



## Initial Draft Design Concept Report

1<sup>st</sup> Avenue: River Road to Grant Road Improvement Project  
City of Tucson Project Number: 230193  
Tucson, Pima County, Arizona

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April 1, 2026



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January 23, 2026

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**Volume 1: Design Concept Report**  
**Table of Contents**

1.	Executive Summary.....	6	6.1	No Build Condition.....	22
2.	Project Overview.....	7	6.2	Build Condition.....	23
3.	Project Background.....	8	6.2.1	Evaluation Matrix Development.....	27
3.1	Project Limits and Study Area.....	8	6.2.2	Alternative Evaluation Scoring.....	27
3.2	Needs Assessment Study.....	8	7	Design Standards and Criteria.....	28
3.3	Planning Context.....	8	7.2	Roadway Design.....	28
3.4	Best Practices Case Study.....	9	7.3	Bridge Design.....	30
3.5	Planned Projects Within Study Area.....	9	7.4	Drainage Design.....	30
3.6	Project Goals and Design Strategies.....	9	7.5	Design Exceptions.....	30
4.	Project Area Characteristics.....	10	8	Social and Environmental Concerns.....	31
4.1	Existing Conditions.....	10	8.2	Biological Resources.....	31
4.1.1	Zoning and Land Use.....	10	8.3	Wetlands and Riparian Areas.....	31
4.1.2	Demographics.....	10	8.4	Floodplains and Water Resources.....	31
4.2	Transportation.....	12	8.5	Sections 401/404/408.....	31
4.2.1	Driving Today.....	12	8.6	Section 4(f) Resources.....	31
4.2.2	Walking Today.....	13	8.7	Section 6(f) Resources.....	31
4.2.3	Bicycling Today.....	13	8.8	Social Resources.....	32
4.2.4	Transit Today.....	15	8.9	Cultural Resources.....	32
4.3	Infrastructure.....	15	8.10	Scenic or Historic Route.....	32
4.3.1	Roadway.....	15	8.11	Noise.....	32
4.3.2	Drainage.....	16	8.12	Air Quality.....	32
4.3.3	Rillito River Bridge.....	16	8.13	Hazardous Materials.....	32
5.	Safety Analysis.....	18	9	Public Involvement.....	33
5.1	Safe System Approach.....	18	9.1	Citizens Task Force.....	33
5.2	Field Reviews.....	18	9.2	Public Engagement Activities.....	33
5.2.1	Observations.....	18	9.2.1	Phase 1 Outreach.....	33
5.3	Crash Analysis.....	19	9.2.2	Project Goals and Design Strategies.....	35
5.4	Near-Miss Video Analysis.....	20	9.2.3	Phase 2 Outreach.....	35
5.5	Behavior Video Analysis.....	21	10	Landscape and Aesthetics.....	37
5.6	Stakeholder Interviews.....	21		Landscape Approach.....	37
6.	Future Traffic Conditions.....	22		Plant Palette.....	38
				Stormwater Harvesting.....	38
				Pocket Parks.....	39

Landscape Design Summary .....	40
Bridge Aesthetics .....	40
11 Roadway Alignment and Layout Alternatives.....	42
11.1 Roadway Alignment.....	42
11.2 Selected Roadway Cross-Sections.....	43
11.3 Intersection Configurations .....	45
11.3.1 Channelized Right Turn (Slip Lane) .....	45
11.3.2 Protected Intersection.....	46
12 Drainage Improvement Alternatives.....	47
13 Bridge Alternatives .....	48
13.1 Recommended Alternative.....	49
14 Recommended Roadway Alignment Alternative .....	50
15 Cost Estimate.....	51
16 Project Implementation and Phasing .....	52
17 Next Steps.....	52

## Volume 2: 15% Design Plans

## Volume 3: Appendices

- Appendix A: Traffic Report
- Appendix B: Complete Streets Checklist
- Appendix C: Traffic Data Collection, Analysis and Design Technical Memoranda
- Appendix D: Complete Streets Decision Framework
- Appendix E: Noise Analysis Report
- Appendix F: Corridor Initial Site Assessment
- Appendix G: Bridge Selection Report
- Appendix H: Preliminary Drainage Report
- Appendix I: Public Engagement Materials

(All Appendices To Be Included with Final Design Concept Report)

# Volume 1: Design Concept Report

# 1. Executive Summary

To be prepared for the Final Design Concept Report. Appendix A contains the complete Traffic Report along with all detailed technical memorandums referenced throughout the Design Concept Report.

## 2. Project Overview

The City of Tucson Department of Transportation and Mobility (DTM), in partnership with the Regional Transportation Authority (RTA), is advancing the 1<sup>st</sup> Avenue Improvement Project from River Road to Grant Road. This project will modernize the corridor using a **Complete Streets** approach to improve safety for all users, increase transportation options, upgrade existing infrastructure, support mobility, and improve the visual character, all while minimizing impacts to adjacent properties and businesses.

The 1<sup>st</sup> Avenue improvements include:

- Continuous, accessible sidewalk
- Physically separated bicycle facilities from motor vehicles
- Frequent pedestrian and bicycle crossings
- Upgraded traffic signals with adaptive signal technology
- Raised medians and/or pedestrian islands
- Adequate and continuous street lighting
- Upgraded transit stops
- Drainage improvements to accommodate common storm events
- Pavement reconstruction
- New bridge over the Rillito River
- Green Stormwater Infrastructure

The study corridor was first identified for improvement in the 2006 RTA plan, which called for widening of 1st Avenue from four to six lanes, with the addition of bike lanes and sidewalks. However, DTM conducted a **Needs Assessment Study** in 2021 that re-evaluated mobility and complete streets needs through 2045. The study concluded that traffic projections had changed significantly since 2006, justifying an updated project scope.

In 2021, TDTM released the new [Street Design Guide](#). This guide provides “guidance on incorporating a Complete Streets design approach in all transportation projects in the city.” Instead of focusing on how a roadway performs for vehicles, the Complete Streets design approach considers the needs of all roadway user. It emphasizes designing from the outside limits of the right-of-way first to ensure the needs of pedestrians and bicyclists are met along with the needs of transit, commercial, and personal vehicles.

1<sup>st</sup> Avenue: River Road to Grant Road is the City of Tucson’s first arterial roadway reconstruction project to be fully designed utilizing the guidance from the Street Design Guide.



Figure 1 - Project Location Map with Study Area and Key Destinations

# 3. Project Background

## 3.1 Project Limits and Study Area

The 1<sup>st</sup> Avenue Improvements Project includes the 3+ mile long segment of 1<sup>st</sup> Avenue between River Road and Grant Road in the City of Tucson. The study corridor functions as an urban thoroughfare and provides access to residential and commercial properties. The corridor and its influence area, which extends a half-mile buffer around the corridor, is dense with key destinations, including schools, shopping and retail centers, grocery stores, and a library. A map of the area and key destinations is shown in **Figure 1**. The corridor has a documented history of high crash frequency, particularly involving pedestrians. This project aims to improve safety for all users while addressing the corridor’s future mobility needs and supporting the surrounding community.

## 3.2 Needs Assessment Study

The study corridor was first identified for improvement in the 2006 RTA Plan, which called for widening 1<sup>st</sup> Avenue from four to six lanes, with the addition of bike lanes and sidewalks. However, DTM conducted a **Needs Assessment Study**, completed in 2021, that reevaluated mobility and complete streets needs through 2045. The Needs Assessment determined that a four-lane cross-section would accommodate 2045 traffic demand and identified safety improvements for vulnerable road users. The improvements included continuous sidewalks, midblock signalized pedestrian and bicycle crossings, transit stop enhancements, raised medians, street lighting, protected or buffered bike lanes, and Intelligent Transportation System (ITS) technologies. Overall, the study recommended a Complete Streets approach with targeted capacity enhancements to better align the corridor with City and regional mobility, safety, and equity goals.

## 3.3 Planning Context

A literature review was conducted to review the planning documents, policies, and ordinances from the City of Tucson and the Pima Association of Governments (PAG) to assess how the Complete Streets approach proposed for the project aligns with existing guidance and priorities for the 1<sup>st</sup> Avenue Corridor. The study reviewed the following documents:

### City of Tucson Plans & Policies

- Complete Streets Policy (2019)
- Tucson Street Design Guide (2021)
- Tucson Pedestrian Safety Action Plan (2019)
- Move Tucson Transportation Master Plan (2021)
- Tucson Norte-Sur Strategic Plan (2020)
- Housing Affordability Strategy for Tucson (HAST)
- Tucson Resilient Together: Climate Action and Adaptation Plan (2023)
- Tucson Comprehensive Plan (Updated 2025)
- City of Tucson Bicycle Boulevard Master Plan (2017)

### PAG Plans & Policies

- 2045 Regional Mobility and Accessibility Plan (2020)
- Regional Transportation Authority Plan (2006)
- PAG High-Capacity Transit Implementation Plan (2017)
- Long Range Regional Transit Plan (2020)
- Strategic Transportation Safety Plan (2016)



The City of Tucson and PAG plans and policies collectively support the 1st Avenue Improvement Project’s purpose to prioritize safety, multimodal mobility, equity, environmental sustainability, and coordinated land-use and transportation planning. Across documents, there is a consistent direction to enhance walking, biking, and transit access; reduce crashes on high-injury corridors; modernize existing infrastructure; promote carbon-reducing mode shifts; and improve access for vulnerable and underserved populations. These shared themes align directly with the project’s goals to transform 1st Avenue into a safer, more comfortable, multimodal corridor that supports connectivity, affordability, and long-term regional mobility needs.

### 3.4 Best Practices Case Study

Two comparable case studies – Broadway Road in Tempe, AZ and Aurora Avenue in Shoreline, WA – were selected to demonstrate how Complete Streets strategies can successfully improve multimodal safety and corridor performance on arterial streets. Selection was based on comparable street classifications, posted speed limits, traffic volumes, number of lanes, and adjacent land uses.

<b>Broadway Road (Tempe, AZ)</b>	<b>Aurora Avenue (Shoreline, WA)</b>
Goals:	Goals:
<ul style="list-style-type: none"> <li>• Add bike lanes</li> <li>• Add landscaped median</li> <li>• Add buffer wall</li> <li>• Plant street trees</li> <li>• Widen sidewalks</li> </ul>	<ul style="list-style-type: none"> <li>• Increase multimodal options</li> <li>• Enhance safety</li> <li>• Increase connectivity</li> </ul>
Approach:	Approach:
<ul style="list-style-type: none"> <li>• Repurposed travel lanes with minimal property impacts</li> </ul>	<ul style="list-style-type: none"> <li>• Pedestrian enhancements</li> <li>• Dedicated bus lanes</li> <li>• Landscaped median</li> </ul> <p>Right-of-Way acquisition</p>

Together, these case studies, which are included in Appendix A, show that reallocating roadway space, enhancing pedestrian and bicycle infrastructure, and integrating transit-supportive design can meaningfully improve safety and corridor performance without requiring major widening. Their outcomes demonstrate that Complete Streets strategies are both feasible and effective on arterials with similar volumes, speeds, and land-use contexts to 1st Avenue, reinforcing the applicability of these approaches for the corridor’s modernization.

### 3.5 Planned Projects Within Study Area

The DTM identified the following improvement projects in the vicinity of the study corridor. The list includes *corridor modernization*, which improves safety and access for all travel modes through pavement reconstruction, continuous and accessible pedestrian facilities, lighting, enhanced bike lanes, upgraded traffic signals, and other multimodal improvements:

- **Limberlost Drive Lane Reduction: Oracle Road to Campbell Avenue.** Corridor modernization, landscaping, and safe crossings. Repurposes one travel lane (Oracle Rd-Stone Ave) for protected bike lanes. This project is funded and is currently in the design phase.
- **Roger Road Modernization: Oracle Road to Campbell Avenue.** Corridor modernization, landscaping.
- **Prince Road Modernization: Romero Road to Campbell Avenue.** Corridor modernization, landscaping.
- **Yavapai Road Bicycle Boulevard: Oracle Road to Mountain Avenue.** Implement local Street improvements to prioritize biking and walking, including enhanced major street crossings, traffic calming, wayfinding, landscaping, and pavement treatment.
- **Navajo Wash Greenway.** Construct an off-street shared use path, with occasional low-volume on-street connections.
- **Fort Lowell Road Modernization:** Oracle Road to Alvernon Way. Corridor modernization and landscaping. Currently, safety improvements are funded from Oracle Road to 1st Avenue.

- **Glenn Street Bicycle and Pedestrian Improvement: Oracle Road to Country Club Road.** Install enhanced bike lanes and repave the roadway. The improvement project is partially funded under Propositions 407 and 411.
- **Copper Street/Jacinto Street Bicycle Boulevard: Fairview Avenue to Arcadia Avenue.** Implement local street improvements that prioritize biking and walking, including enhanced major street crossings, traffic calming, wayfinding, landscaping, and pavement treatments. This project is funded and is currently in the design phase.
- **Grant Road Signal Upgrades: I-10 to Tanque Verde Road.** Upgrade traffic signals to improve safety and traffic flow along the corridor.
- **Park Avenue Bicycle and Pedestrian Improvement: Fort Lowell Road to Speedway Boulevard.** Upgrade pedestrian and bike facilities, enhance lighting and landscaping, and improve drainage.
- **Euclid Avenue Bicycle and Pedestrian Improvement: Grant Road to Speedway Boulevard.** Install enhanced bike lanes, fill landscaping and sidewalk gaps, and repave the roadway.
- **Pastime Road Bicycle Boulevard: Flowing Well Road to Mountain Avenue.** Install bicycle facilities, traffic calming, and enhanced crossings along 2.73-mile long corridor.
- **Yavapai Road Bicycle Boulevard: Oracle Road to Dodge Boulevard.** Install bicycle facilities, traffic calming, and enhanced crossings along 1.62-mile long corridor.
- **Blacklidge Drive Bicycle Boulevard: Oracle Road to Columbus Boulevard.** Install pedestrian hybrid beacons (also referred to as **High-Intensity Activated CrossWalks [HAWK]**), implement traffic calming elements, reconstruct pedestrian ramps, and add landscaped features along the 4.5-mile corridor. This project is funded under Proposition 407.

The 1<sup>st</sup> Avenue Improvement Project is intended to complement these planned projects to create a more comprehensive and connected transportation network for people biking, walking, and taking transit.

### 3.6 Project Goals and Design Strategies

The City of Tucson established the 1st Avenue Citizens’ Corridor Planning Task Force to advise the DTM, the Mayor, and the City Council on key decisions related to corridor alignment and design. Working alongside the project team and the broader community, the Task Force helped shape the project goals. In response, the design team with Task Force’s input developed design strategies grounded in Complete Streets principles and the Federal Highway Administration’s Safe System Approach to provide realistic, actionable approaches for achieving the project’s broader goals.

1. **Improve Safety** for all users of 1st Avenue, particularly for the most vulnerable road users, such as pedestrians, bicyclists, people with disabilities, motorcyclists, and others. The following design strategies were identified with a *safety-first philosophy* in mind – to protect vulnerable road users through physical separation and conflict reduction.
  - Employ Safe Systems Approach principles in corridor design.
  - Provide physical separation of bicyclists and pedestrians from motor vehicles.
  - Manage vehicle speeds to reduce crash severity.
  - Provide adequate and continuous lighting along the corridor, particularly in the areas with the highest pedestrian activity.

- Ensure that pedestrians and cyclists have access to frequent safe crossings.
- Design intersections and upgrade traffic signals to reduce conflicts in space and time.
- To the extent feasible, design sidewalks to be dominant across driveways, maintaining the level, material, and slope of the sidewalk.

**2. Increase transportation options** and reduce barriers on 1<sup>st</sup> Avenue by improving comfort, convenience, and accessibility for people walking, biking, and using public transportation. The following design strategies were selected to emphasize and realize the *Complete Streets* vision that prioritizes equitable access for all transportation modes.

- Install wide, continuous, and accessible sidewalks.
- Separate sidewalks from roadway to the greatest extent feasible with a planting/amenity zone and bicycle lanes.
- Ensure that pedestrians and cyclists have access to frequent safe crossings.
- Provide the greatest amount of physical separation between bicyclists and motor vehicles, including through the installation of protected bike lanes.
- Upgrade transit stops to be accessible, shaded, safe, and comfortable.

**3. Improve the condition of existing infrastructure** to ensure that 1st Avenue meets community needs now and into the future. The following design strategies were identified to implement *long-term resilience and smart infrastructure* that considers the durability and future-readiness of the corridor's infrastructure.

- Upgrade drainage infrastructure to provide all-mode access during more frequent/common storm events.
- Replace the 1st Avenue bridge over the Rillito River.
- Upgrade traffic lights at signalized intersections with adaptive and transit signal priority technologies.
- Reconstruct roadway pavement, sidewalks, bicycle lanes, and install bus shelters to improve ride quality, comfort, accessibility, and longevity of public infrastructure.

**4. Support mobility** along the corridor through the efficient movement of traffic, including transit, personal, and commercial vehicles. The following design strategies were chosen with *traffic operations and future capacity* in mind – to accommodate growth while supporting all users.

- Upgrade Traffic Signals with Adaptive and Transit Signal Priority Technologies.
- Implement Access Management Strategies.
- Evaluate strategies to efficiently and safely accommodate all modes at major intersections.
- Incorporate bus pullouts at high-demand locations.

**5. Minimize the impacts** of 1st Avenue improvements on adjacent residents and businesses. The following design strategies were selected to minimize right-of-way impacts and disruption on the corridor.

- Align the 1st Avenue corridor to minimize acquisitions of structures and properties
- Support businesses during construction through a partnership with the RTA Mainstreet program.
- Maintain access for residents, businesses, and neighborhoods along 1st Avenue.

**6. Enhance the visual character** of 1<sup>st</sup> Avenue to support economic and community vitality. The following design strategies were selected to maintain and enhance community and corridor character and respond to local context:

- Incorporate green stormwater infrastructure (GSI) into landscaping to use stormwater as a resource.
- Integrate public art into bridges and other infrastructure elements to enhance the corridor's visual character and feel.

## 4. Project Area Characteristics

### 4.1 Existing Conditions

The existing 1<sup>st</sup> Avenue roadway was built with several projects in the late 1950s to early 1960s as the City of Tucson grew to the north. A review of available aerial photography on the MapTucson and PimaMaps GIS websites shows development from a rural and agricultural to a suburban residential and commercial land use, which remains relatively unchanged today.

#### 4.1.1 Zoning and Land Use

The 1st Avenue corridor is primarily surrounded by commercial/office land use, with medium- and high-density residential zoning located behind those commercial parcels, presented in **Figure 2**. Several larger parcels north of Roger Road are zoned for high-density multi-family development. Although most adjacent properties are commercially zoned, many are eligible to use the City's new Community Corridors Tool, adopted in April 2025, which allows more flexible residential development while retaining underlying zoning. As this tool is implemented, the corridor may experience an increase in residential density.

#### 4.1.2 Demographics

The study area contains just over 23,000 residents. It is characterized by a population that is **younger, more educated, and less wealthy** than the City of Tucson as a whole, with more **zero-car households** and higher rates of **walking, biking, and transit use**. Racial and ethnic diversity in the study area is similar to citywide patterns.

Employment is anchored by several major employers, including **Cenpatco Integrated Care, Fry's Food Stores, and Walmart**, with higher residential densities clustered north of Grant Road and between the Blacklidge and Limberlost areas. Much of the corridor also falls within moderate to high **Equity Priority Index** zones (see **Figure 3**), reflecting elevated social vulnerability. This demographic context reinforces the importance of improving multimodal access and safety along 1st Avenue to support the needs of residents who are more dependent on walking, bicycling, and transit.

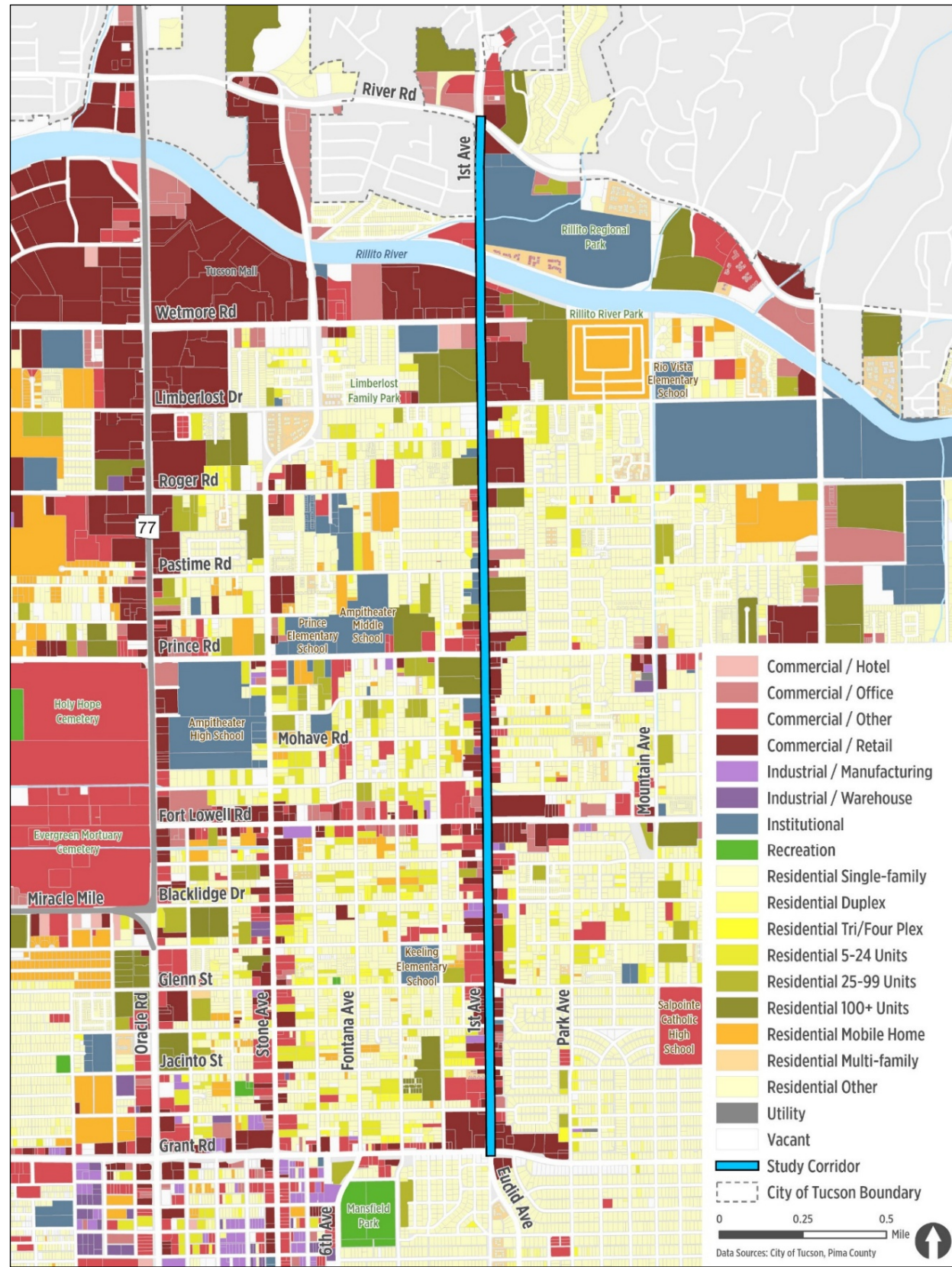


Figure 2 - Existing Land Use

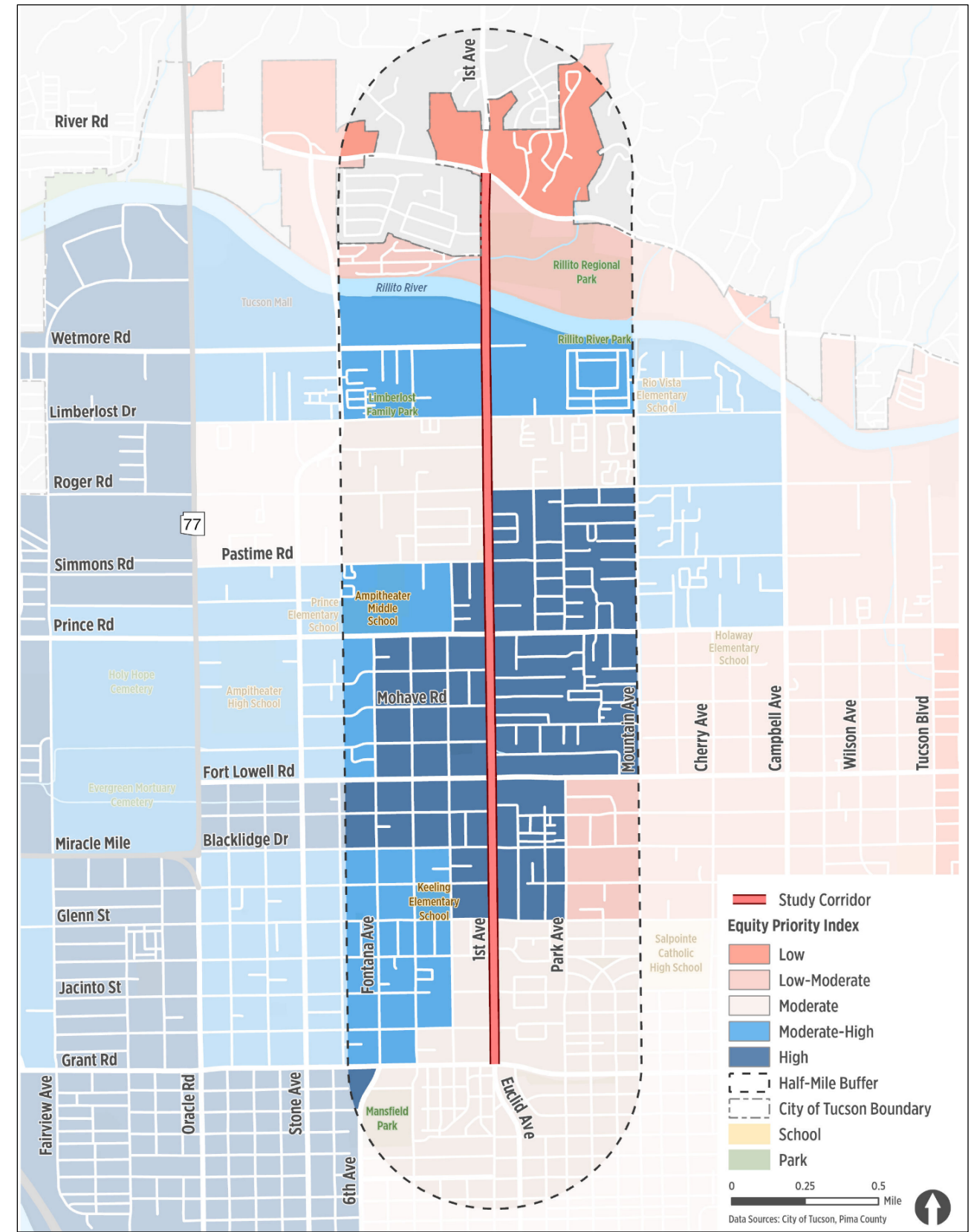


Figure 3 - Equity Priority Index

## 4.2 Transportation

Origin-destination data was obtained from Replica to better understand how people travel along the 1<sup>st</sup> Avenue corridor. Based on this data, it was determined that most trips on 1<sup>st</sup> Avenue between Wetmore Road and Grant Road begin and end within the corridor. On a typical weekday, approximately 82,000 trips are made through the study area; on a typical weekend day, that number drops to 76,000. As shown in **Figure 4**, a large majority of trips on the corridor are made by automobiles (78% on weekdays; 81% on weekends). However, approximately 12% of all trips on the corridor are made on foot. This statistic is supported by demographic data, which shows that residents in the study area are more likely to walk, bike, or ride transit than the typical Tucson resident. Although walking is one of the most popular modes for short trips (less than 1 mile), almost half of all short trips are still taken by automobiles (44% on weekdays; 46% on weekends).

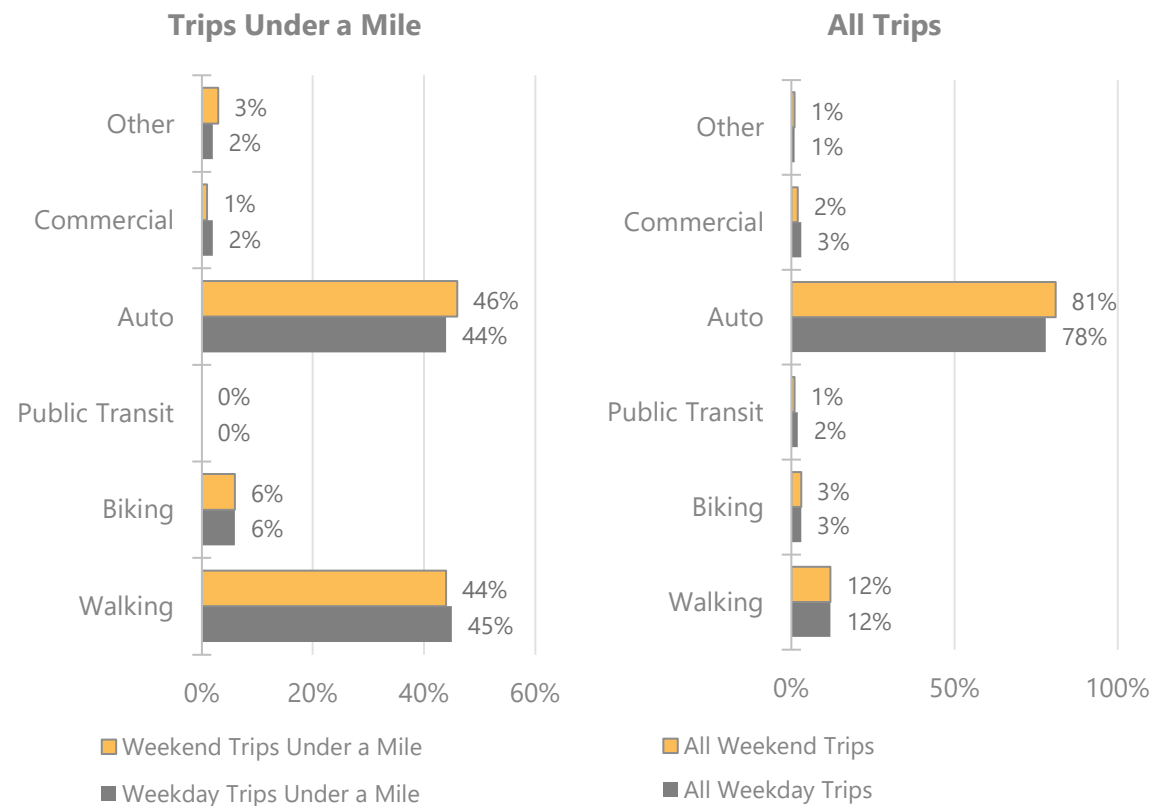


Figure 4 - Study Area Trips by Mode

### 4.2.1 Driving Today

The 1<sup>st</sup> Avenue corridor is a five-lane arterial with four travel lanes and a two-way left turn lane (TWLTL), supported by eight signalized intersections and two HAWK crossings. Traffic volumes have declined by about 10% since 1998, with current daily volumes ranging from roughly 25,000 to 33,000 vehicles depending on the segment. Peak-hour traffic is moderate, with AM and PM peaks representing about 7% and 9% of daily traffic, respectively, and the highest activity occurring between Limberlost and Wetmore Roads. Speed studies conducted under the previous posted speed limits (40-45 MPH during the day and 35-40 MPH at night) showed that, while average speeds generally fell below posted limits, 85th-percentile speeds exceeded them by 1-8 mph. This was especially notable north of Grant Road, where more than half of the northbound drivers were speeding before limits were reduced. In 2025, the posted speed limit was lowered to 30-35 MPH.

Operational conditions, including Level of Service (LOS) for signalized and unsignalized intersections, were evaluated using Highway Capacity Manual (HCM) methodologies, as implemented by Synchro 12 software.

**Table 1** provides descriptions for each LOS category and its relationship to average delay. The analysis results show that all signalized intersections currently operate at LOS D or better (**Figure 5**), though several have individual movements at LOS E. Many unsignalized driveways and cross streets (especially Bromley Street, the Stonybrook/LA Fitness driveway, and Jacinto Street) experience significant delay, operating at LOS F during at least one peak period, which is common for driveways on arterials. Corridor-level travel speeds fall mostly in the LOS C–D range, with the most notable congestion occurring northbound between Prince and Wetmore during the PM peak hour. Together, this indicates a corridor that functions within acceptable LOS overall, but experiences localized operational and speed-related challenges that motivate the project’s Complete Streets upgrades.

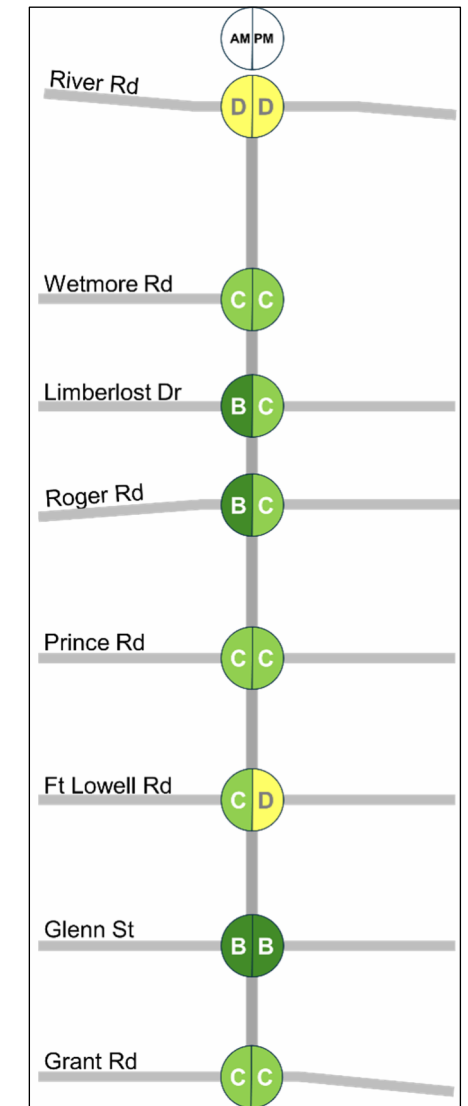


Figure 5 - Existing Weekday AM and PM Peak Hour Intersection Level of Service - System Peak

A fully validated existing conditions microsimulation model (using PTV Vissim 2024) was also developed to serve as a baseline for future scenarios. The project team created a detailed representation of the corridor and surrounding network, incorporating turning movement counts, signal timing information, speed data, transit operations, and pedestrian and bicycle activity. The resulting model accurately reflects how vehicles, transit, bicyclists, and pedestrians interact along 1<sup>st</sup> Avenue today, providing operational and multimodal insights that extend beyond the capabilities of deterministic tools such as Synchro. This model was used to evaluate future conditions, presented in Section 6.2.

Table 1: LOS Definitions

LOS	Intersection Delay (sec/veh)		Description of Operation
	Signalized	Stop Controlled	
<b>A</b>	≤ 10	≤ 10	<b>Very low delay</b> and most vehicles do not stop.
<b>B</b>	10 - 20	10-15	<b>Low delay</b> and some vehicles stop.
<b>C</b>	20 – 35	15-25	<b>Moderate delay</b> and a significant number of vehicles stop.
<b>D</b>	35 – 55	25-35	The <b>limit of acceptable delay</b> in an urban area; many vehicles stop, and some in the queue may not make it through in one cycle.
<b>E</b>	55 – 80	35-50	<b>High delay</b> with poor progression; most vehicles will not make it through in one cycle.
<b>F</b>	> 80	> 50	<b>Unacceptable</b> delay: demand exceeds intersection capacity. Many vehicles require two or more cycles to make it through.

### 4.2.2 Walking Today

The 1st Avenue corridor provides **inconsistent pedestrian infrastructure**, with sidewalks on approximately 60% of the corridor, many of which are narrow, deteriorated, or not ADA-compliant. Sidewalks are often less than six feet, the preferred width for this type of street (illustrated in **Figure 6**), have steep driveway crossings, or include outdated curb ramps without truncated domes. A BikeHAWK crossing at Jacinto/Copper and a HAWK at Graybill supplement the signalized intersections, but otherwise, pedestrians rely on unmarked or signalized crossings. Access to The Loop is available on both sides of the river, though the bridge sidewalks are especially narrow. Overall, the pedestrian environment is fragmented, uncomfortable, and lacks continuous, accessible routes.

Pedestrian activity varies across the corridor, with the highest volumes observed at **Fort Lowell Road** and **Grant Road**, where peak-hour counts are comparable to other high-demand locations in Tucson such as Grant/Alvernon and Broadway/Church. Even so, most of the corridor scores poorly on the Pedestrian Level of Comfort scale, with the majority rated **PLOC 4 (undesirable)** due to narrow sidewalks, high traffic speeds, and minimal buffers (**Figure 7**). Only a few segments with wider landscaped setbacks reach more comfortable PLOC 1–2 ratings. Accessibility challenges, inconsistent facilities, and the corridor’s role on the Pedestrian High Injury Network emphasize the need for upgraded, continuous, and safer pedestrian infrastructure.

### 4.2.3 Bicycling Today

The 1st Avenue corridor currently provides **narrow, unprotected striped bike lanes** that offer only minimal separation from fast-moving traffic, resulting in a high-stress environment for most riders. The usable width is generally less than five feet, falling short of modern design guidelines for comfort and safety. While the corridor connects to cross-streets with bike routes and The Loop, overall network connectivity remains limited, and the corridor primarily serves only **experienced, confident bicyclists**. Future bicycle boulevard projects on Blacklidge Drive, Pastime Road, and Yavapai Road, along with the in-progress Mountain Avenue protected bike lane, will improve connectivity, but do not change existing conditions on 1st Avenue today.

Bicycle volumes show relatively low but notable activity, with the highest numbers at **Glenn Street** and **Blacklidge Drive during vehicle peak hours**, likely tied to school travel. Across the corridor, roadway bicyclist activity generally exceeds crosswalk bicyclist use. The entire segment from Grant Road to River Road rates as Level of Traffic Stress (LTS) 4, the highest stress level, meaning it is only comfortable for very experienced riders (**Figure 8**). This combination of constrained facilities, high traffic speeds, and limited protection underscores the corridor’s need for upgraded, physically separated bicycle infrastructure to support safer and more comfortable biking.

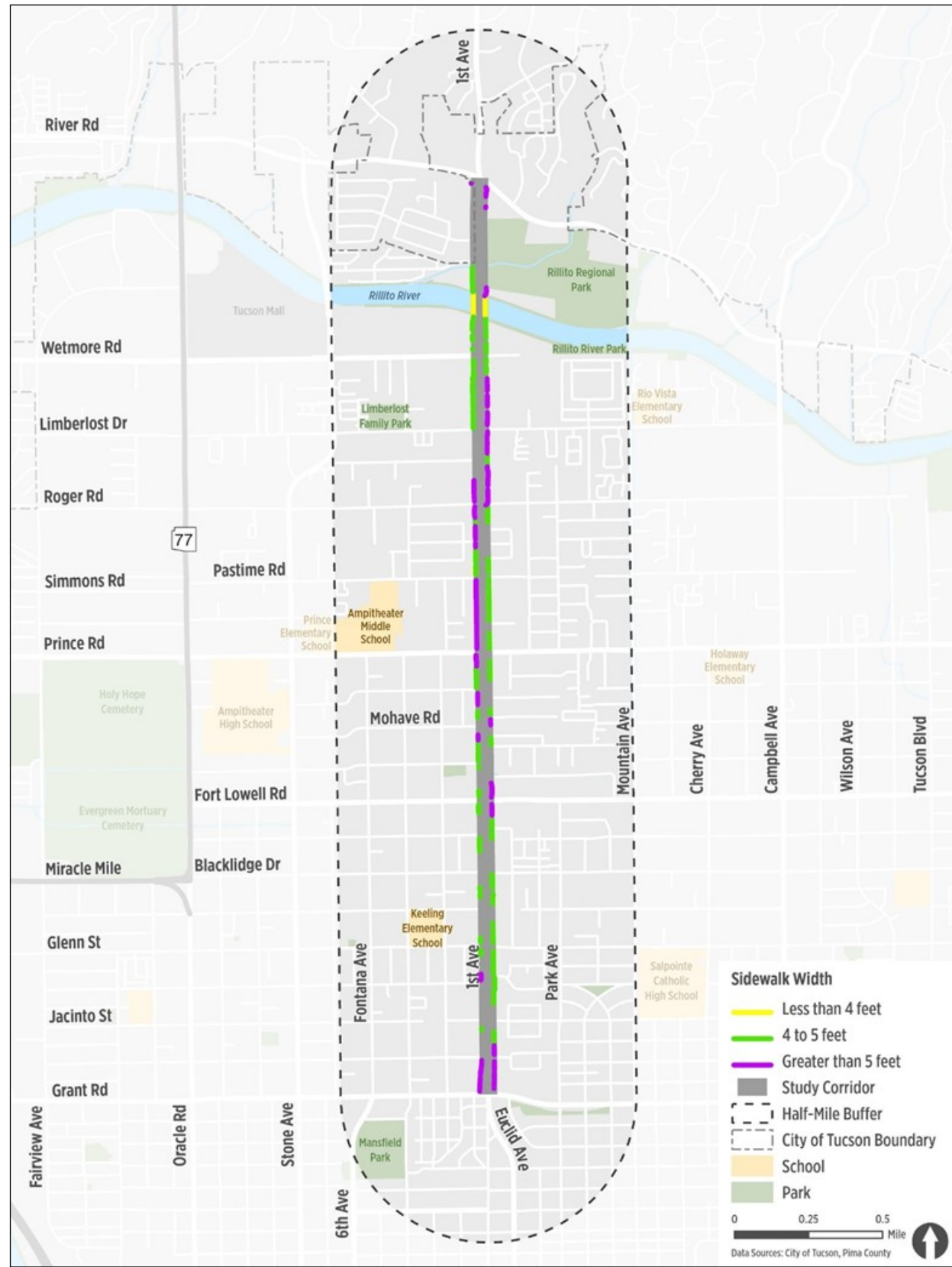


Figure 6 - Sidewalk Availability and Width

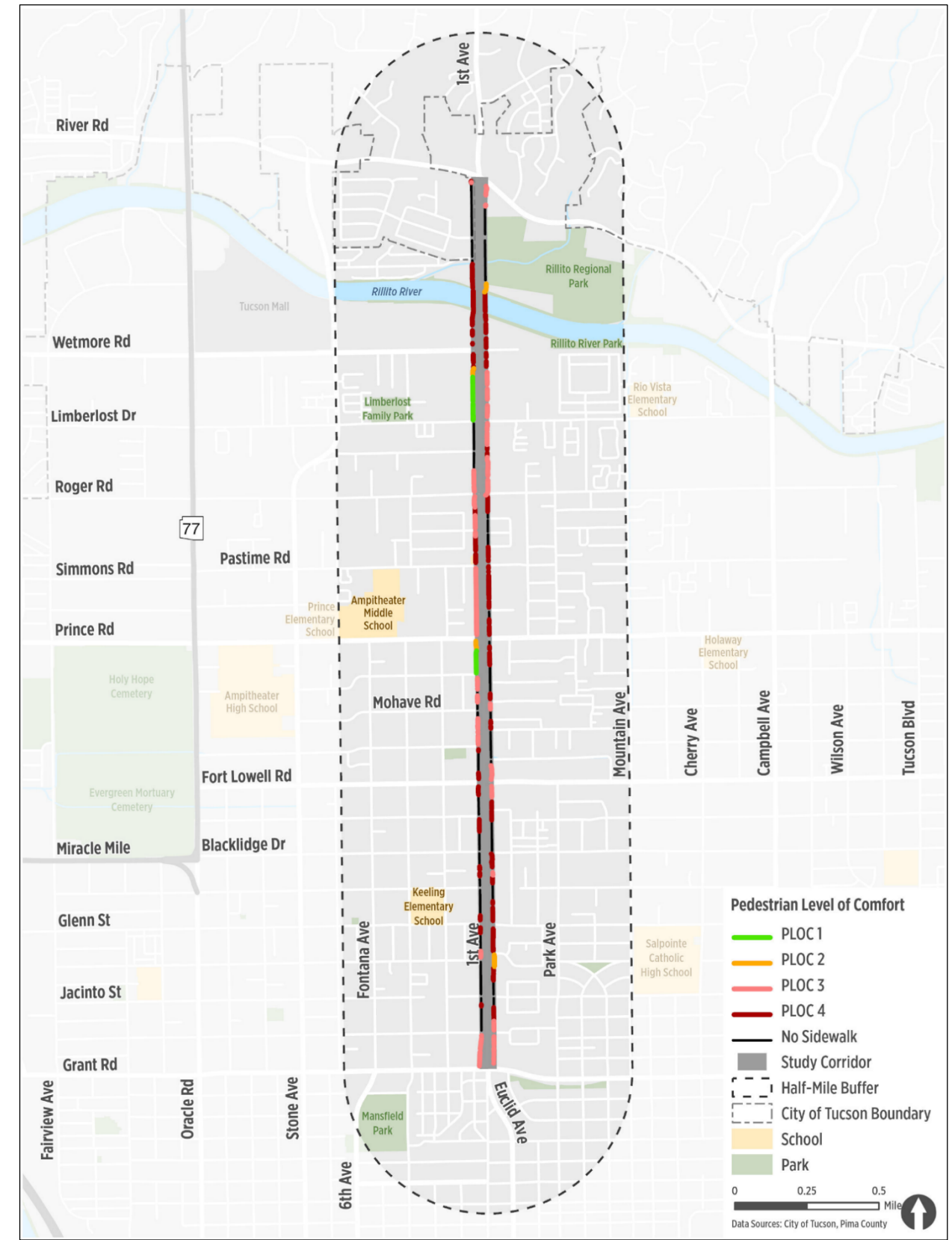


Figure 7 - Pedestrian Level of Comfort Along the Corridor

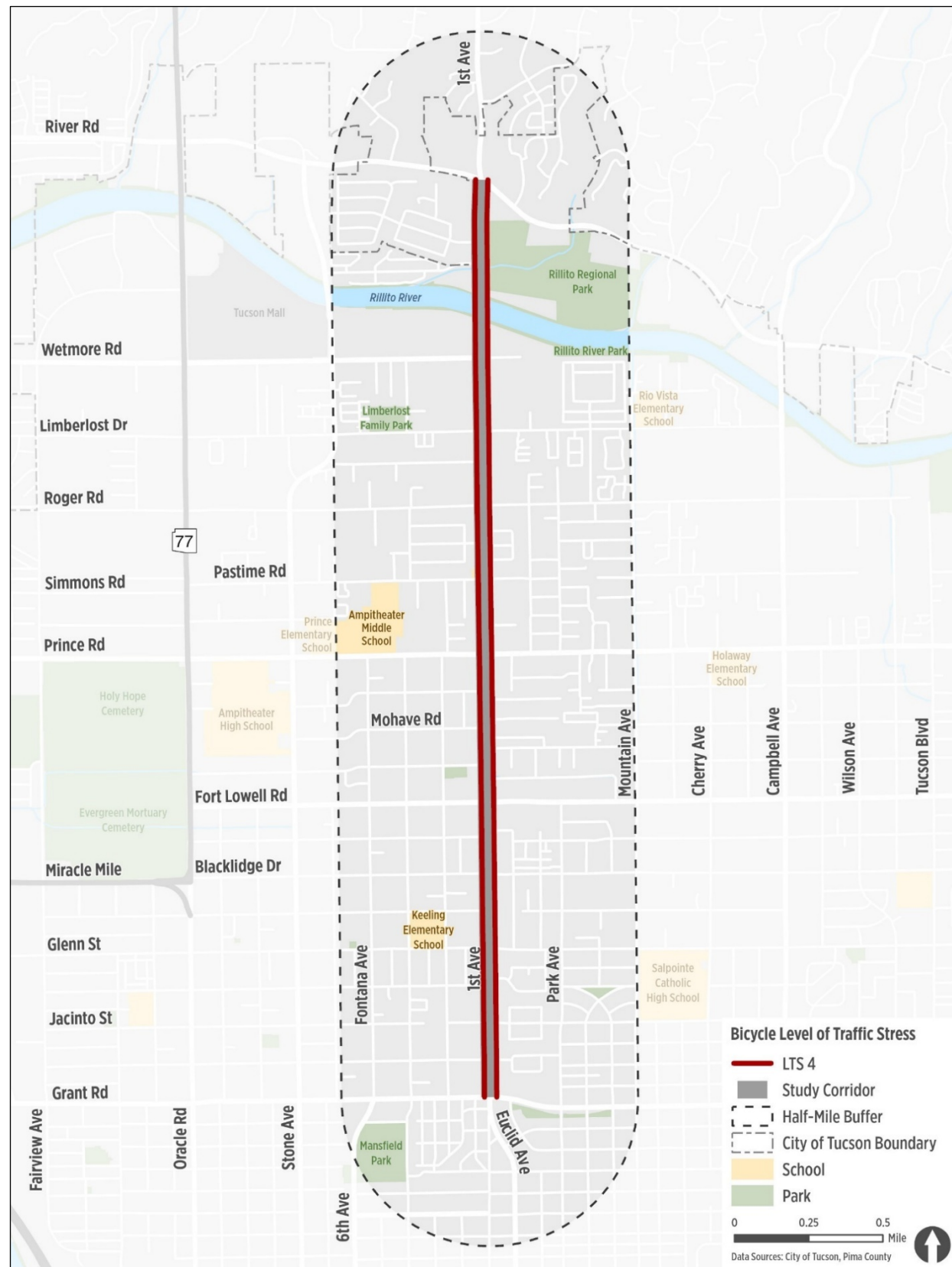


Figure 8 - Bicyclist Level of Traffic Stress Along the Corridor

### 4.2.4 Transit Today

Sun Tran Route 6 operates along 1st Avenue with 23 stops between Grant and Wetmore Roads (Figure 9). Bus stop quality varies significantly, ranging from full shelters to locations with no amenities, and the busiest stops at Fort Lowell and Grant Roads consistently generate the highest ridership throughout the week.

Transit travel times are generally reliable but slower northbound, especially during the weekday PM peak when trips between Grant and Wetmore can take up to 15 minutes. Weekend travel is steadier but continues to show directional differences, with northbound trips averaging slower commute times. Overall, the corridor supports steady transit use but lacks consistent stop amenities and comfortable access needed to fully support high-quality transit service.

### 4.3 Infrastructure

#### 4.3.1 Roadway

The existing 1<sup>st</sup> Avenue roadway is a five-lane cross-section with two northbound and two southbound vehicular travel lanes, as well as a center left turn lane. Review of the City of Tucson’s records indicate the paved roadway was constructed with four projects. These are:

- Grant Rd to Glenn St, 1958 (Plan No. I-606)
- Glenn St to Halcyon Rd, 1958 (Plan No. I-674)
- Roger Rd to River Rd, 1961 (Plan No. I-828)
- Ft Lowell Rd to Roger Rd, 1964 (Plan No. I-813 and I-64-043)

The projects included construction of a paved roadway with concrete vertical curb. From Grant Road to Roger Road, 1<sup>st</sup> Avenue was constructed at 64’ wide, and from Roger Road to River Road, 1<sup>st</sup> Avenue was constructed at 70’ wide. This was sufficient width to provide five 12’ vehicular lanes and either 2’ or 5’ wide

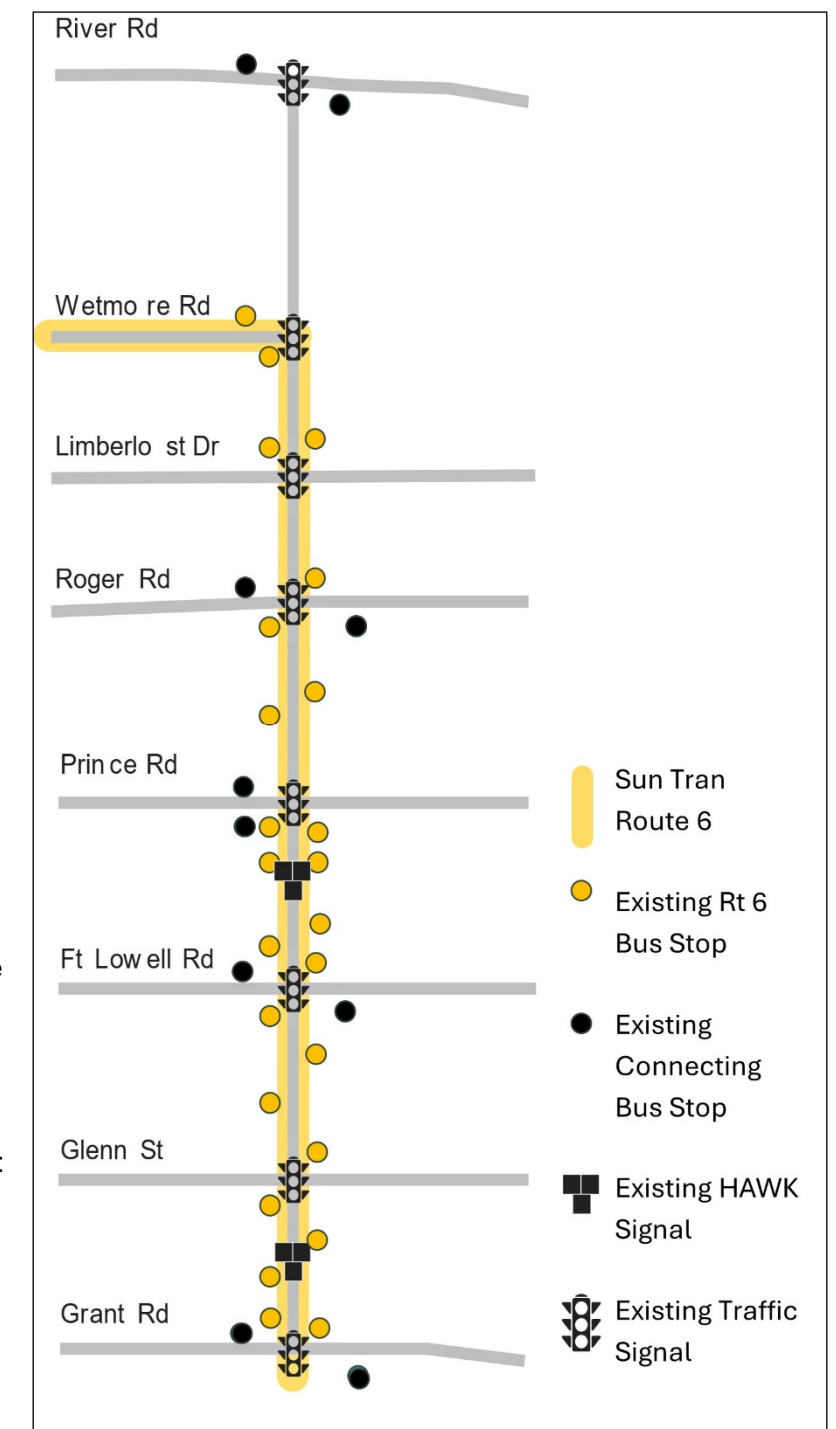


Figure 9 - SunTran Route 6 Service Along the Corridor

outside shoulders. These projects also included potable water, sanitary sewer, and limited drainage infrastructure. They did not, however, include the construction of any concrete sidewalk.

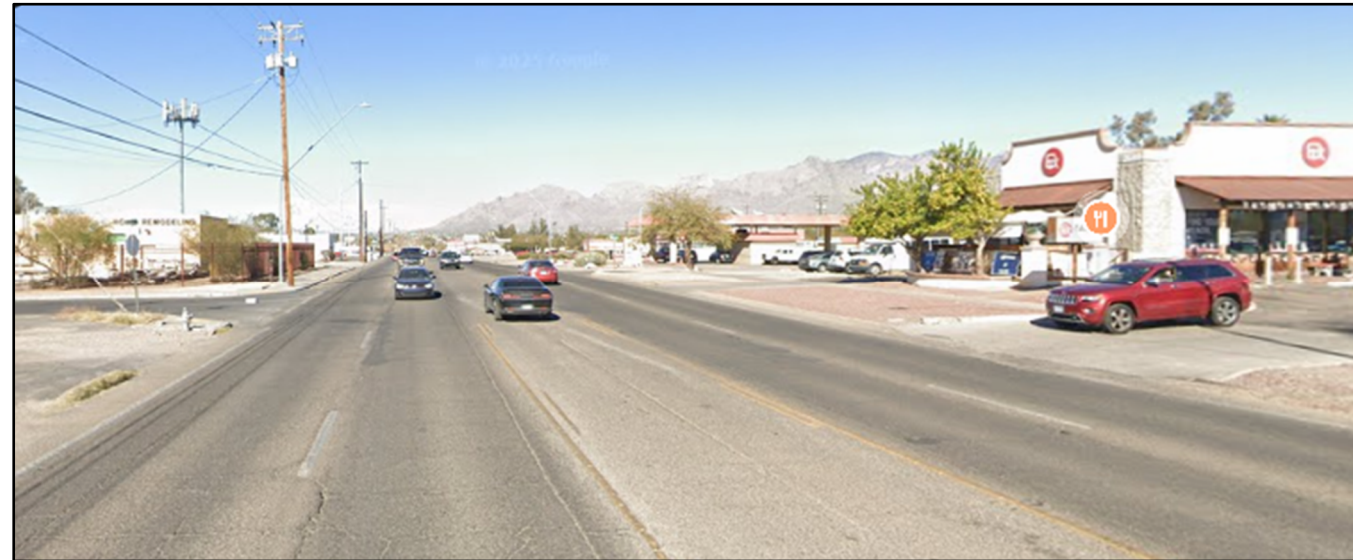


Figure 10 - Typical Roadway Segment (Looking North)

While there have been rehabilitation and improvement projects since the original construction, much of the roadway along this corridor remains in the original configuration. The only significant changes have been the addition of right-turn lanes at some intersections and private developments, and the addition of bus pullouts at some bus stop locations, primarily at the major thoroughfare (arterial) intersections. Additionally, the existing right-of-way for 1<sup>st</sup> Avenue was established only wide enough to accommodate the roadway as it was constructed at the time; in some areas this is as little as 70'. In the years since, the right-of-way has been widened through improvement projects and development in a somewhat piecemeal fashion with the widest right-of-way of way being 140' between Wetmore Road and the Rillito River. While the right-of-way width is inconsistent, there is a general pattern of the narrow right-of-way less than 100' wide being located between Grant Road and Roger Road, while the right-of way greater than 100' wide located between Roger Road and River Road.

#### 4.3.2 Drainage

The existing drainage infrastructure along the project corridor is limited in both size and scope. Beginning from the south, from Grant Road to just south of Fort Lowell Road there is no existing storm drain system. Existing stormwater runoff is conveyed in the roadway north toward the Rillito River. Cemetery Wash is a mapped wash that crosses 1<sup>st</sup> Avenue at Blackledge Drive. From Ft Lowell Road to the Rillito River there is an existing storm drain system that is limited in size and conveys runoff from only small storm events underground. Just south of the Wetmore intersection there is a large inlet grate across the road to capture pavement drainage. The existing storm drain system ties into this grate and is then carried to the Rillito River via a large box culvert. The Navajo Wash floodplain is a mapped Zone AE floodplain that is uncontained and approximately 1,500 feet wide where it crosses 1<sup>st</sup> Avenue between Ft Lowell Road and Yavapai Road. There is a prominent dip crossing in 1<sup>st</sup> Avenue at Navajo Road where Navajo Wash crosses 1<sup>st</sup> Avenue as it flows westward, but as noted the actual floodplain is much wider. The Rillito River floodplain and floodway is contained within the existing river channel. North of the Rillito River there are

two concrete box culverts that convey the existing washes beneath 1<sup>st</sup> Avenue as they flow southwest toward the Rillito River. There is limited storm drain infrastructure that ties into these facilities.



Figure 11 - Navajo Wash Dip Crossing 1<sup>st</sup> Avenue (Looking South)

HDR has prepared a detailed Preliminary Drainage Report for the entire project corridor. Additionally, there were concerns from the project team, including City of Tucson staff, regarding the accuracy of the Navajo Wash floodplain mapping. In response to these concerns, HDR prepared an independent existing condition model for this floodplain utilizing existing ground mapping that was obtained for this project. Please refer to these documents for detailed information regarding the existing drainage conditions.

#### 4.3.3 Rillito River Bridge

The existing 1<sup>st</sup> Avenue Bridge over the Rillito River was built in 1961 and consists of six simple spans of around 60' each for a total length of approximately 633'. The bridge has an out-to-out width of 64' with a clear roadway width of 56', consisting of four 12' lanes of undivided traffic, two 4' shoulders, and two 4' raised sidewalks. Along the roadway the bridge is level, however, the deck crowns at the centerline and a 2% cross slope provides for deck runoff to drains located in the exterior roadway girders.



Figure 12 - Existing Bridge Railing, Sidewalk and Drainage (Looking North)

The bridge superstructure is comprised of sixteen adjacent precast, prestressed inverted U-girders, with a 2" asphalt topping placed directly over the fourteen interior girders. The girders are nominally 48" wide by 30" deep. The two exterior girders are raised approximately 11" above the adjacent interior girders to function as curbed pedestrian sidewalks. Galvanized guardrail posts bolted directly into the sidewalk girders support a combination guardrail and pedestrian handrail.

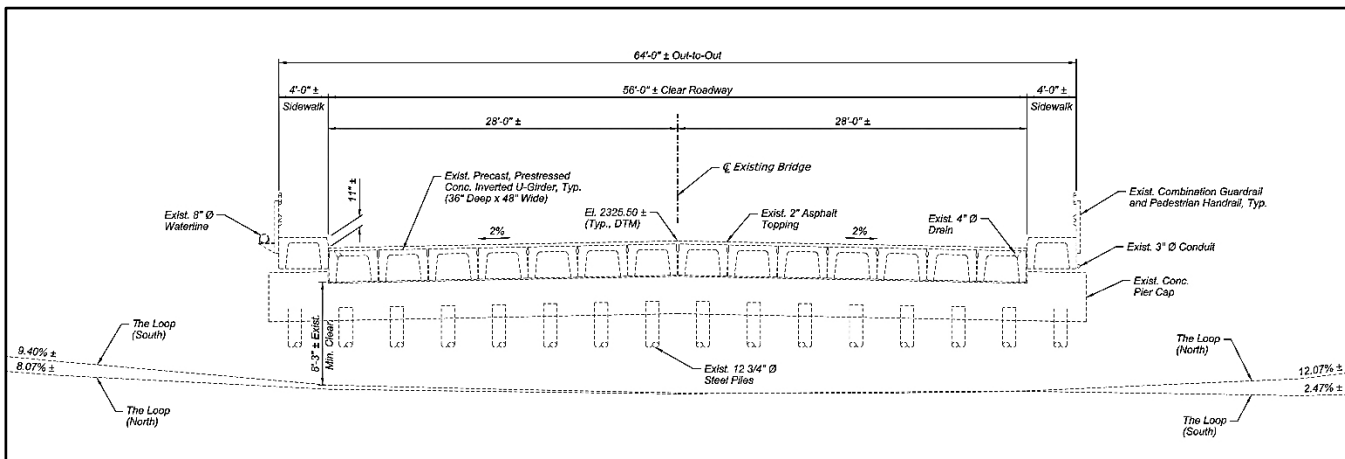


Figure 13 - Existing Bridge Typical Section

The bridge piers and abutments have an 18° skew to align with the direction of flow in the Rillito River. The abutments and all five piers consist of cast-in-place (CIP) concrete caps founded on driven steel piles filled with concrete. According to the pile record in the As-Built drawings, each of the piles originally had a furnished length of 35-feet, with field cutoffs ranging from approximately 1 to 5 feet. Measurements of the above-ground piles heights indicate that the piles extend approximately 20 to 25 feet below existing grade. Each of the five CIP pier caps are supported on 16 vertical piles. The abutment caps are supported on thirteen piles each.



Figure 14 - View of Existing Bridge Pier, Piles, and Underside of Girders

The original bank protection for the existing bridge consisted of precast concrete slabs and railroad rails. Subsequent improvements to bank protection along the Rillito River resulted in the current soil cement bank protection system at the bridge abutments, which accommodates a 10-foot-wide multi-use path, "The Loop," as it passes beneath the existing bridge along both banks. The Loop has minimum clearances for pedestrians and cyclists under the existing bridge of 8'-7" and 8'-3" at the north and south banks, respectively.



Figure 15 - Partial Elevation View of Existing Bridge with The Loop

According to ADOT's Structure Inventory and Appraisal (SI&A) form, the existing bridge (Structure Number 9617) was designed for the HS 20-44 vehicular live load, has an overall NBI Bridge Condition of Fair, and a Sufficiency Rating of 87.40. The July 27, 2023, ADOT Bridge Inspection Report reported the Condition and Appraisal Ratings shown in Table 2.

**Table 2.** Structure #9617 Condition and Appraisal Ratings (2023)

Rating Type	Code	Element	Rating	Description
<b>NBI Condition Ratings</b>	N58	Deck	7	Good
	N59	Superstructure	6	Satisfactory
	N60	Substructure	6	Satisfactory
	N61	Channel	7	Minor Damage
<b>Appraisal Ratings</b>	N67	Structural Evaluation	6	Equal Min. Criteria
	N68	Deck Geometry	5	Above Tolerable
	N69	Vert. & Horiz. Clearances	N	Not Applicable (NBI)
	N71	Waterway Adequacy	8	Equal Desirable
	N72	Approach Roadway Alignment	8	Equal Desirable
	N113	Scour Critical Rating	5	Stable w/in Footing

The SI&A form provides LFR Inventory and Operating Load Ratings of 27 and 76 tons, respectively, for the existing structure. The bridge is not load posted, because the Operating Rating Factor is greater than 1.0. The design life for bridges from this era was typically 50 years, so at nearly 64 years old, the bridge has outlived its intended lifespan.

HDR has prepared a detailed Bridge Selection Report for the project. Please refer to this document for detailed information regarding the existing bridge.

## 5. Safety Analysis

The study team conducted a safety analysis to evaluate safety conditions along the 1<sup>st</sup> Avenue corridor. Drawing on multiple data sources, the analysis identifies crash patterns and trends that may indicate safety concerns.

### 5.1 Safe System Approach

The United States adopted the Safe System Approach in late 2022 as part of the National Roadway Safety Strategy. This approach to transportation safety is comprised of six principles and five elements. The approach differs from the traditional safety approach in that it focuses on reducing fatal and serious-injury crashes through a holistic, proactive approach.

As the 1<sup>st</sup> Avenue DCR is a Complete Streets project, the goal is to design a corridor that applies the Safe System Approach regardless of who they are, where they live, and how they choose to travel. This can be achieved through safer roadway design, speed management, and educating road users on how to use the transportation network safely. The roles of these elements in the existing system will be examined throughout this section.



### 5.2 Field Reviews

Two rounds of field reviews were conducted to assess the existing safety conditions at five locations along the corridor: Fort Lowell Road, Wetmore Road, Yavapai Road/Graybill Drive HAWK (pedestrian), Glenn Street, Yavapai Road/Graybill Drive HAWK (bike), and the Rillito River bridge just north of the Wetmore Road intersection.

#### 5.2.1 Observations

Field reviews revealed several safety improvement opportunities along the corridor. The observations and related safety opportunities are outlined below.

- **Frequent Midblock Crossing & Signal Noncompliance.** These behaviors place pedestrians in the roadway at times and/or locations where drivers might not expect to see them.

- **Slower-Moving Pedestrians.** Slower-moving pedestrians may not be able to cross the roadway within the time allotted during the 'Walk' and 'Flashing Don't Walk' signal phases.
- **Insufficient Lighting Levels & Inconsistent Activation.** Reduced visibility due to darkness could lead to pedestrian crashes at night. Not providing adequate lighting when natural lighting levels are compromised may contribute to greater crash frequency.
- **High-Stress Bike Facilities.** There is limited space separating the users of the two different travel modes, increasing the chance for conflicts, particularly in areas with turning movements, driveways, or high traffic volumes.
- **Missing Accessibility Features.**
  - Pedestrians unable to press the pedestrian push button may lead the pedestrian to attempt to cross without signal protection, increasing the possibility of crashes.
  - Truncated domes are important for providing tactile cues to people with visual impairments to alert them that they are about to enter the roadway, which may cause them to enter the roadway unknowingly.
  - The absence of two curb ramps at a crosswalk may force those using mobility aids to cross into oncoming traffic to access the ramps and increase the potential of crashes.
- **Faded Pavement Markings.** Faded markings make it more difficult for road users to identify where they and other road users may be located. For example, a faded crosswalk may reduce driver awareness that a pedestrian could enter the roadway.
- **Limited Crosswalk Visibility.** The pole shown in Figure 20 reduces the ability of drivers to identify if pedestrians are in the crosswalk.
- **Reduced Number of Signal Heads.** In cases where only one overhead signal head is provided, driver visibility of the signal heads may be limited. This could



Figure 16 - Midblock Crossing at Ft Lowell

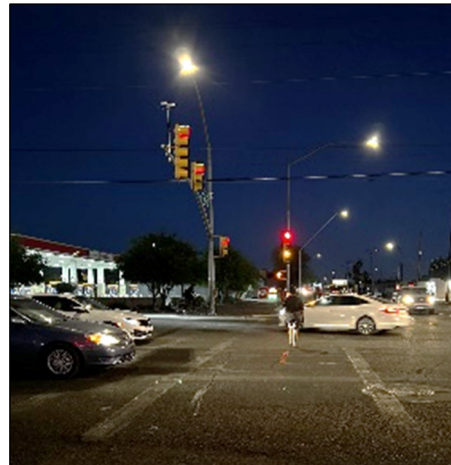


Figure 17 - Crossing During "Don't Walk"



Figure 18 - High Stress Bike Facility



Figure 19 - Missing Truncated Domes and Curb Ramp in Poor Condition

result in undesirable behaviors, such as running red lights.

- **Transit Stop Locations.** Offset transit stops increase the likelihood of pedestrians crossing midblock, as riders may opt for the most direct route to or from a stop instead of using a designated crosswalk, increasing the possibility of conflicts.
- **Vehicle Queues Not Clearing.** Signal cycle lengths shorter than the time needed for a vehicle queue to safely clear the intersection may influence drivers to take inappropriate actions in an attempt to make their movement, such as speeding and/or running a red light.
- **Red Light Running.** Red light running significantly increases the likelihood of collisions caused by conflicting vehicle movements, particularly within the intersection.
- **Strong HAWK Compliance.** A notable positive behavior of pedestrians and vehicles was the strong compliance with the HAWK crossings at the 1st Avenue intersection with Yavapai Road and Graybill Drive. During both peak and off-peak pedestrian and vehicle periods, road users generally complied with the HAWK control. Pedestrians waited for the walk signal before crossing the road, and vehicles stopped a safe distance from the crosswalk to allow pedestrians to cross safely.

### 5.3 Crash Analysis

Five years (2019-2023) of crash data provided by the Arizona Department of Transportation (ADOT) was used to identify crash trends along the project corridor. Overarching trends are as follows:



Figure 20 - Limited Crosswalk Visibility



Figure 21 - Red Light Running (Glenn)



Figure 22 - Pedestrian and Vehicle HAWK Compliance (Yavapai / Graybill)

- **Fatal and Serious Injury (FSI) Crashes.** A high number of road users are involved in fatal and injury crashes. Pedestrian and bicyclist collisions are 6-12 times more likely to result in a fatal or serious injury (see Figure 23).

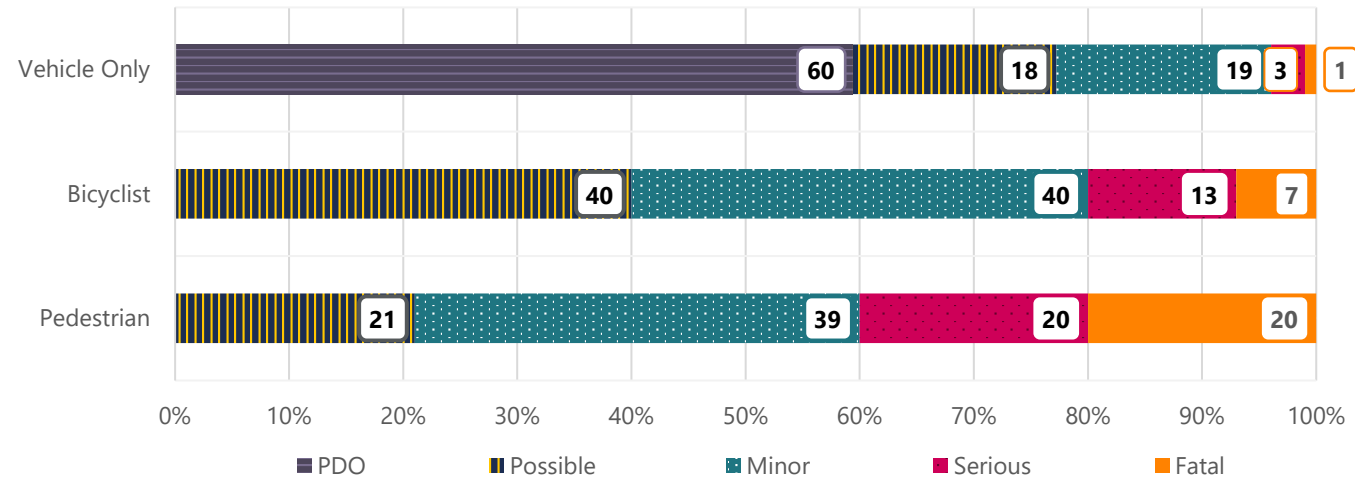


Figure 23: Crashes on 1st Avenue by Crash Mode and Highest Injury Severity (2019 - 2023)

- **Crash Types.** Sideswipe, pedestrian, bicyclist, and head-on collisions are more likely to be more severe than other crash types. Other common crash types, such as single vehicle, left turn and angle crashes, can still result in high-severity injuries, as summarized in Table 3.
  - Pedestrian crashes were most common at the Fort Lowell Road and Wetmore Road intersections.
  - 75% of bicyclist crashes occur at intersections, most commonly at Prince Road.
  - All 10 head-on crashes occurred at an intersection, most commonly at Prince Road.

Table 3: Crash Frequency and Rate by Type on 1st Avenue (2019 - 2023)

Crash Type	Crash Frequency	FSI Crash Frequency	FSI Crash Rate
Sideswipe (Opposite Direction)	3	2	66.7%
Pedestrian	56	22	39.3%
Bicycle	15	3	20.0%
Head-On	10	2	20.0%
Single Vehicle	51	4	7.8%
Angle	169	9	5.3%
Left Turn	266	5	1.9%
Rear-End	161	1	0.6%
Remaining Crash Types	34	0	0.0%

- **Road User Contributing Factors.** Speeding, failure to yield, and crossing outside marked crosswalks are common factors in high-severity crashes. Drivers not yielding to VRUs were observed more frequently at the Prince Road and Fort Lowell Road intersections.

- **Impairment.** 4.7% of crash-involved road users were impaired. It was more common for crash-involved pedestrians to be impaired than for crash-involved bicyclists or drivers.
- **Lighting.** Dark lighting conditions are contributing to pedestrian crashes (Figure 24).
  - A much higher percentage of pedestrian crashes happen in dark lighting conditions than bicyclist and vehicle-only crashes.
  - Unlike bicyclist and vehicle-only crashes, pedestrian crashes peak at nighttime.

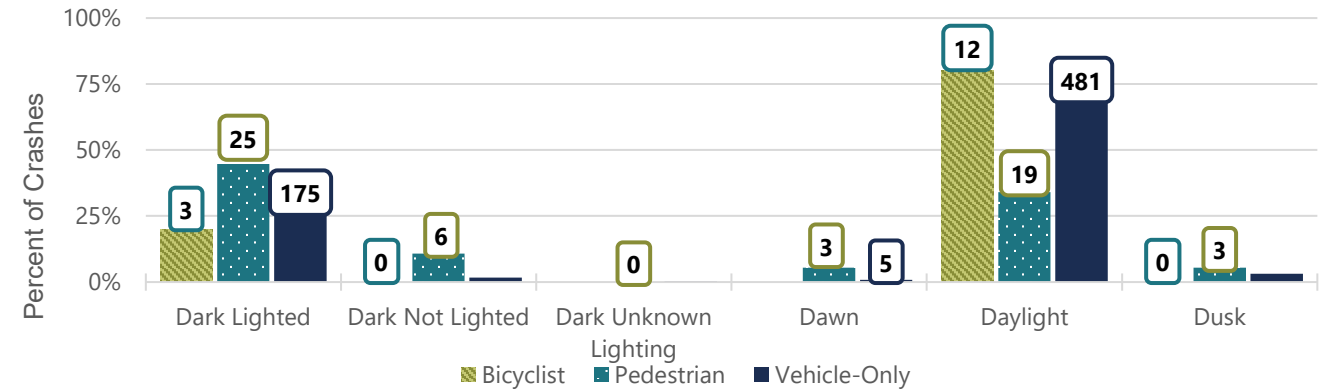


Figure 24 - Lighting Conditions by Mode for Crashes on 1st Avenue (2019-2023)

## 5.4 Near-Miss Video Analysis

Taking a proactive approach to safety is central to the Safe System Approach. Following this principle, 24-hour near-miss data was collected at the Fort Lowell and Wetmore Road intersections along 1<sup>st</sup> Avenue. This data was analyzed alongside the historical crash data to better identify trends associated with high-risk scenarios. The key findings from the near-miss analysis are summarized below.

- Near-misses increase during daytime at **off-peak periods**.
- Pedestrian and bicyclist near-misses:
  - vary in Post-Encroachment Time (PET) depending on the **order of arrival**.
  - often occur at the **Fort Lowell Road north and east crosswalks** and the **Wetmore Road south crosswalk**.
  - often involve **right-turning vehicles**. (see Figure 25)
  - Should be addressed through a **variety of countermeasures**.
- Vehicle-only near-misses:
  - involve **higher speeds**.
  - often involve a **through vehicle and a left-turning vehicle**.
  - often involve a **Northbound left-turning vehicle**.

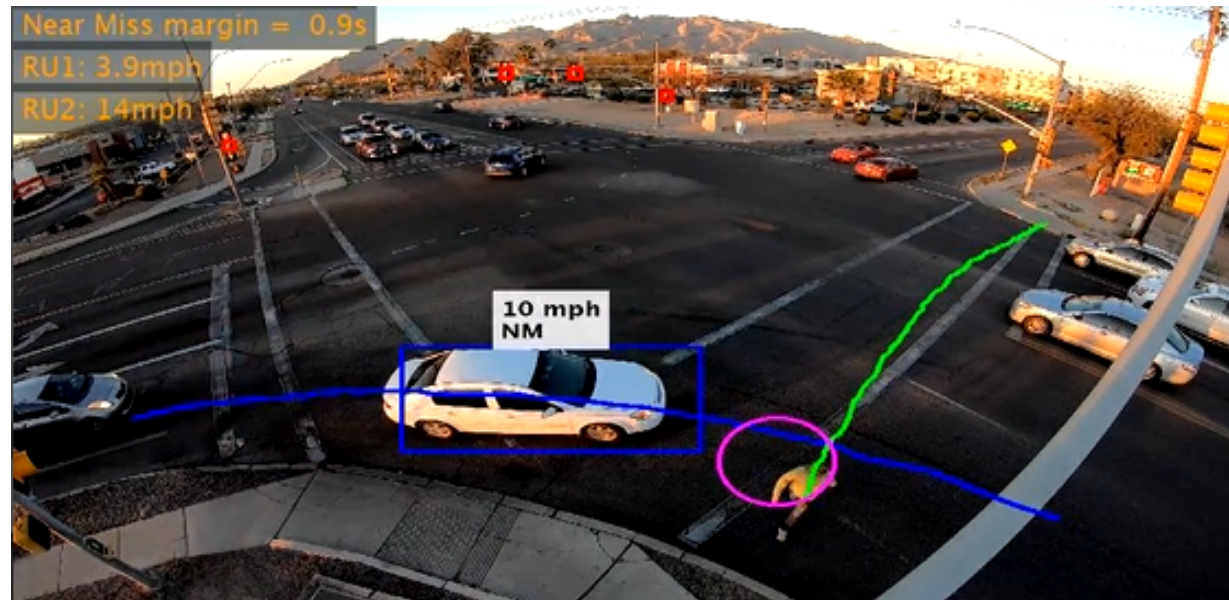


Figure 25 - Right Turning Vehicle-Pedestrian Near Miss at Ft Lowell Road

## 5.5 Behavior Video Analysis

Video data was also used to identify certain road user behaviors, such as red light running.

- **Red light running** had equal prevalence at both locations.
- **Crossing on red** and **crossing outside the crosswalk** were over 2X more common at the Fort Lowell Road intersection than at the Wetmore Road intersection.
- The east leg and south leg of the Fort Lowell Road intersection have the highest volumes of **pedestrian midblock crossings**.

## 5.6 Stakeholder Interviews

Stakeholder interviews were conducted with the Tucson Police Department, Tucson Fire Department, and Sun Tran. The following themes emerged from the meetings.



### Road Safety and Traffic Management:

- Speeding is more commonly perceived as an issue at night.
- Protected left turns at signalized intersections would improve safety.
- A signal at Rillito Park might improve safety for left-turning southbound vehicles.
- Some countermeasures that would enhance safety on the corridor include pedestrian-level lighting, protected left turns, far-side bus stops, and painted bus boxes.



### Lighting and Visibility:

- Lighting the corridor up as much as possible could have a big safety impact.
- Some countermeasures that would enhance safety on the corridor include pedestrian-level lighting.



### Pedestrian and Cyclist Safety:

- Channelizing pedestrians and bicyclists could influence their behavior to be less unpredictable to drivers.
- High-quality, continuous sidewalks are necessary for individuals who walk and use assistive mobility devices.
- Dense concentration of businesses limits vehicle parking capacity, which encourages mid-block crossing and vehicles trying to back onto 1st Avenue.



### Public Transportation:

- Bus pull-outs can result in complications for bus drivers. However, bus pullouts at signalized intersections may have minimal impact on bus operations.
- This project provides an opportunity to improve transit stop locations and spacing, particularly at signaled intersections and crossing locations.
- Some countermeasures that could enhance safety on the corridor include far-side bus stops and painted bus boxes.

## 5.7 Concept Level Roadway Safety Assessment

The City of Tucson is partnering with the Pima Association of Governments to conduct an independent peer review of each design submittal from outside subject matter experts to evaluate how roadway designs are prioritizing safety. This innovation approach, known as a multi-phase Roadway Safety Assessment (RSA) allows designs to adjust at earlier submittal stages in response to the independent review and incorporate best practices in the Safe Systems Approach.

## 6. Future Traffic Conditions

### 6.1 No Build Condition

The 2045 No-Build assessment for the 1st Avenue Improvements Project establishes future baseline traffic and multimodal conditions, assuming no roadway upgrades aside from the recently implemented signal and speed limit updates. Traffic projections were developed using 2024 traffic counts and the 2045 PAG regional travel demand model, with adjustments to account for upcoming retail developments in the study area. Forecasts show daily corridor volumes ranging from approximately 28,100 to 36,800 vehicles, with AM and PM peak-hour flows increasing proportionally but maintaining overall operational performance in most locations. **Table 4** and **Table 5** display existing and projected traffic volumes for comparison.

**Under the 2045 No-Build scenario, conditions for people walking and biking remain largely uncomfortable and undesirable. Any improvements such as the change from BLTS 4 to BLTS 3 are minimal and attributable solely to recent speed limit reductions.**

Operational analysis using Synchro and Vissim indicates that intersections generally continue to perform at LOS D or better in 2045, though certain movements (particularly at River Road, Wetmore Road, and Roger Road) are expected to experience notable delays and queuing during the PM peak-hour. Corridor-wide PM northbound performance is projected to degrade slightly to LOS D/E, reflecting increased congestion without geometric or operational improvements.

From a multimodal perspective, the corridor remains challenging for people walking and biking under No-Build conditions. Sidewalk gaps persist, and although recent speed limit reductions may improve pedestrian comfort slightly, overall pedestrian conditions generally remain “uncomfortable” to “undesirable.” Bicycle conditions similarly improve only marginally, shifting from BLTS 4 to BLTS 3 due solely to lower posted speeds, while the absence of dedicated or protected bicycle facilities continues to limit comfort and safety for most riders.

**Table 4: Existing 2024 Traffic Volume Summary**

1 <sup>st</sup> Avenue Segment	Daily Volume	Truck %		AM Peak Hour			PM Peak Hour		
		Medium	Heavy	Vol.	K	D	Vol.	K	D
North of River Road	28,726	N/A	N/A	2,201	0.08	0.53	2,461	0.09	0.60
River Road to Wetmore Road	29,758	6.9%	2.3%	2,254	0.08	0.57	2,660	0.09	0.54
Wetmore Road to Limberlost Drive	30,804	7.1%	1.1%	2,349	0.08	0.59	2,875	0.09	0.51
Limberlost Drive to Roger Road	30,143	7.2%	1.2%	2,232	0.07	0.60	2,702	0.09	0.51
Roger Road to Prince Road	30,851	N/A	N/A	2,193	0.07	0.58	2,785	0.09	0.53
Prince Road to Fort Lowell Road	33,087	N/A	N/A	2,134	0.06	0.57	2,655	0.08	0.52
Fort Lowell Road to Glenn Street	27,480	N/A	N/A	1,864	0.07	0.57	2,284	0.08	0.52
Glenn Street to Grant Road	25,089	8.9%	1.2%	1,810	0.07	0.61	2,268	0.09	0.50
South of Grant Road	22,616	N/A	N/A	1,529	0.07	0.58	2,107	0.09	0.57

**Table 5: Year 2045 Traffic Volume Projections**

1 <sup>st</sup> Avenue Segment	Daily Volume	Truck %		AM Peak Hour			PM Peak Hour		
		Medium	Heavy	Vol.	K	D	Vol.	K	D
North of River Road	32,100	N/A	N/A	2,459	0.08	0.52	2,772	0.09	0.60
River Road to Wetmore Road	31,500	6.9%	2.3%	2,409	0.08	0.56	2,818	0.09	0.54
Wetmore Road to Limberlost Drive	33,900	7.1%	1.1%	2,590	0.08	0.59	3,129	0.09	0.51
Limberlost Drive to Roger Road	33,000	7.2%	1.2%	2,422	0.07	0.60	2,959	0.09	0.51
Roger Road to Prince Road	34,000	N/A	N/A	2,401	0.07	0.59	2,993	0.09	0.51
Prince Road to Fort Lowell Road	36,800	N/A	N/A	2,348	0.06	0.57	2,883	0.08	0.52
Fort Lowell Road to Glenn Street	31,100	N/A	N/A	2,075	0.07	0.57	2,563	0.08	0.51
Glenn Street to Grant Road	28,100	8.9%	1.2%	2,022	0.07	0.60	2,459	0.09	0.51
South of Grant Road	24,500	N/A	N/A	1,694	0.03	0.58	2,275	0.09	0.57

## 6.2 Build Condition

The 2045 Build assessment evaluates the anticipated transportation conditions along 1<sup>st</sup> Avenue assuming the implementation of the 1<sup>st</sup> Avenue Improvement Project. The project identified several intersection and corridor-level treatments designed to accommodate future 2045 traffic demand and operational performance while enhancing safety for vulnerable road users.

Corridor treatments include:

- Continuous sidewalks
- Protected or buffered bike lanes
- Raised medians
- HAWKs and BikeHAWKs
- Enhanced street lighting
- Speed feedback signs
- Narrower lanes
- Adaptive signal controls
- Bus stops upgrades including bus pullouts

Targeted intersection treatments are applied to improve safety, reduce conflicts, and support multimodal operations at key locations along the corridor. These treatments include leading pedestrian intervals, protected-only left-turn phasing, flashing yellow arrow (FYA) phasing with pedestrian protected-only phasing, among other advanced intersection control strategies summarized in Table 6.

**Table 6. 1<sup>st</sup> Avenue Intersection Treatment Locations**

	Glenn St	Ft Lowell Rd	Prince Rd	Roger Rd	Limberlost Dr	Wetmore Rd	River Rd
<b>Leading Pedestrian Interval</b>	X			X	X		
<b>Protected-Only Left-Turn Phasing</b>						X	X
<b>FYA / Pedestrian Protected-Only Phasing</b>		X	X	X	X	X	
<b>High-visibility crosswalks</b>	X	X	X	X	X	X	X
<b>Protected intersections</b>	X			X	X		
<b>Channelized right-turn lanes with raised crosswalks</b>		X	X			X	X
<b>Dedicated right-turn lanes</b>				X	X		X
<b>Bus Stop Enhancements</b>		X	X	X	X	X	
<b>Dual Left Turn Lanes</b>						X	X

Under the 2045 Build scenario (with these improvements in place), all intersections are expected to operate at acceptable levels of service. As shown in **Table 7**, the level of delay at each intersection under Build conditions is similar to the delay under No-Build conditions. During the AM peak hour, most of the intersections are expected to maintain the same level of service, except for the 1st Avenue and Limberlost Drive intersection which is expected to operate acceptably at LOS C (LOS B in No-Build). During the PM peak hour, all intersections are expected to maintain the same or operate at better level of service compared to No-Build conditions.

**Table 7. Year 2045 Peak Hour Intersection Operations Results (Vissim)**

Intersection with 1 <sup>st</sup> Avenue	Weekday AM Peak Hour				Weekday PM Peak Hour			
	No-Build		Build		No-Build		Build	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
River Road	45.1	D	44.1	D	62.2	E	54.2	D
Wetmore Road	24.5	C	28.1	C	43.2	D	34.8	C
Limberlost Drive	14.3	B	20.4	C	36.9	D	24.8	C
Roger Road	17.7	B	16.6	B	40.8	D	27.4	C
Prince Road	23.1	C	23.8	C	32.1	C	31.1	C
Fort Lowell Road	27.1	C	31.6	C	31.4	C	33.7	C
Glenn Street	11.0	B	15.2	B	14.4	B	14.5	B
Grant Road	19.1	B	19.4	B	24.8	C	25.3	C

Level of service and travel times were also determined for the roadway corridor for 2045 Build Conditions. As shown in

Table 8, northbound operations on the corridor, particularly during the weekday PM peak hour, are expected to maintain the same level of service and significantly improve travel times under Build conditions. During the weekday PM peak hour, improvements associated with the dual northbound left-turn lanes at Wetmore Road outweigh any traffic impacts associated with multimodal improvements, resulting in a significantly better travel time along the corridor. Traffic operations for the southbound direction, however, degrade slightly under Build conditions during both peak hours, from LOS C to LOS D. Although travel times increase slightly during peak hours for southbound traffic, the level of service is anticipated to remain acceptable and within City standards (LOS D or better).

**Table 8. Corridor Travel Time and Level of Service**

Corridor Direction	Weekday AM Peak Hour				Weekday PM Peak Hour			
	2024 Analysis <sup>1</sup>	2025 Analysis <sup>2</sup>	2045 No-Build	2045 Build	2024 Analysis <sup>1</sup>	2025 Analysis <sup>2</sup>	2045 No-Build	2045 Build
Northbound (Travel Time)	05:56	07:33	07:47	08:25	06:56	08:36	11:10	09:22
Northbound (LOS)	B	C	C	C	C	C	D	D
Southbound (Travel Time)	06:17	07:44	08:03	09:07	06:46	08:31	08:40	09:07
Southbound (LOS)	C	C	C	D	C	C	C	D

Source: Highway Capacity Manual, 7<sup>th</sup> Edition

<sup>1</sup> 2024 Existing Conditions is based on a 40 MPH posted speed

<sup>2</sup> 2025 Existing Conditions is based on a 30 MPH posted speed

Additionally, pedestrian and bicycle safety are significantly improved under the 2045 Build scenario with projected increases in multimodal volumes. **Figures 26 thru 29** summarizes PLOC and BLTS under the existing “No-Build” and “Build” conditions for comparison.

Overall, the project delivers a safer, more accessible, visually appealing corridor that meets community needs now and into the future.

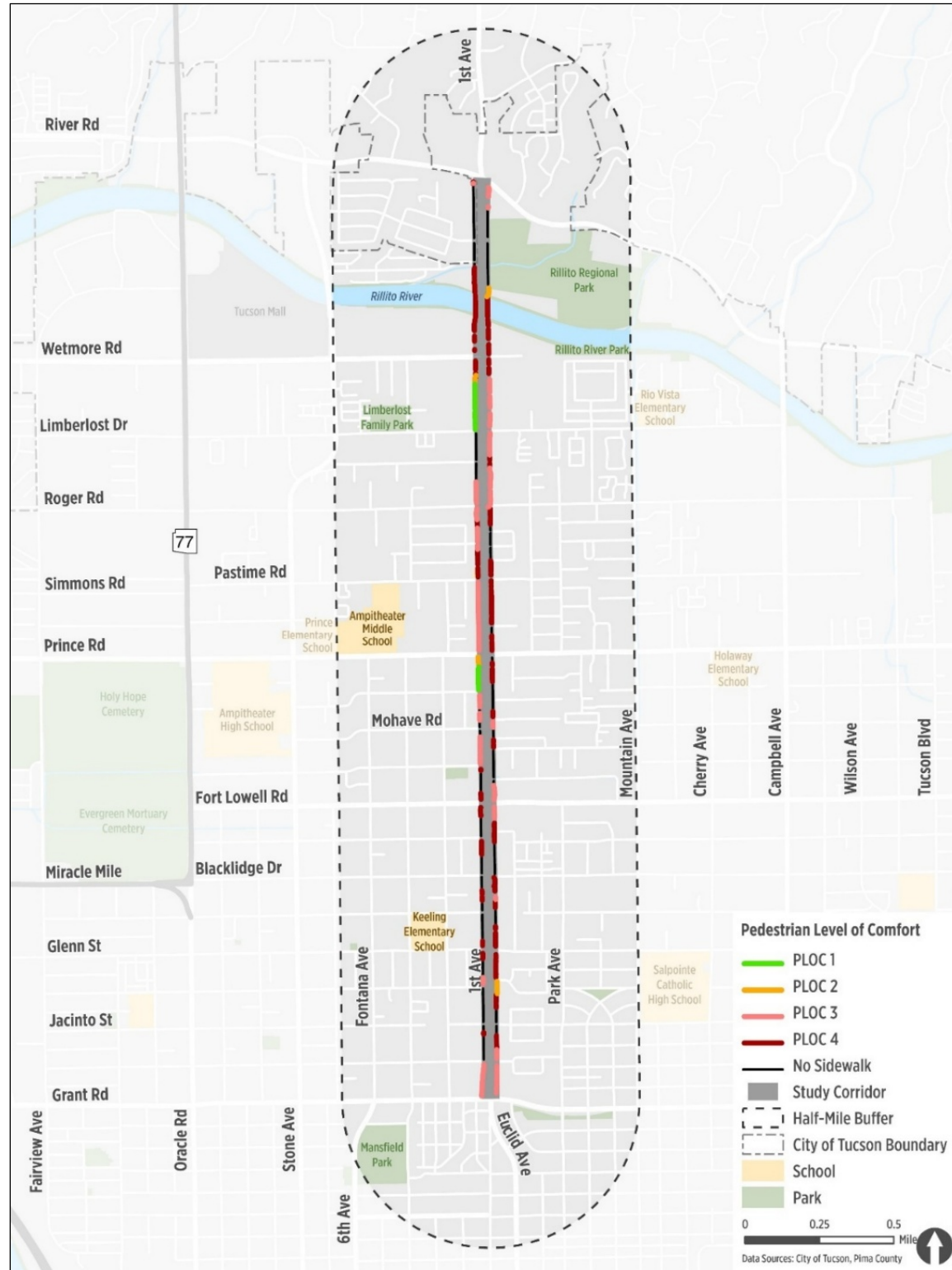


Figure 26 - 2045 No-Build Pedestrian Level of Comfort

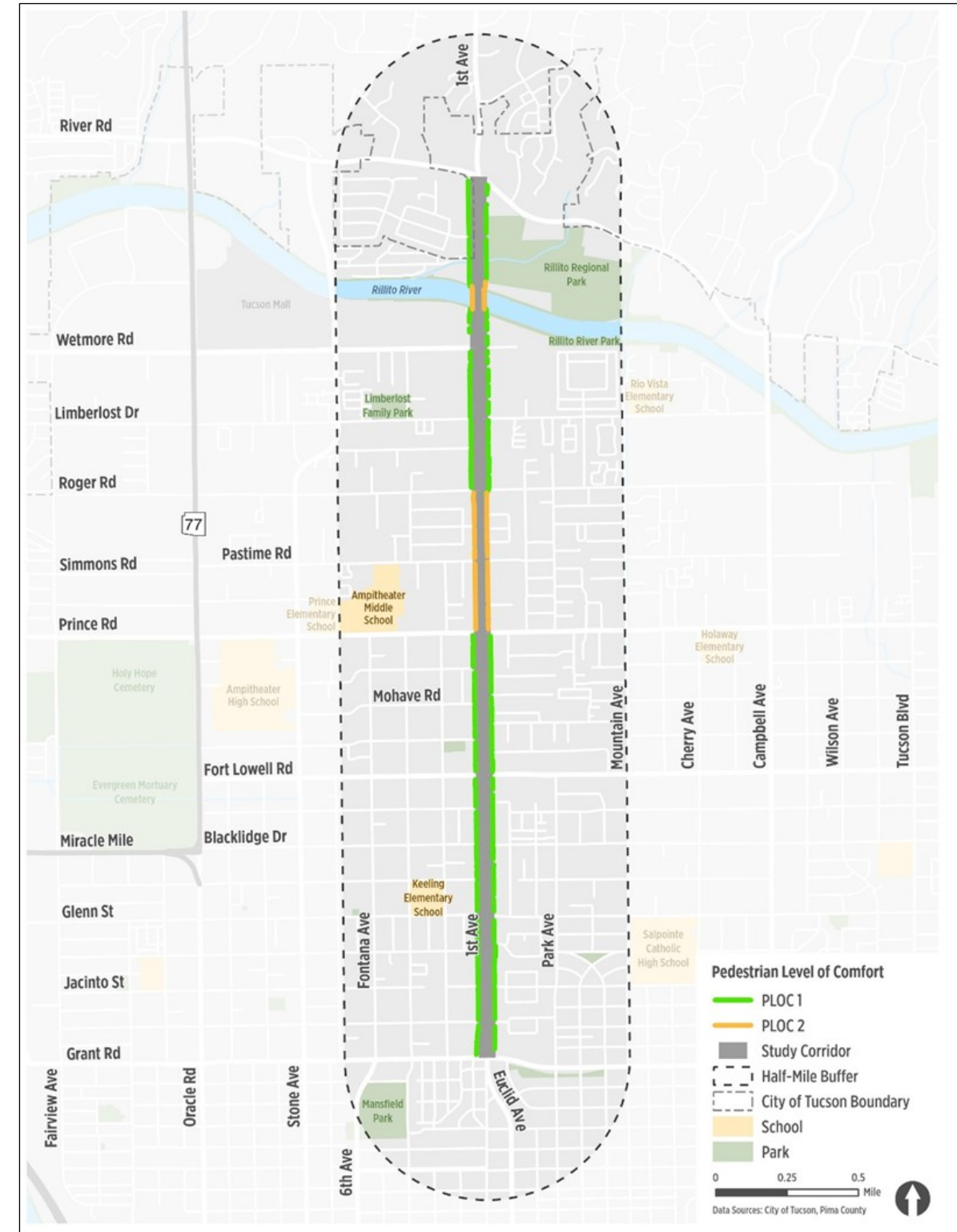


Figure 27 - 2045 Build Pedestrian Level of Comfort

NOTE: Right-of-Way constraints between Prince Road and Roger Road limit the sidewalk setback from the roadway, resulting in PLOC 2 for this segment.

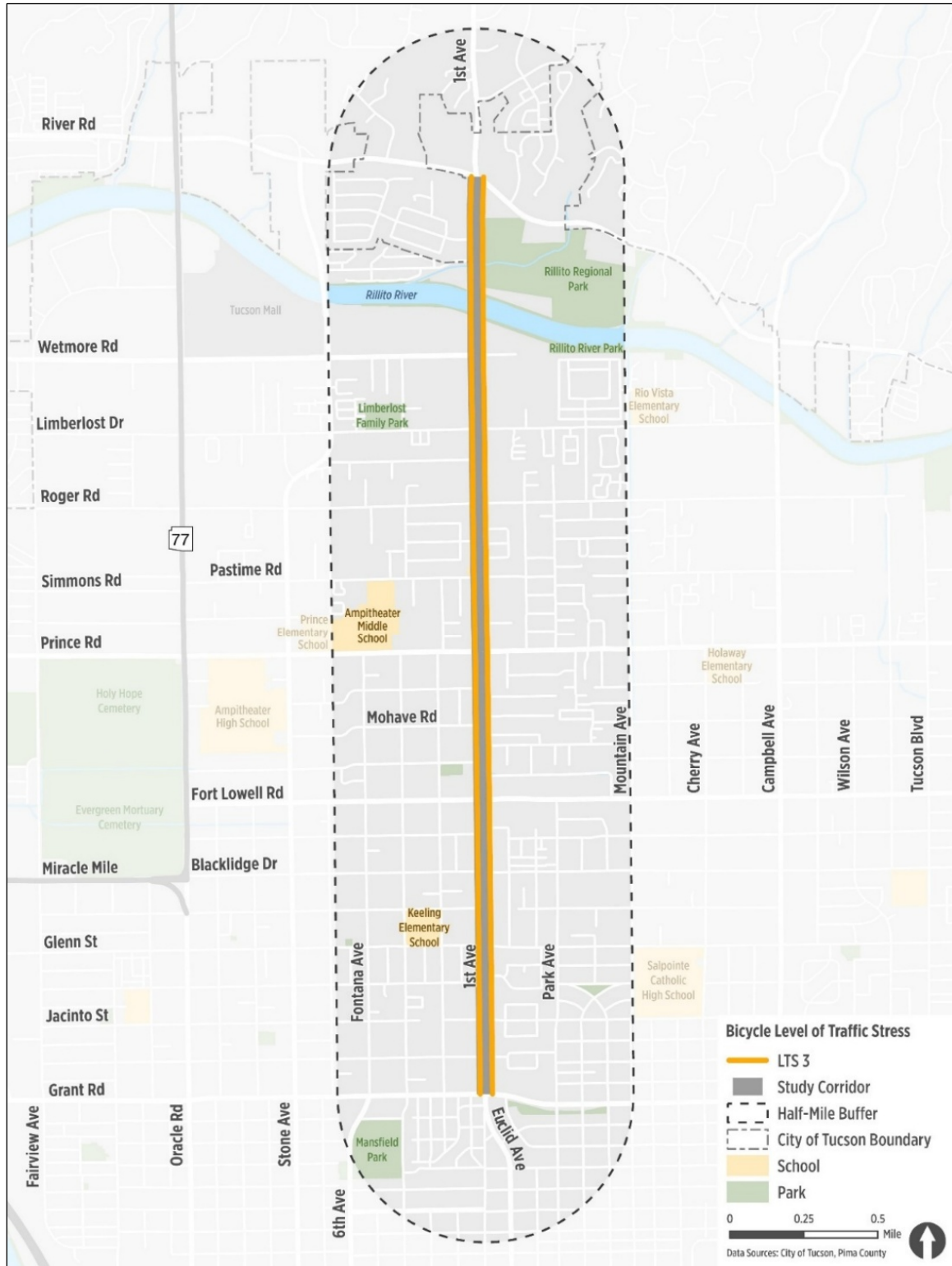


Figure 28 - 2045 No-Build Bicycle Level of Traffic Stress

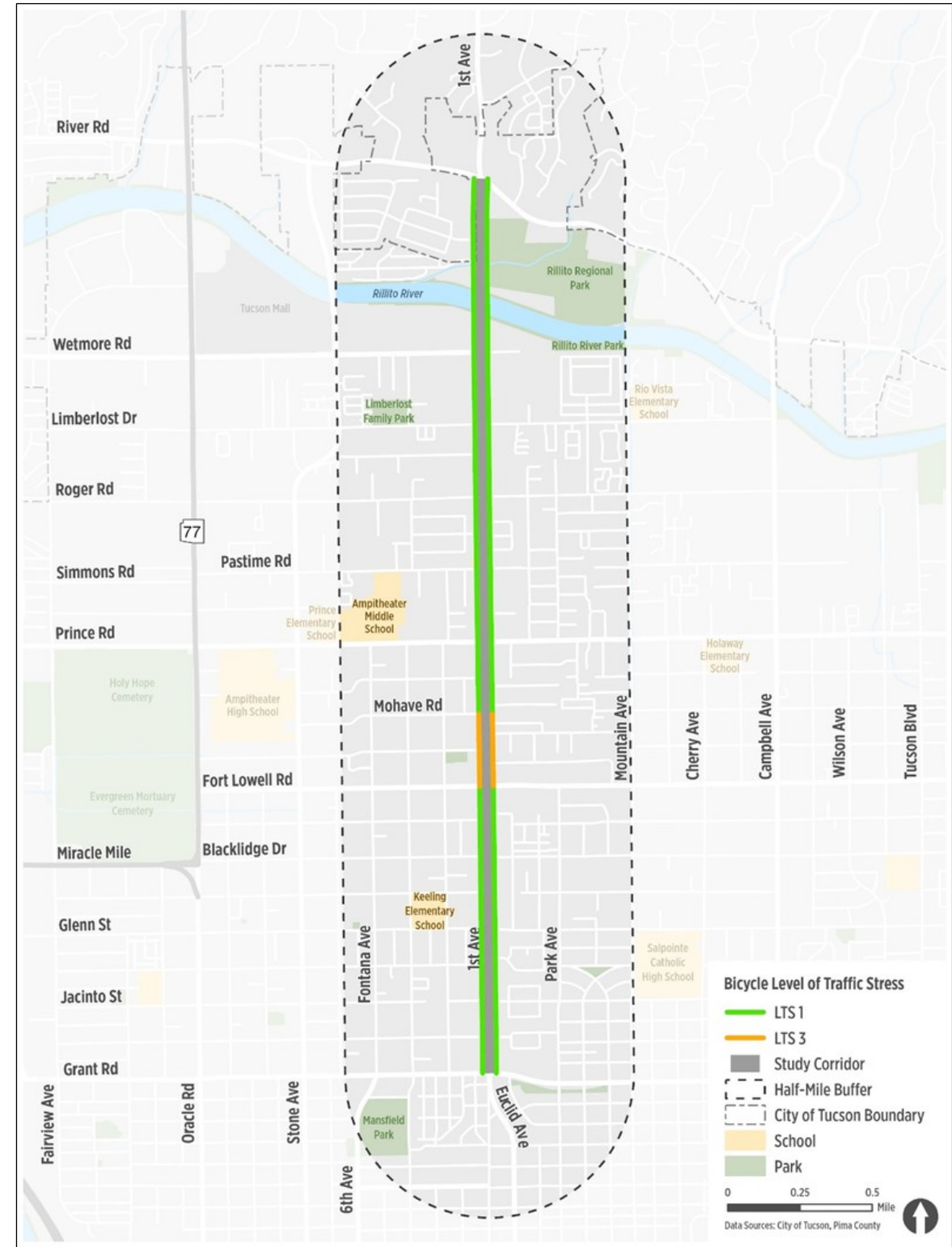


Figure 29 - 2045 Build Bicycle Level of Traffic Stress

NOTE: Ft Lowell Road to Mohave Road is in a FEMA floodplain. This limits the use of vertical elements to protect bike lanes, resulting in LTS 3 for this segment.

### 6.2.1 Evaluation Matrix Development

To translate the project goals into measurable evaluation components, a series of corridor improvement strategies was identified. These strategies were shaped by the Citizens Task Force and guided by recurring public engagement themes, including safety, comfort, access, equity, and multimodal connectivity.

For each strategy, metrics and criteria were developed to assess how individual treatments advance the project goals. These metrics reflect design approaches commonly discussed by the community, for example, speed-management measures, pedestrian-realm enhancements, improved lighting, driveway access management, and other treatments that respond directly to conditions along the 1st Avenue corridor. These strategies form the foundation of the evaluation matrix, ensuring scoring reflects project priorities.

Each metric is scored on a three-point scale, ranging from Most Desirable (3 points) to Desirable (2 points) to Least Desirable (1 point). For every metric, the required treatment or operational threshold needed to achieve each score tier is clearly defined.

After scoring, an average score is calculated for each of the six project goals based on the associated metrics. These averages are then weighted according to the priority ratings established by the Citizens Task Force. Improve Safety received the highest priority and a weight of 5.0×. Increase Transportation Options received a 4.5× weight, followed by Upgrade Existing Infrastructure at 4.375×. Support Mobility and Minimize Right-of-Way Impacts were each weighted 4.0×, and Enhance Visual Character was weighted 3.375×. These weights were applied to generate the weighted averages that guide the evaluation of alternatives and reflect the corridor’s specific needs.

The criteria for each score level specify the minimum design features, operational characteristics, or performance outcomes required to achieve that score. This approach allows alternatives to be compared based on clearly defined expectations related to the project goals and design strategies.

Criteria were developed to identify feasible, implementable treatments within the project corridor, informed by existing conditions, applicable design standards, and feedback from the Citizens Task Force and public outreach. Where applicable, the criteria distinguish between full implementation of a strategy, partial implementation, or limited/no implementation to capture the range of potential design outcomes.

Appendix A (Build Chapter) shows the full evaluation matrix, including evaluation criteria and scoring definitions for each metric. These criteria were applied consistently across all alternatives to generate metric-level scores, which were then aggregated and weighted as described previously to inform the selection of the preferred alternative.

### 6.2.2 Alternative Evaluation Scoring

The evaluation matrix described above was applied to compare roadway cross-section alternatives along 1st Avenue between Roger Road and Prince Road. Two alternatives were evaluated within this corridor segment: a narrow median configuration and a two-way left-turn lane (TWLTL) configuration.

Each alternative was assessed using the established strategies, metrics, criteria, and weighting framework to ensure a consistent and transparent comparison. The matrix was used to score how well each

alternative advances the six project goals, with weighted averages calculated to reflect the priority rankings established by the Citizens Task Force.

When applying the evaluation matrix, it was determined that certain metrics and associated criteria were not uniquely differentiable between the narrow median and the TWLTL alternatives. In these cases the choices did not meaningfully affect the ability to implement or support the metric. Examples include public art installations, transit stop features, and intelligent transportation systems (ITS) improvements, which could be accommodated similarly under either alternative. When a metric did not differentiate between alternatives, no score was assigned to either alternative. This ensured the evaluation focused on factors directly influenced by the cross-section and avoided artificial advantages or disadvantages.

Appendix A (Build Chapter) presents the complete evaluation matrix and detailed scoring for each metric by alternative. **Table 9** summarizes the weighted-average scores for each project goal and the overall weighted score for each alternative.

**Table 9. Alternative Weighted Scoring Summary**

Goal	Weighted Average Score	
	Narrow Median	TWLTL
<b>Improve Safety</b>	13.8	11.3
<b>Increase Transportation Options</b>	12.1	9.1
<b>Upgrade Existing Infrastructure</b>	8.8	8.8
<b>Support Mobility</b>	-	-
<b>Minimize R/W Impacts</b>	4.0	12.0
<b>Enhance Visual Character</b>	-	-
<b>Total Alternative Score</b>	<b>9.7</b>	<b>10.3</b>

Based on the evaluation results, the TWLTL alternative emerged as the preferred alternative, achieving an overall weighted average score of 10.3. The narrow median alternative received an overall weighted average score of 9.7. While the narrow median alternative performed strongest in advancing the *Improve Safety* goal, it scored lower for *Minimize Right-of-Way Impacts*, particularly within this corridor segment, which contains the narrowest existing right-of-way on the project corridor. In contrast, the TWLTL alternative demonstrated more balanced performance across all project goals, resulting in a higher overall weighted score for this constrained segment.

## 7 Design Standards and Criteria

The City of Tucson’s *Street Design Guide* was developed over many years and adopted by the Department of Transportation and Mobility in 2021. It is the document that provides the overarching guidance for project development to ensure that each transportation project is compliant with city’s *Complete Streets Policy* that was established in February 2019. The *Street Design Guide* defines Complete Streets as:

*“Complete Streets” is an approach to transportation planning and design that guides the development of a safe, connected, and equitable transportation network for everyone – regardless of who they are, where they live, or how they get around.*  
*(Street Design Guide, Pg. 1-8)*

Furthermore, this approach recognizes the context of the area surrounding each project and understands that design solutions will vary for each project based on this context. However, each transportation project will include the following regardless of context:

- *Safe, accessible, visible, and comfortable pedestrian walkways;*
  - *Safe and comfortable bikeways and crossings;*
  - *Appropriately sized and designed travel lanes and roadways;*
  - *Accommodations for commercial vehicles and deliveries;*
  - *Attractive, inviting, and welcoming public spaces.*
- (Street Design Guide, Pg. 1-9)*

While the *Street Design Guide* is utilized as the primary guidance for planning and conceptual design, accepted engineering standards are also utilized as supporting criteria. This approach ensures that projects are developed to accommodate all multi-modal users and in accordance with the *Complete Streets Policy* from the outset. As projects progress from conceptual design through final engineering and the design is refined, this approach is flipped; engineering standards and design criteria become the highest priority that each element is required to meet, while the *Street Design Guide* is utilized to ensure project elements are still consistent, to the extent possible, with the original guidance and concept. The *Street Design Guide* illustrates this process as shown in **Figures 30 and 32**.



Figure 30 - Street Design Guide Figure 1.2, Complete Streets Incorporation in the Transportation Project Development Process

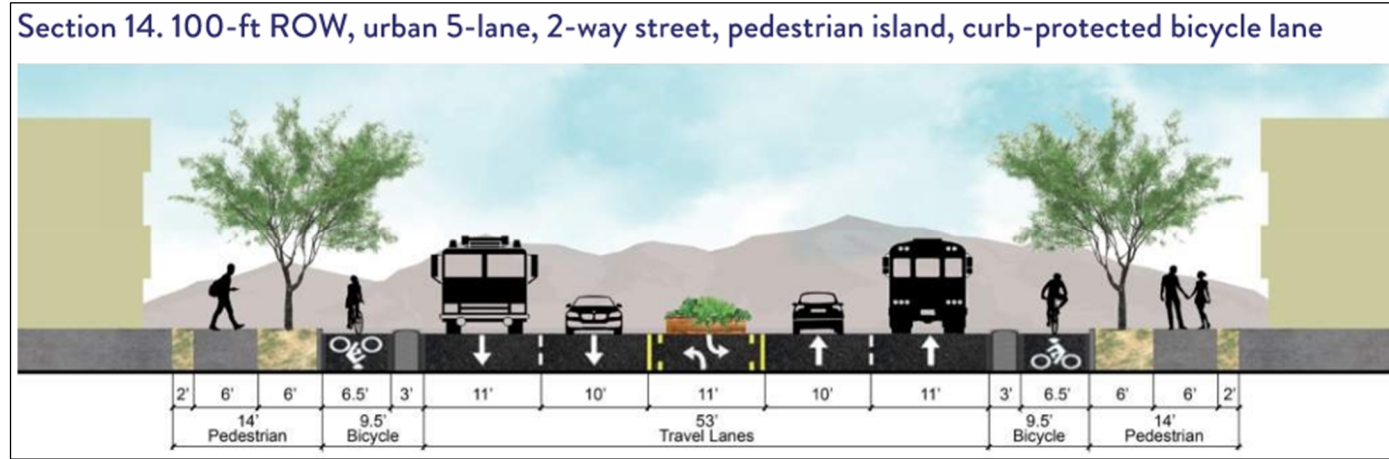
### 7.2 Roadway Design

#### Street Type

The *Street Design Guide* utilizes a “Street Type” system to define and classify roadways. This is similar to the FHWA classification system, but includes additional land use, modal priority, and surrounding context to provide supplemental information. This allows the available right-of-way to be allocated based on both the needs of the roadway and the context of the area it is passing through. This also provides a framework to revise this allocation as the roadway passes through areas of the City with differing needs.

Utilizing the *Street Design Guide*, 1<sup>st</sup> Avenue in the area of this project is defined as an **Urban Thoroughfare**. In the FHWA classification system, this would be considered a Principal or Major Arterial. Furthermore, the *Street Design Guide* defines the specific zones of the roadway, provides dimensions for each, and ultimately provides sample cross sections for each street type. These cross sections utilize the

preferred dimensions for each of the roadway elements. Section 14, shown below in **Figure 31**, is the 5-lane Urban Thoroughfare that is the basis for 1<sup>st</sup> Avenue.



**Figure 31 - Street Design Guide, Urban Thoroughfare Sample Cross Section**

### Geometric Design Criteria

The criteria that is utilized for the geometric design and layout of 1<sup>st</sup> Avenue is based on engineering principles and is in accordance with the documents listed in the “Engineering Design” column in **Figure 32**.

The posted speed limit on 1<sup>st</sup> Avenue at the beginning of the project was 40MPH from Grant Road to Wetmore Road, and was 45MPH from north of Wetmore Road to River Road. However, the City of Tucson recently lowered the posted speed limits to 30MPH from Grant Road to Wetmore Road and 35MPH from north of Wetmore Road to River Road. With the lowered posted speed limits the design speed can equal the posted speed limit which is an approach referred to as “target speed”. This allows for the geometric elements of the roadway to be designed in accordance with AASHTO low-speed streets in urban areas.

The horizontal alignment presented in the preferred alternative utilizes a 2% normal crown cross-slope, and all curve radius values are greater than the minimum values provided in AASHTO, Table 3-13.

The minimum longitudinal grade of 1<sup>st</sup> Avenue is 0.5% to provide adequate pavement drainage along the curbed roadway.

The initial curb return radius used for the thoroughfare-to-throughfare intersections is 25’ and for thoroughfare-to-neighborhood streets is 20’. As design progresses curb return radius at each intersection will be evaluated and refined to meet the needs of each individual intersection, and vehicle turning movements will be modeled to verify the appropriate radius has been selected.

NETWORK PLANNING	CORRIDOR PLANNING	CONCEPTUAL DESIGN	ENGINEERING DESIGN
<ul style="list-style-type: none"> <li>• Move Tucson</li> <li>• PAG Regional Mobility and Accessibility Plan (RMAP)</li> <li>• Regional Transportation Authority Plan (RTA)</li> <li>• Modal Plans:               <ul style="list-style-type: none"> <li>- Bicycle Boulevard Master Plan</li> <li>- Regional Freight Plan</li> <li>- Pedestrian Safety Action Plan</li> <li>- Etc.</li> </ul> </li> <li>• Plan Tucson</li> <li>• Tucson Major Streets and Routes Plan</li> <li>• <b>Tucson Street Design Guide</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Tucson Street Design Guide</b></li> <li>• Move Tucson, RMAP, RTA</li> <li>• Tucson Major Streets and Routes Plan</li> <li>• NACTO Guidelines</li> <li>• Tucson Access Management Guidelines</li> <li>• Transportation Research Board Highway Capacity Manual</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Tucson Street Design Guide</b></li> <li>• Tucson Technical Standards Manual</li> <li>• NACTO Guidelines</li> <li>• AASHTO A Policy on Geometric Design of Highways and Streets</li> <li>• Tucson Access Management Guidelines</li> <li>• District specific (4th Ave/Downtown) design guidelines</li> <li>• International Fire Code (with Tucson Amendments)</li> <li>• Tucson City Code Chapters 25/26</li> <li>• Tucson Major Streets and Routes Plan</li> <li>• Landscape Design and Green Streets Active Practice Guidelines</li> <li>• Tucson Water Standards Specifications and Details</li> </ul>	<ul style="list-style-type: none"> <li>• AASHTO A Policy on Geometric Design of Highways and Streets</li> <li>• MUTCD</li> <li>• PAG Standard Specifications and Details for Public Improvements</li> <li>• Pima County/City of Tucson Signing and Pavement Marking Manual</li> <li>• TDOT Active Practice Guidelines</li> <li>• TDOT Departmental Policies and Procedures</li> <li>• Tucson Technical Standards Manual</li> <li>• Standard Manual for Drainage Design and Floodplain Management in Tucson, Arizona</li> <li>• Tucson City Code Chapters 25/26</li> <li>• Tucson Water Standards Specifications and Details</li> <li>• <b>Tucson Street Design Guide</b></li> </ul>

**Figure 32 - Street Design Guide Figure 1.3, Relevant Standards and Manuals by Phase**

### **7.3 Bridge Design**

The proposed 1<sup>st</sup> Avenue bridge over the Rillito River will be designed using the following codes and criteria:

Design Specifications:

- American Association of State Highway and Transportation Officials (AASHTO) Load and Resistance Factor Design (LRFD) Bridge Design Specifications, 9th Edition, 2020
- Arizona Department of Transportation (ADOT) Bridge Design Guidelines, AASHTO LRFD, current edition
- Pima County Guidelines for Establishing Scour and Freeboard for Bridges in Pima County, 2012 Edition

Construction Specifications:

- Pima Association of Governments (PAG) Standard Specifications for Public Improvements, 2015 Edition and the Special Provisions

Criteria:

- HL-93 Design Vehicle Live Loading
- The Bridge is located in Seismic Zone 1. Site Class and Seismic Coefficients will be determined at a later stage, after the bridge foundation investigation is completed

### **7.4 Drainage Design**

To be prepared for the Final Draft of the Design Concept Report.

### **7.5 Design Exceptions**

To be prepared for the Final Draft of the Design Concept Report as the design is refined and necessary exceptions are discovered and approved by the City in order to achieve project goals.

## 8 Social and Environmental Concerns

### 8.2 Biological Resources

Biological resources in the project area include landscaped vegetation along 1st Avenue and wildlife and vegetation in the Rillito River under 1st Avenue. Vegetation along 1st Avenue includes plant species such as mesquite trees (*Prosopis* spp.), oleander (*Nerium oleander*), Texas sage (*Leucophyllum frutescens*), Aleppo pine (*Pinus halepensis*), African sumac (*Searsia lancea*), palo verde trees (*Parkinsonia* spp.), olive trees (*Olea* spp.), palm trees (*Washingtonia* spp.), and other native and nonnative plants. Within the Rillito River bed, vegetation includes mesquite trees, desert broom (*Baccharis sarothroides*), singlewhorl burrobush (*Ambrosia manogyra*), African sumac, Mexican palo verde (*Parkinsonia aculeata*), and tamarisk (*Tamarix* spp.), among others. Vegetation in the Rillito River includes native plant species that may be protected by the Arizona Native Plant Law and the Pima County Native Plant Preservation Ordinance.

Given the project area's urban nature, wildlife in the area is likely limited. Small mammals (e.g., rodents) and reptiles (e.g., lizards) may inhabit the landscaped areas adjacent to the road and urban-adapted animals, such as coyotes (*Canis latrans*) and javelinas (*Tayassu tajacu*), likely move through the project area, particularly utilizing drainageways such as the Navajo Wash (just north of Fort Lowell Road) or Rillito River (north of Wetmore Road). Inactive bird nests were observed in trees in the Rillito River during the biological site visit, indicating that birds inhabit or nest in the trees within the project area. Additionally, bats were observed roosting in the crevices of the 1st Avenue bridge.

A Biological Evaluation (BE) is being prepared for the project. The BE will include an analysis of project impacts to vegetation, wildlife, threatened and endangered species listed in the Endangered Species Act, and special-status species (such as nesting and migratory birds and bats). The BE will include mitigation measures to protect these resources.

### 8.3 Wetlands and Riparian Areas

Wetlands and riparian areas are typically areas where perennial or intermittent water collects between uplands and adjacent water bodies. In addition to the presence of water, wetlands and riparian areas have certain types of vegetation associated with them.

A qualified biologist reviewed aerial imagery and conducted a pedestrian survey of the project area to determine the presence of wetlands and riparian areas; none are located in the project area.

### 8.4 Floodplains and Water Resources

The Federal Emergency Management Agency (FEMA) delineates floodplains in the United States. FEMA-designated floodplains intersect the project area at the Rillito River and Navajo Wash.

The Rillito River is a dynamic and highly altered drainageway that crosses the northern portion of Tucson. The river flows in response to precipitation and flows from east to west. In the proposed construction footprint, the river is lined with steep concrete bank protection on its north and south banks. The bed of the river has a sandy bottom, with vegetation including mesquite, desert broom, singlewhorl burrobush, African sumac, Mexican palo verde, and tamarisk. The Chuck Huckelberry Loop paved multiuse path runs along the north and south banks of the Rillito River and runs under 1st Avenue at the top of the concrete bank

protection. The Rillito River is within FEMA Flood Hazard Zone AE, which is subject to 1% annual chance of flooding. North and south of Rillito River, there is a FEMA Flood Hazard Zone X delineated as well, which is subject to a 0.2% annual chance of flooding.

The Navajo Wash is a low-flow drainage channel that conveys stormwater from east to west across 1st Avenue at Navajo Road just north of Fort Lowell Road. Navajo Wash flows in response to precipitation events and is ephemeral. Currently, water is conveyed over the roadway and not through a drainage structure. Navajo Wash upstream (east) of 1st Avenue is vegetated with Bermuda grass (*Cynodon dactylon*) and mesquite trees. Navajo Wash is within FEMA Flood Hazard Zone AE, which is subject to 1% annual chance of flooding.

The project would install drainage improvements at Navajo Wash and 1st Avenue to better convey stormwater; however, there would be no change in the elevation of the floodplains or alteration as a result of the project.

### 8.5 Sections 401/404/408

Sections 401 and 404 of the Clean Water Act provide protections for Waters of the U.S., as defined by the U.S. Environmental Protection Agency (EPA) and regulated by the U.S. Army Corps of Engineers (Corps). Based on a review of the project area and in accordance with direction from the Corps, a Section 404 permit would not be needed for this project, nor would a Section 401 permit. A Stormwater Pollution Prevention Plan (SWPPP) would be required in accordance with the Construction General Permit (CGP) because the project would disturb 1 or more acre of land.

Section 408 (Section 14 of the Rivers and Harbors Act of 1899) governs the use or alteration of any Civil Works project. Sections of the bank protection along the Rillito River were Corps-commissioned projects and would be subject to regulation under Section 408. While alteration of the existing bank protection is not planned as part of this project, initial communication from the Corps has indicated that a Section 408 permit would be needed. Further coordination with the Corps is anticipated as the project design progresses.

### 8.6 Section 4(f) Resources

Section 4(f) of the Department of Transportation Act of 1966 specifies that the Federal Highway Administration (FHWA) and other Department of Transportation agencies "cannot approve the use of publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historic sites unless there are no existing feasible and prudent alternatives to the use of the land and the proposed action includes all possible planning to minimize harm to the property" (ADOT 2026).

Section 4(f) applies to federally funded transportation projects. Because the project is not federally funded, Section 4(f) does not apply. If the project becomes federalized in the future, the project should be re-examined to identify potential impacts on Section 4(f) properties.

### 8.7 Section 6(f) Resources

The Land and Water Conservation Fund (LWCF) provides funding for conservation and outdoor recreation facilities and is administered by the U.S. Department of the Interior's National Park Service (NPS). Section 6(f) prohibits the conversion of property acquired or funded by the LWCF to a nonrecreational purpose without NPS approval.

No LWCF-funded properties or facilities are located in the project area; therefore, the project would not affect Section 6(f) resources (LWCF 2026).

## 8.8 Social Resources

The project will improve bicycle and pedestrian facilities throughout the corridor through the implementation of separated bicycle lanes, High-Intensity Activated Crosswalk (HAWK) signals, connected sidewalks, and improved signalization and crossings. Intensive public involvement has been incorporated into all stages of the project to gather information from the public (see Section 9 below).

Minimal right-of-way acquisition would be needed along the corridor, although no full acquisitions, relocations, or displacements are anticipated.

Temporary effects during project construction would include a change in access to businesses or side streets, although there would be no full closures. Travel lanes may be restricted to one lane at times, which may cause traffic delays, but no road closures are anticipated. During construction of the 1st Avenue bridge, two-way travel would be maintained.

## 8.9 Cultural Resources

A Class III pedestrian survey for cultural resources was conducted on October 17, 2025, and a Survey Report Summary Form (SRSF) was prepared for the project.

Within the project area, there are three cultural resources: the Rillito Race Track Historic District, First Avenue Bridge ADOT Structure No. 09617, and the Mario's Pizza sign. The bridge previously was determined ineligible for listing in the National Register of Historic Places (NRHP). The Rillito Race Track Historic District is listed on the NRHP. The Mario's Pizza sign is recommended NRHP-eligible and is a City-designated Historic Landmark Sign.

While the project may need to widen sidewalk and add/improve the bicycle lane within the Rillito Race Track Historic District, the project would not affect the Rillito Race Track Historic District's integrity of location, setting, materials, design, feeling, association, or workmanship. Regarding the Mario's Pizza sign, the SRSF recommended avoiding or moving the sign. If these options are not feasible, the City of Tucson Historic Landmark Sign Registry should be updated prior to removal.

If the project becomes federalized in the future, Section 106 of the National Historic Preservation Act of 1966 (NHPA) consultation would be required.

## 8.10 Scenic or Historic Route

Pima County has a Scenic Routes Plan however, the City of Tucson does not have a scenic or historic route plan. 1st Avenue is not identified as a scenic route in the Pima County Scenic Routes Plan.

## 8.11 Noise

Sensitive noise receptors are found within the project area and adjacent to 1st Avenue. A noise report has been prepared for the project. Noise impacts were identified throughout the corridor, however, noise barriers were not recommended because they did not meet the feasibility and reasonableness criteria.

## 8.12 Air Quality

The project area is located in an area that is in attainment of EPA's National Ambient Air Quality Standards. Air quality within and adjacent to the project area may be temporarily affected by emissions from equipment and vehicles during construction. The project would not increase traffic-carrying capacity; therefore, long-term air quality impacts are unlikely.

## 8.13 Hazardous Materials

A Corridor Initial Site Assessment (C-ISA) that identified sites "which may have residual soil contamination related to current or past operations" was completed for the project in June 2024. Throughout the corridor, there were 47 sites of concern: 9 low-risk sites, 24 moderate-risk sites, and 14 high-risk sites. Based on these results, the C-ISA included recommendations, including:

- City will notify the contractor regarding location and contaminant type.
- City will provide a Contaminated Media Management Plan (CMMP) to the contractor in the project's bid documents.
- City will confirm that the CMMP is being followed throughout the project's construction.

Additionally, since more than 1 year has passed since the preparation of the C-ISA, the C-ISA should be updated prior to construction to document whether any regulatory changes or development changes have occurred.

# 9 Public Involvement

## 9.1 Citizens Task Force

The City of Tucson established a Citizens Task Force (CTF) to provide guidance and input during the initial planning phase of the project. The CTF was originally comprised of 15 members who submitted applications to join. To date four members have stepped down and one new member has been seated. The CTF has partnered with the design team to create project goals, design strategies and input. They are in tune with the community they are part of and are actively working toward a 1st Avenue that is safe and accessible for all users. To date the CTF has met 12 times:

June 27, 2024	February 20, 2025
August 22, 2024	March 20, 2025
September 19, 2024	April 17, 2025
October 17, 2024	May 15, 2025 (Cancelled, No Quorum)
November 21, 2024	June 12, 2025
January 16, 2025	September 18, 2025

## 9.2 Public Engagement Activities

The project team has completed two phases of community outreach and engagement. The first phase was in the fall of 2024 to obtain an understanding of the needs and desires for the project. This information was used as one of the bases to establish project goals. The second phase was in the fall of 2025 for the design team to present the project to the public to evaluate if their needs and desires were successfully met. During both phases the team collaborated with and utilized the Mainstreet Business Assistance Program to connect with business owners along the corridor. Additionally, a project website was launched to provide continually provide information throughout the life of the project: [1st Avenue: River Road to Grant Road Project Website](#)

### 9.2.1 Phase 1 Outreach

In fall 2024, Community Outreach Phase I began and included a survey that sought community input on priorities for the corridor. Community input was collected from September 18, 2024, through December 8, 2024.

Notifications for outreach activities were delivered via posters that were hand delivered to 435 businesses and stakeholders along the corridor, a direct mailer to 6,212 residents and businesses within ¼ mile of the corridor and five digital advertisements with the Arizona Daily Star. Additionally, direct emails were sent to interested stakeholders and neighborhood associations, three email blasts were sent to individuals who signed up for the mailing list as well as a social media campaign that went from September 19<sup>th</sup> through December 4<sup>th</sup>.

Two Open House Events were held; in person on October 9<sup>th</sup> and virtual on October 10<sup>th</sup>. In addition to these, four in person Pop-Up / Tabling events were held. These were on October 20<sup>th</sup> at the Heirloom Farmers Market, October 23<sup>rd</sup> at Woods Memorial Library, November 22<sup>nd</sup> at Vantage West Credit Union, and December 7<sup>th</sup> at Cyclovita.

The survey was launched on the project website on September 18<sup>th</sup> and remained open for responses through December 18<sup>th</sup>. The survey consisted of 17 question – nine specific to the corridor and eight demographic questions. In total there were 588 survey responses. The questions specific to the corridor asked not only how and how often users travel the corridor, but what challenges they face while doing so, what challenges they care about solving most, and a ranking of project considerations.

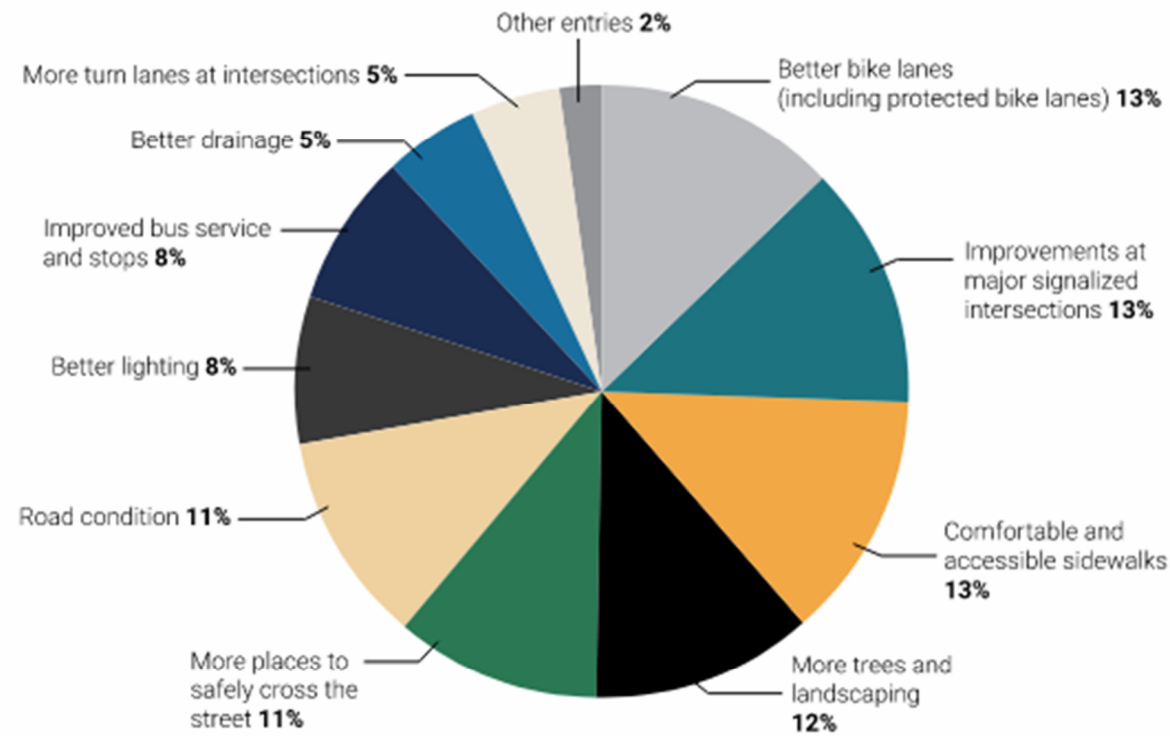


Figure 33 - Project Website, Landing Page

A summary of the outreach efforts and results from each of the phases are highlighted below. Please refer to Appendix H for a complete summary of each of the outreach effort and materials.

**Question #7**

What are the top five things you want to make better on the corridor?



**Question #8**

Please rank the following project considerations in order of importance from 1 to 4 (1 = most important and 4 = least important).

Categories	Average Weight	Rank
Bicycle/pedestrian safety and comfort	3.23	1
Minimizing project costs	1.91	4
Minimizing impacts on private property and businesses	2.22	3
Reducing traffic congestion and travel time	2.64	2

Figure 34 - Results to Survey Questions #7 and #8

- Three (3) comments were received on the project hotline.

General themes from these comment options are listed below:

- The need for protected bike lanes and HAWK crossings
- Better sidewalks
- More bus pullouts
- More lighting
- More safety measures to stop speeding
- Several requests to avoid widening 1<sup>st</sup> Avenue

The survey results and comments were reviewed by the design team and presented to the CTF. This information became the basis used to establish the Project Goals and associated Design Strategies to achieve these goals.

## Project Goals

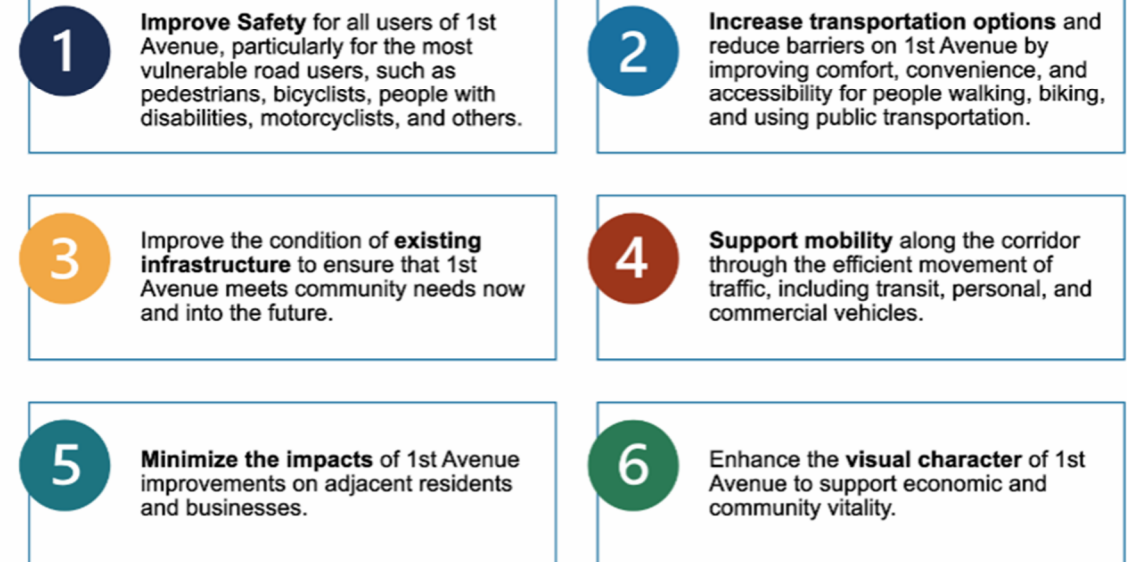


Figure 35 - Project Goals

An interactive map was also available on the project website during the survey. Between September 18<sup>th</sup> and December 8<sup>th</sup>, a total of 31 comments were received.

A total of Fifty-three (53) comments were received by December 8, 2024, the last day of the comment period, through the following methods:

- Thirty-one (31) map comments were received.
- Nineteen (19) comments were submitted through the project website comment form.

## 9.2.2 Project Goals and Design Strategies

### 1. Improve Safety

- Employ the Sage Systems Approach principles in corridor design
- Provide physical separation between bicyclists and pedestrians and motor vehicles
- Manage vehicle speeds to reduce crash severity through using context-sensitive roadway design principles and establishing appropriate speed limits that balance safety and mobility
- Provide and maintain adequate and continuous lighting along the corridor, particularly in the areas with the highest pedestrian activity
- Ensure that pedestrians and cyclists have access to frequent and safe crossings
- Design intersections and upgrade traffic signals to reduce conflicts in space and time, including consideration or protected left-turn phasing as appropriate
- Install raised medians and/or pedestrian refuge islands at appropriate locations
- Coordinate with emergency responders and public safety officials to ensure the 1<sup>st</sup> Avenue project improves safety and supports efficient and reliable emergency response
- Minimize distances between bus stops and controlled crossing locations

### 2. Increase Transportation Options

- Install wide, continuous, and accessible sidewalks
- Separate sidewalks from roadway to the greatest extent feasible with a planting/amenity zone and bicycle lanes
- Ensure that pedestrians and cyclists have access to frequent safe crossings
- Provide the greatest amount of physical separation between bicyclist and motor vehicles, including through installation of protected bike lanes
- Upgrade transit stops and add amenities so that stops are accessible, shaded, safe and comfortable

### 3. Upgrade Existing Infrastructure

- Upgrade drainage infrastructure to provide all-mode access during more frequent/common storm events
- Replace and upgrade the 1<sup>st</sup> Avenue bridge over the Rillito River to a structural design life of 75 years, and to improve functionality to meet current Complete Streets design practices
- Upgrade intersections and communications to support integration of next generation smart traffic signals
- Use high-quality, durable materials to reduce long-term maintenance needs on the corridor
- Reconstruct pavement roadway, sidewalks, bicycle lanes, and install bus shelters to improve ride quality, comfort, accessibility and longevity of public infrastructure

### 4. Support Mobility

- Upgrade intersections and communications to support integration of next generation smart traffic signals
- Implement Access Management Strategies, including installation of raised medians and driveway consolidation where possible

- Evaluate strategies, such as the addition of turn lanes and improved signal operations, to improve functionality of the corridor to efficiently and safely accommodate all modes at major intersections, accounting for current and future traffic volumes
- Incorporate bus pullouts at high demand locations

### 5. Minimize Impacts

- Align the 1<sup>st</sup> Avenue corridor to minimize acquisitions of structures and properties
- Support businesses during construction through partnership with the RTA Mainstreet program
- Maintain access for residents, businesses, and neighborhoods along 1<sup>st</sup> Avenue

### 6. Visual Character

- Incorporate Green Stormwater Infrastructure (GSI) best practices to use stormwater as a resource to support long-term sustainability, trees and other landscape enhancements
- Use drought-tolerant, locally sourced, native landscaping to match the desert environment and improve survivability
- Utilize bridge and other infrastructure elements to enhance the visual character of the corridor by incorporation community-supported public art and other aesthetic enhancements

## 9.2.3 Phase 2 Outreach

In fall 2025, the city initiated the second phase of community outreach. Phase II was designed to illicit feedback on the options that had been suggested by the community in and the Citizens Task Force members in Phase I, focusing on safety improvements for the entire corridor. Phase II included an Online Meeting portal on the project website that contained all the materials that were presented at the second Open House event and gave people the chance to go through all the proposed improvements and vote on items and leave comments.

Similar to the Phase 1, notifications for outreach activities were delivered via posters, a direct mailer, digital advertisements, direct emails to stakeholders and neighborhood associations, email blast and a social media advertising campaign.

An In-Person Open House event was held on October 15<sup>th</sup>. Instead of a single Virtual Open House event, an Online Meeting Portal ([First Avenue Improvement Project: River Road to Grant Road Online Open House](#)) was also launched on October 15<sup>th</sup>. This portal was accessible via the project website and featured the same materials presented at the In-Person Open House, walked attendees through each of the informational boards, and allowed attendees to leave comments and vote. The Online Meeting Portal remained open to receive comments and votes through November 26<sup>th</sup>.



Figure 36 - Online Meeting Portal, Landing Page

In addition to the Open House, three in-person Pop-Up / Tabling events were held. These were on October 26<sup>th</sup> at Cyclovia, November 16<sup>th</sup> at the Rillito Farmers Market and November 18<sup>th</sup> at Amy's Donut Store.

A total of 144 comments were placed on boards, banners, and roll plot maps during the In-Person Open House and on the Online Meeting portal. An interactive map was available on both the project website and Online Meeting portal. A total of 117 comments were received on this map. Lastly, a total of 211 votes were tallied on the banners at the Open House and the Online Meeting. All comments and votes can be found in Appendix I. The overall public sentiment and feedback collected during the fall of 2025 was positive and supportive of the proposed improvement options presented to the community. A brief summary of received comments is presented here:

- **Key comment themes included:**
  - Would like to see protected bike lanes added
  - Medians as refuge islands for pedestrians
  - Support / request for bike boxes at Glenn Street
  - Crosswalk addition at Halcyon to connect to Mountain Avenue Bike Boulevard
  - Bus Stop locations discussed for what is best for riders
  - Prioritizing shade along the corridor
  - Addressing traffic flow issues when you exit the Rillito Farmers Market on Sundays
  - General dislike of bus pullouts
  - Requests for more transit options like streetcar or bus rapid transit
- **The intersection with the highest number of comments was 1<sup>st</sup> Avenue and Fort Lowell Road. This included the following comment themes:**
  - The majority of comments about the 1<sup>st</sup> Avenue and Fort Lowell Road intersection are about bike rider safety and the dislike of the of the proposed use of a protected right turn or “slip lane”.
  - People are generally concerned with the safety of bike riders along 1<sup>st</sup> Avenue.
  - Requests for changing the location of the proposed bus pullouts near this intersection.
  - Questions regarding the locations of bus stops at this intersection.
- **Other intersections with many comments / likes / replies included:**
  - River Road Intersection and area: Comments about connecting sidewalks and paths to The Loop and requests for pedestrian and bicyclist safety here.
  - Prince Road: More bike safety issues with proposed slip lanes. Positive feedback on protected bike lanes.
  - Wetmore Road: More issues with slip lanes. Request to make it easier for bikes to reach The Loop and positives on protected bike lanes.
  - Grant Road: Comments about pedestrian safety in this area.

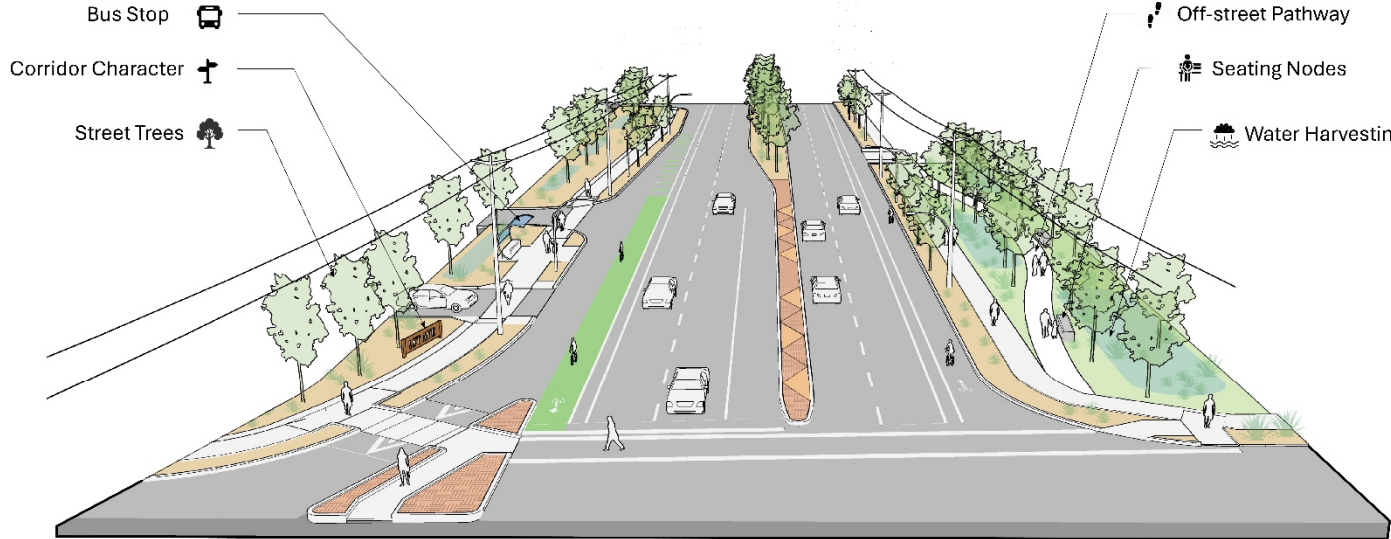
# 10 Landscape and Aesthetics

## Landscape Approach

A well-designed pedestrian realm is a core element of a Complete Street, creating a safe, comfortable, and engaging environment for people traveling on foot. By designing the space between the roadway and adjacent land uses, the pedestrian realm supports walking as a viable mode of transportation while enhancing the overall character of the corridor. Elements such as wide sidewalks, landscaping, lighting, street furniture, and accessible amenities work together to promote safety, encourage active use, and strengthen connections to surrounding neighborhoods and transit.

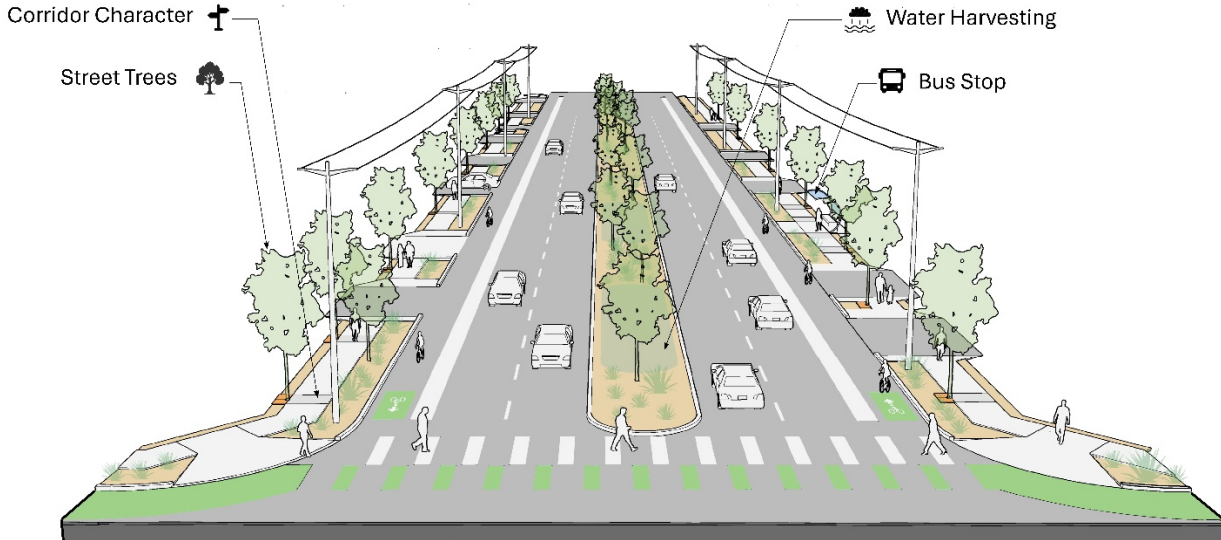
For the 1st Avenue project, two typical scenarios guide the landscape and hardscape design. These include the **Areas of Opportunity Right-of-Way Concept** and the **Limited Right-of-Way Concept**. Along portions of the corridor where a wider right-of-way exists, there is greater flexibility to incorporate enhanced landscaping and water-harvesting features. Additional landscaping and seating are proposed between the sidewalk and the public right-of-way, particularly near bus stops, to improve comfort and usability. Where space allows, a secondary pedestrian pathway will be introduced, providing a more pleasant walking experience and allowing transit riders to wait for buses at a greater distance from traffic.

## Areas of Opportunity Right-of-Way Concept



- Opportunities**
  - Enhanced Bus Stops
  - Corridor Character
  - Seating Nodes
  - Street Trees
  - Water Harvesting
  - Off-street Pathways
- Constraints**
  - Overhead Utilities
  - Underground Utilities

## Limited Right-of-Way Concept



- Opportunities**
  - Enhanced Bus Stops
  - Corridor Character
  - Street Trees
  - Water Harvesting
- Constraints**
  - Smaller Landscape Areas
  - Many Driveway Openings
  - Overhead Utilities
  - Underground Utilities

A 5-foot amenity zone will be provided between the back of the curb and the sidewalk edge. This area will feature new landscaping and hardscape treatments, tailored to adjacent land uses.



Amenity Zone for Pedestrians

## Plant Palette

Native Sonoran plant species will be incorporated into the plant palette. These plants are more resilient than non-native species and help reinforce a strong sense of place within the desert urban environment.



Many of the medians along the corridor are wide enough to accommodate trees. These trees will help create a natural green corridor, visually narrowing the roadway and encouraging drivers to slow down. In locations where medians are too narrow to support landscaping, decorative concrete patterns or pavers will be used to enhance the corridor's hardscape character and overall visual appeal.



Decorative Concrete and Paving Patterns

## Stormwater Harvesting

In accordance with the City of Tucson's Green Streets Policy, water-harvesting features will be incorporated along the 1st Avenue corridor wherever feasible. Curb cuts with scuppers will be used in locations where stormwater runoff from the roadway can be directed into landscaped areas. Where roadway runoff cannot be captured, six-inch recessed planting areas will be provided. Although these areas do not receive stormwater from the street, they collect direct rainfall, offering supplemental irrigation to support healthy plant growth.



Stormwater Harvesting on St. Mary's Rd. and the Mesa Fiesta District

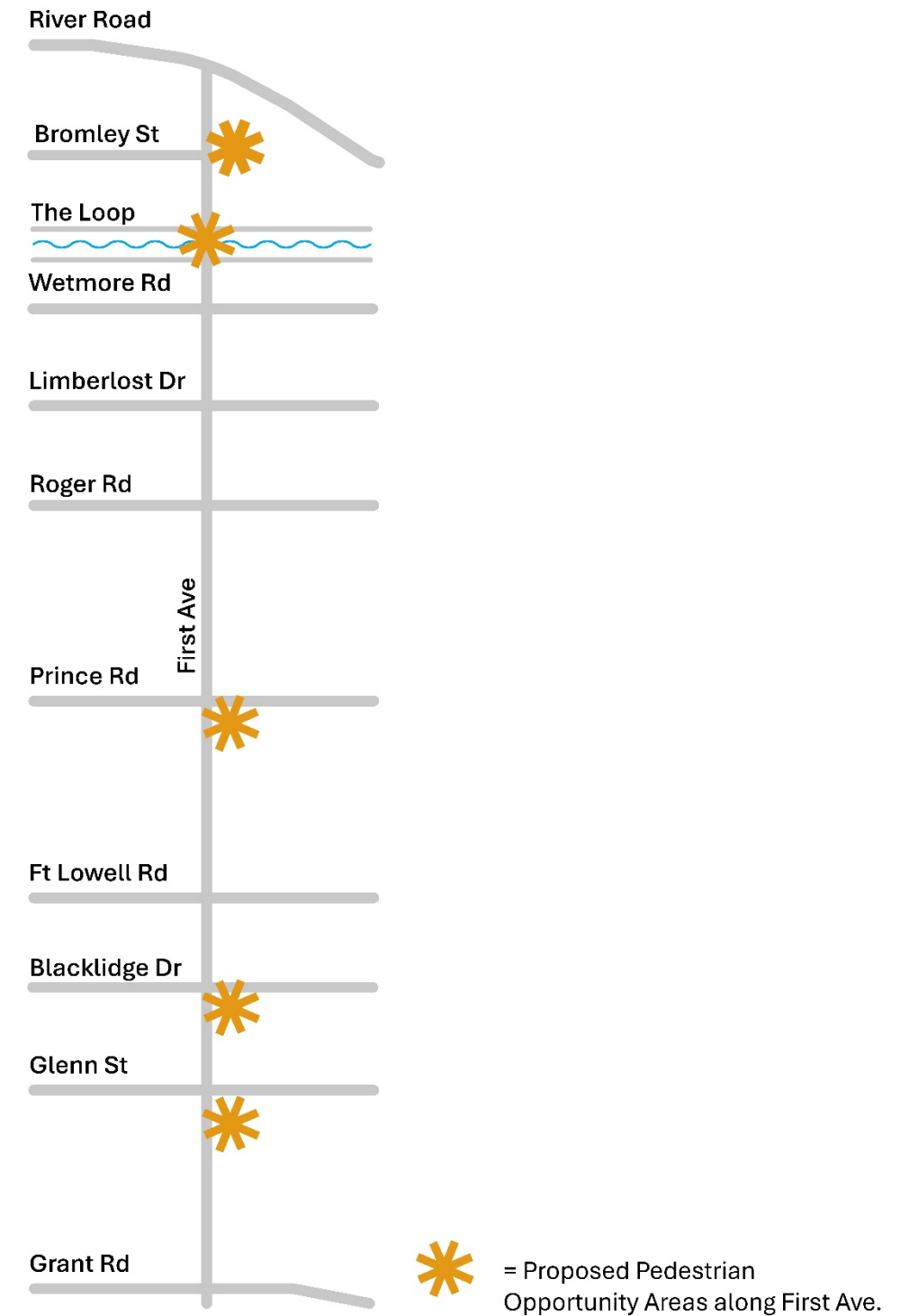
## Pocket Parks

Several locations along the corridor present opportunities to integrate pocket parks into the project design.



Example of Pocket Parks

These areas benefit from additional space within the public right-of-way, allowing for the inclusion of enhanced amenities for pedestrians and bicyclists. Pocket parks may feature green space, shade, seating, public art, bicycle repair stations, water fountains, and trash receptacles. The image below illustrates these proposed pedestrian opportunity areas.



## Landscape Design Summary

In conclusion, J2 Design served as the landscape architects for the Grant Road corridor and will apply the same successful design approach to the 1st Avenue Corridor project. The segment between Stone Avenue and Park Avenue has demonstrated the effectiveness of this approach through its functional water-harvesting systems, use of native plantings, and visually appealing crosswalks with shade structures. Together, these elements create an attractive and welcoming roadway that supports pedestrians, bicyclists, and motorists within Tucson's urban environment.



Enhanced Crosswalk on Grant Road Corridor

## Bridge Aesthetics

The new 1<sup>st</sup> Avenue bridge over the Rillito River has opportunity for both bridge aesthetics and enhancing the pedestrian and bicyclist entry points onto the Chuck Huckelberry Loop. At the entry points from the bridge onto the Loop, seatwalls, signage, and new landscape will be included as part of the project design.



Entryway Signage and Seating



Bridge aesthetics can include the use of formliners on the bridge barriers and retaining walls, a new fresh paint palette, and decorative metal railing.



Bridge Barrier Formliner





Retaining Wall Formliner

A public artist(s) will be involved with this project. Contributing to the bridge aesthetics or entry points onto the Loop would be ideal locations for public artist collaboration.



Examples of Art on the Loop

# 11 Roadway Alignment and Layout Alternatives

## 11.1 Roadway Alignment

As noted previously, the existing right-of-way width along 1<sup>st</sup> Avenue is inconsistent, and in many places is only 70' wide; much less than the minimum of 100' necessary to accommodate the City's preferred cross section. This was recognized during the Needs Assessment Study when the evaluation was between the original 6-lane alternative and the currently proposed 4-lane alternative. Working toward Project Goal 6 – Minimize Impact, the design team initially evaluated three options for achieving the necessary 100' of right-of-way width:

- **Option 1 – Straight Alignment, Widening Right-of-Way Symmetrically**
- **Option 2 – Straight Alignment, Widening Right-of-Way to the West**
- **Option 3 – Straight Alignment, Widening Right-of-Way to the East**

Right-of-Way acquisition is a process that occurs at a later phase in a project after the ultimate footprint of a project has been determined. It is a complicated process that takes into items such as area to be acquired, current use of the area, potential use of the area, ability of the property owner to continue using the property, relocation of owners to new properties, and many others. Because of this it is not possible to accurately estimate the overall impact of the necessary acquisition, or the ultimate cost of right-of-way acquisition. However, there are **Three Tiers of Property Impact** as well as **Three Guiding Principles** the design team used to evaluate the impact to each parcel and to estimate the magnitude of the necessary acquisition. These are:

- **Three Tiers of Property Impact**
  1. Acquisition with no Economic Impact (Example: Frontage Landscape)
  2. Acquisition with Economic Impact that can be "Cured" (Example: Loss of Parking and/or Modified Site Circulation)
  3. Full Property Acquisition (Example: Complete Loss of Parking and/or Building)
- **Three Guiding Principles**
  1. No Impact is the Best Impact (Impact is Only Allowed to Satisfy a Project Need)
  2. Design Decisions May be Used to Move Impact to a Lower Tier (Narrowing Cross-Section Features is Allowed if Impact is Lessened and Project Goals are Still Met)
  3. Design Decisions Will Not be Used to Move Impact to a Higher Tier (Widening of Cross-Section Features Will Not be Allowed if Doing So Increases Property Impact)

Upon laying out the 100' right-of-way width for the three options above, the design team completed an initial high-level evaluation of property impacts and identified properties with the potential for

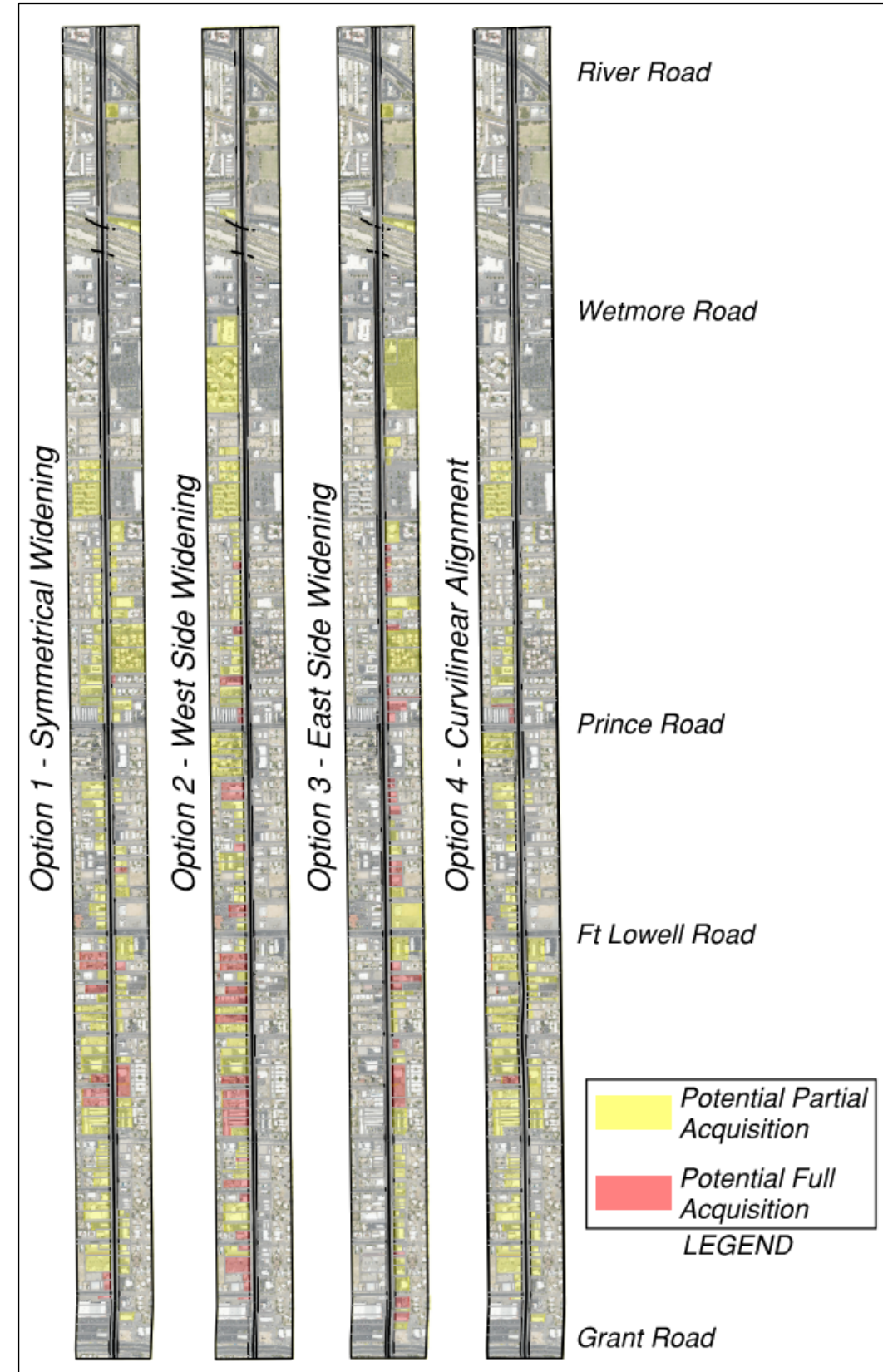
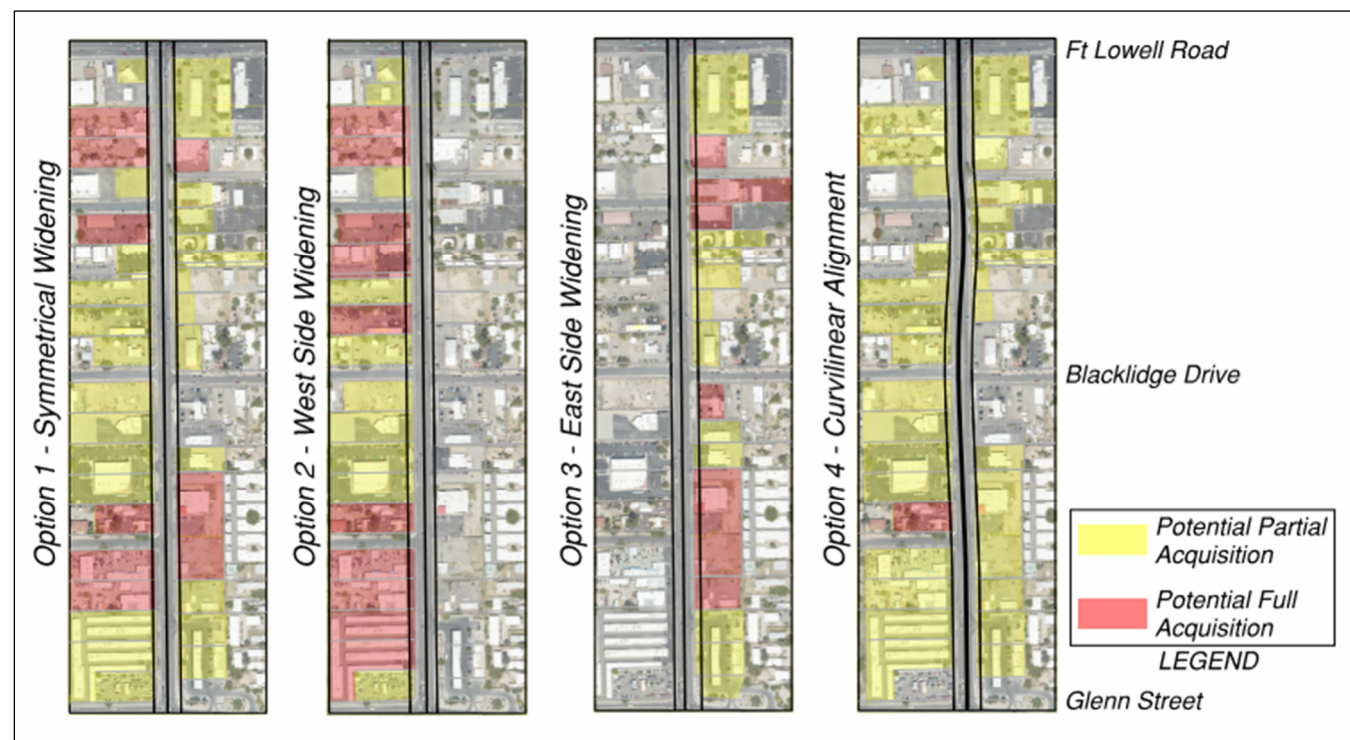


Figure 37 - Right-of-Way Impacts of Widening Options

partial and full acquisition. Options 1, 2, and 3 showed significant impacts along the corridor and these can be seen in **Figure 37**. Due to the uneven nature of the existing right-of-way, the design team decided to layout **Option 4 – Curvilinear Alignment**. By allowing the roadway to curve back and forth through the corridor the design team was able to take advantage of areas where existing right-of-way and buildings are set back further from the existing roadway while avoiding to the extent possible areas where they are closer. Again, estimating the actual cost of the necessary acquisition is not possible at this time, but as shown in **Figure 37**, **Option 4 provides the least amount of impact and best achieves Project Goal 6**.

**Figure 38** provides a detail view of 1<sup>st</sup> Avenue between Glenn Street and Ft Lowell Road to illustrate how the curvilinear alignment reduces minimizes the impact of the necessary right-of-way acquisition by utilizing available space on either side of the existing roadway.



**Figure 38 - Right-of-Way Impacts of Widening Options, Detail View**

## 11.2 Selected Roadway Cross-Sections

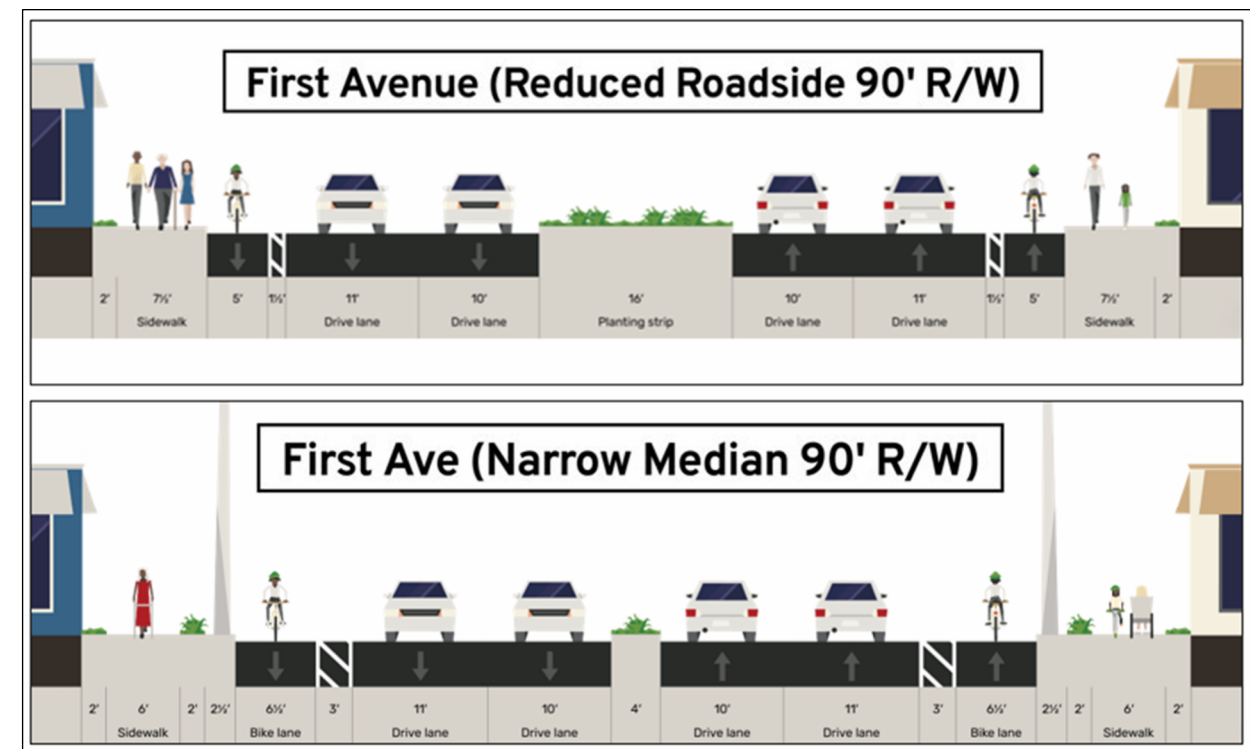
Beginning with the city’s preferred dimensions, the design team added 5’ to the median. This provides the width needed to accommodate physically separate left turn lanes at intersections, as well as mid-block U-turning movements for typical passenger vehicles. An extra 0.5’ was also added to the landscape area between the roadway curb and sidewalk.

Through the stretch of 1<sup>st</sup> Avenue between Prince Road and Roger Road, however, the curvilinear alignment does not provide a benefit while laying out the necessary proposed right-of-way. The existing right-of-way in this area is between 80’ and 85’, with the adjacent parcels primarily residential and/or small commercial with structures located close to the right-of-way, and regardless of the alignment, the right-of-

way impact would be significant. To mitigate this, the CTF was presented with two potential cross-sections that require only 90’ of right-of-way width, and could be utilized.

Both of the potential cross-sections are shown below in **Figure 39**; the presentation slide that was presented to the CTF. The pros and cons of each as identified by the design team and CTF and noted below:

- “Top” Cross-Section
  - Pro: Maintains the 16’ raised median and left turn access for vehicles
  - Con: Reduces widths of sidewalk, bike lane and buffers, moving users close to vehicles
  - Verdict: Meets All Project Goals
- “Bottom” Cross-Section
  - Pro: Maintains sidewalk, bike lane and buffers, keeping users farther away from vehicles
  - Con: Narrow median eliminates left turn access for vehicles
  - Verdict: Does Not Meet Project Goals



**Figure 39 - Potential "Narrow" Cross-Sections Presented to the CTF**

Despite the fact the “Top” cross-section met all the project goals, the CTF wanted to explore additional options that would provide more space and comfort to pedestrians and bicyclists. Ultimately, the CTF and design team decided on a cross-section that reduced the median width by 5’, the bike lane and buffer by 1.5’, and the landscape area between the curb and sidewalk by 4’. While a raised median is still utilized in this area for access control, to provide vehicular access the roadway will include a two-way center turn lane, as it currently does today. Despite the total width being reduced by 16’, this narrowed cross-section

still provides all the necessary complete street elements and achieves all project goals. This option also scored the highest with an empirical Measure of Effectiveness (MOE) evaluation.

Goal	Strategy	Metric	Criteria	Performance			Alternatives	
				Most Desirable (3)	Desirable (2)	Least Desirable (1)	Narrow Median	TWLT
Improve Safety	Segment Strategies	Speed Management	Traffic Calming Measures	>3 Measures	2 Measures	1 Measure	-	-
		Street Lighting	Lighting Type	Roadway+Sidewalk	Roadway Only	Spot Locations Only	3	2
		Driveway Design	Sidewalk Setback	>80%	65-80%	50-65%	3	2
		Crossing Frequency	Distance	1/8 Mile	1/4 Mile	1/2 Mile	2	3
	Intersection Strategies	Median Type	Median Protection	Continuous Median	Refuge Island	TWLT	3	2
		Left Turn Movements	Separate / Sight Distance	Protected Phase	Positive Offset	N/A	-	-
		Pedestrian Crossing Signal Operations	Pedestrian Exposure Treatments	<80'	80'-100'	>100'	-	-
<b>Safety Weight 5X - Average Score</b>							13.8	11.3
Increase Transportation Options	Pedestrian Strategies	Sidewalk Width	Traversable Width	>8'	6'-7'	4'-5'	3	3
		Sidewalk Buffer	Buffer Width	>6'	5'	<4'	2	1
	Bicycle Strategies	Bicycle Separation	Buffer Type	Vertical Separation	Buffer Separation	Traditional Bike Lane	3	2
		Protected Intersection	# of Intersections	Major and Minor	Minor	N/A	-	-
	Ped + Bike + Transit	Shade	% Cover	>20%	10-20%	<10%	-	-
		Upgraded Stops	# of Stops	>60%	40-60%	<40%	-	-
	Transit Strategies	Proximity to Crossing	Distance	<150'	250'	>300'	-	-
Bus Pullout (Dedicated Stop)		Transit Demand	High Demand	Medium Demand	Low Demand	-	-	
<b>Transportation Options Weight 4.5X - Average Score</b>							12.1	9.1
Upgrade Existing Infrastructure	Drainage	Accommodate Storm Event	Scale of Improvement	Meets City Criteria	Improvement over Existing Condition	Maintains Existing Conditions	-	-
	Landscape Areas	Materials	Type	Hardscape (Concrete, Paver, Asphalt)	Natural (Rock, Vegetation)	No Treatment	-	-
				All Users with Full Separation	All Users With Traditional Separation	Minimal Accommodation (Existing Condition)	-	-
	Bridge	Replace Existing Structure	Utilization and Physical Separation	All Users with Full Separation	All Users With Traditional Separation	Minimal Accommodation (Existing Condition)	-	-
	Pavement	Pavement Treatment	Constructed Alternative	Full Depth	Mill/Overlay	Surface Treatment	-	-
				Transit Signal Priority	Adaptative System	Traditional System	-	-
	ITS	Traffic Signal Technology	Emerging Technologies	Dedicated Space	N/A	None	-	-
Utilities	Utility Location	Location	All Behind Sidewalk	Adequate Space in Landscape Strip	Encroach into Sidewalk	2	2	
<b>Infrastructure Condition Weight 4.375X</b>							8.8	8.8
Support Mobility	Motor Vehicular	Level of Service (LOS)	Intersection LOS D	All Int Mov at LOS D or better	LT at LOS E and TH at LOS D or better	All Int Mov at LOS E or better	-	-
		Travel Time	% from existing	<10%	10%-20%	>30%	-	-
	Transit	Bus Pullout (Dedicated Stop)	# of Stops	All Intersection Stops	High Boarding and Alighting	Major Intersections	-	-
		Access Management	Median Openings	Distance	660 ft	330 ft	No Median (TWLT)	-
<b>Support Mobility Weight 4X</b>							-	-
Minimize R/W Impacts	Properties and Structures	Acquisitions/building impacts	# of impacts	No Impact	ROW Impacts	Structure Impacts	1.0	3.0
	Business Access	Vehicular Access to Properties	Median Opening / U-Turn Opportunity	TWLT	Mid-Block	Signal Only	-	-
	Access during construction	Construction impacts	% impacts	Low	Medium	High	-	-
<b>Minimize Impact Weight 4X</b>							4.0	12.0
Enhance Visual Character	Landscape Strategies	GSI	Pavement Area	>5%	1-5%	<1%	-	-
	Public Art	Elements	# of elements	>50%	50-20%	<20%	-	-
<b>Visual Character Weight 3.375X</b>							-	-
<b>Total Alternative Score</b>							9.7	10.3

Figure 40 - Measure of Effectiveness Evaluation for Prince Road to Roger Road Cross-Section

Ultimately, the CTF approved the use of the two cross-sections illustrated below to be utilized as the starting point for conceptual design. The complete roadway layout will be refined through the final design process:

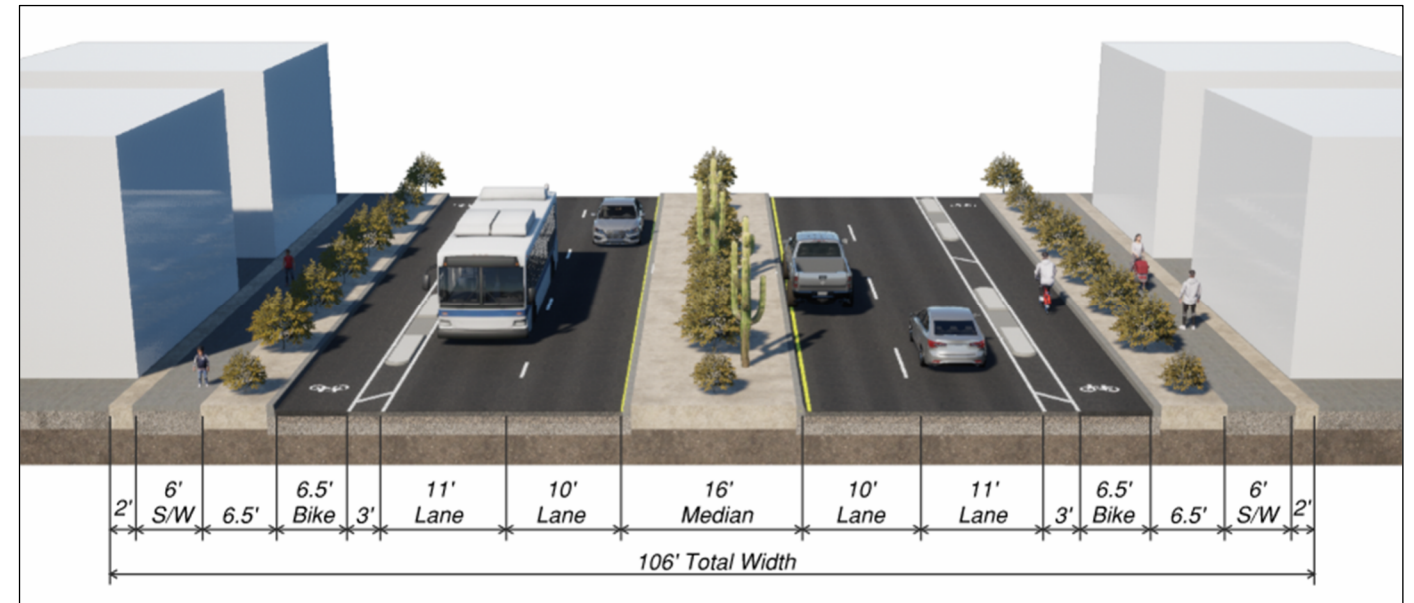


Figure 41 - Preferred Roadway Cross-Section

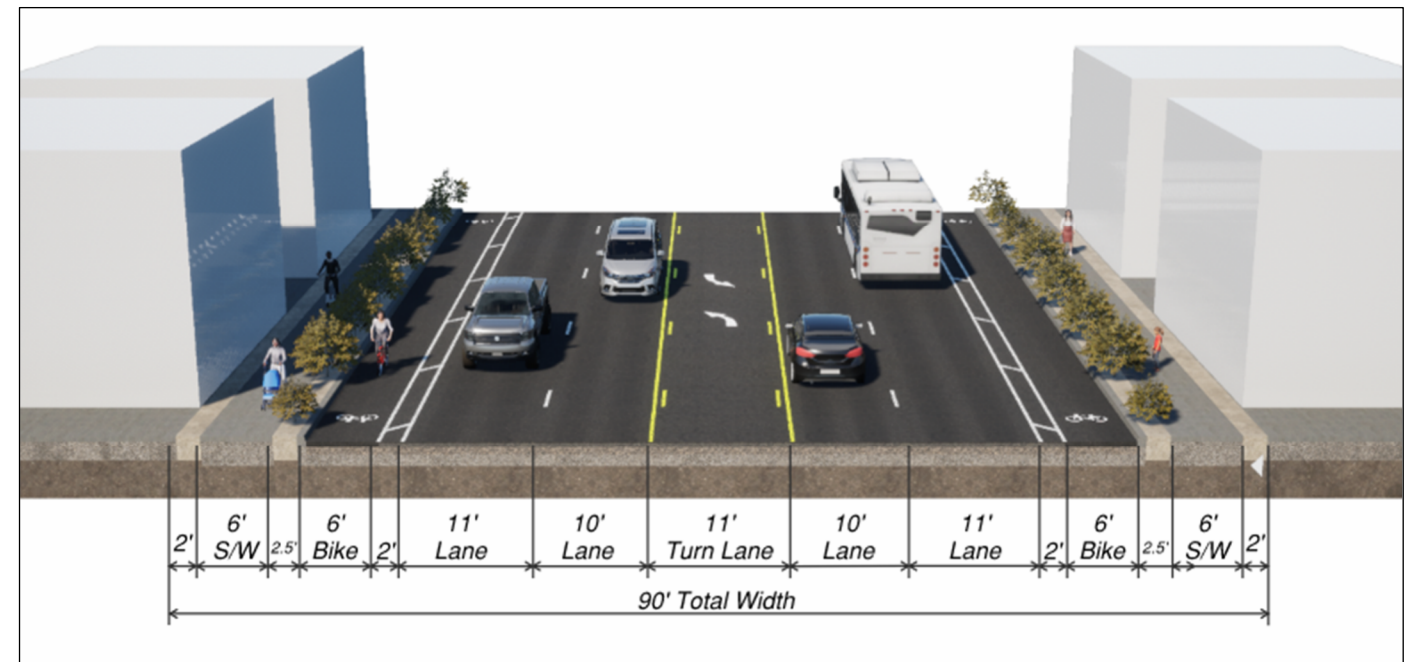


Figure 42 - CTF Selected Narrowed Roadway Cross-Section

### 11.3 Intersection Configurations

As previously noted, **Improve Safety** and **Increase Transportation Options** are the top two project goals. While vehicle drivers are certainly included in this, work toward these two goals primarily impacts pedestrians, bicyclists, and those with disabilities – the most vulnerable roadway users. The largest safety improvement to be achieved is arguably at the project intersections. Guided by recent safety research the design team provided potential alternative intersection layouts for initial evaluation.

#### 11.3.1 Channelized Right Turn (Slip Lane)

Typical thoroughfare (arterial) intersections need to accommodate large design vehicles such as semi-trucks and city buses. This requires the corners to have a large radius to allow these vehicles to turn without encroaching beyond the pavement and onto the sidewalk. While this serves vehicles well, it allows smaller vehicles to turn at higher speeds and creates a longer roadway crossing for pedestrians that influences not only their safety, but also the timing operations of the signal.

Channelized right turn lanes separate the right turn movement from the thru lane movement, creating a median area. When designed correctly, this design can improve the safety and accessibility for pedestrians, while still accommodating large design vehicles. **Figure 43** is the information slide that was presented to the CTF that highlights some additional benefits.

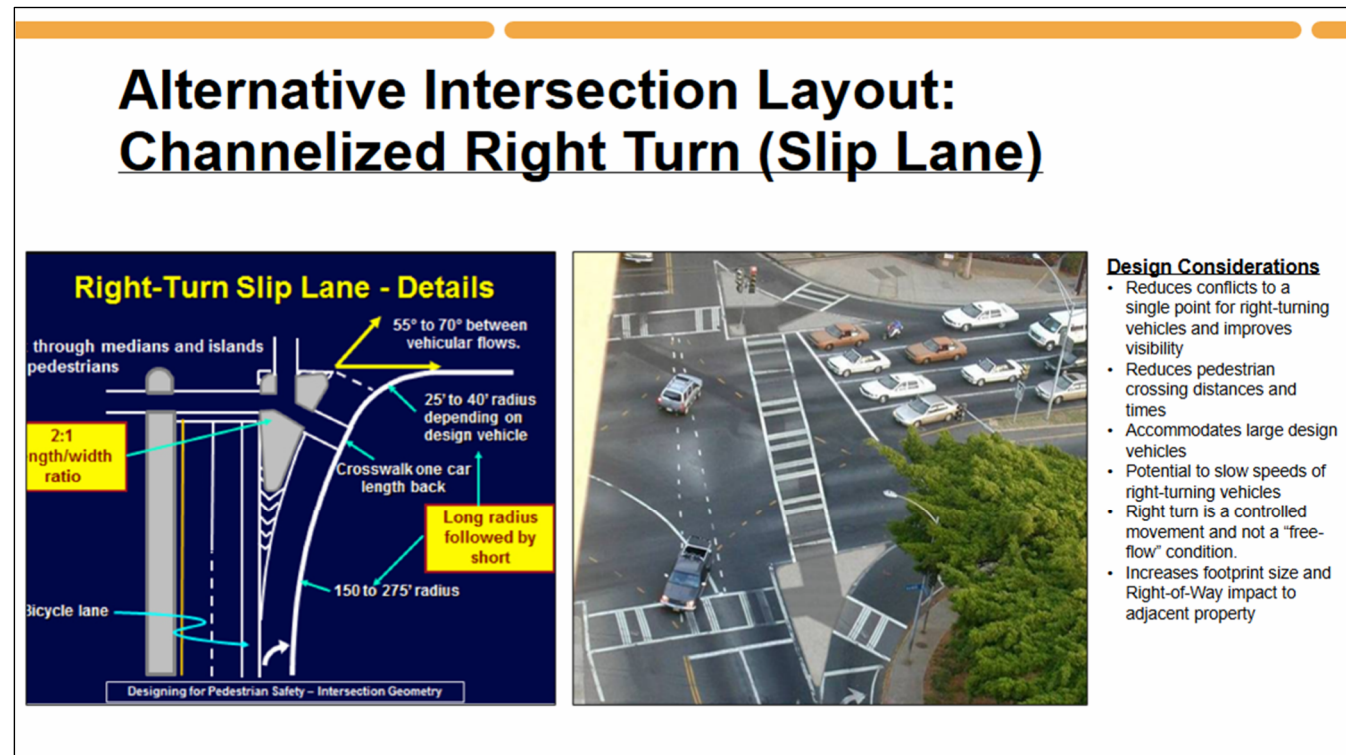


Figure 43 - Channelized Right Turn Information Slide

It should be noted that the layout of the channelized right turn is very important. Historically, many similar movements have been designed with a single, large radius for the turning movement which promotes high speeds through the turn. Current best practice utilizes in large radius for the entry curve that creates the

median separation, followed by a short radius beyond the crosswalk at the intersection. This geometric change requires vehicles to slow significantly to make the movement.

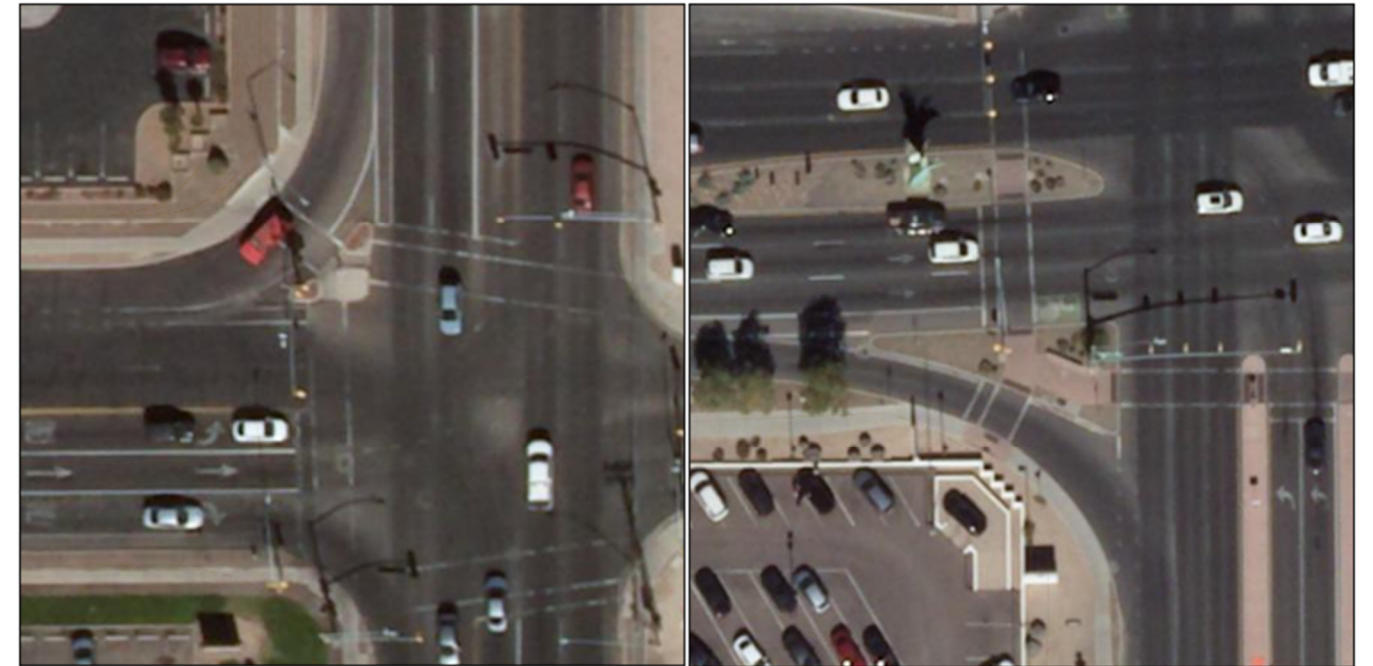


Figure 44 - Single Radius Channelized Turn (Left) and Best Practice Channelized Right (Right)

One primary downside of the channelized right turn is that it does require a larger right-of-way footprint. Despite this, the design team, with the support of the CTF decided to implement this layout at the thoroughfare intersections – Ft Lowell Road, Prince Road, Wetmore Road, and River Road – to the extent possible. **Figure 43** is the information slide that was presented to the CTF that illustrates the necessary area footprint that is required to accommodate each alternative. The inclusion of the channelized right turns will be evaluated as the roadway design is refined and the balance between improved safety and operations against right-of-way and acquisition impact is better understood.

## Alternative Intersection Layout: Channelized Right Turn (Slip Lane) 1<sup>st</sup> Avenue and Ft Lowell Road

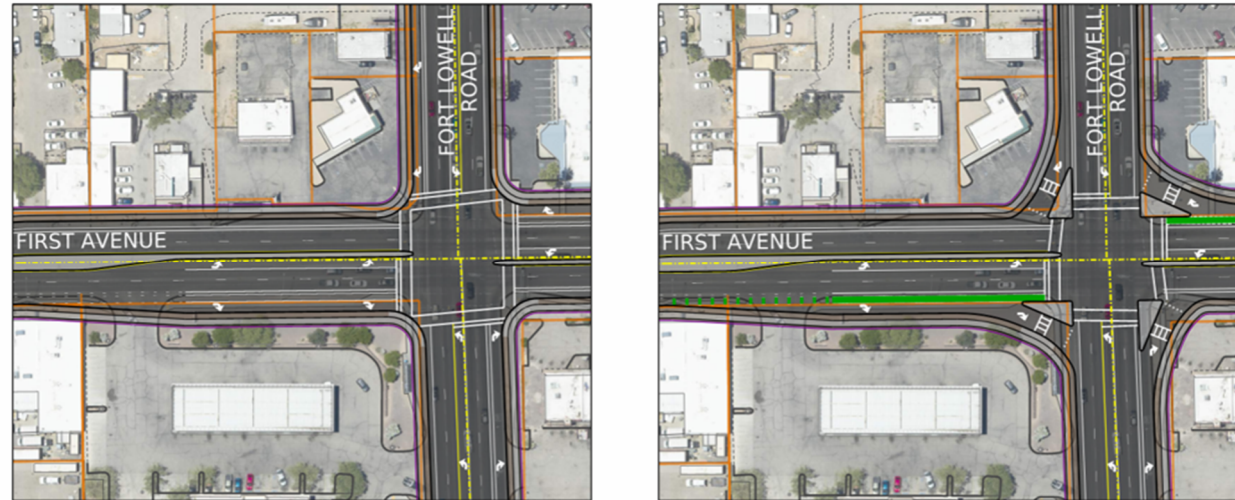
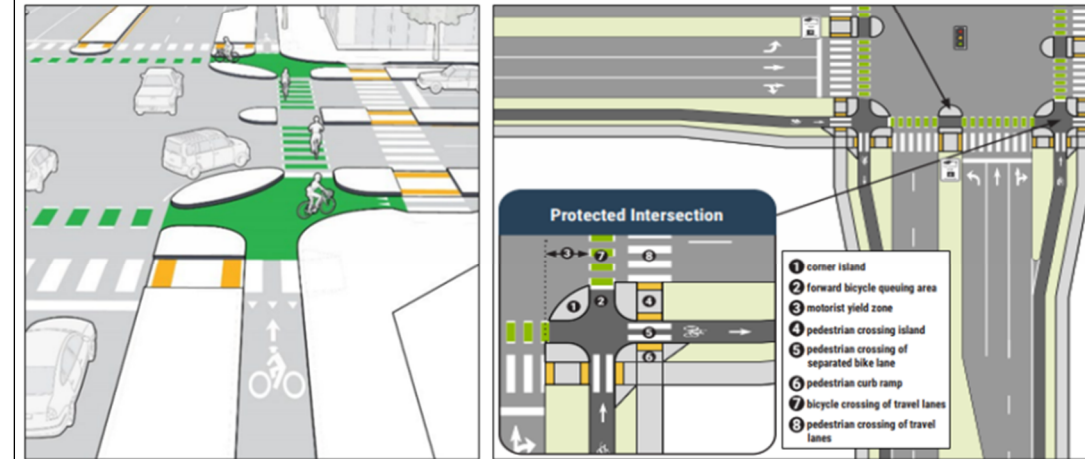


Figure 45 - Channelized Right Turn Area Footprint Information Slide

## Alternative Intersection Layout: Protected Intersection



### Design Considerations

- Provides greater physical separation from vehicles at the intersection
- Reduces effective corner radius for smaller vehicles which slows turning speeds
- Accommodates large design vehicles utilizing raised mountable concrete aprons
- Increases the potential conflict area between bikes and pedestrians
- Increases footprint size and Right-of-Way impact to adjacent property

Figure 46 - Protected Intersection Information Slide

### 11.3.2 Protected Intersection

Similar to thoroughfare intersections, smaller collector or neighborhood street intersections must accommodate the largest anticipated design vehicle. While less intimidating for bicyclists and pedestrians, there are still improvements that can be made. A recent best practice is what is known as the protected intersection. This layout provides not only a much greater physical separation between vehicles and pedestrians/bicyclists at the intersection, but also an operational separation as bicyclists typically receive their own protected through movement from right-turning vehicles.

**Figure 46** is the information slide for the protected intersection, and **Figure 47** is the information slide that illustrates the necessary area footprint required, both of which were presented to the CTF. Similar to the channelized right turn, the protected intersection does require a significantly larger area footprint. The design team, with the support of the CTF, decided to implement this at the three collector intersections – Glenn Street, Roger Road, and Limberlost Drive. The inclusion of the protected intersection elements will be evaluated as the roadway design is refined and the balance between improved safety and operations against right-of-way and acquisition impact is better understood.

## Alternative Intersection Layout: Protected Intersection 1<sup>st</sup> Avenue and Glenn Street

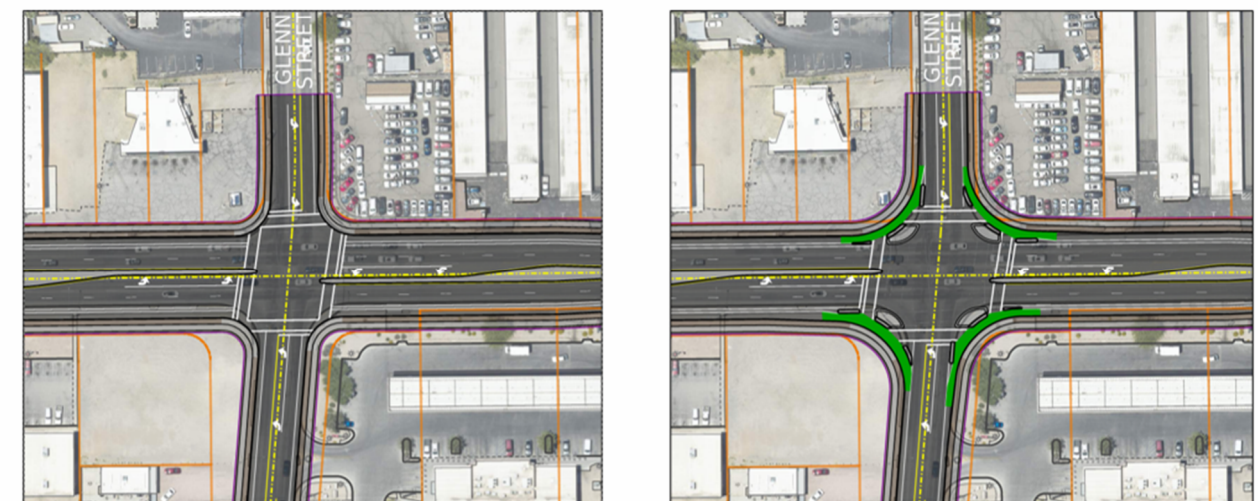


Figure 47 - Protected Intersection Area Footprint Information Slide

# 12 Drainage Improvement Alternatives

Analysis and evaluation of the proposed drainage improvements are on-going and being conducted in coordination with City of Tucson DTM Staff. To date the design team has completed the following activities:

- Reviewed and Verified the Design Approach with the City of Tucson
- Obtained Existing Floodplain Models and Design Reports
- Completed Rillito River and Bridge Hydraulics Analysis
- Completed Preliminary Cross-Drainage Design at Navajo Wash
- Completed Preliminary Storm Drain Design
- Begun Additional Existing Conditions Analysis of the Navajo Wash Floodplain

At this time it is anticipated the project improvements will include an inverted siphon at Navajo Wash to carry a portion of the runoff from this regional floodplain beneath 1<sup>st</sup> Avenue. Additionally, a new storm drain system will be included from the proposed inverted siphon north to the existing drainage grate at Wetmore Avenue. The design of these improvements will be included in the Final Design Concept Report. At this time please refer to the Preliminary Drainage Report included in Appendix H.



Figure 48 – Conceptual Layout of Proposed Navajo Wash Floodplain Inverted Siphon

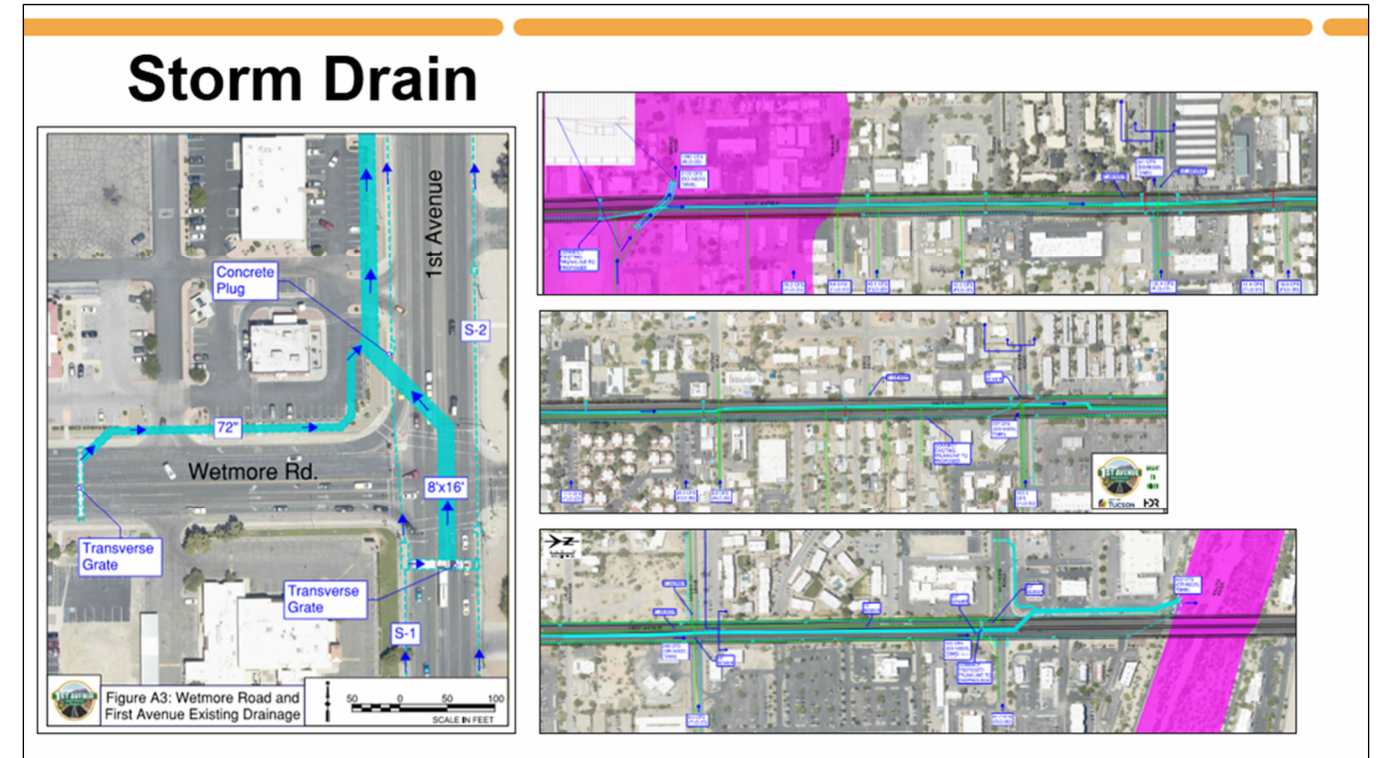


Figure 49 - Conceptual Layout of Proposed Storm Drain System

# 13 Bridge Alternatives

The Bridge Design Team developed a Bridge Selection Report that evaluated in detail four bridge alternatives to replace the existing 1<sup>st</sup> Avenue bridge at the Rillito River. These are:

- Alternative 1A: 3-Span Precast Prestressed Concrete Utah Bulb Tee Girder (UBT66) Bridge
- Alternative 1B: 4-Span Precast Prestressed Concrete Utah Bulb Tee Girder (UBT50) Bridge
- Alternative 2A: 3-Span Precast Prestressed Concrete AASHTO Box Beam (Type BIV) Bridge
- Alternative 2B: 4-Span Precast Prestressed Concrete AASHTO Box Beam (Type BII) Bridge

Detailed information for each of the four alternatives is provided in the following table:

1 <sup>st</sup> Avenue Bridge: Alternative Summary Table				
Alternatives	Alternative 1A	Alternative 1B	Alternative 2A	Alternative 2B
	3-Span UBT66 Girder Bridge	4-Span UBT50 Girder Bridge	3-Span AASHTO Type BIV Box Beam Bridge	4-Span AASHTO Type BII Box Beam Bridge
Bridge Length	380'-3 3/4"	380'-3 3/4"	380'-3 3/4"	380'-3 3/4"
Total Bridge Width	101'-5"	101'-5"	101'-5"	101'-5"
No. of Girder Lines	10	10	22	22
Depth of Girders	66"	50"	42"	33"
Deck Thickness	8.5"	8.5"	Varies 6" (min.) to 9" (max.)	Varies 6" (min.) to 9" (max.)
Superstructure Depth	6'-6"	5'-2"	4'-3"	3'-6"
No. of Piers	2	3	2	3
Pier Column Diam.	5 ft	4 ft	5 ft	4 ft
Drilled Shaft Diam.	5 ft	4 ft	5 ft	4 ft
Estimated Bridge Construction Cost	\$10,329,264	\$9,983,952	\$12,926,424	\$13,283,496

In addition to the direct comparison in the **Alternative Summary Table**, each of the four bridge alternatives was also assigned a weighted score based on how well it addressed each of the five bridge selection drivers. The table below shows a breakdown of the weighted scores.

Constructability (30% of total score) considers the number of spans and girder lines to be constructed, as well as potential conflicts with utilities. Cost (25% of total score) is scaled according to the estimated bridge construction cost for each alternative. Hydraulics (20% of total score) considers impacts to water surface elevation and disturbance to the riverbed. The Loop (15% of total score) accounts for the profile raise necessary for each alternative to provide adequate vertical clearance above The Loop. Maintenance of Traffic (10% of score) is based on ability to maintain through traffic during construction, which all alternatives achieve.

	Constructability	Cost	Hydraulics	The Loop	Maint. of Traffic	Total Score
	30%	25%	20%	15%	10%	
Alternative 1A	30	24	20	8	10	<b>92</b>
Alternative 1B	26	25	15	10	10	<b>86</b>
Alternative 2A	22	19	20	12	10	<b>83</b>
Alternative 2B	18	19	15	15	10	<b>77</b>

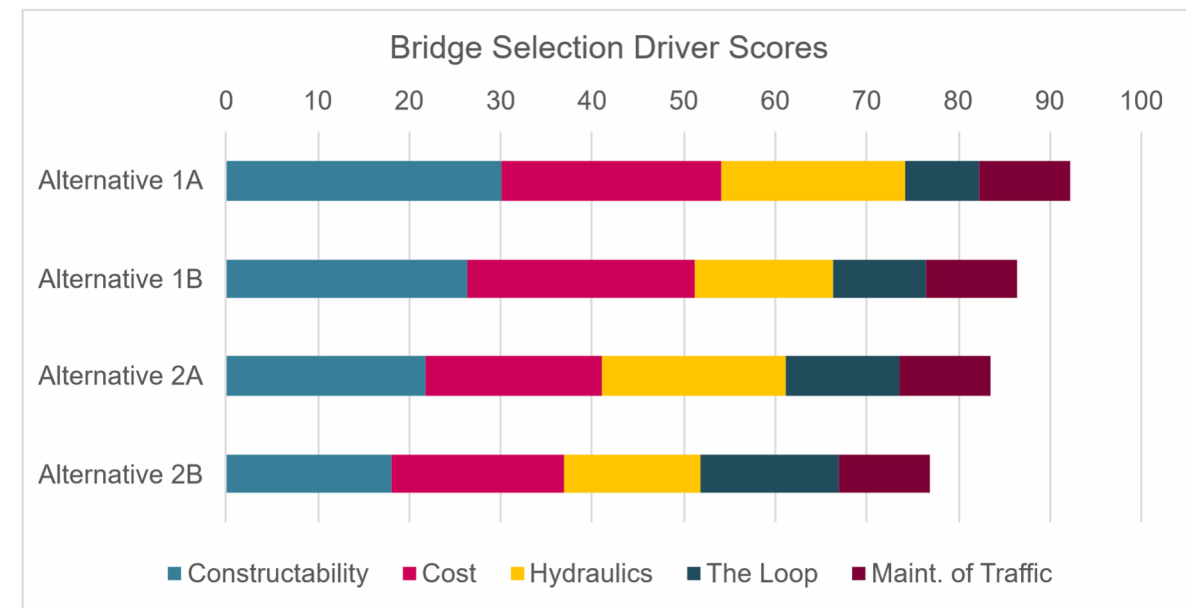


Figure 50 - Bridge Selection Scores

### 13.1 Recommended Alternative

While all four alternatives are viable, the **3-Span Precast, Prestressed Concrete Utah Bulb Tee Girder Type UBT66 Bridge (Alternative 1A)** is preferred as it most effectively addresses constructability concerns, hydraulic efficiency, freeboard requirements, construction risk, aesthetic considerations, and is a close second in overall cost-effectiveness. As shown in Figure 51, Alternative 1A also received the highest overall bridge selection driver score.

Alternative 1A, a 3-Span Precast, Prestressed Concrete Utah Bulb Tee Girder Type UBT66 Bridge, most effectively addresses the project drivers and is a close second for the most cost-effective alternative and is therefore the recommended bridge alternative for the 1st Avenue Bridge over the Rillito River.

The complete Bridge Selection Report is included in Appendix H.

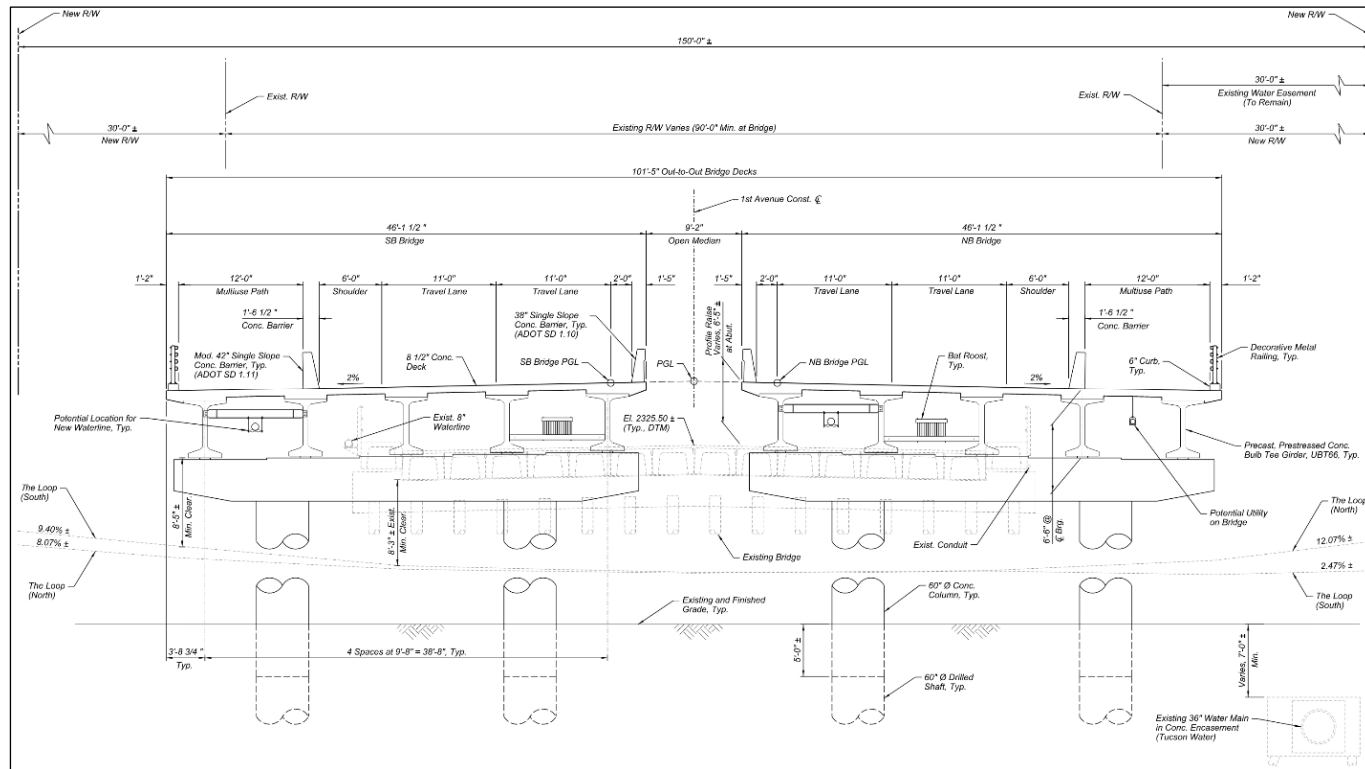


Figure 51 - Bridge Alternative 1A Typical Section

Alternative 1A has a far lower estimated bridge construction cost than the box beam alternatives, with Alternatives 2A and 2B estimated to cost \$2.6M and \$3.0M more, respectively. The primary advantages of Alternatives 2A and 2B are decreased roadway profiles at the bridge due to shallower girders being used, but this is heavily outweighed by the higher estimated bridge construction costs. Alternatives 2A and 2B are therefore not recommended.

While the 4-Span Utah Bulb Tee Type UBT50 Bridge (Alternative 1B) is estimated to be approximately \$345K less than the recommended alternative in terms of estimated costs at this preliminary stage, this advantage is outweighed by several factors. The most important factor is the constructability issues with constructing Pier 3 in such close proximity to the overhead high-voltage TEP transmission lines. Other factors include higher construction risk due to additional pier construction in the riverbed and an undesirable raise in water surface elevation due to lesser hydraulic efficiency than the 3-span alternatives. Alternative 1B is therefore not recommended.

# 14 Recommended Roadway Alignment Alternative

Utilizing the Project Goals and associated Design Strategies, the design team was able to create the Recommended Roadway Alignment Alternative. This alternative provides the preferred roadway cross-section for the majority of the corridor, and narrow roadway cross-section between Prince Road and Roger Road. By utilizing the curvilinear to acquire necessary right-of-way width from both sides of 1<sup>st</sup> Avenue, this alternative minimizes the not only the cost of right-of-way acquisition, but reduces the impact to the existing business and homes, and preserves much of the existing character along the corridor.

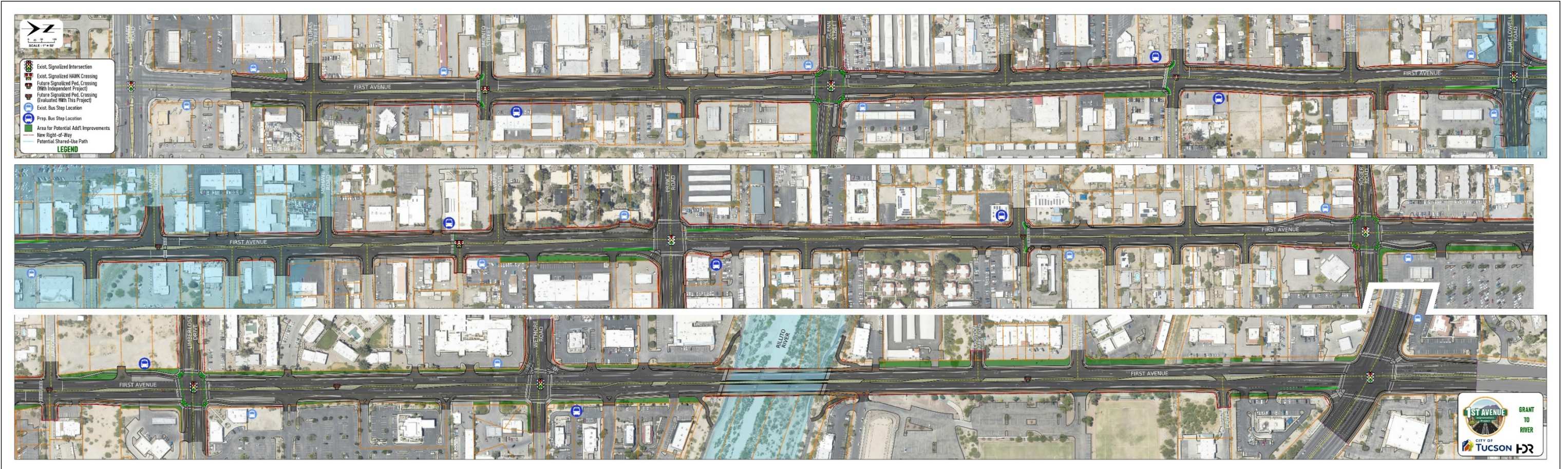


Figure 52 - Recommend Roadway Alignment. Approved by the CTF and Presented at the Phase II Outreach Open House

# 15 Cost Estimate

Based on the Recommended Roadway Alignment, the design team has calculated material quantities to develop an itemized cost estimate for the proposed improvements.

1st Avenue: Grant Road to River Road Roadway: Sta. 12+00 to Sta. 182+00 Project Cost Estimate					
Item No.	Item Description	Units	Qty	Unit Price	Amount
<b>Division 200 - Grading</b>					
2010000	Removals / Site Preparation	ACRE	12	\$ 5,000	\$ 58,727
2020000	Removal of Structures & Obstructions	LS	1	\$ 320,000	\$ 320,000
2020020	Removal of Concrete Curb	LF	43,520	\$ 3	\$ 130,560
2020029	Removal of Asphaltic Concrete Pavement	SY	186,356	\$ 8	\$ 1,490,851
2020030	Removal of AC Pavement by Milling (2")	SY	3,714	\$ 7	\$ 25,998
2030301	Roadway Excavation	CY	37,981	\$ 30	\$ 1,139,430
	Contingency	%	0	15%	\$ 474,835
<b>Division 200 Subtotal</b>					<b>\$ 3,640,401</b>
<b>Division 300 - Subgrade, Subbases and Bases</b>					
3030102	Aggregate Base	CY	37,091	\$ 120	\$ 4,450,920
3060002	Geogrid Base Reinforcement	SY	66,395	\$ 4	\$ 265,580
3060003	Separation Fabric	SY	66,395	\$ 4	\$ 265,580
	Contingency	%		15%	\$ 747,312
<b>Division 300 Subtotal</b>					<b>\$ 5,729,392</b>
<b>Division 400 - Surface Treatments and Pavements</b>					
4010010	Portland Cement Concrete Pavement	S.Y.	4,146	\$ 90	\$ 373,140
4060004	ASPHALTIC CONCRETE (MIX NO. 2)(PG 76-22TR+)	TON	12,499	\$ 175	\$ 2,187,296
4060005	ASPHALTIC CONCRETE (MIX NO. 2)(PG 70-22TR+)	TON	4,914	\$ 175	\$ 860,024
4060006	ASPHALTIC CONCRETE (MIX NO. 1)(PG 70-10)	TON	18,782	\$ 160	\$ 3,005,162
	Contingency	%		15%	\$ 963,843
<b>Division 400 Subtotal</b>					<b>\$ 7,389,466</b>
<b>Division 500 - Drainage Facilities</b>					
5011013	Pipe, Reinforced Concrete, Class III, 18"	LF	1,800	\$ 200	\$ 360,000
5011043	Pipe, Reinforced Concrete, Class III, 36"	LF	1,132	\$ 300	\$ 339,747
5011073	Pipe, Reinforced Concrete, Class III, 72"	LF	6,257	\$ 1,200	\$ 7,508,940
5030608	Concrete Catch Basin (PAG STD DTL 308, Type 3)(12' Wing Double)	EACH	54	\$ 18,000	\$ 972,000
5050090	Manhole (Storm Drain) (PAG STD DTL 301)	EACH	19	\$ 20,000	\$ 380,000
5080000	Sanitary Sewer (Modify Existing System)	\$/Mile	3.23	\$ 500,000	\$ 1,615,000
5100000	Potable Water (Replace Existing System - 12" Main)	\$/Mile	3.23	\$ 500,000	\$ 1,615,000
	Contingency	%	0	15%	\$ 1,918,603
<b>Division 500 Subtotal</b>					<b>\$ 14,709,290</b>
<b>Division 600 - Structures</b>					
6010200	Retaining Wall	SF	6,522	\$ 140	\$ 913,080
6010300	Bridge	LS	1	\$ 8,628,570	\$ 8,628,570
6018101	Reinforced Concrete Box Culvert (Box Culvert 1)	LS	1	\$ 1,263,870	\$ 1,263,870
9201006	Concrete Channel Lining	CY	0	\$ 300	\$ -
	Contingency	%		20%	\$ 2,161,104
<b>Division 600 Subtotal</b>					<b>\$ 12,966,624</b>
<b>Division 700 - Traffic Control Facilities</b>					
7010001	Maintenance and Protection of Traffic	LS	3	\$ 117,600	\$ 352,800
7040000	Signing	\$/Mile	3	\$ 100,000	\$ 321,000
7040072	Pavement Marking (Thermoplastic) (White) (0.090")	LF	126,981	\$ 2	\$ 253,962
7040075	Pavement Marking (Thermoplastic) (Yellow) (0.090")	LF	32,779	\$ 2	\$ 65,558
7040080	Pavement Marking (Green Preformed Thermoplastic) (Bike Ln)	SF	13,490	\$ 12	\$ 161,883
7300100	Traffic Signals (InterSegment)	EACH	6	\$ 350,000	\$ 2,100,000
7300200	Traffic Signals (Ped/Bike)	EACH	2	\$ 225,000	\$ 450,000
7320000	Electric Service	EACH	8	\$ 30,000	\$ 240,000
7360000	Street Lighting	\$/Mile	3	\$ 450,000	\$ 1,399,500
	Contingency	%		20%	\$ 1,068,941
<b>Division 700 Subtotal</b>					<b>\$ 6,413,644</b>

Item No.	Item Description	Units	Qty	Unit Price	Amount
<b>Division 800 - Roadside Development</b>					
8030000	Landscape Ground Cover (Inert)(Urban)	ACRE	11	\$ 30,000	\$ 324,035
8060000	Trees, Shrubs and Plants (Urban)	ACRE	11	\$ 30,000	\$ 324,035
8080000	Irrigation System (Urban)	\$/Mile	3	\$ 250,000	\$ 802,500
8100001	Erosion Control and Pollution Prevention	\$/Mile	3	\$ 75,000	\$ 240,750
	Contingency	%		20%	\$ 338,264
<b>Division 800 Subtotal</b>					<b>\$ 2,029,584</b>
<b>Division 900 - Incidentals</b>					
6011150	Single Slope Bridge Concrete Barrier and Transition (38")	LF	400	\$ 200	\$ 80,000
7020002	Impact Attenuation Device (Special)	EACH	4	\$ 15,000	\$ 60,000
9080041	Concrete Curb	LF	84,306	\$ 40	\$ 3,372,240
9080203	Concrete Sidewalk	SF	172,871	\$ 12	\$ 2,074,448
9080290	Curb Access Ramp	EACH	176	\$ 2,500	\$ 440,000
9080305	Concrete Driveway	SF	90,226	\$ 10	\$ 902,260
9080500	Protected Bike Lane Elements	LF	4,318	\$ 100	\$ 431,800
	Contingency	%		20%	\$ 1,472,150
<b>Division 900 Subtotal</b>					<b>\$ 8,832,898</b>
<b>Construction Subtotal</b>					<b>\$ 61,711,299</b>
<b>Miscellaneous Project Costs</b>					
9010000	Mobilization	%		10%	\$ 6,171,130
9010100	Construction Area Elements	%		3%	\$ 1,851,339
9250000	Construction Survey and Layout	%		5%	\$ 3,085,565
9260000	Engineer's Field Office	%		1%	\$ 617,113
	Construction Management	%		15%	\$ 9,256,695
	Contingency	%		15%	\$ 9,256,695
<b>Miscellaneous Subtotal</b>					<b>\$ 30,238,537</b>
<b>TOTAL ESTIMATED PROJECT COST:</b>					<b>\$ 91,949,835</b>

Figure 53 - Project Cost Estimate

The cost shown above is only an estimate of the anticipated cost to construct the project. At this time the cost does not include final engineering design, utility relocations, environmental mitigations, or right-of-way acquisition and/or relocation costs.

## 16 Project Implementation and Phasing

To be prepared for the Final Draft of the Design Concept Report pending considerations from the outcome of the RTANext election in March 2025. The will include an analysis of available funding and constructability to determine a recommendation for delivering the project in one or multiple construction phases.

## 17 Next Steps

Over the coming months the design team will continue to refine the design and roadway layout of the project. At the end of this effort the Final Design Concept Report and 30% Design Plans will be completed. This work will consist of the following activities:

- Design Refinement of the Preferred Alternative based on
  - Balancing Project Goals and Right-of-Way Acquisition Impact and Cost
  - City of Tucson DTM Staff Design Review Comments
  - Intersection Configurations Balancing Safety, Mobility, and Right-of-Way Impact
- Response to Public Engagement Comments
- Response to Pima Association of Governments Road Safety Assessment
- Location and Design of Bus Stops to Balance Mobility and Transit Operations
- Conceptual Design Details of Protected Bike Lane Elements
- Driveway and Property Access Location and Design
- Cross Drainage and Storm Drain System Design
- Bridge Substructure and Superstructure Design
- Shared-Use Path Connections from 1<sup>st</sup> Avenue to The Loop

## Volume 2: 15% Design Plans

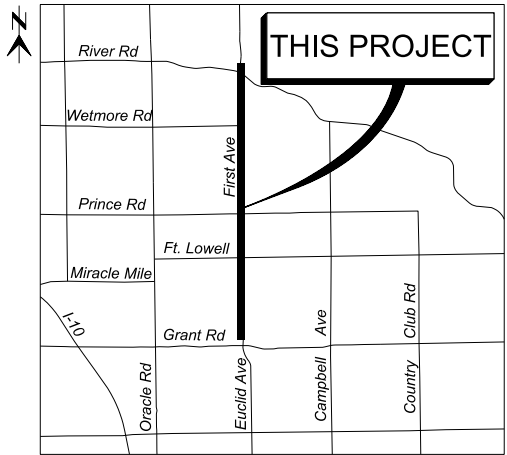


# 1ST AVENUE GRANT ROAD TO RIVER ROAD

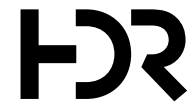
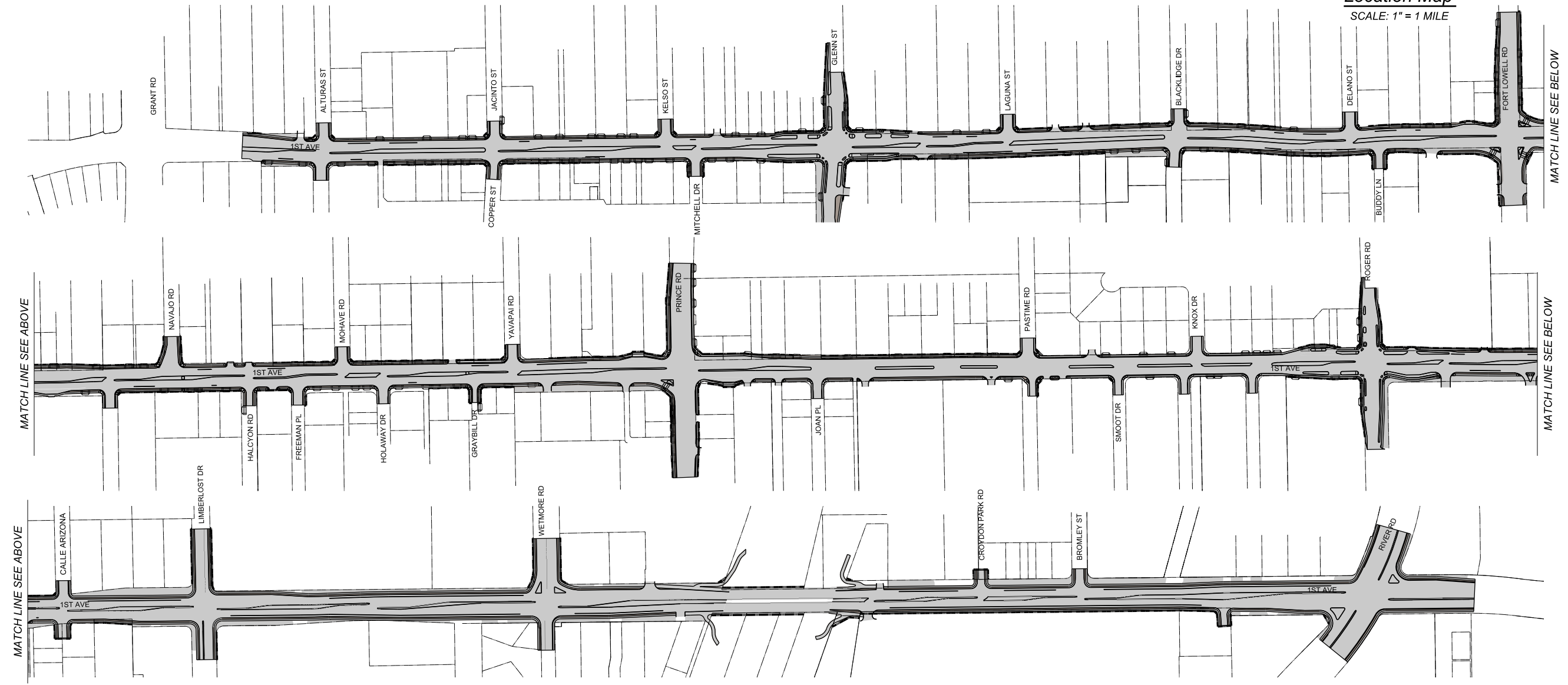
## GENERAL DESCRIPTION OF PROJECT

The proposed scope of work for this project is the reconstruction of 1st Avenue to a four-lane, median divided arterial roadway. This includes sidewalk, lighting, traffic signal, and storm drain improvements. The existing bridge over the Rillito River will be replaced with three-span twin bridges.

CITY OF TUCSON PROJECT NUMBER PRJ 230193



Location Map  
SCALE: 1" = 1 MILE



DEPARTMENT OF TRANSPORTATION AND MOBILITY -  
ENGINEERING DIVISION

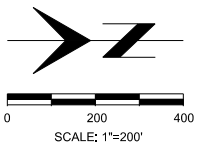
1ST AVENUE, GRANT ROAD TO  
RIVER ROAD - ROADWAY IMPROVEMENTS

NO.	DATE	REVISION	BY	CHKD.	APPR.

15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

Approvals	Signatory	Date
DESIGN SECTION/PERMITS AND CODES		
TRAFFIC ENGINEERING		
STREETS AND TRAFFIC MAINTENANCE		
ENGINEERING LANDSCAPE ARCH		
ENGINEERING ADMINISTRATOR		

Approved _____ 20__	1 OF 128
TRANSPORTATION DIRECTOR	
REF: _____ SCALE: N.T.S.	
DRWN BY _____ 2025	
CHKD BY _____ 2025	
APPR BY _____ 2025	
PLAN NO. R-2024-XXX	



GENERAL NOTES

- HORIZONTAL CONTROL:**  
HORIZONTAL DATUM: ARIZONA COORDINATE SYSTEM, NORTH AMERICAN DATUM (NAD) 1983 (2011) WITH 2010 EPOCH, CENTRAL ZONE 0202, IN INTERNATIONAL FEET, USING A COMBINED SCALE FACTOR (CF), 0.9998910 (1/CF=1.00010901188). SURFACE NORTHING AND EASTING COORDINATES ARE DERIVED BY DIVIDING THE STATE PLANE GRID COORDINATES BY THE COMBINED SCALE FACTOR (SURFACE VALUE=GRID VALUE/CF).
- BASIS OF BEARING:**  
THE BASIS OF BEARING FOR THIS PROJECT IS NORTH 89°30'01" EAST, AND WAS DERIVED USING THE PREVIOUSLY DESCRIBED HORIZONTAL DATUM AND OBSERVED LOCATIONS FROM A FOUND 3-1/4" CITY OF TUCSON BRASS CAP IN HAND HOLE STAMPED "T13S R13E S36 R14E S31 S1 R13E S6 R14E T14S 2018 RLS" WITH REMAINING STAMPINGS BEING ILLEGIBLE, AND LOCATED WITHIN THE INTERSECTION OF GRANT ROAD AND FIRST AVENUE AT THE SOUTHWEST SECTION CORNER OF SECTION 31 OF T.13S. R.14E. TO A FOUND CITY OF TUCSON GPS CONTROL POINT NAMED "EA03" BEING A 2" CITY OF TUCSON BRASS CAP IN HAND HOLE STAMPED "T13S R14E 1/4 S31 S6 T14S R14E RLS 23956", LOCATED WITHIN MOUNTAIN AVENUE, AT THE SOUTHEAST SECTION CORNER OF SAID SECTION 31, BOTH MONUMENTS FALL ON THE TOWNSHIP LINE BETWEEN T.13S., R.14E. and T.14S. R.14E., OF GILA AND SALT RIVER MERIDIAN. THE HORIZONTAL SURFACE DISTANCE BETWEEN THESE TWO MONUMENTS IS 2604.14 INTERNATIONAL FEET.
- VERTICAL CONTROL:**  
THE BASIS OF ELEVATION AND PRIMARY HORIZONTAL CONTROL POINT FOR THIS PROJECT IS PIMA COUNTY DEPARTMENT OF TRANSPORTATION ONLINE POSITIONING USER SERVICE (OPUS) CONTROL POINT "13S13E N25", PT. #606, WHICH IS A 9/16" STAINLESS STEEL ROD IN A PVC SLEEVE WITH NO LID, RIM STAMPED "NN 148", AND IS LOCATED APPROXIMATELY 0.1 MILES SOUTH OF RIVER ROAD JUST WEST OF 1ST AVENUE, NEAR A 2 BARREL BOX CULVERT, AS SHOWN ON PIMA COUNTY GPS OCCUPATION SHEET PID - GPS0143, AND HAVING AN ORTHOMETRIC ELEVATION = 2322.01 INTERNATIONAL FEET BASED UPON NORTH AMERICAN VERTICAL DATUM (NAVD) 1988, AND USING GEOID18.
- THE PRIMARY CONTROL POINT IS THE SAME PIMA COUNTY DOT OPUS CONTROL POINT "13S13E N25" AS DESCRIBED UNDER VERTICAL CONTROL, WHICH IS AN OPUS RESOLVED STATIC SOLUTION. THE SECONDARY CONTROL POINTS WERE ESTABLISHED FOR THIS PROJECT BASED UPON THE PRIMARY CONTROL POINT. THE CONTROL POINTS USED FOR THIS PROJECT HAVE THE FOLLOWING COORDINATE VALUES:

POINT & NAME		NORTHING INTERNATIONAL FEET	EASTING INTERNATIONAL FEET	ORTHOMETRIC ELEVATION INTERNATIONAL FEET
<u>PRIMARY CONTROL PT.</u>				
13S13EN25	2011 GRID	455,991.8630	995,235.8940	2415.22
PT. #606	SURFACE	456,041.5720	995,344.3870	
<u>SECONDARY CONTROL PTS.</u>				
EPS CP Pt. #600	2011 GRID	455,991.8630	995,235.8940	2415.22
1/2"REBAR	SURFACE	456,041.5720	995,344.3870	
LOCATED NORTHEAST OF NORTH STREET AND 2ND AVENUE.				
EPS CP Pt. #604	2011 GRID	462,701.2200	995,560.2240	2354.20
1/2"REBAR	SURFACE	462,751.6600	995,668.7520	
LOCATED EAST OF FIRST AVENUE IN ALLEY BETWEEN FREEMAN PLACE AND HOLMAN DRIVE.				
EPS CP Pt. #607	2011 GRID	471,224.0410	995,327.2250	2323.79
1/2"REBAR	SURFACE 4	71,275.4110	995,435.7280	

- ALL STATIONING SHOWN ON THE PLANS AND PROFILES IS ALONG THE CONSTRUCTION CENTERLINE UNLESS OTHERWISE NOTED.
- ALL CONSTRUCTION SHALL CONFORM TO 2015 EDITION OF THE PIMA ASSOCIATION OF GOVERNMENTS (PAG) STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC IMPROVEMENTS EXCEPT AS MODIFIED IN THE CONTRACT SPECIFICATIONS OR PLANS. PAVEMENT MARKING SHALL CONFORM TO THE PC/COT SIGNING & PAVEMENT MARKING DESIGN MANUAL, 2020 FIRST EDITION. REFERENCED ADOT STANDARDS ARE PER THE LATEST EDITION ADOT BRIDGE GROUP STRUCTURE DETAIL DRAWINGS, CONSTRUCTION STANDARD DRAWINGS, & SIGNING AND MARKING STANDARD DRAWINGS.
- EXISTING OVERHEAD ELECTRIC, TELEPHONE AND CABLE T.V. UTILITIES AND UNDERGROUND ELECTRIC, GAS, T.V. AND TELEPHONE UTILITIES WILL BE RELOCATED BY OTHERS.
- SURVEY MONUMENTS WILL BE FURNISHED AND PLACED BY THE CONTRACTOR PER PAG STD. DTL. 103 SHT. 1 OF 3 OR SHT. 2 OF 3. SEE GEOMETRIC LAYOUT AND PAVING PLAN AND PROFILE SHEETS FOR LOCATIONS.
- ALL SURVEY MONUMENTS SHALL BE ESTABLISHED BY A LAND SURVEYOR REGISTERED IN THE STATE OF ARIZONA, AND A RECORD OF SURVEY WILL BE PROVIDED.
- RADII ARE MEASURED TO FRONT FACE OF CURB PER C.O.T. STANDARDS.
- CONSTRUCTION ZONE TRAFFIC CONTROL SHALL CONFORM TO THE REQUIREMENTS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, EDITION OF 2023, AND THE SPECIAL PROVISIONS.
- CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS.
- SOUTHWEST GAS HAS VALVES WITHIN THE PROJECT AREA THAT MAY NEED TO BE PROTECTED AND ADJUSTED TO FINAL GRADE. THE CONTRACTOR MUST CONTACT SOUTHWEST GAS FOR ADJUSTING VALVES AT LEAST TWO WEEKS PRIOR TO THE START OF CONSTRUCTION BY CALLING (520) 794-6208.

- SOUTHWEST GAS REQUIRES A 1-FOOT MINIMUM SEPARATION WHEN CROSSING ITS DISTRIBUTION FACILITIES AND A 3-FOOT MINIMUM SEPARATION WHEN CROSSING HIGH PRESSURE MAINS.
- SWPPP MEASURES SHALL BE INSTALLED SO AS TO PREVENT ALL STORM WATER, CONSTRUCTION WATER, FUELS, CHEMICALS OR LIQUIDS FROM BEING DIRECTED INTO OR ONTO ANY SANITARY SEWER FACILITIES. PROTECTION OF SANITARY SEWER FACILITIES SHALL BE A PART OF THE APPROVED CONSTRUCTION SWPPP AND BEST MANAGEMENT PRACTICES. PROTECTION DEVICES SHALL BE INSTALLED AND MAINTAINED AROUND ALL POTENTIALLY AFFECTED SANITARY SEWER FACILITIES WITHIN THE PROJECT LIMITS. ADDITIONAL MEASURES SHALL INCLUDE BUT NOT BE LIMITED TO THE USE OF RAIN STOPPERS AND WATERPROOF MANHOLE COVERS AS DEEMED NECESSARY BY THE PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT.
- THE CONTRACTOR SHALL VERIFY EXISTENCE OF ALL UTILITIES BY CALLING BLUE STAKE AT 1-800-782-5348 48 HOURS PRIOR TO CONSTRUCTION. ALL EXISTING UTILITY LOCATIONS ARE APPROXIMATE, AND ARE SHOWN USING THE BEST AVAILABLE DATA. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE DEPTH AND HORIZONTAL LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. ANY AND ALL DAMAGE DONE BY THE CONTRACTOR TO EXISTING UTILITIES DURING CONSTRUCTION SHALL BE THE FAULT OF THE CONTRACTOR, WITH THE CONTRACTOR BEARING ALL FINANCIAL RESPONSIBILITY.
- THE CONTRACTOR SHALL INSTALL ALL PERMANENT PAVEMENT MARKINGS, AND ALL PERMANENT TRAFFIC CONTROL SIGNS.
- THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS, ALLEYS, AND MAILBOXES DURING CONSTRUCTION. THE CONTRACTOR WILL NOT RESTRICT EMERGENCY VEHICLES, US POSTAL DELIVERY, SOLID WASTE COLLECTIONS AND/OR ACCESS TO THE ADJACENT PROPERTIES EXCEPT AS APPROVED BY THE ENGINEER.
- A COPY OF THESE PLANS SHALL BE KEPT IN AN EASILY ACCESSIBLE LOCATION ON THE SITE AT ALL TIMES DURING CONSTRUCTION.
- ANY EXCESS EXCAVATED MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR, AND SHALL BE REMOVED FROM THE PROJECT SITE BY THE CONTRACTOR.
- DIMENSIONS SHALL NOT BE SCALED FROM THE DRAWINGS.
- IN THE EVENT THAT HUMAN REMAINS, INCLUDING HUMAN SKELETAL REMAINS, CREMATIONS, AND/OR FUNERARY OBJECTS ARE FOUND DURING EXCAVATION OR VICINITY OF THE DISCOVERY. STATE LAWS ARS 41-865 AND ARS 41-844 REQUIRE THAT THE ARIZONA STATE MUSEUM BE NOTIFIED OF THE DISCOVERY AT (520) 621-4795 SO THAT CULTURAL GROUPS WHO CLAIM CULTURAL OR RELIGIOUS AFFINITY TO THEM CAN MAKE APPROPRIATE ARRANGEMENTS FOR THE REPATRIATION AND REBURIAL OF THE REMAINS. THE HUMAN REMAINS WILL BE REMOVED FROM THE SITE BY A PROFESSIONAL ARCHAEOLOGIST PENDING CONSULTATION AND REVIEW BY THE ARIZONA STATE MUSEUM AND THE CONCERNED CULTURAL GROUPS.
- THE CONTRACTOR SHALL NOT DAMAGE NATURAL GROWTH WITHIN PRIVATE PROPERTY. ALL WORK SHALL BE DONE WITHIN EASEMENTS, ROADWAYS, AND ALLEYS.
- WHEN MATCHING EXISTING PAVEMENT OR CURB AND GUTTER, THE CONTRACTOR MUST VERIFY EXISTING ELEVATIONS TO ENSURE PROPER DRAINAGE AND GRADES. ANY DISCREPANCIES WITH THE PLANS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FURNISH, HAUL, AND APPLY ALL WATER REQUIRED FOR COMPACTION, AND FOR THE CONTROL OF DUST FROM CONSTRUCTION ACTIVITY. THE COST FOR THIS WORK IS TO BE INCLUDED IN THE CONSTRUCTION PRICE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CARE, MAINTENANCE, REPAIR OR REPLACEMENT OF EXISTING IMPROVEMENTS IN THE WORK AREA WHICH HAVE BEEN REMOVED OR DAMAGED DURING THE COURSE OF CONSTRUCTION. ALL REPAIR, REPLACEMENT, OR CLEANUP SHALL BE DONE TO THE SATISFACTION OF THE OWNER.
- OMISSIONS OR CONFLICTS BETWEEN VARIOUS ELEMENTS OF THE DRAWINGS, NOTES AND DETAILS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND RESOLVED BEFORE PROCEEDING WITH THE WORK.

INDEX OF SHEETS

SHEET NUMBER	SHEET TYPE
1	COVER SHEET
2 - 3	DESIGN SHEETS
4 - 9	TYPICAL SECTIONS & PAVEMENT SECTIONS
10	PIPE SUMMARY SHEET
11 - 14	GEOMETRIC LAYOUT SHEET
16 - 115	ROADWAY PLAN & PROFILE SHEETS
116 - 126	STORM DRAIN PLAN & PROFILE SHEETS
127 - 128	BRIDGE PLAN SHEETS
	DESIGN SHEET

SHEET 1 OF 3

Record Document  
Dated: ##/##/####



15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION		2
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS		OF 128
CITY OF TUCSON	DRWN. BY JAR	CHKD. BY JMF
DEC 2025	DEC 2025	APP. BY BJL
DEC 2025	DEC 2025	SCALE: NTS
PLAN NO. R-2024-XXX		

### 1ST AVE DESIGN DATA

DESIGN SPEED = 45 MPH  
POSTED SPEED = 30 MPH

GRANT ROAD TO GLENN STREET  
2026 ADT = X,XXX  
2045 ADT = X,XXX

GLENN STREET TO FORT LOWELL ROAD  
2026 ADT = X,XXX  
2045 ADT = XX,XXX

FORT LOWELL ROAD TO PRINCE ROAD  
2026 ADT = X,XXX  
2045 ADT = XX,XXX

PRINCE ROAD TO ROGER ROAD  
2026 ADT = XX,XXX  
2045 ADT = XX,XXX

ROGER ROAD TO WETMORE ROAD  
2026 ADT = XX,XXX  
2045 ADT = XX,XXX

WETMORE ROAD TO RIVER ROAD  
2026 ADT = XX,XXX  
2045 ADT = XX,XXX

### DESIGN VEHICLE

#### COLLECTOR AND LOCAL INTERSECTIONS

TYPICAL CHECK      WB-40 CITY-BUS

### LENGTH OF PROJECT

STA. XX+XX.XX TO STA. XX+XX.XX = XXXX.XX' = X.XX MILES

EARTHWORK SUMMARY	
ROADWAY EXCAVATION	XXXX C. Y.
DRAINAGE EXCAVATION	XXXX C. Y.
EXISTING PAVEMENT REMOVAL	XXXX C. Y.
PIPE EXCAVATION	C. Y.
STRUCTURAL EXCAVATION	XXX C. Y.
TOTAL EXCAVATION	C. Y.
ROADWAY EMBANKMENT	XXXX C. Y.
PIPE & TRENCH BACKFILL	C. Y.
STRUCTURE BACKFILL	XXX C. Y.
WASTE	XXXX C. Y.
BORROW	XXXX C. Y.

### LEGEND

LEGEND USED IS PER PAG STANDARD DETAIL FOR PUBLIC IMPROVEMENTS 2015 EDITION  
DETAIL 100 AND 101 AS FOLLOWS:

NEW	EXISTING	ITEM
		TRAFFIC SIGNAL (TWO HEAD)
		GUY WIRE AND/OR GUY POLE
		UTILITY POLE
		TELEPHONE MANHOLE
		PAVEMENT REMOVAL
		NEW STORM DRAIN
		NEW RIGHT OF WAY
		EXISTING RIGHT OF WAY
		TEMPORARY CONST. ESMT.

DESIGN SHEET

SHEET 2 OF 3

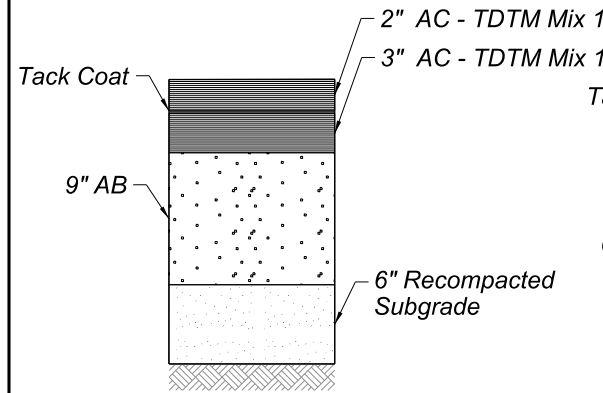
Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

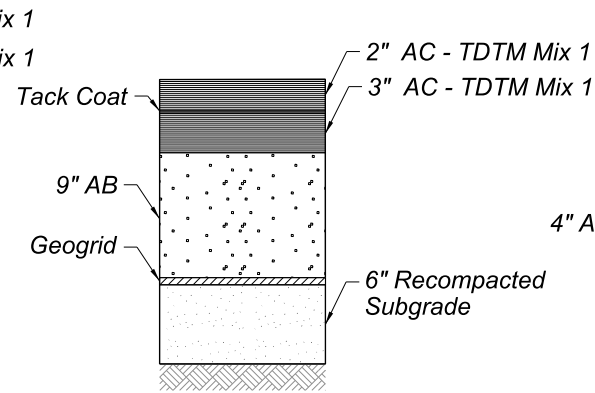
DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				3
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJK	SCALE: NTS	
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	





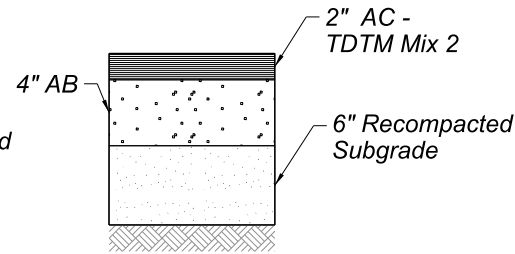
PAVEMENT STRUCTURAL SECTION NUMBER 1

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STA. 103+00 TO STA. 177+91



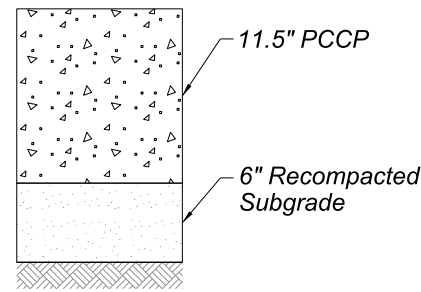
PAVEMENT STRUCTURAL SECTION NUMBER 2

1ST AVENUE  
STA. 13+83 TO STA. 103+00



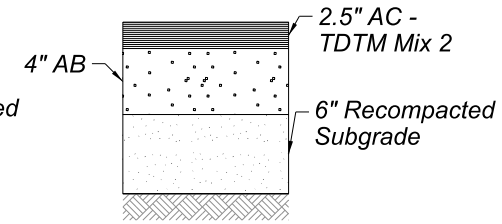
PAVEMENT STRUCTURAL SECTION NUMBER 3

SIDE ROADS, DRIVEWAYS,  
AND PARKING LOTS



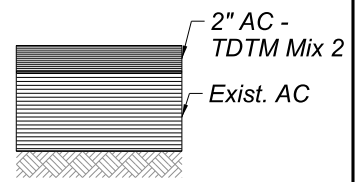
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BUS BAYS



PAVEMENT STRUCTURAL SECTION NUMBER 5

MULTI - USE PATH

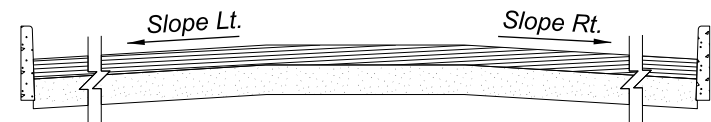


PAVEMENT STRUCTURAL SECTION NUMBER 6

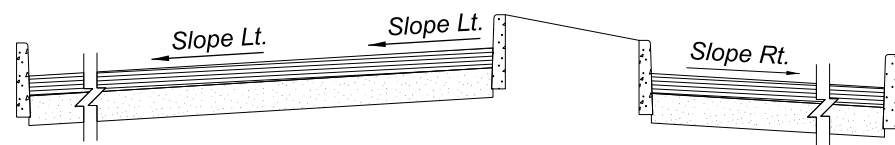
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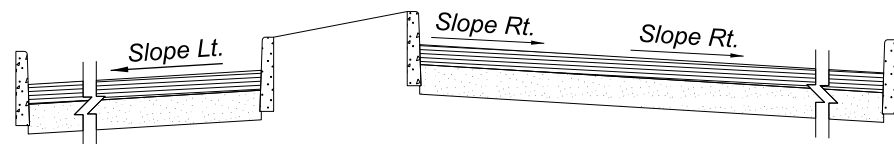
WITH MEDIAN



INTERSECTION WITH MEDIAN OPENING



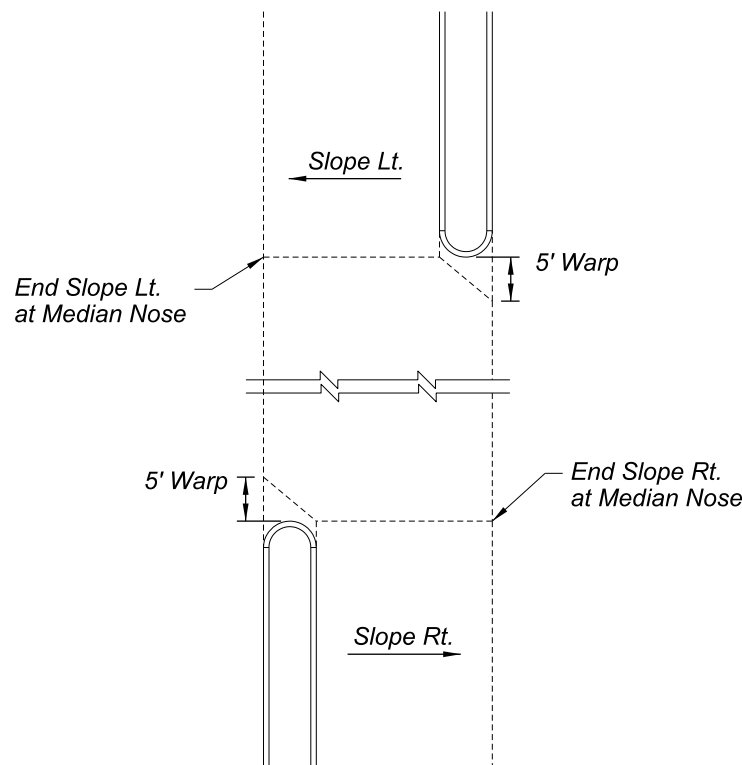
DOWN - STATION LEFT TURN LANE



UP - STATION LEFT TURN LANE

DETAIL

PROFILE GRADE AND CROSS SLOPE CONTROL



NOTES:

1. These Sections represent the typical roadway layout in relation to the Construction CL only. See Geometric Layout Sheets, Paving Plans, Staking Plans, and Retaining Wall Plans for additional information.
2. Detail sections for non-typical edge treatments at specific locations are shown on the Paving Plans.
3. The Existing and Proposed Right-of-Way varies throughout the project corridor. Refer to the Right-of-Way and Paving Plans for detailed information.

TYPICAL SECTIONS

SHEET 1 OF 6

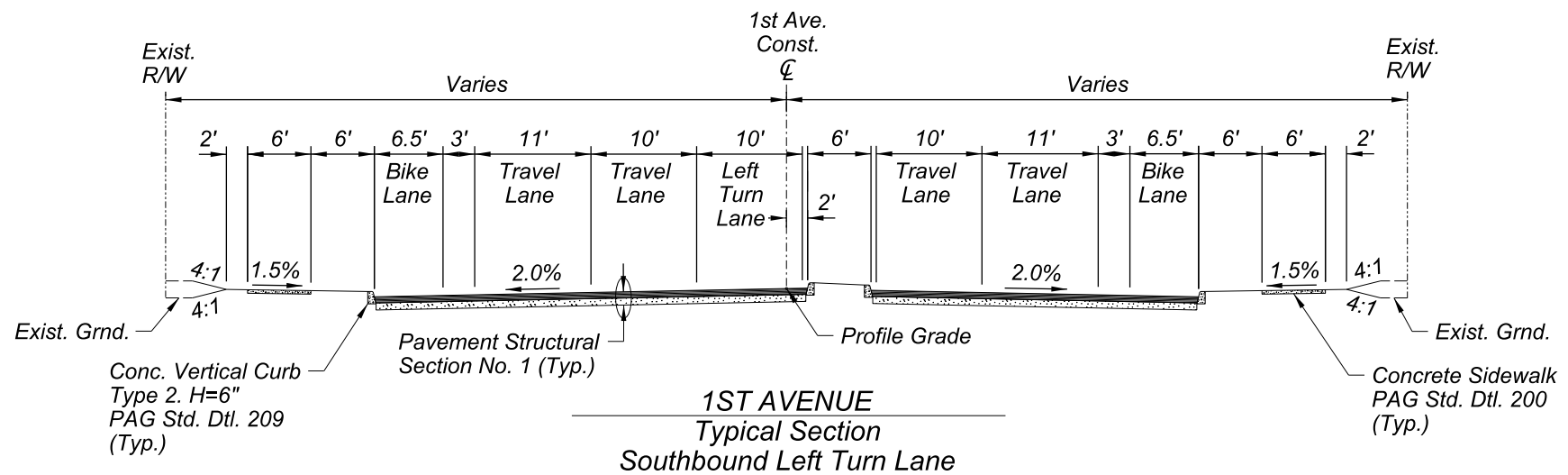
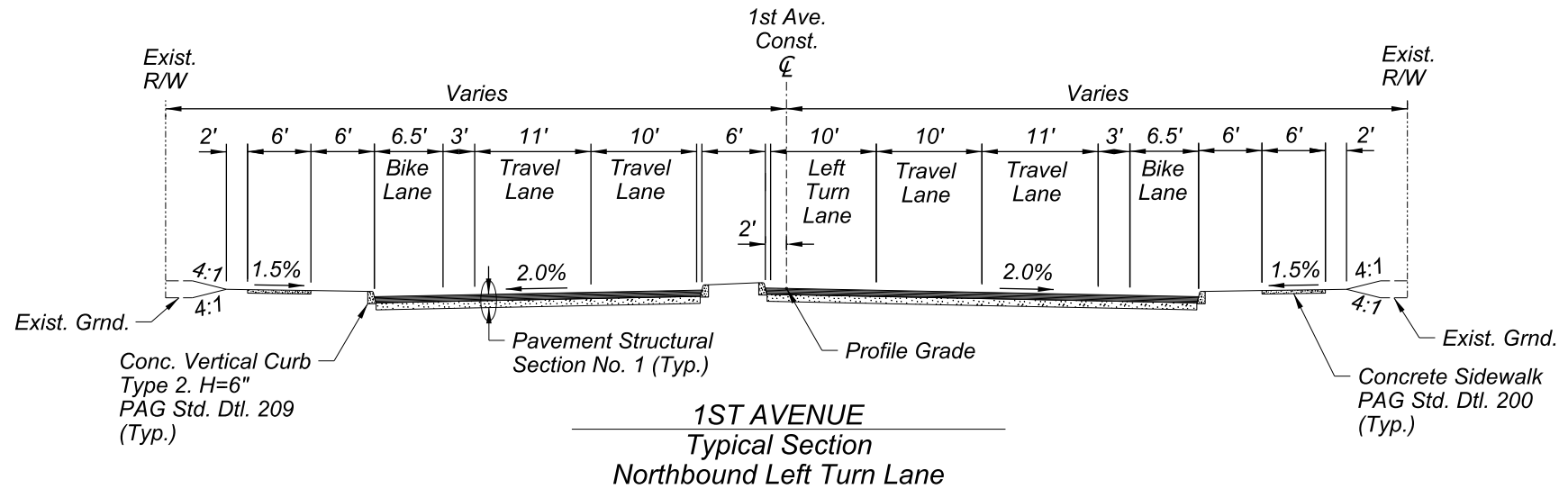
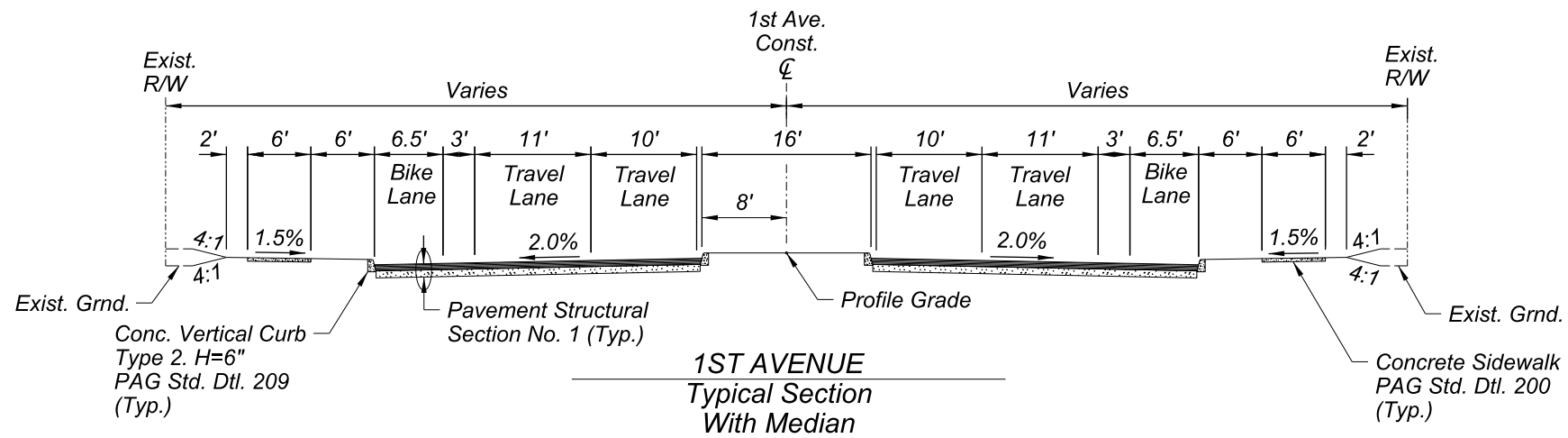
Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				4
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: NTS	
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	





TYPICAL SECTIONS

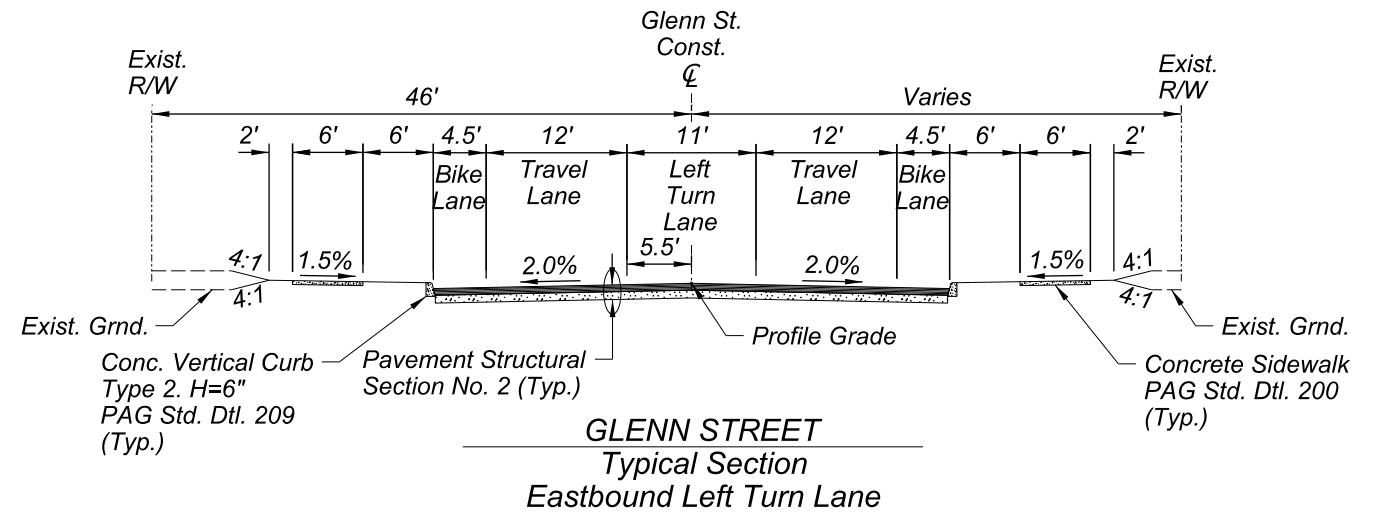
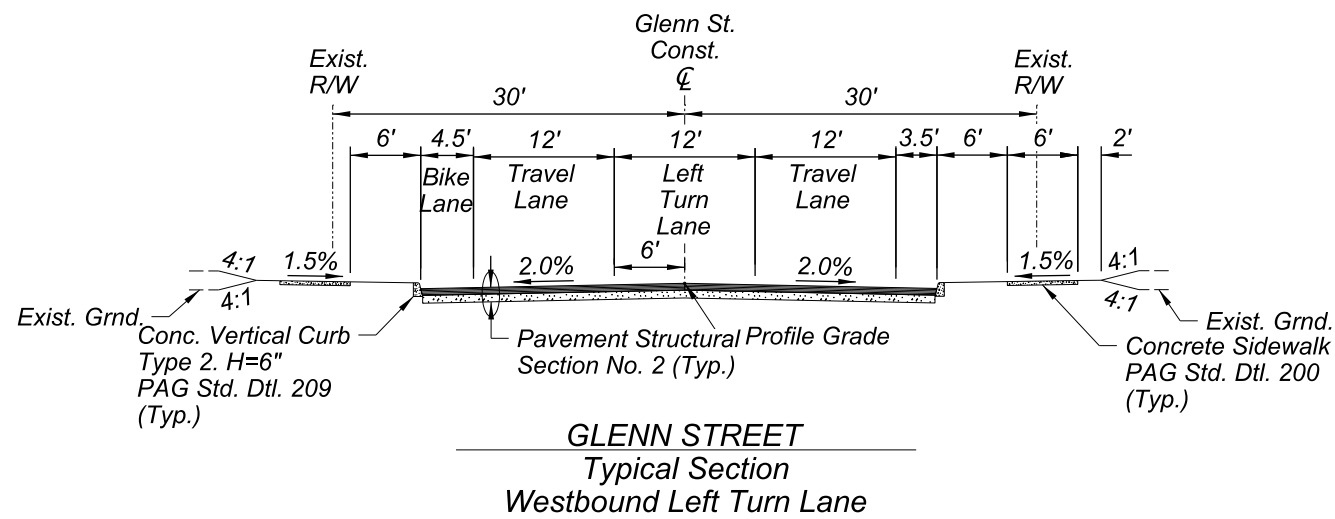
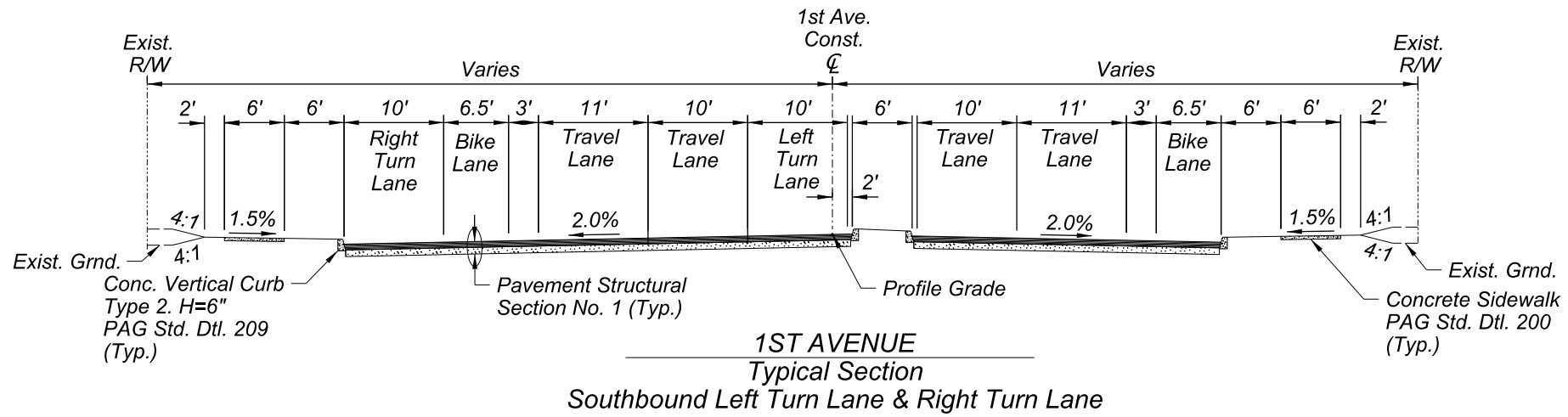
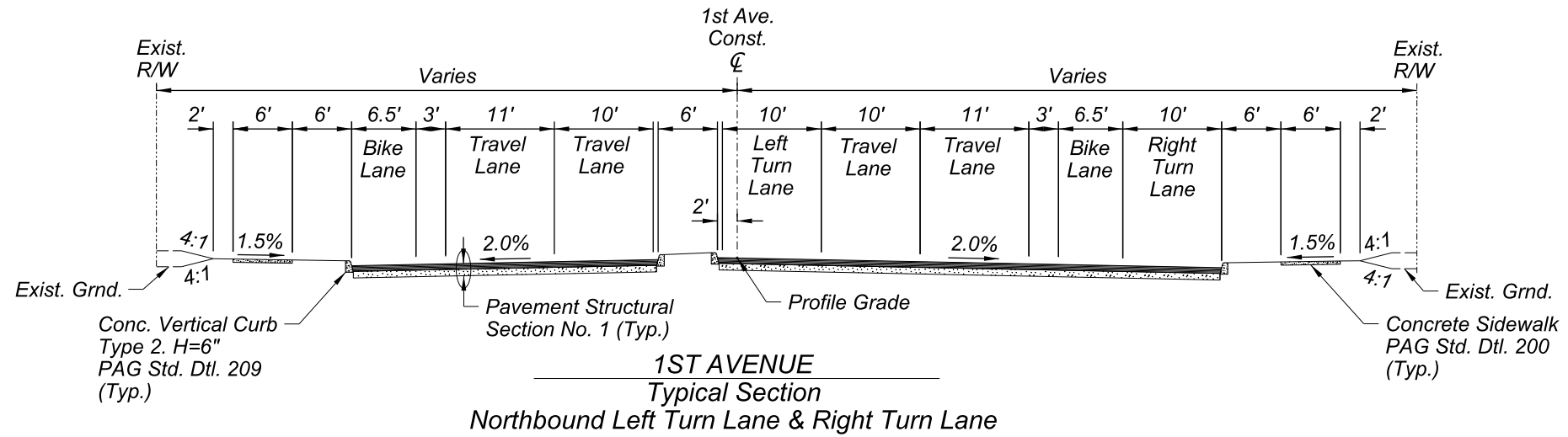
Record Document  
Dated: ##/##/####



NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				5
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: NTS	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		



TYPICAL SECTIONS

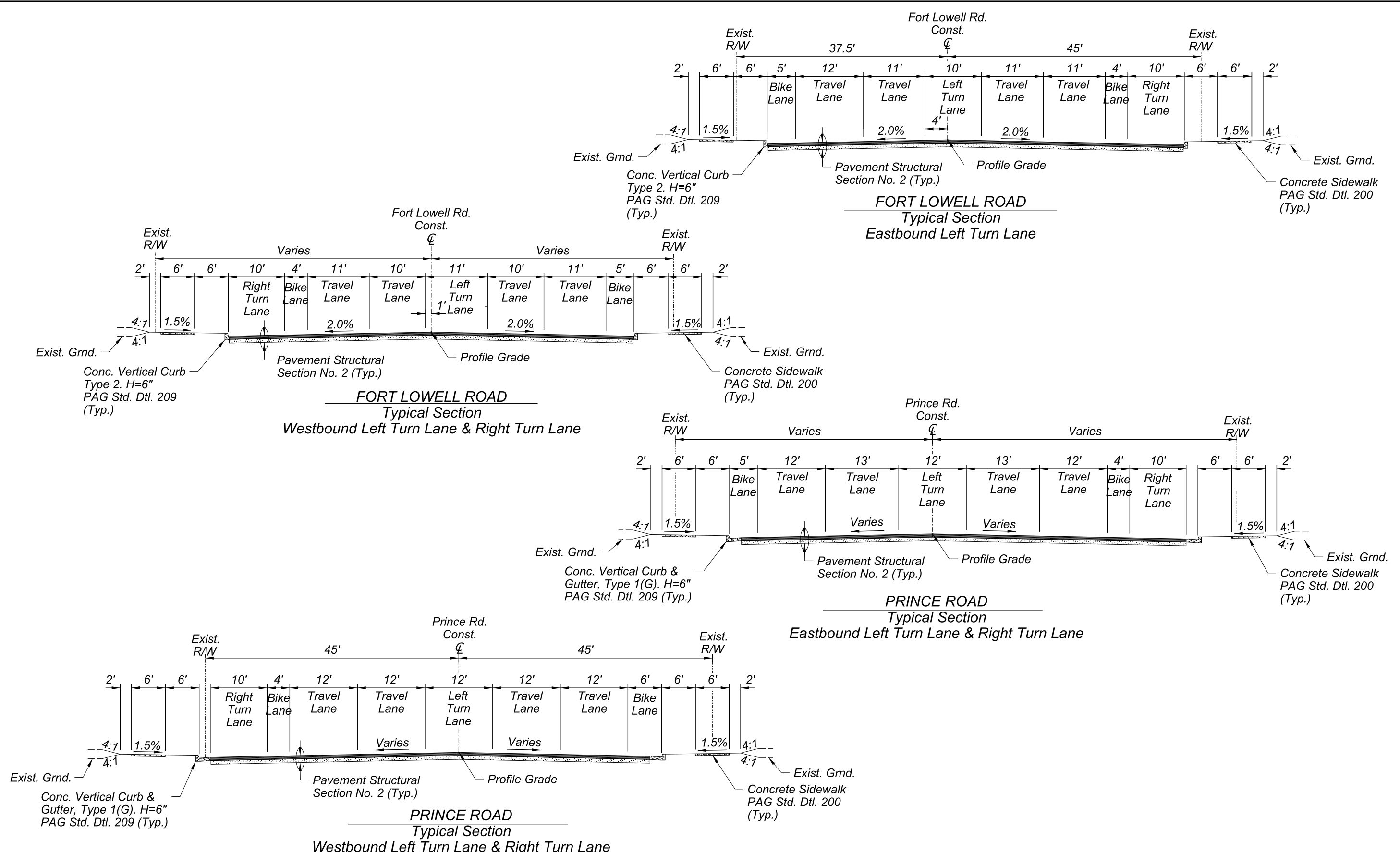
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Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				6
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: NTS	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		





TYPICAL SECTIONS SHEET 4 OF 6

Record Document  
Dated: ##/##/####



NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
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Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION

1ST AVENUE, GRANT ROAD TO  
RIVER ROAD - ROADWAY IMPROVEMENTS

CITY OF TUCSON

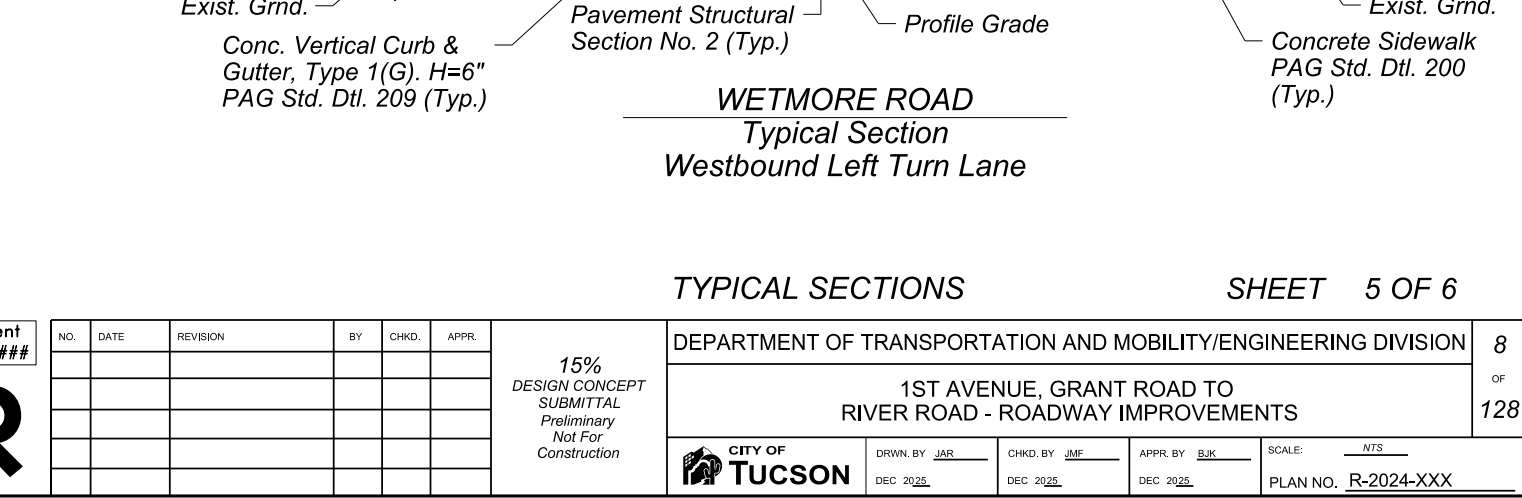
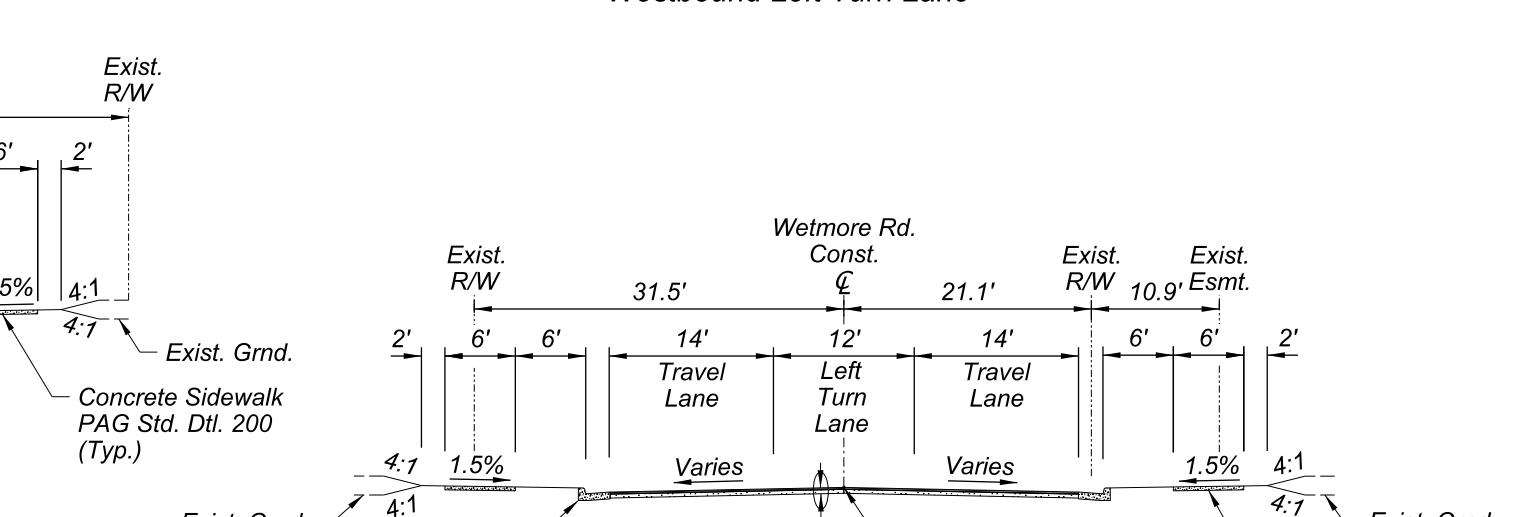
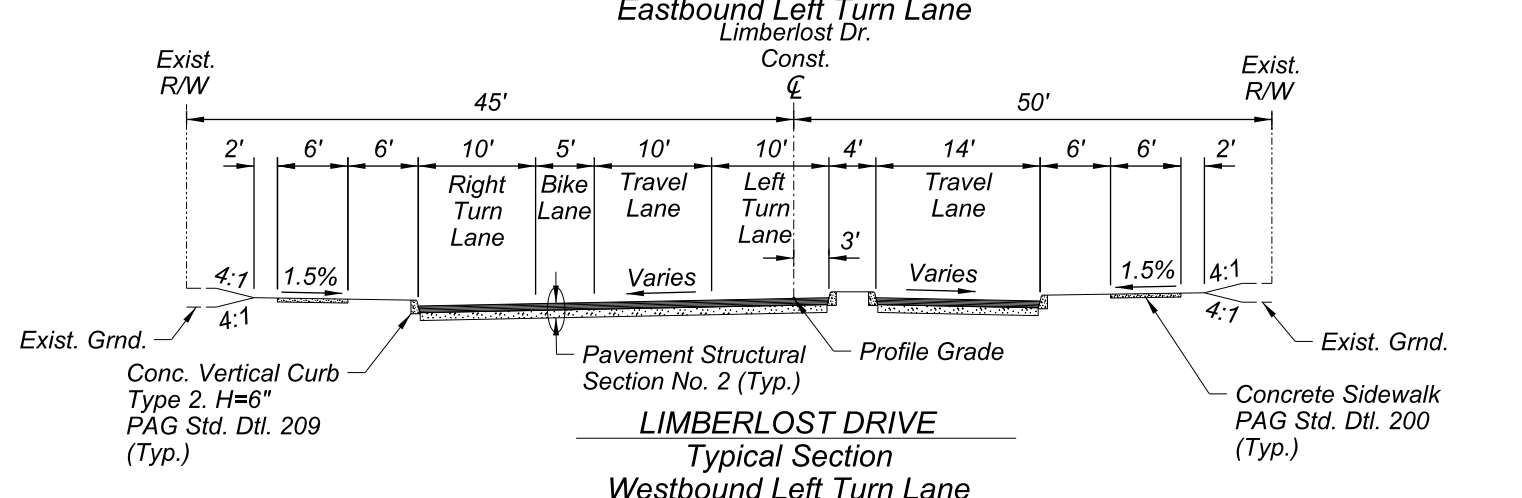
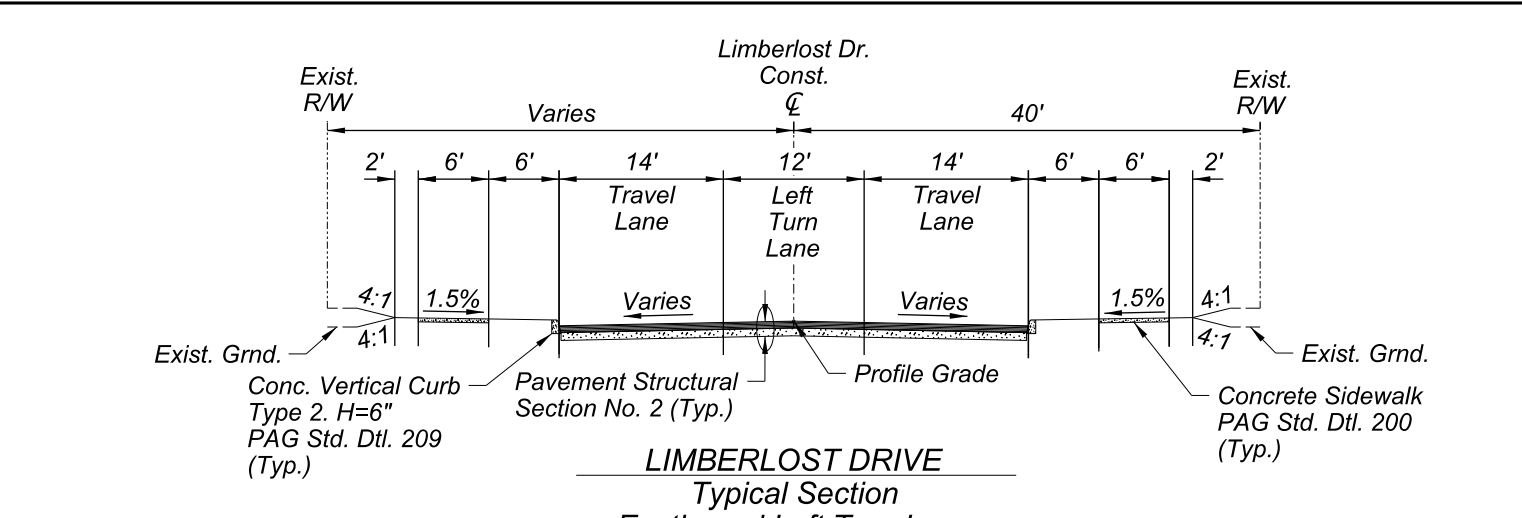
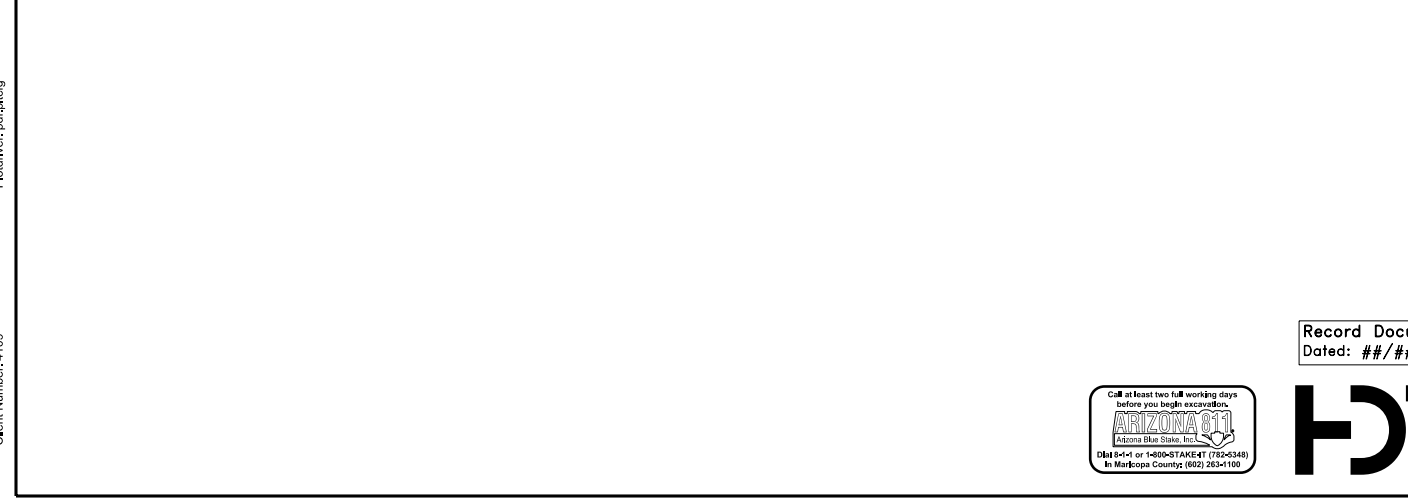
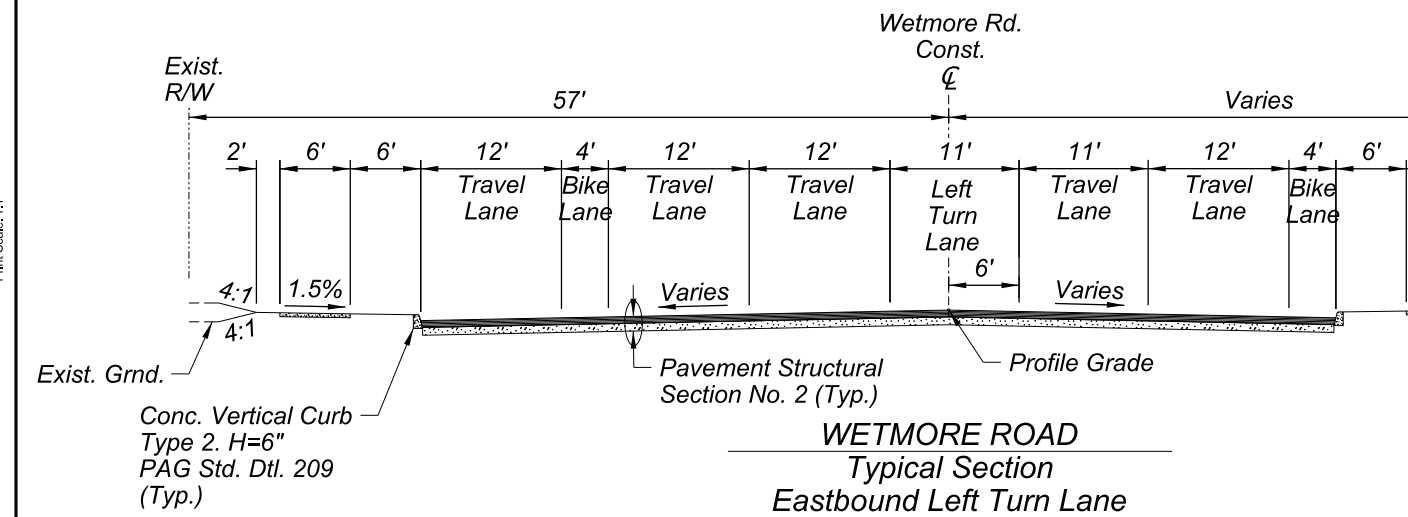
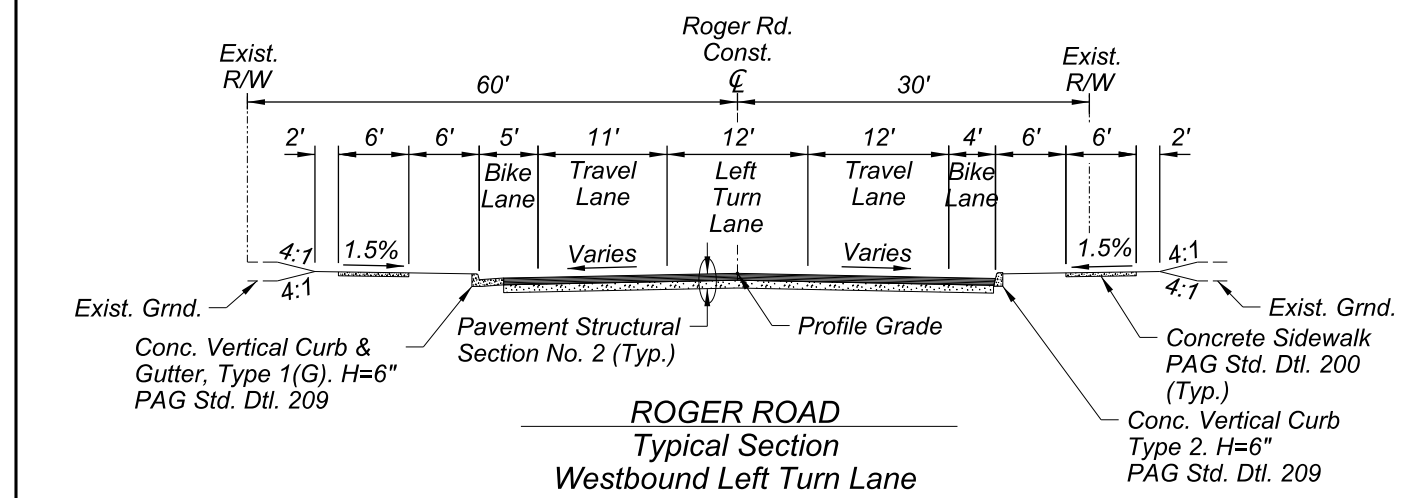
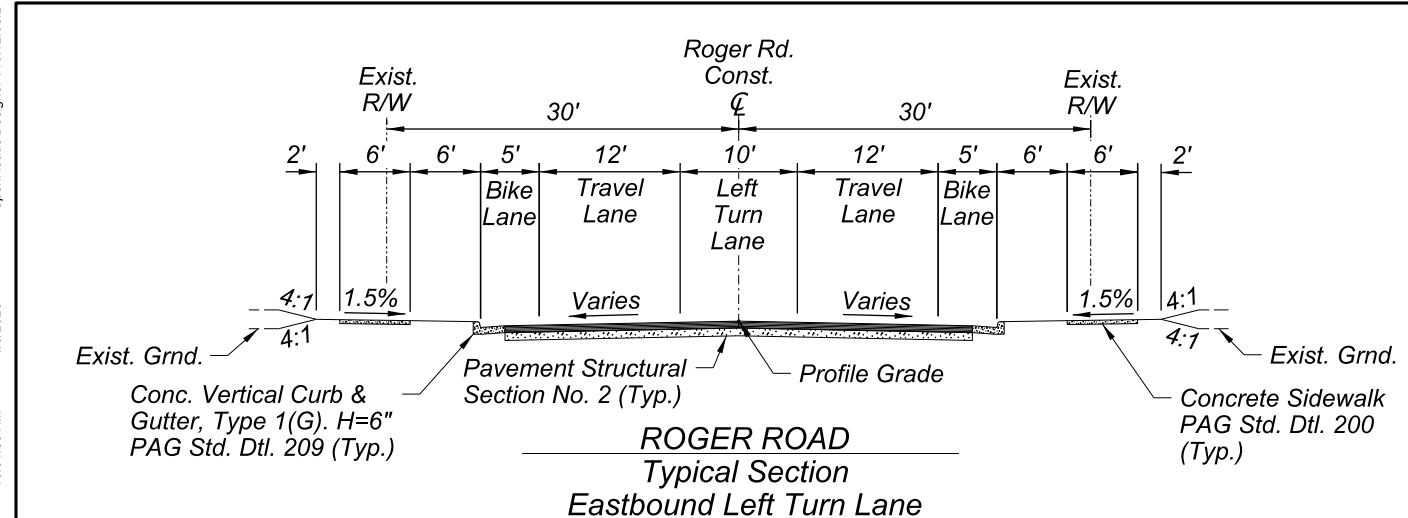
DRWN. BY: JAR    CHKD. BY: JMF    APPR. BY: BLK

DEC 2025    DEC 2025    DEC 2025

SCALE: NTS

PLAN NO. R-2024-XXX

7 OF 128



TYPICAL SECTIONS SHEET 5 OF 6

Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION

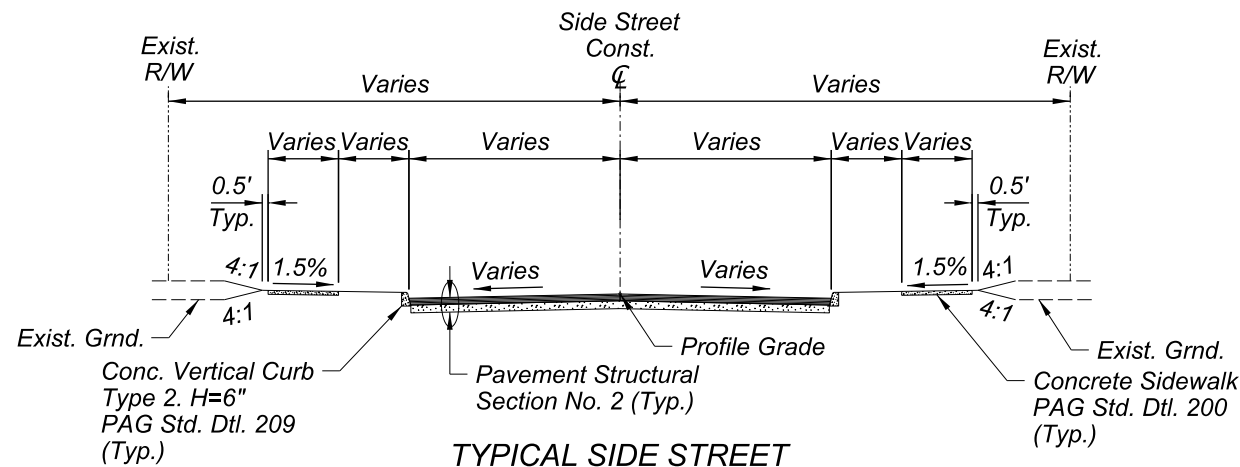
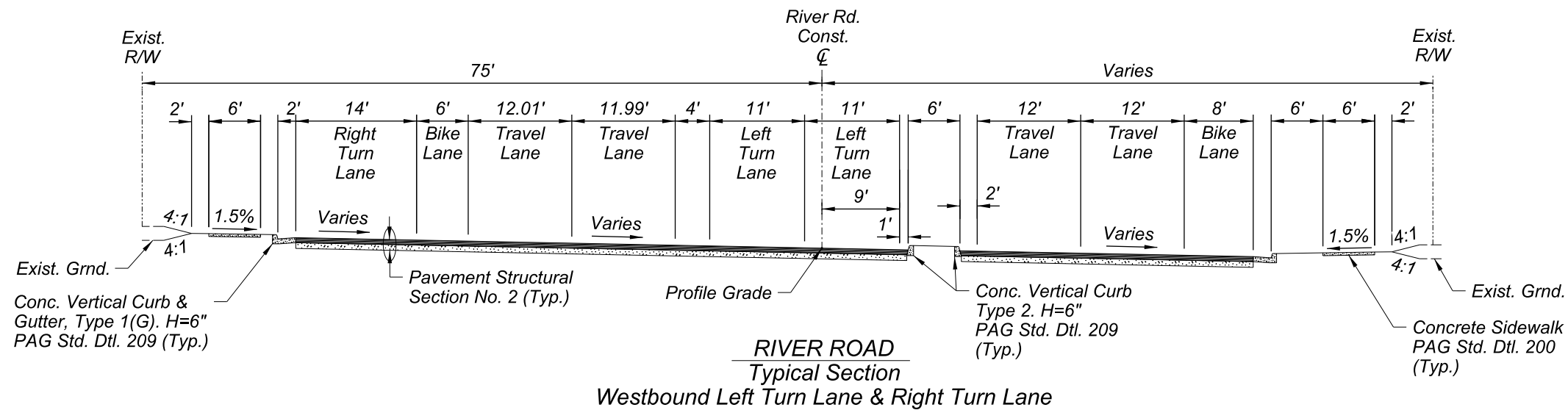
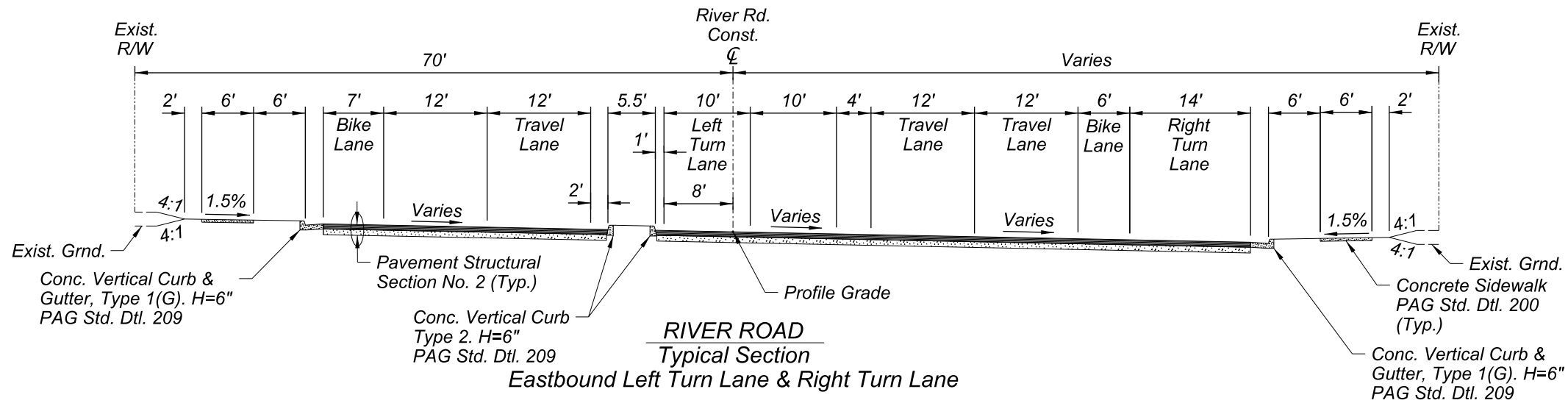
1ST AVENUE, GRANT ROAD TO  
RIVER ROAD - ROADWAY IMPROVEMENTS

CITY OF <b>TUCSON</b>	DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: NTS
	DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX

8

OF  
128





TYPICAL SECTIONS

Record Document  
Dated: ##/##/####

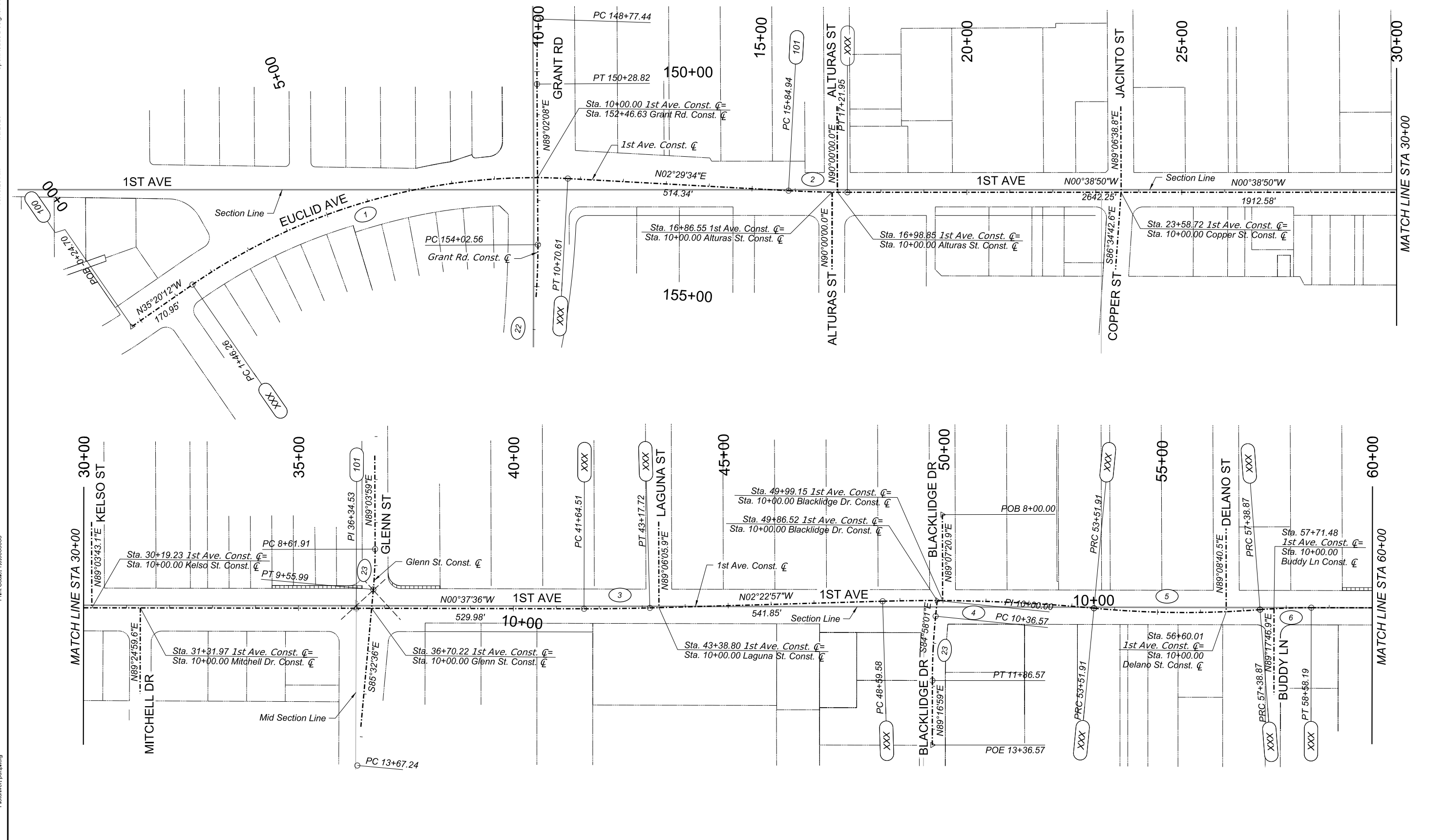


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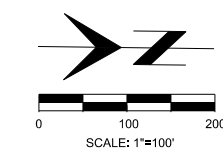
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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				9
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF 128
	DRWN. BY JAR DEC 2025	CHKD. BY JMF DEC 2025	APPR. BY BLK DEC 2025	SCALE: NTS PLAN NO. R-2024-XXX





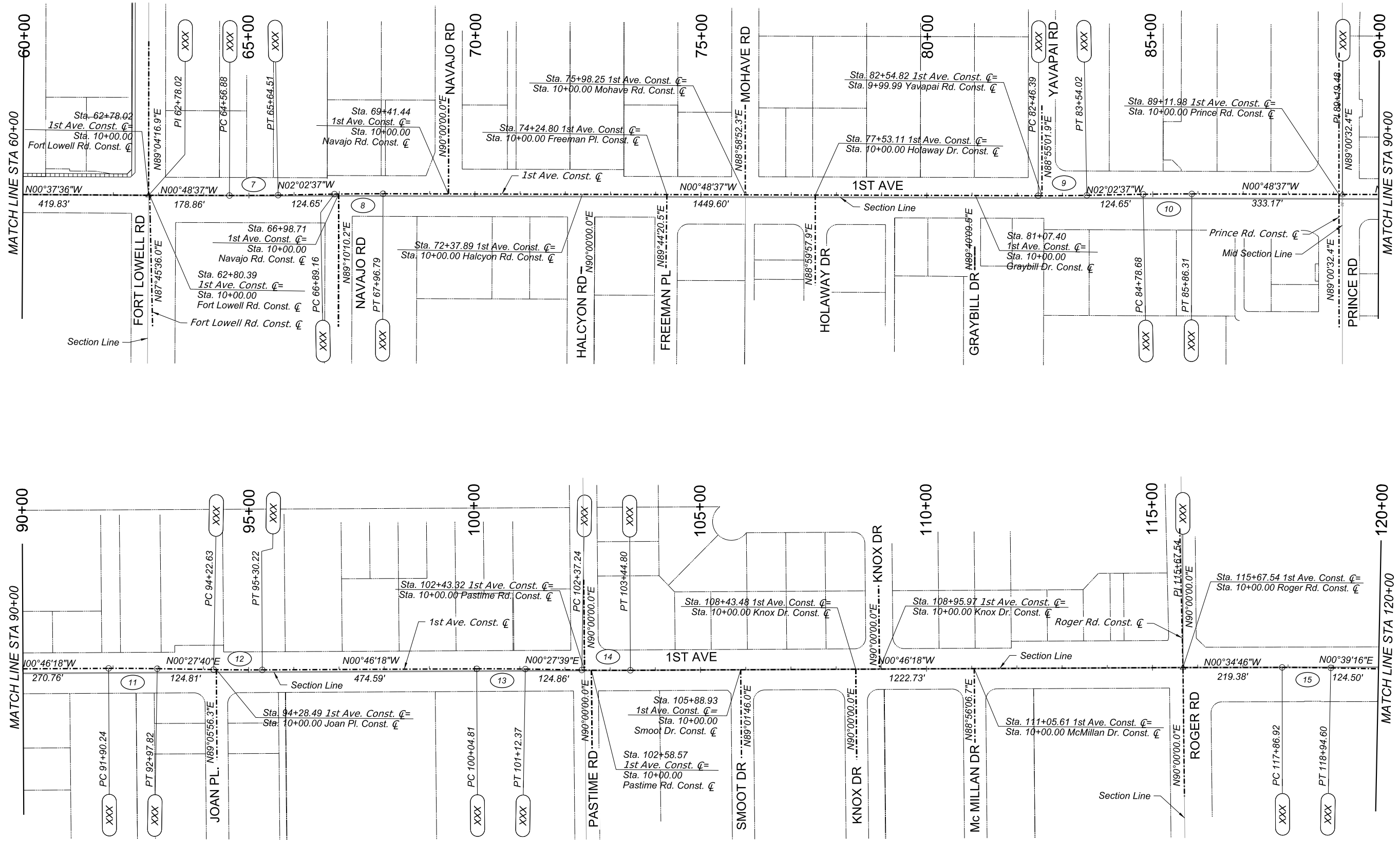
GEOMETRIC LAYOUT - ROADWAY SHEET 1 OF 5



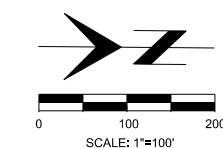
NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				11
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: 1" = 100'	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		



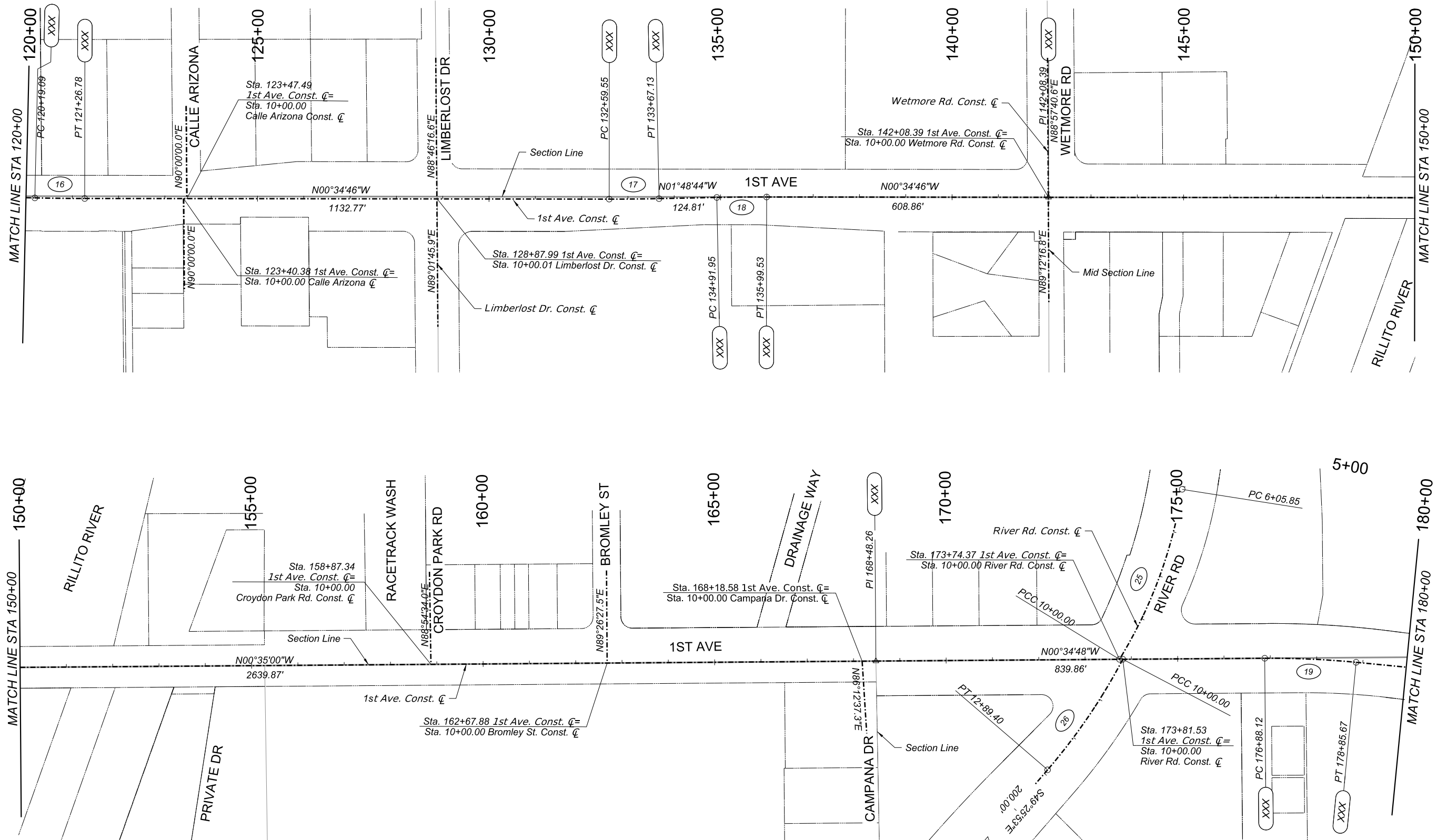
GEOMETRIC LAYOUT - ROADWAY SHEET 2 OF 5



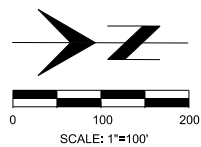
NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				12
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: 1"=100'	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		



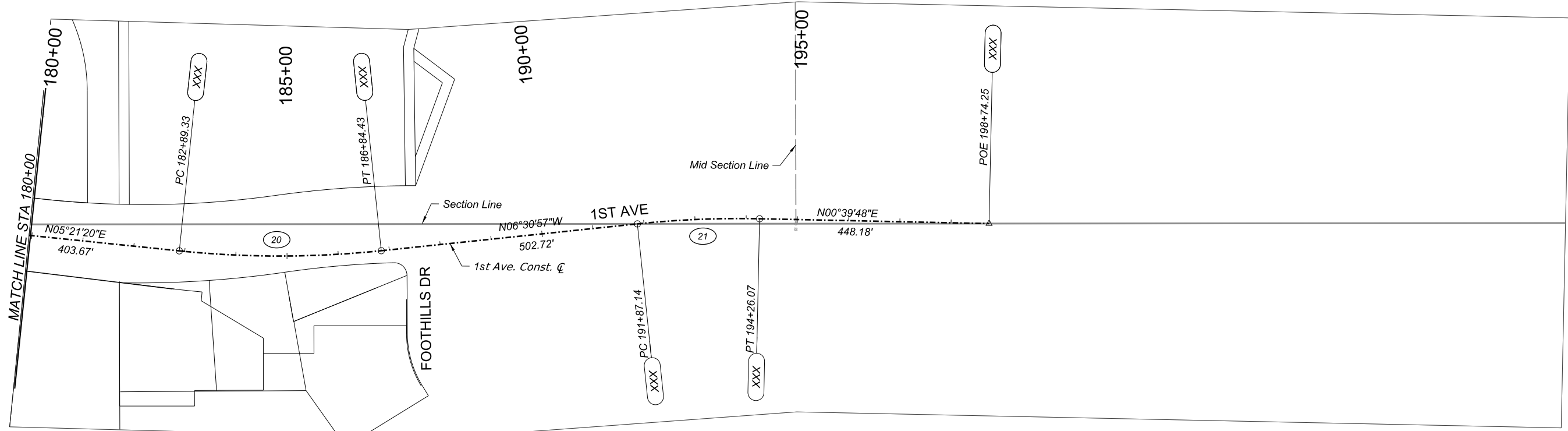
GEOMETRIC LAYOUT - ROADWAY SHEET 3 OF 5



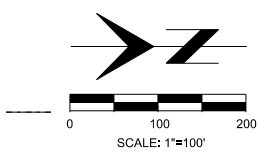
NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				13
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJL	SCALE: 1" = 100'	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		



GEOMETRIC LAYOUT - ROADWAY SHEET 4 OF 5



Record Document  
Dated: ##/##/####

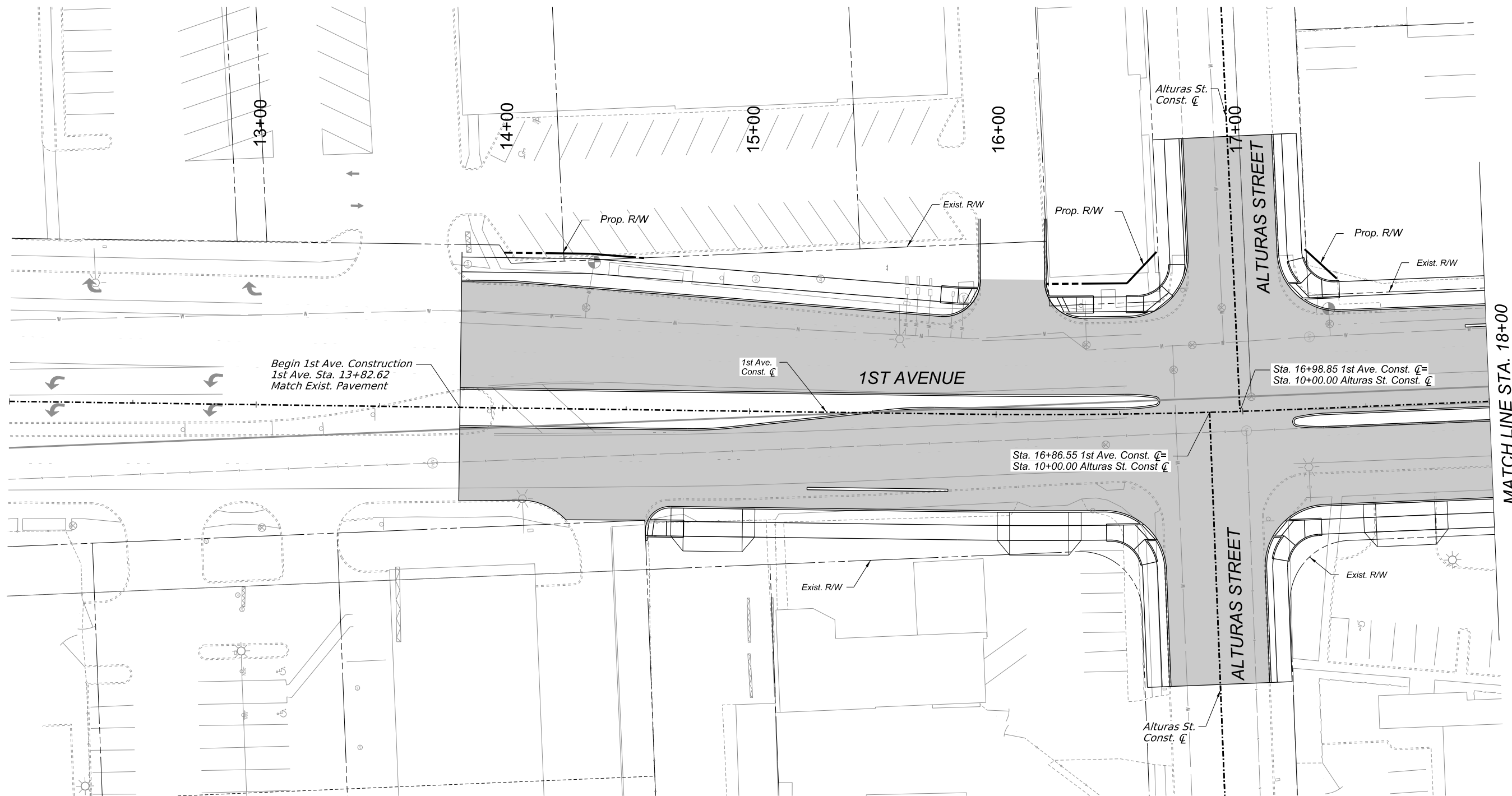


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Not For  
Construction

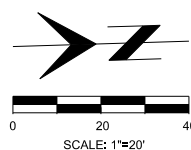
DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				14
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF <b>TUCSON</b>				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJK	SCALE: 1" = 100'	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		





1st Ave Begin to 18+00  
PAVING PLAN

SHEET 1 OF 100

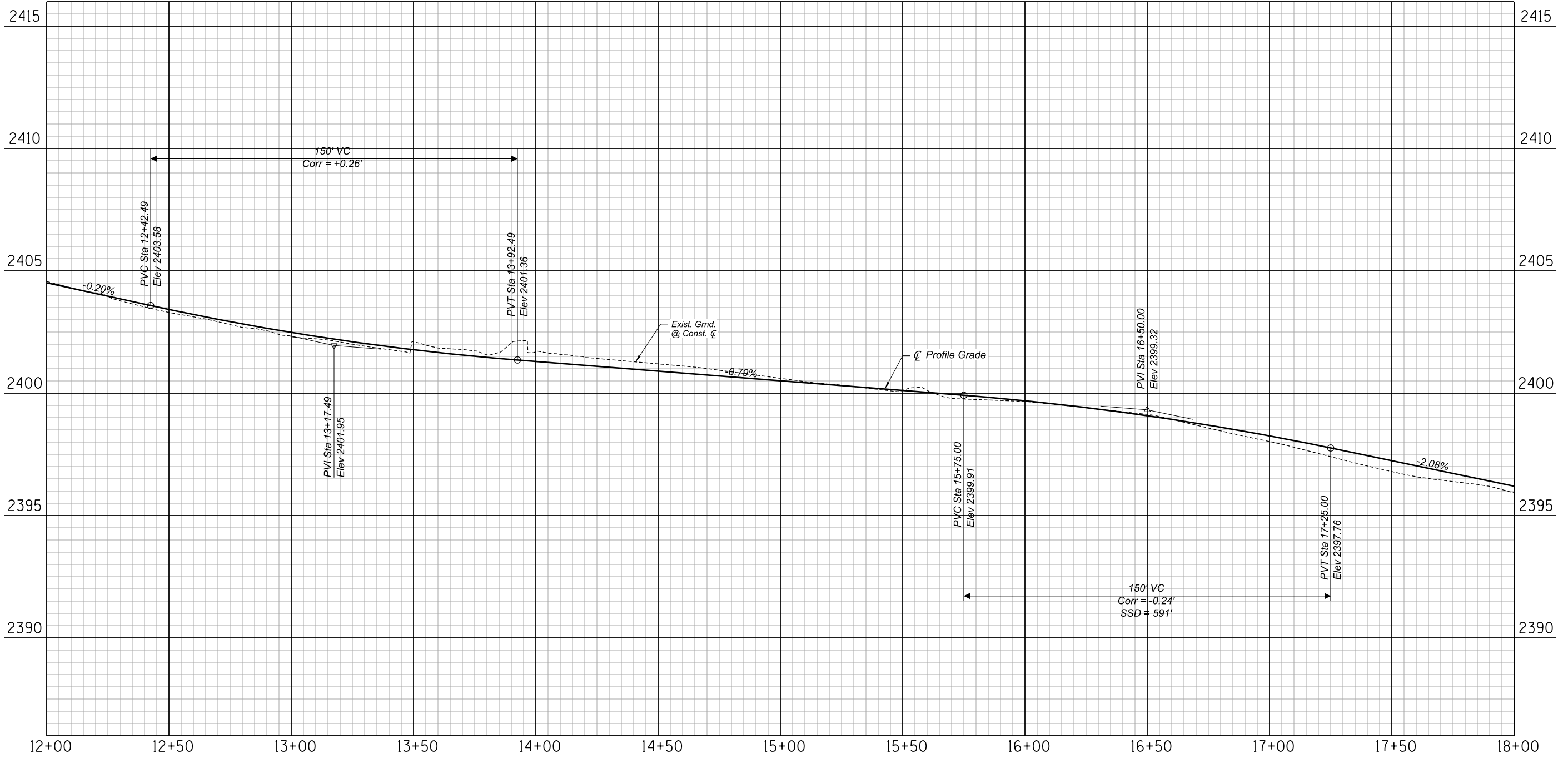


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Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				16
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: 1"=20'	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		



1st Ave Begin to 18+00  
PAVING PROFILE

SHEET 2 OF 100

NO.	DATE	REVISION	BY	CHKD.	APPR.

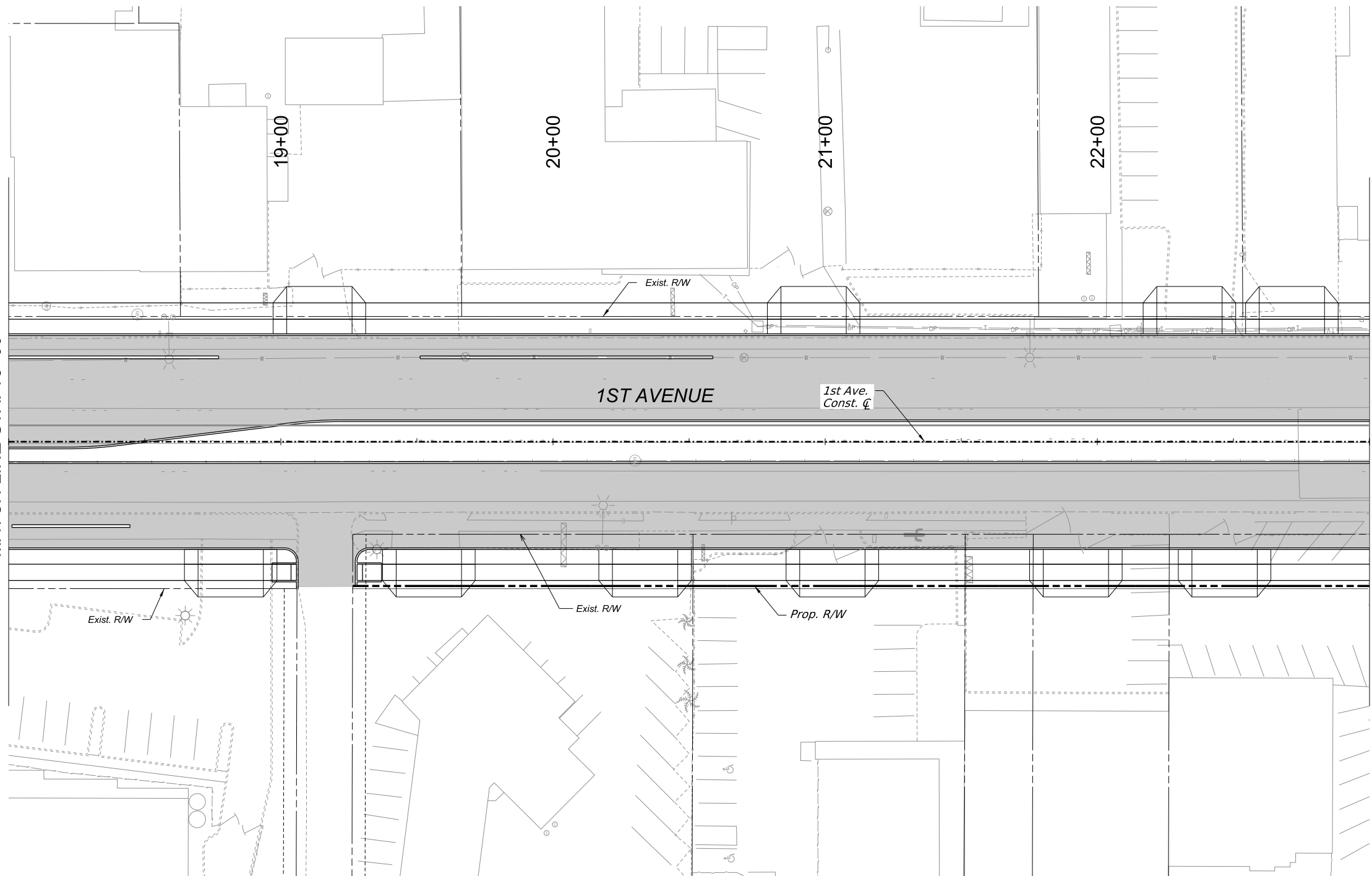
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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				17
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN BY JAR	CHKD BY JMF	APPR BY BLK	SCALE: H: 1" = 20' V: 1" = 2'	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		



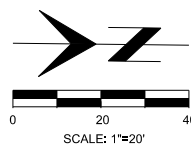
MATCH LINE STA. 18+00

MATCH LINE STA. 23+00



1st Ave 18+00 to 23+00  
PAVING PLAN

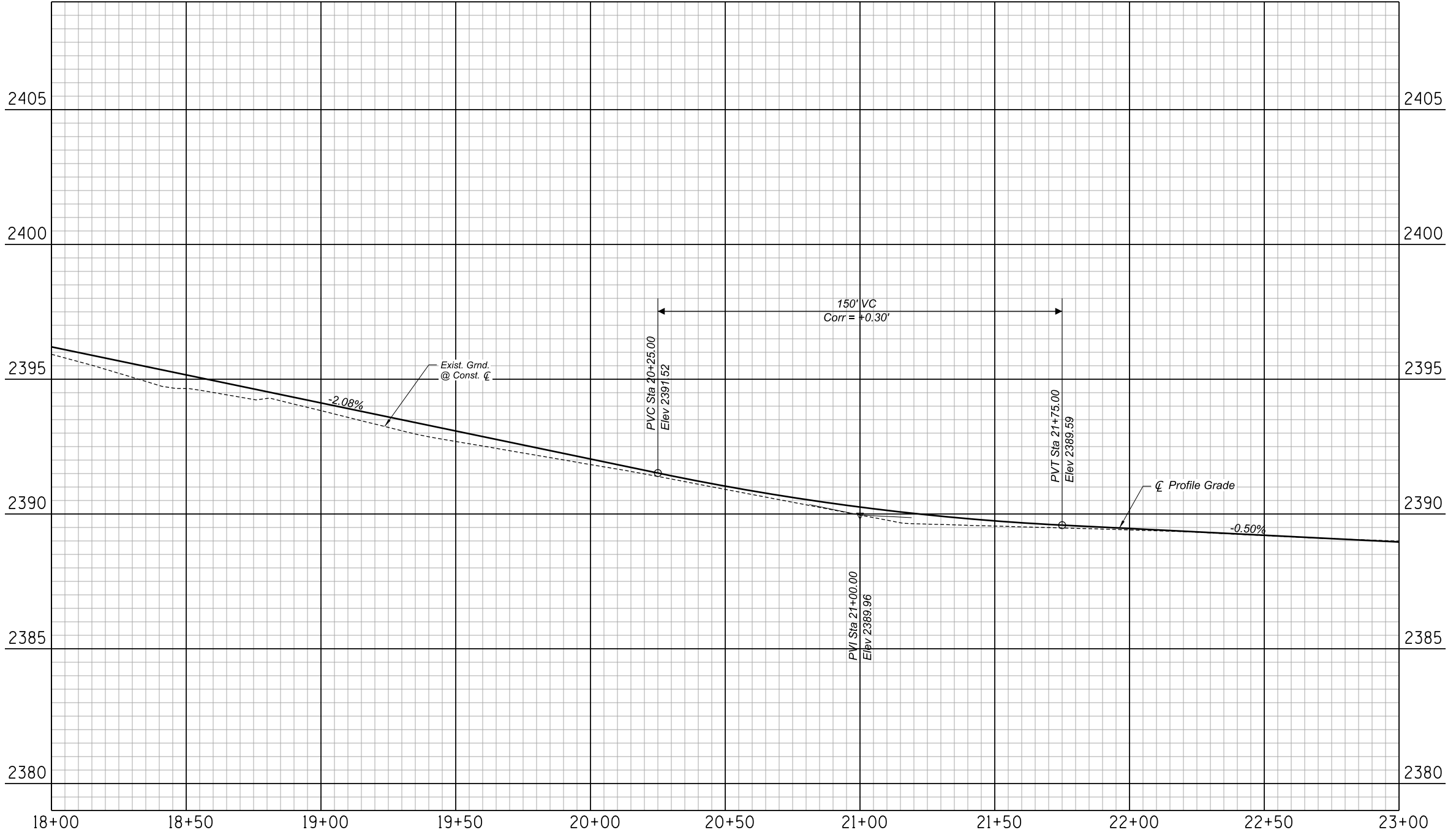
SHEET 3 OF 100



NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				18
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF <b>TUCSON</b>				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: 1"=20'	
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	



1st Ave 18+00 to 23+00  
PAVING PROFILE

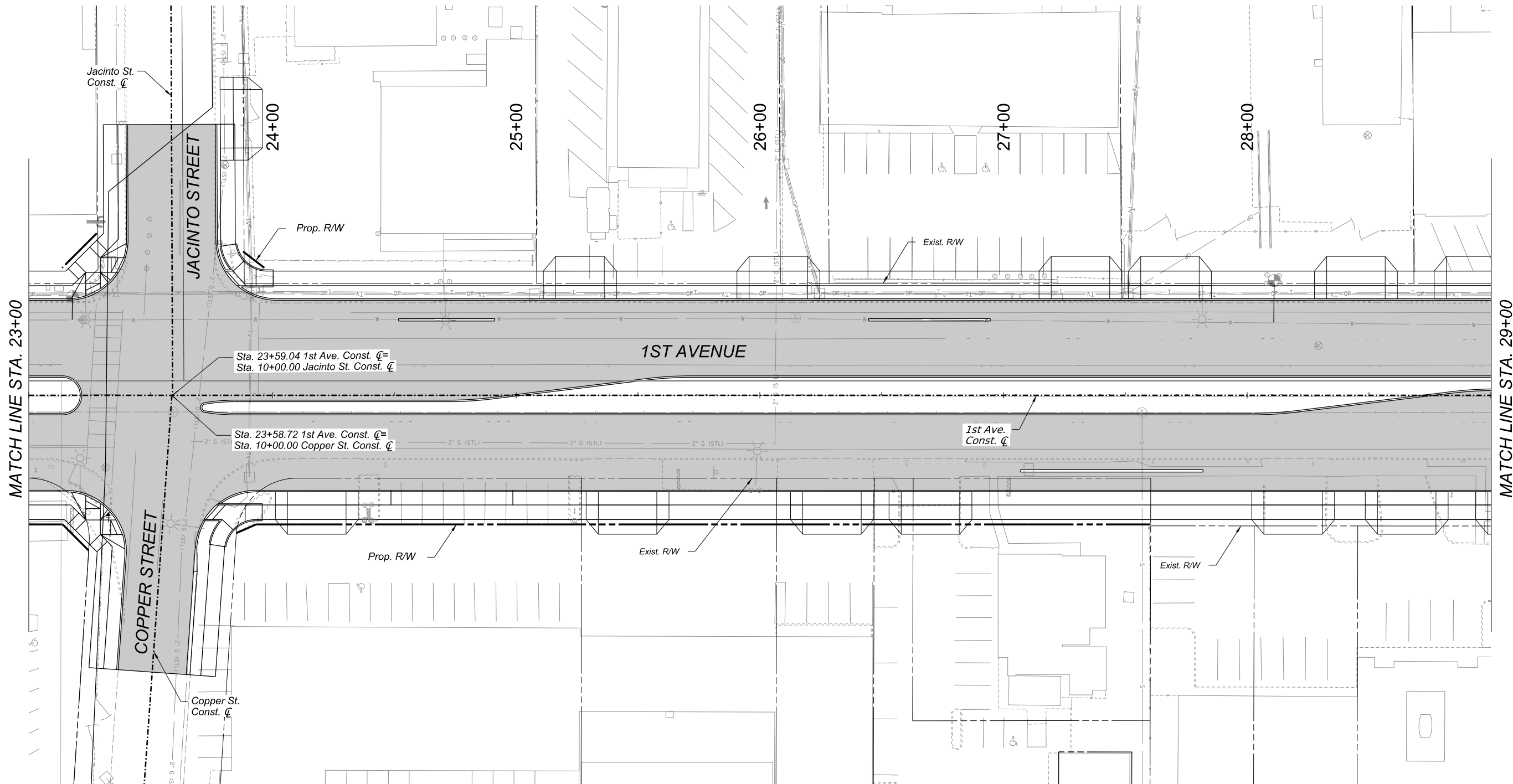
SHEET 4 OF 100

NO.	DATE	REVISION	BY	CHKD.	APPR.

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Preliminary  
Not For  
Construction

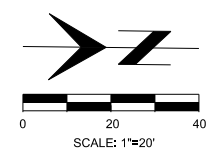
DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				19
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJL	SCALE: H: 1" = 20' V: 1" = 2'	
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	





1st Ave 23+00 to 29+00  
PAVING PLAN

SHEET 5 OF 100

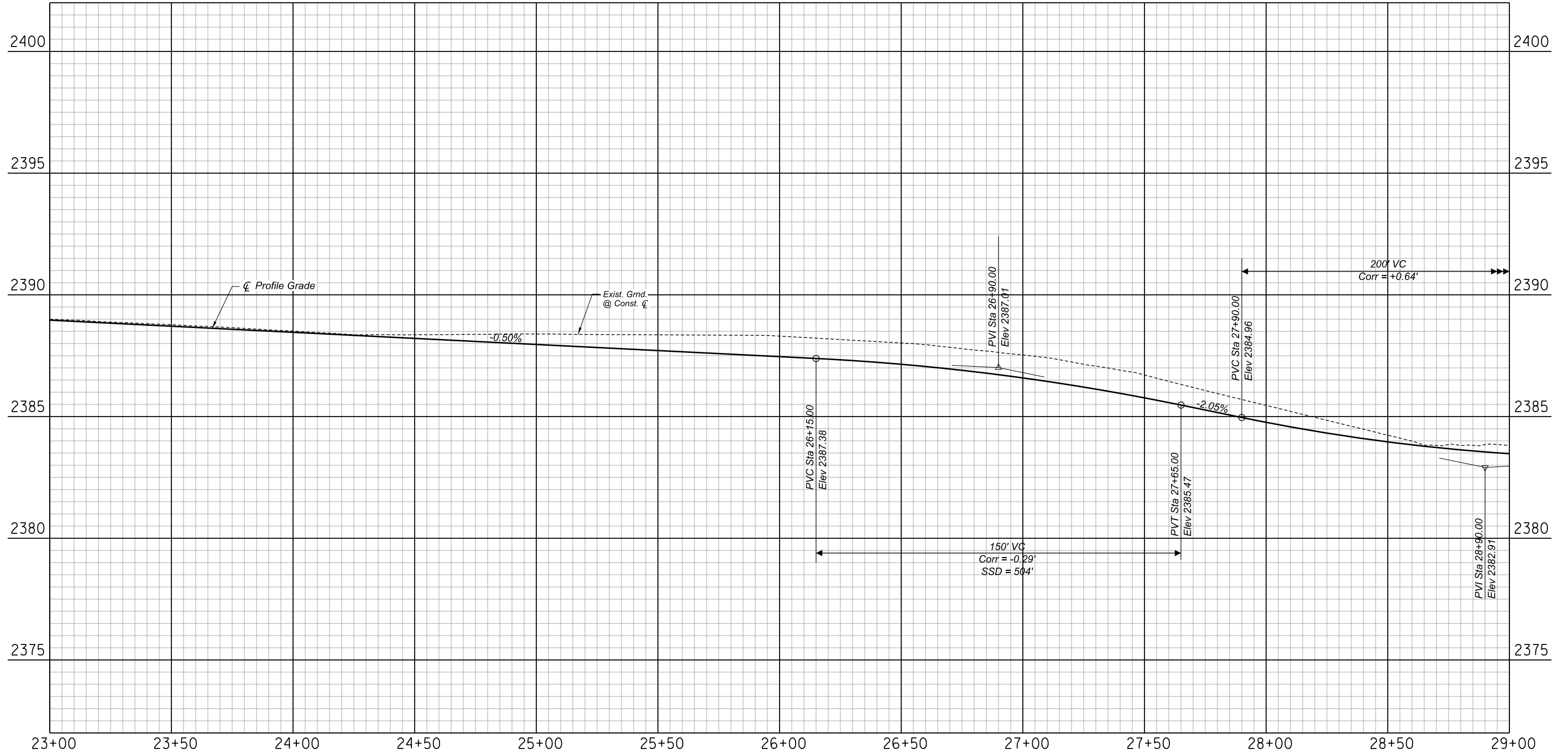


Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				20
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: H: 1" = 20'	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		



1st Ave 23+00 to 29+00  
PAVING PROFILE

SHEET 6 OF 100

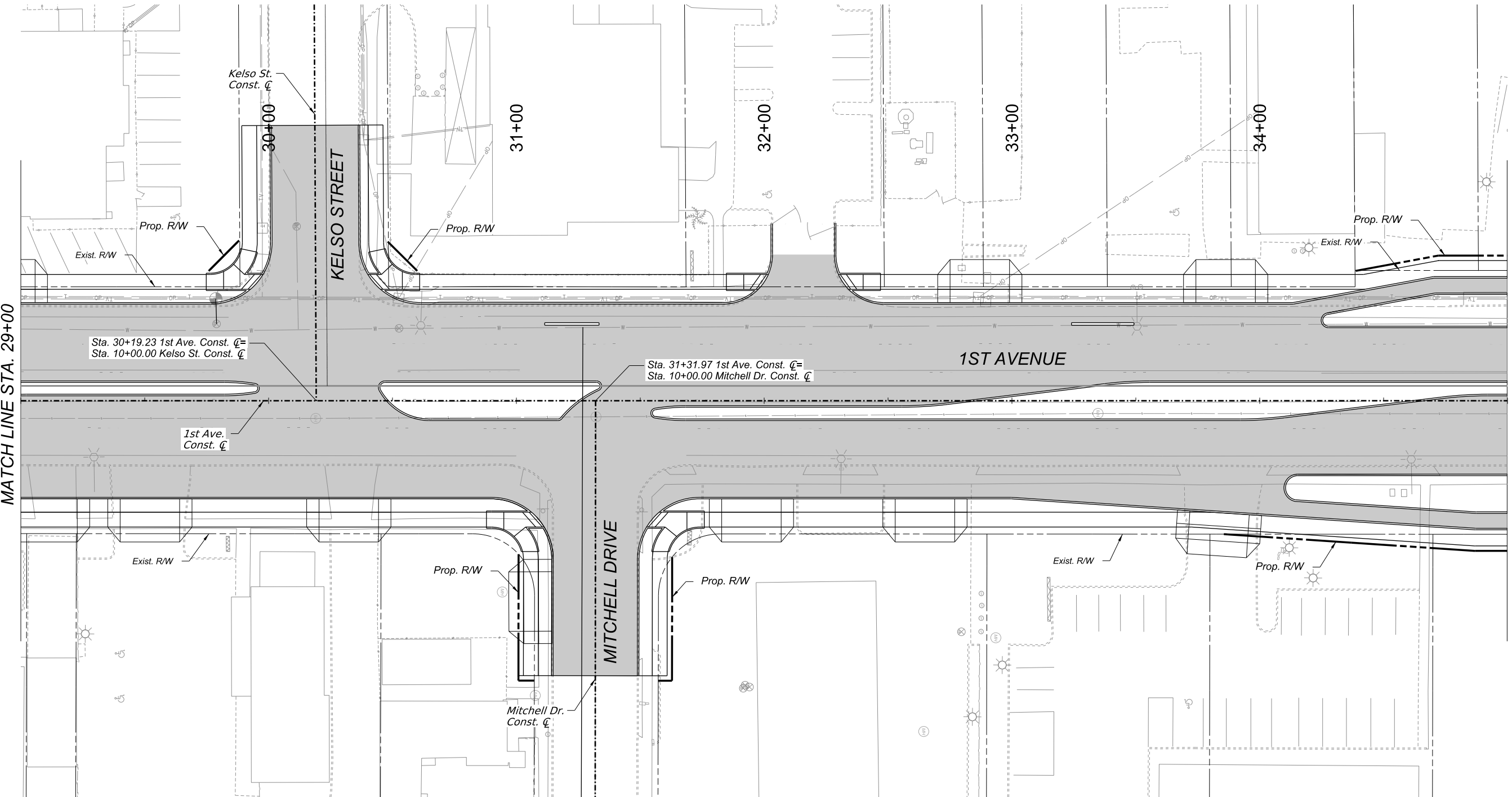
NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				21
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJL	SCALE: H: 1" = 20' V: 1" = 2'	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		



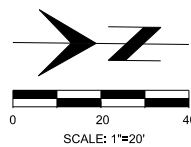
MATCH LINE STA. 29+00



MATCH LINE STA. 35+00

1st Ave 29+00 to 35+00  
PAVING PLAN

SHEET 7 OF 100

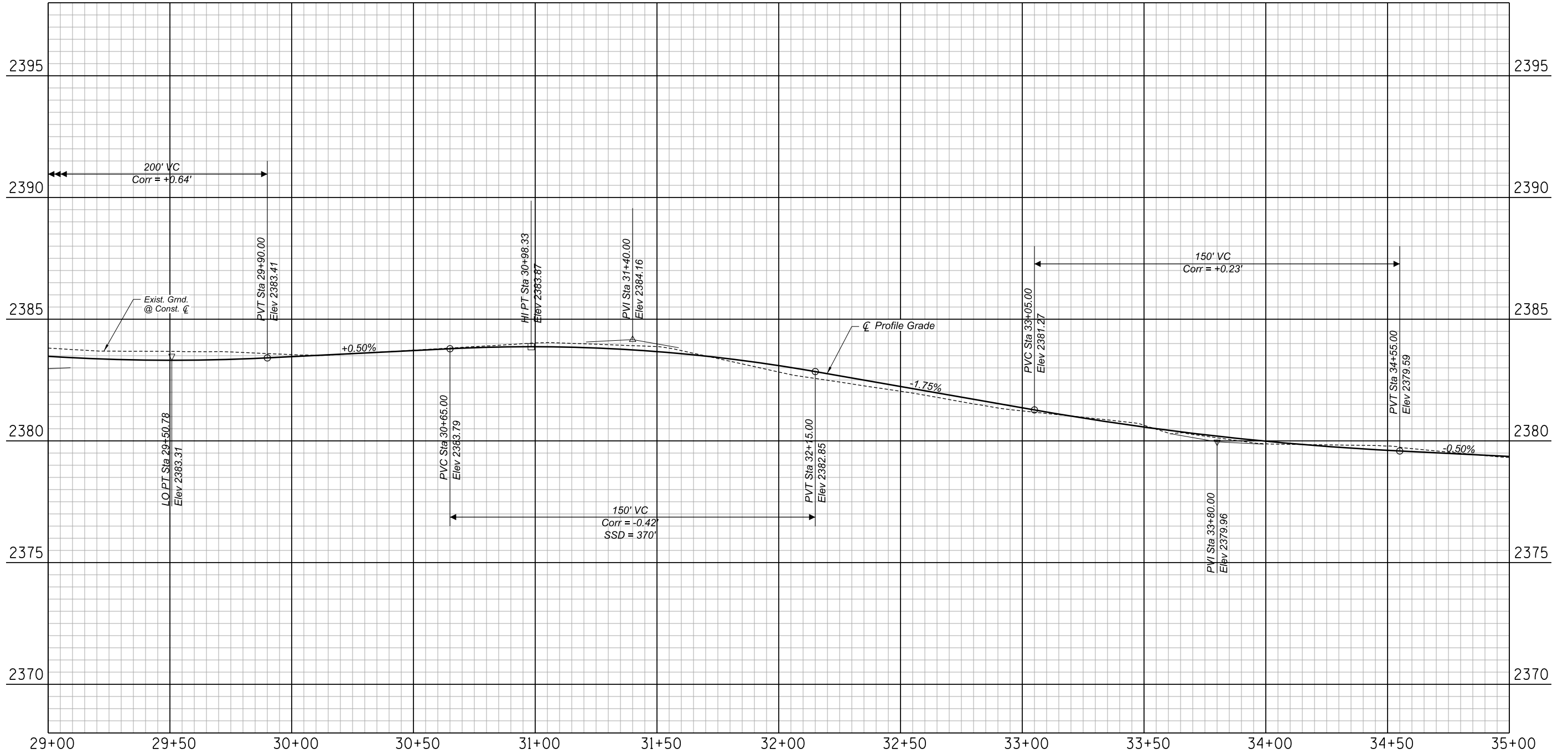


Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				22
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: 1"=20'	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		



1st Ave 29+00 to 35+00  
PAVING PROFILE

SHEET 8 OF 100

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION

1ST AVENUE, GRANT ROAD TO  
RIVER ROAD - ROADWAY IMPROVEMENTS

CITY OF TUCSON

DRWN. BY JAR    CHKD. BY JMF    APPR. BY BLK

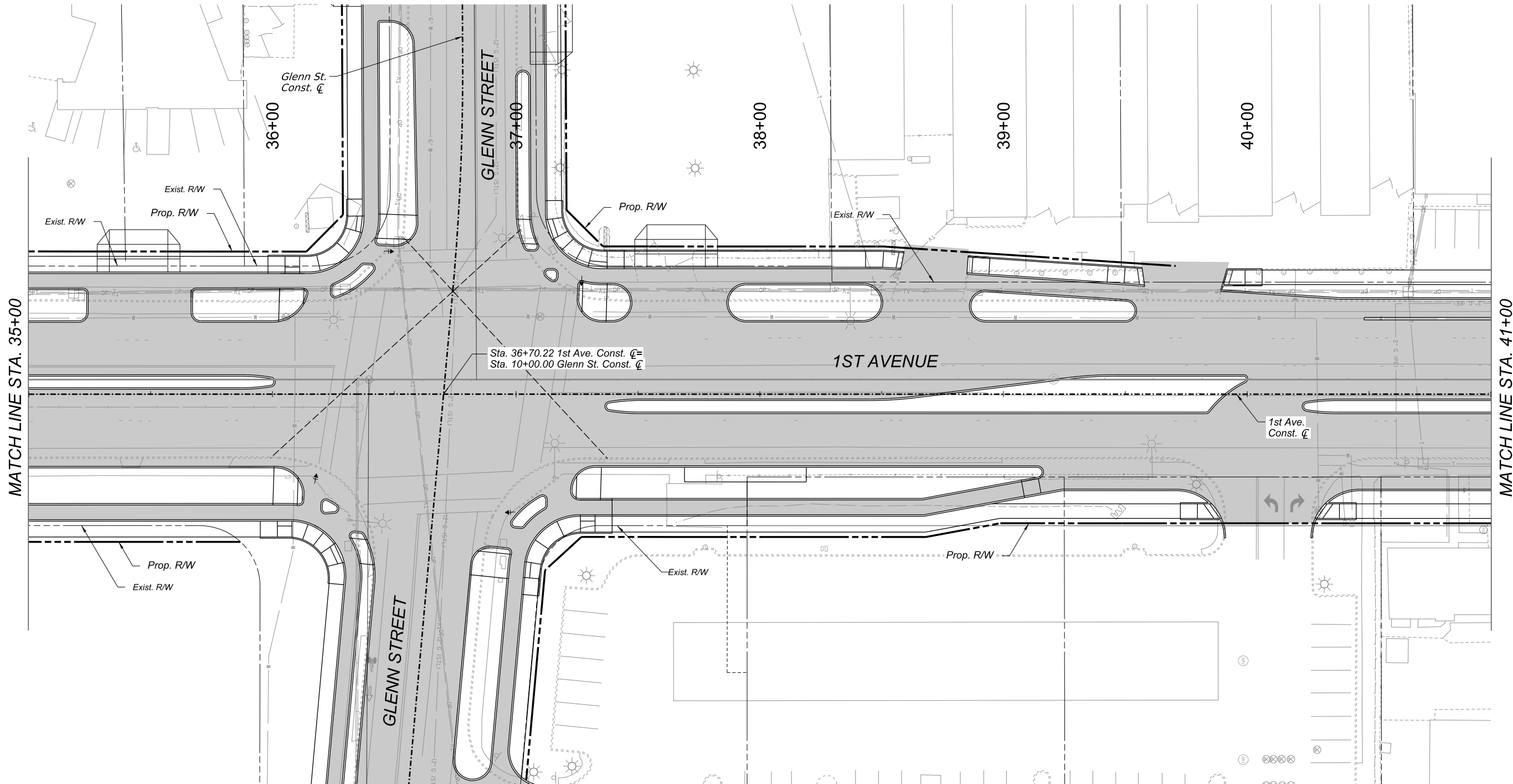
DEC 2025    DEC 2025    DEC 2025

SCALE: H: 1" = 20'    V: 1" = 2'

PLAN NO. R-2024-XXX

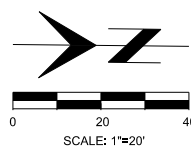
23 OF 128





1st Ave 35+00 to 41+00  
PAVING PLAN

SHEET 9 OF 100

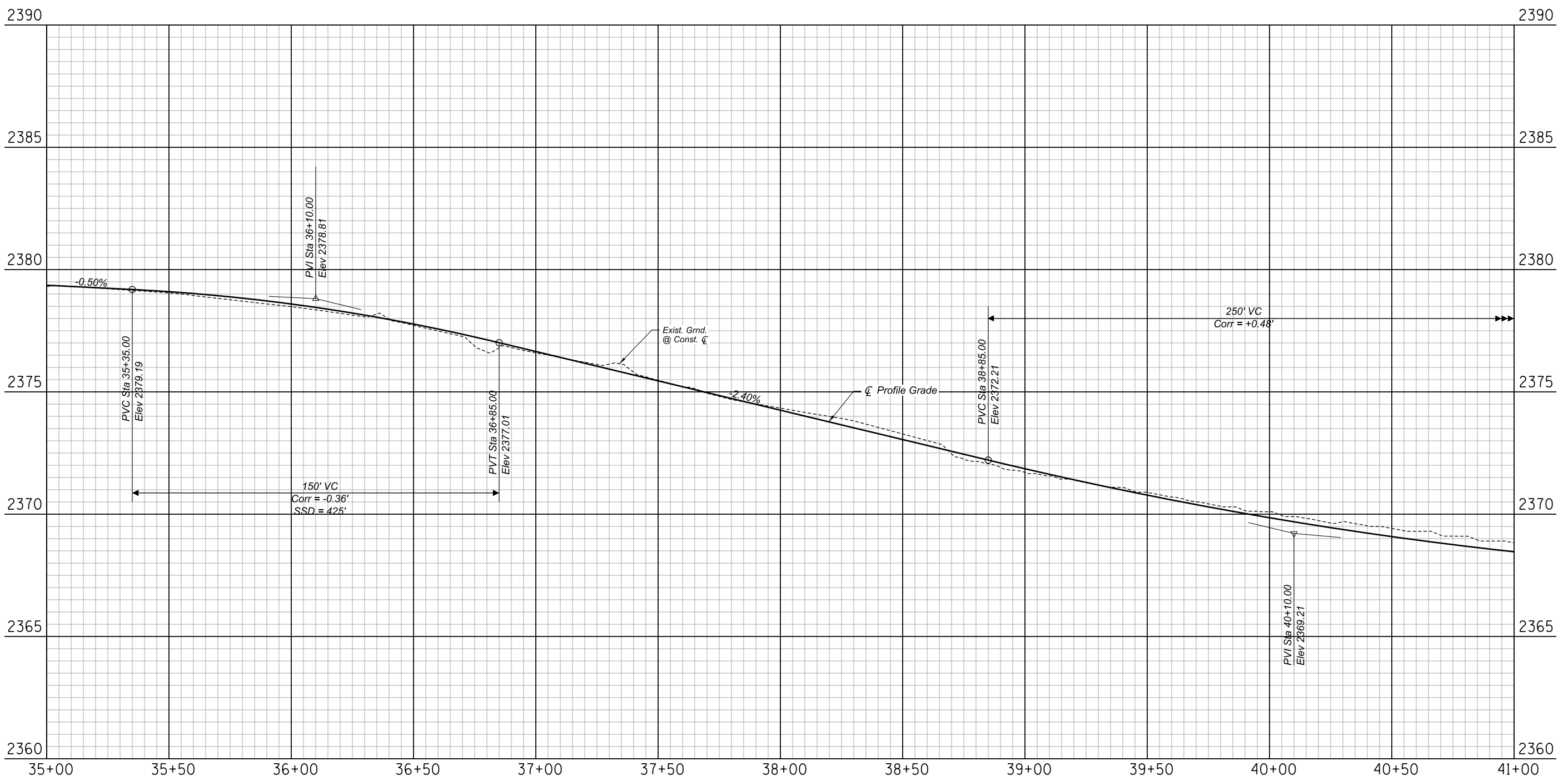


Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				24
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY: JAR	CHKD. BY: JMF	APPR. BY: BLK	SCALE: 1"=20'	
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	



1st Ave 35+00 to 41+00  
PAVING PROFILE

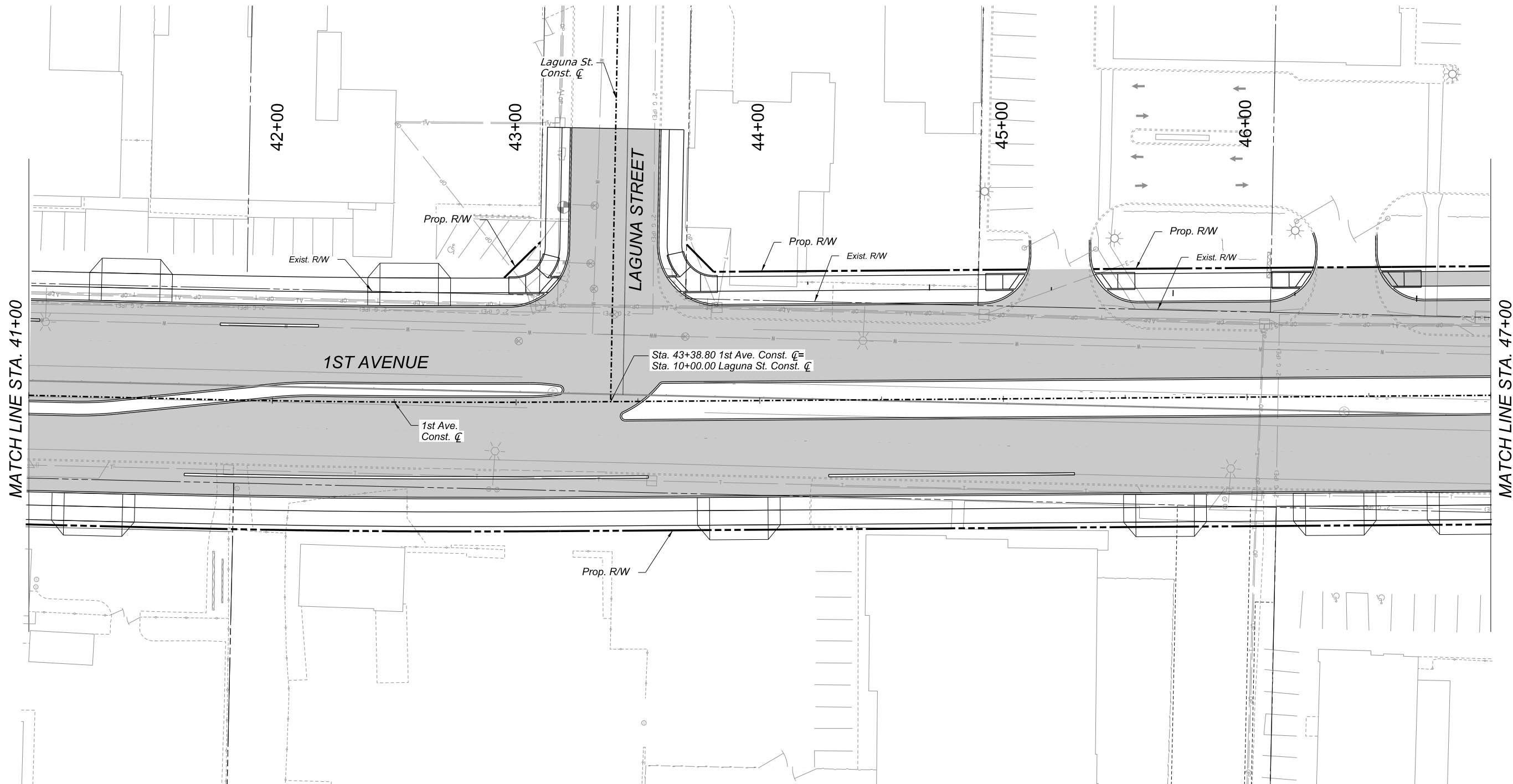
SHEET 10 OF 100

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

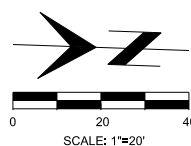
DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				25
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJK	SCALE: H: 1" = 20' V: 1" = 2'	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		





1st Ave 41+00 to 47+00  
PAVING PLAN

SHEET 11 OF 100



Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION

1ST AVENUE, GRANT ROAD TO  
RIVER ROAD - ROADWAY IMPROVEMENTS



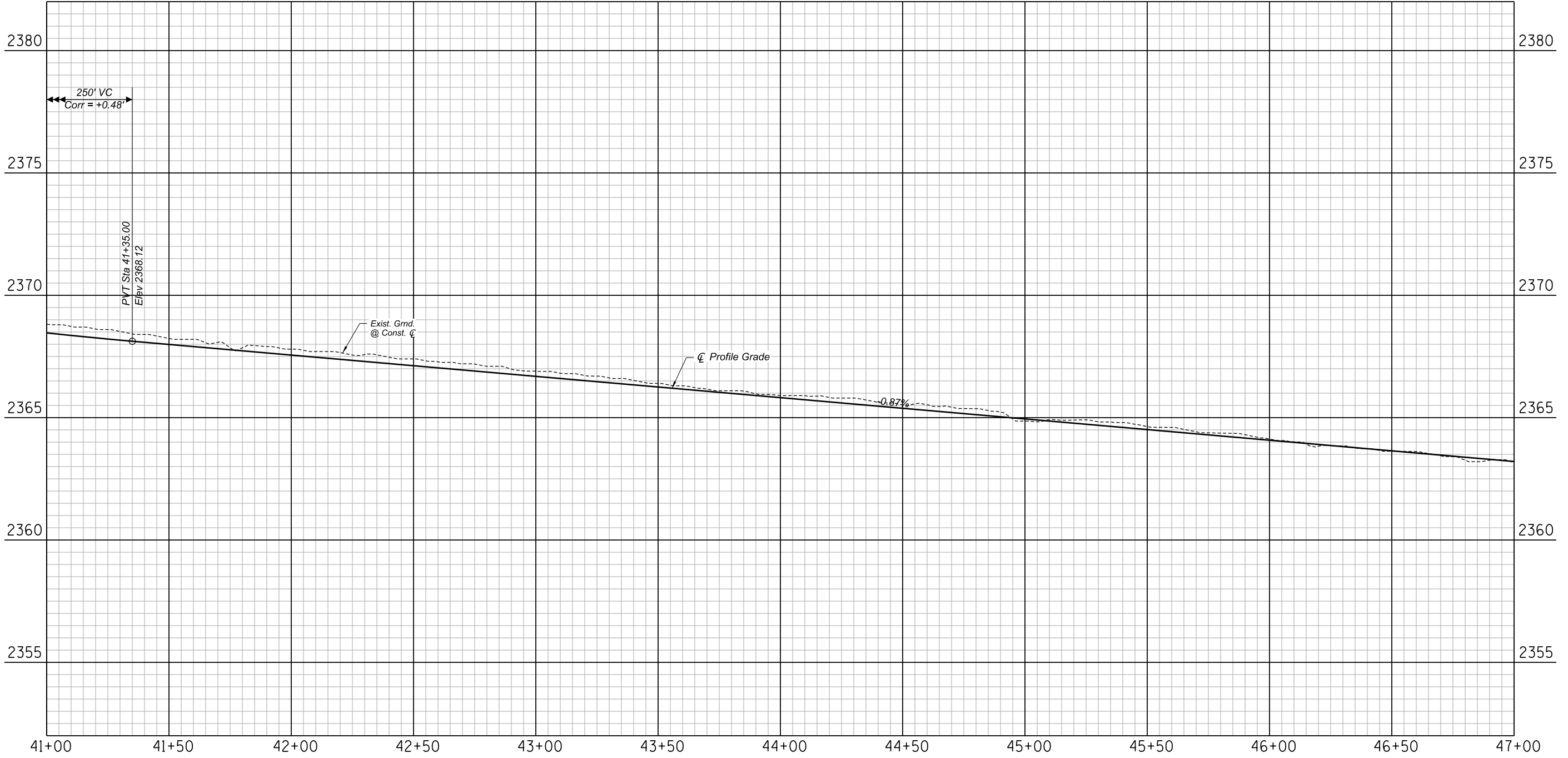
DRWN. BY JAR  
DEC 2025

CHKD. BY JMF  
DEC 2025

APPR. BY BLK  
DEC 2025

SCALE: 1"=20'  
PLAN NO. R-2024-XXX

26  
OF  
128



1st Ave 41+00 to 47+00  
PAVING PROFILE

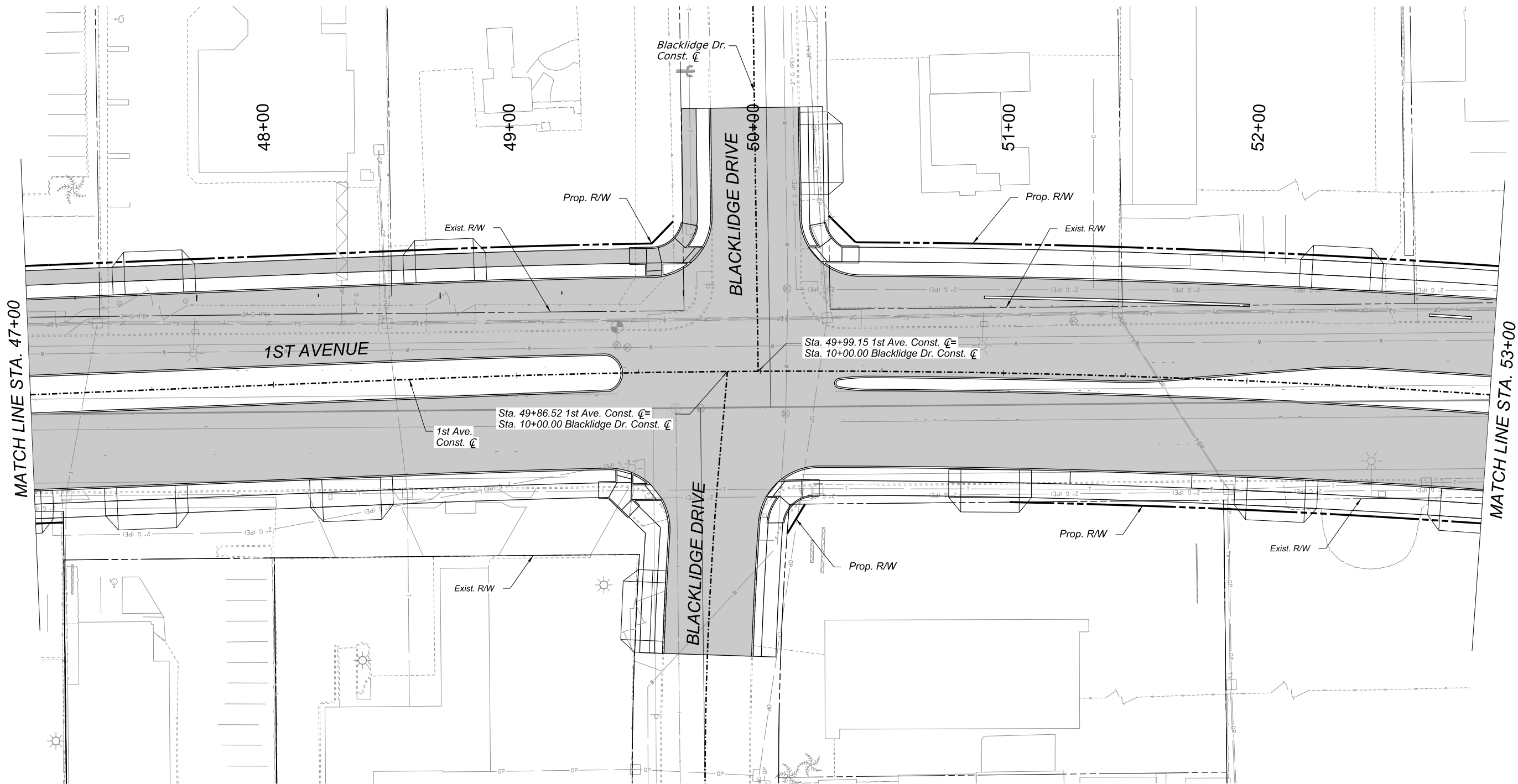
SHEET 12 OF 100

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

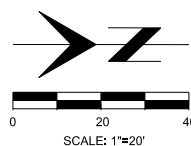
DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				27
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJL	SCALE: H: 1" = 20' V: 1" = 2'	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		





1st Ave 47+00 to 53+00  
PAVING PLAN

SHEET 13 OF 100

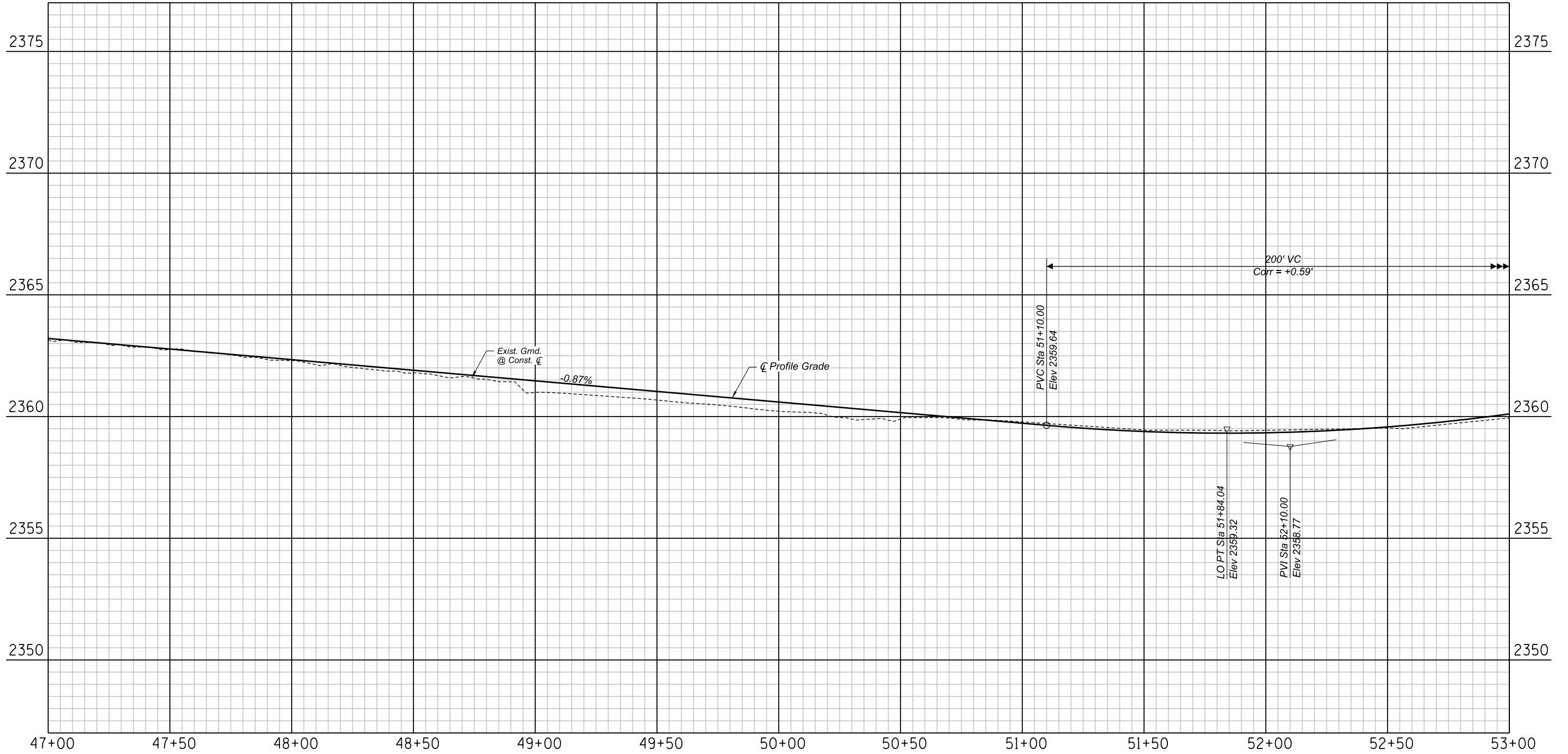


Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				28
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: 1"=20'	
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	



1st Ave 47+00 to 53+00  
PAVING PROFILE

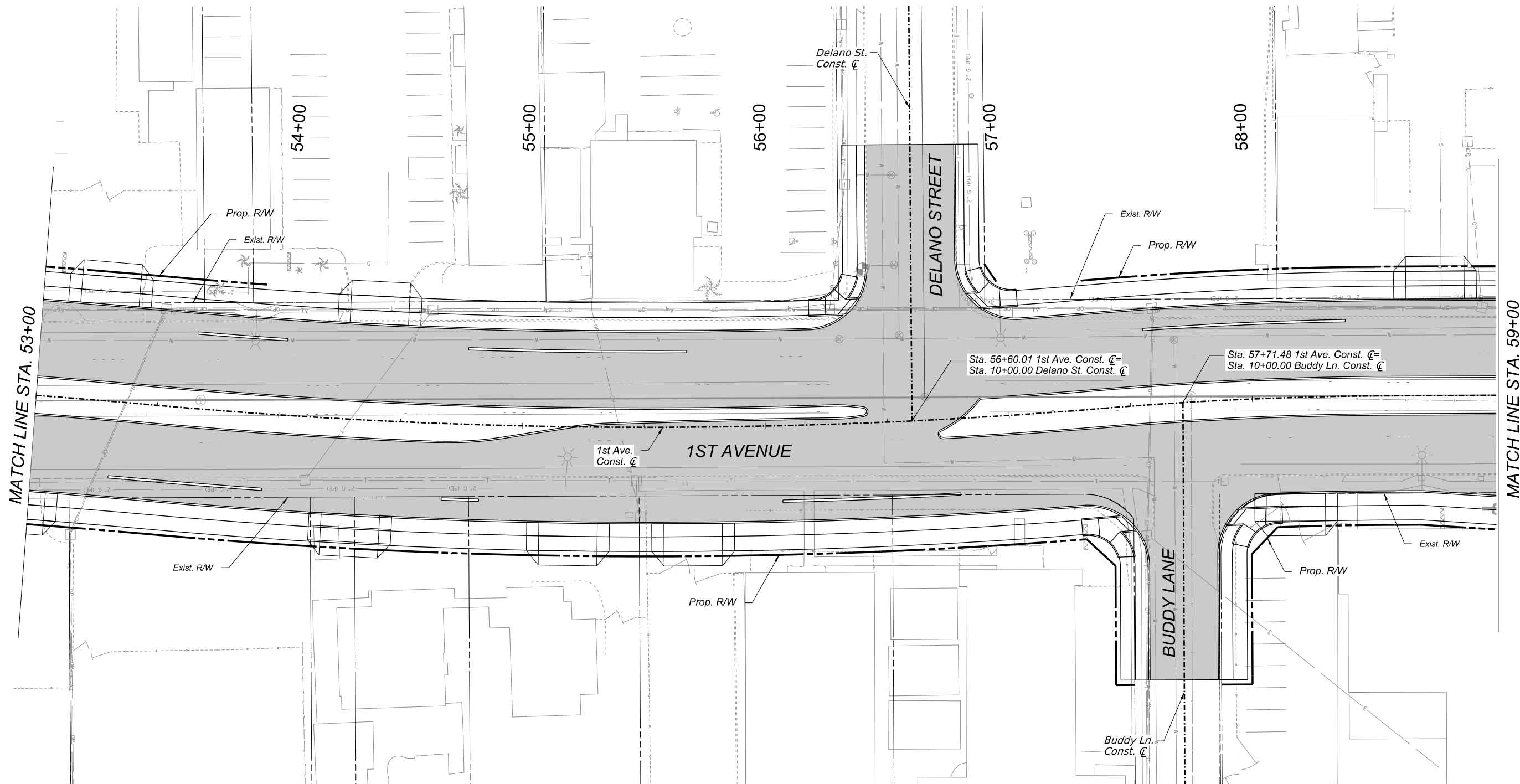
SHEET 14 OF 100

NO.	DATE	REVISION	BY	CHKD.	APPR.

15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				29
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN BY JAR	CHKD BY JMF	APPR BY BJK	SCALE: H: 1" = 20' V: 1" = 2'	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		



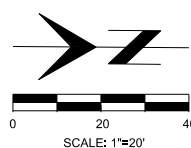


MATCH LINE STA. 53+00

MATCH LINE STA. 59+00

1st Ave 53+00 to 59+00  
PAVING PLAN

SHEET 15 OF 100



Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION

1ST AVENUE, GRANT ROAD TO  
RIVER ROAD - ROADWAY IMPROVEMENTS

30  
OF  
128

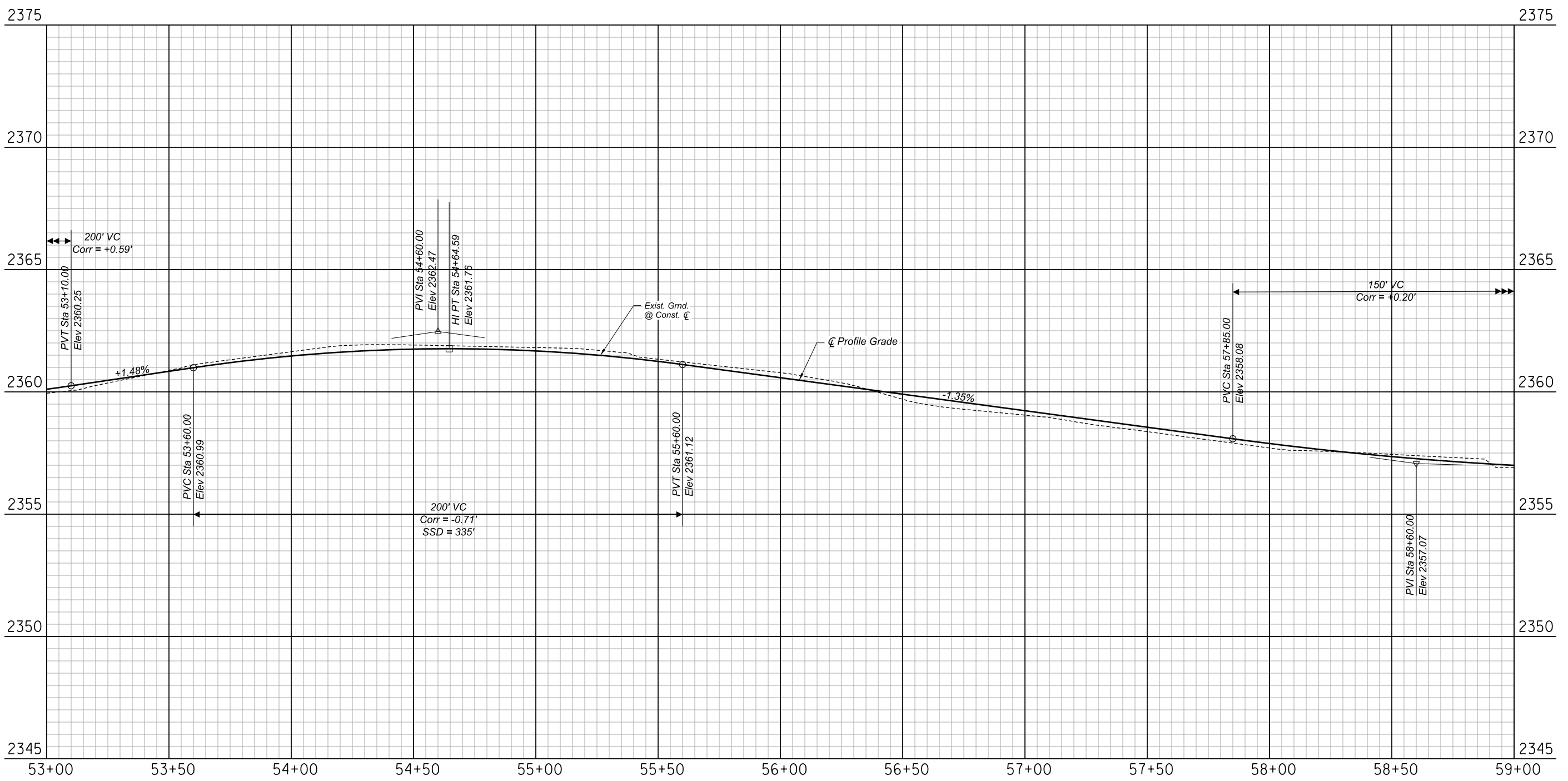


DRWN. BY JAR  
DEC 2025

CHKD. BY JMF  
DEC 2025

APPR. BY BLK  
DEC 2025

SCALE: H: 1"=20'  
PLAN NO. R-2024-XXX



1st Ave 53+00 to 59+00  
PAVING PROFILE

SHEET 16 OF 100

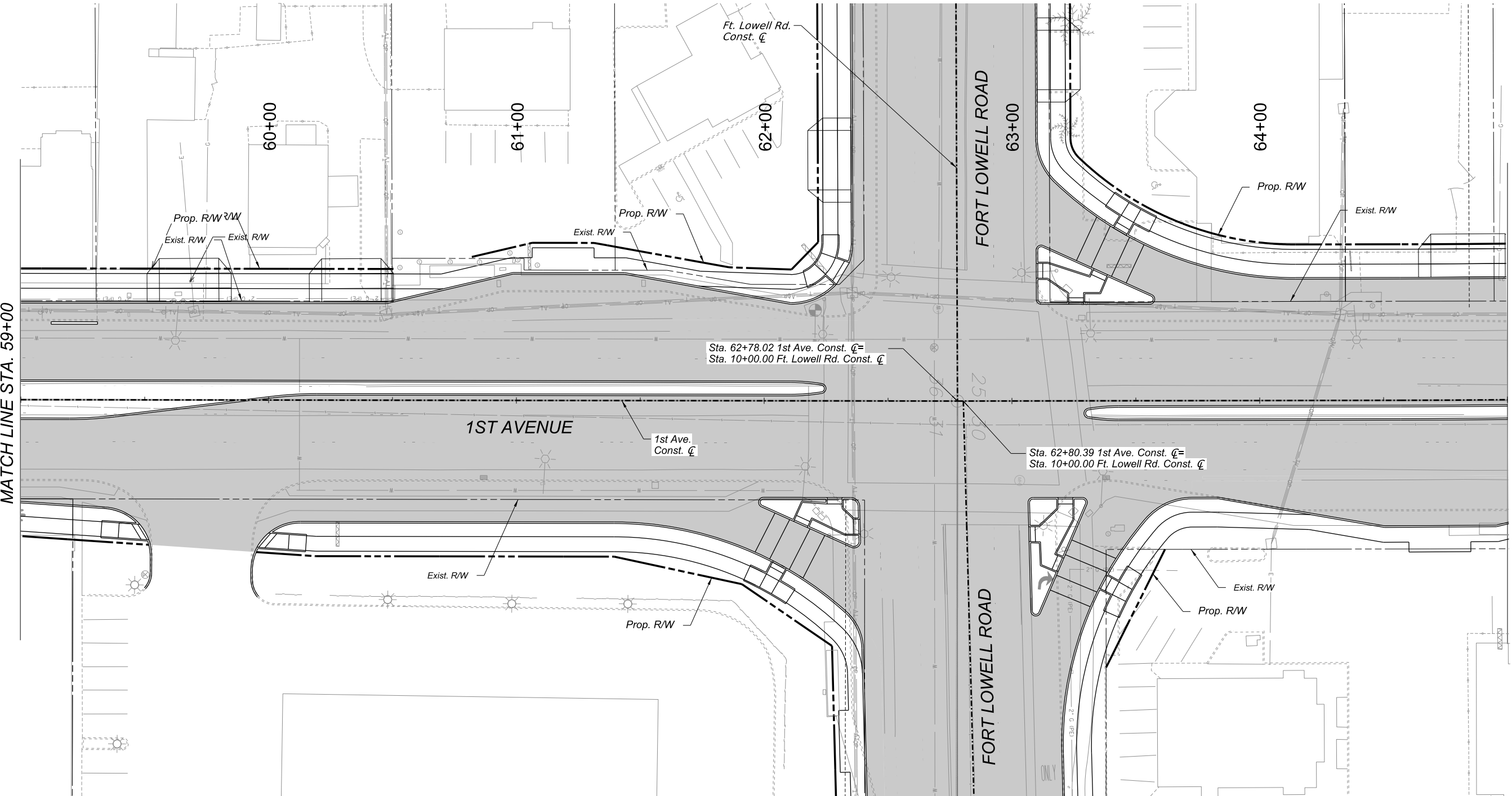
NO.	DATE	REVISION	BY	CHKD.	APPR.

15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				31
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJL	SCALE: H: 1" = 20' V: 1" = 2'	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		



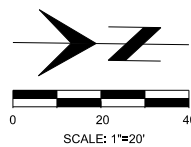
MATCH LINE STA. 59+00



MATCH LINE STA. 65+00

1st Ave 59+00 to 65+00  
PAVING PLAN

SHEET 17 OF 100

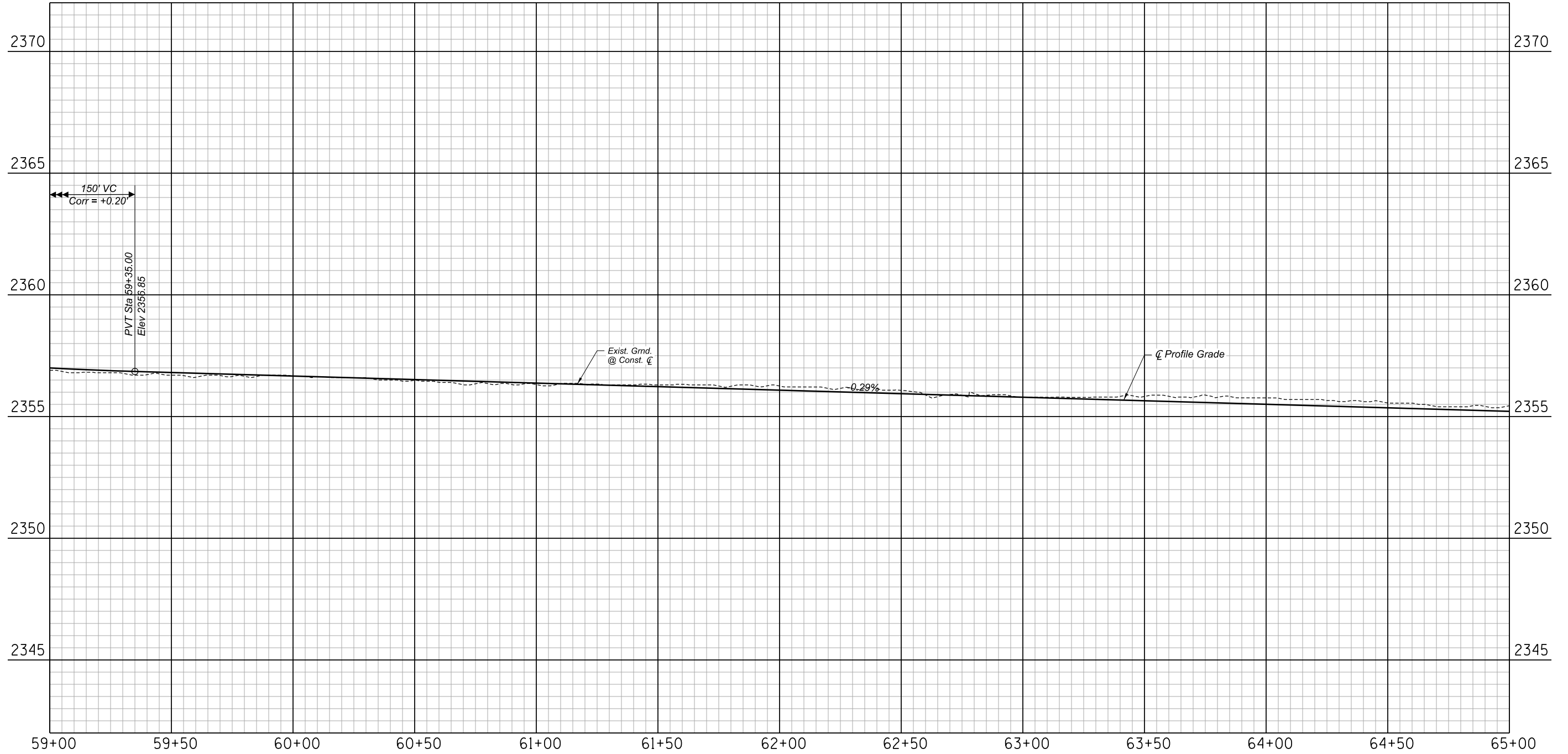


Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				32
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: 1"=20'	
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	



1st Ave 59+00 to 65+00  
PAVING PROFILE

SHEET 18 OF 100

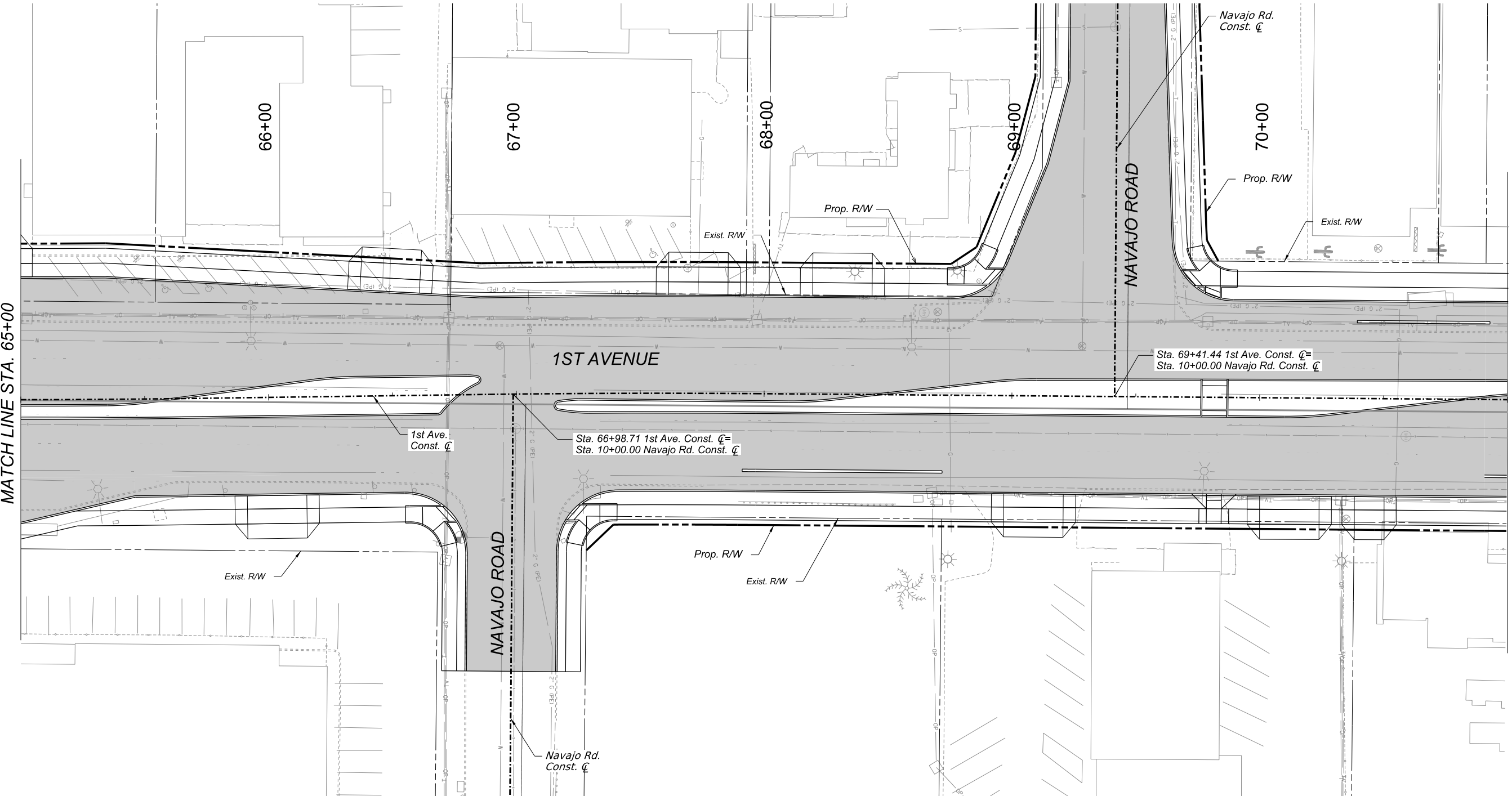
NO.	DATE	REVISION	BY	CHKD.	APPR.

15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION			33
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS			OF
CITY OF TUCSON			128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJL	SCALE: H: 1" = 20' V: 1" = 2'
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX



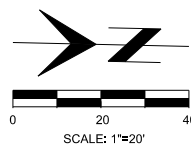
MATCH LINE STA. 65+00



MATCH LINE STA. 71+00

1st Ave 65+00 to 71+00  
PAVING PLAN

SHEET 19 OF 100



Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION

1ST AVENUE, GRANT ROAD TO  
RIVER ROAD - ROADWAY IMPROVEMENTS



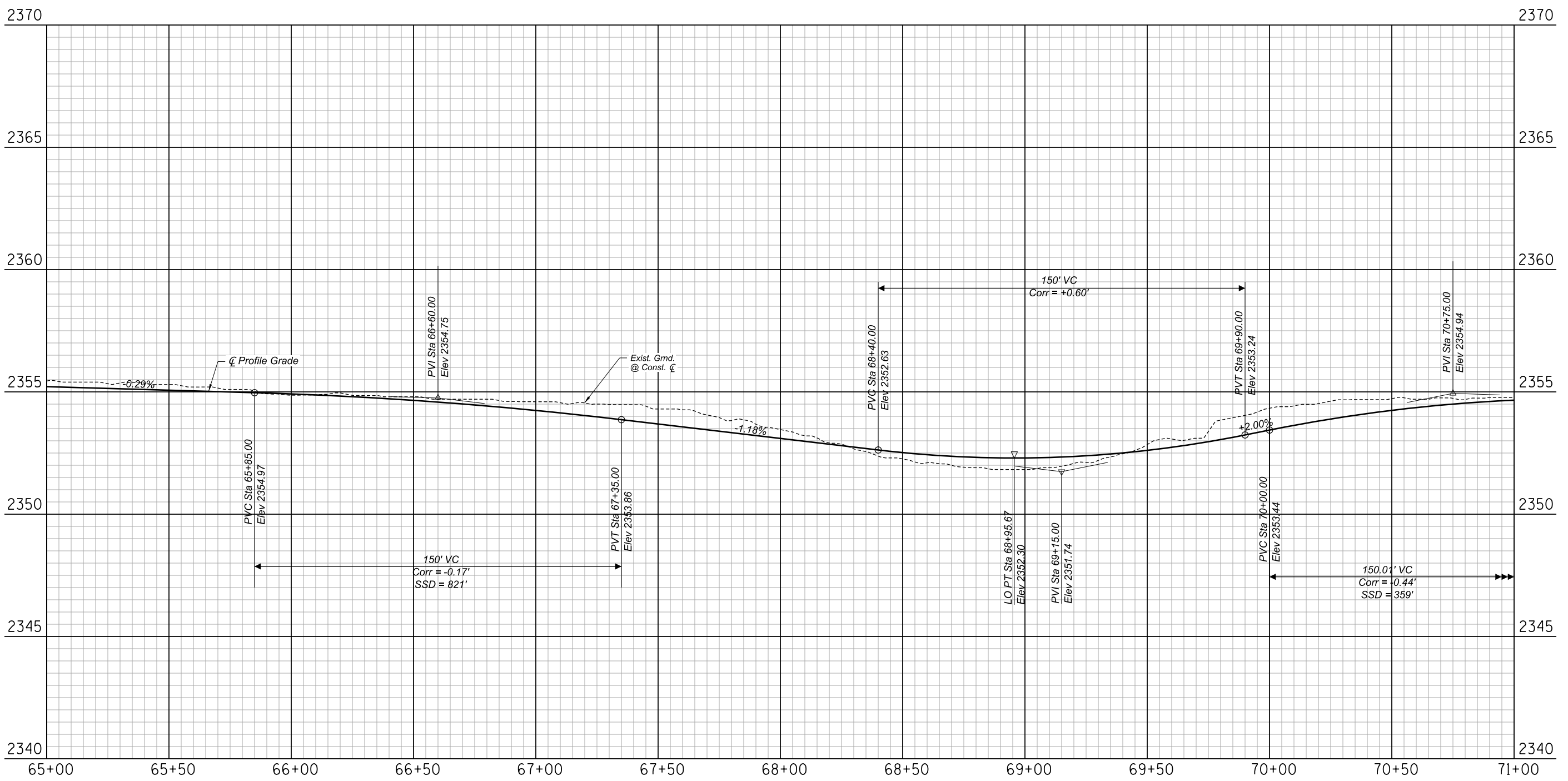
DRWN. BY JAR  
DEC 2025

CHKD. BY JMF  
DEC 2025

APPR. BY BLK  
DEC 2025

SCALE: H: 1" = 20'  
PLAN NO. R-2024-XXX

34  
OF  
128



1st Ave 65+00 to 71+00  
PAVING PROFILE

SHEET 20 OF 100

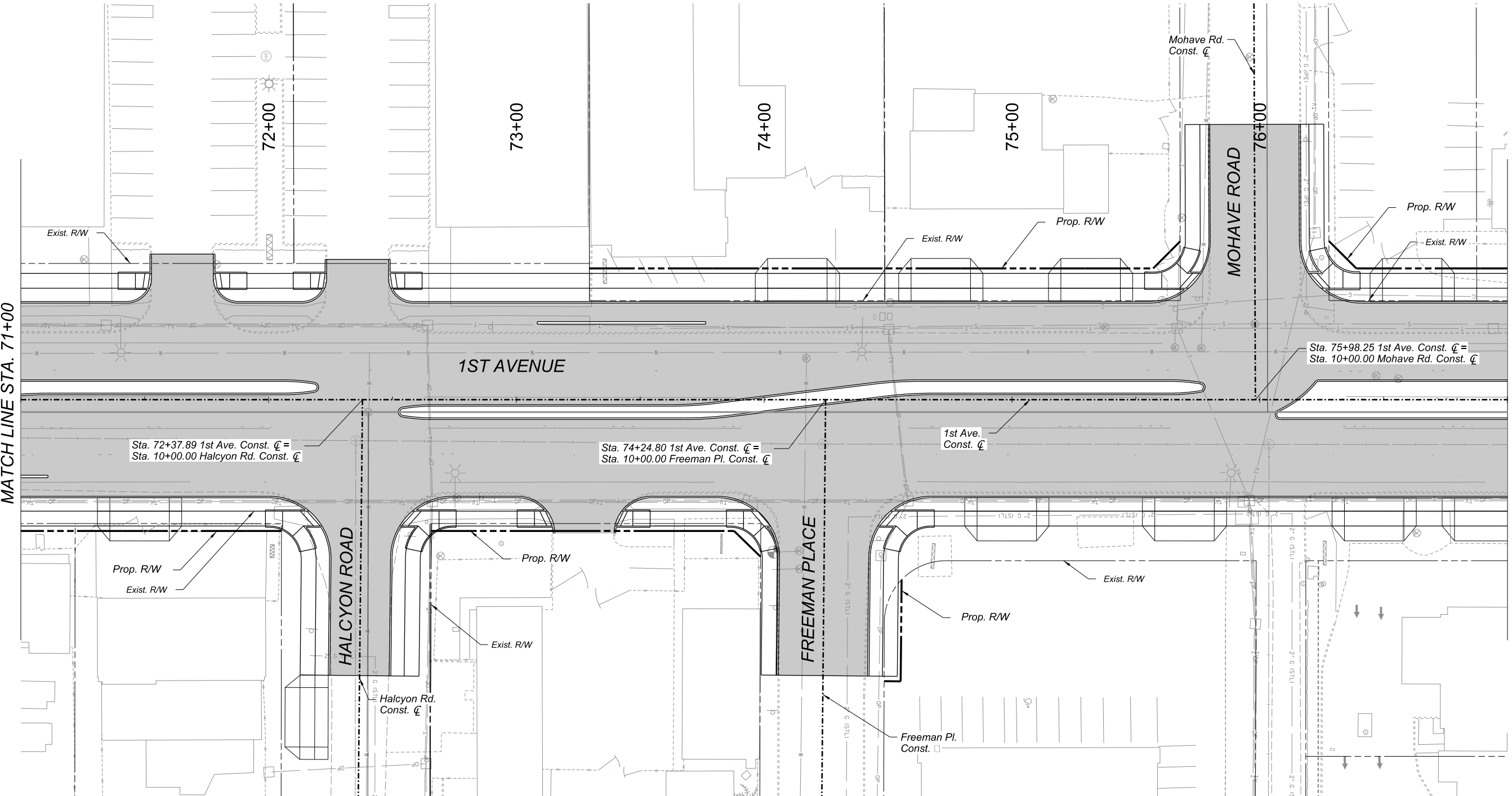
NO.	DATE	REVISION	BY	CHKD.	APPR.

15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				35
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJK	SCALE: H: 1" = 20' V: 1" = 2'	
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	



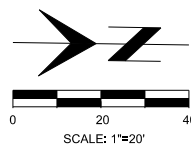
MATCH LINE STA. 71+00



MATCH LINE STA. 77+00

1st Ave 71+00 to 77+00  
PAVING PLAN

SHEET 21 OF 100

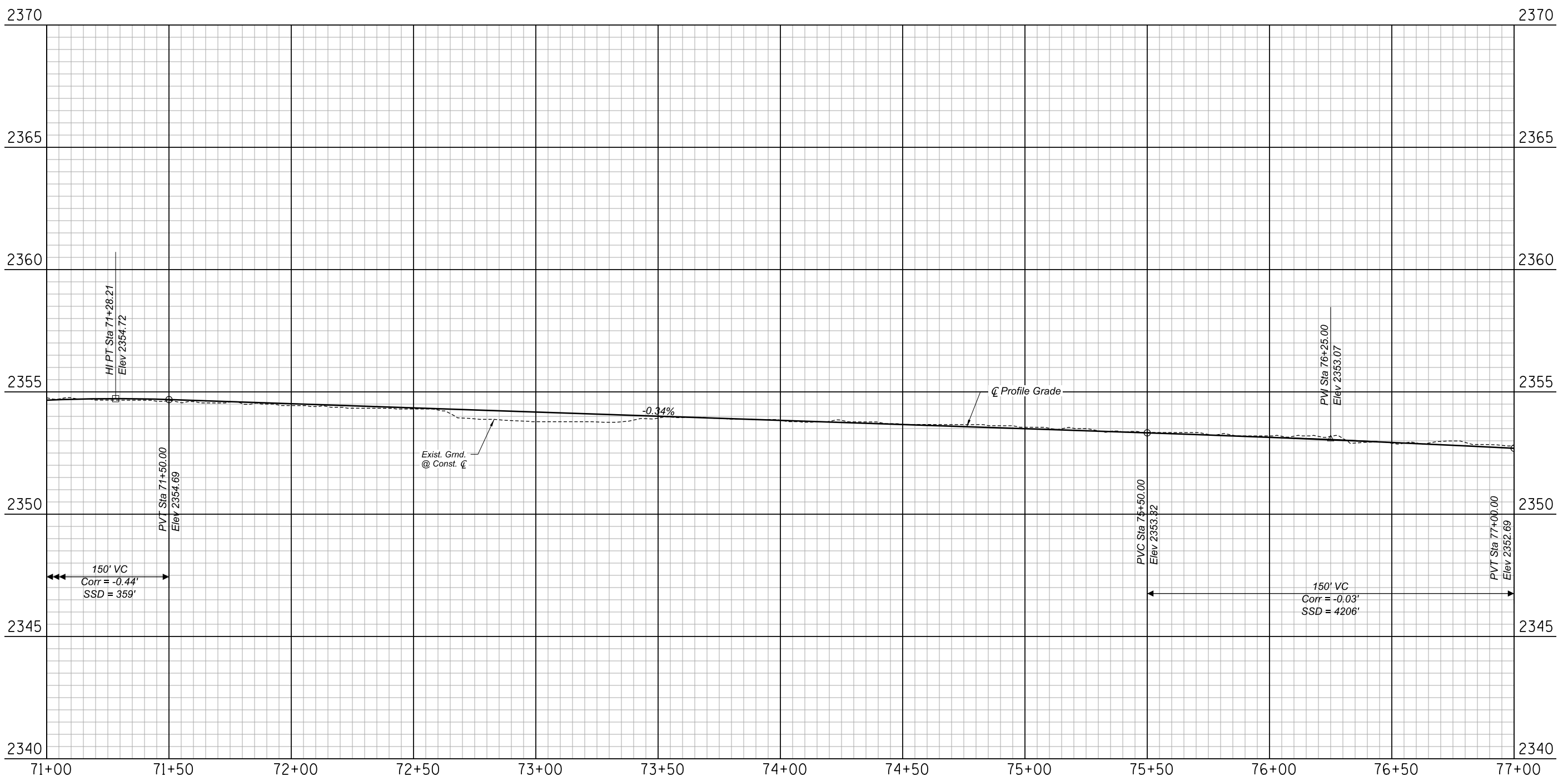


Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				36
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: 1"=20'	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		



1st Ave 71+00 to 77+00  
PAVING PROFILE

SHEET 22 OF 100

NO.	DATE	REVISION	BY	CHKD.	APPR.

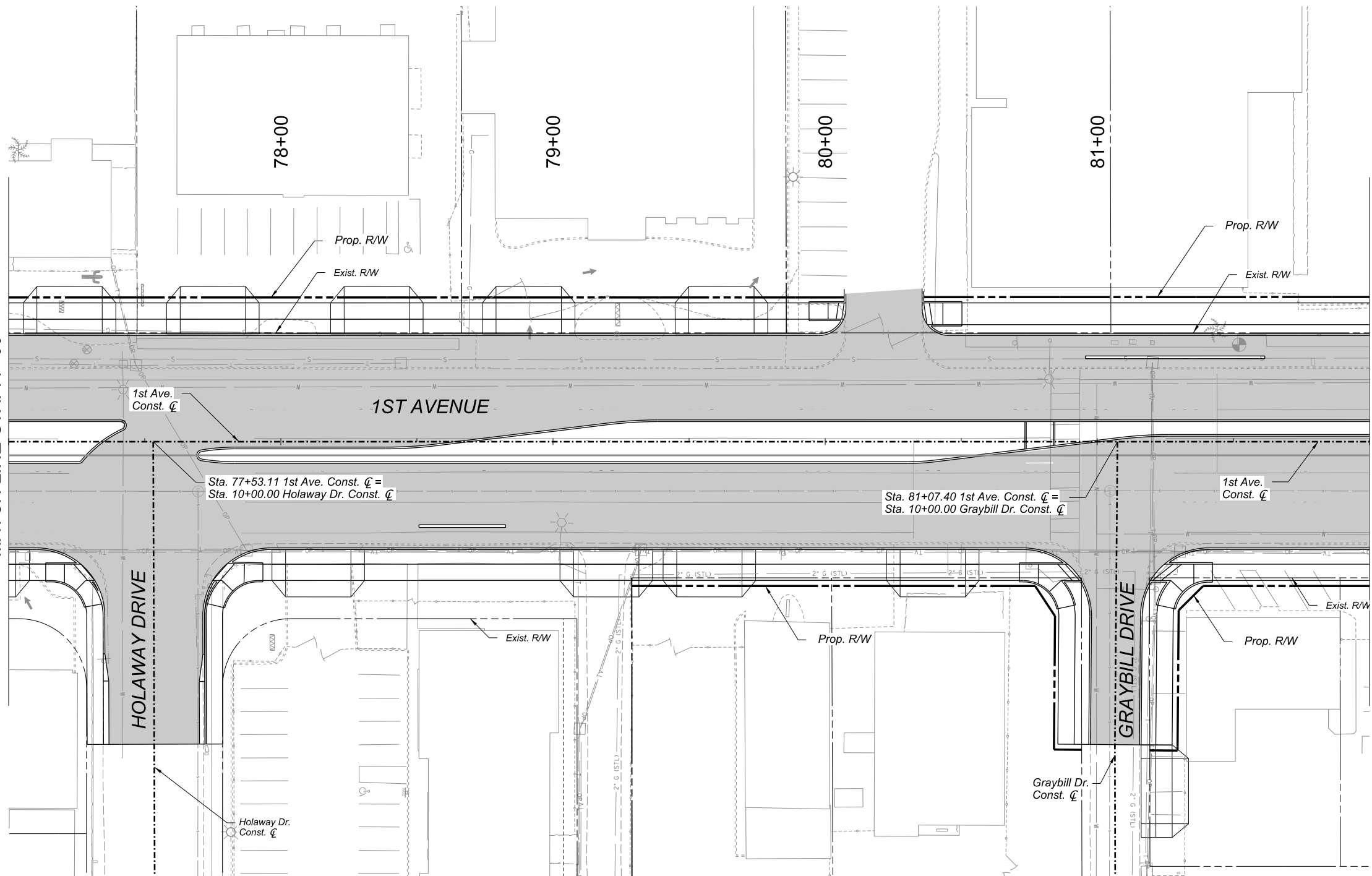
15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				37
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN BY JAR	CHKD BY JMF	APPR BY BJL	SCALE: H: 1" = 20' V: 1" = 2'	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		



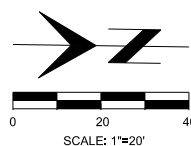
MATCH LINE STA. 77+00

MATCH LINE STA. 82+00



1st Ave 77+00 to 82+00  
PAVING PLAN

SHEET 23 OF 100

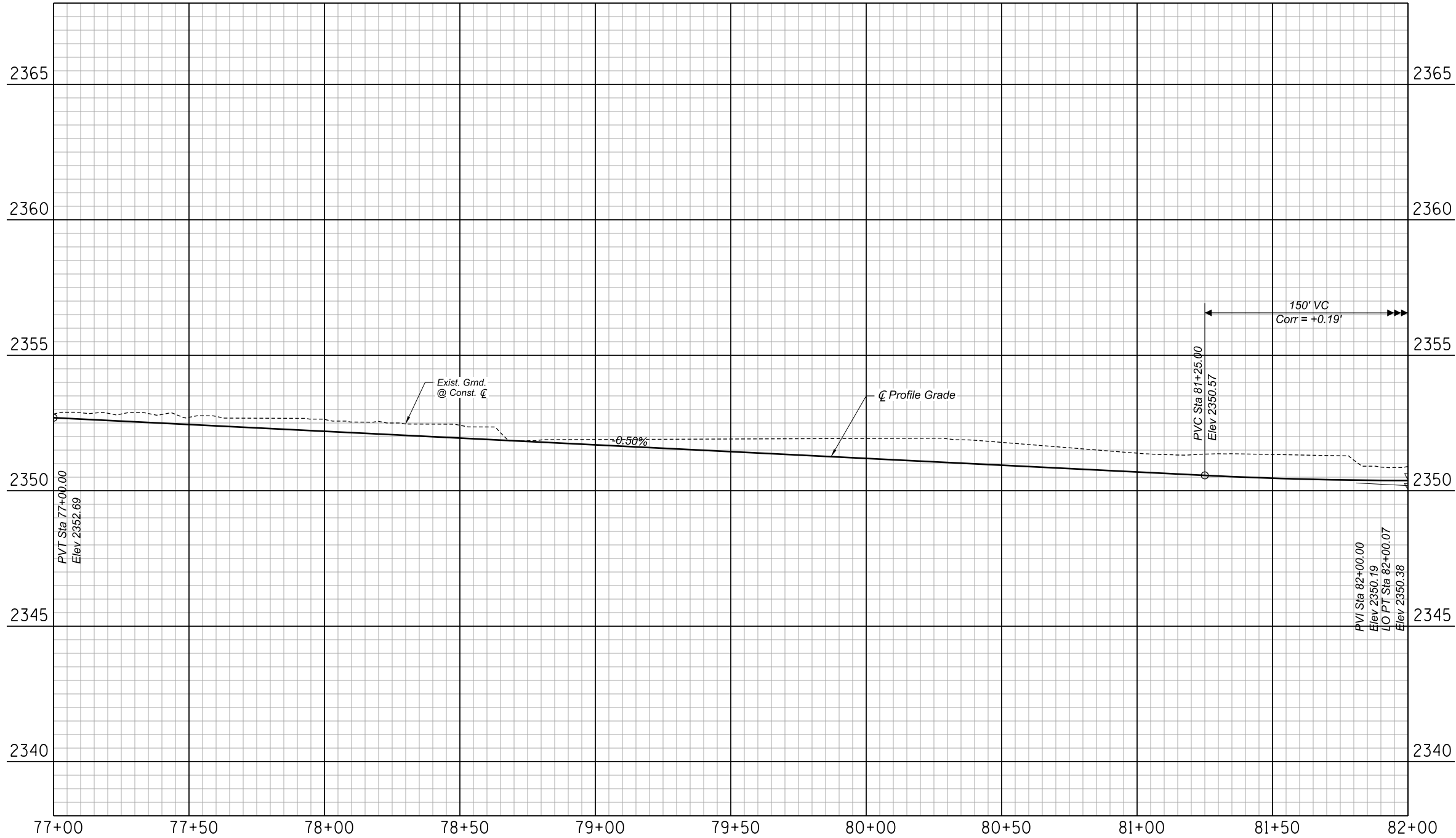


Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				38
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: 1"=20'	
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	



1st Ave 77+00 to 82+00  
PAVING PROFILE

SHEET 24 OF 100

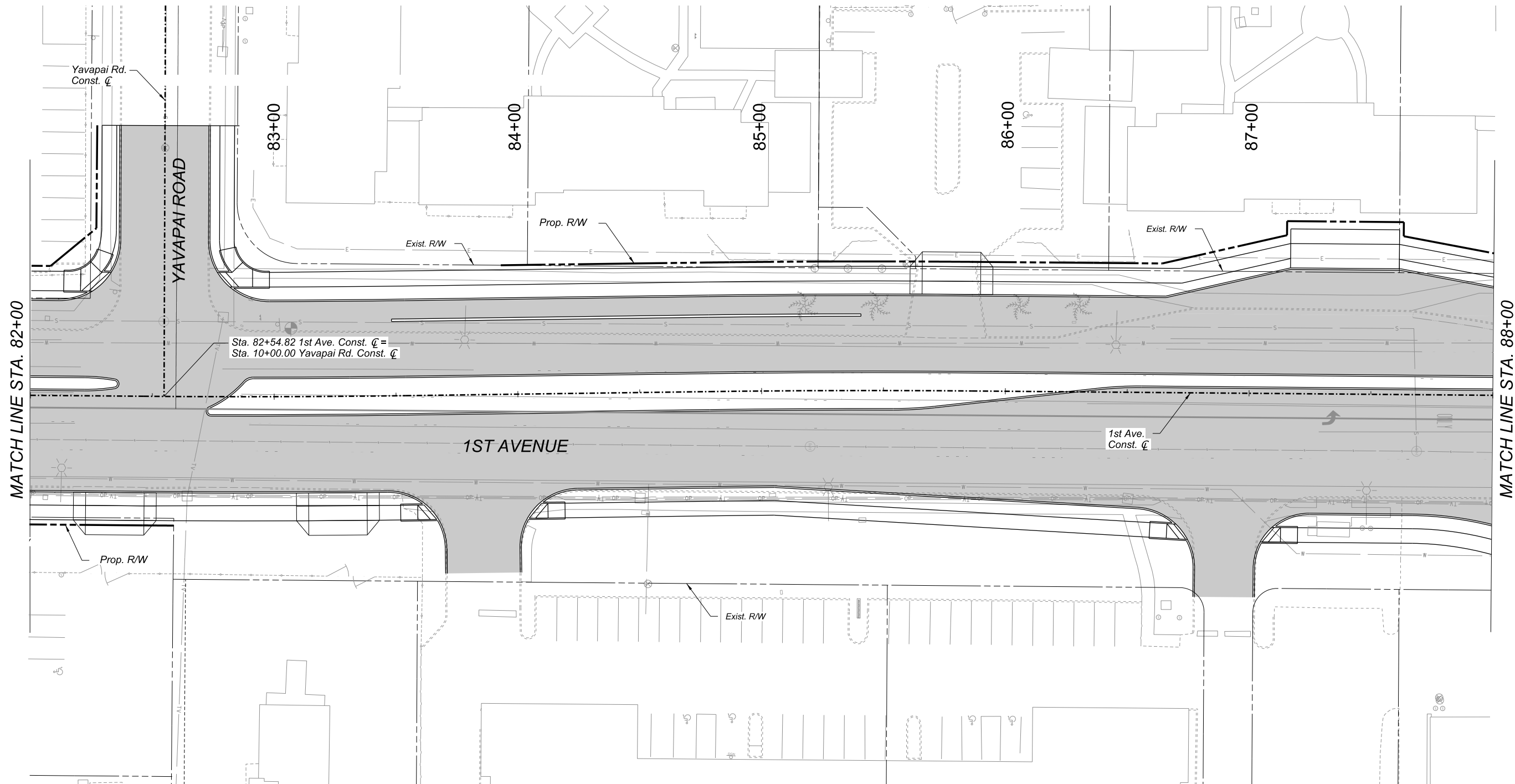
Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				39
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				128
	DRWN BY JAR DEC 2025	CHKD BY JMF DEC 2025	APPR BY BJL DEC 2025	SCALE: H: 1" = 20' V: 1" = 2'
PLAN NO. R-2024-XXX				



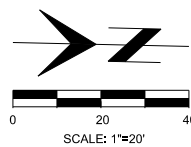


MATCH LINE STA. 82+00

MATCH LINE STA. 88+00

1st Ave 82+00 to 88+00  
PAVING PLAN

SHEET 25 OF 100



Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION

1ST AVENUE, GRANT ROAD TO  
RIVER ROAD - ROADWAY IMPROVEMENTS



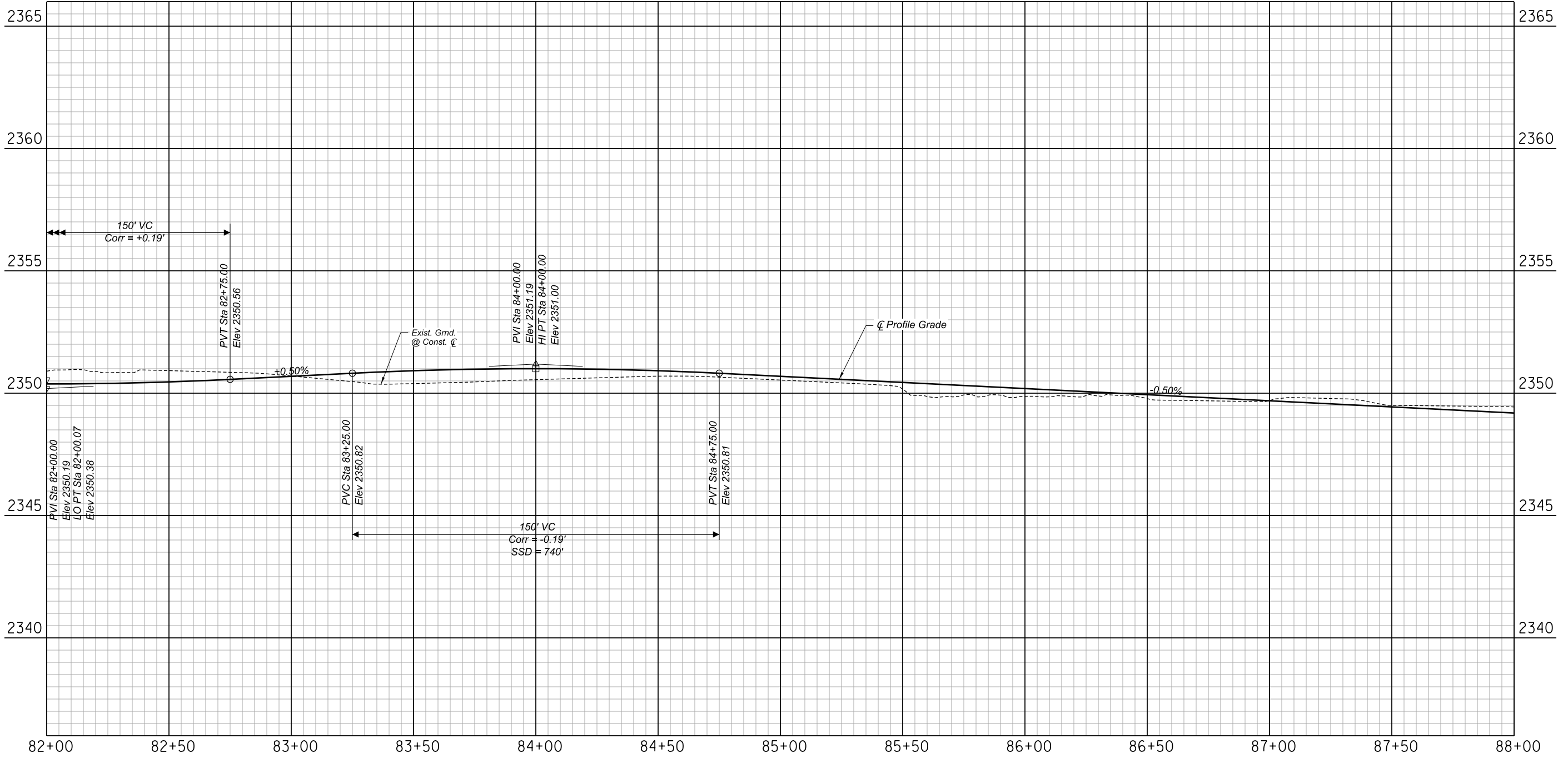
DRWN BY JAR  
DEC 2025

CHKD BY JMF  
DEC 2025

APPR BY BLK  
DEC 2025

SCALE: H: 1" = 20'  
PLAN NO. R-2024-XXX

40  
OF  
128



1st Ave 82+00 to 88+00  
PAVING PROFILE

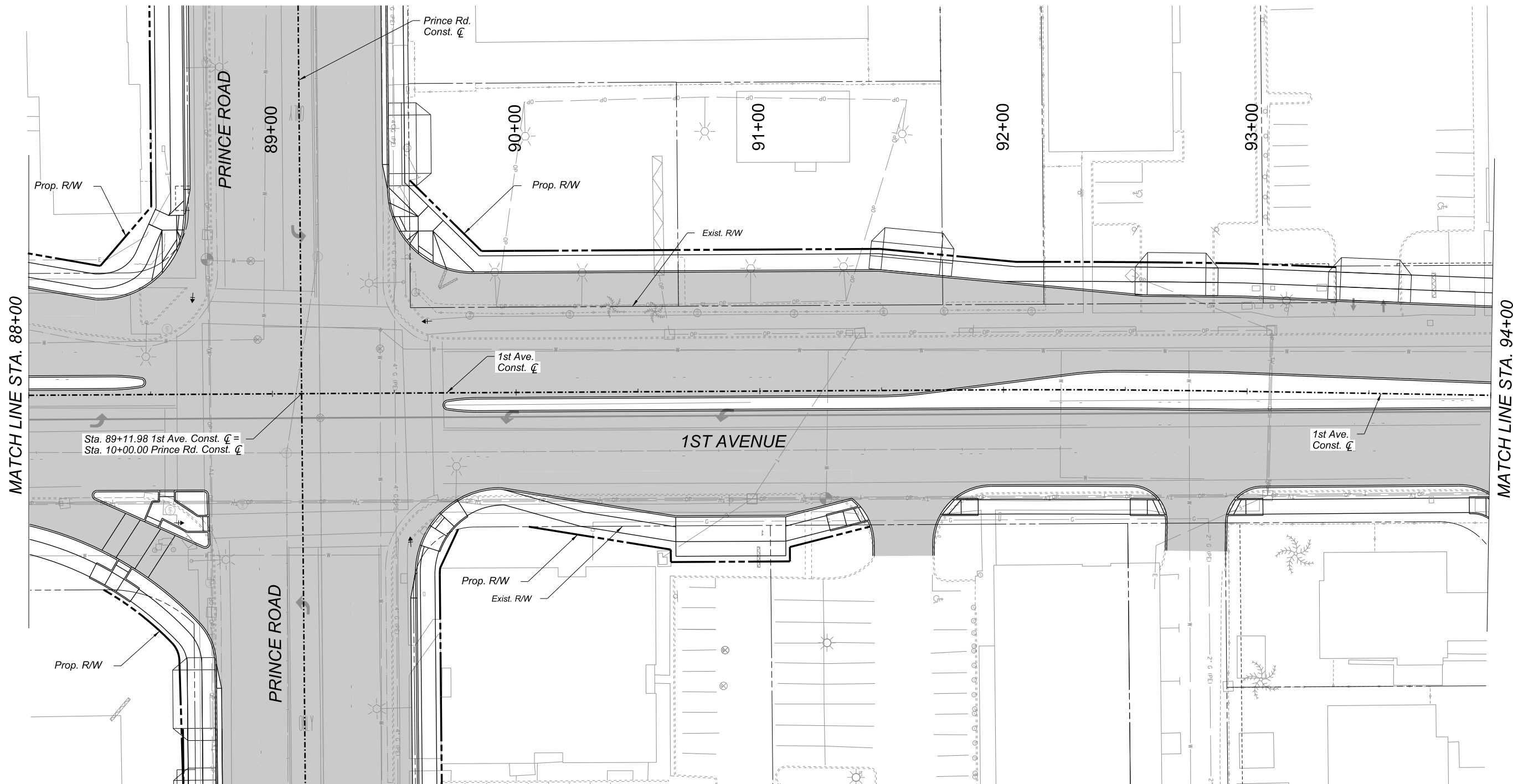
SHEET 26 OF 100

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION			41
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS			OF
CITY OF TUCSON			128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJK	SCALE: H: 1" = 20' V: 1" = 2'
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX



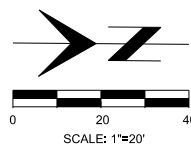


MATCH LINE STA. 88+00

MATCH LINE STA. 94+00

1st Ave 88+00 to 94+00  
PAVING PLAN

SHEET 27 OF 100



Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION

1ST AVENUE, GRANT ROAD TO  
RIVER ROAD - ROADWAY IMPROVEMENTS



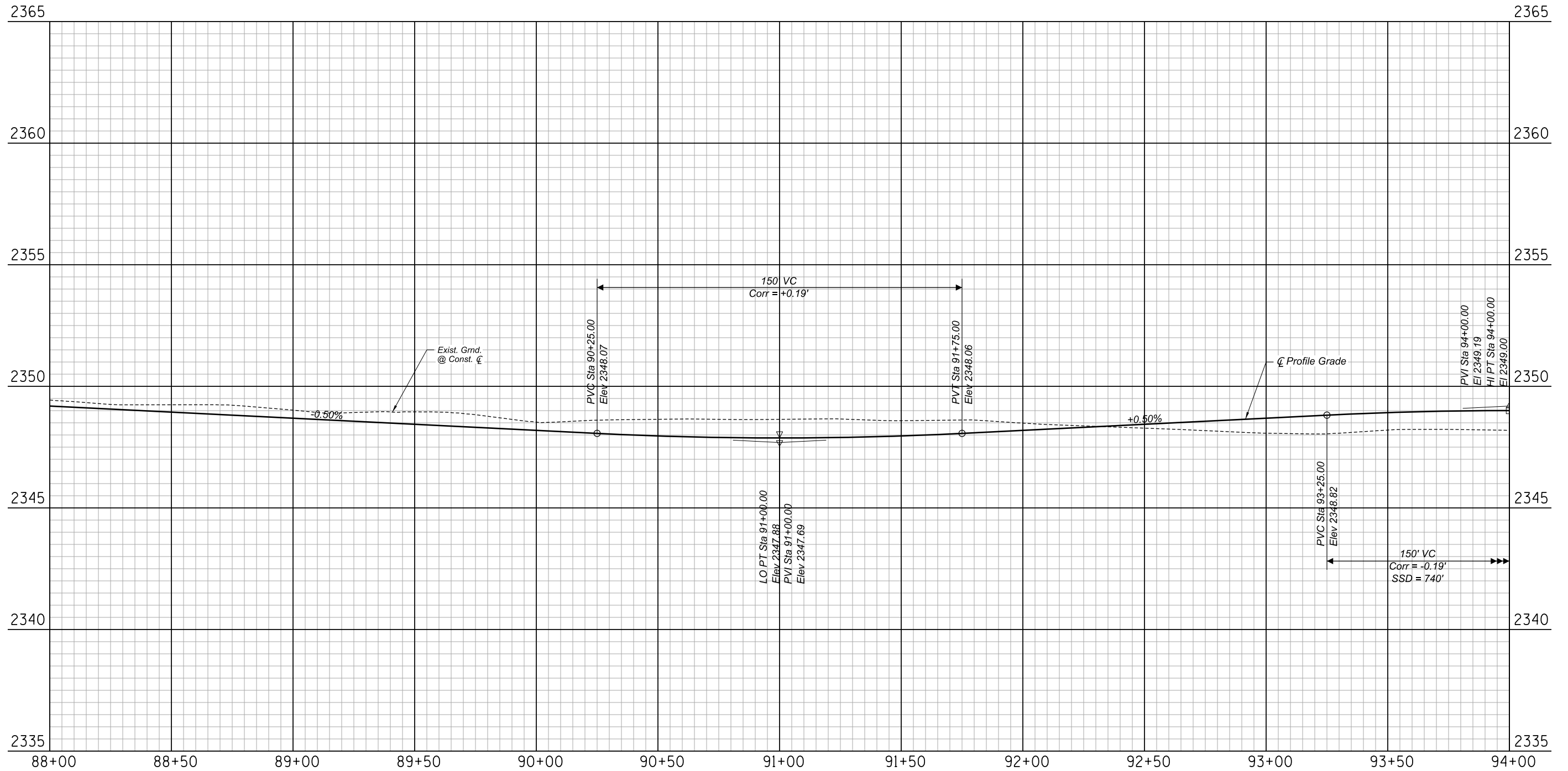
DRWN BY JAR  
DEC 2025

CHKD BY JMF  
DEC 2025

APPR BY BLK  
DEC 2025

SCALE: 1"=20'  
PLAN NO. R-2024-XXX

42  
OF  
128



1st Ave 88+00 to 94+00  
PAVING PROFILE

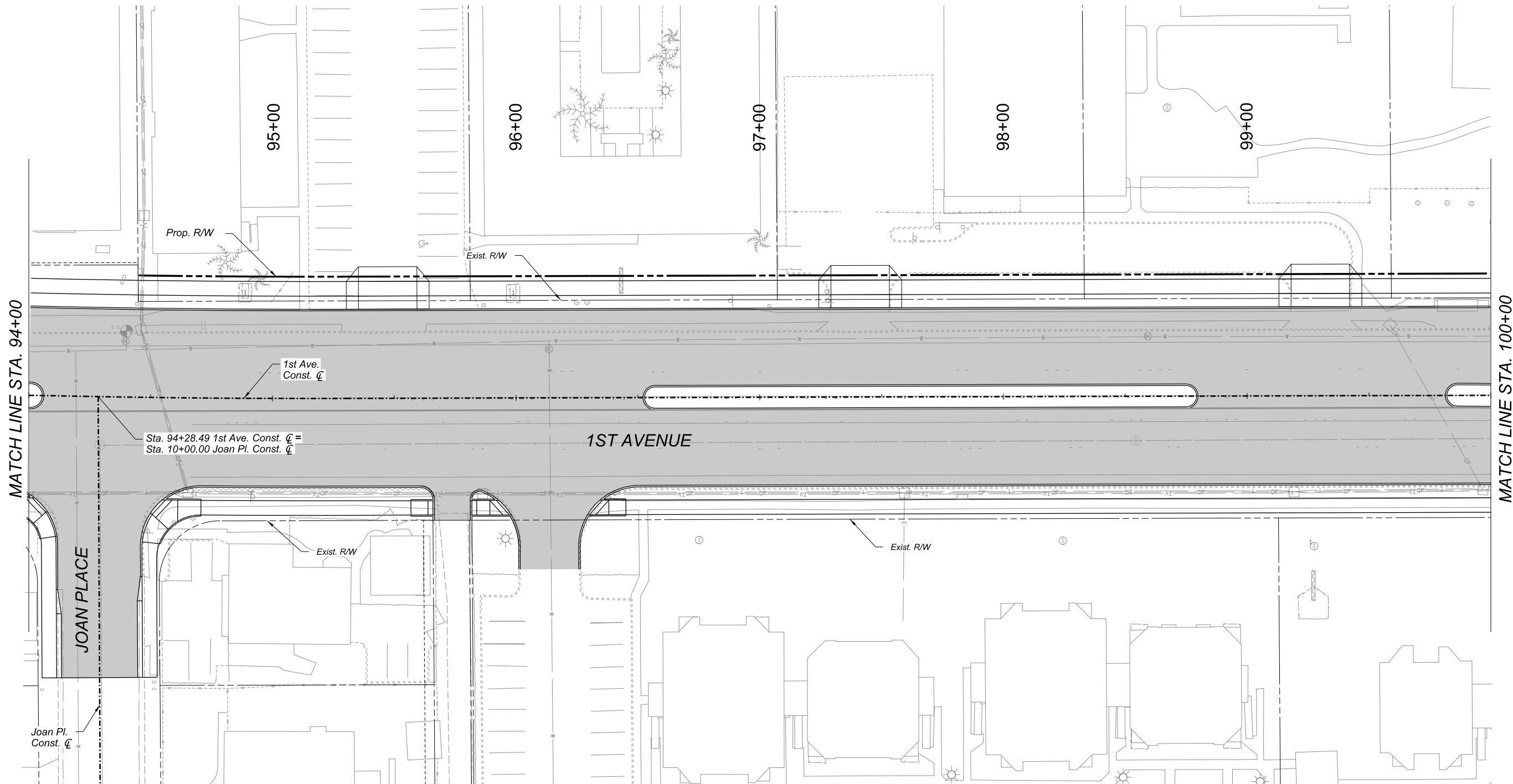
SHEET 28 OF 100

NO.	DATE	REVISION	BY	CHKD.	APPR.

15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

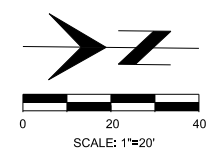
DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				43
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJL	SCALE: H: 1" = 20' V: 1" = 2'	
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	





1st Ave 94+00 to 100+00  
PAVING PLAN

SHEET 29 OF 100

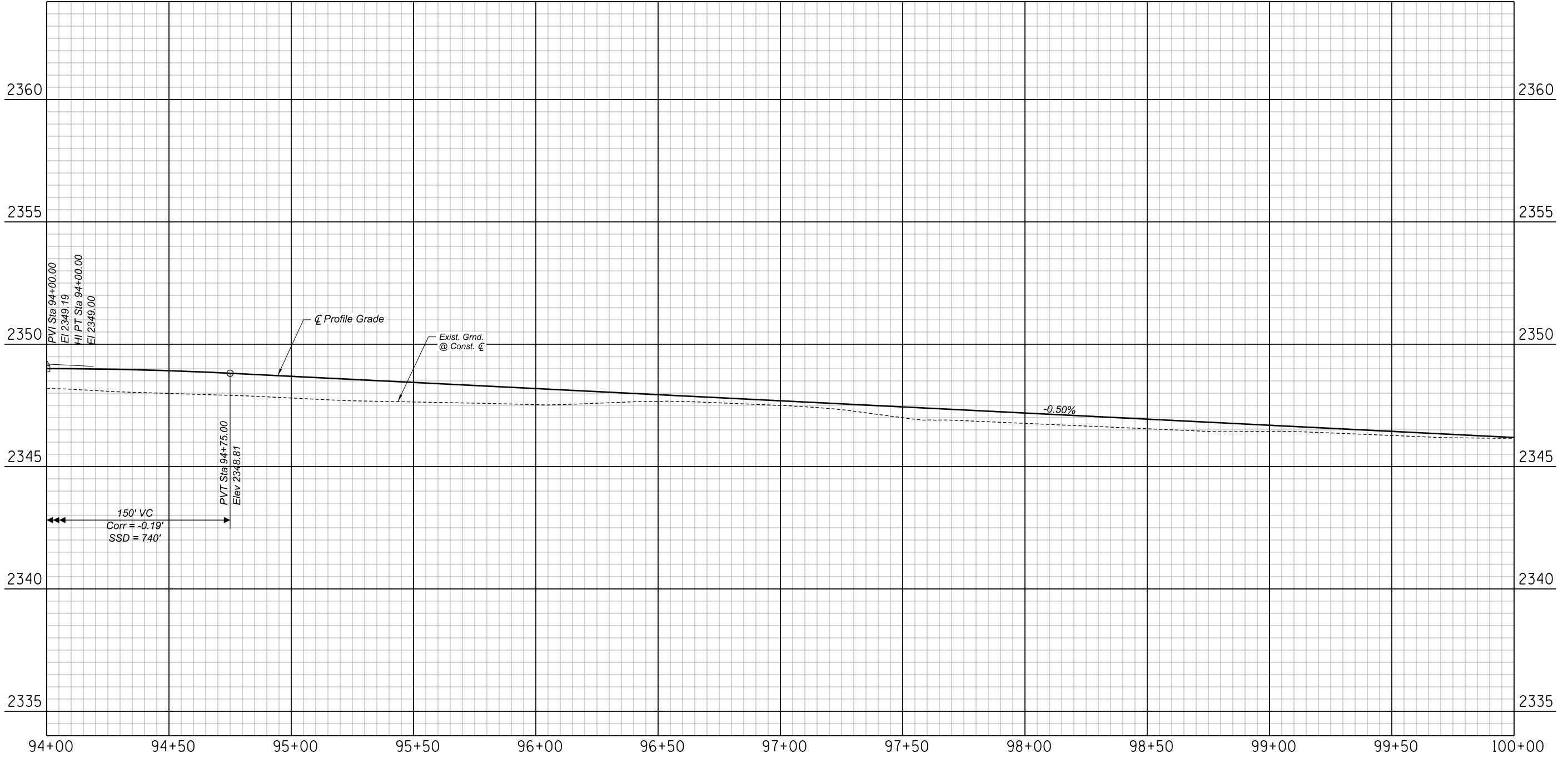


Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				44
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN BY JAR DEC 2025	CHKD BY JMF DEC 2025	APPR BY BLK DEC 2025	SCALE: 1"=20'	PLAN NO. R-2024-XXX



1st Ave 94+00 to 100+00  
PAVING PROFILE

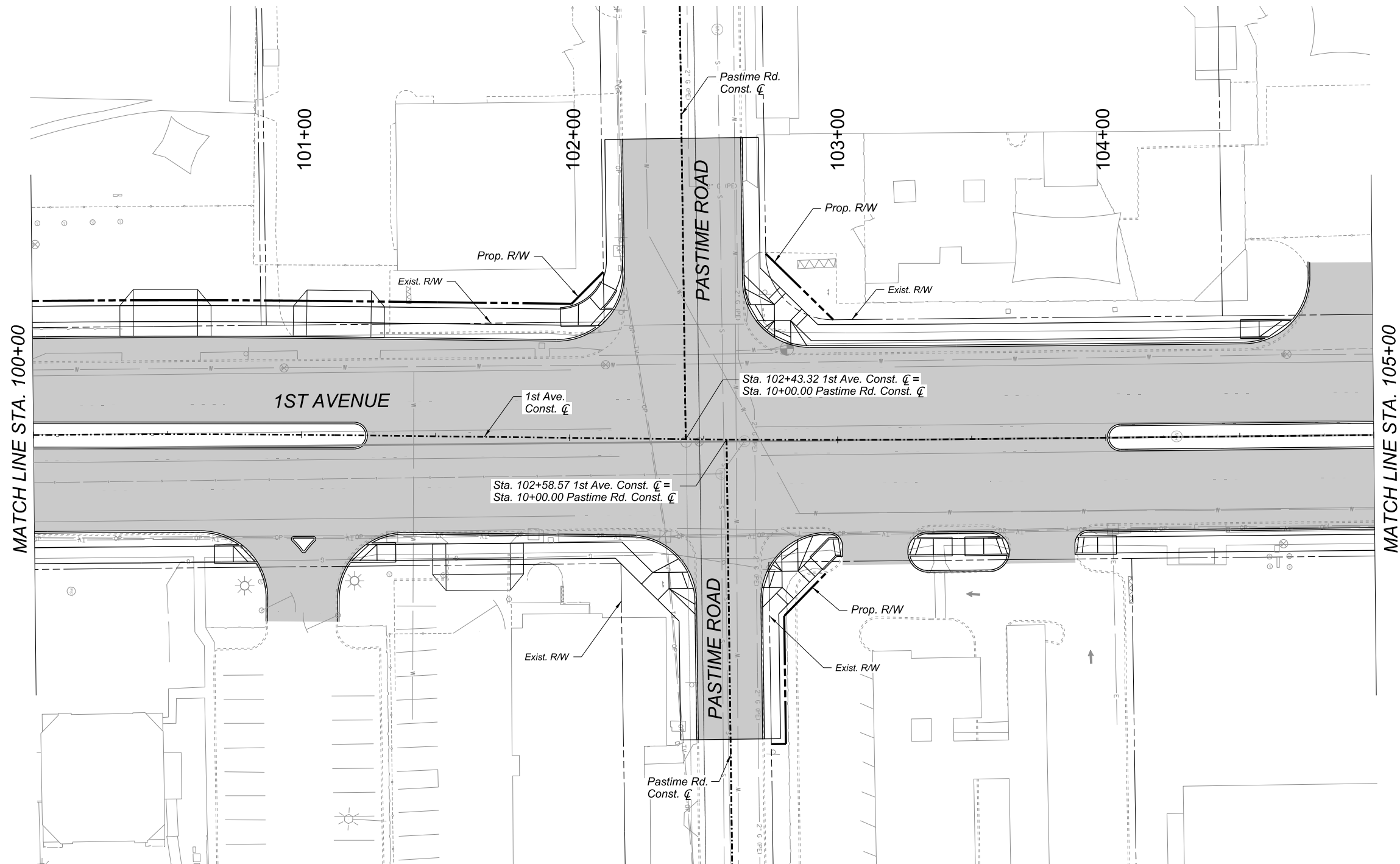
SHEET 30 OF 100

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

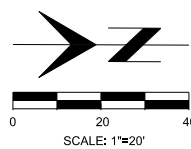
DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				45
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJL	SCALE: H: 1" = 20' V: 1" = 2'	
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	





1st Ave 100+00 to 105+00  
PAVING PLAN

SHEET 31 OF 100



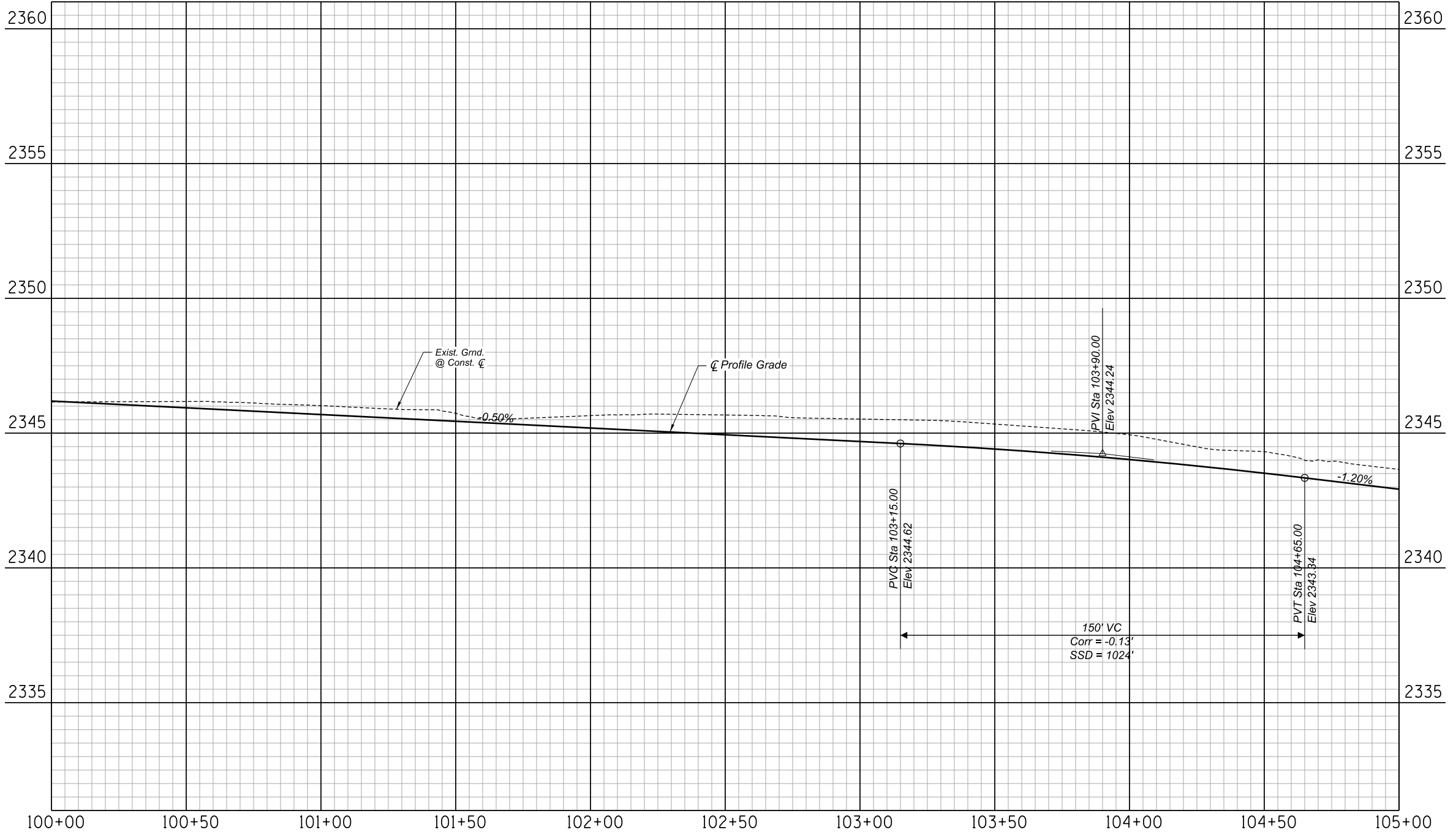
Record Document  
Dated: ##/##/####



NO.	DATE	REVISION	BY	CHKD.	APPR.

15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				46
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: 1"=20'	
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	



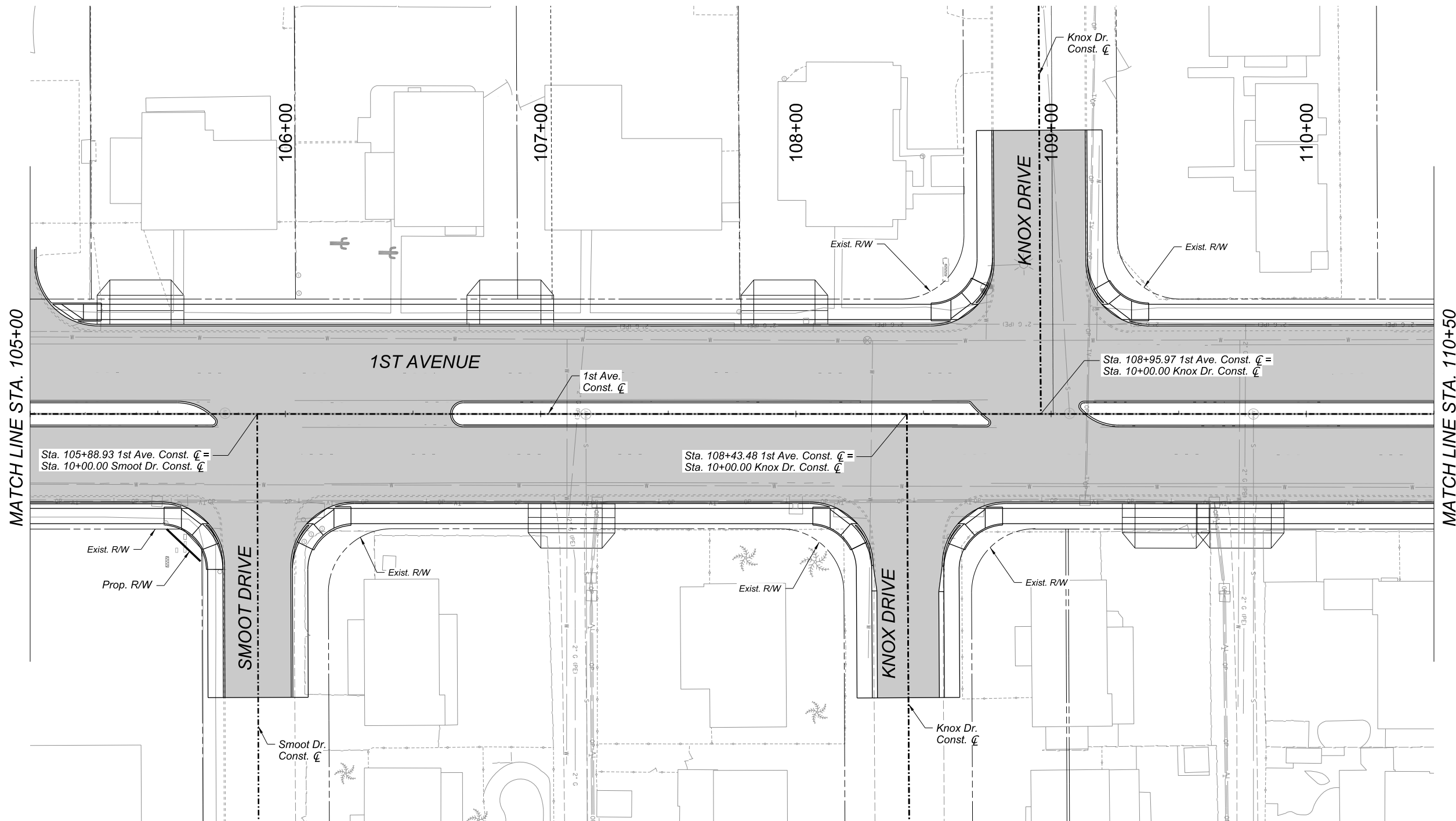
1st Ave 100+00 to 105+00  
PAVING PROFILE

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

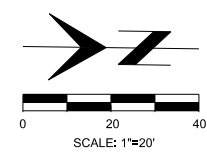
DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				47
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJL	SCALE: H: 1" = 20' V: 1" = 2'	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		





1st Ave 105+00 to 110+50  
PAVING PLAN

SHEET 33 OF 100

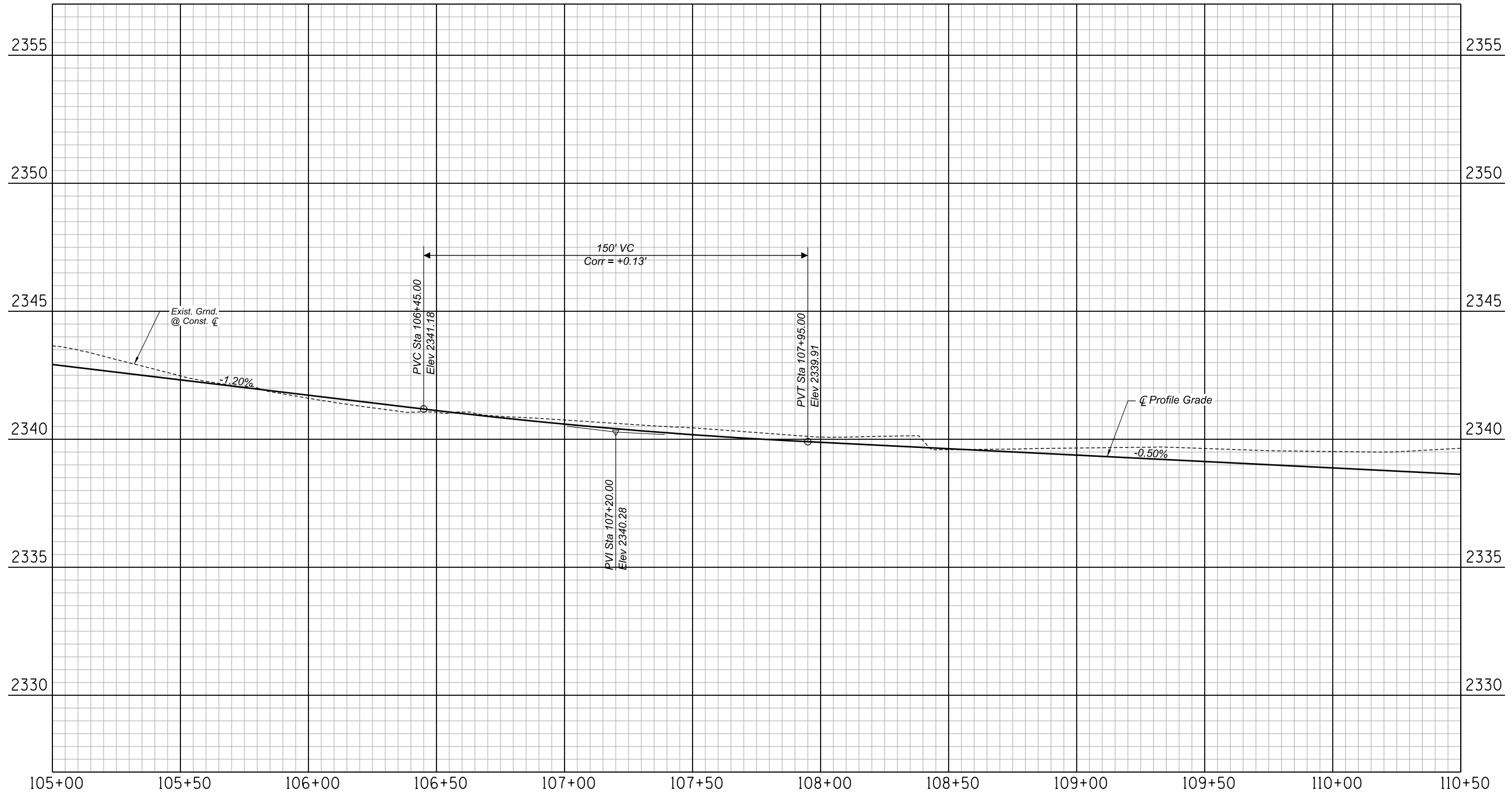


Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				48
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: 1"=20'	
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	



1st Ave 105+00 to 110+50  
PAVING PROFILE

SHEET 34 OF 100

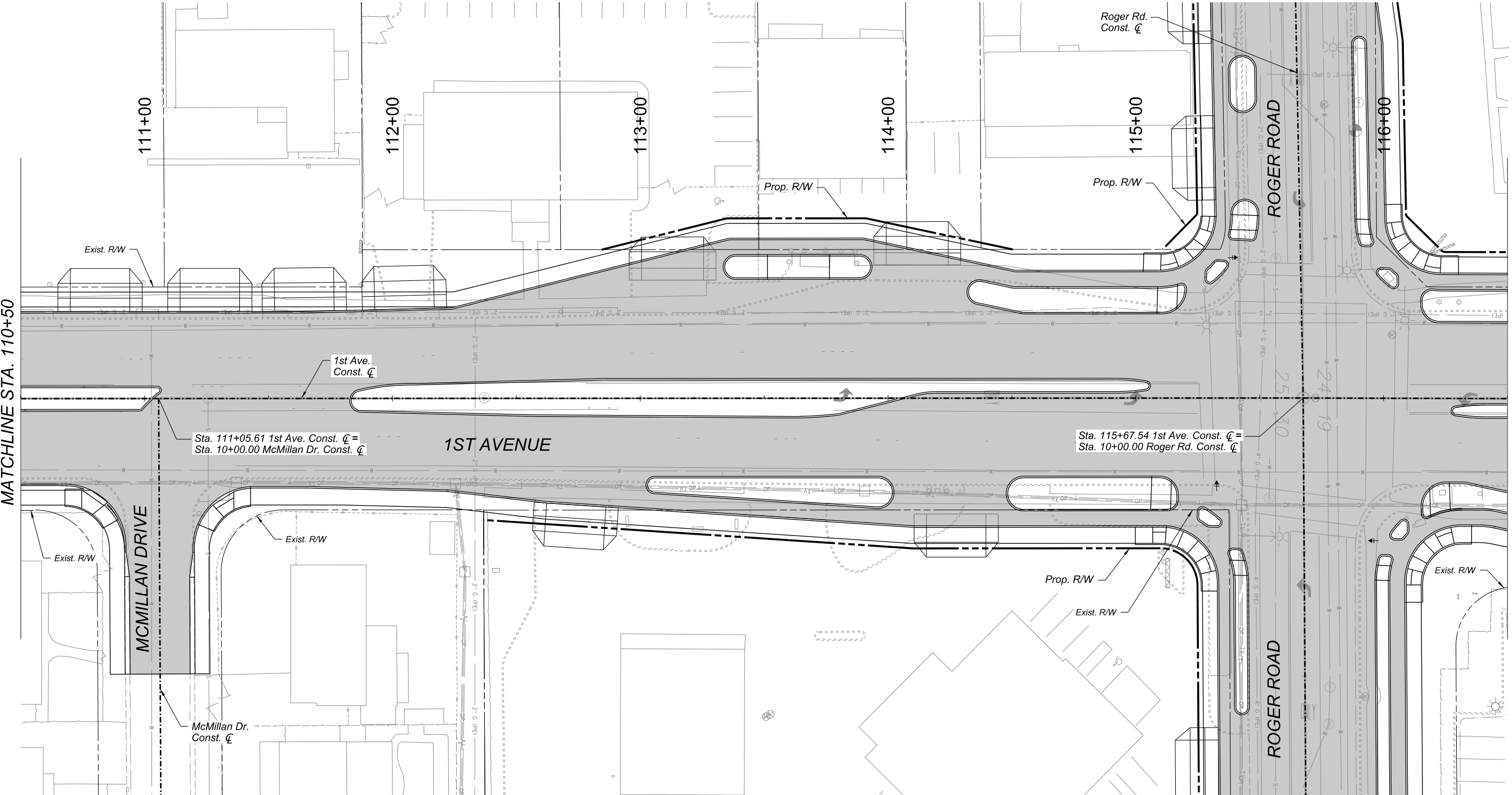
NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION			49
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS			OF
CITY OF TUCSON			128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJL	SCALE: H: 1"=20' V: 1"=2'
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX



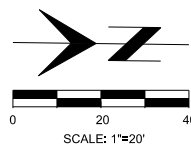
MATCHLINE STA. 110+50



MATCHLINE STA. 116+50

1st Ave 110+50 to 116+50  
PAVING PLAN

SHEET 35 OF 100

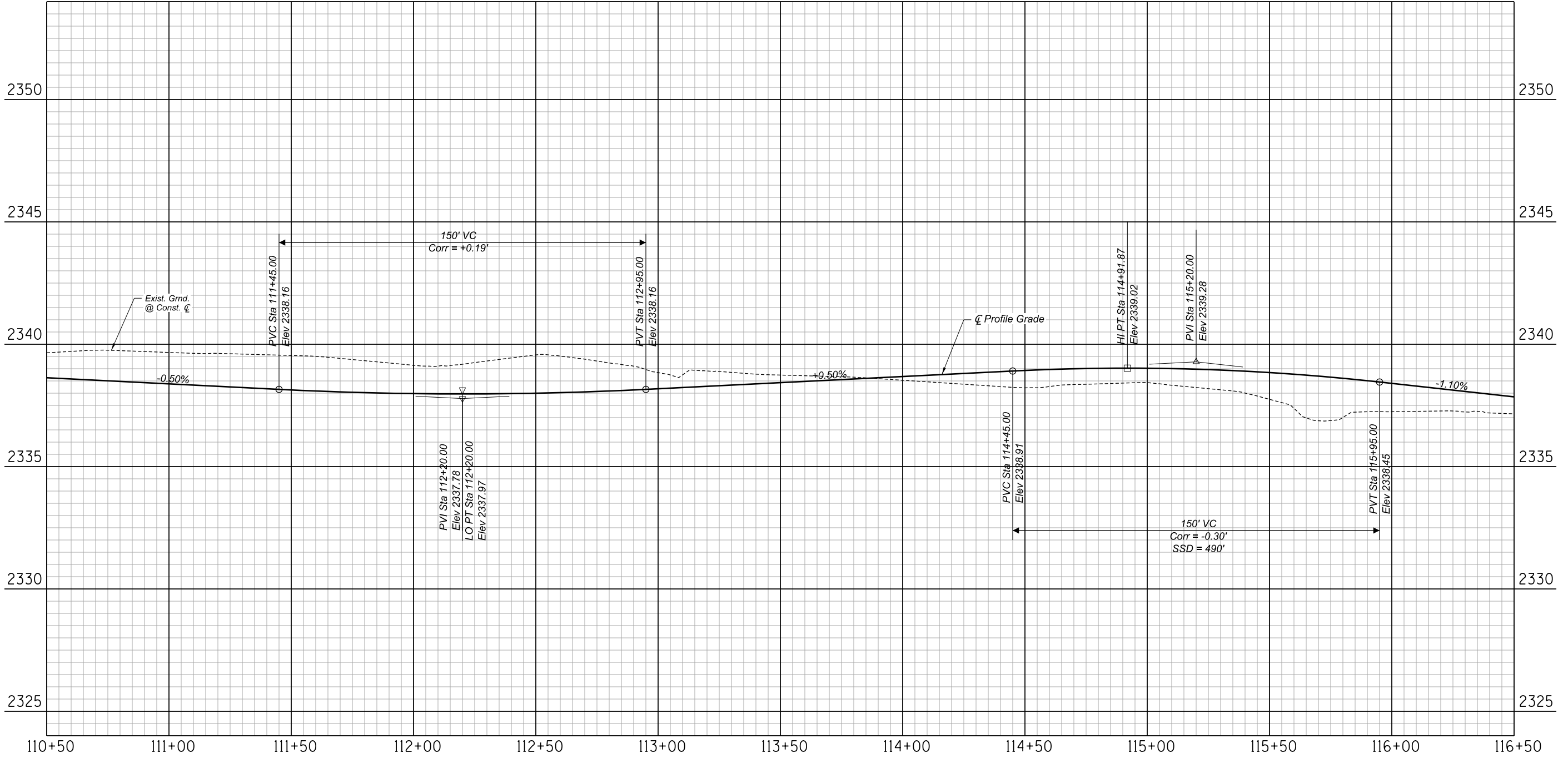


Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				50
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJL	SCALE: 1"=20'	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		



1st Ave 110+50 to 116+50  
PAVING PROFILE

SHEET 36 OF 100

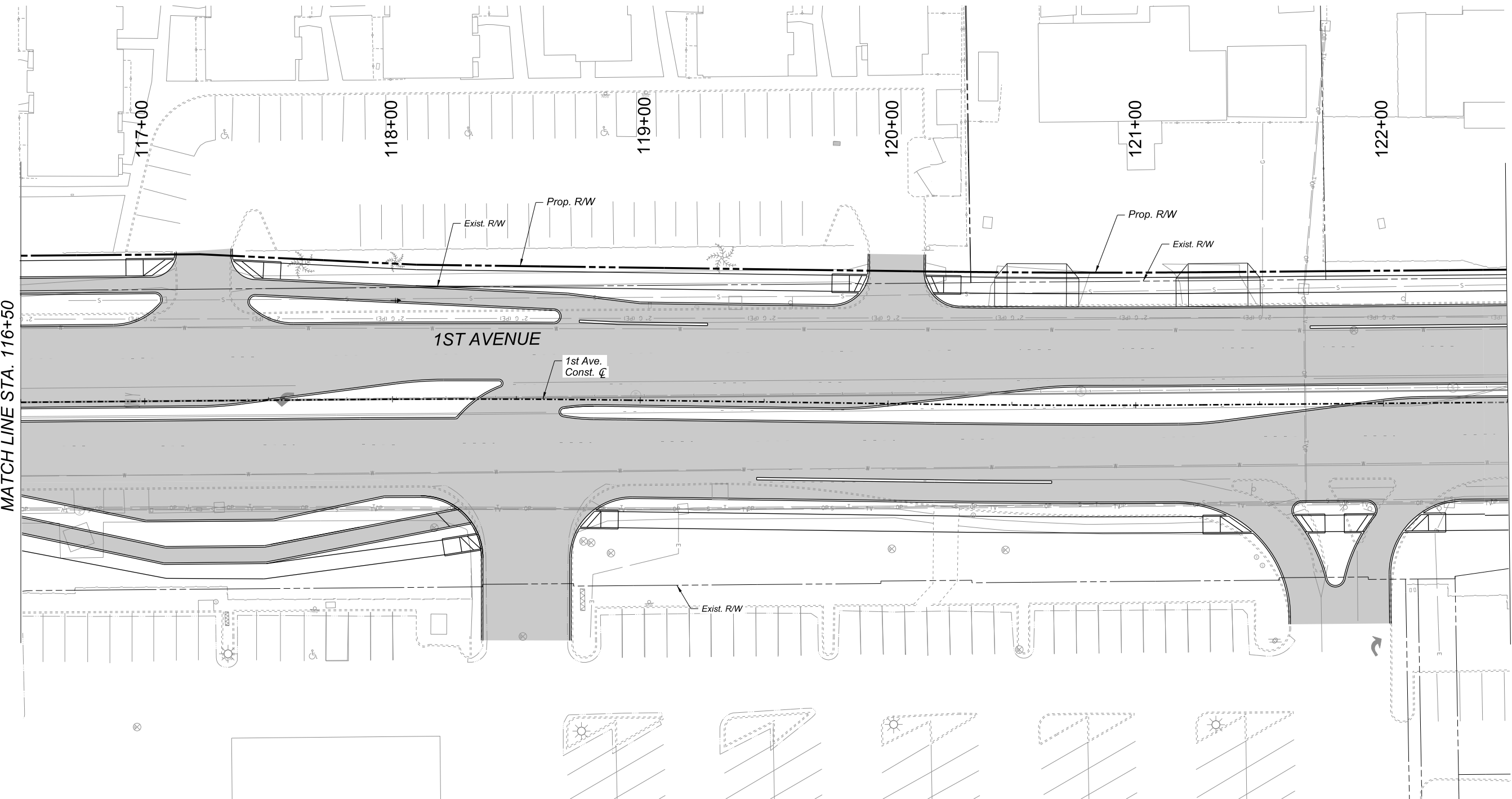
NO.	DATE	REVISION	BY	CHKD.	APPR.

15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION			51
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS			OF
CITY OF TUCSON			128
DRWN BY JAR	CHKD BY JMF	APPR BY BJK	SCALE: H: 1" = 20' V: 1" = 2'
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX



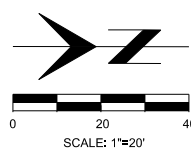
MATCH LINE STA. 116+50



MATCH LINE STA. 122+50

1st Ave 116+50 to 122+50  
PAVING PLAN

SHEET 37 OF 100

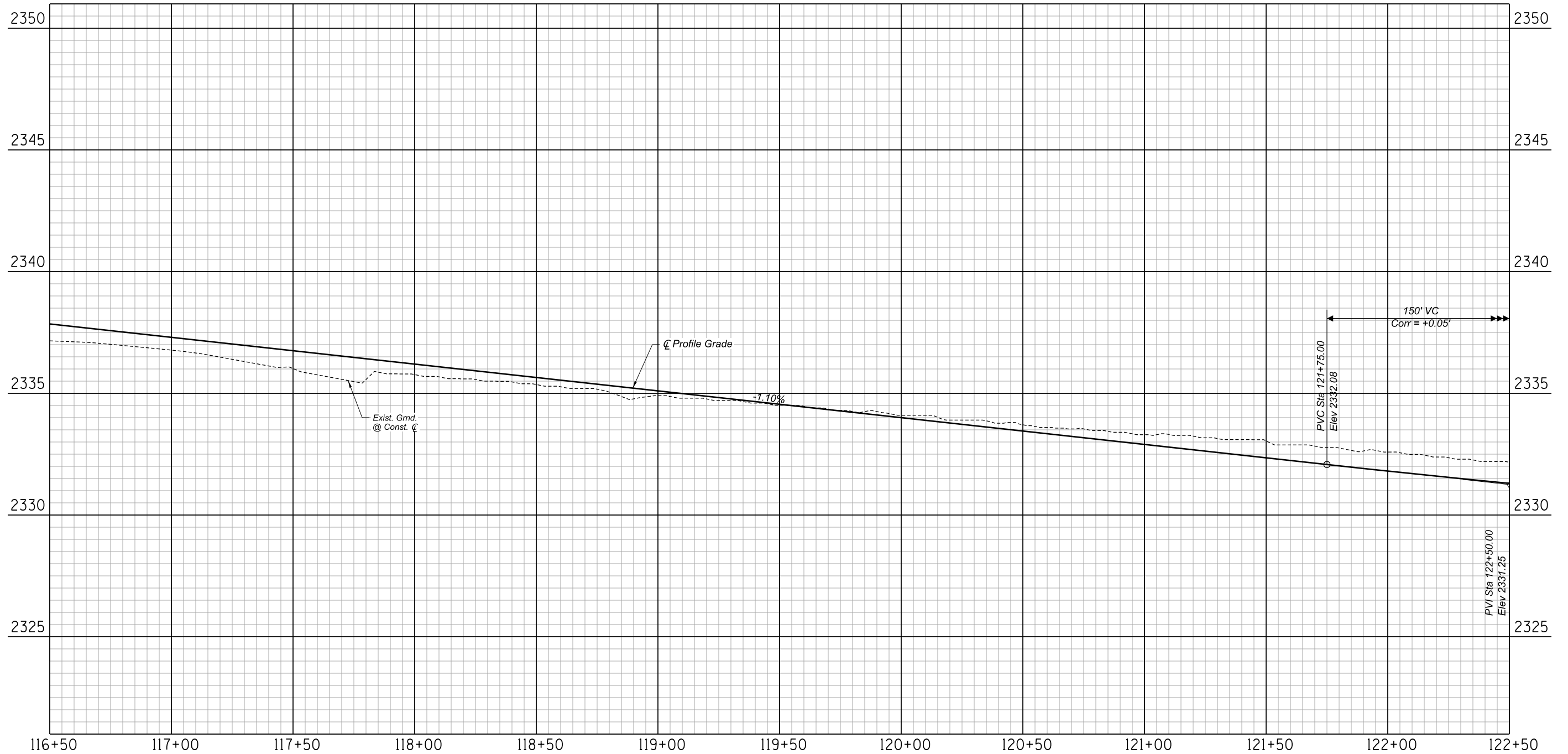


Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				52
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: 1"=20'	
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	



1st Ave 116+50 to 122+50  
PAVING PROFILE

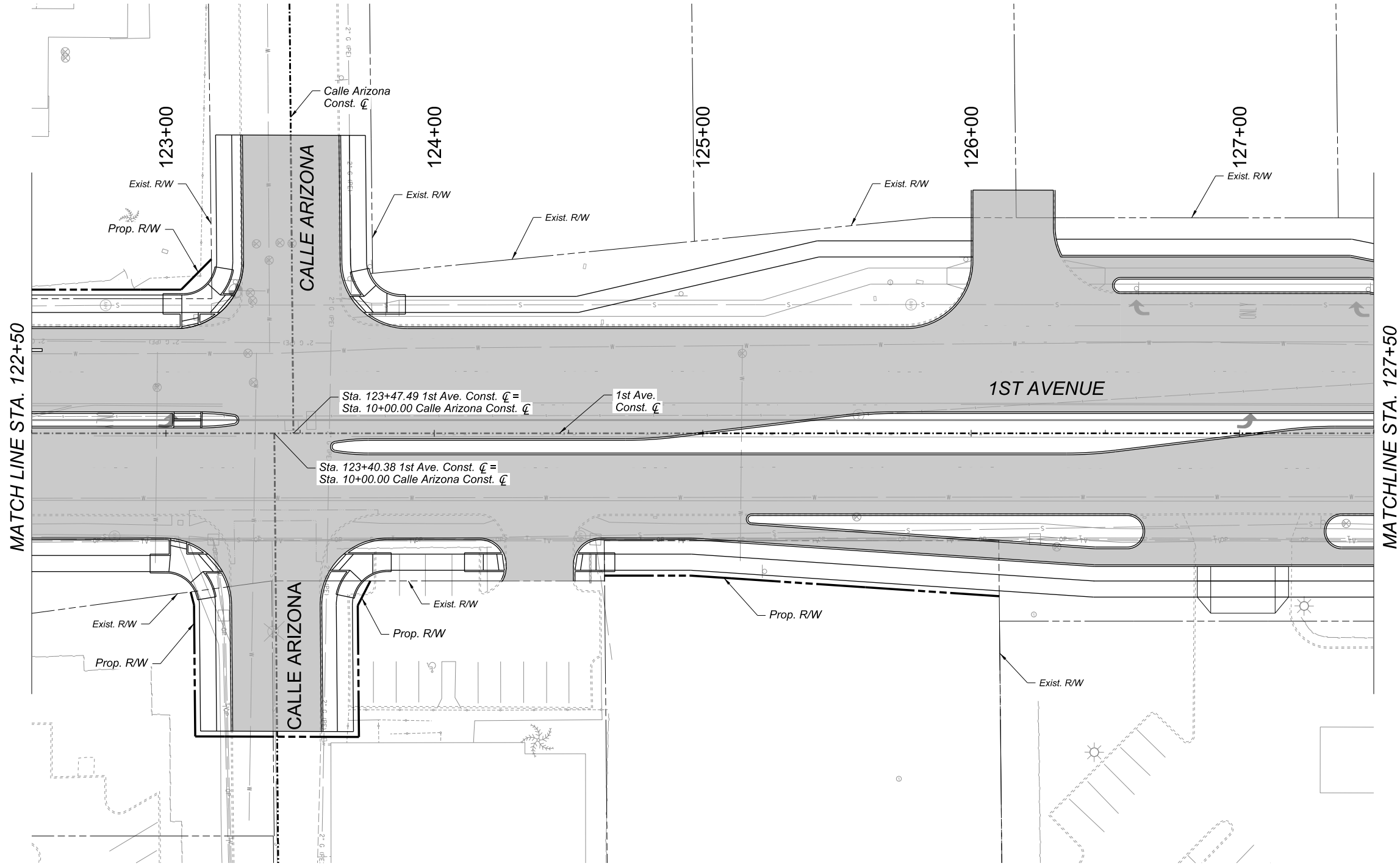
SHEET 38 OF 100

NO.	DATE	REVISION	BY	CHKD.	APPR.

15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

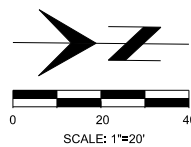
DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION			53
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS			OF
CITY OF TUCSON			128
DRWN BY JAR DEC 2025	CHKD BY JMF DEC 2025	APPR BY BJL DEC 2025	SCALE: H: 1" = 20' V: 1" = 2'
PLAN NO. R-2024-XXX			





1st Ave 122+50 to 127+50  
PAVING PLAN

SHEET 39 OF 100

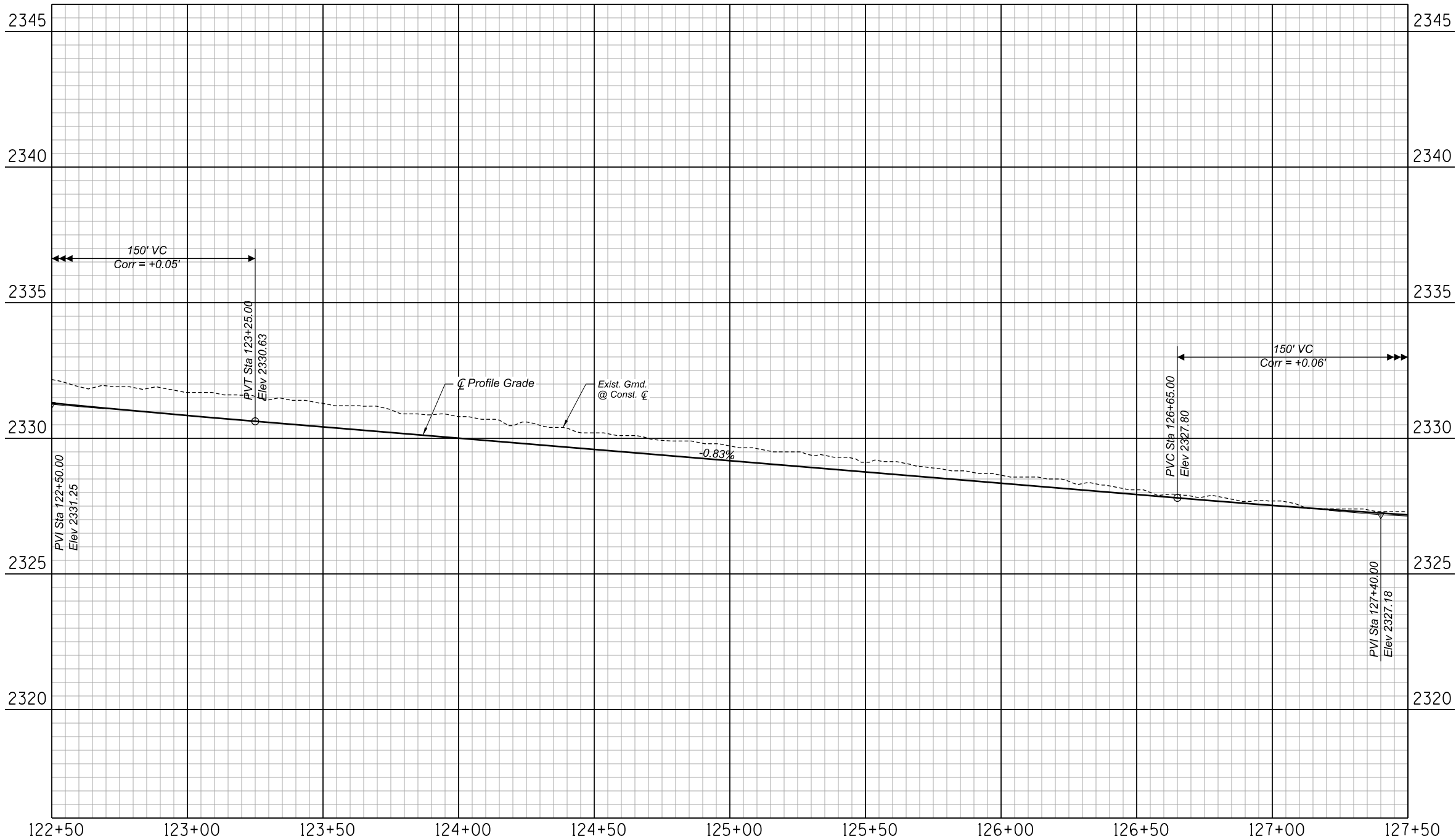


Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				54
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: 1"=20'	
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	



1st Ave 122+50 to 127+50  
PAVING PROFILE

SHEET 40 OF 100

NO.	DATE	REVISION	BY	CHKD.	APPR.

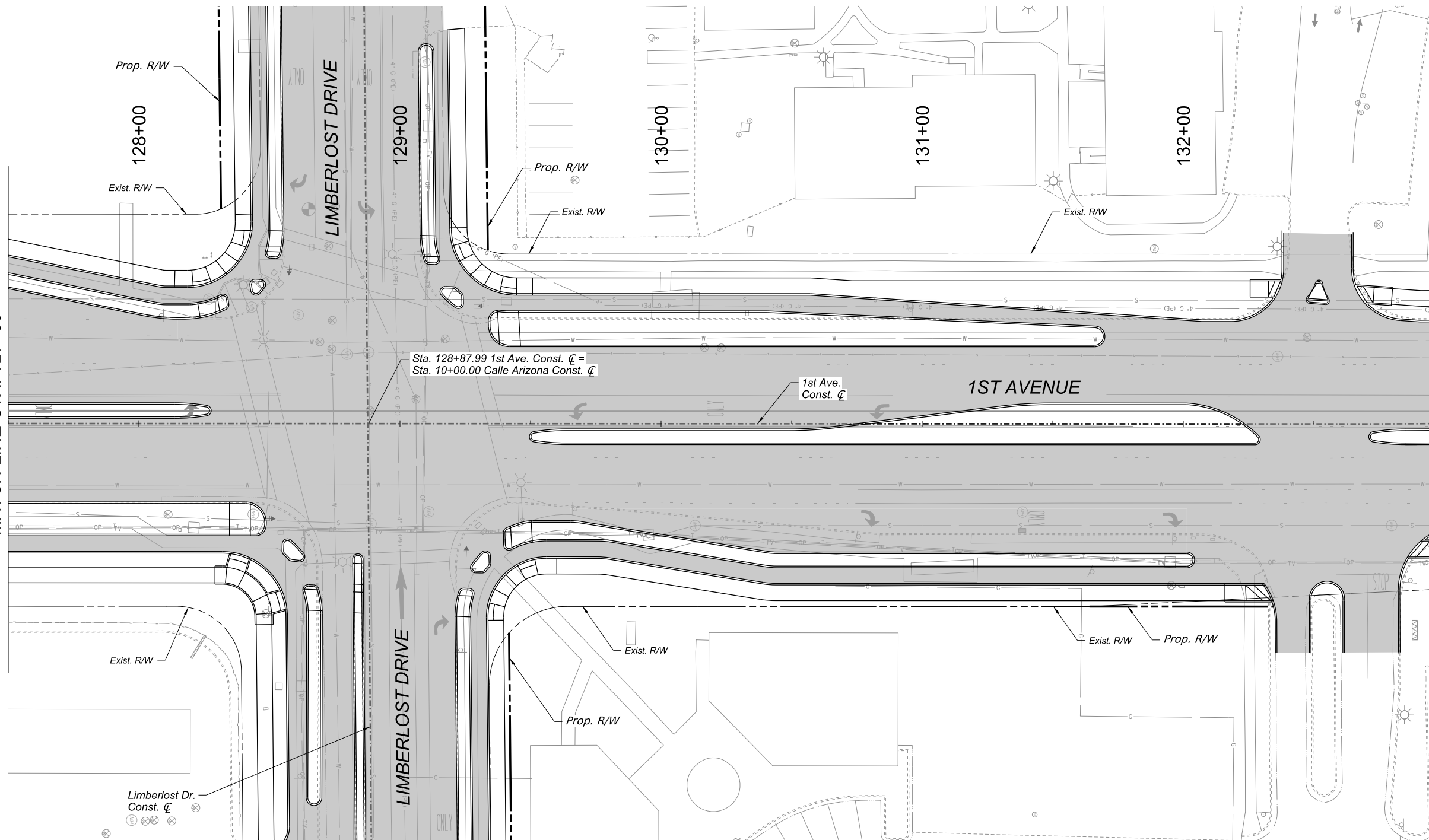
15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				55
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: H: 1" = 20' V: 1" = 2'	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		



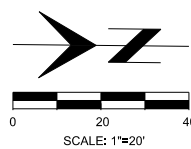
MATCH LINE STA. 127+50

MATCH LINE STA. 133+00



1st Ave 127+50 to 133+00  
PAVING PLAN

SHEET 41 OF 100



Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION

1ST AVENUE, GRANT ROAD TO  
RIVER ROAD - ROADWAY IMPROVEMENTS



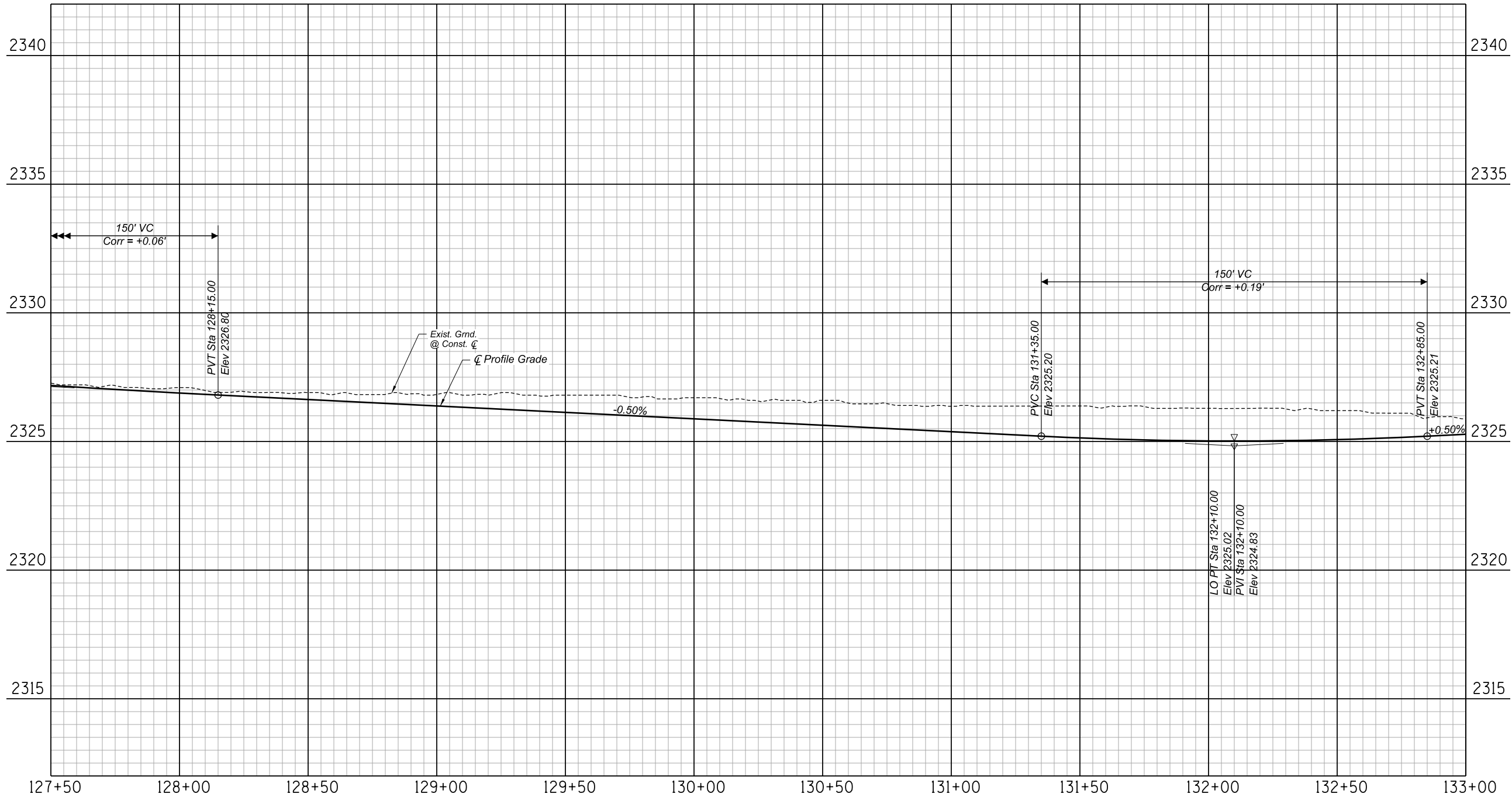
DRWN. BY JAR  
DEC 2025

CHKD. BY JMF  
DEC 2025

APPR. BY BLK  
DEC 2025

SCALE: 1"=20'  
PLAN NO. R-2024-XXX

56  
OF  
128



1st Ave 127+50 to 133+00  
PAVING PROFILE

SHEET 42 OF 100

NO.	DATE	REVISION	BY	CHKD.	APPR.

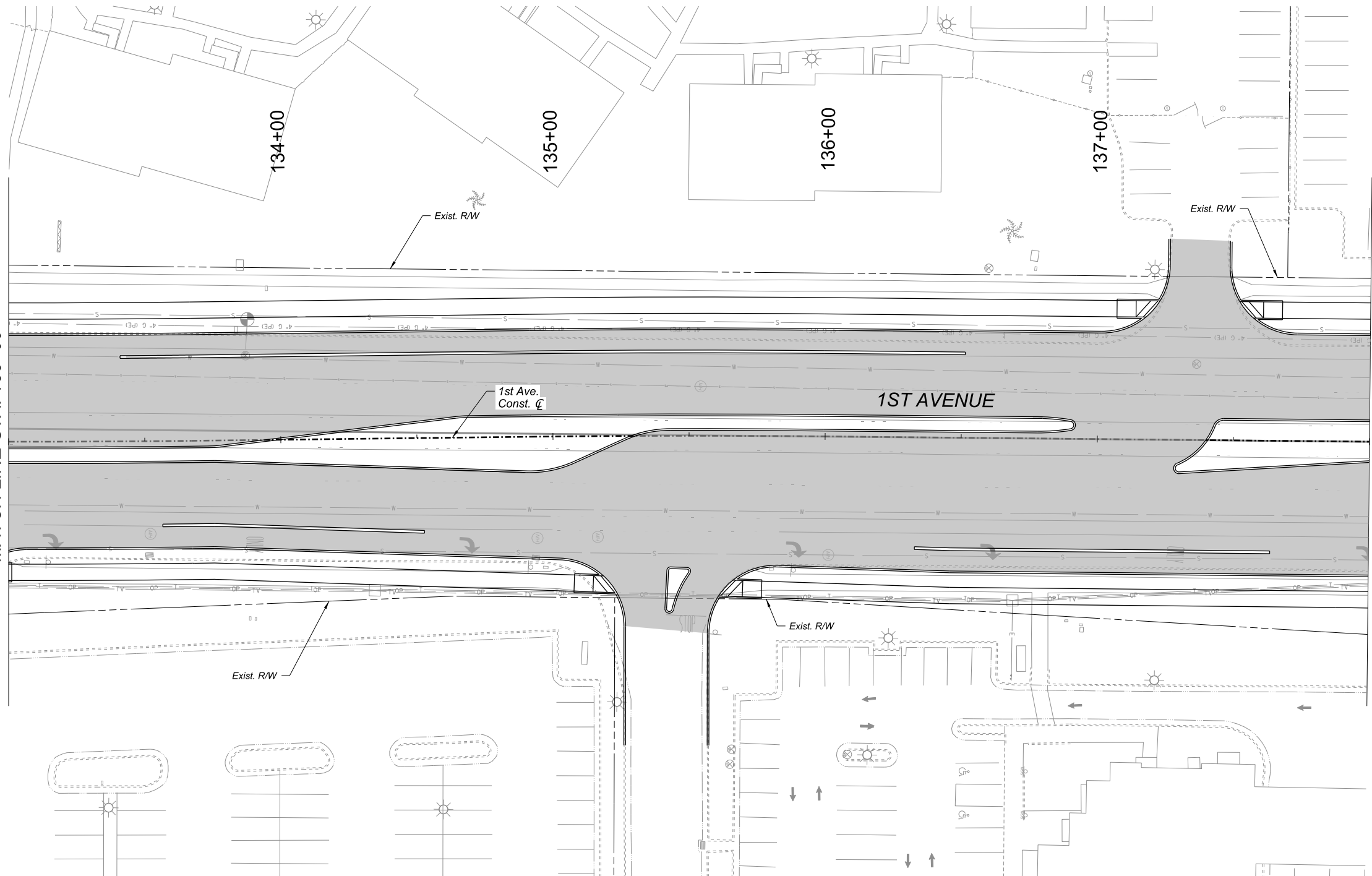
15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION			57
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS			OF
CITY OF TUCSON			128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJK	SCALE: H: 1" = 20' V: 1" = 2'
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX



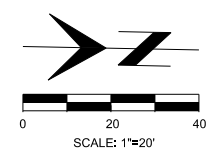
MATCH LINE STA. 133+00

MATCH LINE STA. 138+00



1st Ave 133+00 to 138+00  
PAVING PLAN

SHEET 43 OF 100

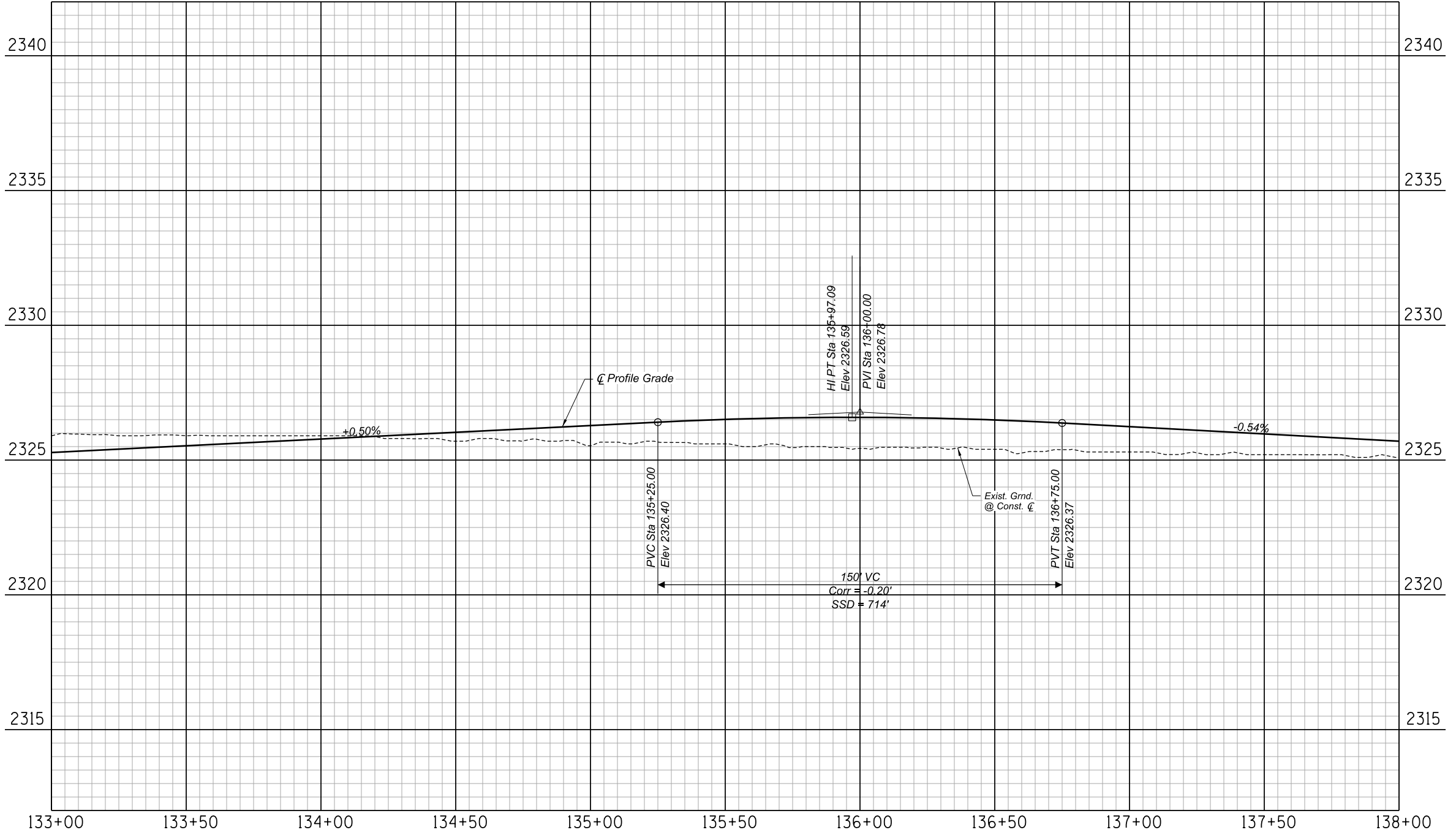


Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				58
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: 1"=20'	
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	



1st Ave 133+00 to 138+00  
PAVING PROFILE

SHEET 44 OF 100

NO.	DATE	REVISION	BY	CHKD.	APPR.

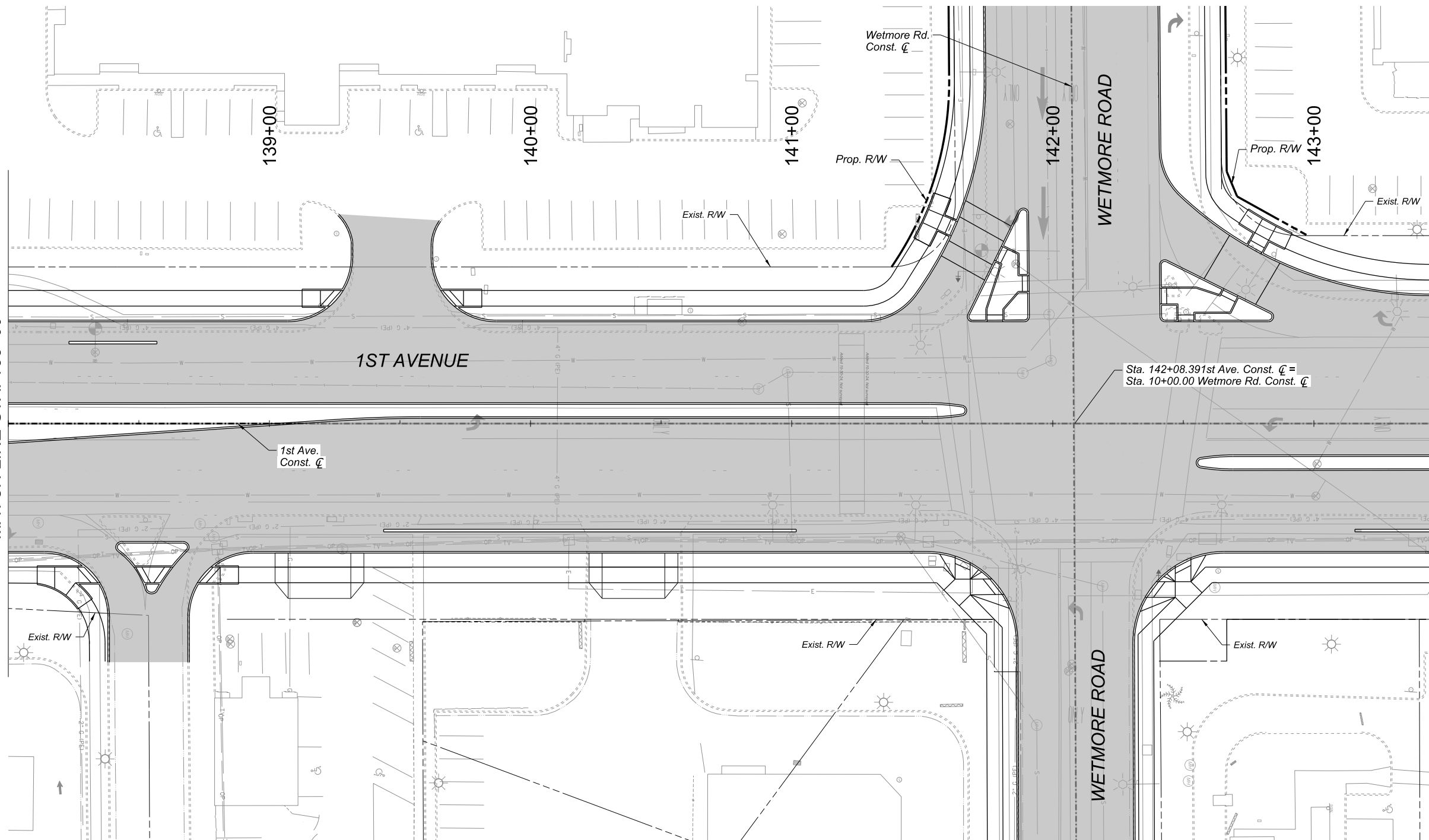
15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				59
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJK	SCALE: H: 1" = 20' V: 1" = 2'	
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	



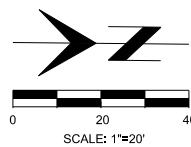
MATCH LINE STA. 138+00

MATCH LINE STA. 143+50



1st Ave 138+00 to 143+50  
PAVING PLAN

SHEET 45 OF 100



Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION

1ST AVENUE, GRANT ROAD TO  
RIVER ROAD - ROADWAY IMPROVEMENTS



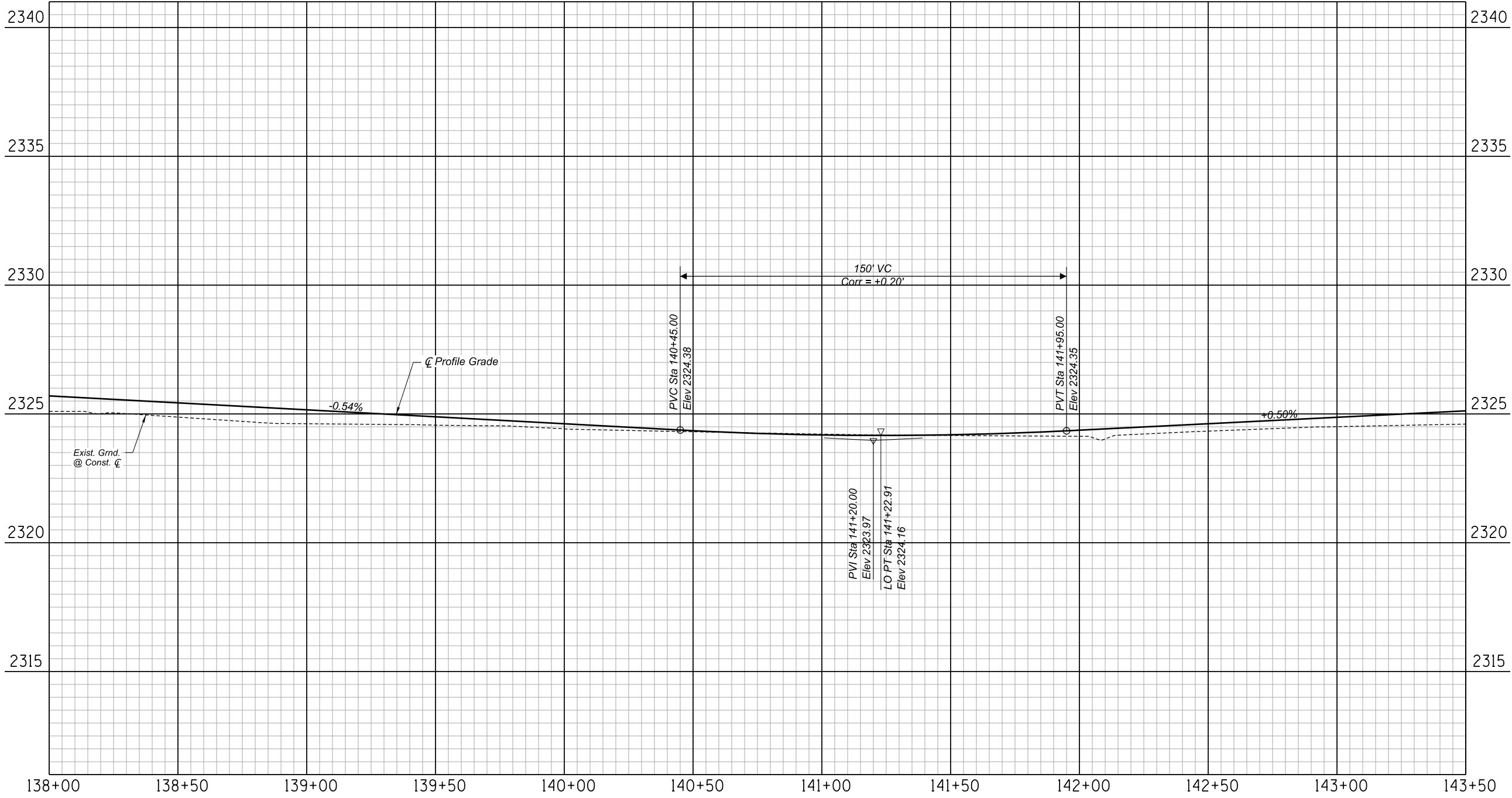
DRWN. BY JAR  
DEC 2025

CHKD. BY JMF  
DEC 2025

APPR. BY BLK  
DEC 2025

SCALE: H: 1" = 20'  
PLAN NO. R-2024-XXX

60  
OF  
128



1st Ave 138+00 to 143+50  
PAVING PROFILE

SHEET 46 OF 100

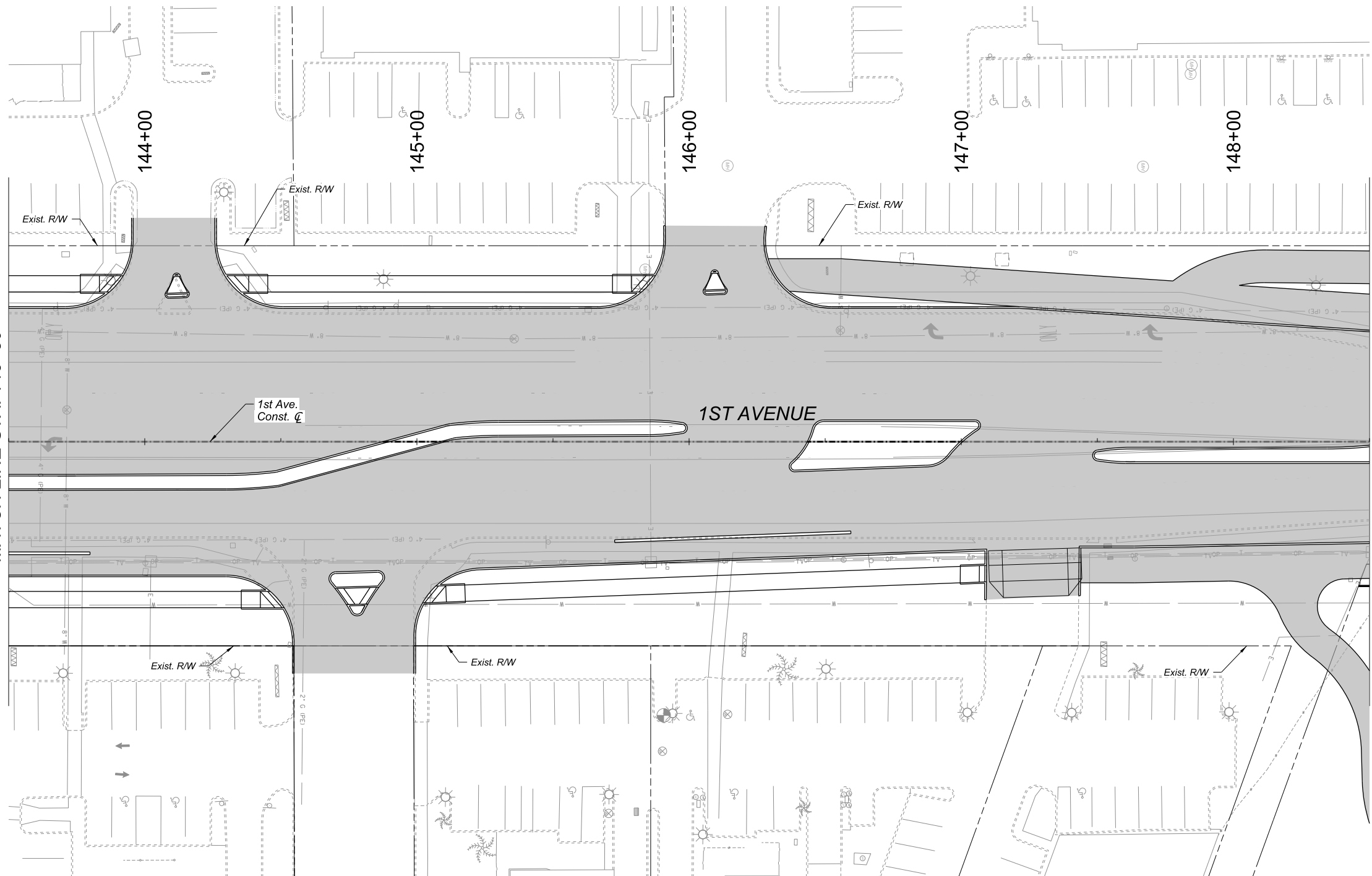
NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				61
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJL	SCALE: H: 1" = 20' V: 1" = 2'	
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	



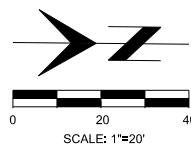
MATCH LINE STA. 143+50



MATCH LINE STA. 148+50

1st Ave 143+50 to 148+50  
PAVING PLAN

SHEET 47 OF 100

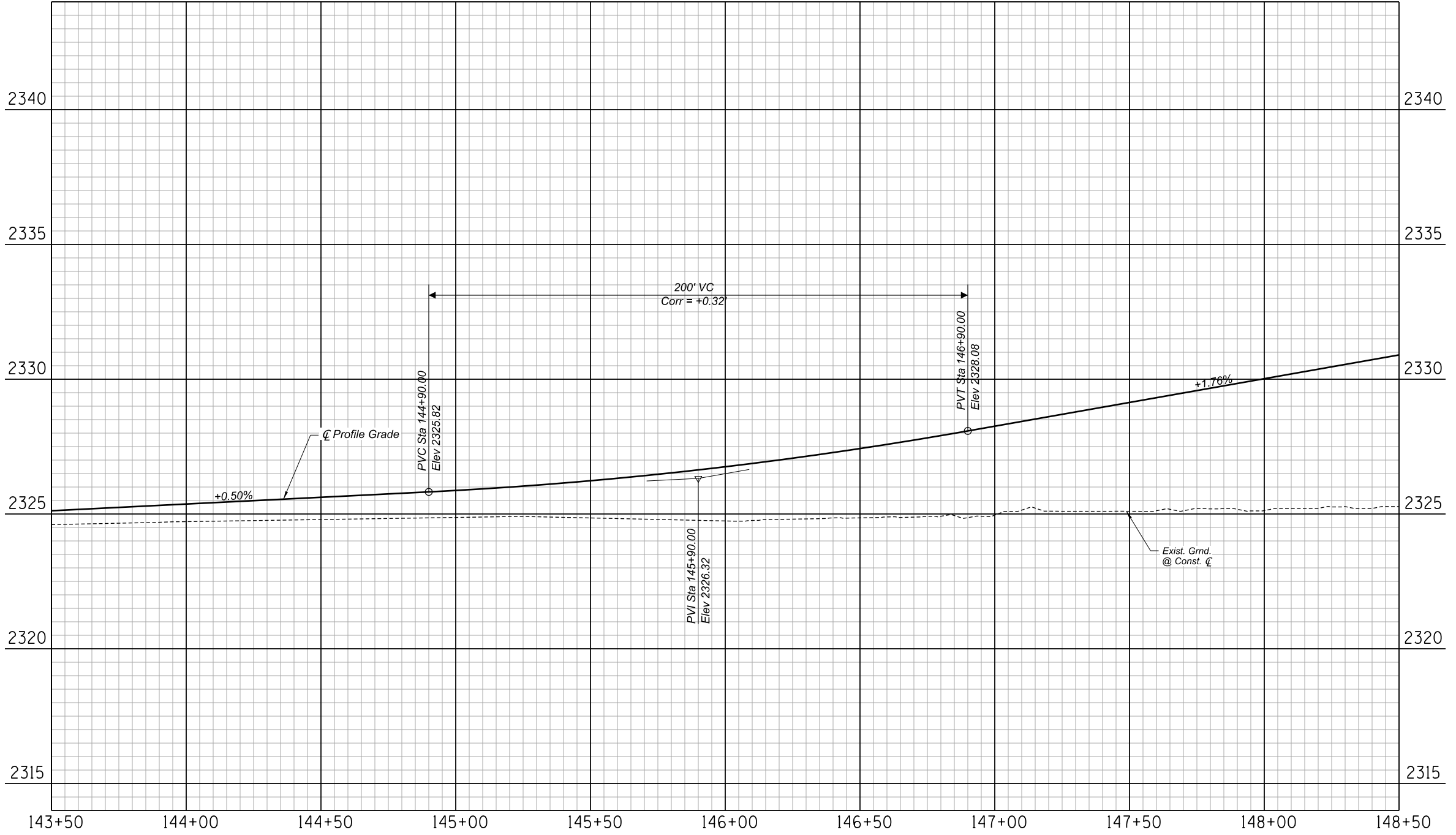


Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				62
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: 1"=20'	
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	



1st Ave 143+50 to 148+50  
PAVING PROFILE

SHEET 48 OF 100

NO.	DATE	REVISION	BY	CHKD.	APPR.

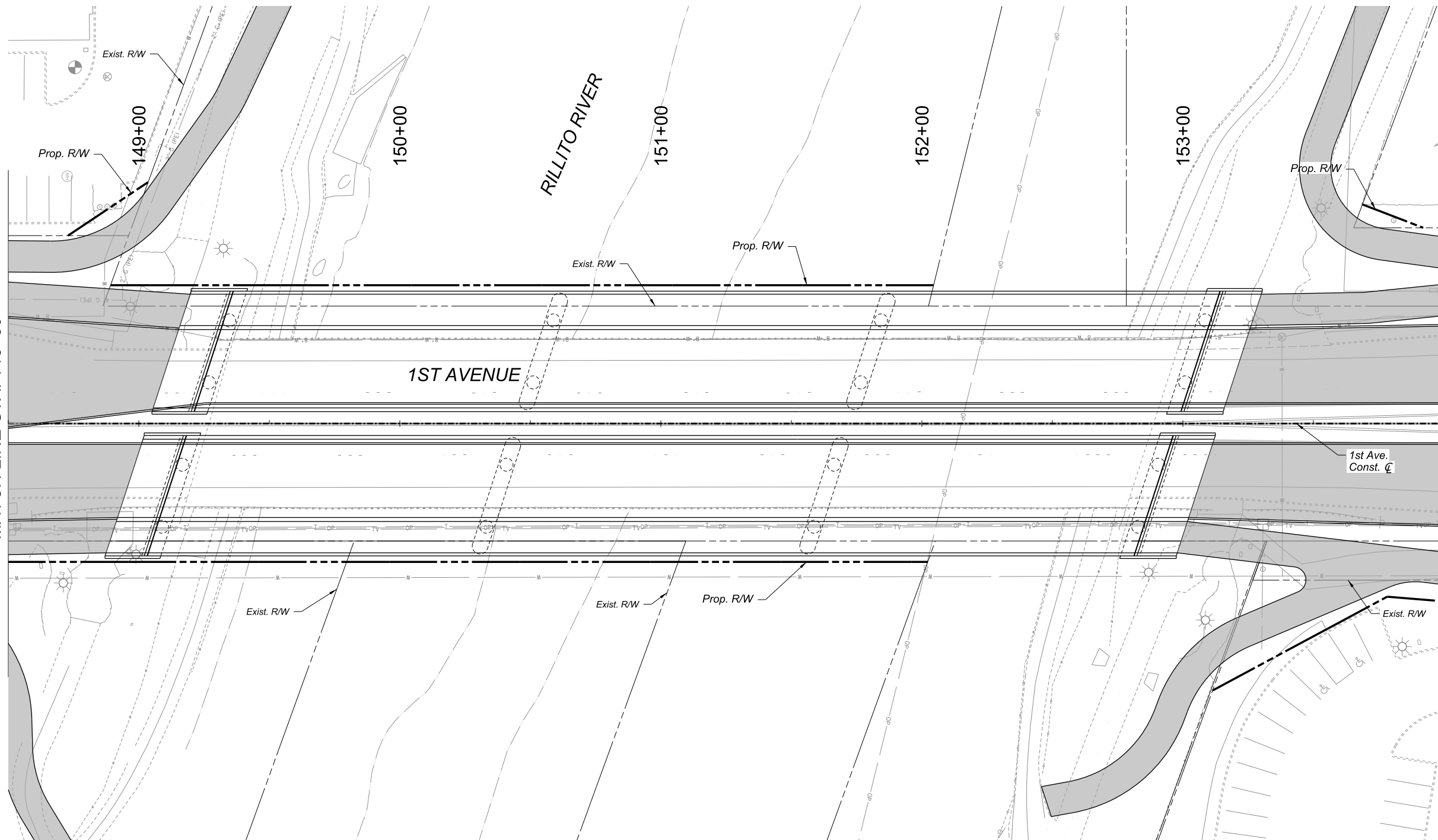
15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				63
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				128
	DRWN. BY JAR DEC 2025	CHKD. BY JMF DEC 2025	APPR. BY BJL DEC 2025	SCALE: H: 1" = 20' V: 1" = 2'
PLAN NO. R-2024-XXX				



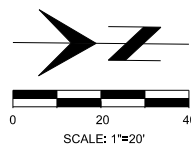
MATCH LINE STA. 148+50

MATCH LINE STA. 154+00



1st Ave 148+50 to 154+00  
PAVING PLAN

SHEET 49 OF 100

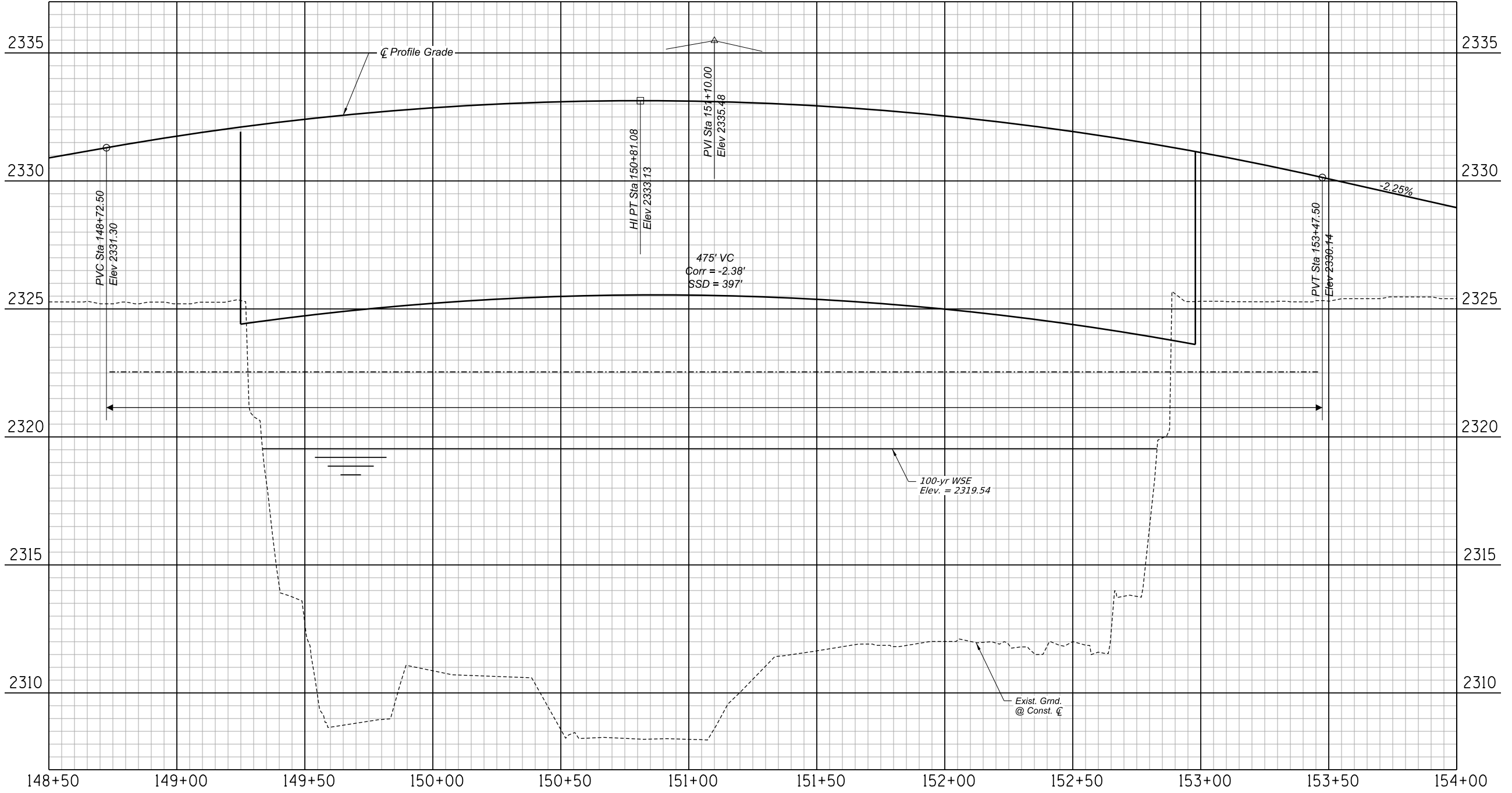


Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				64
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: 1"=20'	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		



1st Ave 148+50 to 154+00  
PAVING PROFILE

SHEET 50 OF 100

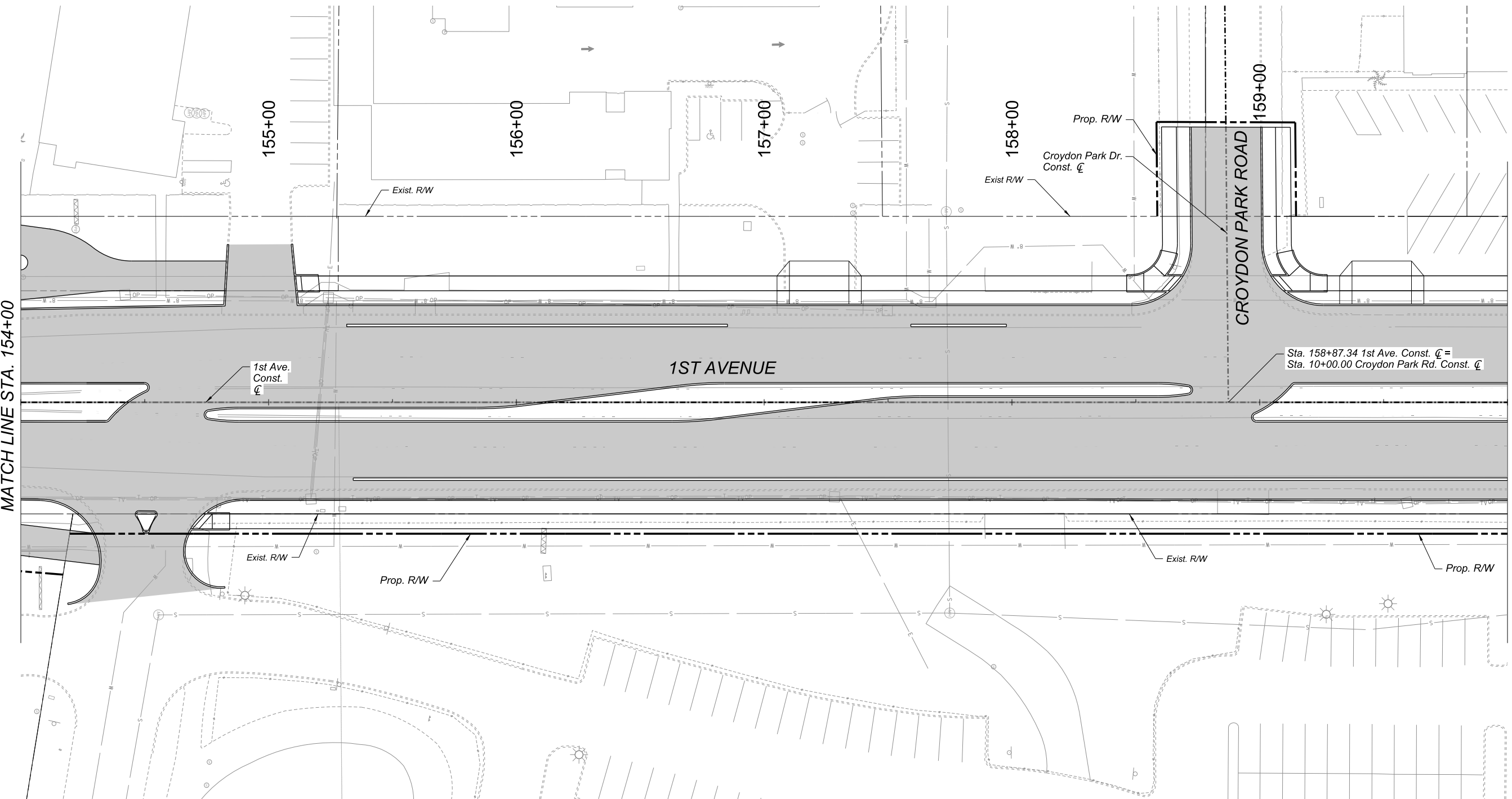
NO.	DATE	REVISION	BY	CHKD.	APPR.

15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION			65
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS			OF
CITY OF TUCSON			128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJK	SCALE: H: 1"=20' V: 1"=2'
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX



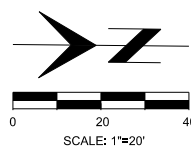
MATCH LINE STA. 154+00



MATCH LINE STA. 160+00

1st Ave 154+00 to 160+00  
PAVING PLAN

SHEET 51 OF 100



Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION

1ST AVENUE, GRANT ROAD TO  
RIVER ROAD - ROADWAY IMPROVEMENTS



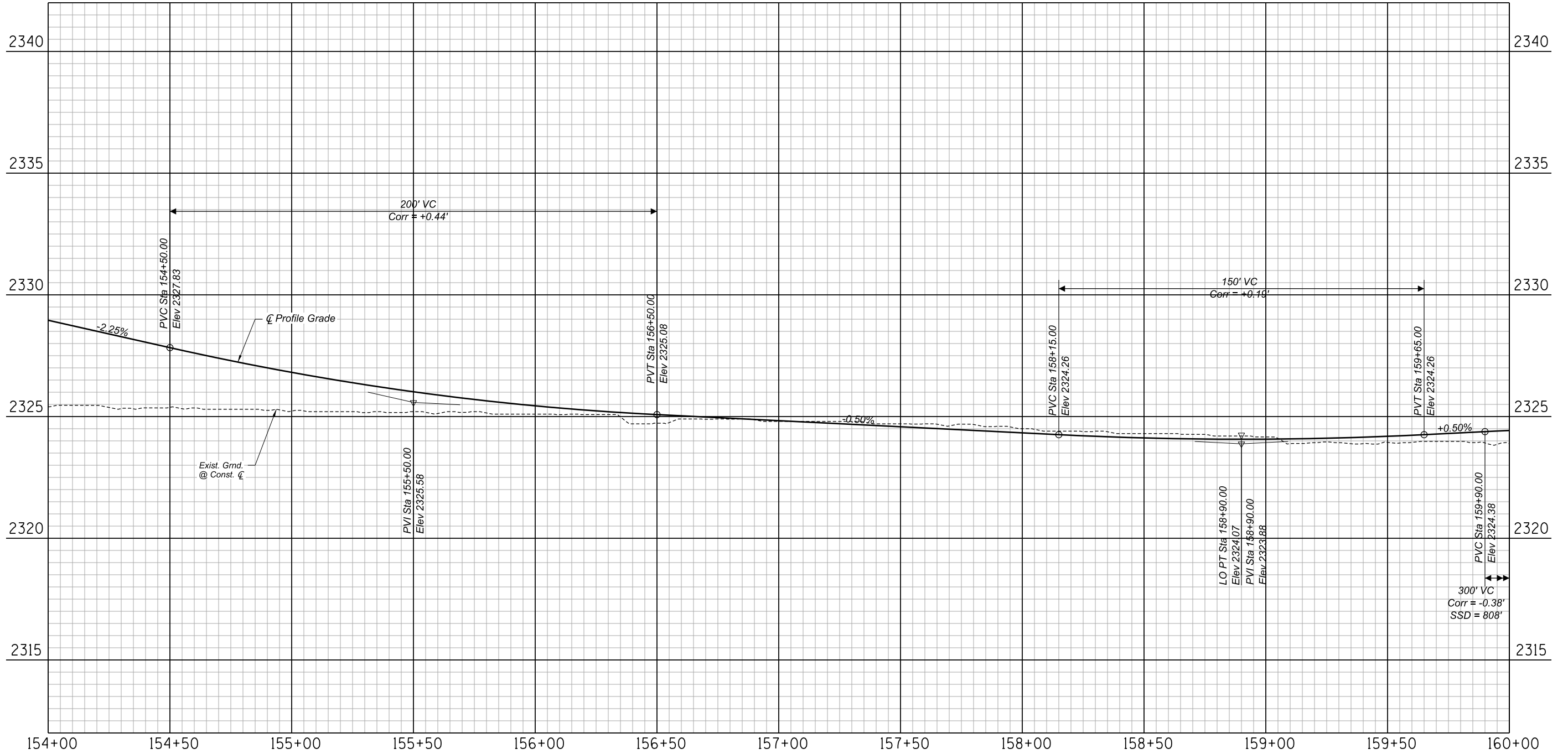
DRWN. BY JAR  
DEC 2025

CHKD. BY JMF  
DEC 2025

APPR. BY BLK  
DEC 2025

SCALE: 1"=20'  
PLAN NO. R-2024-XXX

66  
OF  
128



1st Ave 154+00 to 160+00  
PAVING PROFILE

SHEET 52 OF 100

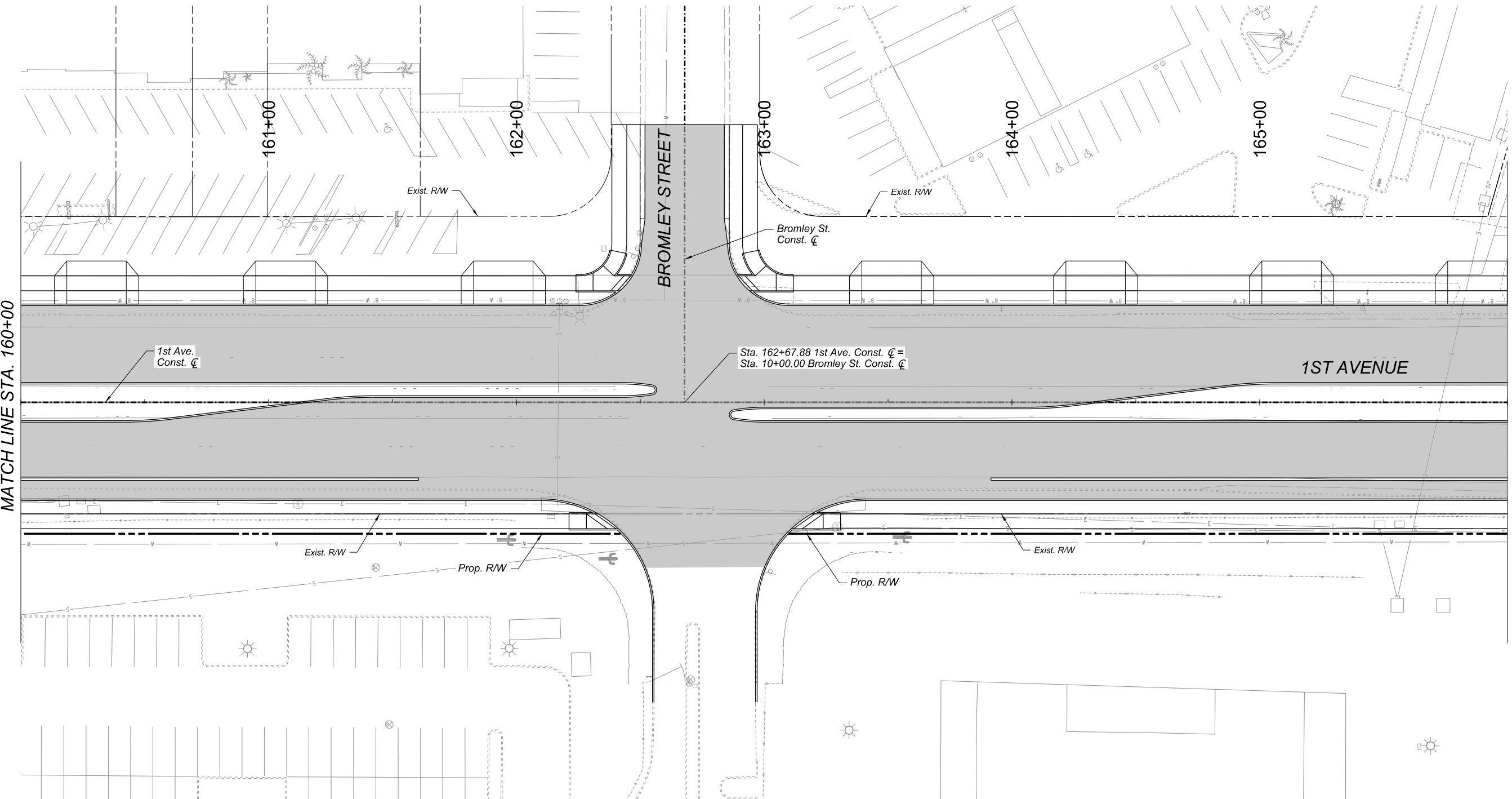
NO.	DATE	REVISION	BY	CHKD.	APPR.

15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				67
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				128
	DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJL	SCALE: H: 1" = 20' V: 1" = 2'
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	



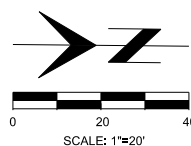
MATCH LINE STA. 160+00



MATCH LINE STA. 166+00

1st Ave 160+00 to 166+00  
PAVING PLAN

SHEET 53 OF 100

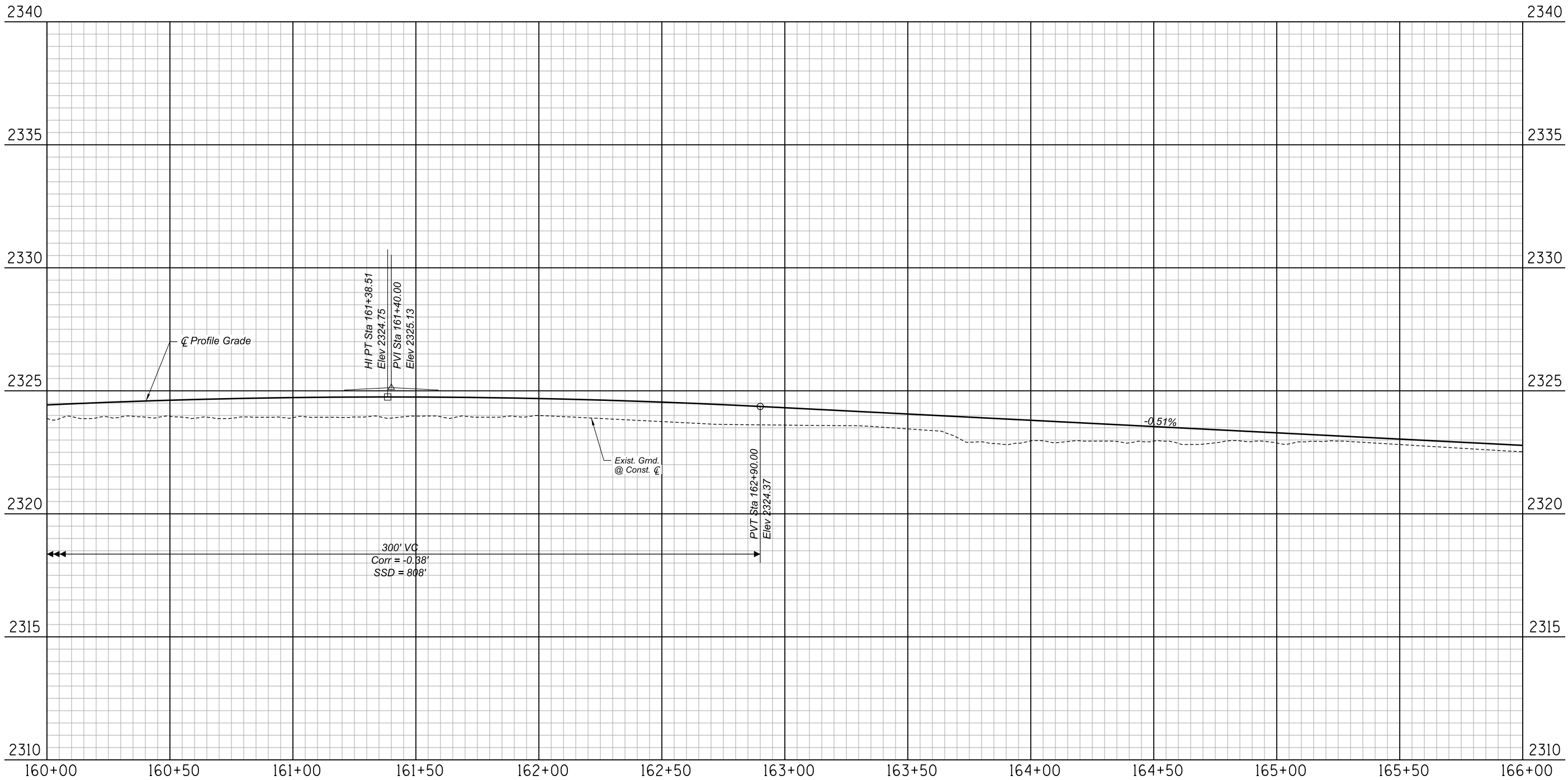


Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				68
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: 1"=20'	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		



1st Ave 160+00 to 166+00  
PAVING PROFILE

SHEET 54 OF 100

NO.	DATE	REVISION	BY	CHKD.	APPR.

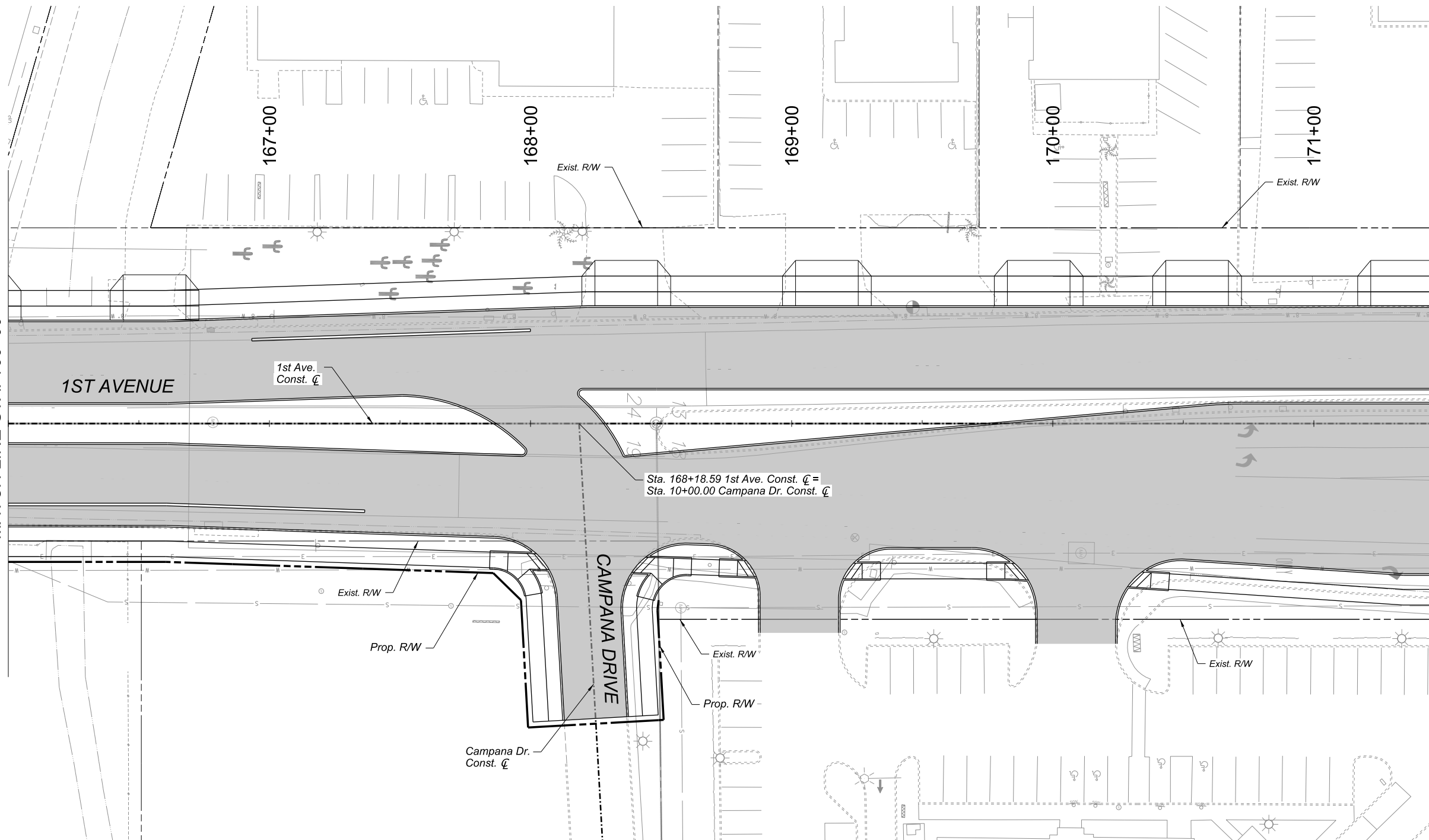
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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				69
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF <b>TUCSON</b>				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJL	SCALE: H: 1" = 20' V: 1" = 2'	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		



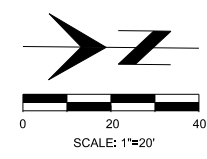
MATCH LINE STA. 166+00

MATCH LINE STA. 171+50



1st Ave 166+00 to 171+50  
PAVING PLAN

SHEET 55 OF 100

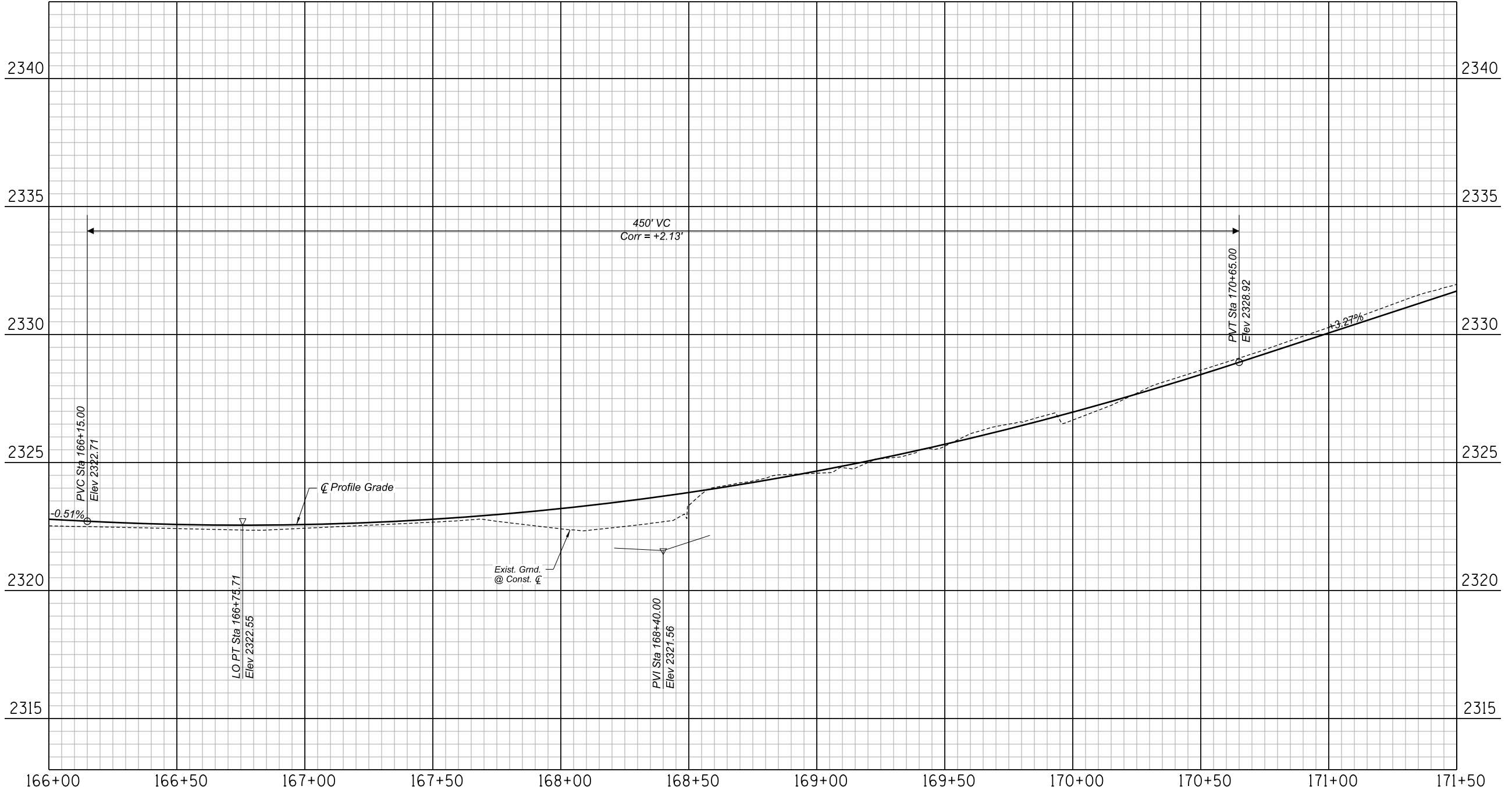


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NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				70
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: 1"=20'	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		



1st Ave 166+00 to 171+50  
PAVING PROFILE

SHEET 56 OF 100

NO.	DATE	REVISION	BY	CHKD.	APPR.

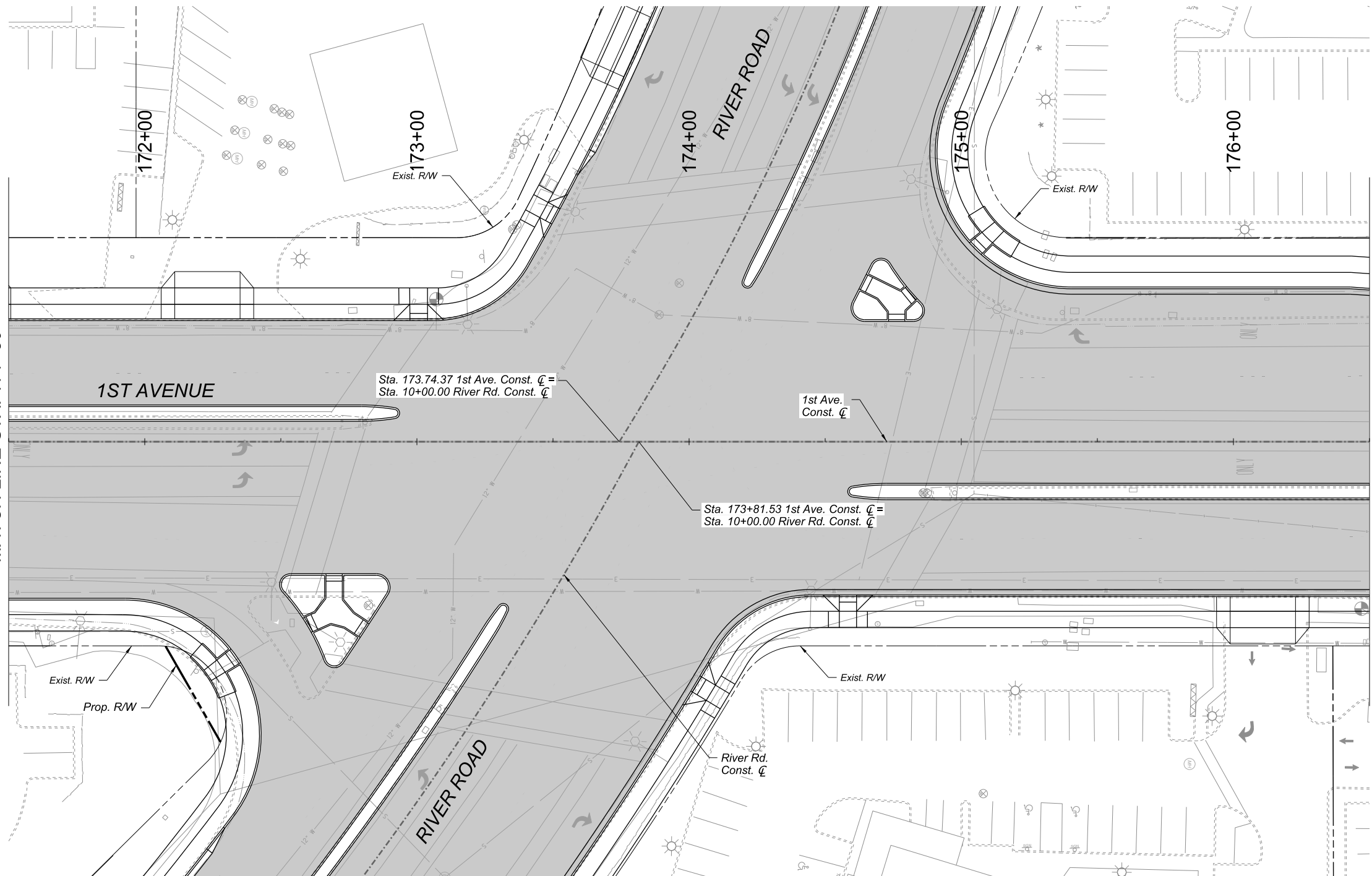
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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION			71
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS			OF
CITY OF TUCSON			128
DRWN BY JAR	CHKD BY JMF	APPR BY BLK	SCALE: H: 1" = 20' V: 1" = 2'
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX



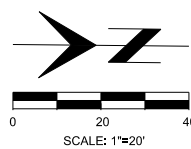
MATCH LINE STA. 171+50

MATCH LINE STA. 176+50



1st Ave 171+50 to 176+50  
PAVING PLAN

SHEET 57 OF 100

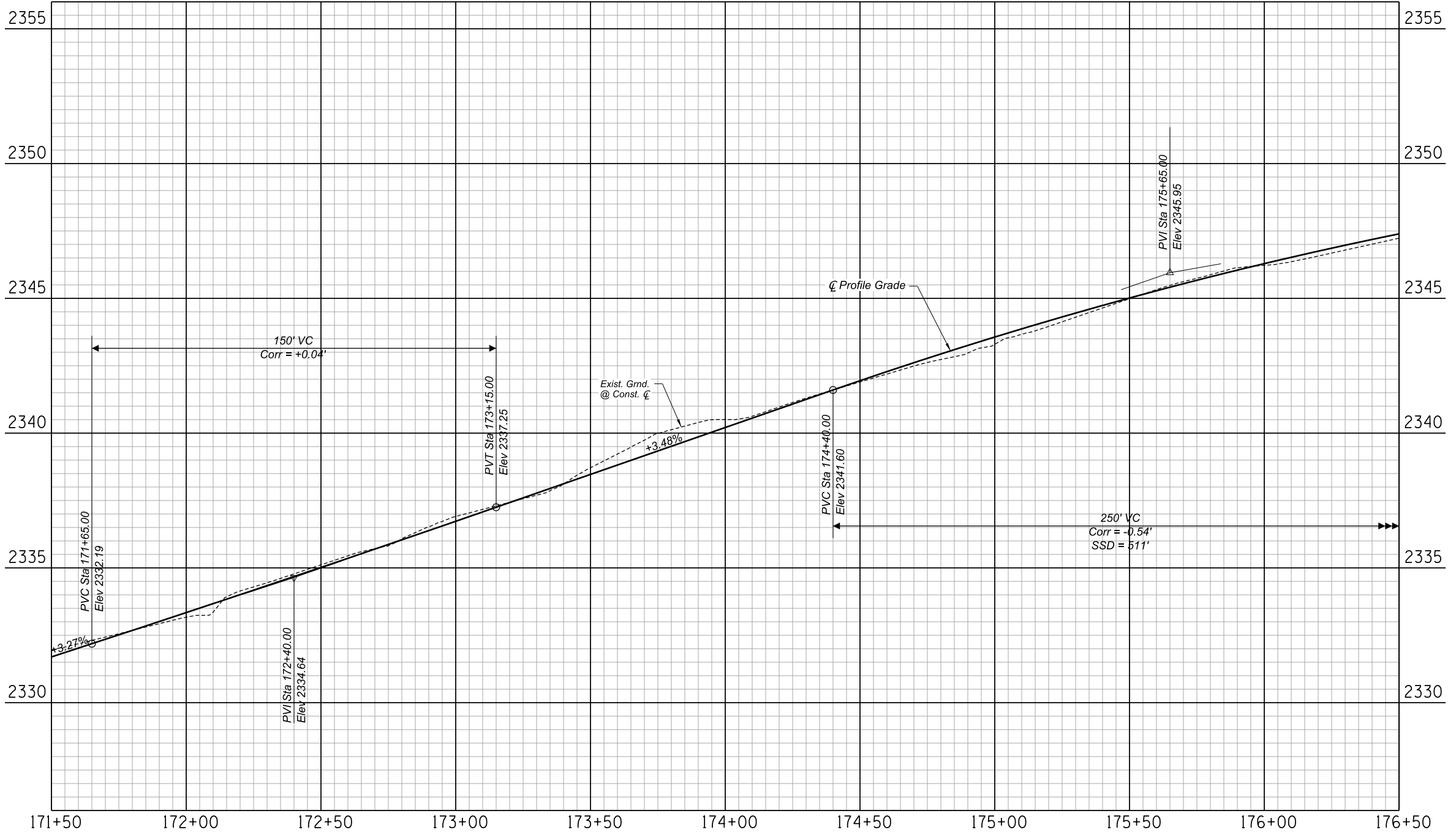


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Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				72
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF 128
	DRWN. BY JAR DEC 2025	CHKD. BY JMF DEC 2025	APPR. BY BLK DEC 2025	SCALE: 1"=20' PLAN NO. R-2024-XXX



1st Ave 171+50 to 176+50  
PAVING PROFILE

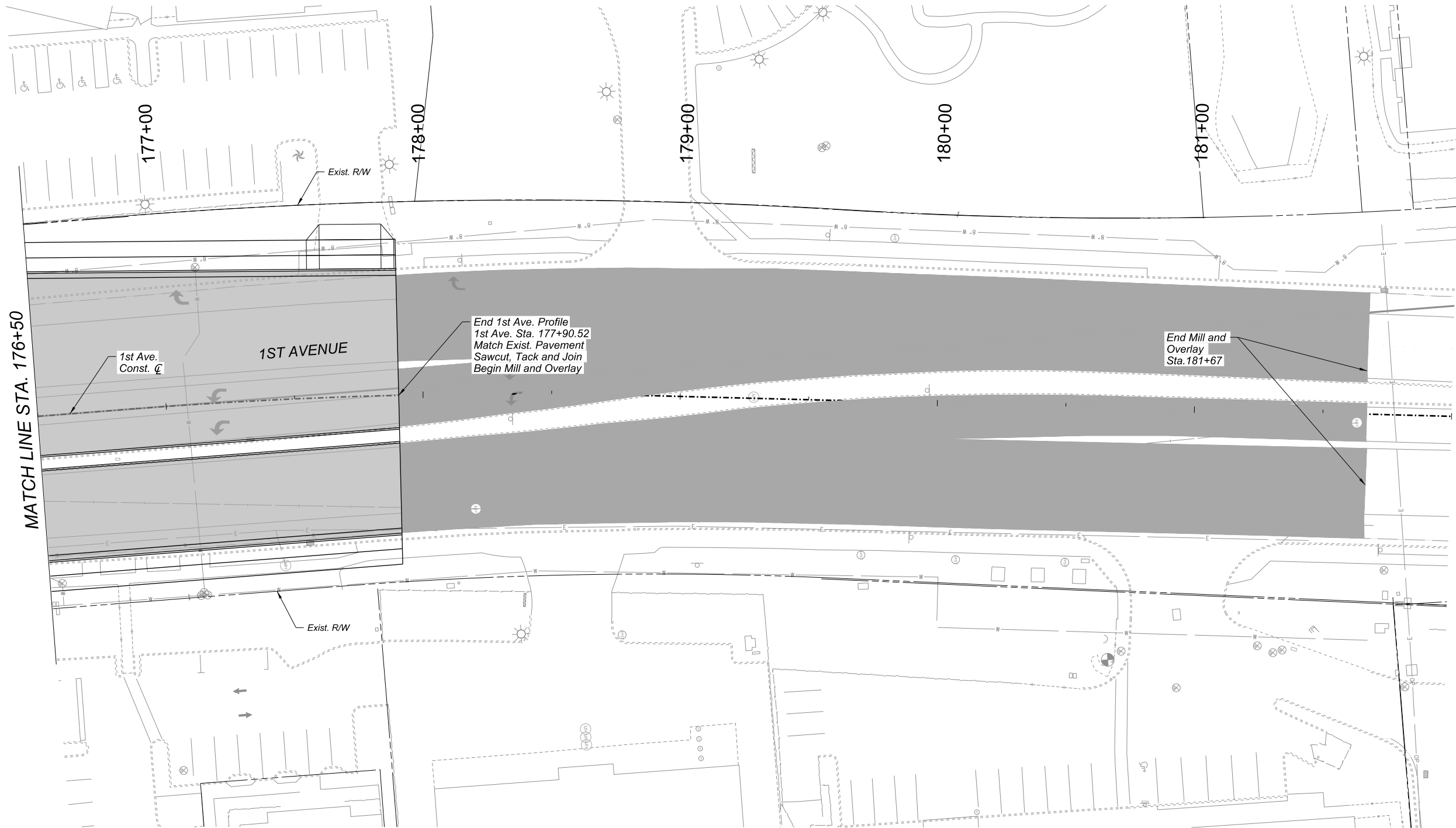
SHEET 58 OF 100

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				73
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJL	SCALE: H: 1" = 20' V: 1" = 2'	
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	





MATCH LINE STA. 176+50

1st Ave.  
Const. C

1ST AVENUE

Exist. R/W

178+00

End 1st Ave. Profile  
1st Ave. Sta. 177+90.52  
Match Exist. Pavement  
Sawcut, Tack and Join  
Begin Mill and Overlay

179+00

180+00

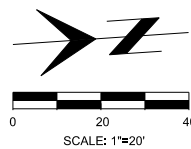
181+00

End Mill and  
Overlay  
Sta. 181+67

Exist. R/W

1st Ave 176+50 to End  
PAVING PLAN

SHEET 59 OF 100



Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION

1ST AVENUE, GRANT ROAD TO  
RIVER ROAD - ROADWAY IMPROVEMENTS



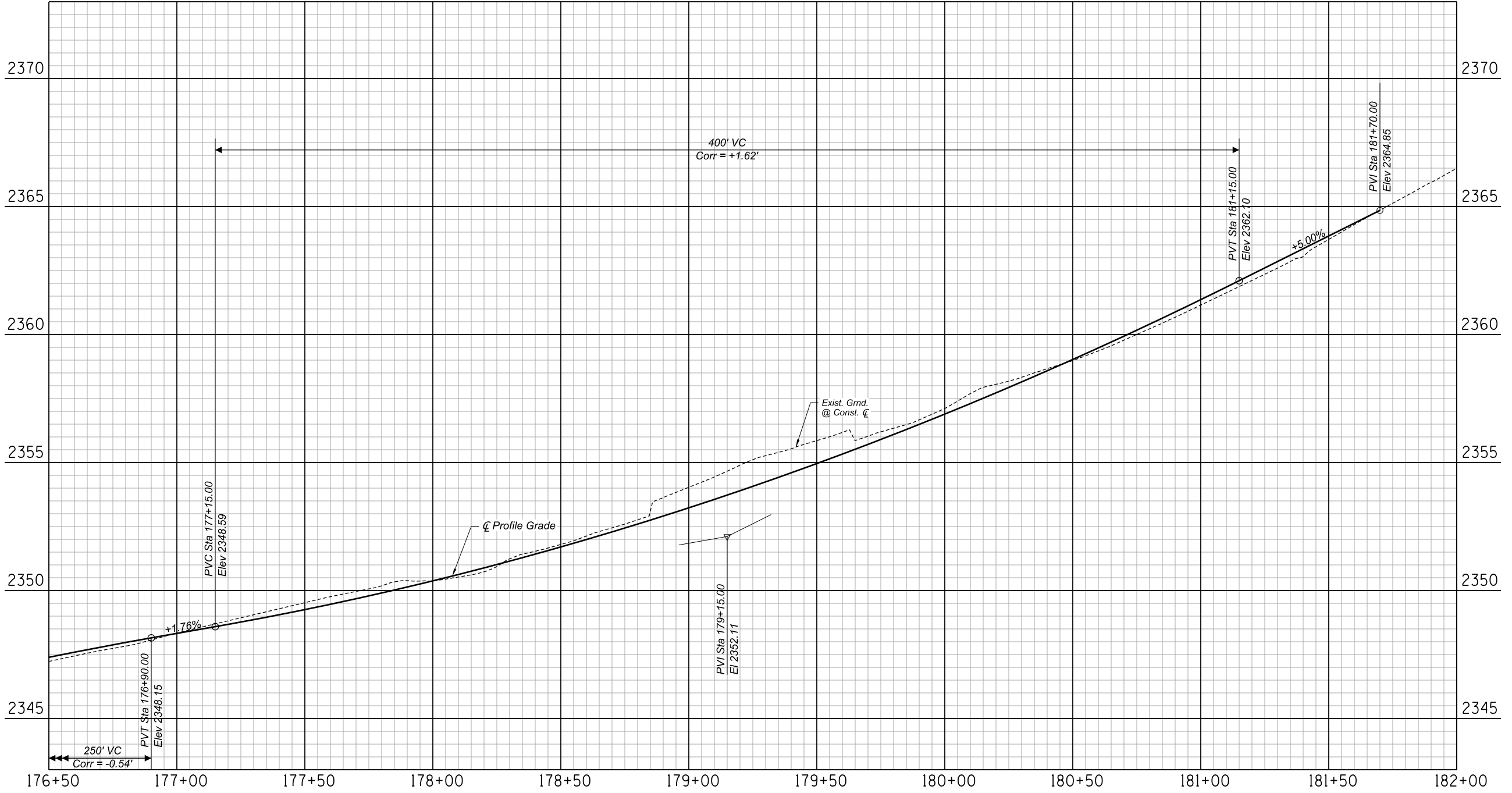
DRWN. BY JAR  
DEC 2025

CHKD. BY JMF  
DEC 2025

APPR. BY BLK  
DEC 2025

SCALE: 1"=20'  
PLAN NO. R-2024-XXX

74  
OF  
128



1st Ave 176+50 to End  
PAVING PROFILE

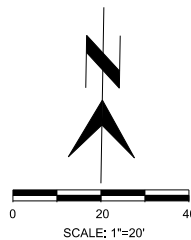
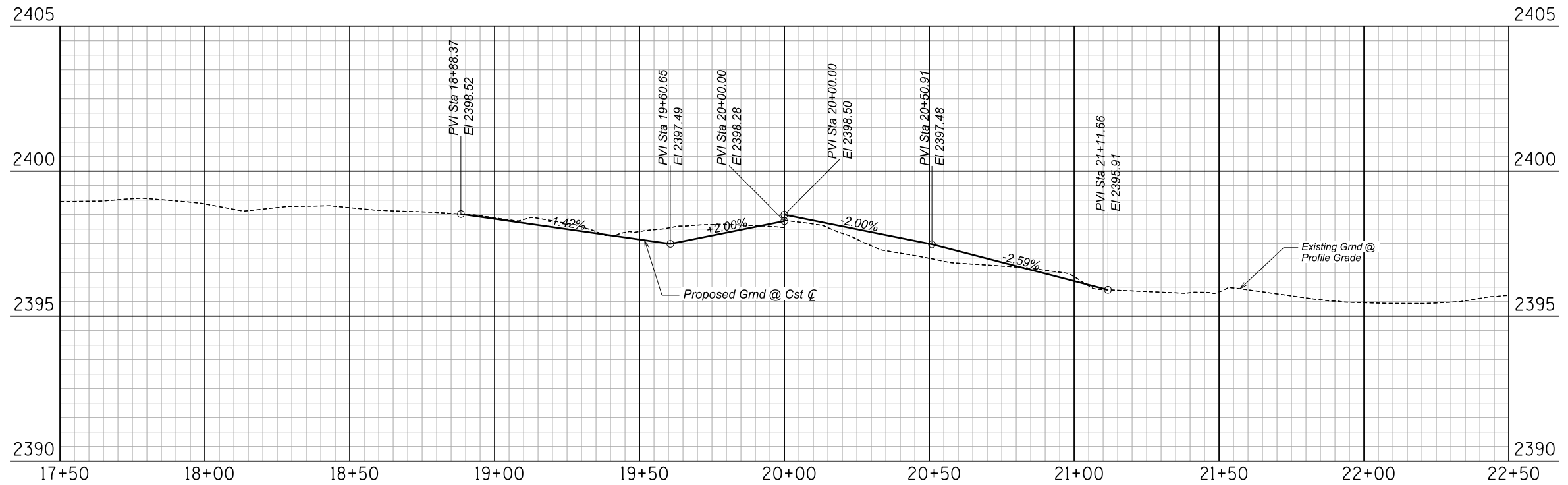
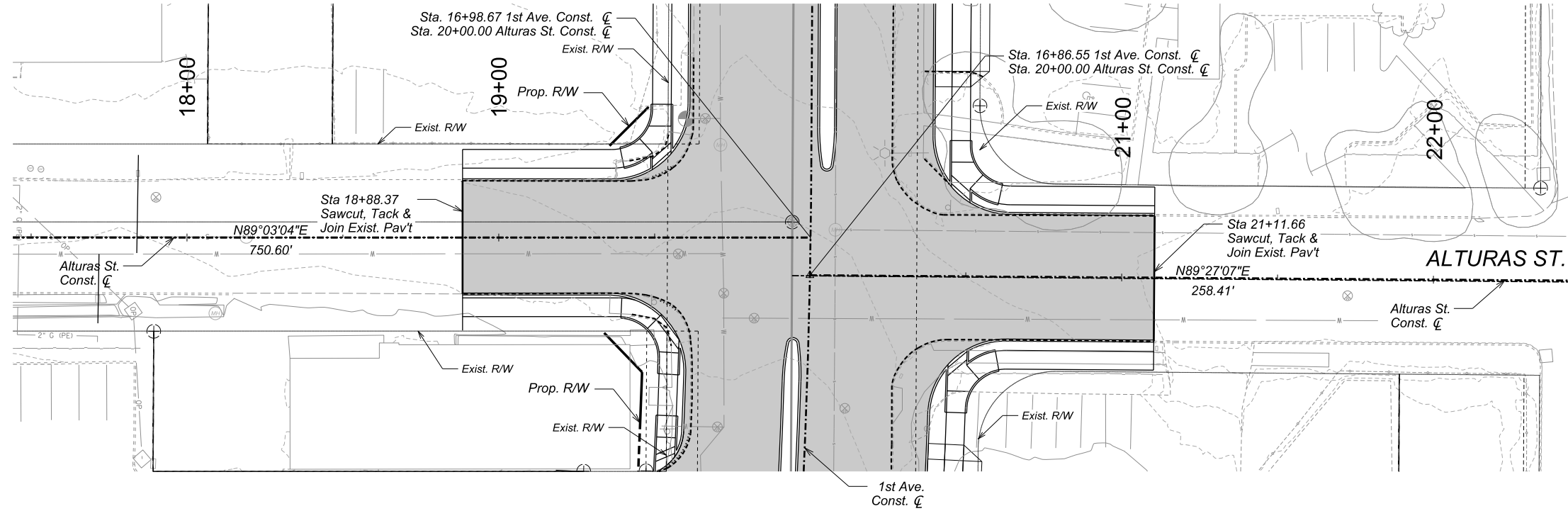
SHEET 60 OF 100

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION			75
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS			OF
CITY OF TUCSON			128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJK	SCALE: H: 1" = 20' V: 1" = 2'
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX





Record Document  
Dated: ##/##/####



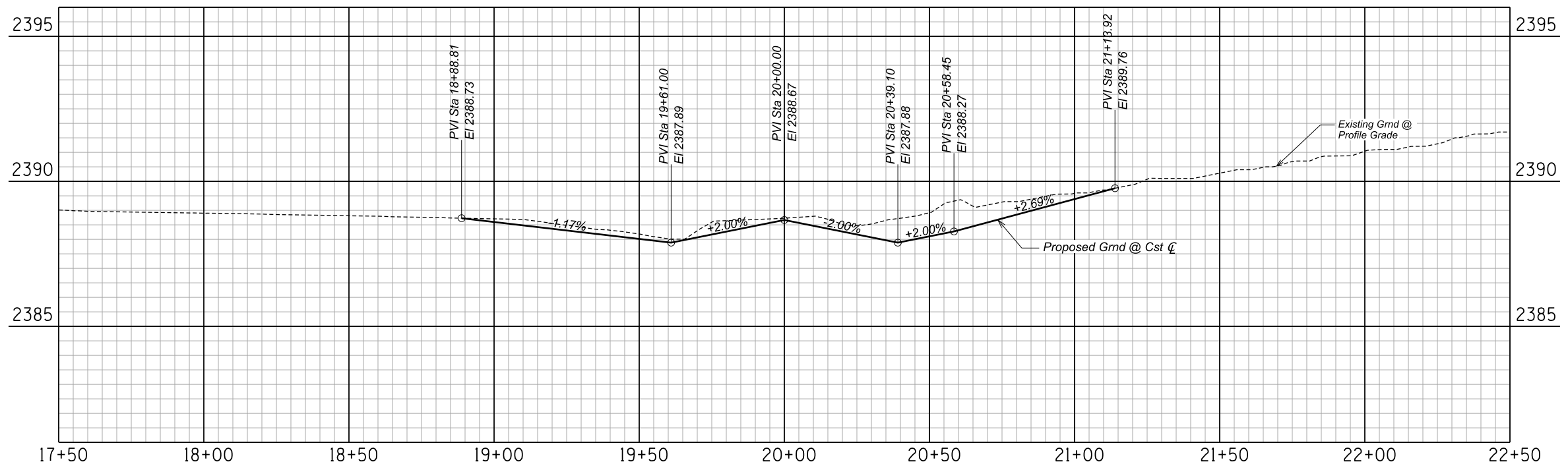
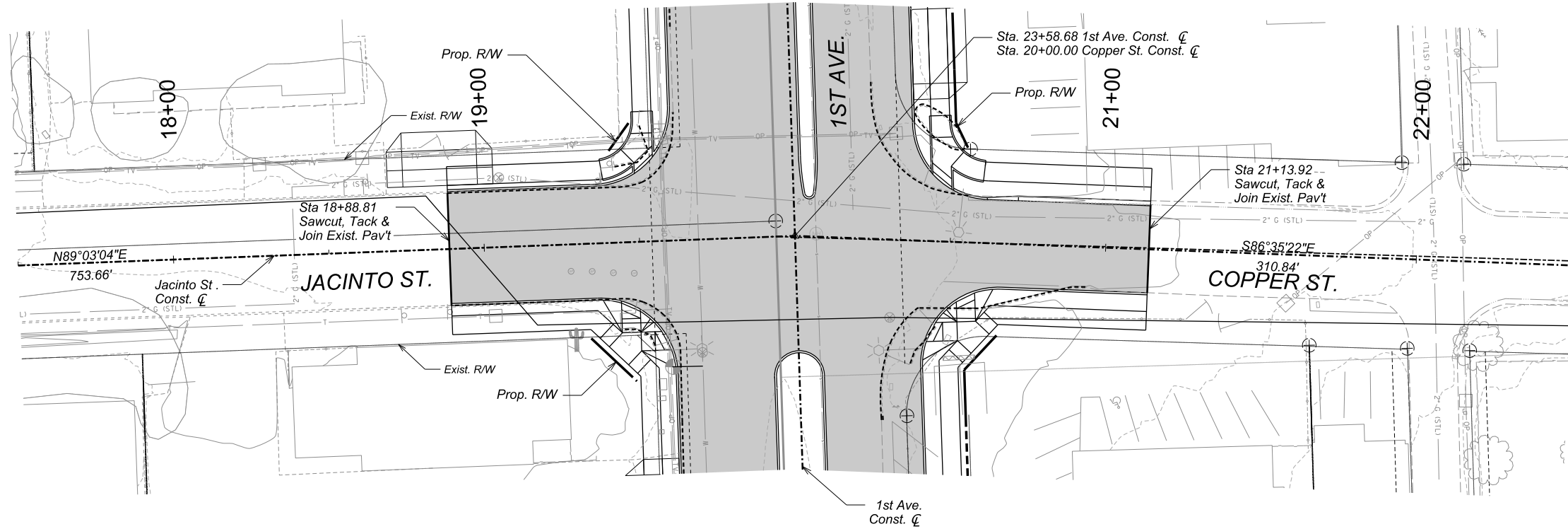
NO.	DATE	REVISION	BY	CHKD.	APPR.

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SUBMITTAL  
Preliminary  
Not For  
Construction

ALTURAS ST  
PAVING PLAN & PROFILE

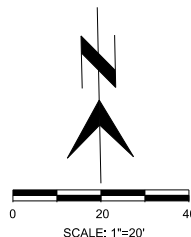
Sheet 61 of 100

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION			76
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS			OF
CITY OF TUCSON			128
DRWN. BY REC	CHKD. BY JDB	APPR. BY JDB	SCALE: H: 1"=20' V: 1"=2'
OCT 2025	OCT 2025	OCT 2025	PLAN NO. R-2024-XXX



JACINTO ST/COPPER ST  
PAVING PLAN & PROFILE

Sheet 62 of 100



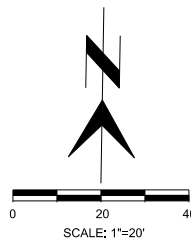
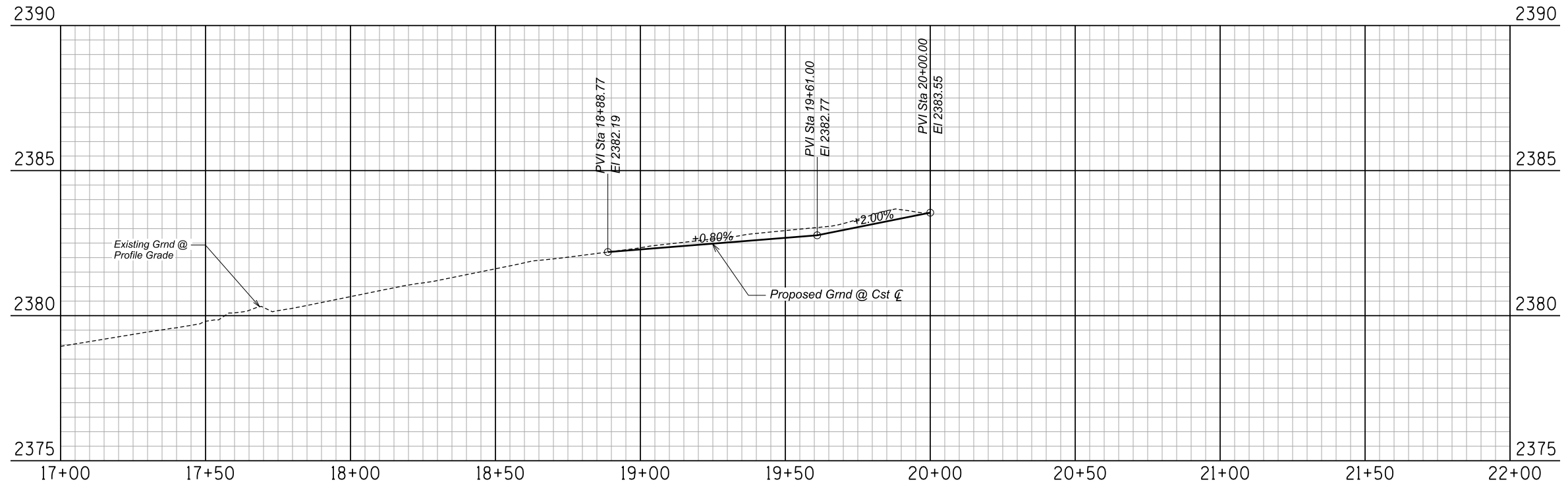
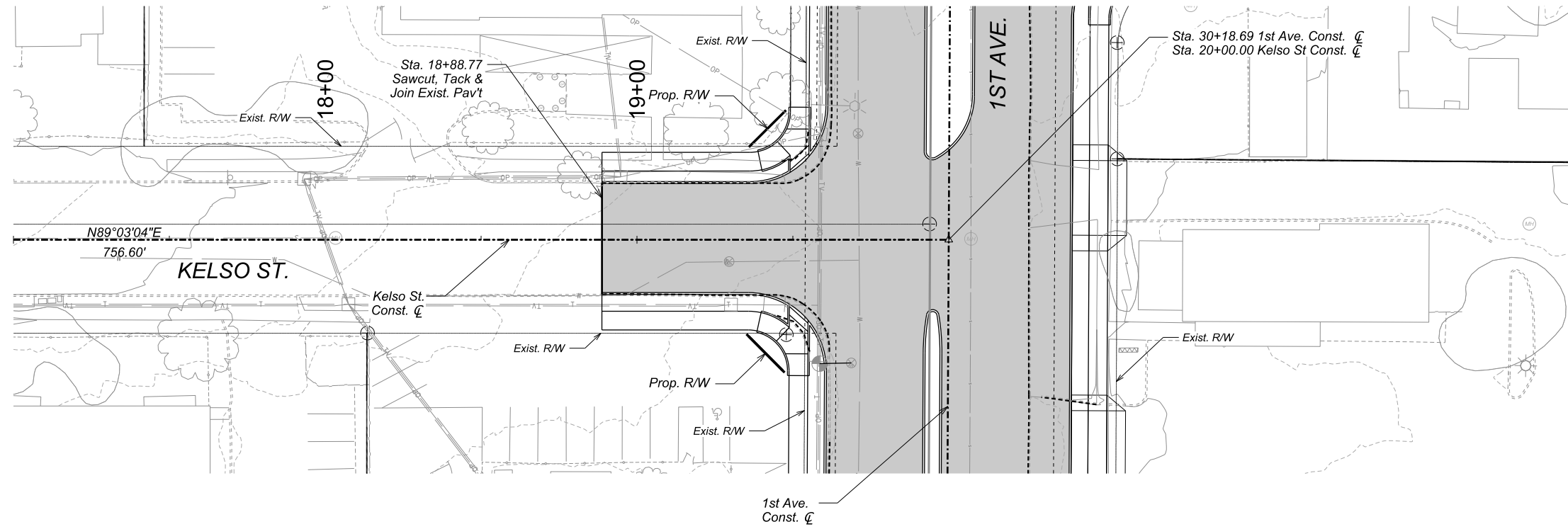
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NO.	DATE	REVISION	BY	CHKD.	APPR.

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SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION			77
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS			OF 128
	DRWN. BY REC OCT 2025	CHKD. BY JDB OCT 2025	APPR. BY JDB OCT 2025
SCALE: H: 1"=20' V: 1"=2'			PLAN NO. R-2024-XXX



Record Document  
Dated: ##/##/####



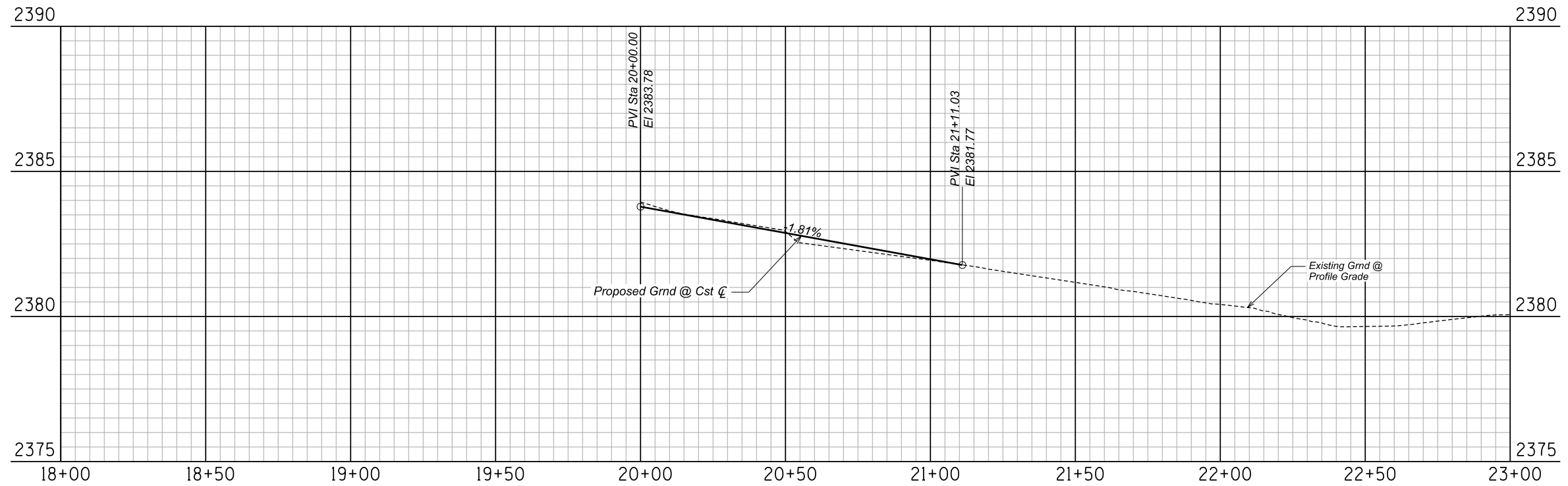
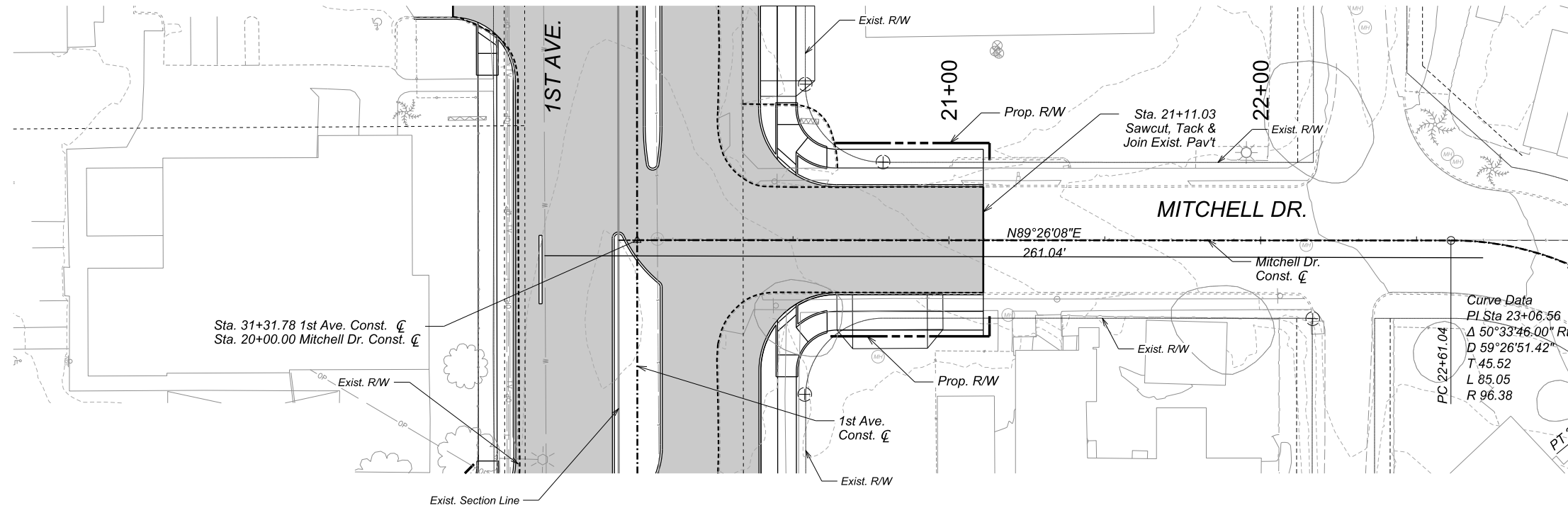
NO.	DATE	REVISION	BY	CHKD.	APPR.

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SUBMITTAL  
Preliminary  
Not For  
Construction

**KELSO ST  
PAVING PLAN & PROFILE**

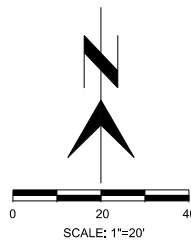
Sheet 63 of 100

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION			78
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS			OF
CITY OF TUCSON			128
DRWN. BY REC	CHKD. BY JDB	APPR. BY JDB	SCALE: H: 1"=20' V: 1"=2'
OCT 2025	OCT 2025	OCT 2025	PLAN NO. R-2024-XXX



**MITCHELL DR  
PAVING PLAN & PROFILE**

Sheet 64 of 100



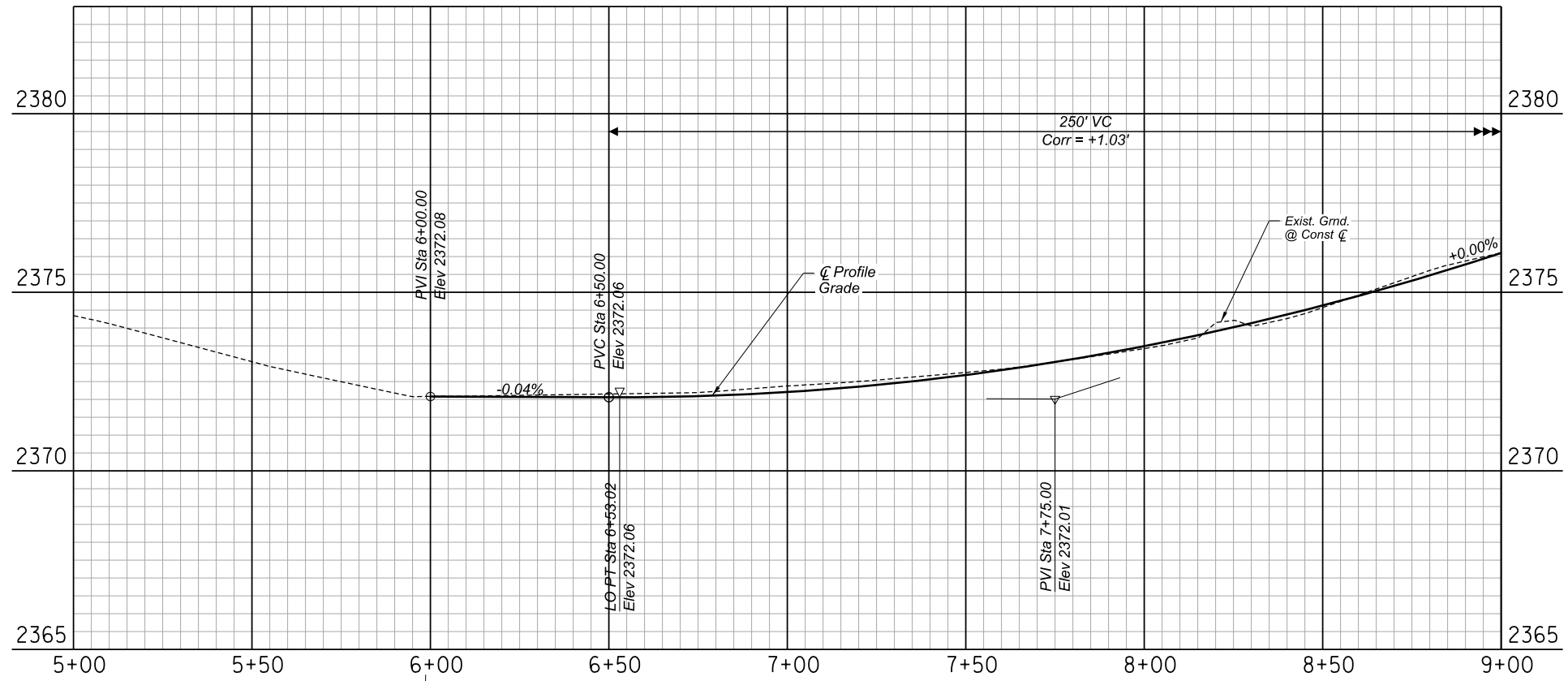
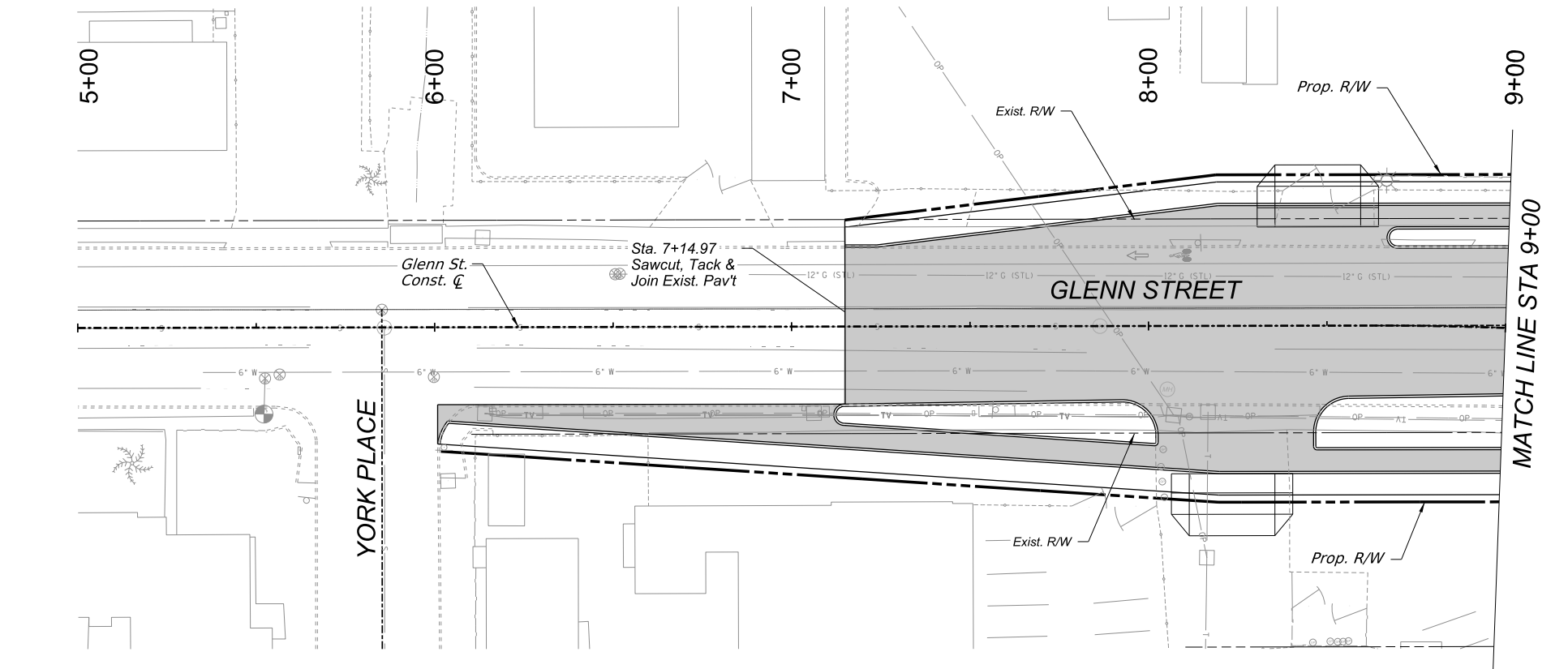
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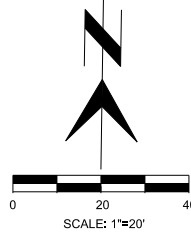
15%  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				79
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY REC	CHKD. BY JDB	APPR. BY JDB	SCALE: H: 1"=20' V: 1"=2'	
OCT 2025	OCT 2025	OCT 2025	PLAN NO. R-2024-XXX	



GLENN ST  
PAVING PLAN & PROFILE

SHEET 65 OF 100

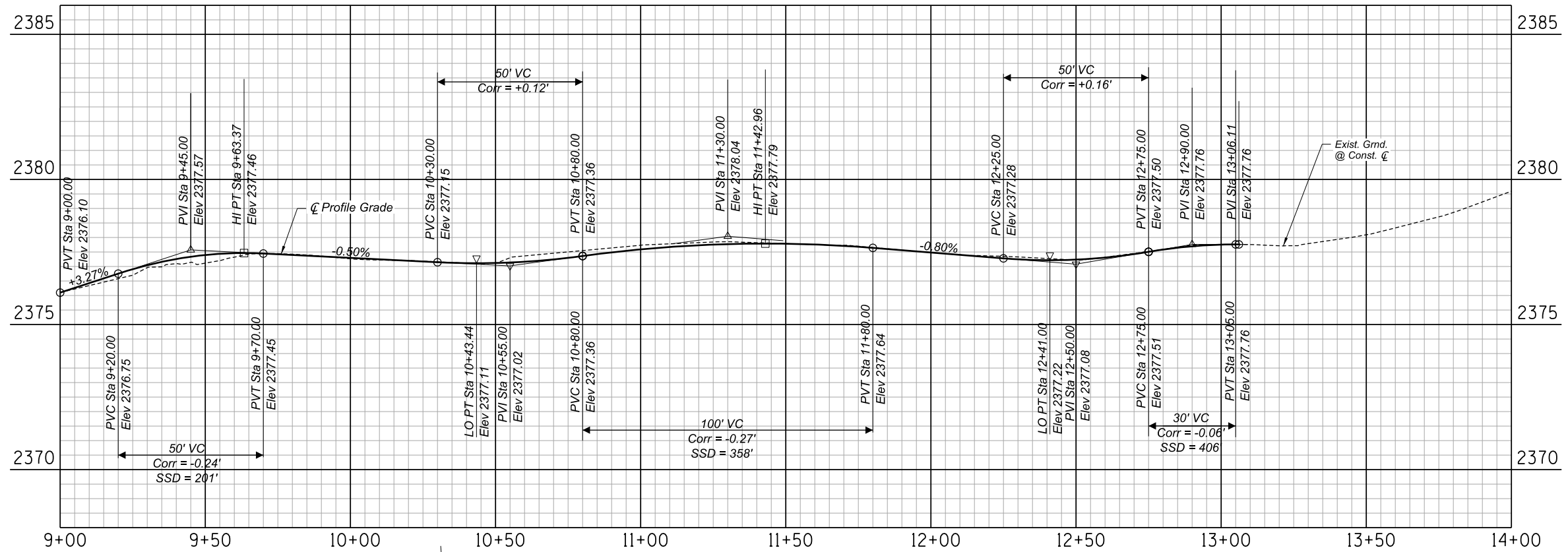
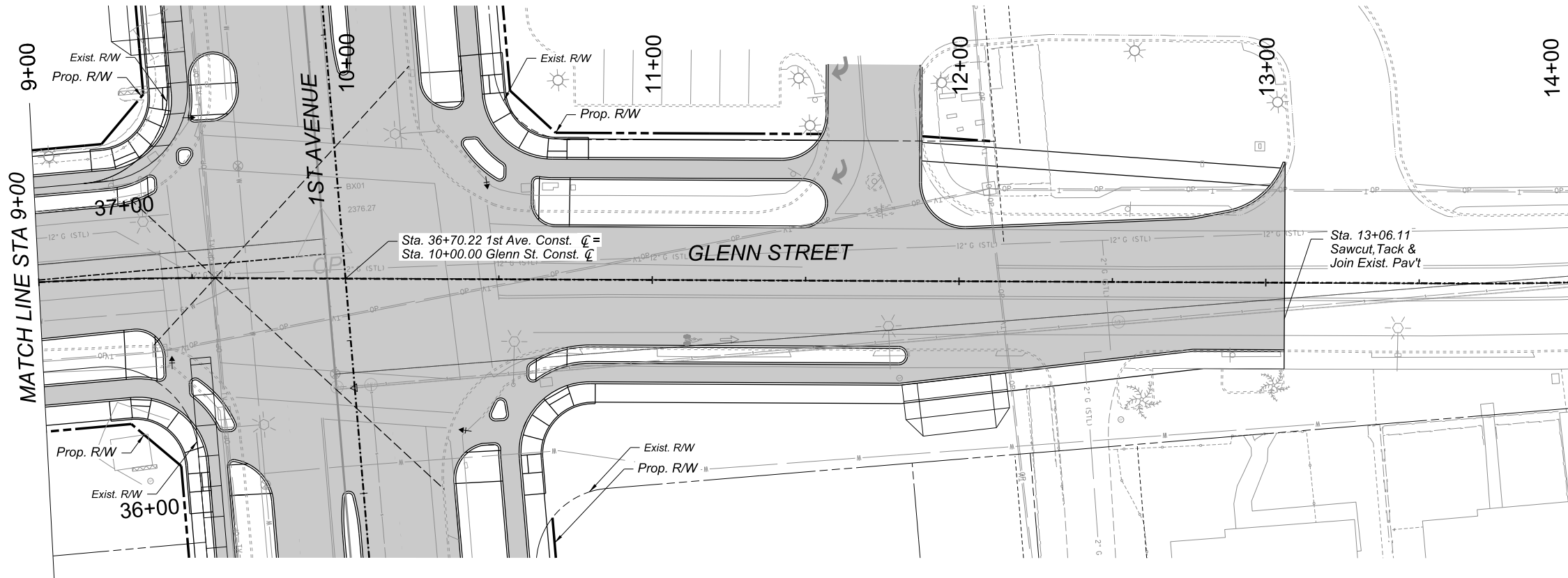


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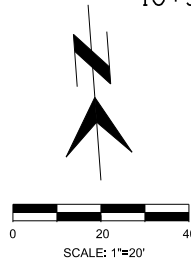
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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION			80
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS			OF
CITY OF TUCSON			128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJK	SCALE: H: 1"=20' V: 1"=2'
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX



GLENN ST  
PAVING PLAN & PROFILE

SHEET 66 OF 100

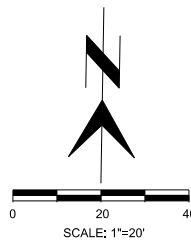
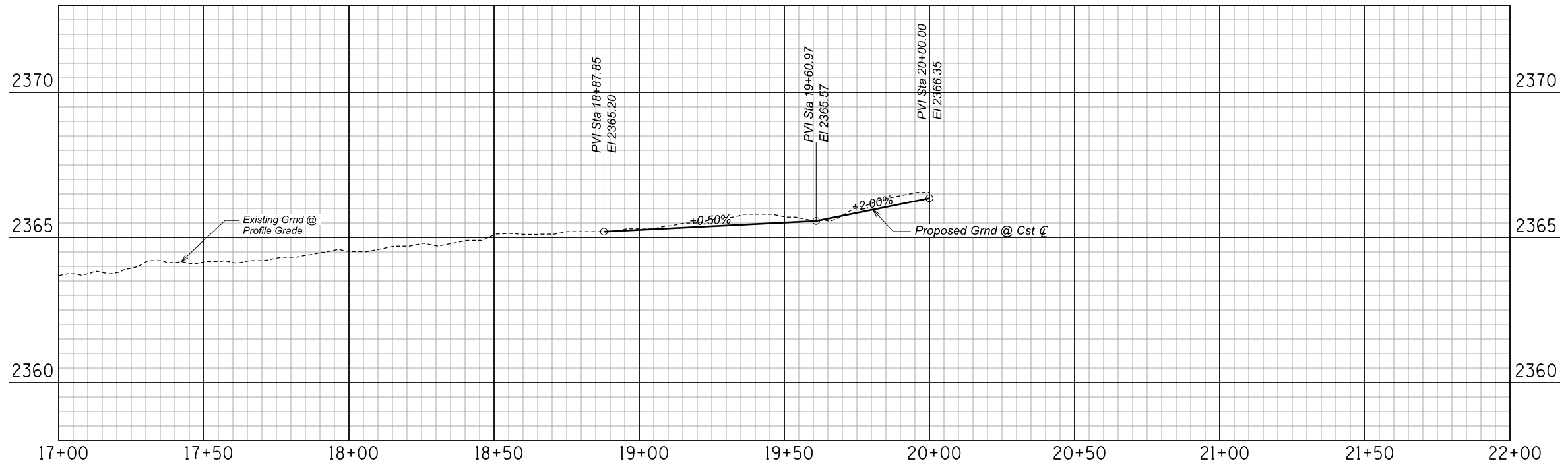
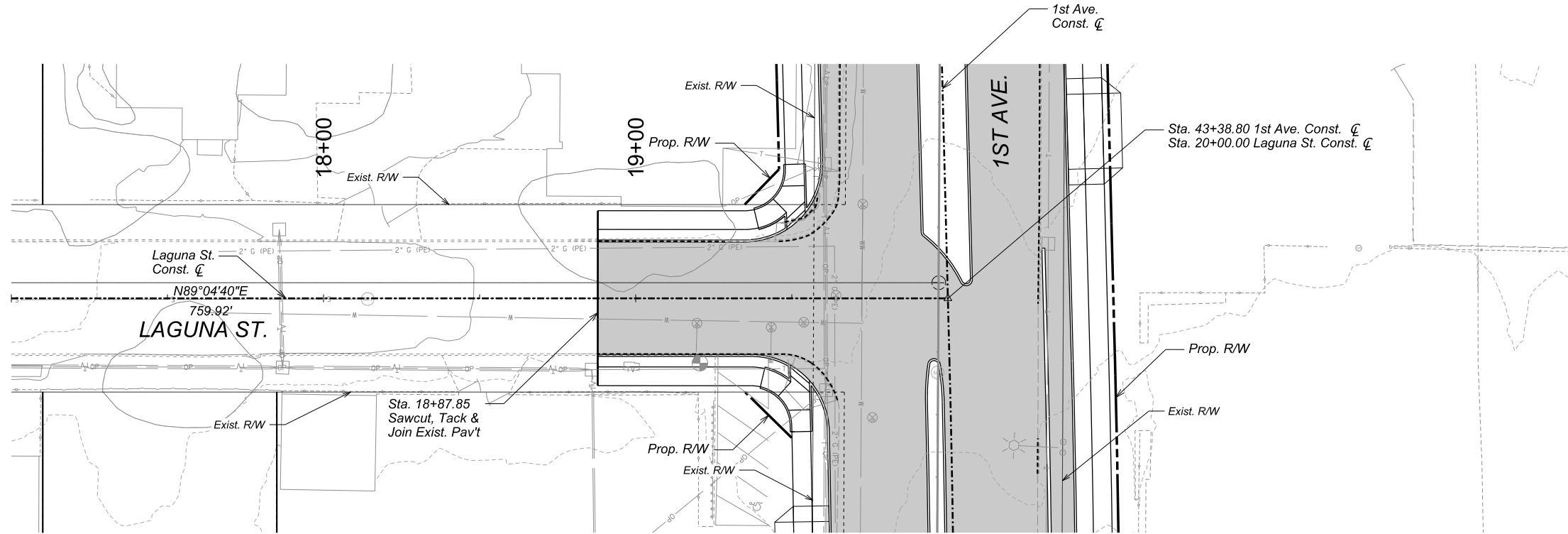


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SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION			81
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS			OF
CITY OF TUCSON			128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: H: 1"=20' V: 1"=2'
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX



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Dated: ##/##/####



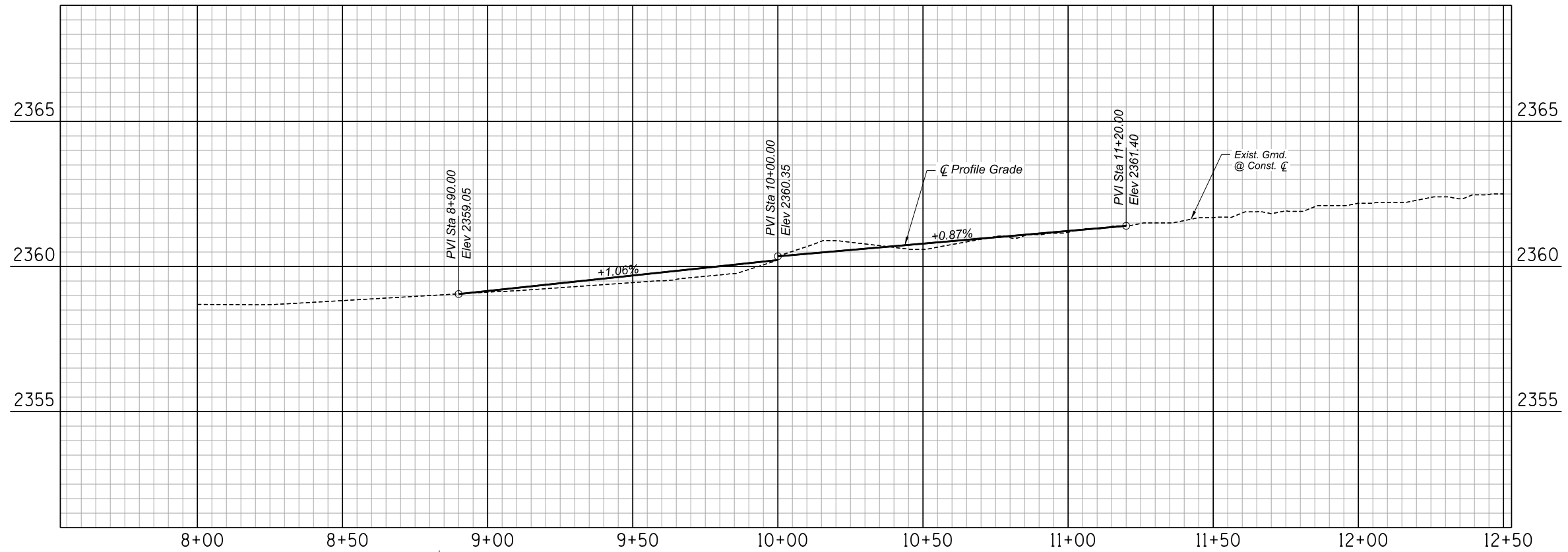
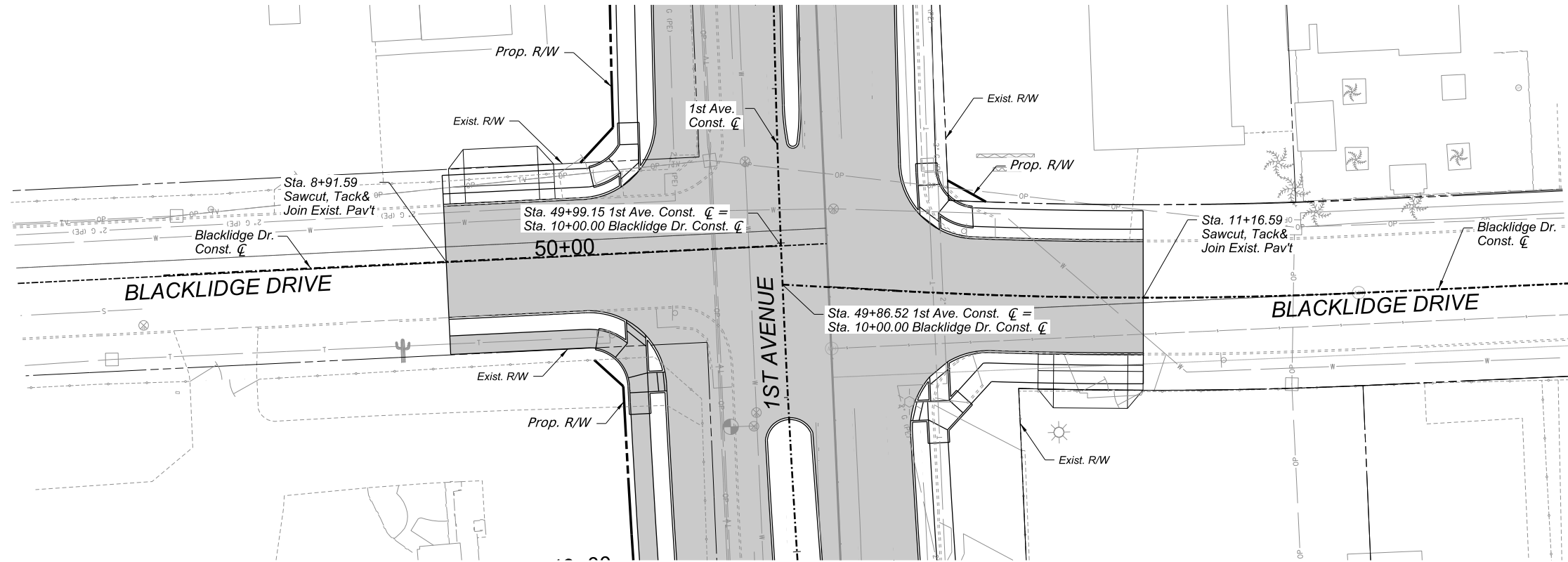
NO.	DATE	REVISION	BY	CHKD.	APPR.

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Preliminary  
Not For  
Construction

LAGUNA ST  
PAVING PLAN & PROFILE

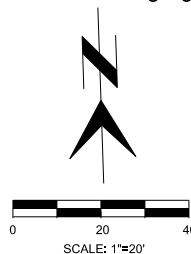
Sheet 67 of 100

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				82
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY REC	CHKD. BY JDB	APPR. BY JDB	SCALE: H: 1"=20' V: 1"=2'	PLAN NO. R-2024-XXX
OCT 2025	OCT 2025	OCT 2025		



**BLACKLIDGE DR  
PAVING PLAN & PROFILE**

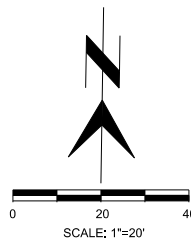
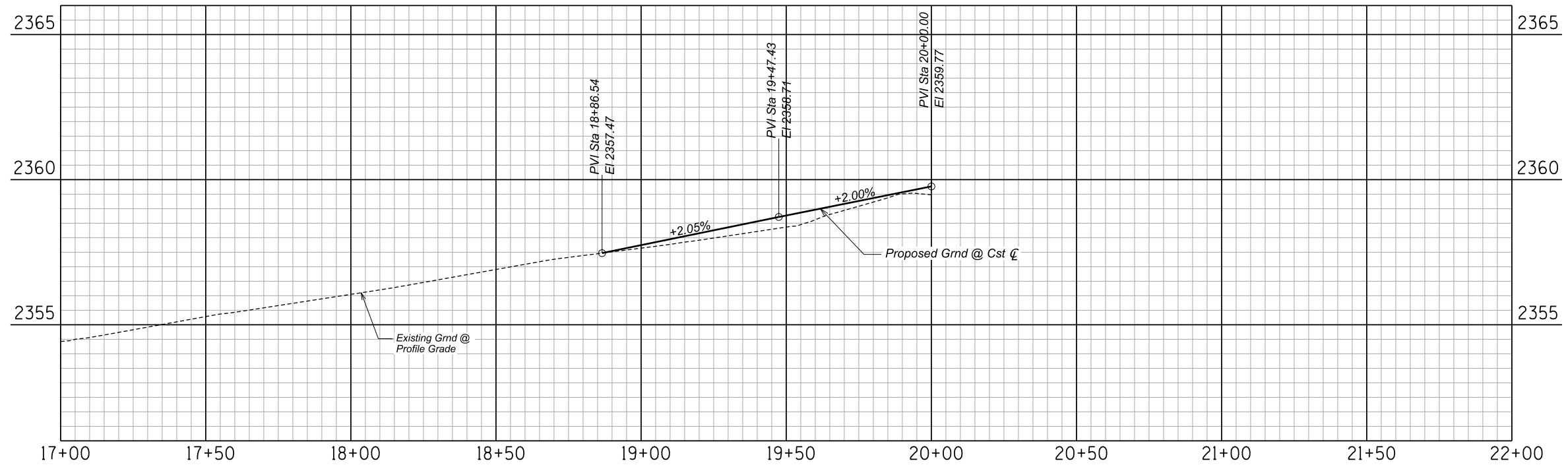
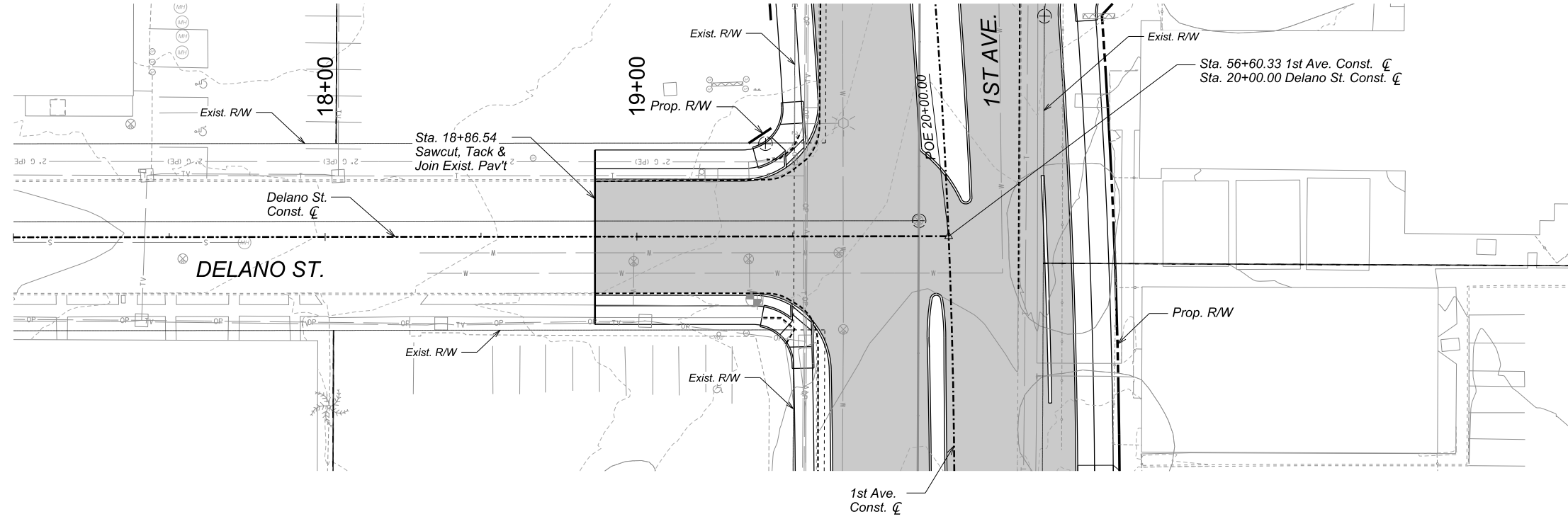
**SHEET 68 OF 100**



NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				83
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN BY JAR	CHKD BY JMF	APPR BY BLK	SCALE: H: 1"=20' V: 1"=2'	
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	



Record Document  
Dated: ##/##/####



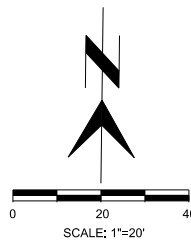
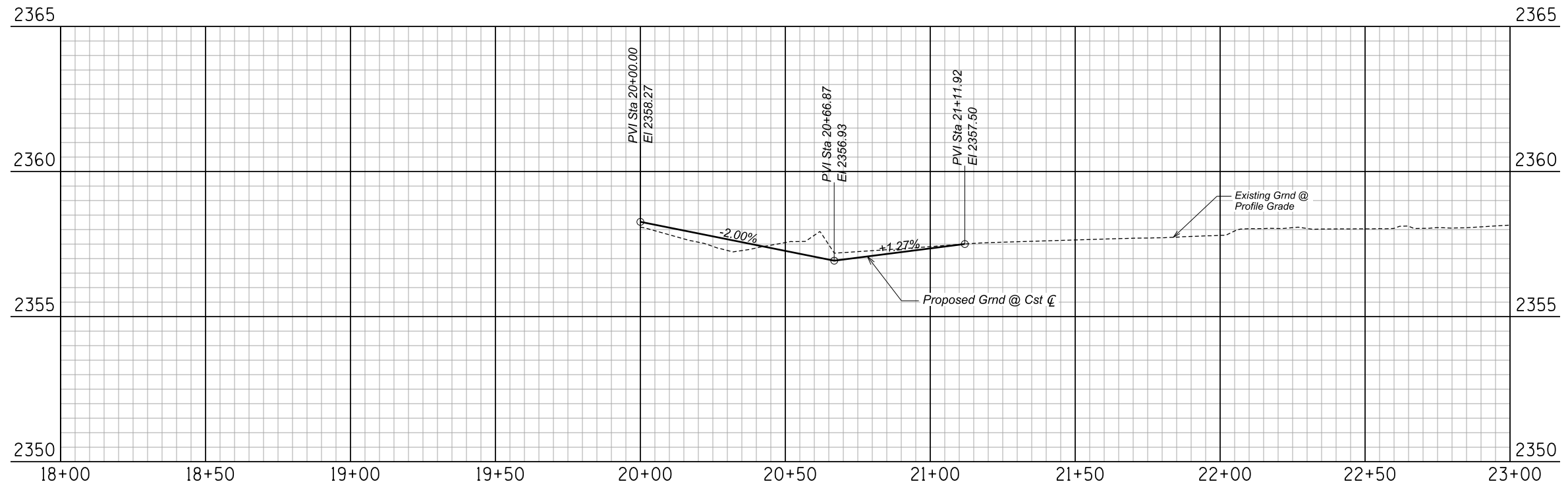
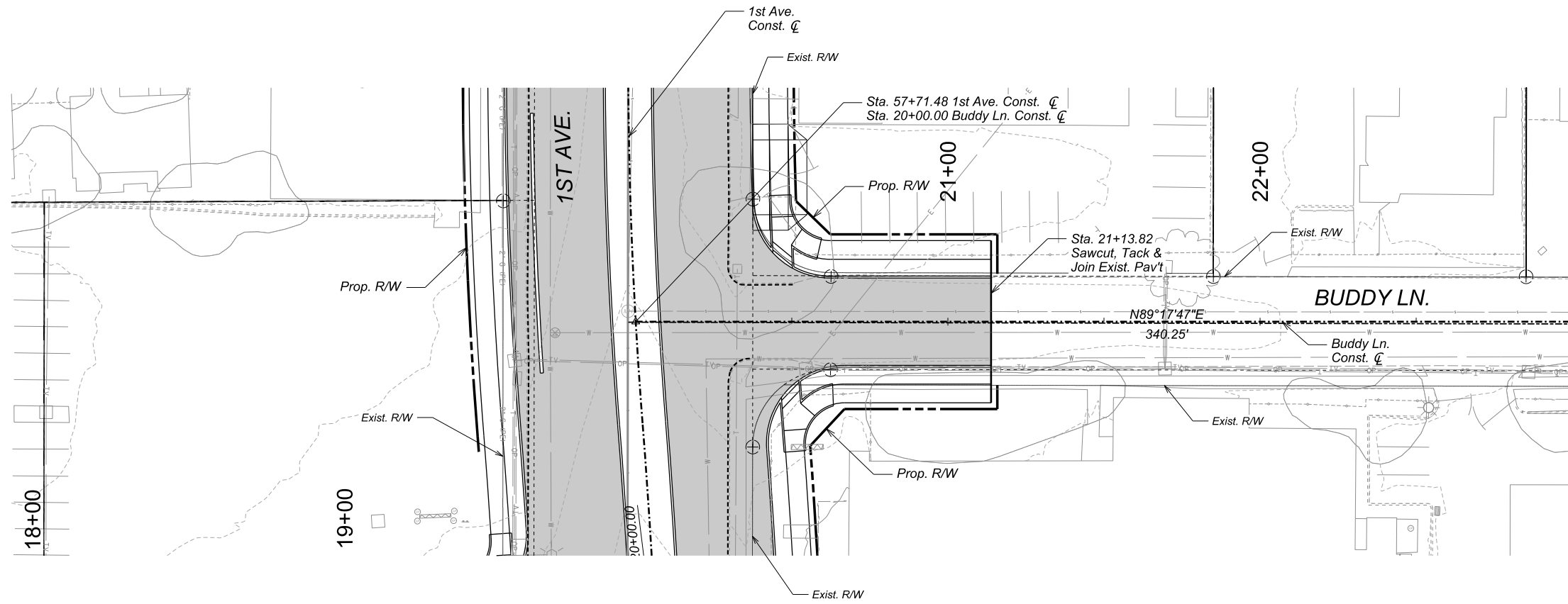
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SUBMITTAL  
Preliminary  
Not For  
Construction

DELANO ST  
PAVING PLAN & PROFILE

Sheet 69 of 100

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION			84
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS			OF 128
	DRWN. BY REC OCT 2025	CHKD. BY JDB OCT 2025	APPR. BY JDB OCT 2025
SCALE: H: 1"=20' V: 1"=2'			PLAN NO. R-2024-XXX



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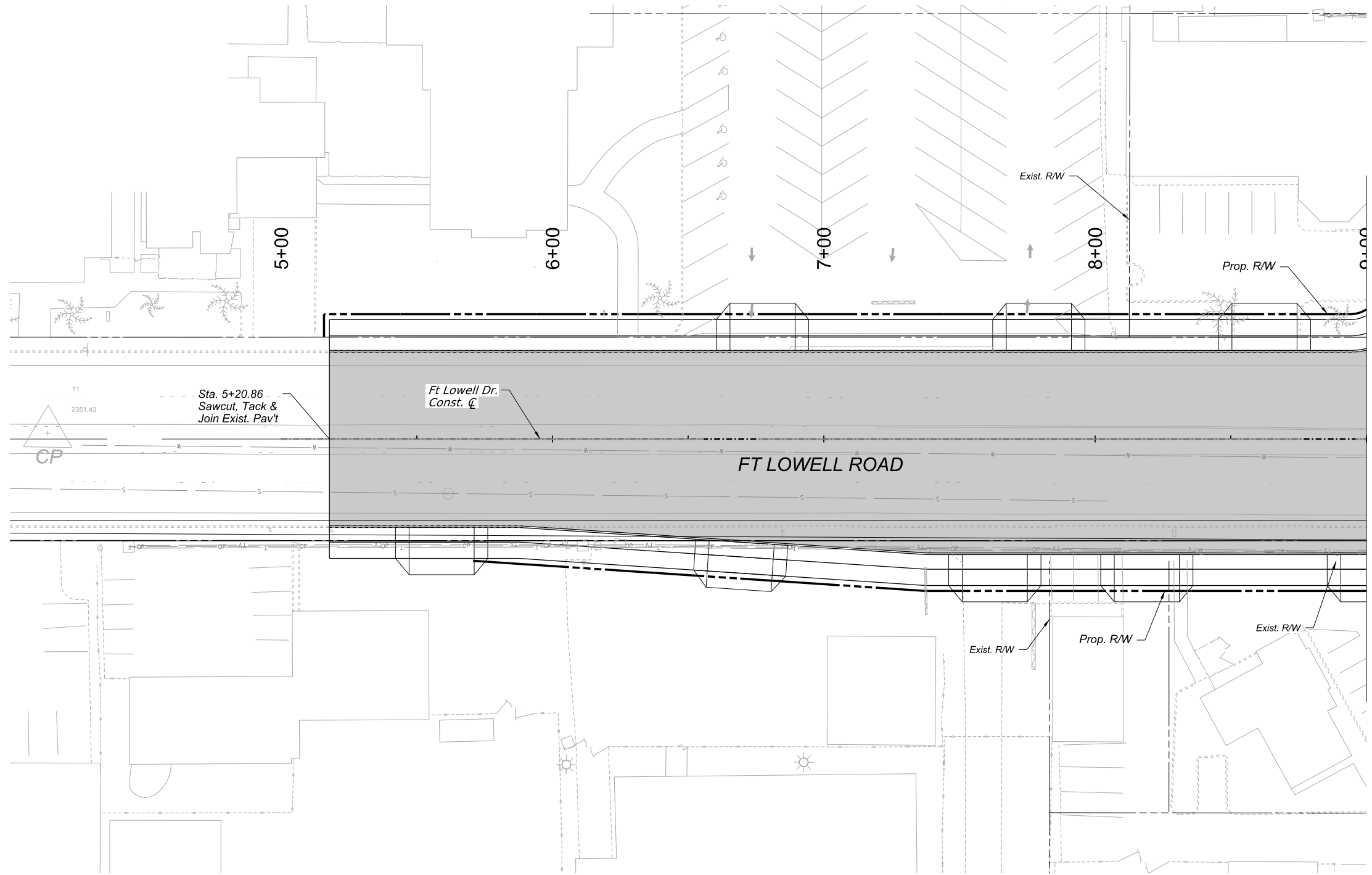
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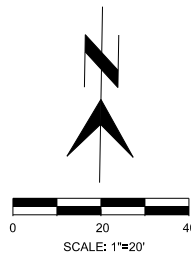
**BUDDY LN  
 PAVING PLAN & PROFILE**

Sheet 70 of 100

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION			85
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS			OF
CITY OF TUCSON			128
DRWN. BY REC	CHKD. BY JDB	APPR. BY JDB	SCALE: H: 1"=20' V: 1"=2'
OCT 2025	OCT 2025	OCT 2025	PLAN NO. R-2024-XXX



MATCHLINE STA 9+00



Record Document  
Dated: ##/##/####

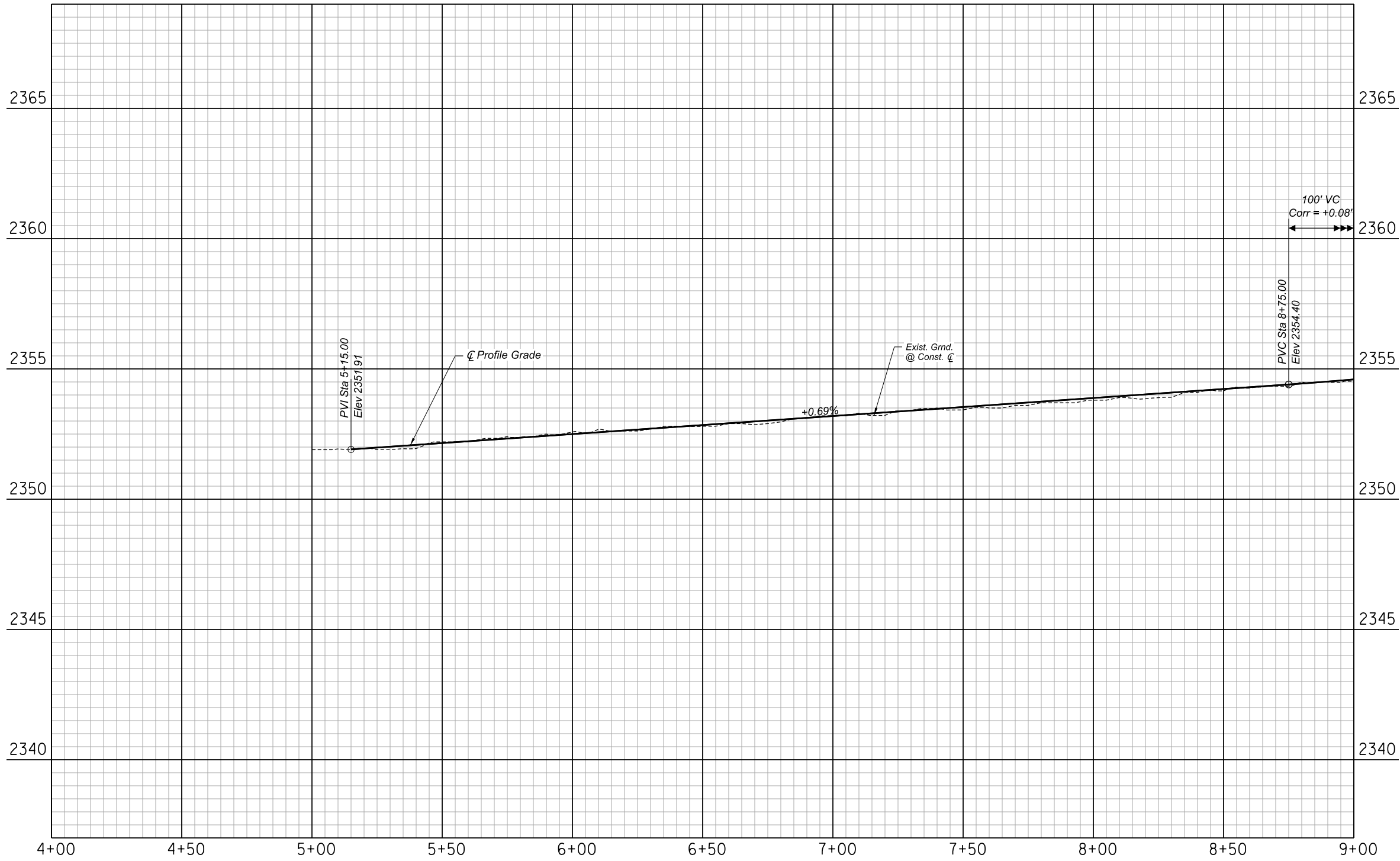
NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

FT LOWELL RD  
PAVING PLAN

SHEET 71 OF 100

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				86
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: 1"=20'	
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	



FT LOWELL RD  
PAVING PROFILE

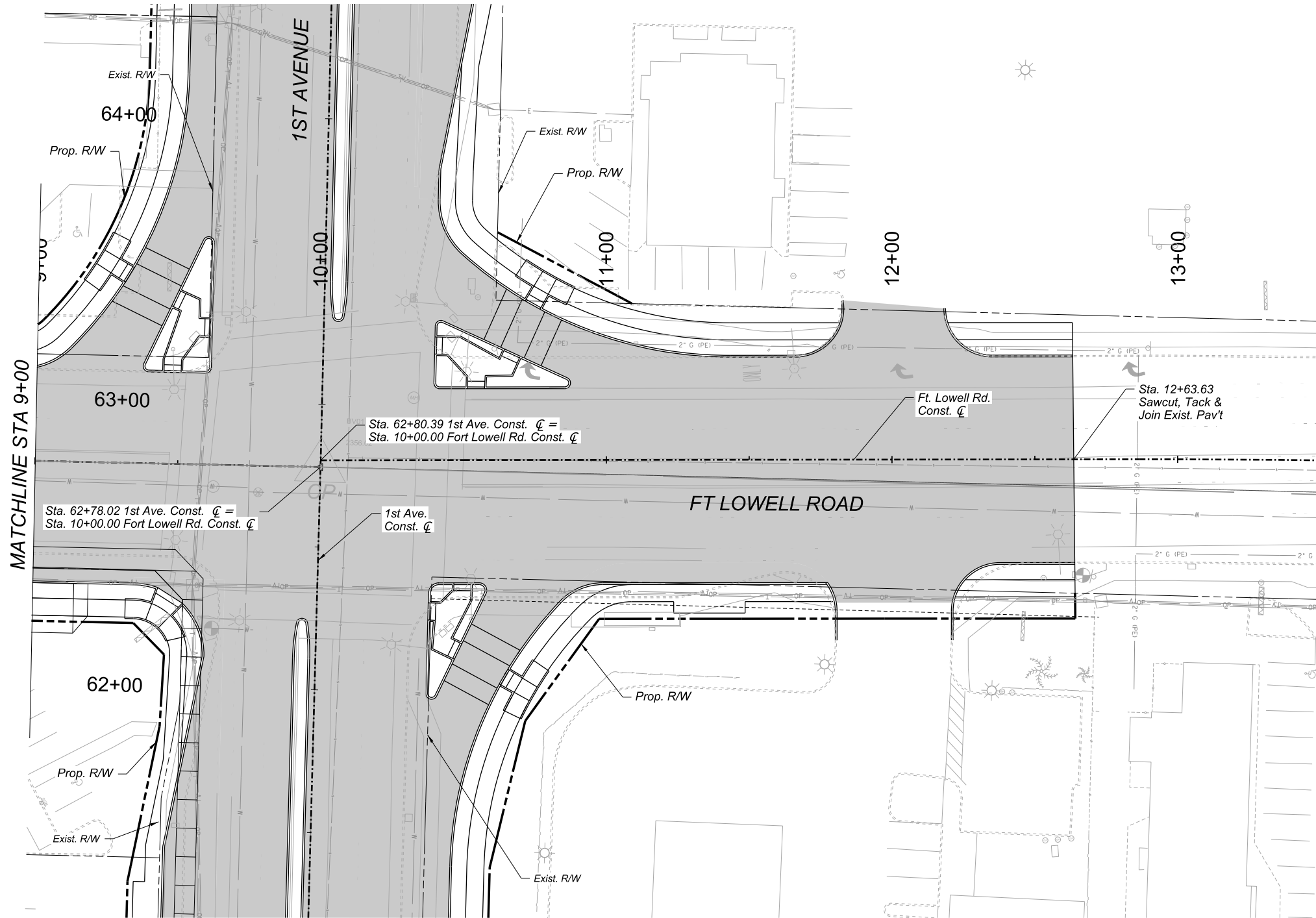
SHEET 72 OF 100

NO.	DATE	REVISION	BY	CHKD.	APPR.

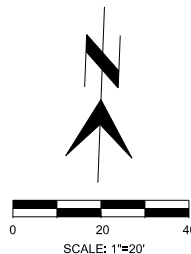
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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				87
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN BY JAR	CHKD BY JMF	APPR BY BJK	SCALE: H: 1" = 20' V: 1" = 2'	
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	





MATCHLINE STA 9+00



Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

### FT LOWELL RD PAVING PLAN

SHEET 73 OF 100

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION

1ST AVENUE, GRANT ROAD TO  
RIVER ROAD - ROADWAY IMPROVEMENTS



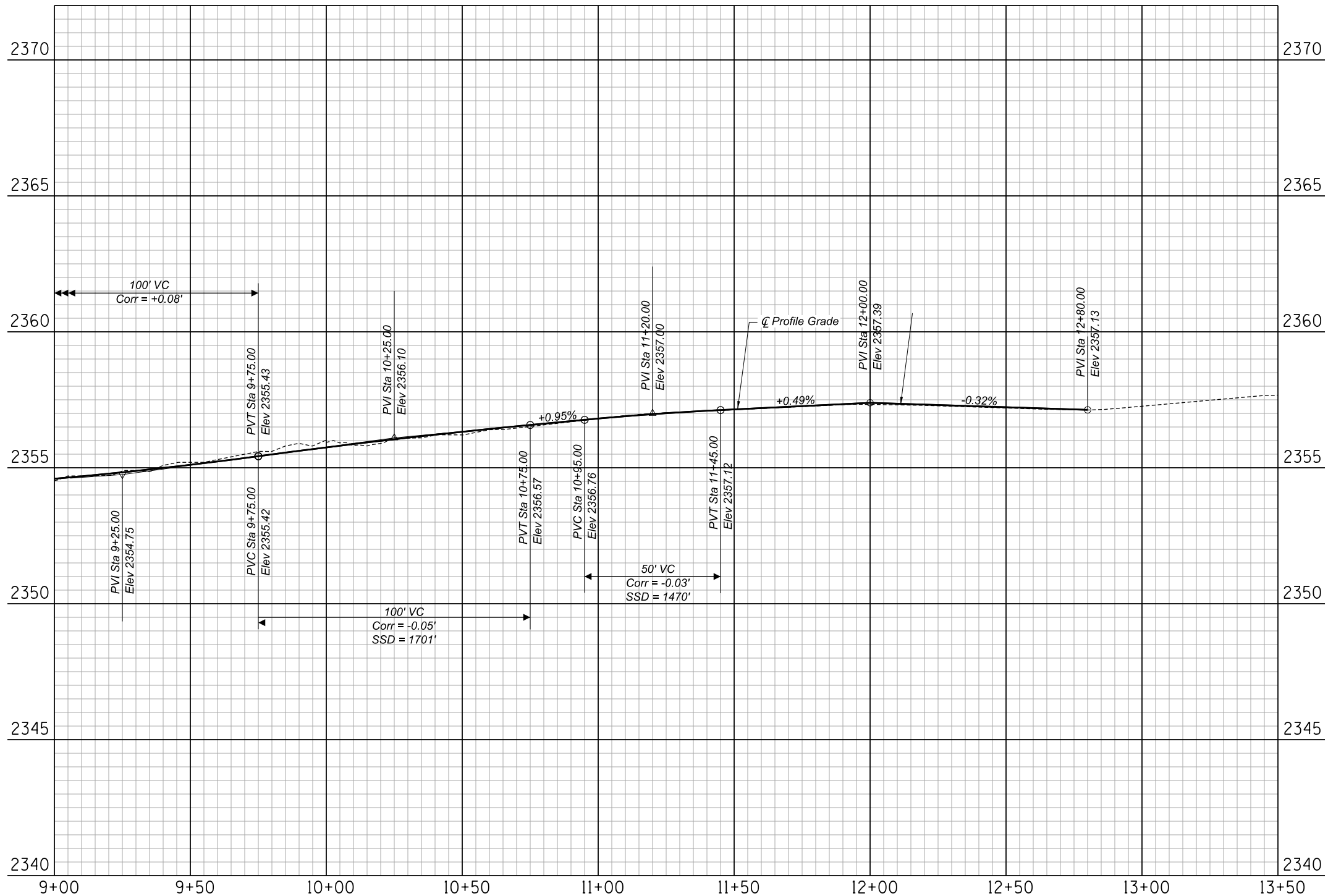
DRWN. BY JAR  
DEC 2025

CHKD. BY JMF  
DEC 2025

APPR. BY BLK  
DEC 2025

SCALE: H: 1" = 20'  
PLAN NO. R-2024-XXX

88  
OF  
128



**FT LOWELL RD  
PAVING PROFILE**

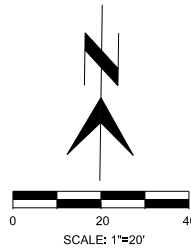
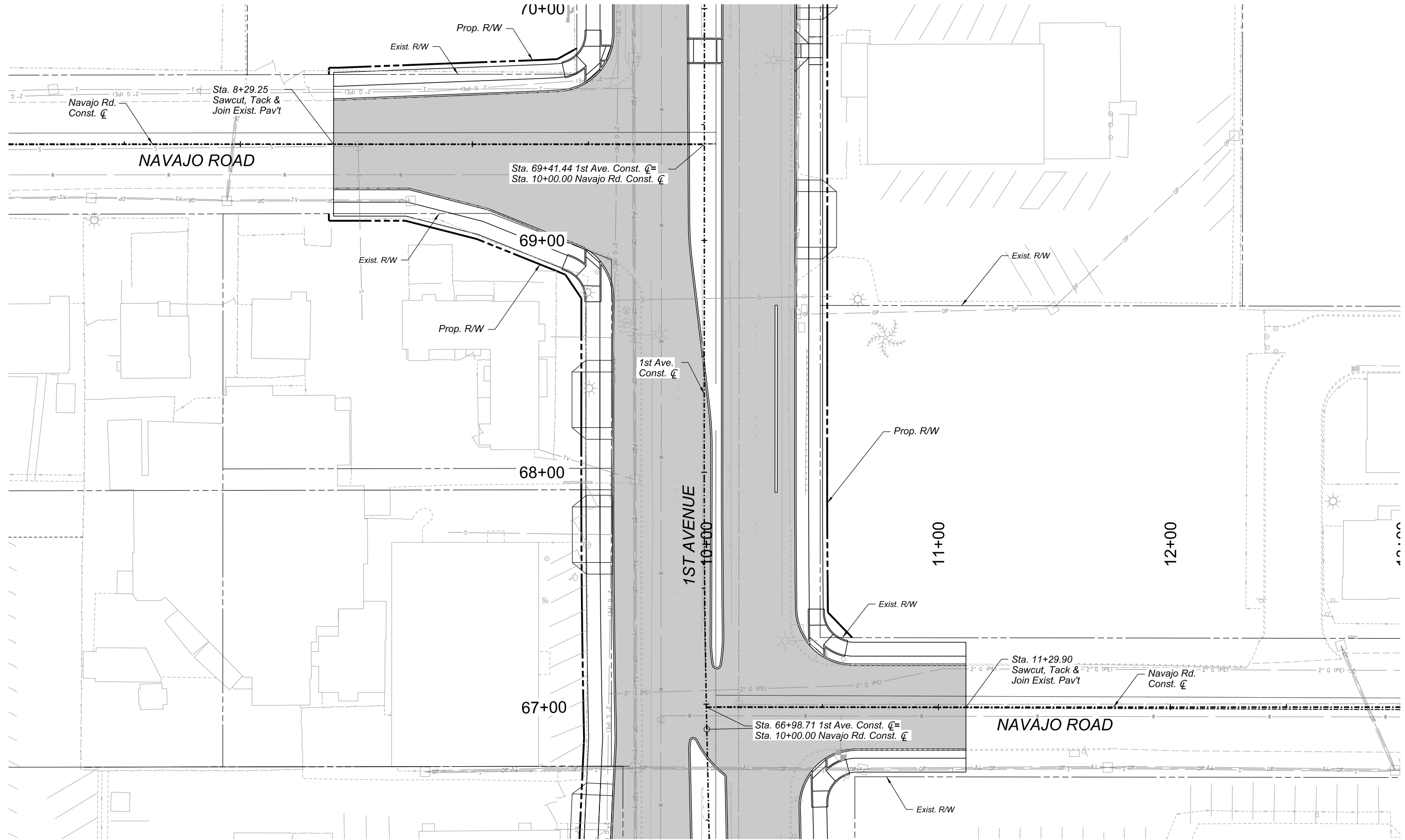
**SHEET 74 OF 100**

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				89
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				128
	DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJK	SCALE: H: 1" = 20' V: 1" = 2'
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	





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NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

NAVAJO RD  
PAVING PLAN

SHEET 75 OF 100

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION

1ST AVENUE, GRANT ROAD TO  
RIVER ROAD - ROADWAY IMPROVEMENTS

90  
OF  
128

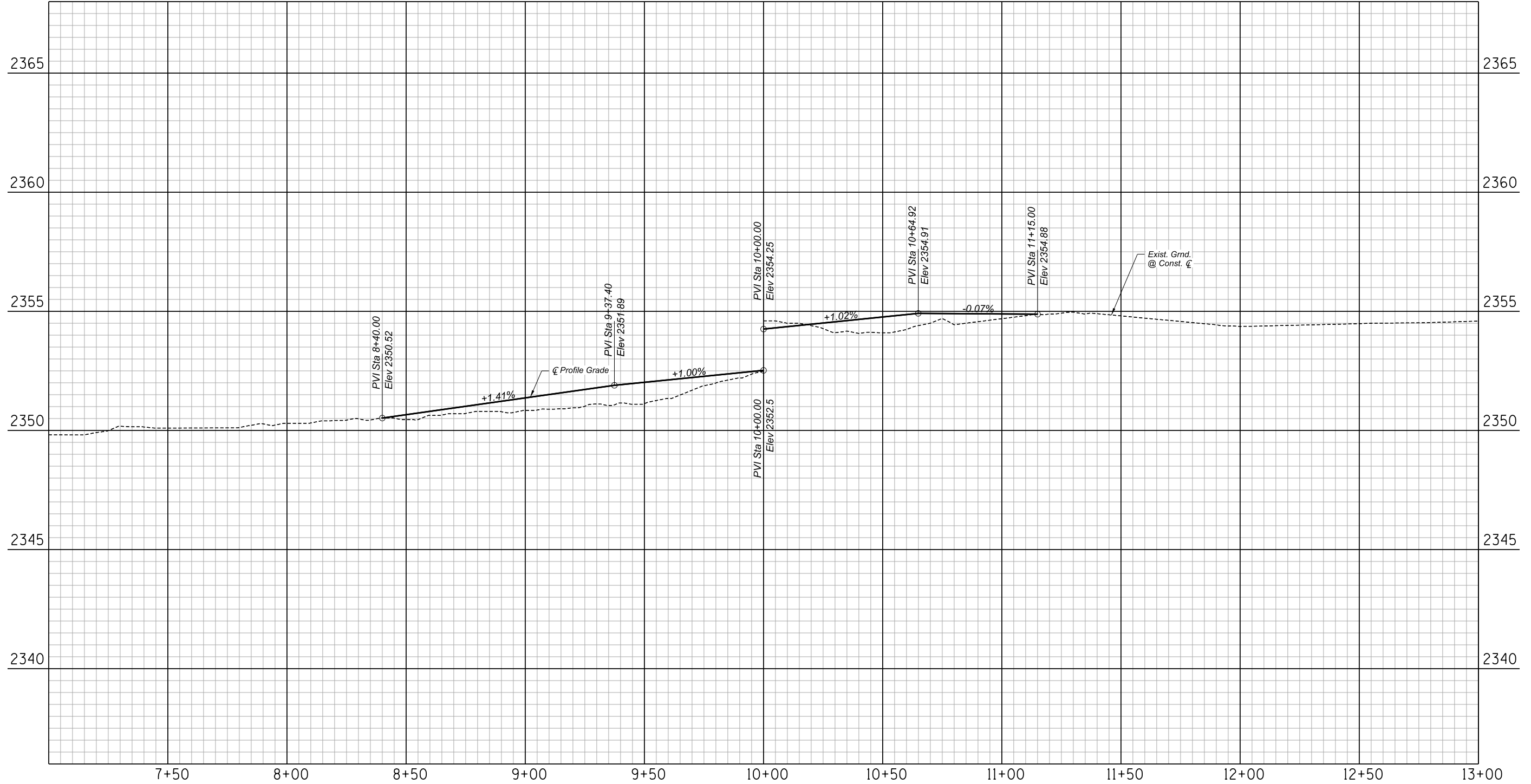


DRWN. BY JAR  
DEC 2025

CHKD. BY JMF  
DEC 2025

APPR. BY BLK  
DEC 2025

SCALE: 1"=20'  
PLAN NO. R-2024-XXX



NAVAJO RD  
PAVING PROFILE

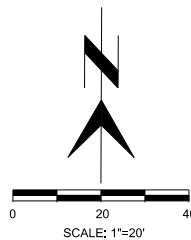
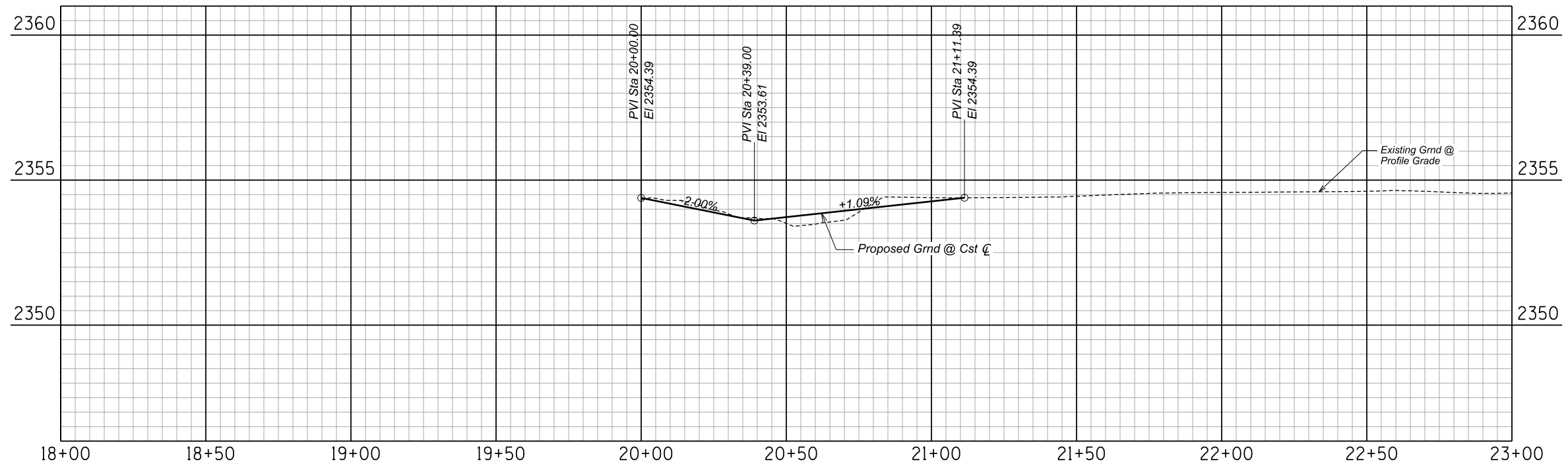
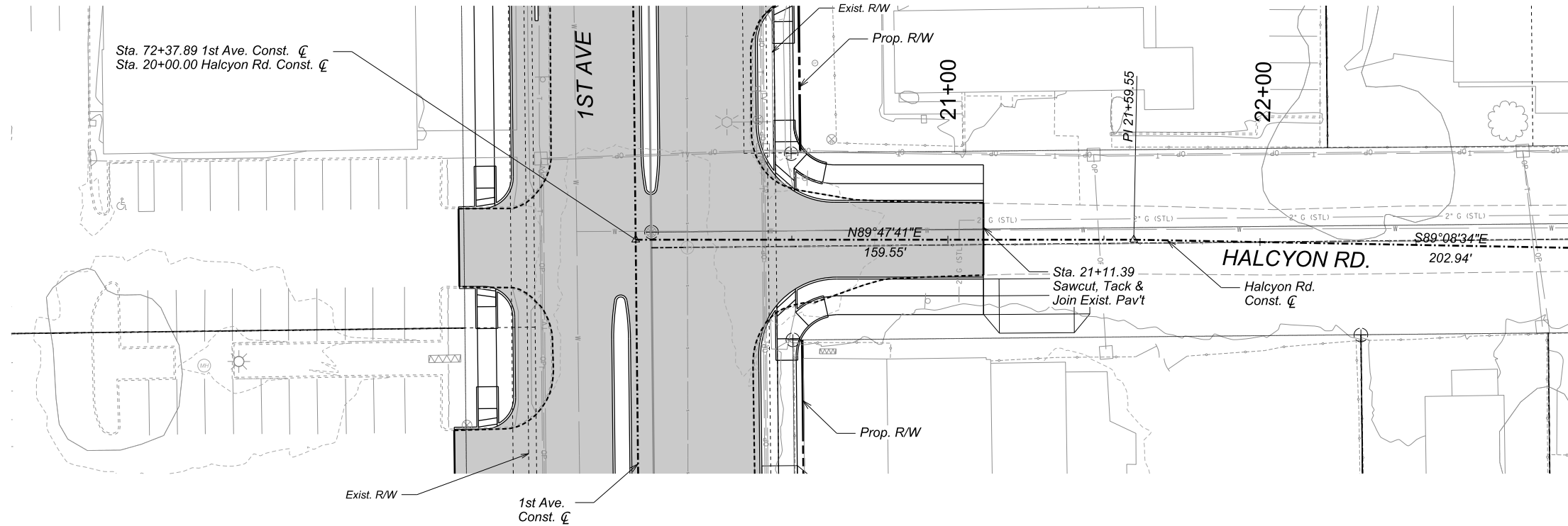
SHEET 76 OF 100

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				91
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJK	SCALE: H: 1" = 20' V: 1" = 2'	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		





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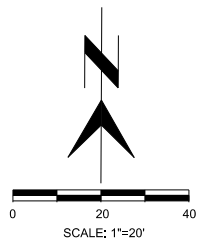
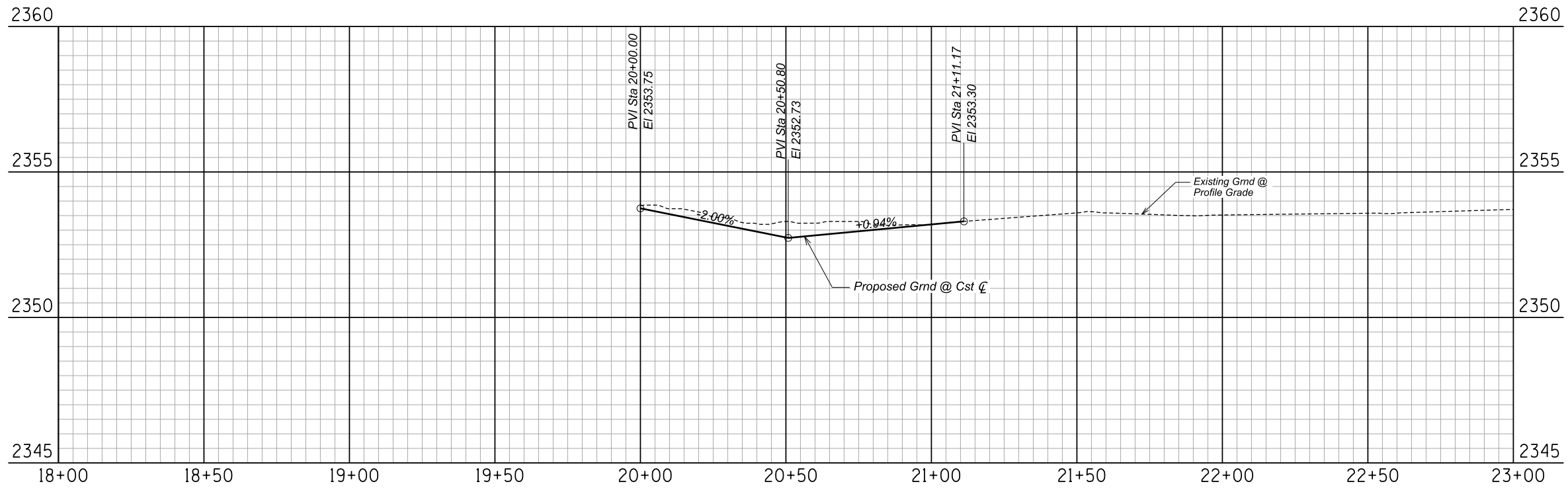
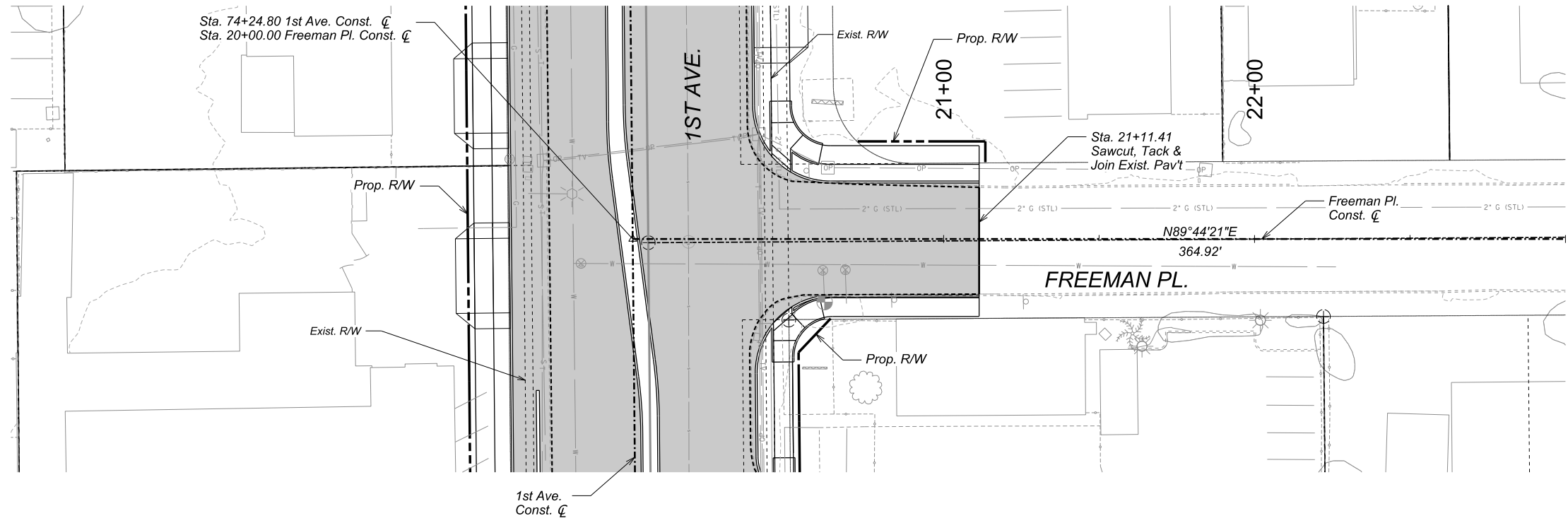
NO.	DATE	REVISION	BY	CHKD.	APPR.

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Not For  
Construction

**HALCYON RD  
PAVING PLAN & PROFILE**

Sheet 77 of 100

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION			92
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS			OF
CITY OF TUCSON			128
DRWN. BY REC	CHKD. BY JDB	APPR. BY JDB	SCALE: H: 1"=20' V: 1"=2'
OCT 2025	OCT 2025	OCT 2025	PLAN NO. R-2024-XXX



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Dated: ##/##/####



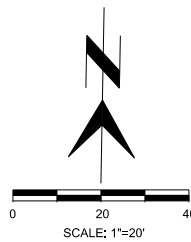
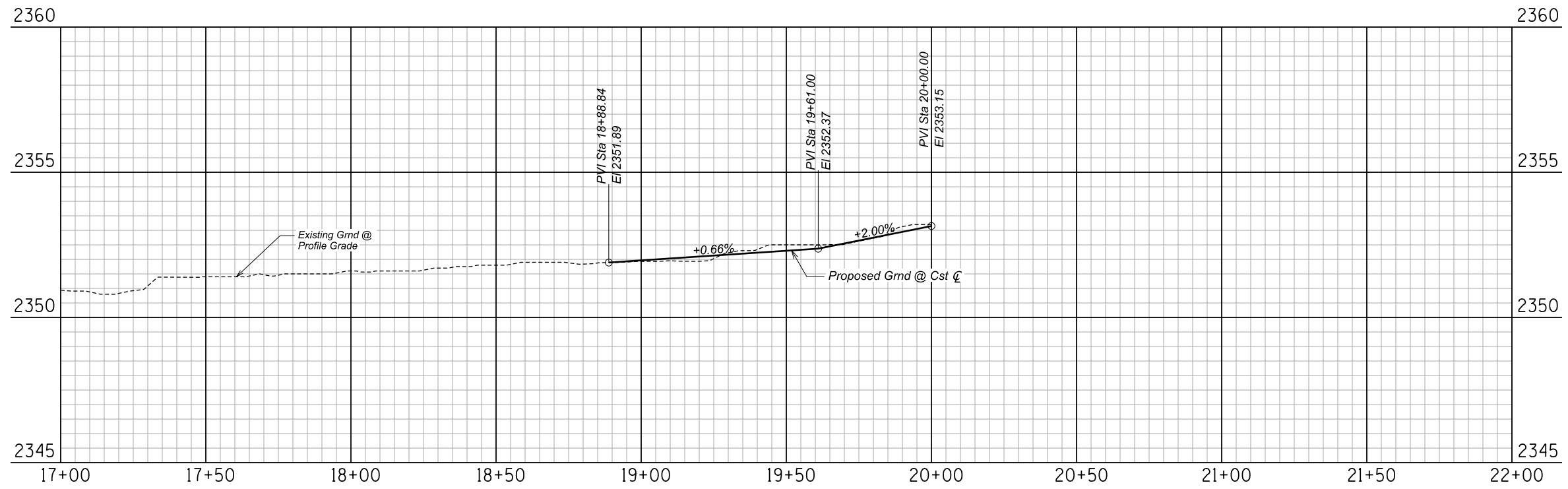
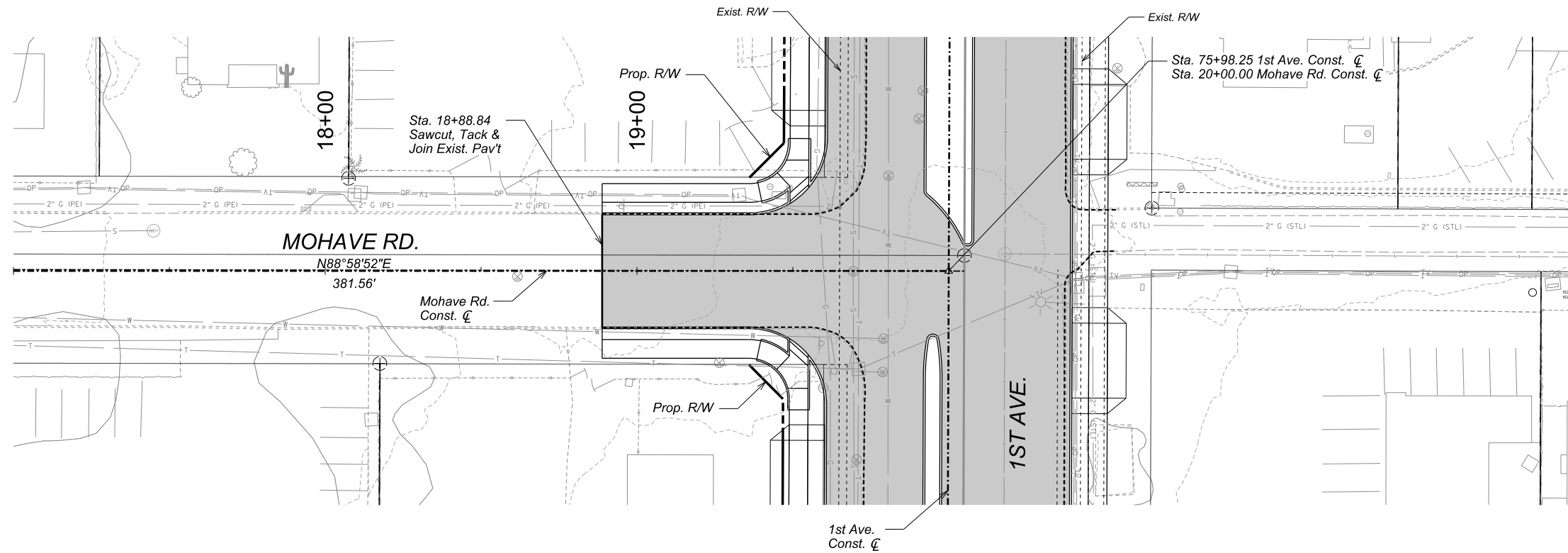
NO.	DATE	REVISION	BY	CHKD.	APPR.

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Preliminary  
Not For  
Construction

**FREEMAN PL  
PAVING PLAN & PROFILE**

Sheet 78 of 100

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION			93
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS			OF 128
	DRWN BY REC OCT 2025	CHKD BY JDB OCT 2025	APPR BY JDB OCT 2025
SCALE: H: 1"=20' V: 1"=2'			PLAN NO. R-2024-XXX



Record Document  
Dated: ##/##/####



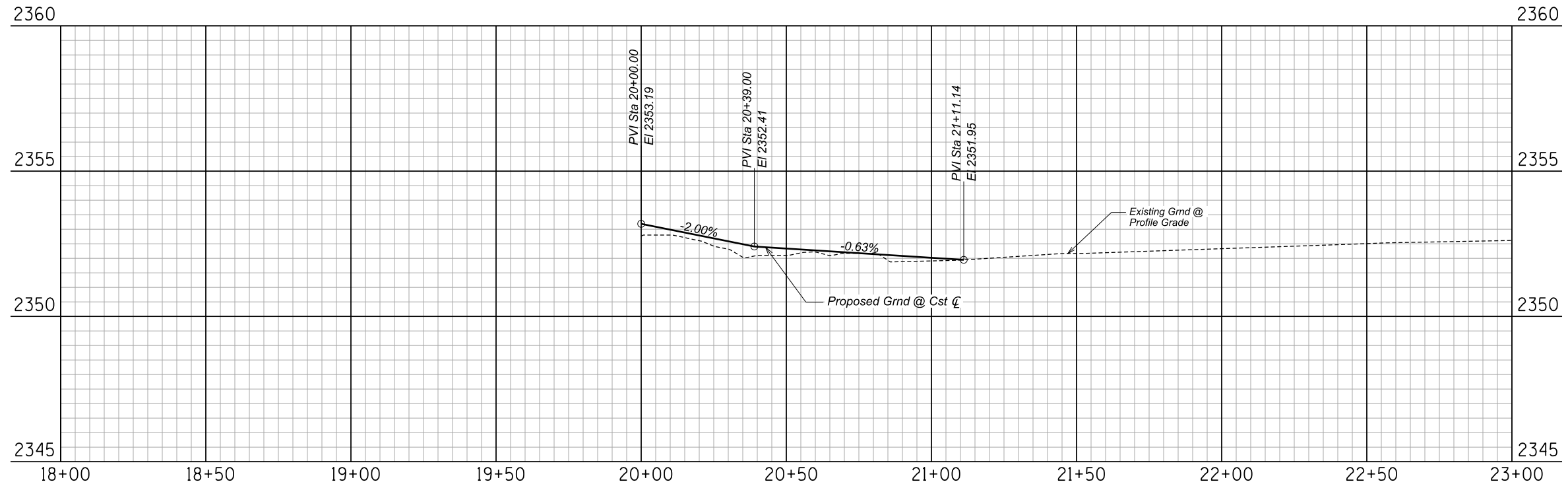
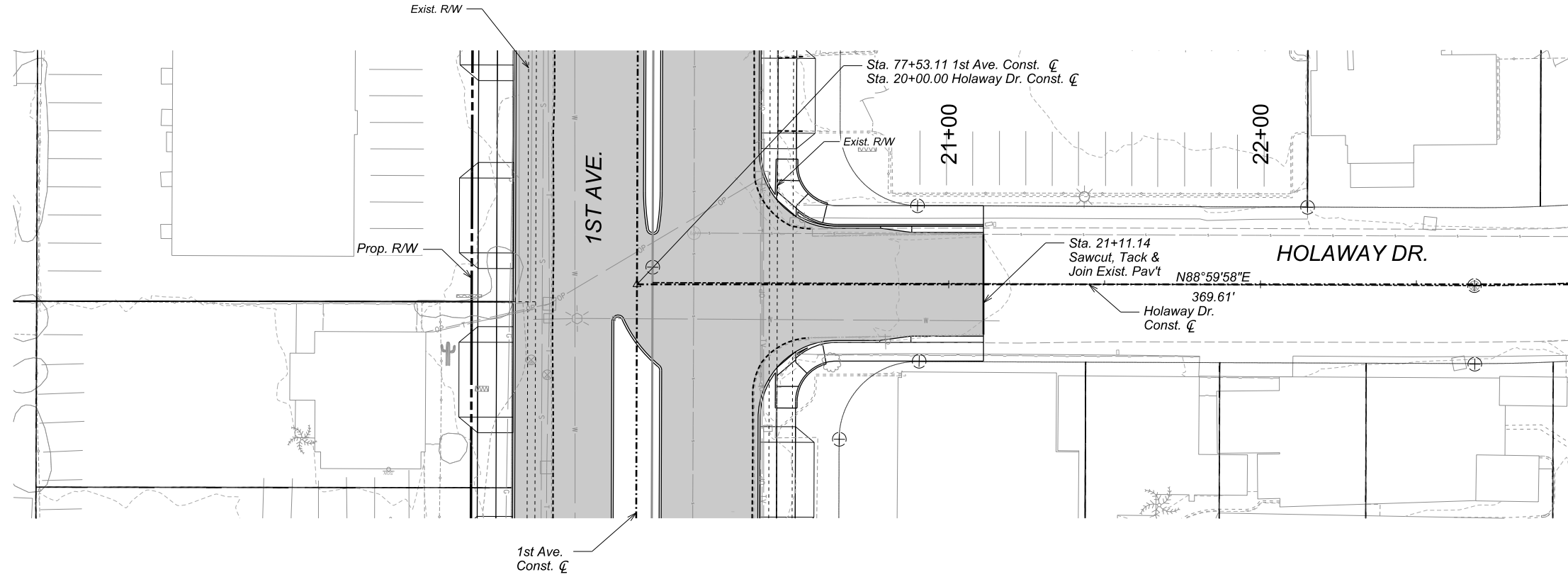
NO.	DATE	REVISION	BY	CHKD.	APPR.

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Preliminary  
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Construction

**MOHAVE RD  
PAVING PLAN & PROFILE**

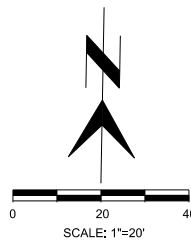
Sheet 79 of 100

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION			94
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS			OF 128
	DRWN. BY REC OCT 2025	CHKD. BY JDB OCT 2025	APPR. BY JDB OCT 2025
SCALE: H: 1"=20' V: 1"=2'			PLAN NO. R-2024-XXX



**HOLAWAY RD  
PAVING PLAN & PROFILE**

Sheet 80 of 100



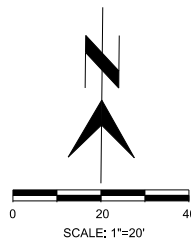
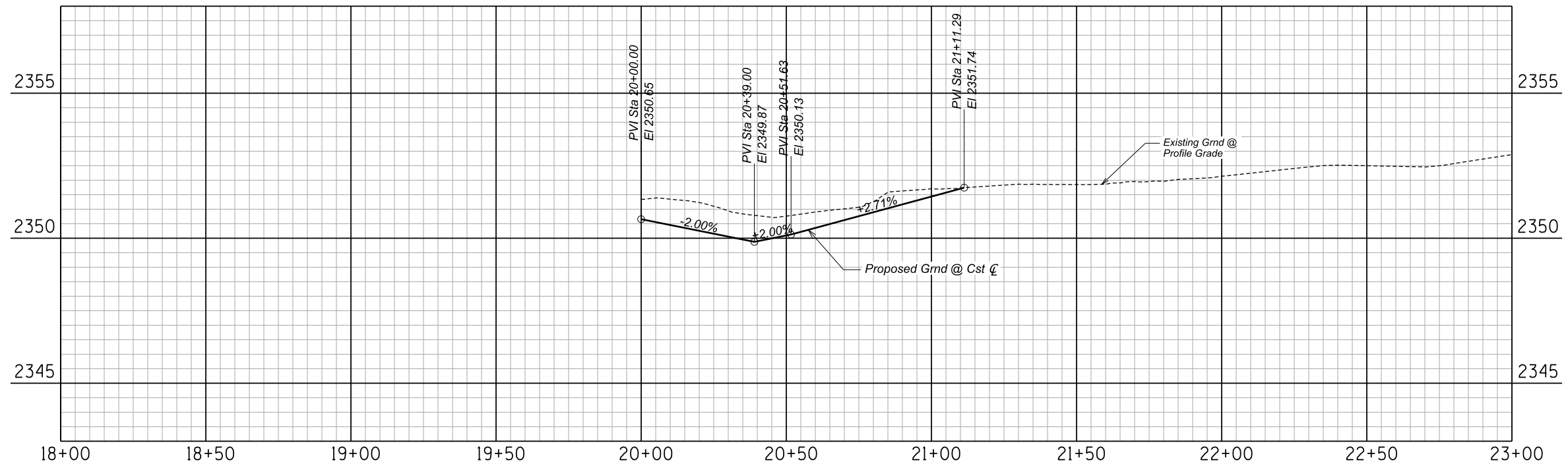
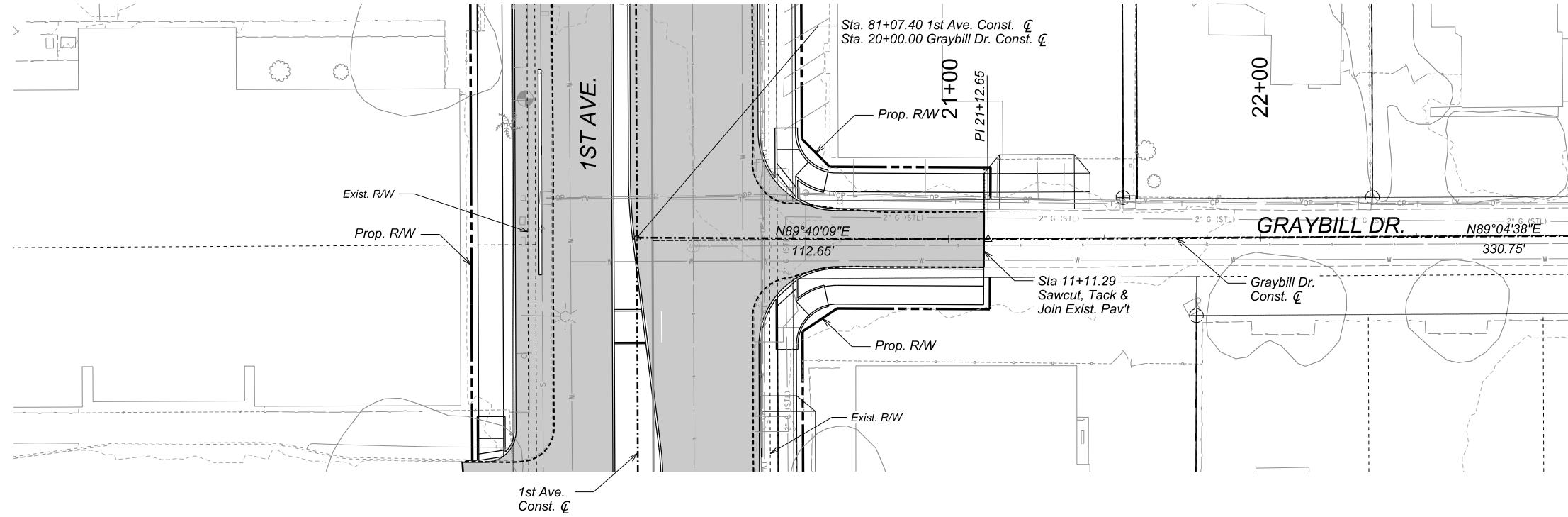
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SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				95
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF 128
	DRWN. BY REC OCT 2025	CHKD. BY JDB OCT 2025	APPR. BY JDB OCT 2025	SCALE: H: 1"=20' V: 1"=2' PLAN NO. R-2024-XXX



Record Document  
Dated: ##/##/####



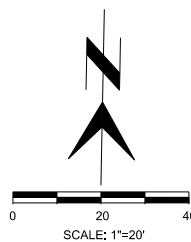
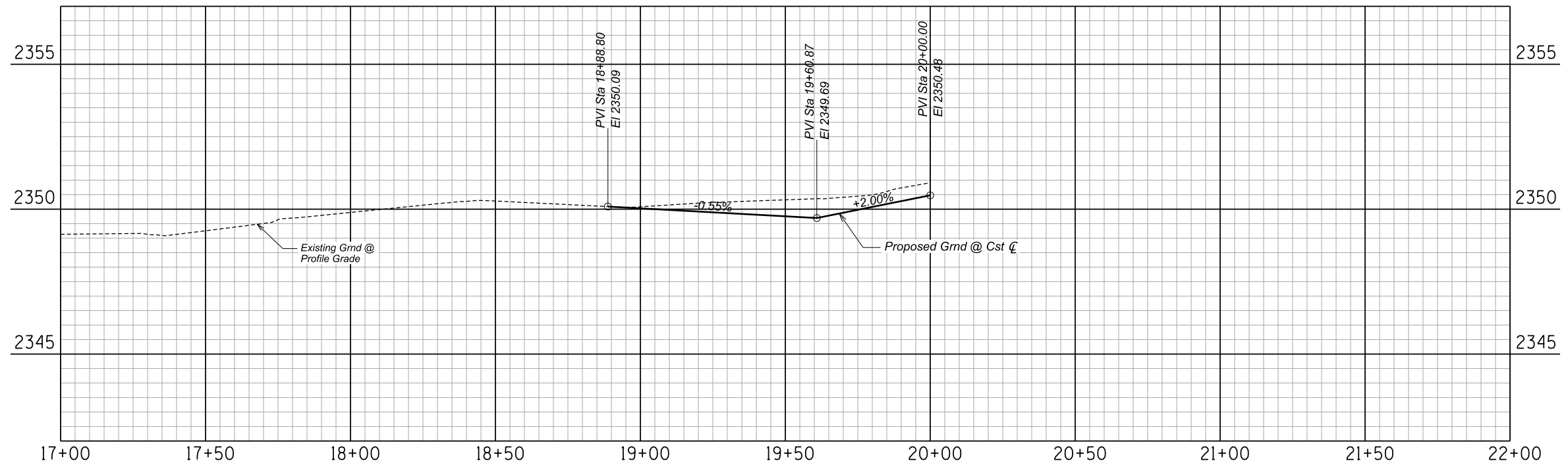
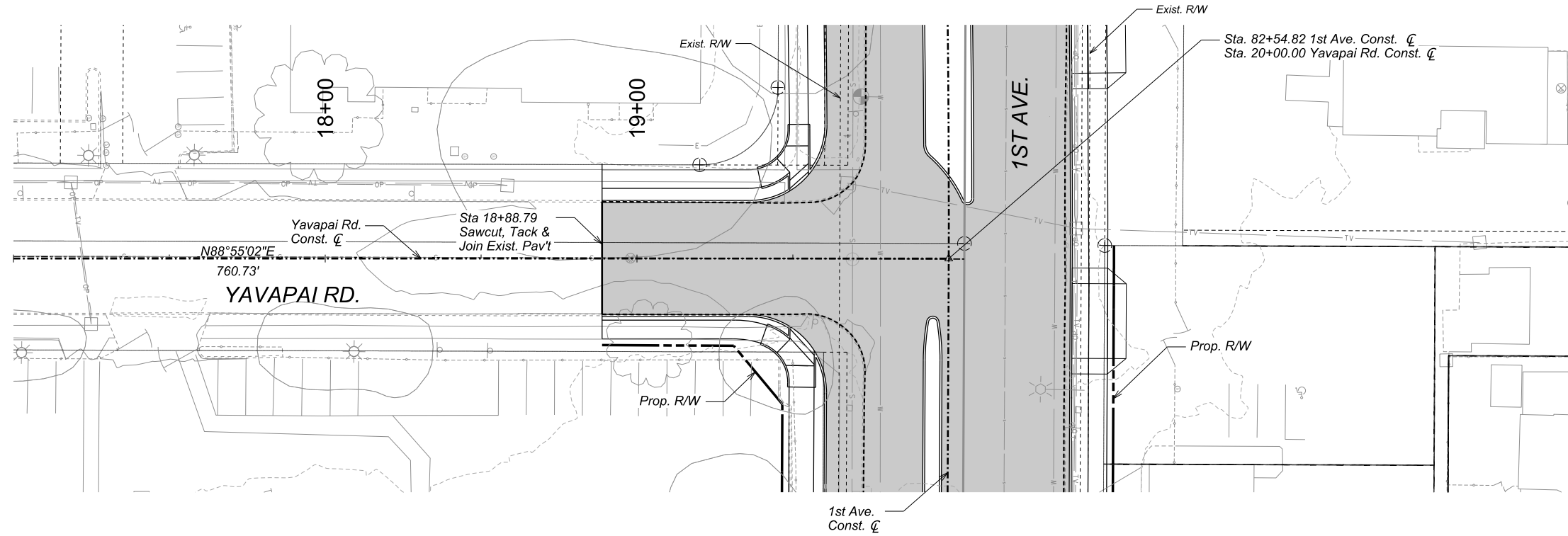
NO.	DATE	REVISION	BY	CHKD.	APPR.

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SUBMITTAL  
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Not For  
Construction

**GRAYBILL DR  
PAVING PLAN & PROFILE**

Sheet 81 of 100

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION			96
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS			OF
CITY OF TUCSON			128
DRWN. BY REC	CHKD. BY JDB	APPR. BY JDB	SCALE: H: 1"=20' V: 1"=2'
OCT 2025	OCT 2025	OCT 2025	PLAN NO. R-2024-XXX



Record Document  
Dated: ##/##/####



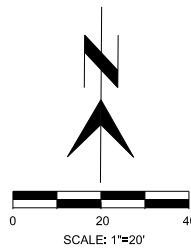
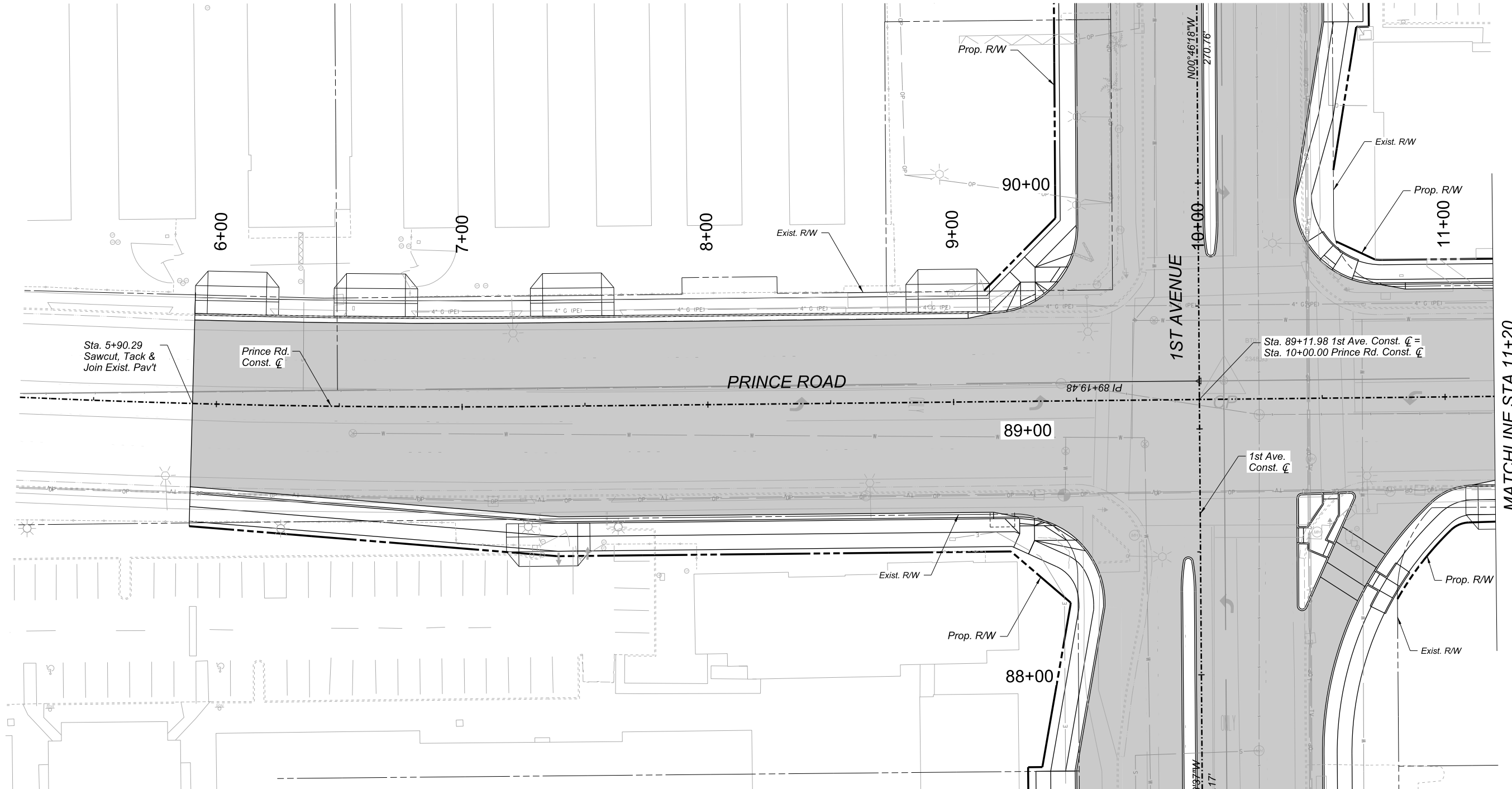
NO.	DATE	REVISION	BY	CHKD.	APPR.

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Not For  
Construction

### YAVAPAI RD PAVING PLAN & PROFILE

Sheet 82 of 100

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION			97
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS			OF 128
	DRWN. BY REC OCT 2025	CHKD. BY JDB OCT 2025	APPR. BY JDB OCT 2025
SCALE: H: 1"=20' V: 1"=2'			PLAN NO. R-2024-XXX



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Dated: ##/##/####

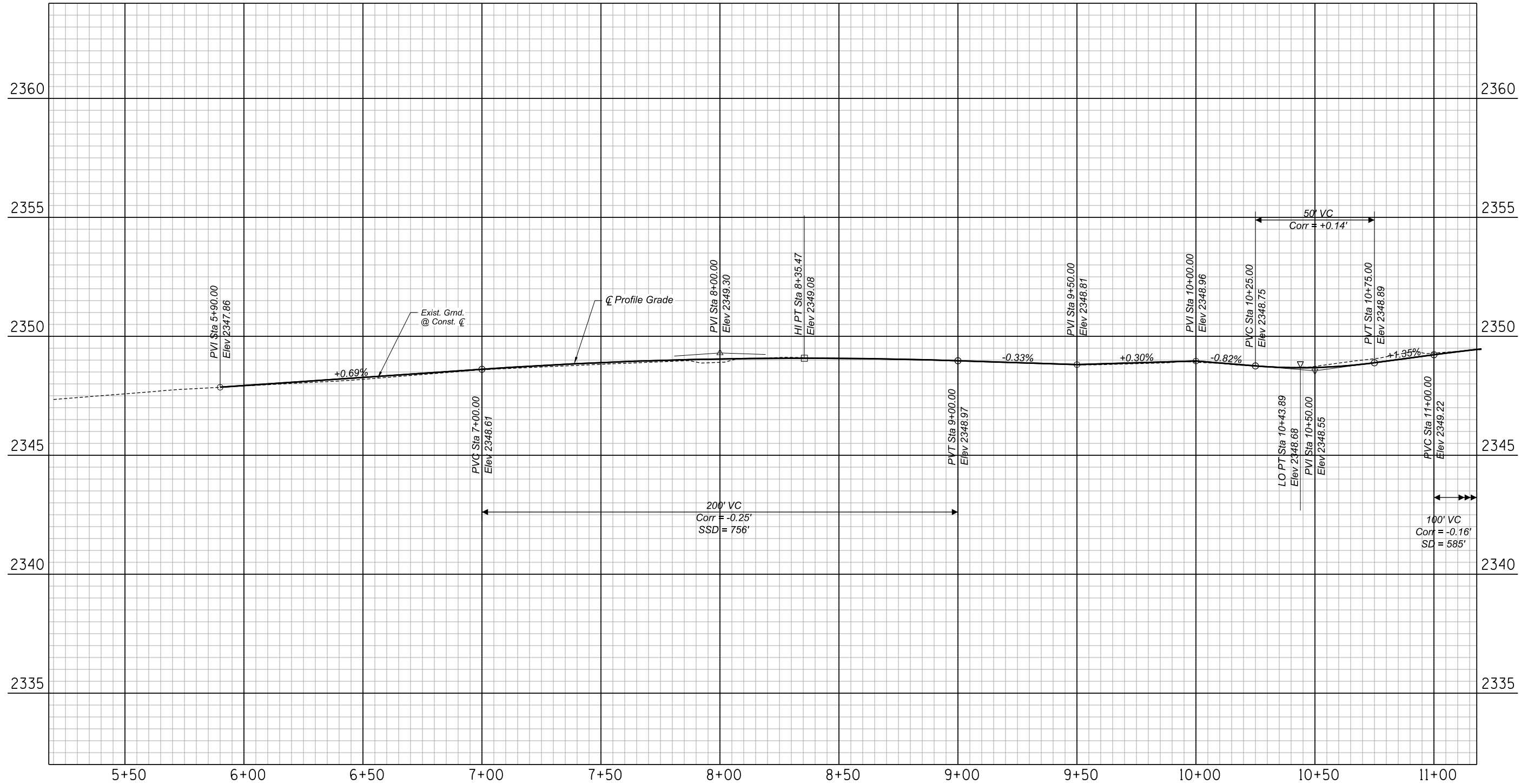
NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

PRINCE RD  
PAVING PLAN

SHEET 83 OF 100

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				98
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN BY JAR	CHKD BY JMF	APPR BY BLK	SCALE: H: 1" = 20'	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		



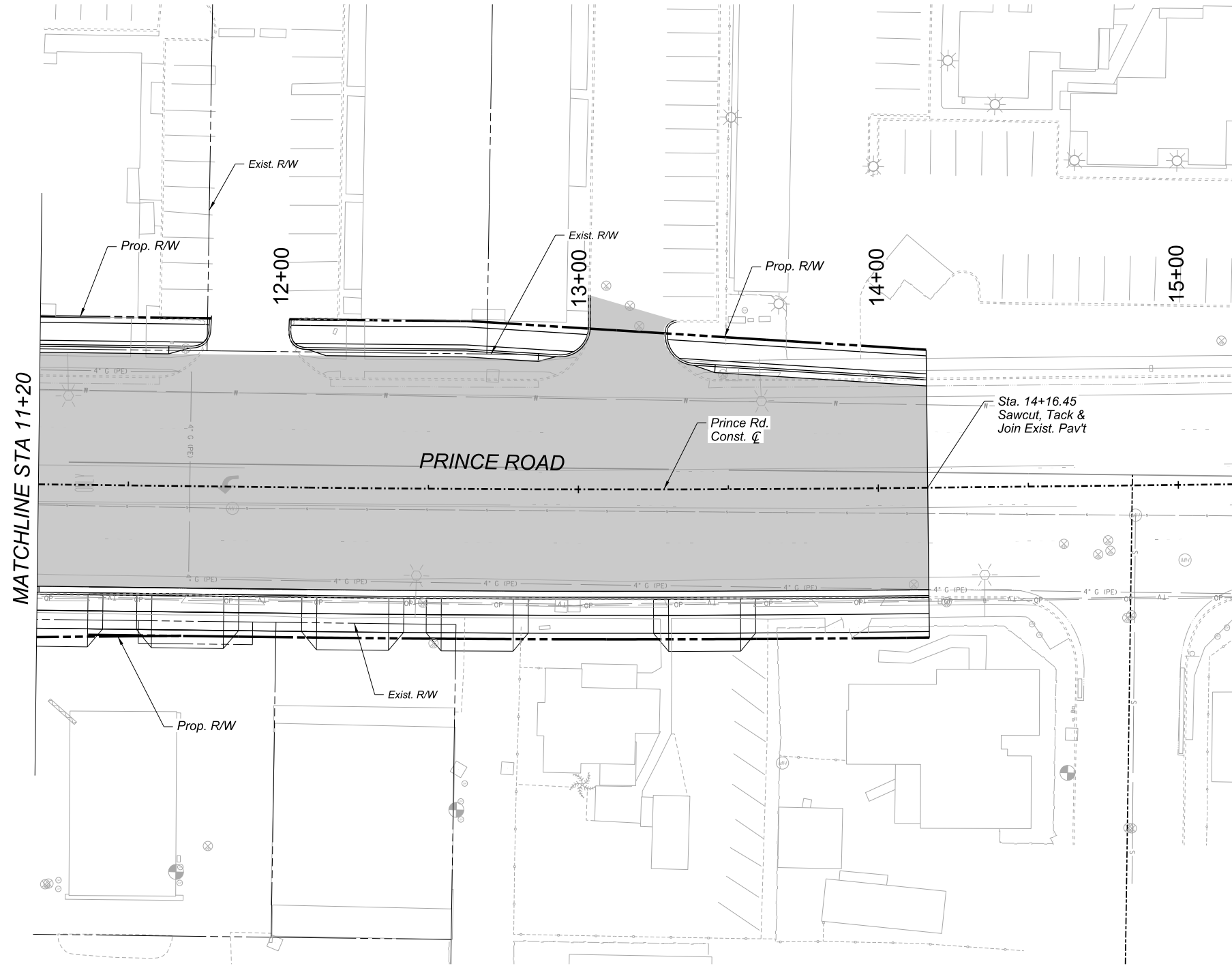
NO.	DATE	REVISION	BY	CHKD.	APPR.

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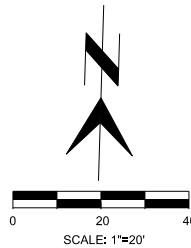
PRINCE RD  
PAVING PROFILE

SHEET 84 OF 100

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION			99
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS			OF
CITY OF TUCSON			128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: H: 1" = 20' V: 1" = 2'
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX



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Construction

PRINCE RD  
PAVING PLAN

SHEET 85 OF 100

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION

1ST AVENUE, GRANT ROAD TO  
RIVER ROAD - ROADWAY IMPROVEMENTS



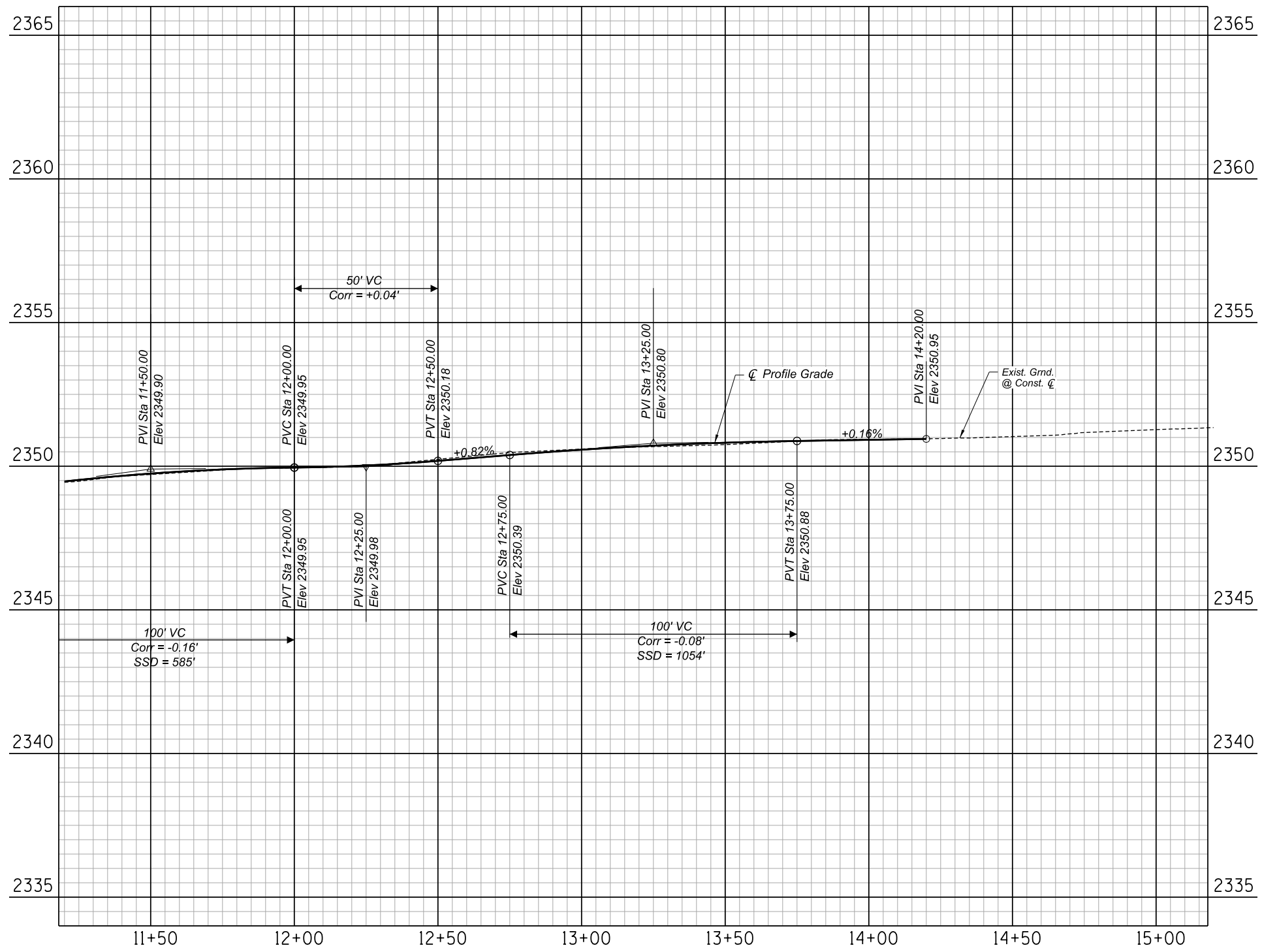
DRWN. BY JAR  
DEC 2025

CHKD. BY JMF  
DEC 2025

APPR. BY BLK  
DEC 2025

SCALE: 1" = 20'  
PLAN NO. R-2024-XXX

100  
OF  
128



PRINCE RD  
PAVING PROFILE

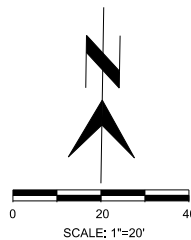
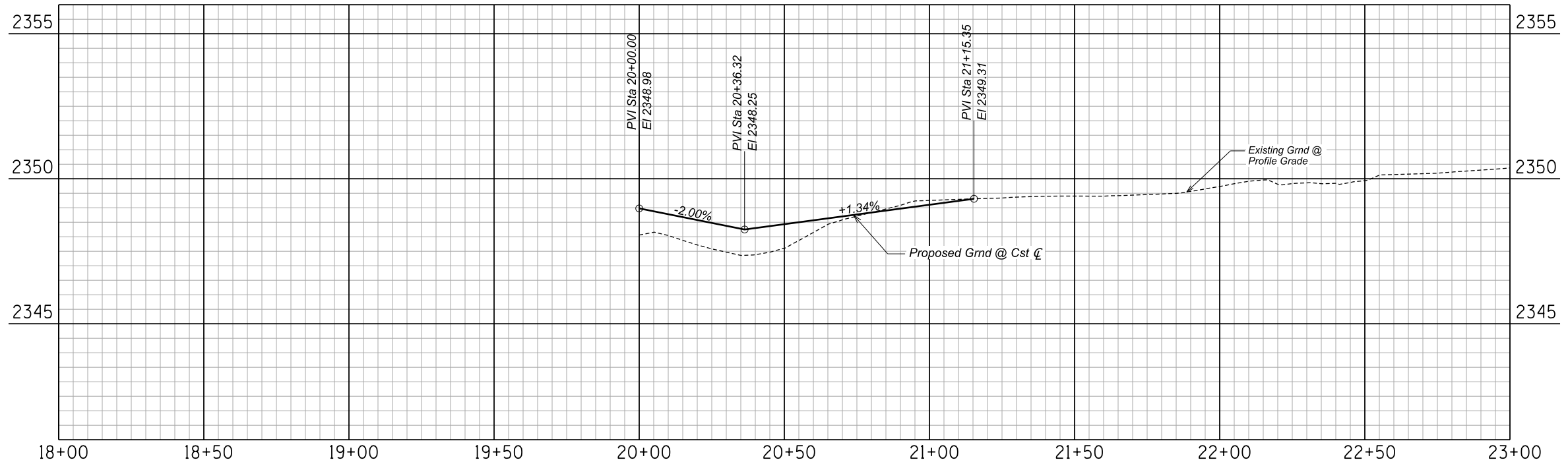
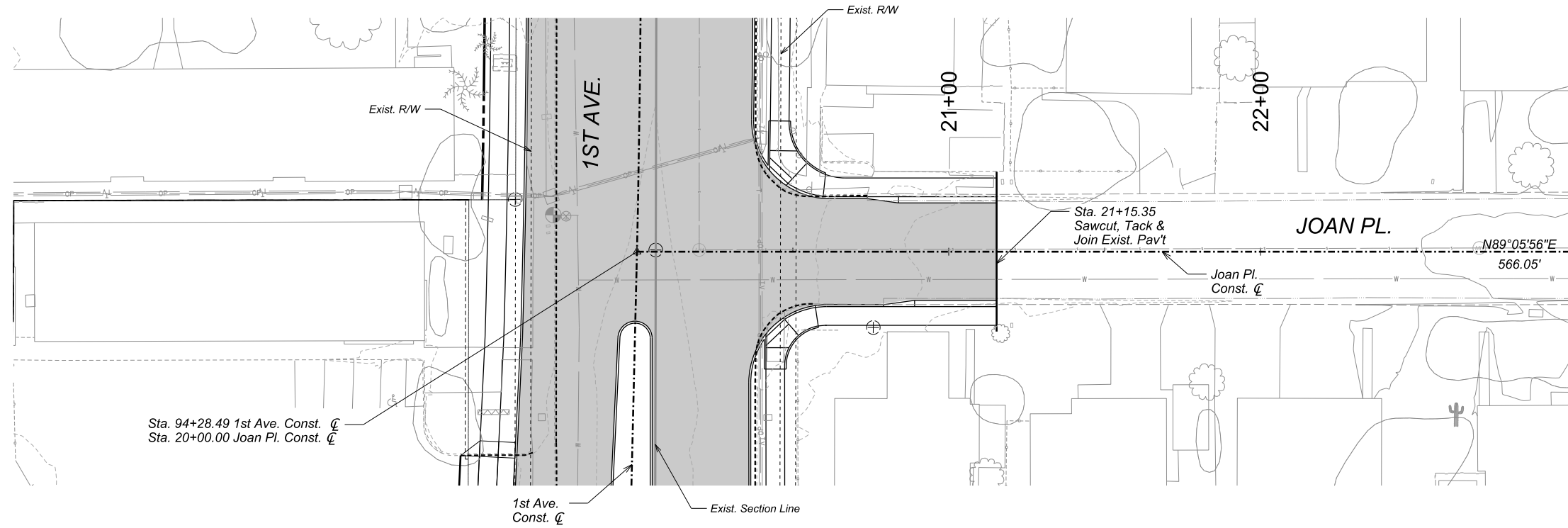
SHEET 86 OF 100

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
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Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				101
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJK	SCALE: H: 1" = 20' V: 1" = 2'	
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX	





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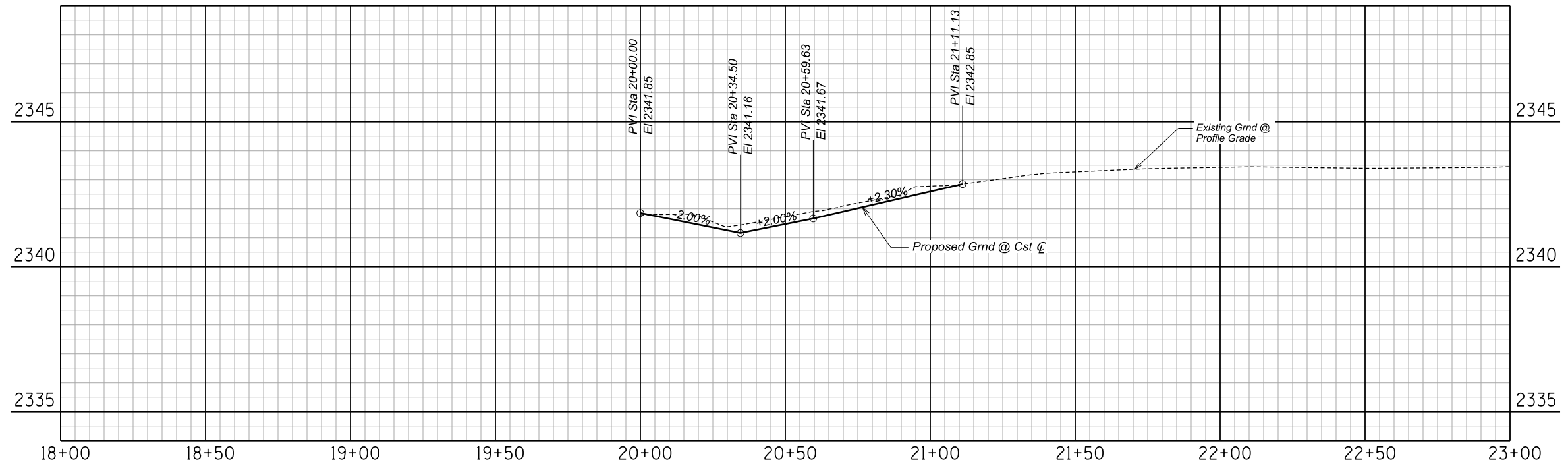
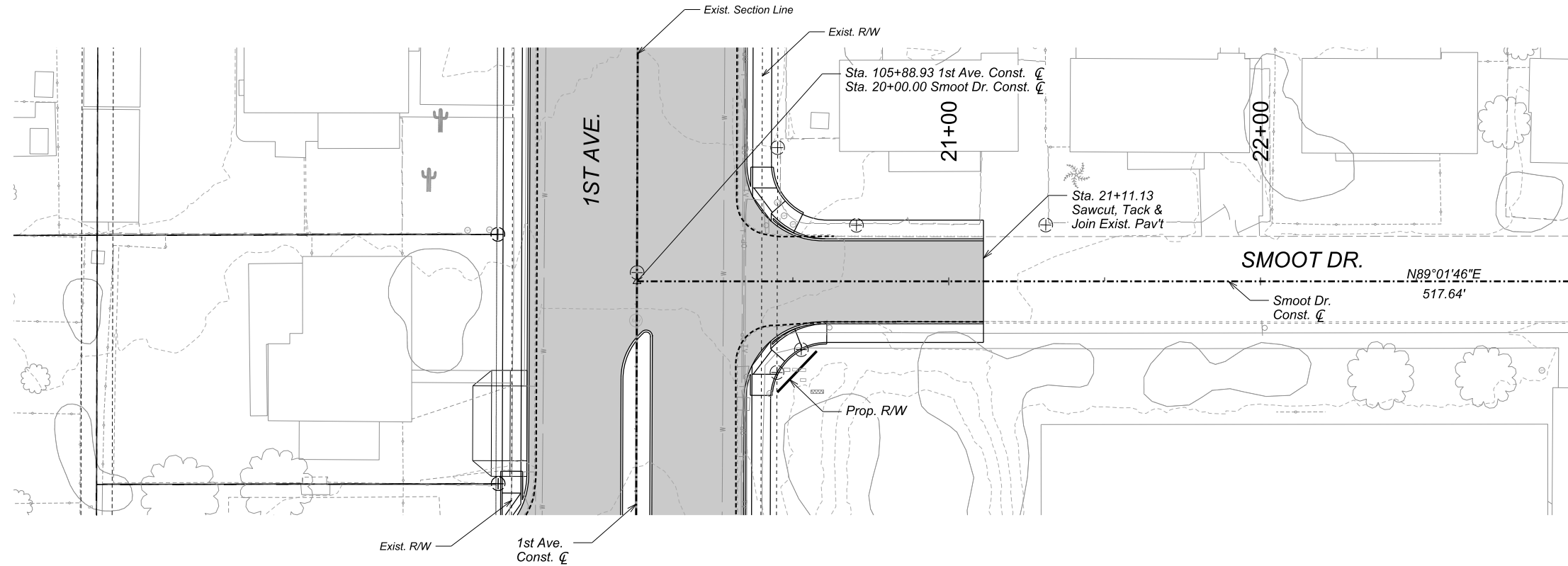
NO.	DATE	REVISION	BY	CHKD.	APPR.

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Preliminary  
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Construction

**JOAN PL  
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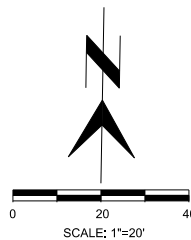
Sheet 87 of 100

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				102
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF 128
	DRWN. BY REC OCT 2025	CHKD. BY JDB OCT 2025	APPR. BY JDB OCT 2025	SCALE: H: 1"=20' V: 1"=2'
PLAN NO. R-2024-XXX				



### SMOOT DR PAVING PLAN & PROFILE

Sheet 88 of 100



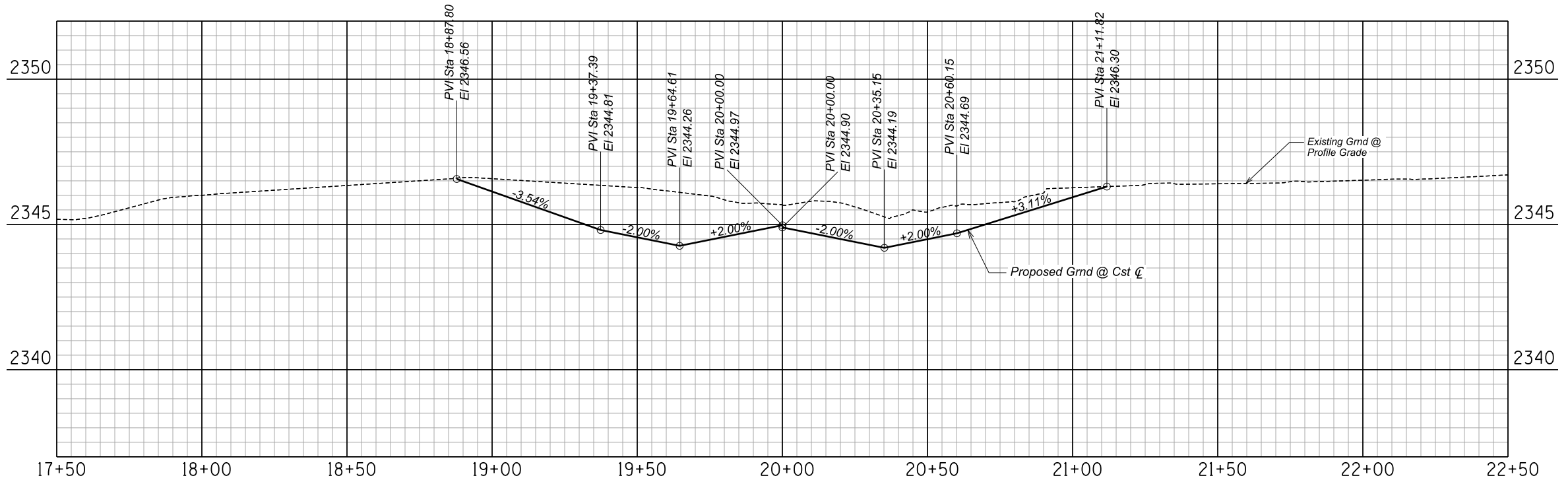
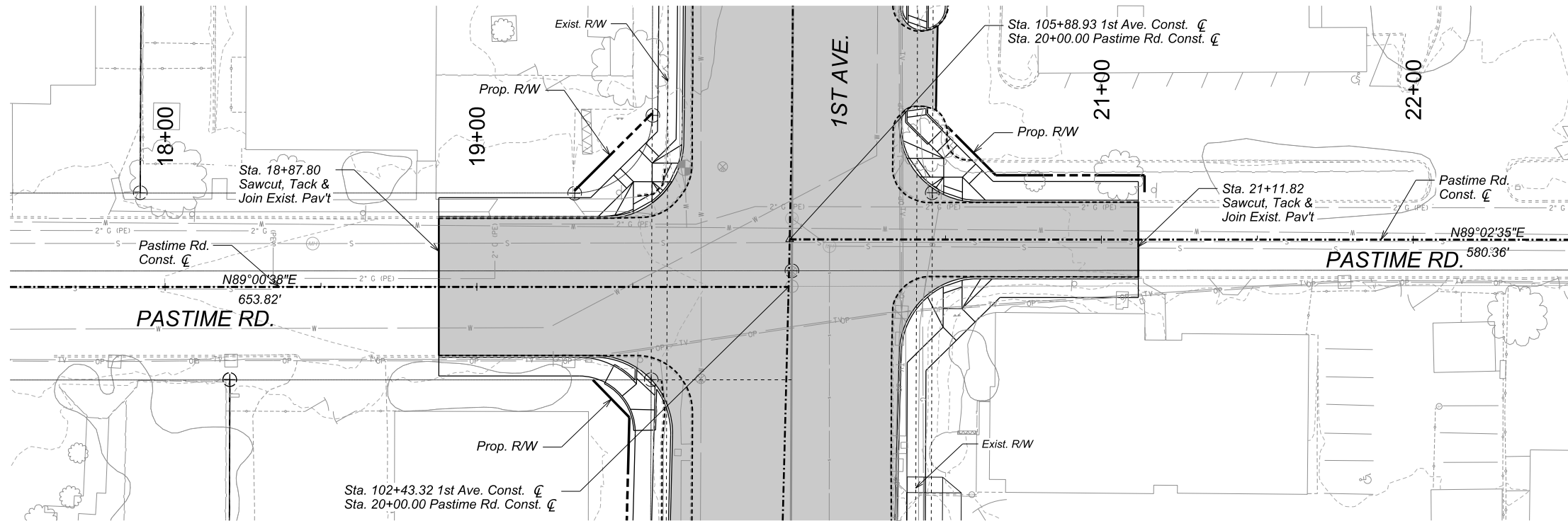
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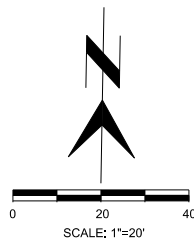
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SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				103
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF 128
	DRWN. BY REC OCT 2025	CHKD. BY JDB OCT 2025	APPR. BY JDB OCT 2025	SCALE: H: 1"=20' V: 1"=2' PLAN NO. R-2024-XXX



PASTIME RD  
PAVING PLAN & PROFILE

Sheet 89 of 100



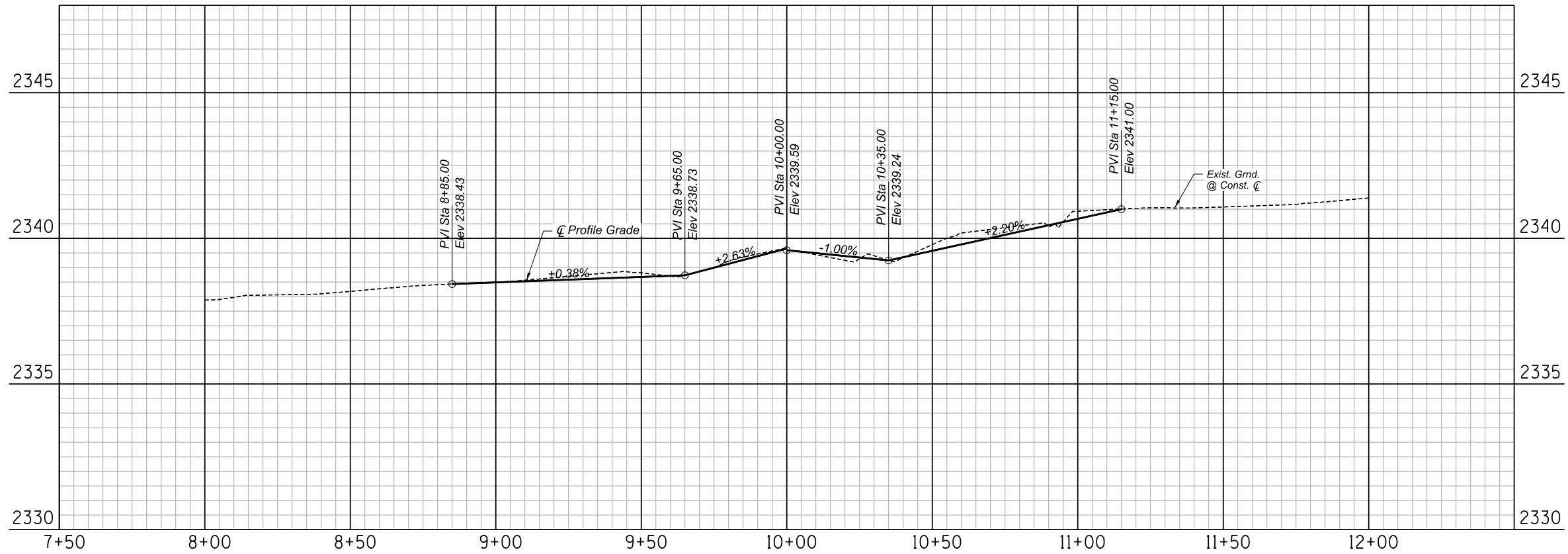
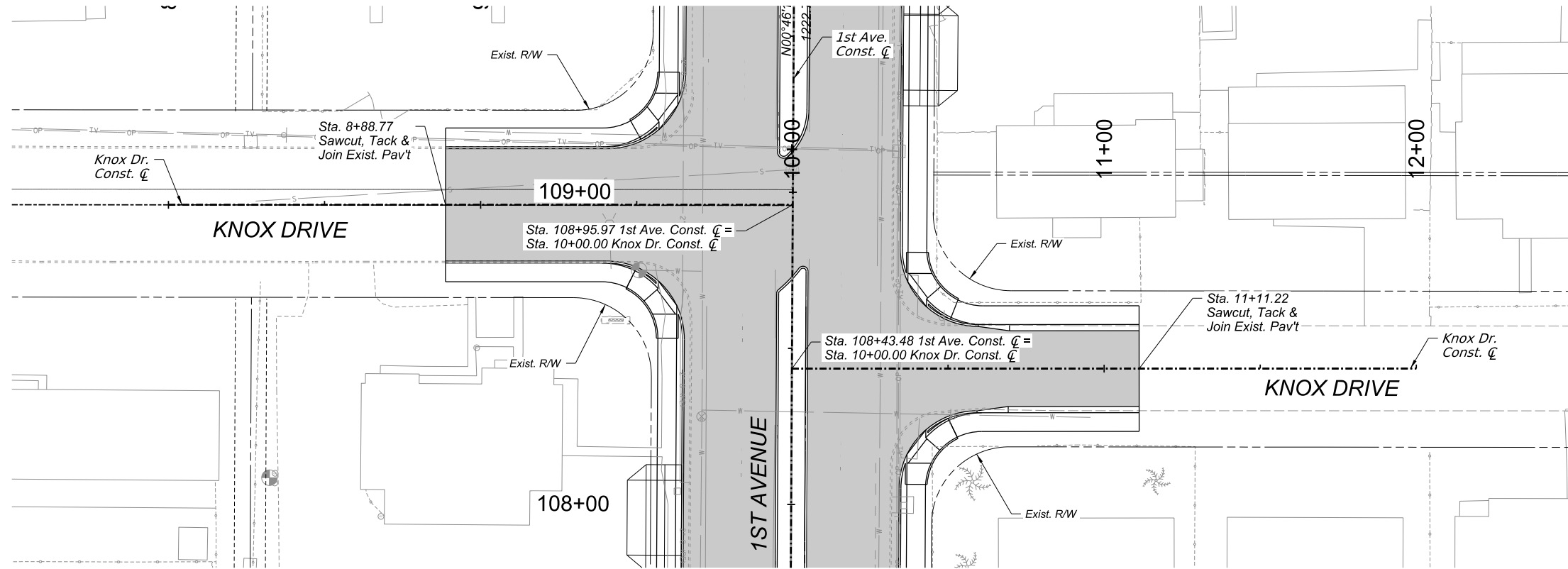
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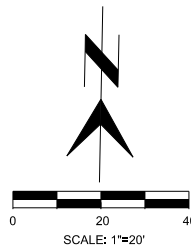
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Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				104
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF 128
	DRWN. BY REC OCT 2025	CHKD. BY JDB OCT 2025	APPR. BY JDB OCT 2025	SCALE: H: 1"=20' V: 1"=2' PLAN NO. R-2024-XXX



**KNOX DR  
PAVING PLAN & PROFILE**

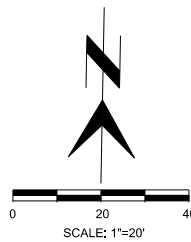
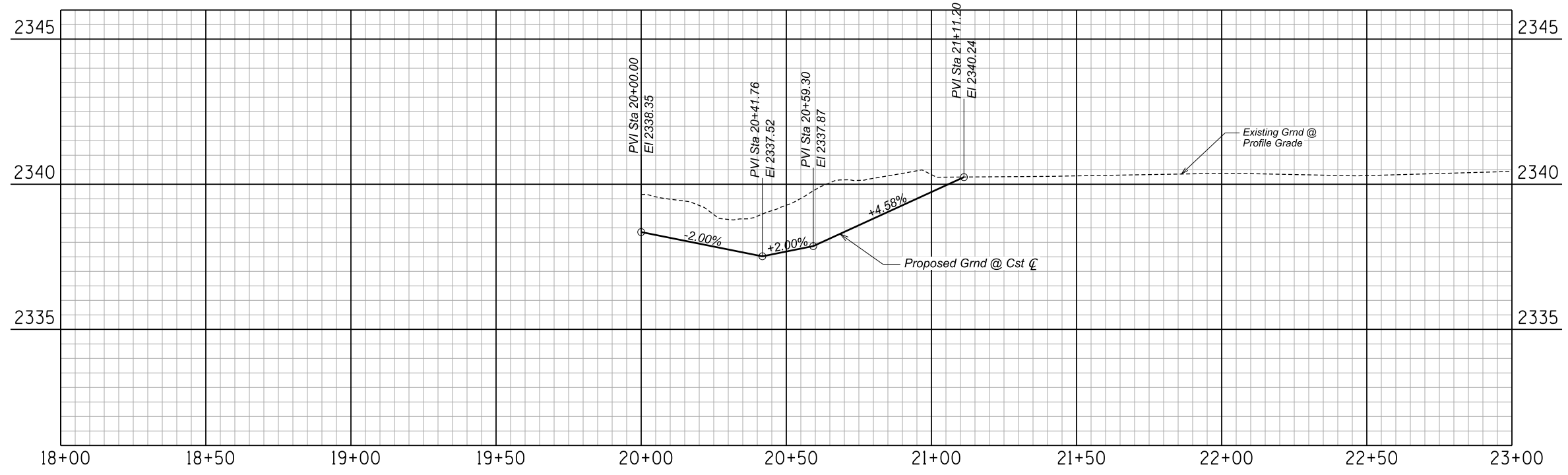
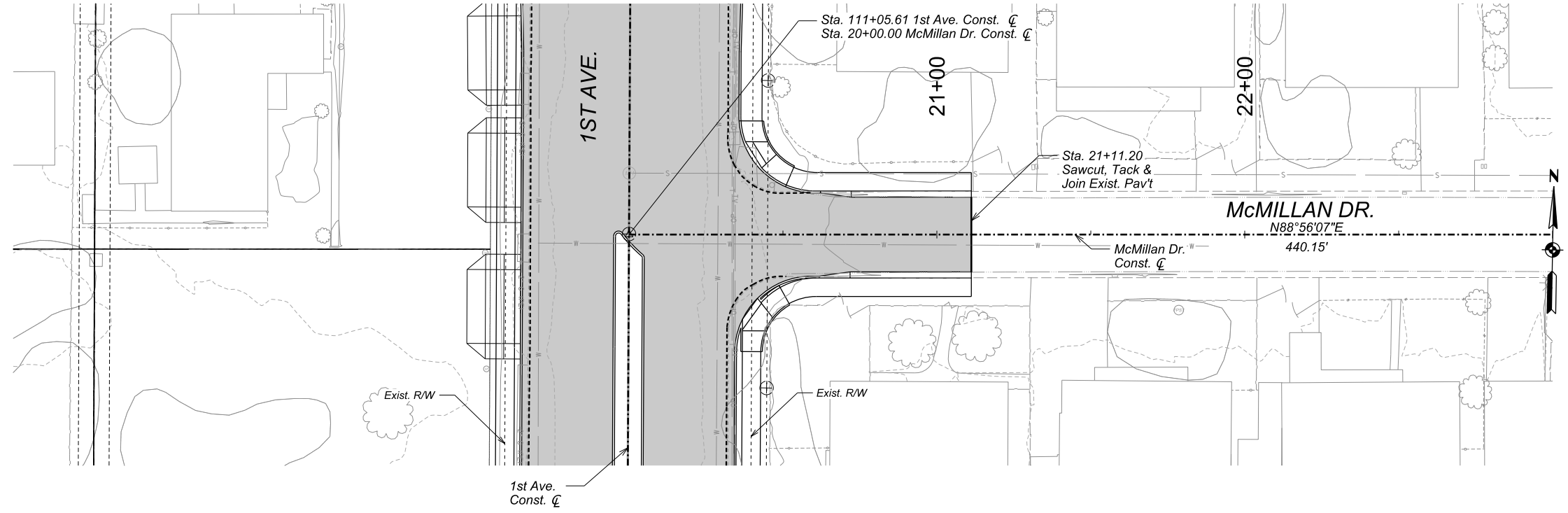
**SHEET 90 OF 100**



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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
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Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION			105
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS			OF 128
	DRWN. BY JAR DEC 2025	CHKD. BY JMF DEC 2025	APPR. BY BLK DEC 2025
SCALE: H: 1"=20' V: 1"=2'			PLAN NO. R-2024-XXX



Record Document  
Dated: ##/##/####



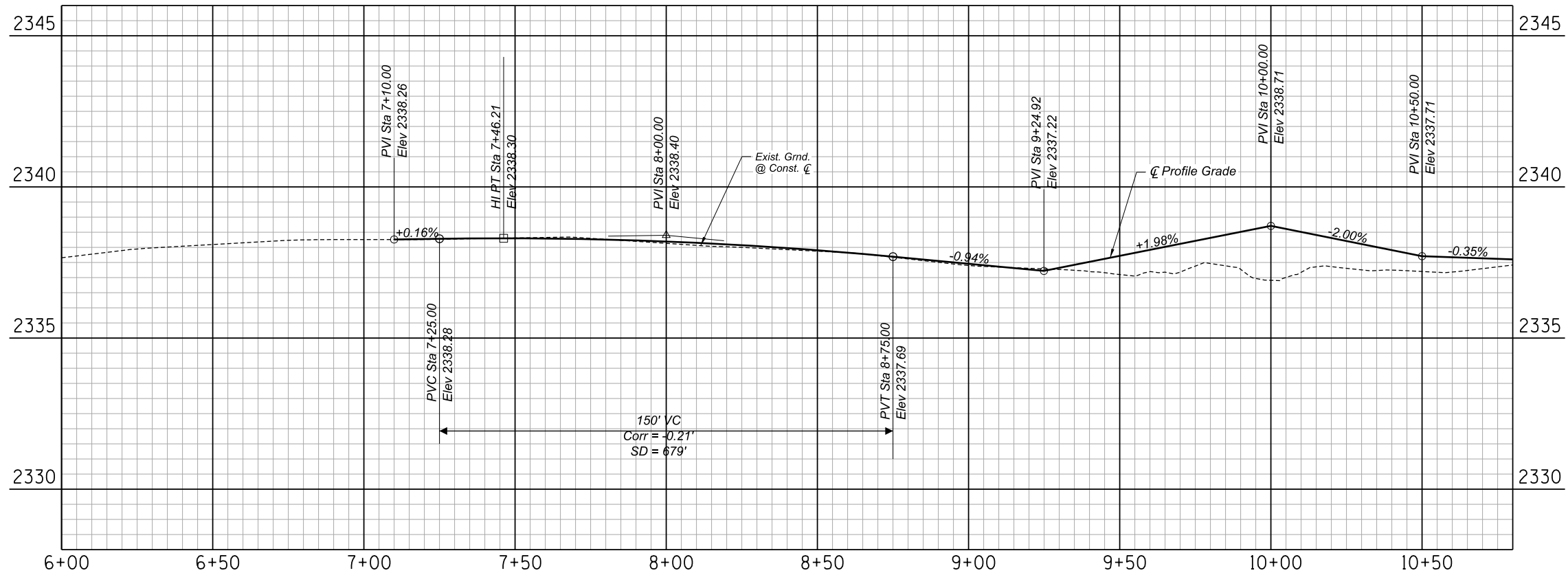
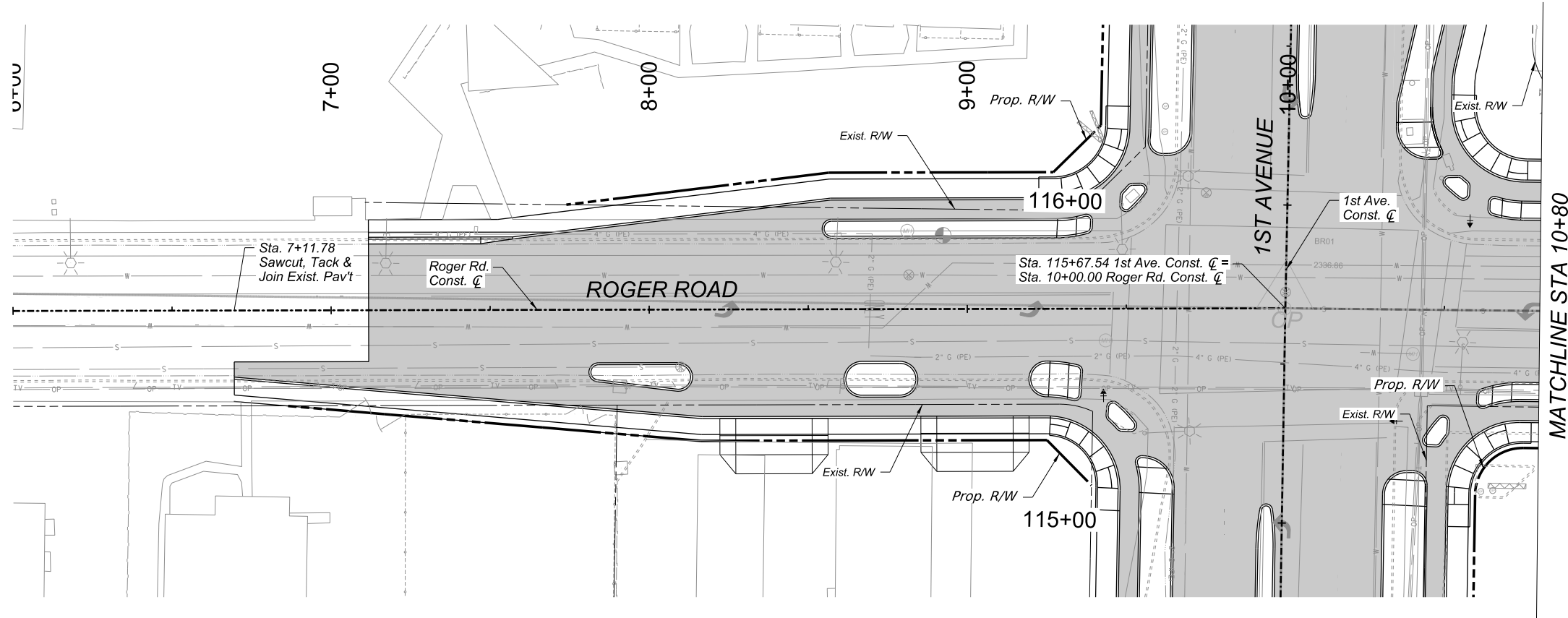
NO.	DATE	REVISION	BY	CHKD.	APPR.

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Construction

McMILLAN DR  
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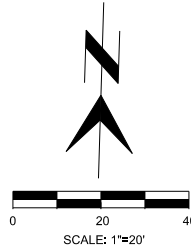
Sheet 91 of 100

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION			106
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS			OF 128
CITY OF <b>TUCSON</b>	DRWN. BY REC OCT 2025	CHKD. BY JDB OCT 2025	APPR. BY JDB OCT 2025
SCALE: H: 1"=20' V: 1"=2'			PLAN NO. R-2024-XXX



ROGER RD  
PAVING PLAN & PROFILE

SHEET 92 OF 100

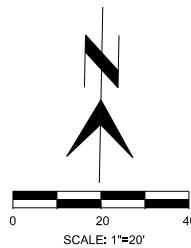
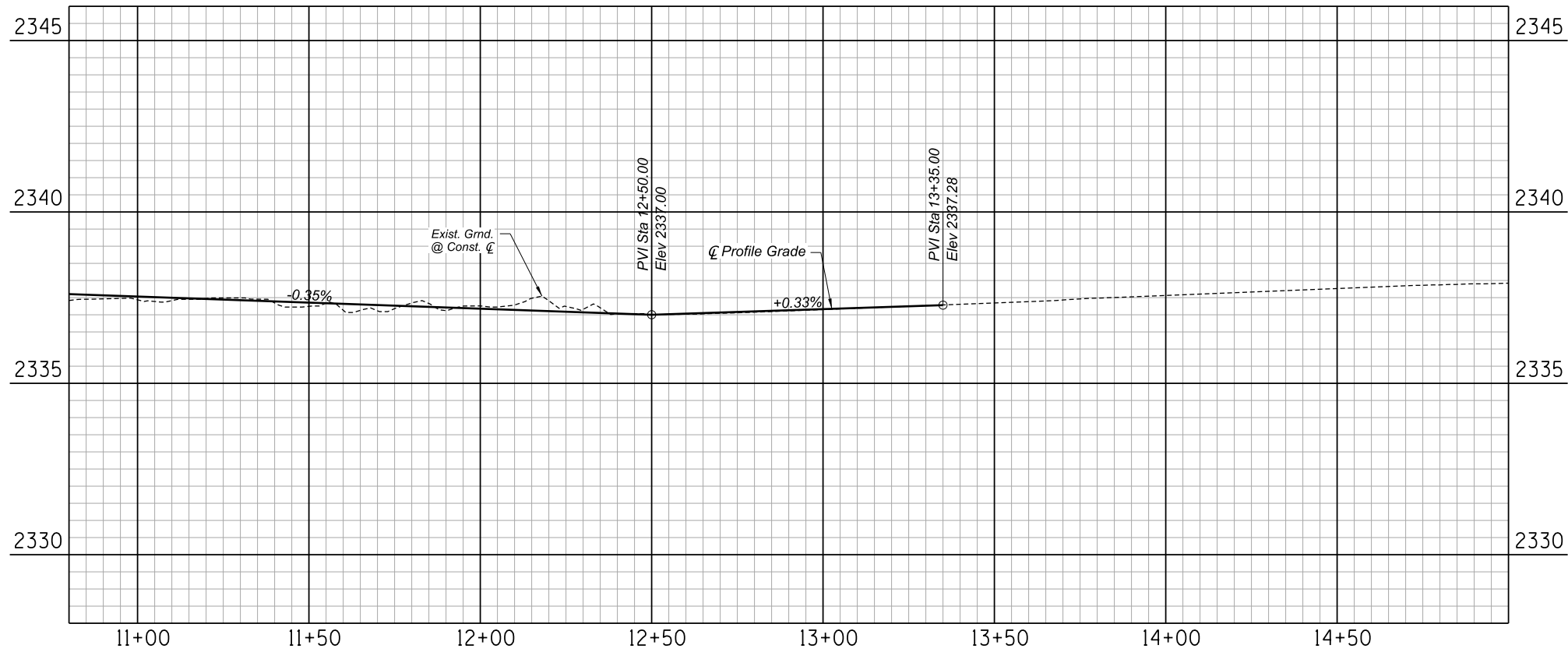
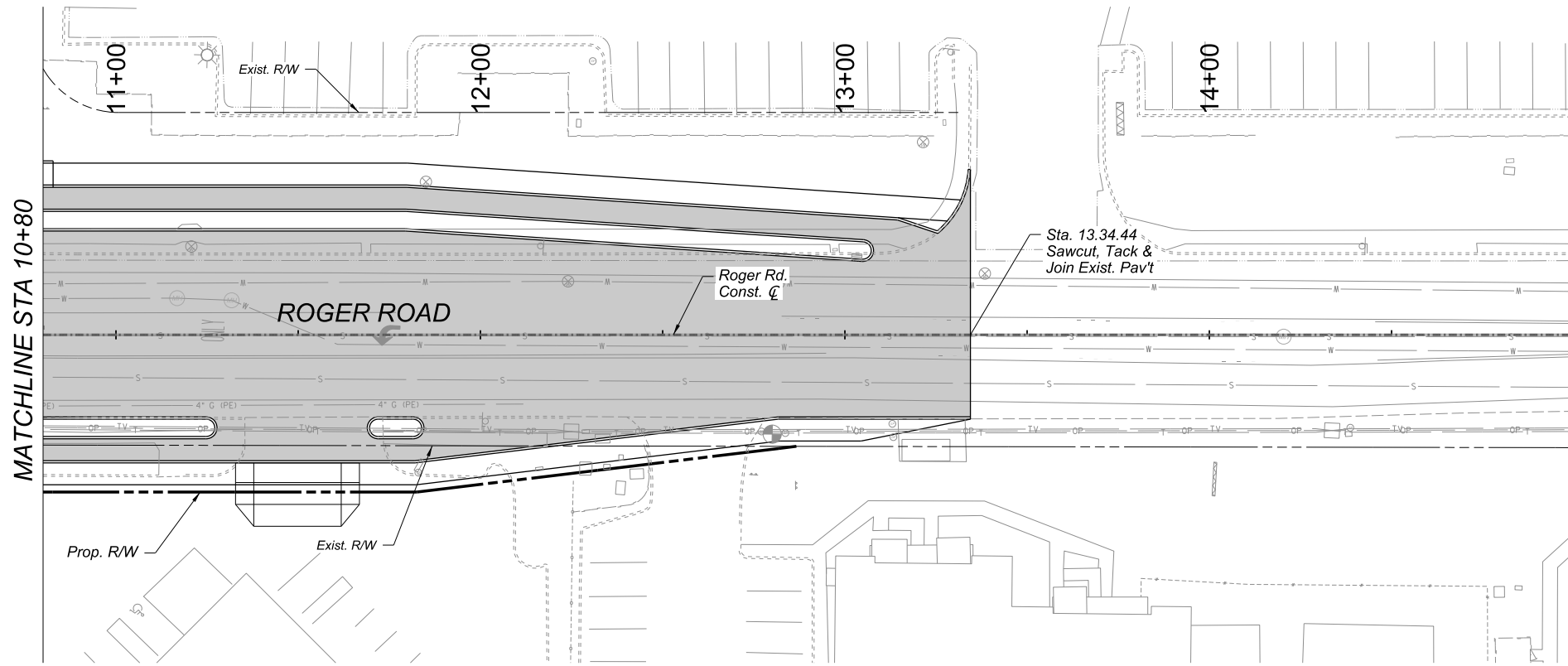


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NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION			107
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS			OF
CITY OF TUCSON			128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: H: 1"=20' V: 1"=2'
DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX



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Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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Preliminary  
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Construction

ROGER RD  
PAVING PLAN & PROFILE

SHEET 93 OF 100

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION

1ST AVENUE, GRANT ROAD TO  
RIVER ROAD - ROADWAY IMPROVEMENTS



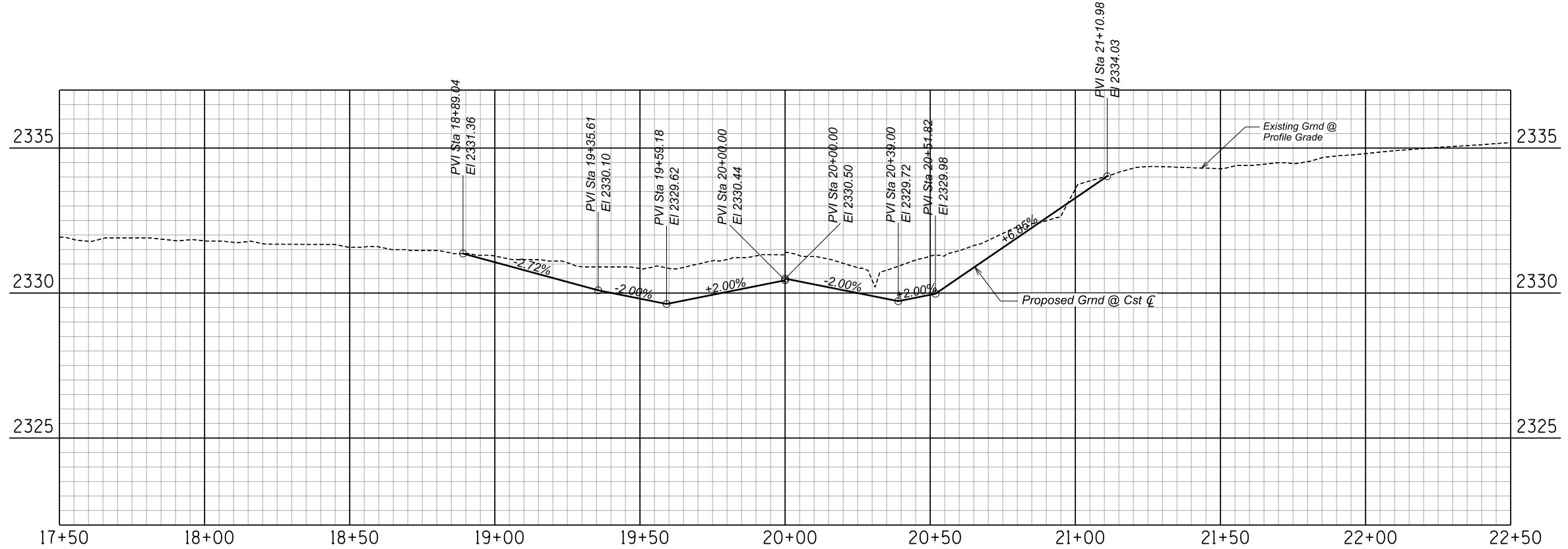
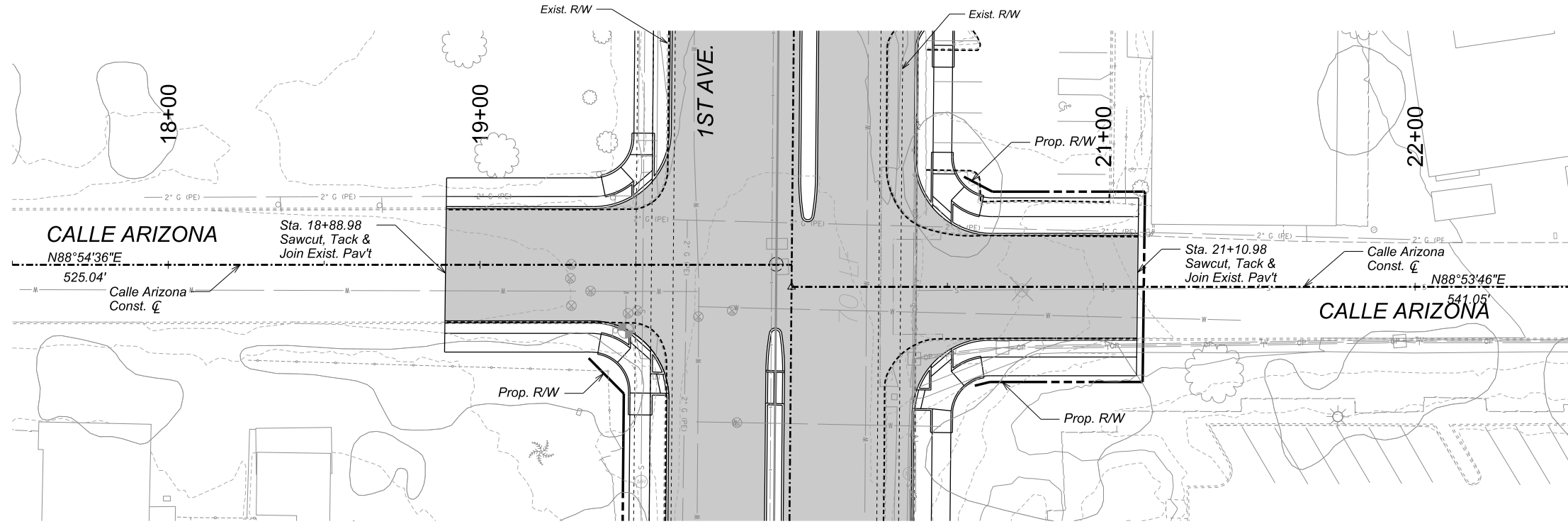
DRWN. BY JAR  
DEC 2025

CHKD. BY JMF  
DEC 2025

APPR. BY BJL  
DEC 2025

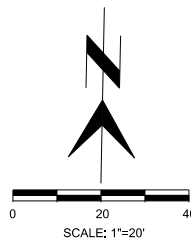
SCALE: H: 1"=20' V: 1"=2'  
PLAN NO. R-2024-XXX

108  
OF  
128



**CALLE ARIZONA  
PAVING PLAN & PROFILE**

Sheet 94 of 100



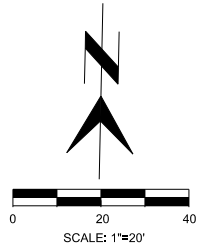
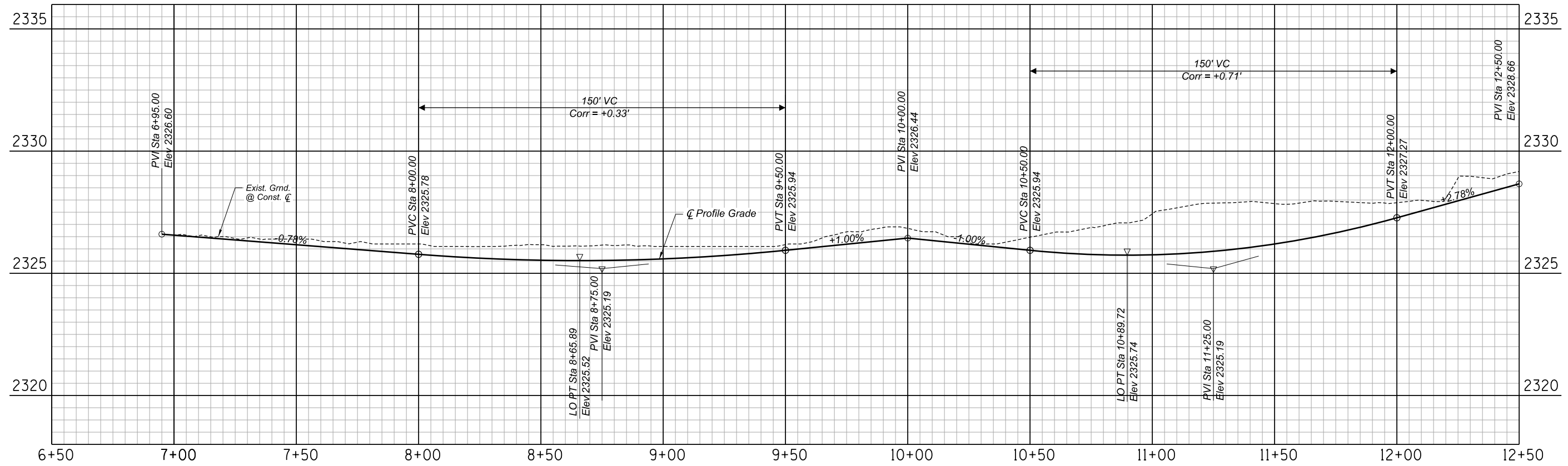
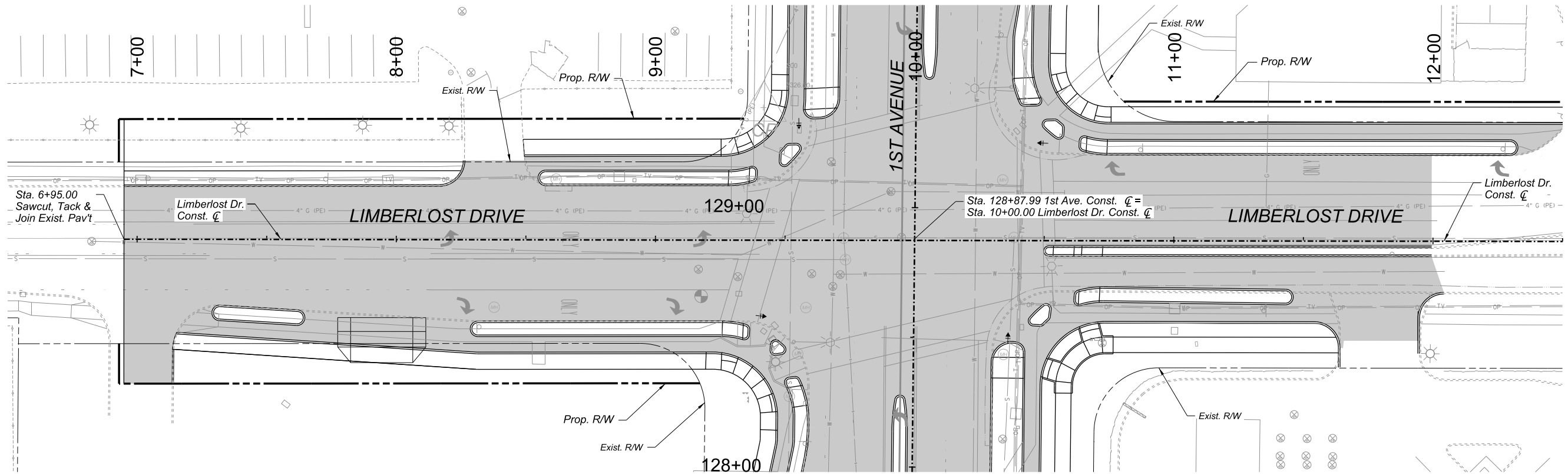
Record Document  
Dated: ##/##/####



NO.	DATE	REVISION	BY	CHKD.	APPR.

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SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				109
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF 128
	DRWN. BY REC OCT 2025	CHKD. BY JDB OCT 2025	APPR. BY JDB OCT 2025	SCALE: H: 1"=20' V: 1"=2' PLAN NO. R-2024-XXX



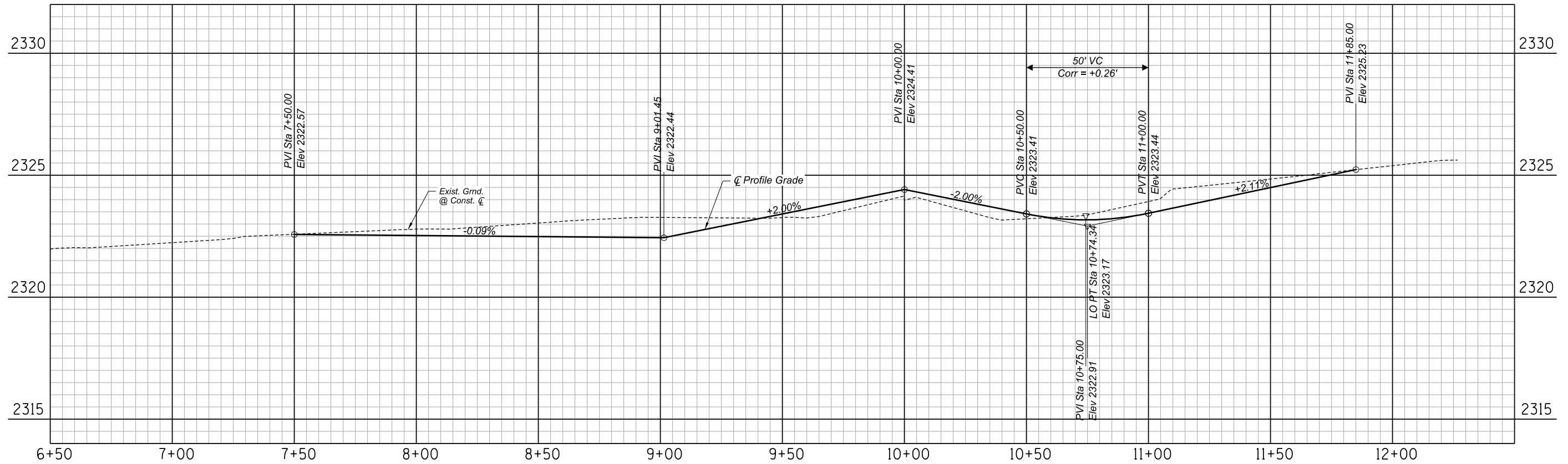
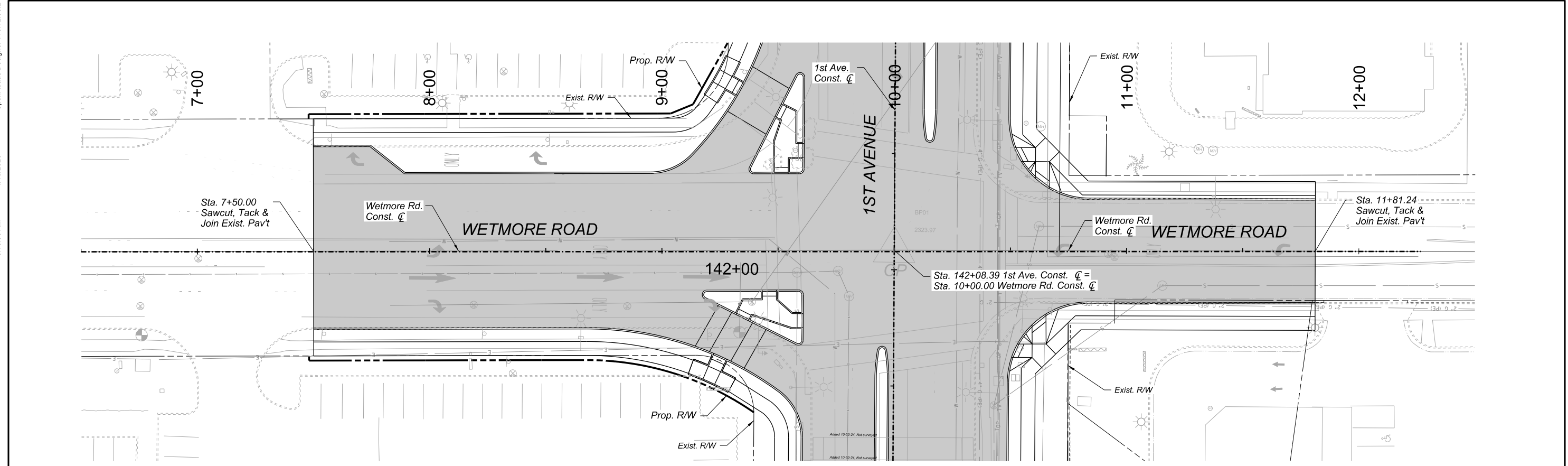
NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

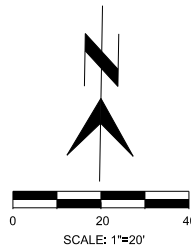
LIMBERLOST DR  
PAVING PLAN & PROFILE

SHEET 95 OF 100

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				110
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF 128
CITY OF TUCSON	DRWN. BY JAR	CHKD. BY JMF	APPR. BY BJL	SCALE: H: 1"=20' V: 1"=2'
	DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX



**WETMORE RD  
PAVING PLAN & PROFILE** SHEET 96 OF 100

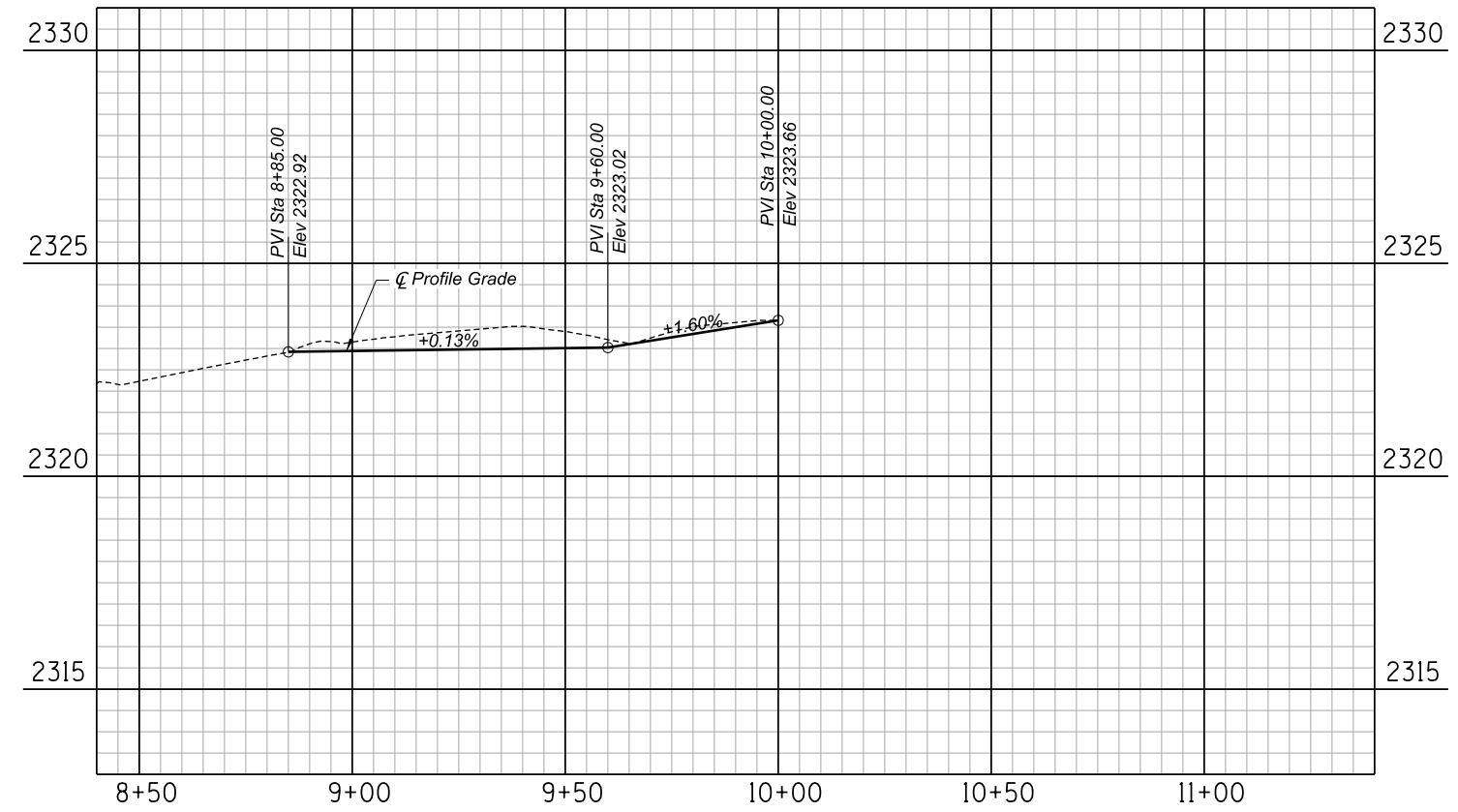
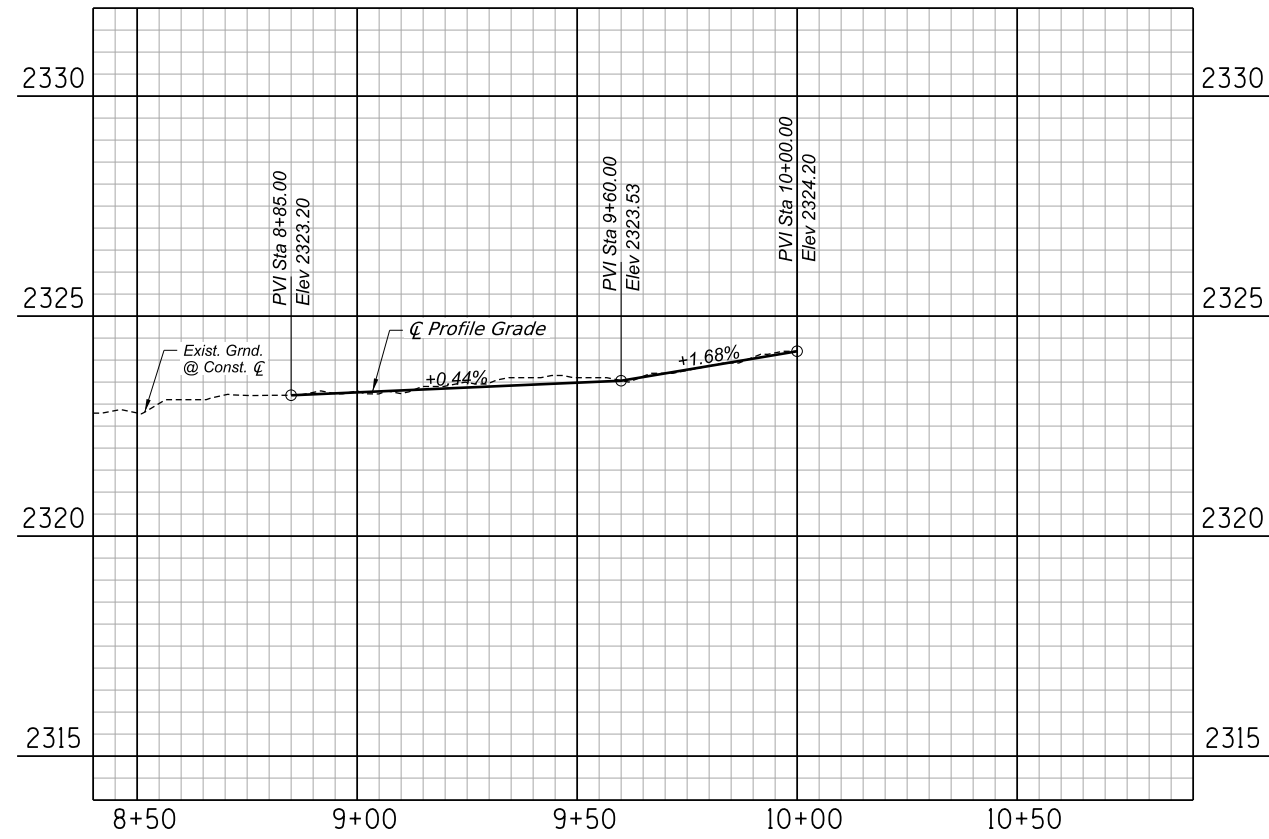
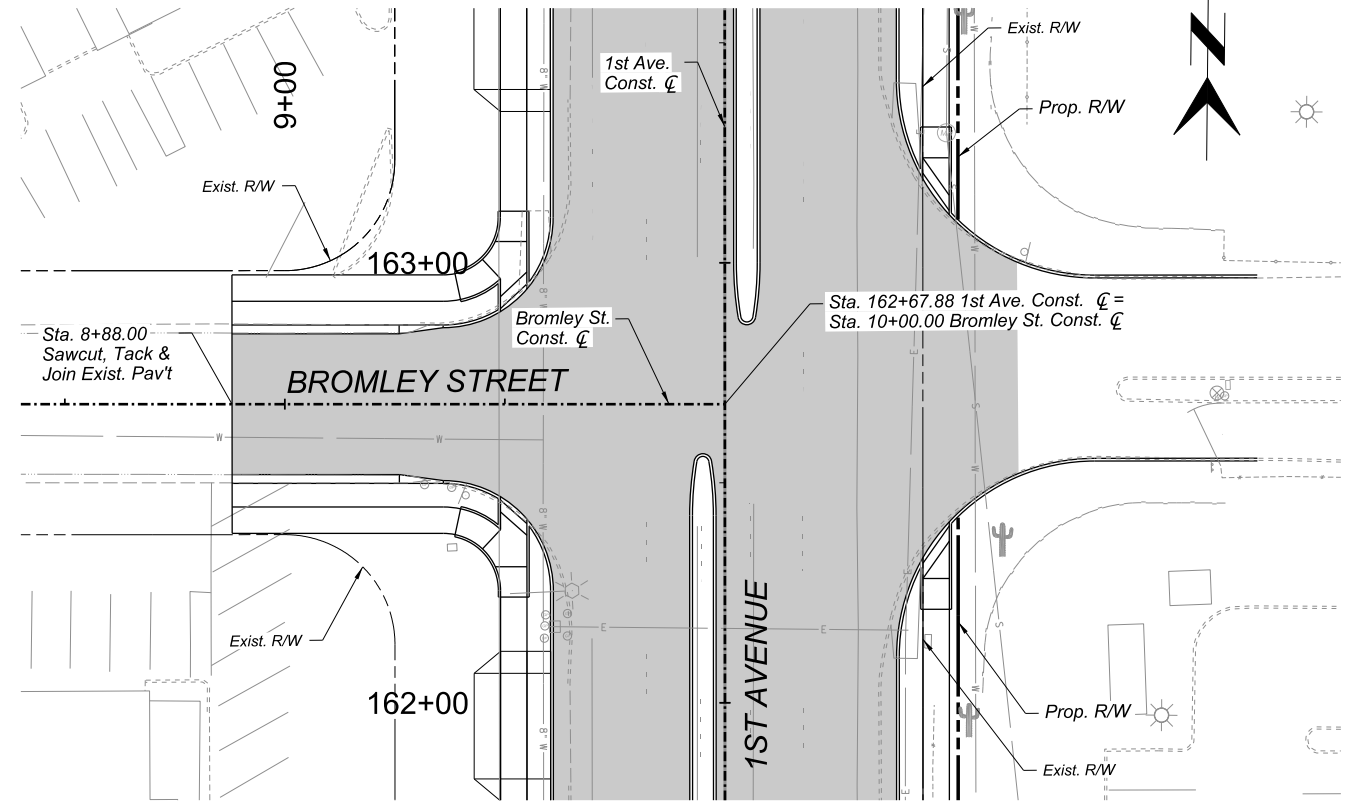
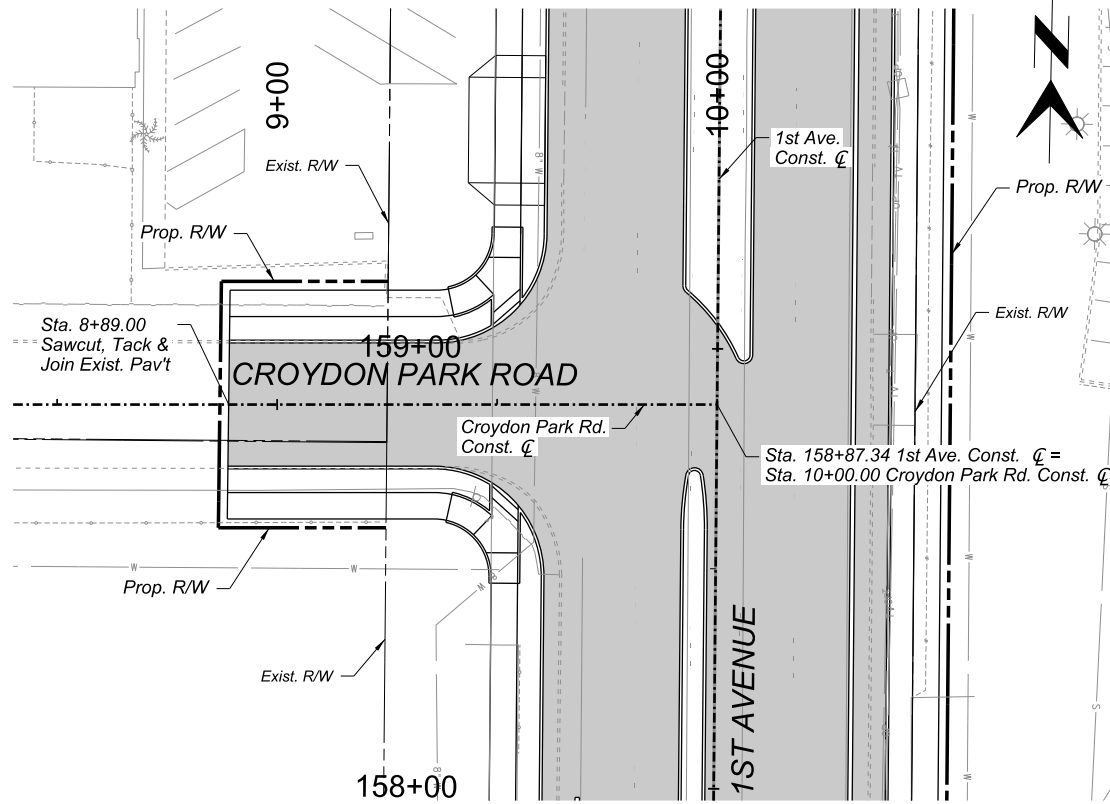


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Dated: ##/##/####

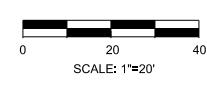
NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				111
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF 128
CITY OF <b>TUCSON</b>	DRWN. BY JAR OCT 2025	CHKD. BY JMF OCT 2025	APPR. BY BJL OCT 2025	SCALE: H: 1"=20' V: 1"=2' PLAN NO. R-2024-XXX



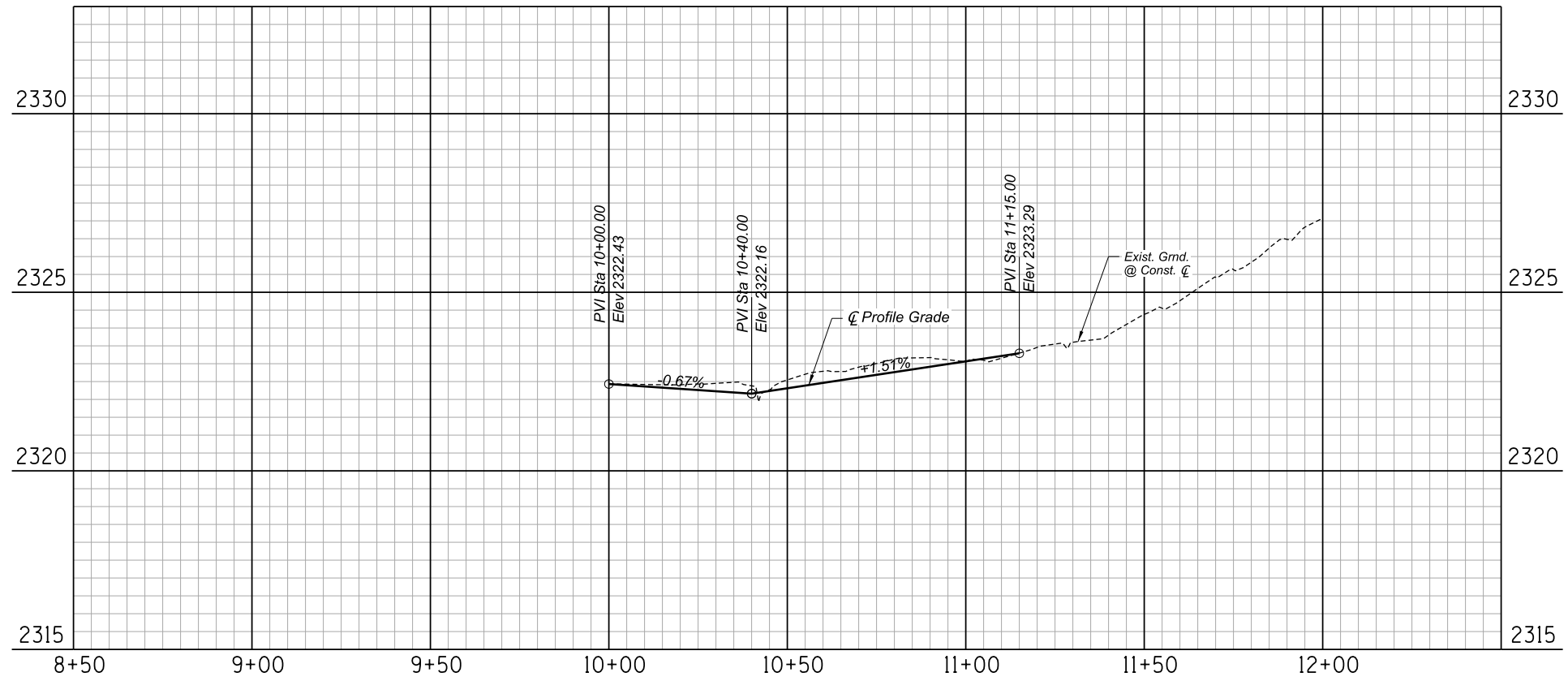
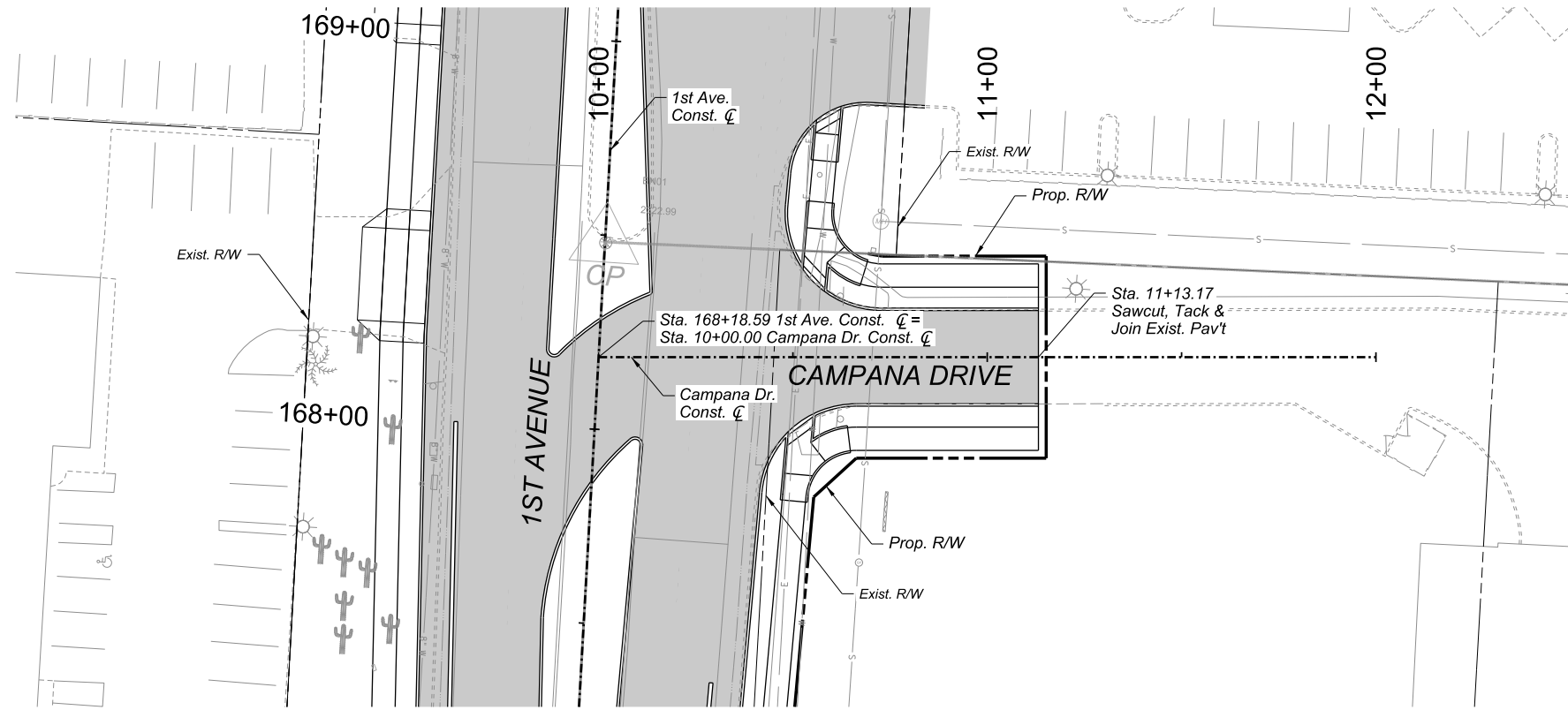
**CROYDON PARK RD/BROMLEY ST  
PAVING PLAN & PROFILE** SHEET 97 OF 100



NO.	DATE	REVISION	BY	CHKD.	APPR.

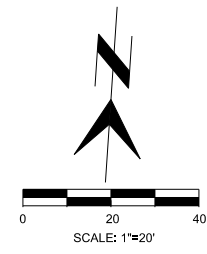
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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				112
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF 128
	DRWN BY JAR DEC 2025	CHKD BY JMF DEC 2025	APPR BY BJL DEC 2025	SCALE: H: 1"=20' V: 1"=2' PLAN NO. R-2024-XXX



CAMPANA DR  
PAVING PLAN & PROFILE

SHEET 98 OF 100



Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION

113 OF 128

1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS

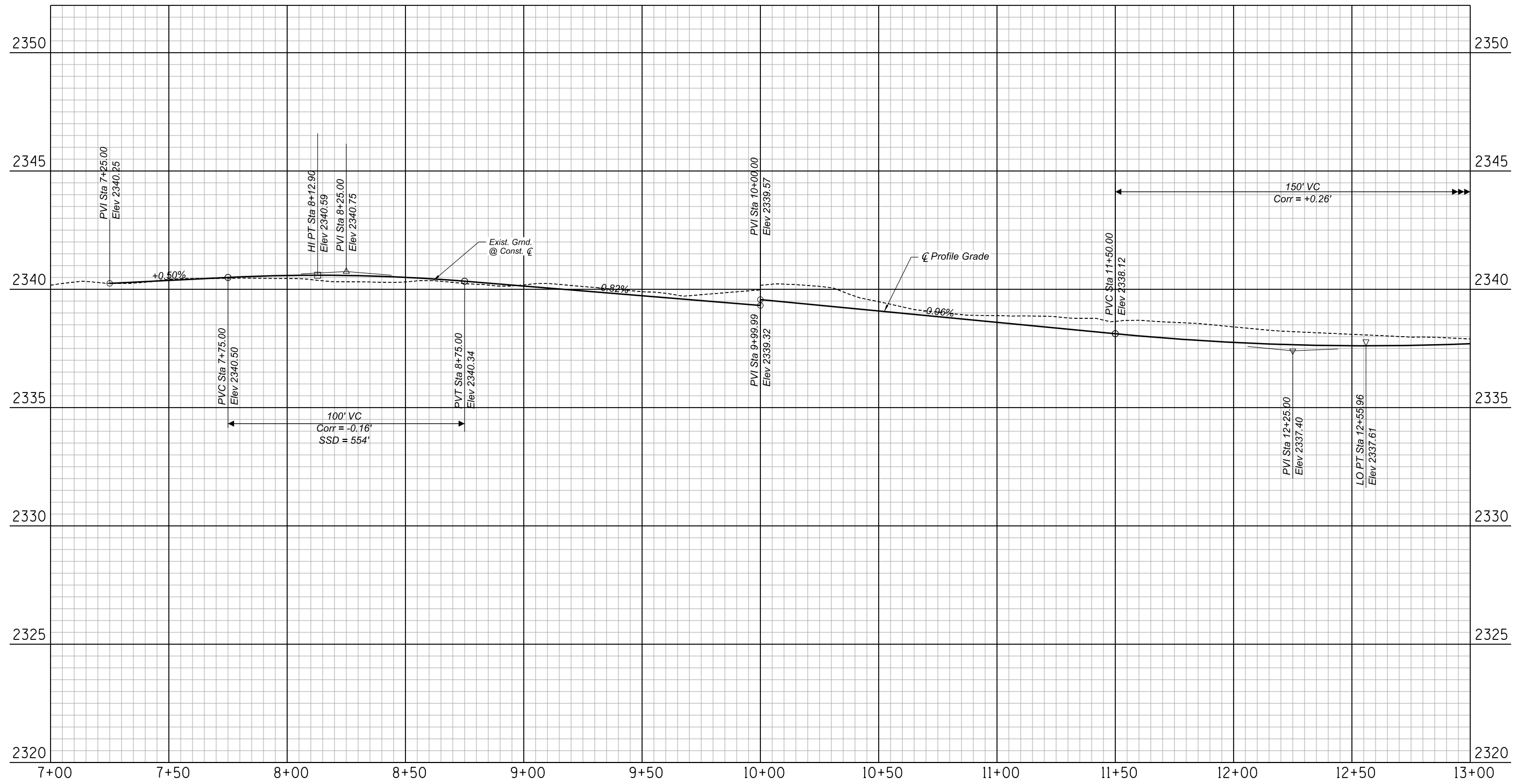
CITY OF TUCSON

DRWN. BY JAR  
CHKD. BY JMF  
APPR. BY BLK

SCALE: H: 1"=20' V: 1"=2'

PLAN NO. R-2024-XXX





RIVER RD  
PAVING PROFILE

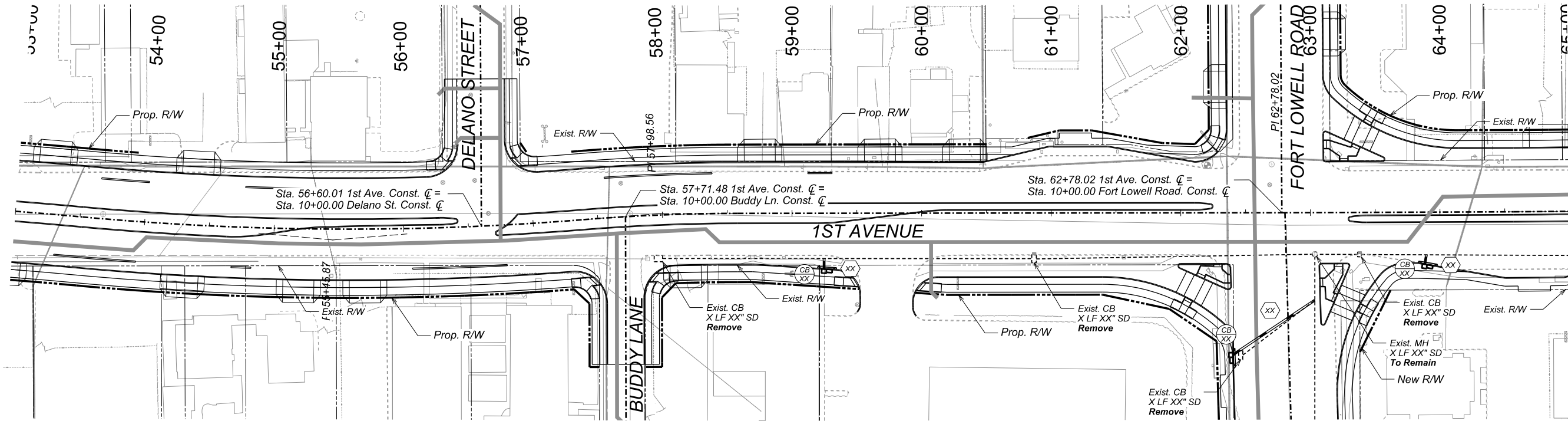
SHEET 100 OF 100

NO.	DATE	REVISION	BY	CHKD.	APPR.

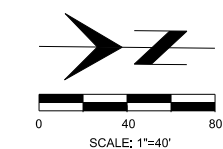
15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				115
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF
CITY OF TUCSON				128
DRWN. BY JAR	CHKD. BY JMF	APPR. BY BLK	SCALE: H: 1" = 20' V: 1" = 2'	PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		





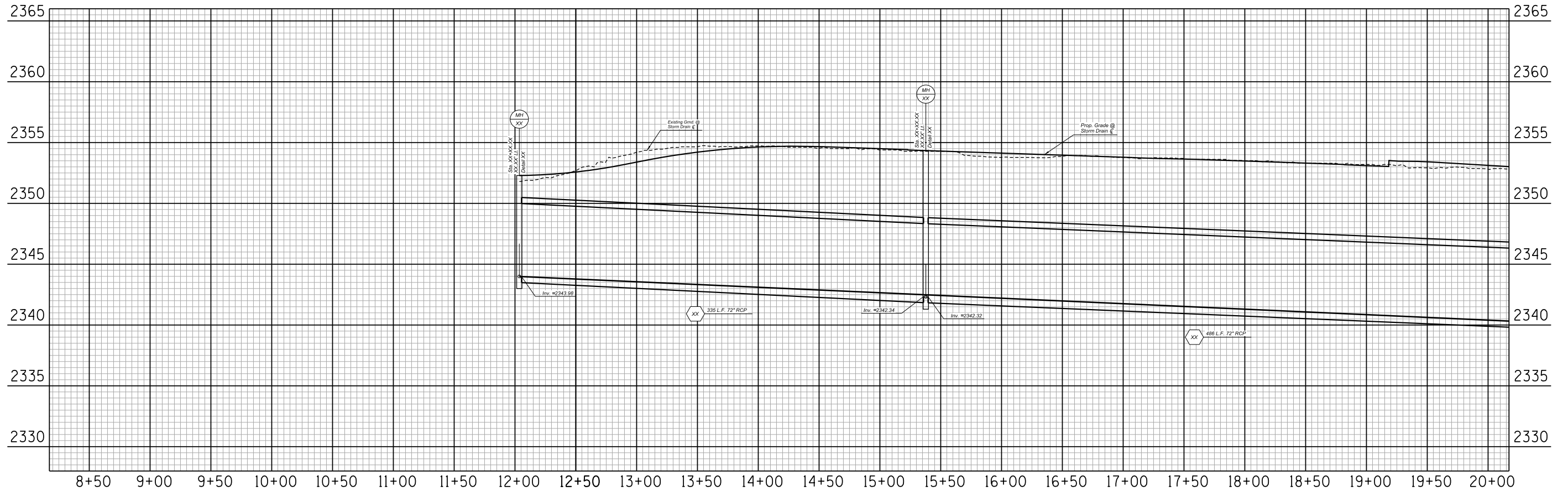
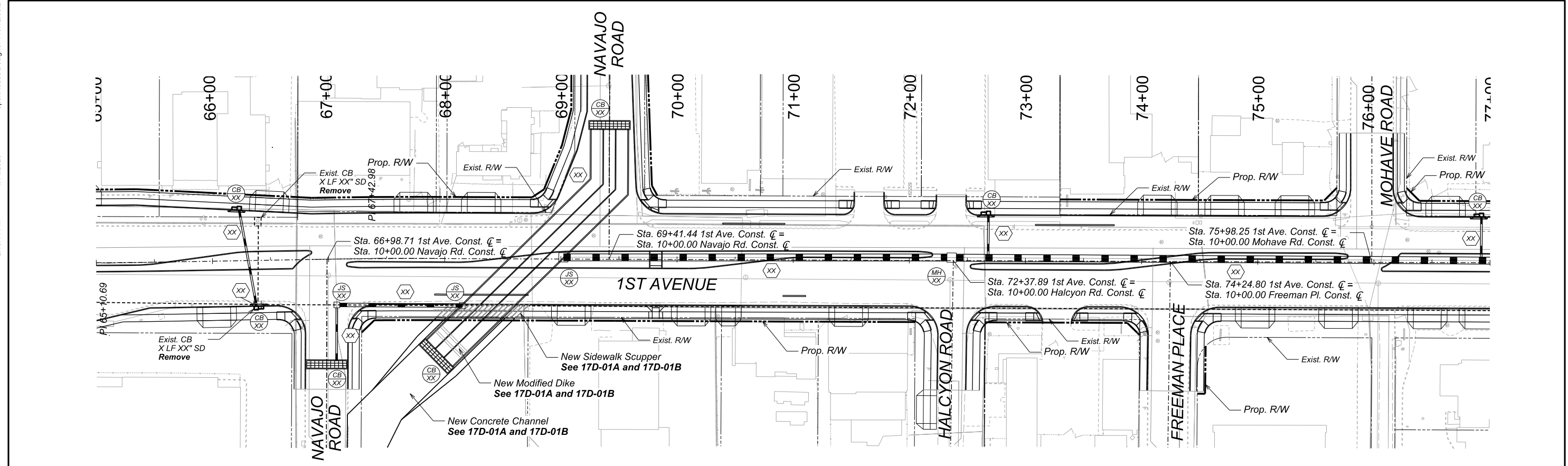
STORM DRAIN PLAN & PROFILE SHEET 1 OF 9



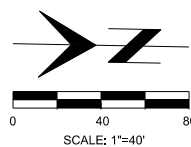
NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				116
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF 128
	DRWN. BY TCC	CHKD. BY JMF	APPR. BY BJK	SCALE: H: 1" = 40'
	SEP 2025	SEP 2025	SEP 2025	PLAN NO. R-2024-XXX



STORM DRAIN PLAN & PROFILE SHEET 2 OF 9



NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
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Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION

117 OF 128

1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS

CITY OF TUCSON

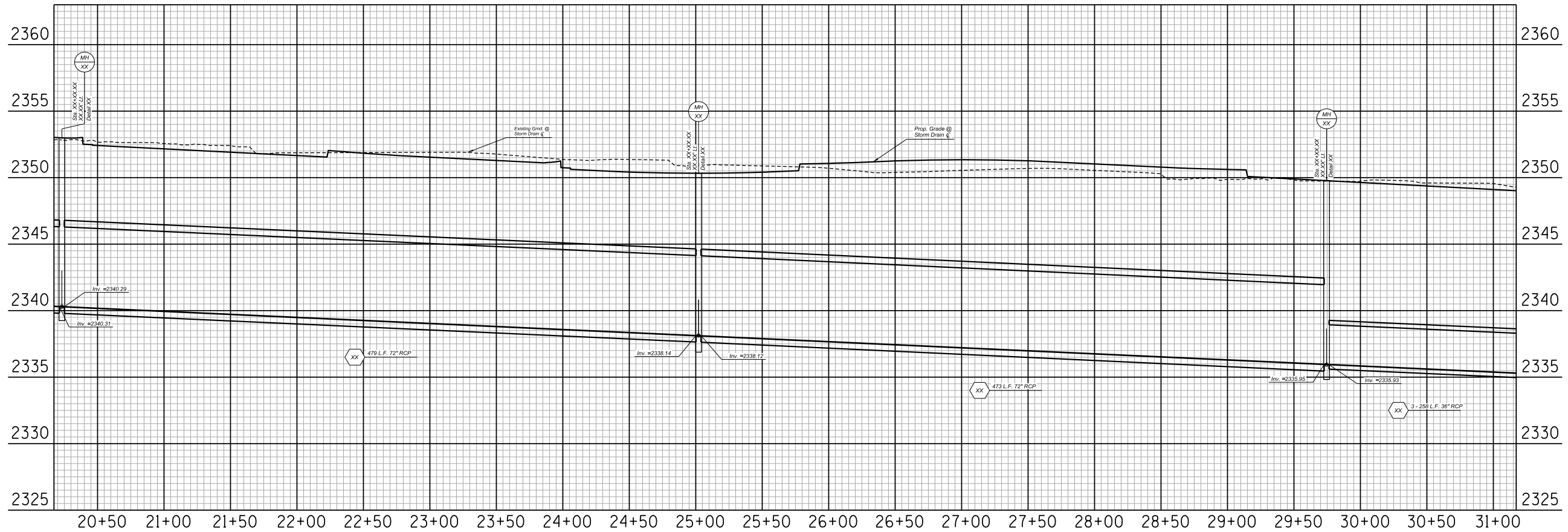
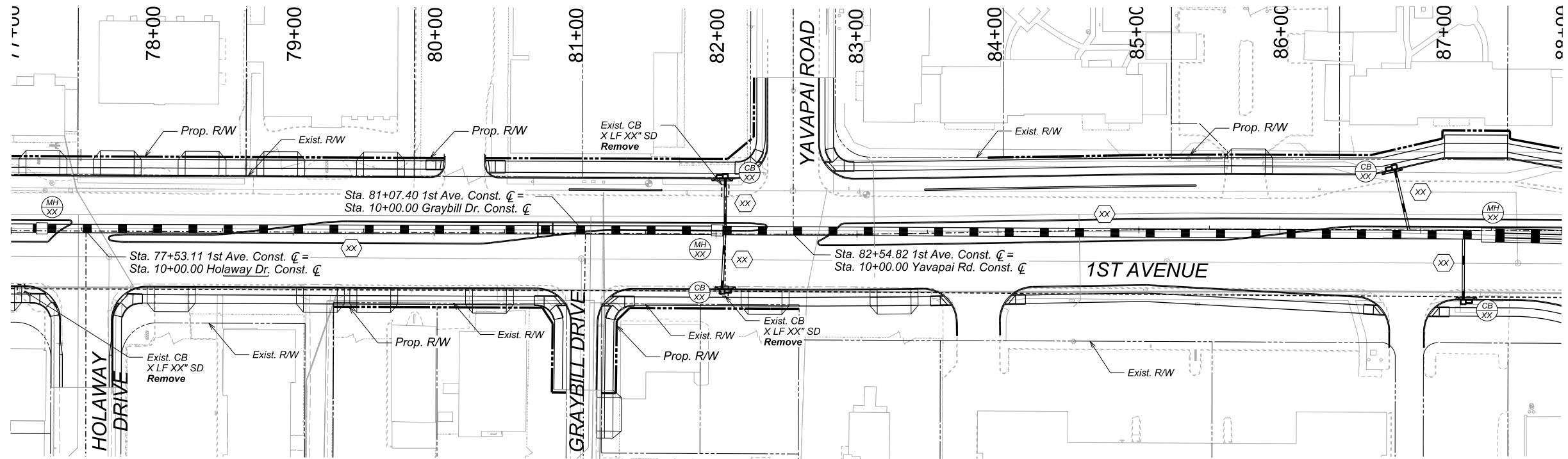
DRWN. BY: TCC SEP 2025

CHKD. BY: JMF SEP 2025

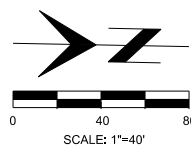
APPR. BY: BJL SEP 2025

SCALE: H: 1"=40' V: 1"=4'

PLAN NO. R-2024-XXX



STORM DRAIN PLAN & PROFILE SHEET 3 OF 9



NO.	DATE	REVISION	BY	CHKD.	APPR.

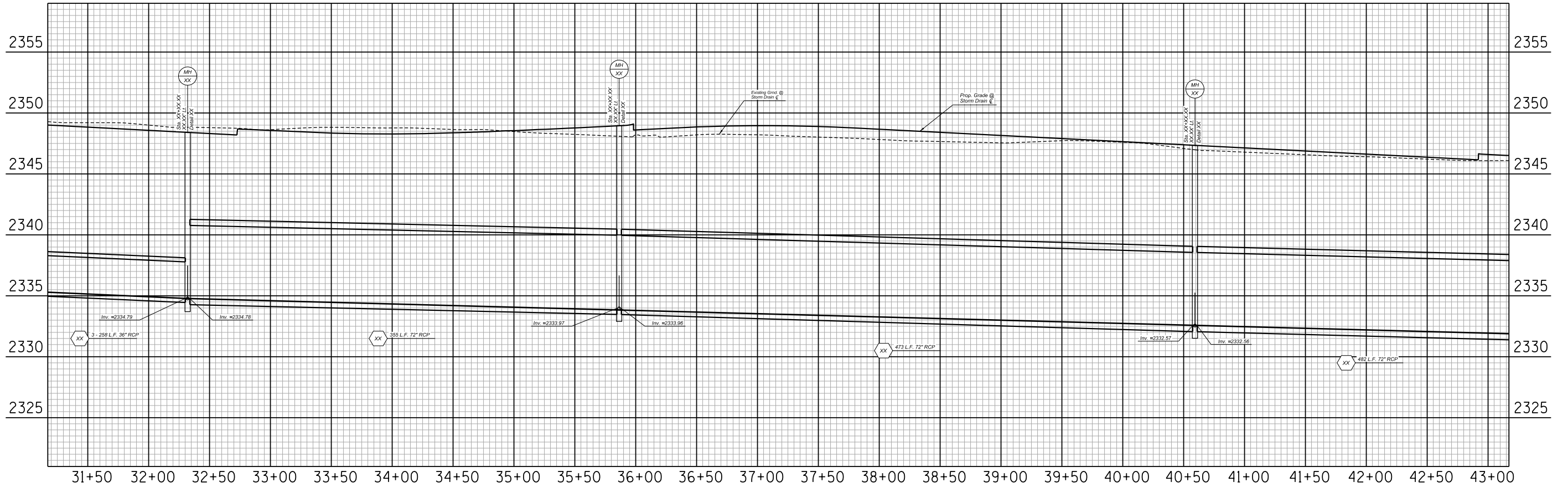
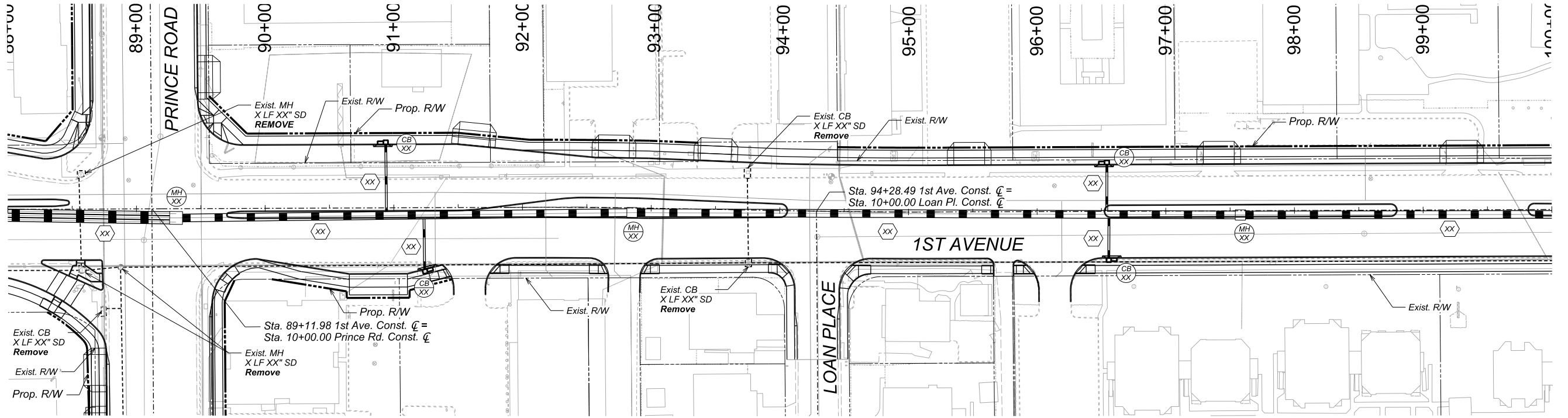
15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION 118  
OF  
128

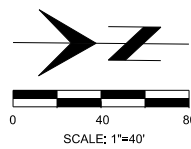
1ST AVENUE, GRANT ROAD TO  
RIVER ROAD - ROADWAY IMPROVEMENTS

CITY OF TUCSON  
DRWN. BY: TCC  
CHKD. BY: JMF  
APPR. BY: BLK  
SEP 2025  
SEP 2025  
SEP 2025

SCALE: H: 1"=40' V: 1"=4'  
PLAN NO. R-2024-XXX



STORM DRAIN PLAN & PROFILE SHEET 4 OF 9



NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION

119 OF 128

1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS

CITY OF TUCSON

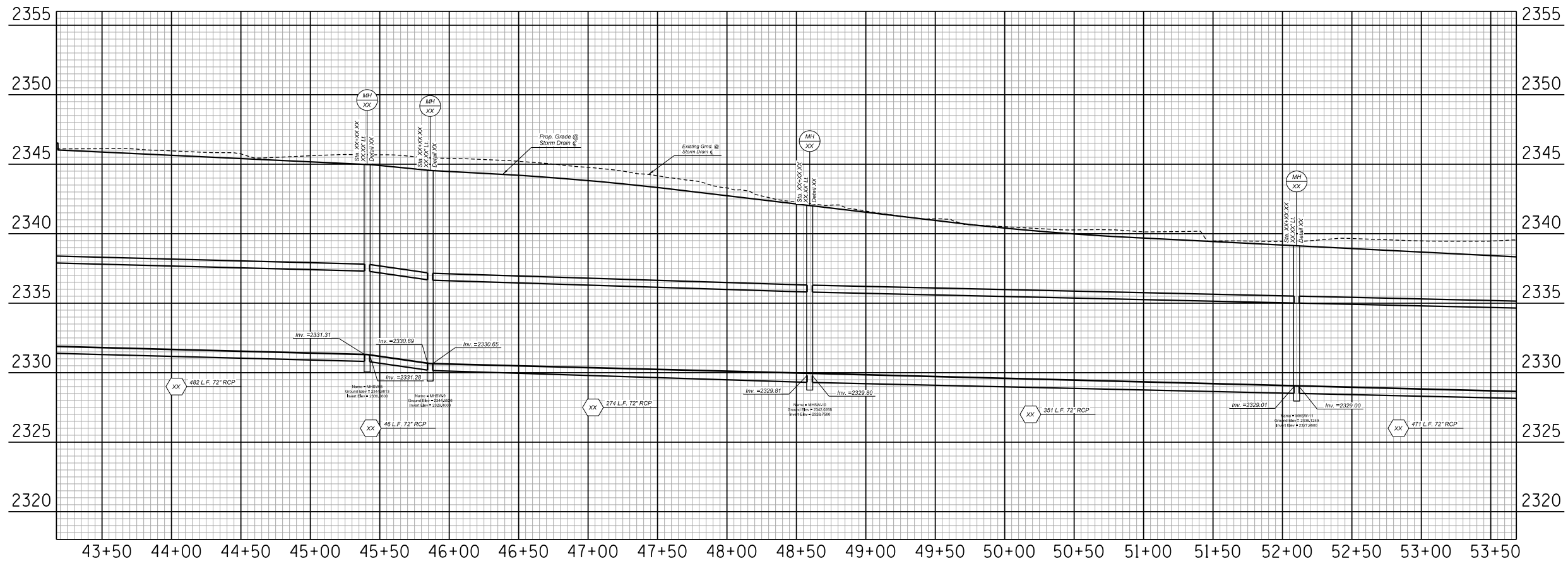
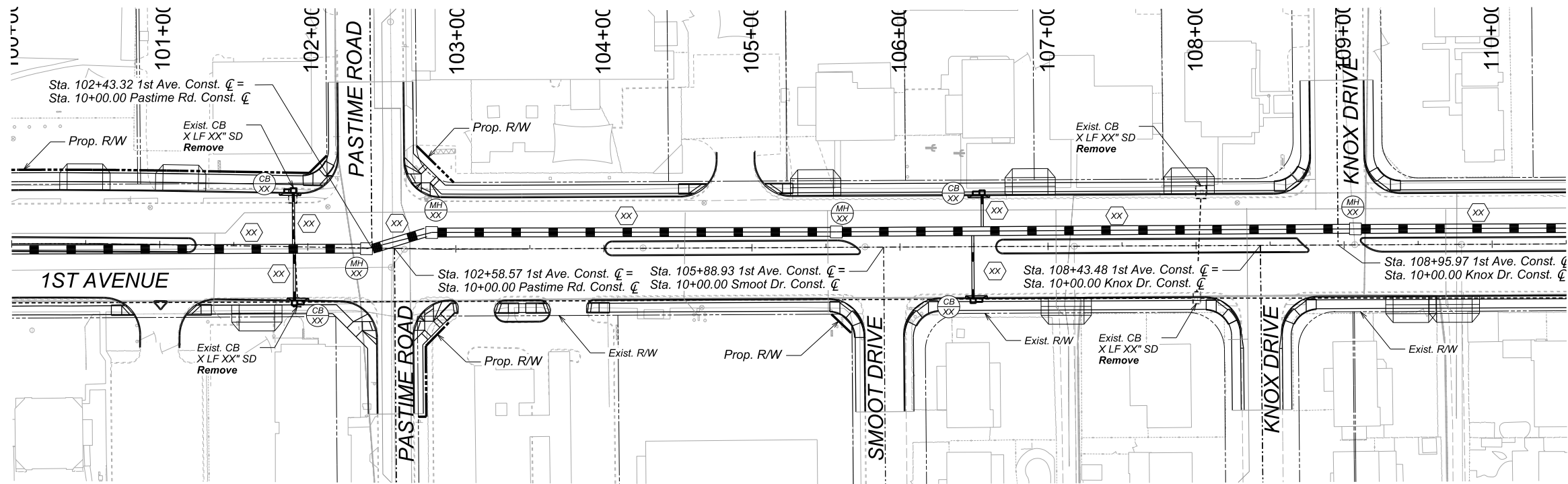
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CHKD. BY JMF SEP 2025

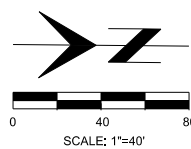
APPR. BY BJL SEP 2025

SCALE: H: 1"=40' V: 1"=4'

PLAN NO. R-2024-XXX



STORM DRAIN PLAN & PROFILE SHEET 5 OF 9



NO.	DATE	REVISION	BY	CHKD.	APPR.

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Preliminary  
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Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION

120 OF 128

1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS

CITY OF TUCSON

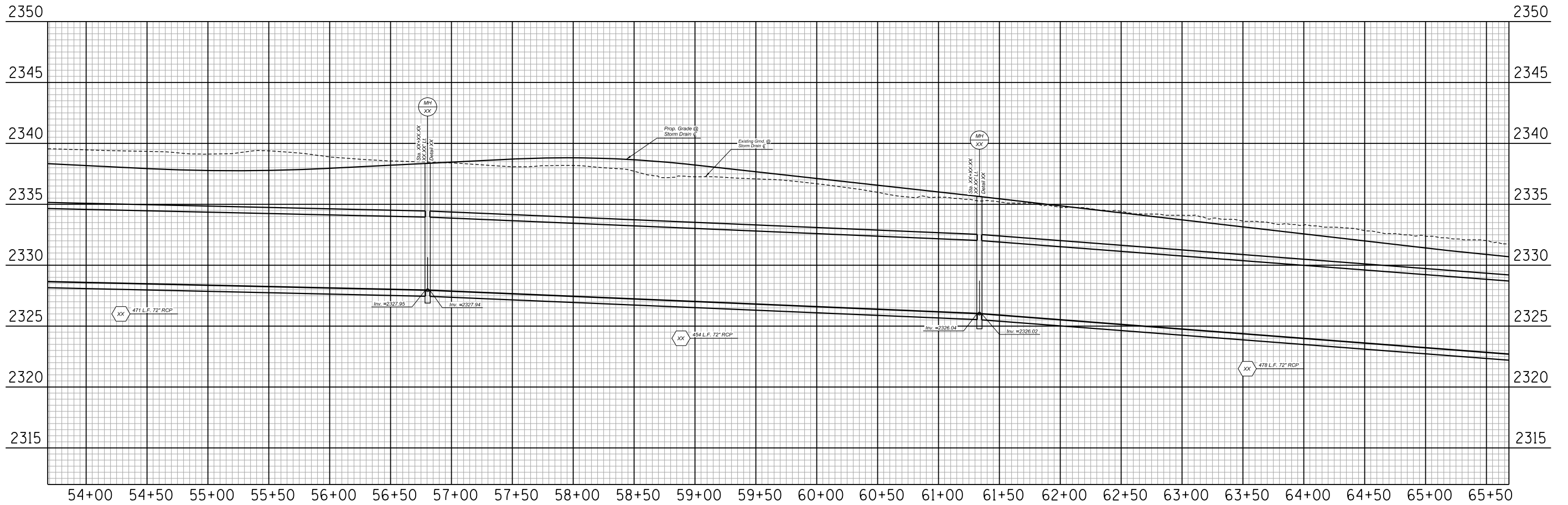
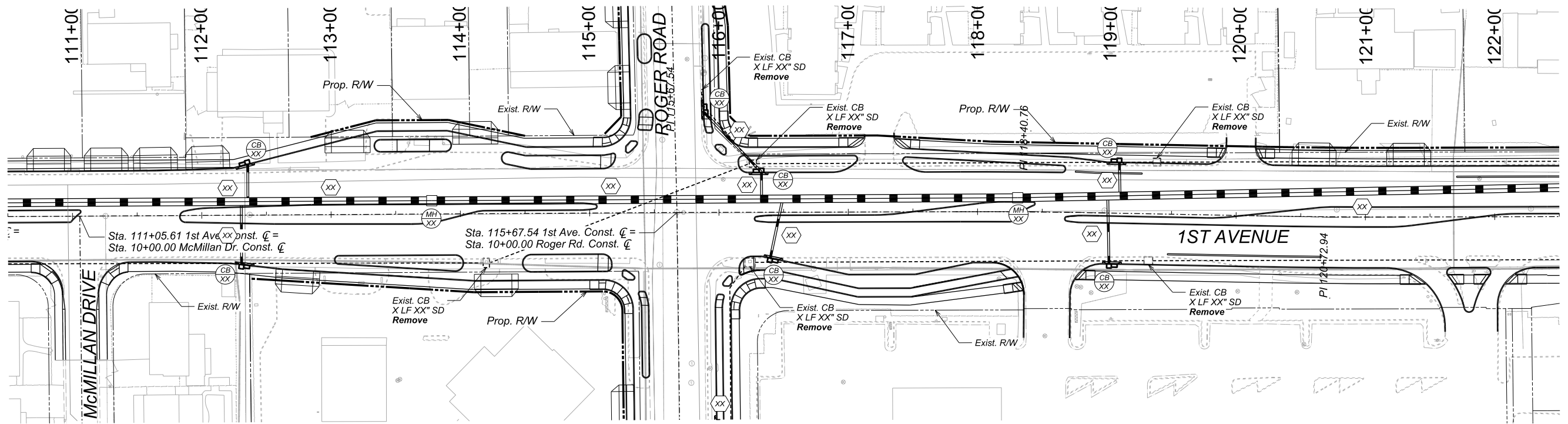
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CHKD. BY JMF SEP 2025

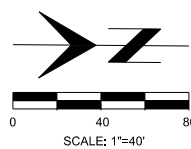
APPR. BY BLK SEP 2025

SCALE: H: 1"=40' V: 1"=4'

PLAN NO. R-2024-XXX



STORM DRAIN PLAN & PROFILE SHEET 6 OF 9



NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
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Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION

1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS

CITY OF TUCSON

DRWN. BY TCC SEP 2025

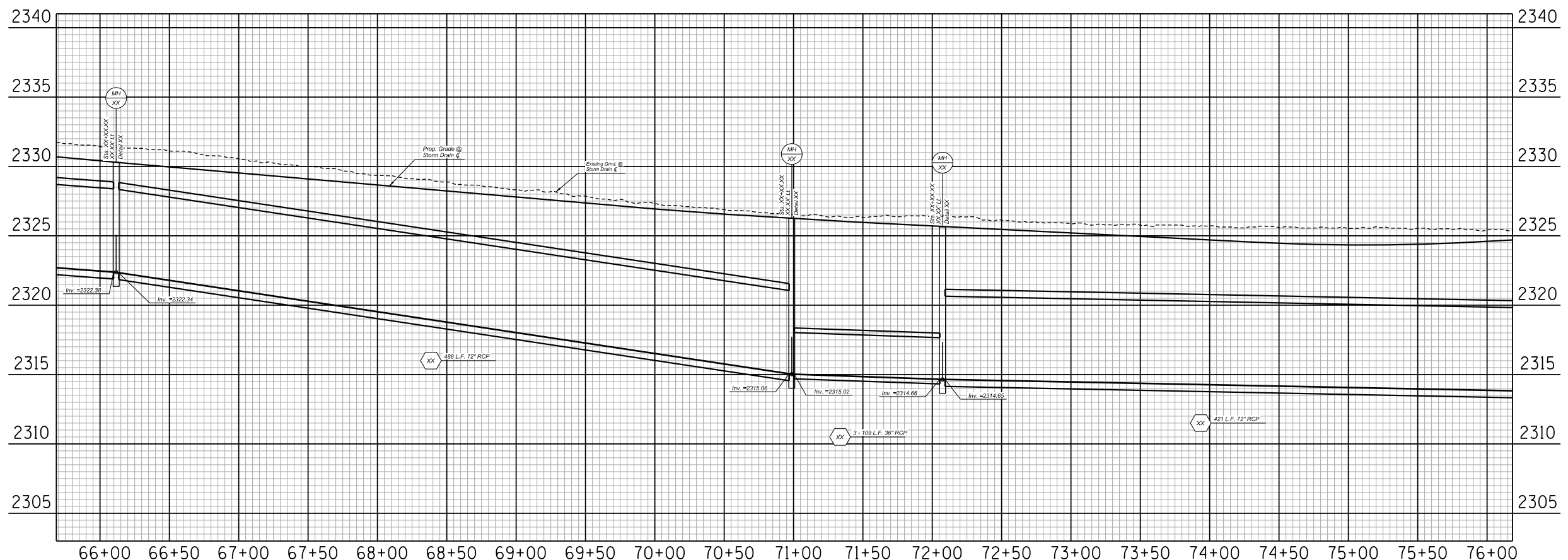
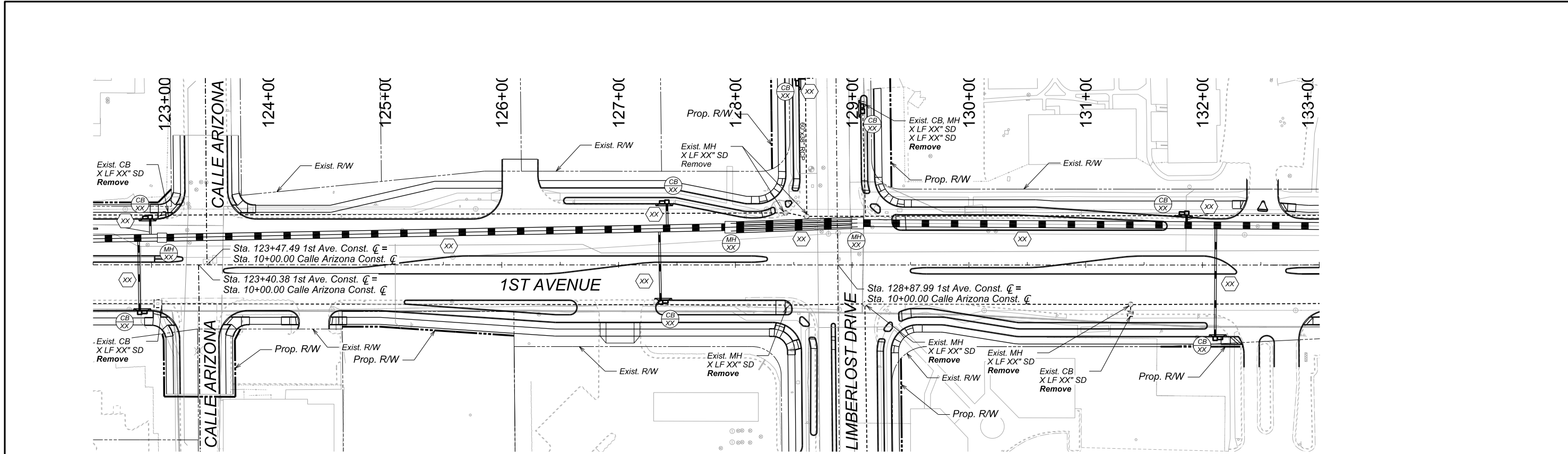
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APPR. BY BJL SEP 2025

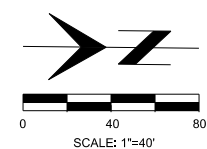
SCALE: H: 1"=40' V: 1"=4'

PLAN NO. R-2024-XXX

121 OF 128



STORM DRAIN PLAN & PROFILE SHEET 7 OF 9



NO.	DATE	REVISION	BY	CHKD.	APPR.

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Preliminary  
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Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION

122 OF 128

1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS

CITY OF TUCSON

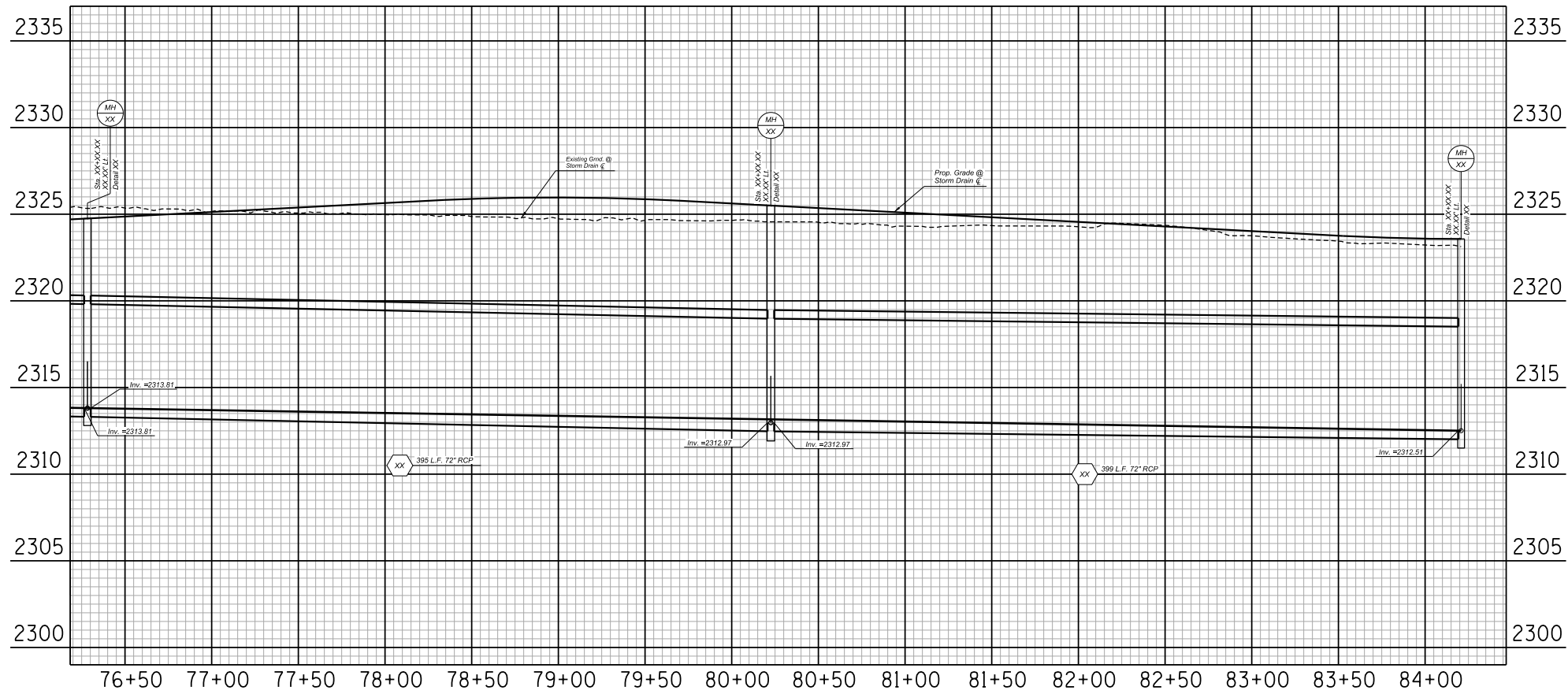
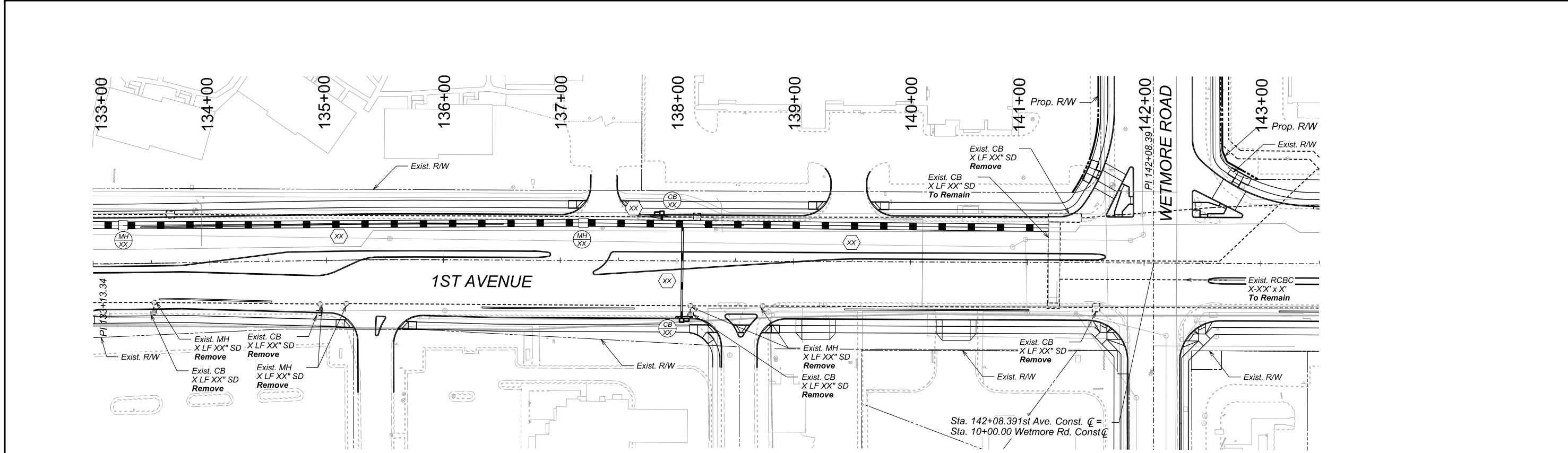
DRWN. BY TCC SEP 2025

CHKD. BY JMF SEP 2025

APPR. BY BLK SEP 2025

SCALE: H: 1"=40' V: 1"=4'

PLAN NO. R-2024-XXX



STORM DRAIN PLAN & PROFILE SHEET 8 OF 9

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION

1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS

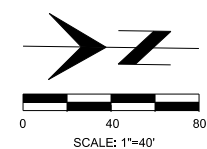
CITY OF TUCSON

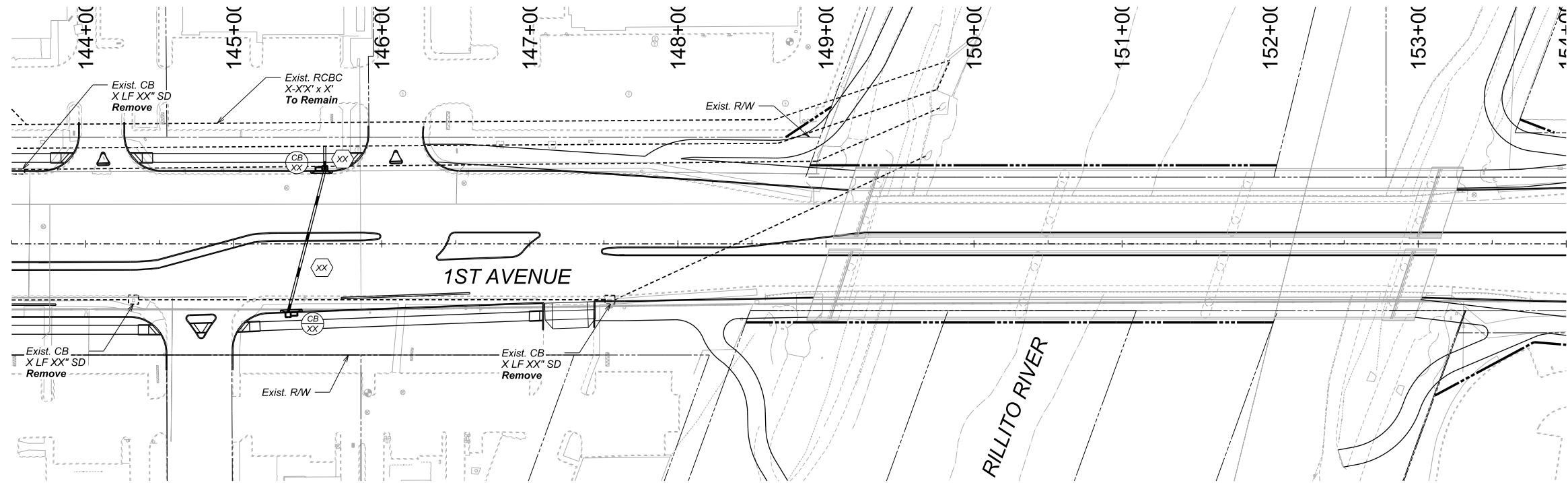
DRWN. BY TCC    CHKD. BY JMF    APPR. BY BLK

SEP 2025    SEP 2025    SEP 2025

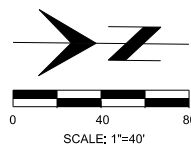
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PLAN NO. R-2024-XXX





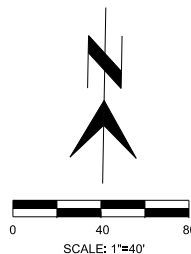
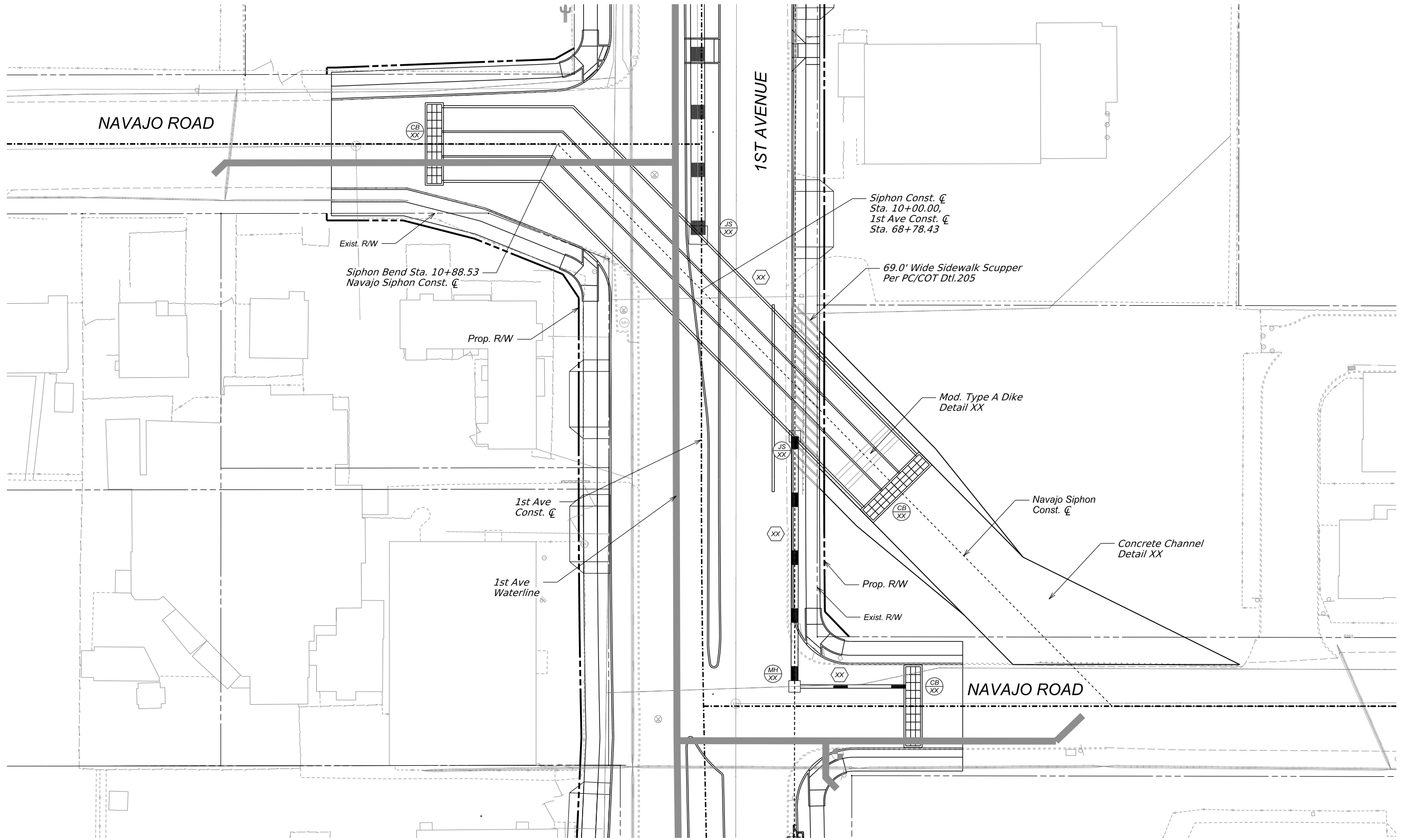
STORM DRAIN PLAN & PROFILE SHEET 9 OF 9



NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				124
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF 128
	DRWN. BY TCC	CHKD. BY JMF	APPR. BY BJL	SCALE: H: 1"=40' V: 1"=4'
	SEP 2025	SEP 2025	SEP 2025	PLAN NO. R-2024-XXX



Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

CULVERT PLAN

SHEET 1 OF 2

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION

1ST AVENUE, GRANT ROAD TO  
RIVER ROAD - ROADWAY IMPROVEMENTS



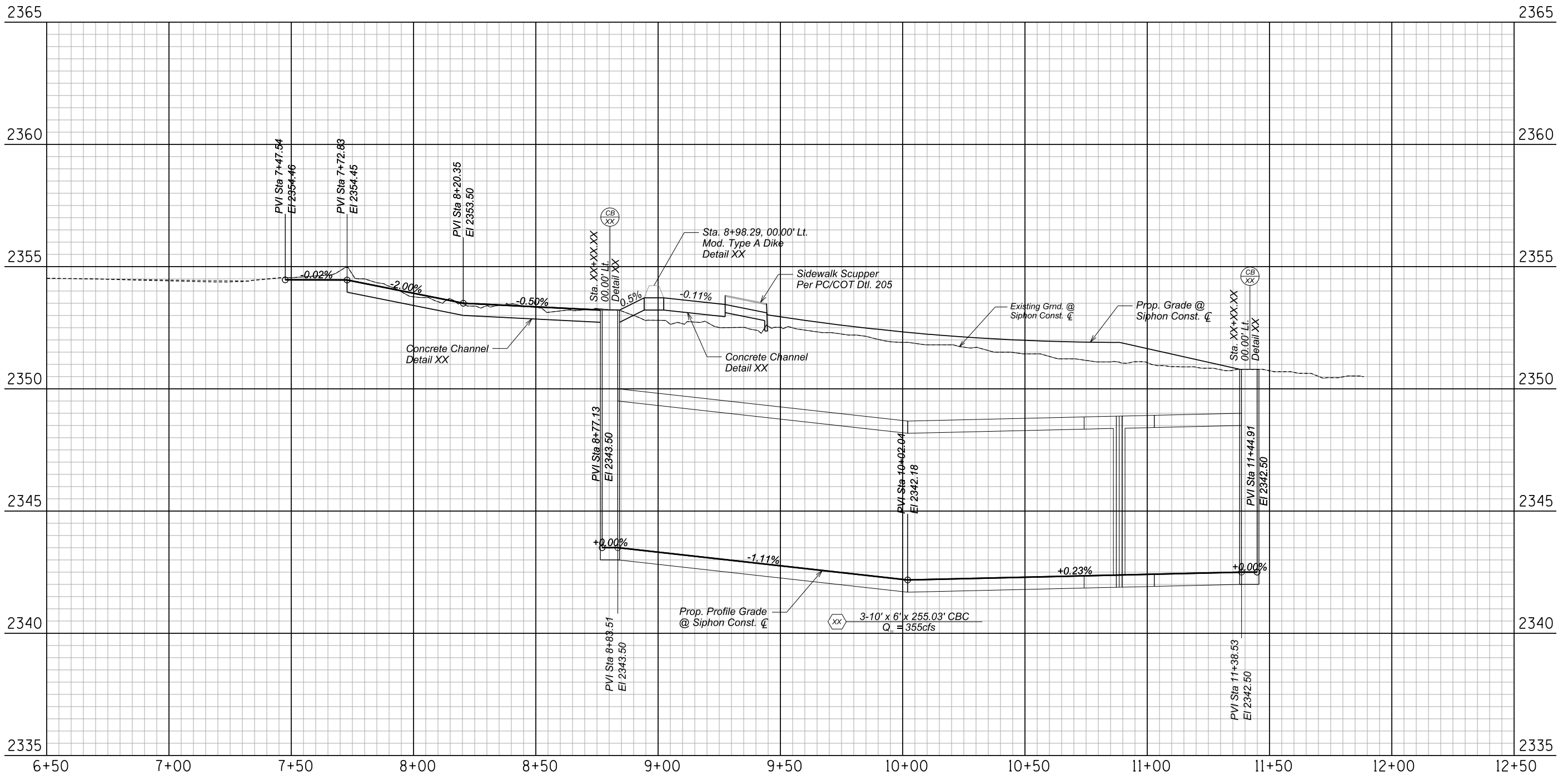
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NOV 2025

CHKD. BY JMF  
NOV 2025

APPR. BY BLK  
NOV 2025

SCALE: H: 1" = 40'  
PLAN NO. R-2024-XXX

125  
OF  
128



CULVERT PROFILE

SHEET 2 OF 2

Record Document  
Dated: ##/##/####



NO.	DATE	REVISION	BY	CHKD.	APPR.

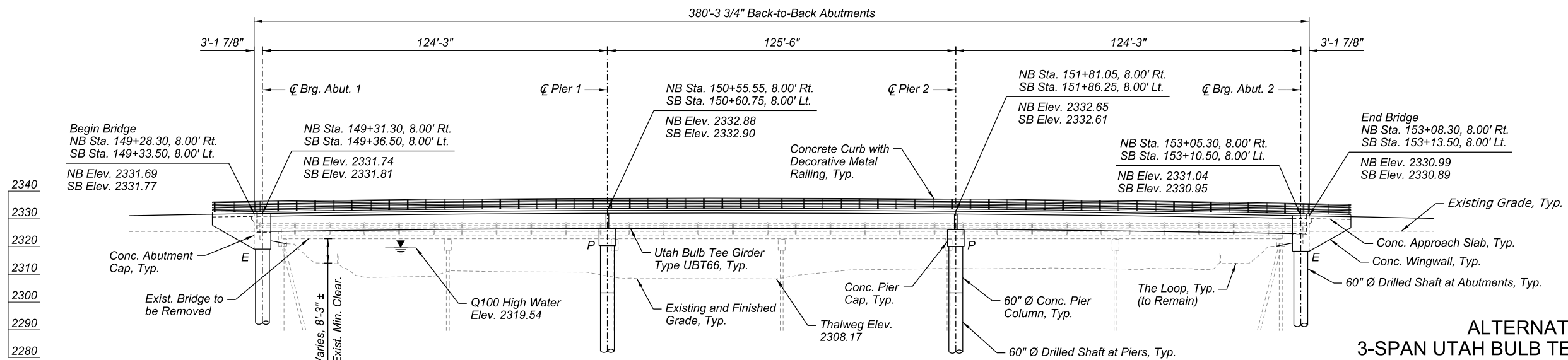
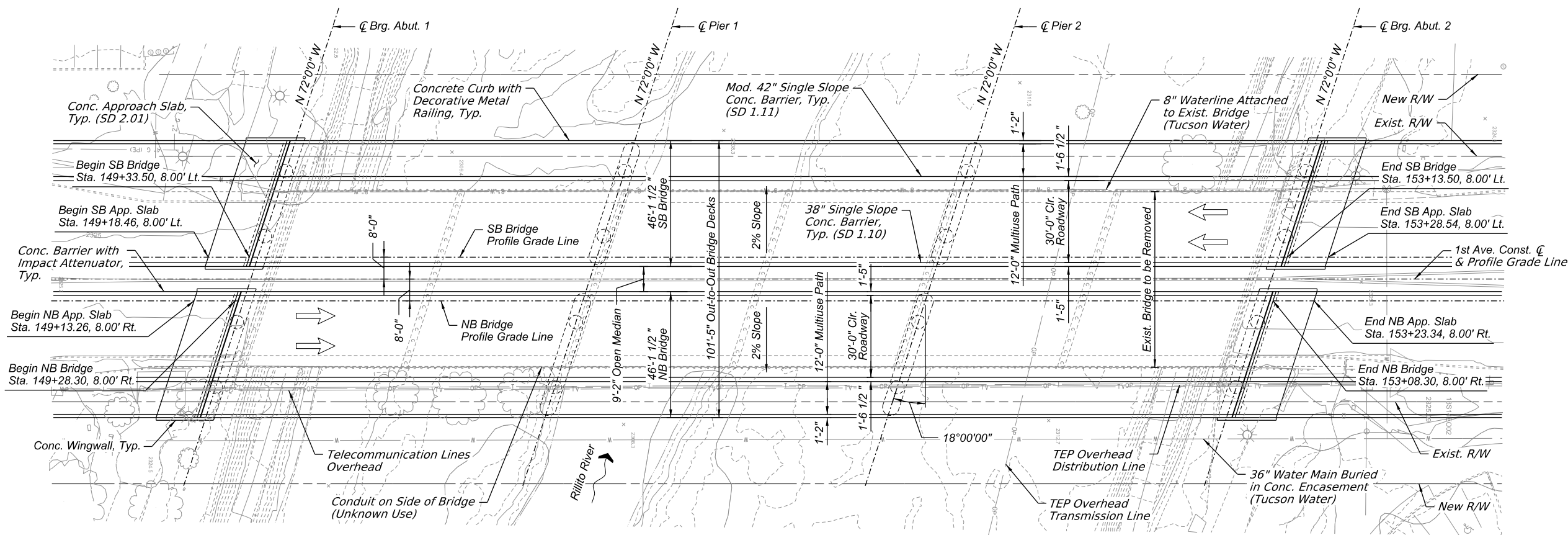
15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION

1ST AVENUE, GRANT ROAD TO  
RIVER ROAD - ROADWAY IMPROVEMENTS

CITY OF TUCSON	DRWN. BY TCC	CHKD. BY JMF	APPR. BY BJK	SCALE: H: 1" = 40' V: 1" = 4'
	NOV 2025	NOV 2025	NOV 2025	PLAN NO. R-2024-XXX

126  
OF  
128



**ALTERNATIVE 1A:  
3-SPAN UTAH BULB TEE GIRDER (UBT66)  
(RECOMMENDED ALTERNATIVE)**

Note: Stations are along the 1st Avenue Construction Centerline. Dimensions and Elevations are along the NB or SB Bridge Profile Grade Line at Top of Deck unless noted otherwise.

**BRIDGE PLAN & ELEVATION**

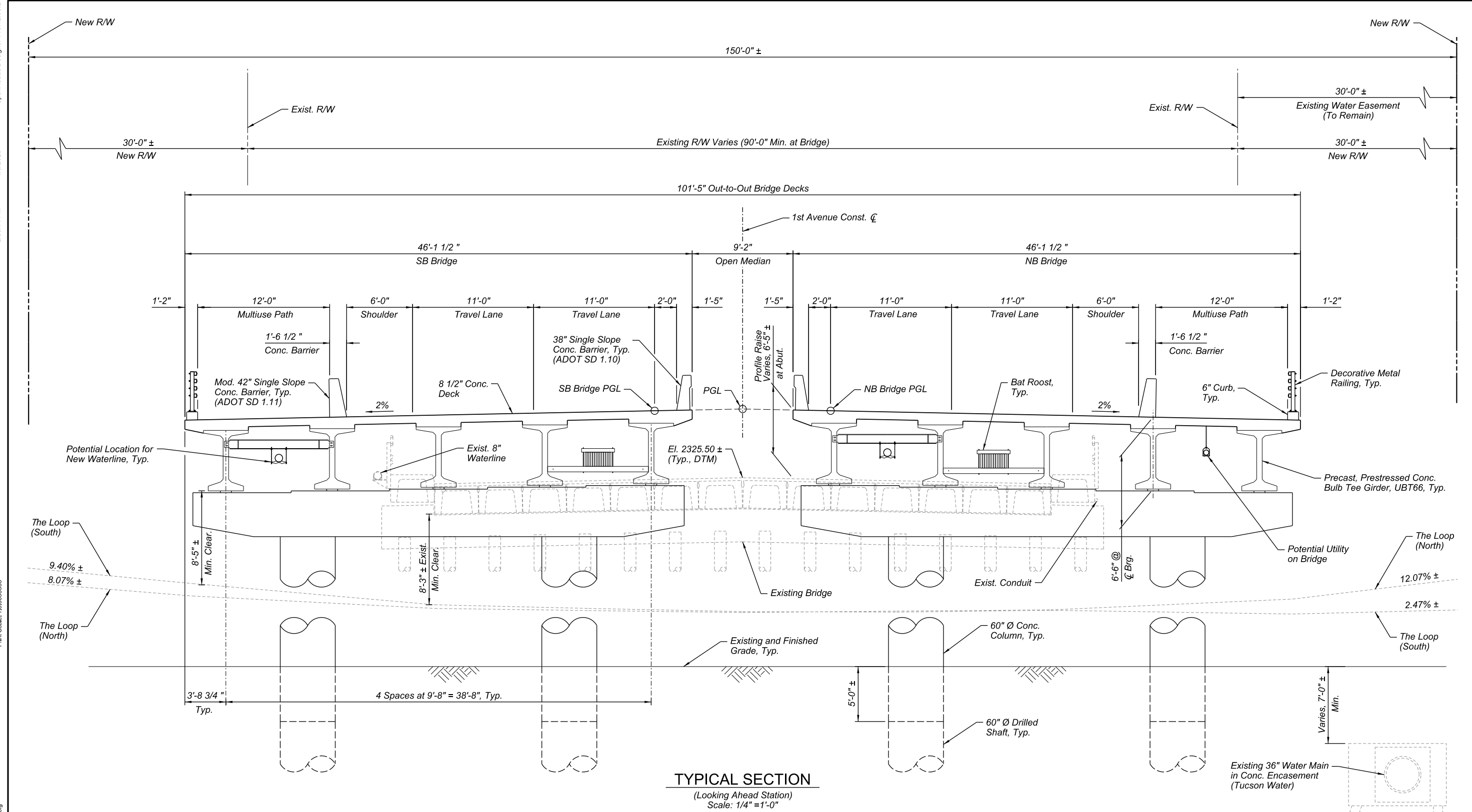
Record Document  
Dated: ##/##/####

NO.	DATE	REVISION	BY	CHKD.	APPR.

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DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

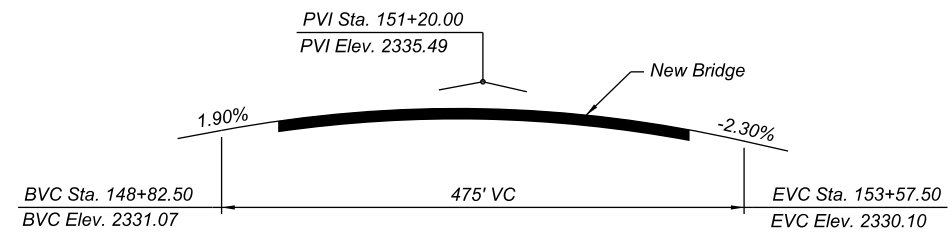
DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				127
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				128
CITY OF <b>TUCSON</b>	DRWN. BY GWS	CHKD. BY DL	APPR. BY TWB	SCALE: PLAN NO. R-2024-XXX
DEC 2025	DEC 2025	DEC 2025		





**TYPICAL SECTION**  
(Looking Ahead Station)  
Scale: 1/4" = 1'-0"

**ALTERNATIVE 1A:**  
**3-SPAN UTAH BULB TEE GIRDER (UBT66)**  
**(RECOMMENDED ALTERNATIVE)**



**PROFILE GRADE**  
PGL at 1st Avenue Const. Centerline  
No Scale

Record Document  
Dated: ##/##/####



NO.	DATE	REVISION	BY	CHKD.	APPR.

15%  
DESIGN CONCEPT  
SUBMITTAL  
Preliminary  
Not For  
Construction

**TYPICAL SECTION**

DEPARTMENT OF TRANSPORTATION AND MOBILITY/ENGINEERING DIVISION				128
1ST AVENUE, GRANT ROAD TO RIVER ROAD - ROADWAY IMPROVEMENTS				OF 128
CITY OF TUCSON	DRWN. BY: GWS	CHKD. BY: DL	APPR. BY: TWB	SCALE:
	DEC 2025	DEC 2025	DEC 2025	PLAN NO. R-2024-XXX

# Volume 3: Appendices

(All Appendices To Be Included with Final Design Concept Report)

## Appendix A: Traffic Report

## Appendix B: Complete Streets Checklist

## Appendix C: Traffic Data Collection, Analysis and Design Technical Memoranda

## Appendix D: Complete Streets Decision Framework

## Appendix E: Noise Analysis Report

## Appendix F: Corridor Initial Site Assessment

## Appendix G: Bridge Selection Report

## Appendix H: Preliminary Drainage Report

# Appendix I: Public Engagement Materials