

MAG On-Call Contract No. 1137A-0A

KYRENE BRANCH CANAL



SHARED USE PATH

Project Assessment Report



October 2022

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1. Introduction

The City of Chandler (City) is proposing to construct approximately one-mile of new 10-foot wide concrete shared-use pathway (SUP) along the Salt River Project's (SRP) Kyrene Branch Canal, beginning at the S. Kyrene Road and W. Knox Road intersection and continuing in a southwest direction to just south of Linda Lane, within the Warner Ranch subdivision. The majority of the project is located within SRP right-of-way. Additionally, the City is proposing a new signalized pedestrian crossing at Ray Road and a new signalized pedestrian crossing at Kyrene Road for safer bicycle and pedestrian connectivity. The purpose of this project is to expand the pedestrian and bicycle facilities along Kyrene Branch Canal.

The project has been identified in the Chandler Transportation Master Plan 2019 Update as a mid-term (2026-2030) Bicycle and Pedestrian Recommended project. This preliminary study is funded by the Maricopa Association of Governments (MAG) Active Transportation Design Assistance Program. Final design and construction will use both Federal and local funds. The project is listed in the FY 2022-2025 MAG Transportation Improvement Program (TIP) as CHN23-250 for design and CHN25-250 for construction with a total budget of \$3,949,579.40. It is included in the City's Capital Improvement Projects (CIP) for design in Fiscal Year (FY) 2023 and construction in FY 2025. This project will also include the design and construction of the Highline Canal Shared Use Path.

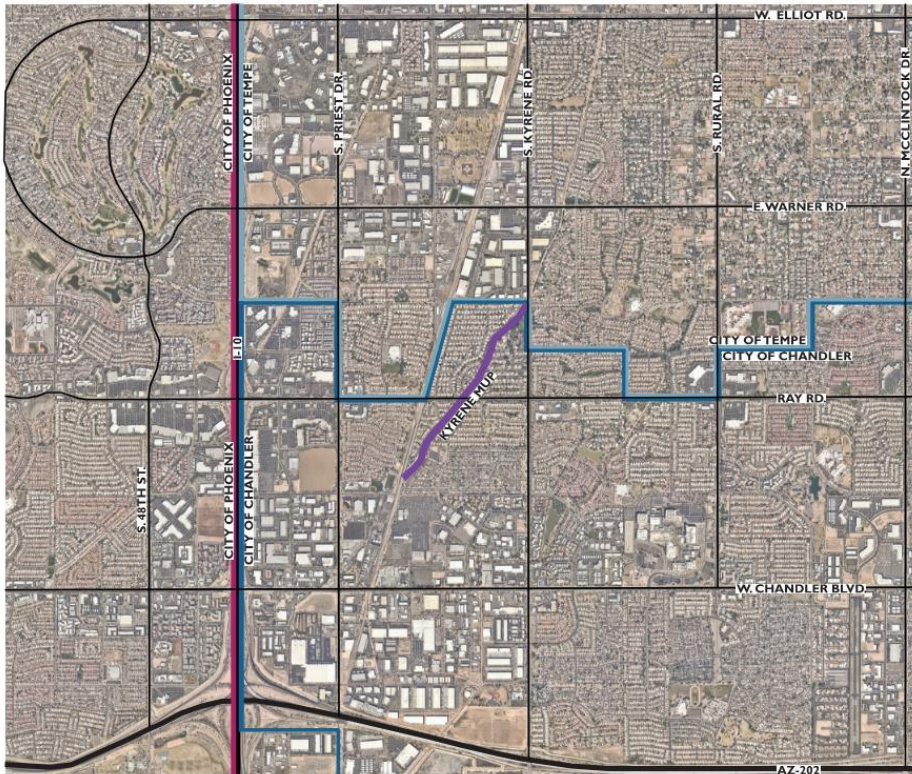


Figure 1 - Project Vicinity Map



Figure 2 - Project Location

2. Background Data

2.1 Need for the Project

Currently, the limits of the Kyrene Branch Canal concrete pathway extend from the Western Canal southwest to Knox Road, within the City of Tempe. Currently, an unpaved path continues southwest. This project will extend this important regional shared-use concrete pathway along the Kyrene Branch Canal an additional 0.9 miles from the current terminus at Knox Road to a new terminus south of Linda Lane, within the City of Chandler. This new concrete pathway will provide important connections to regional bicycle facilities, including the existing Kyrene Branch Canal SUP and the Western Canal Path, and will enhance the off-street bicycle and pedestrian network in the western part of the City for Chandler, Tempe, and other East Valley residents.



Figure 3 - Existing Kyrene Branch Canal Shared Use Path, Tempe

Throughout the Chandler Transportation Master Plan Update process, Chandler residents expressed a need for additional off-street or separated/protected bike facilities. This path would improve these off-street facilities in the western part of the City, where on-street bike lanes are abundant, but off-street, separated, or protected facilities are rare.



*Figure 4 - Kyrene Branch Canal Unpaved Path
 (North of Ray)*



*Figure 5 - Kyrene Branch Canal Unpaved Path
 (South of Ray)*

There is a moderate proportion of minority population (36%) in the project area and a lower than national average of families with income below the poverty level (5% vs. national average of 11.4%, US Census Bureau). There is a lower than national average of residents 65 years of age and over (9% vs. national average of 16.9%, US Census Bureau). 20% of the population in the vicinity are aged between 5 and 9 years. This path will especially benefit this population by separating these users from high-speed traffic and providing a safer, more comfortable bicycle and pedestrian environment.

From a transit perspective, there are two bus routes that this project connects to in the City of Chandler – Route 66 on Kyrene Road and Route 140 on Ray Road. There are nine bus stops within ¼ mile of the project.

2.2 Project Benefits

Extending a safe and continuous concrete pathway through the City of Chandler contributes to the regional goal of connecting Valley communities via off-street networks to accommodate all levels of users. Chandler and neighboring cities’ residents and employees will benefit from increased, equitable accessibility to regional and local employment opportunities, as well as recreation and commercial centers. The proposed pathway will provide additional safe and comfortable off-street bicycle and pedestrian connectivity benefitting Chandler, Tempe, and the region.

2.3 Areas of Interest

The Kyrene Branch Canal Shared Use Path will provide increased access to the following points of interest and recreation:

- Hanger Park
- Harelson Park
- Gila Springs Park
- Tempe Sports Complex

2.4 Traffic Configuration and Data

Kyrene Road is a four-lane arterial with a center two-way left turn lane. There is continuous sidewalk along the east side of Kyrene. The sidewalk is mostly continuous on the west side of Kyrene with a large gap near Knox Rd for approximately 520-feet. Pedestrian crosswalks are provided at the signalized intersection of Ray Road and Warner Road.



Figure 6 - Kyrene Road (Looking North)



Figure 7 - Kyrene Road Missing Sidewalk

Ray Road is a six-lane arterial with a landscaped median. There is continuous sidewalk along both sides of the road. Pedestrian crosswalks are provided at the signalized intersections of Kyrene Road and McKemy Avenue.



Figure 8 - Ray Road (Looking West)



Figure 9 - Ray Road (Looking East)

N. Roosevelt Avenue is primarily a private street, however, the Roosevelt Avenue bridge over the SRP Kyrene Branch Canal is public right-of-way. All other applicable streets within the project area are public local, including N. McKemy Avenue and W. Linda Lane.

2.5 Pedestrian/Bicycle System

Within the study area, there are a number of existing and proposed pedestrian and bicycle travel routes which will link to this new path alignment.

Existing and proposed pathways within and adjacent to the study area:

- Kyrene Branch Canal Multi-Use Path (MUP) – This City of Tempe 2.5-mile section of paved multi-use path connects the Western Canal MUP to Knox Road, south of Warner Road.
- Western Canal Multi-Use Path – This City of Tempe 6-mile section of paved multi-use path connects Arizona Mills Mall to Price Road. The Tempe segment of the Kyrene Branch Canal MUP connects directly with the Western Canal MUP.

This project will provide direct connectivity to the existing Kyrene Branch Canal Path located in Tempe as well as regional connectivity to the existing Western Canal Path.

Existing and proposed bicycle facilities within the study area are as follows:

- Existing bike lanes on W. Ray Road (Chandler)
- Existing bike lanes on N. Kyrene Road (Chandler)
- Bike lane improvement at intersection of Kyrene/Knox (Tempe)

This project will provide direct connectivity to the existing bike lanes along Ray Road and Kyrene Road.

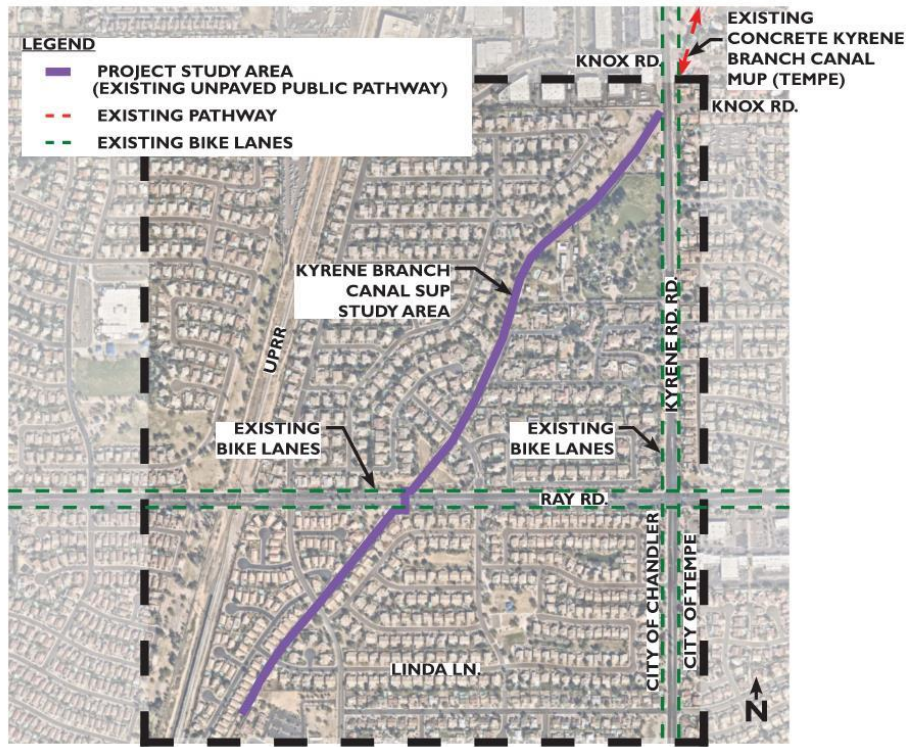


Figure 10 - Project Area Pedestrian and Bicycle Facilities

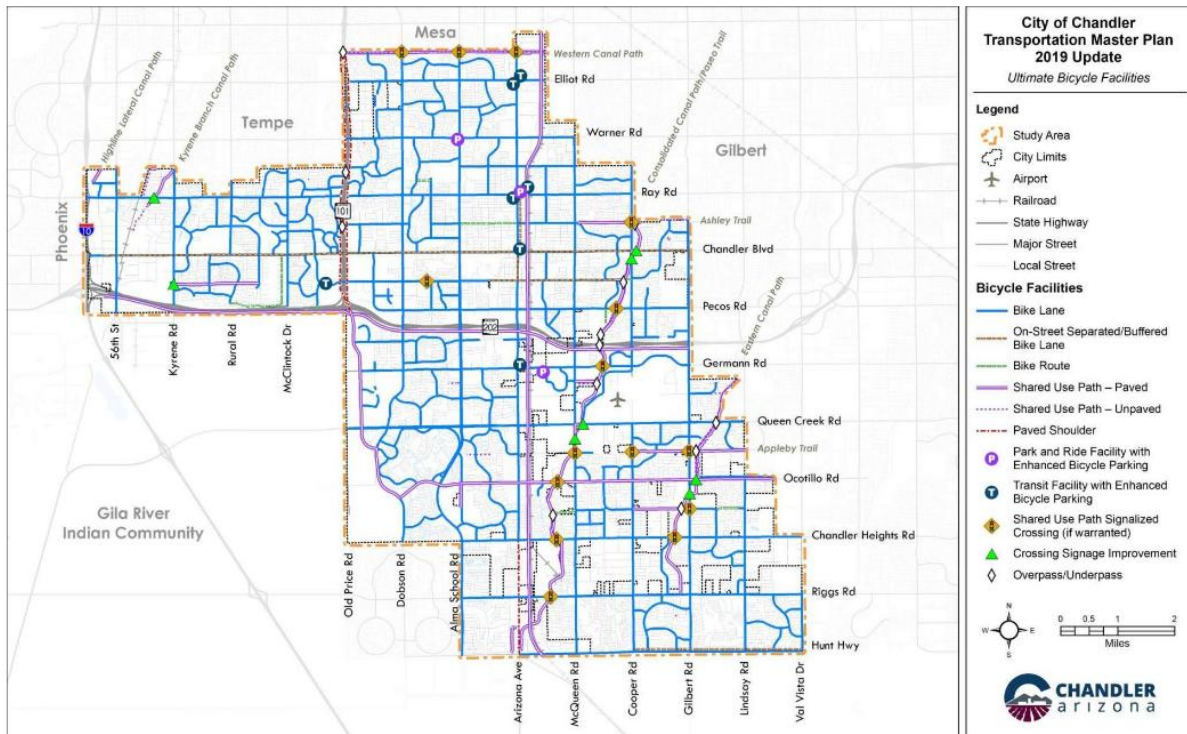


Figure 6-14. Ultimate Bicycle and Pedestrian Facilities by 2040

Figure 11 - Ultimate Pedestrian and Bicycle Facilities

2.6 Adjacent Land Use

Existing land use within the project area is primarily single-family residential, including AG-1, SF-8.5, SF-10, and three Planned Area Developments (PAD) Trovita, Tuscany, and Warner Ranch. The north end of the study area is located within the City of Tempe and includes General Industrial District (GID) adjacent land use. Adjacent land use information is shown in **Figure 12**.

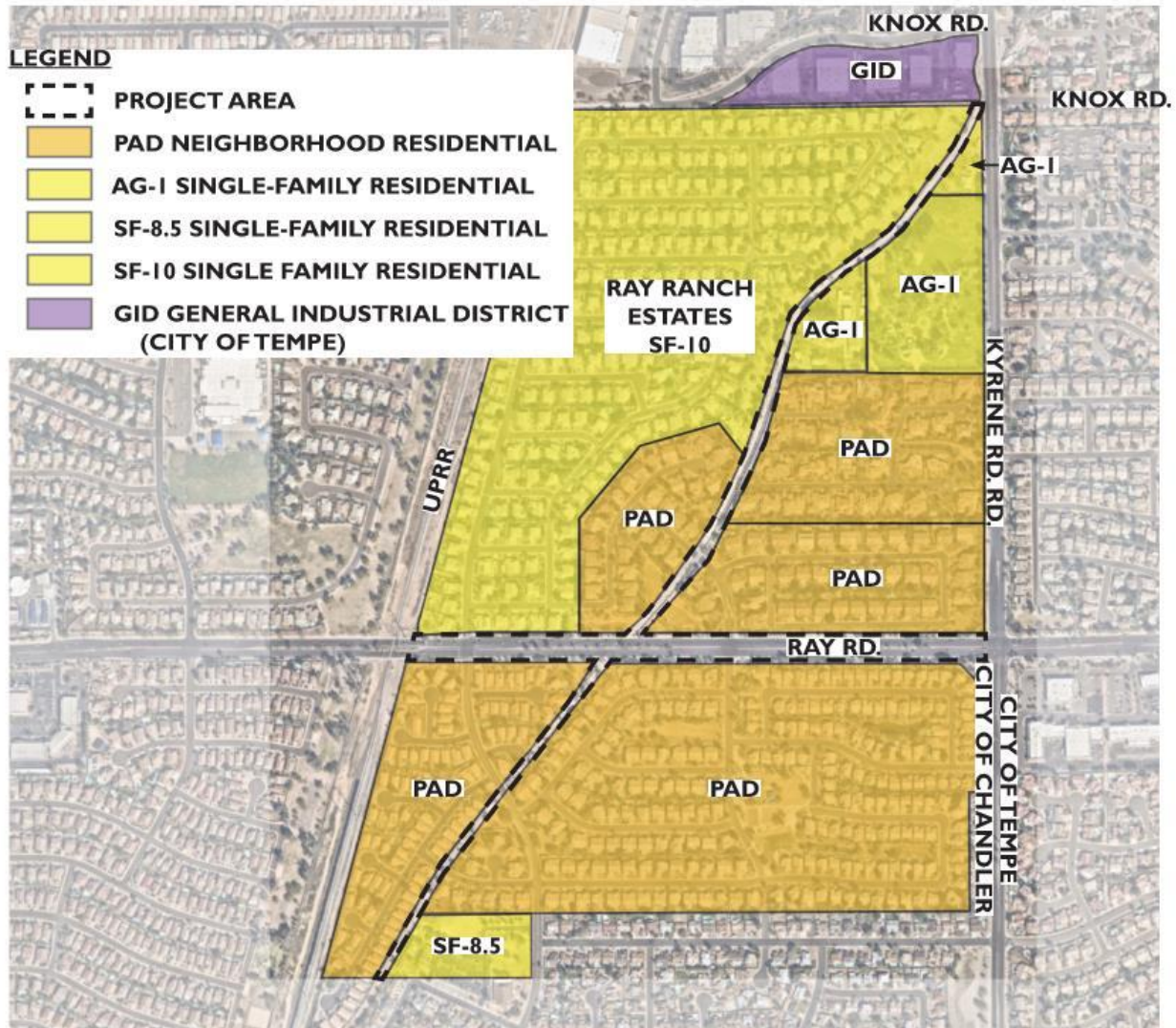


Figure 12 – Adjacent Land Use

3. Project Scope

3.1 Scope of Work

The City of Chandler is evaluating an approximate one-mile segment of unpaved shared-use pathway along the Kyrene Branch Canal. The scope of work for this project is to study and evaluate alternatives for providing new 10-foot-wide concrete shared-use pathway along SRP's Kyrene Branch Canal, between Kyrene Road at the Knox Road intersection to just south of Linda Lane. This study also provides alternatives for providing safer bicycle and pedestrian crossings at Knox Road and at Ray Road. Preliminary engineering is provided for the preferred alternative and included in a Project Assessment (PA) report, Preliminary (15%) Plans, and Cost Estimate. The crossing at Knox Road is located within the City of Tempe, requiring coordination with City of Tempe staff and input on the preferred alternative from City of Tempe Transportation and Engineering.

The study considered four alternatives of crossing types at Knox Road:

- High Intensity Activated Crosswalk (HAWK)
- Traffic signal
- Pedestrian Signal
- Rectangular Rapid-Flashing Beacon (RRFB)

The study considered three alternatives for crossing types at Ray Road:

- High Intensity Activated Crosswalk (HAWK)
- Pedestrian Signal
- Existing Traffic Signal (no new improvements)

The study also considered alternatives for crossings based on location. The Knox Road intersection with Kyrene Road is offset, so for the below discussion Knox Road is referred to as Knox Road north and Knox Road south. Three crossing alternatives based on location at Knox Road:

- Crosswalk on the north leg of Knox Road north
- Crosswalk mid-block between Knox Roads north and south
- Crosswalk on the south leg of Knox Road south

The study considered three crossing alternatives based on location on Ray Road at the Kyrene Canal Branch path crossing:

- Perpendicular crosswalk
- Diagonal crosswalk
- Two-stage crosswalk

Additional project elements that were considered include pathway lighting and wayfinding.

Each alternative is described and illustrated in **Section 4** below. Additionally, a crossing analysis matrix was developed for each location and can be found in **Appendix B**.

3.2 Method of Construction

This project will be delivered using the Design/Bid/Build method, enabling it to be awarded to the lowest responsive bid.

3.3 Key Project Stakeholders

Agency, technical, and adjacent project stakeholders include Maricopa Association of Governments (MAG), the City of Chandler, the City of Tempe, Adjacent Homeowner’s Associations, Salt River Project (SRP), Kimley-Horn (Consultant), MakPro Services (Subconsultant), atek Engineering Consultants (Subconsultant), AeroTech Mapping, Inc. (Subconsultant), and LandCor Consulting (Subconsultant).

3.4 Project Meetings

The project included the following stakeholder meetings:

Project Meeting No. 1: Project kick-off meeting with the Agency/Technical Stakeholders to introduce and provide an overview of the project, to outline project goals and objectives, to determine the design team members and organization, to review the project scope, project schedule, and meeting schedule. A field review was also performed by meeting attendees to further discuss and document existing conditions and possible design considerations.

Project Meeting No. 2: Post Data Analysis phase, concept alternative review meeting with the City of Chandler to gain consensus on the selection of a preferred alternative

Project Meeting No. 3: Concept alternative review meeting with City of Chandler and City of Tempe to present the concept alternatives and to get input on preferred alternative for improvements to be located with Tempe right-of-way.

Project Meeting No. 4: Path alignment review meeting with the City of Chandler and Salt River Project (SRP) to verify SRP requirements for public recreational amenities within SRP canal rights of way and to confirm plan review and licensing process.

Stakeholder Outreach: MakPro Services, LLC is providing stakeholder outreach and coordination during the preliminary design of the Kyrene Branch Canal Shared Use Path project. Outreach includes identifying and contacting area residents and community managers for HOAs (homeowner’s associations) adjacent to the project area. The information was also distributed via Chandler’s social media distribution on NextDoor to neighborhoods

near the project. A project webpage with project information was created on the City of Chandler website at ChandlerAz.gov to provide an opportunity for residents to provide feedback or ask questions. Lastly, a project hotline was established to receive comments related to the project.

Public Meeting: Open house public outreach meeting to introduce the study area, present the preferred alternatives for improvements, and obtain public comments. The open house presented information from both the Kyrene Branch Canal Shared Use Path project and the Highline Canal Shared Use Path project. The public meeting was held on August 22, 2022. The public input summary can be found in **Appendix D** (note: public input summary included for both Kyrene Branch Canal and Highline Canal Shared Use Paths). The following eight graphics pertaining to the Kyrene Branch Canal Shared Use Path project were provided at the open house public meeting as 24" x 36" boards (See **Appendix C**):

- East Valley Existing Path Network
- City of Chandler Transportation Master Plan (2019 Update) Bicycle & Pedestrian Recommendations 2020-2040
- Kyrene Branch Canal and Highline Canal Shared Use Path – Land Use and Rights-of-Way
- Project Purpose, Objectives, & Schedule
- Kyrene Branch Canal – Project Area Key Map & Proposed Improvements
- Kyrene Branch Canal – Knox Road Pedestrian Crossing (Located in the City of Tempe)
- Kyrene Branch Canal – Ray Road Pedestrian Crossing
- Kyrene/Highline Canal Shared Use Path – Potential Project Elements

3.5 Project Assessment Report

This Project Assessment report provides a summary of the project, information collected, analysis performed, project needs/benefits, concept alternatives, and preferred concept. The report summarizes stakeholder feedback, presents the preferred alternative, and provides Preliminary 15% Plans and cost estimate.

3.6 Preliminary Plans

Preliminary (15%) Plans can be found in **Appendix A** of this document.

4. Concept Alternatives

4.1 Concept Alternatives

A conceptual shared use pathway alignment was developed for the project limits. This alignment follows along the west side of the Kyrene Branch Canal. Four concept alternatives were developed for safer crossing at Knox Road at the northern limits of the project and three concept alternatives were developed for safer crossing of Ray Road, generally mid-way through the project limits. The following provides a general view of the project limits, typical sections for the canal pathway, and crossing alternatives.

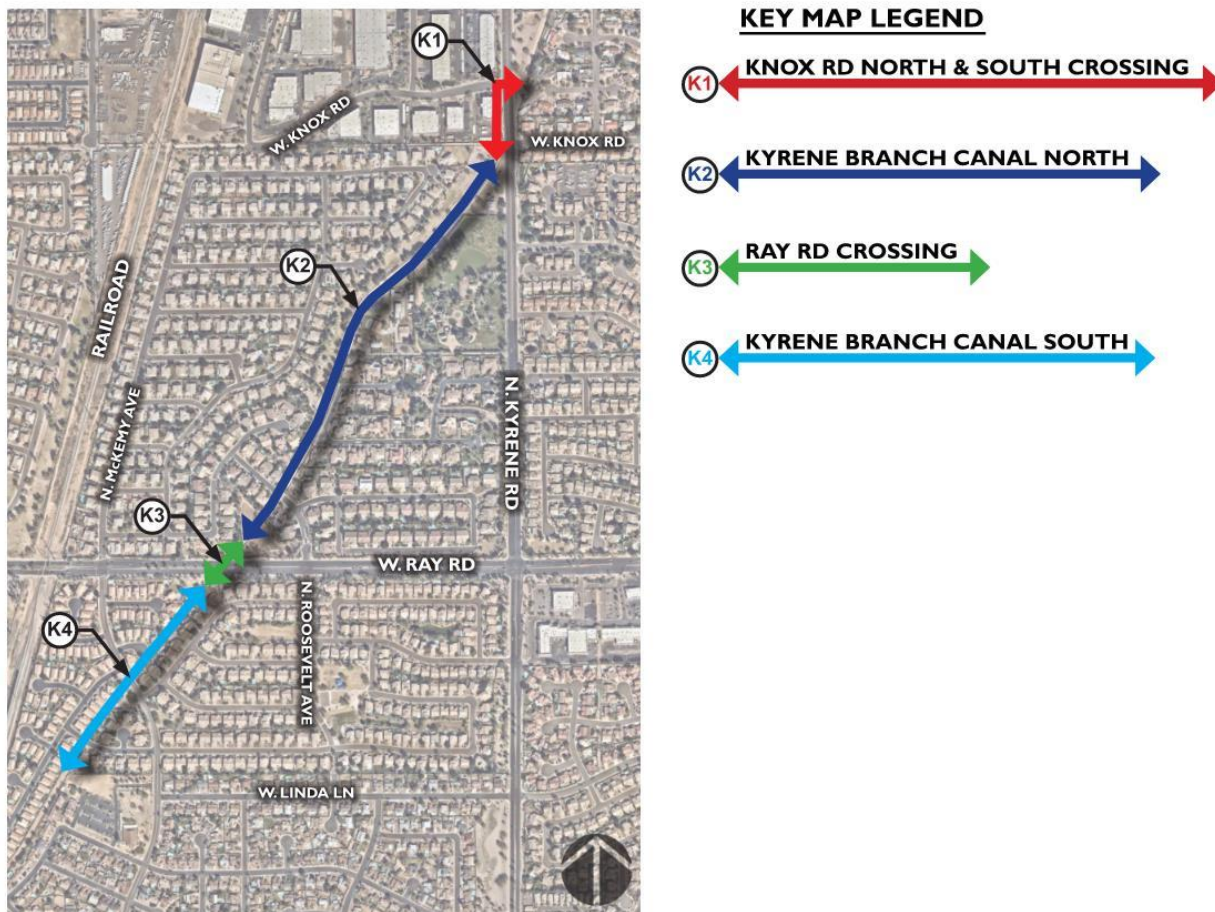


Figure 13 - Kyrene Project Area Key Map

Below are the proposed typical sections of shared use pathway for Segments K2 and K4 adjacent to the Kyrene Branch Canal and includes a 10-ft wide concrete shared-use pathway, 2-ft bench adjacent to the path, and new path lighting:

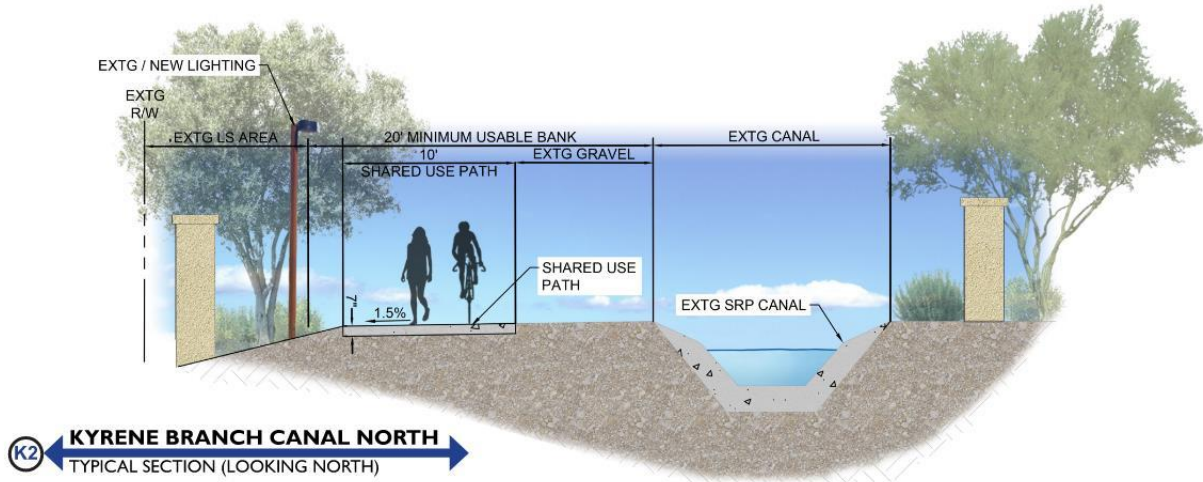


Figure 14 - Shared Use Pathway Typical Section - Kyrene Branch Canal North - **Segment K2**

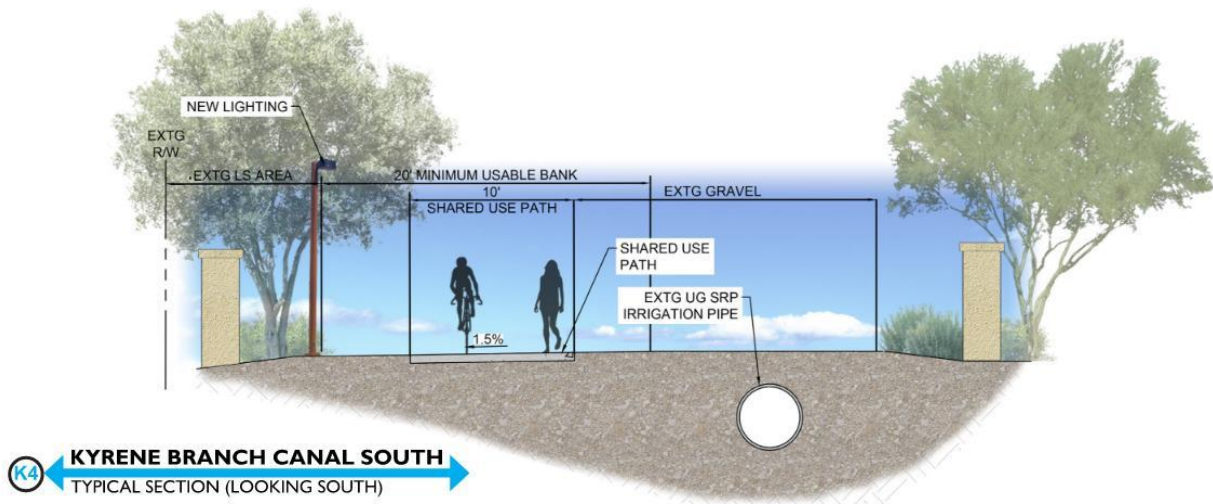


Figure 15 - Shared Use Pathway Typical Section - Kyrene Branch Canal South - **Segment K4**

Below are options for providing a signalized crossing at Kyrene Road, north Knox Road:

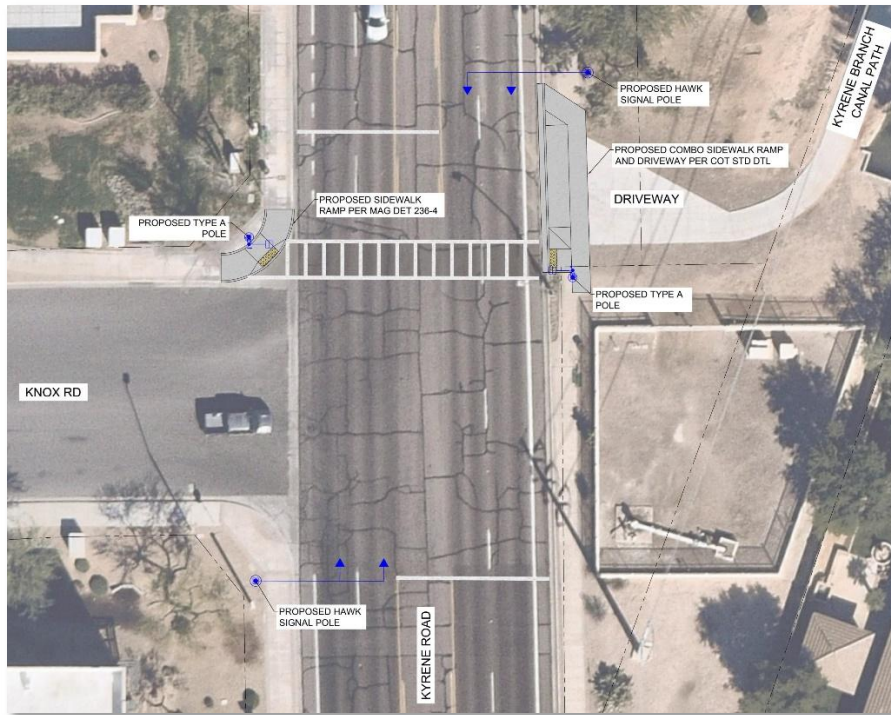


Figure 16 - Proposed Pedestrian (or HAWK) Signal - **Segment K1 - Option A**

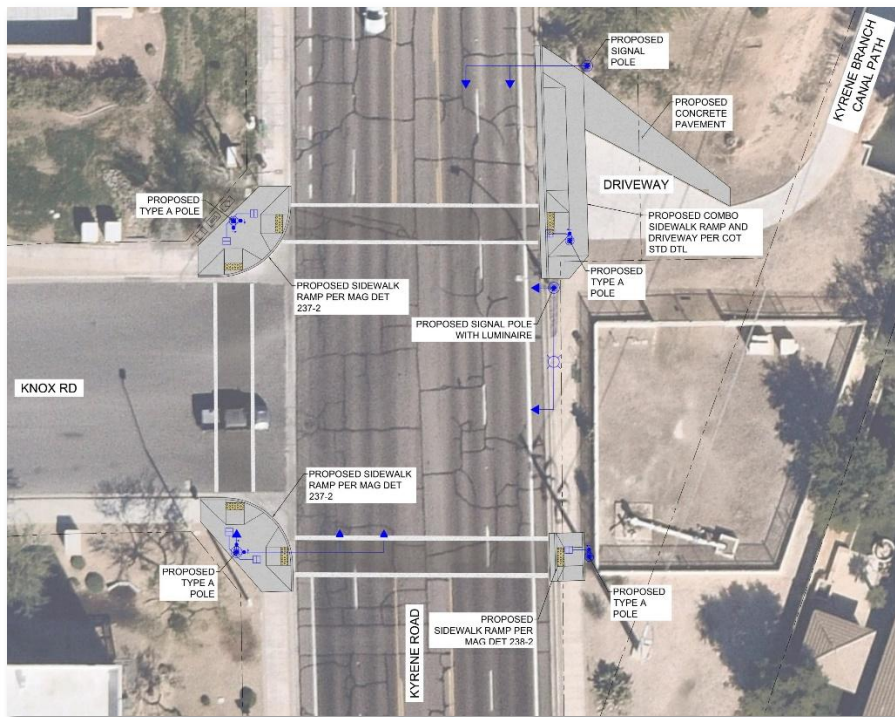


Figure 17 - Proposed Traffic Signal - **Segment K1 - Option B**



Below are options for providing a signalized crossing at Kyrene Road, between north Knox Road and south Knox Road:



Figure 18 - Proposed Pedestrian (or HAWK) Signal - **Segment K1 - Option C**

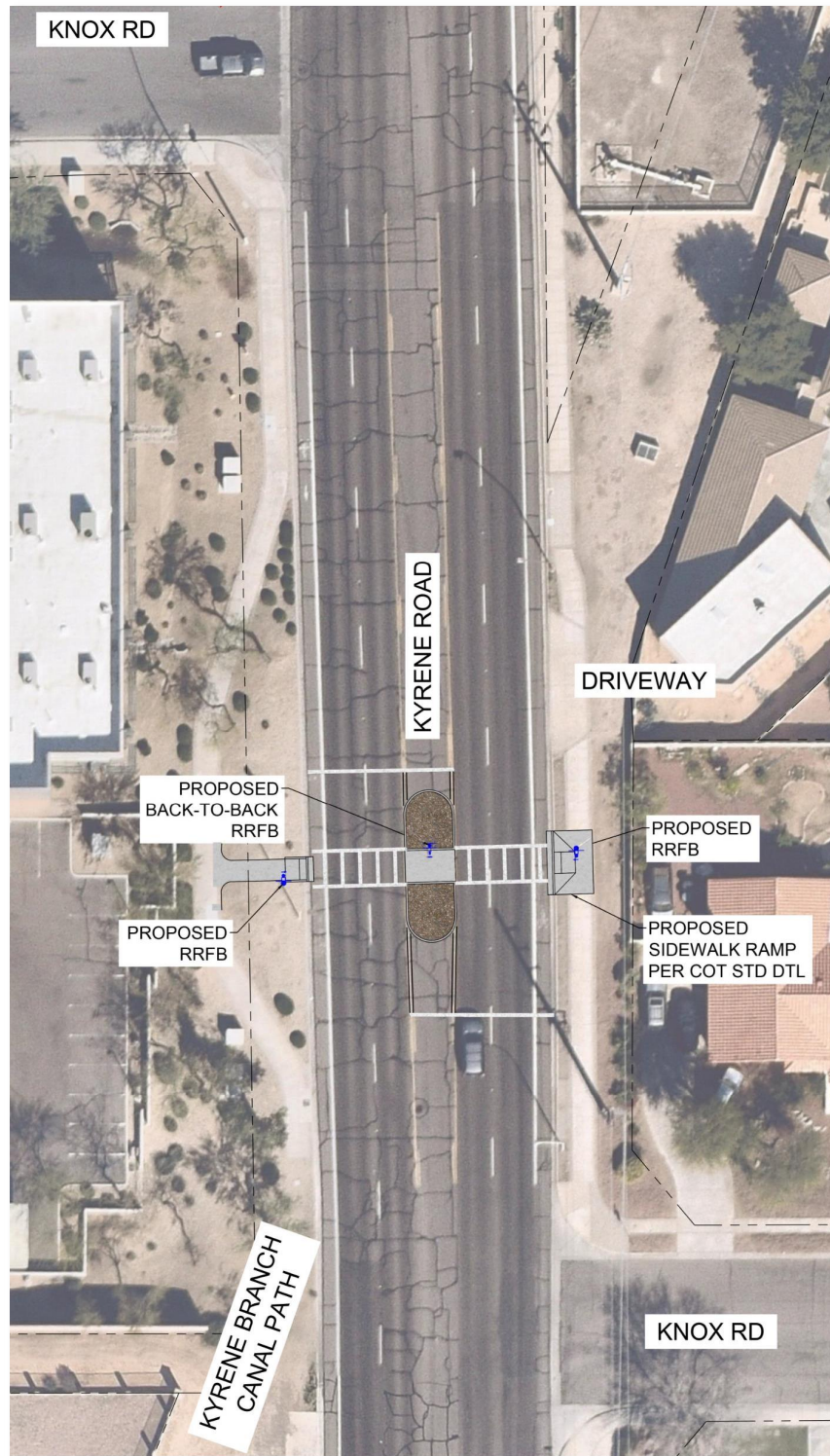


Figure 19 - Proposed Rectangular Rapid-Flashing Beacon (RRFB) - **Segment K1 - Option D**

Additionally, we evaluated a crossing located at south Knox Rd. Discussion of this crossing is included in the Alternative Evaluation Matrix that can be found in **Appendix B**.

Below are options for providing a signalized crossing at Ray Road, generally mid-way between Kyrene Road and McKemy Ave:



Figure 20 - Proposed Pedestrian Signal (or HAWK) Perpendicular Crossing - **Segment K3 - Option A**

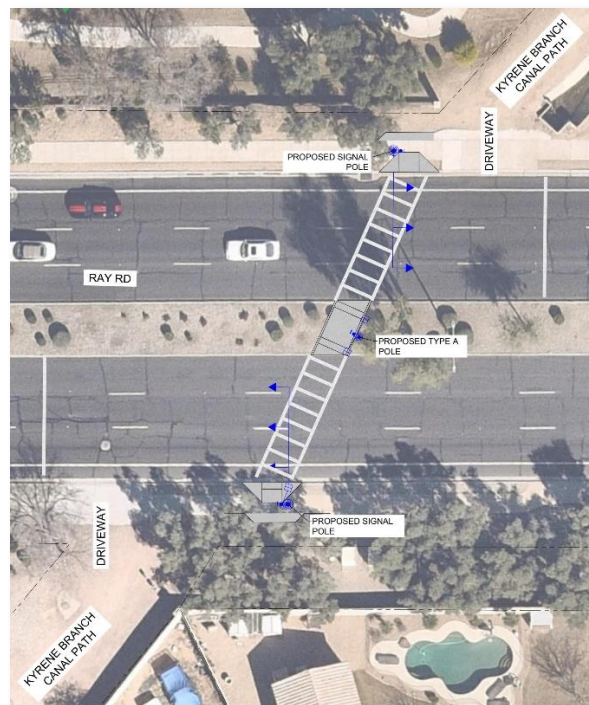


Figure 21 - Proposed Pedestrian Signal (or HAWK) Diagonal Crossing - **Segment K3 - Option B**

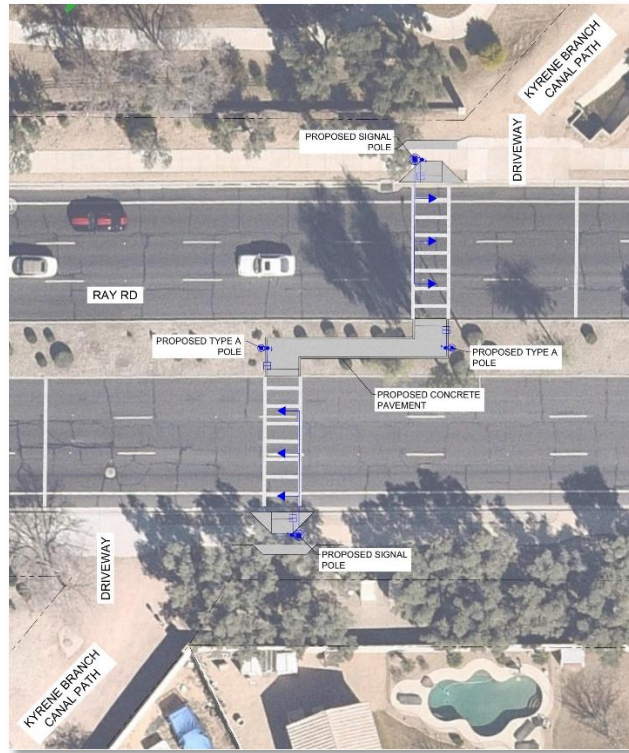


Figure 22 - Proposed Pedestrian Signal (or HAWK) Two-Stage Crossing - **Segment K3 - Option C**

4.2 Preferred Alternative

Based on input from the stakeholders, including the City of Chandler, City of Tempe, SRP, and area residents, the preferred alternative includes a full traffic signal at Kyrene Road (**Segment K1 - Option B**) and a pedestrian signal with two-stage crossing at (**Segment K3 - Option C**).

Preferred alternative exhibits are provided below:

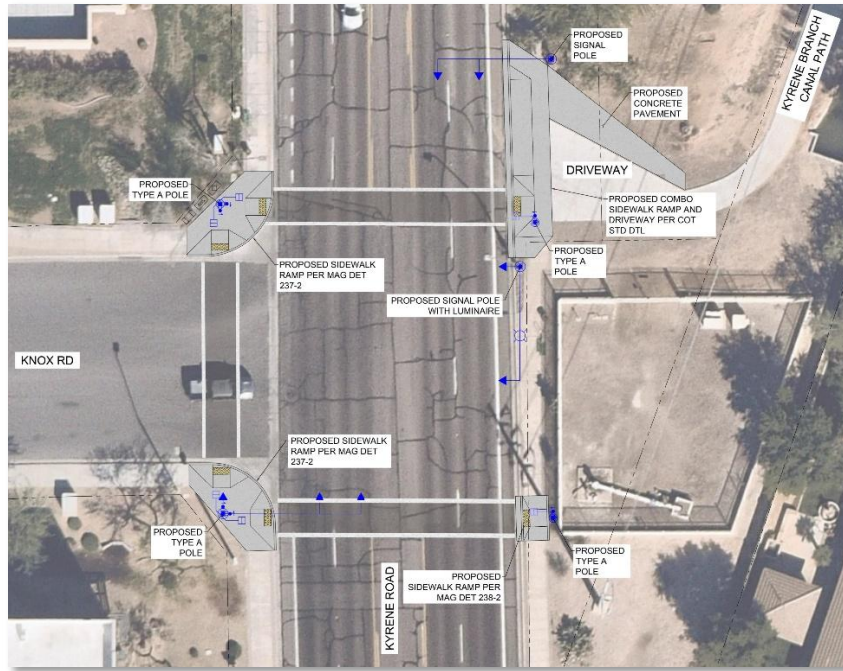


Figure 23 - Proposed Traffic Signal - **Segment K1 - Option B**



Figure 24 - Proposed Pedestrian Signal Two-Stage Crossing - **Segment K3 - Option C**

The preferred crossing alternatives at Knox Road/Kyrene Road and at Ray Road were selected for the following benefits:

- Provides protected and convenient crossing for path users
- Increases total length of pathway for increased use
- Improves connectivity between neighborhoods
- Improves visibility of vehicular traffic

Based on feedback from SRP and the public, the proposed path adjacent to Kyrene Branch Canal north of Ray Road will be constructed as a 7-inch thick, reinforced concrete path. The path will be located on the operational bank of the canal and will have periodic maintenance activities with SRP maintenance vehicular traffic. The path will be located a minimum of 8-feet from the top of bank to provide maintenance access and a thickened, reinforced slab will be provided for additional strength to prevent damage from maintenance vehicles.

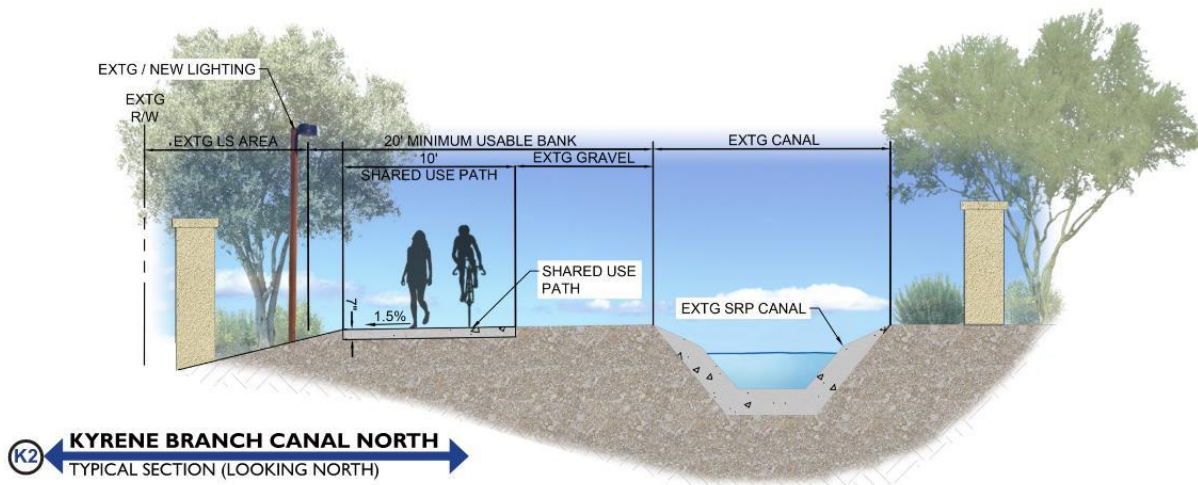


Figure 25 - Shared Use Pathway Typical Section - Kyrene Branch Canal North - **Segment K2**

Other Preferred Alternative Elements.

Path Lighting. There is some existing pathway lighting along the existing canal path. Supplemental path lighting is proposed for more uniform lighting coverage and increased safety. Strategies will be applied where needed to shield from adjacent residences. Shields will prevent light spillage into residential properties. The selected light fixture was chosen to match the existing fixture currently found along the path:



Figure 26 - Kim Curvilinear Cutoff LED Area Light

Wayfinding/Site Amenities. Other selected amenities include seating at a rest node proposed at the south end of the project limits as well as Valley Path brand way finding at key locations along the path:



Figure 27 - Valley Path Brand Wayfinding



Figure 28 - Concrete Seat Wall Example

5. Project Development Considerations

5.1 Final Design Considerations

Based on feedback received from the public, the following strategies will be explored during final design to better address these key concerns:

- Provide shields on path lighting to prevent light spillage into private residences
- Coordinate with SRP to determine if gates can be included to restrict vehicular access
- Explore solutions to reduce visibility into adjacent residential back yards
- Install pet waste stations and trash receptacles along pathway
- Coordinate with the City of Tempe to explore extending sidewalk south from the canal on the west side of Kyrene Road where there is currently a gap in the sidewalk
- Explore end-of-trail access near Linda Lane, including coordinating with the Valley Unitarian Universalist Church about potentially partnering on trailhead parking and trail access
- Explore signage and other potential solutions to clearly differentiate private property from the public right-of-way
- Reduce the scale of or consider an alternative location for vertical elements (such as wayfinding and trail amenities) in areas with high visibility from existing residential areas
- Consider alternatives to pavement markings on residential street crossings
- Consider strategies to minimize bicycle and pedestrian conflicts through alternative design considerations, such as concrete texturing or modifying concrete width, if needed

5.2 Environmental Requirements

Environmental Requirements

A Categorical Exclusion (CE) Checklist will be appropriate National Environmental Policy Act (NEPA) documentation for the project. The supporting technical documentation will include a Biological Evaluation Short Form (BESF), Preliminary Initial Site Assessment (PISA), asbestos/lead sampling, Section 4(f) review, and a review of cultural resources.

Biological Resources

Based on the project scope of work, we anticipate that a BESF will be appropriate for this project. A BESF will be completed by a qualified biologist during the environmental clearance process.

Wetland and Riparian Areas

The Kyrene Canal is mapped as riverine; however, no wetland or riparian areas are present in the project limits.¹

¹ <https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/>

Section 401/404 of the Clean Water Act

No potential waters of the U.S. (WOTUS) are located within the project limits; therefore, a Preliminary Jurisdictional Delineation and Section 404/401 permitting will not be required.

Floodplain Encroachment

The project is located on FEMA FIRM Panel 04013C2705L, which has an effective date of 10/16/2013. Zone A floodplain is located along the west side of the Kyrene Canal.² Impacts to floodplains typically occur when the topography within a floodplain is substantially modified either by placement or removal of materials within the floodplain. Although the proposed path is located in Zone A within the floodplain, the minor scope of work is not anticipated to substantially modify the floodplain. Analysis of potential floodplain impacts will be determined during final design.

Sole Source Aquifer

The project is not located within a Sole Source Aquifer.³

Cultural Resources

In accordance with Section 106 of the National Historic Preservation Act, a Class I records review will be completed to document any cultural inventories and/or sites that may occur within the project area and a half-mile buffer around it. A preliminary review of AZSITE indicates that nine previous projects have been undertaken within the buffer, including transmission lines east and west of the project alignment and a housing development on the northwest corner of Ray Road and Kyrene Road that borders the project area. Except for a buried telecom line along the Ray Road corridor, no surveys are shown within the path alignment. Only two sites have been recorded in the buffer - the Kyrene Canal itself and the Maricopa and Phoenix Railroad. The former has been determined eligible for inclusion on the National Register of Historic Places; portions of the latter have been determined ineligible. Both are currently in-use structures. Maricopa County property records indicate that the project area runs through primarily residential development constructed after 1990. However, the northern end of the alignment borders a notable, modern (1984) property, the Chateau de Vie, and one historic-age (1950) property. Open space adjacent to the path is primarily owned privately (HOAs). Because the alignment has not been surveyed previously, a Class III field survey of the project area, including an architectural assessment of potentially significant standing buildings, is recommended to determine if the shared-use path will have a potential adverse effect on cultural resources.

Section 4(f) Resources

The project is subject to Section 4(f) of the United States Department of Transportation (USDOT) Act of 1966 (49 U.S.C. 303). Based on preliminary review, the existing Kyrene

² <https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html>

³ <https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=9ebb047ba3ec41ada1877155fe31356b>

Branch Canal Path should be evaluated as a potential Section 4(f) resource. Potential impacts to Section 4(f) properties will be evaluated during the environmental clearance process.

Section 6(f) Resources

Section 6(f) of the Land and Water Conservation Fund (LWCF) Act of 1965 (16 U.S.C. 4601-4 et seq.) applies to all transportation projects, regardless of funding source or approval authority, which propose to use land from a Section 6(f) property. Based on preliminary review, there are no potential protected Section 6(f) properties in the project limits.⁴ Potential impacts to Section 6(f) properties will be evaluated during the environmental clearance process.

Visual

Due to the project scope, no visual impacts are anticipated. Therefore, visual analysis is not required.

Scenic and Historic Route

The project is not located on scenic road or historic route.^{5,6}

Socioeconomic Impacts

No residential or commercial displacements will occur as a result of this project. Detours will not be required for this project, but lane closures are anticipated. Disproportionate impacts to protected populations are not anticipated.

Hazardous Materials

A PISA and sampling for asbestos/lead will be conducted by an ADOT approved consultant during the environmental clearance process to further investigate the potential for facilities with hazardous materials concerns.

Noise

Sensitive noise receptors are located in the project vicinity; however, the proposed project does not involve adding traffic capacity to existing roadway or altering roadway alignments. Construction noise will be temporary and controlled by appropriate means and methods.

AZPDES Stormwater Permit

Construction will disturb more than one acre of land; therefore, a Section 402 [Arizona Pollutant Discharge Elimination System (AZPDES)] permit and a Stormwater Prevention Pollution Plan (SWPPP) will be required from the Arizona Department of Environmental Quality (ADEQ).

⁴ <https://lwcf.tplgis.org/mappast/>

⁵ <https://azdot.gov/about/historic-and-scenic-roads/list-scenic-roads>

⁶ <https://azdot.gov/about/historic-and-scenic-roads/list-historic-roads>

Air Quality

The project is located in the Phoenix Carbon Monoxide maintenance area, the Phoenix Ozone 8-Hour non-attainment area, and the Phoenix PM10 non-attainment area. Due to the nature of the work this project requires, it is exempt from conformity regulations. This project will not have a negative effect on air quality in the area; therefore, quantitative air quality analysis is not required.

Agency Scoping

Agency scoping will be completed during the environmental clearance process in the form of scoping letters and will be documented in the CE.

5.3 Geotechnical Requirements

A desktop geotechnical study for this project was provided by ATEK Engineering Consultants, and is included in **Appendix E**, dated April 20, 2022. The purpose of this desktop geotechnical study was to evaluate the subsurface conditions based on published soil information at the proposed site to develop general geotechnical engineering recommendations for a shared use path and two new signalized pedestrian crossings.

The recommendations contained in the geotechnical study are based on existing soil information published by Arizona Geological Survey, Natural Resources Conservation Service, and Arizona Department of Water Resources and should be confirmed prior to final design and construction. No soil test borings and analysis were included. Generally, the site is considered suitable for the proposed construction, provided that geotechnical design and construction recommendations are determined prior to final design and construction.

5.4 Maintenance Requirements

The majority of the improvements will be maintained by the City of Chandler. The Knox Road crossing will be located within the City of Tempe and will be maintained by the City of Tempe. An Intergovernmental Agreement (IGA) will be required between the City of Chandler and the City of Tempe for final design and construction of the improvements.

5.5 Recreational Considerations

The proposed improvements included in this study provide additional connectivity to and expansion of the Kyrene Branch Canal Path - an important regional pathway and link to other regional path systems. Additional off-street bicycle and pedestrian facilities increases recreational opportunities to the adjacent neighborhoods, Chandler residents, and regional path users.

5.6 Sustainability Considerations

Through an increase in non-vehicular options for travel, opportunities increase for a greater number of people to elect alternative or active modes of travel. This increase in active transportation improves both physical and mental health. This increase contributes to cultivating healthy, multi-modal transit behavior, thereby encouraging sustainable practices within a community. The more non-vehicular travel increases, the more associated reductions in air pollution from vehicular travel will occur. Additionally, providing a concrete shared use pathway in place of the existing gravel pathway will contribute to a reduction in dust pollution from SRP vehicles periodically traversing the canal bank for maintenance purposes. Through a regional off-street active transportation network, community livability, levels of service, user satisfaction, and system accessibility are all greatly improved.

Another consideration to support sustainable practice is through the careful selection of materials and elements of the project. In terms of materials, manufacturing concrete is a high energy and water-intensive process. The Sustainable SITES Initiative (SITES®) recommends specifying sustainable concrete from manufacturers using supplementary cementing materials, like fly ash.

5.7 Concurrent Planning Efforts

Chandler General Plan 2016

The Chandler General Plan 2016 establishes the latest vision and policies to be used to guide development decision making. The Chandler General Plan 2016 is organized in a series of topics that tie directly to the community’s vision and is based three guiding principles: Strategic community building, focused stewardship, and strong community foundation. Strategic community building sets the framework for physical development to occur and identifies the importance of pedestrian and bicycle amenities as a community placemaking policy for land use and development. A comprehensive bicycle and pedestrian network are critical to Chandler’s vision of connecting major destinations with and near the community. This philosophy forwards the city’s vision of becoming an environmentally friendly city, supporting multimodal transportation goals, and promoting a healthy Chandler.

Chandler Transportation Master Plan 2019 Update

The Chandler Transportation Master Plan 2019 Update looks at transportation conditions, needs, and recommends transportation improvements within the City. The vision for this Plan is to *Develop an environmentally friendly, multimodal transportation system that leverages technology and provides choices to make Chandler known as the “Most Connected City”*. The Transportation Master Plan 2019 Update identifies a paved shared use path along the Kyrene Branch Canal and signalized path crossings as a mid-term (2026-2030) Bicycle and Pedestrian Recommendation.

City of Chandler Parks Strategic Master Plan July 2021

The City of Chandler Parks Strategic Master Plan, July 2021, provides the City with a roadmap for future development and improvement of recreational facilities and opportunities. A recommended priority identifies a bike/trail master plan as an important action to improve access, maintain quality, and increase connectivity in the bicycle and pedestrian facilities. Paved walking and biking trails were ranked number one in the list of Top Priorities for Investment for Facilities.

City of Chandler 2023-2032 Proposed Capital Improvement Program (CIP)

The City of Chandler 2023-2032 Proposed Capital Improvement Program (CIP) provides a financial plan to assist the City Council and City management with meeting their long-term goals and objectives for the City by planning for capital improvements required to help provide quality services at the lowest cost to the citizens of Chandler. The Kyrene Branch and Highline Canal Shared Use Path is listed in the 2023-2032 CIP for design in Fiscal Year (FY) 2023 and construction in FY 2025.

2005 MAG Pedestrian Policies and Design Guidelines

The Pedestrian Policies and Design Guidelines are “intended to provide a source of information and design assistance to support walking as an alternative transportation mode. Through application of the policies and design guidance in this document, jurisdictions, neighborhoods, land planners, and other entities will be able to: 1) better recognize opportunities to enhance the built environment for pedestrians; 2) better create and redevelop pedestrian areas throughout the region that integrate facilities for walking with other transportation modes; 3) support the development of areas where walking is the preferred transportation mode; and 4) encourage the development of other independent pedestrian focused transportation facilities”.

5.8 Preliminary Right-of-Way Requirements

The majority of the project improvements will be located within Salt River Project’s (SRP) right-of-way and will require a land use license agreement between SRP and the City of Chandler. The proposed signalized pedestrian crossing of Ray Road will be located within City of Chandler right-of-way. The proposed signalized pedestrian crossing at Knox Road and Kyrene Road will be located within the City of Tempe right-of-way. Partial sidewalk improvements at Knox Road and Kyrene Road are located within SRP right-of-way and will require a land use agreement between SRP and the City of Tempe. No right-of-way acquisition is anticipated.

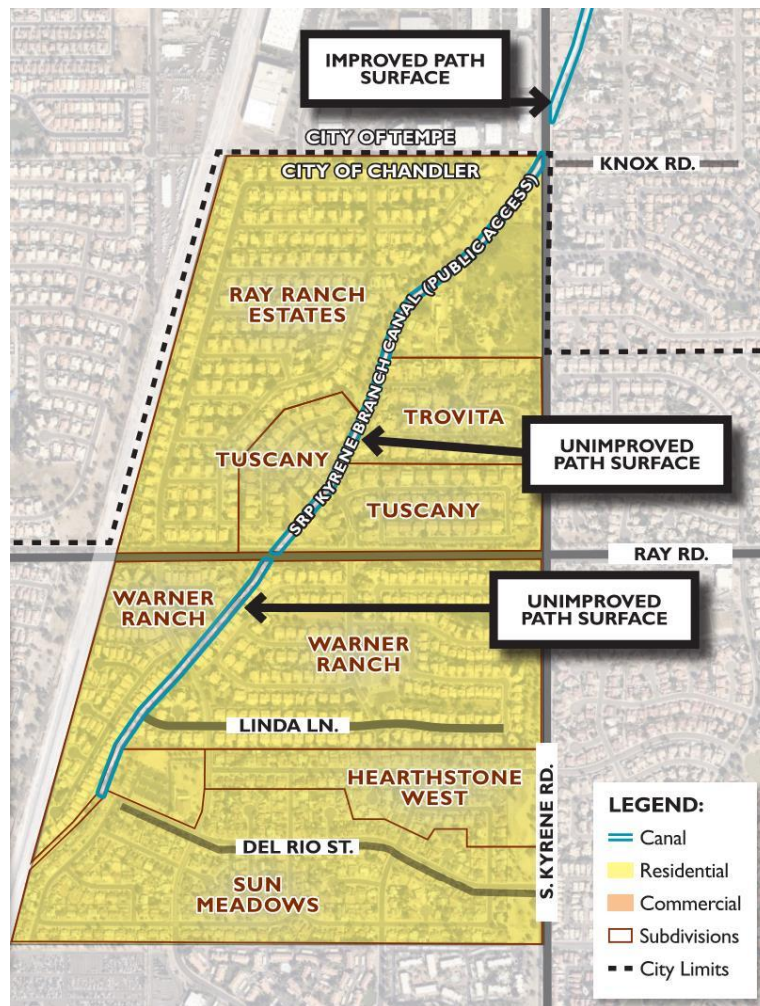


Figure 29 – Land Use and Rights-of-Way

5.9 Critical Outside Agency Involvement

An intergovernmental agreement will need to be developed to outline the construction and maintenance responsibilities between the City of Chandler and the City of Tempe. Coordination with City of Chandler Fire, Police, and Water Services departments, as well as utility companies, will be required in conformance with standard City guidelines.

The involvement of Salt River Project (SRP) will be critical in obtaining design approval and obtaining clearances. Design will follow the published ‘*Design Requirements for Public Recreational Amenities on SRP Canal Rights-of-Way – Canal Multiple Use - 2020*’, including general design requirements, plan review, and licensing. Additionally, based on discussions held during a coordination meeting with the City of Chandler and SRP, the environmental and cultural clearance process has become more detailed and could require additional time to obtain clearances. It is recommended that this process be started as early as possible during final design.

5.10 Preliminary Utility Requirements

Mapping and utility infrastructure information was provided by the City of Chandler. No major utility relocations or adjustments are anticipated.

5.11 Preliminary Traffic Requirements

Temporary traffic control will be required during construction activities involving work on Ray Road and Kyrene Road. Traffic control requirements will be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices, the latest edition of ADOT Traffic Control Design Guidelines, and the January 2021 City of Chandler Traffic Barricade Design Manual (TDM #7). Temporary lane closures, restrictions, or changes in access will be necessary during construction activities. Traffic control measures will be implemented, and construction activities will be timed to minimize impacts on vehicular traffic during peak hours of use. Access will be maintained to all businesses; however, those with access from more than one direction may be limited to one access point during some construction activities. The City of Chandler will provide a public information specialist to notify surrounding residents and businesses of potential restrictions/delays anticipated during construction of the project.

5.12 Seasonal Considerations

Minor seasonal differences in bicycle and pedestrian use patterns are anticipated. During the intensity of the summer heat, pedestrian and bicycle travel is anticipated to reduce during summer mid-days but may increase before sunrise.

No construction will take place during severe or inclement weather. To the extent practical, the construction activities should be completed during the off-season or summer months when anticipated path use will be lowest.

5.13 Design Criteria

The project will design pedestrian and bicycle improvements in compliance with the City of Chandler Engineering & Design Standards Manual (January 2022), the MAG Pedestrian Policies and Design Guidelines 2005, American Association of State Highway Transportation Officials (AASHTO) “Guide for the Development of Bicycle Facilities” (2012), AASHTO ‘Guide for the Planning, Design, and Operation of Pedestrian Facilities (2004), and the most current edition of ADA Standard for Accessible Design to improve pedestrian and bicycle access for the project area.

5.14 Potential Funding Sources

The City of Chandler has been awarded a grant to fund the project. Congestion Mitigation and Air Quality Improvement (CMAQ) funds have been identified in the FY 2022-2025 MAG Transportation Improvement Program (TIP) for construction. Federal and local funds have been identified in the FY 2022-2025 MAG TIP for design.

6. Preferred Alternative Estimated Cost

Table 1 - Engineer's Opinion of Probable Cost

Kimley»Horn

MAG Project No. 1137A-0A

Project Location : Kyrene Branch Canal
 Project Description : Shared Use Path
 MAG Project Manager : Audra Koester Thomas
 COC Project Manager: Sasha Pachito

ENGINEER'S OPINION OF PROBABLE COST

Item No.	Item Description	Unit	15%	DATE:	9/28/2022
			Quantity	Unit Price	Amount
CITY OF CHANDLER IMPROVEMENTS					
1	Concrete Sidewalk Shared-Use Path Per MAG Det 230, 10' Wide, 7" Thick With Reinforced Joints	SF	32,280	\$ 16.00	\$ 516,480.00
2	Concrete Sidewalk, MAG Det 230	SF	16,175	\$ 8.00	\$ 129,400.00
3	Vertical Curb & Gutter, MAG Det 220, Type A, H=6"	LF	226	\$ 30.00	\$ 6,780.00
4	Curb Ramp, Modified for Vertical Curb, 10' Wide, COC Dtl C-243	SF	1,433	\$ 15.00	\$ 21,495.00
5	Concrete Single Curb, MAG 426 Det 222, Type A, H=6"	LF	118	\$ 25.00	\$ 2,950.00
6	Concrete Seat Wall	LF	30	\$ 350.00	\$ 10,500.00
7	Concrete Driveway Per MAG Dtl 260	SF	320	\$ 25.00	\$ 8,000.00
8	Remove Concrete Curb and Gutter	LF	226	\$ 8.00	\$ 1,808.00
9	Remove Sidewalk	SF	1,867	\$ 5.00	\$ 9,335.00
10	Remove Concrete Single Curb	LF	22	\$ 8.00	\$ 176.00
11	Remove Tree, Diameter > 12"	EA	1	\$ 1,200.00	\$ 1,200.00
12	Relocate Sign	EA	1	\$ 250.00	\$ 250.00
13	Pavement Marking (White Thermoplastic) 4" Equivalent	LF	1,303	\$ 0.50	\$ 651.50
14	Perforated Sign Post	LF	184	\$ 50.00	\$ 9,200.00
15	Perforated Sign Post Foundation, MAG Det 2058	EA	20	\$ 185.00	\$ 3,700.00
16	Flat Sheet Aluminum Sign Panel, High Intensity Grade	SF	137	\$ 50.00	\$ 6,850.00
17	Pedestrian Signal Installation (Ray Road crossing)	LS	1	\$ 400,000.00	\$ 400,000.00
18	Wayfinding Kiosk	EA	1	\$ 9,000.00	\$ 9,000.00
19	Path Lighting	LS	1	\$ 415,000.00	\$ 415,000.00
20	Trash Receptacle	EA	2	\$ 850.00	\$ 1,700.00
CHANDLER CONSTRUCTION SUBTOTAL					\$ 1,554,475.50
CITY OF TEMPE IMPROVEMENTS					
21	Concrete Sidewalk, MAG Det 230	SF	3,471	\$ 8.00	\$ 27,768.00
22	Vertical Curb & Gutter, MAG Det 220, Type A, H=6"	LF	169	\$ 30.00	\$ 5,070.00
23	Curb Ramp Per MAG Dtl 236-3	SF	228	\$ 15.00	\$ 3,420.00
24	Curb Ramp, Modified 10' Wide Per MAG Dtl 236-3	SF	98	\$ 15.00	\$ 1,470.00
25	Modified Mid-Block Ramp, 10' Wide Per COT Dtl T-322	SF	139	\$ 15.00	\$ 2,085.00
26	Concrete Valley Gutter Per MAG Dtl 260	SF	194	\$ 12.00	\$ 2,328.00
27	Combined Sidewalk Ramp and Residential Driveway Per COC Dtl C-245	SF	640	\$ 18.00	\$ 11,520.00
28	PCCP, 9" Thick, Class A	SF	398	\$ 20.00	\$ 7,960.00
29	Remove Concrete Curb and Gutter	LF	169	\$ 8.00	\$ 1,352.00
30	Remove Sidewalk	SF	1,763	\$ 8.00	\$ 14,104.00
31	Remove Valley Gutter	SF	194	\$ 8.00	\$ 1,552.00
32	Remove Tree, Diameter > 12"	EA	3	\$ 1,200.00	\$ 3,600.00
33	Remove Street Light	EA	1	\$ 800.00	\$ 800.00
34	Remove and Relocate Street Light	EA	1	\$ 1,200.00	\$ 1,200.00
35	Pavement Marking (White Thermoplastic) 4" Equivalent	LF	2,348	\$ 0.50	\$ 1,174.00
36	Pavement Marking (Yellow Thermoplastic) 4" Equivalent	LF	300	\$ 0.70	\$ 210.00
37	Obiterate Existing Striping	LF	310	\$ 0.70	\$ 217.00
38	Perforated Sign Post	LF	36	\$ 50.00	\$ 1,800.00
39	Perforated Sign Post Foundation, MAG Det 2058	EA	4	\$ 185.00	\$ 740.00
40	Flat Sheet Aluminum Sign Panel, High Intensity Grade	SF	47	\$ 50.00	\$ 2,350.00
41	Traffic Signal Installation (Kyrene Road/Knox Road)	LS	1	\$ 750,000.00	\$ 750,000.00
TEMPE CONSTRUCTION SUBTOTAL					\$ 840,720.00

MAG Project No. 1137A-0A

Project Location : Kyrene Branch Canal
 Project Description : Shared Use Path
 MAG Project Manager : Audra Koester Thomas
 COC Project Manager: Sasha Pachito

ENGINEER'S OPINION OF PROBABLE COST

Item No.	Item Description	Unit	15%	DATE: 9/28/2022	
			Quantity	Unit Price	Amount
	Unidentified Item Allowance	LS	20%	\$ 479,039.10	\$ 479,039.10
	CONSTRUCTION TOTAL				\$ 2,874,234.60
	Contingency	LS	10%	\$ 287,423.46	\$ 287,423.46
	Mobilization	LS	10%	\$ 287,423.46	\$ 287,423.46
	Temporary Construction Easement	SF	1,060	\$ 4.00	\$ 4,240.00
	Construction Management	LS	18%	\$ 517,362.23	\$ 517,362.23
	Construction Survey & Layout	LS	1	\$ 20,000.00	\$ 20,000.00
	Construction Record & Drawing Allowances	ALL	1	\$ 10,000.00	\$ 10,000.00
	ITEM SUBTOTAL				\$ 1,126,449.15
	PROJECT TOTAL				\$ 4,000,683.75

7. Meeting Schedule

Table 2 - Meeting Schedule

MILESTONE	TARGET COMPLETION DATE
Project Kick-off Meeting / Site Visit	2/22/2022
Preliminary Alignment and Crossing Alternative Review	4/20/2022
Stakeholder Outreach	5/4/2022
Chandler Transportation Commission Meeting	5/18/2022
Draft Project Assessment and Preliminary (15%) Plans Comment Resolution Meeting	5/26/2022
Public Meeting	8/22/2022

Appendix A: Preliminary (15%) Plans

CITY OF CHANDLER, ARIZONA

KYRENE BRANCH CANAL

PROJECT NO. STXX.XX

MAG PROJECT NO. 1137A-0A

DATE: SEPTEMBER 2022



MAYOR
KEVIN HARTKE

VICE MAYOR
TERRY ROE

COUNCIL
CHRISTINE ELLIS
OD HARRIS
RENE LOPEZ
MATT ORLANDO
MARK STEWART

**CITY OF CHANDLER
PUBLIC WORKS DEPT.**
215 EAST BUFFALO STREET
CHANDLER, AZ 85225
PHONE NO. (480) 782-3331

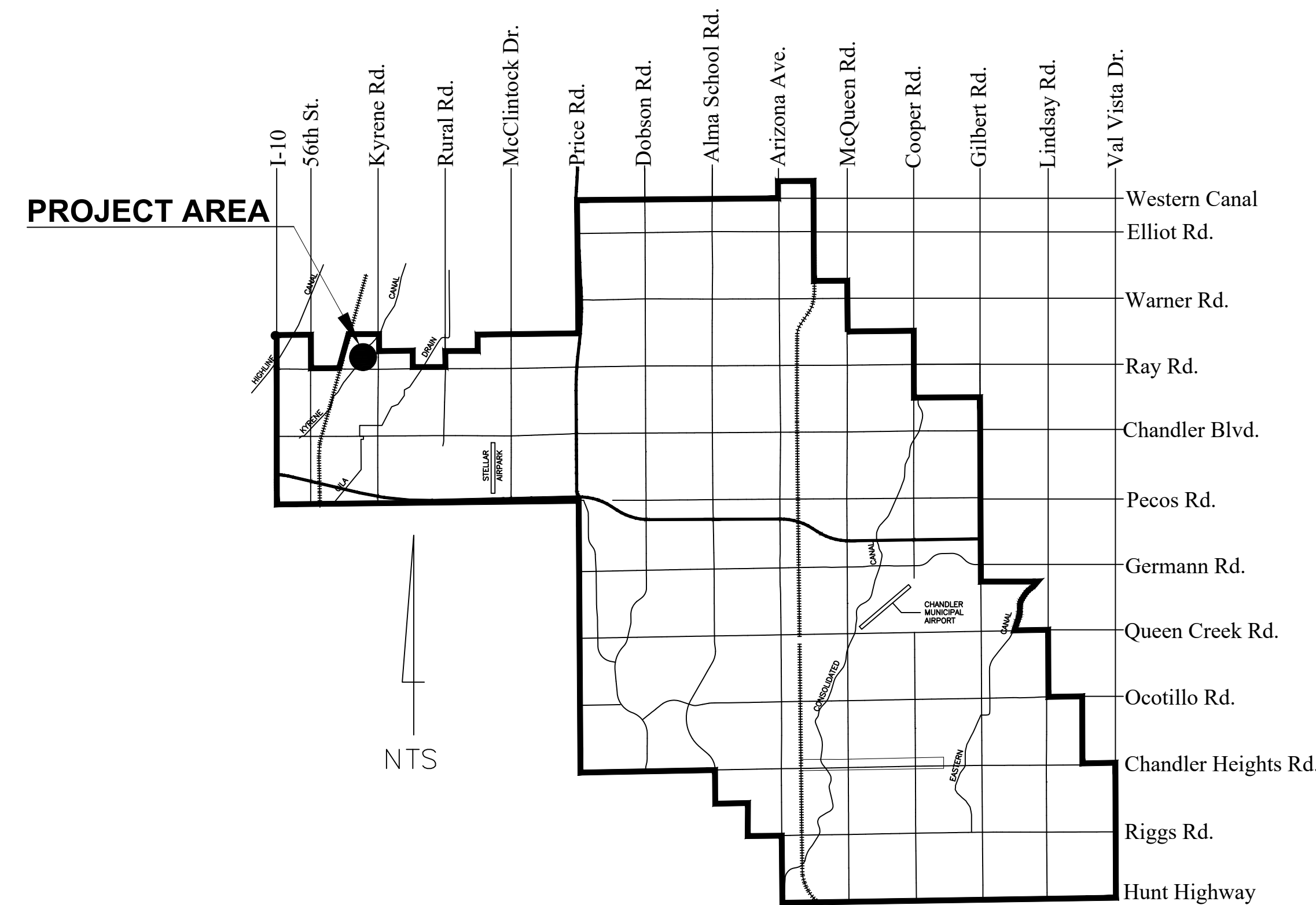
APPROVED:

PUBLIC WORKS & UTILITIES DIRECTOR	DATE
CITY ENGINEER	DATE
CITY TRANSPORTATION ENGINEER	DATE
CIVIL PLAN REVIEW	DATE
MARICOPA COUNTY ENVIRONMENTAL SERVICE DEPARTMENT (AS REQUIRED)	DATE
MARICOPA COUNTY ENVIRONMENTAL SERVICE DEPARTMENT (WATER)	DATE
MARICOPA COUNTY ENVIRONMENTAL SERVICE DEPARTMENT (SANITARY SEWER)	DATE
N/A	DATE
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (AS REQUIRED)	DATE

AS-BUILT CERTIFICATION: I HEREBY CERTIFY THAT THE "AS-BUILT" INFORMATION AS SHOWN HEREON WAS MADE UNDER MY SUPERVISION, OR AS NOTED, AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED LAND SURVEYOR SIGNATURE	PRINTED NAME	DATE
REGISTRATION NO.	EXPIRATION DATE	
I HEREBY CERTIFY THAT THE "AS-BUILT" SHOWN HEREON SATISFIES THE INTENT OF THE DESIGN.		
REGISTERED CIVIL ENGINEER SIGNATURE	PRINTED NAME	DATE
REGISTRATION NO.	EXPIRATION DATE	

UTILITY COMPANY	UTILITY CONTACTS	DATE SUBMITTED
COX	RYAN KANN	SEPTEMBER 2022
GILA RIVER TELECOMMUNICATIONS	EDIE HEPLER	SEPTEMBER 2022
GRIC - UTILITY AUTHORITY	KURT POLINGYOMA	SEPTEMBER 2022
LUMEN	LANCE HOLJE	SEPTEMBER 2022
ROOSEVELT WATER CONSERVATION DISTRICT	TABATHA LANGLAND	SEPTEMBER 2022
SOUTHWEST GAS	GENE FLOREZ	SEPTEMBER 2022
SRP	WENDY LESUER	SEPTEMBER 2022
TOWN OF GILBERT	TOM CONDIT	SEPTEMBER 2022
ZAYO GROUP	MATT BURKE	SEPTEMBER 2022



VICINITY MAP

ROOSEVELT WATER CONSERVATION DISTRICT

CHECKING IS ONLY FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN. ANY ACTION SHOWN IS SUBJECT TO THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS. CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS WHICH SHALL BE CONFIRMED AND CORRELATED AT THE JOB SITE; FABRICATION, PROCESSES AND TECHNIQUES OF CONSTRUCTION; COORDINATION OF HIS WORK WITH THAT OF ALL OTHER TRADES; THE SATISFACTORY PERFORMANCE OF HIS WORK. THE DISTRICT'S REVIEW OF THE PLANS IS A VOLUNTARY AND DISCRETIONARY ACTION WHICH IS NOT MANDATED BY STATE STATUTE. THE DISTRICT'S REVIEW OF THE PLANS IS SOLELY FOR THE DISTRICT'S BENEFIT, CONDUCTED WITH ONLY THE DISTRICT'S INTEREST IN MIND, AND SHOULD NOT BE RELIED UPON BY ANY THIRD PARTY. BY REVIEWING THE PLANS THE DISTRICT DOES NOT ASSUME ANY DUTY TO THIRD PARTIES.

ENGINEER: _____ DATE: _____
RWCD: _____ DATE: _____

UTILITY JOB DESCRIPTION

SRP/APS JOB ORDER NUMBER: _____
DDC/DESIGNERS: _____
JOB NAME: _____
JOB ADDRESS: _____

TYPE (HYPE, LED, OTHER): _____
NEW OR EXISTING CABINET: _____
EXISTING CABINET NUMBER: _____
CONSUMPTION (SYSTEM WATTS): _____

DATE: SEPTEMBER 2022
STATUS: 15%

REV. NO.	DATE	DRWN	CHKD	REMARKS

PRELIMINARY
15%
NOT FOR
CONSTRUCTION
OR RECORDING

Kimley»Horn

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7740 N. 16th STREET, SUITE 300, PHOENIX, AZ 85020
PHONE: 602-944-5500 FAX: 602-944-7423
WWW.KIMLEY-HORN.COM

Plotted By: D:\Boarding\Anne (Browers)\Sheet_Sett\Kyrene Branch_Canal_MUJP_Layout\C001_Layout.dwg - K:\PHYSICAL\2021\721001\MAG-Kyrene Branch_Canal_MUJP_Chandler\Code\Plan\CV01.dwg

KYRENE BRANCH CANAL SHARED USE PATH PROJECT NO. STXX.XX 15% SUBMITTAL (SEPTEMBER 2022)

GENERAL NOTES:

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE MOST CURRENT ADOPTED MAG SPECIFICATIONS AND STANDARD DETAILS AS SUPPLEMENTED BY THE CITY OF CHANDLER.
- THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
- THE DEVELOPMENT ENGINEERING OFFICE SHALL BE NOTIFIED 24 HOURS PRIOR TO STARTING EACH PHASE OF CONSTRUCTION (480-782-3300).
- PROJECT ELEVATIONS ARE BASED UPON NAVD 88 DATUM. THE FOLLOWING BENCHMARK WAS UTILIZED:

BENCHMARK NUMBER	NGVD 29 ELEVATION	DESCRIPTION	EQUATION	NAVD 88 ELEVATION
RYAN	1254.7514	ARIZONA DEPARTMENT OF HIGHWAY BRASS CAP SET IN CONCRETE ON BEDROCK DOWN 0.1', 0.37 MILES SOUTH ON I-10 FROM THE INTERSECTION OF I-10 AND BASELINE ROAD, ABOUT 80' WEST OF CENTER OF SOUTH BOUND LANE OF I-10.	2.018	1256.77
1	1190.178	SECTION 21, T1S, R4E, 7' BRASS CAP SET IN FOOTING OF ELECTRICAL TRANSMISSION TOWER #14, BETWEEN 56TH STREET AND KYRENE RD., 40' EAST OF RAILROAD TRACKS, 920' NORTH OF RAY ROAD	1.883	1192.06

- PRIOR TO ANY CONSTRUCTION IN THE PUBLIC RIGHT-OF-WAY, THE CONTRACTOR/DEVELOPER SHALL NOTIFY THE LANDSCAPE COMPLIANCE COORDINATOR AT 480-782-3428. ANY CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE RESTORED TO ORIGINAL CONDITIONS USING THE FOLLOWING REQUIREMENTS:
 - ALL LANDSCAPE IMPACTED BY CONSTRUCTION SHALL BE REPLACED IN KIND AND SIZE, OR AS DETERMINED BY THE CITY;
 - ALL IRRIGATION SYSTEMS SHALL BE RESTORED TO FULLY FUNCTIONING STATUS. ANY IRRIGATION LOCATED BENEATH ASPHALT OR CONCRETE SHALL BE SLEEVED WITH SCHEDULE 40 PVC TWO NOMINAL SIZES LARGER;
 - THE AREA OF CONSTRUCTION SHALL BE TREATED WITH PRE-EMERGENT HERBICIDE (I.E. SURFLAN);
 - GRANITE OF A SIZE AND COLOR TO MATCH EXISTING SHALL BE SPREAD A MINIMUM OF TWO INCHES THICK;
 - THE STREET DIVISION SHALL BE CONTACTED TO INSPECT ALL WORK BEFORE A CONDITIONAL ACCEPTANCE IS ISSUED;
 - THE CONTRACTOR/DEVELOPER SHALL MAINTAIN THE AREA FOR NINETY DAYS AFTER CONDITIONAL ACCEPTANCE. AFTER 90 DAYS THE CITY SHALL BE CONTACTED FOR FINAL ACCEPTANCE AND ASSUMPTION OF MAINTENANCE.
- WORK PERFORMED BY THE CONTRACTOR:
 - ANY WORK PERFORMED WITHOUT THE APPROVAL OF THE CITY ENGINEER AND/OR ALL WORK AND MATERIAL NOT IN CONFORMANCE WITH THE SPECIFICATIONS IS SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.
 - WHENEVER THE INSPECTOR FINDS ANY WORK BEING PERFORMED IN A DANGEROUS OR UNSAFE MANNER, OR CONTRARY TO THE PLANS OR SPECIFICATIONS, OR NOT MEETING THE INTENT OF THE PLANS OR SPECIFICATIONS, THE INSPECTOR WILL ISSUE A STOP WORK ORDER. UPON ISSUANCE OF A STOP WORK ORDER, THE CITED WORK SHALL IMMEDIATELY CEASE. THE STOP WORK ORDER SHALL STATE THE REASON FOR THE ORDER, AND THE CONDITIONS WHICH CITED WORK IS AUTHORIZED TO RESUME UPON WRITTEN ORDER TO RESUME WORK. WHERE AN EMERGENCY EXISTS, THE INSPECTOR SHALL NOT BE REQUIRED TO GIVE A WRITTEN NOTICE PRIOR TO STOPPING THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS AND DELAYS FOR THE WORK RELATED TO THE STOP WORK ORDER.
- THE CONTRACTOR SHALL UNCOVER ALL EXISTING CITY UTILITY LINES BEING TIED INTO TO VERIFY THEIR TYPE, CONDITION, LOCATION, INVERT SLOPE AND ANY OTHER INFORMATION NEEDED TO DETERMINE THAT THE UTILITY CONNECTION WILL FUNCTION AS DESIGNED. THE CONTRACTOR IS RESPONSIBLE FOR MAKING ANY REPAIRS NECESSARY TO THE LATERAL OR MAIN LINES OF THE CITY WATER, RECLAIMED WATER, SANITARY SEWER, AND/OR STORM DRAIN SYSTEM NECESSARY FOR THE CONNECTION TO FUNCTION AS DESIGNED. THE CONTRACTOR SHALL LOCATE OR HAVE LOCATED ALL EXISTING UNDERGROUND PRIVATE UTILITIES (ELECTRIC, TELEPHONE, PIPELINES, ETC.) AND STRUCTURES IN ADVANCE OF CONSTRUCTION AND SHALL ELIMINATE ALL CONFLICTS PRIOR TO START OF CONSTRUCTION. BLUE STAKE TELEPHONE (602) 263-1100.
- THE CITY OF CHANDLER IS NOT RESPONSIBLE FOR LIABILITY INCURRED DUE TO DELAYS AND/OR DAMAGES TO UTILITIES IN CONJUNCTION WITH THIS CONSTRUCTION. THE CITY WILL NOT PARTICIPATE IN THE COST OF CONSTRUCTION OR UTILITY RELOCATION.
- NO FINAL ACCEPTANCE SHALL BE ISSUED UNTIL 4 MIL PHOTO MYLAR REPRODUCIBLE "AS-BUILT" PLANS CERTIFIED AND SEALED BY A REGISTERED CIVIL ENGINEER, HAVE BEEN SUBMITTED AND ACCEPTED BY THE CITY ENGINEER.
- APPLICATIONS FOR STREET CUT PERMITS MUST BE APPROVED BY THE CITY ENGINEER PRIOR TO APPROVAL OF IMPROVEMENT PLANS. ALL PAVEMENT REPLACEMENT SHALL BE IN ACCORDANCE WITH SECTION 336 AND AS MODIFIED BY CITY SUPPLEMENTS.
- BACKFILLING SHALL NOT BE STARTED UNTIL LINES ARE APPROVED BY THE CITY ENGINEER. ALL BACKFILL SHALL BE HALF-SACK CLSM UNLESS OTHERWISE APPROVED ON THE PLANS. ABC OR NATIVE MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH MAG SECTION 601, TYPE I. BACKFILL PLACEMENT AND SURFACE REPLACEMENT SHALL BE IN ACCORDANCE WITH MAG STD DTL 200 TTOP.
- CONSTRUCTION OF CONCRETE OR PAVING ITEMS SHALL NOT COMMENCE UNTIL ALL UNDERGROUND WORK HAS BEEN INSPECTED AND TESTED.
- DISPOSAL OF AND STOCKPILING OF EXCESS MATERIAL WITHIN THE CHANDLER CITY LIMITS OR PLANNING AREA SHALL BE DONE IN SUCH A WAY THAT WILL NOT CREATE A NUISANCE. THE PLACING OF MATERIAL ON PRIVATE PROPERTY OF ANOTHER REQUIRES WRITTEN AUTHORIZATION. EARTHWORK STOCKPILES ARE NOT TO EXCEED 6 FEET IN HEIGHT. SLOPES ON ALL SIDES OF THE STOCKPILE SHALL NOT EXCEED A 1 TO 2 RATIO OF HEIGHT TO LENGTH. ANY EARTHWORK STOCKPILE, EVEN LESS THAN 6 FEET, MUST BE REMOVED WITHIN 7 DAYS OF CITY NOTIFICATION IF DUST SUPPRESSION EFFORTS FAIL TO MAINTAIN SATISFACTORY AIRBORNE CONTAMINANT CONTROL.
- TRAFFIC CONTROL SHALL BE MAINTAINED IN ACCORDANCE WITH THE CHANDLER TRAFFIC BARRICADE MANUAL AND APPROVED TRAFFIC SEQUENCING PLANS AND/OR NOTES.
- THE CONTRACTOR SHALL PROVIDE ADEQUATE MEANS FOR CLEANING TRUCKS AND/OR OTHER EQUIPMENT OF MUD PRIOR TO ENTERING PUBLIC STREETS, AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO CLEAN STREETS, ALLAY DUST, AND TAKE WHATEVER MEASURES ARE NECESSARY TO INSURE THAT ALL ROADS ARE MAINTAINED IN A CLEAN, MUD AND DUST-FREE CONDITION AT ALL TIMES THE CONTRACTOR SHALL UTILIZE A PM10-CERTIFIED STREET SWEEPER FOR STREET CLEANING.
- AN APPROVED SET OF PLANS SHALL BE MAINTAINED ON THE JOB SITE AT ALL TIMES THAT WORK IS IN PROGRESS. DEVIATION FROM THE PLANS SHALL NOT BE ALLOWED WITHOUT AN APPROVED PLAN REVISION.
- A MINIMUM HORIZONTAL SEPARATION OF SIX (6) FEET IS REQUIRED BETWEEN SEWER SERVICES AND WATER OR FIRELINE SERVICES. A MINIMUM HORIZONTAL SEPARATION OF SIX (6) FEET IS REQUIRED BETWEEN RECLAIMED WATER SERVICES AND SEWER, WATER, OR FIRELINE SERVICES.
- SETBACKS FOR UTILITY POLES, STRUCTURES, AND OTHER SIMILAR FACILITIES (NOT INCLUDING LANDSCAPING) GREATER THAN 18 INCHES IN HEIGHT SHALL BE 5.5 FEET FROM THE BACK OF CURB UNLESS APPROVED IN WRITING BY THE CITY ENGINEER. IN CASES WHERE THE FACILITIES ARE ADJACENT TO A DECELERATION LANE, BUS BAY, OR MEDIAN CURB, THE SETBACK CAN BE REDUCED TO 2.5 FEET FROM THE BACK OF CURB.
- SCREEN WALLS OVER 7', RETAINING WALLS OVER 4' MUST HAVE A BUILDING PERMIT AND BE IN CONFORMANCE WITH CHANDLER BUILDING CODE.
- ALL UNDERGROUND FACILITIES INSTALLED IN ANY REAL PROPERTY OUTSIDE THE CITY'S RIGHT-OF-WAY SHALL COMPLY WITH THE FOLLOWING MARKING STANDARDS IN ACCORDANCE WITH HOUSE BILL 2256. A YELLOW INSULATED COPPER WIRE OR OTHER APPROVED CONDUCTOR SHALL BE INSTALLED ADJACENT TO UNDERGROUND UTILITIES FOR FIRE LINE PIPING, POTABLE WATER DISTRIBUTION PIPING, SANITARY SEWER LINES, STORMWATER PIPING, RECLAIMED WATER PIPING, GRAVITY FLOW IRRIGATION PIPING AND PRESSURIZED IRRIGATION PIPING LARGER THAN TWO (2) INCHES IN DIAMETER UNLESS THESE FACILITIES CAN BE DETECTED FROM ABOVE GROUND WITH AN ELECTRONIC LOCATING DEVICE. ACCESS SHALL BE PROVIDED TO THE TRACER WIRE OR THE TRACER WIRE SHALL TERMINATE ABOVE GROUND AT EACH END OF THE PIPING. THE TRACER WIRE SHALL NOT BE LESS THAN 18 AWG AND THE INSULATION TYPE SHALL BE SUITABLE FOR DIRECT BURIAL.
- ANY CONSTRUCTION DETOURS WILL REQUIRE AN ALL-WEATHER SURFACE PER MARICOPA COUNTY AIR QUALITY REQUIREMENTS.
- THE CONTRACTOR SHALL SUPPLY CITY INSPECTOR CONSTRUCTION MATERIAL TESTING DOCUMENTATION THROUGHOUT THE PROJECT.
- ALL SITE IMPROVEMENTS, INCLUDING LANDSCAPE AND SITE CLEANUP, MUST BE COMPLETE PRIOR TO CERTIFICATE OF OCCUPANCY FOR ANY BUILDING WITHIN A PHASE.
- UTILITY COMPANIES HAVE BEEN IDENTIFIED BY BLUE STAKE COORDINATION AND PROJECT PLANS HAVE BEEN SUBMITTED MOST RECENTLY. SEE PAGE CV01 FOR UTILITIES AND DATES.

PAVING NOTES:

- THE LOCATION OF ALL VALVES MUST BE REFERENCED AT ALL TIMES BY THE CONTRACTOR DURING CONSTRUCTION.
- NO PAVING CONSTRUCTION SHALL BE PERFORMED UNTIL ALL UNDERGROUND UTILITIES WITHIN THE RIGHT-OF-WAY HAVE BEEN COMPLETED.
- THE BASE COURSE WILL NOT BE PLACED ON SUBGRADE UNTIL BASE REQUIREMENTS HAVE BEEN COMPLETED AND ACCEPTED BY THE CITY ENGINEER.
- GUTTERS WILL BE WATER TESTED IN THE PRESENCE OF THE CITY ENGINEER TO INSURE PROPER DRAINAGE PRIOR TO FINAL APPROVAL.
- THE EXACT POINT OF PAVEMENT MATCHING FOR TERMINATION AND OVERLAY MAY BE DETERMINED IN THE FIELD BY THE CITY ENGINEER.
- NO JOB WILL BE CONSIDERED COMPLETE UNTIL ALL CURBS, PAVEMENT AND SIDEWALKS HAVE BEEN SWEEPED CLEAN OF ALL DIRT AND DEBRIS.
- STREET NAME SIGNS WILL BE INSTALLED BY THE CITY ON DEVELOPER INSTALLED POLES AT THE DEVELOPER'S EXPENSE. POLES SHALL BE PER C-613. PAYMENT WILL BE COLLECTED AT THE TIME A PAVING PERMIT IS ISSUED.
- ALL TRAFFIC CONTROL SIGNS SHALL BE CONSTRUCTED OF HIGH INTENSITY GRADE SHEETING, UNLESS OTHERWISE NOTED.
- ALL STREET SECTIONS, EXCEPT ARTERIALS, SHALL HAVE INSTALLED A PRESERVATIVE SEAL COAT PER MAG SECTION 334 AND SHALL BE AN ASPHALT EMULSION SEALER PER MAG SECTION 718.3. THE SEAL SHALL BE INSTALLED AT THE END OF THE WARRANTY PERIOD, OR AT THE CITY'S OPTION, A FEE MAY BE COLLECTED IN LIEU OF THE APPLICATION.
- ALL CURB-OPENING CATCH BASIN ACCESS COVERS SHALL BE PER MAG STD DTL 536. ALTERNATE COVER. A STORM DRAIN INLET MARKER IN ACCORDANCE WITH C-508 SHALL BE INSTALLED ON THE TOP OF THE CURB AND ALIGNED WITH THE CENTER OF THE INLET.
- PAVEMENT MATCHING AND SURFACING REPLACEMENT SHALL BE IN ACCORDANCE WITH MAG STD DTL 200, MAG SECTION 336, AND SECTION 337. ALL CRACKS AND JOINTS SHALL BE SEALED, UNLESS OTHERWISE DIRECTED BY CITY ENGINEER OR STREET SUPERINTENDENT.

GRADING AND DRAINAGE NOTES:

- A GRADING PERMIT IS REQUIRED.
- APPROVED MINIMUM FINISH FLOOR ELEVATION SHALL NOT BE ALTERED.
- STAKING FINISH FLOOR ELEVATION IS THE RESPONSIBILITY OF THE DEVELOPER AND HIS ENGINEER.
- CONTRACTOR SHALL PROVIDE GRADING FOR POSITIVE DRAINAGE IN ALL RETENTION BASINS AT ELEVATIONS AS SHOWN ON THE PLANS. BOTTOM OF BASIN SHALL BE GRADED TO DRAIN TOWARD DRYWELLS (WHEN USED). MAXIMUM SIDESLOPES SHALL BE 4:1.
- DRYWELL INLET GRATE SHALL BE FLUSH WITH ROAD SURFACE OR TURF, OR 1-1/2" ABOVE THE FINISHED GRADE OF DECOMPOSED GRANITE LANDSCAPED AREAS.
- DRILLING LOGS FOR DRYWELLS WILL BE FURNISHED TO THE CITY INSPECTOR PRIOR TO FINAL ACCEPTANCE.
- A PERCOLATION TEST SHALL BE REQUIRED OF COMPLETED DRYWELLS PRIOR TO ACCEPTANCE. SHOULD EXISTING SOIL CONDITIONS BE ENCOUNTERED WHICH LACK SUFFICIENT PERCOLATION RATES, ADDITIONAL DRYWELLS OR AN ALTERNATE METHOD OF STORM WATER RUN-OFF DISPOSAL WILL BE REQUIRED.
- DRYWELL CONSTRUCTION SHALL BE DONE ONLY BY CONTRACTORS LICENSED BY THE ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY. APPLICATION FOR DRYWELL REGISTRATION WAS SUBMITTED TO ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY ON 3/24/2021.
- THE APPROVED DRYWELL REGISTRATION SHALL BE SUBMITTED TO THE CITY BY THE DEVELOPER OR HIS ENGINEER AT THE TIME AS-BUILTS ARE SUBMITTED.
- ALL WEEP HOLES IN WALLS SHALL BE PROVIDED WITH EROSION PROTECTION 12" THICK WITH D50 = 4" RIPRAP, 24" IN WIDTH, EXTENDED TO THE BACK OF SIDEWALK OR TO THE BOTTOM OF RETENTION BASIN, WHICHEVER APPLIES.
- A RETAINING WALL WILL BE REQUIRED IF AT THE COMPLETION OF GRADING THERE EXISTS MORE THAN ONE FOOT OF DIFFERENCE IN ELEVATION BETWEEN THIS SITE AND ADJACENT PROPERTIES.
- SCREEN WALLS OVER 7', RETAINING WALLS OVER 4' MUST HAVE A BUILDING PERMIT AND BE IN CONFORMANCE WITH CHANDLER BUILDING CODE.
- THE EXISTING RETENTION AND DRAINAGE FACILITIES ON THIS SITE WILL NOT BE REMOVED FROM SERVICE UNTIL THE PERMANENT RETENTION AND DRAINAGE FACILITIES ARE FUNCTIONAL.

GRADING/DRAINAGE:

- A GRADING PERMIT IS REQUIRED.
- APPROVED MINIMUM FINISH FLOOR ELEVATION SHALL NOT BE ALTERED.
- STAKING FINISH FLOOR ELEVATION IS THE RESPONSIBILITY OF THE DEVELOPER AND HIS ENGINEER.
- CONTRACTOR SHALL PROVIDE GRADING FOR POSITIVE DRAINAGE IN ALL RETENTION BASINS AT ELEVATIONS AS SHOWN ON THE PLANS. BOTTOM OF BASIN SHALL BE GRADED TO DRAIN TOWARD DRYWELLS (WHEN USED). MAXIMUM SIDESLOPES SHALL BE 4:1.
- DRYWELL INLET GRATE SHALL BE FLUSH WITH ROAD SURFACE OR TURF, OR 1-1/2" FINISHED GRADE OF DECOMPOSED GRANITE LANDSCAPED AREAS.
- DRILLING LOGS FOR DRYWELLS WILL BE FURNISHED TO THE CITY INSPECTOR PRIOR TO FINAL ACCEPTANCE.
- A PERCOLATION TEST SHALL BE REQUIRED OF COMPLETED DRYWELLS PRIOR TO ACCEPTANCE. SHOULD EXISTING SOIL CONDITIONS BE ENCOUNTERED WHICH LACK SUFFICIENT PERCOLATION RATES, ADDITIONAL DRYWELLS OR AN ALTERNATE METHOD OF STORM WATER RUN-OFF DISPOSAL WILL BE REQUIRED.

DRY WELL KEY MAP #	ADEQ REG. #	FIELD PERC RATE (CFS)

- DRYWELL CONSTRUCTION SHALL BE DONE ONLY BY CONTRACTORS LICENSED BY THE ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY. APPLICATION FOR DRYWELL REGISTRATION WAS SUBMITTED TO ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY ON (DATE) (DATE).
- THE APPROVED DRYWELL REGISTRATION SHALL BE SUBMITTED TO THE CITY BY THE DEVELOPER OR HIS ENGINEER AT THE TIME AS-BUILTS ARE SUBMITTED.
- ALL WEEP HOLES IN WALLS SHALL BE PROVIDED WITH EROSION PROTECTION 12" THICK WITH D50 = 4" RIPRAP, 24" IN WIDTH, EXTENDED TO THE BACK OF SIDEWALK OR TO THE BOTTOM OF RETENTION BASIN, WHICHEVER APPLIES.
- A RETAINING WALL WILL BE REQUIRED IF AT THE COMPLETION OF GRADING THERE EXISTS MORE THAN ONE FOOT OF DIFFERENCE IN ELEVATION BETWEEN THIS SITE AND ADJACENT PROPERTIES.
- SCREEN WALLS OVER 7', RETAINING WALLS OVER 4' MUST HAVE A BUILDING PERMIT AND BE IN CONFORMANCE WITH CHANDLER BUILDING CODE.
- THE EXISTING RETENTION AND DRAINAGE FACILITIES ON THIS SITE WILL NOT BE REMOVED FROM SERVICE UNTIL THE PERMANENT RETENTION AND DRAINAGE FACILITIES ARE FUNCTIONAL.

SIGNING AND STRIPING

- THE CITY TRANSPORTATION ENGINEER'S OFFICE SHALL BE NOTIFIED 5 BUSINESS DAYS PRIOR TO STARTING ANY SIGNING OR STRIPING WORK AT (480) 782-3454.
- ALL PAVEMENT MARKINGS, SIGN MATERIALS AND CONSTRUCTION SHALL CONFORM TO ARIZONA DEPARTMENT OF TRANSPORTATION STANDARD DRAWINGS AND SPECIFICATIONS UNLESS OTHERWISE NOTED.
- SIGN LOCATIONS AND OFFSETS MAY BE ADJUSTED BY THE CITY TRANSPORTATION ENGINEER TO IMPROVE VISIBILITY.
- ALL MEDIAN NOSES SHALL BE PAINTED YELLOW WITH REFLECTIVE GLASS BEADS PER C-617.
- ALL RAISED PAVEMENT REFLECTORS SHALL BE INSTALLED WITH CRAFCO PAVEMENT REFLECTOR ADHESIVE, OR EQUAL.
- ALL TRAFFIC CONTROL SIGNS, EXCEPT STOP SIGNS, SHALL BE ATTACHED TO STREET LIGHT POLES IF THE POLE IS WITHIN 25 FT. OF SIGN LOCATION AS SHOWN ON THE SIGNING AND STRIPING PLANS.
- ALL CROSSWALKS, STOP BARS, MINI-SKIPS, TURN ARROWS AND LEFT/RIGHT TURN LANE STRIPING SHALL BE THERMOPLASTIC.
- ALL TRAFFIC CONTROL SIGNS SHALL BE CONSTRUCTED OF HIGH INTENSITY GRADE SHEETING SCREENED WITH 3-M APPROVED INKS OR EQUIVALENT APPROVED BY THE TRANSPORTATION DIVISION. WARRANTY DOCUMENTS ARE REQUIRED AND SHALL BE SUBMITTED PRIOR TO FINAL JOB ACCEPTANCE.
- ALL EXISTING SIGNS TEMPORARILY REMOVED BY THE CONTRACTOR SHALL BE SALVAGED FOR REINSTALLATION BY THE CONTRACTOR. ALL EXISTING SIGNS PERMANENTLY REMOVED BY THE CONTRACTOR SHALL BE SALVAGED FOR RETURN TO THE CITY SIGN SHOP.
- ALL CONFLICTING PAVEMENT MARKINGS WILL BE OBLITERATED BY WATER BLASTING BY THE CONTRACTOR. GRINDING IS NOT PERMITTED.
- A SEALANT APPROVED BY THE CITY OF CHANDLER STREETS DIVISION SHALL BE APPLIED BY THE CONTRACTOR TO ALL AREAS OF PAVEMENT MARKING OBLITERATION. REFER TO THE LIST OF APPROVED PRODUCTS.
- CITY TRANSPORTATION ENGINEER MAY REQUIRE THE CONTRACTOR TO ADJUST SIGNING AND STRIPING AS NECESSARY.
- CONFLICTING SIGNAGE SHALL BE REMOVED BY THE CONTRACTOR.
- CITY SIGNS MUST BE RETURNED TO THE CITY SIGN SHOP.

PAVEMENT MARKING LEGEND:

- PROPOSED 12" SOLID WHITE LINE
- PROPOSED 18" SOLID WHITE LINE

TRAFFIC SIGNAL LEGEND:

- PROPOSED TRAFFIC SIGNAL CONTROLLER CABINET
- PROPOSED METER PEDESTAL/UPS
- PROPOSED NO. 7 PULL BOX WITH EXTENSION
- PROPOSED NO. 7 PULL BOX
- PROPOSED TRAFFIC SIGNAL POLE
- PROPOSED SIGNAL HEAD
- PROPOSED PEDESTRIAN SIGNAL HEAD (M/H)
- PROPOSED PEDESTRIAN PUSH BUTTON (PPB)

NO.	REVISIONS	DATE	BY

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 WWW.KIMLEY-HORN.COM

PRELIMINARY
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SCALE (H):	N/A
SCALE (V):	N/A
DESIGNED BY:	JCV
DRAWN BY:	ALM
CHECKED BY:	ASD
DATE:	09/20/22

CITY OF CHANDLER
 KYRENE BRANCH CANAL
 SHARED USE PATH
 CIVIL PLAN SHEET

CITY PROJECT NO. STXX.XX
 MAG PROJECT NO. 0600-0145-22-E001-1137A
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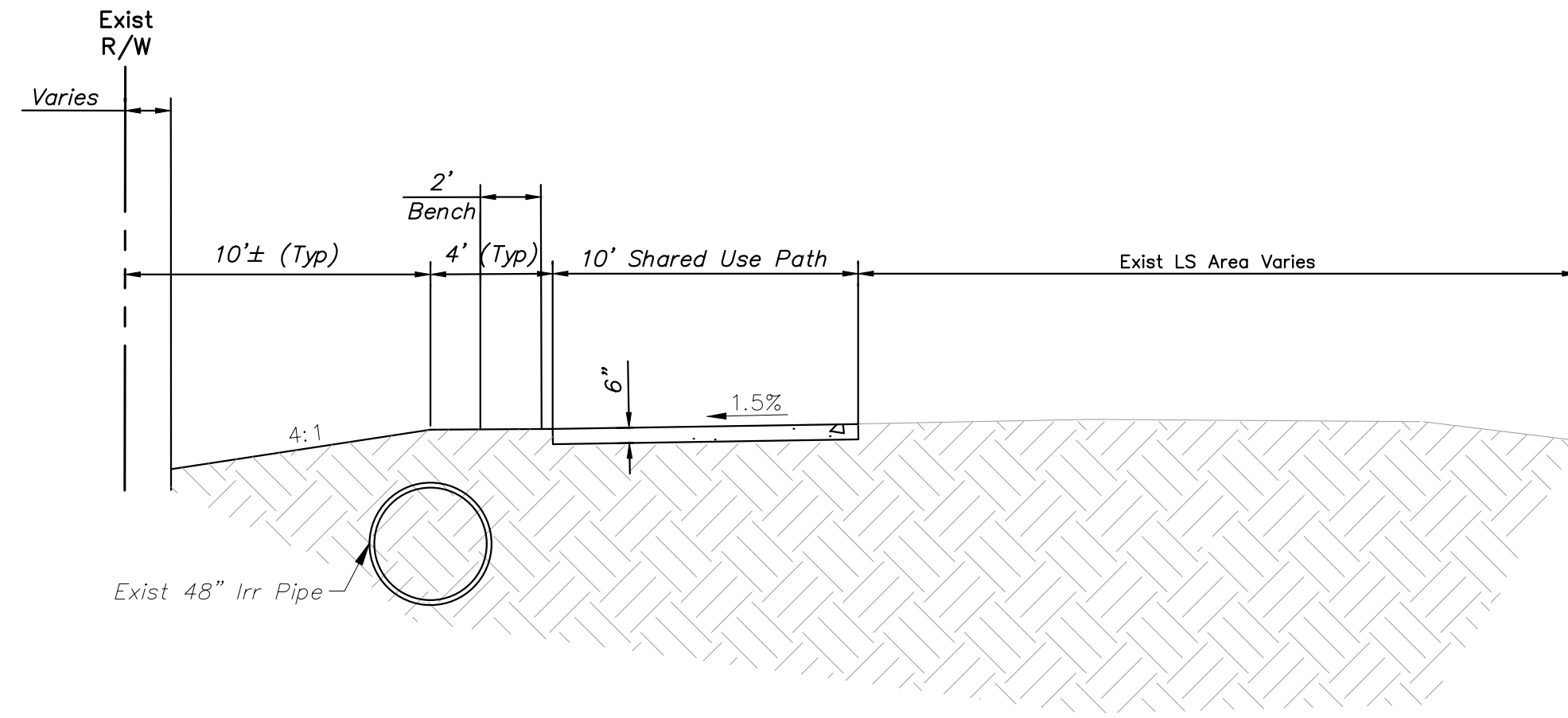
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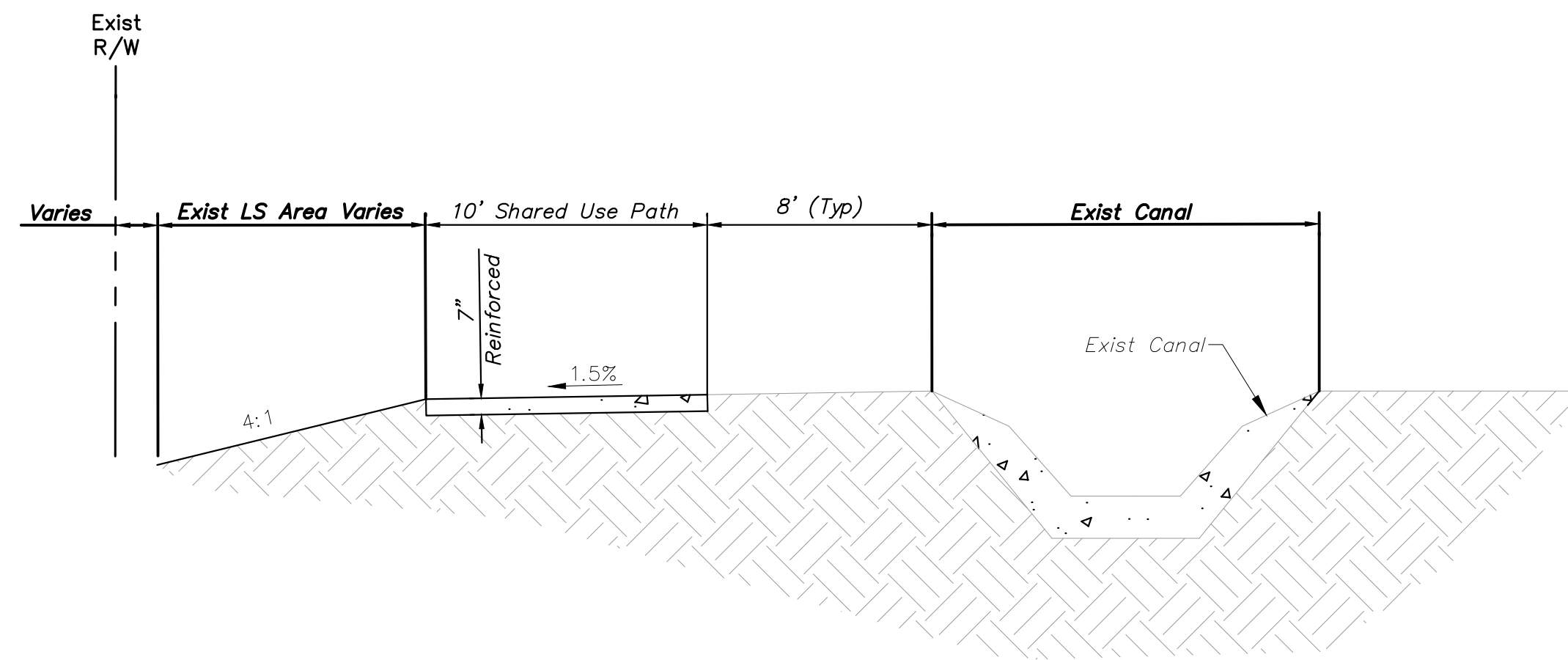
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C.O.C. LOG NO. CV XX-XXX CHANDLER PATH MUP IMPROVEMENTS

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Kyrene Branch Canal South Path
STA 100+47.79 TO 116+75.61



Kyrene Branch Canal North Path
STA 200+45.95 TO 233+27.98

No.	REVISIONS	DATE	BY

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OR RECORDING

SCALE (H):	N/A
SCALE (V):	N/A
DESIGNED BY:	JCV
DRAWN BY:	ALM
CHECKED BY:	ASD
DATE:	09/2022

CITY OF CHANDLER
KYRENE BRANCH CANAL
SHARED USE PATH
TYPICAL SECTIONS

CITY PROJECT NO. STXX.XX
MAG PROJECT NO. 0600-0145-22-E001-1137A
-0A.0000001

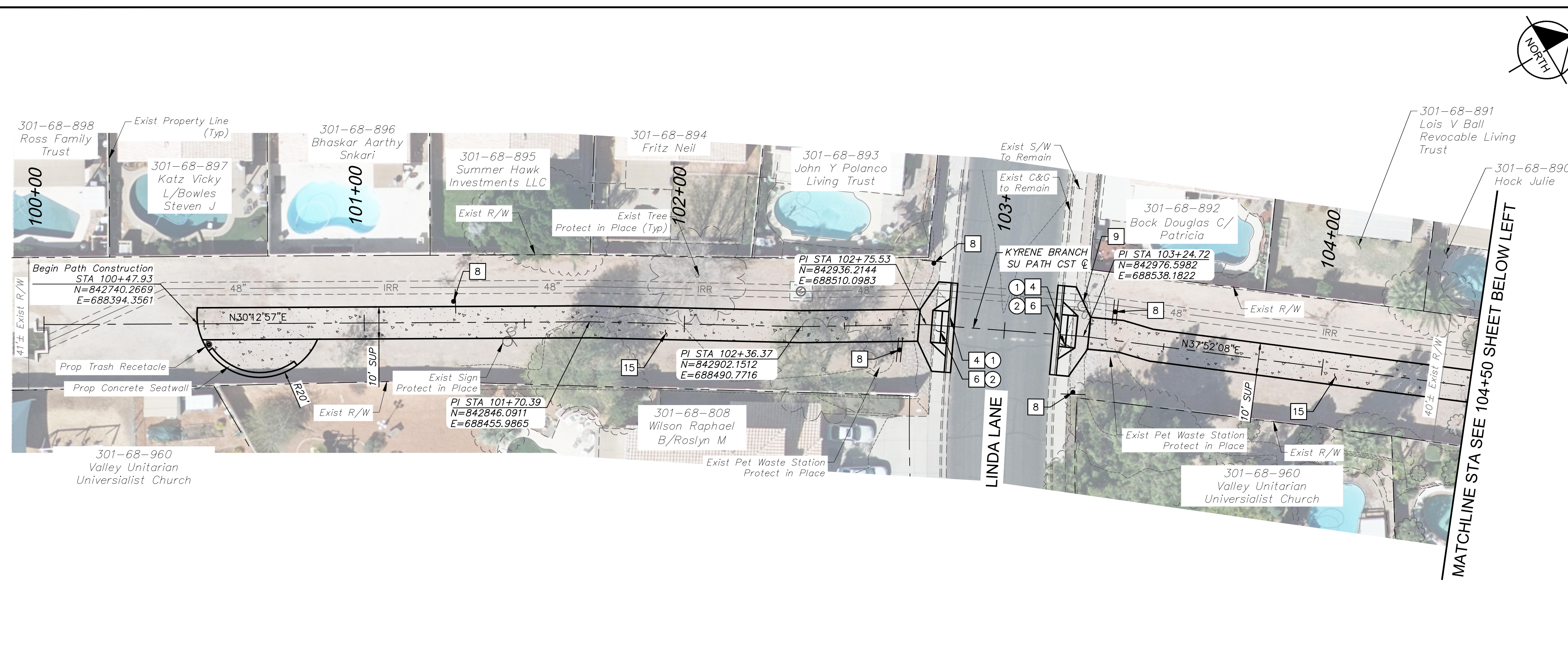
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3 OF 10



C.O.C. LOG NO. CIV XX-XXXX CHANDLER PATH MUP IMPROVEMENTS

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CONSTRUCTION NOTES			
NO.	DESCRIPTION	QTY	UNIT
4	Concrete Curb & Gutter Per MAG Dtl 220-1, Type 'A', H=6"	112	LF
6	Curb Ramp, Modified for Vertical Curb, 10' Wide, Per COC Dtl C-243	823	SF
8	Install Bike Route Guide Sign	13	EA
9	Relocate Exist Neighborhood Watch Sign	1	EA
15	Concrete Sidewalk Per MAG Dtl 230	7,563	SF

REMOVAL NOTES			
NO.	DESCRIPTION	QTY	UNIT
1	Remove & Dispose Existing Curb & Gutter	112	LF
2	Remove & Dispose Existing Sidewalk	430	SF

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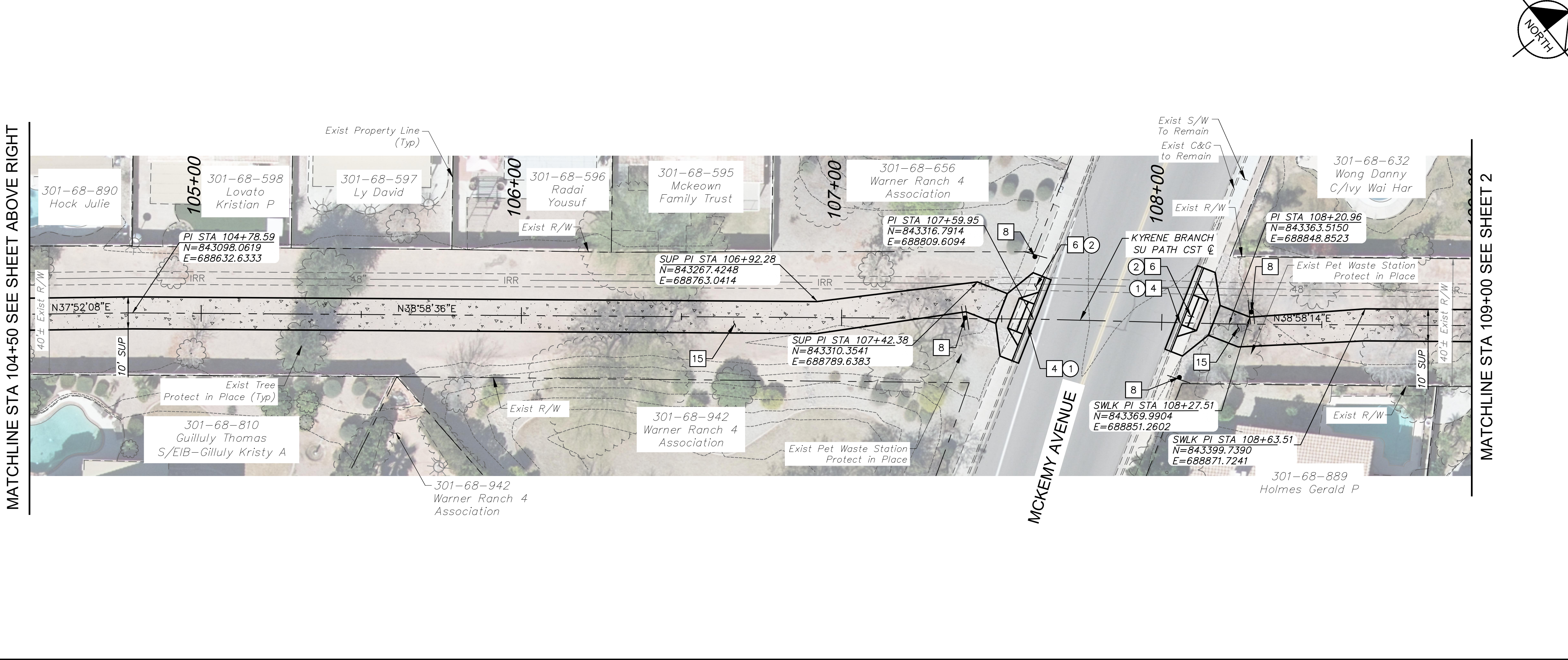
REVISIONS		DATE	BY

PRELIMINARY

15%

NOT FOR CONSTRUCTION OR RECORDING

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SCALE (V):	N/A
DESIGNED BY:	JCV
DRAWN BY:	ALM
CHECKED BY:	ASD
DATE:	09/2022



CITY OF CHANDLER
KYRENE BRANCH CANAL
SHARED USE PATH
CIVIL PLAN SHEET

CITY PROJECT NO. STXX.XX
 MAG PROJECT NO. 0600-0145-22-E001-1137A
 -0A.0000001

SHEET DWG
PL01

4 OF 10

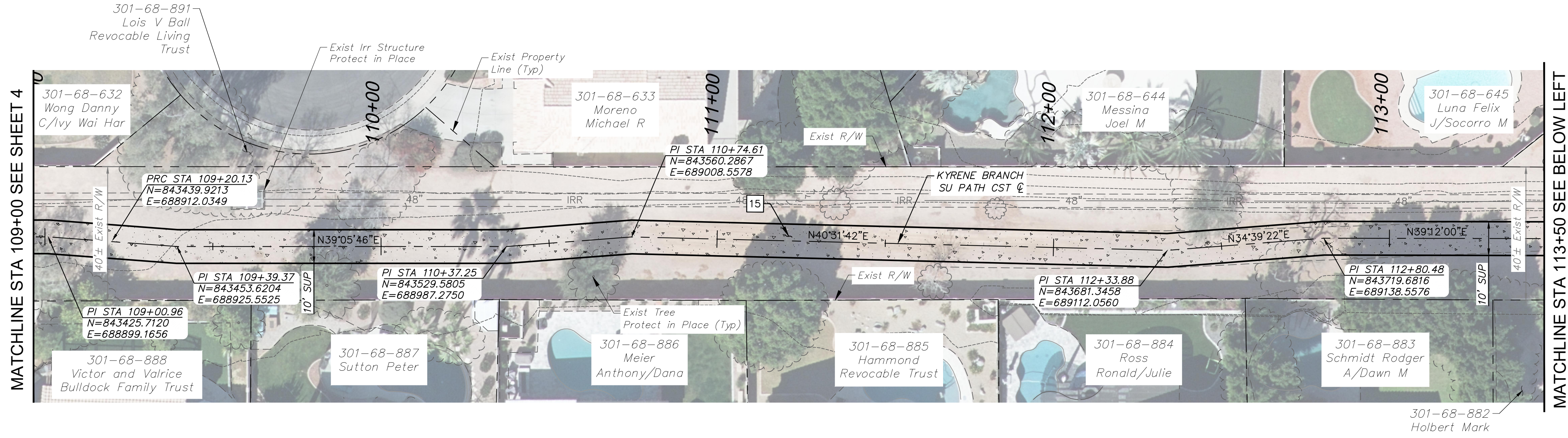
Call at least two full working days before you begin excavation.

Dial 8-1-1 or 1-800-STAKE-IT (742-8346) in Maricopa County (602) 263-1100

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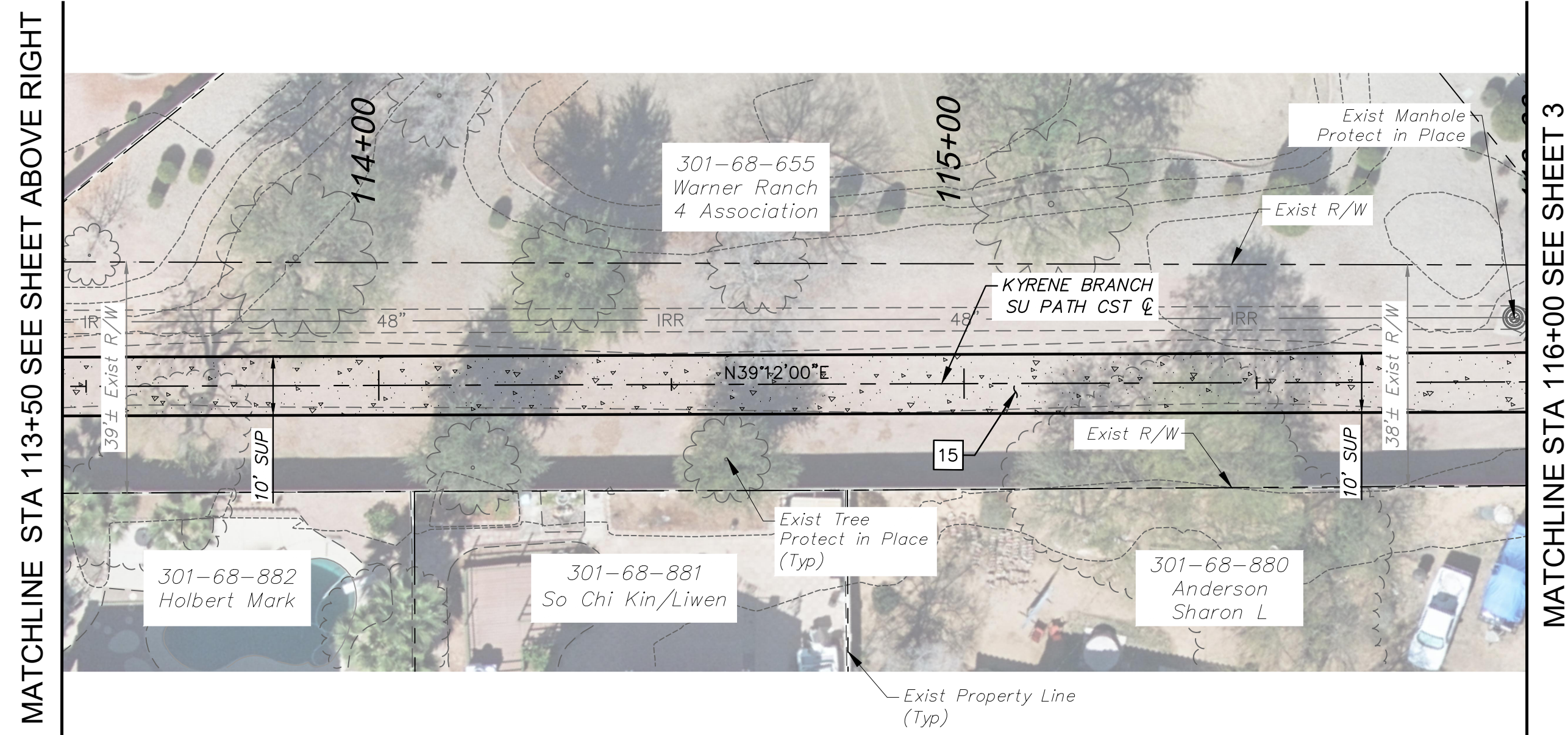
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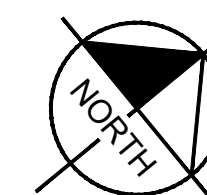
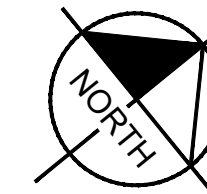
MATCHLINE STA 109+00 SEE SHEET 4

MATCHLINE STA 113+50 SEE BELOW LEFT



MATCHLINE STA 113+50 SEE SHEET ABOVE RIGHT

MATCHLINE STA 116+00 SEE SHEET 3



CONSTRUCTION NOTES

NO.	DESCRIPTION	QTY	UNIT
15	Concrete Sidewalk Per MAG Dtl 230	6,996	SF

NO.	REVISIONS	DATE	BY

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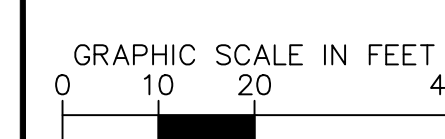
PRELIMINARY
15%
 NOT FOR CONSTRUCTION OR RECORDING

SCALE (H):	1"=50'
SCALE (V):	N/A
DESIGNED BY:	JCV
DRAWN BY:	ALM
CHECKED BY:	ASD
DATE:	09/2022

CITY OF CHANDLER
 KYRENE BRANCH CANAL
 SHARED USE PATH
 CIVIL PLAN SHEET

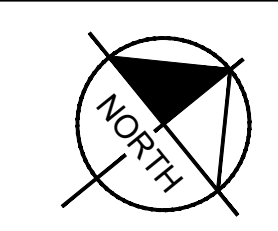
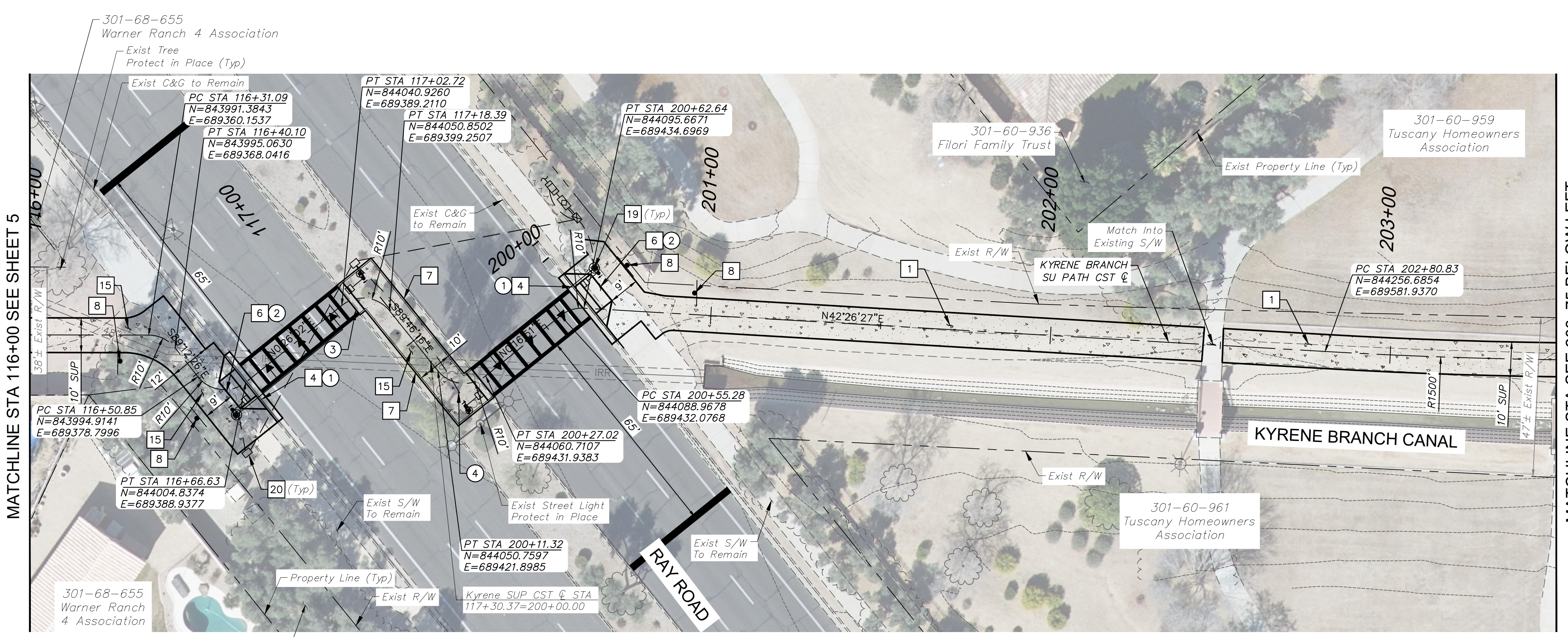
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SHEET DWG PL02
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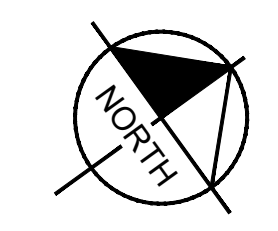
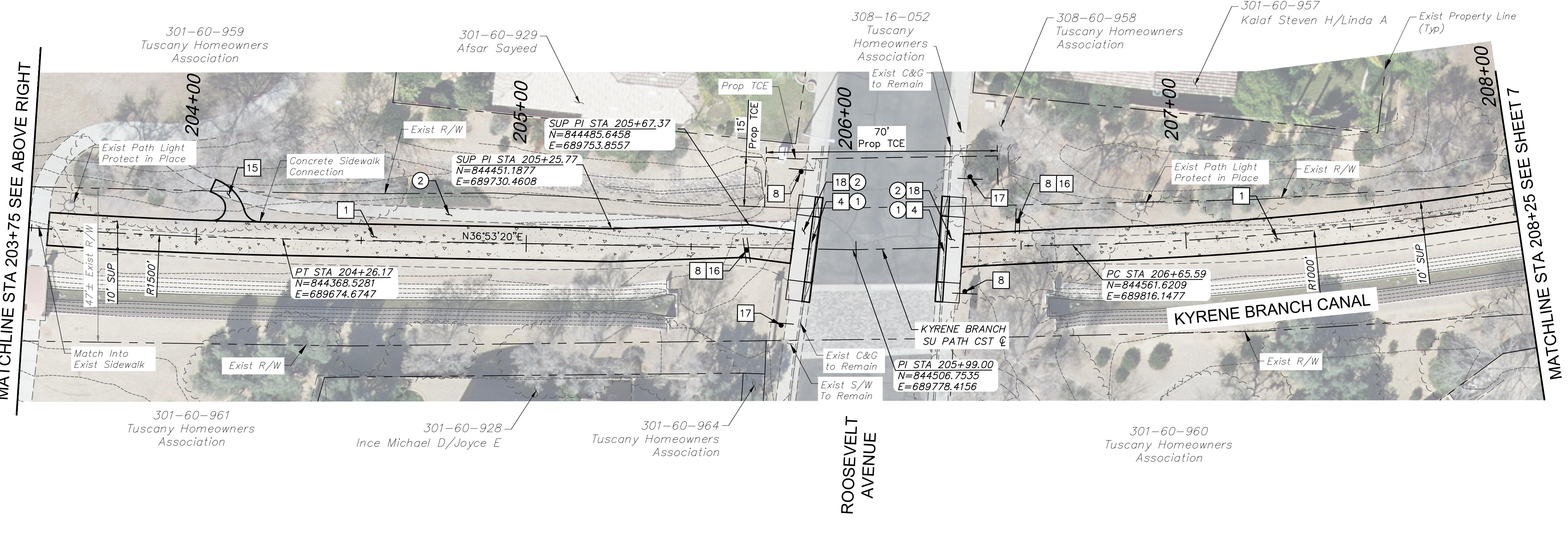
C.O.C. LOG NO. CIV XX-XXXX CHANDLER PATH MUP IMPROVEMENTS

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MATCHLINE STA 116+00 SEE SHEET 5

MATCHLINE STA SEE 203+75 BELOW LEFT



MATCHLINE STA 203+75 SEE ABOVE RIGHT

MATCHLINE STA 208+25 SEE SHEET 7

CONSTRUCTION NOTES

NO.	DESCRIPTION	QTY	UNIT
1	Concrete Shared-Use Path, MAG Dtl 230, 10' Wide, 7" Thick PCCP With Reinforced Joints	6,979	SF
4	Concrete Curb & Gutter Per MAG Dtl 220-1, Type 'A', H=6"	115	LF
6	Curb Ramp, Modified for Vertical Curb, 10' Wide, Per COC Dtl C-243	180	SF
7	Concrete Single Curb Per Mag 426 Dtl 222, Type 'A', H=6"	118	LF
8	Install Bike Route Guide Sign	8	EA
15	Concrete Sidewalk Per MAG Dtl 230	1,616	SF
16	Install "Stay on Trail" Sign	2	EA
17	Install "No Trespassing" Sign	2	EA
18	Concrete Driveway Per MAG Dtl 260, W=20'	320	SF
19	Install Traffic Signal Equipment	-	EA
20	Install Traffic Signal Conduit and Cables	-	LF

REMOVAL NOTES

NO.	DESCRIPTION	QTY	UNIT
1	Remove & Dispose Existing Curb & Gutter	115	LF
2	Remove & Dispose Existing Sidewalk	1,437	SF
3	Remove & Dispose Existing Single Curb	22	LF
4	Remove & Dispose Existing Tree	1	EA

NO.	DATE	REVISIONS	BY

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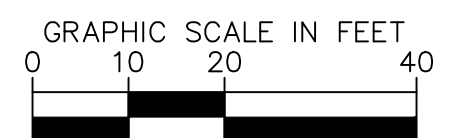
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NOT FOR CONSTRUCTION OR RECORDING

SCALE (H):	1"=50'
SCALE (V):	N/A
DESIGNED BY:	JCV
DRAWN BY:	ALM
CHECKED BY:	ASD
DATE:	09/2022

CITY OF CHANDLER
KYRENE BRANCH CANAL
SHARED USE PATH
CIVIL PLAN SHEET

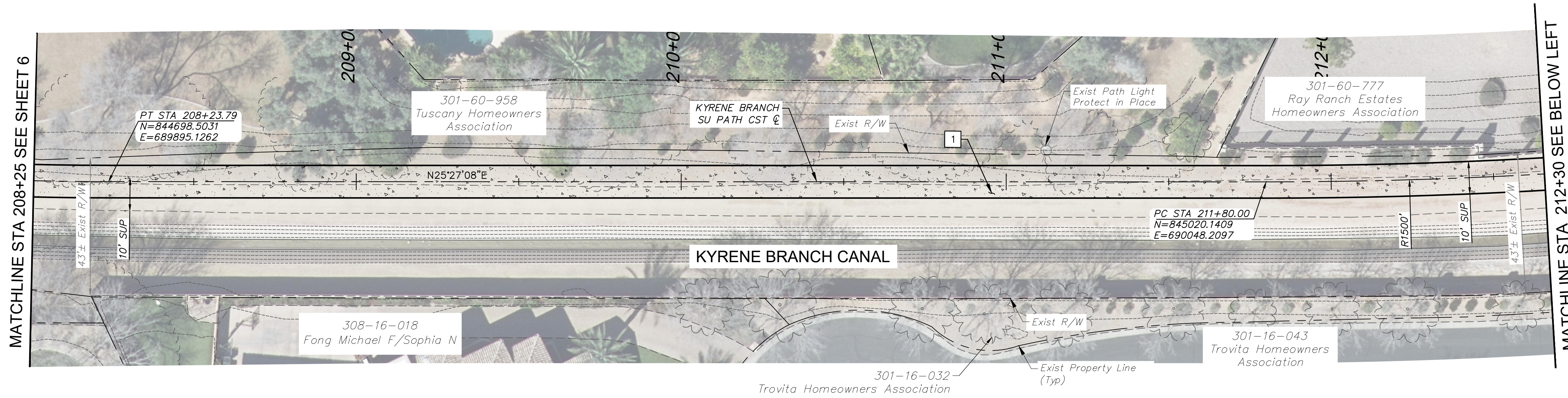
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SHEET DWG PL03
6 OF 10



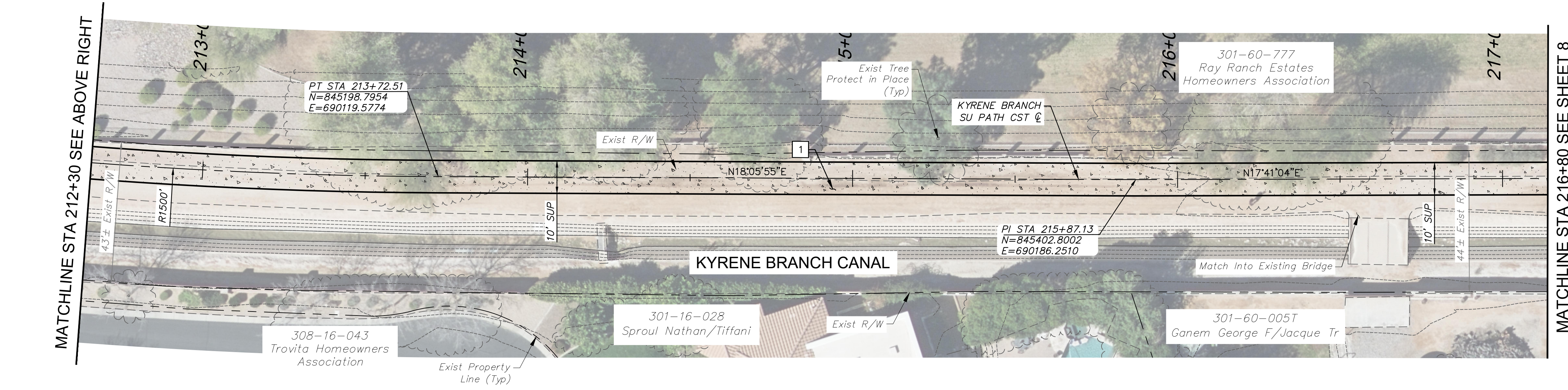
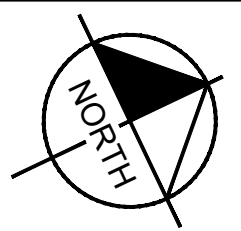
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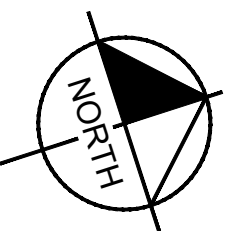
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MATCHLINE STA 212+30 SEE BELOW LEFT



MATCHLINE STA 212+30 SEE ABOVE RIGHT

MATCHLINE STA 216+80 SEE SHEET 8



CONSTRUCTION NOTES			
NO.	DESCRIPTION	QTY	UNIT
1	Concrete Shared-Use Path, MAG Dtl 230, 10' Wide, 7" Thick PCCP With Reinforced Joints	9,029	SF

NO.	REVISIONS	DATE	BY

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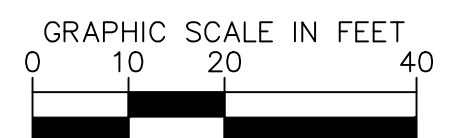
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DESIGNED BY:	JCV
DRAWN BY:	ALM
CHECKED BY:	ASD
DATE:	09/2022

CITY OF CHANDLER
 KYRENE BRANCH CANAL
 SHARED USE PATH
 CIVIL PLAN SHEET

CITY PROJECT NO. STXX.XX
 MAG PROJECT NO. 0600-0145-22-E001-1137A
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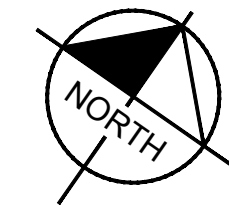
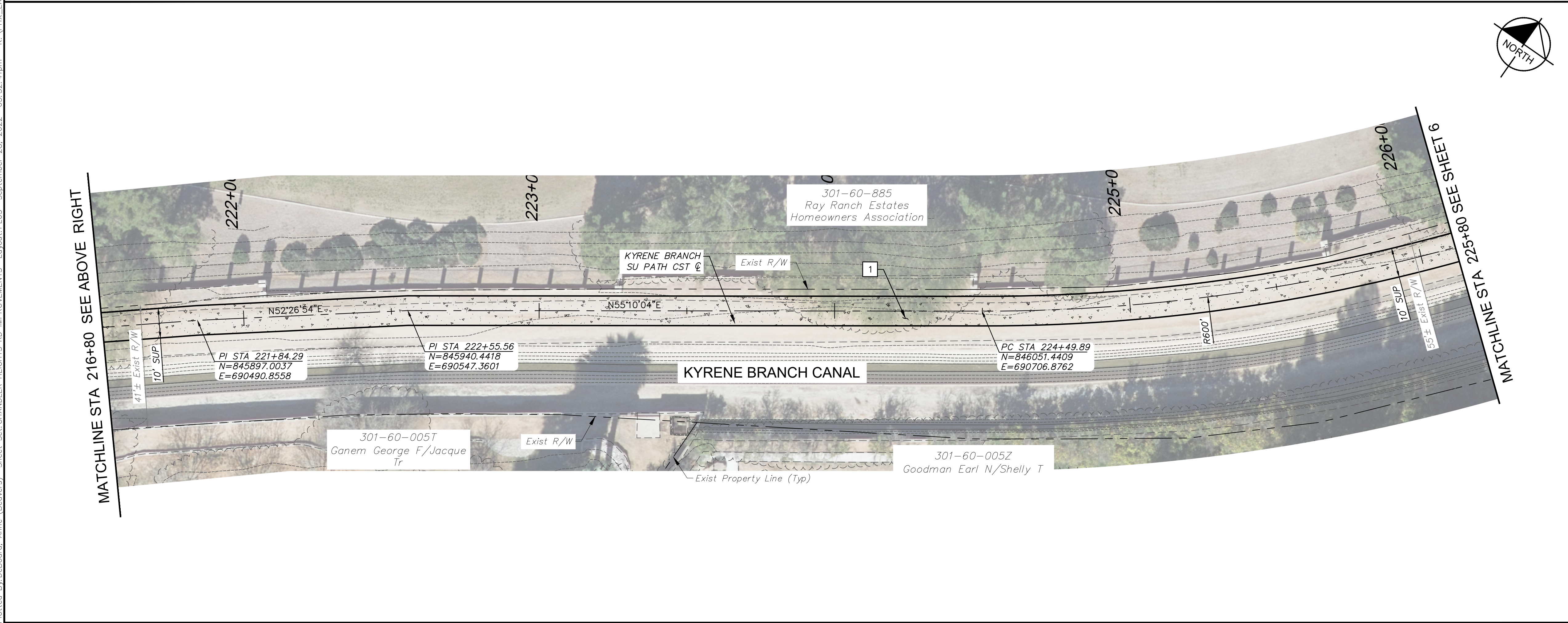
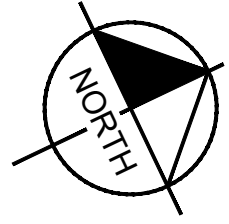
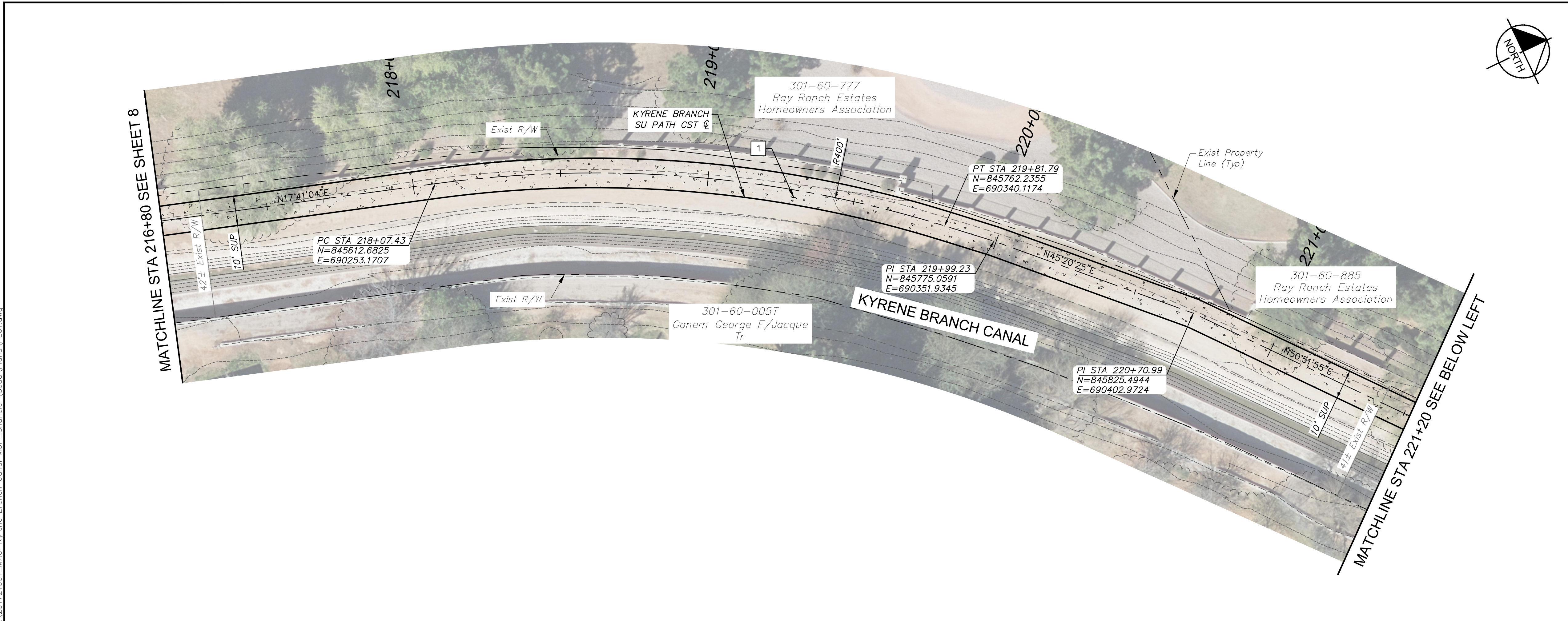
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7 OF 10



C.O.C. LOG NO. CIV XX-XXXX CHANDLER PATH MUP IMPROVEMENTS

Plotted By: DeBoard, Anne (Beavers) Sheet Set: CHANDLER HEIGHTS RD IMPROVEMENTS Layout: PL05 September 28, 2022 03:32:41pm K:\PHX\LA\291721001\MAG-Kyrene Branch Canal MUP-Chandler\Gadd\Plans\PL01.dwg



CONSTRUCTION NOTES		
NO.	DESCRIPTION	QTY UNIT
1	Concrete Shared-Use Path, MAG Dtl 230, 10' Wide, 7" Thick PCCP With Reinforced Joints	8,981 SF

NO.	REVISIONS	DATE	BY

Kimley»Horn
 © 2022 KIMLEY-HORN AND ASSOCIATES, INC.
 7740 N. 16th STREET, SUITE 300, PHOENIX, AZ 85020
 PHONE: 602-944-5500 FAX: 602-944-7423
 WWW.KIMLEY-HORN.COM

PRELIMINARY
15%
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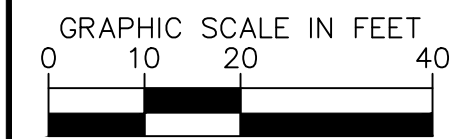
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SCALE (V):	N/A
DESIGNED BY:	JCV
DRAWN BY:	ALM
CHECKED BY:	ASD
DATE:	09/2022

CITY OF CHANDLER
 KYRENE BRANCH CANAL
 SHARED USE PATH
 CIVIL PLAN SHEET

CITY PROJECT NO. STXX.XX
 MAG PROJECT NO. 0600-0145-22-E001-1137A
 -0A.0000001

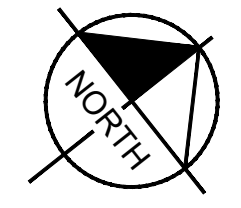
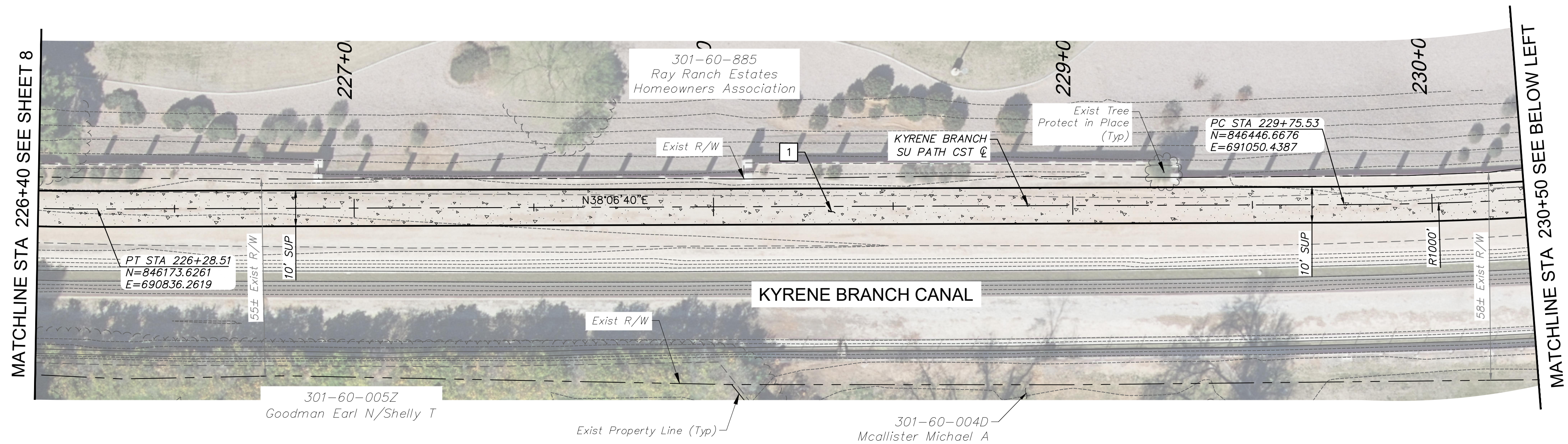
SHEET DWG
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8 OF 10



C.O.C. LOG NO. CIV XX-XXXX CHANDLER PATH MUP IMPROVEMENTS

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CONSTRUCTION NOTES			
NO.	DESCRIPTION	QTY	UNIT
1	Concrete Shared-Use Path, MAG Dtl 230, 10' Wide, 7" Thick PCCP With Reinforced Joints	7,300	SF
8	Install Bike Route Guide Sign	2	EA
10	Install Trail Wayfinding Kiosk	1	EA
15	Concrete Sidewalk Per MAG Dtl 230	429	SF

REMOVAL NOTES			
NO.	DESCRIPTION	QTY	UNIT
4	Remove & Dispose Existing Tree	1	EA

REVISIONS		DATE	BY

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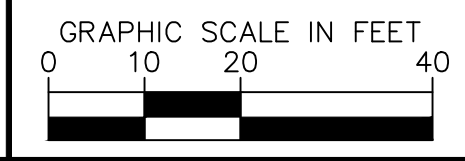
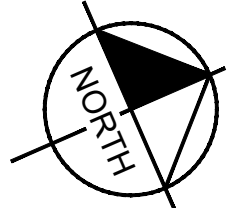
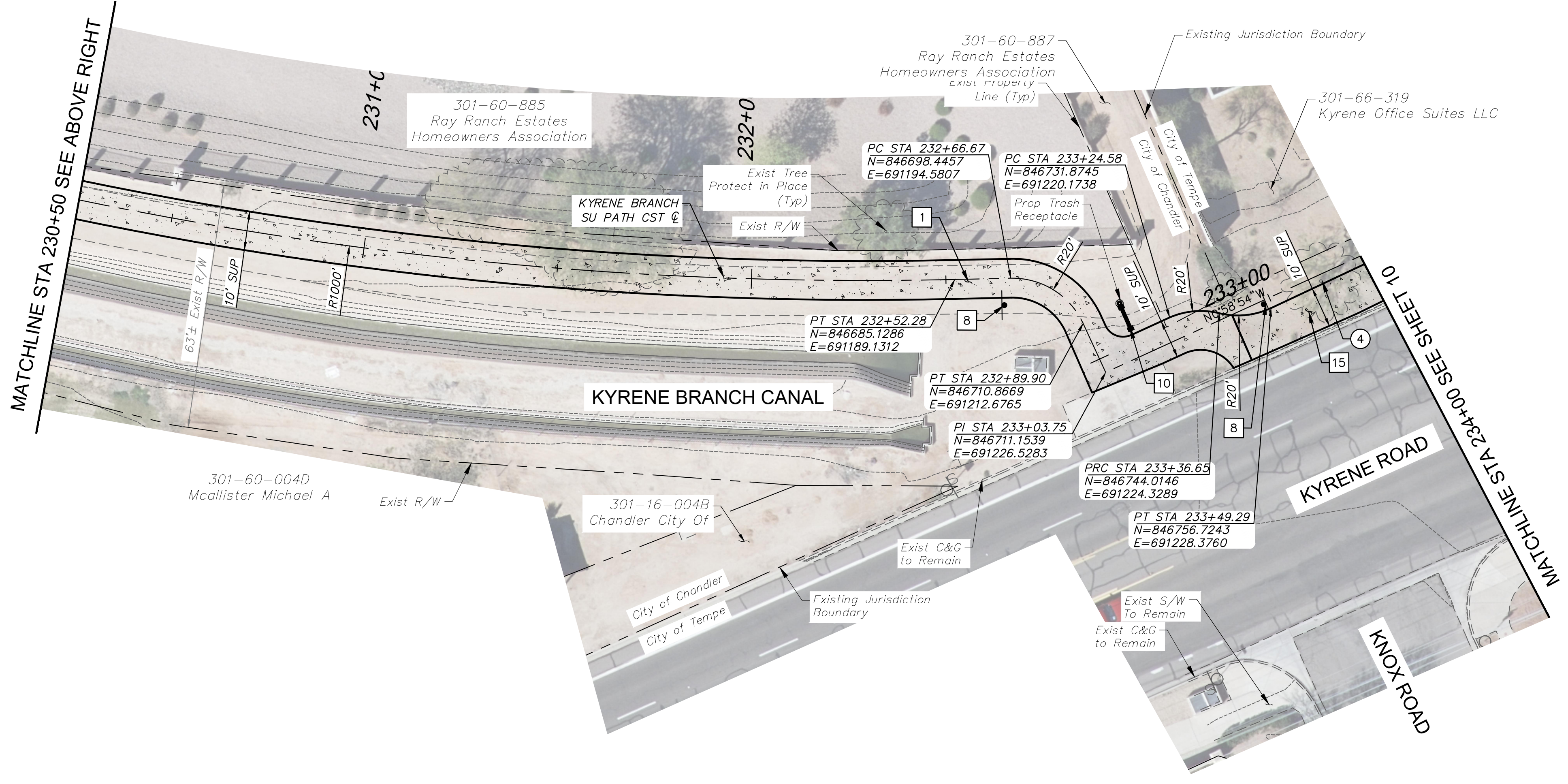
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SCALE (V):	N/A
DESIGNED BY:	JCV
DRAWN BY:	ALM
CHECKED BY:	ASD
DATE:	09/2022

CITY OF CHANDLER
 KYRENE BRANCH CANAL
 SHARED USE PATH
 CIVIL PLAN SHEET

CITY PROJECT NO. STXX.XX
 MAG PROJECT NO. 0600-0145-22-E001-1137A
 -0A.0000001

SHEET DWG
 9 OF 10

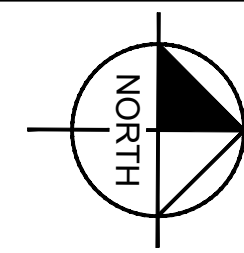
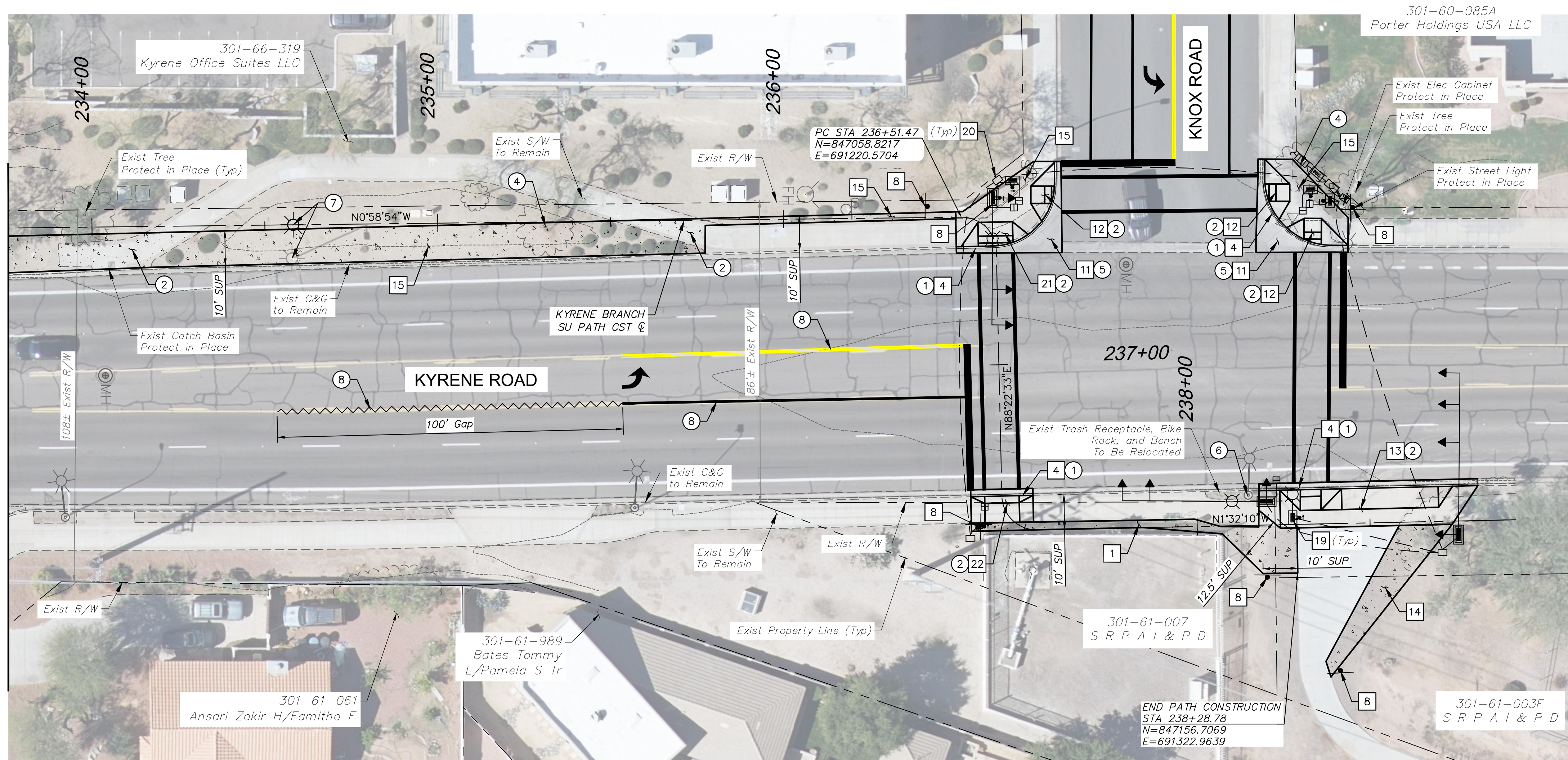


Call at least two full working days before you begin excavation.
ARIZONA 811
 Arizona One Stop, Inc.
 Dial 8-1-1 or 1-800-STAKE-IT (742-7346)
 In Maricopa County: (602) 263-1100

C.O.C. LOG NO. CIV XX-XXXX CHANDLER PATH MUP IMPROVEMENTS

Plotted By: DeBoard, Anna (Beavers). Sheet Set: CHANDLER HEIGHTS RD IMPROVEMENTS. Layout: PLOT. September 28, 2022. 03:33:10pm. K:\PHX\LA\291721001_MAG-Kyrene Branch Canal MUP_Chandler\Coord\Plans\PL01.dwg

MATCHLINE STA 234+00 SEE SHEET 10



CONSTRUCTION NOTES			
NO.	DESCRIPTION	QTY	UNIT
4	Concrete Curb & Gutter Per MAG Dtl 220-1, Type 'A', H=6"	169	LF
8	Install Bike Route Guide Sign	8	EA
11	Concrete Valley Gutter Per MAG Dtl 260	194	SF
12	Curb Ramp Per MAG Dtl 236-3	228	SF
13	Combined Sidewalk Ramp and Residential Driveway Per COC Dtl C-245	640	SF
14	PCCP, 9" Thick, Class A	409	SF
15	Concrete Sidewalk Per MAG Dtl 230	3,055	SF
19	Install Traffic Signal Equipment	-	EA
20	Install Traffic Signal Conduit and Cables	-	EA
21	Curb Ramp, 10' Wide Per MAG Dtl 236-3	98	SF
22	Modified Mid-Block Ramp, 10' Wide Per COT Dtl T-322	139	SF

REMOVAL NOTES			
NO.	DESCRIPTION	QTY	UNIT
1	Remove & Dispose Existing Curb & Gutter	169	LF
2	Remove & Dispose Existing Sidewalk	1,763	SF
4	Remove & Dispose Existing Tree	2	EA
5	Remove Concrete Valley Gutter	194	SF
6	Remove Street Light	1	EA
7	Remove and Relocate Street Light	1	EA
8	Obliterate Existing Striping	310	LF

REVISIONS		BY
NO.	DATE	

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PHONE: 602-944-5500 FAX: 602-944-7423
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NOT FOR
CONSTRUCTION
OR RECORDING

SCALE (H): 1"=50'
SCALE (V): N/A
DESIGNED BY: JCV
DRAWN BY: ALM
CHECKED BY: ASD
DATE: 09/2022

CITY OF CHANDLER
KYRENE BRANCH CANAL
SHARED USE PATH
CIVIL PLAN SHEET

CITY PROJECT NO. STXX.XX
MAG PROJECT NO. 0600-0145-22-E001-1137A
-0A.0000001

SHEET DWG
PL07



C.O.C. LOG NO. CIV XX-XXXX CHANDLER PATH MUP IMPROVEMENTS

Appendix B: Alternatives Matrix

CROSSING ANALYSIS BY LOCATION

Crossing Alternative	Description	Advantages	Disadvantages
Install Crosswalk on the North Leg of North Knox Rd	New crosswalk on the north leg of North Knox Rd with driveway on east side reconstructed to include sidewalk ramp	<ul style="list-style-type: none"> Located directly at path terminus east of Kyrene Rd Located adjacent to bus stops Avoids impacts to irrigation facilities Avoids overhead power 	<ul style="list-style-type: none"> Located 440' from path terminus west of Kyrene Rd; some travelers may decide to jaywalk Includes unprotected crossing of North Knox Rd Potential conflict if eastbound left-turning vehicles do not yield to travelers in the crosswalk
Install Crosswalk Mid-block between North Knox Rd and South Knox Rd	New crosswalk located between the offset path termini west and east of Kyrene Rd (280' south of North Knox Rd and 160' north of South Knox Rd)	<ul style="list-style-type: none"> Located relatively close to the path terminus west of Kyrene Rd (160' away) and east of Kyrene Rd (280' away) Does not include an unprotected crossing of either leg of Knox Rd No potential conflicts with left-turning vehicles 	<ul style="list-style-type: none"> Not located directly at either path terminus west and east of Kyrene Rd; some travelers may decide to jaywalk Not located adjacent to bus stops (280' away) May impact irrigation facilities
Install Crosswalk on the South leg of South Knox Rd	New crosswalk on the south leg of South Knox Rd	<ul style="list-style-type: none"> Located directly at path terminus west of Kyrene Rd 	<ul style="list-style-type: none"> Located 440' from path terminus east of Kyrene Rd; some travelers may decide to jaywalk Includes unprotected crossing of South Knox Rd Potential conflict if westbound left-turning vehicles do not yield to travelers in the crosswalk Not located adjacent to bus stops (440' away) May impact irrigation facilities

CROSSING ANALYSIS BY TYPE

Crossing Alternative	Description	Advantages	Disadvantages
Crosswalk with Rectangular Rapid Flashing Beacons (RRFBs)	New crosswalk with RRFBs and median refuge on Kyrene Rd	<ul style="list-style-type: none"> Provides convenient crossing for path and transit users Lower cost than HAWK or TS Minimal impacts to Kyrene Rd vehicle traffic flow May attract new path users or longer trips along path 	<ul style="list-style-type: none"> Does not provide protected crossing May be unfamiliar traffic control device to some drivers Maintenance costs High vehicle speeds and volumes may result in reduced visibility of, or compliance with, RRFBs
Crosswalk with High Intensity Activated Crosswalk (HAWK) or Pedestrian Signal	New crosswalk with HAWK or Pedestrian Signal on Kyrene Rd	<ul style="list-style-type: none"> Provides protected and convenient crossing for path and transit users May attract new path users or longer trips along path Less impactful than signal to Kyrene Rd vehicle traffic flow due to flexibility for drivers to proceed when way is clear Improved connectivity between neighborhoods may be perceived positively by some 	<ul style="list-style-type: none"> May be unfamiliar traffic control device to some drivers More costly than a crosswalk with RRFBs Maintenance costs Path volumes may not meet PHB warrant (but latent demand may exist) Improved connectivity between neighborhoods may be perceived negatively by some
Crosswalk with Traffic Signal	New crosswalk with traffic signal on Kyrene Rd	<ul style="list-style-type: none"> Provides protected and convenient crossing for path and transit users May attract new path users or longer trips along path Familiar traffic control device to drivers Improved connectivity between neighborhoods may be perceived positively by some Vehicular traffic on Knox Rd can use signal also 	<ul style="list-style-type: none"> More impactful than HAWK to Kyrene Rd vehicle traffic flow due to inflexibility for drivers to proceed until signal is green More costly than a crosswalk with RRFBs Maintenance costs Path volumes may not meet pedestrian signal warrant (but latent demand may exist) Improved connectivity between neighborhoods may be perceived negatively by some

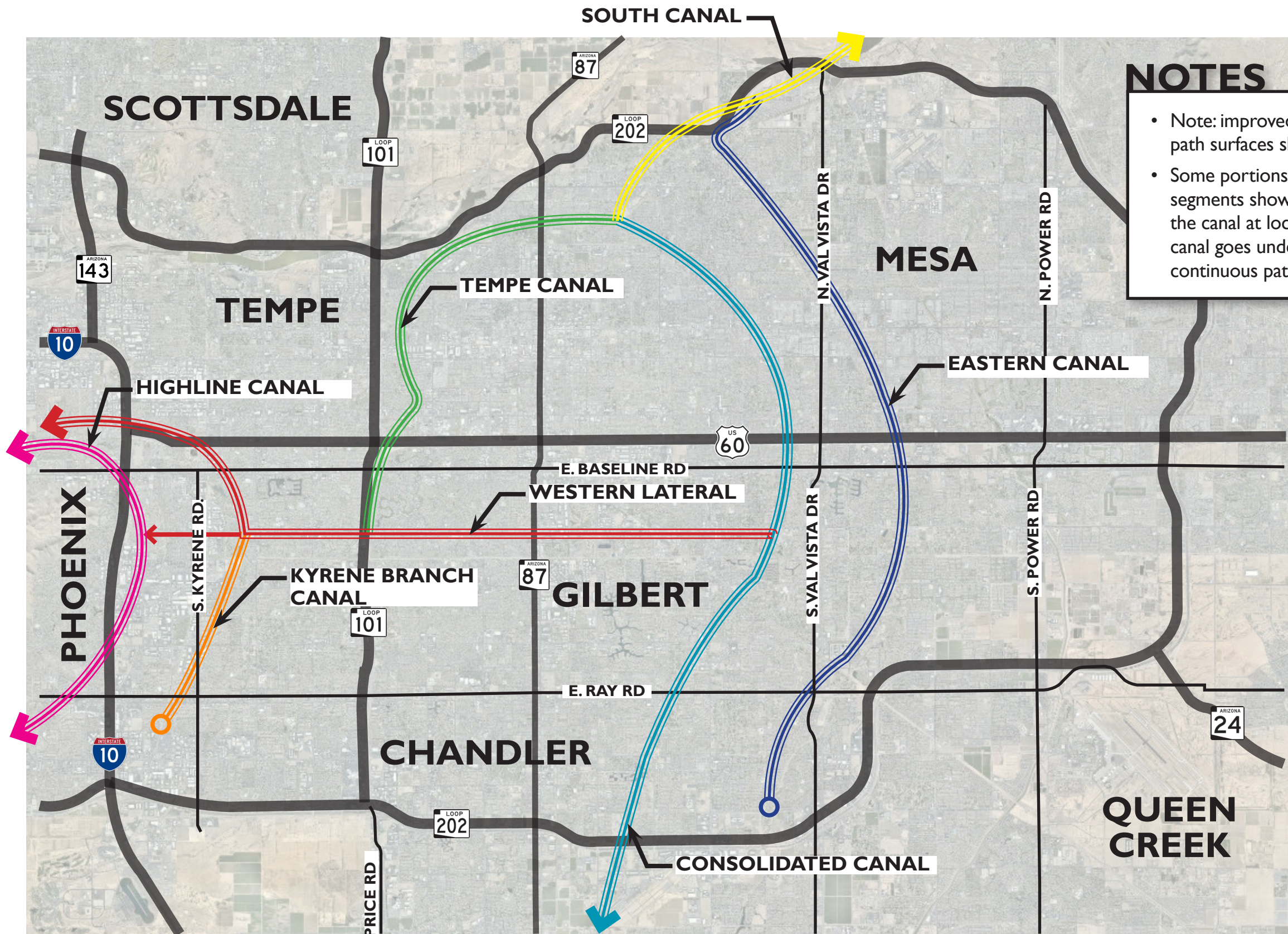
CROSSING ANALYSIS BY LOCATION

Crossing Alternative	Description	Advantages	Disadvantages
Install Perpendicular Crosswalk at Kyrene Canal Path Crossing	New crosswalk oriented perpendicular to Ray Rd that cuts through existing median and is placed in between the offset path termini north and south of Ray Rd	<ul style="list-style-type: none"> Shorter crossing distance than diagonal crosswalk Shorter crossing time than two-stage crosswalk due to only needing one traffic signal phase for most travelers to cross Provides ideal line-of-sight for pedestrians to view Ray Rd traffic Crosswalk orientation matches what visually-impaired travelers would likely expect Less costly than two-stage crosswalk 	<ul style="list-style-type: none"> Longer total travel distance (including travel on sidewalks) than a diagonal crosswalk More impactful than two-stage crosswalk to Ray Rd vehicle traffic flow due to longer crossing time needed to cross entire street
Install Diagonal Crosswalk at Kyrene Canal Path Crossing	New crosswalk oriented diagonal to Ray Rd that cuts through existing median and is aligned with the path termini north and south of Ray Rd	<ul style="list-style-type: none"> Shorter total travel distance (including travel on sidewalks) than a perpendicular or two-stage crosswalk Shorter crossing time than two-stage crosswalk due to only needing one traffic signal phase for most travelers to cross Less costly than two-stage crosswalk 	<ul style="list-style-type: none"> Longer crossing distance than perpendicular crosswalk Provides less than ideal line-of-sight for pedestrians to view Ray Rd traffic Crosswalk orientation does not match what visually-impaired travelers would likely expect More impactful than perpendicular or two-stage crosswalk to Ray Rd vehicle traffic flow due to longer crossing time needed to cross entire street
Install Two-Stage Crosswalk at Kyrene Canal Path Crossing	New crosswalk oriented perpendicular to Ray Rd that is split into two offset crossings with sidewalk in the median connecting the two crossings placed in between the offset path termini north and south of Ray Rd	<ul style="list-style-type: none"> Shorter crossing distance than diagonal crosswalk Provides ideal line-of-sight for pedestrians to view Ray Rd traffic Crosswalk orientation matches what visually-impaired travelers would likely expect Less impactful than perpendicular and diagonal crosswalks to Ray Rd vehicle traffic flow due to shorter crossing time needed to cross half the street at a time Improved connectivity between neighborhoods may be perceived positively by some 	<ul style="list-style-type: none"> Longer total travel distance (including travel on sidewalks) than a diagonal crosswalk Longer total travel time due to needing two separate traffic signal phases to cross Crosswalk turn in the median could be unexpected for visually-impaired travelers More costly than perpendicular and diagonal crosswalks due to construction of sidewalk in the median Path volumes may not meet pedestrian signal warrant (but latent demand may exist) Improved connectivity between neighborhoods may be perceived negatively by some

CROSSING ANALYSIS BY TYPE

Crossing Alternative	Description	Advantages	Disadvantages
Use Existing Crosswalk at McKemy Ave Signal	Signage directs path users to cross Ray Rd at existing signal at McKemy Ave (800' west of path)	<ul style="list-style-type: none"> No new major infrastructure Minimal cost No impacts to Ray Rd vehicle traffic flow Provides protected crossing 	<ul style="list-style-type: none"> Requires out-of-direction travel of 1,700' (~1/3 mile) Does not provide convenient crossing May result in jay-walking across Ray Rd
Crosswalk with High Intensity Activated Crosswalk (HAWK)	New crosswalk with HAWK on Ray Rd at path crossing that cuts through existing median	<ul style="list-style-type: none"> Provides protected and convenient crossing May attract new path users or longer trips along path Less impactful than pedestrian signal to Ray Rd vehicle traffic flow due to flexibility for drivers to proceed when way is clear Improved connectivity between neighborhoods may be perceived positively by some 	<ul style="list-style-type: none"> May be unfamiliar traffic control device to some drivers More costly than using existing McKemy Ave signal Maintenance costs Path volumes may not meet PHB warrant (but latent demand may exist) Improved connectivity between neighborhoods may be perceived negatively by some
Crosswalk with Pedestrian Traffic Signal	New crosswalk with pedestrian traffic signal on Ray Rd at path crossing that cuts through existing median	<ul style="list-style-type: none"> Provides protected and convenient crossing May attract new path users or longer trips along path Familiar traffic control device to drivers Improved connectivity between neighborhoods may be perceived positively by some 	<ul style="list-style-type: none"> More impactful than PHB to Ray Rd vehicle traffic flow due to inflexibility for drivers to proceed until signal is green More costly than using existing McKemy Ave signal Maintenance costs Path volumes may not meet pedestrian signal warrant (but latent demand may exist) Improved connectivity between neighborhoods may be perceived negatively by some

Appendix C: Public Meeting Graphics



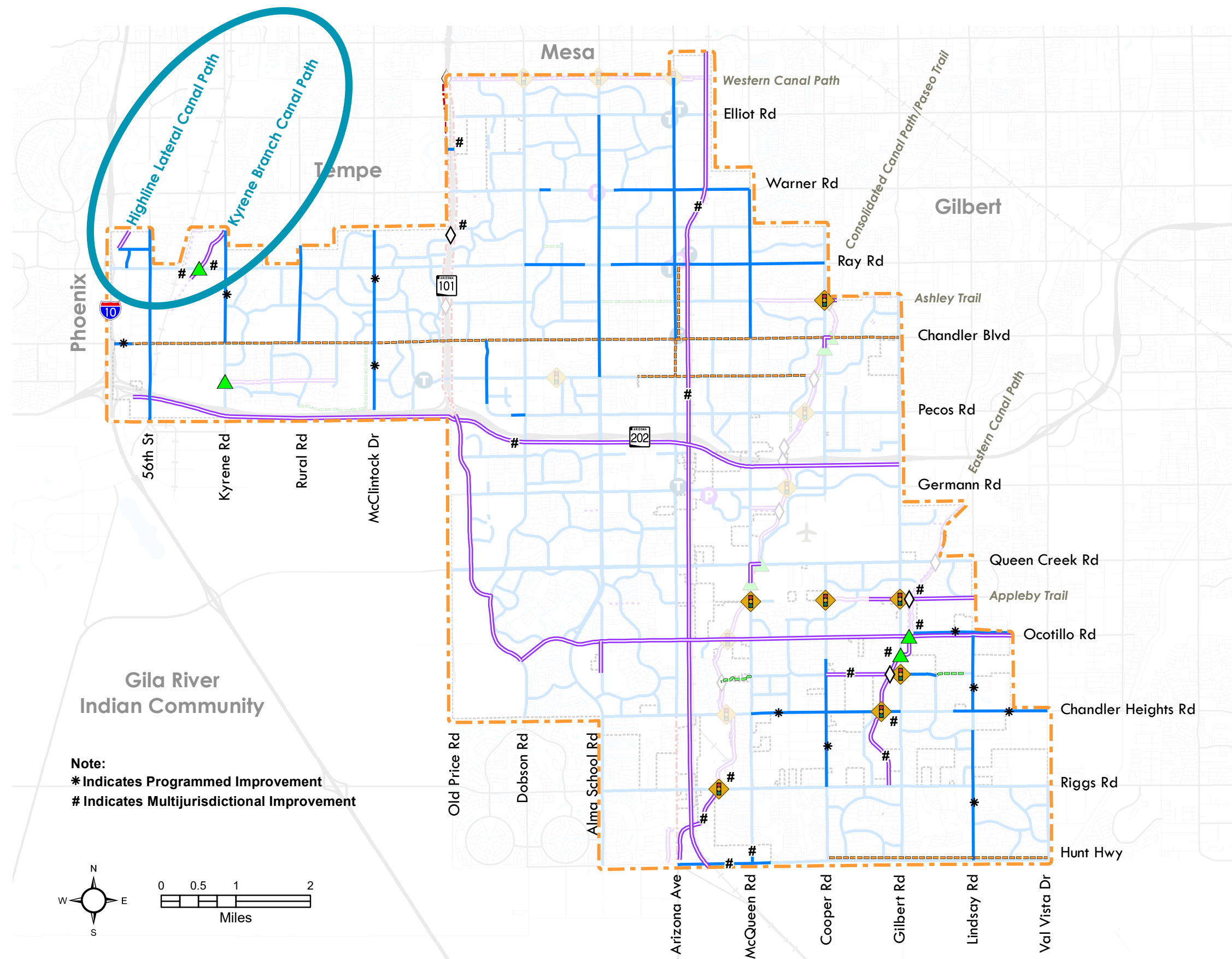
NOTES

- Note: improved and unimproved path surfaces shown on the map
- Some portions of some path segments shown deviate from the canal at locations where the canal goes underground and a continuous path is not feasible

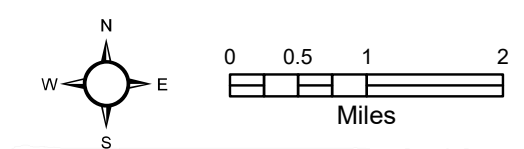
**City of Chandler
Transportation Master Plan
2019 Update
Bicycle/Pedestrian Recommendations
2020-2040**

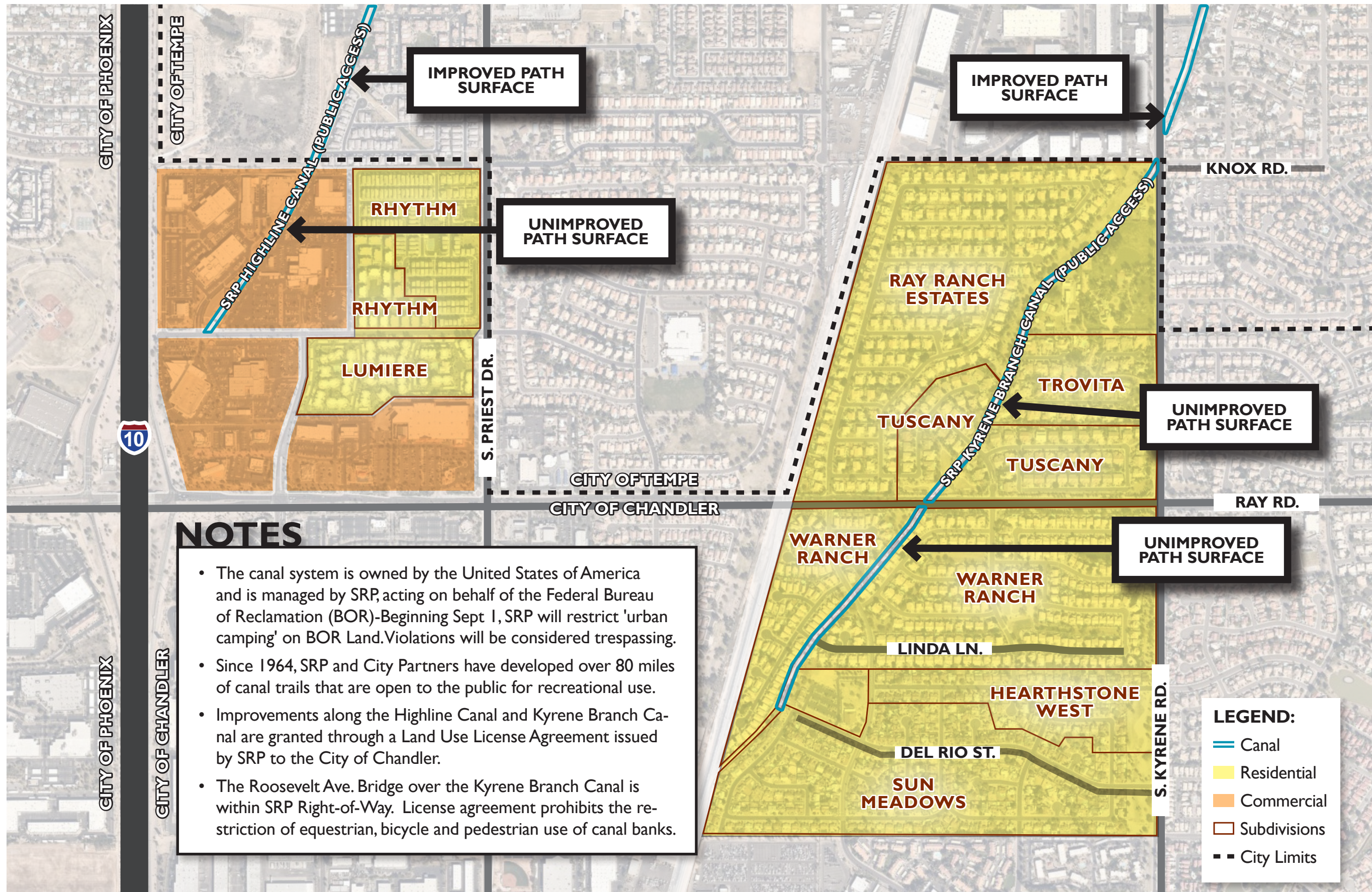
Legend

- Study Area
 - City Limits
 - Airport
 - Railroad
 - State Highway
 - Major Street
 - Local Street
- Bicycle Facilities**
- Bike Lane
 - On-Street Separated/Buffered Bike Lane
 - Bike Route
 - Shared Use Path – Paved
 - Shared Use Path – Unpaved
 - Paved Shoulder
 - Park and Ride Facility with Enhanced Bicycle Parking
 - Transit Facility with Enhanced Bicycle Parking
 - Shared Use Path Signalized Crossing (if warranted)
 - Crossing Signage Improvement
 - Overpass/Underpass



Note:
* Indicates Programmed Improvement
Indicates Multijurisdictional Improvement





NOTES

- The canal system is owned by the United States of America and is managed by SRP, acting on behalf of the Federal Bureau of Reclamation (BOR)-Beginning Sept 1, SRP will restrict 'urban camping' on BOR Land. Violations will be considered trespassing.
- Since 1964, SRP and City Partners have developed over 80 miles of canal trails that are open to the public for recreational use.
- Improvements along the Highline Canal and Kyrene Branch Canal are granted through a Land Use License Agreement issued by SRP to the City of Chandler.
- The Roosevelt Ave. Bridge over the Kyrene Branch Canal is within SRP Right-of-Way. License agreement prohibits the restriction of equestrian, bicycle and pedestrian use of canal banks.

LEGEND:

- Canal
- Residential
- Commercial
- Subdivisions
- City Limits

PROJECT PURPOSE AND OBJECTIVES

- Improve existing trails for **aesthetics, accessibility, and safety** to reduce the risk for severe or fatal pedestrian and bicycle accidents
- Connect to the Regional Trail System and **increase active transportation opportunities** in Chandler
- Maintain the **historic public active recreation use** of the canal alignment
- Evaluate key crossing opportunities to provide **safety & connectivity**
- Aligns with the City's partnerships and commitments to maintain **safe and beautiful public access** along the rights-of-way SRP grants to the City

PROJECT SCHEDULE

- Preliminary Planning Study Through MAG Design Assistance - Underway
 - 📄 **Deliverable:** Project Assessment Report and Preliminary (15%) Plans (anticipated fall 2022)
- Final Design - Beginning in 2023
 - 📄 **Deliverable:** Final Project Plans, Specifications, and Cost Estimate
- Construction - Beginning in 2024-2025
 - ✅ **Deliverable:** Completed Construction of Highline Canal and Kyrene Branch Canal Shared Use Pathways



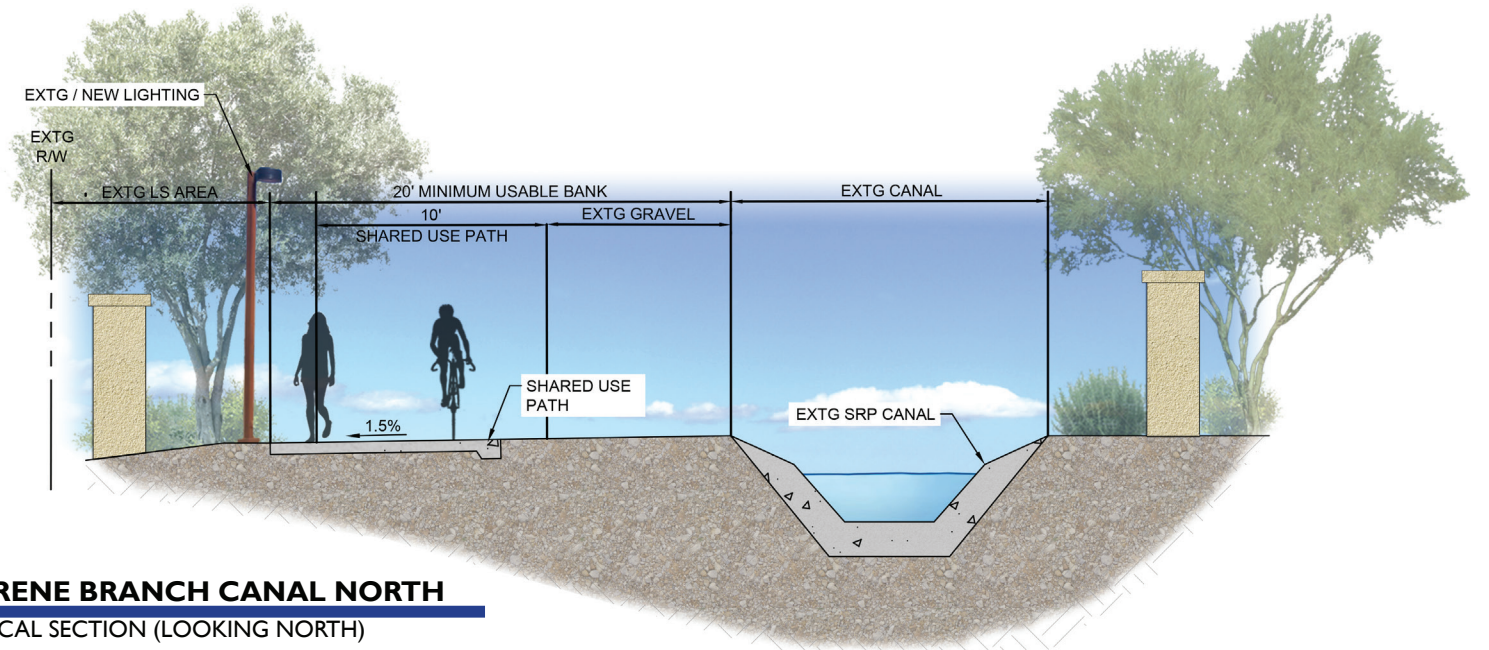
KEY MAP LEGEND

K1 N. KNOX CROSSING
*SEE CROSSING EXHIBIT NEXT SHEET

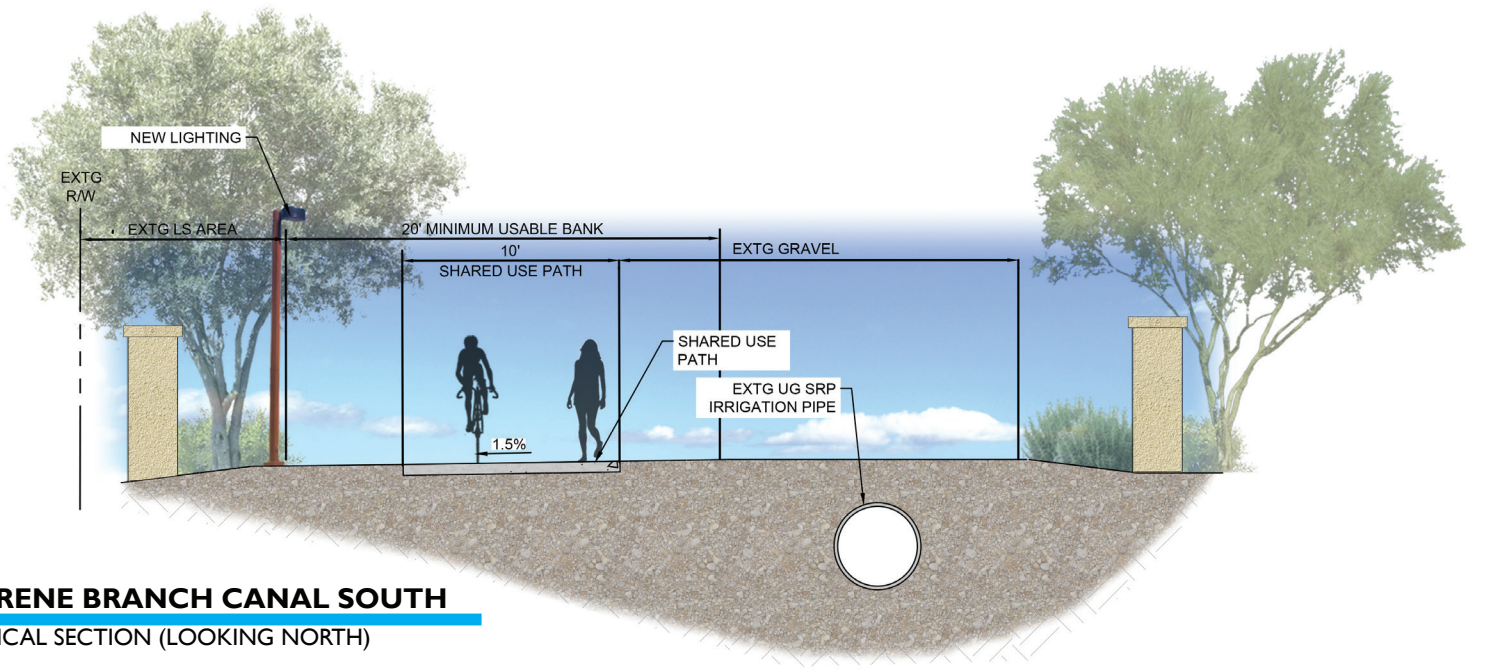
K3 RAY RD CROSSING
*SEE CROSSING EXHIBIT NEXT SHEET

K2 KYRENE BRANCH CANAL NORTH

K4 KYRENE BRANCH CANAL SOUTH

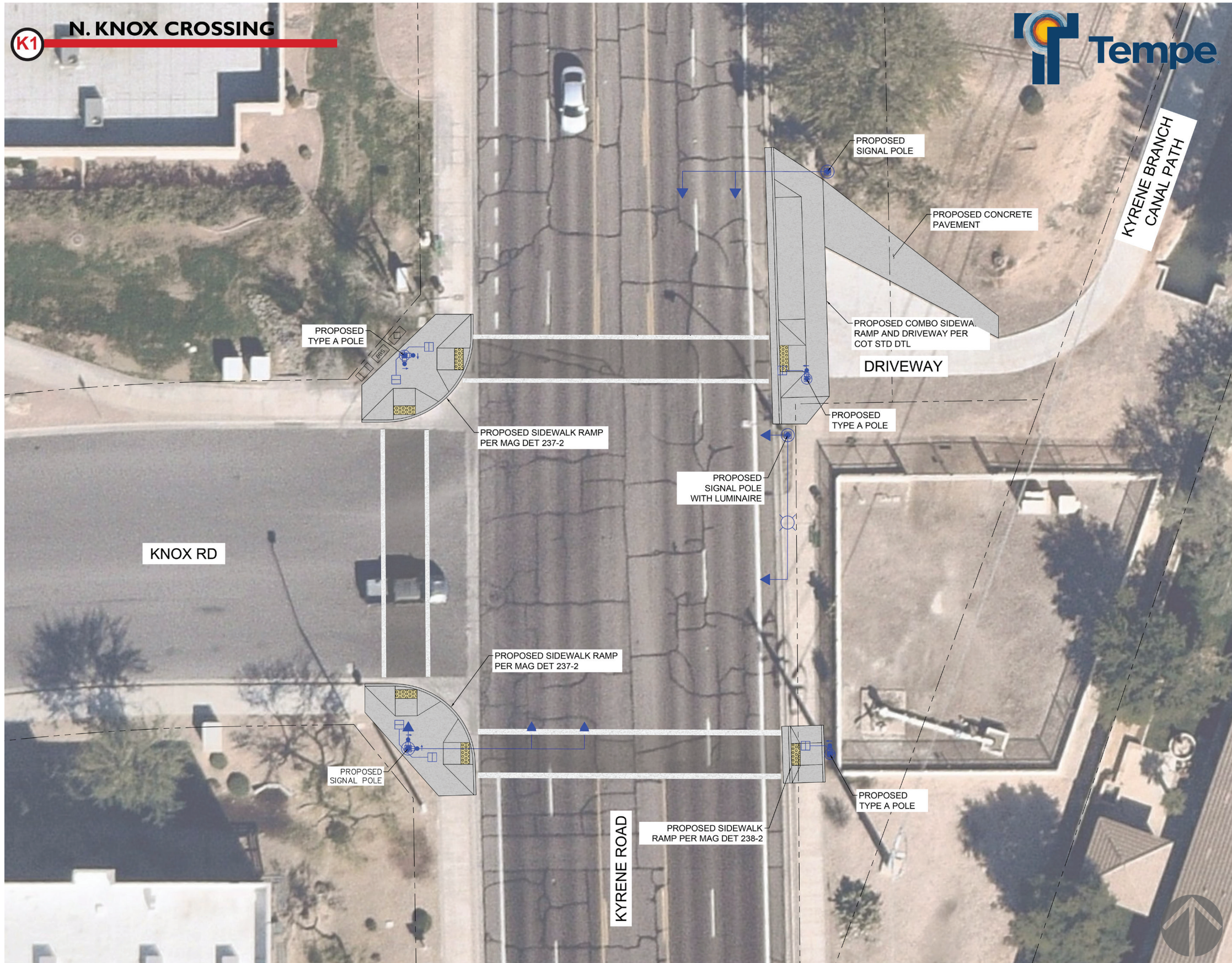


K2 KYRENE BRANCH CANAL NORTH
TYPICAL SECTION (LOOKING NORTH)



K4 KYRENE BRANCH CANAL SOUTH
TYPICAL SECTION (LOOKING NORTH)

NOTE: ALL PROPOSED IMPROVEMENTS ARE WITHIN PUBLICLY OWNED PROPERTIES THAT ARE CURRENTLY OPEN TO THE PUBLIC, INCLUDING PEDESTRIANS & BICYCLISTS.





SIGNAGE AND WAYFINDING OPTIONS



CUSTOM WAYFINDING (HIGHLINE)

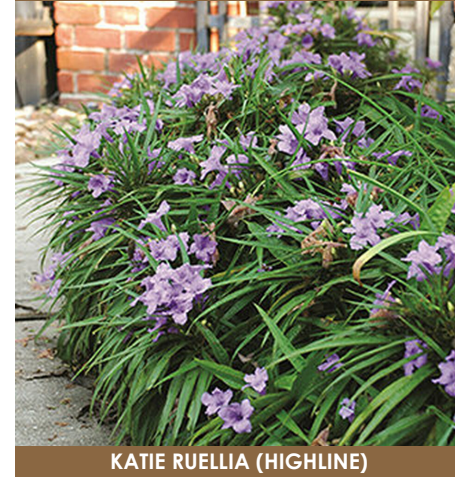


SAFETY



PRIVATE PROPERTY - NO TRESPASSING

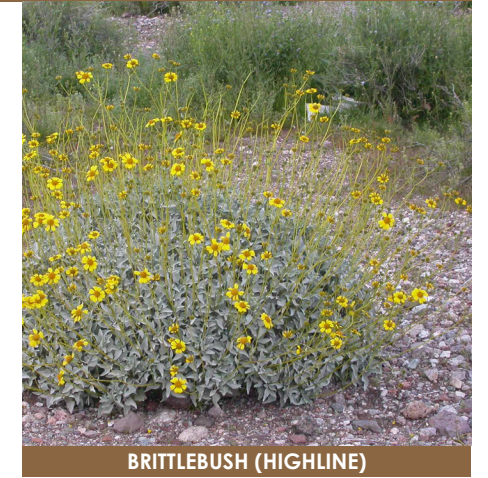
LANDSCAPE



KATIE RUELLIA (HIGHLINE)



GOPHER PLANT (HIGHLINE)



BRITTLEBUSH (HIGHLINE)

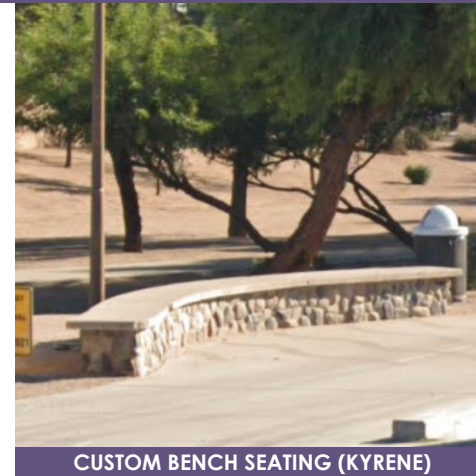


VALLEY PATH WAYFINDING (KYRENE)

SITE FURNISHINGS



TRASH RECEPTACLE



CUSTOM BENCH SEATING (KYRENE)



PRE-FABRICATED BENCH SEATING (KYRENE)

LIGHTING



PROPOSED PATH LIGHTING (HIGHLINE)



PROPOSED PATH LIGHTING (KYRENE)

Appendix D: Public Input Summary

Kyrene Branch Canal Shared Use Path and Highline Canal Shared Use Path

Open House Comment Card Recap

Chandler Sunset Library (Monsoon Room), 4930 W Ray Rd, Chandler
Monday, August 22, 2022 ~ 5:30pm – 6:30pm

Approximately 35 participants signed in at the meeting and were invited to fill out comment cards to provide additional information to the project team. Thirteen comment cards were received with comments. The following summarizes the comment cards received:

Were the displays and staff informative? If not, what further information would you like?	What comments/suggestions would you like to provide the project team related to the project?
A legend of the location of intersections would be helpful.	Support this project especially the crosswalks since kids use canal to get to/from school & the track/cross country team.
	Please keep the paved dimensions same at Tempe. Runners run on the dirt and cyclists on the pavement.
Confusing as to where the crosswalks will be.	Traffic would increase in our gated community (Tuscany). It would affect traffic along Roosevelt w/ speeding bikes. It will also increase homeless people to our neighborhood. <ul style="list-style-type: none"> • We are concerned about the cost to homeowners if any damage to the neighborhood. • Traffic congestion w/ crosswalk added. • Concrete – added heat + soil erosion.
Yes. Info on how dual-use can be safer.	Mixed use can be dangerous. Please consider 50% or 33% of the width to be ridged, undulated, or other to discourage excessive speeding by cyclists. I walk on the Kyrene Branch 1-2x per day usually at ~5:30am and 10pm. No longer can use the paved section between Kyrene & Warner because cyclists speed down, often without lights, and I have been scared off the path too often. Please don't ruin the gravel section too.
	Kyrene canal crossing at Ray should be straight across – easier for bikes. [provided sketch showing Ray crossing at diagonal to accommodate path]

Were the displays and staff informative? If not, what further information would you like?	What comments/suggestions would you like to provide the project team related to the project?
Yes.	<p>This seems environmentally <u>un</u>friendly, invasive to our Tuscany neighborhood, and not well thought through.</p> <p>My concerns –</p> <ul style="list-style-type: none"> • Please no more concrete, too hot already and unattractive. • We don't want another light to sit at and Ray is WAY too busy to cross w/out a light. • How will our GATED neighborhood be protected? I'd like to feel safe walking my dog at night – this will bring in more people than just our surrounding neighbors. • Why can't the path be used as is anyway – the gravel is fine for most bikes, walkers and runners.
Specific timelines on when alternative designs will be considered.	While it is understood that the canal path is NOT privately owned – it is US government owned – it is WITHIN a private gated community and we would respectfully like consideration of alternative design to avoid pavement in Tuscany.
Yes, excellent.	We support the project and are excited that canal path will help mitigate safety, lighting and dust! We look forward to the completion of the project.
Yes. Would like to see info on drainage, lighting, landscaping.	Concern over safety at crosswalk & (safety) ease of entering to existing backyards. Drainage changes due to concrete. Lighting affecting our quality of sleep. Damage to existing trees.
	Kyrene canal crossing at Ray should be straight across – easier for bikes. [provided sketch showing Ray crossing at diagonal to accommodate path]
Yes. Great turnout – encouraged by public participation!	<ul style="list-style-type: none"> • Wayfinding – trail names, street names, maps depicting trail system. • Pedestrian/bicyclist amenities – seating, shade, drinking fountains.
Would have appreciated hearing from key players and their role in project.	<p>Cancel Kyrene Path Project. We oppose this project for multiple reasons.</p> <p>This would have helped with Q&A to make sure our concerns are heard by all, instead of individual meeting with city representatives. Lack of consistency.</p>

<p>Were the displays and staff informative? If not, what further information would you like?</p>	<p>What comments/suggestions would you like to provide the project team related to the project?</p>
<p>It would be nice if there was detail at what exactly the crossing signals were at Ray Road? Were they a standard signal, HAWK, or rapid flashing beacons?</p> <p>It would be nice if there was detail shown as to what improvements of widening would be made to the sidewalk between the Knox Rd crossing and where the path connects back up with the Kyrene canal (area K1 in the Project Area Map)</p>	<ul style="list-style-type: none"> • In conjunction with this consider, creating a bike route at the south end of the Kyrene Canal project to get to Nozomi Pool. (Linda to McKemy to Erie to Roosevelt) • Consider improvement to the Gila Ditch running north from Nozomi toward the south end of the Kyrene Canal project. • On the Kyrene project, it would be nice if the sidewalk were widened between the Knox Rd signal and where the path rejoins the Kyrene Canal to the south (area K1 in the Project Area Map) • It would be nice if the City of Chandler participated in the Knox road alignment pedestrian crossing of the I-10. It would connect Chandler residents on the east side of I-10 to a great park in the city of Phoenix, on the west side of I-10. • Please make sure the Knox/Kyrene signal is responsive to pedestrian crossers, and crossing delays are not optimized exclusively for vehicle traffic delay.

Appendix E: Desktop Geotechnical Study

**DESKTOP GEOTECHNICAL STUDY
KYRENE CANAL SHARED USE PATH -
DESIGN CONCEPT REPORT
CHANDLER, ARIZONA**

Prepared for:
Kimley-Horn
7740 N 16th Street, Suite 300
Phoenix, Arizona, 85020



Prepared by:
ATEK Engineering Consultants, LLC
111 South Weber Drive, Suite 1
Chandler, Arizona 85226



ATEK Project # 210265

April 20, 2022

April 20, 2022
ATEK Project #210265

Attention: Ms. Anne S. Deboard, PLA, ASLA
Kimley-Horn
7740 N 16th Street, Suite 300
Phoenix, AZ 75020

Regarding: Geotechnical Desktop Study

Project: Kyrene Canal Shard Use Path
Design Concept Report
Chandler, Arizona

Dear Ms. DeBoard:

ATEK Engineering Consultants, LLC is pleased to present the attached Desktop Geotechnical Study for the Kyrene Canal Shared Use Path Design Concept Report project located in Chandler, Arizona. The purpose of our study was to evaluate the subsurface conditions based on published soil information at the proposed site to develop general geotechnical engineering recommendations for project conceptual design.

Based on our findings, the site is considered suitable for the proposed construction, provided that geotechnical design and construction recommendations are determined prior to final design and construction. General comments regarding the geotechnical aspects of the project are presented in the attached design concept report. The comments contained within this report are dependent on the provisions provided in the Limitations and Recommended Additional Services sections of this report.

We appreciate the opportunity of providing our services for this project. If you have questions regarding this report or if we may be of further assistance, please contact the undersigned.

Sincerely,
ATEK Engineering Consultants, LLC



Antonio Lopez, P.E.
Project Manager



Armando Ortega, P.E.
Principal Geotechnical Engineer

Distribution: (1) Addresses (Electronic Copy)

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1. INTRODUCTION

This report presents the results of our desktop geotechnical study for the Kyrene Canal Shared Use Path (SUP) in Chandler, Arizona. A Site Location Map is presented in **Appendix A** of this report. The following sections of this report describe our understanding of the project and our scope of services.

1.1. Project Description

The project consists of developing general comments to be included in a design concept report for a shared use path and pedestrian signalized intersections within the City of Chandler, Arizona. The comments contained in this report are based on existing soil information published by Arizona Geological Survey, Natural Resources Conservation Service, and Arizona Department of Water Resources and should be confirmed prior to project final design and construction. The SUP will be along the Kyrene Canal and will extend from Knox Road to Linda Lane. The path is anticipated to be composed of a 10-foot-wide concrete sidewalk. Additional improvements may include path signage, and signalized pedestrian crossings at Ray Road and Knox Road.

1.2. Purpose

The purpose of this desktop geotechnical study was to evaluate the general surface and subsurface conditions at the site based on published soil data, and to present preliminary recommendations related to geotechnical aspects of design and construction of the proposed project.

1.3. Scope of Services

Our study included a review of existing soil characteristics published by The National Geologic Map Database, Natural Resources Conservation Service (Web Soil Survey), Arizona Department of Water Resources (well logs), a site visit, and preparation of this report. This report presents general comments regarding geotechnical

recommendations for design and construction of the proposed crossings. The comments contained in this report are subject to the limitation presented herein. Attention is directed to the “Limitations” section of this report.

1.4. Review of Existing Data

Documents that were reviewed during our study include the following:

- Pearthree, P.A. and Huckleberry, G., 1994, Surficial Geologic Map of the Mesa 30' x 60' Quadrangle, Arizona. Arizona Geological Survey Open File Report, OFR-94-24, 1 map sheet, map scale 1:100,000.
- Natural Resources Conservation Service, Soil Map of the Eastern Maricopa and Northern Pinal Counties Area, Arizona
- Arizona Department of Water Resources, Registry of Wells in Arizona, Well Registry No 55-506936 and 55-602484.

2. FIELD EXPLORATION

2.1. General

A site visit was conducted as part of this Geotechnical Desktop Study. The general surface encountered at the site consisted of Clayey Sands. Soil classifications are based on visual classifications.

2.2. Soil Test Borings

A field exploration to advance soil test borings was not conducted as part of this study. Based on a review of the well logs, soil borings can be advanced with a CME 75 truck mounted drill rig or equivalent to collect soil samples for a final design.

3. GENERAL SITE CONDITIONS

3.1. Surface Conditions

The project alignment begins at the intersection of the Kyrene-Branch Canal Trail and West Linda Lane. The trail proceeds northeast until the path terminates at the intersection of South Kyrene Road and West Knox Road. Ray Road is a six-lane roadway with an island in the center at the intersection with Kyrene-Branch Canal. Kyrene Road is a four-lane roadway with a center lane at the intersection with Kyrene-Branch Canal. The project alignment is bounded by residential development on the west and east side of the canal. The topography of the Kyrene Canal trail from the southwestern end of the alignment to the northeastern end of the alignment is relatively flat.



Figure 1 Kyrene Canal & Ray Road



Figure 2 Kyrene Canal & Ray Road

Based on surficial geological maps of the Mesa quadrangle, the area is mapped as Holocene-aged alluvial deposits with incipient soil development. Eolian incurred silt fines, weak calcium carbonate accumulation, and permeable are characteristic of these soils. The United States Department of Agriculture Web Soil Survey¹ has mapped the soil at the site as Loam or Clay Loam. A loam is a soil consisting of varying amounts of clay, silt, and sand. Based on the well logs published by Arizona Department of Water Resources, the surficial soils consist of Clayey Sands and Silty Sands.

3.2. Groundwater Conditions

Based on a review of published groundwater data maintained by Arizona Department of Water Resources anticipated depth to groundwater is approximately 109 feet below the existing ground surface elevation (Site ID 331941111563801). It is anticipated that groundwater will not be a factor in design or construction of the planned improvements.

¹ Websoilsurvey.gov

It should be noted that soil moisture conditions within the area may vary depending on rainfall and/or runoff conditions not apparent at the time of our field study.

3.3. Collapsible and Expansive Soils

Laboratory testing was not performed as part of this desktop study. Based on the available published soil data it is anticipated that the site soil will be moderately expansive. The hydro-collapsible potential and/or swell potential should be evaluated prior to final design.

3.4. Geologic Hazards

3.4.1. Liquefaction Potential

Based on the site soils and groundwater conditions encountered at the project site during this study, the preliminary potential for soil liquefaction is considered to be negligible.

3.4.2. Flood Plains

Based on a review of the Federal Emergency Management Agency (FEMA) Flood Maps², the project site is not within the 100-year flood zones. The map indicates the project site is located in Zone X, which is an area of 0.2% annual chance of flood with average depths of less than 1 foot or with drainage areas less than 1 square mile.

3.5. Seismic Considerations

The project site is located in south-central Arizona which is an area of low seismic activity. The following values were developed using the Structural Engineers Association by Location (<https://seismicmaps.org>) the 2018 IBC (as referenced by ASCE 7-16) and are based on knowledge of local geologic conditions, and subsurface soils

² FEMA Flood Map Number 04013C2705L dated 10/16/13

encountered during our study. Soil borings were not advanced during our field study. The geographic coordinates listed below were used in developing the seismic design factors.

Central Latitude.....33.32406965°

Central Longitude.....-111.94884655°

Seismic Design Factors	Value
Site Class	D
F _a , Site Coefficient	1.6
F _v , Site Coefficient	2.4
S _s , Mapped Spectral Acceleration at 0.2-second Period	0.174 g
S ₁ , Mapped Spectral Acceleration at 1.0-second Period	0.064 g
S _{MS} , Spectral Acceleration at 0.2-second Period Adjusted for Site Class	0.279 g
S _{M1} , Spectral Acceleration at 1.0-second Period Adjusted for Site Class	0.153 g
S _{DS} , Design Spectral Response Acceleration at 0.2-second Period	0.186 g
S _{D1} , Design Spectral Response Acceleration at 1.0-second Period	0.102 g

3.6. Earth Fissures and Land Subsidence

The project site is located in an area with no documented earth fissures³ and in an area without a measured land subsidence⁴.

³ Arizona Geological Survey, 2019, Locations of Mapped Earth Fissure Traces in Arizona, v.11.06.2019. Arizona Geological Survey Digital Information (DI-39 v. 11.06.19), shapefile and Google Earth KMZ file.

⁴ Arizona Department of Water Resources, 2020, Total Land Subsidence in the Tucson Metropolitan Area based on Radarsat-2 InSAR Data.

4. ENGINEERING ANALYSES AND RECOMMENDATIONS

4.1. Earthwork

The following sections present general earthwork recommendations based on our understanding of the project, the preliminary desktop review of available soil information and preliminary engineering analysis. The preliminary recommendations presented in this report should be confirmed prior to final design. Based on the findings of our desktop review and preliminary engineering analysis.

4.1.1. Concrete Flatwork

It is anticipated that concrete flatwork will be constructed as part of the signalized pedestrian crossing. Additionally, the SUP will be composed of 10-foot-wide concrete path. Based on the soil characteristics previously referenced, soil improvements may be required. Soil improvements include surface scarification and re-compaction. If the site soils have swell potential, import material may be required.

4.1.2. Pavement Site Preparation and Grading

The on-site soils should be suitable for pavement subgrade soils, provided all debris, rubble, oversized cobbles, ect. are removed. Pavement subgrade and Aggregate Base Course should conform to City of Chandler Standard Detail C-203 and C-239 for Arterial Street.

4.1.3. Aggregate Base Course

Aggregate base used in support of Portland cement concrete and asphaltic concrete pavements should conform to the local governing agency and/or Maricopa Association of Governments (MAG) Section 702 Specifications. The plasticity index of the fraction of material passing the No. 40 sieve should not exceed five when tested in accordance with ASTM Test Method D 4318. Coarse aggregate should have a percent of wear, when

subjected to the Los Angeles abrasion test (ASTM Test Method C 131), of no greater than 40.

All aggregate base material should be placed in lifts not greater than eight inches and compacted to a minimum of 100 percent of maximum dry density below asphaltic concrete pavements as determined by American Society for Testing and Materials (ASTM) Test Method D 698 or as specified by local specification. The moisture content during compaction should be maintained within two percent of optimum moisture content.

5. CLOSURE

5.1. Limitations

Our professional services have been performed using that degree and skill ordinarily exercised, under similar circumstances, by reputable Geotechnical Engineers practicing in this or similar localities. No warranty is expressed or implied.

The recommendations contained in this report are based on our field exploration, laboratory test results, and our understanding of the proposed construction. The subsurface data used in the preparation of this report was obtained from the test borings excavated during the field subsurface exploration. It is anticipated that some variations in the soil conditions will exist on-site. The nature and extent of variations may not be evident until construction occurs. If any conditions are encountered at this site that are different from those described in this report, we should be immediately notified so that we may make any necessary revisions to the recommendations contained in this report. In addition, if the scope of the proposed construction changes from that described in this report, our firm should also be notified.

It is the Client's responsibility to see that all parties to the project including the designer, contractor, subcontractor, etc. are made aware of this report in its entirety.

The use of information contained in this report for bidding purposes should be done at the contractor's option and risk.

This report is for the exclusive purpose of providing Geotechnical Engineering and/or testing information and recommendations. The scope of services for this project does not include, either specifically or by implication, any environmental assessment of the site or identification of contaminated or hazardous materials or conditions. If the owner is concerned about the potential for such contamination, other studies should be undertaken. This report has also not addressed the site geology and the possible presence of geologic hazards.

This report may be used only by the Client and only for the purposes stated, within a reasonable time from its issuance. Land use, site conditions (both on and off-site), or other factors may change over time, and additional work may be required with the passage of time. Any party, other than the Client, who wishes to use this report, shall notify ATEK of such intended use. Based on the intended use of this report, ATEK may require that additional work be performed and that an updated report be issued.

5.2. Recommended Additional Services

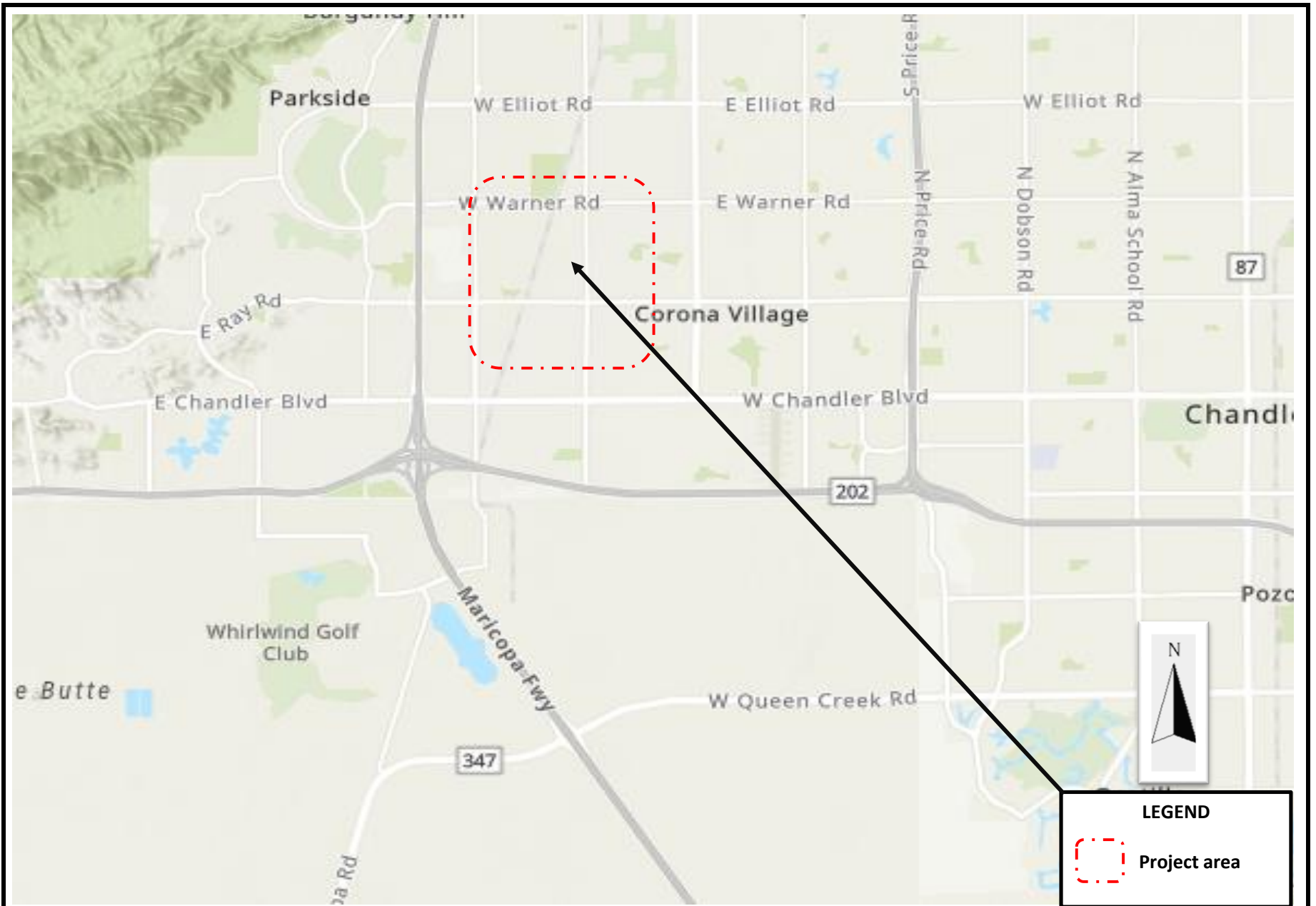
The recommendations provided in this report are based on the assumption that an adequate program of tests and observations will be performed during the construction. These tests and observations should be performed by the Geotechnical Engineer's representative and should include, but not limited to the following:

- Observe and document that any existing surficial vegetation and other deleterious materials have been removed from the site as required in site preparation section.
- Approve any material used as import to document that it meets the requirements outlined above before placement.
- Monitor the backfill procedures.

- Perform field density tests, as needed, to verify compaction compliance. The representative should monitor the progress of compaction and filling operations.
- Keep records of on-site activities and progress.

Observation of footing excavations should be performed prior to placement of reinforcing and concrete to confirm that satisfactory bearing materials are present. Construction testing, including field and laboratory evaluation of fill and backfill materials, concrete and steel should be performed to determine whether applicable project requirements have been met.

APPENDIX A
Site Location Map



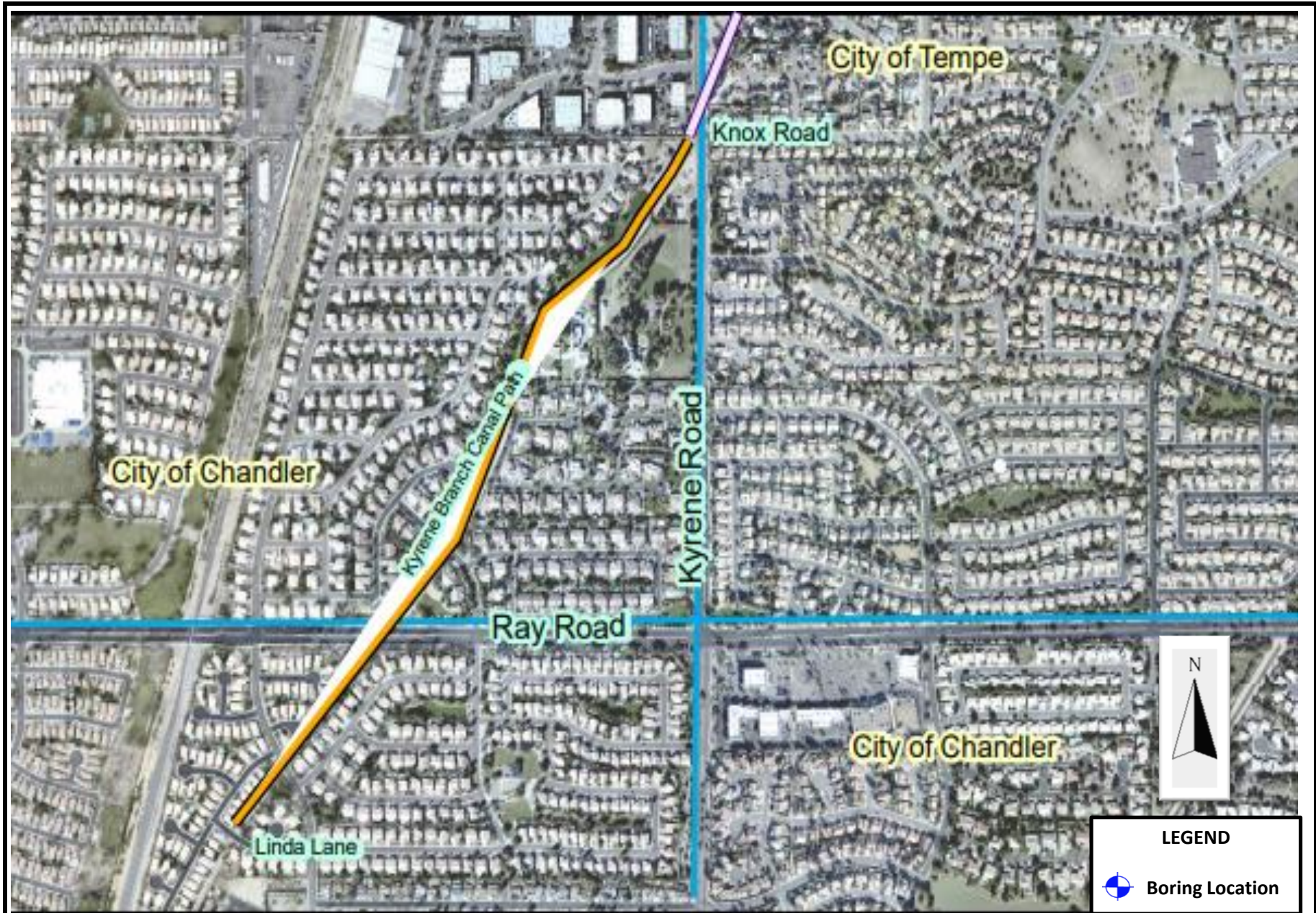
Basemap provided by Google Earth

Project #:	210265
Date:	4/20/2022
Drawn by:	ALE

Site Location Map - Sheet 1 of 2
 Kyrene Canal Shared Use Path
 Chandler, Arizona



111 South Weber Drive, Suite 1



Basemap provided by Google Earth

Project #:	210265
Date:	4/20/2022
Drawn by:	ALE

Project Location Area - Sheet 2 of 2
 Kyrene Canal Shared Use Path
 Chandler, Arizona

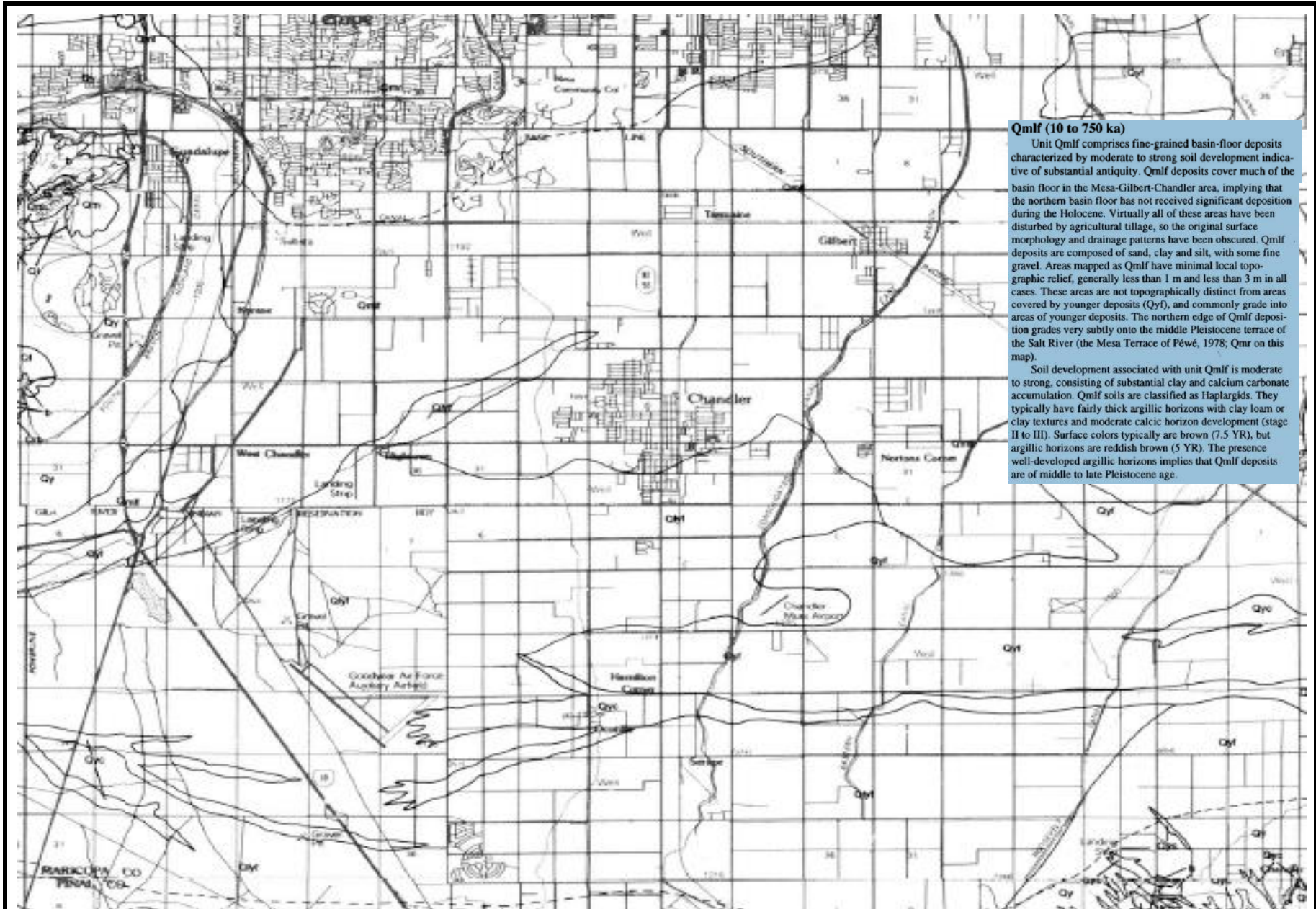
LEGEND

 Boring Location




atek
 ENGINEERING CONSULTANTS
 111 South Weber Drive, Suite 1

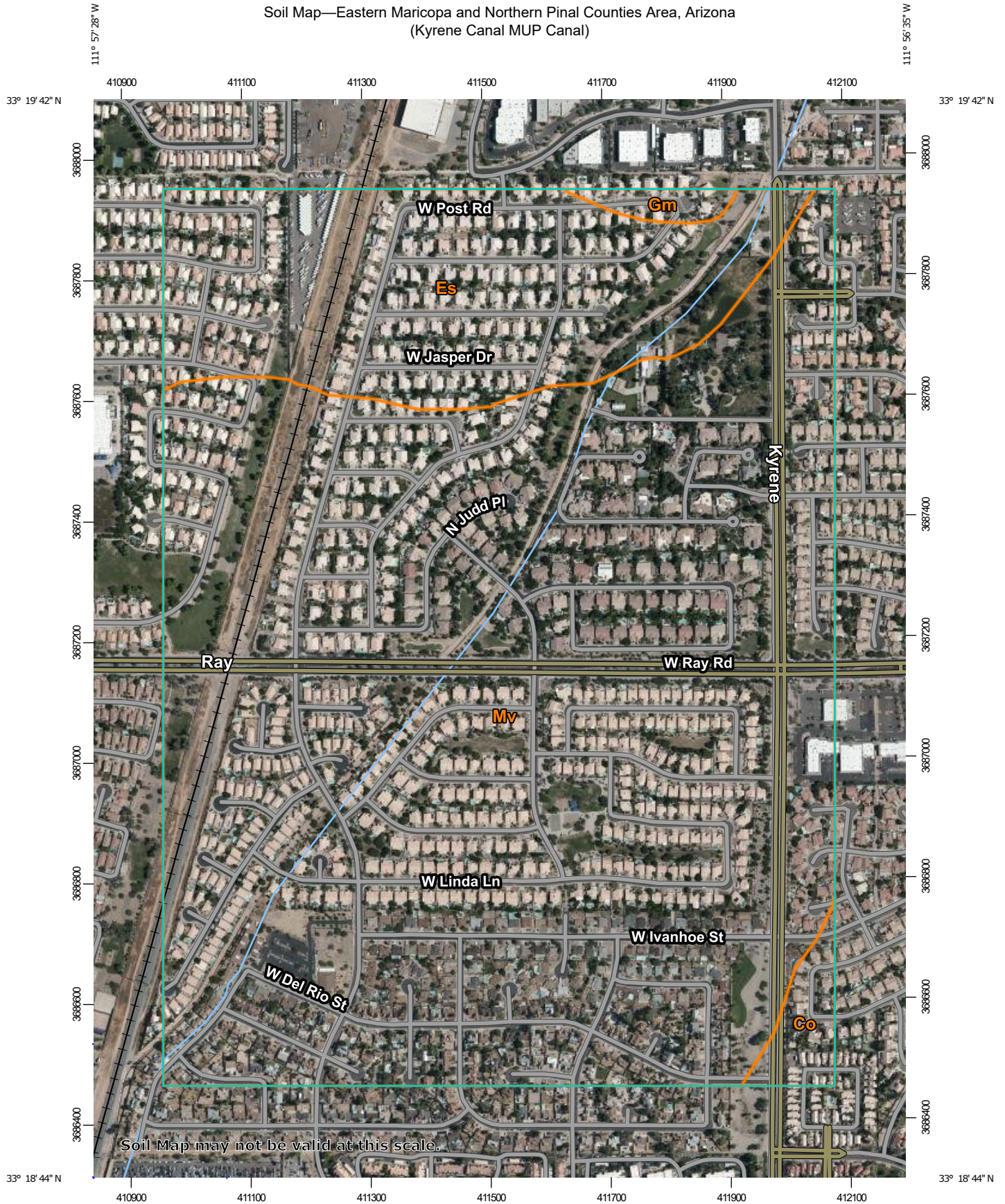
APPENDIX B
Desktop Study



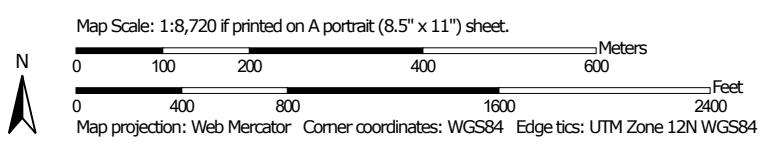
Qm1f (10 to 750 ka)
 Unit Qm1f comprises fine-grained basin-floor deposits characterized by moderate to strong soil development indicative of substantial antiquity. Qm1f deposits cover much of the basin floor in the Mesa-Gilbert-Chandler area, implying that the northern basin floor has not received significant deposition during the Holocene. Virtually all of these areas have been disturbed by agricultural tillage, so the original surface morphology and drainage patterns have been obscured. Qm1f deposits are composed of sand, clay and silt, with some fine gravel. Areas mapped as Qm1f have minimal local topographic relief, generally less than 1 m and less than 3 m in all cases. These areas are not topographically distinct from areas covered by younger deposits (Qy1), and commonly grade into areas of younger deposits. The northern edge of Qm1f deposition grades very subtly onto the middle Pleistocene terrace of the Salt River (the Mesa Terrace of Péwé, 1978; Qmr on this map).
 Soil development associated with unit Qm1f is moderate to strong, consisting of substantial clay and calcium carbonate accumulation. Qm1f soils are classified as Haplargids. They typically have fairly thick argillic horizons with clay loam or clay textures and moderate calcic horizon development (stage II to III). Surface colors typically are brown (7.5 YR), but argillic horizons are reddish brown (5 YR). The presence well-developed argillic horizons implies that Qm1f deposits are of middle to late Pleistocene age.

Basemap provided by Google Earth	Project #: 210265	Arizona Geological Survey Kyrene Canal Shared Use Path Chandler, Arizona	 111 South Weber Drive, Suite 1
	Date: 4/20/2022		
	Drawn by: ALE		

Soil Map—Eastern Maricopa and Northern Pinal Counties Area, Arizona
(Kyrene Canal MUP Canal)




Soil Map may not be valid at this scale.



Soil Map—Eastern Maricopa and Northern Pinal Counties Area, Arizona
(Kyrene Canal MUP Canal)


MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)




















Soils







 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features






-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features


Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Eastern Maricopa and Northern Pinal Counties Area, Arizona
Survey Area Data: Version 15, Sep 16, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 27, 2020—May 17, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Co	Contine clay loam	5.8	1.4%
Es	Estrella loam	76.4	18.5%
Gm	Gilman loam	2.9	0.7%
Mv	Mohall loam MLRA 40	327.7	79.4%
Totals for Area of Interest		412.8	100.0%