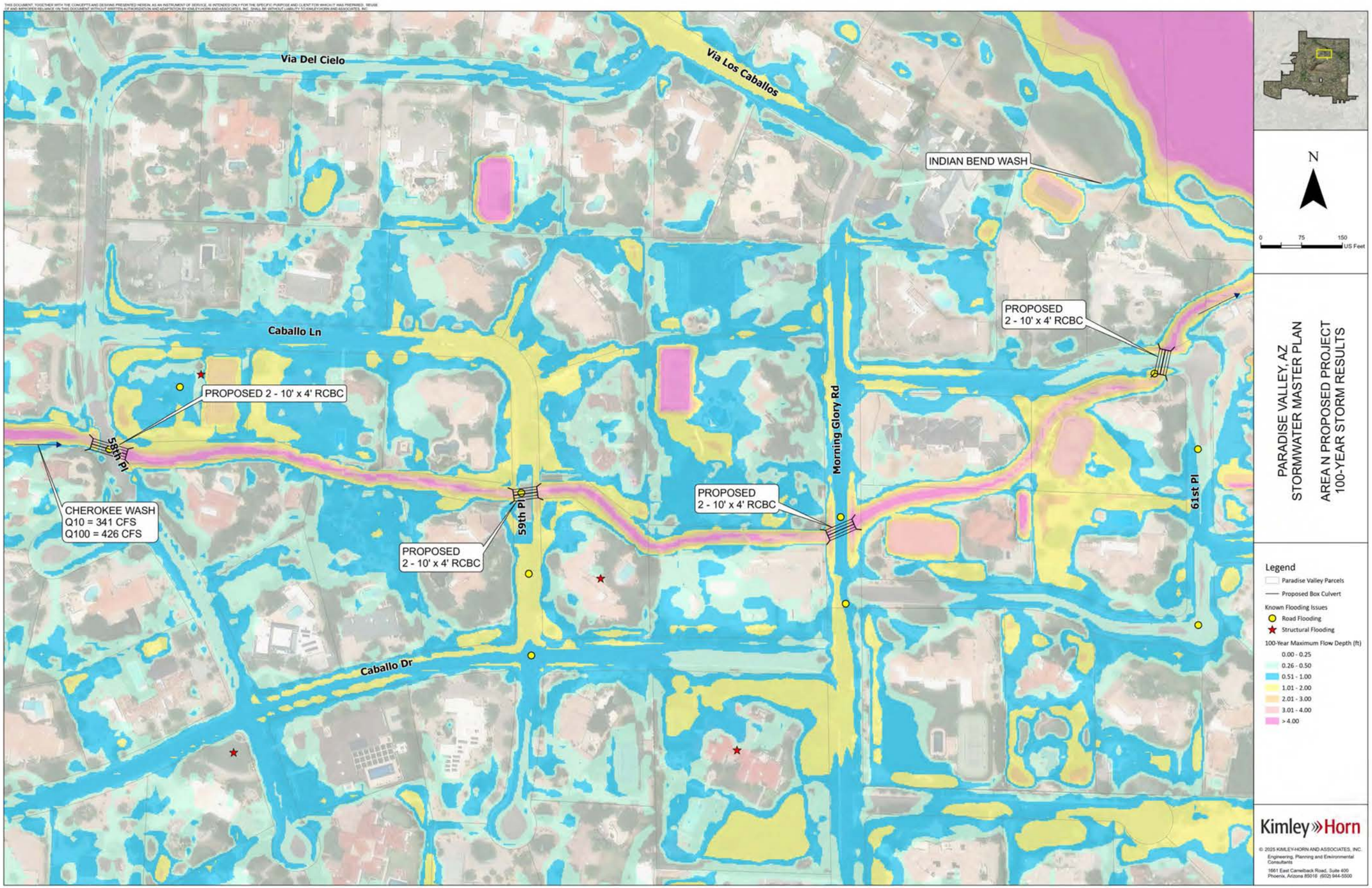
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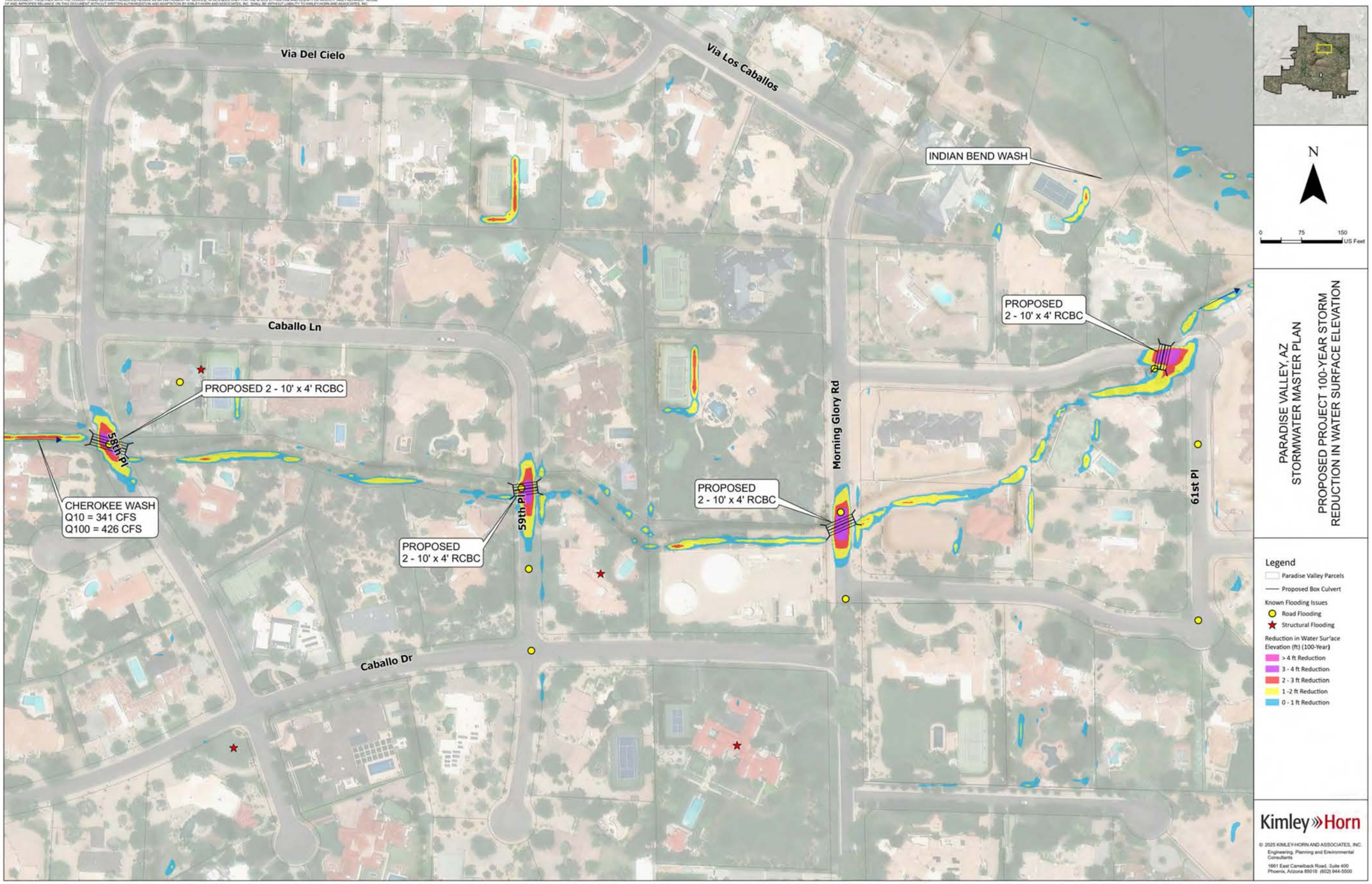

Via Del Cielo
Via Los Caballos
Caballo Ln
Caballo Dr
Morning Glory Rd
59th Pl
61st Pl
INDIAN BEND WASH
PROPOSED
2 - 10' x 4' RCBC
PROPOSED 2 - 10' x 4' RCBC
PROPOSED
2 - 10' x 4' RCBC
PROPOSED
2 - 10' x 4' RCBC
CHEROKEE WASH
Q10 = 341 CFS
Q100 = 426 CFS
N
0 75 150
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
PROPOSED PROJECT 10-YEAR STORM
REDUCTION IN WATER SURFACE ELEVATION
Legend
Paradise Valley Parcels
Proposed Box Culvert
Known Flooding Issues
Road Flooding
Structural Flooding
Reduction in Water Sur'ace Elevation (ft) (10-Year)
4 - 5 ft Reduction
3 - 4 ft Reduction
2 - 3 ft Reduction
1 - 2 ft Reduction
0 - 1 ft Reduction
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2 - 10' x 4' RCBC
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PROPOSED
2 - 10' x 4' RCBC
61st Pl
Caballo Dr
N
0
75
150
US Feet
PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
AREA N PROPOSED PROJECT
100-YEAR STORM RESULTS
Legend
Paradise Valley Parcels
Proposed Box Culvert
Known Flooding Issues
Road Flooding
Structural Flooding
100-Year Maximum Flow Depth (ft)
0.00 - 0.25
0.26 - 0.50
0.51 - 1.00
1.01 - 2.00
2.01 - 3.00
3.01 - 4.00
> 4.00
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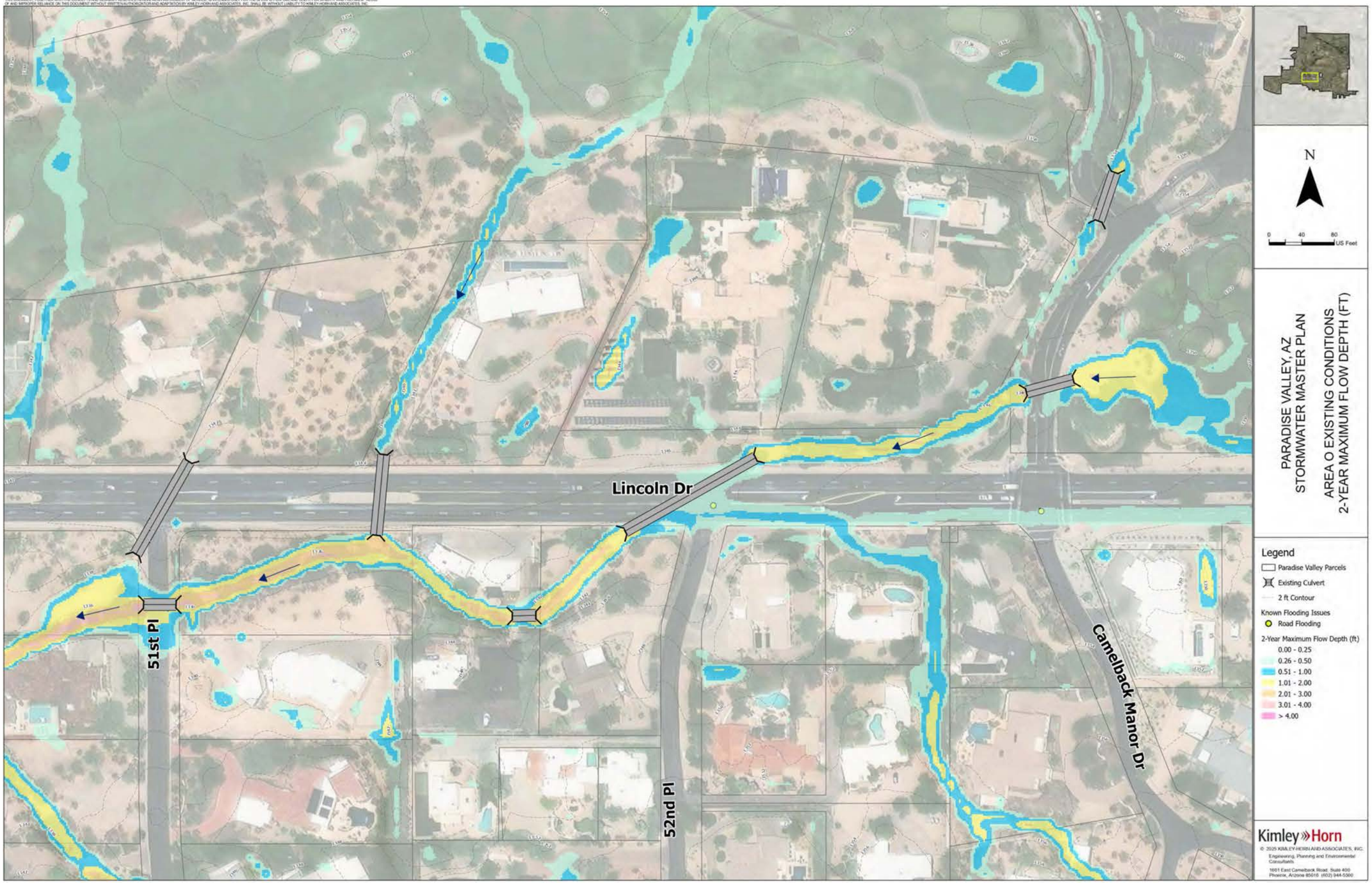
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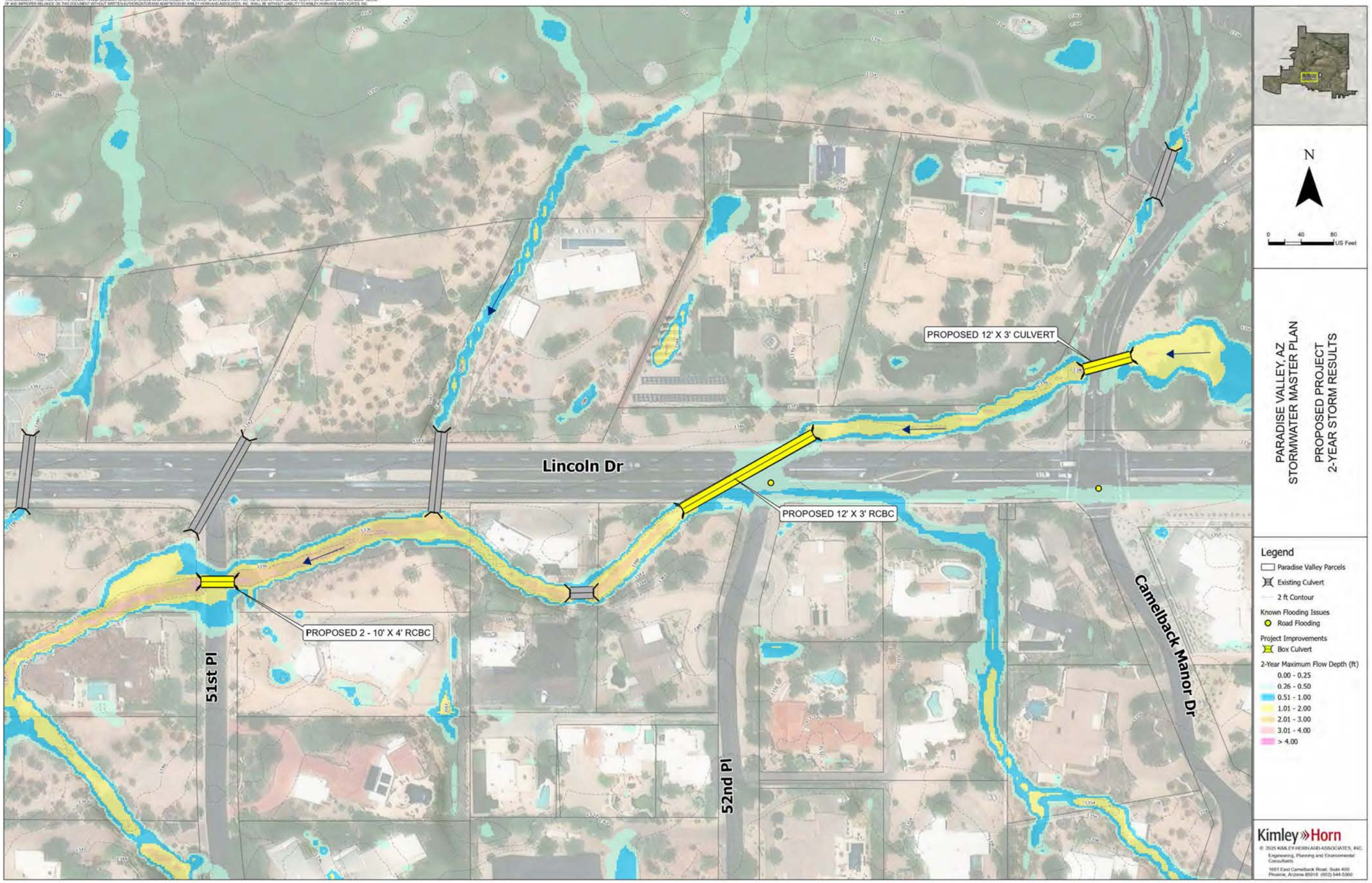
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FLOOD HAZARD AREA O

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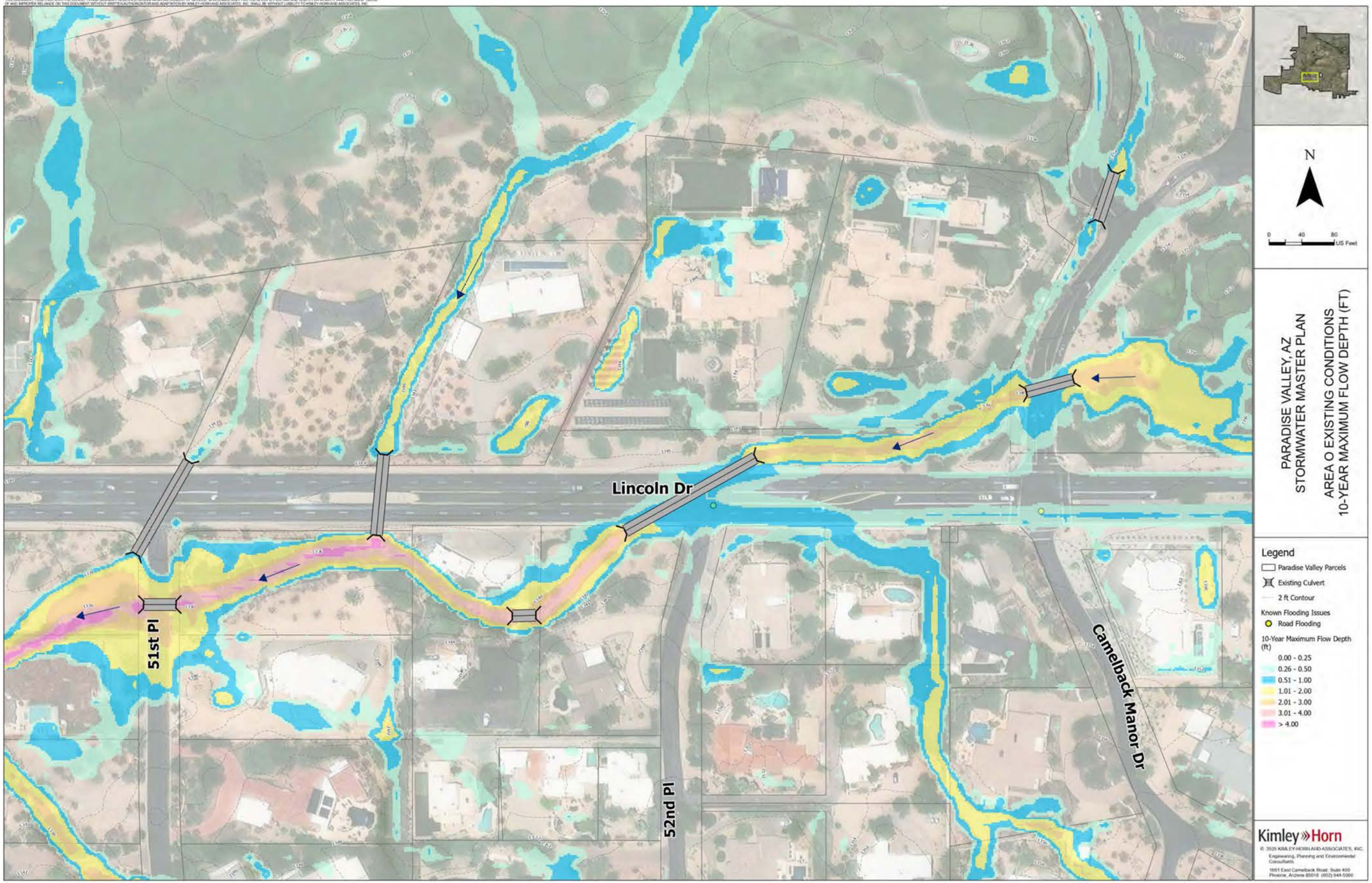


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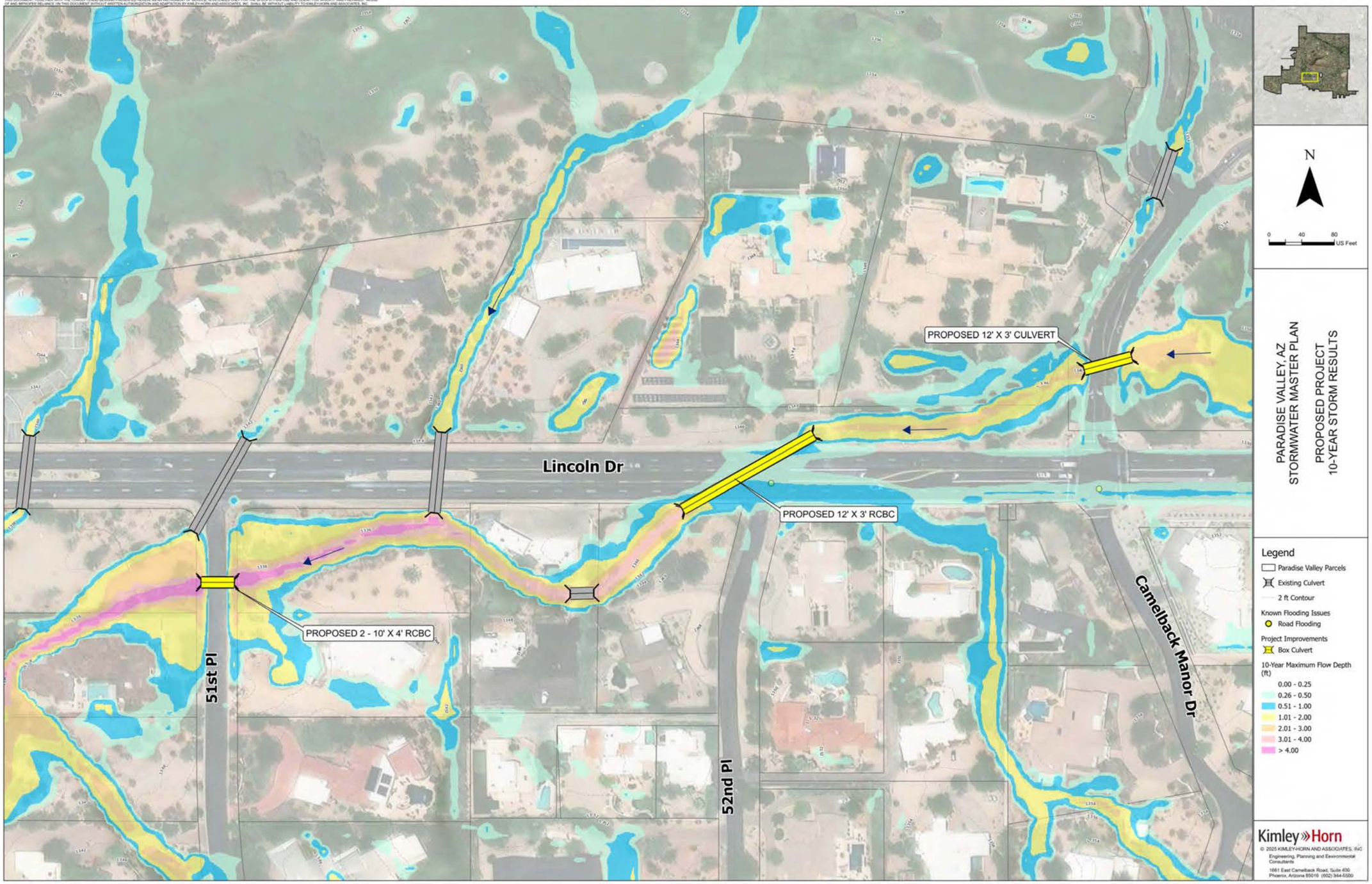



PROPOSED 12' X 3' CULVERT
Lincoln Dr
PROPOSED 12' X 3' RCBC
PROPOSED 2 - 10' X 4' RCBC
51st Pl
52nd Pl
Camelback Manor Dr
N
0 40 80
US Feet
TOWN OF PARADISE VALLEY, AZ
STORMWATER MASTER PLAN
PROPOSED PROJECT 2-YEAR STORM
REDUCTION IN WATER SURFACE ELEVATION
Legend
Paradise Valley Parcels
Existing Culvert
2 ft Contour
Known Flooding Issues
Road Flooding
Project Improvements
Box Culvert
Reduction in Water Surface Elevation (2-Year Storm)
1-2 ft
0-1 ft
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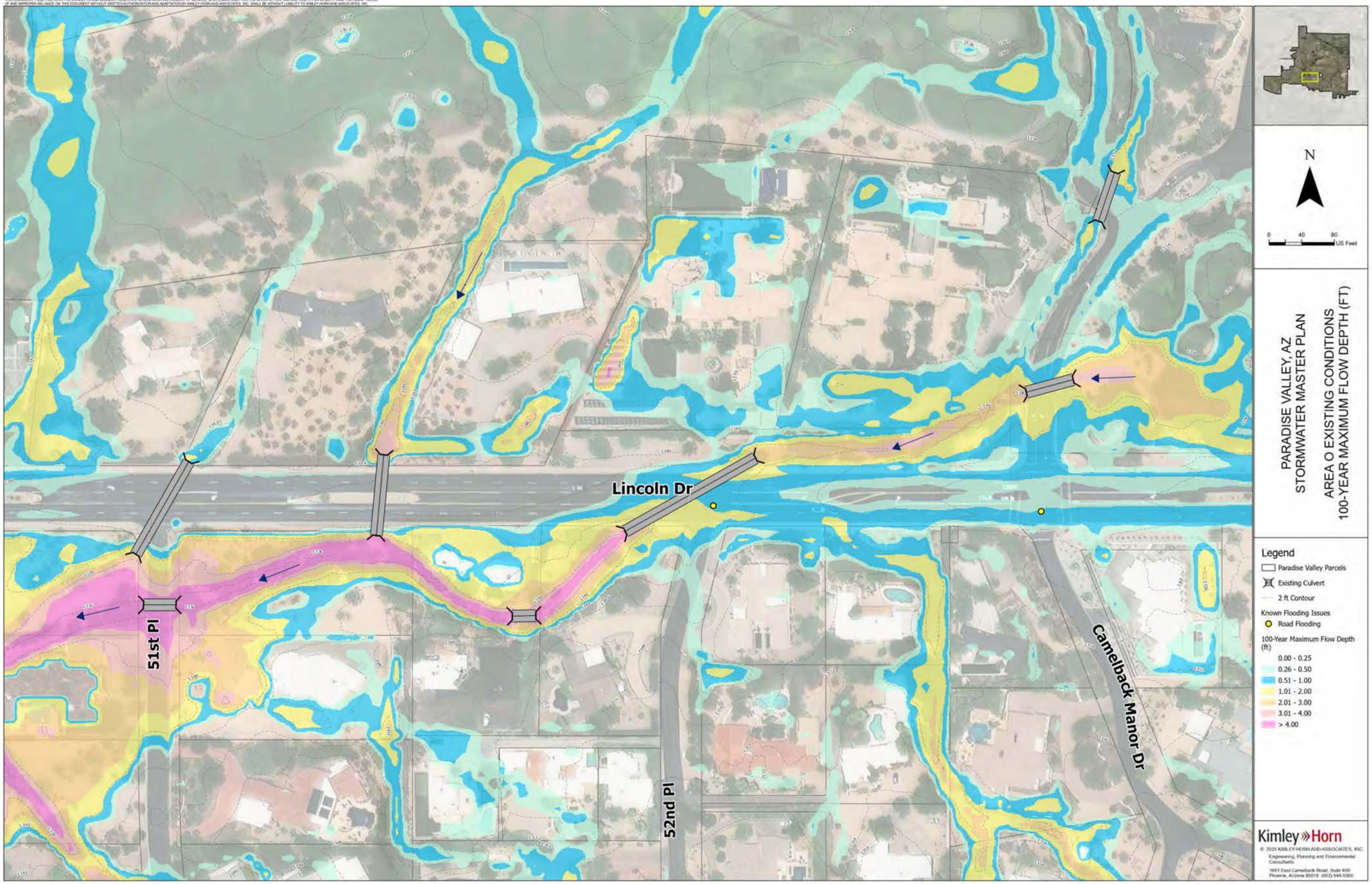
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Lincoln Dr
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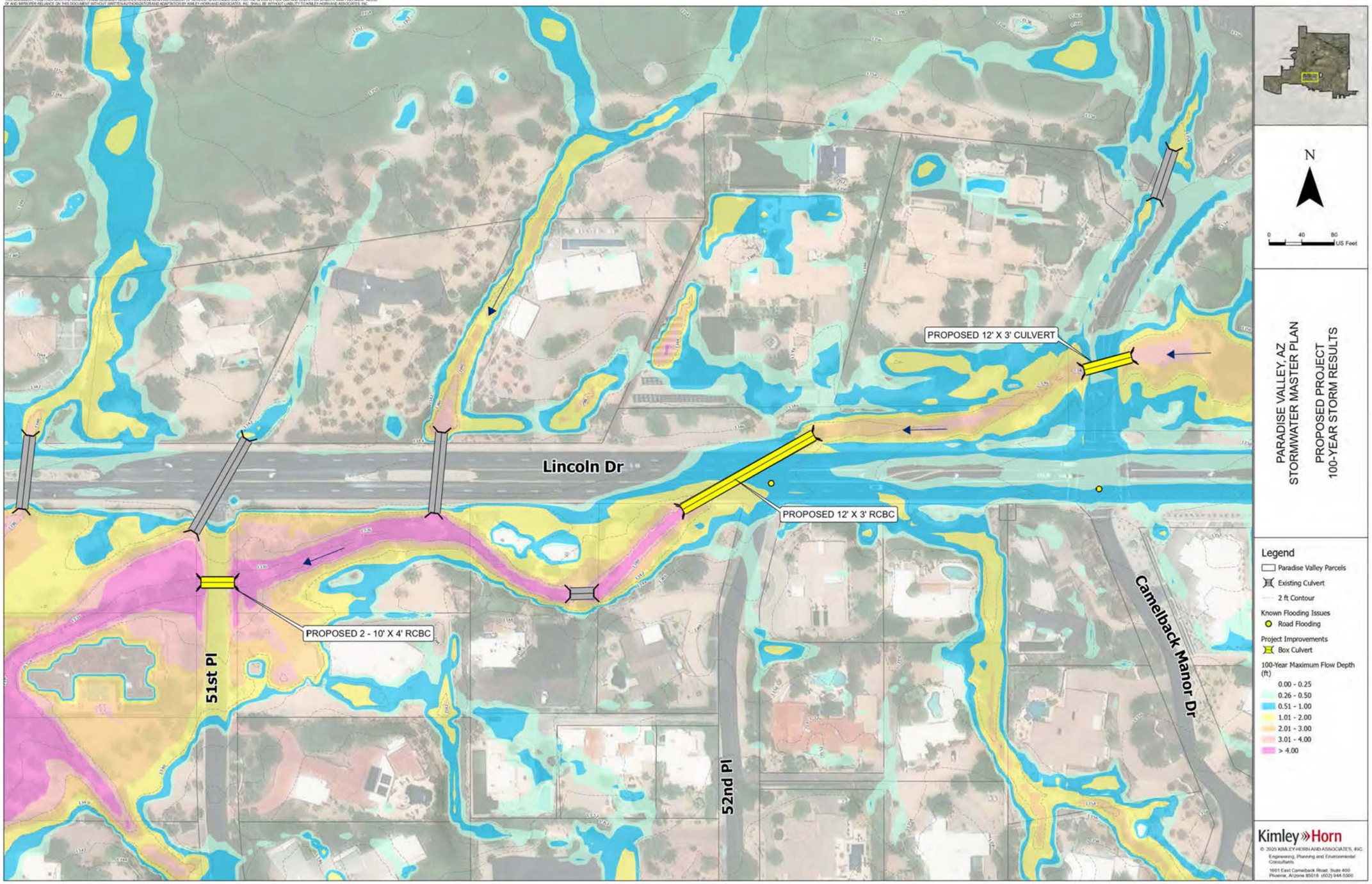
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XIX. APPENDIX G – HIGHEST PRIORITY PROJECTS COST ESTIMATES

Area A - Engineer's Opinion of Probable Cost

Item	Description	Unit	Quantity	Unit Price	Cost
	Construction Estimate				
1	12' x 3' RCBC	LF	900	$1,800	$1,620,000
2	2 - 30" RCP Storm Drain	LF	1,500	$750	$1,125,000
3	54" RCP Storm Drain	LF	1,200	$525	$630,000
4	42" RCP Storm Drain	LF	500	$415	$207,500
5	36" RCP Storm Drain	LF	450	$320	$144,000
6	Storm Drain Connection	EA	1	$3,500	$3,500
7	Catch Basin	EA	5	$25,000	$125,000
8	Manhole	EA	15	$12,000	$180,000
9	Pavement Removal	LF	4,210	$35	$147,350
10	Median Curb Replacement	LF	1,800	$55	$99,000
11	New Pavement/Regrading	SY	11,000	$85	$935,000
12	Concrete Curb and Gutter	LF	3,200	$55	$176,000
13	Clearing and Grubbing	LF	4,210	$50	$210,500
14	Inlet Structure	EA	3	$25,000	$75,000
15	Pavers to Match Existing Conditions	SF	4,210	$40	$168,400
16	Landscaping and Irrigation Restoration	SF	12,630	$60	$757,800
				Subtotal	6,604,050
	General Costs				
17	SWPPP (2%)	LS	1	$132,081	$132,081
18	Mobilization/Demobilization (10%)	LS	1	$660,405	$660,405
19	Design (15%)	LS	1	$990,608	$990,608
20	Construction Management (12%)	LS	1	$792,486	$792,486
21	Utilities (10%)	LS	1	$660,405	$660,405
22	Traffic Control (3%)	LS	1	$198,122	$198,122
				Subtotal	$10,038,156
				Contingency (15%)	$1,505,723
				Total Project Cost	$11,543,879

Area H – Engineer's Opinion of Probable Cost

Item	Description	Unit	Quantity	Unit Price	Cost
	Construction Estimate				
1	Storm Drain Outlet	EA	1	$2,500	$2,500
2	Storm Drain Pipe 24"	LF	110	$410	$45,100
3	Manhole	EA	1	$10,000	$10,000
4	Staff Gage	EA	1	$210	$210
5	Flood Warning Sign	EA	1	$275	$275
6	Protective Railing	LF	75	$180	$13,500
7	Removal of Curb and Gutter	LF	3	$250	$750
8	Curb & Gutter	LF	3	$100	$300
9	Concrete Sidewalk	SF	10	$35	$350
10	Storm Drain Pipe 36"	SF	15	$375	$5,625
11	Remove Bollards	EA	6	$260	$1,560
12	Removal of Pipe	LF	15	$75	$1,125
13	Riprap	CY	15	$120	$1,800
14	Channel Excavation	CY	1,200	$28	$33,600
15	Diversion Structure	LS	1	$55,000	$55,000
16	Basin Excavation	CY	2,600	$25	$65,000
17	Landscaping	LS	1	$15,000	$15,000
				Sub Total	$251,695
	General Costs				
18	SWPPP (10%)	LS	1	$25,170	$25,170
19	Mobilization/Demobilization (50%)	LS	1	$125,848	$125,848
20	Design (50%)	LS	1	$125,848	$125,848
21	Construction Management (45%)	LS	1	$113,263	$113,263
22	Utilities (20%)	LS	1	$50,339	$50,339
23	Traffic Control (20%)	LS	1	$50,339	$50,339
				Subtotal	$742,500
				Contingency (40%)	$297,000
				Total	$1,039,500

Area K - Engineer's Opinion of Probable Cost

Item	Description	Unit	Quantity	Unit Price	Cost
	Construction Estimate				
1	Basin Excavation	CY	61,307	$42	$2,574,894
2	Landscaping	SF	174,240	$5	$871,200
3	Clearing and Grubbing	SF	174,240	$2	$348,480
4	Weir Grading and Concrete	LS	1	$10,000	$10,000
5	Riprap	CY	630	$120	$75,600
				Subtotal	$3,880,174
	General Costs				
6	SWPPP (2%)	LS	1	$77,603	$77,603
7	Mobilization/Demobilization (12%)	LS	1	$465,621	$465,621
8	Design (10%)	LS	1	$388,017	$388,017
9	Construction Management (10%)	LS	1	$388,017	$388,017
10	Utilities (2%)	LS	1	$77,603	$77,603
11	Traffic Control (1%)	LS	1	$38,802	$38,802
				Subtotal	$5,315,838
				Contingency (15%)	$797,376
				Total	$6,113,214

Area L - Engineer's Opinion of Probable Costs

Item	Description	Unit	Quantity	Unit Price	Cost
	Construction Estimate				
1	2 - 10' x 4' RCBC	LF	125	$2,600	$325,000
2	3 - 10' x 4' RCBC	LF	45	$3,400	$153,000
3	Headwalls	EA	6	$15,000	$90,000
4	Grouted Riprap	CY	30	$470	$14,100
5	Safety Rail	LF	240	$150	$36,000
6	Earthwork/Sediment Basin	CY	780	$45	$35,100
7	Landscaping	LS	1	$20,000	$20,000
8	Pavement Replacement	TON	165	$475	$78,375
				Sub Total	$751,575
	General Costs				
9	SWPPP (5%)	LS	1	$37,579	$37,579
10	Mobilization/Demobilization (20%)	LS	1	$150,315	$150,315
11	Design (20%)	LS	1	$150,315	$150,315
12	Construction Management (15%)	LS	1	$112,736	$112,736
13	Utilities (8%)	LS	1	$60,126	$60,126
14	Traffic Control (5%)	LS	1	$37,579	$37,579
				Subtotal	$1,300,225
				Contingency (20%)	$260,045
				Total	$1,560,270

Area N - Engineer's Opinion of Probable Cost

Item	Description	Unit	Quantity	Unit Price	Cost
	Construction Estimate				
1	2 - 10' x 4' RCBC	LF	255	$2,600	$663,000
2	Headwall	EA	8	$15,000	$120,000
3	Grouted Riprap	CY	32	$480	$15,360
4	Pavement Removal and Replacement	LF	670	$150	$100,500
5	Landscaping	LS	1	$25,000	$25,000
6	Safety Rail	LF	200	$150	$30,000
7	Clearing and Grubbing	AC	1	$25,000	$25,000
8	Channel Grading and Excavation	LS	1	$20,000	$20,000
				Subtotal	$998,860
	General Costs				
9	SWPPP (3%)	LS	1	$29,966	$29,966
10	Mobilization/Demobilization (15%)	LS	1	$149,829	$149,829
11	Design (15%)	LS	1	$149,829	$149,829
12	Construction Management (15%)	LS	1	$149,829	$149,829
13	Utilities (10%)	LS	1	$99,886	$99,886
14	Traffic Control (8%)	LS	1	$79,909	$79,909
				Subtotal	$1,658,108
				Contingency (20%)	$331,622
				Total	$1,989,729

Area O - Engineer's Opinion of Probable Cost

Item	Description	Unit	Quantity	Unit Price	Cost
	Construction Estimate				
1	2 - 10' x 4' RCBC	LF	55	$2,400	$132,000
2	12' x 3' RCBC	LF	190	$1,800	$342,000
3	Drop Inlet	EA	1	$20,000	$20,000
4	Headwalls	EA	6	$12,000	$72,000
5	Grouted Riprap	CY	40	$470	$18,800
6	Excavation	CY	1,050	$65	$68,250
7	Channel Grading and Landscaping	LS	1	$50,000	$50,000
8	Remove and Replace Pavement	LF	315	$220	$69,300
				Subtotal	$772,350
	General Costs				
9	SWPPP (5%)	LS	1	$38,618	$38,618
10	Mobilization/Demobilization (20%)	LS	1	$154,470	$154,470
11	Design (20%)	LS	1	$154,470	$154,470
12	Construction Management (20%)	LS	1	$154,470	$154,470
13	Utilities (15%)	LS	1	$115,853	$115,853
14	Traffic Control (25%)	LS	1	$193,088	$193,088
				Subtotal	$1,583,318
				Contingency (25%)	$395,829
				Total	$1,979,147

XX. APPENDIX H – BENEFIT COST ANALYSIS DOCUMENTAION

FEMA Benefit-Cost Calculator

V.6.0 (Build 20250108.0114 | Release Notes)

Benefit-Cost Analysis

Project Name: Invergordon Storm Drain



Map Marker ▲	Mitigation Title	Property Type	Hazard	Discount Rate (%)	Benefits (B)	Costs (C)	BCR (B/C)
1	Floodwater Diversion and Storage @ 33.5770080; -111.9800110		DFA - Riverine Flood	3.1	$ 18,722,793	$ 6,072,476	3.08
2	Drainage Improvement @ 33.5584120; -111.9433950		DFA - Riverine Flood	3.1	$ 23,293,796	$ 11,616,355	2.01
TOTAL (SELECTED)					**$ 42,016,589**	**$ 17,688,831**	**2.38**
TOTAL					**$ 42,016,589**	**$ 17,688,831**	**2.38**

Property Configuration

Property Title:	Floodwater Diversion and Storage @ 33.5770080; -111.9800110
Property Location:	85028, Maricopa, Arizona
Property Coordinates:	33.577008, -111.980011
Is this a tribal project?:	No
Hazard Type:	Riverine Flood
Mitigation Action Type:	Floodwater Diversion and Storage
Property Type:	Residential Building
Analysis Method Type:	Professional Expected Damages

Cost Estimation

Floodwater Diversion and Storage @ 33.5770080; -111.9800110

Discount Rate (%):	3.1% Use Default:Yes
Project Useful Life (years):	75
Project Cost:	$6,000,000
Number of Maintenance Years:	75 Use Default:Yes
Annual Maintenance Cost:	$2,500

Damage Analysis Parameters - Damage Frequency Assessment

Floodwater Diversion and Storage @ 33.5770080; -111.9800110

Year of Analysis was Conducted:	2025
Year Property was Built:	0
Analysis Duration:	10 Use Default:Yes

Professional Expected Damages Before Mitigation

Floodwater Diversion and Storage @ 33.5770080; -111.9800110

	OTHER	OPTIONAL DAMAGES			VOLUNTEER COSTS		TOTAL
Recurrence Interval (years)	Damages ($)	Category 1 ($)	Category 2 ($)	Category 3 ($)	Number of Volunteers	Number of Days	Damages ($)
100	68,424,130	0	0	0	0	0	68,424,130
10	51,107,020	0	0	0	0	0	51,107,020

Annualized Damages Before Mitigation

Floodwater Diversion and Storage @ 33.5770080; -111.9800110

Annualized Recurrence Interval (years)	Damages and Losses ($)	Annualized Damages and Losses ($)
10	51,107,020	5,322,154
100	68,424,130	684,234
	Sum Damages and Losses ($)	Sum Annualized Damages and Losses ($)
	119,531,150	6,006,388

Professional Expected Damages After Mitigation
Floodwater Diversion and Storage @ 33.5770080; -111.9800110

	OTHER	OPTIONAL DAMAGES			VOLUNTEER COSTS		TOTAL
Recurrence Interval (years)	Damages ($)	Category 1 ($)	Category 2 ($)	Category 3 ($)	Number of Volunteers	Number of Days	Damages ($)
100	60,716,150	0	0	0	0	0	60,716,150
10	51,009,466	0	0	0	0	0	51,009,466

Annualized Damages After Mitigation
Floodwater Diversion and Storage @ 33.5770080; -111.9800110

Annualized Recurrence Interval (years)	Damages and Losses ($)	Annualized Damages and Losses ($)
10	51,009,466	5,008,642
100	60,716,150	607,155
	Sum Damages and Losses ($)	Sum Annualized Damages and Losses ($)
	111,725,616	5,615,797

Standard Benefits - Ecosystem Services
Floodwater Diversion and Storage @ 33.5770080; -111.9800110

Total Project Area (sq.ft):	174,240
Percentage of Urban Green Open Space:	100.00%
Percentage of Rural Green Open Space:	0.00%
Percentage of Riparian:	0.00%
Percentage of Coastal Wetlands:	0.00%
Percentage of Inland Wetlands:	0.00%
Percentage of Forests:	0.00%
Percentage of Coral Reefs:	0.00%
Percentage of Shellfish Reefs:	0.00%
Percentage of Beaches and Dunes:	0.00%
Expected Annual Ecosystem Services Benefits:	$62,164

Additional Benefits - Social
Floodwater Diversion and Storage @ 33.5770080; -111.9800110

Number of Workers:	410
Expected Annual Social Benefits:	$5,597,235

Benefits-Costs Summary
Floodwater Diversion and Storage @ 33.5770080; -111.9800110

Discount Rate (%):	3.1% Use Default:Yes
Total Standard Mitigation Benefits:	$13,125,558
Total Social Benefits:	$5,597,235
Total Mitigation Project Benefits:	$18,722,793
Total Mitigation Project Cost:	$6,072,476
Benefit Cost Ratio - Standard:	2.16
Benefit Cost Ratio - Standard + Social:	3.08

Property Configuration

Property Title:	Drainage Improvement @ 33.5584120; -111.9433950
Property Location:	85253, Maricopa, Arizona
Property Coordinates:	33.558412, -111.943395
Is this a tribal project?:	No
Hazard Type:	Riverine Flood
Mitigation Action Type:	Drainage Improvement
Property Type:	Residential Building
Analysis Method Type:	Professional Expected Damages

Cost Estimation
Drainage Improvement @ 33.5584120; -111.9433950

Discount Rate (%):	3.1% Use Default:Yes
Project Useful Life (years):	75
Project Cost:	$11,543,879
Number of Maintenance Years:	75 Use Default:Yes
Annual Maintenance Cost:	$2,500

Damage Analysis Parameters - Damage Frequency Assessment
Drainage Improvement @ 33.5584120; -111.9433950

Year of Analysis was Conducted:	2025
Year Property was Built:	0
Analysis Duration:	10 Use Default:Yes

Professional Expected Damages Before Mitigation
Drainage Improvement @ 33.5584120; -111.9433950

	OTHER	OPTIONAL DAMAGES			VOLUNTEER COSTS		TOTAL
Recurrence Interval (years)	Damages ($)	Category 1 ($)	Category 2 ($)	Category 3 ($)	Number of Volunteers	Number of Days	Damages ($)
100	74,057,157	0	0	0	0	0	74,057,157
10	34,557,678	0	0	0	0	0	34,557,678

Annualized Damages Before Mitigation
Drainage Improvement @ 33.5584120; -111.9433950

Annualized Recurrence Interval (years)	Damages and Losses ($)	Annualized Damages and Losses ($)
10	34,557,678	4,553,007
100	74,057,157	740,564
	Sum Damages and Losses ($)	Sum Annualized Damages and Losses ($)
	108,614,835	5,293,571

Professional Expected Damages After Mitigation
Drainage Improvement @ 33.5584120; -111.9433950

	OTHER	OPTIONAL DAMAGES			VOLUNTEER COSTS		TOTAL
Recurrence Interval (years)	Damages ($)	Category 1 ($)	Category 2 ($)	Category 3 ($)	Number of Volunteers	Number of Days	Damages ($)
100	69,521,281	0	0	0	0	0	69,521,281
10	32,335,631	0	0	0	0	0	32,335,631

Annualized Damages After Mitigation
Drainage Improvement @ 33.5584120; -111.9433950

Annualized Recurrence Interval (years)	Damages and Losses ($)	Annualized Damages and Losses ($)
10	32,335,631	4,267,191
100	69,521,281	695,206
	Sum Damages and Losses ($)	Sum Annualized Damages and Losses ($)
	101,856,912	4,962,397

Standard Benefits - Ecosystem Services
Drainage Improvement @ 33.5584120; -111.9433950

Total Project Area (acres):	26
Percentage of Urban Green Open Space:	100.00%
Percentage of Rural Green Open Space:	0.00%
Percentage of Riparian:	0.00%
Percentage of Coastal Wetlands:	0.00%
Percentage of Inland Wetlands:	0.00%
Percentage of Forests:	0.00%
Percentage of Coral Reefs:	0.00%
Percentage of Shellfish Reefs:	0.00%
Percentage of Beaches and Dunes:	0.00%
Expected Annual Ecosystem Services Benefits:	$404,066

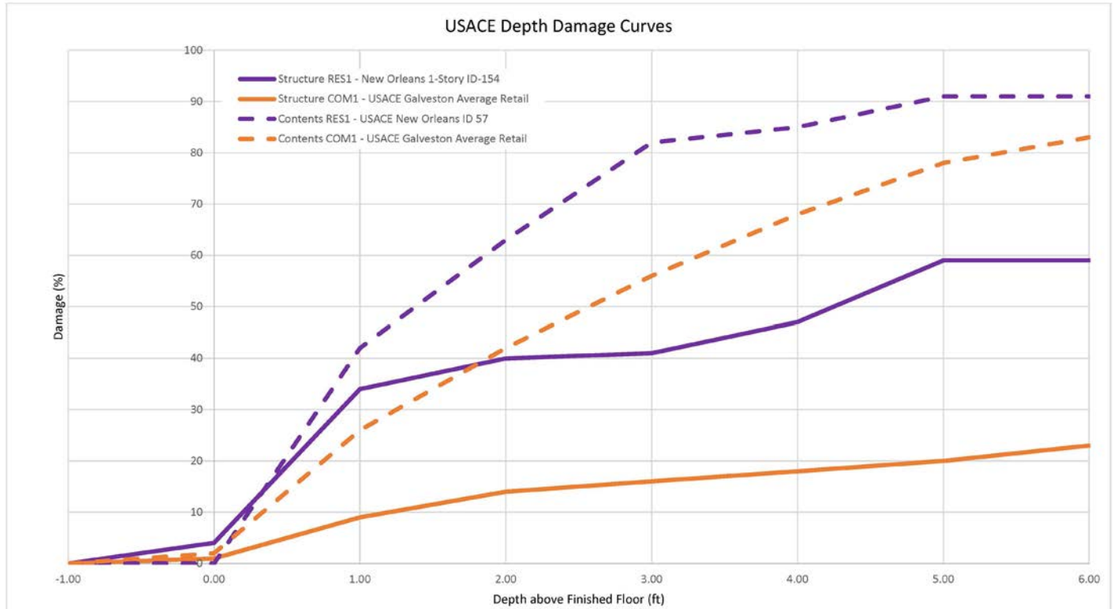
Additional Benefits - Social
Drainage Improvement @ 33.5584120; -111.9433950

Number of Workers:	165
Expected Annual Social Benefits:	$1,978,900

Benefits-Costs Summary

Drainage Improvement @ 33.5584120; -111.9433950

Discount Rate (%):	3.1%	Use Default:Yes
Total Standard Mitigation Benefits:	$21,314,896	
Total Social Benefits:	$1,978,900	
Total Mitigation Project Benefits:	$23,293,796	
Total Mitigation Project Cost:	$11,616,355	
Benefit Cost Ratio - Standard:	1.83	
Benefit Cost Ratio - Standard + Social:	2.01	



10-Year and 100-Year Existing Building Damages in Area K

															Existing								
Building ID	HAG	Finished Floor Elevation (ft)	Land Use Type	Building Area (sf)	Replace Cost $ ($726/SF-Res)	Content Replacement Value ($) 1/2 of Replacement Cost	10yr Exist WSEL (ft)	10yr Exist Flow Depth (ft)	10yr Prop WSEL (ft)	10yr Prop Flow Depth (ft)	100yr Exist WSEL (ft)	100yr Exist Flow Depth (ft)	100yr Prop WSEL (ft)	100yr Prop Flow Depth (ft)	10yr Building Damage (%)	10yrBuilding Damage Cost ($)	10yr Content Damage (%)	10yr Content Damage Cost ($)	10yr Total Damage Cost ($)	100yr Building Damage (%)	100yrBuilding Damage Cost ($)	100yr Content Damage (%)	100yr Content Damage Cost ($)	100yr Total Damage Cost ($)
0	1372.7792	1373.029175	Residential	5062.750061	$ 3,675,557	$ 1,837,778	1372.830444	-0.20	1372.829956	-0.20	1372.834351	-0.19	1372.834229	-0.19	3.205076	$ 117,804	0	$ -	$ 117,804.38	3.220216	$ 118,361	0	$ -	$ 118,360.86
1	1371.6405	1371.890503	Residential	5114.190857	$ 3,712,903	$ 1,856,451	1371.667114	-0.22	1371.670532	-0.22	1371.717651	-0.17	1371.717651	-0.17	3.106444	$ 115,339	0	$ -	$ 115,339.24	3.308592	$ 122,845	0	$ -	$ 122,844.80
2	1367.0981	1367.348145	Residential	7006.825439	$ 5,086,955	$ 2,543,478	1367.262939	-0.09	1367.262573	-0.09	1367.392334	0.04	1367.224731	-0.12	3.659176	$ 186,141	0	$ -	$ 186,140.65	3.506344	$ 178,366	0	$ -	$ 178,366.15
3	1374.369	1374.619019	Residential	5893.124573	$ 4,278,408	$ 2,139,204	1374.525391	-0.09	1374.530029	-0.09	1374.701172	0.08	1374.527344	-0.09	3.63	$ 155,113	0.00	$ -	$ 155,113.18	3.63	$ 155,447	23.90	$ 511,310	$ 666,756.92
4	1380.3344	1380.584351	Residential	14318.15601	$ 10,394,981	$ 5,197,491	1380.388672	-0.20	1380.390015	-0.19	1380.391846	-0.19	1380.391846	-0.19	3.217284	$ 334,436	0	$ -	$ 334,436.07	3.22998	$ 335,756	0	$ -	$ 335,755.82
5	1381.6091	1381.859131	Residential	8338.503479	$ 6,053,754	$ 3,026,877	1381.669556	-0.19	1381.670044	-0.19	1381.842529	-0.02	1382.071655	0.21	3.24	$ 196,245	0.00	$ -	$ 196,244.53	10.38	$ 628,121	0.00	$ -	$ 628,120.52
6	1365.7844	1366.034424	Residential	5481.086914	$ 3,979,269	$ 1,989,635	1366.240723	0.21	1366.241211	0.21	1366.375732	0.34	1366.19458	0.16	10.19	$ 405,447	8.66	$ 172,393	$ 577,839.57	8.80	$ 350,362	11.48	$ 228,395	$ 578,757.00
7	1361.3544	1361.60437	Residential	6888.243347	$ 5,000,865	$ 2,500,432	1361.438843	-0.17	1361.439941	-0.16	1361.44165	-0.16	1361.441772	-0.16	3.34	$ 166,923	0.00	$ -	$ 166,923.46	3.35	$ 167,509	35.35	$ 883,911	$ 1,051,420.75
8	1373.5814	1373.831421	Residential	6063.259277	$ 4,401,926	$ 2,200,963	1373.639404	-0.19	1373.638428	-0.19	1373.656982	-0.17	1373.656982	-0.17	3.23	$ 142,267	0.00	$ -	$ 142,267.26	3.30	$ 145,362	35.21	$ 774,888	$ 920,250.74
9	1369.5145	1369.764526	Residential	4737.382507	$ 3,439,340	$ 1,719,670	1369.589478	-0.18	1369.589966	-0.17	1369.974854	0.21	1369.854858	0.09	3.30	$ 113,492	0.00	$ -	$ 113,491.61	6.71	$ 230,778	40.52	$ 696,869	$ 927,647.66
10	1375.5907	1375.840698	Residential	6107.704834	$ 4,434,194	$ 2,217,097	1375.984009	0.14	1375.97998	0.14	1375.985352	0.14	1375.985352	0.14	8.29933	$ 368,008	6.019062	$ 133,448	$ 501,456.80	8.33962	$ 369,795	0	$ -	$ 369,794.91
11	1359.4811	1359.731079	Residential	7633.545288	$ 5,541,954	$ 2,770,977	1359.544067	-0.19	1359.540039	-0.19	1359.545654	-0.19	1359.545654	-0.19	3.25	$ 180,222	0.00	$ -	$ 180,221.68	3.26	$ 180,573	0.00	$ -	$ 180,573.48
12	1349.402	1349.651978	Residential	12252.54138	$ 8,895,345	$ 4,447,673	1349.465942	-0.19	1349.469971	-0.18	1349.508179	-0.14	1349.468506	-0.18	3.26	$ 289,620	0.00	$ -	$ 289,619.63	3.27	$ 290,532	27.88	$ 1,240,028	$ 1,530,559.54
13	1361.3274	1361.577393	Residential	670.759644	$ 486,972	$ 243,486	1361.39917	-0.18	1361.403442	-0.17	1361.462036	-0.12	1361.462036	-0.12	3.287108	$ 16,007	0	$ -	$ 16,007.28	3.538572	$ 17,232	0	$ -	$ 17,231.84
14	1371.7996	1372.049561	Residential	6368.654053	$ 4,623,643	$ 2,311,821	1371.908325	-0.14	1371.910034	-0.14	1371.910645	-0.14	1371.910645	-0.14	3.435056	$ 158,825	0	$ -	$ 158,824.72	3.444336	$ 159,254	0	$ -	$ 159,253.79
15	1378.1814	1378.431396	Residential	5794.169983	$ 4,206,567	$ 2,103,284	1378.244873	-0.19	1378.24231	-0.19	1378.333862	-0.10	1378.259766	-0.17	3.253908	$ 136,878	0	$ -	$ 136,877.83	3.31348	$ 139,384	0	$ -	$ 139,383.77
16	1358.1885	1358.438477	Residential	7644.869263	$ 5,550,175	$ 2,775,088	1358.328003	-0.11	1358.329224	-0.11	1358.330688	-0.11	1358.330688	-0.11	3.558104	$ 197,481	0	$ -	$ 197,481.00	3.568844	$ 198,077	13.00707996	$ 360,958	$ 559,034.95
17	1365.3146	1365.564575	Residential	6809.630554	$ 4,943,792	$ 2,471,896	1365.397461	-0.17	1365.400024	-0.16	1365.399536	-0.17	1365.399658	-0.16	3.331544	$ 164,705	0	$ -	$ 164,704.60	3.340332	$ 165,139	0	$ -	$ 165,139.06
18	1379.1108	1379.36084	Residential	5093.971191	$ 3,698,223	$ 1,849,112	1379.271729	-0.09	1379.27478	-0.09	1379.274902	-0.09	1379.274902	-0.09	3.643556	$ 134,747	0	$ -	$ 134,746.83	3.656248	$ 135,216	0	$ -	$ 135,216.21
19	1378.9204	1379.17041	Residential	2066.832153	$ 1,500,520	$ 750,260	1378.949951	-0.22	1378.947754	-0.22	1378.994751	-0.18	1378.994751	-0.18	3.118164	$ 46,789	0	$ -	$ 46,788.68	3.297364	$ 49,478	0	$ -	$ 49,477.61
20	1363.8187	1364.068726	Residential	9950.357239	$ 7,223,959	$ 3,611,980	1363.894775	-0.17	1363.890015	-0.18	1363.896851	-0.17	1363.896851	-0.17	3.304196	$ 238,694	0	$ -	$ 238,693.78	3.3125	$ 239,294	0	$ -	$ 239,293.65
21	1359.7377	1359.987671	Residential	98.510803	$ 71,519	$ 35,759	1359.800293	-0.19	1359.802612	-0.19	1360.027832	0.04	1359.882813	-0.10	3.250488	$ 2,325	0	$ -	$ 2,324.71	3.580568	$ 2,561	0	$ -	$ 2,560.78
22	1353.2081	1353.45813	Residential	1837.229675	$ 1,333,829	$ 666,914	1353.245239	-0.21	1353.25	-0.21	1353.318115	-0.14	1353.247559	-0.21	3.148436	$ 41,995	0	$ -	$ 41,994.74	3.157716	$ 42,119	24.1428222	$ 161,012	$ 203,130.47
23	1353.9991	1354.249146	Residential	2561.5896	$ 1,859,714	$ 929,857	1354.064209	-0.18	1354.060059	-0.19	1354.065796	-0.18	1354.065918	-0.18	3.260252	$ 60,631	0	$ -	$ 60,631.36	3.267088	$ 60,758	0	$ -	$ 60,758.49
24	1376.0033	1376.253296	Residential	5004.554688	$ 3,633,307	$ 1,816,653	1376.087891	-0.17	1376.089478	-0.16	1376.089844	-0.16	1376.089844	-0.16	3.33838	$ 121,294	0	$ -	$ 121,293.58	3.346192	$ 121,577	0	$ -	$ 121,577.42
25	1366.6973	1366.947266	Residential	956.661987	$ 694,537	$ 347,268	1366.791504	-0.16	1366.790039	-0.16	1366.90979	-0.04	1366.796265	-0.15	3.38	$ 23,454	0.00	$ -	$ 23,454.17	3.40	$ 23,586	0.00	$ -	$ 23,586.44
26	1377.9141	1378.164063	Residential	272.638306	$ 197,935	$ 98,968	1377.926147	-0.24	1377.927246	-0.24	1377.952148	-0.21	1377.965576	-0.20	3.048336	$ 6,034	0	$ -	$ 6,033.74	3.206052	$ 6,346	0	$ -	$ 6,345.91
27	1359.7202	1359.970215	Residential	416.830383	$ 302,619	$ 151,309	1359.942627	-0.03	1359.942261	-0.03	1360.080933	0.11	1359.883057	-0.09	3.89	$ 11,771	0.00	$ -	$ 11,770.81	3.65	$ 11,050	0.00	$ -	$ 11,049.73
28	1373.551	1373.801025	Residential	6621.999878	$ 4,807,572	$ 2,403,786	1373.600098	-0.20	1373.599976	-0.20	1373.670898	-0.13	1373.695068	-0.11	3.20	$ 153,664	0.00	$ -	$ 153,664.04	3.58	$ 171,927	10.77	$ 258,929	$ 430,856.33
29	1376.4547	1376.704712	Residential	5605.584473	$ 4,069,654	$ 2,034,827	1376.563599	-0.14	1376.560181	-0.14	1376.62085	-0.08	1376.62085	-0.08	3.435548	$ 139,815	0	$ -	$ 139,814.93	3.664552	$ 149,135	0	$ -	$ 149,134.60
30	1350.1412	1350.391235	Residential	7004.17749	$ 5,085,033	$ 2,542,516	1350.164063	-0.23	1350.166504	-0.22	1350.671387	0.28	1350.452393	0.06	3.09	$ 157,194	0.00	$ -	$ 157,194.23	5.83	$ 296,698	8.25	$ 209,739	$ 506,437.43
31	1349.6879	1349.937866	Residential	1574.908997	$ 1,143,384	$ 571,692	1349.755249	-0.18	1349.76001	-0.18	1349.999878	0.06	1349.757446	-0.18	3.269532	$ 37,383	0	$ -	$ 37,383.30	3.27832	$ 37,484	12.57641574	$ 71,898	$ 109,382.14
32	1351.7725	1352.022461	Residential	7068.87146	$ 5,132,001	$ 2,566,000	1352.024414	0.00	1352.02002	0.00	1352.026245	0.00	1352.026245	0.00	4.06	$ 208,287	0.08	$ 2,105	$ 210,391.65	4.11	$ 211,106	0.00	$ -	$ 211,105.87
33	1361.1578	1361.407837	Residential	4317.881287	$ 3,134,782	$ 1,567,391	1361.28894	-0.12	1361.291138	-0.12	1361.293701	-0.11	1361.293701	-0.11	3.52	$ 110,483	0.00	$ -	$ 110,482.63	3.54	$ 111,080	0.00	$ -	$ 111,079.61
34	1380.4657	1380.715698	Residential	6718.879456	$ 4,877,906	$ 2,438,953	1380.545654	-0.17	1380.550049	-0.17	1380.547852	-0.17	1380.675903	-0.04	3.319824	$ 161,938	0	$ -	$ 161,937.91	3.84082	$ 187,352	0	$ -	$ 187,351.61
35	1352.3629	1352.612915	Residential	6026.699036	$ 4,375,384	$ 2,187,692	1352.395142	-0.22	1352.400024	-0.21	1352.397217	-0.22	1352.397339	-0.22	3.13	$ 136,902	0.00	$ -	$ 136,901.72	3.14	$ 137,286	0.00	$ -	$ 137,286.23
36	1364.9492	1365.199219	Residential	1969.893005	$ 1,430,142	$ 715,071	1365.000244	-0.20	1365	-0.20	1365.01001	-0.19	1365.003052	-0.20	3.2041	$ 45,823	0	$ -	$ 45,823.19	3.215332	$ 45,984	0	$ -	$ 45,983.82
37	1382.2072	1382.457153	Residential	12305.99646	$ 8,934,153	$ 4,467,077	1382.286987	-0.17	1382.290039	-0.17	1382.28894	-0.17	1382.289063	-0.17	3.319336	$ 296,555	0	$ -	$ 296,554.57	3.32764	$ 297,296	0	$ -	$ 297,296.46
38	1377.7423	1377.99231	Residential	5902.526306	$ 4,285,234	$ 2,142,617	1377.985107	-0.01	1377.98999	0.00	1377.98645	-0.01	1377.98645	-0.01	3.971188	$ 170,175	0	$ -	$ 170,174.70	3.97656	$ 170,405	0	$ -	$ 170,404.91
39	1368.6111	1368.861084	Residential	5975.38501	$ 4,338,130	$ 2,169,065	1368.935913	0.07	1368.930054	0.07	1369.276367	0.42	1369.043823	0.18	6.24487	$ 270,911	3.142818	$ 68,170	$ 339,080.31	9.48217	$ 411,349	0	$ -	$ 411,348.82
40	1358.2589	1358.508911	Residential	758.56012	$ 550,715	$ 275,357	1358.344971	-0.16	1358.339966	-0.17	1358.346558	-0.16	1358.346558	-0.16	3.34	$ 18,417	0.00	$ -	$ 18,417.22	3.35	$ 18,452	0.00	$ -	$ 18,452.18
41	1365.7938	1366.043823	Residential	5147.26416	$ 3,736,914	$ 1,868,457	1365.838989	-0.20	1365.839966	-0.20	1365.861206	-0.18	1365.849609	-0.19	3.18	$ 118,859	0.00	$ -	$ 118,858.67	3.22	$ 120,446	5.05	$ 94,358	$ 214,804.10
42	1362.7766	1363.026611	Residential	8623.175049	$ 6,260,425	$ 3,130,213	1362.801392	-0.23	1362.800049	-0.23	1362.804321	-0.22	1362.804443	-0.22	3.10	$ 194,018	0.00	$ -	$ 194,018.34	3.11	$ 194,782	0.00	$ -	$ 194,782.36
43	1362.8351	1363.085083	Residential	5379.317261	$ 3,905,384	$ 1,952,692	1362.961548	-0.12	1362.95874	-0.13	1363.098022	0.01	1362.971558	-0.11	3.50586	$ 136,917	0	$ -	$ 136,917.31	3.5459	$ 138,481	0	$ -	$ 138,481.02
44	1373.3346	1373.584595	Residential	437.73584	$ 317,796	$ 158,898	1373.473999	-0.11	1373.469971	-0.11	1373.475342	-0.11	1373.475342	-0.11	3.557616	$ 11,306	0	$ -	$ 11,305.97	3.562988	$ 11,323	3.54785172	$ 5,637	$ 16,960.51
45	1367.9971	1368.24707	Residential	7428.078186	$ 5,392,785	$ 2,696,392	1368.196655	-0.05	1368.199951	-0.05	1368.19873	-0.05	1368.19873	-0.05	3.80	$ 204,836	0.00	$ -	$ 204,836.30	3.81	$ 205,284	0.00	$ -	$ 205,283.90
46	1374.6667	1374.916748	Residential	4881.761841	$ 3,544,159	$ 1,772,080	1374.991455	0.07	1374.98999	0.07	1374.994629	0.08	1374.994507	0.08	6.24121	$ 221,198	3.137694	$ 55,602	$ 276,800.85	6.33277	$ 224,443	0	$ -	$ 224,443.44
47	1378.6304	1378.880371	Residential	5232.306396	$ 3,798,654	$ 1,899,327	1378.724121	-0.16	1378.725098	-0.16	1379.14209	0.26	1378.995605	0.12	3.38	$ 128,205	0.00	$ -	$ 128,204.59	7.46	$ 283,266	0.00	$ -	$ 283,266.42
48	1377.9553	1378.205322	Residential	6055.227417	$ 4,396,095	$ 2,198,048	1378.011475	-0.19	1378.012817	-0.19	1378.015869	-0.19	1378.015869	-0.19	3.224612	$ 141,757	0	$ -	$ 141,757.01	3.242188	$ 142,530	1.7021487	$ 37,414	$ 179,943.71
49	1376.8622	1377.112183	Residential	371.322083	$ 269,580	$ 134,790	1376.894043	-0.22	1376.893188	-0.22	1376.96582	-0.15	1376.980103	-0.13	3.12744	$ 8,431	0	$ -	$ 8,430.95	3.47168	$ 9,359	0	$ -	$ 9,358.95
50	1371.5935	1371.843506	Residential	3883.120056	$ 2,819,145	$ 1,409,573	1371.657227	-0.19	1371.65564	-0.19	1371.91626	0.07	1371.827026	-0.02	3.25	$ 91,760	0.00	$ -	$ 91,759.90	3.93	$ 110,907	32.30	$ 455,289	$ 566,196.62
51	1367.6451	1367.895142	Residential	8502.347534	$ 6,172,704	$ 3,086,352	1367.70874	-0.19	1367.709961	-0.19	1367.711426	-0.18	1367.711426	-0.18	3.25	$ 200,884	0.00	$ -	$ 200,884.00	3.27	$ 201,547	13.27	$ 409,673	$ 611,219.75
52	1360.0182	1360.268188	Residential	11716.17969	$ 8,505,946	$ 4,252,973	1360.080688	-0.19	1360.079956	-0.19	1360.084106	-0.18	1360.083984	-0.18	3.25	$ 276,443	0.00	$ -	$ 276,443.26	3.26	$ 277,565	0.00	$ -	$ 277,564.68
53	1376.1908	1376.440796	Residential	4086.243103	$ 2,966,612	$ 1,483,306	1376.506836	0.07	1376.51001	0.07	1376.508789	0.07	1376.508789	0.07	5.9812	$ 177,439	2.77368	$ 41,142	$ 218,581.20	6.03979	$ 179,177	0	$ -	$ 179,177.16
54	1386.9077	1387.157715	Residential	5026.592773	$ 3,649,306	$ 1,824,653	1387.001099	-0.16	1387.00061	-0.16	1387.004517	-0.15	1387.004517	-0.15	3.373536	$ 123,111	0	$ -	$ 123,110.66	3.387208	$ 123,610	0	$ -	$ 123,609.60
55	1376.2891	1376.539063	Residential	3620.247864	$ 2,628,300	$ 1,314,150	1376.426147	-0.11	1376.426758	-0.11	1376.470703	-0.07	1376.470703	-0.07	3.55	$ 93,261	0.00	$ -	$ 93,260.91	3.73	$ 97,945	0.00	$ -	$ 97,945.17
56	1377.2733	1377.523315	Residential	4993.57019	$ 3,625,332	$ 1,812,666	1377.564087	0.04	1377.560059	0.04	1377.56543	0.04	1377.56543	0.04	5.22	$ 189,357	1.71	$ 31,041	$ 220,397.42	5.26	$ 190,818	12.67	$ 229,641	$ 420,458.77
57	1351.041	1351.291016	Residential	10962.42029	$ 7,958,717	$ 3,979,359	1351.105469	-0.19	1351.109985	-0.18	1351.107666	-0.18	1351.107544	-0.18	3.26	$ 259,280	0.00	$ -	$ 259,280.04	3.27	$ 259,941	0.00	$ -	$ 259,940.62
58	1372.4613	1372.711304	Residential	5823.487061	$ 4,227,852	$ 2,113,926	1372.55835	-0.15	1372.560059	-0.15	1372.716797	0.01	1372.560547	-0.15	3.388184	$ 143,247	0	$ -	$ 143,247.39	3.396972	$ 143,619	0	$ -	$ 143,618.94
59	1377.0377	1377.28772	Residential	6052.135376	$ 4,393,850	$ 2,196,925	1377.146973	-0.14	1377.149902	-0.14	1377.14978	-0.14	1377.149902	-0.14	3.437012	$ 151,017	0	$ -	$ 151,017.16	3.448728	$ 151,532	0	$ -	$ 151,531.94
60	1368.8978	1369.147827	Residential	6837.879822	$ 4,964,301	$ 2,482,150	1368.899658	-0.25	1368.900024	-0.25	1368.906616	-0.24	1369.012573	-0.14	3.007324	$ 149,293	0	$ -	$ 149,292.61	3.458984	$ 171,714	0	$ -	$ 171,714.37
61	1365.9777	1366.227661	Residential	548.647339	$ 398,318	$ 199,159	1366.057861	-0.17	1366.061035	-0.17	1366.203369	-0.02	1366.046509	-0.18	3.3208	$ 13,227	0	$ -	$ 13,227.34	3.275392	$ 13,046	0	$ -	$ 13,046.47
62	1365.65	1365.900024	Residential	6442.914001	$ 4,677,556	$ 2,338,778	1365.738403	-0.16	1365.73999	-0.16	1366.14507	0.24	1365.892334	-0.01	3.35	$ 156,863	0.00	$ -	$ 156,862.57	3.97	$ 185,663	14.43	$ 337,421	$ 523,084.63
63	1348.2711	1348.521118	Residential	624.433289	$ 453,339	$ 226,669	1348.405151	-0.12	1348.409302	-0.11	1349.341187	0.82	1348.980347	0.46	3.536132	$ 16,031	0	$ -	$ 16,030.65	17.77687	$ 80,589	0	$ -	$ 80,589.41
64	1379.9254	1380.175415	Residential	335.501648	$ 243,574	$ 121,787	1379.99353	-0.18	1379.992065	-0.18	1380.040283	-0.14	1380.039917	-0.14	3.27	$ 7,971	0.00	$ -	$ 7,970.87	3.46	$ 8,423	0.00	$ -	$ 8,422.82
65	1380.058	1380.307983	Residential	344.429138	$ 250,056	$ 125,028	1380.170776	-0.14	1380.171509	-0.14	1380.185059	-0.12	1380.184814	-0.12	3.451172	$ 8,630	0.00	$ -	$ 8,629.85	3.507324	$ 8,770	0.00	$ -	$ 8,770.26
66	1357.8719	1358.121948	Residential	1980.532898	$ 1,437,867	$ 718,933	1358.057495	-0.06	1358.060059	-0.06	1358.059692	-0.06	1358.059692	-0.06	3.74	$ 53,808	0.00	$ -	$ 53,807.68	3.75	$ 53,934	0.00	$ -	$ 53,934.04
67	1361.5636	1361.813599	Residential	6199.695374	$ 4,500,979	$ 2,250,489	1361.722046	-0.09	1361.719971	-0.09	1361.726318	-0.09	1361.726196	-0.09	3.633788	$ 163,556	0	$ -	$ 163,556.03	3.650388	$ 164,303	0	$ -	$ 164,303.19
68	1373.7996	1374.049561	Residential	4352.848328	$ 3,160,168	$ 1,580,084	1373.888428	-0.16	1373.890015	-0.16	1373.941406	-0.11	1373.890869	-0.16	3.36	$ 106,038	0.00	$ -	$ 106,038.42	3.37	$ 106,347	0.27	$ 4,213	$ 110,559.51
69	1369.6515	1369.901489	Residential	7681.519775	$ 5,576,783	$ 2,788,392	1369.671997	-0.23	1369.670044	-0.23	1369.675293	-0.23	1369.675293	-0.23	3.082032	$ 171,878	0	$ -	$ 171,878.25	3.095216	$ 172,613	4.28100582	$ 119,371	$ 291,984.70
70	1352.7987	1353.048706	Residential	4176.407654	$ 3,032,072	$ 1,516,036	1352.82373	-0.22	1352.823853	-0.22	1352.83374	-0.21	1352.83374	-0.21	3.100096	$ 93,997	0	$ -	$ 93,997.14	3.140136	$ 95,211	0	$ -	$ 95,211.18
71	1354.4823	1354.7323	Residential	5939.919373	$ 4,312,381	$ 2,156,191	1354.613403	-0.12	1354.609985	-0.12	1355.001953	0.27	1354.824707	0.09	3.52	$ 151,986	0.00	$ -	$ 151,986.09	6.77	$ 292,044	0.00	$ -	$ 292,043.53
72	1358.7681	1359.018066	Residential	5464.610229	$ 3,967,307	$ 1,983,654	1358.818237	-0.20	1358.819946	-0.20	1358.820557	-0.20	1358.820557	-0.20	3.200684	$ 126,981	0	$ -	$ 126,980.96	3.209964	$ 127,349	0	$ -	$ 127,349.13
73	1370.2661	1370.516113	Residential	7295.893555	$ 5,296,819	$ 2,648,409	1370.522339	0.01	1370.521484	0.01	1370.69751	0.18	1370.449707	-0.07	4.19	$ 221,766	0.26	$ 6,925	$ 228,691.53	3.73	$ 197,803	0.00	$ -	$ 197,803.13
74	1380.3362	1380.586182	Residential	4872.422913	$ 3,537,379	$ 1,768,690	1380.464111	-0.12	1380.467407	-0.12	1380.876343	0.29	1380.724731	0.14	3.511716	$ 124,223	0.00	$ -	$ 124,222.71	8.15647	$ 288,525	0.00	$ -	$ 288,525.26
75	1368.1411	1368.391113	Residential	6527.1745	$ 4,738,729	$ 2,369,364	1368.207275	-0.18	1368.209961	-0.18	1368.209473	-0.18	1368.209351	-0.18	3.26	$ 154,703	0.00	$ -	$ 154,702.81	3.27	$ 155,096	16.67	$ 394,919	$ 550,015.43
76	1370.8282	1371.078247	Residential	7341.92395	$ 5,330,237	$ 2,665,118	1370.901245	-0.18	1370.900024	-0.18	1370.904663	-0.17	1370.904663	-0.17	3.291992	$ 175,471	0	$ -	$ 175,470.97	3.305664	$ 176,200	0	$ -	$ 176,199.72
77	1351.1089	1351.358887	Residential	7682.645386	$ 5,577,601	$ 2,788,800	1351.214355	-0.14	1351.209961	-0.15	1351.216187	-0.14	1351.216064	-0.14	3.421872	$ 190,858	0	$ -	$ 190,858.35	3.428708	$ 191,240	0	$ -	$ 191,239.64
78	1352.9404	1353.19043	Residential	359.594421	$ 261,066	$ 130,533	1353.207153	0.02	1353.199951	0.01	1353.580688	0.39	1353.317749	0.13	4.50169	$ 11,752	0.702366	$ 917	$ 12,669.18	7.81957	$ 20,414	6.88549806	$ 8,988	$ 29,402.04
79	1375.2893	1375.539307	Residential	5622.966309	$ 4,082,274	$ 2,041,137	1375.408813	-0.13	1375.410034	-0.13	1375.411865	-0.13	1375.411987	-0.13	3.478024	$ 141,982	0	$ -	$ 141,982.45	3.49072	$ 142,501	0	$ -	$ 142,500.74
80	1361.5787	1361.828735	Residential	4104.051453	$ 2,979,541	$ 1,489,771	1361.64856	-0.18	1361.650024	-0.18	1361.924194	0.10	1361.777954	-0.05	3.28	$ 97,708	0.00	$ -	$ 97,708.10	3.80	$ 113,129	0.00	$ -	$ 113,129.49
81	1372.7191	1372.969116	Residential	5524.363342	$ 4,010,688	$ 2,005,344	1372.777466	-0.19	1372.780029	-0.19	1372.78186	-0.19	1372.78186	-0.19	3.2334	$ 129,682	0	$ -	$ 129,681.58	3.250976	$ 130,386	0	$ -	$ 130,386.50
82	1378.332	1378.582031	Residential	328.372437	$ 238,398	$ 119,199	1378.797852	0.22	1378.800049	0.22	1379.000732	0.42	1379.000732	0.42	10.47	$ 24,971	9.06	$ 10,805	$ 35,776.14	16.56	$ 39,481	5.30	$ 6,319	$ 45,800.30
83	1374.9072	1375.157227	Residential	5100.398376	$ 3,702,889	$ 1,851,445	1375.089478	-0.07	1375.087524	-0.07	1375.173706	0.02	1375.173706	0.02	3.729004	$ 138,081	0	$ -	$ 138,080.89	4.49437	$ 166,422	0	$ -	$ 166,421.54
84	1362.9548	1363.204834	Residential	8479.753967	$ 6,156,301	$ 3,078,151	1363.019775	-0.19	1363.02002	-0.18	1363.022827	-0.18	1363.022827	-0.18	3.26	$ 200,681	0.00	$ -	$ 200,680.90	3.27	$ 201,432	0.00	$ -	$ 201,432.46
85	1366.3226	1366.572632	Residential	2076.678772	$ 1,507,669	$ 753,834	1366.432617	-0.14	1366.435669	-0.14	1366.70752	0.13	1366.435059	-0.14	3.43994	$ 51,863	0	$ -	$ 51,862.90	3.449708	$ 52,010	0	$ -	$ 52,010.17
86	1352.7321	1352.982056	Residential	5563.624268	$ 4,039,191	$ 2,019,596	1352.796631	-0.19	1352.800049	-0.18	1352.940308	-0.04	1352.799561	-0.18	3.2583	$ 131,609	0	$ -	$ 131,608.97	3.27002	$ 132,082	0	$ -	$ 132,082.36

10-Year and 100-Year Existing Building Damages in Area K

																Existing								
Building ID	HAG	Finished Floor Elevation (ft)	Land Use Type	Building Area (sf)	Replace Cost $ ($726/SF-Res)	Content Replacement Value ($) 1/2 of Replacement Cost	10yr Exist WSEL (ft)	10yr Exist Flow Depth (ft)	10yr Prop WSEL (ft)	10yr Prop Flow Depth (ft)	100yr Exist WSEL (ft)	100yr Exist Flow Depth (ft)	100yr Prop WSEL (ft)	100yr Prop Flow Depth (ft)	10yr Building Damage (%)	10yrBuilding Damage Cost ($)	10yr Content Damage (%)	10yr Content Damage Cost ($)	10yr Total Damage Cost ($)	100yr Building Damage (%)	100yrBuilding Damage Cost ($)	100yr Content Damage (%)	100yr Content Damage Cost ($)	100yr Total Damage Cost ($)
98	1364.3967	1364.646729	Residential	1845.062622	$ 1,339,515	$ 669,758	1364.488159	-0.16	1364.48999	-0.16	1364.490356	-0.16	1364.490356	-0.16	3.36572	$ 45,084	0	$ -	$ 45,084.34	3.374508	$ 45,202	4.1015625	$ 27,471	$ 72,672.59
99	1366.3516	1366.601563	Residential	4056.541199	$ 2,945,049	$ 1,472,524	1366.543823	-0.06	1366.536987	-0.06	1366.554199	-0.05	1366.554199	-0.05	3.77	$ 111,000	0.00	$ -	$ 111,000.07	3.81	$ 112,222	0.00	$ -	$ 112,222.38
100	1358.9648	1359.214844	Residential	5029.624146	$ 3,651,507	$ 1,825,754	1359.262451	0.05	1359.267212	0.05	1359.26416	0.05	1359.26416	0.05	5.43	$ 198,211	2.00	$ 36,506	$ 234,717.31	5.48	$ 200,084	20.04	$ 365,904	$ 565,987.62
101	1374.8926	1375.142578	Residential	9085.493774	$ 6,596,068	$ 3,298,034	1375.06897	-0.07	1375.073853	-0.07	1375.071899	-0.07	1375.071777	-0.07	3.705568	$ 244,422	0	$ -	$ 244,421.80	3.716796	$ 245,162	0	$ -	$ 245,162.41
102	1371.8109	1372.060913	Residential	4668.850098	$ 3,389,585	$ 1,694,793	1371.834229	-0.23	1371.838379	-0.22	1371.838257	-0.22	1371.838257	-0.22	3.093264	$ 104,849	0	$ -	$ 104,848.82	3.109376	$ 105,395	0	$ -	$ 105,394.95
103	1374.249	1374.499023	Residential	6966.036255	$ 5,057,342	$ 2,528,671	1374.279785	-0.22	1374.280029	-0.22	1374.282715	-0.22	1374.282715	-0.22	3.123048	$ 157,943	0	$ -	$ 157,943.23	3.134768	$ 158,536	0.68701164	$ 17,372	$ 175,908.21
104	1353.7365	1353.98645	Residential	6619.511108	$ 4,805,765	$ 2,402,883	1353.776123	-0.21	1353.780029	-0.21	1353.778442	-0.21	1353.778442	-0.21	3.16	$ 151,799	0.00	$ -	$ 151,799.32	3.17	$ 152,245	0.95	$ 22,914	$ 175,159.31
105	1363.4548	1363.704834	Residential	8842.429199	$ 6,419,604	$ 3,209,802	1364.171265	0.47	1364.170044	0.47	1364.036011	0.76	1364.463501	0.33	17.99293	$ 1,155,075	19.590102	$ 628,803	$ 1,783,878.23	13.93531	$ 894,592	0	$ -	$ 894,591.66
106	1363.5942	1363.844238	Residential	1209.473938	$ 878,078	$ 439,039	1363.675049	-0.17	1363.670044	-0.17	1363.677856	-0.17	1363.677856	-0.17	3.323244	$ 29,181	0.00	$ -	$ 29,180.68	3.334472	$ 29,279	0.00	$ -	$ 29,279.27
107	1364.436	1364.686035	Residential	4979.980835	$ 3,615,466	$ 1,807,733	1364.669312	-0.02	1364.665771	-0.02	1364.670898	-0.02	1364.670898	-0.02	3.93	$ 142,200	0.00	$ -	$ 142,200.19	3.94	$ 142,430	5.54	$ 100,096	$ 242,525.71
108	1352.4829	1352.73291	Residential	5092.605652	$ 3,697,232	$ 1,848,616	1352.545166	-0.19	1352.550049	-0.18	1352.547241	-0.19	1352.547241	-0.19	3.249024	$ 120,124	0.00	$ -	$ 120,123.95	3.257324	$ 120,431	0.00	$ -	$ 120,430.82
109	1349.7738	1350.023804	Residential	10592.73084	$ 7,690,323	$ 3,845,161	1349.815918	-0.21	1349.819946	-0.20	1349.818359	-0.21	1349.818359	-0.21	3.168456	$ 243,664	0	$ -	$ 243,664.49	3.17822	$ 244,415	0	$ -	$ 244,415.37
110	1356.3748	1356.624756	Residential	7430.694946	$ 5,394,685	$ 2,697,342	1356.497437	-0.13	1356.5	-0.12	1356.499512	-0.13	1356.499512	-0.13	3.49	$ 188,314	0.00	$ -	$ 188,313.55	3.50	$ 188,761	17.98	$ 484,988	$ 673,749.51
111	1349.6604	1349.9104	Residential	12568.94641	$ 9,125,055	$ 4,562,528	1349.750366	-0.16	1349.747437	-0.16	1349.757935	-0.15	1349.752686	-0.16	3.36	$ 306,589	0.00	$ -	$ 306,589.44	3.37	$ 307,436	1.35	$ 61,521	$ 368,956.85
112	1369.8452	1370.095215	Residential	474.788452	$ 344,696	$ 172,348	1369.938599	-0.16	1369.93689	-0.16	1369.944946	-0.15	1369.944946	-0.15	3.373536	$ 11,628	0	$ -	$ 11,628.46	3.398924	$ 11,716	0	$ -	$ 11,715.97
113	1380.3524	1380.602417	Residential	6280.325745	$ 4,559,516	$ 2,279,758	1380.448242	-0.15	1380.449951	-0.15	1380.450562	-0.15	1380.450562	-0.15	3.3833	$ 154,262	0	$ -	$ 154,262.12	3.39258	$ 154,685	0	$ -	$ 154,685.24
114	1377.1196	1377.369629	Residential	5297.63031	$ 3,846,080	$ 1,923,040	1377.239258	-0.13	1377.23999	-0.13	1377.242188	-0.13	1377.242188	-0.13	3.478516	$ 133,786	0	$ -	$ 133,786.49	3.490236	$ 134,237	0	$ -	$ 134,237.25
115	1366.8071	1367.057129	Residential	7888.129822	$ 5,726,782	$ 2,863,391	1366.859985	-0.20	1366.859985	-0.20	1366.862915	-0.19	1366.862915	-0.19	3.711424	$ 183,911	0	$ -	$ 183,911.26	3.723144	$ 184,582	0	$ -	$ 184,582.44
116	1360.8243	1361.074341	Residential	7805.948669	$ 5,667,119	$ 2,833,559	1360.955811	-0.12	1360.959961	-0.11	1361.056763	-0.02	1360.95874	-0.12	3.52588	$ 199,816	0	$ -	$ 199,815.81	3.537596	$ 200,480	0	$ -	$ 200,479.77
117	1364.4938	1364.743774	Residential	5855.000854	$ 4,250,731	$ 2,125,365	1364.699463	-0.04	1364.699951	-0.04	1364.702148	-0.04	1364.702148	-0.04	3.822756	$ 162,495	0	$ -	$ 162,495.06	3.833496	$ 162,952	0	$ -	$ 162,951.59
118	1360.4812	1360.731201	Residential	219.949097	$ 159,683	$ 79,842	1360.793945	0.06	1360.790039	0.06	1360.794067	0.06	1360.794189	0.06	5.88232	$ 9,393	2.635248	$ 2,104	$ 11,497.09	5.88964	$ 9,405	0	$ -	$ 9,404.76
119	1351.2076	1351.457642	Residential	5547.851379	$ 4,027,740	$ 2,013,870	1351.428955	-0.03	1351.425171	-0.03	1351.431519	-0.03	1351.431396	-0.03	3.89	$ 156,488	0.00	$ -	$ 156,487.85	3.90	$ 156,881	0.00	$ -	$ 156,881.12
120	1374.8663	1375.116333	Residential	6444.857483	$ 4,678,967	$ 2,339,483	1374.929321	-0.19	1374.930054	-0.19	1374.932129	-0.18	1374.932251	-0.18	3.25	$ 152,158	0.00	$ -	$ 152,157.75	3.26	$ 152,706	7.65	$ 178,957	$ 331,662.88
121	1363.498	1363.748047	Residential	212.195068	$ 154,054	$ 77,027	1363.517334	-0.23	1363.517944	-0.23	1363.666992	-0.08	1363.631226	-0.12	3.077148	$ 4,740	0	$ -	$ 4,740.46	3.532716	$ 5,442	0	$ -	$ 5,442.28
122	1368.4139	1368.66394	Residential	6069.277893	$ 4,406,296	$ 2,203,148	1368.446289	-0.22	1368.445923	-0.22	1368.67981	0.02	1368.450195	-0.21	3.13	$ 137,890	0.00	$ -	$ 137,890.44	3.15	$ 138,579	0.00	$ -	$ 138,578.88
123	1381.0881	1381.338135	Residential	6044.557678	$ 4,388,349	$ 2,194,174	1381.179443	-0.16	1381.180054	-0.16	1381.366333	0.03	1381.182739	-0.16	3.365232	$ 147,678	0	$ -	$ 147,678.12	3.378416	$ 148,257	0	$ -	$ 148,256.68
124	1379.9611	1380.21106	Residential	5559.381653	$ 4,036,111	$ 2,018,056	1380.097168	-0.11	1380.095825	-0.12	1380.099243	-0.11	1380.099243	-0.11	3.54	$ 143,057	0.00	$ -	$ 143,057.21	3.55	$ 143,392	0.00	$ -	$ 143,392.21
125	1361.5222	1361.772217	Residential	5136.399902	$ 3,729,026	$ 1,864,513	1361.562622	-0.21	1361.560059	-0.21	1361.609375	-0.16	1361.608765	-0.16	3.16	$ 117,898	0.00	$ -	$ 117,897.64	3.35	$ 124,780	0.00	$ -	$ 124,780.38
126	1349.9539	1350.203857	Residential	11645.22498	$ 8,454,433	$ 4,227,217	1350.02478	-0.18	1350.02002	-0.18	1350.026855	-0.18	1350.026855	-0.18	3.283692	$ 277,618	0	$ -	$ 277,617.55	3.291992	$ 278,319	0	$ -	$ 278,319.27
127	1357.042	1357.291992	Residential	3812.569763	$ 2,767,926	$ 1,383,963	1357.216553	-0.08	1357.219971	-0.07	1357.218506	-0.07	1357.218506	-0.07	3.70	$ 102,365	0.00	$ -	$ 102,364.64	3.71	$ 102,581	2.73	$ 37,819	$ 140,399.96
128	1363.7706	1364.02063	Residential	246.767029	$ 179,153	$ 89,576	1363.825928	-0.19	1363.829956	-0.19	1363.828491	-0.19	1363.828491	-0.19	3.22	$ 5,771	0.00	$ -	$ 5,770.86	3.23	$ 5,789	19.00	$ 17,015	$ 22,804.59
129	1377.3176	1377.567627	Residential	3762.542786	$ 2,731,606	$ 1,365,803	1377.35437	-0.21	1377.349976	-0.22	1377.857666	0.29	1377.634277	0.07	3.146972	$ 85,963	0	$ -	$ 85,962.88	5.9995	$ 163,883	18.79541034	$ 256,708	$ 420,590.99
130	1362.1476	1362.397583	Residential	5020.589172	$ 3,644,948	$ 1,822,474	1362.411865	0.01	1362.410034	0.01	1362.727783	0.33	1362.316406	-0.08	4.42846	$ 161,415	0.599844	$ 10,932	$ 172,347.05	3.675292	$ 133,962	3.70165992	$ 67,462	$ 201,424.26
131	1376.2094	1376.459351	Residential	5212.982361	$ 3,784,625	$ 1,892,313	1376.260254	-0.20	1376.260864	-0.20	1376.271851	-0.19	1376.271851	-0.19	3.20	$ 121,245	0.00	$ -	$ 121,244.71	3.25	$ 123,000	0.18	$ 3,493	$ 126,492.97
132	1379.1615	1379.411499	Residential	400.356567	$ 290,659	$ 145,329	1379.424072	0.01	1379.421387	0.01	1379.488525	0.08	1379.488281	0.08	4.37719	$ 12,723	0.528066	$ 767	$ 13,490.13	6.30346	$ 18,322	0	$ -	$ 18,321.57
133	1361.2078	1361.457764	Residential	4320.113953	$ 3,136,403	$ 1,568,201	1361.42041	-0.04	1361.420044	-0.04	1361.433716	-0.02	1361.42334	-0.03	3.850584	$ 120,770	0	$ -	$ 120,769.82	3.862304	$ 121,137	0	$ -	$ 121,137.41
134	1362.6445	1362.894531	Residential	3840.690247	$ 2,788,341	$ 1,394,171	1362.80603	-0.09	1362.805054	-0.09	1362.809204	-0.09	1362.809326	-0.09	3.645996	$ 101,663	0	$ -	$ 101,662.81	3.65918	$ 102,030	18.995361	$ 264,828	$ 366,858.15
135	1378.0864	1378.336426	Residential	326.96106	$ 237,374	$ 118,687	1378.312134	-0.02	1378.309937	-0.03	1378.371704	0.04	1378.371704	0.04	3.902832	$ 9,264	0	$ -	$ 9,264.30	5.05834	$ 12,007	0	$ -	$ 12,007.17
136	1364.1649	1364.414917	Residential	4181.148926	$ 3,035,514	$ 1,517,757	1364.769409	0.35	1364.77124	0.36	1364.967041	0.55	1364.687012	0.27	14.63476	$ 444,240	14.888664	$ 225,974	$ 670,213.96	12.16285	$ 369,205	0	$ -	$ 369,205.03
137	1360.8499	1361.099854	Residential	4583.988647	$ 3,327,976	$ 1,663,988	1360.899902	-0.20	1360.900024	-0.20	1361.072632	-0.03	1360.932739	-0.17	3.200192	$ 106,502	0	$ -	$ 106,501.61	3.33154	$ 110,873	0	$ -	$ 110,872.84
138	1368.3804	1368.630371	Residential	8776.445618	$ 6,371,700	$ 3,185,850	1368.661865	0.03	1368.660034	0.03	1368.665161	0.03	1368.665161	0.03	4.94482	$ 315,069	1.322748	$ 42,141	$ 357,209.84	5.0437	$ 321,369	0	$ -	$ 321,369.41
139	1353.156	1353.406006	Residential	323.715698	$ 235,018	$ 117,509	1353.186035	-0.22	1353.189941	-0.22	1353.190063	-0.22	1353.188965	-0.22	3.120116	$ 7,333	0.00	$ -	$ 7,332.82	3.131836	$ 7,360	0.00	$ -	$ 7,360.37
140	1378.5293	1378.779297	Residential	5263.701416	$ 3,821,447	$ 1,910,724	1378.623413	-0.16	1378.624146	-0.16	1378.66626	-0.11	1378.677856	-0.10	3.38	$ 129,030	0.00	$ -	$ 129,029.79	3.59	$ 137,352	9.07	$ 173,295	$ 310,646.44
141	1379.809	1380.05896	Residential	7932.297974	$ 5,758,848	$ 2,879,424	1380.026367	-0.03	1380.030029	-0.03	1380.028198	-0.03	1380.028198	-0.03	3.869628	$ 222,846	0	$ -	$ 222,846.01	3.876952	$ 223,268	0	$ -	$ 223,267.79
142	1371.869	1372.119019	Residential	4879.887024	$ 3,542,798	$ 1,771,399	1372.077759	-0.04	1372.077759	-0.04	1372.083496	-0.04	1372.081787	-0.04	3.83496	$ 135,865	0	$ -	$ 135,864.89	3.851072	$ 136,436	0	$ -	$ 136,435.70
143	1378.5239	1378.773926	Residential	188.311951	$ 136,714	$ 68,357	1378.562744	-0.21	1378.566528	-0.21	1378.578857	-0.20	1378.578735	-0.20	3.155272	$ 4,314	0	$ -	$ 4,313.71	3.219236	$ 4,401	0	$ -	$ 4,401.16
144	1375.1558	1375.405762	Residential	3412.608	$ 1,706,304	$ 1,706,304	1375.356201	-0.05	1375.359985	0.05	1375.710083	0.30	1375.35791	-0.05	3.80	$ 129,739	0.00	$ -	$ 129,739.03	3.81	$ 129,972	0.00	$ -	$ 129,972.31
145	1364.0173	1364.267334	Residential	263.903442	$ 191,594	$ 95,797	1364.084961	-0.18	1364.079956	-0.19	1364.11499	-0.15	1364.086426	-0.18	3.270508	$ 6,266	0	$ -	$ 6,266.09	3.276368	$ 6,277	0	$ -	$ 6,277.32
146	1361.9521	1362.202148	Residential	5469.552246	$ 3,970,895	$ 1,985,447	1362.174438	-0.03	1362.178223	-0.02	1362.365112	0.16	1362.176025	-0.03	3.89	$ 154,434	0.00	$ -	$ 154,434.46	3.90	$ 154,687	0.00	$ -	$ 154,686.53
147	1361.5681	1361.818115	Residential	5371.711365	$ 3,899,862	$ 1,949,931	1361.999634	0.18	1361.995728	0.18	1362.157593	0.34	1361.909668	0.09	9.44557	$ 368,364	7.623798	$ 148,659	$ 517,023.06	6.74659	$ 263,108	23.625	$ 460,671	$ 723,778.98
148	1376.0001	1376.250122	Residential	4847.492981	$ 3,519,280	$ 1,759,640	1376.239746	-0.01	1376.24292	-0.01	1376.241943	-0.01	1376.241943	-0.01	3.958496	$ 139,311	0	$ -	$ 139,310.55	3.967284	$ 139,620	0	$ -	$ 139,619.83
149	1376.4144	1376.664429	Residential	5930.882202	$ 4,305,820	$ 2,152,910	1376.478149	-0.19	1376.47998	-0.18	1376.766724	0.10	1376.542114	-0.12	3.25	$ 140,149	0.00	$ -	$ 140,149.29	3.51	$ 151,166	0.00	$ -	$ 151,166.16
150	1372.437	1372.687012	Residential	5813.009705	$ 4,220,245	$ 2,110,123	1372.519775	-0.17	1372.52002	-0.17	1372.522461	-0.16	1372.522461	-0.16	3.331052	$ 140,579	0	$ -	$ 140,578.56	3.341796	$ 141,032	8.33129892	$ 175,801	$ 316,832.60
151	1387.2883	1387.53833	Residential	4486.418701	$ 3,257,140	$ 1,628,570	1387.536377	0.00	1387.540039	0.00	1387.53833	0.00	1387.53833	0.00	3.992188	$ 130,031	0	$ -	$ 130,031.15	4	$ 130,286	0	$ -	$ 130,285.60
152	1375.7926	1376.042603	Residential	4326.913086	$ 3,141,339	$ 1,570,669	1375.835449	-0.21	1375.839966	-0.20	1376.119263	0.08	1375.941162	-0.10	3.17	$ 99,624	0.00	$ -	$ 99,623.92	3.59	$ 112,907	0.00	$ -	$ 112,907.13
153	1367.1001	1367.350098	Residential	5923.343201	$ 4,300,347	$ 2,150,174	1367.170654	-0.18	1367.170044	-0.18	1367.174072	-0.18	1367.174072	-0.18	3.282224	$ 141,147	0	$ -	$ 141,147.03	3.295896	$ 141,735	15.82177758	$ 340,196	$ 481,930.65
154	1378.0719	1378.321899	Residential	5311.497314	$ 3,856,147	$ 1,928,074	1378.216553	-0.11	1378.219971	-0.10	1378.218384	-0.10	1378.218384	-0.10	3.578616	$ 137,997	0	$ -	$ 137,996.70	3.58594	$ 138,279	0	$ -	$ 138,279.12
155	1380.4923	1380.74231	Residential	2746.666016	$ 1,994,080	$ 997,040	1380.633667	-0.11	1380.62915	-0.11	1380.637695	-0.10	1380.638184	-0.10	3.57	$ 71,097	0.00	$ -	$ 71,097.47	3.58	$ 71,458	0.00	$ -	$ 71,457.76
156	1373.4617	1373.71167	Residential	6659.882751	$ 4,835,075	$ 2,417,537	1373.625244	-0.09	1373.630005	-0.08	1373.626709	-0.08	1373.626709	-0.08	3.65	$ 176,688	0.00	$ -	$ 176,687.95	3.66	$ 176,971	0.00	$ -	$ 176,971.28
157	1376.4575	1376.70752	Residential	4604.081482	$ 3,342,563	$ 1,671,282	1376.469116	-0.24	1376.470581	-0.24	1376.488281	-0.22	1376.477417	-0.23	3.046384	$ 101,827	0	$ -	$ 101,827.31	3.079588	$ 102,937	0.6818847	$ 11,396	$ 114,333.39
158	1374.9485	1375.198486	Residential	5014.781799	$ 3,640,732	$ 1,820,366	1374.963501	-0.23	1374.963257	-0.24	1374.966919	-0.23	1374.966919	-0.23	3.06006	$ 111,409	0	$ -	$ 111,408.57	3.073732	$ 111,906	0	$ -	$ 111,906.33
159	1368.0206	1368.27063	Residential	8032.684509	$ 5,831,729	$ 2,915,864	1368.052124	-0.22	1368.050049	-0.22	1368.055664	-0.21	1368.055664	-0.21	3.13	$ 182,298	0.00	$ -	$ 182,298.45	3.14	$ 183,124	0.00	$ -	$ 183,124.22
160	1364.0402	1364.290161	Residential	7812.84906	$ 5,672,128	$ 2,836,064	1364.276733	-0.01	1364.280029	-0.01	1364.278564	-0.01	1364.278564	-0.01	3.946288	$ 223,839	0	$ -	$ 223,838.52	3.954104	$ 224,282	5.8037112	$ 164,597	$ 388,878.83
161	1379.0062	1379.256226	Residential	4673.951538	$ 3,393,289	$ 1,696,644	1379.0354	-0.22	1379.033325	-0.22	1379.041504	-0.21	1379.041504	-0.21	3.116696	$ 105,758	0	$ -	$ 105,758.50	3.141112	$ 106,587	0	$ -	$ 106,587.00
162	1351.6937	1351.943726	Residential	7145.512817	$ 5,187,642	$ 2,593,821	1351.736572	-0.21	1351.73999	-0.20	1351.739258	-0.20	1351.739258	-0.20	3.171384	$ 164,520	0	$ -	$ 164,520.06	3.182128	$ 165,077	0	$ -	$ 165,077.42
163	1356.0435	1356.293457	Residential	8016.633606	$ 5,820,076	$ 2,910,038	1356.115234	-0.18	1356.119995	-0.17	1356.119141	-0.17	1356.119141	-0.17	3.29	$ 191,312	0.00	$ -	$ 191,312.18	3.30	$ 192,222	0.00	$ -	$ 192,221.75
164	1353.3625	1353.612549	Residential	5229.221985	$ 3,796,415	$ 1,898,208	1353.494629	-0.12	1353.48999	-0.12	1353.49646	-0.12	1353.49646	-0.12	3.52832	$ 133,950	0	$ -	$ 133,949.68	3.535644	$ 134,228	0	$ -	$ 134,227.72
165	1383.4026	1383.652588	Residential	5383.90863	$ 3,908,718	$ 1,954,359	1383.43689	-0.22	1383.439697	-0.21	1383.464355	-0.19	1383.744873	0.09	3.137208	$ 122,625	0	$ -	$ 122,624.60	6.76855	$ 264,564	24.9118653	$ 486,867	$ 751,430.75
166	1372.4465	1372.696533	Residential	5019.003479	$ 3,643,797	$ 1,821,898	1372.785156	0.09	1372.790039	0.09	1372.791992	0.10	1372.786621	0.09	6.65869	$ 242,629	3.722166	$ 67,814	$ 310,443.19	6.70264	$ 244,231	0	$ -	$ 244,230.56
167	1362.7709	1363.020874	Residential	89.848938	$ 65,230	$ 32,615	1362.811768	-0.21	1362.813477	-0.21	1362.815186	-0.21	1362.815186	-0.21	3.163576	$ 2,064	0	$ -	$ 2,063.61	3.177248	$ 2,073	8.65429698	$ 2,823	$ 4,895.14
168	1365.083	1365.333008	Residential	7013.951599	$ 5,092,129	$ 2,546,064	1365.13855	-0.19	1365.140015	-0.19	1365.140991	-0.19	1365.140991	-0.19	3.22	$ 164,077	0.00	$ -	$ 164,076.95	3.23	$ 164,574	0.00	$ -	$ 164,574.14
169	1362.7377	1362.987671	Residential	5120.312622	$ 3,717,347	$ 1,858,673	1362.824219	-0.16	1362.821777	-0.17	1362.997803	0.01	1362.758911	-0.23	3.346192	$ 124,390	0	$ -	$ 124,389.57	3.08496	$ 114,679	0	$ -	$ 114,678.67
170	1360.1978	1360.447754	Residential	793.997314	$ 576,442	$ 288,221	1360.297607	-0.15	1360.296753	-0.15	1360.363892	-0.08	1360.36377	-0.08	3.399412	$ 19,596	0	$ -	$ 19,595.64	3.664064	$ 21,121	0	$ -	$ 21,121.21
171	1376.9437	1377.193726	Residential	6148.210022	$ 4,463,600	$ 2,231,800	1377.074829	-0.12	1377.073853	-0.12	1377.077393	-0.12	1377.077393	-0.12	3.524412	$ 157,316	0	$ -	$ 157,315.67	3.534668	$ 157,773	0	$ -	$ 157,773.46
172	1382.8645	1383.114502	Residential	417.621704	$ 303,193	$ 151,597	1383.075317	-0.04	1383.074097	-0.04	1383.662109	0.55	1383.49707	0.38	3.84326	$ 11,653	0	$ -	$ 11,652.51	15.47704	$ 46,925	0	$ -	$ 46,925.36
173	1382.9543	1383.204346	Residential	7021.7854	$ 5,097,816	$ 2,548,908	1383.303101	0.10	1383.30249	0.10	1383.720337	0.52	1384.014648	0.81	6.96	$ 354,943	4.15	$ 105,721	$ 460,664.42	28.31	$ 1,443,144	0.00	$ -	$ 1,443,143.85
174	1360.3568	1360.606812	Residential	987.539978	$ 716,954	$ 358,477	1360.389648	-0.22	1360.390015	-0.22	1360.392334	-0.21	1360.392334	-0.21	3.131344	$ 22,450	0	$ -	$ 22,450.30	3.142088	$ 22,527	0	$ -	$ 22,527.33
175	1371.0583	1371.30835	Residential	4343.393616	$ 3,153,304	$ 1,576,652	1371.106812	-0.20	1371.103516	-0.20	1371.108887	-0.20	1371.108887	-0.20	3.193848	$ 100,712	0	$ -	$ 100,711.73	3.202148	$ 100,973	0	$ -	$ 100,973.45
176	1363.4857	1363.735718	Residential	1258.273743	$ 913,507	$ 456,753	1363.566162	-0.17	1363.56543	-0.17	1363.714722	-0.02	1363.61731	-0.12	3.321776	$ 30,345	0	$ -	$ 30,344.65	3.526368	$ 32,214	0	$ -	$ 32,213.61
177	1382.4683	1382.718262	Residential	5926.931763	$ 4,302,952	$ 2,151,476	1382.520874	-0.20	1382.522339	-0.20	1383.109375	0.39	1382.892212	0.17	3.210448	$ 138,144	0	$ -	$ 138,144.05	9.2185	$ 396,668	0	$ -	$ 396,667.67
178	1367.0305	1367.280518	Residential	7461.676697	$ 5,417,177	$ 2,708,589	1367.084473	-0.20	1367.079956	-0.20	1367.086426	-0.19	1367.086304	-0.19	3.21582	$ 174,207	0	$ -	$ 174,206.67	3.223144	$ 174,603	0	$ -	$ 174,603.42
179	1366.8289	1367.078857	Residential	8772.664185	$ 6,368,954	$ 3,184,477	1367.044067	-0.03	1367.04834	-0.03	1367.045654	-0.03	1367.045654	-0.03	3.860384	$ 245,895	0	$ -	$ 245,895.13	3.867188	$ 246,299	0	$ -	$ 246,299.43
180	1364.3354	1364.585449	Residential	1242.911804	$ 902,354	$ 451,177	1364.427124	-0.16	1364.428833	-0.16	1364.576904	-0.01	1364.416138	-0.17	3.3667	$ 30,380	0	$ -	$ 30,379.55	3.322756	$ 29,983	0	$ -	$ 29,983.02
181	1385.5297	1385.779663	Residential	4264.038574	$ 3,095,692	$ 1,547,846	1385.641846	-0.14	1385.642456	-0.14	1385.643677	-0.14	1385.643799	-0.14	3.448732	$ 106,762	0	$ -	$ 106,762.12	3.456544	$ 107,004	0	$ -	$ 107,003.96
182	1374.311	1374.561035	Residential	5276.539246	$ 3,830,767	$ 1,915,384	1374.384644	-0.18	1374.380005	-0.18	1374.387817	-0.17	1374.387817	-0.17	3.294436	$ 126,202	0	$ -	$ 126,202.18	3.307128	$ 126,688	0	$ -	$ 126,688.38
183	1358.566	1358.81604	Residential	7594.135925	$ 5,513,343	$ 2,756,671	1358.577881	-0.24	1358.579956	-0.24	1358.580444	-0.24	1358.580444	-0.24	3.05	$ 168,012	0.00	$ -	$ 168,011.62	3.06	$ 168,577	0.00	$ -	$ 168,576.85
184	1380.236	1380.485962	Residential	4827.576904	$ 3,504,821	$ 1,752,410	1380.30188	-0.18	1380.304321	-0.18	1380.490601	0.00	1380.304321	-0.18	3.263672	$ 114,386	0	$ -	$ 114,385.86	3.273436	$ 114,728	0	$ -	$

10-Year and 100-Year Existing Building Damages in Area K

																Existing								
Building ID	HAG	Finished Floor Elevation (ft)	Land Use Type	Building Area (sf)	Replace Cost $ ($726/SF-Res)	Content Replacement Value ($) 1/2 of Replacement Cost	10yr Exist WSEL (ft)	10yr Exist Flow Depth (ft)	10yr Prop WSEL (ft)	10yr Prop Flow Depth (ft)	100yr Exist WSEL (ft)	100yr Exist Flow Depth (ft)	100yr Prop WSEL (ft)	100yr Prop Flow Depth (ft)	10yr Building Damage (%)	10yrBuilding Damage Cost ($)	10yr Content Damage (%)	10yr Content Damage Cost ($)	10yr Total Damage Cost ($)	100yr Building Damage (%)	100yrBuilding Damage Cost ($)	100yr Content Damage (%)	100yr Content Damage Cost ($)	100yr Total Damage Cost ($)
195	1371.9503	1372.200317	Residential	5811.423157	$ 4,219,093	$ 2,109,547	1372.028442	-0.17	1372.030029	-0.17	1372.031372	-0.17	1372.031372	-0.17	3.3125	$ 139,757	0	$ -	$ 139,757.46	3.32422	$ 140,252	5.18334978	$ 109,345	$ 249,597.12
196	1375.9243	1376.174316	Residential	3570.859131	$ 2,592,444	$ 1,296,222	1375.952637	-0.22	1375.952393	-0.22	1375.955322	-0.22	1375.955444	-0.22	3.113284	$ 80,710	0	$ -	$ 80,710.14	3.124512	$ 81,001	0	$ -	$ 81,001.22
197	1382.3914	1382.641357	Residential	4534.560791	$ 3,292,091	$ 1,646,046	1382.78833	0.15	1382.78894	0.15	1382.793213	0.15	1382.793091	0.15	8.41	$ 276,838	6.17	$ 101,608	$ 378,446.39	8.55	$ 281,540	0.00	$ -	$ 281,540.29
198	1372.3955	1372.645508	Residential	3843.095703	$ 2,790,087	$ 1,395,044	1372.505371	-0.14	1372.508545	-0.14	1372.546753	-0.10	1372.546753	-0.10	3.439452	$ 95,964	0	$ -	$ 95,963.72	3.60498	$ 100,582	0	$ -	$ 100,582.10
199	1378.7993	1379.049316	Residential	5130.287109	$ 3,724,588	$ 1,862,294	1379.104492	0.06	1379.099976	0.05	1379.106445	0.06	1379.106323	0.06	5.66	$ 210,636	2.32	$ 43,157	$ 253,792.56	5.71	$ 212,682	0.00	$ -	$ 212,681.82
200	1369.2933	1369.543335	Residential	4194.780518	$ 3,045,411	$ 1,522,705	1369.405518	-0.14	1369.407227	-0.14	1369.692261	0.15	1369.369751	-0.17	3.448732	$ 105,028	0	$ -	$ 105,028.05	3.305664	$ 100,671	0	$ -	$ 100,671.04
201	1384.4399	1384.689941	Residential	4500.588989	$ 3,267,428	$ 1,633,714	1385.165039	0.48	1385.160034	0.47	1385.166504	0.48	1385.166626	0.48	18.25294	$ 596,402	19.954116	$ 325,993	$ 922,394.75	18.30055	$ 597,957	0	$ -	$ 597,957.22
202	1386.7983	1387.04834	Residential	4524.202332	$ 3,284,571	$ 1,642,285	1387.091187	0.04	1387.081299	0.03	1387.682007	0.63	1386.833618	-0.21	5.28541	$ 173,603	1.799574	$ 29,554	$ 203,157.18	3.141112	$ 103,172	0	$ -	$ 103,172.05
203	1372.1863	1372.436279	Residential	4600.928711	$ 3,340,274	$ 1,670,137	1372.266113	-0.17	1372.266479	-0.17	1372.269165	-0.17	1372.269287	-0.17	3.319336	$ 110,875	0	$ -	$ 110,874.93	3.332032	$ 111,299	0	$ -	$ 111,299.01
204	1351.7186	1351.968628	Residential	927.027771	$ 673,022	$ 336,511	1351.785278	-0.18	1351.790039	-0.18	1351.787354	-0.18	1351.787476	-0.18	3.2666	$ 21,985	0	$ -	$ 21,984.94	3.275392	$ 22,044	0	$ -	$ 22,044.11
205	1373.9084	1374.158447	Residential	6269.81665	$ 4,551,887	$ 2,275,943	1374.034424	-0.12	1374.030029	-0.13	1374.037842	-0.12	1374.037842	-0.12	3.503908	$ 159,494	0	$ -	$ 159,493.93	3.51758	$ 160,116	0	$ -	$ 160,116.26
206	1365.4144	1365.664429	Residential	6051.600159	$ 4,393,462	$ 2,196,731	1365.444336	-0.22	1365.444214	-0.22	1365.870117	0.21	1365.701416	0.04	3.119628	$ 137,060	0	$ -	$ 137,059.66	5.10961	$ 224,489	0	$ -	$ 224,488.76
207	1353.8657	1354.115723	Residential	755.925842	$ 548,802	$ 274,401	1353.93396	-0.18	1353.930054	-0.19	1353.936157	-0.18	1353.936157	-0.18	3.27	$ 17,962	0.00	$ -	$ 17,962.01	3.28	$ 18,010	0.00	$ -	$ 18,010.24
208	1369.4949	1369.694946	Residential	7994.761414	$ 5,804,197	$ 2,902,098	1369.686035	-0.01	1369.689941	-0.01	1369.687744	-0.01	1369.687744	-0.01	3.96	$ 230,099	0.00	$ -	$ 230,099.02	3.97	$ 230,496	19.49	$ 565,697	$ 796,192.43
209	1356.6626	1356.912598	Residential	6371.821533	$ 4,625,942	$ 2,312,971	1356.790527	-0.12	1356.794678	-0.12	1357.093018	0.18	1356.822266	-0.09	3.511716	$ 162,450	0	$ -	$ 162,449.96	3.638672	$ 168,323	0	$ -	$ 168,322.87
210	1378.3789	1378.628906	Residential	1189.775024	$ 863,777	$ 431,888	1378.425903	-0.20	1378.430054	-0.20	1378.454956	-0.17	1378.473999	-0.15	3.19	$ 27,537	0.00	$ -	$ 27,537.10	3.38	$ 29,199	0.00	$ -	$ 29,198.86
211	1372.8145	1373.064453	Residential	7189.552734	$ 5,219,615	$ 2,609,808	1372.927002	-0.14	1372.930054	-0.13	1372.929077	-0.14	1372.929199	-0.14	3.450196	$ 180,087	0	$ -	$ 180,086.96	3.458984	$ 180,546	0	$ -	$ 180,545.66
212	1384.6993	1384.949341	Residential	4849.682129	$ 3,520,869	$ 1,760,435	1384.800659	-0.15	1384.798706	-0.15	1384.845337	-0.10	1384.848267	-0.10	3.41	$ 119,895	0.00	$ -	$ 119,895.17	3.60	$ 126,600	16.95	$ 298,389	$ 424,988.54
213	1374.1124	1374.362427	Residential	5543.06311	$ 4,024,264	$ 2,012,132	1374.303589	-0.06	1374.300049	-0.06	1375.235962	0.87	1374.947021	0.58	3.76	$ 151,499	0.00	$ -	$ 151,499.37	21.54	$ 866,739	7.57	$ 152,266	$ 1,019,004.42
214	1351.9253	1352.175293	Residential	7474.652283	$ 5,426,598	$ 2,713,299	1352.022827	-0.15	1352.020386	-0.15	1352.025024	-0.15	1352.025146	-0.15	3.39	$ 183,969	0.00	$ -	$ 183,969.04	3.40	$ 184,472	0.00	$ -	$ 184,472.41
215	1372.7062	1372.956177	Residential	365.232666	$ 265,159	$ 132,579	1372.750366	-0.21	1372.75	-0.21	1372.754272	-0.20	1372.754272	-0.20	3.176756	$ 8,423	0	$ -	$ 8,423.45	3.19238	$ 8,465	0	$ -	$ 8,464.88
216	1383.9557	1384.205688	Residential	10282.73602	$ 7,465,266	$ 3,732,633	1384.018188	-0.19	1384.02002	-0.19	1384.431885	0.23	1384.276855	0.07	3.25	$ 242,621	0	$ -	$ 242,621.16	6.13501	$ 457,995	0	$ -	$ 457,994.84
217	1379.6527	1379.90271	Residential	5808.621948	$ 4,217,060	$ 2,108,530	1379.669067	-0.23	1379.665283	-0.24	1379.678833	-0.22	1379.678833	-0.22	3.065428	$ 129,271	0	$ -	$ 129,270.92	3.104492	$ 130,918	0	$ -	$ 130,918.28
218	1378.8989	1379.148926	Residential	5431.955078	$ 3,943,599	$ 1,971,800	1378.959473	-0.19	1378.959961	-0.19	1379.071411	-0.08	1379.14856	0.00	3.242188	$ 127,859	0	$ -	$ 127,858.91	3.998536	$ 157,686	15.55517586	$ 306,717	$ 464,403.15
219	1361.0637	1361.313721	Residential	697.469788	$ 506,363	$ 253,182	1361.248169	-0.07	1361.244873	-0.07	1361.327881	0.01	1361.283569	-0.03	3.737792	$ 18,927	0	$ -	$ 18,926.80	3.879392	$ 19,644	0	$ -	$ 19,643.81
220	1363.9265	1364.176514	Residential	5530.390808	$ 4,015,064	$ 2,007,532	1364.312012	0.14	1364.307861	0.13	1364.484375	0.31	1364.317505	0.14	8.06	$ 323,812	5.69	$ 114,247	$ 438,059.43	8.23	$ 330,429	3.97	$ 79,767	$ 410,195.95
221	1365.9146	1366.164551	Residential	7421.591003	$ 5,388,075	$ 2,694,038	1365.946289	-0.22	1365.947144	-0.22	1365.94812	-0.22	1365.94812	-0.22	3.126952	$ 168,483	0	$ -	$ 168,482.52	3.134276	$ 168,877	0	$ -	$ 168,877.14
222	1355.2457	1355.495728	Residential	6237.714416	$ 4,528,581	$ 2,264,290	1355.38916	-0.11	1355.387085	-0.11	1355.394287	-0.10	1355.394287	-0.10	3.573728	$ 161,839	0	$ -	$ 161,839.16	3.594236	$ 162,768	0	$ -	$ 162,767.88
223	1367.9564	1368.206421	Residential	6903.520142	$ 5,011,956	$ 2,505,978	1368.126953	-0.08	1368.130005	-0.08	1368.12915	-0.08	1368.12915	-0.08	3.682128	$ 184,547	0.00	$ -	$ 184,546.62	3.690916	$ 184,987	0.00	$ -	$ 184,987.07
224	1367.7229	1367.9729	Residential	7568.887512	$ 5,495,012	$ 2,747,506	1367.817627	-0.16	1367.819946	-0.15	1367.859985	-0.11	1367.819946	-0.15	3.378908	$ 185,671	0	$ -	$ 185,671.41	3.388184	$ 186,181	0	$ -	$ 186,181.13
225	1372.2632	1372.513184	Residential	6819.513489	$ 4,950,967	$ 2,475,483	1372.534302	0.02	1372.530029	0.02	1372.535645	0.02	1372.535645	0.02	4.63	$ 229,405	0.89	$ 21,956	$ 251,361.48	4.67	$ 231,400	0.00	$ -	$ 231,399.77
226	1382.7257	1382.975708	Residential	414.181458	$ 300,696	$ 150,348	1382.818604	-0.16	1382.819946	-0.16	1382.976807	0.00	1383.06543	0.09	3.371584	$ 10,138	0.00	$ -	$ 10,138.21	6.69166	$ 20,122	0.00	$ -	$ 20,121.54
227	1377.9037	1378.153687	Residential	6325.296997	$ 4,592,166	$ 2,296,083	1377.931274	-0.22	1377.93042	-0.22	1377.95105	-0.20	1377.956909	-0.20	3.11	$ 142,832	0.00	$ -	$ 142,832.33	3.21	$ 147,541	0.00	$ -	$ 147,541.14
228	1369.9781	1370.228149	Residential	7107.003967	$ 5,159,685	$ 2,579,842	1370.020264	-0.21	1370.02002	-0.21	1370.023315	-0.20	1370.023315	-0.20	3.17	$ 163,483	0.00	$ -	$ 163,482.55	3.18	$ 164,112	0.00	$ -	$ 164,112.24
229	1366.7046	1366.95459	Residential	6420.218262	$ 4,661,078	$ 2,330,539	1366.699341	-0.26	1366.699951	-0.25	1366.702881	-0.25	1366.702881	-0.25	2.98	$ 138,854	0.00	$ -	$ 138,853.71	2.99	$ 139,514	0.00	$ -	$ 139,513.72
230	1355.0955	1355.345459	Residential	7691.567017	$ 5,584,078	$ 2,792,039	1355.132324	-0.21	1355.130005	-0.22	1355.30835	-0.04	1355.136841	-0.21	3.14746	$ 175,757	0	$ -	$ 175,756.61	3.165528	$ 176,766	19.65673794	$ 548,824	$ 725,589.30
231	1372.5229	1372.772949	Residential	7904.628235	$ 5,738,760	$ 2,869,380	1372.625	-0.15	1372.622925	-0.15	1372.852051	0.08	1372.627319	-0.15	3.408204	$ 195,589	0	$ -	$ 195,588.65	3.41748	$ 196,121	0	$ -	$ 196,120.98
232	1373.4587	1373.70874	Residential	6641.056396	$ 4,821,407	$ 2,410,703	1373.506714	-0.20	1373.506592	-0.20	1373.51062	-0.20	1373.51062	-0.20	3.19	$ 153,894	0.00	$ -	$ 153,894.30	3.21	$ 154,648	0.00	$ -	$ 154,647.59
233	1368.4092	1368.65918	Residential	650.331116	$ 472,140	$ 236,070	1368.462769	-0.20	1368.466675	-0.19	1368.465942	-0.19	1368.465942	-0.19	3.214356	$ 15,176	0	$ -	$ 15,176.27	3.227048	$ 15,236	0	$ -	$ 15,236.20
234	1360.5137	1360.763672	Residential	6230.277466	$ 4,523,181	$ 2,261,591	1360.886719	0.12	1360.882568	0.12	1361.106689	0.34	1360.874512	0.11	7.69141	$ 347,896	5.167974	$ 116,878	$ 464,774.85	7.3252	$ 331,332	0	$ -	$ 331,332.09
235	1353.9615	1354.211548	Residential	6218.86676	$ 4,514,897	$ 2,257,449	1354.11731	-0.09	1354.119995	-0.09	1354.119385	-0.09	1354.119385	-0.09	3.62	$ 163,577	0.00	$ -	$ 163,576.90	3.63	$ 163,952	0.00	$ -	$ 163,951.63
236	1361.0813	1361.331299	Residential	552.338257	$ 400,998	$ 200,499	1361.399292	0.07	1361.398926	0.07	1361.947754	0.62	1361.722046	0.39	6.03979	$ 24,219	2.855706	$ 5,726	$ 29,945.07	15.72241	$ 63,046	8.90551746	$ 17,855	$ 80,901.94
237	1363.077	1363.327026	Residential	10609.44226	$ 7,702,455	$ 3,851,228	1363.127563	-0.20	1363.130005	-0.20	1363.129761	-0.20	1363.129761	-0.20	3.20	$ 246,644	0.00	$ -	$ 246,644.01	3.21	$ 247,321	0.00	$ -	$ 247,321.21
238	1349.4791	1349.729126	Residential	1499.625549	$ 1,088,728	$ 544,364	1349.505493	-0.22	1349.505371	-0.22	1349.608521	-0.12	1349.554077	-0.18	3.105468	$ 33,810	0	$ -	$ 33,810.10	3.299804	$ 35,926	0	$ -	$ 35,925.89
239	1368.2323	1368.4823	Residential	6792.286804	$ 4,931,200	$ 2,465,600	1368.323364	-0.16	1368.321777	-0.16	1368.325684	-0.16	1368.325684	-0.16	3.36	$ 165,898	0.00	$ -	$ 165,898.20	3.37	$ 166,356	9.72	$ 239,547	$ 405,903.07
240	1366.8684	1367.118408	Residential	6303.598511	$ 4,576,413	$ 2,288,206	1366.92749	-0.19	1366.926025	-0.19	1366.931519	-0.19	1366.931519	-0.19	3.236328	$ 148,108	0	$ -	$ 148,107.72	3.252444	$ 148,845	0	$ -	$ 148,845.25
241	1381.4254	1381.675415	Residential	8258.813843	$ 5,995,899	$ 2,997,949	1381.619629	-0.06	1381.620728	-0.05	1381.691772	0.02	1381.666382	-0.01	3.776856	$ 226,456	0	$ -	$ 226,456.47	3.963868	$ 237,670	0	$ -	$ 237,669.52
242	1374.0637	1374.313721	Residential	1514.909546	$ 1,099,824	$ 549,912	1374.154053	-0.16	1374.150024	-0.16	1374.155151	-0.16	1374.155273	-0.16	3.361328	$ 36,969	0	$ -	$ 36,968.70	3.366208	$ 37,022	0	$ -	$ 37,022.37
243	1361.5778	1361.827759	Residential	5731.376465	$ 4,160,979	$ 2,080,490	1361.610352	-0.22	1361.609985	-0.22	1361.613403	-0.21	1361.613403	-0.21	3.13	$ 130,254	0.00	$ -	$ 130,254.13	3.14	$ 130,762	5.05	$ 105,066	$ 235,827.68
244	1368.0669	1368.316895	Residential	820.711121	$ 595,836	$ 297,918	1368.264038	-0.05	1368.26001	-0.06	1368.454102	0.14	1368.264893	-0.05	3.788572	$ 22,574	0	$ -	$ 22,573.69	3.791992	$ 22,594	0	$ -	$ 22,594.06
245	1377.4694	1377.71936	Residential	9322.061707	$ 6,767,817	$ 3,383,908	1377.481201	-0.24	1377.478882	-0.24	1377.491089	-0.23	1377.491089	-0.23	3.05	$ 206,240	0.00	$ -	$ 206,240.01	3.09	$ 208,917	0.00	$ -	$ 208,916.82
246	1370.7789	1371.028931	Residential	4462.246643	$ 3,239,591	$ 1,619,796	1370.87854	-0.15	1370.880005	-0.15	1370.880981	-0.15	1370.880981	-0.15	3.398436	$ 110,095	0	$ -	$ 110,095.43	3.4082	$ 110,412	0	$ -	$ 110,411.74
247	1383.4347	1383.684692	Residential	5164.128662	$ 3,749,157	$ 1,874,579	1383.55481	-0.13	1383.557129	-0.13	1383.557861	-0.13	1383.557861	-0.13	3.48	$ 130,488	0.00	$ -	$ 130,488.37	3.49	$ 130,946	0.00	$ -	$ 130,945.92
248	1383.4193	1383.669312	Residential	5801.94397	$ 4,212,211	$ 2,106,106	1383.576904	-0.09	1383.579956	-0.09	1383.578613	-0.09	1383.578491	-0.09	3.630368	$ 152,919	0.00	$ -	$ 152,918.77	3.636716	$ 153,186	0.00	$ -	$ 153,186.16
249	1364.1787	1364.428711	Residential	4602.597412	$ 3,341,486	$ 1,670,743	1364.308594	-0.12	1364.310059	-0.12	1364.533447	0.10	1364.389771	-0.04	3.52	$ 117,605	0.00	$ -	$ 117,604.66	3.84	$ 128,455	0.00	$ -	$ 128,454.73
250	1378.4397	1378.689697	Residential	5496.526245	$ 3,990,478	$ 1,995,239	1378.47644	-0.21	1378.47998	-0.21	1378.478271	-0.21	1378.478271	-0.21	3.15	$ 125,579	0.00	$ -	$ 125,579.23	3.15	$ 125,871	6.32	$ 126,130	$ 252,001.18
251	1380.9373	1381.187256	Residential	5218.038513	$ 3,788,296	$ 1,894,148	1380.941772	-0.25	1380.939819	-0.25	1380.987305	-0.20	1381.089478	-0.10	3.02	$ 114,333	0.00	$ -	$ 114,333.20	3.61	$ 136,715	14.10	$ 267,058	$ 403,773.58
252	1384.512	1384.761963	Residential	4131.500061	$ 2,999,469	$ 1,499,735	1384.564697	-0.20	1384.560059	-0.20	1384.589355	-0.17	1384.589355	-0.17	3.210936	$ 96,311	0	$ -	$ 96,311.03	3.309568	$ 99,269	0	$ -	$ 99,269.47
253	1359.9803	1360.230347	Residential	2268.955322	$ 1,647,262	$ 823,631	1360.014893	-0.22	1360.013794	-0.22	1360.255005	0.02	1360.105713	-0.12	3.138184	$ 51,694	0	$ -	$ 51,694.10	3.501464	$ 57,678	3.1171875	$ 25,674	$ 83,352.39
254	1352.5721	1352.822144	Residential	5705.019409	$ 4,141,844	$ 2,070,922	1352.655762	-0.17	1352.660034	-0.16	1352.8479	0.03	1352.69519	-0.13	3.33	$ 138,109	0.00	$ -	$ 138,108.63	3.49	$ 144,641	0.28	$ 5,733	$ 150,374.28
255	1377.2522	1377.502197	Residential	6675.252869	$ 4,846,234	$ 2,423,117	1377.436279	-0.07	1377.435181	-0.07	1377.437622	-0.06	1377.437744	-0.06	3.74	$ 181,071	0.00	$ -	$ 181,071.18	3.74	$ 181,355	0.00	$ -	$ 181,355.17
256	1378.1875	1378.4375	Residential	1162.67511	$ 844,102	$ 422,051	1378.304199	-0.13	1378.302246	-0.14	1378.308716	-0.13	1378.308716	-0.13	3.466796	$ 29,263	0	$ -	$ 29,263.30	3.484864	$ 29,416	0	$ -	$ 29,415.81
257	1351.558	1351.807983	Residential	7151.573364	$ 5,192,042	$ 2,596,021	1351.605347	-0.20	1351.609985	-0.20	1351.660278	-0.15	1351.607544	-0.20	3.189456	$ 165,598	0	$ -	$ 165,597.90	3.198244	$ 166,054	0	$ -	$ 166,054.18
258	1352.8057	1353.055664	Residential	1599.585388	$ 1,161,299	$ 580,649	1352.888916	-0.17	1352.890991	-0.16	1353.143311	0.09	1352.966919	-0.09	3.333008	$ 38,706	0	$ -	$ 38,706.19	3.64502	$ 42,330	0	$ -	$ 42,329.58
259	1359.526	1359.776001	Residential	5013.345703	$ 3,639,689	$ 1,819,844	1359.563477	-0.21	1359.560059	-0.22	1359.815674	0.04	1359.676147	-0.10	3.15	$ 114,647	0.00	$ -	$ 114,646.71	3.60	$ 131,050	0.00	$ -	$ 131,050.06
260	1369.9309	1370.180908	Residential	1631.4505	$ 1,184,433	$ 592,217	1370.001343	-0.18	1370.003662	-0.18	1370.005859	-0.18	1370.005859	-0.18	3.28	$ 38,870	0.00	$ -	$ 38,870.01	3.30	$ 39,084	13.37	$ 79,186	$ 118,269.80
261	1364.5201	1364.770142	Residential	6330.97168	$ 4,596,285	$ 2,298,143	1364.756348	-0.01	1364.76001	-0.01	1364.758057	-0.01	1364.758057	-0.01	3.944824	$ 181,315	0	$ -	$ 181,315.37	3.95166	$ 181,630	0	$ -	$ 181,629.57
262	1379.0126	1379.262573	Residential	11915.48267	$ 8,650,640	$ 4,325,320	1379.315308	0.05	1379.310059	0.05	1379.430786	0.17	1379.430786	0.17	5.58	$ 482,883	2.21	$ 95,800	$ 578,683.29	9.05	$ 782,571	0.00	$ -	$ 782,570.67
263	1380.3851	1380.635132	Residential	839.351196	$ 609,369	$ 304,684	1380.475952	-0.16	1380.473145	-0.16	1380.871704	0.24	1380.726929	0.09	3.36	$ 20,495	0.00	$ -	$ 20,494.78	6.75	$ 41,156	0.00	$ -	$ 41,156.23
264	1350.6312	1350.881226	Residential	11002.85187	$ 7,988,070	$ 3,994,035	1350.748291	-0.13	1350.744751	-0.14	1350.750366	-0.13	1350.750366	-0.13	3.46826	$ 277,047	0	$ -	$ 277,047.05	3.47656	$ 277,710	0	$ -	$ 277,710.06
265	1362.2693	1362.519287	Residential	8576.057251	$ 6,226,218	$ 3,113,109	1362.358276	-0.16	1362.359985	-0.16	1362.360718	-0.16	1362.360718	-0.16	3.355956	$ 208,949	0	$ -	$ 208,949.12	3.365724	$ 209,557	0	$ -	$ 209,557.30
266	1379.4694	1379.71936	Residential	541.316711	$ 392,996	$ 196,498	1379.508667	-0.21	1379.511963	-0.21	1379.52002	-0.20	1379.52002	-0.20	3.157228	$ 12,408	0	$ -	$ 12,407.78	3.20264	$ 12,586	0	$ -	$ 12,586.24
267	1375.348	1375.598022	Residential	5572.635681	$ 4,045,734	$ 2,022,867	1375.486694	-0.11	1375.48999	-0.11	1375.488647	-0.11	1375.488647	-0.11	3.554688	$ 143,813	0	$ -	$ 143,813.20	3.5625	$ 144,129	0	$ -	$ 144,129.26
268	1369.1	1369.349976	Residential	4953.879761	$ 3,596,517	$ 1,798,258	1369.13855	-0.21	1369.140015	-0.21	1369.140991	-0.21	1369.140991	-0.21	3.154296	$ 113,445	0	$ -	$ 113,444.78	3.16406	$ 113,796	1.66113276	$ 29,871	$ 143,667.41
269	1375.8182	1376.068237	Residential	7317.905151	$ 5,312,799	$ 2,656,400	1375.90625	-0.16	1375.910034	-0.16	1375.908203	-0.16	1375.908203	-0.16	3.352052	$ 178,088	0	$ -	$ 178,087.79	3.359864	$ 178,503	0	$ -	$ 178,502.83
270	1372.4429	1372.692871	Residential	5703.677429	$ 4,140,876	$ 2,070,435	1372.499146	-0.19	1372.5	-0.19	1372.842041	0.15	1372.760498	0.07	3.2251	$ 133,547	0	$ -	$ 133,547.19	6.02881	$ 249,645	0	$ -	$ 249,645.17
271	1373.303	1373.552979	Residential	4983.422424	$ 3,617,965	$ 1,808,982	1373.359741	-0.19	1373.359985	-0.19	1373.362549	-0.19	1373.362549	-0.19	3.23	$ 116,753	0.00	$ -	$ 116,753.46	3.24	$ 117,160	0.00	$ -	$ 117,159.83
272	1374.13	1374.380005	Residential	1252.694458	$ 909,456	$ 454,728	1374.165894	-0.21	1374.165894	-0.21	1374.209473	-0.17	1374.31543	-0.06	3.14	$ 28,589	0.00	$ -	$ 28,589.26	3.74	$ 34,029	0.00	$ -	$ 34,029.12
273	1380.0908	1380.34082	Residential	6937.932373	$ 5,036,939	$ 2,518,469	1380.18396	-0.16	1380.179443	-0.16	1380.187744	-0.15	1380.187744	-0.15	3.37256	$ 169,874	0	$ -	$ 169,873.79	3.387696	$ 170,636	0	$ -	$ 170,636.18
274	1367.9772	1368.227173	Residential	913.789795	$ 663,411	$ 331,706	1368.055054	-0.17	1368.054565	-0.17	1368.118164	-0.11	1368.118652	-0.11	3.311574	$ 21,969	0	$ -	$ 21,969.03	3.565916	$ 23,657	4.58349612	$ 15,204	$ 38,860.41
275	1385.3944	1385.644409	Residential	5771.407349	$ 4,190,042	$ 2,095,021	1385.609619	-0.03	1385.606689	-0.04	1385.611938	-0.03	1385.611938	-0.03	3.86084	$ 161,771	0	$ -	$ 161,770.81	3.870116	$ 162,159	0	$ -	$ 162,159.48
276	1387.2709	1387.520874	Residential	5552.046021	$ 4,030,785	$ 2,015,393	1387.311035	-0.21	1387.310547	-0.21	1387.504761	-0.02	1387.318115	-0.20	3.16	$ 127,399	0.00	$ -	$ 127,398.78	3.19	$ 128,540	0.00	$ -	$ 128,540.30
277	1367.6104	1367.860352	Residential	7009.434998	$ 5,088,850	$ 2,544,425	1367.910522	0.05	1367.907593	0.05	1367.91394	0.05	1367.91394	0.05	5.51	$ 280,146	2.11	$ 53,615	$ 333,760.87	5.61	$ 285,364	0.00	$ -	$ 285,364.38
278	1363.4945	1363.744507	Residential	853.24762	$ 619,458	$ 309,729	1363.821899	0.08	1363.81604	0.07	1363.901367	0.16	1363.778931	0.03	6.32176	$ 39,161	3.250464	$ 10,068	$ 49,228.26	5.03272	$ 31,176	0	$ -	$ 31,175.58
279	1350.0875	1350.337524	Residential	10697.2514	$ 7,766,205	$ 3,883,102	1350.165649	-0.17	1350.170044	-0.17	1350.167847	-0.17	1350.167847	-0.17	3.3125	$ 257,256	0.00	$ -	$ 257,255.52	3.321292	$ 257,938	0.00	$ -	$ 257,938.33
280	1376.0103	1376.260254	Residential	5828.388794	$ 4,231,410	$ 2,115,705	1376.113281	-0.15	1376.110474	-0.15	1376.322021	0.06	1376.210327	-0.05	3.412108	$ 144,380	0	$ -	$ 144,380.29	3.800292	$ 160,806	0	$ -	$ 160,805.95
281	1363.2751	1363.525146	Residential	4981.87793	$ 3,616,843	$ 1,808,422	1363.585938	0.06	1363.589966	0.06	1363.587646	0.06	1363.587646	0.06	5.82	$ 210,636	2.55	$ 46,174	$ 256,810.06	5.88	$ 212,490	0.00	$ -	$ 212,489.55
282	1364

10-Year and 100-Year Existing Building Damages in Area K

															Existing								
Building ID	HAG	Finished Floor Elevation (ft)	Land Use Type	Building Area (sf)	Replace Cost $ ($726/SF-Res)	Content Replacement Value ($) 1/2 of Replacement Cost	10yr Exist WSEL (ft)	10yr Exist Flow Depth (ft)	10yr Prop WSEL (ft)	10yr Prop Flow Depth (ft)	100yr Exist WSEL (ft)	100yr Exist Flow Depth (ft)	100yr Prop WSEL (ft)	100yr Prop Flow Depth (ft)	10yr Building Damage (%)	10yrBuilding Damage Cost ($)	10yr Content Damage (%)	10yr Content Damage Cost ($)	10yr Total Damage Cost ($)	100yr Building Damage (%)	100yrBuilding Damage Cost ($)	100yr Content Damage (%)	100yr Content Damage Cost ($)	100yr Total Damage Cost ($)
292	1350.9303	1351.180298	Residential	1578.312317	$ 1,145,855	$ 572,927	1350.985352	-0.19	1350.98999	-0.19	1350.987427	-0.19	1350.987305	-0.19	3.220216	$ 36,899	0	$ -	$ 36,899.00	3.228028	$ 36,989	0.00	$ -	$ 36,988.51
293	1367.7457	1367.995728	Residential	11956.06262	$ 8,680,101	$ 4,340,051	1367.846802	-0.15	1367.847534	-0.15	1368.100586	0.10	1368.070801	0.08	3.404296	$ 295,496	0	$ -	$ 295,496.35	6.25219	$ 542,696	0.00	$ -	$ 542,696.44
294	1352.0001	1352.250122	Residential	344.753784	$ 250,291	$ 125,146	1352.016235	-0.23	1352.016724	-0.23	1352.041626	-0.21	1352.020752	-0.23	3.064452	$ 7,670	0	$ -	$ 7,670.06	3.08252	$ 7,715	0.00	$ -	$ 7,715.28
295	1368.4915	1368.741455	Residential	7669.678345	$ 5,568,186	$ 2,784,093	1368.560059	-0.18	1368.560059	-0.18	1368.562866	-0.18	1368.562988	-0.18	3.274416	$ 182,326	0	$ -	$ 182,325.59	3.286132	$ 182,978	0.00	$ -	$ 182,977.96
296	1366.8972	1367.147217	Residential	9063.669006	$ 6,580,224	$ 3,290,112	1367.174805	0.03	1367.174316	0.03	1367.441162	0.29	1367.081421	-0.07	4.82764	$ 317,670	1.158696	$ 38,122	$ 355,791.91	3.736816	$ 245,891	0.00	$ -	$ 245,890.85
297	1367.4869	1367.736938	Residential	8579.124695	$ 6,228,445	$ 3,114,222	1367.578857	-0.16	1367.579956	-0.16	1367.581543	-0.16	1367.581543	-0.16	3.367676	$ 209,754	0	$ -	$ 209,753.83	3.37842	$ 210,423	0.00	$ -	$ 210,423.02
298	1355.2068	1355.456787	Residential	9155.569641	$ 6,646,944	$ 3,323,472	1355.265381	-0.19	1355.27002	-0.19	1355.2677	-0.19	1355.2677	-0.19	3.234376	$ 214,987	0	$ -	$ 214,987.15	3.243652	$ 215,604	0.00	$ -	$ 215,603.72
299	1364.124	1364.374023	Residential	4618.256714	$ 3,352,854	$ 1,676,427	1364.23877	-0.14	1364.23999	-0.13	1364.339722	-0.03	1364.241455	-0.13	3.458988	$ 115,975	0	$ -	$ 115,974.83	3.469728	$ 116,335	0.00	$ -	$ 116,334.93
300	1376.0048	1376.254761	Residential	4963.528931	$ 3,603,522	$ 1,801,761	1376.107666	-0.15	1376.109985	-0.14	1376.109985	-0.14	1376.109985	-0.14	3.41162	$ 122,938	0	$ -	$ 122,938.48	3.420896	$ 123,273	0.00	$ -	$ 123,272.74
301	1379.886	1380.135986	Residential	7881.984436	$ 5,722,321	$ 2,861,160	1380.047241	-0.09	1380.050049	-0.09	1380.049561	-0.09	1380.049561	-0.09	3.64502	$ 208,580	0	$ -	$ 208,579.73	3.6543	$ 209,111	0.00	$ -	$ 209,110.77
302	1368.6685	1368.918457	Residential	5292.979675	$ 3,842,703	$ 1,921,352	1368.994873	0.08	1368.991821	0.07	1369.317749	0.40	1368.893799	-0.02	6.29248	$ 241,801	3.209472	$ 61,665	$ 303,466.58	3.901368	$ 149,918	0.00	$ -	$ 149,917.99
303	1367.4	1367.650024	Residential	424.157715	$ 307,939	$ 153,969	1367.44519	-0.20	1367.449951	-0.20	1367.513428	-0.14	1367.51355	-0.14	3.180664	$ 9,794	0	$ -	$ 9,794.49	3.454104	$ 10,637	0.00	$ -	$ 10,636.52
304	1378.8812	1379.131226	Residential	5535.167419	$ 4,018,532	$ 2,009,266	1378.9552	-0.18	1378.953247	-0.18	1378.95813	-0.17	1378.95813	-0.17	3.295896	$ 132,447	0	$ -	$ 132,446.62	3.307616	$ 132,918	0.00	$ -	$ 132,917.59
305	1366.5336	1366.783569	Residential	3380.404663	$ 2,454,174	$ 1,227,087	1367.192749	0.41	1367.193726	0.41	1367.414429	0.63	1367.108154	0.32	16.2754	$ 399,427	17.18556	$ 210,882	$ 610,308.35	13.73755	$ 337,143	0.00	$ -	$ 337,143.35
306	1380.2086	1380.458618	Residential	15858.52405	$ 11,513,288	$ 5,756,644	1380.320923	-0.14	1380.319946	-0.14	1380.324341	-0.13	1380.324341	-0.13	3.44922	$ 397,119	0	$ -	$ 397,118.65	3.462892	$ 398,693	0.00	$ -	$ 398,692.74
307	1371.6975	1371.94751	Residential	5749.80481	$ 4,174,358	$ 2,087,179	1371.821777	-0.13	1371.821655	-0.13	1371.824951	-0.12	1371.824829	-0.12	3.497068	$ 145,980	0	$ -	$ 145,980.15	3.509276	$ 146,490	0.00	$ -	$ 146,489.75
308	1377.5427	1377.792725	Residential	13799.37878	$ 10,018,349	$ 5,009,174	1377.736206	-0.06	1377.73999	-0.05	1377.738037	-0.05	1377.738037	-0.05	3.773924	$ 378,085	0	$ -	$ 378,084.88	3.781248	$ 378,819	0.00	$ -	$ 378,818.62
309	1377.3077	1377.557739	Residential	1204.42157	$ 874,410	$ 437,205	1377.368042	-0.19	1377.364624	-0.19	1377.643188	0.09	1377.643188	0.09	3.241212	$ 28,341	0	$ -	$ 28,341.48	6.56347	$ 57,392	8.66	$ 37,882	$ 95,273.53
310	1370.2943	1370.544312	Residential	1040.882263	$ 755,681	$ 377,840	1370.353149	-0.19	1370.353394	-0.19	1370.484985	-0.06	1370.348022	-0.20	3.235348	$ 24,449	0	$ -	$ 24,448.89	3.21484	$ 24,294	0.00	$ -	$ 24,293.92
311	1365.8914	1366.141357	Residential	4740.45105	$ 3,441,567	$ 1,720,784	1366.033447	-0.11	1366.035645	-0.11	1366.249756	0.11	1365.988525	-0.15	3.56836	$ 122,808	0	$ -	$ 122,807.52	3.388672	$ 116,623	0.00	$ -	$ 116,623.43
312	1381.6313	1381.881348	Residential	5565.741516	$ 4,040,728	$ 2,020,364	1381.801147	-0.08	1381.799072	-0.08	1381.812256	-0.07	1381.812378	-0.07	3.679196	$ 148,666	0	$ -	$ 148,666.32	3.72412	$ 150,482	0.00	$ -	$ 150,481.57
313	1357.6017	1357.851685	Residential	4709.370728	$ 3,419,003	$ 1,709,502	1357.810669	-0.04	1357.810059	-0.04	1358.27124	0.42	1358.062866	0.21	3.835936	$ 131,151	0	$ -	$ 131,150.77	10.33543	$ 353,369	6.02	$ 102,896	$ 456,264.64
314	1381.8502	1382.10022	Residential	5632.723511	$ 4,089,357	$ 2,044,679	1381.916626	-0.18	1381.911987	-0.19	1381.931274	-0.17	1381.931152	-0.17	3.265624	$ 133,543	0	$ -	$ 133,543.03	3.323728	$ 135,919	0.00	$ -	$ 135,919.11
315	1384.3489	1384.598877	Residential	328.131775	$ 238,224	$ 119,112	1384.548584	-0.05	1384.546143	-0.05	1384.72168	0.12	1384.906738	0.31	3.798828	$ 9,050	0	$ -	$ 9,049.71	13.23583	$ 31,531	0.00	$ -	$ 31,530.88
316	1361.4711	1361.721069	Residential	8114.740051	$ 5,891,301	$ 2,945,651	1361.568604	-0.15	1361.569946	-0.15	1361.571045	-0.15	1361.571045	-0.15	3.39014	$ 199,723	0	$ -	$ 199,723.36	3.399904	$ 200,299	0.00	$ -	$ 200,298.59
317	1360.3242	1360.574219	Residential	3291.969604	$ 2,389,970	$ 1,194,985	1360.664551	0.09	1360.660034	0.09	1360.869141	0.29	1360.613525	0.04	6.70996	$ 160,366	3.793944	$ 45,337	$ 205,703.09	5.17918	$ 123,781	0.00	$ -	$ 123,780.84
318	1360.4828	1360.732788	Residential	7044.700256	$ 5,114,452	$ 2,557,226	1360.483276	-0.25	1360.4823	-0.25	1360.608276	-0.12	1360.561768	-0.17	3.001952	$ 153,533	0	$ -	$ 153,533.41	3.31592	$ 169,591	0.00	$ -	$ 169,591.15
319	1375.0812	1375.331177	Residential	7783.893127	$ 5,651,106	$ 2,825,553	1375.328735	0.00	1375.329956	0.00	1375.860107	0.53	1375.114136	-0.22	3.990232	$ 225,492	0	$ -	$ 225,492.26	3.131836	$ 176,983	0.00	$ -	$ 176,983.38
320	1353.952	1354.202026	Residential	5427.761719	$ 3,940,555	$ 1,970,278	1354.112427	-0.09	1354.115601	-0.09	1354.115967	-0.09	1354.114624	-0.09	3.641604	$ 143,499	0	$ -	$ 143,499.41	3.650392	$ 143,846	0.00	$ -	$ 143,845.70
321	1366.7892	1367.039185	Residential	5971.685242	$ 4,335,443	$ 2,167,722	1366.812988	-0.23	1366.810303	-0.23	1367.24707	0.21	1366.943237	-0.10	3.095212	$ 134,191	0	$ -	$ 134,191.17	3.616208	$ 156,779	0.00	$ -	$ 156,778.65
322	1378.1312	1378.381226	Residential	5963.877625	$ 4,329,775	$ 2,164,888	1378.215454	-0.17	1378.214478	-0.17	1378.220703	-0.16	1378.220703	-0.16	3.336912	$ 144,481	0	$ -	$ 144,480.79	3.357908	$ 145,390	0.00	$ -	$ 145,389.87
323	1370.1912	1370.441162	Residential	5864.994141	$ 4,257,986	$ 2,128,993	1370.313354	-0.13	1370.310059	-0.13	1370.500488	0.06	1370.292603	-0.15	3.488768	$ 148,551	0	$ -	$ 148,551.24	3.405764	$ 145,017	0.00	$ -	$ 145,016.95
324	1364.6116	1364.861572	Residential	8787.81427	$ 6,379,953	$ 3,189,977	1364.679688	-0.18	1364.684204	-0.18	1364.681763	-0.18	1364.681885	-0.18	3.272464	$ 208,782	0	$ -	$ 208,781.67	3.281252	$ 209,342	0.00	$ -	$ 209,342.34
325	1367.1274	1367.377441	Residential	862.57312	$ 626,228	$ 313,114	1367.134888	-0.24	1367.135864	-0.24	1367.141968	-0.24	1367.141968	-0.24	3.029788	$ 18,973	0	$ -	$ 18,973.38	3.058108	$ 19,151	0.00	$ -	$ 19,150.73
326	1360.1703	1360.420288	Residential	6272.609619	$ 4,553,915	$ 2,276,957	1360.312744	-0.11	1360.310059	-0.11	1360.492432	0.07	1360.253784	-0.17	3.569824	$ 162,567	0	$ -	$ 162,566.74	3.333984	$ 151,827	0.00	$ -	$ 151,826.78
327	1359.764	1360.014038	Residential	440.797302	$ 320,019	$ 160,009	1359.788696	-0.23	1359.787354		1359.799072	-0.21	1359.799072	-0.21					$ 51,107,020	-0.214966				$ 68,424,130.41

10-Year and 100-Year Proposed Building Damages in Area K

															Proposed									
Building ID	HAG	Finished Floor Elevation (ft)	Land Use Type	Building Area (sf)	Replace Cost $ ($726/SF-Res)	Content Replacement Value ($) 1/2 of Replacement Cost	10yr Exist WSEL (ft)	10yr Exist Flow Depth (ft)	10yr Prop WSEL (ft)	10yr Prop Flow Depth (ft)	100yr Exist WSEL (ft)	100yr Exist Flow Depth (ft)	100yr Prop WSEL (ft)	100yr Prop Flow Depth (ft)	10yr Building Damage (%)	10yrBuilding Damage Cost ($)	10yr Content Damage (%)	10yr Content Damage Cost ($)	10yr Total Damage Cost ($)	100yr Building Damage (%)	100yrBuilding Damage Cost ($)	100yr Content Damage (%)	100yr Content Damage Cost ($)	100yr Total Damage Cost ($)
0	1372.7792	1373.029175	Residential	5062.750061	$ 3,675,557	$ 1,837,778	1372.830444	-0.20	1372.829956	-0.20	1372.834351	-0.19	1372.834229	-0.19	3.203124	$ 117,733	0	$ -	$ 117,732.63	3.220216	$ 118,361	0	$ -	$ 118,360.86
1	1371.6405	1371.890503	Residential	5114.190857	$ 3,712,903	$ 1,856,451	1371.667114	-0.22	1371.670532	-0.22	1371.717651	-0.17	1371.717651	-0.17	3.120116	$ 115,847	0	$ -	$ 115,846.87	3.308592	$ 122,845	0	$ -	$ 122,844.80
2	1367.0981	1367.348145	Residential	7006.825439	$ 5,086,955	$ 2,543,478	1367.262939	-0.09	1367.262573	-0.09	1367.392334	0.04	1367.224731	-0.12	3.657712	$ 186,066	0	$ -	$ 186,066.17	3.506344	$ 178,366	0	$ -	$ 178,366.15
3	1374.369	1374.619019	Residential	5893.124573	$ 4,278,408	$ 2,139,204	1374.525391	-0.09	1374.530029	-0.09	1374.701172	0.08	1374.527344	-0.09	3.64	$ 155,907	0.00	$ -	$ 155,906.91	3.63	$ 155,447	0.00	$ -	$ 155,447.41
4	1380.3344	1380.584351	Residential	14318.15601	$ 10,394,981	$ 5,197,491	1380.388672	-0.20	1380.390015	-0.19	1380.391846	-0.19	1380.391846	-0.19	3.222656	$ 334,994	0	$ -	$ 334,994.49	3.22998	$ 335,756	0	$ -	$ 335,755.82
5	1381.6091	1381.859131	Residential	8338.503479	$ 6,053,754	$ 3,026,877	1381.669556	-0.19	1381.670044	-0.19	1381.842529	-0.02	1382.071655	0.21	3.24	$ 196,363	0.00	$ -	$ 196,362.70	10.38	$ 628,121	8.93	$ 270,179	$ 898,299.78
6	1365.7844	1366.034424	Residential	5481.086914	$ 3,979,269	$ 1,989,635	1366.240723	0.21	1366.241211	0.21	1366.375732	0.34	1366.19458	0.16	10.20	$ 406,029	8.69	$ 172,801	$ 578,829.93	8.80	$ 350,362	6.73	$ 133,834	$ 484,195.71
7	1361.3544	1361.60437	Residential	6888.243347	$ 5,000,865	$ 2,500,432	1361.438843	-0.17	1361.439941	-0.16	1361.44165	-0.16	1361.441772	-0.16	3.34	$ 167,143	0.00	$ -	$ 167,143.10	3.35	$ 167,509	0.00	$ -	$ 167,509.36
8	1373.5814	1373.831421	Residential	6063.259277	$ 4,401,926	$ 2,200,963	1373.639404	-0.19	1373.638428	-0.19	1373.656982	-0.17	1373.656982	-0.17	3.23	$ 142,095	0.00	$ -	$ 142,095.41	3.30	$ 145,362	0.00	$ -	$ 145,362.34
9	1369.5145	1369.764526	Residential	4737.382507	$ 3,439,340	$ 1,719,670	1369.589478	-0.18	1369.589966	-0.17	1369.974854	0.21	1369.854858	0.09	3.30	$ 113,559	0.00	$ -	$ 113,558.74	6.71	$ 230,778	3.79	$ 65,243	$ 296,021.63
10	1375.5907	1375.840698	Residential	6107.704834	$ 4,434,194	$ 2,217,097	1375.984009	0.14	1375.97998	0.14	1375.985352	0.14	1375.985352	0.14	8.17846	$ 362,649	5.849844	$ 129,697	$ 492,345.47	8.33962	$ 369,795	6.075468	$ 134,699	$ 504,493.92
11	1359.4811	1359.731079	Residential	7633.545288	$ 5,541,954	$ 2,770,977	1359.544067	-0.19	1359.540039	-0.19	1359.545654	-0.19	1359.545654	-0.19	3.24	$ 179,329	0.00	$ -	$ 179,328.76	3.26	$ 180,573	0.00	$ -	$ 180,573.48
12	1349.402	1349.651978	Residential	12252.54138	$ 8,895,345	$ 4,447,673	1349.465942	-0.19	1349.469971	-0.18	1349.508179	-0.14	1349.468506	-0.18	3.27	$ 291,053	0.00	$ -	$ 291,053.20	3.27	$ 290,532	0.00	$ -	$ 290,531.93
13	1361.3274	1361.577393	Residential	670.759644	$ 486,972	$ 243,486	1361.39917	-0.18	1361.403442	-0.17	1361.462036	-0.12	1361.462036	-0.12	3.304196	$ 16,090	0	$ -	$ 16,090.49	3.538572	$ 17,232	0	$ -	$ 17,231.84
14	1371.7996	1372.049561	Residential	6368.654053	$ 4,623,643	$ 2,311,821	1371.908325	-0.14	1371.910034	-0.14	1371.910645	-0.14	1371.910645	-0.14	3.441892	$ 159,141	0	$ -	$ 159,140.79	3.444336	$ 159,254	0	$ -	$ 159,253.79
15	1378.1814	1378.431396	Residential	5794.169983	$ 4,206,567	$ 2,103,284	1378.244873	-0.19	1378.24231	-0.19	1378.333862	-0.10	1378.259766	-0.17	3.243656	$ 136,447	0	$ -	$ 136,446.58	3.31348	$ 139,384	0	$ -	$ 139,383.77
16	1358.1885	1358.438477	Residential	7644.869263	$ 5,550,175	$ 2,775,088	1358.328003	-0.11	1358.329224	-0.11	1358.330688	-0.11	1358.330688	-0.11	3.562988	$ 197,752	0	$ -	$ 197,752.07	3.568844	$ 198,077	0	$ -	$ 198,077.09
17	1365.3146	1365.564575	Residential	6809.630554	$ 4,943,792	$ 2,471,896	1365.397461	-0.17	1365.400024	-0.16	1365.399536	-0.17	1365.399658	-0.16	3.341796	$ 165,211	0	$ -	$ 165,211.44	3.340332	$ 165,139	0	$ -	$ 165,139.06
18	1379.1108	1379.36084	Residential	5093.971191	$ 3,698,223	$ 1,849,112	1379.271729	-0.09	1379.27478	-0.09	1379.27478	-0.09	1379.274902	-0.09	3.65576	$ 135,198	0	$ -	$ 135,198.16	3.656248	$ 135,216	0	$ -	$ 135,216.21
19	1378.9204	1379.17041	Residential	2066.832153	$ 1,500,520	$ 750,260	1378.949951	-0.22	1378.947754	-0.22	1378.994751	-0.18	1378.994751	-0.18	3.109376	$ 46,657	0	$ -	$ 46,656.81	3.297364	$ 49,478	0	$ -	$ 49,477.61
20	1363.8187	1364.068726	Residential	9950.357239	$ 7,223,959	$ 3,611,980	1363.894775	-0.17	1363.890015	-0.18	1363.896851	-0.17	1363.896851	-0.17	3.285156	$ 237,318	0	$ -	$ 237,318.33	3.3125	$ 239,294	0	$ -	$ 239,293.65
21	1359.7377	1359.987671	Residential	98.510803	$ 71,519	$ 35,759	1359.800293	-0.19	1359.802612	-0.19	1360.027832	0.04	1359.882813	-0.10	3.259764	$ 2,331	0	$ -	$ 2,331.35	3.580568	$ 2,561	0	$ -	$ 2,560.78
22	1353.2081	1353.45813	Residential	1837.229675	$ 1,333,829	$ 666,914	1353.245239	-0.21	1353.25	-0.21	1353.318115	-0.14	1353.247559	-0.21	3.16748	$ 42,249	0	$ -	$ 42,248.76	3.157716	$ 42,119	0	$ -	$ 42,118.52
23	1353.9991	1354.249146	Residential	2561.5896	$ 1,859,714	$ 929,857	1354.064209	-0.18	1354.060059	-0.19	1354.065796	-0.18	1354.065918	-0.18	3.243652	$ 60,323	0	$ -	$ 60,322.65	3.267088	$ 60,758	0	$ -	$ 60,758.49
24	1376.0033	1376.253296	Residential	5004.554688	$ 3,633,307	$ 1,816,653	1376.087891	-0.17	1376.089478	-0.16	1376.089844	-0.16	1376.089844	-0.16	3.344728	$ 121,524	0	$ -	$ 121,524.23	3.346192	$ 121,577	0	$ -	$ 121,577.42
25	1366.6973	1366.947266	Residential	956.661987	$ 694,537	$ 347,268	1366.791504	-0.16	1366.790039	-0.16	1366.90979	-0.04	1366.796265	-0.15	3.37	$ 23,413	0.00	$ -	$ 23,413.47	3.40	$ 23,586	0.00	$ -	$ 23,586.44
26	1377.9141	1378.164063	Residential	272.638306	$ 197,935	$ 98,968	1377.926147	-0.24	1377.927246	-0.24	1377.952148	-0.21	1377.965576	-0.20	3.052732	$ 6,042	0	$ -	$ 6,042.44	3.206052	$ 6,346	0	$ -	$ 6,345.91
27	1359.7202	1359.970215	Residential	416.830383	$ 302,619	$ 151,309	1359.942627	-0.03	1359.942261	-0.03	1360.080933	0.11	1359.883057	-0.09	3.89	$ 11,766	0.00	$ -	$ 11,766.38	3.65	$ 11,050	0.00	$ -	$ 11,049.73
28	1373.551	1373.801025	Residential	6621.999878	$ 4,807,572	$ 2,403,786	1373.600098	-0.20	1373.599976	-0.20	1373.670898	-0.13	1373.695068	-0.11	3.20	$ 153,641	0.00	$ -	$ 153,640.58	3.58	$ 171,927	0.00	$ -	$ 171,927.04
29	1376.4547	1376.704712	Residential	5605.584473	$ 4,069,654	$ 2,034,827	1376.563599	-0.14	1376.560181	-0.14	1376.62085	-0.08	1376.62085	-0.08	3.421876	$ 139,259	0	$ -	$ 139,258.52	3.664552	$ 149,135	0	$ -	$ 149,134.60
30	1350.1412	1350.391235	Residential	7004.17749	$ 5,085,033	$ 2,542,516	1350.164063	-0.23	1350.166504	-0.22	1350.671387	0.28	1350.452393	0.06	3.10	$ 157,691	0.00	$ -	$ 157,690.73	5.83	$ 296,698	2.57	$ 65,308	$ 362,006.44
31	1349.6879	1349.937866	Residential	1574.908997	$ 1,143,384	$ 571,692	1349.755249	-0.18	1349.76001	-0.18	1349.999878	0.06	1349.757446	-0.18	3.288576	$ 37,601	0	$ -	$ 37,601.05	3.27832	$ 37,484	0	$ -	$ 37,483.78
32	1351.7725	1352.022461	Residential	7068.87146	$ 5,132,001	$ 2,566,000	1352.024414	0.00	1352.02002	0.00	1352.026245	0.00	1352.026245	0.00	3.99	$ 204,779	0.00	$ -	$ 204,778.94	4.11	$ 211,106	0.16	$ 4,078	$ 215,183.97
33	1361.1578	1361.407837	Residential	4317.881287	$ 3,134,782	$ 1,567,391	1361.28894	-0.12	1361.291138	-0.12	1361.297729	-0.11	1361.293701	-0.11	3.53	$ 110,758	0.00	$ -	$ 110,758.24	3.54	$ 111,080	0.00	$ -	$ 111,079.61
34	1380.4657	1380.715698	Residential	6718.879456	$ 4,877,906	$ 2,438,953	1380.545654	-0.17	1380.550049	-0.17	1380.547852	-0.17	1380.675903	-0.04	3.337404	$ 162,795	0	$ -	$ 162,795.45	3.84082	$ 187,352	0	$ -	$ 187,351.61
35	1352.3629	1352.612915	Residential	6026.699036	$ 4,375,384	$ 2,187,692	1352.395142	-0.22	1352.400024	-0.21	1352.397217	-0.22	1352.397339	-0.22	3.15	$ 137,756	0.00	$ -	$ 137,756.15	3.14	$ 137,286	0.00	$ -	$ 137,286.23
36	1364.9492	1365.199219	Residential	1969.893005	$ 1,430,142	$ 715,071	1365.000244	-0.20	1365	-0.20	1365.01001	-0.19	1365.003052	-0.20	3.203124	$ 45,809	0	$ -	$ 45,809.23	3.215332	$ 45,984	0	$ -	$ 45,983.82
37	1382.2072	1382.457153	Residential	12305.99646	$ 8,934,153	$ 4,467,077	1382.286987	-0.17	1382.290039	-0.17	1382.28894	-0.17	1382.289063	-0.17	3.331544	$ 297,645	0	$ -	$ 297,645.25	3.32764	$ 297,296	0	$ -	$ 297,296.46
38	1377.7423	1377.99231	Residential	5902.526306	$ 4,285,234	$ 2,142,617	1377.985107	-0.01	1377.98999	0.00	1377.98645	-0.01	1377.98645	-0.01	3.99072	$ 171,012	0	$ -	$ 171,011.69	3.97656	$ 170,405	0	$ -	$ 170,404.91
39	1368.6111	1368.861084	Residential	5975.38501	$ 4,338,130	$ 2,169,065	1368.935913	0.07	1368.930054	0.07	1369.276367	0.42	1369.043823	0.18	6.0691	$ 263,285	2.89674	$ 62,832	$ 326,117.59	9.48217	$ 411,349	7.675038	$ 166,477	$ 577,825.36
40	1358.2589	1358.508911	Residential	758.56012	$ 550,715	$ 275,357	1358.344971	-0.16	1358.339966	-0.17	1358.346558	-0.16	1358.346558	-0.16	3.32	$ 18,307	0.00	$ -	$ 18,306.97	3.35	$ 18,452	0.00	$ -	$ 18,452.18
41	1365.7938	1366.043823	Residential	5147.26416	$ 3,736,914	$ 1,868,457	1365.838989	-0.20	1365.839966	-0.20	1365.861206	-0.18	1365.849609	-0.19	3.18	$ 119,005	0.00	$ -	$ 119,004.71	3.22	$ 120,446	0.00	$ -	$ 120,446.11
42	1362.7766	1363.026611	Residential	8623.175049	$ 6,260,425	$ 3,130,213	1362.801392	-0.23	1362.800049	-0.23	1362.804321	-0.22	1362.804443	-0.22	3.09	$ 193,682	0.00	$ -	$ 193,682.03	3.11	$ 194,782	0.00	$ -	$ 194,782.36
43	1362.8351	1363.085083	Residential	5379.317261	$ 3,905,384	$ 1,952,692	1362.961548	-0.12	1362.95874	-0.13	1363.098022	0.01	1362.971558	-0.11	3.494628	$ 136,479	0	$ -	$ 136,478.65	3.5459	$ 138,481	0	$ -	$ 138,481.02
44	1373.3346	1373.584595	Residential	437.73584	$ 317,796	$ 158,898	1373.473999	-0.11	1373.469971	-0.11	1373.475342	-0.11	1373.475342	-0.11	3.541504	$ 11,255	0	$ -	$ 11,254.77	3.562988	$ 11,323	0	$ -	$ 11,323.04
45	1367.9971	1368.24707	Residential	7428.078186	$ 5,392,785	$ 2,696,392	1368.196655	-0.05	1368.199951	-0.05	1368.19873	-0.05	1368.19873	-0.05	3.81	$ 205,547	0.00	$ -	$ 205,547.29	3.81	$ 205,284	0.00	$ -	$ 205,283.90
46	1374.6667	1374.916748	Residential	4881.761841	$ 3,544,159	$ 1,772,080	1374.991455	0.07	1374.98999	0.07	1374.994629	0.08	1374.994507	0.08	6.19726	$ 219,641	3.076164	$ 54,512	$ 274,152.83	6.33277	$ 224,443	3.265878	$ 57,874	$ 282,317.40
47	1378.6304	1378.880371	Residential	5232.306396	$ 3,798,654	$ 1,899,327	1378.724121	-0.16	1378.725098	-0.16	1379.14209	0.26	1378.995605	0.12	3.38	$ 128,353	0.00	$ -	$ 128,353.04	7.46	$ 283,266	4.84	$ 91,924	$ 375,190.59
48	1377.9553	1378.205322	Residential	6055.227417	$ 4,396,095	$ 2,198,048	1378.011475	-0.19	1378.012817	-0.19	1378.015869	-0.19	1378.015869	-0.19	3.22998	$ 141,993	0	$ -	$ 141,992.99	3.242188	$ 142,530	0	$ -	$ 142,529.67
49	1376.8622	1377.112183	Residential	371.322083	$ 269,580	$ 134,790	1376.894043	-0.22	1376.893188	-0.22	1376.96582	-0.15	1376.980103	-0.13	3.12402	$ 8,422	0	$ -	$ 8,421.73	3.47168	$ 9,359	0	$ -	$ 9,358.95
50	1371.5935	1371.843506	Residential	3883.120056	$ 2,819,145	$ 1,409,573	1371.657227	-0.19	1371.65564	-0.19	1371.91626	0.07	1371.827026	-0.02	3.25	$ 91,581	0.00	$ -	$ 91,580.95	3.93	$ 110,907	0.00	$ -	$ 110,907.43
51	1367.6451	1367.895142	Residential	8502.347534	$ 6,172,704	$ 3,086,352	1367.70874	-0.19	1367.709961	-0.19	1367.711426	-0.18	1367.711426	-0.18	3.26	$ 201,185	0.00	$ -	$ 201,185.47	3.27	$ 201,547	0.00	$ -	$ 201,547.19
52	1360.0182	1360.268188	Residential	11716.17969	$ 8,505,946	$ 4,252,973	1360.080688	-0.19	1360.079956	-0.19	1360.084106	-0.18	1360.083984	-0.18	3.25	$ 276,194	0.00	$ -	$ 276,194.21	3.26	$ 277,565	0.00	$ -	$ 277,564.68
53	1376.1908	1376.440796	Residential	4086.243103	$ 2,966,612	$ 1,483,306	1376.506836	0.07	1376.51001	0.07	1376.508789	0.07	1376.508789	0.07	6.07642	$ 180,264	2.906988	$ 43,120	$ 223,383.37	6.03979	$ 179,177	2.855706	$ 42,359	$ 221,536.03
54	1386.9077	1387.157715	Residential	5026.592773	$ 3,649,306	$ 1,824,653	1387.001099	-0.16	1387.00061	-0.16	1387.004517	-0.15	1387.004517	-0.15	3.37158	$ 123,039	0	$ -	$ 123,039.28	3.387208	$ 123,610	0	$ -	$ 123,609.60
55	1376.2891	1376.539063	Residential	3620.247864	$ 2,628,300	$ 1,314,150	1376.426147	-0.11	1376.426758	-0.11	1376.470703	-0.07	1376.470703	-0.07	3.55	$ 93,325	0.00	$ -	$ 93,325.15	3.73	$ 97,945	0.00	$ -	$ 97,945.17
56	1377.2733	1377.523315	Residential	4993.57019	$ 3,625,332	$ 1,812,666	1377.564087	0.04	1377.560059	0.04	1377.56543	0.04	1377.56543	0.04	5.10	$ 184,976	1.54	$ 27,974	$ 212,949.97	5.26	$ 190,818	1.77	$ 32,063	$ 222,880.51
57	1351.041	1351.291016	Residential	10962.42029	$ 7,958,717	$ 3,979,359	1351.105469	-0.19	1351.109985	-0.18	1351.107666	-0.18	1351.107544	-0.18	3.28	$ 260,718	0.00	$ -	$ 260,717.70	3.27	$ 259,941	0.00	$ -	$ 259,940.62
58	1372.4613	1372.711304	Residential	5823.487061	$ 4,227,852	$ 2,113,926	1372.55835	-0.15	1372.560059	-0.15	1372.716797	0.01	1372.560547	-0.15	3.39502	$ 143,536	0	$ -	$ 143,536.41	3.396972	$ 143,619	0	$ -	$ 143,618.94
59	1377.0377	1377.28772	Residential	6052.135376	$ 4,393,850	$ 2,196,925	1377.146973	-0.14	1377.14978	-0.14	1377.14978	-0.14	1377.149902	-0.14	3.448728	$ 151,532	0	$ -	$ 151,531.94	3.448728	$ 151,532	0	$ -	$ 151,531.94
60	1368.8978	1369.147827	Residential	6837.879822	$ 4,964,301	$ 2,482,150	1368.899658	-0.25	1368.900024	-0.25	1368.906616	-0.24	1369.012573	-0.14	3.008788	$ 149,365	0	$ -	$ 149,365.29	3.458984	$ 171,714	0	$ -	$ 171,714.37
61	1365.9777	1366.227661	Residential	548.647339	$ 398,318	$ 199,159	1366.057861	-0.17	1366.061035	-0.17	1366.203369	-0.02	1366.046509	-0.18	3.333496	$ 13,278	0	$ -	$ 13,277.91	3.275392	$ 13,046	0	$ -	$ 13,046.47
62	1365.65	1365.900024	Residential	6442.914001	$ 4,677,556	$ 2,338,778	1365.738403	-0.16	1365.73999	-0.16	1366.14502	0.24	1365.892334	-0.01	3.36	$ 157,160	0.00	$ -	$ 157,159.51	3.97	$ 185,663	0.00	$ -	$ 185,663.41
63	1348.2711	1348.521118	Residential	624.433289	$ 453,339	$ 226,669	1348.405151	-0.12	1348.409302	-0.11	1349.341187	0.82	1348.980347	0.46	3.552736	$ 16,106	0	$ -	$ 16,105.92	17.77687	$ 80,589	19.287618	$ 43,719	$ 124,308.51
64	1379.9254	1380.175415	Residential	335.501648	$ 243,574	$ 121,787	1379.99353	-0.18	1379.992065	-0.18	1380.040283	-0.14	1380.039917	-0.14	3.27	$ 7,957	0.00	$ -	$ 7,956.59	3.46	$ 8,423	0.00	$ -	$ 8,422.82
65	1380.058	1380.307983	Residential	344.429138	$ 250,056	$ 125,028	1380.170776	-0.14	1380.171509	-0.14	1380.185059	-0.12	1380.184814	-0.12	3.454104	$ 8,637	0.00	$ -	$ 8,637.18	3.507324	$ 8,770	0.00	$ -	$ 8,770.26
66	1357.8719	1358.121948	Residential	1980.532898	$ 1,437,867	$ 718,933	1358.057495	-0.06	1358.060059	-0.06	1358.059692	-0.06	1358.059692	-0.06	3.75	$ 53,955	0.00	$ -	$ 53,955.15	3.75	$ 53,934	0.00	$ -	$ 53,934.04
67	1361.5636	1361.813599	Residential	6199.695374	$ 4,500,979	$ 2,250,489	1361.722046	-0.09	1361.719971	-0.09	1361.726318	-0.09	1361.726196	-0.09	3.625488	$ 163,182	0	$ -	$ 163,182.45	3.650388	$ 164,303	0	$ -	$ 164,303.19
68	1373.7996	1374.049561	Residential	4352.848328	$ 3,160,168	$ 1,580,084	1373.888428	-0.16	1373.890015	-0.16	1373.941406	-0.11	1373.890869	-0.16	3.36	$ 106,239	0.00	$ -	$ 106,239.03	3.37	$ 106,347	0.00	$ -	$ 106,346.98
69	1369.6515	1369.901489	Residential	7681.519775	$ 5,576,783	$ 2,788,392	1369.671997	-0.23	1369.670044	-0.23	1369.675293	-0.23	1369.675293	-0.23	3.07422	$ 171,443	0	$ -	$ 171,442.59	3.095216	$ 172,613	0	$ -	$ 172,613.49
70	1352.7987	1353.048706	Residential	4176.407654	$ 3,032,072	$ 1,516,036	1352.82373	-0.22	1352.823853	-0.22	1352.83374	-0.21	1352.83374	-0.21	3.100588	$ 94,012	0	$ -	$ 94,012.06	3.140136	$ 95,211	0	$ -	$ 95,211.18
71	1354.4823	1354.7323	Residential	5939.919373	$ 4,312,381	$ 2,156,191	1354.613403	-0.12	1354.609985	-0.12	1355.001953	0.27	1354.824707	0.09	3.51	$ 151,397	0.00	$ -	$ 151,396.50	6.77	$ 292,044	3.88	$ 83,684	$ 375,727.32
72	1358.7681	1359.018066	Residential	5464.610229	$ 3,967,307	$ 1,983,654	1358.818237	-0.20	1358.819946	-0.20	1358.820557	-0.20	1358.820557	-0.20	3.20752	$ 127,252	0	$ -	$ 127,252.17	3.209964	$ 127,349	0	$ -	$ 127,349.13
73	1370.2661	1370.516113	Residential	7295.893555	$ 5,296,819	$ 2,648,409	1370.522339	0.01	1370.521484	0.01	1370.69751	0.18	1370.449707	-0.07	4.16	$ 220,408	0.23	$ 5,974	$ 226,381.85	3.73	$ 197,803	0.00	$ -	$ 197,803.13
74	1380.3362	1380.586182	Residential	4872.422913	$ 3,537,379	$ 1,768,690	1380.464111	-0.12	1380.467407	-0.12	1380.876343	0.29	1380.724731	0.14	3.5249	$ 124,689	0.00	$ -	$ 124,689.07	8.15647	$ 288,525	5.82	$ 102,921	$ 391,446.33
75	1368.1411	1368.391113	Residential	6527.1745	$ 4,738,729	$ 2,369,364	1368.207275	-0.18	1368.209961	-0.18	1368.209473	-0.18	1368.209351	-0.18	3.28	$ 155,212	0.00	$ -	$ 155,211.94	3.27	$ 155,096	0.00	$ -	$ 155,096.32
76	1370.8282	1371.078247	Residential	7341.92395	$ 5,330,237	$ 2,665,118	1370.901245	-0.18	1370.900024	-0.18	1370.904541	-0.17	1370.904663	-0.17	3.287108	$ 175,211	0	$ -	$ 175,210.64	3.305664	$ 176,200	0	$ -	$ 176,199.72
77	1351.1089	1351.358887	Residential	7682.645386	$ 5,577,601	$ 2,788,800	1351.214355	-0.14	1351.209961	-0.15	1351.216187	-0.14	1351.216064	-0.14	3.404296	$ 189,878	0	$ -	$ 189,878.03	3.428708	$ 191,240	0	$ -	$ 191,239.64
78	1352.9404	1353.19043	Residential	359.594421	$ 261,066	$ 130,533	1353.207153	0.02	1353.199951	0.01	1353.580688	0.39	1353.317749	0.13	4.28563	$ 11,188	0.399882	$ 522	$ 11,710.28	7.81957	$ 20,414	5.347398	$ 6,980	$ 27,394.31
79	1375.2893	1375.539307	Residential	5622.966309	$ 4,082,274	$ 2,041,137	1375.408813	-0.13	1375.410034	-0.13	1375.411865	-0.13	1375.411987	-0.13	3.482908	$ 142,182	0	$ -	$ 142,181.83	3.49072	$ 142,501	0	$ -	$ 142,500.74

10-Year and 100-Year Proposed Building Damages in Area K

															Proposed								
Building ID	HAG	Finished Floor Elevation (ft)	Land Use Type	Building Area (sf)	Replace Cost $ ($726/SF-Res)	Content Replacement Value ($) 1/2 of Replacement Cost	10yr Exist WSEL (ft)	10yr Exist Flow Depth (ft)	10yr Prop WSEL (ft)	10yr Prop Flow Depth (ft)	100yr Exist WSEL (ft)	100yr Exist Flow Depth (ft)	100yr Prop WSEL (ft)	100yr Prop Flow Depth (ft)	10yr Building Damage (%)	10yrBuilding Damage Cost ($)	10yr Content Damage (%)	10yr Content Damage Cost ($)	10yr Total Damage Cost ($)	100yr Building Damage (%)	100yrBuilding Damage Cost ($)	100yr Content Damage (%)	100yr Content Damage Cost ($)	100yr Total Damage Cost ($)
80	1361.5787	1361.828735	Residential	4104.051453	$ 2,979,541	$ 1,489,771	1361.64856	-0.18	1361.650024	-0.18	1361.924194	0.10	1361.777954	-0.05	3.29	$ 97,883	0.00	$ -	$ 97,882.58	3.80	$ 113,129	0.00	$ -	$ 113,129.49
81	1372.7191	1372.969116	Residential	5524.363342	$ 4,010,688	$ 2,005,344	1372.777466	-0.19	1372.780029	-0.19	1372.78186	-0.19	1372.78186	-0.19	3.243652	$ 130,093	0	$ -	$ 130,092.75	3.250976	$ 130,386	0	$ -	$ 130,386.50
82	1378.332	1378.582031	Residential	328.372437	$ 238,398	$ 119,199	1378.797852	0.22	1378.800049	0.22	1379.000732	0.42	1379.000732	0.42	10.54	$ 25,128	9.16	$ 10,915	$ 36,043.26	16.56	$ 39,481	17.59	$ 20,962	$ 60,442.93
83	1374.9072	1375.157227	Residential	5100.398376	$ 3,702,889	$ 1,851,445	1375.089478	-0.07	1375.087524	-0.07	1375.173706	0.02	1375.173706	0.02	3.721188	$ 137,791	0	$ -	$ 137,791.47	4.49437	$ 166,422	0.692118	$ 12,814	$ 179,235.72
84	1362.9548	1363.204834	Residential	8479.753967	$ 6,156,301	$ 3,078,151	1363.019775	-0.19	1363.02002	-0.18	1363.022827	-0.18	1363.022827	-0.18	3.26	$ 200,741	0.00	$ -	$ 200,741.23	3.27	$ 201,432	0.00	$ -	$ 201,432.46
85	1366.3226	1366.572632	Residential	2076.678772	$ 1,507,669	$ 753,834	1366.432617	-0.14	1366.435669	-0.14	1366.70752	0.13	1366.435059	-0.14	3.452148	$ 52,047	0	$ -	$ 52,046.96	3.449708	$ 52,010	0	$ -	$ 52,010.17
86	1352.7321	1352.982056	Residential	5563.624268	$ 4,039,191	$ 2,019,596	1352.796631	-0.19	1352.800049	-0.18	1352.940308	-0.04	1352.799561	-0.18	3.271972	$ 132,161	0	$ -	$ 132,161.21	3.27002	$ 132,082	0	$ -	$ 132,082.36
87	1367.7133	1367.963257	Residential	4968.399292	$ 3,607,058	$ 1,803,529	1367.959106	0.00	1367.960571	0.00	1368.091064	0.13	1367.916382	-0.05	3.99	$ 143,895	0.00	$ -	$ 143,894.77	3.81	$ 137,519	0.00	$ -	$ 137,519.08
88	1361.6323	1361.882324	Residential	797.473267	$ 578,966	$ 289,483	1361.7677	-0.11	1361.77002	-0.11	1361.769897	-0.11	1361.769897	-0.11	3.550784	$ 20,558	0	$ -	$ 20,557.82	3.550292	$ 20,555	0	$ -	$ 20,554.97
89	1363.135	1363.38501	Residential	8303.006226	$ 6,027,983	$ 3,013,991	1363.190308	-0.19	1363.189941	-0.20	1363.193359	-0.19	1363.193359	-0.19	3.22	$ 194,084	0.00	$ -	$ 194,084.40	3.23	$ 194,909	0.00	$ -	$ 194,908.55
90	1366.2108	1366.460815	Residential	4910.555115	$ 3,565,063	$ 1,782,532	1366.218384	-0.24	1366.220825	-0.24	1366.294312	-0.17	1366.241577	-0.22	3.04004	$ 108,379	0	$ -	$ 108,379.34	3.123048	$ 111,339	0	$ -	$ 111,338.63
91	1368.8278	1369.077759	Residential	6629.62793	$ 4,813,110	$ 2,406,555	1368.94104	-0.14	1368.939941	-0.14	1368.944092	-0.13	1368.944214	-0.13	3.448728	$ 165,991	0	$ -	$ 165,991.07	3.46582	$ 166,814	0	$ -	$ 166,813.72
92	1374.304	1374.553955	Residential	5484.503662	$ 3,981,750	$ 1,990,875	1374.360107	-0.19	1374.359985	-0.19	1374.363159	-0.19	1374.363037	-0.19	3.22	$ 128,376	0.00	$ -	$ 128,376.39	3.24	$ 128,862	0.00	$ -	$ 128,862.48
93	1354.0405	1354.290527	Residential	7800.228271	$ 5,662,966	$ 2,831,483	1354.07605	-0.21	1354.079956	-0.21	1354.078491	-0.21	1354.078369	-0.21	3.157716	$ 178,820	0	$ -	$ 178,820.37	3.151368	$ 178,461	0	$ -	$ 178,460.89
94	1364.1387	1364.388672	Residential	9319.309509	$ 6,765,819	$ 3,382,909	1364.178955	-0.21	1364.180054	-0.21	1364.295898	-0.09	1364.261353	-0.13	3.17	$ 214,174	0.00	$ -	$ 214,173.89	3.49	$ 236,176	0.00	$ -	$ 236,176.06
95	1362.6045	1362.854492	Residential	143.450073	$ 104,145	$ 52,072	1362.984863	0.13	1362.980347	0.13	1362.987305	0.13	1362.987427	0.13	7.78	$ 8,098	5.29	$ 2,752	$ 10,850.43	7.99	$ 8,319	5.58	$ 2,907	$ 11,226.48
96	1361.0277	1361.27771	Residential	5807.243103	$ 4,216,058	$ 2,108,029	1361.062378	-0.22	1361.060059	-0.22	1361.230591	-0.05	1361.197632	-0.08	3.13	$ 131,937	0.00	$ -	$ 131,937.17	3.68	$ 155,138	0.00	$ -	$ 155,137.80
97	1379.2681	1379.518066	Residential	5512.254822	$ 4,001,897	$ 2,000,949	1379.418945	-0.10	1379.419434	-0.10	1379.574341	0.06	1379.704102	0.19	3.605472	$ 144,287	0.00	$ -	$ 144,287.28	9.58108	$ 383,425	7.81	$ 156,344	$ 539,769.30
98	1364.3967	1364.646729	Residential	1845.062622	$ 1,339,515	$ 669,758	1364.488159	-0.16	1364.48999	-0.16	1364.490356	-0.16	1364.490356	-0.16	3.373044	$ 45,182	0	$ -	$ 45,182.45	3.374508	$ 45,202	0	$ -	$ 45,202.06
99	1366.3516	1366.601563	Residential	4056.541199	$ 2,945,049	$ 1,472,524	1366.543823	-0.06	1366.536987	-0.06	1366.554199	-0.05	1366.554199	-0.05	3.74	$ 110,195	0.00	$ -	$ 110,194.78	3.81	$ 112,222	0.00	$ -	$ 112,222.38
100	1358.9648	1359.214844	Residential	5029.624146	$ 3,651,507	$ 1,825,754	1359.262451	0.05	1359.267212	0.05	1359.26416	0.05	1359.26416	0.05	5.57	$ 203,427	2.20	$ 40,157	$ 243,583.57	5.48	$ 200,084	2.07	$ 37,816	$ 237,899.93
101	1374.8926	1375.142578	Residential	9085.493774	$ 6,596,068	$ 3,298,034	1375.06897	-0.07	1375.073853	-0.07	1375.071899	-0.07	1375.071777	-0.07	3.7251	$ 245,710	0	$ -	$ 245,710.15	3.716796	$ 245,162	0	$ -	$ 245,162.41
102	1371.8109	1372.060913	Residential	4668.850098	$ 3,389,585	$ 1,694,793	1371.834229	-0.23	1371.838379	-0.22	1371.838257	-0.22	1371.838257	-0.22	3.109864	$ 105,411	0	$ -	$ 105,411.49	3.109376	$ 105,395	0	$ -	$ 105,394.95
103	1374.249	1374.499023	Residential	6966.036255	$ 5,057,342	$ 2,528,671	1374.279785	-0.22	1374.280029	-0.22	1374.282715	-0.22	1374.282715	-0.22	3.124024	$ 157,993	0	$ -	$ 157,992.59	3.134768	$ 158,536	0	$ -	$ 158,535.95
104	1353.7365	1353.98645	Residential	6619.511108	$ 4,805,765	$ 2,402,883	1353.776123	-0.21	1353.780029	-0.21	1353.778442	-0.21	1353.778442	-0.21	3.17	$ 152,550	0.00	$ -	$ 152,550.17	3.17	$ 152,245	0.00	$ -	$ 152,245.10
105	1363.4548	1363.704834	Residential	8842.429199	$ 6,419,604	$ 3,209,802	1364.171265	0.47	1364.170044	0.47	1364.463501	0.76	1364.036011	0.33	17.9563	$ 1,152,723	19.53882	$ 627,157	$ 1,779,880.68	13.93531	$ 894,592	13.909434	$ 446,465	$ 1,341,056.93
106	1363.5942	1363.844238	Residential	1209.473938	$ 878,078	$ 439,039	1363.675049	-0.17	1363.670044	-0.17	1363.677856	-0.17	1363.677856	-0.17	3.303224	$ 29,005	0.00	$ -	$ 29,004.89	3.334472	$ 29,279	0.00	$ -	$ 29,279.27
107	1364.436	1364.686035	Residential	4979.980835	$ 3,615,466	$ 1,807,733	1364.669312	-0.02	1364.665771	-0.02	1364.670898	-0.02	1364.670898	-0.02	3.92	$ 141,688	0.00	$ -	$ 141,688.09	3.94	$ 142,430	0.00	$ -	$ 142,429.55
108	1352.4829	1352.73291	Residential	5092.605652	$ 3,697,232	$ 1,848,616	1352.545166	-0.19	1352.550049	-0.18	1352.547241	-0.19	1352.547241	-0.19	3.268556	$ 120,846	0.00	$ -	$ 120,846.09	3.257324	$ 120,431	0.00	$ -	$ 120,430.82
109	1349.7738	1350.023804	Residential	10592.73084	$ 7,690,323	$ 3,845,161	1349.815918	-0.21	1349.819946	-0.20	1349.818359	-0.21	1349.818359	-0.21	3.184568	$ 244,904	0	$ -	$ 244,903.55	3.17822	$ 244,415	0	$ -	$ 244,415.37
110	1356.3748	1356.624756	Residential	7430.694946	$ 5,394,685	$ 2,697,342	1356.497437	-0.13	1356.5	-0.12	1356.499512	-0.13	1356.499512	-0.13	3.50	$ 188,867	0.00	$ -	$ 188,866.61	3.50	$ 188,761	0.00	$ -	$ 188,761.31
111	1349.6604	1349.9104	Residential	12568.94641	$ 9,125,055	$ 4,562,528	1349.750366	-0.16	1349.747437	-0.16	1349.757935	-0.15	1349.752686	-0.16	3.35	$ 305,520	0.00	$ -	$ 305,520.35	3.37	$ 307,436	0.00	$ -	$ 307,436.25
112	1369.8452	1370.095215	Residential	474.788452	$ 344,696	$ 172,348	1369.938599	-0.16	1369.93689	-0.16	1369.944946	-0.15	1369.944946	-0.15	3.3667	$ 11,605	0	$ -	$ 11,604.89	3.398924	$ 11,716	0	$ -	$ 11,715.97
113	1380.3524	1380.602417	Residential	6280.325745	$ 4,559,516	$ 2,279,758	1380.448242	-0.15	1380.449951	-0.15	1380.450562	-0.15	1380.450562	-0.15	3.390136	$ 154,574	0	$ -	$ 154,573.81	3.39258	$ 154,685	0	$ -	$ 154,685.24
114	1377.1196	1377.369629	Residential	5297.63031	$ 3,846,080	$ 1,923,040	1377.239258	-0.13	1377.23999	-0.13	1377.242188	-0.13	1377.242188	-0.13	3.481444	$ 133,899	0	$ -	$ 133,899.11	3.490236	$ 134,237	0	$ -	$ 134,237.25
115	1366.8071	1367.057129	Residential	7888.129822	$ 5,726,782	$ 2,863,391	1366.859985	-0.20	1366.859985	-0.20	1366.862915	-0.19	1366.862915	-0.19	3.211424	$ 183,911	0	$ -	$ 183,911.26	3.223144	$ 184,582	0	$ -	$ 184,582.44
116	1360.8243	1361.074341	Residential	7805.948669	$ 5,667,119	$ 2,833,559	1360.955811	-0.12	1360.959961	-0.11	1361.056763	-0.02	1360.95874	-0.12	3.54248	$ 200,757	0	$ -	$ 200,756.55	3.537596	$ 200,480	0	$ -	$ 200,479.77
117	1364.4938	1364.743774	Residential	5855.000854	$ 4,250,731	$ 2,125,365	1364.699463	-0.04	1364.699951	-0.04	1364.702148	-0.04	1364.702148	-0.04	3.824708	$ 162,578	0	$ -	$ 162,578.03	3.833496	$ 162,952	0	$ -	$ 162,951.59
118	1360.4812	1360.731201	Residential	219.949097	$ 159,683	$ 79,842	1360.793945	0.06	1360.790039	0.06	1360.794067	0.06	1360.794189	0.06	5.76514	$ 9,206	2.471196	$ 1,973	$ 11,178.99	5.88964	$ 9,405	2.645496	$ 2,112	$ 11,516.96
119	1351.2076	1351.457642	Residential	5547.851379	$ 4,027,740	$ 2,013,870	1351.428955	-0.03	1351.425171	-0.03	1351.431519	-0.03	1351.431396	-0.03	3.87	$ 155,878	0.00	$ -	$ 155,878.21	3.90	$ 156,881	0.00	$ -	$ 156,881.12
120	1374.8663	1375.116333	Residential	6444.857483	$ 4,678,967	$ 2,339,483	1374.929321	-0.19	1374.930054	-0.19	1374.932129	-0.18	1374.932251	-0.18	3.25	$ 152,295	0.00	$ -	$ 152,294.93	3.26	$ 152,706	0.00	$ -	$ 152,706.12
121	1363.498	1363.748047	Residential	212.195068	$ 154,054	$ 77,027	1363.517334	-0.23	1363.517944	-0.23	1363.666992	-0.08	1363.631226	-0.12	3.079588	$ 4,744	0	$ -	$ 4,744.22	3.532716	$ 5,442	0	$ -	$ 5,442.28
122	1368.4139	1368.66394	Residential	6069.277893	$ 4,406,296	$ 2,203,148	1368.446289	-0.22	1368.445923	-0.22	1368.67981	0.02	1368.450195	-0.21	3.13	$ 137,826	0.00	$ -	$ 137,825.93	3.15	$ 138,579	0.00	$ -	$ 138,578.88
123	1381.0881	1381.338135	Residential	6044.557678	$ 4,388,349	$ 2,194,174	1381.179443	-0.16	1381.180054	-0.16	1381.366333	0.03	1381.182739	-0.16	3.367676	$ 147,785	0	$ -	$ 147,785.37	3.378416	$ 148,257	0	$ -	$ 148,256.68
124	1379.9611	1380.21106	Residential	5559.381653	$ 4,036,111	$ 2,018,056	1380.097168	-0.11	1380.095825	-0.12	1380.099243	-0.11	1380.099243	-0.11	3.54	$ 142,840	0.00	$ -	$ 142,840.39	3.55	$ 143,392	0.00	$ -	$ 143,392.21
125	1361.5222	1361.772217	Residential	5136.399902	$ 3,729,026	$ 1,864,513	1361.562622	-0.21	1361.560059	-0.21	1361.609375	-0.16	1361.608765	-0.16	3.15	$ 117,515	0.00	$ -	$ 117,515.34	3.35	$ 124,780	0.00	$ -	$ 124,780.38
126	1349.9539	1350.203857	Residential	11645.22498	$ 8,454,433	$ 4,227,217	1350.02478	-0.18	1350.02002	-0.18	1350.026855	-0.18	1350.026855	-0.18	3.264652	$ 276,008	0	$ -	$ 276,007.83	3.291992	$ 278,319	0	$ -	$ 278,319.27
127	1357.042	1357.291992	Residential	3812.569763	$ 2,767,926	$ 1,383,963	1357.216553	-0.08	1357.219971	-0.07	1357.218506	-0.07	1357.218506	-0.07	3.71	$ 102,743	0.00	$ -	$ 102,743.07	3.71	$ 102,581	0.00	$ -	$ 102,580.87
128	1363.7706	1364.02063	Residential	246.767029	$ 179,153	$ 89,576	1363.825928	-0.19	1363.829956	-0.19	1363.828491	-0.19	1363.828491	-0.19	3.24	$ 5,800	0.00	$ -	$ 5,799.72	3.23	$ 5,789	0.00	$ -	$ 5,789.22
129	1377.3176	1377.567627	Residential	3762.542786	$ 2,731,606	$ 1,365,803	1377.35437	-0.21	1377.349976	-0.22	1377.857666	0.29	1377.634277	0.07	3.129396	$ 85,483	0	$ -	$ 85,482.77	5.9995	$ 163,883	2.7993	$ 38,233	$ 202,115.63
130	1362.1476	1362.397583	Residential	5020.589172	$ 3,644,948	$ 1,822,474	1362.411865	0.01	1362.410034	0.01	1362.727783	0.33	1362.316406	-0.08	4.37353	$ 159,413	0.522942	$ 9,530	$ 168,943.36	3.675292	$ 133,962	0	$ -	$ 133,962.47
131	1376.2094	1376.459351	Residential	5212.982361	$ 3,784,625	$ 1,892,313	1376.260254	-0.20	1376.260864	-0.20	1376.271851	-0.19	1376.271851	-0.19	3.21	$ 121,337	0.00	$ -	$ 121,337.05	3.25	$ 123,000	0.00	$ -	$ 123,000.32
132	1379.1615	1379.411499	Residential	400.356567	$ 290,659	$ 145,329	1379.424072	0.01	1379.421387	0.01	1379.488525	0.08	1379.488281	0.08	4.29664	$ 12,489	0.415296	$ 604	$ 13,092.11	6.30346	$ 18,322	3.224844	$ 4,687	$ 23,008.21
133	1361.2078	1361.457764	Residential	4320.113953	$ 3,136,403	$ 1,568,201	1361.42041	-0.04	1361.420044	-0.04	1361.433716	-0.02	1361.42334	-0.03	3.84912	$ 120,724	0	$ -	$ 120,723.90	3.862304	$ 121,137	0	$ -	$ 121,137.41
134	1362.6445	1362.894531	Residential	3840.690247	$ 2,788,341	$ 1,394,171	1362.80603	-0.09	1362.805054	-0.09	1362.809204	-0.09	1362.809326	-0.09	3.642092	$ 101,554	0	$ -	$ 101,553.95	3.65918	$ 102,030	0	$ -	$ 102,030.42
135	1378.0864	1378.336426	Residential	326.96106	$ 237,374	$ 118,687	1378.312134	-0.02	1378.309937	-0.03	1378.373901	0.04	1378.371704	0.04	3.894044	$ 9,243	0	$ -	$ 9,243.44	5.05834	$ 12,007	1.481676	$ 1,759	$ 13,765.73
136	1364.1649	1364.414917	Residential	4181.148926	$ 3,035,514	$ 1,517,757	1364.769409	0.35	1364.77124	0.36	1364.967041	0.55	1364.687012	0.27	14.68969	$ 445,908	14.965566	$ 227,141	$ 673,048.55	12.16285	$ 369,205	11.42799	$ 173,449	$ 542,654.15
137	1360.8499	1361.099854	Residential	4583.988647	$ 3,327,976	$ 1,663,988	1360.899902	-0.20	1360.900024	-0.20	1361.072632	-0.03	1360.932739	-0.17	3.20068	$ 106,518	0	$ -	$ 106,517.85	3.33154	$ 110,873	0	$ -	$ 110,872.84
138	1368.3804	1368.630371	Residential	8776.445618	$ 6,371,700	$ 3,185,850	1368.661865	0.03	1368.660034	0.03	1368.665161	0.03	1368.665161	0.03	4.88989	$ 311,569	1.245846	$ 39,691	$ 351,259.88	5.0437	$ 321,369	1.46118	$ 46,551	$ 367,920.41
139	1353.156	1353.406006	Residential	323.715698	$ 235,018	$ 117,509	1353.186035	-0.22	1353.189941	-0.22	1353.190063	-0.22	1353.188965	-0.22	3.13574	$ 7,370	0.00	$ -	$ 7,369.54	3.131836	$ 7,360	0.00	$ -	$ 7,360.37
140	1378.5293	1378.779297	Residential	5263.701416	$ 3,821,447	$ 1,910,724	1378.623413	-0.16	1378.624146	-0.16	1378.66626	-0.11	1378.677856	-0.10	3.38	$ 129,142	0.00	$ -	$ 129,141.83	3.59	$ 137,352	0.00	$ -	$ 137,351.83
141	1379.809	1380.05896	Residential	7932.297974	$ 5,758,848	$ 2,879,424	1380.026367	-0.03	1380.030029	-0.03	1380.028198	-0.03	1380.028198	-0.03	3.884276	$ 223,690	0	$ -	$ 223,689.56	3.876952	$ 223,268	0	$ -	$ 223,267.79
142	1371.869	1372.119019	Residential	4879.887024	$ 3,542,798	$ 1,771,399	1372.077759	-0.04	1372.077759	-0.04	1372.083496	-0.04	1372.081787	-0.04	3.83496	$ 135,865	0	$ -	$ 135,864.89	3.851072	$ 136,436	0	$ -	$ 136,435.70
143	1378.5239	1378.773926	Residential	188.311951	$ 136,714	$ 68,357	1378.562744	-0.21	1378.566528	-0.21	1378.578857	-0.20	1378.578735	-0.20	3.170408	$ 4,334	0	$ -	$ 4,334.41	3.219236	$ 4,401	0	$ -	$ 4,401.16
144	1375.1558	1375.405762	Residential	4700.561829	$ 3,412,608	$ 1,706,304	1375.356201	-0.05	1375.359985	-0.05	1375.710083	0.30	1375.35791	-0.05	3.82	$ 130,256	0.00	$ -	$ 130,255.56	3.81	$ 129,972	0.00	$ -	$ 129,972.31
145	1364.0173	1364.267334	Residential	263.903442	$ 191,594	$ 95,797	1364.084961	-0.18	1364.079956	-0.19	1364.11499	-0.15	1364.086426	-0.18	3.250488	$ 6,228	0	$ -	$ 6,227.74	3.276368	$ 6,277	0	$ -	$ 6,277.32
146	1361.9521	1362.202148	Residential	5469.552246	$ 3,970,895	$ 1,985,447	1362.174438	-0.03	1362.178223	-0.02	1362.365112	0.16	1362.176025	-0.03	3.90	$ 155,036	0.00	$ -	$ 155,035.65	3.90	$ 154,687	0.00	$ -	$ 154,686.53
147	1361.5681	1361.818115	Residential	5371.711365	$ 3,899,862	$ 1,949,931	1361.999634	0.18	1361.995728	0.18	1362.157593	0.34	1361.909668	0.09	9.32839	$ 363,794	7.459746	$ 145,460	$ 509,254.30	6.74659	$ 263,108	3.845226	$ 74,979	$ 338,086.99
148	1376.0001	1376.250122	Residential	4847.492981	$ 3,519,280	$ 1,759,640	1376.239746	-0.01	1376.24292	-0.01	1376.241943	-0.01	1376.241943	-0.01	3.971192	$ 139,757	0	$ -	$ 139,757.36	3.967284	$ 139,620	0	$ -	$ 139,619.83
149	1376.4144	1376.664429	Residential	5930.882202	$ 4,305,820	$ 2,152,910	1376.478149	-0.19	1376.47998	-0.18	1376.766724	0.10	1376.542114	-0.12	3.26	$ 140,465	0.00	$ -	$ 140,464.65	3.51	$ 151,166	0.00	$ -	$ 151,166.16
150	1372.437	1372.687012	Residential	5813.009705	$ 4,220,245	$ 2,110,123	1372.519775	-0.17	1372.52002	-0.17	1372.522461	-0.16	1372.522461	-0.16	3.332032	$ 140,620	0	$ -	$ 140,619.92	3.341796	$ 141,032	0	$ -	$ 141,031.98
151	1387.2883	1387.53833	Residential	4486.418701	$ 3,257,140	$ 1,628,570	1387.536377	0.00	1387.540039	0.00	1387.53833	0.00	1387.53833	0.00	4.05127	$ 131,956	0.071778	$ 1,169	$ 133,124.49	4	$ 130,286	0	$ -	$ 130,285.60
152	1375.7926	1376.042603	Residential	4326.913086	$ 3,141,339	$ 1,570,669	1375.835449	-0.21	1375.839966	-0.20	1376.119263	0.08	1375.941162	-0.10	3.19	$ 100,191	0.00	$ -	$ 100,191.50	3.59	$ 112,907	0.00	$ -	$ 112,907.13
153	1367.1001	1367.350098	Residential	5923.343201	$ 4,300,347	$ 2,150,174	1367.170654	-0.18	1367.170044	-0.18	1367.174072	-0.18	1367.174072	-0.18	3.279784	$ 141,042	0	$ -	$ 141,042.10	3.295896	$ 141,735	0	$ -	$ 141,734.97
154	1378.0719	1378.321899	Residential	5311.497314	$ 3,856,147	$ 1,928,074	1378.216553	-0.11	1378.219971	-0.10	1378.218384	-0.10	1378.218384	-0.10	3.592288	$ 138,524	0	$ -	$ 138,523.91	3.58594	$ 138,279	0	$ -	$ 138,279.12
155	1380.4923	1380.74231	Residential	2746.666016	$ 1,994,080	$ 997,040	1380.633667	-0.11	1380.62915	-0.11	1380.637695	-0.10	1380.638184	-0.10	3.55	$ 70,737	0.00	$ -	$ 70,737.18	3.58	$ 71,458	0.00	$ -	$ 71,457.76
156	1373.4617	1373.71167	Residential	6659.882751	$ 4,835,075	$ 2,417,537	1373.625244	-0.09	1373.630005	-0.08	1373.626709	-0.08	1373.626709	-0.08	3.67	$ 177,609	0.00	$ -	$ 177,608.74	3.66	$ 176,971	0.00	$ -	$ 176,971.28
157	1376.4575	1376.70752	Residential	4604.081482	$ 3,342,563	$ 1,671,282	1376.469116	-0.24	1376.470581	-0.24	1376.488281	-0.22	1376.477417	-0.23	3.052244	$ 102,023	0	$ -	$ 102,023.18	3.079588	$ 102,937	0	$ -	$ 102,937.17
158	1374.9485	1375.198486	Residential	5014.781799	$ 3,640,732	$ 1,820,366	1374.963501	-0.23	1374.963257	-0.24	1374.966919	-0.23	1374.966919	-0.23	3.059084	$ 111,373	0	$ -	$ 111,373.04	3.073732	$ 111,906	0	$ -	$ 111,906.33

10-Year and 100-Year Proposed Building Damages in Area K

															Proposed									
Building ID	HAG	Finished Floor Elevation (ft)	Land Use Type	Building Area (sf)	Replace Cost $ ($726/SF-Res)	Content Replacement Value ($) 1/2 of Replacement Cost	10yr Exist WSEL (ft)	10yr Exist Flow Depth (ft)	10yr Prop WSEL (ft)	10yr Prop Flow Depth (ft)	100yr Exist WSEL (ft)	100yr Exist Flow Depth (ft)	100yr Prop WSEL (ft)	100yr Prop Flow Depth (ft)	10yr Building Damage (%)	10yrBuilding Damage Cost ($)	10yr Content Damage (%)	10yr Content Damage Cost ($)	10yr Total Damage Cost ($)	100yr Building Damage (%)	100yrBuilding Damage Cost ($)	100yr Content Damage (%)	100yr Content Damage Cost ($)	100yr Total Damage Cost ($)
159	1368.0206	1368.27063	Residential	8032.684509	$ 5,831,729	$ 2,915,864	1368.052124	-0.22	1368.050049	-0.22	1368.055664	-0.21	1368.055664	-0.21	3.12	$ 181,814	0.00	$ -	$ 181,814.41	3.14	$ 183,124	0.00	$ -	$ 183,124.22
160	1364.0402	1364.290161	Residential	7812.84906	$ 5,672,128	$ 2,836,064	1364.276733	-0.01	1364.280029	-0.01	1364.278564	-0.01	1364.278687	-0.01	3.959472	$ 224,586	0	$ -	$ 224,586.34	3.954104	$ 224,282	0	$ -	$ 224,281.86
161	1379.0062	1379.256226	Residential	4673.951538	$ 3,393,289	$ 1,696,644	1379.0354	-0.22	1379.033325	-0.22	1379.041504	-0.21	1379.041504	-0.21	3.108396	$ 105,477	0	$ -	$ 105,476.85	3.141112	$ 106,587	0	$ -	$ 106,587.00
162	1351.6937	1351.943726	Residential	7145.512817	$ 5,187,642	$ 2,593,821	1351.736572	-0.21	1351.73999	-0.20	1351.739258	-0.20	1351.739258	-0.20	3.185056	$ 165,229	0	$ -	$ 165,229.31	3.182128	$ 165,077	0	$ -	$ 165,077.42
163	1356.0435	1356.293457	Residential	8016.633606	$ 5,820,076	$ 2,910,038	1356.115234	-0.18	1356.119995	-0.17	1356.119141	-0.17	1356.119141	-0.17	3.31	$ 192,421	0.00	$ -	$ 192,420.56	3.30	$ 192,222	0.00	$ -	$ 192,221.75
164	1353.3625	1353.612549	Residential	5229.221985	$ 3,796,415	$ 1,898,208	1353.494629	-0.12	1353.48999	-0.12	1353.49646	-0.12	1353.49646	-0.12	3.509764	$ 133,245	0	$ -	$ 133,245.21	3.535644	$ 134,228	0	$ -	$ 134,227.72
165	1383.4026	1383.652588	Residential	5383.90863	$ 3,908,718	$ 1,954,359	1383.43689	-0.22	1383.439697	-0.21	1383.464355	-0.19	1383.744873	0.09	3.148436	$ 123,063	0	$ -	$ 123,063.47	6.76855	$ 264,564	3.87597	$ 75,750	$ 340,313.87
166	1372.4465	1372.696533	Residential	5019.003479	$ 3,643,797	$ 1,821,898	1372.785156	0.09	1372.790039	0.09	1372.791992	0.10	1372.786621	0.09	6.80518	$ 247,967	3.927252	$ 71,551	$ 319,517.45	6.70264	$ 244,231	3.783696	$ 68,935	$ 313,165.66
167	1362.7709	1363.020874	Residential	89.848938	$ 65,230	$ 32,615	1362.811768	-0.21	1362.813477	-0.21	1362.815186	-0.21	1362.815186	-0.21	3.170412	$ 2,068	0	$ -	$ 2,068.07	3.177248	$ 2,073	0	$ -	$ 2,072.53
168	1365.083	1365.333008	Residential	7013.951599	$ 5,092,129	$ 2,546,064	1365.13855	-0.19	1365.140015	-0.19	1365.140991	-0.19	1365.140991	-0.19	3.23	$ 164,375	0.00	$ -	$ 164,375.35	3.23	$ 164,574	0.00	$ -	$ 164,574.14
169	1362.7377	1362.987671	Residential	5120.312622	$ 3,717,347	$ 1,858,673	1362.824219	-0.16	1362.821777	-0.17	1362.997803	0.01	1362.758911	-0.23	3.336424	$ 124,026	0	$ -	$ 124,026.46	3.08496	$ 114,679	0	$ -	$ 114,678.67
170	1360.1978	1360.447754	Residential	793.997314	$ 576,442	$ 288,221	1360.297607	-0.15	1360.296753	-0.15	1360.363892	-0.08	1360.36377	-0.08	3.395996	$ 19,576	0	$ -	$ 19,575.95	3.664064	$ 21,121	0	$ -	$ 21,121.21
171	1376.9437	1377.193726	Residential	6148.210022	$ 4,463,600	$ 2,231,800	1377.074829	-0.12	1377.073853	-0.12	1377.077393	-0.12	1377.077393	-0.12	3.520508	$ 157,141	0	$ -	$ 157,141.41	3.534668	$ 157,773	0	$ -	$ 157,773.46
172	1382.8645	1383.114502	Residential	417.621704	$ 303,193	$ 151,597	1383.075317	-0.04	1383.074097	-0.04	1383.662109	0.55	1383.49707	0.38	3.83838	$ 11,638	0	$ -	$ 11,637.71	15.47704	$ 46,925	16.067856	$ 24,358	$ 71,283.69
173	1382.9543	1383.204346	Residential	7021.7854	$ 5,097,816	$ 2,548,908	1383.303101	0.10	1383.30249	0.10	1383.720337	0.52	1384.014648	0.81	6.94	$ 354,009	4.12	$ 105,067	$ 459,075.89	28.31	$ 1,443,144	34.03	$ 867,462	$ 2,310,605.69
174	1360.3568	1360.606812	Residential	987.539978	$ 716,954	$ 358,477	1360.389648	-0.22	1360.390015	-0.22	1360.392334	-0.21	1360.392334	-0.21	3.132812	$ 22,461	0	$ -	$ 22,460.82	3.142088	$ 22,527	0	$ -	$ 22,527.33
175	1371.0583	1371.30835	Residential	4343.393616	$ 3,153,304	$ 1,576,652	1371.106812	-0.20	1371.103516	-0.20	1371.108887	-0.20	1371.108887	-0.20	3.180664	$ 100,296	0	$ -	$ 100,296.00	3.202148	$ 100,973	0	$ -	$ 100,973.45
176	1363.4857	1363.735718	Residential	1258.273743	$ 913,507	$ 456,753	1363.566162	-0.17	1363.56543	-0.17	1363.714722	-0.02	1363.61731	-0.12	3.318848	$ 30,318	0	$ -	$ 30,317.90	3.526368	$ 32,214	0	$ -	$ 32,213.61
177	1382.4683	1382.718262	Residential	5926.931763	$ 4,302,952	$ 2,151,476	1382.520874	-0.20	1382.522339	-0.20	1383.109375	0.39	1382.892212	0.17	3.216308	$ 138,396	0	$ -	$ 138,396.20	9.2185	$ 396,668	7.3059	$ 157,185	$ 553,852.37
178	1367.0305	1367.280518	Residential	7461.676697	$ 5,417,177	$ 2,708,589	1367.084473	-0.20	1367.079956	-0.20	1367.086426	-0.19	1367.086304	-0.19	3.197752	$ 173,228	0	$ -	$ 173,227.89	3.223144	$ 174,603	0	$ -	$ 174,603.42
179	1366.8289	1367.078857	Residential	8772.664185	$ 6,368,954	$ 3,184,477	1367.044067	-0.03	1367.04834	-0.03	1367.045654	-0.03	1367.045654	-0.03	3.877932	$ 246,984	0	$ -	$ 246,983.71	3.867188	$ 246,299	0	$ -	$ 246,299.43
180	1364.3354	1364.585449	Residential	1242.911804	$ 902,354	$ 451,177	1364.427124	-0.16	1364.428833	-0.16	1364.576904	-0.01	1364.416138	-0.17	3.373536	$ 30,441	0	$ -	$ 30,441.24	3.322756	$ 29,983	0	$ -	$ 29,983.02
181	1385.5297	1385.779663	Residential	4264.038574	$ 3,095,692	$ 1,547,846	1385.641846	-0.14	1385.642456	-0.14	1385.643677	-0.14	1385.643799	-0.14	3.451172	$ 106,838	0	$ -	$ 106,837.66	3.456544	$ 107,004	0	$ -	$ 107,003.96
182	1374.311	1374.561035	Residential	5276.539246	$ 3,830,767	$ 1,915,384	1374.384644	-0.18	1374.380005	-0.18	1374.387817	-0.17	1374.387817	-0.17	3.27588	$ 125,491	0	$ -	$ 125,491.35	3.307128	$ 126,688	0	$ -	$ 126,688.38
183	1358.566	1358.81604	Residential	7594.135925	$ 5,513,343	$ 2,756,671	1358.577881	-0.24	1358.579956	-0.24	1358.580444	-0.24	1358.580444	-0.24	3.06	$ 168,469	0.00	$ -	$ 168,469.23	3.06	$ 168,577	0.00	$ -	$ 168,576.85
184	1380.236	1380.485962	Residential	4827.576904	$ 3,504,821	$ 1,752,410	1380.30188	-0.18	1380.304321	-0.18	1380.490601	0.00	1380.304321	-0.18	3.273436	$ 114,728	0	$ -	$ 114,728.07	3.273436	$ 114,728	0	$ -	$ 114,728.07
185	1363.7234	1363.973389	Residential	10285.24762	$ 7,467,090	$ 3,733,545	1363.945801	-0.03	1363.949951	-0.02	1363.94751	-0.03	1363.947388	-0.03	3.906248	$ 291,683	0	$ -	$ 291,683.04	3.895996	$ 290,918	0	$ -	$ 290,917.52
186	1364.5854	1364.835449	Residential	6041.695801	$ 4,386,271	$ 2,193,136	1364.953857	0.12	1364.951416	0.12	1365.078857	0.24	1364.9823	0.15	7.48	$ 328,050	4.87	$ 106,819	$ 434,868.83	8.41	$ 368,689	6.17	$ 135,267	$ 503,956.28
187	1358.5145	1358.764526	Residential	4361.768433	$ 3,166,644	$ 1,583,322	1358.786499	0.02	1358.790039	0.03	1358.788574	0.02	1358.788574	0.02	4.76539	$ 150,903	1.071546	$ 16,966	$ 167,868.95	4.72144	$ 149,511	1.010016	$ 15,992	$ 165,503.00
188	1364.4982	1364.748169	Residential	2346.480347	$ 1,703,545	$ 851,772	1364.658569	-0.09	1364.660034	-0.09	1364.901978	0.15	1364.857544	0.11	3.65	$ 62,136	0.00	$ -	$ 62,136.11	7.28	$ 124,039	4.59	$ 39,128	$ 163,167.64
189	1349.9558	1350.205811	Residential	2159.600586	$ 1,567,870	$ 783,935	1349.965942	-0.24	1349.969971	-0.24	1349.987671	-0.22	1349.968506	-0.24	3.06	$ 47,924	0.00	$ -	$ 47,924.14	3.05	$ 47,832	0.00	$ -	$ 47,832.27
190	1378.7681	1379.018066	Residential	11906.15375	$ 8,643,868	$ 4,321,934	1378.897461	-0.12	1378.895508	-0.12	1378.978882	-0.04	1378.978882	-0.04	3.51	$ 303,380	0.00	$ -	$ 303,379.70	3.84	$ 332,207	0.00	$ -	$ 332,206.65
191	1368.9064	1369.156372	Residential	8501.921448	$ 6,172,395	$ 3,086,197	1368.998169	-0.16	1369	-0.16	1369.000854	-0.16	1369.000854	-0.16	3.37	$ 208,288	0.00	$ -	$ 208,288.21	3.38	$ 208,499	0.00	$ -	$ 208,499.06
192	1386.421	1386.671021	Residential	7075.245361	$ 5,136,628	$ 2,568,314	1386.675415	0.00	1386.675537	0.00	1387.56189	0.89	1387.329956	0.66	4.14	$ 212,424	0.19	$ 4,871	$ 217,295.60	23.77	$ 1,220,876	27.68	$ 710,788	$ 1,931,664.19
193	1362.7275	1362.977539	Residential	9759.761292	$ 7,085,587	$ 3,542,793	1362.987305	0.01	1362.98999	0.01	1362.989624	0.01	1362.989624	0.01	4.37	$ 309,890	0.52	$ 18,527	$ 328,417.01	4.36	$ 309,112	0.51	$ 17,982	$ 327,094.42
194	1359.8994	1360.149414	Residential	5130.461975	$ 3,724,715	$ 1,862,358	1360.129272	-0.02	1360.109985	-0.04	1360.291382	0.14	1360.05542	-0.09	3.842284	$ 143,114	0	$ -	$ 143,114.14	3.624024	$ 134,985	0	$ -	$ 134,984.58
195	1371.9503	1372.200317	Residential	5811.423157	$ 4,219,093	$ 2,109,547	1372.028442	-0.17	1372.030029	-0.17	1372.031372	-0.17	1372.031372	-0.17	3.318848	$ 140,025	0	$ -	$ 140,025.29	3.32422	$ 140,252	0	$ -	$ 140,251.94
196	1375.9243	1376.174316	Residential	3570.859131	$ 2,592,444	$ 1,296,222	1375.952637	-0.22	1375.952393	-0.22	1375.955322	-0.22	1375.955444	-0.22	3.112308	$ 80,685	0	$ -	$ 80,684.83	3.124512	$ 81,001	0	$ -	$ 81,001.22
197	1382.3914	1382.641357	Residential	4534.560791	$ 3,292,091	$ 1,646,046	1382.78833	0.15	1382.78894	0.15	1382.793213	0.15	1382.793091	0.15	8.43	$ 277,441	6.20	$ 102,030	$ 379,470.56	8.55	$ 281,540	6.37	$ 104,900	$ 386,439.95
198	1372.3955	1372.645508	Residential	3843.095703	$ 2,790,087	$ 1,395,044	1372.505371	-0.14	1372.508545	-0.14	1372.546753	-0.10	1372.546753	-0.10	3.452148	$ 96,318	0	$ -	$ 96,317.95	3.60498	$ 100,582	0	$ -	$ 100,582.10
199	1378.7993	1379.049316	Residential	5130.287109	$ 3,724,588	$ 1,862,294	1379.104492	0.06	1379.099976	0.05	1379.106445	0.06	1379.106323	0.06	5.52	$ 205,590	2.13	$ 39,624	$ 245,214.24	5.71	$ 212,682	2.39	$ 44,589	$ 257,270.62
200	1369.2933	1369.543335	Residential	4194.780518	$ 3,045,411	$ 1,522,705	1369.405518	-0.14	1369.407227	-0.14	1369.692261	0.15	1369.369751	-0.17	3.455568	$ 105,236	0	$ -	$ 105,236.24	3.305664	$ 100,671	0	$ -	$ 100,671.04
201	1384.4399	1384.689941	Residential	4500.588989	$ 3,267,428	$ 1,633,714	1385.165039	0.48	1385.160034	0.47	1385.166504	0.48	1385.166626	0.48	18.10279	$ 591,496	19.743906	$ 322,559	$ 914,054.48	18.30055	$ 597,957	20.02077	$ 327,082	$ 925,039.31
202	1386.7983	1387.04834	Residential	4524.202332	$ 3,284,571	$ 1,642,285	1387.091187	0.04	1387.081299	0.03	1387.682007	0.63	1386.833618	-0.21	4.98877	$ 163,860	1.384278	$ 22,734	$ 186,593.48	3.141112	$ 103,172	0	$ -	$ 103,172.05
203	1372.1863	1372.436279	Residential	4600.928711	$ 3,340,274	$ 1,670,137	1372.266113	-0.17	1372.266479	-0.17	1372.269165	-0.17	1372.269287	-0.17	3.3208	$ 110,924	0	$ -	$ 110,923.83	3.332032	$ 111,299	0	$ -	$ 111,299.01
204	1351.7186	1351.968628	Residential	927.027771	$ 673,022	$ 336,511	1351.785278	-0.18	1351.790039	-0.18	1351.787354	-0.18	1351.787476	-0.18	3.285644	$ 22,113	0	$ -	$ 22,113.11	3.275392	$ 22,044	0	$ -	$ 22,044.11
205	1373.9084	1374.158447	Residential	6269.81665	$ 4,551,887	$ 2,275,943	1374.034424	-0.12	1374.030029	-0.13	1374.037842	-0.12	1374.037842	-0.12	3.486328	$ 158,694	0	$ -	$ 158,693.71	3.51758	$ 160,116	0	$ -	$ 160,116.26
206	1365.4144	1365.664429	Residential	6051.600159	$ 4,393,462	$ 2,196,731	1365.444336	-0.22	1365.444214	-0.22	1365.870117	0.21	1365.701416	0.04	3.11914	$ 137,038	0	$ -	$ 137,038.22	5.10961	$ 224,489	1.553454	$ 34,125	$ 258,613.96
207	1353.8657	1354.115723	Residential	755.925842	$ 548,802	$ 274,401	1353.93396	-0.18	1353.930054	-0.19	1353.936157	-0.18	1353.936157	-0.18	3.26	$ 17,876	0.00	$ -	$ 17,876.26	3.28	$ 18,010	0.00	$ -	$ 18,010.24
208	1369.4449	1369.694946	Residential	7994.761414	$ 5,804,197	$ 2,902,098	1369.686035	-0.01	1369.689941	-0.01	1369.687744	-0.01	1369.687744	-0.01	3.98	$ 231,006	0.00	$ -	$ 231,005.87	3.97	$ 230,496	0.00	$ -	$ 230,495.80
209	1356.6626	1356.912598	Residential	6371.821533	$ 4,625,942	$ 2,312,971	1356.790527	-0.12	1356.794678	-0.12	1357.093018	0.18	1356.822266	-0.09	3.52832	$ 163,218	0	$ -	$ 163,218.05	3.638672	$ 168,323	0	$ -	$ 168,322.87
210	1378.3789	1378.628906	Residential	1189.775024	$ 863,777	$ 431,888	1378.425903	-0.20	1378.430054	-0.20	1378.454956	-0.17	1378.473999	-0.15	3.20	$ 27,681	0.00	$ -	$ 27,680.52	3.38	$ 29,199	0.00	$ -	$ 29,198.86
211	1372.8145	1373.064453	Residential	7189.552734	$ 5,219,615	$ 2,609,808	1372.927002	-0.14	1372.930054	-0.13	1372.929077	-0.14	1372.929199	-0.14	3.462404	$ 180,724	0	$ -	$ 180,724.17	3.458984	$ 180,546	0	$ -	$ 180,545.66
212	1384.6993	1384.949341	Residential	4849.682129	$ 3,520,869	$ 1,760,435	1384.800659	-0.15	1384.798706	-0.15	1384.845337	-0.10	1384.848267	-0.10	3.40	$ 119,620	0.00	$ -	$ 119,620.12	3.60	$ 126,600	0.00	$ -	$ 126,600.04
213	1374.1124	1374.362427	Residential	5543.06311	$ 4,024,264	$ 2,012,132	1374.303589	-0.06	1374.300049	-0.06	1375.235962	0.87	1374.947021	0.58	3.75	$ 150,930	0.00	$ -	$ 150,929.53	21.54	$ 866,739	24.55	$ 494,038	$ 1,360,776.40
214	1351.9253	1352.175293	Residential	7474.652283	$ 5,426,598	$ 2,713,299	1352.022827	-0.15	1352.020386	-0.15	1352.025024	-0.15	1352.025146	-0.15	3.38	$ 183,439	0.00	$ -	$ 183,439.18	3.40	$ 184,472	0.00	$ -	$ 184,472.41
215	1372.7062	1372.956177	Residential	365.232666	$ 265,159	$ 132,579	1372.750366	-0.21	1372.75	-0.21	1372.754272	-0.20	1372.754272	-0.20	3.175292	$ 8,420	0	$ -	$ 8,419.57	3.19238	$ 8,465	0	$ -	$ 8,464.88
216	1383.9557	1384.205688	Residential	10282.73602	$ 7,465,266	$ 3,732,633	1384.018188	-0.19	1384.02002	-0.19	1384.431885	0.23	1384.276855	0.07	3.257328	$ 243,168	0	$ -	$ 243,168.21	6.13501	$ 457,995	2.989014	$ 111,569	$ 569,563.77
217	1379.6527	1379.90271	Residential	5808.621948	$ 4,217,060	$ 2,108,530	1379.669067	-0.23	1379.665283	-0.24	1379.678833	-0.22	1379.678833	-0.22	3.050292	$ 128,633	0	$ -	$ 128,632.63	3.104492	$ 130,918	0	$ -	$ 130,918.28
218	1378.8989	1379.148926	Residential	5431.955078	$ 3,943,599	$ 1,971,800	1378.959473	-0.19	1378.959961	-0.19	1379.071411	-0.08	1379.14856	0.00	3.24414	$ 127,936	0	$ -	$ 127,935.89	3.998536	$ 157,686	0	$ -	$ 157,686.24
219	1361.0637	1361.313721	Residential	697.469788	$ 506,363	$ 253,182	1361.248169	-0.07	1361.244873	-0.07	1361.327881	0.01	1361.283569	-0.03	3.724608	$ 18,860	0	$ -	$ 18,860.04	3.879392	$ 19,644	0	$ -	$ 19,643.81
220	1363.9265	1364.176514	Residential	5530.390808	$ 4,015,064	$ 2,007,532	1364.312012	0.14	1364.307861	0.13	1364.484375	0.31	1364.317505	0.14	7.94	$ 318,813	5.52	$ 110,747	$ 429,559.50	8.23	$ 330,429	5.92	$ 118,878	$ 449,307.35
221	1365.9146	1366.164551	Residential	7421.591003	$ 5,388,075	$ 2,694,038	1365.946289	-0.22	1365.947144	-0.22	1365.94812	-0.22	1365.94812	-0.22	3.130372	$ 168,667	0	$ -	$ 168,666.79	3.134276	$ 168,877	0	$ -	$ 168,877.14
222	1355.2457	1355.495728	Residential	6237.714416	$ 4,528,581	$ 2,264,290	1355.38916	-0.11	1355.387085	-0.11	1355.394287	-0.10	1355.394287	-0.10	3.565428	$ 161,463	0	$ -	$ 161,463.28	3.594236	$ 162,768	0	$ -	$ 162,767.88
223	1367.9564	1368.206421	Residential	6903.520142	$ 5,011,956	$ 2,505,978	1368.126953	-0.08	1368.130005	-0.08	1368.12915	-0.08	1368.12915	-0.08	3.694336	$ 185,158	0.00	$ -	$ 185,158.48	3.690916	$ 184,987	0.00	$ -	$ 184,987.07
224	1367.7229	1367.9729	Residential	7568.887512	$ 5,495,012	$ 2,747,506	1367.817627	-0.16	1367.819946	-0.15	1367.859985	-0.11	1367.819946	-0.15	3.388184	$ 186,181	0	$ -	$ 186,181.13	3.388184	$ 186,181	0	$ -	$ 186,181.13
225	1372.2632	1372.513184	Residential	6819.513489	$ 4,950,967	$ 2,475,483	1372.534302	0.02	1372.530029	0.02	1372.535645	0.02	1372.535645	0.02	4.51	$ 223,058	0.71	$ 17,514	$ 240,572.18	4.67	$ 231,400	0.94	$ 23,353	$ 254,752.54
226	1382.7257	1382.975708	Residential	414.181458	$ 300,696	$ 150,348	1382.818604	-0.16	1382.819946	-0.16	1382.976807	0.00	1383.06543	0.09	3.376952	$ 10,154	0.00	$ -	$ 10,154.35	6.69166	$ 20,122	3.77	$ 5,666	$ 25,787.13
227	1377.9037	1378.153687	Residential	6325.296997	$ 4,592,166	$ 2,296,083	1377.931274	-0.22	1377.93042	-0.22	1377.95105	-0.20	1377.956909	-0.20	3.11	$ 142,675	0.00	$ -	$ 142,675.46	3.21	$ 147,541	0.00	$ -	$ 147,541.14
228	1369.9781	1370.228149	Residential	7107.003967	$ 5,159,685	$ 2,579,842	1370.020264	-0.21	1370.02002	-0.21	1370.023315	-0.20	1370.023315	-0.20	3.17	$ 163,432	0.00	$ -	$ 163,432.19	3.18	$ 164,112	0.00	$ -	$ 164,112.24
229	1366.7046	1366.95459	Residential	6420.218262	$ 4,661,078	$ 2,330,539	1366.699341	-0.26	1366.699951	-0.25	1366.702881	-0.25	1366.702881	-0.25	2.98	$ 138,967	0.00	$ -	$ 138,967.44	2.99	$ 139,514	0.00	$ -	$ 139,513.72
230	1355.0955	1355.345459	Residential	7691.567017	$ 5,584,078	$ 2,792,039	1355.132324	-0.21	1355.130005	-0.22	1355.30835	-0.04	1355.136841	-0.21	3.138184	$ 175,239	0	$ -	$ 175,238.63	3.165528	$ 176,766	0	$ -	$ 176,765.54
231	1372.5229	1372.772949	Residential	7904.628235	$ 5,738,760	$ 2,869,380	1372.625	-0.15	1372.622925	-0.15	1372.852051	0.08	1372.627319	-0.15	3.399904	$ 195,112	0	$ -	$ 195,112.33	3.41748	$ 196,121	0	$ -	$ 196,120.98
232	1373.4587	1373.70874	Residential	6641.056396	$ 4,821,407	$ 2,410,703	1373.506714	-0.20	1373.506592	-0.20	1373.51062	-0.20	1373.51062	-0.20	3.19	$ 153,871	0.00	$ -	$ 153,870.77	3.21	$ 154,648	0.00	$ -	$ 154,647.59
233	1368.4092	1368.65918	Residential	650.331116	$ 472,140	$ 236,070	1368.462769	-0.20	1368.466675	-0.19	1368.465942	-0.19	1368.465942	-0.19	3.22998	$ 15,250	0	$ -	$ 15,250.04	3.227048	$ 15,236	0	$ -	$ 15,236.20
234	1360.5137	1360.763672	Residential	6230.277466	$ 4,523,181	$ 2,261,591	1360.886719	0.12	1360.882568	0.12	1361.106689	0.34	1360.874512	0.11	7.56688	$ 342,264	4.993632	$ 112,936	$ 455,199.23	7.3252	$ 331,332	4.65528	$ 105,283	$ 436,615.47
235	1353.9615	1354.211548	Residential	6218.86676	$ 4,514,897	$ 2,257,449	1354.11731	-0.09	1354.119995	-0.09	1354.119385	-0.09	1354.119385	-0.09	3.63	$ 164,062	0.00	$ -	$ 164,061.80	3.63	$ 163,952	0.00	$ -	$ 163,951.63
236	1361.0813	1361.331299	Residential	552.338257	$ 400,998	$ 200,499	1361.399292	0.07	1361.398926	0.07	1361.947754	0.62	1361.722046	0.39	6.02881	$ 24,175	2.840334	$ 5,695	$ 29,870.22	15.72241	$ 63,046	16.411374	$ 32,905	$ 95,951.09

10-Year and 100-Year Proposed Building Damages in Area K

															Proposed								
Building ID	HAG	Finished Floor Elevation (ft)	Land Use Type	Building Area (sf)	Replace Cost $ ($726/SF-Res)	Content Replacement Value ($) 1/2 of Replacement Cost	10yr Exist WSEL (ft)	10yr Exist Flow Depth (ft)	10yr Prop WSEL (ft)	10yr Prop Flow Depth (ft)	100yr Exist WSEL (ft)	100yr Exist Flow Depth (ft)	100yr Prop WSEL (ft)	100yr Prop Flow Depth (ft)	10yr Building Damage (%)	10yrBuilding Damage Cost ($)	10yr Content Damage (%)	10yr Content Damage Cost ($)	10yr Total Damage Cost ($)	100yr Building Damage (%)	100yrBuilding Damage Cost ($)	100yr Content Damage (%)	100yr Content Damage Cost ($)	100yr Total Damage Cost ($)
237	1363.077	1363.327026	Residential	10609.44226	$ 7,702,455	$ 3,851,228	1363.127563	-0.20	1363.130005	-0.20	1363.129761	-0.20	1363.129761	-0.20	3.21	$ 247,396	0.00	$ -	$ 247,396.39	3.21	$ 247,321	0.00	$ -	$ 247,321.21
238	1349.4791	1349.729126	Residential	1499.625549	$ 1,088,728	$ 544,364	1349.505493	-0.22	1349.505371	-0.22	1349.608521	-0.12	1349.554077	-0.18	3.10498	$ 33,805	0	$ -	$ 33,804.79	3.299804	$ 35,926	0	$ -	$ 35,925.89
239	1368.2323	1368.4823	Residential	6792.286804	$ 4,931,200	$ 2,465,600	1368.323364	-0.16	1368.321777	-0.16	1368.325684	-0.16	1368.325684	-0.16	3.36	$ 165,585	0.00	$ -	$ 165,585.17	3.37	$ 166,356	0.00	$ -	$ 166,355.81
240	1366.8684	1367.118408	Residential	6303.598511	$ 4,576,413	$ 2,288,206	1366.92749	-0.19	1366.926025	-0.19	1366.931519	-0.19	1366.931519	-0.19	3.230468	$ 147,840	0	$ -	$ 147,839.54	3.252444	$ 148,845	0	$ -	$ 148,845.25
241	1381.4254	1381.675415	Residential	8258.813843	$ 5,995,899	$ 2,997,949	1381.619629	-0.06	1381.620728	-0.05	1381.691772	0.02	1381.666382	-0.01	3.781252	$ 226,720	0	$ -	$ 226,720.05	3.963868	$ 237,670	0	$ -	$ 237,669.52
242	1374.0637	1374.313721	Residential	1514.909546	$ 1,099,824	$ 549,912	1374.154053	-0.16	1374.150024	-0.16	1374.155151	-0.16	1374.155273	-0.16	3.345212	$ 36,791	0	$ -	$ 36,791.46	3.366208	$ 37,022	0	$ -	$ 37,022.37
243	1361.5778	1361.827759	Residential	5731.376465	$ 4,160,979	$ 2,080,490	1361.610352	-0.22	1361.609985	-0.22	1361.613403	-0.21	1361.613403	-0.21	3.13	$ 130,193	0.00	$ -	$ 130,193.05	3.14	$ 130,762	0.00	$ -	$ 130,761.94
244	1368.0669	1368.316895	Residential	820.711121	$ 595,836	$ 297,918	1368.264038	-0.05	1368.26001	-0.06	1368.454102	0.14	1368.264893	-0.05	3.77246	$ 22,478	0	$ -	$ 22,477.69	3.791992	$ 22,594	0	$ -	$ 22,594.06
245	1377.4694	1377.71936	Residential	9322.061707	$ 6,767,817	$ 3,383,908	1377.481201	-0.24	1377.478882	-0.24	1377.491089	-0.23	1377.491089	-0.23	3.04	$ 205,612	0.00	$ -	$ 205,612.23	3.09	$ 208,917	0.00	$ -	$ 208,916.82
246	1370.7789	1371.028931	Residential	4462.246643	$ 3,239,591	$ 1,619,796	1370.87854	-0.15	1370.880005	-0.15	1370.880981	-0.15	1370.880981	-0.15	3.404296	$ 110,285	0	$ -	$ 110,285.27	3.4082	$ 110,412	0	$ -	$ 110,411.74
247	1383.4347	1383.684692	Residential	5164.128662	$ 3,749,157	$ 1,874,579	1383.55481	-0.13	1383.557129	-0.13	1383.557861	-0.13	1383.557861	-0.13	3.49	$ 130,836	0.00	$ -	$ 130,836.15	3.49	$ 130,946	0.00	$ -	$ 130,945.92
248	1383.4193	1383.669312	Residential	5801.94397	$ 4,212,211	$ 2,106,106	1383.576904	-0.09	1383.579956	-0.09	1383.578613	-0.09	1383.578491	-0.09	3.642576	$ 153,433	0.00	$ -	$ 153,433.00	3.636716	$ 153,186	0.00	$ -	$ 153,186.16
249	1364.1787	1364.428711	Residential	4602.597412	$ 3,341,486	$ 1,670,743	1364.308594	-0.12	1364.310059	-0.12	1364.533447	0.10	1364.389771	-0.04	3.53	$ 117,800	0.00	$ -	$ 117,800.47	3.84	$ 128,455	0.00	$ -	$ 128,454.73
250	1378.4397	1378.689697	Residential	5496.526245	$ 3,990,478	$ 1,995,239	1378.47644	-0.21	1378.47998	-0.21	1378.478271	-0.21	1378.478271	-0.21	3.16	$ 126,144	0.00	$ -	$ 126,144.28	3.15	$ 125,871	0.00	$ -	$ 125,871.49
251	1380.9373	1381.187256	Residential	5218.038513	$ 3,788,296	$ 1,894,148	1380.941772	-0.25	1380.939819	-0.25	1380.987305	-0.20	1381.089478	-0.10	3.01	$ 114,037	0.00	$ -	$ 114,037.25	3.61	$ 136,715	0.00	$ -	$ 136,715.36
252	1384.512	1384.761963	Residential	4131.500061	$ 2,999,469	$ 1,499,735	1384.564697	-0.20	1384.560059	-0.20	1384.589355	-0.17	1384.589355	-0.17	3.192384	$ 95,755	0	$ -	$ 95,754.57	3.309568	$ 99,269	0	$ -	$ 99,269.47
253	1359.9803	1360.230347	Residential	2268.955322	$ 1,647,262	$ 823,631	1360.014893	-0.22	1360.013794	-0.22	1360.255005	0.02	1360.105713	-0.12	3.133788	$ 51,622	0	$ -	$ 51,621.69	3.501464	$ 57,678	0	$ -	$ 57,678.27
254	1352.5721	1352.822144	Residential	5705.019409	$ 4,141,844	$ 2,070,922	1352.655762	-0.17	1352.660034	-0.16	1352.8479	0.03	1352.69519	-0.13	3.35	$ 138,816	0.00	$ -	$ 138,816.39	3.49	$ 144,641	0.00	$ -	$ 144,640.82
255	1377.2522	1377.502197	Residential	6675.252869	$ 4,846,234	$ 2,423,117	1377.436279	-0.07	1377.435181	-0.07	1377.437622	-0.06	1377.437744	-0.06	3.73	$ 180,858	0.00	$ -	$ 180,858.34	3.74	$ 181,355	0.00	$ -	$ 181,355.17
256	1378.1875	1378.4375	Residential	1162.67511	$ 844,102	$ 422,051	1378.304199	-0.13	1378.302246	-0.14	1378.308716	-0.13	1378.308716	-0.13	3.458984	$ 29,197	0	$ -	$ 29,197.36	3.484864	$ 29,416	0	$ -	$ 29,415.81
257	1351.558	1351.807983	Residential	7151.573364	$ 5,192,042	$ 2,596,021	1351.605347	-0.20	1351.609985	-0.20	1351.660278	-0.15	1351.607544	-0.20	3.208008	$ 166,561	0	$ -	$ 166,561.13	3.198244	$ 166,054	0	$ -	$ 166,054.18
258	1352.8057	1353.055664	Residential	1599.585388	$ 1,161,299	$ 580,649	1352.888916	-0.17	1352.890991	-0.16	1353.143311	0.09	1352.966919	-0.09	3.341308	$ 38,803	0	$ -	$ 38,802.58	3.64502	$ 42,330	0	$ -	$ 42,329.58
259	1359.526	1359.776001	Residential	5013.345703	$ 3,639,689	$ 1,819,844	1359.563477	-0.21	1359.560059	-0.22	1359.815674	0.04	1359.676147	-0.10	3.14	$ 114,149	0.00	$ -	$ 114,149.09	3.60	$ 131,050	0.00	$ -	$ 131,050.06
260	1369.9309	1370.180908	Residential	1631.4505	$ 1,184,433	$ 592,217	1370.001343	-0.18	1370.003662	-0.18	1370.005859	-0.18	1370.005859	-0.18	3.29	$ 38,980	0.00	$ -	$ 38,979.88	3.30	$ 39,084	0.00	$ -	$ 39,083.97
261	1364.5201	1364.770142	Residential	6330.97168	$ 4,596,285	$ 2,298,143	1364.756348	-0.01	1364.76001	-0.01	1364.758057	-0.01	1364.758057	-0.01	3.959472	$ 181,989	0	$ -	$ 181,988.64	3.95166	$ 181,630	0	$ -	$ 181,629.57
262	1379.0126	1379.262573	Residential	11915.48267	$ 8,650,640	$ 4,325,320	1379.315308	0.05	1379.310059	0.05	1379.430786	0.17	1379.430786	0.17	5.42	$ 469,261	1.99	$ 86,265	$ 555,525.62	9.05	$ 782,571	7.06	$ 305,582	$ 1,088,152.21
263	1380.3851	1380.635132	Residential	839.351196	$ 609,369	$ 304,684	1380.475952	-0.16	1380.473145	-0.16	1380.871704	0.24	1380.726929	0.09	3.35	$ 20,426	0.00	$ -	$ 20,426.36	6.75	$ 41,156	3.86	$ 11,747	$ 52,903.26
264	1350.6312	1350.881226	Residential	11002.85187	$ 7,988,070	$ 3,994,035	1350.748291	-0.13	1350.744751	-0.14	1350.750366	-0.13	1350.750366	-0.13	3.4541	$ 275,916	0	$ -	$ 275,915.94	3.47656	$ 277,710	0	$ -	$ 277,710.06
265	1362.2693	1362.519287	Residential	8576.057251	$ 6,226,218	$ 3,113,109	1362.358276	-0.16	1362.359985	-0.16	1362.360718	-0.16	1362.360718	-0.16	3.362792	$ 209,375	0	$ -	$ 209,374.75	3.365724	$ 209,557	0	$ -	$ 209,557.30
266	1379.4694	1379.71936	Residential	541.316711	$ 392,996	$ 196,498	1379.508667	-0.21	1379.511963	-0.21	1379.52002	-0.20	1379.52002	-0.20	3.170412	$ 12,460	0	$ -	$ 12,459.59	3.20264	$ 12,586	0	$ -	$ 12,586.24
267	1375.348	1375.598022	Residential	5572.635681	$ 4,045,734	$ 2,022,867	1375.486694	-0.11	1375.48999	-0.11	1375.488647	-0.11	1375.488647	-0.11	3.567872	$ 144,347	0	$ -	$ 144,346.59	3.5625	$ 144,129	0	$ -	$ 144,129.26
268	1369.1	1369.349976	Residential	4953.879761	$ 3,596,517	$ 1,798,258	1369.13855	-0.21	1369.140015	-0.21	1369.140991	-0.21	1369.140991	-0.21	3.160156	$ 113,656	0	$ -	$ 113,655.54	3.16406	$ 113,796	0	$ -	$ 113,795.95
269	1375.8182	1376.068237	Residential	7317.905151	$ 5,312,799	$ 2,656,400	1375.90625	-0.16	1375.910034	-0.16	1375.908203	-0.16	1375.908203	-0.16	3.367188	$ 178,892	0	$ -	$ 178,891.94	3.359864	$ 178,503	0	$ -	$ 178,502.83
270	1372.4429	1372.692871	Residential	5703.677429	$ 4,140,870	$ 2,070,435	1372.499146	-0.19	1372.5	-0.19	1372.842041	0.15	1372.760498	0.07	3.228516	$ 133,689	0	$ -	$ 133,688.64	6.02881	$ 249,645	2.840334	$ 58,807	$ 308,452.44
271	1373.303	1373.552979	Residential	4983.422424	$ 3,617,965	$ 1,808,982	1373.359741	-0.19	1373.359985	-0.19	1373.362549	-0.19	1373.362549	-0.19	3.23	$ 116,789	0.00	$ -	$ 116,788.77	3.24	$ 117,160	0.00	$ -	$ 117,159.83
272	1374.13	1374.380005	Residential	1252.694458	$ 909,456	$ 454,728	1374.165894	-0.21	1374.165894	-0.21	1374.209473	-0.17	1374.31543	-0.06	3.14	$ 28,589	0.00	$ -	$ 28,589.26	3.74	$ 34,029	0.00	$ -	$ 34,029.12
273	1380.0908	1380.34082	Residential	6937.932373	$ 5,036,939	$ 2,518,469	1380.18396	-0.16	1380.179443	-0.16	1380.187744	-0.15	1380.187744	-0.15	3.354492	$ 168,964	0	$ -	$ 168,963.71	3.387696	$ 170,636	0	$ -	$ 170,636.18
274	1367.9772	1368.227173	Residential	913.789795	$ 663,411	$ 331,706	1368.055054	-0.17	1368.054565	-0.17	1368.118164	-0.11	1368.118652	-0.11	3.309568	$ 21,956	0	$ -	$ 21,956.05	3.565916	$ 23,657	0	$ -	$ 23,656.69
275	1385.3944	1385.644409	Residential	5771.407349	$ 4,190,042	$ 2,095,021	1385.609619	-0.03	1385.606689	-0.04	1385.611938	-0.03	1385.611938	-0.03	3.84912	$ 161,280	0	$ -	$ 161,279.73	3.870116	$ 162,159	0	$ -	$ 162,159.48
276	1387.2709	1387.520874	Residential	5552.046021	$ 4,030,785	$ 2,015,393	1387.311035	-0.21	1387.310547	-0.21	1387.504761	-0.02	1387.318115	-0.20	3.16	$ 127,320	0.00	$ -	$ 127,320.10	3.19	$ 128,540	0.00	$ -	$ 128,540.30
277	1367.6104	1367.860352	Residential	7009.434998	$ 5,088,850	$ 2,544,425	1367.910522	0.05	1367.907593	0.05	1367.91394	0.05	1367.91394	0.05	5.42	$ 275,675	1.98	$ 50,484	$ 326,159.19	5.61	$ 285,364	2.25	$ 57,267	$ 342,631.65
278	1363.4945	1363.744507	Residential	853.24762	$ 619,458	$ 309,729	1363.821899	0.08	1363.81604	0.07	1363.901367	0.16	1363.778931	0.03	6.14599	$ 38,072	3.004386	$ 9,305	$ 47,377.26	5.03272	$ 31,176	1.445808	$ 4,478	$ 35,653.66
279	1350.0875	1350.337524	Residential	10697.2514	$ 7,766,205	$ 3,883,102	1350.165649	-0.17	1350.170044	-0.17	1350.167847	-0.17	1350.167847	-0.17	3.33008	$ 258,621	0.00	$ -	$ 258,620.82	3.321292	$ 257,938	0.00	$ -	$ 257,938.33
280	1376.0103	1376.260254	Residential	5828.388794	$ 4,231,410	$ 2,115,705	1376.113281	-0.15	1376.110474	-0.15	1376.322021	0.06	1376.210327	-0.05	3.40088	$ 143,905	0	$ -	$ 143,905.19	3.800292	$ 160,806	0	$ -	$ 160,805.95
281	1363.2751	1363.525146	Residential	4981.87793	$ 3,616,843	$ 1,808,422	1363.585938	0.06	1363.589966	0.06	1363.587646	0.06	1363.587646	0.06	5.94	$ 215,007	2.72	$ 49,233	$ 264,240.07	5.88	$ 212,490	2.63	$ 47,471	$ 259,960.62
282	1364.8573	1365.1073	Residential	5441.521606	$ 3,950,545	$ 1,975,272	1364.873047	-0.23	1364.869995	-0.24	1365.18335	0.08	1365.019409	-0.09	3.05	$ 120,522	0.00	$ -	$ 120,522.43	3.65	$ 144,133	0.00	$ -	$ 144,133.09
283	1354.2184	1354.468384	Residential	8289.320374	$ 6,018,047	$ 3,009,023	1354.248779	-0.22	1354.25	-0.22	1354.251343	-0.22	1354.251343	-0.22	3.126464	$ 188,152	0	$ -	$ 188,152.06	3.131836	$ 188,475	0	$ -	$ 188,475.35
284	1372.8903	1373.140259	Residential	8222.430359	$ 5,969,484	$ 2,984,742	1373.056763	-0.08	1373.060059	-0.08	1373.05896	-0.08	1373.05896	-0.08	3.6792	$ 219,629	0.00	$ -	$ 219,629.27	3.674804	$ 219,367	0.00	$ -	$ 219,366.85
285	1378.4001	1378.650146	Residential	676.52594	$ 491,158	$ 245,579	1378.46167	-0.19	1378.463745	-0.19	1378.816895	0.17	1378.637695	-0.01	3.254396	$ 15,984	0.00	$ -	$ 15,984.22	3.950196	$ 19,402	0.00	$ -	$ 19,401.70
286	1368.6187	1368.868652	Residential	5465.292114	$ 3,967,802	$ 1,983,901	1368.747925	-0.12	1368.75	-0.12	1368.750244	-0.12	1368.750244	-0.12	3.525392	$ 139,881	0.00	$ -	$ 139,880.58	3.526368	$ 139,919	0.00	$ -	$ 139,919.30
287	1367.5726	1367.822632	Residential	1352.527161	$ 981,935	$ 490,967	1367.605469	-0.22	1367.606201	-0.22	1367.737671	-0.08	1367.611938	-0.21	3.134276	$ 30,777	0.00	$ -	$ 30,776.54	3.157224	$ 31,002	0.00	$ -	$ 31,001.88
288	1374.5093	1374.759277	Residential	7223.822937	$ 5,244,495	$ 2,622,248	1374.658447	-0.10	1374.660034	-0.10	1374.661987	-0.10	1374.661987	-0.10	3.603028	$ 188,961	0.00	$ -	$ 188,960.64	3.61084	$ 189,370	0.00	$ -	$ 189,370.34
289	1374.952	1375.202026	Residential	5736.555786	$ 4,164,740	$ 2,082,370	1375.108032	-0.09	1375.109985	-0.09	1375.367554	0.17	1375.110474	-0.09	3.631836	$ 151,257	0.00	$ -	$ 151,256.51	3.633792	$ 151,338	0.00	$ -	$ 151,337.97
290	1384.7537	1385.003662	Residential	5160.67395	$ 3,746,649	$ 1,873,325	1384.845093	-0.16	1384.845825	-0.16	1384.84729	-0.16	1384.84729	-0.16	3.368652	$ 126,212	0.00	$ -	$ 126,211.58	3.374512	$ 126,431	0.00	$ -	$ 126,431.13
291	1384.5807	1384.830688	Residential	5555.55072	$ 4,033,330	$ 2,016,665	1384.603516	-0.23	1384.602539	-0.23	1384.821777	-0.01	1384.624878	-0.21	3.087404	$ 124,525	0.00	$ -	$ 124,525.19	3.17676	$ 128,129	0.00	$ -	$ 128,129.21
292	1350.9303	1351.180298	Residential	1578.312317	$ 1,145,855	$ 572,927	1350.985352	-0.19	1350.98999	-0.19	1350.987427	-0.19	1350.987305	-0.19	3.238768	$ 37,112	0	$ -	$ 37,111.58	3.228028	$ 36,989	0	$ -	$ 36,988.51
293	1367.7457	1367.995728	Residential	11956.06262	$ 8,680,101	$ 4,340,051	1367.846802	-0.15	1367.847534	-0.15	1368.100586	0.10	1368.070801	0.08	3.407224	$ 295,751	0	$ -	$ 295,750.50	6.25219	$ 542,696	3.153066	$ 136,845	$ 679,541.10
294	1352.0001	1352.250122	Residential	344.753784	$ 250,291	$ 125,146	1352.016235	-0.23	1352.016724	-0.23	1352.041626	-0.21	1352.020752	-0.23	3.066408	$ 7,675	0	$ -	$ 7,674.95	3.08252	$ 7,715	0	$ -	$ 7,715.28
295	1368.4915	1368.741455	Residential	7669.678345	$ 5,568,186	$ 2,784,093	1368.560059	-0.18	1368.560059	-0.18	1368.562866	-0.18	1368.562988	-0.18	3.274416	$ 182,326	0	$ -	$ 182,325.59	3.286132	$ 182,978	0	$ -	$ 182,977.96
296	1366.8972	1367.147217	Residential	9063.669006	$ 6,580,224	$ 3,290,112	1367.174805	0.03	1367.174316	0.03	1367.441162	0.29	1367.081421	-0.07	4.81297	$ 316,704	1.138158	$ 37,447	$ 354,150.86	3.736816	$ 245,891	0	$ -	$ 245,890.85
297	1367.4869	1367.736938	Residential	8579.124695	$ 6,228,445	$ 3,114,222	1367.578857	-0.16	1367.579956	-0.16	1367.581543	-0.16	1367.581543	-0.16	3.372072	$ 210,028	0	$ -	$ 210,027.63	3.37842	$ 210,423	0	$ -	$ 210,423.02
298	1355.2068	1355.456787	Residential	9155.569641	$ 6,646,944	$ 3,323,472	1355.265381	-0.19	1355.27002	-0.19	1355.2677	-0.19	1355.2677	-0.19	3.252932	$ 216,221	0	$ -	$ 216,220.55	3.243652	$ 215,604	0	$ -	$ 215,603.72
299	1364.124	1364.374023	Residential	4618.256714	$ 3,352,854	$ 1,676,427	1364.23877	-0.14	1364.23999	-0.13	1364.339722	-0.03	1364.241455	-0.13	3.463868	$ 116,138	0	$ -	$ 116,138.45	3.469728	$ 116,335	0	$ -	$ 116,334.93
300	1376.0048	1376.254761	Residential	4963.528931	$ 3,603,522	$ 1,801,761	1376.107666	-0.15	1376.109985	-0.14	1376.109985	-0.14	1376.109985	-0.14	3.420896	$ 123,273	0	$ -	$ 123,272.74	3.420896	$ 123,273	0	$ -	$ 123,272.74
301	1379.886	1380.135986	Residential	7881.984436	$ 5,722,321	$ 2,861,160	1380.047241	-0.09	1380.050049	-0.09	1380.049561	-0.09	1380.049561	-0.09	3.656252	$ 209,222	0	$ -	$ 209,222.47	3.6543	$ 209,111	0	$ -	$ 209,110.77
302	1368.6685	1368.918457	Residential	5292.979675	$ 3,842,703	$ 1,921,352	1368.994873	0.08	1368.991821	0.07	1369.317749	0.40	1368.893799	-0.02	6.20092	$ 238,283	3.081288	$ 59,202	$ 297,485.33	3.901368	$ 149,918	0	$ -	$ 149,917.99
303	1367.4	1367.650024	Residential	424.157715	$ 307,939	$ 153,969	1367.44519	-0.20	1367.449951	-0.20	1367.513428	-0.14	1367.51355	-0.14	3.199708	$ 9,853	0	$ -	$ 9,853.13	3.454104	$ 10,637	0	$ -	$ 10,636.52
304	1378.8812	1379.131226	Residential	5535.167419	$ 4,018,532	$ 2,009,266	1378.9552	-0.18	1378.953247	-0.18	1378.95813	-0.17	1378.95813	-0.17	3.288084	$ 132,133	0	$ -	$ 132,132.69	3.307616	$ 132,918	0	$ -	$ 132,917.59
305	1366.5336	1366.783569	Residential	3380.404663	$ 2,454,174	$ 1,227,087	1367.192749	0.41	1367.193726	0.41	1367.414429	0.63	1367.108154	0.32	16.30471	$ 400,146	17.226594	$ 211,385	$ 611,531.20	13.73755	$ 337,143	13.63257	$ 167,283	$ 504,426.83
306	1380.2086	1380.458618	Residential	15858.52405	$ 11,513,288	$ 5,756,644	1380.320923	-0.14	1380.319946	-0.14	1380.324341	-0.13	1380.324341	-0.13	3.445312	$ 396,669	0	$ -	$ 396,668.71	3.462892	$ 398,693	0	$ -	$ 398,692.74
307	1371.6975	1371.94751	Residential	5749.80481	$ 4,174,358	$ 2,087,179	1371.821777	-0.13	1371.821655	-0.13	1371.824951	-0.12	1371.824829	-0.12	3.49658	$ 145,960	0	$ -	$ 145,959.78	3.509276	$ 146,490	0	$ -	$ 146,489.75
308	1377.5427	1377.792725	Residential	13799.37878	$ 10,018,349	$ 5,009,174	1377.736206	-0.06	1377.73999	-0.05	1377.738037	-0.05	1377.738037	-0.05	3.78906	$ 379,601	0	$ -	$ 379,601.25	3.781248	$ 378,819	0	$ -	$ 378,818.62
309	1377.3077	1377.557739	Residential	1204.42157	$ 874,410	$ 437,205	1377.368042	-0.19	1377.364624	-0.19	1377.489746	-0.07	1377.643188	0.09	3.22754	$ 28,222	0	$ -	$ 28,221.93	6.56347	$ 57,392	3.588858	$ 15,691	$ 73,082.31
310	1370.2943	1370.544312	Residential	1040.882263	$ 755,681	$ 377,840	1370.353149	-0.19	1370.353394	-0.19	1370.484985	-0.06	1370.348022	-0.20	3.236328	$ 24,456	0	$ -	$ 24,456.30	3.21484	$ 24,293	0	$ -	$ 24,293.92
311	1365.8914	1366.141357	Residential	4740.45105	$ 3,441,567	$ 1,720,784	1366.033447	-0.11	1366.035645	-0.11	1366.249756	0.11	1365.988525	-0.15	3.577152	$ 123,110	0	$ -	$ 123,110.10	3.388672	$ 116,623	0	$ -	$ 116,623.43
312	1381.6313	1381.881348	Residential	5565.741516	$ 4,040,728	$ 2,020,364	1381.801147	-0.08	1381.799072	-0.08	1381.812256	-0.07	1381.812378	-0.07	3.670896	$ 148,331	0	$ -	$ 148,330.94	3.72412	$ 150,482	0	$ -	$ 150,481.57
313	1357.6017	1357.851685	Residential	4709.370728	$ 3,419,003	$ 1,709,502	1357.810669	-0.04	1357.810059	-0.04	1358.27124	0.42	1358.062866	0.21	3.833496	$ 131,067	0	$ -	$ 131,067.35	10.33543	$ 353,369	8.869602	$ 151,626	$ 504,994.66
314	1381.8502	1382.10022	Residential	5632.723511	$ 4,089,357	$ 2,044,679	1381.916626	-0.18	1381.911987	-0.19	1381.931274	-0.17	1381.931152	-0.17	3.247068	$ 132,784	0	$ -	$ 132,784.21	3.323728	$ 135,919	0	$ -	$ 135,919.11
315	1384.3489	1384.598877	Residential	328.131775	$ 238,224	$ 119,112	1384.548584	-0.05	1384.546143	-0.05	1384.72168	0.12	1384.906738	0.31	3.789064	$ 9,026	0	$ -	$ 9,026.45	13.23583	$ 31,531	12.930162	$ 15,401	$ 46,932.23

10-Year and 100-Year Proposed Building Damages in Area K

															Proposed									
Building ID	HAG	Finished Floor Elevation (ft)	Land Use Type	Building Area (sf)	Replace Cost $ ($726/SF-Res)	Content Replacement Value ($) 1/2 of Replacement Cost	10yr Exist WSEL (ft)	10yr Exist Flow Depth (ft)	10yr Prop WSEL (ft)	10yr Prop Flow Depth (ft)	100yr Exist WSEL (ft)	100yr Exist Flow Depth (ft)	100yr Prop WSEL (ft)	100yr Prop Flow Depth (ft)	10yr Building Damage (%)	10yrBuilding Damage Cost ($)	10yr Content Damage (%)	10yr Content Damage Cost ($)	10yr Total Damage Cost ($)	100yr Building Damage (%)	100yrBuilding Damage Cost ($)	100yr Content Damage (%)	100yr Content Damage Cost ($)	100yr Total Damage Cost ($)
316	1361.4711	1361.721069	Residential	8114.740051	$ 5,891,301	$ 2,945,651	1361.568604	-0.15	1361.569946	-0.15	1361.571045	-0.15	1361.571045	-0.15	3.395508	$ 200,040	0	$ -	$ 200,039.61	3.399904	$ 200,299	0	$ -	$ 200,298.59
317	1360.3242	1360.574219	Residential	3291.969604	$ 2,389,970	$ 1,194,985	1360.664551	0.09	1360.660034	0.09	1360.869141	0.29	1360.613525	0.04	6.57445	$ 157,127	3.60423	$ 43,070	$ 200,197.38	5.17918	$ 123,781	1.650852	$ 19,727	$ 143,508.28
318	1360.4828	1360.732788	Residential	7044.700256	$ 5,114,452	$ 2,557,226	1360.483276	-0.25	1360.4823	-0.25	1360.608276	-0.12	1360.561768	-0.17	2.998048	$ 153,334	0	$ -	$ 153,333.74	3.31592	$ 169,591	0	$ -	$ 169,591.15
319	1375.0812	1375.331177	Residential	7783.893127	$ 5,651,106	$ 2,825,553	1375.328735	0.00	1375.329956	0.00	1375.860107	0.53	1375.114136	-0.22	3.995116	$ 225,768	0	$ -	$ 225,768.26	3.131836	$ 176,983	0	$ -	$ 176,983.38
320	1353.952	1354.202026	Residential	5427.761719	$ 3,940,555	$ 1,970,278	1354.112427	-0.09	1354.115601	-0.09	1354.115967	-0.09	1354.114624	-0.09	3.6543	$ 144,000	0	$ -	$ 143,999.70	3.650392	$ 143,846	0	$ -	$ 143,845.70
321	1366.7892	1367.039185	Residential	5971.685242	$ 4,335,443	$ 2,167,722	1366.812988	-0.23	1366.810303	-0.23	1367.24707	0.21	1366.943237	-0.10	3.084472	$ 133,726	0	$ -	$ 133,725.54	3.616208	$ 156,779	0	$ -	$ 156,778.65
322	1378.1312	1378.381226	Residential	5963.877625	$ 4,329,775	$ 2,164,888	1378.215454	-0.17	1378.214478	-0.17	1378.220703	-0.16	1378.220703	-0.16	3.333008	$ 144,312	0	$ -	$ 144,311.75	3.357908	$ 145,390	0	$ -	$ 145,389.87
323	1370.1912	1370.441162	Residential	5864.994141	$ 4,257,986	$ 2,128,993	1370.313354	-0.13	1370.310059	-0.13	1370.500488	0.06	1370.292603	-0.15	3.475588	$ 147,990	0	$ -	$ 147,990.04	3.405764	$ 145,017	0	$ -	$ 145,016.95
324	1364.6116	1364.861572	Residential	8787.81427	$ 6,379,953	$ 3,189,977	1364.679688	-0.18	1364.684204	-0.18	1364.681763	-0.18	1364.681885	-0.18	3.290528	$ 209,934	0	$ -	$ 209,934.15	3.281252	$ 209,342	0	$ -	$ 209,342.34
325	1367.1274	1367.377441	Residential	862.57312	$ 626,228	$ 313,114	1367.134888	-0.24	1367.135864	-0.24	1367.141968	-0.24	1367.141968	-0.24	3.033692	$ 18,998	0	$ -	$ 18,997.83	3.058108	$ 19,151	0	$ -	$ 19,150.73
326	1360.1703	1360.420288	Residential	6272.609619	$ 4,553,915	$ 2,276,957	1360.312744	-0.11	1360.310059	-0.11	1360.492432	0.07	1360.253784	-0.17	3.559084	$ 162,078	0	$ -	$ 162,077.65	3.333984	$ 151,827	0	$ -	$ 151,826.78
327	1359.764	1360.014038	Residential	440.797302	$ 320,019	$ 160,009	1359.788696	-0.23	1359.787354		1359.799072	-0.21	1359.799072	-0.21					$ 51,009,466.04					$ 60,716,150.04

10-Year and 100-Year Existing Building Damages in Area A

															Existing							
Building ID	HAG	Finished Floor Elevation (ft)	Land Use Type	Building Area (sf)	Replace Cost $ ($726/SF-Res)	Content Replacement Value ($) 1/2 of Replacement Cost	10yr Exist WSEL (ft)	10yr Exist Flow Depth (ft)	10yr Prop WSEL (ft)	10yr Prop Flow Depth (ft)	100yr Exist WSEL (ft)	100yr Exist Flow Depth (ft)	100yr Prop WSEL (ft)	100yr Prop Flow Depth (ft)	10yr Building Damage (%)	10yrBuilding Damage Cost ($)	10yr Content Damage (%)	10yr Content Damage Cost ($)	10yr Total Damage Cost ($)	100yr Building Damage (%)	100yrBuilding Damage Cost ($)	100yr Content Damage (%)	100yr Content Damage Cost ($)	100yr Total Damage Cost ($)
198	1331.10	1331.35	Residential	7479.12	$ 5,429,839	$ 2,714,920	1331.08	-0.27	1331.08	-0.27	1331.18	-0.17	1331.18	-0.17	2.92724608	$ 158,945	0	$ -	$ 158,944.76	3.31542968	$ 180,023	0	$ -	$ 180,022.50
528	1335.72	1335.97	Residential	10191.57	$ 7,399,081	$ 3,699,541	1335.76	-0.21	1335.76	-0.21	1335.81	-0.16	1335.81	-0.16	3.16845704	$ 234,437	0	$ -	$ 234,436.70	3.36865236	$ 249,249	0	$ -	$ 249,249.32
121	1525.48	1525.73	Residential	406.99	$ 295,472	$ 147,736	0.00	-1.00	0.00	-1.00	1166.47	-1.00	1166.47	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
538	1327.24	1327.49	Residential	2669.28	$ 1,937,899	$ 968,950	1327.36	-0.14	1327.19	-0.30	1328.06	0.57	1327.66	0.16	3.45	$ 66,842	0.00	$ -	$ 66,842.38	21.07	$ 408,369	23.90	$ 231,597	$ 639,965.63
470	1333.16	1333.41	Residential	1558.25	$ 1,131,291	$ 565,645	974.14	-1.00	974.13	-1.00	1333.04	-0.37	1333.04	-0.37	0	$ -	0	$ -	$ -	2.50341796	$ 28,321	0	$ -	$ 28,320.94
262	1340.41	1340.66	Residential	8866.52	$ 6,437,090	$ 3,218,545	1340.38	-0.28	1340.38	-0.28	1340.47	-0.19	1340.46	-0.20	2.88	$ 185,255	0.00	$ -	$ 185,254.93	3.24	$ 208,703	0.00	$ -	$ 208,702.53
61	1333.57	1333.82	Residential	2138.95	$ 1,552,880	$ 776,440	1279.33	-1.00	1279.30	-1.00	1334.09	0.27	1334.06	0.24	0.00	$ -	0.00	$ -	$ -	12.20	$ 189,443	11.48	$ 89,129	$ 278,572.45
51	1341.97	1342.22	Residential	8818.57	$ 6,402,284	$ 3,201,142	1342.64	0.42	1342.58	0.36	1343.07	0.84	1343.04	0.82	16.58	$ 1,061,691	17.62	$ 563,920	$ 1,625,611.33	29.25	$ 1,872,684	35.35	$ 1,131,615	$ 3,004,298.58
59	1343.56	1343.81	Residential	1029.42	$ 747,360	$ 373,680	1344.22	0.41	1344.05	0.24	1344.65	0.84	1344.54	0.73	16.35	$ 122,211	17.29	$ 64,621	$ 186,831.80	29.15	$ 217,838	35.21	$ 131,561	$ 349,399.02
274	1339.51	1339.76	Residential	2963.81	$ 2,151,726	$ 1,075,863	1340.25	0.49	1340.19	0.43	1340.72	0.96	1340.68	0.92	18.73	$ 403,076	20.63	$ 221,905	$ 624,980.34	32.95	$ 708,893	40.52	$ 435,977	$ 1,144,869.66
195	1331.08	1331.33	Residential	5775.30	$ 4,192,867	$ 2,096,433	1048.47	-1.00	1048.48	-1.00	1331.17	-0.16	1331.19	-0.16	0	$ -	0	$ -	$ -	3.35888672	$ 140,834	0	$ -	$ 140,833.64
537	1317.88	1318.13	Residential	11429.48	$ 8,297,801	$ 4,148,901	871.71	-1.00	871.70	-1.00	1317.76	-0.37	1317.74	-0.39	0.00	$ -	0.00	$ -	$ -	2.51	$ 207,931	0.00	$ -	$ 207,931.23
360	1323.97	1324.22	Residential	1063.36	$ 772,000	$ 386,000	1324.61	0.38	1324.58	0.36	1324.89	0.66	1324.88	0.66	15.55	$ 120,020	16.17	$ 62,398	$ 182,417.93	23.91	$ 184,620	27.88	$ 107,618	$ 292,238.49
338	1320.98	1321.23	Residential	3049.31	$ 2,213,799	$ 1,106,900	787.52	-1.00	787.51	-1.00	787.54	-1.00	787.53	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
60	1333.08	1333.33	Residential	7401.44	$ 5,373,442	$ 2,686,721	289.24	-1.00	289.23	-1.00	289.27	-1.00	289.26	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
413	1455.19	1455.44	Residential	9053.91	$ 6,573,135	$ 3,286,568	0.00	-1.00	0.00	-1.00	736.98	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
158	1332.06	1332.31	Residential	13840.34	$ 10,048,089	$ 5,024,045	1332.44	0.13	1332.44	0.13	1332.62	0.31	1332.63	0.31	7.8122557	$ 784,982	5.33715798	$ 268,141	$ 1,053,123.61	13.2907714	$ 1,335,469	13.00707996	$ 653,481	$ 1,988,950.04
238	1335.27	1335.52	Residential	6338.22	$ 4,601,549	$ 2,300,774	100.03	-1.00	100.03	-1.00	1335.16	-0.36	1335.16	-0.36	0	$ -	0	$ -	$ -	2.5493164	$ 117,308	0	$ -	$ 117,308.03
349	1324.98	1325.23	Residential	7393.78	$ 5,367,884	$ 2,683,942	673.55	-1.00	673.54	-1.00	783.59	-1.00	783.57	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
27	1316.52	1316.77	Residential	7472.12	$ 5,424,758	$ 2,712,379	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
405	1326.51	1326.76	Residential	1009.50	$ 732,896	$ 366,448	355.52	-1.00	355.52	-1.00	355.55	-1.00	355.55	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
141	1342.43	1342.68	Residential	7243.14	$ 5,258,522	$ 2,629,261	874.65	-1.00	874.65	-1.00	874.66	-1.00	874.67	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
146	1338.37	1338.62	Residential	15504.94	$ 11,256,588	$ 5,628,294	1338.87	0.25	1338.88	0.25	1339.19	0.57	1339.21	0.57	11.573242	$ 1,302,752	10.6025388	$ 596,742	$ 1,899,494.18	21.244873	$ 2,391,448	24.1428222	$ 1,358,829	$ 3,750,276.74
72	1351.63	1351.88	Residential	11007.51	$ 7,991,454	$ 3,995,727	1351.32	-0.57	1351.32	-0.57	1351.37	-0.51	1351.37	-0.51	1.73632812	$ 138,758	0	$ -	$ 138,757.86	1.953125	$ 156,083	0	$ -	$ 156,083.08
254	1345.68	1345.93	Residential	1895.39	$ 1,376,051	$ 688,025	0.00	-1.00	0.00	-1.00	753.45	-1.00	753.45	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
565	1332.50	1332.75	Residential	6624.03	$ 4,809,043	$ 2,404,522	1332.28	-0.47	1332.28	-0.47	1332.63	-0.13	1332.33	-0.43	2.11	$ 101,511	0.00	$ -	$ 101,511.20	3.49	$ 167,847	0.00	$ -	$ 167,846.88
169	1332.68	1332.93	Residential	10483.42	$ 7,610,964	$ 3,805,482	518.50	-1.00	518.50	-1.00	1332.76	-0.17	1332.76	-0.17	0	$ -	0	$ -	$ -	3.3017578	$ 251,296	0	$ -	$ 251,295.59
286	1349.36	1349.61	Residential	7943.75	$ 5,767,160	$ 2,883,580	1349.40	-0.20	1349.40	-0.20	1349.42	-0.18	1349.42	-0.18	3.19	$ 184,194	0.00	$ -	$ 184,194.30	3.26	$ 188,277	0.00	$ -	$ 188,277.49
373	1322.46	1322.71	Residential	7149.90	$ 5,190,828	$ 2,595,414	1322.63	-0.08	1322.58	-0.13	1322.97	0.26	1322.96	0.25	3.66	$ 190,018	0.00	$ -	$ 190,017.78	11.69	$ 607,020	10.77	$ 279,571	$ 886,591.20
400	1328.18	1328.43	Residential	9066.93	$ 6,582,588	$ 3,291,294	568.20	-1.00	568.20	-1.00	568.33	-1.00	568.33	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
280	1330.76	1331.01	Residential	4647.57	$ 3,374,137	$ 1,687,068	1330.98	-0.03	1330.95	-0.06	1331.20	0.20	1331.19	0.18	3.90	$ 131,489	0.00	$ -	$ 131,489.18	9.89	$ 333,781	8.25	$ 139,171	$ 472,951.63
144	1336.17	1336.42	Residential	7180.50	$ 5,213,041	$ 2,606,520	1336.51	0.08	1336.51	0.08	1336.72	0.30	1336.73	0.30	6.4060057	$ 333,948	3.36840798	$ 87,798	$ 421,745.92	12.9831541	$ 676,817	12.57641574	$ 327,807	$ 1,004,623.93
525	1326.25	1326.50	Residential	19943.97	$ 14,479,323	$ 7,239,662	1165.30	-1.00	1165.29	-1.00	1326.23	-0.27	1326.02	-0.48	0.00	$ -	0.00	$ -	$ -	2.94	$ 425,472	0.00	$ -	$ 425,471.51
404	1322.82	1323.07	Residential	5577.85	$ 4,049,522	$ 2,024,761	1322.62	-0.45	1322.60	-0.47	1322.96	-0.11	1322.95	-0.11	2.21	$ 89,493	0.00	$ -	$ 89,492.85	3.57	$ 144,442	0.00	$ -	$ 144,442.18
89	1369.74	1369.99	Residential	10864.86	$ 7,887,890	$ 3,943,945	736.76	-1.00	736.75	-1.00	736.78	-1.00	736.77	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
555	1330.05	1330.30	Residential	6177.14	$ 4,484,601	$ 2,242,300	690.87	-1.00	690.63	-1.00	1329.38	-0.92	690.95	-1.00	0.00	$ -	0.00	$ -	$ -	0.34	$ 15,197	0.00	$ -	$ 15,196.84
328	1382.11	1382.36	Residential	5083.66	$ 3,690,738	$ 1,845,369	0.00	-1.00	0.00	-1.00	1062.62	-1.00	1062.61	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
544	1317.89	1318.14	Residential	1064.51	$ 772,835	$ 386,417	0.00	-1.00	0.00	-1.00	863.13	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
269	1343.78	1344.03	Residential	1292.67	$ 938,479	$ 469,239	766.99	-1.00	0.00	-1.00	767.16	-1.00	767.11	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
163	1341.77	1342.02	Residential	767.27	$ 557,041	$ 278,521	0.00	-1.00	0.00	-1.00	900.61	-1.00	900.61	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
551	1327.07	1327.32	Residential	11720.01	$ 8,508,728	$ 4,254,364	1326.26	-1.00	915.96	-1.00	1326.52	-0.80	1326.34	-0.98	0.00	$ -	0.00	$ -	$ -	0.79	$ 67,139	0.00	$ -	$ 67,139.18
271	1331.69	1331.94	Residential	3774.99	$ 2,740,645	$ 1,370,322	1331.91	-0.04	1331.90	-0.04	1332.06	0.12	1332.04	0.10	3.86	$ 105,718	0.00	$ -	$ 105,718.24	7.61	$ 208,486	5.05	$ 69,202	$ 277,687.68
385	1323.06	1323.31	Residential	6452.90	$ 4,684,808	$ 2,342,404	1322.62	-0.69	1322.57	-0.74	1322.96	-0.35	1322.95	-0.36	1.24	$ 58,080	0.00	$ -	$ 58,079.72	2.59	$ 121,306	0.00	$ -	$ 121,306.32
460	1321.03	1321.28	Residential	1265.95	$ 919,080	$ 459,540	0.00	-1.00	0.00	-1.00	1321.13	-0.15	1321.13	-0.15	0	$ -	0	$ -	$ -	0.3857422	$ 31,118	0	$ -	$ 31,117.69
524	1332.22	1332.47	Residential	10676.48	$ 7,751,124	$ 3,875,562	1332.37	-0.10	1332.37	-0.10	1332.55	0.08	1332.56	0.08	3.58349612	$ 277,761	0	$ -	$ 277,761.24	6.5341798	$ 506,472	3.54785172	$ 137,499	$ 643,971.60
307	1348.84	1349.09	Residential	7855.95	$ 5,703,422	$ 2,851,711	1348.80	-0.29	1348.80	-0.29	1348.82	-0.27	1348.82	-0.27	2.85	$ 162,581	0.00	$ -	$ 162,580.95	2.91	$ 166,146	0.00	$ -	$ 166,145.59
346	1321.84	1322.09	Residential	2195.05	$ 1,593,607	$ 796,803	1273.33	-1.00	1273.33	-1.00	1273.38	-1.00	1273.38	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
120	1384.09	1384.34	Residential	13591.52	$ 9,867,443	$ 4,933,721	1382.97	-1.00	1383.03	-1.00	1383.41	-0.93	1383.38	-0.97	0.00	$ -	0.00	$ -	$ -	0.28	$ 27,319	0.00	$ -	$ 27,318.55
500	1317.50	1317.75	Residential	1672.89	$ 1,214,517	$ 607,259	1317.67	-0.09	1317.67	-0.09	1317.79	0.04	1317.80	0.04	3.64599608	$ 44,281	0	$ -	$ 44,281.25	5.2158205	$ 63,347	1.7021487	$ 10,336	$ 73,683.48
282	1341.63	1341.88	Residential	8841.63	$ 6,419,026	$ 3,209,513	0.00	-1.00	0.00	-1.00	770.21	-1.00	770.20	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
563	1331.78	1332.03	Residential	6237.47	$ 4,528,402	$ 2,264,201	1332.30	0.27	1331.80	-0.23	1332.80	0.77	1332.35	0.32	12.18	$ 551,777	11.46	$ 259,449	$ 811,226.33	27.07	$ 1,225,897	32.30	$ 731,333	$ 1,957,229.39
18	1309.78	1310.03	Residential	700.48	$ 508,551	$ 254,276	1310.13	0.10	1310.08	0.05	1310.35	0.32	1310.31	0.28	7.05	$ 35,837	4.27	$ 10,846	$ 46,683.42	13.48	$ 68,559	13.27	$ 33,752	$ 102,310.57
53	1338.91	1339.16	Residential	9128.88	$ 6,627,566	$ 3,313,783	1339.02	-0.14	1339.02	-0.14	1339.06	-0.10	1339.06	-0.11	3.45	$ 228,437	0.00	$ -	$ 228,437.43	3.58	$ 237,272	0.00	$ -	$ 237,272.03
191	1331.67	1331.92	Residential	8250.07	$ 5,989,549	$ 2,994,774	1331.09	-0.83	1331.09	-0.83	1331.20	-0.72	1331.22	-0.72	0.69970704	$ 41,909	0	$ -	$ 41,909.29	1.12890628	$ 67,616	0	$ -	$ 67,616.39
164	1344.25	1344.50	Residential	7496.39	$ 5,442,379	$ 2,721,189	0.00	-1.00	0.00	-1.00	755.26	-1.00	755.27	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
258	1331.78	1332.03	Residential	8405.13	$ 6,102,124	$ 3,051,062	1331.51	-0.52	1331.51	-0.52	1331.88	-0.15	1331.80	-0.23	1.92	$ 116,888	0.00	$ -	$ 116,887.86	3.39	$ 206,960	0.00	$ -	$ 206,959.74
482	1324.13	1324.38	Residential	4767.85	$ 3,461,462	$ 1,730,731	1324.29	-0.09	1324.21	-0.17	1324.68	0.30	1324.66	0.28	3.65	$ 126,374	0.00	$ -	$ 126,373.80	13.05	$ 451,689	12.67	$ 219,261	$ 670,949.87
112	1371.29	1371.54	Residential	6684.88	$ 4,853,225	$ 2,426,612	1370.55	-0.99	1370.55	-0.99	1370.82	-0.72	1370.82	-0.72	0.04	$ 2,109	0.00	$ -	$ 2,109.07	1.14	$ 55,096	0.00	$ -	$ 55,096.42
540	1319.37	1319.62	Residential	12604.81	$ 9,151,093	$ 4,575,547	0.00	-1.00	0.00	-1.00	637.48	-1.00	637.40	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
375	1325.37	1325.62	Residential	7943.12	$ 5,766,706	$ 2,883,353	414.68	-1.00	414.68	-1.00	414.73	-1.00	414.73	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
526	1326.54	1326.79	Residential	723.15	$ 525,003	$ 262,502	0.00	-1.00	0.00	-1.00	773.77	-1.00	113.99	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
170	1342.44	1342.69	Residential	676.25	$ 490,958	$ 245,479	978.28	-1.00	978.29	-1.00	1341.92	-0.76	1341.94	-0.76	0	$ -	0	$ -	$ -	0.9448242	$ 4,639	0	$ -	$ 4,638.69
167	1346.13	1346.38	Residential	8580.62	$ 6,229,533	$ 3,114,767	1346.37	-0.01	1346.37	-0.01	1346.72	0.34	1346.72	0.34	3.96	$ 246,444	0.00	$ -	$ 246,443.74	14.31	$ 891,146	14.43	$ 449,375	$ 1,340,520.69
534	1329.33	1329.58	Residential	639.16	$ 464,030	$ 232,015	0.00	-1.00	0.00	-1.00	32.18	-1.00	32.18	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
3	1317.03	1317.28	Residential	12624.49	$ 9,165,380	$ 4,582,690	1316.84	-0.43	1316.84	-0.43	1316.87	-0.41	1316.87	-0.41	2.26	$ 207,340	0.00	$ -	$ 207,339.88	2.36	$ 216,156	0.00	$ -	$ 216,156.18
129	1494.88	1495.13	Residential	8054.19	$ 5,847,340	$ 2,923,670	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
487	1329.29	1329.54	Residential	7301.80	$ 5,301,110	$ 2,650,555	1328.95	-0.58	1328.95	-0.58	1328.98	-0.56	1328.98	-0.56	1.66	$ 88,084	0.00	$ -	$ 88,084.36	1.75	$ 93,028	0.00	$ -	$ 93,028.27
505	1334.49	1334.74	Residential	1851.91	$ 1,344,488	$ 672,244	801.65	-1.00	801.65	-1.00	801.67	-1.00	801.66	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
299	1334.10	1334.35	Residential	12457.47	$ 9,044,127	$ 4,522,063	1334.08	-0.27	1334.08	-0.27	1334.36	0.01	1334.33	-0.02	2.92	$ 263,684	0.00	$ -	$ 263,683.99	4.19	$ 378,988	0.27	$ 12,056	$ 391,043.68
206	1330.94	1331.19	Residential	6811.92	$ 4,945,451	$ 2,472,726	1331.01	-0.18	1331.01	-0.18	1331.29	0.10	1331.30	0.10	3.28271484	$ 162,345	0	$ -	$ 162,345.06	7.0578613	$ 349,043	4.28100582	$ 105,858	$ 454,900.63
443	1325.91	1326.16	Residential	6111.80	$ 4,437,165	$ 2,218,582	1324.48	-1.00	1324.47	-1.00	1324.59	-1.00	1324.59	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
39	1317.80	1318.05	Residential	5414.14	$ 3,930,662	$ 1,965,331	1317.89	-0.16	1317.89	-0.16	1317.93	-0.13	1317.93	-0.13	3.37	$ 132,276	0.00	$ -	$ 132,276.00	3.49	$ 137,304	0.00	$ -	$ 137,304.48
502	1319.37	1319.62	Residential	2781.41	$ 2,019,305	$ 1,009,652	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
111	1379.55	1379.80	Residential	7498.79	$ 5,444,124	$ 2,722,062	1379.10	-0.70	1379.09	-0.71	1379.30	-0.50	1379.30	-0.50	1.18	$ 64,250	0.00	$ -	$ 64,250.23	2.01	$ 109,680	0.00	$ -	$ 109,679.95
438	1340.20	1340.45	Residential	6215.27	$ 4,512,285	$ 2,256,142	0.00	-1.00	0.00	-1.00	0.00	-1.00	1340.16	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
333	1324.71	1324.96	Residential	1601.10	$ 1,162,399	$ 581,200	1324.96	0.00	1324.89	-0.07	1325.36	0.40	1325.32	0.36	3.98	$ 46,286	0.00	$ -	$ 46,285.96	15.91	$ 184,886	16.67	$ 96,873	$ 281,758.34
173	1336.89	1337.14	Residential	10216.91	$ 7,417,477	$ 3,708,738	0.00	-1.00	0.00	-1.00	1335.14	-1.00	1335.14	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
580	1433.33	1433.58	Residential	2372.25	$ 1,722,254	$ 861,127	1431.31	-1.00	1431.31	-1.00	1431.40	-1.00	1431.39	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
193	1330.91	1331.16	Residential	388.64	$ 282,149	$ 141,075	1331.13	-0.03	1331.13	-0.03	1331.32	0.16	1331.34	0.16	3.86767576	$ 10,913	0	$ -	$ 10,912.61	8.9182129	$ 25,163	6.88549806	$ 9,714	$ 34,876.33
313	1344.58	1344.83	Residential	4545.76	$ 3,300,219	$ 1,650,110	0.00	-1.00	0.00	-1.00	1344.11	-0.72	1344.25	-0.72	0	$ -	0	$ -	$ -	1.12353516	$ 37,079	0	$ -	$ 37,079.12
30	1319.25	1319.50	Residential	8650.86	$ 6,280,523	$ 3,140,262	1319.31	-0.19	1319.31	-0.19	1319.34	-0.16	1319.34	-0.16	3.25	$ 204,270	0.00	$ -	$ 204,270.33	3.36	$ 210,802	0.00	$ -	$ 210,802.32
265	1336.62	1336.87	Residential	9275.89	$ 6,734,294	$ 3,367,147	453.05	-1.00	453.06	-1.00	453.06	-1.00	453.07	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
278	1329.33	1329.58	Residential	9887.56	$ 7,178,367	$ 3,589,183	1329.54	-0.04	1329.52	-0.06	1329.70	0.13	1329.69	0.11	3.86	$ 276,830	0.00	$ -	$ 276,829.78	7.79	$ 558,952	5.30	$ 190,272	$ 749,224.48
8	1314.25	1314.50	Residential	4845.72	$ 3,517,990	$ 1,758,995	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
288	1341.77	1342.02	Residential	7520.30	$ 5,459,739	$ 2,729,869	1341.76	-0.26	1341.76	-0.26	1341.78	-0.24	1341.78	-0.24	2.95	$ 160,886	0.00	$ -	$ 160,886.34	3.06	$ 166,965	0.00	$ -	$ 166,964.56
415	1359.67	1359.92	Residential	361.17	$ 262,212	$ 131,106	0.00	-1.00	0.00	-1.00	378.48	-1.00	378.49	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
35	1317.85	1318.10	Residential	7080.65	$ 5,140,551	$ 2,570,275	803.86	-1.00	803.87	-1.00	1317.85	-0.25	1317.85	-0.25	0	$ -	0	$ -	$ -	2.99023436	$ 153,715	0	$ -	$ 153,714.52
279	1336.73	1336.98	Residential	7751.73	$ 5,627,755	$ 2,813,877	1336.39	-0.59	1336.32	-0.66	1336.98	0.00	1336.96	-0.02	1.65	$ 92,578	0.00	$ -	$ 92,577.67	4.00	$ 225,000	0.00	$ -	$ 225,000.28
399	1329.62	1329.87	Residential	9065.18	$ 6,581,319	$ 3,290,660	766.63	-1.00	766.63	-1.00	766.71	-1.00	766.72	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
42	1323.17	1323.42	Residential	7002.87	$ 5,084,085	$ 2,542,043	1323.12	-0.30	1323.12	-0.30	1323.18	-0.24	1323.18	-0.24	2.80	$ 142,344	0.00	$ -	$ 142,344.46	3.05	$ 155,179	0.00	$ -	$ 155,178.79
57	1341.09	1341.34	Residential	7023.87	$ 5,099,331	$ 2,549,666	743.98	-1.00	743.97	-1.00	759.64	-1.00	759.62	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
397	1327.07	1327.32	Residential	9177.64	$ 6,662,967	$ 3,331,483	1326.82	-0.50	1326.82	-0.50	1327.09	-0.23	1327.09	-0.23	1.9819336	$ 132,056	0	$ -	$ 132,055.58	3.06347656	$ 204,118	0	$ -	$ 204,118.43
374	1324.33	1324.58	Residential	7554.42	$ 5,484,508	$ 2,742,254	1324.35	-0.23	1324.35	-0.23	1324.42	-0.17	1324.40	-0.19	3.07	$ 168,204	0.00	$ -	$ 168,204.07	3.33	$ 182,371	0.00	$ -	$ 182,370.60
216	1336.13	1336.38	Residential	5675.45	$ 4,120,379	$ 2,060,189	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
283	1339.27	1339.52	Residential	13817.96	$ 10,031,838	$ 5,015,919	1339.17	-0.35	1338.87	-0.65	1339.53	0.01	1339.50	-0.02	2.59	$ 259,907	0.00	$ -	$ 259,906.89	4.32	$ 433,603	0.45	$ 72,630	$ 456,233.10
334	1324.83	1325.08	Residential	10462.71	$ 7,595,925	$ 3,797,963	1324.97	-0.11	1324.90	-0.18	1325.54	0.46	1325.48	0.39	3.57	$ 271,050	0.00	$ -	$ 271,049.91	17.85	$ 1,355,880	19.39	$ 736,430	$ 2,092,310.17
26	1311.97	1312.22	Residential	13261.74	$ 9,628,026	$ 4,814,013	1311.93	-0.29	1311.93	-0.29	1311.98	-0.25	1311.97	-0.25	2.83	$ 272,152	0.00	$ -	$ 272,151.56	3.01	$ 290,063	0.00	$ -	$ 290,063.08
301	1346.57	1346.82	Residential	11175.62	$ 8,113,498	$ 4

10-Year and 100-Year Existing Building Damages in Area A

																Existing								
Building ID	HAG	Finished Floor Elevation (ft)	Land Use Type	Building Area (sf)	Replace Cost $ ($726/SF-Res)	Content Replacement Value ($) 1/2 of Replacement Cost	10yr Exist WSEL (ft)	10yr Exist Flow Depth (ft)	10yr Prop WSEL (ft)	10yr Prop Flow Depth (ft)	100yr Exist WSEL (ft)	100yr Exist Flow Depth (ft)	100yr Prop WSEL (ft)	100yr Prop Flow Depth (ft)	10yr Building Damage (%)	10yrBuilding Damage Cost ($)	10yr Content Damage (%)	10yr Content Damage Cost ($)	10yr Total Damage Cost ($)	100yr Building Damage (%)	100yrBuilding Damage Cost ($)	100yr Content Damage (%)	100yr Content Damage Cost ($)	100yr Total Damage Cost ($)
308	1334.93	1335.18	Residential	6969.43	$ 5,059,808	$ 2,529,904	1334.88	-0.29	1334.88	-0.29	1335.28	0.10	1335.29	0.10	2.82128904	$ 142,752	0	$ -	$ 142,751.81	6.9296875	$ 350,629	4.1015625	$ 103,766	$ 454,394.47
196	1332.19	1332.44	Residential	8166.56	$ 5,928,926	$ 2,964,463	0.00	-1.00	0.00	-1.00	1332.16	-0.28	1332.16	-0.28	0.00	$ -	0.00	$ -	$ -	2.86	$ 169,791	0.00	$ -	$ 169,790.77
496	1323.96	1324.21	Residential	5063.01	$ 3,675,743	$ 1,837,872	1324.30	0.09	1324.22	0.01	1324.69	0.48	1324.67	0.46	6.76	$ 248,660	3.87	$ 71,141	$ 319,801.33	18.32	$ 673,219	20.04	$ 368,333	$ 1,041,551.79
573	1331.74	1331.99	Residential	7754.41	$ 5,629,702	$ 2,814,851	1331.39	-0.60	1331.39	-0.60	1331.42	-0.57	1331.42	-0.57	1.60742188	$ 90,493	0	$ -	$ 90,493.06	1.72070312	$ 96,870	0	$ -	$ 96,870.46
108	1379.24	1379.49	Residential	1156.59	$ 839,681	$ 419,840	0.00	-1.00	0.00	-1.00	1378.04	-1.00	1378.04	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
188	1333.66	1333.91	Residential	10182.29	$ 7,392,344	$ 3,696,172	1333.86	-0.05	1333.86	-0.05	1333.93	0.02	1333.94	0.02	3.78222656	$ 279,595	0	$ -	$ 279,595.18	4.4907226	$ 331,970	0.68701164	$ 25,393	$ 357,362.77
351	1324.71	1324.96	Residential	4981.85	$ 3,616,823	$ 1,808,412	1324.58	-0.39	1324.56	-0.41	1324.99	0.02	1324.98	0.01	2.46	$ 88,919	0.00	$ -	$ 88,919.46	4.68	$ 169,309	0.95	$ 17,245	$ 186,554.28
467	1340.84	1341.09	Residential	4065.37	$ 2,951,456	$ 1,475,728	0.00	-1.00	0.00	-1.00	1079.51	-1.00	1079.52	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
132	1490.09	1490.34	Residential	1336.38	$ 970,214	$ 485,107	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
408	1322.66	1322.91	Residential	6487.88	$ 4,710,200	$ 2,355,100	1322.62	-0.29	1322.57	-0.34	1323.04	0.13	1323.04	0.13	2.84	$ 133,624	0.00	$ -	$ 133,624.33	7.96	$ 374,700	5.54	$ 130,404	$ 505,104.57
119	1390.29	1390.54	Residential	315.89	$ 229,336	$ 114,668	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
584	1353.35	1353.60	Residential	0.00	$ -	$ -	175.39	-1.00	175.39	-1.00	415.79	-1.00	415.78	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
511	1321.86	1322.11	Residential	646.27	$ 469,192	$ 234,596	1322.07	-0.03	1322.00	-0.10	1322.53	0.43	1322.24	0.14	3.87	$ 18,170	0.00	$ -	$ 18,169.74	16.84	$ 79,026	17.98	$ 42,181	$ 121,207.04
54	1336.82	1337.07	Residential	9657.93	$ 7,011,655	$ 3,505,828	1336.97	-0.10	1336.94	-0.13	1337.10	0.03	1337.08	0.01	3.59	$ 251,913	0.00	$ -	$ 251,912.89	4.96	$ 347,998	1.35	$ 47,272	$ 395,270.08
289	1315.29	1315.54	Residential	732.08	$ 531,493	$ 265,747	568.06	-1.00	568.05	-1.00	707.89	-1.00	707.90	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
425	1440.09	1440.34	Residential	3730.58	$ 2,708,404	$ 1,354,202	1436.06	-1.00	1436.06	-1.00	1436.14	-1.00	1436.13	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
325	1403.93	1404.18	Residential	4455.81	$ 3,234,917	$ 1,617,458	1401.98	-1.00	1401.98	-1.00	1402.03	-1.00	1402.03	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
45	1313.71	1313.96	Residential	5863.55	$ 4,256,937	$ 2,128,469	1313.00	-0.96	1313.00	-0.96	1313.58	-0.38	1313.58	-0.38	0.15527344	$ 6,610	0	$ -	$ 6,609.89	2.47509764	$ 105,363	0	$ -	$ 105,363.35
147	1333.51	1333.76	Residential	1860.79	$ 1,350,934	$ 675,467	800.72	-1.00	800.73	-1.00	1333.04	-0.72	1333.06	-0.72	0	$ -	0	$ -	$ -	1.10644528	$ 14,947	0	$ -	$ 14,947.35
355	1320.50	1320.75	Residential	7271.22	$ 5,278,904	$ 2,639,452	1320.51	-0.24	1320.51	-0.24	1320.53	-0.22	1320.62	-0.22	3.04150392	$ 160,558	0	$ -	$ 160,558.08	3.13427736	$ 165,455	0	$ -	$ 165,455.50
55	1333.97	1334.22	Residential	8885.46	$ 6,450,843	$ 3,225,422	1256.97	-1.00	1256.97	-1.00	1257.07	-1.00	1257.06	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
383	1323.11	1323.36	Residential	6532.58	$ 4,742,656	$ 2,371,328	1322.62	-0.74	1322.57	-0.78	1322.97	-0.39	1322.96	-0.39	1.06	$ 50,090	0.00	$ -	$ 50,089.67	2.44	$ 115,857	0.00	$ -	$ 115,856.96
377	1324.05	1324.30	Residential	6948.25	$ 5,044,428	$ 2,522,214	1324.25	-0.05	1324.22	-0.08	1324.48	0.18	1324.47	0.17	3.79	$ 191,186	0.00	$ -	$ 191,185.79	9.46	$ 477,398	7.65	$ 192,935	$ 670,332.53
501	1320.89	1321.14	Residential	14670.16	$ 10,650,533	$ 5,325,266	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
114	1377.43	1377.68	Residential	1961.87	$ 1,424,316	$ 712,158	1377.38	-0.30	1377.38	-0.30	1377.48	-0.20	1377.48	-0.20	2.79	$ 39,697	0.00	$ -	$ 39,697.25	3.20	$ 45,609	0.00	$ -	$ 45,608.72
92	1384.83	1385.08	Residential	23180.32	$ 16,828,912	$ 8,414,456	1383.02	-1.00	1383.02	-1.00	1383.70	-1.00	1383.69	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
194	1337.21	1337.46	Residential	9523.28	$ 6,913,901	$ 3,456,951	1337.21	-0.25	1337.21	-0.25	1337.29	-0.17	1337.29	-0.17	3.01	$ 208,193	0.00	$ -	$ 208,193.50	3.32	$ 229,799	0.00	$ -	$ 229,799.44
560	1318.46	1318.71	Residential	5850.33	$ 4,247,338	$ 2,123,669	1318.50	-0.21	1318.50	-0.21	1318.55	-0.16	1318.55	-0.16	3.16	$ 134,202	0.00	$ -	$ 134,201.77	3.37	$ 143,182	0.00	$ -	$ 143,181.74
300	1339.66	1339.91	Residential	13233.48	$ 9,607,509	$ 4,803,755	341.83	-1.00	341.83	-1.00	1339.10	-0.81	1339.11	-0.81	0	$ -	0	$ -	$ -	0.0573242	$ 72,760	0	$ -	$ 72,759.99
478	1321.22	1321.47	Residential	7719.33	$ 5,604,232	$ 2,802,116	1320.76	-0.71	1320.74	-0.73	1321.53	0.07	1321.51	0.04	1.18	$ 66,030	0.00	$ -	$ 66,030.33	5.95	$ 333,559	2.73	$ 76,572	$ 410,131.01
272	1339.97	1340.22	Residential	5299.00	$ 3,847,076	$ 1,923,538	1340.21	0.00	1340.15	-0.06	1340.67	0.45	1340.62	0.40	3.98	$ 153,132	0.00	$ -	$ 153,131.67	17.57	$ 675,859	19.00	$ 365,383	$ 1,041,241.81
152	1345.74	1345.99	Residential	6940.51	$ 5,038,809	$ 2,519,405	1346.19	0.20	1346.19	0.20	1346.44	0.45	1346.44	0.45	10.0864258	$ 508,236	8.52099612	$ 214,678	$ 722,914.14	17.4252931	$ 878,027	18.79541034	$ 473,532	$ 1,351,559.75
507	1326.03	1326.28	Residential	10797.12	$ 7,838,706	$ 3,919,353	1326.10	-0.18	1326.10	-0.18	1326.37	0.09	1326.37	0.09	3.27197264	$ 256,480	0	$ -	$ 256,480.31	6.6440428	$ 520,807	3.70165992	$ 145,081	$ 665,888.08
259	1335.19	1335.44	Residential	10032.44	$ 7,283,551	$ 3,641,776	1334.66	-0.78	1334.63	-0.81	1335.44	0.00	1335.39	-0.05	0.88	$ 64,122	0.00	$ -	$ 64,122.28	4.13	$ 300,944	0.18	$ 6,722	$ 307,666.03
568	1332.40	1332.65	Residential	5264.32	$ 3,821,899	$ 1,910,950	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
67	1358.85	1359.10	Residential	3832.96	$ 2,782,731	$ 1,391,366	1358.66	-0.43	1358.66	-0.43	1358.77	-0.33	1358.77	-0.33	2.26025392	$ 62,897	0	$ -	$ 62,896.80	2.69384768	$ 74,963	0	$ -	$ 74,962.55
157	1334.69	1334.94	Residential	11620.03	$ 8,436,143	$ 4,218,071	1335.22	0.28	1335.22	0.28	1335.39	0.45	1335.40	0.45	12.3935545	$ 1,045,538	11.7509763	$ 495,665	$ 1,541,202.53	17.568115	$ 1,482,071	18.995361	$ 801,238	$ 2,283,309.17
161	1338.81	1339.06	Residential	12200.44	$ 8,857,520	$ 4,428,760	1338.67	-0.39	1338.67	-0.39	1338.88	-0.18	1338.88	-0.18	2.44677736	$ 216,724	0	$ -	$ 216,723.79	3.26708984	$ 289,383	0	$ -	$ 289,383.13
178	1338.71	1338.96	Residential	2191.33	$ 1,590,906	$ 795,453	0.00	-1.00	0.00	-1.00	1338.85	-0.10	1338.86	-0.10	0	$ -	0	$ -	$ -	3.59326172	$ 57,165	0	$ -	$ 57,165.43
394	1326.19	1326.44	Residential	863.93	$ 627,213	$ 313,607	0.00	-1.00	0.00	-1.00	263.80	-1.00	263.81	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
199	1333.72	1333.97	Residential	8444.06	$ 6,130,386	$ 3,065,193	0.00	-1.00	0.00	-1.00	331.65	-1.00	331.65	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
84	1378.04	1378.29	Residential	2416.84	$ 1,754,627	$ 877,314	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
17	1314.46	1314.71	Residential	6917.41	$ 5,022,043	$ 2,511,021	1314.60	-0.11	1314.49	-0.22	1314.93	0.22	1314.87	0.16	3.57	$ 179,401	0.00	$ -	$ 179,400.71	10.48	$ 526,223	9.07	$ 227,739	$ 753,962.37
472	1336.64	1336.89	Residential	11331.29	$ 8,226,515	$ 4,113,257	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
582	1462.74	1462.99	Residential	16759.96	$ 12,167,729	$ 6,083,864	1460.73	-1.00	1460.73	-1.00	1460.80	-1.00	1460.80	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
464	1329.31	1329.56	Residential	5295.97	$ 3,844,872	$ 1,922,436	1329.39	-0.17	1329.39	-0.17	1329.44	-0.12	1329.44	-0.12	3.30322264	$ 127,005	0	$ -	$ 127,004.69	3.5073242	$ 134,852	0	$ -	$ 134,852.14
419	1390.04	1390.29	Residential	4825.64	$ 3,503,412	$ 1,751,706	1389.19	-1.00	1389.19	-1.00	1389.89	-0.40	1389.89	-0.40	0.00	$ -	0.00	$ -	$ -	2.39	$ 83,890	0.00	$ -	$ 83,890.31
439	1343.45	1343.70	Residential	6849.88	$ 4,973,013	$ 2,486,507	0.00	-1.00	0.00	-1.00	130.35	-1.00	1061.14	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
303	1333.92	1334.17	Residential	7565.22	$ 5,492,353	$ 2,746,176	0.00	-1.00	0.00	-1.00	1333.50	-0.67	1333.50	-0.67	0.00	$ -	0.00	$ -	$ -	1.32	$ 72,758	0.00	$ -	$ 72,757.58
155	1347.15	1347.40	Residential	3848.09	$ 2,793,714	$ 1,396,857	1347.66	0.26	1347.66	0.26	1347.97	0.56	1347.97	0.56	11.6757814	$ 326,188	10.74609396	$ 150,108	$ 476,295.45	20.875	$ 583,188	23.625	$ 330,007	$ 913,195.15
82	1358.10	1358.35	Residential	651.46	$ 472,962	$ 236,481	0.00	-1.00	0.00	-1.00	30.58	-1.00	30.58	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
409	1331.58	1331.83	Residential	7662.12	$ 5,562,697	$ 2,781,348	1331.57	-0.26	1331.57	-0.26	1331.60	-0.23	1331.59	-0.24	2.97	$ 165,414	0.00	$ -	$ 165,414.18	3.06	$ 170,303	0.00	$ -	$ 170,303.26
230	1337.64	1337.89	Residential	4073.31	$ 2,957,220	$ 1,478,610	1337.76	-0.13	1337.76	-0.13	1338.09	0.20	1338.10	0.20	3.46728516	$ 102,535	0	$ -	$ 102,535.26	9.9509278	$ 294,271	8.33129892	$ 123,187	$ 417,458.30
499	1321.37	1321.62	Residential	6734.36	$ 4,889,149	$ 2,444,574	1024.72	-1.00	528.49	-1.00	1278.41	-1.00	1078.87	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
207	1345.29	1345.54	Residential	62629.14	$ 45,468,757	$ 22,734,378	1345.04	-0.50	1345.04	-0.50	1345.19	-0.35	1345.19	-0.35	2.00	$ 908,487	0.00	$ -	$ 908,487.08	2.61	$ 1,185,784	0.00	$ -	$ 1,185,784.33
63	1334.63	1334.88	Residential	5989.61	$ 4,348,454	$ 2,174,227	1335.05	0.17	1335.05	0.17	1335.26	0.38	1335.26	0.38	9.1599121	$ 398,315	7.22387694	$ 157,063	$ 555,378.08	15.3012697	$ 665,369	15.82177758	$ 344,001	$ 1,009,370.10
412	1375.69	1375.94	Residential	3662.89	$ 2,659,255	$ 1,329,627	1375.59	-0.35	1375.59	-0.35	1375.64	-0.30	1375.64	-0.30	2.60400392	$ 69,247	0	$ -	$ 69,247.10	2.7836914	$ 74,025	0	$ -	$ 74,025.45
0	1317.98	1318.23	Residential	2031.12	$ 1,474,595	$ 737,297	637.78	-1.00	637.78	-1.00	1317.82	-0.41	1317.82	-0.41	0.00	$ -	0.00	$ -	$ -	2.36	$ 34,827	0.00	$ -	$ 34,827.23
531	1324.51	1324.76	Residential	18433.22	$ 13,382,516	$ 6,691,258	1323.32	-1.00	1322.88	-1.00	1323.85	-0.90	1323.41	-1.00	0.00	$ -	0.00	$ -	$ -	0.39	$ 51,687	0.00	$ -	$ 51,687.36
174	1346.24	1346.49	Residential	1124.42	$ 816,330	$ 408,165	303.67	-1.00	303.67	-1.00	1346.51	0.02	1346.51	0.02	0	$ -	0	$ -	$ -	4.4870605	$ 36,629	0.6818847	$ 2,783	$ 39,412.44
341	1322.03	1322.28	Residential	18894.74	$ 13,717,579	$ 6,858,789	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
24	1314.06	1314.31	Residential	5845.51	$ 4,243,839	$ 2,121,919	1313.88	-0.43	1313.88	-0.43	1314.07	-0.24	1314.01	-0.30	2.29	$ 97,310	0.00	$ -	$ 97,309.90	3.03	$ 128,434	0.00	$ -	$ 128,434.15
246	1335.49	1335.74	Residential	8095.61	$ 5,877,416	$ 2,938,708	1335.25	-0.49	1335.25	-0.49	1335.88	0.14	1335.88	0.14	2.02490236	$ 119,012	0	$ -	$ 119,011.94	8.145508	$ 478,745	5.8037112	$ 170,554	$ 649,299.53
403	1330.29	1330.54	Residential	11988.20	$ 8,703,431	$ 4,351,715	1329.02	-1.00	1329.02	-1.00	1329.06	-1.00	1329.06	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
76	1386.63	1386.88	Residential	12282.31	$ 8,916,955	$ 4,458,478	1381.01	-1.00	1381.01	-1.00	1383.36	-1.00	1383.36	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
2	1318.40	1318.65	Residential	9772.67	$ 7,094,958	$ 3,547,479	1318.08	-0.57	1318.08	-0.57	1318.11	-0.54	1318.11	-0.54	1.72	$ 121,702	0.00	$ -	$ 121,702.10	1.83	$ 129,635	0.00	$ -	$ 129,635.42
557	1319.81	1320.06	Residential	4983.35	$ 3,617,912	$ 1,808,956	1319.67	-0.39	1319.67	-0.39	1319.76	-0.30	1319.76	-0.30	2.45800784	$ 88,929	0	$ -	$ 88,928.57	2.80419924	$ 101,453	0	$ -	$ 101,453.47
363	1327.28	1327.53	Residential	13619.36	$ 9,887,654	$ 4,943,827	1327.80	0.27	1327.79	0.26	1328.12	0.59	1328.13	0.59	12.0859375	$ 1,195,016	11.3203125	$ 559,657	$ 1,754,672.31	21.7941895	$ 2,154,934	24.9118653	$ 1,231,599	$ 3,386,533.49
348	1322.03	1322.28	Residential	12779.27	$ 9,277,748	$ 4,638,874	716.09	-1.00	716.10	-1.00	716.26	-1.00	716.27	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
222	1335.24	1335.49	Residential	10175.58	$ 7,387,470	$ 3,693,735	1335.36	-0.13	1335.36	-0.13	1335.70	0.21	1335.71	0.21	3.46728516	$ 256,145	0	$ -	$ 256,144.64	10.1816407	$ 752,166	8.65429698	$ 319,667	$ 1,071,832.42
353	1324.46	1324.71	Residential	8593.13	$ 6,238,612	$ 3,119,306	1324.36	-0.35	1324.36	-0.35	1324.38	-0.33	1324.38	-0.33	2.60	$ 162,088	0.00	$ -	$ 162,088.16	2.69	$ 168,028	0.00	$ -	$ 168,028.25
219	1337.56	1337.81	Residential	1562.94	$ 1,134,694	$ 567,347	1337.55	-0.26	1337.55	-0.26	1337.76	-0.05	1337.77	-0.05	2.9736328	$ 33,742	0	$ -	$ 33,741.62	3.81347656	$ 43,271	0	$ -	$ 43,271.27
441	1327.97	1328.22	Residential	6274.07	$ 4,554,976	$ 2,277,488	427.21	-1.00	427.20	-1.00	950.84	-1.00	950.84	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
124	1438.10	1438.35	Residential	14426.98	$ 10,473,990	$ 5,236,995	1431.87	-1.00	1431.86	-1.00	1432.70	-1.00	1432.70	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
4	1313.10	1313.35	Residential	553.49	$ 401,831	$ 200,915	1313.18	-0.17	1313.17	-0.17	0.00	-1.00	1314.42	-1.00	3.3183594	$ 13,334	0	$ -	$ 13,334.19	0	$ -	0	$ -	$ -
533	1317.14	1317.39	Residential	10692.01	$ 7,762,402	$ 3,881,201	1317.04	-0.35	1317.04	-0.35	1317.08	-0.31	1317.08	-0.32	2.61	$ 202,740	0.00	$ -	$ 202,739.68	2.74	$ 212,935	0.00	$ -	$ 212,935.41
442	1295.07	1295.32	Residential	1280.72	$ 929,801	$ 464,900	0.00	-1.00	0.00	-1.00	0.00	-1.00	730.69	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
127	1440.11	1440.36	Residential	1667.16	$ 1,210,360	$ 605,180	1432.41	-1.00	1432.41	-1.00	1432.48	-1.00	1432.48	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
213	1344.82	1345.07	Residential	18886.60	$ 13,711,674	$ 6,855,837	1344.77	-0.29	1344.77	-0.29	1344.89	-0.17	1344.90	-0.17	2.82275388	$ 387,047	0	$ -	$ 387,046.81	3.30224608	$ 452,793	0	$ -	$ 452,793.22
339	1321.66	1321.91	Residential	4252.24	$ 3,087,125	$ 1,543,562	156.52	-1.00	156.52	-1.00	1320.88	-1.00	1320.88	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
550	1321.54	1321.79	Residential	12488.97	$ 9,066,992	$ 4,533,496	1319.73	-1.00	1319.73	-1.00	1319.76	-1.00	1319.76	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
547	1321.82	1322.07	Residential	303.30	$ 220,193	$ 110,097	0.00	-1.00	0.00	-1.00	786.73	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
7	1315.20	1315.45	Residential	8695.64	$ 6,313,034	$ 3,156,517	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
166	1334.79	1335.04	Residential	4656.42	$ 3,380,564	$ 1,690,282	238.50	-1.00	238.50	-1.00	1334.60	-0.44	1334.61	-0.44	0	$ -	0	$ -	$ -	2.24804688	$ 75,997	0	$ -	$ 75,996.66
356	1323.12	1323.37	Residential	20490.88	$ 14,876,379	$ 7,438,189	473.06	-1.00	473.06	-1.00	1322.08	-1.00	1322.08	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
366	1322.45	1322.70	Residential	7079.13	$ 5,139,449	$ 2,569,724	1321.50	-1.00	1321.50	-1.00	1322.30	-0.39	1322.30	-0.39	0.00	$ -	0.00	$ -	$ -	2.43	$ 125,048	0.00	$ -	$ 125,048.21
212	1335.76	1336.01	Residential	1686.91	$ 1,224,694	$ 612,347	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
81	1362.73	1362.98	Residential	13883.69	$ 10,079,557	$ 5,039,778	1362.85	-0.12	1362.85	-0.12	1362.93	-0.04	1362.93	-0.04	3.50097656	$ 352,883	0	$ -	$ 352,882.92	3.82421876	$ 385,464	0	$ -	$ 385,464.30
252	1342.94	1343.19	Residential	11528.90	$ 8,369,982	$ 4,184,991	1342.22	-0.97	1342.22	-0.97	1343.01	-0.18	1342.25	-0.94	0.12	$ 10,054	0.00	$ -	$ 10,053.79	3.28	$ 274,722	0.00	$ -	$ 274,721.78
451	1330.63	1330.88	Residential	4329.91	$ 3,143,516	$ 1,571,758	1329.82	-1.00	1329.82	-1.00	1329.86	-1.00	1329.86	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
290	1334.83	1335.08	Residential	11536.70	$ 8,375,645	$ 4,187,822	1333.35	-1.00	1333.32	-1.00	1334.64	-0.44	1334.63	-0.45	0.00	$ -	0.00	$ -	$ -	2.24	$ 187,920	0.00	$ -	$ 187,920.35
19	1316.38	1316.63	Residential	6993.30	$ 5,077,134	$ 2,538,567	1315.78	-0.85	1315.78	-0.85	1315.97	-0.66	1315.93	-0.70	0.61	$ 30,765	0.00	$ -	$ 30,765.25	1.34	$ 68,050	0.00	$ -	$ 68,050.45
388	1322.89	1323.14	Residential	10092.64	$ 7,327,254	$ 3,663,627	1322.62	-0.52	1322.57	-0.57	1323.24	0.10	1323.22	0.08	1.92	$ 140,892	0.00	$ -	$ 140,892.22	6.87	$ 503,462	4.02	$ 147,261	$ 650,723.13
43	1320.11	1320.36	Residential	6209.68	$ 4,508,230	$ 2,254,115	1319.63	-0.74	1319.63	-0.74	1319.65	-0.71	1319.65	-0.71	1.05	$ 47,240	0.00	$ -	$ 47,239.56	1.16	$ 52,325	0.00	$ -	$ 52,324.53
347	1326.78	1327.03	Residential	9360.23	$ 6,795,524	$ 3,397,762	821.46	-1.00	23.19	-1.00	1326.56	-0.47	1326.54	-0.49	0.00	$ -	0.00	$ -	$ -	2.10	$ 143,044	0.00	$ -	$ 143,044.44
558	1329.23	1329.48	Residential	5699.37	$ 4,137,742	$ 2,068,871	0.00	-1.00	0.00	-1.00	1329.38	-0.10	0.00	-1.00	0.00	$ -	0.00	$ -	$ -	3.61	$ 149,488	0.00	$ -	$ 149,488.05
411	1371.41	1371.66	Residential	3701.56	$ 2,687,336	$ 1,343,668	1369.90	-1.00	1369.90	-1.00	1369.95	-1.00	1369.95	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -

10-Year and 100-Year Existing Building Damages in Area A

															Existing								
Building ID	HAG	Finished Floor Elevation (ft)	Land Use Type	Building Area (sf)	Replace Cost $ ($726/SF-Res)	Content Replacement Value ($) 1/2 of Replacement Cost	10yr Exist WSEL (ft)	10yr Exist Flow Depth (ft)	10yr Prop WSEL (ft)	10yr Prop Flow Depth (ft)	100yr Exist WSEL (ft)	100yr Exist Flow Depth (ft)	100yr Prop WSEL (ft)	100yr Prop Flow Depth (ft)	10yr Building Damage (%)	10yrBuilding Damage Cost ($)	10yr Content Damage (%)	10yr Content Damage Cost ($)	10yr Total Damage Cost ($)	100yr Building Damage (%)	100yrBuilding Damage Cost ($)	100yr Content Damage (%)	100yr Content Damage Cost ($)	100yr Total Damage Cost ($)
314	1330.36	1330.61	Residential	4196.13	$ 3,046,391	$ 1,523,196	1330.19	-0.42	1330.19	-0.42	1330.73	0.12	1330.74	0.12	2.30957032	$ 70,359	0	$ -	$ 70,358.55	7.7023927	$ 234,645	5.18334978	$ 78,953	$ 313,597.60
79	1368.26	1368.51	Residential	1459.23	$ 1,059,402	$ 529,701	819.50	-1.00	819.51	-1.00	1341.09	-1.00	1341.09	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
117	1391.60	1391.85	Residential	3751.96	$ 2,723,924	$ 1,361,962	0.00	-1.00	0.00	-1.00	1391.33	-0.52	1391.33	-0.53	0.00	$ -	0.00	$ -	$ -	1.90	$ 51,805	0.00	$ -	$ 51,805.10
422	1360.68	1360.93	Residential	19148.04	$ 13,901,477	$ 6,950,738	1359.30	-1.00	1359.30	-1.00	1359.43	-1.00	1359.43	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
398	1326.86	1327.11	Residential	13652.47	$ 9,911,695	$ 4,955,847	1326.93	-0.18	1326.93	-0.18	1326.96	-0.15	1326.96	-0.15	3.28	$ 324,695	0.00	$ -	$ 324,695.12	3.40	$ 337,085	0.00	$ -	$ 337,084.74
160	1330.28	1330.53	Residential	16486.30	$ 11,969,051	$ 5,984,525	1329.35	-1.00	1329.35	-1.00	1329.39	-1.00	1329.39	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
448	1350.42	1350.67	Residential	9775.28	$ 7,096,851	$ 3,548,425	1350.44	-0.23	1350.44	-0.23	1350.50	-0.18	1350.50	-0.18	3.07958984	$ 218,554	0	$ -	$ 218,553.90	3.28515624	$ 233,143	0	$ -	$ 233,142.64
241	1340.47	1340.72	Residential	4769.11	$ 3,462,376	$ 1,731,188	0.00	-1.00	0.00	-1.00	618.40	-1.00	618.40	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
65	1360.27	1360.52	Residential	2558.86	$ 1,857,730	$ 928,865	1358.39	-1.00	1358.39	-1.00	1358.61	-1.00	1358.62	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
221	1332.89	1333.14	Residential	6409.64	$ 4,653,397	$ 2,326,698	1130.18	-1.00	1130.18	-1.00	1332.84	-0.30	1332.86	-0.30	0	$ -	0	$ -	$ -	2.81298828	$ 130,899	0	$ -	$ 130,899.50
107	1408.31	1408.56	Residential	9558.60	$ 6,939,545	$ 3,469,773	1407.44	-1.00	1407.44	-1.00	1407.53	-1.00	1407.53	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
159	1337.05	1337.30	Residential	7081.33	$ 5,141,047	$ 2,570,523	0.00	-1.00	0.00	-1.00	1336.93	-0.37	1336.93	-0.37	0	$ -	0	$ -	$ -	2.52636716	$ 129,882	0	$ -	$ 129,881.71
354	1324.37	1324.62	Residential	6151.11	$ 4,465,703	$ 2,232,851	1264.84	-1.00	1264.85	-1.00	1324.36	-0.26	1324.35	-0.27	0.00	$ -	0.00	$ -	$ -	2.98	$ 132,903	0.00	$ -	$ 132,902.62
11	1310.91	1311.16	Residential	8959.69	$ 6,504,734	$ 3,252,367	1311.35	0.19	1311.26	0.10	1311.62	0.46	1311.58	0.42	9.58	$ 622,984	7.81	$ 253,956	$ 876,940.07	17.92	$ 1,165,866	19.49	$ 633,973	$ 1,799,838.86
480	1320.99	1321.24	Residential	21154.48	$ 15,358,155	$ 7,679,077	0.00	-1.00	0.00	-1.00	67.45	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
535	1318.96	1319.21	Residential	15038.36	$ 10,917,848	$ 5,458,924	1319.07	-0.14	1319.07	-0.14	1319.10	-0.11	1319.09	-0.12	3.43	$ 374,608	0.00	$ -	$ 374,608.00	3.54	$ 386,549	0.00	$ -	$ 386,549.40
324	1416.21	1416.46	Residential	23457.64	$ 17,030,244	$ 8,515,122	1413.95	-1.00	1413.95	-1.00	1414.07	-1.00	1414.07	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
15	1310.89	1311.14	Residential	6635.11	$ 4,817,087	$ 2,408,543	1311.22	0.08	1311.13	-0.01	1311.54	0.40	1311.49	0.35	6.52	$ 314,051	3.53	$ 84,958	$ 399,009.09	16.11	$ 775,885	16.95	$ 408,241	$ 1,184,126.01
83	1371.94	1372.19	Residential	2134.99	$ 1,550,000	$ 775,000	1372.24	0.05	1372.24	0.05	1372.37	0.18	1372.36	0.17	5.53	$ 85,670	2.14	$ 16,569	$ 102,239.11	9.41	$ 145,782	7.57	$ 58,647	$ 204,429.02
396	1328.64	1328.89	Residential	16191.87	$ 11,755,297	$ 5,877,649	965.23	-1.00	965.23	-1.00	1328.35	-0.53	1328.35	-0.54	0.00	$ -	0.00	$ -	$ -	1.86	$ 219,034	0.00	$ -	$ 219,034.25
583	1330.49	1330.74	Residential	0.00	$ -	$ -	1329.79	-0.95	1329.79	-0.95	1329.82	-0.93	1329.82	-0.93	0.19970704	$ -	0	$ -	$ -	0.29003908	$ -	0	$ -	$ -
516	1322.12	1322.37	Residential	766.64	$ 556,581	$ 278,291	76.91	-1.00	76.90	-1.00	291.24	-1.00	128.43	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
342	1321.31	1321.56	Residential	440.90	$ 320,096	$ 160,048	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
150	1341.28	1341.53	Residential	4258.47	$ 3,091,652	$ 1,545,826	1341.73	0.20	1341.73	0.20	1341.90	0.37	1341.91	0.37	9.9216307	$ 306,742	8.29028298	$ 128,153	$ 434,895.66	15.1108399	$ 467,175	15.55517586	$ 240,456	$ 707,630.56
143	1329.96	1330.21	Residential	3734.03	$ 2,710,903	$ 1,355,452	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
344	1324.82	1325.07	Residential	7011.00	$ 5,089,986	$ 2,544,993	1324.73	-0.34	1324.62	-0.45	1325.17	0.09	1325.15	0.08	2.64	$ 134,507	0.00	$ -	$ 134,506.85	6.84	$ 348,060	3.97	$ 101,122	$ 449,182.53
571	1327.57	1327.82	Residential	8562.45	$ 6,216,338	$ 3,108,169	1327.58	-0.23	1327.59	-0.23	1327.62	-0.20	1327.62	-0.20	3.07421876	$ 191,104	0	$ -	$ 191,103.84	3.21142576	$ 199,633	0	$ -	$ 199,633.09
88	1379.61	1379.86	Residential	11455.28	$ 8,316,533	$ 4,158,267	1378.41	-1.00	1378.41	-1.00	1378.46	-1.00	1378.46	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
49	1377.00	1377.25	Residential	728.13	$ 528,623	$ 264,311	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
445	1348.57	1348.82	Residential	8000.24	$ 5,808,173	$ 2,904,086	1348.40	-0.42	1348.39	-0.43	1348.43	-0.39	1348.43	-0.39	2.30029296	$ 133,605	0	$ -	$ 133,604.99	2.4267578	$ 140,950	0	$ -	$ 140,950.29
376	1323.14	1323.39	Residential	7118.19	$ 5,167,807	$ 2,583,904	1322.66	-0.73	1322.57	-0.82	1323.33	-0.06	1323.33	-0.06	1.08	$ 55,640	0.00	$ -	$ 55,639.72	3.77	$ 194,979	0.00	$ -	$ 194,978.75
86	1377.55	1377.80	Residential	2949.41	$ 2,141,271	$ 1,070,635	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
520	1322.62	1322.87	Residential	15567.65	$ 11,302,117	$ 5,651,058	1322.30	-0.57	1322.30	-0.57	1322.78	-0.09	1322.35	-0.52	1.71	$ 192,765	0.00	$ -	$ 192,765.11	3.65	$ 412,295	0.00	$ -	$ 412,295.48
224	1342.44	1342.69	Residential	5688.11	$ 4,129,571	$ 2,064,785	1342.46	-0.24	1342.46	-0.24	1342.48	-0.21	1342.48	-0.21	3.05	$ 125,762	0.00	$ -	$ 125,762.36	3.16	$ 130,340	0.00	$ -	$ 130,339.57
16	1311.95	1312.20	Residential	5118.95	$ 3,716,356	$ 1,858,178	0.00	-1.00	0.00	-1.00	1311.91	-0.29	1311.88	-0.32	0.00	$ -	0.00	$ -	$ -	2.82	$ 104,958	0.00	$ -	$ 104,958.01
71	1355.29	1355.54	Residential	15605.34	$ 11,329,477	$ 5,664,738	1355.85	0.31	1355.86	0.31	1356.01	0.47	1356.03	0.47	13.1735839	$ 1,492,498	12.84301746	$ 727,523	$ 2,220,021.51	18.0405271	$ 2,043,897	19.65673794	$ 1,113,503	$ 3,157,400.16
493	1320.68	1320.93	Residential	1623.50	$ 1,178,660	$ 589,330	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
380	1324.56	1324.81	Residential	7115.36	$ 5,165,750	$ 2,582,875	1324.17	-0.64	1262.30	-1.00	1324.34	-0.47	1324.33	-0.48	1.42	$ 73,451	0.00	$ -	$ 73,450.51	2.10	$ 108,662	0.00	$ -	$ 108,662.37
291	1343.71	1343.96	Residential	10971.13	$ 7,965,040	$ 3,982,520	0.00	-1.00	0.00	-1.00	1194.25	-1.00	1194.26	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
548	1331.38	1331.63	Residential	2067.78	$ 1,501,207	$ 750,604	1330.21	-1.00	1330.21	-1.00	1330.49	-1.00	1330.48	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
326	1390.61	1390.86	Residential	6518.30	$ 4,732,285	$ 2,366,143	1390.62	-0.24	1390.62	-0.24	1390.64	-0.22	1390.64	-0.22	3.05	$ 144,464	0.00	$ -	$ 144,464.11	3.14	$ 148,577	0.00	$ -	$ 148,577.13
530	1331.84	1332.09	Residential	10819.21	$ 7,854,744	$ 3,927,372	1332.11	0.02	1332.11	0.02	1332.30	0.21	1332.31	0.21	4.4760742	$ 351,584	0.66650388	$ 26,176	$ 377,760.28	10.3610839	$ 813,837	8.90551746	$ 349,753	$ 1,163,589.48
323	1425.01	1425.26	Residential	9843.82	$ 7,146,612	$ 3,573,306	1424.74	-0.52	1424.74	-0.52	1424.79	-0.47	1424.79	-0.48	1.91	$ 136,302	0.00	$ -	$ 136,302.09	2.10	$ 150,121	0.00	$ -	$ 150,120.73
497	1320.51	1320.76	Residential	2723.39	$ 1,977,179	$ 988,590	0.00	-1.00	0.00	-1.00	147.26	-1.00	147.25	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
391	1323.62	1323.87	Residential	9604.68	$ 6,972,994	$ 3,486,497	1323.72	-0.15	1323.65	-0.22	1324.10	0.23	1324.10	0.23	3.42	$ 238,335	0.00	$ -	$ 238,334.77	10.94	$ 762,824	9.72	$ 338,733	$ 1,101,557.78
319	1347.74	1347.99	Residential	5079.32	$ 3,687,584	$ 1,843,792	1347.48	-0.52	1347.48	-0.52	1347.77	-0.23	1347.77	-0.23	1.9399414	$ 71,537	0	$ -	$ 71,536.97	3.0961914	$ 114,175	0	$ -	$ 114,174.66
492	1321.53	1321.78	Residential	1339.91	$ 972,774	$ 486,387	1320.63	-1.00	1320.63	-1.00	1320.71	-1.00	1320.70	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
321	1334.36	1334.61	Residential	10459.22	$ 7,593,394	$ 3,796,697	961.07	-1.00	961.06	-1.00	1333.64	-0.97	1333.64	-0.97	0	$ -	0	$ -	$ -	0.125	$ 9,492	0	$ -	$ 9,491.74
90	1393.57	1393.82	Residential	10984.74	$ 7,974,925	$ 3,987,462	1393.79	-0.03	1393.79	-0.03	1393.94	0.12	1393.93	0.12	3.88	$ 309,807	0.00	$ -	$ 309,807.13	7.61	$ 606,667	5.05	$ 201,369	$ 808,035.48
474	1319.47	1319.72	Residential	1083.36	$ 786,522	$ 393,261	485.09	-1.00	485.10	-1.00	485.20	-1.00	485.17	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
484	1326.28	1326.53	Residential	17723.79	$ 12,867,474	$ 6,433,737	1326.15	-0.38	1326.14	-0.39	1326.45	-0.08	1326.44	-0.09	2.50	$ 321,310	0.00	$ -	$ 321,309.88	3.69	$ 474,425	0.00	$ -	$ 474,425.28
138	1340.89	1341.14	Residential	8006.64	$ 5,812,823	$ 2,906,411	1340.56	-0.58	1340.56	-0.58	1340.78	-0.36	1340.79	-0.36	1.67041016	$ 97,098	0	$ -	$ 97,097.98	2.56445312	$ 149,067	0	$ -	$ 149,067.12
29	1317.70	1317.95	Residential	511.14	$ 371,090	$ 185,545	1197.86	-1.00	1197.85	-1.00	1317.42	-0.53	1317.42	-0.53	0.00	$ -	0.00	$ -	$ -	1.87	$ 6,951	0.00	$ -	$ 6,950.69
231	1341.90	1342.15	Residential	5392.15	$ 3,914,704	$ 1,957,352	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
32	1318.65	1318.90	Residential	4524.83	$ 3,285,027	$ 1,642,514	1318.50	-0.40	1318.50	-0.40	1318.52	-0.39	1318.51	-0.39	2.39	$ 78,436	0.00	$ -	$ 78,436.44	2.45	$ 80,377	0.00	$ -	$ 80,377.30
257	1333.35	1333.60	Residential	9422.90	$ 6,841,023	$ 3,420,512	1333.63	0.02	1333.63	0.02	1333.75	0.15	1333.70	0.10	4.70	$ 321,491	0.98	$ 33,495	$ 354,986.64	8.52	$ 582,539	6.32	$ 216,229	$ 798,767.93
491	1324.09	1324.34	Residential	6194.34	$ 4,497,094	$ 2,248,547	1324.30	-0.05	1324.22	-0.13	1324.68	0.34	1324.67	0.32	3.81	$ 171,342	0.00	$ -	$ 171,341.93	14.07	$ 632,777	14.10	$ 317,025	$ 949,802.56
223	1340.02	1340.27	Residential	4310.09	$ 3,129,127	$ 1,564,564	23.32	-1.00	23.32	-1.00	188.13	-1.00	188.13	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
317	1346.67	1346.92	Residential	5732.43	$ 4,161,744	$ 2,080,872	1346.85	-0.06	1346.85	-0.06	1346.99	0.07	1346.99	0.07	3.74707028	$ 155,943	0	$ -	$ 155,943.49	6.2265625	$ 259,134	3.1171875	$ 64,865	$ 323,998.30
350	1325.39	1325.64	Residential	9207.28	$ 6,684,486	$ 3,342,243	1325.32	-0.32	1325.28	-0.36	1325.65	0.01	1325.64	0.00	2.71	$ 180,853	0.00	$ -	$ 180,853.20	4.20	$ 280,598	0.28	$ 9,253	$ 289,851.45
36	1310.52	1310.77	Residential	5860.59	$ 4,254,790	$ 2,127,395	1310.41	-0.37	1310.41	-0.36	1310.51	-0.26	1310.51	-0.27	2.54	$ 108,032	0.00	$ -	$ 108,031.79	2.97	$ 126,293	0.00	$ -	$ 126,293.31
205	1344.40	1344.65	Residential	10715.30	$ 7,779,310	$ 3,889,655	1344.06	-0.59	1344.06	-0.59	1344.11	-0.54	1344.11	-0.54	1.6464844	$ 128,085	0	$ -	$ 128,085.13	1.85107424	$ 144,001	0	$ -	$ 144,000.81
105	1423.56	1423.81	Residential	7121.88	$ 5,170,483	$ 2,585,241	1423.11	-0.70	1423.11	-0.70	1423.19	-0.62	1423.19	-0.62	1.21679688	$ 62,914	0	$ -	$ 62,914.27	1.52490236	$ 78,845	0	$ -	$ 78,844.81
236	1335.02	1335.27	Residential	7463.86	$ 5,418,764	$ 2,709,382	772.25	-1.00	772.24	-1.00	1334.27	-1.00	1334.29	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
485	1320.88	1321.13	Residential	7138.89	$ 5,182,831	$ 2,591,415	1320.54	-0.59	1320.54	-0.59	1320.74	-0.39	1320.68	-0.45	1.66	$ 85,942	0.00	$ -	$ 85,941.86	2.44	$ 126,585	0.00	$ -	$ 126,584.57
276	1333.43	1333.68	Residential	582.30	$ 422,748	$ 211,374	1333.80	0.12	1333.76	0.09	1334.00	0.32	1333.98	0.31	7.51	$ 31,757	4.92	$ 10,393	$ 42,149.40	13.55	$ 57,286	13.37	$ 28,263	$ 85,548.67
232	1334.12	1334.37	Residential	6944.69	$ 5,041,848	$ 2,520,924	742.32	-1.00	742.32	-1.00	1334.19	-0.18	1334.21	-0.18	0	$ -	0	$ -	$ -	3.27734372	$ 165,239	0	$ -	$ 165,238.69
503	1335.00	1335.25	Residential	13617.09	$ 9,886,006	$ 4,943,003	1334.06	-1.00	1334.06	-1.00	1334.27	-0.98	1334.27	-0.98	0.00	$ -	0.00	$ -	$ -	0.08	$ 8,351	0.00	$ -	$ 8,350.97
64	1335.75	1336.00	Residential	8714.23	$ 6,326,533	$ 3,163,267	1335.57	-0.44	1335.57	-0.44	1335.61	-0.39	1335.61	-0.39	2.25	$ 142,440	0.00	$ -	$ 142,439.67	2.44	$ 154,086	0.00	$ -	$ 154,085.68
182	1332.38	1332.63	Residential	11920.23	$ 8,654,087	$ 4,327,044	228.28	-1.00	228.27	-1.00	888.27	-1.00	982.05	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
430	1362.52	1362.77	Residential	9532.75	$ 6,920,775	$ 3,460,388	1360.53	-1.00	1360.54	-1.00	1360.63	-1.00	1360.63	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
184	1331.65	1331.90	Residential	7792.51	$ 5,657,361	$ 2,828,681	1331.47	-0.43	1331.47	-0.43	1331.63	-0.27	1331.64	-0.27	2.29785156	$ 129,998	0	$ -	$ 129,997.76	2.9350586	$ 166,047	0	$ -	$ 166,046.86
204	1341.13	1341.38	Residential	1620.13	$ 1,176,216	$ 588,108	1341.03	-0.36	1341.03	-0.36	1341.13	-0.25	1341.14	-0.25	2.5791016	$ 30,336	0	$ -	$ 30,335.79	2.99560548	$ 35,235	0	$ -	$ 35,234.78
315	1338.98	1339.23	Residential	8432.94	$ 6,122,312	$ 3,061,156	1339.05	-0.18	1339.05	-0.18	1339.27	0.04	1339.28	0.04	3.2993164	$ 201,994	0	$ -	$ 201,994.44	5.1865234	$ 317,535	1.66113276	$ 50,850	$ 368,385.00
449	1326.30	1326.55	Residential	512.23	$ 371,880	$ 185,940	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
125	1431.44	1431.69	Residential	10791.68	$ 7,834,763	$ 3,917,382	1430.37	-1.00	1430.37	-1.00	1430.49	-1.00	1430.49	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
261	1344.98	1345.23	Residential	31570.81	$ 22,920,407	$ 11,460,203	1344.21	-1.00	913.11	-1.00	1344.65	-0.58	1344.54	-0.69	0.00	$ -	0.00	$ -	$ -	1.68	$ 384,655	0.00	$ -	$ 384,655.46
386	1324.50	1324.75	Residential	4437.01	$ 3,221,266	$ 1,610,633	228.38	-1.00	228.38	-1.00	1324.11	-0.64	1324.10	-0.65	0.00	$ -	0.00	$ -	$ -	1.43	$ 46,023	0.00	$ -	$ 46,022.58
414	1397.75	1398.00	Residential	6393.90	$ 4,641,974	$ 2,320,987	1395.84	-1.00	1395.84	-1.00	1396.06	-1.00	1396.06	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
229	1338.56	1338.81	Residential	4433.88	$ 3,218,996	$ 1,609,498	1338.74	-0.07	1338.74	-0.07	1338.92	0.11	1338.92	0.11	3.7319336	$ 120,131	0	$ -	$ 120,130.81	7.2739258	$ 234,147	4.58349612	$ 73,771	$ 307,918.69
431	1356.48	1356.73	Residential	3025.96	$ 2,196,849	$ 1,098,424	123.92	-1.00	123.92	-1.00	631.20	-1.00	631.20	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
509	1325.09	1325.34	Residential	15430.55	$ 11,202,578	$ 5,601,289	1324.71	-0.63	1324.71	-0.63	1324.78	-0.56	1324.78	-0.56	1.49	$ 166,398	0.00	$ -	$ 166,397.67	1.75	$ 196,483	0.00	$ -	$ 196,482.72
440	1326.41	1326.66	Residential	5519.16	$ 4,006,909	$ 2,003,455	0.00	-1.00	0.00	-1.00	1326.24	-0.42	1326.24	-0.42	0.00	$ -	0.00	$ -	$ -	2.32	$ 93,012	0.00	$ -	$ 93,011.95
402	1327.14	1327.39	Residential	1014.49	$ 736,520	$ 368,260	481.85	-1.00	481.85	-1.00	1326.17	-1.00	1326.17	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
542	1337.79	1338.04	Residential	1862.82	$ 1,352,407	$ 676,203	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
416	1398.89	1399.14	Residential	5128.78	$ 3,723,492	$ 1,861,746	1389.92	-1.00	1389.92	-1.00	1390.58	-1.00	1390.58	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
569	1321.58	1321.83	Residential	6215.34	$ 4,512,337	$ 2,256,168	1321.17	-0.67	1321.17	-0.67	1321.20	-0.64	1321.20	-0.64	1.32	$ 59,687	0.00	$ -	$ 59,687.11	1.45	$ 65,283	0.00	$ -	$ 65,283.46
384	1326.34	1326.59	Residential	13713.92	$ 9,956,308	$ 4,978,154	1326.19	-0.40	1326.19	-0.40	1326.23	-0.36	1326.23	-0.36	2.42	$ 240,497	0.00	$ -	$ 240,497.35	2.56	$ 255,179	0.00	$ -	$ 255,179.01
66	1341.15	1341.40	Residential	7401.01	$ 5,373,131	$ 2,686,565	1341.20	-0.20	1341.20	-0.20	1341.30	-0.10	1341.30	-0.10	3.20166016	$ 172,029	0	$ -	$ 172,029.39	3.61328128	$ 194,146	0	$ -	$ 194,146.33
134	1653.63	1653.88	Residential	8993.07	$ 6,528,966	$ 3,264,483	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
94	1414.71	1414.96	Residential	1163.57	$ 844,755	$ 422,378	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
87	1398.25	1398.50	Residential	724.88	$ 526,260	$ 263,130	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
420	1364.99	1365.24	Residential	4334.78	$ 3,147,053	$ 1,573,527	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
85	1347.99	1348.24	Residential	4822.15	$ 3,500,880	$ 1,750,440	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
294	1346.60	1346.85	Residential	349.86	$ 253,997	$ 126,998	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
243	1342.10	1342.35	Residential	3590.12	$ 2,606,425	$ 1,303,213	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
471	1339.29	1339.54	Residential	3984.20	$ 2,892,527	$ 1,446,264	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -

10-Year and 100-Year Existing Building Damages in Area A

															Existing									
Building ID	HAG	Finished Floor Elevation (ft)	Land Use Type	Building Area (sf)	Replace Cost $ ($726/SF-Res)	Content Replacement Value ($) 1/2 of Replacement Cost	10yr Exist WSEL (ft)	10yr Exist Flow Depth (ft)	10yr Prop WSEL (ft)	10yr Prop Flow Depth (ft)	100yr Exist WSEL (ft)	100yr Exist Flow Depth (ft)	100yr Prop WSEL (ft)	100yr Prop Flow Depth (ft)	10yr Building Damage (%)	10yrBuilding Damage Cost ($)	10yr Content Damage (%)	10yr Content Damage Cost ($)	10yr Total Damage Cost ($)	100yr Building Damage (%)	100yrBuilding Damage Cost ($)	100yr Content Damage (%)	100yr Content Damage Cost ($)	100yr Total Damage Cost ($)
473	1337.74	1337.99	Residential	5738.70	$ 4,166,293	$ 2,083,146	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
70	1337.13	1337.38	Residential	428.49	$ 311,081	$ 155,540	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
466	1333.18	1333.43	Residential	4856.25	$ 3,525,640	$ 1,762,820	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
247	1330.67	1330.92	Residential	324.60	$ 235,659	$ 117,830	1329.61	-1.00	1329.61	-1.00	0.00	-1.00	1331.19	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
486	1328.38	1328.63	Residential	10080.08	$ 7,318,139	$ 3,659,070	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
418	1326.27	1326.52	Residential	642.45	$ 466,418	$ 233,209	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
577	1325.04	1325.29	Residential	6459.08	$ 4,689,290	$ 2,344,645	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
273	1343.59	1343.84	Residential	2568.08	$ 1,864,428	$ 932,214	64.58	-1.00	64.58	-1.00	86.11	-1.00	86.12	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
562	1318.27	1318.52	Residential	6529.13	$ 4,740,151	$ 2,370,076	0.00	-1.00	0.00	-1.00	68.31	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
201	1336.36	1336.61	Residential	10297.53	$ 7,476,003	$ 3,738,002	153.83	-1.00	153.83	-1.00	153.83	-1.00	153.84	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
245	1340.43	1340.68	Residential	941.45	$ 683,496	$ 341,748	0.00	-1.00	0.00	-1.00	213.48	-1.00	213.49	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
305	1341.91	1342.16	Residential	6338.38	$ 4,601,667	$ 2,300,833	216.16	-1.00	216.16	-1.00	216.17	-1.00	216.17	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
372	1326.69	1326.94	Residential	1276.52	$ 926,755	$ 463,378	0.00	-1.00	0.00	-1.00	206.81	-1.00	206.82	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
226	1098.42	1098.67	Residential	691.10	$ 501,735	$ 250,868	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
6	1318.58	1318.83	Residential	8429.50	$ 6,119,817	$ 3,059,909	220.78	-1.00	220.78	-1.00	220.79	-1.00	220.79	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
513	1335.01	1335.26	Residential	526.95	$ 382,565	$ 191,282	0.00	-1.00	0.00	-1.00	252.12	-1.00	252.12	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
47	1318.51	1318.76	Residential	5281.01	$ 3,834,015	$ 1,917,007	349.96	-1.00	349.96	-1.00	349.97	-1.00	349.97	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
31	1318.31	1318.56	Residential	924.64	$ 671,292	$ 335,646	175.74	-1.00	175.73	-1.00	392.23	-1.00	392.23	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
175	1346.66	1346.91	Residential	1148.33	$ 833,687	$ 416,843	0.00	-1.00	0.00	-1.00	444.16	-1.00	444.16	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
248	1340.61	1340.86	Residential	2664.64	$ 1,934,529	$ 967,265	0.00	-1.00	0.00	-1.00	442.03	-1.00	442.04	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
250	1341.47	1341.72	Residential	7701.93	$ 5,591,604	$ 2,795,802	0.00	-1.00	0.00	-1.00	460.08	-1.00	460.08	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
576	1331.62	1331.87	Residential	617.80	$ 448,524	$ 224,262	505.16	-1.00	505.17	-1.00	505.22	-1.00	505.23	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
570	1320.14	1320.39	Residential	11790.86	$ 8,560,166	$ 4,280,083	506.07	-1.00	505.97	-1.00	506.25	-1.00	506.20	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
523	1326.63	1326.88	Residential	7607.83	$ 5,523,283	$ 2,761,642	524.98	-1.00	524.98	-1.00	525.04	-1.00	525.05	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
202	1275.49	1275.74	Residential	2124.08	$ 1,542,082	$ 771,041	0.00	-1.00	0.00	-1.00	477.18	-1.00	477.19	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
9	763.59	763.84	Residential	417.29	$ 302,950	$ 151,475	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
52	1346.47	1346.72	Residential	7442.51	$ 5,403,259	$ 2,701,630	149.36	-1.00	149.36	-1.00	599.70	-1.00	599.70	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
136	1341.26	1341.51	Residential	8006.87	$ 5,812,987	$ 2,906,493	266.48	-1.00	266.48	-1.00	623.67	-1.00	623.66	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
357	1322.47	1322.72	Residential	4760.72	$ 3,456,285	$ 1,728,142	0.00	-1.00	0.00	-1.00	618.21	-1.00	618.20	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
23	1316.47	1316.72	Residential	5702.06	$ 4,139,693	$ 2,069,847	619.59	-1.00	619.59	-1.00	619.65	-1.00	619.64	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
137	1343.10	1343.35	Residential	12613.34	$ 9,157,283	$ 4,578,641	692.83	-1.00	692.83	-1.00	692.84	-1.00	692.84	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
475	1322.99	1323.24	Residential	4541.68	$ 3,297,259	$ 1,648,629	83.56	-1.00	83.56	-1.00	688.76	-1.00	688.75	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
249	1339.78	1340.03	Residential	5162.03	$ 3,747,637	$ 1,873,818	758.09	-1.00	758.09	-1.00	758.09	-1.00	758.09	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
1	1317.42	1317.67	Residential	1455.68	$ 1,056,823	$ 528,411	747.59	-1.00	747.60	-1.00	747.62	-1.00	747.63	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
494	1321.28	1321.53	Residential	1256.14	$ 911,959	$ 455,980	754.22	-1.00	754.23	-1.00	754.23	-1.00	754.24	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -

10-Year and 100-Year Proposed Building Damages in Area A

															Proposed									
Building ID	HAG	Finished Floor Elevation (ft)	Land Use Type	Building Area (sf)	Replace Cost $ ($726/SF-Res)	Content Replacement Value ($) 1/2 of Replacement Cost	10yr Exist WSEL (ft)	10yr Exist Flow Depth (ft)	10yr Prop WSEL (ft)	10yr Prop Flow Depth (ft)	100yr Exist WSEL (ft)	100yr Exist Flow Depth (ft)	100yr Prop WSEL (ft)	100yr Prop Flow Depth (ft)	10yr Building Damage (%)	10yrBuilding Damage Cost ($)	10yr Content Damage (%)	10yr Content Damage Cost ($)	10yr Total Damage Cost ($)	100yr Building Damage (%)	100yrBuilding Damage Cost ($)	100yr Content Damage (%)	100yr Content Damage Cost ($)	100yr Total Damage Cost ($)
198	1331.10	1331.35	Residential	7479.12	$ 5,429,839	$ 2,714,920	1331.08	-0.27	1331.08	-0.27	1331.18	-0.17	1331.18	-0.17	2.92724608	$ 158,945	0	$ -	$ 158,944.76	3.31542968	$ 180,023	0	$ -	$ 180,022.50
528	1335.72	1335.97	Residential	10191.57	$ 7,399,081	$ 3,699,541	1335.76	-0.21	1335.76	-0.21	1335.81	-0.16	1335.81	-0.16	3.16796876	$ 234,401	0	$ -	$ 234,400.58	3.37207032	$ 249,502	0	$ -	$ 249,502.22
121	1525.48	1525.73	Residential	406.99	$ 295,472	$ 147,736	0.00	-1.00	0.00	-1.00	1166.47	-1.00	1166.47	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
538	1327.24	1327.49	Residential	2669.28	$ 1,937,899	$ 968,950	1327.36	-0.14	1327.19	-0.30	1328.06	0.57	1327.66	0.16	2.78	$ 53,955	0.00	$ -	$ 53,954.59	8.85	$ 171,478	6.79	$ 65,773	$ 237,250.71
470	1333.16	1333.41	Residential	1558.25	$ 1,131,291	$ 565,645	974.14	-1.00	974.13	-1.00	1333.04	-0.37	1333.04	-0.37	0	$ -	0	$ -	$ -	2.50341796	$ 28,321	0	$ -	$ 28,320.94
262	1340.41	1340.66	Residential	8866.52	$ 6,437,090	$ 3,218,545	1340.38	-0.28	1340.38	-0.28	1340.47	-0.19	1340.46	-0.20	2.88	$ 185,255	0.00	$ -	$ 185,254.93	3.21	$ 206,502	0.00	$ -	$ 206,502.35
61	1333.57	1333.82	Residential	2138.95	$ 1,552,880	$ 776,440	1279.33	-1.00	1279.30	-1.00	1334.09	0.27	1334.06	0.24	0.00	$ -	0.00	$ -	$ -	11.31	$ 175,681	10.24	$ 79,496	$ 255,176.89
51	1341.97	1342.22	Residential	8818.57	$ 6,402,284	$ 3,201,142	1342.64	0.42	1342.58	0.36	1343.07	0.84	1343.04	0.82	14.83	$ 949,151	15.16	$ 485,142	$ 1,434,293.06	28.47	$ 1,822,744	34.26	$ 1,096,657	$ 2,919,401.09
59	1343.56	1343.81	Residential	1029.42	$ 747,360	$ 373,680	1344.22	0.41	1344.05	0.24	1344.65	0.84	1344.54	0.73	11.11	$ 83,018	9.95	$ 37,186	$ 120,204.36	25.87	$ 193,343	30.62	$ 114,414	$ 307,756.88
274	1339.51	1339.76	Residential	2963.81	$ 2,151,726	$ 1,075,863	1340.25	0.49	1340.19	0.43	1340.72	0.96	1340.68	0.92	16.89	$ 363,361	18.04	$ 194,105	$ 557,465.73	31.56	$ 679,028	38.58	$ 415,071	$ 1,094,099.74
195	1331.08	1331.33	Residential	5775.30	$ 4,192,867	$ 2,096,433	1048.47	-1.00	1048.48	-1.00	1331.17	-0.16	1331.19	-0.16	0	$ -	0	$ -	$ -	3.35888672	$ 140,834	0	$ -	$ 140,833.64
537	1317.88	1318.13	Residential	11429.48	$ 8,297,801	$ 4,148,901	871.71	-1.00	871.70	-1.00	1317.76	-0.37	1317.74	-0.39	0.00	$ -	0.00	$ -	$ -	2.43	$ 202,016	0.00	$ -	$ 202,015.80
360	1323.97	1324.22	Residential	1063.36	$ 772,000	$ 386,000	1324.61	0.38	1324.58	0.36	1324.89	0.66	1324.88	0.66	14.77	$ 114,055	15.08	$ 58,222	$ 172,276.96	23.81	$ 183,800	27.73	$ 107,044	$ 290,844.71
338	1320.98	1321.23	Residential	3049.31	$ 2,213,799	$ 1,106,900	787.52	-1.00	787.51	-1.00	787.54	-1.00	787.53	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
60	1333.08	1333.33	Residential	7401.44	$ 5,373,442	$ 2,686,721	289.24	-1.00	289.23	-1.00	289.27	-1.00	289.26	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
413	1455.19	1455.44	Residential	9053.91	$ 6,573,135	$ 3,286,568	0.00	-1.00	0.00	-1.00	736.98	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
158	1332.06	1332.31	Residential	13840.34	$ 10,048,089	$ 5,024,045	1332.44	0.13	1332.44	0.13	1332.62	0.31	1332.63	0.31	7.8232423	$ 786,086	5.35253922	$ 268,914	$ 1,055,000.31	13.2907714	$ 1,335,469	13.00707996	$ 653,481	$ 1,988,950.04
238	1335.27	1335.52	Residential	6338.22	$ 4,601,549	$ 2,300,774	100.03	-1.00	100.03	-1.00	1335.16	-0.36	1335.16	-0.36	0	$ -	0	$ -	$ -	2.5493164	$ 117,308	0	$ -	$ 117,308.03
349	1324.98	1325.23	Residential	7393.78	$ 5,367,884	$ 2,683,942	673.55	-1.00	673.54	-1.00	783.59	-1.00	783.57	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
27	1316.52	1316.77	Residential	7472.12	$ 5,424,758	$ 2,712,379	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
405	1326.51	1326.76	Residential	1009.50	$ 732,896	$ 366,448	355.52	-1.00	355.52	-1.00	355.55	-1.00	355.55	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
141	1342.43	1342.68	Residential	7243.14	$ 5,258,522	$ 2,629,261	874.65	-1.00	874.65	-1.00	874.66	-1.00	874.67	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
146	1338.37	1338.62	Residential	15504.94	$ 11,256,588	$ 5,628,294	1338.87	0.25	1338.88	0.25	1339.19	0.57	1339.21	0.57	11.5	$ 1,294,508	10.5	$ 590,971	$ 1,885,478.44	21.244873	$ 2,391,448	24.1428222	$ 1,358,829	$ 3,750,276.74
72	1351.63	1351.88	Residential	11007.51	$ 7,991,454	$ 3,995,727	1351.32	-0.57	1351.32	-0.57	1351.37	-0.51	1351.37	-0.51	1.73583984	$ 138,719	0	$ -	$ 138,718.84	1.95458984	$ 156,200	0	$ -	$ 156,200.14
254	1345.68	1345.93	Residential	1895.39	$ 1,376,051	$ 688,025	0.00	-1.00	0.00	-1.00	753.45	-1.00	753.45	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
565	1332.50	1332.75	Residential	6624.03	$ 4,809,043	$ 2,404,522	1332.28	-0.47	1332.28	-0.47	1332.63	-0.13	1332.33	-0.43	2.11	$ 101,535	0.00	$ -	$ 101,534.68	2.29	$ 110,105	0.00	$ -	$ 110,105.49
169	1332.68	1332.93	Residential	10483.42	$ 7,610,964	$ 3,805,482	518.50	-1.00	518.50	-1.00	1332.76	-0.17	1332.76	-0.17	0	$ -	0	$ -	$ -	3.3017578	$ 251,296	0	$ -	$ 251,295.59
286	1349.36	1349.61	Residential	7943.75	$ 5,767,160	$ 2,883,580	1349.40	-0.20	1349.40	-0.20	1349.42	-0.18	1349.42	-0.18	3.19	$ 184,251	0.00	$ -	$ 184,250.62	3.26	$ 188,137	0.00	$ -	$ 188,136.69
373	1322.46	1322.71	Residential	7149.90	$ 5,190,828	$ 2,595,414	1322.63	-0.08	1322.58	-0.13	1322.97	0.26	1322.96	0.25	3.47	$ 180,133	0.00	$ -	$ 180,132.90	11.50	$ 596,755	10.49	$ 272,385	$ 869,140.61
400	1328.18	1328.43	Residential	9066.93	$ 6,582,588	$ 3,291,294	568.20	-1.00	568.20	-1.00	568.33	-1.00	568.33	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
280	1330.76	1331.01	Residential	4647.57	$ 3,374,137	$ 1,687,068	1330.98	-0.03	1330.95	-0.06	1331.20	0.20	1331.19	0.18	3.77	$ 127,074	0.00	$ -	$ 127,073.80	9.48	$ 319,818	7.67	$ 129,397	$ 449,214.88
144	1336.17	1336.42	Residential	7180.50	$ 5,213,041	$ 2,606,520	1336.51	0.08	1336.51	0.08	1336.72	0.30	1336.73	0.30	6.4023436	$ 333,757	3.36328104	$ 87,665	$ 421,421.38	12.9831541	$ 676,817	12.57641574	$ 327,807	$ 1,004,623.93
525	1326.25	1326.50	Residential	19943.97	$ 14,479,323	$ 7,239,662	1165.30	-1.00	1165.29	-1.00	1326.23	-0.27	1326.02	-0.48	0.00	$ -	0.00	$ -	$ -	2.06	$ 298,848	0.00	$ -	$ 298,848.14
404	1322.82	1323.07	Residential	5577.85	$ 4,049,522	$ 2,024,761	1322.62	-0.45	1322.60	-0.47	1322.96	-0.11	1322.95	-0.11	2.14	$ 86,586	0.00	$ -	$ 86,586.21	3.55	$ 143,612	0.00	$ -	$ 143,611.71
89	1369.74	1369.99	Residential	10864.86	$ 7,887,890	$ 3,943,945	736.76	-1.00	736.75	-1.00	736.78	-1.00	736.77	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
555	1330.05	1330.30	Residential	6177.14	$ 4,484,601	$ 2,242,300	690.87	-1.00	690.63	-1.00	1329.38	-0.92	690.95	-1.00	0.00	$ -	0.00	$ -	$ -	0.00	$ -	0.00	$ -	$ -
328	1382.11	1382.36	Residential	5083.66	$ 3,690,738	$ 1,845,369	0.00	-1.00	0.00	-1.00	1062.62	-1.00	1062.61	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
544	1317.89	1318.14	Residential	1064.51	$ 772,835	$ 386,417	0.00	-1.00	0.00	-1.00	863.13	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
269	1343.78	1344.03	Residential	1292.67	$ 938,479	$ 469,239	766.99	-1.00	0.00	-1.00	767.16	-1.00	767.11	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
163	1341.77	1342.02	Residential	767.27	$ 557,041	$ 278,521	0.00	-1.00	0.00	-1.00	900.61	-1.00	900.61	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
551	1327.07	1327.32	Residential	11720.01	$ 8,508,728	$ 4,254,364	1326.26	-1.00	915.96	-1.00	1326.52	-0.80	1326.34	-0.98	0.00	$ -	0.00	$ -	$ -	0.08	$ 7,188	0.00	$ -	$ 7,187.55
271	1331.69	1331.94	Residential	3774.99	$ 2,740,645	$ 1,370,322	1331.91	-0.04	1331.90	-0.04	1332.06	0.12	1332.04	0.10	3.85	$ 105,531	0.00	$ -	$ 105,530.89	7.02	$ 192,327	4.22	$ 57,891	$ 250,217.67
385	1323.06	1323.31	Residential	6452.90	$ 4,684,808	$ 2,342,404	1322.62	-0.69	1322.57	-0.74	1322.96	-0.35	1322.95	-0.36	1.04	$ 48,953	0.00	$ -	$ 48,952.58	2.57	$ 120,368	0.00	$ -	$ 120,368.45
460	1321.03	1321.28	Residential	1265.95	$ 919,080	$ 459,540	0.00	-1.00	0.00	-1.00	1321.13	-0.15	1321.13	-0.15	0	$ -	0	$ -	$ -	3.38769532	$ 31,136	0	$ -	$ 31,135.64
524	1332.22	1332.47	Residential	10676.48	$ 7,751,124	$ 3,875,562	1332.37	-0.10	1332.37	-0.10	1332.55	0.08	1332.56	0.08	3.58593752	$ 277,950	0	$ -	$ 277,950.48	6.5341798	$ 506,472	3.54785172	$ 137,499	$ 643,971.60
307	1348.84	1349.09	Residential	7855.95	$ 5,703,422	$ 2,851,711	1348.80	-0.29	1348.80	-0.29	1348.82	-0.27	1348.82	-0.27	2.85	$ 162,609	0.00	$ -	$ 162,608.80	2.91	$ 166,062	0.00	$ -	$ 166,062.04
346	1321.84	1322.09	Residential	2195.05	$ 1,593,607	$ 796,803	1273.33	-1.00	1273.33	-1.00	1273.38	-1.00	1273.38	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
120	1384.09	1384.34	Residential	13591.52	$ 9,867,443	$ 4,933,721	1382.97	-1.00	1383.03	-1.00	1383.41	-0.93	1383.38	-0.97	0.00	$ -	0.00	$ -	$ -	0.14	$ 13,683	0.00	$ -	$ 13,683.37
500	1317.50	1317.75	Residential	1672.89	$ 1,214,517	$ 607,259	1317.67	-0.09	1317.67	-0.09	1317.79	0.04	1317.80	0.04	3.64355468	$ 44,252	0	$ -	$ 44,251.60	5.2194826	$ 63,392	1.70727564	$ 10,368	$ 73,759.09
282	1341.63	1341.88	Residential	8841.63	$ 6,419,026	$ 3,209,513	0.00	-1.00	0.00	-1.00	770.21	-1.00	770.20	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
563	1331.78	1332.03	Residential	6237.47	$ 4,528,402	$ 2,264,201	1332.30	0.27	1331.80	-0.23	1332.80	0.77	1332.35	0.32	3.07	$ 139,191	0.00	$ -	$ 139,190.88	13.74	$ 622,091	13.63	$ 308,669	$ 930,760.23
18	1309.78	1310.03	Residential	700.48	$ 508,551	$ 254,276	1310.13	0.10	1310.08	0.05	1310.35	0.32	1310.31	0.28	5.45	$ 27,698	2.03	$ 5,149	$ 32,847.87	12.35	$ 62,823	11.69	$ 29,736	$ 92,559.20
53	1338.91	1339.16	Residential	9128.88	$ 6,627,566	$ 3,313,783	1339.02	-0.14	1339.02	-0.14	1339.06	-0.10	1339.06	-0.11	3.45	$ 228,437	0.00	$ -	$ 228,437.43	3.58	$ 236,981	0.00	$ -	$ 236,980.78
191	1331.67	1331.92	Residential	8250.07	$ 5,989,549	$ 2,994,774	1331.09	-0.83	1331.09	-0.83	1331.20	-0.72	1331.22	-0.72	0.69970704	$ 41,909	0	$ -	$ 41,909.29	1.12890628	$ 67,616	0	$ -	$ 67,616.39
164	1344.25	1344.50	Residential	7496.39	$ 5,442,379	$ 2,721,189	0.00	-1.00	0.00	-1.00	755.26	-1.00	755.27	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
258	1331.78	1332.03	Residential	8405.13	$ 6,102,124	$ 3,051,062	1331.51	-0.52	1331.51	-0.52	1331.88	-0.15	1331.80	-0.23	1.92	$ 116,858	0.00	$ -	$ 116,858.06	3.07	$ 187,354	0.00	$ -	$ 187,354.28
482	1324.13	1324.38	Residential	4767.85	$ 3,461,462	$ 1,730,731	1324.29	-0.09	1324.21	-0.17	1324.68	0.30	1324.66	0.28	3.34	$ 115,574	0.00	$ -	$ 115,573.63	12.48	$ 431,914	11.87	$ 205,419	$ 637,332.46
112	1371.29	1371.54	Residential	6684.88	$ 4,853,225	$ 2,426,612	1370.55	-0.99	1370.55	-0.99	1370.82	-0.72	1370.82	-0.72	0.04	$ 1,896	0.00	$ -	$ 1,895.79	1.11	$ 53,698	0.00	$ -	$ 53,698.28
540	1319.37	1319.62	Residential	12604.81	$ 9,151,093	$ 4,575,547	0.00	-1.00	0.00	-1.00	637.48	-1.00	637.40	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
375	1325.37	1325.62	Residential	7943.12	$ 5,766,706	$ 2,883,353	414.68	-1.00	414.68	-1.00	414.73	-1.00	414.73	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
526	1326.54	1326.79	Residential	723.15	$ 525,003	$ 262,502	0.00	-1.00	0.00	-1.00	773.77	-1.00	113.99	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
170	1342.44	1342.69	Residential	676.25	$ 490,958	$ 245,479	978.28	-1.00	978.29	-1.00	1341.92	-0.76	1341.94	-0.76	0	$ -	0	$ -	$ -	0.9448242	$ 4,639	0	$ -	$ 4,638.69
167	1346.13	1346.38	Residential	8580.62	$ 6,229,533	$ 3,114,767	1346.37	-0.01	1346.37	-0.01	1346.72	0.34	1346.72	0.34	3.96	$ 246,626	0.00	$ -	$ 246,626.24	14.25	$ 887,952	14.36	$ 447,139	$ 1,335,091.16
534	1329.33	1329.58	Residential	639.16	$ 464,030	$ 232,015	0.00	-1.00	0.00	-1.00	32.18	-1.00	32.18	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
3	1317.03	1317.28	Residential	12624.49	$ 9,165,380	$ 4,582,690	1316.84	-0.43	1316.84	-0.43	1316.87	-0.41	1316.87	-0.41	2.26	$ 207,385	0.00	$ -	$ 207,384.63	2.35	$ 215,843	0.00	$ -	$ 215,842.91
129	1494.88	1495.13	Residential	8054.19	$ 5,847,340	$ 2,923,670	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
487	1329.29	1329.54	Residential	7301.80	$ 5,301,110	$ 2,650,555	1328.95	-0.58	1328.95	-0.58	1328.98	-0.56	1328.98	-0.56	1.66	$ 88,058	0.00	$ -	$ 88,058.48	1.75	$ 92,873	0.00	$ -	$ 92,872.96
505	1334.49	1334.74	Residential	1851.91	$ 1,344,488	$ 672,244	801.65	-1.00	801.65	-1.00	801.67	-1.00	801.66	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
299	1334.10	1334.35	Residential	12457.47	$ 9,044,127	$ 4,522,063	1334.08	-0.27	1334.08	-0.27	1334.36	0.01	1334.33	-0.02	2.92	$ 263,684	0.00	$ -	$ 263,683.99	3.92	$ 354,655	0.00	$ -	$ 354,655.18
206	1330.94	1331.19	Residential	6811.92	$ 4,945,451	$ 2,472,726	1331.01	-0.18	1331.01	-0.18	1331.29	0.10	1331.30	0.10	3.28271484	$ 162,345	0	$ -	$ 162,345.06	7.0578613	$ 349,043	4.28100582	$ 105,858	$ 454,900.63
443	1325.91	1326.16	Residential	6111.80	$ 4,437,165	$ 2,218,582	1324.48	-1.00	1324.47	-1.00	1324.59	-1.00	1324.59	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
39	1317.80	1318.05	Residential	5414.14	$ 3,930,662	$ 1,965,331	1317.89	-0.16	1317.89	-0.16	1317.93	-0.13	1317.93	-0.13	3.37	$ 132,276	0.00	$ -	$ 132,276.00	3.49	$ 137,132	0.00	$ -	$ 137,131.75
502	1319.37	1319.62	Residential	2781.41	$ 2,019,305	$ 1,009,652	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
111	1379.55	1379.80	Residential	7498.79	$ 5,444,124	$ 2,722,062	1379.10	-0.70	1379.09	-0.71	1379.30	-0.50	1379.30	-0.50	1.18	$ 64,197	0.00	$ -	$ 64,197.06	1.99	$ 108,457	0.00	$ -	$ 108,457.15
438	1340.20	1340.45	Residential	6215.27	$ 4,512,285	$ 2,256,142	0.00	-1.00	0.00	-1.00	0.00	-1.00	1340.16	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
333	1324.71	1324.96	Residential	1601.10	$ 1,162,399	$ 581,200	1324.96	0.00	1324.89	-0.07	1325.36	0.40	1325.32	0.36	3.72	$ 43,244	0.00	$ -	$ 43,243.75	14.80	$ 171,987	15.11	$ 87,844	$ 259,831.40
173	1336.89	1337.14	Residential	10216.91	$ 7,417,477	$ 3,708,738	0.00	-1.00	0.00	-1.00	1335.14	-1.00	1335.14	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
580	1433.33	1433.58	Residential	2372.25	$ 1,722,254	$ 861,127	1431.31	-1.00	1431.31	-1.00	1431.40	-1.00	1431.39	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
193	1330.91	1331.16	Residential	388.64	$ 282,149	$ 141,075	1331.13	-0.03	1331.13	-0.03	1331.32	0.16	1331.34	0.16	3.8666992	$ 10,910	0	$ -	$ 10,909.85	8.9182129	$ 25,163	6.88549806	$ 9,714	$ 34,876.33
313	1344.58	1344.83	Residential	4545.76	$ 3,300,219	$ 1,650,110	0.00	-1.00	0.00	-1.00	1344.11	-0.72	1344.25	-0.72	0	$ -	0	$ -	$ -	1.12353516	$ 37,079	0	$ -	$ 37,079.12

10-Year and 100-Year Proposed Building Damages in Area A

															Proposed								
Building ID	HAG	Finished Floor Elevation (ft)	Land Use Type	Building Area (sf)	Replace Cost $ ($726/SF-Res)	Content Replacement Value ($) 1/2 of Replacement Cost	10yr Exist WSEL (ft)	10yr Exist Flow Depth (ft)	10yr Prop WSEL (ft)	10yr Prop Flow Depth (ft)	100yr Exist WSEL (ft)	100yr Exist Flow Depth (ft)	100yr Prop WSEL (ft)	100yr Prop Flow Depth (ft)	10yr Building Damage (%)	10yrBuilding Damage Cost ($)	10yr Content Damage (%)	10yr Content Damage Cost ($)	10yr Total Damage Cost ($)	100yr Building Damage (%)	100yrBuilding Damage Cost ($)	100yr Content Damage (%)	100yr Content Damage Cost ($)	100yr Total Damage Cost ($)
30	1319.25	1319.50	Residential	8650.86	$ 6,280,523	$ 3,140,262	1319.31	-0.19	1319.31	-0.19	1319.34	-0.16	1319.34	-0.16	3.25	$ 204,240	0.00	$ -	$ 204,239.66	3.35	$ 210,557	0.00	$ -	$ 210,556.99
265	1336.62	1336.87	Residential	9275.89	$ 6,734,294	$ 3,367,147	453.05	-1.00	453.06	-1.00	453.06	-1.00	453.07	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
278	1329.33	1329.58	Residential	9887.56	$ 7,178,367	$ 3,589,183	1329.54	-0.04	1329.52	-0.06	1329.70	0.13	1329.69	0.11	3.77	$ 270,836	0.00	$ -	$ 270,836.13	7.42	$ 532,664	4.79	$ 171,871	$ 704,534.95
8	1314.25	1314.50	Residential	4845.72	$ 3,517,990	$ 1,758,995	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
288	1341.77	1342.02	Residential	7520.30	$ 5,459,739	$ 2,729,869	1341.76	-0.26	1341.76	-0.26	1341.78	-0.24	1341.78	-0.24	2.95	$ 160,886	0.00	$ -	$ 160,886.34	3.06	$ 166,858	0.00	$ -	$ 166,857.93
415	1359.67	1359.92	Residential	361.17	$ 262,212	$ 131,106	0.00	-1.00	0.00	-1.00	378.48	-1.00	378.49	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
35	1317.85	1318.10	Residential	7080.65	$ 5,140,551	$ 2,570,275	803.86	-1.00	803.87	-1.00	1317.85	-0.25	1317.85	-0.25	0	$ -	0	$ -	$ -	2.99365232	$ 153,890	0	$ -	$ 153,890.22
279	1336.73	1336.98	Residential	7751.73	$ 5,627,755	$ 2,813,877	1336.39	-0.59	1336.32	-0.66	1336.98	0.00	1336.96	-0.02	1.36	$ 76,695	0.00	$ -	$ 76,694.65	3.90	$ 219,642	0.00	$ -	$ 219,641.82
399	1329.62	1329.87	Residential	9065.18	$ 6,581,319	$ 3,290,660	766.63	-1.00	766.63	-1.00	766.71	-1.00	766.72	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
42	1323.17	1323.42	Residential	7002.87	$ 5,084,085	$ 2,542,043	1323.12	-0.30	1323.12	-0.30	1323.18	-0.24	1323.18	-0.24	2.80	$ 142,295	0.00	$ -	$ 142,294.81	3.04	$ 154,434	0.00	$ -	$ 154,434.06
57	1341.09	1341.34	Residential	7023.87	$ 5,099,331	$ 2,549,666	743.98	-1.00	743.97	-1.00	759.64	-1.00	759.62	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
397	1327.07	1327.32	Residential	9177.64	$ 6,662,967	$ 3,331,483	1326.82	-0.50	1326.82	-0.50	1327.09	-0.23	1327.09	-0.23	1.98095704	$ 131,991	0	$ -	$ 131,990.51	3.06347656	$ 204,118	0	$ -	$ 204,118.43
374	1324.33	1324.58	Residential	7554.42	$ 5,484,508	$ 2,742,254	1324.35	-0.23	1324.35	-0.23	1324.42	-0.17	1324.40	-0.19	3.07	$ 168,204	0.00	$ -	$ 168,204.07	3.26	$ 178,755	0.00	$ -	$ 178,755.32
216	1336.13	1336.38	Residential	5675.45	$ 4,120,379	$ 2,060,189	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
283	1339.27	1339.52	Residential	13817.96	$ 10,031,838	$ 5,015,919	1339.17	-0.35	1338.87	-0.65	1339.53	0.01	1339.50	-0.02	1.38	$ 138,868	0.00	$ -	$ 138,868.46	3.93	$ 394,514	0.00	$ -	$ 394,513.77
334	1324.83	1325.08	Residential	10462.71	$ 7,595,925	$ 3,797,963	1324.97	-0.11	1324.90	-0.18	1325.54	0.46	1325.48	0.39	3.27	$ 248,611	0.00	$ -	$ 248,610.77	15.79	$ 1,199,270	16.50	$ 626,803	$ 1,826,072.65
26	1311.97	1312.22	Residential	13261.74	$ 9,628,026	$ 4,814,013	1311.93	-0.29	1311.93	-0.29	1311.98	-0.25	1311.97	-0.25	2.83	$ 272,152	0.00	$ -	$ 272,151.56	3.00	$ 288,982	0.00	$ -	$ 288,981.81
301	1346.57	1346.82	Residential	11175.62	$ 8,113,498	$ 4,056,749	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
308	1334.93	1335.18	Residential	6969.43	$ 5,059,808	$ 2,529,904	1334.88	-0.29	1334.88	-0.29	1335.28	0.10	1335.29	0.10	2.82177732	$ 142,777	0	$ -	$ 142,776.51	6.9296875	$ 350,629	4.1015625	$ 103,766	$ 454,394.47
196	1332.19	1332.44	Residential	8166.56	$ 5,928,926	$ 2,964,463	0.00	-1.00	0.00	-1.00	1332.16	-0.28	1332.16	-0.28	0.00	$ -	0.00	$ -	$ -	2.86	$ 169,588	0.00	$ -	$ 169,588.13
496	1323.96	1324.21	Residential	5063.01	$ 3,675,743	$ 1,837,872	1324.30	0.09	1324.22	0.01	1324.69	0.48	1324.67	0.46	4.33	$ 159,145	0.46	$ 8,480	$ 167,625.02	17.84	$ 655,585	19.37	$ 355,989	$ 1,011,574.20
573	1331.74	1331.99	Residential	7754.41	$ 5,629,702	$ 2,814,851	1331.39	-0.60	1331.39	-0.60	1331.42	-0.57	1331.42	-0.57	1.60791016	$ 90,521	0	$ -	$ 90,520.55	1.72070312	$ 96,870	0	$ -	$ 96,870.46
108	1379.24	1379.49	Residential	1156.59	$ 839,681	$ 419,840	0.00	-1.00	0.00	-1.00	1378.04	-1.00	1378.04	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
188	1333.66	1333.91	Residential	10182.29	$ 7,392,344	$ 3,696,172	1333.86	-0.05	1333.86	-0.05	1333.93	0.02	1333.94	0.02	3.78271484	$ 279,631	0	$ -	$ 279,631.28	4.4907226	$ 331,970	0.68701164	$ 25,393	$ 357,362.77
351	1324.71	1324.96	Residential	4981.85	$ 3,616,823	$ 1,808,412	1324.58	-0.39	1324.56	-0.41	1324.99	0.02	1324.98	0.01	2.36	$ 85,529	0.00	$ -	$ 85,528.69	4.31	$ 155,799	0.43	$ 7,788	$ 163,587.10
467	1340.84	1341.09	Residential	4065.37	$ 2,951,456	$ 1,475,728	0.00	-1.00	0.00	-1.00	1079.51	-1.00	1079.52	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
132	1490.09	1490.34	Residential	1336.38	$ 970,214	$ 485,107	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
408	1322.66	1322.91	Residential	6487.88	$ 4,710,200	$ 2,355,100	1322.62	-0.29	1322.57	-0.34	1323.04	0.13	1323.04	0.13	2.65	$ 124,586	0.00	$ -	$ 124,585.71	7.81	$ 367,973	5.34	$ 125,695	$ 493,668.31
119	1390.29	1390.54	Residential	315.89	$ 229,336	$ 114,668	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
584	1353.35	1353.60	Residential	0.00	$ -	$ -	175.39	-1.00	175.39	-1.00	415.79	-1.00	415.78	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
511	1321.86	1322.11	Residential	646.27	$ 469,192	$ 234,596	1322.07	-0.03	1322.00	-0.10	1322.53	0.43	1322.24	0.14	3.58	$ 16,797	0.00	$ -	$ 16,797.45	8.15	$ 38,218	5.80	$ 13,615	$ 51,833.37
54	1336.82	1337.07	Residential	9657.93	$ 7,011,655	$ 3,505,828	1336.97	-0.10	1336.94	-0.13	1337.10	0.03	1337.08	0.01	3.48	$ 244,278	0.00	$ -	$ 244,278.13	4.37	$ 306,144	0.51	$ 17,974	$ 324,117.87
289	1315.29	1315.54	Residential	732.08	$ 531,493	$ 265,747	568.06	-1.00	568.05	-1.00	707.89	-1.00	707.90	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
425	1440.09	1440.34	Residential	3730.58	$ 2,708,404	$ 1,354,202	1436.06	-1.00	1436.06	-1.00	1436.14	-1.00	1436.13	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
325	1403.93	1404.18	Residential	4455.81	$ 3,234,917	$ 1,617,458	1401.98	-1.00	1401.98	-1.00	1402.03	-1.00	1402.03	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
45	1313.71	1313.96	Residential	5863.55	$ 4,256,937	$ 2,128,469	1313.00	-0.96	1313.00	-0.96	1313.58	-0.38	1313.58	-0.38	0.15478516	$ 6,589	0	$ -	$ 6,589.11	2.47509764	$ 105,363	0	$ -	$ 105,363.35
147	1333.51	1333.76	Residential	1860.79	$ 1,350,934	$ 675,467	800.72	-1.00	800.73	-1.00	1333.04	-0.72	1333.06	-0.72	0	$ -	0	$ -	$ -	1.10644528	$ 14,947	0	$ -	$ 14,947.35
355	1320.50	1320.75	Residential	7271.22	$ 5,278,904	$ 2,639,452	1320.51	-0.24	1320.51	-0.24	1320.53	-0.22	1320.62	-0.22	3.04101564	$ 160,532	0	$ -	$ 160,532.30	3.13427736	$ 165,455	0	$ -	$ 165,455.50
55	1333.97	1334.22	Residential	8885.46	$ 6,450,843	$ 3,225,422	1256.97	-1.00	1256.97	-1.00	1257.07	-1.00	1257.06	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
383	1323.11	1323.36	Residential	6532.58	$ 4,742,656	$ 2,371,328	1322.62	-0.74	1322.57	-0.78	1322.97	-0.39	1322.96	-0.39	0.86	$ 40,850	0.00	$ -	$ 40,849.83	2.42	$ 114,838	0.00	$ -	$ 114,838.03
377	1324.05	1324.30	Residential	6948.25	$ 5,044,428	$ 2,522,214	1324.25	-0.05	1324.22	-0.08	1324.48	0.18	1324.47	0.17	3.69	$ 185,964	0.00	$ -	$ 185,964.02	9.21	$ 464,467	7.29	$ 183,883	$ 648,349.37
501	1320.89	1321.14	Residential	14670.16	$ 10,650,533	$ 5,325,266	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
114	1377.43	1377.68	Residential	1961.87	$ 1,424,316	$ 712,158	1377.38	-0.30	1377.38	-0.30	1377.48	-0.20	1377.48	-0.20	2.80	$ 39,881	0.00	$ -	$ 39,880.85	3.19	$ 45,386	0.00	$ -	$ 45,386.17
92	1384.83	1385.08	Residential	23180.32	$ 16,828,912	$ 8,414,456	1383.02	-1.00	1383.02	-1.00	1383.70	-1.00	1383.69	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
194	1337.21	1337.46	Residential	9523.28	$ 6,913,901	$ 3,456,951	1337.21	-0.25	1337.21	-0.25	1337.29	-0.17	1337.29	-0.17	3.01	$ 208,160	0.00	$ -	$ 208,159.74	3.31	$ 228,652	0.00	$ -	$ 228,651.62
560	1318.46	1318.71	Residential	5850.33	$ 4,247,338	$ 2,123,669	1318.50	-0.21	1318.50	-0.21	1318.55	-0.16	1318.55	-0.16	3.16	$ 134,223	0.00	$ -	$ 134,222.51	3.36	$ 142,912	0.00	$ -	$ 142,912.13
300	1339.66	1339.91	Residential	13233.48	$ 9,607,509	$ 4,803,755	341.83	-1.00	341.83	-1.00	1339.10	-0.81	1339.11	-0.81	0	$ -	0	$ -	$ -	0.7573242	$ 72,760	0	$ -	$ 72,759.99
478	1321.22	1321.47	Residential	7719.33	$ 5,604,232	$ 2,802,116	1320.76	-0.71	1320.74	-0.73	1321.53	0.07	1321.51	0.04	1.08	$ 60,585	0.00	$ -	$ 60,584.81	5.24	$ 293,743	1.74	$ 48,702	$ 342,445.13
272	1339.97	1340.22	Residential	5299.00	$ 3,847,076	$ 1,923,538	1340.21	0.00	1340.15	-0.06	1340.67	0.45	1340.62	0.40	3.75	$ 144,171	0.00	$ -	$ 144,171.44	16.15	$ 621,196	17.01	$ 327,119	$ 948,314.61
152	1345.74	1345.99	Residential	6940.51	$ 5,038,809	$ 2,519,405	1346.19	0.20	1346.19	0.20	1346.44	0.45	1346.44	0.45	10.0827637	$ 508,051	8.51586918	$ 214,549	$ 722,600.45	17.4472657	$ 879,134	18.82617198	$ 474,307	$ 1,353,441.91
507	1326.03	1326.28	Residential	10797.12	$ 7,838,706	$ 3,919,353	1326.10	-0.18	1326.10	-0.18	1326.37	0.09	1326.37	0.09	3.27197264	$ 256,480	0	$ -	$ 256,480.31	6.6440428	$ 520,807	3.70165992	$ 145,081	$ 665,888.08
259	1335.19	1335.44	Residential	10032.44	$ 7,283,551	$ 3,641,776	1334.66	-0.78	1334.63	-0.81	1335.44	0.00	1335.39	-0.05	0.77	$ 55,836	0.00	$ -	$ 55,835.82	3.81	$ 277,152	0.00	$ -	$ 277,151.93
568	1332.40	1332.65	Residential	5264.32	$ 3,821,899	$ 1,910,950	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
67	1358.85	1359.10	Residential	3832.96	$ 2,782,731	$ 1,391,366	1358.66	-0.43	1358.66	-0.43	1358.77	-0.33	1358.77	-0.33	2.26025392	$ 62,897	0	$ -	$ 62,896.80	2.69531252	$ 75,003	0	$ -	$ 75,003.31
157	1334.69	1334.94	Residential	11620.03	$ 8,436,143	$ 4,218,071	1335.22	0.28	1335.22	0.28	1335.39	0.45	1335.40	0.45	12.3935545	$ 1,045,538	11.7509763	$ 495,665	$ 1,541,202.53	17.568115	$ 1,482,071	18.995361	$ 801,238	$ 2,283,309.17
161	1338.81	1339.06	Residential	12200.44	$ 8,857,520	$ 4,428,760	1338.67	-0.39	1338.67	-0.39	1338.88	-0.18	1338.88	-0.18	2.44287112	$ 216,378	0	$ -	$ 216,377.79	3.26708984	$ 289,383	0	$ -	$ 289,383.13
178	1338.71	1338.96	Residential	2191.33	$ 1,590,906	$ 795,453	0.00	-1.00	0.00	-1.00	1338.85	-0.10	1338.86	-0.10	0	$ -	0	$ -	$ -	3.59326172	$ 57,165	0	$ -	$ 57,165.43
394	1326.19	1326.44	Residential	863.93	$ 627,213	$ 313,607	0.00	-1.00	0.00	-1.00	263.80	-1.00	263.81	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
199	1333.72	1333.97	Residential	8444.06	$ 6,130,386	$ 3,065,193	0.00	-1.00	0.00	-1.00	331.65	-1.00	331.65	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
84	1378.04	1378.29	Residential	2416.84	$ 1,754,627	$ 877,314	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
17	1314.46	1314.71	Residential	6917.41	$ 5,022,043	$ 2,511,021	1314.60	-0.11	1314.49	-0.22	1314.93	0.22	1314.87	0.16	3.12	$ 156,890	0.00	$ -	$ 156,889.79	8.71	$ 437,577	6.60	$ 165,687	$ 603,264.30
472	1336.64	1336.89	Residential	11331.29	$ 8,226,515	$ 4,113,257	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
582	1462.74	1462.99	Residential	16759.96	$ 12,167,729	$ 6,083,864	1460.73	-1.00	1460.73	-1.00	1460.80	-1.00	1460.80	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
464	1329.31	1329.56	Residential	5295.97	$ 3,844,872	$ 1,922,436	1329.39	-0.17	1329.39	-0.17	1329.44	-0.12	1329.44	-0.12	3.30078124	$ 126,911	0	$ -	$ 126,910.83	3.5073242	$ 134,852	0	$ -	$ 134,852.14
419	1390.04	1390.29	Residential	4825.64	$ 3,503,412	$ 1,751,706	1389.19	-1.00	1389.19	-1.00	1389.89	-0.40	1389.89	-0.40	0.00	$ -	0.00	$ -	$ -	2.39	$ 83,599	0.00	$ -	$ 83,599.50
439	1343.45	1343.70	Residential	6849.88	$ 4,973,013	$ 2,486,507	0.00	-1.00	0.00	-1.00	130.35	-1.00	1061.14	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
303	1333.92	1334.17	Residential	7565.22	$ 5,492,353	$ 2,746,176	0.00	-1.00	0.00	-1.00	1333.50	-0.67	1333.50	-0.67	0.00	$ -	0.00	$ -	$ -	1.32	$ 72,543	0.00	$ -	$ 72,543.04
155	1347.15	1347.40	Residential	3848.09	$ 2,793,714	$ 1,396,857	1347.66	0.26	1347.66	0.26	1347.97	0.56	1347.97	0.56	11.6831056	$ 326,393	10.75634784	$ 150,251	$ 476,643.30	20.8896484	$ 583,597	23.64550776	$ 330,294	$ 913,890.85
82	1358.10	1358.35	Residential	651.46	$ 472,962	$ 236,481	0.00	-1.00	0.00	-1.00	30.58	-1.00	30.58	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
409	1331.58	1331.83	Residential	7662.12	$ 5,562,697	$ 2,781,348	1331.57	-0.26	1331.57	-0.26	1331.60	-0.23	1331.59	-0.24	2.97	$ 165,414	0.00	$ -	$ 165,414.18	3.06	$ 170,140	0.00	$ -	$ 170,140.29
230	1337.64	1337.89	Residential	4073.31	$ 2,957,220	$ 1,478,610	1337.76	-0.13	1337.76	-0.13	1338.09	0.20	1338.10	0.20	3.46923828	$ 102,593	0	$ -	$ 102,593.02	9.9509278	$ 294,271	8.33129892	$ 123,187	$ 417,458.30
499	1321.37	1321.62	Residential	6734.36	$ 4,889,149	$ 2,444,574	1024.72	-1.00	528.49	-1.00	1278.41	-1.00	1078.87	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
207	1345.29	1345.54	Residential	62629.14	$ 45,468,757	$ 22,734,378	1345.04	-0.50	1345.04	-0.50	1345.19	-0.35	1345.19	-0.35	2.00	$ 909,153	0.00	$ -	$ 909,153.12	2.60	$ 1,183,342	0.00	$ -	$ 1,183,342.15
63	1334.63	1334.88	Residential	5989.61	$ 4,348,454	$ 2,174,227	1335.05	0.17	1335.05	0.17	1335.26	0.38	1335.26	0.38	9.1708984	$ 398,792	7.23925776	$ 157,398	$ 556,190.23	15.3012697	$ 665,369	15.82177758	$ 344,001	$ 1,009,370.10
412	1375.69	1375.94	Residential	3662.89	$ 2,659,255	$ 1,329,627	1375.59	-0.35	1375.59	-0.35	1375.64	-0.30	1375.64	-0.30	2.60400392	$ 69,247	0	$ -	$ 69,247.10	2.78564452	$ 74,077	0	$ -	$ 74,077.39
0	1317.98	1318.23	Residential	2031.12	$ 1,474,595	$ 737,297	637.78	-1.00	637.78	-1.00	1317.82	-0.41	1317.82	-0.41	0.00	$ -	0.00	$ -	$ -	2.35	$ 34,712	0.00	$ -	$ 34,712.02
531	1324.51	1324.76	Residential	18433.22	$ 13,382,516	$ 6,691,258	1323.32	-1.00	1322.88	-1.00	1323.85	-0.90	1323.41	-1.00	0.00	$ -	0.00	$ -	$ -	0.00	$ -	0.00	$ -	$ -
174	1346.24	1346.49	Residential	1124.42	$ 816,330	$ 408,165	303.67	-1.00	303.67	-1.00	1346.51	0.02	1346.51	0.02	0	$ -	0	$ -	$ -	4.4870605	$ 36,629	0.6818847	$ 2,783	$ 39,412.44
341	1322.03	1322.28	Residential	18894.74	$ 13,717,579	$ 6,858,789	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -

10-Year and 100-Year Proposed Building Damages in Area A

															Proposed									
Building ID	HAG	Finished Floor Elevation (ft)	Land Use Type	Building Area (sf)	Replace Cost $ ($726/SF-Res)	Content Replacement Value ($) 1/2 of Replacement Cost	10yr Exist WSEL (ft)	10yr Exist Flow Depth (ft)	10yr Prop WSEL (ft)	10yr Prop Flow Depth (ft)	100yr Exist WSEL (ft)	100yr Exist Flow Depth (ft)	100yr Prop WSEL (ft)	100yr Prop Flow Depth (ft)	10yr Building Damage (%)	10yrBuilding Damage Cost ($)	10yr Content Damage (%)	10yr Content Damage Cost ($)	10yr Total Damage Cost ($)	100yr Building Damage (%)	100yrBuilding Damage Cost ($)	100yr Content Damage (%)	100yr Content Damage Cost ($)	100yr Total Damage Cost ($)
24	1314.06	1314.31	Residential	5845.51	$ 4,243,839	$ 2,121,919	1313.88	-0.43	1313.88	-0.43	1314.07	-0.24	1314.01	-0.30	2.29	$ 97,289	0.00	$ -	$ 97,289.18	2.80	$ 118,819	0.00	$ -	$ 118,819.20
246	1335.49	1335.74	Residential	8095.61	$ 5,877,416	$ 2,938,708	1335.25	-0.49	1335.25	-0.49	1335.88	0.14	1335.88	0.14	2.02539064	$ 119,041	0	$ -	$ 119,040.64	8.145508	$ 478,745	5.8037112	$ 170,554	$ 649,299.53
403	1330.29	1330.54	Residential	11988.20	$ 8,703,431	$ 4,351,715	1329.02	-1.00	1329.02	-1.00	1329.06	-1.00	1329.06	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
76	1386.63	1386.88	Residential	12282.31	$ 8,916,955	$ 4,458,478	1381.01	-1.00	1381.01	-1.00	1383.36	-1.00	1383.36	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
2	1318.40	1318.65	Residential	9772.67	$ 7,094,958	$ 3,547,479	1318.08	-0.57	1318.08	-0.57	1318.11	-0.54	1318.11	-0.54	1.71	$ 121,667	0.00	$ -	$ 121,667.45	1.82	$ 129,393	0.00	$ -	$ 129,392.92
557	1319.81	1320.06	Residential	4983.35	$ 3,617,912	$ 1,808,956	1319.67	-0.39	1319.67	-0.39	1319.76	-0.30	1319.76	-0.30	2.45800784	$ 88,929	0	$ -	$ 88,928.57	2.80615236	$ 101,524	0	$ -	$ 101,524.14
363	1327.28	1327.53	Residential	13619.36	$ 9,887,654	$ 4,943,827	1327.80	0.27	1327.79	0.26	1328.12	0.59	1328.13	0.59	11.7014158	$ 1,156,995	10.78198212	$ 533,043	$ 1,690,038.01	21.7941895	$ 2,154,934	24.9118653	$ 1,231,599	$ 3,386,533.49
348	1322.03	1322.28	Residential	12779.27	$ 9,277,748	$ 4,638,874	716.09	-1.00	716.10	-1.00	716.26	-1.00	716.27	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
222	1335.24	1335.49	Residential	10175.58	$ 7,387,470	$ 3,693,735	1335.36	-0.13	1335.36	-0.13	1335.70	0.21	1335.71	0.21	3.4663086	$ 256,073	0	$ -	$ 256,072.50	10.1816407	$ 752,166	8.65429698	$ 319,667	$ 1,071,832.42
353	1324.46	1324.71	Residential	8593.13	$ 6,238,612	$ 3,119,306	1324.36	-0.35	1324.36	-0.35	1324.38	-0.33	1324.38	-0.33	2.60	$ 162,119	0.00	$ -	$ 162,118.62	2.69	$ 167,906	0.00	$ -	$ 167,906.40
219	1337.56	1337.81	Residential	1562.94	$ 1,134,694	$ 567,347	1337.55	-0.26	1337.55	-0.26	1337.76	-0.05	1337.77	-0.05	2.9736328	$ 33,742	0	$ -	$ 33,741.62	3.81347656	$ 43,271	0	$ -	$ 43,271.27
441	1327.97	1328.22	Residential	6274.07	$ 4,554,976	$ 2,277,488	427.21	-1.00	427.20	-1.00	950.84	-1.00	950.84	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
124	1438.10	1438.35	Residential	14426.98	$ 10,473,990	$ 5,236,995	1431.87	-1.00	1431.86	-1.00	1432.70	-1.00	1432.70	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
4	1313.10	1313.35	Residential	553.49	$ 401,831	$ 200,915	1313.18	-0.17	1313.17	-0.17	0.00	-1.00	1314.42	-1.00	3.30371096	$ 13,275	0	$ -	$ 13,275.33	0	$ -	0	$ -	$ -
533	1317.14	1317.39	Residential	10692.01	$ 7,762,402	$ 3,881,201	1317.04	-0.35	1317.04	-0.35	1317.08	-0.31	1317.08	-0.32	2.61	$ 202,778	0.00	$ -	$ 202,777.58	2.74	$ 212,670	0.00	$ -	$ 212,670.09
442	1295.07	1295.32	Residential	1280.72	$ 929,801	$ 464,900	0.00	-1.00	0.00	-1.00	0.00	-1.00	730.69	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
127	1440.11	1440.36	Residential	1667.16	$ 1,210,360	$ 605,180	1432.41	-1.00	1432.41	-1.00	1432.48	-1.00	1432.48	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
213	1344.82	1345.07	Residential	18886.60	$ 13,711,674	$ 6,855,837	1344.77	-0.29	1344.77	-0.29	1344.89	-0.17	1344.90	-0.17	2.82324216	$ 387,114	0	$ -	$ 387,113.77	3.30224608	$ 452,793	0	$ -	$ 452,793.22
339	1321.66	1321.91	Residential	4252.24	$ 3,087,125	$ 1,543,562	156.52	-1.00	156.52	-1.00	1320.88	-1.00	1320.88	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
550	1321.54	1321.79	Residential	12488.97	$ 9,066,992	$ 4,533,496	1319.73	-1.00	1319.73	-1.00	1319.76	-1.00	1319.76	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
547	1321.82	1322.07	Residential	303.30	$ 220,193	$ 110,097	0.00	-1.00	0.00	-1.00	786.73	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
7	1315.20	1315.45	Residential	8695.64	$ 6,313,034	$ 3,156,517	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
166	1334.79	1335.04	Residential	4656.42	$ 3,380,564	$ 1,690,282	238.50	-1.00	238.50	-1.00	1334.60	-0.44	1334.61	-0.44	0	$ -	0	$ -	$ -	2.24804688	$ 75,997	0	$ -	$ 75,996.66
356	1323.12	1323.37	Residential	20490.88	$ 14,876,379	$ 7,438,189	473.06	-1.00	473.06	-1.00	1322.08	-1.00	1322.08	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
366	1322.45	1322.70	Residential	7079.13	$ 5,139,449	$ 2,569,724	1321.50	-1.00	1321.50	-1.00	1322.30	-0.39	1322.30	-0.39	0.00	$ -	0.00	$ -	$ -	2.43	$ 124,822	0.00	$ -	$ 124,822.36
212	1335.76	1336.01	Residential	1686.91	$ 1,224,694	$ 612,347	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
81	1362.73	1362.98	Residential	13883.69	$ 10,079,557	$ 5,039,778	1362.85	-0.12	1362.85	-0.12	1362.93	-0.04	1362.93	-0.04	3.50097656	$ 352,883	0	$ -	$ 352,882.92	3.82519532	$ 385,563	0	$ -	$ 385,562.74
252	1342.94	1343.19	Residential	11528.90	$ 8,369,982	$ 4,184,991	1342.22	-0.97	1342.22	-0.97	1343.01	-0.18	1342.25	-0.94	0.12	$ 10,095	0.00	$ -	$ 10,094.65	0.23	$ 19,617	0.00	$ -	$ 19,617.15
451	1330.63	1330.88	Residential	4329.91	$ 3,143,516	$ 1,571,758	1329.82	-1.00	1329.82	-1.00	1329.86	-1.00	1329.86	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
290	1334.83	1335.08	Residential	11536.70	$ 8,375,645	$ 4,187,822	1333.35	-1.00	1333.32	-1.00	1334.64	-0.44	1334.63	-0.45	0.00	$ -	0.00	$ -	$ -	2.19	$ 183,135	0.00	$ -	$ 183,135.43
19	1316.38	1316.63	Residential	6993.30	$ 5,077,134	$ 2,538,567	1315.78	-0.85	1315.78	-0.85	1315.97	-0.66	1315.93	-0.70	0.58	$ 29,575	0.00	$ -	$ 29,575.30	1.18	$ 60,043	0.00	$ -	$ 60,043.06
388	1322.89	1323.14	Residential	10092.64	$ 7,327,254	$ 3,663,627	1322.62	-0.52	1322.57	-0.57	1323.24	0.10	1323.22	0.08	1.73	$ 126,545	0.00	$ -	$ 126,545.40	6.46	$ 473,409	3.45	$ 126,223	$ 599,632.72
43	1320.11	1320.36	Residential	6209.68	$ 4,508,230	$ 2,254,115	1319.63	-0.74	1319.63	-0.74	1319.65	-0.71	1319.65	-0.71	1.05	$ 47,240	0.00	$ -	$ 47,239.56	1.16	$ 52,126	0.00	$ -	$ 52,126.41
347	1326.78	1327.03	Residential	9360.23	$ 6,795,524	$ 3,397,762	821.46	-1.00	23.19	-1.00	1326.56	-0.47	1326.54	-0.49	0.00	$ -	0.00	$ -	$ -	2.05	$ 139,030	0.00	$ -	$ 139,029.51
558	1329.23	1329.48	Residential	5699.37	$ 4,137,742	$ 2,068,871	0.00	-1.00	0.00	-1.00	1329.38	-0.10	0.00	-1.00	0.00	$ -	0.00	$ -	$ -	0.00	$ -	0.00	$ -	$ -
411	1371.41	1371.66	Residential	3701.56	$ 2,687,336	$ 1,343,668	1369.90	-1.00	1369.90	-1.00	1369.95	-1.00	1369.95	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
314	1330.36	1330.61	Residential	4196.13	$ 3,046,391	$ 1,523,196	1330.19	-0.42	1330.19	-0.42	1330.73	0.12	1330.74	0.12	2.30664064	$ 70,269	0	$ -	$ 70,269.30	7.7023927	$ 234,645	5.18334978	$ 78,953	$ 313,597.60
79	1368.26	1368.51	Residential	1459.23	$ 1,059,402	$ 529,701	819.50	-1.00	819.51	-1.00	1341.09	-1.00	1341.09	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
117	1391.60	1391.85	Residential	3751.96	$ 2,723,924	$ 1,361,962	0.00	-1.00	0.00	-1.00	1391.33	-0.52	1391.33	-0.53	0.00	$ -	0.00	$ -	$ -	1.90	$ 51,685	0.00	$ -	$ 51,685.40
422	1360.68	1360.93	Residential	19148.04	$ 13,901,477	$ 6,950,738	1359.30	-1.00	1359.30	-1.00	1359.43	-1.00	1359.43	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
398	1326.86	1327.11	Residential	13652.47	$ 9,911,695	$ 4,955,847	1326.93	-0.18	1326.93	-0.18	1326.96	-0.15	1326.96	-0.15	3.28	$ 324,695	0.00	$ -	$ 324,695.12	3.40	$ 336,552	0.00	$ -	$ 336,552.37
160	1330.28	1330.53	Residential	16486.30	$ 11,969,051	$ 5,984,525	1329.35	-1.00	1329.35	-1.00	1329.39	-1.00	1329.39	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
448	1350.42	1350.67	Residential	9775.28	$ 7,096,851	$ 3,548,425	1350.44	-0.23	1350.44	-0.23	1350.50	-0.18	1350.50	-0.18	3.07958984	$ 218,554	0	$ -	$ 218,553.90	3.28515624	$ 233,143	0	$ -	$ 233,142.64
241	1340.47	1340.72	Residential	4769.11	$ 3,462,376	$ 1,731,188	0.00	-1.00	0.00	-1.00	618.40	-1.00	618.40	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
65	1360.27	1360.52	Residential	2558.86	$ 1,857,730	$ 928,865	1358.39	-1.00	1358.39	-1.00	1358.61	-1.00	1358.62	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
221	1332.89	1333.14	Residential	6409.64	$ 4,653,397	$ 2,326,698	1130.18	-1.00	1130.18	-1.00	1332.84	-0.30	1332.86	-0.30	0	$ -	0	$ -	$ -	2.81298828	$ 130,899	0	$ -	$ 130,899.50
107	1408.31	1408.56	Residential	9558.60	$ 6,939,545	$ 3,469,773	1407.44	-1.00	1407.44	-1.00	1407.53	-1.00	1407.53	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
159	1337.05	1337.30	Residential	7081.33	$ 5,141,047	$ 2,570,523	0.00	-1.00	0.00	-1.00	1336.93	-0.37	1336.93	-0.37	0	$ -	0	$ -	$ -	2.52636716	$ 129,882	0	$ -	$ 129,881.71
354	1324.37	1324.62	Residential	6151.11	$ 4,465,703	$ 2,232,851	1264.84	-1.00	1264.85	-1.00	1324.36	-0.26	1324.35	-0.27	0.00	$ -	0.00	$ -	$ -	2.91	$ 130,003	0.00	$ -	$ 130,002.53
11	1310.91	1311.16	Residential	8959.69	$ 6,504,734	$ 3,252,367	1311.35	0.19	1311.26	0.10	1311.62	0.46	1311.58	0.42	6.85	$ 445,755	3.99	$ 129,896	$ 575,651.45	16.59	$ 1,078,919	17.62	$ 573,111	$ 1,652,029.25
480	1320.99	1321.24	Residential	21154.48	$ 15,358,155	$ 7,679,077	0.00	-1.00	0.00	-1.00	67.45	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
535	1318.96	1319.21	Residential	15038.36	$ 10,917,848	$ 5,458,924	1319.07	-0.14	1319.07	-0.14	1319.10	-0.11	1319.09	-0.12	3.43	$ 374,608	0.00	$ -	$ 374,608.00	3.54	$ 386,123	0.00	$ -	$ 386,122.92
324	1416.21	1416.46	Residential	23457.64	$ 17,030,244	$ 8,515,122	1413.95	-1.00	1413.95	-1.00	1414.07	-1.00	1414.07	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
15	1310.89	1311.14	Residential	6635.11	$ 4,817,087	$ 2,408,543	1311.22	0.08	1311.13	-0.01	1311.54	0.40	1311.49	0.35	3.98	$ 191,484	0.00	$ -	$ 191,483.90	14.45	$ 695,973	14.63	$ 352,302	$ 1,048,274.99
83	1371.94	1372.19	Residential	2134.99	$ 1,550,000	$ 775,000	1372.24	0.05	1372.24	0.05	1372.37	0.18	1372.36	0.17	5.52	$ 85,557	2.13	$ 16,490	$ 102,046.11	9.20	$ 142,546	7.28	$ 56,382	$ 198,928.71
396	1328.64	1328.89	Residential	16191.87	$ 11,755,297	$ 5,877,649	965.23	-1.00	965.23	-1.00	1328.35	-0.53	1328.35	-0.54	0.00	$ -	0.00	$ -	$ -	1.86	$ 218,575	0.00	$ -	$ 218,575.05
583	1330.49	1330.74	Residential	0.00	$ -	$ -	1329.79	-0.95	1329.79	-0.95	1329.82	-0.93	1329.82	-0.93	0.19970704	$ -	0	$ -	$ -	0.28759768	$ -	0	$ -	$ -
516	1322.12	1322.37	Residential	766.64	$ 556,581	$ 278,291	76.91	-1.00	76.90	-1.00	291.24	-1.00	128.43	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
342	1321.31	1321.56	Residential	440.90	$ 320,096	$ 160,048	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
150	1341.28	1341.53	Residential	4258.47	$ 3,091,652	$ 1,545,826	1341.73	0.20	1341.73	0.20	1341.90	0.37	1341.91	0.37	9.9216307	$ 306,742	8.29028298	$ 128,153	$ 434,895.66	15.1108399	$ 467,175	15.55517586	$ 240,456	$ 707,630.56
143	1329.96	1330.21	Residential	3734.03	$ 2,710,903	$ 1,355,452	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
344	1324.82	1325.07	Residential	7011.00	$ 5,089,986	$ 2,544,993	1324.73	-0.34	1324.62	-0.45	1325.17	0.09	1325.15	0.08	2.21	$ 112,561	0.00	$ -	$ 112,561.26	6.29	$ 320,286	3.21	$ 81,681	$ 401,967.21
571	1327.57	1327.82	Residential	8562.45	$ 6,216,338	$ 3,108,169	1327.58	-0.23	1327.59	-0.23	1327.62	-0.20	1327.62	-0.20	3.07714844	$ 191,286	0	$ -	$ 191,285.96	3.21142576	$ 199,633	0	$ -	$ 199,633.09
88	1379.61	1379.86	Residential	11455.28	$ 8,316,533	$ 4,158,267	1378.41	-1.00	1378.41	-1.00	1378.46	-1.00	1378.46	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
49	1377.00	1377.25	Residential	728.13	$ 528,623	$ 264,311	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
445	1348.57	1348.82	Residential	8000.24	$ 5,808,173	$ 2,904,086	1348.40	-0.42	1348.39	-0.43	1348.43	-0.39	1348.43	-0.39	2.296875	$ 133,406	0	$ -	$ 133,406.47	2.42822264	$ 141,035	0	$ -	$ 141,035.37
376	1323.14	1323.39	Residential	7118.19	$ 5,167,807	$ 2,583,904	1322.66	-0.73	1322.57	-0.82	1323.33	-0.06	1323.33	-0.06	0.73	$ 37,875	0.00	$ -	$ 37,875.39	3.77	$ 194,878	0.00	$ -	$ 194,877.81
86	1377.55	1377.80	Residential	2949.41	$ 2,141,271	$ 1,070,635	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
520	1322.62	1322.87	Residential	15567.65	$ 11,302,117	$ 5,651,058	1322.30	-0.57	1322.30	-0.57	1322.78	-0.09	1322.35	-0.52	1.71	$ 192,765	0.00	$ -	$ 192,765.11	1.90	$ 215,115	0.00	$ -	$ 215,115.49
224	1342.44	1342.69	Residential	5688.11	$ 4,129,571	$ 2,064,785	1342.46	-0.24	1342.46	-0.24	1342.48	-0.21	1342.48	-0.21	3.05	$ 125,762	0.00	$ -	$ 125,762.36	3.15	$ 130,279	0.00	$ -	$ 130,279.08
16	1311.95	1312.20	Residential	5118.95	$ 3,716,356	$ 1,858,178	0.00	-1.00	0.00	-1.00	1311.91	-0.29	1311.88	-0.32	0.00	$ -	0.00	$ -	$ -	2.72	$ 101,238	0.00	$ -	$ 101,238.03
71	1355.29	1355.54	Residential	15605.34	$ 11,329,477	$ 5,664,738	1355.85	0.31	1355.86	0.31	1356.01	0.47	1356.03	0.47	13.3	$ 1,506,820	13.02	$ 737,549	$ 2,244,369.39	18.0405271	$ 2,043,897	19.65673794	$ 1,113,503	$ 3,157,400.16
493	1320.68	1320.93	Residential	1623.50	$ 1,178,660	$ 589,330	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
380	1324.56	1324.81	Residential	7115.36	$ 5,165,750	$ 2,582,875	1324.17	-0.64	1262.30	-1.00	1324.34	-0.47	1324.33	-0.48	0.00	$ -	0.00	$ -	$ -	2.09	$ 107,830	0.00	$ -	$ 107,830.00
291	1343.71	1343.96	Residential	10971.13	$ 7,965,040	$ 3,982,520	0.00	-1.00	0.00	-1.00	1194.25	-1.00	1194.26	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
548	1331.38	1331.63	Residential	2067.78	$ 1,501,207	$ 750,604	1330.21	-1.00	1330.21	-1.00	1330.49	-1.00	1330.48	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
326	1390.61	1390.86	Residential	6518.30	$ 4,732,285	$ 2,366,143	1390.62	-0.24	1390.62	-0.24	1390.64	-0.22	1390.64	-0.22	3.05	$ 144,464	0.00	$ -	$ 144,464.11	3.14	$ 148,415	0.00	$ -	$ 148,415.38
530	1331.84	1332.09	Residential	10819.21	$ 7,854,744	$ 3,927,372	1332.11	0.02	1332.11	0.02	1332.30	0.21	1332.31	0.21	4.4724121	$ 351,297	0.66137694	$ 25,975	$ 377,271.27	10.3610839	$ 813,837	8.90551746	$ 349,753	$ 1,163,589.48
323	1425.01	1425.26	Residential	9843.82	$ 7,146,612	$ 3,573,306	1424.74	-0.52	1424.74	-0.52	1424.79	-0.47	1424.79	-0.48	1.91	$ 136,302	0.00	$ -	$ 136,302.09	2.10	$ 149,737	0.00	$ -	$ 149,736.88
497	1320.51	1320.76	Residential	2723.39	$ 1,977,179	$ 988,590	0.00	-1.00	0.00	-1.00	147.26	-1.00	147.25	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -

10-Year and 100-Year Proposed Building Damages in Area A

															Proposed								
Building ID	HAG	Finished Floor Elevation (ft)	Land Use Type	Building Area (sf)	Replace Cost $ ($726/SF-Res)	Content Replacement Value ($) 1/2 of Replacement Cost	10yr Exist WSEL (ft)	10yr Exist Flow Depth (ft)	10yr Prop WSEL (ft)	10yr Prop Flow Depth (ft)	100yr Exist WSEL (ft)	100yr Exist Flow Depth (ft)	100yr Prop WSEL (ft)	100yr Prop Flow Depth (ft)	10yr Building Damage (%)	10yrBuilding Damage Cost ($)	10yr Content Damage (%)	10yr Content Damage Cost ($)	10yr Total Damage Cost ($)	100yr Building Damage (%)	100yrBuilding Damage Cost ($)	100yr Content Damage (%)	100yr Content Damage Cost ($)	100yr Total Damage Cost ($)
391	1323.62	1323.87	Residential	9604.68	$ 6,972,994	$ 3,486,497	1323.72	-0.15	1323.65	-0.22	1324.10	0.23	1324.10	0.23	3.14	$ 218,757	0.00	$ -	$ 218,757.27	10.79	$ 752,099	9.50	$ 331,226	$ 1,083,325.18
319	1347.74	1347.99	Residential	5079.32	$ 3,687,584	$ 1,843,792	1347.48	-0.52	1347.48	-0.52	1347.77	-0.23	1347.77	-0.23	1.9375	$ 71,447	0	$ -	$ 71,446.94	3.0961914	$ 114,175	0	$ -	$ 114,174.66
492	1321.53	1321.78	Residential	1339.91	$ 972,774	$ 486,387	1320.63	-1.00	1320.63	-1.00	1320.71	-1.00	1320.70	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
321	1334.36	1334.61	Residential	10459.22	$ 7,593,394	$ 3,796,697	961.07	-1.00	961.06	-1.00	1333.64	-0.97	1333.64	-0.97	0	$ -	0	$ -	$ -	0.125	$ 9,492	0	$ -	$ 9,491.74
90	1393.57	1393.82	Residential	10984.74	$ 7,974,925	$ 3,987,462	1393.79	-0.03	1393.79	-0.03	1393.94	0.12	1393.93	0.12	3.88	$ 309,768	0.00	$ -	$ 309,768.19	7.49	$ 597,613	4.89	$ 195,031	$ 792,644.42
474	1319.47	1319.72	Residential	1083.36	$ 786,522	$ 393,261	485.09	-1.00	485.10	-1.00	485.20	-1.00	485.17	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
484	1326.28	1326.53	Residential	17723.79	$ 12,867,474	$ 6,433,737	1326.15	-0.38	1326.14	-0.39	1326.45	-0.08	1326.44	-0.09	2.44	$ 313,393	0.00	$ -	$ 313,393.36	3.65	$ 469,336	0.00	$ -	$ 469,336.09
138	1340.89	1341.14	Residential	8006.64	$ 5,812,823	$ 2,906,411	1340.56	-0.58	1340.56	-0.58	1340.78	-0.36	1340.79	-0.36	1.67041016	$ 97,098	0	$ -	$ 97,097.98	2.56445312	$ 149,067	0	$ -	$ 149,067.12
29	1317.70	1317.95	Residential	511.14	$ 371,090	$ 185,545	1197.86	-1.00	1197.85	-1.00	1317.42	-0.53	1317.42	-0.53	0.00	$ -	0.00	$ -	$ -	1.86	$ 6,918	0.00	$ -	$ 6,918.07
231	1341.90	1342.15	Residential	5392.15	$ 3,914,704	$ 1,957,352	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
32	1318.65	1318.90	Residential	4524.83	$ 3,285,027	$ 1,642,514	1318.50	-0.40	1318.50	-0.40	1318.52	-0.39	1318.51	-0.39	2.39	$ 78,436	0.00	$ -	$ 78,436.44	2.44	$ 80,313	0.00	$ -	$ 80,313.14
257	1333.35	1333.60	Residential	9422.90	$ 6,841,023	$ 3,420,512	1333.63	0.02	1333.63	0.02	1333.75	0.15	1333.70	0.10	4.70	$ 321,491	0.98	$ 33,495	$ 354,986.64	7.01	$ 479,573	4.21	$ 144,153	$ 623,725.58
491	1324.09	1324.34	Residential	6194.34	$ 4,497,094	$ 2,248,547	1324.30	-0.05	1324.22	-0.13	1324.68	0.34	1324.67	0.32	3.49	$ 156,871	0.00	$ -	$ 156,871.29	13.62	$ 612,685	13.47	$ 302,961	$ 915,646.15
223	1340.02	1340.27	Residential	4310.09	$ 3,129,127	$ 1,564,564	23.32	-1.00	23.32	-1.00	188.13	-1.00	188.13	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
317	1346.67	1346.92	Residential	5732.43	$ 4,161,744	$ 2,080,872	1346.85	-0.06	1346.85	-0.06	1346.99	0.07	1346.99	0.07	3.74707028	$ 155,943	0	$ -	$ 155,943.49	6.2265625	$ 259,134	3.1171875	$ 64,865	$ 323,998.30
350	1325.39	1325.64	Residential	9207.28	$ 6,684,486	$ 3,342,243	1325.32	-0.32	1325.28	-0.36	1325.65	0.01	1325.64	0.00	2.55	$ 170,507	0.00	$ -	$ 170,506.61	3.99	$ 266,661	0.00	$ -	$ 266,661.37
36	1310.52	1310.77	Residential	5860.59	$ 4,254,790	$ 2,127,395	1310.41	-0.37	1310.41	-0.36	1310.51	-0.26	1310.51	-0.27	2.54	$ 108,073	0.00	$ -	$ 108,073.34	2.94	$ 125,026	0.00	$ -	$ 125,026.02
205	1344.40	1344.65	Residential	10715.30	$ 7,779,310	$ 3,889,655	1344.06	-0.59	1344.06	-0.59	1344.11	-0.54	1344.11	-0.54	1.6464844	$ 128,085	0	$ -	$ 128,085.13	1.85107424	$ 144,001	0	$ -	$ 144,000.81
105	1423.56	1423.81	Residential	7121.88	$ 5,170,483	$ 2,585,241	1423.11	-0.70	1423.11	-0.70	1423.19	-0.62	1423.19	-0.62	1.21679688	$ 62,914	0	$ -	$ 62,914.27	1.52734376	$ 78,971	0	$ -	$ 78,971.04
236	1335.02	1335.27	Residential	7463.86	$ 5,418,764	$ 2,709,382	772.25	-1.00	772.24	-1.00	1334.27	-1.00	1334.29	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
485	1320.88	1321.13	Residential	7138.89	$ 5,182,831	$ 2,591,415	1320.54	-0.59	1320.54	-0.59	1320.74	-0.39	1320.68	-0.45	1.66	$ 85,917	0.00	$ -	$ 85,916.56	2.20	$ 113,805	0.00	$ -	$ 113,804.64
276	1333.43	1333.68	Residential	582.30	$ 422,748	$ 211,374	1333.80	0.12	1333.76	0.09	1334.00	0.32	1333.98	0.31	6.59	$ 27,855	3.62	$ 7,662	$ 35,517.13	13.18	$ 55,707	12.85	$ 27,158	$ 82,864.18
232	1334.12	1334.37	Residential	6944.69	$ 5,041,848	$ 2,520,924	742.32	-1.00	742.32	-1.00	1334.19	-0.18	1334.21	-0.18	0	$ -	0	$ -	$ -	3.27734372	$ 165,239	0	$ -	$ 165,238.69
503	1335.00	1335.25	Residential	13617.09	$ 9,886,006	$ 4,943,003	1334.06	-1.00	1334.06	-1.00	1334.27	-0.98	1334.27	-0.98	0.00	$ -	0.00	$ -	$ -	0.08	$ 7,820	0.00	$ -	$ 7,819.99
64	1335.75	1336.00	Residential	8714.23	$ 6,326,533	$ 3,163,267	1335.57	-0.44	1335.57	-0.44	1335.61	-0.39	1335.61	-0.39	2.25	$ 142,440	0.00	$ -	$ 142,439.67	2.43	$ 153,993	0.00	$ -	$ 153,993.00
182	1332.38	1332.63	Residential	11920.23	$ 8,654,087	$ 4,327,044	228.28	-1.00	228.27	-1.00	888.27	-1.00	982.05	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
430	1362.52	1362.77	Residential	9532.75	$ 6,920,775	$ 3,460,388	1360.53	-1.00	1360.54	-1.00	1360.63	-1.00	1360.63	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
184	1331.65	1331.90	Residential	7792.51	$ 5,657,361	$ 2,828,681	1331.47	-0.43	1331.47	-0.43	1331.63	-0.27	1331.64	-0.27	2.29785156	$ 129,998	0	$ -	$ 129,997.76	2.9350586	$ 166,047	0	$ -	$ 166,046.86
204	1341.13	1341.38	Residential	1620.13	$ 1,176,216	$ 588,108	1341.03	-0.36	1341.03	-0.36	1341.13	-0.25	1341.14	-0.25	2.5791016	$ 30,336	0	$ -	$ 30,335.79	2.99560548	$ 35,235	0	$ -	$ 35,234.78
315	1338.98	1339.23	Residential	8432.94	$ 6,122,312	$ 3,061,156	1339.05	-0.18	1339.05	-0.18	1339.27	0.04	1339.28	0.04	3.29980468	$ 202,024	0	$ -	$ 202,024.33	5.1865234	$ 317,535	1.66113276	$ 50,850	$ 368,385.00
449	1326.30	1326.55	Residential	512.23	$ 371,880	$ 185,940	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
125	1431.44	1431.69	Residential	10791.68	$ 7,834,763	$ 3,917,382	1430.37	-1.00	1430.37	-1.00	1430.49	-1.00	1430.49	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
261	1344.98	1345.23	Residential	31570.81	$ 22,920,407	$ 11,460,203	1344.21	-1.00	913.11	-1.00	1344.65	-0.58	1344.54	-0.69	0.00	$ -	0.00	$ -	$ -	1.25	$ 285,498	0.00	$ -	$ 285,497.84
386	1324.50	1324.75	Residential	4437.01	$ 3,221,266	$ 1,610,633	228.38	-1.00	228.38	-1.00	1324.11	-0.64	1324.10	-0.65	0.00	$ -	0.00	$ -	$ -	1.40	$ 45,095	0.00	$ -	$ 45,094.58
414	1397.75	1398.00	Residential	6393.90	$ 4,641,974	$ 2,320,987	1395.84	-1.00	1395.84	-1.00	1396.06	-1.00	1396.06	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
229	1338.56	1338.81	Residential	4433.88	$ 3,218,996	$ 1,609,498	1338.74	-0.07	1338.74	-0.07	1338.92	0.11	1338.92	0.11	3.7319336	$ 120,131	0	$ -	$ 120,130.81	7.28125	$ 234,383	4.59375	$ 73,936	$ 308,319.50
431	1356.48	1356.73	Residential	3025.96	$ 2,196,849	$ 1,098,424	123.92	-1.00	123.92	-1.00	631.20	-1.00	631.20	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
509	1325.09	1325.34	Residential	15430.55	$ 11,202,578	$ 5,601,289	1324.71	-0.63	1324.71	-0.63	1324.78	-0.56	1324.78	-0.56	1.49	$ 166,398	0.00	$ -	$ 166,397.67	1.75	$ 196,100	0.00	$ -	$ 196,099.82
440	1326.41	1326.66	Residential	5519.16	$ 4,006,909	$ 2,003,455	0.00	-1.00	0.00	-1.00	1326.24	-0.42	1326.24	-0.42	0.00	$ -	0.00	$ -	$ -	2.31	$ 92,718	0.00	$ -	$ 92,718.47
402	1327.14	1327.39	Residential	1014.49	$ 736,520	$ 368,260	481.85	-1.00	481.85	-1.00	1326.17	-1.00	1326.17	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
542	1337.79	1338.04	Residential	1862.82	$ 1,352,407	$ 676,203	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
416	1398.89	1399.14	Residential	5128.78	$ 3,723,492	$ 1,861,746	1389.92	-1.00	1389.92	-1.00	1390.58	-1.00	1390.58	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
569	1321.58	1321.83	Residential	6215.34	$ 4,512,337	$ 2,256,168	1321.17	-0.67	1321.17	-0.67	1321.20	-0.64	1321.20	-0.64	1.32	$ 59,709	0.00	$ -	$ 59,709.14	1.45	$ 65,239	0.00	$ -	$ 65,239.40
384	1326.34	1326.59	Residential	13713.92	$ 9,956,308	$ 4,978,154	1326.19	-0.40	1326.19	-0.40	1326.23	-0.36	1326.23	-0.36	2.42	$ 240,497	0.00	$ -	$ 240,497.35	2.56	$ 254,741	0.00	$ -	$ 254,741.48
66	1341.15	1341.40	Residential	7401.01	$ 5,373,131	$ 2,686,565	1341.20	-0.20	1341.20	-0.20	1341.30	-0.10	1341.30	-0.10	3.20263672	$ 172,082	0	$ -	$ 172,081.86	3.61328128	$ 194,146	0	$ -	$ 194,146.33
134	1653.63	1653.88	Residential	8993.07	$ 6,528,966	$ 3,264,483	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
94	1414.71	1414.96	Residential	1163.57	$ 844,755	$ 422,378	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
87	1398.25	1398.50	Residential	724.88	$ 526,260	$ 263,130	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
420	1364.99	1365.24	Residential	4334.78	$ 3,147,053	$ 1,573,527	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
85	1347.99	1348.24	Residential	4822.15	$ 3,500,880	$ 1,750,440	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
294	1346.60	1346.85	Residential	349.86	$ 253,997	$ 126,998	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
243	1342.10	1342.35	Residential	3590.12	$ 2,606,425	$ 1,303,213	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
471	1339.29	1339.54	Residential	3984.20	$ 2,892,527	$ 1,446,264	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0.00	$ -	$ -	0	$ -	0.00	$ -	$ -
473	1337.74	1337.99	Residential	5738.70	$ 4,166,293	$ 2,083,146	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
70	1337.13	1337.38	Residential	428.49	$ 311,081	$ 155,540	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
466	1333.18	1333.43	Residential	4856.25	$ 3,525,640	$ 1,762,820	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
247	1330.67	1330.92	Residential	324.60	$ 235,659	$ 117,830	1329.61	-1.00	1329.61	-1.00	0.00	-1.00	1331.19	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
486	1328.38	1328.63	Residential	10080.08	$ 7,318,139	$ 3,659,070	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
418	1326.27	1326.52	Residential	642.45	$ 466,418	$ 233,209	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
577	1325.04	1325.29	Residential	6459.08	$ 4,689,290	$ 2,344,645	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
273	1343.59	1343.84	Residential	2568.08	$ 1,864,428	$ 932,214	64.58	-1.00	64.58	-1.00	86.11	-1.00	86.12	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
562	1318.27	1318.52	Residential	6529.13	$ 4,740,151	$ 2,370,076	0.00	-1.00	0.00	-1.00	68.31	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
201	1336.36	1336.61	Residential	10297.53	$ 7,476,003	$ 3,738,002	153.83	-1.00	153.83	-1.00	153.83	-1.00	153.84	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
245	1340.43	1340.68	Residential	941.45	$ 683,496	$ 341,748	0.00	-1.00	0.00	-1.00	213.48	-1.00	213.49	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
305	1341.91	1342.16	Residential	6338.38	$ 4,601,667	$ 2,300,833	216.16	-1.00	216.16	-1.00	216.17	-1.00	216.17	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
372	1326.69	1326.94	Residential	1276.52	$ 926,755	$ 463,378	0.00	-1.00	0.00	-1.00	206.81	-1.00	206.82	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
226	1098.42	1098.67	Residential	691.10	$ 501,735	$ 250,868	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
6	1318.58	1318.83	Residential	8429.50	$ 6,119,817	$ 3,059,909	220.78	-1.00	220.78	-1.00	220.79	-1.00	220.79	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
513	1335.01	1335.26	Residential	526.95	$ 382,565	$ 191,282	0.00	-1.00	0.00	-1.00	252.12	-1.00	252.12	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
47	1318.51	1318.76	Residential	5281.01	$ 3,834,015	$ 1,917,007	349.96	-1.00	349.96	-1.00	349.97	-1.00	349.97	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
31	1318.31	1318.56	Residential	924.64	$ 671,292	$ 335,646	175.74	-1.00	175.73	-1.00	392.23	-1.00	392.23	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
175	1346.66	1346.91	Residential	1148.33	$ 833,687	$ 416,843	0.00	-1.00	0.00	-1.00	444.16	-1.00	444.16	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
248	1340.61	1340.86	Residential	2664.64	$ 1,934,529	$ 967,265	0.00	-1.00	0.00	-1.00	442.03	-1.00	442.04	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
250	1341.47	1341.72	Residential	7701.93	$ 5,591,604	$ 2,795,802	0.00	-1.00	0.00	-1.00	460.08	-1.00	460.08	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
576	1331.62	1331.87	Residential	617.80	$ 448,524	$ 224,262	505.16	-1.00	505.17	-1.00	505.22	-1.00	505.23	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
570	1320.14	1320.39	Residential	11790.86	$ 8,560,166	$ 4,280,083	506.07	-1.00	505.97	-1.00	506.25	-1.00	506.20	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
523	1326.63	1326.88	Residential	7607.83	$ 5,523,283	$ 2,761,642	524.98	-1.00	524.98	-1.00	525.04	-1.00	525.05	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
202	1275.49	1275.74	Residential	2124.08	$ 1,542,082	$ 771,041	0.00	-1.00	0.00	-1.00	477.18	-1.00	477.19	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
9	763.59	763.84	Residential	417.29	$ 302,950	$ 151,475	0.00	-1.00	0.00	-1.00	0.00	-1.00	0.00	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -

10-Year and 100-Year Proposed Building Damages in Area A

															Proposed									
Building ID	HAG	Finished Floor Elevation (ft)	Land Use Type	Building Area (sf)	Replace Cost $ ($726/SF-Res)	Content Replacement Value ($) 1/2 of Replacement Cost	10yr Exist WSEL (ft)	10yr Exist Flow Depth (ft)	10yr Prop WSEL (ft)	10yr Prop Flow Depth (ft)	100yr Exist WSEL (ft)	100yr Exist Flow Depth (ft)	100yr Prop WSEL (ft)	100yr Prop Flow Depth (ft)	10yr Building Damage (%)	10yrBuilding Damage Cost ($)	10yr Content Damage (%)	10yr Content Damage Cost ($)	10yr Total Damage Cost ($)	100yr Building Damage (%)	100yrBuilding Damage Cost ($)	100yr Content Damage (%)	100yr Content Damage Cost ($)	100yr Total Damage Cost ($)
52	1346.47	1346.72	Residential	7442.51	$ 5,403,259	$ 2,701,630	149.36	-1.00	149.36	-1.00	599.70	-1.00	599.70	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
136	1341.26	1341.51	Residential	8006.87	$ 5,812,987	$ 2,906,493	266.48	-1.00	266.48	-1.00	623.67	-1.00	623.66	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
357	1322.47	1322.72	Residential	4760.72	$ 3,456,285	$ 1,728,142	0.00	-1.00	0.00	-1.00	618.21	-1.00	618.20	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
23	1316.47	1316.72	Residential	5702.06	$ 4,139,693	$ 2,069,847	619.59	-1.00	619.59	-1.00	619.65	-1.00	619.64	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
137	1343.10	1343.35	Residential	12613.34	$ 9,157,283	$ 4,578,641	692.83	-1.00	692.83	-1.00	692.84	-1.00	692.84	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
475	1322.99	1323.24	Residential	4541.68	$ 3,297,259	$ 1,648,629	83.56	-1.00	83.56	-1.00	688.76	-1.00	688.75	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
249	1339.78	1340.03	Residential	5162.03	$ 3,747,637	$ 1,873,818	758.09	-1.00	758.09	-1.00	758.09	-1.00	758.09	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
1	1317.42	1317.67	Residential	1455.68	$ 1,056,823	$ 528,411	747.59	-1.00	747.60	-1.00	747.62	-1.00	747.63	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -
494	1321.28	1321.53	Residential	1256.14	$ 911,959	$ 455,980	754.22	-1.00	754.23	-1.00	754.23	-1.00	754.24	-1.00	0	$ -	0	$ -	$ -	0	$ -	0	$ -	$ -

XXI. APPENDIX I – GRANT FUNDING INFORMATION

TOWN OF PARADISE VALLEY FUNDING OPPORTUNITY MATRIX
MAY 20, 2025

Kimley

#	Grant Name	Agency	Funding Max	Required Match	Date Open	Date Due	Priorities	Types of Projects	Link to Site
1	**Pre-Disaster Mitigation Grant Program**	Federal Emergency Management Agency - FEMA	In FY24 NOFO, up to $10 Million awarded.	Yes. 75%/25% 25% cash, donated or third-party in-kind services, materials, or any combination. Cost share for the PDM program is adjusted to 90% federal and 10% nonfederal for the following communities: • Local governments meeting the definition of small impoverished community • Federally recognized tribes meeting the definition of small impoverished community	For FY2024 application opening date was May 22, 2024. Has happened annually but has not opened yet (most likely due to the changes at the federal level regarding FEMA).	For FY2024, the application closing date was June 28, 2024	The Pre-Disaster Mitigation (PDM) Grant Program makes federal funds available to state, local, tribal, and territorial governments to plan for and implement sustainable cost-effective measures designed to reduce the risk to individuals and property from future natural hazards, while also reducing reliance on federal funding from future disasters.	• Capability and Capacity-Building activities – activities that enhance the knowledge, skills, and expertise of the current workforce to expand or improve the administration of mitigation assistance. This includes activities in the following sub-categories: project scoping, hazard mitigation planning and planning-related activities, and other activities; • Hazard Mitigation Projects – cost-effective projects designed to increase resilience and public safety; reduce injuries and loss of life; and reduce damage and destruction to property, critical services, facilities, and infrastructure (including natural systems) from a multitude of natural hazards, including drought, wildfire, earthquakes, extreme heat, and the effects of climate change; • Management Costs – financial assistance to reimburse the recipient and subrecipient for eligible and reasonable indirect costs, direct administrative costs, and other administrative expenses associated with a specific mitigation measure or project.	https://www.fema.gov/grants/mitigation/learn/pre-disaster
2	**Hazard Mitigation Grant Program (HMGP)**	Federal Emergency Management Agency (FEMA)	Varies	Yes. 75% Grant 25% Match Required	Funding is historically available following a Presidentially-declared disaster	Varies	FEMA's Hazard Mitigation Grant Program provides funding to state, local, tribal and territorial governments so they can develop hazard mitigation plans and rebuild in a way that reduces, or mitigates, future disaster losses in their communities. This grant funding is available after a presidentially declared disaster. In this program, homeowners and businesses cannot apply for a grant. However, a local community may apply for funding on their behalf. All state, local, tribal and territorial governments must develop and adopt hazard mitigation plans to receive funding for hazard mitigation project application.	Projects that involve: 1. Protection or purchasing public or private property that experienced, or is in danger of experiencing, repetitive damage, 2. Purchasing and removing a flood-prone property from an individual, 3. Developing and adopting hazard mitigation plans, which are required for state, local, tribal and territorial governments to receive funding for their hazard mitigation projects, or 4. Using aquifer storage and recovery, floodplain and street restoration, flood diversion and storage, or green infrastructure methods that may reduce the impacts of flood and drought. Projects that include long-term efforts to reduce the impacts of future disasters. Examples include flood mitigation projects.	https://www.fema.gov/grants/mitigation/learn/hazard-mitigation
3	Safeguarding Tomorrow Revolving Loan Fund Program (RLF) - Congressional spending	Federal Emergency Management Agency (FEMA)	25%	Capitalization grant recipients must deposit an amount that is at least 10% of the amount of the grant into the loan fund, as a condition of receiving funding.	5/1/2025	6/1/2025	The Safeguarding Tomorrow Revolving Loan Fund (RLF) program is authorized under Section 205 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act to provide capitalization grants to states, eligible federally recognized tribes, territories and the District of Columbia to establish revolving loan funds that provide hazard mitigation assistance for local governments to reduce risks from natural hazards and disasters. These low-interest loans will allow jurisdictions to reduce vulnerability to natural disasters, foster greater community resilience and reduce disaster suffering. Eligible entities are: - States - Puerto Rico, the U.S. Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, and the District of Columbia - Federally recognized tribes that received a direct major disaster declaration are eligible to apply for funding as an entity in this new program. Tribal entities may provide a loan to any authorized tribal organization, including a sub-component within their respective governmental structures. Additionally, Indian tribes located within a participating entity (such as a state or territory) may also apply for a loan under a participating entity's revolving loan fund. The priorities of the Safeguarding Tomorrow RLF program are to: Empower Entities. FEMA will collaborate with eligible entities to help them increase their capacity and capability, through focused engagement activities leading up to the application period and providing increased technical assistance during the Year 1 application period. Create innovative funding solutions. Applicants can leverage loans for non-federal cost share with other FEMA Hazard Mitigation Assistance programs, helping underserved communities access additional funding resources. Deliver equitable investments and increased access. A goal of the Safeguarding Tomorrow RLF program is that 40% of the overall benefits generated by the entity loan funds flow to underserved communities. Reduce grant application complexity. The goal of launching this effort is to reduce program complexity by breaking down barriers and increasing access to mitigation funding.	The Safeguarding Tomorrow RLF program complements and supplements FEMA's Hazard Mitigation Assistance grant portfolio to support mitigation projects at the local government level and increase the nation's resilience to natural hazards.	https://www.fema.gov/grants/mitigation/learn/storm-rlf
4	Flood Mitigation Assistance (FMA) Program	Federal Emergency Management Agency (FEMA)	$30 million for Community Flood Mitigation Projects Individual Project $300,000 Community Project $900,000	25% non-federal funds required as local match	Application Opening for FY2023 was October 16, 2023. Has happened annually but has not opened yet (most likely due to the changes at the federal level regarding FEMA).	Application deadline for FY2023 was February 29,2024 on FEMA GO Portal	The Flood Mitigation Assistance grant program is a competitive program that provides funding to state, territory and local governments and, federally recognized Tribal Nations. Since the National Flood Insurance Reform Act of 1994 was signed into law, funds are used for projects to reduce or eliminate the risk of repetitive flood damage to buildings insured by the National Flood Insurance Program.	Flood Mitigation Assistance funds may be used for projects such as Project Scoping; Technical Assistance; Community Flood Mitigation Projects; Individual Structure/Property-Level Flood Mitigation Projects; and Management Costs. Types of Projects/ Activities: Localized flood control, floodwater storage and diversion, floodplain and stream restoration, stormwater management, wetland restoration / creation.	https://www.fema.gov/grants/mitigation/learn/flood-mitigation-assistance/after-you-apply/previous-fiscal-year-subapplication-statuses/fy22-status

TOWN OF PARADISE VALLEY FUNDING OPPORTUNITY MATRIX
MAY 20, 2025

Kimley

#	Grant Name	Agency	Funding Max	Required Match	Date Open	Date Due	Priorities	Types of Projects	Link to Site
5	**Community Development Block Grant Program (CDBG Annual Competition) (HUD Funds)**	U.S. Department of Housing and Urban Development (HUD)	Competitive Fund. Up to $450,000 Community Enhancement Fund. Up to $250,000. Planning Fund. Unlisted. Economic Development Fund. Up to $250,000	Generally no required match for entitlement communities; however, states may need to provide a dollar-for-dollar match if they exceed $100,000 in administrative costs, up to a maximum of 3% of their total CDBG allocation.	*FY2024 applications opened September 2, 2025*	*FY2024 applications close on October 31, 2025*	All projects must meet one of the three national objectives: Benefit at least 51% of low and moderate-income persons. Aid in the prevention or clearance of slum and blight (meet an urgent need). Eligible grantees are as follows: Principal cities of Metropolitan Statistical Areas (MSAs) Other metropolitan cities with populations of at least 50,000 Qualified Urban Counties with populations of at least 200,000 (excluding the population of entitled cities) States and insular areas Eligibility for participation as an entitlement community is based on population data provided by the U.S. Census Bureau and metropolitan area delineations published by the Office of Management and Budget. HUD determines the amount of each entitlement grantee's annual funding allocation by a statutory dual formula which uses several objective measures of community needs, including the extent of poverty, population, housing overcrowding, age of housing and population growth lag in relationship to other metropolitan areas. Eligibility for participation as a state - 49 States and Puerto Rico participate in the State CDBG Program. HUD continues to administer the program for the non-entitled counties in the State of Hawaii because the State has permanently elected not to participate in the State CDBG Program. HUD distributes funds to each State based on a statutory formula which takes into account population, poverty, incidence of overcrowded housing, and age of housing. States participating in the CDBG Program award grants only to non-entitlement Units of General Local Government (UGLG).	CDBG funds may be used for activities which include, but are not limited to: - Acquisition of real property - Relocation and demolition - Rehabilitation of residential and non-residential structures - Construction of public facilities and improvements, such as water and sewer facilities, streets, neighborhood centers, and the conversion of school buildings for eligible purposes - Public services, within certain limits - Activities relating to energy conservation and renewable energy resources - Provision of assistance to profit-motivated businesses to carry out economic development and job creation/retention activities Each activity must meet one of the following national objectives for the program: benefit low- and moderate-income persons, prevention or elimination of slums or blight, or address community development needs having a particular urgency because existing conditions pose a serious and immediate threat to the health or welfare of the community for which other funding is not available. Generally, the following types of activities are ineligible: - Acquisition, construction, or reconstruction of buildings for the general conduct of government - Political activities - Certain income payments - Construction of new housing (with some exceptions)	https://www.hud.gov/hud-partners/community-cdbg#eg
6	**Water Infrastructure Finance and Innovation Act Program (WIFIA)**	U.S. Environmental Protection Agency (EPA)	Varies	Loan	Rolling	Continuous review cycle. No fixed deadline.	Like a bank, the WIFIA program has funding available on an ongoing basis. This allows prospective borrowers to request financing on their schedule. A rolling selection process allows EPA to provide year-round access to WIFIA funding and quicker selection decisions to prospective borrowers. In addition, under this iterative, rolling selection process, the WIFIA program can provide technical assistance to prospective borrowers that need support to complete their Letter of Interest (LOI) package. In the most recent Notices of Funding Availability, the WIFIA Program announced availability of an estimated $7.5 billion—$6.5 billion for WIFIA and $1 billion for SWIFIA—in financing to support approximately $15 billion in water infrastructure projects.	Since 2018, the WIFIA program has provided billions of dollars in loans to communities across the country and has an active pipeline of future projects. These projects will help mitigate the impacts of drought, replace lead service lines, manage stormwater, address PFAS and other emerging contaminants, and modernize aging infrastructure.	https://www.epa.gov/wifia/wifia-available-funding
7	**Corps Water Infrastructure Financing Program (CWIFP)***	U.S Army Corps of Engineers	CWIFP can provide credit assistance of up to 49% of the total project costs and up to 80% of project costs in some cases.	Loan	Open	Once a completed application is received, USACE will work with the applicant to expeditiously as possible move towards issuance of a loan.	The Corps Water Infrastructure Financing Program (CWIFP) is the U.S. Army Corps of Engineers' (Corps) new credit assistance program, also authorized by WIFIA, for non-federal dam safety projects. To be eligible for CWIFP credit assistance, a prospective borrower must be either a Local, State or Tribal Government, a Private Corporation, or a State Revolving Fund Program. Additionally multiple entities may apply for a single project under a joint application.	*Long-term, low cost credit assistance for water resource infrastructure projects **(currently limited to dam safety projects that are non-federally owned, operated, and maintained)** Funding of up to 49% of project costs (can fund up to 80% of project costs in some cases) Big impact to infrastructure with low cost and risk to taxpayers Available to individual projects or a group of projects with eligible costs in excess of $20 million Accelerates construction Local control and ownership of the project are maintained. Note: This opportunity is typically available for other water infrastructure projects. Has now been limited to just DAM projects, possibly because of budget restructuring. Keep in mind for future potential applicants. Eligible Costs: - Development-phase activities - Construction, reconstruction, rehab, and replacement activities. - Acquisition of property used to mitigate environmental impacts of eligible projects. - Capitalized interest, reserve funds, issuance costs, and other project carrying costs during construction. CWIFP is available for credit assistance to dam safety projects that support: - Flood damage reduction, hurricane, and storm damage reduction - Environmental restoration - Coastal or inland harbor navigation improvement, or inland and intracoastal waterways navigation improvement. CWIFP focuses on projects that are not federally authorized. Non-federal projects that have received federal appropriations may be eligible under certain circumstances.	https://www.usace.army.mil/Missions/Civil-Works/Infrastructure/revolutionize/CWIFP/

TOWN OF PARADISE VALLEY FUNDING OPPORTUNITY MATRIX
MAY 20, 2025

Kimley

#	Grant Name	Agency	Funding Max	Required Match	Date Open	Date Due	Priorities	Types of Projects	Link to Site
8	**Fiscal Year 2023 Public Works and Economic Adjustment Assistance (PWEAA) Application Submission and Program**	U.S Economic Development Administration (EDA)	Generally funds 50% but may fund up to 80%. In the past, the average size of a Public Works investment has been approximately $1.4 million. In FY2024, EDA expects investments ranging from $600,000 to $5 million. The average size of an EAA investment has been approximately $650,000, and EDA expects to make investments ranging from $150,000 to $2.5 million in FY2024. ACC, NCC, and BCC awards generally have ranged from $500,000 to $3 million for implementation projects and from $100,000 to $350,000 for planning activities. EDA anticipates making similar sized awards, subject to the availability of funding.	20% to 50%	Opened in 2023	There are no application submission deadlines. Applications will be accepted on an ongoing basis until the publication of a new PWEAA NOFO, cancellation of this PWEAA NOFO, or all available funds have been expended.	The Economic Development Administration's (EDA's) mission is to lead the Federal economic development agenda by promoting innovation and competitiveness, preparing American regions for economic growth and success in the worldwide economy. EDA fulfills this mission through strategic investments and partnerships that create the regional economic ecosystems required to foster globally competitive regions throughout the United States. EDA supports development in economically distressed areas of the United States by fostering job creation and attracting private investment. Under this NOFO, EDA solicits applications from applicants in order to provide investments that support construction, non construction, planning, technical assistance, and revolving loan fund projects under EDA's Public Works program and EAA program (which includes Assistance to Coal Communities, Nuclear Closure Communities, and Biomass Closure Communities). Grants and cooperative agreements made under these programs are designed to leverage existing regional assets and support the implementation of economic development strategies that advance new ideas and creative approaches to advance economic prosperity in distressed communities, including those negatively impacted by changes to the coal economy and nuclear power plant closures.	Water and sewer improvement projects included in this. Agency will fund a wide range of projects excluding the following: Some projects are generally ineligible under this NOFO, including projects that are primarily residential in nature (e.g., housing), projects to create community amenities (e.g., swimming pools, zoos, recreational centers), projects that support casinos or gaming, projects that support general governmental or public safety functions (e.g., buildings to house municipal government, firehouses, public safety equipment), and requests for funding to supplement operating budgets or replace lost revenue (including lost tax revenue). Applicants who are unsure whether their proposed project is eligible under this NOFO should consult the appropriate EDA Regional Office Point of Contact (POC) listed in section G.	https://www.eda.gov/funding/funding-opportunities/fiscal-year-2023-public-works-and-economic-adjustment-assistance
9	**Sewer Overflow and Stormwater Reuse Municipal Grants Program**	U.S Environmental Protection Agency	11/01/41	The federal share for awards shall be 80% of the total award. The state grant recipients are required to provide a non-federal cost share/match for the remaining 20% of the total award, unless reduced by EPA after verifying that the sub-award will support rural (population of 10,000 of less) and/or financially distressed communities as defined by the state.	05/09/24	States are under a Region and are allocated a certain amount of funding. For Arizona (Region 9), an allocation of $344,000 has been applied.	Funding for the planning, design and construction of critical stormwater infrastructure projects in communities including combined sewer overflows (CSO) and sanitary sewer overflows (SSO). Managing runoff remains a complex environmental challenge for local communities across the country, especially due to the rise in extreme weather events. The program can help facilitate the development of infrastructure capable of coping with the changing climate's impacts, such as increased precipitation events. **EPA allocates grant funding to states, the District of Columbia, and territories, which then provide sub-awards to eligible entities for projects that address infrastructure needs for CSOs, SSOs and stormwater management.** Projects under the program have many of the same program requirements as the CWSRF and, to the extent that eligible projects are available, at least 20% of a state's allocation must be used for green infrastructure, water conservation improvements, energy efficiency improvements or environmentally innovative activities that advance climate resilience and adaptation.	Eligible projects generally fall under three main categories: - Correcting CSOs. - Correcting SSOs. - Addressing stormwater and subsurface drainage needs. Examples of climate adaptation and resilience projects supported by this program include: Planning and design activities that increase the resilience of treatment works to manmade or natural disasters, such as extreme weather events and sea-level rise, including assessing future risks and vulnerabilities. Stormwater or subsurface drainage projects that develop or implement watershed pilot projects related to watershed-wide management, stormwater best practices, integrated water resource planning and forming watershed partnerships. Rainwater harvesting collection, storage, management and distribution systems. Green infrastructure solutions such as green roofs, green streets, bioretention/bioswales (e.g., rain gardens, tree boxes), permeable pavement and the replacement of gray infrastructure. Creating, protecting and restoring wetlands, shoreline and riparian areas. Nature-based solutions, such as the establishment or restoration of urban tree canopy. Watershed management activities related to integrated planning, partnership formation, wet weather discharge and stormwater best management practices.	https://www.epa.gov/resilient-investments/sewer-overflow-and-stormwater-reuse-municipal-grants-program
10	**Defense Community Infrastructure Program**	Department of Defense	No award can exceed $20 million or be less than $250,000	Grant recipients must agree to contribute not less than thirty percent (30%) of the total funding required for the community infrastructure project as a local cost share. For example, if the total project cost is $10 million, the required local cost share is $3 million for a $7 million Defense Community Infrastructure Program award. A proposal that does not commit to this required cost sharing, and is not subject to an exception below, will be deemed ineligible and removed from further consideration.	05/01/25	5pm PDT on June 23, 2025	Executive Summary: This Notice of Funding Opportunity Forecast (Forecast) forecasts potential funding from the Office of Local Defense Community Cooperation under the Defense Community Infrastructure Program to assist state and local governments, and not-for-profit, member-owned utilities, in addressing deficiencies in community infrastructure supportive of a military installation. For purposes of the Defense Community Infrastructure Program, "Community Infrastructure" includes projects related to transportation; schools; hospitals; police, fire, or emergency response, or other community support facilities; and utility projects (e.g., water, wastewater, telecommunications, electric and natural gas facilities). The facility or project itself must be owned by a state or local government, or a not-for-profit, member-owned utility. The facility addressed in the application must not be located on a military installation unless it is on property under the jurisdiction of a military department that is also subject to a real estate agreement (including a lease or an easement) held by an eligible community.	Eligible community infrastructure projects are any complete and usable transportation project; community support facility (e.g., school, hospital, police, fire, emergency response, or other community support facility); and utility infrastructure project (e.g., water, wastewater, telecommunications, electric, gas, or other utility infrastructure (with necessary cyber safeguards)) that: • are on land located off of a military installation or on property under the jurisdiction of a Secretary of a military department that is subject to a real estate agreement allowing the project or facility to be located on military property (including a lease or easement); • support a military installation; • are owned by a state, local government, or a not-for-profit, member-owned utility service; • are supported by the installation commander representing the installation benefitting from the proposed project; • are where ground-disturbing work has not yet commenced; and, • are construction-ready so that the project can be completed within five (5) years of grant award.	https://www.grants.gov/search-results-detail/358802