



MASTER CONCEPT DRAINAGE REPORT
For
LEGACY COMMUNITY MASTER PLAN

ZON 25-00891

**NEC of Williams Field Road and Ellsworth Road
Mesa, AZ**

Optimus Project #251461
August 2026

Prepared for:

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A handwritten signature in blue ink, appearing to read 'Tyson J. Mitzel', located below the professional seal.

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Exhibit C – FIRM Map

Exhibit D – Phasing Plan

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APPENDICES

None

1.0 Scope

The objectives of this drainage master report are:

1. To research and identify the current offsite drainage impacts associated with the property.
2. To determine the hydrologic and hydraulic conditions for the proposed development.
3. To create a drainage concept which adequately conveys site-generated discharges and offsite flow, if applicable, through and/or around the parcel in accordance with City of Mesa and Maricopa County drainage design standards.
4. To ensure that proposed finish floor elevations are free from the 100-year storm event in accordance with City of Mesa and Maricopa County drainage design standards.

This study has been performed utilizing an aerial-generated topography map and field reconnaissance conducted by Rick Engineering, authorized to perform a topographic study by Optimus Civil Design Group. This drainage report was prepared in accordance with the current City of Mesa and Maricopa County Floodplain Ordinance, design criteria, regulations, and policies.

2.0 Site Location

The project site is located on the northeast corner of Williamsfield Road and Ellsworth Road in the City of Mesa, Arizona (see Exhibit A).

More specifically, the project site is located within a portion of the Southwest and Northwest Quarter of Section 27, Township 1 South, Range 7 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona.

3.0 Description and Proposed Development

The site is currently on an approximately 210-acre parcel that resides at the northeast corner of Williams Field Road and Ellsworth Road. The improvements will consist of multi-family residential, mixed-use development, general office space, and hotel. The site is currently undeveloped desert and slopes from east to west at approximately 0.4% and drains into a set of box culverts at Ellsworth Road that connects to the Ellsworth Channel on the west side of the street.

The project is planned to have a core phase that will be built out immediately, and the rest of the site has a general use plan, as identified by the Legacy Park Community Plan, that does not yet have a determined site use and will be built out by separate developers at a later time. For these later developments, a conservative use case will be used when analyzing drainage impacts to the site. See Exhibit D for the phasing plan.

To the south, the site is bound by the Legacy Sports Complex and future Gateway Crossing. The north and eastern sides of the site are bound by Arizona State Route 24. The west side is bounded by the future Gateway East, a 273-acre development used for manufacturing, industrial, retail, office, and hotel space.

4.0 FIRM Classification

The Maricopa County, Arizona and Incorporated Area Flood Insurance Rate Map (FIRM) map number 04013C2770L dated October 16, 2013, 04013C2760L dated October 16, 2013, and 04013C2790L dated October 16, 2013 shows that the project site is currently located within flood hazard Zone “X” (see Exhibit C).

Zone “X” (shaded) is defined by FEMA as: areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage area less than 1 square mile and areas protected by levees from 100-year flood.

5.0 Offsite Drainage

There are existing culverts on the west side of the site that cross under Ellsworth Road that used to convey offsite flows from the north and east. However, due to the construction of SR-24, the offsite flows are being intercepted by a new channel on the northeast side of SR-24 and routed away from the project site to Powerline Floodway per ADOT's report "Final Design Concept Report, SR-24, Ellsworth Road to Ironwood Drive Interim Phase II, 2017" and the corresponding Appendix C of that report, "Initial Drainage Report in support of the interim Phase II DCR Plans, 2016". There are no significant offsite flows that cross through the site.

There is also an existing 30" private HDPE storm drain pipe that routes to the west underneath SR-24 just north of the property's northern extents. This pipe then routes to the south and connects in to an existing lateral that crosses Ellsworth Road. There is no additional remediation needed as part of this project apart from acknowledging that the pipe exists and should be considered as design progresses.

The north of the existing Williams Field Road pavement edge is a swale that currently drains to the existing culverts that outlet under Ellsworth Road. In the proposed condition, this swale will be eliminated, and the half-street volume will be captured by storm drain inlets and retained on site.

The eastern half-street portion of Ellsworth Road currently drains to existing storm drain inlets that ultimately discharge to the western side of Ellsworth Road. In the proposed condition, this storm drain system will stay intact and the half-street volume of water will not be retained on site but rather continue to be pushed west to Ellsworth Channel.

6.0 Onsite Drainage

The site is currently undeveloped desert land and flows from east to west. The flow is captured in earthen channels on the eastern side of Ellsworth Road and the northern side of Williams Field Road and ultimately discharged under Ellsworth Road through the existing culverts, proceeding north away from the site on the western side of Ellsworth Road.

In the proposed condition, the onsite drainage will no longer be conveyed offsite, but instead be retained onsite, per City of Mesa standards, for the 100-year, 2-hour storm event.

The specific retention requirements for each parcel will be calculated at the time the drainage report is put together for that site plan. This master drainage report only acts as a framework for the Legacy Park development.

The internal roadway network throughout the site will be treated as public roadways. As a result, the half-street runoff will be routed onto its respective development parcel through a series of storm sewer inlets and retained within that parcel. For the parcels that aren't being developed in the first phase, temporary basins will be installed for the half street retention.

Retention basins, where used, will be a maximum depth of 3', measured from the bottom elevation of the basin to the high-water elevation. An additional 6" depth for freeboard will be provided. All other developments throughout the site will utilize underground storage for retention.

The following formula will be used to determine the required storage volume:

$$V = C * (P/12) * A$$

Where: V = Required retention volume (cubic feet)
C = Runoff Coefficient
*P = Precipitation Depth (inches) = 2.20"
A = Drainage Area (square feet)

**The greater of 2.20" or the mean of the 90% confidence interval of the current NOAA Atlas 14 point precipitation frequency estimates shall be used.*

The runoff coefficients "C" for use on the project are listed below:

Land Use	C
Commercial/Mixed Use	0.90
Undeveloped	0.50
Water	1.00

Pursuant to COM 2025 Engineering and Design Standards Section 806, this project proposes to retain all onsite flows for the 100-year 2-hour event onsite including the

half-street of all adjacent public roads. The only exception to this is Ellsworth Road, which currently drains to Ellsworth Channel to the west, and it is proposed to continue doing so.

This project, due to its urban nature and density, will be using underground retention tanks to store the design volume, typically using 96-inch or 120-inch diameter pipes. The bleed-off method for this arrangement is the use of drywells, as is typical throughout Maricopa County and other municipalities.

This project, as a general rule, will vary from section 806.20 to allow the use of drywells as a preferred method of water disposal within the development, with the exception of parcels that are fronting Ellsworth Road. Where feasible and space allows, open-bottom arch pipe retention systems will be analyzed for use, which directly percolate into the ground with minimal drywell usage.

All parcels adjacent to Ellsworth Road will be required to check the feasibility of a bleed-off into the existing drainage system, either across Ellsworth Road into the channel or tying into the existing storm drain system within the roadway. If this disposal method is not attainable by gravity, the City will approve alternate methods of disposal on a case by case basis.

There are a number of items that are driving this variance, included below:

- Due to the nature of this development and the platting, there will be users in the form of large office users, commercial retail, resort development, and multi-family which will be doing their own onsite retention. As such, it would serve the best interest of this development and the City to let them control their own storm disposal method, with the exception of all parcels fronting Ellsworth Road.
- The majority of this development is not being built out during Phase 1, therefore routing a bleed-off line to each undeveloped parcel and sizing adequately is incredibly difficult given the unknowns of how a developer plans to layout their site and dispose of storm water.
- Committing to storm sewer layout with a single outfall in the corner of the site creates challenges for all future sewer and storm drain crossing locations. As many of these developments will be built out in phases and

are not being designed as part of Phase 1, flexibility in utility placement, both horizontal and vertical, is crucial to the success of this site.

All Drywells shall be dual chamber and will be maintained by each parcel user via a set of CC&R's/REA agreements. All Dry wells will be registered with ADEQ so they can be tracked. All dry wells will have a maintenance schedule for inspection and cleaning.

Finished floor elevations will be a minimum of 14" above the elevation of the site ultimate outfall, and the hydraulic grade lines of storm drains will remain 1' below the grate elevation at all inlets.

All onsite overland and underground flow drainage facilities will be sized for the 10-year and 100-year event per the rational method at the time of final construction documents. Per the Drainage Design Manual for Maricopa County, the proposed depressed curb and grated inlets will be sized using a reduction factor of 0.80 and 0.50 respectively.

In conclusion, the proposed conceptual drainage design is shown to keep the proposed improvements free and clear of the 100-year, 2-hour storm event. The design parameters and methodologies for the site are in accordance with City of Mesa and Maricopa County Flood Control District drainage design standards.

7.0 References

1. City of Mesa Engineering & Design Standards, August 2025.
2. Drainage Design Manual for Maricopa County, Arizona, Volume 1 Hydrology, December 14, 2018.
3. Drainage Design Manual for Maricopa County, Arizona, Volume 2 Hydraulics, August 22, 2018.
4. Final Design Concept Report SR-24, Ellsworth Road to Ironwood Drive Interim Phase II, January 31, 2017

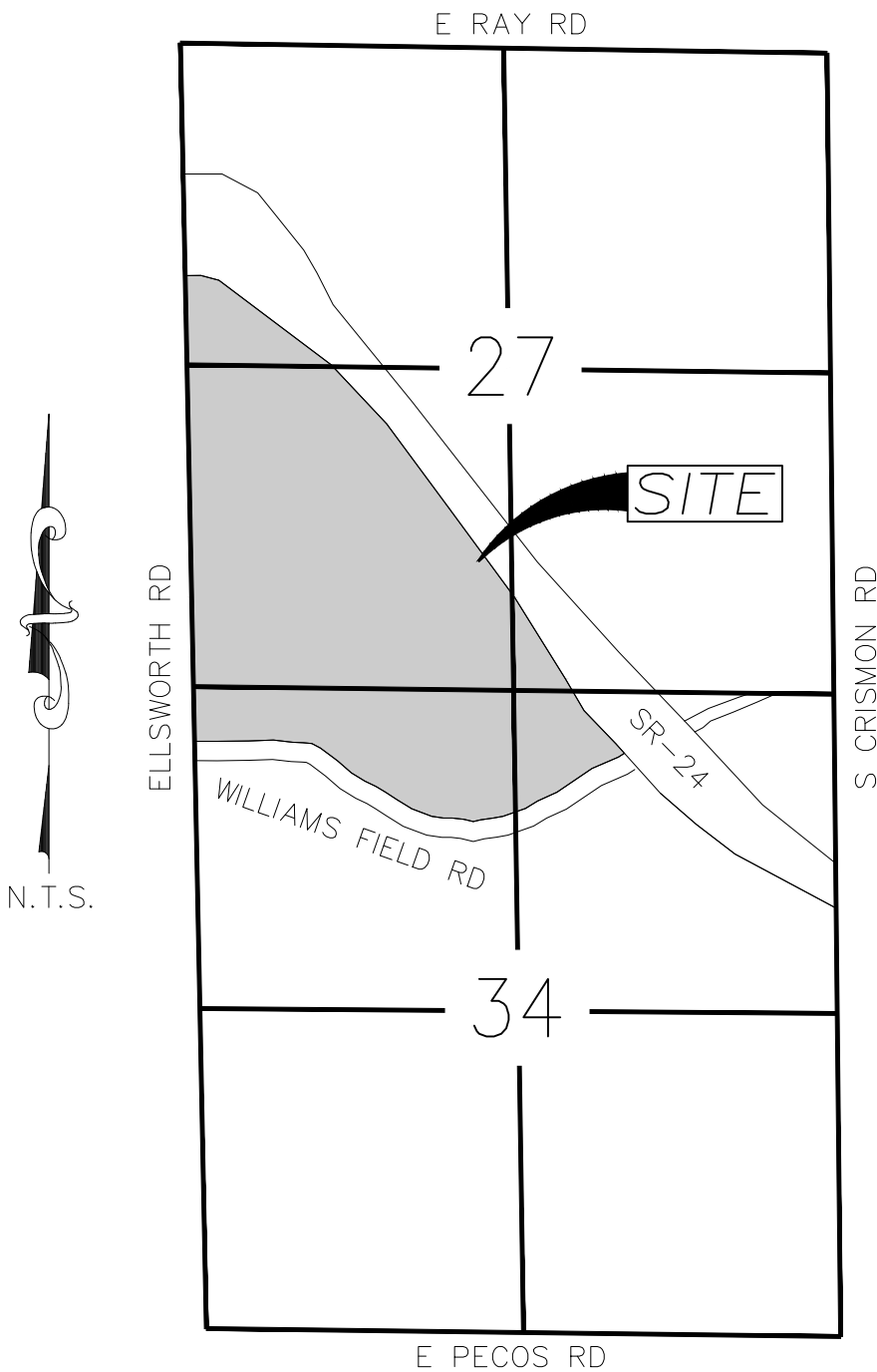
EXHIBITS

Subject:

LEGACY PARK

Job No.:

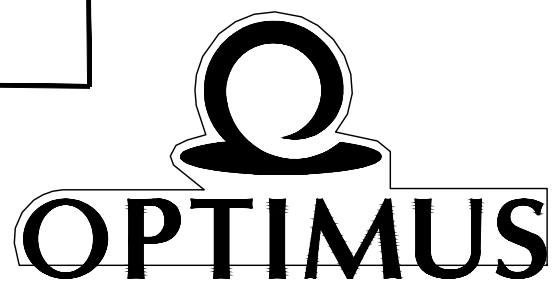
251461



VICINITY MAP

SECTION 27, T. 1 S, R. 7 E.
SECTION 34, T. 1 S, R. 7 E.

EXHIBIT A VICINITY MAP



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Date: 1/26

Checked By: TJM

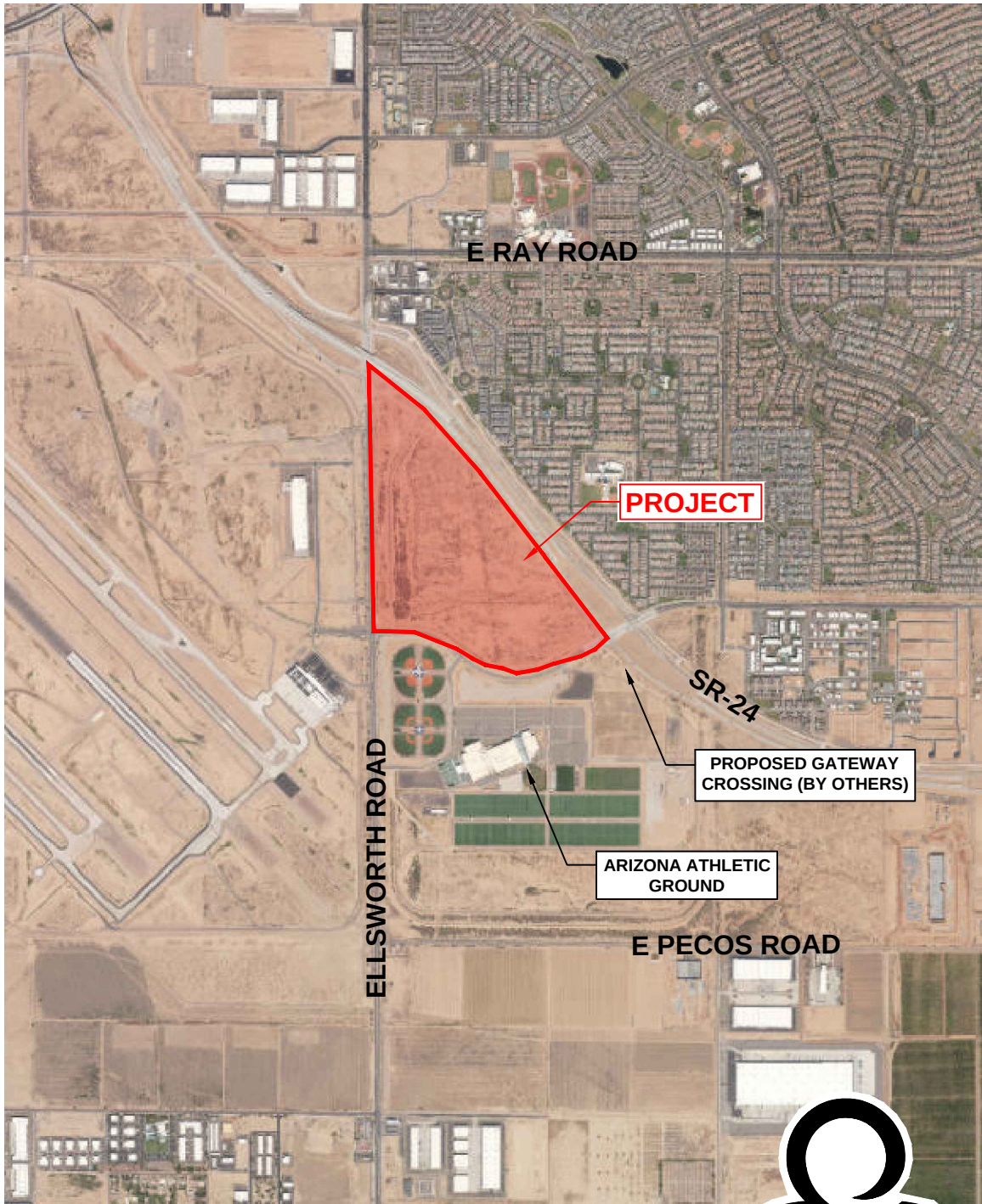
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Subject:

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EXHIBIT B
AERIAL MAP

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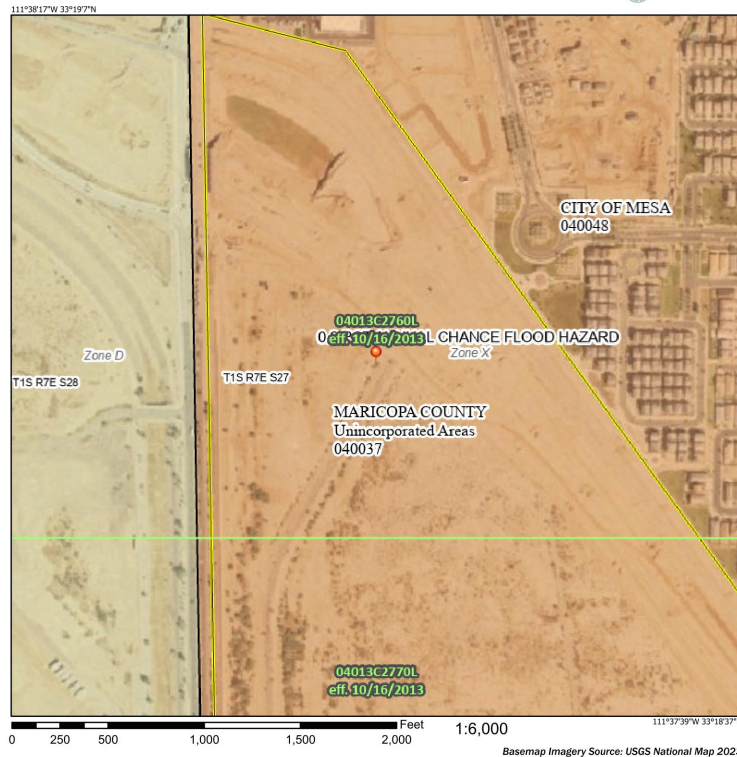
Subject:

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Job No.:

251461

National Flood Hazard Layer FIRMette



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes, Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
OTHER FEATURES		Levee, Dike, or Floodwall
		Cross Sections with 1% Annual Chance Water Surface Elevation
MAP PANELS		Coastal Transect
		Base Flood Elevation Line (BFE)
OTHER FEATURES		Limit of Study
		Jurisdiction Boundary
OTHER FEATURES		Coastal Transect Baseline
		Profile Baseline
OTHER FEATURES		Hydrographic Feature
		Digital Data Available
MAP PANELS		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/27/2026 at 4:36 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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EXHIBIT C-1

FIRM MAP

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Sheet No: 1 Of 3

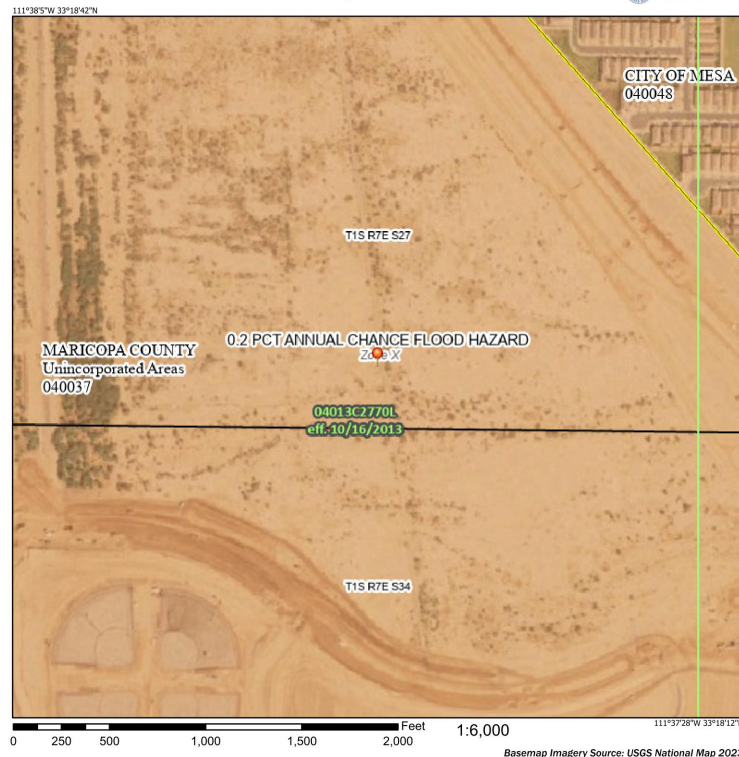
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EXHIBIT C-2

FIRM MAP

Prepared By: TJM

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Sheet No: 2 Of 3

Subject:

LEGACY PARK

Job No.:

251461

National Flood Hazard Layer FIRMette



Legend

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EXHIBIT C-3

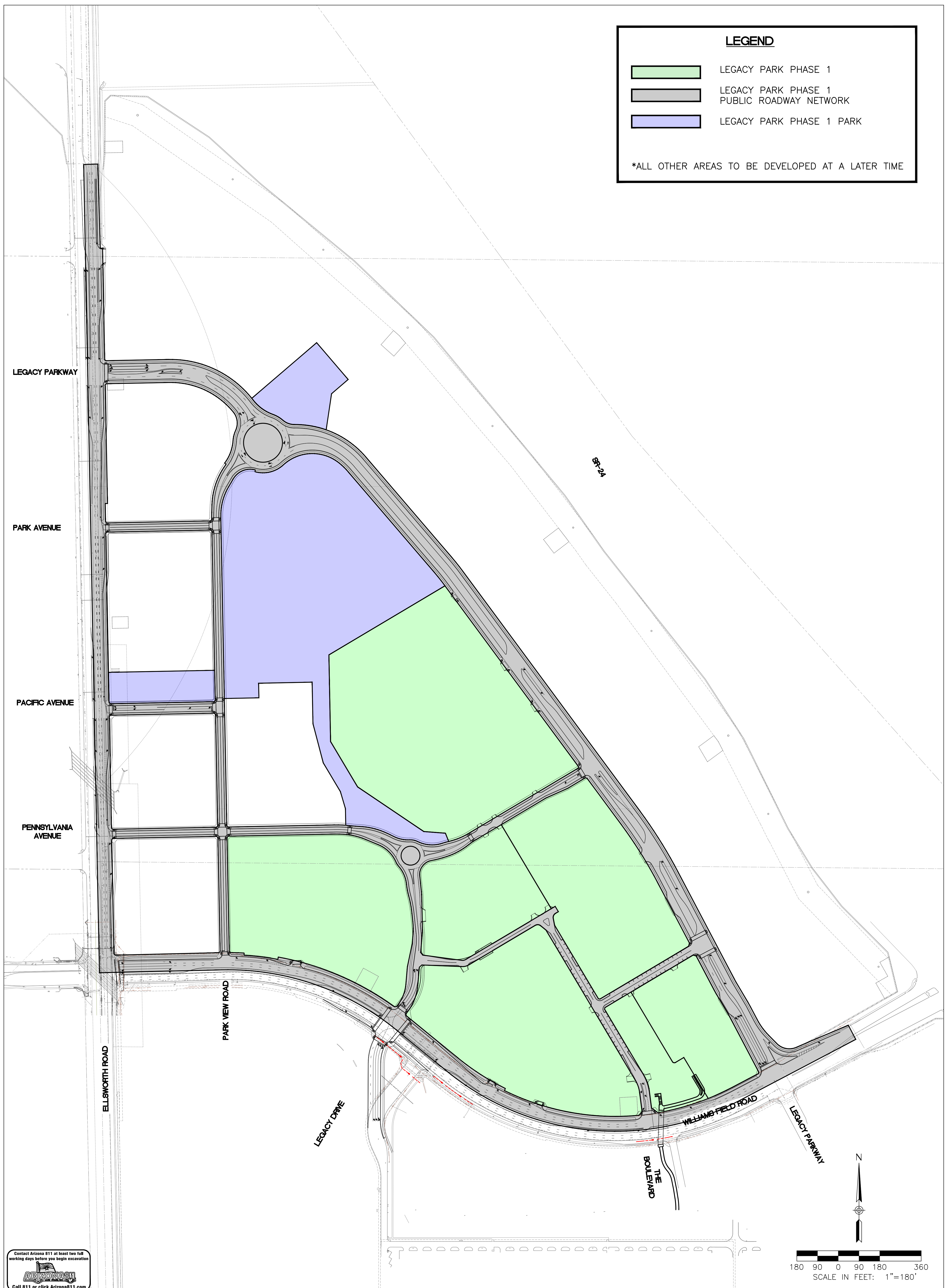
FIRM MAP

Prepared By: TJM

Date: 1/26

Checked By: TJM

Sheet No: 3 Of 3





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JOB NO.:	251461



LEGACY PARK
FUTURE ROAD NETWORK
MESA, AZ

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