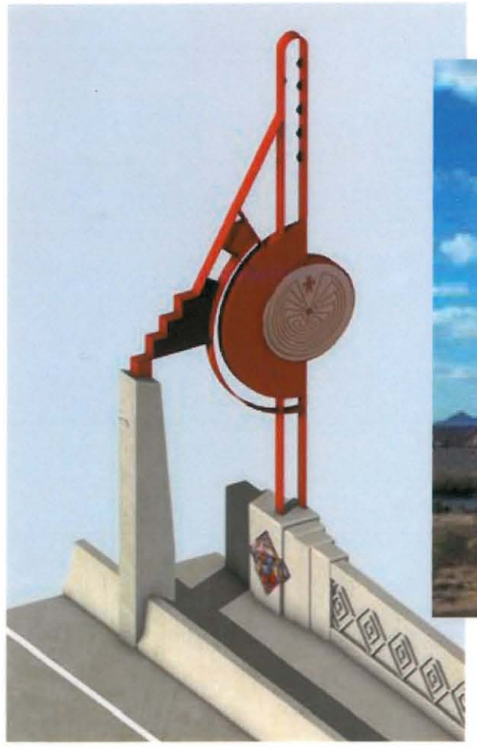
Dobson Road Bridge at Salt River

Design Concept Report

W.O. No. TT199
Contract No. 2006-036

FINAL - Volume 2 of 2

August 2009



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Gilbert Road – Thomas Road to SR 87

Contract No: 2006-036
Work Order No: TT199

Traffic Analysis

Prepared For:

Maricopa County Department of Transportation

Prepared By:

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August 2009

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Dobson Road Bridges Traffic Study

McKellips Road, Dobson Road and Gilbert Road

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Disclaimer:

The contents of this report reflect the views of the Consultant who is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of MAG and have not been approved or endorsed by MAG.

Dobson Road Bridges Traffic Study

McKellips Road, Dobson Road and Gilbert Road

I. Introduction

This traffic study has been developed in support of a Design Concept Report (DCR) being prepared for the Maricopa County Department of transportation (MCDOT) to evaluate bridge alternatives for three crossings of the Salt River and widening alternatives for a two-mile segment of McKellips Road. The locations of the three proposed bridges are along Dobson Road, McKellips Road, and Gilbert Road. This project is located within the jurisdictional limits of Maricopa County, the Salt River Pima-Maricopa Indian Community (SRPMIC), and the City of Mesa. A map of the project vicinity is shown in **Figure I-1**.

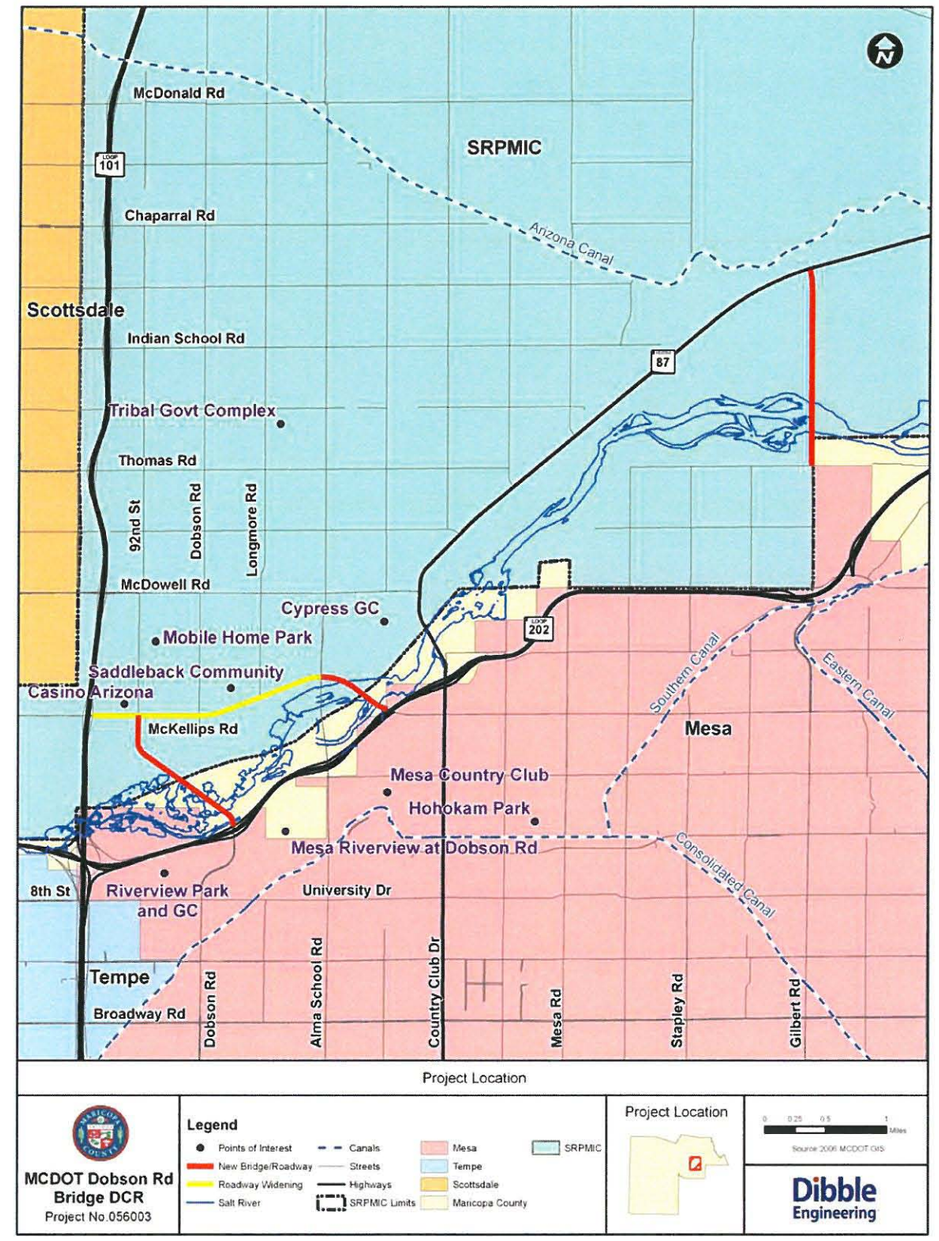
The purpose of the project is threefold: (1) to provide new and better crossings of the Salt River that can operate even under most flood conditions, (2) to enhance the connection between communities and developments across the Salt River, and (3) to provide additional capacity on McKellips Road. The last two elements are driven by the rapid population growth and new developments being built in the East Valley, while the first is motivated by recent flood events. In spring 2004 and winter of 2007-2008, the Phoenix area experienced torrential rains and required releasing some of the impounded water at the Granite Reef Dam on the Salt River. This river flow caused the closure of several Salt River crossings in the area, including the existing river bed crossing at McKellips Road, the existing low flow and overflow crossings on Gilbert Road, and the existing north bridge crossing at Alma School Road (2004 only). Motorists were able to cross the Salt River only at the Country Club Road bridge and the State Route 101 – Pima Freeway (SR 101) bridge to the west in 2004, creating severe congestion. Traffic along State Route 202 – Red Mountain Freeway (SR 202) backed up for miles from the SR 101 interchange to Gilbert Road during morning commutes following the closures. Traffic back-ups continued for weeks while the existing crossings were repaired. In 2007-2008, Alma School Road was open during the river flow and handled some traffic, but the impacts to the SR 202 and Country Club Drive caused significant delays for motorists. The proposed bridge additions and improvements are intended, in part, to help prevent these problems in the future.

The purpose of this traffic study is to:

- Analyze the operational characteristics of the existing roadway network in the study area,
- Evaluate the bridge and roadway widening alternatives presented within the DCR,
- Evaluate traffic impacts and benefits to the SRPMIC tribal core area,
- Evaluate traffic impacts if McKellips Road is closed from Alma School to SR 202 during bridge construction.

This study also evaluates supplementary capacity improvements to the existing and future roadway network, including auxiliary lane additions at intersections, access control improvements, traffic signal coordination, and intelligent transportation system (ITS) infrastructure, in order to meet traffic demands in this fast-growing region.

Figure I-1 Project Vicinity Map



II. Existing Conditions

A. Roadway Network

The three state highways in the project area are operated and maintained by the Arizona Department of Transportation (ADOT). SR 101 and SR 202 are urban freeways with controlled access, which serve as loop roads and carry significant volumes of traffic for regional and local trips. SR 87 functions as a principal arterial roadway, largely serving regional traffic to and from the Mogollon Rim country northeast of Phoenix.

According to the MCDOT Street Classification Atlas, rev. 2004, other principal arterial roadways within the project area are McKellips Road, Alma School Road, Gilbert Road south of SR 87, and Dobson Road south of SR 202. North of SR 87, Gilbert Road is classified as a future principal arterial. McDowell Road is classified as a minor arterial where it crosses Gilbert Road. 92nd Street north of McKellips Road is a minor collector, according to the SRPMIC 2006 General Plan. All other roadways in the project area are local roads, including Dobson Road north of the Salt River, 92nd Street south of McKellips Road, Longmore Road, the existing Gilbert Road north of SR 87, and Thomas Road where it crosses Gilbert Road.

The MCDOT Street Classification Atlas additionally designates Gilbert Road as an Urban Road of Regional Significance and SR 87 as a Gateway Road of Regional Significance. The 2006 Maricopa County Transportation System Plan further classifies roadways as primary, secondary, or local roads for the purpose of regional travel routes and long-range planning prioritization. Primary roadways form the backbone of the County roadway system, often crossing jurisdictional boundaries, and they receive the highest priority for funding, maintenance, and other activities. All arterial and collector roadways within County jurisdiction not included in the primary system are classified as secondary roads. These roadways serve sub-regional travel and have lower funding priority. Local roads are the remaining roadways within County jurisdiction, providing residential access and feed into the secondary system, and MCDOT's efforts on these roads is generally limited to maintenance. SR 87 and Gilbert Road are classified primary roadways, and the portions of McKellips Road and Alma School Road within the project limits are secondary roadways. All other County-maintained roads within project limits are local roads under this system.

Roadways generally aligned east-west include SR 202, McKellips Road, McDowell Road, and Thomas Road. North-south roadways include SR 101, Dobson Road, Alma School Road, Gilbert Road, 92nd Street, and Longmore Road. SR 87 is designated a north-south roadway, but its alignment runs closer to east-west through the project area.

McKellips Road serves as an alternative route for SR 202 traffic. Currently, the McKellips Road crossing of the Salt River is at grade and susceptible to flooding.

North of SR 202, Gilbert Road serves as a connector to SR 87. The Gilbert Road crossing of the Salt River is a split road with southbound traffic using a bridge and northbound traffic using a low-flow roadway crossing.

Dobson Road is discontinuous across the Salt River, from SR 202 northward to 0.2 miles south of McKellips Road. The segment south of SR 202 serves as an access to the SR 202 freeway for trips to/from the south. The short segment south of McKellips Road is an entrance into the Salt River Materials Group (SRMG) property.

Alma School Road bridges the Salt River in two sections, just west of the McKellips Road crossing. The bridge segments are 930 feet and 400 feet long. The 2004 flooding event eroded the fill slope supporting the north bridge, and the bridge was closed to traffic for an extended period for re-stabilization work.

The only major generators of general traffic currently existing within the project area are Casino Arizona on 92nd Street north of McKellips Road, and the new Mesa Riverview commercial development straddling Dobson Road just south of SR 202. In addition, there are two facilities that generate significant truck traffic, the SRPMIC landfill on Gilbert Road north of SR 87, and the SRMG property on the south side of McKellips Road between 92nd Street and Longmore Road.

Figure II-1 maps existing land use in the project vicinity as provided by the Maricopa Association of Governments (MAG).

B. Intersection Geometry

The intersections analyzed in this study range from rural and unsignalized to fully developed urban freeway interchanges. Schematic diagrams of the intersections' existing geometric configurations, covering roadway areas between edges of pavement, are shown in **Figure II-2**.

McKellips Road and SR 101

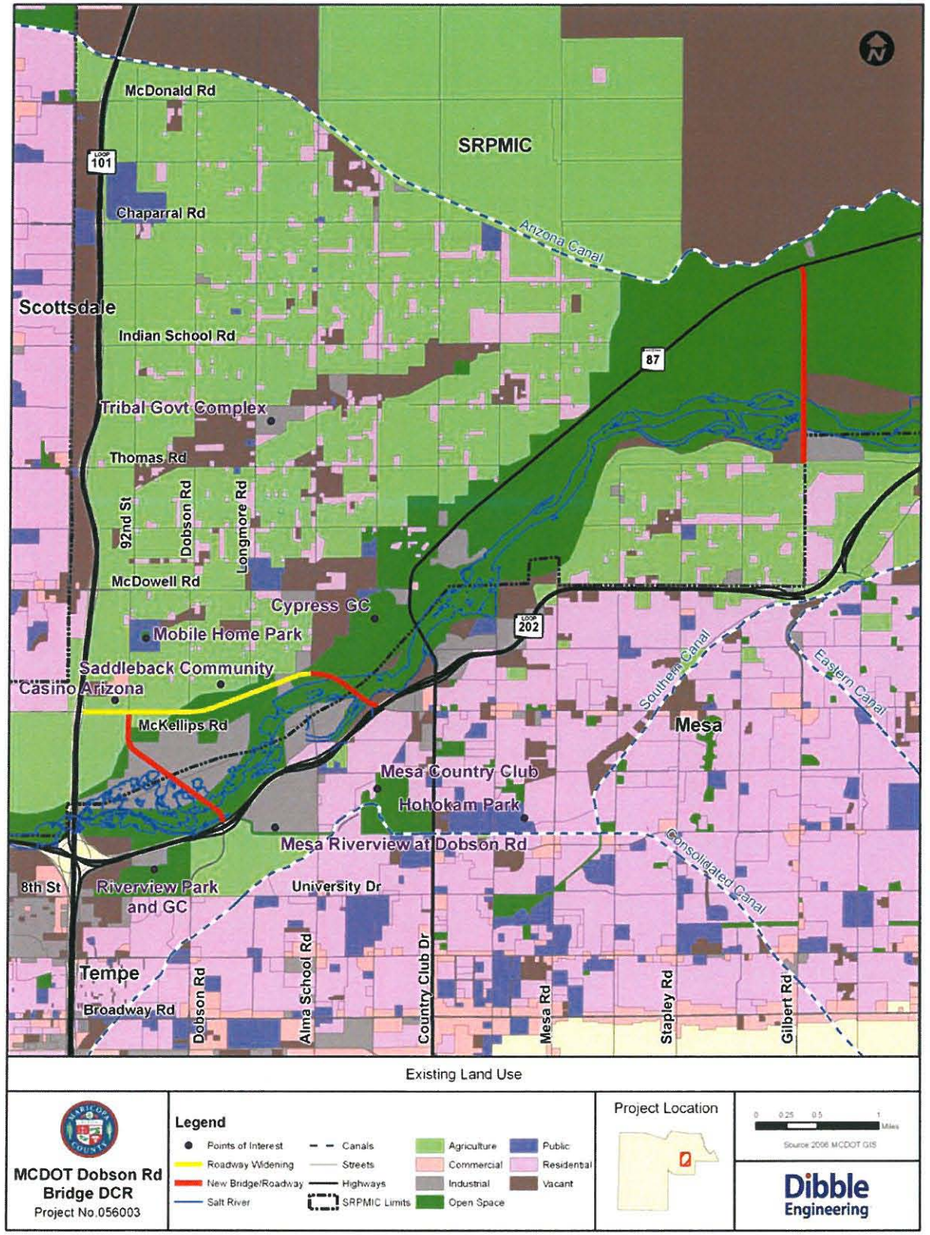
SR 101 has an on-ramp and an off-ramp for each direction at this location. The ramps intersect McKellips Road in a tight-urban diamond interchange configuration. As such, there are two intersections at this location: the west intersection for the southbound SR 101 ramps and the east intersection for the northbound ramps, with the SR 101 overpass in between. It is considered a tight-urban diamond interchange because the two intersections are spaced less than 400 feet apart. The ramps have neither regular nor warning speed limits posted, but the freeway mainline speed limit is 65 MPH in the vicinity of McKellips Road. Each of the off-ramps has three approach lanes: one right-turn lane, one left-turn lane, and one shared right/left turn lane, all branching from a single exit lane. There are two receiving lanes for each on-ramp, which merge into a single lane prior to reaching the freeway mainline. The ramps have curb and gutter near the intersections, gutter on the right side of the southbound off-ramp, and jersey barrier on the right side of the other three ramps.

West of the interchange area, McKellips Road is a five-lane (including a two-way left-turn lane) undivided road with no curb, gutter, or sidewalk. East of the interchange area it is a four-lane undivided road without curb, gutter, or sidewalk. The posted speed limit is 45 MPH to the west. To the east, the posted speed limit is 50 MPH for westbound lanes; speed limit signs are absent for eastbound lanes, but the speed limit is assumed to be 50 MPH to match the westbound lanes. At the interchange, the external intersection legs on McKellips Road (west leg at the west intersection and east leg at the east intersection) each have four approach lanes: two through lanes, an exclusive right-turn lane, and an additional left auxiliary lane that feeds an exclusive left-turn lane at the opposite intersection. Each external leg has two receiving lanes. The internal segment has two through lanes and a left-turn lane in each direction. McKellips Road has curb, gutter, sidewalk, and a raised median at and between the intersections.

McKellips Road and 92nd Street

Between the SR 101 interchange on the west and Longmore Road on the east, McKellips Road is generally an undivided four-lane road without curb, gutter, or sidewalk. The posted speed limit is 50 MPH to both sides of the 92nd Street intersection for westbound lanes (a sign is posted just west of this intersection, but the nearest posted sign for the east leg is just west of Alma School Road, 1.5 miles away); speed limit signs are absent for eastbound lanes, but the speed limit is assumed to be 50 MPH to match the westbound lanes. At this intersection, each McKellips Road approach has two through lanes and an exclusive left-turn lane. Additionally, the westbound approach has an exclusive right-turn lane. All intersection corners, as well as portions of McKellips Road near the intersection, have curb and gutter.

Figure II-1 Existing Land Use



North of McKellips Road, 92nd Street is a three lane road with a two-way left-turn lane along most of the segment. It serves as the access point to the Casino Arizona gaming facility and a large mobile home park, and it connects to the arterial network to the north. At the intersection, the two-way left-turn lane is instead an exclusive turn lane for southbound traffic. To the south, 92nd Street is a quarter-mile long dirt road with pavement for only the first 80 feet south of the intersection. The paved portion has centerline striping and a faded lane marking delineating an exclusive left-turn lane for the northbound approach. Neither leg has curb or gutter, except at the intersection corners. The posted speed limit is 25 MPH to the north, and there is no posted speed limit for the short roadway segment to the south.

McKellips Road and Dobson Road

At this intersection, each McKellips Road approach has two through lanes and an exclusive left-turn lane. Additionally, the eastbound approach has an exclusive right-turn lane, which aligns with a 640-foot long additional receiving lane on the east leg. The posted speed limit is 50 MPH to both sides of the intersection for westbound lanes (the nearest posted sign that applies to this area is just west of Alma School Road, a mile to the east) and to the east for eastbound lanes; speed limit signs are absent for eastbound lanes to the west, but the speed limit is assumed to be 50 MPH to match the westbound lanes.

North of McKellips Road, Dobson Road is a two lane road with centerline striping only. It serves agricultural land, and it connects to the arterial network to the north. To the south, Dobson Road is a two-lane entrance into the Salt River Materials Group plant. There is no curb or gutter on either leg. The posted speed limits are 35 MPH to the north and 15 MPH to the south.

McKellips Road and Longmore Road

West of Longmore Road, McKellips Road is a four-lane undivided roadway, but to the east it becomes a five-lane roadway that includes a two-way left-turn lane. Neither leg has curb, gutter, or sidewalk, except for the north side of the east leg, between Longmore Road and Alma School Road, which has curb and gutter that starts at a driveway 0.2 miles east of Longmore Road and continues east for 885 feet. At this intersection, each McKellips Road approach has two through lanes and an exclusive left-turn lane. The westbound left-turn lane transitions out of the two-way left-turn lane on the east leg. The posted speed limit is 50 MPH to both sides of the intersection.

Longmore Road is very similar to Dobson Road at McKellips Road. It is a two lane roadway with no striping south of McKellips Road and only centerline striping to the north. The north leg serves agricultural land and connects to the arterial network to the north, and the south leg is an entrance into the Salt River Materials Group plant. There is no curb or gutter on either leg. The posted speed limit is 35 MPH to the north, and there is no posted speed limit to the south.

McKellips Road and Alma School Road

McKellips Road has a two-way left-turn lane west of Alma School Road, but not to the east where the roadway crosses the Salt River. At this intersection, McKellips Road has a third through lane on each approach, starting 800 feet in advance of the intersection on the eastbound approach and 200 feet in advance on the westbound approach. The additional lanes become third receiving lanes that end 200 feet past the intersection on either side. Each approach has an exclusive left-turn lane, where the one for the eastbound approach transitions out of the two-way left-turn lane on the west leg. The eastbound approach also has an exclusive right-turn lane. The posted speed limit is 50 MPH to the west, and there is no posted speed limit to the east for either direction of travel. The only curb, gutter, and sidewalk in the vicinity of the intersection are on the northeast, southeast, and southwest corners, plus the previously described section of curb and gutter west of the intersection on the north side of McKellips Road.

The north leg of Alma School Road is a five-lane roadway that includes a two-way left-turn lane. The south leg crosses the Salt River and intersects with SR 202 in a diamond interchange two-thirds of a mile south of the McKellips Road intersection. That leg has a five-lane section but only four travel lanes; the center lane is marked with double-yellow lines on both sides for the river crossing. At the intersection, Alma School Road has two through lanes on each approach. The southbound approach has an exclusive left-turn lane that transitions out of the two-way left-turn lane, and the northbound approach has dual left-turn lanes. Neither leg has curb or gutter, except at the intersection corners as described previously. The posted speed limits are 40 MPH to the north and south, although signs are absent for southbound lanes on the south leg.

McKellips Road and SR 202

SR 202 is oriented northeast-southwest at this location. At this interchange, it has a westbound on-ramp and an eastbound off-ramp only. The ramps intersect McKellips Road with a tight-urban partial diamond interchange. As such, there are two intersections at this location: the west intersection for the westbound SR 202 on-ramp and the east intersection for the eastbound off-ramp, with the SR 202 overpass in between. The ramps have neither regular nor warning speed limits posted, but the freeway mainline speed limit is 65 MPH in the vicinity of McKellips Road. The eastbound SR 202 off-ramp approach to the east intersection has three lanes: two exclusive right-turn lanes and one shared left/right turn lane, all branching from a single exit lane. The westbound SR 202 on-ramp has two receiving lanes at the west intersection, which merge into a single lane prior to reaching the freeway mainline. The ramps have curb and gutter near the intersections only.

McKellips Road is oriented southeast-northwest at this location. West of the interchange area, it is a four-lane undivided road without curb, gutter, or sidewalk. East of the interchange area it is a seven-lane (including a two-way left-turn lane) undivided road with curb, gutter, and sidewalk. The posted speed limit is 45 MPH to the east, and there is no posted speed limit to the west for either direction of travel. At the interchange, the west leg of McKellips Road at the west intersection has one through lane and one shared through/right lane for eastbound traffic, and it has two receiving lanes for westbound traffic. The east leg of McKellips Road at the east intersection has two through lanes and two left auxiliary lanes that feed dual left-turn lanes at the west intersection for westbound traffic, and it has three receiving lanes for eastbound traffic. The segment between the two intersections has two through lanes for each direction plus dual left-turn lanes for westbound traffic. McKellips Road has curb, gutter, sidewalk, and a raised median at and between the intersections, except that the median on the west leg is a painted median.

Dobson Road and SR 202

SR 202 is oriented northeast-southwest at this location. The ramps intersect Dobson Road with a compressed diamond interchange. As such, there are two intersections at this location: the north intersection for the westbound SR 202 ramps and the south intersection for the eastbound ramps, with the SR 202 overpass in between. It is considered a compressed diamond interchange because the two intersections are spaced between 400 and 800 feet apart. The north intersection is a T-intersection, the northern terminus of this segment of Dobson Road. The ramps have neither regular nor warning speed limits posted, but the freeway mainline speed limit is 65 MPH in the vicinity of Dobson Road. The westbound SR 202 off-ramp approach to the north intersection has three lanes: two exclusive left-turn lanes and one through lane, all branching from a single exit lane. The eastbound SR 202 off-ramp approach to the south intersection also has three lanes: two exclusive right-turn lanes and one exclusive left-turn lane, all branching from a single exit lane. Each of the two on-ramps has two receiving lanes, which merge into a single lane prior to reaching the freeway mainline. The ramps are partially lined on the right with jersey barrier, but are otherwise uncurbed.

South of the interchange area, Dobson Road is a six-lane road with curb, gutter, sidewalk, and a raised median, and it has its northern terminus at the north intersection of the SR 202 interchange. The posted speed limit is 45 MPH.

At the interchange, the south leg of Dobson Road at the south intersection has an exclusive right-turn lane and two left auxiliary lanes that feed dual left-turn lanes at the north intersection for northbound traffic, and it has three receiving lanes for southbound traffic. The segment between the two intersections has only dual left-turn lanes for northbound traffic, and it has two through lanes and an exclusive left-turn lane for southbound traffic. Dobson Road has curb, gutter, sidewalk, and a raised median at the south intersection, and the segment between intersections has a raised median but no curb, gutter, or sidewalk.

Gilbert Road and Thomas Road

The south leg of Gilbert Road is a six-lane roadway, with three lanes southbound, two northbound, and a two-way left-turn lane. At the intersection, the two-way left-turn lane transitions into a painted median, and there are three northbound approach lanes: two through lanes and one exclusive left-turn lane. The north leg is a four-lane split roadway as it crosses the Salt River, and the unraised dirt median transitions into a painted median on the approach to the intersection. The southbound approach has four lanes: three through lanes and one exclusive left-turn lane. There are curb, gutter, and sidewalk on both sides of the south leg, and also for a short distance along the west side of the north leg. The posted speed limit is 45 MPH to both sides of the intersection.

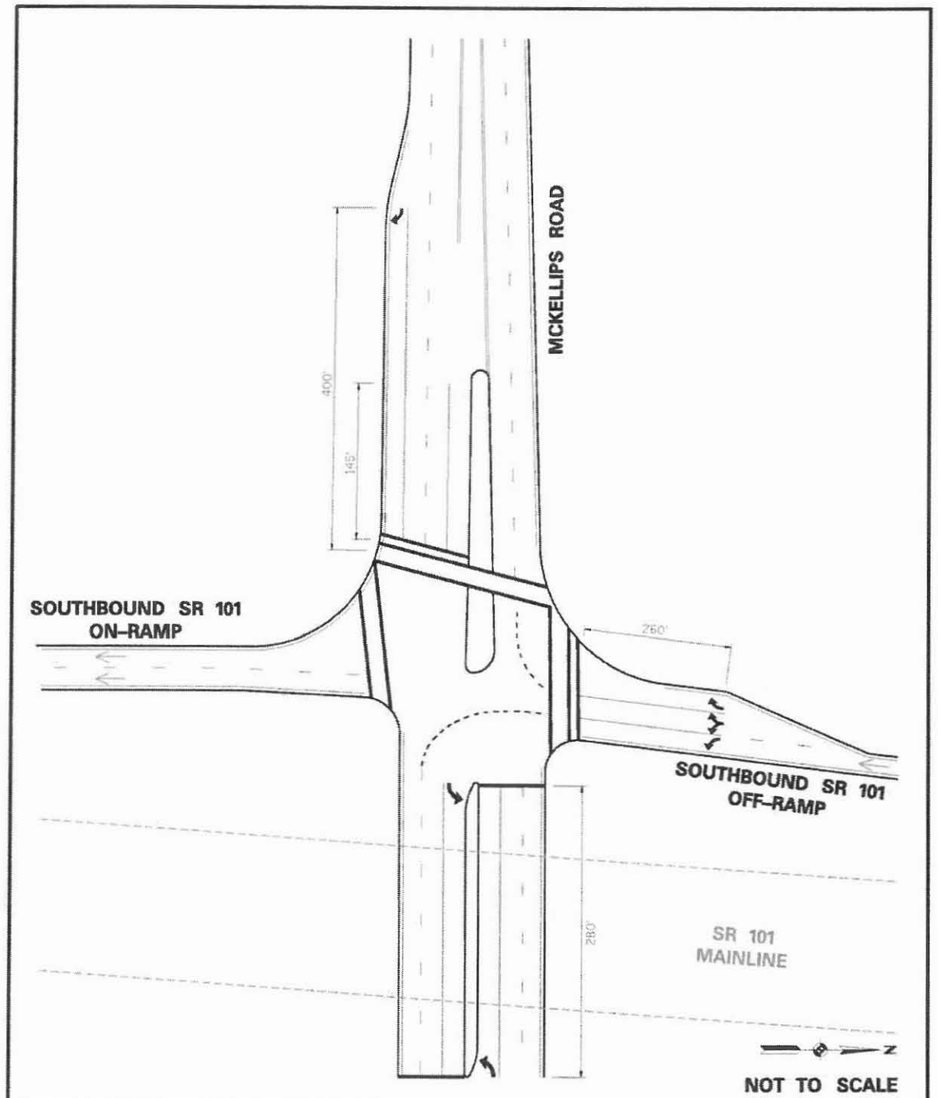
Thomas Road's west leg is a two-lane undivided roadway. At the intersection, the approach has a shared through/right lane and an exclusive left-turn lane. The east leg is a short segment that serves as an entrance to a Ready-Mix concrete plant. It has two receiving lanes and three approach lanes: a through lane, an exclusive right-turn lane, and an exclusive left-turn lane. Thomas Road has no curb, gutter, or sidewalk, except at the corners of the intersection. The posted speed limit is 35 MPH to the west, and there is no posted speed limit on the short segment of roadway to the east.

Gilbert Road and SR 87

SR 87 is oriented generally east-west at this location (northbound to the east and southbound to the west). It is a four-lane divided roadway with an unraised dirt median. The posted speed limit is 65 MPH to both sides of the intersection, with warning speed limits of 50 MPH on each approach. On the northbound approach to the intersection, it widens to three through lanes, an exclusive left-turn lane, and an exclusive right-turn lane, and the median transitions into a painted median. On the southbound approach, it widens to three through lanes, dual left-turn lanes, and an exclusive right-turn lane, and the median transitions into a painted median. The only curb and gutter is at the south-side intersection corners.

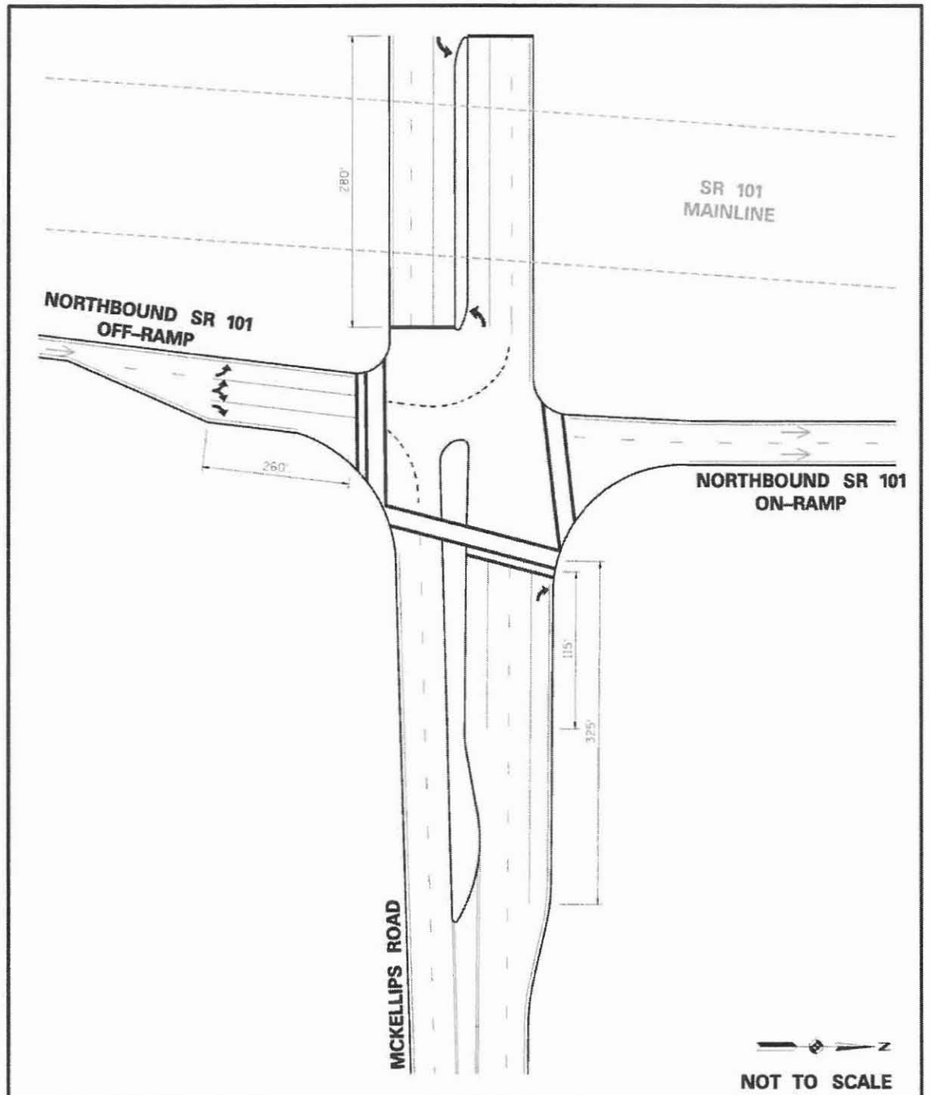
Gilbert Road's north leg is an entrance to a City of Mesa landfill. It is undivided and has two approach lanes at the intersection: a shared through/right lane and an exclusive left-turn lane, and it has a single receiving lane. Beyond the approach lanes, the road transitions to two northbound lanes and one southbound lane. The south leg is a four-lane divided roadway with a painted median at the intersection that transitions to an flush median split about 1000 feet south of the intersection, prior to the river crossing. At the intersection, the south leg has four approach lanes for northbound traffic: one through lane, one exclusive left-turn lane, and dual right-turn lanes. The only curb and gutter is at the intersection corners on the south leg. The posted speed limits are 15 MPH to the north and 45 MPH to the south.

Figure II-2 Existing Intersection Geometry – Sheet 1 of 12



EXISTING
INTERSECTION CONFIGURATION
MCKELLIPS ROAD & SOUTHBOUND SR 101 RAMPS
(WEST INTERSECTION)

Figure II-2 Existing Intersection Geometry – Sheet 2 of 12



EXISTING
INTERSECTION CONFIGURATION
MCKELLIPS ROAD & NORTHBOUND SR 101 RAMPS
(EAST INTERSECTION)

Figure II-2 Existing Intersection Geometry – Sheet 3 of 12

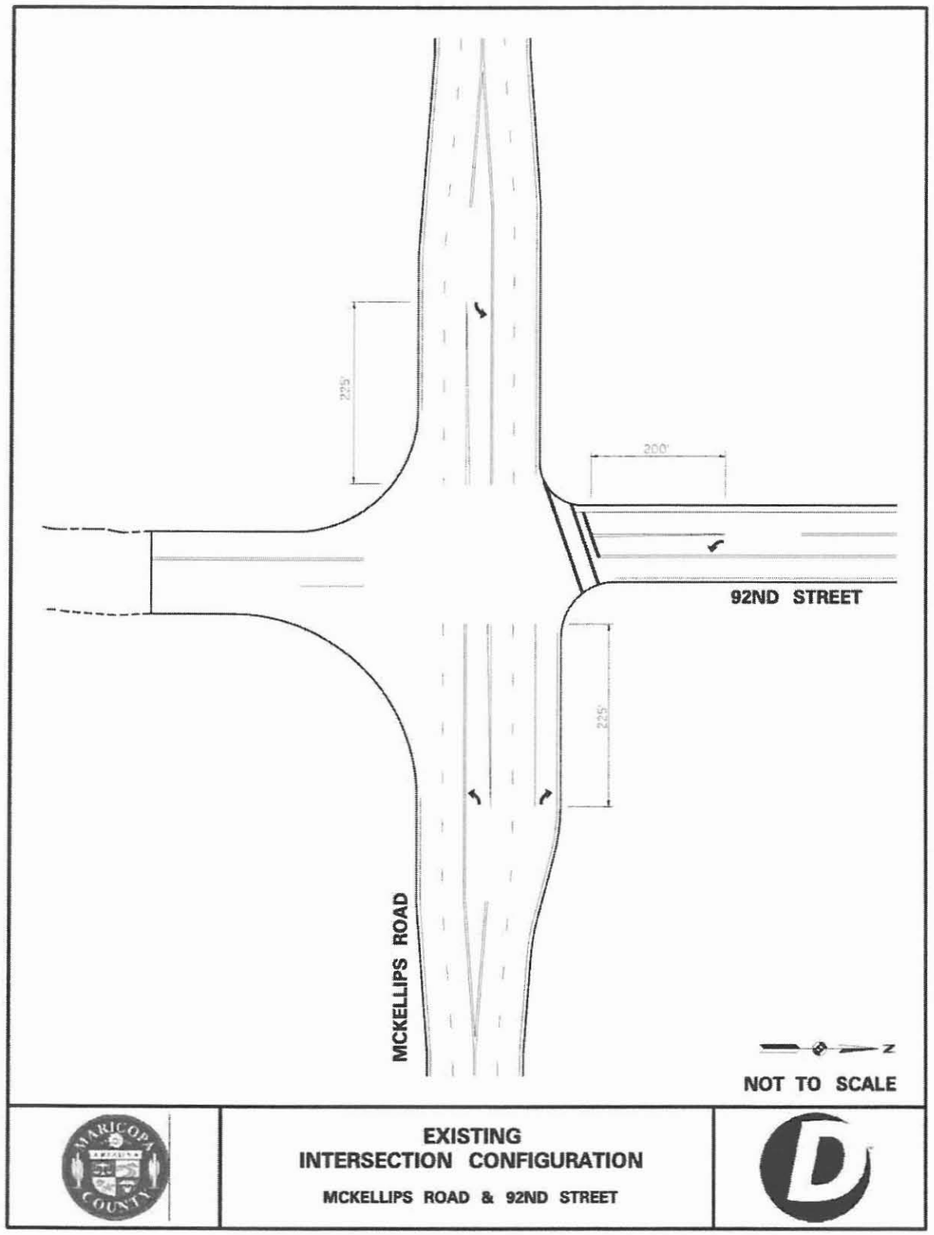
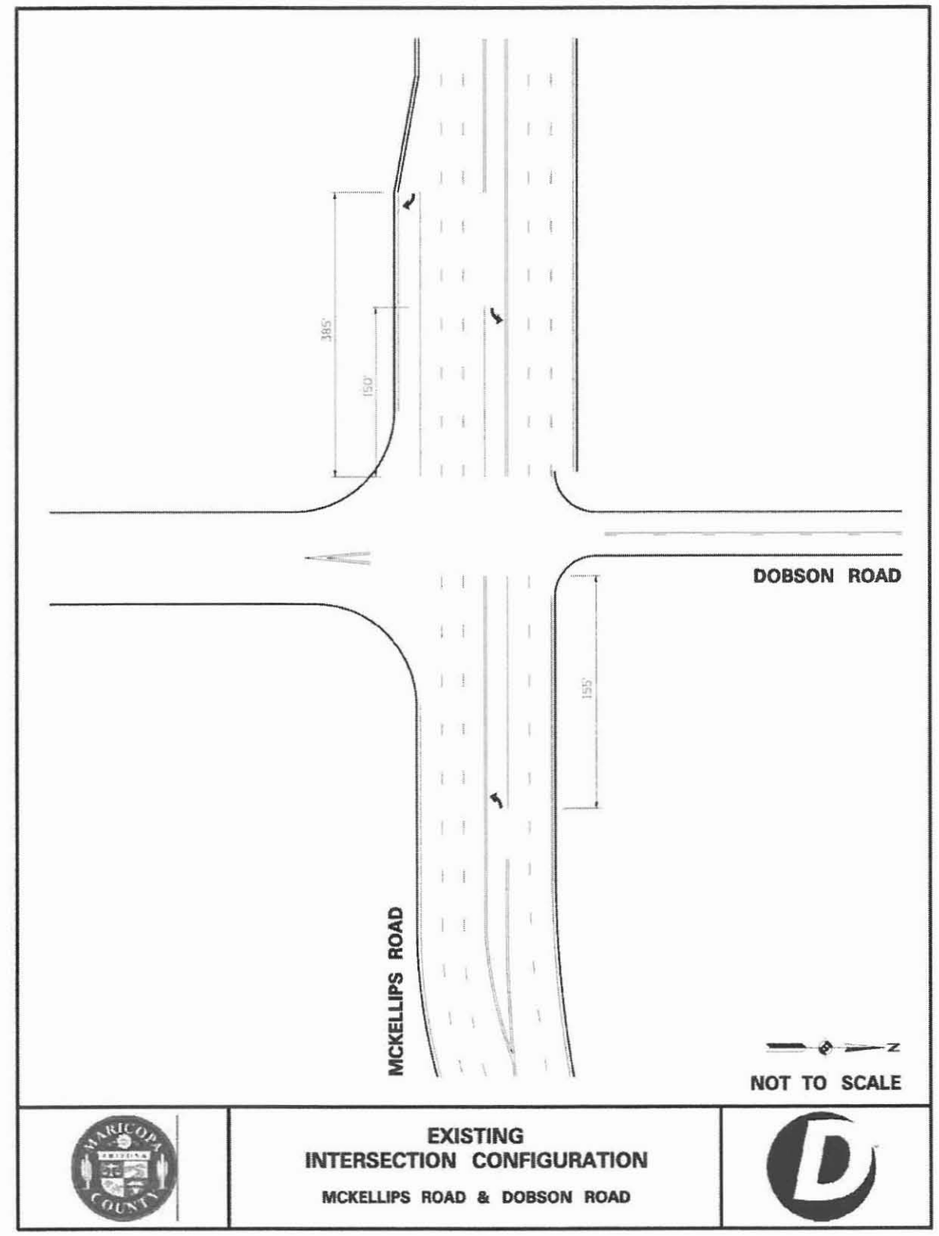


Figure II-2 Existing Intersection Geometry – Sheet 4 of 12



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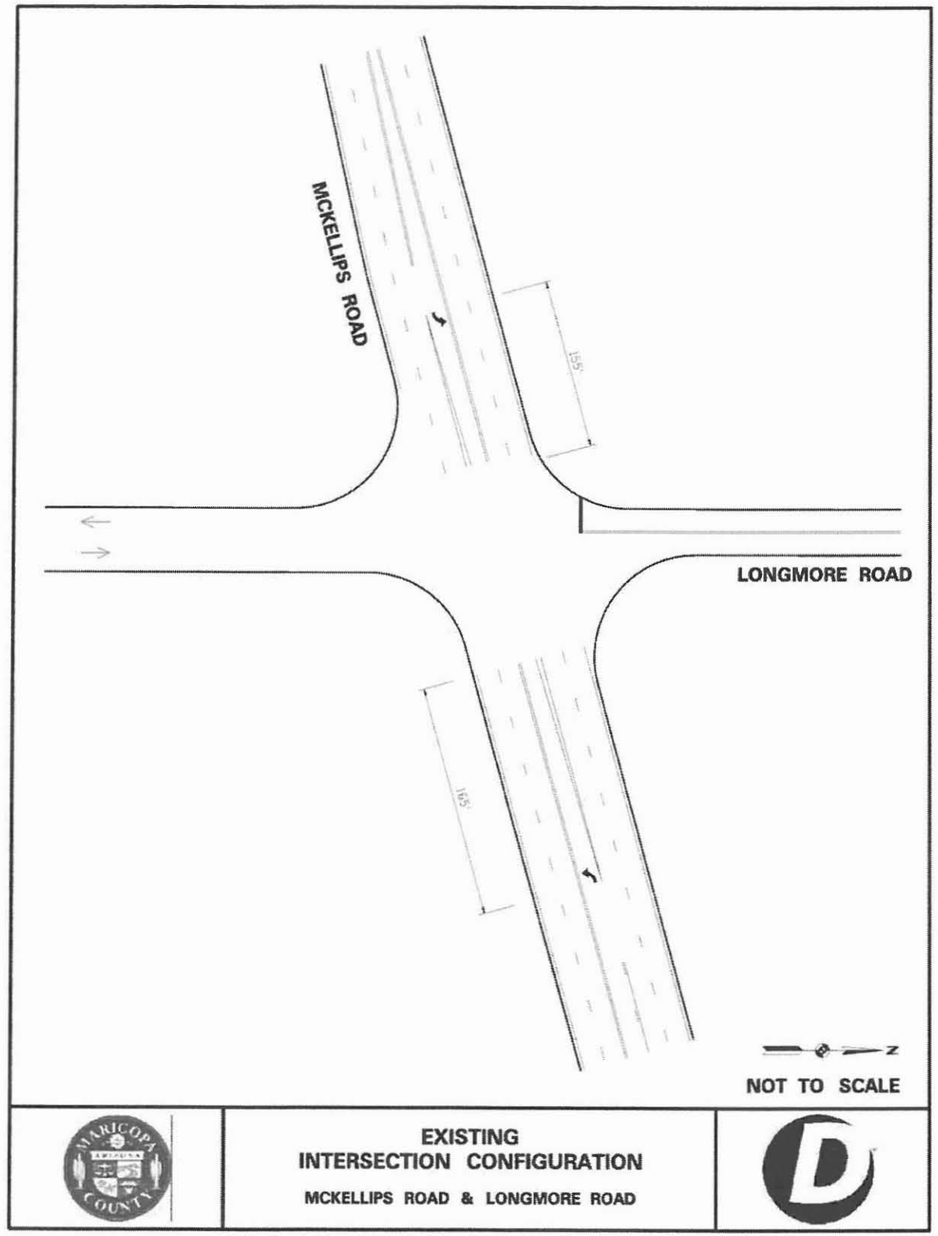

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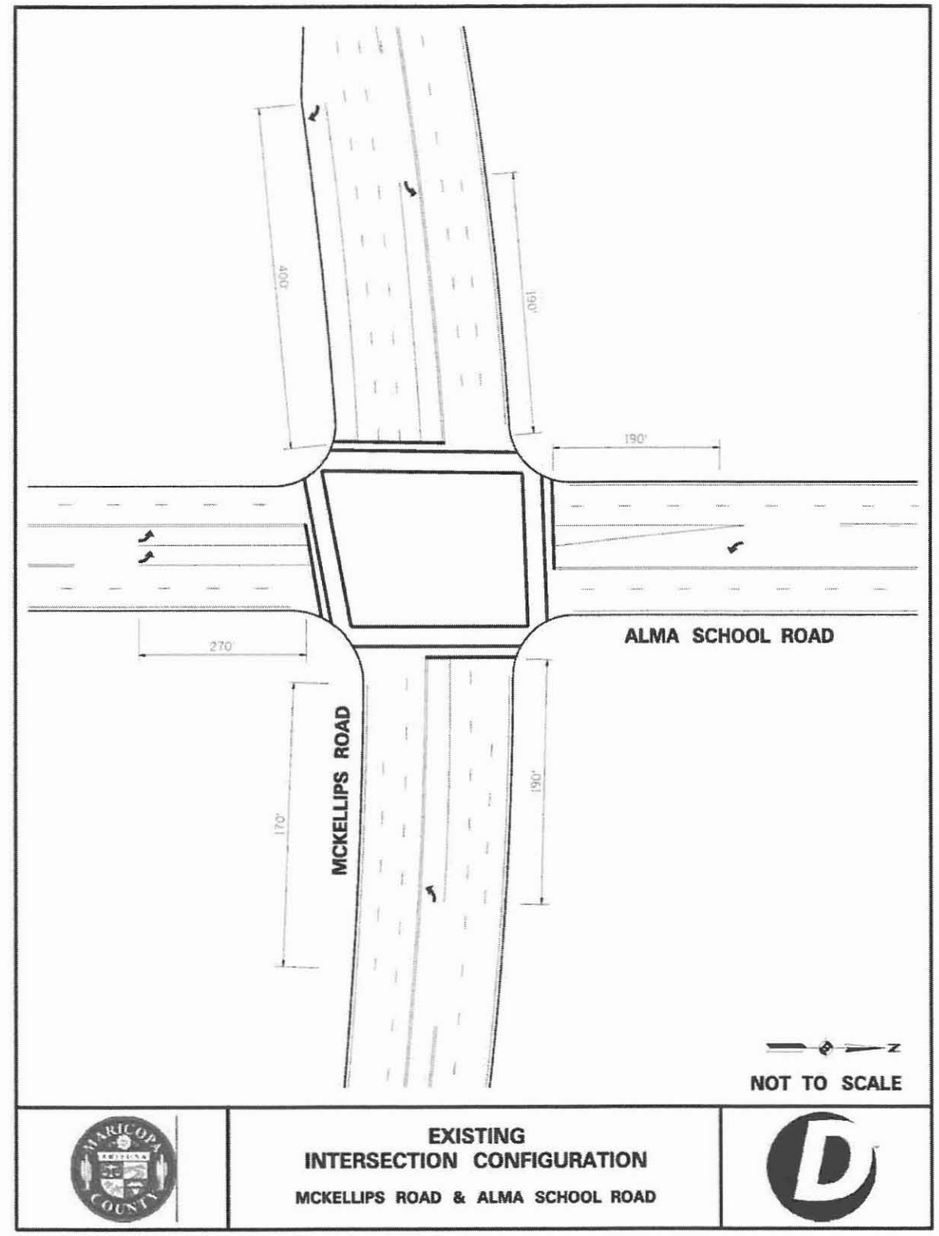

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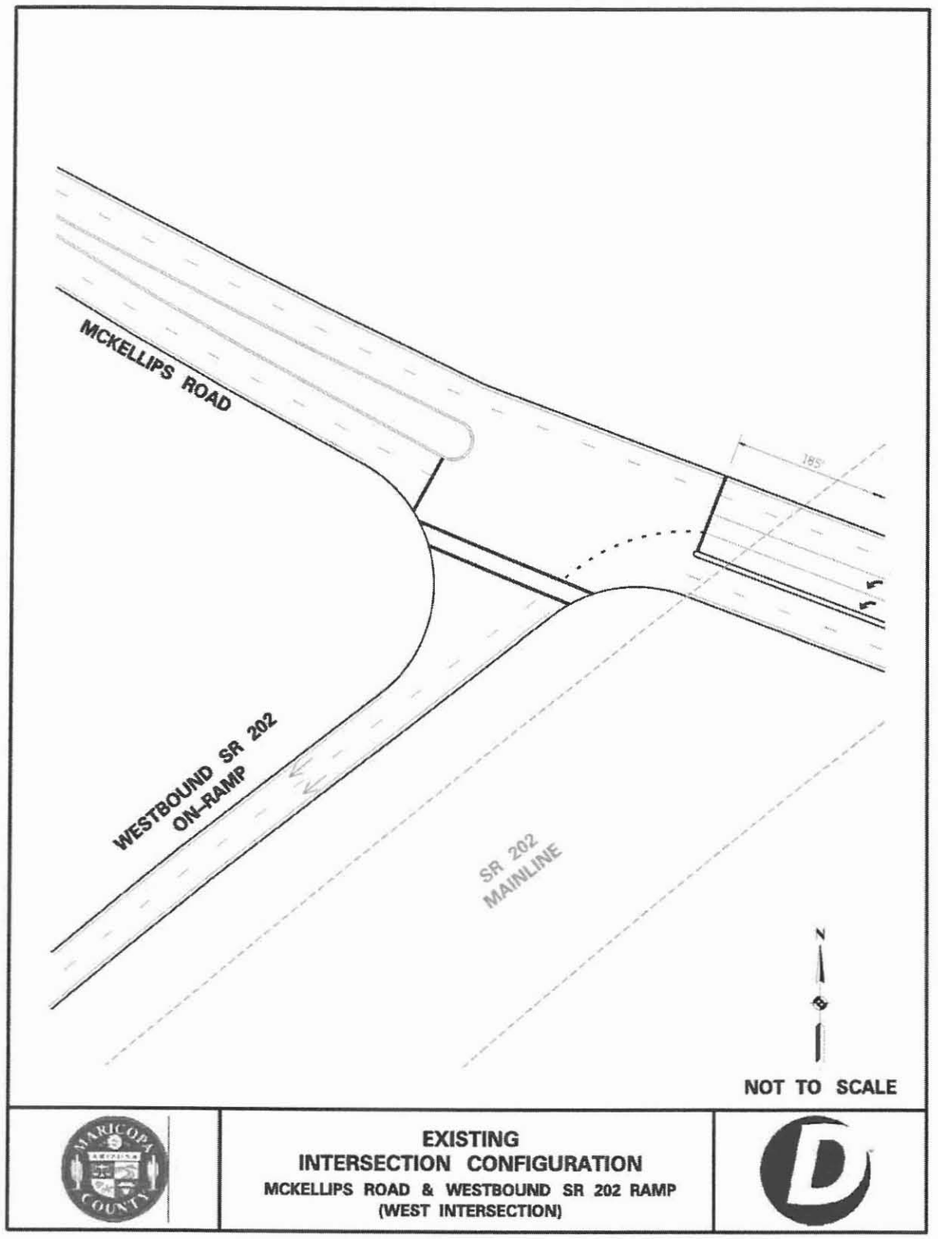

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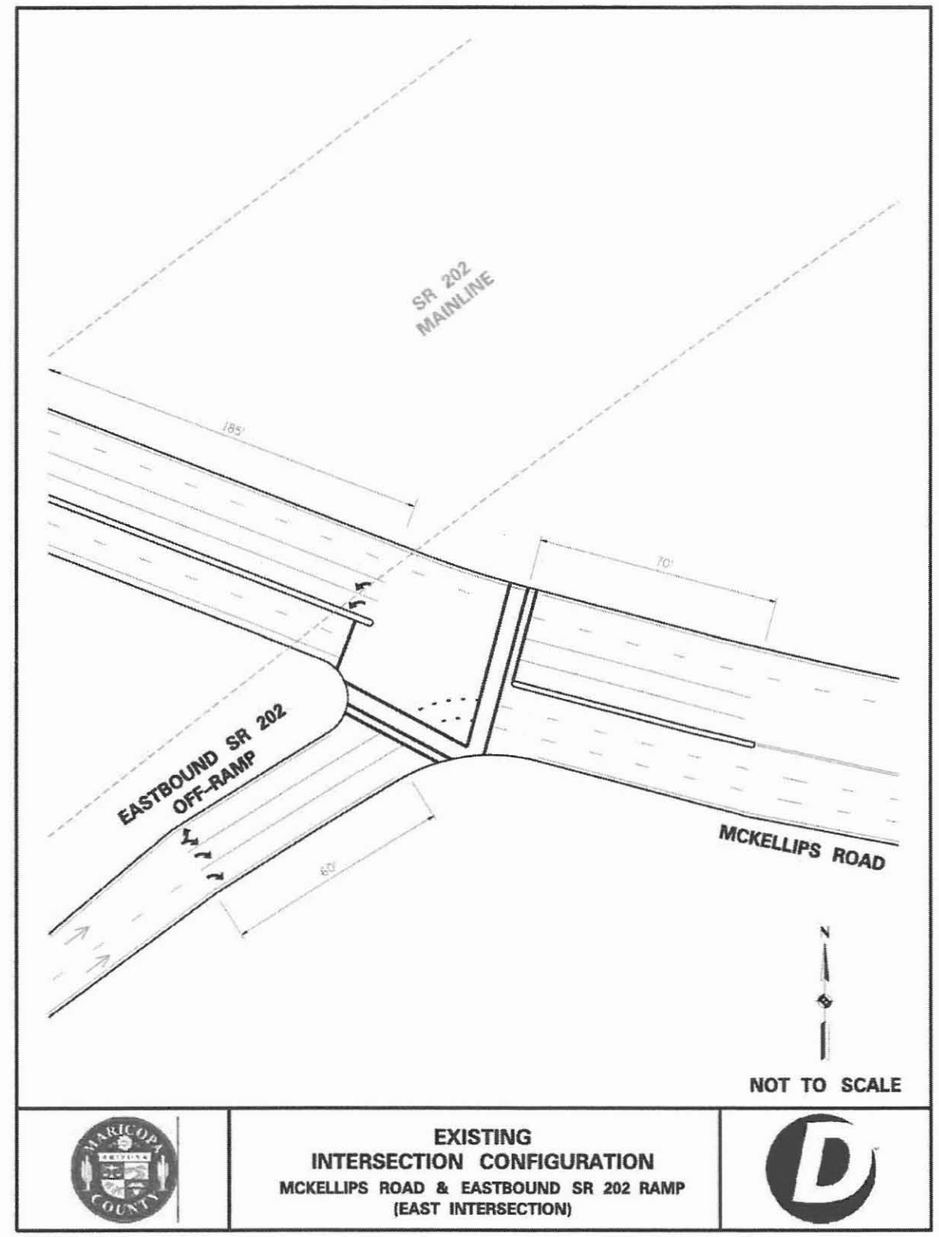

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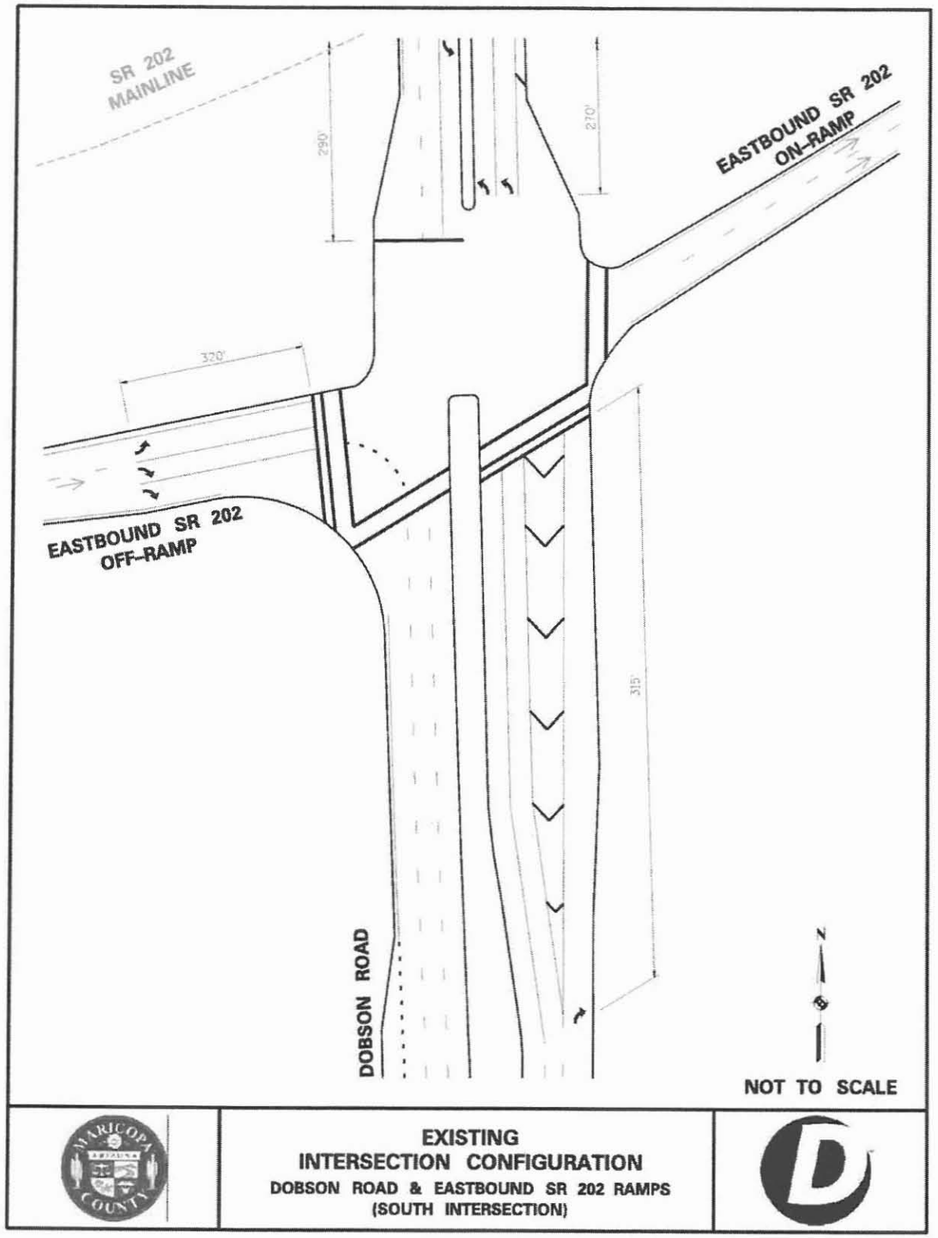


Figure II-2 Existing Intersection Geometry – Sheet 10 of 12

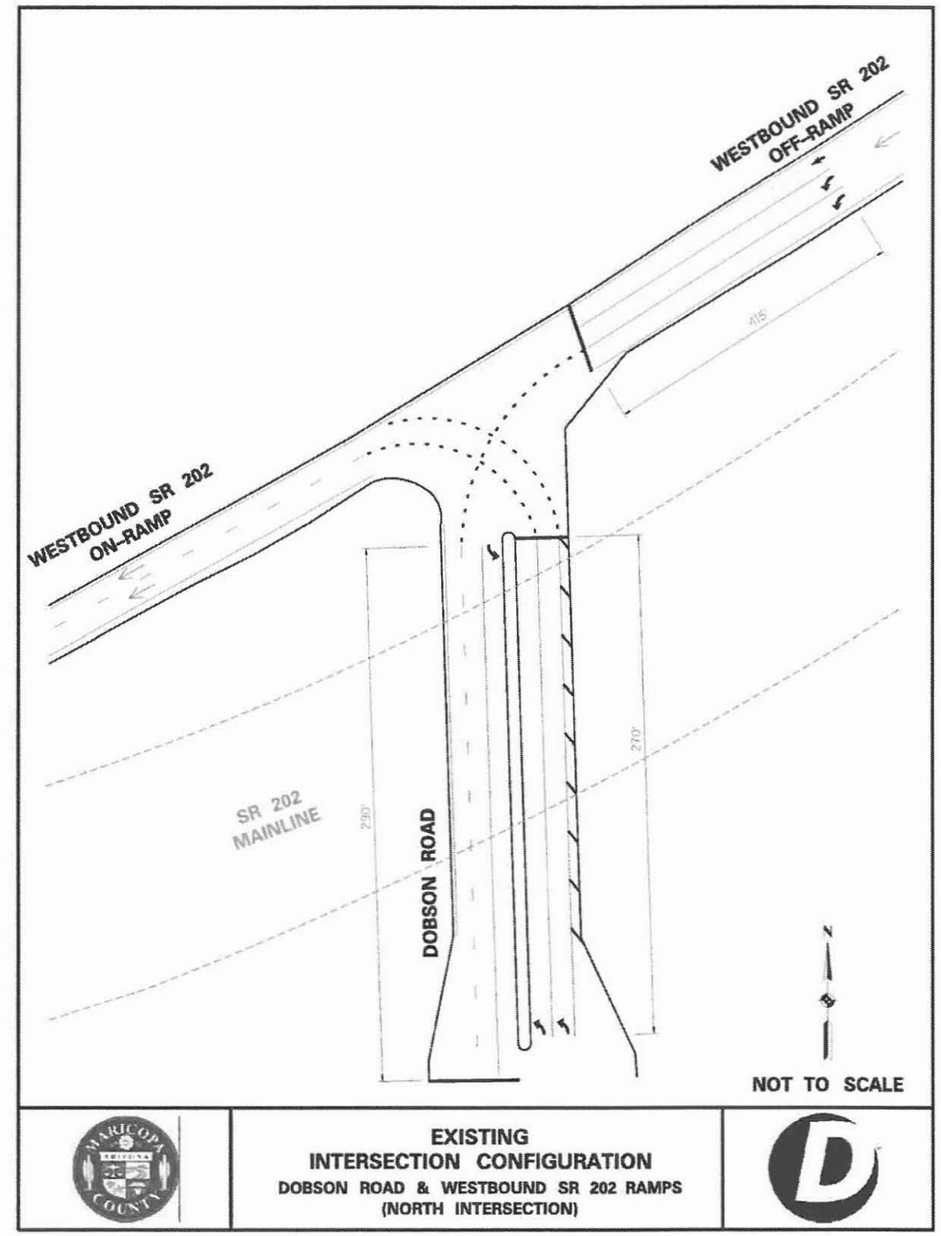


Figure II-2 Existing Intersection Geometry – Sheet 11 of 12

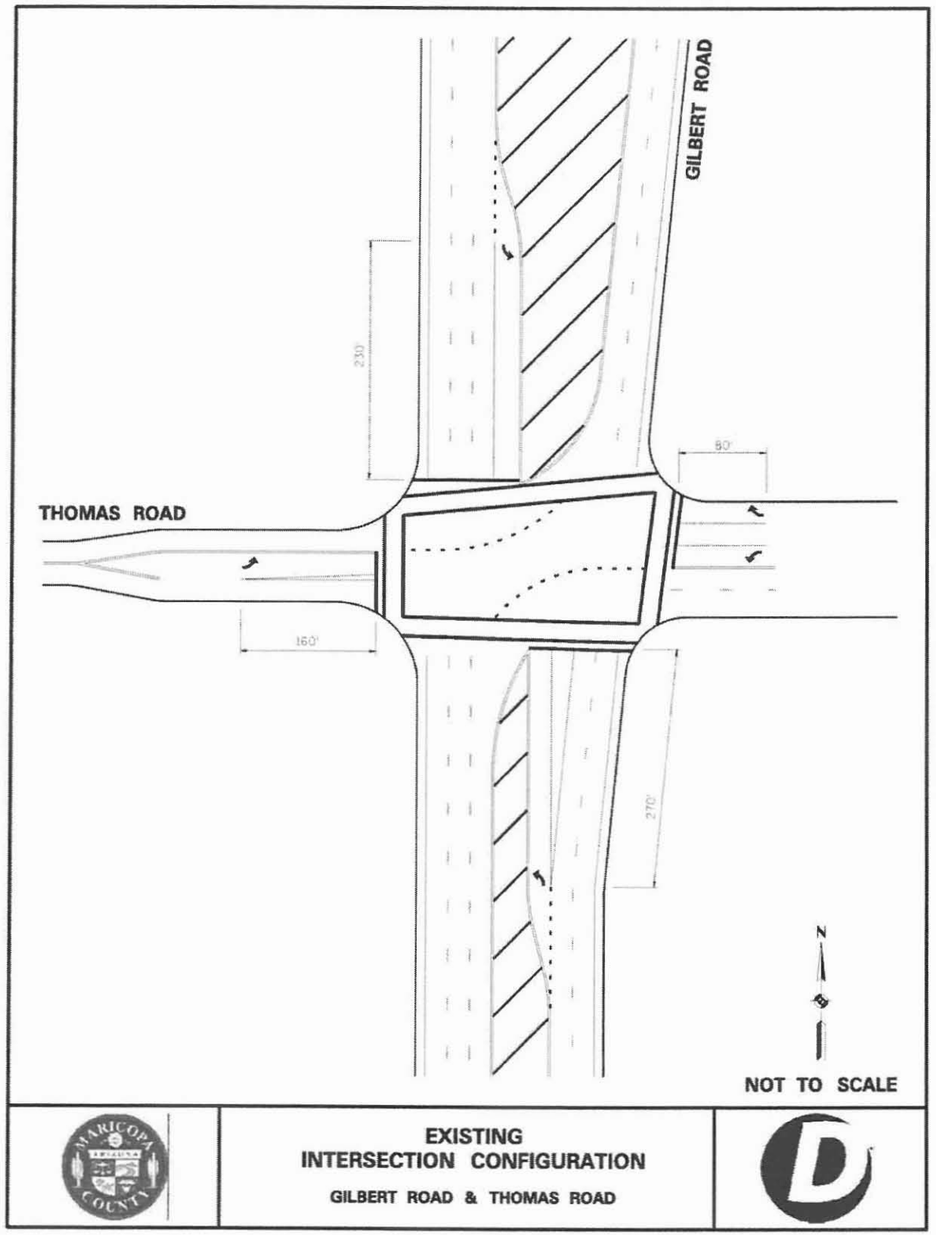
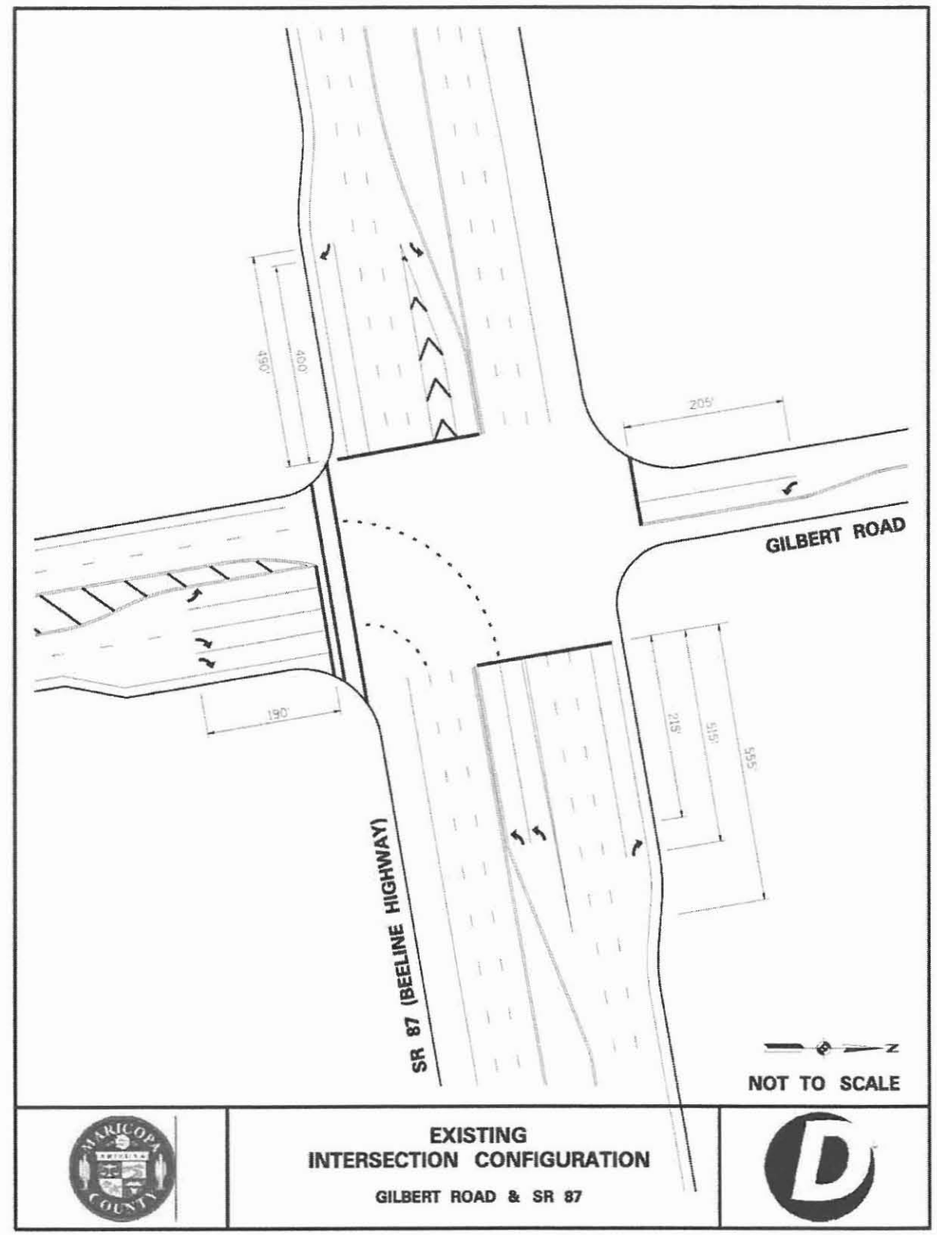


Figure II-2 Existing Intersection Geometry – Sheet 12 of 12



C. *Intersection Traffic Control*

With the exception of the McKellips Road / Dobson Road and McKellips Road / Longmore Road intersections, all intersections described in Section B are signalized. At McKellips Road and Dobson Road, the southbound approach on Dobson Road is stop-controlled, the northbound approach is yield-controlled, and the eastbound and westbound McKellips Road approaches are uncontrolled. The intersection of McKellips Road and Longmore Road is two-way stop-controlled for the Longmore Road approaches.

Phasing for all left turn movements at the signalized intersections are permitted-only, except as follows:

Protected-Only

- Dobson Road northbound at SR 202, north intersection (no through or right movements possible)
- SR 87 northbound and southbound at Gilbert Road

Permitted/Protected

- McKellips Road westbound at SR 101, west intersection
- McKellips Road eastbound at SR 101, east intersection
- McKellips Road eastbound and westbound at 92nd Street
- Dobson Road northbound and southbound at SR 202, south intersection
- Gilbert Road northbound and southbound at Thomas Road

There is right-turn overlap for the eastbound SR 202 off-ramp approach at McKellips Road (east intersection) and for the northbound Gilbert Road approach to SR 87.

Pedestrian signals exist for all marked crosswalks shown in **Figure II-2** above. There are additional pedestrian signals present for the three other crossings at McKellips Road and 92nd Street, the three other crossings at Gilbert Road and SR 87, and the two crossings of the westbound SR 202 ramps at Dobson road that lack a marked crosswalk.

The traffic signals are controlled and maintained by either the Arizona Department of Transportation (ADOT) or the Maricopa County Department of Transportation (MCDOT), as noted below:

ADOT Signals

- McKellips Road and SR 101
- McKellips Road and SR 202
- Dobson Road and SR 202
- Gilbert Road and SR 87

MCDOT Signals

- McKellips Road and 92nd Street
- McKellips Road and Alma School Road
- Gilbert Road and Thomas Road

D. *Traffic Volumes*

Traffic Research and Analysis, Inc. (TRA) was contracted to collect 24-hour vehicle counts on study area roadway segments and 15-minute peak-period intersection turning movement counts, including bicycles and pedestrians, at most of the study area intersections. These counts were collected Tuesday, January 16 and Wednesday, January

17, 2007 using pneumatic tube counts for the roadway segments, radar counts for freeway mainline segments, and manual counts for intersection turning movements (see **Appendix AA**).

Dibble Engineering manually collected peak-period turning movement counts for two study area intersections that were not included in the TRA data: McKellips Road / 92nd Street and McKellips Road / Alma School Road (see **Appendix AA**). Counts for only specific movements at McKellips Road / 92nd Street were taken on Tuesday, February 20 and Thursday, February 22, 2007, aggregated at the peak-hour level. Full 15-minute counts were collected at McKellips Road / Alma School Road on Wednesday, June 20, 2007. The volumes for turning movement not directly observed the McKellips Road / 92nd Street intersection were estimated by balancing volumes with those collected by TRA at the adjacent intersections.

One other study area intersection, McKellips Road / Longmore Road, did not have turning movement counts taken. The analysis of that intersection in future sections of this report is limited to the existing conditions scenario, the future No-Build alternatives, and the future Dobson Road bridge alternative that connects to McKellips Road at this existing intersection. For the existing conditions level of service analysis, through volumes on McKellips Road have been estimated by balancing volumes between the adjacent intersections, and minimal volumes are assumed for turning movements associated with Longmore Road.

Peak hour vehicular turning movement counts are shown in **Figure II-3**. The peak AM and PM hours were determined for each intersection based on the turning movement counts. For peak-hour purposes, the three freeway interchanges were each considered a single intersection, even though they each have a pair of intersections in reality. All intersections and interchanges have AM peak hours that begin at 7:00 AM, except the McKellips Road / SR 101 and Dobson Road / SR 202 interchanges and the McKellips Road / Alma School Road intersection where the AM peak hour begins at 7:15 AM. All intersections and interchanges have PM peak hours that begin at 5:00 PM, except the McKellips Road / Alma School Road intersection where it begins at 4:45 PM.

There is little pedestrian or bicycle activity at these intersections. TRA data shows that 5 pedestrians/bicycles were counted crossing the west leg of the McKellips Road / SR 101 interchange in the AM peak hour, and 4 pedestrians/bicycles were counted crossing the west leg, 2 crossing the east leg, 2 crossing the northbound on-ramp, and 1 crossing the southbound off-ramp in the PM peak hour at that interchange. At the McKellips Road / SR 202 interchange, a single pedestrian/bicycle was counted crossing each the west leg (not a marked or signalized crossing) and the SR 202 off-ramp in the PM peak hour. A single pedestrian/bicycle was also counted crossing each the south leg and westbound on-ramp in the PM peak hour at the Dobson Road / SR 202 interchange. The vehicular counts at the McKellips Road / Alma School Road intersection show a single bicycle crossing the north leg in the AM peak hour and a single bicycle crossing the west leg in the PM peak hour.

As will be discussed in Section III and beyond, future traffic volumes used in this study were derived from the Maricopa Association of Governments (MAG) transportation planning model. The MAG model is capable of generating present-day traffic volumes as well, but is intended for future-year planning purposes, not to generate present-day traffic volumes. This is because the model generates traffic based on socioeconomic information, not field measurements. It has predictive capabilities that are superior to other methods, such as applying growth rates to existing volumes. But for present-day volumes, according to MAG, field traffic counts are more accurate than the model. Therefore, for the purpose of this study, field counts are exclusively used for existing volumes. Nevertheless, the MAG model was run for the existing-conditions scenario, and the output volumes are included in **Appendix AB**.

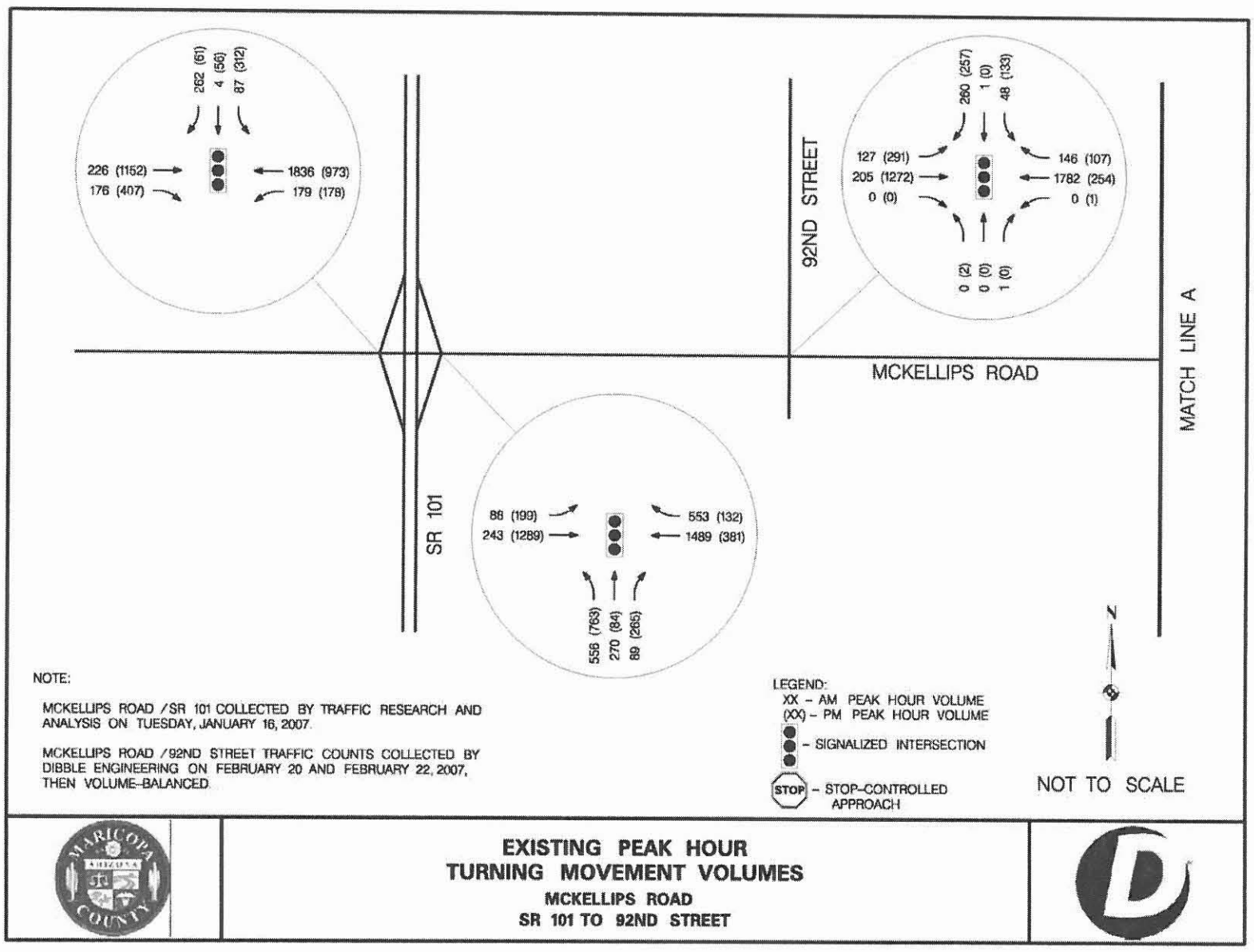


Figure II-3 Existing Peak Hour Volumes – Sheet 1 of 4

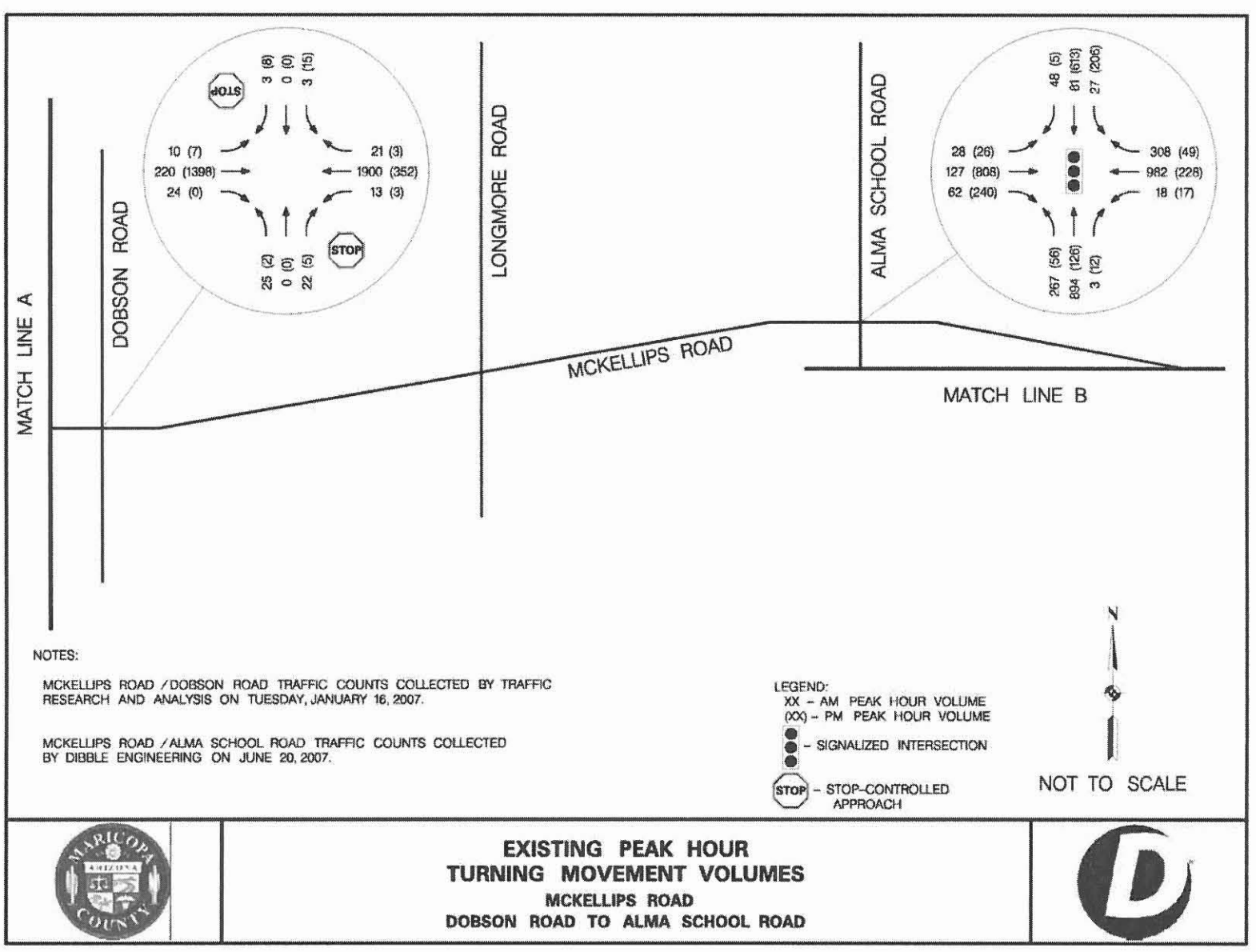


Figure II-3 Existing Peak Hour Volumes – Sheet 2 of 4

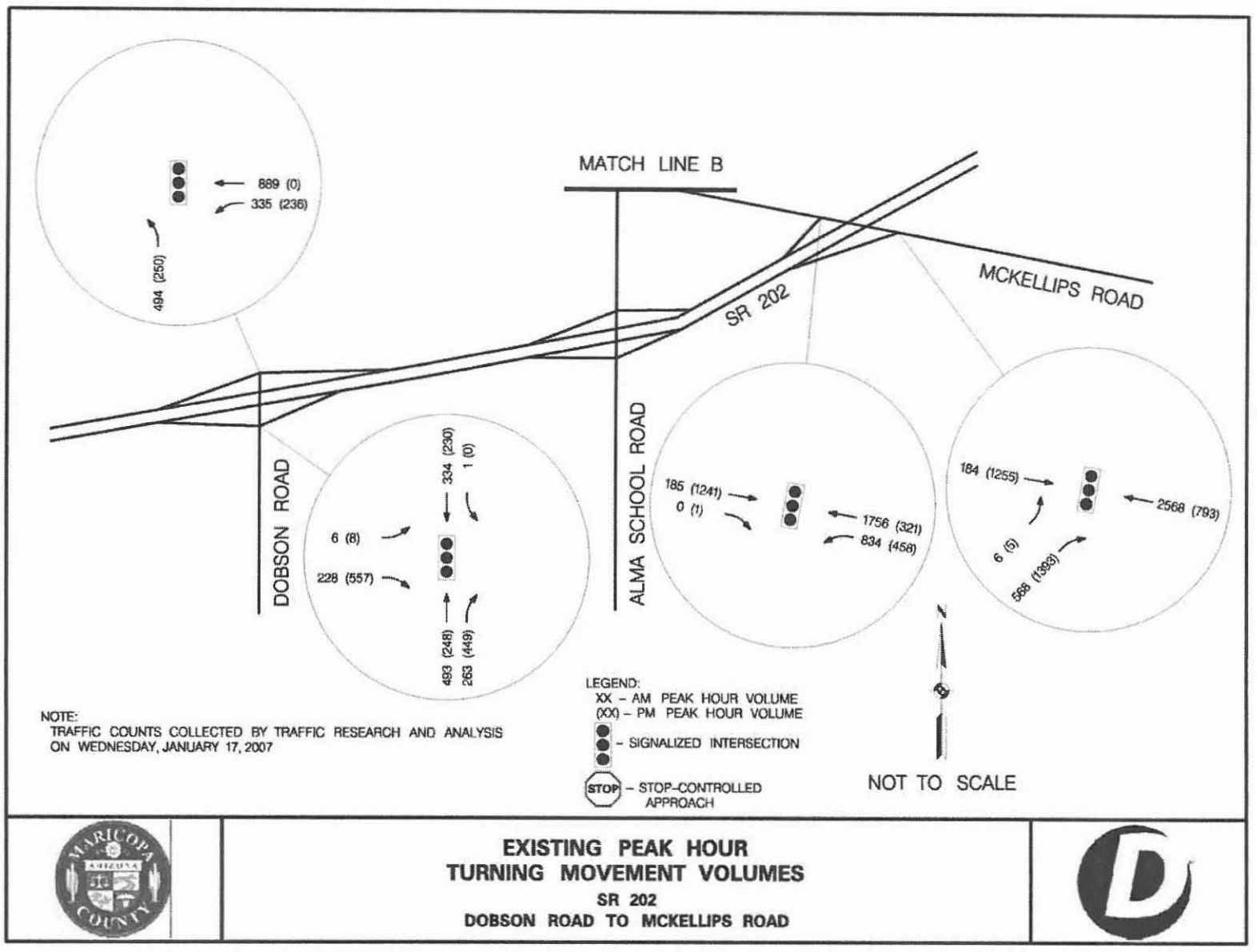


Figure II-3 Existing Peak Hour Volumes – Sheet 3 of 4

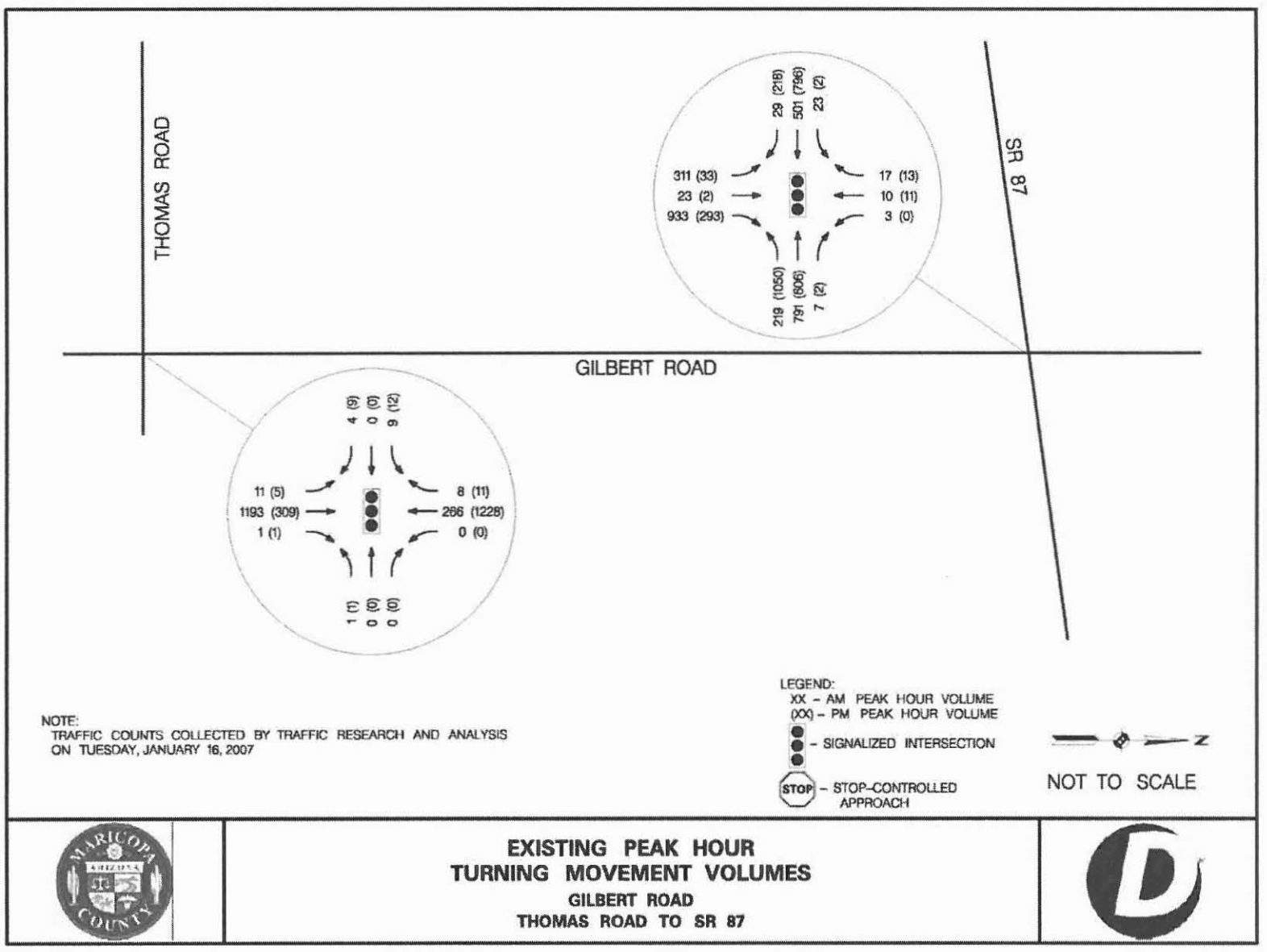


Figure II-3 Existing Peak Hour Volumes – Sheet 4 of 4

E. Crash History Analysis

A crash history analysis was performed on data obtained from ADOT for the most recent three-year period available (see **Appendix AE** for ADOT reports). The data covers the three geographic areas of the project (McKellips Road from SR 101 to SR 202, Dobson Road at SR 202, and Gilbert Road from Thomas Road to SR 87) and includes segments of the main roadway plus all intersections within those areas. By covering the intersections, incidents occurring on cross streets but attributed to the intersection with the main roadway are included in the data set. To ensure complete coverage of the project area, also included in the data set are small portions of the main roadways beyond the project area (e.g., coverage of McKellips continues past SR 202 to Country Club Drive on the east, and coverage of Dobson Road stretches south to University Drive), and crashes on those segments were evaluated for possible association with study area intersections.

From June 2003 to May 2006, a total of 150 crashes were reported within the study area, with 62 in the first year, 34 in the second year, and 54 in the third year. A summary of analysis results are given in **Table II-1**, and charts showing the number of total crashes and injury crashes broken out by year and crash type are in **Figure II-4**. Wherever an intersection or roadway segment is omitted, there were no reported crashes in that category. Note that in the charts each year is defined from June of the previous year through May of the given year (e.g., the year 2004 covers June 2003 through May 2004).

The analysis results indicate several patterns of crashes. The patterns causing the most concern, as determined by engineering judgment, are described in further detail below. Some mitigation measures are recommended in Section VI.A.

McKellips Road and Southbound SR 101 (West Intersection)

Left-turn crashes accounted for 65% of all crashes at this intersection. Seventeen of the 20 left-turn crashes occurred between westbound left-turning vehicles and eastbound through vehicles. Of those, 12 crashes had violations attributed the driver of the westbound left-turning vehicle, two crashes had violations attributed to the driver of the eastbound vehicle, one crash had violations attributed to both drivers, and two crashes had unknown violations. The most common violation of westbound drivers was failure to yield the right-of-way, and other violations included making an improper turn, disregarding the traffic signal, and speeding.

There was one fatal crash at this intersection, an angle crash that occurred when a southbound vehicle disregarded the traffic signal and hit an eastbound tractor trailer. The driver of the southbound vehicle was reported to have been under the influence of illicit drugs. Two passengers were killed, and the driver sustained major injuries.

McKellips Road and Northbound SR 101 (East Intersection)

Left-turn crashes accounted for 33% of all crashes at this intersection. All five left-turn crashes occurred between eastbound left-turning vehicles and westbound through vehicles, and all had violations attributed to the driver of the eastbound vehicle for failing to yield the right-of-way.

Forty percent of all crashes were rear-end crashes at this intersection. Five of the six rear-end crashes involved westbound vehicles, and three of those involved speeding violations.

Two crashes may have involved a potentially dangerous condition. The crashes were both single-vehicle incidents involving eastbound vehicles roughly 50 to 75 feet east of the intersection. The crashes occurred one minute apart so it is likely that the second incident was a secondary crash related to the first. The roadway condition in both incidents was reported as having holes/ruts/bumps, although it is unclear whether the roadway condition contributed to these crashes. A recent field review yielded no indication of any unusual holes/ruts/bumps presently in the vicinity of these crashes that could cause future problems.

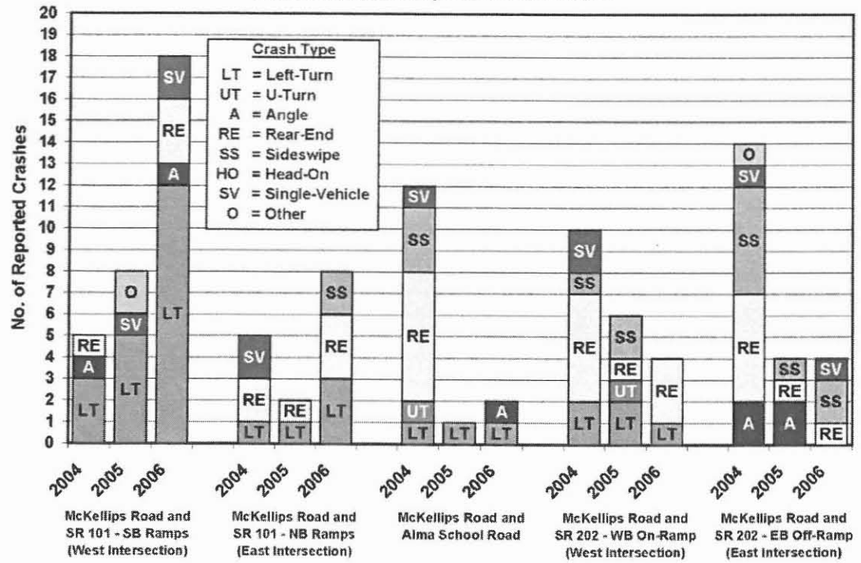
Table II-1 Summary of 3-Year Crash History Analysis

Location	Type[1]	No. of Reported Crashes	No. of Crashes with Injuries[2,3]	No. of Crashes with Major Injuries[2,4]	No. of Crashes with Fatalities	Pattern(s) Presenting Concern
McKellips Road / SB SR 101 (West Intersection)	Intersection	31	18	-	1	• Left-turn crashes • Fatal crash
McKellips Road / NB SR 101 (East Intersection)	Intersection	15	8	-	-	• Left-turn crashes • Rear-end crashes • Crashes occurring on roadway with holes/ruts/bumps
McKellips Road, between SR 101 and 92nd Street	Roadway Segment	-	-	-	-	-
McKellips Road / 92nd Street	Intersection	-	-	-	-	-
McKellips Road, between 92nd Street and Dobson Road	Roadway Segment	-	-	-	-	-
McKellips Road / Dobson Road	Intersection	-	-	-	-	-
McKellips Road, between Dobson Road and Alma School Road	Roadway Segment	3	1	-	1	• Crash caused by fallen tree or stone • Fatal crash
McKellips Road / Alma School Road	Intersection	15	7	1	-	• Left-turn crashes • Rear-end crashes
McKellips Road, between Alma School Road and SR 202	Roadway Segment	2	2	-	-	-
McKellips Road / WB SR 202 (West Intersection)	Intersection	20[5]	5	1	-	• Left-turn crashes • Rear-end crashes
McKellips Road / EB SR 202 (East Intersection)	Intersection	22	4	-	-	• Angle crashes • Rear-end crashes • Side-swipe crashes • Embankment that may obstruct vision
Dobson Road / EB SR 202 (South Intersection)	Intersection	6	2	-	-	-
Dobson Road / WB SR 202 (North Intersection)	Intersection	2[6]	1[6]	-	-	-
Gilbert Road / Thomas Road	Intersection	4	2	-	-	-
Gilbert Road, between Thomas Road and SR 87	Roadway Segment	13[7]	5	2	-	• Single-vehicle crashes involving livestock or wild game animals
Gilbert Road / SR 87	Intersection	17[7]	9[7]	1[7]	-	• Rear-end crashes
PROJECT TOTAL		**150**	**64**	**5**	**2**	

Notes:
[1] Roadway segments do not include crashes attributed to intersections
[2] Excludes crashes with fatalities
[3] Known injuries only (hit-and-run incidents often do not have injuries reported), both major and minor
[4] Injuries reported as "Incapacitating"; Known injuries only (severity of injuries reported for drivers only, and hit-and run incidents often do not have injuries reported)
[5] Includes 2 crashes that occurred while road was under construction in February/March 2005
[6] Includes 1 crash that occurred while road was under construction in January 2006
[7] Includes 1 crash that occurred while road was under construction in March/April 2006

Figure II-4 Crash History – Sheet 1 of 3

All Crashes at McKellips Road Intersections



Injury Crashes at McKellips Road Intersections

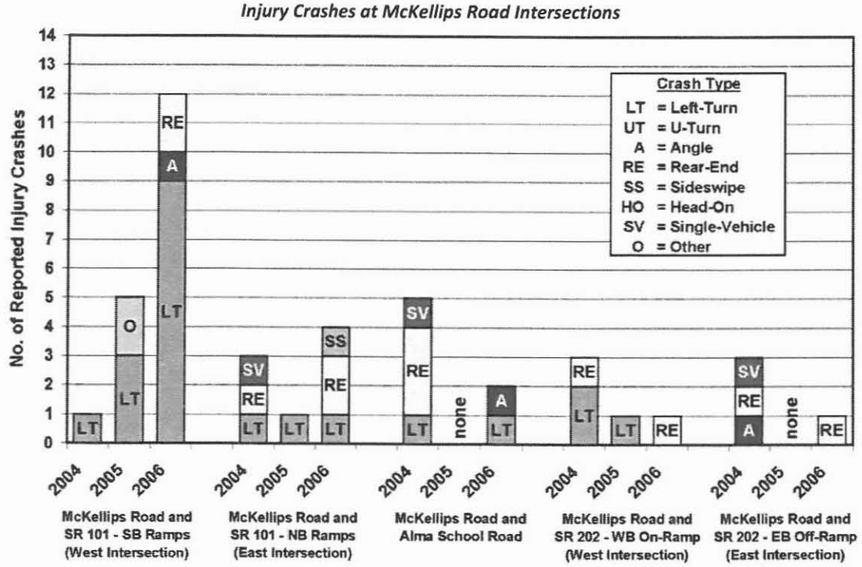
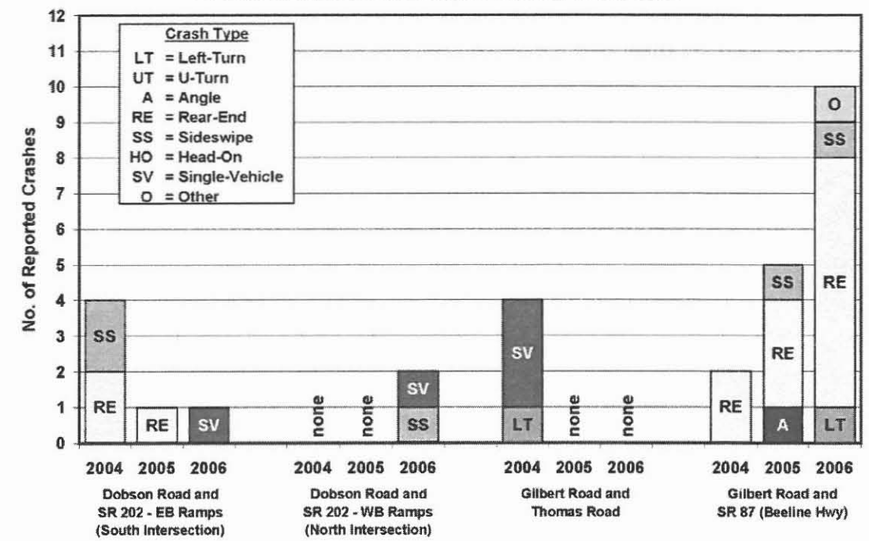


Figure II-4 Crash History – Sheet 2 of 3

All Crashes at Dobson Road and Gilbert Road Intersections



Injury Crashes at Dobson Road and Gilbert Road Intersections

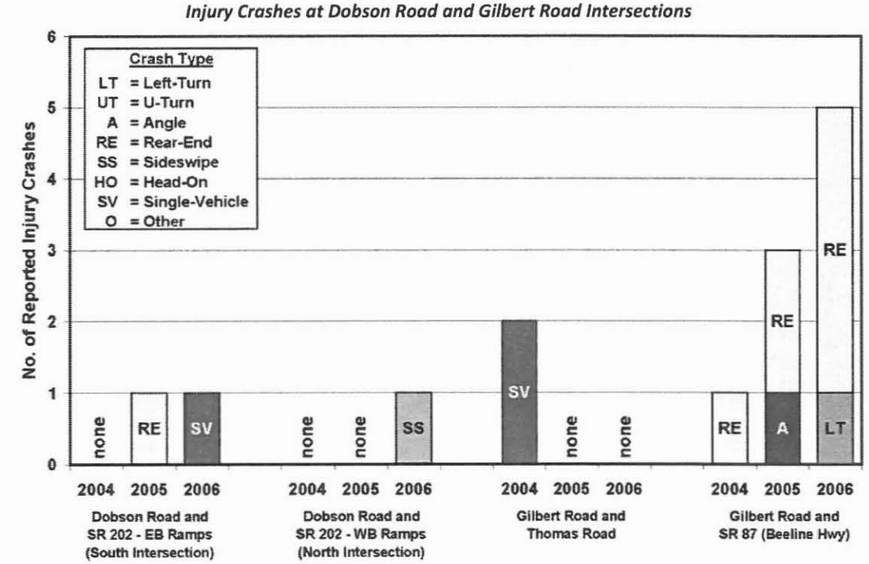
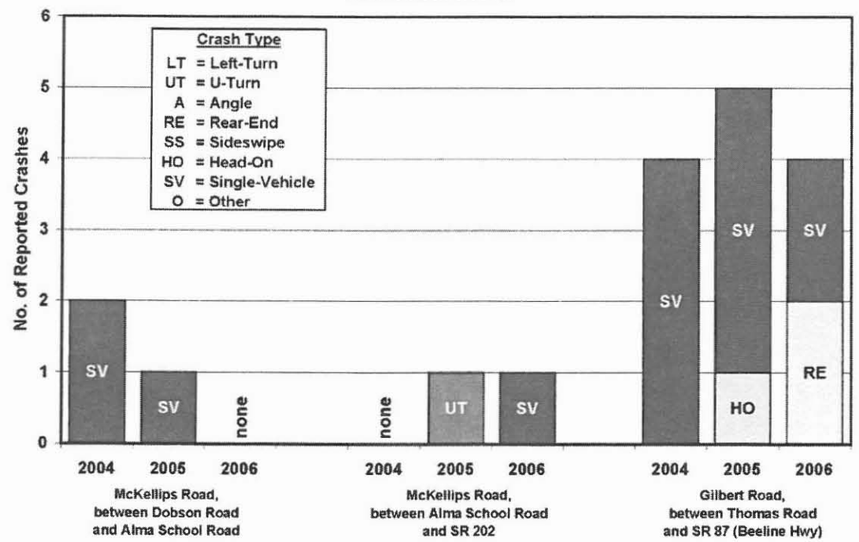
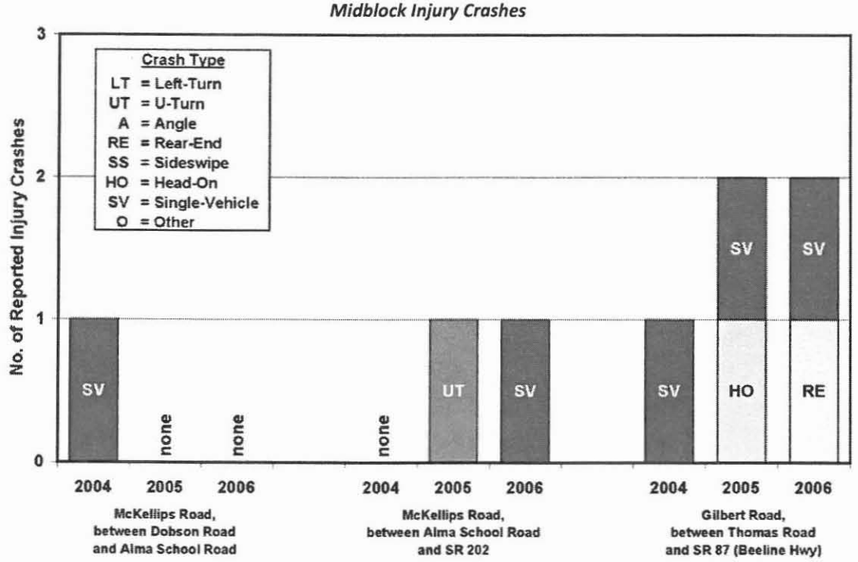


Figure II-4 Crash History – Sheet 3 of 3

All Midblock Crashes



Midblock Injury Crashes



McKellips Road between Dobson Road and Alma School Road

One crash on this roadway segment involved a dangerous condition: a westbound motorcycle hit a fallen tree or stone approximately 500 feet east of Dobson Road. A recent field review yielded no indication of any trees or stones in the vicinity of this crash that could pose a future threat.

There was one fatal crash on this roadway segment. A truck ("other truck combination") overturned in a single-vehicle incident, killing the driver. The driver was reported to have been under the influence of alcohol.

McKellips Road and Alma School Road

Twenty percent of all crashes were left-turn crashes at this intersection. The three left-turn crashes all occurred between southbound left-turning vehicles and northbound through vehicles, and in all incidents the southbound driver was reported to have failed to yield the right-of-way.

Rear-end crashes accounted for 40% of all crashes at this intersection. Three of the six rear-end crashes involved westbound vehicles. Different violations were reported for each of those incidents: following too closely, speeding, and inattentiveness. Of the other three rear-end crashes, one involved northbound vehicles and two involved eastbound vehicles. The incident between northbound vehicles and one of the incidents between eastbound vehicles had speeding violations combined with reports of a vehicle malfunction (defective steering in the northbound incident and defective brakes in the eastbound incident).

McKellips Road and Westbound SR 202 (West Intersection)

Due to the rotation and skew of this interchange, and the fact that both roadways are designated east-west, it is not always clear from the crash history reports which movements were involved in incidents at the two intersections at this interchange. Every attempt was made to determine the movements involved and to verify crash type. However, not all data could be reconciled.

Of the 20 crashes at this intersection, five (25%) were determined to be left-turn crashes between westbound (McKellips Road) left-turning vehicles and eastbound (McKellips Road) through vehicles. Four of those incidents had violations attributed to the eastbound vehicle for disregarding the traffic signal.

Rear-end crashes account for 45% of all crashes at this intersection. Seven of the nine rear-end crashes involved westbound vehicles. Among those, the reported violation varied: two had speeding violations, 1 had an unsafe lane change violation, 1 had a violation for inattention, 2 had unknown violations, and 1 had an "other" violation and involved alcohol. Note that westbound vehicles stop under the freeway overpass at this intersection, and four of the seven westbound rear-end crashes occurred in daylight.

McKellips Road and Eastbound SR 202 (East Intersection)

Eighteen percent of crashes at this intersection were angle crashes. All four angle crashes involved eastbound (McKellips) and northbound (eastbound SR 202 off-ramp) vehicles, and all had violations attributed to the driver of the northbound vehicle. Two of the violations were for failure to yield the right-of-way, one was for an improper turn, and one was for disregarding the traffic signal and involved an unspecified physical impairment to the driver. In one of the incidents, the eastbound driver reportedly had vision blocked by an embankment. Note that all four angle crashes occurred in daylight, and that eastbound vehicles are emerging from under the freeway overpass as they approach this intersection.

Seven of the 22 crashes at this intersection (32%) were rear-end crashes. Of those, five involved westbound (McKellips) vehicles. Four of those incidents had speeding violations, and one had a violation for following too close. Two of these incidents took place a significant distance east of the intersection (one-fifth mile to one-

quarter mile), but they occurred during the AM peak period when traffic could have been backed up that far from this intersection.

Eight crashes at this intersection (36%) were sideswipe crashes between vehicles moving in the same direction. Five of them involved westbound (McKellips) vehicles, and three of them involved northbound (eastbound SR 202 off-ramp) vehicles. Of the westbound incidents, one involved an unsafe lane change violation and four had unknown or "other" violations. One of the incidents with "other" violations occurred in rainy weather. Of the northbound incidents, two involved unsafe lane change violations and one had an "other" violation.

Gilbert Road between Thomas Road and SR 87

Nine of the thirteen crashes on this roadway segment (69%) were single-vehicle incidents involving collisions with animals. All of these crashes occurred at night. Five involved southbound vehicles and four involved northbound vehicles. In one northbound incident, the animal was reported to be a wild game animal, and the crash occurred in rainy weather. In all eight other incidents, the animal was reported to be livestock. In one southbound and one northbound incident, the drivers' vision was reported to have been obscured by an unknown source. Another southbound incident was reported to have an unusual condition: an unspecified obstruction that was unlighted at night.

Gilbert Road and SR 87

Due the fact that both roadways at this intersection are designated north-south, it is not always clear from the crash history reports which movements were involved in these incidents. Every attempt was made to determine the movements involved and to verify crash type. However, not all data could be reconciled.

Of the 17 crashes at this intersection, 12 (71%) were rear-end crashes. Seven of those were determined to have involved westbound (southbound SR 87) vehicles, and five were determined to have involved northbound (Gilbert Road) vehicles. Of the westbound incidents, five involved speeding violations, one involved a violation for inattention, and one involved an unknown violation. In two of those incidents, the driver reported being blinded by evening sun glare. Of the northbound incidents, three involved speeding violations and one involved a violation for inattention.

III. Future Conditions

This study evaluated several scenarios for the design year 2030, including two No-Build alternatives and four build alternatives. Some of those scenarios were evaluated also for the year 2015, which is approximately when construction of the proposed work would be completed. This section begins with a look at the transportation planning model that was used to generate future traffic volumes, followed by a summary of the alternatives presented in the DCR, a discussion of how the alternatives are represented in the evaluated scenarios, and the traffic volumes associated with each scenario.

A. MAG Transportation Planning Model

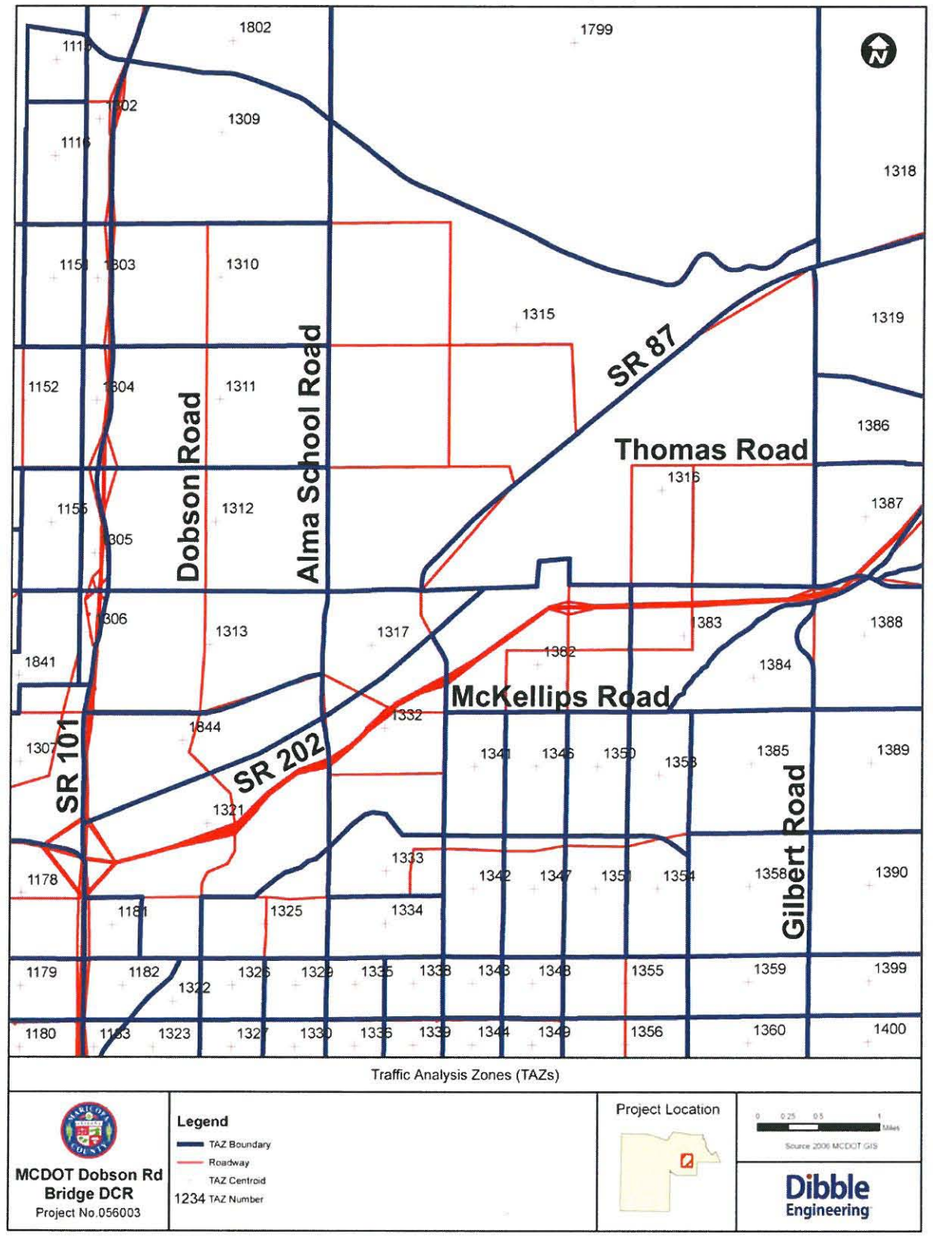
1. Overview

Traffic forecasts were generated by the Maricopa Associations of Governments' (MAG) regional transportation planning model. The model follows the framework of the Four-Step Model for traffic demand modeling: Trip Generation, Trip Distribution, Mode Split, and Route Assignment (a.k.a. Network Assignment). The first three steps are accomplished in the socioeconomic portion of the MAG model, and the final step is performed using EMME/2 travel forecasting software. The MAG model had an update in the socioeconomic data that incorporated General Plan updates from MAG-member municipalities, including SRPMIC. The traffic modeling included herein used the data available as of November 2007.

The basis of the socioeconomic portion of the model is land use data, including population, employment, and housing information (see Section 2 below for further information). In the model, the metropolitan area is divided into traffic analysis zones (TAZs), which can range in size from a few square blocks to several square miles depending on the density of the land use. A map of MAG TAZs in the vicinity of this project is shown in **Figure III-1**. The model calculates the number of daily trips generated by each TAZ based on the land use data. In the next step, it matches trips originating in a TAZ to their destinations in other TAZs, creating a trip origin-destination matrix for all TAZs in the metropolitan area. Then the model assigns trips to various mode types, including single-occupant vehicle, carpool, vanpool, bus, etc. The result is a TAZ-based demand matrix for vehicular travel.

The vehicular travel demand information is fed into the metropolitan area network model in EMME/2. The network model is composed of the roadway network, centroids, and connectors. Centroids are equivalent to TAZs in the socioeconomic portion of the model in that they represent origin/destination points, but in EMME/2 their location is defined as a specific point somewhere inside the TAZ area. The connectors act as the link from the centroids to the roadway network; a trip originating from or destined to a particular TAZ will use one of that TAZ's connectors to get onto or off of the roadway network. A TAZ can have multiple connectors, which is like having several access points to a neighborhood. The roadway network contains specific information about each roadway segment, such as number of lanes per direction and functional classification. EMME/2 uses the vehicular travel demand information and assigns travel routes to each vehicle based on the principle of user equilibrium: each user in the system will take the path with the shortest travel time. Travel time is based on travel distance and speed. Travel speed is a function of free-flow speed and vehicle density, where a higher number of vehicles will yield a lower travel speed, and free-flow speed is given by roadway parameters. The software uses an iterative process to assign vehicles to their routes. The model is then capable of outputting traffic volumes for roadway segments and intersection turning movements.

Figure III-1 Traffic Analysis Zones (TAZs)



2. *Socioeconomic Model and Transportation Network*

MAG updated the socioeconomic portion of the model in early 2007 with revised land use, employment, and housing information provided by the area agencies within the County. The map of existing land use in **Figure II-1** represents the land use data used in the updated model. The population information currently used is an extrapolation from 2000 Census data.

Land use and roadway network changes for future scenarios are derived from ADOT, MCDOT, and local agency planning documents, such as General Plans and Transportation Improvement Programs. **Figure III-2** is a map of future land use, based on data obtained from MAG. The map is not intended to represent a specific future year; instead it shows the expected ultimate use of the land based on known plans. Discussed below are a few notable changes to land use and the roadway network in the MAG model for 2015 and 2030 within the area of this project.

New Commercial Developments

In the time since the model was updated, a couple of major commercial developments have been built that were expected to impact the traffic within the project area: Mesa Riverview and Tempe Marketplace. Furthermore, other proposed developments are anticipated to be built over the next few years, including the current site of the Salt River Materials Group (SRMG) and expansions to Casino Arizona. According to MAG, all of those developments that were known to MAG at the time of the updates, including improvements to the SRPMIC casino, Mesa Riverview, Tempe Marketplace, and the Mesa Waveyard, were incorporated into the model.

Mesa Riverview, a large retail/commercial development that opened mid-2007, is located south of SR 202 at Dobson Road. Its main access points are along Dobson Road, and it was expected to impact traffic throughout the project area, most significantly in the vicinity of the Dobson Road / SR 202 interchange. According to the traffic impact analysis for this development, conducted by Kimley-Horn & Associates in early 2006, the site should generate 500 new trips through that interchange in the AM peak hour and 1,300 in the PM peak hour at full build-out.

Tempe Marketplace is also a large retail/commercial development that opened mid-2007. Located across the SR 101/ SR 202 interchange from the project area (north side of Rio Salado Parkway between McClintock Drive and SR 101), Tempe Marketplace was expected to have only a minor impact on the traffic in the project area. The major impact from the development of this retail/commercial site should be on SR 101 and SR 202 within Tempe.

The Salt River Materials Group, located east of SR 101 between McKellips Road and the Salt River, plans to continue mining operations until approximately 2019. At that time, mining operations will cease and the lands will be turned over to SRPMIC for redevelopment. SRPMIC has developed their future land use plan to include commercial development along the SR 101 corridor, extending south along the Salt River south of McKellips Road.

SPRMIC is proposing an expansion of its Casino Arizona gaming facility, located north of McKellips Road on the west side of 92nd Street. Within the next five to ten years, the Community plans to expand the casino and add a hotel at the current location. The extra traffic generated by the expansion is anticipated to impact traffic on both McKellips Road and Dobson Road.

The City of Mesa is working with a developer to create a regional amusement attraction called the Waveyard, which will be located on the west side of Dobson Road south of SR 202. This major attraction is included in the MAG forecasting model.

Roadway Network Changes

The roadway network used in the model for this study includes both default changes to the future network based on MAG data and requested alterations that are specific to this study. Default changes to the future network often include additional roadway segments, as well as increases in the number of lanes or functional classification change for existing roadway segments. For the most part, these changes in the study area are limited to increases in the number of lanes and possibly some classification changes, but there is one notable roadway addition. At present, Thomas Road is discontinuous, breaking for almost a mile roughly between Gilbert Road and SR 202. The MAG model assumes that Thomas Road will be continuous through this section by the year 2015.

Further roadway network changes were requested specifically for use in this study. In the default MAG network, 92nd Street and Longmore Road are not included north of McKellips Road, and Dobson Road is not included between McKellips Road and McDowell Road. In order to generate turning movement volumes at the intersections of those roadways with McKellips Road (for operational analyses and alternatives comparison), those roadway segments were added. Note that the TAZ configuration did not change despite this addition, but connectors were added linking the TAZ's centroid to each of the new roadway segments in order to simulate usage by local traffic.

Additional requested changes were made to the roadway network based on the needs of the scenario being modeled. In total, 8 scenarios were modeled in the MAG transportation planning model for this study, the future build scenarios corresponding to the proposed alternatives discussed in the next subsection.

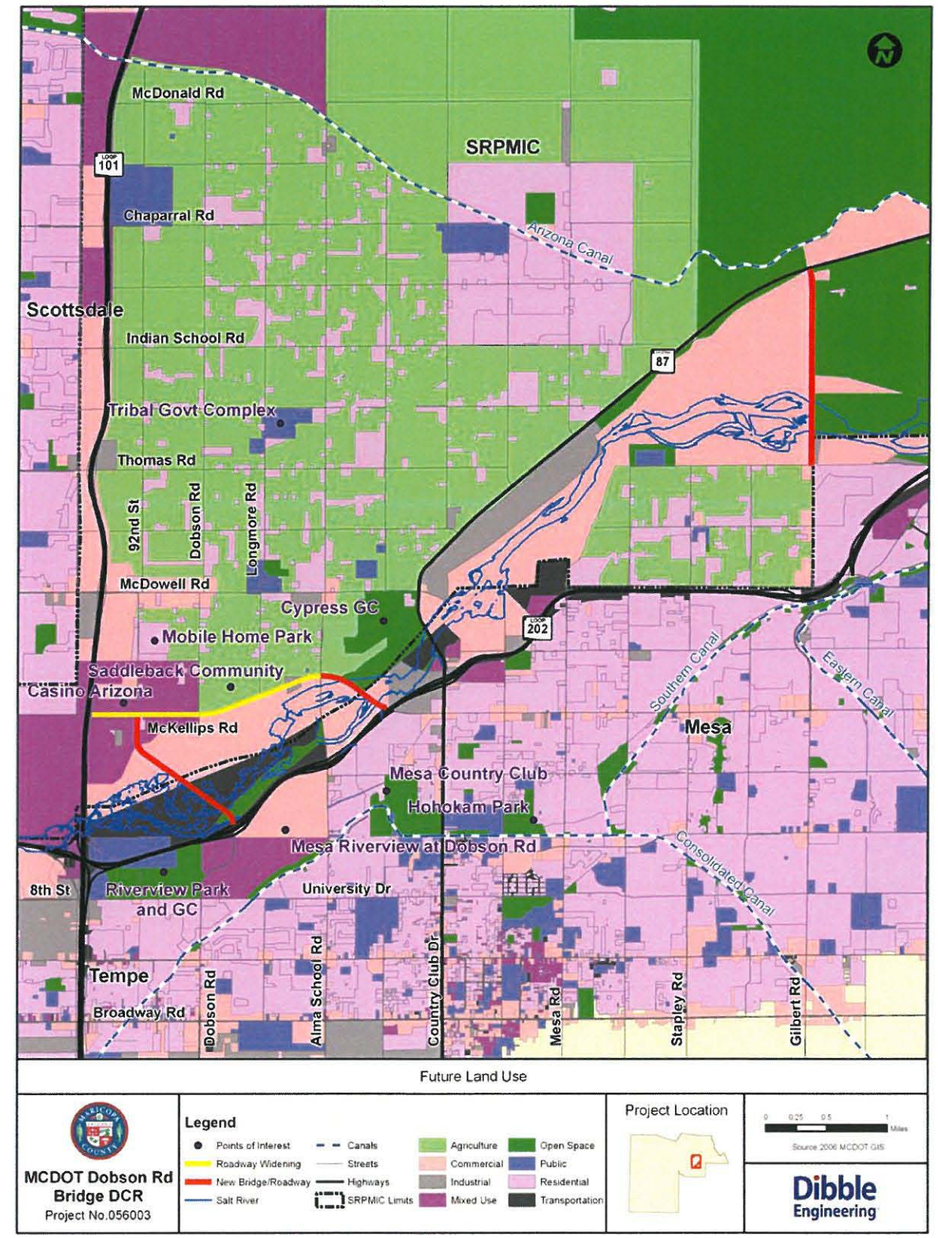
2006

- Existing Conditions – *The baseline scenario*

*2030 (*and 2015)*

- *No-Build Scenario – *Default MAG network for the future year but with number of lanes on project roadways same as existing, and no Dobson Road crossing of the Salt River; 2030 volumes used for both 2030 No-Build alternatives in the alternatives analysis*
- **Build Scenario A**: Dobson Bridge Connection at Longmore Road – *Based on the normal operations No-Build scenario, with the following changes: McKellips Road increased to 3 lanes per direction between SR 101 and SR 202 (to simulate the new McKellips Road bridge and widening of McKellips Road), Gilbert Road increased to 3 lanes per direction between Thomas Road and SR 87 (to simulate the new Gilbert Road Bridge), and a new 4-lane Dobson Road segment connecting from the Dobson Road / SR 202 interchange north across the Salt River to the existing intersection of McKellips Road & Longmore Road (to simulate the new Dobson Road bridge under one of the alignment alternatives)*
- **Build Scenario B**: Dobson Bridge Connection at New Intersection – *Same as Build Scenario A, but with the new Dobson Road segment connecting on the north end at a new intersection on McKellips Road halfway between Dobson Road and Longmore Road*
- **Build Scenario C**: Dobson Bridge Connection at Dobson Road – *Same as previous build scenarios, but with the new Dobson Road segment connecting on the north end at the existing intersection of McKellips Road & Dobson Road*

Figure III-2 Future Land Use



- ***Build Scenario D**: Dobson Bridge Connection at 92nd Street – *Same as previous build scenarios, but with the new Dobson Road segment connecting on the north end at the existing intersection of McKellips Road & 92nd Street*

B. Alternatives Analysis

The four major roadway improvements proposed in the DCR are:

- A new bridge and roadway connecting Dobson Road across the Salt River
- A new bridge to replace the existing Gilbert Road combination crossing of the Salt River
- A new bridge to replace the existing McKellips Road at-grade crossing of the Salt River
- Widening of McKellips Road from a 4-lane to a 6-lane roadway between SR 101 and SR 202

The alignment alternatives for each of these proposed improvements are described in detail in the DCR and summarized below. In addition to these alternatives are two No-Build alternatives, which have none of the major proposed roadway improvements and retain the existing mid-block lane configurations in the immediate study area. They share the same set of future turning movement volumes from the MAG model because the differences between the two alternatives are not easily captured by that model. The Basic No-Build Alternative includes the coordination of adjacent traffic signals where there is an operational advantage for corridor progression, and it also includes the optimization of signals at all intersections. The Enhanced No-Build alternative includes these same traffic signal improvements, plus the signalization of unsignalized intersections, left-turn and right-turn phasing changes, and intersection geometric improvements (i.e., turn lane additions) where these improvements can diminish operational deficiencies.

1. Summary of Alternatives

a. Dobson Road Bridge

Seven alternatives are under consideration for the Dobson Road alignment between SR 202 and McKellips Road, crossing the Salt River. All of these alternatives would connect on the southern end with the existing segment of Dobson Road at SR 202, but they differ in their connection location at McKellips Road and their path through the existing Salt River Materials Group (SRMG) property. Alternatives with the same McKellips Road connection location are expected to have the same impact on travel demand, and thus traffic volumes, so the alternatives are grouped by their McKellips Road connection location for analysis purposes and in the summary below. Each grouping of alternatives corresponds to one of the build scenarios of Section A.2 above.

Whichever alternative is ultimately selected, the new roadway would be classified an urban principal arterial with a four-lane section, a 45 MPH posted speed limit, a 55 MPH design speed, and a WB-50 design vehicle.

i. Connection at Longmore Road (Build Scenario A)

Alternative D1b

This alignment would connect to McKellips Road at the existing unsignalized intersection with Longmore Road. Longmore Road provides a connection directly to the SRPMIC Government Campus, a site that generates a moderate amount of traffic. This alternative would circumvent the SRMG operations entirely. The length of the segment between SR 202 and McKellips Road would be 1.16 miles.

ii. Connection Between Longmore Road and Dobson Road (Build Scenario B)

Alternative D1

In Alternative D1, Dobson Road would continue its north-south alignment from the SR 202 interchange, connecting with McKellips Road between Longmore Road and the northward continuation of Dobson Road. This alignment would create a new T-intersection. It would cut across the Salt River Materials Group property at the existing asphalt batch plant, and so a new truck crossing would be needed for SRMG truck traffic. The length of the segment between SR 202 and McKellips Road would be 1.00 mile.

Alternative D1a

Alternative D1a would be almost the same as Alternative D1, only its path across the SRMG property would avoid the existing asphalt batch plant, and the new T-intersection at McKellips Road would be located slightly further west. The length of the segment would be 1.00 mile.

iii. Connection at Dobson Road (Build Scenario C)

Alternative D2

This alignment would connect to McKellips Road at the existing unsignalized intersection with the northern continuation of Dobson Road. It would split the Salt River Materials Group in half, and it would require a new truck underpass and the relocation of the SRMG offices and main buildings. The length of the segment would be 1.03 miles.

Alternative D2a

Alternative D2a would be similar to Alternative D2, but it would avoid the SRMG offices and main buildings. The length of the segment would be 1.03 miles.

iv. Connection at 92nd Street (Build Scenario D)

Alternative D3

Alternative D3 would connect to McKellips Road at the existing signalized intersection with 92nd Street. It would require a new truck underpass. The length of the segment would be 1.33 miles.

Alternative D3a

This alternative would be almost the same as Alternative D3, only it would avoid the SRMG operation entirely. It would cross the north end of the City of Mesa reclamation ponds located on the north side of the Salt River. The length of the segment would be 1.33 miles.

b. Gilbert Road Bridge

Three alternatives have been developed for the Gilbert Road Bridge crossing of the Salt River. All of these alternatives have the same connection points into the network on either side of the river, at the SR 87 intersection to the north and at the Thomas Road intersection to the south.

The entire length of the new roadway would have a six-lane section with a WB-50 design vehicle. South of the bridge and on the bridge itself, it would be classified an urban principal arterial roadway with a 45 MPH posted speed limit and a 55 MPH design speed. Immediately north of the bridge, the roadway would be classified a rural principal arterial with a 55 MPH posted speed limit and a 65 MPH design speed, and further north it would be a rural minor arterial with the same speeds.

The new bridge alignment in Alternative G1 would be between the existing northbound and southbound lanes at the river crossing. In Alternative G2, the bridge alignment would follow the alignment of the existing southbound bridge lanes. Alternative G3 would align the bridge along the existing alignment of the northbound lanes. For traffic analysis purposes, these alternatives are indistinguishable, so this improvement is considered to have only a single build alternative.

c. McKellips Road Bridge

Three alternatives have been developed along the McKellips Road alignment for a bridge crossing along the Salt River. All of these alternatives have the same connection points into the network on either side of the river, at the intersection with Alma School Road to the west and at the SR 202 interchange to the east.

Under any of the alternatives, McKellips Road between Alma School Road and SR 202 would be classified an urban principal arterial with a 45 MPH posted speed limit, a 55 MPH design speed, and a WB-50 design vehicle.

Alternative M1 would follow the existing alignment of the McKellips Road river crossing, while Alternative M2 would move the alignment slightly to the south, and Alternative M3 would move it slightly to the north. The length of the segment between Alma School Road and SR 202 would be virtually the same for any of the three alternatives, which is the same as the existing length. For traffic analysis purposes, these alternatives are indistinguishable, so this improvement is considered to have only a single build alternative.

d. McKellips Road Widening

Three alternatives have been developed for the widening of McKellips Road between the SR 101 interchange and Alma School Road. All of the alternatives would widen the roadway from four to six lanes and add sidewalks and a raised median. The new roadway would be classified an urban principal arterial with a 45 MPH posted speed limit, a 55 MPH design speed, and a WB-50 design vehicle.

Alternative MR1 would widen McKellips Road symmetrically about its existing centerline, Alternative MR2 would widen entirely to the south, and Alternative MR3 would widen entirely to the north. The two asymmetric widening alternatives would shift the roadway centerline approximately 26 feet in the direction of the widening. None of these alternatives would change the travel length of the roadway or any of its segments between intersections. For traffic analysis purposes, these alternatives are indistinguishable, so this improvement is considered to have only a single build alternative.

2. Future Traffic Volumes

The volumes output by the MAG model for roadway segments and intersection turning movements are located in **Appendix AB** for all scenarios. As discussed in Section II.D, field traffic counts are preferable to model-generated traffic volumes for the existing scenario. Therefore, references to existing or 2007 traffic volumes in the following discussion specifically mean the 2007 traffic counts.

a. No-Build Scenario

Comparison of average daily traffic (ADT) between 2007, 2015, and 2030 suggests average annual growth rates on arterial roadway segments as given in **Table III-1**. Peak hour turning movement volumes for 2015 and 2030 are shown in **Figure III-3** and **Figure III-4**, respectively.

Table III-1 Traffic Volume Growth

Roadway Segment	ADT (vehicles)			Average Annual Growth Rate	
	2007*	2015	2030	2007 - 2015	2015 - 2030
McKellips Rd: SR 101 to Dobson Road					
Eastbound	8,351	11,020	12,228	3.5%	0.7%
Westbound	9,265	10,172	11,763	1.2%	1.0%
McKellips Rd: Dobson Road to Alma School Road					
Eastbound	7,076	11,230	13,807	5.9%	1.4%
Westbound	7,715	11,068	13,407	4.6%	1.3%
McKellips Rd: Alma School Road to SR 202					
Eastbound	6,205	15,226	18,684	11.9%	1.4%
Westbound	7,219	15,019	18,134	9.6%	1.3%
Dobson Rd: 8th Street to SR 202					
Northbound	7,123	13,895	18,263	8.7%	1.8%
Southbound	7,124	17,215	20,732	11.7%	1.2%
Gilbert Rd: Thomas Rd to SR 87					
Northbound	6,675	13,219	16,537	8.9%	1.5%
Southbound	6,706	13,722	17,019	9.4%	1.4%
Average	-	-	-	7.5%	1.3%

* The ADT of any segment covered by more than one count station is given by the average of the count station volumes.

b. Build Scenarios

Peak hour turning movement volumes for the four 2030 build scenarios are shown in **Figure III-5**, **Figure III-6**, **Figure III-7**, and **Figure III-8** for Build Scenario A, B, C, and D, respectively. **Figure III-9** shows the peak hour turning movement volumes for Build Scenario D in 2015.

Figure III-3 2015 No-Build Scenario Peak Hour Volumes – Sheet 1 of 4

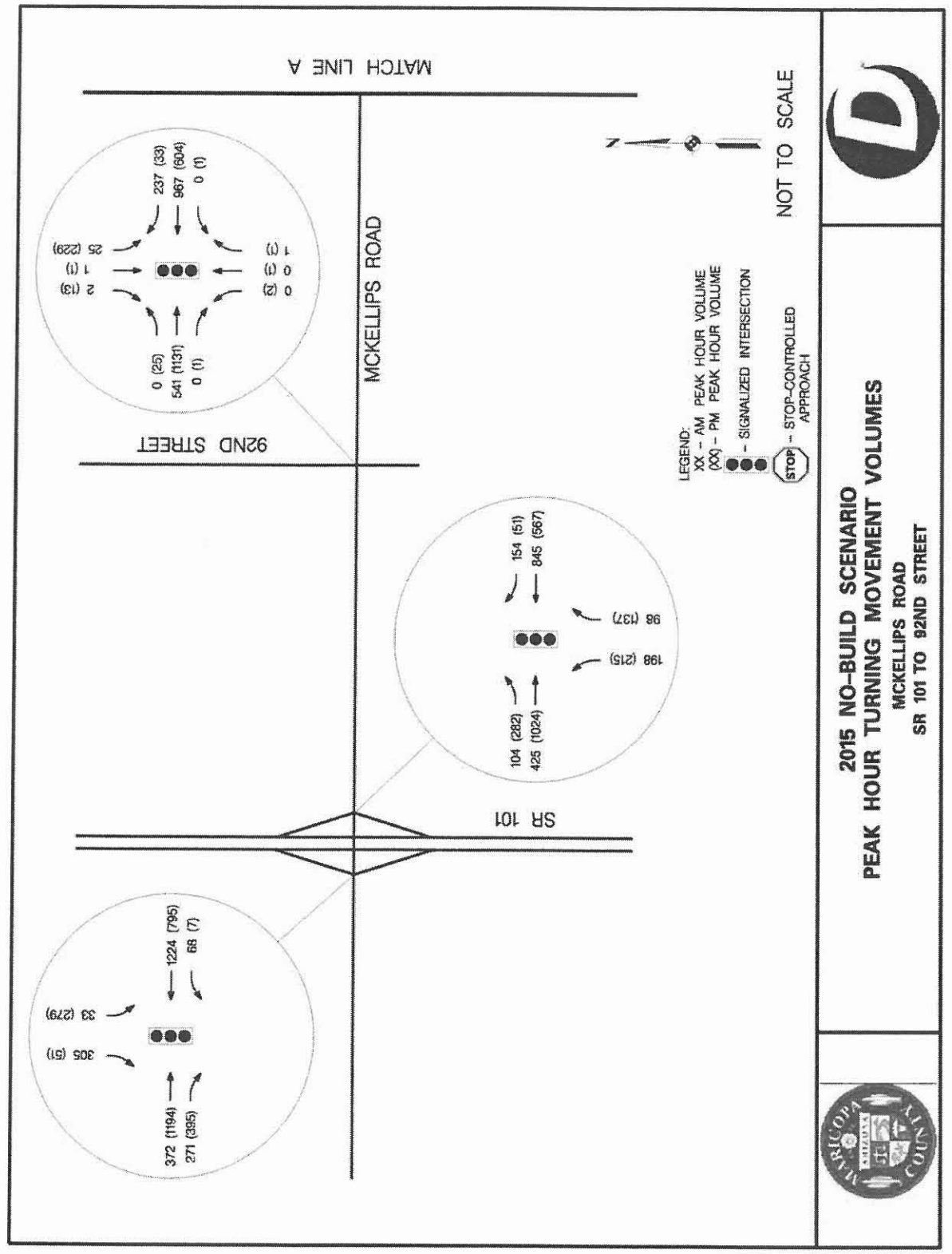
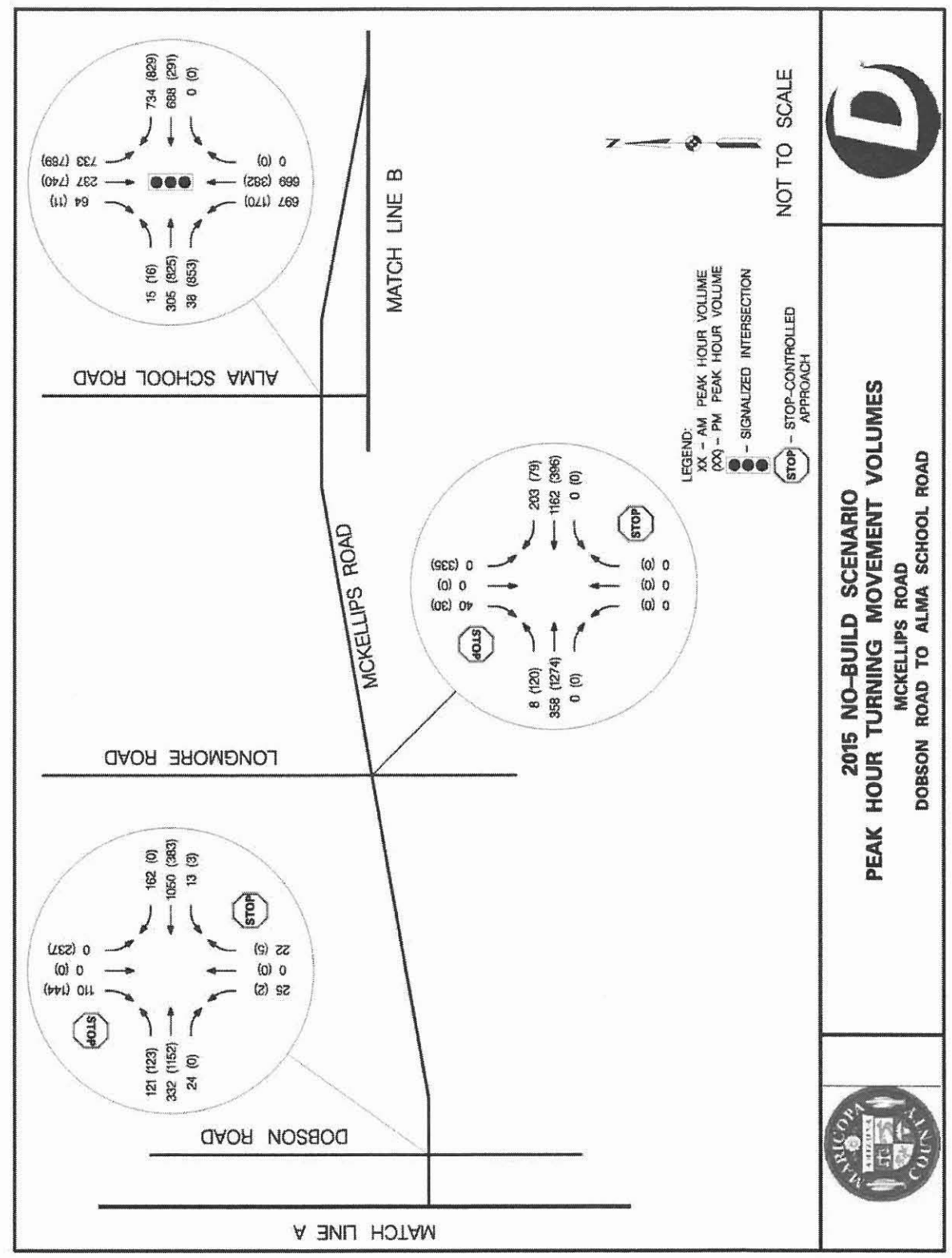


Figure III-3 2015 No-Build Scenario Peak Hour Volumes – Sheet 2 of 4



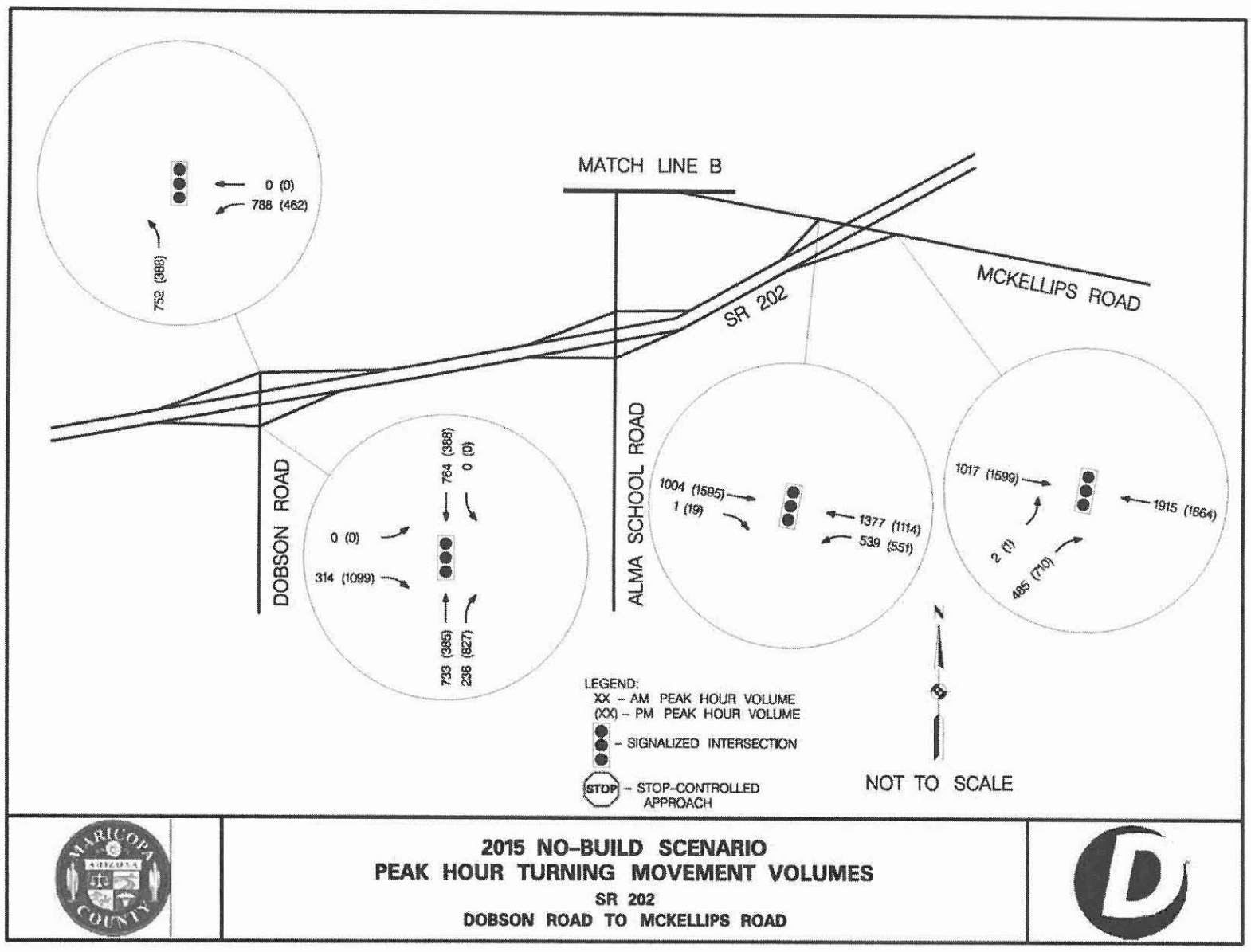


Figure III-3 2015 No-Build Scenario Peak Hour Volumes – Sheet 3 of 4

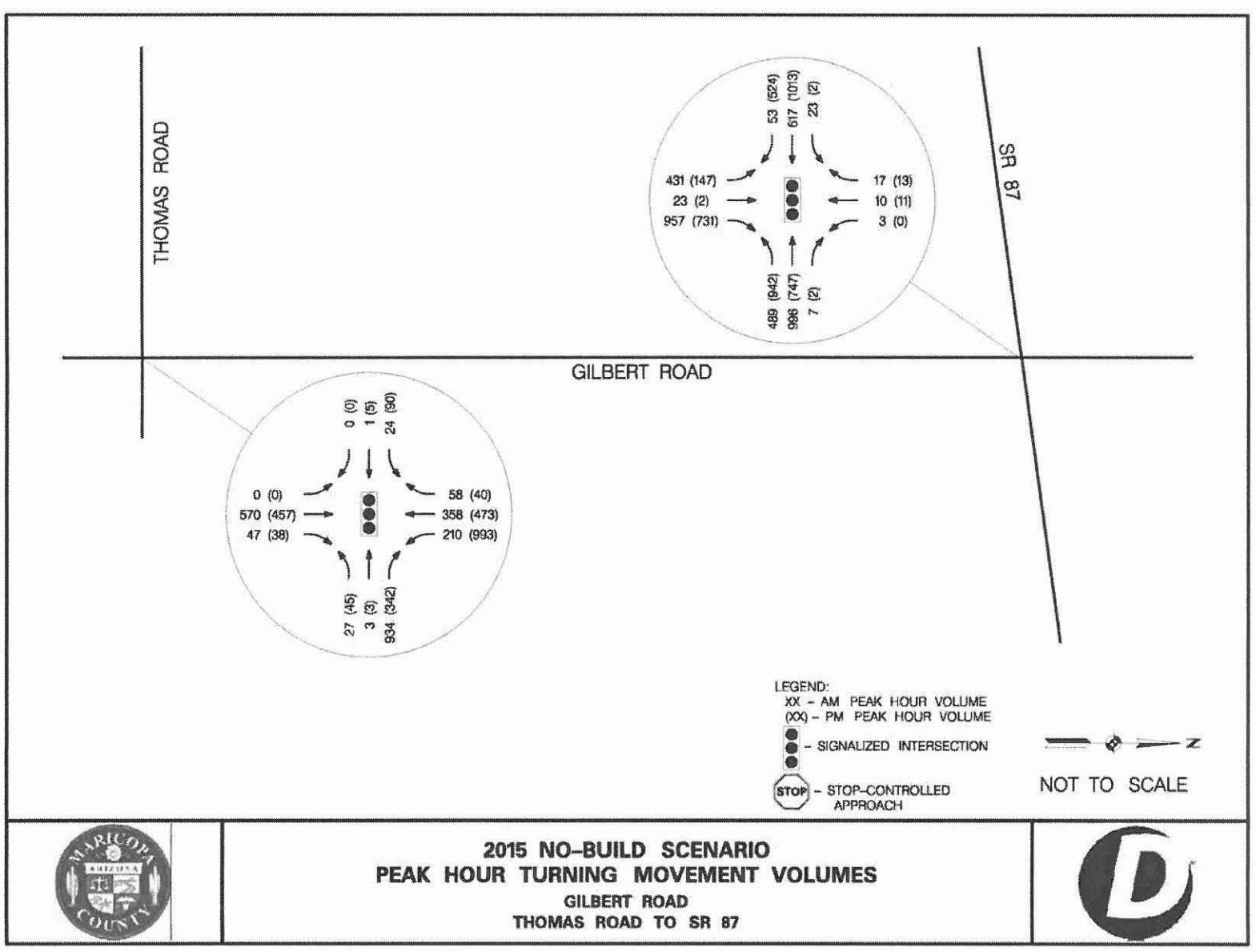


Figure III-3 2015 No-Build Scenario Peak Hour Volumes – Sheet 4 of 4

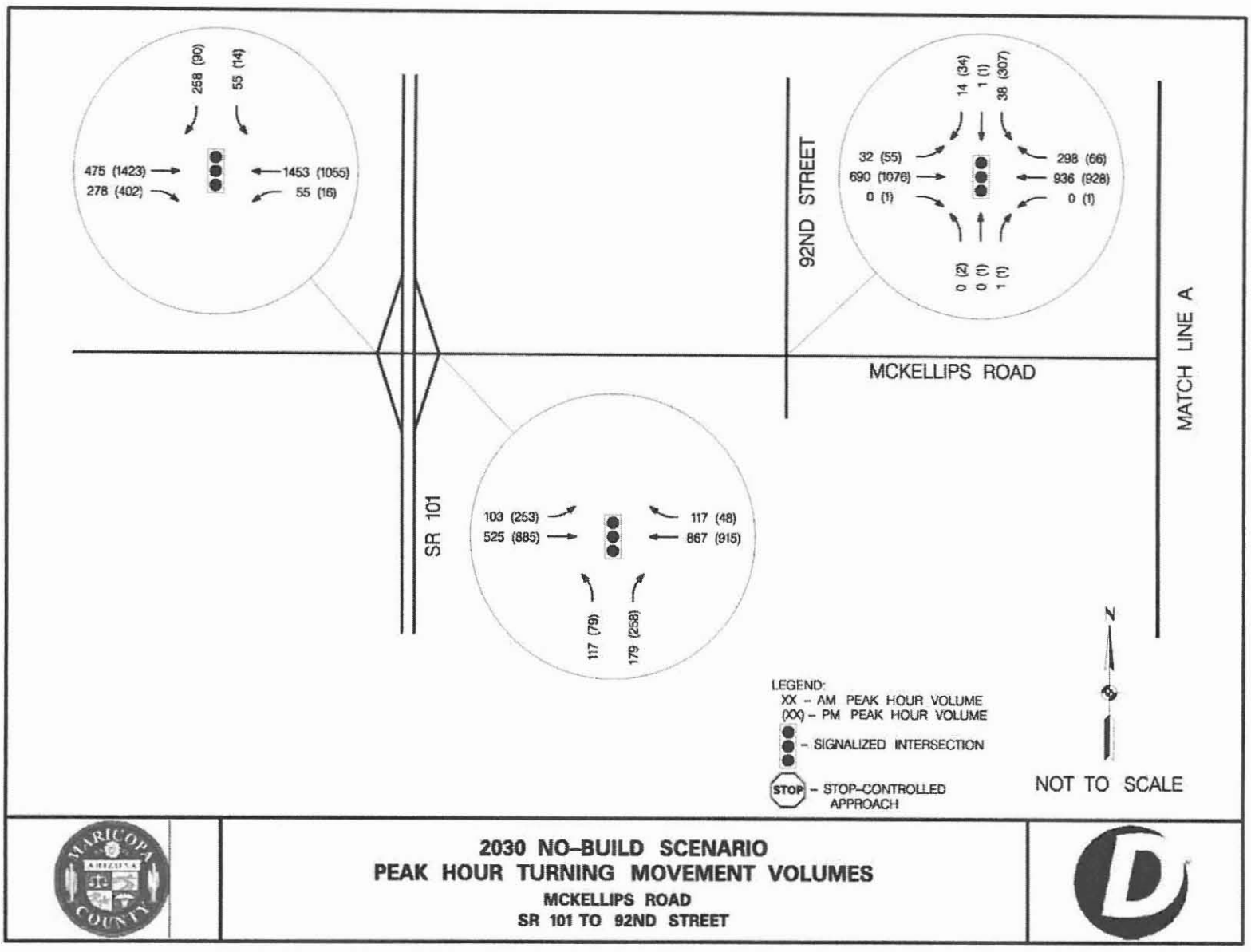


Figure III-4 2030 No-Build Scenario Peak Hour Volumes – Sheet 1 of 4

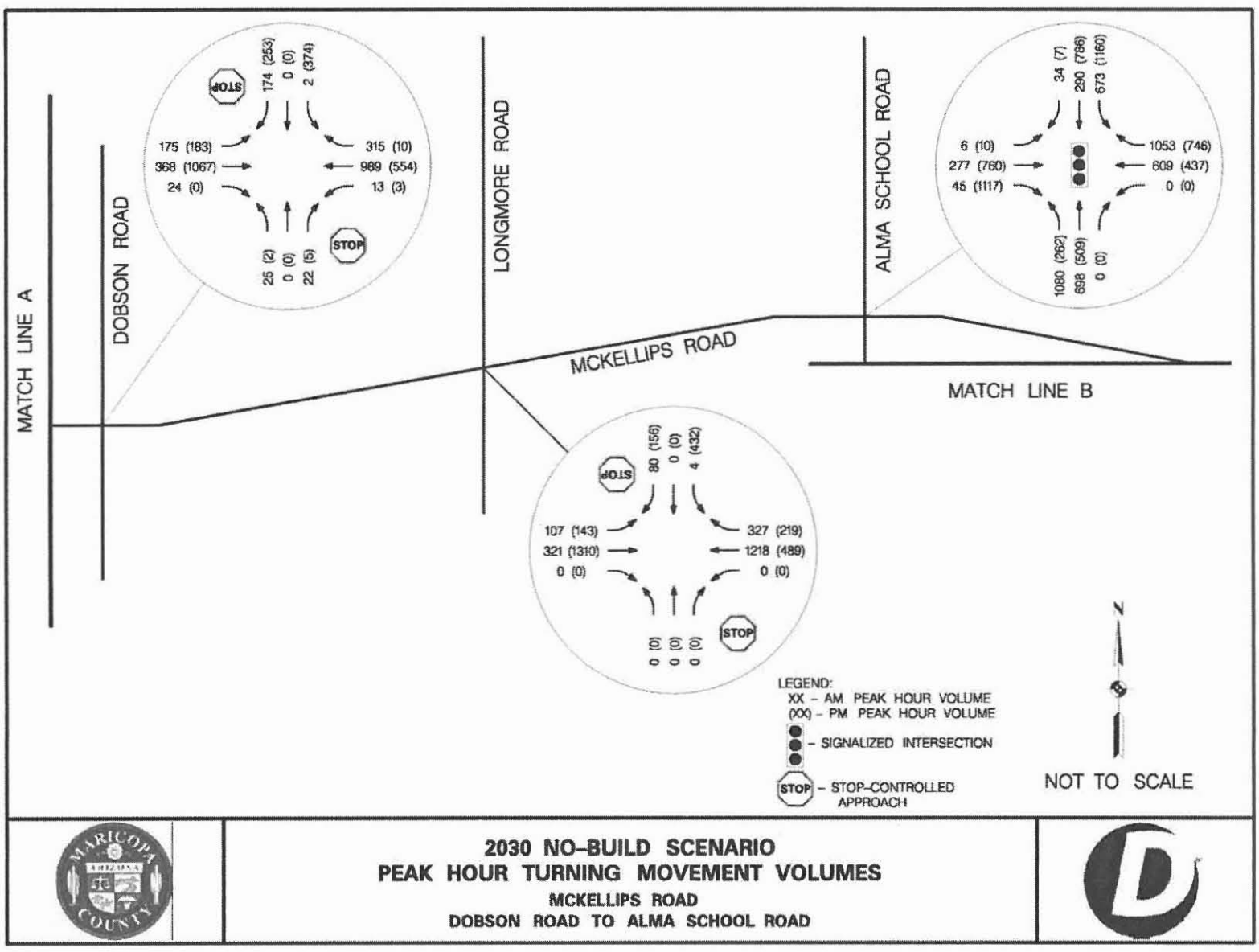
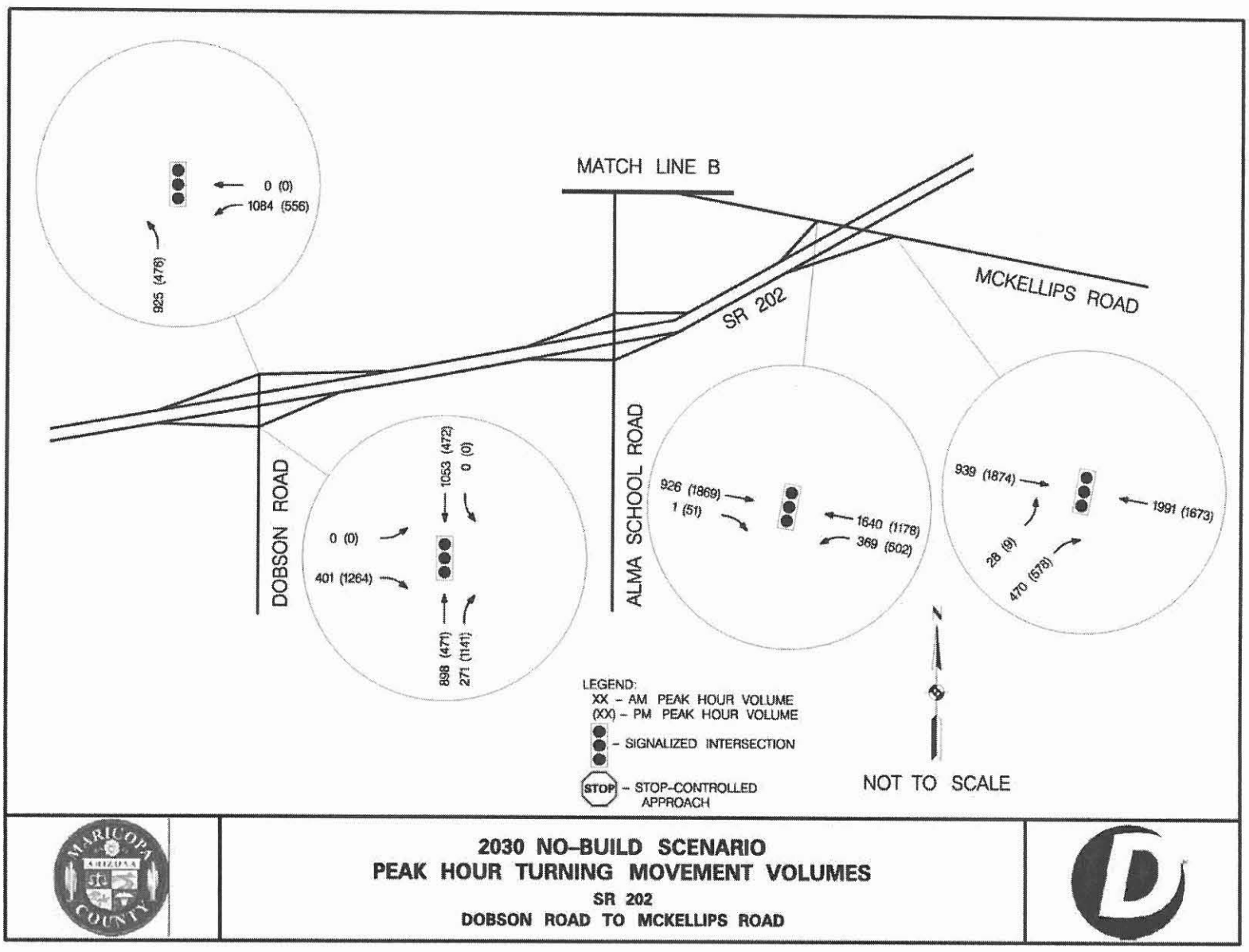


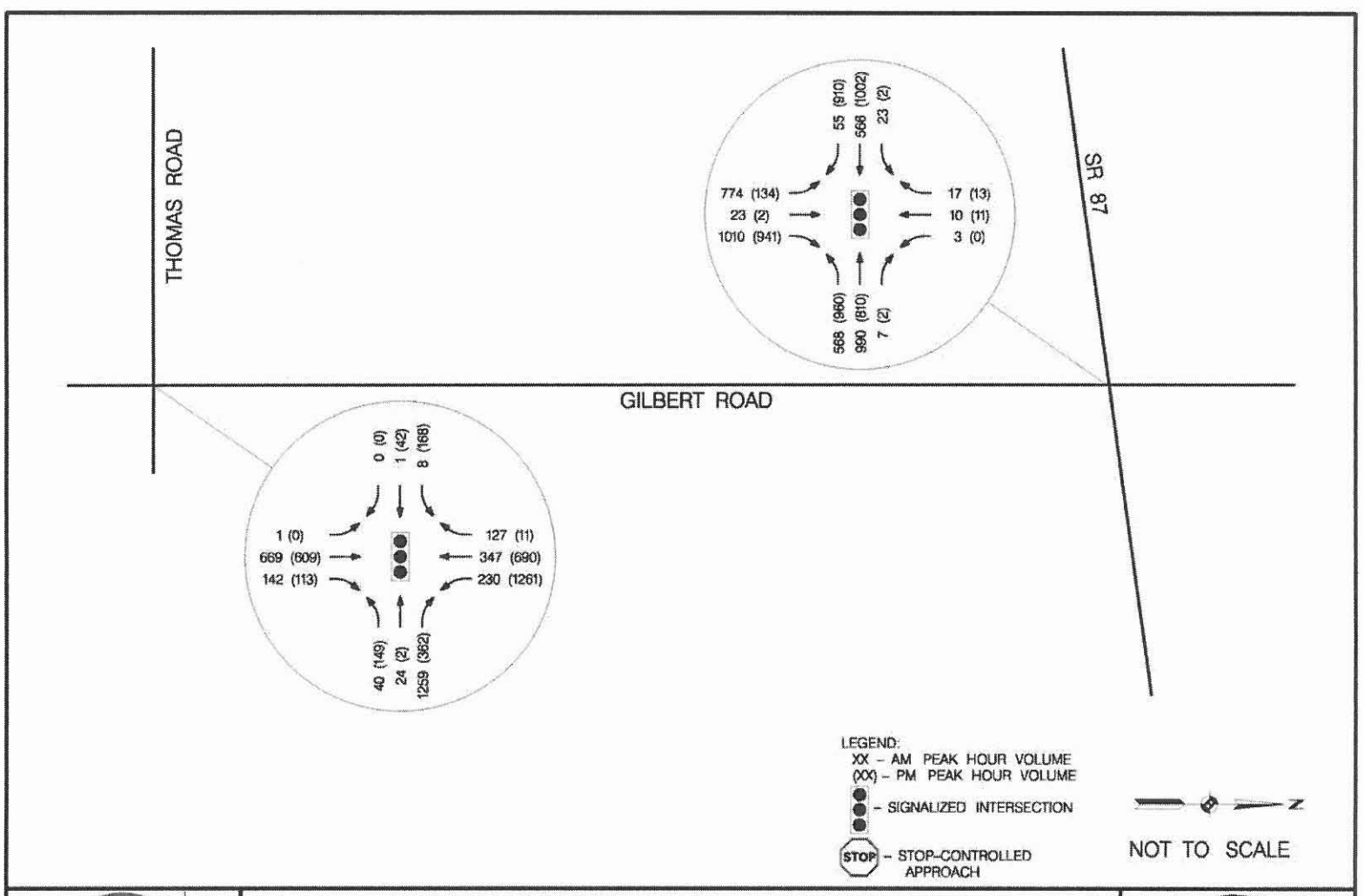
Figure III-4 2030 No-Build Scenario Peak Hour Volumes – Sheet 2 of 4

Figure III-4 2030 No-Build Scenario Peak Hour Volumes – Sheet 3 of 4



2030 NO-BUILD SCENARIO
PEAK HOUR TURNING MOVEMENT VOLUMES
SR 202
DOBSON ROAD TO MCKELLIPS ROAD

Figure III-4 2030 No-Build Scenario Peak Hour Volumes – Sheet 4 of 4



2030 NO-BUILD SCENARIO
PEAK HOUR TURNING MOVEMENT VOLUMES
GILBERT ROAD
THOMAS ROAD TO SR 87

Figure III-5 2030 Build Scenario A Peak Hour Volumes – Sheet 1 of 4

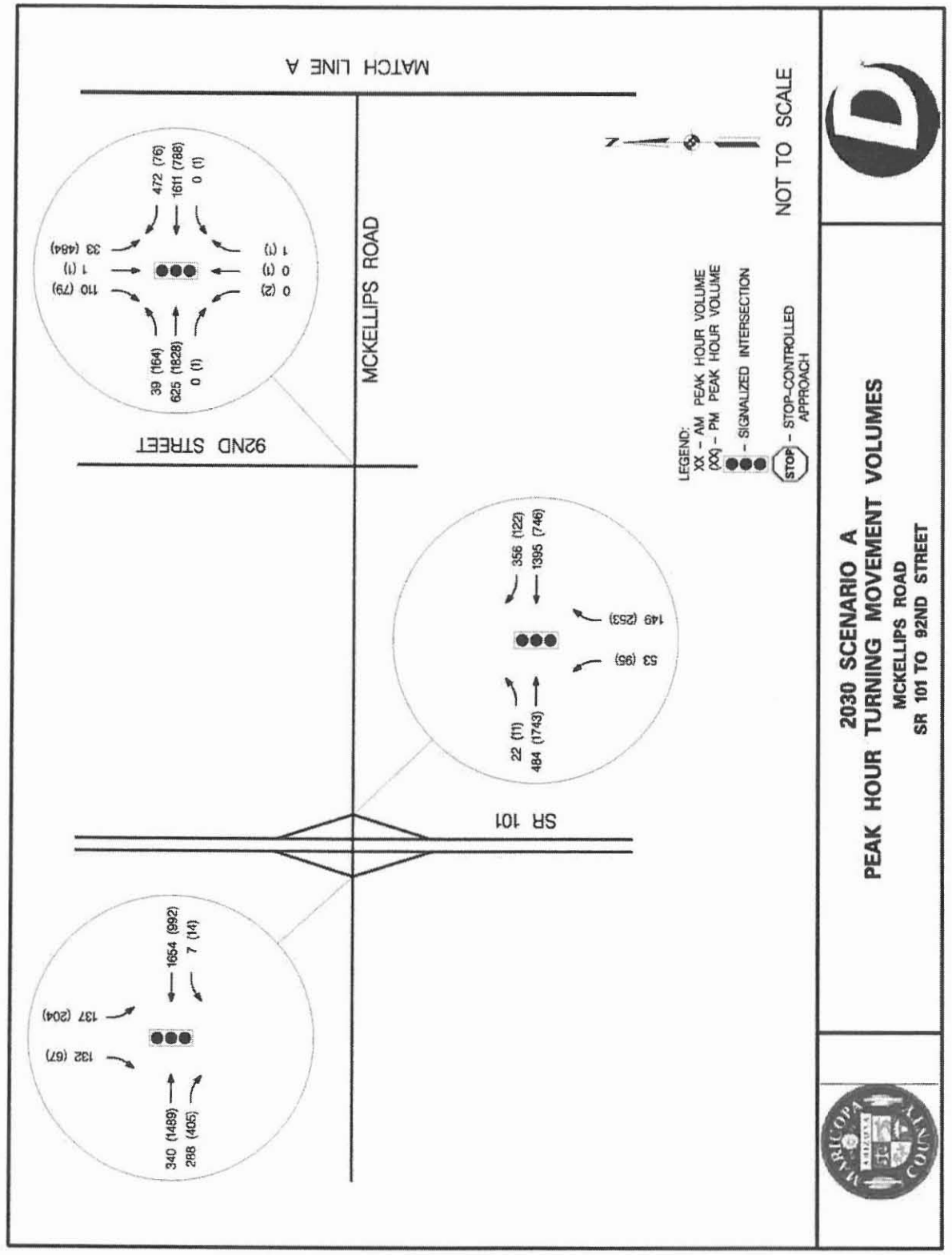


Figure III-5 2030 Build Scenario A Peak Hour Volumes – Sheet 2 of 4

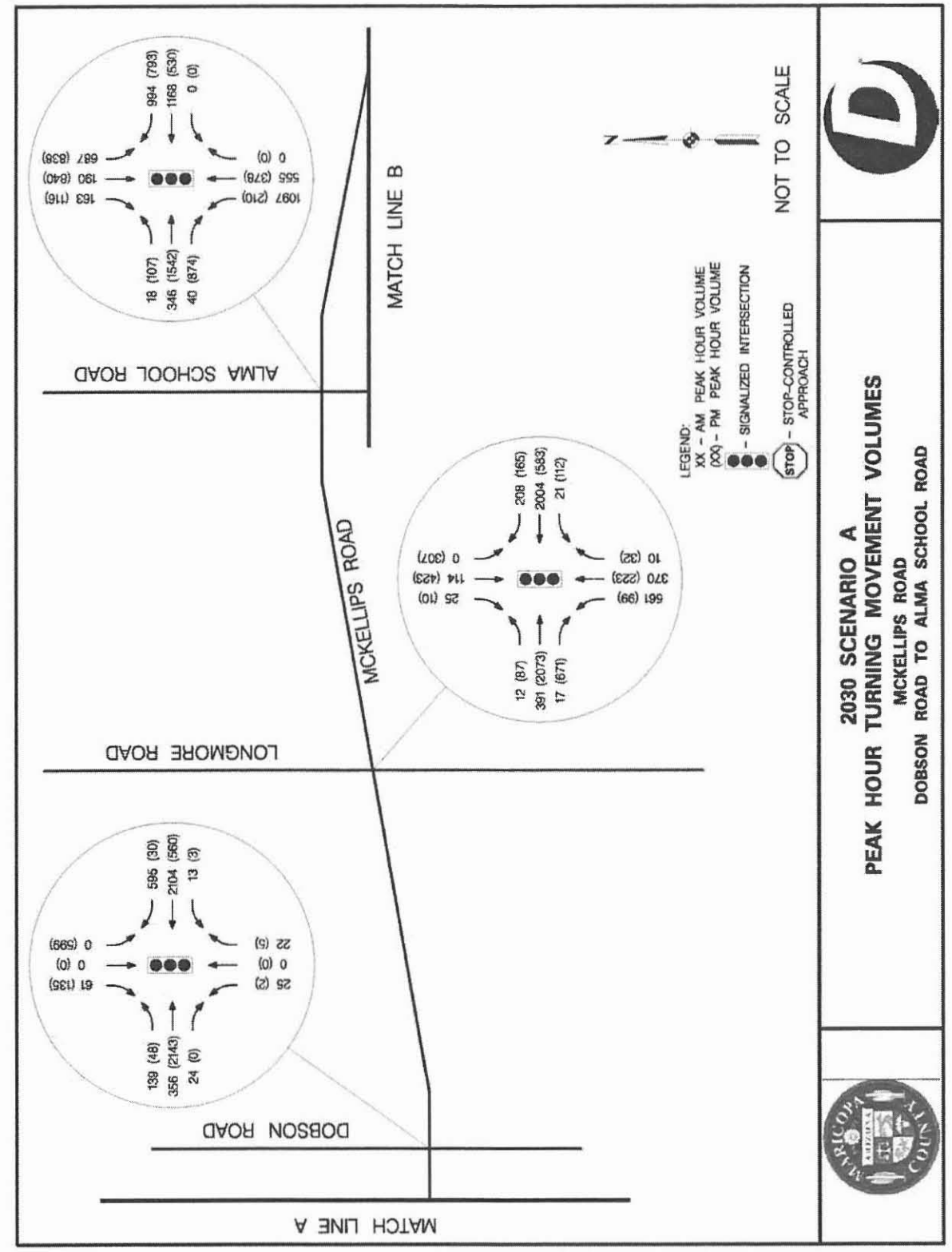


Figure III-5 2030 Build Scenario A Peak Hour Volumes – Sheet 3 of 4

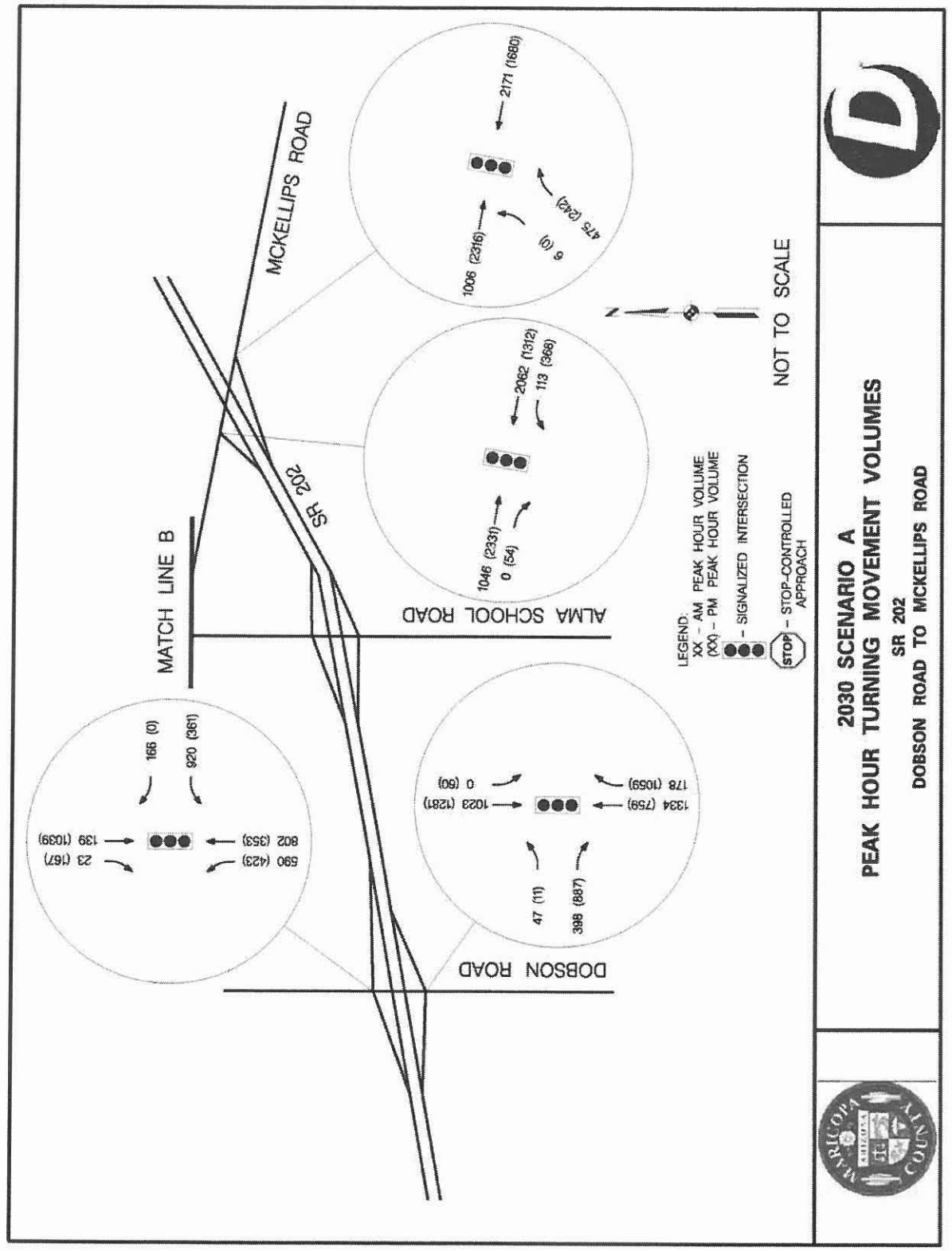


Figure III-5 2030 Build Scenario A Peak Hour Volumes – Sheet 4 of 4

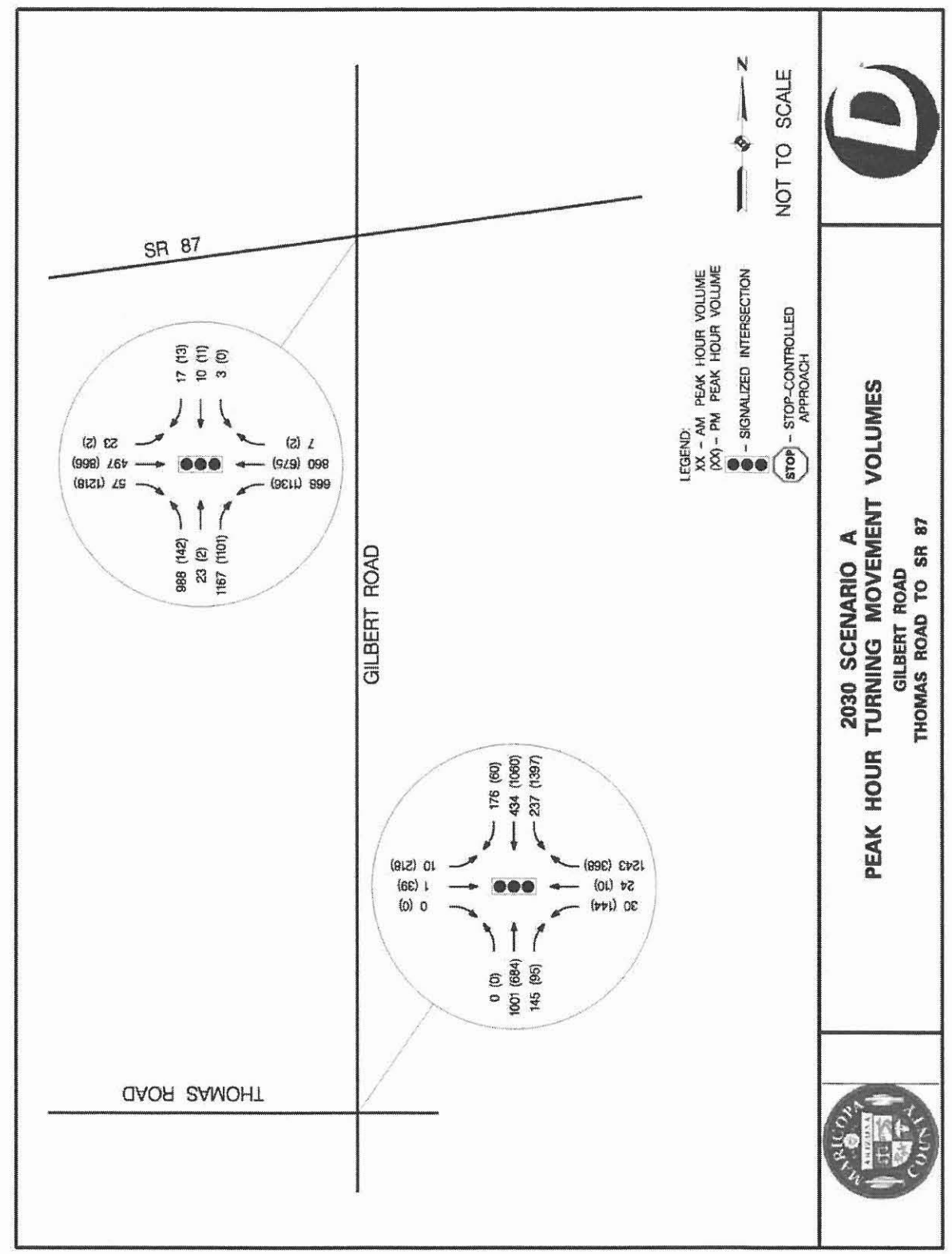


Figure III-6 2030 Build Scenario B Peak Hour Volumes – Sheet 1 of 4

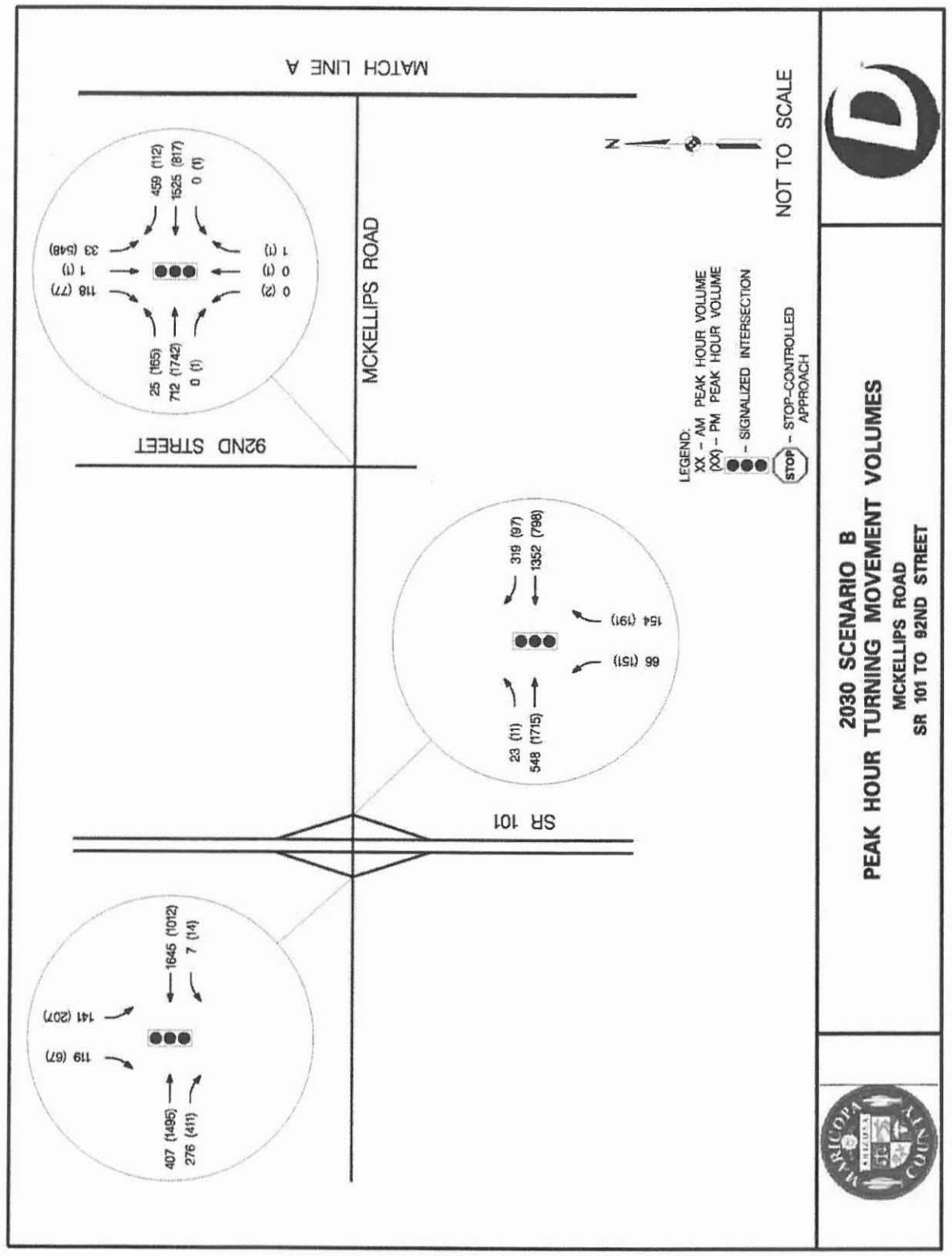


Figure III-6 2030 Build Scenario B Peak Hour Volumes – Sheet 2 of 4

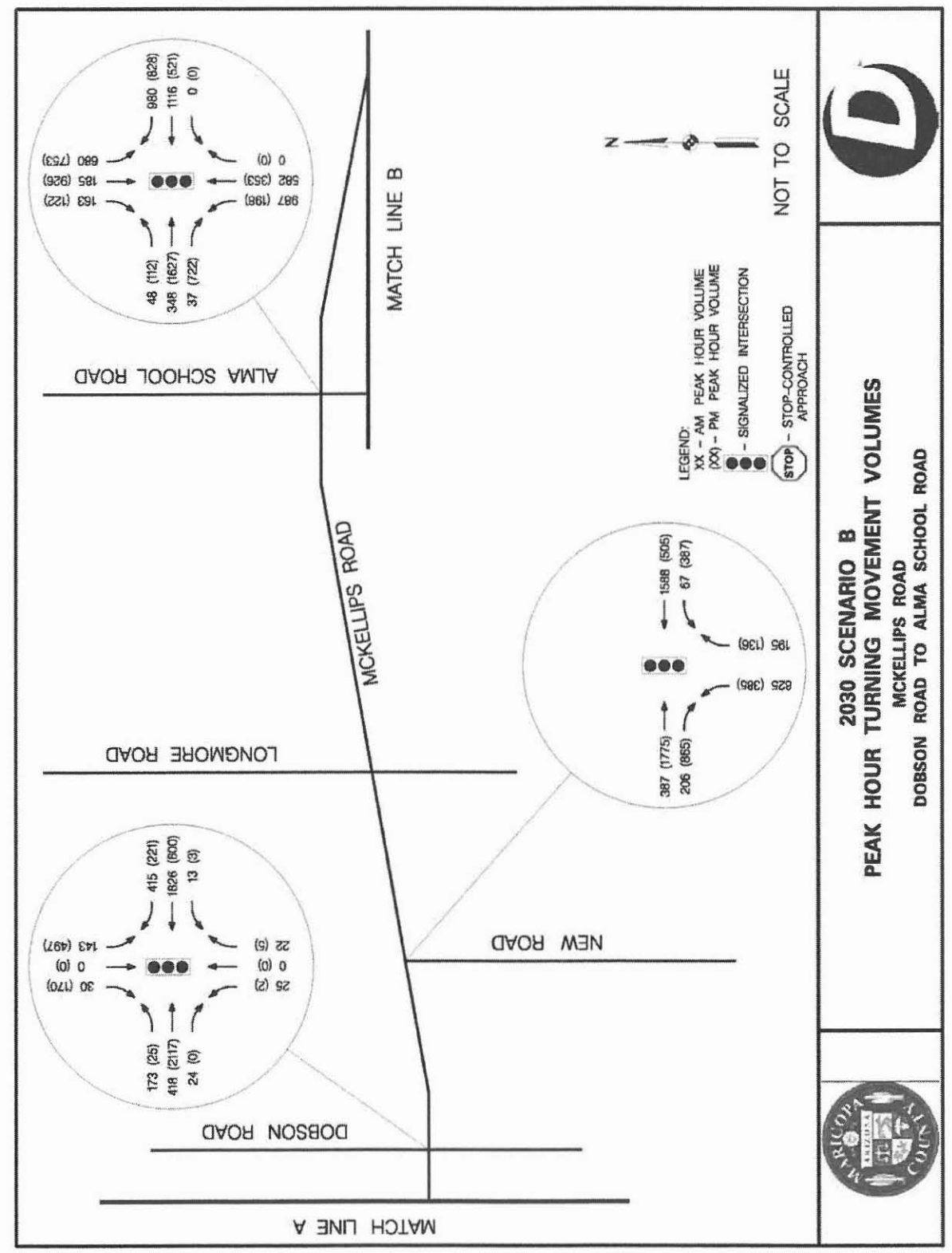


Figure III-6 2030 Build Scenario B Peak Hour Volumes – Sheet 3 of 4

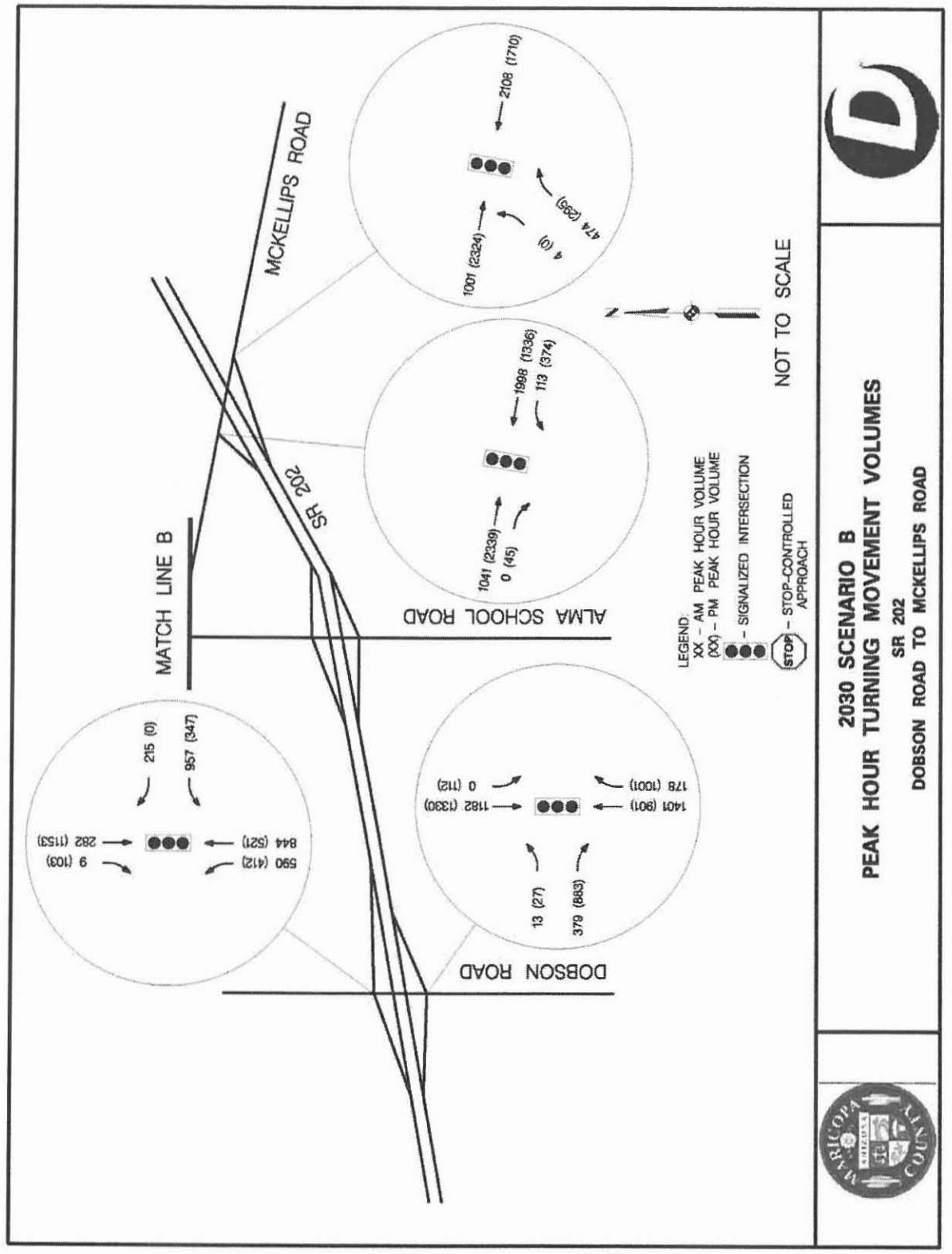
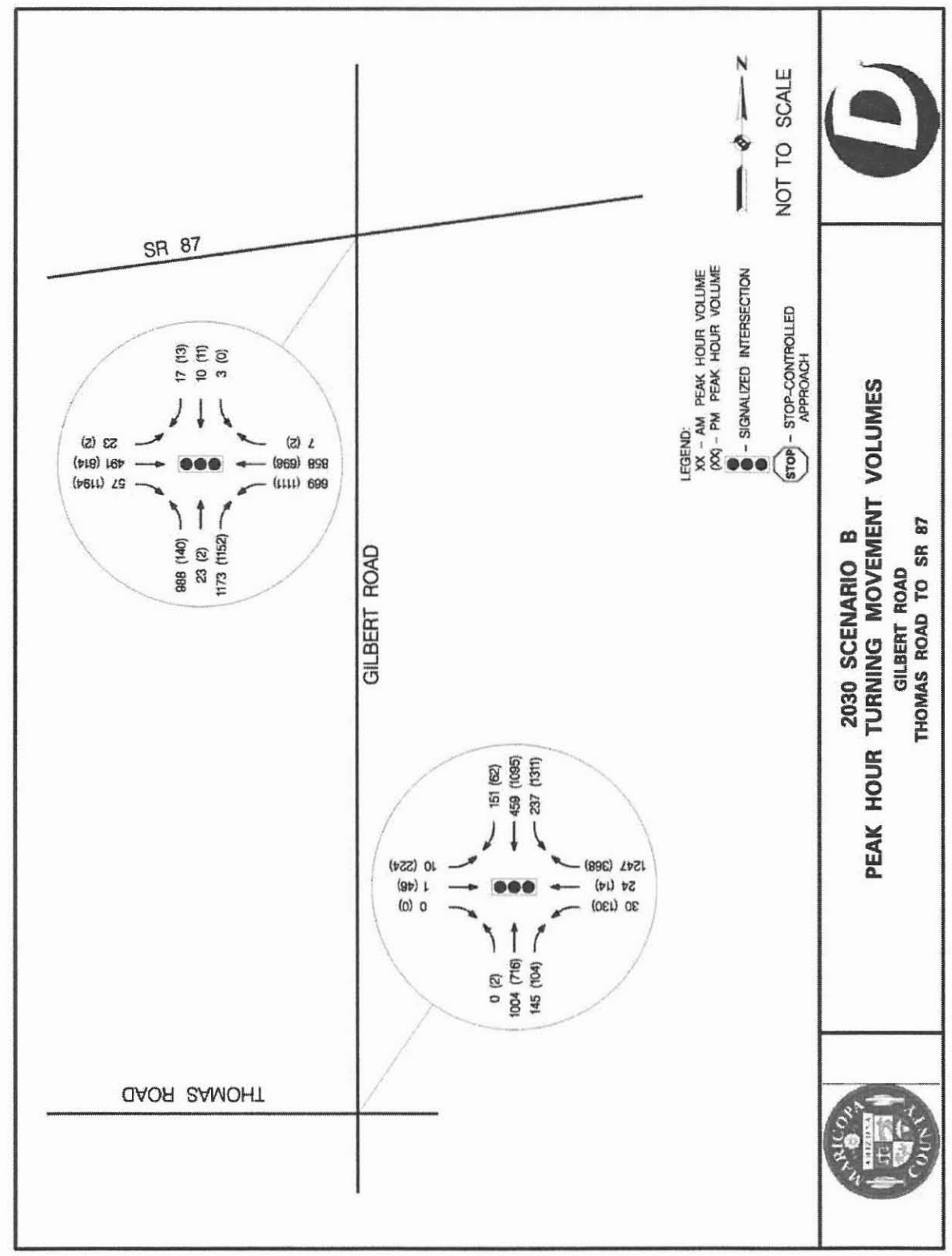


Figure III-6 2030 Build Scenario B Peak Hour Volumes – Sheet 4 of 4



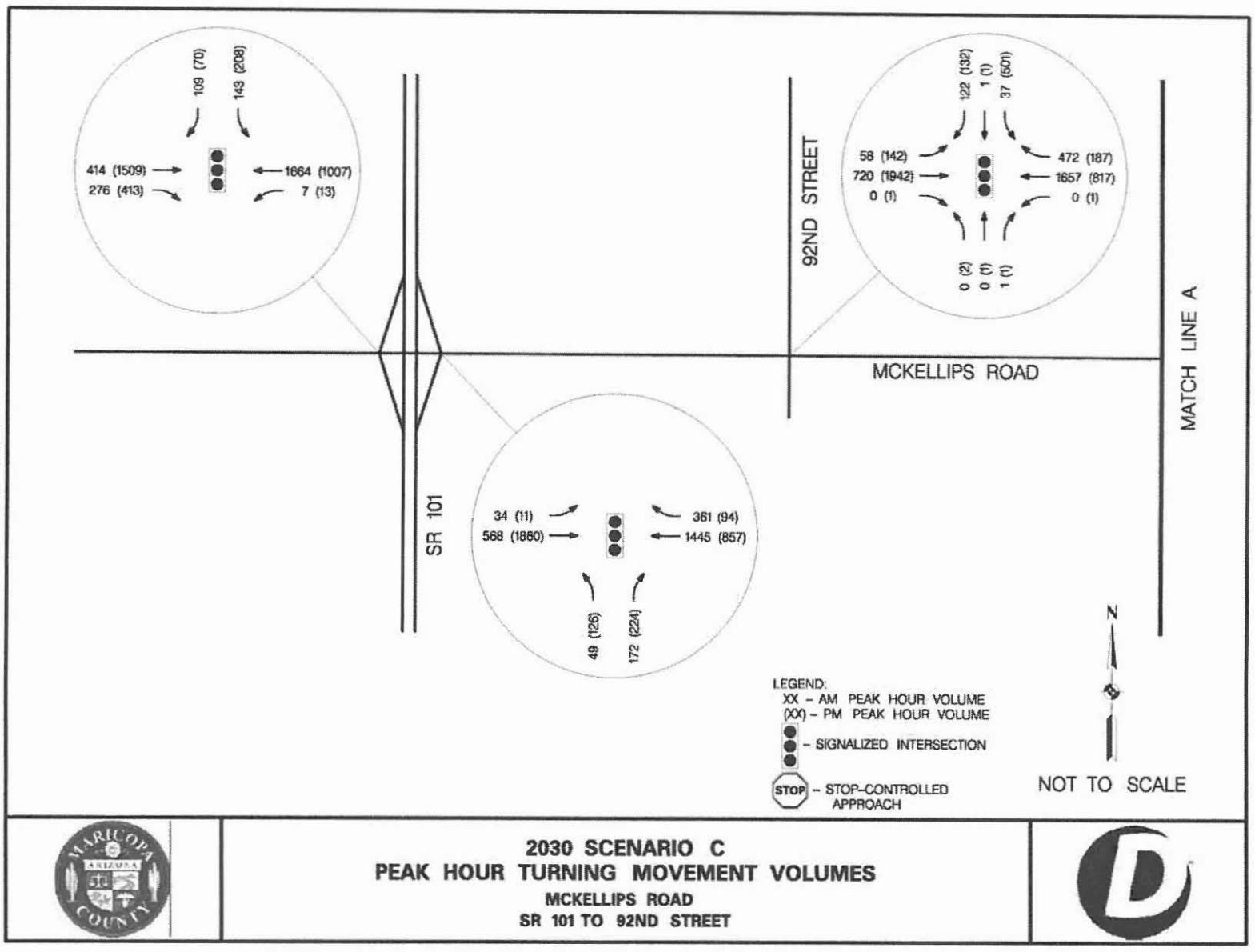


Figure III-7 2030 Build Scenario C Peak Hour Volumes – Sheet 1 of 4

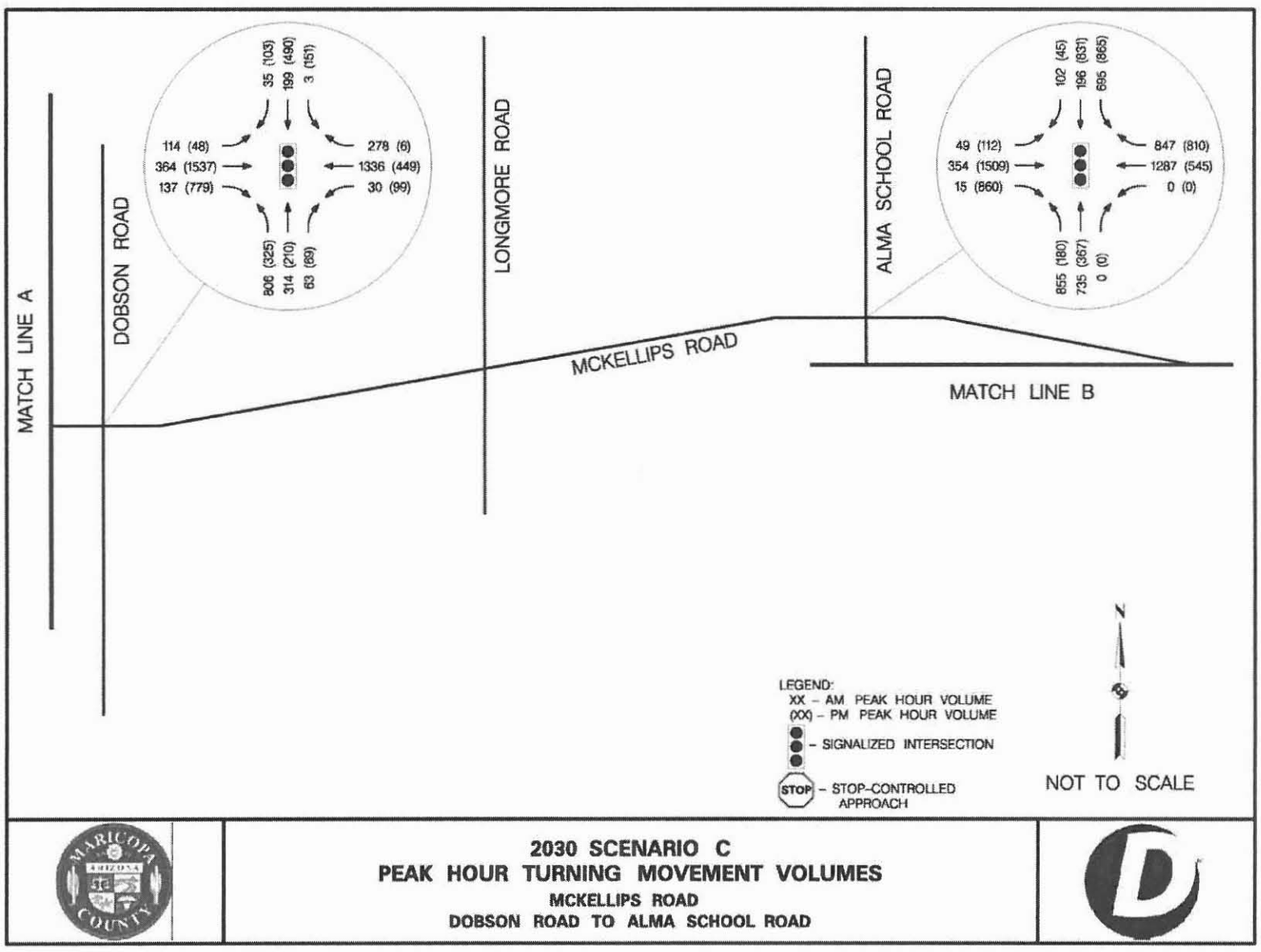


Figure III-7 2030 Build Scenario C Peak Hour Volumes – Sheet 2 of 4

Figure III-7 2030 Build Scenario C Peak Hour Volumes – Sheet 3 of 4

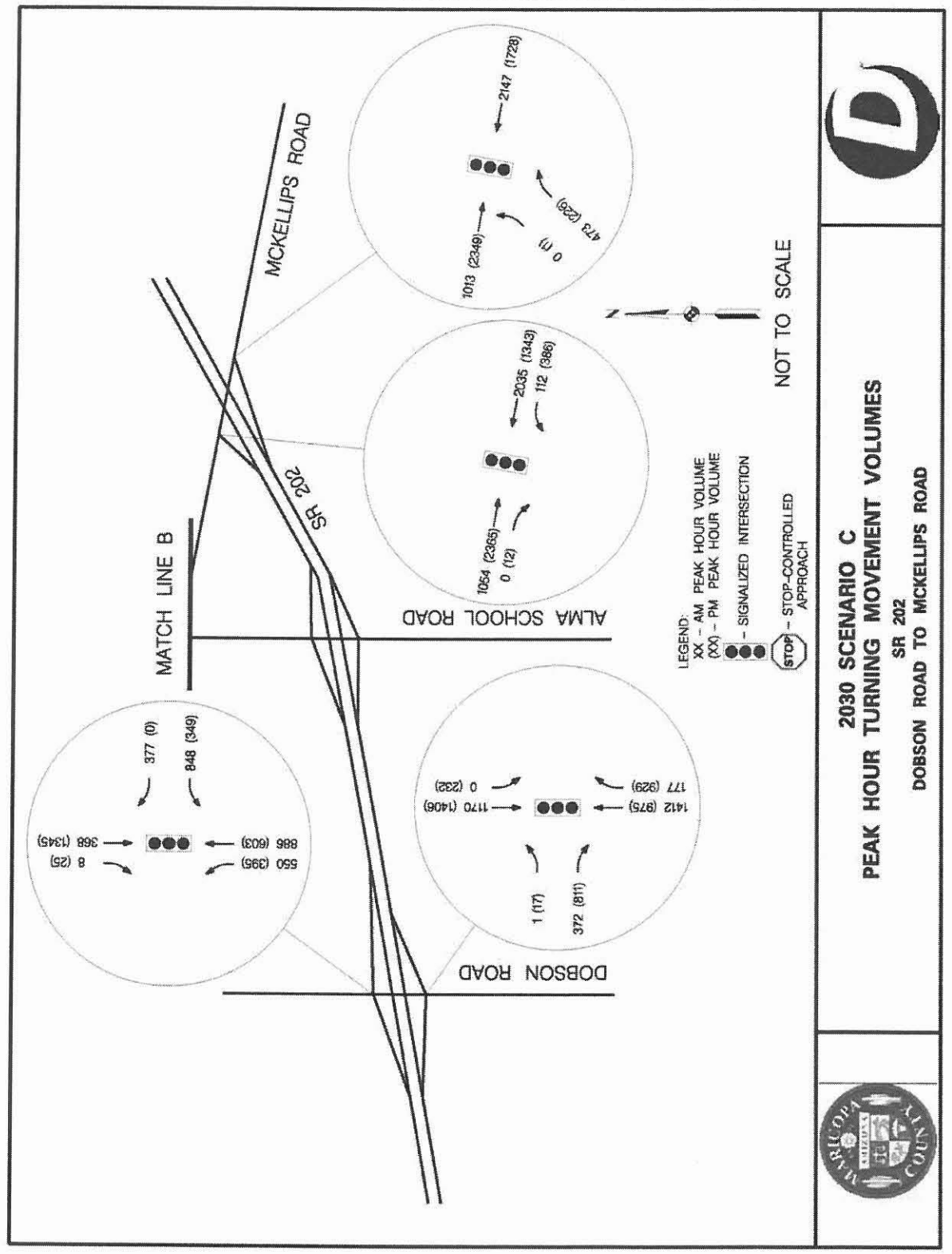


Figure III-7 2030 Build Scenario C Peak Hour Volumes – Sheet 4 of 4

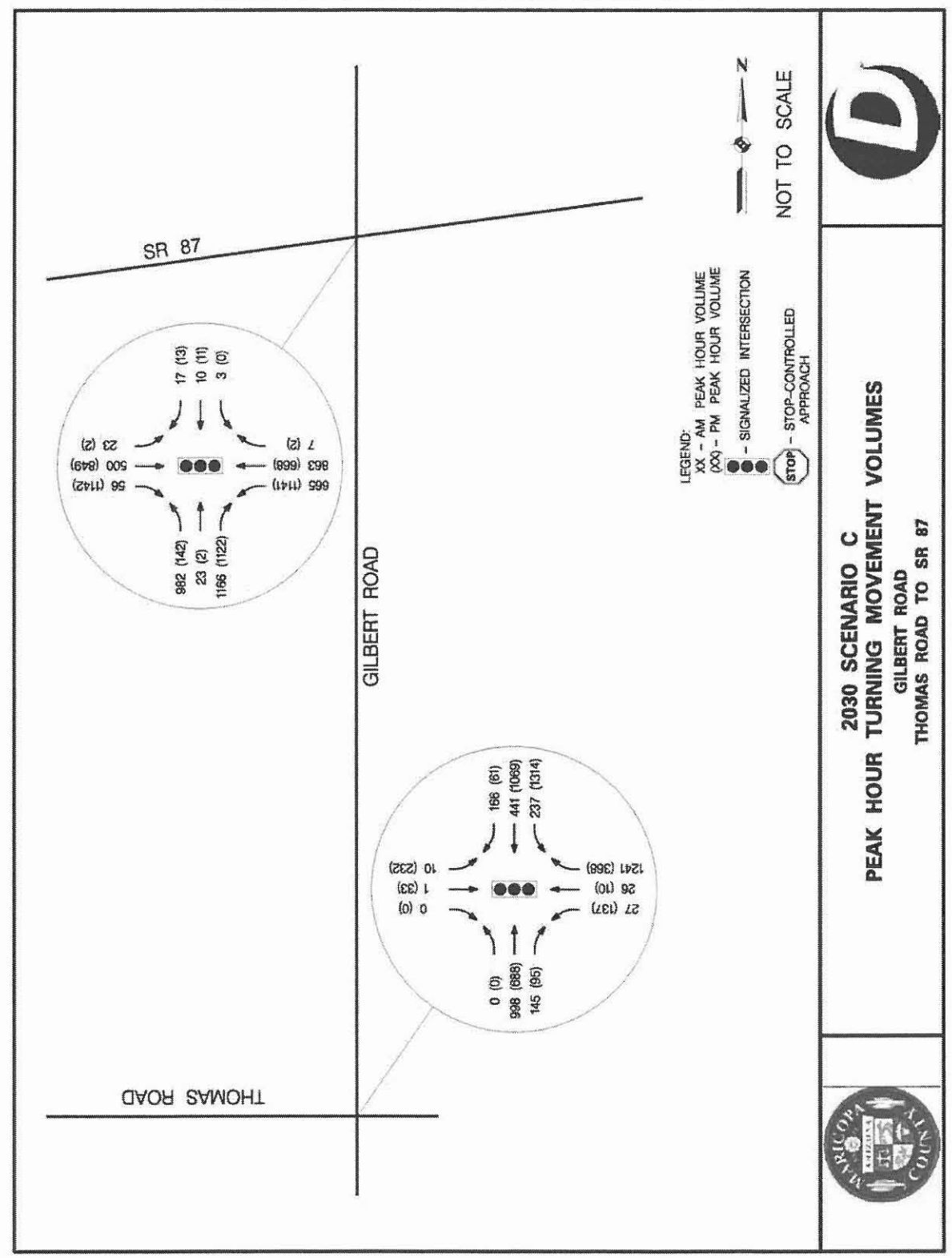


Figure III-8 2030 Build Scenario D Peak Hour Volumes – Sheet 1 of 4

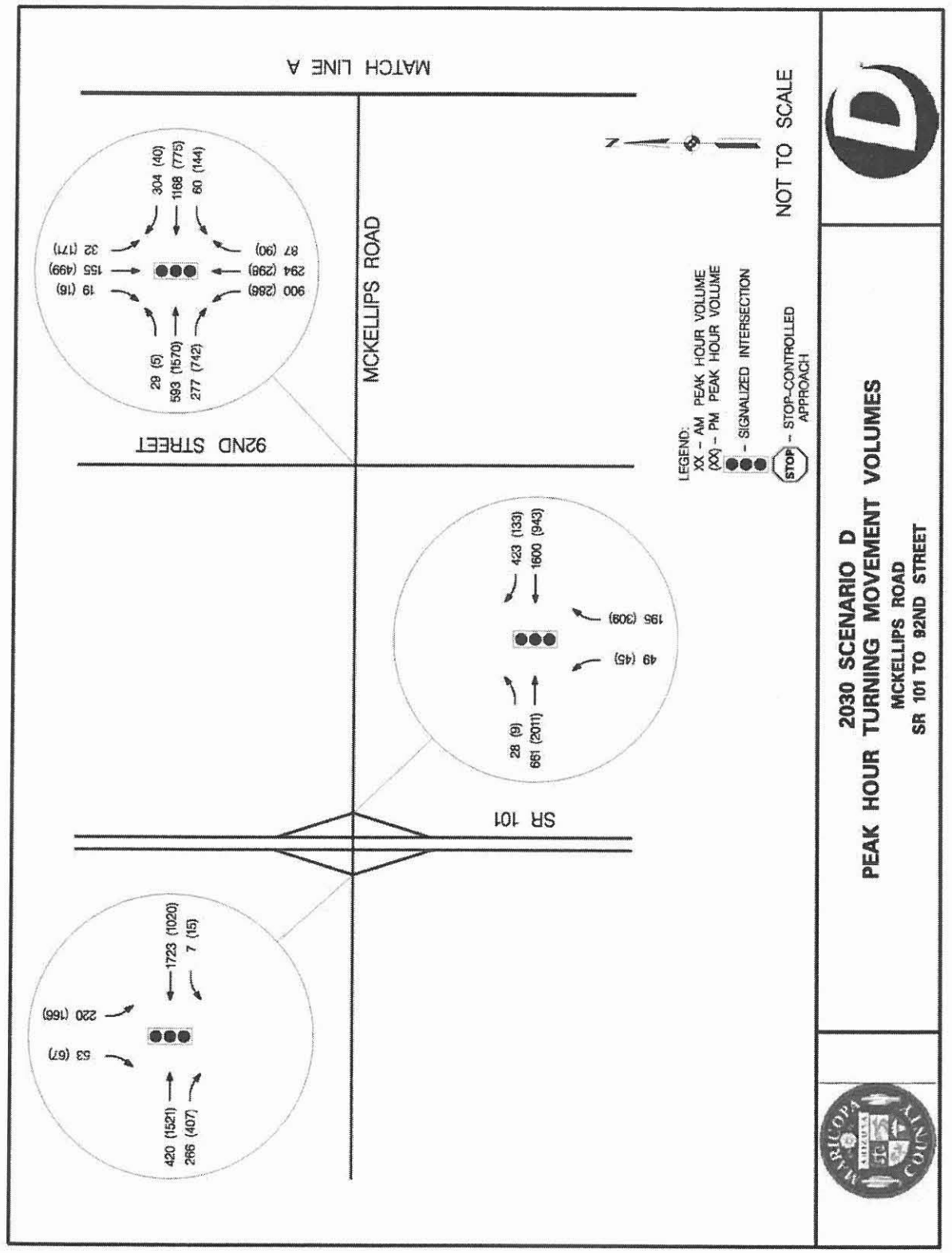


Figure III-8 2030 Build Scenario D Peak Hour Volumes – Sheet 2 of 4

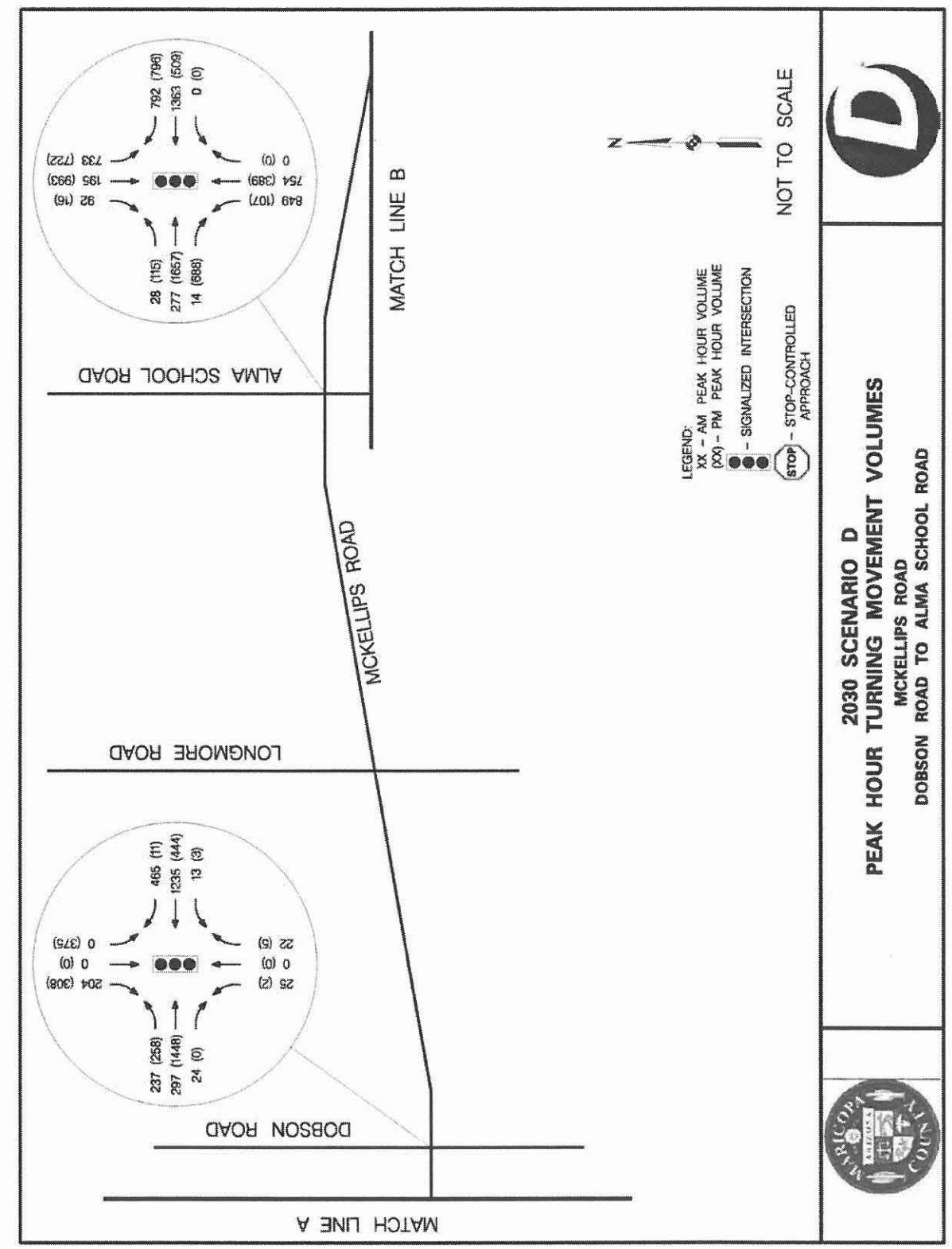


Figure III-8 2030 Build Scenario D Peak Hour Volumes – Sheet 3 of 4

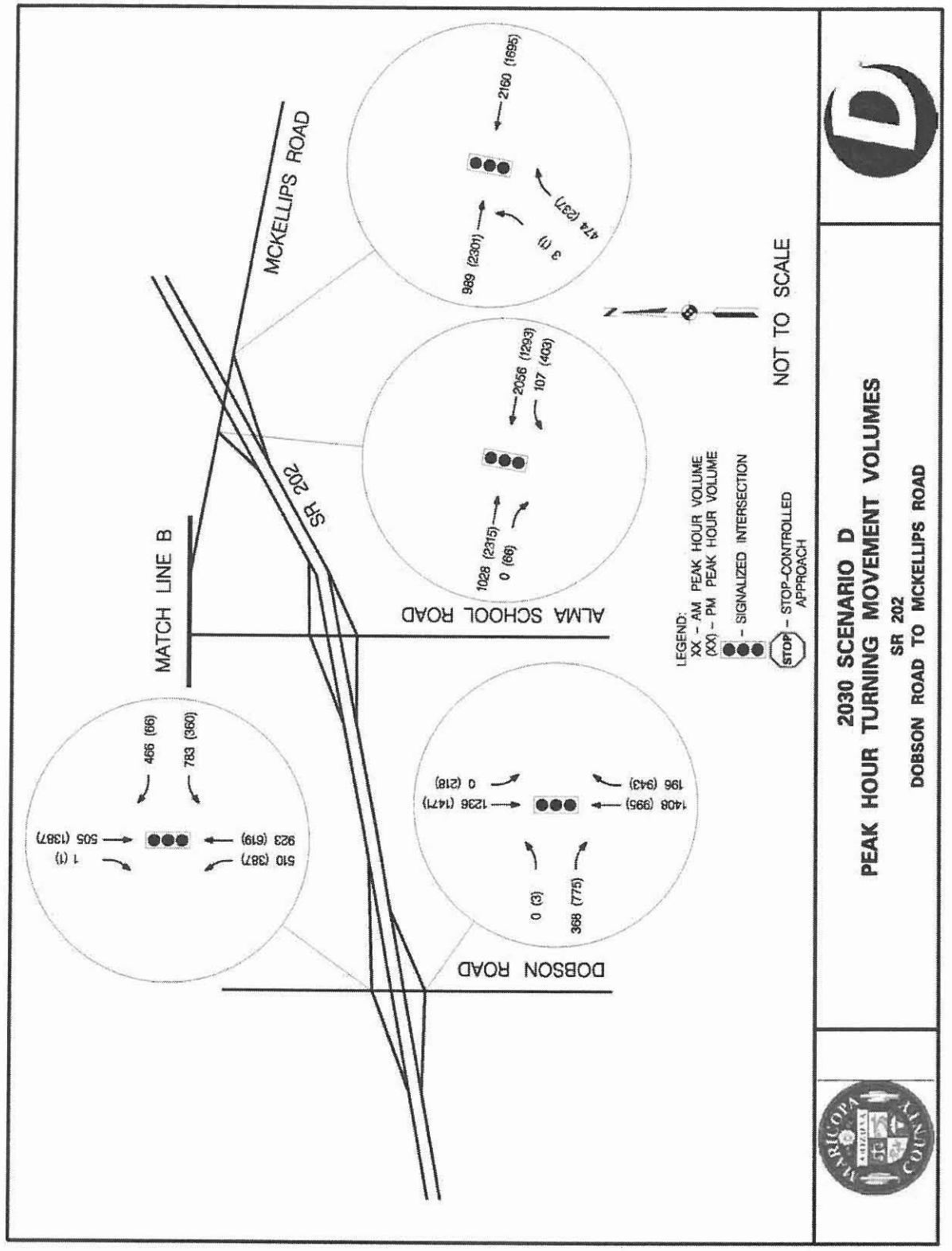


Figure III-8 2030 Build Scenario D Peak Hour Volumes – Sheet 4 of 4

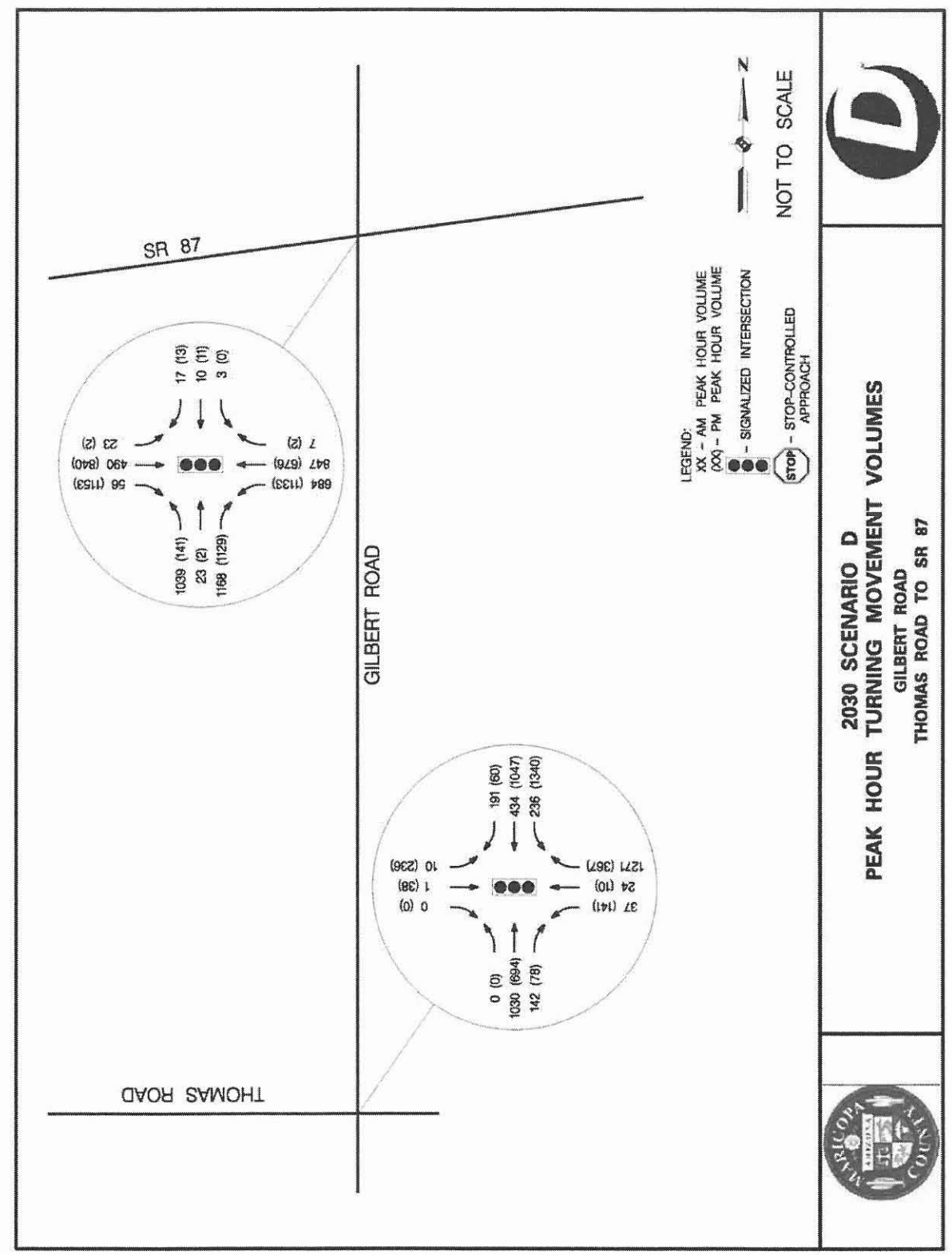


Figure III-9 2015 Build Scenario D Peak Hour Volumes – Sheet 1 of 4

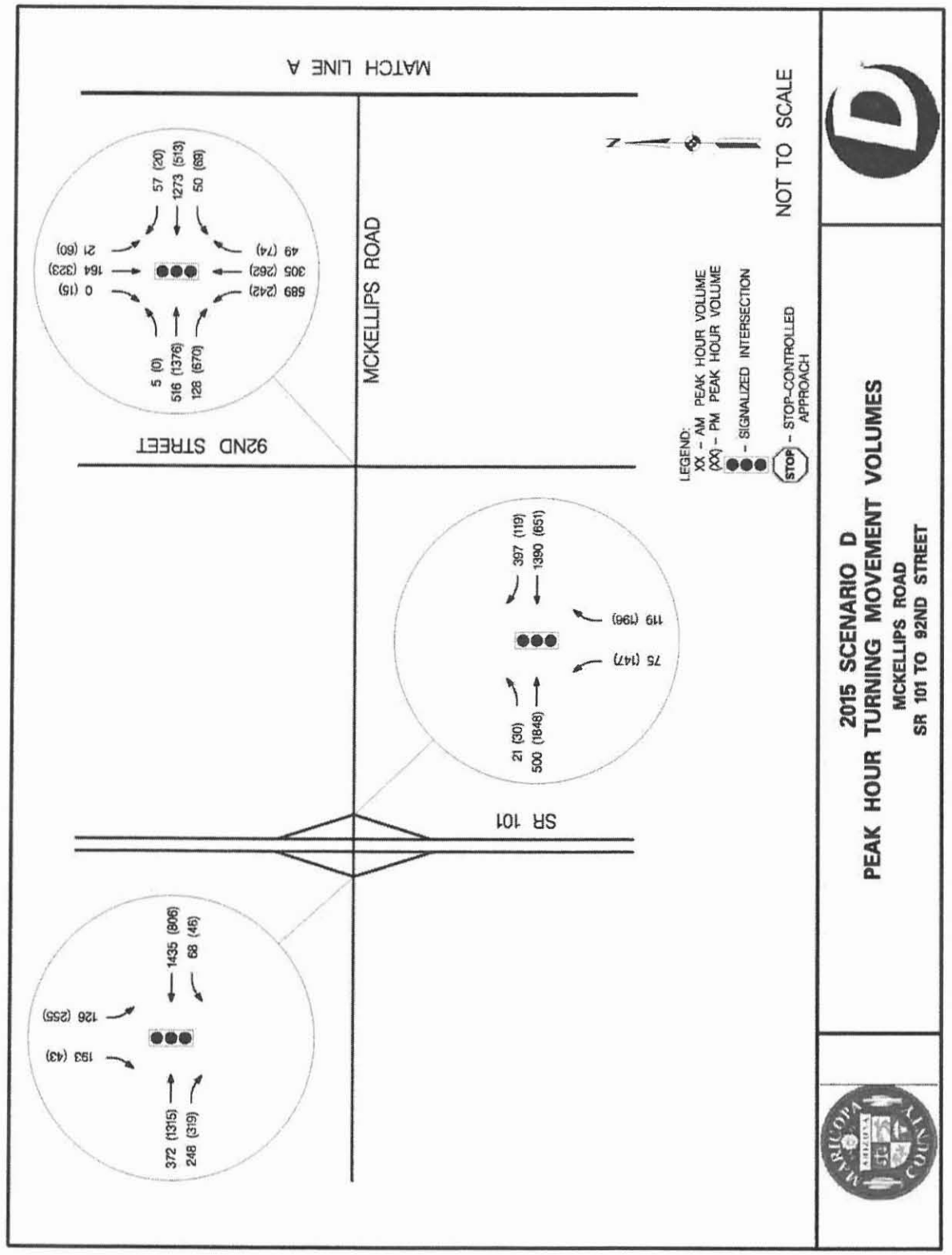


Figure III-9 2015 Build Scenario D Peak Hour Volumes – Sheet 2 of 4

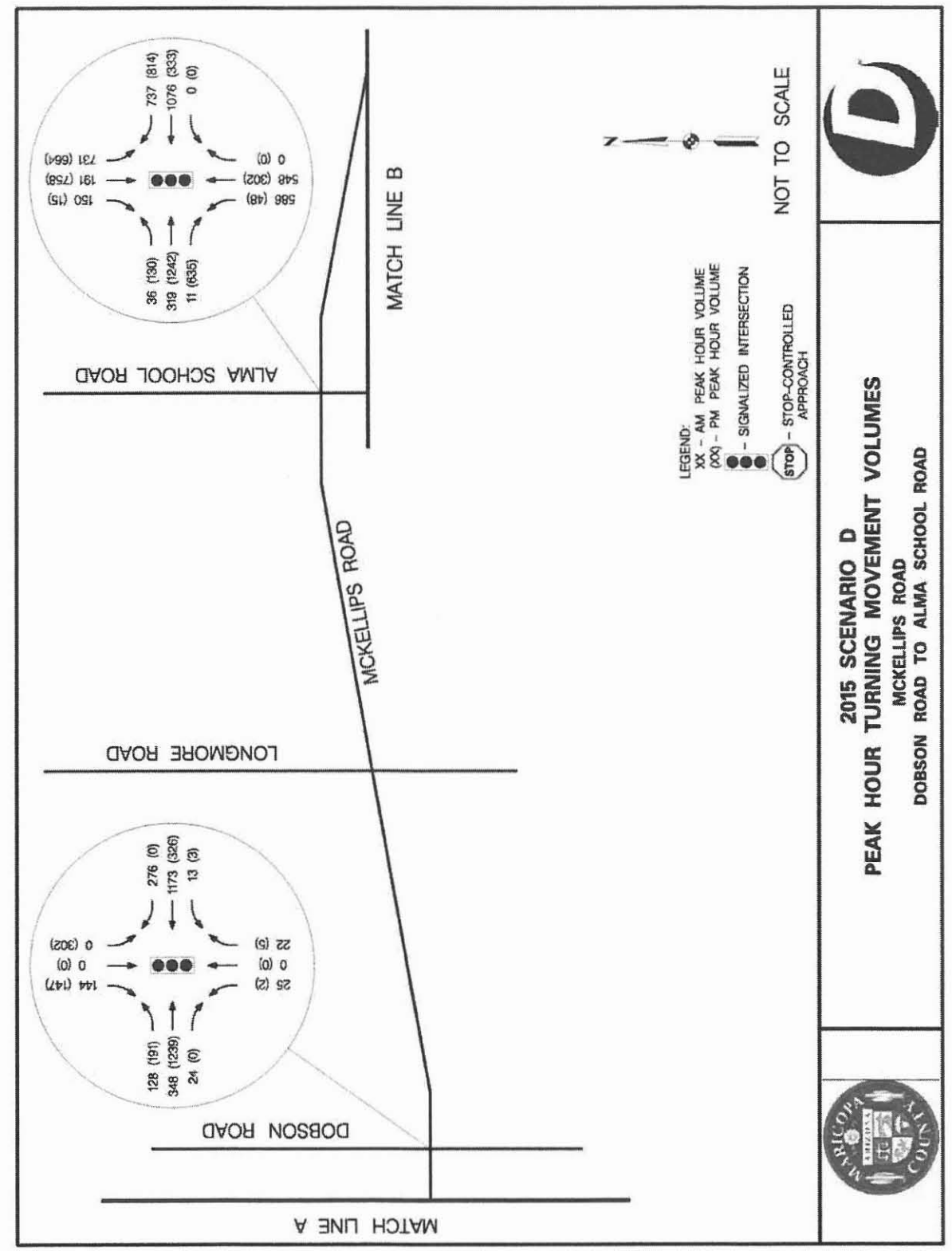


Figure III-9 2015 Build Scenario D Peak Hour Volumes – Sheet 3 of 4

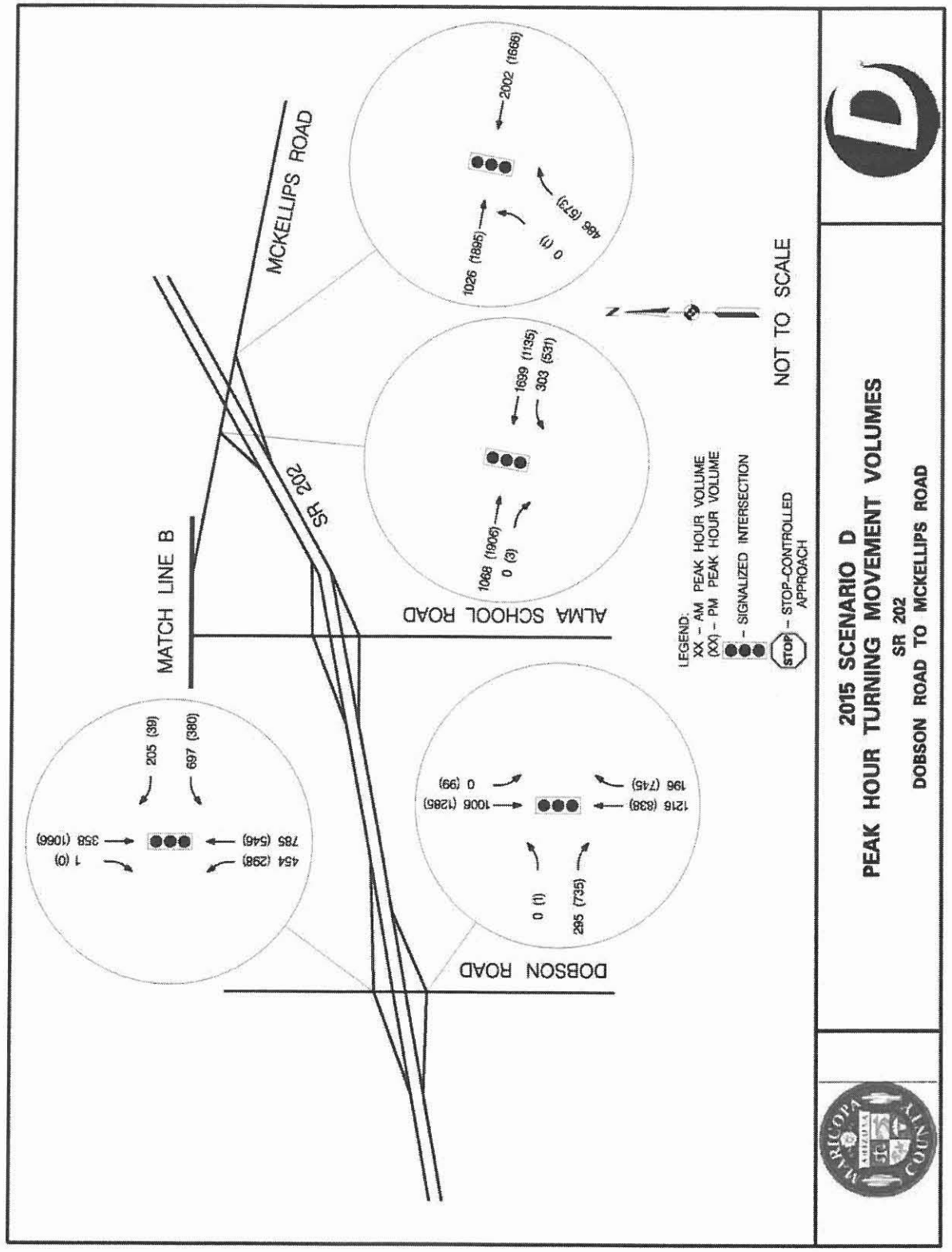
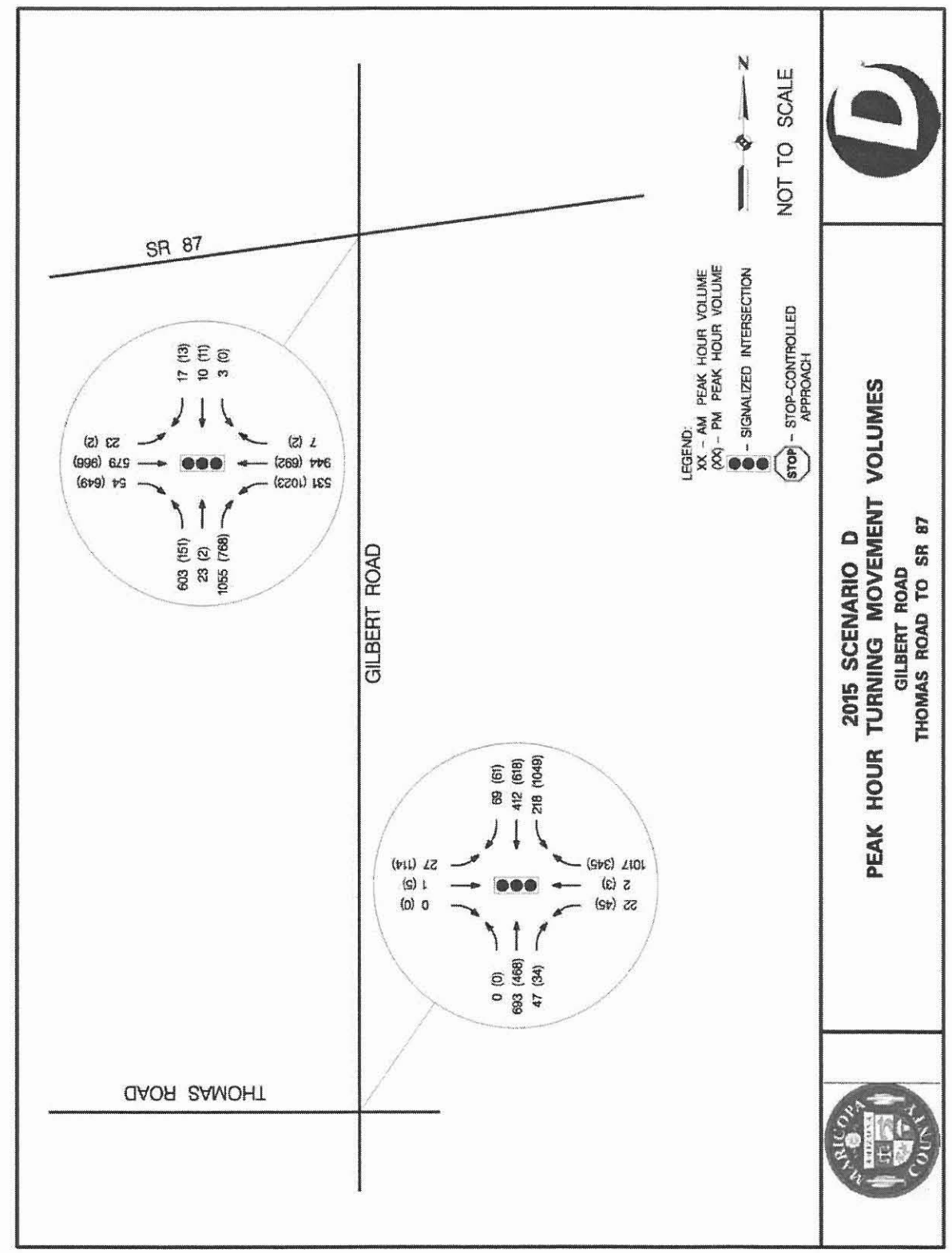


Figure III-9 2015 Build Scenario D Peak Hour Volumes – Sheet 4 of 4



IV. Operational Analysis

A. Level of Service

An operational analysis was performed on study area intersections with Synchro 7 software for existing conditions, the two No-Build scenario alternatives, and the four build scenario alternatives. Synchro 7 employs Highway Capacity Manual 2000 (HCM) analysis methods for signalized and unsignalized intersections. The primary output of the analysis is the delay and level of service (LOS) for each movement, approach, and intersection. LOS is directly related to average control delay, as given in **Table IV-1** for signalized and unsignalized intersections, with LOS A representing the best operational conditions and LOS F representing the poorest operations.

Table IV-1 HCM LOS Criteria for Signalized and Unsignalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)	
	Signalized Intersection	Unsignalized Intersection
A	≤ 10	≤ 10
B	> 10 to ≤ 20	> 10 to ≤ 15
C	> 20 to ≤ 35	> 15 to ≤ 25
D	> 35 to ≤ 55	> 25 to ≤ 35
E	> 55 to ≤ 80	> 35 to ≤ 50
F	> 80	> 50

MCDOT defines the minimum desired level of service by functional classification of the roadway. According to the MCDOT Roadway Design Manual, LOS D is the minimum desired level for urban principal arterials. LOS C is the minimum desired level for urban minor arterials, urban major collectors, rural principal and minor arterials, and rural major collectors. LOS B is desired for urban and rural minor collectors, and LOS A is desired for urban and rural local roads. Where roadways of different functional classifications meet, the intersection and each of the movements therein are assumed to be held to the LOS standards of the more major roadway. As currently built, all intersections in the study area are urban (have curb and gutter) except for the two unsignalized intersections, McKellips Road / Dobson Road and McKellips Road / Longmore Road, which will have curb and gutter upon build-out of this project. Since all intersections in the study area include at least one principal arterial, the desired minimum level of service for all the urban intersections is then LOS D, and it is LOS C for the two rural, unsignalized intersections. Analyses for future years, 2015 and 2030, will hold all intersections in the study area to the same minimum standard of LOS D. For the purposes of this study, intersection LOS should meet the minimum level, though individual movements or approaches may have lower LOS.

1. Existing Conditions

a. Existing Signal Timing

This analysis used existing intersection geometry and peak hour volumes as discussed previously in Section II, except that some zero-volume movements were given a volume of 1 vehicle per hour in order to put a minimum volume in each lane group; Synchro requires a non-zero volume for a lane group in order to analyze its operations. For signalized intersections, existing signal timing and detector placement, obtained from ADOT and MCDOT, were input into Synchro.

For the Synchro analysis, a peak-hour factor (PHF) was estimated for each approach using field-collected turning movement data, and percent heavy-vehicles was estimated using 24-hour segment volume data. Wherever the

PHF was estimated to be greater than 0.92, a value of 0.92 was used instead. PHF and percent heavy-vehicle information was absent for a few locations, so those values were estimated using values of nearby intersections and general knowledge of the approach characteristics. The ideal saturation flow rate was kept for all lanes at the default value, 1900 vehicles per hour per lane.

Results of the LOS analyses are summarized in **Table IV-2** for the study area intersections and interchanges under existing conditions. **Figure IV-1** illustrates the peak-hour LOS by lane group, approach, and intersection. HCM intersection analysis reports from Synchro are located in **Appendix AC**.

Table IV-2 LOS and Delay Under Existing Conditions

Intersection	LOS / Avg. Intersection Delay (sec)	
	AM Peak Hour	PM Peak Hour
Signalized		
McKellips Rd – SB SR 101 Ramps	***B / 17.1***	***D / 36.1***
McKellips Rd – NB SR 101 Ramps	**F /108.8**	**F /109.3**
McKellips Rd – 92nd St	**E / 72.0**	B / 12.2
McKellips Rd – Alma School Road	C / 31.5	C / 26.0
McKellips Rd – WB SR 202 Ramp	A / 8.1	**F /105.6**
McKellips Rd – EB SR 202 Ramp	B / 12.0	C / 23.4
Dobson Rd – EB SR 202 Ramp	B / 17.5	B / 15.1
Dobson Rd – WB SR 202 Ramp	**F /163.3**	A / 9.0
Gilbert Rd – Thomas Rd	A / 4.7	A / 4.9
Gilbert Rd – SR 87	C / 24.3	**F / 99.1**
Unsignalized		
McKellips Rd – Dobson Road	***A / 5.9***	***A / 0.7***
McKellips Rd – Longmore Road	***A / 0.1***	***A / 0.0***

BOLD NON-ITALIC = Intersection Below Minimum Desired LOS
BOLD ITALIC = One or More Lane Group or Approach Below Minimum Desired LOS

The Synchro results indicate that under existing conditions, most of the study area intersections operate at or above the minimum desired LOS during peak hours. Intersections that operate below desired LOS are the intersection of McKellips Road and the northbound SR 101 Ramps in both peak hours, the intersection of McKellips Road and 92nd Street in the AM, the intersection of McKellips Road and the westbound SR 202 Ramps in the PM, the intersection of Dobson Road and the westbound SR 202 Ramps in the AM, and the intersection of Gilbert Road and SR 87 in the PM.

At a few other intersections, one or more lane group or approach operates below the minimum desired LOS, even though the average LOS for the intersection is acceptable. These include the intersection of McKellips Road and the southbound SR 101 Ramps in both peak hours (southbound right and shared through/right lanes operate at LOS E in the AM, and eastbound through lanes operate at LOS E in the PM), the unsignalized intersection of McKellips Road and Dobson Road in both peak hours (the northbound approach operates at LOS F in the AM and PM, and the southbound approach operates at LOS F in the AM and LOS D in the PM), and the unsignalized intersection of McKellips Road and Longmore Road in both peak hours (the southbound approach operates at LOS F in the AM, and the northbound approach operates at LOS E in the PM). At the unsignalized intersections, the

movements or approaches operating below desired LOS carry a small proportion of the total intersection volume: only 2.4% of vehicles in the AM and 1.7% in the PM at McKellips Road and Dobson Road, and an unknown minimal fraction of the total vehicles at McKellips Road and Longmore Road in both the AM and PM.

b. Optimized Signal Timing

The signalized study intersections were further analyzed to determine whether optimizing phase splits and cycle length could improve level of service where deficiencies exist. Optimized signal timing plans were developed using Synchro's optimization routines, which adjusts maximum split times for each phase to optimize fractional split between the phases and their sum (the cycle length). Each intersection with one or more lane group or approach below minimum desired LOS was optimized individually with no attempt to manually adjust the Synchro-optimized timing plans to further eliminate deficiencies, or to coordinate intersections or optimize the network as a whole. Regarding optimization of interchanges, the pair of intersections at each interchange is "clustered" together (controlled by a single controller) in Synchro and thus they share phase assignments and have the same cycle length, so Synchro optimizes them as a pair automatically. Therefore, it is possible for operations to degrade at one of the interchange's intersections under the optimized plan, while the other improves. **Table IV-3** gives a comparison of maximum splits under the existing timing plans and the Synchro-optimized timing plans. The LOS results for the analysis using the Synchro-optimized plans are summarized in **Table IV-4**.

The optimized timing plans enable operational improvements in most cases, including the improvement of intersection LOS to the minimum desired level or higher in all six instances of deficient intersection LOS: the intersection of McKellips Road and the northbound SR 101 Ramps in the AM and PM peak hours, the intersection of McKellips Road and 92nd Street in the AM, the intersection of McKellips Road and the westbound SR 202 Ramps in the PM, the intersection of Dobson Road and the westbound SR 202 Ramps in the AM, and the intersection of Gilbert Road and SR 87 in the PM.

Figure IV-1 Existing Peak Hour Level of Service – Sheet 1 of 4

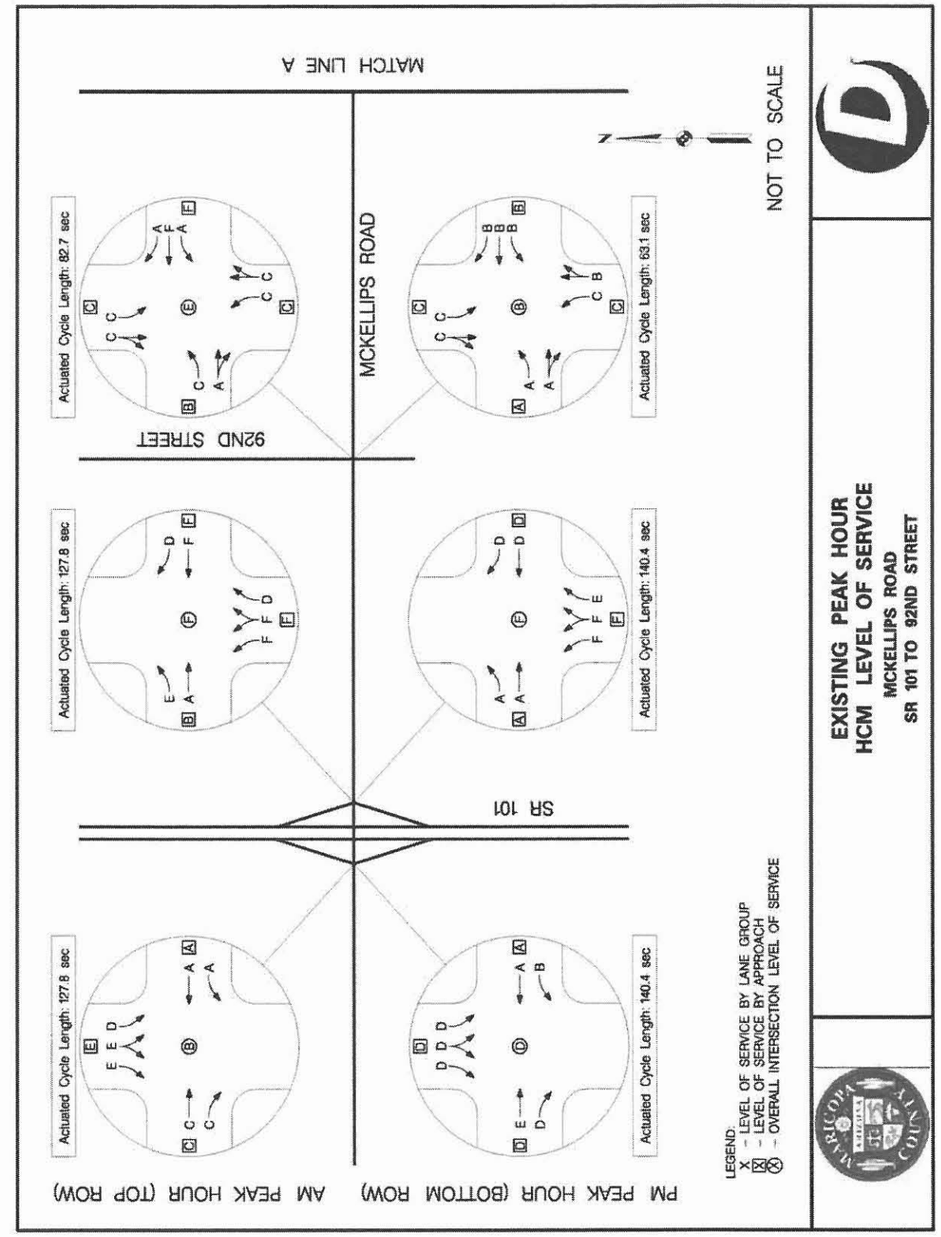


Figure IV-1 Existing Peak hour Level of Service – Sheet 2 of 4

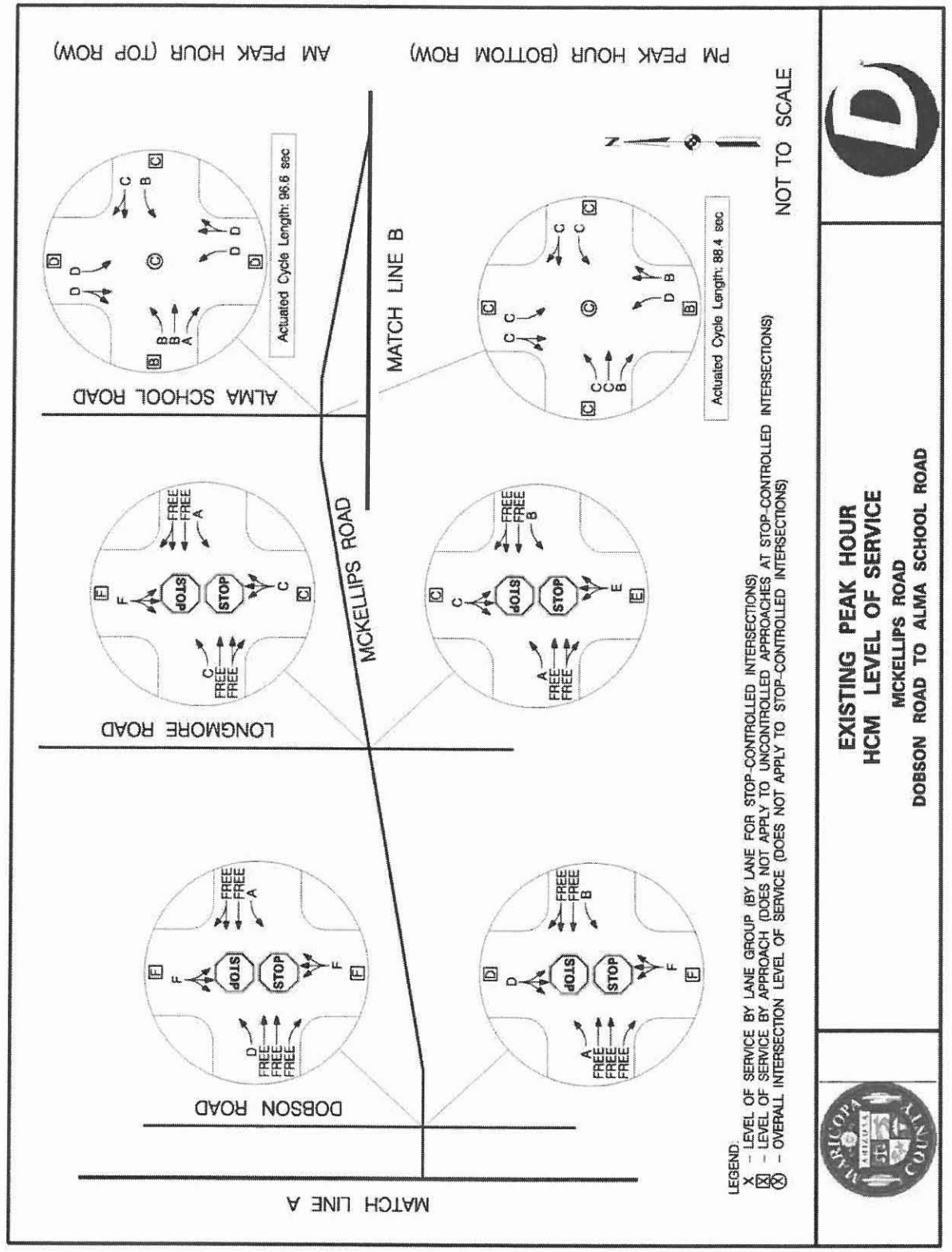


Figure IV-1 Existing Peak hour Level of Service – Sheet 3 of 4

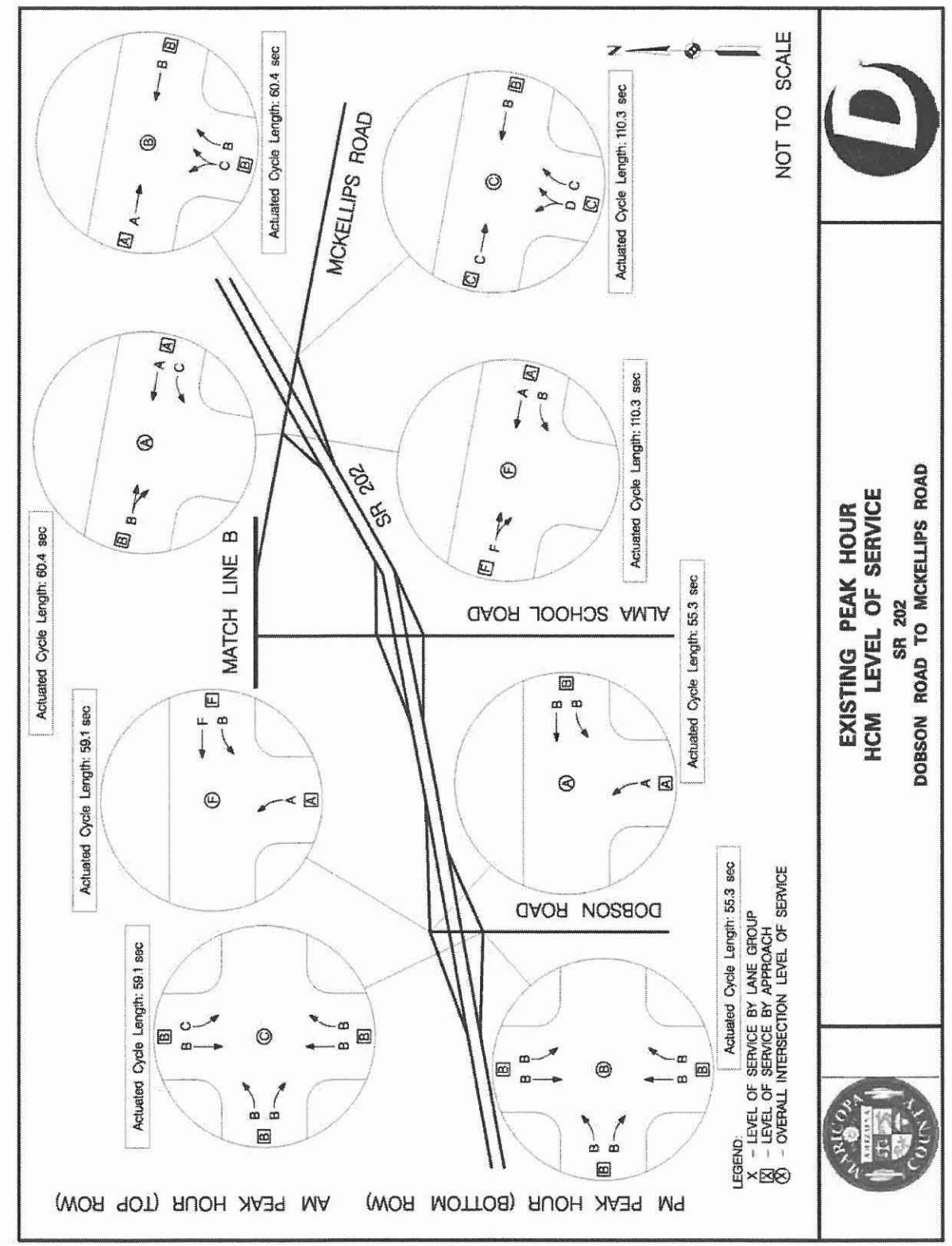


Figure IV-1 Existing Peak hour Level of Service – Sheet 4 of 4

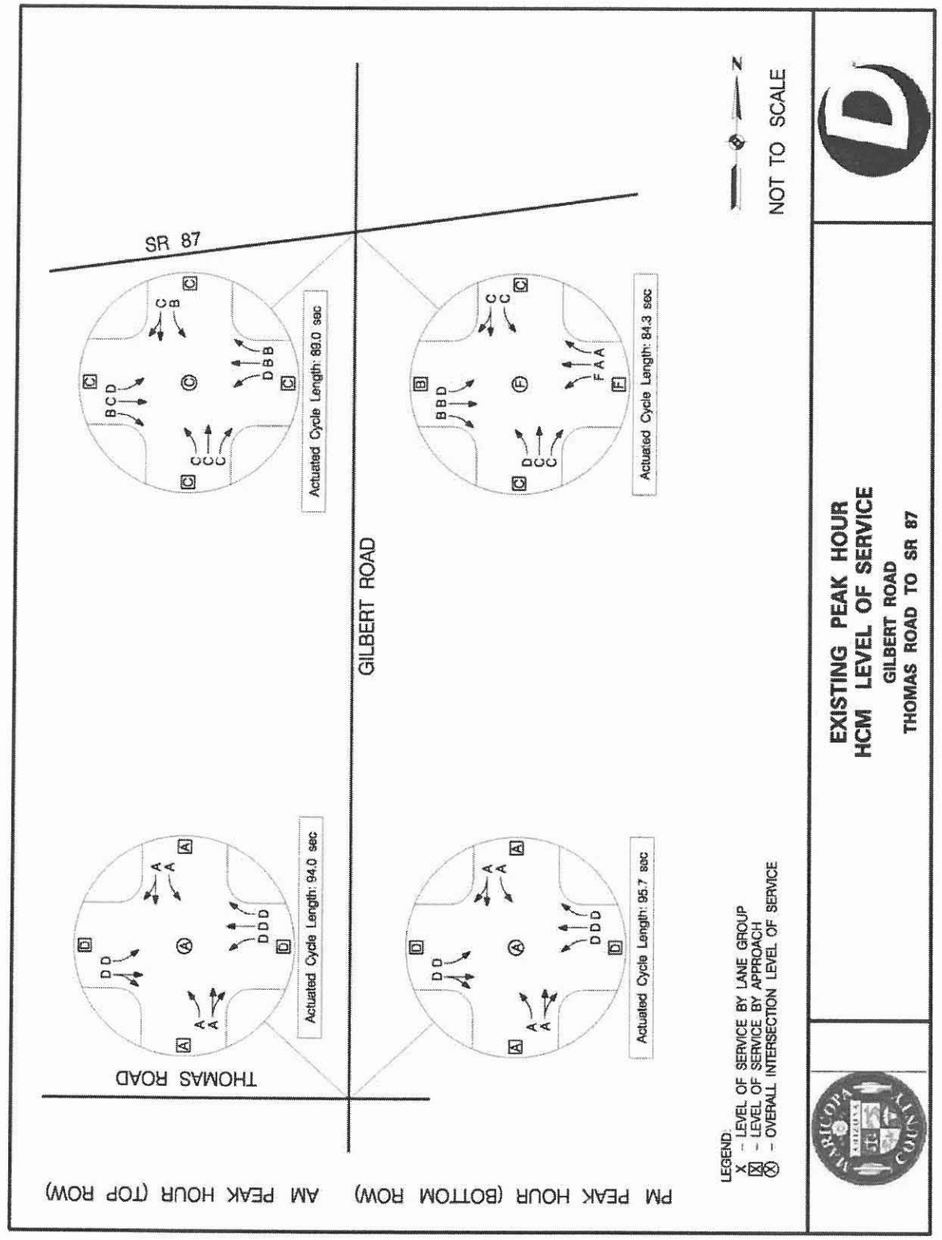


Table IV-3 Maximum Splits: Existing and Synchro-Optimized Timing Plans

Intersection	Maximum Split (sec)					Actuated Cycle Length
McKellips Rd - SR 101 interchange	*ϕ1* EB, WB	*ϕ2* EB & WB Clear*	*ϕ3* NB	*ϕ4* SB		
AM – Existing Plan	*45.7*	*25.7*	*35.7*	*35.7*		*127.8 sec*
AM – Optimized Plan	50.0	10.8	43.0	16.2		121.3 sec
PM – Existing Plan	*45.7*	*25.7*	*35.7*	*35.7*		*140.4 sec*
PM – Optimized Plan	35.2	10.8	43.0	21.0		110.3 sec
McKellips Rd - 92nd St	*ϕ2* EB	*ϕ4* NB, SB	*ϕ5* EB LT	*ϕ6* WB		
AM – Existing Plan	*50.5*	*21.5*	*18.8*	*50.5*		*82.7 sec*
AM – Optimized Plan	90.0	20.0	13.8	76.2		110.0 sec
McKellips Rd - SR 202 interchange	*ϕ1*** NB RT, WB	*ϕ2*** EB, WB	*ϕ3* NB	*ϕ5* EB & WB Clear*		
PM – Existing Plan	*50.9*	*41.3*	*30.6*	*7.9*		*110.3 sec*
PM – Optimized Plan	22.2	47.7	22.2	7.9		100.0 sec
Dobson Rd - SR 202 interchange	*ϕ1* NB, SB Clear*	*ϕ2* NB & SB Clear*, SB LT	*ϕ3* EB, WB			
AM – Existing Plan	*39.8*	*24.8*	*26.3*			*59.1 sec*
AM – Optimized Plan	27.8	12.1	60.1			96.9 sec
Gilbert Rd - SR 87	*ϕ1* EB LT	*ϕ2* WB	*ϕ4* NB, SB	*ϕ5* WB LT	*ϕ6* EB	
PM – Existing Plan	*24.0*	*46.9*	*41.8*	*24.0*	*46.9*	*84.3 sec*
PM – Optimized Plan	12.0	63.2	14.8	36.0	39.2	91.8 sec

* Internal Clearance, where the phase shows green for vehicles in between the two intersections of the interchange

** ADOT's signal timing plan includes a *ϕ6* (westbound as it enters the first intersection), but for all practical purposes it is equivalent to the combination of *ϕ1* and *ϕ2*.

Table IV-4 Existing Signalized LOS and Delay with Synchro-Optimized Timing Plans

Intersection	LOS / Avg. Intersection Delay (sec)	
	AM Peak Hour	PM Peak Hour
McKellips Rd – SB SR 101 Ramps	***B / 17.7***	***D / 38.9***
McKellips Rd – NB SR 101 Ramps	***D / 51.8***	***C / 34.0***
McKellips Rd – 92nd St	***D / 39.8***	*N/A*
McKellips Rd – Alma School Road	*N/A*	*N/A*
McKellips Rd – WB SR 202 Ramp	*N/A*	C / 33.0
McKellips Rd – EB SR 202 Ramp	*N/A*	***C / 29.6***
Dobson Rd – EB SR 202 Ramp	***C / 34.4***	*N/A*
Dobson Rd – WB SR 202 Ramp	C / 27.7	*N/A*
Gilbert Rd – Thomas Rd	*N/A*	*N/A*
Gilbert Rd – SR 87	*N/A*	***C / 33.7***

BOLD NON-ITALIC = Intersection Below Minimum Desired LOS

BOLD ITALIC = One or More Lane Group or Approach Below Minimum Desired LOS

N/A = Not Applicable (Operations Are Sufficient Under Existing Timing Plan)

2. *No-Build Alternatives*

Operational analyses were performed in Synchro using the volume output from the 2030 No-Build MAG model scenario for both the Basic and Enhanced No-Build alternatives. The Synchro network used was the same as for existing conditions, with intersection modifications made only as needed and as per the parameters of the particular No-Build alternative.

These alternatives are evaluated in order to determine the need for the Dobson Road bridge connection. In the No-Build alternatives, traffic will not have the opportunity to disperse along Dobson Road, potentially causing increased delays along McKellips Road.

Both No-Build alternatives include a crucial signal improvement: signal coordination. Signals within the study area currently are not coordinated. Signal coordination requires, at a minimum, that all signals have a common cycle length (or sometimes half the common cycle length at individual intersections). Because signal controller clocks tend to drift, coordinated signals also typically require a means of synchronizing their clocks, such as with GPS technology, in order to maintain the optimal cycle offset between signals to take advantage of progression. Under ideal circumstances, signals are able to communicate with each other or with a central traffic management center using intelligent transportation system (ITS) technology, such as wireless or hard-wired (typically fiber-optic) connections. For the two No-Build alternatives, as well as for the four build alternatives discussed in subsequent sections, signals are assumed to have at least the minimum technology to enable coordination, and the owning agencies are assumed to have an agreement in place to facilitate coordination between each other's signals. The details of the ITS technology are discussed in Section V - ITS Infrastructure Assessment.

Using Synchro's routine for coordinating signal cycles, signals were coordinated where doing so provides an operational advantage, and all other individual signals were left uncoordinated.

a. Basic No-Build Alternative

In the Basic No-Build alternative, none of the major proposed roadway improvements (the three bridges and the McKellips Road corridor widening) would be built. However, signal improvements would be implemented as needed to improve operational deficiencies. Under this alternative, signal improvements are limited to the coordination of signals and the optimization of phase splits at individual signals.

For this and all other future alternatives analyzed, optimization of phase splits was accomplished by first running the Synchro optimization routine, then by manually adjusting the splits to improve HCM LOSs for lane groups with operational deficiencies. The manual adjustments have the effect of increasing delay for other lane groups and sometimes for the intersection as a whole, but the priority was to balance the delay to the extent possible to eliminate or reduce deficient LOSs and volume-to-capacity (v/c) ratios greater than one. A v/c ratio of one indicates saturated conditions, and a v/c ratio greater than one indicates oversaturated conditions in which queue lengths continually increase. When the v/c ratio is less than but approaching one, queues can still be unstable.

The results of the LOS analysis for the Basic No-Build Alternative are shown graphically in **Figure IV-2**, and they are tabulated in **Table IV-5**. Four of the signalized intersections (McKellips Road / Alma School Road, Dobson Road / eastbound SR 202 ramps, Gilbert Road / Thomas Road, and Gilbert Road / SR 87) and both of the unsignalized intersections are projected to have intersection LOSs below acceptable levels in one or both peak periods under this alternative.

The McKellips Road / Alma School Road intersection in the AM and PM peak hours, as well as the two unsignalized intersections in the PM peak hour have extreme deficiencies, with average intersection delays of several hundreds

or even thousands of seconds. Those magnitudes of delay indicate severe operational failures within the intersection, often related to v/c ratios much greater than one. In the case of the McKellips Road / Alma School road intersection, there are several v/c ratios well over one, including one that is 4.05, despite efforts to balance the phase splits.

The unsignalized intersections do not have the benefit of phase splits that can be adjusted. The southbound lane at McKellips Road / Dobson Road has a v/c ratio of 8.08 in the PM peak hour.

Some intersections have the minimum acceptable intersection LOS or better, but have one or more lane groups with deficient LOS. The deficient LOS(s) are often unavoidable. For example, if there is a low-volume movement combined with a long cycle length, the sparseness of vehicle arrivals for that movement result in a long delay before the appropriate phase is activated. Sometimes, no reasonable amount of additional green time can reduce the delay enough to bring the LOS to an acceptable level. Fortunately, deficient LOSs resulting from low-volume movements are detrimental to only a small fraction of all vehicles using the intersection.

b. Enhanced No-Build Alternative

The Enhanced No-Build alternative includes the same traffic signal improvements as the Basic No-Build alternative, plus the signalization of currently unsignalized intersections, left-turn and right-turn phasing changes, and intersection geometric improvements (i.e., turn lane additions) where these improvements can diminish operational deficiencies.

The two currently unsignalized intersections are signalized in this alternative because the Basic No-Build alternative indicated severe operational failures under projected 2030 volumes if those intersections remain unsignalized. While a formal signal warrant analysis would need to be performed in the future before signalizing these intersections, this is a strong indication that they would benefit from signalization.

The improvements included in the Enhanced No-Build alternative are listed in **Table IV-6**.

The results of the analysis for the Enhanced No-Build Alternative are shown graphically in **Figure IV-2**, and they are tabulated in **Table IV-5** alongside the results from the Basic No-Build alternative. No intersections in the study area are projected to have deficient intersection LOSs under this alternative, although some still have individual lane groups with LOSs below the minimum acceptable level. The Enhanced No-Build alternative would provide substantial operational improvements over the Basic No-Build alternative.

Figure IV-2 2030 Basic No-Build Scenario Level of Service – Sheet 1 of 4

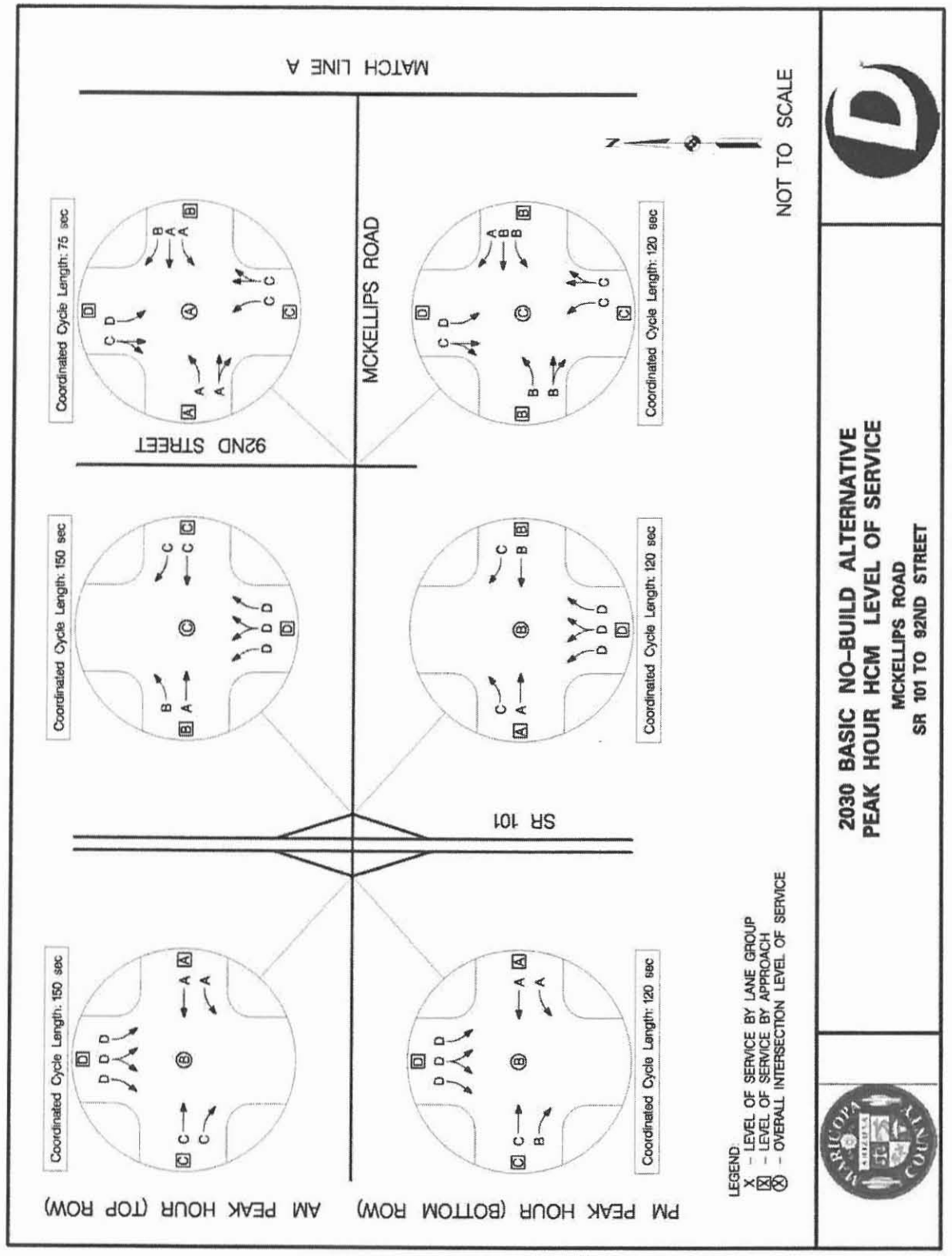
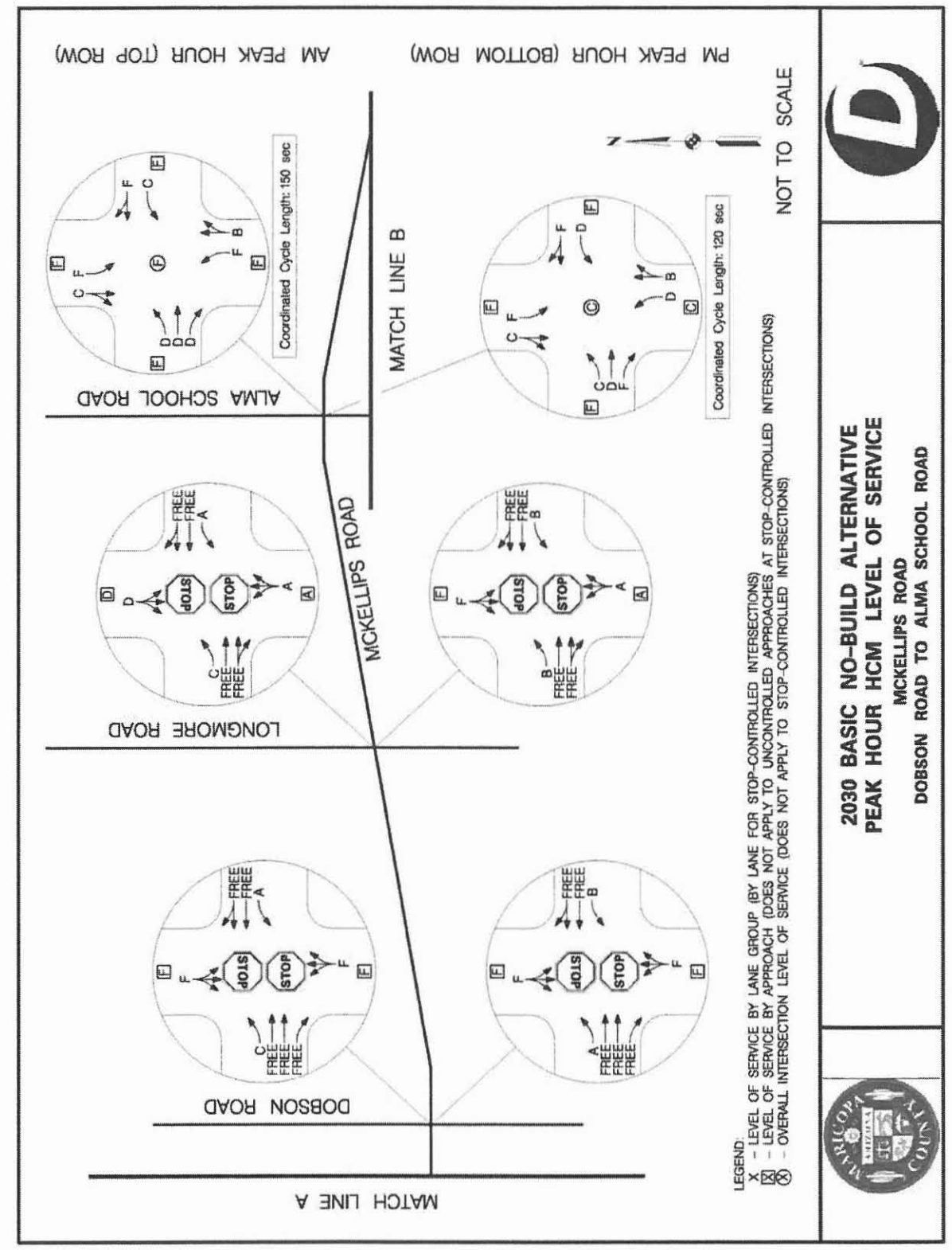
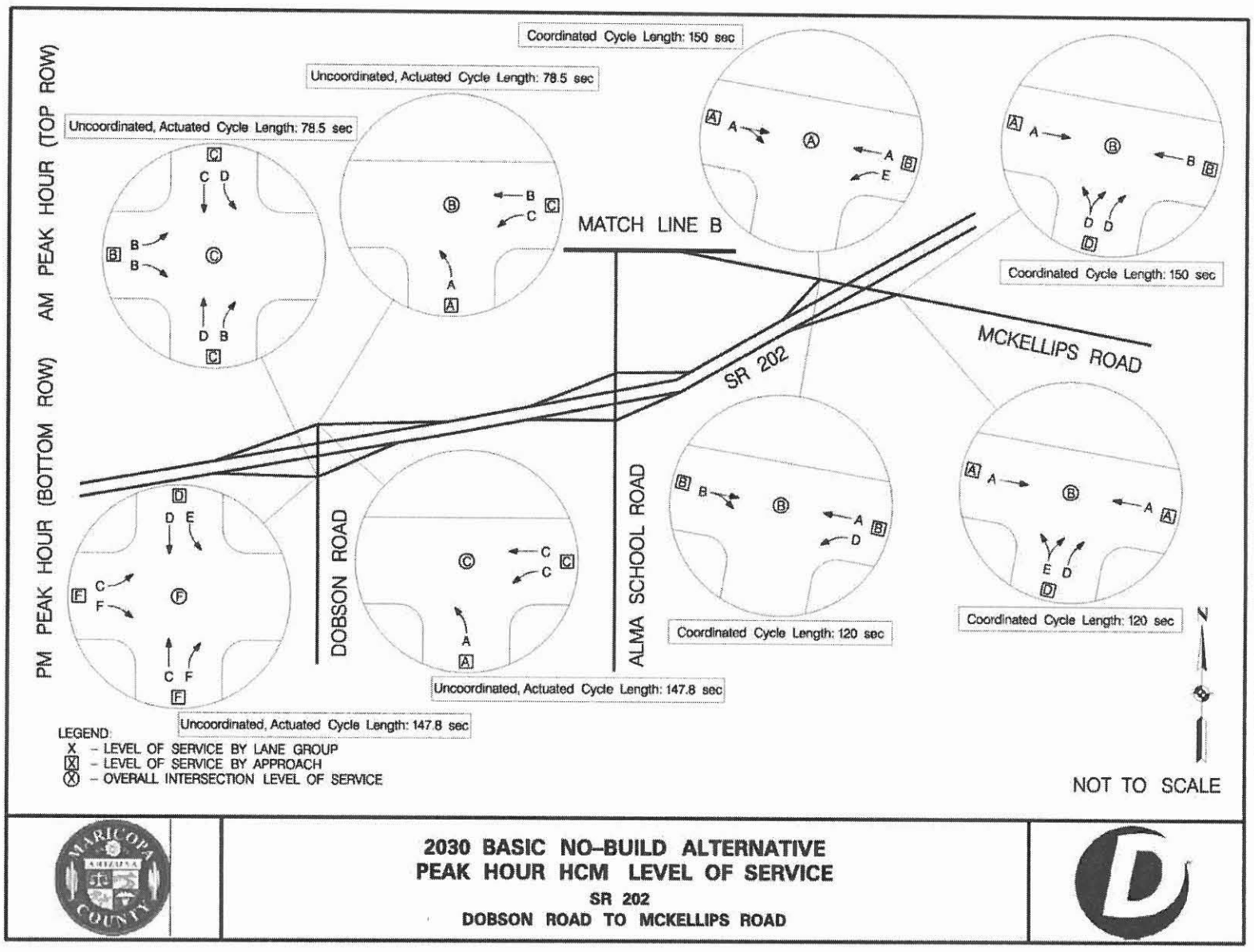


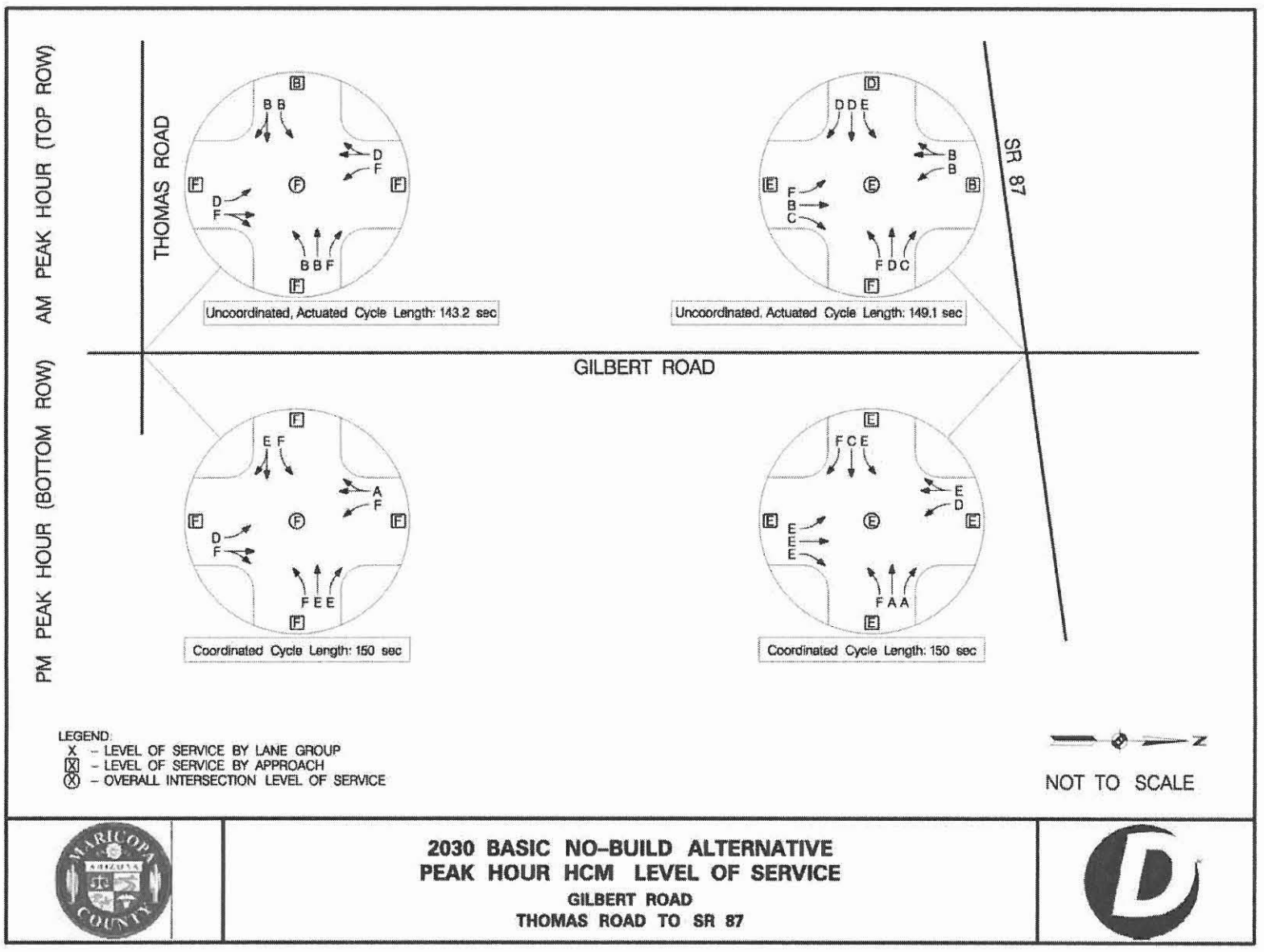
Figure IV-2 2030 Basic No-Build Scenario Level of Service – Sheet 2 of 4





2030 BASIC NO-BUILD ALTERNATIVE
PEAK HOUR HCM LEVEL OF SERVICE
SR 202
DOBSON ROAD TO MCKELLIPS ROAD

Figure IV-2 2030 Basic No-Build Scenario Level of Service – Sheet 3 of 4



2030 BASIC NO-BUILD ALTERNATIVE
PEAK HOUR HCM LEVEL OF SERVICE
GILBERT ROAD
THOMAS ROAD TO SR 87

Figure IV-2 2030 Basic No-Build Scenario Level of Service – Sheet 4 of 4

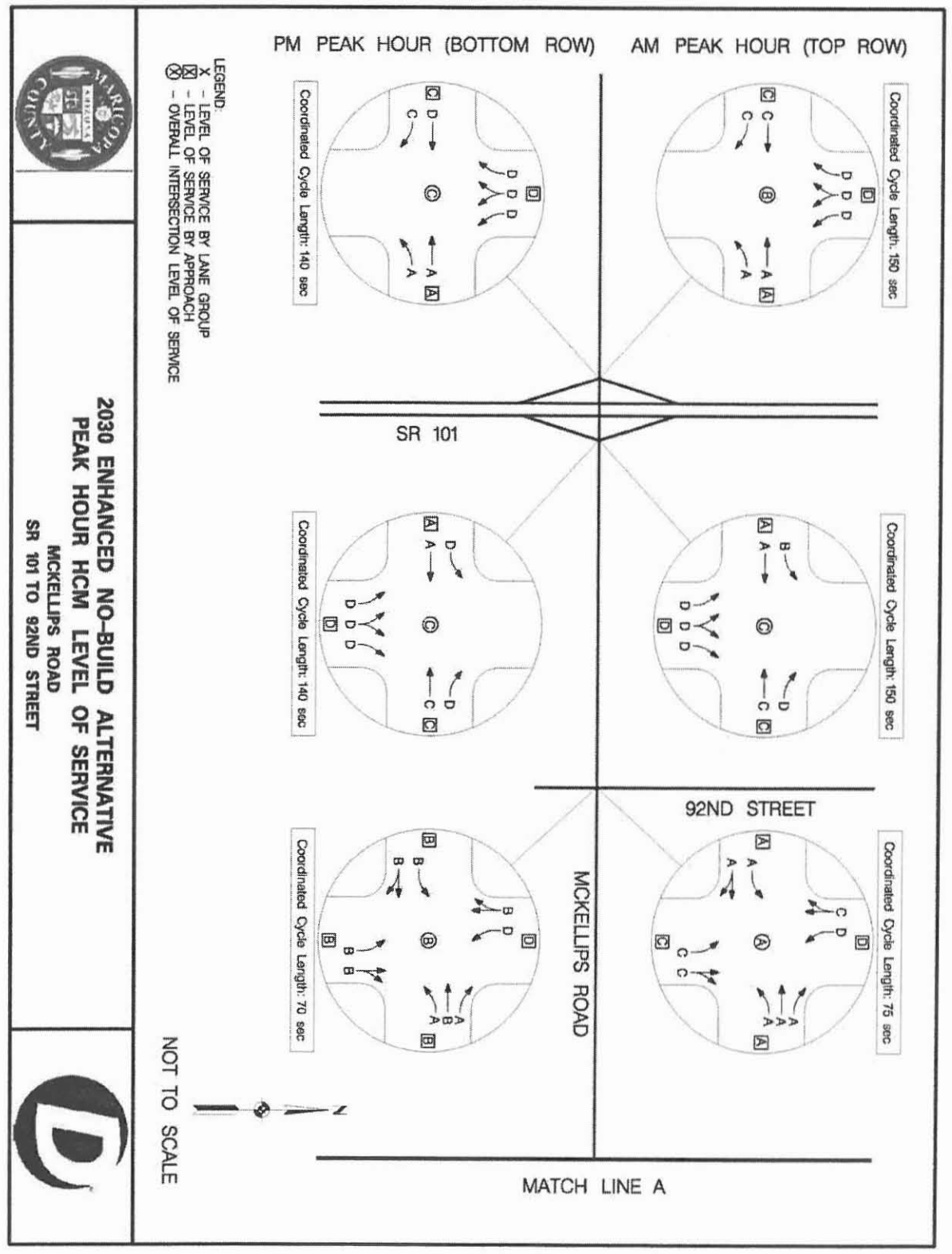


Figure IV-3 2030 Enhanced No-Build Scenario Level of Service – Sheet 1 of 4

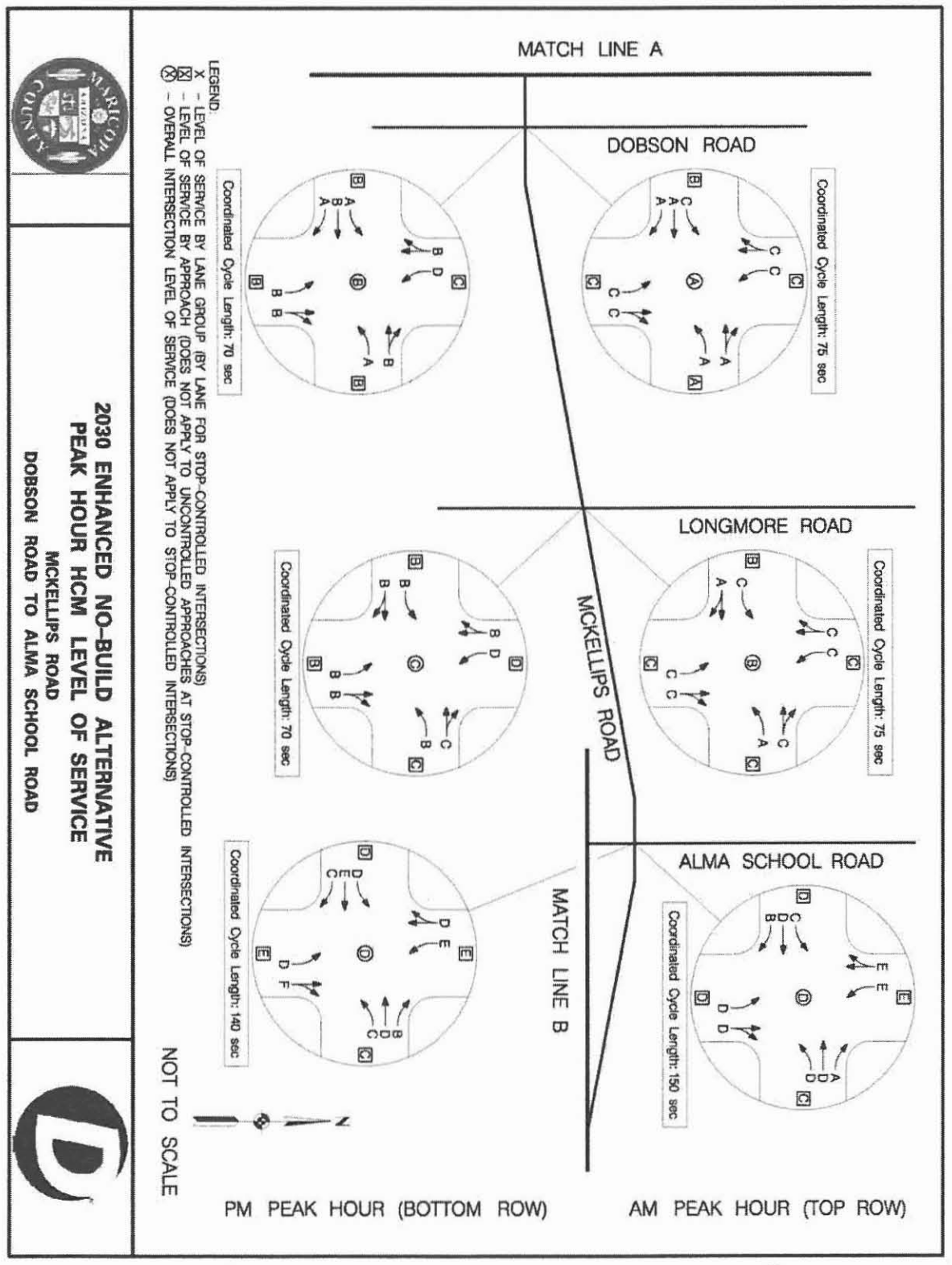


Figure IV-3 2030 Enhanced No-Build Scenario Level of Service – Sheet 2 of 4

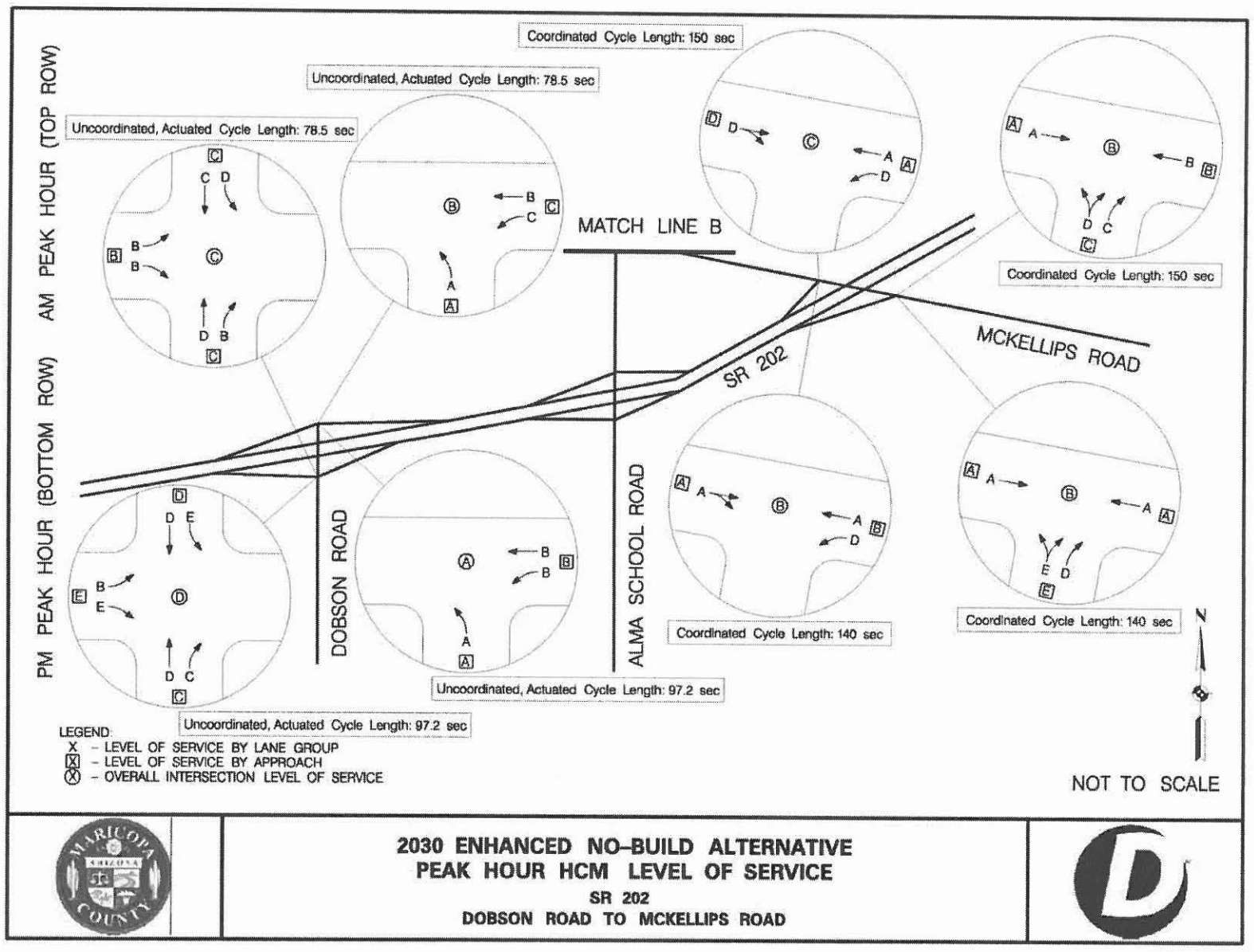


Figure IV-3 2030 Enhanced No-Build Scenario Level of Service – Sheet 3 of 4

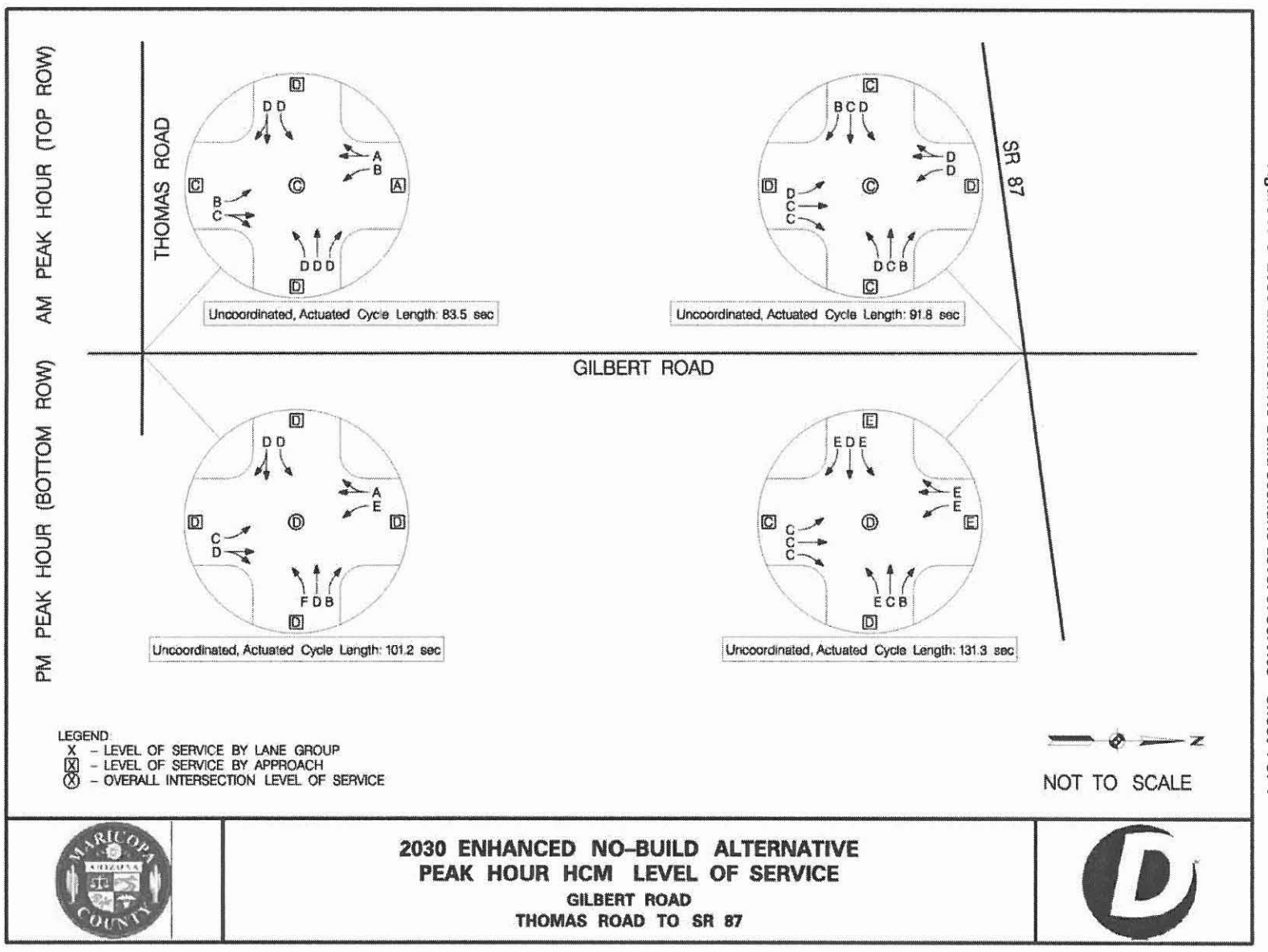


Figure IV-3 2030 Enhanced No-Build Scenario Level of Service – Sheet 4 of 4

Table IV-5 2030 LOS and Delay Under No-Build Alternatives

Intersection	LOS / Avg. Intersection Delay (sec)			
	Basic No-Build Alternative		Enhanced No-Build Alternative	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Signalized				
McKellips Rd – SB SR 101 Ramps	B / 17.7	B / 15.8	B / 17.8	C / 23.5
McKellips Rd – NB SR 101 Ramps	C / 21.8	B / 16.9	C / 22.9	C / 24.3
McKellips Rd – 92nd St	A / 8.2	C / 20.1	A / 3.2	B / 18.6
McKellips Rd – Dobson Road	N/A	N/A	A / 9.5	B / 15.7
McKellips Rd – Longmore Road	N/A	N/A	B / 19.9	C / 24.8
McKellips Rd – Alma School Road	**F /483.9**	**F /437.3**	***D / 43.4***	***D / 50.5***
McKellips Rd – WB SR 202 Ramp	***A / 9.8***	B / 13.1	C / 20.5	B / 12.2
McKellips Rd – EB SR 202 Ramp	B / 15.4	***B / 10.2***	B / 14.7	***B / 11.0***
Dobson Rd – EB SR 202 Ramp	C / 28.7	**F /125.2**	C / 28.6	D / 45.3
Dobson Rd – WB SR 202 Ramp	B / 19.6	C / 20.4	B / 19.6	A / 8.0
Gilbert Rd – Thomas Rd	**F /164.1**	**F /121.8**	C / 31.1	***D / 46.9***
Gilbert Rd – SR 87	**E / 79.1**	**E / 70.5**	C / 33.4	***D / 47.6***
Unsignalized				
McKellips Rd – Dobson Road	***D / 29.8***	**F /2581.8**	N/A	N/A
McKellips Rd – Longmore Road	A / 2.5	**F /204.6**	N/A	N/A

BOLD NON-ITALIC = Intersection Below Minimum Desired LOS

BOLD ITALIC = One or More Lane Group or Approach Below Minimum Desired LOS

Table IV-6 Enhanced No-Build Alternative Improvements

Intersection	Improvements	
	Geometry	Signal
McKellips Rd – SB SR 101 Ramps	• None	• Coordinated • Optimized
McKellips Rd – NB SR 101 Ramps	• None	
McKellips Rd – 92nd St	• None	• Coordinated • Optimized
McKellips Rd – Dobson Road	• NB lanes reconfigured from 1 shared LT/Thru lane and 1 RT lane to 1LT lane and 1 shared Thru/RT lane (no net change in number of lanes) • Exclusive LT lane added for SB	• Signal added • EB LT phasing permitted/protected • Coordinated • Optimized
McKellips Rd – Longmore Road	• Exclusive LT lane added for NB • Exclusive LT lane added for SB	• Signal added • EB LT phasing permitted/protected • Coordinated • Optimized
McKellips Rd – Alma School Road	• Second LT lane added for SB • EB approach lanes reconfigured from 1 LT lane, 3 Thru lanes, and 1 RT lane to 1 LT lane, 2 Thru lanes and 2 RT lanes (no net change in number of lanes) • WB approach lanes reconfigured from 1 LT lane and 3 Thru lanes to 1 LT lane, 2 Thru lanes and 2 RT lanes (one additional lane added)	• SB LT phasing changed from permitted to protected • Overlap phase added for WB RT • Coordinated • Optimized
McKellips Rd – WB SR 202 Ramp	• None	• Coordinated • Optimized
McKellips Rd – EB SR 202 Ramp	• None	
Dobson Rd – EB SR 202 Ramp	• Second RT lane added for NB	• Optimized
Dobson Rd – WB SR 202 Ramp	• None	
Gilbert Rd – Thomas Rd	• Second LT lane added for SB • Second RT lane added for WB	• SB LT phasing changed from permitted/protected to protected-only • EB LT phasing changed permitted-only to from permitted/protected • WB LT phasing changed permitted-only to from permitted/protected • Overlap phase added for WB RT • Optimized
Gilbert Rd – SR 87	• Second LT lane added for NB • Third LT lane added for WB	• NB/SB phasing changed from a single phase to split phasing • Overlap phase added for NB RT • Overlap phase added for EB RT • Optimized

3. *Build Scenario Alternatives*

Traffic operations under the four build scenario alternatives were evaluated with the volumes from the corresponding MAG transportation planning model scenario, using Synchro networks that were based on that of the existing conditions scenario. For all four build alternatives, the network was modified to incorporate the four major proposed roadway improvements, as follows:

- Gilbert Road, from Thomas Road to SR 87, was upgraded from two lanes in each direction to three, which simulates the configuration of the proposed Gilbert Road bridge.
- McKellips Road, from SR 101 to SR 202, was upgraded from two lanes in each direction to three, which simulates the widening of McKellips Road, including the configuration of the proposed McKellips Road bridge.
- A new six-lane roadway link was added from the Dobson Road / SR 202 interchange to the connection point on McKellips Road that is specific to each scenario, which simulates the proposed Dobson Road bridge.

As was done with the No-Build alternatives, the intersections under the build alternatives were coordinated wherever it was appropriate, and phase splits were optimized using the combination method of Synchro's optimization routine and manual adjustments. In addition, turn lane configurations and left- and right-turn phasing were adjusted as necessary and as feasible in order to alleviate remaining operational deficiencies, and some were even downgraded where an existing lane or higher-level phasing was found to be operationally unnecessary.

The geometry and signal improvements at each intersection are listed in **Table IV-7**. Signal coordination and optimization are not included in the table. All signals were individually optimized, and all signals except the two on Gilbert Road were coordinated for all build scenario alternatives and for both peak hours.

The LOS results are shown in **Figure IV-4** through **Figure IV-7** for Build Scenario A through Build Scenario D, and they are summarized in **Table IV-8**.

Table IV-7 Build Alternative Improvements

Intersection	Improvements			
	Build Scenario A	Build Scenario B	Build Scenario C	Build Scenario D
McKellips Rd – SB SR 101 Ramps	All Build Scenarios: • Additional through lane EB & WB			
McKellips Rd – NB SR 101 Ramps	All Build Scenarios: • Additional through lane EB & WB			
McKellips Rd – 92nd St	All Build Scenarios: • Additional through lane EB & WB • WB RT lane removed			
	• *None additional*	• *None additional*	• *None additional*	• Second NB LT lane added, phasing changed from permitted to protected • NB RT lane added • Second SB Thru lane added • SB LT phasing changed from permitted-only to permitted/protected • EB RT lane added, with overlap phase • WB LT phasing changed from permitted-only to permitted/protected
McKellips Rd – Dobson Road	All Build Scenarios: • Signal Added • Additional through lane EB & WB			
	Build Scenarios A & B: • NB lanes reconfigured from 1 shared LT/Thru lane and 1 RT lane to 1LT lane and 1 shared Thru/RT lane (no net change in number of lanes) • SB dual LT lanes added, with protected phasing • EB RT lane removed		• NB dual LT lanes added, with protected phasing • SB LT lane added, with protected/ permitted phasing • Additional SB Thru lane added • Permitted/protected phasing added for EB & WB LT • Overlap phase added for EB RT • WB RT lane added	• SB LT lane added • EB LT phasing made permitted/protected • EB RT lane removed
McKellips Rd – new street	*N/A*	• Signal added • Additional through lane EB & WB • South leg added with NB dual LT lanes and a NB RT lane • EB RT lane added • WB dual LT lanes added	*N/A*	*N/A*

(continues)

Table IV-7 Build Alternative Improvements (continued)

Intersection	Improvements			
	Build Scenario A	Build Scenario B	Build Scenario C	Build Scenario D
McKellips Rd – Longmore Road	• Signal added • Additional through lane EB & WB • NB dual LT lanes added, with protected phasing • Additional NB Thru lane added • NB RT lane added, with overlap phase • SB dual LT lanes added, with protected phasing • Additional SB Thru lane added • EB RT lane added • WB RT lane added • WB LT phasing made permitted/protected	*Not Evaluated*	*Not Evaluated*	*Not Evaluated*
McKellips Rd – Alma School Road	All Build Scenarios: • WB dual RT lanes added, with overlap phase • NB Thru lane added • SB Thru lane added • Second SB LT lane added, phasing changed from permitted to protected			
	• *None additional*	• *None additional*	• Second EB RT lane added	• *None additional*
McKellips Rd – WB SR 202 Ramp	All Build Scenarios: • Additional through lane EB & WB			
McKellips Rd – EB SR 202 Ramp	All Build Scenarios: • Additional through lane EB & WB • Shared LT/RT lane on SR 202 EB off-ramp changed to LT only			
Dobson Rd – EB SR 202 Ramp	All Build Scenarios: • Phasing changed to resemble McKellips Road / SR 101 interchange • Three NB Thru lanes added • Second NB RT lane added • Additional SB Thru lane added			
Dobson Rd – WB SR 202 Ramp	All Build Scenarios: • Phasing changed to resemble McKellips Road / SR 101 interchange • North leg added with four SB Thru lanes • Three NB Thru lanes added • WB Thru lane removed			
	Build Scenarios A, B, & C: • WB RT lane added			• WB dual RT lanes added
Gilbert Rd – Thomas Rd	All Build Scenarios: • Additional NB Thru lane added • NB LT phasing changed from permitted/protected to permitted-only • Second and third SB LT lanes added, phasing changed from permitted/protected to protected-only • EB & WB LT phasing changed from permitted-only to permitted/protected • Second WB RT lane added, with overlap phase			
Gilbert Rd – SR 87	All Build Scenarios: • NB/SB phasing changed from a single phase to split phasing • Second NB LT lane added • Overlap phase added for NB RT • EB LT phasing changed from protected-only to permitted/protected • Second EB RT lane added • Third WB LT lane added • WB RT lane removed			

Shaded Cell = Dobson Road Bridge Connection Intersection

Figure IV-4 2030 Build Scenario A Level of Service – Sheet 1 of 4

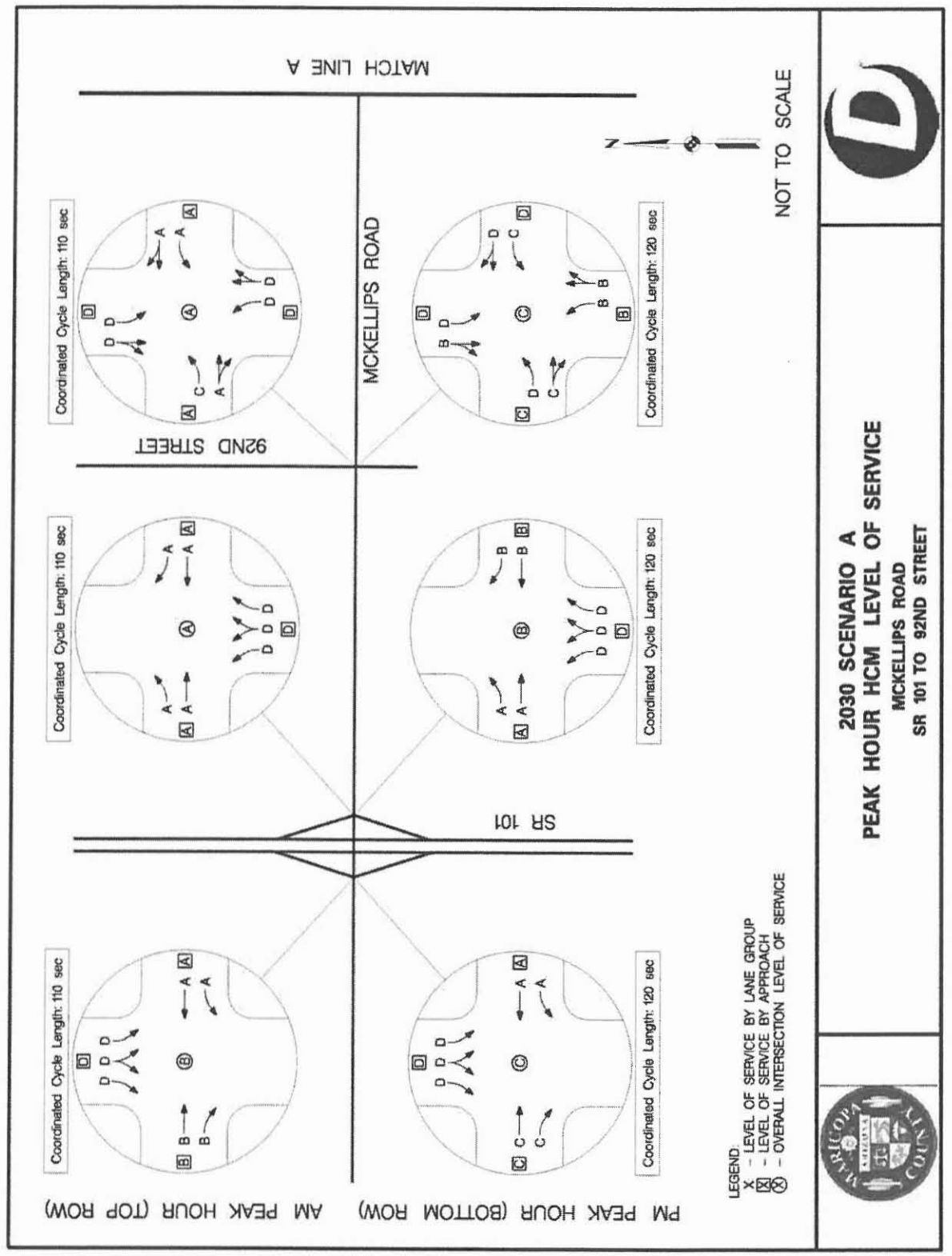
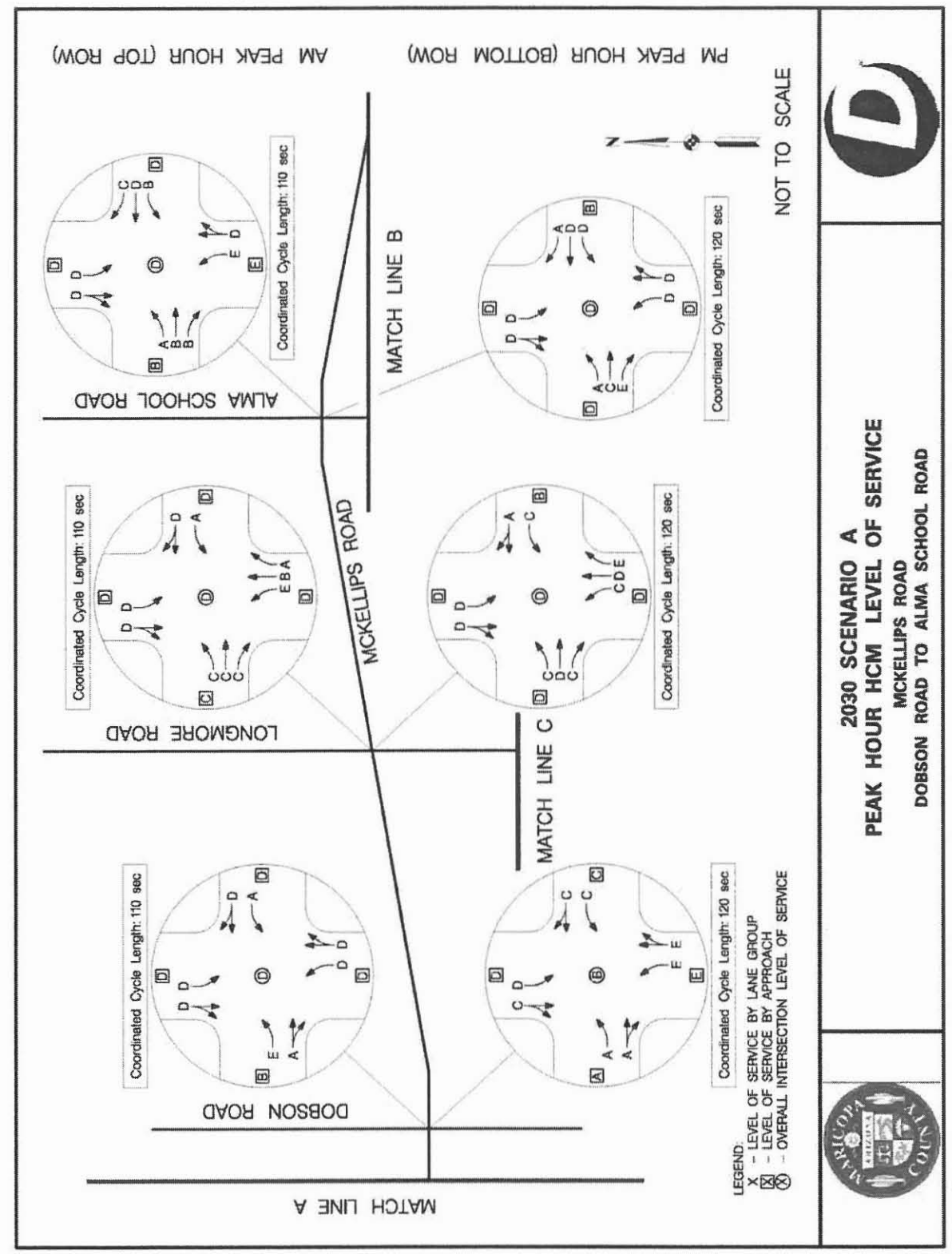


Figure IV-4 2030 Build Scenario A Level of Service – Sheet 2 of 4



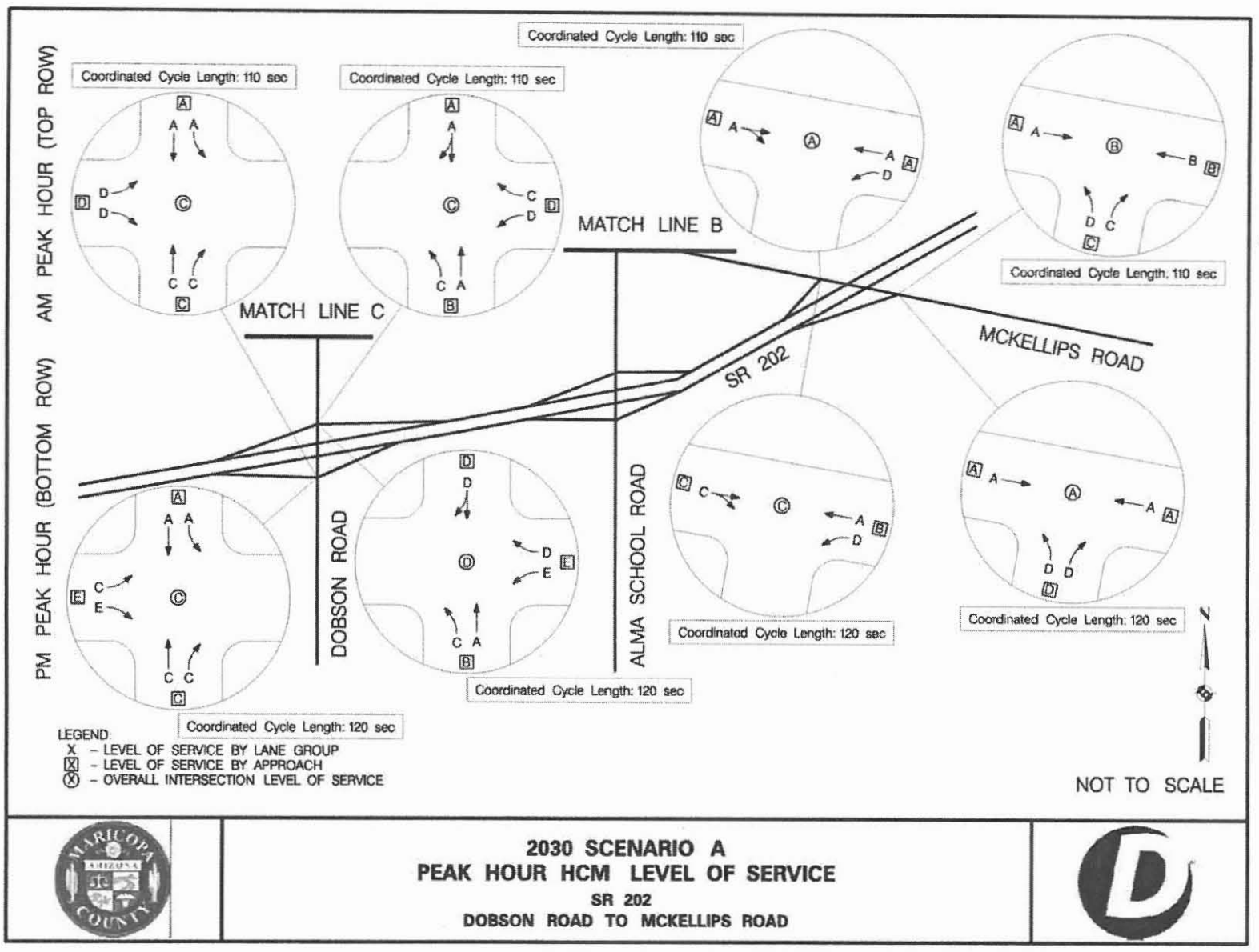


Figure IV-4 2030 Build Scenario A Level of Service – Sheet 3 of 4

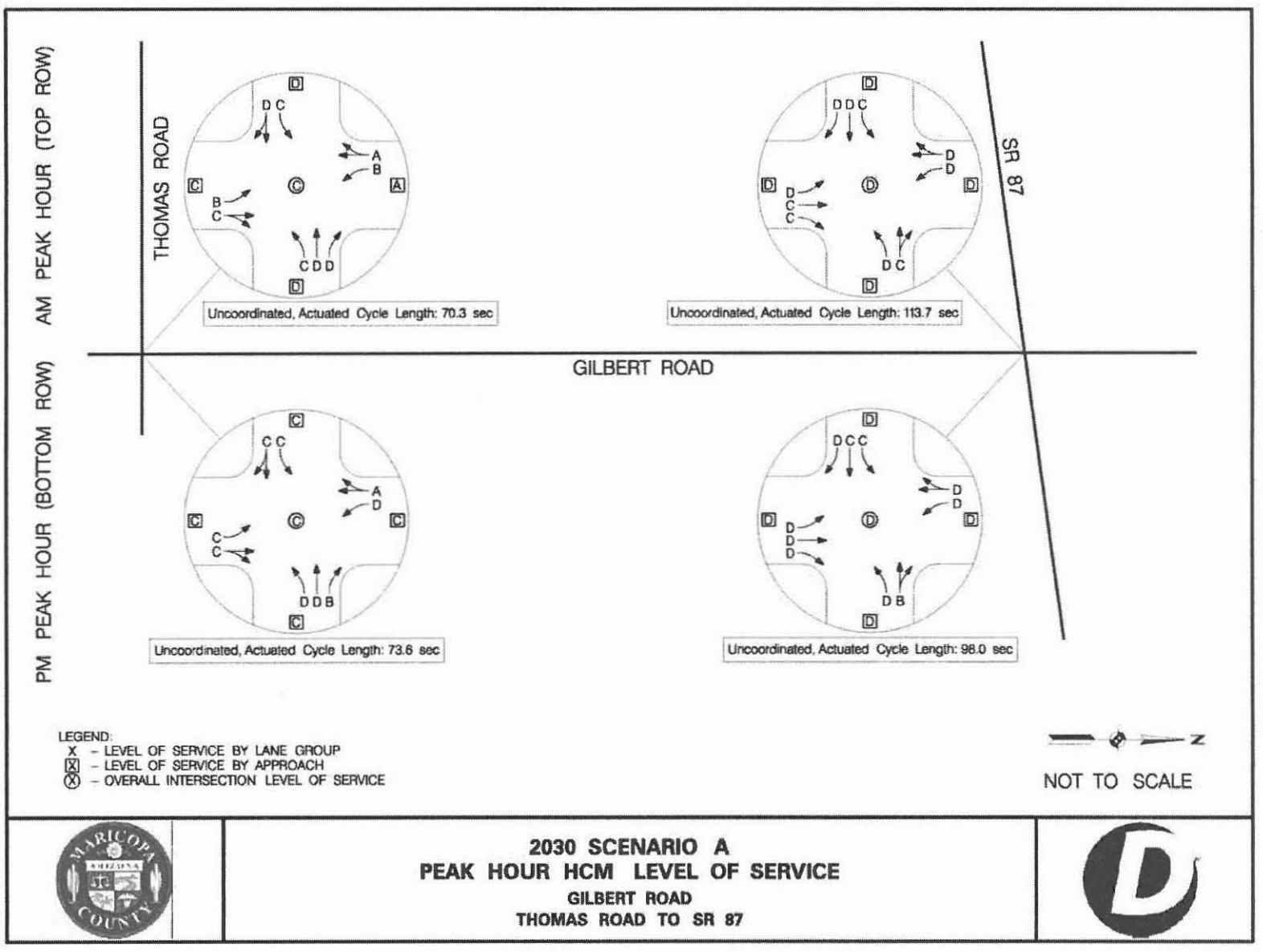


Figure IV-4 2030 Build Scenario A Level of Service – Sheet 4 of 4

Figure IV-5 2030 Build Scenario B Level of Service – Sheet 1 of 4

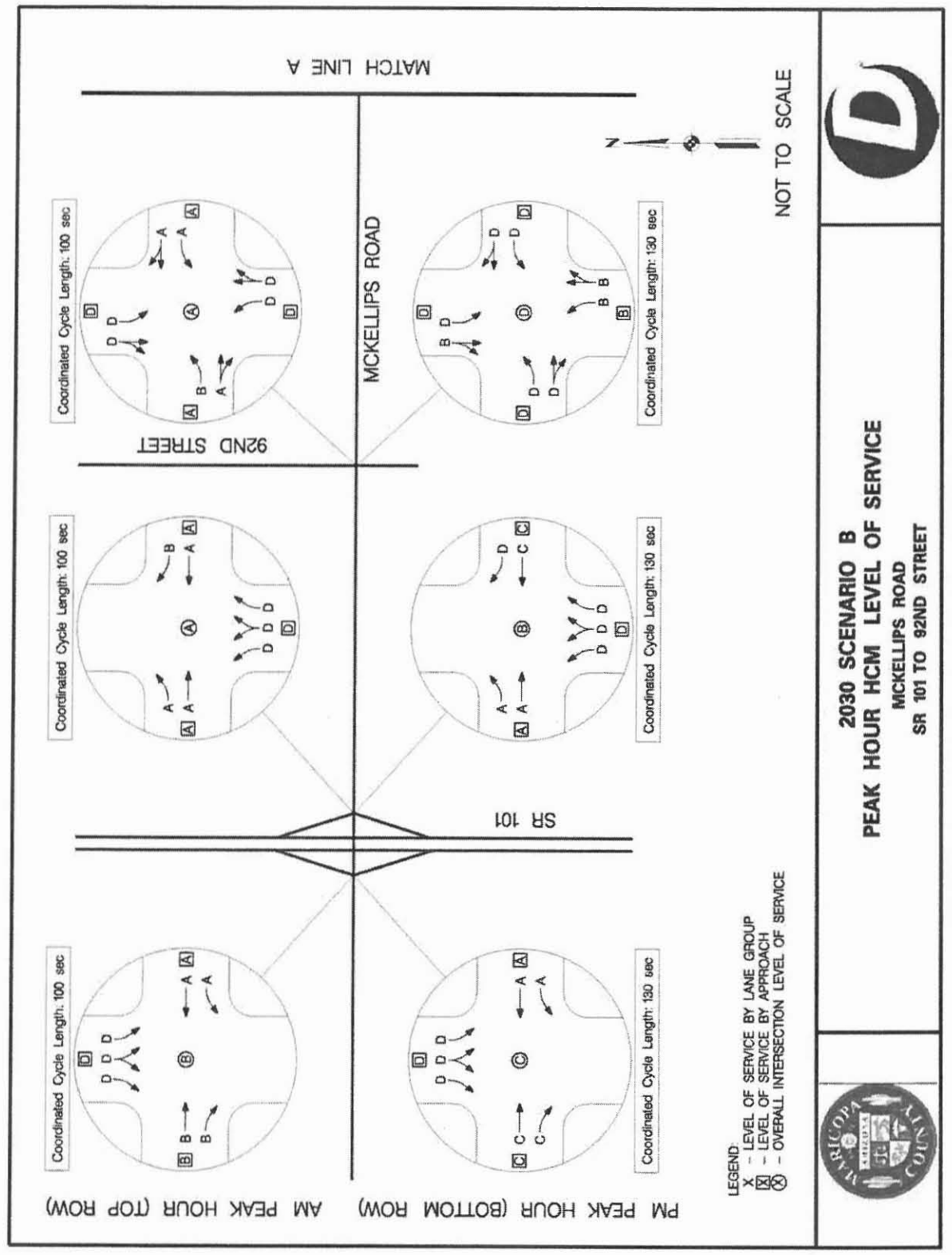
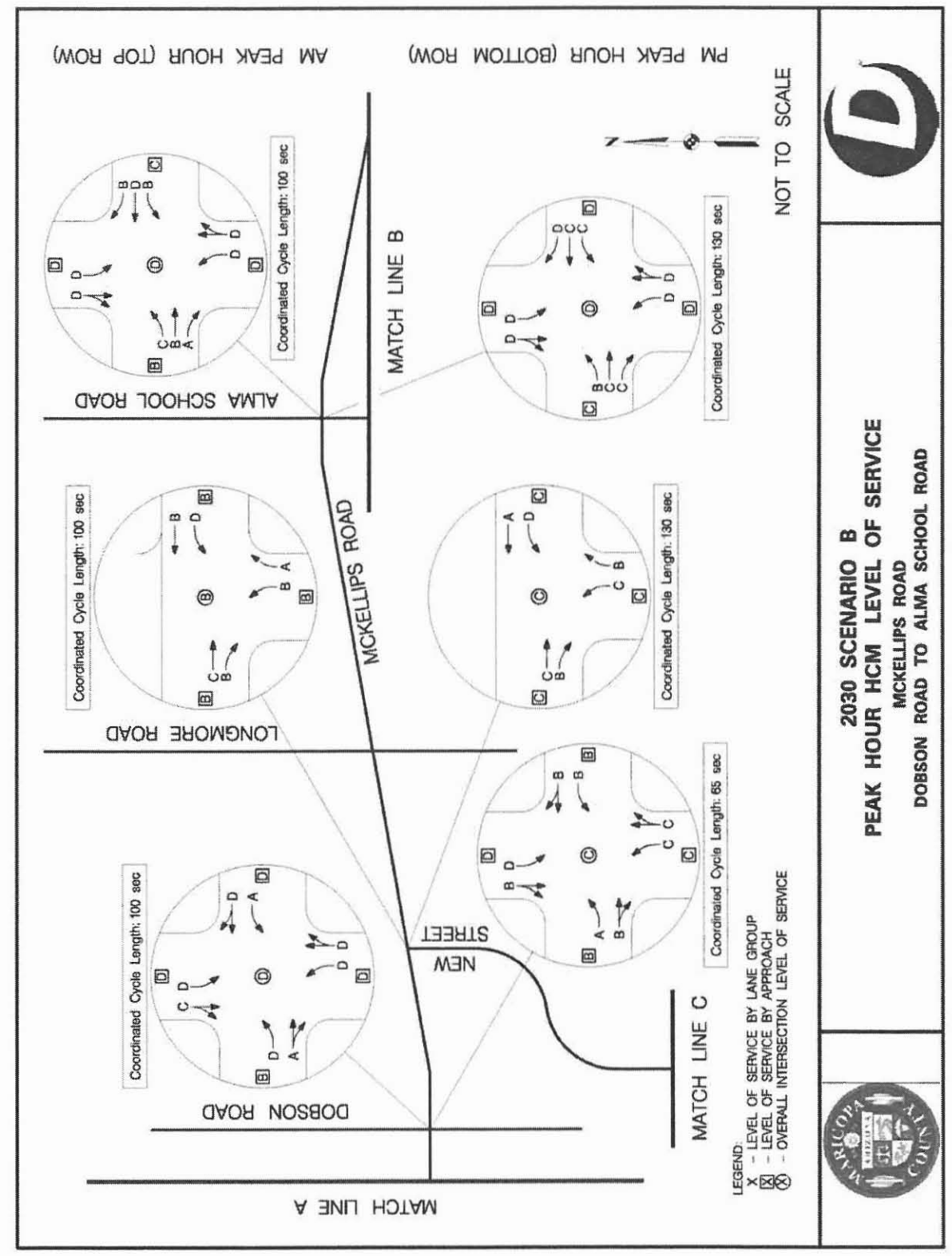


Figure IV-5 2030 Build Scenario B Level of Service – Sheet 2 of 4



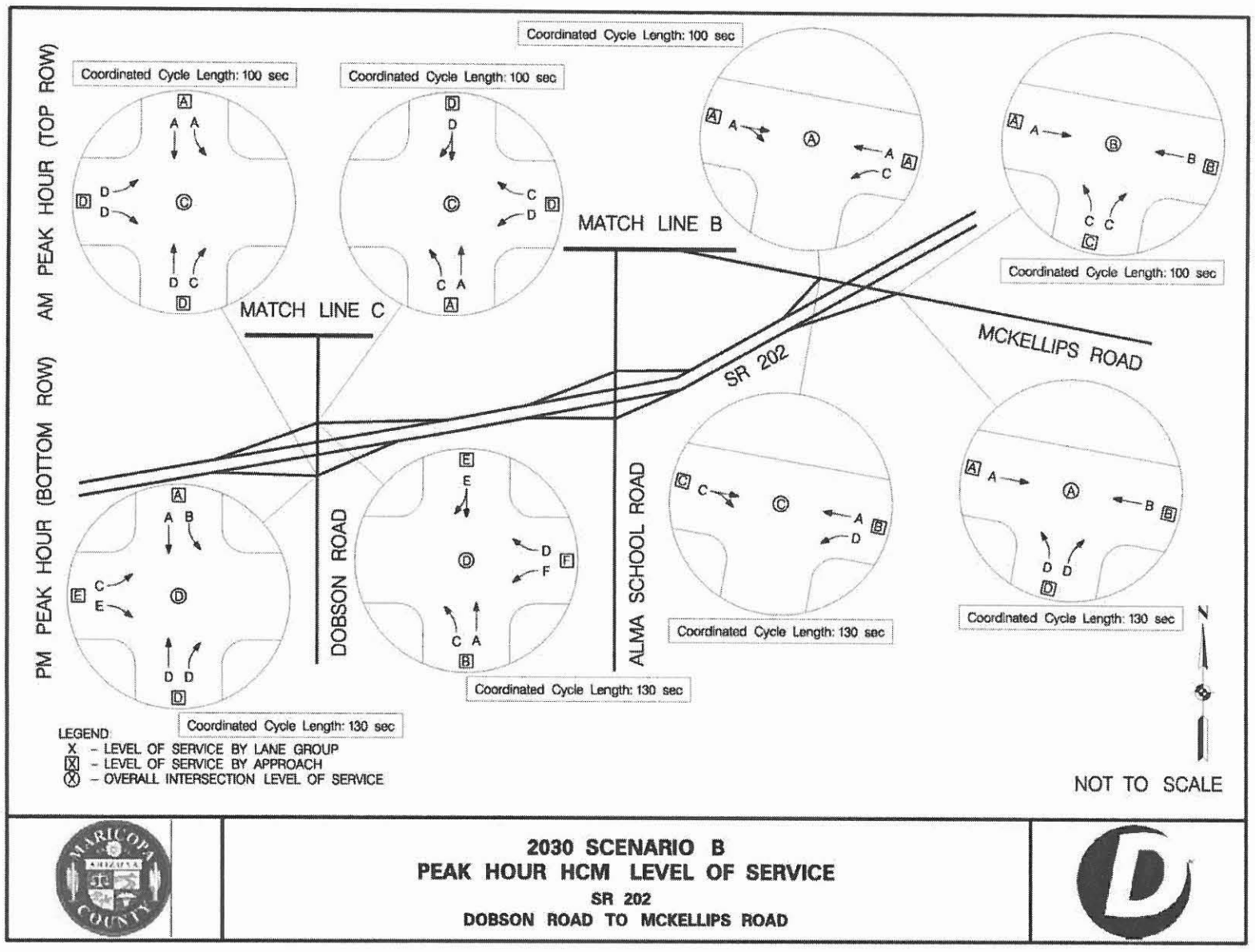


Figure IV-5 2030 Build Scenario B Level of Service – Sheet 3 of 4

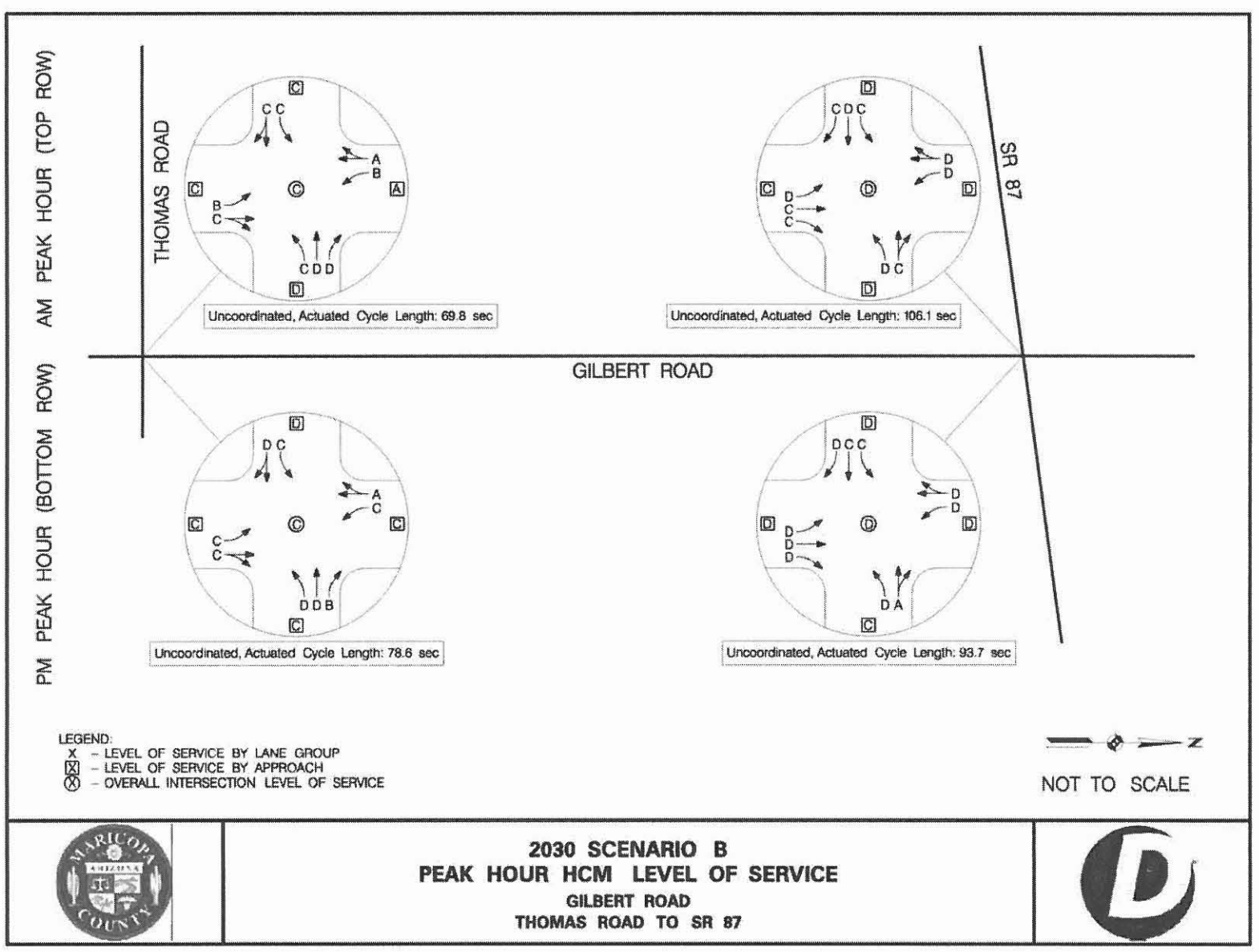


Figure IV-5 2030 Build Scenario B Level of Service – Sheet 4 of 4

Figure IV-6 2030 Build Scenario C Level of Service – Sheet 1 of 4

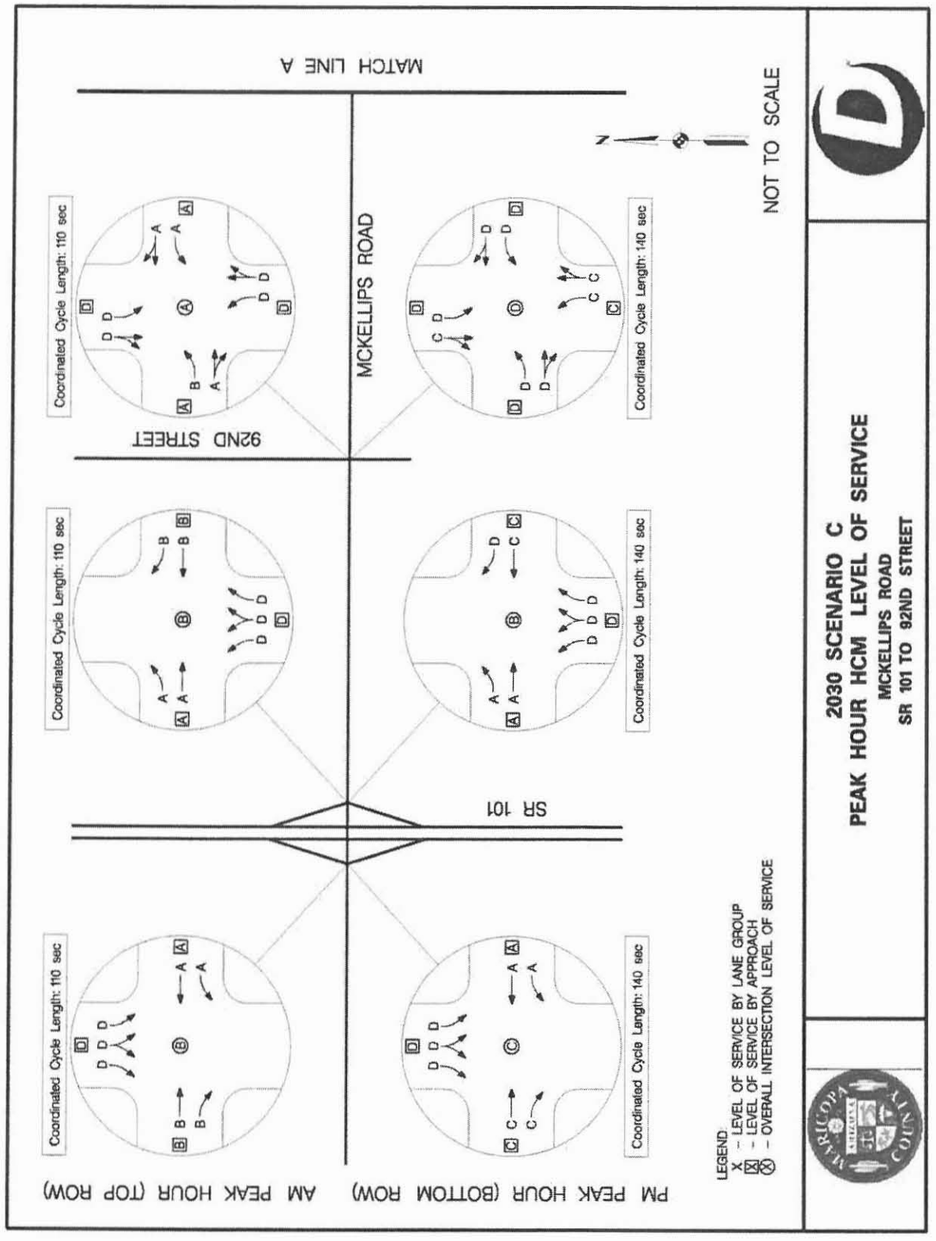
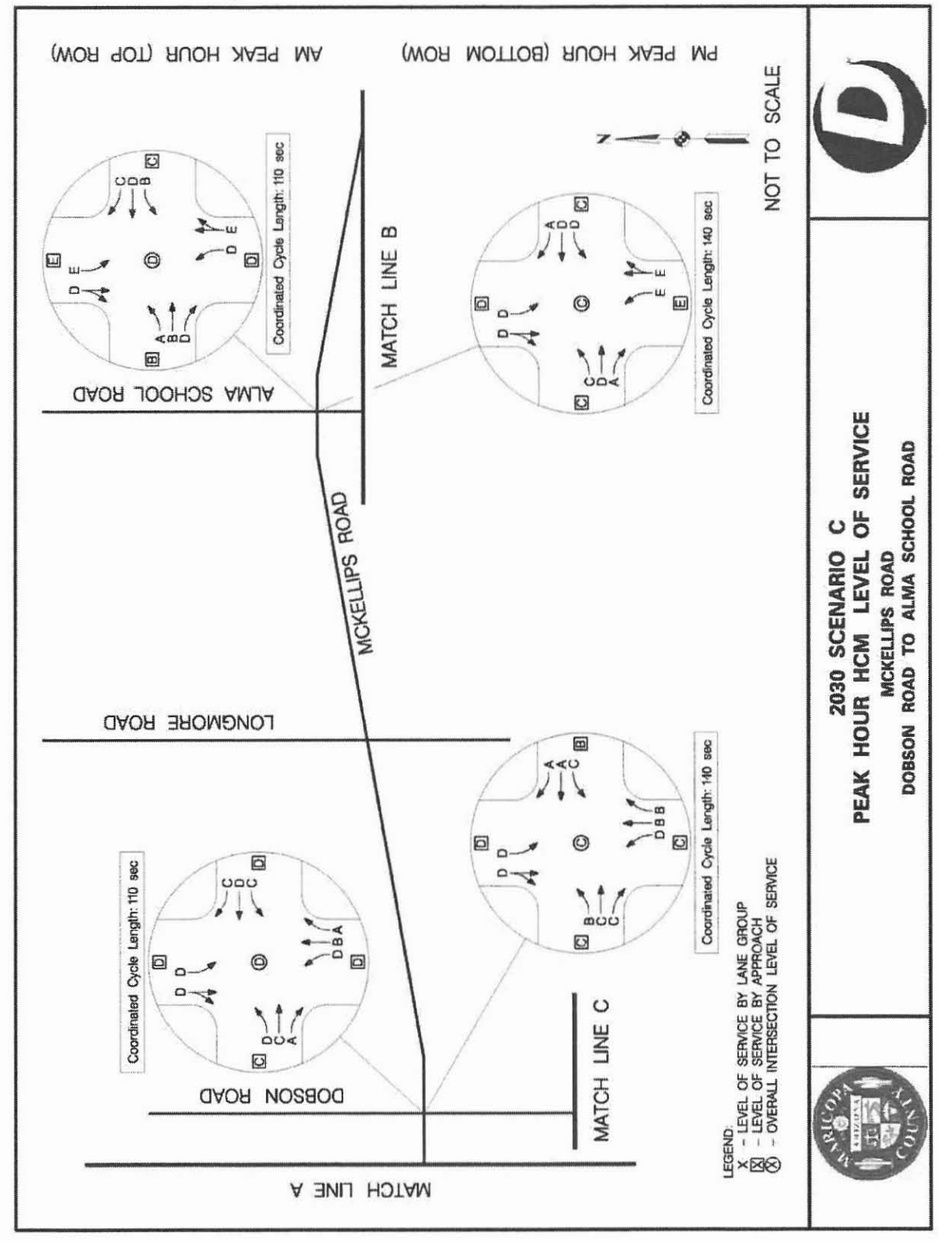
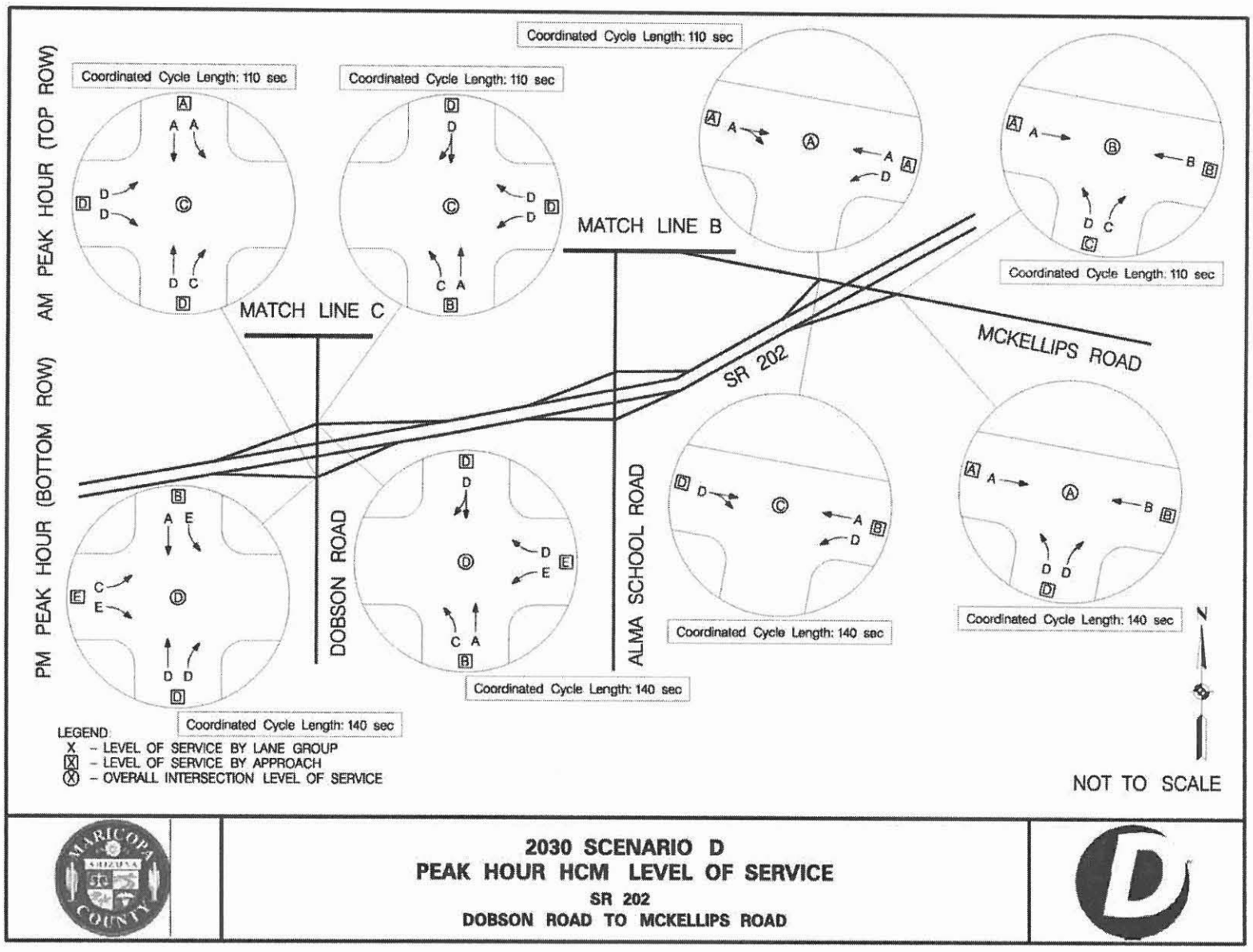


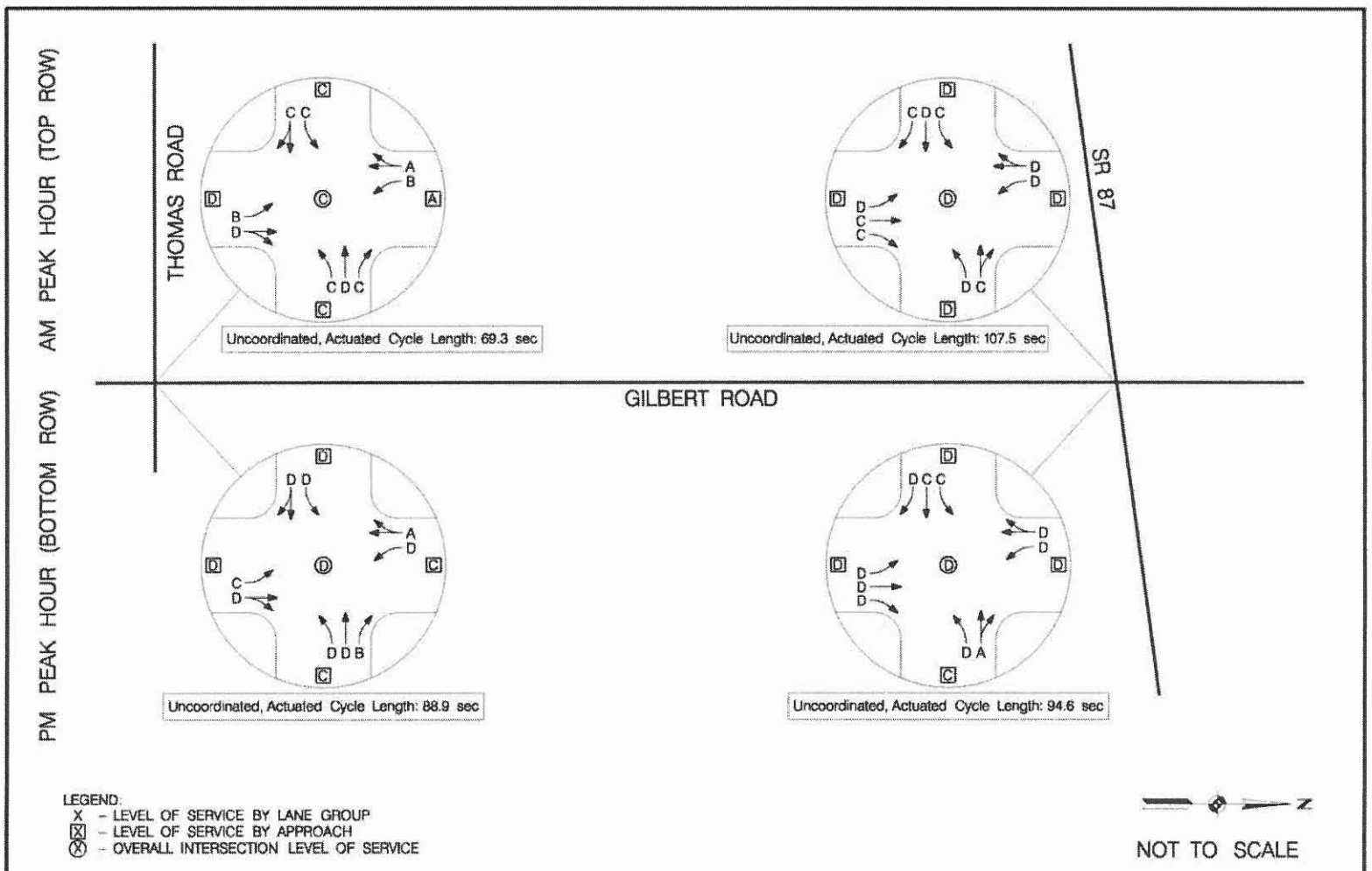
Figure IV-6 2030 Build Scenario C Level of Service – Sheet 2 of 4





2030 SCENARIO D
PEAK HOUR HCM LEVEL OF SERVICE
SR 202
DOBSON ROAD TO MCKELLIPS ROAD

Figure IV-6 2030 Build Scenario C Level of Service – Sheet 3 of 4



2030 SCENARIO C
PEAK HOUR HCM LEVEL OF SERVICE
GILBERT ROAD
THOMAS ROAD TO SR 87

Figure IV-6 2030 Build Scenario C Level of Service – Sheet 4 of 4

Figure IV-7 2030 Build Scenario D Level of Service – Sheet 1 of 4

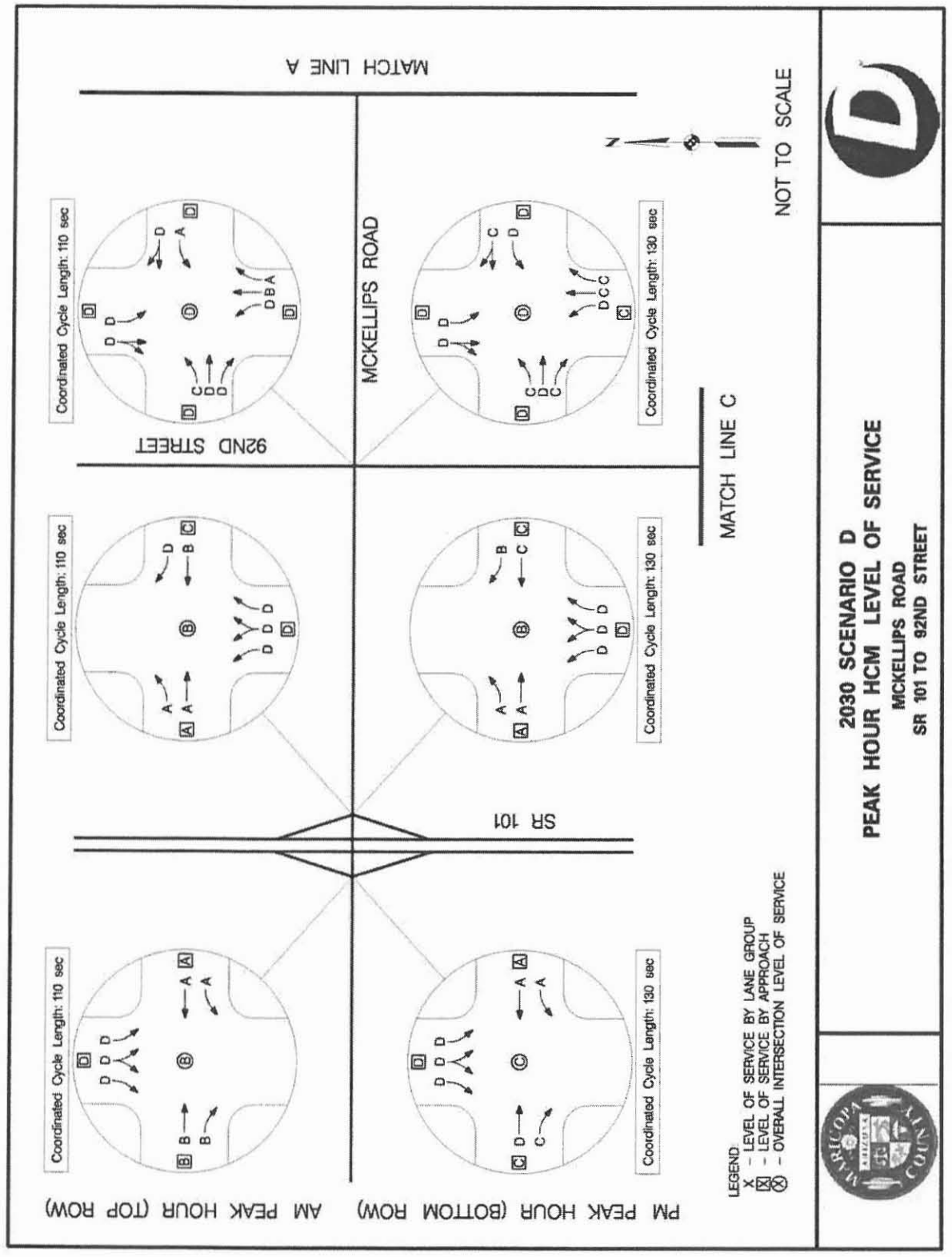
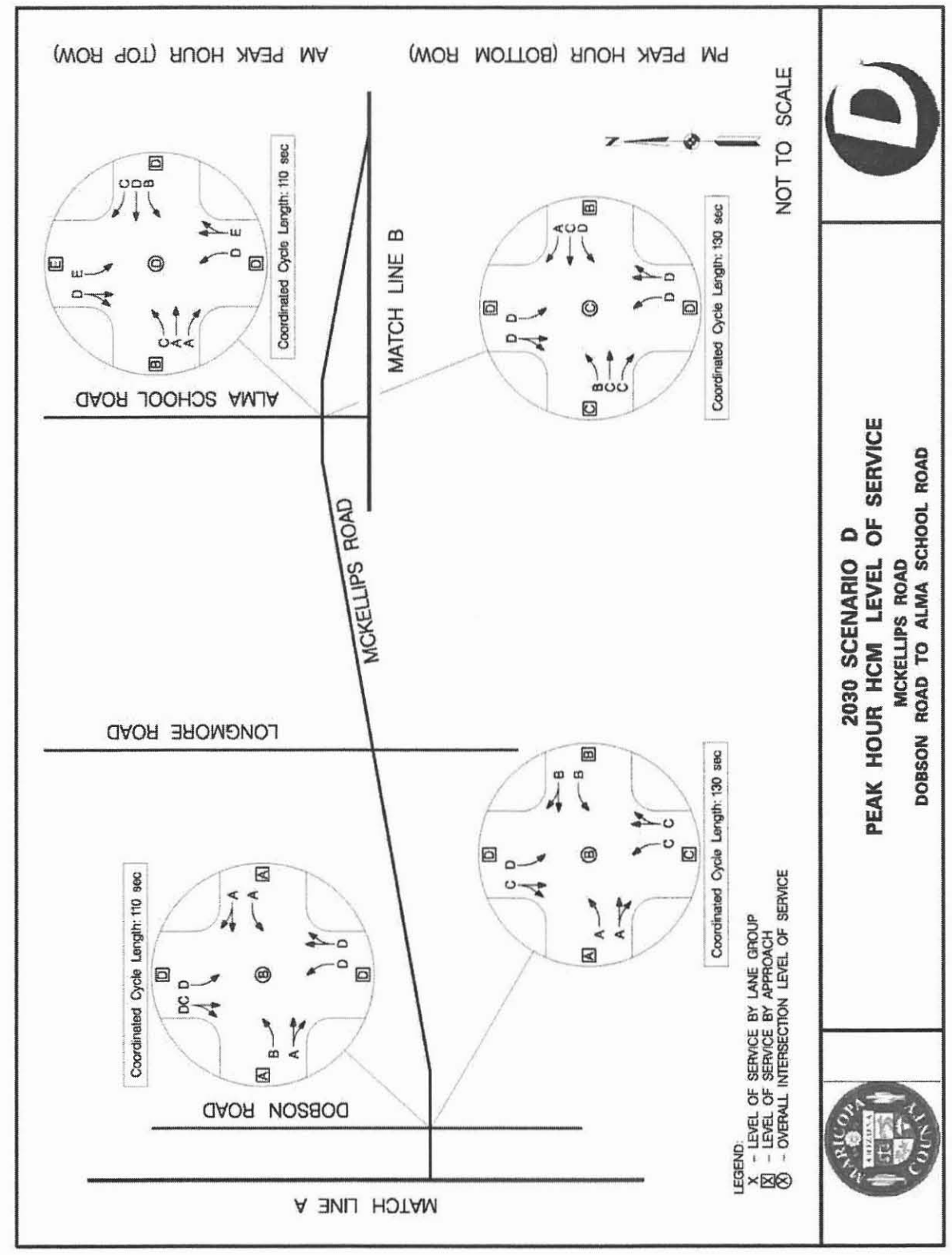
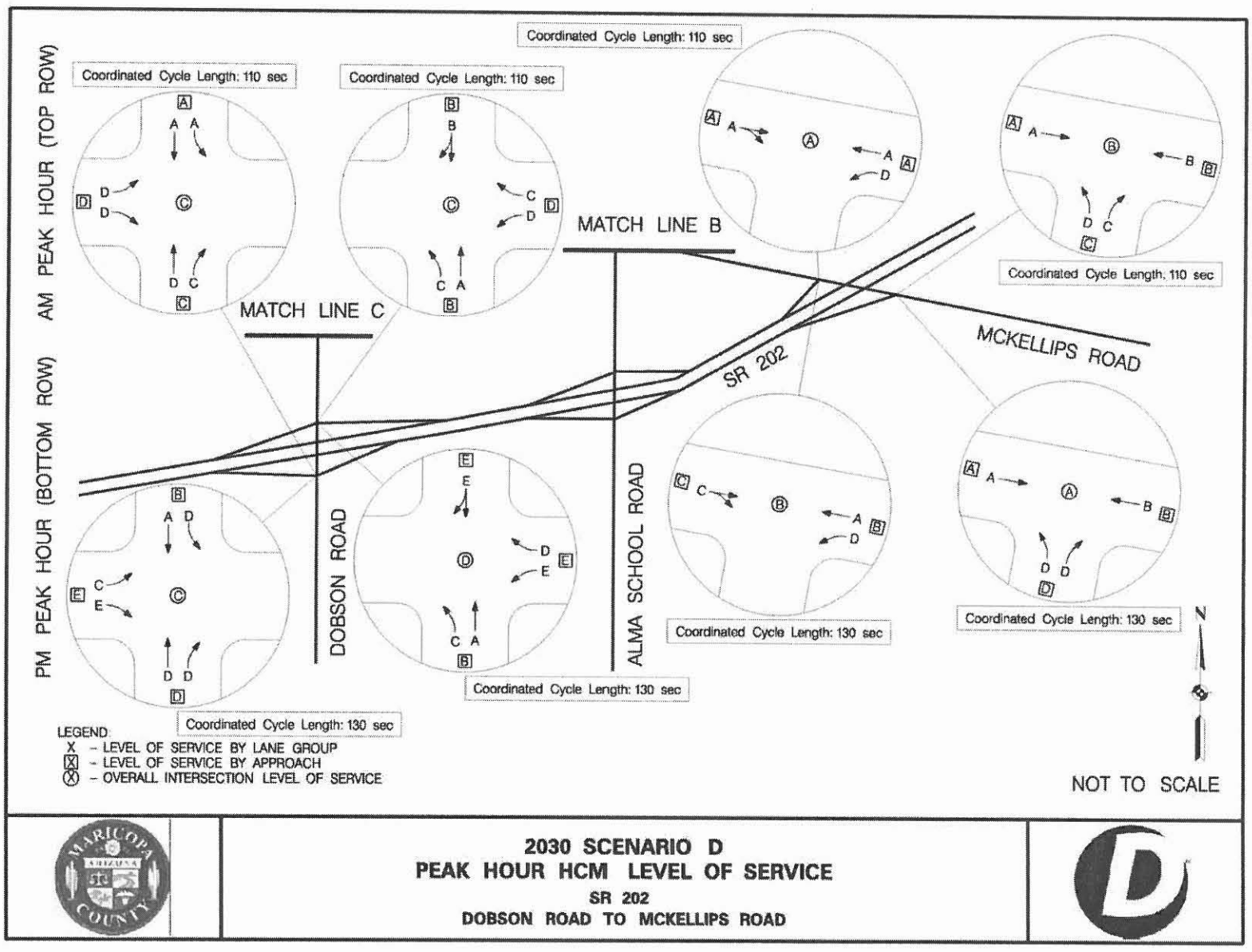


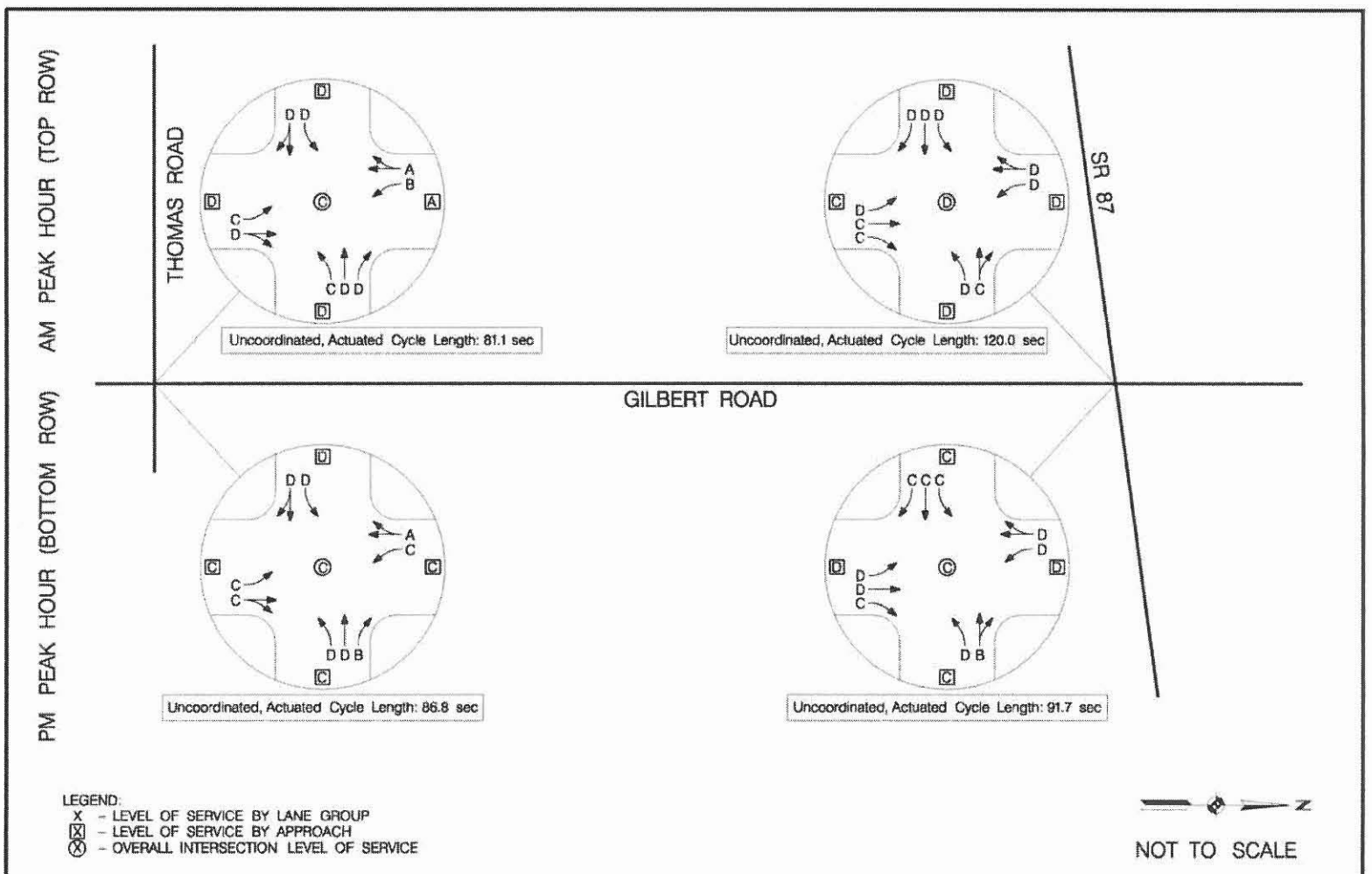
Figure IV-7 2030 Build Scenario D Level of Service – Sheet 2 of 4





2030 SCENARIO D
PEAK HOUR HCM LEVEL OF SERVICE
SR 202
DOBSON ROAD TO MCKELLIPS ROAD

Figure IV-7 2030 Build Scenario D Level of Service – Sheet 3 of 4



2030 SCENARIO D
PEAK HOUR HCM LEVEL OF SERVICE
GILBERT ROAD
THOMAS ROAD TO SR 87

Figure IV-7 2030 Build Scenario D Level of Service – Sheet 4 of 4

Table IV-8 2030 LOS and Delay Under Build Scenario Alternatives

Intersection	LOS / Avg. Intersection Delay (sec)			
	Scenario A	Scenario B	Scenario C	Scenario D
AM Peak Hour				
McKellips Rd – SB SR 101 Ramps	B / 10.6	B / 10.3	B / 10.8	B / 10.8
McKellips Rd – NB SR 101 Ramps	A / 9.7	A / 9.5	B / 13.1	B / 17.7
McKellips Rd - 92nd St	A / 6.0	A / 4.6	A / 4.4	D / 43.7
McKellips Rd – Dobson Road	***D / 48.4***	D / 37.7	D / 40.2	B / 12.4
McKellips Rd – new street	N/A	B / 15.5	N/A	N/A
McKellips Rd – Longmore Road	***D / 46.8***	N/A	N/A	N/A
McKellips Rd - Alma School Road	***D / 44.3***	D / 39.1	D / 44.0	***D / 47.8***
McKellips Rd – WB SR 202 Ramp	A / 4.4	A / 3.7	A / 3.3	A / 3.1
McKellips Rd – EB SR 202 Ramp	B / 12.1	B / 11.2	B / 12.0	B / 12.1
Dobson Rd – EB SR 202 Ramp	C / 21.9	C / 32.4	C / 25.4	C / 24.0
Dobson Rd – WB SR 202 Ramp	C / 22.9	C / 27.8	C / 28.4	C / 24.5
Gilbert Rd - Thomas Rd	C / 28.8	C / 31.8	C / 28.4	C / 29.6
Gilbert Rd - SR 87	D / 39.2	D / 35.7	D / 36.7	D / 38.8
PM Peak Hour				
McKellips Rd – SB SR 101 Ramps	C / 20.3	C / 22.1	C / 23.9	C / 25.2
McKellips Rd – NB SR 101 Ramps	B / 13.7	B / 15.4	B / 17.1	B / 14.6
McKellips Rd - 92nd St	C / 34.9	D / 47.1	D / 42.1	D / 40.5
McKellips Rd – Dobson Road	***B / 18.4***	C / 21.3	C / 32.8	B / 15.7
McKellips Rd – new street	N/A	C / 25.7	N/A	N/A
McKellips Rd – Longmore Road	***D / 38.7***	N/A	N/A	N/A
McKellips Rd - Alma School Road	***D / 37.3***	D / 37.5	***C / 33.5***	C / 34.8
McKellips Rd – WB SR 202 Ramp	C / 22.2	C / 21.3	C / 28.7	B / 19.5
McKellips Rd – EB SR 202 Ramp	A / 7.0	A / 8.0	A / 9.1	A / 7.1
Dobson Rd – EB SR 202 Ramp	***C / 32.5***	***D / 36.6***	***D / 38.2***	***C / 34.3***
Dobson Rd – WB SR 202 Ramp	***D / 43.3***	***D / 46.8***	***D / 39.4***	***D / 43.5***
Gilbert Rd - Thomas Rd	C / 25.8	C / 24.7	D / 35.5	C / 24.9
Gilbert Rd - SR 87	D / 42.8	D / 38.3	D / 37.0	C / 32.7

BOLD NON-ITALIC = Intersection Below Minimum Desired LOS
BOLD ITALIC = One or More Lane Group or Approach Below Minimum Desired LOS
Shaded Cell = Dobson Road Bridge Connection Intersection

B. Other Operational Considerations

1. SRPMIC Cut-Through Traffic

Concerned about the amount of non-tribal traffic using the tribal roadway network to bypass the delays on SR 101 and SR 202, the tribal community requested that this study include an evaluation of how the proposed improvements will affect the traffic through the community.

Specifically, traffic volumes for the year 2030 were evaluated under the build scenarios and were compared with the volumes under the No-Build scenario. For this evaluation, the "core area" of the tribal community, where cut-through traffic is least desirable, was defined as the area bounded by McDowell Road, 92nd Street, Alma School Road, and McDonald Drive.

The following roadways within the core area were evaluated:

- *McKellips Road*, which was anticipated to be the preferred cut through route since it lies in an area of the tribal lands that is less densely populated, already heavily used by commuters, and envisioned to have more commercial/industrial uses in the future.
- *McDowell Road*, on which it was desired to minimize the increases to the cut-through traffic.
- *Thomas Road and Indian School Road*, both of which currently have a significant volume of cut-through traffic that negatively impacts the quality of life for the tribal residents in the area.
- *92nd Street*, which will serve future commercial land uses and may have an increase in traffic.
- *Dobson Road*, on which cut-through traffic is undesirable because it leads into the core area of the community.
- *Alma School Road*, on which increases in cut-through traffic are undesirable because the same traffic may then use the core-area roads.

A select link analysis was performed by the MAG staff to generate origin-destination volume matrices for each roadway segment, or link. The MAG model network used for this analysis was based on those used for the operational analysis, but with modifications to help improve the geographic resolution needed for this specific purpose. Modifications included splitting two traffic analysis zones (TAZs) into several smaller TAZs, adjusting the 2030 socioeconomic data to correspond to the new TAZs and to take into account anticipated land uses not well-defined by the default MAG model, and redefining some of the roadway parameters within the core area to more realistically reflect their functional classifications.

The matrices output from the MAG model were then evaluated to determine the number of trips using each link that cuts through tribal lands. A cut-through trip was defined as one that has both its origin and destination outside of the tribal boundary.

The analysis results indicate that the additional capacity of the widened McKellips Road and the addition of the Dobson Road connection across the Salt River would reduce the amount of predicted cut-through traffic compared to the No-Build scenario. Cut-through volumes would be reduced by as much as 25% on some segments, with most of the core roadways having at least some minimal reduction in-cut through volumes. Dobson Road would have a small increase in cut-through volume.

The analysis was inconclusive regarding which build scenario would best reduce cut-through traffic within the tribal core area. Scenario D, the 92nd Street connection, would reduce the cut-through traffic on Dobson Road relative to Scenario C,the Dobson Road connection, but Scenario C yields better results on other roads.

2. Signalization

A connection at Longmore Road would require signalization at that location, creating a signalized intersection at half-mile spacing which is more acceptable for signal spacing and progression.

This alternative also generates an additional signal approximately quarter-mile spacing between the signals at Dobson Road and Alma School Road. Quarter mile signal spacing is not preferable for signal synchronization and timing.

This alternative would be less than desirable because traffic would be directed north of McKellips Road on Dobson Road where many existing residential homes exist and low speeds are warranted.

C. *Traffic Impacts During Construction*

1. *Dobson Road Bridge*

Since no Dobson Road bridge currently exists, the construction of the proposed bridge will have little impact on network traffic operations, and those impacts will be limited to the connection points at the SR 202 interchange and along McKellips Road. Alternatives that connect to McKellips Road where an existing intersection already exists are anticipated to require less construction, and thus would cause the least amount of disruption to traffic. Accordingly, Alternatives D1 and D1a (corresponding to Build Scenario B) might be least desirable for their construction-related traffic disruptions.

In addition to network traffic, there is also consideration for traffic across the SRMG mining operation. Alternatives D1b (corresponding to Build Scenario A) and D3a (one of two alternatives corresponding to Build Scenario D) circumvent the operations entirely and would not disrupt SRMG traffic during construction. However, all the other alternatives cross SRMG and would require the construction of truck crossings or underpasses, which would need to be built or have temporary facilities in-place prior to the construction of the new roadway. Accordingly, these alternatives would have an added construction cost, and the construction schedule would likely be extended.

2. *Gilbert Road Bridge*

Due to the 2007 flood damage, the low-flow crossing, which carried northbound traffic on Gilbert Road, has been closed. At present, northbound and southbound traffic are each using one lane of the two-lane bridge that used to carry only southbound traffic. Because of the northbound lane closure, two of the three Gilbert Road bridge alternatives, Alternatives G1 and G3, are favorable for constructability as they would cause the least amount of disruption to traffic. Alternative G1 would build the new bridge between the two one-way crossings, and Alternative G3 would build it along the existing alignment of the low-flow northbound lanes. Under either of those alternatives, traffic would be able to continue utilizing the existing bridge crossing during construction, which is no change from the current usage. Delays would occur only at the connection points on either side of the river, and only for a short duration of time.

Under Alternative G2, the northbound low-flow lanes would need to be repaired, and traffic of both directions would have to be carried by that crossing during construction, which would still be susceptible to closure during floods.

3. *McKellips Road Bridge*

Of the three alternatives, Alternative M1 would cause the most disruption to traffic. Since it follows the alignment of the existing crossing, it would require either the closure of McKellips Road between Alma School Road and SR 202 or the construction of a temporary roadway. The closure of McKellips Road would create significant major detours and delays along Alma School Road during construction, but it would allow for construction to be uninterrupted by traffic, resulting in a potential acceleration of the construction schedule. If a temporary roadway is built, it would have to have four lanes to maintain current operational capacity. Accordingly, the construction cost would likely be higher.

Alternatives M2 and M3 would build the new bridge at an offset from the existing McKellips Road. McKellips Road could remain open to traffic during construction, avoiding the major traffic detours that Alternative M1 would cause. The only disruption to traffic would be during the construction of connection points on either side of the

river. Alternative M3 would require more significant construction at the SR 202 interchange than would Alternative M2.

As demonstrated by the times when McKellips Road between Alma School Road and SR 202 has been closed due to flooding, traffic is able to find alternate routes to avoid the closure. The highest delays caused to motorists are usually the first day or two after the roadway is closed. Slight delays due to the added traffic may extend the congestion timeframes, but the traffic has been able to flow. A special scenario was run on the MAG model that modeled the closure of McKellips Road between Alma School Road and SR 202 indicative of either water flowing within the Salt River or a construction related closure. The findings indicate that the overall transportation system can absorb the traffic normally used by McKellips Road during a bridge construction project. The full closure of McKellips Road between Alma School Road and SR 202 may reduce the overall construction time of the proposed bridge by several months compared to a partial closure. As the traffic volumes approach the 2030 predicted volumes, the roadway network will experience longer delays due to the added congestion. As the McKellips Road Bridge project is under design, additional traffic modeling is recommended to verify the ability for a full closure during construction.

4. *McKellips Road Widening*

Maintenance of Traffic during construction for the McKellips Road widening is anticipated to utilize roadway lane shifts away from the work zones, keeping two lanes open in each direction for the majority of the construction duration, and providing safe access to residences and businesses. The truck access for the sand and gravel operation will require safe turning radii, speeds reduced by 5-10 mph, and clear signing. Advance notification of the construction project should be placed where drivers can take advantage of alternate routes. Advance signing on SR 202 and SR 101 may be helpful for drivers to make good route decisions prior to exiting the freeways.

V. *ITS Infrastructure Assessment*

This project is included in the MCDOT Transportation Improvement Program (TIP) for Fiscal Years 2009-2013 (Project No. T199, Dobson Road Bridge @ Salt River). MCDOT has developed an Intelligent Transportation Systems (ITS) mainstreaming procedure for assessing the feasibility of implementing ITS infrastructure elements in TIP projects. By coordinating TIP projects and ITS element implementation, MCDOT can take advantage of existing roadway construction in order to optimize costs and accelerate the installation of ITS infrastructure elements.

Per MCDOT ITS Assessment Criteria, TIP projects are assessed at the DCR level for 21 different technology recommendations. The assessment for this project is detailed in Section B below. But first, the existing and planned ITS infrastructure in the vicinity of this project is evaluated in order to establish a context for ITS infrastructure needs.

A. *Existing and Planned ITS Infrastructure*

1. *MCDOT*

There is no existing MCDOT ITS infrastructure in the project area. The MCDOT-controlled traffic signals listed in Section II.C are not connected to each other, to other traffic signals, or to the MCDOT Traffic Management Center (TMC). According to the 2006 Draft Maricopa County Transportation System Plan, none of the arterial roadways in this project are designated ITS corridors, and there are no existing closed-circuit television (CCTV) cameras or dynamic message signs (DMS) in or around the project area. Other than efforts coordinated with TIP projects, MCDOT has no plans for ITS infrastructure implementation in this vicinity.

2. *City of Mesa*

The project falls outside of the City limits and no ITS infrastructure is planned by the City.

3. *ADOT*

ADOT owns and operates the Freeway Management System (FMS) throughout the state. FMS consists of field devices, such as detector, CCTV, and DMS equipment, connected by a fiber-optic backbone that runs along the length of the freeways and back to the ADOT Traffic Operations Center (TOC) in downtown Phoenix where the system is centrally controlled. Currently, the FMS backbone in the Phoenix metropolitan area is only partially built, with construction underway on some new and existing freeway segments and programmed improvements on others.

At present, SR 202 throughout the area of this project has existing FMS backbone, and SR 101 throughout the project area has FMS improvements programmed for the near future. The traffic signals at the three freeway interchanges in the project area are currently or are programmed to be connected to the FMS system. ADOT has a current project under design that will add HOV lanes on SR 202 between SR 101 and Gilbert Road, which includes FMS backbone infrastructure and multiple field devices such as DMSs.

It is understood that SR 87 has existing ITS elements, including traffic signal interconnect and DMS equipment. All the traffic signals on SR 87 between SR 202 and Gilbert road are connected via interconnect. There are two DMS along this roadway: one just north of the Salt River and one just east of Gilbert Road.

B. *ITS Recommendations*

Based on MCDOT ITS Assessment Criteria, this project has been evaluated for 21 different ITS technology recommendations, grouped into four categories: Network Control, Communications, Network Monitoring, and

Motorist Information. These ITS technologies, the recommendation for this project, costs, and benefits are summarized in **Table V-1**.

For this project, one new traffic signal is being recommended for installation, at the intersection of McKellips Road and Dobson Road, conditional to a formal signal warrant analysis being performed. This signal would include inductive loop detection, as is used at the other signalized intersections in this area.

It is also recommended that the existing signals and the one new signal be interconnected. The interconnect infrastructure would also double as a communication backbone for the corridors within the project area.

There are "On Notice" recommendations (implementation of the technology should be further assessed at the project design level) for up to three new CCTV cameras and up to three new DMSs. The locations of these installations would be determined during project design.

Table V-1 ITS Infrastructure Recommendations

Technology	Recommendation	Estimated Cost	Estimated 5 Year O&M Cost	Benefits
Network Control				
Upgrade Existing Traffic Signal and Detection	Not Applicable			
Upgrade Existing Traffic Signal Only	Not Recommended			
Install New Traffic Signal	Install one new signal w/loop detection: McKellips/Dobson	$190,000	$34,000	Operational analysis indicates signal needed at this location; Formal signal warrant analysis recommended
Interconnect Existing Signals	Install conduit and fiber optic cable for existing and future: 2.7 mi on McKellips Rd 1.4 mi on Dobson Rd 1.6 mi on Gilbert Rd	$950,000	$19,000	Decrease travel time up to 25%; Decrease vehicle stops up to 40%; Enables signal coordination, improves traffic management, reduces future installation costs, and provides an existing communications link
Communications				
Install Interconnect for Future Signals	Install	Included in Interconnect Existing Signals		
Install Direct Bury Comm. Backbone	Not Recommended			
Install Conduit for Comm. Backbone	Install	Included in Interconnect Existing Signals		
Network Monitoring				
Upgrade Existing Network Surveillance	Not Applicable			
Install New CCTV[1] Camera	On Notice[6] to install up to three CCTV (locations TBD)	$192,000	$39,000	Enable visual real-time traffic monitoring of traffic conditions; Decrease incident response time
Install New Vehicle Detection	Install	Included in Install New Traffic Signal		
Upgrade Existing RWIS[2]	Not Applicable			
Install New RWIS[2]	Not Recommended			
Install New Blowing Dust Detection	Not Recommended			
Install New Flash Flood Detection	Not Recommended			
Upgrade Existing WIM[3]	Not Applicable			
Install New WIM[3] and Enforcement Area	Not Recommended			
Install New WIM[3] Only	Not Recommended			
Motorist Information				
Upgrade Existing DMS[4]	Not Applicable			
Install New DMS[4]	On Notice[6] to install up to three DMS (locations TBD)	$390,000	$96,000	Decrease travel time up to 45% during incidents; Provide real-time travel information
Upgrade Existing HAR[5]	Not Applicable			
Install New HAR[5]	Not Recommended			
Total Cost (Recommended Infrastructure)		**$1,140,000**	**$53,000**	
Total Cost (On Notice[6] Infrastructure)		**$582,000**	**$135,000**	

Notes:
[1] Closed-Circuit Television
[2] Road Weather Information System
[3] Weigh-in-Motion
[4] Dynamic Message Sign
[5] Highway Advisory Radio
[6] Future needs may require installation; however this technology is not considered feasible based on the current and projected conditions. This technology should be further assessed at the project design level.

VI. Recommendations

A. Interim Improvements

Aside from the proposed future improvements associated with the alternatives analysis, there are a number of relatively minor improvements recommended for implementation in the near future to improve operations and mitigate problems indicated by the crash history analysis. The recommended improvements fall into the categories of signal timing, striping, signing, lighting, and fencing, and they are discussed in detail below.

1. Signal Timing

The analysis of Synchro-optimized signal timing plans in Section IV.A.1.a above indicates that operations at several intersections and interchanges could be improved under existing traffic demand and geometric conditions if new signal timing plans are implemented. The new timing plans would improve operations by increasing the maximum split for the phases carrying the movements or lane groups with heaviest traffic. They would also assist by implementing time-of-day signal operations so that the timing plan running during each of the two daily peak periods is optimized specifically for that period. The exact timing plans developed in the optimization stage are not recommended for implementation as-is; further investigation would be necessary to properly set the minimum and maximum phase splits to account for daily variations in traffic.

Changes to existing phasing should be considered in order to mitigate the frequency of some left-turn crashes. Left-turn crashes are especially problematic for left turns onto both on-ramps at the McKellips Road / SR 101 interchange and for southbound left turns at McKellips Road / Alma School Road. The left-turn movements at the McKellips Road / SR 101 interchange currently have permitted/protected phasing, and the southbound left-turn movement at McKellips Road / Alma School Road currently has permitted-only phasing. Protected-only phasing is recommended for consideration for those movements.

2. Striping

Installation of stop bars is recommended for any signalized or stop-controlled approach for which a stop bar does not currently exist or has faded, including:

- McKellips Road eastbound and westbound approaches at 92nd Street (no existing stop bars)
- 92nd Street northbound approach at McKellips Road (no existing stop bar)
- 92nd Street southbound approach at McKellips Road (existing stop bar almost completely faded)
- Dobson Road northbound and southbound approaches at McKellips Road (no existing stop bars)
- Longmore Road northbound approach at McKellips Road (no existing stop bar)
- Longmore Road southbound approach at McKellips Road (existing stop bar almost completely faded)

It is recommended that turning movement markings be considered for through lanes on the westbound (McKellips Road) approach to the east intersection of the McKellips Road / SR 202 interchange. Frequency of sideswipe crashes on this approach could be reduced if lane movements are clarified. Through arrows could be installed in each of the two westbound through lanes placed in-line with the start of the exclusive left-turn lane lines.

3. Signing

It is recommended that the segment of McKellips Road between SR 101 and Alma School Road be evaluated for the possible addition of speed limit signs in order to meet minimum placement standards. According to MUTCD standard, speed limit signs shall be located at the points of change from one speed limit to another, and also beyond major intersections and at other locations where it is necessary to remind road users of the speed limit

that is applicable. As such, at a minimum, speed limit signs should be placed east of the SR 101 interchange and east of Alma School Road for eastbound lanes, and west of the SR 202 interchange for westbound lanes.

For westbound traffic at McKellips Road and Alma School Road, the intersection follows a horizontal curve, and there may be insufficient sight distance for approaching vehicles. To help mitigate rear-end crashes on that approach, it is recommended that a 36"x36" Signal Ahead warning sign (W3-3) be placed for westbound traffic 250 feet east of the stop bar. The sign size is per MUTCD standard, and sign placement is per MUTCD support.

A 36"x36" W3-3 is also recommended for the eastbound (McKellips Road) approach to the west intersection of the McKellips Road / SR 202 interchange in order to help reduce the number of eastbound vehicles disregarding the traffic signal and colliding with westbound (McKellips Road) left-turning vehicles. This sign is recommended to be placed 250 feet in advance of the stop bar.

The east intersection of the McKellips Road / SR 202 interchange should be studied further to determine whether there is adequate visibility between eastbound (McKellips) vehicles and right-turn-on-red northbound (eastbound SR 202) vehicles. The overpass bridge abutment might be causing visibility problems. This problem would be compounded by two other distinct problems: (1) because of the intersection's skew, northbound right-turning vehicles must turn more than 90 degrees to the left to view eastbound vehicles, and (2) possible lighting problems (discussed in Section 4 below) related to the fact that eastbound vehicles are emerging from under the freeway overpass on this approach. If this problem cannot be fixed directly, it is recommended that the northbound approach be signed for No Turn On Red (R10-11a or R10-11b).

4. *Lighting*

The high occurrence of incidents involving collisions with animals on Gilbert Road between Thomas Road and SR 87, and the fact that all those incidents occurred at night may indicate that lighting is needed along that segment of roadway. Additional lighting would assist drivers in identifying animals in the roadway with greater advance distance, allowing more time to perform avoidance maneuvers.

Rear-end and angle incidents under freeway overpasses at some diamond interchanges might be reduced if additional lighting were installed under the bridge for daytime use. The lighting would help to equalize lighting levels between the area under the bridge and the surrounding area in direct sunlight. If there is high contrast in those lighting levels, it may be difficult for approaching drivers to see stopped vehicles under the bridge. The patterns of rear-end and angle incidents under freeway overpasses were noted previously in Section II.E for the west intersection of the McKellips Road / SR 202 interchange. A full lighting analysis would be needed prior to any lighting improvements under any of the overpasses in the study area.

5. *Fencing*

The source of the livestock and wild game animals involved in collisions on Gilbert Road between Thomas Road and SR 87 should be investigated. Based on the results of that investigation, fencing should be added, augmented, or repaired as necessary in order to create a continuous boundary between the roadway and source of the animals. Depending on the location of the fencing, the improvements could be the responsibility of the land owners or of MCDOT. The improved fencing should reduce the number of animals straying into the roadway. This, in conjunction with improved lighting as discussed previously, is anticipated to reduce the number of animal-related crashes on this segment of roadway.

B. *Preferred Alternatives*

1. *Dobson Road Bridge*

Discussion between SRPMIC, MCDOT, and local stakeholders has yielded the preferred alternative for the Dobson Road bridge crossing: Alternative D3 (one of the Build Scenario D alternatives). The Build Scenario D alternatives provide the most direct route for motorists between SR 202 and SR 101, which is a common need for commuter routes, and they provide a direct connection between popular commercial destinations such as Casino Arizona and Mesa Riverview. In the future, SRPMIC would like to develop the area along the SR 101 corridor for commercial land use. By providing the Dobson Road connection at 92nd Street, this future commercial area would have a direct connection to existing commercial developments located south of SR 202 and west of SR 101. Specifically, Alternative D3 is preferred because it avoids the Salt River Materials Group to the west, therefore minimizing impacts to the mining operations and to truck traffic during and following construction.

In terms of traffic demands, building any of the proposed Dobson Road bridge alternatives would help to distribute traffic along this network. Since commuter traffic generally flows between the areas to the southeast and to the northwest of the study area, the most useful alternative for commuters would be one that links to the most westerly point possible along McKellips Road, which is the connection point at 92nd Street (Build Scenario D). This new link in the roadway network would be oriented most closely to southeast/northwest of any of the build scenario alternatives. By connecting closer to SR 101 than the other alternatives, it likely will be used by more commuter traffic, providing more relief to traffic on existing roadways, including McKellips Road.

From the perspective of local connectivity, the priority in selecting the Dobson Road bridge alternative has been based primarily on the opportunity for development, both on within the Mesa area south of SR 202, and on the tribal lands west of SR 101 and at the existing SRMG site. Until the development is underway several years in the future, the need for the bridge and the local connection between SR 202 and McKellips Road is relatively low, especially with the freeway improvements ADOT is planning or currently constructing.

2. *Gilbert Road Bridge*

From the traffic operations perspective, once the bridge is open to traffic, all three proposed bridge alignment alternatives are identical because they have the same connection points into the network on either side of the river, at the SR 87 intersection to the north and at the Thomas Road intersection to the south, and there would be negligible differences in link length, and thus in travel time, between the three alternatives. Therefore, the selection of the preferred alternative for the Gilbert Road bridge is a matter of constructability.

In order to minimize traffic delays during construction, the preferred alternative from the traffic perspective is either Alternative G1 or Alternative G3. Construction along the alignment of either of these alternatives would cause the least amount of traffic delays during construction by maintaining the current lane capacity of one travel lane in each direction during the construction period.

The Gilbert Road bridge project has the highest priority of the four major proposed improvements due to the recent loss of the northbound roadway during the December 2007 flood event. However, if the low-flow crossing were to be replaced in the interim, the need for the Gilbert Road bridge project is reduced, and Alternative G1 would become the sole preferred alternative from the traffic perspective.

3. *McKellips Road Bridge*

From the traffic operations perspective, once the bridge is open to traffic, all three proposed bridge alignment alternatives are identical because they have the same connection points into the network on either side of the

river, at the intersection with Alma School Road to the west and at the SR 202 interchange to the east, and there would be negligible differences in link length, and thus in travel time, between the three alternatives. Therefore, the selection of the preferred alternative for the McKellips Road bridge is a matter of constructability.

In terms of traffic delay and the safety of the traveling public during construction, Alternative M1, which follows the alignment of the existing McKellips Road river crossing, is the preferred alternative for this bridge. Under this alternative, McKellips Road, between Alma School Road and SR 202, would be closed to traffic during construction, and traffic would be rerouted. With the affected portion of the existing roadway closed, the bridge structure and roadway can be constructed in a reduced timeframe without exposing motorists to excessive construction or roadway constraints. Motorists using the Alma School bridge will incur a delay during the construction phase of the McKellips Road bridge.

The prioritization for the McKellips Road bridge is low relative to the other proposed bridge projects since the four-lane river-bottom crossing is closed infrequently due to flooding, and when it is closed, traffic can be rerouted with minimal delays. However, the cost for repairs to the roadway subsequent to flood events will continue to add up. As travel demand increases in the next five to ten years, the need for the bridge crossing will be more pronounced.

4. *McKellips Road Widening*

From the traffic operations perspective, once the widened roadway is open to traffic, all three proposed widening alternatives are identical, as they all result in the same design parameters, such as cross-section and design speed. Furthermore, there are no major constructability issues that would impact traffic during construction for any of the alternatives more than the others. Therefore, there is no preferred alternative for widening McKellips Road; the three proposed alternatives have equal merit.

C. *Other Future Improvements*

1. *Traffic Signals*

The results of the traffic operational analysis indicate several traffic signal needs for the future roadway network within the study area, no matter which Dobson Road bridge build alternative is selected, or if the project is not built.

It is strongly recommended that the traffic signals along McKellips Road and at the freeway interchange of Dobson Road / SR 202 be coordinated with each other. At a minimum, signal controller clocks should be synchronized with GPS devices or other technology. However, the recommendation of this study is to add traffic signal interconnect in the form of underground fiber-optics to connect the signals with each other and with a central traffic management center, and for the owning agencies to enable coordination of their signals with those owned by others. It is recommended that the underground infrastructure, including electrical conduits, pull boxes, and vaults, be installed along McKellips Road, Dobson Road, and Gilbert Road in conjunction with the construction of the projects proposed in this DCR, and it is further recommended that the fiber-optic cabling and electronic equipment be installed either at the same time or as soon thereafter as is feasible so that the traffic corridors can begin benefiting from signal coordination. A supplemental recommendation is that the signal timing plans for these corridors be reviewed periodically to optimize phasing, splits, and progression as traffic volume continues to increase.

Beyond signal coordination and optimization, it is recommended that the signal-specific improvements listed in **Table IV-6** for the No-Build scenario and in **Table IV-7** for the build scenarios be considered for implementation, as appropriate, in conjunction with the recommended roadway geometric improvements. For the preferred Dobson

Road bridge alternative with any combination of build alternatives for the other three proposed major improvements, those improvements are as follows.

- McKellips Road / SR 101 Interchange: No signal improvements
- McKellips Road / 92nd Street:
  - Change phasing for northbound left from permitted to protected (in conjunction with adding a second northbound left-turn lane)
  - Change phasing for southbound left from permitted-only to permitted/protected
  - Add overlap phase for eastbound right (in conjunction with adding an eastbound right-turn lane)
  - Change phasing for westbound left from permitted-only to permitted/protected
- McKellips Road / Dobson Road:
  - Signalize intersection
  - Make phasing for eastbound left permitted/protected
- McKellips Road / Alma School Road:
  - Add overlap phase for westbound right (in conjunction with adding one or more westbound right-turn lane)
  - Change phasing for southbound left from permitted-only to protected-only (in conjunction with adding a second southbound left-turn lane)
- McKellips Road / SR 202 Interchange: No signal improvements
- Dobson Road / SR 202 Interchange:
  - Change phasing to resemble phasing at the McKellips Road / SR 101 interchange
- Gilbert Road / Thomas Road:
  - Change phasing for northbound left from permitted/protected to permitted-only (optional downgrade)
  - Change phasing for southbound left from permitted/protected to protected-only (in conjunction with adding a second southbound left-turn lane)
  - Change phasing for eastbound and westbound left from permitted-only to permitted/protected
  - Add overlap phase for westbound right
- Gilbert Road / SR 87:
  - Change phasing for northbound and southbound approaches from a single phase to split phasing
  - Add overlap phase for northbound right
  - Change phasing for eastbound left from protected-only to permitted/protected (optional downgrade)

Before the recommendation is implemented to signalize the McKellips Road / Dobson Road intersection, a formal signal warrant analysis, which is outside the scope of this study, is recommended to be performed to determine if and when that intersection should be signalized. Similarly, a signal warrant analysis should be performed on the McKellips Road/ Longmore Road intersection.

2. *Roadway Geometrics*

a. Lane Configurations

The operational analysis indicated the need for lane configuration changes, as listed in **Table IV-6** for the No-Build scenario and in **Table IV-7** for the build scenarios. The lane additions associated with the four proposed major improvements are operationally beneficial and are recommended for implementation. Also recommended are additional auxiliary lane changes at intersections. For the preferred Dobson Road bridge alternative with any

combination of build alternatives for the other three proposed major improvements, the recommended improvements are as follows.

Roadway Segments

- McKellips Road, SR 101 to SR 202:
  - Widen roadway to six lanes (three lanes in each direction)
- McKellips Road, Alma School Road to SR 202:
  - Add bridge crossing over the Salt River
- Dobson Road, SR 202 to McKellips Road:
  - Add new six-lane roadway (three lanes in each direction)
  - Add bridge crossing over the Salt River
- Gilbert Road, Thomas Road to SR 87:
  - Widen roadway to six lanes (three lanes in each direction)
  - Add bridge crossing over the Salt River for northbound lanes

Intersections and Interchanges

- McKellips Road / SR 101 Interchange:
  - Add one through lane eastbound and westbound
- McKellips Road / 92nd Street:
  - Add one through lane eastbound and westbound
  - Add second northbound left-turn lane
  - Add northbound right-turn lane
  - Add second southbound through lane
  - Add eastbound right-turn lane
  - Remove westbound right-turn lane (optional downgrade)
- McKellips Road / Dobson Road:
  - Add one through lane eastbound and westbound
  - Add southbound left-turn lane
  - Remove eastbound right-turn lane (optional downgrade)
- McKellips Road / Alma School Road:
  - Add westbound dual right-turn lanes
  - Add one northbound through lane
  - Add one southbound through lane
  - Add second southbound through lane
- McKellips Road / SR 202 Interchange:
  - Add one through lane eastbound and westbound
  - Change shared left/right turn lane on SR 202 eastbound off-ramp to be an exclusive left-turn lane (optional downgrade)
- Dobson Road / SR 202 Interchange:
  - Add three northbound through lanes through the interchange (both intersections)
  - Add second northbound right-turn lane at the SR 202 eastbound on-ramp
  - Add the north leg with four southbound through lanes
  - Add one southbound through lane to the middle and south legs of the interchange
  - Add dual right-turn lanes for the SR 202 westbound off-ramp
  - Remove the through lane for the SR 202 westbound off-ramp

- Gilbert Road / Thomas Road:
  - Add one through lane northbound
  - Add second southbound left-turn lane
  - Add second westbound right-turn lane
- Gilbert Road / SR 87:
  - Add second northbound left-turn lane
  - Add second eastbound right-turn lane
  - Remove westbound right-turn lane (optional downgrade)

While the operational analysis indicates the need for triple left-turn lanes for the southbound approach at Gilbert Road / Thomas Road and for the westbound approach at Gilbert Road / SR 87 in the year 2030, they are not being recommended at this time. Triple left-turn lanes are not functionally desirable, and they should be built only at such time that they are needed. During final design, the existing single left-turn lane for southbound at the Gilbert Road / Thomas Road intersection should be evaluated for possible expansion to dual left-turn lanes. Then the left turn at that location and the existing dual left-turn lanes for westbound at Gilbert Road / SR 87 should be upgraded to triple left-turn lanes only on the distant future when the Falcon Field employment center in north Mesa sees significant development, which may be after 2030.

The timing of the McKellips Road widening project and the closure of the SRMG gravel pit should be revisited during final design. The pit was expected to be mined out in eight years (as stated in 2007), but economic conditions have reduced the production. The mine may extend its production beyond the proposed construction of the widening of McKellips Road. In that event, the need for longer acceleration and deceleration lanes should be revisited.

During final design, a channelized free right-turn movement should be considered for the eastbound to southbound right-turn lane at the McKellips Road / 92nd Street intersection. There would be three receiving lanes but only two southbound through lanes, which enables the free right-turn movement. This feature could improve the overall intersection operations.

Recommended intersection configurations are shown in **Figure VI-1**.

b. Storage Lengths

A queuing analysis was performed for all the recommended left-turn and right-turn lanes at study area intersections to determine storage length and total deceleration length (storage length plus transition taper length). The analysis was performed in accordance with the guidelines specified in the MCDOT Traffic Impact Procedures. Recommended storage lengths are shown with the intersection configurations in **Figure VI-1**, and worksheets showing the methodology and calculations are provided in **Appendix AD**.

3. ITS Improvements

The traffic signal interconnect that is being recommended, and the new traffic signal that is being recommended conditionally, were discussed previously in Section VI.C.1. Additionally, the interconnect infrastructure would serve as a future communications backbone.

Up to three CCTVs and up to three DMSs are being recommended for further evaluation at the project design level.

Figure VI-1 Recommended Intersection Configuration – Sheet 1 of 12

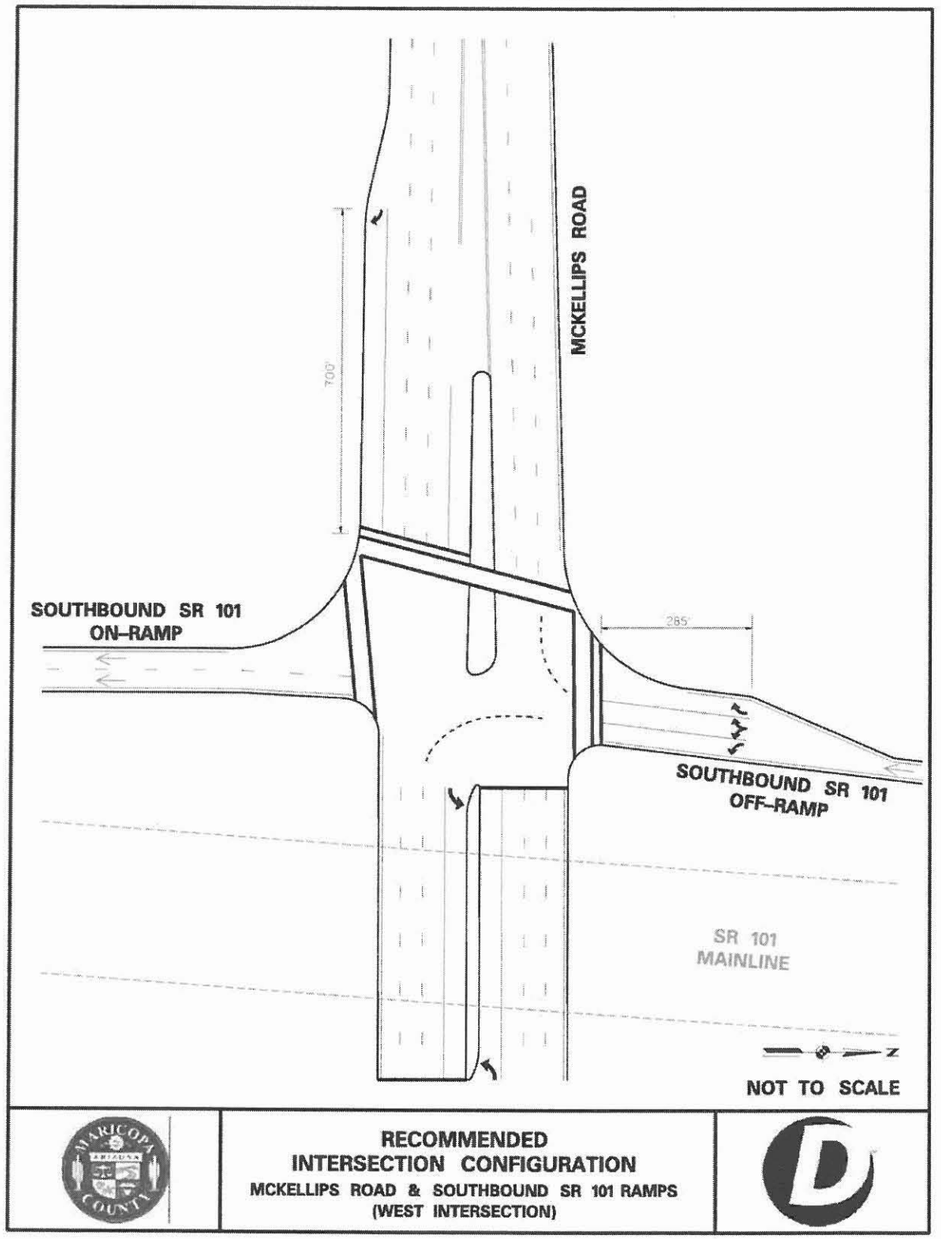


Figure VI-1 Recommended Intersection Configuration – Sheet 2 of 12

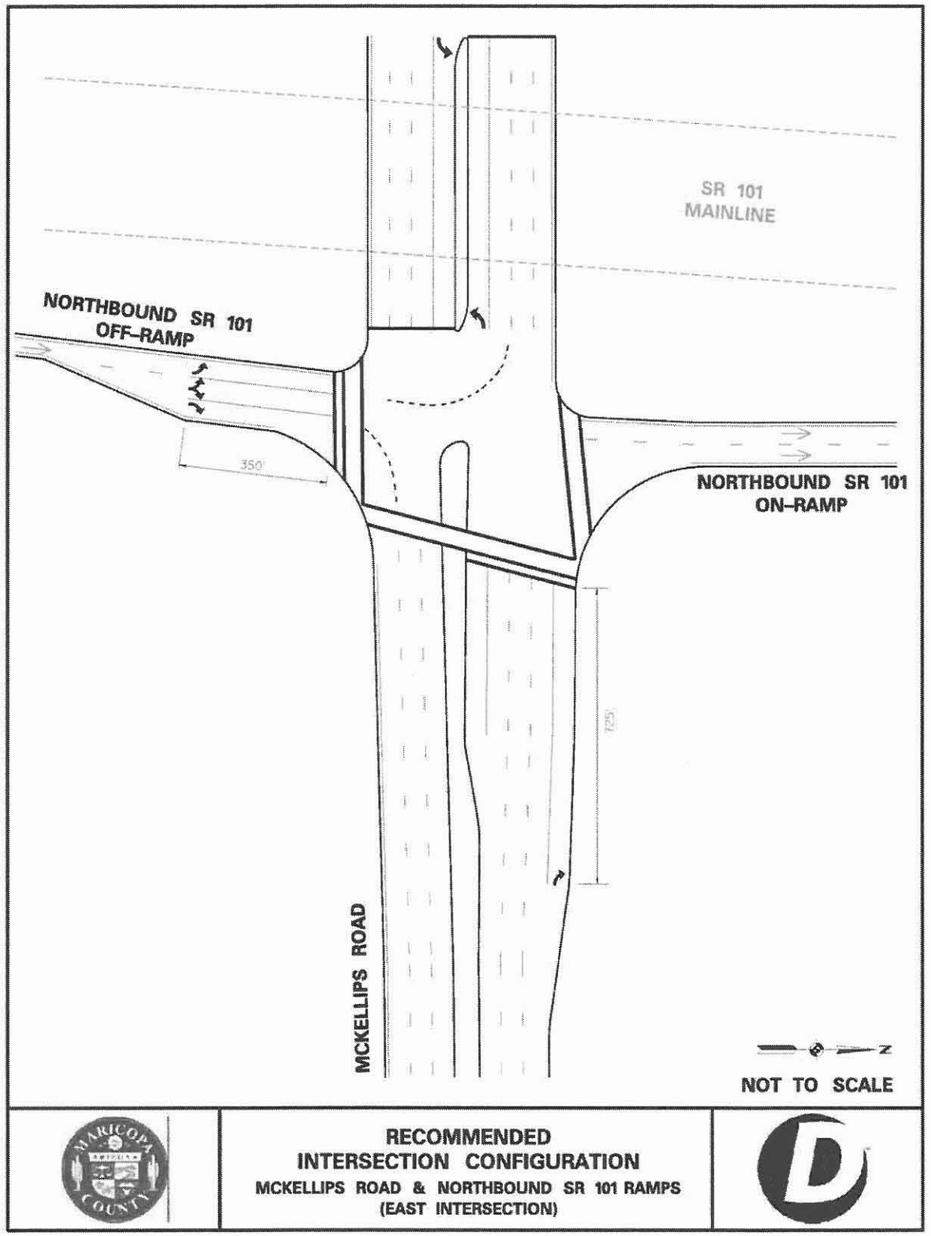


Figure VI-1 Recommended Intersection Configuration – Sheet 3 of 12

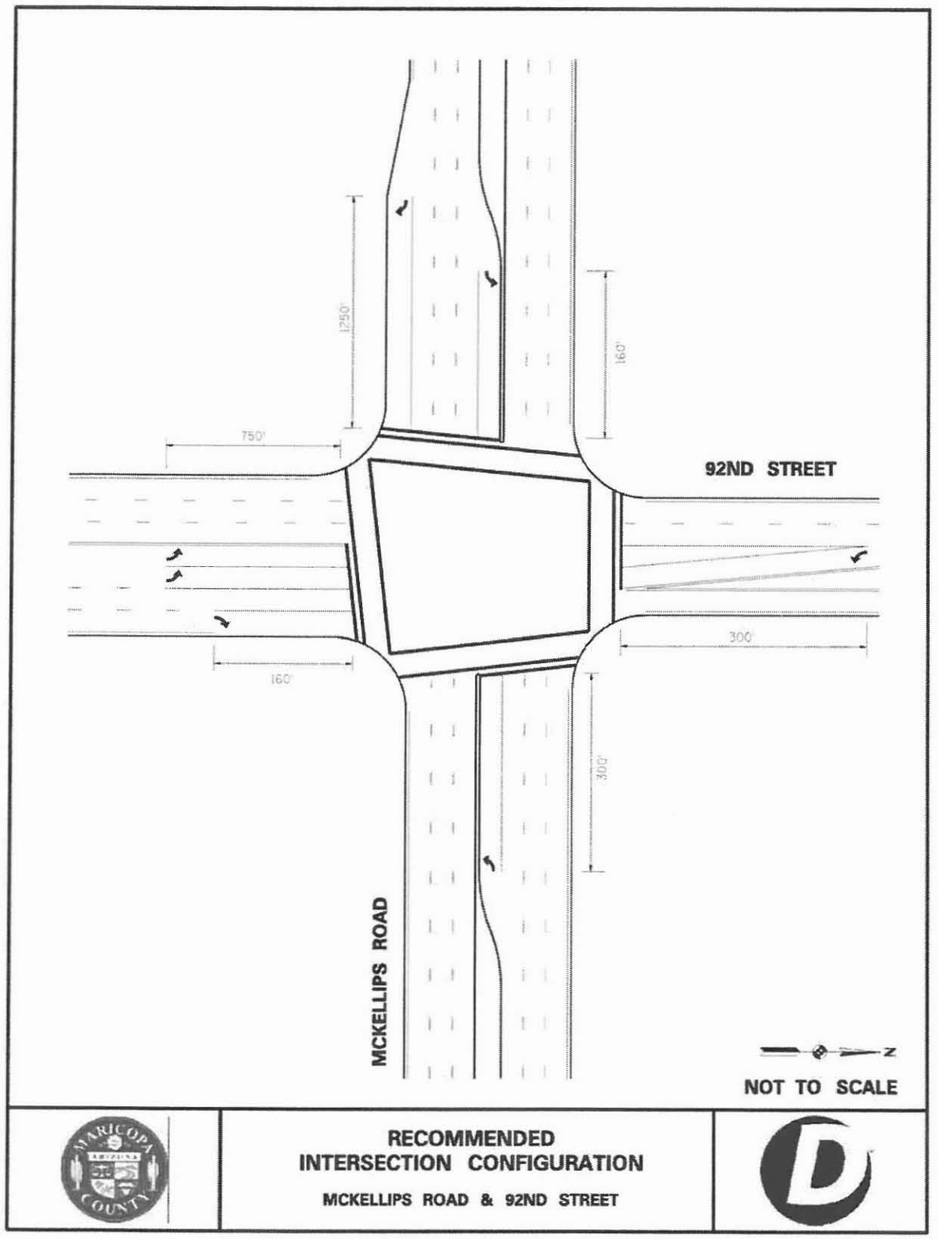


Figure VI-1 Recommended Intersection Configuration – Sheet 4 of 12

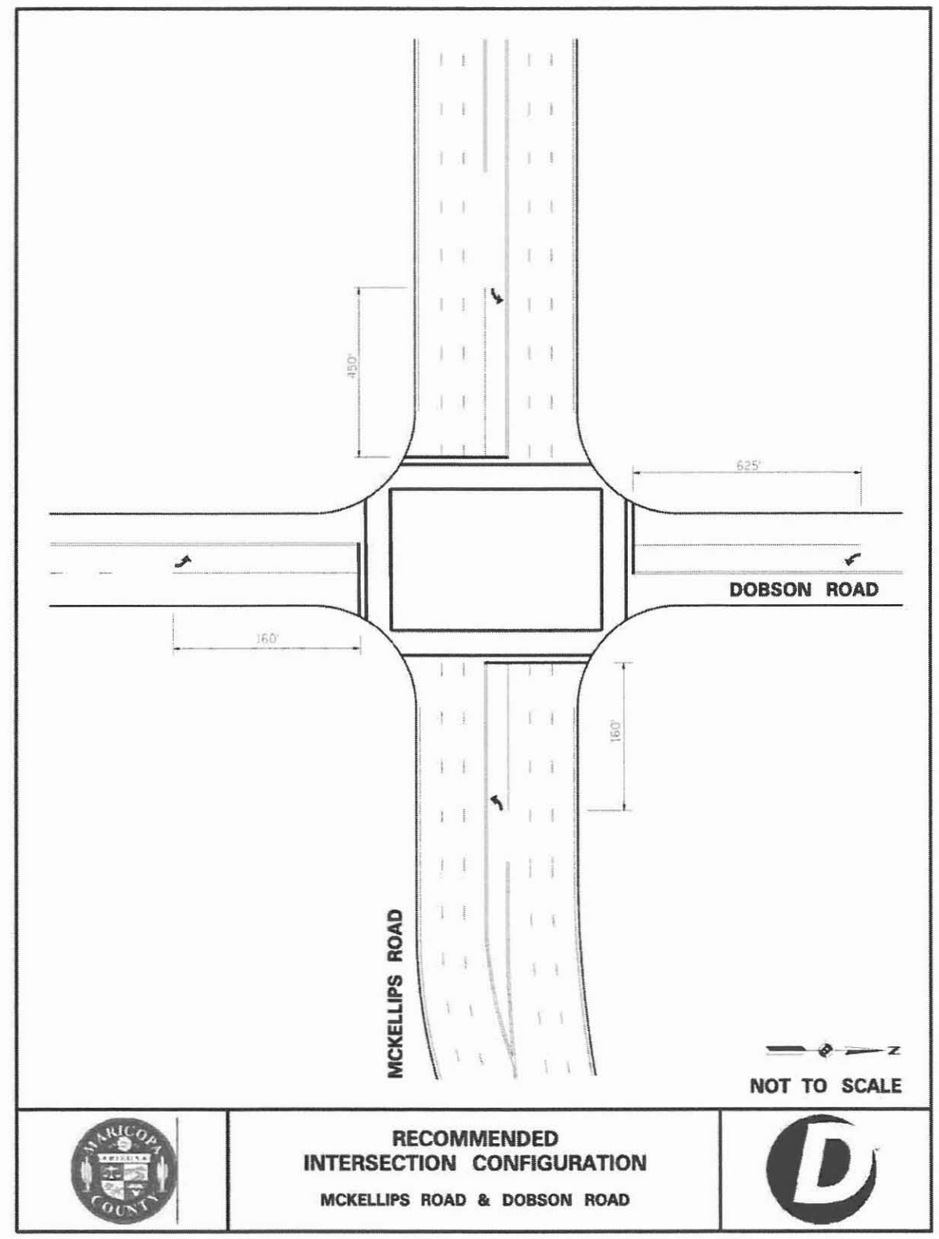


Figure VI-1 Recommended Intersection Configuration – Sheet 5 of 12

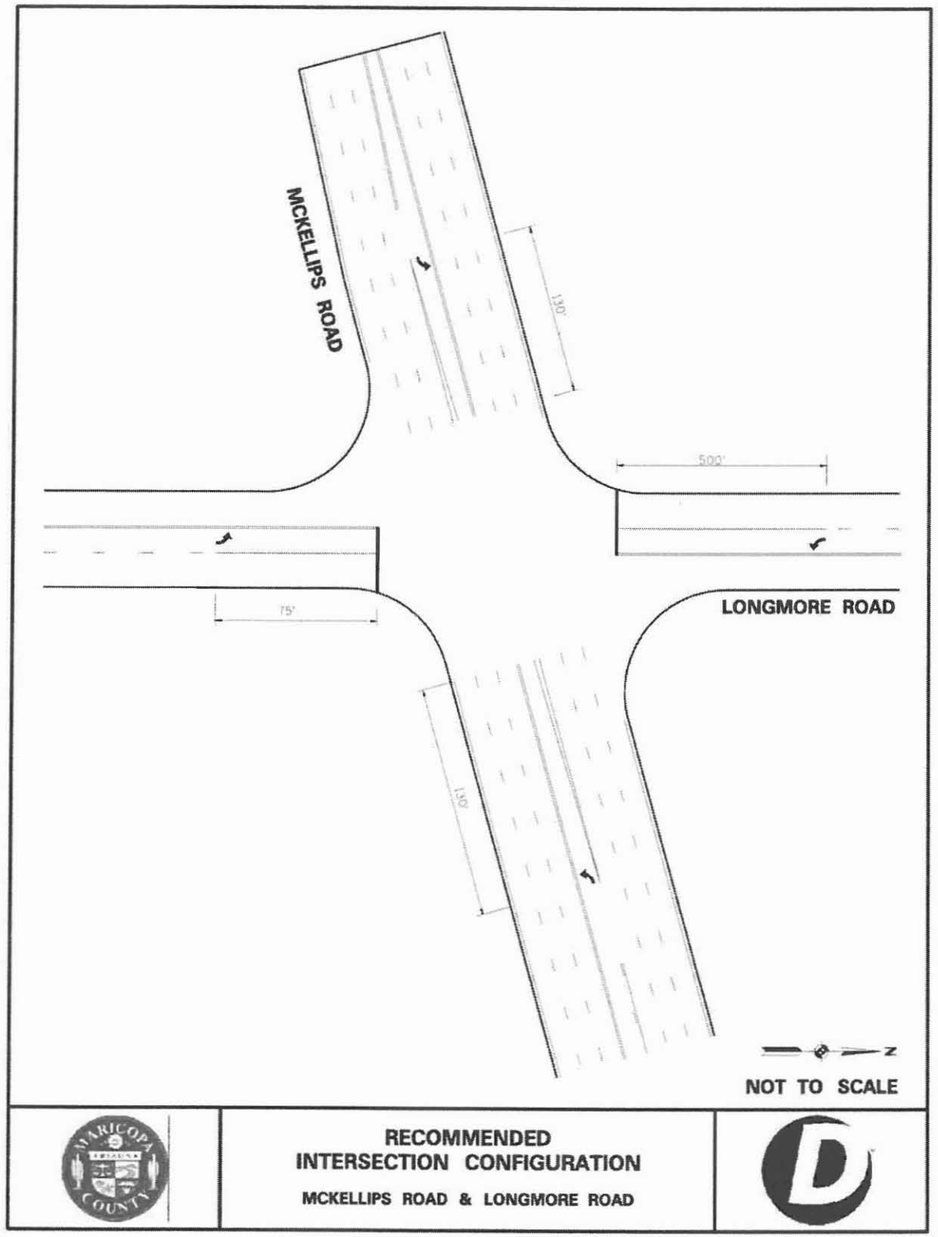


Figure VI-1 Recommended Intersection Configuration – Sheet 6 of 12

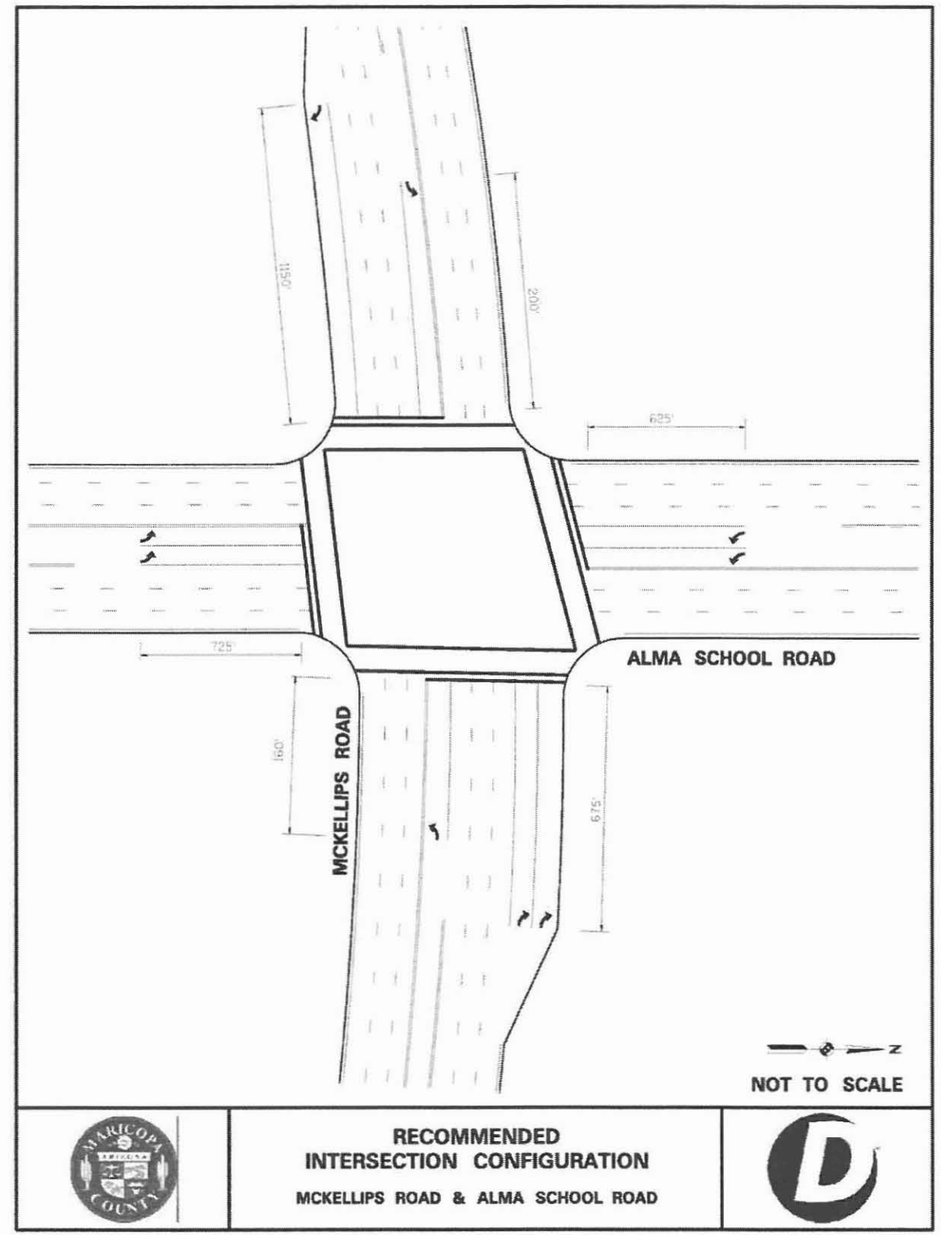


Figure VI-1 Recommended Intersection Configuration – Sheet 7 of 12

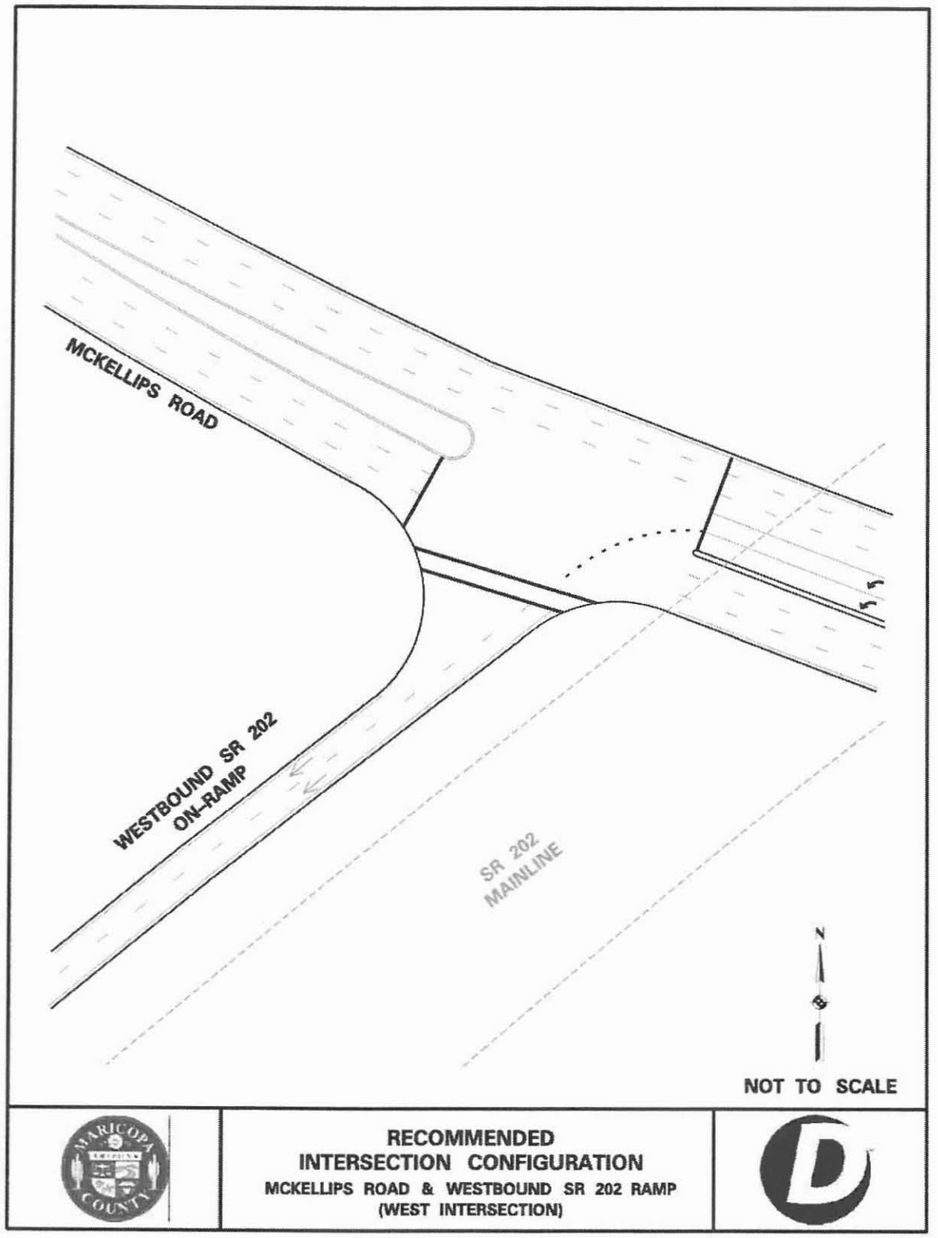


Figure VI-1 Recommended Intersection Configuration – Sheet 8 of 12

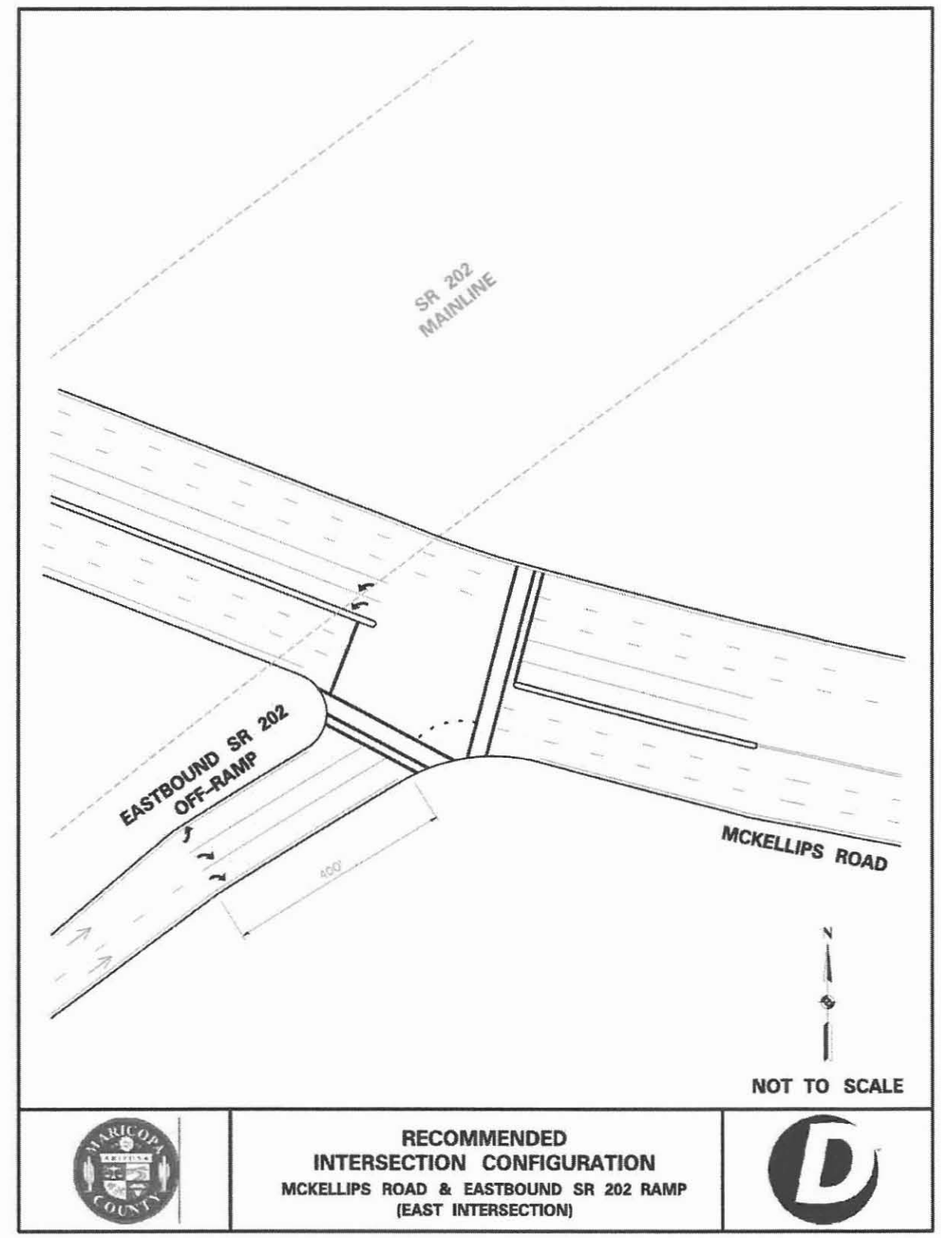


Figure VI-1 Recommended Intersection Configuration – Sheet 9 of 12

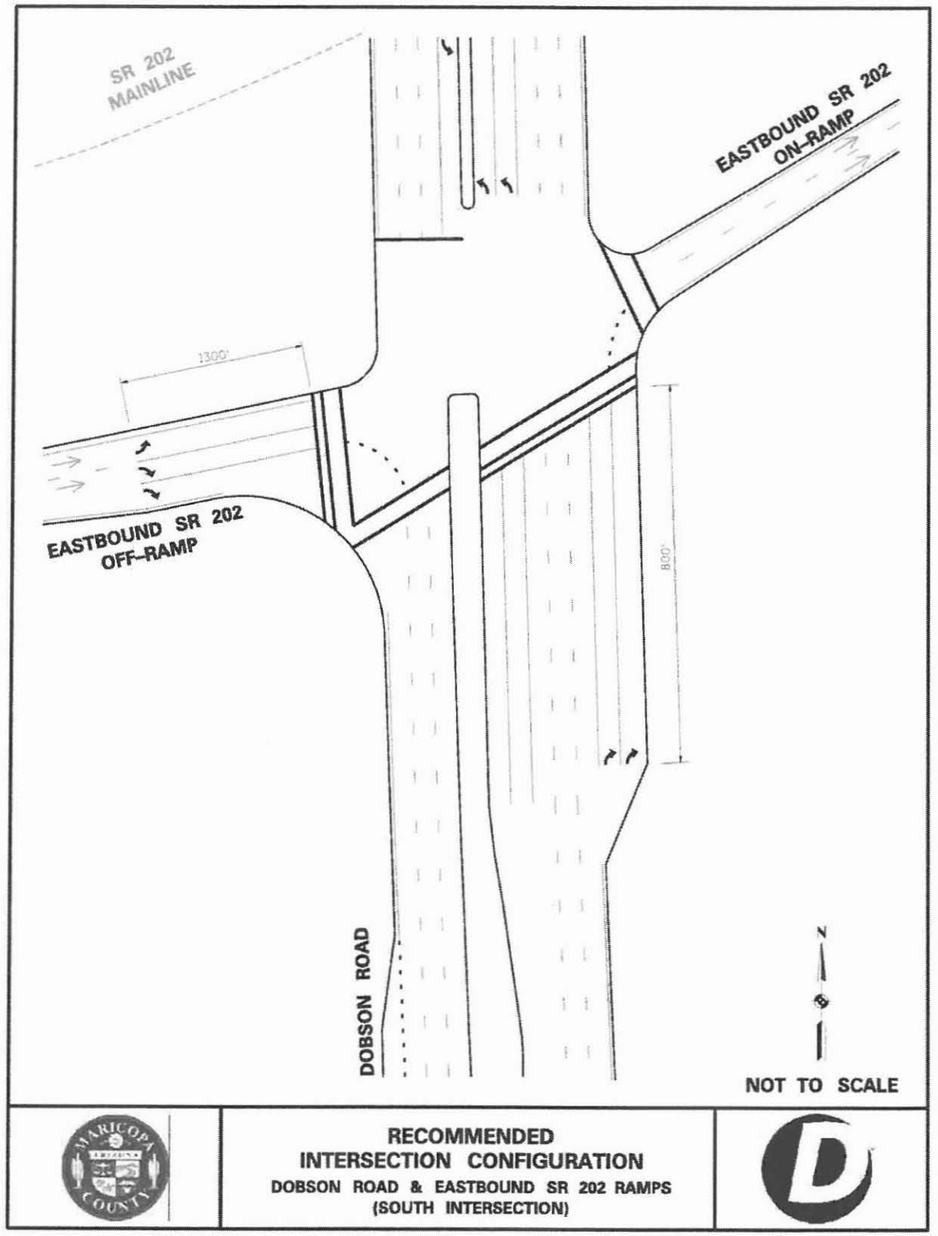


Figure VI-1 Recommended Intersection Configuration – Sheet 10 of 12

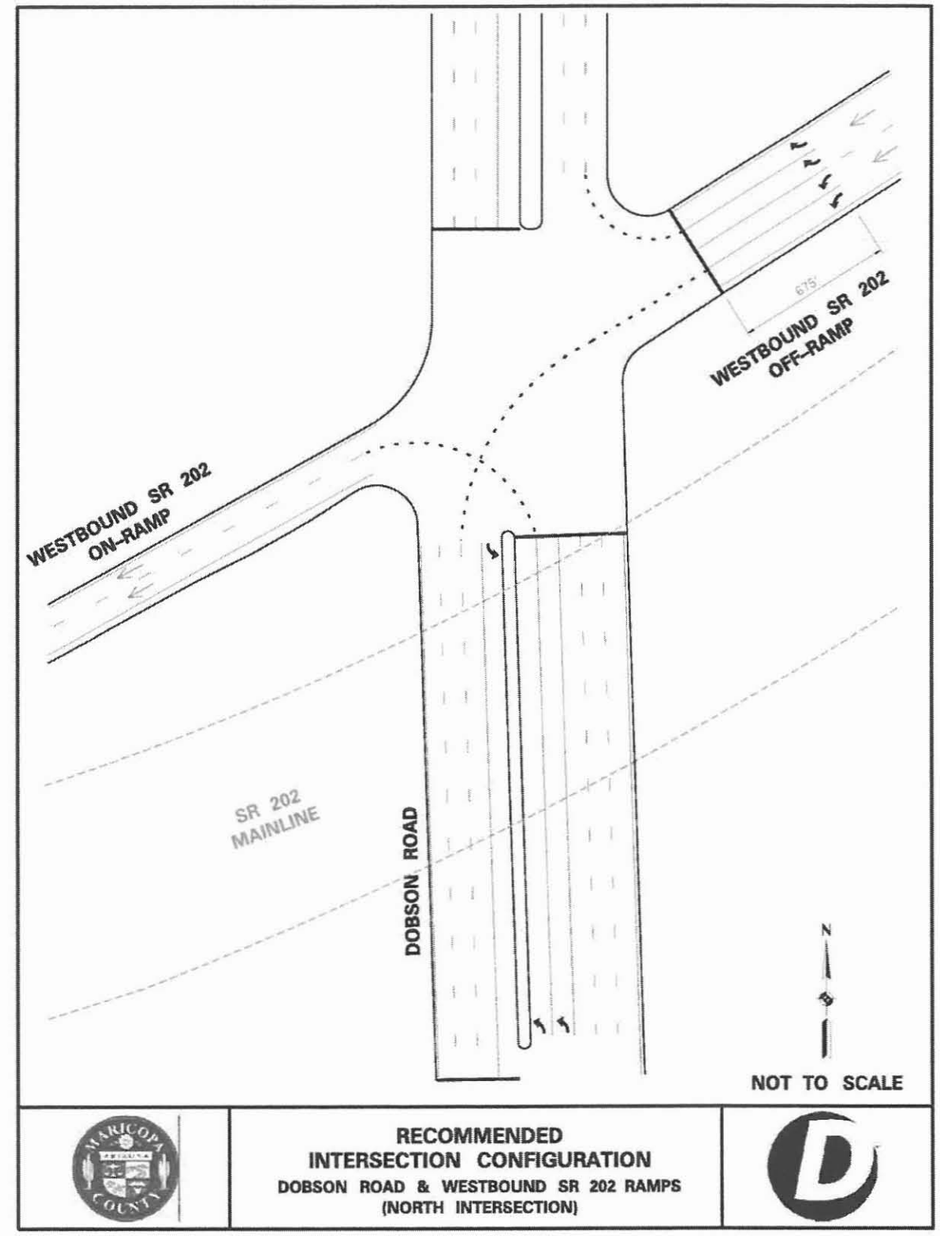


Figure VI-1 Recommended Intersection Configuration – Sheet 11 of 12

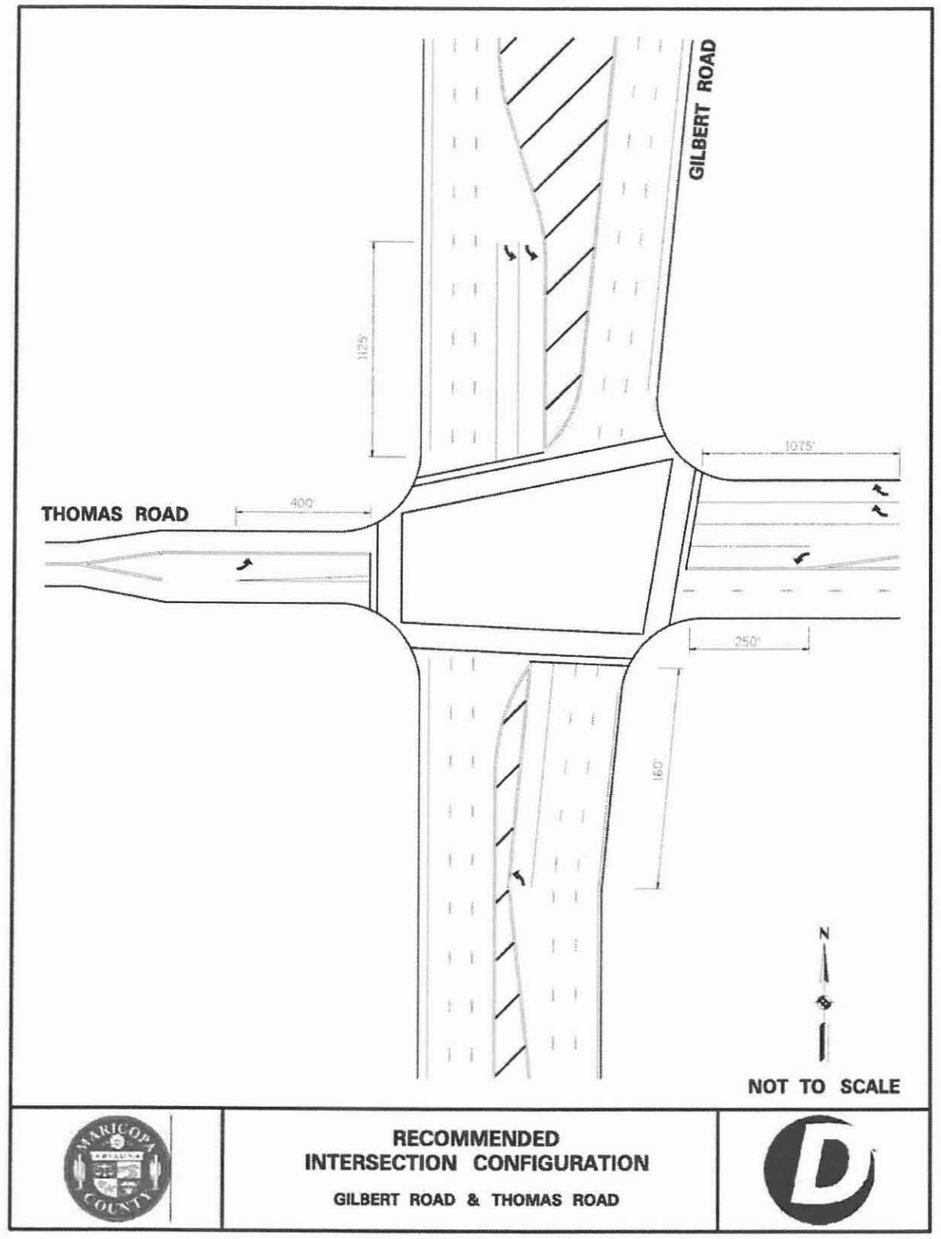
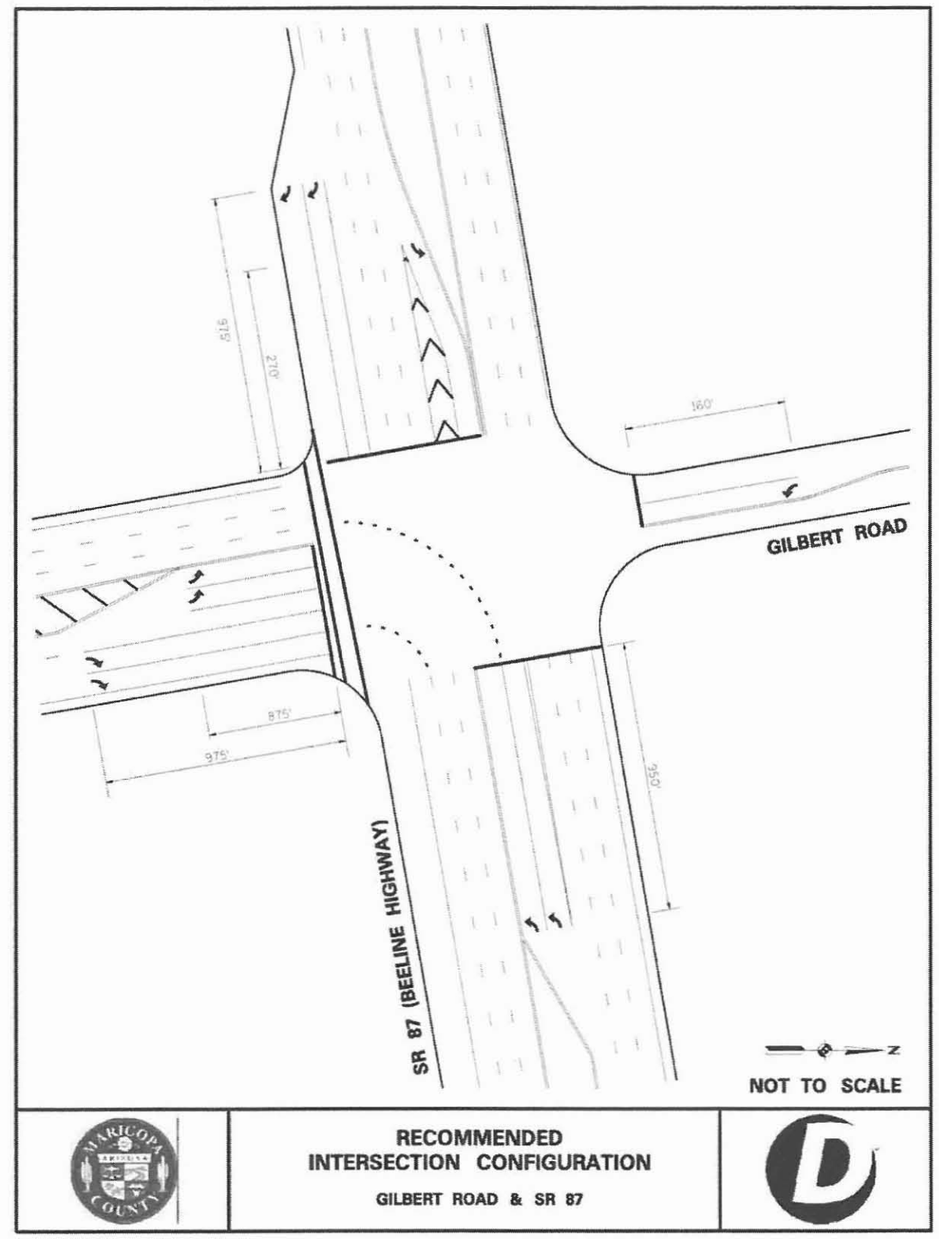


Figure VI-1 Recommended Intersection Configuration – Sheet 12 of 12



APPENDIX A TRAFFIC SUPPLEMENTAL DATA (SUPPORT LIGHTING RECCOMMENDATIONS)

Date Compiled: 01/20/09 — Completed by: M. Marietti Checked By: Polasik 3/17/09

Traffic Volumes (AADT)	2002	2003	2004	2005	2006	2007	Average
Total						17,000	17,000

Crash Severity and Type							Total	Average	Percent
Injury Severity's (Crash Only)									
Fatal Injury			1		2	1	4	0.80	9.09%
Incapacitating Injury					2		2	0.40	4.55%
Non Incapacitating Injury	2	3			2	3	10	2.00	22.73%
Possible Injury		6					6	1.20	13.64%
No Injury	2	12	1	1	4	2	22	4.40	50.00%
Not Reported							0	0.00	0.00%
Unknown							0	0.00	0.00%
Total	4	21	2	1	10	6	44	8.80	100.00%
Crash Involvement (Crash Only)									
1-Vehicle		5	1		1	1	8	1.60	18.18%
2-Vehicles	4	15	1	1	8	3	32	6.40	72.73%
3-Vehicles or more		1			1	2	4	0.80	9.09%
Body Style (At Fault Vehicle)									
Passenger Car, regular	1	14			6	3	24	4.80	54.55%
Passenger Car, small							0	0.00	0.00%
Light Truck (Van, Mini-van, Panel, Pick-up, sports utility)	1	5	1		2	2	11	2.20	25.00%
Truck Tractor and Semi-Trailer							0	0.00	0.00%
Other Truck Combination	1		1	1			3	0.60	6.82%
Motor Home or House Car							0	0.00	0.00%
Motorcycle (two or three wheel)		1			1		2	0.40	4.55%
Emergency Vehicle							0	0.00	0.00%
Commercial Bus							0	0.00	0.00%
Non-Commercial Bus							0	0.00	0.00%
Pick-Up with Camper							0	0.00	0.00%
RV (all wheel drive, dune buggy, jalopy, custom made)		1					1	0.20	2.27%
School Bus, Type 1							0	0.00	0.00%
School Bus, Type 2							0	0.00	0.00%
Taxicab							0	0.00	0.00%
Other Vehicle							0	0.00	0.00%
Not Reported	1				1	1	3	0.60	6.82%
Unknown							0	0.00	0.00%
Direction of Travel (At Fault Vehicle)									
Northbound		4		1	4	1	10	2.00	22.73%
Southbound	1	2	1		1	0	5	1.00	11.36%
Eastbound		4			2	2	8	1.60	18.18%
Westbound	3	11			2	3	19	3.80	43.18%
Unknown			1		1		2	0.40	4.55%
Residence (At Fault Vehicle)									
Local							0	0.00	0.00%
In State							0	0.00	0.00%
Out of State							0	0.00	0.00%
Out of Country							0	0.00	0.00%
Unknown							0	0.00	0.00%

Type of Collision	2002	2003	2004	2005	2006	2007	Total	Average	Percent
First Harmful (Crash Only)									
All Other Non-Collision							0	0.00	0.00%
Breakage of Vehicle							0	0.00	0.00%
Fire in Vehicle							0	0.00	0.00%
Hot Brakes							0	0.00	0.00%
Object Fall On Vehicle							0	0.00	0.00%
Object Falling From, or In Vehicle							0	0.00	0.00%
Object Thrown Toward, In, or On Vehicle							0	0.00	0.00%
Occupant Fall from Vehicle							0	0.00	0.00%
Overturning							0	0.00	0.00%
with Animal - Livestock							0	0.00	0.00%
with Animal - Pets							0	0.00	0.00%
with Animal - Wild Animal							0	0.00	0.00%
with Animal - Wild Game							0	0.00	0.00%
with Bridge Culvert							0	0.00	0.00%
with Boulder							0	0.00	0.00%
with Curb		1	1				2	0.40	4.55%
with Embankment							0	0.00	0.00%
with Fallen Tree or Stone							0	0.00	0.00%
with Fence							0	0.00	0.00%
with Guardrail							0	0.00	0.00%
with Luminaire							0	0.00	0.00%
with Median Barrier							0	0.00	0.00%
with Motor Vehicle Other Roadway							0	0.00	0.00%
with Motor Vehicle Parked Improperly							0	0.00	0.00%
with Object Dropped from Vehicle							0	0.00	0.00%
with Object on Roadway							0	0.00	0.00%
with Other Fixed Object							0	0.00	0.00%
with Other Motor Vehicle							0	0.00	0.00%
with Other Non-Fixed							0	0.00	0.00%
with Pedalcyclist					1		1	0.20	2.27%
with Pedestrian						1	1	0.20	2.27%
with Spec Devices							0	0.00	0.00%
with Traffic Barrier							0	0.00	0.00%
with Traffic Barricade							0	0.00	0.00%
with Traffic Sign							0	0.00	0.00%
with Traffic Signal							0	0.00	0.00%
with Tree		2					2	0.40	4.55%
with Utility Pole		1					1	0.20	2.27%
with Motor Vehicle Parked Properly							0	0.00	0.00%
with Vehicle Parked Properly							0	0.00	0.00%
Other							0	0.00	0.00%
with Unknown							0	0.00	0.00%

	2002	2003	2004	2005	2006	2007	Total	Average	Percent
Manner of Collision (Crash Only)									
Single Vehicle		5	1		1	1	8	1.60	18.18%
Angle		2			3	1	6	1.20	13.64%
Head-On							0	0.00	0.00%
Rear-End		7			2	1	10	2.00	22.73%
Left Turn	4	1	1		1	2	9	1.80	20.45%
Right Turn							0	0.00	0.00%
Sideswipe (same)		4		1		1	6	1.20	13.64%
Sideswipe (opposite)		1					1	0.20	2.27%
U-Turn		1			1		2	0.40	4.55%
Backing					1		1	0.20	2.27%
Swerve							0	0.00	0.00%
Non-Contact (not m/c)							0	0.00	0.00%
Other					1		1	0.20	2.27%
Unknown							0	0.00	0.00%
Unit Action (At Fault Vehicle)									
Going Straight Ahead	1	12			6	3	22	4.40	50.00%
Changing Lanes		3					3	0.60	6.82%
Making Left Turn	3	2	1		1	1	8	1.60	18.18%
Making Right Turn				1			1	0.20	2.27%
Avoiding Vehicle, Objects, etc.							0	0.00	0.00%
Slowing in Traffic way						1	1	0.20	2.27%
Stopped in Traffic way							0	0.00	0.00%
Making U-Turn		1			1		2	0.40	4.55%
Backing					1		1	0.20	2.27%
Overtaking / Passing							0	0.00	0.00%
Entering Alley or Driveway							0	0.00	0.00%
Leaving Alley or Driveway							0	0.00	0.00%
Working On or Pushing Vehicle							0	0.00	0.00%
Driverless Moving Vehicle							0	0.00	0.00%
Other		1					1	0.20	2.27%
Unknown		2	1		1	1	5	1.00	11.36%
Vehicle Condition (At Fault Vehicle)									
No Apparent Defects	3	15	1	1	9	4	33	6.60	75.00%
One or More Smooth Tires							0	0.00	0.00%
No Trailer Brakes							0	0.00	0.00%
Defective Brakes		1					1	0.20	2.27%
Defective Exhaust System							0	0.00	0.00%
Defective Headlights							0	0.00	0.00%
Defective Steering		1					1	0.20	2.27%
Defective Tail Lights							0	0.00	0.00%
Defective Wiper Blades							0	0.00	0.00%
Defective Windshield Wiper Blades							0	0.00	0.00%
Fire							0	0.00	0.00%
Puncture or Blowout		1					1	0.20	2.27%
Other Defects							0	0.00	0.00%
Not Reported		1					1	0.20	2.27%
Unknown	1	2	1		1	2	7	1.40	15.91%

	2002	2003	2004	2005	2006	2007	Total	Average	Percent
Physical Condition (At Fault Vehicle Driver)									
No Apparent Influence	3	14	1	1	7	4	30	6.00	68.18%
Had Been Drinking		3	1		2		6	1.20	13.64%
Sleepy-Fatigued							0	0.00	0.00%
Appeared to be Under Influence of Drugs							0	0.00	0.00%
Physical Impairment							0	0.00	0.00%
Ill-Ability Influenced							0	0.00	0.00%
Prescription Drugs							0	0.00	0.00%
Not Reported		1				1	2	0.40	4.55%
Other		1					1	0.20	2.27%
Unknown	1	2			1	1	5	1.00	11.36%
Violation/Behavior (At Fault Vehicle)									
No Improper Driving		2					2	0.40	4.55%
Speed Too Fast for Conditions	1	5			1	2	9	1.80	20.45%
Exceeded Lawful Speed					1		1	0.20	2.27%
Failed to Yield Right -Of-Way	2	2	1		1	2	8	1.60	18.18%
Followed Too Closely		1					1	0.20	2.27%
Disregarded Traffic Signal		1			2	1	4	0.80	9.09%
Ran Stop Sign							0	0.00	0.00%
Made Improper Turn		1		1	1		3	0.60	6.82%
Unsafe Lane Change		4					4	0.80	9.09%
Drove in Opposing Traffic Lane		2					2	0.40	4.55%
Other Unsafe Passing							0	0.00	0.00%
Pass in No-Passing Lane							0	0.00	0.00%
Inattention		1			1		2	0.40	4.55%
Knowingly Operated Faulty or Missing Equipment							0	0.00	0.00%
Trailer Sway							0	0.00	0.00%
Construction Zone							0	0.00	0.00%
Other					1		1	0.20	2.27%
Unknown	1	2	1		2	1	7	1.40	15.91%
Safety Devices (Driver of At Fault Vehicle Only)									
Not Used	1	1	1			1	4	0.80	9.09%
Lap Belt		2					2	0.40	4.55%
Lap & Shoulder	2	13	1	1	7	3	27	5.40	61.36%
Air Bag Deployed							0	0.00	0.00%
Protective Helmet					1		1	0.20	2.27%
Passive Belt							0	0.00	0.00%
Passive & Lap							0	0.00	0.00%
Other							0	0.00	0.00%
Unknown	1	5			2	2	10	2.00	22.73%

Crash Conditions									
	2002	2003	2004	2005	2006	2007	Total	Average	Percent
Light Conditions (Crash Only)									
Daylight	2	15		1	8	5	31	6.20	70.45%
Dawn / Dusk	1		1				2	0.40	4.55%
Darkness	1	6	1		2	1	11	2.20	25.00%
Not Reported							0	0.00	0.00%
Road Surface Condition (Crash Only)									
Dry	3	18	1	1	7	6	36	7.20	81.82%
Wet		1			2		3	0.60	6.82%
Sand, Mud, Dirt, Oil or Gravel							0	0.00	0.00%
Snow							0	0.00	0.00%
Slush							0	0.00	0.00%
Not Reported, No Unusual Conditions	1	2	1		1		5	1.00	11.36%
Other							0	0.00	0.00%
Unknown							0	0.00	0.00%
Weather Condition (Crash Only)									
Clear	4	16	1	1	7	6	35	7.00	79.55%
Cloudy		3					3	0.60	6.82%
Fog, Smog, Smoke							0	0.00	0.00%
Blowing Sand, Soil, Dirt, Snow							0	0.00	0.00%
Severe Crosswinds							0	0.00	0.00%
Rain		1			2		3	0.60	6.82%
Sleet/Hail							0	0.00	0.00%
Snow							0	0.00	0.00%
Not Reported, No Adverse Conditions		1	1		1		3	0.60	6.82%
Unusual Road Condition (Crash Only)									
Under Construction							0	0.00	0.00%
Obstruction - Unlighted at Night							0	0.00	0.00%
Under Repairs							0	0.00	0.00%
Temporary Lane Closure							0	0.00	0.00%
Defective Shoulders							0	0.00	0.00%
Run-Off-Road (Crash Only)									
Driver Reaction - Over Correction							0	0.00	0.00%
Driver Reaction - Controlled Stop							0	0.00	0.00%
Driver Distraction (Cell Phone)							0	0.00	0.00%
Driver Distraction (Talking To Passenger)							0	0.00	0.00%
Driver Distraction (Picking Up Object)							0	0.00	0.00%
Occupants Not Wearing Restraints		1	1				2	0.40	4.55%
Had Been Drinking		2	1		1		4	0.80	9.09%
Sleepy/Fatigue							0	0.00	0.00%
Hydroplane							0	0.00	0.00%
Blow-out							0	0.00	0.00%
Other							0	0.00	0.00%
Unknown		1				1	2	0.40	4.55%

Occurrence by Hour of Day and Day of Week (Crash Only)								
Time	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Total
0000 - 0059			1					1
0100 - 0159			1				1	2
0200 - 0259							1	1
0300 - 0359								0
0400 - 0459								0
0500 - 0559		1	1					2
0600 - 0659		2	1					3
0700 - 0759			1					1
0800 - 0859	1	1		2	1	1		6
0900 - 0959								0
1000 - 1059		1	1	1			1	4
1100 - 1159	2			2				4
1200 - 1259					1			1
1300 - 1359					1			1
1400 - 1459	1				1	1		3
1500 - 1559		2	1					3
1600 - 1659	1		1			1		3
1700 - 1759		2						2
1800 - 1859					1		1	2
1900 - 1959		1						1
2000 - 2059	1		1					2
2100 - 2159							1	1
2200 - 2259								0
2300 - 2399				1				1
Total by Days	6	10	9	6	5	3	5	44

Crash Occurrence by Month (Crash Only)									
Month	2002	2003	2004	2005	2006	2007	Total		Percent
January		5				1	6		13.64%
February		1				1	2		4.55%
March						1	1		2.27%
April					1	2	3		6.82%
May					1		1		2.27%
June		2		1		1	4		9.09%
July		3			1		4		9.09%
August	2	2			2		6		13.64%
September		3			4		7		15.91%
October		2					2		4.55%
November	1	1	2				4		9.09%
December	1	2			1		4		9.09%
Total by Year	4	21	2	1	10	6	44		100.00%
Crash Types at Intersections (At Fault Vehicle)									
							Total	Average	Percent
Right Angle									
NB & EB		1			1		2	0.40	4.55%
NB & WB					1		1	0.20	2.27%
SB & EB		1			1	1	3	0.60	6.82%
SB & WB							0	0.00	0.00%
Left Turn									
SB to EB, NB	1	1	1		1		4	0.80	9.09%
NB to WB, SB						1	1	0.20	2.27%
WB to SB, EB	3						3	0.60	6.82%
EB to NB, WB						1	1	0.20	2.27%
Rear end									
NB		1			1		2	0.40	4.55%
SB							0	0.00	0.00%
EB		2					2	0.40	4.55%
WB		4			1	1	6	1.20	13.64%
Other									
NB							0	0.00	0.00%
SB							0	0.00	0.00%
EB							0	0.00	0.00%
WB							0	0.00	0.00%
Total Intersection	4	10	1	0	6	4	25	5.00	56.82%

Date Compiled: 01/20/09 — Completed by: M. Marietti Checked By: Polasik 3/17/09

Traffic Volumes (AADT)									
	2002	2003	2004	2005	2006	2007	Average		
Total						13,500	13,500		
Crash Severity and Type									
							Total	Average	Percent
Injury Severity's (Crash Only)									
Fatal Injury							0	0.00	0.00%
Incapacitating Injury				1	2	1	4	0.80	6.45%
Non Incapacitating Injury		3	2	1	1	1	8	1.60	12.90%
Possible Injury	1	4	2	3	2	1	13	2.60	20.97%
No Injury	6	4	8	4	12	2	36	7.20	58.06%
Not Reported							0	0.00	0.00%
Unknown				1			1	0.20	1.61%
Total	7	11	12	10	17	5	62	12.40	100.00%
Crash Involvement (Crash Only)									
1-Vehicle	4	6	8	1	2	2	23	4.60	37.10%
2-Vehicles	3	4	3	9	14	3	36	7.20	58.06%
3-Vehicles or more		1	1		1		3	0.60	4.84%
Body Style (At Fault Vehicle)									
Passenger Car, regular	5	4	11	8	12	4	44	8.80	70.97%
Passenger Car, small							0	0.00	0.00%
Light Truck (Van, Mini-van, Panel, Pick-up, sports utility)	2	5	1	2	4	1	15	3.00	24.19%
Truck Tractor and Semi-Trailer							0	0.00	0.00%
Other Truck Combination		1			1		2	0.40	3.23%
Motor Home or House Car							0	0.00	0.00%
Motorcycle (two or three wheel)		1					1	0.20	1.61%
Emergency Vehicle							0	0.00	0.00%
Commercial Bus							0	0.00	0.00%
Non-Commercial Bus							0	0.00	0.00%
Pick-Up with Camper							0	0.00	0.00%
RV (all wheel drive, dune buggy, jalopy, custom made)							0	0.00	0.00%
School Bus, Type 1							0	0.00	0.00%
School Bus, Type 2							0	0.00	0.00%
Taxicab							0	0.00	0.00%
Other Vehicle							0	0.00	0.00%
Not Reported							0	0.00	0.00%
Unknown							0	0.00	0.00%
Direction of Travel (At Fault Vehicle)									
Northbound	6	5	6	3	7	1	28	5.60	45.16%
Southbound	1	5	4	6	7	4	27	5.40	43.55%
Eastbound		1					1	0.20	1.61%
Westbound			2	1	3		6	1.20	9.68%
Unknown							0	0.00	0.00%
Residence (At Fault Vehicle)									
Local							0	0.00	0.00%
In State							0	0.00	0.00%
Out of State							0	0.00	0.00%
Out of Country							0	0.00	0.00%
Unknown							0	0.00	0.00%

Type of Collision	2002	2003	2004	2005	2006	2007	Total	Average	Percent
First Harmful (Crash Only)									
All Other Non-Collision		1				1	2	0.40	3.23%
Breakage of Vehicle							0	0.00	0.00%
Fire in Vehicle							0	0.00	0.00%
Hot Brakes							0	0.00	0.00%
Object Fall On Vehicle							0	0.00	0.00%
Object Falling From, or In Vehicle							0	0.00	0.00%
Object Thrown Toward, In, or On Vehicle							0	0.00	0.00%
Occupant Fall from Vehicle							0	0.00	0.00%
Overturning		1	1		1		3	0.60	4.84%
with Animal - Livestock	4	2	6	1		1	14	2.80	22.58%
with Animal - Pets							0	0.00	0.00%
with Animal - Wild Animal							0	0.00	0.00%
with Animal - Wild Game		1					1	0.20	1.61%
with Bridge Culvert							0	0.00	0.00%
with Boulder							0	0.00	0.00%
with Curb							0	0.00	0.00%
with Embankment							0	0.00	0.00%
with Fallen Tree or Stone							0	0.00	0.00%
with Fence			1				1	0.20	1.61%
with Guardrail							0	0.00	0.00%
with Luminaire							0	0.00	0.00%
with Median Barrier							0	0.00	0.00%
with Motor Vehicle Other Roadway							0	0.00	0.00%
with Motor Vehicle Parked Improperly							0	0.00	0.00%
with Object Dropped from Vehicle							0	0.00	0.00%
with Object on Roadway							0	0.00	0.00%
with Other Fixed Object		1			1		2	0.40	3.23%
with Other Motor Vehicle							0	0.00	0.00%
with Other Non-Fixed							0	0.00	0.00%
with Pedalcyclist							0	0.00	0.00%
with Pedestrian							0	0.00	0.00%
with Spec Devices							0	0.00	0.00%
with Traffic Barrier							0	0.00	0.00%
with Traffic Barricade							0	0.00	0.00%
with Traffic Sign							0	0.00	0.00%
with Traffic Signal							0	0.00	0.00%
with Tree							0	0.00	0.00%
with Utility Pole							0	0.00	0.00%
with Motor Vehicle Parked Properly							0	0.00	0.00%
with Vehicle Parked Properly							0	0.00	0.00%
Other							0	0.00	0.00%
with Unknown							0	0.00	0.00%

	2002	2003	2004	2005	2006	2007	Total	Average	Percent
Manner of Collision (Crash Only)									
Single Vehicle	4	6	8	1	2	2	23	4.60	37.10%
Angle			1			1	2	0.40	3.23%
Head-On				1			1	0.20	1.61%
Rear-End	2	2	3	6	11	1	25	5.00	40.32%
Left Turn	1	1			1		3	0.60	4.84%
Right Turn							0	0.00	0.00%
Sideswipe (same)		1		2	1	1	5	1.00	8.06%
Sideswipe (opposite)		1					1	0.20	1.61%
U-Turn							0	0.00	0.00%
Backing					1		1	0.20	1.61%
Swerve							0	0.00	0.00%
Non-Contact (not m/c)							0	0.00	0.00%
Other					1		1	0.20	1.61%
Unknown							0	0.00	0.00%
Unit Action (At Fault Vehicle)									
Going Straight Ahead	5	7	10	6	9	4	41	8.20	66.13%
Changing Lanes					1	1	2	0.40	3.23%
Making Left Turn		2		2	1		5	1.00	8.06%
Making Right Turn	1		1	2	4		8	1.60	12.90%
Avoiding Vehicle, Objects, etc.					1		1	0.20	1.61%
Slowing in Traffic way	1						1	0.20	1.61%
Stopped in Traffic way							0	0.00	0.00%
Making U-Turn							0	0.00	0.00%
Backing					1		1	0.20	1.61%
Overtaking / Passing							0	0.00	0.00%
Entering Alley or Driveway							0	0.00	0.00%
Leaving Alley or Driveway							0	0.00	0.00%
Working On or Pushing Vehicle							0	0.00	0.00%
Driverless Moving Vehicle							0	0.00	0.00%
Other			1				1	0.20	1.61%
Unknown		2					2	0.40	3.23%
Vehicle Condition (At Fault Vehicle)									
No Apparent Defects	7	10	10	10	15	3	55	11.00	88.71%
One or More Smooth Tires							0	0.00	0.00%
No Trailer Brakes							0	0.00	0.00%
Defective Brakes							0	0.00	0.00%
Defective Exhaust System							0	0.00	0.00%
Defective Headlights							0	0.00	0.00%
Defective Steering							0	0.00	0.00%
Defective Tail Lights							0	0.00	0.00%
Defective Wiper Blades							0	0.00	0.00%
Defective Windshield Wiper Blades							0	0.00	0.00%
Fire							0	0.00	0.00%
Puncture or Blowout							0	0.00	0.00%
Other Defects							0	0.00	0.00%
Not Reported							0	0.00	0.00%
Unknown		1	2		2	2	7	1.40	11.29%

	2002	2003	2004	2005	2006	2007	Total	Average	Percent
Physical Condition (At Fault Vehicle Driver)									
No Apparent Influence	7	6	8	8	10	3	42	8.40	67.74%
Had Been Drinking		2		1	2		5	1.00	8.06%
Sleepy-Fatigued		1			1		2	0.40	3.23%
Appeared to be Under Influence of Drugs							0	0.00	0.00%
Physical Impairment							0	0.00	0.00%
Ill-Ability Influenced			1		1		2	0.40	3.23%
Prescription Drugs							0	0.00	0.00%
Not Reported							0	0.00	0.00%
Other						1	1	0.20	1.61%
Unknown		2	3	1	3	1	10	2.00	16.13%
Violation/Behavior (At Fault Vehicle)									
No Improper Driving	3	1	6	1	1	2	14	2.80	22.58%
Speed Too Fast for Conditions	2	2	3	3	10		20	4.00	32.26%
Exceeded Lawful Speed		1					1	0.20	1.61%
Failed to Yield Right -Of-Way				1			1	0.20	1.61%
Followed Too Closely					1		1	0.20	1.61%
Disregarded Traffic Signal	1		1		1		3	0.60	4.84%
Ran Stop Sign							0	0.00	0.00%
Made Improper Turn		2					2	0.40	3.23%
Unsafe Lane Change						1	1	0.20	1.61%
Drove in Opposing Traffic Lane		1		1			2	0.40	3.23%
Other Unsafe Passing							0	0.00	0.00%
Pass in No-Passing Lane							0	0.00	0.00%
Inattention		2		4	3		9	1.80	14.52%
Knowingly Operated Faulty or Missing Equipment							0	0.00	0.00%
Trailer Sway							0	0.00	0.00%
Construction Zone							0	0.00	0.00%
Other			1			1	2	0.40	3.23%
Unknown	1	2	1		1	1	6	1.20	9.68%
Safety Devices (Driver of At Fault Vehicle Only)									
Not Used	1	1		1	3		6	1.20	9.68%
Lap Belt							0	0.00	0.00%
Lap & Shoulder	6	7	10	9	12	5	49	9.80	79.03%
Air Bag Deployed							0	0.00	0.00%
Protective Helmet		1					1	0.20	1.61%
Passive Belt							0	0.00	0.00%
Passive & Lap							0	0.00	0.00%
Other							0	0.00	0.00%
Unknown		2	2		2		6	1.20	9.68%

Crash Conditions									
	2002	2003	2004	2005	2006	2007	Total	Average	Percent
Light Conditions (Crash Only)									
Daylight	2	4	5	7	13	3	34	6.80	54.84%
Dawn / Dusk				2	2	1	5	1.00	8.06%
Darkness	5	7	7	1	2	1	23	4.60	37.10%
Not Reported							0	0.00	0.00%
Road Surface Condition (Crash Only)									
Dry	7	9	10	10	17	5	58	11.60	93.55%
Wet		2	1				3	0.60	4.84%
Sand, Mud, Dirt, Oil or Gravel							0	0.00	0.00%
Snow							0	0.00	0.00%
Slush							0	0.00	0.00%
Not Reported, No Unusual Conditions							0	0.00	0.00%
Other							0	0.00	0.00%
Unknown			1				1	0.20	1.61%
Weather Condition (Crash Only)									
Clear	7	9	10	10	15	4	55	11.00	88.71%
Cloudy		1	1		2	1	5	1.00	8.06%
Fog, Smog, Smoke							0	0.00	0.00%
Blowing Sand, Soil, Dirt, Snow							0	0.00	0.00%
Severe Crosswinds							0	0.00	0.00%
Rain		1	1				2	0.40	3.23%
Sleet/Hail							0	0.00	0.00%
Snow							0	0.00	0.00%
Not Reported, No Adverse Conditions							0	0.00	0.00%
Unusual Road Condition (Crash Only)									
Under Construction							0	0.00	0.00%
Obstruction - Unlighted at Night							0	0.00	0.00%
Under Repairs							0	0.00	0.00%
Temporary Lane Closure							0	0.00	0.00%
Defective Shoulders							0	0.00	0.00%
Run-Off-Road (Crash Only)									
Driver Reaction - Over Correction							0	0.00	0.00%
Driver Reaction - Controlled Stop							0	0.00	0.00%
Driver Distraction (Cell Phone)							0	0.00	0.00%
Driver Distraction (Talking To Passenger)							0	0.00	0.00%
Driver Distraction (Picking Up Object)							0	0.00	0.00%
Occupants Not Wearing Restraints					1		1	0.00	1.61%
Had Been Drinking		2					2	0.00	3.23%
Sleepy/Fatigue							0	0.00	0.00%
Hydroplane							0	0.00	0.00%
Blow-out							0	0.00	0.00%
Other							0	0.00	0.00%
Unknown							0	0.00	0.00%

Occurrence by Hour of Day and Day of Week (Crash Only)								
Time	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Total
0000 - 0059			1		1			2
0100 - 0159		1					1	2
0200 - 0259								0
0300 - 0359								0
0400 - 0459								0
0500 - 0559						1		1
0600 - 0659					1			1
0700 - 0759	1	3		1	1	1		7
0800 - 0859			1	2	1			4
0900 - 0959			1				1	2
1000 - 1059	2		1			1		4
1100 - 1159	1							1
1200 - 1259							1	1
1300 - 1359		1		1		1		3
1400 - 1459								0
1500 - 1559			1				2	3
1600 - 1659		1			1		2	4
1700 - 1759				1	1	1	1	4
1800 - 1859			1	1	2			4
1900 - 1959			2		1	1		4
2000 - 2059	1		1	1			1	4
2100 - 2159							1	1
2200 - 2259	2		1		1			4
2300 - 2399	1		1	1		2	1	6
Total by Days	8	6	11	8	10	8	11	62

Crash Occurrence by Month (Crash Only)

Month	2002	2003	2004	2005	2006	2007	Total	Percent
January		1			2	1	4	6.45%
February		3	1		1		5	8.06%
March		1	1	1	1	1	5	8.06%
April			1	1	2	1	5	8.06%
May				1	2	2	5	8.06%
June			1	1	1		3	4.84%
July					5		5	8.06%
August	4	3	1	1			9	14.52%
September	1		1		2		4	6.45%
October	2	1	5	3			11	17.74%
November		1		1			2	3.23%
December		1	1	1	1		4	6.45%
Total by Year	7	11	12	10	17	5	62	100.00%

Crash Types at Intersections (At Fault Vehicle)

							Total	Average	Percent
Right Angle									
NB & EB							0	0.00	0.00%
NB & WB			1				1	0.20	1.61%
SB & EB							0	0.00	0.00%
SB & WB						1	1	0.20	1.61%
Left Turn									
SB to EB, NB		1					1	0.20	1.61%
NB to WB, SB	1						1	0.20	1.61%
WB to SB, EB							0	0.00	0.00%
EB to NB, WB					1		1	0.20	1.61%
Rear end									
NB	2	2	1	3	5		13	2.60	20.97%
SB				2	3	1	6	1.20	9.68%
EB							0	0.00	0.00%
WB			2	1	3		6	1.20	9.68%
Other									
NB							0	0.00	0.00%
SB					1		1	0.20	1.61%
EB							0	0.00	0.00%
WB							0	0.00	0.00%
Total Intersection	3	3	4	6	13	2	31	6.20	50.00%

Date Compiled: 01/20/09 — Completed by: M. Marietti Checked By: Polasik 3/17/09

Traffic Volumes (AADT)	2002	2003	2004	2005	2006	2007	Average
Total							

Crash Severity and Type							Total	Average	Percent
Injury Severity's (Crash Only)									
Fatal Injury							0	0.00	0.00%
Incapacitating Injury			1				1	0.20	7.14%
Non Incapacitating Injury				1			1	0.20	7.14%
Possible Injury				1	1		2	0.40	14.29%
No Injury	1	4	2		1	2	10	2.00	71.43%
Not Reported							0	0.00	0.00%
Unknown							0	0.00	0.00%
Total	1	4	3	2	2	2	14	2.80	100.00%
Crash Involvement (Crash Only)									
1-Vehicle		1	1	1	1	1	5	1.00	35.71%
2-Vehicles	1	3	2	1	1	1	9	1.80	64.29%
3-Vehicles or more							0	0.00	0.00%
Body Style (At Fault Vehicle)									
Passenger Car, regular	1	4	3	1			9	1.80	64.29%
Passenger Car, small							0	0.00	0.00%
Light Truck (Van, Mini-van, Panel, Pick-up, sports utility)						2	2	0.40	14.29%
Truck Tractor and Semi-Trailer							0	0.00	0.00%
Other Truck Combination							0	0.00	0.00%
Motor Home or House Car							0	0.00	0.00%
Motorcycle (two or three wheel)				1			1	0.20	7.14%
Emergency Vehicle							0	0.00	0.00%
Commercial Bus							0	0.00	0.00%
Non-Commercial Bus							0	0.00	0.00%
Pick-Up with Camper							0	0.00	0.00%
RV (all wheel drive, dune buggy, jalopy, custom made)							0	0.00	0.00%
School Bus, Type 1							0	0.00	0.00%
School Bus, Type 2							0	0.00	0.00%
Taxicab							0	0.00	0.00%
Other Vehicle							0	0.00	0.00%
Not Reported					2		2	0.40	14.29%
Unknown							0	0.00	0.00%
Direction of Travel (At Fault Vehicle)									
Northbound	1		2	2	2	1	8	1.60	57.14%
Southbound		4				1	5	1.00	35.71%
Eastbound			1				1	0.20	7.14%
Westbound							0	0.00	0.00%
Unknown							0	0.00	0.00%
Residence (At Fault Vehicle)									
Local							0	0.00	0.00%
In State							0	0.00	0.00%
Out of State							0	0.00	0.00%
Out of Country							0	0.00	0.00%
Unknown							0	0.00	0.00%

Type of Collision	2002	2003	2004	2005	2006	2007	Total	Average	Percent
First Harmful (Crash Only)									
All Other Non-Collision				1			1	0.20	7.14%
Breakage of Vehicle							0	0.00	0.00%
Fire in Vehicle							0	0.00	0.00%
Hot Brakes							0	0.00	0.00%
Object Fall On Vehicle							0	0.00	0.00%
Object Falling From, or In Vehicle							0	0.00	0.00%
Object Thrown Toward, In, or On Vehicle							0	0.00	0.00%
Occupant Fall from Vehicle							0	0.00	0.00%
Overturning							0	0.00	0.00%
with Animal - Livestock							0	0.00	0.00%
with Animal - Pets							0	0.00	0.00%
with Animal - Wild Animal							0	0.00	0.00%
with Animal - Wild Game							0	0.00	0.00%
with Bridge Culvert							0	0.00	0.00%
with Boulder							0	0.00	0.00%
with Curb			1				1	0.20	7.14%
with Embankment							0	0.00	0.00%
with Fallen Tree or Stone							0	0.00	0.00%
with Fence						1	1	0.20	7.14%
with Guardrail							0	0.00	0.00%
with Luminaire							0	0.00	0.00%
with Median Barrier							0	0.00	0.00%
with Motor Vehicle Other Roadway							0	0.00	0.00%
with Motor Vehicle Parked Improperly							0	0.00	0.00%
with Object Dropped from Vehicle							0	0.00	0.00%
with Object on Roadway							0	0.00	0.00%
with Other Fixed Object							0	0.00	0.00%
with Other Motor Vehicle							0	0.00	0.00%
with Other Non-Fixed							0	0.00	0.00%
with Pedalcyclist							0	0.00	0.00%
with Pedestrian							0	0.00	0.00%
with Spec Devices							0	0.00	0.00%
with Traffic Barrier							0	0.00	0.00%
with Traffic Barricade							0	0.00	0.00%
with Traffic Sign							0	0.00	0.00%
with Traffic Signal							0	0.00	0.00%
with Tree							0	0.00	0.00%
with Utility Pole							0	0.00	0.00%
with Motor Vehicle Parked Properly		1					1	0.20	7.14%
with Vehicle Parked Properly							0	0.00	0.00%
Other							0	0.00	0.00%
with Unknown							0	0.00	0.00%

	2002	2003	2004	2005	2006	2007	Total	Average	Percent
Manner of Collision (Crash Only)									
Single Vehicle		1	1	1	1	1	5	1.00	35.71%
Angle		1				1	2	0.40	14.29%
Head-On							0	0.00	0.00%
Rear-End	1	1	1	1			4	0.80	28.57%
Left Turn							0	0.00	0.00%
Right Turn							0	0.00	0.00%
Sideswipe (same)		1	1		1		3	0.60	21.43%
Sideswipe (opposite)							0	0.00	0.00%
U-Turn							0	0.00	0.00%
Backing							0	0.00	0.00%
Swerve							0	0.00	0.00%
Non-Contact (not m/c)							0	0.00	0.00%
Other							0	0.00	0.00%
Unknown							0	0.00	0.00%
Unit Action (At Fault Vehicle)									
Going Straight Ahead	1	2	2			2	7	1.40	50.00%
Changing Lanes		1					1	0.20	7.14%
Making Left Turn				1	2		3	0.60	21.43%
Making Right Turn			1				1	0.20	7.14%
Avoiding Vehicle, Objects, etc.							0	0.00	0.00%
Slowing in Traffic way				1			1	0.20	7.14%
Stopped in Traffic way							0	0.00	0.00%
Making U-Turn		1					1	0.20	7.14%
Backing							0	0.00	0.00%
Overtaking / Passing							0	0.00	0.00%
Entering Alley or Driveway							0	0.00	0.00%
Leaving Alley or Driveway							0	0.00	0.00%
Working On or Pushing Vehicle							0	0.00	0.00%
Driverless Moving Vehicle							0	0.00	0.00%
Other							0	0.00	0.00%
Unknown							0	0.00	0.00%
Vehicle Condition (At Fault Vehicle)									
No Apparent Defects	1	4	3	2	1	2	13	2.60	92.86%
One or More Smooth Tires							0	0.00	0.00%
No Trailer Brakes							0	0.00	0.00%
Defective Brakes							0	0.00	0.00%
Defective Exhaust System							0	0.00	0.00%
Defective Headlights							0	0.00	0.00%
Defective Steering							0	0.00	0.00%
Defective Tail Lights							0	0.00	0.00%
Defective Wiper Blades							0	0.00	0.00%
Defective Windshield Wiper Blades							0	0.00	0.00%
Fire							0	0.00	0.00%
Puncture or Blowout							0	0.00	0.00%
Other Defects							0	0.00	0.00%
Not Reported							0	0.00	0.00%
Unknown					1		1	0.20	7.14%

	2002	2003	2004	2005	2006	2007	Total	Average	Percent
Physical Condition (At Fault Vehicle Driver)									
No Apparent Influence	1	3	2	1		2	9	1.80	64.29%
Had Been Drinking		1	1		1		3	0.60	21.43%
Sleepy-Fatigued							0	0.00	0.00%
Appeared to be Under Influence of Drugs							0	0.00	0.00%
Physical Impairment							0	0.00	0.00%
Ill-Ability Influenced							0	0.00	0.00%
Prescription Drugs							0	0.00	0.00%
Not Reported							0	0.00	0.00%
Other							0	0.00	0.00%
Unknown				1	1		2	0.40	14.29%
Violation/Behavior (At Fault Vehicle)									
No Improper Driving							0	0.00	0.00%
Speed Too Fast for Conditions	1	1	2		1	1	6	1.20	42.86%
Exceeded Lawful Speed							0	0.00	0.00%
Failed to Yield Right -Of-Way							0	0.00	0.00%
Followed Too Closely		2					2	0.40	14.29%
Disregarded Traffic Signal		1				1	2	0.40	14.29%
Ran Stop Sign							0	0.00	0.00%
Made Improper Turn							0	0.00	0.00%
Unsafe Lane Change					1		1	0.20	7.14%
Drove in Opposing Traffic Lane							0	0.00	0.00%
Other Unsafe Passing							0	0.00	0.00%
Pass in No-Passing Lane							0	0.00	0.00%
Inattention				1			1	0.20	7.14%
Knowingly Operated Faulty or Missing Equipment							0	0.00	0.00%
Trailer Sway							0	0.00	0.00%
Construction Zone							0	0.00	0.00%
Other			1	1			2	0.40	14.29%
Unknown							0	0.00	0.00%
Safety Devices (Driver of At Fault Vehicle Only)									
Not Used			1				1	0.20	7.14%
Lap Belt							0	0.00	0.00%
Lap & Shoulder	1	4	2	1	1	2	11	2.20	78.57%
Air Bag Deployed							0	0.00	0.00%
Protective Helmet							0	0.00	0.00%
Passive Belt							0	0.00	0.00%
Passive & Lap							0	0.00	0.00%
Other							0	0.00	0.00%
Unknown				1	1		2	0.40	14.29%

Crash Conditions									
	2002	2003	2004	2005	2006	2007	Total	Average	Percent
Light Conditions (Crash Only)									
Daylight	1	3	2	1	2	2	11	2.20	78.57%
Dawn / Dusk		1					1	0.20	7.14%
Darkness			1	1			2	0.40	14.29%
Not Reported							0	0.00	0.00%
Road Surface Condition (Crash Only)									
Dry	1	4	3	2	2	2	14	2.80	100.00%
Wet							0	0.00	0.00%
Sand, Mud, Dirt, Oil or Gravel							0	0.00	0.00%
Snow							0	0.00	0.00%
Slush							0	0.00	0.00%
Not Reported, No Unusual Conditions							0	0.00	0.00%
Other							0	0.00	0.00%
Unknown							0	0.00	0.00%
Weather Condition (Crash Only)									
Clear	1	4	3	2	2	2	14	2.80	100.00%
Cloudy							0	0.00	0.00%
Fog, Smog, Smoke							0	0.00	0.00%
Blowing Sand, Soil, Dirt, Snow							0	0.00	0.00%
Severe Crosswinds							0	0.00	0.00%
Rain							0	0.00	0.00%
Sleet/Hail							0	0.00	0.00%
Snow							0	0.00	0.00%
Not Reported, No Adverse Conditions							0	0.00	0.00%
Unusual Road Condition (Crash Only)									
Under Construction							0	0.00	0.00%
Obstruction - Unlighted at Night							0	0.00	0.00%
Under Repairs							0	0.00	0.00%
Temporary Lane Closure							0	0.00	0.00%
Defective Shoulders							0	0.00	0.00%
Run-Off-Road (Crash Only)									
Driver Reaction - Over Correction							0	0.00	0.00%
Driver Reaction - Controlled Stop							0	0.00	0.00%
Driver Distraction (Cell Phone)							0	0.00	0.00%
Driver Distraction (Talking To Passenger)							0	0.00	0.00%
Driver Distraction (Picking Up Object)							0	0.00	0.00%
Occupants Not Wearing Restraints							0	0.00	0.00%
Had Been Drinking		1	1		1		3	0.00	21.43%
Sleepy/Fatigue							0	0.00	0.00%
Hydroplane							0	0.00	0.00%
Blow-out							0	0.00	0.00%
Other							0	0.00	0.00%
Unknown					1		1	0.00	7.14%

Occurrence by Hour of Day and Day of Week (Crash Only)								
Time	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Total
0000 - 0059			1				1	2
0100 - 0159								0
0200 - 0259								0
0300 - 0359								0
0400 - 0459								0
0500 - 0559								0
0600 - 0659								0
0700 - 0759	1							1
0800 - 0859								0
0900 - 0959								0
1000 - 1059								0
1100 - 1159								0
1200 - 1259		3		1			1	5
1300 - 1359							1	1
1400 - 1459								0
1500 - 1559	1		1					2
1600 - 1659								0
1700 - 1759			1	1				2
1800 - 1859			1					1
1900 - 1959								0
2000 - 2059								0
2100 - 2159								0
2200 - 2259								0
2300 - 2399								0
Total by Days	2	3	4	2	0	0	3	14

Crash Occurrence by Month (Crash Only)

Month	2002	2003	2004	2005	2006	2007	Total	Percent
January		1	1		1		3	21.43%
February						1	1	7.14%
March		1		1			2	14.29%
April			1		1	1	3	21.43%
May			1				1	7.14%
June				1			1	7.14%
July		1					1	7.14%
August							0	0.00%
September	1						1	7.14%
October							0	0.00%
November		1					1	7.14%
December							0	0.00%
Total by Year	1	4	3	2	2	2	14	100.00%

Crash Types at Intersections (At Fault Vehicle)

							Total	Average	Percent
Right Angle									
NB & EB							0	0.00	0.00%
NB & WB							0	0.00	0.00%
SB & EB		1				1	2	0.40	14.29%
SB & WB							0	0.00	0.00%
Left Turn									
SB to EB, NB							0	0.00	0.00%
NB to WB, SB							0	0.00	0.00%
WB to SB, EB							0	0.00	0.00%
EB to NB, WB							0	0.00	0.00%
Rear end									
NB	1		1	1			3	0.60	21.43%
SB		1					1	0.20	7.14%
EB							0	0.00	0.00%
WB							0	0.00	0.00%
Other									
NB				1			1	0.20	7.14%
SB							0	0.00	0.00%
EB		1					1	0.20	7.14%
WB							0	0.00	0.00%
Total Intersection	1	3	1	2	0	1	8	1.60	57.14%

Gilbert Road Detailed Traffic Accident History

Accident Date & Time	Investigating Agency	On Road	At Road	Dist	Road Surface Condition	Injury Severity of Crash	Light Condition	Manner of Collision	First Harmful Event	Total Injury	Total Fatal	Unit #	Driver Physical Condition	Travel Dir	Weather Condition	Violations/Behavior	Traffic Unit Action	Body Style	Vehicle Condition #1	Vehicle Condition # 2	Safety Device Used	Run Off Road
8/16/2002 18:40	Dept. of Public Safety	GILBERT RD	S 0087	-0.004	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	N	Clear	Speed Too Fast for Conditions	Slowing in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
8/16/2002 18:40	Dept. of Public Safety	GILBERT RD	S 0087	-0.004	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	N	Clear	No Improper Driving	Stopped in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
8/17/2002 23:17	Salt River Reservation	GILBERT RD	S 0087	0	Dry	No Injury	Darkness	Single Vehicle	Collision with Animal Livestock	0	0	1	No Apparent Influence	N	Clear	Unknown	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
8/26/2002 20:24	Salt River Reservation	GILBERT RD	S 0087	-0.094	Dry	No Injury	Darkness	Single Vehicle	Collision with Animal Livestock	0	0	1	No Apparent Influence	N	Clear	No Improper Driving	Going Straight Ahead	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
8/27/2002 13:37	Dept. of Public Safety	GILBERT RD	S 0087	-0.004	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	N	Clear	Speed Too Fast for Conditions	Making Right Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
8/27/2002 13:37	Dept. of Public Safety	GILBERT RD	S 0087	-0.004	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	2	Not Reported	N	Clear	No Improper Driving	Making Right Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
9/2/2002 23:35	Dept. of Public Safety	GILBERT RD	S 0087	-0.028	Dry	No Injury	Darkness	Single Vehicle	Collision with Animal Livestock	0	0	1	No Apparent Influence	N	Clear	No Improper Driving	Going Straight Ahead	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
1/1/2003 0:42	Salt River Reservation	GILBERT RD	S 0087	-0.75	Dry	Possible Injury	Darkness	Sideswipe (opposite)	Collision with other Motor Vehicle	1	0	1	Sleepy-Fatigued	N	Clear	Drove in Opposing Traffic Lane	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
1/1/2003 0:42	Salt River Reservation	GILBERT RD	S 0087	-0.75	Dry	Possible Injury	Darkness	Sideswipe (opposite)	Collision with other Motor Vehicle	1	0	2	No Apparent Influence	S	Clear	No Improper Driving	Going Straight Ahead	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
2/7/2003 8:09	Salt River Reservation	GILBERT RD	S 0087	-0.5	Dry	Possible Injury	Daylight	Single Vehicle	All Other Non-Collision	1	0	1	No Apparent Influence	S	Clear	Unknown	Going Straight Ahead	Motorcycle (two or three wheel)	No Apparent Defects	Not Reported	Protective Helmet	N
8/14/2003 23:30	Salt River Reservation	GILBERT RD	S 0087	-0.189	Wet	No Injury	Darkness	Single Vehicle	Collision with Wild Game	0	0	1	Unknown	N	Rain	No Improper Driving	Unknown	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
8/15/2003 18:08	Salt River Reservation	GILBERT RD	S 0087	0.001	Dry	Possible Injury	Daylight	Rear-End	Collision with other Motor Vehicle	2	0	1	No Apparent Influence	N	Cloudy	Speed Too Fast for Conditions	Going Straight Ahead	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
8/15/2003 18:08	Salt River Reservation	GILBERT RD	S 0087	0.001	Dry	Possible Injury	Daylight	Rear-End	Collision with other Motor Vehicle	2	0	2	Unknown	N	Cloudy	No Improper Driving	Stopped in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
8/20/2003 22:48	Salt River Reservation	GILBERT RD	S 0087	-0.2	Dry	Possible Injury	Darkness	Single Vehicle	Collision with Animal Livestock	1	0	1	No Apparent Influence	S	Clear	Inattention	Going Straight Ahead	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
2/22/2004 23:35	Dept. of Public Safety	GILBERT RD	S 0087	-0.5	Dry	No Injury	Darkness	Single Vehicle	Collision with Animal Livestock	0	0	1	No Apparent Influence	S	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
4/1/2004 7:58	Dept. of Public Safety	GILBERT RD	S 0087	-0.004	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	NW	Cloudy	Speed Too Fast for Conditions	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
4/1/2004 7:58	Dept. of Public Safety	GILBERT RD	S 0087	-0.004	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	NW	Cloudy	No Improper Driving	Stopped in Trafficway	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
6/23/2004 10:31	Maricopa County	GILBERT RD	S 0087	0	Unknown	Possible Injury	Daylight	Rear-End	Collision with other Motor Vehicle	1	0	1	Unknown	W	Clear	Unknown	Going Straight Ahead	Passenger Car, regular	Unknown	Not Reported	Not Reported	N
6/23/2004 10:31	Maricopa County	GILBERT RD	S 0087	0	Unknown	Possible Injury	Daylight	Rear-End	Collision with other Motor Vehicle	1	0	2	No Apparent Influence	W	Clear	Unknown	Making Right Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Not Reported	N
10/2/2004 23:03	Salt River Reservation	GILBERT RD	S 0087	-0.5	Dry	No Injury	Darkness	Single Vehicle	Collision with Animal Livestock	0	0	1	No Apparent Influence	N	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
10/17/2004 20:32	Salt River Reservation	GILBERT RD	S 0087	-1	Dry	No Injury	Darkness	Single Vehicle	Collision with Animal Livestock	0	0	1	No Apparent Influence	S	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
10/18/2004 22:33	Salt River Reservation	GILBERT RD	S 0087	-0.076	Dry	Non-Incapacitating Injury	Darkness	Single Vehicle	Collision with Animal Livestock	2	0	1	Unknown	S	Clear	Other	Other	Passenger Car, regular	Unknown	Not Reported	Lap and Shoulder	N
10/21/2004 18:49	Salt River Reservation	GILBERT RD	S 0087	-0.038	Wet	No Injury	Darkness	Single Vehicle	Collision with Animal Livestock	0	0	1	No Apparent Influence	S	Rain	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
10/30/2004 19:00	Dept. of Public Safety	GILBERT RD	S 0087	0	Dry	Possible Injury	Darkness	Rear-End	Collision with other Motor Vehicle	1	0	1	No Apparent Influence	W	Clear	Speed Too Fast for Conditions	Making Right Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
10/30/2004 19:00	Dept. of Public Safety	GILBERT RD	S 0087	0	Dry	Possible Injury	Darkness	Rear-End	Collision with other Motor Vehicle	1	0	2	No Apparent Influence	W	Clear	No Improper Driving	Stopped in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
3/11/2005 16:20	Dept. of Public Safety	GILBERT RD	S 0087	0.004	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	W	Clear	Inattention	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
3/11/2005 16:20	Dept. of Public Safety	GILBERT RD	S 0087	0.004	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	W	Clear	No Improper Driving	Stopped in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
4/17/2005 16:05	Salt River Reservation	GILBERT RD	S 0087	-0.5	Dry	Incapacitating	Daylight	Head-On	Collision with other Motor Vehicle	4	0	1	Had Been Drinking	S	Clear	Drove in Opposing Traffic Lane	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	None Used	N
4/17/2005 16:05	Salt River Reservation	GILBERT RD	S 0087	-0.5	Dry	Incapacitating	Daylight	Head-On	Collision with other Motor Vehicle	4	0	2	No Apparent Influence	N	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
8/31/2005 19:11	Dept. of Public Safety	GILBERT RD	S 0087	0	Dry	Non-Incapacitating Injury	Dawn or Dusk	Rear-End	Collision with other Motor Vehicle	2	0	1	Unknown	N	Clear	Speed Too Fast for Conditions	Making Right Turn	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
8/31/2005 19:11	Dept. of Public Safety	GILBERT RD	S 0087	0	Dry	Non-Incapacitating Injury	Dawn or Dusk	Rear-End	Collision with other Motor Vehicle	2	0	2	No Apparent Influence	N	Clear	No Improper Driving	Stopped in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
10/1/2005 13:25	Dept. of Public Safety	GILBERT RD	S 0087	-0.004	Dry	Possible Injury	Daylight	Rear-End	Collision with other Motor Vehicle	1	0	1	No Apparent Influence	N	Clear	Inattention	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
10/1/2005 13:25	Dept. of Public Safety	GILBERT RD	S 0087	-0.004	Dry	Possible Injury	Daylight	Rear-End	Collision with other Motor Vehicle	1	0	2	No Apparent Influence	N	Clear	No Improper Driving	Stopped in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
10/21/2005 22:07	Salt River Reservation	GILBERT RD	S 0087	-0.25	Dry	Unknown	Darkness	Single Vehicle	Collision with Animal Livestock	0	0	1	No Apparent Influence	S	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
1/13/2006 6:14	Salt River Reservation	GILBERT RD	S 0087	-0.75	Dry	No Injury	Dawn or Dusk	Rear-End	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	N	Clear	Speed Too Fast for Conditions	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
1/13/2006 6:14	Salt River Reservation	GILBERT RD	S 0087	-0.75	Dry	No Injury	Dawn or Dusk	Rear-End	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	N	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
4/17/2006 10:21	Salt River Reservation	GILBERT RD	S 0087	-0.5	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	S	Clear	Speed Too Fast for Conditions	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
4/17/2006 10:21	Salt River Reservation	GILBERT RD	S 0087	-0.5	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	S	Clear	No Improper Driving	Stopped in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
4/27/2006 8:10	Dept. of Public Safety	GILBERT RD	S 0087	0.004	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	W	Clear	Speed Too Fast for Conditions	Making Right Turn	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
4/27/2006 8:10	Dept. of Public Safety	GILBERT RD	S 0087	0.004	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	W	Clear	No Improper Driving	Making Right Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
5/23/2006 7:50	Salt River Reservation	GILBERT RD	S 0087	-0.25	Dry	Incapacitating	Daylight	Rear-End	Collision with other Motor Vehicle	1	0	1	Unknown	N	Clear	Speed Too Fast for Conditions	Avoiding Vehicle, Objects, etc.	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
5/23/2006 7:50	Salt River Reservation	GILBERT RD	S 0087	-0.25	Dry	Incapacitating	Daylight	Rear-End	Collision with other Motor Vehicle	1	0	2	No Apparent Influence	N	Clear	No Improper Driving	Going Straight Ahead	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
5/31/2006 15:29	Salt River Reservation	GILBERT RD	S 0087	-0.5	Dry	Possible Injury	Daylight	Single Vehicle	Collision with Other Fixed Object	1	0	1	No Apparent Influence	S	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	Y
6/9/2006 19:55	Salt River Reservation	GILBERT RD	S 0087	-0.5	Dry	Non-Incapacitating Injury	Darkness	Single Vehicle	Overturning	1	0	1	Ill-Ability Influenced	S	Clear	Speed Too Fast for Conditions	Going Straight Ahead	Passenger Car, regular	Unknown	Not Reported	None Used	Y
7/5/2006 18:35	Dept. of Public Safety	GILBERT RD	S 0087	-0.002	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	W	Clear	Speed Too Fast for Conditions	Making Right Turn	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
7/5/2006 18:35	Dept. of Public Safety	GILBERT RD	S 0087	-0.002	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	W	Clear	No Improper Driving	Stopped in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
7/9/2006 12:16	Dept. of Public Safety	GILBERT RD	S 0087	-0.009	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	NW	Clear	Speed Too Fast for Conditions	Making Right Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
7/9/2006 12:16	Dept. of Public Safety	GILBERT RD	S 0087	-0.009	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	NW	Clear	No Improper Driving	Making Right Turn	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
7/15/2006 5:06	Salt River Reservation	GILBERT RD	S 0087	-0.25	Dry	No Injury	Dawn or Dusk	Sideswipe (same)	Collision with other Motor Vehicle	0	0	1	Sleepy-Fatigued	N	Clear	Speed Too Fast for Conditions	Changing Lanes	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
7/15/2006 5:06	Salt River Reservation	GILBERT RD	S 0087	-0.25	Dry	No Injury	Dawn or Dusk	Sideswipe (same)	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	N	Clear	No Improper Driving	Going Straight Ahead	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	None Used	N
7/16/2006 15:59	Salt River Reservation	GILBERT RD	S 0087	-0.9	Dry	Possible Injury	Daylight	Rear-End	Collision with other Motor Vehicle	1	0	1	Had Been Drinking	S	Cloudy	Speed Too Fast for Conditions	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	None Used	Y
7/16/2006 15:59	Salt River Reservation	GILBERT RD	S 0087	-0.9	Dry	Possible Injury	Daylight	Rear-End	Collision with other Motor Vehicle	1	0	2	No Apparent Influence	S	Cloudy	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	Y
9/15/2006 7:20	Salt River Reservation	GILBERT RD	S 0087	0	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	N	Clear	Inattention	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
9/15/2006 7:20	Salt River Reservation	GILBERT RD	S 0087	0	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	N	Clear	No Improper Driving	Stopped in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
12/12/2006 7:10	Dept. of Public Safety	GILBERT RD	S 0087	-0.006	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	NW	Clear	Followed Too Closely	Making Right Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
12/12/2006 7:10	Dept. of Public Safety	GILBERT RD	S 0087	-0.006	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	NW	Clear	No Improper Driving	Making Right Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
4/8/2007 17:42	Salt River Reservation	GILBERT RD	S 0087	-0.189	Dry	Possible Injury	Dawn or Dusk	Single Vehicle	All Other Non-Collision	1	0	1	No Apparent Influence	S	Cloudy	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
5/28/2007 22:18	Salt River Reservation	GILBERT RD	S 0087	-0.25	Dry	No Injury	Darkness	Single Vehicle	Collision with Animal Livestock	0	0	1	No Apparent Influence	S	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
10/16/2002 23:22	Salt River Reservation	GILBERT RD	BEELINE HWY	-0.5	Dry	No Injury	Darkness	Single Vehicle	Collision with Animal Livestock	0	0	1	No Apparent Influence	S	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
10/13/2005 17:50	Dept. of Public Safety	GILBERT RD	BEELINE HWY	-0.002	Dry	No Injury	Dawn or Dusk	Rear-End	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	N	Clear	Inattention	Making Right Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
10/13/2005 17:50	Dept. of Public Safety	GILBERT RD	BEELINE HWY	-0.002	Dry	No Injury	Dawn or Dusk	Rear-End	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	N	Clear	No Improper Driving	Stopped in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
10/4/2002 0:35	Salt River Reservation	S 0087	GILBERT RD	0	Dry	Possible Injury	Darkness	Left Turn	Collision with other Motor Vehicle	1	0	1	No Apparent Influence	N	Clear	Disregarded Traffic Signal	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	None Used	N
10/4/2002 0:35	Salt River Reservation	S 0087	GILBERT RD	0	Dry	Possible Injury	Darkness	Left Turn	Collision with other Motor Vehicle	1	0	2	No Apparent Influence	S	Clear	No Improper Driving	Making Left Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
2/5/2003 8:25	Salt River Reservation	S 0087	GILBERT RD	-0.015	Dry	Non-Incapacitating Injury	Daylight	Rear-End	Collision with other Motor Vehicle	1	0	1	No Apparent Influence	N	Clear	Speed Too Fast for Conditions	Going Straight Ahead	Other Truck Combination	No Apparent Defects	Not Reported	Lap and Shoulder	N
2/5/2003 8:25	Salt River Reservation	S 0087	GILBERT RD	-0.015	Dry	Non-Incapacitating Injury	Daylight	Rear-End	Collision with other Motor Vehicle	1	0	2	No Apparent Influence	N	Clear	No Improper Driving	Stopped in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
2/5/2003 8:25	Salt River Reservation	S 0087	GILBERT RD	-0.015	Dry	Non-Incapacitating Injury	Daylight	Rear-End	Collision with other Motor Vehicle	1	0	3	No Apparent Influence	N	Clear	No Improper Driving	Stopped in Trafficway	Other Truck Combination	No Apparent Defects	Not Reported	Lap and Shoulder	N
2/26/2003 19:09	Salt River Reservation	S 0087	GILBERT RD	0	Wet	No Injury	Darkness	Sideswipe (same)	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	S	Clear	Made Improper Turn	Making Left Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
2/26/2003 19:09	Salt River Reservation	S 0087	GILBERT RD	0	Wet	No Injury	Darkness	Sideswipe (same)	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	S	Clear	No Improper Driving	Making Left Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
12/23/2004 8:00	Salt River Reservation	S 0087	GILBERT RD	0	Dry	Non-Incapacitating Injury	Daylight	Angle	Collision with other Motor Vehicle	3	0	1	Unknown	N	Clear	Disregarded Traffic Signal	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Not Reported	N
12/23/2004 8:00	Salt River Reservation	S 0087	GILBERT RD	0	Dry	Non-Incapacitating Injury	Daylight	Angle	Collision with other Motor Vehicle	3	0	2	No Apparent Influence	W	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Not Reported	N
12/23/2004 8:00	Salt River Reservation	S 0087	GILBERT RD	0	Dry	Non-Incapacitating Injury	Daylight	Angle	Collision with other Motor Vehicle	3	0	3	No Apparent Influence	S	Clear	No Improper Driving	Making Right Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
5/4/2005 9:40	Dept. of Public Safety	S 0087	GILBERT RD	0.006	Dry	No Injury	Daylight	Sideswipe (same)	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	S	Clear	Inattention	Making Left Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
5/4/2005 9:40	Dept. of Public Safety	S 0087	GILBERT RD	0.006	Dry	No Injury	Daylight	Sideswipe (same)	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	S	Clear	Inattention	Making Left Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
6/21/2005 7:17	Dept. of Public Safety	S 0087	GILBERT RD	0	Dry	No Injury	Daylight	Sideswipe (same)	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	S	Clear	Failed to Yield Right-Of-Way	Making Left Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
6/21/2005 7:17	Dept. of Public Safety	S 0087	GILBERT RD	0	Dry	No Injury	Daylight	Sideswipe (same)	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	S	Clear	No Improper Driving	Making Left Turn	Other Truck Combination	No Apparent Defects	Not Reported	Lap and Shoulder	N
11/5/2005 17:16	Dept. of Public Safety	S 0087	GILBERT RD	0.011	Dry	Possible Injury	Daylight	Rear-End	Collision with other Motor Vehicle	1	0	1	No Apparent Influence	SE	Clear	Speed Too Fast for Conditions	Going Straight Ahead	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
11/5/2005 17:16	Dept. of Public Safety	S 0087	GILBERT RD	0.011	Dry	Possible Injury	Daylight	Rear-End	Collision with other Motor Vehicle	1	0	2	No Apparent Influence	SE	Clear	No Improper Driving	Stopped in Trafficway	Motorcycle (two or three wheel)	No Apparent Defects	Not Reported	Protective Helmet	N
12/1/2005 13:06	Dept. of Public Safety	S 0087	GILBERT RD	0.004	Dry	Possible Injury	Daylight	Rear-End	Collision with other Motor Vehicle	2	0	1	No Apparent Influence	SW	Clear	Speed Too Fast for Conditions	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
12/1/2005 13:06	Dept. of Public Safety	S 0087	GILBERT RD	0.004	Dry	Possible Injury	Daylight	Rear-End	Collision with other Motor Vehicle	2	0	2	No Apparent Influence	SW	Clear	No Improper Driving	Stopped in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
1/24/2006 16:35	Salt River Reservation	S 0087	GILBERT RD	0.009	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	W	Clear	Speed Too Fast for Conditions	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Not Reported	N
1/24/2006 16:35	Salt River Reservation	S 0087	GILBERT RD	0.009	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	W	Clear	No Improper Driving	Slowing in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Not Reported	N
1/24/2006 16:35	Salt River Reservation	S 0087	GILBERT RD	0.009	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	3	No Apparent Influence	W	Clear	No Improper Driving	Slowing in Trafficway	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
2/27/2006 11:40	Dept. of Public Safety	S 0087	GILBERT RD	0	Dry	No Injury	Daylight	Other	Collision with other Motor Vehicle	0	0	1	Unknown	SW	Cloudy	Unknown	Going Straight Ahead	Other Truck Combination	Unknown	Not Reported	None Used	N
2/27/2006 11:40	Dept. of Public Safety	S 0087	GILBERT RD	0	Dry	No Injury	Daylight	Other	Collision with other Motor Vehicle	0	0	2	Unknown	SW	Cloudy	Unknown	Going Straight Ahead	Passenger Car, regular	Unknown	Not Reported	Lap and Shoulder	N
3/2/2006 20:20	Dept. of Public Safety	S 0087	GILBERT RD	0	Dry	Incapacitating	Darkness	Left Turn	Collision with other Motor Vehicle	1	0	1	Unknown	NE	Clear	Disregarded Traffic Signal	Going Straight Ahead	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
3/2/2006 20:20	Dept. of Public Safety	S 0087	GILBERT RD	0	Dry	Incapacitating	Darkness	Left Turn	Collision with other Motor Vehicle	1	0	2	No Apparent Influence	SW	Clear	No Improper Driving	Making Left Turn	Truck Tractor and Semi-Trailer	No Apparent Defects	Not Reported	Lap and Shoulder	N
7/16/2006 15:54	Dept. of Public Safety	S 0087	GILBERT RD	0.004	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	1	Had Been Drinking	SW	Clear	Inattention	Making Left Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Not Reported	N
7/16/2006 15:54	Dept. of Public Safety	S 0087	GILBERT RD	0.004	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	SW	Clear	No Improper Driving	Making Left Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
9/16/2006 10:02	Dept. of Public Safety	S 0087	GILBERT RD	0.009	Dry	No Injury	Daylight	Backing	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	SW	Clear	Inattention	Backing	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
9/16/2006 10:02	Dept. of Public Safety	S 0087	GILBERT RD	0.009	Dry	No Injury	Daylight	Backing	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	SW	Clear	Unknown	Stopped in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
1/8/2007 7:21	Gila River Reservation (Pinal)	S 0087	GILBERT RD	0	Dry	Incapacitating	Daylight	Angle	Collision with other Motor Vehicle	1	0	1	No Apparent Influence	S	Clear	Unknown	Going Straight Ahead	Pick-Up Truck (including panel & mini-bus)	Unknown	Not Reported	Lap and Shoulder	N
1/8/2007 7:21	Gila River Reservation (Pinal)	S 0087	GILBERT RD	0	Dry	Incapacitating	Daylight	Angle	Collision with other Motor Vehicle	1	0	2	No Apparent Influence	NW	Clear	Failed to Yield Right-Of-Way	Going Straight Ahead	Passenger Car, regular	Unknown	Not Reported	Lap and Shoulder	N

Gilbert Road Detailed Traffic Accident History

Accident Date & Time	Investigating Agency	On Road	At Road	Dist	Road Surface Condition	Injury Severity of Crash	Light Condition	Manner of Collision	First Harmful Event	Total Injury	Total Fatal	Unit #	Driver Physical Condition	Travel Dir	Weather Condition	Violations/Behavior	Traffic Unit Action	Body Style	Vehicle Condition #1	Vehicle Condition # 2	Safety Device Used	Run Off Road
3/16/2003 1:33	Maricopa County	GILBERT RD	THOMAS RD	0.038	Dry	Non-Incapacitating Injury	Darkness	Single Vehicle	Collision with Other Fixed Object	1	0	1	Had Been Drinking	E	Clear	Exceeded Lawful Speed	Unknown	Passenger Car, regular	Unknown	Not Reported	Not Reported	Y
10/1/2003 20:43	Salt River Reservation	GILBERT RD	THOMAS RD	0.3	Dry	No Injury	Darkness	Single Vehicle	Collision with Animal Livestock	0	0	1	Unknown	N	Clear	Unknown	Going Straight Ahead	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
11/30/2003 21:14	Salt River Reservation	GILBERT RD	THOMAS RD	-0.047	Dry	Non-Incapacitating Injury	Darkness	Single Vehicle	Overturning	1	0	1	Had Been Drinking	S	Clear	Inattention	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Not Reported	Y
12/7/2003 16:26	Salt River Reservation	GILBERT RD	THOMAS RD	0	Dry	No Injury	Daylight	Left Turn	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	S	Clear	Made Improper Turn	Making Left Turn	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	None Used	N
12/7/2003 16:26	Salt River Reservation	GILBERT RD	THOMAS RD	0	Dry	No Injury	Daylight	Left Turn	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	N	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
3/28/2004 9:22	Maricopa County	GILBERT RD	THOMAS RD	0.094	Dry	No Injury	Daylight	Single Vehicle	Collision with Fence	0	0	1	Ill-Ability Influenced	N	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	Y
8/30/2004 10:35	Mesa	GILBERT RD	THOMAS RD	-0.25	Dry	No Injury	Daylight	Single Vehicle	Overturning	0	0	1	No Apparent Influence	N	Clear	Speed Too Fast for Conditions	Going Straight Ahead	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	Y
9/28/2004 1:40	Maricopa County	GILBERT RD	THOMAS RD	0.5	Dry	No Injury	Darkness	Single Vehicle	Collision with Animal Livestock	0	0	1	No Apparent Influence	N	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
3/30/2007 17:38	Mesa	GILBERT RD	THOMAS RD	0.004	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	1	Unknown	S	Clear	Other	Going Straight Ahead	Passenger Car, regular	Unknown	Not Reported	Lap and Shoulder	N
3/30/2007 17:38	Mesa	GILBERT RD	THOMAS RD	0.004	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	S	Clear	No Improper Driving	Stopped in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Not Reported	N
5/12/2007 7:50	Salt River Reservation	GILBERT RD	THOMAS RD	0.038	Dry	Non-Incapacitating Injury	Daylight	Sideswipe (same)	Collision with other Motor Vehicle	8	0	1	Other	N	Clear	Unsafe Lane Change	Changing Lanes	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
5/12/2007 7:50	Salt River Reservation	GILBERT RD	THOMAS RD	0.038	Dry	Non-Incapacitating Injury	Daylight	Sideswipe (same)	Collision with other Motor Vehicle	8	0	2	No Apparent Influence	N	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N

McKellips Road Detailed Traffic Accident History

Accident Date & Time	Investigating Agency	On Road	At Road	Dist	Road Surface Condition	Injury Severity of Crash	Light Condition	Manner of Collision	First Harmful Event	Total Injury	Total Fatal	Unit #	Driver Physical Condition	Travel Dir	Weather Condition	Violations/Behavior	Traffic Unit Action	Body Style	Vehicle Condition #1	Vehicle Condition # 2	Safety Device Used	Run Off Road
12/7/2003 18:32	Salt River Reservation	MCKELLIPS RD	S 0101	0.004	Dry	No Injury	Darkness	Rear-End	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	W	Clear	Speed Too Fast for Conditions	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
12/7/2003 18:32	Salt River Reservation	MCKELLIPS RD	S 0101	0.004	Dry	No Injury	Darkness	Rear-End	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	W	Clear	No Improper Driving	Going Straight Ahead	Taxicab	No Apparent Defects	Not Reported	Lap and Shoulder	N
6/11/2005 16:09	Mesa	MCKELLIPS RD	S 0202	0	Dry	No Injury	Daylight	Sideswipe (same)	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	N	Clear	Made Improper Turn	Making Right Turn	Other Truck Combination	No Apparent Defects	Not Reported	Lap and Shoulder	N
6/11/2005 16:09	Mesa	MCKELLIPS RD	S 0202	0	Dry	No Injury	Daylight	Sideswipe (same)	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	N	Clear	No Improper Driving	Making Right Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
8/14/2006 16:02	Salt River Reservation	MCKELLIPS RD	S 0202	-0.5	Dry	No Injury	Daylight	U-Turn	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	NW	Clear	Made Improper Turn	Making U-Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
8/14/2006 16:02	Salt River Reservation	MCKELLIPS RD	S 0202	-0.5	Dry	No Injury	Daylight	U-Turn	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	NW	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
9/14/2006 8:47	Maricopa County	MCKELLIPS RD	S 0202012E	0.001	Dry	Non-Incapacitating Injury	Daylight	Rear-End	Collision with other Motor Vehicle	2	0	1	No Apparent Influence	N	Clear	Unknown	Going Straight Ahead	Motorcycle (two or three wheel)	No Apparent Defects	Not Reported	Protective Helmet	N
9/14/2006 8:47	Maricopa County	MCKELLIPS RD	S 0202012E	0.001	Dry	Non-Incapacitating Injury	Daylight	Rear-End	Collision with other Motor Vehicle	2	0	2	No Apparent Influence	N	Clear	No Improper Driving	Slowing in Trafficway	Not Reported	No Apparent Defects	Not Reported	Not Reported	N
8/6/2002 5:11	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0	Dry	No Injury	Dawn or Dusk	Left Turn	Collision with other Motor Vehicle	0	0	1	Unknown	W	Clear	Unknown	Making Left Turn	Not Reported	Unknown	Not Reported	Not Reported	N
8/6/2002 5:11	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0	Dry	No Injury	Dawn or Dusk	Left Turn	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	E	Clear	No Improper Driving	Slowing in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
8/21/2002 7:36	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0	Dry	Non-Incapacitating Injury	Daylight	Left Turn	Collision with other Motor Vehicle	2	0	1	No Apparent Influence	W	Clear	Speed Too Fast for Conditions	Going Straight Ahead	Other Truck Combination	No Apparent Defects	Not Reported	None Used	N
8/21/2002 7:36	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0	Dry	Non-Incapacitating Injury	Daylight	Left Turn	Collision with other Motor Vehicle	2	0	2	No Apparent Influence	E	Clear	Unknown	Making Left Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
11/19/2002 10:22	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0	Dry	Non-Incapacitating Injury	Daylight	Left Turn	Collision with other Motor Vehicle	2	0	1	No Apparent Influence	W	Clear	Failed to Yield Right-Of-Way	Making Left Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
11/19/2002 10:22	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0	Dry	Non-Incapacitating Injury	Daylight	Left Turn	Collision with other Motor Vehicle	2	0	2	No Apparent Influence	E	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
1/7/2003 19:46	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	-0.3	Dry	No Injury	Darkness	Single Vehicle	Overturning	0	0	1	Had Been Drinking	W	Clear	Unknown	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	Y
1/21/2003 15:05	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0.002	Dry	No Injury	Daylight	Sideswipe (same)	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	E	Clear	Unsafe Lane Change	Changing Lanes	(all wheel drive, dune buggy, jalopy, custom ma	No Apparent Defects	Not Reported	Lap and Shoulder	N
1/21/2003 15:05	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0.002	Dry	No Injury	Daylight	Sideswipe (same)	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	E	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
6/7/2003 14:41	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0.014	Dry	Possible Injury	Daylight	Rear-End	Collision with other Motor Vehicle	1	0	1	No Apparent Influence	W	Clear	Inattention	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
6/7/2003 14:41	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0.014	Dry	Possible Injury	Daylight	Rear-End	Collision with other Motor Vehicle	1	0	2	No Apparent Influence	W	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
7/8/2003 17:06	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0.002	Dry	Possible Injury	Daylight	Rear-End	Collision with other Motor Vehicle	1	0	1	Unknown	W	Clear	Followed Too Closely	Going Straight Ahead	Passenger Car, regular	Unknown	Not Reported	Not Reported	N
7/8/2003 17:06	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0.002	Dry	Possible Injury	Daylight	Rear-End	Collision with other Motor Vehicle	1	0	2	No Apparent Influence	W	Clear	No Improper Driving	Stopped in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Not Reported	N
7/9/2003 5:56	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	E	Clear	Speed Too Fast for Conditions	Making Left Turn	Pick-Up Truck (including panel & mini-bus)	Defective Brakes	Not Reported	Lap and Shoulder	N
7/9/2003 5:56	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	E	Clear	No Improper Driving	Making Left Turn	Other Truck Combination	No Apparent Defects	Not Reported	Lap and Shoulder	N
8/13/2003 20:10	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	-0.002	Dry	Non-Incapacitating Injury	Darkness	Single Vehicle	Collision with Curb	1	0	1	Had Been Drinking	W	Cloudy	Speed Too Fast for Conditions	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	None Used	Y
9/8/2003 11:30	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	-0.019	Dry	No Injury	Daylight	U-Turn	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	E	Clear	Made Improper Turn	Making U-Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Not Reported	N
9/8/2003 11:30	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	-0.019	Dry	No Injury	Daylight	U-Turn	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	E	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Not Reported	N
9/10/2003 10:21	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0	Not Reported, No Unusual Conditions	Possible Injury	Daylight	Rear-End	Collision with other Motor Vehicle	2	0	1	Not Reported	E	Not Reported, No Adverse Conditions	Unknown	Unknown	Pick-Up Truck (including panel & mini-bus)	Not Reported	Not Reported	Lap and Shoulder	N
9/10/2003 10:21	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0	Not Reported, No Unusual Conditions	Possible Injury	Daylight	Rear-End	Collision with other Motor Vehicle	2	0	2	Not Reported	E	Not Reported, No Adverse Conditions	Unknown	Unknown	Passenger Car, regular	Not Reported	Not Reported	Lap and Shoulder	N
9/30/2003 8:07	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0.002	Dry	No Injury	Daylight	Sideswipe (same)	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	W	Clear	Unsafe Lane Change	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
9/30/2003 8:07	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0.002	Dry	No Injury	Daylight	Sideswipe (same)	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	W	Clear	Unsafe Lane Change	Going Straight Ahead	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
10/10/2003 8:41	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0	Wet	Non-Incapacitating Injury	Daylight	Left Turn	Collision with other Motor Vehicle	1	0	1	No Apparent Influence	S	Rain	Failed to Yield Right-Of-Way	Making Left Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
10/10/2003 8:41	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0	Wet	Non-Incapacitating Injury	Daylight	Left Turn	Collision with other Motor Vehicle	1	0	2	No Apparent Influence	N	Rain	No Improper Driving	Going Straight Ahead	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
11/12/2003 6:57	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0.015	Dry	No Injury	Daylight	Sideswipe (same)	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	W	Cloudy	Unsafe Lane Change	Changing Lanes	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
11/12/2003 6:57	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0.015	Dry	No Injury	Daylight	Sideswipe (same)	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	W	Cloudy	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
12/1/2003 8:45	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0.004	Not Reported, No Unusual Conditions	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	W	Clear	Speed Too Fast for Conditions	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
12/1/2003 8:45	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0.004	Not Reported, No Unusual Conditions	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	W	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
5/31/2006 15:31	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0	Dry	Incapacitating	Daylight	Angle	Collision with other Motor Vehicle	1	0	1	Unknown	E	Clear	Disregarded Traffic Signal	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
5/31/2006 15:31	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0	Dry	Incapacitating	Daylight	Angle	Collision with other Motor Vehicle	1	0	2	Unknown	S	Clear	Unknown	Going Straight Ahead	Other Truck Combination	No Apparent Defects	Not Reported	Lap and Shoulder	N
7/20/2006 8:10	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0.038	Wet	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	W	Rain	Exceeded Lawful Speed	Going Straight Ahead	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
7/20/2006 8:10	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0.038	Wet	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	W	Rain	No Improper Driving	Stopped in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
7/20/2006 8:10	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0.038	Wet	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	3	No Apparent Influence	W	Rain	No Improper Driving	Stopped in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
8/24/2006 10:29	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0	Wet	No Injury	Daylight	Angle	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	W	Rain	Speed Too Fast for Conditions	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
8/24/2006 10:29	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0	Wet	No Injury	Daylight	Angle	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	N	Rain	No Improper Driving	Going Straight Ahead	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
1/9/2007 15:13	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0	Dry	No Injury	Daylight	Angle	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	E	Clear	Disregarded Traffic Signal	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
1/9/2007 15:13	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0	Dry	No Injury	Daylight	Angle	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	S	Clear	No Improper Driving	Going Straight Ahead	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
4/30/2007 14:32	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0.002	Dry	Non-Incapacitating Injury	Daylight	Rear-End	Collision with other Motor Vehicle	2	0	1	No Apparent Influence	W	Clear	Speed Too Fast for Conditions	Slowing in Trafficway	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	None Used	N
4/30/2007 14:32	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0.002	Dry	Non-Incapacitating Injury	Daylight	Rear-End	Collision with other Motor Vehicle	2	0	2	No Apparent Influence	W	Clear	No Improper Driving	Stopped in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
4/30/2007 14:32	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	0.002	Dry	Non-Incapacitating Injury	Daylight	Rear-End	Collision with other Motor Vehicle	2	0	3	No Apparent Influence	W	Clear	No Improper Driving	Stopped in Trafficway	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
6/19/2007 6:46	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	-0.009	Dry	No Injury	Daylight	Sideswipe (same)	Collision with other Motor Vehicle	0	0	1	Not Reported	W	Clear	Failed to Yield Right-Of-Way	Going Straight Ahead	Passenger Car, regular	Unknown	Not Reported	Not Reported	Y
6/19/2007 6:46	Salt River Reservation	MCKELLIPS RD	ALMA SCHOOL RD	-0.009	Dry	No Injury	Daylight	Sideswipe (same)	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	W	Clear	No Improper Driving	Going Straight Ahead	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	Y
12/13/2002 18:18	Salt River Reservation	ALMA SCHOOL RD	MCKELLIPS RD	0	Not Reported, No Unusual Conditions	No Injury	Darkness	Left Turn	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	S	Clear	Failed to Yield Right-Of-Way	Making Left Turn	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
12/13/2002 18:18	Salt River Reservation	ALMA SCHOOL RD	MCKELLIPS RD	0	Not Reported, No Unusual Conditions	No Injury	Darkness	Left Turn	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	N	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
2/3/2003 11:38	Salt River Reservation	ALMA SCHOOL RD	MCKELLIPS RD	0	Dry	Possible Injury	Daylight	Angle	Collision with other Motor Vehicle	1	0	1	No Apparent Influence	S	Clear	Disregarded Traffic Signal	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Not Reported	N
2/3/2003 11:38	Salt River Reservation	ALMA SCHOOL RD	MCKELLIPS RD	0	Dry	Possible Injury	Daylight	Angle	Collision with other Motor Vehicle	1	0	2	No Apparent Influence	E	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Not Reported	N
2/3/2003 11:38	Salt River Reservation	ALMA SCHOOL RD	MCKELLIPS RD	0	Dry	Possible Injury	Daylight	Angle	Collision with other Motor Vehicle	1	0	3	No Apparent Influence	N	Clear	No Improper Driving	Stopped in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Not Reported	N
7/2/2003 16:30	Salt River Reservation	ALMA SCHOOL RD	MCKELLIPS RD	-0.017	Dry	No Injury	Daylight	Sideswipe (same)	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	N	Clear	Unsafe Lane Change	Changing Lanes	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap Belt	N
7/2/2003 16:30	Salt River Reservation	ALMA SCHOOL RD	MCKELLIPS RD	-0.017	Dry	No Injury	Daylight	Sideswipe (same)	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	N	Clear	No Improper Driving	Going Straight Ahead	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
10/26/2003 21:48	Salt River Reservation	ALMA SCHOOL RD	MCKELLIPS RD	-0.004	Dry	No Injury	Darkness	Rear-End	Collision with other Motor Vehicle	0	0	1	Other	N	Clear	Speed Too Fast for Conditions	Going Straight Ahead	Passenger Car, regular	Defective Steering	Not Reported	Lap Belt	N
10/26/2003 21:48	Salt River Reservation	ALMA SCHOOL RD	MCKELLIPS RD	-0.004	Dry	No Injury	Darkness	Rear-End	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	N	Clear	No Improper Driving	Stopped in Trafficway	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
11/2/2004 17:36	Salt River Reservation	ALMA SCHOOL RD	MCKELLIPS RD	0	Dry	No Injury	Dawn or Dusk	Left Turn	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	S	Clear	Failed to Yield Right-Of-Way	Making Left Turn	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
11/2/2004 17:36	Salt River Reservation	ALMA SCHOOL RD	MCKELLIPS RD	0	Dry	No Injury	Dawn or Dusk	Left Turn	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	N	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
4/16/2006 10:57	Maricopa County	ALMA SCHOOL RD	MCKELLIPS RD	0	Dry	Non-Incapacitating Injury	Daylight	Left Turn	Collision with other Motor Vehicle	1	0	1	No Apparent Influence	S	Clear	Failed to Yield Right-Of-Way	Making Left Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
4/16/2006 10:57	Maricopa County	ALMA SCHOOL RD	MCKELLIPS RD	0	Dry	Non-Incapacitating Injury	Daylight	Left Turn	Collision with other Motor Vehicle	1	0	2	No Apparent Influence	N	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
9/21/2006 11:09	Salt River Reservation	ALMA SCHOOL RD	MCKELLIPS RD	-0.009	Dry	No Injury	Daylight	Backing	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	N	Clear	Other	Backing	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
9/21/2006 11:09	Salt River Reservation	ALMA SCHOOL RD	MCKELLIPS RD	-0.009	Dry	No Injury	Daylight	Backing	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	N	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
12/13/2006 0:40	Dept. of Public Safety	ALMA SCHOOL RD	MCKELLIPS RD	0	Dry	Incapacitating	Darkness	Angle	Collision with other Motor Vehicle	2	0	1	No Apparent Influence	N	Clear	Disregarded Traffic Signal	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
12/13/2006 0:40	Dept. of Public Safety	ALMA SCHOOL RD	MCKELLIPS RD	0	Dry	Incapacitating	Darkness	Angle	Collision with other Motor Vehicle	2	0	2	No Apparent Influence	E	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	None Used	N
2/2/2007 14:39	Salt River Reservation	ALMA SCHOOL RD	MCKELLIPS RD	0	Dry	Non-Incapacitating Injury	Daylight	Left Turn	Collision with other Motor Vehicle	1	0	1	No Apparent Influence	N	Clear	Speed Too Fast for Conditions	Going Straight Ahead	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
2/2/2007 14:39	Salt River Reservation	ALMA SCHOOL RD	MCKELLIPS RD	0	Dry	Non-Incapacitating Injury	Daylight	Left Turn	Collision with other Motor Vehicle	1	0	2	No Apparent Influence	S	Clear	No Improper Driving	Making Left Turn	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
2/2/2007 14:39	Salt River Reservation	ALMA SCHOOL RD	MCKELLIPS RD	0	Dry	Non-Incapacitating Injury	Daylight	Left Turn	Collision with other Motor Vehicle	1	0	3	No Apparent Influence	W	Clear	No Improper Driving	Stopped in Trafficway	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
1/17/2003 13:19	Salt River Reservation	MCKELLIPS RD	DOBSON RD	0.107	Dry	Non-Incapacitating Injury	Daylight	Sideswipe (opposite)	Collision with other Motor Vehicle	2	0	1	Had Been Drinking	W	Clear	Drove in Opposing Traffic Lane	Other	Passenger Car, regular	No Apparent Defects	Not Reported	Not Reported	N
1/17/2003 13:19	Salt River Reservation	MCKELLIPS RD	DOBSON RD	0.107	Dry	Non-Incapacitating Injury	Daylight	Sideswipe (opposite)	Collision with other Motor Vehicle	2	0	2	No Apparent Influence	E	Clear	No Improper Driving	Avoiding Vehicle, Objects, etc.	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
1/30/2003 11:56	Dept. of Public Safety	MCKELLIPS RD	DOBSON RD	0	Dry	No Injury	Daylight	Angle	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	N	Clear	Failed to Yield Right-Of-Way	Going Straight Ahead	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
1/30/2003 11:56	Dept. of Public Safety	MCKELLIPS RD	DOBSON RD	0	Dry	No Injury	Daylight	Angle	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	E	Clear	No Improper Driving	Going Straight Ahead	Other Truck Combination	No Apparent Defects	Not Reported	Lap and Shoulder	N
6/20/2003 12:02	Salt River Reservation	MCKELLIPS RD	DOBSON RD	0.094	Dry	Possible Injury	Daylight	Single Vehicle	Collision with Fallen Tree or Stone	1	0	1	No Apparent Influence	W	Clear	No Improper Driving	Going Straight Ahead	Motorcycle (two or three wheel)	No Apparent Defects	Not Reported	Not Reported	Y
11/21/2004 1:10	Salt River Reservation	MCKELLIPS RD	DOBSON RD	0.038	Not Reported, No Unusual Conditions	Fatal	Darkness	Single Vehicle	Overturning	0	1	1	Had Been Drinking	U	Not Reported, No Adverse Conditions	Unknown	Unknown	Other Truck Combination	Unknown	Not Reported	None Used	N
9/23/2006 8:05	Maricopa County	MCKELLIPS RD	DOBSON RD	0.2	Dry	Fatal	Daylight	Single Vehicle	Collision with Pedalcyclist	1	1	1	Had Been Drinking	E	Clear	Inattention	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Not Reported	N

McKellips Road Detailed Traffic Accident History

Accident Date & Time	Investigating Agency	On Road	At Road	Dist	Road Surface Condition	Injury Severity of Crash	Light Condition	Manner of Collision	First Harmful Event	Total Injury	Total Fatal	Unit #	Driver Physical Condition	Travel Dir	Weather Condition	Violations/Behavior	Traffic Unit Action	Body Style	Vehicle Condition #1	Vehicle Condition # 2	Safety Device Used	Run Off Road
9/28/2006 23:11	Salt River Reservation	MCKELLIPS RD	DOBSON RD	-0.038	Not Reported, No Unusual Conditions	Fatal	Darkness	Other	Collision with other Motor Vehicle	0	2	1	Had Been Drinking	U	Not Reported, No Adverse Conditions	Unknown	Unknown	Not Reported	Unknown	Not Reported	Not Reported	N
9/28/2006 23:11	Salt River Reservation	MCKELLIPS RD	DOBSON RD	-0.038	Not Reported, No Unusual Conditions	Fatal	Darkness	Other	Collision with other Motor Vehicle	0	2	2	Appeared to be Under Influence of Drugs	U	Not Reported, No Adverse Conditions	Unknown	Unknown	Not Reported	Unknown	Not Reported	Not Reported	N
3/21/2007 1:43	Salt River Reservation	MCKELLIPS RD	DOBSON RD	-0.006	Dry	Fatal	Darkness	Single Vehicle	Collision with Pedestrian	0	1	1	Unknown	W	Clear	Unknown	Unknown	Not Reported	Unknown	Not Reported	Not Reported	N
4/24/2007 6:14	Salt River Reservation	MCKELLIPS RD	ROOSEVELT RD	0	Dry	Non-Incapacitating Injury	Daylight	Left Turn	Collision with other Motor Vehicle	2	0	1	No Apparent Influence	E	Clear	Failed to Yield Right-Of-Way	Making Left Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
4/24/2007 6:14	Salt River Reservation	MCKELLIPS RD	ROOSEVELT RD	0	Dry	Non-Incapacitating Injury	Daylight	Left Turn	Collision with other Motor Vehicle	2	0	2	No Apparent Influence	W	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
1/19/2003 2:17	Salt River Reservation	MCKELLIPS RD	AGENCY RD	-0.009	Dry	Possible Injury	Darkness	Single Vehicle	Collision with Utility Pole	1	0	1	Unknown	N	Clear	Drove in Opposing Traffic Lane	Unknown	Passenger Car, regular	Unknown	Not Reported	Lap and Shoulder	Y
8/11/2003 20:58	Salt River Reservation	MCKELLIPS RD	AGENCY RD	-0.25	Dry	No Injury	Darkness	Single Vehicle	Collision with Tree	0	0	1	No Apparent Influence	W	Cloudy	No Improper Driving	Going Straight Ahead	Passenger Car, regular	Puncture or Blowout	Not Reported	Lap and Shoulder	Y

Longmore Road is called "Agency Road"
92nd Street is called "Roosevelt Road"

Dobson Road Detailed Traffic Accident History

Accident Date & Time	Investigating Agency	On Road	At Road	Dist	Road Surface Condition	Injury Severity of Crash	Light Condition	Manner of Collision	First Harmful Event	Total Injury	Total Fatal	Unit #	Driver Physical Condition	Travel Dir	Weather Condition	Violations/Behavior	Traffic Unit Action	Body Style	Vehicle Condition #1	Vehicle Condition # 2	Safety Device Used	Run Off Road
9/23/2002 7:28	Mesa	DOBSON RD	S 0202010A	-0.001	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	N	Clear	Speed Too Fast for Conditions	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
9/23/2002 7:28	Mesa	DOBSON RD	S 0202010A	-0.001	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	N	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
1/29/2003 15:14	Dept. of Public Safety	DOBSON RD	S 0202010A	0.047	Dry	No Injury	Daylight	Single Vehicle	Collision with Motor Vehicle Parked Properly	0	0	1	No Apparent Influence	S	Clear	Speed Too Fast for Conditions	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
3/26/2003 18:14	Mesa	DOBSON RD	S 0202010A	0	Dry	No Injury	Dawn or Dusk	Angle	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	S	Clear	Disregarded Traffic Signal	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
3/26/2003 18:14	Mesa	DOBSON RD	S 0202010A	0	Dry	No Injury	Dawn or Dusk	Angle	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	E	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
7/13/2003 13:55	Mesa	DOBSON RD	S 0202010C	-0.019	Dry	No Injury	Daylight	Sideswipe (same)	Collision with other Motor Vehicle	0	0	1	Had Been Drinking	S	Clear	Followed Too Closely	Changing Lanes	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
7/13/2003 13:55	Mesa	DOBSON RD	S 0202010C	-0.019	Dry	No Injury	Daylight	Sideswipe (same)	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	S	Clear	No Improper Driving	Stopped in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
11/6/2003 17:24	Mesa	DOBSON RD	S 0202010A	-0.006	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	S	Clear	Followed Too Closely	Making U-Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
11/6/2003 17:24	Mesa	DOBSON RD	S 0202010A	-0.006	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	S	Clear	No Improper Driving	Making U-Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
1/28/2004 0:29	Mesa	DOBSON RD	S 0202010G	-0.07	Dry	Incapacitating	Darkness	Single Vehicle	Collision with Curb	2	0	1	Had Been Drinking	N	Clear	Speed Too Fast for Conditions	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	None Used	N
4/4/2004 12:54	Mesa	DOBSON RD	S 0202010A	0	Dry	No Injury	Daylight	Sideswipe (same)	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	E	Clear	Other	Making Right Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
4/4/2004 12:54	Mesa	DOBSON RD	S 0202010A	0	Dry	No Injury	Daylight	Sideswipe (same)	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	E	Clear	No Improper Driving	Making Right Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Not Reported	N
5/10/2004 15:58	Mesa	DOBSON RD	S 0202010G	-0.004	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	N	Clear	Speed Too Fast for Conditions	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
5/10/2004 15:58	Mesa	DOBSON RD	S 0202010G	-0.004	Dry	No Injury	Daylight	Rear-End	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	N	Clear	No Improper Driving	Stopped in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
3/1/2005 12:06	Mesa	DOBSON RD	S 0202010G	-0.004	Dry	Non-Incapacitating Injury	Daylight	Rear-End	Collision with other Motor Vehicle	1	0	1	Unknown	N	Clear	Inattention	Slowing in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
3/1/2005 12:06	Mesa	DOBSON RD	S 0202010G	-0.004	Dry	Non-Incapacitating Injury	Daylight	Rear-End	Collision with other Motor Vehicle	1	0	2	No Apparent Influence	N	Clear	No Improper Driving	Stopped in Trafficway	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
6/19/2005 0:07	Mesa	DOBSON RD	S 0202010G	0.004	Dry	Possible Injury	Darkness	Single Vehicle	All Other Non-Collision	1	0	1	No Apparent Influence	N	Clear	Other	Making Left Turn	Motorcycle (two or three wheel)	No Apparent Defects	Not Reported	Not Reported	N
1/31/2006 12:40	Dept. of Public Safety	DOBSON RD	S 0202010J	0	Dry	Possible Injury	Daylight	Sideswipe (same)	Collision with other Motor Vehicle	1	0	1	Unknown	N	Clear	Unsafe Lane Change	Making Left Turn	Not Reported	Unknown	Not Reported	Not Reported	N
1/31/2006 12:40	Dept. of Public Safety	DOBSON RD	S 0202010J	0	Dry	Possible Injury	Daylight	Sideswipe (same)	Collision with other Motor Vehicle	1	0	2	No Apparent Influence	N	Clear	No Improper Driving	Making Left Turn	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N
4/19/2006 17:54	Dept. of Public Safety	S 0202010J	DOBSON RD	0	Dry	No Injury	Daylight	Single Vehicle	Overturning	0	0	1	Had Been Drinking	N	Clear	Speed Too Fast for Conditions	Making Left Turn	Not Reported	No Apparent Defects	Not Reported	Lap and Shoulder	N
2/1/2007 12:05	Dept. of Public Safety	S 0202010C	DOBSON RD	0	Dry	No Injury	Daylight	Single Vehicle	Collision with Fence	0	0	1	No Apparent Influence	SW	Clear	Speed Too Fast for Conditions	Going Straight Ahead	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	Y
4/24/2007 12:36	Mesa	DOBSON RD	S 0202010A	0	Dry	No Injury	Daylight	Angle	Collision with other Motor Vehicle	0	0	1	No Apparent Influence	NE	Clear	Disregarded Traffic Signal	Going Straight Ahead	Pick-Up Truck (including panel & mini-bus)	No Apparent Defects	Not Reported	Lap and Shoulder	N
4/24/2007 12:36	Mesa	DOBSON RD	S 0202010A	0	Dry	No Injury	Daylight	Angle	Collision with other Motor Vehicle	0	0	2	No Apparent Influence	S	Clear	No Improper Driving	Going Straight Ahead	Passenger Car, regular	No Apparent Defects	Not Reported	Lap and Shoulder	N

APPENDIX B DESIGN CRITERIA

Table 4-1
Major Roadway Features

	McKellips Rd Alternative MR1	McKellips Rd Alternative M1	Dobson Rd Alternative D3 (North of McKellips Rd)	Dobson Rd Alternative D3 (McKellips Rd to SR 202L)	Gilbert Rd Alternative G1 (South of Bridge)	Gilbert Rd Alternative G1 (North of Bridge)
Functional Classification (Standard Typical Section)	Urban Principal Arterial Road (MCDOT Fig. 5.7)	Urban Principal Arterial Road (Mod. MCDOT Fig. 5.7)	Rural Major Collector Road (MCDOT Fig. 5.3)	Urban Principal Arterial Road (MCDOT Fig. 5.7)	Urban Principal Arterial Road (Mod. MCDOT Fig. 5.7)	Rural Principal Arterial Road (Mod. MCDOT Fig. 5.1)
Level of Service	LOS D	LOS D	LOS C	LOS D	LOS D	LOS C
Design Year	2030	2030	2030	2030	2030	2030
Design Vehicle	WB-50	WB-50	WB-50	WB-50	WB-50	WB-50
Design Speed (mph)	55	55	30	55	55	65
Posted Speed (mph)	45	45	25	45	45	55
e_max	0.04 '/ft	0.04 '/ft	0.08 '/ft	0.04 '/ft	0.04 '/ft	0.08 '/ft
Min Radii (ft)	1190	1190	250	1190	1190	1485
Traffic Lane Widths	4 @ 12 ft 2 @ 14 ft	6 @ 12 ft	2 @ 12 ft	4 @ 12 ft 2 @ 14 ft	6 @ 12 ft	6 @ 12 ft
Shoulder Condition	5.5 ft - paved	5.5 ft - paved	7 ft - unpaved	5.5 ft - paved	5.5 ft - paved	5 ft - paved
Median Condition	14 ft raised median	14 ft paved lane	14 ft paved lane	14 ft raised median 14 ft paved lane (on bridge)	14 ft paved lane	14 ft paved lane
Roadway Width	2 @ 43.5 ft = 87 ft	2 @ 48.5 ft = 97 ft	2 @ 24 ft = 48 ft	2 @ 43.5 ft = 87 ft	2 @ 48.5 ft = 97 ft	2 @ 48.0 ft = 96 ft
Roadway Normal Cross-Slope	0.020 '/ft	0.020 '/ft	0.020 '/ft	0.020 '/ft	0.020 '/ft	0.020 '/ft
Shoulder Normal Cross-Slope	0.020 '/ft	0.020 '/ft	0.020 '/ft	0.020 '/ft	0.020 '/ft	0.020 '/ft
Slope Treatment **Cut**	3:1 Max	3:1 Max	3:1 Max	3:1 Max	3:1 Max	4:1 Max
Slope Treatment **Fill**	4:1 Max	4:1 Max	4:1 Max	4:1 Max	4:1 Max	4:1 Max
Min Clear Zone (ft)	30	30	15	30	30	30
Min Stopping Sight Distance (ft)	495	495	200	495	495	645
Min Passing Sight Distance (ft)	1985	1985	1090	1985	1985	2285
Sidewalk Width Condition	5 ft - concrete	5 ft - concrete	N/A	5 ft - concrete	5 ft - concrete	N/A
Max Longitudinal Grade (%)	5.0	5.0	7.0	5.0	5.0	3.0
Min Longitudinal Grade (%)	0.25	0.25	0.25	0.25	0.25	0.25
Min Vertical Curve Length (ft)	165	165	90	165	165	800
Curb & Gutter Types	Type A, MAG Detail 220	Type A, MAG Detail 220	N/A	Type A, MAG Detail 220 Type G, ADOT Std C-05.10	Type A, MAG Detail 220	N/A
Min Tapers	Design Speed:1 (Unless noted on plans)	Design Speed:1 (Unless noted on plans)	Design Speed:1 (Unless noted on plans)	Design Speed:1 (Unless noted on plans)	Design Speed:1 (Unless noted on plans)	Design Speed:1 (Unless noted on plans)
Min Flares	8:1	8:1	8:1	8:1	8:1	8:1
Traffic Signals	3	2	N/A	2	1	1
Pavement Markings Standards	MCDOT and ADOT	MCDOT and ADOT	MCDOT	MCDOT and ADOT	MCDOT	MCDOT and ADOT
Signing Standards	MCDOT and ADOT	MCDOT and ADOT	MCDOT	MCDOT and ADOT	MCDOT	MCDOT and ADOT
Guardrails/Barrier Treatment	N/A	At Bridge Ends	N/A	At Bridge Ends	At Bridge Ends	At Bridge Ends
Min Vertical Clearance	N/A	N/A	N/A	N/A	N/A	N/A
Pavement Design Life	20 years	20 years	20 years	20 years	20 years	20 years
Drainage Criteria	Box Culvert 50-Yr Storm; Overtopping 100-Yr	Box Culvert 50-Yr Storm; Overtopping 100-Yr	Box Culvert 50-Yr Storm; Overtopping 100-Yr	Box Culvert 50-Yr Storm; Overtopping 100-Yr	Box Culvert 50-Yr Storm; Overtopping 100-Yr	Box Culvert 50-Yr Storm; Overtopping 100-Yr
Lighting Placement	At Intersections (Unless noted on plans)	At Intersections (Unless noted on plans)	At Intersections (Unless noted on plans)	At Intersections (Unless noted on plans)	At Intersections (Unless noted on plans)	At Intersections (Unless noted on plans)

DOCUMENT ON CD

APPENDIX D RIGHT-OF-WAY

APPENDIX D RIGHT-OF-WAY

Table 6-1. Existing Right-of-Way

Parcel/Allotment	Owner	Address	Road	Right-of-Way
135-33-003-G	Kimco Mesa LLC	10390 Santa Monica Blvd Los Angeles, CA 90025	Dobson Road	Varies 75-80'
135-33-003-C	Sachs Ranch LLC	134 E Palm Ln. Phoenix, AZ 85004	Dobson Road	Varies 75-95'
135-06-007-B	United States of America	3707 N 7th St Phoenix, AZ 85014	Dobson Road	0'
135-06-008-D	Johnson Stewart LLC	1132 W McLellan Rd Mesa, AZ 85201	Dobson Road	0'
135-06-012-B	Johnson Stewart LLC	1132 W McLellan Rd Mesa, AZ 85201	Dobson Road	0'
135-01-003-N	Arizona Department of Transportation	205 S 17th Ave Phoenix, AZ 85007	McKellips Road	55'
135-01-003-P	K&GR LLC	15649 E Mustang Dr Fountain Hills, AZ 85268	McKellips Road	55'
135-01-003-K	K&GR LLC	15649 E Mustang Dr Fountain Hills, AZ 85268	McKellips Road	55'
135-08-001-D	MHC The Mark LLC	2 N Riverside Plaza, Ste 800 Chicago, IL 60606	McKellips Road	55'
141-02-008-F	Freeman & Kaser Investments LLC	2717 E Lehi Rd Mesa, AZ 85213	Gilbert Road	Varies 110-195'
141-02-007-E	Freeman & Kaser Investments LLC	2717 E Lehi Rd Mesa, AZ 85213	Gilbert Road	Varies 195-246'
141-02-001-K	Chandler Ready Mix Inc	1855 W Baseline Rd Mesa, AZ 85211	Gilbert Road	Varies 246-269'
141-02-001-L	Chandler Ready Mix Inc	1855 W Baseline Rd Mesa, AZ 85211	Gilbert Road	Varies 269-291'
141-02-001-J	Chandler Ready Mix Inc	1855 W Baseline Rd Mesa, AZ 85211	Gilbert Road	Varies 291-430'
Tribal Lands Sec. 24	SRPMIC		Gilbert Road	Varies 40-211'
Tribal Lands Sec. 25	SRPMIC		Gilbert Road	Varies 40-200'
Tribal Lands Sec. 19	SRPMIC		Gilbert Road	Varies 12-381'
Tribal Lands Sec. 30	SRPMIC		Gilbert Road	Varies 246-467'
Allotment 693			McKellips Road	Varies 80-104'
Allotment 362			McKellips Road	55'
Allotment 49			McKellips Road	55'
Allotment 48			McKellips Road	55'
Allotment 50			McKellips Road	55'
Allotment 458			McKellips Road	55'
Allotment 455			McKellips Road	55'
Allotment 456			McKellips Road	40'
Allotment 459			McKellips Road	40'
Allotment 429			McKellips Road	40'
Allotment 673			McKellips Road	40'
Tribal Lands Sec. 6	SRPMIC		McKellips Road	40'
Allotment L-8			McKellips Road	40'

Parcel/Allotment	Owner	Address	Road	Right-of-Way
Tribal Lands Sec. 5	SRPMIC		McKellips Road	Varies 40-75'
Tribal Lands Sec. 4	SRPMIC		McKellips Road	Varies 55-65'

Table 6-2. Alternative D1, D1a, D1b, D2, D2a, D3, and D3a Proposed Right-of-Way

Parcel/Allotment	Owner	Address	Road	Right-of-Way
Allotment 50			Dobson Road	55'
Allotment 73			Dobson Road	55'
Allotment 74			Dobson Road	55'
Allotment 455			Dobson Road	55'
Allotment 673			Dobson Road	55'
Tribal Lands Sec. 5	SRPMIC		Dobson Road	55'
Tribal Lands Sec. 7	SRPMIC		Dobson Road	55'
Tribal Lands Sec. 8	SRPMIC		Dobson Road	55'

Table 6-3 Alternative M1, M2, and M3 Proposed Right-of-Way

Parcel/Allotment	Owner	Address	Road	Right-of-Way
Allotment 362			Dobson Road	55'
Allotment 48			Dobson Road	55'
Allotment 50			Dobson Road	55'
Allotment 458			Dobson Road	55'
Allotment 459			Dobson Road	55'
Allotment 455			Dobson Road	55'
Allotment 456			Dobson Road	55'
Allotment 429			Dobson Road	55'
Allotment 693			Dobson Road	55'
Allotment 673			Dobson Road	55'
Tribal Lands Sec. 4	SRPMIC		Dobson Road	55'
Tribal Lands Sec. 5	SRPMIC		Dobson Road	55'
Tribal Lands Sec. 6	SRPMIC		Dobson Road	55'
Tribal Lands Sec. 8	SRPMIC		Dobson Road	55'

Table 6-4. Alternative D1 Right-of-Way Takes

Parcel/Allotment	Owner	Square Feet	Acres
Allotment L-7		248,275	5.700
Allotment L-8		42,857	0.984
Tribal Lands Sec. 5	SRPMIC	57,342	1.316
Tribal Lands Sec. 8	SRPMIC	324,050	7.439
Total		672,524	15.439

Table 6-5. Alternative D1a Right-of-Way Takes

Parcel/Allotment	Owner	Square Feet	Acres
Allotment L-8		147,789	3.393
Tribal Lands Sec. 5	SRPMIC	13,875	0.319
Tribal Lands Sec. 8	SRPMIC	356,293	8.179
Total		517,957	11.891

Table 6-6. Alternative D1b Right-of-Way Takes

Parcel/Allotment	Owner	Square Feet	Acres
Allotment L-6		30,019	0.689
Allotment L-7		119,795	2.750
Tribal Lands Sec. 5	SRPMIC	81,887	1.880
Tribal Lands Sec. 8	SRPMIC	324,500	7.449
Total		556,201	12.768

Table 6-7. Alternative D2 Right-of-Way Takes

Parcel/Allotment	Owner	Square Feet	Acres
Allotment 673		35,840	0.823
Allotment L-8		65,018	1.493
Tribal Lands Sec. 5	SRPMIC	48,945	1.124
Tribal Lands Sec. 8	SRPMIC	342,846	7.871
Total		492,649	11.311

Table 6-8. Alternative D2a Right-of-Way Takes

Parcel/Allotment	Owner	Square Feet	Acres
Allotment 673		24,413	0.560
Allotment L-8		118,672	2.724
Tribal Lands Sec. 8	SRPMIC	344,567	7.910
Total		487,652	11.194

Table 6-9. Alternative D3 Right-of-Way Takes

Parcel/Allotment	Owner	Square Feet	Acres
Allotment 50		28,137	0.646
Allotment 73		1,021	0.023
Allotment 455		34,823	0.799
Allotment L-7		111,574	2.561
Allotment L-8		3,603	0.083
Tribal Lands Sec. 7	SRPMIC	253,825	5.827
Tribal Lands Sec. 8	SRPMIC	225,685	5.181
Total		658,668	15.120

Table 6-10. Alternative D3a Right-of-Way Takes

Parcel/Allotment	Owner	Square Feet	Acres
Allotment 50		27,442	0.630
Allotment 73		1,626	0.037
Allotment 455		35,422	0.813
Allotment L-7		111,866	2.568
Tribal Lands Sec. 7	SRPMIC	210,821	4.840
Tribal Lands Sec. 8	SRPMIC	213,094	4.892
Allotment 50		27,442	0.630
Total		600,271	13.780

Table 6-11. Alternative M1, M2, and M3 Right-of-Way Takes

Parcel/Allotment	Owner	Square Feet	Acres
Allotment 48		5,901	0.135
Allotment 50		5,750	0.132
Allotment 362		6,601	0.152
Allotment 429		16,506	0.379
Allotment 455		5,756	0.132
Allotment 456		16,508	0.379
Allotment 458		5,903	0.136
Allotment 459		16,500	0.379
Allotment 673		32,994	0.757
Allotment 693		6,600	0.152
Tribal Lands Sec. 4	SRPMIC	293,096	6.729
Tribal Lands Sec. 5	SRPMIC	206,431	4.739
Tribal Lands Sec. 6	SRPMIC	16,500	0.379
Tribal Lands Sec. 8	SRPMIC	15,488	0.356
Total		650,534	14.936

Table 6-12. Alternative D1 Frontage by Jurisdiction

Jurisdiction	Frontage in Feet	Percent of Total
Maricopa County	887	9.5%
Salt River Pima Maricopa Indian Community	8,448	90.5%
Total	9,335	100.0%

Table 6-13. Alternative D1a Frontage by Jurisdiction

Jurisdiction	Frontage in Feet	Percent of Total
Maricopa County	837	9.1%
Salt River Pima Maricopa Indian Community	8,394	90.9%
Total	9,231	100.0%

Table 6-14. Alternative D1b Frontage by Jurisdiction

Jurisdiction	Frontage in Feet	Percent of Total
Maricopa County	887	8.0%
Salt River Pima Maricopa Indian Community	10,133	92.0%
Total	11,020	100.0%

Table 6-15. Alternative D2 Frontage by Jurisdiction

Jurisdiction	Frontage in Feet	Percent of Total
Maricopa County	678	7.0%
Salt River Pima Maricopa Indian Community	9,534	93.0%
Total	10,212	100.0%

Table 6-16. Alternative D2a Frontage by Jurisdiction

Jurisdiction	Frontage in Feet	Percent of Total
Maricopa County	678	7.1%
Salt River Pima Maricopa Indian Community	8,869	92.9%
Total	9,547	100.0%

Table 6-17. Alternative D3 Frontage by Jurisdiction

Jurisdiction	Frontage in Feet	Percent of Total
Maricopa County	678	5.4%
Salt River Pima Maricopa Indian Community	11,976	94.6%
Total	12,654	100.0%

Table 6-18. Alternative D3a Frontage by Jurisdiction

Jurisdiction	Frontage in Feet	Percent of Total
Maricopa County	678	5.2%
Salt River Pima Maricopa Indian Community	12,281	94.8%
Total	12,959	100.0%

Table 6-19. Alternative M1, M2, and M3 Frontage by Jurisdiction

Jurisdiction	Frontage in Feet	Percent of Total
Maricopa County	-	0.0%
Salt River Pima Maricopa Indian Community	26,539	100.0%
Total	26,539	100.0%

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
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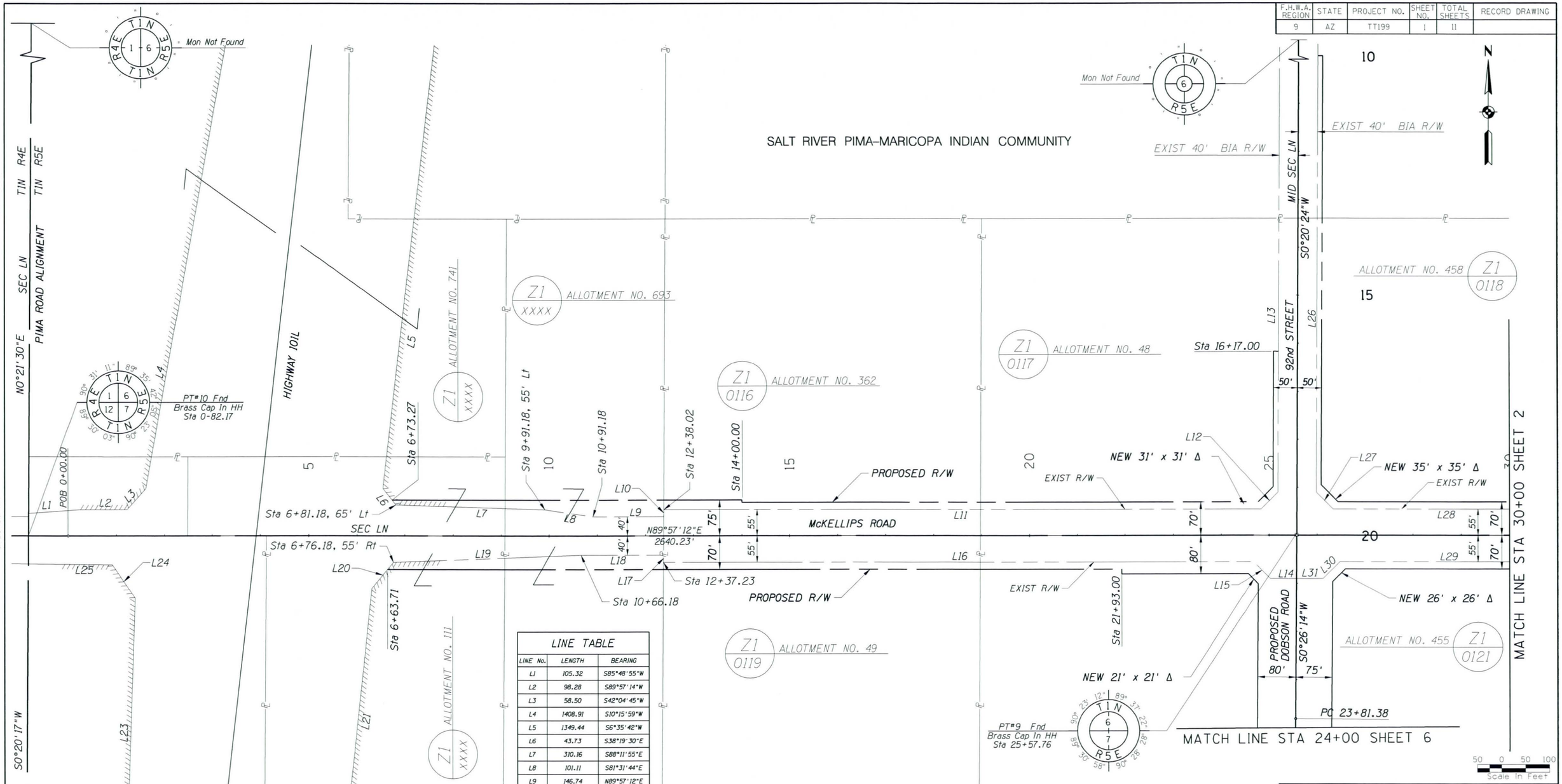

LINE TABLE		
LINE No.	LENGTH	BEARING
L1	105.32	S85°48'55"W
L2	98.28	S89°57'14"W
L3	58.50	S42°04'45"W
L4	1408.91	S10°15'59"W
L5	1349.44	S6°35'42"W
L6	43.73	S38°19'30"E
L7	310.16	S88°11'55"E
L8	101.11	S81°31'44"E
L9	146.74	N89°57'12"E
L10	15.00	N0°20'58"E
L11	1245.10	N89°57'12"E
L12	49.67	N45°08'48"E
L13	2552.33	N0°20'24"E
L14	55.01	S89°57'29"W
L15	49.29	N44°48'17"W
L16	1230.06	S89°57'12"W
L17	15.00	N0°23'15"E
L18	171.16	S89°57'12"W
L19	390.28	S87°44'54"W
L20	70.76	S39°43'31"W
L21	553.66	S6°00'41"W
L22	865.86	S5°10'27"W
L23	1382.89	S1°47'49"W
L24	84.35	S34°02'27"E
L25	174.06	S89°27'03"E

LINE TABLE		
LINE No.	LENGTH	BEARING
L26	2551.80	S0°20'24"W
L27	49.34	S44°50'55"E
L28	585.27	N89°57'46"E
L29	570.58	N89°57'46"E
L30	49.70	N45°12'00"E
L31	55.00	N89°57'29"E

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PROJECT NO. TT199

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CHECKED	A. Spear	07/09

Registered Professional Engineer (Civil) 25015 ANDREW JOHN SPEAR Date Signed 07/20/09 ARIZONA, U.S.A. Expires 06/30/10

ROW STRIP MAP

SHEET 1 OF 11

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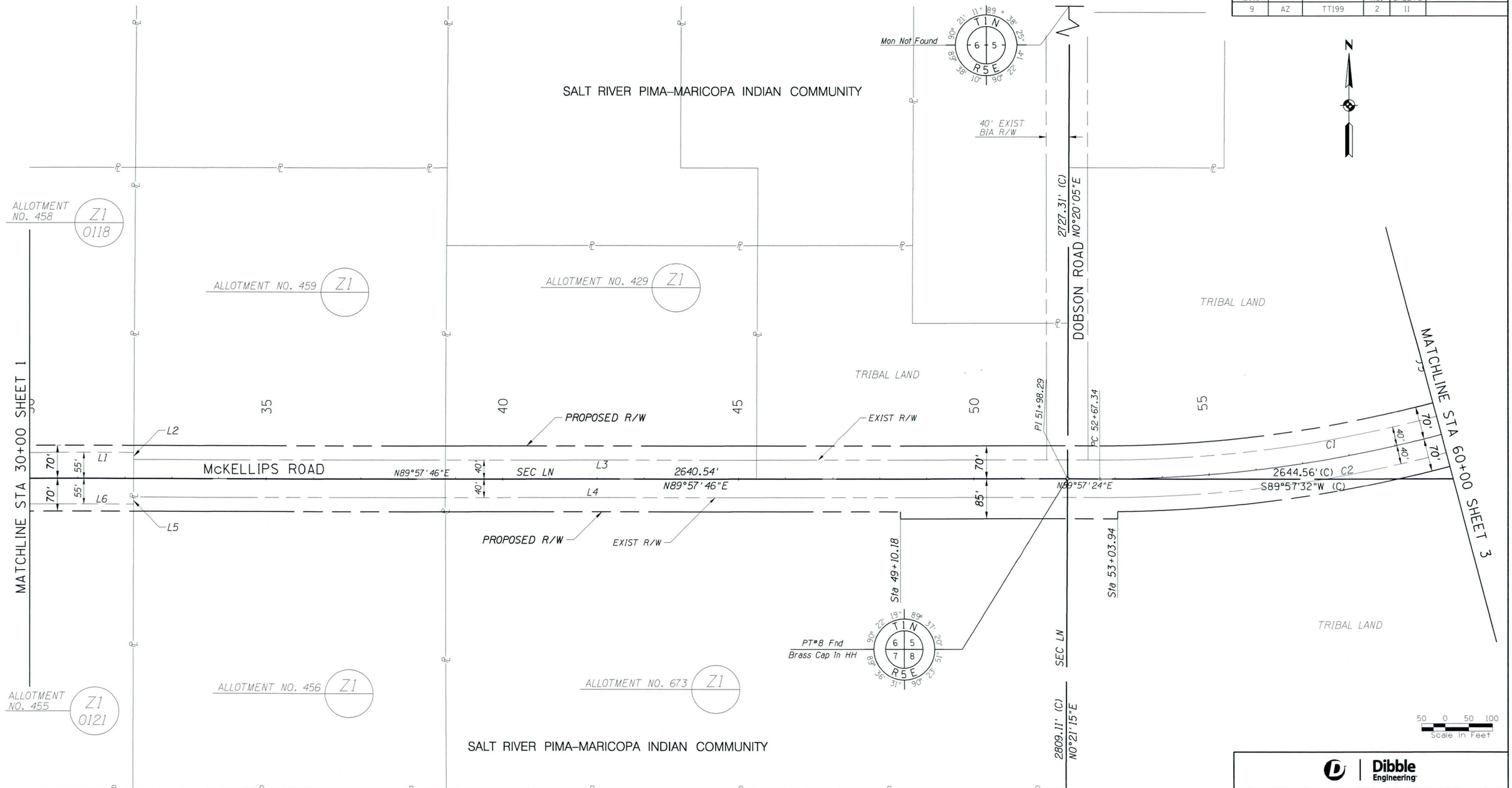

LINE TABLE		
LINE No.	LENGTH	BEARING
L1	585.27	N89°57'46"E
L2	15.00	S0°19'49"W
L3	1980.26	N89°57'46"E
L4	1980.10	N89°57'46"E
L5	15.00	N0°07'14"E
L6	570.58	N89°57'46"E
L9	49.70	N45°12'00"E

CURVE TABLE				
CURVE No.	Δ	RADIUS	LENGTH	TANGENT
C1	20°59'53"	2796.86'	1025.01'	518.32'
C2	20°59'53"	2876.86'	1054.32'	533.14'

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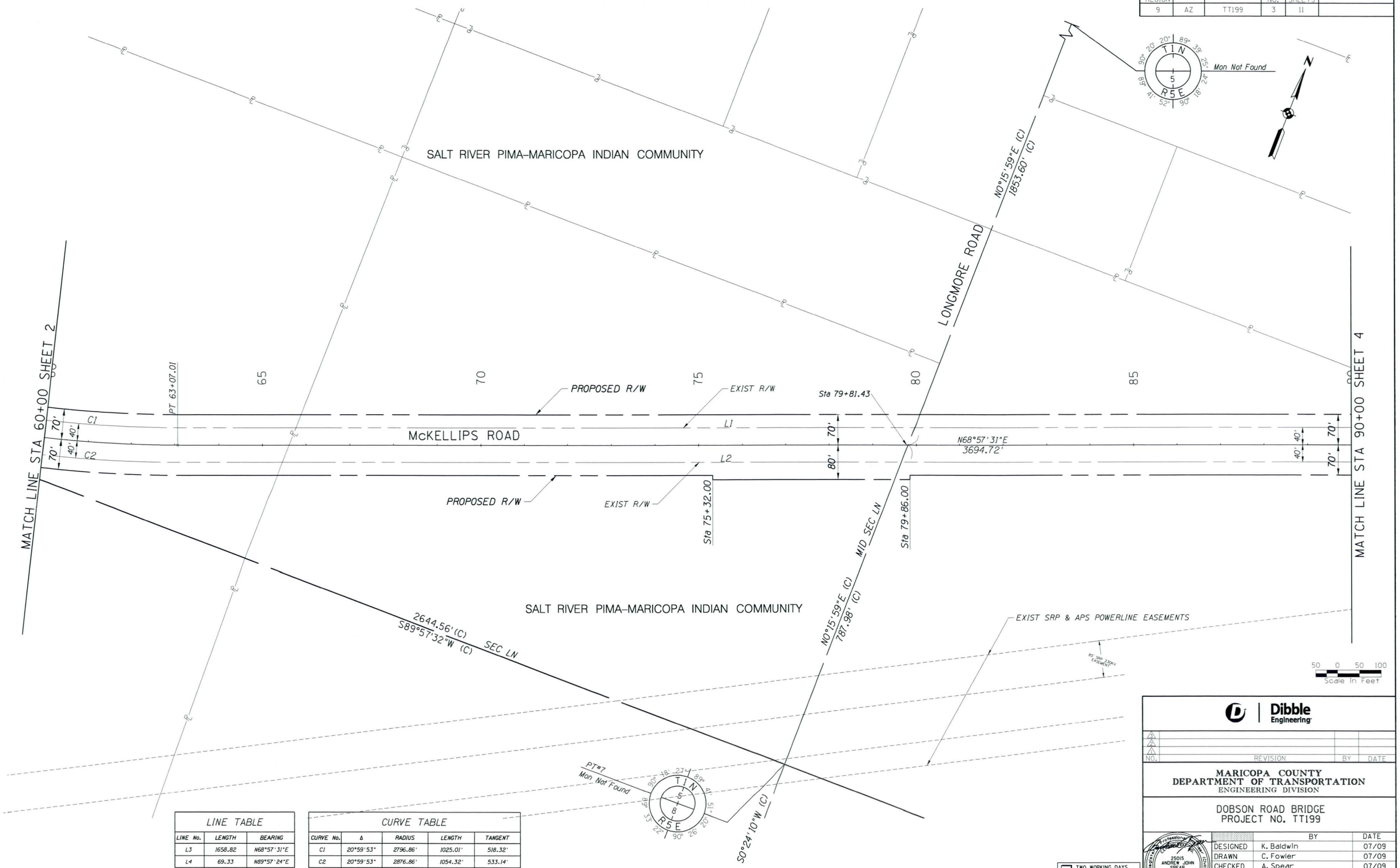

LINE TABLE		
LINE No.	LENGTH	BEARING
L3	1658.82	N68°57'31"E
L4	69.33	N89°57'24"E

CURVE TABLE				
CURVE No.	Δ	RADIUS	LENGTH	TANGENT
C1	20°59'53"	2796.86'	1025.01'	518.32'
C2	20°59'53"	2876.86'	1054.32'	533.14'

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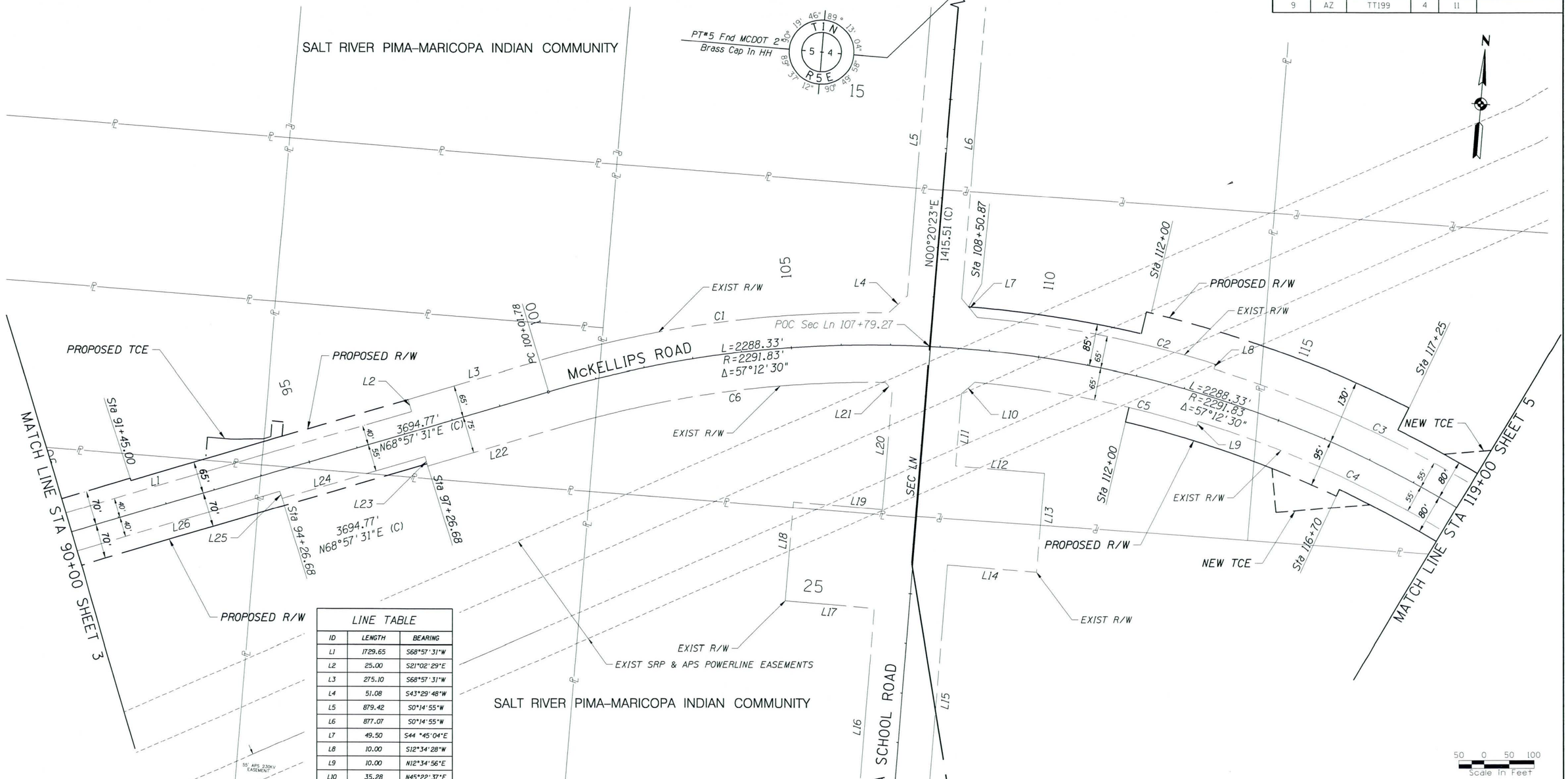

LINE TABLE		
ID	LENGTH	BEARING
L1	1729.65	S68°57'31"W
L2	25.00	S21°02'29"E
L3	275.10	S68°57'31"W
L4	51.08	S43°29'48"W
L5	879.42	S0°14'55"W
L6	877.07	S0°14'55"W
L7	49.50	S44 °45'04"E
L8	10.00	S12°34'28"W
L9	10.00	N12°34'56"E
L10	35.28	N45°22'37"E
L11	146.67	N0°14'51"E
L12	180.00	N89°45'05"W
L13	200.00	N0°14'55"E
L14	180.00	S89 °45'05"E
L15	702.33	N0°14'55"E
L16	602.33	S0°14'55"W
L17	180.00	S89°45'05"E
L18	200.00	S0 °14'55"W
L19	180.00	N89°45'05"W
L20	242.05	S0°14'52"W
L21	20.53	S46°41'54"E
L22	275.10	N68°57'31"E
L23	20.00	S21°02'29"E
L24	300.00	N68°57'31"E
L25	15.00	S21°02'29"E
L26	1460.86	N68°57'31"E

CURVE TABLE				
ID	Δ	RADIUS	LENGTH	TANGENT
C1	8°40'04"	2356.83'	356.54'	178.61'
C2	11°54'05"	2356.83'	489.56'	245.67'
C3	11°47'46"	2346.83'	483.17'	242.44'
C4	11°47'33"	2236.83'	460.38'	231.00'
C5	11°45'20"	2226.83'	456.89'	229.25'
C6	8°36'26"	2216.83'	333.02'	166.82'

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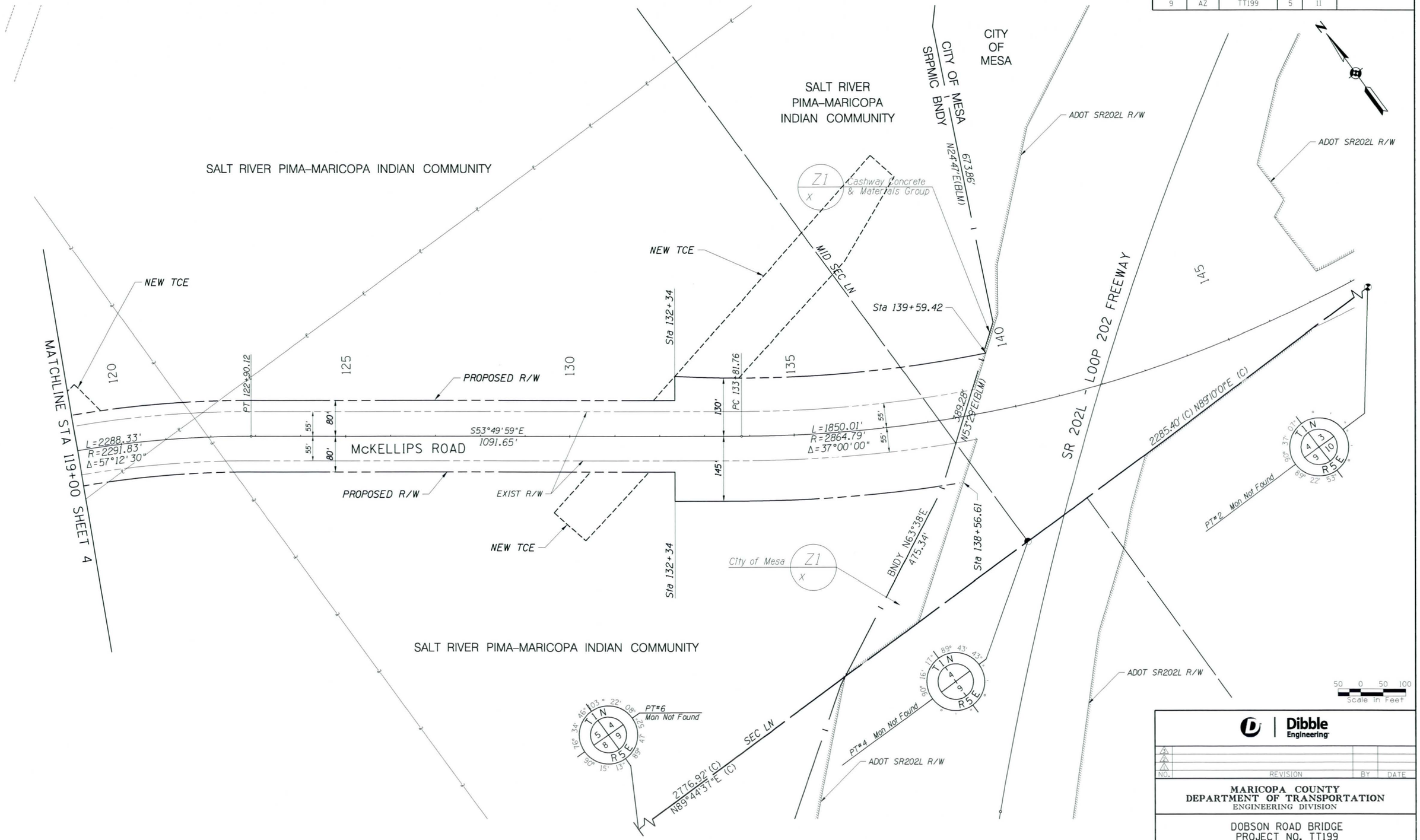

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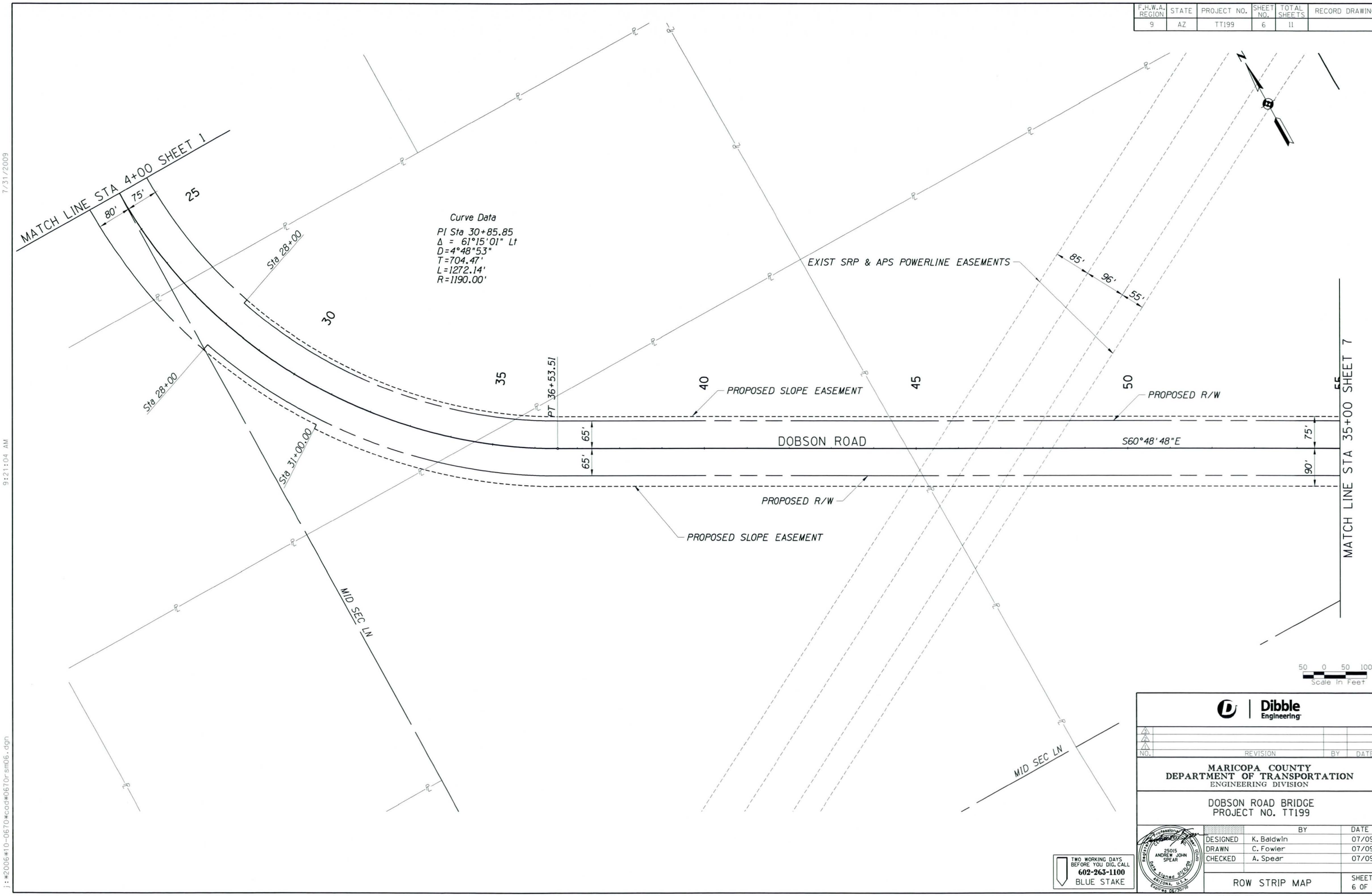

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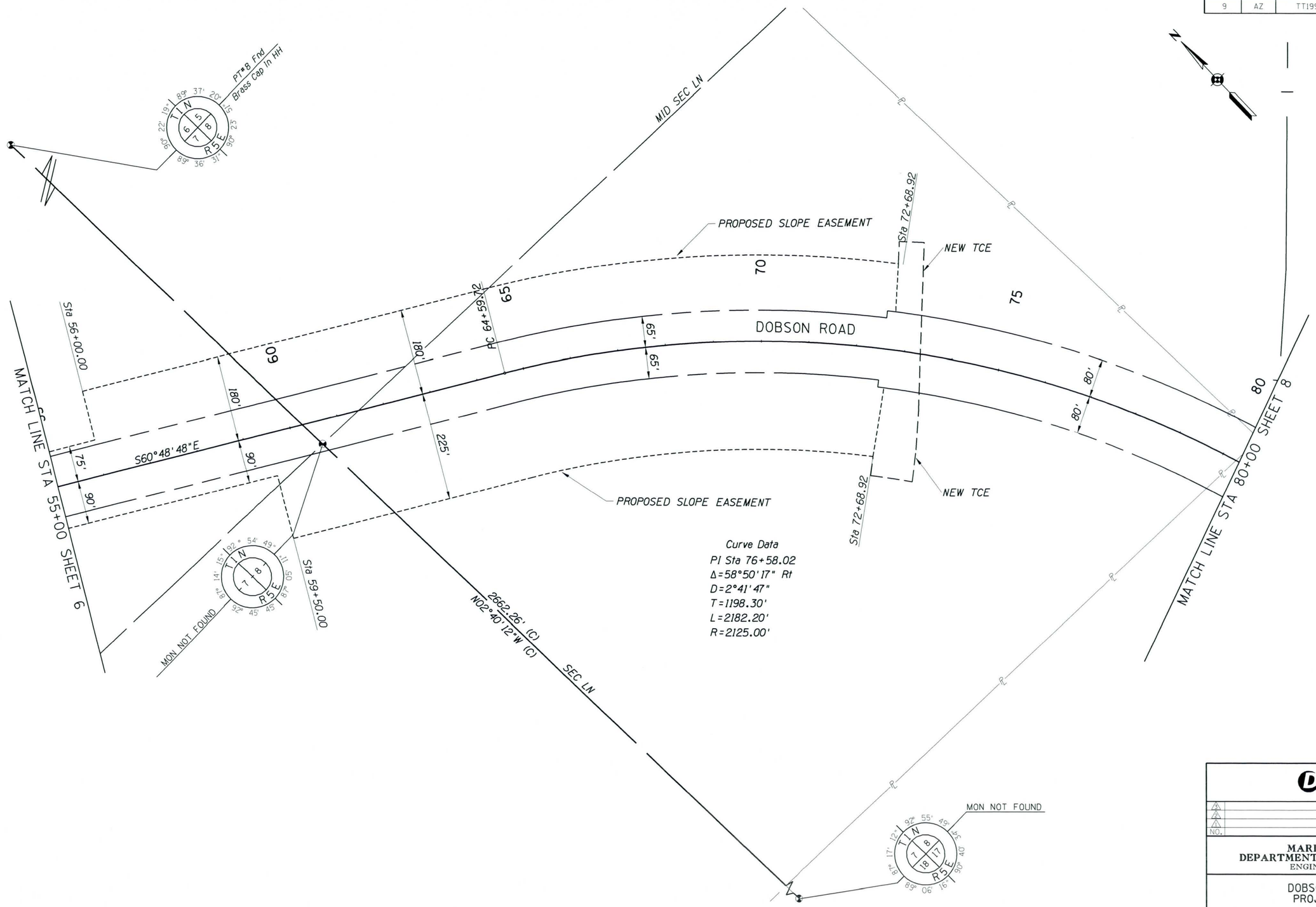

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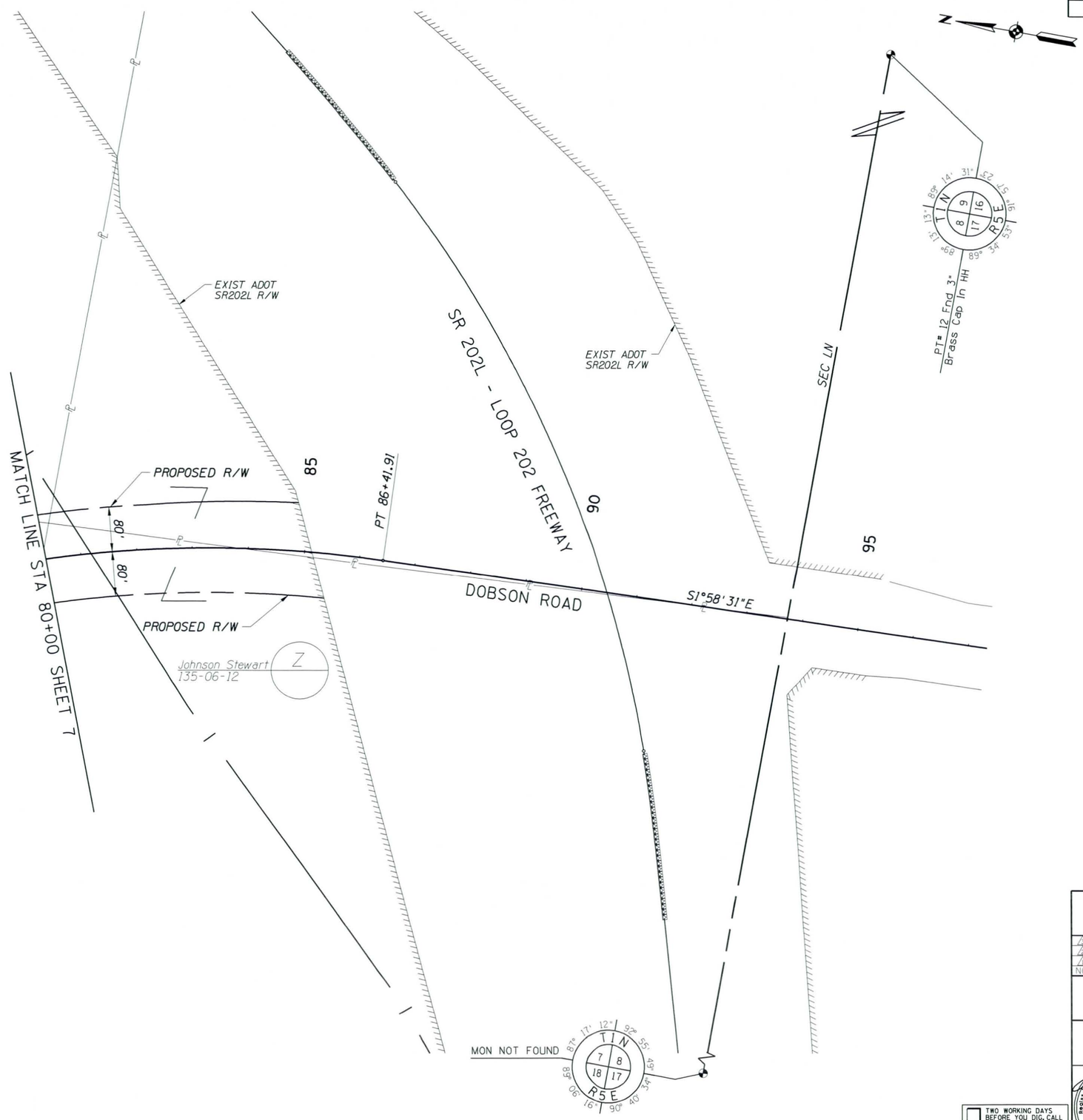

50 0 50 100
Scale in Feet

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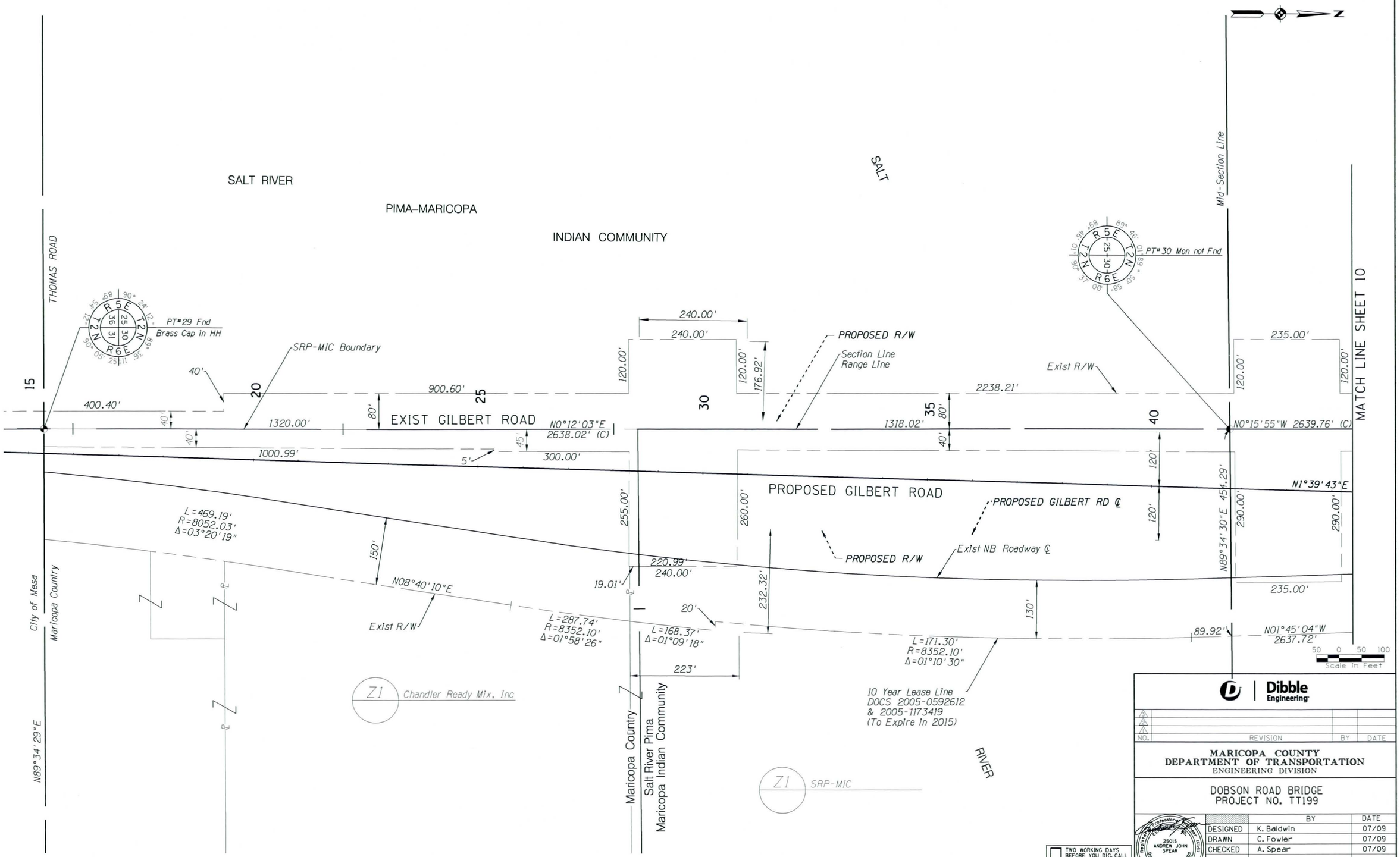

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F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
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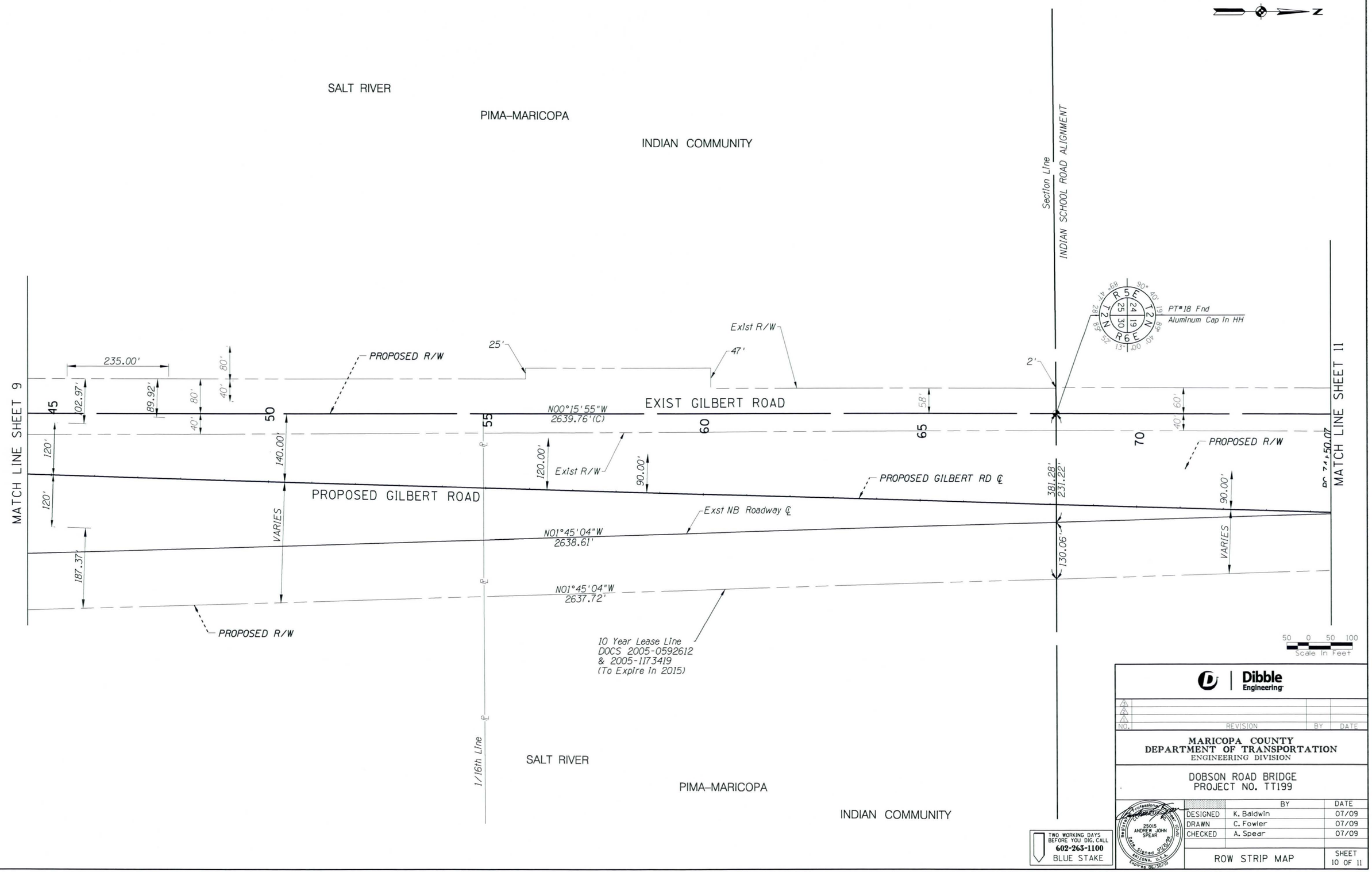

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NO.	REVISION	BY	DATE

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGE
PROJECT NO. TT199

	BY	DATE
DESIGNED	K. Baldwin	07/09
DRAWN	C. Fowler	07/09
CHECKED	A. Spear	07/09

Registered Professional Engineer (Civil) 25015 ANDREW JOHN SPEAR Date Signed 07/20/09 ARIZONA, U.S.A. Expires 06/30/10

ROW STRIP MAP

SHEET 10 OF 11

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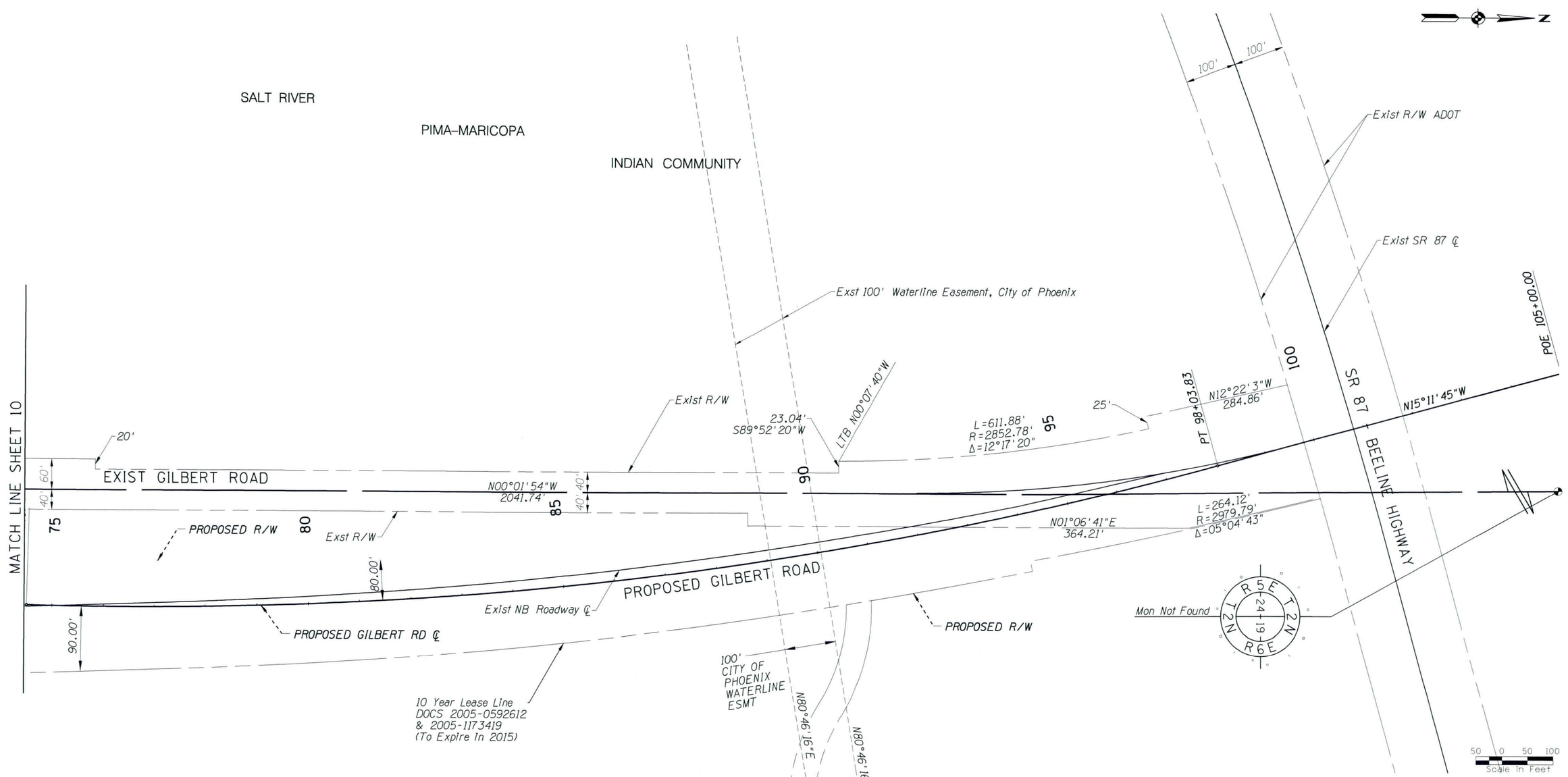

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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGE
PROJECT NO. TT199

Registered Professional Engineer (Civil)
25015
ANDREW JOHN SPEAR
Date Signed 07/31/09
ARIZONA, U.S.A.
Expires 06/30/10

	BY	DATE
DESIGNED	K. Baldwin	07/09
DRAWN	C. Fowler	07/09
CHECKED	A. Spear	07/09

ROW STRIP MAP

SHEET 11 OF 11

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APPENDIX E SOCIOECONOMIC OVERVIEW

Appendix E Socioeconomic Overview

This appendix contains materials developed for the Dobson Road Bridges Design Concept Report but judged to be supportive as background rather than central to the purpose of the report.

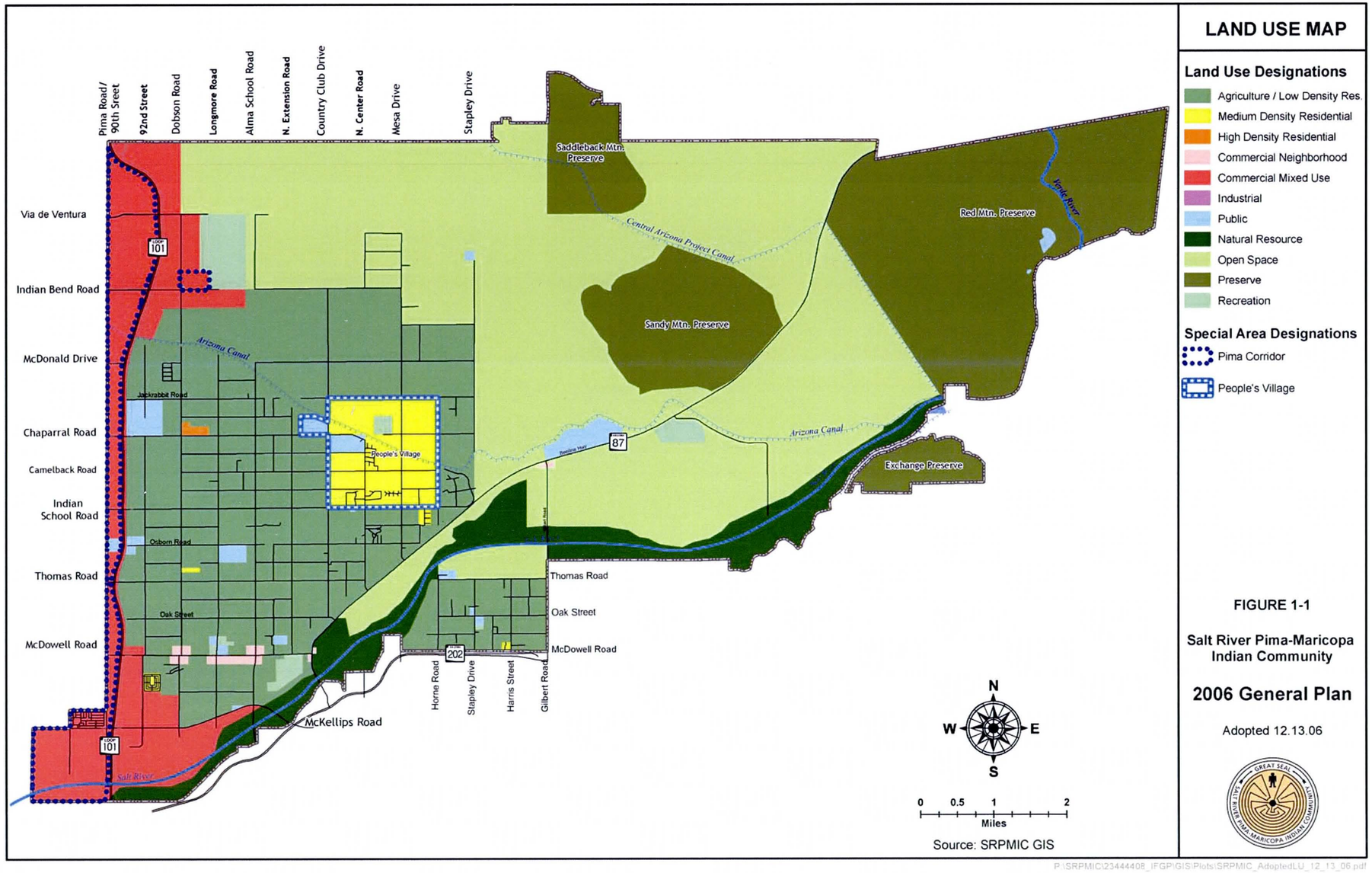

Figure 7-1. Planned Land Use—SRP-MIC

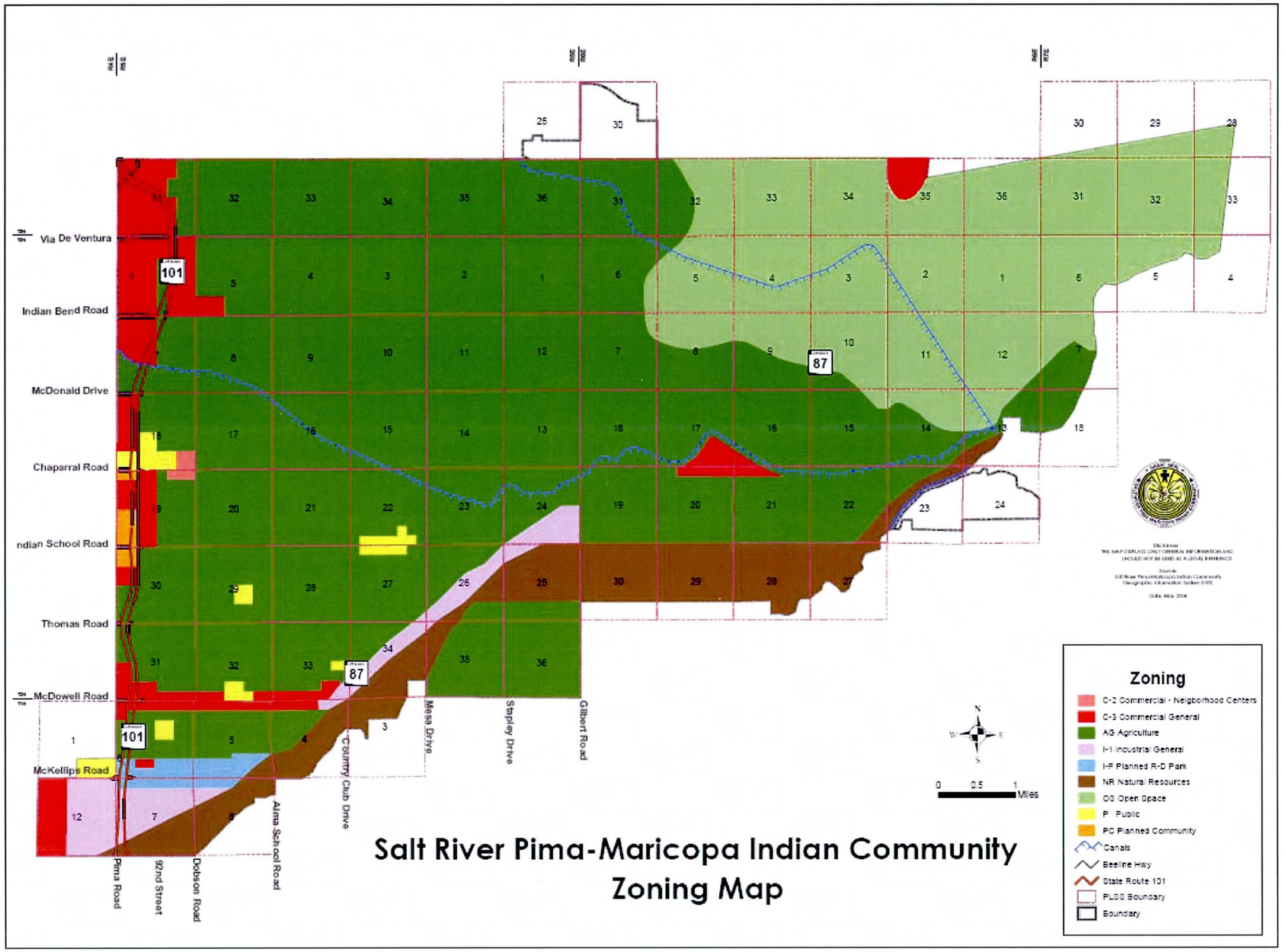

Figure 7-2. Zoning, SRP-MIC

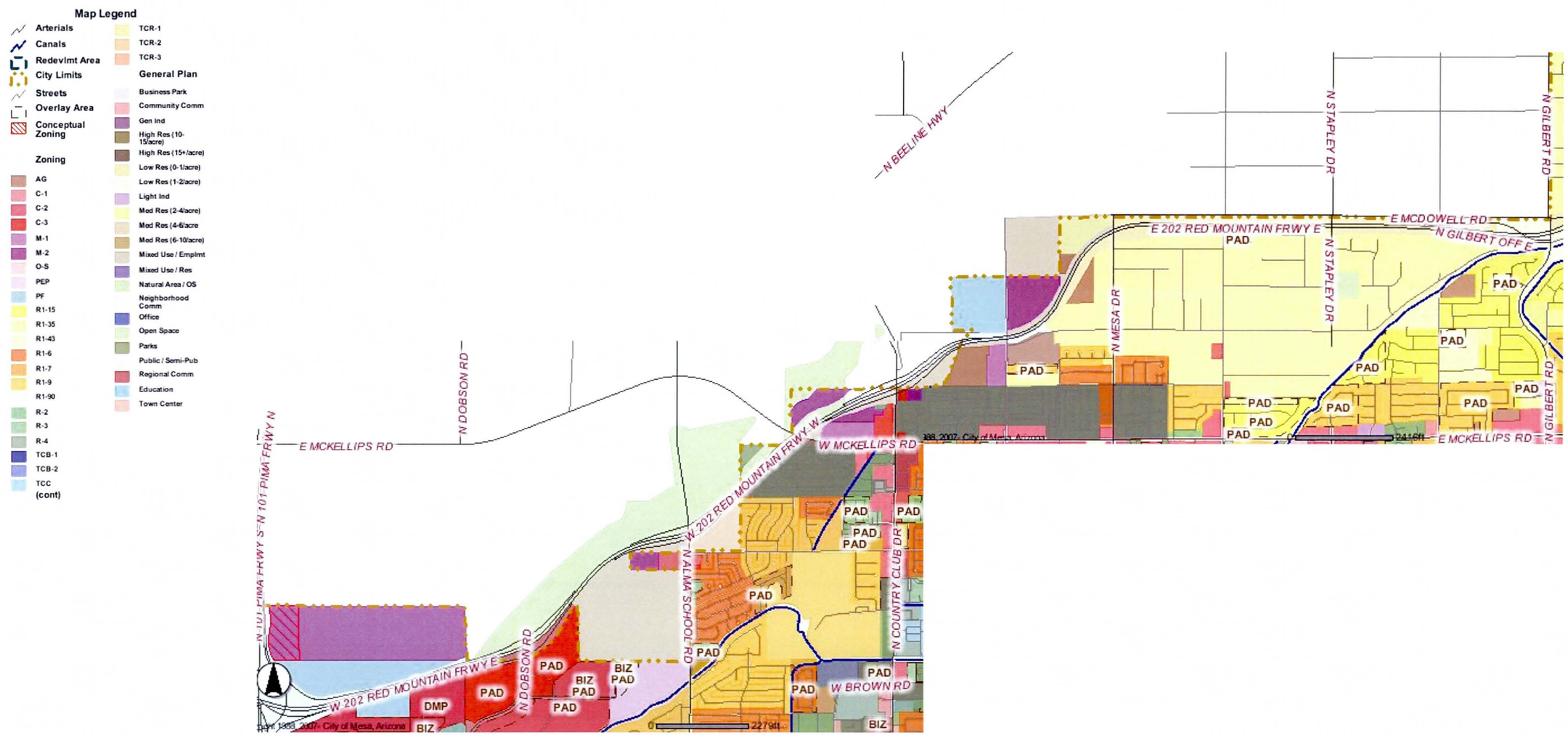

Figure 7-3. Planned Land Use and Zoning—City of Mesa

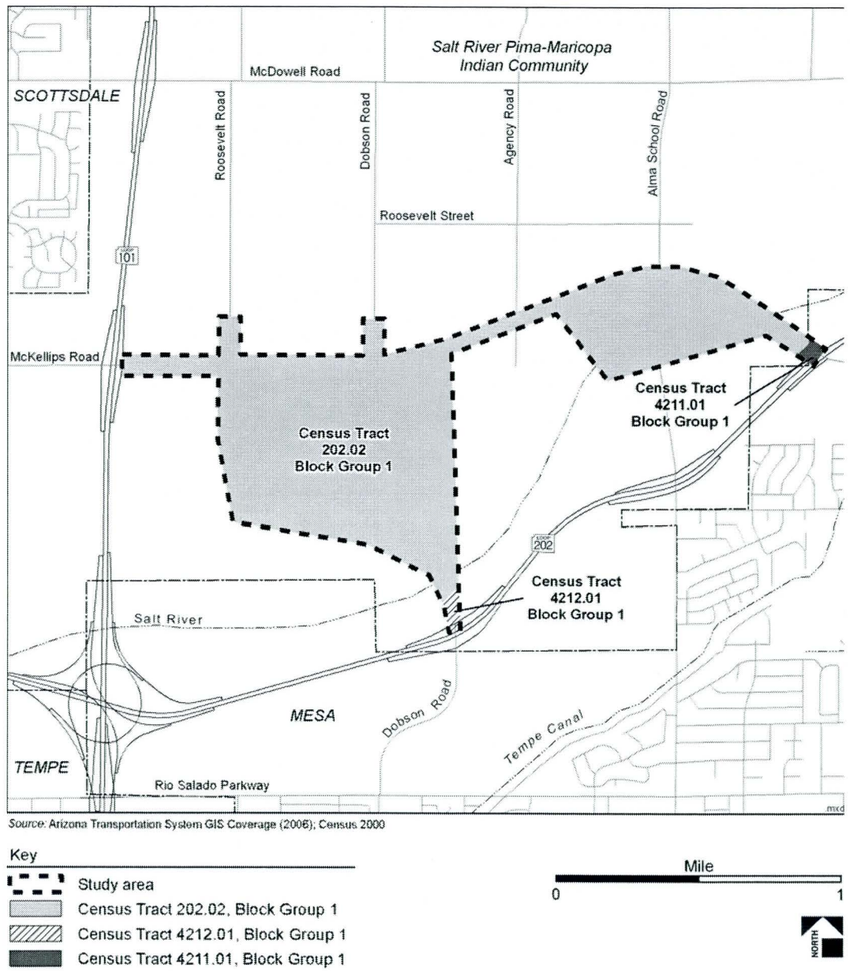

Figure 7-4. Census Tracts within Dobson and McKellips Road Bridges Project Area

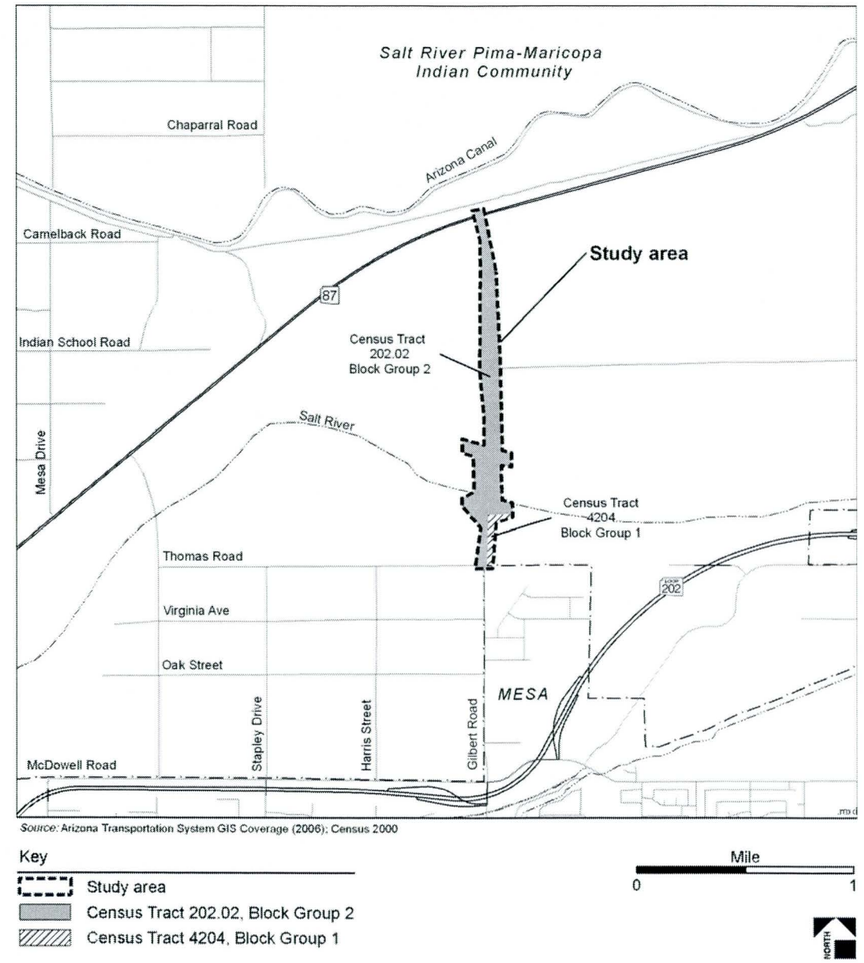

Figure 7-5. Census Tracts within Gilbert Road Bridge Project Area

Table 7-2. 2000 Demographics: Race and Ethnicity

Area	Total Population	White		African American		Native American		Asian		Pacific Islander		Other		Two or More Races		Hispanic[a]	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
202.02-1	5,193	1,165	22.4	8	0.2	2,356	45.4	95	1.8	25	0.5	972	18.7	572	11.0	808	15.6
202.02-2	1,210	47	3.9	12	1.0	1,025	84.7	48	4.0	0	0.0	32	2.6	46	3.8	185	15.3
4211.01-1	2,622	2,044	78.0	51	1.9	109	4.2	0	0.0	0	0.0	312	11.9	106	4.0	555	21.2
4204-1	814	806	99.0	0	0.0	8	1.0	0	0.0	0	0.0	0	0.0	0	0.0	43	5.3
4212.01-1[b]	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Total Tracts	9,839	4,062	40.7	71	0.6	3,498	27.0	143	1.2	25	0.1	1,316	6.7	724	3.8	1,591	11.5
Salt River Reservation	6,403	1,212	18.9	20	0.3	3,381	52.8	143	2.2	25	0.4	1,004	15.7	618	9.7	993	15.5
City of Mesa	397,215	323,777	81.5	9,607	2.4	6,220	1.6	6,022	1.5	647	0.2	38,492	9.7	12,450	3.1	78,589	19.8
Maricopa County	3,072,149	2,375,391	77.3	111,584	3.6	55,177	1.8	66,294	2.2	3,811	0.1	365,320	11.9	94,572	3.1	763,333	24.8

Source: US Department of Commerce, Bureau of the Census. *Census 2000, Summary File 3.*
Note: # = Number; % = Percentage. Shaded areas denote percentages notably higher than comparison areas' percentages.
[a]"Hispanic" refers to ethnicity and is derived from the total population, not as a separate race; that is, it is calculated differently from the other columns in this table.
[b]This census tract is unpopulated, so no data are available.

Table 7-3. 2000 Demographics: Minorities, Elderly, Low Income, Disabled, and Female Head of Household Populations

Area (Census Tract)	Total Population	Total Minority[a]		Elderly		Total Population for Whom Poverty is determined	Below Poverty Level		Total Population for Whom Disabled is Determined	Disabled		Households	Female Head of Household	
		#	%	#	%		#	%		#	%		#	%
202.02-1	5,193	4,094	78.8	971	18.7	3,372	844	25.0	3,564	1,223	34.3	1,661	769	46.3
202.02-2	1,210	1,200	99.2	84	6.9	702	223	31.8	764	288	37.7	295	123	41.7
4211.01-1	2,622	794	30.3	234	8.9	1,712	108	6.3	1,782	490	27.5	887	262	29.5
4204-1	814	51	6.3	77	9.5	470	19	4.0	483	22	4.6	212	20	9.4
4212.01-1[b]	0	0	0.0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0
Total Tracts	9,839	6,139	42.9	1,366	8.8	6,256	1,194	13.4	6,593	2,023	20.8	3,055	1,174	25.4
Salt River Reservation	6,403	5,294	82.7	1,055	16.5	4,074	1,067	26.2	4,328	1,511	34.9	1,956	892	45.6
City of Mesa	397,215	10,7124	27.0	65,701	16.5	288,786	23,139	8.0	299,777	61,100	20.4	146,700	39,043	26.6
Maricopa County	3,072,149	1,038,729	33.8	465,849	15.2	2,246,838	226,957	10.1	2,327,675	478,892	20.6	1,133,048	303,905	26.8

Source: US Department of Commerce, Bureau of the Census. *Census 2000, Summary File 3.*
Note: # = Number; % = Percentage. Shaded areas denote percentages notably higher than comparison areas' percentages.
[a]"Total Minority" is composed of all people who identify racially as non-White as well as those who consider themselves White Hispanic.
[b]This census tract is unpopulated so no data are available.

APPENDIX F ENVIRONMENTAL OVERVIEW

F.1 Physical and Natural Environment

This section describes the existing physical and natural environment within the project area in terms of topography/physiography, biotic communities, wildlife, sensitive species and habitat, water resources, visual character, air quality, noise, and hazardous materials. The inventory of the physical and natural environment of the project area consisted of gathering resource data and information from various local, state, and federal agencies, including the Arizona Game and Fish Department (AGFD) and the U.S. Fish and Wildlife Service (USFWS). The characteristics of the physical and natural environment were also identified from a windshield survey of the project area.

F.1.1 Topography/Physiography

The project area is located within the Basin and Range physiographic province of central Arizona, which is characterized by numerous mountain ranges rising abruptly from broad valleys or basins (Figure F-1). Ranges and associated basins in Southern Arizona typically have a north-to-northwest trend with through-flowing drainages. Rocks exposed within this province consist of well-represented varieties of the three major types: igneous, metamorphic, and sedimentary (Hendricks 1985).

The project area is characterized as a broad, dry river floodplain situated in an expansive intermountain valley. Elevation ranges from approximately 1,100 to 1,300 feet above mean sea level within the project area. The soils in the project area are hyperthermic well-drained arid soils of the Torrifluvents and Mohall-Vecont-Pinamt Associations. The soils of the Torrifluvents Association are classified as deep, stratified, coarse to fine-textured, nearly level to gently sloping soils on floodplains and lower alluvial fans. These soils are prone to brief seasonal flooding because runoff is slow. Soils of the Mohall-Vecont-Pinamt Association are deep, moderately fine and fine-textured and gravelly, moderately fine-textured, nearly level to gently sloping soils on valley plains (Hendricks 1985).

F.1.2 Biotic Communities

The planning area occurs within the Lower Colorado River Valley subdivision of the Sonoran Desertscrub Biotic Community (Turner and Brown 1994), which is characterized by high temperatures and generally low precipitation. Within the project area at McKellips and Gilbert Roads, the Salt River is a broad, dry channel with a river cobble bottom. At Dobson Road, the river channel is contained within a steep concrete hard-bank, and several ponds are present. Vegetation in the river channel at McKellips and Gilbert Roads is extremely sparse, consisting of scattered burrobrush (Hymenoclea salsola) and desert broom (Baccharis sarothroides). West of Gilbert Road and between McKellips Road and Dobson Road, the Salt River channel is highly disturbed because of materials excavation activities.

F.1.3 Wildlife

The Salt River begins in eastern Arizona, in Gila County and flows west through the Salt River Canyon. Upstream of the project area, the river supplies four reservoirs and is diverted to deliver drinking and irrigation water to the Phoenix metropolitan area. Below Granite Reef Diversion Dam, the riverbed leaves the mountains and runs through the project area. Below the project area, the Salt River ends at its

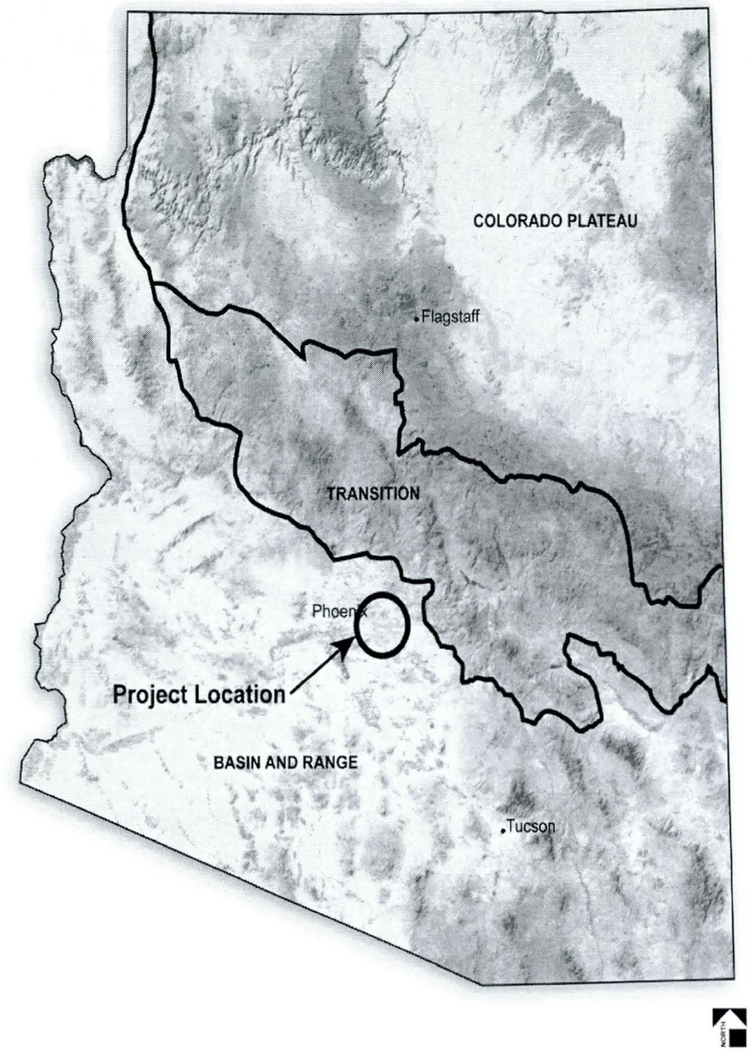

Figure F-1 Physiographic Provinces of Arizona

confluence with the Gila River on the southwestern edge of Phoenix. Throughout its course, the Salt River corridor forms a natural flyway for migrating birds. Patches of riparian vegetation and wetland habitat provide resting and foraging areas for songbirds during spring and fall migration, perch sites for migrating raptors, and bodies of water are a draw for waterfowl and shorebirds. Clusters of dense riparian vegetation also create desirable nesting areas for breeding birds.

The greatest concentration of wildlife habitat in the project area (due to ponded water and lush vegetation) is in the Salt River channel at Dobson Road. In addition to shallow groundwater filling the ponds, an outfall on the south side of the channel provides a steady supply of water to the wetland and ponds. Water from the outfall fills several ponds and continues to flow westward toward the Tempe Marsh and Tempe Town Lake. Emergent vegetation and trees of varying stature line the ponds and support a variety of species not found in adjacent upland areas, such as shorebirds and waterfowl. The size of the ponds changes from year to year based on rainfall events that fill the channel and transport sediments. Wastewater treatment ponds associated with a City of Mesa wastewater treatment plant are also present to the south of the Salt River at this location. Outfall flows from this treatment facility contribute to the varying amount of surface water and emergent vegetation present within the ponds.

Wildlife habitat of much lower quality occurs along McKellips and Gilbert Roads within the project area because of a lack of surface water which produces sparse vegetation and low structural diversity. Most of the land adjacent to McKellips Road is used for agricultural and commercial purposes, including a large and active materials source pit. Agricultural and residential developments exist in the vicinity of the Salt River at Gilbert Road; the river channel and its associated floodplain are very broad at this location.

Wildlife species likely to be found in the project area includes birds such as the great blue heron (***Ardea herodias),*** greater roadrunner (*Geococcyz californianus*), common raven (*Corvus corax*), killdeer (*Charadrius vociferus*), mourning dove (*Zenaida macroura*), red-tailed hawk (*Buteo jamaicensis*), and great-horned owl (*Bubo virginianus*); reptiles such as the zebra-tailed lizard (*Callisaurus draconoides*), side-blotched lizard (*Uta stansburiana*), and rattlesnakes (*Crotalus* spp.); and mammals such as the white-throated woodrat (*Neotoma albigula*) and coyote (*Canis latrans*).

F.1.3.1 Sensitive Species and Habitat

The U.S. Fish and Wildlife Service's list of threatened, endangered, proposed, and candidate species potentially occurring in Maricopa County is provided in Table F-1. The project area in the vicinity of Dobson Road contains a small acreage of open water habitat for the endangered California brown pelican (*Pelecanus occidentalis californicus*), and the threatened bald eagle (*Haliaeetus leucocephalus*).

The extremely limited amount of riparian habitat that could be suitable for Western Yellow-billed Cuckoo, a Candidate species, and Southwestern Willow Flycatcher, an Endangered Species, which exists near the Dobson Road crossing makes it unlikely that these species would be present in the breeding season.

No habitat exists within the project area for the Sonoran pronghorn, Mexican Spotted Owl, Lesser Long-nosed Bat, or Arizona cliffrose. Individuals of the fish species on the list would be unlikely to occur within the project area, and could be present only ephemerally following high flow events in the upper Salt and Verde River systems. Moreover, the project area is not located within any critical habitat, designated or proposed, under the Endangered Species Act (16 US Code 1531–1544, as amended).

The AGFD's On-line Environmental Review Tool was used to determine whether any special-status species have been documented in the project vicinity. According to the AGFD, two special-status species occur within 3 miles of the project area: the chuckwalla (*Sauromalus ater*) and roundtail chub (*Gila robusta*).

Table F-1 List of Threatened, Endangered, Proposed, and Candidate Species Potentially Occurring in Maricopa County

Common Name	Scientific Name	Status[a]
Arizona cliffrose	*Purshia subintegra*	LE
Bald eagle	*Haliaeetus leucocephalus*	LT, PDL
California brown pelican	*Pelecanus occidentalis californicus*	LE
Desert pupfish	*Cyprinodon macularius*	LE
Gila chub	*Gila intermedia*	LE
Gila topminnow	*Poeciliopsis occidentalis occidentalis*	LE
Lesser long-nosed bat	*Leptonycteris curasoae yerbabuenae*	LE
Mexican spotted owl	*Strix occidentalis lucida*	LT
Razorback sucker	*Xyrauchen texanus*	LE
Sonoran pronghorn	*Antilocapra americana sonoriensis*	LE
Southwestern willow flycatcher	*Empidonax traillii extimus*	LE
Yuma clapper rail	*Rallus longirostris yumanensis*	LE
Yellow-billed cuckoo	*Coccyzus americanus*	C

Source: U.S. Fish and Wildlife Service list of threatened, endangered, proposed, and candidate species potentially occurring in Maricopa County, < http://arizonaes.fws.gov/>, accessed March 19, 2007
Status Definitions: LE = Listed Endangered, LT = Listed Threatened, PDL = Proposed for Delisting, C = Candidate

F.1.4 Water Resources

Water resource (Figures F-2 and F-3) issues include the identification of Waters of the United States (WOUS), including wetlands, U.S. Army Corps of Engineers (USACE) regulatory jurisdiction under the Clean Water Act, sole source aquifers, unique waters, and floodplain considerations. There are no sole source aquifers or unique waters within the study area, so no further consideration of these resources is offered.

WOUS are water bodies that may be used, or have been used, for interstate commerce. In Arizona, this generally includes rivers, natural ponds, lakes, most washes, some canals, and wetlands. WOUS also include all interstate waters, including interstate wetlands, and all other waters, such as intrastate lakes, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds whose use, degradation, or destruction could affect interstate or foreign commerce (33 Code of Federal Regulations Part 328).

Wetlands are defined as those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a

prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include areas considered to be swamps, marshes, and bogs (33 CFR 328), but they also may be associated with washes and drainage channels. Wetlands considered adjacent to navigable waters are under USACE jurisdiction.

In general, natural washes and associated drainage areas may be considered WOUS. Activities within these areas are regulated by the US Army Corps of Engineers (USACE) as promulgated by the Clean Water Act of 1977. Any activity that discharges dredged (excavated) or fill material into WOUS will require a Section 404 Permit following a jurisdictional delineation. Typical transportation-related activities that may require a Section 404 Permit include wash crossings, bridge piers, grading, culvert installation or maintenance, ditch maintenance, and installation of riprap or other erosion protection.

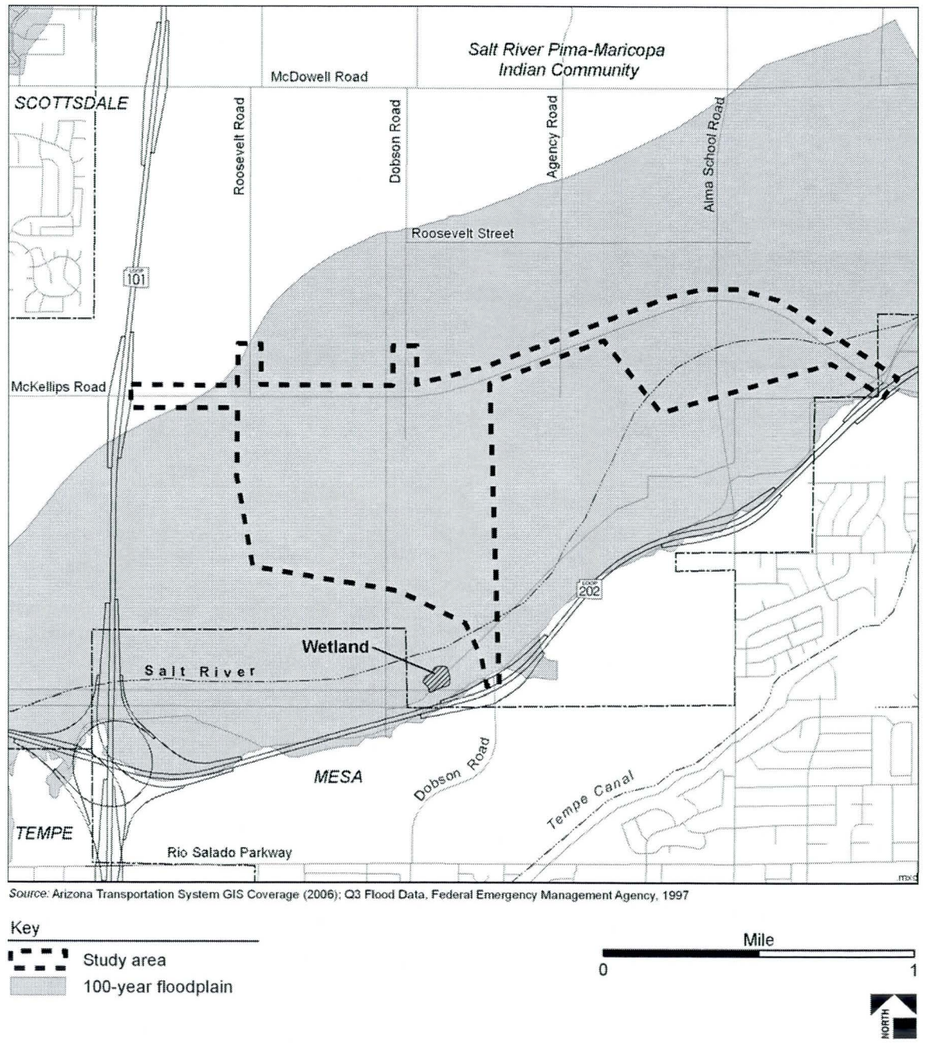

Figure F-2 Water Resources within the Dobson and McKellips Project Area

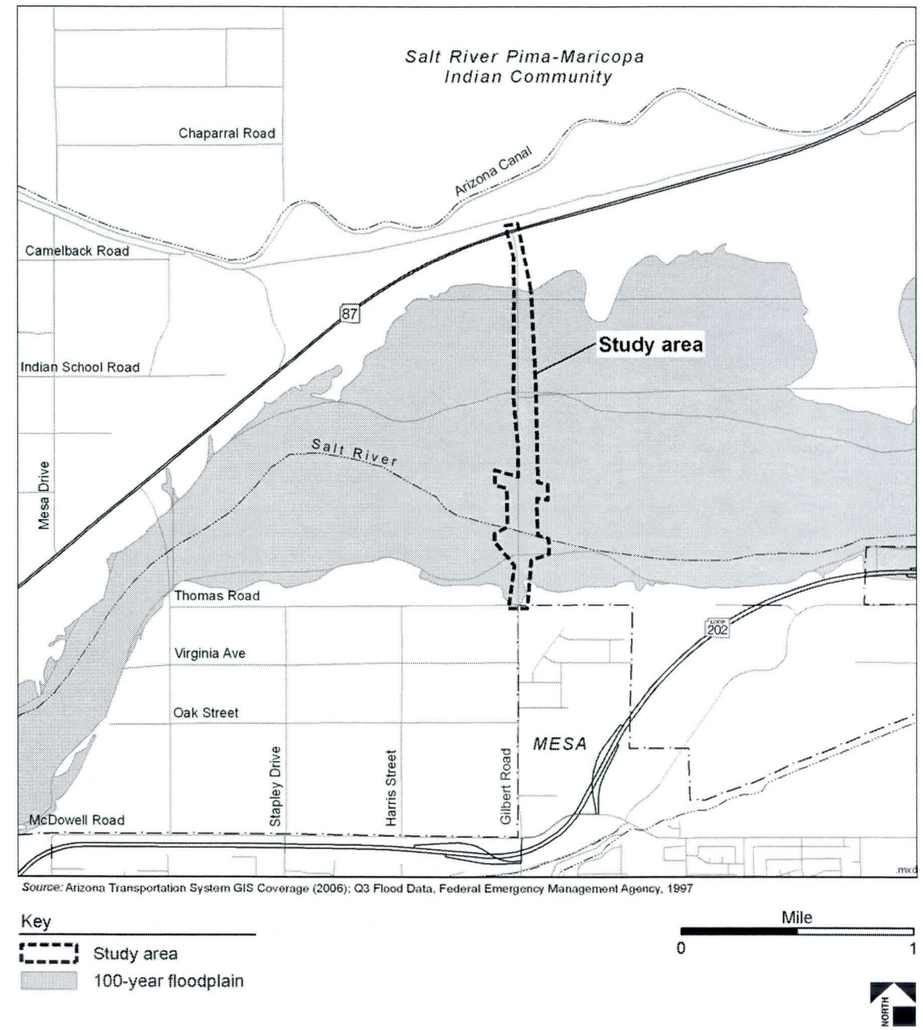

Figure F-3 Water Resources within the Gilbert Road Bridge Project Area

A review of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps indicated that the project area is within a 100-year floodplain. Impacts on floodplains typically occur when the topography within a floodplain is substantially modified by either placement or removal of materials so that the flow rate, storage volume, or floodplain dimensions are adversely altered. Coordination regarding floodplain impacts should occur with the Flood Control District of Maricopa County during project design.

The Salt River and several wetlands are located within the project area. These features may be considered Waters of the United States (WOUS). If project activities are anticipated to affect these WOUS, a jurisdictional delineation should be completed to determine the location and extent of any USACE regulatory areas and to ascertain which Section 404 Permit will be required.

F.1.5 Air Quality

These projects are located in the Phoenix Metropolitan Non-Attainment Area, meaning that air quality in the region does not meet National Ambient Air Quality Standards for ozone, carbon monoxide and particulates (O3, CO and PM10.). These projects are regionally significant, capacity-enhancing projects; therefore a conformity finding is required. The projects will need to be included in the approved Transportation Improvement Program (TIP), at least one year, and no more than 3 years prior to construction. That TIP will have to be approved by FHWA and EPA as conforming to the State Implementation plan and Federal Implementation plan to be found in conformity.

The Federal Clean Air Act of 1970 established National Ambient Air Quality Standards (NAAQS) for six pollutants. These pollutants, referred to as the "Criteria Pollutants", include carbon monoxide, nitrogen dioxide, ozone, particulate matter, sulfur dioxide, and lead. Carbon monoxide is a colorless, odorless gas that primarily affects the cardiovascular system; vehicular emissions are a major source. Nitrogen dioxide is a gas with a yellowish-orange to reddish-brown appearance, depending upon its concentration, which impairs the respiratory system; major sources are power plants an vehicular emissions. Ozone is created through a complex reaction of hydrocarbons and oxides of nitrogen with sunlight as the primary catalyst; ozone affects the respiratory system. Sources of the ozone precursors include vehicle emissions, power plants, and service stations. Particulate matter refers to small aerosols which are suspended in the atmosphere and may cause irritation and damage to the respiratory system; vehicular emissions and the resuspension of road dust by vehicular activity are sources. Sulfur dioxide is a colorless gas generated by the combustion of sulfur-containing fuels, primarily affecting the respiratory system; major sources are coal and oil-fired power plants. Lead and its compounds damage the cardiovascular, renal, and nervous systems; the primary source was vehicular emissions associated with the use of leaded gasoline.

In 1987, the standard for particulate matter was revised by EPA from total suspended particulate matter (TSP), aerosols with diameters up to approximately 45 micron, to those aerosols with aerodynamic diameters of 10 micron or less. This new standard was referred to as PM10 The EPA later revised the PM10 standard, added standards for particulates with diameters of 2.5 micron or less (PM2.5) and also revised the method for the determination for exceedances. For ozone, the 1-hour standard was replaced with an 8-hour standard. In addition, the level of the ozone standard was lowered from 0.12 parts per million (ppm) to 0.08 ppm, and the method for the determination of exceedances was also revised. The effective date of these final rules was September 16, 1997. To ensure an effective transition to the new standards, the existing standards will remain in effect until it is determined that they have been met. The State of Arizona Standards are identical to the NAAQS.

The Clean Air Act amendments of 1990 authorized the EPA to designate those areas that have not met the NAAQS as nonattainment and to classify them according to their degree of severity. States that fail to attain the NAAQS for any of the criteria pollutants are required to submit State Implementation Plans (SIPS) which outline those actions which will be taken to attain compliance. The project area lies within a nonattainment area for carbon monoxide (CO) and ozone (O3) and a nonattainment area for particulate matter (PM10).

During a construction project, disturbance of the soil by heavy equipment would increase fugitive dust, if uncontrolled, which would affect local air quality. In addition, construction related traffic delays, combined with exhaust emissions from construction-related equipment may elevate levels of pollutants. Such impacts would be temporary and eliminated once construction was complete. Any construction activity located within Maricopa County must adhere to the local air quality rules and ordinances, including Maricopa County Rule 310 and 310.01 for control of fugitive dust emissions.

F.1.5.1 Conformity

Since 1977 federal agencies and metropolitan planning organizations have been required by Section 176c of the CAAA to ensure that all transportation projects conform to the approved air quality SIPs. The CAAA enacted the 1990 defined conformity to a SIP as meaning "conformity to the SIP's purpose of eliminating or reducing the severity and number of violations of the NAAQS" (Federal Register, November 30, 1993). The conformity determinations for federal actions related to transportation projects must meet the requirements of 40 CFR § 51 and 93. An individual project included in an area Transportation Improvement Program (TIP), approved by the FHWA and EPA, must conform to the State's SIP.

F.1.6 Noise

MCDOT and ADOT have different noise policies, and mitigation will conform to the MCDOT or ADOT noise policy.

MCDOT employs the following guidelines to determine the need, feasibility, and the reasonableness of noise abatement measures on all roadway projects according to the MCDOT Noise Abatement Policy, April 1998. ADOT Noise Abatement Policy, 2000, governs state projects. Both state and federal policies are based on the currently accepted practices and procedures used by federal and state transportation agencies to assess highway-related noise impacts. As directed by 23 CFR § 772, the FHWA has developed specific, hourly, A-weighted noise abatement criteria (NAC) that serve as the upper limit of acceptable traffic noise levels for various types of land use (Table F-2). A-weighting emphasizes certain frequencies to approximate how sound is perceived by human hearing (dBA). Leq refers to the equivalent, steady-state sound level, which, in a stated period of time, contains the same acoustic energy as the time-varying sound level during the same period.

Table F-2 Noise Abatement Criteria

Activity Category	Description	Leq(h)a
A	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.	57 dBAb
B	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.	67 dBA (exterior)
C	Developed lands, properties, or activities not included in Categories A or B.	72 dBA (exterior)
D	Undeveloped lands.	None
E	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.	52 dBA (interior)

Source: 23 CFR § 772
[a]Leq refers to the equivalent, steady-state sound level, which, in a stated period of time, contains the same acoustic energy as the time-varying sounds level during the same period.
[b]A-weighting emphasizes certain frequencies to approximate how sound is perceived by human hearing (dBA).

F.1.7 Hazardous Material Concerns

The appropriate databases were searched for known occurrences of hazardous materials locations or spills within the project area. Please see Figure F-4.

F.1.7.1 McKellips Road Database Search

A review of State and Federal databases for hazardous materials was conducted in February 2007 using TrackInfo Services, commercial database vendor (TIS, 2007a). The following lists maintained by the Arizona Department of Environmental Quality (ADEQ) as reported by TIS were searched:

- State/Tribal Sites (Water Quality Assurance Revolving Fund Registry)
- State Spills 90 (Hazardous Materials Incident Logbook)
- State/Tribal Solid Waste Landfills (SWL)
- State/Tribal Leaking Underground Storage Tanks (LUST)
- State/Tribal Underground Storage Tanks/Aboveground Storage Tanks (UST/AST)
- State/Tribal Declaration of Environmental Use Restriction and Voluntary Environmental Mitigation Use Restriction Program List (IC/EC)
- State/Tribal Voluntary Remediation Program Sites (VCP)
- State/Tribal Brownfields
- State Areas of Critical Environmental Concern (ACEC)
- State Permits – Dry Wells Registrations List
- State Other – ZIP ACIDS List

The following lists maintained by the United States Environmental Protection Agency (USEPA) as reported by TIS (2007e) were searched:

- National Priorities List (NPL or Superfund Sites)
- National Priorities List – Delisted Sites
- Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)
- Comprehensive Environmental Response, Compensation, and Liability Information System-No Further Remedial Action Planned (CERCLIS-NFRAP)
- Resource Conservation and Recover Act Corrective Action Report (RCRA COR ACT)
- Resource Conservation and Recover Act Treatment, Storage and Disposal Facilities (RCRA TSD)
- Resource Conservation and Recover Act Generators including large quantity generators, small quantity generators, and conditionally exempt generators (RCRA GEN)
- Resource Conservation and Recover Act No Longer Reported (RCRA NLR)
- Federal Institutional Controls and Engineering Controls (Federal IC / EC)
- Emergency Response Notification System (ERNS)
- Tribal Lands
- Historic Landmarks
- Federal Land Use
- Federal Wells

There were several sites located within the project's area of potential effect (APE). These sites are described below:

- Salt River Sand and Rock Dobson Plant, Dobson Road and McKellips Road, Mesa, AZ, 85201. This site is listed as RCRA Small Quantities Generator of hazardous waste. No violations or incidents have been reported. This site is located within the APE for the proposed project.
- There are four Federal Wells located within the proposed project's APE. One is located on the south side of McKellips Road just west of 92nd Street. Another well is located south of McKellips Road just west of Longmore Road. A third well is located south of McKellips Road and west of Alma School Road. The fourth well is located further south on Alma School Road on the west side of Alma School Road. No violations or incidents have been reported at any of these well sites.
- City of Mesa, Salt River and Alma School Road, Mesa, AZ. This site is a State Spills Sites located within the proposed project's APE. The spill occurred on July 26, 1990 on private property. The spill quantity is unknown. The materials spilled are hydrochloric acid. No spill response date was available. No other information is available about this site.

In summary, the properties identified in the available government records do not present a significant impact to the proposed project. However, if any construction is to occur on the State Spills site, soil sampling would be recommended to determine if any contamination remains on-site.

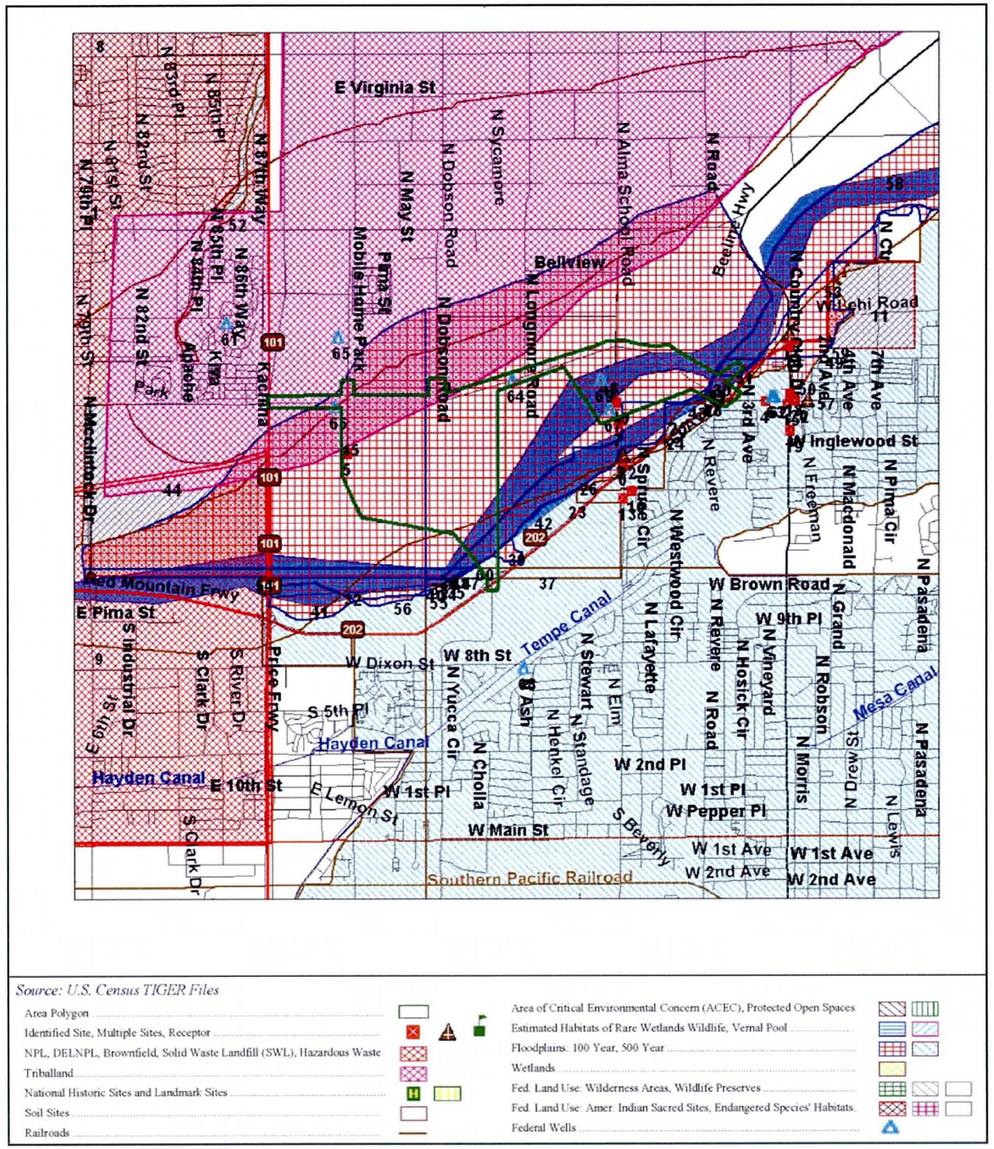

Figure F-4 Hazardous Materials Concerns Locations

There were several sites located immediately adjacent to the project's area of potential effect (APE). These sites are described below:

- Indian Bend Wash Area, McDowell Road and Hayden, Scottsdale, AZ, 85253. This site is listed on the National Priorities Site. The Indian Bend Wash Area encompasses about 12 square miles in parts of Scottsdale, Tempe, and Phoenix, Arizona. Groundwater, which supplies more than 350,000 people in the area, is contaminated with trichloroethylene (TCE) and other chlorinated solvents (VOCs, boron, chloroform, lead, zinc, cyanides, acids and heavy metals). Six municipal wells have been shut down as a result of the contamination. In July 1983, an Indian Bend Wash Task Force comprised of EPA, state, county, and municipal representatives are seeking to identify the extent, magnitude, and sources of contamination. EPA is developing a Remedial Action Master Plan outlining the investigations needed to determine the full extent of the cleanup required at the site. A remedial investigation was completed on September 27, 2006. The eastern boundary of this NPL site is immediately adjacent to the project site boundaries. No contaminated soil is located immediately adjacent to the project site. No contaminated groundwater is located immediately adjacent to the project site. This site was listed both as an NPL Site and a State Site in the database.

- Valley Oil Services, 1747 N Alma School Road Suite B, Mesa, AZ, 85201. This site is being reported as RCRA No Longer Reported site. There are several reasons why this site may no longer be reported including the site is no longer in business or is no longer generating hazardous waste materials in quantities which require reporting. This site used to participate in the used oil program. The last date that information was reported for this site was November 27, 2000.

In summary, the surrounding properties identified in the available government records do not present a significant impact to the proposed project.

F.1.7.1 Gilbert Road Database Search

A review of State and Federal databases for hazardous materials was conducted in February 2007 using TrackInfo Services, commercial database vendor (TIS, 2007f). The ADEQ and USEPA databases searched were the same as for McKellips Road.

No sites were listed within the APE of the proposed project. No sites were listed immediately adjacent to the APE of the proposed project site.

Table F-3 summarizes the hazardous materials incidents within the study area.

Table F-3 Summary Table of Hazardous Material Incidents

McKellips Road	
There is one hazardous material incident reported within 0.12-miles of the project. This site is located within the APE for the project.	
Incident Number:	90-083-B
Incident Date:	7/26/1990
Name:	City of Mesa
County:	Maricopa
Address:	Salt River and Alma School
Date Reported:	7/26/1990
Response Date:	N/A
Property Management:	Private
Referred To:	HWIU
Referral Date:	7/26/1990
Type:	Release
Chemical Material:	Hydrochloric Acid
Structure:	Trucks
Fund Amount:	N/A
Quantity:	Unknown
Gilbert Road	
No hazardous material incidents have been reported within 0.12-miles of the project.	

F.1.8 Site Visit

F.1.8.1 McKellips Road

During the site visit, the ground surface within the right-of-way along the route for proposed improvements was visually inspected for typical indicators of petroleum hydrocarbons or other spilled chemicals such as stained soils and stressed vegetation. Some areas had these indicators present. Along McKellips Road and Alma School Road adjacent to undeveloped lands, trash consisting of paper, glass and plastic bottles, fast food containers, wrappers, furniture, and other materials were observed. No surface staining was observed.

The potential for aerially deposited lead was evaluated. Leaded gasoline was used as a vehicle fuel in the United States from the 1920s until the late 1980s. Although lead is no longer used in gasoline formulations, lead emissions from automobiles are a recognized source of contamination in soils along roadways in urban areas (Madhaven et al. 1989, Mielke 1999). Based on review of the historic aerial photos of the site, the areas along McKellips Road were under agricultural use and would not likely have generated a large volume of vehicle traffic in the area. Therefore, elevated concentrations of lead from vehicle emissions within the roadway right-of-ways would not be likely.

After communicating with members of the Salt River Pima – Maricopa Indian Community, Environmental Protection and Natural Resources group, it was discovered that a former landfill (Cypress Landfill) used to be located immediately adjacent to the proposed project's APE. The location of this former landfill was approximately 200 feet east of Alma School Road and approximately 100 feet north-northeast of McKellips Road. The landfill is no longer in use and has had several feet of fill dirt brought in to cover the remnants of the landfill.

During an interview with Salt River Materials Group Environmental Coordinator (SRMG, 2007), it was discovered that a truck washing trap overfilled and spilled oils and grease on the site. The site was completely remediated to acceptable levels. No report of this spill was located in any of the database reports.

Pole top transformers were observed mounted along both the north and south sides of McKellips Road (Photos 49 and 50). Communications with the Salt River Project (SRP) Environmental Compliance Department indicates these transformers do not contain polychlorinated biphenyls (PCBs) (SRP, 2007).

There are several propane tanks located at Arizona Propane. Arizona Propane is located immediately adjacent to McKellips Road. There are back-up power diesel generators located at the Saddleback Communications facility. There are several utility boxes located near intersections all along the project alignment. Finally, there are several lines of high voltage power lines running over the project area.

F.1.8.2 Gilbert Road

During the site visit, the ground surface within the right-of-way along the route for proposed improvements was visually inspected for typical indicators of petroleum hydrocarbons or other spilled chemicals such as stained soils and stressed vegetation. Along Gilbert Road adjacent to the undeveloped lands, a small amount of trash consisting of paper and other materials were observed. No surface staining was observed.

The potential for aerially deposited lead was evaluated. Leaded gasoline was used as a vehicle fuel in the United States from the 1920s until the late 1980s. Although lead is no longer used in gasoline formulations, lead emissions from automobiles are a recognized source of contamination in soils along roadways in urban areas (Madhaven et al. 1989, Mielke 1999). Based on review of the historic aerial photos of the site, the areas along Gilbert Road were under agricultural use and would not likely have generated a large volume of vehicle traffic in the area. Even though State Route 87 (Beeline Highway) has been constructed since the 1950s, the potential for aerially deposited lead (ADL) near the intersection of Gilbert Road would be minimal. Ground disturbing activities during the construction of Gilbert Road would have significantly reduced, if not totally eliminated, any ADL present at this intersection. Therefore, elevated concentrations of lead from vehicle emissions within the right-of-way would not represent a threat to the project.

F.1.9 Bibliography

TrackInfo Service, Inc. (TIS) 2007a. Historical Topographic Map Package, McKellips Road, Scottsdale, AZ, 85256. February 13.

TrackInfo Service, Inc. (TIS) 2007b. Historical Aerial Map Package, McKellips Road, Scottsdale, AZ, 85256. February 23.

TrackInfo Service, Inc. (TIS) 2007c. Historical Topographic Map Package, Gilbert Road, Scottsdale, AZ, 85250. March 7.

TrackInfo Service, Inc. (TIS) 2007d. Historical Aerial Map Package, Gilbert Road, Scottsdale, AZ, 85250. February 20.

TrackInfo Service, Inc. (TIS) 2007e. Environmental FirstSearch™ Report, McKellips Road, Scottsdale, AZ, 85256. February 6.

TrackInfo Service, Inc. (TIS) 2007f. Environmental FirstSearch™ Report, Gilbert Road, Scottsdale, AZ, 85250. February 6.

Salt River Materials Group (SRMG), 2007. Personal communication with James Silversmith. February 12.

Salt River Project (SRP), 2007. E-mail communication from Wendy Crites dated February 23 to Angela Schnapp of Parsons.

F.2 Section 4(f) Resources

Section 4(f), of the U.S. Department of Transportation Act of 1966, states that the Federal Highway Administration "...may approve a transportation program or project...requiring the use of publicly-owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) only if...there is no prudent and feasible alternative to using that land; and...the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use" (49 USC 303[c]).

A "use" of a Section 4(f) resource, as defined in "Title 23, CFR, Part 771.135(p)," occurs: 1) when land is permanently incorporated into a transportation facility; 2) when there is a temporary occupancy of land that is adverse in terms of the statute's preservationist purposes; or 3) when there is a constructive use of land. A constructive use of a Section 4(f) resource occurs when the transportation project does not incorporate land from a Section 4(f) resource, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired. For example, a constructive use can occur when:

a) The projected noise level increase, attributable to the project, substantially interferes with the use and enjoyment of a noise-sensitive facility of a resource protected by Section 4(f);

b) The proximity of the project substantially impairs aesthetic features or attributes of a resource protected by Section 4(f), where such features or attributes are considered important contributing elements to the value of the resource. An example of such an effect would be the location of a transportation facility in such proximity that it obstructs or eliminates the primary views of an architecturally significant historical building, or substantially detracts from the setting of a park or historic site which derives its value in substantial part due to its setting; and/or

c) The project results in a restriction on access, which substantially diminishes the utility of a significant publicly owned park, recreation area, or historic site.

There are three known Section 4(f) properties within the study area. School grounds that are open to the public after school hours are considered Section 4(f) resources. When a federally funded project proposes to use resources protected by Section 4(f), a Section 4(f) evaluation must be prepared. The previously mentioned Section 4(f) properties may require further evaluation if the proposed project would require the acquisition of any portion of this property or any project activities were to occur adjacent to these properties.

APPENDIX G BRIDGE TYPE SELECTION REPORT

Bridge Selection Report

Dobson Road Bridges at Salt River

Including Bridges at:

McKellips Road
Dobson Road
Gilbert Road

Final

Prepared for:

Maricopa County Department of Transportation

Prepared by:

PARSONS

August 2009

Exp. 9/30/2010

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1.0 GENERAL

1.1 SUMMARY OF RECOMMENDATIONS

- The bridge type alternative recommended for McKellips Road Bridge is an 11-span, AASHTO Type Super VI Modified Precast Prestressed Concrete I-Girder bridge.

- The bridge type alternative recommended for Dobson Road is an AASHTO Modified Type VI Precast Prestressed Concrete I-Girder bridge

- The bridge type alternative recommended for Gilbert Road is an AASHTO Modified Type VI Precast Prestressed Concrete I-Girder bridge.

1.2 INTRODUCTION

This Bridge Selection Report (BSR) is prepared as a supplement to and concurrent with the Design Concept Report (DCR), *Dobson Road Bridges at Salt River*, currently being prepared for Maricopa County Department of Transportation (MCDOT) by Parsons Transportation Group, Inc. (PTG). This report will be included as Appendix G to the Final DCR.

The purpose of this report is to evaluate alternative bridge types and configurations that would be structurally, aesthetically and economically feasible for crossing the Salt River at the following three locations in Maricopa County: Dobson Road, McKellips Road and Gilbert Road. Plan, elevation and typical section drawings for each alternative bridge type evaluated are included as an appendix at the end of this report.

Various roadway alignment configurations were evaluated in the DCR and, based on the results of these evaluations, one alignment has been selected and recommended for design and construction at each of these crossing locations. In an effort to provide optimum structural solutions, this report evaluates several alternative bridge types and configurations, and recommends one for the selected roadway alignment at each crossing location. Specifics of these options are discussed in the respective sections of this report.

Preliminary bridge substructure and foundation recommendations at each crossing are based on results of site specific borings, tests and the *"Preliminary Geotechnical Report"* prepared for this project by NCS Consultants, dated September 2008.

Construction costs, overall constructability, construction traffic control, and short- and long-term maintenance requirements are some of the main issues that are considered in the type selection process. Construction and maintenance of traffic issues at each bridge location are discussed in more detail in the location specific sections of this report.

A preliminary cost estimate, based on preliminary quantities and the most current available unit cost information for each alternative bridge type considered, has been prepared and included as an appendix at the end of this report.

Due to the high importance of bridge aesthetics associated with each of the respective project corridors, *Aesthetic Guidelines for Harmonious Bridge Design* were prepared in a separate, stand-alone document to complement this Bridge Selection Report. Current establishments such as Casino Arizona and future planned development projects such as Mesa Riverview and Va Shly'ay Akimel Restoration Project will have a significant impact on the development of the bridge architecture and aesthetic treatments at the various project sites, especially the Dobson Road Bridge. *Aesthetic Guidelines for Harmonious Bridge Design* document is included in Appendix H of the Design Concept Report.

1.3 BACKGROUND

The Salt River corridor within eastern Maricopa County has been the focus of significant development and enhancement within the last two decades. Projects, such as the Tempe Town Lake and Fine Arts Complex, Tempe Marketplace, the Riverview Mall and commercial centers, and the casinos on the Salt River Pima-Maricopa Indian Community (SRP-MIC) lands have all served to create a focal point for commercial development in the southeast valley and enhance the quality of life for its residents and visitors.

Based on current and projected land use in the area surrounding each specific project site and the significant increase in traffic demands on both the local arterial streets and adjacent freeway corridors, the Maricopa County Department of Transportation (MCDOT) authorized preparation of a Design Concept Report (DCR) to evaluate viable roadway and bridge alternatives that would help alleviate some of the increased roadway congestion and cut-through traffic in the areas surrounding the individual project sites.

The DCR prepared for this project investigated several different alternative roadway alignments at each respective river crossing location and recommended one at each site that best satisfied the various alignment criteria. As part of this report, alternative bridge types were studied only for the recommended roadway alignments at each site.

Background information for each bridge will be further discussed in the site specific section of this report.

1.4 PROJECT LOCATION

This project includes crossings of the Salt River at the following three locations: Dobson Road, McKellips Road, and Gilbert Road in the eastern portion of the Phoenix Metropolitan Area. (see Figure 1). Certain physical and topographic constraints including existing roadway alignments and configurations, extensive sand and gravel mining operations in the river bed, existing high voltage power lines, and roadway design speed have all contributed to the selection of the recommended roadway alignments for each of these bridges. Other significant factors, including current and future land use, planned commercial and/or residential development in the area, cultural considerations, anticipated project costs, and stakeholder preferences, all played a part in evaluating the various roadway alternative alignments considered and in the selection of the recommended alignment for final design.

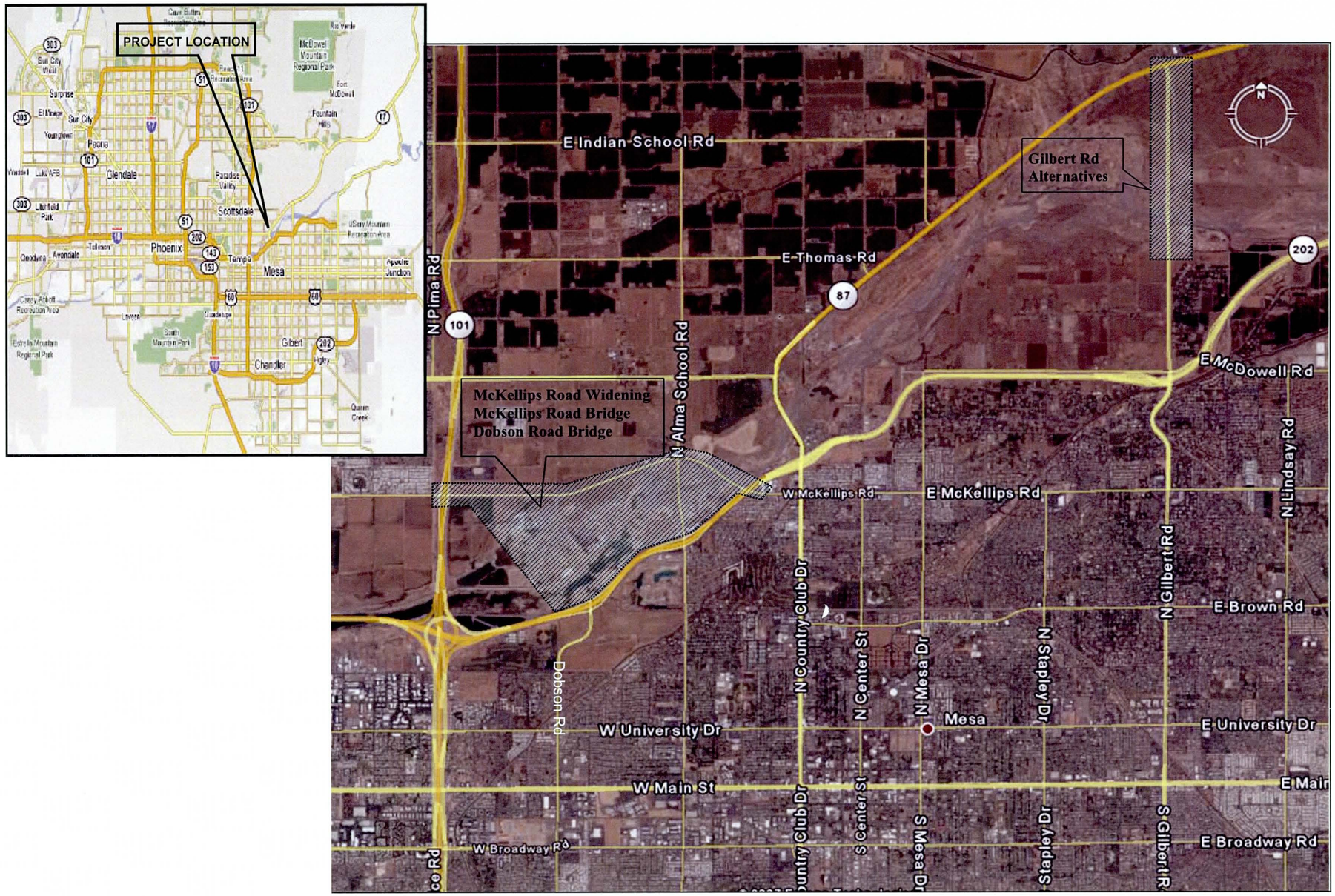


Figure 1 Vicinity and Location Map

1.5 Bridge Type Selection And Design Criteria

The bridge type selection process is an evaluation of the functional requirements of a bridge with respect to the practical and economical constraints imposed by roadway geometrics, traffic requirements, construction sequencing, site conditions, and the physical limitations of bridge structural systems. Bridge configurations evaluated in detail are those meeting the functional requirements which are known to be economical, constructible, serviceable and aesthetically acceptable for the proposed site and application. The conditions for the selection of a bridge configuration for a specific site may place greater or controlling significance on one or more of these requirements. The bridge configuration recommended for final design is that which best satisfies all the requirements relative to their degree of importance for each particular site.

The technical design criteria used in developing the structural aspects of the alternatives are as follows:

- AASHTO *LRFD Design Specifications for Highway Bridges, Fourth Edition, 2007 w/Interims through 2009.*
- AASHTO *Guide Specifications for Thermal Effects on Concrete Bridge Superstructures, 1989.*
- MAG *Uniform Standard Specifications for Public Works Construction* 1998 with revisions through 2008 and the MCDOT Supplement to the MAG Uniform Standard Specifications and Details for Public Works Construction, dated January 2008..

The proposed bridges for this project will be designed in accordance with AASHTO LRFD design criteria. The bridges will be considered to be in a location with a peak ground acceleration of 0.6g. All concrete deck surfaces will be designed to consider a ½-inch concrete wearing surface (to be included as dead load but not included in the deck structural design thickness) plus a superimposed dead load equivalent to a 2-inch future wearing surface. Bridge foundation designs will adhere to the provisions of the approved project Geotechnical Report. Bridge freeboard requirements are set at 3'-0" above the 100-yr flood stage. All substructure and foundation elements will be designed for the Strength Limit State and Service Limit State load cases for the 100-yr storm and for the Extreme Event II Limit State load case for the 500-yr storm.

All cement used in the bridge concrete shall be ASTM C150 Type II or Type III. All structural concrete shall be MAG Class AA. The minimum design strength for bridge deck concrete will be 4,500 psi. The minimum design strength for main deck reinforcement will be 60,000 psi. Reinforcing steel will be in conformance with ASTM A615 Grade 60 or ASTM A706. Structural steel shall conform to the requirements of ASTM A709 Gr. 36 or Gr. 50.

1.6 Bridge Configuration

A variety of bridge types and span combinations is possible and/or plausible for most river crossings. Normally the determination of span configurations and suitable span lengths for a river crossing is the result of evaluating often complex interrelationships between the roadway geometrics, river and/or channel size and configurations as determined by hydraulic characteristics, embankment slopes, practical span arrangements, structure behavior, potential site constraints, economics, and aesthetics. Some aspects of this evaluation are quantified calculations of geometrics and cost. Others are qualitative application of industry experience, knowledge of local historical practice, and sound engineering judgment.

Superstructures

Several alternative superstructure types may be feasible and will be evaluated for each site in an effort to provide the optimum support system for this project. In recent history the design and construction of river bridges for Maricopa County and the surrounding area has produced a knowledge base of economical and constructible bridge configurations for typical bridge structures. The most common superstructure type used in Maricopa County for typical river crossings is the AASHTO standard precast-prestressed concrete I-girder or concrete box girder with a composite cast-in-place concrete deck. Due to their longer span capabilities, precast I-girders are normally used instead of precast box girders in river crossings.

While cast-in-place (CIP) post-tensioned concrete box girders can accommodate relatively longer spans and variable geometrics when compared to precast concrete girders, experience has shown that there is a significant risk and subsequent additional expense involved when constructing with CIP falsework in dry river beds that may be subject to flooding. Because of this, CIP concrete structures are usually not recommended for desert river crossings in Maricopa County.

The functional span length of precast concrete I-girders can be increased by using strategically placed splices in the superstructure. Spliced I-girder span lengths are a function of several basic parameters including, but not limited to, reasonable transportable length of drop-in segments, section and cantilever limits at piers, and hydraulic constraints due to the pier shape and configurations. This alternative superstructure type may warrant further consideration at one or more of the sites on this project.

Steel Plate Girder bridges with composite concrete decks are another alternative that may warrant consideration at these locations. Steel Plate Girders have advantages over precast concrete girders in that they typically produce a lighter weight superstructure thereby reducing substructure costs, they can be spliced to aid in reducing shipping lengths, and they can be fabricated as curved girders for horizontally curved bridges. However, recent experience indicates that these bridges are typically more expensive than their precast concrete counterparts.

Parsons performed a cost-estimate for a steel plate girder bridge at the Dobson Road location. From the results of this analysis, we determined that steel plate girders will not be a cost-competitive option when compared with concrete girder options for these bridge locations. Therefore, no further evaluation of steel plate girders for the other bridge locations was performed for this report.

Where comparatively tall piers are required due to the elevated roadway profile, consideration should be given to superstructure types that can be erected from above and not supported by falsework from the channel below, such as a post-tensioned segmental concrete structure.

Considering the normally high cost of various bridge foundations in the Salt River, several different span configurations need to be considered to determine the optimum span length versus foundation costs. Various alternative superstructure types have been evaluated at each specific project site to help determine the optimum span arrangement. More specific information concerning the appropriate alternatives for each site will be discussed in the site specific sections of this report.

Substructures

Based on the recommended roadway alignment at each bridge site and assuming the major bridge substructure elements will be oriented parallel to the river channel to minimize scour potential, a bridge skew may be required. The actual skew at each location will be discussed more fully in the site specific sections of this report.

The selection of an abutment type or configuration is a part of the evaluation process. Abutments used for local river crossing structures can typically range from stub abutments supported on deep drilled shaft foundations to full-depth wall abutments supported on spread footings. Stub abutments are typically supported by drilled shafts when the abutment is situated in embankment fills or when loads, soil conditions or potential scour depths are not conducive to the use of spread footings. Full-depth abutments are usually cantilevered from spread footings or shaft caps to resist lateral earth pressures and maintain stability. The use of spread footing abutment foundations at these crossing locations is not recommended due to the high scour conditions. In addition, since all piers will be founded on drilled shaft foundations the use of spread footings at the abutment locations creates a risk of long-term differential settlements that outweigh any potential cost savings.

Due to significant scour potential in many Salt River crossings, it is extremely important for the final bridge and channel designs to be compatible and consider abutment foundation protection measures such as rock rip-rap, concrete lining, soil cement or various other proven bank protection systems to minimize the scour effects on the bridge foundations. The scour protection system to be used at each of the bridge sites will be addressed more fully in the drainage and hydraulic portions of the DCR.

Pier scour will also need to be addressed in the design of each crossing. Local pier scour, due to fast moving flood waters in desert type washes and rivers, is frequently minimized by using round multi-column type piers supported on large diameter drilled shaft foundations. The round shape of the columns makes them independent of the angle of attack of the flood waters and more compatible with the hydraulic characteristic of the river. They are usually spaced a sufficient distance apart to minimize any significant debris buildup at the piers. The wider spacing also tends to minimize the need to reduce the foundation capacities due to group effect or overlapping of the resulting stress bulbs developed in the support soil. This standard practice has a positive effect on the cost of the substructures. In appropriate situations, pier columns may be oversized to incorporate aesthetic treatments. Pier sizes and configurations will be discussed in further detail in the respective alternative type and aesthetics portions of each site specific section of this report.

1.7 Foundations

Preliminary recommendations regarding the soils, as well as general recommendations concerning geotechnical aspects of the foundation designs and construction at these crossings, have been prepared and presented in the *Design Concept Report, Geotechnical Investigation Report for Dobson Road Project Bridges over Salt River"*, prepared for this project by NCS Consultants, dated May 5, 2009. Results of this report will be used in the consideration of alternative substructure and foundation types at each respective site.

1.8 Construction Issues

One of the major concerns when constructing a bridge over a normally dry desert wash or river at certain times of the year is the high potential for the sudden incursion of swiftly moving flood waters into and through the project area. Many desert washes and rivers are uncontrolled for the most part and convey significant amounts of erosive runoff over a short period of time. While the Salt River has certain major controls such as upstream dams, very large uncontrolled flows can occur during major flood events.

Past experience in local desert waterways has demonstrated that constructing bridges in these locations can be very risky and add significant costs to a structure. Certain superstructure types, such as Cast-in-Place (CIP) concrete, which require falsework to be supported in the river bed, are discouraged. While temporary falsework can be designed to resist certain flows, there is a significant cost increase involved with this practice.

Superstructure types, such as precast concrete and steel, can be fabricated off-site and erected without river bed supported falsework. With these alternative types, falsework for composite concrete decks can be supported on the girders well above the destructive influence of floodwater.

When using a precast concrete I-girder or steel girder superstructure, consideration must be given to the means and methods for transporting the various elements from the off-site fabrication location to the erection site. Girders over approximately 150 feet in length become very difficult to transport over local streets; therefore, longer span alternatives will require spliced precast concrete I-girders, precast post-tensioned concrete segmental girders with launched construction, or field-spliced steel girders, so that they remain in the transportable range.

Substructure foundation types, such as large diameter drilled shafts, which can be constructed in a relatively short period of time with minimum formwork supported in the river bed, will be considered preferable for these project sites.

1.9 Drainage And Hydraulics

Deck drainage issues and recommendations will be provided in the DCR for this project. The deck water disposition will be required to comply with the appropriate NPDES requirements for bridge deck drainage. We envision that regularly spaced deck drains will be required for all 3 bridges, and the drainage will be conveyed off the bridge into an oil-water separator or similar device prior to discharge.

Hydrology and hydraulic analysis has been developed to determine the required length of bridge at each project site. Drilled shaft foundations will need to extend below the potential scour elevations. Stream flow velocities, 100 yr. and 500 yr. high water elevations, and scour depths have been determined for each bridge site and are included in the hydraulics report. A minimum of 3'-0" of freeboard between the bridge low-chord and the high water elevation has been recommended for each crossing. Potential scour issues in the vicinity of the specific bridge substructure foundations have been analyzed and are discussed in further detail in the respective bridge sections of this report and in the DCR.

1.10 Right-Of-Way

Right-of-way will need to be secured for the construction and ultimate location of the proposed new bridges at McKellips Road and at Dobson Road. The Gilbert Road Bridge will be constructed within the existing right-of-way. See the site specific sections of this report and the DCR for additional information.

1.11 Utilities

Existing and new proposed utilities at each bridge location will be addressed in each respective site specific section of this report. See the DCR for additional utility information not addressed in this report.

1.12 Aesthetics

Bridge aesthetics will be an integral part of overall bridge configuration and design. Due to the rapid expansion of residential and commercial development in the outer reaches of Maricopa County, many County bridges are transforming from rural settings to urban river crossings. As a result, MCDOT is specifically placing an increased emphasis on this aspect of bridge design and construction.

Other local jurisdictions, including the City of Mesa and SRPMIC, border these specific project sites. Each has a desire to have these bridges provide a recognizable and attractive gateway to their respective communities.

In an effort to accomplish the overall aesthetic goals of each stakeholder and make the respective corridors aesthetically compatible with their current and future surroundings, a special *Aesthetic Guidelines for Harmonious Bridge Design* report has been prepared as a separate stand-alone document to compliment this Bridge Selection Report. The respective selected aesthetic treatments will be incorporated on the selected bridge type at each respective bridge location.

Some main aesthetic features currently anticipated include the following features:

- Dapped girder superstructure configuration that tends to hide pier support cap beams
- Open multi-column pier structures with round or tapered cylindrical shaped columns supported on individual drilled shaft foundations
- Exterior pier column with distinct architectural treatment where visible to the traveling public
- Special abutment treatments to reflect the project theme
- Open pedestrian bridge railing that provides a measure of visibility to traffic crossing over the bridge
- Slab-faced exterior bridge girders to mimic Cast-in-Place construction and provide a palette for aesthetic enhancements.

Any or all of these features may be incorporated in the various final bridge structures as approved by the County and the other stakeholders at the time of final design.

While some elements of the aesthetic treatment may be optional, it should be noted that the most hydraulically favorable pier configuration consists of widely spaced round columns. Any final aesthetic concept for the bridge substructure must consider the need to minimize scour potential by utilizing round, widely spaced columns at the piers. For the purposes of this bridge selection report the cost of aesthetic treatments is assumed to be approximately equal among alternatives. For this reason aesthetic treatment costs are not included in the selection process. Once a preferred bridge alternative has been identified the aesthetic treatment costs, items, and details will be included in the 40% plans submittal.

1.13 Inspection And Maintenance

Normal inspections, based on MCDOT's typical bridge inspection schedule, should be anticipated with minimal inspection effort being required for each of the respective bridges. Visible areas of these structures will be easily accessible for both the substructure and superstructure elements. Bearing pads and deck joints will be visible and easily accessible for inspection and maintenance. Specialized alternatives may require more extensive maintenance and inspection.

1.14 Environmental

Environmental issues, impacts and recommended mitigation measures pertaining to the bridges, if required, are discussed in more detail in the respective site specific sections of this report. Overall project environmental issues are more thoroughly discussed in the "Environmental Overview" of the DCR.

1.15 Cost Estimates

Estimated costs for each alternative structure type have been developed from approximated quantities. Recent local bid history at the time of this document preparation is used as the basis for deriving estimated unit costs of specific items. Itemized costs and totals are included in Appendix G-2.

Although a 15% contingency has been added to the current cost estimate, escalating construction costs experienced over the past few years will warrant revision of the estimate to reflect current material and labor pricing at the time of final design and construction.

2.0 McKELLIPS ROAD BRIDGE OVER SALT RIVER

2.1 GENERAL

McKellips Road currently crosses the Salt River at grade, on a skew, starting at the SR 202 intersection with McKellips Road in the City of Mesa and ending at the intersection with Alma School Road to the west. When the Salt River flows, McKellips Road is closed which seriously disrupts local and regional traffic in the area. The proximity of the intersection with Alma School Road and the SR 202L underpass for McKellips Road significantly restricts the geometric realignment possibilities for the new bridge.

2.2 ROADWAY AND BRIDGE GEOMETRY

The current at-grade crossing of the Salt River exists as a dip section located just upstream of the Alma School Road Bridge crossing. The McKellips Road roadway alignment has reverse curves at each end of a tangent river crossing. The new bridge will cross the river on an approximate 20° right skew.

At the river, the new construction centerline alignment will approximate the existing roadway centerline. Extending in a westerly direction from the SR202L interchange, the roadway alignment curves north and then crosses the river mostly in a tangent alignment. Once across the river, the roadway curves to the west where it extends to the intersection with Alma School Road. This selected roadway alignment coincides with the existing roadway alignment across the river and is completely within existing MCDOT right-of-way. It is currently anticipated the roadway will be closed to through traffic between the SR202L interchange and the Alma School Road intersection during construction of the bridge, especially if construction occurs post-2015.

The close proximity of this new bridge to the existing SR202L Overpass structure and associated freeway ramps may require some modification of the new bridge roadway section near the east end of the bridge to accommodate integration with existing conditions. See the selected roadway alignment and sections in the DCR for more detailed information.

The bridge roadway section will be symmetric about the new construction centerline and consist of a 7-foot wide striped half median, three 12-foot traffic lanes, one 5'-6" outside shoulder/bike lane, one 1'-2¾" wide concrete traffic barrier, one 6'-0" at-grade pedestrian walkway, and a 1-foot wide pedestrian barrier with fence for an overall out-to-out deck width of 113'-5½".

The bridge control elevations will be based on maintaining a minimum 3'-0" freeboard clearance over the river design flood water surface elevation (Q_{100}). In addition, the bridge deck profile will be constructed on a crest vertical curve which will provide gutter runoff by gravity for stormwater to each end of the bridge where it will be collected and distributed in the roadway drainage system.

It is anticipated the new bridge will span between the existing bank (new hard bank) on the north side of the river and new hard bank established by hydraulic criteria on the south side of the river. Channel alignment and directional flow methods are discussed in detail in the project *River Hydraulics and Drainage Report* included as an appendix to the project DCR. It is anticipated that training and/or spur dikes be required at each abutment to insure design flow is directed through the new bridge opening and also provide a measure of protection for the abutment foundations.

2.3 DRAINAGE

Hydrology and hydraulic analyses have been developed to determine the required length of bridge. Based on the design flow high water elevation, a bridge overall length of approximately 1,550 feet will be required to cross the river and accommodate the design flow criteria. The design river flow, (Q_{100}) of 172,000 cfs, was obtained from the project hydraulic analysis utilizing Salt River controlled flows based on current Roosevelt Dam configuration (Post-Roosevelt Construction). The south Channel at Alma School Road will be closed by constructing hard banks along the north and south bank through the McKellips Road Bridge area. The hard banks will be added at the time the bridges are constructed.

The deck surface water disposition will be required to comply with the appropriate NPDES requirements for bridge deck drainage. More complete deck drainage issues and recommendations will be provided in the Drainage/Hydraulic portion of the project DCR.

It is recommended that substructures be supported on drilled shaft foundations. The foundations will need to extend below the potential scour elevations. Potential scour issues at this bridge site have been analyzed and recommendations made in the respective sections of the DCR.

2.4 FOUNDATIONS

The foundation system recommended for this new bridge is large diameter drilled concrete shafts at all pier and abutment locations. Although no standing water was documented in the existing log of borings prepared by Kleinfelder for the current bridge plans prepared for this site, significant non-cohesive materials present will result in potential hole caving during excavation of the foundations. It is anticipated steel casing or slurry assisted drilling methods will be required on this project. In addition, subsurface groundwater is present at all pier locations. Therefore, all concrete shafts will be constructed in wet conditions. Per MCDOT standards, non-destructive testing of the shafts will be required during construction. These costs have been estimated in the foundation costs.

2.5 CONSTRUCTION STAGING AND TRAFFIC CONTROL

The recommended alignment for the McKellips Road Bridge is located coincident with the existing roadway alignment across the river. It is currently anticipated that McKellips Road will be closed to through traffic during bridge construction; therefore, special staging or sequencing should not be required for construction of this bridge.

The major traffic concerns at this location which warrant significant traffic controls will occur at the access routes to and from the construction site. Traffic control plans will be developed for this specific project and included in the final design and construction plans.

2.6 RIGHT-OF-WAY

The selected alignment for this project site follows the existing MCDOT right-of-way; however, new permanent right-of-way will be required for the ultimate bridge structure. In addition, some construction easements may be required during the construction. See the DCR for additional right-of-way details for this location.

2.7 Utilities

At this time, there are no known existing utilities in the project area and no future utilities affecting the bridge are currently anticipated. Existing overhead power lines, in the vicinity of the new bridge, cross at Alma School Road approximately 500' west of the proposed bridge alignment.

2.8 Inspection And Maintenance

The bridge type alternatives considered viable for this site have essentially the same inspection and maintenance issues. Visual inspection of all the exposed bridge elements will be conducted based on MCDOT's normal bridge inspection schedule. Major components such as bearings and joints will be easily accessible for inspection and maintenance.

2.9 Aesthetics

As previously discussed, aesthetics has played a significant role in selection of the various bridge type alternatives considered for the McKellips Road crossing. Input from all the project stakeholders has been solicited, responses evaluated and results documented in a special bridge aesthetic guidelines report prepared specifically to compliment this BSR and the project DCR. Aesthetic enhancements to the bridges are still being finalized. For the purposes of this report, it is assumed that all bridge alternatives will receive similar treatments. The costs for the bridge aesthetics treatments are not included in this report, but will be developed and quantified during the 40% design stage for the selected alternative.

Considering the existing and anticipated land use in the area surrounding this specific bridge, the high visibility of this crossing from SR202L traffic and local stakeholder input, a specific architectural treatment for the McKellips Road Bridge has been developed and recommended in the project's *Aesthetic Guidelines for Harmonious Bridge Design*. Once approved, the selected architectural treatment will be incorporated in the final design and construction plans for this specific bridge.

2.10 Environmental

Based on the environmental analysis prepared for this project, there are no significant environmental impacts associated with this specific bridge location. Normal Sec. 404 permitting will be required for the foundation construction operations. The overall construction site footprint, including ingress, egress and stockpiling locations, should be minimized to comply with all EPA requirements.

2.11 Bridge Type Alternatives

Several bridge types and configurations are feasible for the preferred roadway alignment at this project site. Based on previous history with similar crossings of the Salt River, precast or cast-in-place concrete structures are usually the most practical and cost effective. While AASHTO Standard Type VI precast girders have been used successfully on many local river crossings, due to the relatively high cost of foundations in the Salt River AASHTO Type Super VI girders, precast concrete spliced girders or steel girders may be practical and warrant consideration since they can extend the span lengths and possibly reduce the total number of piers required.

The most common precast, prestressed concrete superstructure types used for river crossings in Maricopa County over the past several years have been AASHTO Precast Prestressed Concrete I-Girders. To maximize span lengths and minimize subsequent substructure elements, these girders have been extended to their practical limit. The most commonly used girder has been the Standard AASHTO Type VI.

Variations of the standard Type VI girder include a version normally referred to as the AASHTO Type VI Modified. This version reduces the web width from the standard 8 inches to 6 inches. Another version commonly referred to as the AASHTO Super VI increases the overall girder height from 6'-0" to 6'-6" by lengthening the web height by 6 inches. A combination of these two variations, commonly referred to as the Super VI Modified, both increases the height and decreases the width of the standard web from 8 inches to 6 inches. All of these girders are readily available in the Phoenix area and have proven to be cost effective, performing very well over time.

ALTERNATIVE 1 – 12-SPAN AASHTO TYPE VI PRECAST PRESTRESSED CONCRETE GIRDER BRIDGE

General

The practical maximum span length for standard Type VI and Type VI Modified girders with AASHTO HL93 live loading is in the 140-142 foot range. In an effort to minimize the superstructure depth and the resulting approach roadway fill. We will consider the standard AASHTO Type VI girder as the first feasible alternative considered for this site.

Superstructure

One of the more cost effective benefits of precast concrete girders is realized when as many girders as possible can be of the same length and section. With an overall bridge length of approximately 1,563 feet, a practical span arrangement for the Type VI girder option would be a 12-span structure consisting of 4-spans of 128'-0" and 8-spans of 131'-0" Due to the horizontal curvature of the bridge at its north end, shorter spans are required to reduce the unbalanced dead load effects due to variable overhang widths on the chorded girder lines.

For all spans, thirteen girder lines would be required with a spacing of approximately 8'-10" and a composite concrete deck section 8" thick. The overall superstructure depth including girder, deck, and average build-up is approximately 7'-0".

Substructure and Foundations

As discussed in earlier sections of this report, drilled cast-in-place concrete shafts have proven to be the most successful foundation type for bridges over local desert rivers. They are relatively easy and economical to construct and provide superior scour resistance characteristics. The preliminary geotechnical report recommends the use of drilled shaft foundations for this site.

Each abutment will consist of a cast-in-place concrete cap beam supported on five 6'-0" diameter drilled shafts. The shafts will be spaced approximately 20 feet on center. The shafts will need to be designed as unsupported columns until they penetrate the approach roadway fill and extend into the existing soils. The actual depth of foundations will be refined in the final design process. We have estimated the lengths of shafts in this report based on the preliminary geotechnical report, scour depths from the preliminary hydraulic analysis, and computed live and dead loads. We have estimated lateral loads due to stream forces based on past experience. We intend to perform a more sophisticated lateral analysis of the foundations during the 40% plans development phase.

Each pier will consist of a cast-in-place concrete cap beam supported by three 6-foot diameter columns extending to a minimum of 5 feet below the future ultimate channel invert. Each column will be founded on a 10-foot diameter drilled shaft foundation. The depth of pier foundations will be refined in the final design process.

For aesthetic and hydraulic considerations, the cap beams may be constructed integrally or as inverted tee-beams to support dapped-end girders. This will hide the appearance of a large cap beam extending 5 or 6 feet below the soffit of the bridge. In addition, minimizing the cap beam depth below the bottom of girder will soften the hydraulic profile at the pier caps, reducing backwater potential and reducing stream forces on the substructure. However, we anticipate that this will add a significant extra cost to the girder fabrication for the bridge and is not recommended.

Constructability

Discussions with representatives from Royden Construction and TPAC (both local precast contractors) verified that transportation and erection of these type and size units are very reasonable with standard local transportation equipment and normal crane capabilities.

Cost Estimate

Based on preliminary concepts, the preliminary estimated cost of *Alternative 1 – AASHTO Type VI Concrete Girder Bridge*, including a 15% contingency, is approximately **$26,120,000**. See Appendix G-2 for quantity and cost estimate details.

ALTERNATIVE 2 – 11-SPAN AASHTO TYPE SUPER VI MODIFIED PRECAST PRESTRESSED CONCRETE GIRDER BRIDGE

General

A second bridge type considered feasible is an AASHTO Type Super VI precast, prestressed concrete I-girder. While similar to Alternative 1, Alternative 2 makes it possible to extend the practical span lengths to the 150' range thus reducing the total number of piers required. A slight increase in profile grade and subsequent approach roadway fill will be required with this option.

As with Alternative 1, one of the more cost effective benefits of precast concrete girders is realized when as many girders as possible can be of the same length and section. While feasible, longer spans with precast girders in the 150' range such as the Super VI and Super VI Modified VI, due to their extra length and weight, present special hauling and erection problems. These issues may outweigh any benefits derived from the reduction in number of piers.

Superstructure

One of the more cost effective benefits of precast concrete girders is realized when as many girders as possible can be of the same length and section. With an overall bridge length of approximately 1,600 feet, a practical span arrangement for the Type Super VI Modified girder option would be an 11-span structure consisting of spans ranging from 136'-0" to 150'-0".

Fourteen girder lines would be required with a spacing of approximately 8'-2" and a composite concrete deck section a 8" thick. The overall superstructure depth including girder, deck, and average build-up is approximately 7'-6".

Substructure and Foundations

The substructure and foundations for this option will be very similar to those of Alternative 1. Due to the increased span lengths, the abutment and pier reactions will be somewhat higher than Alternative 1 and consequently larger diameter and/or somewhat deeper shafts can be anticipated. We have investigated both alternatives and feel that using a deeper shaft is more cost-effective than increasing drilled shaft diameter.

Each abutment will consist of a cast-in-place concrete cap beam supported on five large diameter drilled shafts. The shafts will be 6 feet in diameter and spaced approximately 20 feet apart. The shafts will need to be designed as unsupported columns until they penetrate the approach roadway fill and extend into the existing soils. We have estimated the lengths of shafts in this report based on the preliminary geotechnical report, scour depths from the preliminary hydraulic analysis, and computed live and dead loads. We have estimated lateral loads due to stream forces based on past experience. We intend to perform a more sophisticated lateral analysis of the foundations during the 40% plans development phase.

Preliminary sizing indicates each pier will consist of a cast-in-place concrete cap beam supported on three 6-foot diameter columns extending to a minimum of 5 feet below the future ultimate channel invert. Each column will be supported on a 10'-0" diameter drilled shaft foundation. The depth of pier foundations will be refined in the final design process.

As discussed under Alternative 1, for aesthetic and hydraulic considerations, the cap beams may be constructed integrally or as inverted tee beams to support dapped-end girders. However, we do not recommend this type of construction due to its increased costs and fabrication and staging complexity.

Constructability

Discussions with representatives from Royden Construction and TPAC (both local precast contractors) verified that transportation and erection of these type and size units are reasonable with standard local transportation equipment and normal crane capabilities. There is an increase in cost for shipping and erection of these girders due to their length and weight.

Cost Estimate

Based on preliminary concepts, the preliminary estimated cost of *Alternative 1 – AASHTO Type VI Concrete Girder Bridge*, including a 15% contingency, is approximately **$26,160,000**. See Appendix G-2 for quantity and cost estimate details.

ALTERNATIVE 3 – PRECAST PRESTRESSED/POST-TENSIONED CONCRETE SPLICED GIRDER BRIDGE

General

A third bridge type considered is a precast, prestressed post-tensioned concrete spliced girder. While similar to Alternative 1, the spliced girder alternative makes it possible to extend the practical span lengths to the 170'-180' range thus reducing the total number of piers required. For the selected alignment, this bridge will be a mixed superstructure type. Due to the difficulty of splicing girders in the horizontal curve portion of the alignment, from Abutment 1 to Pier 4 conventional AASHTO Type Super VI Modified girders are used. Spliced AASHTO Type Super VI modified girders are used for the remaining 6 spans from Pier 4 to Abutment 2.

The table sections will be precast girders extending a distance over and beyond the piers of approximately 13% of the span length. The drop-in sections will be precast and will be approximately 74% of the total span length. Splicing the girders will allow the members to be precast in transportable lengths and still provide a longer combined span length than a regular AASHTO girder. The spliced girders, in spans 5 thru 10, will be post-tensioned for continuity and live load capacity after the superstructure construction is complete.

Superstructure

A practical span arrangement for this Alternative would be a 10-span structure consisting of spans ranging from 136'-0" to 180'-0" for an overall bridge length of 1598'. Fourteen (14) girder lines, spaced at approximately 8'-2", with an 8" composite concrete deck section would form the superstructure. The overall superstructure depth including girder, deck, and average build-up is approximately 7'-6". The superstructure will be post-tensioned for continuity and live load capacity after erection. This will require the construction of temporary bents adjacent to the piers to support the table sections (at the pier locations) until closure pours can be made. The temporary bents may require foundations suitable to withstand some scour to be determined during construction. The temporary bents will likely be required for a 30 – 60 day period during construction, depending on the selected contractor's erection plan.

Substructure and Foundations

The substructure and foundations for this option will be very similar to those of Alternatives 1 and 2. Due to the increased span lengths, the abutment and pier reactions will be somewhat higher than and consequently larger diameter and/or deeper shafts can be anticipated. For this alternative, it was determined that using a large diameter shaft, as opposed to a deeper and smaller diameter shaft, is less cost-effective.

Each abutment will consist of a cast-in-place concrete cap beam supported on five large diameter drilled shafts. The shafts will be 6 feet in diameter and spaced approximately 20 feet apart. The shafts will need to be designed as unsupported columns until they penetrate the approach roadway fill and extend into the existing soils. The actual depth of foundations will be determined in the final design process.

Preliminary sizing indicates each pier will consist of a cast-in-place concrete cap beam supported on three 6-foot diameter columns extending to a minimum of 5 feet below the future ultimate channel invert. Each column will be supported on a 10'-0" diameter drilled shaft foundation. The depth of pier foundations will be refined in the final design process.

Constructability

With the spliced elements of approximately 133 feet in length, these units will be easily transportable and should create no special constructability issues. Special consideration will need to be taken when determining a specific travel route from pre-caster's yard to project site. Construction of the cast-in-place composite deck section should be easily accomplished with relatively no construction site traffic maintenance concerns. Temporary bents will be required while constructing closure pours between spliced segments and post-tensioning the segments.

Cost Estimate

Based on preliminary concepts, the preliminary estimated cost of *Alternative 3 – Pre-cast Concrete Spliced Girder Bridge*, including a 15% contingency, is approximately **$28,730,000**. See Appendix G-2 for quantity and cost estimate details.

2.10 Recommended Alternative For McKellips Road Bridge

Both Alternatives 1 and 2 are similar bridge types with estimated construction costs within 1%. We recommend Alternative 2, 11-Span AASHTO Type Super VI Modified, due to its removal of one (1) substructure unit from the waterway. This will permit slightly better hydraulic performance of the channel in the vicinity of the bridge. In addition, the removal of one substructure unit will speed construction, a benefit that outweighs the slight impacts of shipping length for the somewhat longer girders.

3.0 DOBSON ROAD BRIDGE OVER SALT RIVER

3.1 GENERAL

Included In this project is a new bridge crossing over the Salt River beginning at the Dobson Road/SR 202 interchange and extending north over the Salt River to a connection along McKellips Road. The southern terminus of the new bridge ties into the existing SR202/Dobson Rd. full-diamond interchange. The existing SR 202 full-diamond Interchange with Dobson Road is offset 1/4-mile east of the Dobson Road section line to accommodate weaving distance on the SR 101L/SR 202L system interchange. Various roadway alignment alternatives have been analyzed and evaluated as part of the project DCR and a preferred alignment recommended. Roadway and bridge alignment constraints considered during roadway alignment evaluations included environmental impacts to the Salt River and wetlands, environmental permitting, river hydraulics, on-going commercial operations on the north bank of the Salt River (gravel mining operation and concrete batch plant), new anticipated commercial development and operations on the south side of the river, SRPMIC tribal right of way impacts, bridge type and length, geotechnical issues, ground water issues, traffic study/street network connectivity (potential connection points at 92nd St, Dobson Rd., Longmore Rd., ¼ mile locations or other), impacts to significant utilities (230 kV transmission, irrigation network), constructability and cost.

Due to the constraints of the existing roadway geometry at the SR202/Dobson Rd. TI, and the need to ensure that lanes align from the existing TI to the new bridge, the new bridge will need to be constructed wider at its southern terminus and tapered back to the standard roadway section to the north. We investigated splitting the bridge into two separate structures to accommodate the lane matching without widening the bridge. However, this proved to be more costly due to the extra foundation elements required and also complicated construction and increased costs for the spliced-girder and segmental bridge alternatives. For these reasons only the variable width single bridge configuration was considered for the various alternatives presented in this report.

Another important consideration is the interaction of the new bridge with the existing hard-bank at both the north and south edges of the river. At the north edge of the river there is an existing maintenance road that runs along the top of the hard-bank. To maintain the road would require raising the bridge profile approximately 15 feet and extending the bridge for at least two more spans to the north to get it back down to a reasonable height above grade. The other solution is to maintain the current vertical profile and transition the maintenance road from the top of hard bank to grade in the vicinity of the bridge and then transition back up to the top of hard bank once clear of the bridge. Transitioning the maintenance road to grade is a far less expensive alternative than the former. We have discussed this with the SRPMIC, Salt River Sand and Rock, and the ADOT maintenance group and have had positive feedback from all on this approach. For our alternative analysis we have only considered alignments where the maintenance road is transitioned off of the north hard-bank to grade.

3.2 ROADWAY AND BRIDGE GEOMETRY

The project traffic analysis has determined the ultimate Dobson Road roadway section at this location. The new approach roadway section will consist of three traffic lanes in each direction separated by a 14 foot raised median. The raised median will be transitioned to a striped median on the bridge.

As of the preparation of this report, the recommended new roadway construction centerline alignment will match the existing roadway section at the SR202L interchange. It will extend north across the river on a horizontal curve where it will swing to the west and then north where it will align with the existing 92nd Street alignment north of McKellips Road. While this is the current recommended alignment, results of future public meetings and project development may warrant reconsideration of the selected alternative alignment. Details of the recommended alignment are described more fully in the Alternatives section of the DCR.

The bridge roadway section, from Station 72+70.14 (begin bridge) to Station 80+94.18, will be symmetric about the new construction centerline and consist of a 7-foot wide striped half median, three 12-foot traffic lanes, one 5'-6" outside shoulder/bike lane, one 1'-2¾" wide concrete traffic barrier, one 6'-0" at-grade pedestrian walkway, and a 1-foot wide pedestrian barrier with fence for an overall out-to-out deck width of 113'-5½". From Station 80+94.18 to Station 87+65.54 (end bridge) the lane, and sidewalk widths remain constant but the median is tapered for a variable bridge width of 113' -5 ½" to 154'-3 ¾ ".

The new bridge will span the Salt River channel defined by the existing hard banks on either side of the river and extend beyond the north hard bank a sufficient distance to provide adequate horizontal clearance for a maintenance road to be constructed immediately north and at the base of the north hard bank dike. All alternatives considered in this report provide for a 15'-0" wide maintenance access road between the northern bridge abutment and the north hard bank. This maintenance access road is identical in width to what exists currently along the top of hard bank.

The bridge control elevations are based on maintaining a minimum 3'-0" freeboard clearance over the river design flood water surface elevation (Q_{100}), a minimum 2'-0" clearance over the top of the existing hard bank on the north side of the river or a minimum of 16'-0" over the new maintenance road on the north side of the north hard bank, whichever is higher. In addition, the profile will be constructed with sufficient longitudinal vertical grade to provide gutter runoff for storm water at the low end of the bridge where it will be collected and distributed in the roadway drainage system.

3.3 DRAINAGE

The existing hard banks on either side of the river channel were designed using flood flows from FEMA volumes determined prior to the raising of Roosevelt Dam in the upper reaches of the Salt River system. It is anticipated all future design flows will be easily accommodated within the limits of the hard banks. Therefore, the overall length of new bridge is not determined by river flow conditions.

The deck water disposition will be required to comply with the appropriate NPDES requirements for bridge deck drainage. More complete deck drainage issues and recommendations are provided in the River Hydraulics and Drainage portion of the project DCR.

It is recommended that substructures be supported on large diameter drilled shaft foundations. The foundations will need to extend a prescribed distance below the potential scour elevations. Potential scour issues at this bridge site have been analyzed and recommendations made in the respective sections of the DCR.

3.4 FOUNDATIONS

The foundation system recommended for this new bridge is large diameter drilled concrete shafts at all pier and abutment locations. Although no standing water was documented in the log of test borings prepared by NCS Consultants for this site, the borings did indicate the presence of significant non-cohesive materials and the potential for hole caving during excavation of the foundations. It is anticipated steel casing or slurry assisted drilling methods will be required to construct these foundations. In addition, subsurface groundwater is present at all pier locations therefore all concrete shafts will be constructed in wet conditions. Per MCDOT standards, non destructive testing of the shafts will be required during construction. These costs have been estimated in the foundation costs.

The size, spacing, and depth of the foundations have been determined in accordance with the AASHTO LRFD 4th Edition design criteria for drilled shaft foundations.

3.5 CONSTRUCTION STAGING AND TRAFFIC CONTROL

Since the Dobson Road Bridge will be crossing the river at a location where no current road or bridge exists, actual construction of the bridge should not require special staging considerations due to impact on traffic. Staging required for construction of the specific bridge type selected will be determined in the design phase of the project.

Traffic control measures will be warranted at the south end of the bridge and approach slab when matching existing roadway section at the SR202L full-diamond interchange. Traffic control plans will be developed for this specific project and included in the final design and construction plans.

3.6 RIGHT-OF-WAY

New right-of-way will be required for this roadway alignment and bridge alternative. See the DCR for more details concerning R/W requirements.

3.7 UTILITIES

At this time, there are no known existing utilities in the project area that would affect the bridge construction. Various new utilities may be carried across the river on the bridge. Their actual number, size and location will be determined in the final design phase of this project. Additional utility information and details are included in the Utility section of the DCR.

3.8 INSPECTION AND MAINTENANCE

The bridge type alternatives considered viable for this site have essentially the same inspection and maintenance issues. Visual inspection of all the exposed bridge elements will be conducted based on MCDOT's normal bridge inspection schedule. Major components such as bearings and joints will be easily accessible for inspection and maintenance.

3.9 AESTHETICS

As previously discussed, aesthetics has played a significant role in selection of the various bridge type alternatives considered for the Dobson Road crossing. Input from all the project stakeholders has been solicited, responses evaluated and results documented in a special Bridge Aesthetic Guidelines report prepared specifically to compliment this BSR and the project DCR. . Aesthetic enhancements to the bridges are still being finalized. For the purposes of this report it is assumed that all bridge alternatives will receive similar treatments. The costs for the bridge aesthetics treatments are not included in this report but will be developed and quantified during the 40% design stage for the selected alternative.

Considering the existing and anticipated land use in the area surrounding the new bridge, the "Gateway" type linkage that it provides between the SRPMIC community and the City of Mesa, the high visibility of this crossing from SR202L/SR101 traffic, and local stakeholder input, a specific architectural treatment for the Dobson Road Bridge has been developed and recommended in the project *Aesthetic Guidelines for Harmonious Bridge Design*. Once approved, the selected architectural treatment will be incorporated in the final design and construction plans for this specific bridge.

3.10 ENVIRONMENTAL

Based on the environmental analysis prepared for this project, there are no significant environmental impacts associated with this specific bridge location. Normal 404 permitting will be required for the foundation construction operations. The overall construction site footprint, including ingress, egress and stockpiling locations, should be minimized to comply with all EPA requirements. For more detailed environmental discussions, see the "Environmental Overview" of the DCR for this project.

3.11 BRIDGE TYPE ALTERNATIVES

Several bridge types and configurations are feasible for the preferred roadway alignment at this project site. Based on previous history on similar crossings of the Salt River, precast or cast-in-place concrete structures are usually the most practical and cost effective. However, due to the relatively high cost of foundations in the Salt River spliced post-tensioned concrete I-girders and segmental concrete box girder bridges were evaluated because of their ability to extend the bridge span lengths and possibly reduce the total number of piers required.

- **ALTERNATIVE 1 – CAST-IN-PLACE SEGMENTAL CONCRETE BOX GIRDER**

General

A superstructure type that warrants consideration is a segmental concrete box girder bridge. Segmental construction could be performed using either a precast cantilever construction or a cast-in-place cantilever construction approach. However, precast segmental construction requires large staging areas and ideally a close proximity to the pre-casting facility. Due to the large width of the precast segments required for this bridge, as well as their shipping height and weight, the cast-in-place construction method is considered to be the most economical and practical solution for a segmental concrete box girder bridge at the Dobson Road alignment. Normally segmental concrete superstructures are not cost effective when compared with concrete girders for most conventional bridge structures in Maricopa County. Some circumstances such as enhanced aesthetics, significant horizontal curved alignments, topographic features requiring long spans, and difficult and/or expensive foundation conditions may warrant consideration of this structure type.

In addition to the improved aesthetics associated with this bridge type, it also requires the fewest foundation elements. Segmental construction has all of the advantages of cast-in-place post-tensioned concrete construction without the disadvantage of large amounts of falsework at risk within the floodway. Segmental bridges are typically built from above using traveler cranes and travelling forms. This type of bridge also reduces impacts within the river by reducing the number of substructure elements within the waterway.

The disadvantages for segmental concrete bridge construction include its relatively high cost and the specialty construction equipment and techniques it requires. Nationally, several contractors are available to construct segmental concrete bridges, but to date only one bridge of this type has been built in Arizona, and none within the past ten years. We anticipate that a reduced pool of qualified local bridge contractors may negatively impact construction costs for this alternative.

Superstructure

The span configuration for the segmental option is considerably different from the other alternatives. We are proposing a gracefully curved variable depth section for the proposed new 5 span bridge. The five spans are 191'-9", 308'-5", 496', 308'-5", 191'-9". The total bridge length is 1502'-8 ¾".

The superstructure is a two-cell box of variable depth, tapering linearly from 7'-0" at abutment 1 to 22'-6" at Pier 2. From Pier 2 to the center of span 3, the box tapers parabolically to a depth of 14'-0". The superstructure is symmetrical about the centerline of span 3. The box section consists of three girder webs spaced at 44'-0" with a composite concrete deck section 11-1/2" thick. This deck section depth may be reduced by transverse post-tensioning during final design if economically viable.

Due to the significant depth required at the piers supporting span 3, the roadway vertical profile for this alternative needs to be raised higher than for the other alternatives to maintain the required freeboard above the HWL at all locations. This results in a steeper vertical grade on the bridge and the need to raise the grades on the 202L/Dobson Rd. TI at the south bridge abutment.

Substructure and Foundations

As discussed in earlier sections of this report, drilled cast-in-place concrete shafts have proven to be the most successful foundation type for bridges over local desert rivers. They are relatively easy and economical to construct and provide superior scour resistance characteristics. The preliminary geotechnical report recommends the use of drilled shaft foundations for this site.

Each abutment will consist of a cast-in-place concrete cap beam supported on seven large diameter drilled shafts. The shafts will be 6-feet in diameter and spaced approximately 20 feet apart. The abutment shafts are designed as unsupported columns from the pile cap to a suitable length of development into the existing soils. The depth of foundations will be further refined in the final design process. The abutment shafts are well protected by the hard bank on both ends of the bridge so our cost estimate for the abutment foundations excludes additional shaft length for scour.

Each pier will consist of an arched cast-in-place concrete cap beam supported by two 7'-0" x 12'-0" oval columns. The columns are founded on a rigid pile cap that is supported on 12'-0" diameter concrete drilled shafts. The piers are similar in appearance to the piers found on the nearby Mill Avenue Bridge. The piers may be reconfigured during final design if a different aesthetic quality is desired. The depth of pier foundations will be refined in the final design process.

Constructability

Both the Cast-in-Place and precast segmental alternatives are constructible at this location with minimal impacts to the Salt River floodplain. These two bridge types can be constructed from above using the balanced cantilever construction method. Some problems arise from the difficulty of transporting the deep precast segments over the local roadways although it may be possible to fabricate them adjacent to the project site to alleviate this concern. For this reason we have based our preliminary design on the cast-in-place segmental construction method. The contractor could propose an equivalent precast alternative at bid time should they feel it will be more cost-competitive.

The segments should be approximately 25 feet in length depending on the type and size of form traveler used. The form traveler and gantries are easily transportable and should provide no special constructability issues.

As previously mentioned, this type of bridge construction is not common within Arizona. The pool of contractors willing to bid and construct this type of bridge will be limited.

Cost Estimate

Based on preliminary concepts, the preliminary estimated cost of *Alternative 1 – 5 Span Segmental Concrete Box Girder Bridge*, including a 15% contingency, is approximately **$60,610,000**. See Appendix G-2 for quantity and cost estimate details.

- **ALTERNATIVE 2 – 9-SPAN PRECAST PRESTRESSED SPLICED CONCRETE GIRDER BRIDGE**

General

A second bridge type considered is a precast, prestressed spliced concrete girder bridge. While similar to Alternative 3, the spliced girder alternative makes it possible to extend the practical span lengths to the 170'-180' range thus reducing the total number of piers required.

For the selected alignment, this bridge will be a mixed superstructure type. Due to the difficulty of splicing girders in the flared section of the bridge at span 9 (Pier 8 to Abutment 2) we are proposing to use a cast-in-place post-tensioned bridge segment for this span only. From Abutment 1 to Pier 8 conventional AASHTO Type VI Modified girders are used. It may be possible during final design to modify the geometry at the SR202L off-ramps where they tie in to the new bridge. This would allow the curve radius to be pulled away from the bridge and permit spliced girders to be used in the span.

The table sections, directly above the piers, will be precast girders extending a distance over and beyond the piers of approximately 13% of the span length. The drop-in sections will be precast and will be approximately 74% of the total span length. Splicing the girders will allow the members to be precast in transportable lengths and still provide a longer combined span length than a regular AASHTO girder. The spliced girders, in spans 1 thru 8 will be post-tensioned for continuity and live load capacity after the superstructure construction is complete.

Superstructure

A practical span arrangement for this Alternative is a nine-span structure consisting of two end spans from centerline of abutments to centerline of piers of 132'-6" each and seven interior spans of 175'-0" from centerline of pier to centerline of adjacent pier. Overall bridge length is 1,496'-4 ¾"..

Due to the horizontal curvature of the roadway alignment, the girders will be chorded in the bridge spans. The girder spacing is constant at approximately 8'-3" from Abutment 1 to Pier 6 and then varies from 8'-3" to 9'-5" in the tapered section from Pier 6 to Pier 8. The composite concrete deck section is 8-1/2" thick in all spans. The overall superstructure depth including girder, deck, and average build-up is approximately 7'-0". The superstructure will be post-tensioned for continuity and live load capacity after erection.

Span 9, the CIP/PT concrete box span, will need to be constructed on falsework. Although this is generally undesirable within the floodway the majority of the span falsework will be protected by the south hard bank. In addition, the construction of this single-span will be of short duration. Unless the approach geometry at the south end of the bridge can be adjusted, a CIP/PT end-span is the only practical alternative.

Substructure and Foundations

The substructure and foundations for this option will be very similar to those of Alternative 3. Due to the increased span lengths, the abutment and pier reactions will be somewhat higher than Alternative 3 and consequently larger diameter and/or deeper shafts can be anticipated.

Each abutment will consist of a cast-in-place concrete cap beam supported on five large diameter drilled concrete shafts. The proposed alternative uses shafts 6 feet in diameter and spaced approximately 20 feet apart. The shafts will need to be designed as unsupported columns until they penetrate the approach roadway fill and extend into the existing soils. The depth of the abutment foundations will be refined in the final design process. The abutment shafts are well protected by the hard bank on both ends of the bridge so our cost estimate for the abutment foundations excludes additional shaft length for scour.

Preliminary sizing indicates each pier will consist of a cast-in-place concrete cap beam supported on three 6-foot diameter columns extending to a minimum of 5 feet below the future ultimate channel invert. Each column will be supported on a single 12'-0" diameter drilled concrete shaft foundation. For aesthetic considerations, each cap beam will be constructed integrally with the superstructure. This will hide the undesirable appearance of a large cap beam extending 5 or 6 feet below the soffit of the bridge. The depth of pier foundations will be refined in the final design process. Currently, due to the high scour potential and poorly graded soils at the alignment, shaft depth is approximately 150'-0" below existing/final grade. It is possible to use a 10'-0" diameter shaft for this bridge but our alternative analysis indicated that the larger shafts founded at shallower depth were more cost effective.

Constructability

The spliced elements have an approximate maximum length of 130 feet. These units will be easily transportable and should create no special constructability issues. Special consideration will need to be taken when determining a specific travel route from pre-caster's yard to project site. Construction of the cast-in-place composite deck section should be easily accomplished with relatively no construction site traffic maintenance concerns. Temporary bents adjacent to each pier will be required prior to constructing the closure pours between spliced segments and post-tensioning.

Cost Estimate

Based on preliminary concepts, the preliminary estimated cost of *Alternative 2 – 9-SPAN PRECAST PRESTRESSED SPLICED CONCRETE GIRDER BRIDGE*, including a 15% contingency, is approximately **$28,410,000** See Appendix G-2 for quantity and cost estimate details.

- **ALTERNATIVE 3 – 11 SPAN PRECAST PRESTRESSED CONCRETE GIRDER BRIDGE**

General

A third bridge type considered feasible is an AASHTO Type VI Modified precast prestressed concrete girder bridge. While similar to Alternative 2, Alternative 3 makes it possible to construct the end span on the south end of the bridge without using a cast-in-place post-tensioned concrete box girder span. This bridge may be constructed with a CIP/PT end span, similar to alternative 2, if desired. We have provided details and a cost estimate for that concept and labeled it Alternative 3a.

Superstructure

One of the more cost effective benefits of precast concrete girders is realized when as many girders as possible can be of the same length and section. With an overall bridge length of 1496'-4 ¾", a practical span arrangement for the Type VI Modified girder option is an 11-span structure consisting of 124'-0" end spans and 9 interior spans of 138'-0"

Fourteen girder lines would be required with a spacing of approximately 8'-2" in the uniform width segment (Abutment 1 to Pier 6) and a varying girder spacing of 8'-3" to 9'-6" from Pier 6 to Abutment 2. In the end-span at abutment #2 it may be advantageous to add a girder line to reduce the girder spacing and more closely match the stiffness of the adjacent span. This can be evaluated during final design. This alternative will have a composite concrete deck 8 ½" thick. The overall superstructure depth including girder, deck, and average build-up is approximately 7'-0".

Substructure and Foundations

The substructure and foundations for this option will be very similar to those of Alternative 2. Due to the decreased span lengths, the abutment and pier reactions will be somewhat lower than Alternative 2 and consequently smaller diameter shafts are recommended.

Each abutment will consist of a cast-in-place concrete cap beam supported on six large diameter drilled shafts. The shafts will be 6 feet in diameter and spaced approximately 20 feet apart. The shafts will need to be designed as unsupported columns until they penetrate the approach roadway fill and extend into the existing soils. We have estimated the lengths of shafts in this report based on the preliminary geotechnical report, scour depths from the preliminary hydraulic analysis, and computed live and dead loads. We have estimated lateral loads due to stream forces based on past experience. We intend to perform a more sophisticated lateral analysis of the foundations during the 40% plans development phase.

Preliminary sizing indicates each pier will consist of a cast-in-place concrete cap beam supported on three 6-foot diameter columns extending to a minimum of 5 feet below the future ultimate channel invert. If desired, for aesthetic and/or hydraulic considerations, the cap beams may be constructed integrally to support dapped end girders. This will hide the appearance of a large cap beam extending 5 or 6 feet below the soffit of the bridge. However, the cost estimate for this alternative is based on the use of conventional drop-cap pier caps due to their reduced construction cost.

Each column will be supported on a 10'-0" diameter drilled concrete shaft foundation. We have estimated the lengths of shafts in this report based on the preliminary geotechnical report, scour depths from the preliminary hydraulic analysis, and computed live and dead loads. We have estimated lateral loads due to

stream forces based on past experience. We intend to perform a more sophisticated lateral analysis of the foundations during the 40% plans development phase.

Constructability

Discussions with representatives from Royden Construction and TPAC (both local precast contractors) verified that transportation and erection of these type and size units are reasonable with standard local transportation equipment and normal crane capabilities. This type of bridge is commonly constructed in Maricopa County over floodways and locally a large pool of qualified contractor's exist to bid for its construction.

Cost Estimate

Based on preliminary concepts, the preliminary estimated cost of *Alternative 3 – 11 SPAN PRECAST PRESTRESSED CONCRETE GIRDER BRIDGE*, including a 15% contingency, is approximately **$27,670,000**. For Alternative 3a – *11 SPAN PRECAST PRESTRESSED CONCRETE GIRDER BRIDGE WITH CIP/PT END-SPAN*, including a 15% contingency, is approximately **$28,580,000.** See Appendix G-2 for quantity and cost estimate details.

3.12 Recommended Alternative For Dobson Road Bridge

We recommend that Alternative 3 – 11 SPAN PRECAST PRESTRESSED CONCRETE GIRDER BRIDGE be constructed at this location. In addition to being the least cost of all alternatives studied it is also the most commonly constructed type of bridge in Arizona with a large pool of local contractors available who have the qualifications to construct it. Alternative 3a could also be constructed for approximately the same cost if during final design it is determined that the CIP/PT span is more easily transitioned into the existing TI at the south end of the new bridge. Although Alternatives 3 and Alternative 2 have similar total costs the disadvantages of requiring temporary bents in the floodway for Alternative 2 in our view make it less favorable than Alternatives 3 or 3a.

4.0 GILBERT ROAD BRIDGE OVER SALT RIVER

4.1 GENERAL

The existing bridge on Gilbert Road over the Salt River was constructed in 1989 by the Maricopa County Department of Transportation and consists of 20 uniform 65-feet spans for an overall bridge length of 1,300 feet. It has an overall width of 44 feet and accommodates two lanes of traffic, one in each direction. Subsequent roadway construction has resulted in the creation of two separate roadway sections, one for two lanes of northbound traffic and one for two lanes of southbound traffic. The two roadway sections are separated by a large variable width median. A low water crossing was built to accommodate two northbound lanes of traffic. This low water crossing, however, was washed out by high flows in the spring of 2008.

The existing bridge superstructure was constructed with salvaged precast prestressed girders from a replacement bridge that was constructed over the Salt River at Scottsdale (Rural) Road in Tempe. The foundations consist of drilled shafts extending through materials consisting mainly of sand, gravel and cobbles with occasional boulders. The existing bridge was designed to pass approximately 80,000 cfs before the river flow breaks out of its banks and inundates the approach roadway north of the bridge.

Based on the latest traffic and hydraulic analysis developed for this project, the existing Gilbert Road Bridge over the Salt River is too narrow to accommodate the required number of traffic lanes and is not sufficient in length to accommodate the current design river flow (Q_{100}) of 175,000 cfs. The design river flow was obtained from the project hydraulic analysis utilizing Salt River controlled flows based on current Roosevelt Dam configuration (Post-Roosevelt Construction).

To obtain the required capacities, it will be necessary to widen and lengthen the existing structure to full capacity or remove the existing structure and replace it with a new structure with sufficient capacity. Because the existing superstructure consists of girders that are now over 40-years old, Parsons recommends that the existing structure be completely removed and replaced with a new structure with sufficient capacity to accommodate the future design conditions (three lanes of traffic in each direction)

4.2 ROADWAY AND BRIDGE GEOMETRY

The project traffic analysis has determined the ultimate Gilbert Road roadway section at this location warrants three traffic lanes in each direction. The project DCR recommends replacement of the existing dual two-lane sections with a new six-lane roadway section separated by a 14-foot wide raised median. The new roadway section will begin on the north end at the current SR 87 intersection alignment and extend south on a new alignment between the existing northbound and southbound roadways.

At the river, the new construction centerline alignment will be located between the existing roadway sections a sufficient distance to permit construction of a new bridge with minimum impact on the existing roadway traffic due to construction activities. This alignment is completely within existing MCDOT right-of-way and will allow the existing bridge and approach roadway to remain open during construction of the new bridge and approach roadways. The new bridge south abutment will be located approximately in line with the south abutment of the existing bridge. The south approach roadway alignment will gradually drift to the west where it will merge with the existing 6-lane section.

The bridge roadway section will be symmetric about the new construction centerline and consist of a 7-foot wide striped half median, three 12-foot traffic lanes, one 5'-6" outside shoulder/bike lane, one 1'-2¾" wide concrete traffic barrier, one 6'-0" at-grade pedestrian walkway, and a 1-foot wide pedestrian barrier with fence for an overall out-to-out deck width of 113'-5½".

The bridge control elevations will be based on maintaining a minimum 3'-0" freeboard clearance over the river design flood water surface elevation (Q_{100}). In addition, the profile will be constructed on a crest vertical curve with grades steep enough to contain the spread of pavement runoff to design criteria until it drains off each end of the bridge where it will be collected and distributed in the roadway drainage system.

It is anticipated the new bridge will span the FEMA delineated floodway (see Section 2.4 for further details concerning the established bridge length). Although the remainder of the floodplain to the north is considerably higher than the floodway elevation, additional roadway fill will be required to insure a profile grade can be established over the bridge that will accommodate minimum 3-foot freeboard during the design flood event and also sufficient to permit rain water to gutter flow longitudinally across the limits of the bridge.

Training or spur dikes will be required at each abutment to insure design flow is directed through the new bridge opening and also provide a measure of protection for the abutment foundations. Channel alignment and directional flow methods are discussed in detail in the project "River Hydraulic and Drainage Report" included as an appendix to the project DCR.

4.3 DRAINAGE

Hydrology and hydraulic analyses have been developed to determine the required length of bridge. Based on the design flow high water elevation and the required hydraulic opening, a bridge overall length of approximately 1,685 feet minimum will be required to cross over most of the delineated floodway and accommodate the design flow criteria.

Based on prior hydraulic considerations, consideration was originally given to a combination longer bridge with a box culvert overflow section located in the floodway north of the bridge. The box culvert would pass the overflow flood and nuisance water that could not be accommodated through the shorter bridge section. However, since the whole floodway is relatively flat, preliminary hydraulic analysis indicated this option would force backwater elevations to increase significantly above the maximum 1-foot allowed by FEMA. Therefore, this option was eliminated in favor of a slightly longer bridge (approximately 2700 feet) which would span the floodway and could pass the full design flow without exceeding the maximum allowable increase in backwater. Based on subsequent discussions with the USACE, and by incorporating improvements planned for the Va Shly'ay Akimel Restoration Project, we were able to refine the hydraulic analysis and shorten the bridge to its current length. In addition, the need for box culverts to reduce nuisance flows at the north end of the planned bridge is removed. Channelization work, such as lowering or excavating some small local high areas or ridges in the channel, may be required to optimize this option. This is discussed in more detail in the River Hydraulic and Drainage portion of the project DCR.

The deck water disposition will be required to comply with the appropriate NPDES requirements for bridge deck drainage. More complete deck drainage issues and recommendations will be provided in the River Hydraulic and Drainage portion of the project DCR. We envision that similar deck drains will be required for all alternatives considered in this report as will oil-water separators at the bridge ends. The costs for these items, being equal among alternatives, are not included in the comparative costs in this report.

It is recommended that substructures will be supported on drilled shaft foundations. The foundations will need to extend below the potential scour elevations. Potential scour issues at this bridge site have been analyzed and recommendations made in the respective sections of the DCR.

4.4 Foundations

The foundation system recommended for this new bridge is large diameter drilled concrete shafts at all pier and abutment locations. Although no standing water was documented in the existing log of borings for this site, significant non-cohesive materials present will result in potential hole caving during excavation of the foundations. It is anticipated steel casing or slurry assisted drilling methods will be required on this project. In addition, subsurface groundwater is present at all pier locations therefore all concrete shafts will be constructed in wet conditions. Per MCDOT standards, non destructive testing of the shafts will be required during construction. These costs have been estimated in the foundation costs.

4.5 Construction Staging And Traffic Control

The recommended alignment for the Gilbert Road Bridge is located between the existing northbound and southbound divided roadways. Sufficient distance exists between these roadway sections to construct the new bridge with minimum interference with existing traffic. Special staging or sequencing should not be required for construction of this bridge. The existing bridge can remain in service until completion of the new bridge. The removal cost for the existing bridge has not been included in this comparative cost estimate since it is equal among alternatives.

The major traffic concerns that may warrant significant traffic controls will occur at the access to and from the construction site. Traffic control plans will be developed for this specific project and included in the final design and construction plans. Additional traffic control, for bridge removal, may be required.

4.6 Right-Of-Way

The selected alignment for this project site is located between the existing northbound and southbound roadway sections and completely within MCDOT existing right-of-way.

4.7 Utilities

Investigations of utilities identified one telephone cable crossing the existing bridge. This line will require relocation to the new bridge.

4.8 Inspection And Maintenance

The bridge type alternatives considered viable for this site have essentially the same inspection and maintenance issues. Visual inspection of all the exposed bridge elements will be conducted based on MCDOT's normal bridge inspection schedule. Major components such as bearings and joints will be easily accessible for inspection and maintenance.

The steel girder alternate will require more intensive inspection and long-term maintenance than the two concrete alternatives mainly due to the numerous welded and bolted connections needing inspection and the periodic girder painting required to minimize long-term rust and corrosion effects. The use of weathering steel is an alternative to reduce long-term maintenance costs due to painting for steel bridges.

4.9 Aesthetics

As previously discussed, aesthetics has played a significant role in selection of the various bridge type alternatives considered for the Gilbert Road crossing. Input from all the project stakeholders has been solicited, responses evaluated and results documented in the *Aesthetic Guidelines for Harmonious Bridge Design* prepared specifically to compliment this BSR and the project DCR. Aesthetic enhancements to the bridges are still being finalized. For the purposes of this report it is assumed that all bridge alternatives will receive similar treatments. The costs for the bridge aesthetics treatments are expected to be about 2.5% of construction but will be developed in more detail during final design.

Considering the existing and anticipated land use in the area surrounding this specific bridge and local stakeholder input, a specific architectural treatment for the Gilbert Road Bridge has been developed and recommended in the *Aesthetic Guidelines for Harmonious Bridge Design*. Once approved, the selected architectural treatment will be incorporated in the final design and construction plans for this specific bridge.

4.10 Environmental

Based on the environmental analysis prepared for this project, there are no significant environmental impacts associated with this specific bridge location. Normal Sec. 404 permitting will be required for the foundation construction operations. The overall construction site footprint, including ingress, egress and stockpiling locations, should be minimized to comply with all EPA requirements.

4.11 Bridge Type Alternatives

Several bridge types and configurations are feasible for the preferred roadway alignment at this project site. Based on previous history on similar crossings of the Salt River, precast or cast-in-place concrete structures are usually the most practical and cost effective. While AASHTO Standard Type VI precast girders have been used successfully on many local river crossings, due to the relatively high cost of foundations in the Salt River AASHTO Type Super VI girders, precast concrete spliced girders or steel girders may be practical and warrant consideration since they can extend the span lengths and possibly reduce the total number of piers required.

The most common precast, prestressed concrete superstructure types used for river crossings in Maricopa County over the past several years have been AASHTO Precast Prestressed Concrete I-Girders. To maximize span lengths and minimize subsequent substructure elements, these girders have been extended to their practical limit. The most commonly used girder has been the Standard AASHTO Type VI.

Variations of the standard Type VI girder include a version normally referred to as the AASHTO Type VI Modified. This version reduces the web width from the standard 8 inches to 6 inches. Another version commonly referred to as the AASHTO Super VI increases the overall girder height from 6'-0" to 6'-6" by lengthening the web height by 6 inches. A combination of these two variations, commonly referred to as the Super VI Modified, both increases the height and decreases the width of the standard web from 8 inches

to 6 inches. All of these girders are readily available in the Phoenix area and have proven to be cost effective and have also performed very well over time.

Other factors may become evident and more fully developed during the final design process that might make a Value Engineering Analysis warranted during final design.

ALTERNATIVE 1 – AASHTO MODIFIED TYPE VI PRECAST PRESTRESSED CONCRETE I-GIRDERS

General

The practical maximum span length for standard Type VI and Type VI Modified girders with AASHTO LRFD HL93 live loading is in the 140-142 foot range. In an effort to minimize the superstructure depth and the resulting approach roadway fill; we will consider the standard AASHTO Type VI girder as the first feasible alternative considered for this site.

Superstructure

One of the more cost effective benefits of precast concrete girders is realized when as many girders as possible can be of the same length and section. With an overall bridge length of approximately 1,683 feet, a practical span arrangement for the Type VI girder option would be a twelve span structure consisting of end spans from centerline of abutments to centerline of piers of approximately 138'-6" each and ten interior spans of approximately 140'-0" from centerline of pier to centerline of adjacent pier for an overall bridge length of approximately 1,683'-0".

Fourteen girders would be required with a spacing of approximately 8'-2" and a composite concrete deck section approximately 8-1/2" thick. The overall superstructure depth including girder, deck, and average build-up is approximately 7'-0".

Substructure and Foundations

As discussed in earlier sections of this report, drilled cast-in-place concrete shafts have proven to be the most successful foundation type for bridges over local desert rivers. They are relatively easy and economical to construct and provide superior scour resistance characteristics. The preliminary geotechnical report recommends the use of drilled shaft foundations for this site.

Each abutment will consist of a cast-in-place concrete cap beam supported on several large diameter drilled shafts. The shafts will be approximately 7 feet in diameter and spaced approximately 20 feet apart. The shafts will need to be designed as unsupported columns until they penetrate the approach roadway fill and extend into the existing soils. The actual depth of foundations will be determined in the final design process based on the project final geotechnical report foundation recommendations. We have estimated the lengths of shafts in this report based on the preliminary geotechnical report, scour depths from the preliminary hydraulic analysis, and computed live and dead loads. We have estimated lateral loads due to stream forces based on past experience. We intend to perform a more sophisticated lateral analysis of the foundations during the 40% plans development phase.

Each pier will consist of a cast-in-place concrete cap beam supported by three 6-foot diameter columns extending to a minimum of 5 feet below the future ultimate channel invert. Each column will be founded on a 10-foot diameter drilled shaft foundation. The actual depth of pier foundations will be determined in the final design process.

Constructability

Discussions with representatives from Royden Construction and TPAC (both local precast contractors) verified that transportation and erection of these type and size units are very reasonable with standard local transportation equipment and normal crane capabilities.

Cost Estimate

Based on preliminary concepts, the preliminary estimated cost of *Alternative 1 – AASHTO Modified Type VI Concrete Girder Bridge*, including a 15% contingency, is approximately **$25,470,000**. See Appendix G-2 for quantity and cost estimate details.

ALTERNATIVE 2 - AASHTO TYPE SUPER VI PRECAST PRESTRESSED CONCRETE I-GIRDERS

General

A second bridge type considered feasible is an AASHTO Type Super VI precast, prestressed concrete I-girder. While similar to Alternative 1, this alternative makes it possible to extend the practical span lengths to 153' range thus reducing the total number of piers required. A slight increase in profile grade and subsequent approach roadway fill will be required with this option.

As with Alternative 1, one of the more cost effective benefits of precast concrete girders is realized when as many girders as possible can be of the same length and section.

Superstructure

For this crossing, a practical span arrangement for the Type Super VI girder option would be a eleven span structure consisting of end spans from centerline of abutments to centerline of piers of approximately 151'-0" each and nine interior spans of approximately 153'-0" from centerline of pier to centerline of adjacent pier for an overall bridge length of approximately 1685'-0".

Fourteen girders would be required with a spacing of approximately 8'-2" and a composite concrete deck section approximately 8-1/2" thick. The overall superstructure depth including girder, deck, and average build-up is approximately 7'-6".

Substructure and Foundations

The substructure and foundations for this option will be very similar to those of Alternative 1. Due to the increased span lengths, the abutment and pier reactions will be somewhat higher than Alternative 1 and consequently larger diameter and/or somewhat deeper shafts can be anticipated. We have investigated both alternatives and feel that drilling deeper shafts is more cost-effective than increasing shaft diameter.

Each abutment will consist of a cast-in-place concrete cap beam supported on several large diameter drilled shafts. The shafts will be approximately 7 feet in diameter and spaced approximately 20 feet apart. The shafts will need to be designed as unsupported columns until they penetrate the approach roadway fill and extend into the existing soils. The actual depth of foundations will be determined in the final design process.

Preliminary sizing indicates each pier will consist of a cast-in-place concrete cap beam supported on four 6-foot diameter columns extending to a minimum of 5 feet below the future ultimate channel invert. Each column will be supported on a 10'-0" diameter drilled shaft foundation. The recommended depth of pier foundations will be determined in the final design process.

Constructability

Discussions with representatives from Royden Construction and TPAC (both local precast contractors) verified that transportation and erection of these type and size units are very reasonable with standard local transportation equipment and normal crane capabilities. However, girder lengths for this alternative are at the upper limit for standard transportation and routing within the valley.

Cost Estimate

Based on preliminary concepts, the preliminary estimated cost of *Alternative 2 –AASHTO Type Super VI Precast Prestressed Concrete I-Girder Bridge*, including a 15% contingency, is approximately **$25,710,000**. See Appendix G-2 for quantity and cost estimate details.

ALTERNATIVE 3 – PRECAST CONCRETE SPLICED I-GIRDERS

General

A third bridge type considered is a precast, prestressed concrete spliced girder. While similar to Alternatives 1 and 2, the spliced girder alternative makes it possible to extend the practical span lengths to 170' range thus once again reducing the total number of piers required.

The table sections will be precast girders extending a distance over and beyond the piers of approximately 13% of the span length. The drop-in sections will be precast and will be approximately 74% of the total span length. Splicing the girders will allow the members to be precast in transportable lengths and still provide a longer combined span length than a regular AASHTO girder. The girders will be post-tensioned for continuity and live load capacity after the superstructure construction is complete.

Superstructure

A practical span arrangement for this alternative would be a ten equal spans of 168'-0" for an overall bridge length of 1,686 feet.

Fourteen girders spaced at approximately 8'-2" with a composite concrete deck section approximately 8-1/2" thick will be required. The overall superstructure depth including girder, deck, and average build-up is approximately 7'-6". The superstructure will be post-tensioned for continuity and live load capacity after erection of the girders. This will require the construction of temporary bents adjacent to the piers to support the table sections (at the pier locations) until closure pours can be made. The temporary bents may require foundations suitable to withstand some scour to be determined during construction. The temporary bents will likely be required for a 30 – 60 day period during construction, depending on the selected contractors erection plan.

Substructure and Foundations

The substructure and foundations for this option will be very similar to those of Alternative 1. Due to the increased span lengths, the abutment and pier reactions will be somewhat higher than Alternative 1 and consequently larger diameter and/or deeper shafts can be anticipated. For this alternative, it was determined that using a large diameter shaft, as opposed to a deeper and smaller diameter shaft, is more cost-effective.

Each abutment will consist of a cast-in-place concrete cap beam supported on several large diameter drilled shafts. The shafts will be approximately 8 feet in diameter and spaced approximately 20 feet apart. The shafts will need to be designed as unsupported columns until they penetrate the approach roadway fill and extend into the existing soils. The actual depth of foundations will be determined in the final design process.

Preliminary sizing indicates each pier will consist of a cast-in-place concrete cap beam supported on three 6-foot diameter columns extending to a minimum of 5 feet below the future ultimate channel invert. Each column will be supported on a 12'-0" diameter drilled shaft foundation. The depth of pier foundations will be determined in the final design process.

Constructability

With the spliced elements of approximately 135 feet in length, these units will be easily transportable and should create no special constructability issues. Special consideration will need to be taken when determining a specific travel route from pre-caster's yard to project site. Construction of the cast-in-place composite deck section should be easily accomplished with relatively no construction site traffic maintenance concerns. In comparison to Alternatives 1 and 2, the construction of Alternative 3 is more complicated due to the quasi-segmental nature of the structure and the required post-tensioning. Its most significant enhancement is due to its more streamlined profile, achieved through lengthening the spans and reducing the number of foundation elements.

Cost Estimate

Based on preliminary concepts, the preliminary estimated cost of *Alternative 3 – Precast Concrete Spliced Girder Bridge*, including a 15% contingency, is approximately **$29,730,000**. See Appendix G-2 for quantity and cost estimate details.

4.12 Recommended Alternative For Gilbert Road

Alternative 1, a 12-span Precast Prestressed AASHTO Modified Type VI Girder Bridge with composite cast-in-place concrete deck supported on drilled shaft foundations is the recommended bridge type and configuration for this project. This alternative provides an economically competitive structure that is aesthetically pleasing, readily constructible by local contractors and typically requires minimal maintenance. Construction of this alternative only requires deck falsework which can be supported by the girders thus reducing contractor risk due to river flows during construction. By casting the girders at the same time as construction of the abutments and piers, overall construction time can be minimized. The cost difference between Alternatives 1 and 2 is minimal but Alternative 2 imposes larger loads to the foundation elements and requires deeper drilled shafts. Construction of the foundation elements will be difficult for both alternatives but it is our opinion that reducing potential construction difficulties for the foundation elements is preferable and results in a small savings to the bridge. The aesthetic benefits gained from Alternative 3, the Spliced Precast Girder bridge, are obtained at a cost increase in excess of 10% over the other alternatives in addition to its construction being more complicated and requiring temporary falsework towers within the floodway.

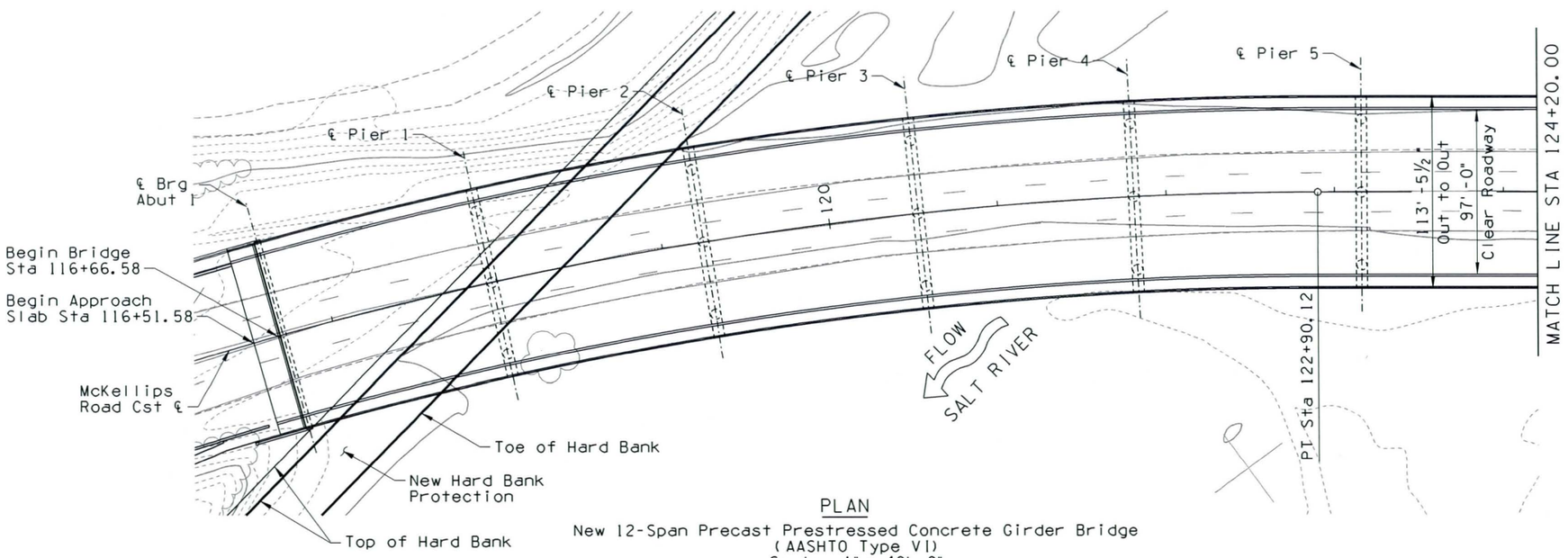
5.0 REFERENCES

- AASHTO *Standard Specifications for Highway Bridges, Seventeenth Edition, 2002.*
- AASHTO *Guide Specifications for Thermal Effects on Concrete Bridge Superstructures, 1989.*
- AASHTO *LRFD Bridge Design Specifications, Fourth Edition, 2007 w/Interims through 2009*
- AASHTO *Guide Specifications for Fracture Critical Non-Redundant Steel Bridge Members, 1978.*
- ANSI/AASHTO/AWS D1.5-96 Bridge Welding Code, 1996.
- MAG *Uniform Standard Specifications for Public Works Construction 1998 with revisions through 2008 and the MCDOT Supplement to the MAG Uniform Standard Specifications and Details for Public Works Construction, dated January 2008.*
- Dobson Road Bridges Design Concept Report Geotechnical Report, NCS Consultants LLC., May, 2009
- *"Preliminary Geotechnical Report"* prepared for this project by AMEC for Maricopa County Department of Transportation under Contract No. 2004-60, Work Assignment E.

APPENDIX G-1

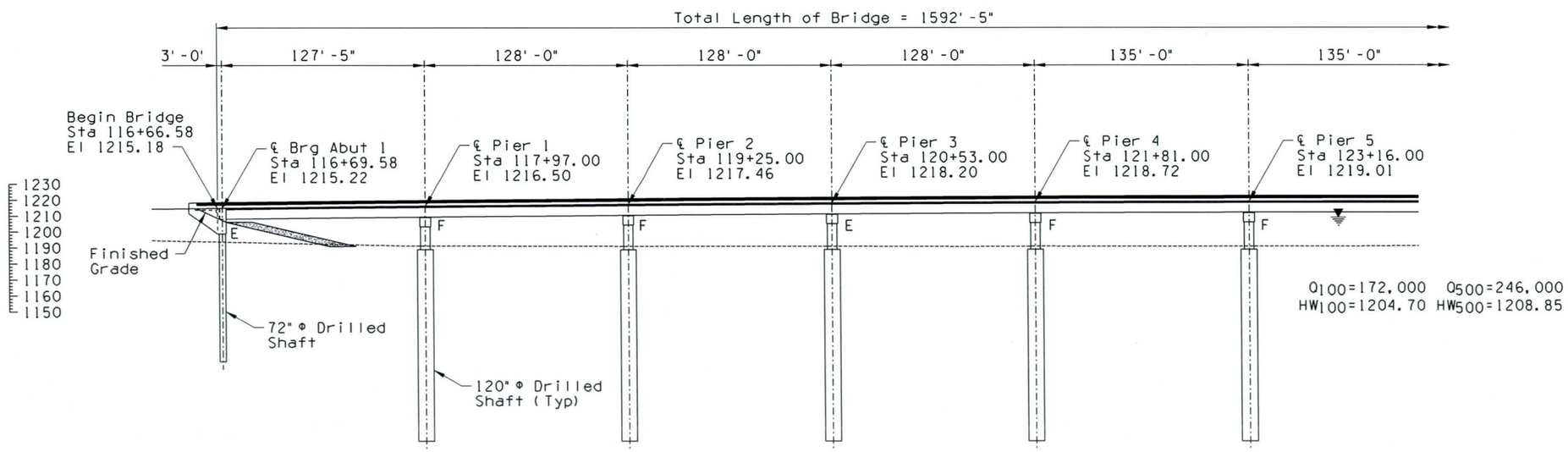
Bridge Plans and Typical Sections

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



PLAN

New 12-Span Precast Prestressed Concrete Girder Bridge
(AASHTO Type VI)
Scale: 1" = 40'-0"



Q_{100}=172,000 Q_{500}=246,000
HW_{100}=1204.70 HW_{500}=1208.85

ELEVATION

(Stations and Elevations are measured along McKellips Road Cst ℄)
Scale: 1" = 40'-0"

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
McKELLIPS ROAD BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	R. BRANTLEY	05/05/09
DRAWN	J. GILMORE	05/05/09
CHECKED	C. RODRIGUEZ	05/05/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GENERAL PLAN 1 - ALT 1

SHEET 1 OF

TRACS NO.

English

ADOT 12:08:42 PM 12/9/2010 TT199M1bpln01.bar

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
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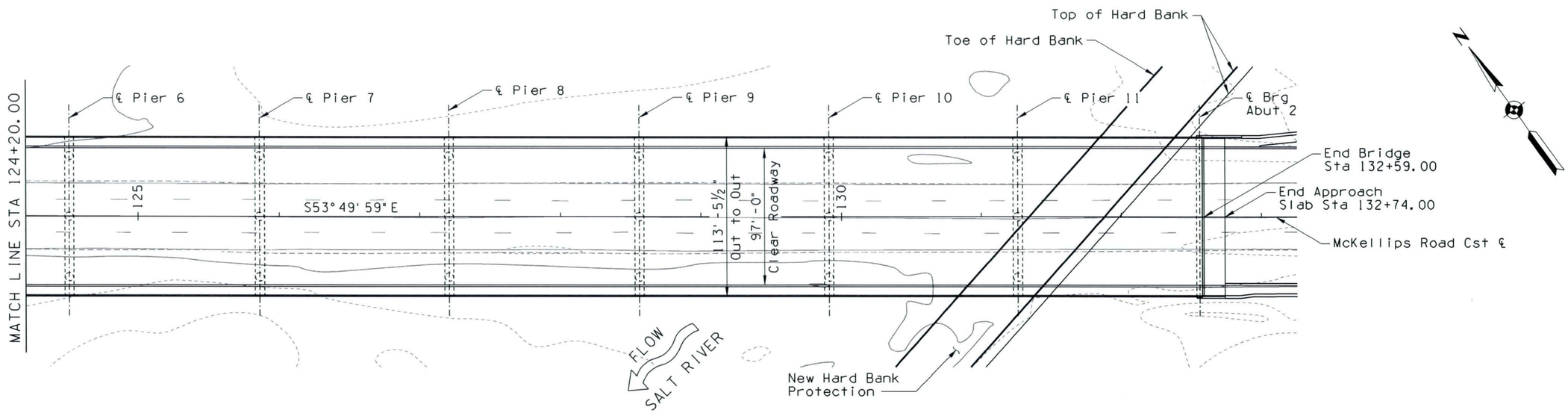
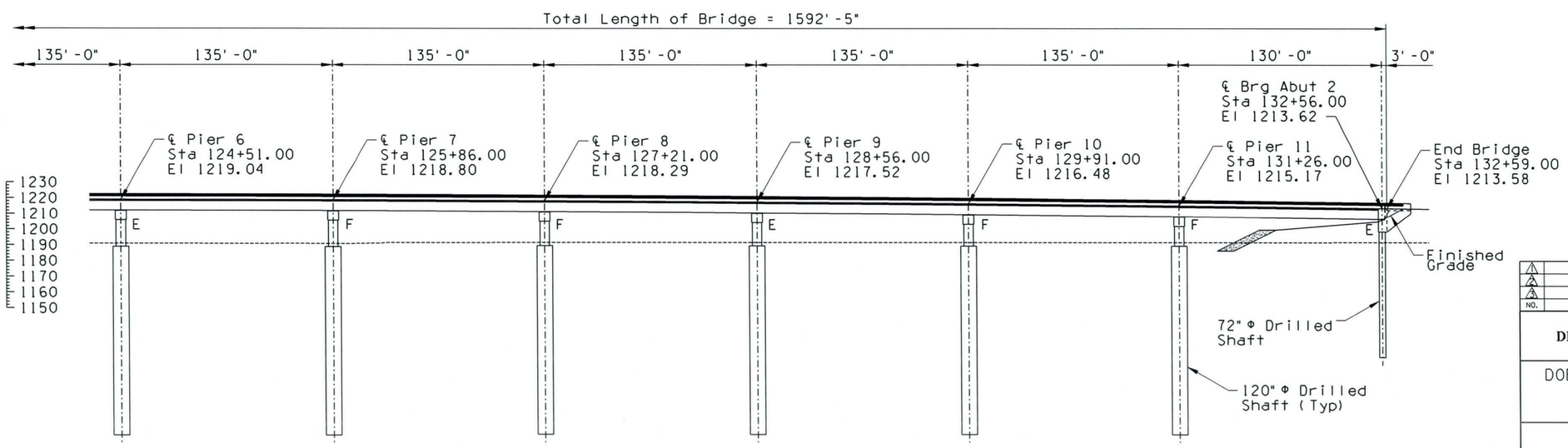


PLAN

New 12-Span Precast Prestressed Concrete Girder Bridge
(AASHTO Type VI)
Scale: 1" = 40'-0"



ELEVATION

(Stations and Elevations are measured along McKellips Road Cst ℄)
Scale: 1" = 40'-0"

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
McKELLIPS ROAD BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	R. BRANTLEY	05/05/09
DRAWN	J. GILMORE	05/05/09
CHECKED	C. RODRIGUEZ	05/05/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GENERAL PLAN 2 - ALT 1

SHEET OF 2

TRACS NO.

ADOT 12:08:49 PM 1/29/2010 TT199M1bpln02.bsr

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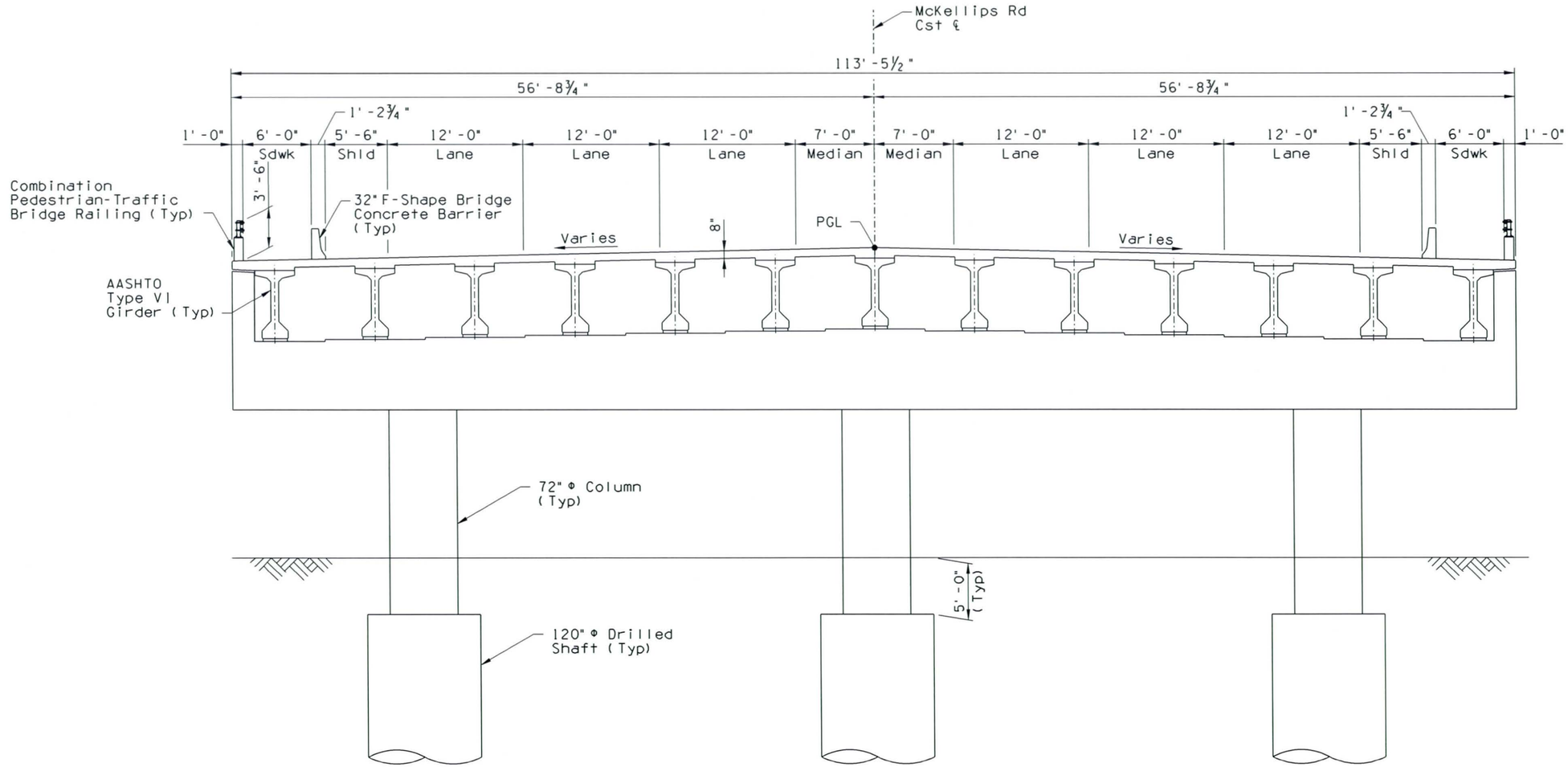

TYPICAL SECTION

Scale: 3/16" = 1'-0"

NO.	REVISION	BY	DATE
1			
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3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
McKELLIPS ROAD BRIDGE

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	R. BRANTLEY	05/05/09
DRAWN	J. GILMORE	05/05/09
CHECKED	C. RODRIGUEZ	05/05/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

TYPICAL SECTION - ALT 1

SHEET OF 3

TRACS NO.

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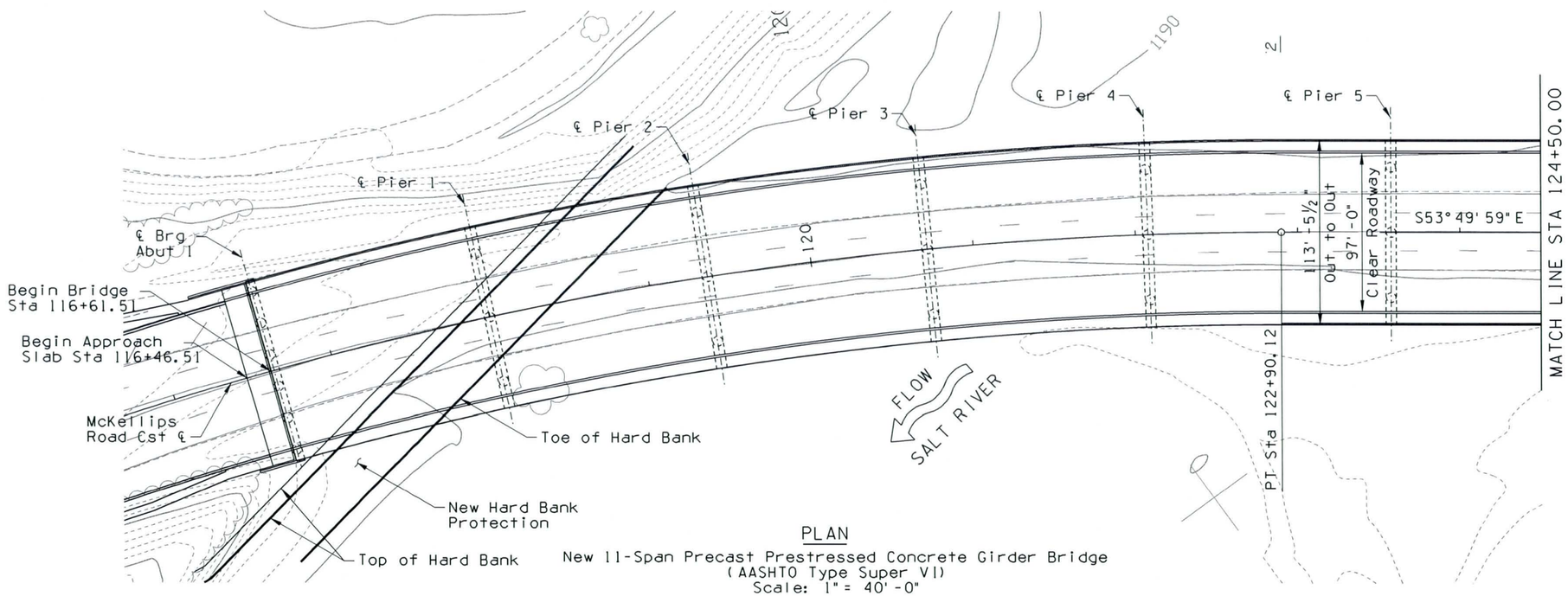
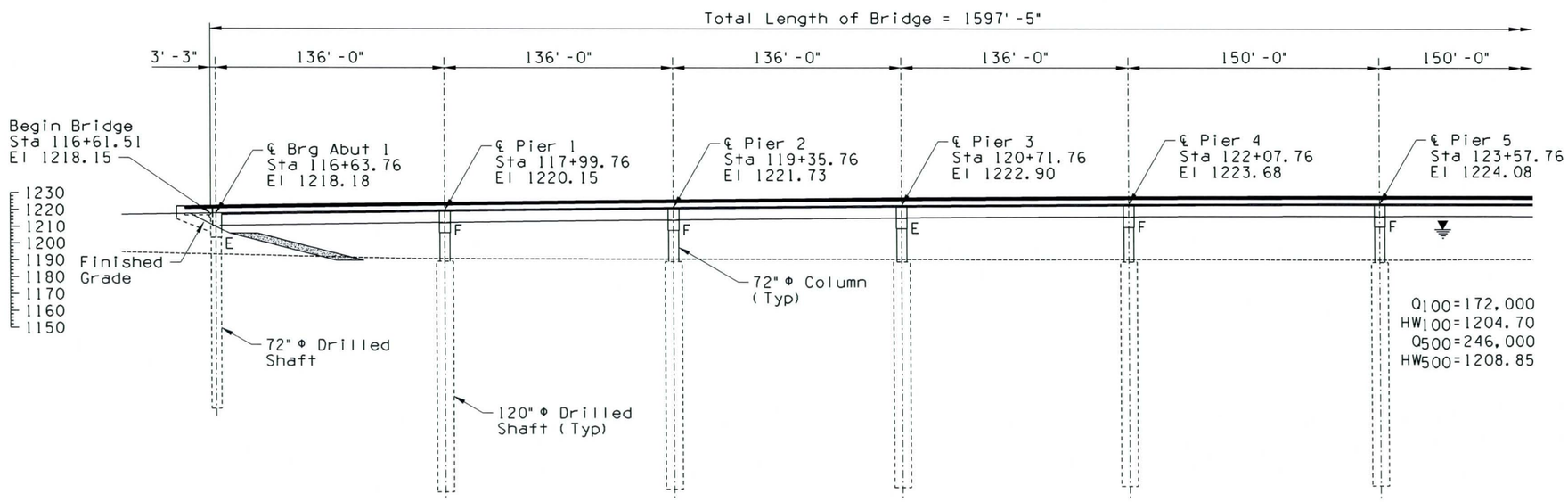


PLAN

New 11-Span Precast Prestressed Concrete Girder Bridge
(AASHTO Type Super VI)
Scale: 1" = 40'-0"

NOTE:

All Piers are Constructed Radial to the McKellips Road Construction Centerline.



ELEVATION

(Stations and Elevations are measured along McKellips Road Cst ℄)
Scale: 1" = 40'-0"

NO.	REVISION	BY	DATE
1			
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
McKELLIPS ROAD BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	R. BRANTLEY	05/05/09
DRAWN	J. GILMORE	05/05/09
CHECKED	A. GHAZANFARI	05/05/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GENERAL PLAN 1 - ALT 2

SHEET OF 1

TRACS NO.

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English

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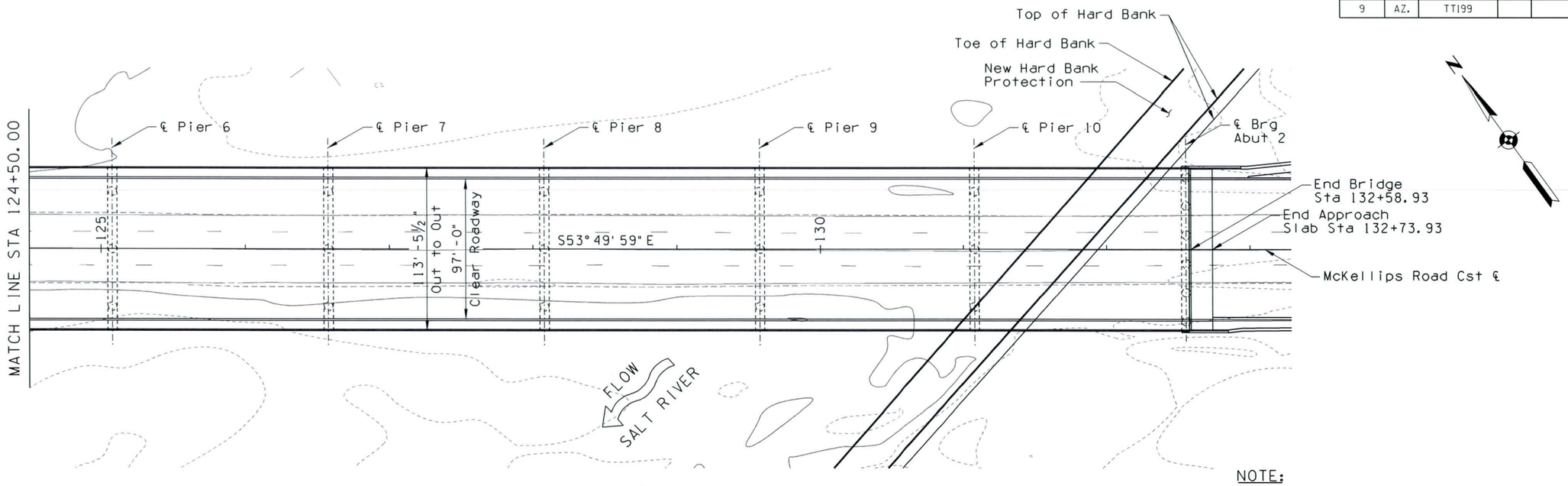
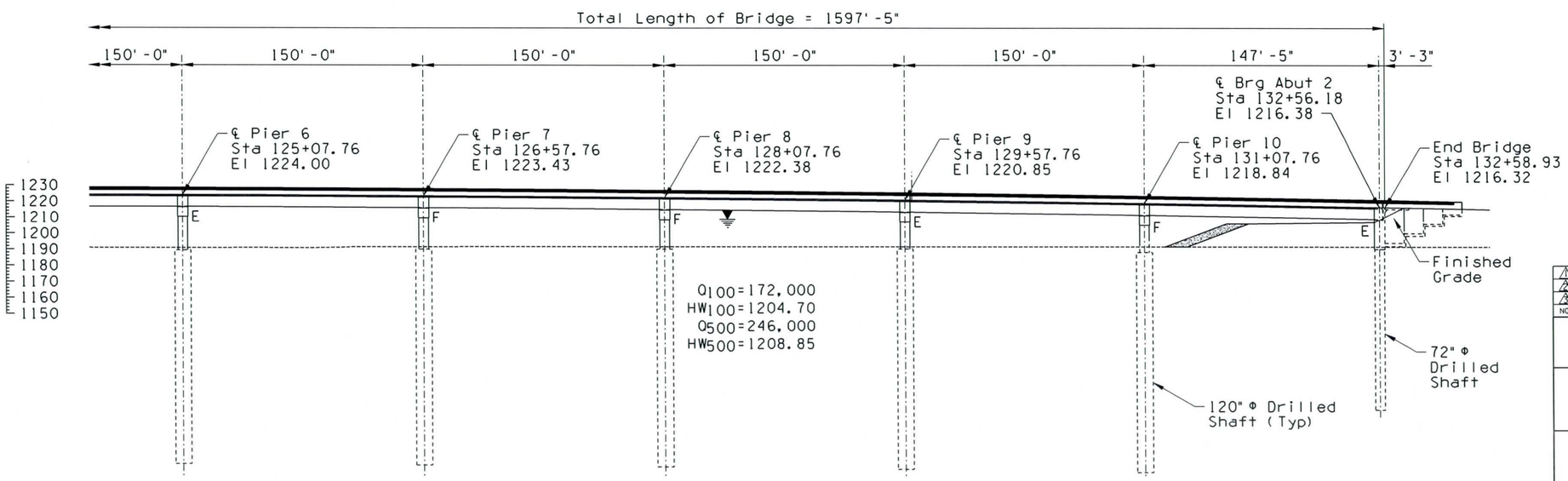


PLAN

New 11-Span Precast Prestressed Concrete Girder Bridge
(AASHTO Type Super VI)
Scale: 1" = 40'-0"

NOTE:

All Piers are Constructed Radial to the McKellips Road Construction Centerline.



ELEVATION

(Stations and Elevations are measured along McKellips Road Cst ℄)
Scale: 1" = 40'-0"

NO.	REVISION	BY	DATE
1			
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3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
McKELLIPS ROAD BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	R. BRANTLEY	05/05/09
DRAWN	J. GILMORE	05/05/09
CHECKED	A. GHAZANFARI	05/05/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GENERAL PLAN 2 - ALT 2

SHEET OF 2

TRACS NO.

English

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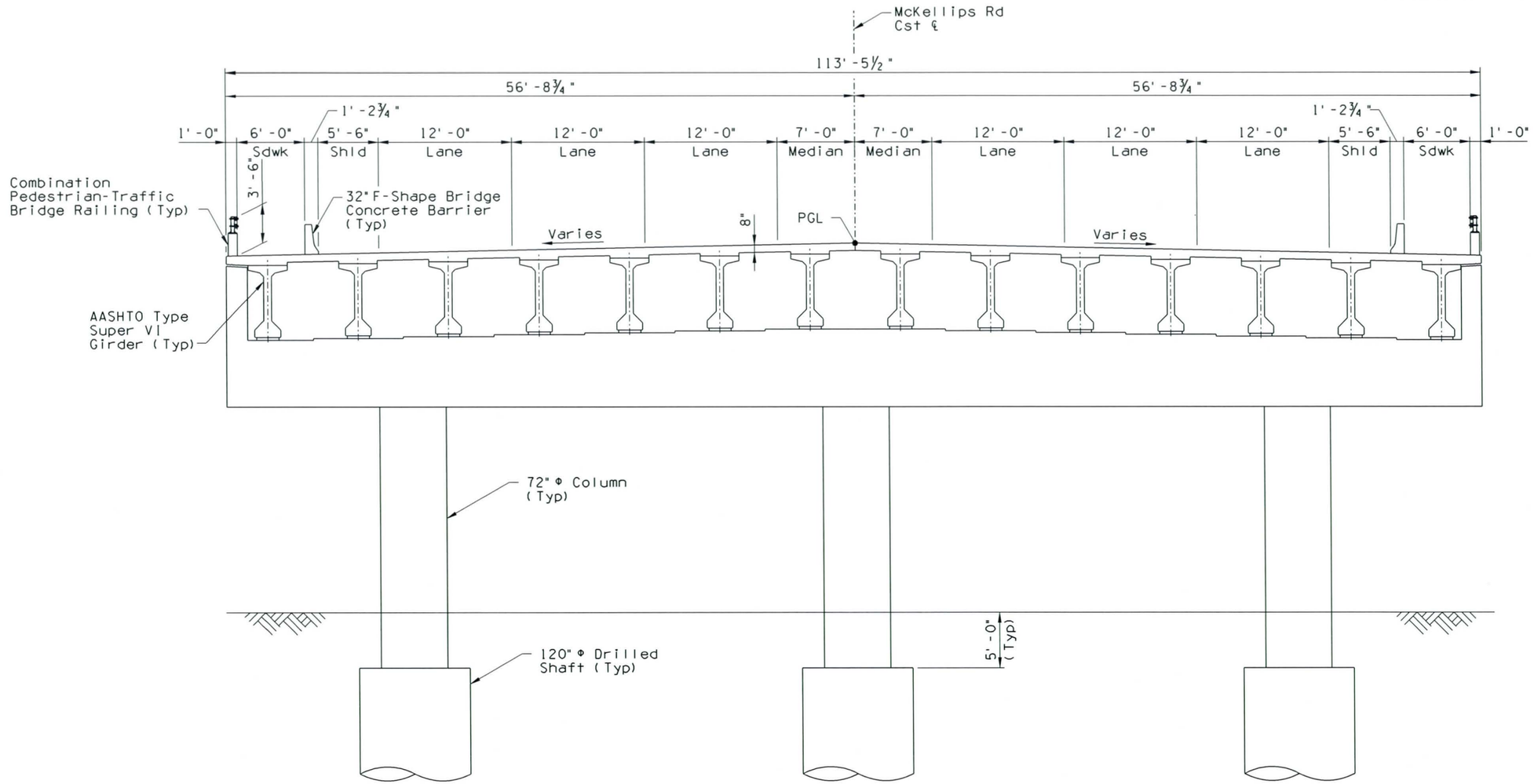

TYPICAL SECTION

Scale: 3/16" = 1'-0"

NO.	REVISION	BY	DATE
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3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
McKELLIPS ROAD BRIDGE

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	R. BRANTLEY	05/05/09
DRAWN	J. GILMORE	05/05/09
CHECKED	A. GHAZANFARI	05/05/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

TYPICAL SECTION - ALT 2

SHEET 3 OF

TRACS NO.

English

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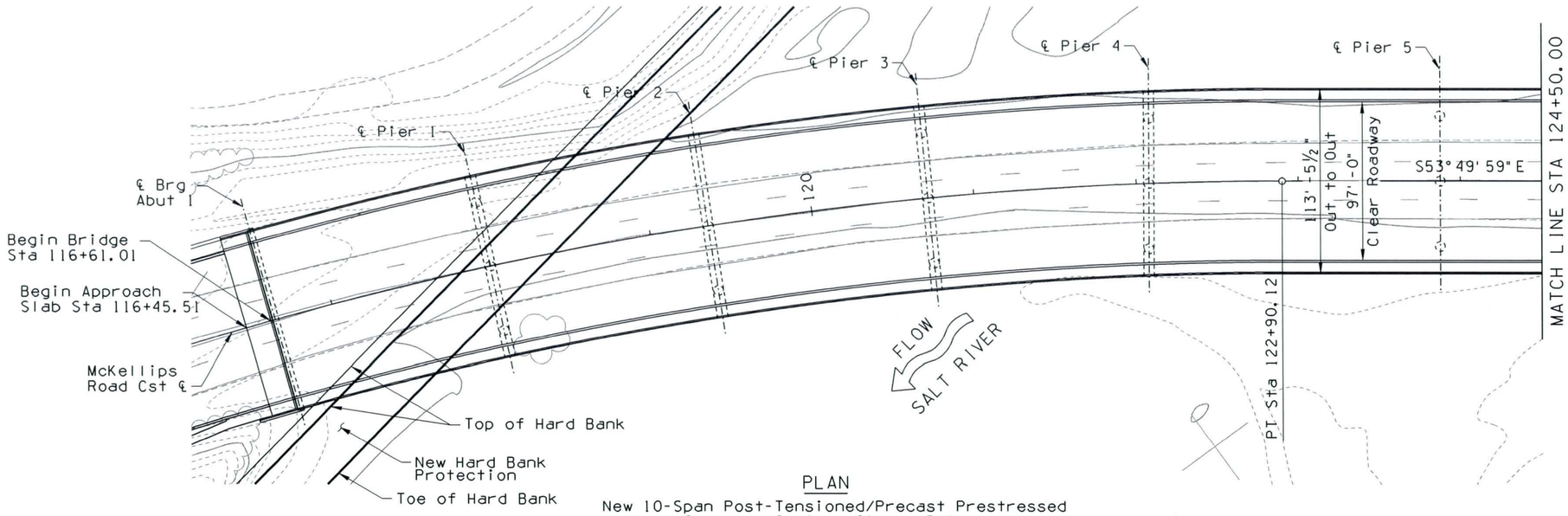
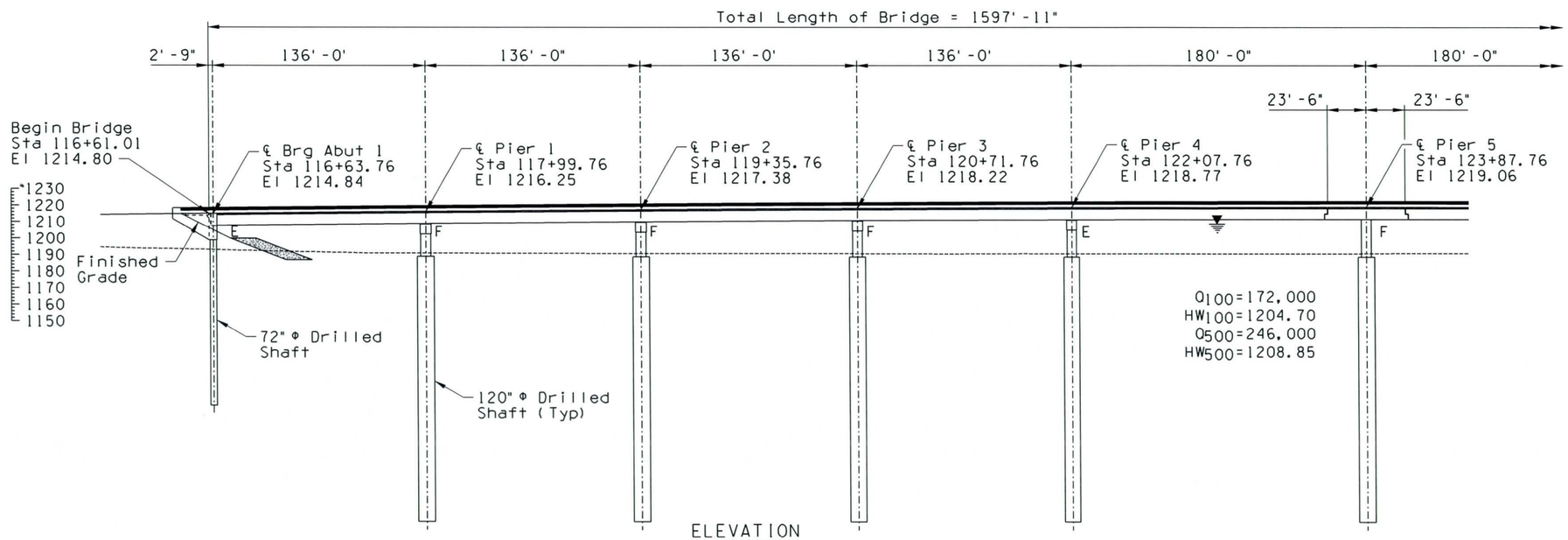


PLAN

New 10-Span Post-Tensioned/Precast Prestressed Concrete Spliced Girder Bridge (AASHTO Type Super VI)
Scale: 1" = 40'-0"



ELEVATION

(Stations and Elevations are measured along McKellips Road Cst ℄)
Scale: 1" = 40'-0"

NO.	REVISION	BY	DATE
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
McKELLIPS ROAD BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	R. SHISHIDO	05/05/09
DRAWN	R. SHISHIDO	05/05/09
CHECKED	R. BRANTLEY	05/05/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GENERAL PLAN 1 - ALT 3

SHEET OF 1

TRACS NO.

English

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F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
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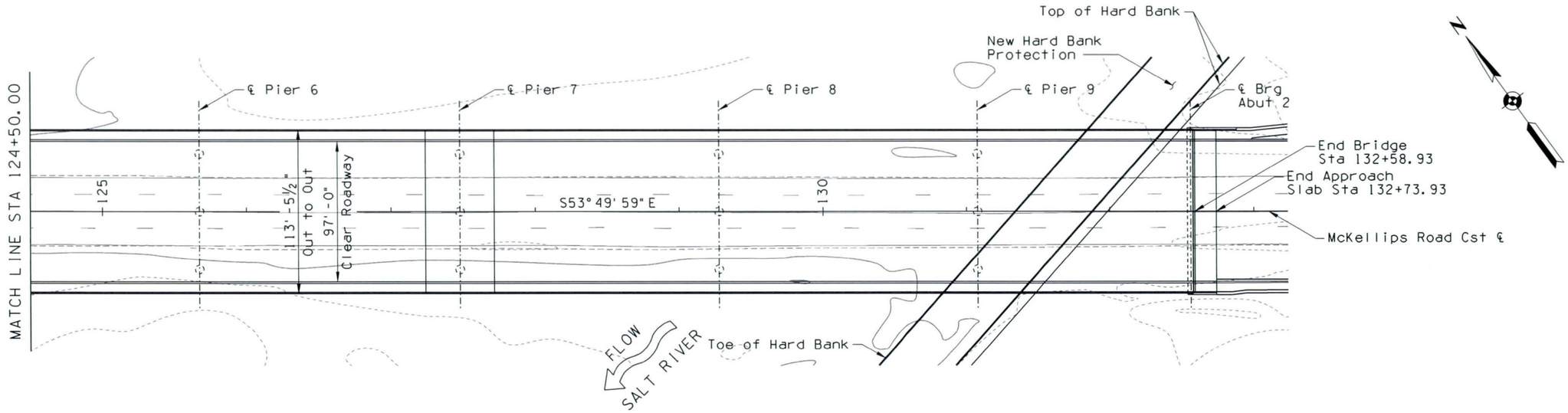
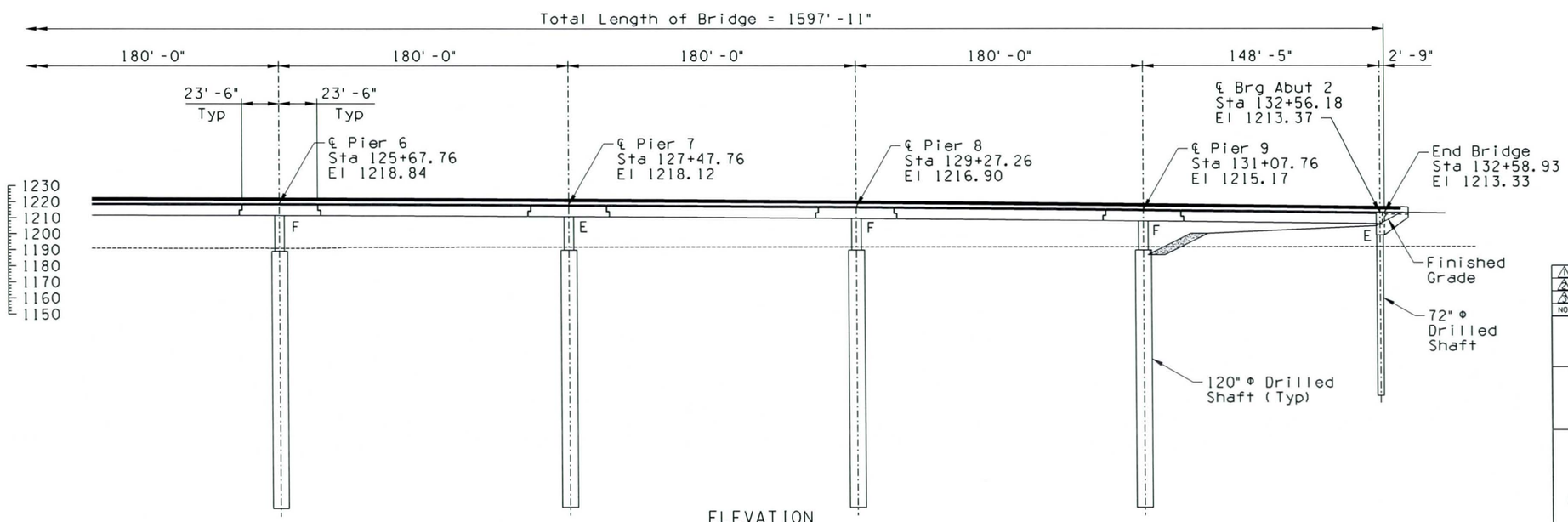


PLAN

New 10-Span Post-Tensioned/Precast Prestressed
Concrete Spliced Girder Bridge
(AASHTO Type Super VI)
Scale: 1" = 40'-0"



ELEVATION

(Stations and Elevations are measured along McKellips Road Cst ℄)
Scale: 1" = 40'-0"

NO.	REVISION	BY	DATE
1			
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
McKELLIPS ROAD BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	R. SHISHIDO	05/05/09
DRAWN	R. SHISHIDO	05/05/09
CHECKED	R. BRANTLEY	05/05/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GENERAL PLAN 2 - ALT 3

SHEET OF 2

TRACS NO.

English

ADOT 10:15:23 AM 2/2/2010 TT199M3bpln02.bsr

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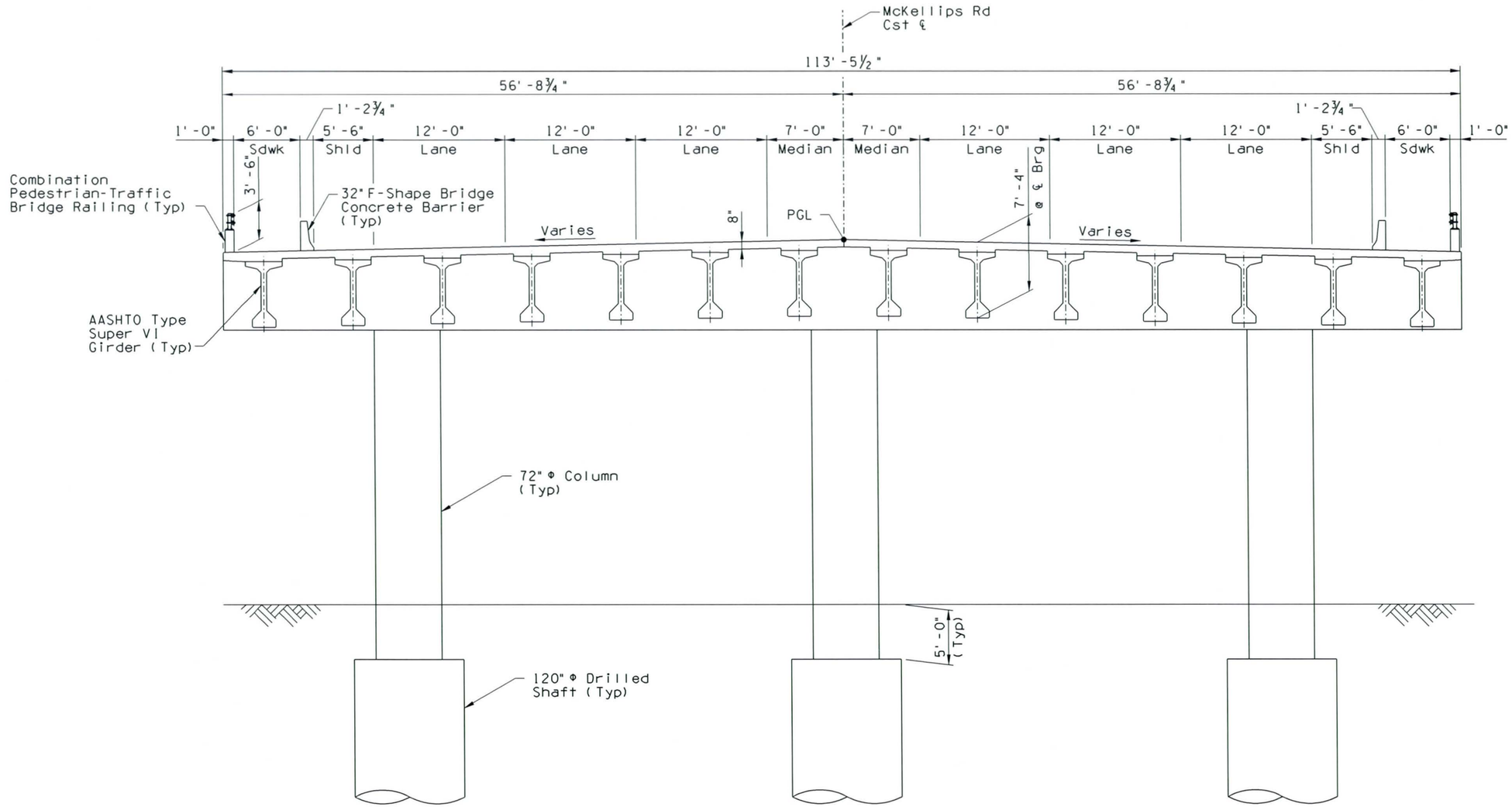

TYPICAL SECTION

Scale: 3/16" = 1'-0"

NO.	REVISION	BY	DATE
1			
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3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
McKELLIPS ROAD BRIDGE

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	R. SHISHIDO	05/05/09
DRAWN	R. SHISHIDO	05/05/09
CHECKED	R. BRANTLEY	05/05/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

TYPICAL SECTION - ALT 3

SHEET OF 3

TRACS NO.

English

ADOT 12:09:40 PM 1/29/2010 TT199M3bpln03.bar

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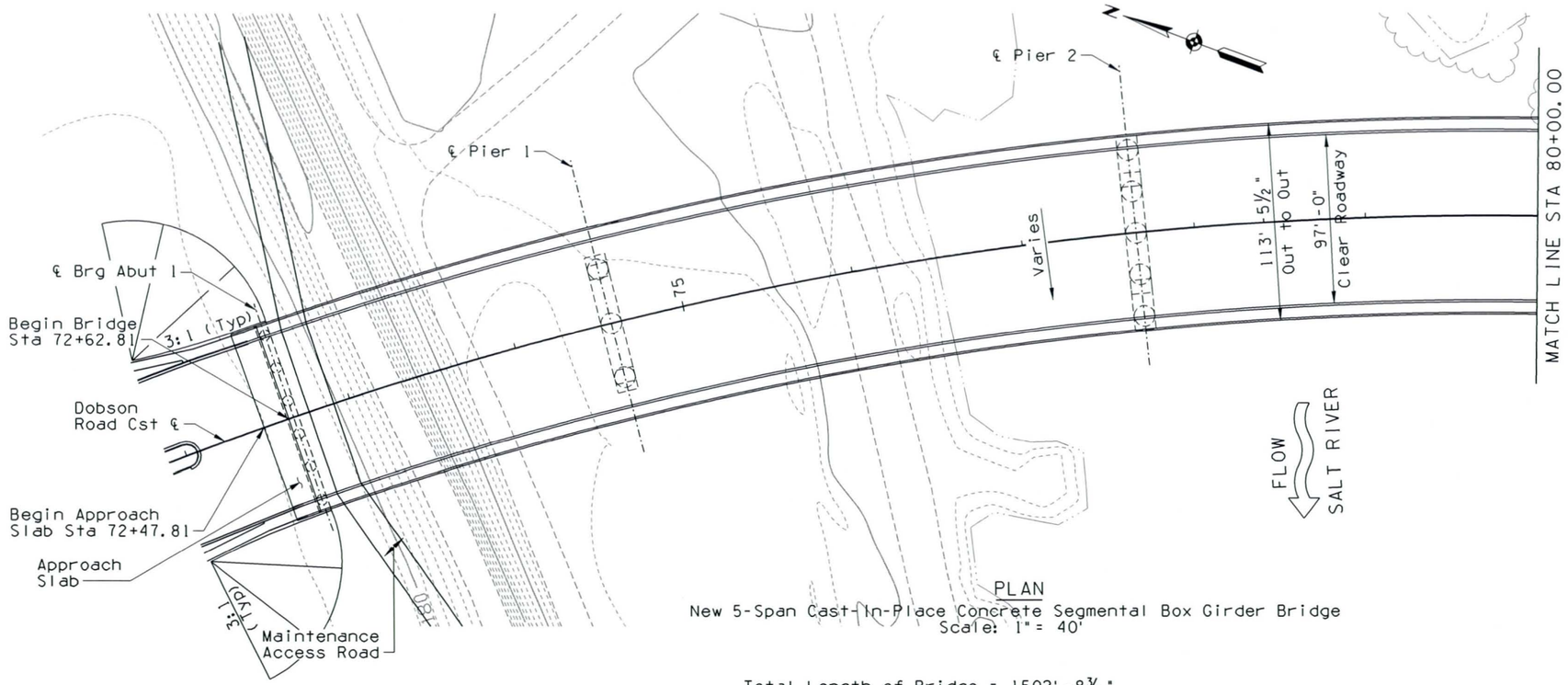
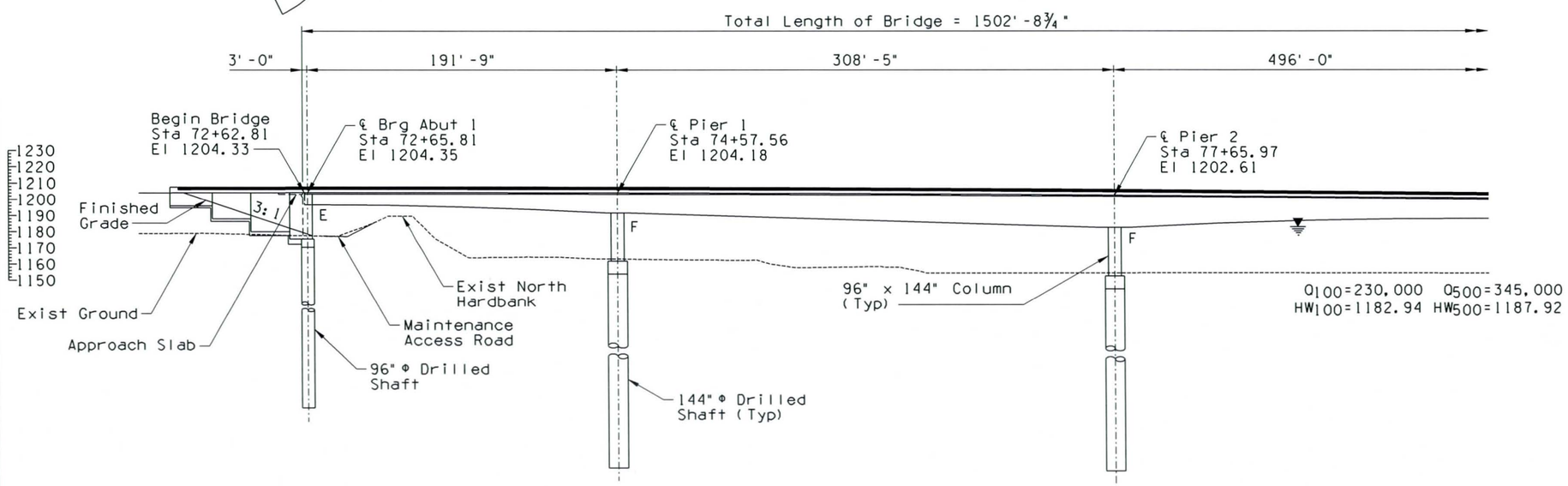


PLAN

New 5-Span Cast-In-Place Concrete Segmental Box Girder Bridge
Scale: 1" = 40'

NOTE:

All Piers and Abutment 1 are constructed radial to the Dobson Road Construction Centerline.



ELEVATION

(Stations and Elevations are measured along Dobson Road Cst ℄)
Scale: 1" = 40'

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
DOBSON ROAD BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	R. BRANTLEY	07/31/09
DRAWN	J GILMORE	07/31/09
CHECKED	S. LEE	07/31/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GENERAL PLAN 1 - ALT 1

SHEET OF 1

TRACS NO.

English

ADOT 12:09:51 PM 1/29/2010 TT199D1bplin01.bar

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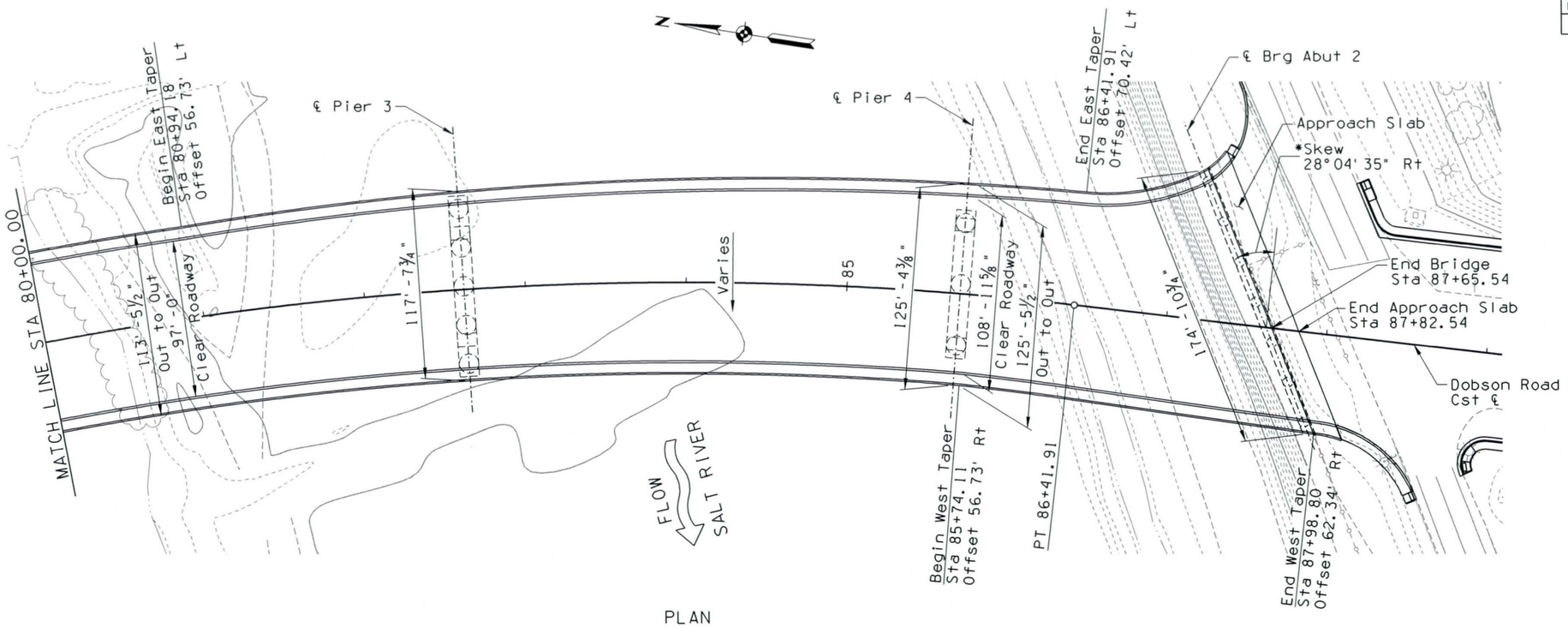


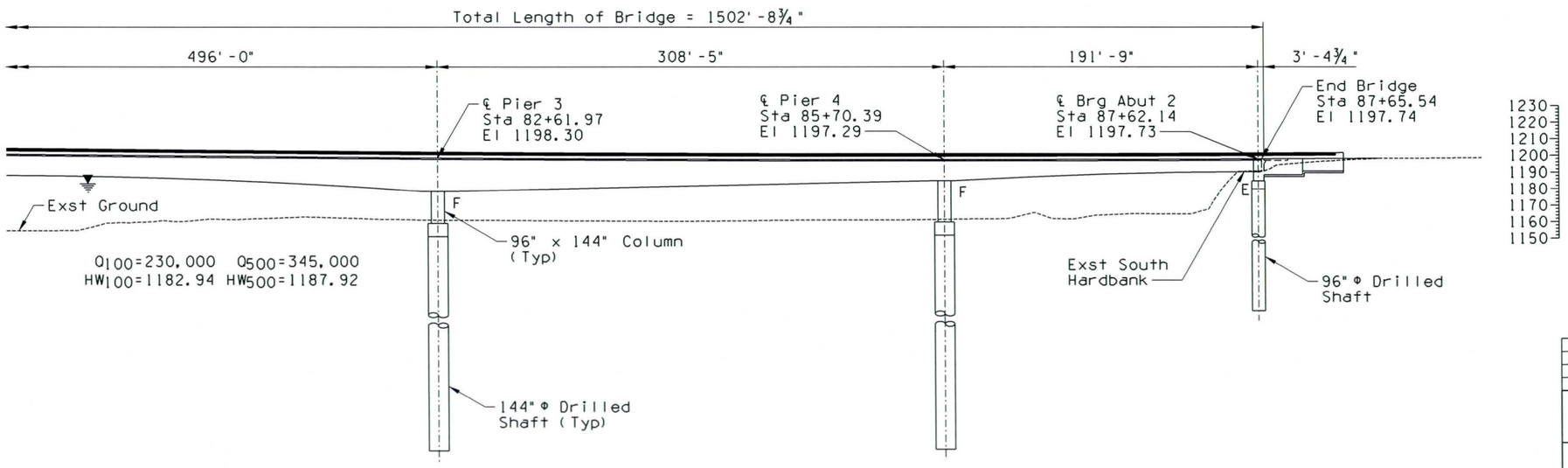
* Measured perpendicular to the tangent of Dobson Road Const ℄.

NOTE:

All Piers and Abutment 1 are constructed radial to the Dobson Road Construction Centerline.

PLAN

New 5-Span Cast-In-Place Concrete Segmental Box Girder Bridge
Scale: 1" = 40'



ELEVATION

(Stations and Elevations are measured along Dobson Road Cst ℄)
Scale: 1" = 40'

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
DOBSON ROAD BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	R. BRANTLEY	07/31/09
DRAWN	J. GILMORE	07/31/09
CHECKED	S. LEE	07/31/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

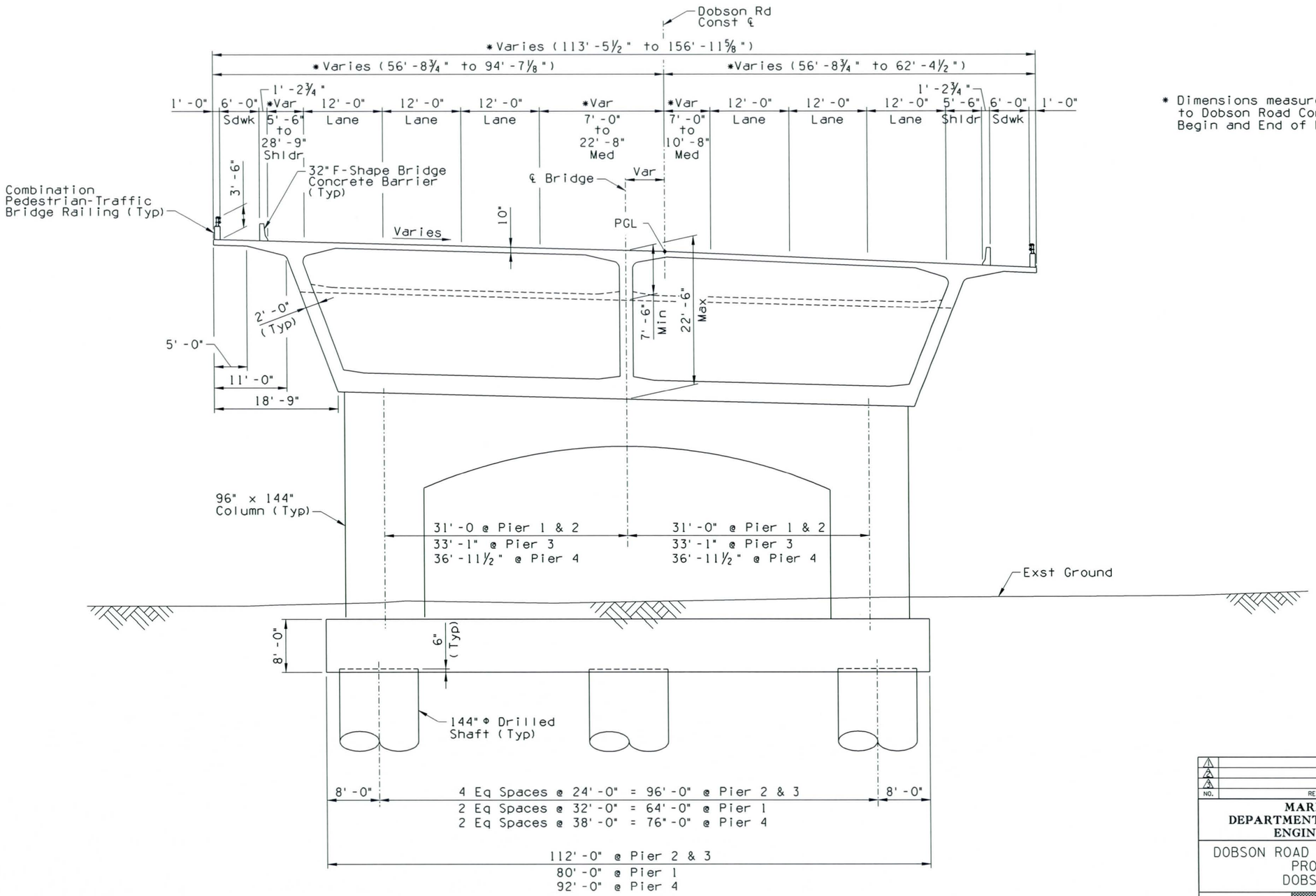
GENERAL PLAN 2 - ALT 1

SHEET OF 2

TRACS NO.

ADOT 12:09:57 PM 1/29/2010 TT199D1bpln02.bsr

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



* Dimensions measured perpendicular to Dobson Road Construction ℄ & at Begin and End of Bridge.

TYPICAL SECTION

Pier 4 shown, other Piers similar
Scale: ⅛" = 1'-0"

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
DOBSON ROAD BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	R. BRANTLEY	07/31/09
DRAWN	J. GILMORE	07/31/09
CHECKED	S. LEE	07/31/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

TYPICAL SECTION - ALT 1

SHEET OF 3

TRACS NO.

English

ADOT 12:10:04 PM 1/29/2010 TT199D1bpin03.bsr

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
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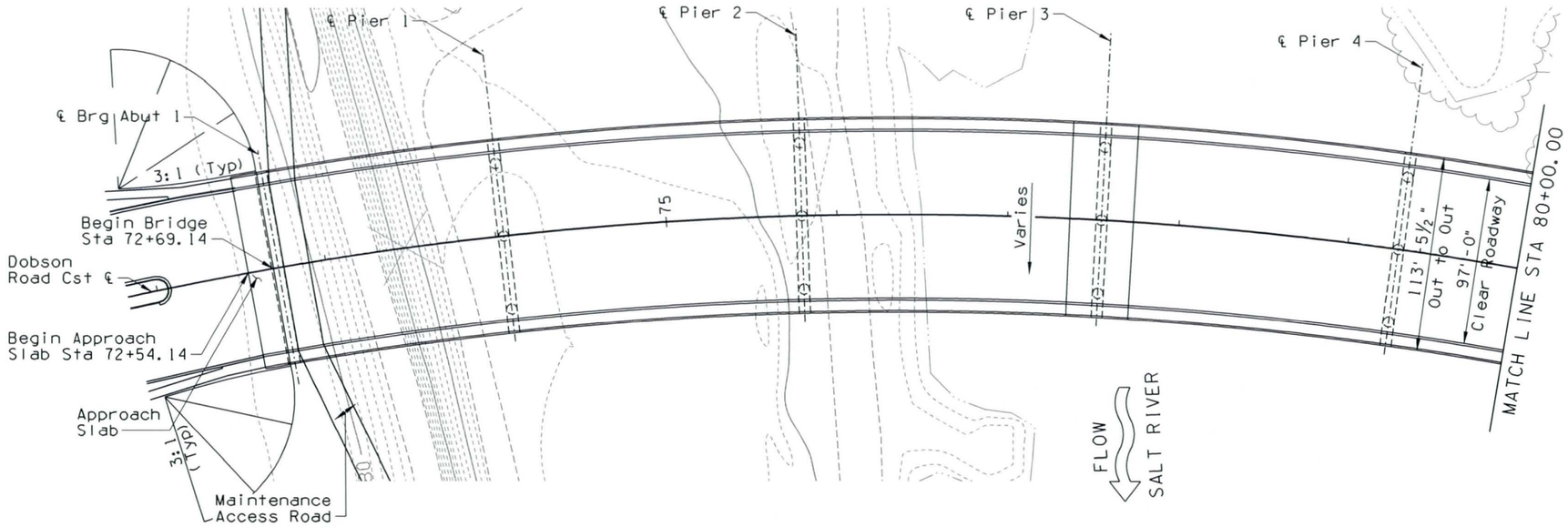
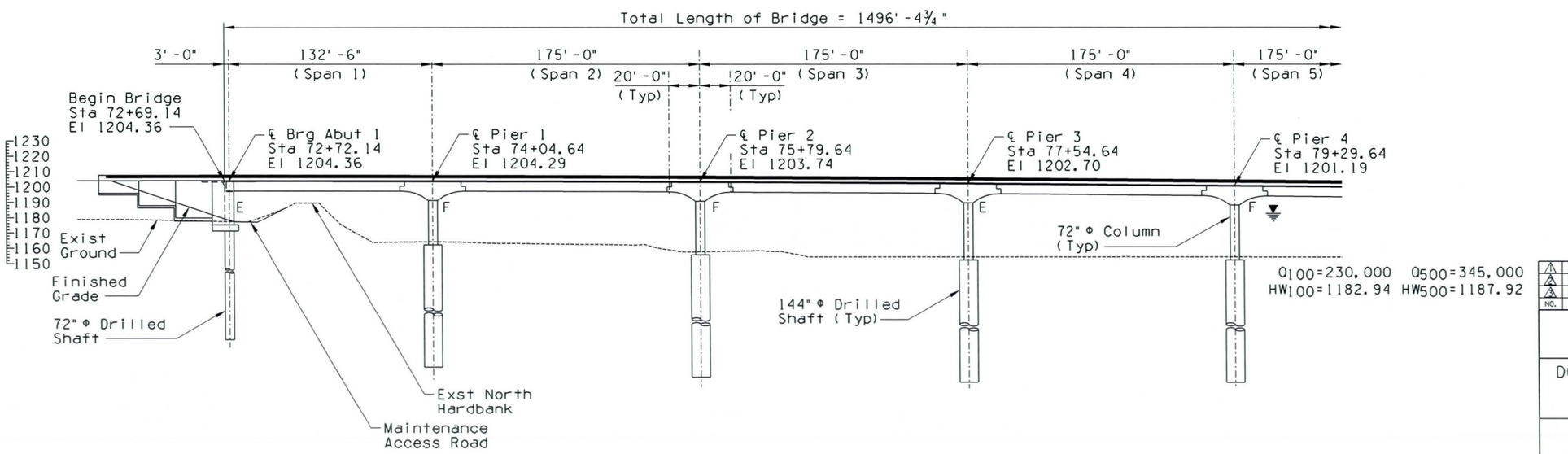


NOTE:

All Piers and Abutment 1 are constructed radial to the Dobson Road Construction Centerline.

PLAN

New 9-Span Precast Prestressed Spliced Concrete Girder Bridge
(Spliced AASHTO Type VI Modified Girders, Spans 1 thru 8)
(Cast-In-Place Post-Tensioned Box Girder, Span 9)
Scale: 1" = 40'



ELEVATION

(Stations and Elevations are measured along Dobson Road Cst ℄)
Scale: 1" = 40'

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
DOBSON ROAD BRIDGE

	BY	DATE
DESIGNED	R. BRANTLEY	07/31/09
DRAWN	J GILMORE	07/31/09
CHECKED	S. LEE	07/31/09

PRELIMINARY NOT FOR CONSTRUCTION

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GENERAL PLAN 1 - ALT 2

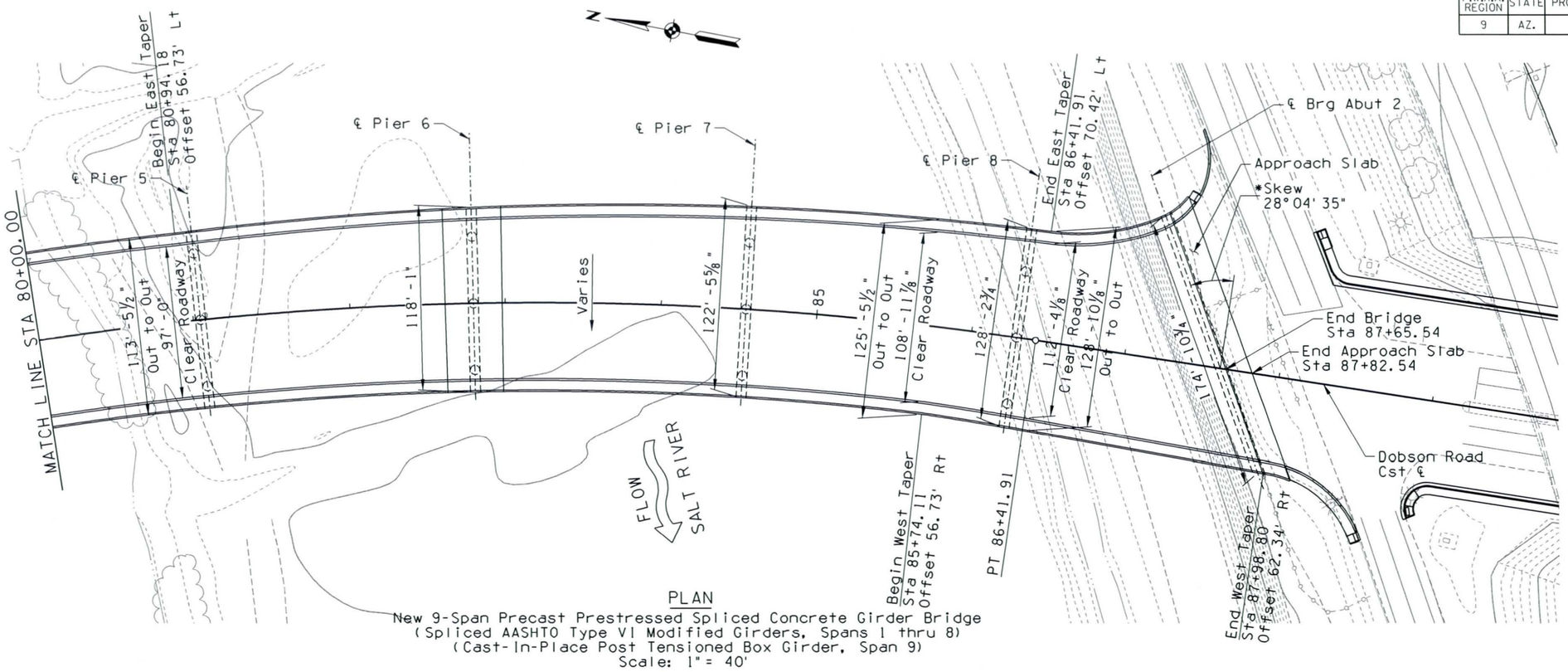
SHEET OF 1

TRACS NO.

ADOT 12:10:15 PM 1/29/2010 TT199D2bpln01.bsr

English

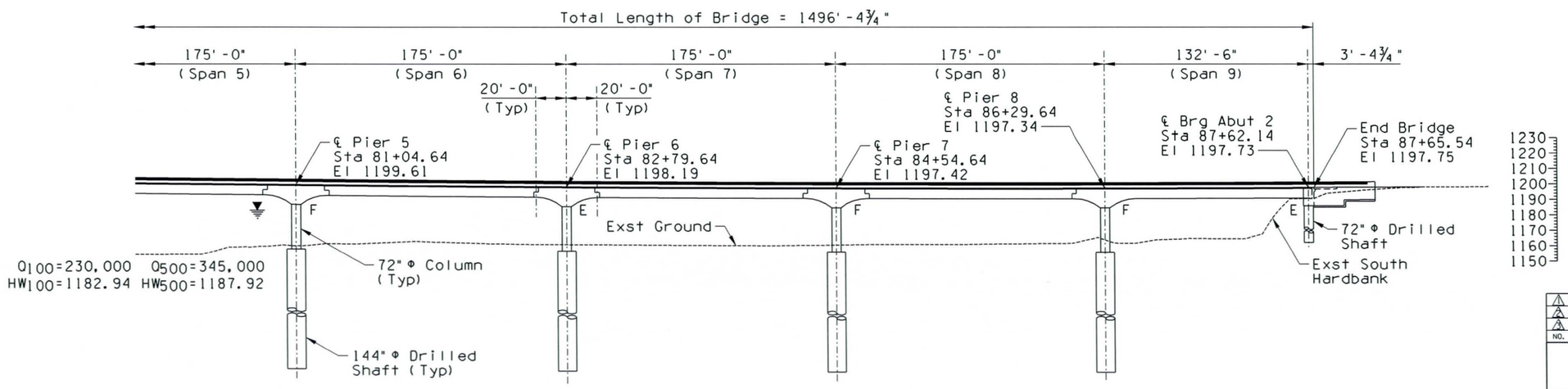
F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



PLAN

New 9-Span Precast Prestressed Spliced Concrete Girder Bridge
(Spliced AASHTO Type VI Modified Girders, Spans 1 thru 8)
(Cast-In-Place Post Tensioned Box Girder, Span 9)
Scale: 1" = 40'

* Measured perpendicular to the tangent of Dobson Road Const ℄.



ELEVATION

(Stations and Elevations are measured along Dobson Road Cst ℄)
Scale: 1" = 40'

NOTE:

All Piers and Abutment 1 are constructed radial to the Dobson Road Construction Centerline.

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
DOBSON ROAD BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	R. BRANTLEY	07/31/09
DRAWN	J. GILMORE	07/31/09
CHECKED	S. LEE	07/31/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GENERAL PLAN 2 - ALT 2

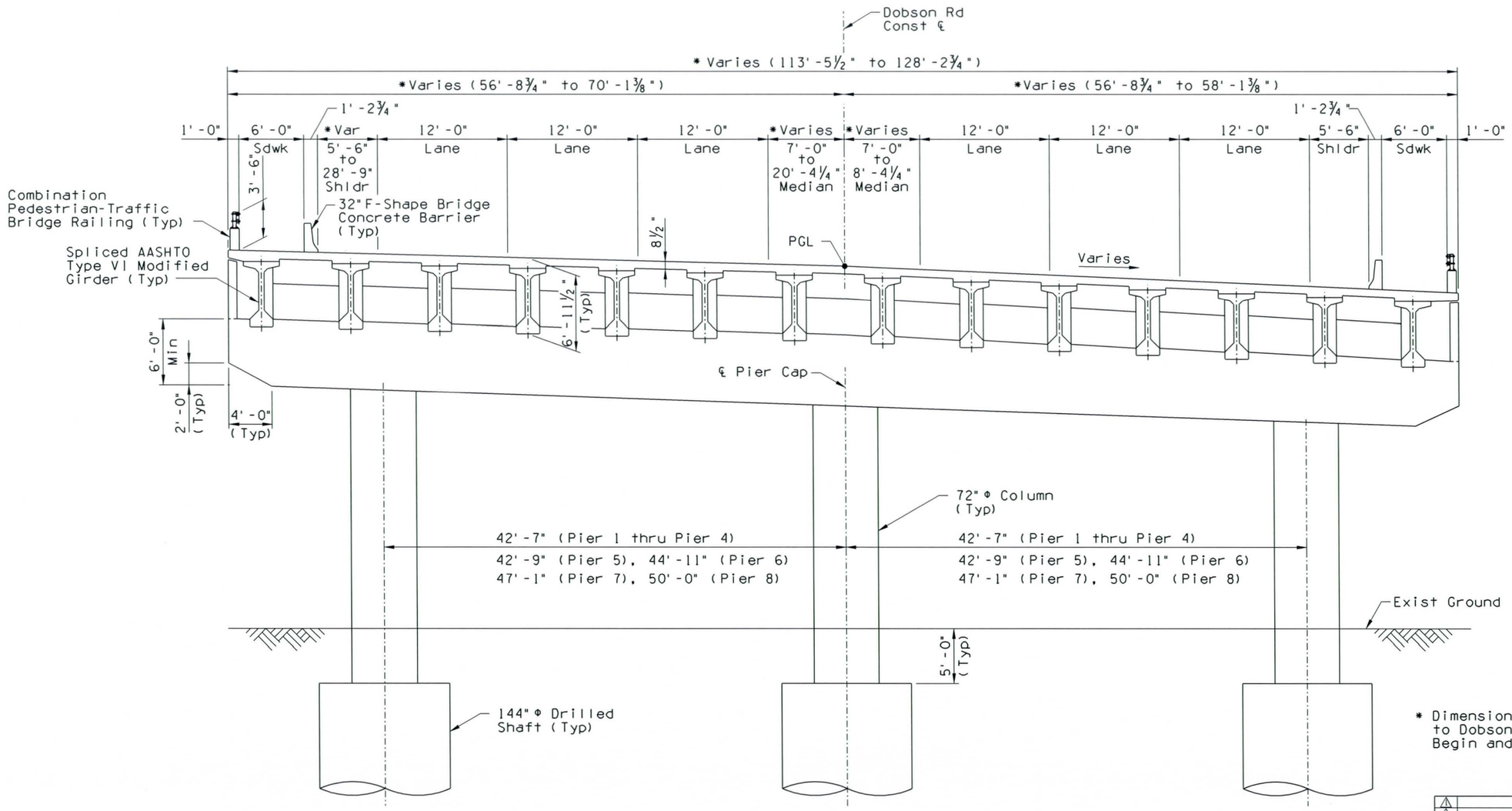
SHEET OF 2

TRACS NO.

TT199D2bpln02.bar 12/9/2010 12:10:21 PM ADOT

English

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



* Dimensions measured perpendicular to Dobson Road Construction ℄ & at Begin and ℄ Pier 8.

TYPICAL SECTION
(Span 1 thru Span 8)
Scale: 3/16" = 1'-0"

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
DOBSON ROAD BRIDGE

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	R. BRANTLEY	07/22/09
DRAWN	J. GILMORE	07/22/09
CHECKED	S. LEE	07/22/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

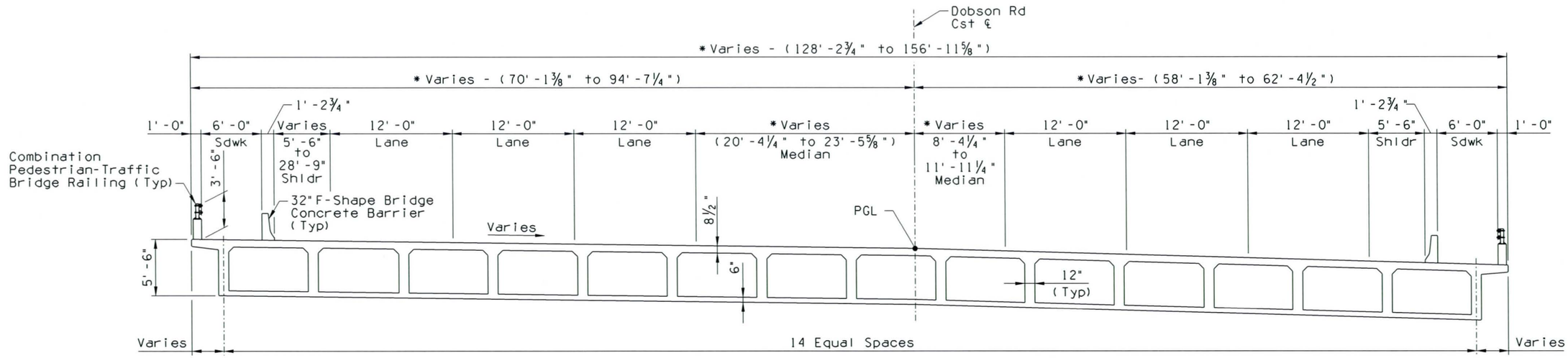
TYPICAL SECTION 1 - ALT 2

SHEET OF 3

TRACS NO.

ADOT 12:10:29 PM 1/29/2010 TT199D2bpln03.bsr

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



TYPICAL SECTION
Cast-in-Place Post-Tensioned Box Girder
(Span 9 Only)
Scale: 3/16" = 1'-0"

* Dimensions measured perpendicular to Dobson Road Construction ℄ & at ℄ Pier 8 and End Bridge.

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
DOBSON ROAD BRIDGE

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	R. BRANTLEY	07/31/09
DRAWN	J. GILMORE	07/31/09
CHECKED	S. LEE	07/31/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

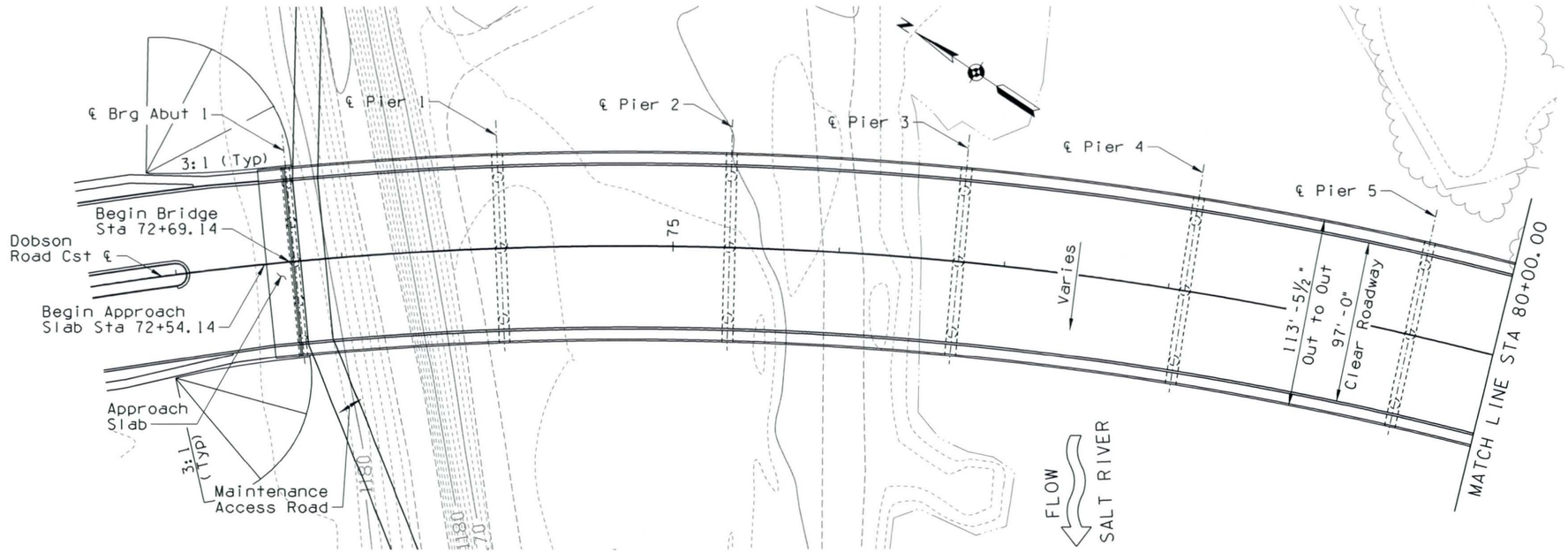
TYPICAL SECTION 2 - ALT 2

SHEET 4 OF

TRACS NO.

ADOT 12:10:37 PM 1/29/2010 TT199D2bpln04.bar

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

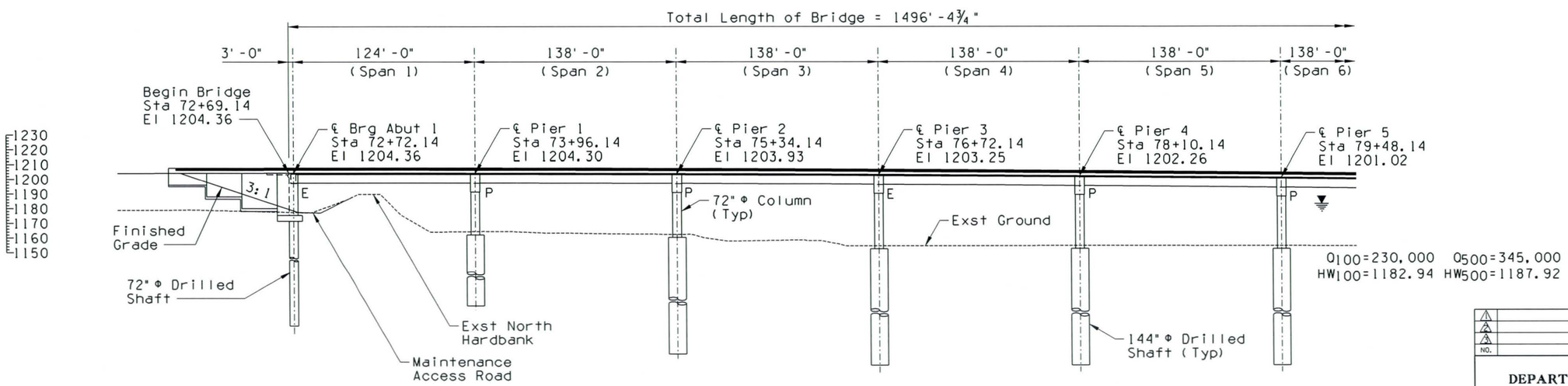


PLAN

New 11-Span Precast Prestressed Concrete Girder Bridge (Alt 3 and 3A)
(AASHTO Type VI Modified Girders)
Scale: 1" = 40'

NOTE:

All Piers and Abutment 1 are constructed radial to the Dobson Road Construction Centerline.



ELEVATION

(Stations and Elevations are measured along Dobson Road Cst ℄)
Scale: 1" = 40'

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
DOBSON ROAD BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	R. BRANTLEY	07/31/09
DRAWN	J. GILMORE	07/31/09
CHECKED	S. LEE	07/31/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GENERAL PLAN 1 - ALT 3/3A

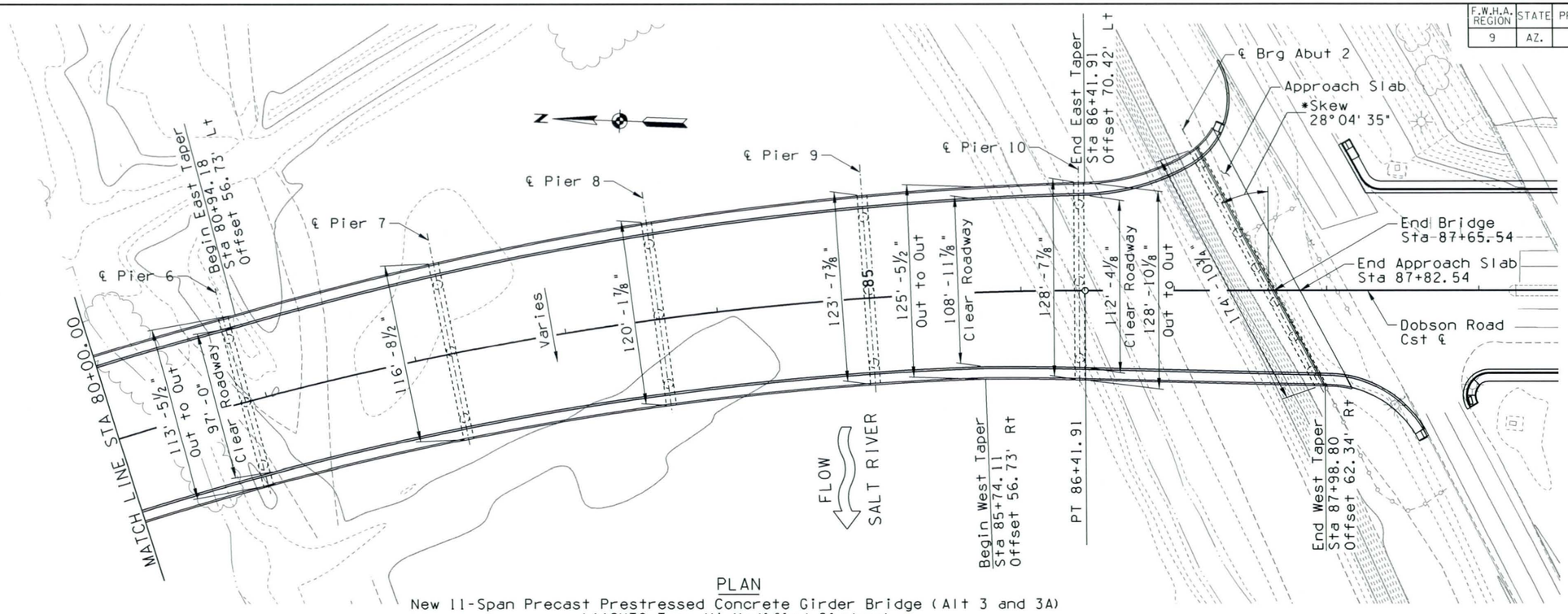
SHEET OF 1

TRACS NO.

English

ADOT 12:10:48 PM 12/9/2010 TT199D3bpln01.bsr

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



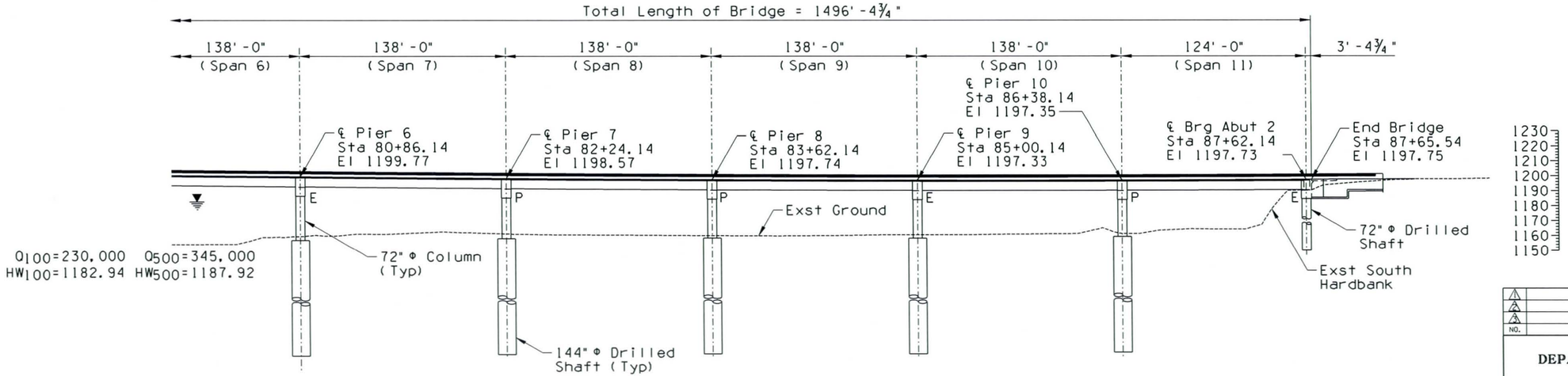
PLAN

New 11-Span Precast Prestressed Concrete Girder Bridge (Alt 3 and 3A)
(AASHTO Type VI Modified Girders)
Scale: 1" = 40'

* Measured perpendicular to the tangent of Dobson Road Const ℄.

NOTE:

All Piers and Abutment 1 are constructed radial to the Dobson Road Construction Centerline.



ELEVATION

(Stations and Elevations are measured along Dobson Road Cst ℄)
Scale: 1" = 40'

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
DOBSON ROAD BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	R. BRANTLEY	07/31/09
DRAWN	J GILMORE	07/31/09
CHECKED	S. LEE	07/31/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GENERAL PLAN 2 - ALT 3/3A

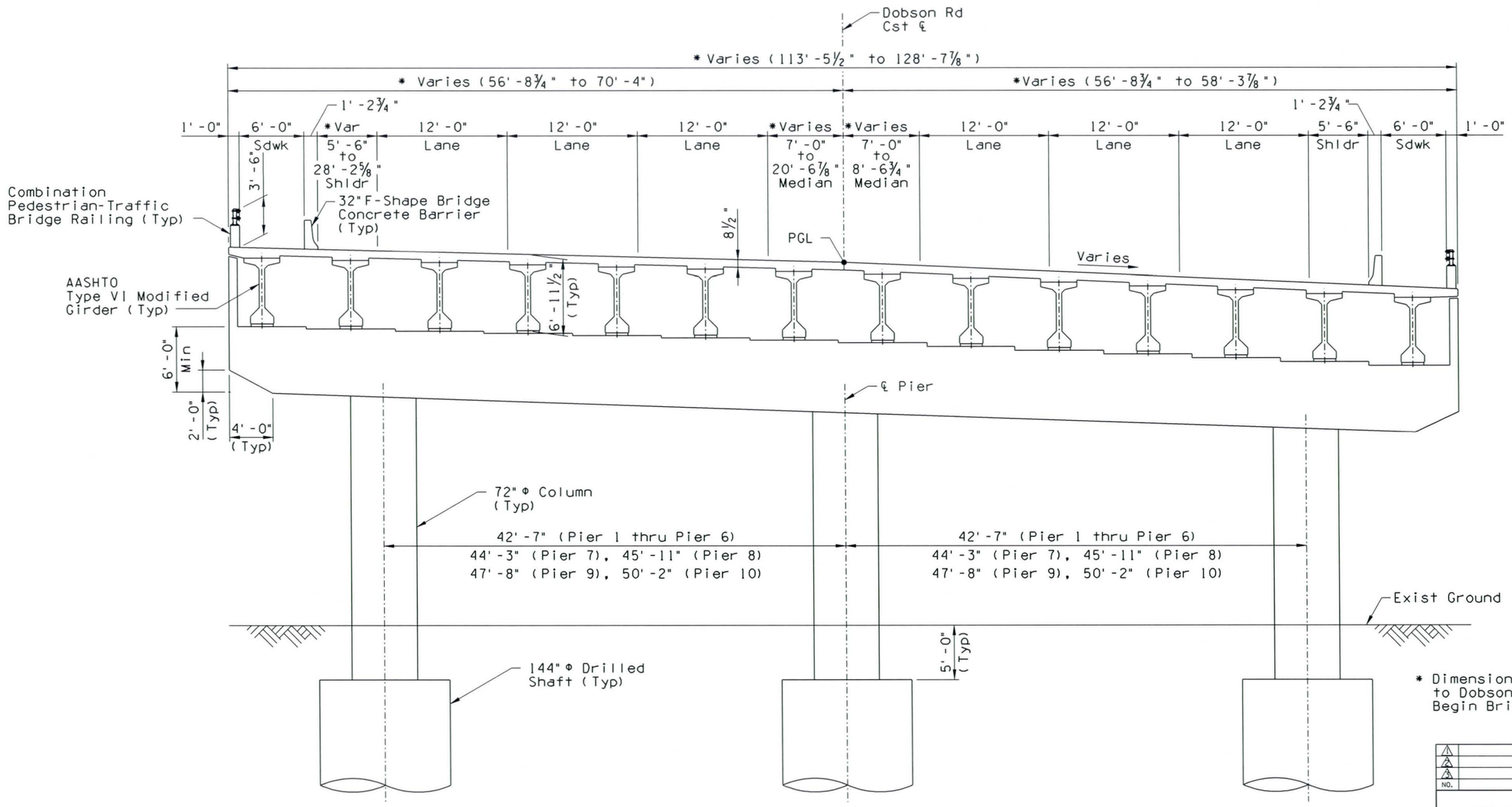
SHEET OF 2

TRACS NO.

ADOT 12:10:55 PM 1/29/2010 TT199D3bpln02.bsr

English

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



* Dimensions measured perpendicular to Dobson Road Construction ℄ & at Begin Bridge and End Bridge Stations.

TYPICAL SECTION
(Span 1 thru Span 11 Alt 3)
(Span 1 thru Span 10 Alt 3A)
Scale: 3/16" = 1'-0"

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
DOBSON ROAD BRIDGE

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	R. BRANTLEY	07/31/09
DRAWN	J. GILMORE	07/31/09
CHECKED	S. LEE	07/31/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

TYPICAL SECTION 1 - ALT 3/3A

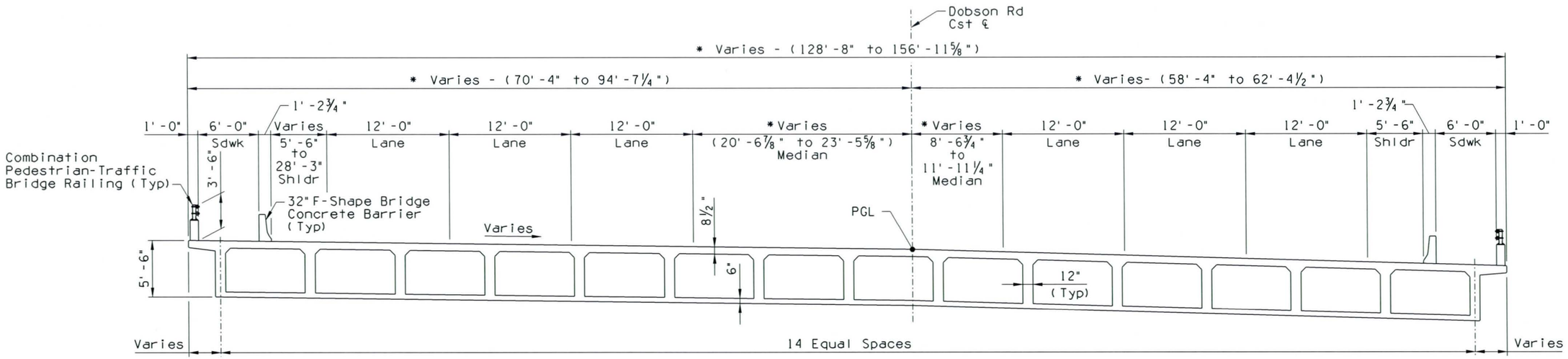
SHEET OF
3

TRACS NO.

English

ADOT 12:11:03 PM 1/29/2010 TT199D3bpin03.bsr

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



* Dimensions measured perpendicular to Dobson Road Construction ℄ & at ℄ Pier 8 and End Bridge.

TYPICAL SECTION
Cast-in-Place Post-Tensioned Box Girder
(Span 11, Alternate 3A Only)
Scale: 3/16" = 1'-0"

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
DOBSON ROAD BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	R. BRANTLEY	07/31/09
DRAWN	J. GILMORE	07/31/09
CHECKED	S. LEE	07/31/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

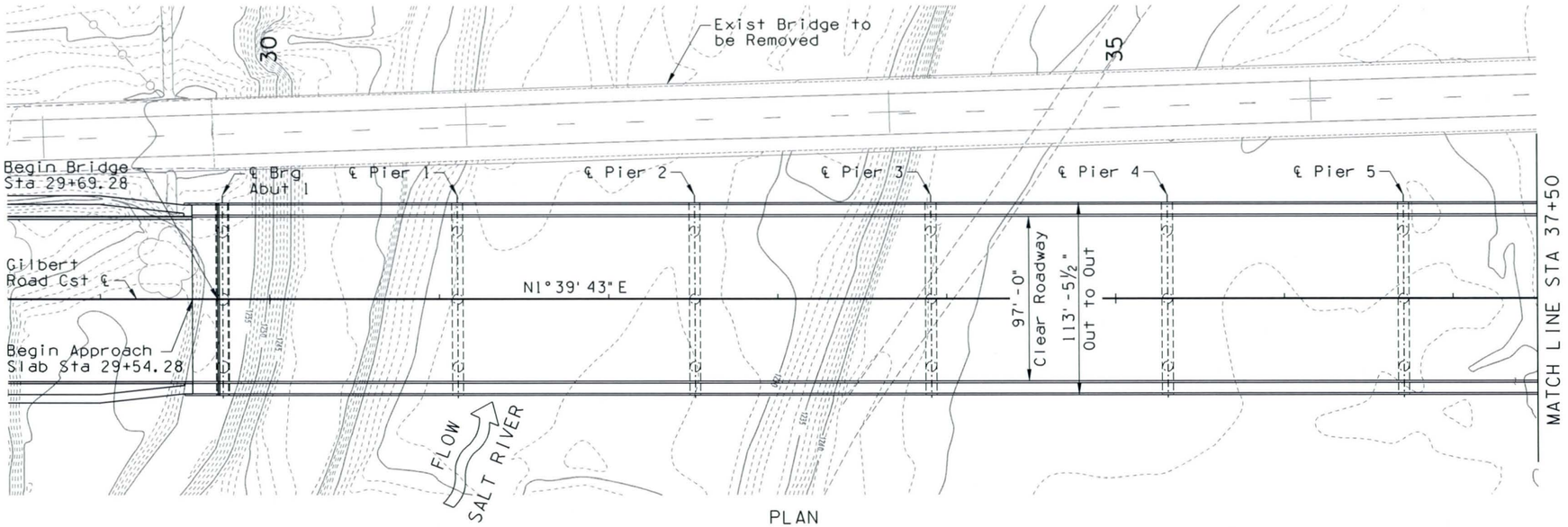
TYPICAL SECTION 2 - ALT 3A

SHEET OF 4

TRACS NO.

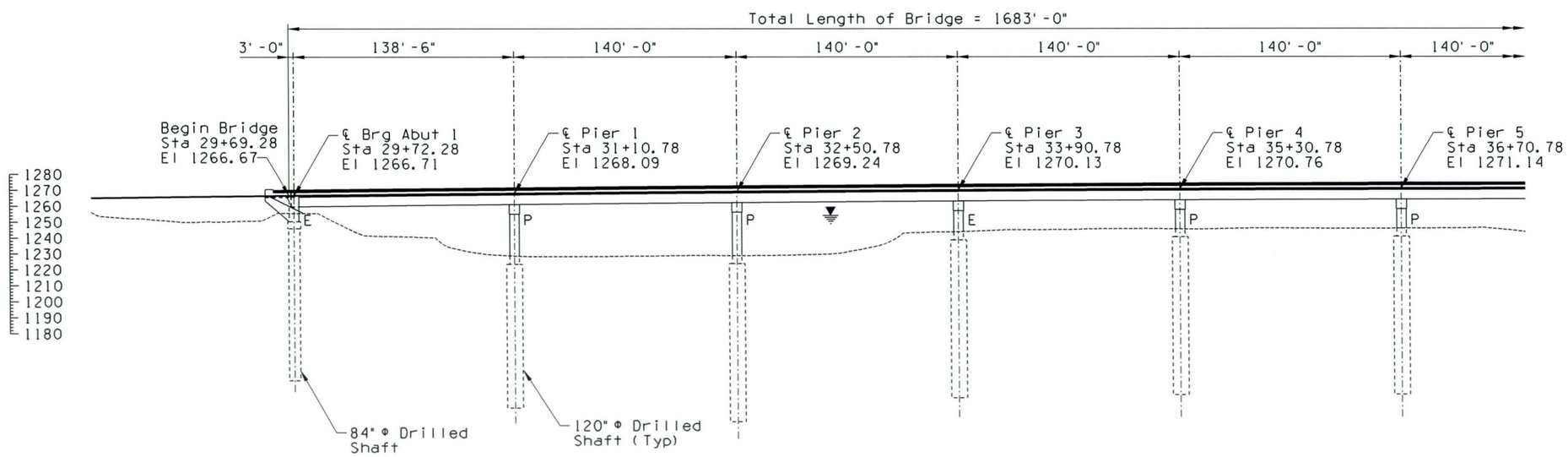
ADOT 12:11:11 PM 1/29/2010 TT199D3bpln04.bsr

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



PLAN

New 12-Span Precast Prestressed Concrete Girder Bridge
(AASHTO Modified Type VI)
Scale: 1" = 40'-0"



Q_{100}=175,000 Q_{500}=250,000
HW_{100}=1252.31 HW_{500}=1254.15

ELEVATION

(Stations and Elevations are measured along Gilbert Road Cst ℄)
Scale: 1" = 40'-0"

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
GILBERT RD. BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	A. GHAZANFARI	07/02/09
DRAWN	J. DAVILA	07/02/09
CHECKED	C. RODRIGUEZ	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GENERAL PLAN 1 - ALT 1

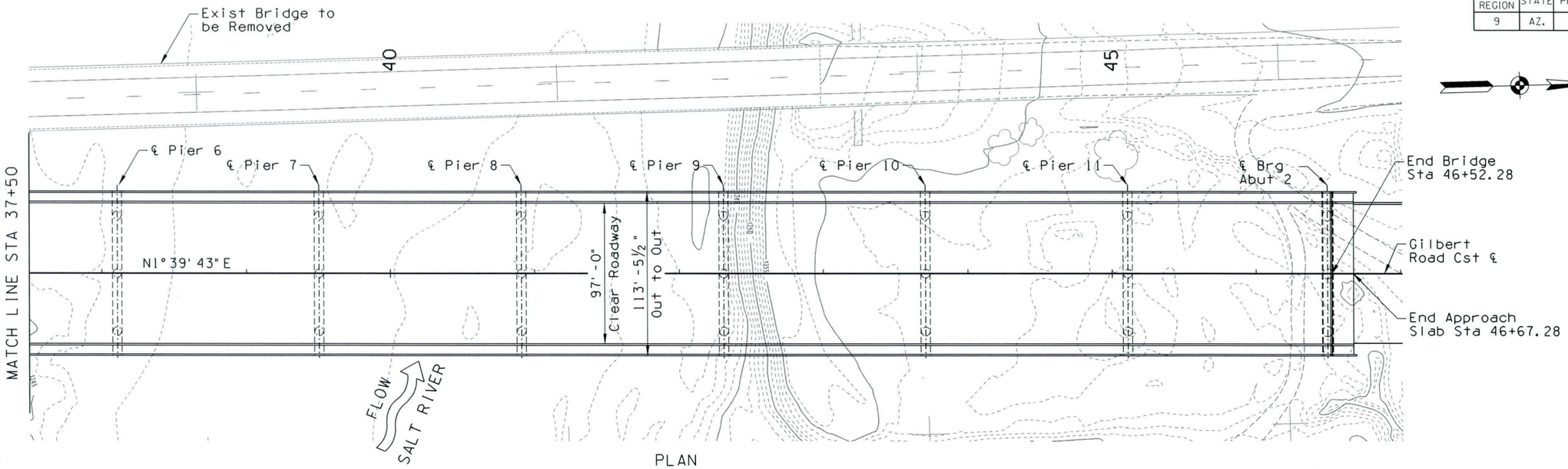
SHEET 1 OF

TRACS NO.

English

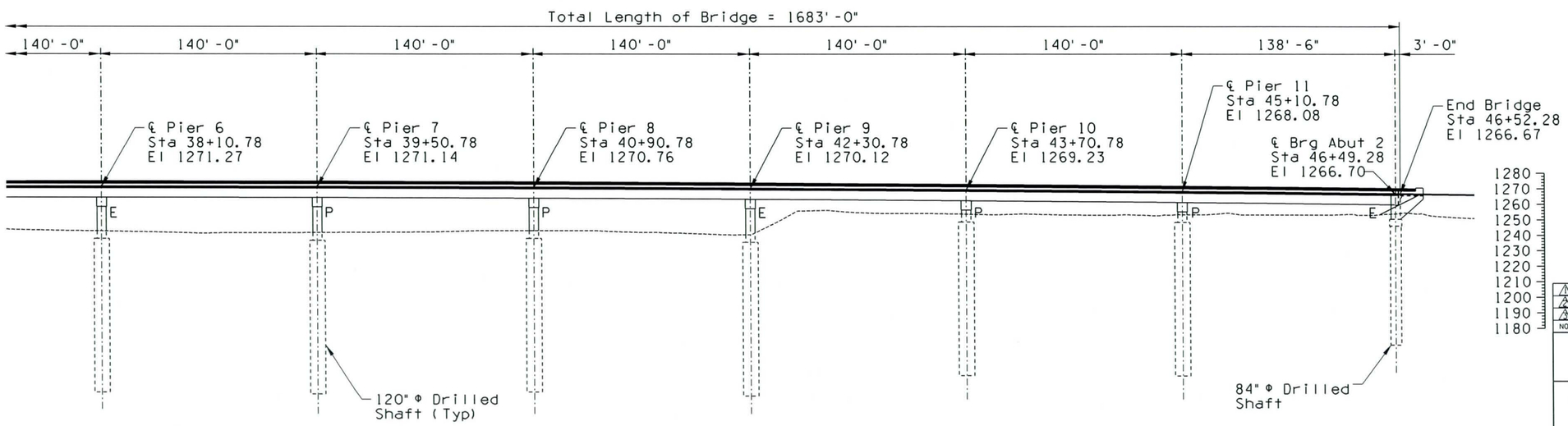
TT199Gtbpln01.bsr 12/9/2010 12:11:25 PM ADOT

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



PLAN

New 12-Span Precast Prestressed Concrete Girder Bridge
(AASHTO Modified Type VI)
Scale: 1" = 40'-0"



Q_{100}=175,000 Q_{500}=250,000
HW_{100}=1252.31 HW_{500}=1254.15

ELEVATION

(Stations and Elevations are measured along Gilbert Road Cst ℄)
Scale: 1" = 40'-0"

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
GILBERT RD. BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	A. GHAZANFARI	07/02/09
DRAWN	J. DAVILA	07/02/09
CHECKED	C. RODRIGUEZ	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GENERAL PLAN 2 - ALT 1

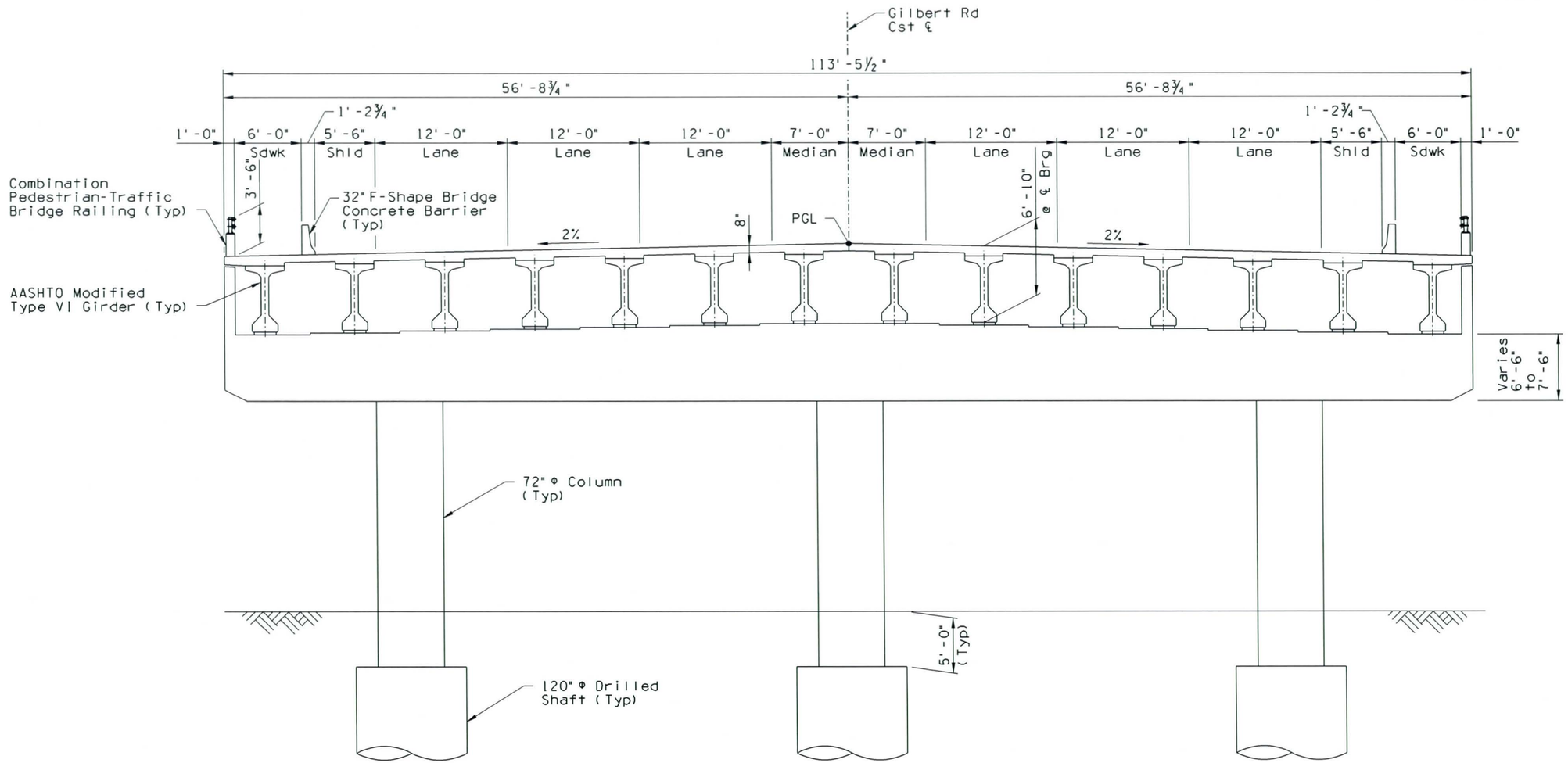
SHEET OF 2

TRACS NO.

TT199G1bpln02.bsr 12/9/2010 12:11:35 PM ADOT

usfeet

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



TYPICAL SECTION

Scale: 3/16" = 1' -0"

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
GILBERT RD. BRIDGE

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	A. GHAZANFARI	07/02/09
DRAWN	J. DAVILA.	07/02/09
CHECKED	C. RODRIGUEZ	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

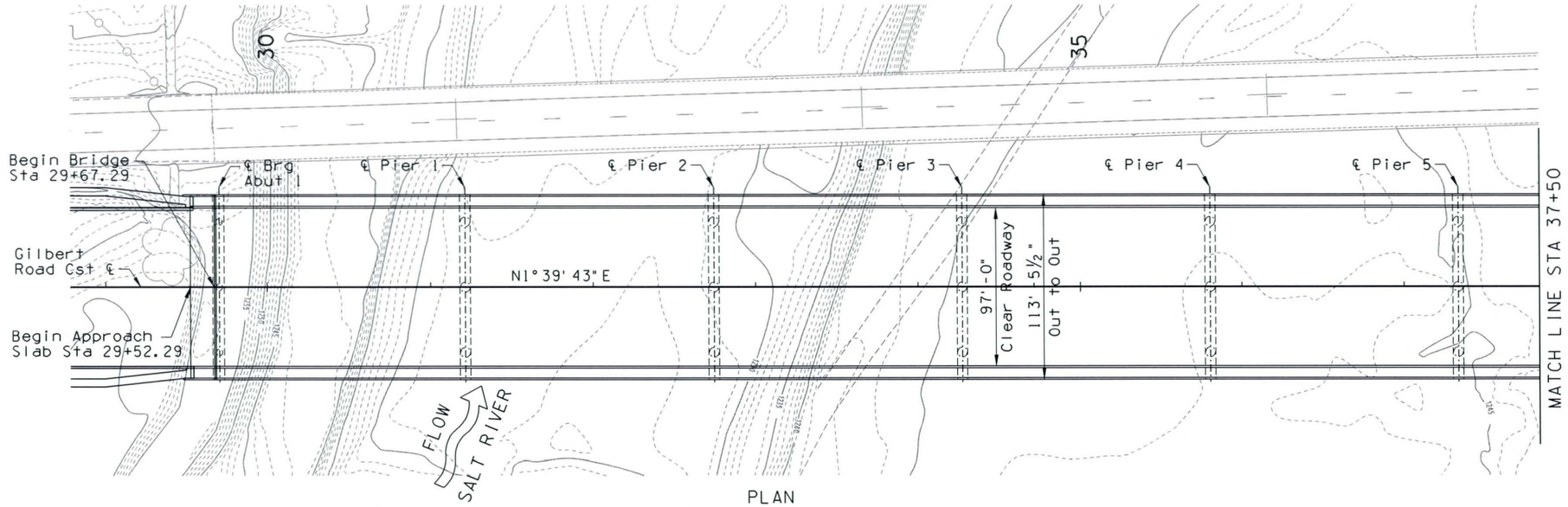
TYPICAL SECTION - ALT 1

SHEET OF 3

TRACS NO.

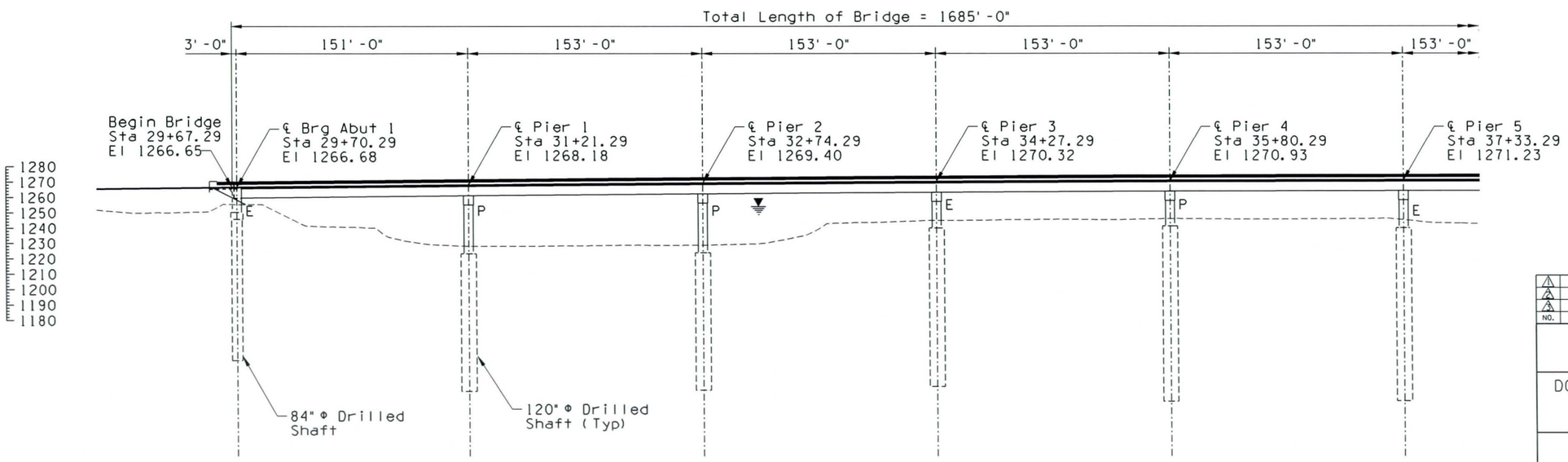
ADOT 12:11:45 PM 1/29/2010 TT199G1bpln03.bar

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



PLAN

New 11-Span Precast Prestressed Concrete Girder Bridge
(AASHTO Super VI)
Scale: 1" = 40'-0"



O_{100}=175.000 O_{500}=250.000
HW_{100}=1252.31 HW_{500}=1254.15

ELEVATION

(Stations and Elevations are measured along Gilbert Road Cst ℄)
Scale: 1" = 40'-0"

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
GILBERT RD. BRIDGE

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	A. GHAZANFARI	07/02/09
DRAWN	J. DAVILA	07/02/09
CHECKED	C. RODRIGUEZ	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GENERAL PLAN 1 - ALT 2

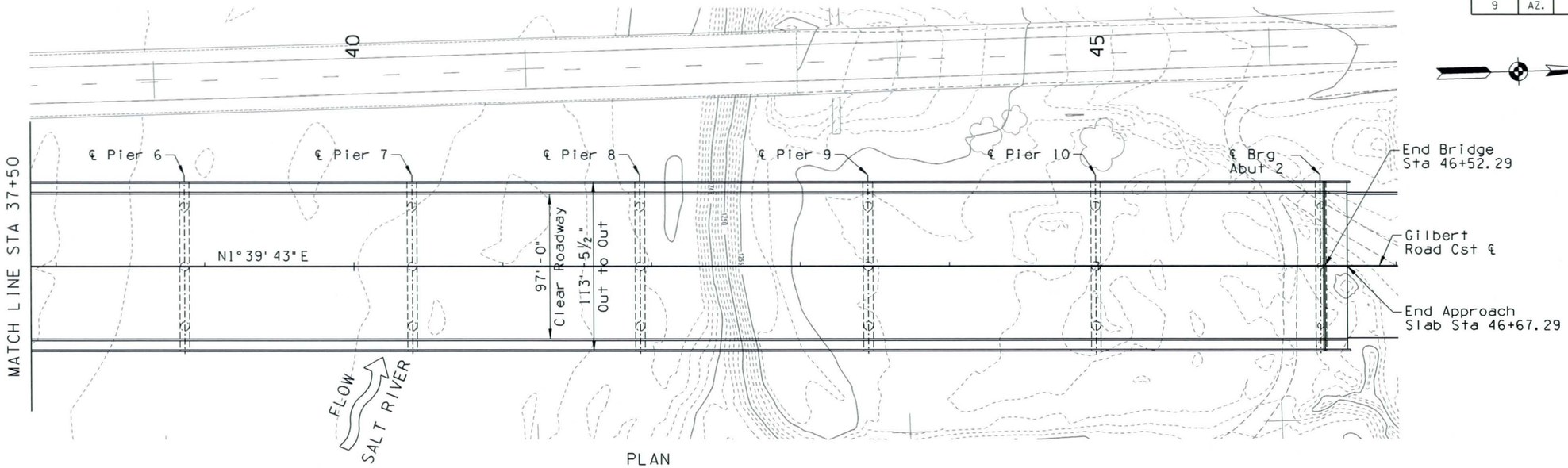
SHEET OF
1

TRACS NO.

TT199G2bpln01.bsr 12:12:01 PM 1/29/2010 ADOT

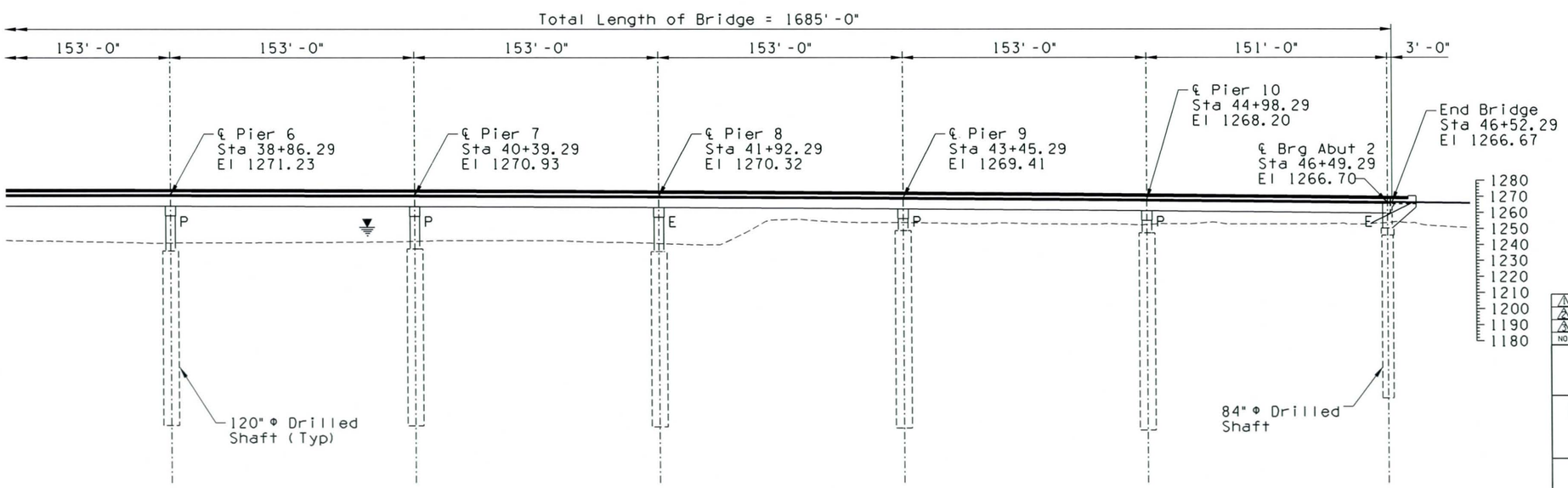
English

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



PLAN

New 11-Span Precast Prestressed Concrete Girder Bridge
(AASHTO Super VI)
Scale: 1" = 40'-0"



Q_{100}=175,000 Q_{500}=250,000
HW_{100}=1252.31 HW_{500}=1254.15

ELEVATION

(Stations and Elevations are measured along Gilbert Road Cst ℄)
Scale: 1" = 40'-0"

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
GILBERT RD. BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	A. GHAZFANFARI	07/02/09
DRAWN	J. DAVILA	07/02/09
CHECKED	C. RODRIGUEZ	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

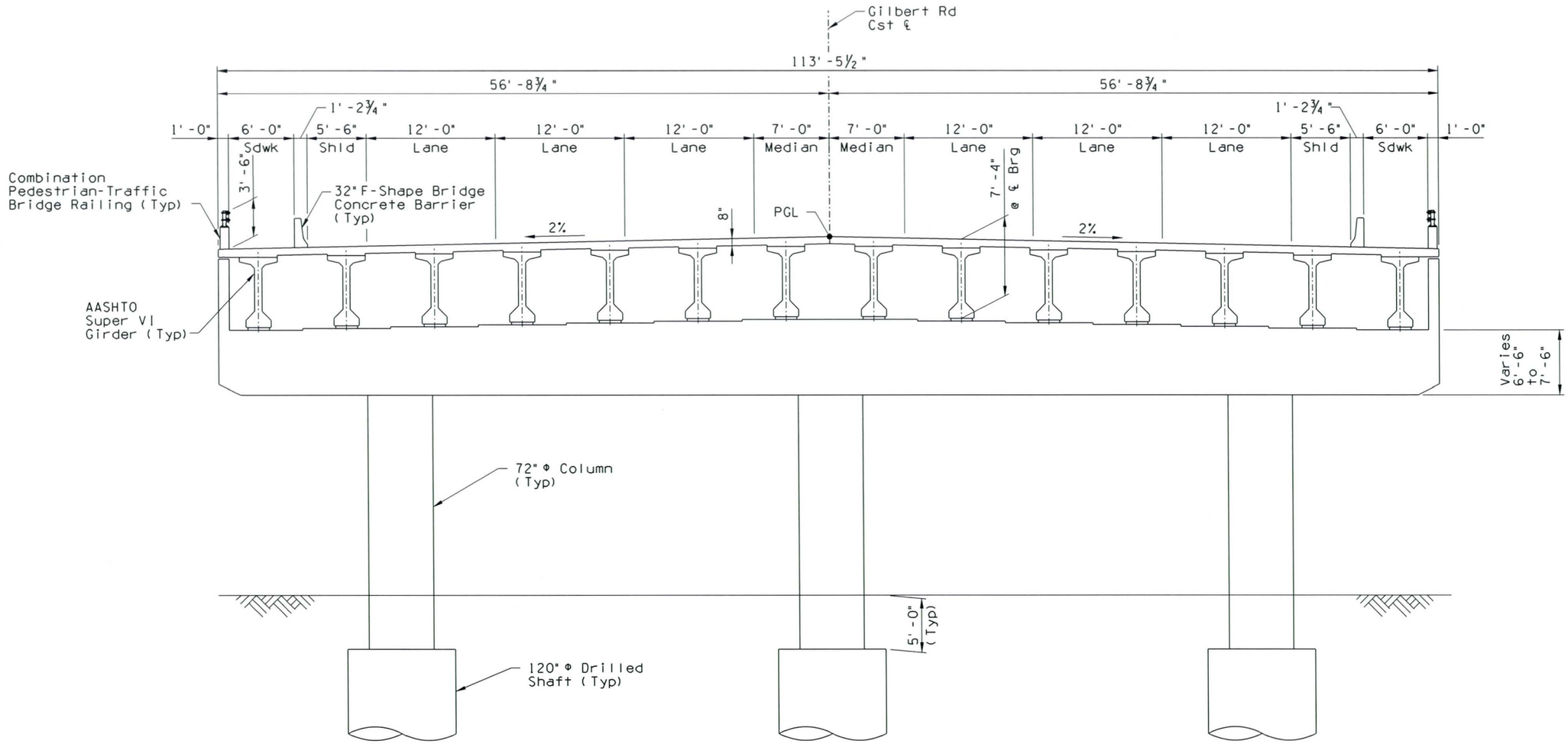
GENERAL PLAN 2 - ALT 2

SHEET OF 2

TRACS NO.

TT199G2bpln02.bsr 12/29/2010 12:12:12 PM ADOT

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



TYPICAL SECTION

Scale: 3/16" = 1' -0"

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
GILBERT RD. BRIDGE

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	A. GHAZANFARI	07/02/09
DRAWN	J. DAVILA.	07/02/09
CHECKED	C. RODRIGUEZ	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

TYPICAL SECTION - ALT 2

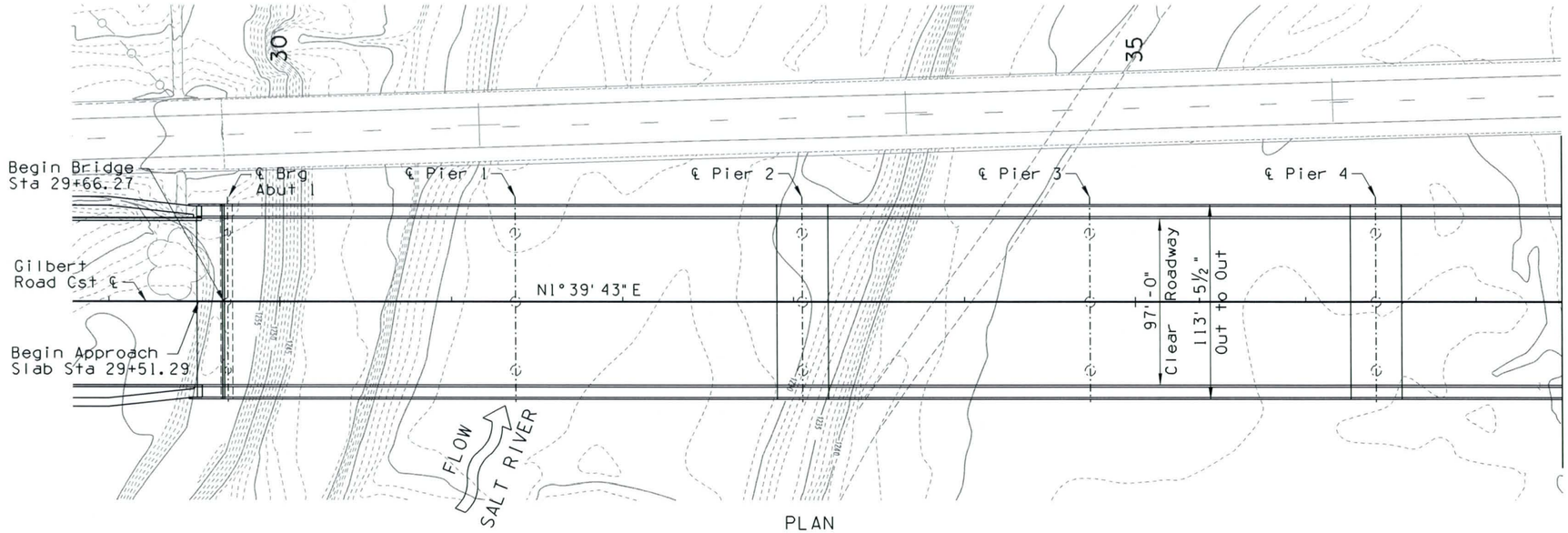
SHEET OF 3

TRACS NO.

English

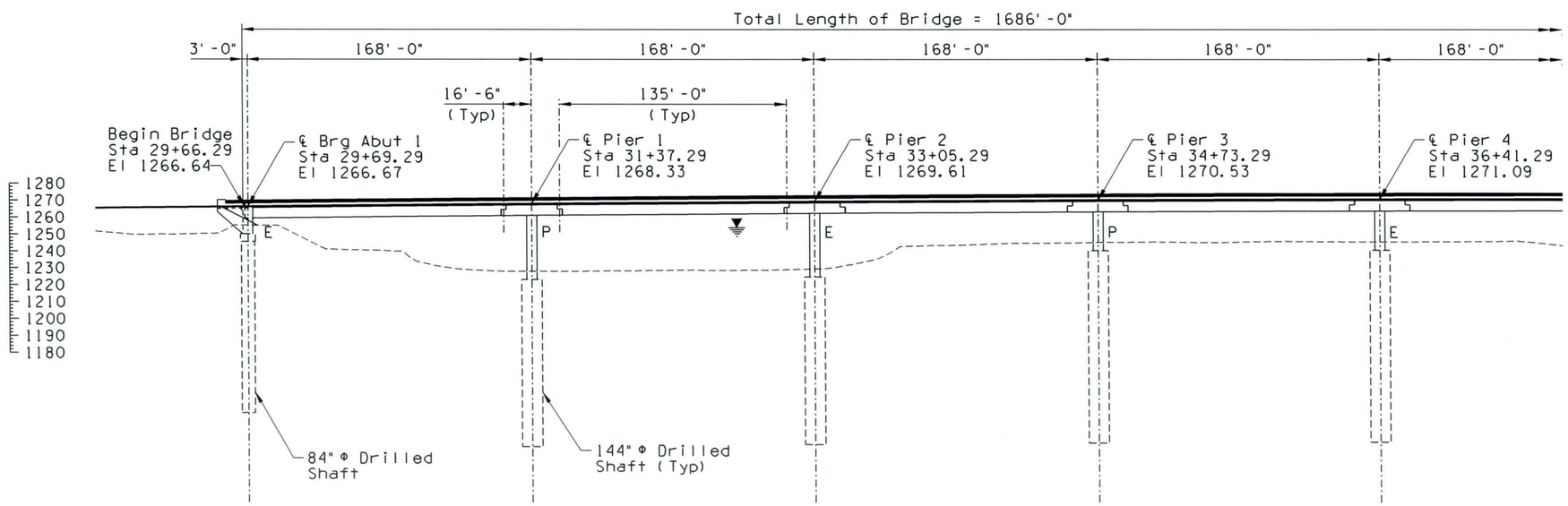
ADOT 12:12:21 PM 1/29/2010 TT199G2bpln03.bsr

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



PLAN

New 10-Span Post-Tensioned/Precast Prestressed
Concrete Spliced Girder Bridge
(AASHTO Type Super VI)
Scale: 1" = 40'-0"



Q_{100}=175,000 Q_{500}=250,000
HW_{100}=1252.31 HW_{500}=1254.15

ELEVATION

(Stations and Elevations are measured along Gilbert Road Cst ℄)
Scale: 1" = 40'-0"

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
GILBERT RD. BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	A. GHAZFANFARI	07/02/09
DRAWN	J. DAVILA	07/02/09
CHECKED	C. RODRIGUEZ	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GENERAL PLAN 1 - ALT 3

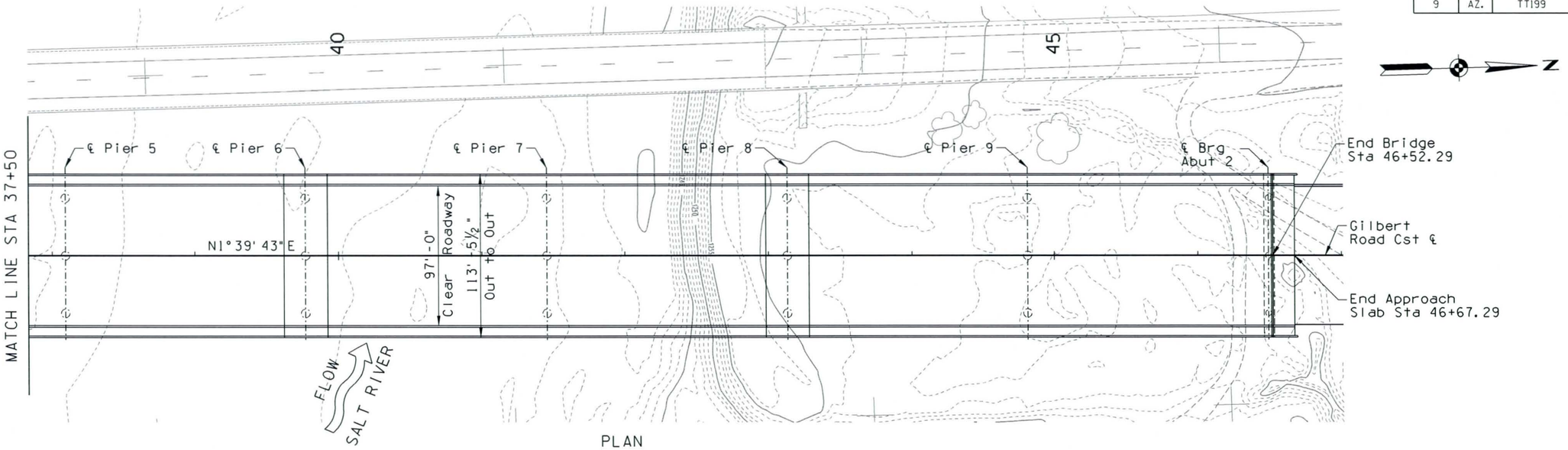
SHEET 1 OF

TRACS NO.

English

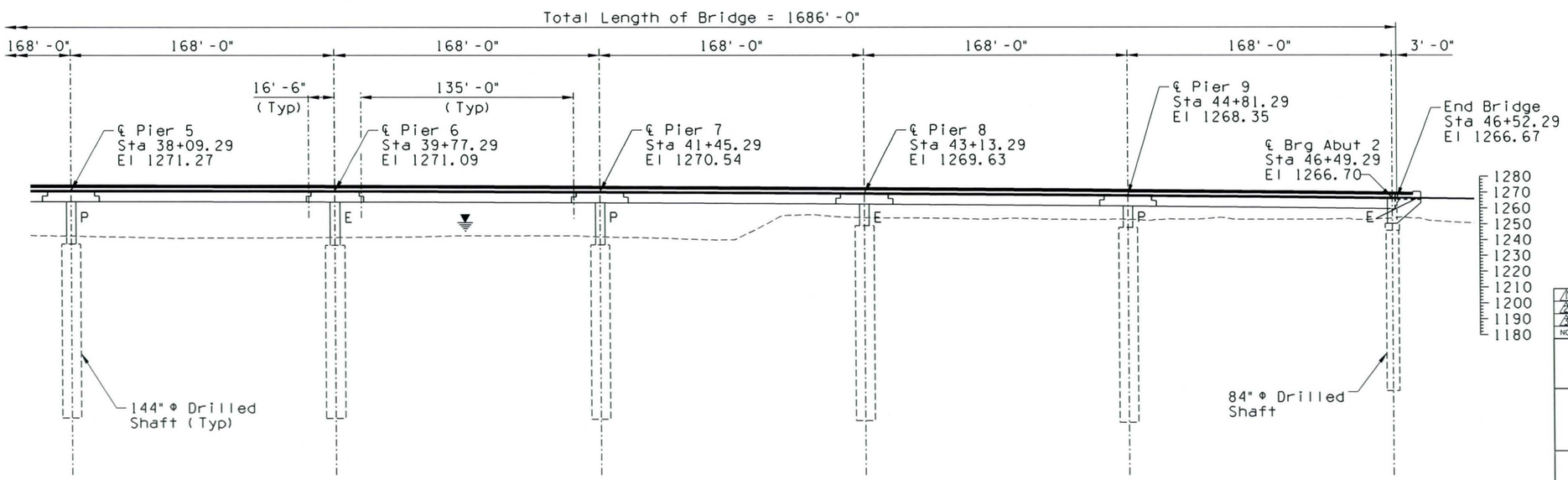
ADOT 12:12:36 PM 1/29/2010 TT199G3bpln01.bsr

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



PLAN

New 10-Span Post-Tensioned/Precast Prestressed
Concrete Spliced Girder Bridge
(AASHTO Type Super VI)
Scale: 1" = 40'-0"



Q_{100}=175,000 Q_{500}=250,000
HW_{100}=1252.31 HW_{500}=1254.15

ELEVATION

(Stations and Elevations are measured along Gilbert Road Cst ℄)
Scale: 1" = 40'-0"

NO.	REVISION	BY	DATE
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
GILBERT RD. BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	A. GHAZANFARI	07/02/09
DRAWN	J. DAVILA	07/02/09
CHECKED	C. RODRIGUEZ	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GENERAL PLAN 2 - ALT 3

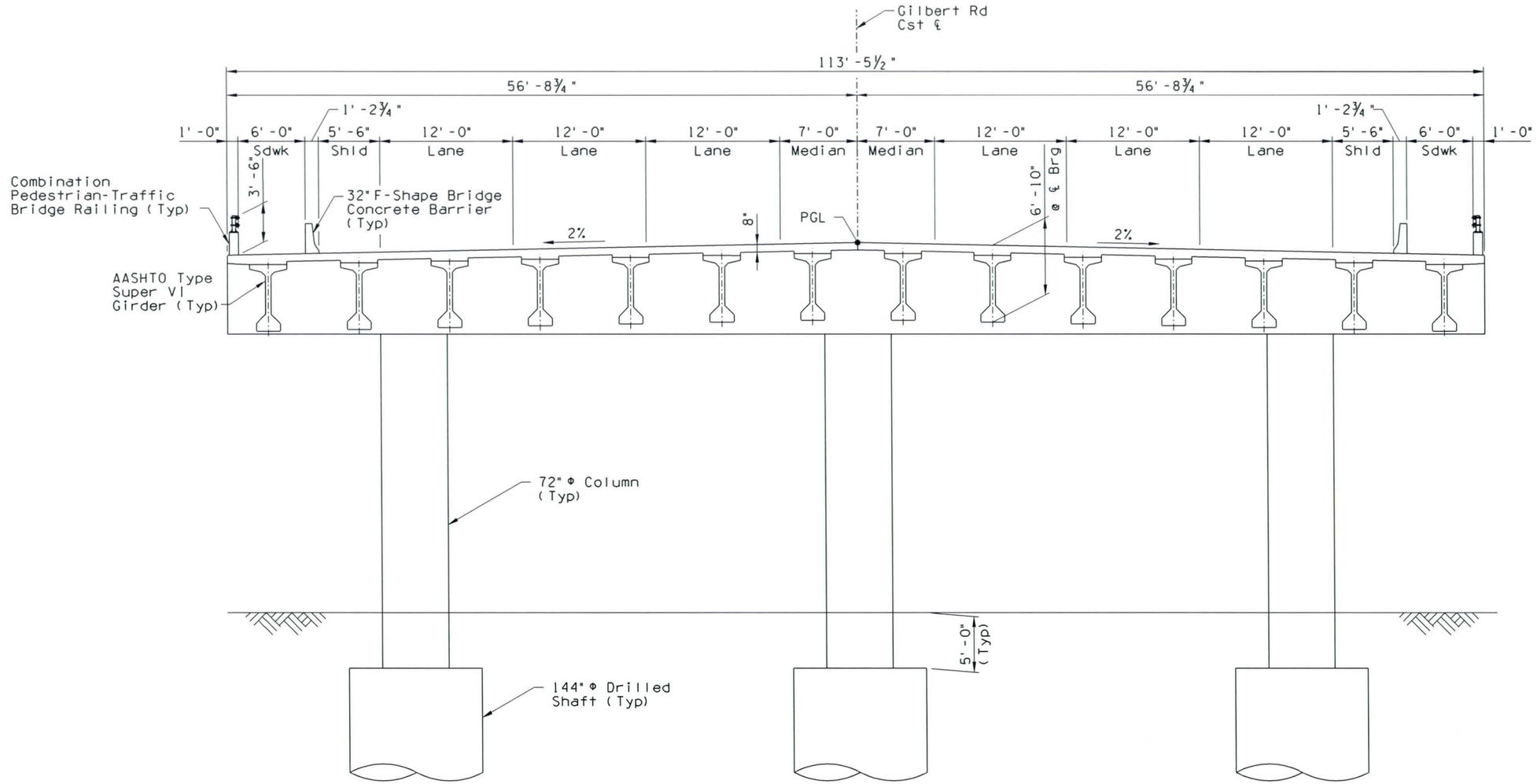
SHEET OF 2

TRACS NO.

English

TT199G3bpln02.bsr 1/29/2010 12:12:46 PM ADOT

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



TYPICAL SECTION

Scale: 3/16" = 1' -0"

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
GILBERT RD. BRIDGE

		BY	DATE
PRELIMINARY NOT FOR CONSTRUCTION	DESIGNED	A. GHAZANFARI	07/02/09
	DRAWN	J. DAVILA.	07/02/09
	CHECKED	C. RODRIGUEZ	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

TYPICAL SECTION - ALT 3

SHEET OF 3

TRACS NO.

English

ADOT 12:12:56 PM 12/9/2010 TT199G3bpin03.bsr

APPENDIX G-2

Quantities and Cost Estimates

McKELLIPS ROAD BRIDGE
ALTERNATIVE 1 - 12-SPAN AASHTO TYPE VI GIRDER BRIDGE

DESCRIPTION	UNIT	UNIT COST	QUANTITY	COST
STRUCTURAL EXCAVATION	CY	$20.00	80	$1,600
STRUCTURE BACKFILL	CY	$40.00	600	$24,000
STRUCTURAL CONCRETE(CLASS AA)(F'C=3,500)	CY	$450.00	3,351	$1,507,950
STRUCTURAL CONCRETE(CLASS AA)(F'C=4,500)	CY	$550.00	7,392	$4,065,600
F-SHAPE BRIDGE CONCRETE BARRIER AND TRANSITION (32 INCH)	LF	$80.00	3,287	$262,960
COMBINATION PEDESTRIAN-TRAFFIC BRIDGE RAILING	LF	$100.00	3,244	$324,400
DECK JOINT ASSEMBLY(STRIP SEAL)	LF	$200.00	610	$122,000
APPROACH SLAB	SF	$60.00	3,660	$219,600
PRECAST, P/S MEMBER (AASHTO TYPE VI GIRDER)	LF	$185.00	20,463	$3,785,655
RESTRAINERS, VERTICAL EARTHQUAKE (FIXED)	EA	$150.00	30	$4,500
RESTRAINERS, VERTICAL EARTHQUAKE (EXPANSION)	EA	$200.00	48	$9,600
REINFORCING STEEL	LB.	$1.25	1,913,450	$2,391,813
DRILLED SHAFT FOUNDATION (72")	LF	$650.00	950	$617,500
DRILLED SHAFT FOUNDATION (120")	LF	$2,000.00	4686	$9,372,000
		SUBTOTAL:		$22,709,178
		CONTINGENCY:	**15%**	$3,406,377
		TOTAL COST:		$26,115,554
		TOTAL COST/SF:		$144.55

Structure Name: **McKELLIPS ROAD BRIDGE - ALTERNATIVE 1**
Superstructure Type: **12-Span AASHTO Type VI Girder**
Substructure Type: **Stub Abutments & Column Piers**
Foundation Type: **Drilled Shafts**
No. of Spans : **12**
Skew (deg): **0°**

Total Length (ft): 1592.42
Width (Out to Out) (ft): 113.46
Area (sq ft): 180,673.32

McKELLIPS ROAD BRIDGE
ALTERNATIVE 2 - 11-SPAN AASHTO TYPE SUPER VI GIRDER BRIDGE

DESCRIPTION	UNIT	UNIT COST	QUANTITY	COST
STRUCTURAL EXCAVATION	CY	$20.00	70	$1,400
STRUCTURE BACKFILL	CY	$40.00	550	$22,000
STRUCTURAL CONCRETE(CLASS AA)(F'C=3,500)	CY	$450.00	2,886	$1,298,700
STRUCTURAL CONCRETE(CLASS AA)(F'C=4,500)	CY	$550.00	7,203	$3,961,650
F-SHAPE BRIDGE CONCRETE BARRIER AND TRANSITION (32 INCH)	LF	$80.00	3,258	$260,640
COMBINATION PEDESTRIAN-TRAFFIC BRIDGE RAILING	LF	$100.00	3,258	$325,800
DECK JOINT ASSEMBLY(STRIP SEAL)	LF	$200.00	687	$137,400
APPROACH SLAB	SF	$60.00	3,342	$200,520
PRECAST, P/S MEMBER (AASHTO TYPE SUPER VI GIRDER)	LF	$215.00	20,575	$4,423,625
RESTRAINERS, VERTICAL EARTHQUAKE (FIXED)	EA	$150.00	36	$5,400
RESTRAINERS, VERTICAL EARTHQUAKE (EXPANSION)	EA	$200.00	36	$7,200
REINFORCING STEEL	LB.	$1.25	1,865,130	$2,331,413
DRILLED SHAFT FOUNDATION (72")	LF	$650.00	1000	$650,000
DRILLED SHAFT FOUNDATION (120")	LF	$2,000.00	4560	$9,120,000
		SUBTOTAL:		$22,745,748
		CONTINGENCY:	**15%**	$3,411,862
		TOTAL COST:		$26,157,610
		TOTAL COST/SF:		$144.28

Structure Name: **McKELLIPS ROAD BRIDGE - ALTERNATIVE 2**
Superstructure Type: **AASHTO Type Super VI Girder**
Substructure Type: **Stub Abutments & Column Piers**
Foundation Type: **Drilled Shafts**
No. of Spans : **11**
Skew (deg): **0**

Total Length (ft): 1597.92
Width (Out to Out) (ft): 113.46
Area (sq ft): 181,296.96

McKELLIPS ROAD BRIDGE
ALTERNATIVE 3 - 10-SPAN SPLICED AASHTO TYPE SUPER VI GIRDER BRIDGE

DESCRIPTION	UNIT	UNIT COST	QUANTITY	COST
STRUCTURAL EXCAVATION	CY	$20.00	70	$1,400
STRUCTURE BACKFILL	CY	$40.00	550	$22,000
STRUCTURAL CONCRETE(CLASS AA)(F'C=3,500)	CY	$450.00	2,647	$1,191,150
STRUCTURAL CONCRETE(CLASS AA)(F'C=4,500)	CY	$550.00	7,003	$3,851,650
F-SHAPE BRIDGE CONCRETE BARRIER AND TRANSITION (32 INCH)	LF	$80.00	3,258	$260,640
COMBINATION PEDESTRIAN-TRAFFIC BRIDGE RAILING	LF	$100.00	3,258	$325,800
DECK JOINT ASSEMBLY(STRIP SEAL)	LF	$200.00	573	$114,600
APPROACH SLAB	SF	$60.00	3,342	$200,520
PRECAST, P/S MEMBER (AASHTO TYPE SUPER VI GIRDER)	LF	$285.00	22,267	$6,346,095
POST TENSIONING STEEL (IN PLACE)	LB	$5.35	174,565	$933,923
RESTRAINERS, VERTICAL EARTHQUAKE (FIXED)	EA	$150.00	48	$7,200
RESTRAINERS, VERTICAL EARTHQUAKE (EXPANSION)	EA	$200.00	30	$6,000
REINFORCING STEEL	LB.	$1.25	1,787,455	$2,234,319
DRILLED SHAFT FOUNDATION (72")	LF	$650.00	1050	$682,500
DRILLED SHAFT FOUNDATION (120")	LF	$2,000.00	4401	$8,802,000
		SUBTOTAL:		$24,979,797
		CONTINGENCY:	**15%**	$3,746,969
		TOTAL COST:		$28,726,766
		TOTAL COST/SF:		$158.45

Structure Name: **McKELLIPS ROAD BRIDGE - ALTERNATIVE 3**
Superstructure Type: **AASHTO Type Super VI Spliced-Girder**
Substructure Type: **Stub Abutments & Column Piers**
Foundation Type: **Drilled Shafts**
No. of Spans : **10**
Skew (deg): **0**

Total Length (ft): 1597.92
Width (Out to Out) (ft): 113.46
Area (sq ft): 181,296.96

DOBSON ROAD BRIDGE
ALTERNATIVE 1 - 5 SPAN SEGMENTAL BOX GIRDER BRIDGE

DESCRIPTION	UNIT	UNIT COST	QUANTITY	COST
STRUCTURAL EXCAVATION	CY	$20.00	700	$14,000
STRUCTURE BACKFILL	CY	$40.00	691	$27,627
STRUCTURAL CONCRETE (CLASS AA) (F'C=3,500)	CY	$450.00	2,586	$1,163,873
STRUCTURAL CONCRETE (CLASS AA) (F'C=6000)	CY	$650.00	16,190	$10,523,267
F-SHAPE BRIDGE CONCRETE BARRIER AND TRANSITION (32 INCH)	LF	$80.00	3,106	$248,480
PEDESTRIAN RAILING AND CURB	LF	$100.00	3,106	$310,600
DECK JOINT ASSEMBLY (4" STRIP SEAL JOINT)	LF	$200.00	274	$54,800
APPROACH SLAB	SY	$60.00	458	$27,500
POST TENSIONING STEEL (IN PLACE)	LB	$3.85	7,634,445	$29,392,613
RESTRAINERS, VERTICAL EARTHQUAKE (FIXED)	EA	$150.00	0	$0
RESTRAINERS, VERTICAL EARTHQUAKE (EXPANSION)	EA	$200.00	0	$0
REINFORCING STEEL	LB.	$1.25	3,807,579	$4,759,474
DRILLED SHAFT FOUNDATION (72")	LF	$710.00	840	$596,400
DRILLED SHAFT FOUNDATION (144")	LF	$2,200.00	2538	$5,583,600
		SUBTOTAL:		$52,702,234
		CONTINGENCY:	**15%**	$7,905,335
		TOTAL COST:		$60,607,569
		TOTAL COST/SF:		$272.64

Structure Name: **DOBSON ROAD BRIDGE - ALTERNATIVE 3**
Superstructure Type: **SEGMENTAL BOX GIRDER**
Substructure Type: **Stub Abutments & Column Piers**
Foundation Type: **Drilled Shafts**
No. of Spans : **5**
Span Lengths (ft): **191-9", 308'-5", 496'-0", 308'-5", 191'-9"**

Total Length (ft): 1950.00
Width (Out to Out) (ft): 114.00
Area (sq ft): 222,300.00

DOBSON ROAD BRIDGE
ALTERNATIVE 2 - AASHTO TYPE VI MODIFIED SPLICED GIRDER BRIDGE

DESCRIPTION	UNIT	UNIT COST	QUANTITY	COST
STRUCTURAL EXCAVATION	CY	$20.00	700	$14,000
STRUCTURE BACKFILL	CY	$40.00	436	$17,431
STRUCTURAL CONCRETE (CLASS AA) (F'C=3,500)	CY	$450.00	3,390	$1,525,644
STRUCTURAL CONCRETE (CLASS AA) (F'C=4,500)	CY	$550.00	5,884	$3,236,084
STRUCTURAL CONCRETE (CLASS AA) (F'C=5,500)	CY	$650.00	1,434	$931,918
F-SHAPE BRIDGE CONCRETE BARRIER AND TRANSITION (32 INCH)	LF	$80.00	3,053	$244,240
COMBINATION PEDESTRIAN-TRAFFIC BRIDGE RAILING	LF	$100.00	3,053	$305,300
DECK JOINT ASSEMBLY (4" STRIP SEAL JOINT)	LF	$200.00	745	$149,000
APPROACH SLAB	SY	$60.00	481	$28,850
PRECAST, P/S MEMBER (AASHTO TYPE 6 MODIFIED SPLICED GIRDER)	LF	$225.00	18,736	$4,215,488
POST TENSIONING STEEL (IN PLACE)	LBS	$5.35	118,911	$636,175
RESTRAINERS, VERTICAL EARTHQUAKE (FIXED)	EA	$150.00	96	$14,400
RESTRAINERS, VERTICAL EARTHQUAKE (EXPANSION)	EA	$200.00	48	$9,600
PRESTRESSING CAST-IN-PLACE CONCRETE	LS	$517,509.20	1	$517,509
REINFORCING STEEL	LB	$1.25	2,156,447	$2,695,558
DRILLED SHAFT FOUNDATION (72")	LF	$650.00	1020	$663,000
DRILLED SHAFT FOUNDATION (144")	LF	$2,200.00	4320	$9,504,000
		SUBTOTAL:		$24,708,197
		CONTINGENCY:	**15%**	$3,706,230
		TOTAL COST:		$28,414,427
		TOTAL COST/SF:		$167.29

Structure Name: **DOBSON ROAD BRIDGE - ALTERNATIVE 2**
Superstructure Type: **AASHTO Type VI MODIFIED SPLICED Girder**
Substructure Type: **Semi Full height and Stub Abutments & Column Piers**
Foundation Type: **Drilled Shafts**
No. of Spans : **9**
Span Lengths (ft): **132'-6", 7 @ 175'-0", 132'-6"**

Total Length (ft): 1496.50
Width (Out to Out) (ft): 113.50
Area (sq ft): 169,852.75

DOBSON ROAD BRIDGE
ALTERNATIVE 3 - AASHTO TYPE VI MODIFIED GIRDER BRIDGE

DESCRIPTION	UNIT	UNIT COST	QUANTITY	COST
STRUCTURAL EXCAVATION	CY	$20.00	700	$14,000
STRUCTURE BACKFILL	CY	$40.00	436	$17,431
STRUCTURAL CONCRETE(CLASS AA)(F'C=3,500)	CY	$450.00	4,018	$1,807,877
STRUCTURAL CONCRETE(CLASS AA)(F'C=4,500)	CY	$550.00	6,747	$3,710,855
F-SHAPE BRIDGE CONCRETE BARRIER AND TRANSITION (32 INCH)	LF	$80.00	3,053	$244,240
COMBINATION PEDESTRIAN-TRAFFIC BRIDGE RAILING	LF	$100.00	3,053	$305,300
DECK JOINT ASSEMBLY (4" STRIP SEAL JOINT)	LF	$200.00	631	$126,200
APPROACH SLAB	SY	$60.00	481	$28,850
PRECAST, P/S MEMBER (AASHTO TYPE 6 MODIFIED GIRDER)	LF	$185.00	20,966	$3,878,651
RESTRAINERS, VERTICAL EARTHQUAKE (FIXED)	EA	$150.00	98	$14,700
RESTRAINERS, VERTICAL EARTHQUAKE (EXPANSION)	EA	$200.00	58	$11,600
REINFORCING STEEL	LB.	$1.25	2,176,663	$2,720,829
DRILLED SHAFT FOUNDATION (72")	LF	$650.00	950	$617,500
DRILLED SHAFT FOUNDATION (144")	LF	$2,200.00	4800	$10,560,000
		SUBTOTAL:		$24,058,032
		CONTINGENCY:	**15%**	$3,608,705
		TOTAL COST:		$27,666,737
		TOTAL COST/SF:		$162.89

Structure Name: **DOBSON ROAD BRIDGE - ALTERNATIVE 3**
Superstructure Type: **AASHTO Type VI MODIFIED Girder**
Substructure Type: **Semi Full height and Stub Abutments & Column Piers**
Foundation Type: **Drilled Shafts**
No. of Spans : **11**
Span Lengths (ft): **124'-0", 9 @ 138'-0", 124'-0"**

Total Length (ft): 1496.50
Width (Out to Out) (ft): 113.50
Area (sq ft): 169,852.75

DOBSON ROAD BRIDGE
ALTERNATIVE 3A - AASHTO TYPE VI MODIFIED GIRDER BRIDGE
WITH PT BOX GIRDER BRIDGE @ END SPAN

DESCRIPTION	UNIT	UNIT COST	QUANTITY	COST
STRUCTURAL EXCAVATION	CY	$20.00	700	$14,000
STRUCTURE BACKFILL	CY	$40.00	436	$17,431
STRUCTURAL CONCRETE(CLASS AA)(F'C=3,500)	CY	$450.00	4,018	$1,807,877
STRUCTURAL CONCRETE(CLASS AA)(F'C=4,500)	CY	$550.00	6,289	$3,459,116
STRUCTURAL CONCRETE (CLASS AA) (F'C=5,500)	CY	$600.00	1,195	$717,105
F-SHAPE BRIDGE CONCRETE BARRIER AND TRANSITION (32 INCH)	LF	$80.00	3,053	$244,240
COMBINATION PEDESTRIAN-TRAFFIC BRIDGE RAILING	LF	$100.00	3,053	$305,300
DECK JOINT ASSEMBLY (4" STRIP SEAL JOINT)	LF	$200.00	631	$126,200
APPROACH SLAB	SY	$60.00	481	$28,850
PRECAST, P/S MEMBER (AASHTO TYPE 6 MODIFIED GIRDER)	LF	$185.00	18,979	$3,511,108
RESTRAINERS, VERTICAL EARTHQUAKE (FIXED)	EA	$150.00	98	$14,700
RESTRAINERS, VERTICAL EARTHQUAKE (EXPANSION)	EA	$200.00	58	$11,600
PRESTRESSING CAST-IN-PLACE CONCRETE	LS	$517,509.20	1	$517,509
REINFORCING STEEL	LB.	$1.25	2,321,291	$2,901,613
DRILLED SHAFT FOUNDATION (72")	LF	$650.00	950	$617,500
DRILLED SHAFT FOUNDATION (144")	LF	$2,200.00	4800	$10,560,000
		SUBTOTAL:		$24,854,149
		CONTINGENCY:	**15%**	$3,728,122
		TOTAL COST:		$28,582,272
		TOTAL COST/SF:		$168.28

Structure Name: **DOBSON ROAD BRIDGE - ALTERNATIVE 3A**
Superstructure Type: **AASHTO Type VI MODIFIED Girder & PT Box Girder**
Substructure Type: **Semi Full height and Stub Abutments & Column Piers**
Foundation Type: **Drilled Shafts**
No. of Spans : **11**
Span Lengths (ft): **124'-0", 9 @ 138'-0", 124'-0"**

Total Length (ft): 1496.50
Width (Out to Out) (ft): 113.50
Area (sq ft): 169,852.75

GILBERT ROAD BRIDGE
ALTERNATIVE 1 - AASHTO STANDARD TYPE VI MODIFIED PRECAST CONCRETE GIRDER BRIDGE

DESCRIPTION	UNIT	UNIT COST	QUANTITY	COST
STRUCTURAL EXCAVATION	CY	$20.00	250	$5,000
STRUCTURE BACKFILL	CY	$40.00	411	$16,453
STRUCTURAL CONCRETE(CLASS S)(F'C=3,500)	CY	$450.00	2,771	$1,247,030
STRUCTURAL CONCRETE(CLASS S)(F'C=4,500)	CY	$550.00	6,082	$3,344,901
F-SHAPE BRIDGE CONCRETE BARRIER AND TRANSITION (32 INCH)	LF	$80.00	3,426	$274,080
PEDESTRIAN RAILING AND CURB	LF	$100.00	3,426	$342,600
DECK JOINT ASSEMBLY(STRIP SEAL 4" MR)	LF	$200.00	567	$113,417
APPROACH SLAB	SY	$60.00	378	$22,683
PRECAST, P/S MEMBER (AASHTO TYPE 6 MODIFIED GIRDER)	LF	$190.00	23,268	$4,420,920
RESTRAINERS, VERTICAL EARTHQUAKE (FIXED)	EA	$150.00	56	$8,400
RESTRAINERS, VERTICAL EARTHQUAKE (EXPANSION)	EA	$200.00	56	$11,200
REINFORCING STEEL	LB.	$1.25	1,802,248	$2,252,810
DRILLED SHAFT FOUNDATION (84")	LF	$750.00	690	$517,500
DRILLED SHAFT FOUNDATION (120")	LF	$2,000.00	4785	$9,570,000
		SUBTOTAL:		$22,146,995
		CONTINGENCY:	**15%**	$3,322,049
		TOTAL COST:		$25,469,044
		TOTAL COST/SF:		$133.38

Structure Name: **GILBERT ROAD BRIDGE - ALTERNATIVE 1**
Superstructure Type: **AASHTO Type VI Girder**
Substructure Type: **Stub Abutments & Column Piers**
Foundation Type: **Drilled Shafts**
No. of Spans : **12**
Span Lengths (ft): **137'-6", 10 @ 140'-0", 137'-6"**
Skew (deg): **0° Left**

Total Length (ft): 1683.00
Width (Out to Out) (ft): 113.46
Area (sq ft): 190,950.38

GILBERT ROAD BRIDGE
ALTERNATIVE 2 - AASHTO STANDARD TYPE Super VI PRECAST CONCRETE GIRDER BRIDGE

DESCRIPTION	UNIT	UNIT COST	QUANTITY	COST
STRUCTURAL EXCAVATION	CY	$20.00	250	$5,000
STRUCTURE BACKFILL	CY	$40.00	411	$16,453
STRUCTURAL CONCRETE(CLASS S)(F'C=3,500)	CY	$450.00	2,558	$1,151,308
STRUCTURAL CONCRETE(CLASS S)(F'C=4,500)	CY	$550.00	6,391	$3,515,188
F-SHAPE BRIDGE CONCRETE BARRIER AND TRANSITION (32 INCH)	LF	$80.00	3,430	$274,400
PEDESTRIAN RAILING AND CURB	LF	$100.00	3,430	$343,000
DECK JOINT ASSEMBLY(STRIP SEAL 4" MR)	LF	$200.00	567	$113,417
APPROACH SLAB	SY	$60.00	378	$22,683
PRECAST, P/S MEMBER (AASHTO TYPE Super 6 GIRDER)	LF	$215.00	23,177	$4,983,055
RESTRAINERS, VERTICAL EARTHQUAKE (FIXED)	EA	$150.00	49	$7,350
RESTRAINERS, VERTICAL EARTHQUAKE (EXPANSION)	EA	$200.00	56	$11,200
REINFORCING STEEL	LB.	$1.25	1,817,452	$2,271,815
DRILLED SHAFT FOUNDATION (84")	LF	$750.00	690	$517,500
DRILLED SHAFT FOUNDATION (120")	LF	$2,000.00	4560	$9,120,000
		SUBTOTAL:		$22,352,369
		CONTINGENCY:	**15%**	$3,352,855
		TOTAL COST:		$25,705,224
		TOTAL COST/SF:		$134.46

Structure Name: **GILBERT ROAD BRIDGE - ALTERNATIVE 2**
Superstructure Type: **AASHTO Type Super VI Girder**
Substructure Type: **Stub Abutments & Column Piers**
Foundation Type: **Drilled Shafts**
No. of Spans : **11**
Span Lengths (ft): **151'-0", 9 @ 153'-0", 151'-0"**
Skew (deg): **0° Left**

Total Length (ft): 1685.00
Width (Out to Out) (ft): 113.46
Area (sq ft): 191,177.29

GILBERT ROAD BRIDGE
ALTERNATIVE 3 - AASHTO TYPE Super VI Spliced PRECAST CONCRETE GIRDER BRIDGE

DESCRIPTION	UNIT	UNIT COST	QUANTITY	COST
STRUCTURAL EXCAVATION	CY	$20.00	250	$5,000
STRUCTURE BACKFILL	CY	$40.00	411	$16,453
STRUCTURAL CONCRETE(CLASS S)(F'C=3,500)	CY	$450.00	3,025	$1,361,267
STRUCTURAL CONCRETE(CLASS S)(F'C=4,500)	CY	$550.00	6,060	$3,332,775
F-SHAPE BRIDGE CONCRETE BARRIER AND TRANSITION (32 INCH)	LF	$80.00	3,420	$273,600
PEDESTRIAN RAILING AND CURB	LF	$100.00	3,420	$342,000
DECK JOINT ASSEMBLY(STRIP SEAL 4" MR)	LF	$200.00	681	$136,100
APPROACH SLAB	SY	$60.00	378	$22,683
PRECAST, P/S MEMBER (AASHTO TYPE Super 6 Spliced GIRDER)	LF	$285.00	22,400	$6,384,000
POST TENSIONING STEEL (IN PLACE)	LB	$5.35	163,268	$873,484
RESTRAINERS, VERTICAL EARTHQUAKE (FIXED)	EA	$150.00	35	$5,250
RESTRAINERS, VERTICAL EARTHQUAKE (EXPANSION)	EA	$200.00	70	$14,000
REINFORCING STEEL	LB.	$1.25	1,883,162	$2,353,953
DRILLED SHAFT FOUNDATION (96")	LF	$1,200.00	750	$900,000
DRILLED SHAFT FOUNDATION (144")	LF	$2,350.00	4185	$9,834,750
		SUBTOTAL:		$25,855,315
		CONTINGENCY:	**15%**	$3,878,297
		TOTAL COST:		$29,733,613
		TOTAL COST/SF:		$155.44

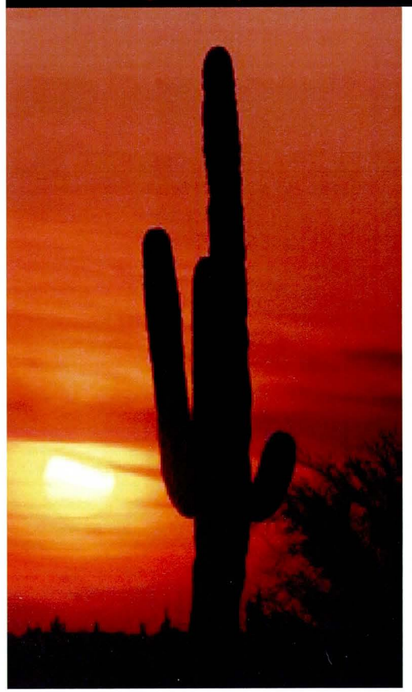
Structure Name: **GILBERT ROAD BRIDGE - ALTERNATIVE 3**
Superstructure Type: **AASHTO Type Super VI Spliced Girder**
Substructure Type: **Stub Abutments & Column Piers**
Foundation Type: **Drilled Shafts**
No. of Spans : **10**
Span Lengths (ft): 10 @ 168'-0"
Skew (deg): **0° Left**

Total Length (ft): 1686.00
Width (Out to Out) (ft): 113.46
Area (sq ft): 191,290.75

APPENDIX H AESTHETICS

DOBSON ROAD BRIDGES

SALT RIVER PIMA - MARICOPA INDIAN COMMUNITY — MESA, ARIZONA



Aesthetic Guidelines for Harmonious Bridge Design

TOUCHSTONE ARCHITECTURE™

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TOUCHSTONE ARCHITECTURE

Introduction and Background

TOUCHSTONE ARCHITECTURE™

Introduction and Background

Introduction

The purpose of this document is to establish aesthetic guidelines for the bridges and roadways of the Dobson Road Bridges project. The bridges, crossing the Salt River at Dobson Road, McKellips Road, and Gilbert Road, as well as the roadway widening improvements to McKellips Road, are the subjects of this project.

These new bridges will serve as a vital link between the two communities. In addition to providing more north-south capacity, the bridge will connect two new areas of economic development on opposite sides of the river.

Because of their scale, bridges have the ability to influence the nature of the built environment. They can provide a statement about the communities that built them and establish precedence for future growth. Both communities are certain that these bridges will help define the architectural identity of the area and provide a new gateway that is welcoming.

Project Location Map

TOUCHSTONE ARCHITECTURE

Introduction and Background

Purpose and Need for the Project

Cities in the Northeast Valley have experienced explosive population growth over the last 30 years. Development in this area is outpacing the construction of transportation facilities, resulting in higher-than-projected traffic volumes on arterial streets. The Salt River channel, within Maricopa County, has been the focus of significant development and enhancement within the last two decades. Projects such as the Tempe Town Lake and Fine Arts Complex, the Riverview Mall, commercial centers, and the casinos on the SRP-MIC lands have created a focal point of commercial development in the southeast valley and enhance the quality of life for residents and visitors. The Dobson Road Bridge Design Concept Report (DCR) project adds to these enhancements by creating a gateway corridor that serves the developments north and south of the Salt River. It also streamlines commercial access and more fully integrates the communities within Maricopa County. The project will develop a single DCR that addresses the Salt River Crossings at Dobson, McKellips and Gilbert Roads.

Design Goals

Goal: A Create a vital commerce link between the SRP-MIC and the city of Mesa that supports local and regional economic development.

Goal: B Reduce traffic through residential areas.

Goal: C Establish gateways linking the communities.

Goal: D Blend design and management activities of the Dobson Road Bridges project with the natural landscape setting and historic context of the surrounding area.

Goal: E Protect and enhance scenic, cultural, natural, and recreational resources by implementing thoughtful planning, design, development and long-term maintenance practices of this project.

Goal: F Ensure the project is developed through an inter-community and interdisciplinary process from start to finish.

Goal: G Design projects that can be constructed within the available budget.

Design Guidelines: Approach to Design

TOUCHSTONE ARCHITECTURE

Design Guidelines: Approach to Design

Design Objectives

- Visual continuity should be achieved through the use of a palette of common design elements present throughout the Dobson Road Bridges.
- Design elements of form, line, color, texture, and scale will be used to create visual continuity.
- Horizontal lines of the bridges should flow with and respond to the line of the river below.
- Vertical features should be used as gateway elements demarcating entry into the SRP-MIC and the city of Mesa.
- Colors should be selected to harmonize with the natural setting.
- The number of colors in the palette should be limited in order to provide unity of design.
- To minimize the reflectivity of the various highway features the texture of bridge elements should be rough with an irregular pattern rather than smooth and reflective. The textures should blend with the natural setting.
- Natural color tones of the exposed geology found within the Salt River should be the basis for the concrete and steel color and texture pallete.
- Key Viewing Areas of and from the bridge should receive careful study and review in order to take full advantage of the opportunity to incorporate the natural topography into the scenic vista of the bridges.
- The bridges should be influenced by and honor the city of Mesa, SRP-MIC and historic architectural features in a manner that establishes a physical or visual connection to the area's heritage, without mimicry or replication.
- The Dobson Road Bridges should provide a visual connection between the river and the adjacent communities where possible.
- The Dobson Road Bridges should be designed in a manner that minimizes the ecological impacts to the Salt River during and after construction.
- Communities, governmental agencies, and the private sector should support the development and maintenance of additional rest areas, viewpoints, and recreation sites.

Design Guidelines: Approach to Design

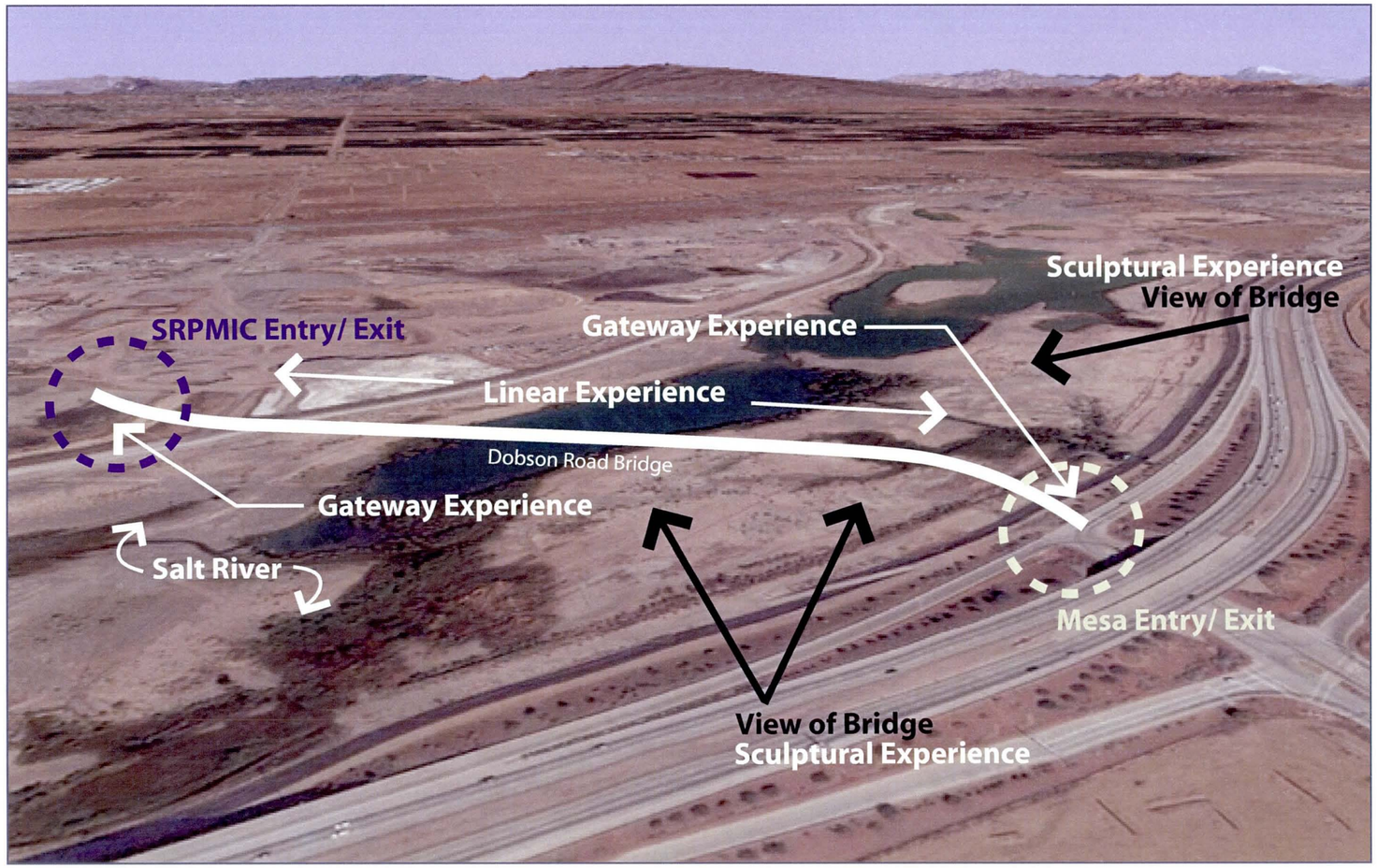
User Experience and Key Vantage Points

When developing the bridge design it is essential to consider how the bridge will be experienced by the user. There are three primary locations where people will interact with the structure.

First, the bridge will be experienced as a sculptural element when viewed from SR 202L. The form of the superstructure, the piers and the line of the superstructure will define the visual nature of the bridge.

The second experience is the gateway element, providing a doorway into Mesa and the SRP-MIC. It should set a visual precedent for the upcoming experience.

Third, there is a long linear experience for the users on the bridge.



Map of Key Vantage Points

Design Guidelines: Bridge Details

TOUCHSTONE
ARCHITECTURE

Design Guidelines: Bridge Details

Introduction and Objectives

The bridges over the Salt River are the most visually dominant element of the project. Their colors, details and features will set the tone for the design of the project.

Due to limited traffic under and around the Dobson Road Bridge, the visual character of the bridge will be largely defined by the experience of the motorist and users of the pedestrian pathway.

Beginning with the railings and bridge colors, close attention is being paid to the development of all details that reinforce the experience of the users.

Maintenance is a key concern. All options explored should consider the prevailing climate conditions and the need for minimal maintenance. Natural or earth-tone colors are better suited to this particular environment than vibrant colors that tend to fade over time.

TOUCHSTONE ARCHITECTURE

Design Guidelines: Bridge Details

Implementation: Pedestrian Railings

The pedestrian railing is a vital safety component of the bridge, protecting the users of the pedestrian path. To satisfy the safety requirements, the railing must be 54" high and contain no openings more than 4" in diameter. In addition, minimizing horizontal members is necessary to discourage climbing on the railing.

An open ornamental steel rail was considered initially for the project. After careful consideration, a solid rail has been selected for the pedestrian walkways in order to create the greatest degree of safety and durability. This solid rail also enhances the aesthetics of the bridge when viewed from a distance by reinforcing the long horizontal line of the bridge.

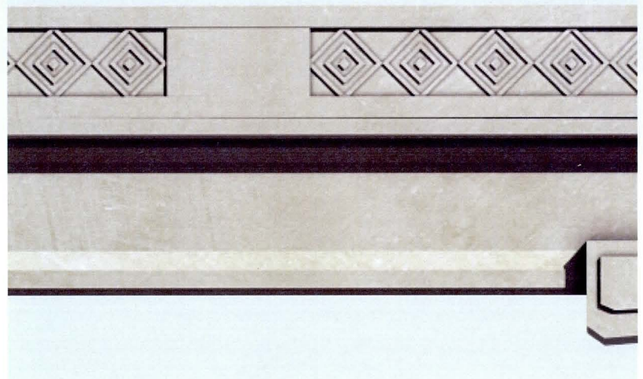
View Toward SRP-MIC

View Toward Mesa

Implementation: Pedestrian Railing - Form Liner

The pedestrian rail texture is important because it helps define the aesthetic profile of the bridge as seen from SR 202L. The railing is one of the few components that we physically contact and controls views of the surrounding landscape. These renderings depict the use of a simple geometric pattern on the vertical surface of the railing. This pattern is applied in sections to create a visual rhythm along the length of the bridge.

The inside surface of the traffic barrier is articulated with a vertical fin pattern. These fins create lines and shadows along the back of the barrier and draw the eye of the viewer upward, away from the bridge deck.



TOUCHSTONE ARCHITECTURE

Design Guidelines: Bridge Details

Implementation: Pedestrian Pathway

Staining the sidewalk provides a great opportunity to enhance the user experience. The color selected in the rendering matches the desert floor and creates an accent color for the bridge.

View Toward SRP-MIC

View Toward Mesa

Design Guidelines: Bridge Details

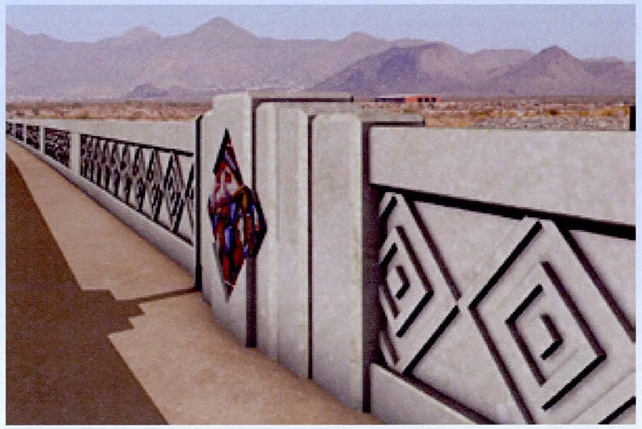
Implementation: Railing Monuments

Pedestrian monuments can provide a number of enhancements. They break up the profile of the bridge and create visual rhythm when viewed from SR 202L.

In response to a desire expressed by both communities to incorporate local artwork into the project, the monuments are designed with mosaic tile inserts. These inserts provide an opportunity for the local community to place images that reflect their culture. This artwork can be permanent or replaced over time. As a pedestrians travel along the bridge they will experience this linear library. Glass and ceramic tile was chosen because of its durability and ease of replacement in the event of vandalism.

The inserts offer tremendous flexibility. In addition to mosaic tiles, the inserts can be developed as bas reliefs or other art forms that symbolize relevant images for both communities.

View Toward SRP-MIC



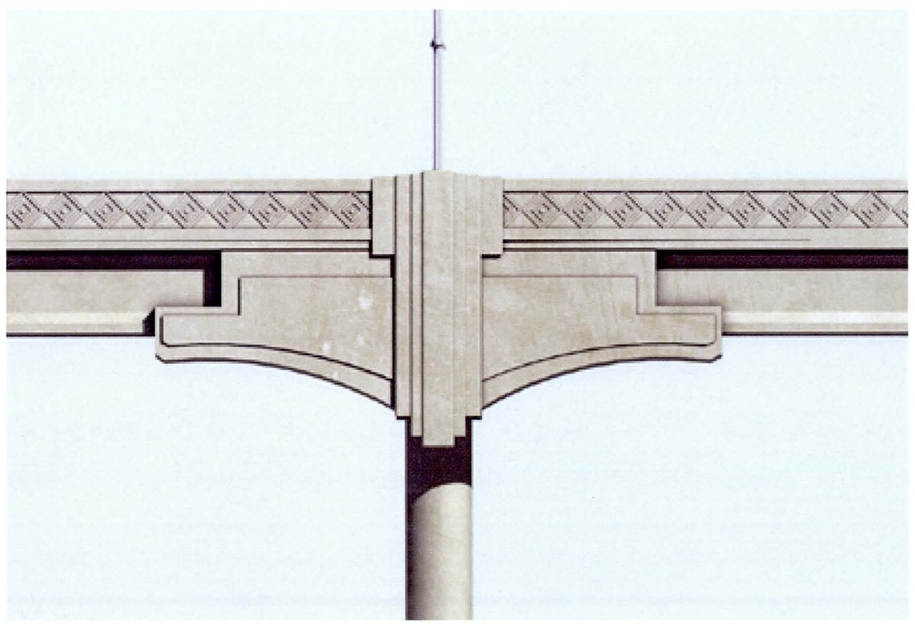
View Toward Mesa

Design Guidelines: Bridge Details

Implementation: Bridge Piers

The design of the bridge piers is heavily influenced by the superstructure configuration. Spliced concrete girders have been selected for the bridges in order to achieve long span lengths, thus reducing the number of piers required for the bridge.

Unlike conventional concrete girders, spliced girders require a wide "T" pier at the intersection of each span. We have integrated barrier monuments with the "T" piers to create an interesting and compatible design feature for the bridge. The result is a truly unique look accomplished by utilizing elements fundamentally necessary for the structural configuration of the bridge.



Spliced Girder Bridge

Design Guidelines: Gateway Elements

TOUCHSTONE
ARCHITECTURE

Design Guidelines: Gateway Elements

Introduction and Objectives

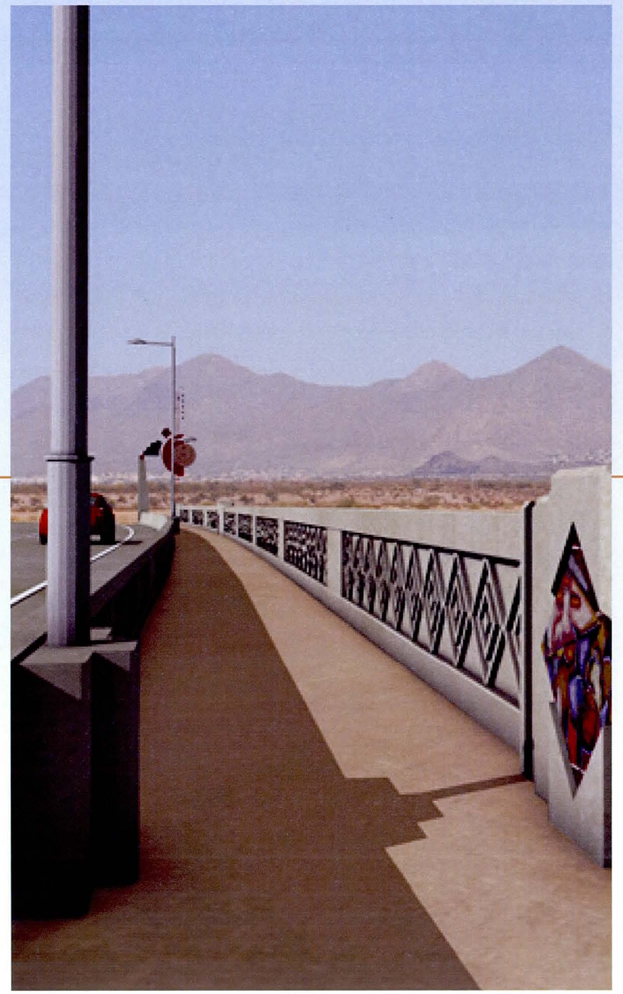
The bridge will be a scenic doorway into the SRP-MIC and Mesa communities, helping to reinforce their respective cultural identities.

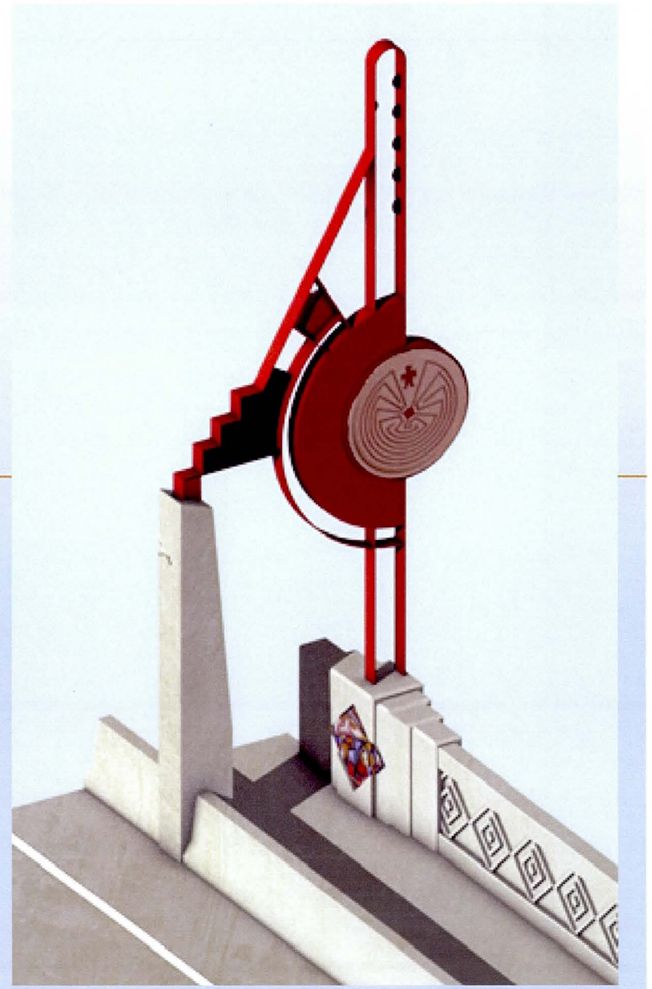
Design Guidelines: Gateway Elements

Implementation: SRP-MIC Gateway

The SRP-MIC gateway design is derived from elements used on other border monuments in the area. This design is a placeholder and will be adjusted to accommodate the preferences of the community.

View Toward SRP-MIC





Design Guidelines: Gateway Elements

Implementation: Mesa Gateway

The Mesa Gateway location is limited due to the configuration of the abutments and the Dobson Rd. / SR 202L interchange. In addition, height is needed to overcome the background on the elevated SR 202L. Drawing on historical references, we have chosen the form of an obelisk to create a stately and timeless impression.

The configuration of the obelisk provides an opportunity to introduce the name of the community in a bold and dramatic way. In addition, the base will be ornamented with images representing the community including falcons and orange trees.

View Toward Mesa

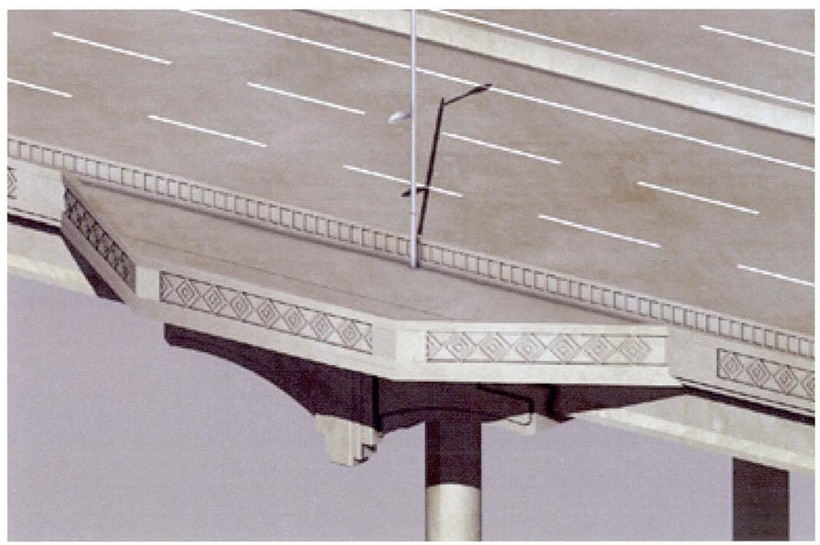
Design Guidelines: Gateway Elements

Implementation: Friendship Element

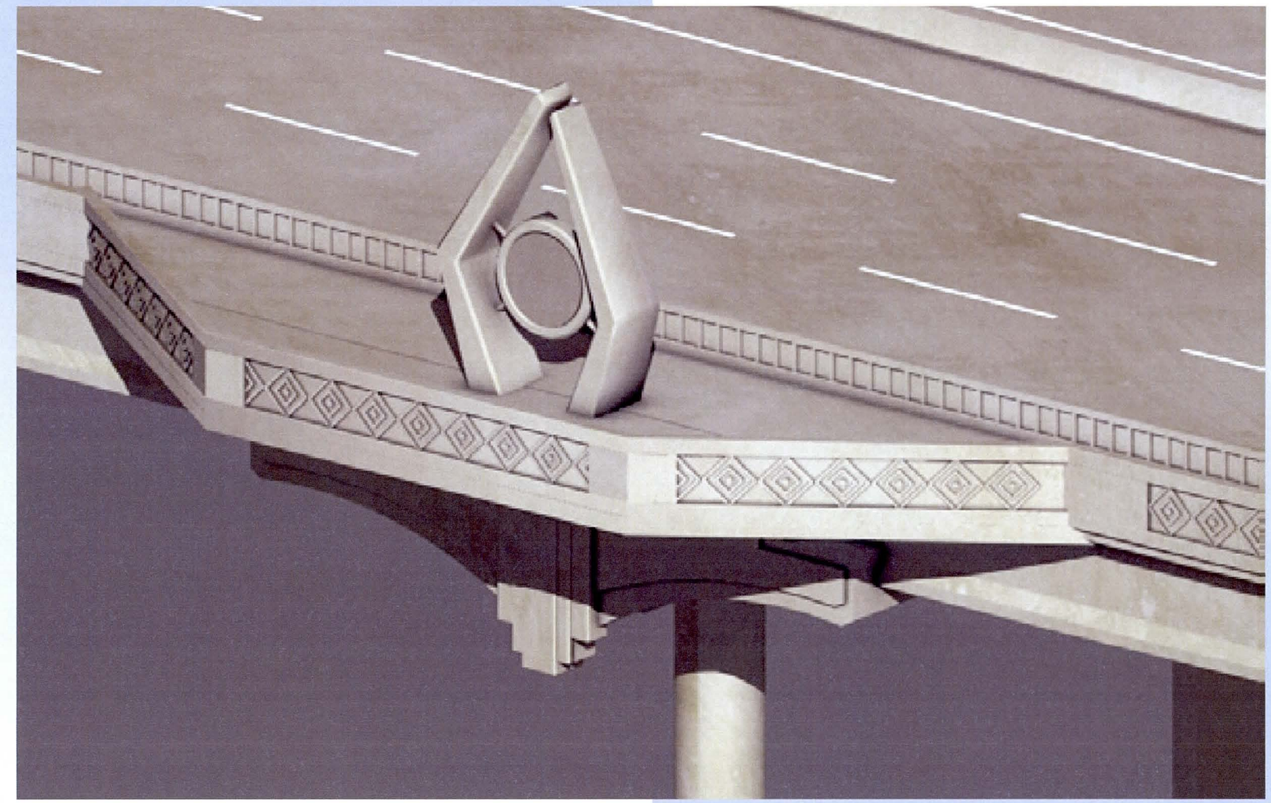
This bridge is a testimony to the friendship that exists between these two communities. A secure overlook for resting and viewing has been placed at the center of the Salt River to commemorate the friendship shared by the communities.

This is accomplished though the use of interpretive plaques located on the inside face of the sidewalk railing. The plaques inform the viewer about the communities and the surrounding environment.

The addition of a sculptural form to memorialize and enhance the crossing experience is being considered.



View of Overlook



Design Guidelines: Lighting

TOUCHSTONE
ARCHITECTURE

Design Guidelines: Lighting

Introduction and Objectives

Lighting enhances bridge safety. Effective roadway lighting has been designed to create proper illumination for the bridge deck while limiting spill-over that contributes to light pollution.

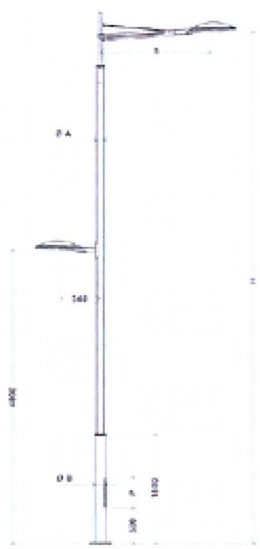
TOUCHSTONE ARCHITECTURE™

Design Guidelines: Lighting

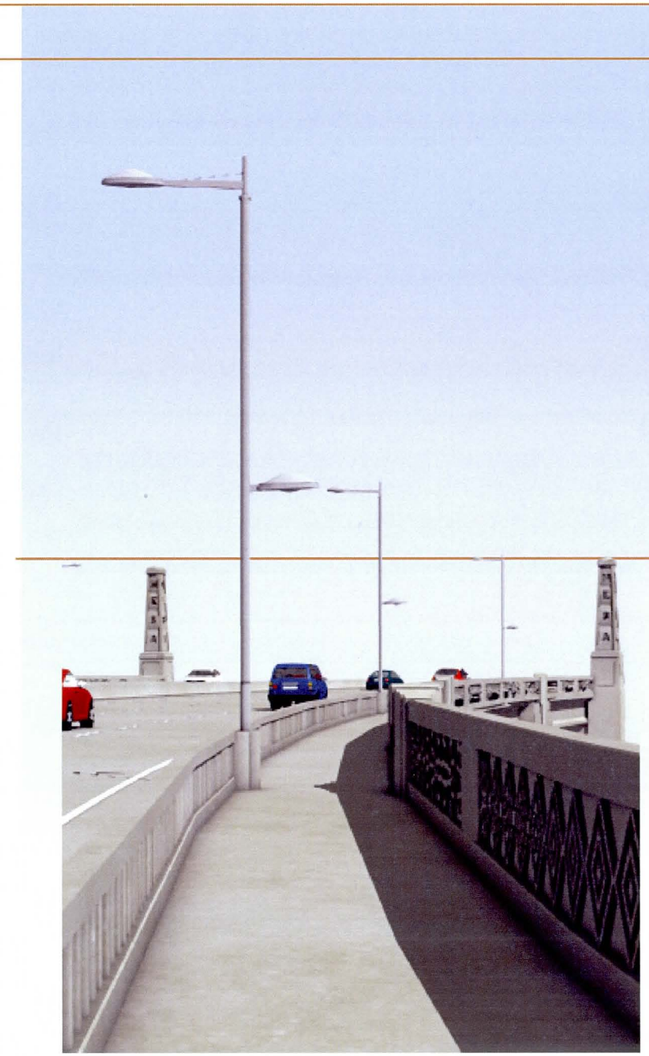
Implementation: Roadway Lighting

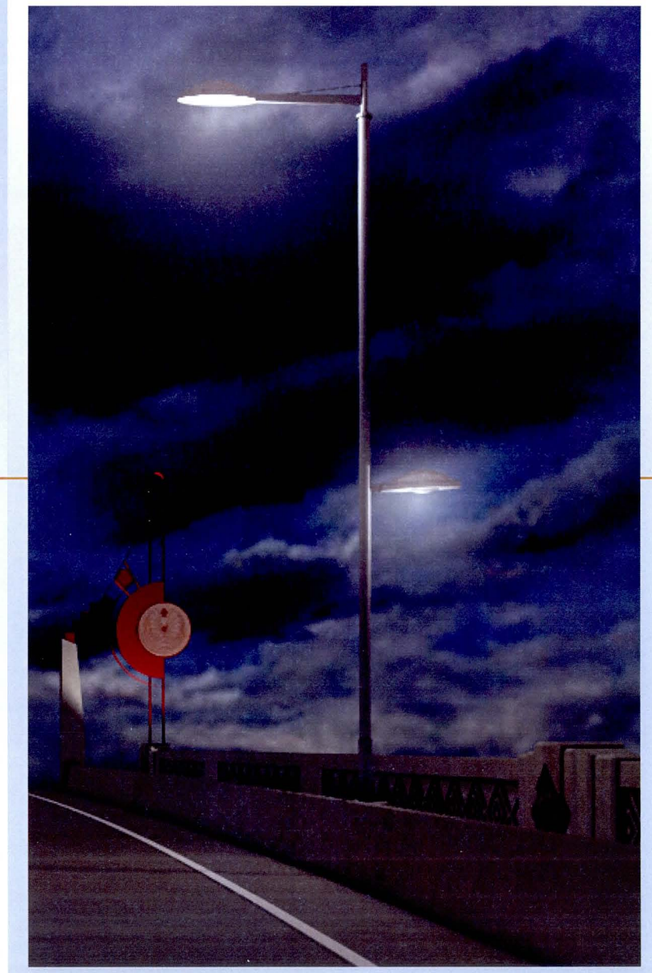
A unique and stylish lamp post has been selected to reinforce the forms of the bridge. Pedestrian lighting is provided from the same poles via a secondary luminaire mounted to the back side of the pole. The result is a simple and clean system enhancing safety and reinforcing the design statement of elegance and simplicity.

POLE WITH REAR BRACKET



Condor Pole and Hestia Luminaire by Schreder





Implementation: Aesthetic Lighting

Aesthetic lighting can change the way we experience a bridge at night. For this bridge, the focus of aesthetic lighting resides on the ends of the bridge in order to create a bold and monumental gateway experience for all users of the bridge.

Response to DCR Comments

Bridge Aesthetics – Three meetings were held with the SRPMIC Planning Department, the SRP-MIC Design Review Committee(DRC) and the City of Mesa. Everyone liked the direction that the project was proceeding and liked the aesthetics concepts. SRP-MIC DRC wanted to use more natural symbols in the form liners paving patterns for the pedestrian walkway. Figure 1 shows a new form liner pattern integrating a water symbol into the design of the bridge. This water motif was expanded to include a meandering pattern in the surface of the walkway, resulting in a more organic design.

A request was made to change the configuration of the friendship monument at the center of the bridge. A pedestal will be provided for the display of a sculptural element. The design of this sculptural element will be selected or designed in the future. (see figure 2)

The DRC noticed a significant difference in the monuments at both ends and wanted to have something different that shows the cooperation that the SRP-MIC and the City of Mesa have had over the years. It was felt that the monuments needed to be re-evaluated and selected by an art committee consisting of members from the City of Mesa, MCDOT and SRP-MIC during the final design. The committee also agreed that the entry monuments should be located off of the bridge structure.

In a later meeting with the City of Mesa, they had also liked the direction that the bridge was taking and liked the idea of an art committee with SRP-MIC to determine the monument designs. Figure 3 shows the bridge with the entry monuments removed from the structure of the bridge.

Figure 1

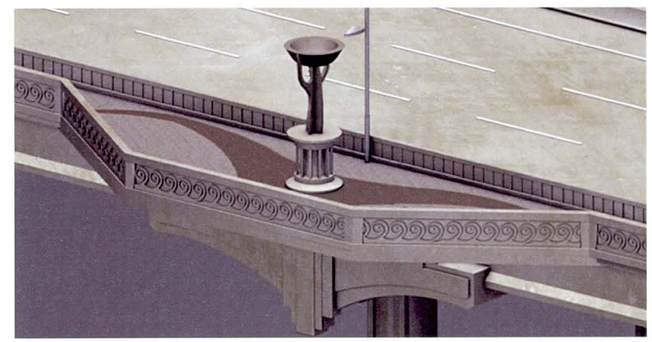


Figure 2

Figure 3

TOUCHSTONE ARCHITECTURE

DOCUMENT ON CD

APPENDIX J UTILITY INFORMATION

APPENDIX J Utility Information

Table 16.3 – Existing Utilities Locations

Road	Facility	Conflict
ARIZONA DEPARTMENT OF TRANSPORTATION		
Gilbert Road	Traffic Signals	None Anticipated
Gilbert Road	42" Storm Drain	None Anticipated
McKellips Road	Traffic Signals	Relocate
McKellips Road	24" Storm Drain	Relocate
Dobson Road	Traffic Signals	Relocate
Dobson Road	Traffic Signals	Relocate
Dobson Road	Street Lights	Relocate
McKellips Road	Traffic Signals	None Anticipated
McKellips Road	24" Storm Drain	Relocated
McKellips Road	3-48" Storm Drains	Non Anticipated
CITY OF MESA		
Dobson Road	4" Natural Gas	None Anticipated
McKellips Road	2" Natural Gas	None Anticipated
McKellips Road	2" Natural Gas	None Anticipated
McKellips Road	8" Sewer	None Anticipated
McKellips Road	36" Reclaimed Water	None Anticipated
Dobson Road	36" Reclaimed Water	None Anticipated
Dobson Road	26" Sewer	None Anticipated
Dobson Road	36" Storm Drain	None Anticipated
Dobson Road	48" Storm Drain	Relocate
McKellips Road	8" Water	None Anticipated
Dobson Road	Water	None Anticipated
McKellips Road	2" Natural Gas	None Anticipated
McKellips Road	Fire Hydrant	None Anticipated
McKellips Road	8" Water	None Anticipated
McKellips Road	8" Water	None Anticipated
COX COMMUNICATIONS		
McKellips Road	Cable TV	None Anticipated
MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION		
Gilbert Road	Traffic Signals	Relocate
McKellips Road	Traffic Signals	Relocate
McKellips Road	Storm Drain	None Anticipated
McKellips Road	Storm Drain	Extend
McKellips Road	Storm Drain	Extend
McKellips Road	Storm Drain	Extend
McKellips Road	Storm Drain	Extend
Road	**Facility**	**Conflict**
QWEST COMMUNICATIONS		
Gilbert	Telephone	None Anticipated
McKellips Road	Telephone	None Anticipated
McKellips Road	Telephone	None Anticipated
SR 87	Telephone	None Anticipated
SADDLEBACK COMMUNICATIONS		
Gilbert Road	2-4" Cable TV	None Anticipated
McKellips Road	4-4" Cable TV	None Anticipated
McKellips Road	4" Cable TV	None Anticipated
McKellips Road	4" Cable TV	None Anticipated
McKellips Road	Overhead	Horizontal Relocation
SALT RIVER PIMA MARICOPA INDIAN COMMUNITY		
McKellips Road	10" Water	None Anticipated
McKellips Road	Sewer	None Anticipated
92nd Street	Sewer	None Anticipated
McKellips Road	10" Water	None Anticipated
McKellips Road	10" Water	None Anticipated
McKellips Road	10" Water	None Anticipated
McKellips Road	10" Water	None Anticipated
McKellips Road	Fire Hydrant	Relocate
McKellips Road	Fire Hydrant	Relocate
SOUTHWEST GAS		
92nd Street	4" Natural Gas	None Anticipated
SRP ELECTRIC		
McKellips Road	Underground	None Anticipated
McKellips Road	Overhead	Horizontal Relocation
McKellips Road	Underground	None Anticipated
Alma School Road	Overhead	None Anticipated
McKellips Road	Overhead	None Anticipated
McKellips Road	Overhead	Horizontal Relocation
92nd Street	Overhead	Horizontal Relocation
McKellips Road	Overhead	None Anticipated
Powerline Corridor	Transmission	Pole Relocations
Powerline Corridor	Overhead	Horizontal Relocation
McKellips Road	Overhead	Horizontal Relocation
Dobson Road	Overhead	Horizontal Relocation
Dobson Road	Overhead Transmission	None Anticipated
Dobson Road	Overhead Transmission	None Anticipated
Dobson Road	Overhead Transmission	None Anticipated
Dobson Road	Overhead Power	Relocate
SRP IRRIGATION		
McKellips Road	27" Irrigation	Relocate
McKellips Road	27" Irrigation	Relocate
McKellips Road	30" Irrigation	Extend to ROW
McKellips Road	27" Irrigation	None Anticipated
McKellips Road	27" Irrigation	None Anticipated
Dobson Road	Conc. Irrigation Ditch	Relocate

Additional utilities exist on the east end of the project near the Gilbert Road alignments include:

- QWEST underground and overhead lines along the eastern right-of-way line for Gilbert Road from McDowell Road to Thomas Road. Telephone pedestals exist in this area.
- QWEST underground telephone lines on the south right-of-way line along SR87 crossing Gilbert Road.
- SALT RIVER PROJECT owns a 69kV electrical transmission line which follows the southern right-of-way line of SR87 across Gilbert Road.
- SALT RIVER PROJECT also has an 85-foot utility easement across the SRPMIC lands for the 230kV high voltage power lines which cross McKellips Road at approximately station 111+00 and cross the Dobson Road "D3" alignment at approximately station 47+00.
- ARIZONA PUBLIC SERVICE has an 151-foot utility easement for a two existing 230kV transmission lines and poles running parallel to the SRP line on the south side which cross McKellips Road at approximately station 111+00 and crosses the Dobson Road "D3" alignment at approximately station 47+00.
- CITY OF PHOENIX owns a 48-inch water aqueduct which crosses Gilbert Road at approximately station 85+00. The aqueduct originates near the Verde River north of SR87 and conveys water to the intersection of Pima Road and Thomas Road at the west end of the SRPMIC lands. This pipe was built in 1930 and is made of low-grade reinforced concrete pipe. The pipe exists within a 100-foot wide easement which crosses the MCDOT right-of-way. Due to the age and fragility of this pipe, it is recommended that it be replaced within the MCDOT right-of-way. Coordination with the City of Phoenix will be necessary to determine a dry-up period during the off-peak (winter) season when construction can be scheduled.

Table 16.4 – DOBSON ROAD Alternative D3 Utility Relocations

DOBSON ROAD- ALTERNATIVE D3						
STATION	OFFSET (Feet)	LT/ RT	UTILITY	FACILITY	CONFLICT	RESOLUTION
7+44 to 18+05	40	LT	Irrigation Ditch	Private	Roadway	Relocate outsite ROW
19+08	32	LT	Traffic signal pole	MCDOT	Roadway	Relocate
19+29	49	LT	TS pullbox	MCDOT	S/W Ramp	Adjust/Relocate
19+37	47	LT	Traffic signal pole	MCDOT	S/W Ramp	Relocate
19+39	41	RT	Traffic signal pole	MCDOT	S/W Ramp	Relocate
19+41	48	RT	Irrigation Structure	SRP Irrigation	S/W Ramp	Relocate
19+56	66	RT	Traffic signal pole	MCDOT	Roadway	Relocate
20+16	22	RT	Sanitary Sewer	SRPMIC	Prop. SD lateral	Adjust/Relocate
20+21	22	RT	Sewer MH	SRPMIC	Prop. SD pipe	Protect in Place/Relocate
20+39	70	LT	Traffic signal pole	MCDOT	Roadway	Relocate
20+47	48	RT	Traffic signal pole	MCDOT	Roadway	Relocate
20+49	53	RT	TS pullbox	MCDOT	Roadway	Adjust/Relocate
20+51	36	RT	Power Pole & Power Line	SRP 12kV	Roadway	Relocate
20+54	40	LT	Traffic signal pole	MCDOT	Roadway	Relocate
20+76	34	RT	Traffic signal pole	MCDOT	Roadway	Relocate
21+00 to 28+58	Varies	RT	Conc. Irrigation Ditch	Private	Roadway	Relocate outsite ROW
22+59	35	RT	Power Pole	SRP 12kV	Roadway	Relocate
23+79	65	LT	Power Pole & Power Line	SRP 12kV	Roadway	Relocate
24+87	38	RT	Power Pole	SRP 12kV	Roadway	Relocate
26+92	60	RT	Power Pole	SRP 12kV	Roadway	Relocate
26+92	72	RT	Power Pole	SRP 12kV	Roadway	Relocate
26+92	9	RT	Power Pole	SRP 12kV	Roadway	Relocate
47+31	32	RT	Power Pole	SRP 12kV	Roadway	Remove
47+54	36	LT	Power Pole	SRP 12kV	Roadway	Remove
87+74	36	LT	Traffic signal pole w/ luminaire	ADOT	Sidewalk	Relocate
88+44	74	RT	Traffic signal pole w/ luminaire	ADOT	Sidewalk	Relocate
88+55	59	LT	TS pullbox	ADOT	Sidewalk	Adjust
88+57	57	LT	TS pullbox	ADOT	Sidewalk	Adjust
88+84	50	LT	TS pullbox	ADOT	Sidewalk	Adjust
88+96	62	RT	Street Light	ADOT	S/W Ramp	Relocate
88+98	53	RT	TS pullbox	ADOT	Sidewalk	Adjust
92+16	72	LT	Traffic signal pole w/ luminaire	ADOT	S/W Ramp	Relocate

Table 16.5 – GILBERT ROAD Alternative G1 Utility Relocations

GILBERT ROAD- ALTERNATIVE G1						
STATION	OFFSET (Feet)	LT/RT	UTILITY	FACILITY	CONFLICT	RESOLUTION
16+01.93	13	RT	Saddleback Communications	Telephone	Proposed SD lateral	Adjust/Relocate
29+70 to 47+06	27'	LT	Saddleback Communications	Telephone	Bridge	Relocate within Bridge Barrier
92+50 to 100+80	90'	RT	SRP-MIC Utilities	Proposed Waterline	NA	Protect in Place
91+48	156' Lt to 115' Rt		48" CCP Water Aqueduct	City of Phoenix	Roadway construction	Protect in Place
31+30	120' to 300'	RT	2- 5'x12' CBC	MCDOT	NA	Remove

Table 16.6 – McKELLIPS ROAD Alternative M1 Utility Relocations

McKELLIPS ROAD- ALTERNATIVE M1/MR1						
STATION	OFFSET (Feet)	LT/RT	UTILITY	FACILITY	CONFLICT	RESOLUTION
6+35	50	RT	Traffic signal pole	MCDOT	Roadway	Relocate
6+54	60	LT	Traffic signal pole	MCDOT	Curb	Relocate
6+56	38	RT	Exst Catch Basin	MCDOT	Roadway	Relocate
6+59	50	RT	5 TS Cabinets	MCDOT	Roadway	Relocate
6+74	27	RT	Sanitary Sewer Pipe	SRPMIC	Prop. SD lateral	Adjust/Protect in place
6+75	49	LT	Exst Catch Basin	MCDOT	Roadway	Relocate
6+78	29	LT	Underground Electric	SRP Power	Prop. SD lateral	Adjust/Protect in place
6+78	37	LT	Waterline	SRPMIC	Prop. SD lateral	Adjust/Protect in place
6+79	14	RT	Telephone Line	Saddleback Communications	Prop. SD MH	Adjust/Protect in place
7+68	46	RT	TS Pull Box	MCDOT	Roadway	Relocate
7+68	57	LT	TS Pull Box (2)	MCDOT	Sidewalk	Relocate
10+44	24	RT	Sanitary Sewer MH	SRPMIC	Roadway	Adjust
12+25	35	LT	Water Valve	SRPMIC	Roadway	Adjust
12+78	25	RT	Sanitary Sewer Pipe	SRPMIC	Prop. SD lateral	Adjust/Protect in place
12+78	24	LT	Waterline	SRPMIC	Prop. SD lateral	Adjust/Protect in place
12+78	29	LT	Underground Electric	SRP Power	Prop. SD lateral	Adjust/Protect in place
14+67	15	RT	Underground Electric	SRP Power	Prop. SD lateral	Adjust/Protect in place
14+81	52	RT	Power Pole	SRP Power	Curb	Relocate
17+42	16	RT	Underground Electric	SRP Power	Prop. SD lateral	Adjust/Protect in place
17+42	53	RT	Power Pole	SRP Power	Curb/Sidewalk	Relocate
20+00	53	RT	Power Pole	SRP Power	Curb/Sidewalk	Relocate
20+78	21	RT	Sanitary Sewer MH	SRPMIC	Roadway	Adjust
22+18	22	RT	Sanitary Sewer Pipe	SRPMIC	Prop. SD pipe	Adjust/Protect in place
22+18	38	LT	Waterline	SRPMIC	Prop. SD lateral	Adjust/Protect in place
22+64	53	RT	Power Pole	SRP Power	Roadway	Relocate
25+00 to 26+50	*SEE DOBSON ROAD FOR INTERSECTION CONFLICTS*					
26+54 to 43+68	45	RT	Irrigation Ditch	SRP Irrigation	Curb/Sidewalk	Relocate outside ROW
27+77	53	RT	Power Pole	SRP Power	Curb	Relocate
32+86	54	RT	Power Pole	SRP Power	Curb/Sidewalk	Relocate
35+42	54	RT	Power Pole	SRP Power	Curb/Sidewalk	Relocate
37+98	52	RT	Power Pole	SRP Power	Curb/Sidewalk	Relocate
39+79	45	LT	Waterline	SRPMIC	Prop. SD lateral	Adjust/Protect in place
40+52	50	RT	Power Pole	SRP Power	Curb/Sidewalk	Relocate
43+07	52	RT	Power Pole	SRP Power	Curb/Sidewalk	Relocate
43+68	42	RT	Irrigation Structure	SRP Irrigation	Curb/Sidewalk	Relocate
43+68	39	LT	Irrigation Structure	SRP Irrigation	Curb/Sidewalk	Relocate
43+69 to 44+28	39 to 70	LT	Irrigation Ditch	SRP Irrigation	Curb/Sidewalk	Relocate outside ROW
44+58 to 45+44	34 to 47	LT	Irrigation pipe w/ headwalls	SRP Irrigation	Curb/Sidewalk	Relocate
45+51 to 46+37	46	LT	Irrigation Ditch	SRP Irrigation	Curb/Sidewalk	Relocate outside ROW
48+18	52	RT	Power Pole	SRP Power	Sidewalk	Relocate
48+60	45	LT	Waterline	SRPMIC	Prop. SD lateral	Adjust/Protect in place
50+77	52	RT	Power Pole	SRP Power	Roadway	Relocate
52+77	46	LT	Waterline	SRPMIC	Prop. SD pipe	Adjust/Protect in place
53+20	60	RT	Power Pole	SRP Power	Roadway	Relocate
55+82	66	RT	Power Pole	SRP Power	Roadway	Relocate
58+30	57	RT	Power Pole	SRP Power	Sidewalk	Relocate
58+98	46	LT	Waterline	SRPMIC	Prop. SD lateral	Adjust/Protect in place
60+81	46	RT	Power Pole	SRP Power	Roadway	Relocate
63+19	54	RT	Power Pole	SRP Power	Roadway	Remove
65+58	46	LT	Waterline	SRPMIC	Prop. SD lateral	Adjust/Protect in place
71+58	48	LT	Waterline	SRPMIC	Prop. SD lateral	Adjust/Protect in place
77+58	44	LT	Waterline	SRPMIC	Prop. SD lateral	Adjust/Protect in place
80+57	48	LT	Water Valves (3)	SRPMIC	Roadway	Adjust
83+34	48	RT	Fire Hydrant	SRPMIC	Sidewalk	Relocate
86+59	47	LT	Waterline	SRPMIC	Prop. SD lateral	Adjust/Protect in place
92+58	47	LT	Waterline	SRPMIC	Prop. SD lateral	Adjust/Protect in place
83+85	54	LT	Fire Hydrant	SRPMIC	Sidewalk	Relocate
98+00	54	RT	Exst Catch Basin	MCDOT	Roadway	Relocate
98+00	47	LT	Exst Catch Basin	MCDOT	Roadway	Relocate

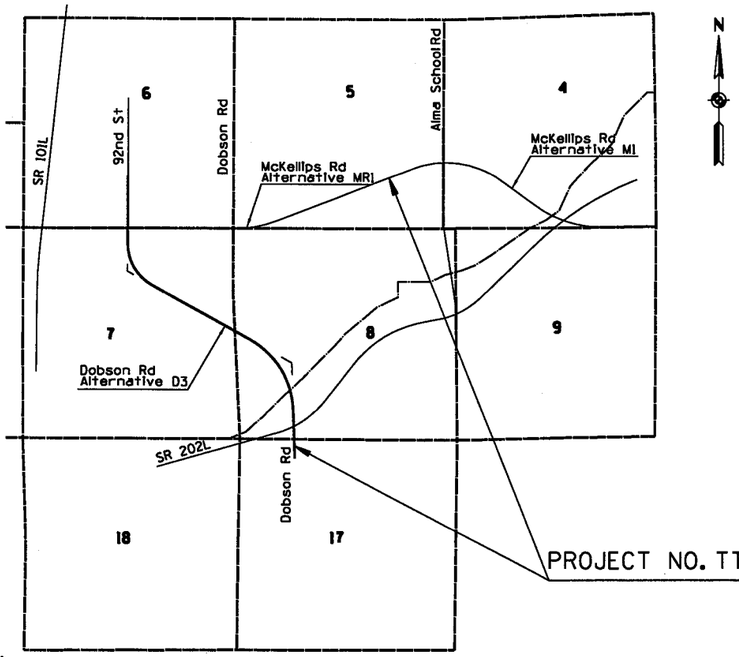
103+04	58	RT	Exst Catch Basin	MCDOT	Roadway	Relocate
103+61	58	RT	Exst Catch Basin	MCDOT	Roadway	Relocate
104+83	3.6	RT	Storm Drain MH	MCDOT	Roadway	Adjust
105+26	55	RT	Exst Catch Basin	MCDOT	Roadway	Relocate
106+60	61	RT	Power Pole	SRP Power	Curb	Relocate
106+90	58	RT	TS Cabinet (2)	MCDOT	Sidewalk	Relocate
107+25	80	RT	Traffic signal pole	MCDOT	Roadway	Relocate
107+60	67	RT	Traffic signal pole	MCDOT	Roadway	Relocate
107+85	2	RT	Storm Drain MH	MCDOT	Roadway	Adjust
107+12	52	LT	Street Light	MCDOT	Sidewalk	Relocate
107+18	51	LT	Traffic signal pole	MCDOT	Roadway	Relocate
107+34	66	LT	Traffic signal pole	MCDOT	S/W Ramp	Relocate
108+20	89	LT	Exst Catch Basin	MCDOT	Curb	Relocate
108+28	81	LT	Traffic signal pole	MCDOT	Curb	Relocate
108+30	64	RT	Traffic signal pole	MCDOT	Curb	Relocate
108+40	58	LT	Traffic signal pole	MCDOT	Roadway	Relocate
108+56	51	RT	Traffic signal pole w/ luminaire	MCDOT	Sidewalk	Relocate
110+10	55	LT	TS Cabinet	MCDOT	Roadway	Relocate
110+25	42	RT	Exst Catch Basin	MCDOT	Roadway	Relocate
139+49	73	RT	Traffic signal pole	ADOT	Curb	Relocate
139+73	48	LT	Traffic signal pole w/ luminaire	ADOT	Curb	Relocate
142+72	53	RT	Traffic signal pole	ADOT	Curb	Relocate
143+66	50	LT	Traffic signal pole	ADOT	Curb	Relocate
146+95	48	LT	Irrigation Structure	SRP Irrigation	Sidewalk	Relocate
147+46	50	RT	Street Light	ADOT	Curb	Relocate

APPENDIX K PLANS AND CROSS SECTIONS

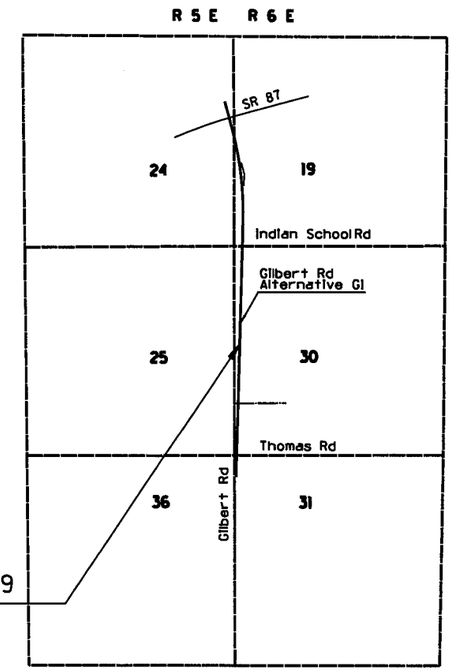
MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION

PLANS FOR THE CONSTRUCTION OF
DOBSON ROAD BRIDGES – AT SALT RIVER

PROJECT NO. TT199

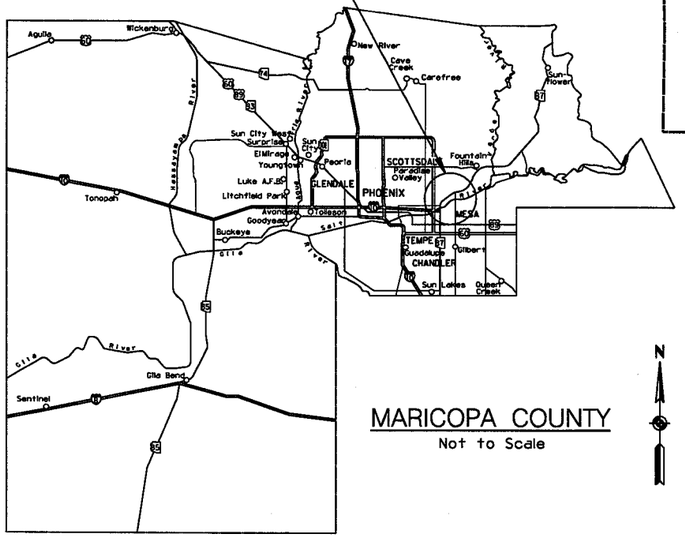


VICINITY MAP
Not to Scale
DOBSON AREA
TOWNSHIP 1 NORTH, RANGE 5 EAST



VICINITY MAP
Not to Scale
GILBERT AREA
TOWNSHIP 2 NORTH, RANGE 5 EAST
TOWNSHIP 2 NORTH, RANGE 6 EAST

PROJECT NO. TT199



MARICOPA COUNTY
Not to Scale

N

IN COOPERATION WITH:
Salt River Pima Maricopa Indian Community

MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION

RECOMMENDED FOR CONSTRUCTION:

MANAGER'S NAME
PROJECT MANAGER — DATE

ISSUED FOR CONSTRUCTION:

RICHARD A. WALLACE, P.E.
ACTING COUNTY ENGINEER — DATE

COUNTY BOARD OF SUPERVISORS

DON STAPLEY - CHAIRMAN

DISTRICT 1	R. FULTON BROCK
DISTRICT 2	DON STAPLEY
DISTRICT 3	ANDREW W. KUNASEK
DISTRICT 4	MAX WILSON
DISTRICT 5	MARY ROSE WILCOX

Review Block

Date	Initials	Review
		R/W
		Utilities
		Traffic
		Operations
		FCDMC
		Planning
		Environmental
		City/Agency

I have reviewed this plan set as it pertains to my discipline and/or department/agency. My initials above do not substitute in any manner the responsibility of the Professional Engineer(s) for this project.

$DATE$
8:59:59 AM
$FILE$

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

ABBREVIATIONS *

AASHTO..... American Association of State Highway and Transportation Officials
AB..... Aggregate Base
AC..... Asphaltic Concrete
ACBC..... Asphaltic Concrete Base Course
ACFC..... Asphalt Concrete Friction Course
ACI..... American Concrete Institute
ACP..... Asbestos Cement Pipe
ACSC..... Asphalt Concrete Surface Course
ADOT..... Arizona Department of Transportation
Ahd..... Ahead
AISC..... American Institute of Steel Construction
APS..... Arizona Public Service Company
Asph..... Asphalt
ASTM..... American Society for Testing Materials
AWS..... American Welding Society

B/C..... Back of Curb
BC..... Brass Cap
BCR..... Begin Curb Return
BCT..... Breakaway Cable Terminal
Bdy..... Boundary
Bev..... Beveled
BFS..... Begin Full Super
Blt..... Bituminous
Bk..... Back
Bkfl..... Backfill
BLM..... Bureau of Land Management
BM..... Bench Mark
Br..... Bridge

C&G..... Curb and Gutter
CAP..... Corrugated Aluminum Pipe
CAPA..... Corrugated Aluminum Pipe Arch
CB..... Catch Basin
CBC..... Concrete Box Culvert
CG..... Cattle Guard
CIP..... Cast Iron Pipe
CIPP..... Cast-In-Place Pipe
Clr..... Clearance)
CLD..... Concrete Lined Ditch
CMP..... Corrugated Metal Pipe
CMPA..... Corrugated Metal Pipe Arch
CO..... Clean Out
COM..... City of Mesa
Conc..... Concrete
Conn..... Connection
Const..... Construction
Cont..... Continuous
Cor..... Corner
Corr..... Correction (VPI to VC)
Cr..... Crown

CSP..... Corrugated Steel Pipe
CSPA..... Corrugated Steel Pipe Arch
CTB..... Concrete Treated Base

DA..... Drainage Area
DE..... Drainage Easement
Defl..... Deflection
Det..... Detail
DIP..... Ductile Iron Pipe
Drn..... Drainage)
D/W..... Driveway
Dwg..... Drawing

E..... Electricity)
e..... External
ECR..... End Curb Return
EFS..... End Full Super
El..... Elevation
Emb..... Embankment
EP..... Edge of Pavement
Esmt..... Easement
Exc..... Excavation
Exist..... Existing
Exp jt..... Expansion Joint

F/C..... Face of Curb
FCDMC..... Flood Control District of Maricopa County
FF..... Finished Floor (Elevation)
FH..... Fire Hydrant
Fnd..... Found
Fwy..... Freeway

G..... Gutter (Flowline Elevation)
ga..... Gauge
GB..... Grade Break
GM..... Gas Meter
Gnd..... Ground
GP..... Guy Pole
Gr..... Grade
GR..... Guardrail
GV..... Gas Valve

HDPE..... High Density Polyethyline
Hdwl..... Headwall
HH..... Hand Hole
HW..... High Water

ID..... Inside Diameter
Inv..... Invert
Irr..... Irrigation

L..... Length of Curve

LC..... Long Chord
LS..... Lump Sum
Lt..... Left

MAG..... Maricopa Association of Governments
Matl..... Material
MCDOT..... Maricopa County Department of Transportation
MH..... Manhole
Min..... Minimum
Mod..... Modify
Mon..... Monument

NC..... Normal Crown
NPI..... Non-Pay Item
NPDES..... National Pollutant Discharge Elimination System
NTS..... Not to Scale

OC..... On Center
OD..... Outside Diameter

P..... Pavement (Surface Elevation)
Ped..... Pedestal
PC..... Point of Curvature
PCC..... Point of Compound Curvature
PCC..... Portland Cement Concrete
PCCP..... Portland Cement Concrete Pavement
PI..... Point of Intersection
POC..... Point on Curve
POT..... Point on Tangent
PP..... Power Pole
PRC..... Point of Reverse Curvature
Prel..... Preliminary
Proj..... Project
Prop..... Proposed
PRVC..... Point of Reverse Vertical Curvature
PT..... Point of Tangency
PVC..... Point of Vertical Curvature
PVC..... Poly Vinyl Chloride
PVI..... Point of Vertical Intersection
Pvmt..... Pavement
PVT..... Point of Vertical Tangency

Q..... Quantity of Drainage Runoff
Qtr..... Quarter
QW..... Qwest Communications

R..... Radius
R..... Range
RCP..... Reinforced Concrete Pipe
Rdwy..... Roadway
Rebar..... Reinforcing Bar
Reinf..... Reinforced(ing)

Reloc..... Relocate
Rem..... Remove
Ret..... Retaining)
RGRCP..... Rubber Gasket Reinforced Concrete Pipe
RR..... Railroad
Rt..... Right
R/W..... Right of Way

S..... Slope
Sch..... Schedule
SCS..... Soil Conservation Service
SD..... Storm Drain
SE..... Slope Easement
Sec..... Section
SG..... Subgrade
Shldr..... Shoulder
Shr..... Shrinkage
Sht..... Sheet
Sk..... Skew
Specs..... Specifications
SRP..... Salt River Project
SRP-MIC..... Salt River Pima Maricopa Indian Community
SS..... Sanitary Sewer
Sta..... Station
Std..... Standard
Struc..... Structural
Subdiv..... Subdivision
Super..... Superelevation
Sw..... Swell
S/W..... Sidewalk
SWG..... Southwest Gas Corporation

T..... Tangent Length
T..... Township
TC..... Top of Curb
TCE..... Temporary Construction Easement
Trans..... Transition
TrRk..... Trash Rack
TS..... Traffic Signal Pole
Typ..... Typical

VC..... Vertical Curve
VCP..... Vitrified Clay Pipe
VG..... Valley Gutter

w/..... with
w/o..... without
WM..... Water Meter
WV..... Water Valve
WWF..... Welded Wire Fabric

* Standard dictionary abbreviations not included.

SYMBOLS

Exist Rdwy Conc Items
Exist Edge of Pvmt
Exist R/W Line
Property Line
Railroad Tracks
Top of Cut
Toe of Slope
Trans Cut to Fill
Exist Barb Wire Fence
Exist Chain Link & Gate
Exist Block Wall & Gate
Exist Wood Fence
Exist Guardrail
Exist Water Line — 6"W (TYPE)
Exist Sanitary Sewer Line — 8"SS (TYPE)
Exist Buried Electric Line
Exist Electric Duct Bank
Exist Gas Line — 2"G HP (TYPE)
Exist Irrigation Line — 24"IRR (TYPE)
Exist Storm Drain Line — 24"SD (TYPE)
Exist Buried Cable TV Line
Exist Buried Telephone Line — (CABLE)
Exist Fiber Optic Tel Line
New Pipe

Angle Point
Bench Mark
Center Line
Flow Line
Monument Line
Property Line or Plate
Section Line
Exist Manhole
Exist US Mail Box
Exist Valve
Exist Meter
Exist Gas Regulator
Exist Power or Joint Use Pole
Exist Steel Power Pole
Exist Guy Wire
Exist Street Light
Exist Util Ped
Exist Stand Pipe
Exist Fire Hydrant
Exist Street Sign
Exist Traf Cont Cab
Exist Traf Pull Box
Exist Traf Signal Pole
Exist Slope Direction

Tree or Hedge Line
Palm Tree
Deciduous Tree
Arid Tree
Conifer Tree
Saguaro Cactus
Misc Cactus
Cholla Cactus
Prickly Pear Cactus
Barrel Cactus
Exist Sign (1 Post)
Exist Sign (2 Posts)
Ground Surface
New Blt Pvmt (Section)
New ABC (Section)
Riprap (Plan)
New Blt Pvmt (Plan)
New Conc Pvmt (Plan)
Remove Pvmt (Plan)
New Conc (Section)
New Metal (Section)

GENERAL NOTES

1 All work shall conform to the Uniform Standard Specifications for Public Works Construction published by the Maricopa Association of Governments (MAG) dated 1998 with revisions through (YEAR), together with the MCDOT Supplement to the MAG Standard Specifications dated (DATE) and the project Special Provisions.

2 Standard Details refer to the MAG Uniform Standard Specifications and Details for Public Works Construction unless noted otherwise.

3 All existing utility lines shown on the plans are from available utility records. The Contractor shall verify the actual location before starting construction. The Contractor shall contact "Blue Stake", (602) 263-1100, prior to beginning construction.

4 Utilities interfering with construction shall be reset or relocated by the utility company concerned unless noted otherwise.

5 Disposal of all waste material, broken concrete, etc. will be the responsibility of the Contractor, subject to the approval of the Engineer.

6 All stations and callout distances left and right refer to the construction centerline unless noted otherwise.

7 All trees, bushes and obstacles inside the existing right-of-way which interfere with construction, shall be removed by the Contractor unless noted otherwise. Any fences damaged during construction shall be restored by the Contractor at no additional cost to the County.

8 All paved turnouts shall have the same asphalt and base requirements as the adjacent roadway unless noted otherwise.

9 The Contractor shall obtain all the necessary permits from local governments for work within their jurisdiction.

10 All mail boxes interfering with construction shall be relocated by the Contractor as to provide uninterrupted mail service. This is a non-pay item.

▲ BENCH MARK

Reference ADOT Projects
STP-600-8(006)P
Red Mountain - SR 101L to McKellips Rd

LENGTH OF PROJECT

McKellips Road MR1 Sta 5+76 to Sta 107+48 = 10,172 ft
McKellips Road M1 Sta 108+16 to Sta 148+78 = 4,062 ft
Dobson Road D3 Sta 10+07 to Sta 93+01 = 8,294 ft
Gilbert Road G1 Sta 15+53 to Sta 100+17 = 8,464 ft

TOTAL = 30,992 ft
30992/5280 = 5.87 miles

PROJECT DISTURBED AREA

4,273,381ft² = 98 Acres

DESIGN DATA

McKellips Rd MR1:
CLASSIFICATION.....URBAN PRINCIPAL ARTERIAL
TERRAIN.....LEVEL
DESIGN SPEED.....55 MPH
(2006) AVERAGE DAILY TRAFFIC..22,000/VPD
(2030) AVERAGE DAILY TRAFFIC..40,000/VPD

McKellips Rd M1:
CLASSIFICATION.....URBAN PRINCIPAL ARTERIAL
TERRAIN.....LEVEL
DESIGN SPEED.....55 MPH
(2006) AVERAGE DAILY TRAFFIC..30,500/VPD
(2030) AVERAGE DAILY TRAFFIC..40,000/VPD

Dobson Rd D3:
CLASSIFICATION.....URBAN PRINCIPAL ARTERIAL
.....RURAL MAJOR COLLECTOR
TERRAIN.....LEVEL
DESIGN SPEED.....55 MPH (URBAN)
.....30 MPH (RURAL)
(2006) AVERAGE DAILY TRAFFIC..0/VPD
(2030) AVERAGE DAILY TRAFFIC..14,800/VPD

Gilbert Rd G1:
CLASSIFICATION.....URBAN PRINCIPAL ARTERIAL
.....RURAL PRINCIPAL ARTERIAL
TERRAIN.....LEVEL
DESIGN SPEED.....55 MPH (URBAN)
.....65 MPH (RURAL)
(2006) AVERAGE DAILY TRAFFIC..18,900/VPD
(2030) AVERAGE DAILY TRAFFIC..34,200/VPD

INDEX

1..... FACE SHEET
2..... GENERAL NOTES
3-4.... KEY MAPS
5-10... TYPICAL SECTIONS
11-17.. GEOMETRIC CONTROL DATA SHEETS
18-34.. MCKELLIPS ROAD PLAN AND PROFILE SHEETS
35-45.. DOBSON ROAD PLAN AND PROFILE SHEETS
46-57.. GILBERT ROAD PLAN AND PROFILE SHEETS
58-61.. MASS DIAGRAM SHEETS

1-27... MCKELLIPS ROAD CROSS SECTIONS
28-41.. DOBSON ROAD CROSS SECTIONS
42-61.. GILBERT ROAD CROSS SECTIONS

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. POLASIK	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GENERAL NOTES

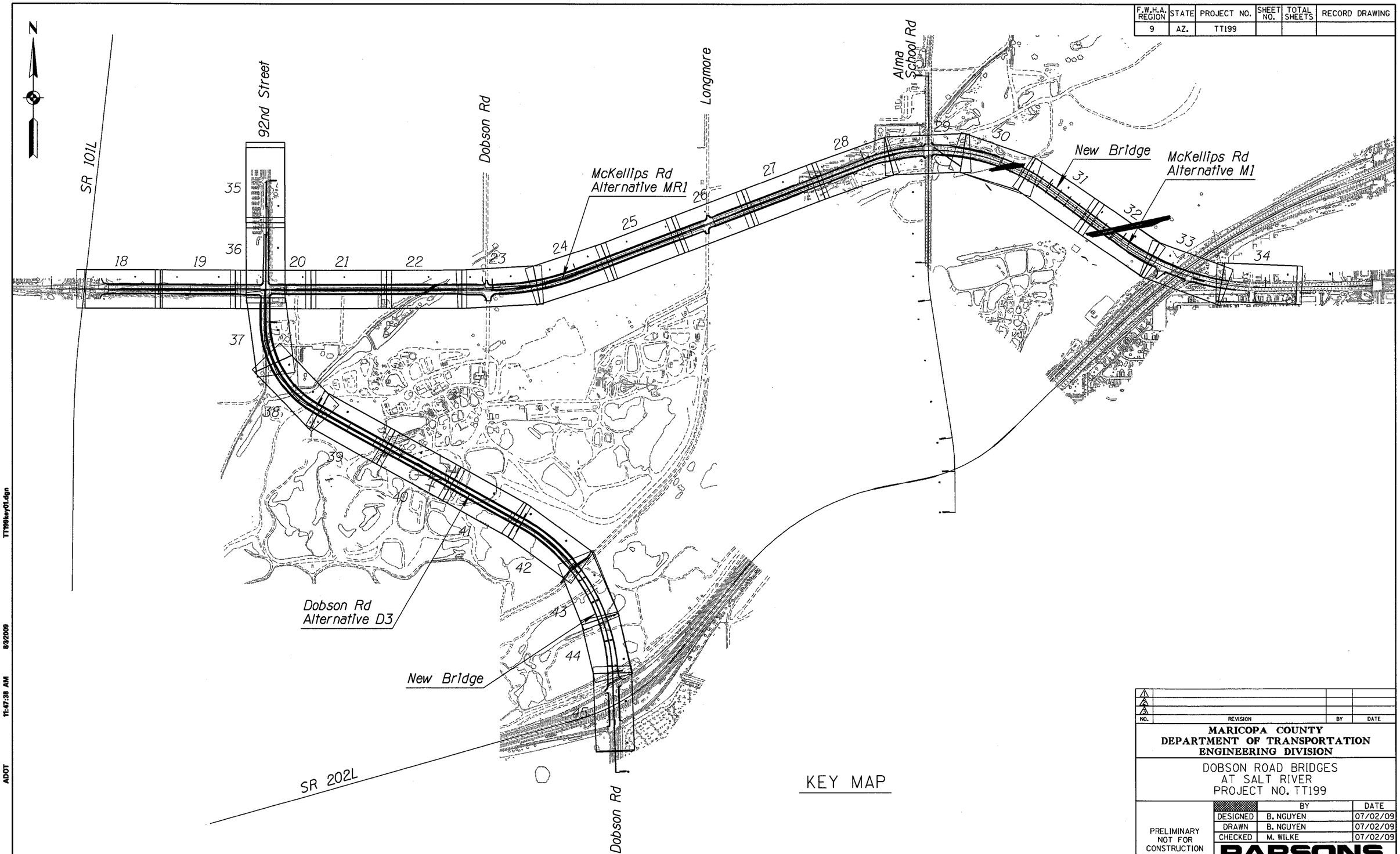
SHEET 2 OF 61

TRACS NO.

ADOT 8:35:50 AM 8/2/2009 TT199gnote.dgn

English

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



KEY MAP

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	B. NGUYEN	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	M. WILKE	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

KEY MAP
MCKELLIPS AND DOBSON

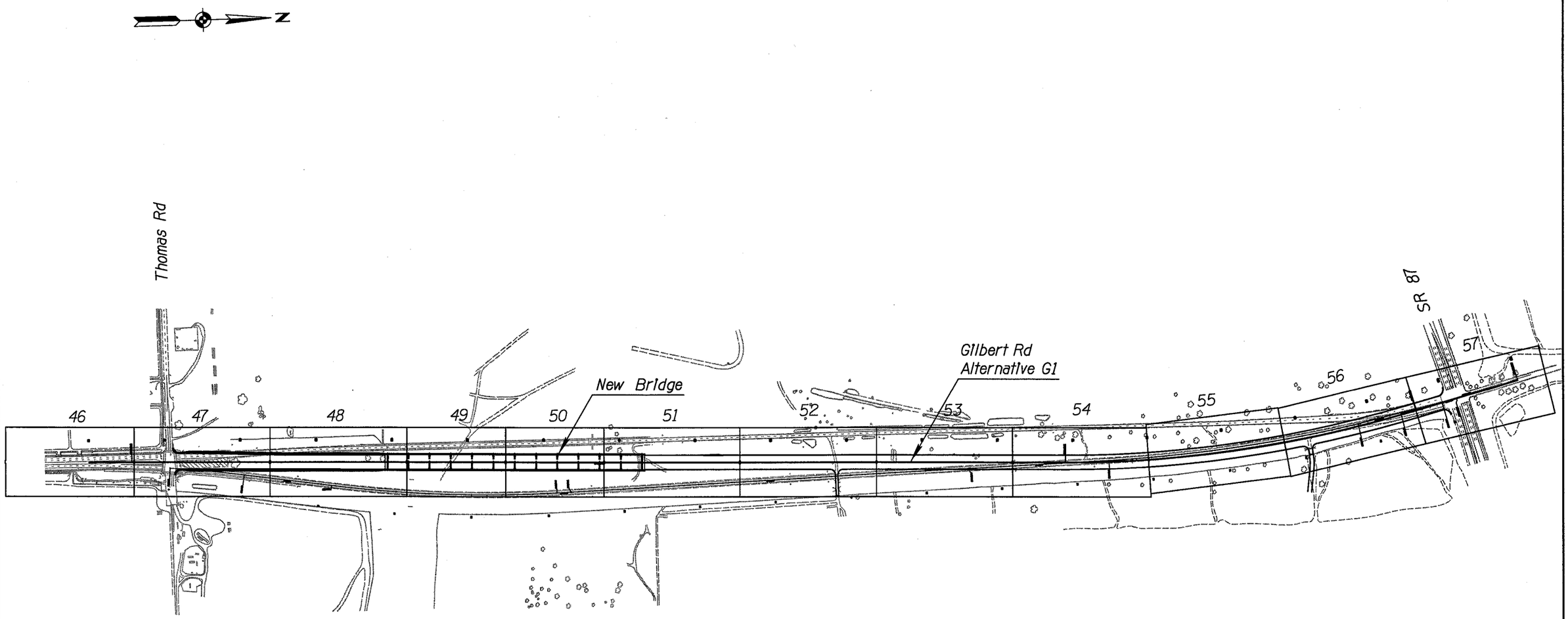
SHEET 3 OF 61

TRACS NO.

ADOT 11:47:38 AM 8/2/2009 TT199key01.dgn

English

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



KEY MAP

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	B. NGUYEN	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	M. WILKE	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

KEY MAP
GILBERT

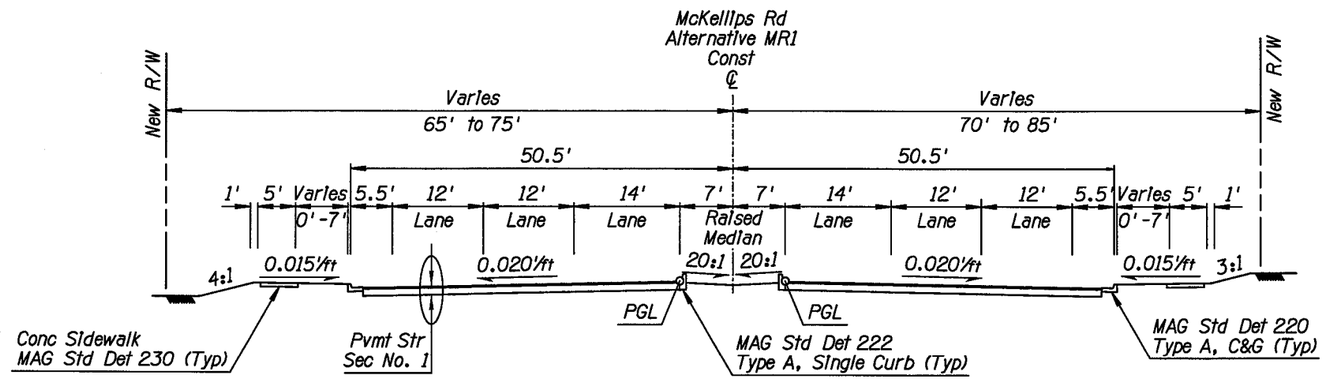
SHEET 4 OF 61

TRACS NO.

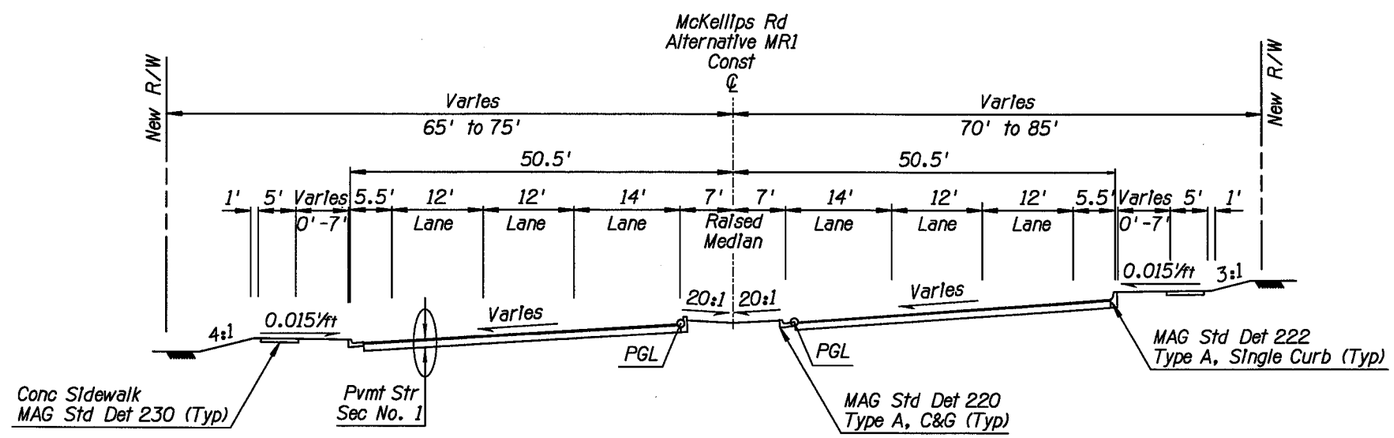
ADOT 3:20:10 PM 7/31/2009 TT199key02.dgn

English

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



McKELLIPS ROAD
ALTERNATIVE MR1
TYPICAL SECTION
NORMAL CROWN SECTION



McKELLIPS ROAD
ALTERNATIVE MR1
TYPICAL SECTION
SUPER-ELEVATED SECTION

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

TYPICAL SECTION

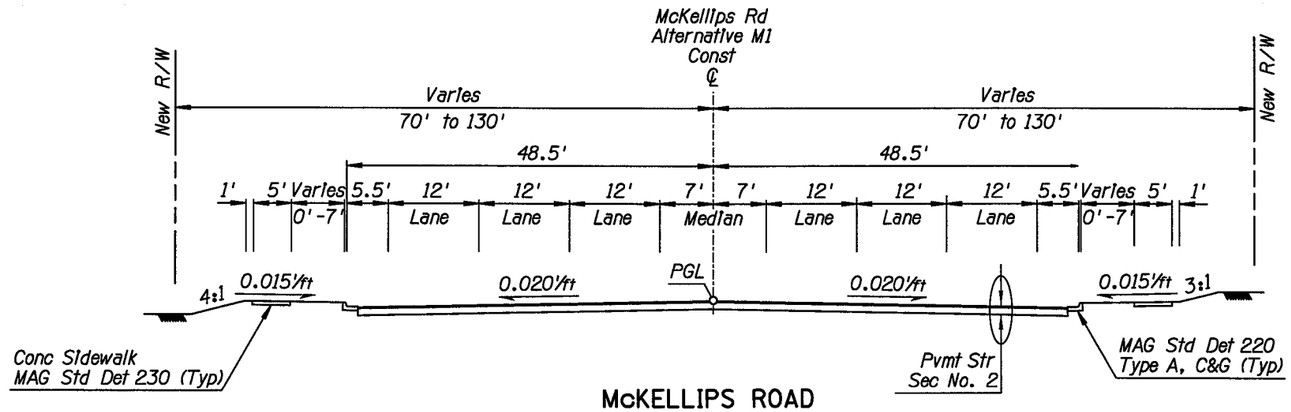
SHEET 5 OF 61

TRACS NO.

English

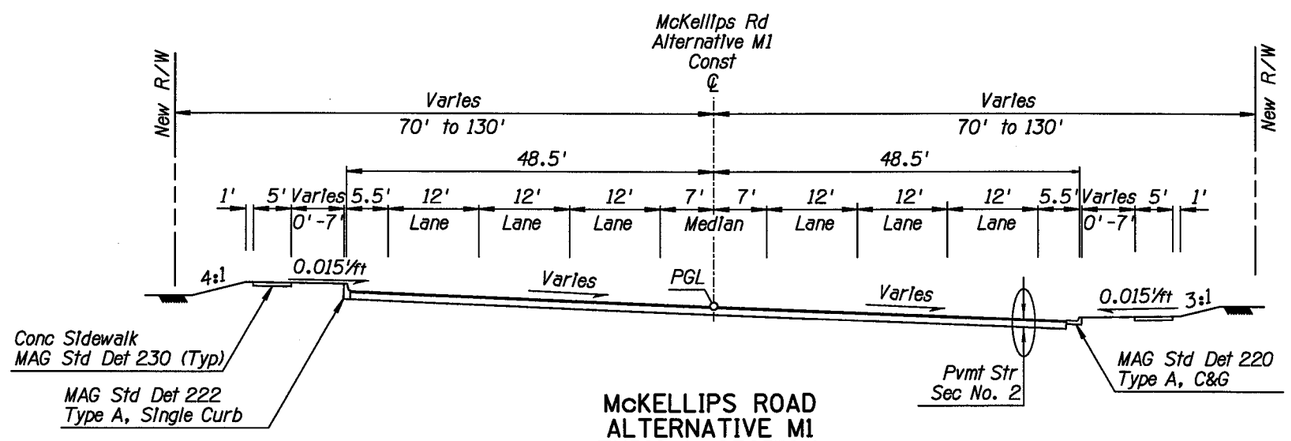
ADOT 3:20:21 PM 7/31/2009 TT199typ01.dgn

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



McKELLIPS ROAD ALTERNATIVE M1 TYPICAL SECTION

NORMAL CROWN SECTION



McKELLIPS ROAD ALTERNATIVE M1 TYPICAL SECTION

SUPER-ELEVATED SECTION

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
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DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

TYPICAL SECTION

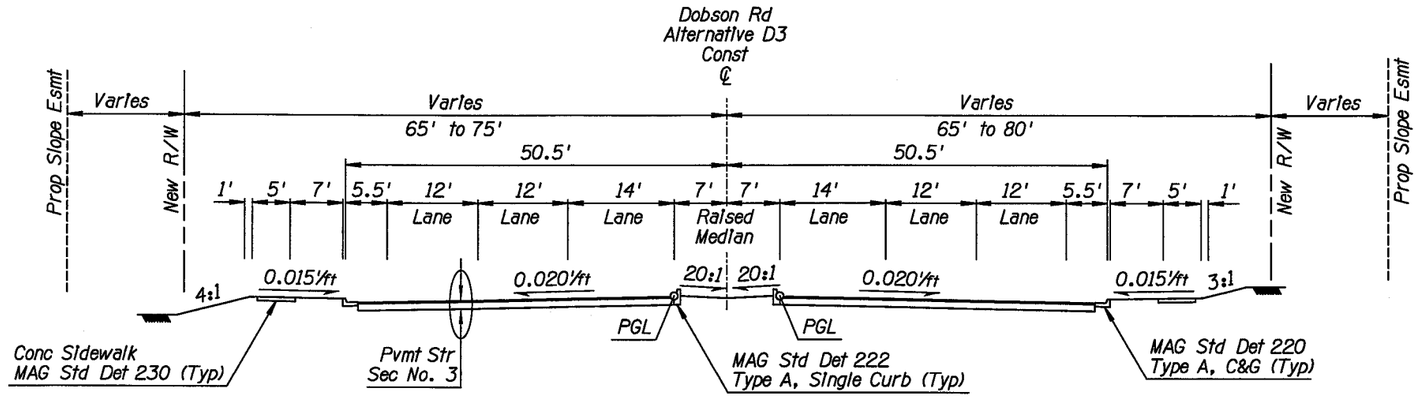
SHEET 6 OF 61

TRACS NO.

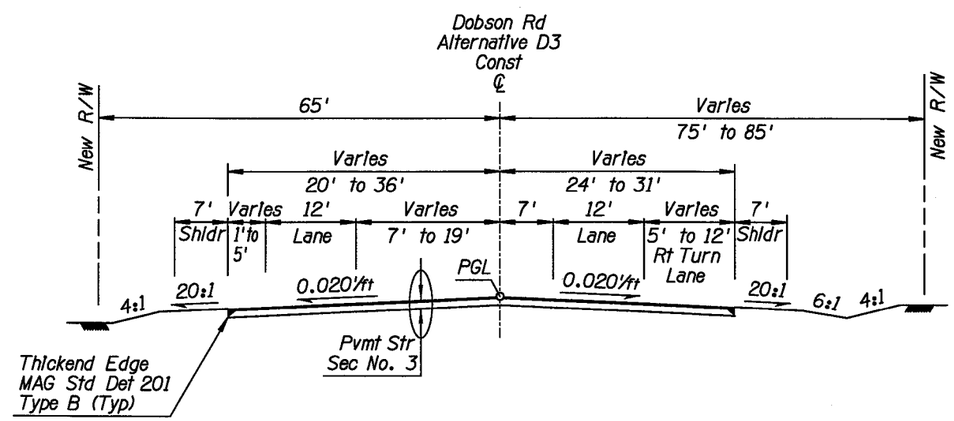
English

ADOT 3:20:29 PM 7/31/2009 TT199typ02.dgn

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



DOBSON ROAD
ALTERNATIVE D3
TYPICAL SECTION
NORMAL CROWN SECTION



DOBSON ROAD
ALTERNATIVE D3
TYPICAL SECTION
NORMAL CROWN SECTION
AT 92ND STREET

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
CONSTRUCTION

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DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

TYPICAL SECTION

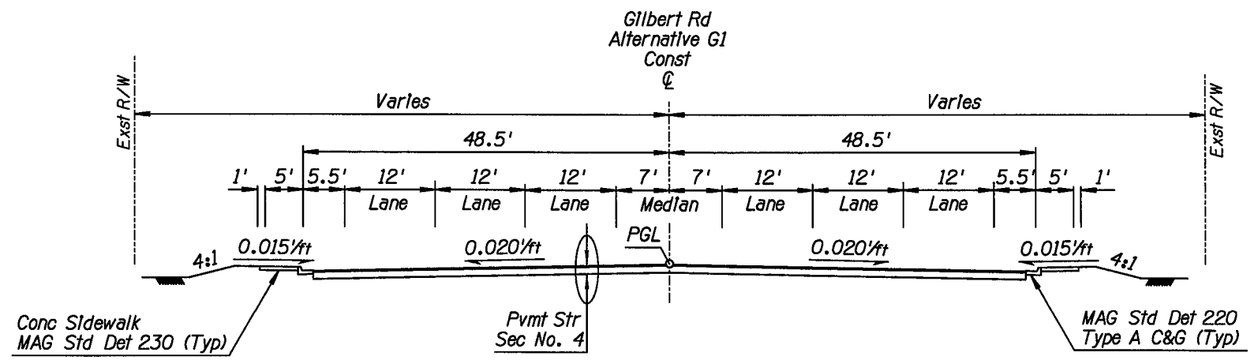
SHEET 7 OF 61

TRACS NO.

English

ADOT 3:20:34 PM 7/31/2009 TT199typ03.dgn

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



GILBERT ROAD
ALTERNATIVE G1
TYPICAL SECTION

NORMAL CROWN SECTION
SOUTH OF BRIDGE

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
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PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

TYPICAL SECTION

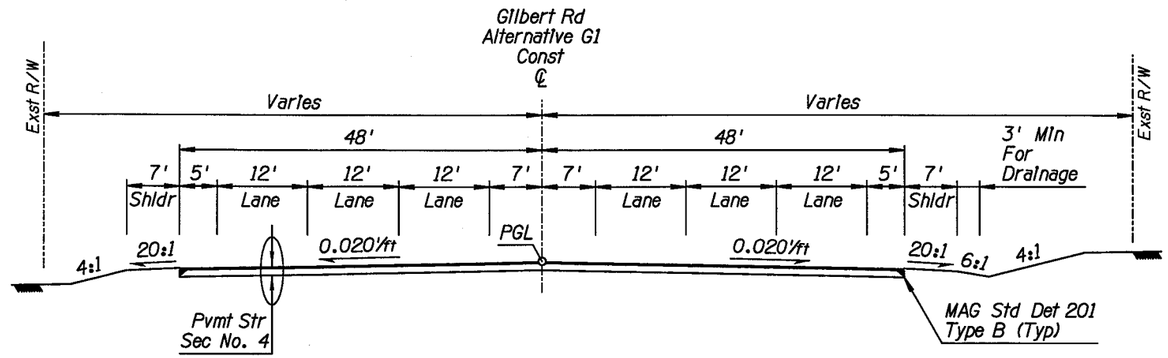
SHEET 8 OF 61

TRACS NO.

English

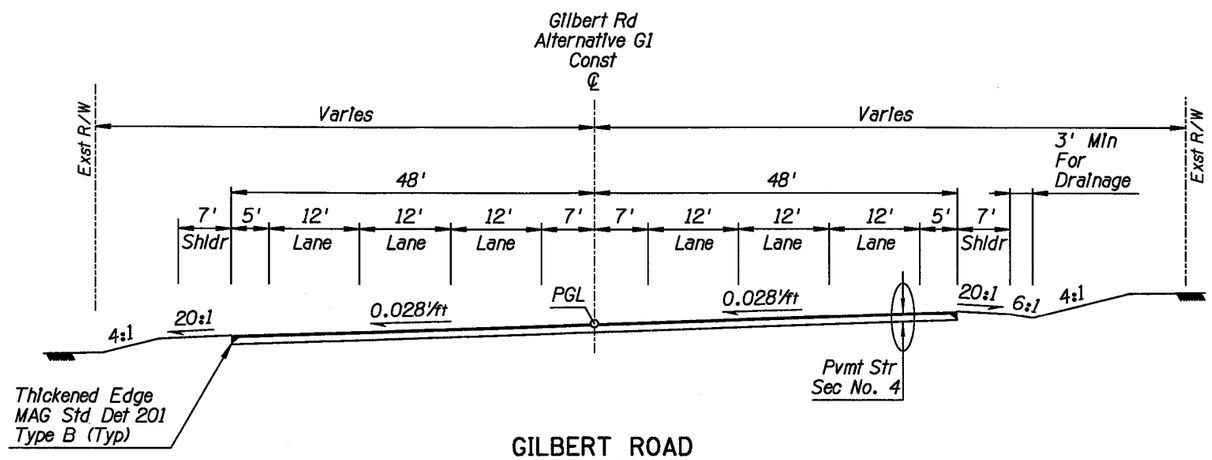
ADOT 3:20:43 PM 7/31/2009 TT199typ04.dgn

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



GILBERT ROAD
ALTERNATIVE G1
TYPICAL SECTION

NORMAL CROWN SECTION
NORTH OF BRIDGE



GILBERT ROAD
ALTERNATIVE G1
TYPICAL SECTION

SUPER-ELEVATED SECTION
NORTH OF BRIDGE

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
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DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

TYPICAL SECTION

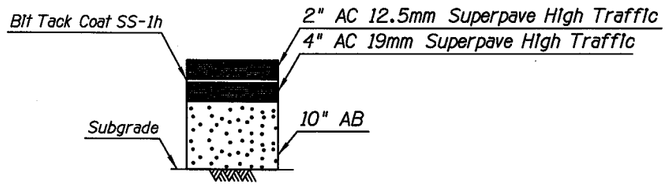
SHEET 9 OF 61

TRACS NO.

English

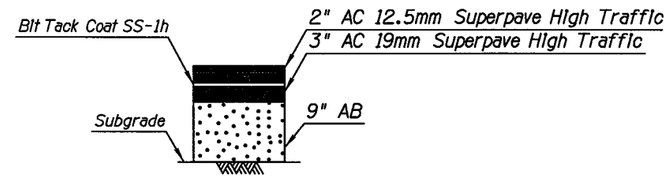
TT199typ05.dgn 7/31/2009 3:20:50 PM ADOT

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



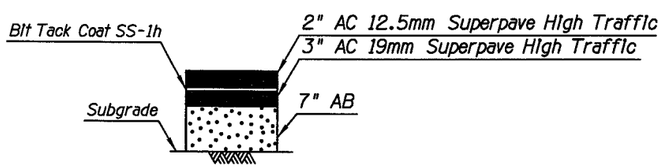
SECTION NO. 1

McKellips Rd West
Alternative MR1



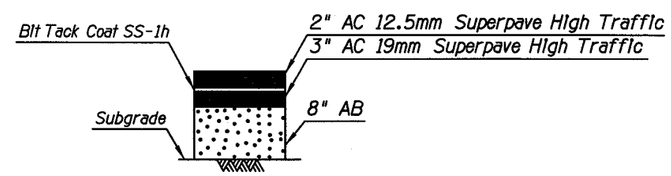
SECTION NO. 3

Dobson Rd
Alternative D3



SECTION NO. 2

McKellips Rd East
Alternative M1



SECTION NO. 4

Gilbert Rd
Alternative G1

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
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DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

PAVEMENT STRUCTURE SECTIONS

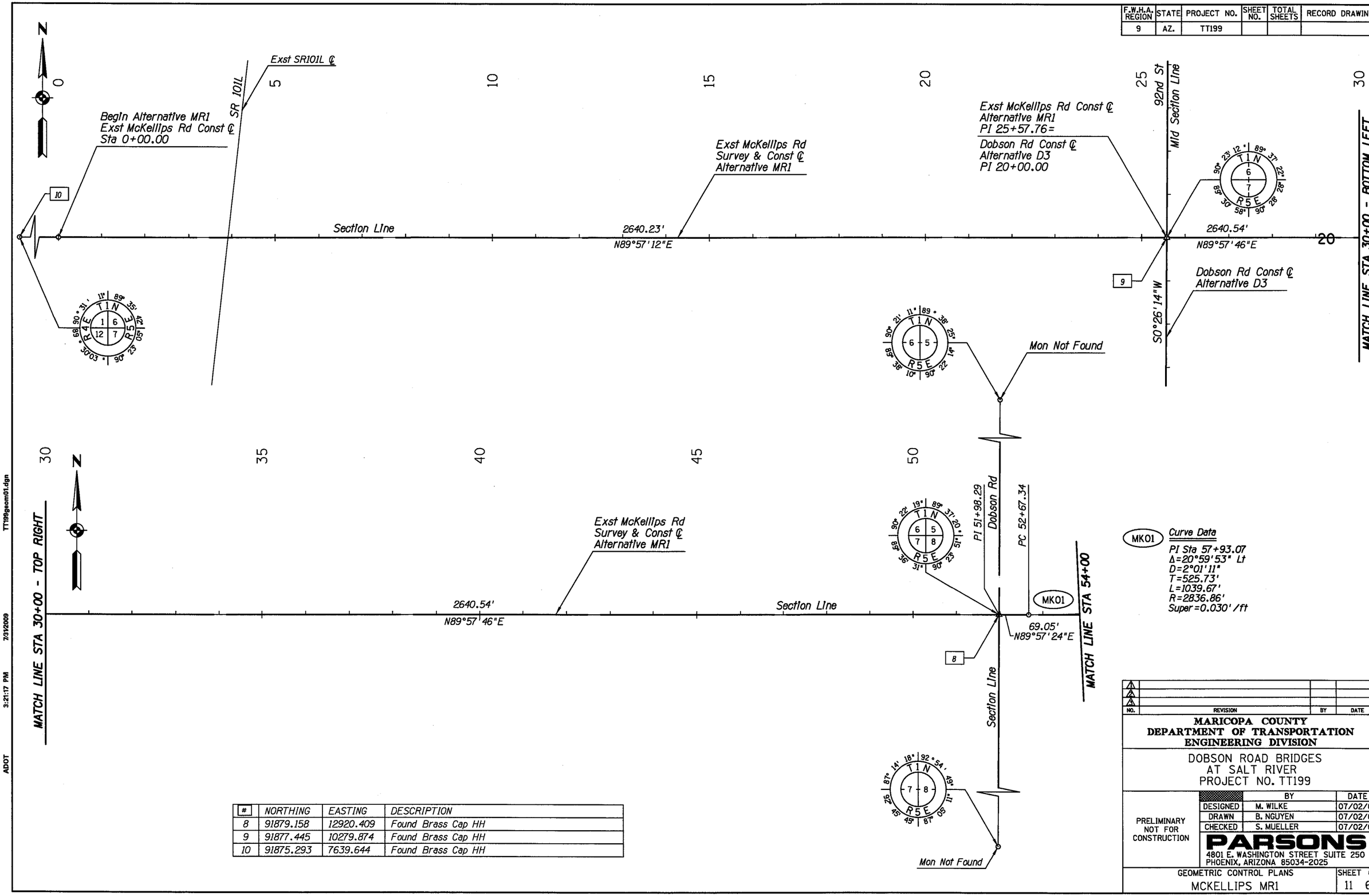
SHEET 10 OF 61

TRACS NO.

English

ADOT 3:21:11 PM 7/3/2009 TT199psect01.dgn

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



MK01 Curve Data

PI Sta 57+93.07
Δ=20°59'53" Lt
D=2°01'11"
T=525.73'
L=1039.67'
R=2836.86'
Super=0.030'/ft

#	NORTHING	EASTING	DESCRIPTION
8	91879.158	12920.409	Found Brass Cap HH
9	91877.445	10279.874	Found Brass Cap HH
10	91875.293	7639.644	Found Brass Cap HH

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GEOMETRIC CONTROL PLANS
MCKELLIPS MR1

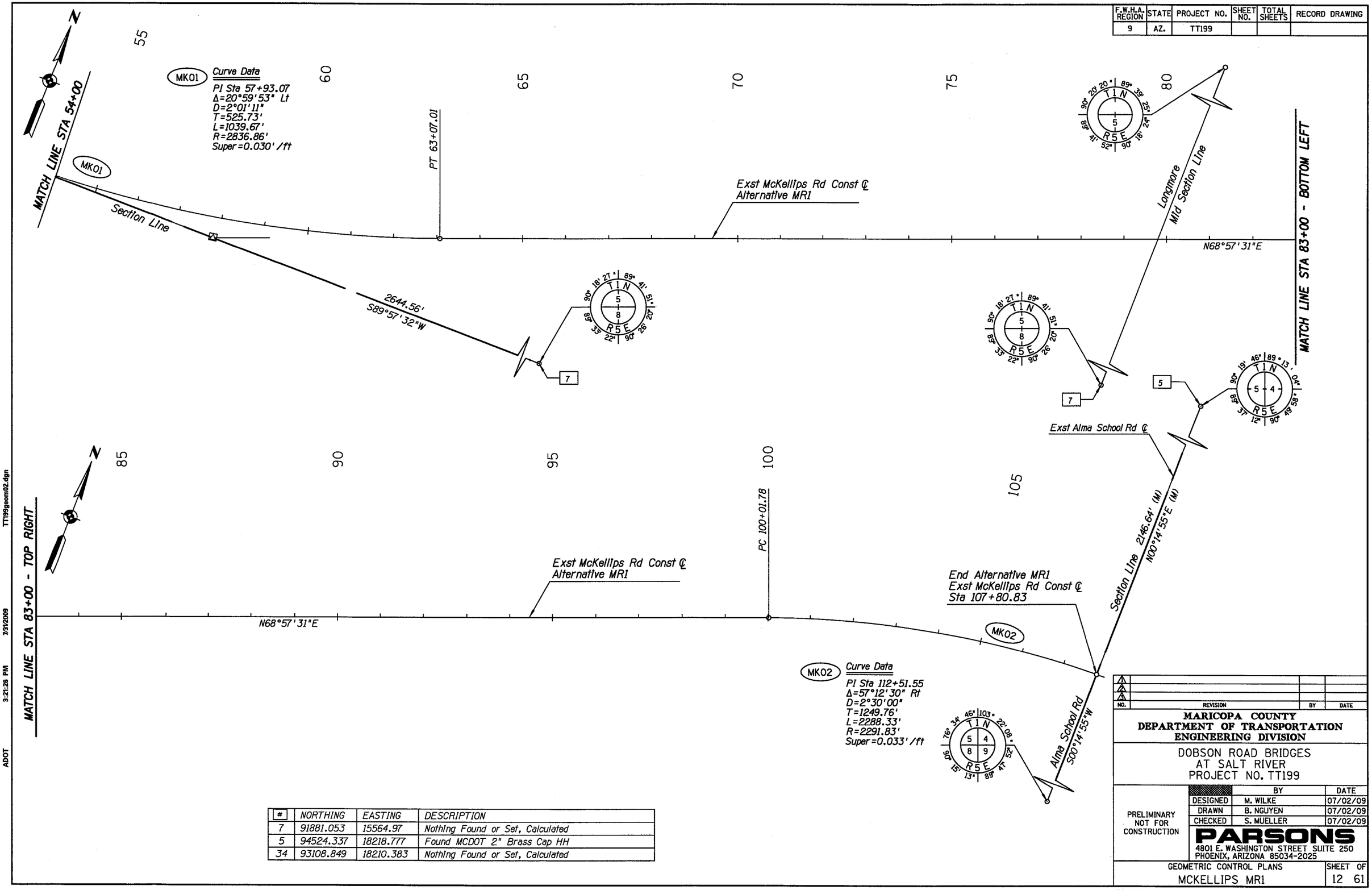
SHEET 11 OF 61

TRACS NO.

English

ADOT 3:21:17 PM 7/31/2009 TT199geom01.dgn

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



#	NORTHING	EASTING	DESCRIPTION
7	91881.053	15564.97	Nothing Found or Set, Calculated
5	94524.337	18218.777	Found MCDOT 2" Brass Cap HH
34	93108.849	18210.383	Nothing Found or Set, Calculated

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY NOT FOR CONSTRUCTION

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DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GEOMETRIC CONTROL PLANS
MCKELLIPS MR1

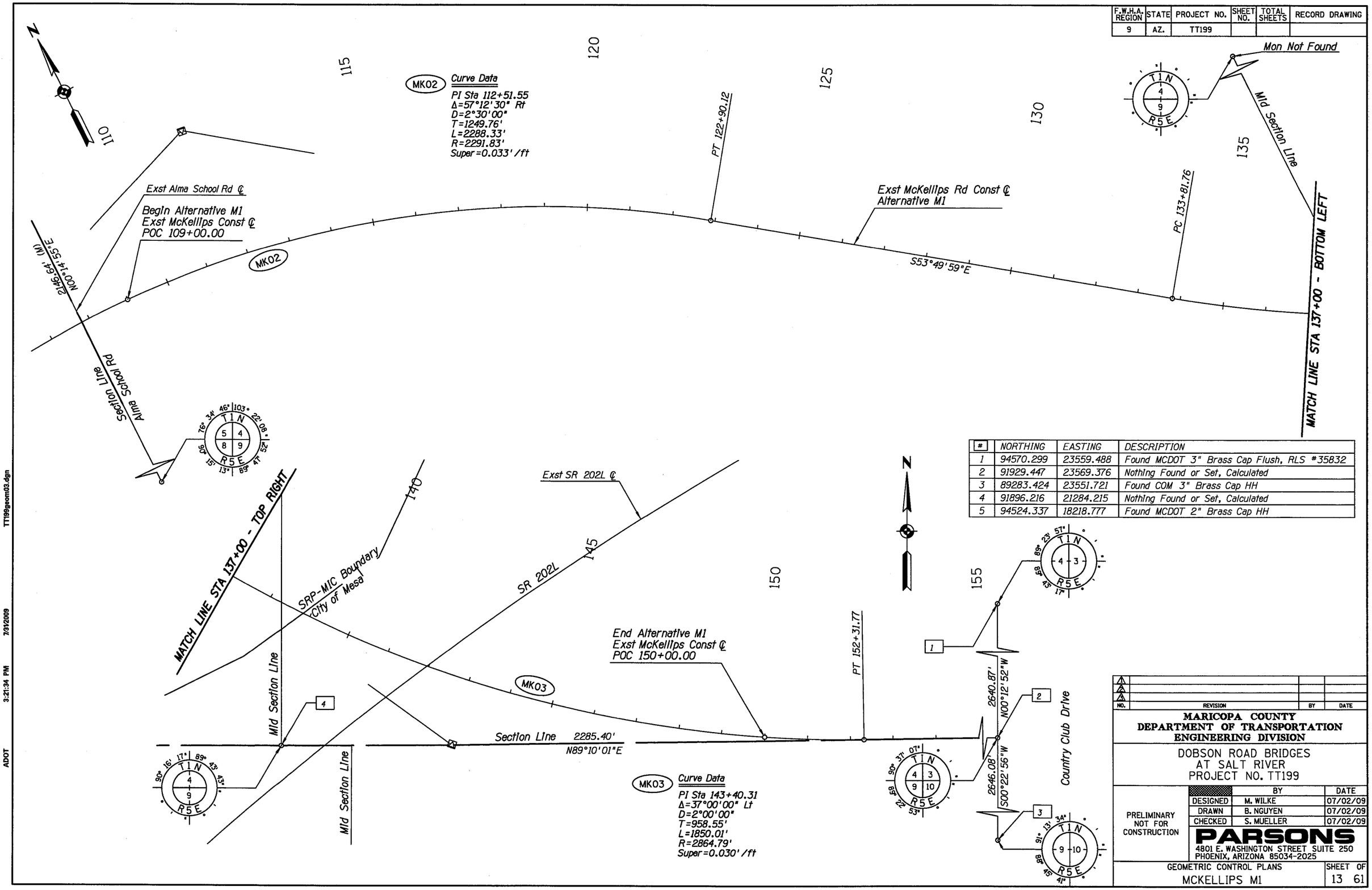
SHEET 12 OF 61

TRACS NO.

ADOT 3:21:26 PM 7/31/2009 TT199geom02.dgn

English

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



#	NORTHING	EASTING	DESCRIPTION
1	94570.299	23559.488	Found MCDOT 3" Brass Cap Flush, RLS #35832
2	91929.447	23569.376	Nothing Found or Set, Calculated
3	89283.424	23551.721	Found COM 3" Brass Cap HH
4	91896.216	21284.215	Nothing Found or Set, Calculated
5	94524.337	18218.777	Found MCDOT 2" Brass Cap HH

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GEOMETRIC CONTROL PLANS
MCKELLIPS M1

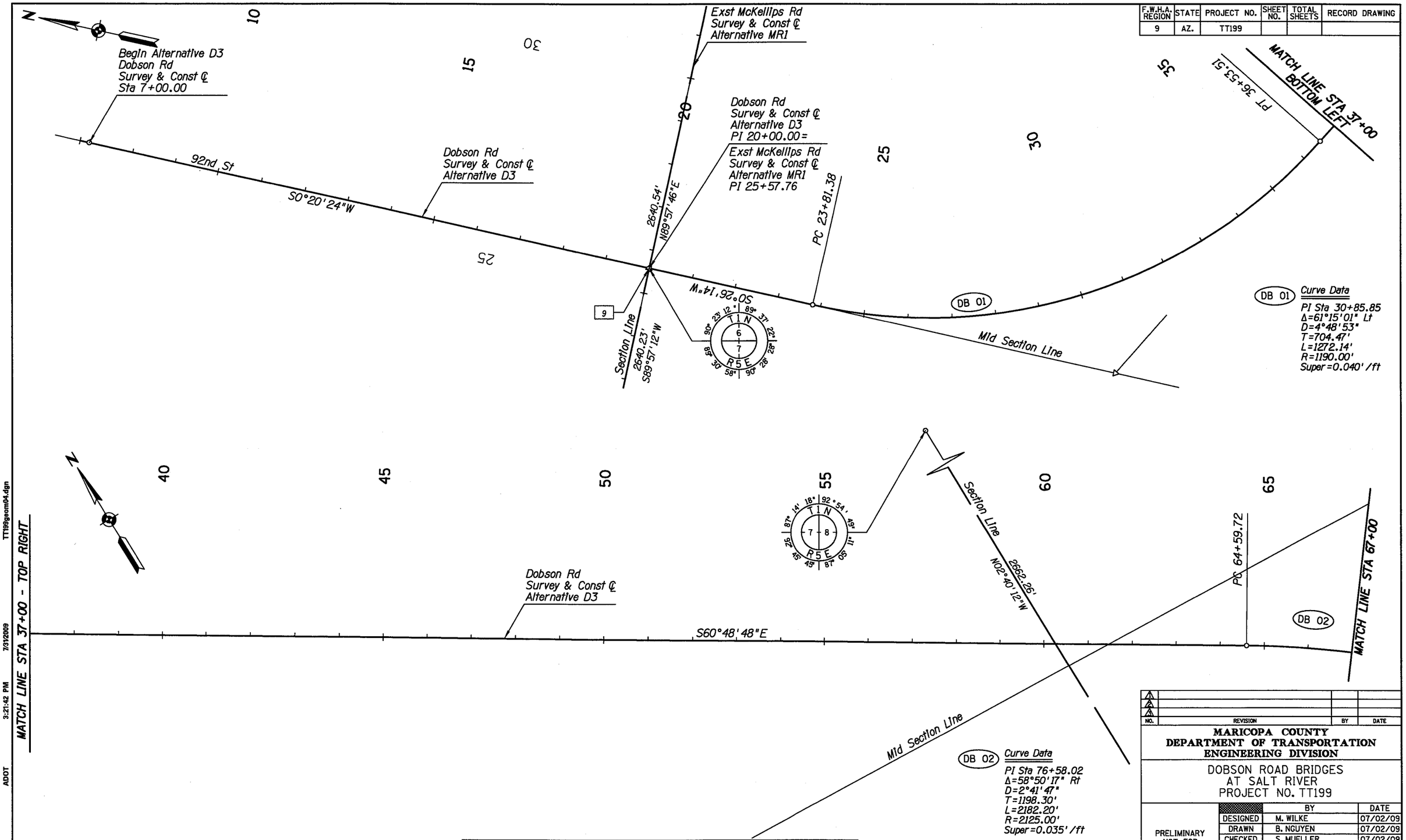
SHEET 13 OF 61

TRACS NO.

ADOT 3:21:34 PM 7/31/2009 TT199geom03.dgn

English

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



#	NORTHING	EASTING	DESCRIPTION
9	91877.445	10279.874	Found Brass Cap HH

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
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DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GEOMETRIC CONTROL PLANS
DOBSON D3

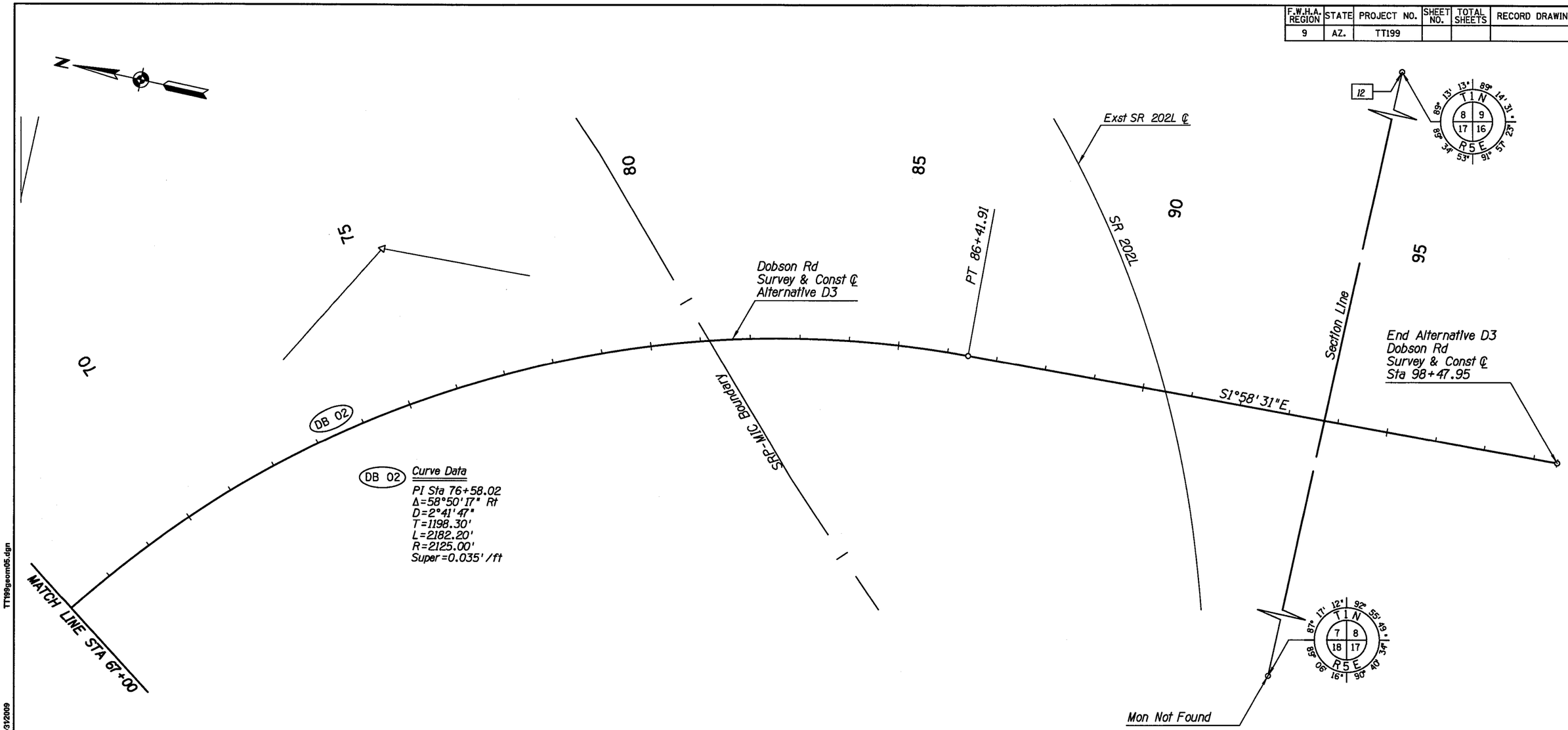
SHEET 14 OF 61

TRACS NO.

ADOT 3:21:42 PM 7/31/2009 TT199geom04.dgn

English

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



#	NORTHING	EASTING	DESCRIPTION
12	86547.099	18551.327	Found 3" Brass Cap HH

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
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PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

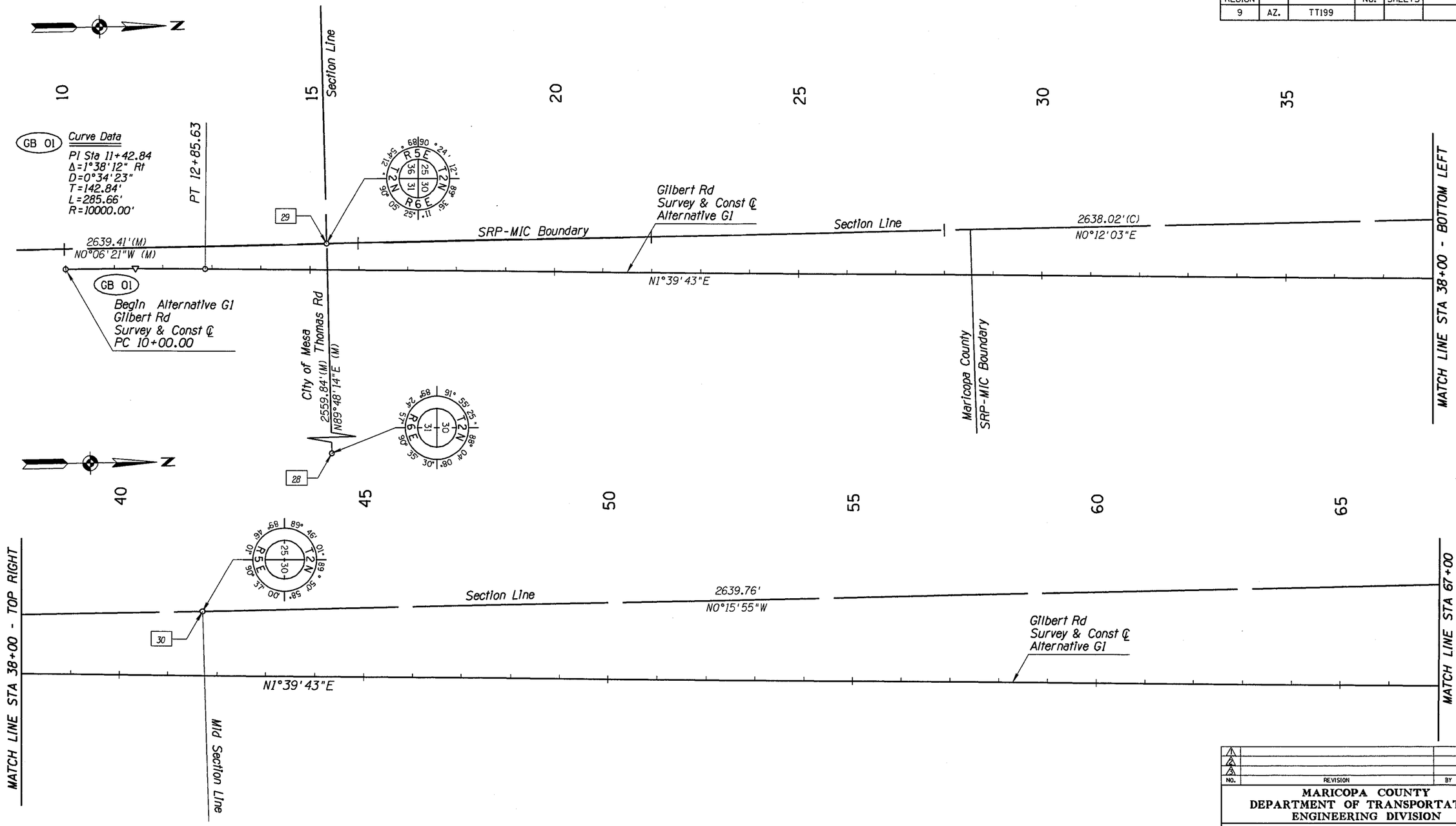
GEOMETRIC CONTROL PLANS
DOBSON D3

SHEET 15 OF 61

TRACS NO.

ADOT 3:21:50 PM 7/3/2009 TT199geom05.dgn

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



#	NORTHING	EASTING	DESCRIPTION
28	102675.047	42062.148	Found MCDOT 2" Aluminum Cap HH
29	102666.286	39502.318	Found MCDOT 3" Brass Cap Flush, RLS #13163
30	105304.289	39511.570	Nothing Found or Set, Calculated

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

	BY	DATE
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DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PRELIMINARY NOT FOR CONSTRUCTION

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GEOMETRIC CONTROL PLAN
GILBERT G1

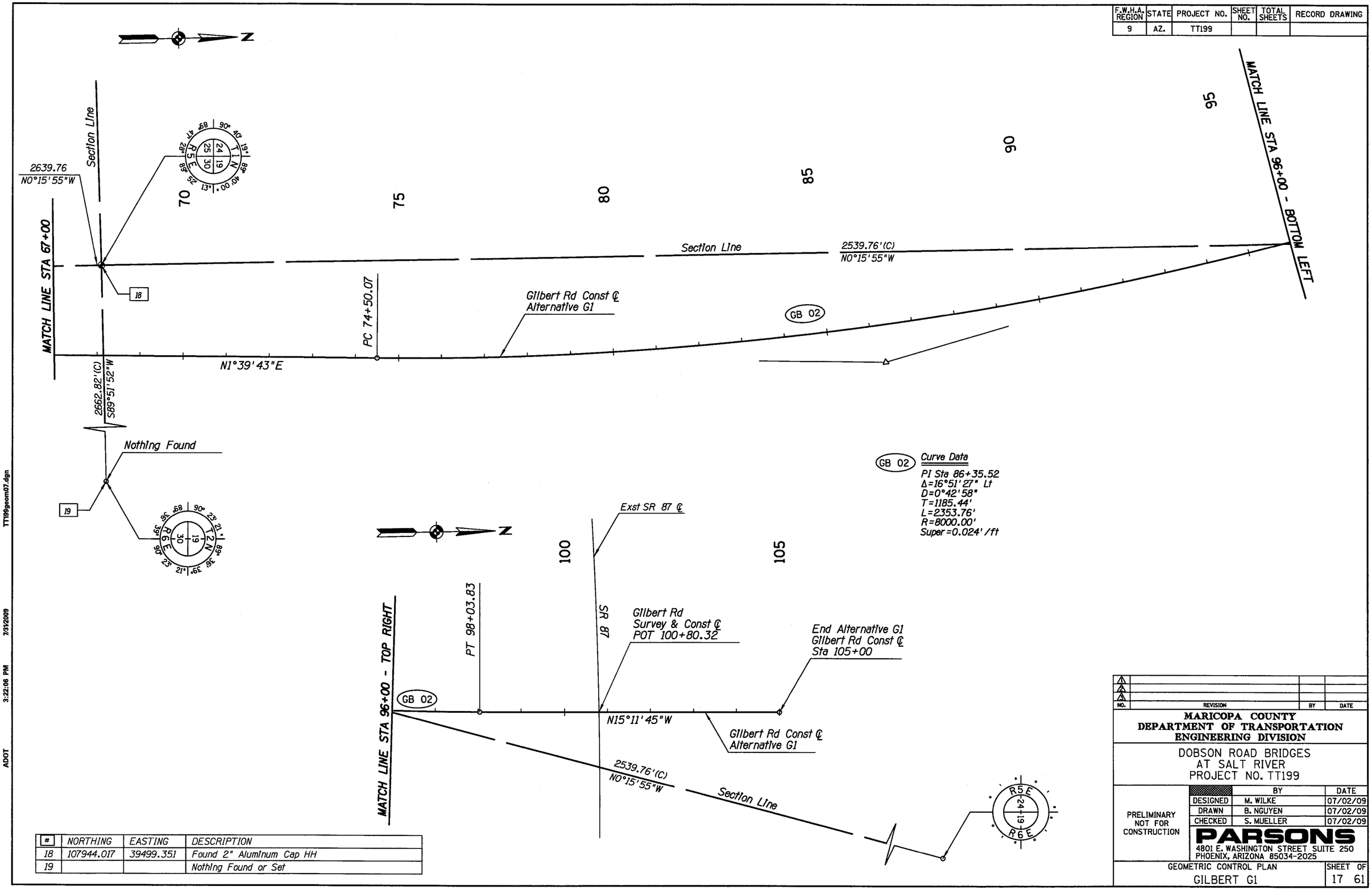
SHEET 16 OF 61

TRACS NO.

ADOT 11:51:18 AM 8/2/2009 TT199geom06.dgn

Emolish

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



#	NORTHING	EASTING	DESCRIPTION
18	107944.017	39499.351	Found 2" Aluminum Cap HH
19			Nothing Found or Set

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
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CONSTRUCTION

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PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

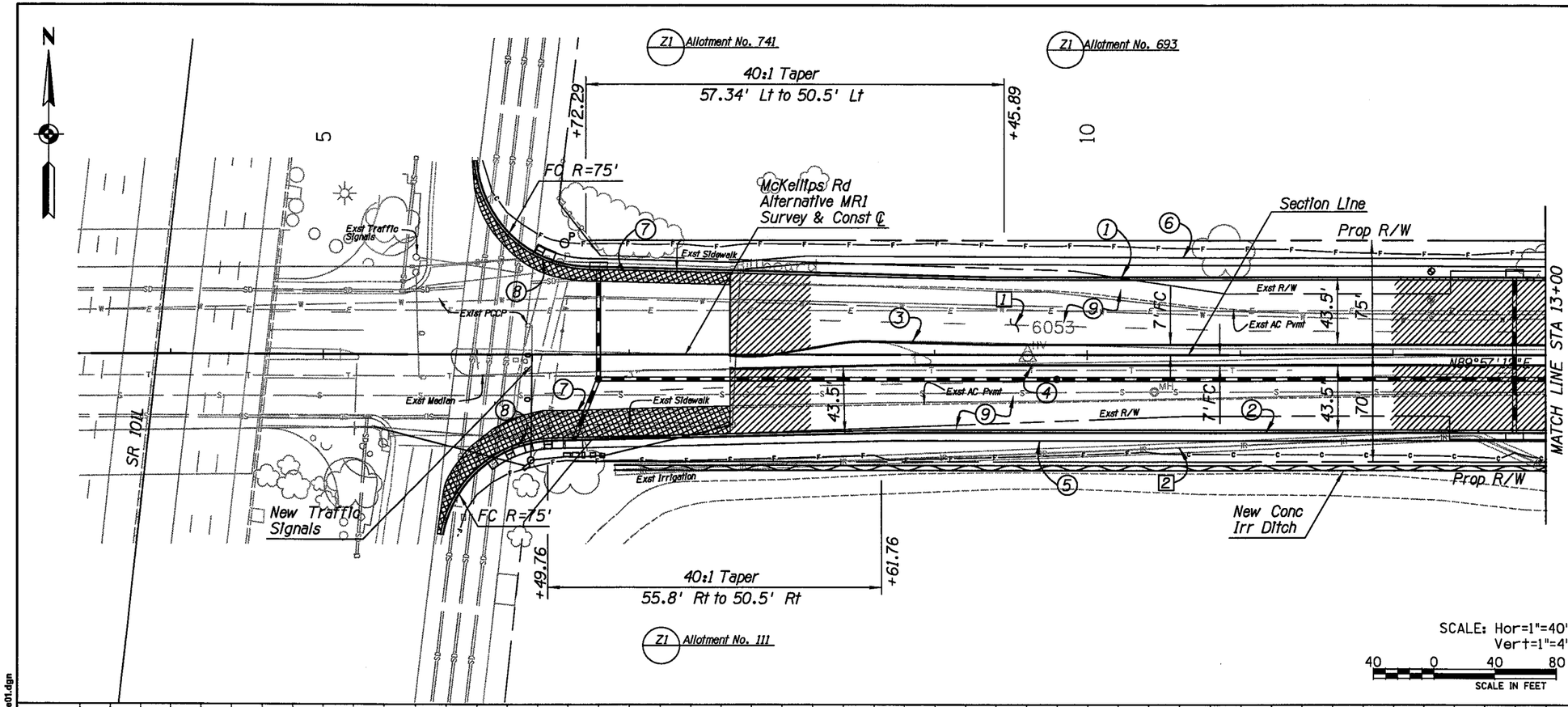
GEOMETRIC CONTROL PLAN
GILBERT G1

SHEET 17 OF 61

TRACS NO.

English

ADOT 3:22:06 PM 7/31/2009 TT199geom07.dgn



F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1. Remove AC Pvmt
2. Remove / Relocate

CONSTRUCTION

1. Sta 5+97 to Sta 13+00
   MAG Det 220, Type A Curb & Gutter
2. Sta 5+75 to Sta 13+00
   MAG Det 220, Type A Curb & Gutter
3. Sta 7+66 to Sta 13+00
   MAG Det 222, Type A Curb & Gutter
4. Sta 7+66 to Sta 13+00
   MAG Det 220, Type A Curb
5. Sta 6+10 to Sta 13+00
   MAG Det 230, 5 Ft Sidewalk
6. Sta 6+40 to Sta 13+00
   MAG Det 230, 5 Ft Sidewalk
7. New PCCP
8. Conc Sidewalk Ramp
   ADOT Std C-05.30
9. Sta 7+66 to Sta 13+00
   New AC Pvmt

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

	BY	DATE
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PRELIMINARY NOT FOR CONSTRUCTION

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

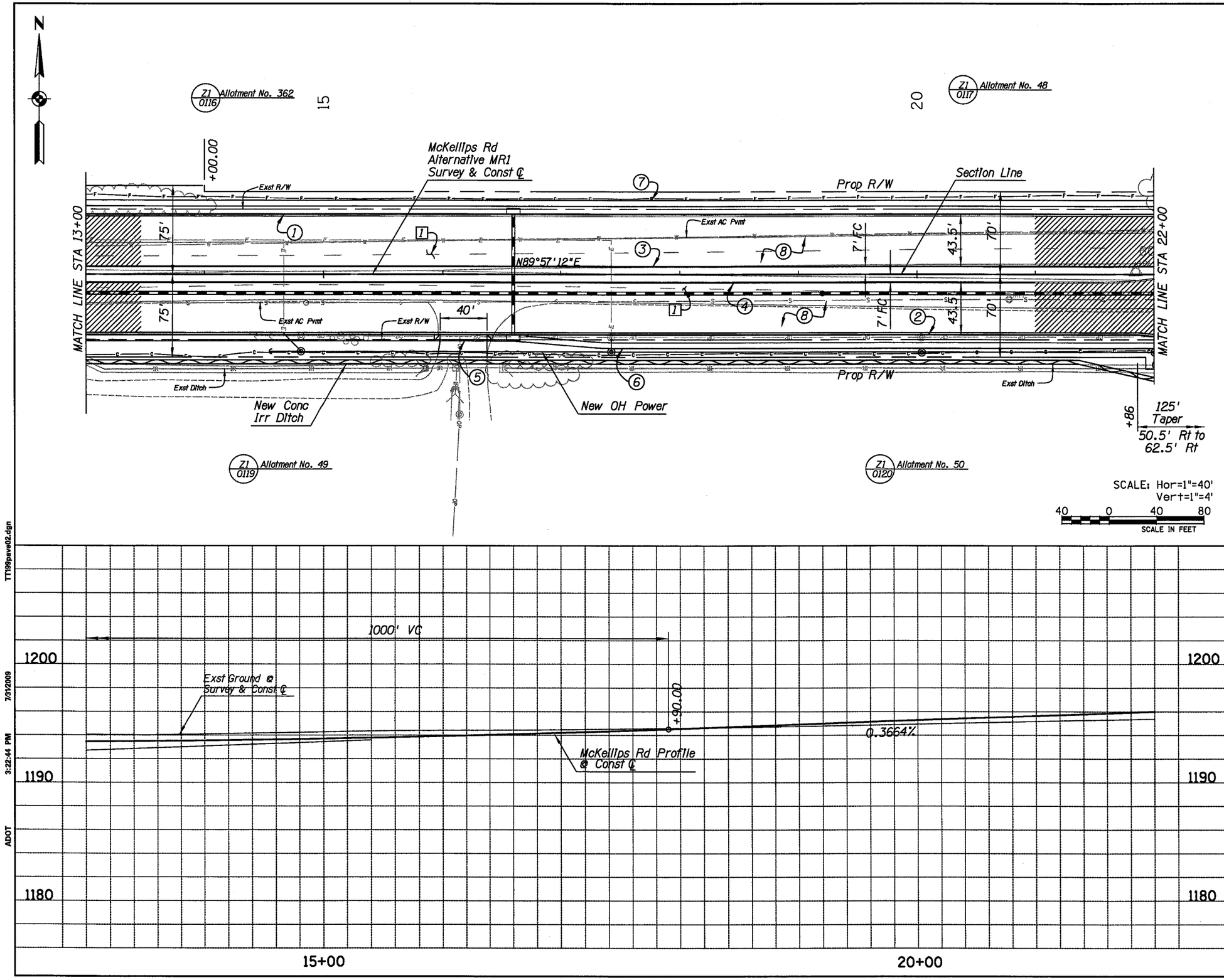
McKELLIPS - PAVING PLAN AND PROFILE
STA 4+00 TO 13+00

SHEET 18 OF 61

TRACS NO.

TT199pave01.dgn 7/31/2009 3:22:27 PM ADOT

English



F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1 Remove AC Pvmt

CONSTRUCTION

1. Sta 13+00 to Sta 22+00
   MAG Det 220, Type A Curb & Gutter
2. Sta 13+00 to Sta 22+00
   MAG Det 220, Type A Curb & Gutter
3. Sta 13+00 to Sta 22+00
   MAG Det 222, Type A Curb
4. Sta 13+00 to Sta 22+00
   MAG Det 222, Type A Curb
5. Sta 16+19.25
   Construct New 40' Driveway MAG Det 250
6. Sta 13+00 to Sta 22+00
   MAG Det 230, 5 Ft Sidewalk
7. Sta 13+00 to Sta 22+00
   MAG Det 230, 5 Ft Sidewalk
8. Sta 13+00 to Sta 22+00
   New AC Pvmt

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

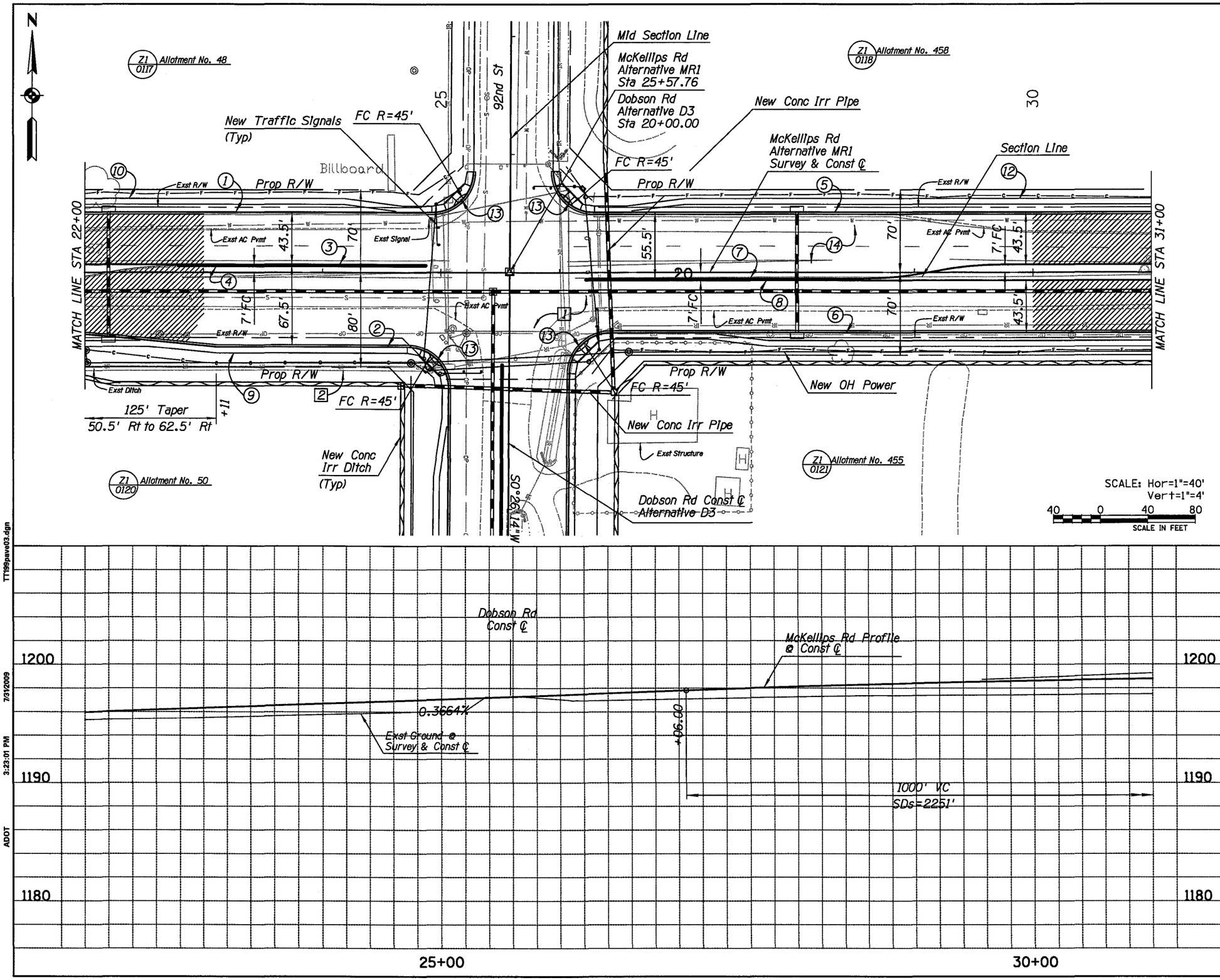
McKELLIPS - PAVING PLAN AND PROFILE
STA 13+00 TO 22+00

SHEET 19 OF 61

TRACS NO.

ADOT 3:22:44 PM 7/31/2009 TT199pave02.dgn

English



F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1 Remove AC Pvmt

2 Remove / Relocate

◯ CONSTRUCTION ◯

1. Sta 22+00 to Sta 25+33
   MAG Det 220, Type A Curb & Gutter
2. Sta 22+00 to Sta 25+36
   MAG Det 220, Type A Curb & Gutter
3. Sta 22+00 to Sta 25+07
   MAG Det 222, Type A Curb
4. Sta 22+00 to Sta 25+07
   MAG Det 222, Type A Curb
5. Sta 25+80 to Sta 31+00
   MAG Det 220, Type A Curb & Gutter
6. Sta 25+76 to Sta 31+00
   MAG Det 220, Type A Curb & Gutter
7. Sta 26+10 to Sta 31+00
   MAG Det 222, Type A Curb
8. Sta 26+10 to Sta 31+00
   MAG Det 222, Type A Curb
9. Sta 22+00 to Sta 25+06
   MAG Det 230, 5 Ft Sidewalk
10. Sta 22+00 to Sta 25+28
    MAG Det 230, 5 Ft Sidewalk
11. Sta 26+08 to Sta 31+00
    MAG Det 230, 5 Ft Sidewalk
12. Sta 25+96 to Sta 31+00
    MAG Det 230, 5 Ft Sidewalk
13. Conc Sidewalk Ramp
    MCDOT Det 2031-A
14. Sta 22+00 to Sta 31+00
    New AC Pvmt

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

		BY	DATE
PRELIMINARY NOT FOR CONSTRUCTION	DESIGNED	M. WILKE	07/02/09
	DRAWN	B. NGUYEN	07/02/09
	CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

McKELLIPS - PAVING PLAN AND PROFILE
STA 22+00 TO 31+00

SHEET 20 OF 61

TRACS NO.

English

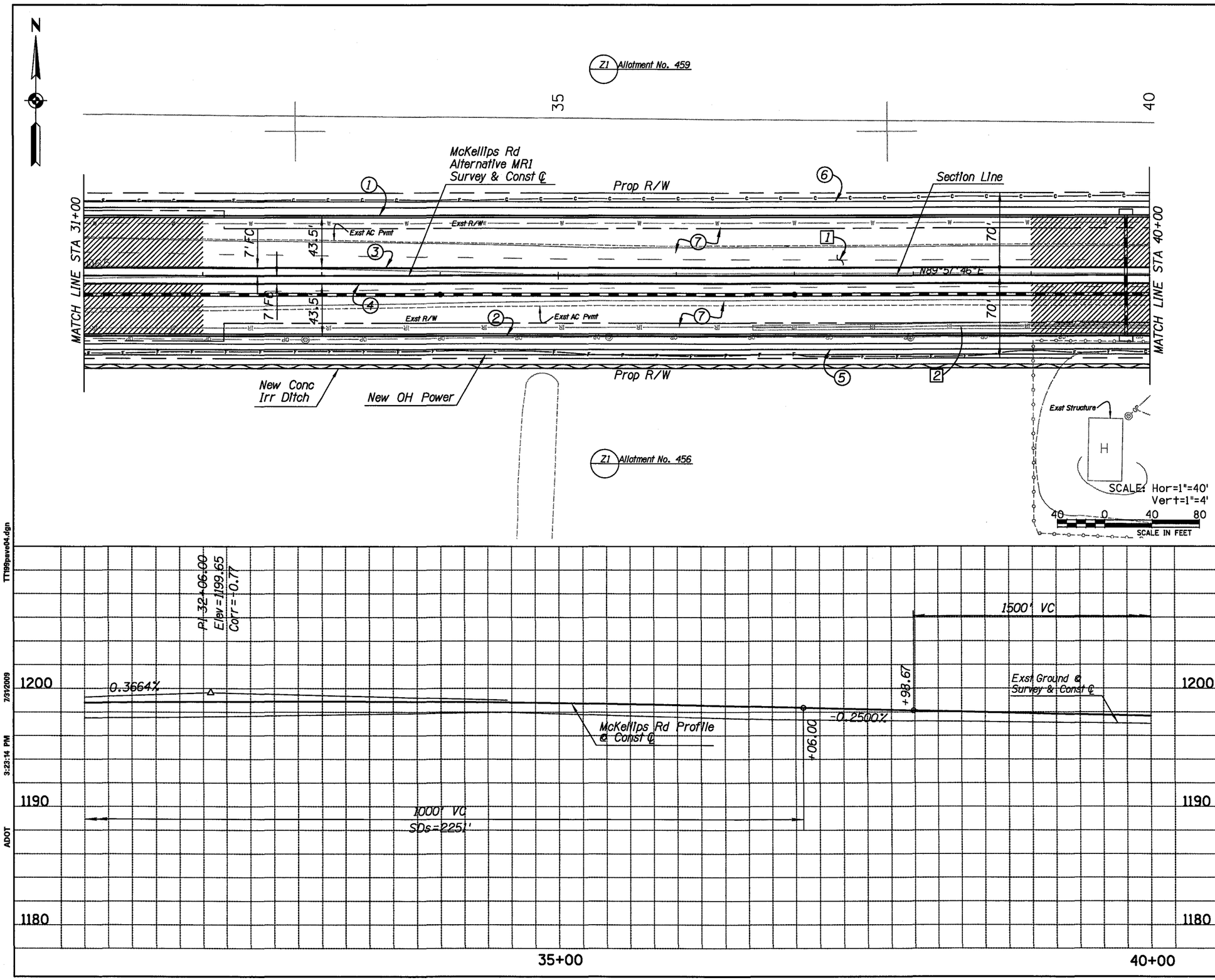
TT199pave03.dgn 7/31/2009 3:23:01 PM ADOT

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

[1] Remove AC Pvmt

[2] Remove / Relocate



◯ CONSTRUCTION ◯

(1) Sta 31+00 to Sta 40+00
MAG Det 220, Type A Curb & Gutter

(2) Sta 31+00 to Sta 40+00
MAG Det 220, Type A Curb & Gutter

(3) Sta 31+00 to Sta 40+00
MAG Det 222, Type A Curb

(4) Sta 31+00 to Sta 40+00
MAG Det 222, Type A Curb

(5) Sta 31+00 to Sta 40+00
MAG Det 230, 5 Ft Sidewalk

(6) Sta 31+00 to Sta 40+00
MAG Det 230, 5 Ft Sidewalk

(7) Sta 31+00 to Sta 40+00
New AC Pvmt

NO.	REVISION	BY	DATE
1			
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

McKELLIPS - PAVING PLAN AND PROFILE
STA 31+00 TO 40+00

SHEET 21 OF 61

TRACS NO.

TT199pave04.dgn 7/31/2009 3:23:14 PM ADOT

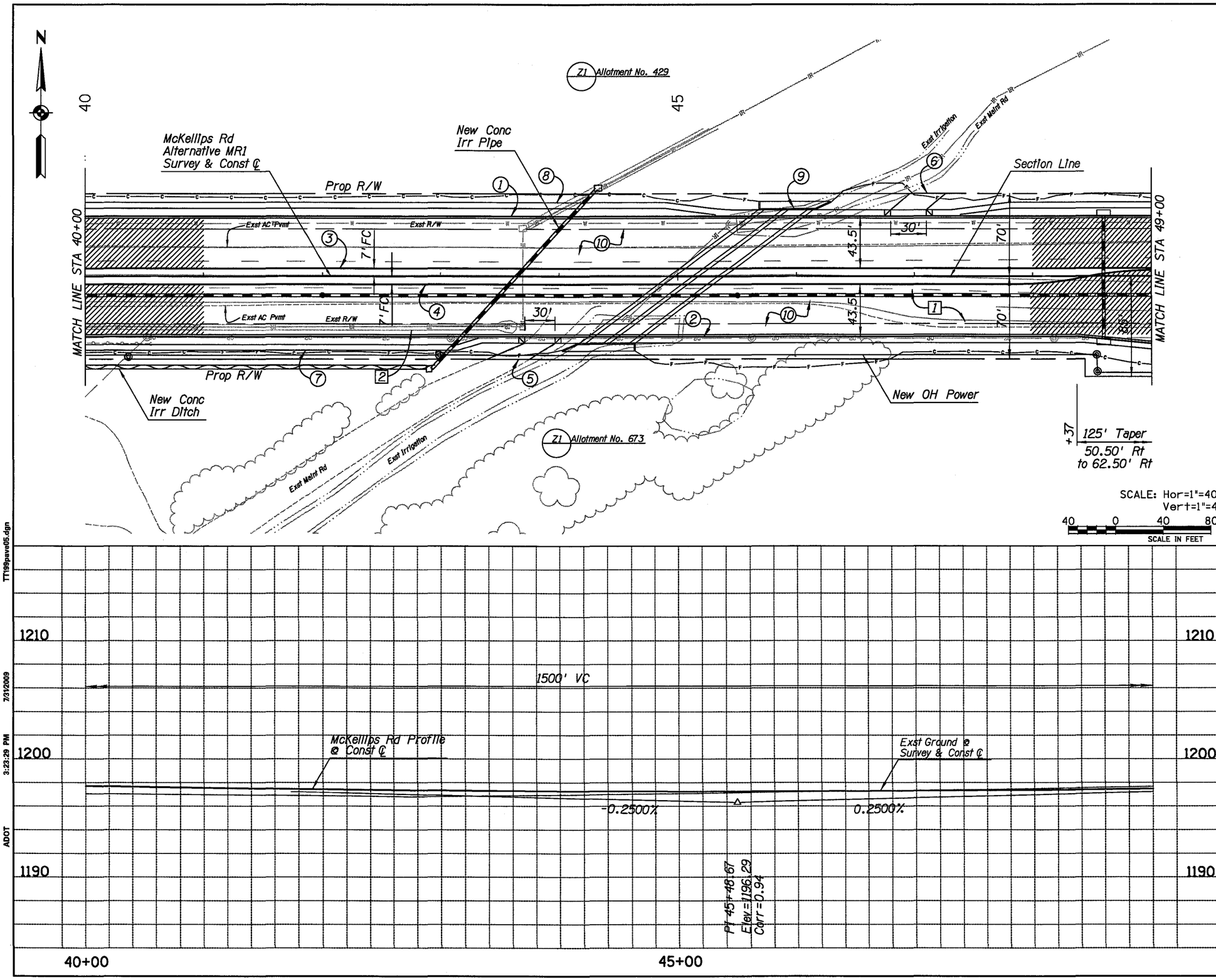
English

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1 Remove AC Pvmt

2 Remove / Relocate



CONSTRUCTION

1. Sta 40+00 to Sta 49+00
   MAG Det 220, Type A Curb & Gutter
2. Sta 40+00 to Sta 49+00
   MAG Det 220, Type A Curb & Gutter
3. Sta 40+00 to Sta 49+00
   MAG Det 222, Type A Curb
4. Sta 40+00 to Sta 49+00
   MAG Det 222, Type A Curb
5. Sta 43+83
   Construct New 30' Driveway
   MAG Det 250, 50.5' Rt
6. Sta 46+95
   Construct New 30' Driveway
   MAG Det 250, 50.5' Lt
7. Sta 40+00 to Sta 49+00
   MAG Det 230, 5 Ft Sidewalk
8. Sta 40+00 to Sta 49+00
   MAG Det 230, 5 Ft Sidewalk
9. New 3x36" Conc Pipe Culvert
10. Sta 40+00 to Sta 49+00
    New AC Pvmt

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

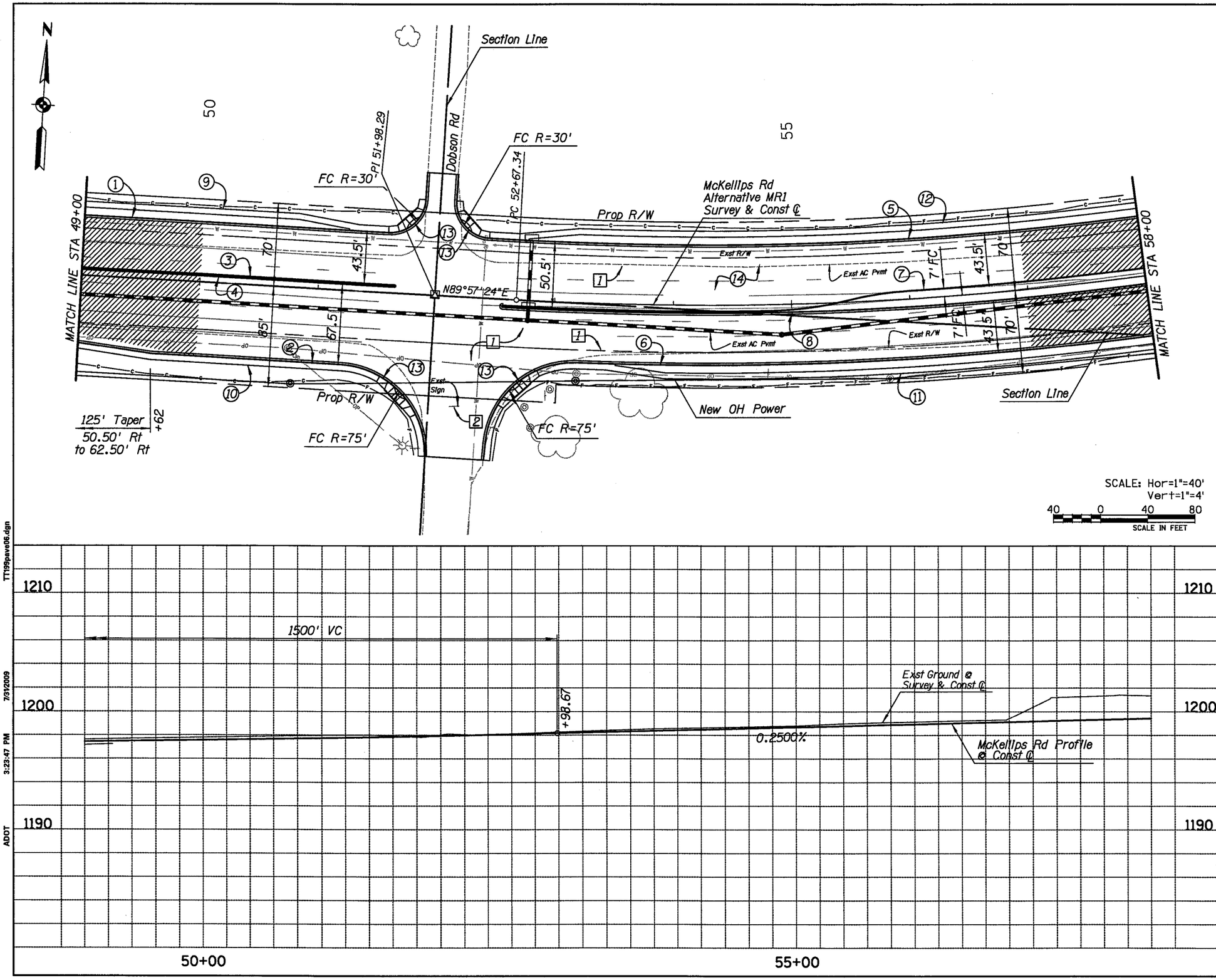
McKELLIPS - PAVING PLAN AND PROFILE
STA 40+00 TO 49+00

SHEET OF
22 61

TRACS NO.

English

TT199pave05.dgn 7/31/2009 3:23:29 PM ADOT



F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1. Remove AC Pvmt
2. Remove / Relocate

◯ CONSTRUCTION ◯

1. Sta 49+00 to Sta 51+87
   MAG Det 220, Type A Curb & Gutter
2. Sta 49+00 to Sta 51+97
   MAG Det 220, Type A Curb & Gutter
3. Sta 49+00 to Sta 51+50
   MAG Det 222, Type A Curb
4. Sta 49+00 to Sta 51+50
   MAG Det 222, Type A Curb
5. Sta 52+11 to Sta 58+00
   MAG Det 220, Type A Curb & Gutter
6. Sta 52+46 to Sta 58+00
   MAG Det 220, Type A Curb & Gutter
7. Sta 52+36 to Sta 58+00
   MAG Det 222, Type A Curb
8. Sta 52+36 to Sta 58+00
   MAG Det 222, Type A Curb
9. Sta 49+00 to Sta 51+86
   MAG Det 230, 5 Ft Sidewalk
10. Sta 49+00 to Sta 51+97
    MAG Det 230, 5 Ft Sidewalk
11. Sta 52+46 to Sta 58+00
    MAG Det 230, 5 Ft Sidewalk
12. Sta 52+13 to Sta 58+00
    MAG Det 230, 5 Ft Sidewalk
13. Conc Sidewalk Ramp
    MCDOT Det 2031-A
14. Sta 49+00 to Sta 58+00
    New AC Pvmt

NO.	REVISION	BY	DATE
1			
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

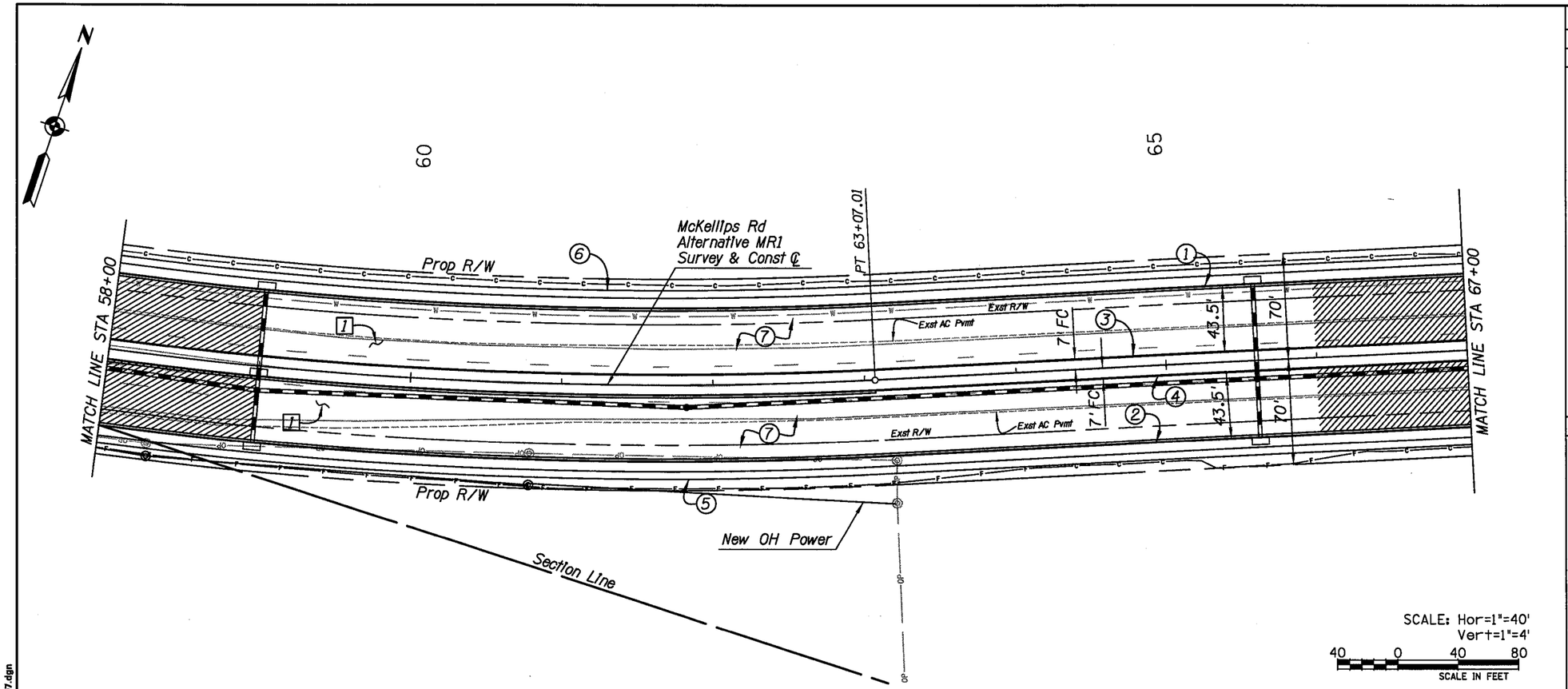
McKELLIPS - PAVING PLAN AND PROFILE
STA 49+00 TO 58+00

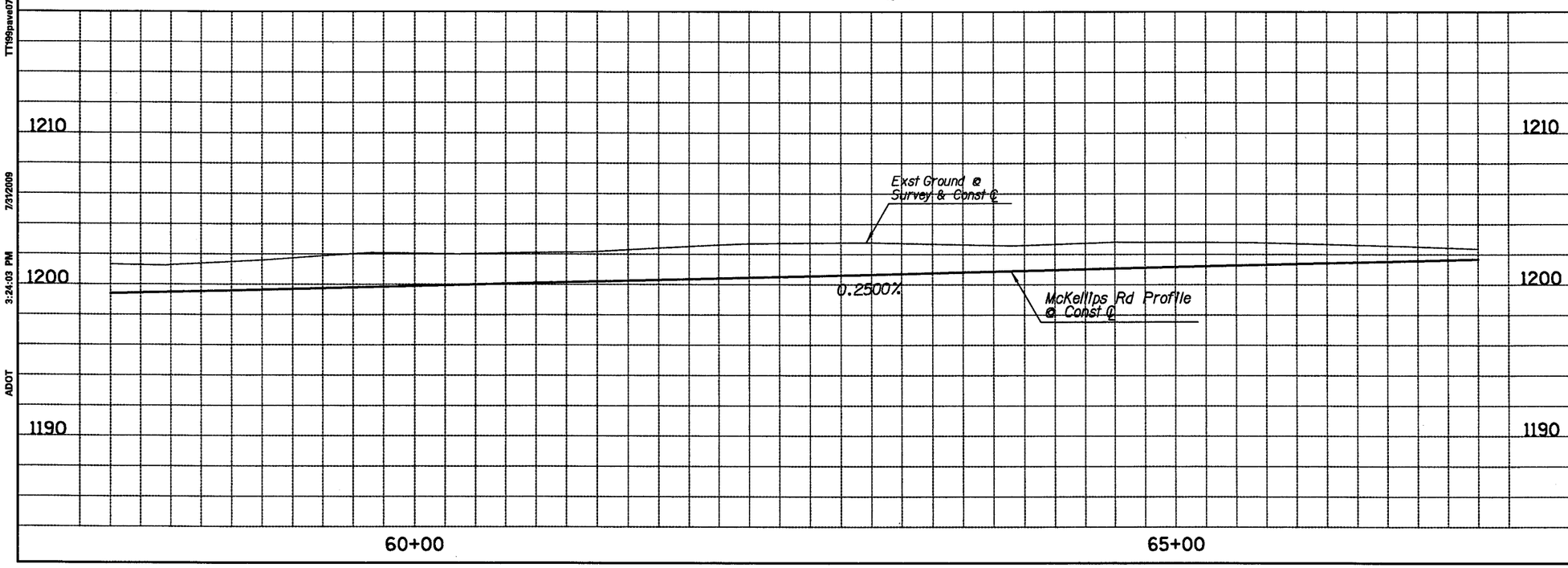
SHEET 23 OF 61

TRACS NO.

English

TT199pave06.dgn 7/31/2009 3:23:47 PM ADOT





F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1 Remove AC Pvmt

CONSTRUCTION

1. Sta 58+00 to Sta 67+00
   MAG Det 220, Type A Curb & Gutter
2. Sta 58+00 to Sta 67+00
   MAG Det 220, Type A Curb & Gutter
3. Sta 58+00 to Sta 67+00
   MAG Det 222, Type A Curb
4. Sta 58+00 to Sta 67+00
   MAG Det 222, Type A Curb
5. Sta 58+00 to Sta 67+00
   MAG Det 230, 5 Ft Sidewalk
6. Sta 58+00 to Sta 67+00
   MAG Det 230, 5 Ft Sidewalk
7. Sta 58+00 to Sta 67+00
   New AC Pvmt

NO.	REVISION	BY	DATE
1			
2			
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

McKELLIPS - PAVING PLAN AND PROFILE
STA 58+00 TO 67+00

SHEET 24 OF 61

TRACS NO.

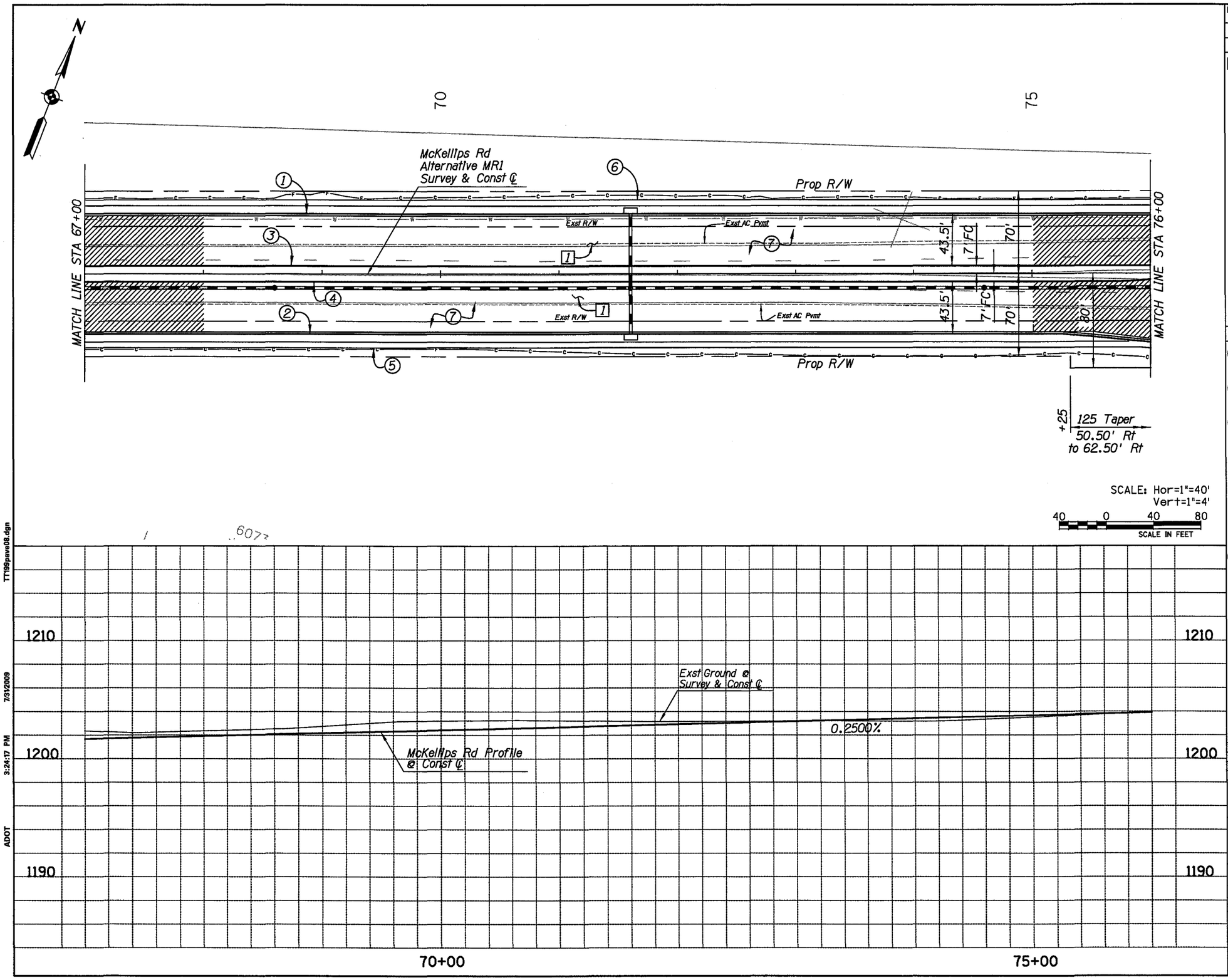
English

TT199paved07.dgn 7/31/2009 3:24:03 PM ADOT

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

[1] Remove AC Pvmt



CONSTRUCTION

1. Sta 67+00 to Sta 76+00
   MAG Det 220, Type A Curb & Gutter
2. Sta 67+00 to Sta 76+00
   MAG Det 220, Type A Curb & Gutter
3. Sta 67+00 to Sta 76+00
   MAG Det 222, Type A Curb
4. Sta 67+00 to Sta 76+00
   MAG Det 222, Type A Curb
5. Sta 67+00 to Sta 76+00
   MAG Det 230, 5 Ft Sidewalk
6. Sta 67+00 to Sta 76+00
   MAG Det 230, 5 Ft Sidewalk
7. Sta 67+00 to Sta 76+00
   New AC Pvmt

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

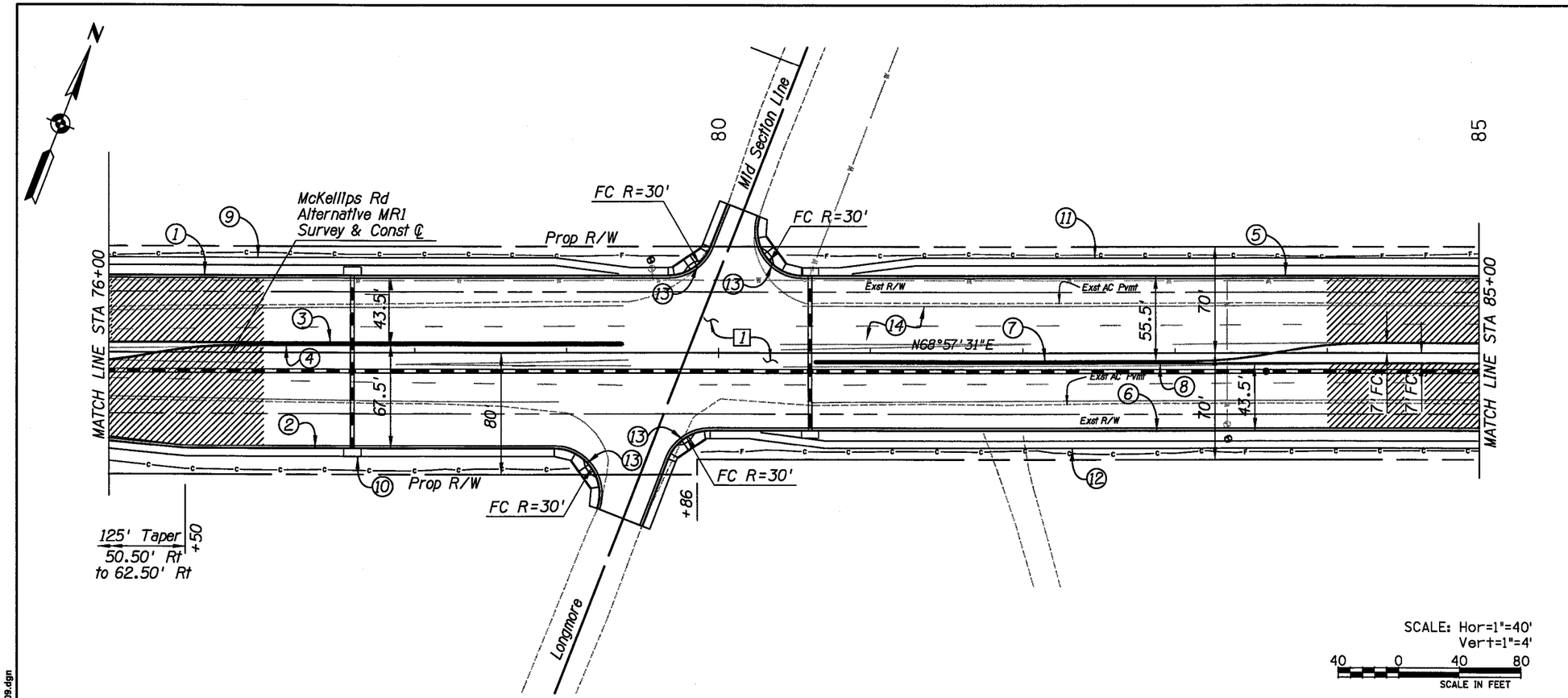
McKELLIPS - PAVING PLAN AND PROFILE
STA 67+00 TO 76+00

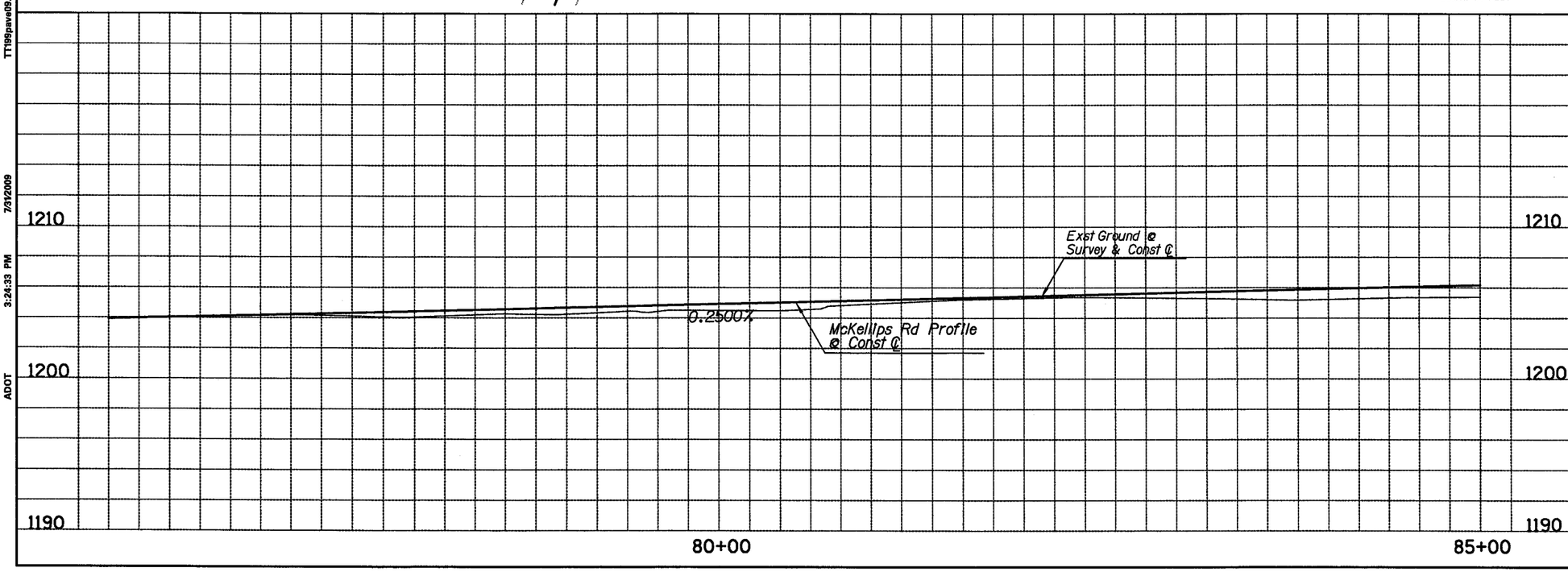
SHEET 25 OF 61

TRACS NO.

English

TT199pave08.dgn 7/31/2009 3:24:17 PM ADOT





F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1 Remove AC Pvmt

CONSTRUCTION

1. Sta 76+00 to Sta 80+02
   MAG Det 220, Type A Curb & Gutter
2. Sta 76+00 to Sta 79+20
   MAG Det 220, Type A Curb & Gutter
3. Sta 76+00 to Sta 79+36
   MAG Det 222, Type A Curb
4. Sta 76+00 to Sta 79+36
   MAG Det 222, Type A Curb
5. Sta 80+31 to Sta 85+00
   MAG Det 220, Type A Curb & Gutter
6. Sta 79+51 to Sta 85+00
   MAG Det 220, Type A Curb & Gutter
7. Sta 80+64 to Sta 85+00
   MAG Det 222, Type A Curb
8. Sta 80+64 to Sta 85+00
   MAG Det 222, Type A Curb
9. Sta 76+00 to Sta 80+02
   MAG Det 230, 5 Ft Sidewalk
10. Sta 76+00 to Sta 79+20
    MAG Det 230, 5 Ft Sidewalk
11. Sta 80+31 to Sta 85+00
    MAG Det 230, 5 Ft Sidewalk
12. Sta 79+51 to Sta 85+00
    MAG Det 230, 5 Ft Sidewalk
13. Conc Sidewalk Ramp
    MCDOT Det 2031-A
14. Sta 76+00 to Sta 85+00
    New AC Pvmt

NO.	REVISION	BY	DATE
1			
2			
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

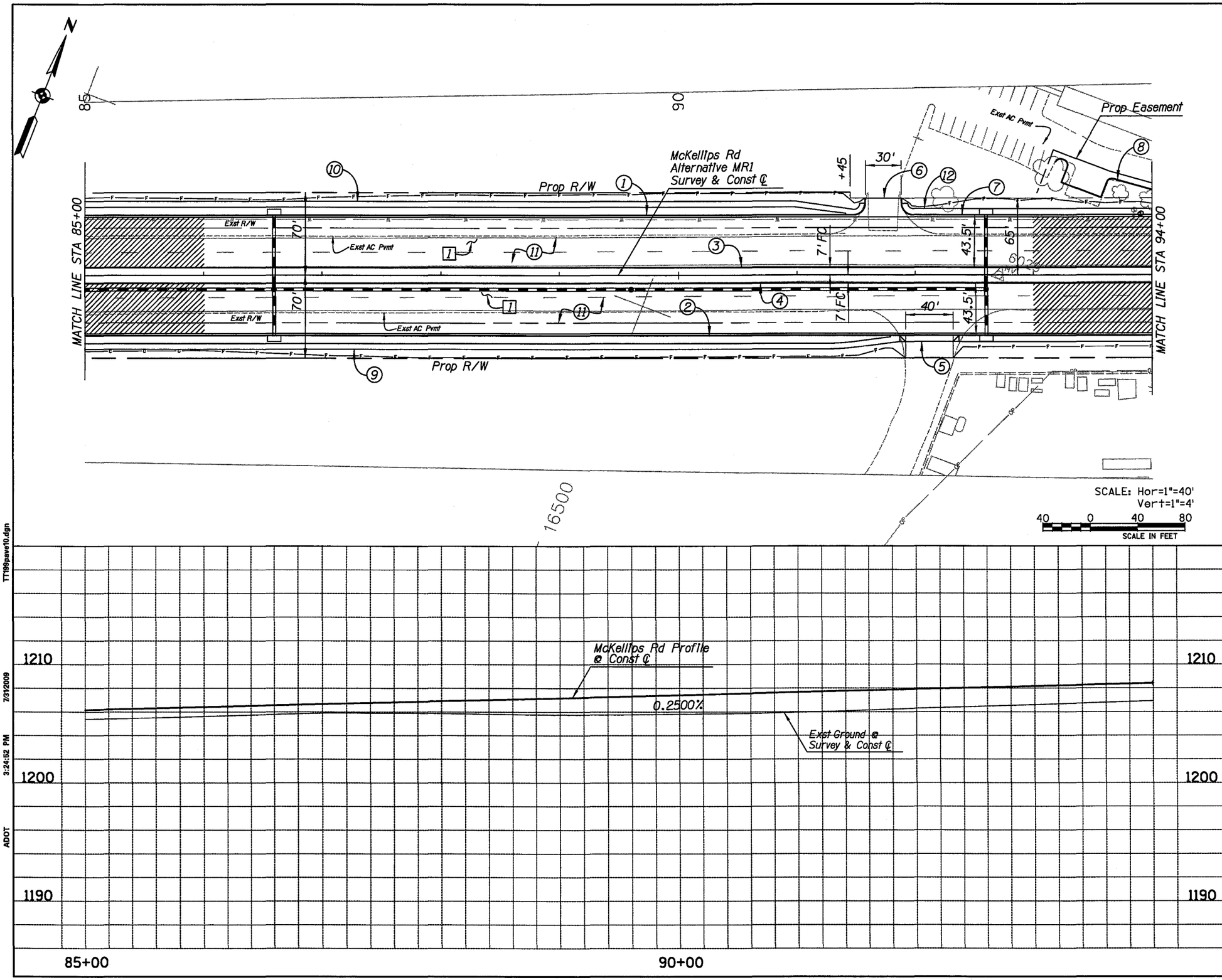
McKELLIPS - PAVING PLAN AND PROFILE
STA 76+00 TO 85+00

SHEET 26 OF 61

TRACS NO.

English

TT199pave09.dgn 7/3/2009 3:24:33 PM ADOT



F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1 Remove AC Pvmt

◯ CONSTRUCTION ◯

1. Sta 85+00 to Sta 91+59
   MAG Det 220, Type A Curb & Gutter
2. Sta 85+00 to Sta 94+00
   MAG Det 220, Type A Curb & Gutter
3. Sta 85+00 to Sta 94+00
   MAG Det 222, Type A Curb
4. Sta 85+00 to Sta 94+00
   MAG Det 222, Type A Curb
5. Sta 92+12
   Construct New 40' Driveway
   MCDOT Det 2033, 50.5' Rt
6. Sta 91+73
   Construct New 30' Driveway
   MCDOT Det 2036, 50.5' Lt
7. Sta 91+88 to Sta 94+00
   MAG Det 220, Type A Curb & Gutter
8. 120 LF MAG Det 222, Type A Curb
9. Sta 85+00 to Sta 94+00
   MAG Det 230, 5 Ft Sidewalk
10. Sta 85+00 to Sta 91+59
    MAG Det 230, 5 Ft Sidewalk
11. Sta 85+00 to Sta 94+00
    New AC Pvmt
12. Sta 91+88 to Sta 94+00
    MAG Det 230, 5 Ft Sidewalk

NO.	REVISION	BY	DATE
1			
2			
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

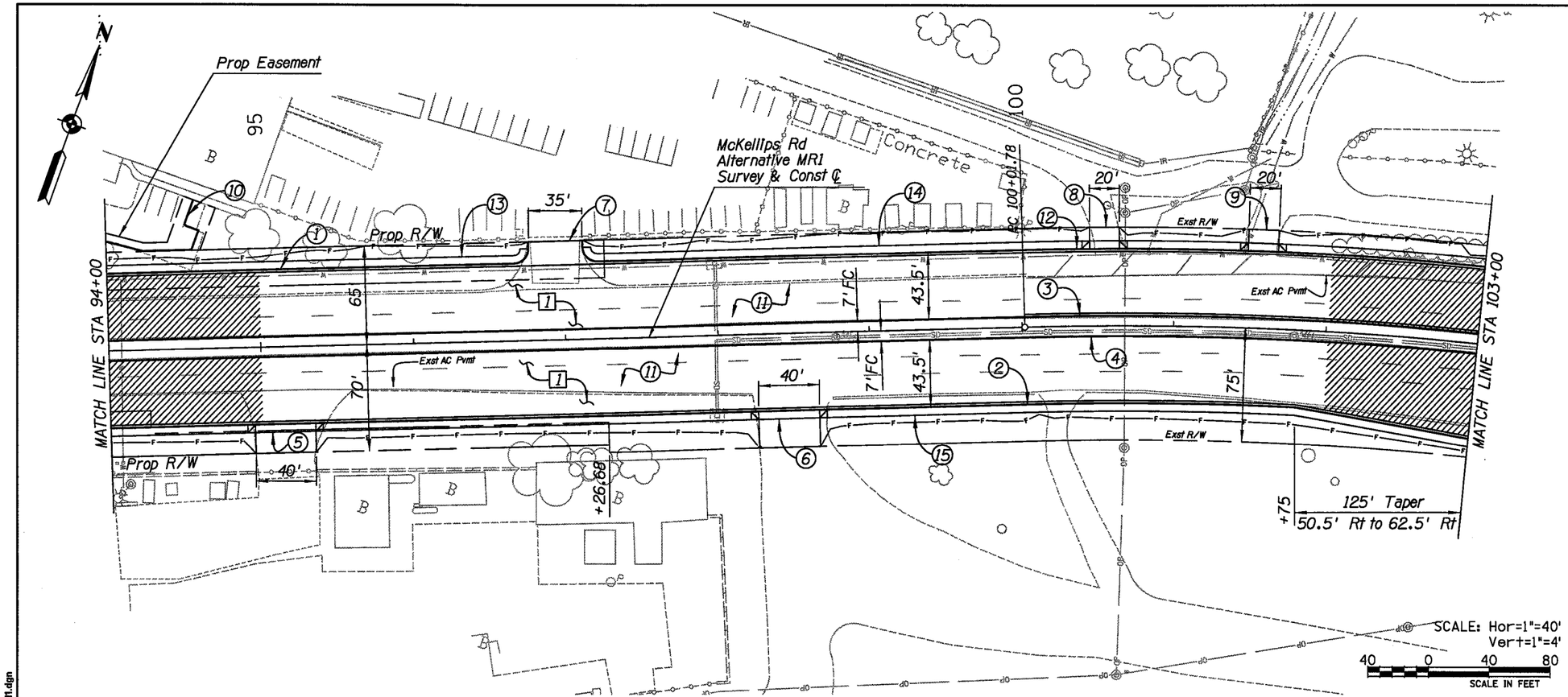
PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

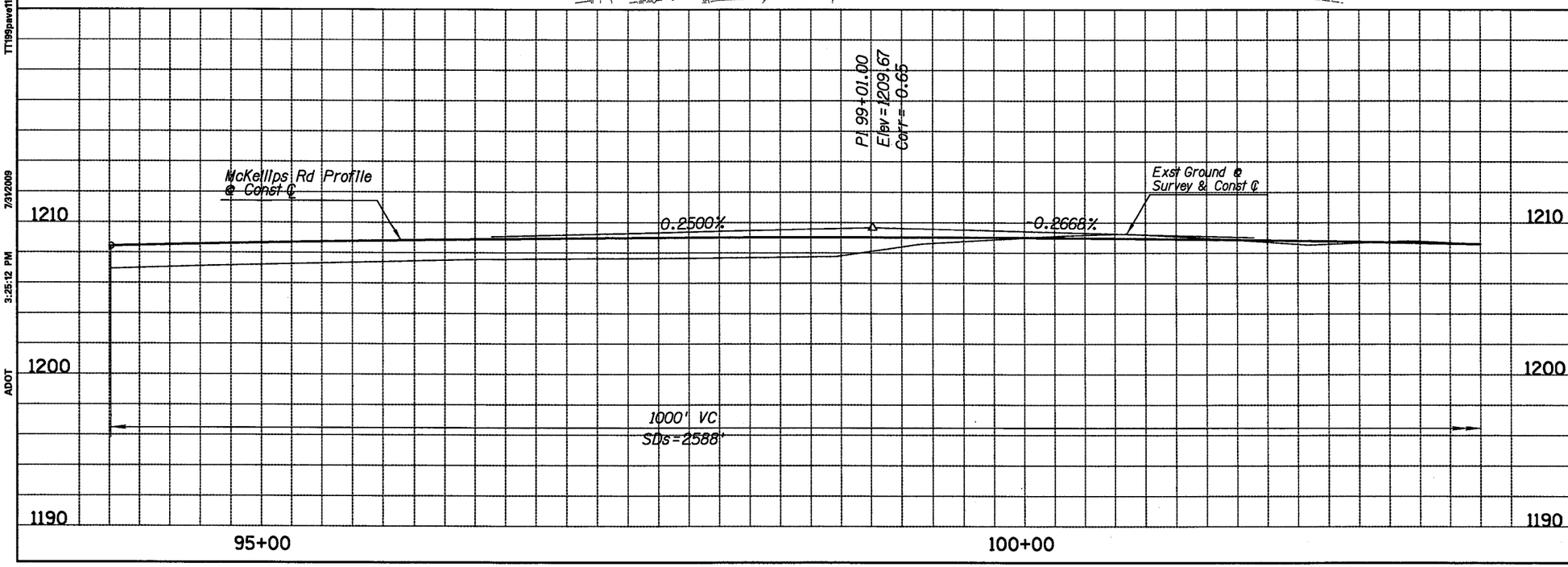
McKELLIPS - PAVING PLAN AND PROFILE
STA 85+00 TO 94+00

SHEET 27 OF 61

TRACS NO.

TT199pave10.dgn 7/31/2009 3:24:52 PM ADOT





F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1 Remove AC Pvmt

◯ CONSTRUCTION ◯

1. Sta 94+00 to Sta 96+77, 12. Sta 97+12 to 103+00
   MAG Det 220, Type A Curb & Gutter
2. Sta 94+00 to Sta 103+00
   MAG Det 220, Type A Curb & Gutter
3. Sta 94+00 to Sta 103+00
   MAG Det 222, Type A Curb
4. Sta 94+00 to Sta 103+00
   MAG Det 222, Type A Curb
5. Sta 95+15
   Construct New 40' Driveway
   MCDOT Det 2033, 50.5' Rt
6. Sta 98+45
   Construct New 40' Driveway
   MCDOT Det 2033, 50.5' Rt
7. Sta 96+95
   Construct New 35' Driveway
   MCDOT Det 2036, 50.5' Lt
8. Sta 100+55
   Construct New 20' Driveway
   MCDOT Det 2033, 50.5' Lt
9. Sta 101+57
   Construct New 20' Driveway
   MCDOT Det 2033, 50.5' Lt
10. 97 LF MAG Det 222, Type A Curb
11. Sta 94+00 to Sta 103+00
    New AC Pvmt
13. Sta 94+00 to Sta 96+77
    MAG Det 230, 5 Ft Sidewalk
14. Sta 97+12 to Sta 103+00
    MAG Det 230, 5 Ft Sidewalk
15. Sta 94+00 to Sta 103+00
    MAG Det 230, 5 Ft Sidewalk

NO.	REVISION	BY	DATE
1			
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

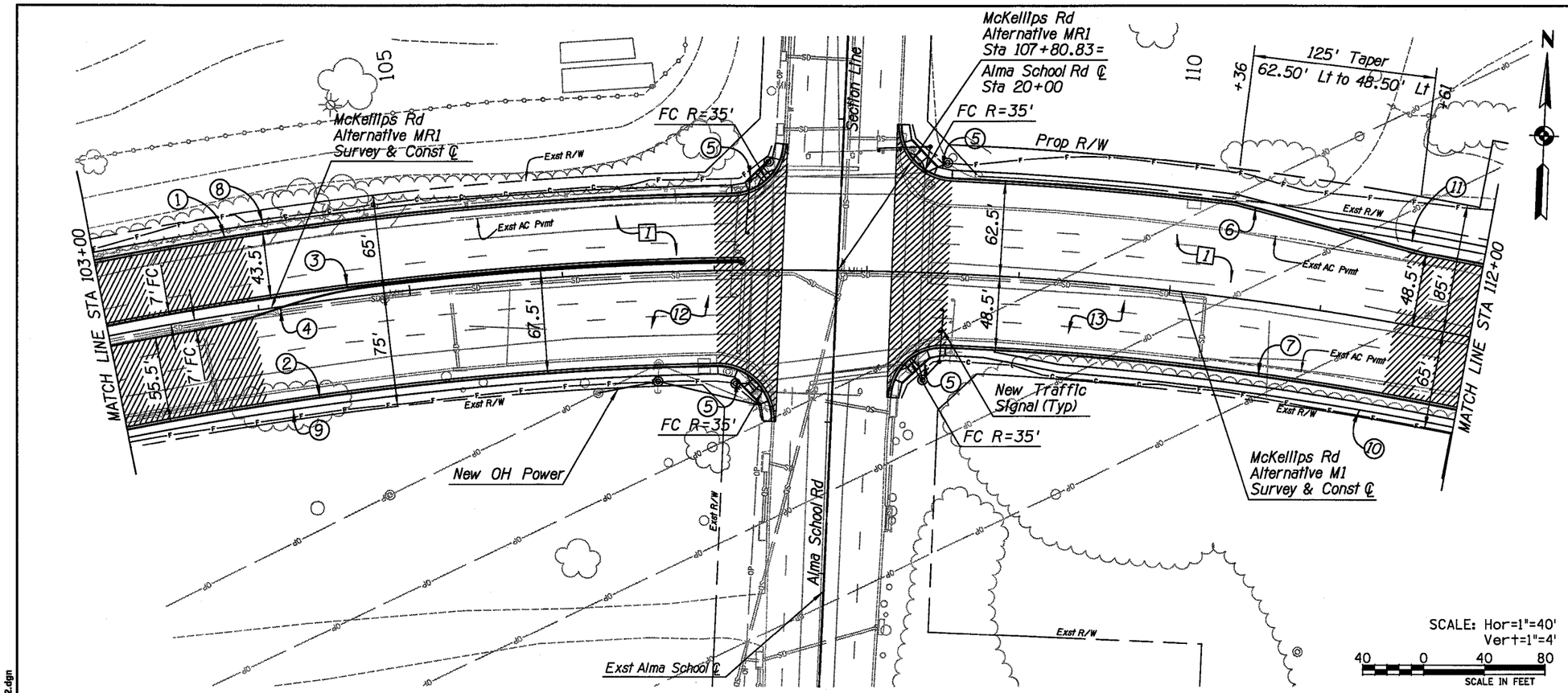
McKELLIPS - PAVING PLAN AND PROFILE
STA 94+00 TO 103+00

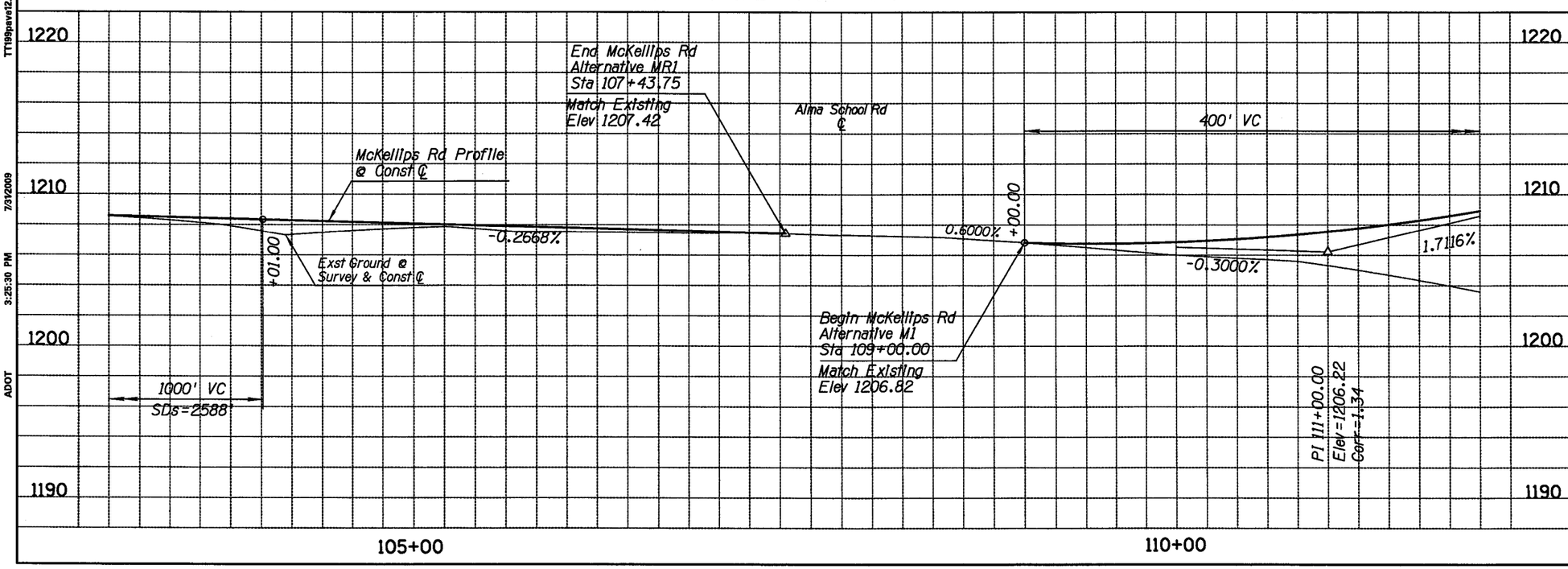
SHEET 28 OF 61

TRACS NO.

TT199pave11.dgn 7/3/2009 3:25:12 PM ADOT

English





F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1 Remove AC Pvmt

◯ CONSTRUCTION ◯

1. Sta 103+00 to Sta 107+46
   MAG Det 220, Type A Curb & Gutter
2. Sta 103+00 to Sta 107+37
   MAG Det 220, Type A Curb & Gutter
3. Sta 103+00 to Sta 107+18
   MAG Det 222, Type A Curb & Gutter
4. Sta 103+00 to Sta 107+18
   MAG Det 222, Type A Curb
5. Conc Sidewalk Ramp
   MCDOT Det 2031-A
6. Sta 108+20 to Sta 112+00
   MAG Det 220, Type A Curb & Gutter
7. Sta 108+18 to Sta 112+00
   MAG Det 220, Type A Curb & Gutter
8. Sta 103+00 to Sta 107+46
   MAG Det 230, 5 Ft Sidewalk
9. Sta 103+00 to Sta 107+37
   MAG Det 230, 5 Ft Sidewalk
10. Sta 108+18 to Sta 112+00
    MAG Det 230, 5 Ft Sidewalk
11. Sta 108+20 to Sta 112+00
    MAG Det 230, 5 Ft Sidewalk
12. Sta 103+00 to Sta 107+37
    New AC Pvmt
13. Sta 108+18 to Sta 112+00
    New AC Pvmt

NO.	REVISION	BY	DATE
1			
2			
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

McKELLIPS - PAVING PLAN AND PROFILE
STA 103+00 TO 112+00

SHEET OF 29 61

TRACS NO.

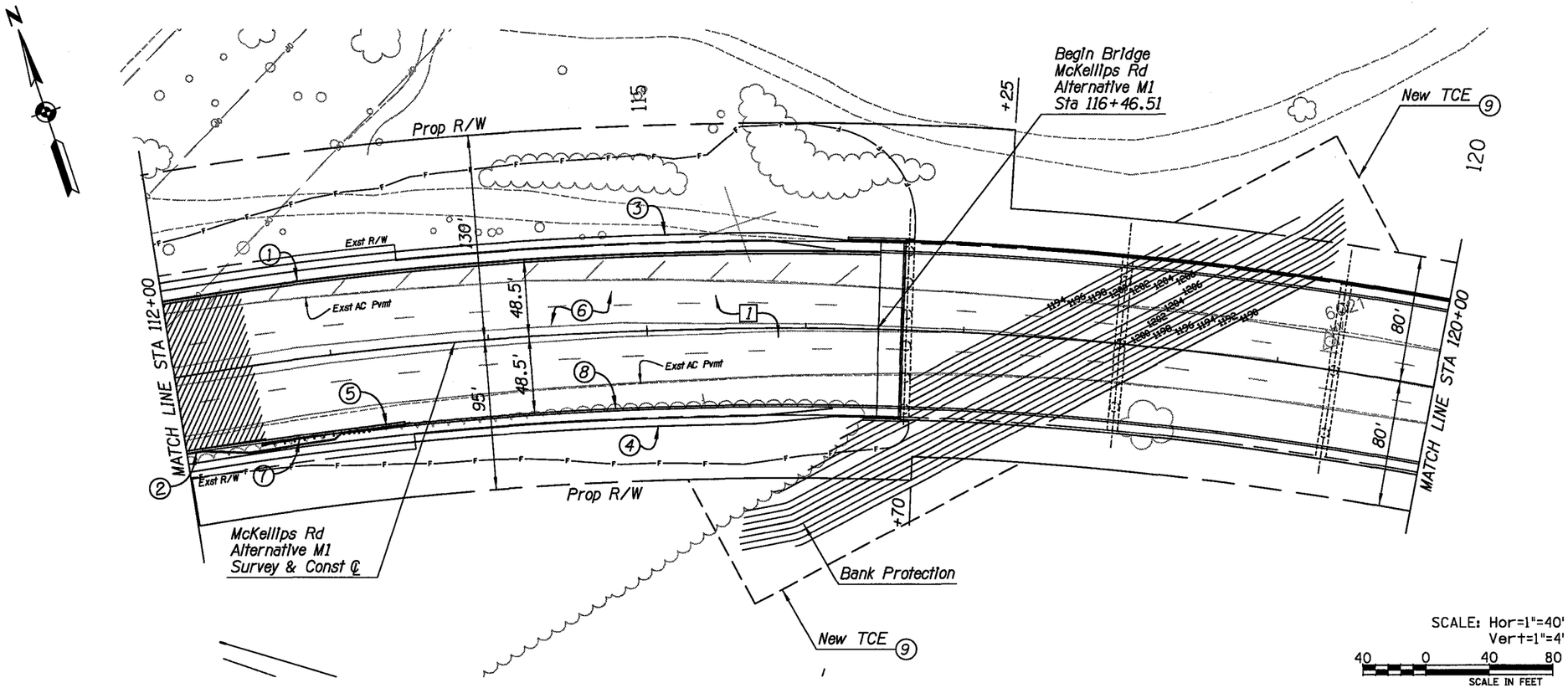
English

TT199pave12.dgn 7/31/2009 3:25:30 PM ADOT

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1 Remove AC Pvmt



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Vert=1"=4'

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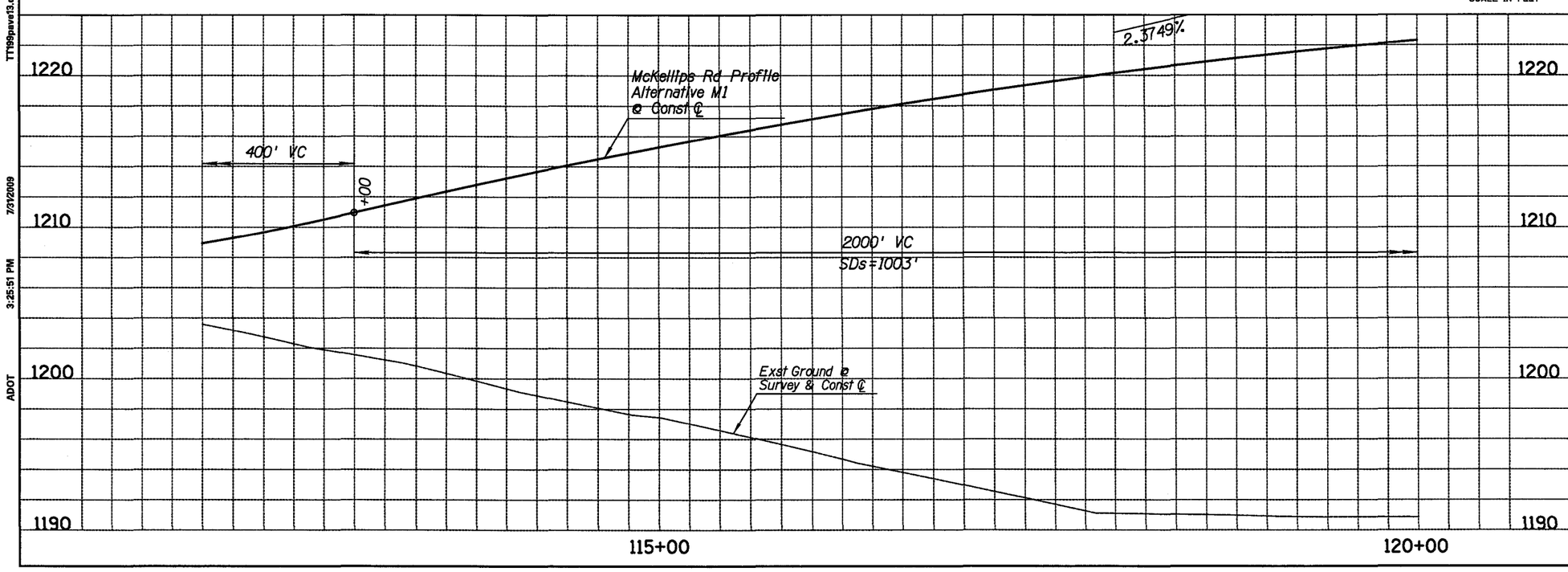
SCALE IN FEET



CONSTRUCTION

1. Sta 112+00 to Sta 116+80
   MAG Det 220, Type A Curb & Gutter
2. Sta 112+00 to Sta 113+18
   MAG Det 220, Type A Curb & Gutter
3. Sta 112+00 to Sta 116+80
   MAG Det 230, 5 Ft Sidewalk
4. Sta 112+00 to Sta 116+58
   MAG Det 230, 5 Ft Sidewalk
5. Conc Barrier Transition
6. Sta 112+00 to Sta 116+80
   New AC Pvmt
7. Conc Barrier End Treatment
8. Sta 113+41 to Sta 116+58
   Conc Barrier
9. TCE extent to be confirmed during final design after cultural investigation has been completed

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

McKELLIPS - PAVING PLAN AND PROFILE
STA 112+00 TO 120+00

SHEET 30 OF 61

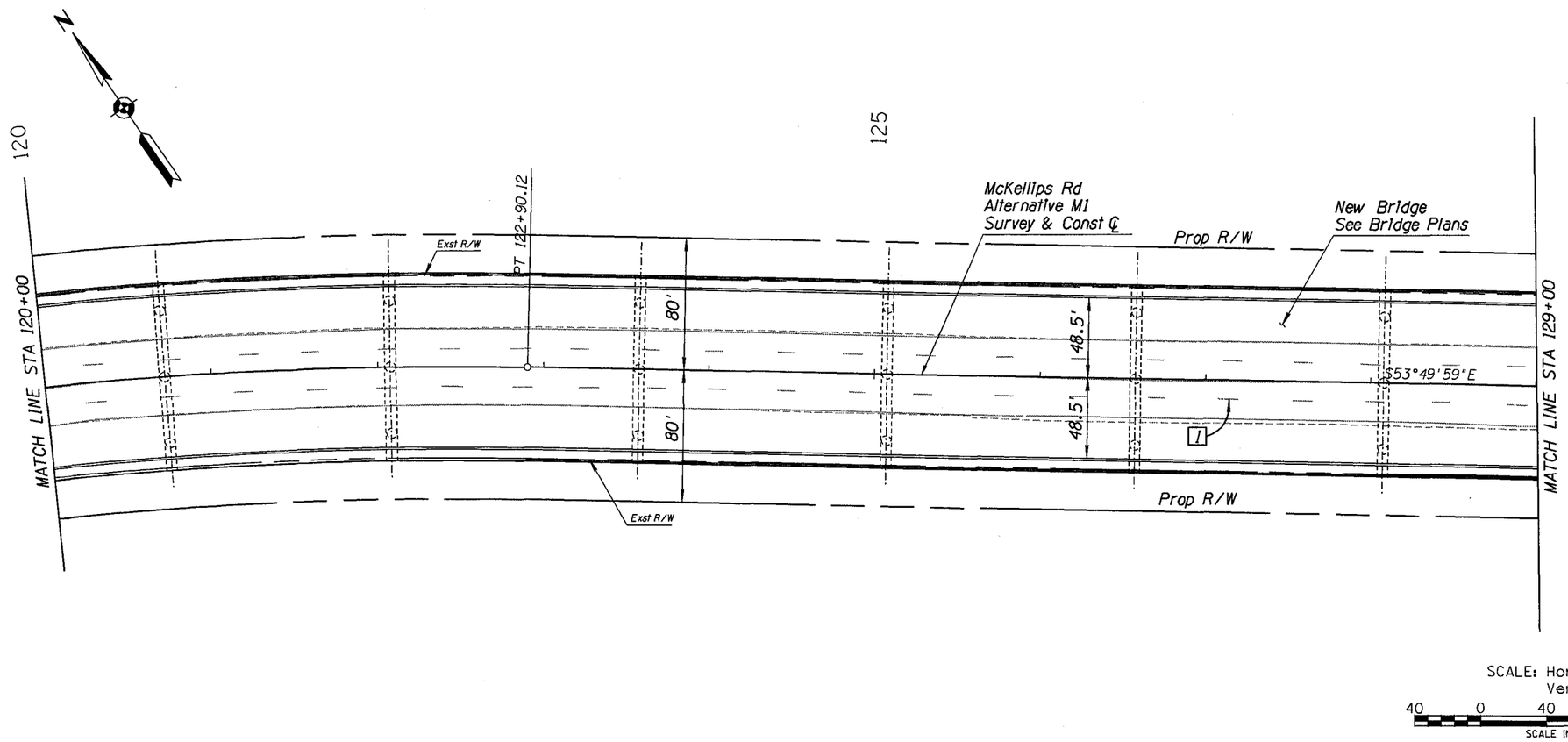
TRACS NO.

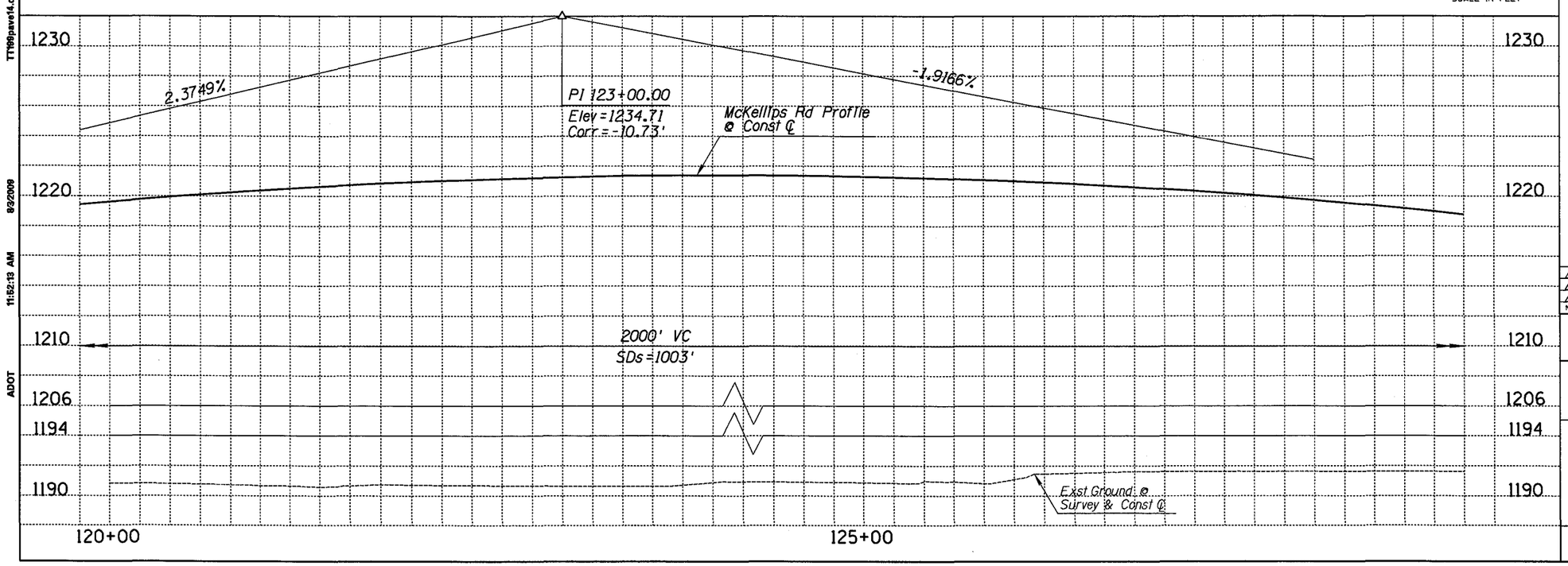
TT199pave13.dgn 7/31/2009 3:25:51 PM ADOT

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1 Remove AC Pvmt





☐ CONSTRUCTION ☐

NO.	REVISION	BY	DATE
1			
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3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

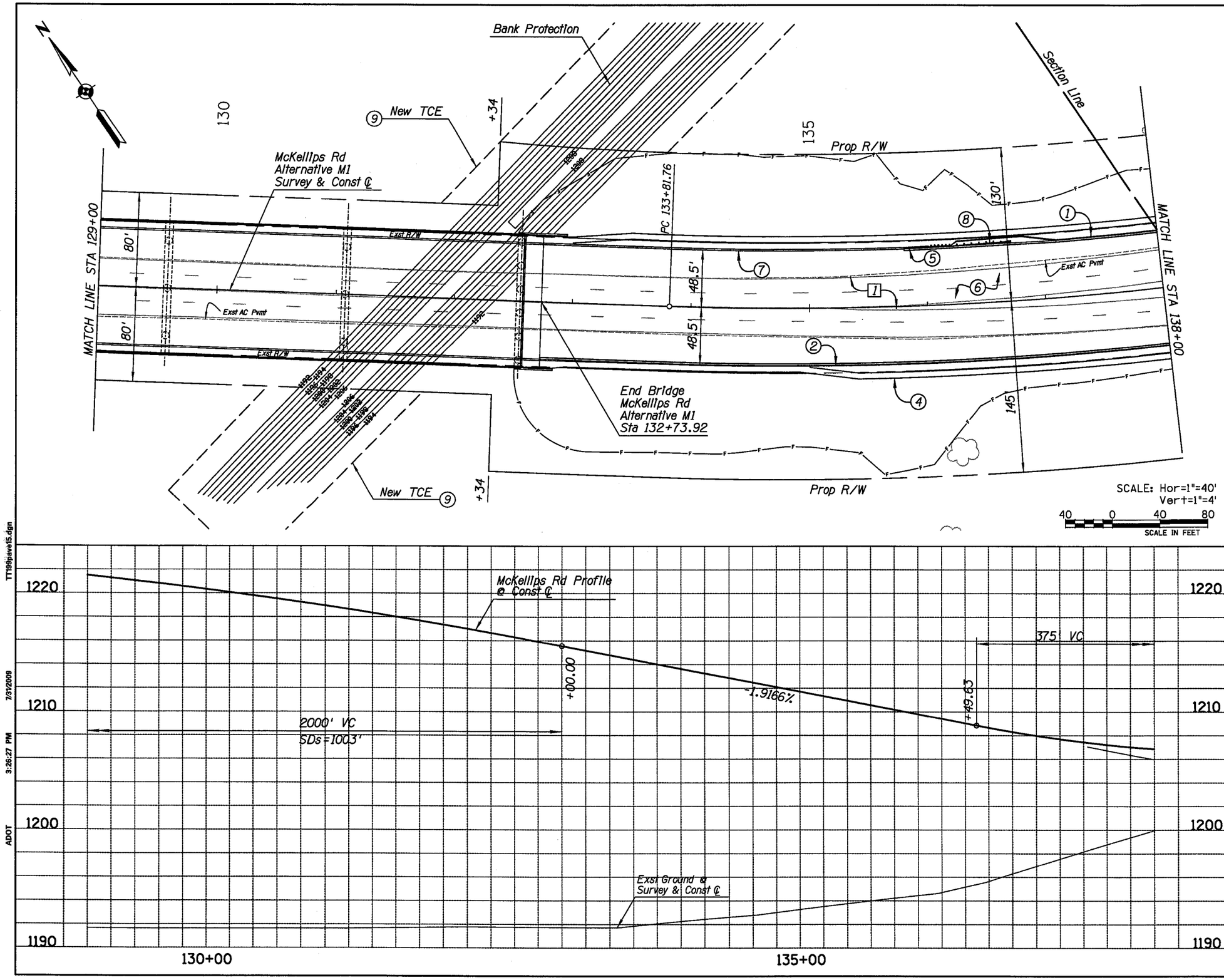
McKELLIPS - PAVING PLAN AND PROFILE
STA 120+00 TO 129+00

SHEET 31 OF 61

TRACS NO.

TT199pave14.dgn 8/3/2009 11:52:13 AM ADOT

Endfish



F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1 Remove AC Pvmt

◯ CONSTRUCTION ◯

1. Sta 136+05 to Sta 138+00
   MAG Det 220, Type A Curb & Gutter
2. Sta 132+35 to Sta 138+00
   MAG Det 220, Type A Curb & Gutter
3. Sta 132+75 to Sta 138+00
   MAG Det 220, Type A Curb & Gutter
4. Sta 132+35 to Sta 138+00
   MAG Det 220, Type A Curb & Gutter
5. Conc Barrier Transition
6. Sta 132+55 to Sta 138+00
   New AC Pvmt
7. Sta 132+73 to Sta 135+82
   Conc Barrier
8. Conc Barrier End Treatment
9. TCE extent to be confirmed during final design after cultural investigation has been completed.

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

McKELLIPS - PAVING PLAN AND PROFILE
STA 129+00 TO 138+00

SHEET 32 OF 61

TRACS NO.

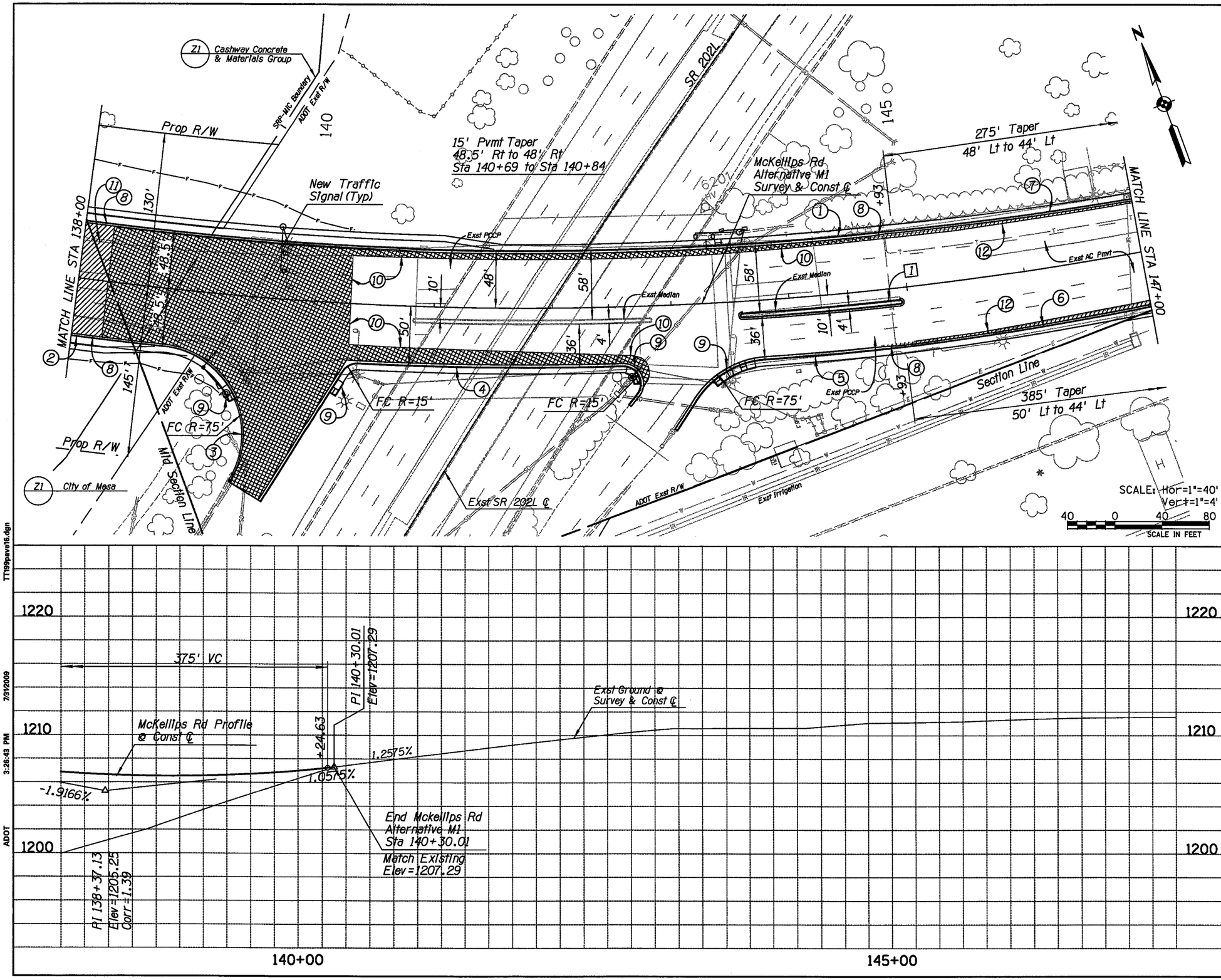
TT199pave15.dgn 7/31/2009 3:26:27 PM ADOT

English

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1 Remove Conc Median



CONSTRUCTION

1. Sta 138+24 to Sta 144+74 ADOT Std C-05.10, Type D, h=7"
2. Sta 138+00 to Sta 138+25 MAG Det 220, Type A Curb & Gutter
3. Sta 139+41 to Sta 139+49 Conc Barrier
4. Sta 139+66 to Sta 142+62 ADOT Std C-05.10, Type D, h=7"
5. Sta 143+02 to Sta 144+74 ADOT Std C-05.10, Type D, h=7"
6. Sta 144+74 to Sta 147+00 MAG Det 220, Type A Curb & Gutter
7. Sta 144+74 to Sta 147+00 MAG Det 220, Type A Curb & Gutter
8. Curb & Gutter Transition
9. Conc Sidewalk Ramp ADOT Std C-05.30
10. New PCCP
11. Sta 138+00 to Sta 138+24 New AC Pvmt
12. Sta 144+74 to Sta 147+00 New AC Pvmt

NO.	REVISION	BY	DATE
1			
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

McKELLIPS - PAVING PLAN AND PROFILE
STA 138+00 TO 147+00

SHEET OF 33 61

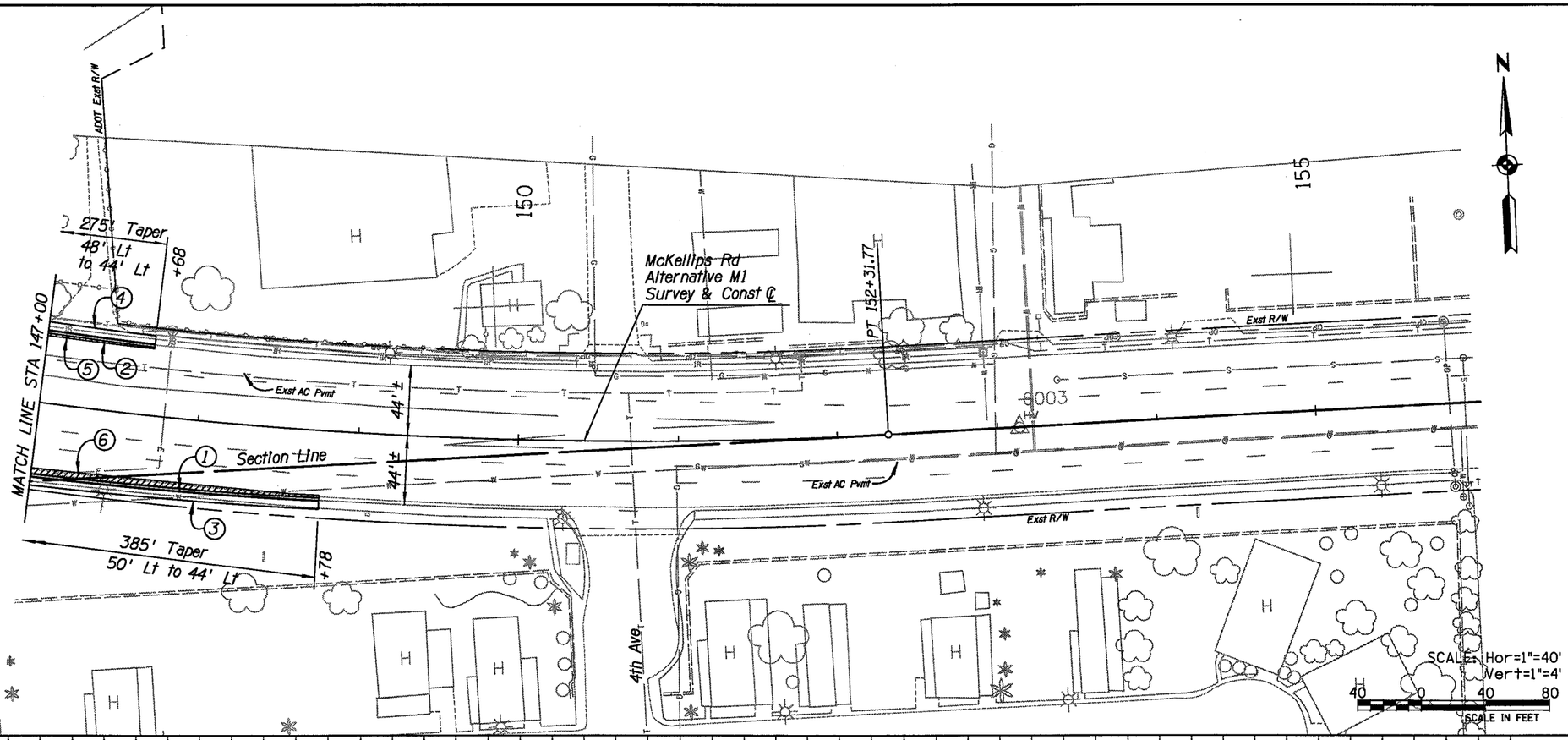
TRACS NO.

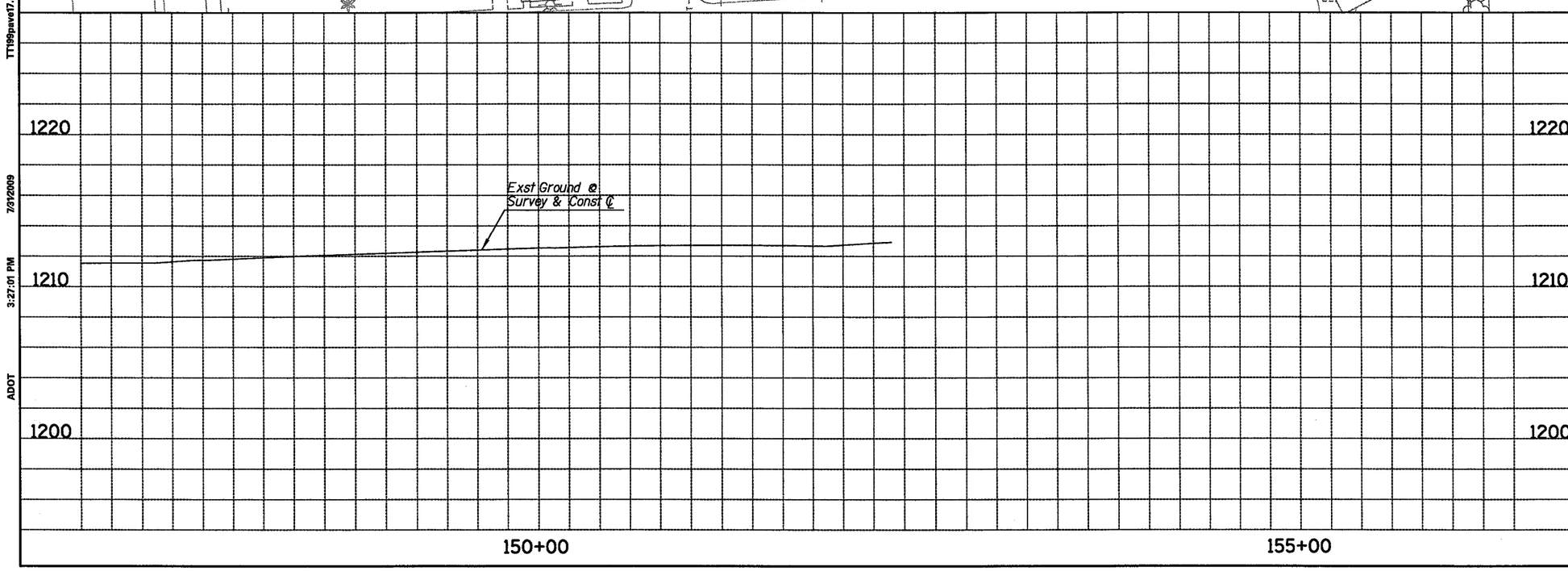
English

TT199pave16.dgn 7/31/2009 3:26:43 PM ADOT

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐





◯ CONSTRUCTION ◯

1. Sta 147+00 to Sta 148+78
   MAG Det 220, Type A Curb & Gutter
2. Sta 147+00 to Sta 147+68
   MAG Det 220, Type A Curb & Gutter
3. Sta 147+00 to Sta 148+78
   MAG Det 230, 5 Ft Sidewalk
4. Sta 147+00 to Sta 147+68
   MAG Det 230, 5 Ft Sidewalk
5. Sta 147+00 to Sta 147+68
   New AC Pvmt
6. Sta 147+00 to Sta 147+78
   New AC Pvmt

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

McKELLIPS - PAVING PLAN AND PROFILE
STA 147+00 TO 156+00

SHEET OF
34 61

TRACS NO.

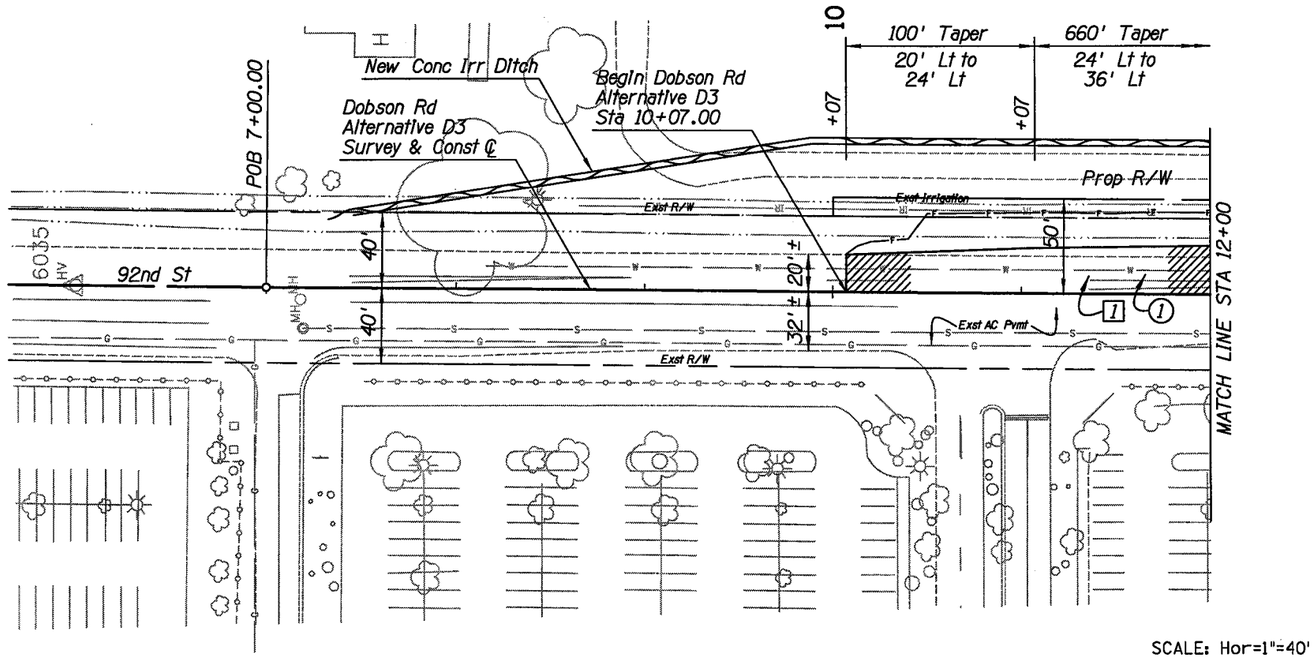
English

TT199pave17.dgn 7/31/2009 3:27:01 PM ADOT

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1 Sta 10+07 to Sta 12+00
Remove AC Pvmt



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Vert=1"=4'

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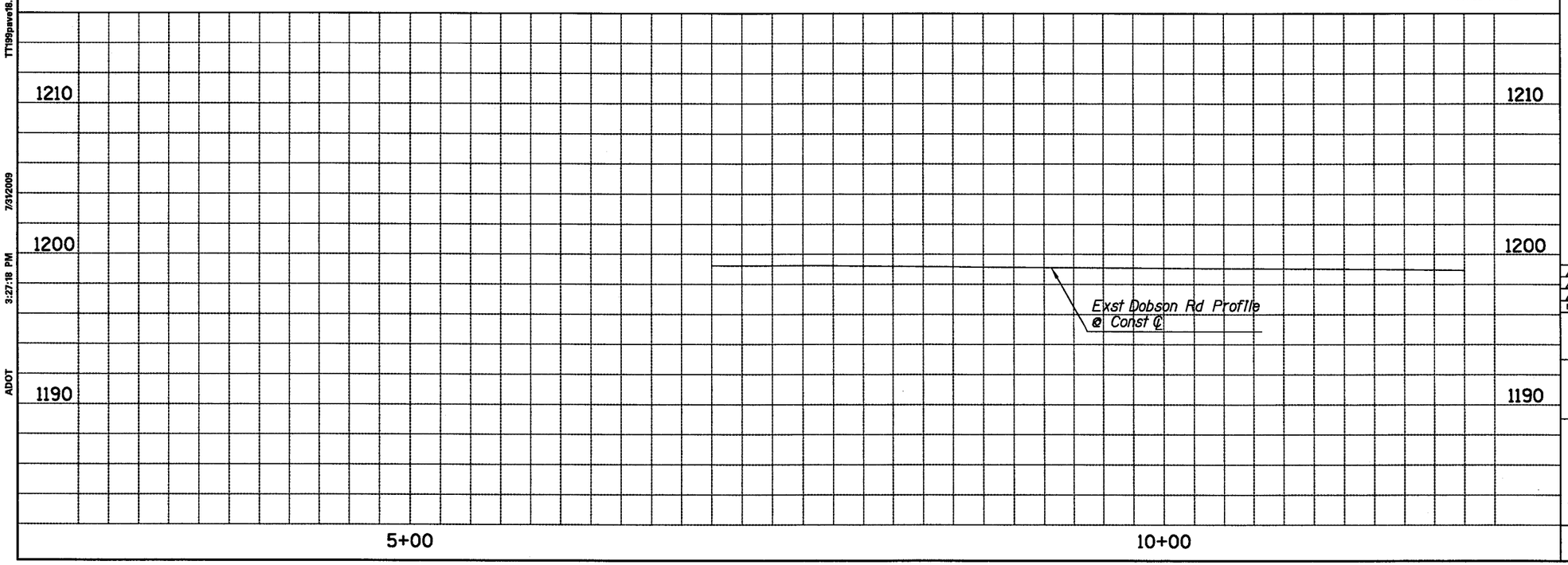
SCALE IN FEET



☐ CONSTRUCTION ☐

1 Sta 10+07 to Sta 12+00
New AC Pvmt

NO.	REVISION	BY	DATE
1			
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

DOBSON - PAVING PLAN AND PROFILE
STA 10+07 TO 12+00

SHEET 35 OF 61

TRACS NO.

English

ADOT 3:27:18 PM 7/31/2009 TT199pave18.dgn

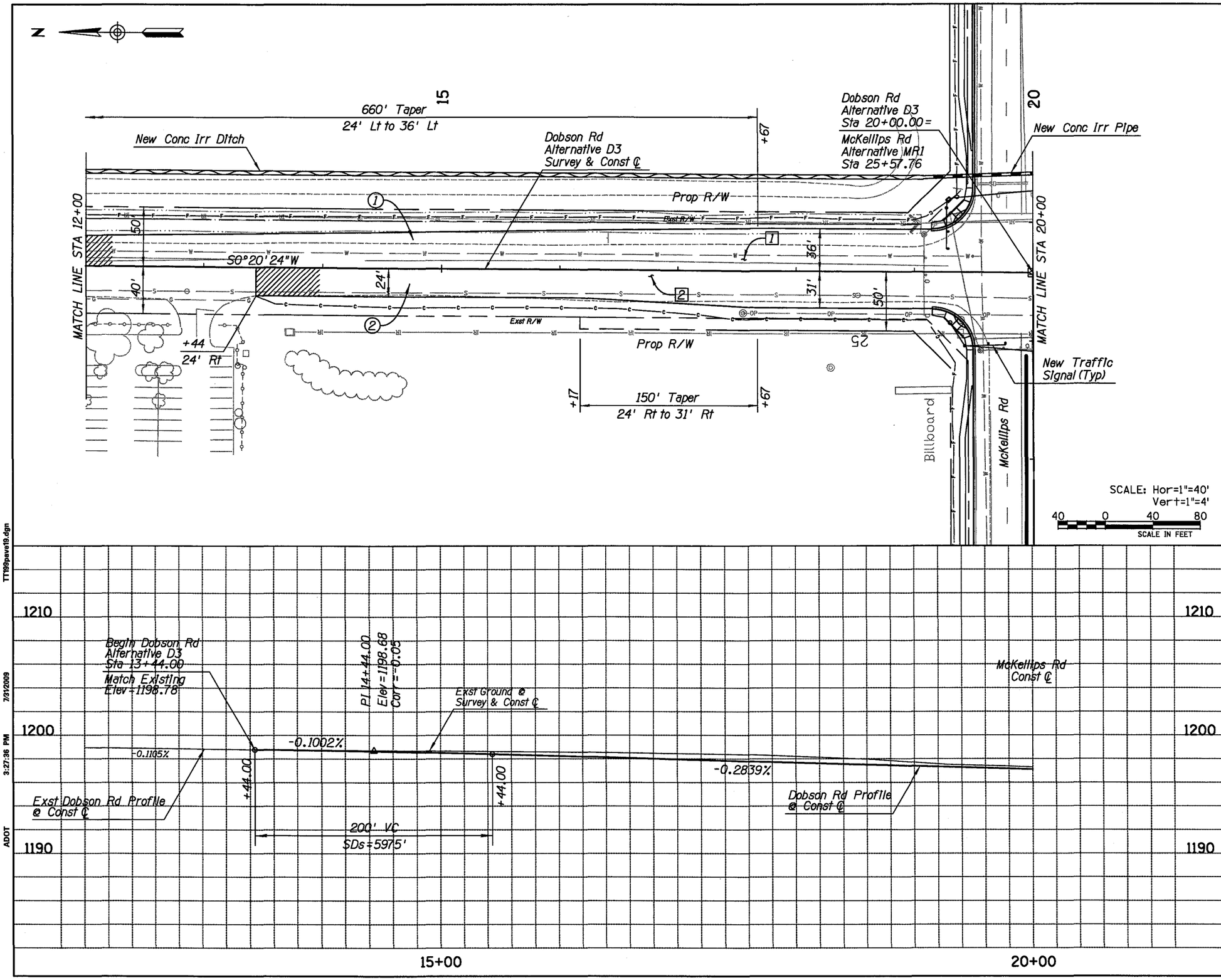
F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1. Sta 12+00 to Sta 19+15
   Remove AC Pvmt
2. Sta 13+44 to Sta 19+15
   Remove AC Pvmt

◯ CONSTRUCTION ◯

1. Sta 12+00 to Sta 19+15
   New AC Pvmt
2. Sta 13+44 to Sta 19+15
   New AC Pvmt



NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PRELIMINARY
NOT FOR
CONSTRUCTION

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

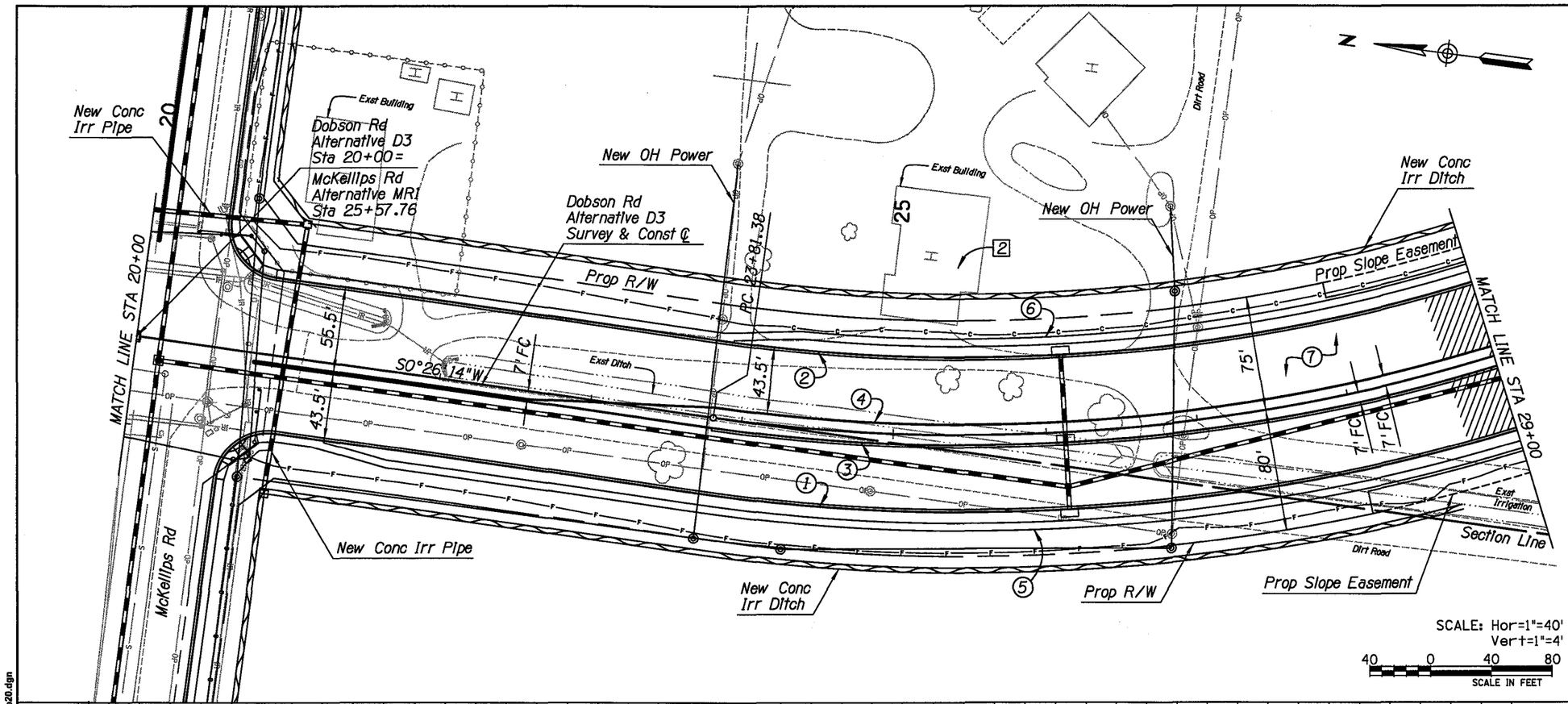
DOBSON - PAVING PLAN AND PROFILE
STA 12+00 TO 20+00

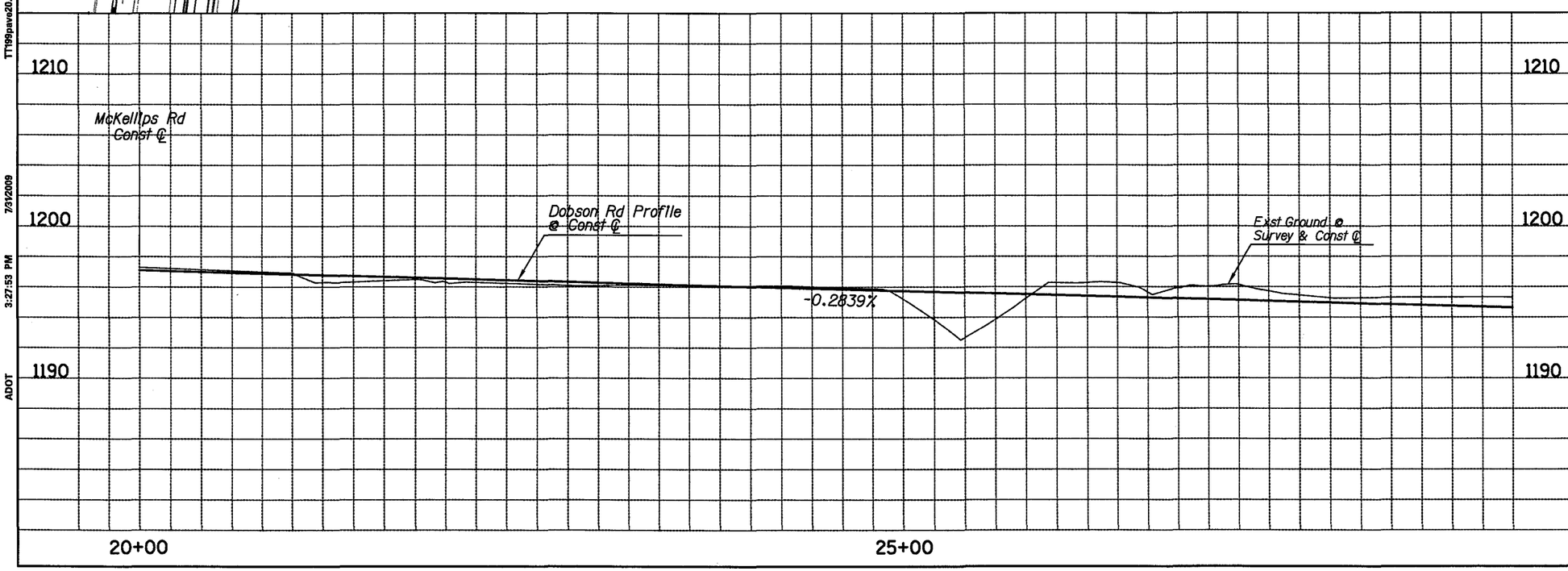
SHEET 36 OF 61

TRACS NO.

English

TT199pave19.dgn 7/31/2009 3:27:36 PM ADOT





F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1 Remove AC Pvmt

2 Remove / Relocate

CONSTRUCTION

1. Sta 21+00 to Sta 29+00 MAG Det 220, Type A Curb & Gutter
2. Sta 21+00 to Sta 29+00 MAG Det 220, Type A Curb & Gutter
3. Sta 21+00 to Sta 29+00 MAG Det 222, Type A Curb
4. Sta 21+00 to Sta 29+00 MAG Det 222, Type A Curb
5. Sta 21+00 to Sta 29+00 MAG Det 230, 5 Ft Sidewalk
6. Sta 21+00 to Sta 29+00 MAG Det 230, 5 Ft Sidewalk
7. Sta 21+00 to Sta 29+00 New AC Pvmt

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

DOBSON - PAVING PLAN AND PROFILE
STA 20+00 TO 29+00

SHEET 37 OF 61

TRACS NO.

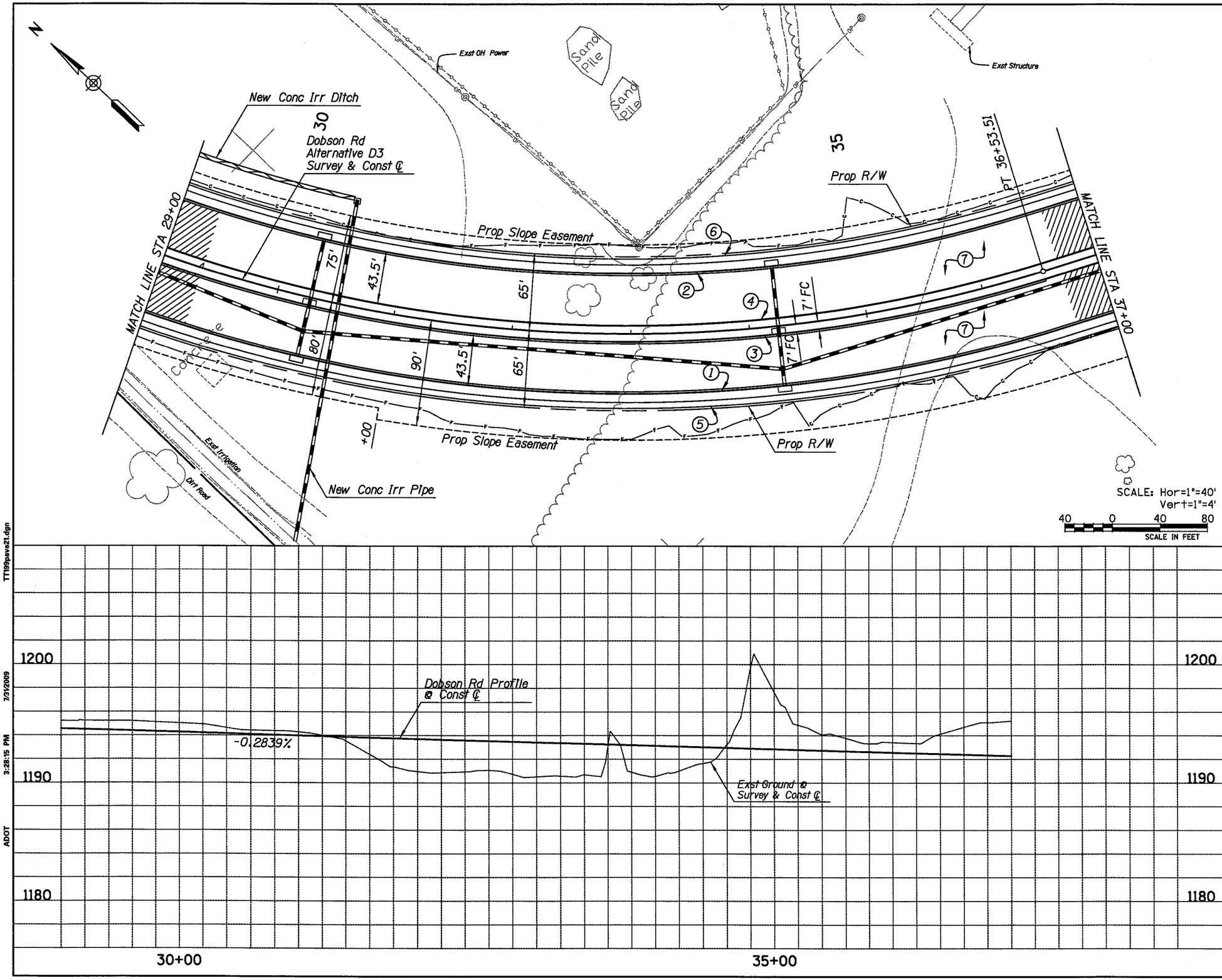
English

TT199pave20.dgn 7/31/2009 3:27:53 PM ADOT

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

[1] Remove / Relocate



CONSTRUCTION

1. Sta 29+00 to Sta 37+00
   MAG Det 220, Type A Curb & Gutter
2. Sta 29+00 to Sta 37+00
   MAG Det 220, Type A Curb & Gutter
3. Sta 29+00 to Sta 37+00
   MAG Det 220, Type A Curb & Gutter
4. Sta 29+00 to Sta 37+00
   MAG Det 222, Type A Curb
5. Sta 29+00 to Sta 37+00
   MAG Det 230, 5 Ft Sidewalk
6. Sta 29+00 to Sta 37+00
   MAG Det 230, 5 Ft Sidewalk
7. Sta 29+00 to Sta 37+00
   New AC Pvmt

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

DOBSON - PAVING PLAN AND PROFILE
STA 29+00 TO 37+00

SHEET 38 OF 61

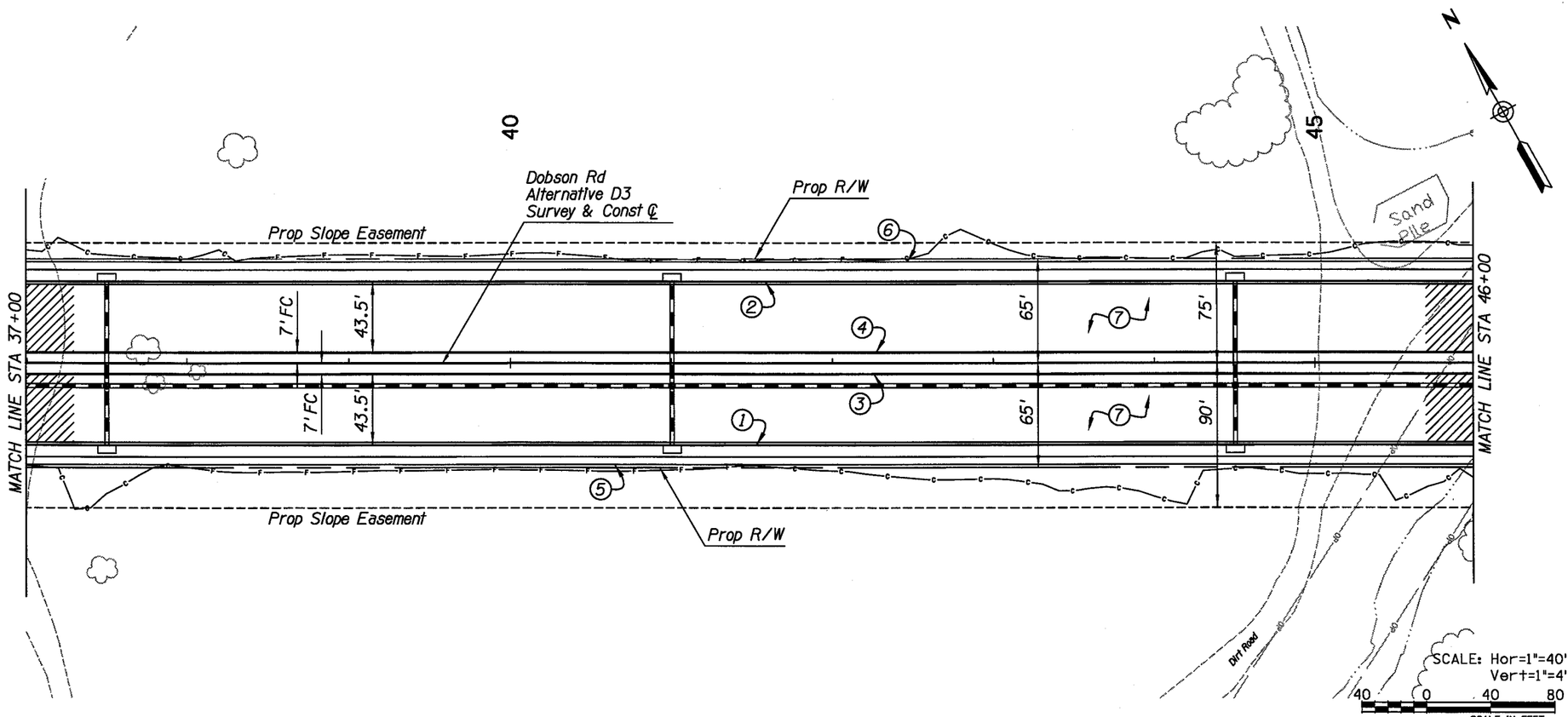
TRACS NO.

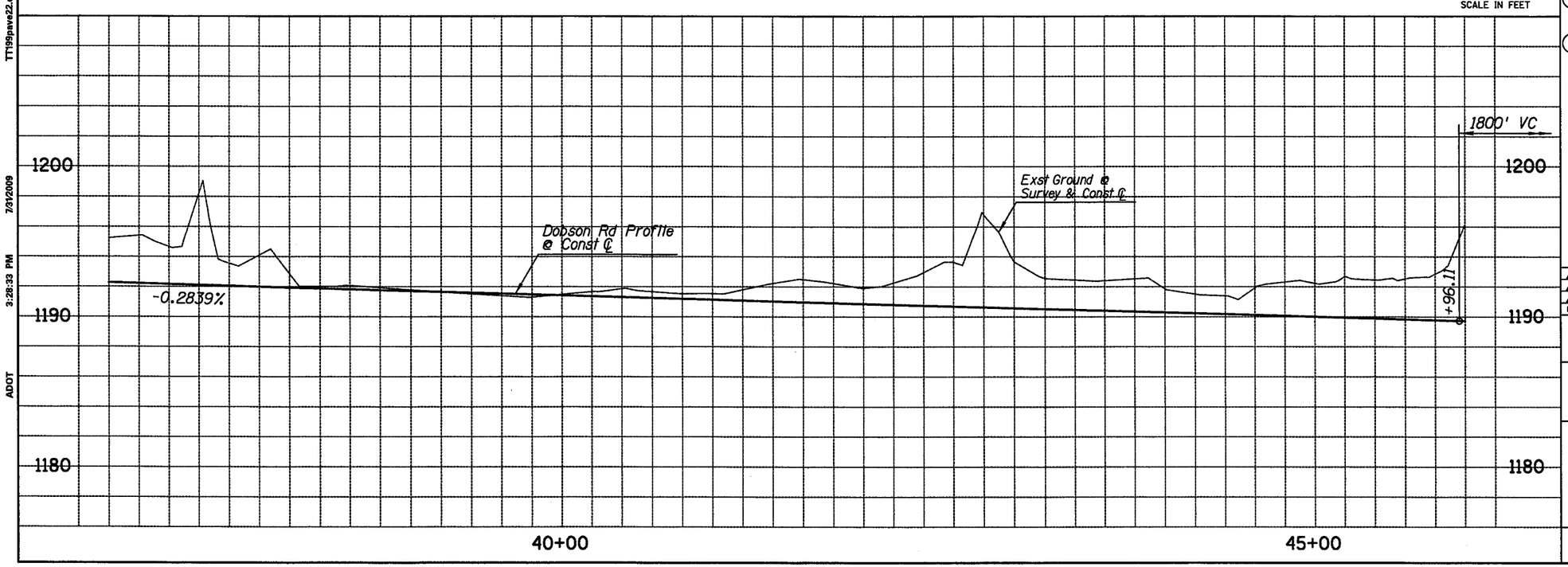
TT199pave21.dgn 7/31/2009 3:28:15 PM ADOT

English

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐





CONSTRUCTION

1. Sta 37+00 to Sta 46+00
   MAG Det 220, Type A Curb & Gutter
2. Sta 37+00 to Sta 46+00
   MAG Det 220, Type A Curb & Gutter
3. Sta 37+00 to Sta 46+00
   MAG Det 222, Type A Curb
4. Sta 37+00 to Sta 46+00
   MAG Det 220, Type A Curb
5. Sta 37+00 to Sta 46+00
   MAG Det 230, 5 Ft Sidewalk
6. Sta 37+00 to Sta 46+00
   MAG Det 230, 5 Ft Sidewalk
7. Sta 37+00 to Sta 46+00
   New AC Pvmt

NO.	REVISION	BY	DATE
1			
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4			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PRELIMINARY
NOT FOR
CONSTRUCTION

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

DOBSON - PAVING PLAN AND PROFILE
STA 37+00 TO 46+00

SHEET 39 OF 61

TRACS NO.

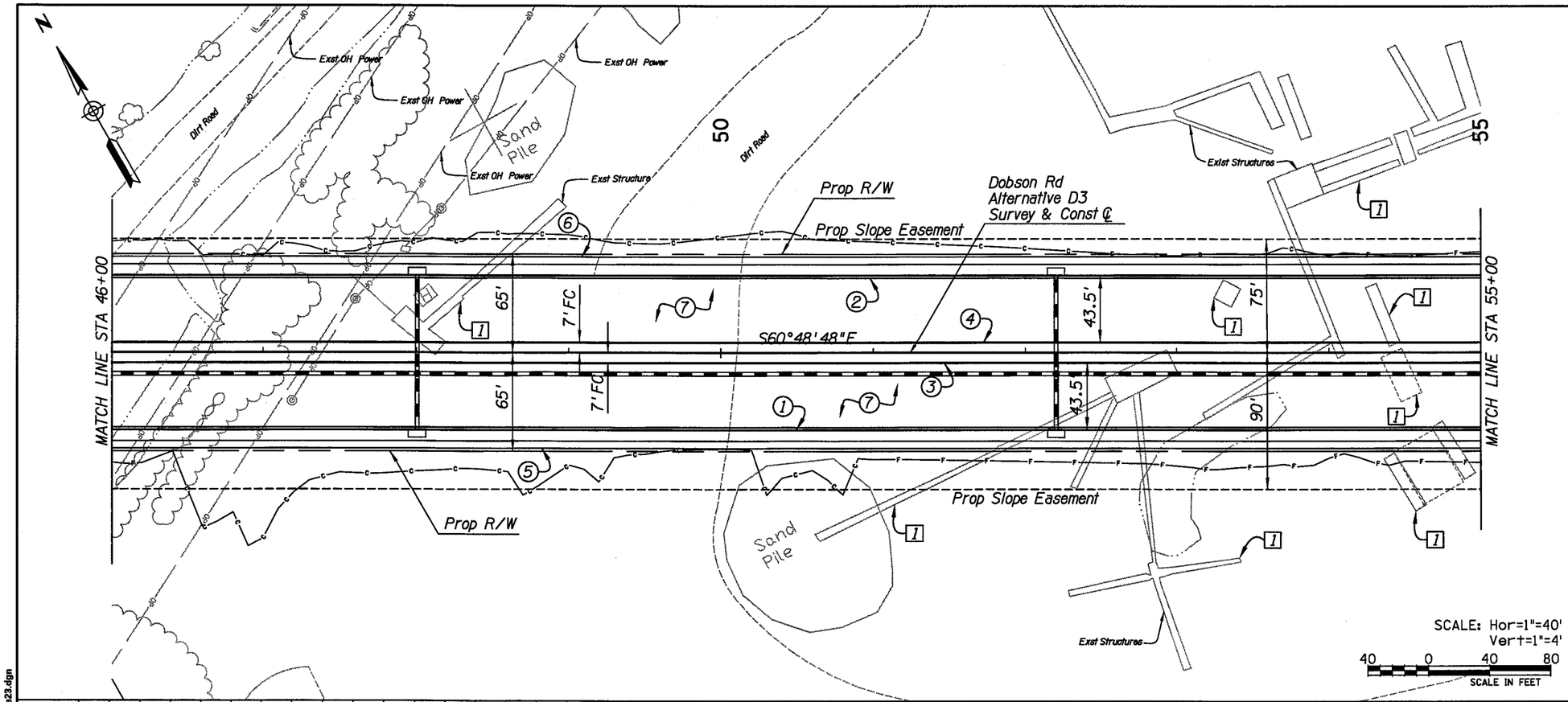
TT199pave22.dgn 7/31/2009 3:28:33 PM ADOT

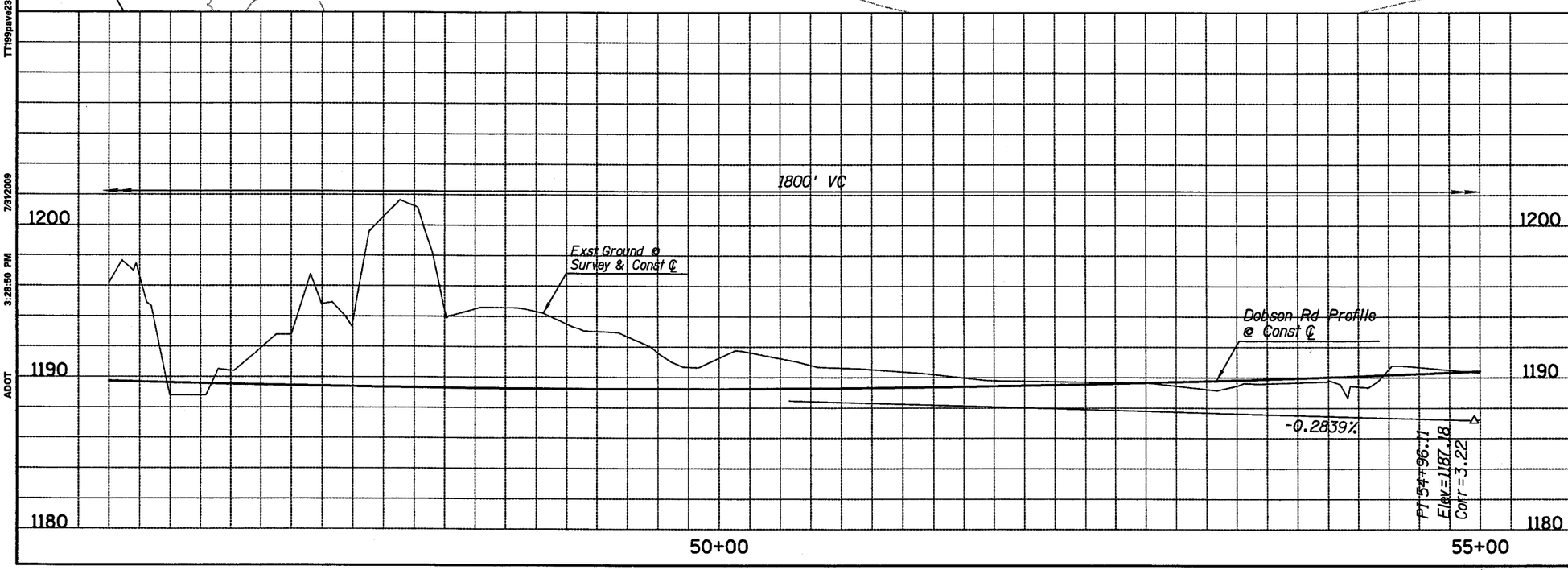
English

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

[1] Remove / Relocate





CONSTRUCTION

1. Sta 46+00 to Sta 55+00
   MAG Det 220, Type A Curb & Gutter
2. Sta 46+00 to Sta 55+00
   MAG Det 220, Type A Curb & Gutter
3. Sta 46+00 to Sta 55+00
   MAG Det 222, Type A Curb
4. Sta 46+00 to Sta 55+00
   MAG Det 222, Type A Curb
5. Sta 46+00 to Sta 55+00
   MAG Det 230, 5 Ft Sidewalk
6. Sta 46+00 to Sta 55+00
   MAG Det 230, 5 Ft Sidewalk
7. Sta 46+00 to Sta 55+00
   New AC Pvmt

NO.	REVISION	BY	DATE
1			
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

DOBSON - PAVING PLAN AND PROFILE
STA 46+00 TO 55+00

SHEET 40 OF 61

TRACS NO.

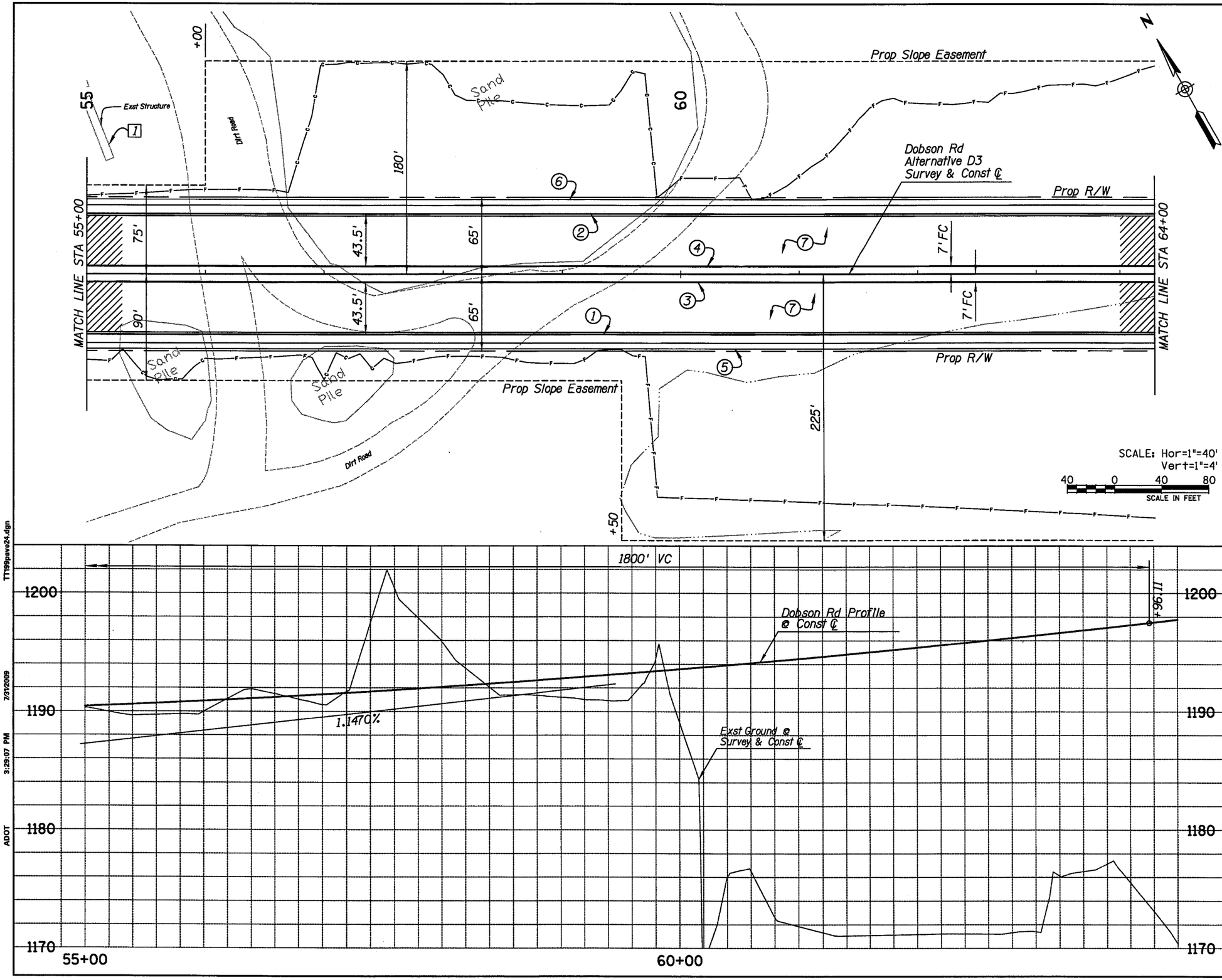
English

TT199pave23.dgn 7/31/2009 3:26:50 PM ADOT

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1 Remove / Relocate



◯ CONSTRUCTION ◯

1. Sta 55+00 to Sta 64+00
   MAG Det 220, Type A Curb & Gutter
2. Sta 55+00 to Sta 64+00
   MAG Det 220, Type A Curb & Gutter
3. Sta 55+00 to Sta 64+00
   MAG Det 222, Type A Curb
4. Sta 55+00 to Sta 64+00
   MAG Det 222, Type A Curb
5. Sta 55+00 to Sta 64+00
   MAG Det 230, 5 Ft Sidewalk
6. Sta 55+00 to Sta 64+00
   Ft MAG Det 230, 5 Ft Sidewalk
7. Sta 55+00 to Sta 64+00
   New AC Pvmt

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

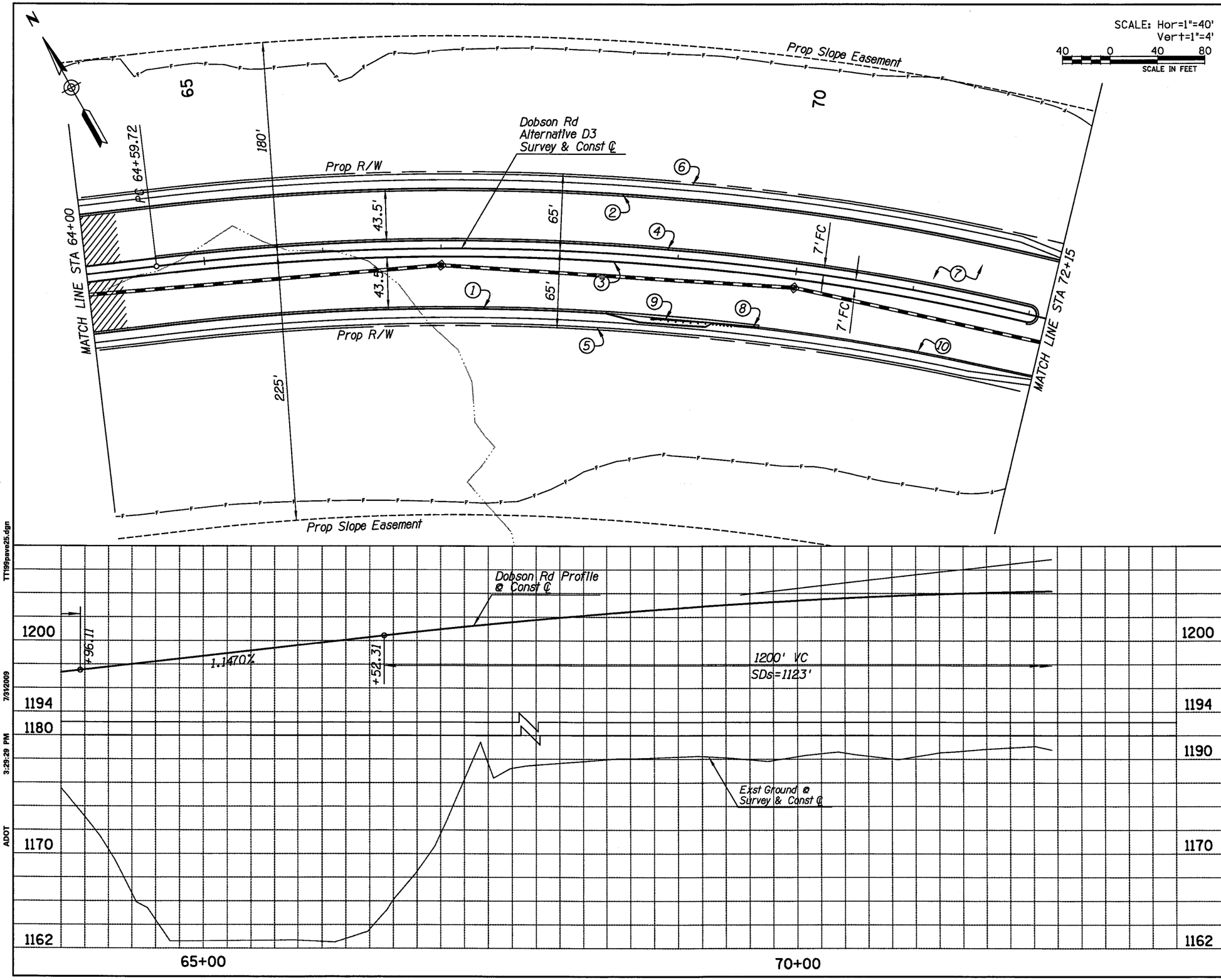
DOBSON - PAVING PLAN AND PROFILE
STA 55+00 TO 64+00

SHEET 41 OF 61

TRACS NO.

ADOT 3:29:07 PM 7/31/2009 TT199pave24.dgn

English



F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

○ CONSTRUCTION ○

1. Sta 64+00 to Sta 69+51
   MAG Det 220, Type A Curb & Gutter
2. Sta 64+00 to Sta 72+70
   MAG Det 220, Type A Curb & Gutter
3. Sta 64+00 to Sta 72+00
   MAG Det 222, Type A Curb
4. Sta 64+00 to Sta 72+00
   MAG Det 220, Type A Curb & Gutter
5. Sta 64+00 to Sta 72+70
   MAG Det 230, 5 Ft Sidewalk
6. Sta 64+00 to Sta 72+70
   MAG Det 230, 5 Ft Sidewalk
7. Sta 64+00 to Sta 72+70
   New AC Pvmt
8. Curb Barrier Transition
9. Conc Barrier End Treatment
10. Sta 69+74 to Sta 72+70
    Conc Barrier

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

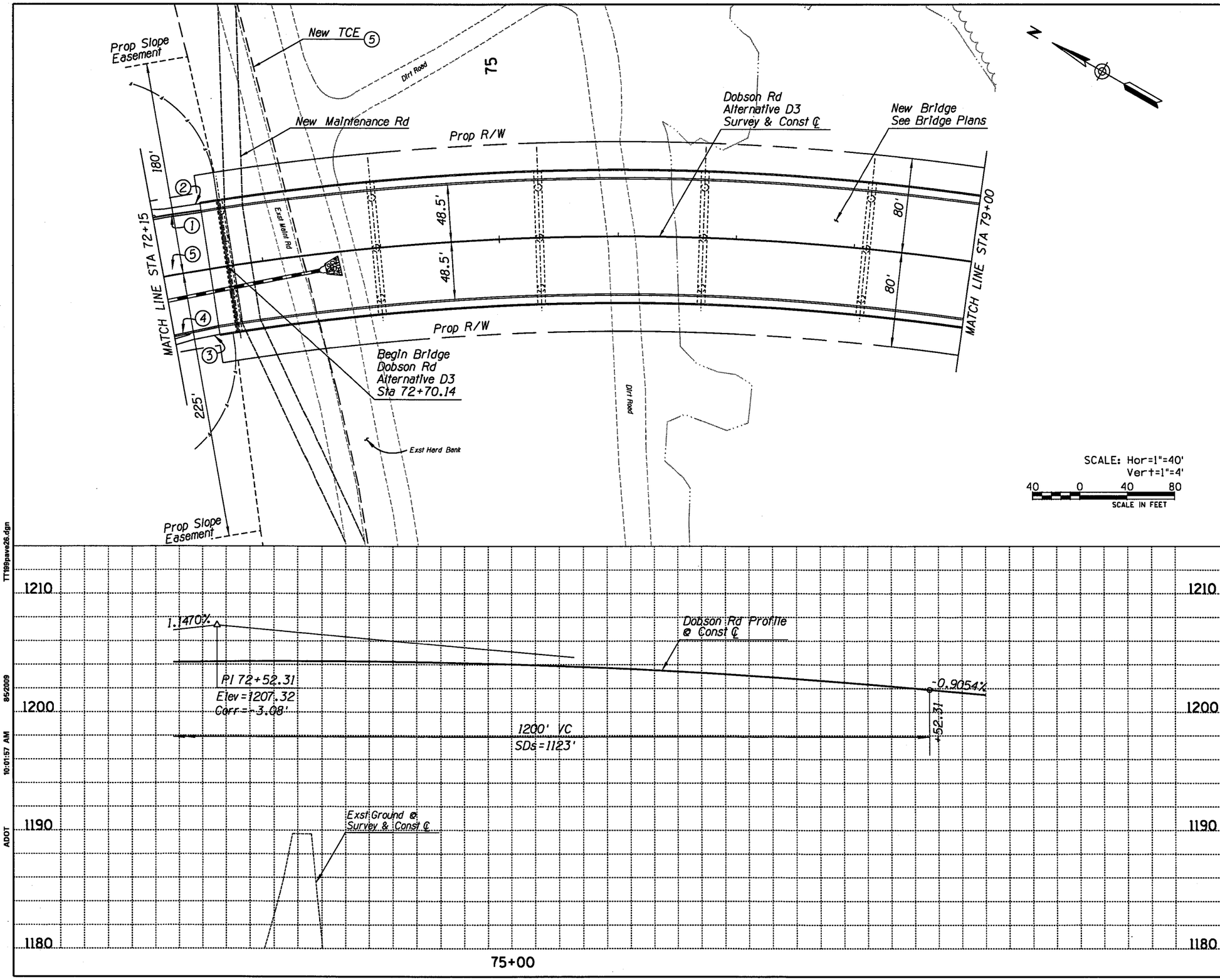
DOBSON - PAVING PLAN AND PROFILE
STA 64+00 TO 73+00

SHEET 42 OF 61

TRACS NO.

English

TT199pave25.dgn 7/31/2009 3:29:29 PM ADOT



F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

○ CONSTRUCTION ○

(1) Sta 72+15 to Sta 72+53.85
MAG Det 220, Type A Curb & Gutter

(2) Sta 72+15 to Sta 72+53.85
MAG Det 230, 5 Ft Sidewalk

(3) Sta 72+15 to Sta 72+53.85
MAG Det 230, 5 Ft Sidewalk

(5) Sta 72+15 to Sta 72+53.85
Conc Barrier

(4) Sta 72+15 to Sta 72+53.85
New AC Pvmt

(5) TCE extent to be confirmed during final design after cultural investigation has been completed

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

DOBSON - PAVING PLAN AND PROFILE
STA 72+15 TO 79+00

SHEET 43 OF 61

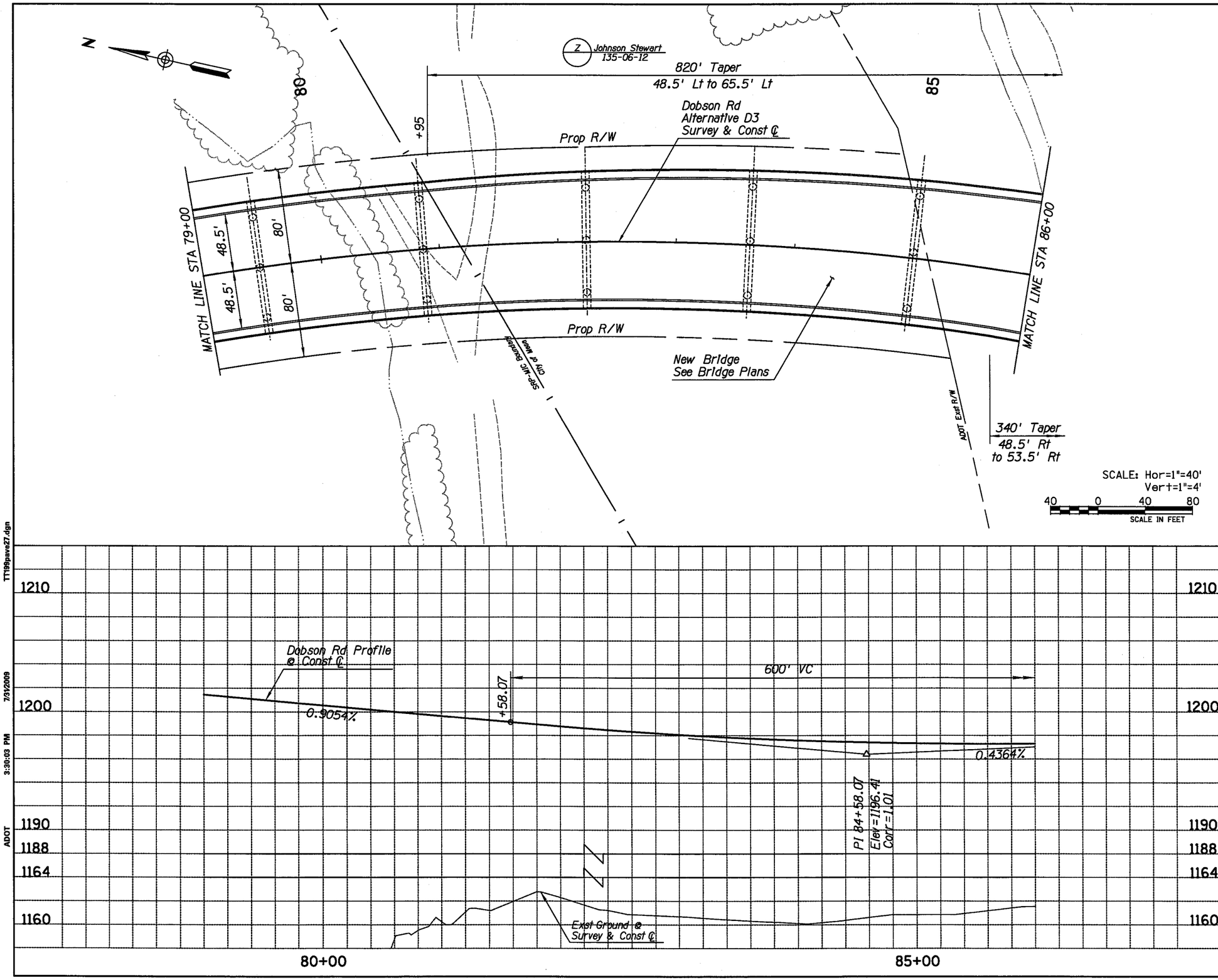
TRACS NO.

TT199pave26.dgn 8/5/2009 10:01:57 AM ADOT

English

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐



☐ CONSTRUCTION ☐

NO.	REVISION	BY	DATE
1			
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

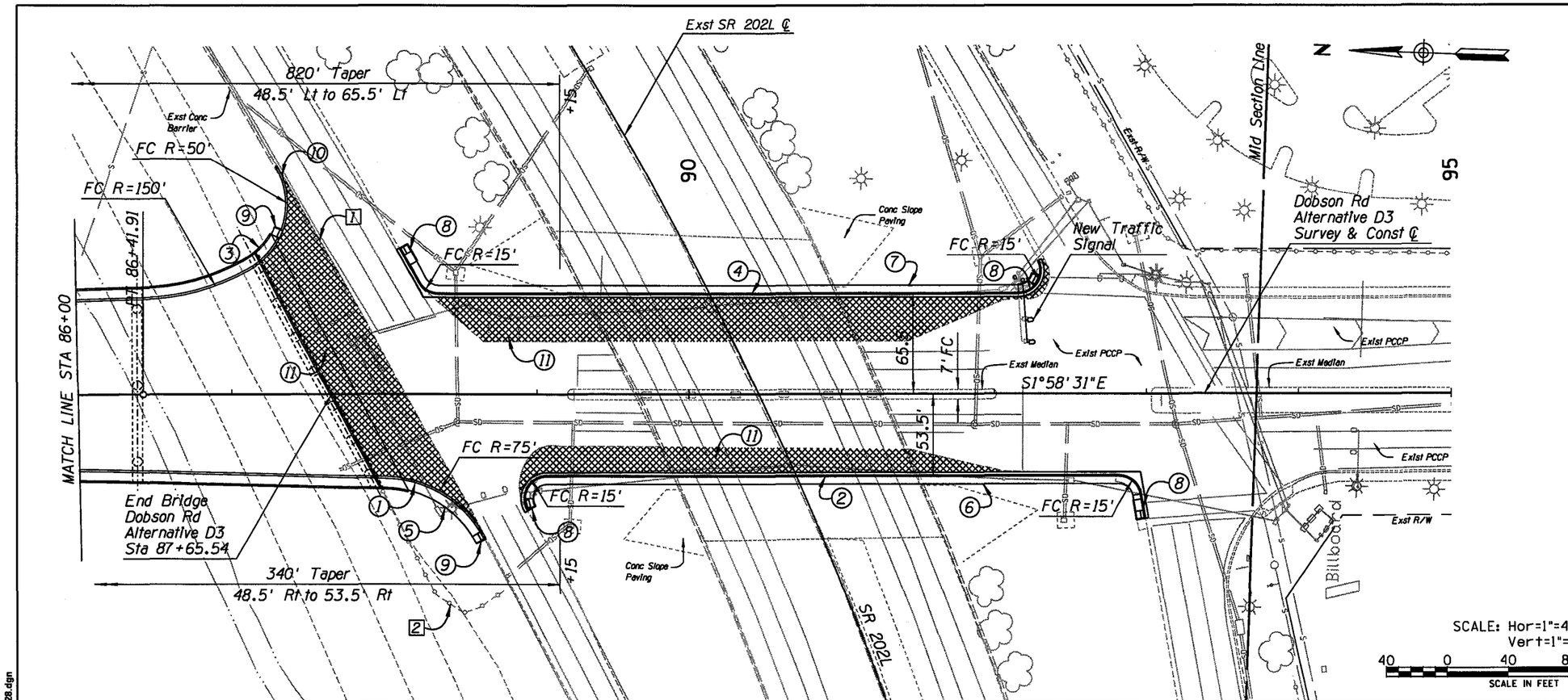
DOBSON - PAVING PLAN AND PROFILE
STA 79+00 TO 86+00

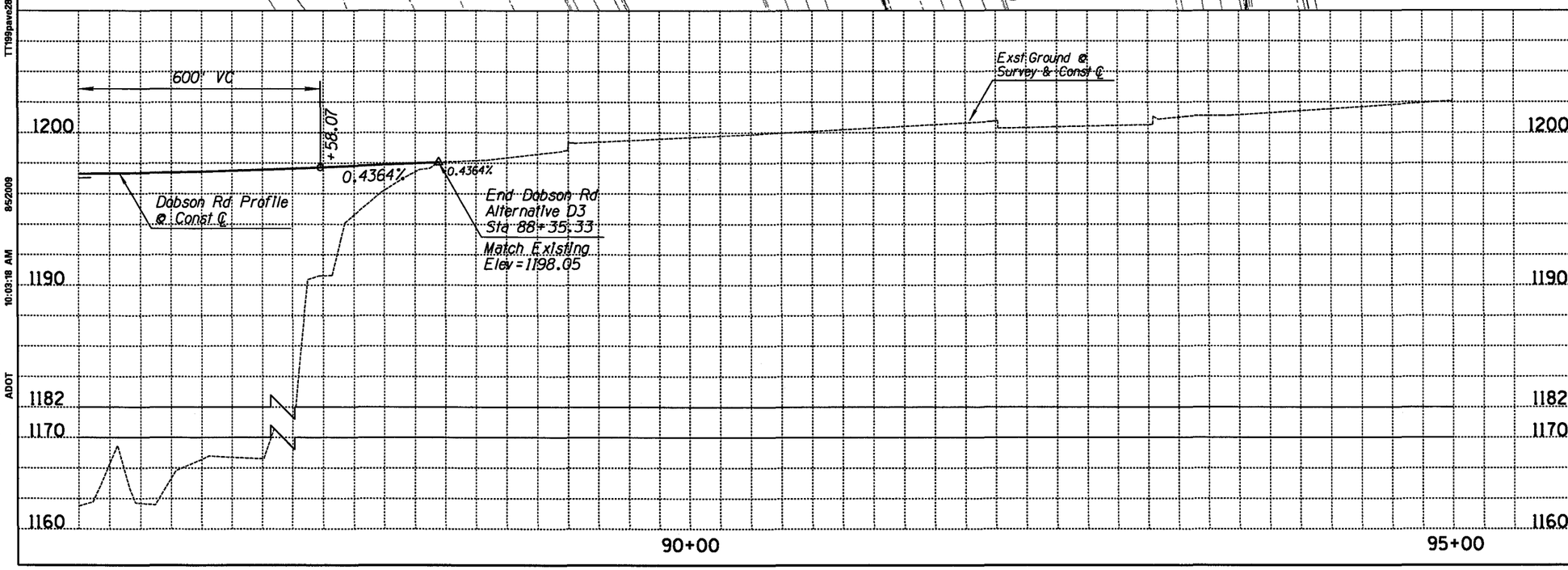
SHEET 44 OF 61

TRACS NO.

TT199pave27.dgn 7/3/2009 3:30:03 PM ADOT

English





F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1. Remove Conc Barrier
2. Remove Chain Link Fence

◯ CONSTRUCTION ◯

1. Sta 87+94 to Sta 88+51
   ADOT Std C-10.50 Conc Barrier
2. Sta 88+94 to Sta 92+96
   ADOT Std C-05.10 Type D, h=7"
3. Sta 87+19 to Sta 87+30
   ADOT Std C-05.20, 5 Ft Sidewalk
4. Sta 88+23 to Sta 92+29
   ADOT Std C-05.10 Type D, h=7"
5. Sta 87+95 to Sta 88+63
   ADOT Std C-05.20, 5 Ft Sidewalk
6. Sta 88+94 to Sta 92+96
   ADOT Std C-05.20, 5 Ft Sidewalk
7. Sta 88+23 to Sta 92+29
   ADOT Std C-05.20, 5 Ft Sidewalk
8. Conc Sidewalk Ramps
   ADOT Std C-05.30, Type C
9. Conc Sidewalk Ramps and Barrier Transition
   ADOT Std C-05.30, Type D
   ADOT Std C-10.76
10. Sta 87+34 to Sta 87+37
    ADOT Std 10.50 Conc Barrier
11. New PCCP

NO.	REVISION	BY	DATE
1			
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

DOBSON - PAVING PLAN AND PROFILE
STA 86+00 TO 95+00

SHEET 45 OF 61

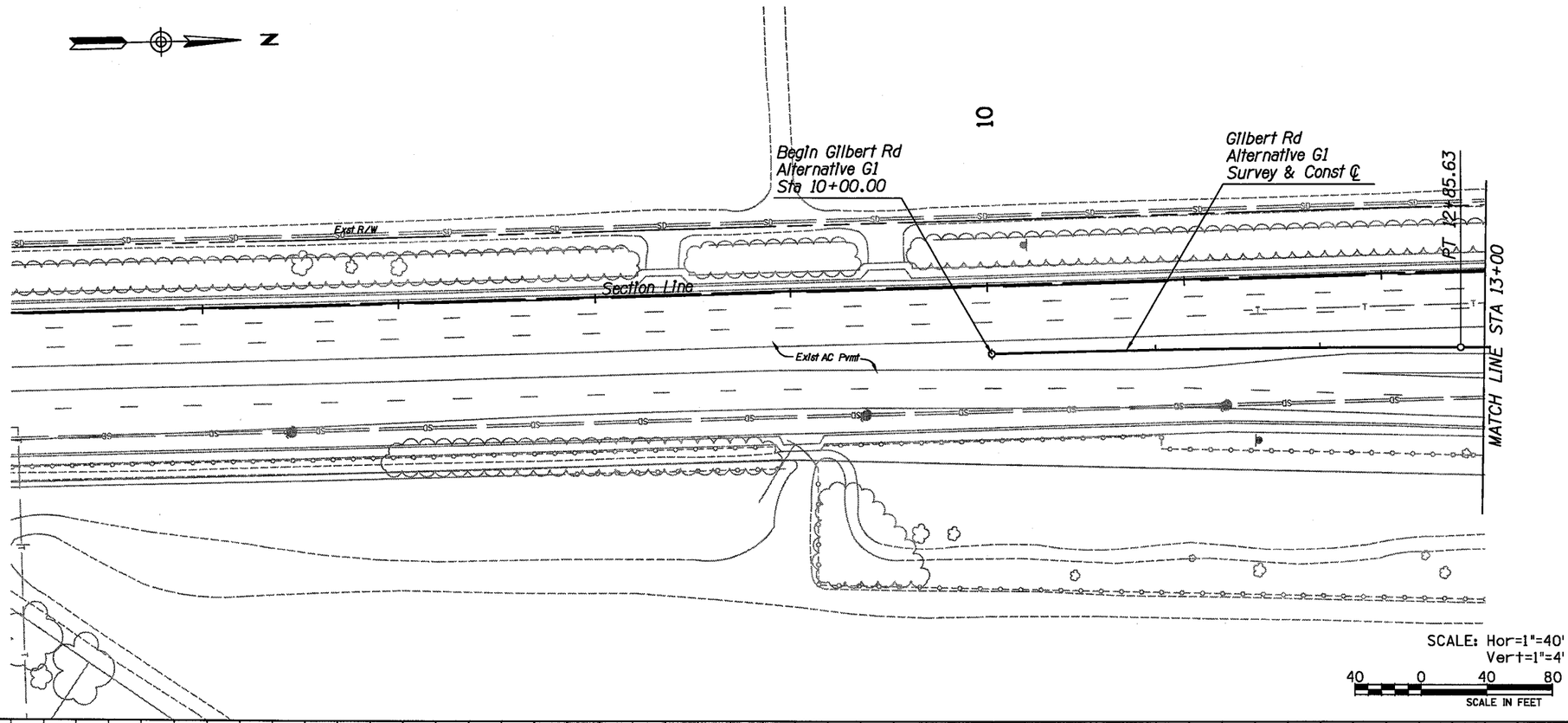
TRACS NO.

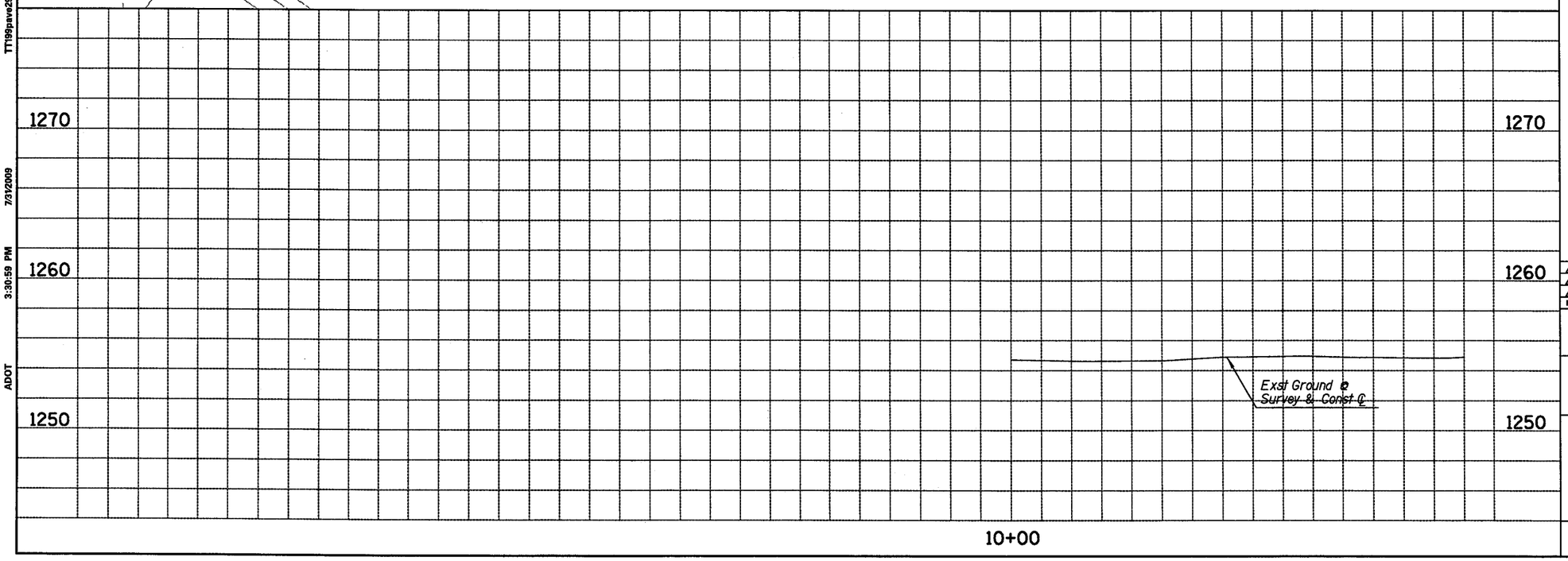
English

TT199pave28.dgn 8/5/2009 10:03:19 AM ADOT

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐





○ CONSTRUCTION ○

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PRELIMINARY NOT FOR CONSTRUCTION

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GILBERT - PAVING PLAN AND PROFILE
STA 10+00 TO 13+00

SHEET 46 OF 61

TRACS NO.

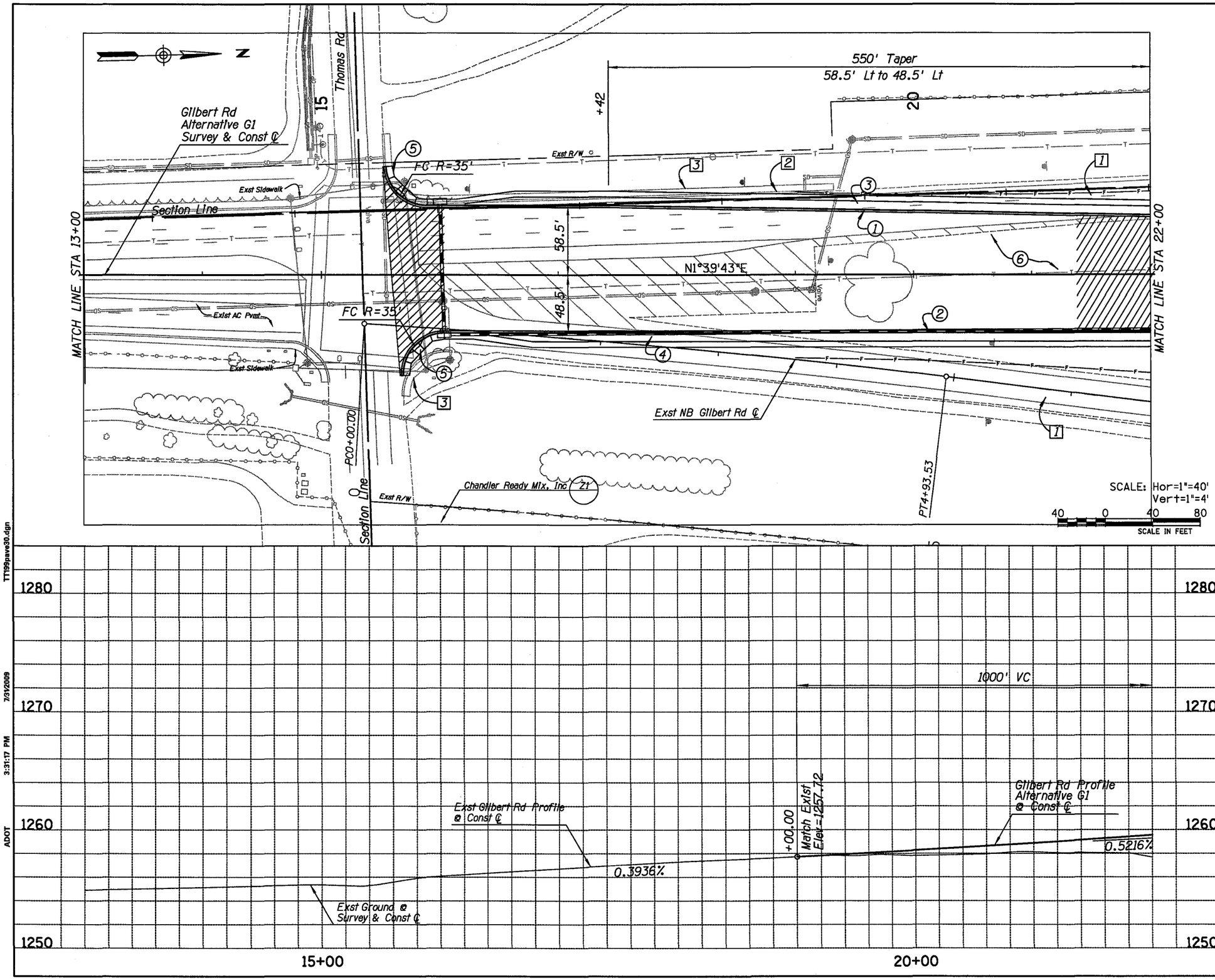
English

TT199paving29.dgn 7/31/2009 3:30:59 PM ADOT

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1. Remove AC Pavement
2. Remove Curb & Gutter
3. Remove Sidewalk



◯ CONSTRUCTION ◯

1. Sta 15+59 to Sta 22+00
   MAG Det 220, Type A Curb & Gutter
2. Sta 15+72 to Sta 22+00
   MAG Det 220, Type A Curb & Gutter
3. Sta 15+59 to Sta 22+00
   MAG Det 230, 5 Ft Sidewalk
4. Sta 15+72 to Sta 22+00
   MAG Det 230, 5 Ft Sidewalk
5. Concrete Sidewalk Ramp
   MCDOT Det 2031-A
6. Sta 15+60 to Sta 22+00
   New AC Pvmt

NO.	REVISION	BY	DATE
1			
2			
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

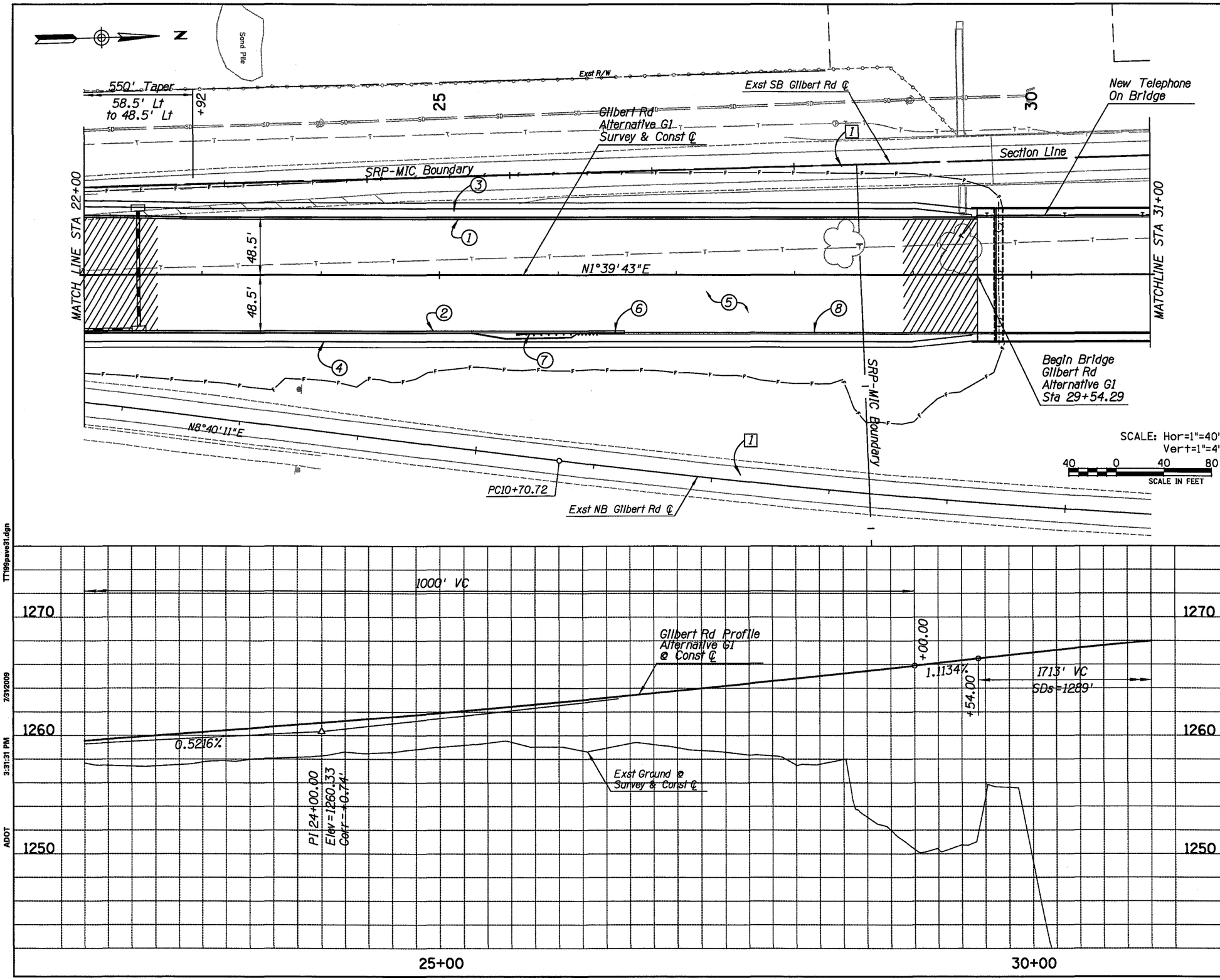
GILBERT - PAVING PLAN AND PROFILE
STA 13+00 TO 22+00

SHEET 47 OF 61

TRACS NO.

English

TT199pave30.dgn 7/31/2009 3:31:17 PM ADOT



F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1 Remove AC Pvmt

◯ CONSTRUCTION ◯

1. Sta 22+00 to Sta 29+54
   MAG Det 220, Type A Curb & Gutter
2. Sta 22+00 to Sta 26+27
   MAG Det 220, Type A Curb & Gutter
3. Sta 22+00 to Sta 29+54
   MAG Det 230, 5 Ft Sidewalk
4. Sta 22+00 to Sta 29+54
   MAG Det 230, 5 ft Sidewalk
5. Sta 22+00 to Sta 29+54
   New AC Pvmt
6. Conc Barrier Transition
7. Conc Barrier End Treatment
8. Sta 26+56 to Sta 29+54
   Conc Barrier

NO.	REVISION	BY	DATE
1			
2			
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PRELIMINARY
NOT FOR
CONSTRUCTION

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GILBERT - PAVING PLAN AND PROFILE
STA 22+00 TO 31+00

SHEET 48 OF 61

TRACS NO.

English

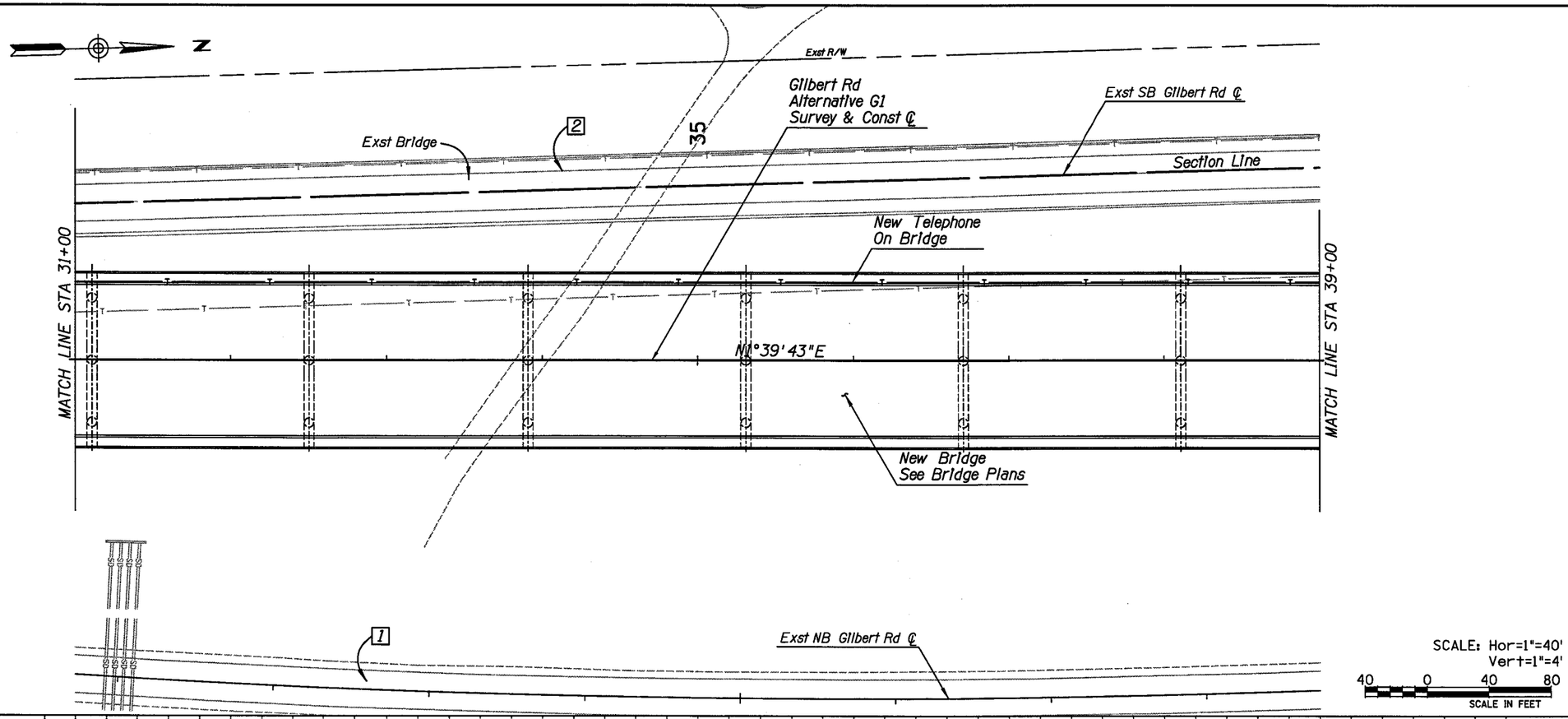
TT199pave31.dgn 7/31/2009 3:31:31 PM ADOT

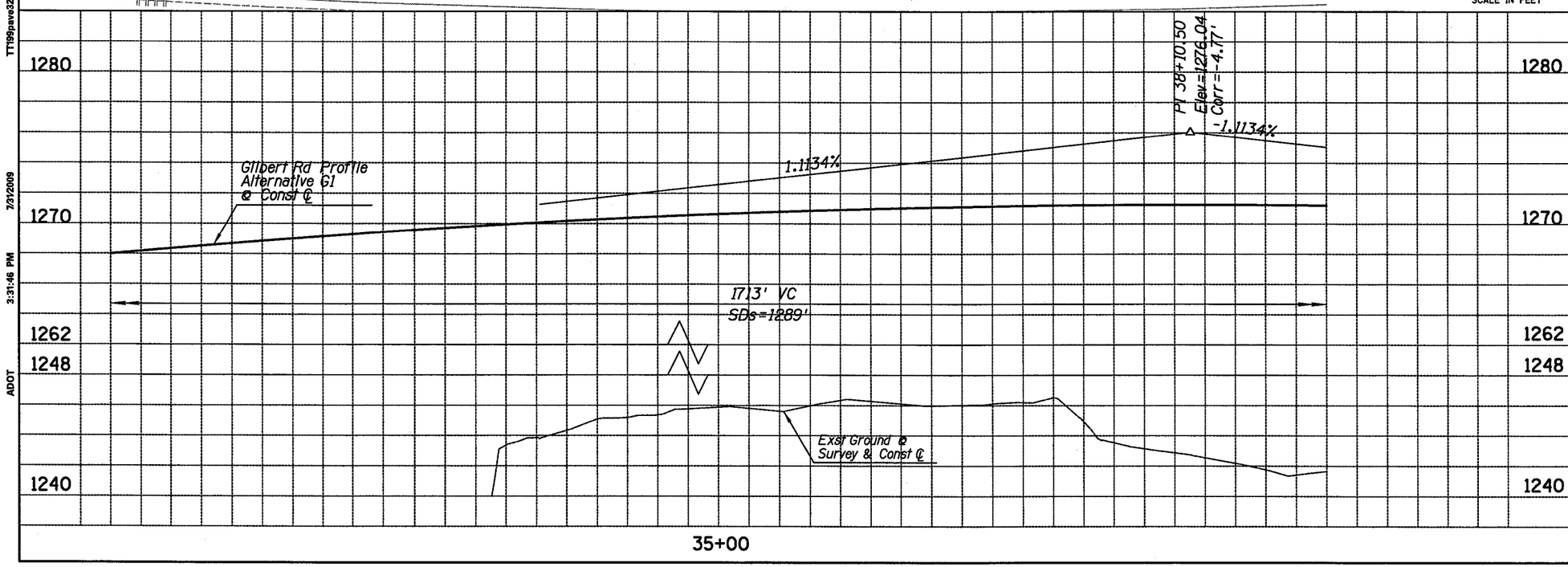
F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

[1] Remove AC Pvmt

[2] Remove Bridge





☐ CONSTRUCTION ☐

NO.	REVISION	BY	DATE
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GILBERT - PAVING PLAN AND PROFILE
STA 31+00 TO 39+00

SHEET 49 OF 61

TRACS NO.

English

TT199pave32.dgn 7/31/2009 3:31:46 PM ADOT

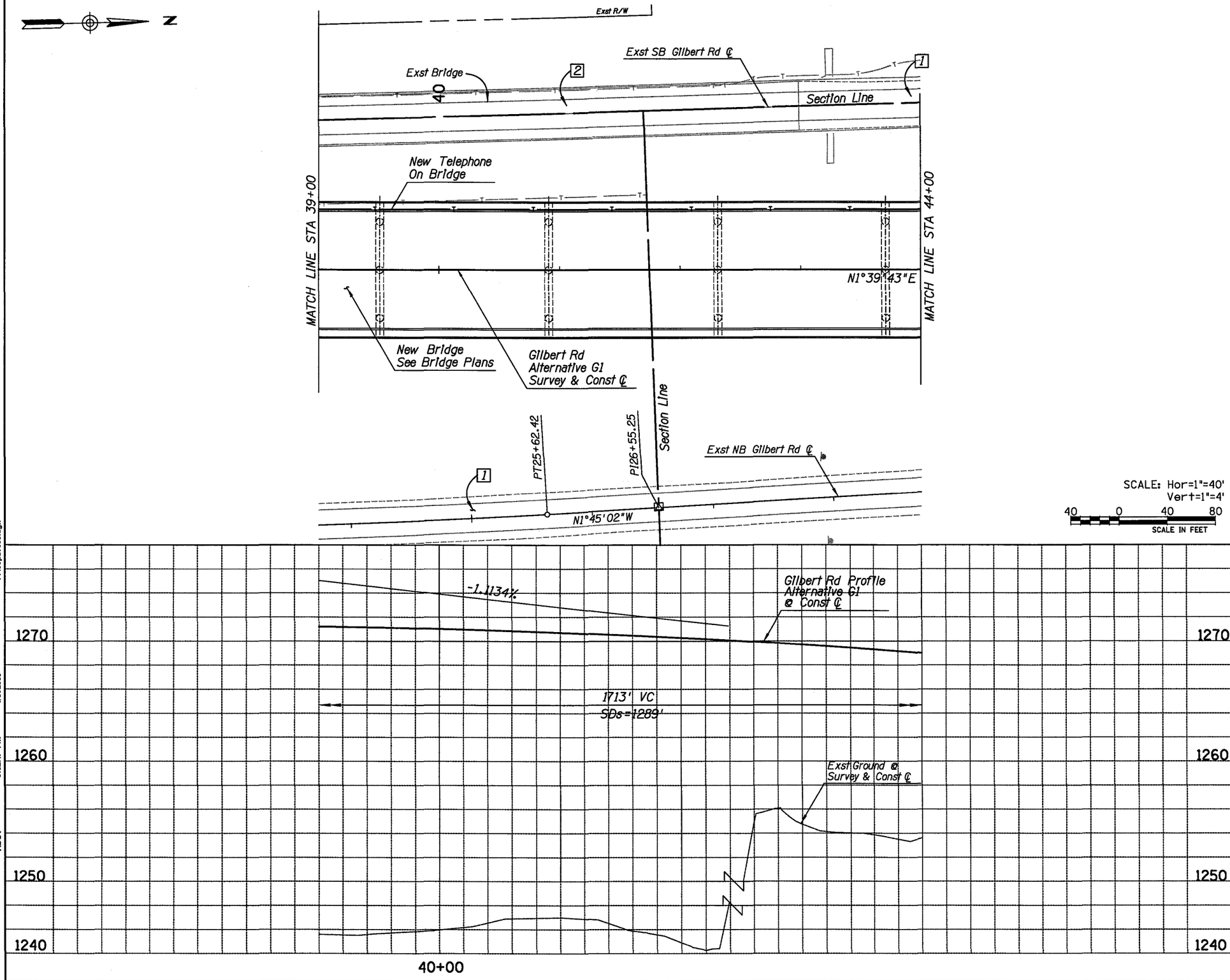
F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1 Remove AC Pvmt

2 Remove Bridge

◯ CONSTRUCTION ◯



NO.	REVISION	BY	DATE
1			
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GILBERT - PAVING PLAN AND PROFILE
STA 39+00 TO 44+00

SHEET 50 OF 61

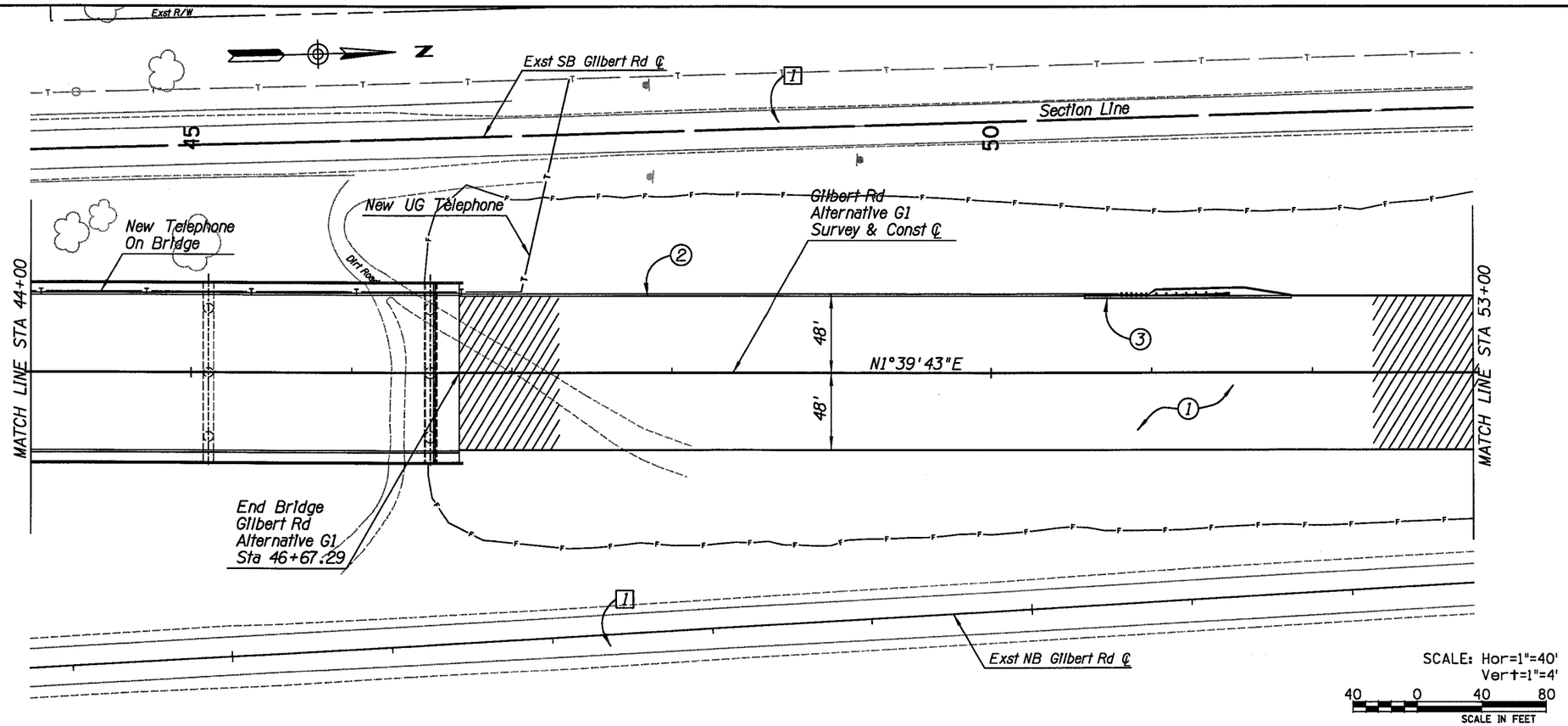
TRACS NO.

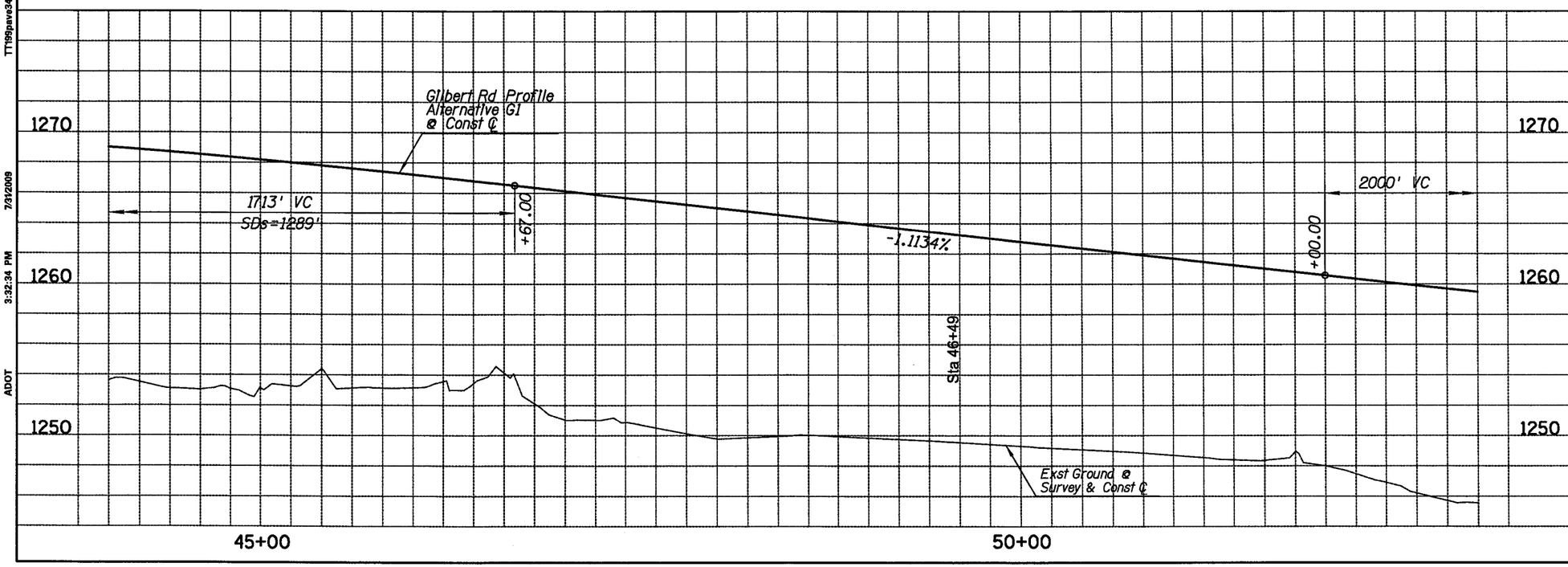
TT199pave33.dgn 7/31/2009 3:32:17 PM ADOT

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1 Remove AC Pvmt





☐ CONSTRUCTION ☐

1. Sta 46+67 to Sta 53+00
   New AC Pvmt
2. Sta 46+67 to Sta 50+58
   Conc Barrier
3. Conc Barrier End Treatment

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

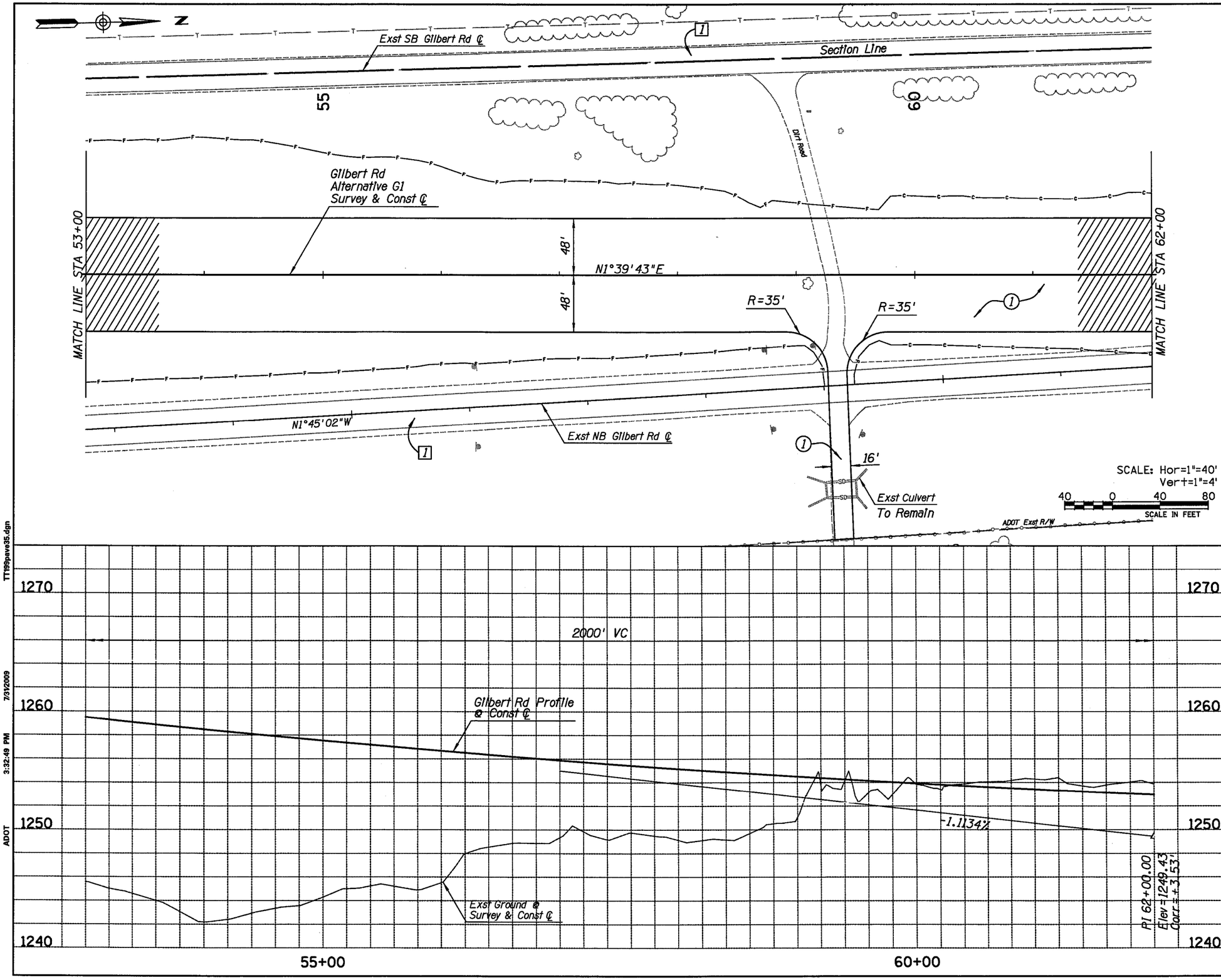
GILBERT - PAVING PLAN AND PROFILE
STA 44+00 TO 53+00

SHEET 51 OF 61

TRACS NO.

English

TT199pave34.dgn 7/31/2009 3:32:34 PM ADOT



F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1 Remove AC Pvmt

◯ CONSTRUCTION ◯

1 Sta 53+00 to Sta 62+00
New AC Pvmt

NO.	REVISION	BY	DATE
1			
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GILBERT - PAVING PLAN AND PROFILE
STA 53+00 TO 62+00

SHEET 52 OF 61

TRACS NO.

English

TT199pave35.dgn 7/31/2009 3:32:49 PM ADOT

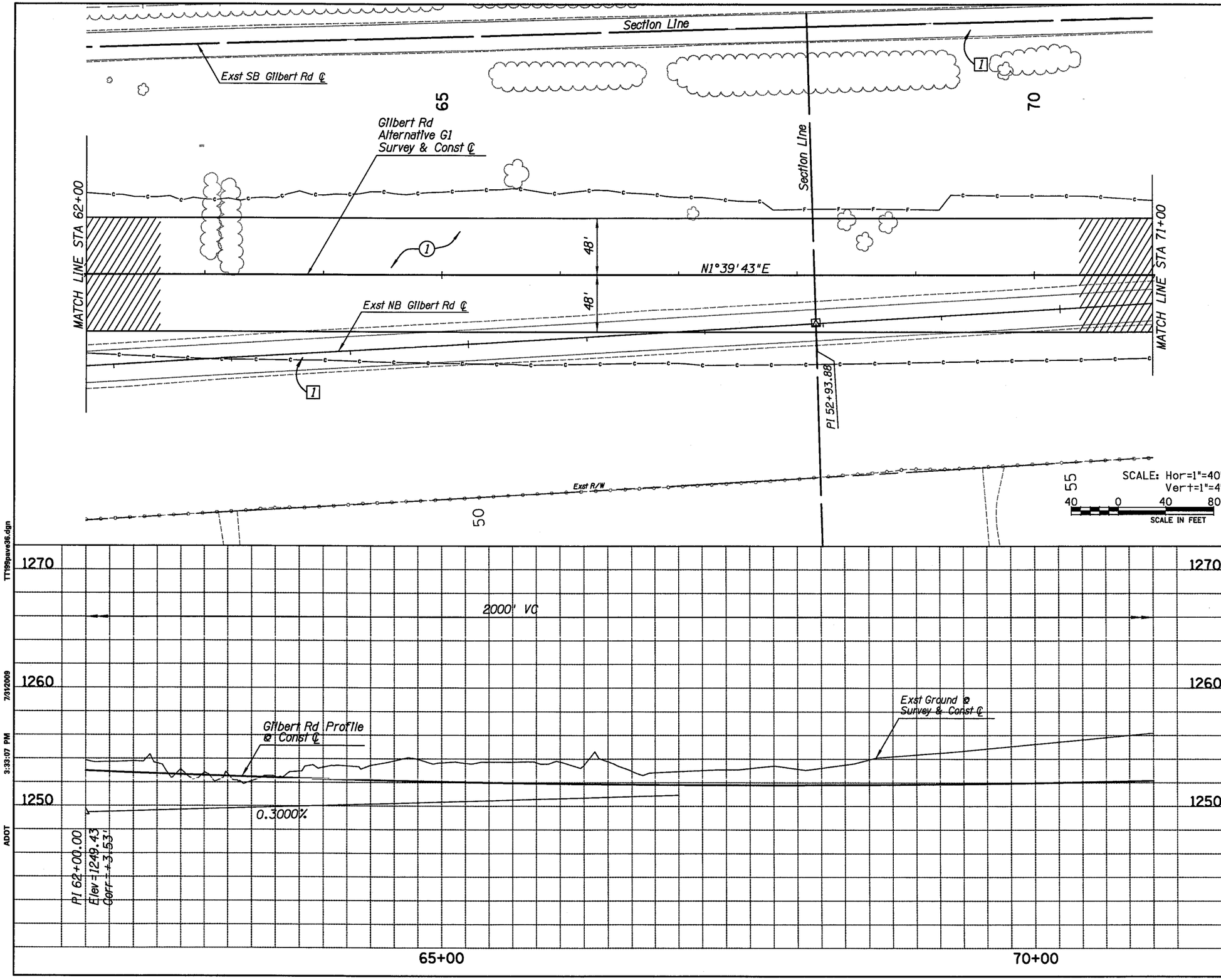
F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1 Remove AC Pvmt

◯ CONSTRUCTION ◯

(1) Sta 62+00 to Sta 71+00
New AC Pvmt



NO.	REVISION	BY	DATE
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GILBERT - PAVING PLAN AND PROFILE
STA 62+00 TO 71+00

SHEET 53 OF 61

TRACS NO.

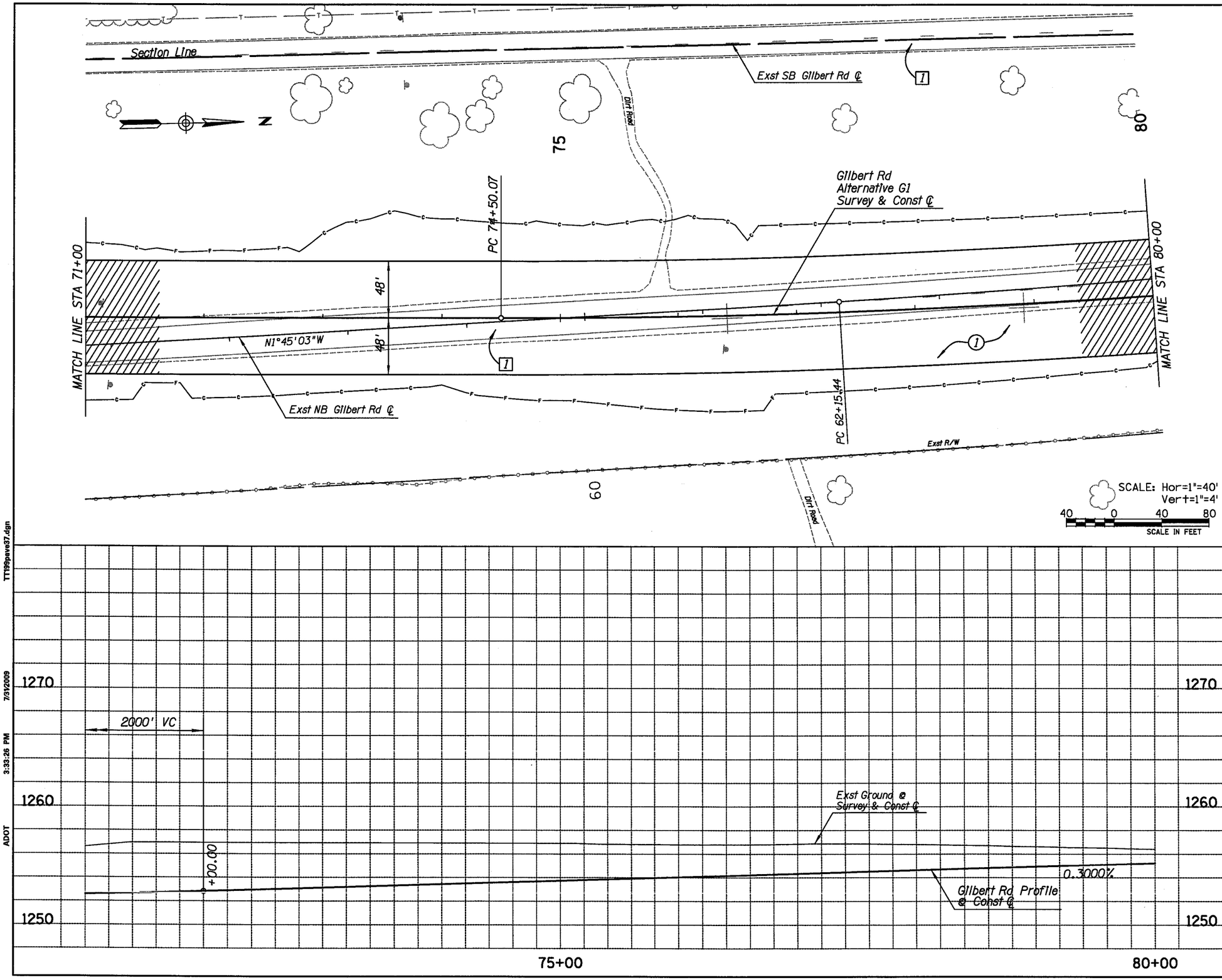
TT199pave36.dgn 7/31/2009 3:33:07 PM ADOT

English

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1 Remove AC Pvmt



TT199pave37.dgn 7/31/2009 3:33:26 PM ADOT

◯ CONSTRUCTION ◯

(1) Sta 71+00 to Sta 80+00
New AC Pvmt

NO.	REVISION	BY	DATE
1			
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

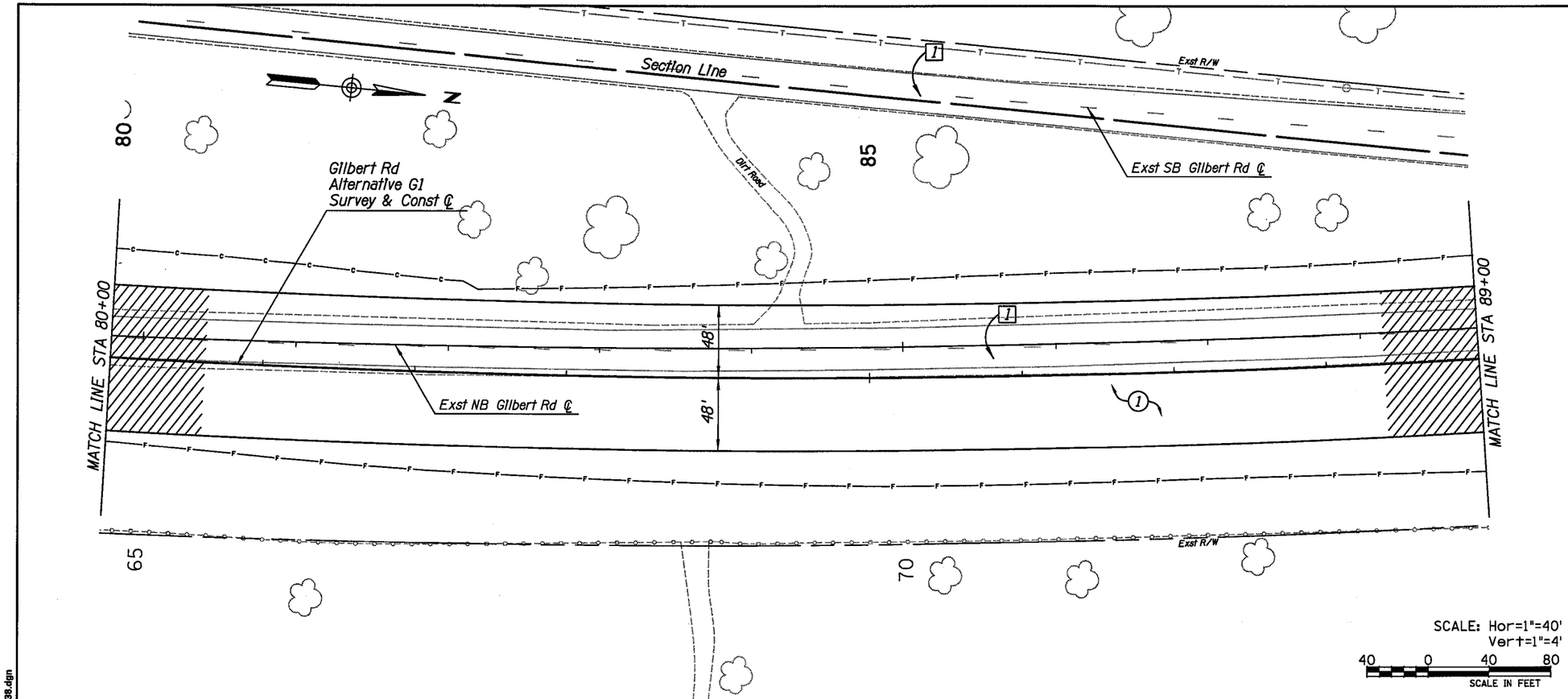
PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

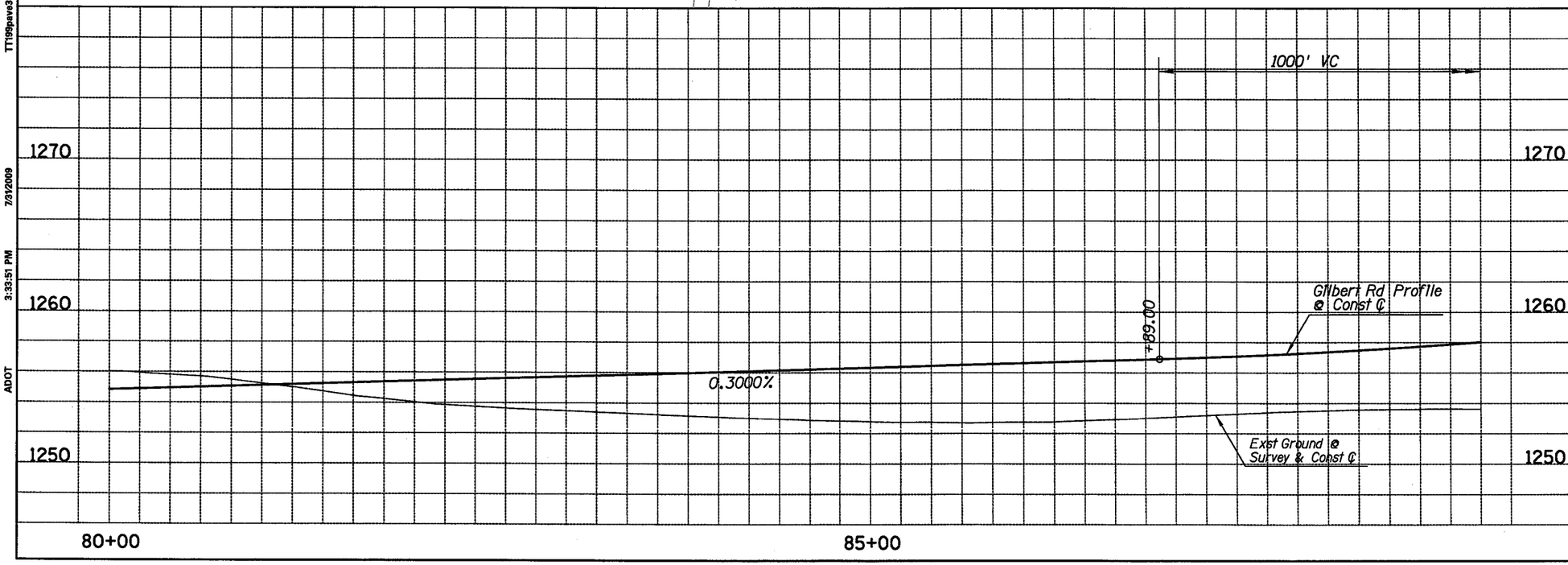
GILBERT - PAVING PLAN AND PROFILE
STA 71+00 TO 80+00

SHEET 54 OF 61

TRACS NO.

English





F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1 Remove AC Pvmt

◯ CONSTRUCTION ◯

1 Sta 80+00 to Sta 89+00
New AC Pvmt

NO.	REVISION	BY	DATE
1			
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

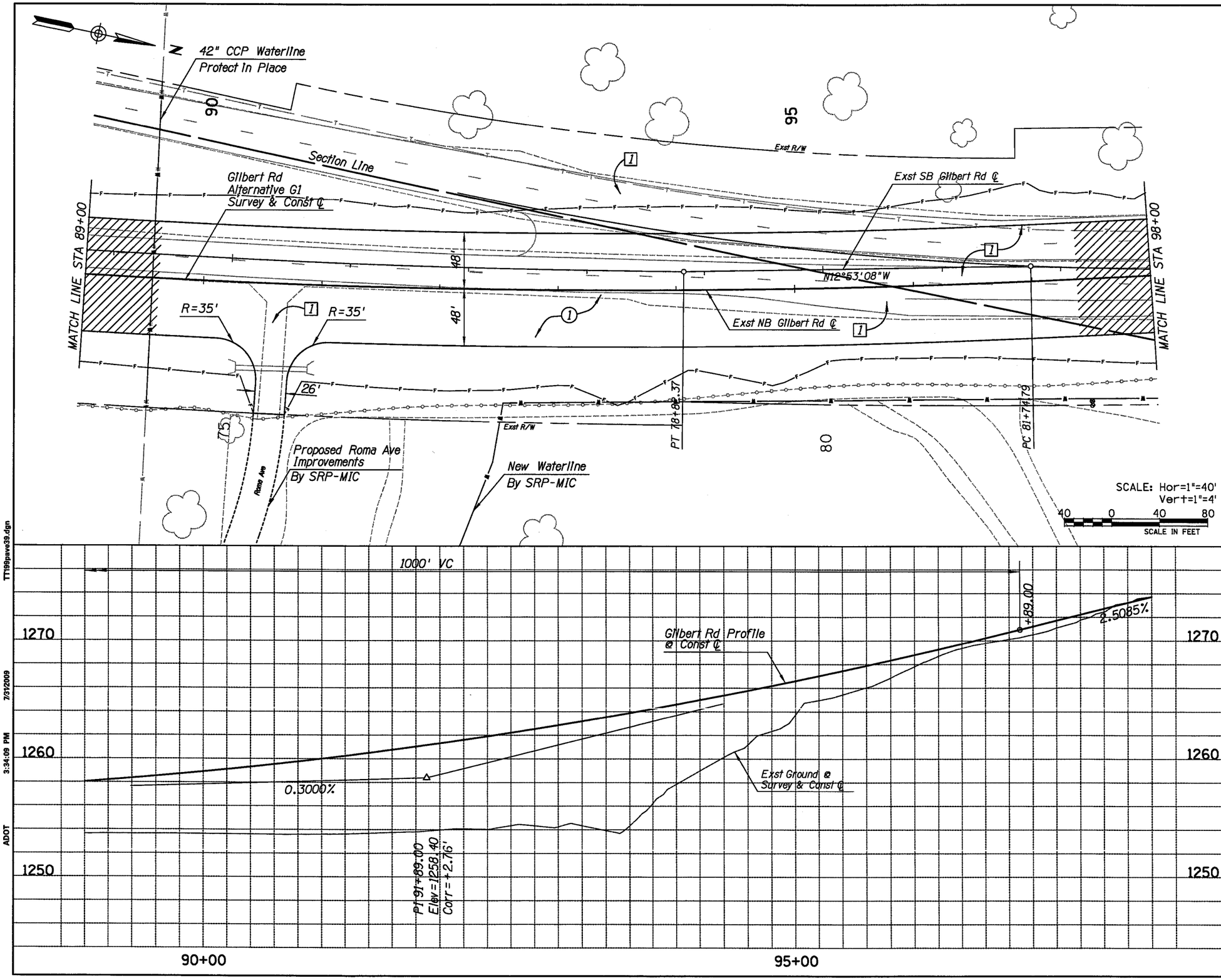
GILBERT - PAVING PLAN AND PROFILE
STA 80+00 TO 89+00

SHEET 55 OF 61

TRACS NO.

English

TT199pave38.dgn 7/31/2009 3:33:51 PM ADOT



F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

1 Remove AC Pvmt

◯ CONSTRUCTION ◯

1 Sta 89+00 to Sta 98+00
New AC Pvmt

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GILBERT - PAVING PLAN AND PROFILE
STA 89+00 TO 98+00

SHEET 56 OF 61

TRACS NO.

TT199pave39.dgn 7/31/2009 3:34:09 PM ADOT

English

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

☐ REMOVAL/RELOCATE ☐

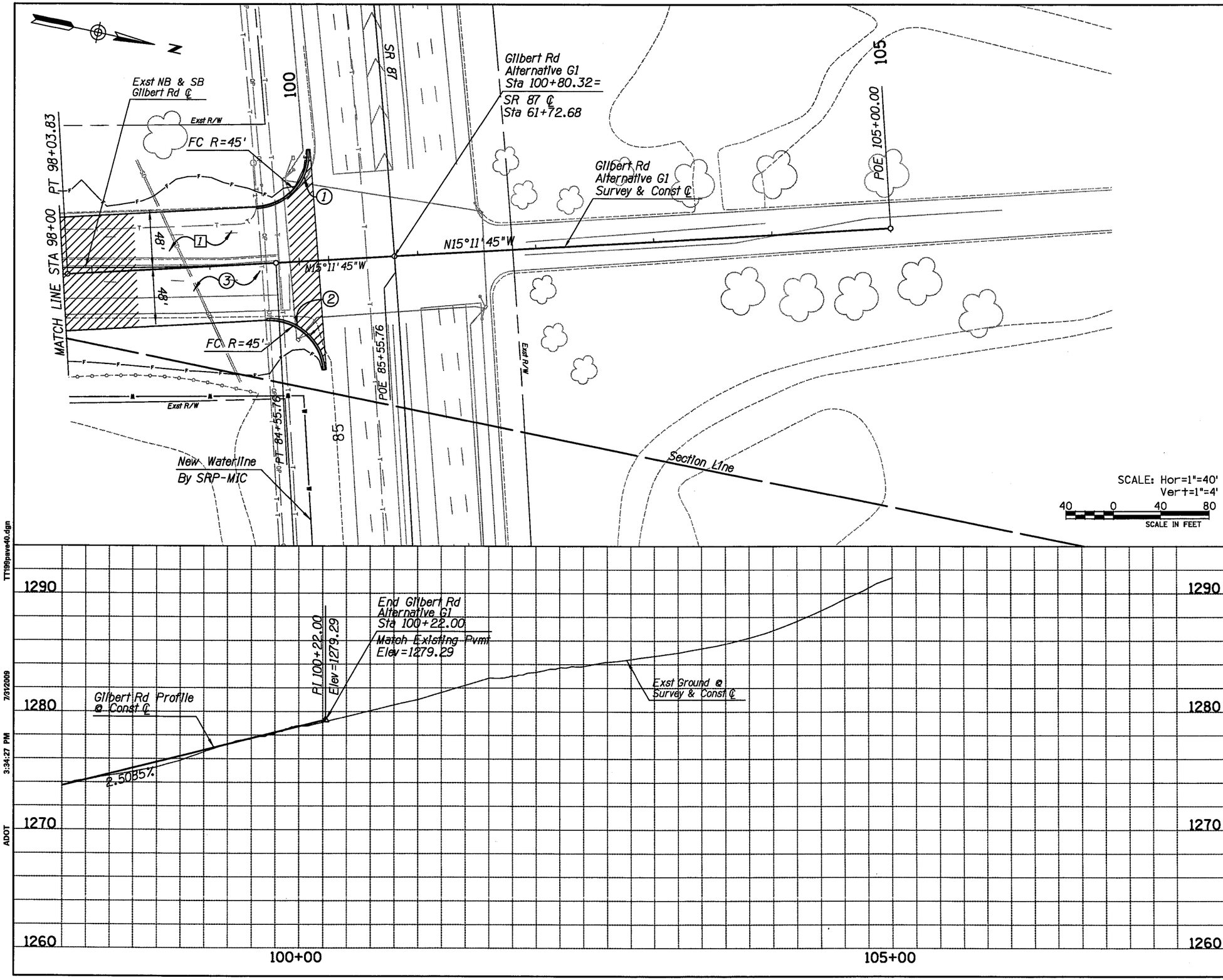
1 Sta 98+00 to Sta 100+16
Remove AC Pvmt

◯ CONSTRUCTION ◯

1 Sta 99+67 to Sta 100+13
MAG Det 220, Type A Curb & Gutter

2 Sta 99+70 to Sta 100+16
MAG Det 220, Type A Curb & Gutter

3 Sta 98+00 to Sta 100+16
New AC Pvmt



NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. MUELLER	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

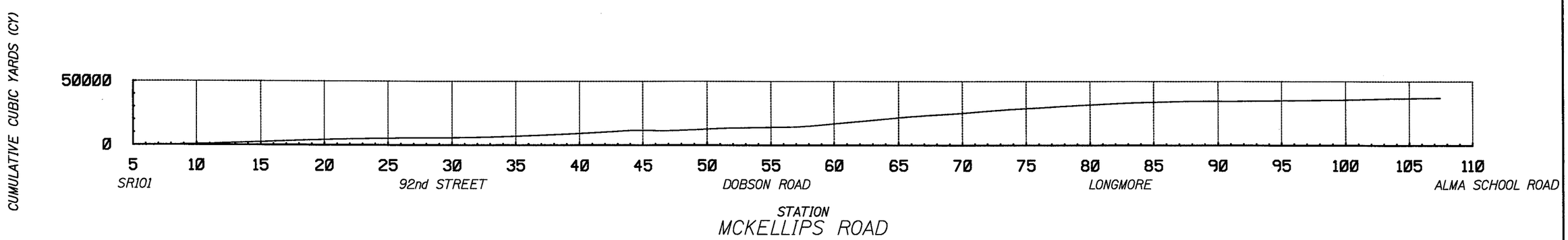
GILBERT - PAVING PLAN AND PROFILE
STA 98+00 TO 105+00

SHEET 57 OF 61

TRACS NO.

ADOT 3:34:27 PM 7/31/2009 TT199pave40.dgn

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



ASSUMPTIONS

GROUND COMPACTION AND SHRINK/SWELL FACTORS WERE NOT APPLIED.

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY NOT FOR CONSTRUCTION

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DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. POLASIK	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

MASS DIAGRAM SHEET
MCKELLIPS MR1

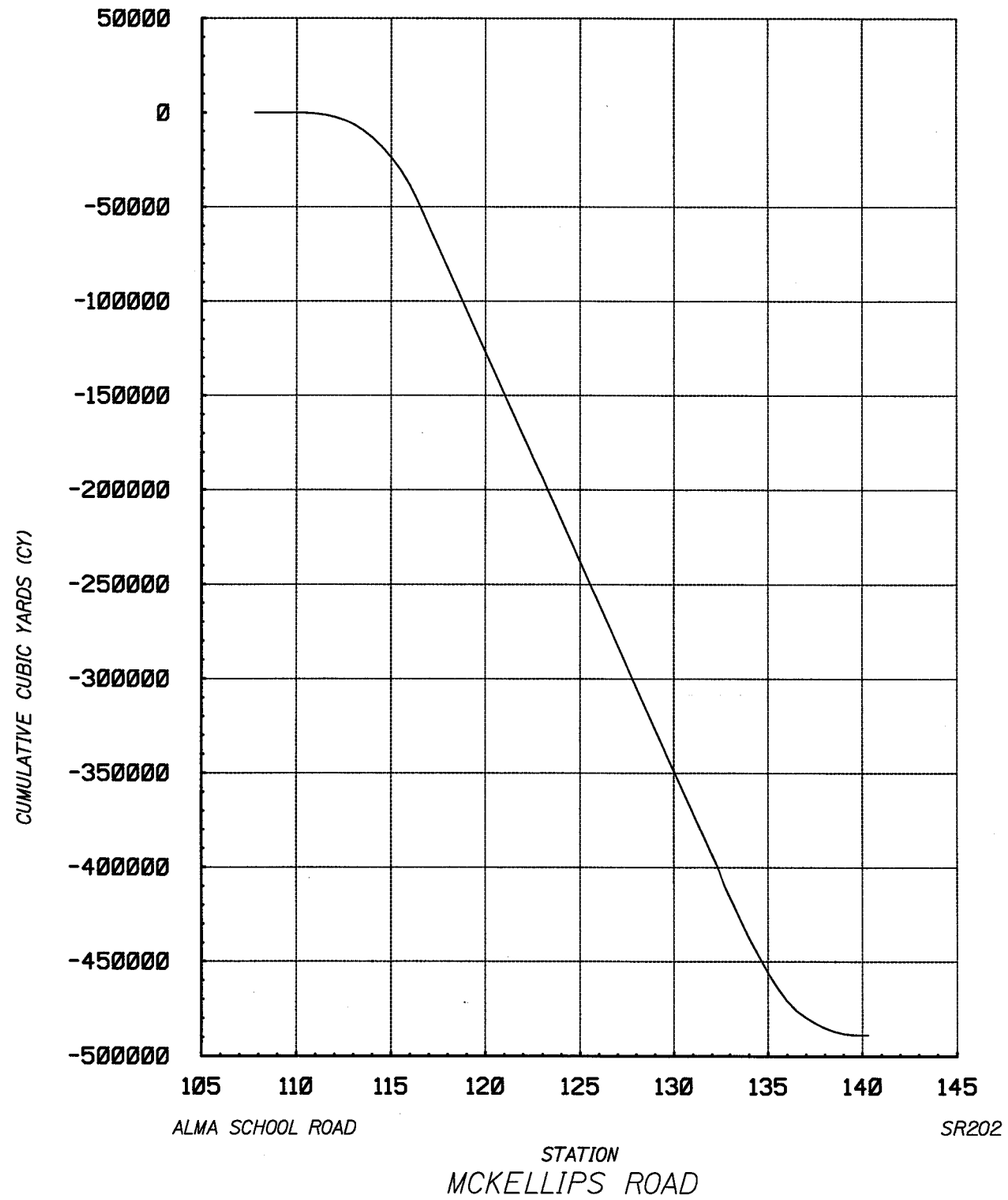
SHEET 58 OF 61

TRACS NO.

English

ADOT 9:03:29 AM 8/3/2009 TT199mdiag01.dgn

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



ASSUMPTIONS

GROUND COMPACTION AND SHRINK/SWELL FACTORS WERE NOT APPLIED.

NO.	REVISION	BY	DATE
1			
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3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY NOT FOR CONSTRUCTION

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CHECKED	S. POLASIK	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

MASS DIAGRAM SHEET
MCKELLIPS M1

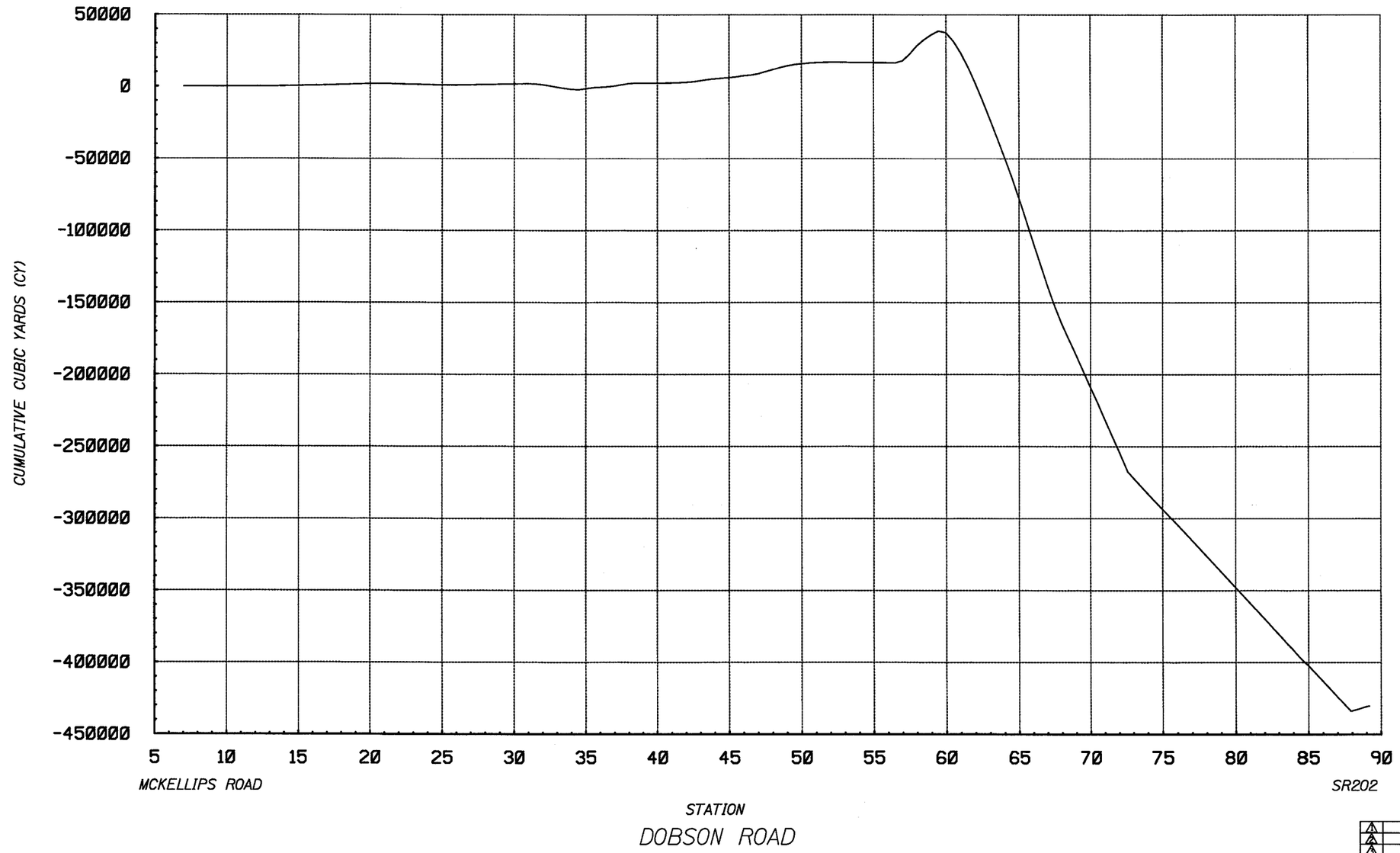
SHEET OF
59 61

TRACS NO.

ADOT 9:03:35 AM 8/2/2009 TT199mdiag02.dgn

Eng-Ish

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



ASSUMPTIONS

GROUND COMPACTION AND SHRINK/SWELL FACTORS WERE NOT APPLIED.

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY NOT FOR CONSTRUCTION

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DRAWN	B. NGUYEN	07/02/09
CHECKED	S. POLASIK	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

MASS DIAGRAM SHEET
DOBSON D3

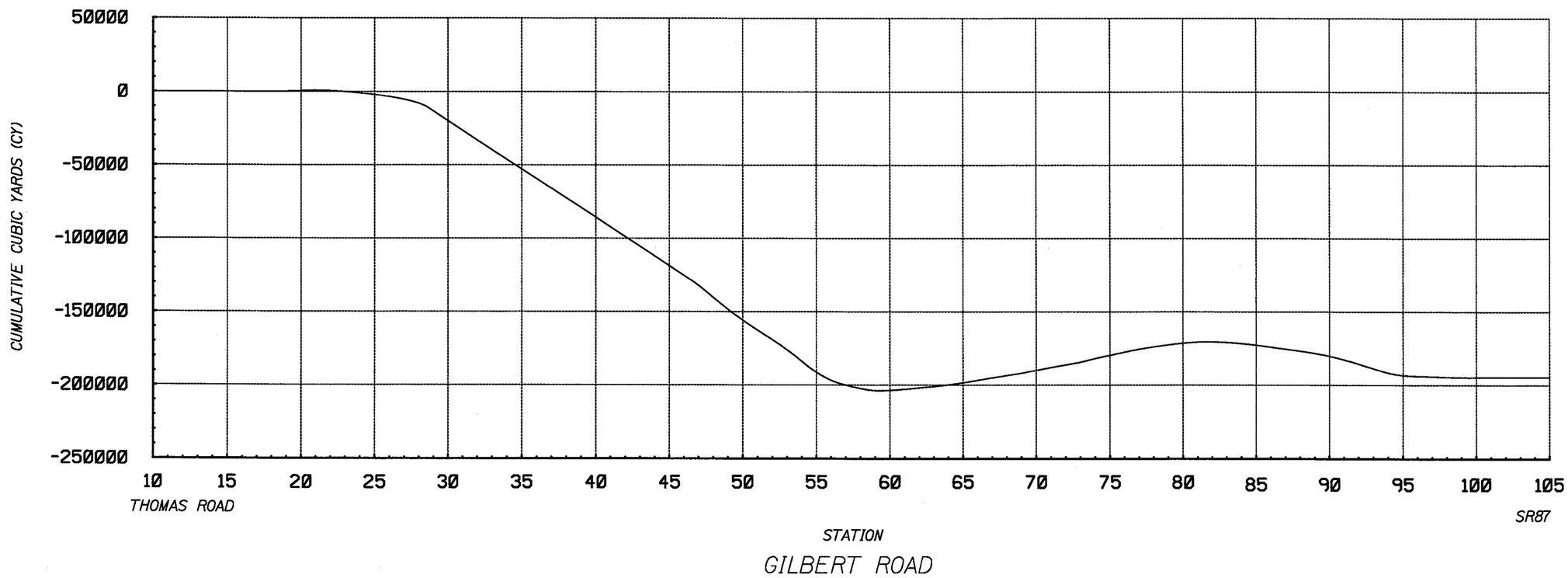
SHEET OF
60 61

TRACS NO.

English

TT199mdiag03.dgn 8/2/2009 9:03:45 AM ADOT

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



ASSUMPTIONS

GROUND COMPACTION AND SHRINK/SWELL FACTORS WERE NOT APPLIED.

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES
AT SALT RIVER
PROJECT NO. TT199

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	M. WILKE	07/02/09
DRAWN	B. NGUYEN	07/02/09
CHECKED	S. POLASIK	07/02/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

MASS DIAGRAM SHEET
GILBERT G1

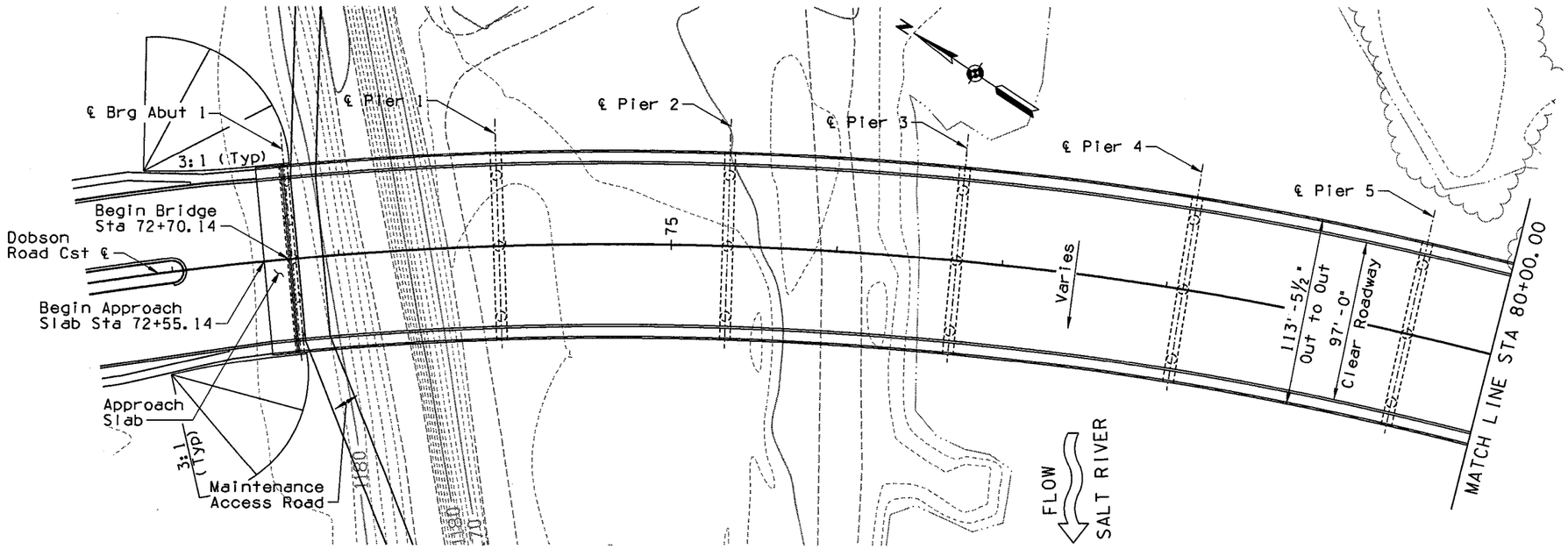
SHEET 61 OF 61

TRACS NO.

ADOT 9:03:53 AM 8/2/2009 TT199mdiag04.dgn

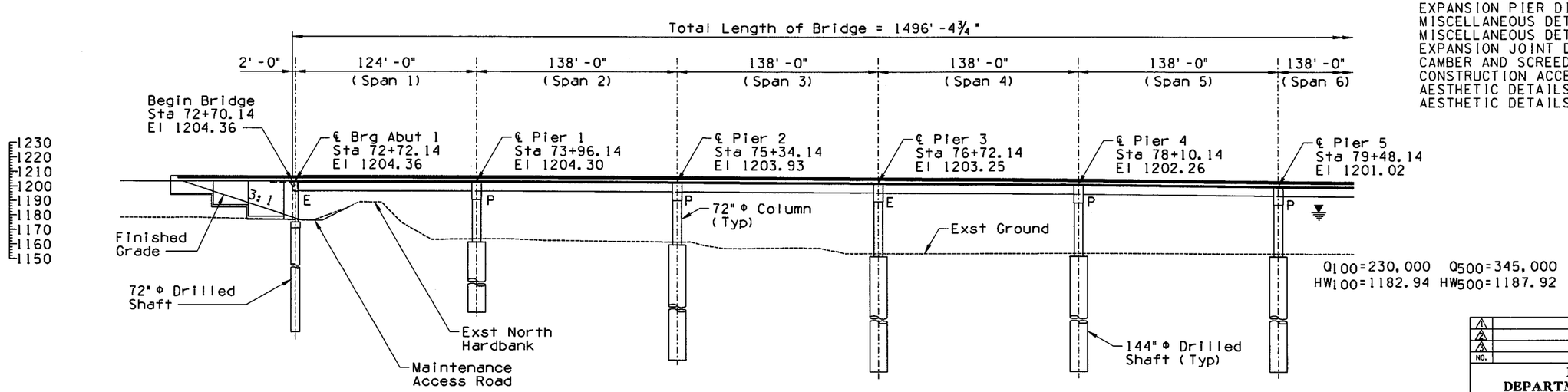
usigfish

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



PLAN

New 11-Span Precast Prestressed Concrete Girder Bridge (Alt 3 and 3A)
(AASHTO Type VI Modified Girders)
Scale: 1" = 40'



ELEVATION

(Stations and Elevations are measured along Dobson Road Cst ℄)
Scale: 1" = 40'

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FOUNDATION PLAN 2	7	X
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NOTE:

All Piers and Abutment 1 are constructed radial to the Dobson Road Construction Centerline.

X Indicates sheets included in this submittal.

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
DOBSON ROAD BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	R. BRANTLEY	08/07/09
DRAWN	J. GILMORE	08/07/09
CHECKED	S. LEE	08/07/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GENERAL PLAN 1

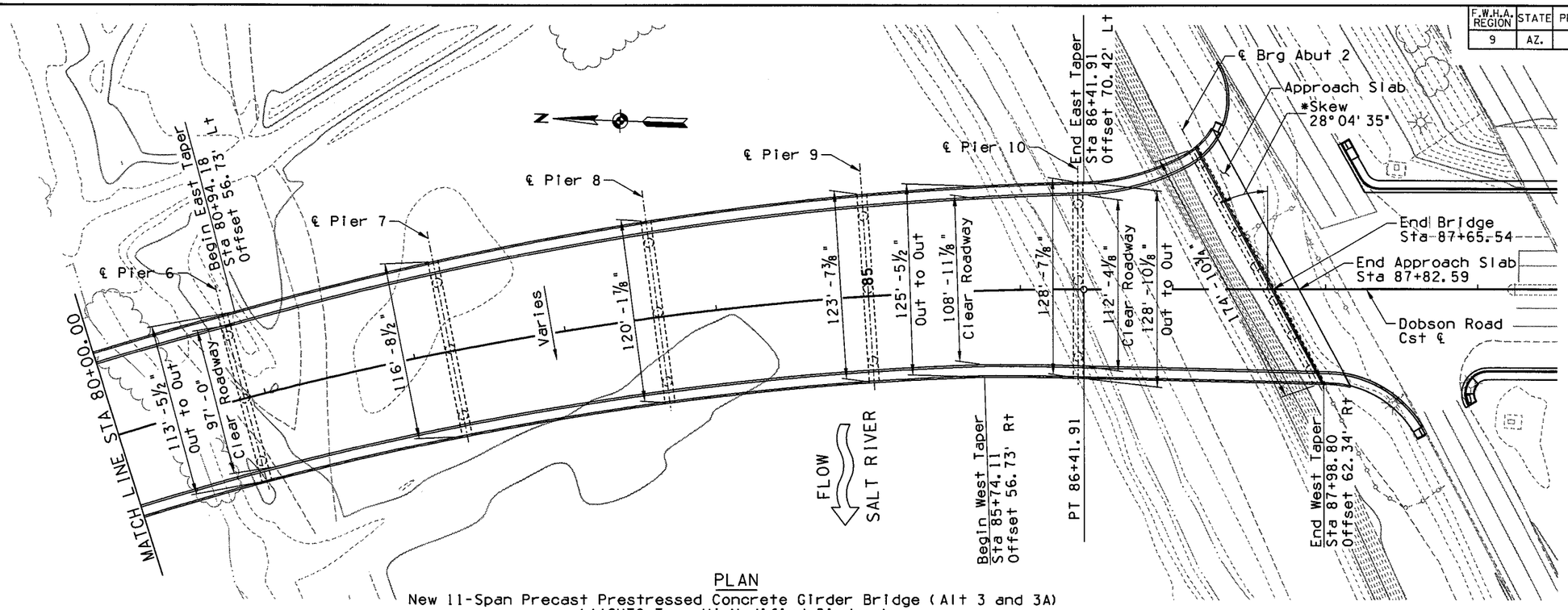
SHEET 3 OF 44

TRACS NO.

ADOT 2:22:33 PM 8/7/2009 TT199D3bpln03.dgn

English

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



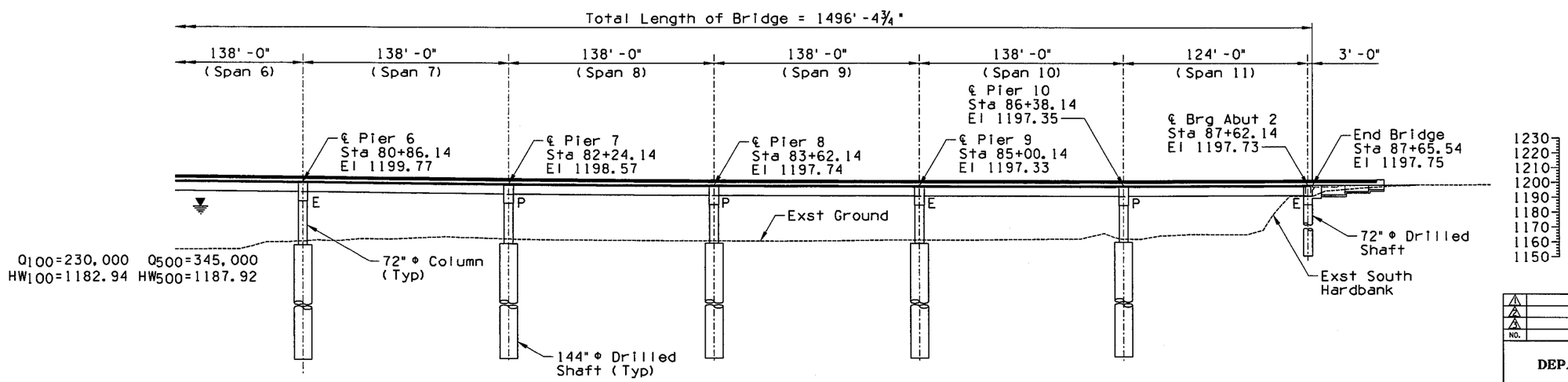
* Measured perpendicular to the tangent of Dobson Road Const ℄.

PLAN

New 11-Span Precast Prestressed Concrete Girder Bridge (Alt 3 and 3A)
(AASHTO Type VI Modified Girders)
Scale: 1" = 40'

NOTE:

All Piers and Abutment 1 are constructed radial to the Dobson Road Construction Centerline.



ELEVATION

(Stations and Elevations are measured along Dobson Road Cst ℄)
Scale: 1" = 40'

NO.	REVISION	BY	DATE
1			
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3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
DOBSON ROAD BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	R. BRANTLEY	08/07/09
DRAWN	J GILMORE	08/07/09
CHECKED	S. LEE	08/07/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

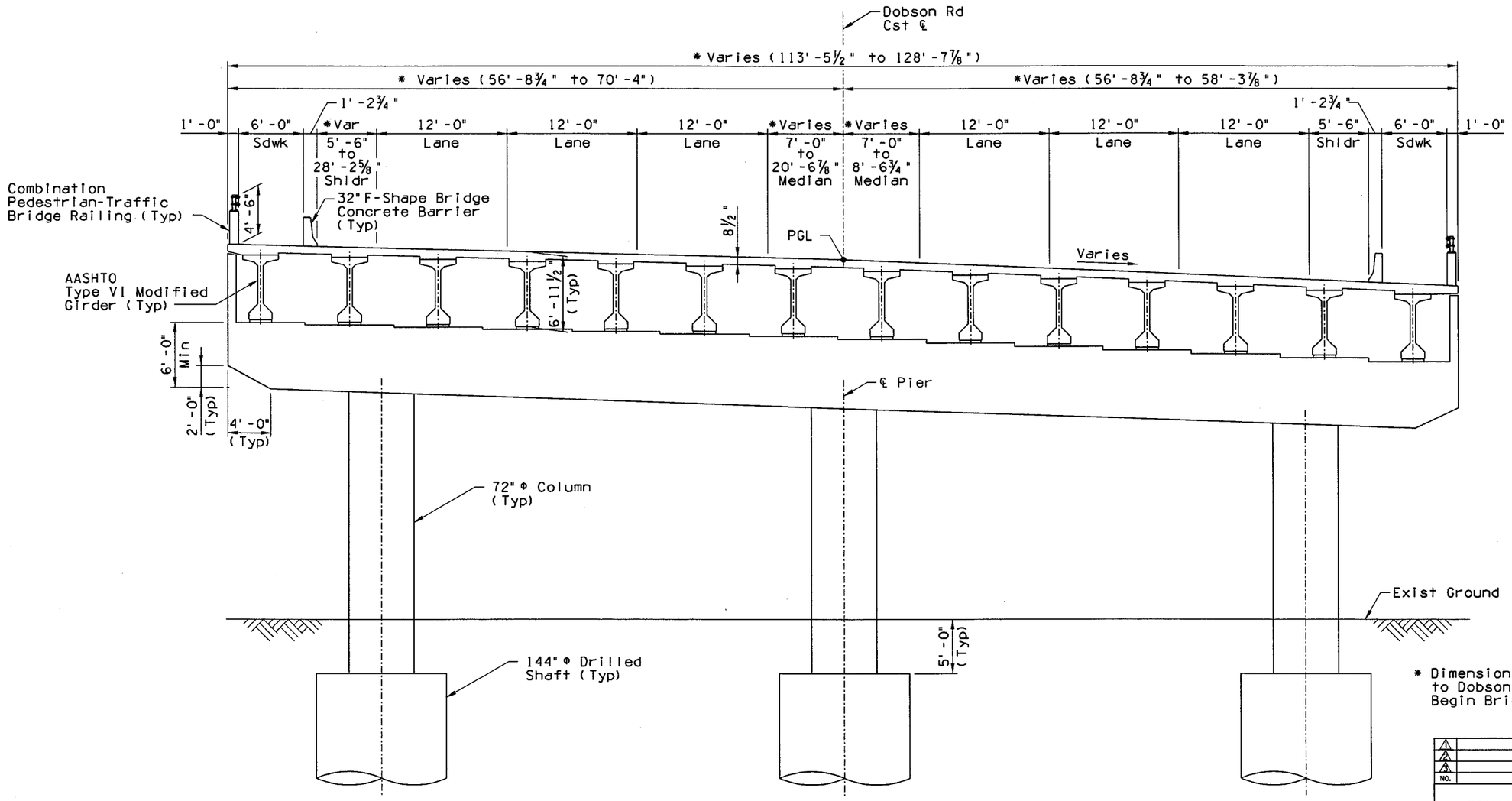
GENERAL PLAN 2

SHEET 4 OF 44

TRACS NO.

ADOT 2:22:40 PM 8/7/2009 TT199D3bpln04.dgn

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



* Dimensions measured perpendicular to Dobson Road Construction ℄ & at Begin Bridge and End Bridge Stations.

TYPICAL SECTION
(Span 1 thru Span 11 Alt 3)
(Span 1 thru Span 10 Alt 3A)
Scale: 3/16" = 1'-0"

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
DOBSON ROAD BRIDGE

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	R. BRANTLEY	08/07/09
DRAWN	J. GILMORE	08/07/09
CHECKED	S. LEE	08/07/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

TYPICAL SECTION

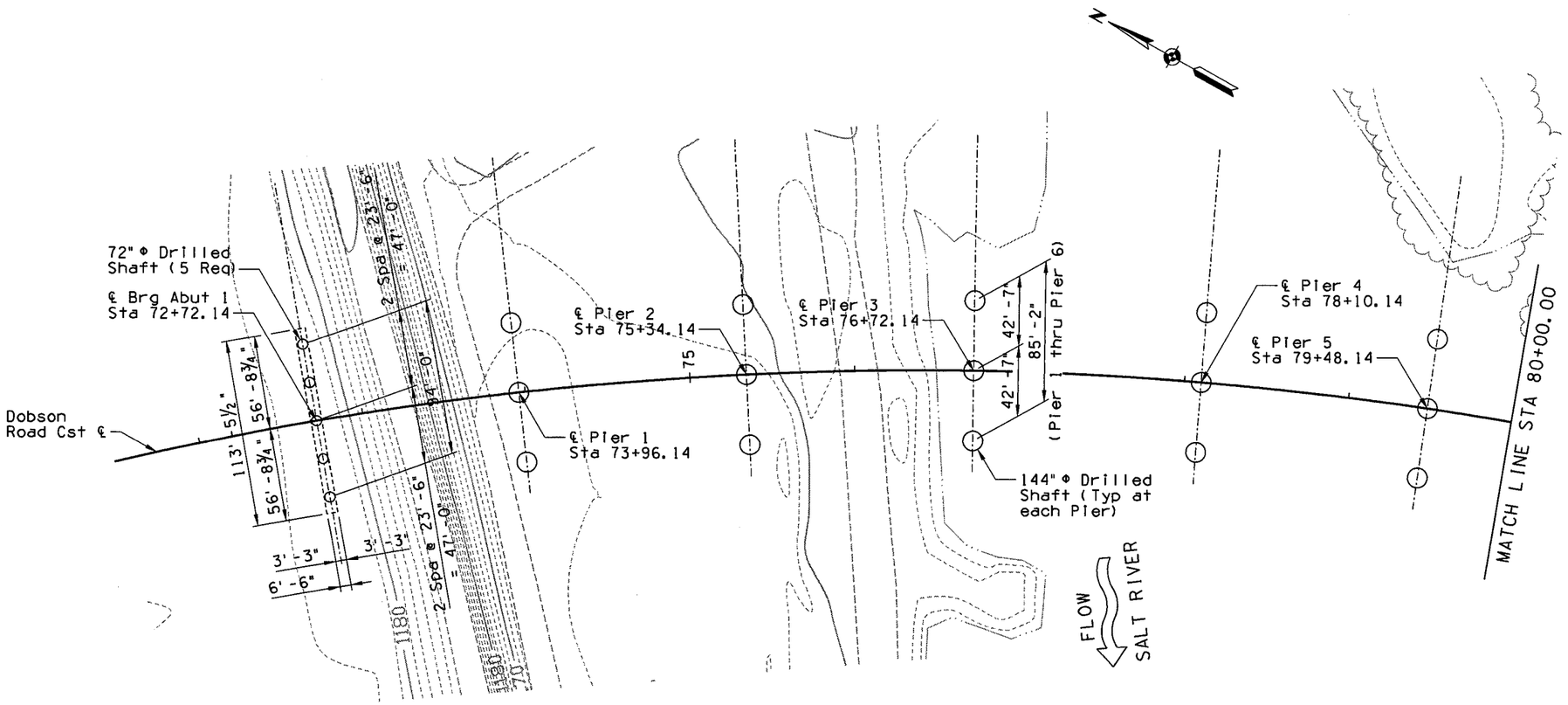
SHEET 5 OF 44

English

TRACS NO.

ADOT 2:22:48 PM 8/7/2009 TT199D3bpin05.dgn

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



FOUNDATION PLAN
Scale: 1" = 40'

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
DOBSON ROAD BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	R BRANTLEY	08/07/09
DRAWN	J GILMORE	08/07/09
CHECKED	S. LEE	08/07/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

FOUNDATION PLAN 1

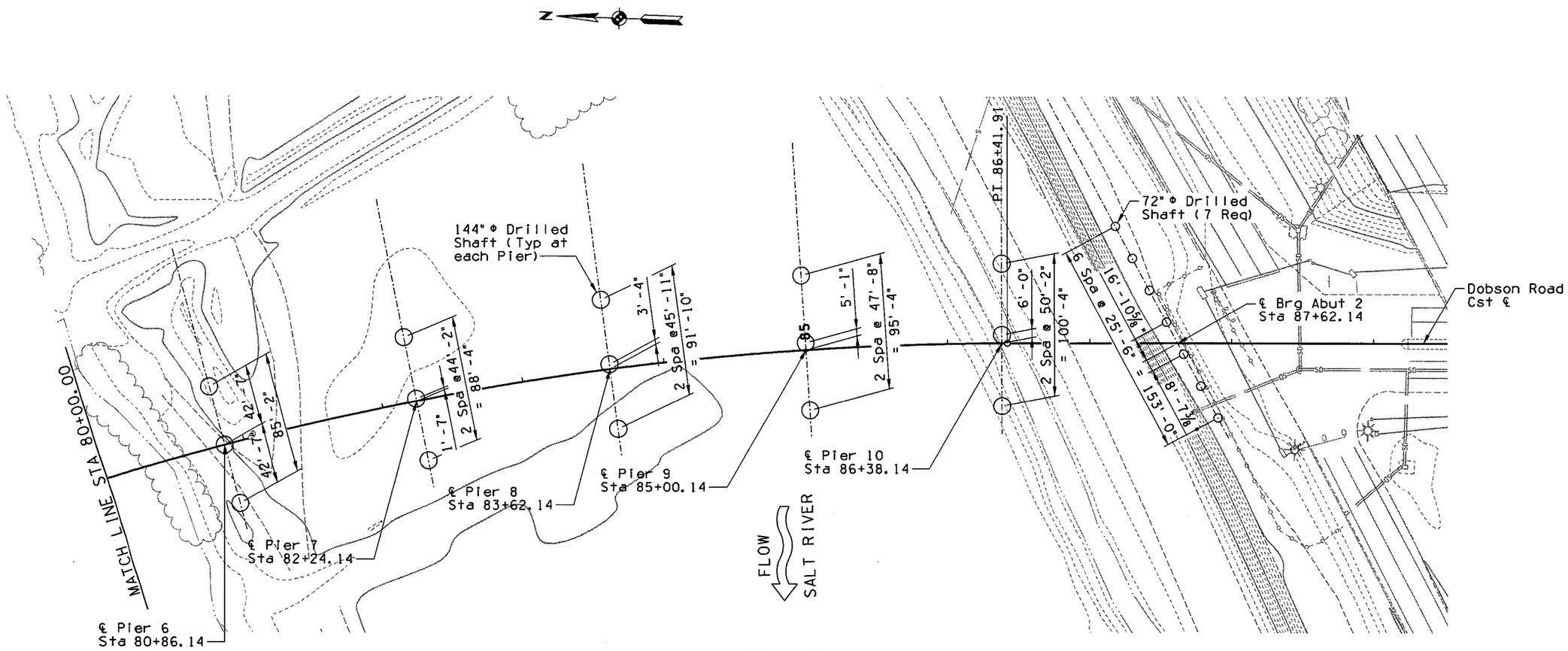
SHEET 6 OF 44

TRACS NO.

English

ADOT 2:22:58 PM 8/7/2009 TT199D3bpln06.dgn

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



FOUNDATION PLAN
Scale: 1" = 40'

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
DOBSON ROAD BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

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PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

FOUNDATION PLAN 2

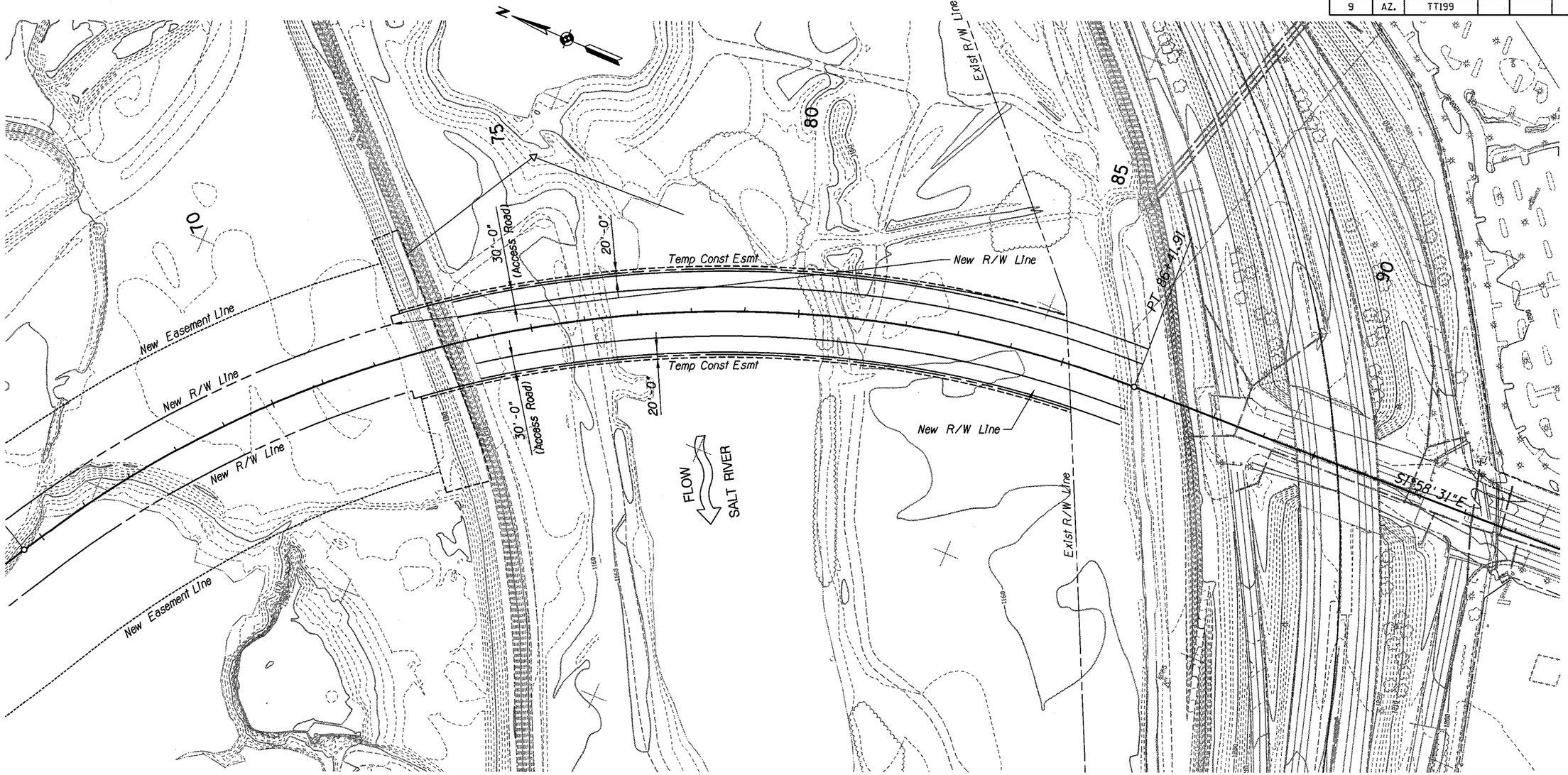
SHEET 7 OF 44

TRACS NO.

ADOT 2:23:05 PM 8/7/2009 TT199D3bpln07.dgn

English

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



PROPOSED SITE ACCESS PLAN
SCALE: 1" = 100'

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
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DOBSON ROAD BRIDGE

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CHECKED	S. LEE	08/07/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

CONSTRUCTION ACCESS PLAN

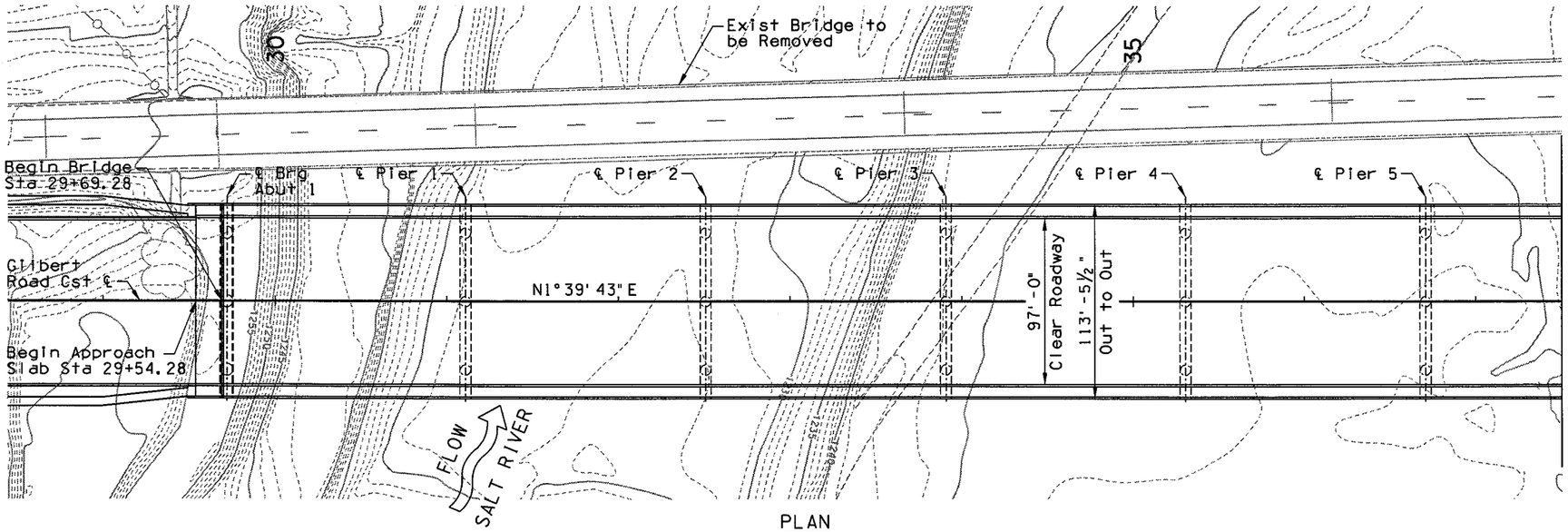
SHEET 42 OF 44

TRACS NO.

ADOT 2:23:16 PM 8/7/2009 TT199D3bpln42.dgn

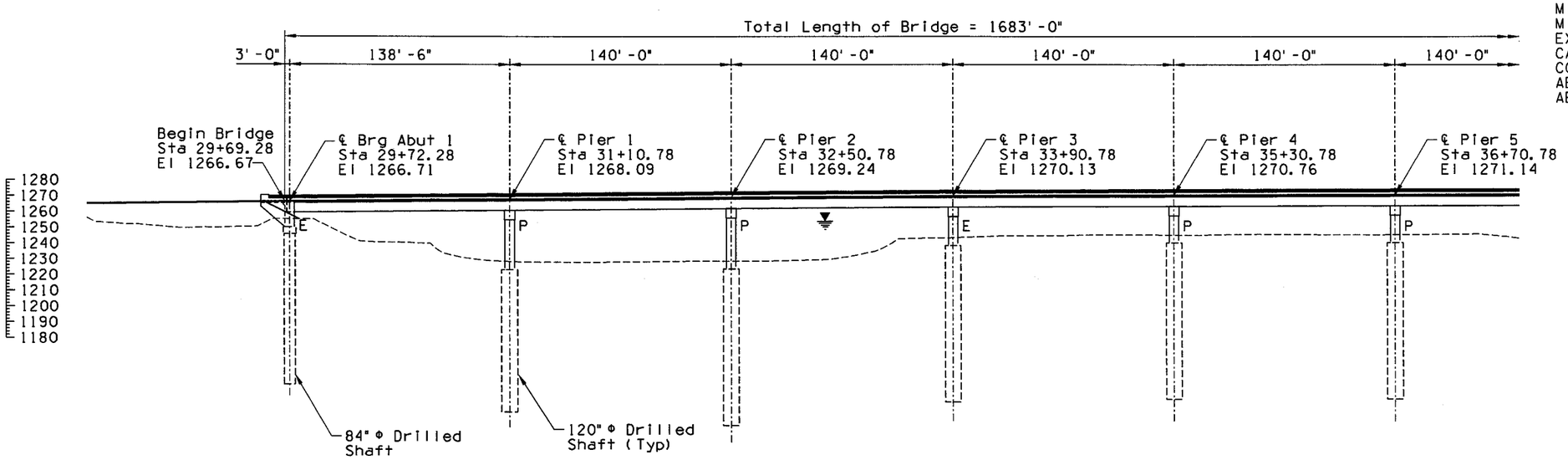
usfeet

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



PLAN

New 12-Span Precast Prestressed Concrete Girder Bridge
(AASHTO Modified Type VI)
Scale: 1" = 40'



Q_{100}=175,000 Q_{500}=250,000
HW_{100}=1252.31 HW_{500}=1254.15

ELEVATION

(Stations and Elevations are measured along Gilbert Road Cst ℄)
Scale: 1" = 40'

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AESTHETIC DETAILS 1	37	
AESTHETIC DETAILS 2	38	

NOTES:

X Indicates sheets included in this submittal.

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
GILBERT RD. BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	R. BRANTLEY	08/07/09
DRAWN	J. DAVILA	08/07/09
CHECKED	C. RODRIGUEZ	08/07/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GENERAL PLAN 1

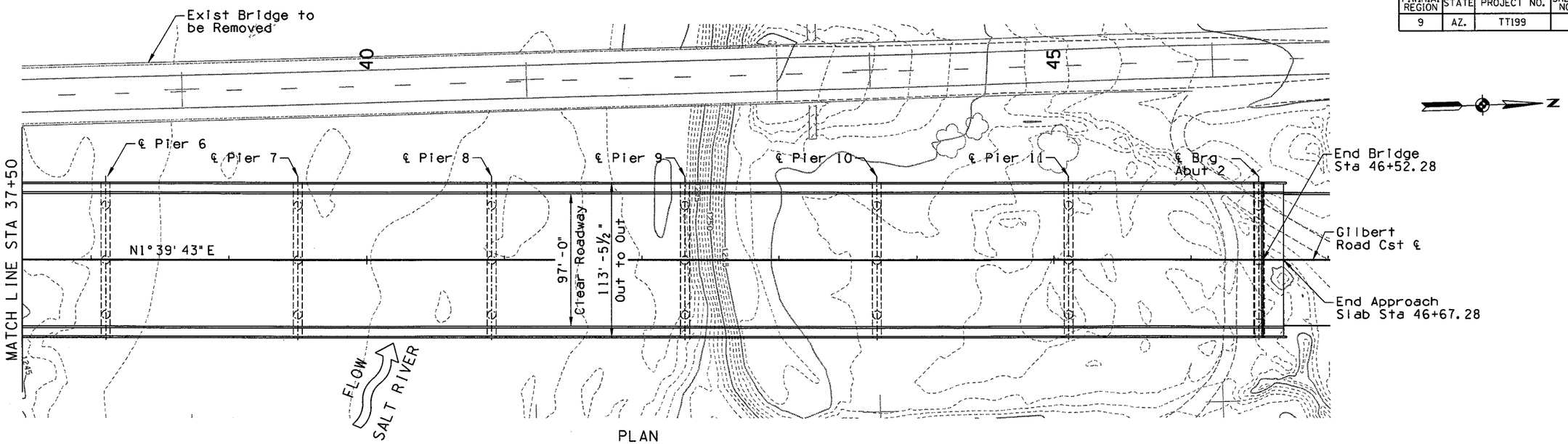
SHEET 3 OF 38

TRACS NO.

English

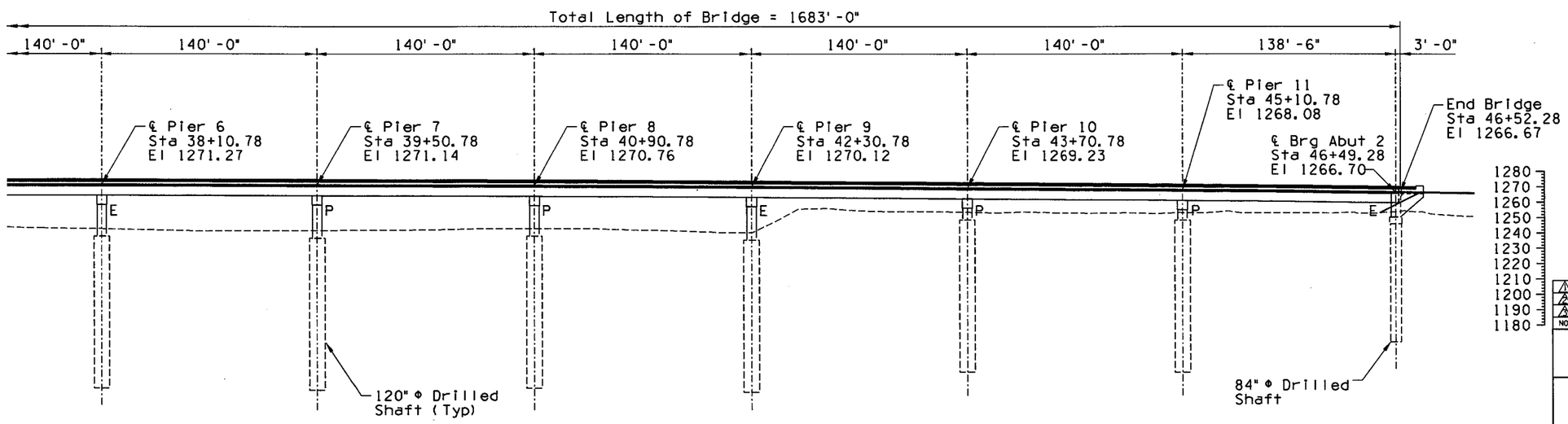
TT199Gtbpln01.der 8/7/2009 2:23:26 PM ADOT

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



PLAN

New 12-Span Precast Prestressed Concrete Girder Bridge
(AASHTO Modified Type VI)
Scale: 1" = 40'



Q_{100}=175,000 Q_{500}=250,000
HW_{100}=1252.31 HW_{500}=1254.15

ELEVATION

(Stations and Elevations are measured along Gilbert Road Cst ℄)
Scale: 1" = 40'

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2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
GILBERT RD. BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

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CHECKED	C. RODRIGUEZ	08/07/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GENERAL PLAN 2

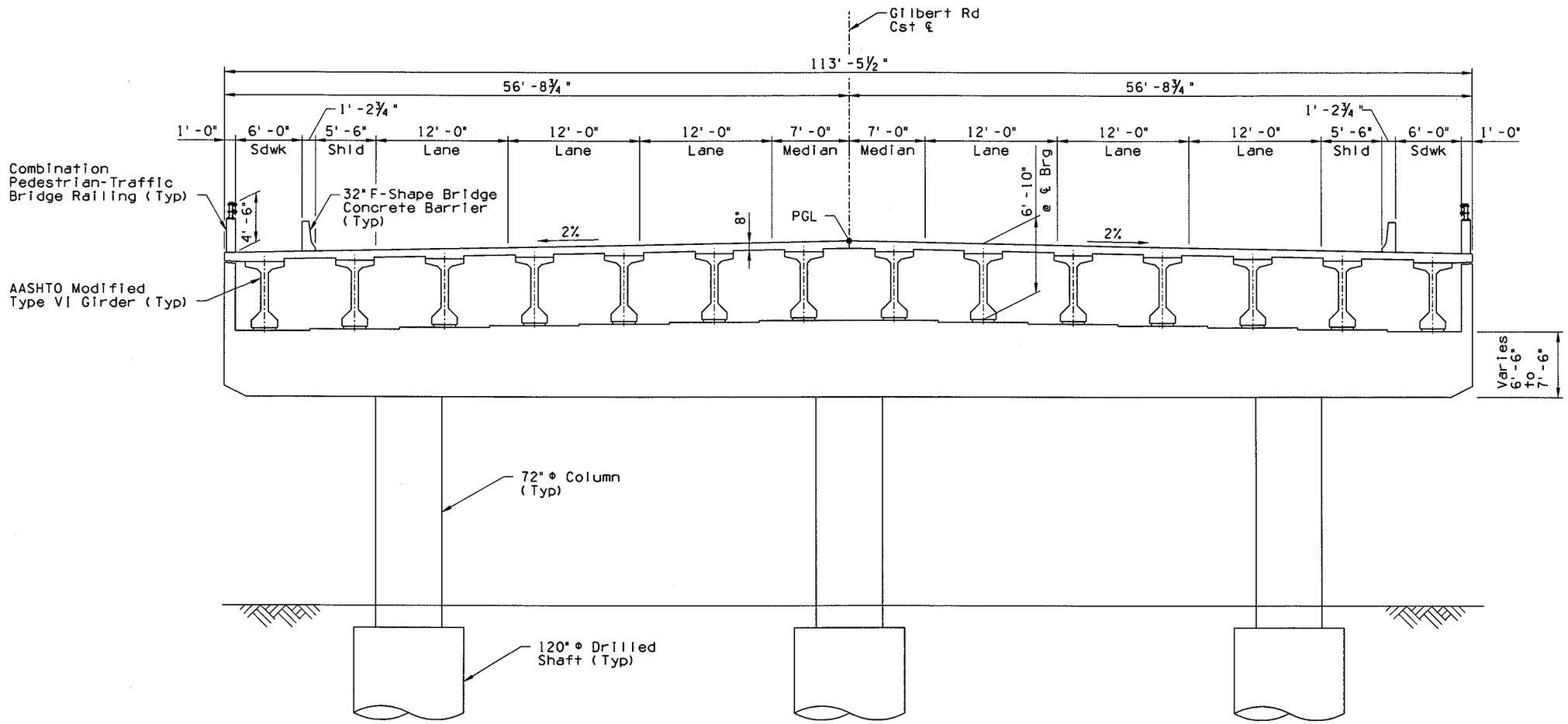
SHEET 4 OF 38

TRACS NO.

English

TT199G1bpln02.dgn 8/7/2009 2:23:36 PM ADOT

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



TYPICAL SECTION

Scale: 3/16" = 1' -0"

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
GILBERT RD. BRIDGE

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	S. LEE	08/07/09
DRAWN	J. DAVILA.	08/07/09
CHECKED	C. RODRIGUEZ	08/07/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

TYPICAL SECTION

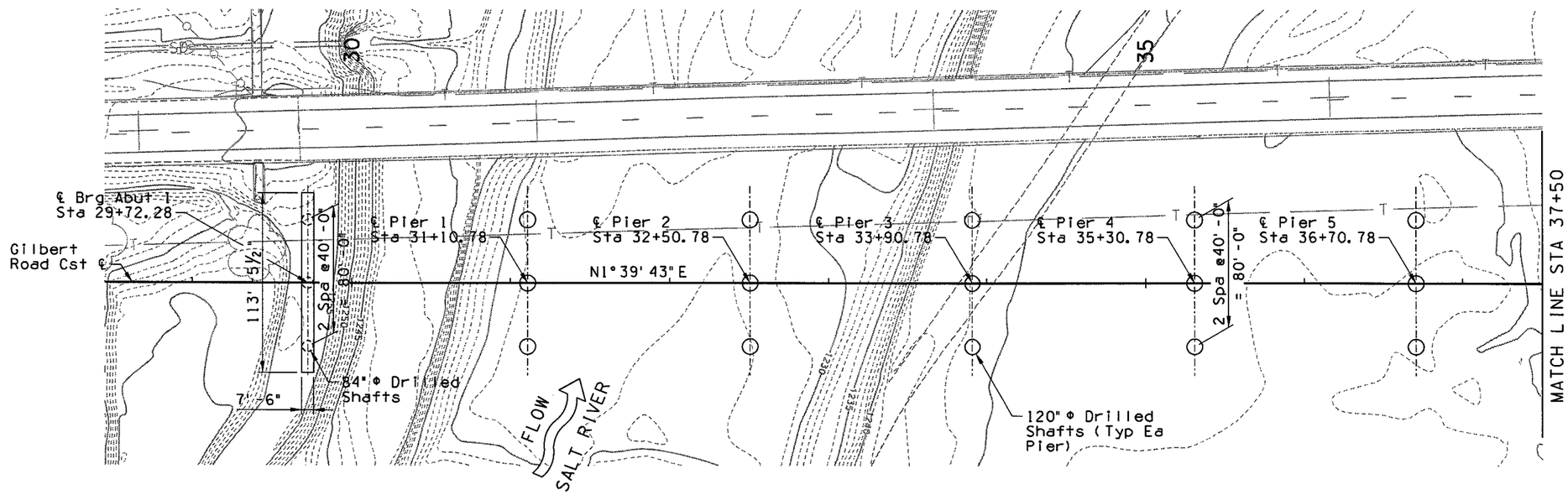
SHEET 5 OF 38

TRACS NO.

English

ADOT 2:23:46 PM 8/7/2009 TT199Gtbpln03.dgn

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



FOUNDATION PLAN
Scale: 1" = 40'

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
GILBERT RD. BRIDGE

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	R. BRANTLEY	08/07/09
DRAWN	J. GILMORE	08/07/09
CHECKED	S. LEE	08/07/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

FOUNDATION PLAN 1

SHEET 6 OF 38

TRACS NO.

ADOT 2:23:58 PM 8/7/2009 TT199G1bpln04.dgn

English

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
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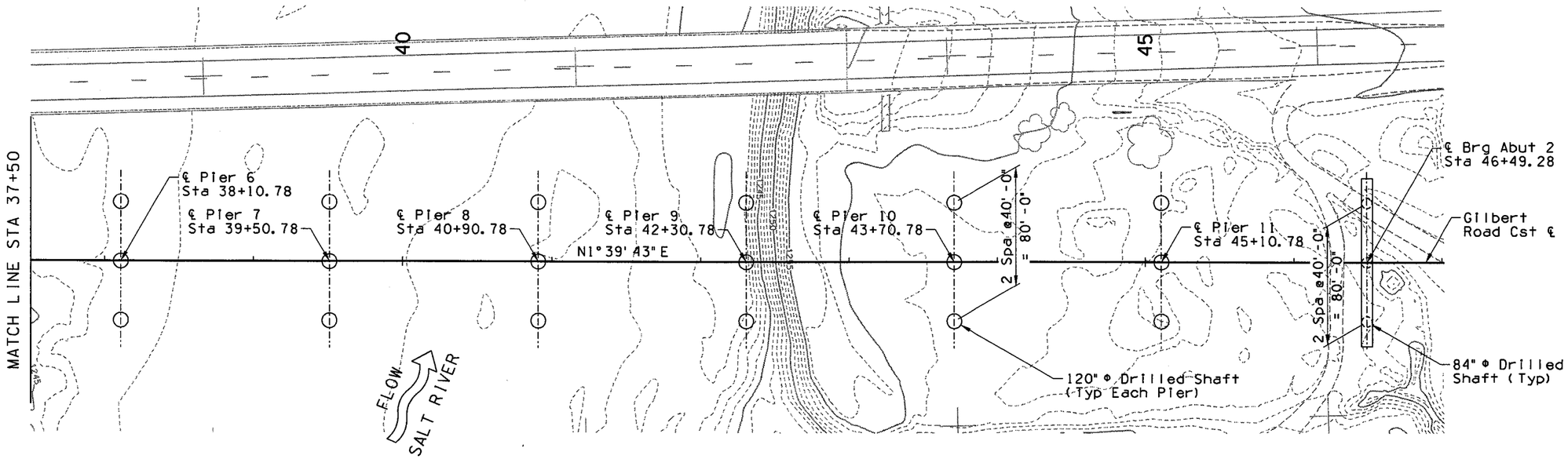

FOUNDATION PLAN
Scale: 1" = 40'

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
GILBERT RD. BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	R. BRANTLEY	08/07/09
DRAWN	J. GILMORE	08/07/09
CHECKED	S. LEE	08/07/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

FOUNDATION PLAN 2

SHEET 7 OF 38

TRACS NO.

English

ADOT 2:24:09 PM 8/7/2009 TT199Gbpln05.dgn

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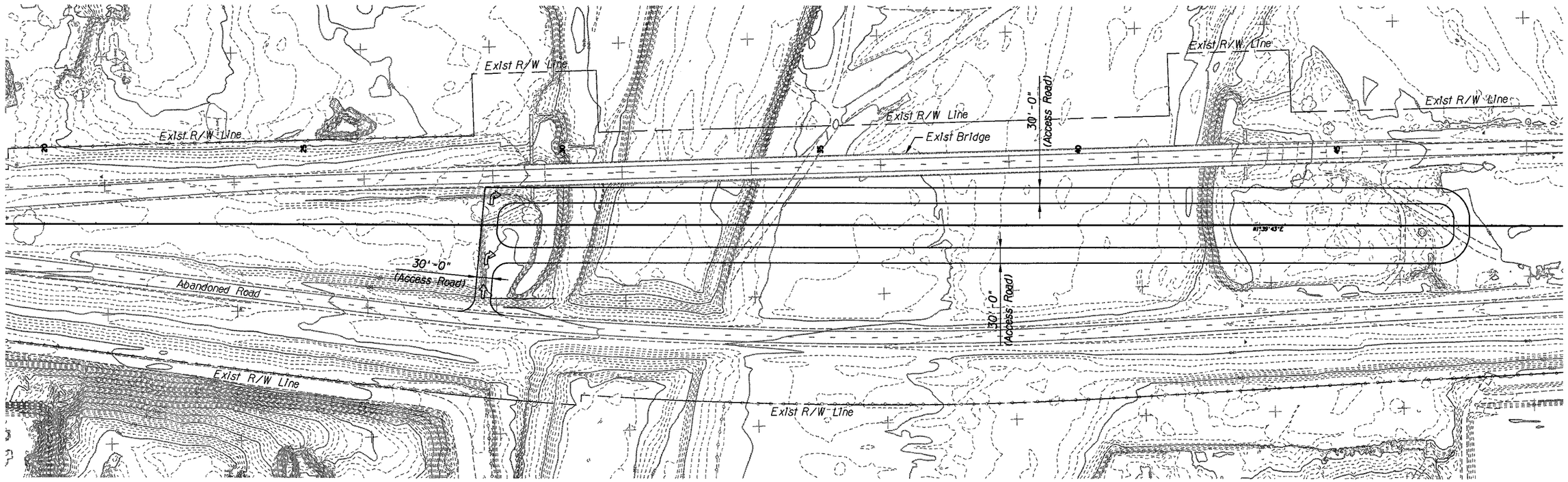

PROPOSED SITE ACCESS PLAN
SCALE: 1" = 100'

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
GILBERT RD. BRIDGE

PRELIMINARY
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	R. BRANTLEY	08/07/09
DRAWN	J. GILMORE	08/07/09
CHECKED	S. LEE	08/07/09

PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

CONSTRUCTION ACCESS PLAN

SHEET 36 OF 38

TRACS NO.

English

ADOT 2:24:20 PM 8/7/2009 TT199Gbpln10.dgn

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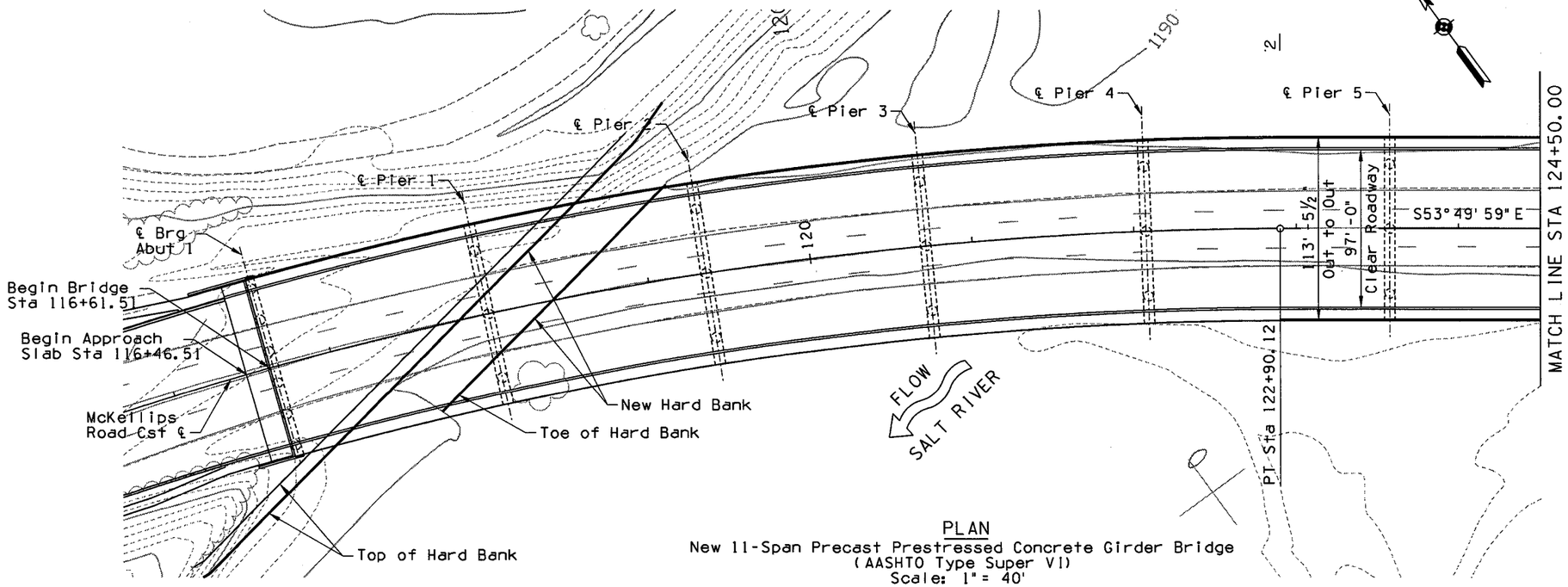
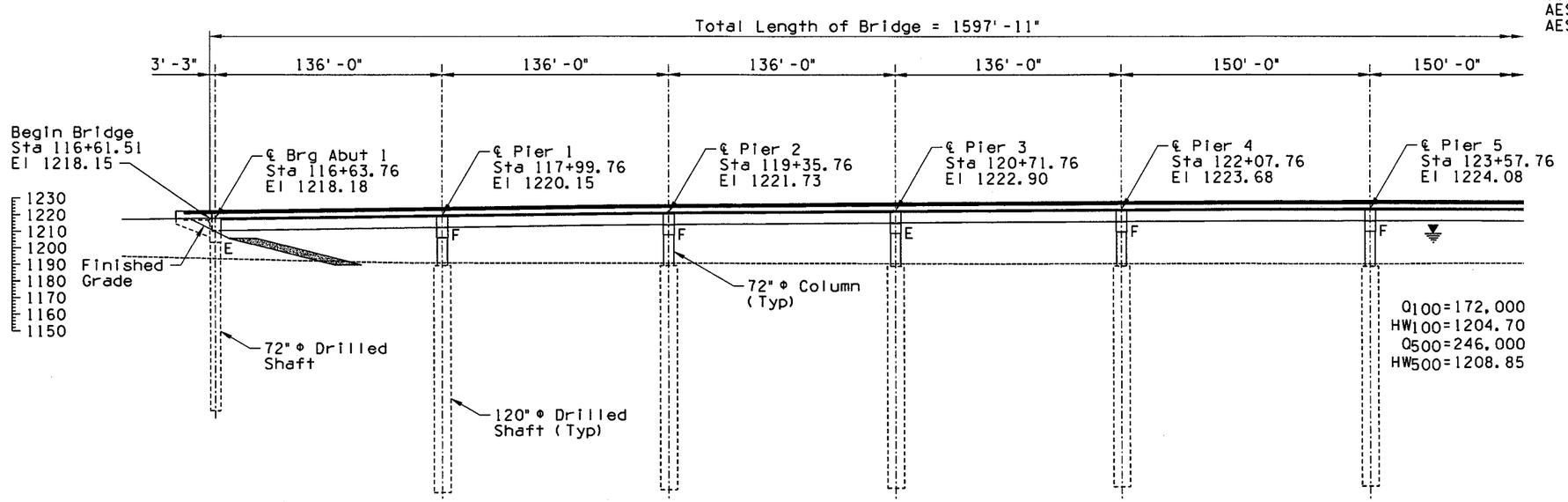


PLAN
New 11-Span Precast Prestressed Concrete Girder Bridge
(AASHTO Type Super VI)
Scale: 1" = 40'



ELEVATION
(Stations and Elevations are measured along McKellips Road Cst ℄)
Scale: 1" = 40'

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NOTES:

All Piers are Constructed Radial to the McKellips Road Construction Centerline.

☒ Indicates sheets included in this submittal.

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
PROJECT NO. TT199
McKELLIPS ROAD BRIDGE

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	R. BRANTLEY	08/07/09
DRAWN	J. GILMORE	08/07/09
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PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

GENERAL PLAN 1

SHEET 3 OF 41

TRACS NO.

English

TT199M2bpln01.dgn 8/7/2009 2:24:29 PM ADOT

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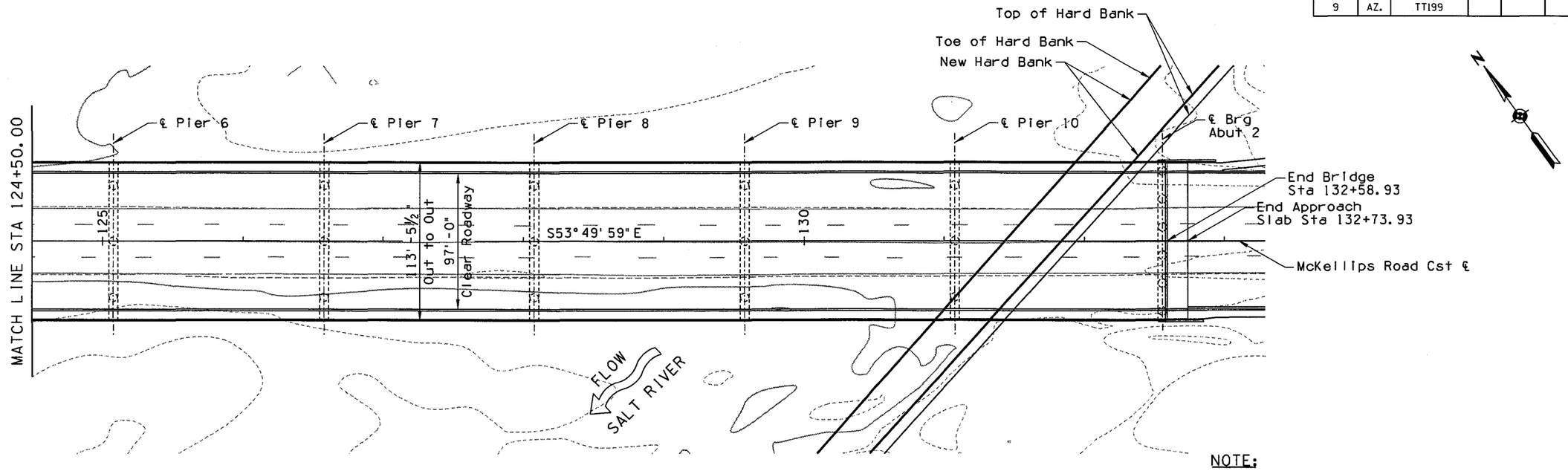
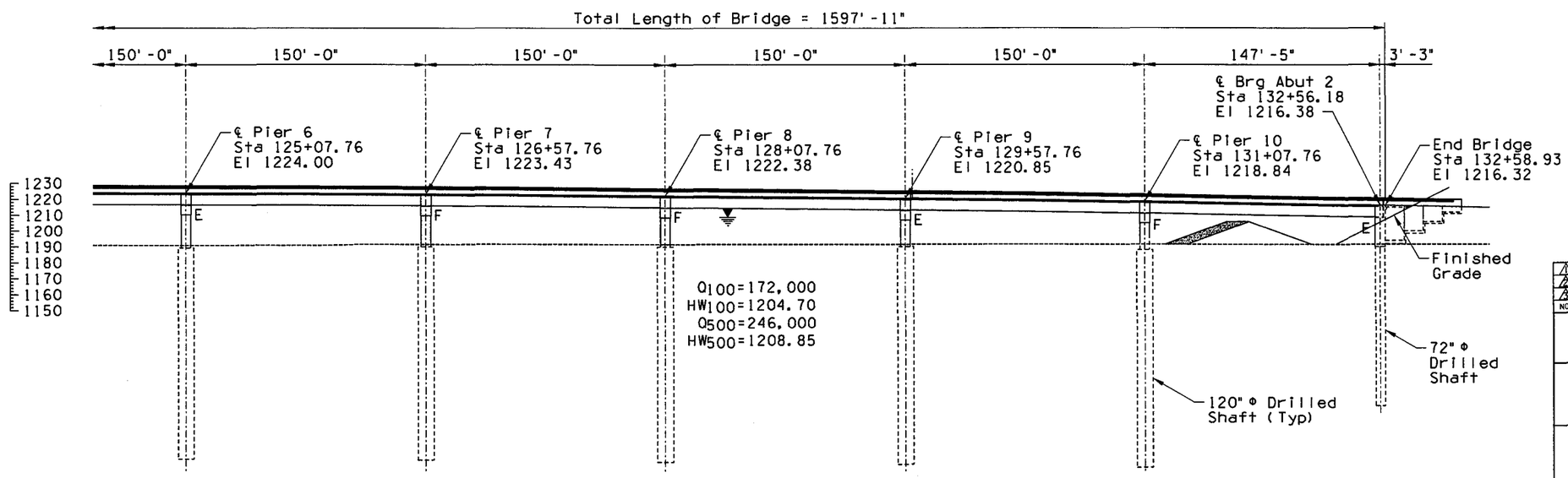


PLAN
New 11-Span Precast Prestressed Concrete Girder Bridge
(AASHTO Type Super VI)
Scale: 1" = 40'

NOTE:
All Piers are Constructed Radial to the McKellips Road Construction Centerline.



ELEVATION
(Stations and Elevations are measured along McKellips Road Cst ℄)
Scale: 1" = 40'

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1			
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3			

MARICOPA COUNTY
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PARSONS
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PHOENIX, ARIZONA 85034-2025

GENERAL PLAN 2

SHEET 4 OF 41

TRACS NO.

English

TT199M2bpln02.dgn 8/7/2009 2:24:36 PM ADOT

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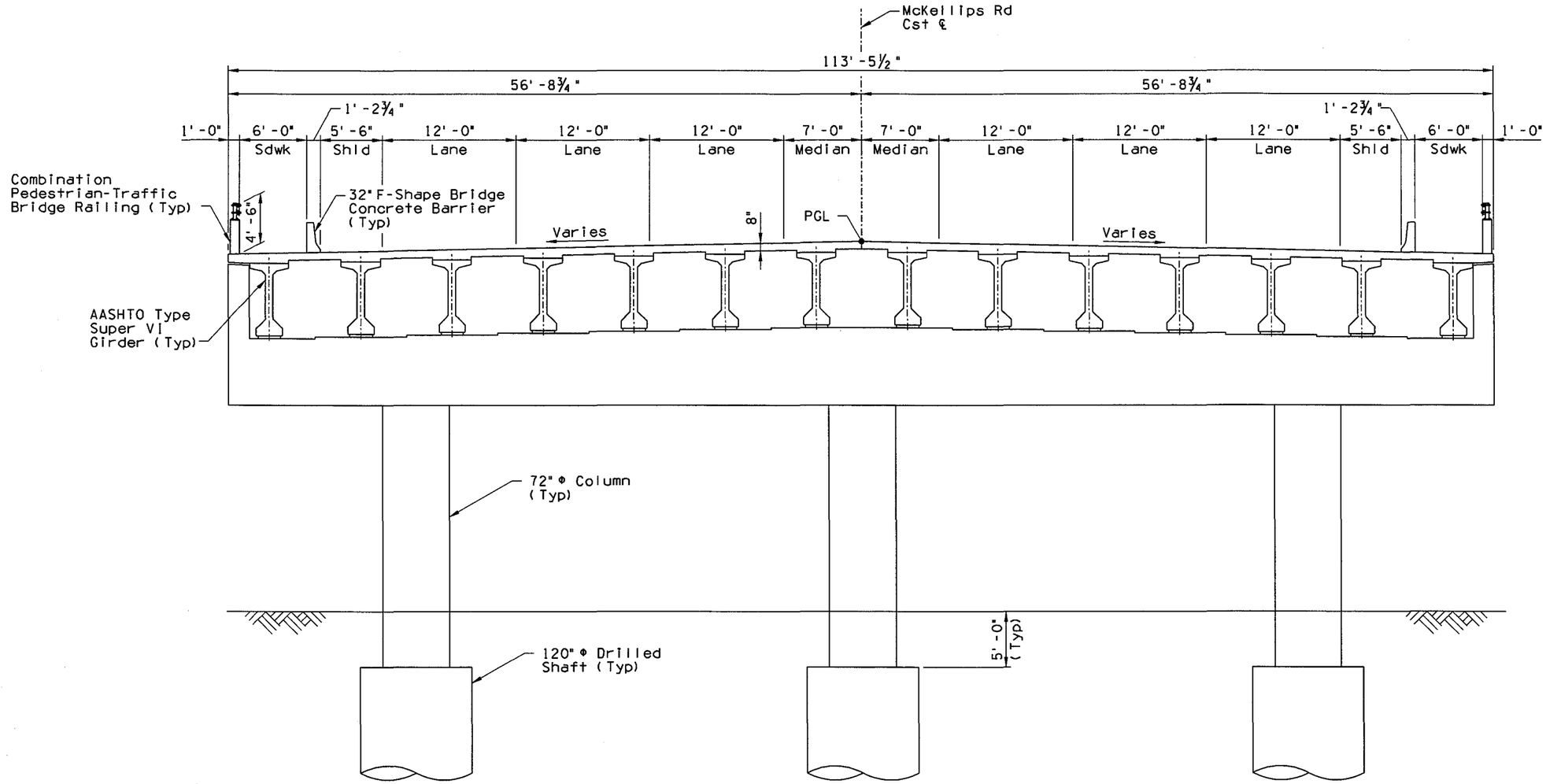

TYPICAL SECTION

Scale: 3/16" = 1' -0"

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
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ENGINEERING DIVISION

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PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

TYPICAL SECTION

SHEET 5 OF 44

TRACS NO.

English

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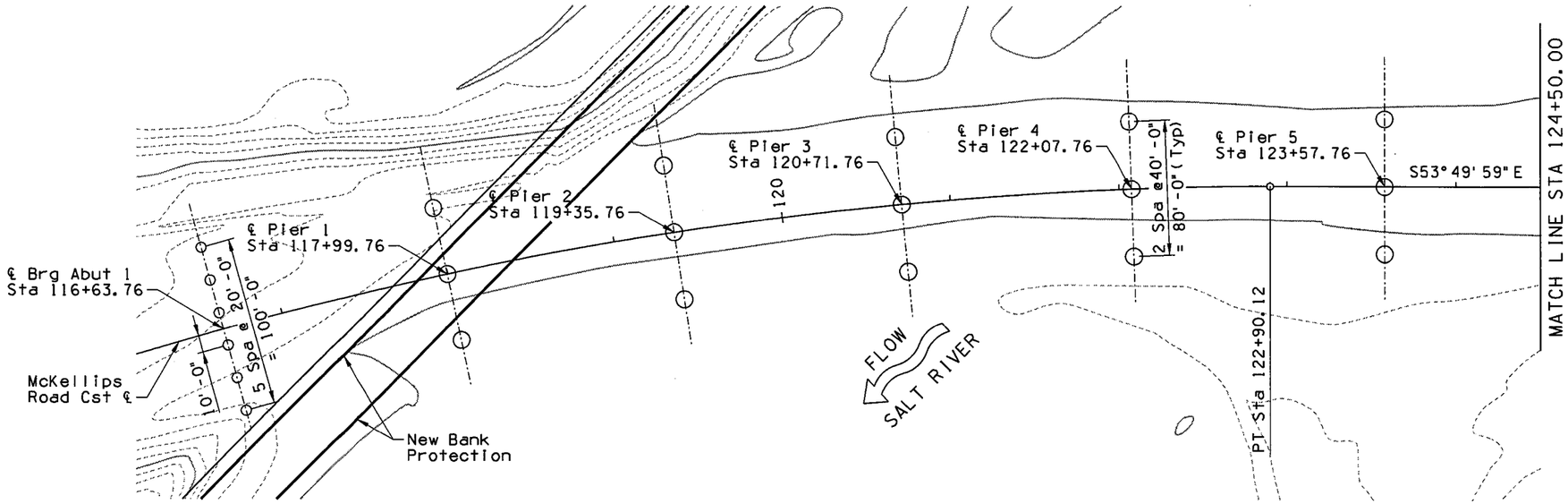

FOUNDATION PLAN
Scale: 1" = 40'

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

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PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

FOUNDATION PLAN 1

SHEET 6 OF 41

TRACS NO.

English

ADOT 2:24:55 PM 8/7/2009 TT199M2bpln04.dgn

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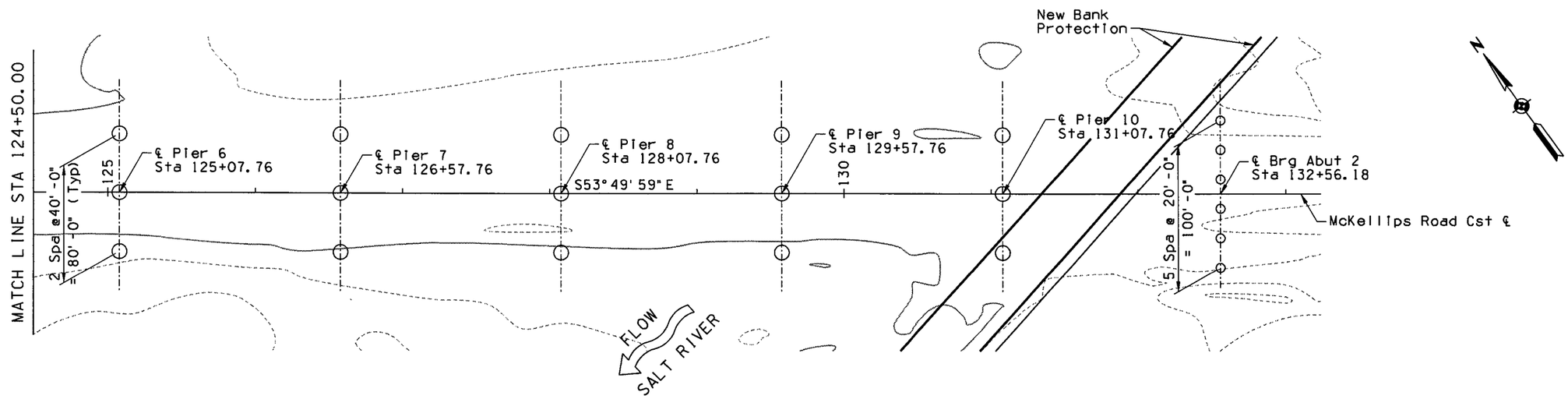

FOUNDATION PLAN
Scale: 1" = 40'

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

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PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

FOUNDATION PLAN 2

SHEET 7 OF 41

English

TRACS NO.

ADOT 2:25:03 PM 8/7/2009 TT199M2bpln05.dgn

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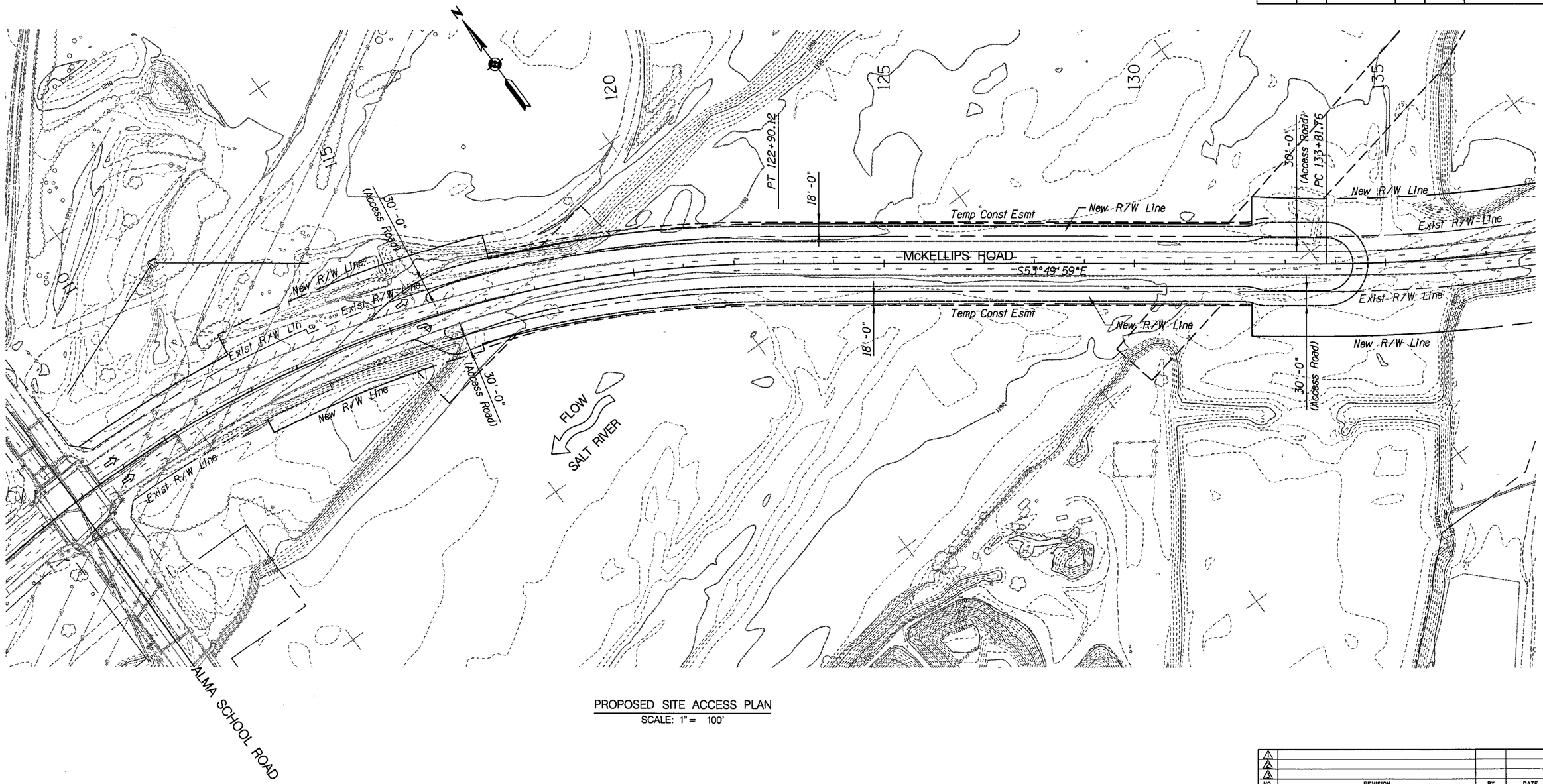

PROPOSED SITE ACCESS PLAN
SCALE: 1" = 100'

NO.	REVISION	BY	DATE
1			
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGES AT SALT RIVER
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PARSONS
4801 E. WASHINGTON STREET SUITE 250
PHOENIX, ARIZONA 85034-2025

CONSTRUCTION ACCESS PLAN

SHEET 39 OF 41

English

TRACS NO.

ADOT 2:25:13 PM 8/7/2009 TT199M2bpln10.dgn

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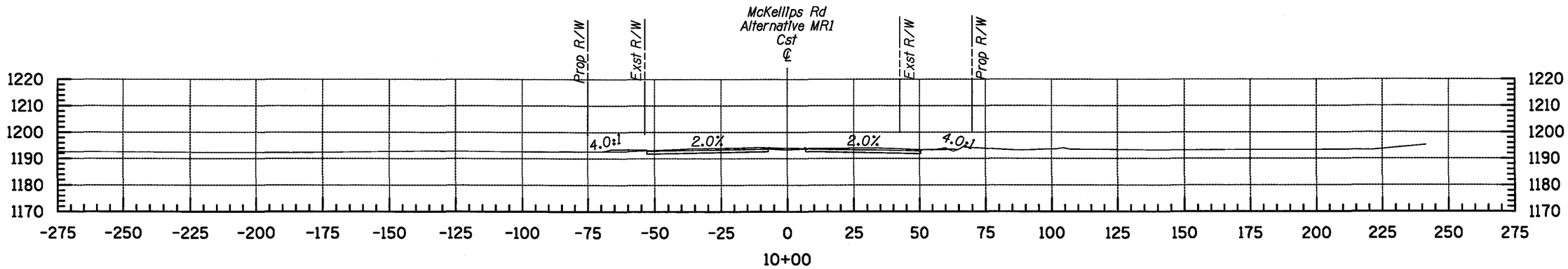

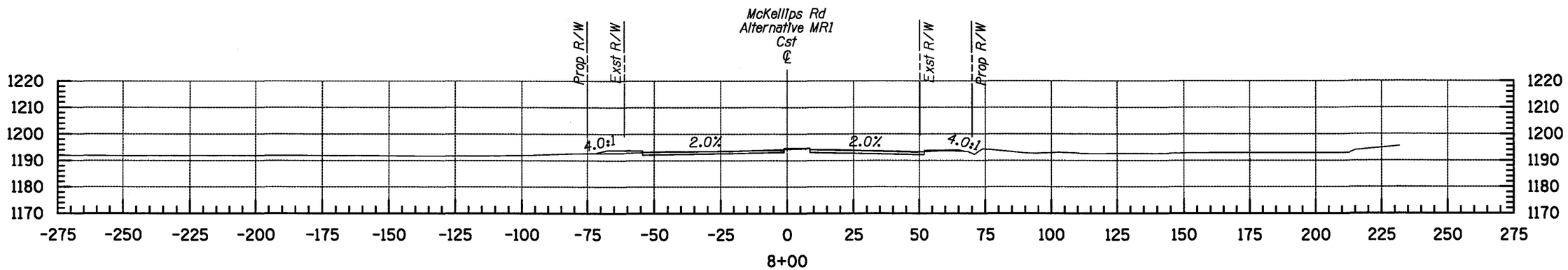

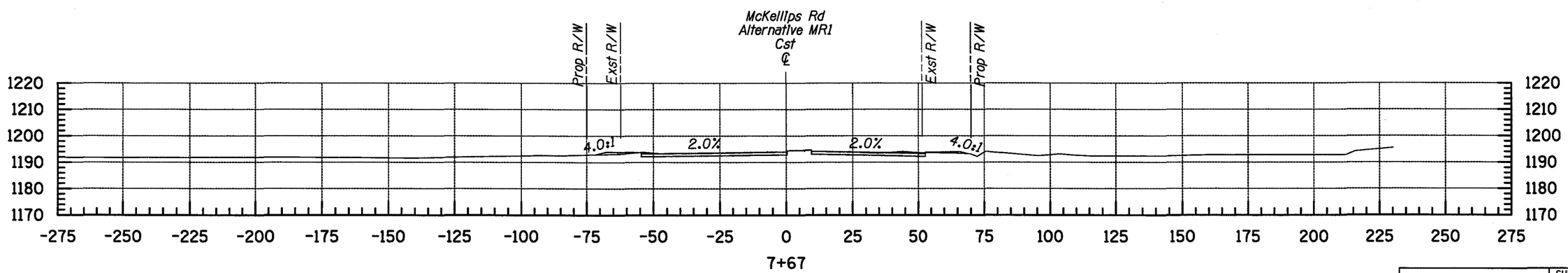

CROSS SECTIONS

SHEET 1 OF 61

TRACS NO.

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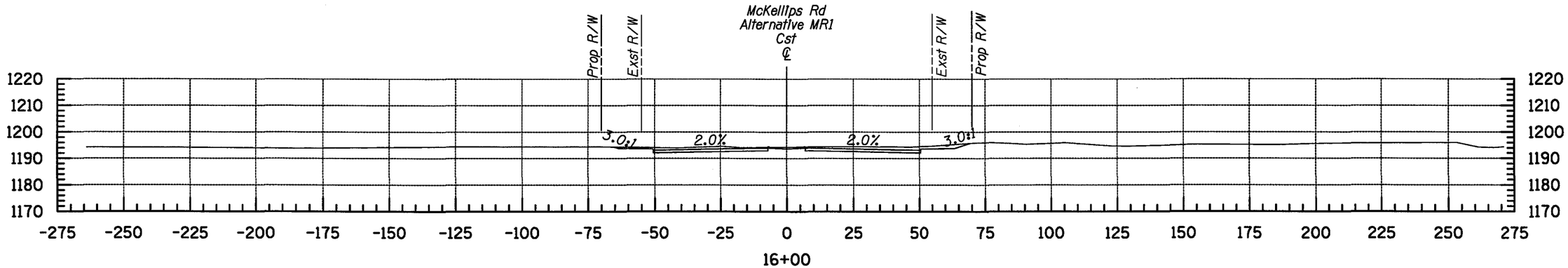

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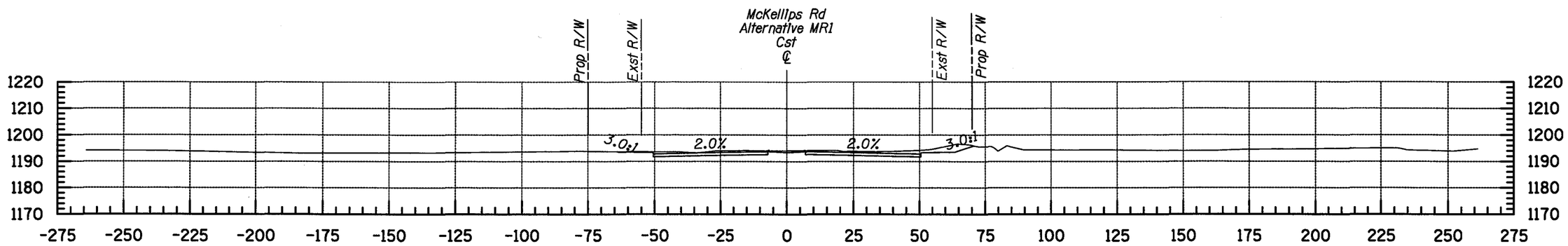

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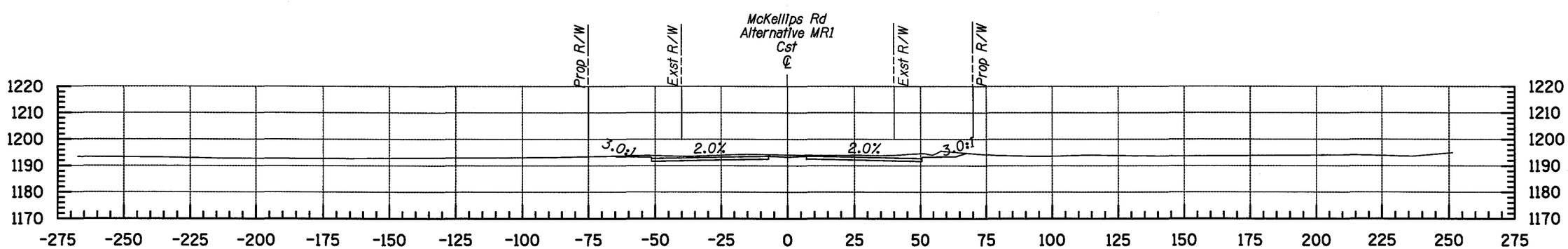

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CROSS SECTIONS

SHEET 2 OF 61

TRACS NO.

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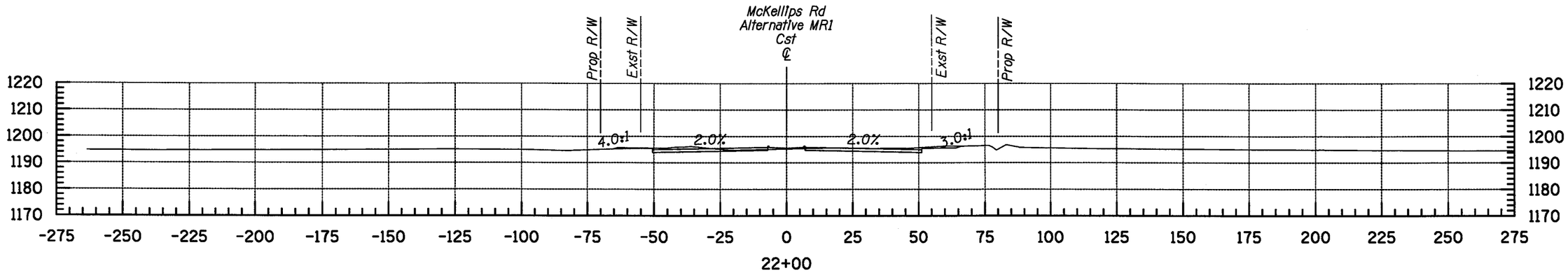

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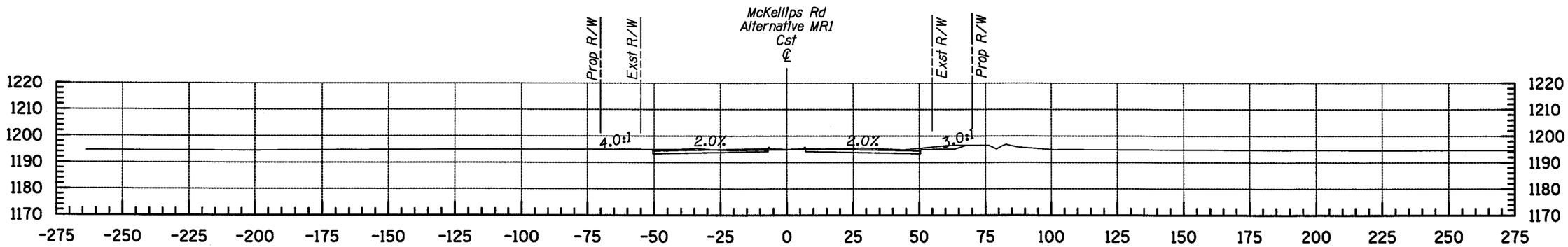

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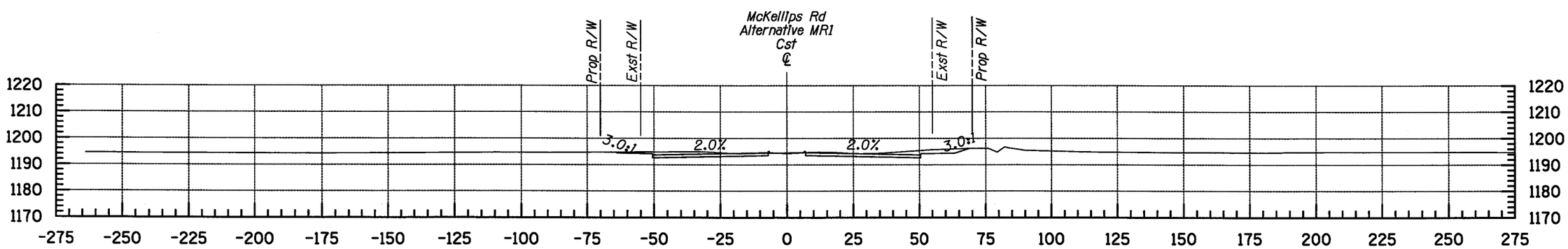

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CROSS SECTIONS	SHEET 3 OF 61

TRACS NO.

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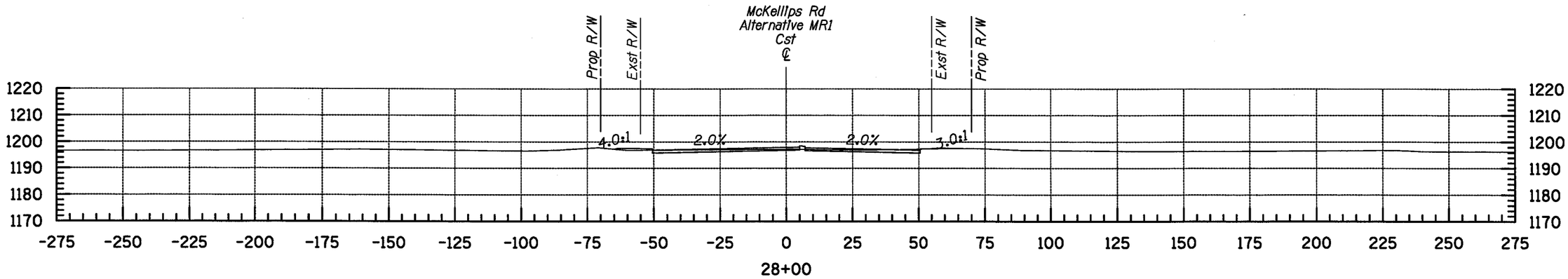

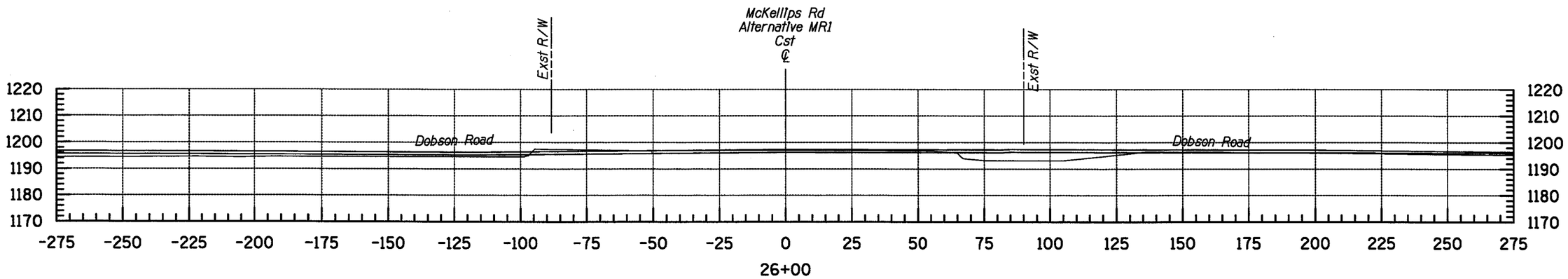

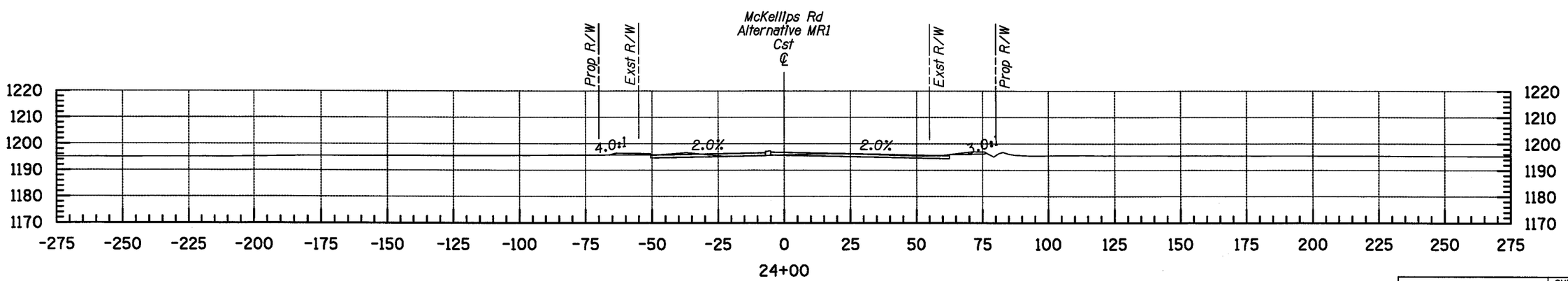

CROSS SECTIONS	SHEET 4 OF 61

TRACS NO.

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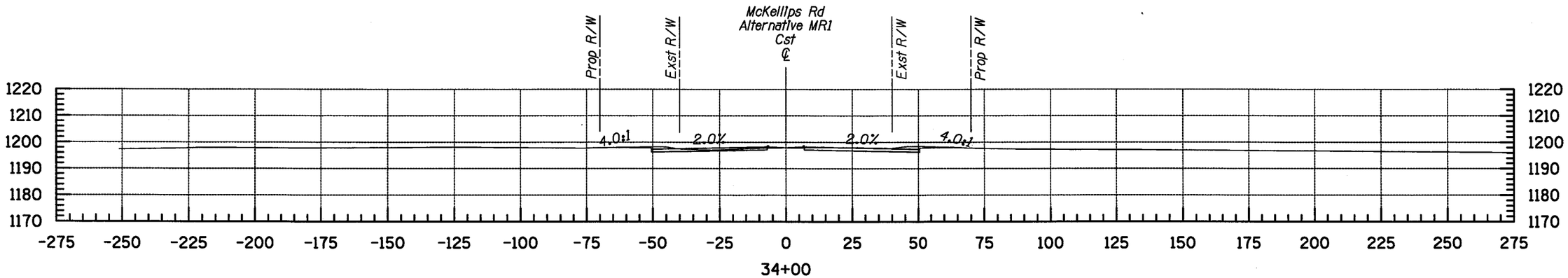

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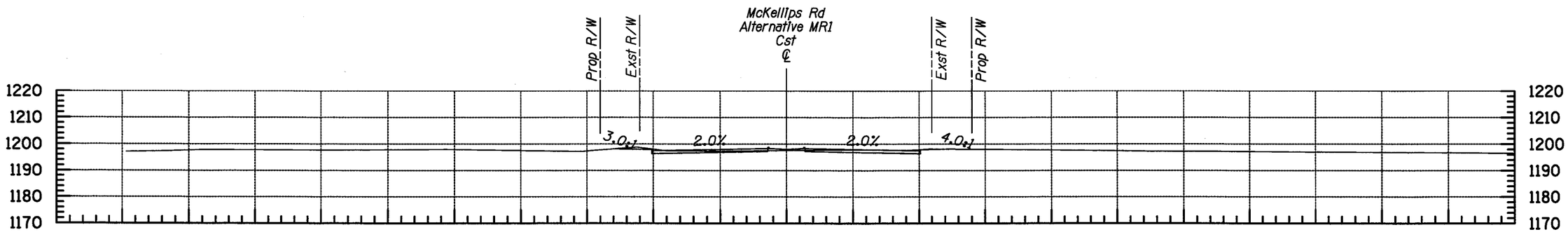

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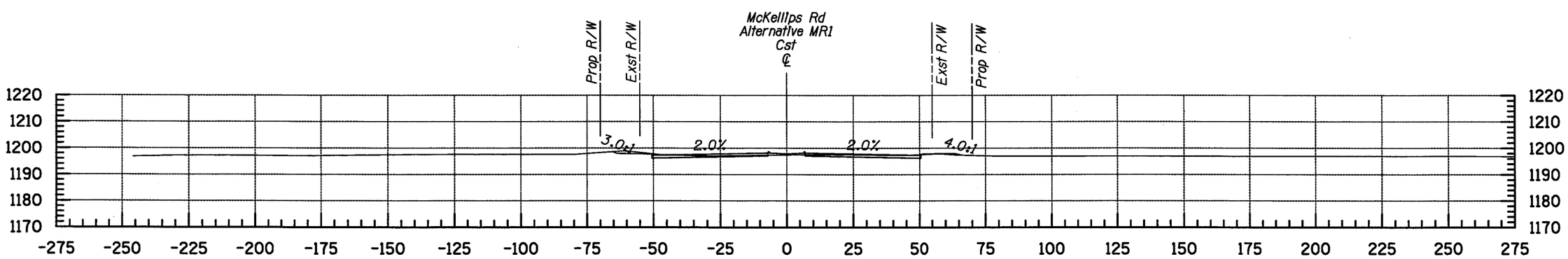

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CROSS SECTIONS	SHEET 5 OF 61

TRACS NO.

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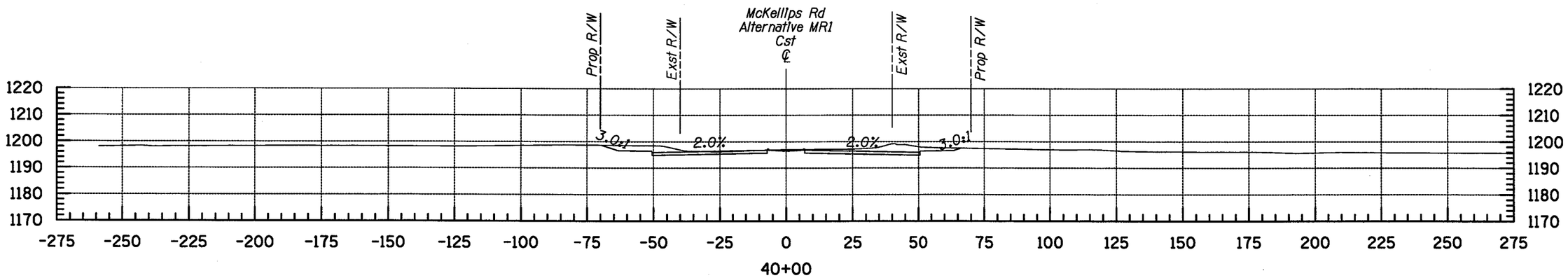

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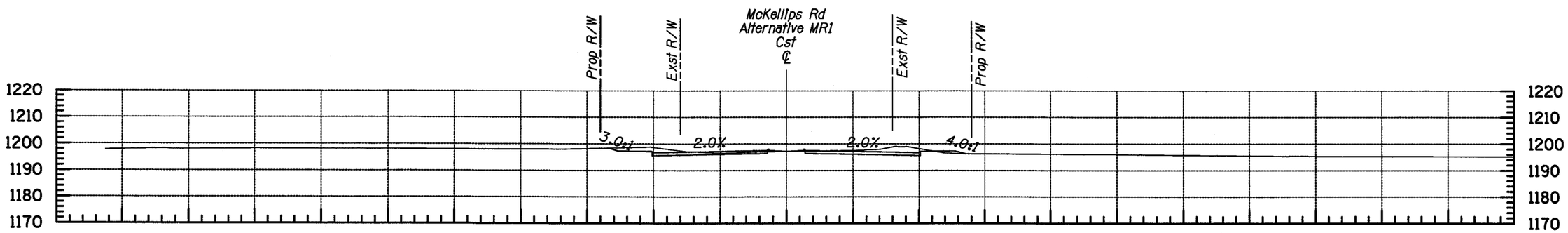
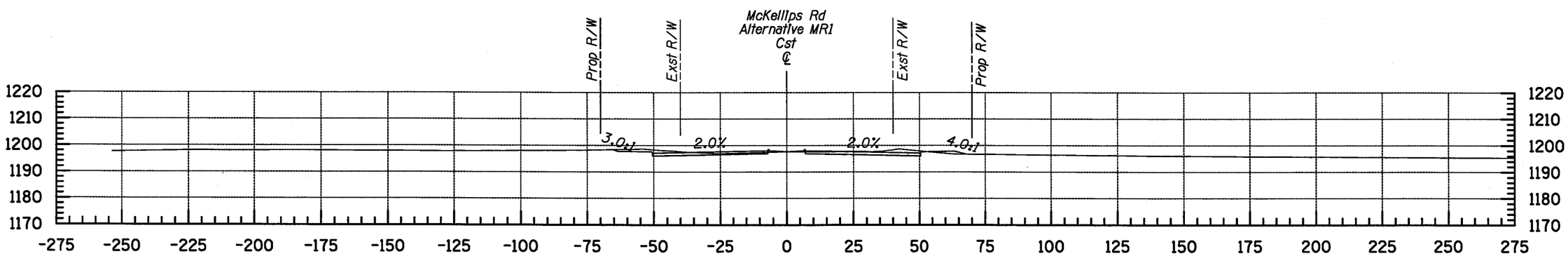


38+00



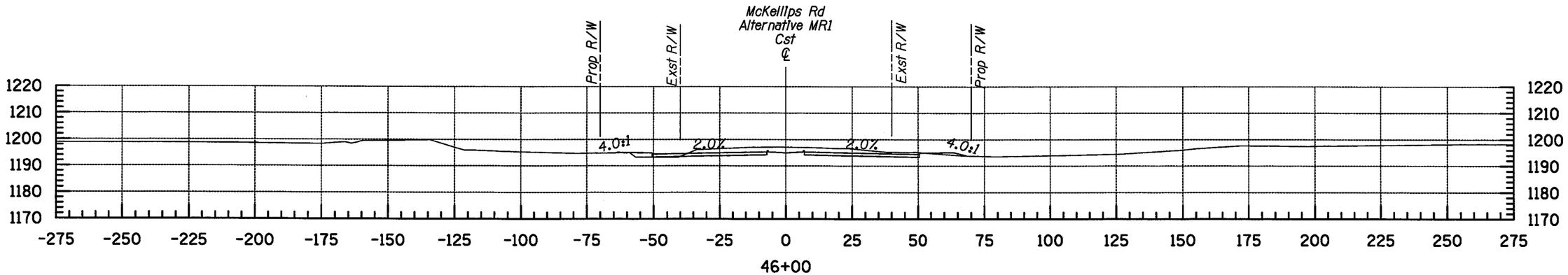
36+00

CROSS SECTIONS	SHEET 6 OF 61

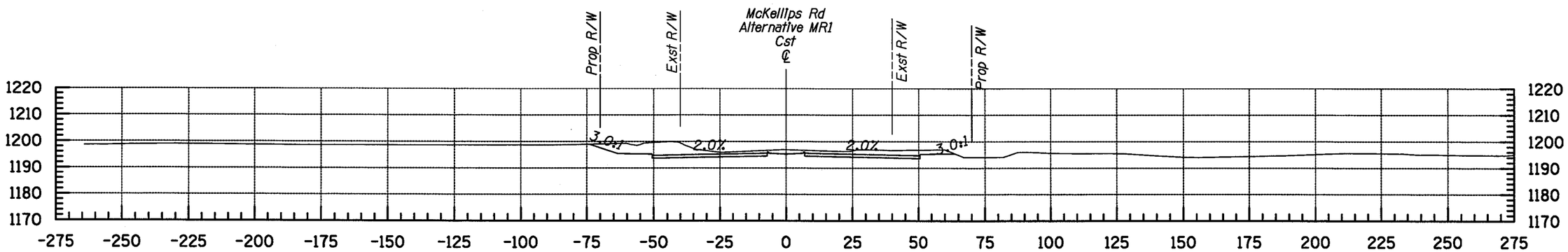
TRACS NO.

ADOT 9:20:33 AM 9/3/2009

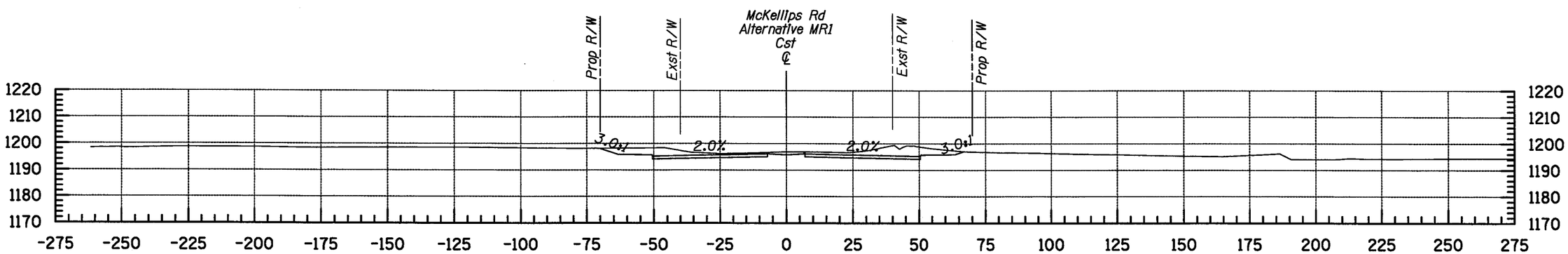
F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



46+00



44+00



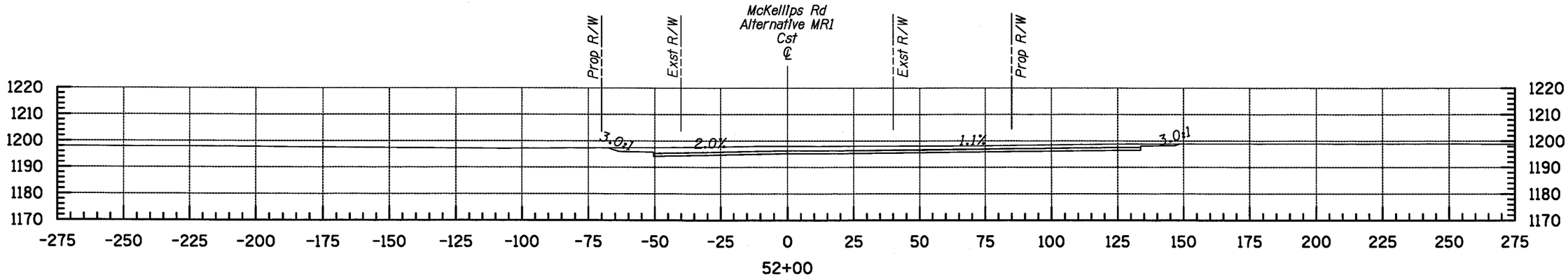
42+00

CROSS SECTIONS	SHEET 7 OF 61

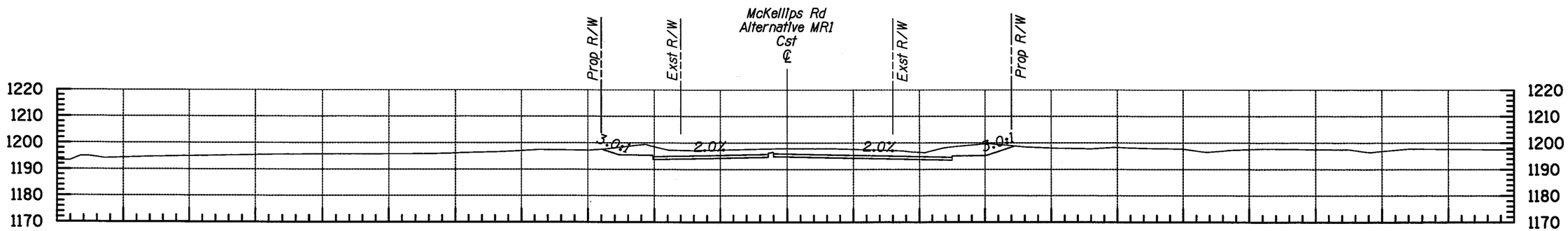
TRACS NO.

ADOT 9:20:35 AM 8/3/2009

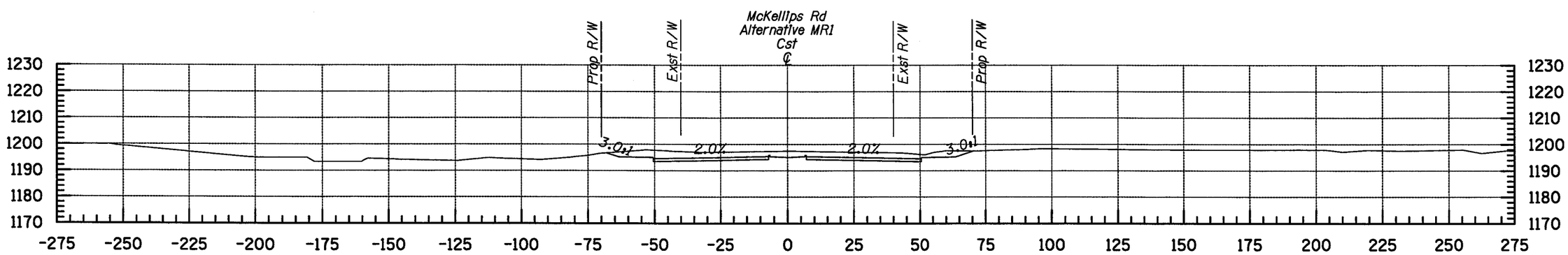
F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



52+00



50+00



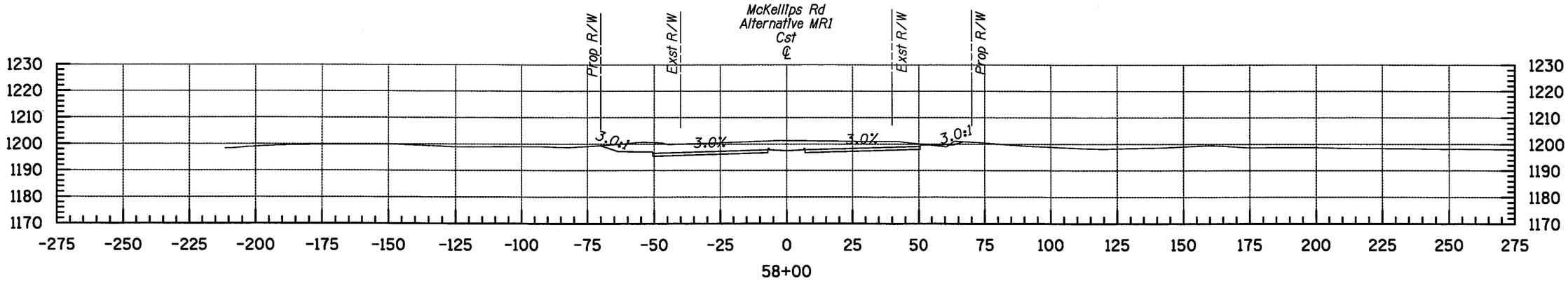
48+00

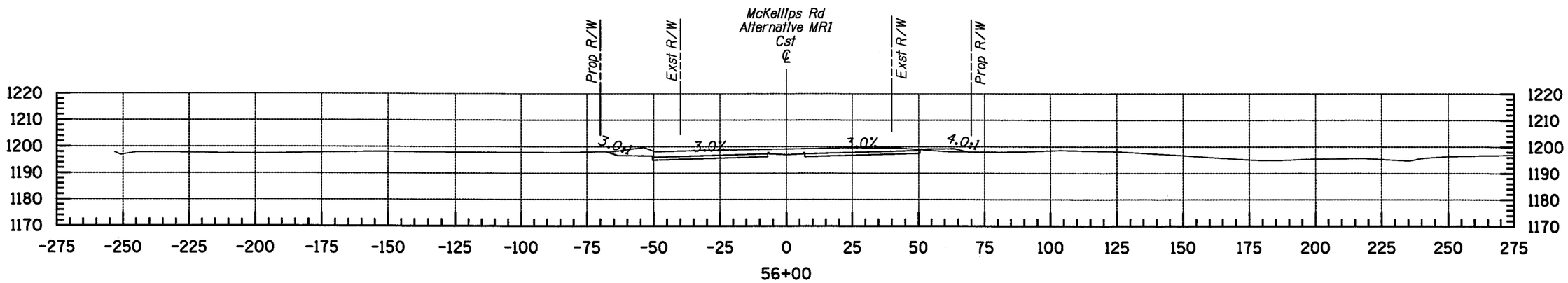
CROSS SECTIONS	SHEET 8 OF 61

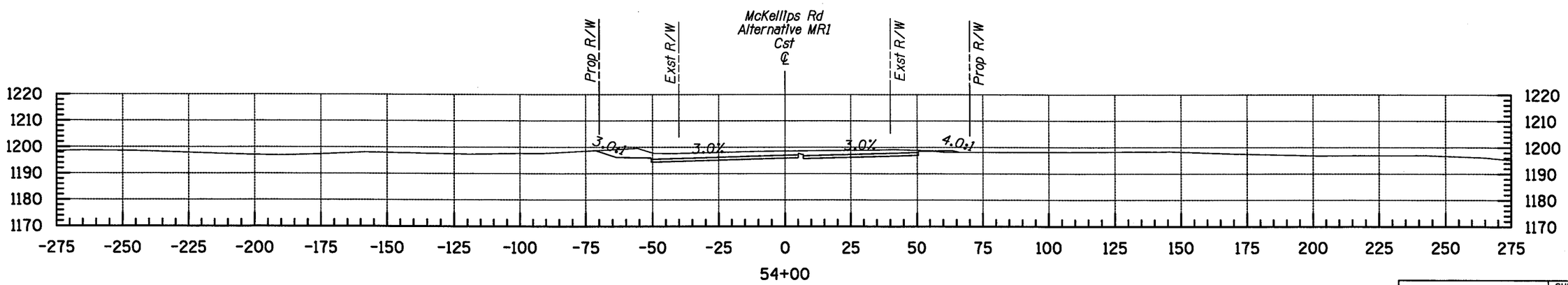
TRACS NO.

ADOT 9:20:37 AM 9/3/2009

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			







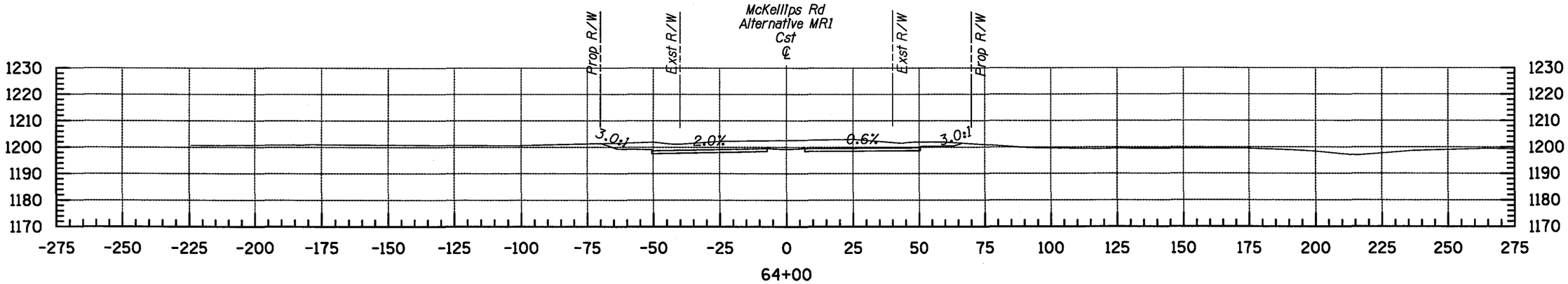
CROSS SECTIONS

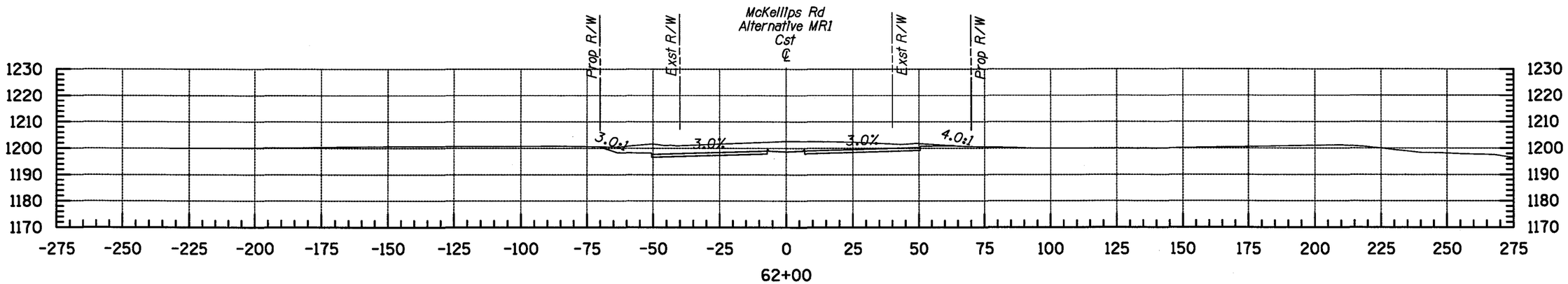
SHEET 9 OF 61

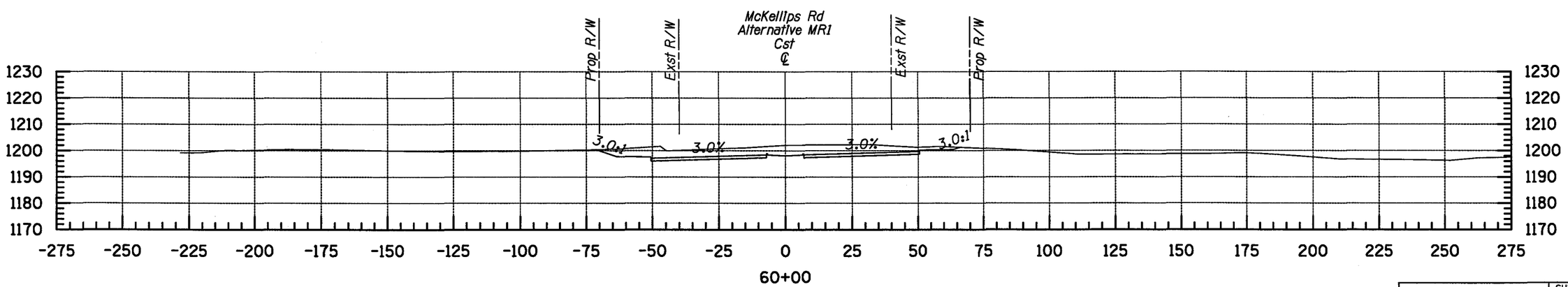
TRACS NO.

ADOT 9:20:39 AM 9/3/2009

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			





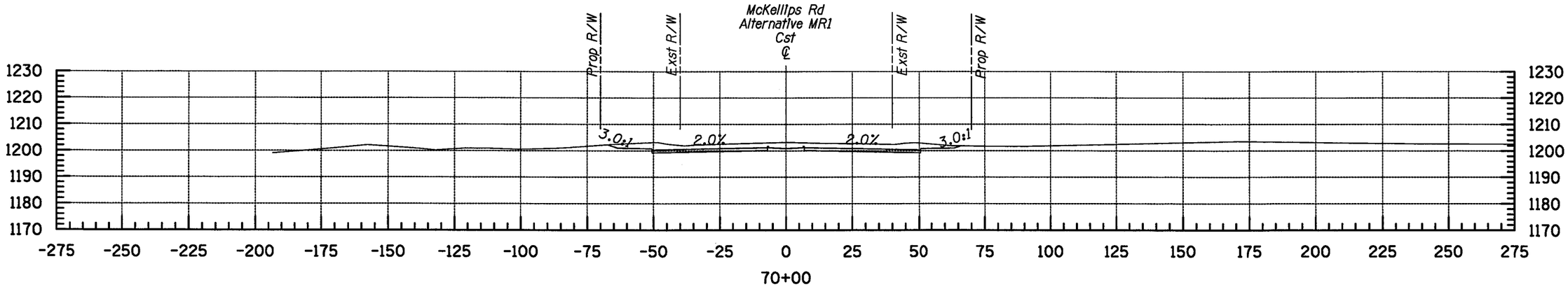


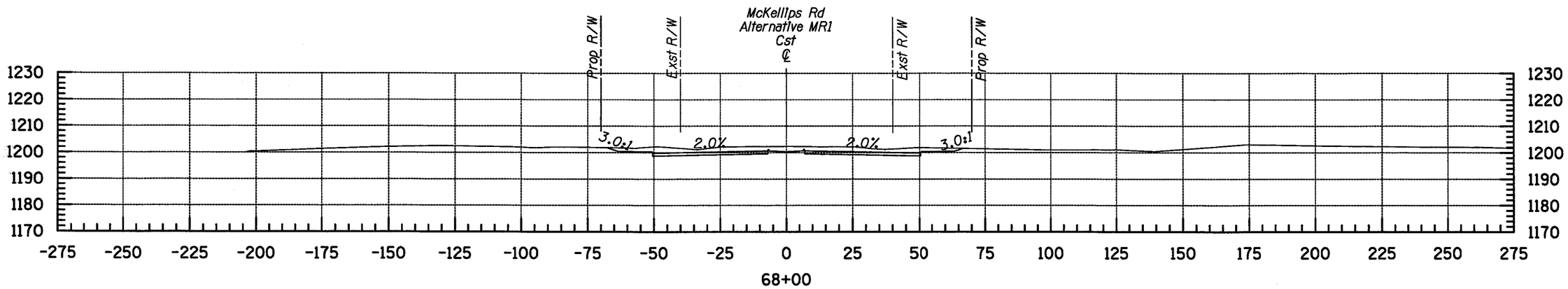
CROSS SECTIONS	SHEET 10 OF 61

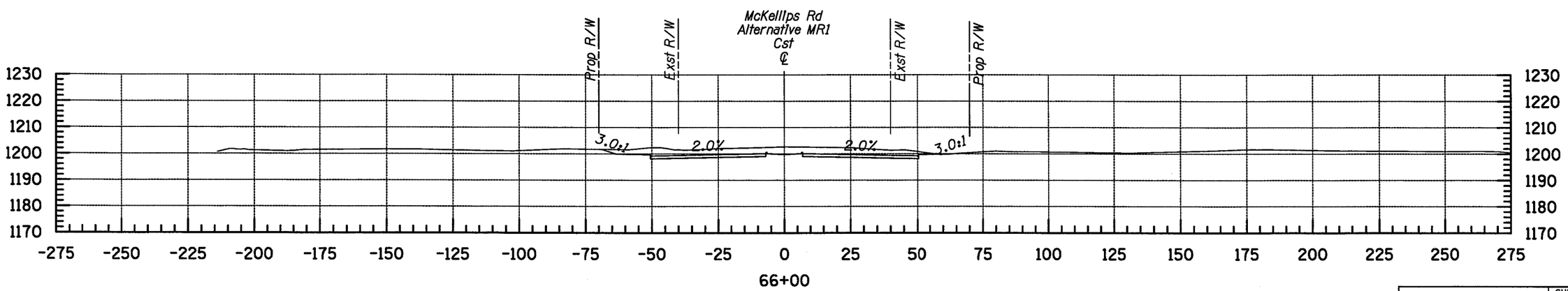
TRACS NO.

ADOT 9:20:41 AM 9/3/2009

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			





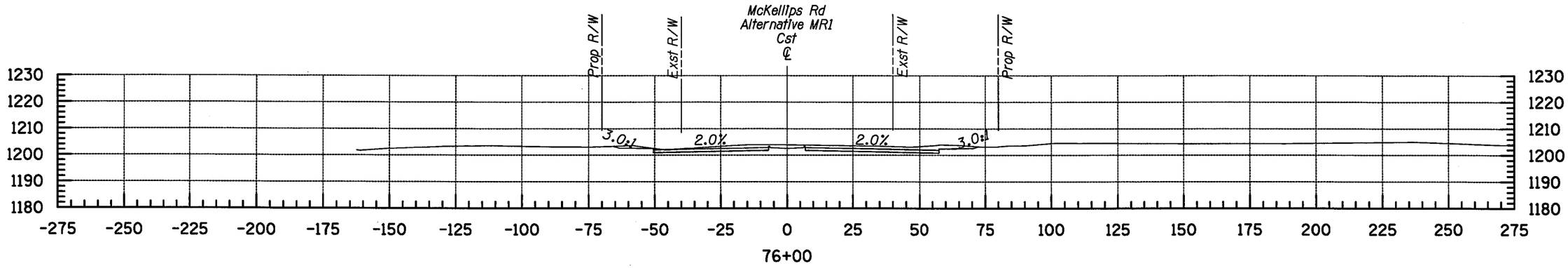


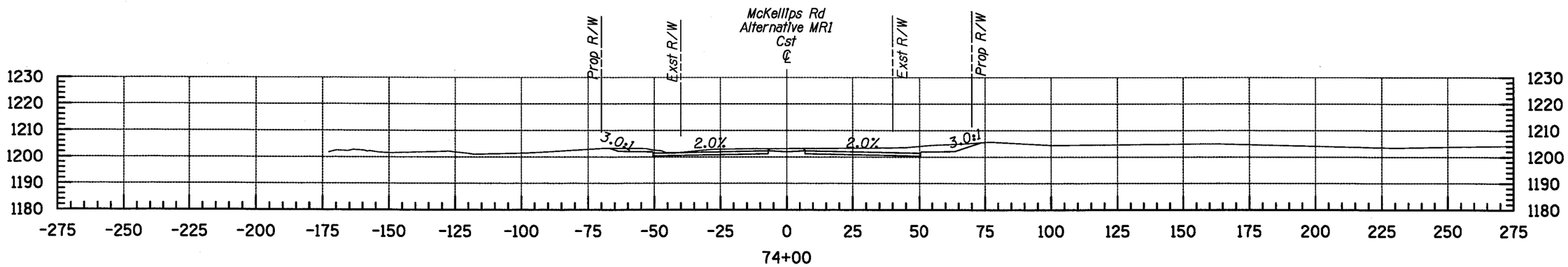
CROSS SECTIONS	SHEET 11 OF 61

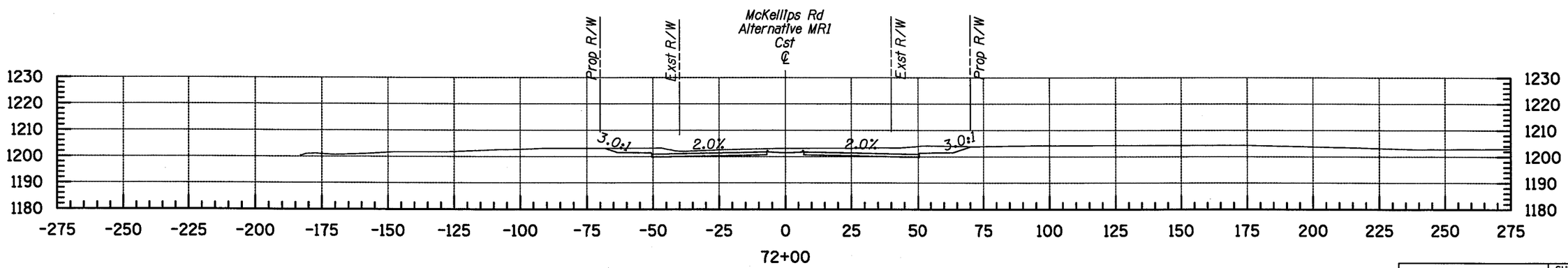
TRACS NO.

ADOT 9:20:44 AM 8/3/2009

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			





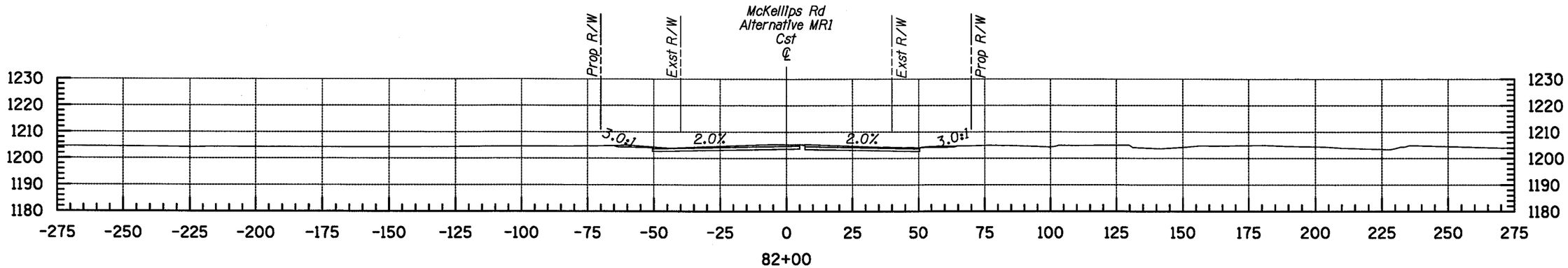


ADOT 9:20:46 AM 8/2009

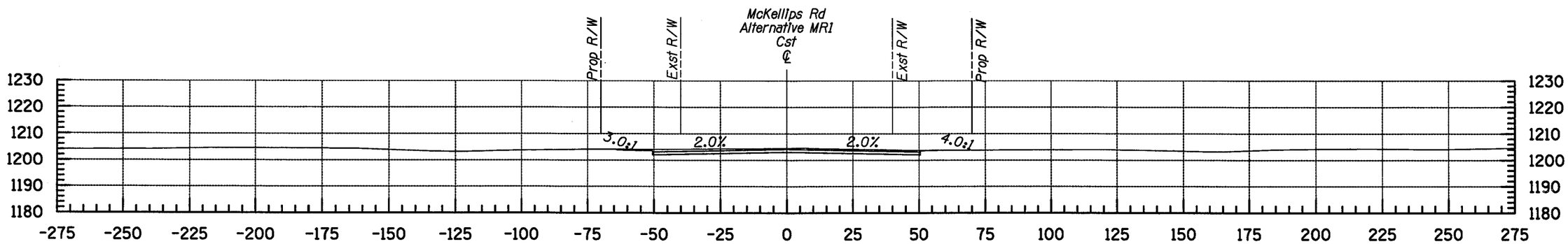
CROSS SECTIONS	SHEET 12 OF 61

TRACS NO.

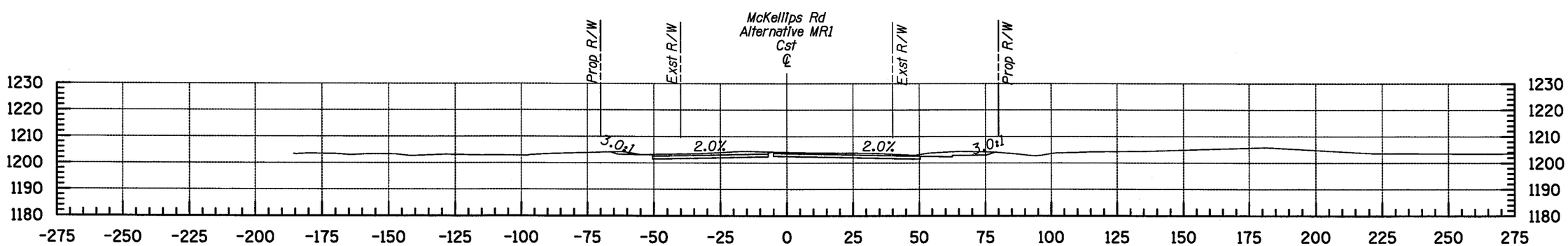
F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



82+00



80+00



78+00

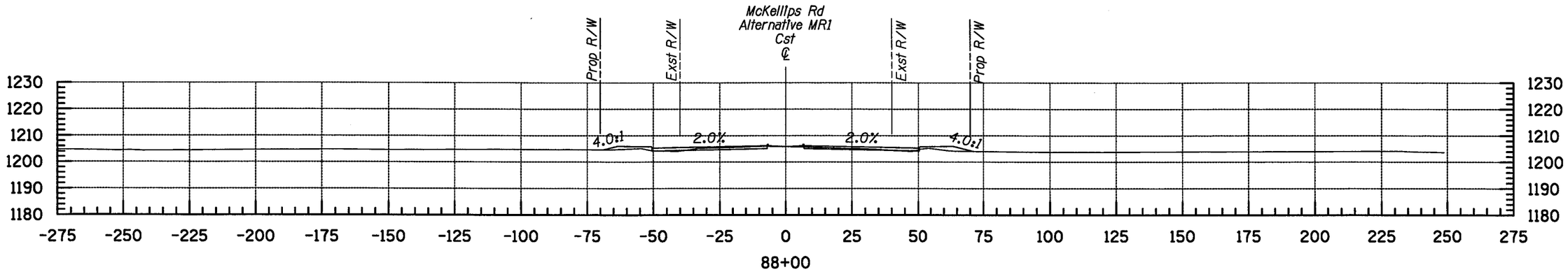
CROSS SECTIONS

SHEET 13 OF 61

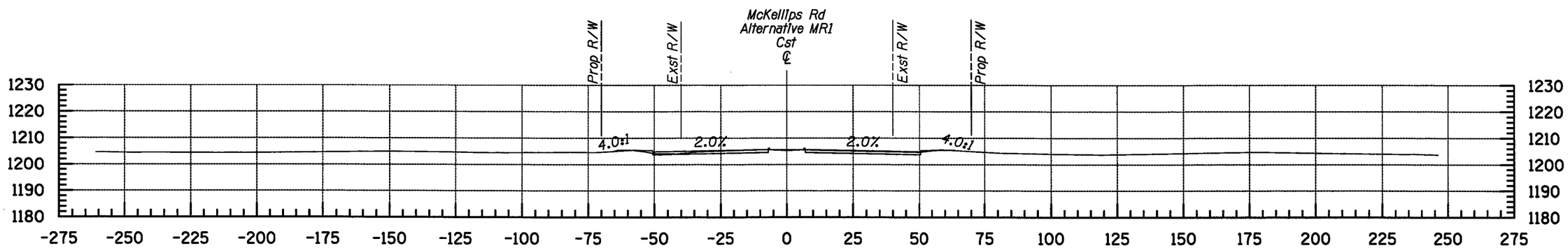
TRACS NO.

ADOT 9:20:48 AM 8/3/2009

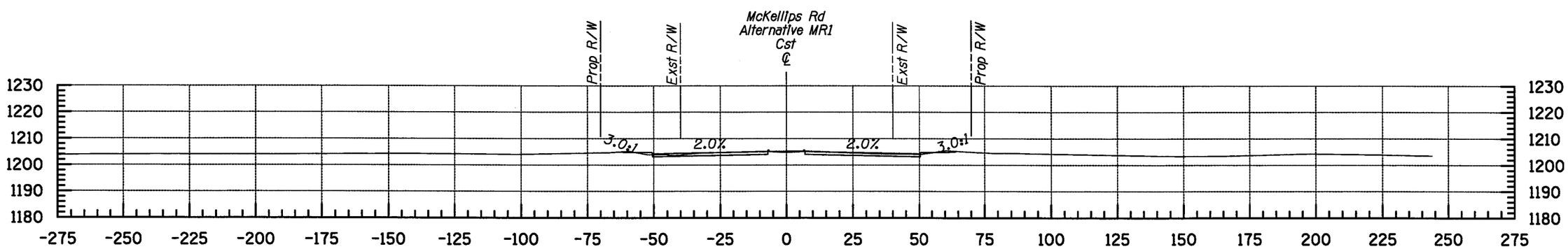
F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



88+00



86+00



84+00

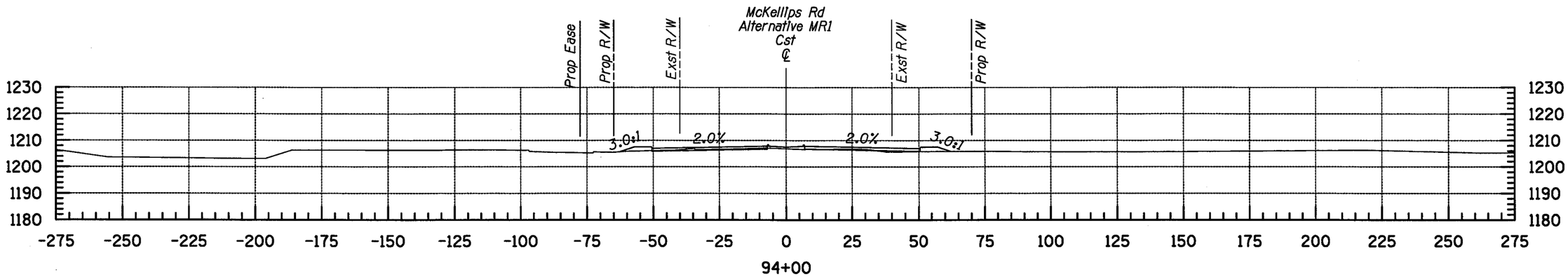
CROSS SECTIONS

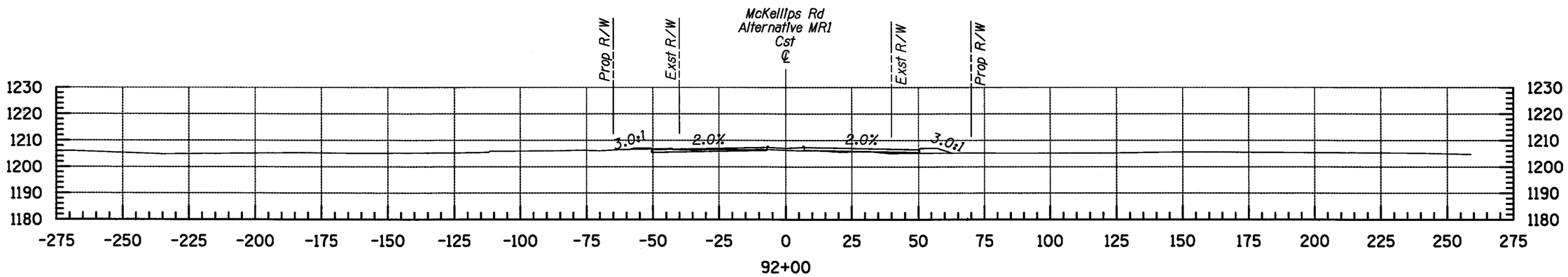
SHEET 14 OF 61

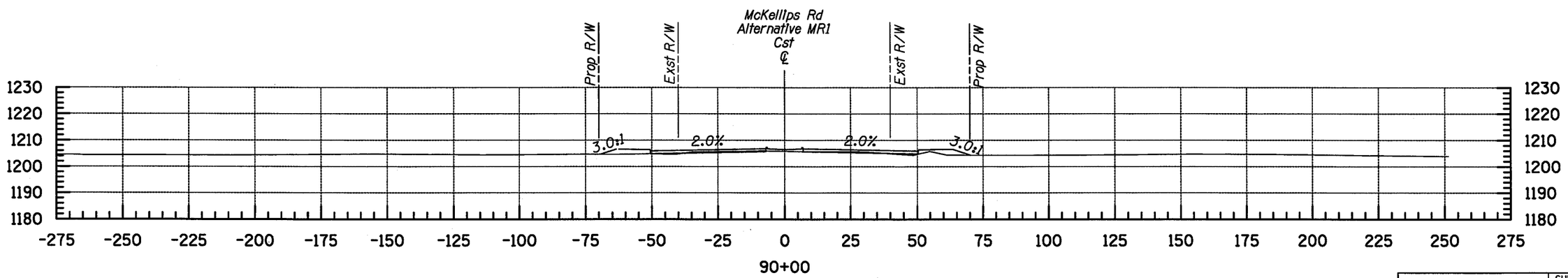
TRACS NO.

ADOT 9:20:50 AM 9/2/2009

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			





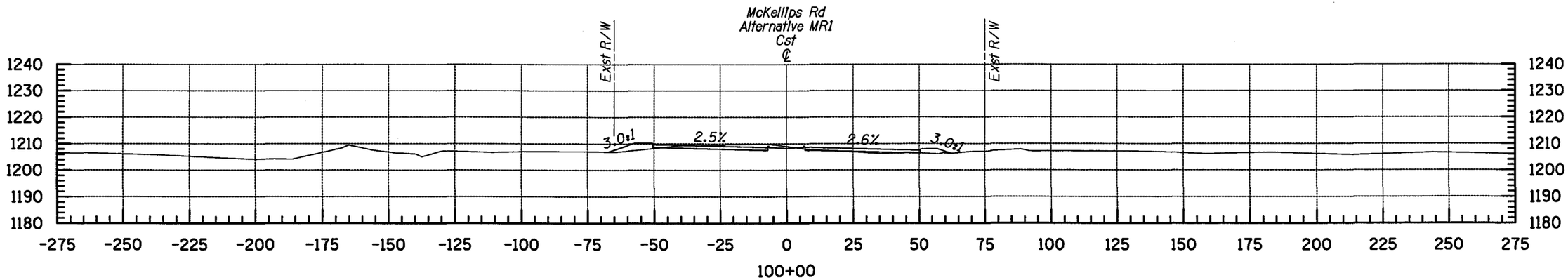


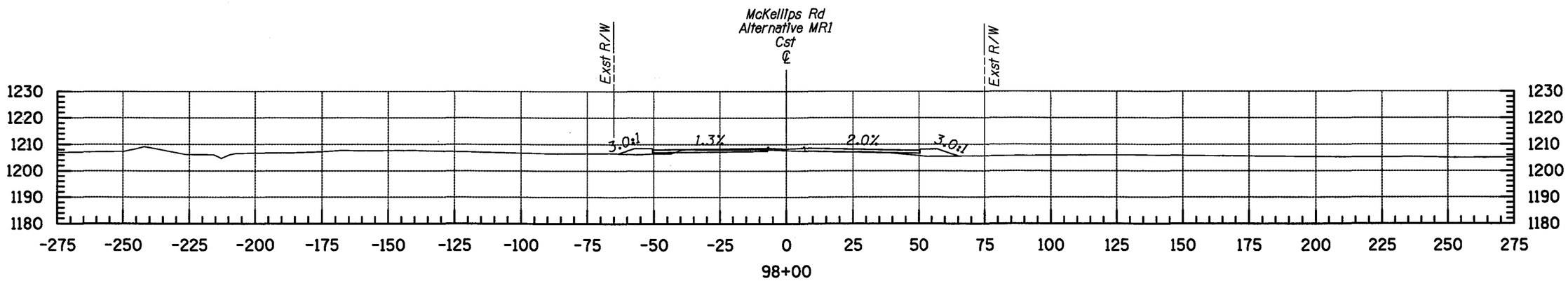
ADOT 9:20:52 AM 9/2/2009

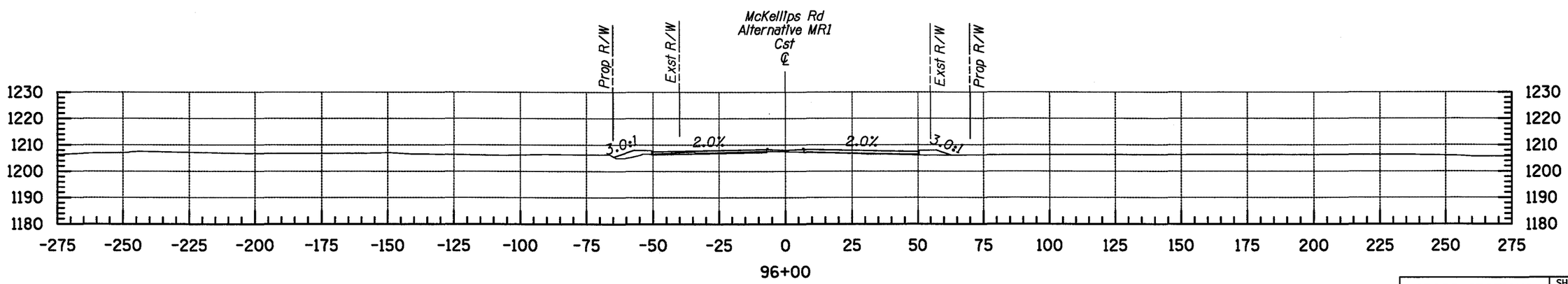
CROSS SECTIONS	SHEET 15 OF 61

TRACS NO.

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			





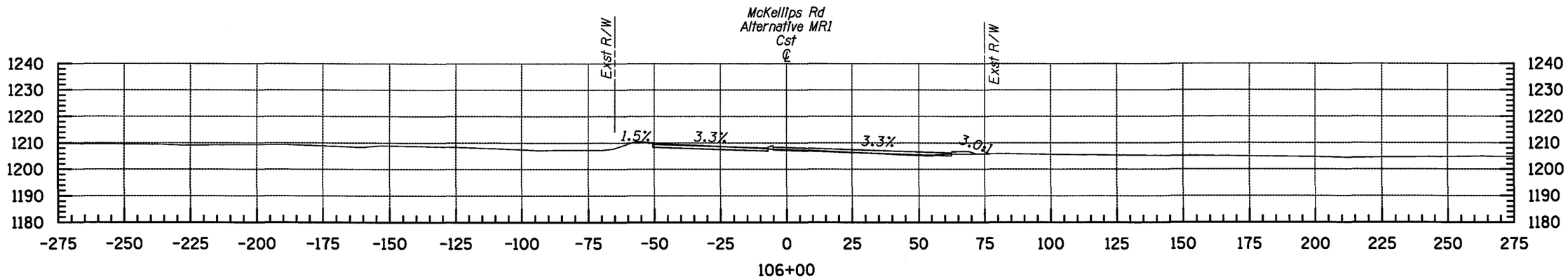


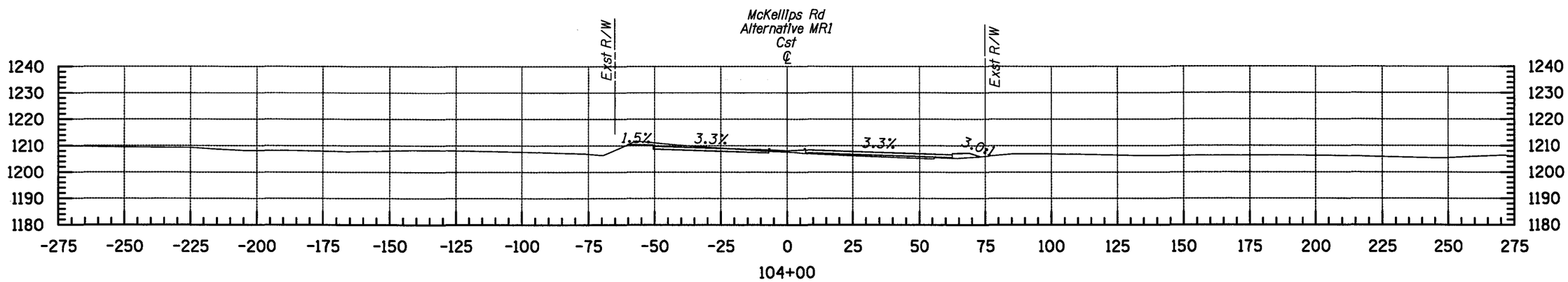
CROSS SECTIONS	SHEET 16 OF 61

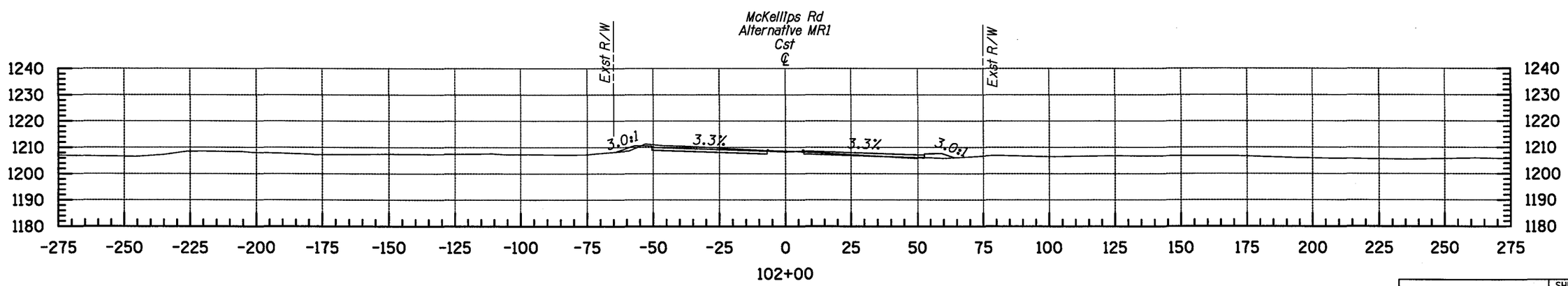
TRACS NO.

ADOT 9:20:54 AM 8/9/2009

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			







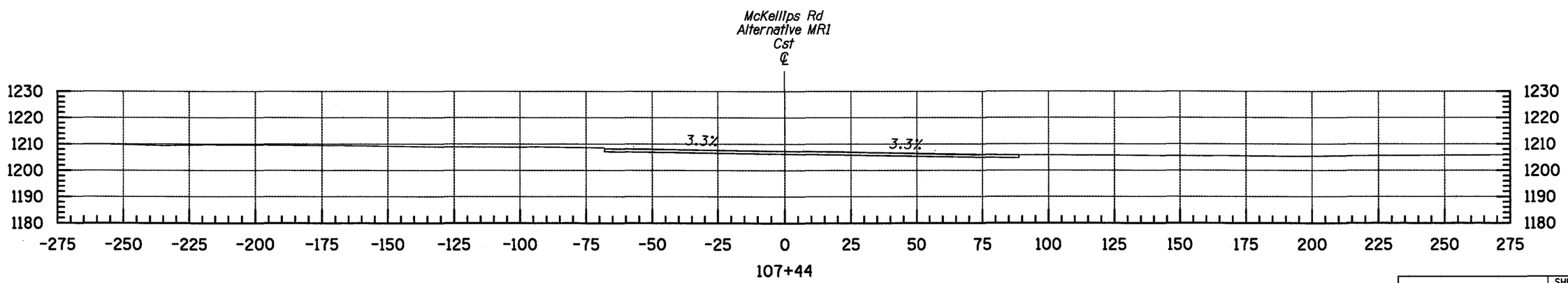
CROSS SECTIONS

SHEET 17 OF 61

TRACS NO.

ADOT 9:20:56 AM 8/3/2009

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

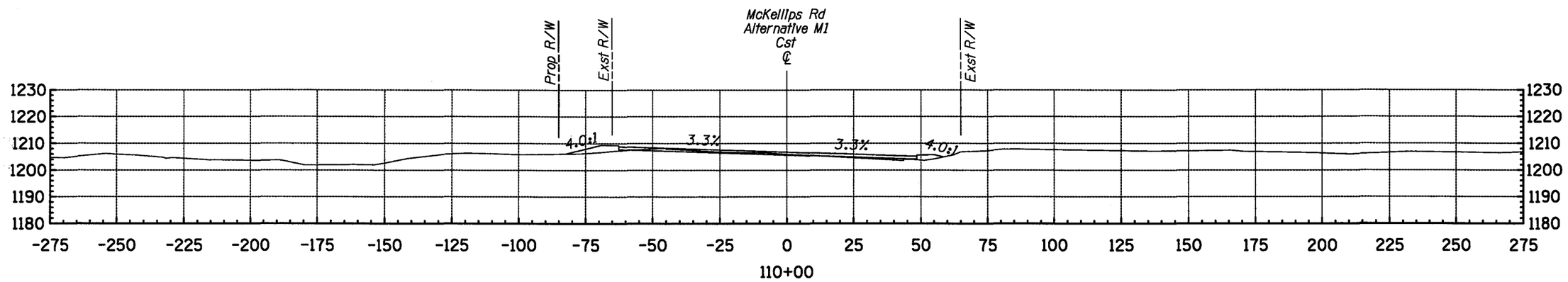


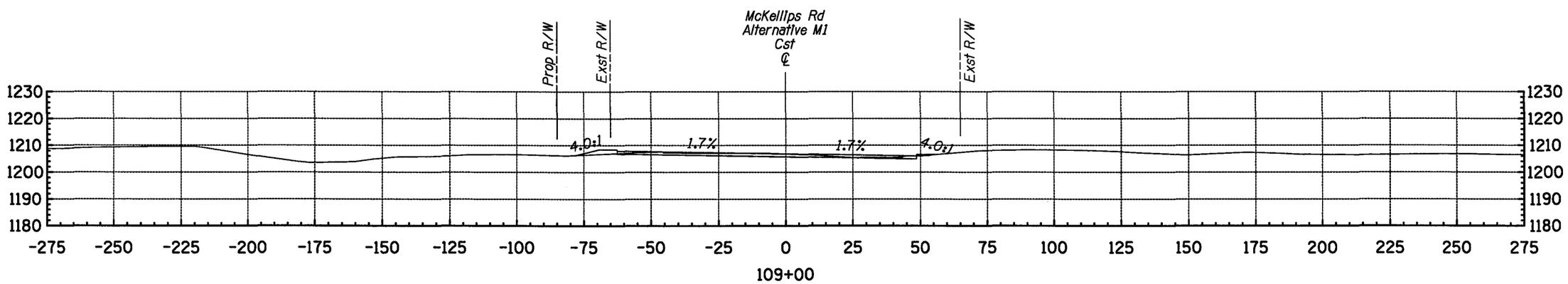
CROSS SECTIONS	SHEET 18 OF 61

TRACS NO.

ADOT 9:20:59 AM 9/3/2009

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			





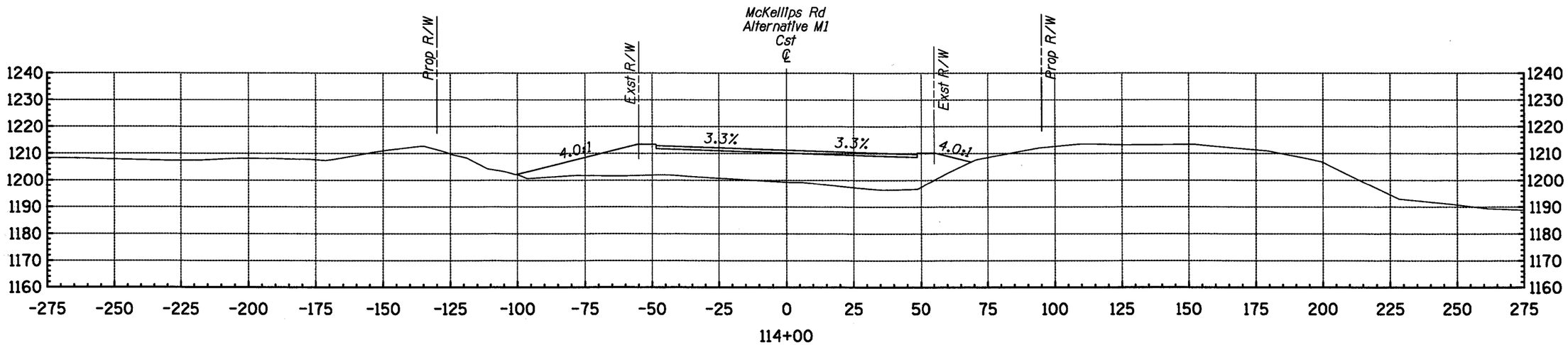
CROSS SECTIONS

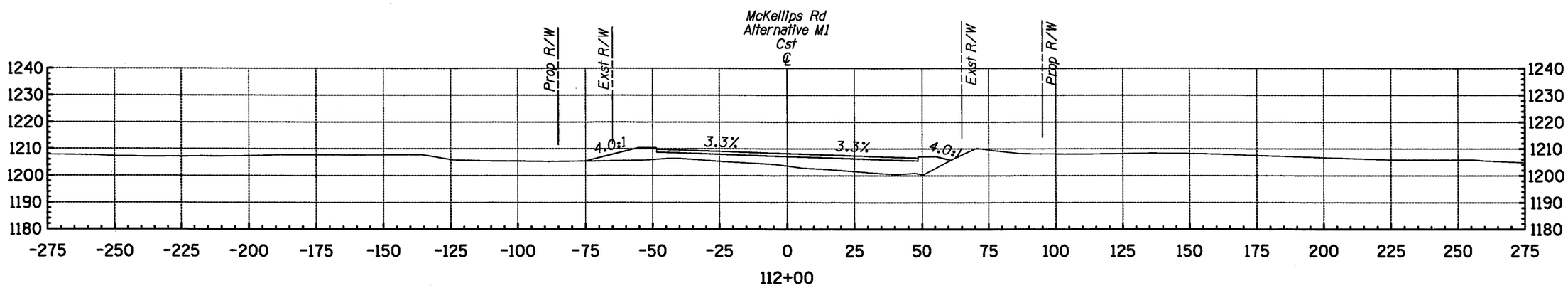
SHEET 19 OF 61

TRACS NO.

ADOT 9:20:59 AM 9/2/2009

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



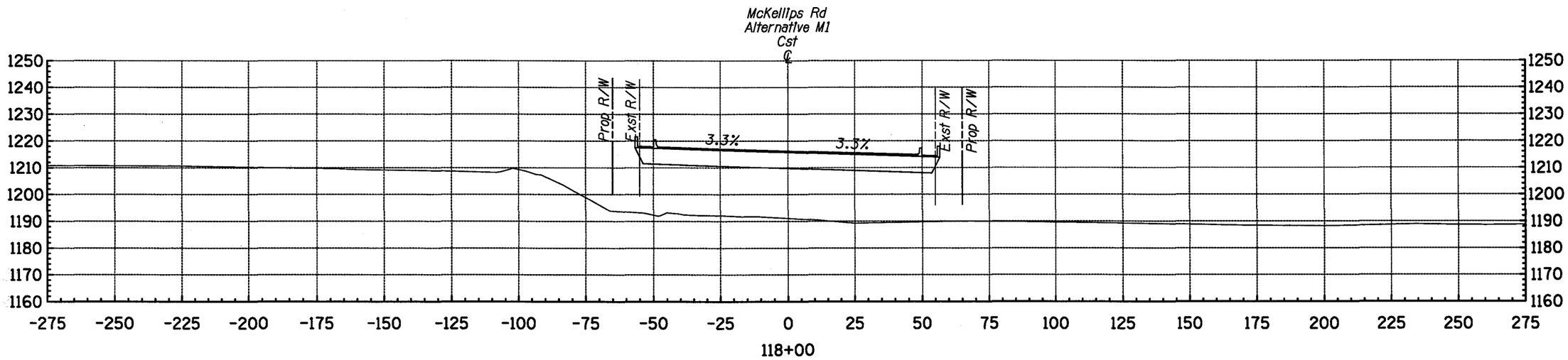


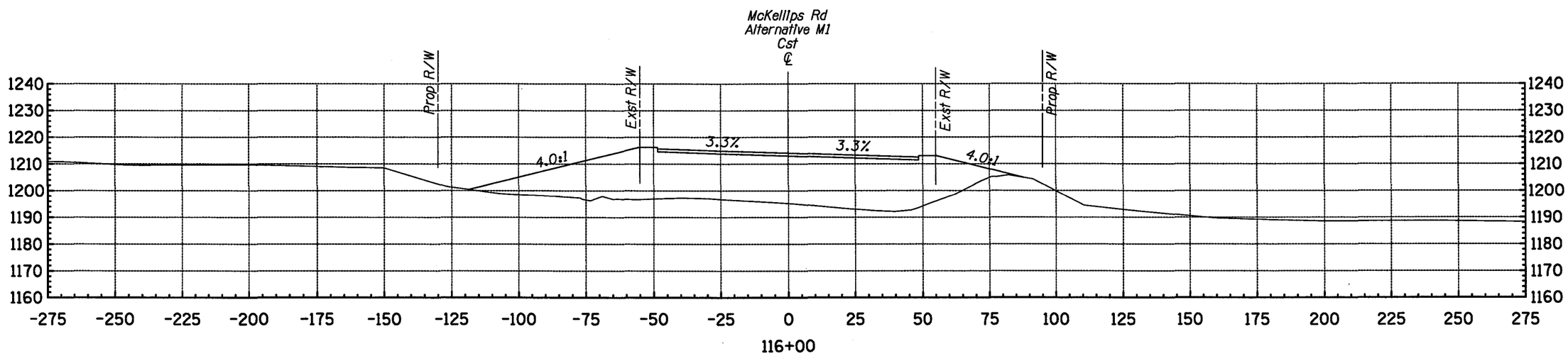
ADOT 9:21:01 AM 8/3/2009

CROSS SECTIONS	SHEET 20 OF 61

TRACS NO.

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



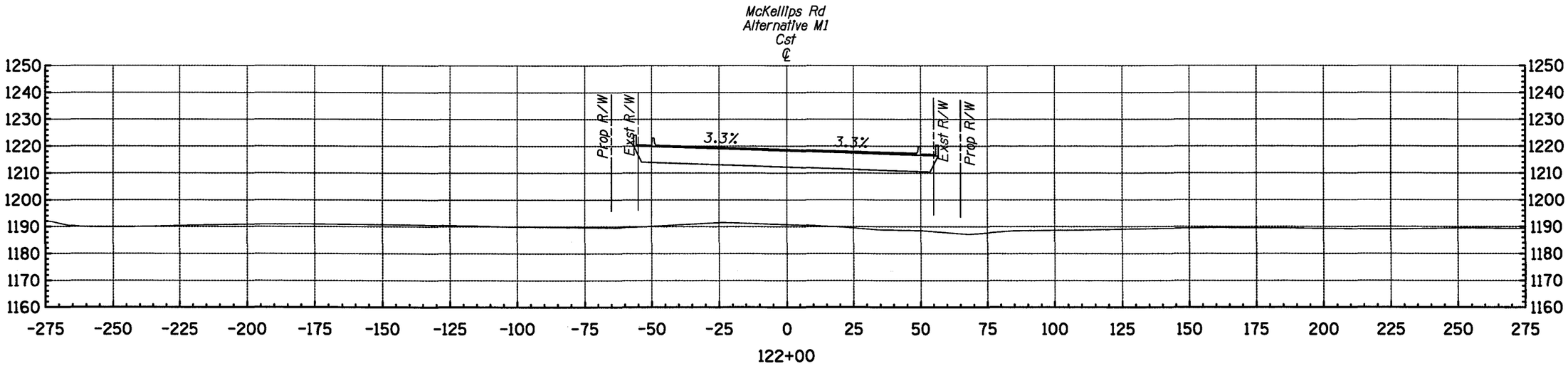


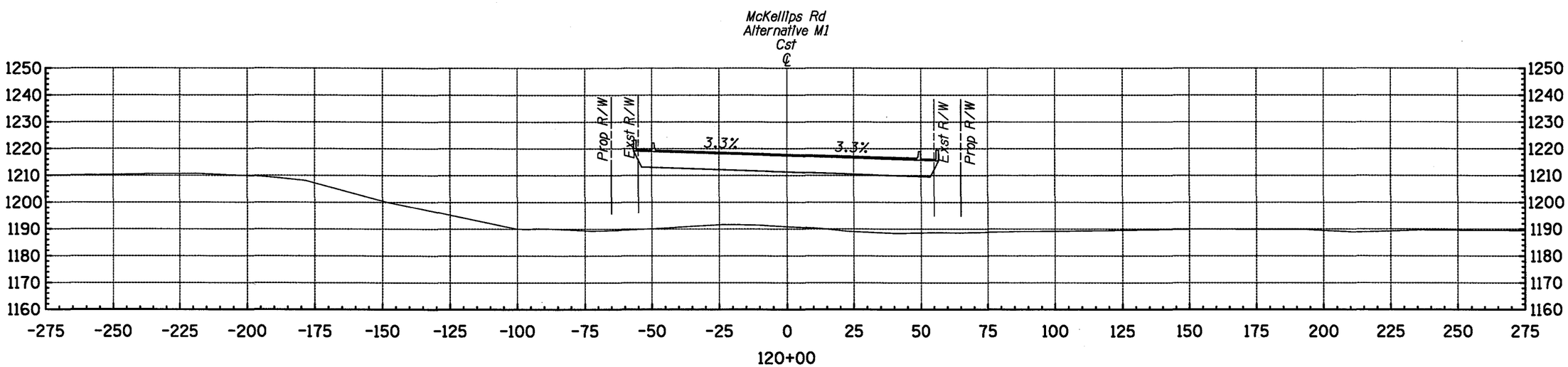
ADOT 9:21:02 AM 8/3/2009

CROSS SECTIONS	SHEET 21 OF 61

TRACS NO.

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



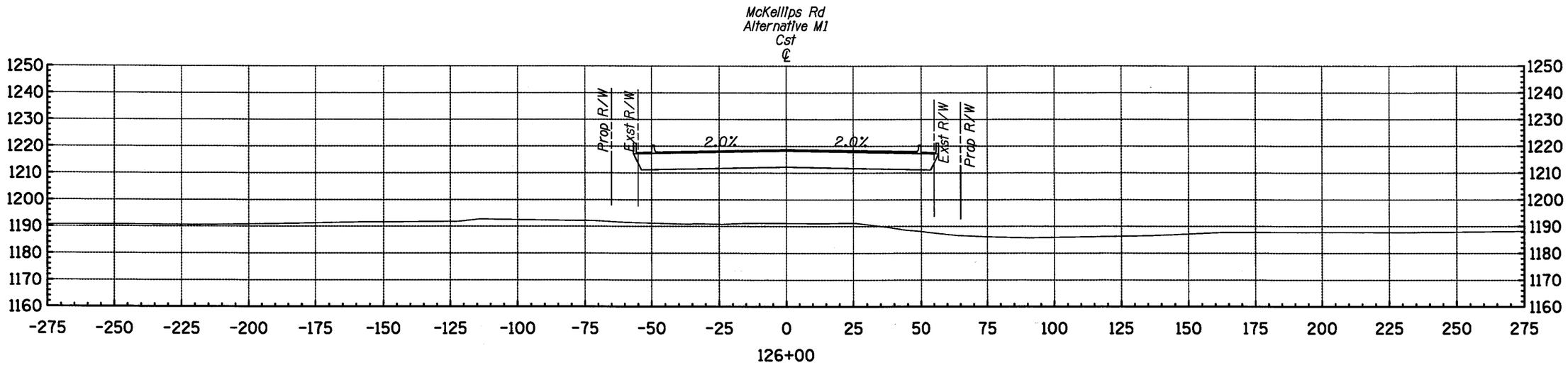


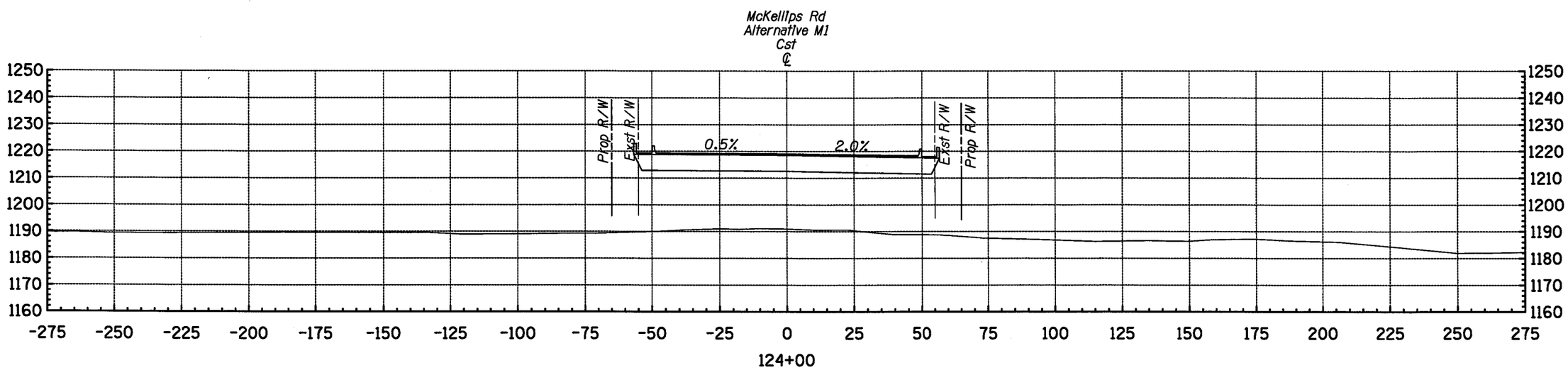
ADOT 9:21:04 AM 8/2/2009

CROSS SECTIONS	SHEET 22 OF 61

TRACS NO.

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



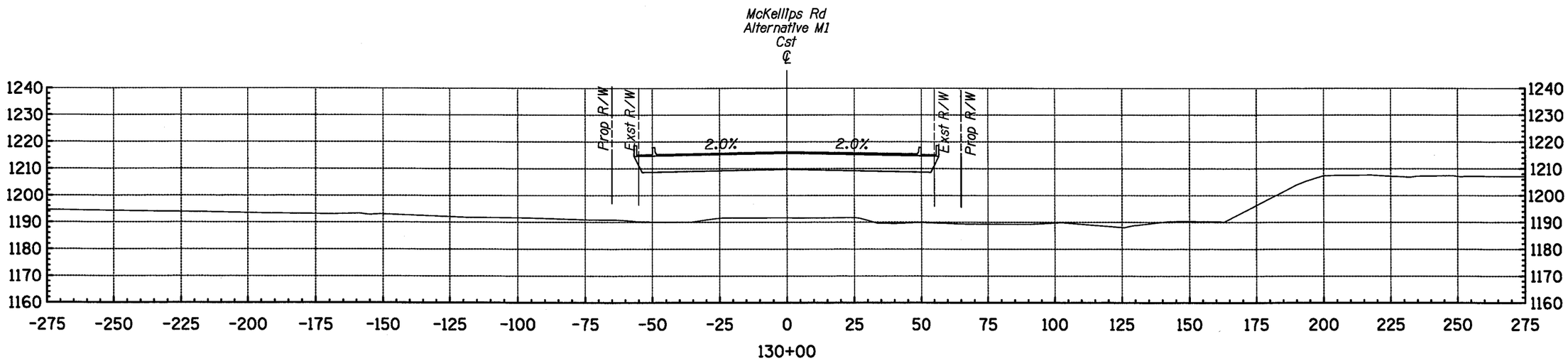


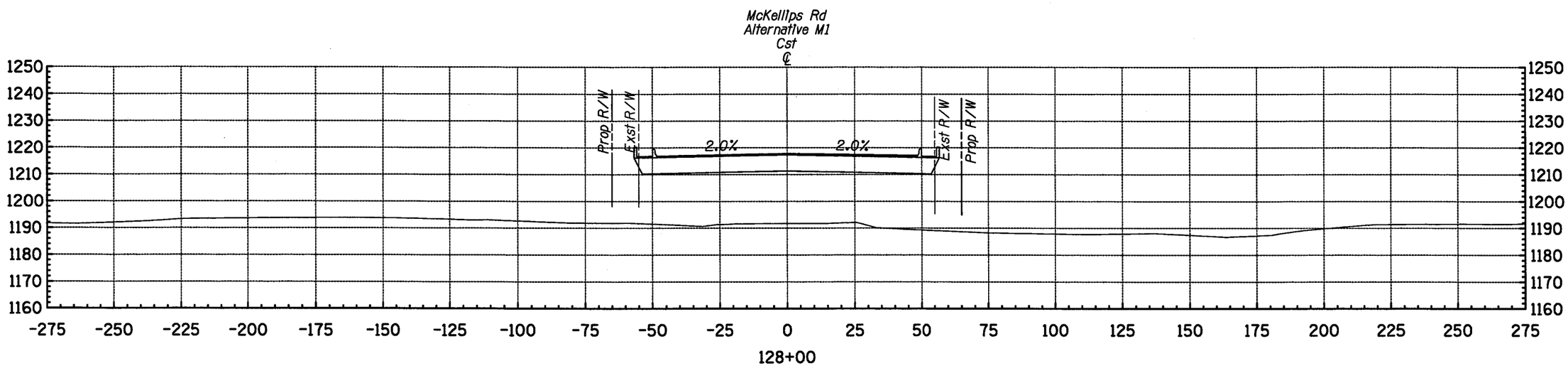
ADOT 9:21:06 AM 8/2/2009

CROSS SECTIONS	SHEET 23 OF 61

TRACS NO.

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



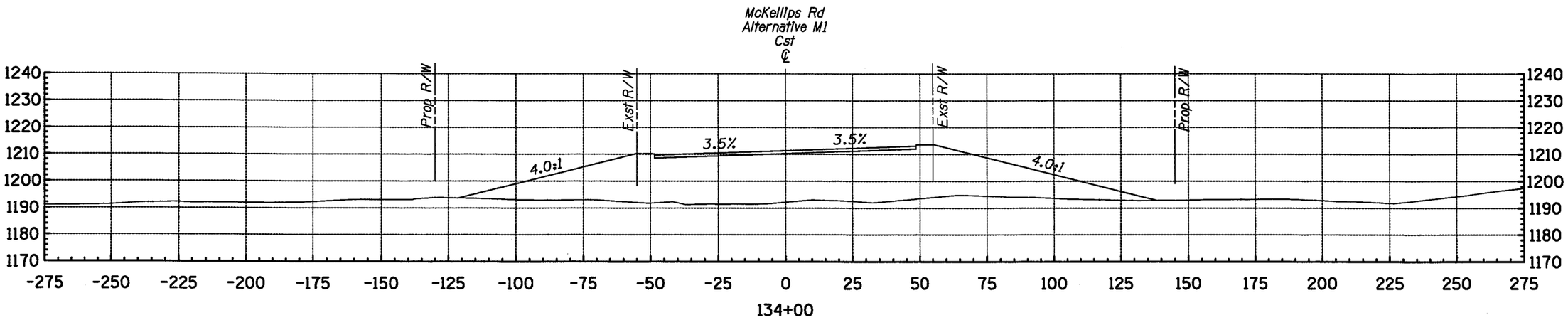


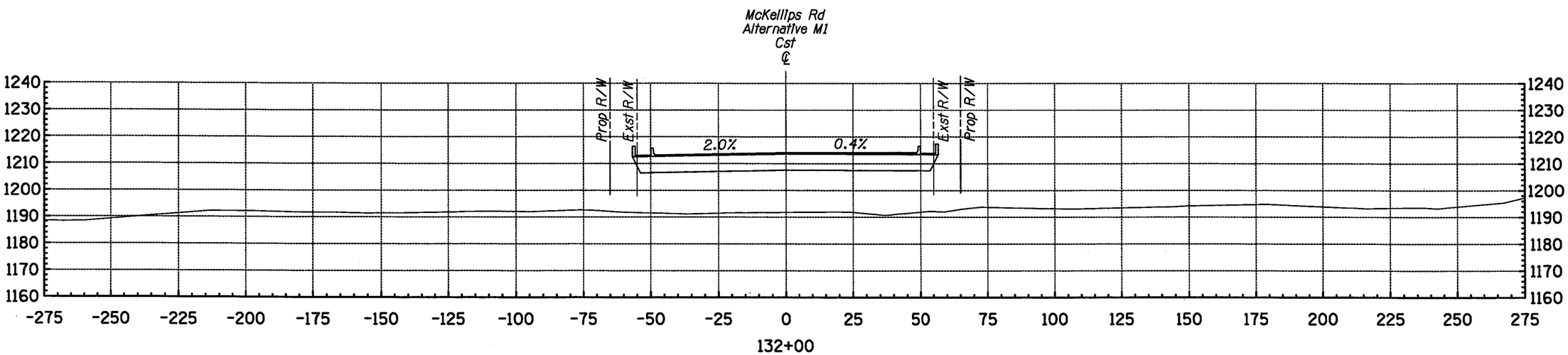
ADOT 9:21:09 AM 9/2/2009

CROSS SECTIONS	SHEET 24 OF 61

TRACS NO.

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



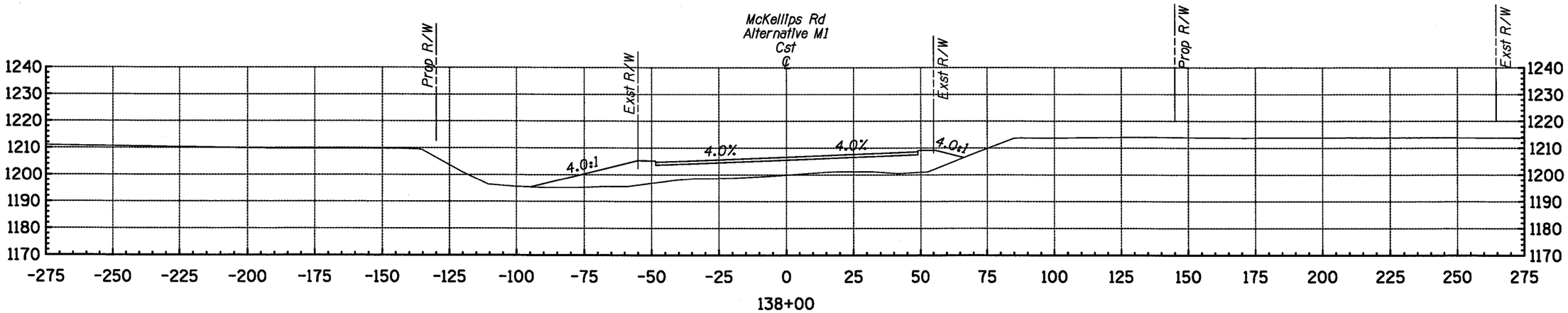


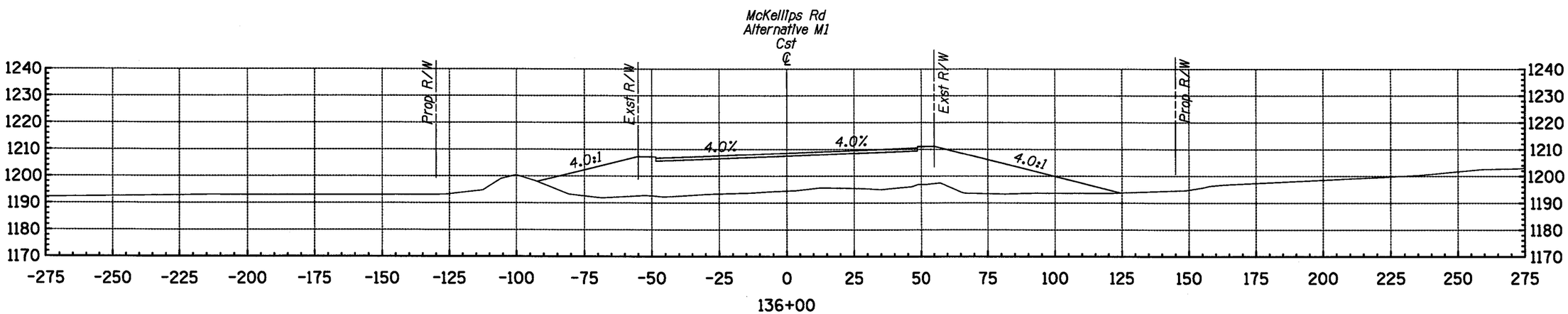
CROSS SECTIONS	SHEET	OF
	25	61

TRACS NO.

ADOT 9:21:11 AM 8/9/2009

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



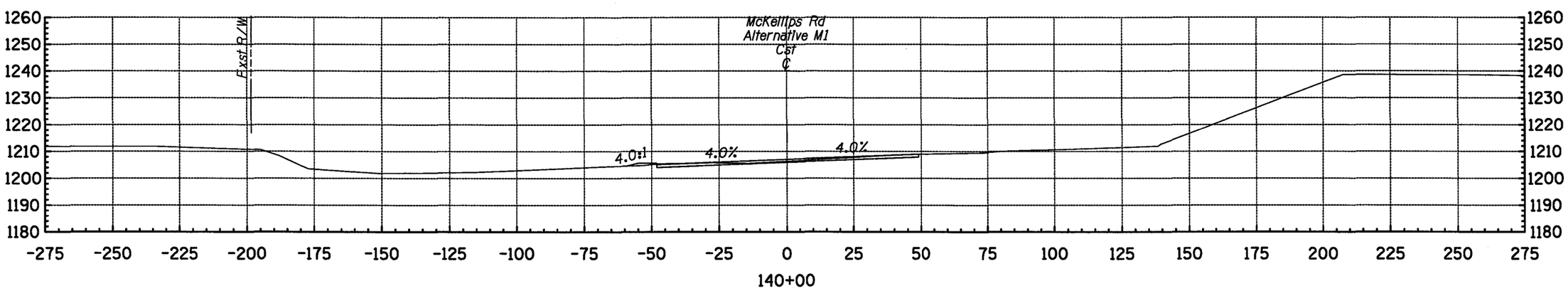


ADOT 9:21:12 AM 8/3/2009

CROSS SECTIONS	SHEET 26 OF 61

TRACS NO.

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



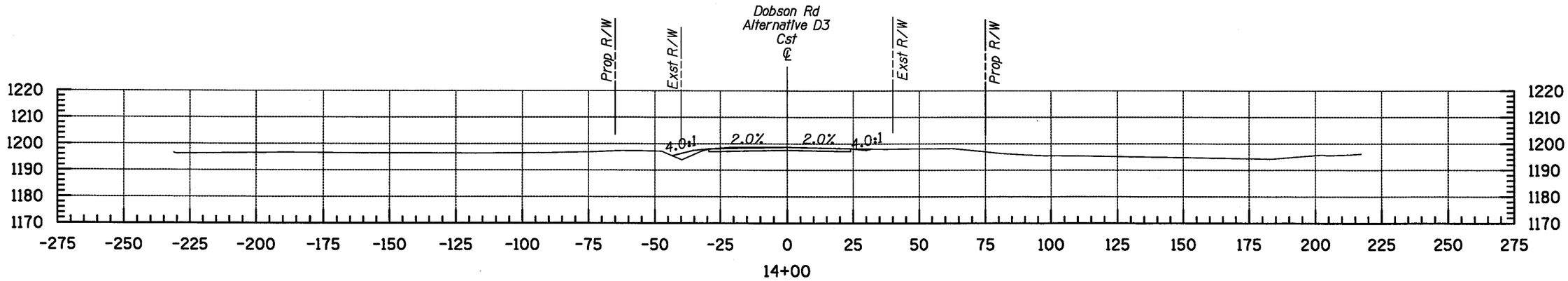
CROSS SECTIONS

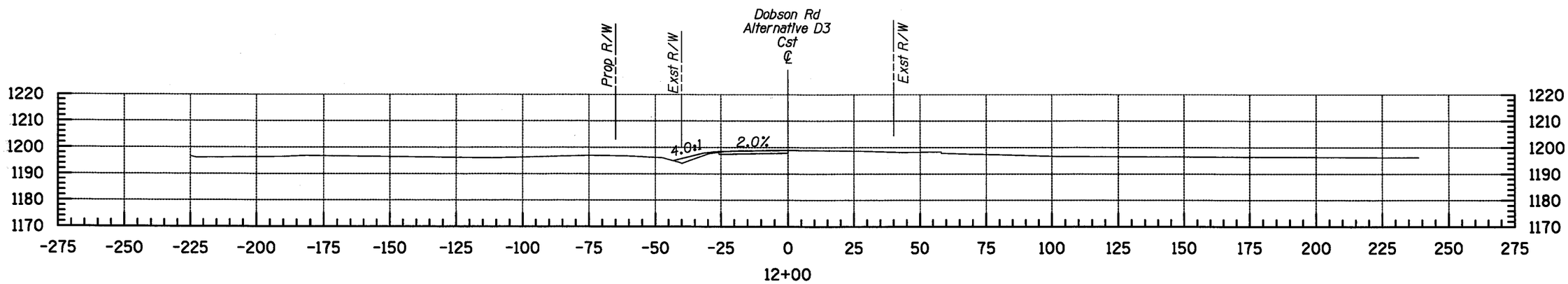
SHEET 27 OF 61

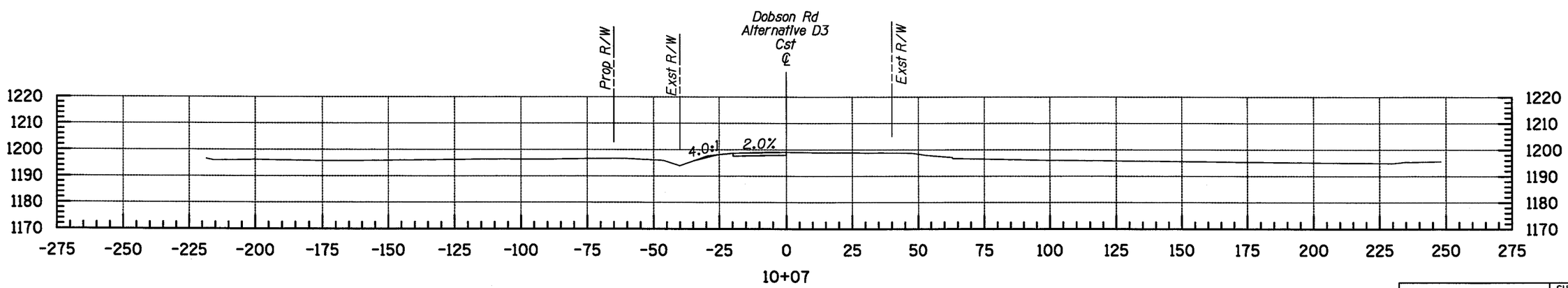
TRACS NO.

ADOT 9:21:14 AM 8/3/2009

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			





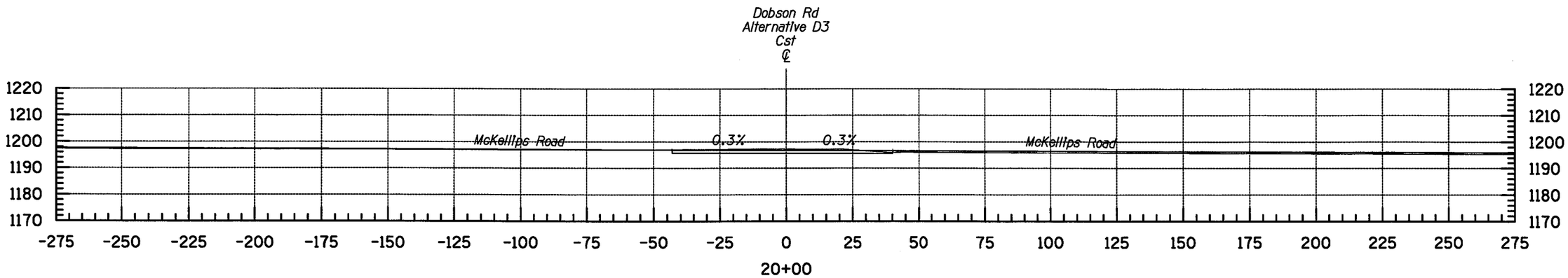


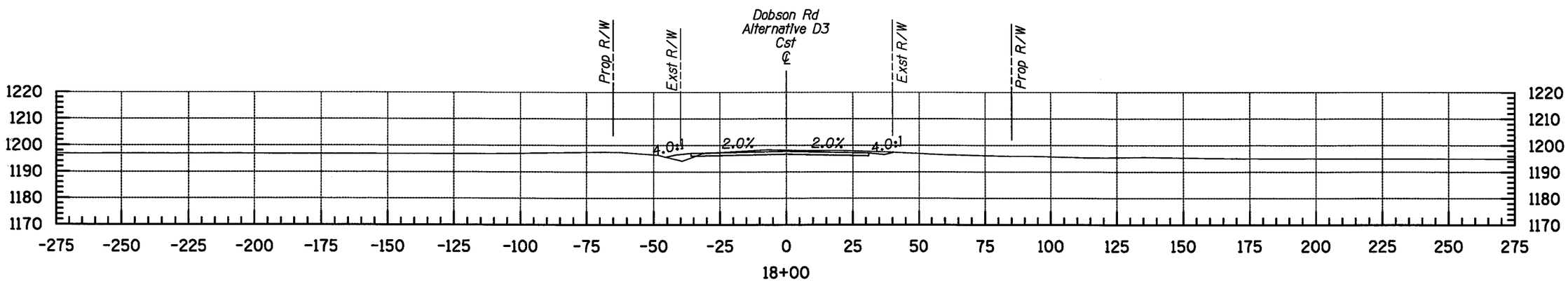
CROSS SECTIONS

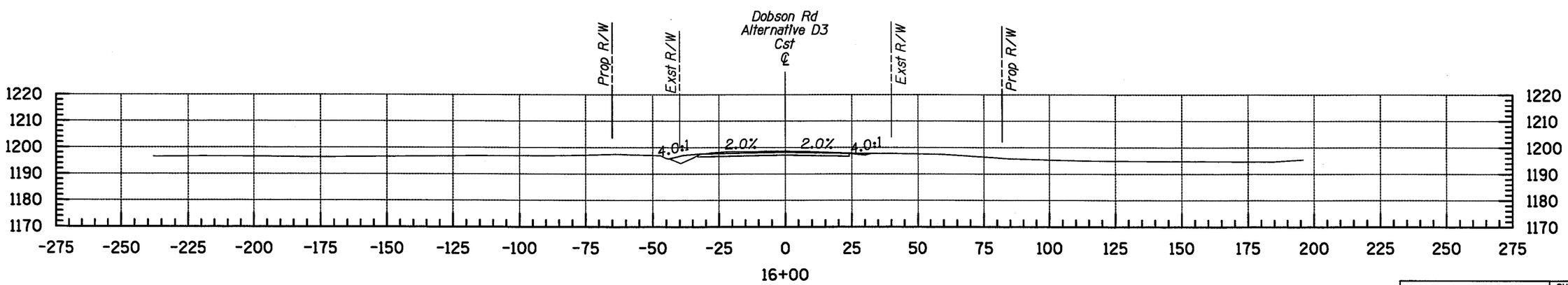
TRACS NO.

ADOT 9:21:15 AM 8/3/2009

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			







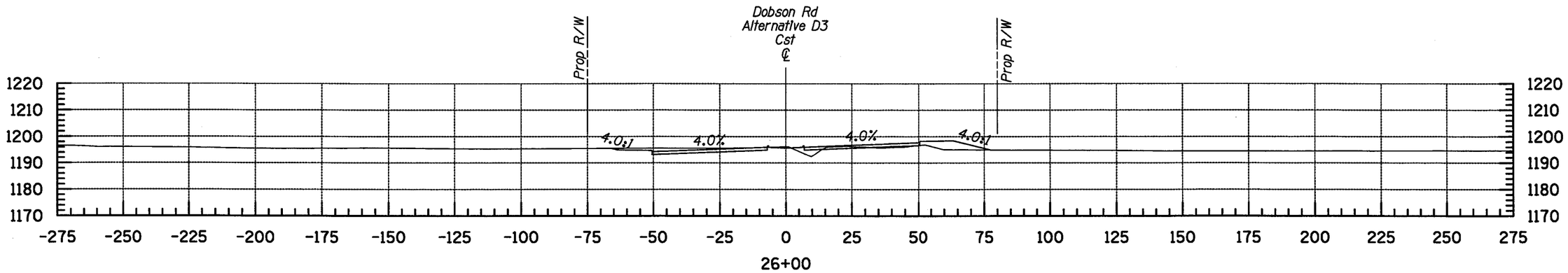
CROSS SECTIONS

SHEET 29 OF 61

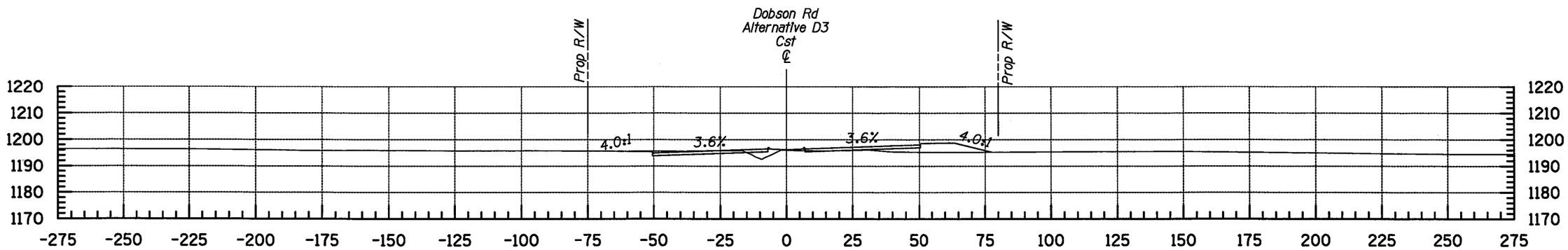
TRACS NO.

ADOT 9:21:17 AM 8/3/2009

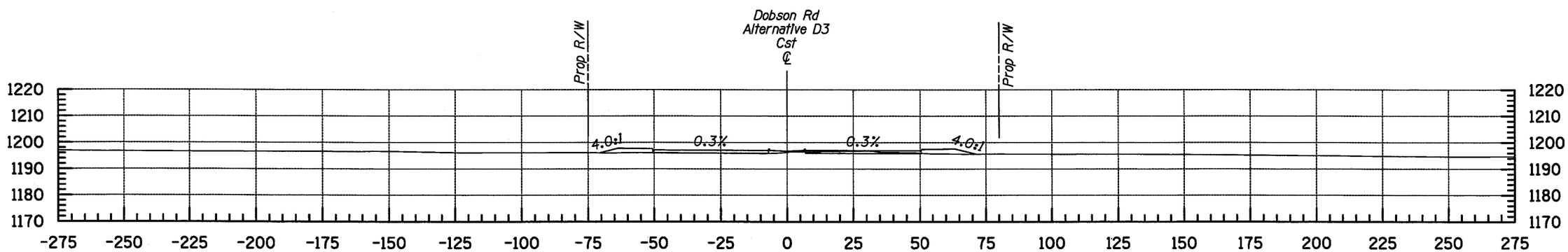
F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



26+00



24+00



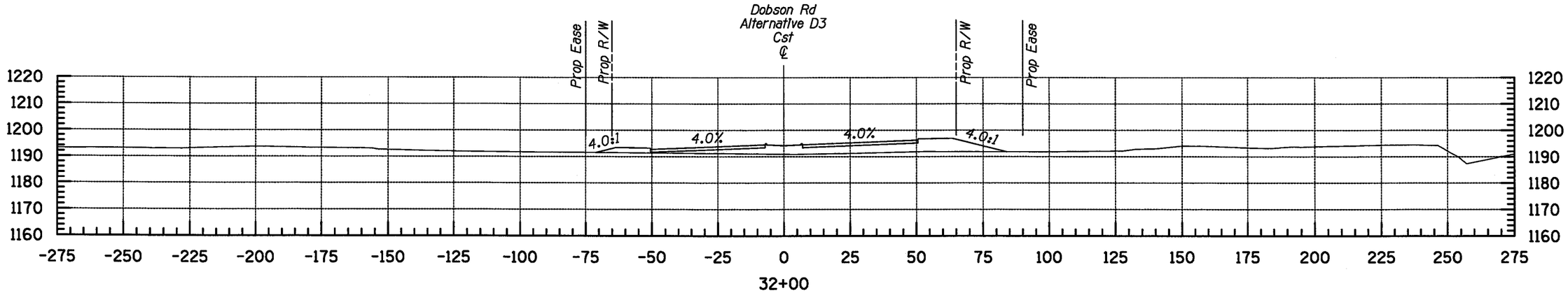
22+00

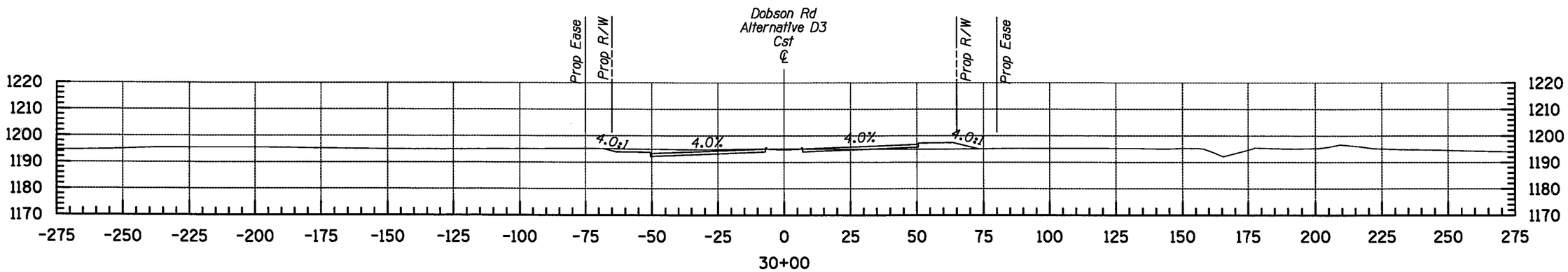
CROSS SECTIONS

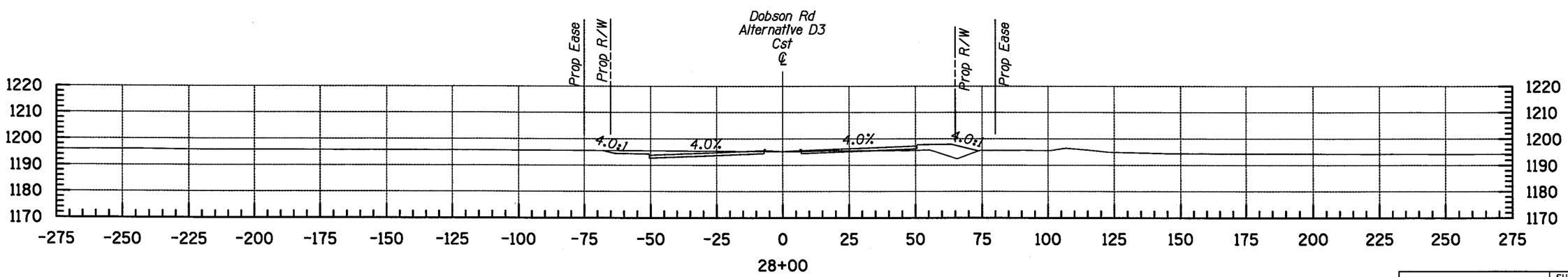
TRACS NO.

ADOT 9:21:19 AM 8/3/2009

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			







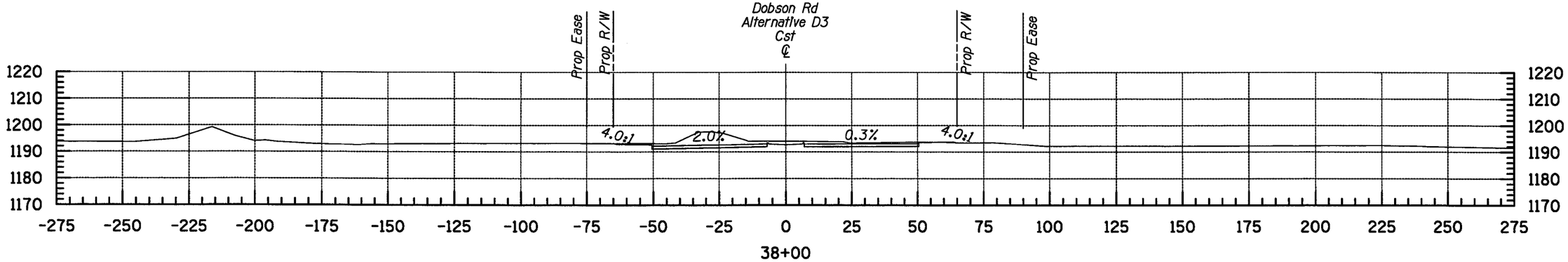
CROSS SECTIONS

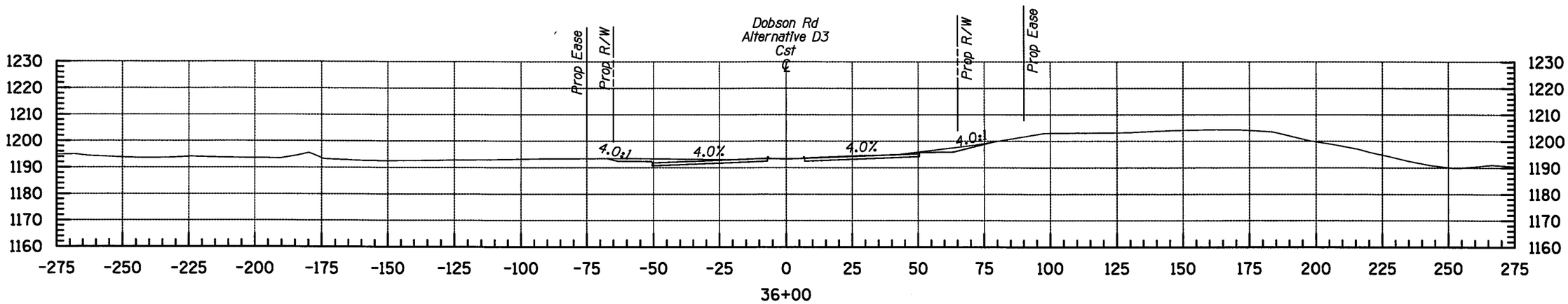
SHEET 31 OF 61

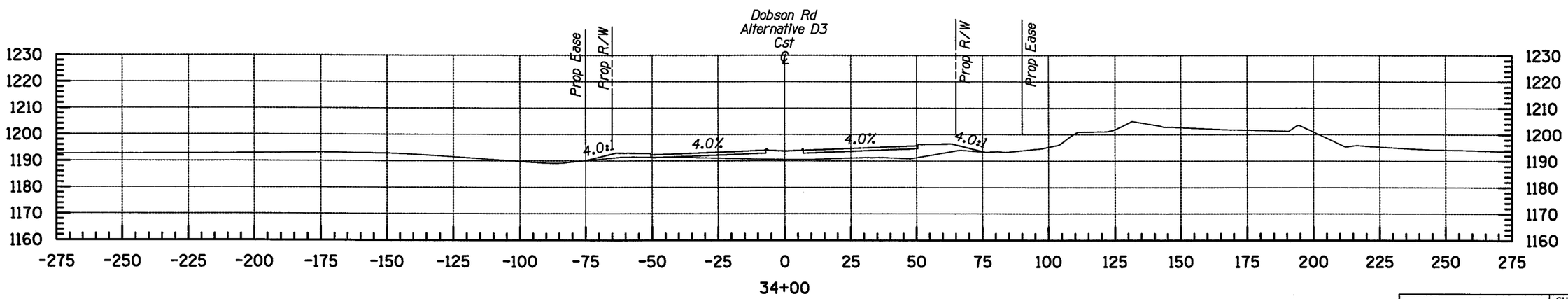
TRACS NO.

ADOT 9:21:21 AM 8/3/2009

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			





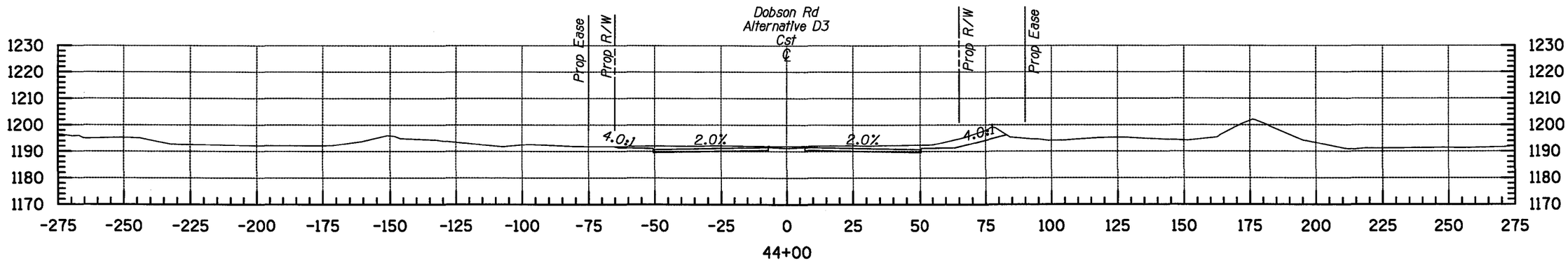


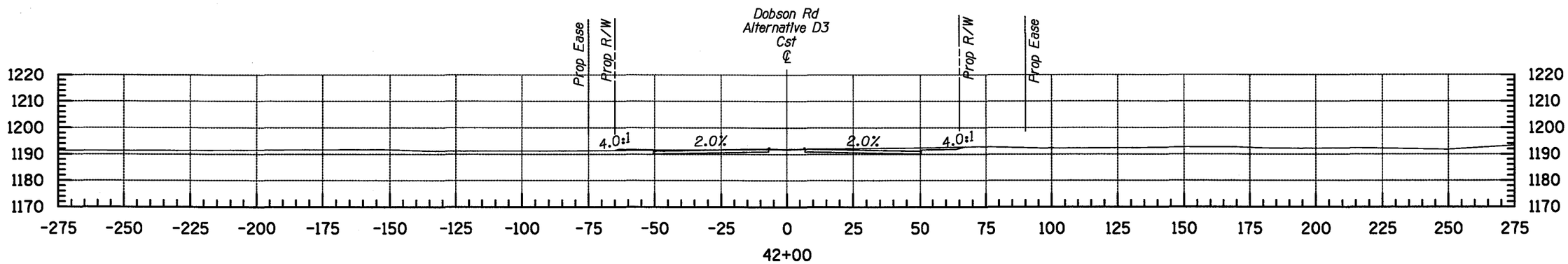
ADOT 9:21:23 AM 9/3/2009

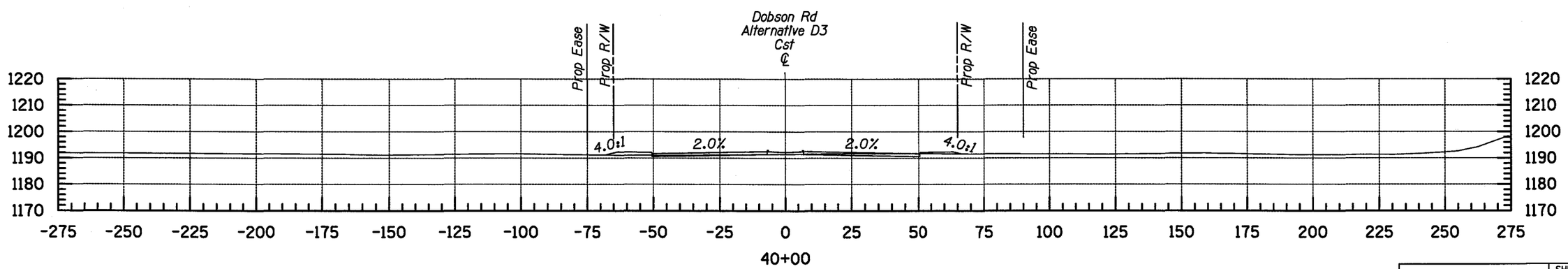
CROSS SECTIONS	SHEET 32 OF 61

TRACS NO.

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			





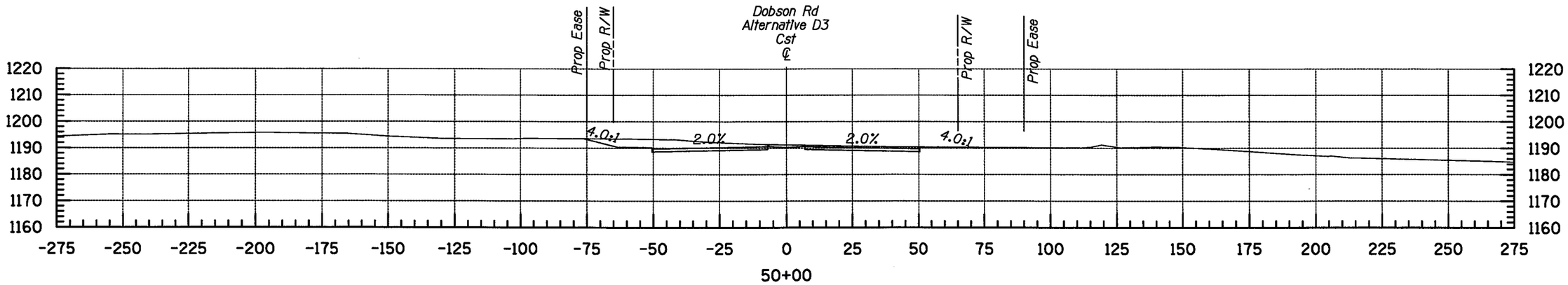


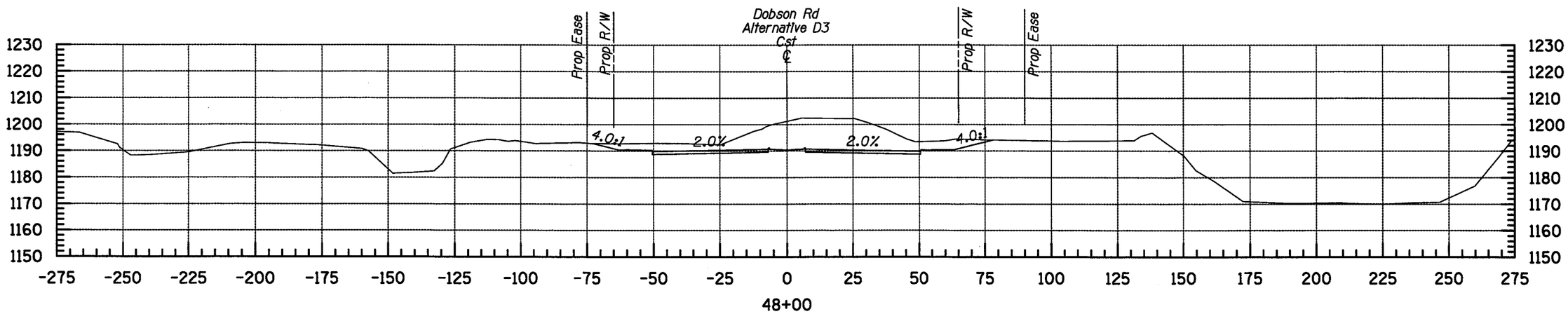
CROSS SECTIONS

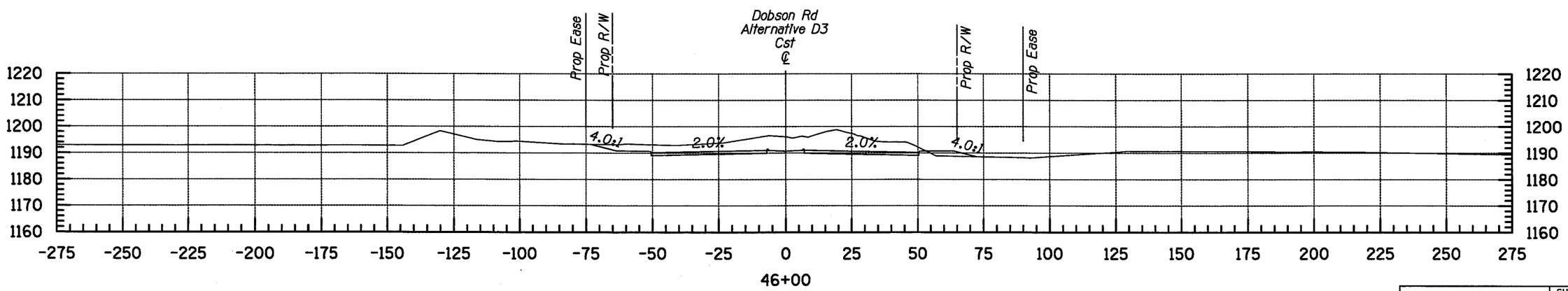
TRACS NO.

ADOT 9:21:26 AM 8/3/2009

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			





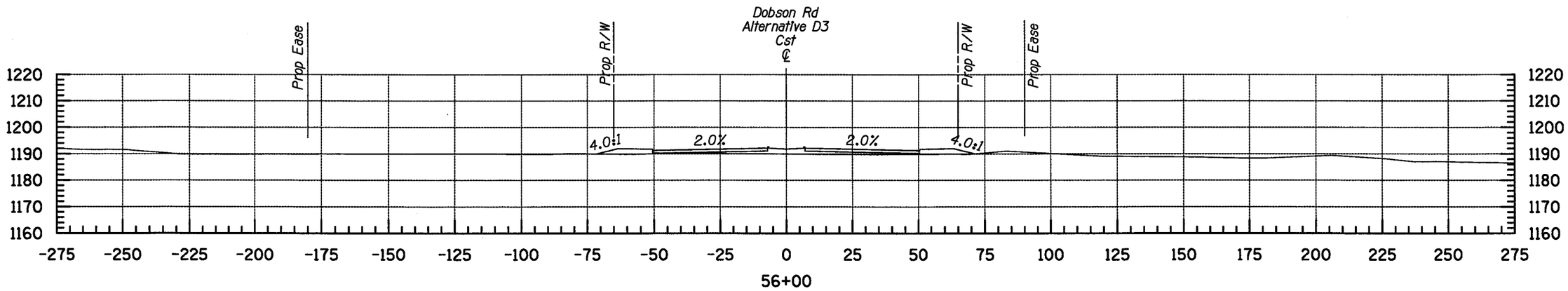


CROSS SECTIONS	SHEET 34	OF 61

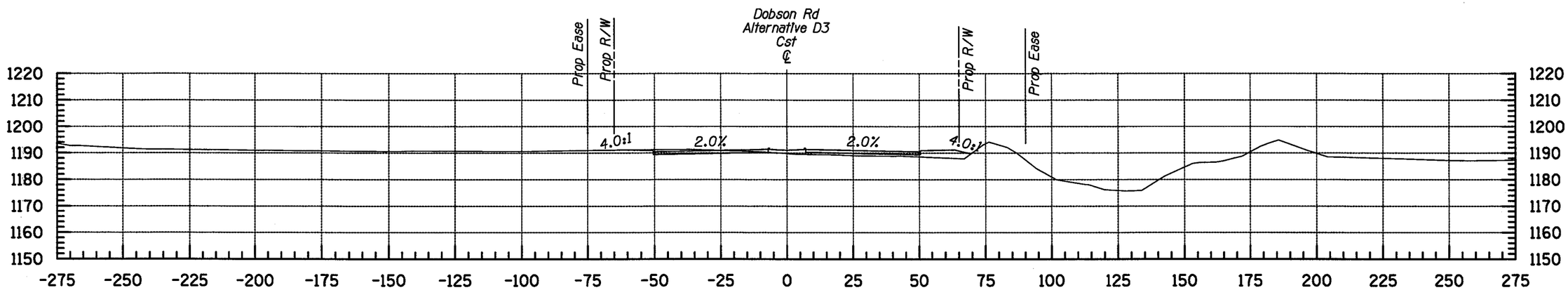
TRACS NO.

ADOT 9:21:28 AM 8/3/2009

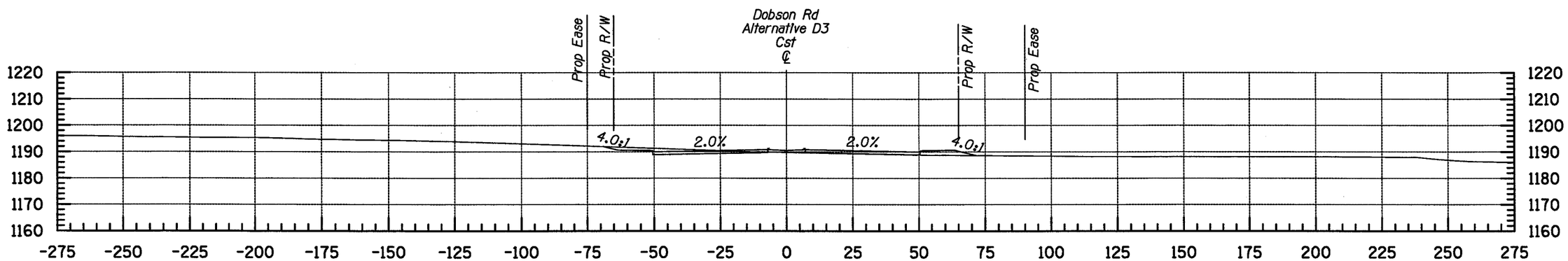
F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



56+00



54+00



52+00

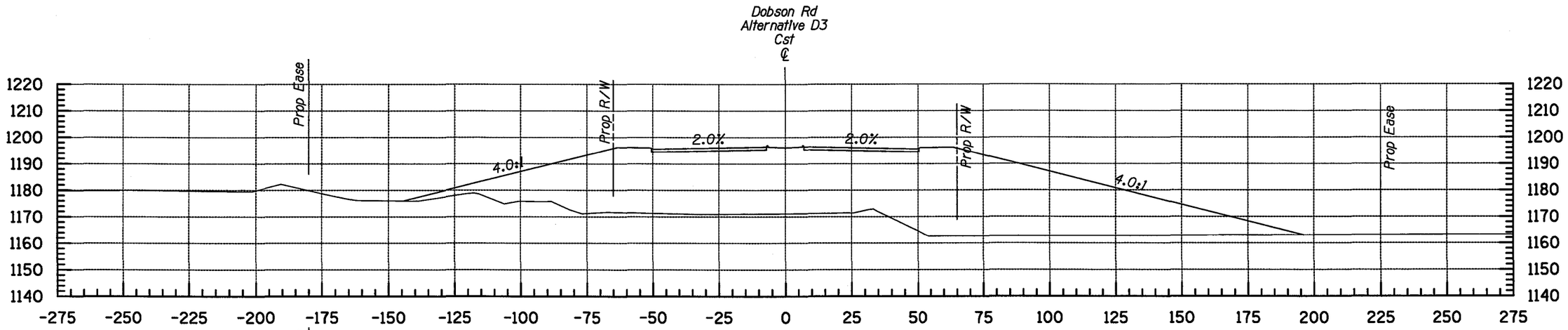
CROSS SECTIONS

SHEET 35 OF 61

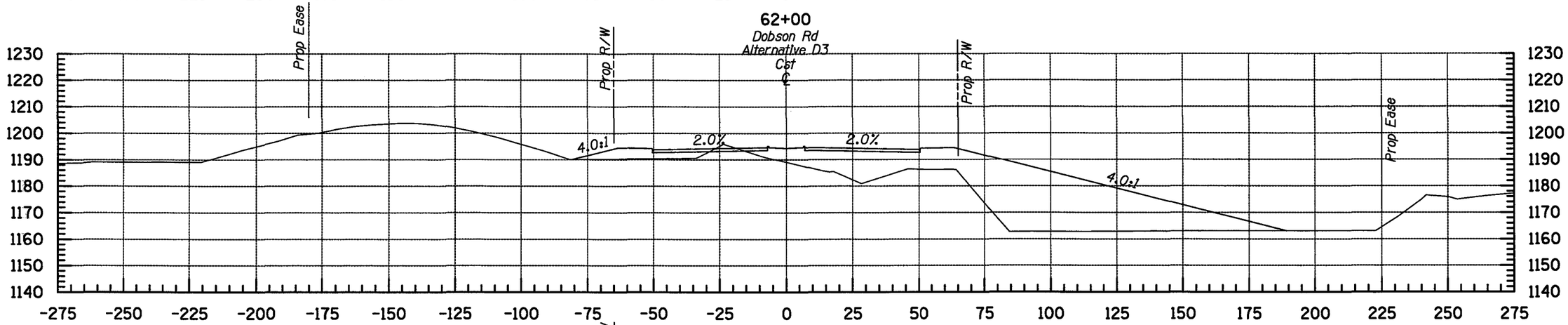
TRACS NO.

ADOT 9:21:30 AM 8/3/2009

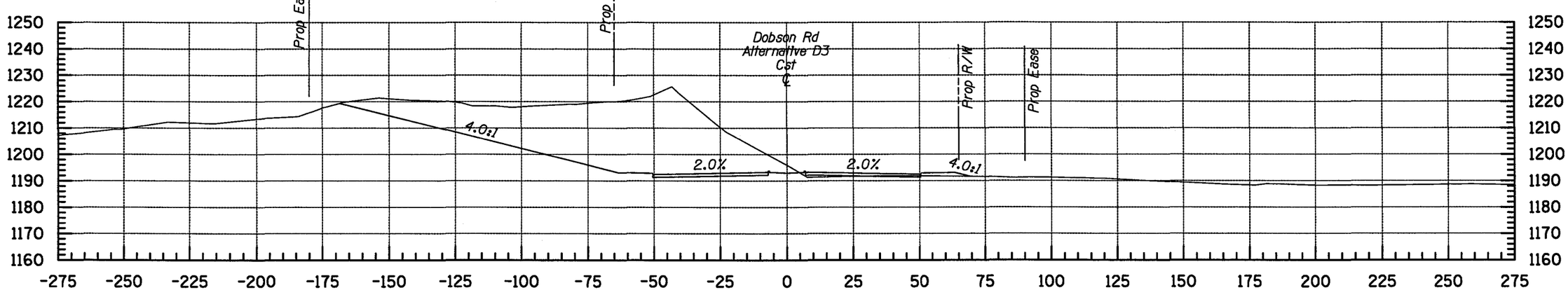
F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



62+00



60+00



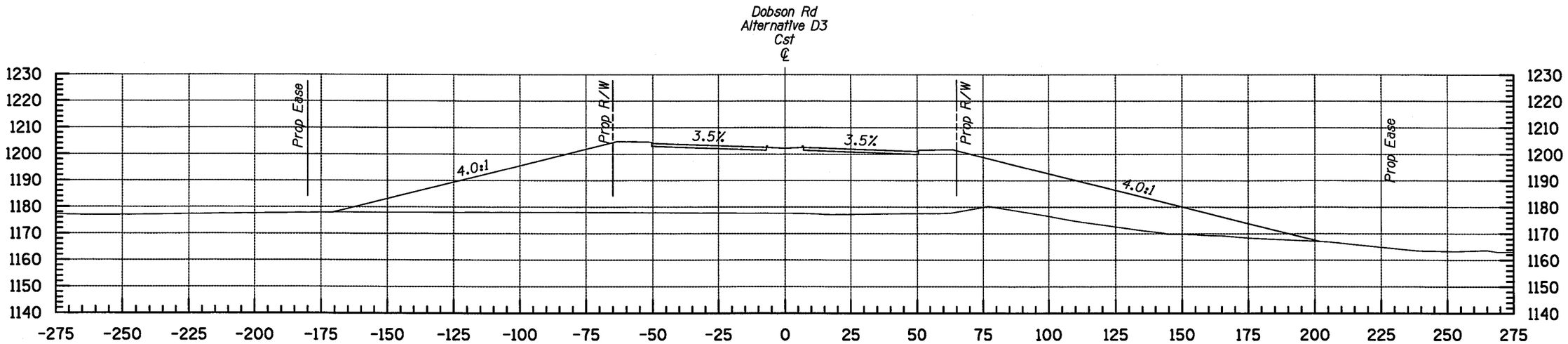
58+00

CROSS SECTIONS	SHEET 36 OF 61

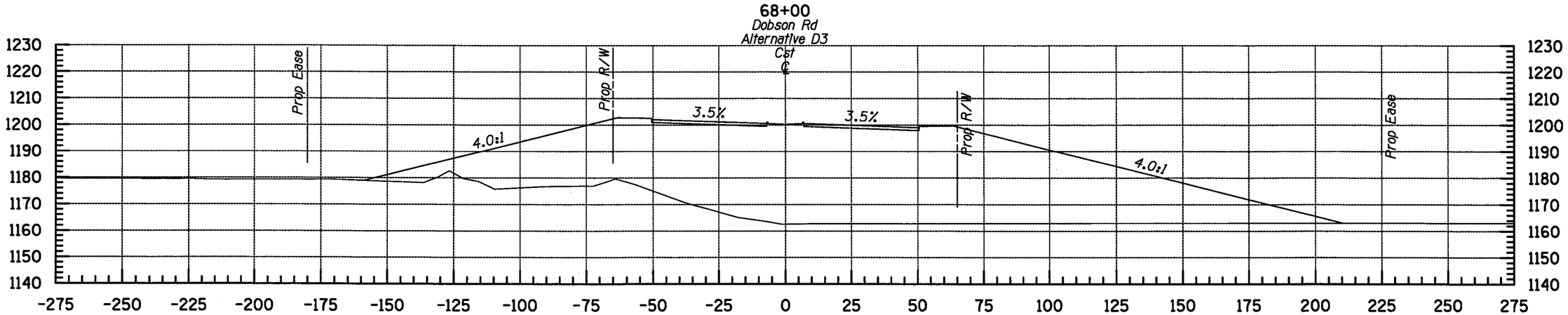
TRACS NO.

ADOT 9:21:33 AM 8/3/2009

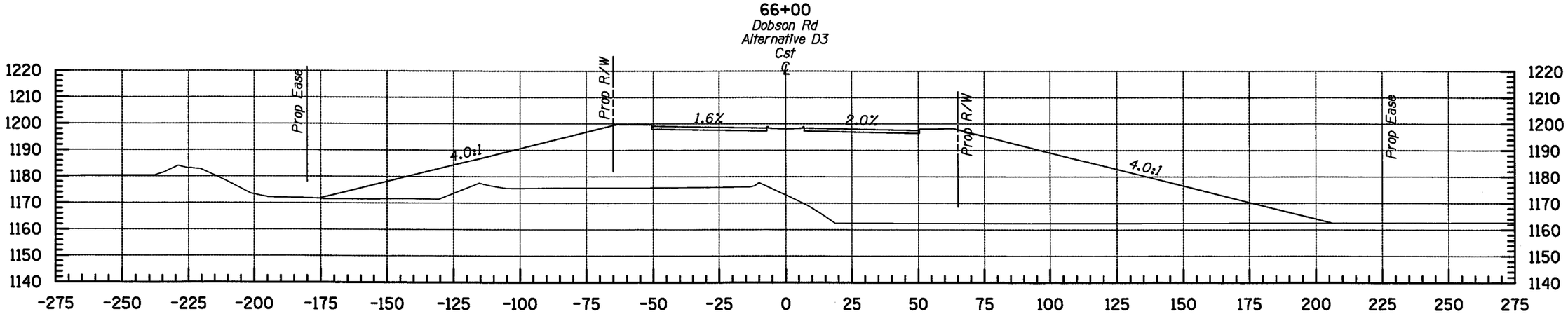
F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



68+00



66+00



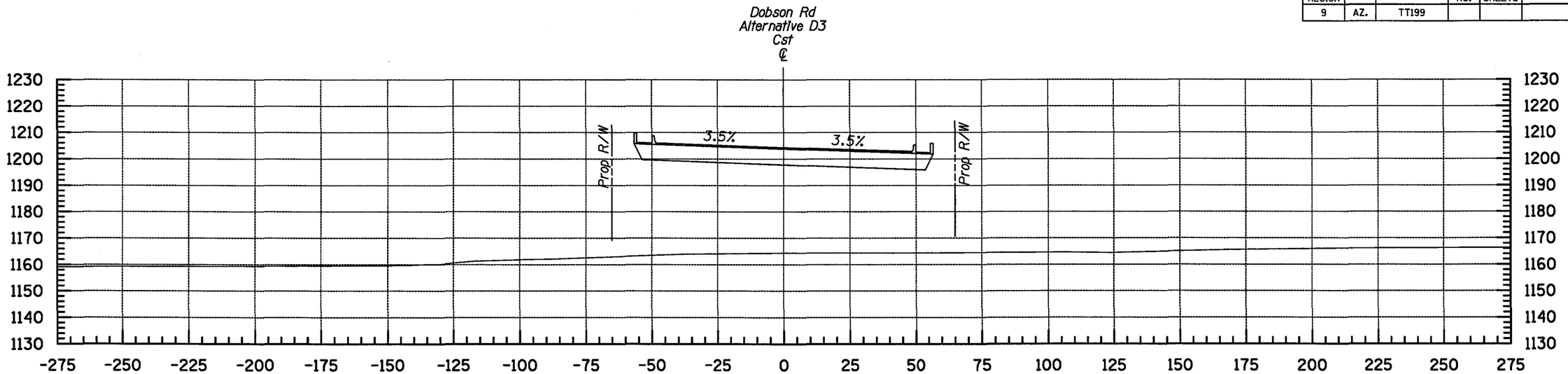
64+00

CROSS SECTIONS	SHEET 37 OF 61

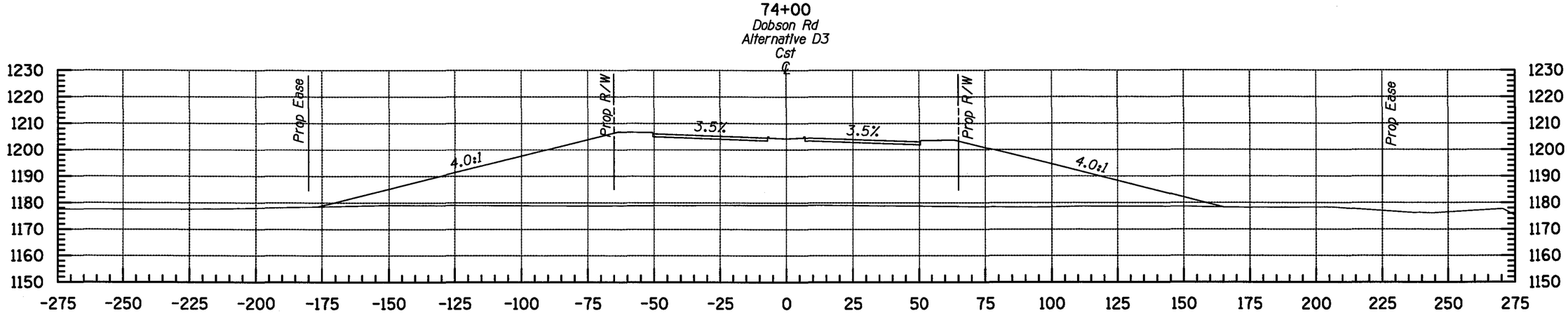
TRACS NO.

ADOT 9:21:36 AM 9/3/2009

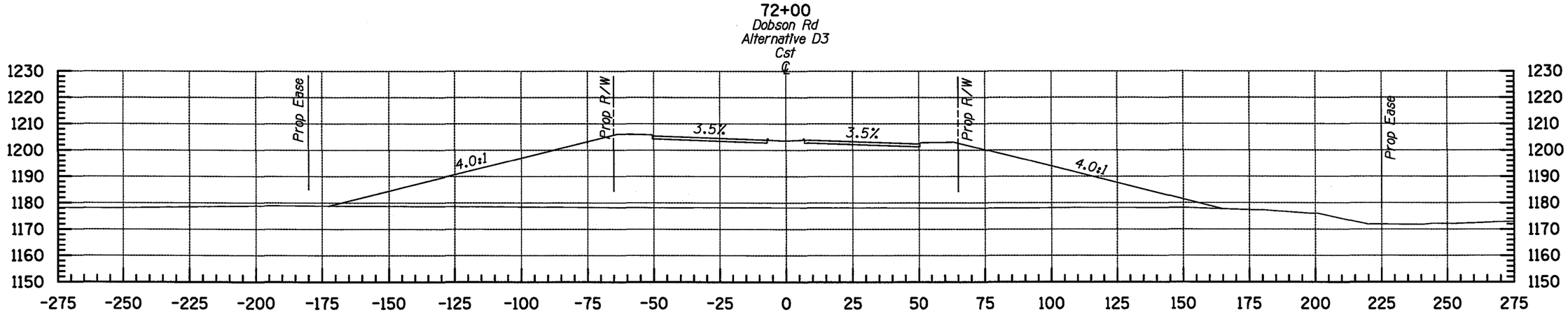
F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



74+00



72+00



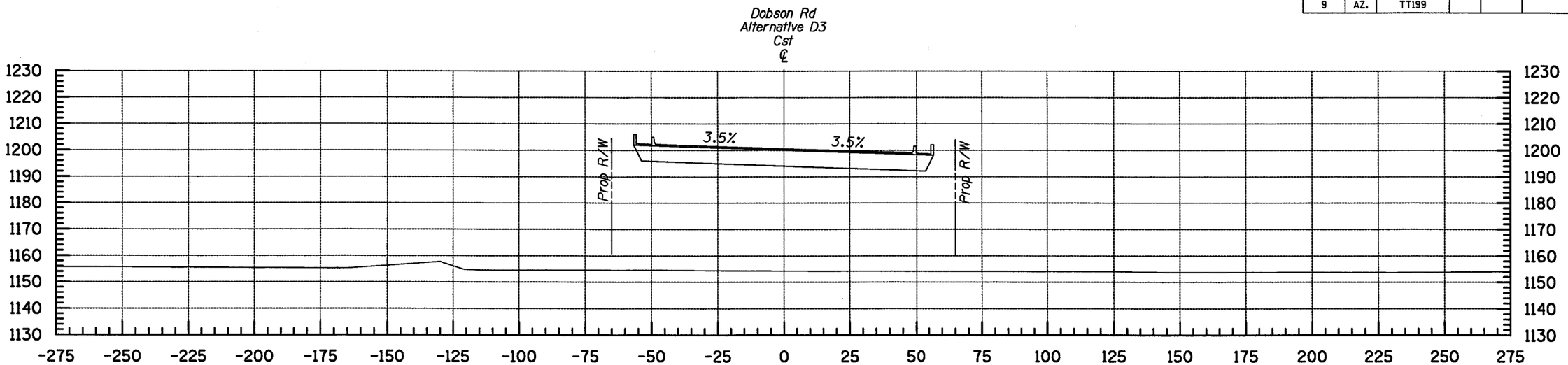
70+00

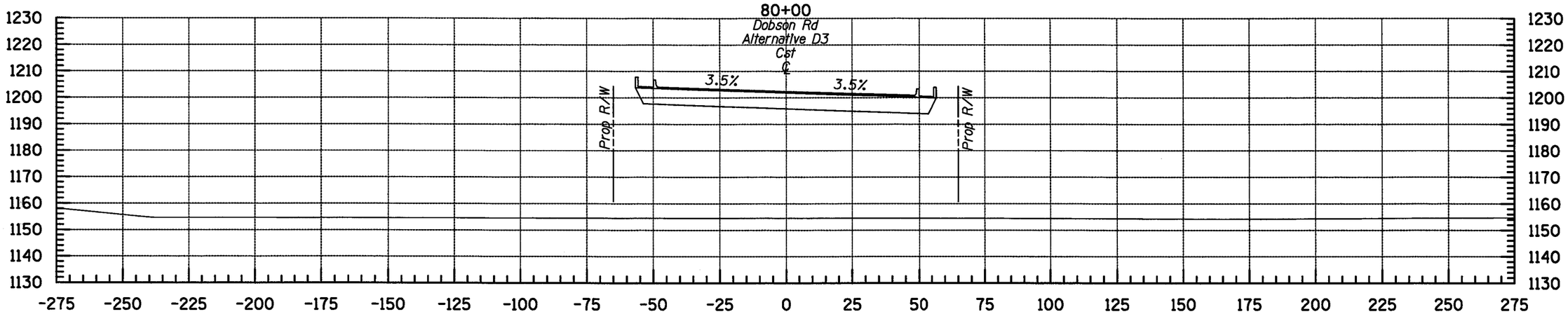
ADOT 9:21:39 AM 8/2/2009

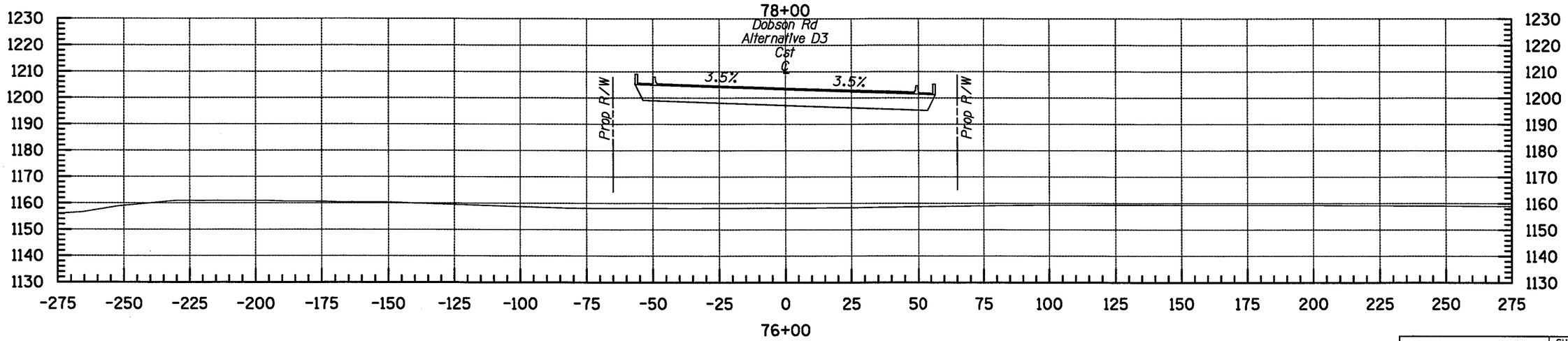
CROSS SECTIONS	SHEET 38 OF 61

TRACS NO.

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			







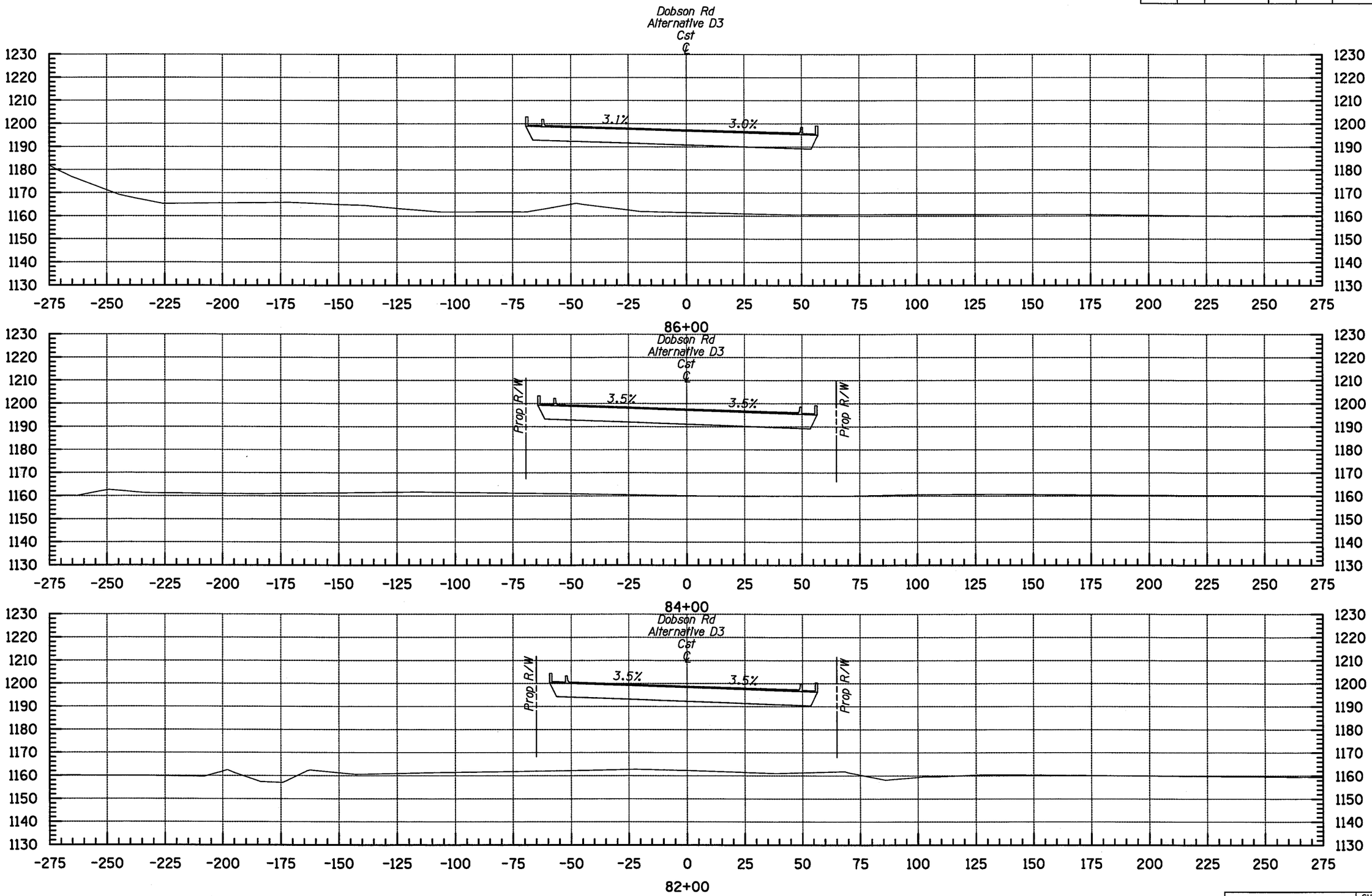
CROSS SECTIONS

SHEET 39 OF 61

TRACS NO.

ADOT 9:21:42 AM 8/2/2009

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			

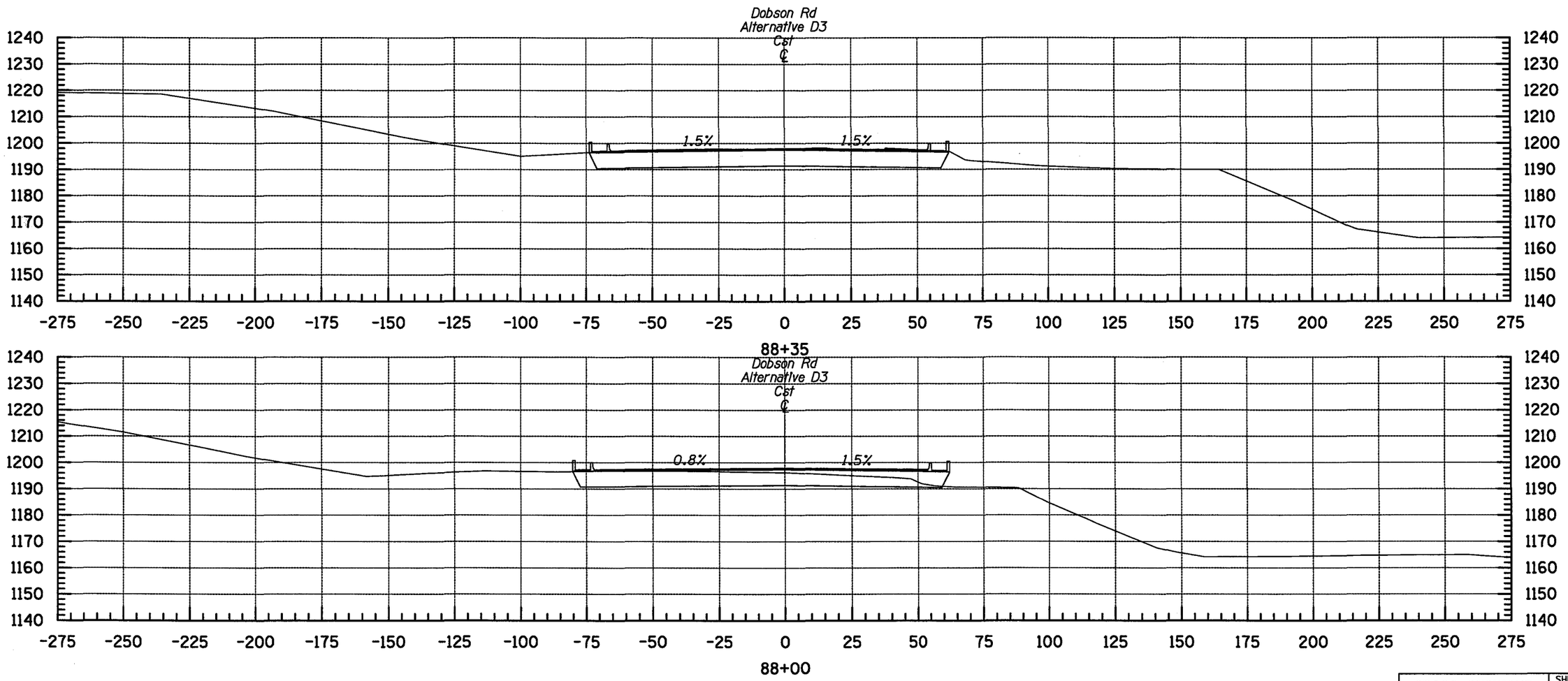


ADOT 9:21:46 AM 8/3/2009

CROSS SECTIONS	SHEET 40 OF 61

TRACS NO.

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



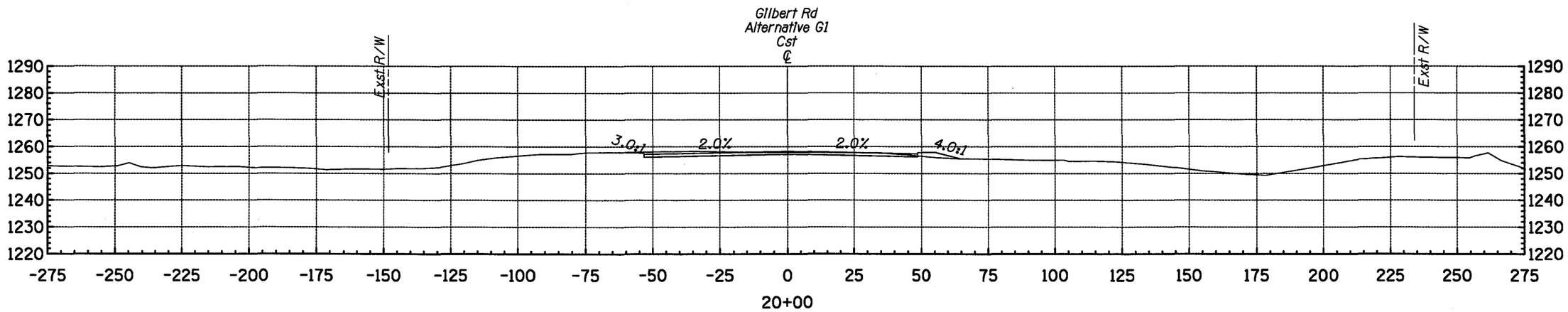
CROSS SECTIONS

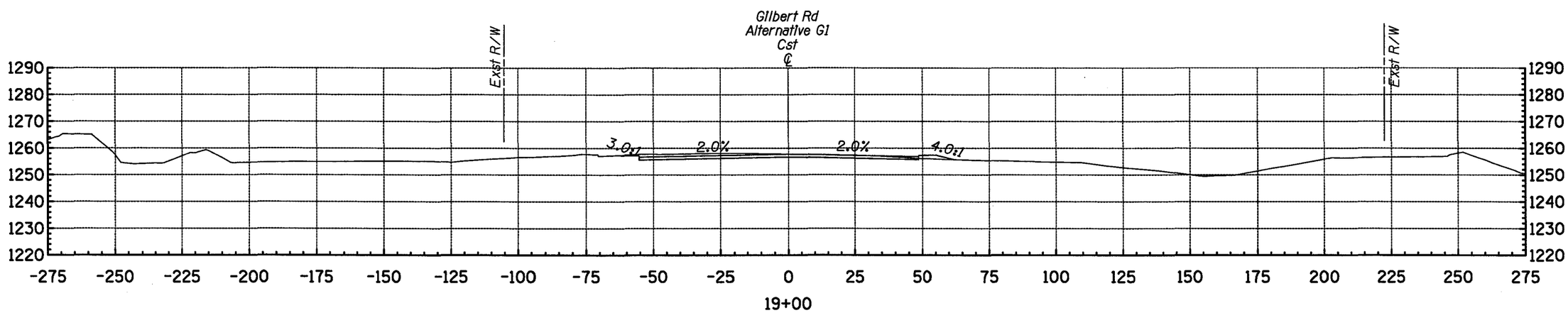
SHEET 41 OF 61

TRACS NO.

ADOT 9:21:49 AM 8/9/2009

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



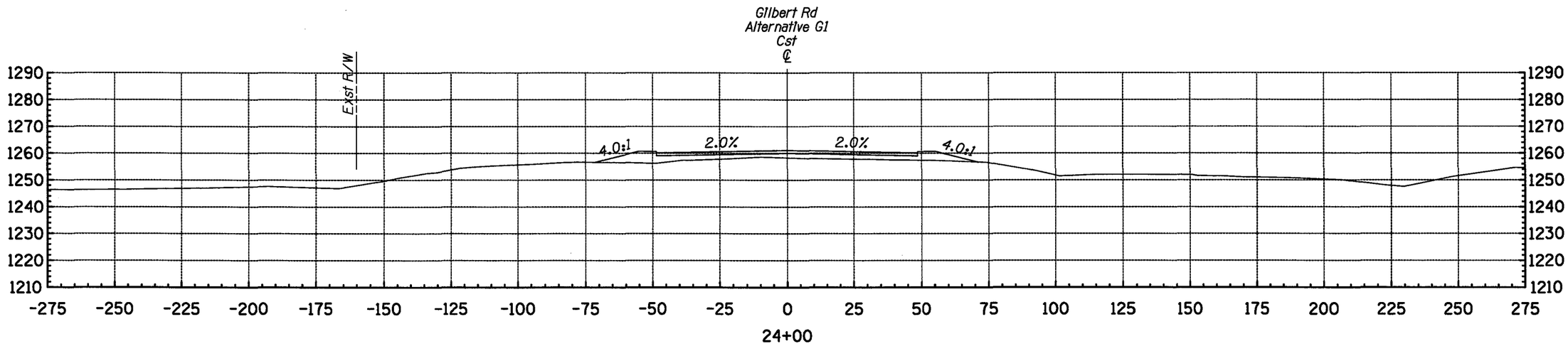


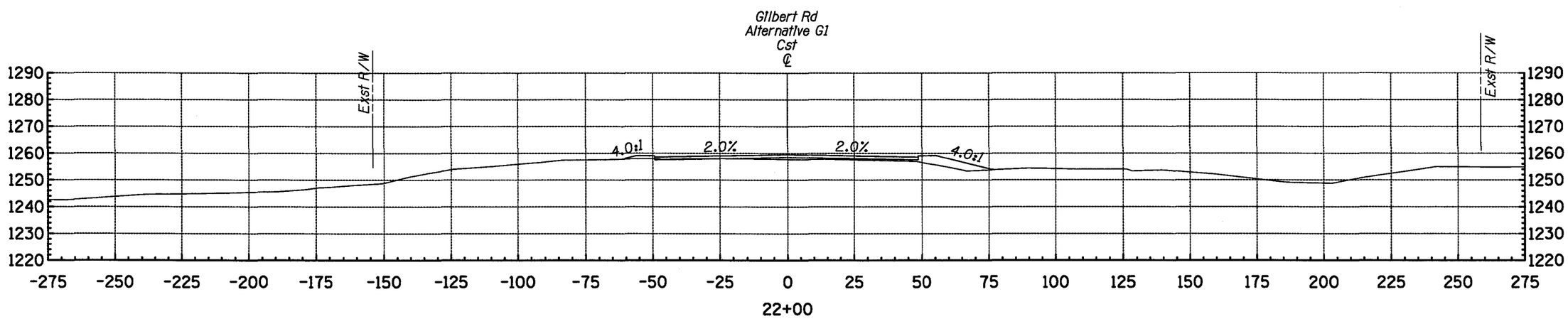
ADOT 9:21:51 AM 9/3/2009

CROSS SECTIONS	SHEET 42 OF 61

TRACS NO.

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



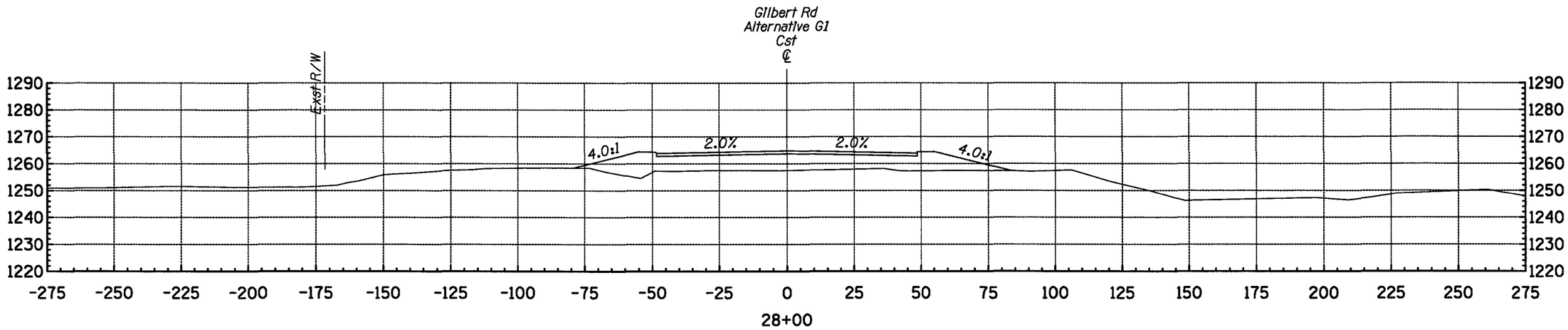


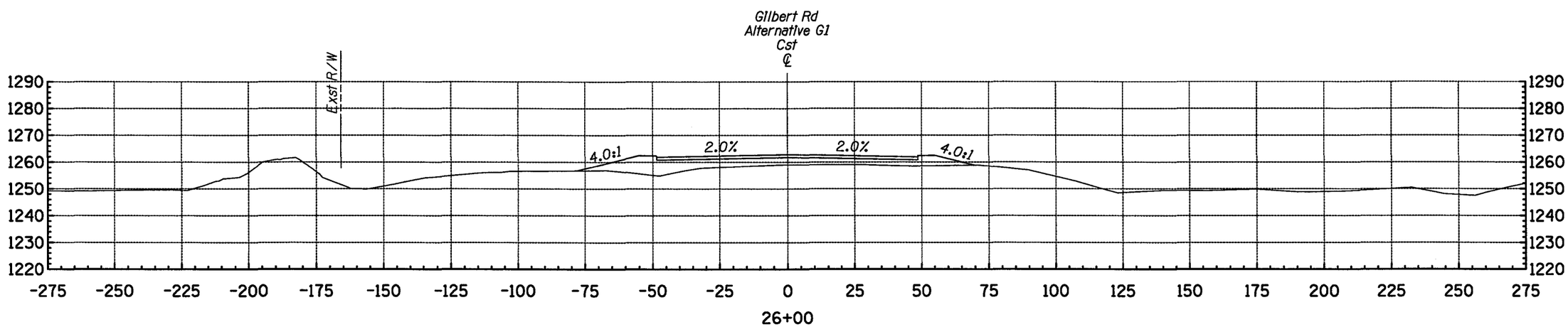
ADOT 9:21:53 AM 9/2/2009

CROSS SECTIONS	SHEET 43 OF 61

TRACS NO.

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



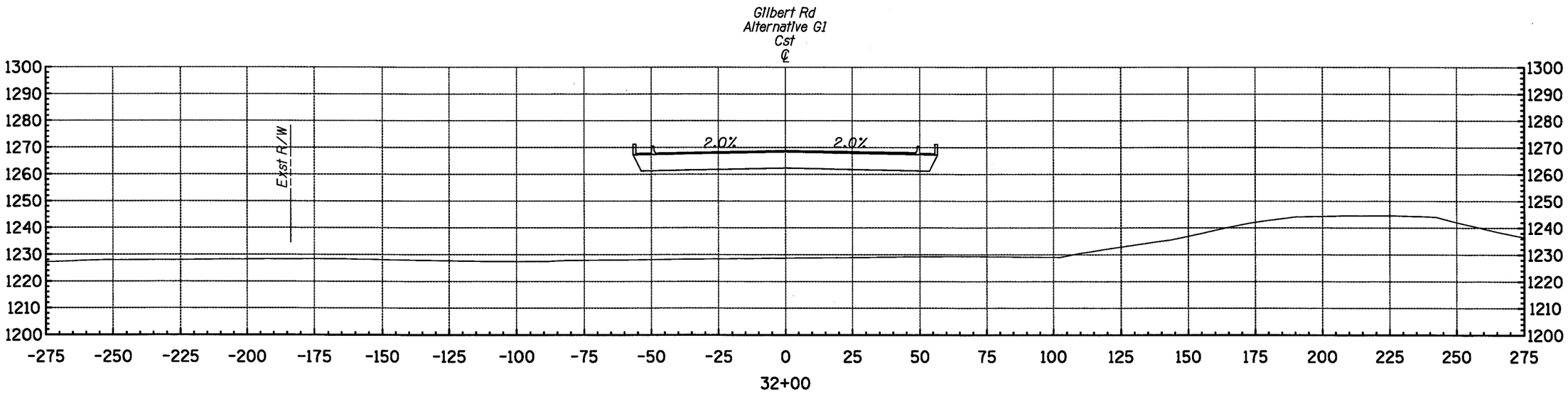


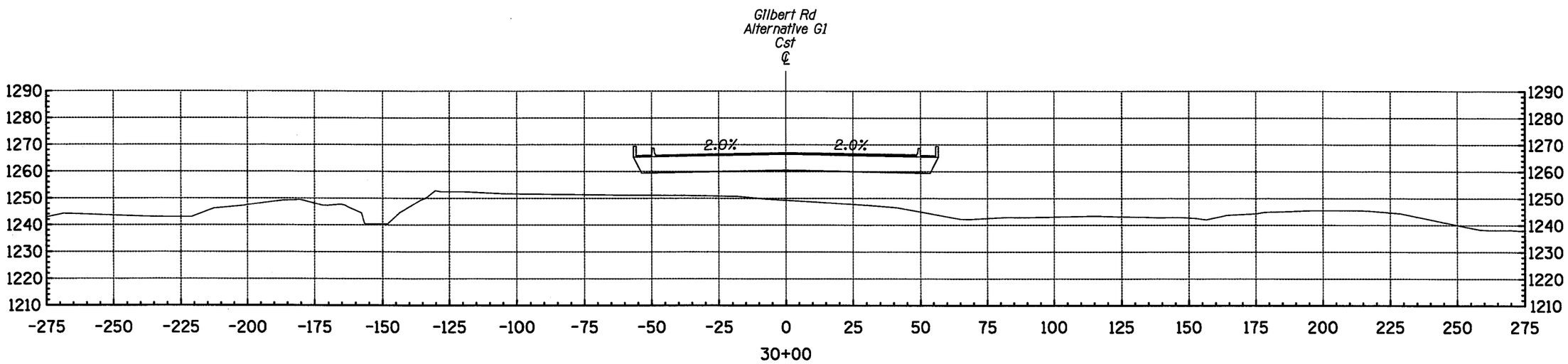
ADOT 9:21:55 AM 8/3/2009

CROSS SECTIONS	SHEET 44 OF 61

TRACS NO.

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



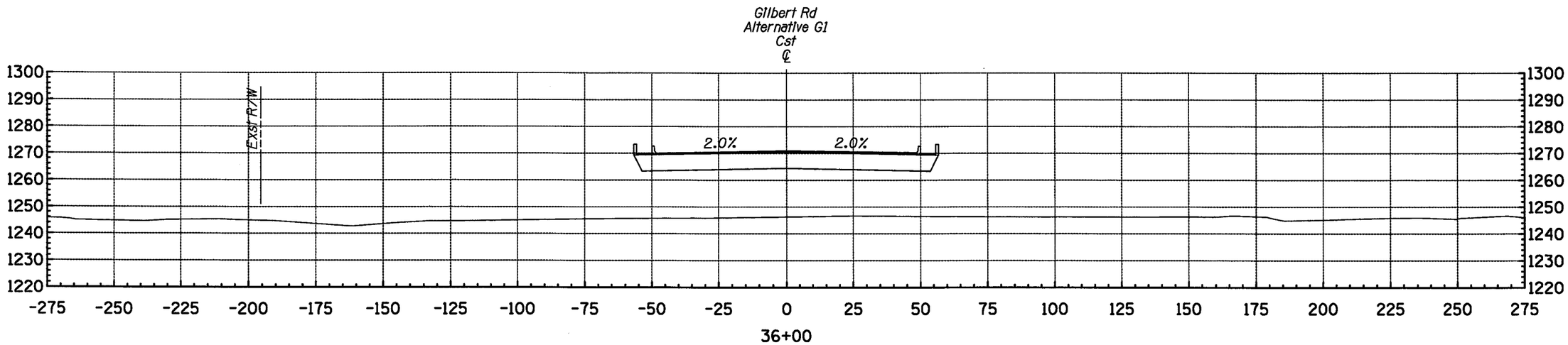


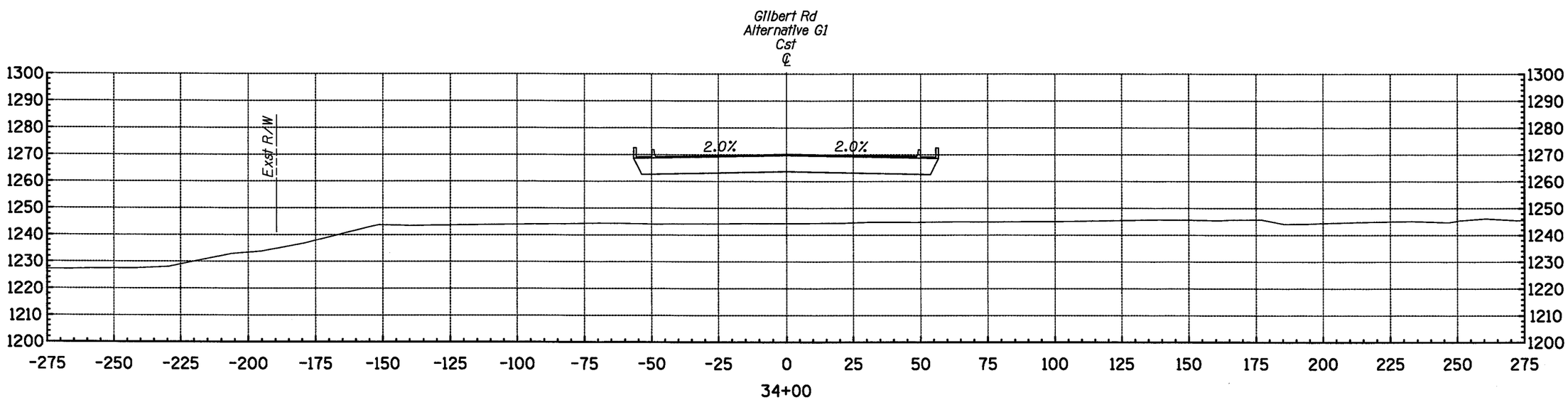
ADOT 9:21:56 AM 8/3/2009

CROSS SECTIONS	SHEET 45 OF 61

TRACS NO.

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



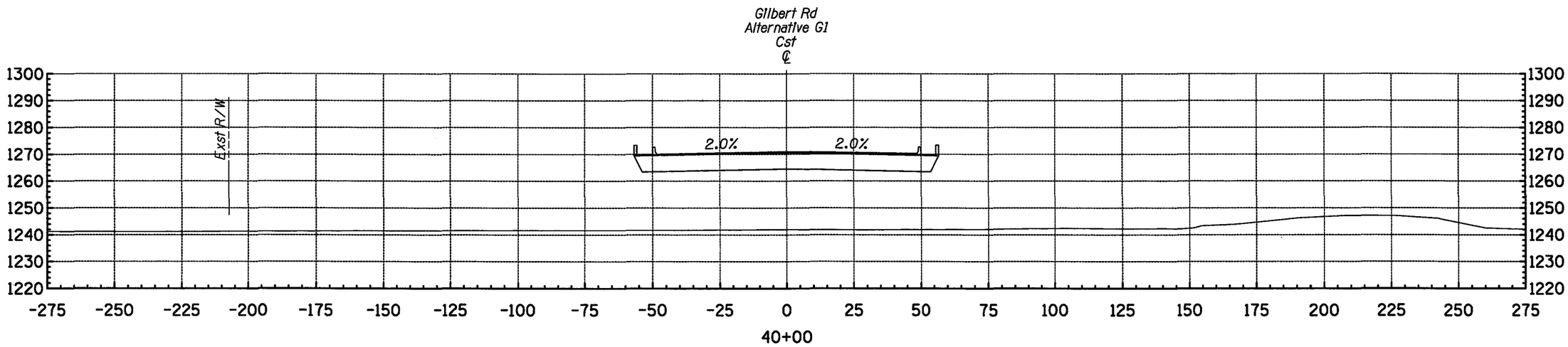


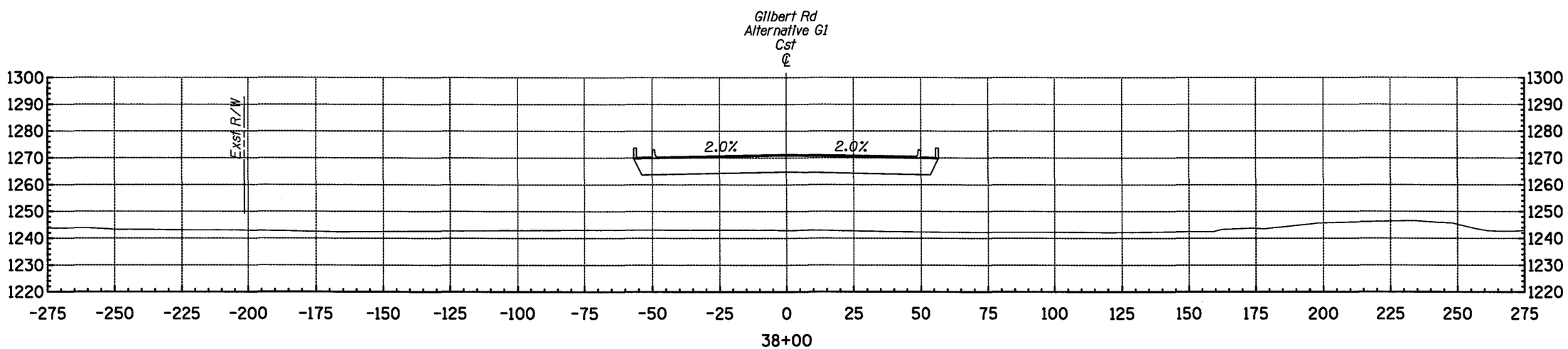
ADOT 9:21:59 AM 9/2/2009

CROSS SECTIONS	SHEET 46 OF 61

TRACS NO.

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



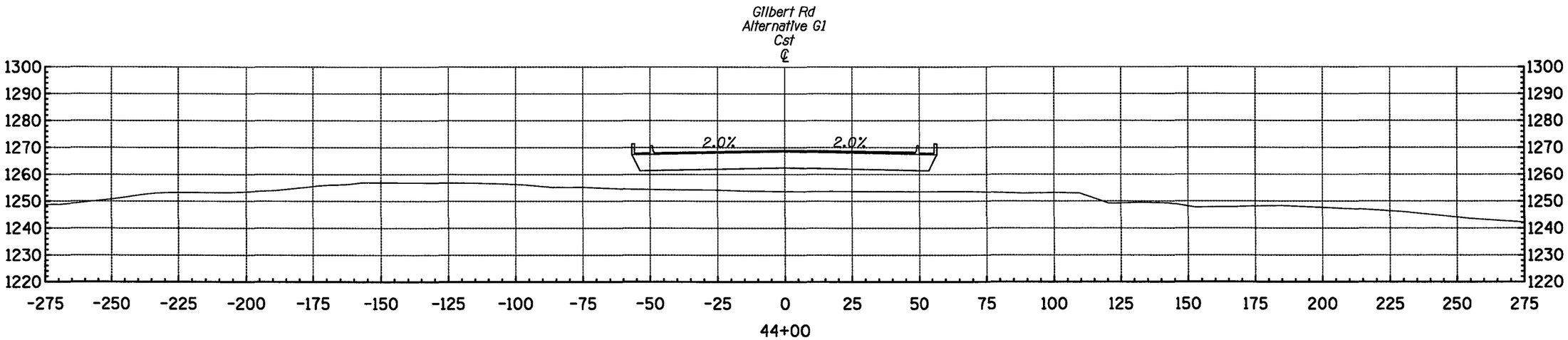


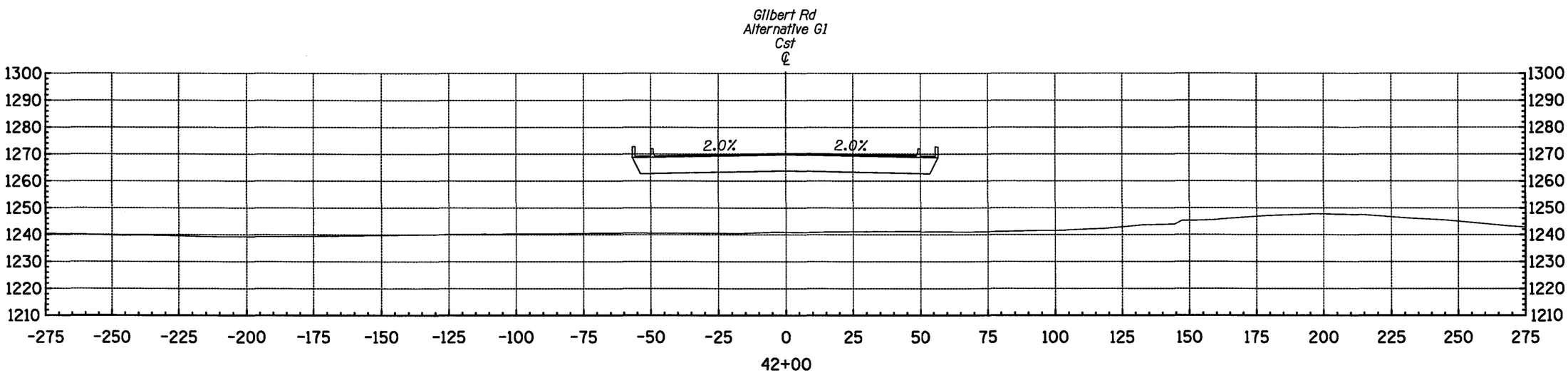
ADOT 9:22:01 AM 8/2/2009

CROSS SECTIONS	SHEET 47 OF 61

TRACS NO.

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



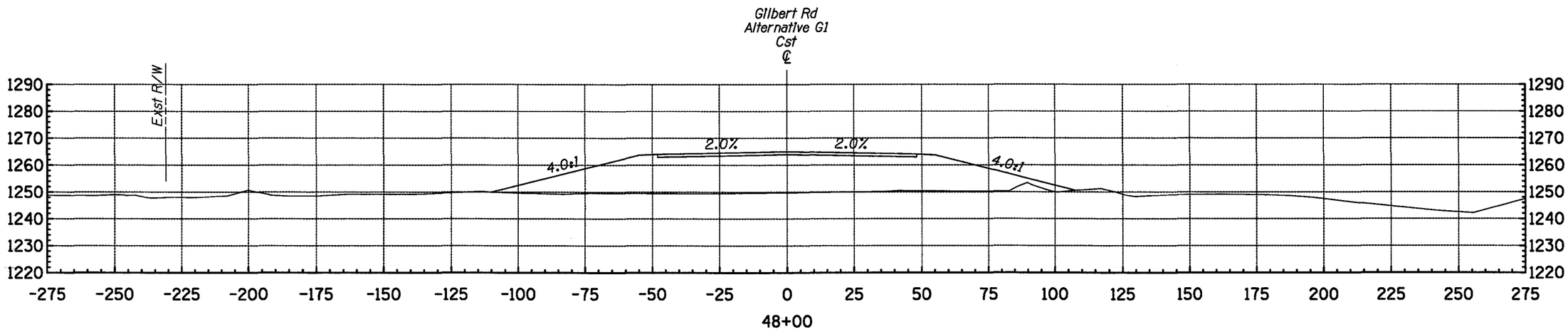


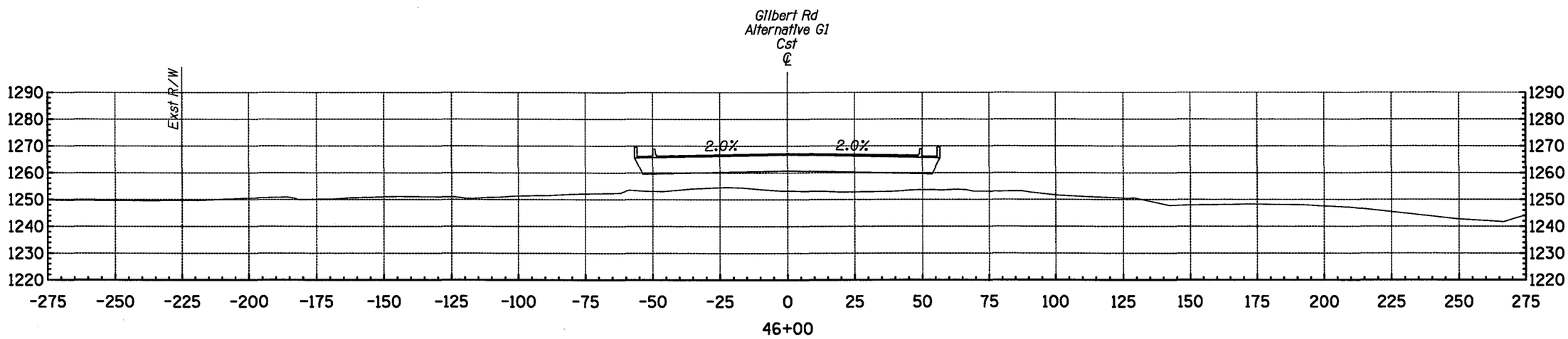
ADOT 9:22:03 AM 8/3/2009

CROSS SECTIONS	SHEET 48 OF 61

TRACS NO.

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



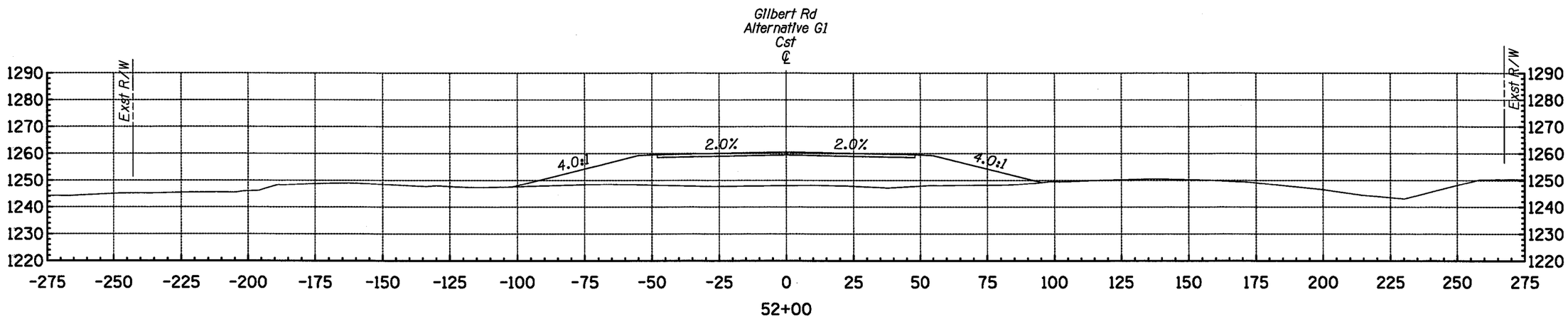


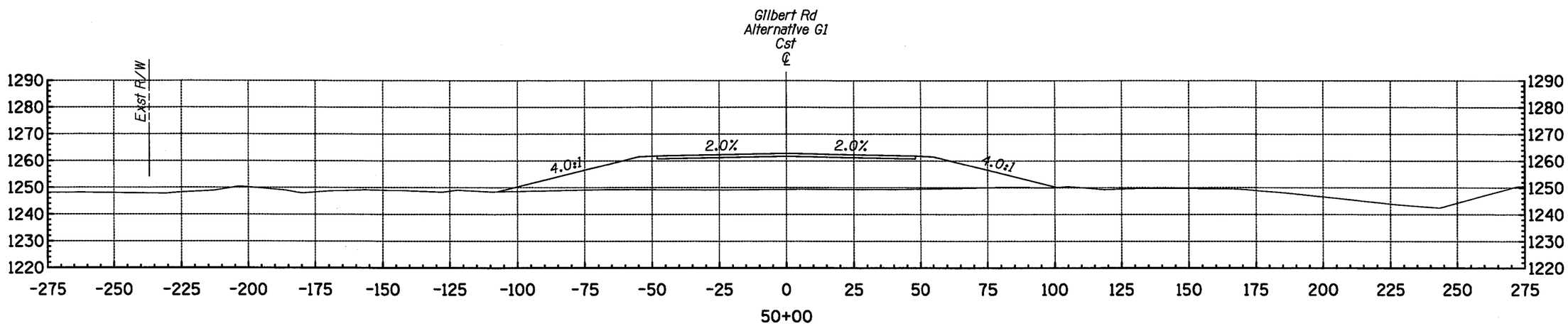
ADOT 9:22:05 AM 8/3/2009

CROSS SECTIONS	SHEET 49 OF 61

TRACS NO.

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



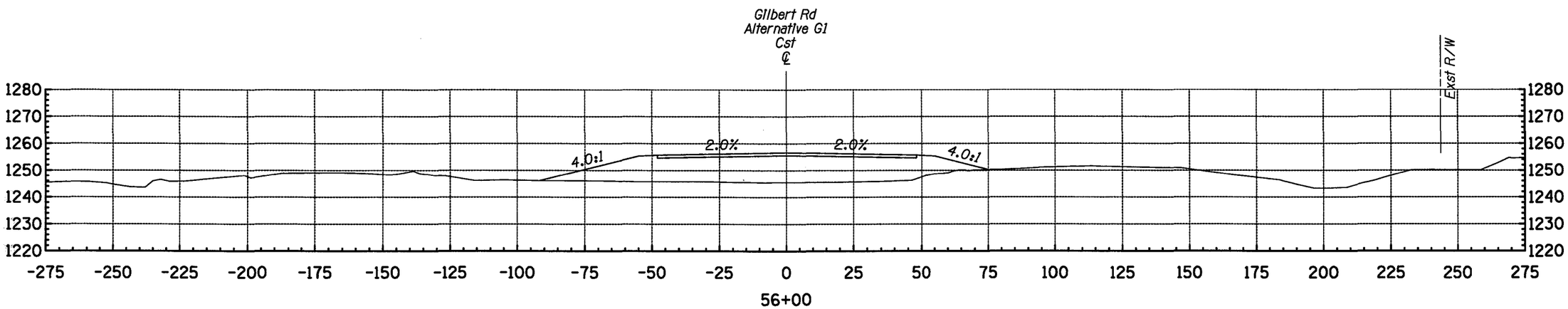


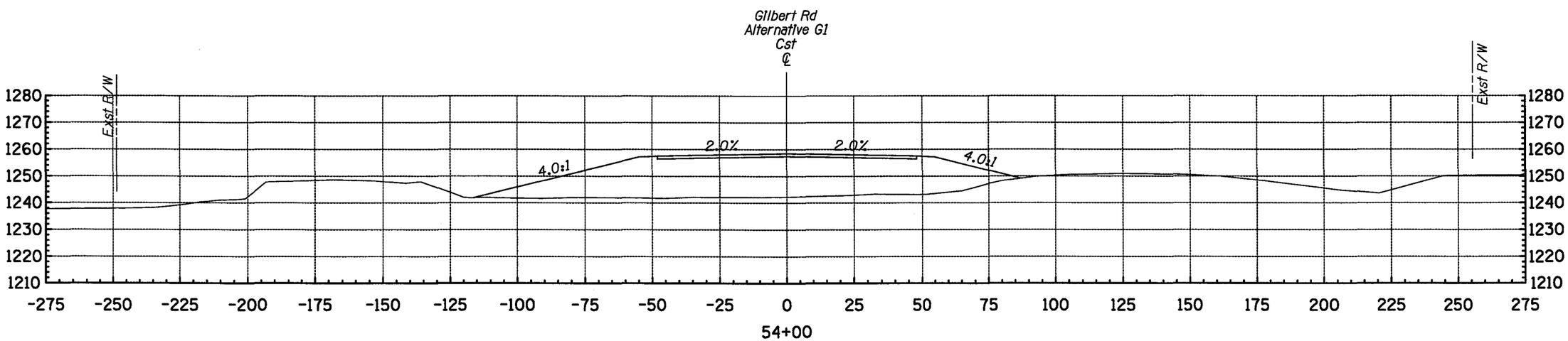
ADOT 9:22:07 AM 9/3/2009

CROSS SECTIONS	SHEET 50 OF 61

TRACS NO.

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



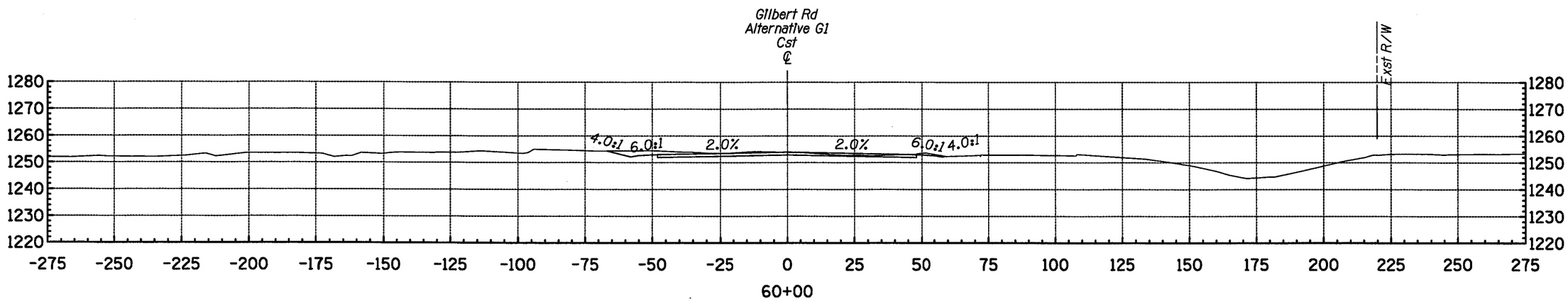


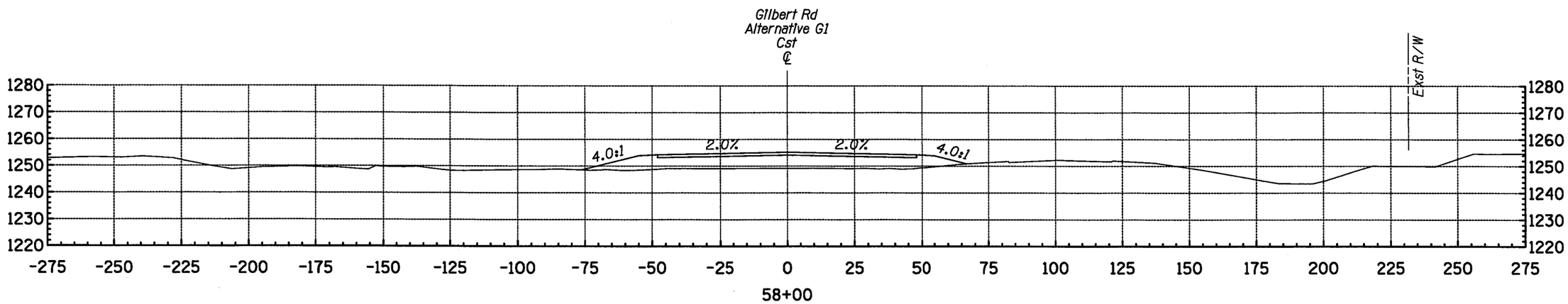
CROSS SECTIONS	SHEET 51 OF 61

TRACS NO.

ADOT 9:22:08 AM 9/3/2009

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



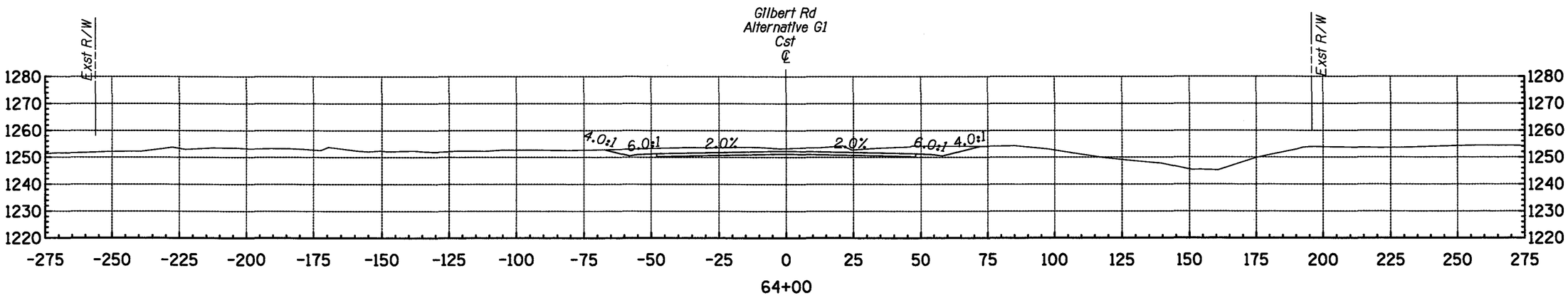


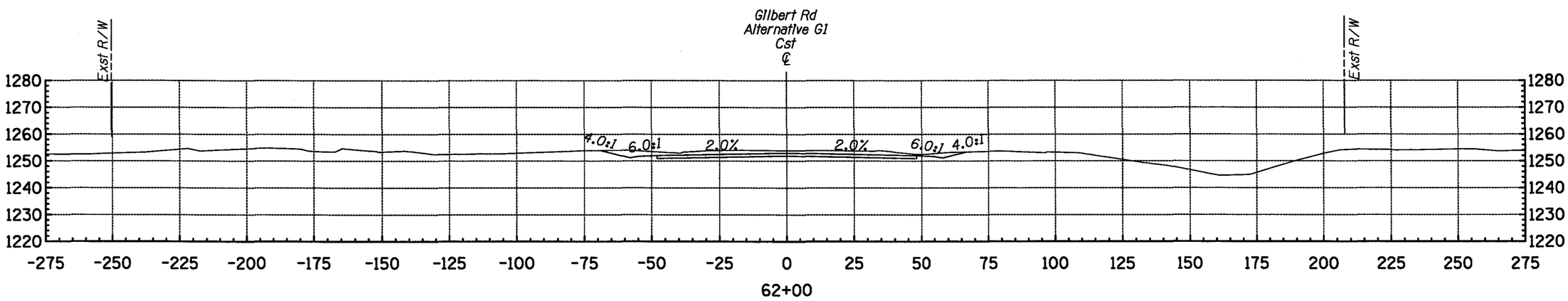
ADOT 9:22:10 AM 8/3/2009

CROSS SECTIONS	SHEET 52 OF 61

TRACS NO.

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



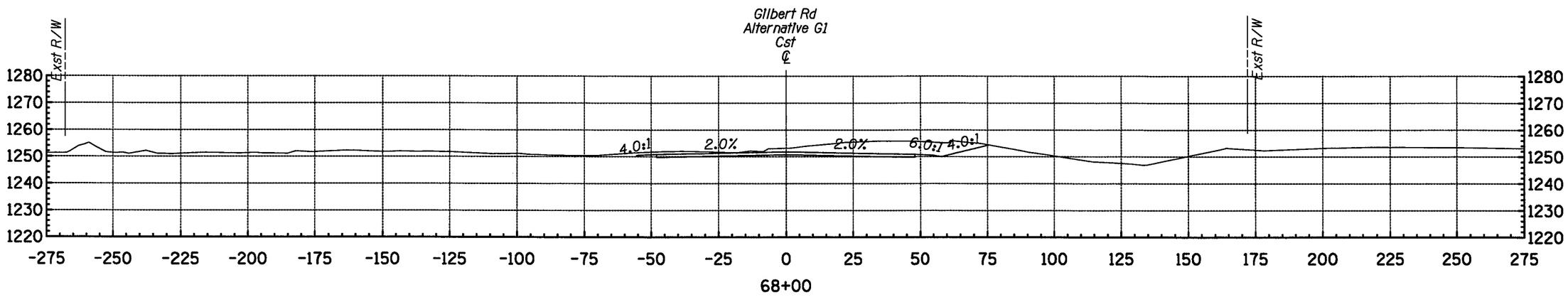


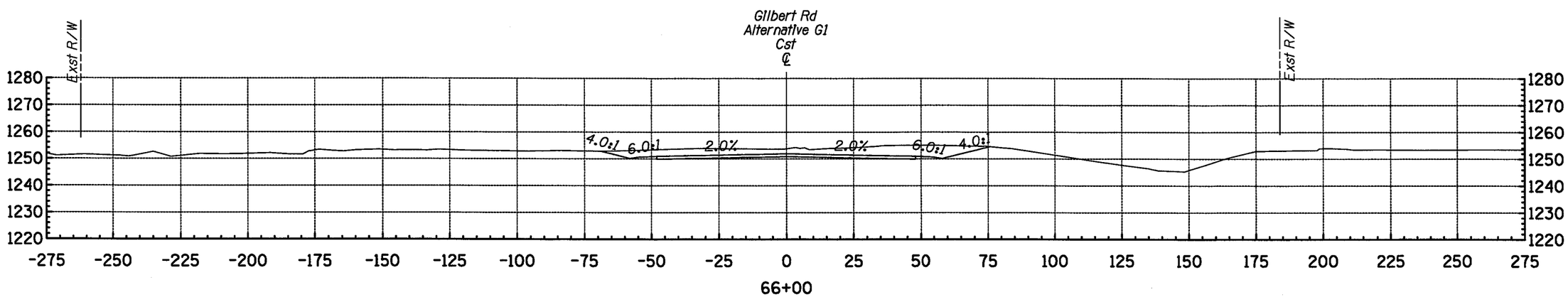
ADOT 9:22:11 AM 8/3/2009

CROSS SECTIONS	SHEET 53 OF 61

TRACS NO.

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			





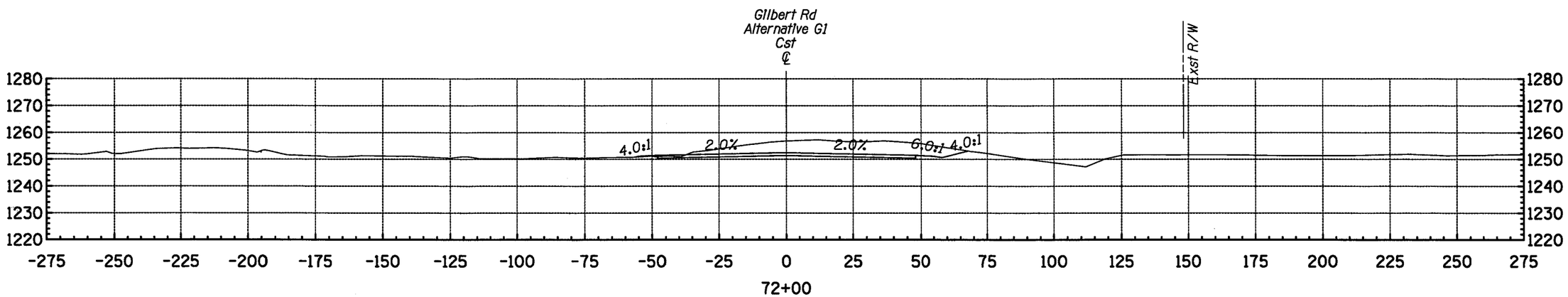
CROSS SECTIONS

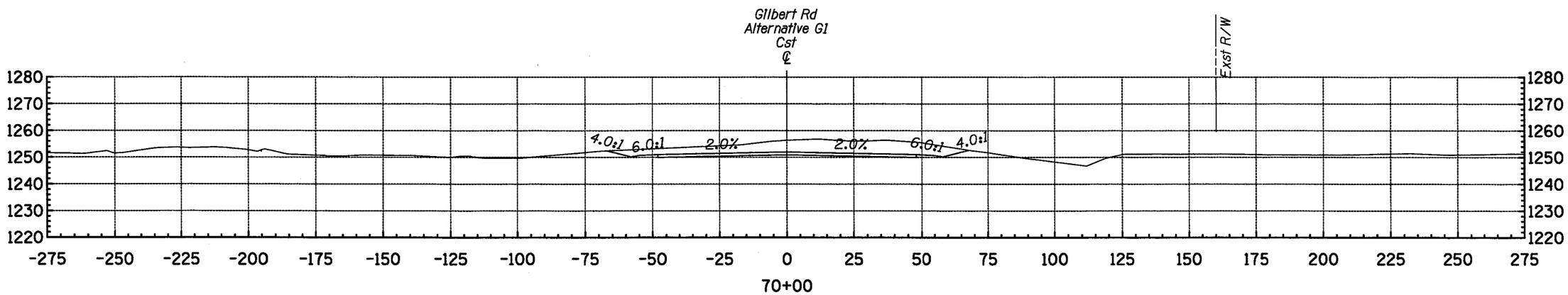
SHEET 54 OF 61

TRACS NO.

ADOT 9:22:13 AM 8/3/2009

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



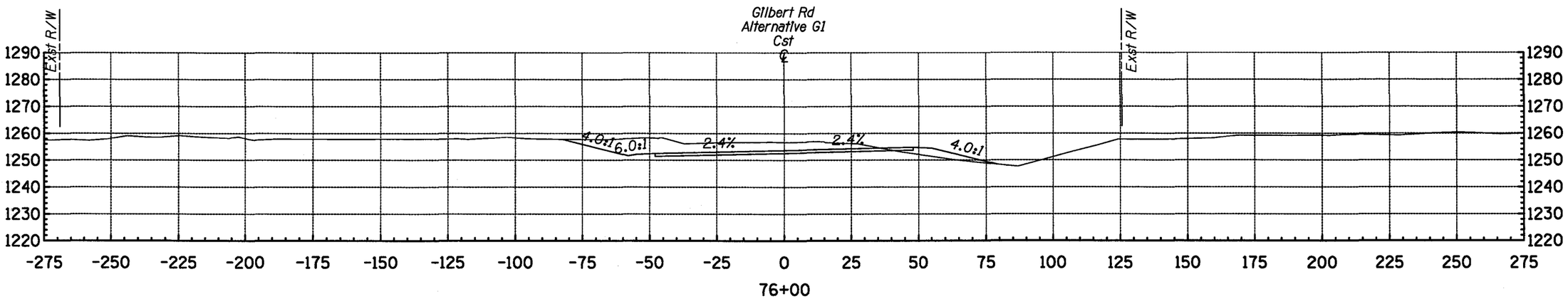


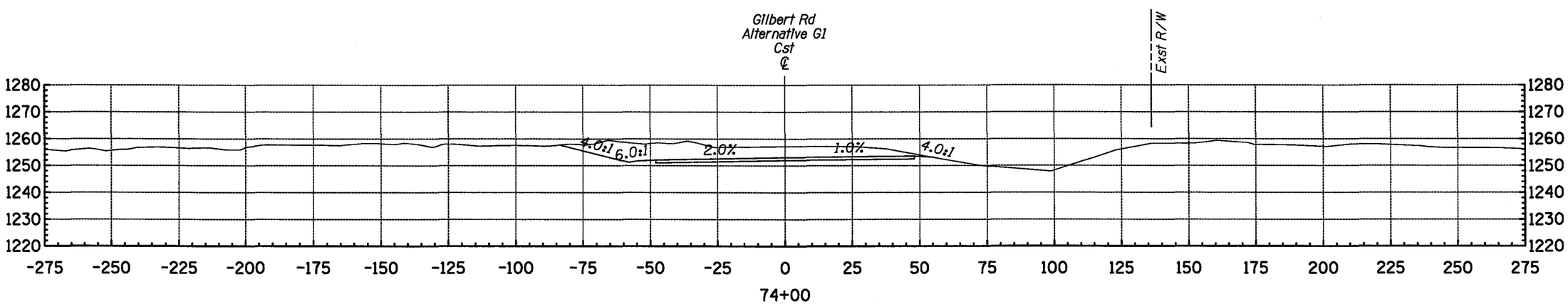
ADOT 9:22:14 AM 8/3/2009

CROSS SECTIONS	SHEET 55 OF 61

TRACS NO.

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



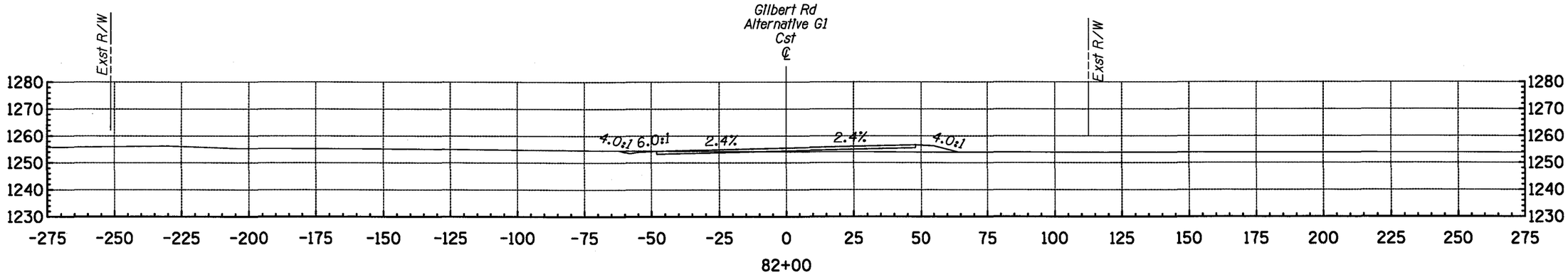


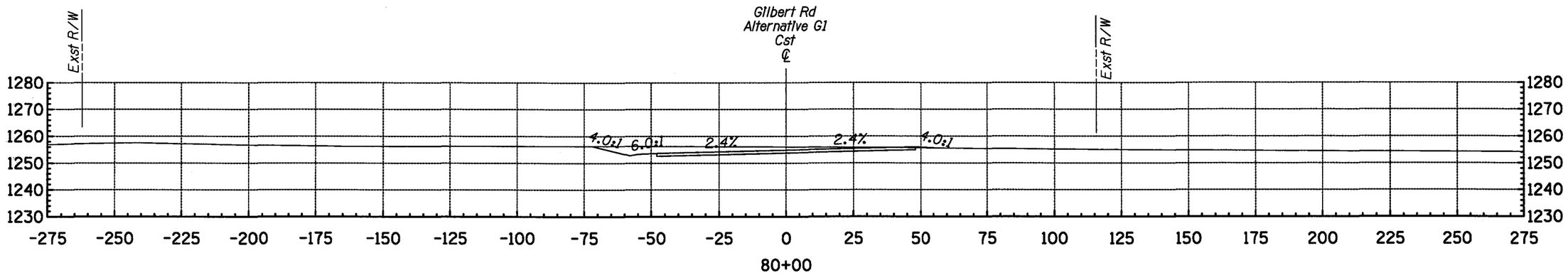
CROSS SECTIONS	SHEET 56 OF 61

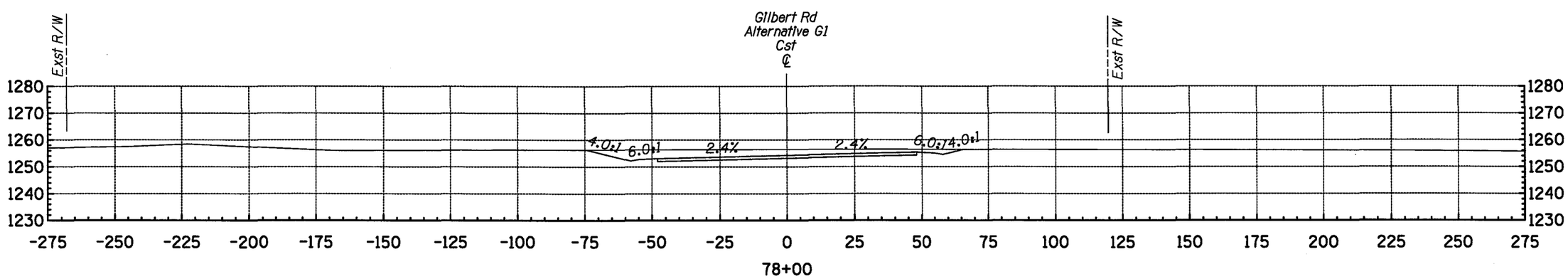
TRACS NO.

ADOT 9:22:16 AM 8/2009

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			





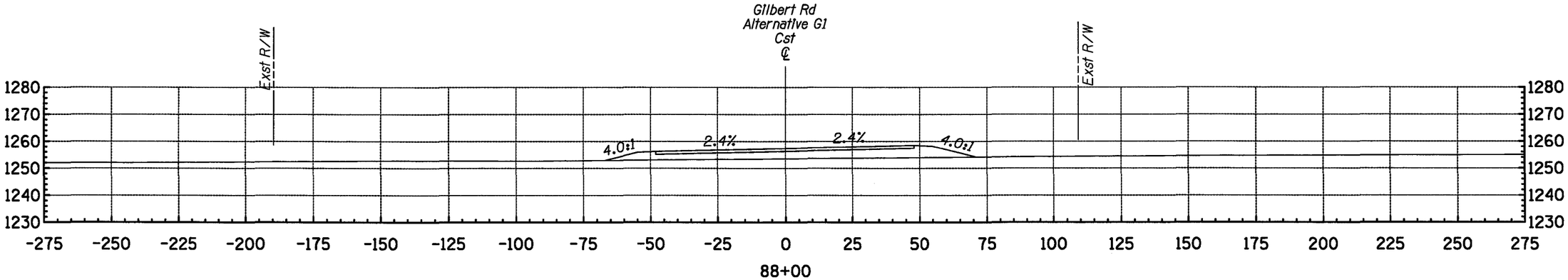


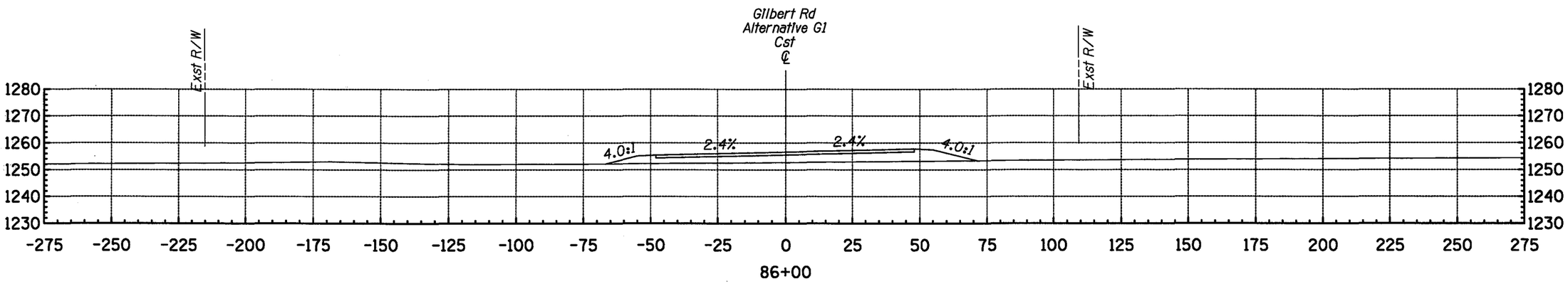
CROSS SECTIONS	SHEET 57 OF 61

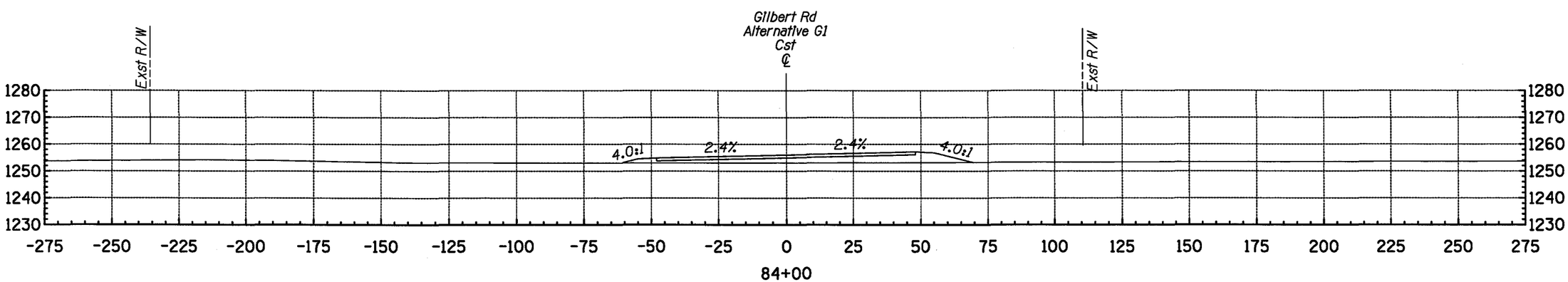
TRACS NO.

ADOT 9:22:18 AM 9/2/2009

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			





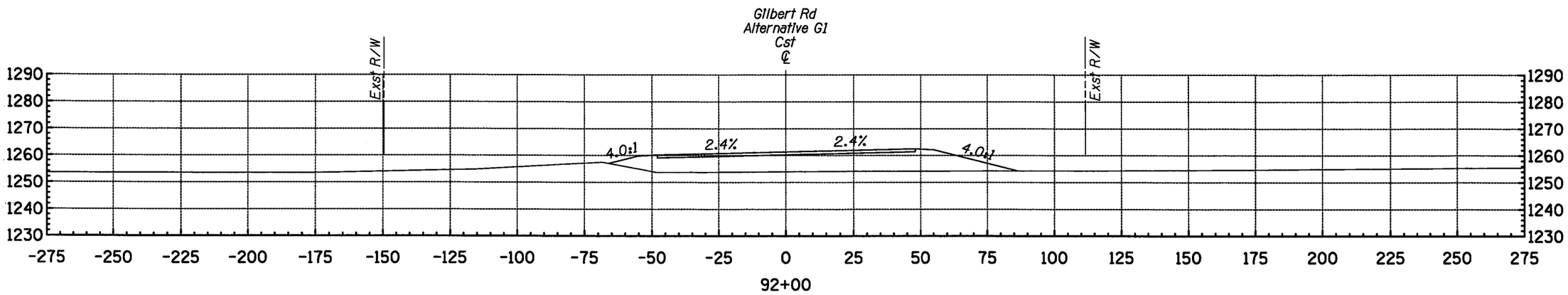


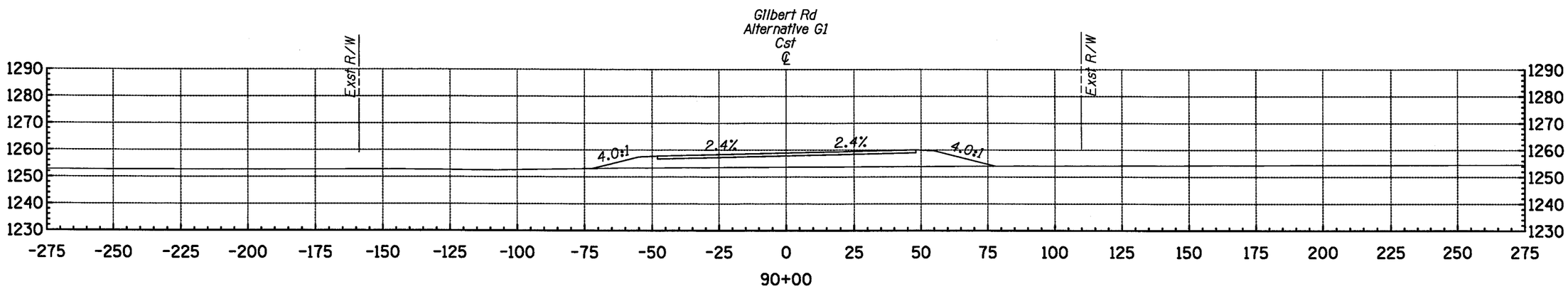
ADOT 9:22:20 AM 9/2/2009

CROSS SECTIONS	SHEET 58	OF 61

TRACS NO.

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



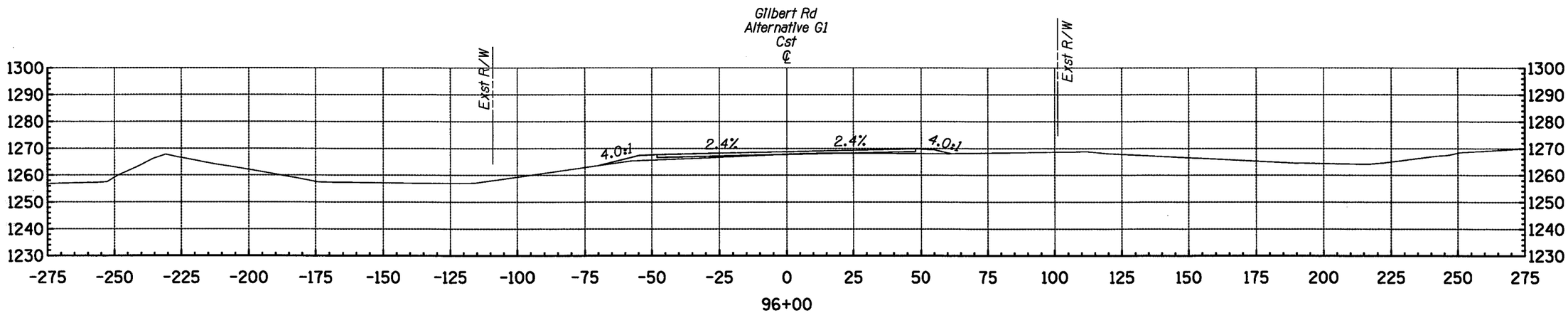


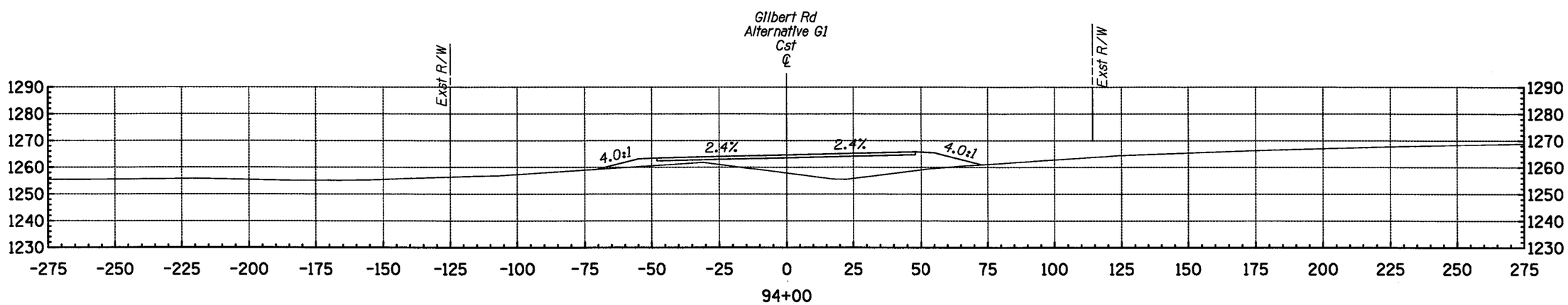
ADOT 9:22:22 AM 8/3/2009

CROSS SECTIONS	SHEET 59 OF 61

TRACS NO.

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			



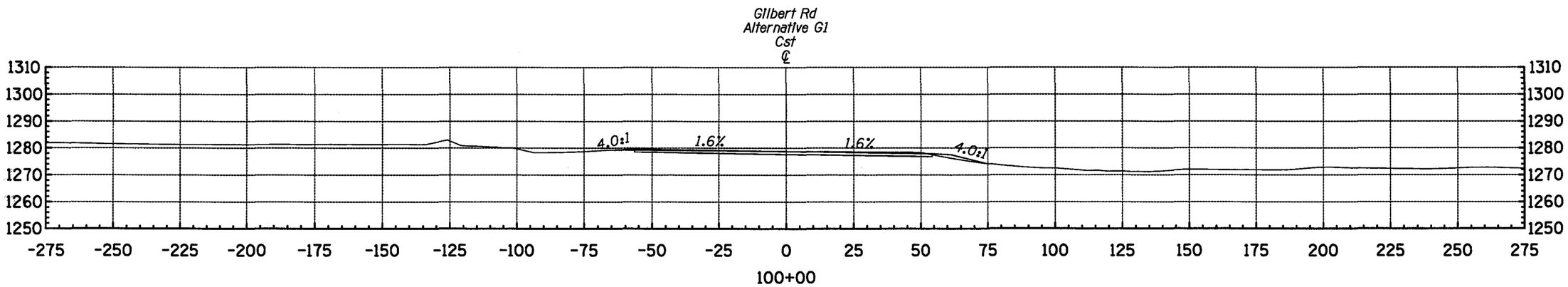


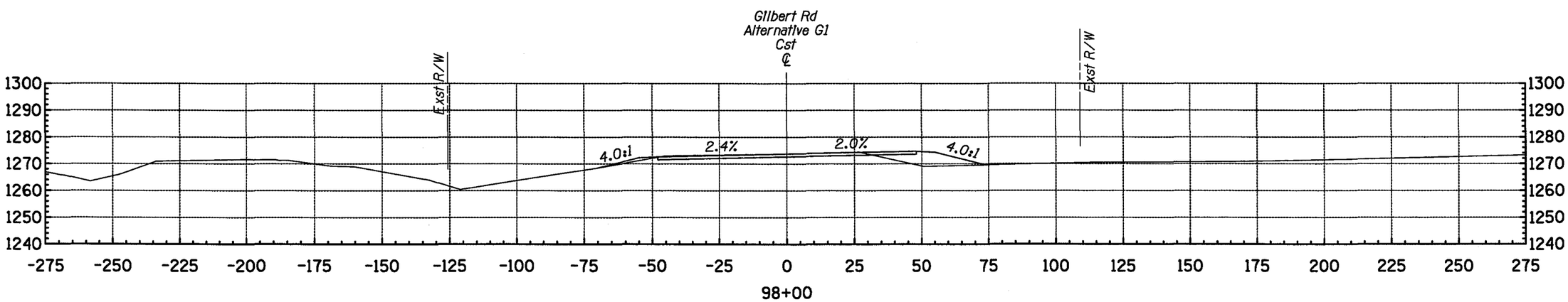
ADOT 9:22:23 AM 8/3/2009

CROSS SECTIONS	SHEET 60 OF 61

TRACS NO.

F.W.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	TT199			





CROSS SECTIONS	SHEET 61 OF 61

TRACS NO.

ADOT 9:22:25 AM 9/3/2009

APPENDIX L DETAILED COST ESTIMATES

Table L-1. 2007 Summary Cost Estimates (Used to Evaluate Alternatives)

2007 SUMMARY COST ESTIMATES (Current Dollars)														
		ALTERNATIVES												
COST CATEGORIES	***Factors***	***No Build***	***D1***	***D1a***	***D1b***	***D2***	***D2a***	***D3***	***D3a***	***G1***	***M1***	***M2***	***MR1***	***MR2***
Construction Cost														
Roadway Construction		$0	$2,118,533	$2,159,261	$2,676,296	$2,560,326	$2,520,978	$3,880,181	$3,608,202	$1,659,600	$575,435	$575,435	$7,954,336	$7,954,336
Bridge		$0	$32,359,415	$32,359,415	$32,359,415	$29,867,906	$29,867,906	$32,359,415	$32,359,415	$42,810,666	$19,911,938	$19,911,938	$0	$0
SRMG Undercrossing		$0	$1,000,000	$1,000,000	$0	$1,000,000	$1,000,000	$0	$0	$0	$0	$0	$0	$0
Construction Maintenance		$0	$0	$0	$0	$0	$0	$0	$0	$0	$700,000	$1,000,000	$700,000	$1,000,000
Sub-Total		$0	$35,477,948	$35,518,676	$35,035,711	$33,428,232	$33,388,884	$36,239,595	$35,967,617	$44,470,266	$21,187,372	$21,487,372	$8,654,336	$8,954,336
River Improvements														
CSA Bank Protection		$0	$0	$0	$0	$0	$0	$0	$0	$5,163,000	$2,315,000	$2,315,000	$0	$0
Maintenance Ramps		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Embankment Ditch		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Sub-Total		$0	$0	$0	$0	$0	$0	$0	$0	$5,163,000	$2,315,000	$2,315,000	$0	$0
Sub-Total		$0	$35,477,948	$35,518,676	$35,035,711	$33,428,232	$33,388,884	$36,239,595	$35,967,617	$49,633,266	$23,502,372	$23,802,372	$8,654,336	$8,954,336
Design (12%)		$0	$4,257,354	$4,262,241	$4,204,285	$4,011,388	$4,006,666	$4,348,751	$4,316,114	$5,955,992	$2,820,285	$2,856,285	$1,038,520	$1,074,520
Construction Management (15%)		$0	$5,321,692	$5,327,801	$5,255,357	$5,014,235	$5,008,333	$5,435,939	$5,395,143	$7,444,990	$3,525,356	$3,570,356	$1,298,150	$1,343,150
Right-of-Way														
Roadway and Bridge (5$/sq. ft)		$0	$4,526,650	$4,586,380	$5,489,820	$4,013,010	$3,991,850	$5,570,795	$5,231,010	$0	$611,545	$611,545	$1,896,685	$1,896,685
Relocations		$0	$400,000	$0	$200,000	$300,000	$0	$400,000	$600,000	$0	$0	$0	$20,000	$120,000
Temporary Easement		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Sub-Total		$0	$4,926,650	$4,586,380	$5,689,820	$4,313,010	$3,991,850	$5,970,795	$5,831,010	$0	$611,545	$611,545	$1,916,685	$2,016,685
Utility Relocation		$0	$752,018	$721,291	$782,745	$711,691	$696,327	$958,145	$1,090,709	$500,000	$250,000	$250,000	$1,512,000	$1,512,000
Administration (10%)		$0	$3,547,795	$3,551,868	$3,503,571	$3,342,823	$3,338,888	$3,623,960	$3,596,762	$4,963,327	$2,350,237	$2,380,237	$865,434	$895,434
Total		**$0**	**$59,210,107**	**$58,554,637**	**$60,161,309**	**$55,134,388**	**$54,422,799**	**$62,547,981**	**$62,028,364**	**$68,497,574**	**$33,671,340**	**$34,082,340**	**$17,201,810**	**$17,812,810**
PROJECT COST							$54,422,799			$68,497,574	$33,671,340		$17,201,810	
TOTAL PROJECT COST		**$173,793,523**												

Dobson Rd Bridges DCR
Project W.O. #: TT199

Created By: MSW
Date: 7/27/2009
Checked By: MFM
Date: 7/31/2009

Dobson Road Bridge Alternative D3					
Item #	Item Description	Unit	Quantity	Unit Cost	Total
205.01150	Roadway Excavation	CY	51,137	$5.00	$255,685
210.02000	Borrow Excavation (Imported)	CY	267,464	$6.00	$1,604,784
310.03000	Aggregate Base Course	CY	13,732	$35.00	$480,620
321.01200	Asphalt Concrete Pavement (Superpave 12.5 mm Mix, High Traffic)	Ton	5,858	$50.00	$292,900
321.01300	Asphalt Concrete Pavement (Superpave 19 mm Mix, High Traffic)	Ton	8,802	$50.00	$440,100
324.01000	Portland Cement Concrete Pavement (PCCP) (10")	SY	3,832	$45.00	$172,440
329.01000	Bituminous Tack Coat SS-1h, Diluted	Ton	13	$400.00	$5,200
	Apply Bituminous Tack Coat	HR	59	$150.00	$8,850
	Mineral Admixture (Asphalt Cement)	Ton	138	$90.00	$12,420
330.01500	Liquid Asphalt (MC-250 or MC-800)	Ton	733	$500.00	$366,500
340.01110	Vertical Curb & Gutter, MAG Det. 220, Type A, H=150mm (6")	LF	12,408	$20.00	$248,160
340.01150	Single Curb, MAG Det. 222, Type A	LF	8,168	$15.00	$122,520
	Concrete Sidewalk Ramp, ADOT Std C-05.30 (Type A)	EACH	6	$1,500.00	$9,000
340.01210	Concrete Sidewalk, MAG Det. 230	SF	56,408	$3.00	$169,224
350.01300	Remove Existing Pavement	SY	3,466	$3.00	$10,398
416.02137	Guardrail Terminal (ET-2000 PLUS, 37.5')	EACH	1	$3,500.00	$3,500
	Concrete Barrier	LF	391	$50.00	$19,550
	Concrete Barrier Transition, ADOT Std C-10.76	EACH	2	$1,000.00	$2,000
	Concrete Barrier Transition	EACH	1	$3,500.00	$3,500
430.30000	Decomposed Granite, 50 mm (2") Thick	SY	5,832	$5.00	$29,160
462.01100	100 mm (4") White Thermoplastic Traffic Stripe	LF	24,515	$0.30	$7,354
462.01200	100 mm (4") Yellow Thermoplastic Traffic Stripe	LF	14,875	$0.30	$4,463
462.01500	THERMOPLASTIC PAVEMENT SYMBOL	EACH	8	$150.00	$1,200
462.01700	THERMOPLASTIC PAVEMENT LEGEND	EACH	0	$150.00	$0
	Traffic Signal, Full Intersection	LS	1	$150,000.00	$150,000
	Bridge Lighting	EA	1	$1,100,000.00	$1,100,000
505.10120	Catch Basin, MAG Det. 532, Type C	EA	18	$3,000.00	$54,000
618.20318	450 mm (18") RGRCP, Class III	LF	811	$105.00	$85,155
618.20342	1050 mm (42") RGRCP, Class III	LF	5,283	$230.00	$1,215,090
625.01100	Storm Drain Manhole, MAG Det. 520 & 522	EA	13	$5,000.00	$65,000
626.10201	Stormceptor Oil/Water Separator, STC 3600	EACH	2	$50,000.00	$100,000
				Subtotal	**$7,038,773**
109.09000	Mobilization / Demobilization	LS	8%		**$563,102**
	Maintenance of Traffic/Traffic Control	LS	5%		**$351,939**
	Contingency	LS	0%		**$0**
			Roadway Construction Total		**$7,953,813**
	Right of Way	SF	905,673	$5.00	**$4,528,365**
	Slope Easement	SF	502,703	$5.00	**$2,513,515**
	Temporary Construction Easement	SF	33,525	$5.00	**$167,625**
				Total	**$7,209,505**
			DOBSON D3 GRAND TOTAL		**$15,163,318**

Dobson Rd Bridges DCR
Project W.O. #: TT199

Created By: MSW
Date: 7/27/2009
Checked By: MFM
Date: 7/31/2009

McKellips Road Bridge Alternative M1					
Item No.	Item Description	Unit	Quantity	Unit Cost	Total
205.01150	Roadway Excavation	CY	466	$5.00	$2,330
210.02000	Borrow Excavation (Imported)	CY	82,709	$6.00	$496,254
310.03000	Aggregate Base Course	CY	3,540	$35.00	$123,900
321.01200	Asphalt Concrete Pavement (Superpave 12.5 mm Mix, High Traffic)	Ton	1,789	$50.00	$89,450
321.01300	Asphalt Concrete Pavement (Superpave 19 mm Mix, High Traffic)	Ton	2,683	$50.00	$134,150
324.01000	Portland Cement Concrete Pavement (PCCP) (10")	SY	3,471	$45.00	$156,195
329.01000	Bituminous Tack Coat SS-1h, Diluted	Ton	4	$400.00	$1,600
	Apply Bituminous Tack Coat	Hr	18	$150.00	$2,700
	Mineral Admixture (Asphalt Cement)	Ton	42	$90.00	$3,780
330.01500	Liquid Asphalt (MC-250 or MC-800)	Ton	224	$500.00	$112,000
340.01110	Vertical Curb & Gutter, MAG Det. 220, Type A, H=150mm (6")	LF	5,229	$20.00	$104,580
340.01150	Single Curb, MAG Det. 222, Type A	LF	134	$15.00	$2,010
340.01210	Concrete Sidewalk, MAG Det. 230	SF	23,953	$3.00	$71,859
340.01311	Sidewalk Ramp, MCDOT Det. 2031-A	EA	2	$1,500.00	$3,000
	Concrete Sidewalk Ramp, ADOT Std C-05.30 (Type A)	EA	4	$1,500.00	$6,000
	Concrete Sidewalk Ramp, ADOT Std C-05.30 (Type E)	EA	1	$1,500.00	$1,500
350.01300	Remove Existing Pavement	SY	26,463	$3.00	$79,389
350.02250	Remove Existing Concrete Slab	SF	31,353	$20.00	$627,060
416.02137	Guardrail Terminal (ET-2000 PLUS, 37.5')	EA	2	$3,000.00	$6,000
	Concrete Barrier	LF	688	$50.00	$34,400
505.05150	Concrete Barrier Transition	EA	2	$3,500.00	$7,000
462.01100	100 mm (4") White Thermoplastic Traffic Stripe	LF	20,996	$0.30	$6,299
462.01200	100 mm (4") Yellow Thermoplastic Traffic Stripe	LF	12,384	$0.30	$3,715
462.01500	THERMOPLASTIC PAVEMENT SYMBOL	EA	6	$150.00	$900
462.01700	THERMOPLASTIC PAVEMENT LEGEND	EA	4	$150.00	$600
	Traffic Signal, Full Intersection	LS	1	$150,000.00	$150,000
	Bridge Lighting	EA	1	$800,000.00	$800,000
626.10201	Stormceptor Oil/Water Separator, STC 3600	EA	2	$50,000.00	$100,000
				Subtotal	**$3,126,671**
River Improvements					
222.01000	Cement Stabilized Alluvium (CSA) Bank Protection	CY	5,911	$25.00	$147,775
	Bank Soil Placement	CY	38,337	$10.00	$383,370
	Bank Subgrade Preparation	CY	933	$6.00	$5,598
				Subtotal	**$536,743**
109.09000	Mobilization / Demobilization		8%		**$293,073**
	Maintenance of Traffic/Traffic Control		8%		**$293,073**
	Contingency		0%		**$0**
			Roadway Construction Total		**$4,249,560**
	Right of Way	SF	251,763	$5.00	**$1,258,815**
	Temporary Construction Easement (TCE)	SF	94,238	$5.00	**$471,190**
				Total	**$1,730,005**
			MCKELLIPS M1 GRAND TOTAL		**$5,979,565**

Dobson Rd Bridges DCR
Project W.O. #: TT199

Created By: MSW
Date: 7/27/2009
Checked By: MFM
Date: 7/31/2009

McKellips Road Widening Alternative MR1					
Item No.	Item Description	Unit	Quantity	Unit Cost	Total
205.01150	Roadway Excavation	CY	43,766	$5.00	$218,830
215.01100	Channel Excavation	CY	593	$10.00	$5,930
310.03000	Aggregate Base Course	CY	27,901	$35.00	$976,535
321.01200	Asphalt Concrete Pavement (Superpave 12.5 mm Mix, High Traffic)	Ton	11,050	$50.00	$552,500
321.01300	Asphalt Concrete Pavement (Superpave 19 mm Mix, High Traffic)	Ton	22,101	$50.00	$1,105,050
324.01000	Portland Cement Concrete Pavement (PCCP) (10")	SY	535	$45.00	$24,075
329.01000	Bituminous Tack Coat SS-1h, Diluted	Ton	25	$400.00	$10,000
	Apply Bituminous Tack Coat	Hr	132	$150.00	$19,800
	Mineral Admixture (Asphalt Cement)	Ton	312	$90.00	$28,080
330.01500	Liquid Asphalt (MC-250 or MC-800)	Ton	1,658	$500.00	$829,000
340.01110	Vertical Curb & Gutter, MAG Det. 220, Type A, H=150mm (6")	LF	22,111	$20.00	$442,220
340.01150	Single Curb, MAG Det. 222, Type A	LF	17,665	$15.00	$264,975
340.01210	Concrete Sidewalk, MAG Det. 230	SF	100,474	$3.00	$301,422
	Concrete Sidewalk Ramp, ADOT Std C-05.30 (Type A)	EA	2	$1,500.00	$3,000
340.01311	Sidewalk Ramp, MCDOT Det. 2031-A	EA	16	$1,500.00	$24,000
350.01300	Remove Existing Pavement	SY	19,979	$3.00	$59,937
430.30000	Decomposed Granite, 50 mm (2") Thick	SY	10,893	$5.00	$54,465
462.01100	100 mm (4") White Thermoplastic Traffic Stripe	LF	44,932	$0.30	$13,480
462.01200	100 mm (4") Yellow Thermoplastic Traffic Stripe	LF	17,007	$0.30	$5,102
462.01500	THERMOPLASTIC PAVEMENT SYMBOL	EA	11	$150.00	$1,650
	Traffic Signal, Full Intersection	LS	1	$150,000.00	$150,000
	Roadway Lighting	EA	1	$2,000,000.00	$2,000,000
505.10120	Catch Basin, MAG Det. 532, Type C	EA	30	$3,000.00	$90,000
523.14336	Headwall, MAG Det. 501-4, modified for 3-900 mm (36") pipe	EA	2	$4,100.00	$8,200
618.20318	450 mm (18") RGRCP, Class III	FT	1,476	$105.00	$154,980
618.20324	600 mm (24") RGRCP, Class III	FT	2,100	$150.00	$315,000
618.20330	750 mm (30") RGRCP, Class III	FT	3,753	$165.00	$619,245
618.20336	900 mm (36") RGRCP, Class III	FT	2,734	$195.00	$533,130
621.10360	900 mm (36") CMP	LF	233	$140.00	$32,620
625.01100	Storm Drain Manhole, MAG Det. 520 & 522	EA	29	$5,000.00	$145,000
626.10201	Stormceptor Oil/Water Separator, STC 3600	EACH	2	$50,000.00	$100,000
				Subtotal	**$9,088,226**
109.09000	Mobilization / Demobilization		8%		$727,058
	MAINTENANCE OF TRAFFIC/TRAFFIC CONTROL		8%		$727,058
	Contingency		0%		$0
				Roadway Construction Total	**$10,542,342**
	Right of Way	SF	513,497	$5.00	$2,567,485
	Easement	SF	3,120	$5.00	$15,600
				Total	**$2,583,085**
				MCKELLIPS MR1 GRAND TOTAL	**$13,125,427**

Dobson Rd Bridges DCR
Project W.O. #: TT199

Created By: MSW
Date: 7/27/2009
Checked By: MFM
Date: 7/31/2009

Gilbert Road Bridge Alternative G1					
Item No.	Item Description	Unit	Quantity	Unit Cost	Total
202.41000	Bridge Removal	LS	1	$250,000.00	$250,000
205.01150	Roadway Excavation	CY	35,962	$5.00	$179,810
210.02000	Borrow Excavation (Imported)	CY	81,935	$6.00	$491,610
310.03000	Aggregate Base Course	CY	16,182	$35.00	$566,370
321.01200	Asphalt Concrete Pavement (Superpave 12.5 mm Mix, High Traffic)	Ton	8,028	$50.00	$401,400
321.01300	Asphalt Concrete Pavement (Superpave 19 mm Mix, High Traffic)	Ton	12,042	$50.00	$602,100
329.01000	Bituminous Tack Coat SS-1h, Diluted	Ton	18	$400.00	$7,200
	Apply Bituminous Tack Coat	Hr	80	$150.00	$12,000
	Mineral Admixture (Asphalt Cement)	Ton	189	$90.00	$17,010
330.01500	Liquid Asphalt (MC-250 or MC-800)	Ton	1,004	$500.00	$502,000
340.01110	Vertical Curb & Gutter, MAG Det. 220, Type A, H=150mm (6")	LF	2,968	$20.00	$59,360
340.01210	Concrete Sidewalk, MAG Det. 230	SF	14,190	$3.00	$42,570
340.01311	Sidewalk Ramp, MCDOT Det. 2031-A	EA	2	$1,500.00	$3,000
350.01300	Remove Existing Pavement	SY	69,059	$3.00	$207,177
416.02137	Guardrail Terminal (ET-2000 PLUS, 37.5')	EA	2	$3,000.00	$6,000
	Concrete Barrier	LF	690	$50.00	$34,500
	Concrete Barrier Transition	EA	2	$3,500.00	$7,000
462.01100	100 mm (4") White Thermoplastic Traffic Stripe	LF	29,979	$0.30	$8,994
462.01200	100 mm (4") Yellow Thermoplastic Traffic Stripe	LF	21,950	$0.30	$6,585
462.01500	THERMOPLASTIC PAVEMENT SYMBOL	EA	2	$150.00	$300
462.01700	THERMOPLASTIC PAVEMENT LEGEND	EA	0	$150.00	$0
	Traffic Signal, Full Intersection	LS	1	$150,000.00	$150,000
505.10120	Catch Basin, MAG Det. 532, Type C	EA	4	$3,000.00	$12,000
618.20318	450 mm (18") RGRCP, Class III	FT	97	$105.00	$10,185
618.20324	600 mm (24") RGRCP, Class III	FT	750	$150.00	$112,500
626.10201	Stormceptor Oil/Water Separator, STC 3600	EA	2	$50,000.00	$100,000
				Subtotal	**$3,789,671**
River Improvements					
222.01000	Cement Stabilized Alluvium (CSA) Bank Protection	LS	1	$600,000.00	$600,000
				Subtotal	**$600,000**
109.09000	Mobilization / Demobilization	LS	8%		$351,174
	Maintenance of Traffic/Traffic Control	LS	8%		$351,174
	Contingency	LS	0%		$0
				Roadway Construction Total	**$5,092,018**
		(MCDOT IGA w/SRP-MIC)		**Right of Way**	$3,000,000
				GILBERT G1 GRAND TOTAL	**$8,092,018**

DOBSON ROAD BRIDGES AT SALT RIVER
Cost Estimate-Drainage

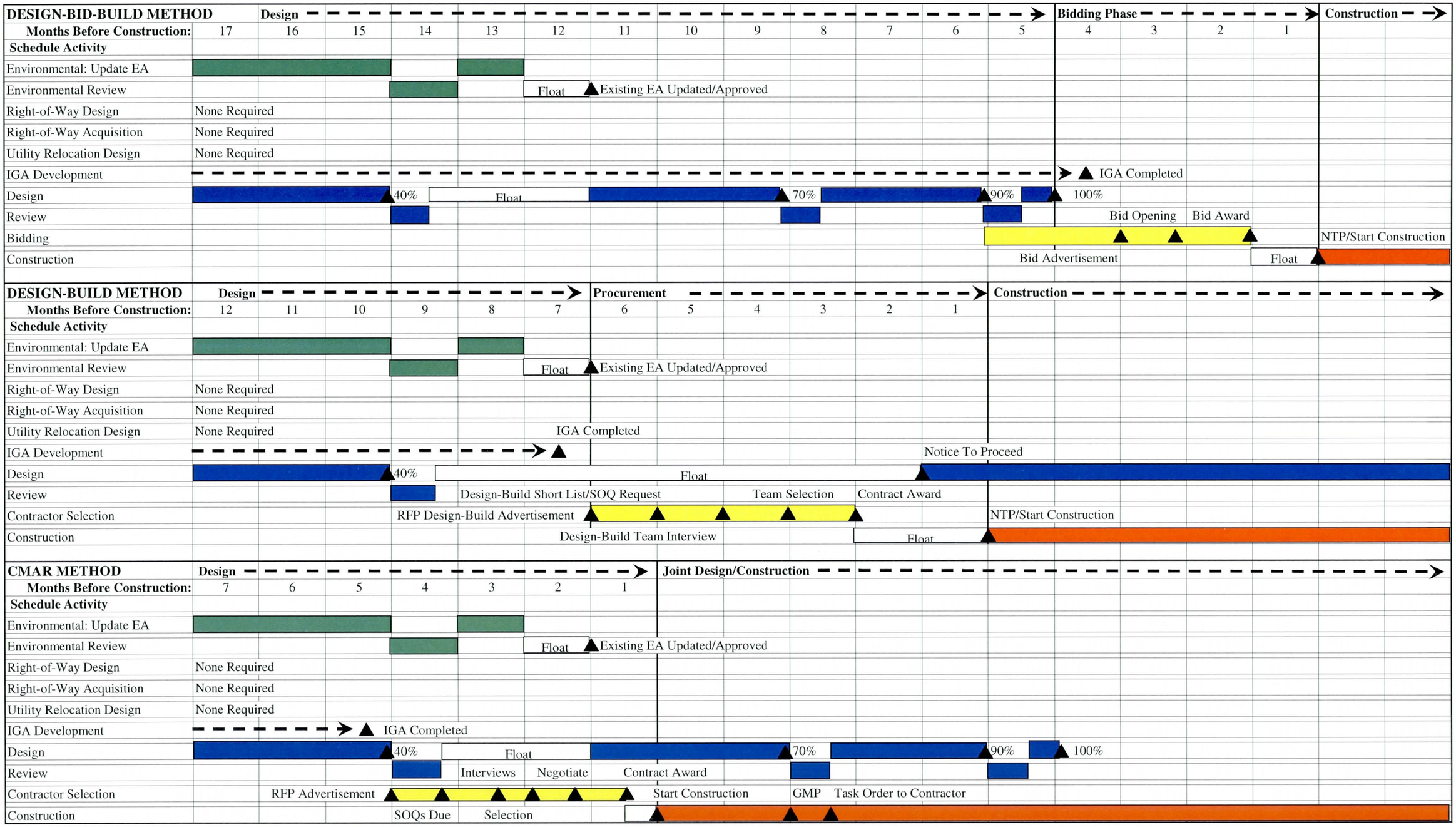
Primatech, LLC
Location :
Computed by: HY Date:1/29/2009
Checked by: XZ Date:1/29/2009

ITEM	DESCRIPTION	UNIT	QUANT.	UNIT PRICE	COST	OBSERVATIONS
Roadway Drainage						
625.01100	Storm Drain Manhole, MAG Det. 520 & 522	EA	42	5,000.00	$ 210,000	Includes Labor and Materials
505.10120	Catch Basin, MAG Det. 532, Type C	EA	54	3,000.00	$ 162,000	Includes Labor and Materials
618.20315	18" RGRCP, Class III	FT	2,595	105.00	$ 272,475	Includes Labor and Materials
618.20324	24" RGRCP, Class III	FT	2,850	150.00	$ 427,500	Includes Labor and Materials
618.20330	30" RGRCP, Class III	FT	3,753	165.00	$ 619,245	Includes Labor and Materials
618.20336	36" RGRCP, Class III	FT	2,734	195.00	$ 533,130	Includes Labor and Materials
618.20342	42" RGRCP, Class III	FT	5,283	230.00	$ 1,215,090	Includes Labor and Materials
Culvert Extension					$ -	
621.10360	36" CMP	LF	233	140.00	$ 32,620	Includes Labor and Materials
523.14336	Headwall, MAG Det. 501-4, modified for 3-900 mm (36") pipe	EACH	2	4,100.00	$ 8,200	Includes Labor and Materials
215.01100	Channel Excavation	CY	593	10.00	$ 5,930	Includes Labor and Materials
South Channel clousure at AlmaSchool Road					$ -	
222.01000	Cement Stabilized Alluvium (CSA) Bank Protection	CY	4,433	25.00	$ 110,825	Includes Labor and Materials
	Bank Soil Placement	CY	32,572	10.00	$ 325,720	Includes Labor and Materials
	Bank Subgrade Preparation	CY	700	6.00	$ 4,200	Includes Labor and Materials
North Dike at Almaschool Road					$ -	
222.01000	Cement Stabilized Alluvium (CSA) Bank Protection	CY	1,478	25.00	$ 36,950	Includes Labor and Materials
	Bank Soil Placement	CY	5,765	10.00	$ 57,650	Includes Labor and Materials
	Bank Subgrade Preparation	CY	233	6.00	$ 1,398	Includes Labor and Materials
SUBTOTAL					$ 4,022,933	
CONTINGENCY				20.00%	$ 804,587	
TOTAL					$ 4,827,520	

APPENDIX M IMPLEMENTATION MATRICIES AND TABLES

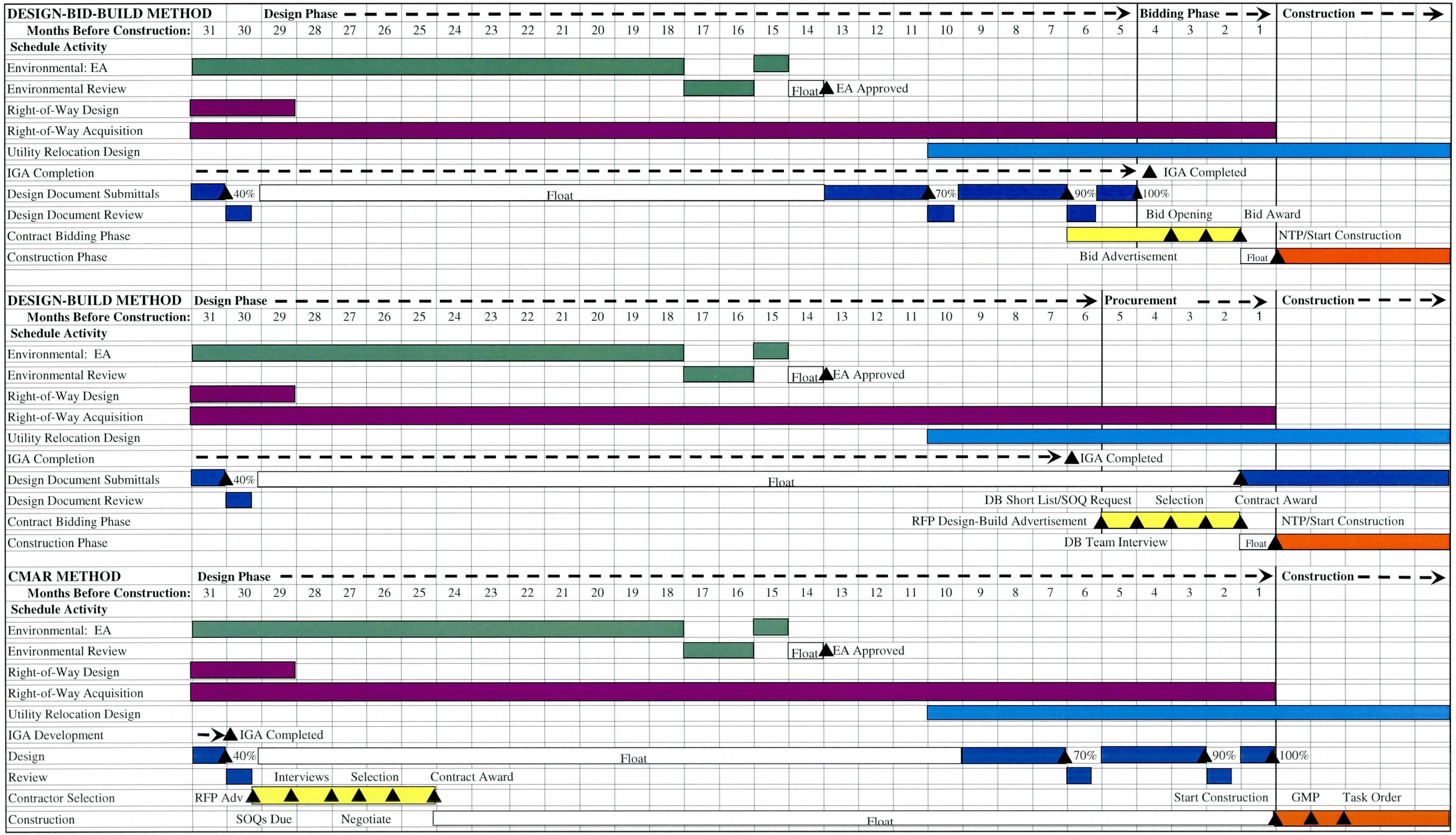
GILBERT ROAD BRIDGE SCHEDULES

MCDOT Project #TT-199



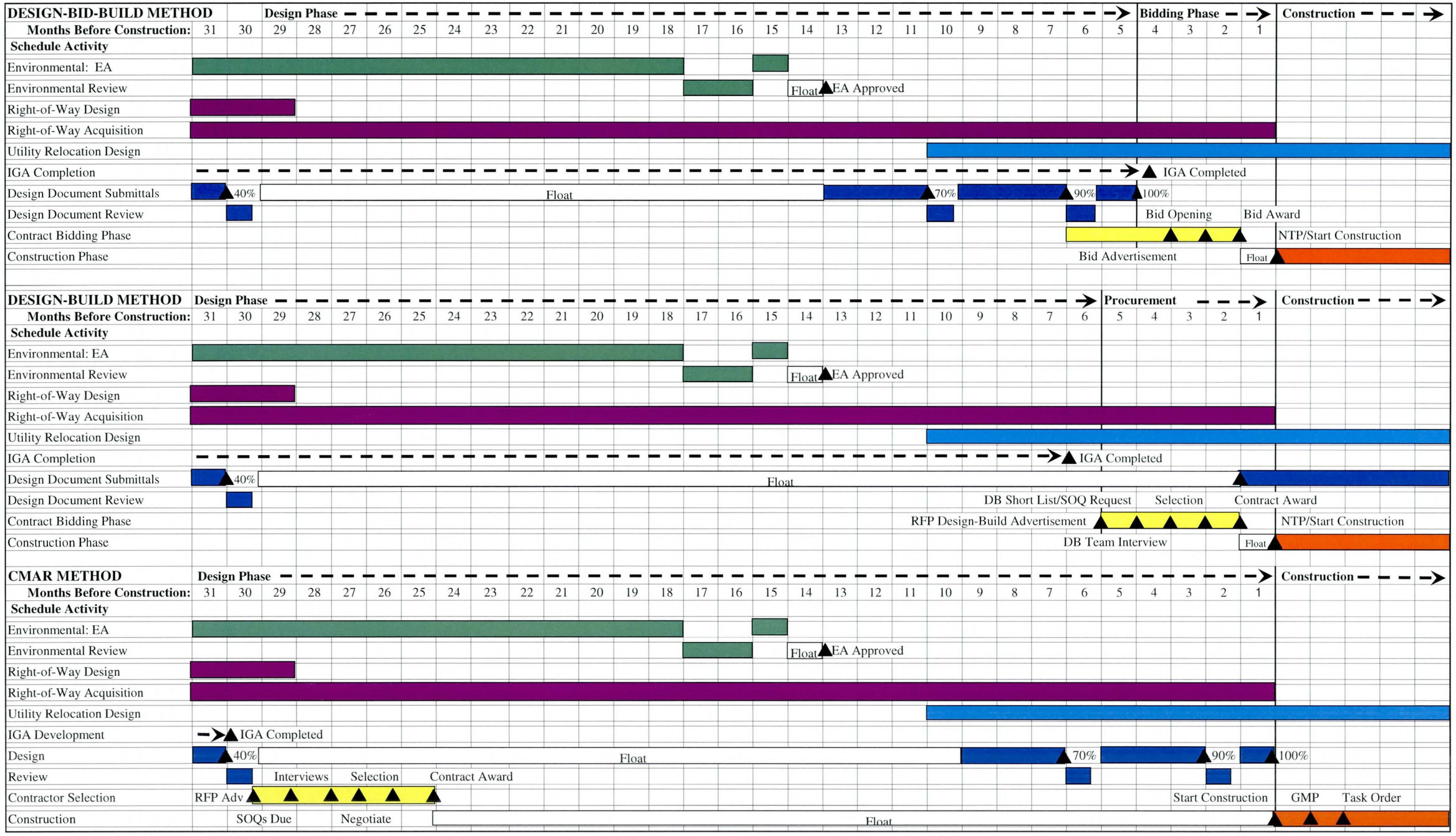
DOBSON ROAD BRIDGE SCHEDULES

MCDOT Project #TT-199



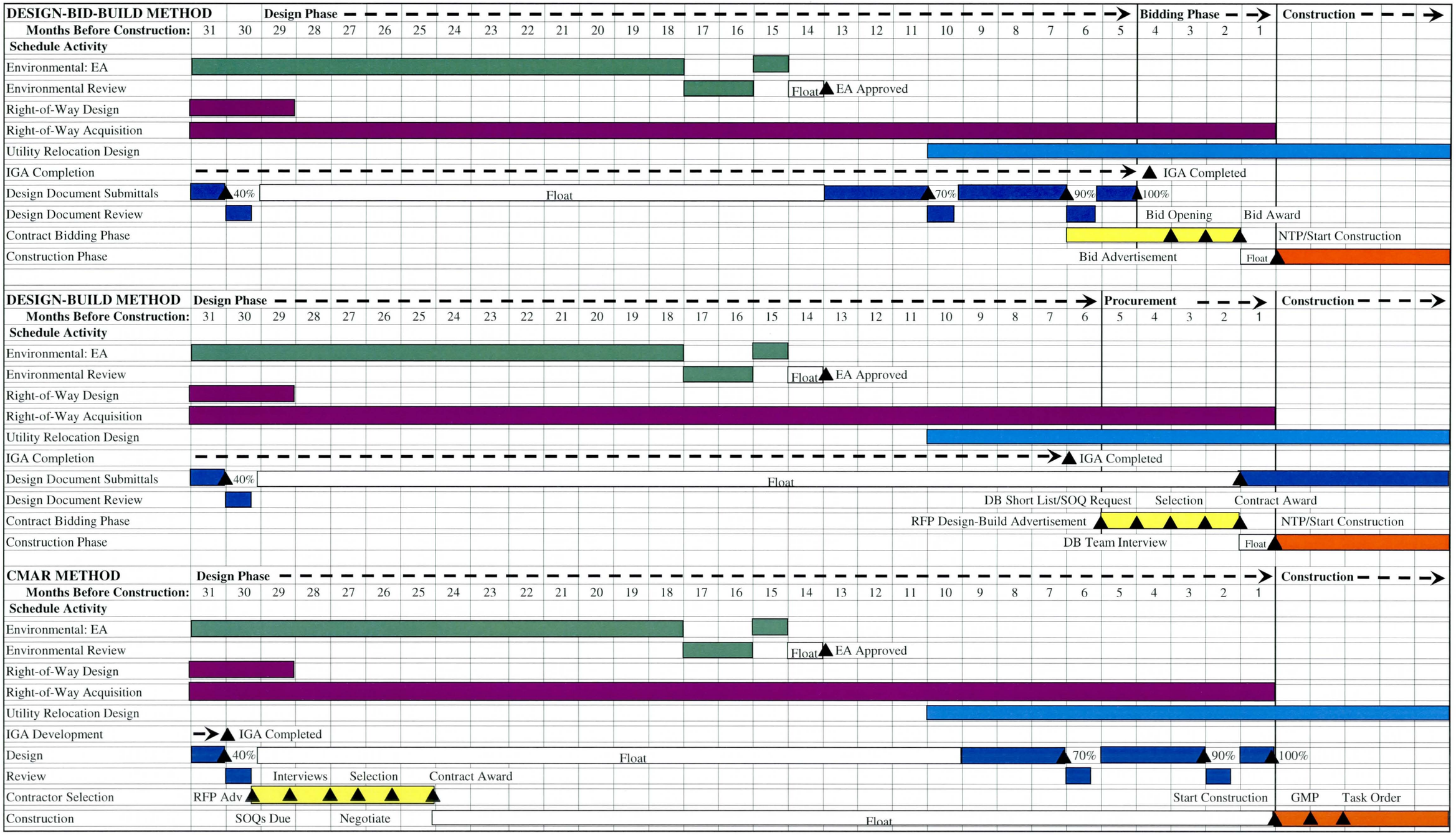
MCKELLIPS ROAD BRIDGE SCHEDULES

MCDOT Project #TT-199



MCKELLIPS ROAD WIDENING SCHEDULES

MCDOT Project #TT-199



Maricopa County Department of Transportation
Dobson Road Bridges Project

Development Strategy Matrix

Project Site	Total Construction Costs in Millions	No Build Annual Maintenance Costs in Thousands	Deferred Alternative Issues	Deferred Alternative Impact on Future Traffic Congestion	Project Site Effects on SRP-MIC Cut Through Traffic	Lehi Connectivity Provided	Effect of Project Alternative Deferral on Future Development	Recommended Alternative Construction Priority
Gilbert Road Bridge	$69.9	$100	Significant - This alternative is the most expensive of the four planned project improvement locations. The existing bridge structure is in poor condition, requires regular MCDOT maintenance, very easily becomes scour critical and won't last until 2030. The two existing NB lanes need to be rebuilt to function effectively and the bridge piers need scour repairs now.	Significant - The two NB lanes will become level of service "F" very soon and construction of a new 4 lane bridge alternative generates only a small capacity increase along the Gilbert Road corridor. High traffic demand on the bridge will be caused primarily by the anticipated City of Mesa Falcon Field development. Once that happens, three lanes in each direction will be needed to handle traffic volumes on the new bridge.	Little - This alternative generates the most SRP-MIC cut through traffic, originating from the east and to the south in the City of Mesa.	Significant	Little - The existing bridge structure could possibly last only until 2015 when the City of Mesa develops its enterprise zone and only if regular scour maintenance is done annually.	1
Dobson Road Bridge	$58.3	$0	Large - The alternative built out scenario in 2030 only creates enough traffic to require two lanes in each direction across the bridge. The need for three lanes does not ocurr until sometime between 2045 and 2050. Deferring construction of this alternative means possibly more difficult, comprehensive, costly and time-consuming environmental task mitigation of the nearby Va Shly'ay Akimel planned improvements. New right of way is required for construction.	Significant - Deferring construction of this alternative increases the most area traffic congestion and encourages the highest levels of SRP-MIC cut through traffic of the four project improvement locations.	Significant - This alternate reduces the most SRP-MIC cut through traffic and decreases the most area traffic congestion.	None	Significant - This alternative generates and conducts the most traffic to developing area properties.	2
McKellips Road Bridge	$34.1	$50	Significant - The most serious traffic accidents happen along this route. Even though flow events ocassionally shut down the existing at grade river crossing, the roadway pavement surface is still in good condition and likely to last for another 30 years despite the on-going need for routine post flow event maintenance. The recent determination of the Alma School Bridge south channel scour critical status elevates the vital importance of maintaining this bridge crossing to reduce area traffic congestion. The Build-out Scenario shows existing conditions in the future will be overwhelmed with traffic congestion, as the existing roadway section is severely deficient. Very little if any right-of-way is required for construction.	Large - It will be much more difficult, costly and harder to manuever if construction of a new bridge is deferred until after 2015 with the existing at grade river crossing acting as a detour due to growing traffic volumes. Building the new bridge before 2015 allows the contractor to utilize the existing pavement surface to handle existing traffic volumes without shutting down the existing roadway and without building an expensive, throw away detour.	Fair - This alternative reduces some of the cut through traffic and some of the area traffic congestion.	Little	Large - This alternative generates a lot of traffic to developing area properties.	3
McKellips Road	$17.8	$0	Moderate - The most serious accidents happen along this route. This site is the least expensive of the four project improvement locations. No new right of way is required for construction.	Large - The existing 4 lanes handle traffic volumes until 2015 when the level of service begins to break down. After 2015 the west side intersections and SR 202L also don't function very well and don't produce the desired traffic level of service "C".	Little - This alternative has little effect on reducing cut through traffic.	Little	Large - This alternative helps support and conduct steady traffic flows to developing area properties.	4

Maricopa County Department of Transportation
Dobson Road Bridges Project

Project Priority Factor Evaluation Matrix

PROJECT	CONSTRUCTION COST	POSITIVE FACTORS	NEGATIVE FACTORS
Gilbert Road Bridge 1st Priority	$69,900,000	○ 2030 traffic shows 6 lanes needed. ● Provides all-weather crossing for connectivity for SRP-MIC Lehi community area. ● Provides all-weather crossing for City of Mesa and landfill connectivity. ◒ Existing bridge is becoming scour vulnerable. ○ Existing site is located farthest upstream away from most existing traffic congestion. ◒ Sets up successful business property development along SR 87. ○ Sets up North Gilbert Road roadway extension.	● Highest construction costs and limited funds. ● Existing low-flow crossing washes out during high flow events requiring road maintenance. ◒ Only generates a small roadway capacity increase. ○ Regular maintenance investment is required. ◒ Existing two damaged northbound lanes need maintenance work. ◒ Cost benefit ratio is very low. ◒ Existing two northbound lanes will reach level of service "F" very soon. ◒ Existing bridge is in poor condition.
Dobson Road Bridge 2nd Priority	$58,300,000	● Largest reduction of SRP-MIC internal road traffic now. ● Connects existing or developing SRP-MIC commercial areas. ○ Construction will be compatible with the Va Shyl'ay Akimel project. ● Constructing bridge takes traffic volume and congestion away from other project sites. ◒ Cost benefit ratio is good. ● Provides largest reduction of area traffic congestion. ◒ Six lanes not needed until after 2045. ○ Conducts traffic to developing business areas. ◒ Project closest to and in midst of most traffic congested area.	● SRP-MIC allotted lands take significant time to acquire. ◒ SRP-MIC cultural resources are unknown and may require extensive evaluation time. ● SRMG operations will be impacted. ● High construction costs and limited funds. ● Extensive right-of-way purchases required before construction. ● Provides no Lehi area community connectivity.
McKellips Road Bridge 3rd Priority	$34,100,000	◒ Road can be closed now. When traffic increases by 2015, road maintenance will be required. ● Scour-vulnerable, Alma School Road Bridge, can be decommissioned for flooding water. ○ Reduces need for periodic river flow maintenance. ◒ Maintenance of traffic easier and less expensive before 2015. ○ Existing roadway pavement in good condition. ○ Below-grade, armored rip rip river crossing can last until 2035.	◒ Cost benefit ratio is very low. ◒ High construction costs and limited funds. ● Traffic congestion will overwhelm deficient roadway section by 2030. ● Provides little Lehi area community connectivity. ◒ After 2045 construction is expensive and throw-away roadway detour is required. ○ Most serious traffic accidents happen along this route. ○ Below-grade river crossing needs routine post-flow event maintenance.
McKellips Road 4th Priority	$17,800,000	◒ Lowest construction costs. ○ Improved road promotes development. ◒ Maintenance of traffic easier and less expensive before 2015.	○ Development not planned along corridor. ● Existing pavement width adequate for traffic only until 2015. ● After 2015 level of service begins to break down when traffic volume increases. ● After 2015 west side intersections and 202L don't function very well. ○ Most serious traffic accidents happen along this route. ◒ Cost benefit ratio is very low.
			Legend ○ No Impact ◒ Minor Impact ● Significant Impact

PROJECT IMPLEMENTATION METHOD - ADVANTAGES, DISADVANTAGES and POTENTIAL PROBLEMS

Delivery Method Design-Bid-Build (DBB)	**Advantages**	**Disadvantages and Potential Problems**
	DBB low bid rules and regulations are firmly established in most government systems for the purposes of promoting Contractor selection fairness in society.	define and measure the value of learned experience, wisdom or creativity of Designers and Contractors.
	It is easy to justify the DBB low bidder and Contractor low bids are irrefutable.	DBB teams do not always keep current with present-day construction cost.
	Contractors, Owners and Voters understand the DBB system.	If not addressed in original DBB design contract documents, redesign costs may become disputed.
	DBB process gives every Contractor an equal chance on the public dollar.	Traditional DBB projects are characterized by high risk.
	Owner/Designer can reject Contractor work not performed according to criteria dictated by plans and specifications.	DBB process is vulnerable to variable market conditions regarding Contractor risk, construction quality and Contractor solvency situations.
	DBB process assists Owner in establishing reasonable Contractor project prices and predictable budget results.	DBB Contractors have little input on effective alternatives presented at Owner and Designer project team post design meetings.
	DBB process prevents Contractor favoritism.	DBB Owners now have third party liability concerns regarding Contractor and Subcontractor disputes.
	DBB process gives the appearance of a least-cost project.	DBB Owners know conflicts and liability may arise over what was logically implied by the drawings.
	DBB project team uses impartial Contractor selection and looks out for Owner's interests.	DBB design and construction team pressures may lead to Designer and General Contractor disputes.
	DBB process renders "cheaper is better" argument invalid, since most Contractor bids are based on complete bidding documents.	DBB development selection process fosters a "cheaper is better" mentality, permitting a few marginal Contractors to win construction contracts.
	DBB project process improves Owner's decision-making alternatives by providing a range of potential project contract adjustment options.	development is becoming more and more invalidated by increasing industrialization and specialization.
	DBB process utilizes traditional Contractor competitive bidding competition to improve the efficiency and quality for Owners.	DBB Owners recognize that Contractors have experience, wisdom and creativity that they want to use to aid Designer's expertise during the design phase, not just in project construction, but cannot.
	DBB process helps to identify new potential Contractors and Subcontractors.	DBB Owners want to use a more manageable and predictable construction procurement process.
	There is always resistance to changing the traditional DBB project development system and using some other project delivery development method or Contractor selection procedure.	DBB Owners want Contractor's advice on Designer's project costs, schedules, value engineering and constructability, so errors and ommisions can be reduced up front, but cannot get it.
	Designers typically represent the Owner's with a fiduciary responsibility. Accordingly, Owners usually avoid Designer bidding and search for the most qualified firm.	DBB designs are typically not reviewed before construction, missing prime opportunities for major time and significant cost savings.
	DBB process Owners have always considered construction a product that Designers can specified and measure, not a professional service, which is why public organizations traditionally buy mortar and brick by competitive bid.	In traditional DBB construction contracts, Subcontractor prices are verbally collected in a few weeks with little legal support and frequent misunderstandings about scope of work responsibilities among Contractors and Subcontractors.
	DBB Owner and Designer have tremendous flexibility to alter any part of their design during the design phase.	DBB Subcontractors often align with their favorite Contractors, providing them with a lower price than their competitors. However, no Contractor is able to secure the best set of Subcontractor prices.
	DBB process provides good contractual protection for the Owner.	In a traditional DBB bidding process, Subcontractor "float" high bid prices to Contractors early in the bidding cycle, afraid that their bid will leak back to their competitors. As the bid deadline approaches, Subcontractor prices drop, and aren't always communicated to all bidding Contractors.
	DBB bidding procedure is very easy for the Owner to administer.	Some DBB Subcontractors will "pad" bids, anticipating "bid shopping" after the contract is awarded.
	DBB process is good for the Owner if the risk and uncertainty is primarily centered on the Designer within the design process.	Competition among DBB Subcontractors may be limited, since friendly Contractor relationships may influence who works on the project, which is unprofessional, unbusinesslike and not cost-effective.
	DBB Owner project costs are defined early by the Designer.	DBB Contractors are typically aligned with Subcontractors, Manufacturers and Suppliers in opposition to the Designer and Owner, making conflict common.
		DBB Designer plans and specifications always contain errors, Owners always make changes and Contractor bids always contain either speculation or outright errors, resulting in strained relationships where the work product suffers.
		DBB projects may have constructability problems if designs are not reviewed before construction.

PROJECT IMPLEMENTATION METHOD - ADVANTAGES, DISADVANTAGES and POTENTIAL PROBLEMS

Delivery Method Design-Bid-Build (DBB)	**Advantages**	**Disadvantages and Potential Problems**
		DBB Contractor is the only one responsible for execution of the work.
		DBB lump sum contracts frequently result in Owner and Contractor disputes.
		DBB Owner must mediate fights between Designer and Contractor disputes.
		DBB Contractor's use of Subcontractors often results in things "falling through the cracks."
		DBB productivity suffers if use of Subcontractors not well managed.
		DBB Designer price has little impact on final project cost.
		DBB Designer design quality has big impact on overall project cost.
		DBB Designer has limited construction process participation.
		DBB Designers sometimes conduct own value engineering, which is not good.
		If DBB Designer's estimates are off, may need to redesign project at own expense.
		About 70% of traditional DBB jobs run over estimates as a result of project budget disconnect.
		DBB construction cannot start until the design is complete.
		DBB process is too rushed to consider multiple alternatives.
		DBB process fosters few participant interactions and reduction of communications.
		DBB sequencial and linear process prevent overlapping tasks and potential money savings.
		DBB process has difficulty utilizing innovative financing opportunities.
		DBB process leads to very conservative design strategies.
		DBB process is difficult for complex projects.
		DBB Owner can be at Contractor's mercy if design changes are required during construction.
		DBB construction comes under pressure to move forward if it's a lump sum contract, or has already bid
		DBB design is fixed after construction starts.
		DBB Contractors often seek changes to make more money during construction.

PROJECT IMPLEMENTATION METHOD - ADVANTAGES, DISADVANTAGES and POTENTIAL PROBLEMS

Delivery Method	Advantages	Disadvantages and Potential Problems
Design-Build (DB)	DB process minimizes project Owner's risk, especially if design is phased.	Early DB cost estimating is sometimes difficult as preliminary designs are subject to frequent changes.
	DB process reduces project delivery time by compressing the development schedule.	DB process is sometimes short-cut, restricting regulatory review efforts to cursory overviews.
	DB process fosters a collaborative environment to complete multiple tasks at the same time.	DB short-cut process may result in an ill-defined scope of work with quality details left out.
	One designated organization becomes responsible and accountable to the Owner as a focused, integrated solution for all DB project design and construction challenges.	DB process demands a sophisticated Owner who can handle submittal oversight, construction phase, product quality, negotiating, etc.
	DB single point-of-contact creates more Owner flexibility that DB teams can leverage for the Owner's benefit by continually refining construction to maximize Owner's value at completion.	Inexperienced DB process designers lacking current construction cost familiarity can result in project redesigns.
	DB process eliminates ordinary project "finger-pointing," allowing the Owner to look to one entity with any questions or concerns that need resolution.	Decreased DB firm accountability to Designer enhances risk of sacrificing design quality to protect DB firm profit.
	DB project team and Owner experience enhanced communications and interactions, which becomes a keystone to a successful project approach.	DB process has fewer checks and balances to handle contract changes, hidden problems, taking a direction the Owner doesn't want and permitting DB firm to submit high change order prices.
	DB project delivery speed is faster than CMAR and DBB.	DB contracts are often written to allow for enexpected situations.
	DB process becomes a value-based project feedback system.	DB completed project price may vary greatly from the original estimate.
	Owner has greater access to the entire DB development team.	Early estimate uncertainty requires Owner to rely heavily on DB competance, acumen and integrity.
	Working design parameters with budgetary goals and innovative construction methodologies makes a scrapped project more likely to be realized as a DB job than utilizing a pure design approach.	DB process is a contract package that doesn't allow the Owner to legally eliminate individual team components.
	DB project intial selection process, determining the most qualified group, provides the selected team key opportunities to maximize Owner's value regarding methods and materials.	Decreased estimate certainty elevates importance of selecting DB firm with a good reputation.
	Owner can make early DB project cost adjustments to furnish a higher yield of return without having to re-bid the entire job.	DB estimates require verifiable accuracy to minimize Owner risk.
	Early finish date DB contract incentives make unfeasible projects profitable and quite possible.	Unseasoned DB firms can sacrifice quality to pad profits at Owner's expense.
	DB construction team is motivated to work with the design team to develop a constructable project.	Owner pays DB firm, but assumes risk and responsibility to review DB project contract documents.
	DB team finds creative ways to reduce construction costs without reducing final product function.	Owner holds DB firm accountable to deliver a quality product with high value.
	Owner gets a reduced Contractor price due to increased constructability of the final DB product.	Owner may have limited work correction options regarding ligitimate DB workmanship concerns.
	An experienced DB team has the greatest opportunity to achieve schedule maintenance, construction speed and construction intensity.	About 25-30% of DB projects typically run over budget, which are primarily Owner-driven.
	DB firm can be single company or joint venture.	DB can be bad if Owner is not involved early to specify important design aspects.
	DB firm can hire Subcontractors.	DB process does not necessarily shorten project development time.
	DB allows easier incorporation of changes caused by site conditions.	DB short-cut process may may force costly change orders to compensate for omitted quality details.
	DB Designer and Contractor conflicts not exposed to Owner.	DB fast track process changes require rework and numerous iterations.
	DB firm is a single source of accountability.	DB Owner is responsible for QA.
	DB process good for developing complex projects.	DB process lacks a third-party observer to oversee the Owner's cost and quality interests.
	Arizona is a national leader in legislating DB process enablement and procedures.	DB process still has major opposition from architectural lobby and unions.
		DB process still has regulatory hurdles to clear.
		Many states still do not permit DB use.
		DB process typically requires a more comprehensive selection process.

PROJECT IMPLEMENTATION METHOD - ADVANTAGES, DISADVANTAGES and POTENTIAL PROBLEMS

Delivery Method Construction Manager at Risk (CMAR)	**Advantages**	**Disadvantages and Potential Problems**
	CMAR project process sets the stage for a free exchange of ideas and information between all of the project participants and removes some of the barriers between design and construction.	Utilizing a CMAR project process with no Contractor bidding competition means the CMAR Owner typically winds up paying a higher total price.
	CMAR process centralizes responsibilities for construction under a single Contractor contract, not with the Owner, enhancing communications.	CMAR project Contractors utilizing prequalified Subcontractors need to provide clear explanations to those not selected as to why, if the lowest Subcontractor bidders are not chosen to be part of the team.
	CMAR project process provides a good balance of consideration of the interests of the Owner, the Designer and the Contractor.	CMAR Contractors, choosing not to select the lowest Subcontractor bidders or providing sound reasons why, risk damaging their respective working relationships on future job opportunities.
	CMAR project Owner can select the most qualified Contractor with whom they are familiar (checking references and examining control systems) and with whom they most prefer to work.	CMAR Owner must provide his own construction management protection services during CMAR Contractor construction.
	CMAR process often results in better quality construction, because the CMAR Owner's Contractor preference is a qualifications-based selection that stands upon on a historic record of readily proven, successful past project performance.	CMAR Contractor is at risk for paying his costs that exceed the Guaranteed Maximum Price (GMP), which do not result from Owner scope of work changes. As a result, CMAR Contractors raise their prices to help cover unknown costs or unforeseen risks.
	CMAR project work can be divided into different scopes of work for different task orders.	CMAR process design fees are typically 5% to 15% higher.
	CMAR Contractors selected for their qualifications, not just lowest price, often maximize client service and allegiance to obtain repeat work, as well as a good reference.	CMAR Contractors usually encounter difficulties getting Subcontractors to submit bids to create enforceable subcontracts regarding incomplete Designer drawings.
	CMAR project Owner requests Contractor's bonded Guaranteed Maximum Price (GMP), which can be negotiated and agreed upon up front, even before the Designer finishes the work.	CMAR projects may become difficult for Owners to sort through when awarding Contractor task orders that use Designer's partially developed plans for Subconstractor cost estimates.
	CMAR Contractor can minimize risk by taking Subcontractor's work bids before submitting GMP. Minimizing risk means minimizing Owner's costs.	CMAR Contractors must rely heavily on their own construction cost estimates due to incomplete Owner and Designer contract documents.
	Eliminating CMAR bid shopping results in lower cost and better Owner Contractor relationship.	CMAR process has highest potential for conflict of interest.
	CMAR Owner has flexibility to renegotiate price or ask the Contractor for a Best and Final Offer.	Chances of problems developing during CMAR construction is increased.
	CMAR competition is more equitable and all Subcontractors have a fair shot at the work.	CMAR project risks are generally not completely identified before construction begins.
	CMAR Contractor pricing is fair and trust prevails, because the project is an "open book," eliminating adversarial team relationships.	If the CMAR Owner waits until the last moment to request a GMP from the Contractor, it will help reduce project contingency costs.
	CMAR process minimizes risk for Contractors, Subcontractors, Owners and Designers.	Undefined contract risks typically drive up CMAR Contractor project prices.
	CMAR project Contractor assumes the majority of construction risks, while risk to the Owner and Designer is greatly reduced.	Contractor is hired late, the team receives less value from the Contractor during design, creating a lot of tension.
	CMAR process doesn't require a fully developed set of plans and specifications, nor the use of a contract document bidding process or contract execution process, which saves a lot of project development time.	CMAR disputes can arise from what may have been logically implied, but what was not included in the incomplete plans and specs when the Contractor submitted the GMP. As a result, Contractors tend to bid CMAR work conservatively with higher costs, protecting their own profits and assumed risk.
	CMAR process design costs are managed within the Owner's budget limits.	If CMAR Contractors underestimate their costs, claims and conflict generally follow.
	CMAR projects don't require resolution of all problems before construction.	CMAR project costs are not the lowest of all construction implementation methods.
	CMAR project design and cost adjustments can be made well before construction begins.	CMAR process is generally not suitable for small projects.
	CMAR Contractor and Designer experience, wisdom, skill and creativity are combined at the table with Owner understanding of project requirements.	If the Designer underestimates unbid work, or if the Owner makes capricious changes or additions, the Contractor will submit change orders and claims and the old adversarial relationship returns.
	CMAR Owner and Designer benefit from collaboration with Contractor's cost, scheduling and technology experience during design and construction to formulate innovation solutions.	CMAR GMP is subject to GMP cost increases if the Owner or Designer choose to make contract document changes or task order additions.
	CMAR project constructability and quality enhanced by bringing Contractor on board to actively work with Designer, reducing design errors before construction starts, reducing Designer risk.	The Contractor's GMP is a well-defined price for a yet undefined product.
	CMAR Designers can review Contractor work approach, making helpful recommendations.	Contractor exerts pressure to complete design work and move forward into construction.

PROJECT IMPLEMENTATION METHOD - ADVANTAGES, DISADVANTAGES and POTENTIAL PROBLEMS

Delivery Method Construction Manager at Risk (CMAR)	**Advantages**	**Disadvantages and Potential Problems**
	Good Designers with adequate project contingencies make the Contractor's GMP work for the Owner throughout the entire CMAR process.	CMAR contract can be hard to enforce.
	CMAR Owner can begin construction and add additional work by using task orders.	
	If CMAR Owner is not satisfied, Owner can simply choose not to issue Contractor any task orders.	
	CMAR projects can enter the construction phase very rapidly by phasing the work.	
	CMAR project Contractor can mobilize almost immediately.	
	CMAR project funding can be spent almost immediately.	
	CMAR project Contractor acts with the Owner's best project development interests in mind by working closely with the Designer during the design phase.	
	CMAR process produces a more methodical, manageable, predictable and less risky project outcome for the team.	
	CMAR process makes the most efficient use of everyone's time and efforts.	
	CMAR process maximizes awareness among all parties of everyone's needs and expectations.	
	CMAR process still allows for Owner to make significant project changes during construction.	
	Each CMAR Contractor must deliver the best bid to get the project and the Owner winds up with the low sub-set of prices.	
	A CMAR Contractor contingency within the GMP covers unexpected, but justifiable costs and a Designer contingency above the GMP allows for Owner changes.	
	CMAR claims between Contractors and Subcontractors are handled separately without the Owner who realizes a reduction in Contractor construction claims.	
	CMAR project construction can begin before the Designer finishes the drawings and before the Owner is provided a GMP by the Contractor. However, most Owners want a GMP before construction starts.	
	CMAR process maintains positive working relationships among all involved parties.	
	CMAR team works with more control and unity.	
	CMAR construction procurement process is more businesslike.	
	CMAR Contractor can take Subcontractor bids during completion of contract documents and prior to the GMP, which reduces Contractor's risk and provides useful Subcontractor design input.	
	Each CMAR Contractor has a fair shot at becoming the low bidder without fear of "bid shopping."	
	CMAR project process is a more professional approach to construction.	
	CMAR Owner receives best balanced goals of cost, schedule and quality.	
	Delaying the Owner GMP request from the CMAR Contractor to include more defined work items into the project scope means the Contractor's contingency price will probably be smaller.	

PARSONS INTEROFFICE CORRESPONDENCE

Address: 4801 E. Washington St. #250, Phoenix, AZ 85034 • Telephone: 602.852.9195 • Fax 602.952.9303 • www.parsons.com

		DATE:	September 27, 2008
TO:	File	FROM:	Stanley D. Polasik, P.E.
LOCATION:	**PARSONS** - Phoenix	LOCATION:	**PARSONS** - Phoenix
PHONE:		PHONE:	602.852.9195
SUBJECT:	Dobson Road Bridges at Salt River DCR: *Technical Recommendations for Preferred Alternatives*	FILE NO.646773-20	

GENERAL

On September 8, 9 and 15, 2008, two stakeholder public meetings on the SRP-MIC and a public meeting in the City of Mesa were held to obtain public input to help select preferred alternatives for the four locations of the Dobson Road Bridges at Salt River DCR project. Additionally, the same information presented during these meetings was displayed before the SRPMIC Tribal Council on June 26, 2008. Seven alternatives were presented for the Salt River Bridge crossing at Dobson Road, three alternatives each for the McKellips Road Widening and the Salt River Bridge crossing at Gilbert Road, as well as two alternatives for the Salt River bridge crossing at McKellips Road. The Alternative and Evaluation Matrix shown at these meetings are attached. Exhibits for the McKellips Road Widening are not shown but only described. McKellips Road is shown on the Dobson Road Alternative exhibit.

This memorandum documents the technical rationale Parsons used as a basis to recommend the preferred alternative for each project location. These recommendations are made after evaluating the public's questions and concerns as well as those voiced by the various involved agencies.

SALT RIVER BRIDGE AT GILBERT ROAD

At Gilbert Road and the Salt River three alignment alternatives were considered. The new bridge could be located along the existing bridge alignment (G2), the existing at-grade crossing of the Salt River (G3), or somewhere in between (G1). Alternative G2 is positioned along the western edge of the existing right-of-way, while Alternative G3 is located closer to the east edge of the right-of-way. Each alternative has roughly the same construction cost and about the same roadway footprint needed for right-of-way acquisition. The only other difference is the alignment geometry. Using the existing northbound Gilbert Road for the new roadway route, the alignment geometry requires more curves to position a better alternative within the existing right-of-way that could allow any future roadway expansion to either side. However, this is not a significant factor.

The three alternatives all result in a low magnitude of change to the visual character of the project site. All three alternatives would increase wildlife connectivity at this location. All three alternatives are bridge structures that will have similar impacts on visual and biological resources. There may be short-term benefits to selecting Alternative G3 because it would result in the least ground disturbance.

Memorandum
To: File
From: Stan Polasik
Re: Dobson Road Bridges at Salt River
Recommended Preferred Alternative
Date: September 27, 2008

Technical Recommendation

Alternative G1, which is located between the existing southbound and northbound Gilbert Road pavement sections allows the bridge to be constructed without significant disruption to current traffic flows. Consequently, Alternative G1 is the Recommended Preferred Alternative for this location.

SALT RIVER BRIDGE AT DOBSON ROAD

There were three original planned alternatives designed to connect Dobson Road at the SR202 interchange with McKellips Road. These alternatives would: provide a connection straight north to McKellips Road (D1), connect at the existing Dobson Road intersection with McKellips (D2) and connect to the existing 92nd Street intersection with McKellips Road (D3). After gaining input from the Salt River Materials Group (SRMG), several alternatives were added for a more complete route evaluation. These alternatives were planned and designed to reduce disturbances to current SRMG operations. Overall, seven alternatives were evaluated for Dobson Road.

All alternatives except for D1b have major impacts on the SRMG operations. However, Alternative D1b connects to Longmore Road, shifting the Dobson Road connection to McKellips Road farther east than most traffic desires to travel and adding additional distance for the motoring public when compared to the other alternatives. Alternatives D1and D1a are aligned through or near SRMG's Asphalt operation facilities and require some route modification to miss critical plant infrastructure. The cost estimate includes an SRMG equipment underpass, which would be a depressed roadway crossing under alignments for Alternatives D1 or D1a. This depressed roadway would seriously affect the day-to-day SRMG asphalt plant operations, which is planned to be in operation for a significant time after the construction of the Dobson Road crossing. Thus, none of the D1 alternatives can be recommended. Alternatives D2 and D2a have alignments in an area between the SRMG asphalt and aggregate material operations. Alternative D2 requires replacement of SRMG's office building. Cost estimates have assumed that an equipment underpass of Dobson Road would be needed. For all of the D2 alignments it appears that this underpass could easily be accommodated without adding any significant SRMG operational difficulties.

Alternatives D1 and D2, and the variants to these alternatives, connect to McKellips Road at points east of 92nd Street, which promotes an increased use of SRPMIC interior roadways by cut-through traffic. These interior roadways are typically residential, low-volume roadways that are cannot accommodate increased traffic volumes. By contrast, Alternatives D3 and D3a connect directly to 92nd Street at McKellips Road. Significant development is planned for all of the open areas along both sides of SR101 and west of 92nd Street, which will ultimately need to be upgraded to an arterial roadway. Alternative alignments for both D3 and D3a are more preferable than the other alignments.

The major difference between Alternative D3 and D3a is that alternative D3a is closer to the percolation ponds and riparian wetland areas near the Salt River. Alternative D3a would require relocation of some wetland areas and would also leave less room for future development when SRMG's aggregate operation closes in 3 to 7 years. It is assumed that SRMG aggregate operation infrastructure and land area will eventually be converted into business office space or other

commercial development. As a result, Alternative D3 would be better because it would provide more space for development between Dobson Road and the Salt River.

Alternatives D3 and D3a will likely impact three residential properties at the south east corner of 92nd Street and McKellips Road. Relocation costs have been included in the estimate.

The seven alternatives all result in a moderate magnitude of change to the visual character of the project site. All seven alternatives will have similar impacts on visual, biological, and water resources; no environmentally-preferred alternative exists for these resources.

Technical Recommendation

Considering these evaluation factors, the Recommended Preferred Alternative for the Salt River Bridge at Dobson Road is Alternative D3, primarily because it meets future traffic demands, while reducing cut-through traffic on interior SRPMIC roadways. Alternative D3 also minimizes the impacts to SRMG operations and connects existing developed commercial areas to the planned commercial areas on SRPMIC lands.

SALT RIVER BRIDGE AT MCKELLIPS ROAD

The existing Salt River crossing at McKellips Road is currently situated just below the river bottom grade and is closed during any flow in the Salt River, and the alignment is laid out on a reversing curve between the existing McKellips Road interchange with SR202 and the McKellips Road and Alma School Road Intersection. Alternative alignments were selected to use the existing pavement alignment (M1), south of the existing pavement (M2) and north of the existing pavement (M3). The alignments to the north and south would be used to maintain the existing McKellips Road pavement for as long as practical during bridge construction. Alternative M3 requires modification of the existing SR202 bridge abutment to maintain proper roadway clearences and was not considered a viable alternative. Since McKellips Road closes during Salt River flow events and the MAG model indicates that the existing area traffic network still operates in a fairly satisfactory manner, it is envisioned that McKellips Road will be closed during bridge construction. The only practical difference between Alternatives M1 and M2 is that the alignment for McKellips Road lies just east of the Alma School Road intersection. Alternative M2 requires a sharper curve than M1 which would compound the existing radius of curvature west of Alma School Road. From a geometric and traffic operations standpoint, Alternative M1 is the better choice. The construction costs are about the same with Alternative M2 costing slightly more.

The three alternatives all result in a moderate magnitude of change to the visual character of the project site. All three alternatives would increase wildlife connectivity at this location. All three alternatives are bridge structures that will have a similar level of impact on visual, biological, and water resources; no preferred alternative exists for these resources.

Technical Recommendation

Accordingly, the Recommended Preferred Alternative is M1, which uses the existing McKellips Road Alignment and requires no right-of-way acquisitions.

MCKELLIPS ROAD WIDENING

Three alternatives were evaluated for the widening of McKellips Road between Alma School Road and the SR101 interchange with McKellips Road. The alternatives were planned and designed to widen to both sides of the existing McKellips Road (MR1), place all of the widening to the north of the existing pavement (MR2) and place all of the widening to the south of the existing pavement (MR3). Alternatives MR2 and MR3 would require more extensive roadway pavement reconstruction as the crown of the pavement would need to shift over to a new centerline. Alternative MR1 would keep the crown in the same location. This may not be a significant differentiator, since the median is planned to be curbed and the theoretical crown would be located in the landscaped median area. However, there are three existing businesses along McKellips Road, all located near McKellips Road. Alternative MR1 has minimal impact to these businesses. The parking lot to one of these businesses along the north side is impacted by Alternative MR2. Alternative MR3 impacts to a lesser extent a parking lot for one of the businesses to the south. Overall there appears to be no advantage to widening to one side or the other. There is no significant cost difference between these alternatives except for MR2 where widening to the north causes a significant impact to a business parking lot.

The three alternatives all result in a low magnitude of change to the visual character of the project site. Alternative MR1 would have the least impact on biological and water resources and is the preferred alternative for these resources.

Technical Recommendation

Consequently, Alternative MR1 is the Recommended Preferred Alternative as there is no significant benefit to widen to either side.

SUMMARY

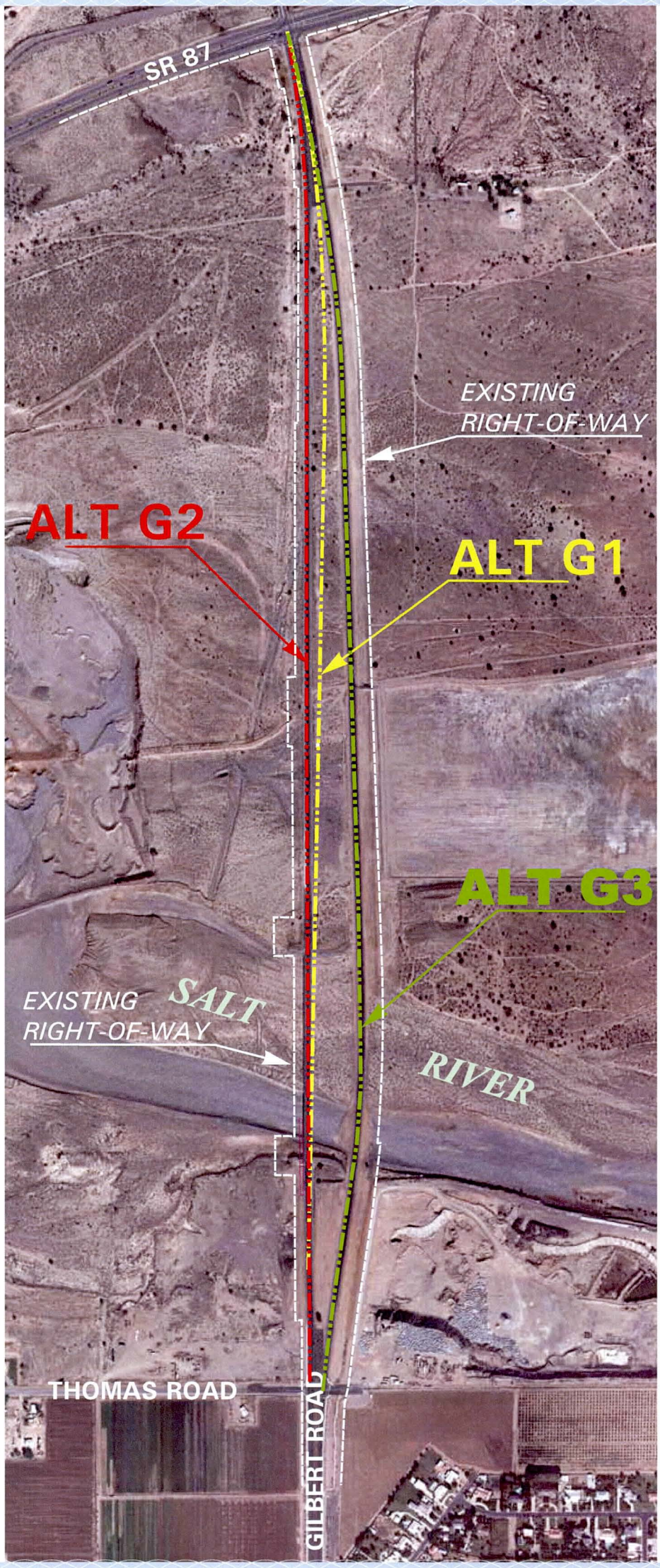
The Recommended Preferred Alternative for the Salt River Bridge at Gilbert Road is Alternative G1 which places the new bridge between the existing bridge site and the existing low flow crossing.

The Recommended Preferred Alternative for the Dobson Road Bridge crossing is Alternative D3, which connects the existing Dobson Road and SR202 Interchange with 92nd Street. Alternate D3 connects the existing commercial areas in the City of Mesa with the planned commercial areas on the SRP-MIC land, significantly reduces internal SRP-MIC cut-through traffic, causes minimal disruption to SRMG operations, while still leaving adequate space for ultimate commercial development where SRMG is currently operating.

The Recommended Preferred Alternative for the Salt River Bridge Crossing at McKellips Road is M1, which uses the existing McKellips Road alignment. Using an alignment to either side increases the curvature at the Alma School Road intersection and exacerbates traffic operational difficulties.

The Recommended Preferred Alternative for the McKellips Road widening is Alternative MR1 which widens to each side. There is no significant benefit to widen to either side.

SALT RIVER BRIDGES @ GILBERT ROAD



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MARICOPA COUNTY MCDOT TRANSPORTATION
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SALT RIVER BRIDGES @

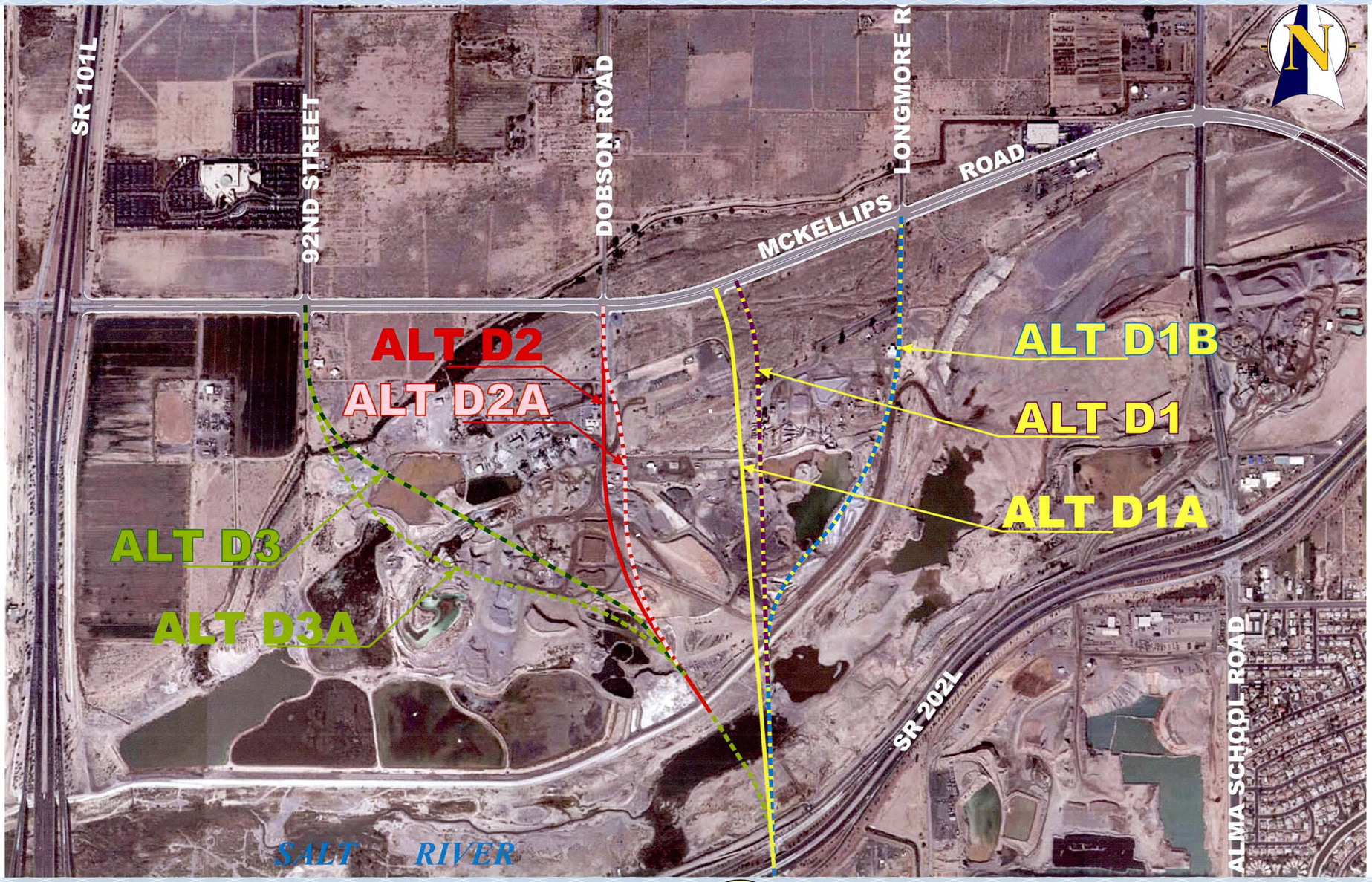
DOBSON ROAD - MCKELLIPS ROAD - GILBERT ROAD

Gilbert Road Bridge @ Salt River Evaluation Matrix

EVALUATION CRITERIA	G1	G2	G3
Geometric Complexity of Alignment	Straight	Straight	Minor Curves
Impact to Existing and Planned Utilities	Minor	Minor	Minor
Impact to Existing Roadway Network	None	None	None
Promotes Increased Traffic to Interior SRP-	No	No	No
Compatibility with Current Land Uses	Good	Good	Good
Compatibility with Future Land Use Plans	Good	Good	Good
Maintenance of Traffic Flow During Construction	Good	Fair - Limited to 1-lane each direction	Fair - Limited to 1-lane each direction
Additional Right-Of-Way Requirements	No	No	No
Cost Estimate	$69,779,902	$69,804,115	$69,860,403
Public Acceptability			

2008

SALT RIVER BRIDGES @ DOBSON ROAD



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SALT RIVER BRIDGES @

DOBSON ROAD - MCKELLIPS ROAD - GILBERT ROAD

Dobson Road @ Salt River Evaluation Matrix

EVALUATION CRITERIA	D1	D1a	D1b	D 2	D 2a	D 3	D 3a
Geometric Complexity of Alignment	Minor	Minor	Major - Undesirable Curves	Minor	Major	Minor	Minor
Impact to Existing and Planned Utilities	Minor	Minor	Minor	Minor	Minor	Minor	Minor
Impact to Existing Roadway Network	SRMG Operating Grounds (Minor)	SRMG Operating Grounds (Minor)	SRMG Operating Grounds (Minor)	SRMG Operating Grounds (Major)	SRMG Operating Grounds (Major)	SRMG Operating Grounds (Minor)	SRMG Operating Grounds (Minor)
Promotes Increased Traffic to Interior SRP-MIC Street System	Yes	Yes	Yes	Yes	Yes	No	No
Compatibility with Current Land Uses	Poor	Fair	Good	Poor	Fair	Poor	Good
Compatibility with Future Land Use Plans	Poor	Poor	Poor	Fair	Fair	Good	Good
Maintenance of Traffic Flow During Construction	Good	Good	Good	Good	Good	Good	Good
Additional Right-Of-Way Requirements	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cost Estimate	$58,641,000	$58,170,000	$57,736,000	$52,102,000	$52,450,000	$58,285,000	$60,061,000
Public Acceptability							

2008

SALT RIVER BRIDGES @

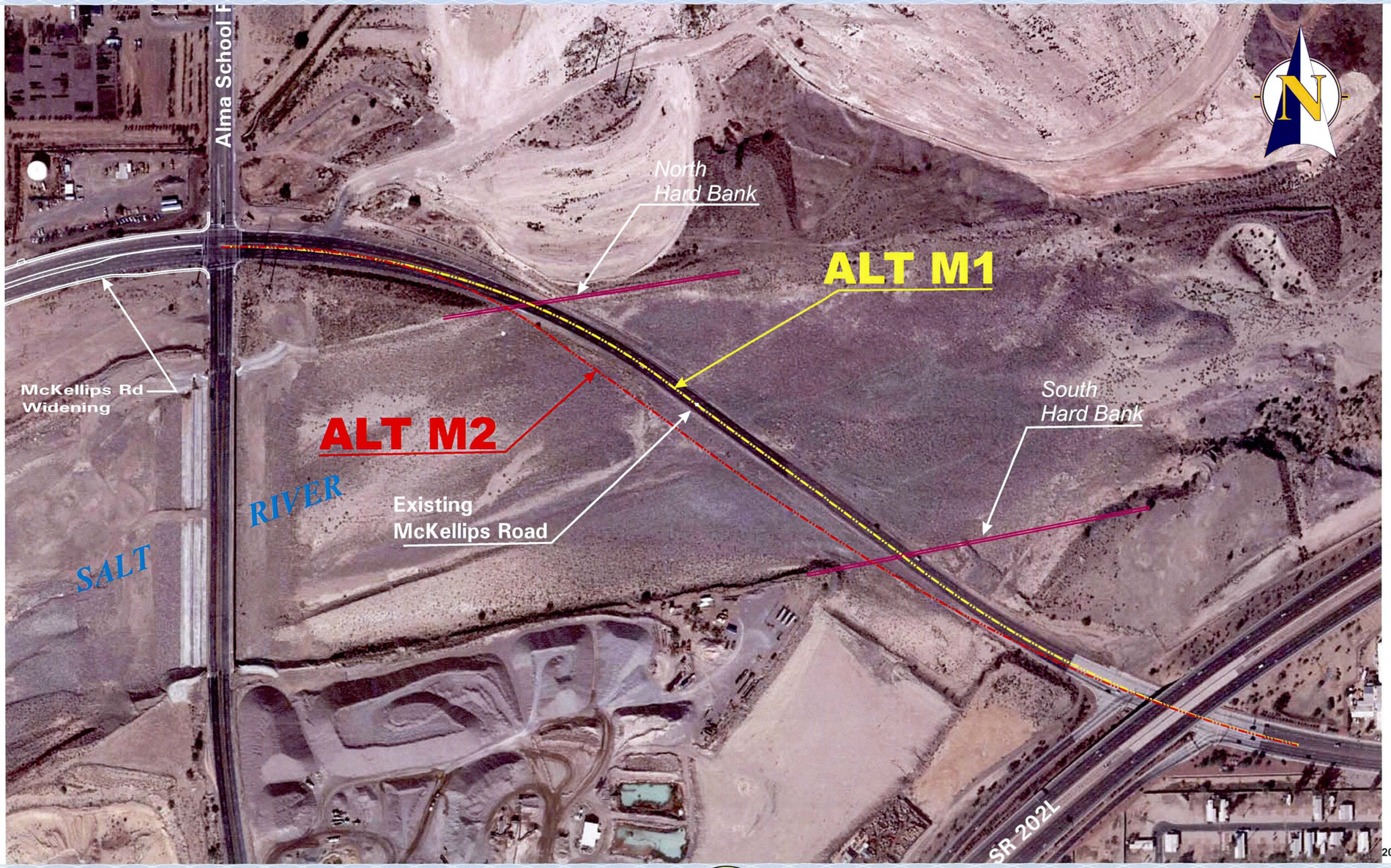
DOBSON ROAD - MCKELLIPS ROAD - GILBERT ROAD

Mckellips Road Bridge @ Salt River Evaluation Matrix

EVALUATION CRITERIA	M1	M2
Geometric Complexity of Alignment	None - Same as Existing	Minor - Shifted South of Existing
Impact to Existing and Planned Utilities	Minor	Minor
Impact to Existing Roadway Network	Minor	Minor
Promotes Increased Traffic to Interior SRP-MIC Street System	No	No
Compatibility with Current Land Uses	Good	Good
Compatibility with Future Land Use Plans	Good	Good
Maintenance of Traffic Flow During Construction	Poor - Limited Detour Rd or Complete Closure	Fair - Limited during construction.
Additional Right-Of-Way Requirements	Yes	Yes
Cost Estimate	$33,946,573	$34,908,208
Public Acceptability		

2008

SALT RIVER BRIDGES @ MCKELLIPS ROAD



Maricopa County Department of Transportation

Salt River Pima-Maricopa Indian Community

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SALT RIVER BRIDGES @

DOBSON ROAD - MCKELLIPS ROAD - GILBERT ROAD

McKellips Road Widening Evaluation Matrix

EVALUATION CRITERIA	MR1	MR2	MR3
Geometric Complexity of Alignment	Same as Existing	Minor - Roadway shifted 10ft North of existing	Minor - Roadway shifted 10 ft South of existing
Impact to Existing and Planned Utilities	Minor	Minor	Minor
Impact to Existing Roadway Network	Minor	Major	Major
Promotes Increased Traffic to Interior SRP-	No	No	No
Compatibility with Current Land Uses	Good	Fair	Fair
Compatibility with Future Land Use Plans	Good	Fair	Fair
Maintenance of Traffic Flow During Construction	Good	Good	Good
Additional Right-Of-Way Requirements	Yes	Yes	Yes
Cost Estimate	$8,603,895	$9,052,250	$8,654,923
Public Acceptability			

2008

APPENDIX N BENEFITS/COST

APPENDIX N BENEFITS/COST ANALYSIS

Table 19-1. Benefits/Cost Ratios Dobson Road/Bridge

Alternative	Discounted Cost	Gross Benefits	Net Benefits	Benefits/ Cost Ratio
D1 - Dobson Rd (L202 to McKellips between Dobson and Longmore)	59,538,500	103,821,300	44,282,800	1.74
D1a - Dobson Rd (L202 to McKellips between Dobson and Longmore)	59,162,200	103,820,900	44,658,700	1.75
D1b - Dobson Rd (L202 to McKellips at Longmore)	59,070,500	92,430,800	33,360,300	1.56
D2 - Dobson Rd (L202 to McKellips at Dobson)	55,909,200	104,894,700	48,985,500	1.88
D2a - Dobson Rd (L202 to McKellips at Dobson)	55,496,900	104,894,300	49,397,400	1.89
D3 - Dobson Rd (L202 to McKellips at 92nd St)	61,429,800	88,586,800	27,157,000	1.44
D3a - Dobson Rd (L202 to McKellips at 92nd St)	61,217,000	88,586,600	27,369,600	1.45

Table 19-2. Benefits/Cost Ratios for McKellips Road Widening

Alternative	Discounted Cost	Gross Benefits	Net Benefits	Benefits/ Cost
M1 - McKellips Rd (Alma School Rd to Loop 202)	28,246,700	9,841,800	(18,404,900)	0.35
M2 - McKellips Rd (Alma School Rd to Loop 202)	28,598,800	9,841,800	(18,757,000)	0.34

Table 19-3. Benefits/Cost Ratios for McKellips Road Bridge

Alternative	Discounted Cost	Gross Benefits	Net Benefits	Benefits/ Cost
M1 - McKellips Rd (Alma School Rd to L202)	12,932,800	4,876,000	(8,056,800)	0.38
M2 - McKellips Rd (Alma School Rd to L202)	13,364,400	4,876,000	(8,488,400)	0.36

Table 19-4. Benefits/Cost Ratios for Gilbert Road Bridge

Alternative	Discounted Cost	Gross Benefits	Net Benefits	Benefits/ Cost
G1 - Gilbert Rd (Thomas Rd to SR 87)	58,600,100	29,083,200	(29,516,900)	0.50

McKellips Rd Bridge at Salt River - Alt M1 and M2

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VarName	Mean	StdDev	1%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%	99%
Total Benefits, $M	254.4519	123.9303	135.9574	140.3460	158.6158	167.7200	185.0563	196.0795	213.6321	229.2751	255.8259	317.6158	383.5706	476.6984	711.7426
Economic Rate of Return, %	-48.0873	80.1148	-100.0000	-100.0000	-100.0000	-100.0000	-100.0000	-100.0000	-100.0000	-100.0000	23.9098	31.6140	61.6291	90.8777	169.9271
Benefit Cost Ratio	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Payback Period, Years	4.0200	3.2341	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	2.0000	7.0000	10.0000	10.5000	11.0000
First Year Benefit Ratio	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Travel Time Savings, PV $M	147.4110	75.6631	65.9191	90.9463	95.3076	98.0966	104.3134	111.8484	115.8571	134.2869	149.9092	168.2961	224.6425	260.7596	434.4918
Vehicle Operating Cost Savings, PV $M	53.0964	8.7348	32.2470	37.7613	40.9097	44.4227	49.3570	51.4011	53.4847	55.0023	56.6520	58.1297	62.7175	68.0264	72.1463
Accident Cost Savings, PV $M	53.9445	94.6765	-2.9801	1.4174	5.4503	10.6922	12.3950	13.7354	19.4731	21.2700	30.3797	58.8051	149.4912	228.7327	432.8296
Emission Cost Savings, PV $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total Capital Costs, PV $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Right-of-Way Cost Savings, PV $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Project Cost Savings, PV $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maintenance Cost Savings, PV $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Base-Travel Time Costs $M	1106.9180	544.3237	573.5300	696.9530	723.2621	775.6712	796.1581	856.6808	915.5316	1030.3600	1081.3290	1219.2950	1688.8360	1962.8460	3173.0220
Base-Vehicle Operating Cost $M	780.0577	145.1564	440.4650	524.3207	589.0875	640.8175	699.3954	755.3015	793.6789	822.8420	848.7950	873.2903	980.0313	1042.6260	1064.9450
Base-Accident Cost $M	1874.2390	3411.0810	-169.9586	-19.2844	126.1328	325.2114	368.1072	418.4170	585.6415	739.2326	1001.6230	2030.3860	5356.4650	8141.3760	15537.5300
Base-Emission Cost $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Base-Total User Cost $M	3761.2150	3475.2810	1282.0550	1431.3470	1572.9610	1947.9440	2112.6440	2407.0940	2569.3130	2889.7560	3127.5590	3887.7370	7294.9980	10542.0700	17299.0500
Base-Capital Cost $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Base-Maint Cost $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Base-Right-of-Way Cost $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Base-Other Cost $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Alt-Travel Time Costs $M	959.5068	468.9104	507.6109	604.1614	628.1035	674.9980	700.8505	744.5175	796.4783	894.7841	942.0905	1055.4770	1464.1930	1702.0860	2738.5300
Alt-Vehicle Operating Cost $M	726.9614	136.5516	408.2180	486.3404	548.0704	597.6230	648.4847	702.6298	738.6766	767.3997	794.2324	815.1640	917.5274	972.7449	994.7761
Alt-Accident Cost $M	1820.2950	3316.4120	-169.5322	-20.0633	122.1987	311.5664	357.4150	404.6815	567.7871	716.6223	971.2433	1971.5810	5206.9740	7912.6430	15104.7000
Alt-Emission Cost $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Alt-Total User Cost $M	3506.7630	3368.1360	1119.3210	1292.0520	1403.2520	1784.2110	1912.4620	2211.0140	2334.8930	2598.4090	2908.5110	3469.0010	6969.6120	9968.4130	16684.2700
Alt-Capital Cost $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Alt-Maint Cost $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Alt-Right-of-Way Cost $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Alt-Other Cost $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	External	Internal	FINAL	% Applied
ACCIDENT BENEFITS	0.0000	19.4731	19.4731	3.22%
OTHER EXTERNAL BENEFITS	0.0000		0.0000	
NON ACCIDENT BENEFITS		194.1590	194.1590	
TOTAL BENEFITS ($M)			213.6321	
NET BENEFITS ($M)			213.6321	6.8789536
FINAL TOTAL B/C			N/A	

Project: McKellips Rd at Salt River - Alt M1 Date: 4/13/2007

VarName	Mean	StdDev	1%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%	99%
Net Benefits, PV $M	-27.5558	3.3491	-38.0688	-31.8000	-30.9584	-29.7830	-29.5662	-28.9368	-28.2305	-27.0800	-26.3191	-25.4455	-24.4304	-21.5910	-17.7385
Economic Rate of Return, %	-1.0793	162.8926	-100.0000	-100.0000	-100.0000	-100.0000	-100.0000	-100.0000	-100.0000	-100.0000	-100.0000	208.9187	241.4318	292.1314	394.8108
Benefit Cost Ratio	-0.0063	0.0727	-0.2614	-0.1891	-0.1465	-0.0460	-0.0222	0.0059	0.0151	0.0295	0.0386	0.0467	0.0554	0.0625	0.0800
Payback Period, Years	11.0600	9.0031	1.0000	1.0000	1.0000	1.0000	2.0000	3.0000	6.0000	20.0000	20.0000	20.0000	20.0000	20.0000	20.0000
First Year Benefit Ratio	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total Benefits, PV $M	-0.1612	1.9029	-6.3722	-5.1962	-3.7372	-1.4318	-0.6202	0.1307	0.3808	0.7506	1.0306	1.2549	1.4505	1.7761	2.1795
Total Capital Costs, PV $M	27.3946	3.0671	14.7215	19.8782	23.4568	25.5762	26.3615	27.0909	28.2467	28.5082	29.0256	29.7683	30.4914	30.6875	31.2032
Vehicle Operating Cost Savings, PV $M	-0.0529	0.9610	-3.1420	-1.9487	-1.5202	-0.9074	-0.4021	-0.1489	0.1258	0.3082	0.4442	0.7083	0.8271	1.3047	1.7328
Accident Cost Savings, PV $M	-0.9356	1.7023	-7.5537	-6.2042	-3.3087	-1.5510	-0.8104	-0.3963	-0.3038	-0.2027	-0.0896	0.0120	0.1225	0.2377	0.3685
Travel Time Savings, PV $M	0.8530	0.2328	0.3157	0.5130	0.6087	0.6639	0.7526	0.7814	0.8070	0.8581	0.9327	0.9769	1.0746	1.2826	1.5867
Emission Cost Savings, PV $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maintenance Cost Savings, PV $M	-0.0257	0.0076	-0.0395	-0.0360	-0.0351	-0.0329	-0.0306	-0.0287	-0.0276	-0.0242	-0.0221	-0.0206	-0.0177	-0.0106	-0.0059
Right-of-Way Cost Savings, PV $M	-0.4728	0.0529	-0.5484	-0.5324	-0.5281	-0.5173	-0.5052	-0.4953	-0.4889	-0.4693	-0.4562	-0.4460	-0.4256	-0.3640	-0.3041
Other Project Cost Savings, PV $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	External	Internal	Final	
ACCIDENT BENEFITS	2.5820	-0.3038	**2.2782**	
OTHER EXTERNAL BENEFITS	6.8790		**6.8790**	Other benefits from closure network analysis
NON ACCIDENT BENEFITS	0.6846	0.6846	**0.6846**	
TOTAL BENEFITS ($M)			**9.8418**	
NET BENEFITS ($M)			**-18.4049**	
FINAL TOTAL B/C			**0.35**	

Project: McKellips Rd at Salt River - Alt M2 Date: 4/13/2007

VarName	Mean	StdDev	1%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%	99%
Net Benefits, PV $M	-27.8972	3.3808	-38.4546	-32.1741	-31.3399	-30.1495	-29.9421	-29.3103	-28.6015	-27.4248	-26.6518	-25.7643	-24.6883	-21.8560	-17.9731
Economic Rate of Return, %	-0.8412	163.2906	-100.0000	-100.0000	-100.0000	-100.0000	-100.0000	-100.0000	-100.0000	-100.0000	-100.0000	209.6424	242.2334	293.0614	396.1065
Benefit Cost Ratio	-0.0063	0.0718	-0.2582	-0.1868	-0.1447	-0.0454	-0.0219	0.0058	0.0149	0.0291	0.0381	0.0461	0.0547	0.0617	0.0790
Payback Period, Years	11.0600	9.0031	1.0000	1.0000	1.0000	1.0000	2.0000	3.0000	6.0000	20.0000	20.0000	20.0000	20.0000	20.0000	20.0000
First Year Benefit Ratio	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total Benefits, PV $M	-0.1612	1.9029	-6.3722	-5.1962	-3.7372	-1.4318	-0.6202	0.1307	0.3808	0.7506	1.0306	1.2549	1.4505	1.7761	2.1795
Total Capital Costs, PV $M	27.7361	3.1053	14.9050	20.1259	23.7492	25.8950	26.6900	27.4285	28.5988	28.8635	29.3873	30.1393	30.8714	31.0699	31.5921
Vehicle Operating Cost Savings, PV $M	-0.0529	0.9610	-3.1420	-1.9487	-1.5202	-0.9074	-0.4021	-0.1489	0.1258	0.3082	0.4442	0.7083	0.8271	1.3047	1.7328
Accident Cost Savings, PV $M	-0.9356	1.7023	-7.5537	-6.2042	-3.3087	-1.5510	-0.8104	-0.3963	-0.3038	-0.2027	-0.0896	0.0120	0.1225	0.2377	0.3685
Travel Time Savings, PV $M	0.8530	0.2328	0.3157	0.5130	0.6087	0.6639	0.7526	0.7814	0.8070	0.8581	0.9327	0.9769	1.0746	1.2826	1.5867
Emission Cost Savings, PV $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maintenance Cost Savings, PV $M	-0.0257	0.0076	-0.0395	-0.0360	-0.0351	-0.0329	-0.0306	-0.0287	-0.0276	-0.0242	-0.0221	-0.0206	-0.0177	-0.0106	-0.0059
Right-of-Way Cost Savings, PV $M	-0.4728	0.0529	-0.5484	-0.5324	-0.5281	-0.5173	-0.5052	-0.4953	-0.4889	-0.4693	-0.4562	-0.4460	-0.4256	-0.3640	-0.3041
Other Project Cost Savings, PV $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	External	Internal	Final	
ACCIDENT BENEFITS	2.5820	-0.3038	**2.2782**	
OTHER EXTERNAL BENEFITS	6.8790		**6.8790**	Other benefits from closure network analysis
NON ACCIDENT BENEFITS	0.6846	0.6846	**0.6846**	
TOTAL BENEFITS ($M)			**9.8418**	
NET BENEFITS ($M)			**-18.7570**	
FINAL TOTAL B/C			0.34	

Project: McKellips Rd (Loop 101 to Alma School Rd) - Alt M1 Date: 4/13/2007

VarName	Mean	StdDev	1%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%	99%
Net Benefits, PV $M	-7.3724	5.1003	-26.2833	-15.1272	-14.7921	-12.2288	-10.2385	-8.9024	-7.2208	-6.3263	-3.8802	-2.4752	-1.9811	0.3523	1.9173
Economic Rate of Return, %	-17.3084	85.2762	-100.0000	-100.0000	-100.0000	-100.0000	-100.0000	-100.0000	-11.5760	-1.8641	7.2720	87.9711	106.0876	112.2431	125.8888
Benefit Cost Ratio	0.3977	0.4127	-0.8513	-0.4539	-0.0753	0.0305	0.1837	0.2912	0.4503	0.5070	0.6209	0.7877	0.8485	1.0220	1.1318
Payback Period, Years	7.5400	8.5445	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	3.0000	18.0000	20.0000	20.0000	20.0000	20.0000
First Year Benefit Ratio	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total Benefits, PV $M	5.1703	5.2809	-11.8476	-4.5946	-0.9217	0.5130	2.2434	3.4752	4.4550	6.4450	8.1894	10.1600	11.5279	12.8880	15.6095
Total Capital Costs, PV $M	12.5426	1.4043	6.7403	9.1012	10.7397	11.7101	12.0696	12.4036	12.9328	13.0525	13.2894	13.6294	13.9605	14.0503	14.2864
Vehicle Operating Cost Savings, PV $M	2.7158	4.7024	-15.1850	-4.6665	-3.4496	-1.3492	0.5657	2.1843	2.6378	3.2643	5.2847	6.4839	8.7400	9.8873	12.5220
Accident Cost Savings, PV $M	-0.7317	2.6186	-11.4681	-7.7003	-5.4665	-1.8206	-0.2771	-0.1391	-0.0303	0.2318	0.5516	0.8670	1.2183	1.3858	2.1654
Travel Time Savings, PV $M	3.0970	0.8245	1.2354	1.9181	2.2388	2.4233	2.7585	2.8314	2.9314	3.0954	3.3489	3.5295	3.8685	4.6325	5.7284
Emission Cost Savings, PV $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maintenance Cost Savings, PV $M	0.0891	0.0363	-0.0087	0.0112	0.0371	0.0594	0.0691	0.0788	0.0957	0.0998	0.1082	0.1209	0.1340	0.1377	0.1478
Right-of-Way Cost Savings, PV $M	-1.4822	0.1660	-1.7192	-1.6688	-1.6554	-1.6214	-1.5835	-1.5526	-1.5324	-1.4712	-1.4300	-1.3981	-1.3343	-1.1410	-0.9531
Other Project Cost Savings, PV $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	External	Internal	Final	
ACCIDENT BENEFITS	0.4210	-0.0303	**0.3907**	
OTHER EXTERNAL BENEFITS	0.0000		**0.0000**	Other benefits from closure network analysis
NON ACCIDENT BENEFITS	4.4853	4.4853	**4.4853**	
TOTAL BENEFITS ($M)			**4.8760**	
NET BENEFITS ($M)			**-8.0568**	
FINAL TOTAL B/C			0.38	

Project: McKellips Rd (Loop 101 to Alma School Rd) - Alt M2 Date: 4/13/2007

VarName	Mean	StdDev	1%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%	99%
Net Benefits, PV $M	-7.7910	5.1008	-26.7410	-15.5522	-15.1083	-12.6934	-10.6818	-9.2998	-7.6229	-6.7302	-4.2830	-2.8749	-2.4254	-0.0662	1.4602
Economic Rate of Return, %	-18.8887	86.6985	-100.0000	-100.0000	-100.0000	-100.0000	-100.0000	-100.0000	-15.1324	-2.4322	6.5716	89.5275	107.9552	113.9162	127.9121
Benefit Cost Ratio	0.3848	0.3994	-0.8238	-0.4393	-0.0729	0.0295	0.1777	0.2818	0.4357	0.4906	0.6009	0.7623	0.8211	0.9890	1.0952
Payback Period, Years	7.5400	8.5445	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	3.0000	18.0000	20.0000	20.0000	20.0000	20.0000
First Year Benefit Ratio	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total Benefits, PV $M	5.1703	5.2809	-11.8476	-4.5946	-0.9217	0.5130	2.2434	3.4752	4.4550	6.4450	8.1894	10.1600	11.5279	12.8880	15.6095
Total Capital Costs, PV $M	12.9613	1.4512	6.9652	9.4050	11.0982	12.1009	12.4725	12.8176	13.3644	13.4882	13.7330	14.0844	14.4265	14.5192	14.7632
Vehicle Operating Cost Savings, PV $M	2.7158	4.7024	-15.1850	-4.6665	-3.4496	-1.3492	0.5657	2.1843	2.6378	3.2643	5.2847	6.4839	8.7400	9.8873	12.5220
Accident Cost Savings, PV $M	-0.7317	2.6186	-11.4681	-7.7003	-5.4665	-1.8206	-0.2771	-0.1391	-0.0303	0.2318	0.5516	0.8670	1.2183	1.3858	2.1654
Travel Time Savings, PV $M	3.0970	0.8245	1.2354	1.9181	2.2388	2.4233	2.7585	2.8314	2.9314	3.0954	3.3489	3.5295	3.8685	4.6325	5.7284
Emission Cost Savings, PV $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maintenance Cost Savings, PV $M	0.0891	0.0363	-0.0087	0.0112	0.0371	0.0594	0.0691	0.0788	0.0957	0.0998	0.1082	0.1209	0.1340	0.1377	0.1478
Right-of-Way Cost Savings, PV $M	-1.5595	0.1746	-1.8088	-1.7558	-1.7417	-1.7059	-1.6661	-1.6335	-1.6122	-1.5478	-1.5045	-1.4709	-1.4038	-1.2005	-1.0028
Other Project Cost Savings, PV $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	External	Internal	Final	
ACCIDENT BENEFITS	0.4210	-0.0303	**0.3907**	
OTHER EXTERNAL BENEFITS	0.0000		**0.0000**	Other benefits from closure network analysis
NON ACCIDENT BENEFITS	4.4853	4.4853	**4.4853**	
TOTAL BENEFITS ($M)			**4.8760**	
NET BENEFITS ($M)			**-8.4884**	
FINAL TOTAL B/C			**0.36**	

Project: Gilbert Rd at Salt River - Alt G1 Date: 7/30/2009

VarName	Mean	StdDev	1%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%	99%
Net Benefits, PV $M	-56.3655	8.0217	-86.2160	-72.8801	-66.1413	-61.2615	-58.8423	-57.6184	-56.5055	-54.3481	-53.6933	-51.1911	-49.0522	-45.7576	-35.9617
Economic Rate of Return, %	-22.7713	121.2935	-100.0000	-100.0000	-100.0000	-100.0000	-100.0000	-100.0000	-100.0000	-18.9922	-17.3425	-15.0857	224.2881	282.4896	292.9797
Benefit Cost Ratio	0.0111	0.1234	-0.4575	-0.3063	-0.2278	-0.0485	0.0087	0.0281	0.0445	0.0663	0.0797	0.0965	0.1141	0.1232	0.1385
Payback Period, Years	12.2400	8.7899	1.0000	1.0000	1.0000	3.0000	3.0000	4.0000	20.0000	20.0000	20.0000	20.0000	20.0000	20.0000	20.0000
First Year Benefit Ratio	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total Benefits, PV $M	0.4669	6.7165	-23.4539	-18.2876	-11.8576	-3.5207	0.1019	1.2707	2.0602	3.4279	4.4677	5.2557	6.2877	7.1007	8.1559
Total Capital Costs, PV $M	56.8324	6.3630	30.5410	41.2389	48.6631	53.0600	54.6890	56.2022	58.6001	59.1426	60.2160	61.7568	63.2569	63.6636	64.7336
Vehicle Operating Cost Savings, PV $M	3.1800	2.6395	-6.4115	-0.7747	-0.4178	0.6078	1.8712	2.8706	3.2636	3.6587	4.2779	4.9860	6.7623	7.2593	8.6752
Accident Cost Savings, PV $M	-3.8505	6.2278	-27.4857	-23.7318	-11.7169	-5.5938	-3.1120	-1.9538	-1.4833	-0.8393	-0.6132	-0.4377	0.0921	0.2555	0.4371
Travel Time Savings, PV $M	1.5126	0.4076	0.5817	0.9235	1.0865	1.1805	1.3411	1.3842	1.4348	1.5191	1.6445	1.7295	1.8973	2.2684	2.8055
Emission Cost Savings, PV $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maintenance Cost Savings, PV $M	-0.3752	0.0799	-0.5077	-0.4763	-0.4681	-0.4476	-0.4254	-0.4078	-0.3965	-0.3634	-0.3421	-0.3260	-0.2953	-0.2127	-0.1476
Right-of-Way Cost Savings, PV $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Project Cost Savings, PV $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	External	Internal	Final	
ACCIDENT BENEFITS	0.0000	-1.4833	**-1.4833**	
OTHER EXTERNAL BENEFITS	27.0230		**27.0230**	Other benefits from closure network analysis
NON ACCIDENT BENEFITS	3.5435	3.5435	**3.5435**	
TOTAL BENEFITS ($M)			**29.0832**	
NET BENEFITS ($M)			**-29.5169**	
FINAL TOTAL B/C			**0.50**	

Gilbert Rd Bridge at Salt River - Alt G1

4/10/2007 16:15

VarName	Mean	StdDev	1%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%	99%
Total Benefits, $M	3873.0030	2111.3110	1780.7750	1953.0600	2194.2810	2379.5480	2615.0210	2708.3570	3115.6610	3533.3270	4284.8510	5214.9650	5787.9190	7444.4020	11179.1300
Economic Rate of Return, %	120.6659	41.5783	73.8235	78.4732	82.5160	89.5275	94.9049	97.7375	107.1693	118.1652	131.8304	147.5111	159.6198	190.3392	259.1203
Benefit Cost Ratio	47.3422	25.8085	21.7670	23.8730	26.8217	29.0864	31.9648	33.1057	38.0846	43.1900	52.3766	63.7462	70.7500	90.9987	136.6516
Payback Period, Years	2.9600	0.3980	2.0000	2.0000	2.0000	3.0000	3.0000	3.0000	3.0000	3.0000	3.0000	3.0000	3.0000	3.5000	4.0000
First Year Benefit Ratio	62.8333	32.6119	29.6561	32.2808	35.3373	39.3488	43.4827	44.8536	51.6816	59.5155	70.5402	81.2849	92.7374	116.4715	175.7715
Travel Time Savings, PV $M	3297.8140	1885.7150	1039.6540	1681.1200	1901.2660	2069.1050	2216.9390	2415.2270	2513.7250	2982.0350	3523.3860	4031.0620	5149.1450	6004.0590	10328.6900
Vehicle Operating Cost Savings, PV $M	76.5031	42.5909	-64.5973	-1.2740	16.5344	32.3037	52.1836	75.0098	88.7029	97.4651	102.3097	108.5446	121.0061	126.8430	151.0419
Accident Cost Savings, PV $M	498.6035	901.5053	-37.6241	-2.8699	36.7819	90.9052	101.9677	114.1912	157.4932	197.5759	269.1218	540.6670	1417.1340	2156.0300	4109.3870
Emission Cost Savings, PV $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total Capital Costs, PV $M	-79.3324	0.0000	-79.3324	-79.3324	-79.3324	-79.3324	-79.3324	-79.3324	-79.3324	-79.3324	-79.3324	-79.3324	-79.3324	-79.3324	-79.3324
Right-of-Way Cost Savings, PV $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Project Cost Savings, PV $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maintenance Cost Savings, PV $M	-2.4745	0.0000	-2.4745	-2.4745	-2.4745	-2.4745	-2.4745	-2.4745	-2.4745	-2.4745	-2.4745	-2.4745	-2.4745	-2.4745	-2.4745
Base-Travel Time Costs $M	5955.7440	3235.3750	2171.4120	3341.8420	3698.1450	3907.8970	4160.5210	4436.4590	4642.2980	5392.2230	6248.8900	6871.2140	9051.7560	10505.5900	18144.6600
Base-Vehicle Operating Cost $M	1905.3330	375.0434	837.0731	1261.4730	1400.9120	1498.8210	1693.2190	1816.2400	1981.5470	2057.1610	2106.4590	2169.9340	2379.5750	2528.1040	2605.4000
Base-Accident Cost $M	4482.7250	8142.4240	-385.9666	-39.9498	304.8475	793.6627	885.3539	1008.4170	1405.2650	1774.0300	2402.4170	4857.8190	12789.8800	19447.4200	37096.9600
Base-Emission Cost $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Base-Total User Cost $M	12343.8000	8884.0070	5066.5710	5532.2370	6155.8940	6799.4170	7683.8760	8511.1000	9491.5050	10302.0700	11734.5000	13004.5100	19905.9300	32575.1200	44306.4700
Base-Capital Cost $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Base-Maint Cost $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Base-Right-of-Way Cost $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Base-Other Cost $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Alt-Travel Time Costs $M	2657.9300	1359.0990	1204.3140	1645.0630	1733.2790	1776.0890	1881.3310	2025.1370	2092.3440	2411.1920	2691.9790	3018.5630	4033.8190	4703.3030	7815.9730
Alt-Vehicle Operating Cost $M	1828.8300	340.3956	911.6167	1236.7940	1384.3780	1475.7620	1639.1280	1759.6040	1869.6540	1957.6390	2008.5530	2052.0640	2276.4230	2411.3880	2470.5160
Alt-Accident Cost $M	3984.1220	7240.9200	-348.3426	-37.0799	269.1091	702.7576	784.6727	894.2255	1247.7710	1575.0950	2133.2950	4317.1520	11372.7500	17291.3900	32987.5700
Alt-Emission Cost $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Alt-Total User Cost $M	8470.8820	7429.9220	3154.5200	3346.6840	3729.3410	4491.4910	5021.9160	5517.9560	5958.2610	6607.7680	7308.6160	8797.0330	15909.3400	23328.3400	37192.5300
Alt-Capital Cost $M	79.3324	0.0000	79.3324	79.3324	79.3324	79.3324	79.3324	79.3324	79.3324	79.3324	79.3324	79.3324	79.3324	79.3324	79.3324
Alt-Maint Cost $M	2.4745	0.0000	2.4745	2.4745	2.4745	2.4745	2.4745	2.4745	2.4745	2.4745	2.4745	2.4745	2.4745	2.4745	2.4745
Alt-Right-of-Way Cost $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Alt-Other Cost $M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	External	Internal	FINAL	% Applied
ACCIDENT BENEFITS	0.0000	157.4932	157.4932	0.89%
OTHER EXTERNAL BENEFITS	0.0000		0.0000	
NON ACCIDENT BENEFITS		2958.1678	2958.1678	
TOTAL BENEFITS ($M)			3115.6610	
NET BENEFITS ($M)			3036.3286	27.023325
FINAL TOTAL B/C			N/A	

Fill out one sheet for each road segment (typically one-mile segments)

Scoring and B/C Data Sheet

Road Segments

ITEM	VALUE
Road	Alternative D1
From Termini	SR 202 @ Dobson
To Termini	McKellips Road
Current Year ADT	14,791
20 Year ADT (2030 ADT)	30,365
Current Facility Type (Urban or Rural)	Urban
Proposed Facility Type (Urban or Rural)	Urban
Current Intersection Delay at SR 202 @ Dobson (if available)	**
Current Intersection Delay at McKellips Road (if available)	**
Proposed Intersection Delay at SR 202 @ Dobson (if available)	**
Proposed Intersection Delay at McKellips Road (if available)	**
Current Traffic Control Device at SR 202 @ Dobson	Signal
Current Traffic Control Device at McKellips Road	None
Proposed Traffic Control Device at SR 202 @ Dobson	Signal
Proposed Traffic Control Device at McKellips Road	Signal
Current # Through Lanes	0
Current # L-Turn Lanes at SR 202 @ Dobson	0
Current # R-Turn Lanes at SR 202 @ Dobson	0
Current # L-Turn Lanes at McKellips Road	0
Current # R-Turn Lanes at McKellips Road	0
Proposed # Through Lanes	4
Proposed # L-Turn Lanes at SR 202 @ Dobson	2
Proposed # R-Turn Lanes at SR 202 @ Dobson	1
Proposed # L-Turn Lanes at McKellips Road	2
Proposed # R-Turn Lanes at McKellips Road	1
Segment Length (mi)	1 mi
Current Surface (Dirt or Paved)	Dirt
Fatal Accidents	0
Incapacitating Accidents	0
Non-incapacitating Accidents	0
Possible Injury Accidents	0
No Injury Accidents	0
Sufficiency Rating	NA
Pavement Condition Rating	NA
International Roughness Index	NA
Construction Cost	$13,151,183
Right-of-Way Cost	1,345,048
Design Costs	1,578,142
Admin Costs	1,315,118
Utility Relocation Cost	752,018
Construction Management Cost	1,972,678
Is Project in Another Agency's CIP?	No
Will Traffic Signals Be Interconnected?	Yes
Does Proposed Project Include Sidewalks?	Yes
Does Proposed Project Include Landscaping?	Yes
Does Proposed Project Include Bus Pull Outs?	No
Current Facility - Curb?	No
Proposed Facility - Curb?	Yes
Current Facility - Raised Median?	No
Proposed Facility - Raised Median?	Yes

Fill out one sheet for each road segment (typically one-mile segments)

Scoring and B/C Data Sheet

Road Segments

ITEM	VALUE
Road	Alternative D1a
From Termini	SR 202 @ Dobson
To Termini	McKellips Road
Current Year ADT	0
20 Year ADT (2030 ADT)	14,750
Current Facility Type (Urban or Rural)	Urban
Proposed Facility Type (Urban or Rural)	Urban
Current Intersection Delay at SR 202 @ Dobson (if available)	**
Current Intersection Delay at McKellips Road (if available)	**
Proposed Intersection Delay at SR 202 @ Dobson (if available)	**
Proposed Intersection Delay at McKellips Road (if available)	**
Current Traffic Control Device at SR 202 @ Dobson	Signal
Current Traffic Control Device at McKellips Road	None
Proposed Traffic Control Device at SR 202 @ Dobson	Signal
Proposed Traffic Control Device at McKellips Road	Signal
Current # Through Lanes	0
Current # L-Turn Lanes at SR 202 @ Dobson	0
Current # R-Turn Lanes at SR 202 @ Dobson	0
Current # L-Turn Lanes at McKellips Road	0
Current # R-Turn Lanes at McKellips Road	0
Proposed # Through Lanes	4
Proposed # L-Turn Lanes at SR 202 @ Dobson	2
Proposed # R-Turn Lanes at SR 202 @ Dobson	1
Proposed # L-Turn Lanes at McKellips Road	2
Proposed # R-Turn Lanes at McKellips Road	1
Segment Length (mi)	1 mi
Current Surface (Dirt or Paved)	Dirt
Fatal Accidents	0
Incapacitating Accidents	0
Non-incapacitating Accidents	0
Possible Injury Accidents	0
No Injury Accidents	0
Sufficiency Rating	NA
Pavement Condition Rating	NA
International Roughness Index	NA
Construction Cost	$13,151,183
Right-of-Way Cost	1,035,914
Design Costs	1,578,142
Admin Costs	1,315,118
Utility Relocation Cost	721,291
Construction Management Cost	1,972,678
Is Project in Another Agency's CIP?	No
Will Traffic Signals Be Interconnected?	Yes
Does Proposed Project Include Sidewalks?	Yes
Does Proposed Project Include Landscaping?	Yes
Does Proposed Project Include Bus Pull Outs?	No
Current Facility - Curb?	No
Proposed Facility - Curb?	Yes
Current Facility - Raised Median?	No
Proposed Facility - Raised Median?	Yes

Fill out one sheet for each road segment (typically one-mile segments)

Scoring and B/C Data Sheet

Road Segments

ITEM	VALUE
Road	Alternative D1b
From Termini	SR 202 @ Dobson
To Termini	McKellips Road
Current Year ADT	0
20 Year ADT (2030 ADT)	14,750
Current Facility Type (Urban or Rural)	Urban
Proposed Facility Type (Urban or Rural)	Urban
Current Intersection Delay at SR 202 @ Dobson (if available)	**
Current Intersection Delay at McKellips Road (if available)	**
Proposed Intersection Delay at SR 202 @ Dobson (if available)	**
Proposed Intersection Delay at McKellips Road (if available)	**
Current Traffic Control Device at SR 202 @ Dobson	Signal
Current Traffic Control Device at McKellips Road	None
Proposed Traffic Control Device at SR 202 @ Dobson	Signal
Proposed Traffic Control Device at McKellips Road	Signal
Current # Through Lanes	0
Current # L-Turn Lanes at SR 202 @ Dobson	0
Current # R-Turn Lanes at SR 202 @ Dobson	0
Current # L-Turn Lanes at McKellips Road	0
Current # R-Turn Lanes at McKellips Road	0
Proposed # Through Lanes	4
Proposed # L-Turn Lanes at SR 202 @ Dobson	2
Proposed # R-Turn Lanes at SR 202 @ Dobson	1
Proposed # L-Turn Lanes at McKellips Road	2
Proposed # R-Turn Lanes at McKellips Road	1
Segment Length (mi)	1.2 mi
Current Surface (Dirt or Paved)	Dirt
Fatal Accidents	0
Incapacitating Accidents	0
Non-incapacitating Accidents	0
Possible Injury Accidents	0
No Injury Accidents	0
Sufficiency Rating	NA
Pavement Condition Rating	NA
International Roughness Index	NA
Construction Cost	$13,151,183
Right-of-Way Cost	1,112,402
Design Costs	1,578,142
Admin Costs	1,315,118
Utility Relocation Cost	782,745
Construction Management Cost	1,972,678
Is Project in Another Agency's CIP?	No
Will Traffic Signals Be Interconnected?	Yes
Does Proposed Project Include Sidewalks?	Yes
Does Proposed Project Include Landscaping?	Yes
Does Proposed Project Include Bus Pull Outs?	No
Current Facility - Curb?	No
Proposed Facility - Curb?	Yes
Current Facility - Raised Median?	No
Proposed Facility - Raised Median?	Yes

Fill out one sheet for each road segment (typically one-mile segments)

Scoring and B/C Data Sheet

Road Segments

ITEM	VALUE
Road	Alternative D2
From Termini	SR 202 @ Dobson
To Termini	McKellips Road @ Dobson
Current Year ADT	0
20 Year ADT (2030 ADT)	14,750
Current Facility Type (Urban or Rural)	Urban
Proposed Facility Type (Urban or Rural)	Urban
Current Intersection Delay at SR 202 @ Dobson (if available)	17.5 seconds
Current Intersection Delay at McKellips Road @ Dobson (if available)	**
Proposed Intersection Delay at SR 202 @ Dobson (if available)	10.9 seconds
Proposed Intersection Delay at McKellips Road @ Dobson (if available)	17.8 seconds
Current Traffic Control Device at SR 202 @ Dobson	Signal
Current Traffic Control Device at McKellips Road @ Dobson	2-way Stop
Proposed Traffic Control Device at SR 202 @ Dobson	Signal
Proposed Traffic Control Device at McKellips Road @ Dobson	Signal
Current # Through Lanes	0
Current # L-Turn Lanes at SR 202 @ Dobson	0
Current # R-Turn Lanes at SR 202 @ Dobson	0
Current # L-Turn Lanes at McKellips Road @ Dobson	0
Current # R-Turn Lanes at McKellips Road @ Dobson	0
Proposed # Through Lanes	4
Proposed # L-Turn Lanes at SR 202 @ Dobson	2
Proposed # R-Turn Lanes at SR 202 @ Dobson	1
Proposed # L-Turn Lanes at McKellips Road @ Dobson	2
Proposed # R-Turn Lanes at McKellips Road @ Dobson	1
Segment Length (mi)	1 mi
Current Surface (Dirt or Paved)	Dirt
Fatal Accidents	0
Incapacitating Accidents	0
Non-incapacitating Accidents	0
Possible Injury Accidents	0
No Injury Accidents	0
Sufficiency Rating	NA
Pavement Condition Rating	NA
International Roughness Index	NA
Construction Cost	$13,151,183
Right-of-Way Cost	985,298
Design Costs	1,578,142
Admin Costs	1,315,118
Utility Relocation Cost	711,691
Construction Management Cost	1,972,678
Is Project in Another Agency's CIP?	No
Will Traffic Signals Be Interconnected?	Yes
Does Proposed Project Include Sidewalks?	Yes
Does Proposed Project Include Landscaping?	Yes
Does Proposed Project Include Bus Pull Outs?	No
Current Facility - Curb?	No
Proposed Facility - Curb?	Yes
Current Facility - Raised Median?	No
Proposed Facility - Raised Median?	Yes

Fill out one sheet for each road segment (typically one-mile segments)

Scoring and B/C Data Sheet

Road Segments

ITEM	VALUE
Road	Alternative D2a
From Termini	SR 202 @ Dobson
To Termini	McKellips Road @ Dobson
Current Year ADT	0
20 Year ADT (2030 ADT)	14,750
Current Facility Type (Urban or Rural)	Urban
Proposed Facility Type (Urban or Rural)	Urban
Current Intersection Delay at SR 202 @ Dobson (if available)	17.5 seconds
Current Intersection Delay at McKellips Road @ Dobson (if available)	**
Proposed Intersection Delay at SR 202 @ Dobson (if available)	10.9 seconds
Proposed Intersection Delay at McKellips Road @ Dobson (if available)	17.8 seconds
Current Traffic Control Device at SR 202 @ Dobson	Signal
Current Traffic Control Device at McKellips Road @ Dobson	2-way Stop
Proposed Traffic Control Device at SR 202 @ Dobson	Signal
Proposed Traffic Control Device at McKellips Road @ Dobson	Signal
Current # Through Lanes	0
Current # L-Turn Lanes at SR 202 @ Dobson	0
Current # R-Turn Lanes at SR 202 @ Dobson	0
Current # L-Turn Lanes at McKellips Road @ Dobson	0
Current # R-Turn Lanes at McKellips Road @ Dobson	0
Proposed # Through Lanes	4
Proposed # L-Turn Lanes at SR 202 @ Dobson	2
Proposed # R-Turn Lanes at SR 202 @ Dobson	1
Proposed # L-Turn Lanes at McKellips Road @ Dobson	2
Proposed # R-Turn Lanes at McKellips Road @ Dobson	1
Segment Length (mi)	1 mi
Current Surface (Dirt or Paved)	Dirt
Fatal Accidents	0
Incapacitating Accidents	0
Non-incapacitating Accidents	0
Possible Injury Accidents	0
No Injury Accidents	0
Sufficiency Rating	NA
Pavement Condition Rating	NA
International Roughness Index	NA
Construction Cost	$13,151,183
Right-of-Way Cost	975,304
Design Costs	1,578,142
Admin Costs	1,315,118
Utility Relocation Cost	696,327
Construction Management Cost	1,972,678
Is Project in Another Agency's CIP?	No
Will Traffic Signals Be Interconnected?	Yes
Does Proposed Project Include Sidewalks?	Yes
Does Proposed Project Include Landscaping?	Yes
Does Proposed Project Include Bus Pull Outs?	No
Current Facility - Curb?	No
Proposed Facility - Curb?	Yes
Current Facility - Raised Median?	No
Proposed Facility - Raised Median?	Yes

Fill out one sheet for each road segment (typically one-mile segments)

Scoring and B/C Data Sheet

Road Segments

ITEM	VALUE
Road	Alternative D3
From Termini	SR 202 @ Dobson
To Termini	McKellips Road @ 92nd Street
Current Year ADT	0
20 Year ADT (2030 ADT)	14,750
Current Facility Type (Urban or Rural)	Urban
Proposed Facility Type (Urban or Rural)	Urban
Current Intersection Delay at SR 202 @ Dobson (if available)	17.5 seconds
Current Intersection Delay at McKellips Road @ 92nd Street (if available)	35.2 secons
Proposed Intersection Delay at SR 202 @ Dobson (if available)	10.9 seconds
Proposed Intersection Delay at McKellips Road @ 92nd Street (if available	29.4 seconds
Current Traffic Control Device at SR 202 @ Dobson	Signal
Current Traffic Control Device at McKellips Road @ 92nd Street	Signal
Proposed Traffic Control Device at SR 202 @ Dobson	Signal
Proposed Traffic Control Device at McKellips Road @ 92nd Street	Signal
Current # Through Lanes	0
Current # L-Turn Lanes at SR 202 @ Dobson	0
Current # R-Turn Lanes at SR 202 @ Dobson	0
Current # L-Turn Lanes at McKellips Road @ 92nd Street	0
Current # R-Turn Lanes at McKellips Road @ 92nd Street	0
Proposed # Through Lanes	4
Proposed # L-Turn Lanes at SR 202 @ Dobson	2
Proposed # R-Turn Lanes at SR 202 @ Dobson	1
Proposed # L-Turn Lanes at McKellips Road @ 92nd Street	2
Proposed # R-Turn Lanes at McKellips Road @ 92nd Street	1
Segment Length (mi)	1.3 mi
Current Surface (Dirt or Paved)	Dirt
Fatal Accidents	0
Incapacitating Accidents	0
Non-incapacitating Accidents	0
Possible Injury Accidents	0
No Injury Accidents	0
Sufficiency Rating	NA
Pavement Condition Rating	NA
International Roughness Index	NA
Construction Cost	$13,151,183
Right-of-Way Cost	1,317,336
Design Costs	1,578,142
Admin Costs	1,315,118
Utility Relocation Cost	958,145
Construction Management Cost	1,972,678
Is Project in Another Agency's CIP?	No
Will Traffic Signals Be Interconnected?	Yes
Does Proposed Project Include Sidewalks?	Yes
Does Proposed Project Include Landscaping?	Yes
Does Proposed Project Include Bus Pull Outs?	No
Current Facility - Curb?	No
Proposed Facility - Curb?	Yes
Current Facility - Raised Median?	No
Proposed Facility - Raised Median?	Yes

Fill out one sheet for each road segment (typically one-mile segments)

Scoring and B/C Data Sheet

Road Segments

ITEM	VALUE
Road	Alternative D3a
From Termini	SR 202 @ Dobson
To Termini	McKellips Road @ 92nd Street
Current Year ADT	0
20 Year ADT (2030 ADT)	14,750
Current Facility Type (Urban or Rural)	Urban
Proposed Facility Type (Urban or Rural)	Urban
Current Intersection Delay at SR 202 @ Dobson (if available)	17.5 seconds
Current Intersection Delay at McKellips Road @ 92nd Street (if available)	35.2 secons
Proposed Intersection Delay at SR 202 @ Dobson (if available)	10.9 seconds
Proposed Intersection Delay at McKellips Road @ 92nd Street (if available	29.4 seconds
Current Traffic Control Device at SR 202 @ Dobson	Signal
Current Traffic Control Device at McKellips Road @ 92nd Street	Signal
Proposed Traffic Control Device at SR 202 @ Dobson	Signal
Proposed Traffic Control Device at McKellips Road @ 92nd Street	Signal
Current # Through Lanes	0
Current # L-Turn Lanes at SR 202 @ Dobson	0
Current # R-Turn Lanes at SR 202 @ Dobson	0
Current # L-Turn Lanes at McKellips Road @ 92nd Street	0
Current # R-Turn Lanes at McKellips Road @ 92nd Street	0
Proposed # Through Lanes	4
Proposed # L-Turn Lanes at SR 202 @ Dobson	2
Proposed # R-Turn Lanes at SR 202 @ Dobson	1
Proposed # L-Turn Lanes at McKellips Road @ 92nd Street	2
Proposed # R-Turn Lanes at McKellips Road @ 92nd Street	1
Segment Length (mi)	1.5 mi
Current Surface (Dirt or Paved)	Dirt
Fatal Accidents	0
Incapacitating Accidents	0
Non-incapacitating Accidents	0
Possible Injury Accidents	0
No Injury Accidents	0
Sufficiency Rating	NA
Pavement Condition Rating	NA
International Roughness Index	NA
Construction Cost	$13,151,183
Right-of-Way Cost	1,449,624
Design Costs	1,578,142
Admin Costs	1,315,118
Utility Relocation Cost	1,090,709
Construction Management Cost	1,972,678
Is Project in Another Agency's CIP?	No
Will Traffic Signals Be Interconnected?	Yes
Does Proposed Project Include Sidewalks?	Yes
Does Proposed Project Include Landscaping?	Yes
Does Proposed Project Include Bus Pull Outs?	No
Current Facility - Curb?	No
Proposed Facility - Curb?	Yes
Current Facility - Raised Median?	No
Proposed Facility - Raised Median?	Yes

Fill out one sheet for each road segment (typically one-mile segments)

Scoring and B/C Data Sheet

Road Segments

ITEM	VALUE
Road	Alternative G1
From Termini	Gilbert Rd @ Thomas Rd
To Termini	Gilbert Rd @ SR 87
Current Year ADT	13,413
20 Year ADT (2030 ADT)	34,211
Current Facility Type (Urban or Rural)	Rural
Proposed Facility Type (Urban or Rural)	Urban/Rural
Current Intersection Delay at Gilbert Rd @ Thomas Rd (if available)	8.6 seconds
Current Intersection Delay at Gilbert Rd @ SR 87 (if available)	95.2 seconds
Proposed Intersection Delay at Gilbert Rd @ Thomas Rd (if available)	33.5 seconds
Proposed Intersection Delay at Gilbert Rd @ SR 87 (if available)	36.8 seconds
Current Traffic Control Device at Gilbert Rd @ Thomas Rd	Signal
Current Traffic Control Device at Gilbert Rd @ SR 87	Signal
Proposed Traffic Control Device at Gilbert Rd @ Thomas Rd	Signal
Proposed Traffic Control Device at Gilbert Rd @ SR 87	Signal
Current # Through Lanes	4
Current # L-Turn Lanes at Gilbert Rd @ Thomas Rd	1
Current # R-Turn Lanes at Gilbert Rd @ Thomas Rd	0
Current # L-Turn Lanes at Gilbert Rd @ SR 87	1
Current # R-Turn Lanes at Gilbert Rd @ SR 87	1
Proposed # Through Lanes	6
Proposed # L-Turn Lanes at Gilbert Rd @ Thomas Rd	1
Proposed # R-Turn Lanes at Gilbert Rd @ Thomas Rd	1
Proposed # L-Turn Lanes at Gilbert Rd @ SR 87	2
Proposed # R-Turn Lanes at Gilbert Rd @ SR 87	2
Segment Length (mi)	1.80 mi
Current Surface (Dirt or Paved)	Paved
Fatal Accidents	0
Incapacitating Accidents	0
Non-incapacitating Accidents	0
Possible Injury Accidents	10
No Injury Accidents	10
Sufficiency Rating	
Pavement Condition Rating	
International Roughness Index	
Construction Cost	$13,151,183
Right-of-Way Cost	0
Design Costs	1,578,142
Admin Costs	1,315,118
Utility Relocation Cost	500,000
Construction Management Cost	1,972,678
Is Project in Another Agency's CIP?	No
Will Traffic Signals Be Interconnected?	Yes
Does Proposed Project Include Sidewalks?	No
Does Proposed Project Include Landscaping?	Yes
Does Proposed Project Include Bus Pull Outs?	No
Current Facility - Curb?	No
Proposed Facility - Curb?	No
Current Facility - Raised Median?	No
Proposed Facility - Raised Median?	No

Fill out one sheet for each road segment (typically one-mile segments)

Scoring and B/C Data Sheet

Road Segments

ITEM	VALUE
Road	Alternative G2
From Termini	Gilbert Rd @ Thomas Rd
To Termini	Gilbert Rd @ SR 87
Current Year ADT	13,413
20 Year ADT (2030 ADT)	34,211
Current Facility Type (Urban or Rural)	Rural
Proposed Facility Type (Urban or Rural)	Urban
Current Intersection Delay at Gilbert Rd @ Thomas Rd (if available)	8.6 seconds
Current Intersection Delay at Gilbert Rd @ SR 87 (if available)	95.2 seconds
Proposed Intersection Delay at Gilbert Rd @ Thomas Rd (if available)	33.5 seconds
Proposed Intersection Delay at Gilbert Rd @ SR 87 (if available)	36.8 seconds
Current Traffic Control Device at Gilbert Rd @ Thomas Rd	Signal
Current Traffic Control Device at Gilbert Rd @ SR 87	Signal
Proposed Traffic Control Device at Gilbert Rd @ Thomas Rd	Signal
Proposed Traffic Control Device at Gilbert Rd @ SR 87	Signal
Current # Through Lanes	4
Current # L-Turn Lanes at Gilbert Rd @ Thomas Rd	1
Current # R-Turn Lanes at Gilbert Rd @ Thomas Rd	0
Current # L-Turn Lanes at Gilbert Rd @ SR 87	1
Current # R-Turn Lanes at Gilbert Rd @ SR 87	1
Proposed # Through Lanes	6
Proposed # L-Turn Lanes at Gilbert Rd @ Thomas Rd	1
Proposed # R-Turn Lanes at Gilbert Rd @ Thomas Rd	1
Proposed # L-Turn Lanes at Gilbert Rd @ SR 87	2
Proposed # R-Turn Lanes at Gilbert Rd @ SR 87	2
Segment Length (mi)	1.73 mi
Current Surface (Dirt or Paved)	Paved
Fatal Accidents	0
Incapacitating Accidents	0
Non-incapacitating Accidents	0
Possible Injury Accidents	10
No Injury Accidents	10
Sufficiency Rating	
Pavement Condition Rating	
International Roughness Index	
Construction Cost	$13,151,183
Right-of-Way Cost	0
Design Costs	1,578,142
Admin Costs	1,315,118
Utility Relocation Cost	500,000
Construction Management Cost	1,972,678
Is Project in Another Agency's CIP?	No
Will Traffic Signals Be Interconnected?	Yes
Does Proposed Project Include Sidewalks?	No
Does Proposed Project Include Landscaping?	Yes
Does Proposed Project Include Bus Pull Outs?	No
Current Facility - Curb?	No
Proposed Facility - Curb?	No
Current Facility - Raised Median?	No
Proposed Facility - Raised Median?	No

Fill out one sheet for each road segment (typically one-mile segments)

Scoring and B/C Data Sheet

Road Segments

ITEM	VALUE
Road	Alternative G3
From Termini	Gilbert Rd @ Thomas Rd
To Termini	Gilbert Rd @ SR 87
Current Year ADT	13,413
20 Year ADT (2030 ADT)	34,211
Current Facility Type (Urban or Rural)	Rural
Proposed Facility Type (Urban or Rural)	Urban
Current Intersection Delay at Gilbert Rd @ Thomas Rd (if available)	8.6 seconds
Current Intersection Delay at Gilbert Rd @ SR 87 (if available)	95.2 seconds
Proposed Intersection Delay at Gilbert Rd @ Thomas Rd (if available)	33.5 seconds
Proposed Intersection Delay at Gilbert Rd @ SR 87 (if available)	36.8 seconds
Current Traffic Control Device at Gilbert Rd @ Thomas Rd	Signal
Current Traffic Control Device at Gilbert Rd @ SR 87	Signal
Proposed Traffic Control Device at Gilbert Rd @ Thomas Rd	Signal
Proposed Traffic Control Device at Gilbert Rd @ SR 87	Signal
Current # Through Lanes	4
Current # L-Turn Lanes at Gilbert Rd @ Thomas Rd	1
Current # R-Turn Lanes at Gilbert Rd @ Thomas Rd	0
Current # L-Turn Lanes at Gilbert Rd @ SR 87	1
Current # R-Turn Lanes at Gilbert Rd @ SR 87	1
Proposed # Through Lanes	6
Proposed # L-Turn Lanes at Gilbert Rd @ Thomas Rd	1
Proposed # R-Turn Lanes at Gilbert Rd @ Thomas Rd	1
Proposed # L-Turn Lanes at Gilbert Rd @ SR 87	2
Proposed # R-Turn Lanes at Gilbert Rd @ SR 87	2
Segment Length (mi)	1.63 mi
Current Surface (Dirt or Paved)	Paved
Fatal Accidents	0
Incapacitating Accidents	0
Non-incapacitating Accidents	0
Possible Injury Accidents	10
No Injury Accidents	10
Sufficiency Rating	
Pavement Condition Rating	
International Roughness Index	
Construction Cost	$13,151,183
Right-of-Way Cost	0
Design Costs	1,578,142
Admin Costs	1,315,118
Utility Relocation Cost	500,000
Construction Management Cost	1,972,678
Is Project in Another Agency's CIP?	No
Will Traffic Signals Be Interconnected?	Yes
Does Proposed Project Include Sidewalks?	No
Does Proposed Project Include Landscaping?	Yes
Does Proposed Project Include Bus Pull Outs?	No
Current Facility - Curb?	No
Proposed Facility - Curb?	No
Current Facility - Raised Median?	No
Proposed Facility - Raised Median?	No

Fill out one sheet for each road segment (typically one-mile segments)

Scoring and B/C Data Sheet

Road Segments

ITEM	VALUE
Road	Alternative M1
From Termini	McKellips Rd @ SR202
To Termini	McKellips Rd @ Alma School Rd
Current Year ADT	13,424
20 Year ADT (2030 ADT)	36,250
Current Facility Type (Urban or Rural)	Rural
Proposed Facility Type (Urban or Rural)	Urban
Current Intersection Delay at McKellips Rd @ SR202 (if available)	5.9 seconds
Current Intersection Delay at McKellips Rd @ Alma School Rd (if available)	***
Proposed Intersection Delay at McKellips Rd @ SR202 (if available)	15.4 seconds
Proposed Intersection Delay at McKellips Rd @ Alma School Rd (if available)	***
Current Traffic Control Device at McKellips Rd @ SR202	Signal
Current Traffic Control Device at McKellips Rd @ Alma School Rd	Signal
Proposed Traffic Control Device at McKellips Rd @ SR202	Signal
Proposed Traffic Control Device at McKellips Rd @ Alma School Rd	Signal
Current # Through Lanes	4
Current # L-Turn Lanes at McKellips Rd @ SR202	2
Current # R-Turn Lanes at McKellips Rd @ SR202	0
Current # L-Turn Lanes at McKellips Rd @ Alma School Rd	1
Current # R-Turn Lanes at McKellips Rd @ Alma School Rd	1
Proposed # Through Lanes	6
Proposed # L-Turn Lanes at McKellips Rd @ SR202	2
Proposed # R-Turn Lanes at McKellips Rd @ SR202	0
Proposed # L-Turn Lanes at McKellips Rd @ Alma School Rd	1
Proposed # R-Turn Lanes at McKellips Rd @ Alma School Rd	1
Segment Length (mi)	0.6 mi
Current Surface (Dirt or Paved)	Paved
Fatal Accidents	3
Incapacitating Accidents	0
Non-incapacitating Accidents	0
Possible Injury Accidents	21
No Injury Accidents	24
Sufficiency Rating	
Pavement Condition Rating	
International Roughness Index	
Construction Cost	$13,151,183
Right-of-Way Cost	1,301,068
Design Costs	1,578,142
Admin Costs	1,315,118
Utility Relocation Cost	1,762,000
Construction Management Cost	1,972,678
Is Project in Another Agency's CIP?	No
Will Traffic Signals Be Interconnected?	Yes
Does Proposed Project Include Sidewalks?	Yes
Does Proposed Project Include Landscaping?	Yes
Does Proposed Project Include Bus Pull Outs?	No
Current Facility - Curb?	No
Proposed Facility - Curb?	Yes
Current Facility - Raised Median?	No
Proposed Facility - Raised Median?	No

Fill out one sheet for each road segment (typically one-mile segments)

Scoring and B/C Data Sheet

Road Segments

ITEM	VALUE
Road	Alternative M1_Seg 1
From Termini	McKellips Rd @ SR 101
To Termini	McKellips Rd @ Alma School Road
Current Year ADT	20,226
20 Year ADT (2030 ADT)	40,935
Current Facility Type (Urban or Rural)	Rural
Proposed Facility Type (Urban or Rural)	Urban
Current Intersection Delay at McKellips Rd @ SR 101 (if available)	32 seconds
Current Intersection Delay at McKellips Rd @ Alma School Road (if available)	***
Proposed Intersection Delay at McKellips Rd @ SR 101 (if available)	37 seconds
Proposed Intersection Delay at McKellips Rd @ Alma School Road (if available)	***
Current Traffic Control Device at McKellips Rd @ SR 101	Signal
Current Traffic Control Device at McKellips Rd @ Alma School Road	Signal
Proposed Traffic Control Device at McKellips Rd @ SR 101	Signal
Proposed Traffic Control Device at McKellips Rd @ Alma School Road	Signal
Current # Through Lanes	4
Current # L-Turn Lanes at McKellips Rd @ SR 101	1
Current # R-Turn Lanes at McKellips Rd @ SR 101	1
Current # L-Turn Lanes at McKellips Rd @ Alma School Road	1
Current # R-Turn Lanes at McKellips Rd @ Alma School Road	0
Proposed # Through Lanes	6
Proposed # L-Turn Lanes at McKellips Rd @ SR 101	1
Proposed # R-Turn Lanes at McKellips Rd @ SR 101	1
Proposed # L-Turn Lanes at McKellips Rd @ Alma School Road	1
Proposed # R-Turn Lanes at McKellips Rd @ Alma School Road	1
Segment Length (mi)	6,225 feet
Current Surface (Dirt or Paved)	Paved
Fatal Accidents	3
Incapacitating Accidents	0
Non-incapacitating Accidents	0
Possible Injury Accidents	21
No Injury Accidents	24
Sufficiency Rating	
Pavement Condition Rating	
International Roughness Index	
Construction Cost	$13,151,183
Right-of-Way Cost	714,874
Design Costs	1,578,142
Admin Costs	1,315,118
Utility Relocation Cost	1,512,000
Construction Management Cost	1,972,678
Is Project in Another Agency's CIP?	No
Will Traffic Signals Be Interconnected?	Yes
Does Proposed Project Include Sidewalks?	Yes
Does Proposed Project Include Landscaping?	Yes
Does Proposed Project Include Bus Pull Outs?	No
Current Facility - Curb?	No
Proposed Facility - Curb?	Yes
Current Facility - Raised Median?	No
Proposed Facility - Raised Median?	Yes

Fill out one sheet for each road segment (typically one-mile segments)

Scoring and B/C Data Sheet

Road Segments

ITEM	VALUE
Road	Alternative M1_Seg 2
From Termini	McKellips Rd @ Alma School Rd
To Termini	McKellips Rd @ SR202
Current Year ADT	13,424
20 Year ADT (2030 ADT)	36,250
Current Facility Type (Urban or Rural)	Rural
Proposed Facility Type (Urban or Rural)	Urban
Current Intersection Delay at McKellips Rd @ Alma School Rd (if available)	***
Current Intersection Delay at McKellips Rd @ SR202 (if available)	5.9 seconds
Proposed Intersection Delay at McKellips Rd @ Alma School Rd (if available)	***
Proposed Intersection Delay at McKellips Rd @ SR202 (if available)	15.4 seconds
Current Traffic Control Device at McKellips Rd @ Alma School Rd	Signal
Current Traffic Control Device at McKellips Rd @ SR202	Signal
Proposed Traffic Control Device at McKellips Rd @ Alma School Rd	Signal
Proposed Traffic Control Device at McKellips Rd @ SR202	Signal
Current # Through Lanes	4
Current # L-Turn Lanes at McKellips Rd @ Alma School Rd	2
Current # R-Turn Lanes at McKellips Rd @ Alma School Rd	0
Current # L-Turn Lanes at McKellips Rd @ SR202	1
Current # R-Turn Lanes at McKellips Rd @ SR202	1
Proposed # Through Lanes	6
Proposed # L-Turn Lanes at McKellips Rd @ Alma School Rd	2
Proposed # R-Turn Lanes at McKellips Rd @ Alma School Rd	0
Proposed # L-Turn Lanes at McKellips Rd @ SR202	1
Proposed # R-Turn Lanes at McKellips Rd @ SR202	1
Segment Length (mi)	6,225 feet
Current Surface (Dirt or Paved)	Paved
Fatal Accidents	3
Incapacitating Accidents	0
Non-incapacitating Accidents	0
Possible Injury Accidents	21
No Injury Accidents	24
Sufficiency Rating	
Pavement Condition Rating	
International Roughness Index	
Construction Cost	$13,151,183
Right-of-Way Cost	586,191
Design Costs	1,578,142
Admin Costs	1,315,118
Utility Relocation Cost	250,000
Construction Management Cost	1,972,678
Is Project in Another Agency's CIP?	No
Will Traffic Signals Be Interconnected?	Yes
Does Proposed Project Include Sidewalks?	Yes
Does Proposed Project Include Landscaping?	Yes
Does Proposed Project Include Bus Pull Outs?	No
Current Facility - Curb?	No
Proposed Facility - Curb?	Yes
Current Facility - Raised Median?	No
Proposed Facility - Raised Median?	Yes

Fill out one sheet for each road segment (typically one-mile segments)

Scoring and B/C Data Sheet

Road Segments

ITEM	VALUE
Road	Alternative M2
From Termini	McKellips Rd @ SR202
To Termini	McKellips Rd @ Alma School Rd
Current Year ADT	13,424
20 Year ADT (2030 ADT)	36,250
Current Facility Type (Urban or Rural)	Rural
Proposed Facility Type (Urban or Rural)	Urban
Current Intersection Delay at McKellips Rd @ SR202 (if available)	5.9 seconds
Current Intersection Delay at McKellips Rd @ Alma School Rd (if available)	***
Proposed Intersection Delay at McKellips Rd @ SR202 (if available)	15.4 seconds
Proposed Intersection Delay at McKellips Rd @ Alma School Rd (if available)	***
Current Traffic Control Device at McKellips Rd @ SR202	Signal
Current Traffic Control Device at McKellips Rd @ Alma School Rd	Signal
Proposed Traffic Control Device at McKellips Rd @ SR202	Signal
Proposed Traffic Control Device at McKellips Rd @ Alma School Rd	Signal
Current # Through Lanes	4
Current # L-Turn Lanes at McKellips Rd @ SR202	2
Current # R-Turn Lanes at McKellips Rd @ SR202	0
Current # L-Turn Lanes at McKellips Rd @ Alma School Rd	1
Current # R-Turn Lanes at McKellips Rd @ Alma School Rd	1
Proposed # Through Lanes	6
Proposed # L-Turn Lanes at McKellips Rd @ SR202	2
Proposed # R-Turn Lanes at McKellips Rd @ SR202	0
Proposed # L-Turn Lanes at McKellips Rd @ Alma School Rd	1
Proposed # R-Turn Lanes at McKellips Rd @ Alma School Rd	1
Segment Length (mi)	0.6 mi
Current Surface (Dirt or Paved)	Paved
Fatal Accidents	3
Incapacitating Accidents	0
Non-incapacitating Accidents	0
Possible Injury Accidents	21
No Injury Accidents	24
Sufficiency Rating	
Pavement Condition Rating	
International Roughness Index	
Construction Cost	$13,151,183
Right-of-Way Cost	1,301,068
Design Costs	1,578,142
Admin Costs	1,315,118
Utility Relocation Cost	1,762,000
Construction Management Cost	1,972,678
Is Project in Another Agency's CIP?	No
Will Traffic Signals Be Interconnected?	Yes
Does Proposed Project Include Sidewalks?	Yes
Does Proposed Project Include Landscaping?	Yes
Does Proposed Project Include Bus Pull Outs?	No
Current Facility - Curb?	No
Proposed Facility - Curb?	Yes
Current Facility - Raised Median?	No
Proposed Facility - Raised Median?	No

Fill out one sheet for each road segment (typically one-mile segments)

Scoring and B/C Data Sheet

Road Segments

ITEM	VALUE
Road	Alternative M3 Seg 2
From Termini	McKellips Rd @ Alma School Rd
To Termini	McKellips Rd @ SR202
Current Year ADT	13,424
20 Year ADT (2030 ADT)	36,250
Current Facility Type (Urban or Rural)	Rural
Proposed Facility Type (Urban or Rural)	Urban
Current Intersection Delay at McKellips Rd @ Alma School Rd (if available)	***
Current Intersection Delay at McKellips Rd @ SR202 (if available)	5.9 seconds
Proposed Intersection Delay at McKellips Rd @ Alma School Rd (if available)	***
Proposed Intersection Delay at McKellips Rd @ SR202 (if available)	15.4 seconds
Current Traffic Control Device at McKellips Rd @ Alma School Rd	Signal
Current Traffic Control Device at McKellips Rd @ SR202	Signal
Proposed Traffic Control Device at McKellips Rd @ Alma School Rd	Signal
Proposed Traffic Control Device at McKellips Rd @ SR202	Signal
Current # Through Lanes	4
Current # L-Turn Lanes at McKellips Rd @ Alma School Rd	2
Current # R-Turn Lanes at McKellips Rd @ Alma School Rd	0
Current # L-Turn Lanes at McKellips Rd @ SR202	1
Current # R-Turn Lanes at McKellips Rd @ SR202	1
Proposed # Through Lanes	6
Proposed # L-Turn Lanes at McKellips Rd @ Alma School Rd	2
Proposed # R-Turn Lanes at McKellips Rd @ Alma School Rd	0
Proposed # L-Turn Lanes at McKellips Rd @ SR202	1
Proposed # R-Turn Lanes at McKellips Rd @ SR202	1
Segment Length (mi)	6,225 feet
Current Surface (Dirt or Paved)	Paved
Fatal Accidents	3
Incapacitating Accidents	0
Non-incapacitating Accidents	0
Possible Injury Accidents	21
No Injury Accidents	24
Sufficiency Rating	
Pavement Condition Rating	
International Roughness Index	
Construction Cost	$13,151,183
Right-of-Way Cost	586,191
Design Costs	1,578,142
Admin Costs	1,315,118
Utility Relocation Cost	250,000
Construction Management Cost	1,972,678
Is Project in Another Agency's CIP?	No
Will Traffic Signals Be Interconnected?	Yes
Does Proposed Project Include Sidewalks?	Yes
Does Proposed Project Include Landscaping?	Yes
Does Proposed Project Include Bus Pull Outs?	No
Current Facility - Curb?	No
Proposed Facility - Curb?	Yes
Current Facility - Raised Median?	No
Proposed Facility - Raised Median?	Yes

APPENDIX O SURVEY

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ	TT199	1	12	

RESULTS OF SURVEY

A PORTION OF SECTIONS 4 THROUGH 9, 16, 17 AND 18 TOWNSHIP 1 NORTH, RANGE 5 EAST, A PORTION OF SECTIONS 24, 25 AND 36 TOWNSHIP 2 NORTH, RANGE 5 EAST AND A PORTION OF SECTIONS 19, 30 AND 31 TOWNSHIP 2 NORTH, RANGE 6 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA

META-DATA

THIS SURVEY UTILIZED REAL TIME KINEMATIC GPS OBSERVATIONS RELATIVE TO NGS PUBLISHED CONTROL POINTS.

CONTROL USED: NGS DESIGNATION - 1CK1
PID - AJ3676
STAINLESS STEEL ROD IN SLEEVE (4 FT.+)
STAMPING: 1CK1 1999

UNITS: INTERNATIONAL FEET (Ift)

GEODETIC COORDINATE:
NAD83 (92)
LATITUDE = 33°27'49.71856"(N)
LONGITUDE = 111°47'09.71620"(W)
ELLIPSOID HEIGHT = 365.84 (meters)

HORIZONTAL ORDER - B
ELLP ORDER - THIRD CLASS II

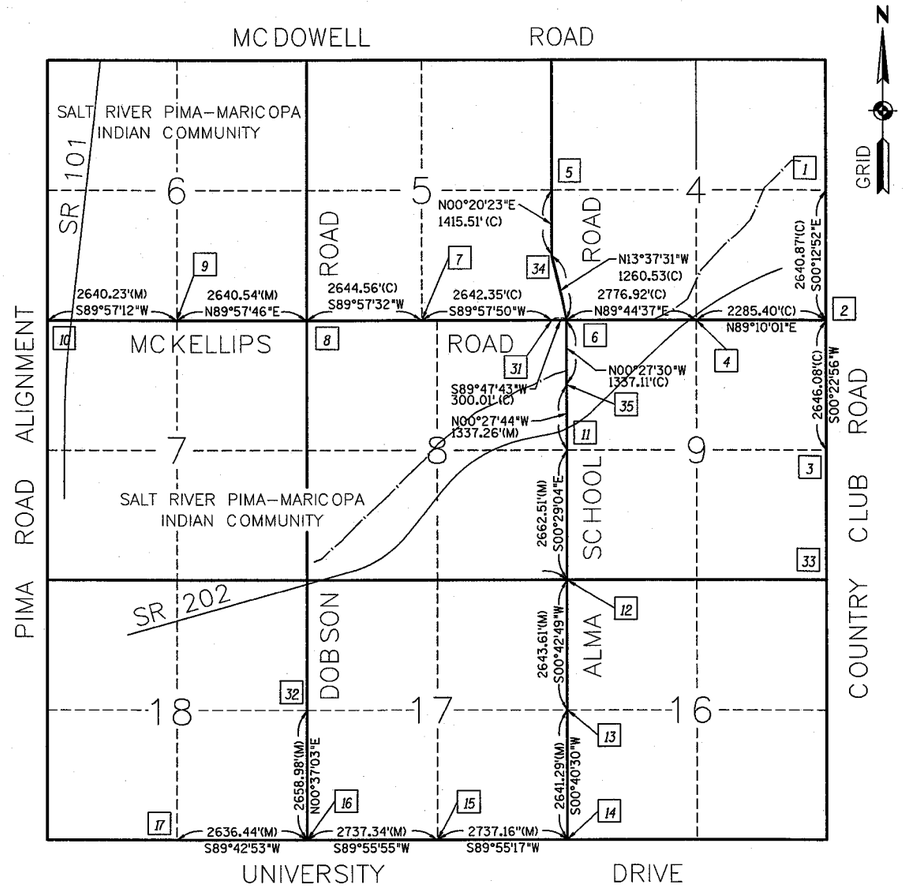
STATE PLANE COORDINATE:
PROJECTION: NAD83(EPOCH 1992)
ZONE: ARIZONA, CENTRAL-0202 (Ie AZ C GRID)
NORTHING = 896,307.825
EASTING = 739,838.314
ELEVATION = 1297.500 (FEET)

MODIFIED STATE PLANE:
NORTHING = 96444.955
EASTING = 39951.505
ELEVATION = 1297.50 (FEET)

HORIZONTAL ADJUSTMENT:
CSF = 1.000153
ORIGIN NORTH: 0.000
ORIGIN EAST: 0.000
NPROJECT = (AZ C GRID N X 1.000153) - 800,000
EPROJECT = (AZ C GRID E X 1.000153) - 700,000

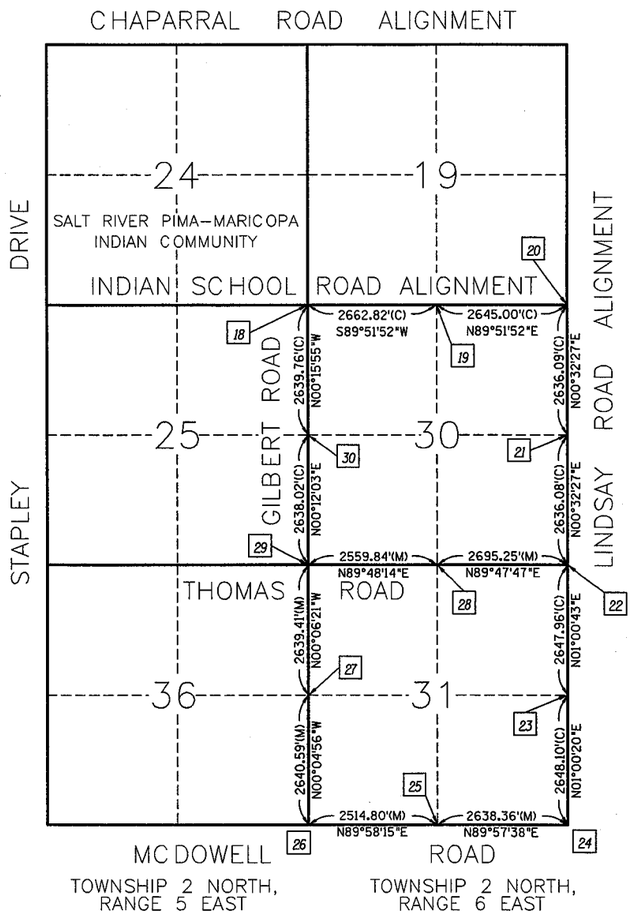
CORNER DATA INFORMATION

#	NORTHING	EASTING	DESCRIPTION
1	94570.299	23559.488	Found MCDOT 3" Brass Cap Flush, RLS #35832.
2	91929.447	23569.376	Nothing Found or Set, Calculated.
3	89283.424	23551.721	Found City of Mesa 3" Brass Cap In Hand Hole.
4	91896.216	21284.215	Nothing Found or Set, Calculated.
5	94524.337	18218.777	Found MCDOT 2" Brass Cap In Hand Hole.
6	91883.795	18507.327	Nothing Found or Set, Calculated.
7	91881.053	15564.970	Nothing Found or Set, Calculated.
8	91879.158	12920.409	Found Brass Cap In Hand Hole.
9	91877.445	10279.874	Found Brass Cap In Hand Hole.
10	91875.293	7639.644	Found Brass Cap In Hand Hole.
11	89209.511	18528.809	Found MCDOT 3" Brass Cap Flush.
12	86547.099	18551.327	Found 3" Brass Cap In Hand Hole.
13	83903.699	18518.402	Found 3" Brass Cap Flush
14	81262.595	18487.282	Found 3" Brass Cap In Hand Hole.
15	81258.844	15750.124	Found 3" Brass Cap In Hand Hole.
16	81255.596	13012.782	Found 3" Brass Cap In Hand Hole.
17	81242.475	10376.378	Found 3" Brass Cap In Hand Hole.
18	107944.017	39499.351	Found 2" Aluminum Cap In Hand Hole.
19	107950.317	42162.164	Nothing Found or Set, Calculated.
20	107956.562	44807.155	Found US G.L.O. Survey 3" Brass Cap Flush.
21	105320.588	44782.266	Nothing Found or Set, Calculated.
22	102684.625	44757.384	Calculated 85'East of Brass Cap Flush.
23	100037.077	44710.618	Nothing Found or Set, Calculated.
24	97389.387	44664.141	Found 3" Brass Cap In Hand Hole.
25	97387.568	42025.786	Found 3" Brass Cap Flush
26	97386.287	39510.986	Found City of Mesa 3" Brass Cap In Hand Hole, RLS #19352.
27	100026.876	39507.195	Found MCDOT 3" Brass Cap In Hand Hole.
28	102675.047	42062.148	Found MCDOT 2" Aluminum Cap Flush.
29	102666.286	39502.318	Found MCDOT 3" Brass Cap In Hand Hole, RLS #13163.
30	105304.289	39511.570	Nothing Found or Set, Calculated.
31	91882.723	18207.318	Found MCDOT 3" Brass Cap In Hand Hole.
32	83914.426	13041.443	Found 3" Brass Cap In Hand Hole.
33	86638.112	23533.491	Found 2" Aluminum Cap Flush.
34	93108.849	18210.383	Nothing Found or Set, Calculated.
35	90546.726	18518.024	Found Rebar with Cap # 1557X



VICINITY MAP

TOWNSHIP 1 NORTH, RANGE 5 EAST



VICINITY MAP

TOWNSHIP 2 NORTH, RANGE 5 EAST
TOWNSHIP 2 NORTH, RANGE 6 EAST

LEGEND

CP/RB	Control Point with Rebar
BCHH	Brass Cap In Hand Hole
BCF	Brass Cap Flush
(C)	Calculated
(M)	Measured

NOTE:

1. Road right of way shown as per record drawings referenced on Sheet 2 of these plans. No right of way corners or missing Section corners were set as a part of this survey.

2. The Basis of Bearings for this survey is the North American Datum of 1983, Arizona Central Zone.

3. All measured, record and calculated distances are represented in International Feet ground distances.

CERTIFICATION

I, Randall J. Bilyeu hereby certify that I am a licensed Land Surveyor in the State of Arizona; that the survey is true and complete as shown, that all monuments actually exist as shown, that their positions are correctly shown and that said monuments are sufficient to enable the survey to be retraced. This Certificate of Survey is based upon an actual survey performed on the ground by me or under my direct supervision and that said survey meets or exceeds the current Minimum Standards for an Arizona Boundary Survey to the best of my professional abilities, knowledge and beliefs.

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NO.	REVISION	BY	DATE
3			
2			
1			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGE
PROJECT NO. TT199

Registered Land Surveyor
CERTIFICATE NO. 45834
RANDALL J. BILYEU
Date Signed 07/13/09
ARIZONA, U.S.A.

	BY	DATE
SURVEYED	RANDALL J. BILYEU	7/09
DRAWN	GABRIEL SAINZ	7/09
CHECKED	KURT BALDWIN	7/09

RESULTS OF SURVEY

SHEET 1 OF 12

$DATE$ $TIME$ $FILE$

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ	TT199	2	12	

RESULTS OF SURVEY

A PORTION OF SECTIONS 4 THROUGH 9, 16, 17 AND 18 TOWNSHIP 1 NORTH, RANGE 5 EAST, A PORTION OF SECTIONS 24, 25 AND 36 TOWNSHIP 2 NORTH, RANGE 5 EAST AND A PORTION OF SECTIONS 19, 30 AND 31 TOWNSHIP 2 NORTH, RANGE 6 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA

REFERENCES:

1. PERMANENT RIGHT OF WAY EASEMENT
ALMA SCHOOL ROAD McKELLIPS ROAD TO McDOWELL ROAD
M.C.H.D. W.O. 68434
PREPARED BY: COUNTY HIGHWAY DEPARTMENT
LANDS OF THE SALT RIVER PIMA-MARICOPA INDIAN COMMUNITY
DATED: 5-10-1990

2. RIGHT OF WAY PLANS
McKELLIPS ROAD AT 92ND STREET (INTERSECTION)
PROJECT NO. 68830
DATED: 02-03-1995

3. RIGHT OF WAY PLAN OF THE
RED MOUNTAIN FREEWAY (SR202L) McKELLIPS ROAD-COUNTRY CLUB DRIVE
202L MA 016 H3878 01R STP-600-8(7) D-7-T-889
DATED: 11-13-1996

4. RIGHT OF WAY PLAN OF THE
NORTHEAST OUTER LOOP (S.R 117)
McKELLIPS ROAD - S.R. 360 (S.R. 117)
PROJECT NO. BPM-600-1-701
DATED: 12-30-1983

5. RESULTS OF SURVEY
PORTIONS OF SECTION 29, 30, 31 AND 32
BOOK 322, PAGE 34
DATED: 6-14-1988

6. NORTH COUNTRY ACRES PLAT
BOOK 205, PAGE 47
DATED: 9-19-1973

7. CITRUS ACRES PLAT
BOOK 216, PAGE 40
DATED: 6-9-1979

8. RIGHT OF WAY PLANS FOR
GILBERT ROAD FROM THOMAS ROAD TO SR-85
PROJECT NO. 68957
(MCR 708-17, AMENDED) BOOK 746, PAGE 20
DATED: 4-26-2005

9. RIGHT OF WAY PLANS
DOUBLE TREE RANCH ROAD-SOUTH RESV. BNDRY.
PROJECT NO. 600-1-702
DRAWING NO. D-7-T-823
DATED: 6-26-1990

10. BENCHMARK AND CONTROL POINT PLAN
RED MOUNTAIN-SR 101L B/12 McKELLIPS ROAD
PROJECT NO. 600-8-(006)P
DATED: 4-4-1996

11. PLAT DESIGNATED COUNTY ROAD
BOOK 350, PAGE 37
DATED: 6-4-1992

12. RESULTS OF SURVEY
UNRECORDED
DATED: 1-15-1982

13. RECORD OF SURVEY
BOOK 775, PAGE 14
DATED: 8-12-2005

14. BOUNDARY SURVEY
BOOK 560, PAGE 33
DATED: 4-13-2001

15. REPLAT OF IVYGLEN TOWNHOUSES
BOOK 283, PAGE 20
DATED: 6-3-1985

16. COLONY BY THE GREENS PLAT
BOOK 88, PAGE 25
DATED: Feb 1960

17. MCLELLAN ACRES A PLAT
BOOK 275, PAGE 486
DATED: 12-31-1946

18. FINAL PLAT NORTHRIDGE MANOR UNIT TWO
BOOK 229, PAGE 20
DATED: 1-13-1960

19. PLAT OF FAIRWAY GARDENS TOWNHOUSES
BOOK 157, PAGE 4
DATED: OCT 1972

20. PLAT OF FAIRWAY ESTATES NO. 2
BOOK 68, PAGE 32
DATED: 12-31-1956

21. PLAT OF FAIRWAY ESTATES
BOOK 66, PAGE 7
DATED: NOV 1956

22. PLAT OF FAIRWAY GARDENS TOWNHOUSES AMENDED
BOOK 168, PAGE 2
DATED: 10-4-1973

23. PLAT OF VILLA LEGANTE RE AMENDED
BOOK 158, PAGE 35
DATED: 1-22-1973

25. RESULTS OF SURVEY
McDOWELL ROAD
BOOK 692, PAGE 45
DATED: 6-18-2004

28. PLAT OF VILLA LEGANTE RE AMENDED
BOOK 167, PAGE 25
DATED: 10-5-1973

29. PLAT OF FAIRWAY GARDENS
BOOK 94, PAGE 40
DATED: 5-15-1961

30. MINOR LAND DIVISION OF MESA RIVERVIEW EAST
BOOK 778, PAGE 10
DATED: 9-16-2005

31. GENERAL LAYOUT
BOOK 17, PAGE 23
DATED: 1-26-1962

32. GENERAL MAP OF THE
PARADISE-VERDE RECLAMATION PROJECT
BOOK 8, PAGE 23
DATED: 3-14-1918

33. PROPOSED AUXILIARY EASTERN CANAL
BOOK 9, PAGE 32
DATED: 9-13-1920

34. MAP OF TOWNSHIP 1 NORTH, 5 EAST
00017
DATED: 7-14-1888

35. MAP OF TOWNSHIP 1 NORTH, 5 EAST
00016
DATED: 3-29-1913

36. SURVEY CONTROL, TEMPE ARIZONA
NOT RECORDED
DATED: 4-12-2004

37. SURVEY MAP
BUCKEYE ROAD-FIFTEEN
BOOK 449, PAGE 38
DATED: 7-14-1997

38. PLAT OF LA MESA VILLAGE
BOOK 201, PAGE 22
DATED: 6-24-1978

39. ALTA/ACSM LAND TITLE SURVEY
VILLAGE AT TEMPE, EVERGREEN RD. & 8TH ST.
NOT RECORDED
DATED: 5-16-2003

40. RESULTS OF SURVEY
UNIVERSITY DRIVE & EVERGREEN DRIVE
NOT RECORDED
DATED: 6-5-1978

41. PLAT
MARICOPA MANOR
BOOK 190, PAGE 46
DATED: 12-15-1976

42. SURVEY AND PLAT
MESA GOLF AND COUNTRY CLUB TRACT
BOOK 48, PAGE 1
DATED: MAY 1950

43. BOUNDARY SURVEY
SE. 1/4, SEC. 18, T1N, R5E
BOOK 373, PAGE 10
DATED: 2-22-1994

44. PLAT OF COUNTRY CLUB HEIGHTS UNIT THREE
BOOK 193, PAGE 18
2ND AMENDMENT
DATED: 4-7-1972

45. PLAT OF COUNTRY CLUB HEIGHTS UNIT THREE
BOOK 151, PAGE 2
AMENDED
DATED: 6-19-1972

46. PLAT OF GARDEN GROVE
BOOK 68, PAGE 40
DATED: 12-31-1956

47. PLAT OF NORTH GROVE
BOOK 78, PAGE 5
DATED: 12-31-1958

48. PLAT OF COUNTRY CLUB HEIGHTS
BOOK 127, PAGE 9
DATED: 10-20-1969

49. FINAL PLAT OF MESA PRECAST
BOOK 694, PAGE 35
DATED: 6-25-2004

50. SURVEY OF VILLAGIO AT TEMPE
BOOK 761, PAGE 22
DATED: 7-13-2005

51. RESULTS OF SURVEY
NW1/4 SEC 5, T1N, R5E
BOOK 333, PAGE 24
DATED: 5-26-1989

52. RESULTS OF SURVEY OF PORTION
OF SW1/4OF SEC, 18, T1N, R5E
NOT RECORDED
DATED: 4-23-02

53. BENCHMARK AND CONTROL PLAN
RED MTN-SR 101L-MCKELLIPS ROAD
DATED: 4-4-96

55. GEOMETRIC LAYOUT
PIMA, RED MT TI - PHASE II
TRACT NO. H2413 02 C
DATED: 6-22-94

57. RIGHT OF WAY PLANS
NORTHEAST OUTER LOOP
TRACTS NO. 101L MA 000 H0829 01R
DATED: 2-21-97

58. GEOMETRIC SHEET
McDOWELL ROAD - SHEA BLVD
TRACT NO. H2729 01 C
DATED: 12-23-94

59. RIGHT OF WAY PLANS
MESA-PAYSON HIGHWAY SR 87
McDOWELL ROAD-SHEA BOULEVARD
87 MA 178 H2729 01R
F-053-1-721 DWG NO. D-7-T-881
DATED: (Not Able To Read)

61. RIGHT OF WAY PLANS
RED MOUNTAIN FREEWAY (SR202L)
202L MA 013 H0875 02R STP-600-8 (4)
DWG NO. D-7-T-887
DATED: 8-17-95

62. PLAT THAT REPRESENTS A RESURVEY
AND SURVEY
SOUTH BOUNDARY OF THE SALT RIVER
INDIAN RESERVATION 00092A

63. MAP OF TOWNSHIP NO. 2 NORTH, RANGE NO. 5 EAST
00091
DATED: 2-18-1868

64. MAP OF TOWNSHIP NO. 2 NORTH, RANGE NO. 6 EAST
00095
DATED: 2-29-1868
BY: G.P. INGALLS

65. SUPPLEMENTAL PLAT OF SEC 19, T2N, R6E
00092
SUPPLEMENTAL PLAT OF SEC 24, T2N, R5E
00092
SUPPLEMENTAL PLAT OF SEC 25, T2N, R5E
00093
DATED: 10-29-24

66. GDACS
SECTIONS 1-3, 9-36 T1N, R5E
BOOK 689, PAGE 17
DATED: 5-27-04

67. DEPENDENT RESURVEY & SURVEY OF SOUTH BOUNDARY
OF THE SALT RIVER INDIAN RESERVATION
00016-A
DATED: 8-3-73

68. SUPPLEMENTAL PLAT OF SEC 9, T1N, R5E
00016-E
DATED: 5-28-82

69. RESULTS OF SURVEY
SEYENNA VISTAS
BOOK 806, PAGE 47
DATED: 1-11-06

70. MINOR LAND DIVISION OF MESA RIVERVIEW WEST
BOOK 778, PAGE 9
DATED: 9-16-05

71. RESULTS OF SURVEY
PORTION OF SEC 3 AND SEC 4, T1N, R5E
BOOK 323, PAGE 17
DATED: 4-11-88

72. RIGHT OF WAY PLANS
ALMA SCHOOL ROAD
BOOK 339, PAGE 34
DATED: 2-9-82

73. RIGHT OF WAY PLANS
ALMA SCHOOL ROAD AT SALT RIVER BRIDGE
(SCOUR PROTECTION)
BOOK 460, PAGE 05
PROJECT NO. 68866
DATED: 3-27-95

74. RIGHT OF WAY PLAN
ALMA SCHOOL ROAD AT SALT RIVER BRIDGE
(SCOUR PROTECTION)
BOOK 460, PAGE 05
PROJECT NO. 68931 & 80408
DATED: 10-05-2004

75. RESULTS OF SURVEY FOR CYEVCO
NOT RECORDED
DATED: 10-14-81

76. BOUNDARY SURVEY FOR SALT RIVER SAND & ROCK CO
NOT RECORDED
DATED: 3-3-86

77. RIGHT OF WAY PLAN
ALMA SCHOOL ROAD BRIDGE AT SALT RIVER
BOOK 764, PAGE 8
PROJECT NO. 68931 & 80408
DATED: 10-05-2004

78. GDACS
SECTIONS 1-36, T1N R6E
BOOK 661, PAGE 17
DATED: 11-04-2003

79. MAP OF TOWNSHIP NO. 1 NORTH, RANGE NO. 5 EAST
00018
DATED: 12-15-1866

80. RESULTS OF SURVEY OF A PORTION OF SEC. 3 & 4
T1N R5E
DATED: 4-11-1988

81. RIGHT OF WAY PLANS
HAYDEN ROAD, ALMA SCHOOL ROAD AND MCKELLIPS ROAD
BOOK 18, PAGE 30
DATED: 12-8-1967

82. RIGHT OF WAY GILBERT ROAD
90013133, D17993

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3			
2			
1			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGE
PROJECT NO. TT199

Registered Land Surveyor
CERTIFICATE NO.
45834
RANDALL J.
BILYEU
Date Signed 07/31/09
ARIZONA, U.S.A.

	BY	DATE
SURVEYED	RANDALL J. BILYEU	7/09
DRAWN	GABRIEL SAINZ	7/09
CHECKED	KURT BALDWIN	7/09

RESULTS OF SURVEY

SHEET 2 OF 12

TRACS NO.

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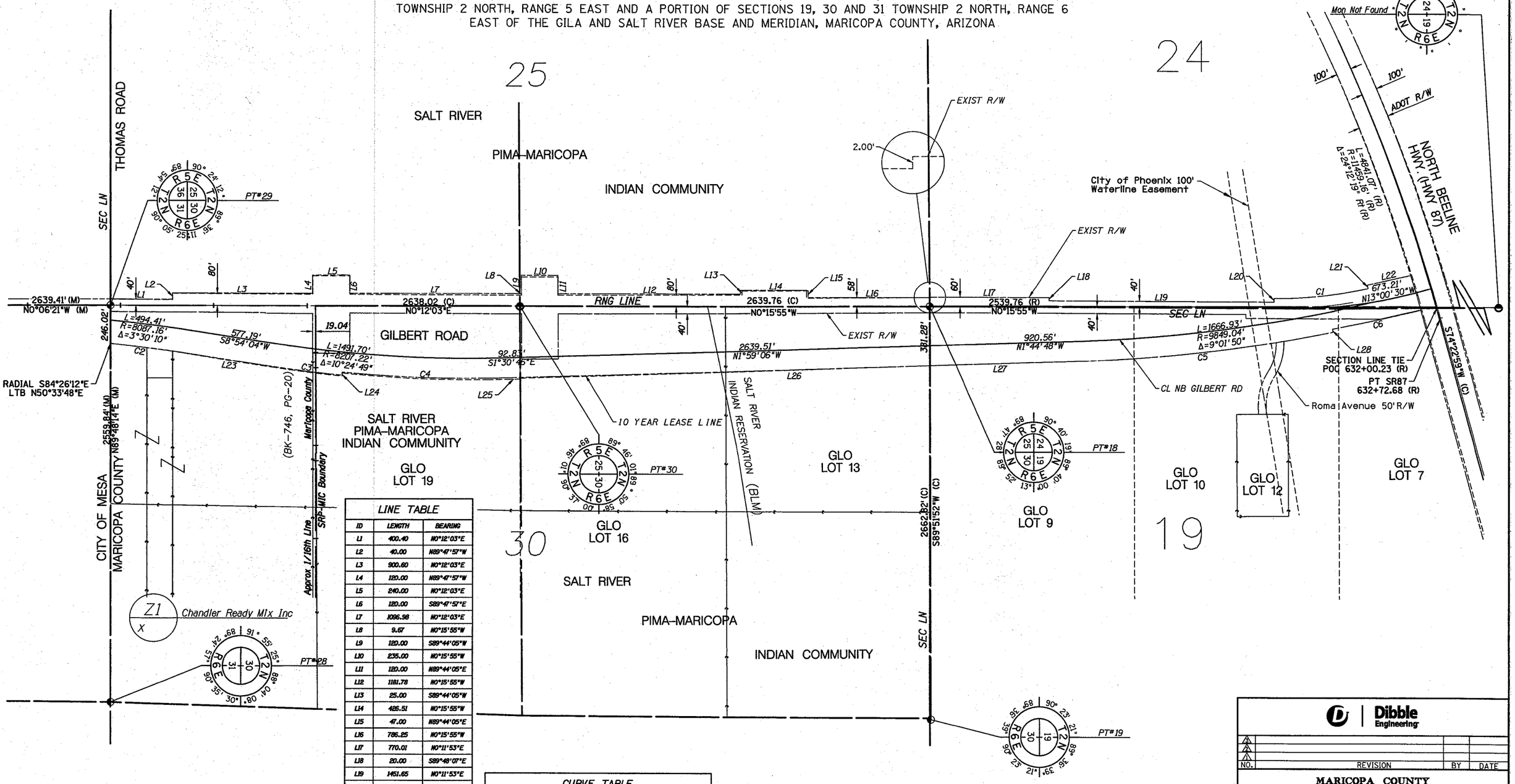
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ	TT199	3	12	

RESULTS OF SURVEY

A PORTION OF SECTIONS 4 THROUGH 9, 16, 17 AND 18 TOWNSHIP 1 NORTH, RANGE 5 EAST, A PORTION OF SECTIONS 24, 25 AND 36 TOWNSHIP 2 NORTH, RANGE 5 EAST AND A PORTION OF SECTIONS 19, 30 AND 31 TOWNSHIP 2 NORTH, RANGE 6 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA



LINE TABLE		
ID	LENGTH	BEARING
L1	400.40	N0°12'03"E
L2	40.00	N89°47'57"W
L3	900.60	N0°12'03"E
L4	120.00	N89°47'57"W
L5	240.00	N0°12'03"E
L6	120.00	S89°47'57"E
L7	1096.98	N0°12'03"E
L8	9.67	N0°15'55"W
L9	120.00	S89°44'05"W
L10	235.00	N0°15'55"W
L11	120.00	N89°44'05"E
L12	1181.78	N0°15'55"W
L13	25.00	S89°44'05"W
L14	426.51	N0°15'55"W
L15	47.00	N89°44'05"E
L16	786.25	N0°15'55"W
L17	770.01	N0°11'53"E
L18	20.00	S89°48'07"E
L19	1451.65	N0°11'53"E
L20	23.04	N89°48'07"W
L21	24.98	S77°48'06"W
L22	284.86	N12°34'07"W
L23	577.19	S8°54'07"W
L24	20.00	S84°13'38"E
L25	91.71	S1°31'07"E
L26	2637.88	S1°06'57"E
L27	924.59	S1°44'12"E
L28	20.00	N78°33'35"E

CURVE TABLE				
ID	Δ	RADIUS	LENGTH	TANGENT
C1	12°16'51"	2854.66'	611.88'	307.12'
C2	3°20'19"	8052.03'	469.19'	234.66'
C3	1°58'26"	8352.10'	287.74'	143.88'
C4	1°10'30"	8352.10'	171.30'	85.65'
C5	7°17'29"	8332.10'	1060.33'	530.88'
C6	9°42'13"	9972.52'	1688.95'	846.50'
C7	3°24'37"	9952.26'	592.36'	296.27'

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NO.	REVISION	BY	DATE

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGE
PROJECT NO. TT199

	BY	DATE
SURVEYED	RANDALL J. BILYEU	7/09
DRAWN	GABRIEL SAINZ	7/09
CHECKED	KURT BALDWIN	7/09

RESULTS OF SURVEY

SHEET 3 OF 12

TRACS NO.

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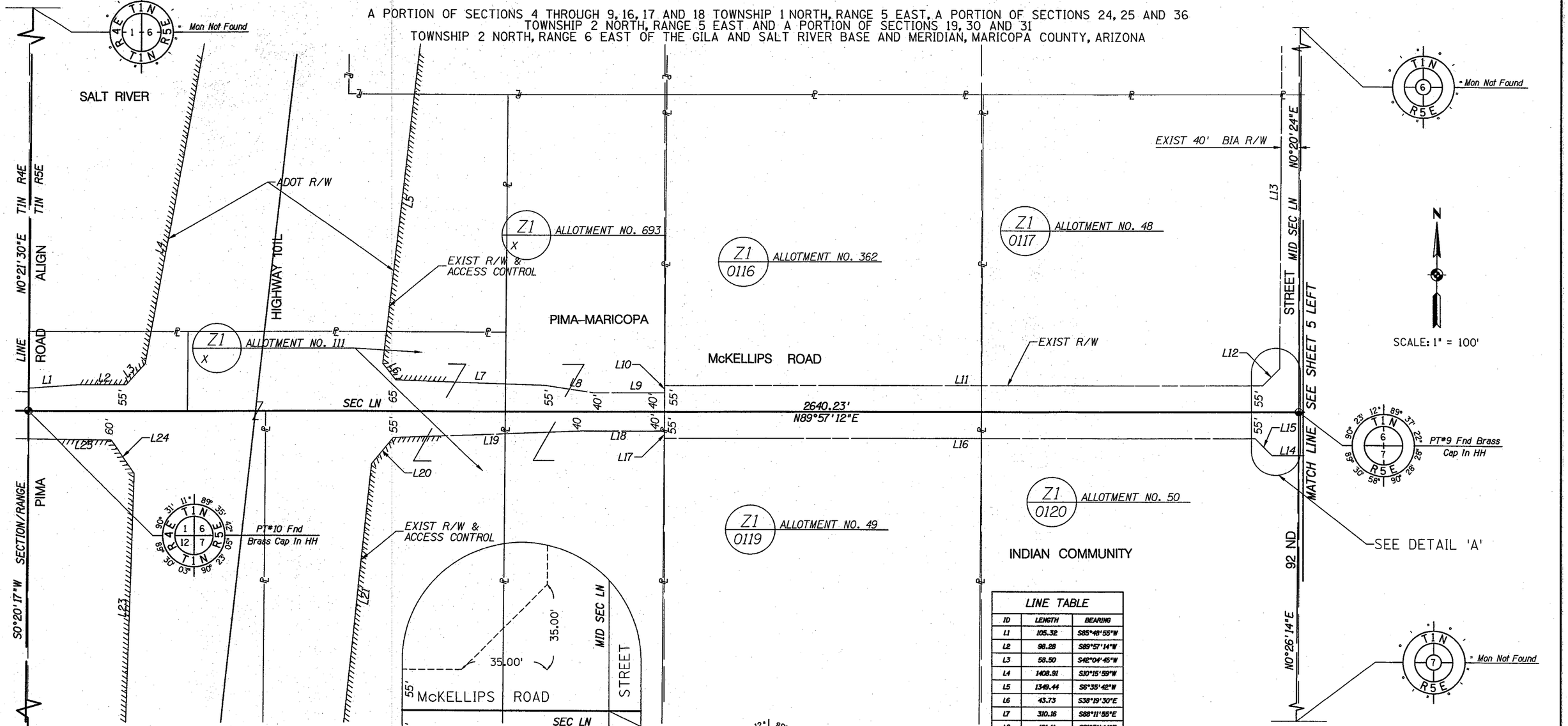
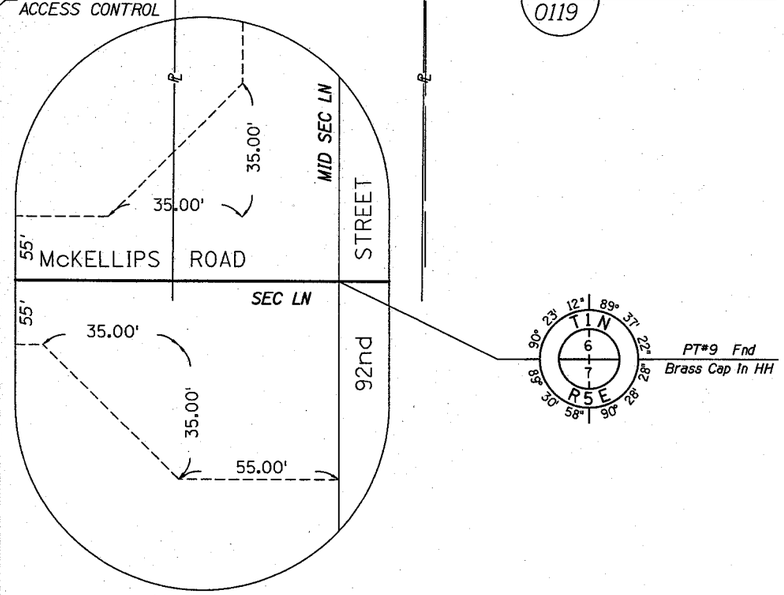
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ	TT199	4	12	

RESULTS OF SURVEY

A PORTION OF SECTIONS 4 THROUGH 9, 16, 17 AND 18 TOWNSHIP 1 NORTH, RANGE 5 EAST, A PORTION OF SECTIONS 24, 25 AND 36 TOWNSHIP 2 NORTH, RANGE 5 EAST AND A PORTION OF SECTIONS 19, 30 AND 31 TOWNSHIP 2 NORTH, RANGE 6 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA





DETAIL 'A'
N.T.S.

LINE TABLE		
ID	LENGTH	BEARING
L1	105.32	S85°48'55"W
L2	98.28	S89°57'14"W
L3	58.50	S42°04'45"W
L4	1408.91	S10°15'59"W
L5	1349.44	S6°35'42"W
L6	43.73	S38°19'30"E
L7	310.16	S88°11'55"E
L8	101.11	S81°31'44"E
L9	146.74	N89°57'12"E
L10	15.00	N0°20'58"E
L11	1245.10	N89°57'12"E
L12	49.67	N45°08'48"E
L13	2552.33	N0°20'24"E
L14	55.01	S89°57'12"W
L15	49.29	N44°48'17"W
L16	1230.06	S89°57'12"W
L17	15.00	N0°23'15"E
L18	171.16	S89°57'12"W
L19	390.28	S87°44'54"W
L20	70.76	S39°43'31"W
L21	553.66	S6°00'41"W
L22	865.86	S5°10'27"W
L23	1382.89	S1°47'49"W
L24	84.35	S34°02'27"E
L25	174.06	S89°27'03"E

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NO.	REVISION	BY	DATE
3			
2			
1			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGE
PROJECT NO. TT199

	BY	DATE
SURVEYED	RANDALL J. BILYEU	7/09
DRAWN	GABRIEL SAINZ	7/09
CHECKED	KURT BALDWIN	7/09

Registered Land Surveyor CERTIFICATE NO. 45834 RANDALL J. BILYEU Date Signed 07/21/09 ARIZONA, U.S.A. Expires 03/31/10

RESULTS OF SURVEY

SHEET 4 OF 12

TRACS NO.

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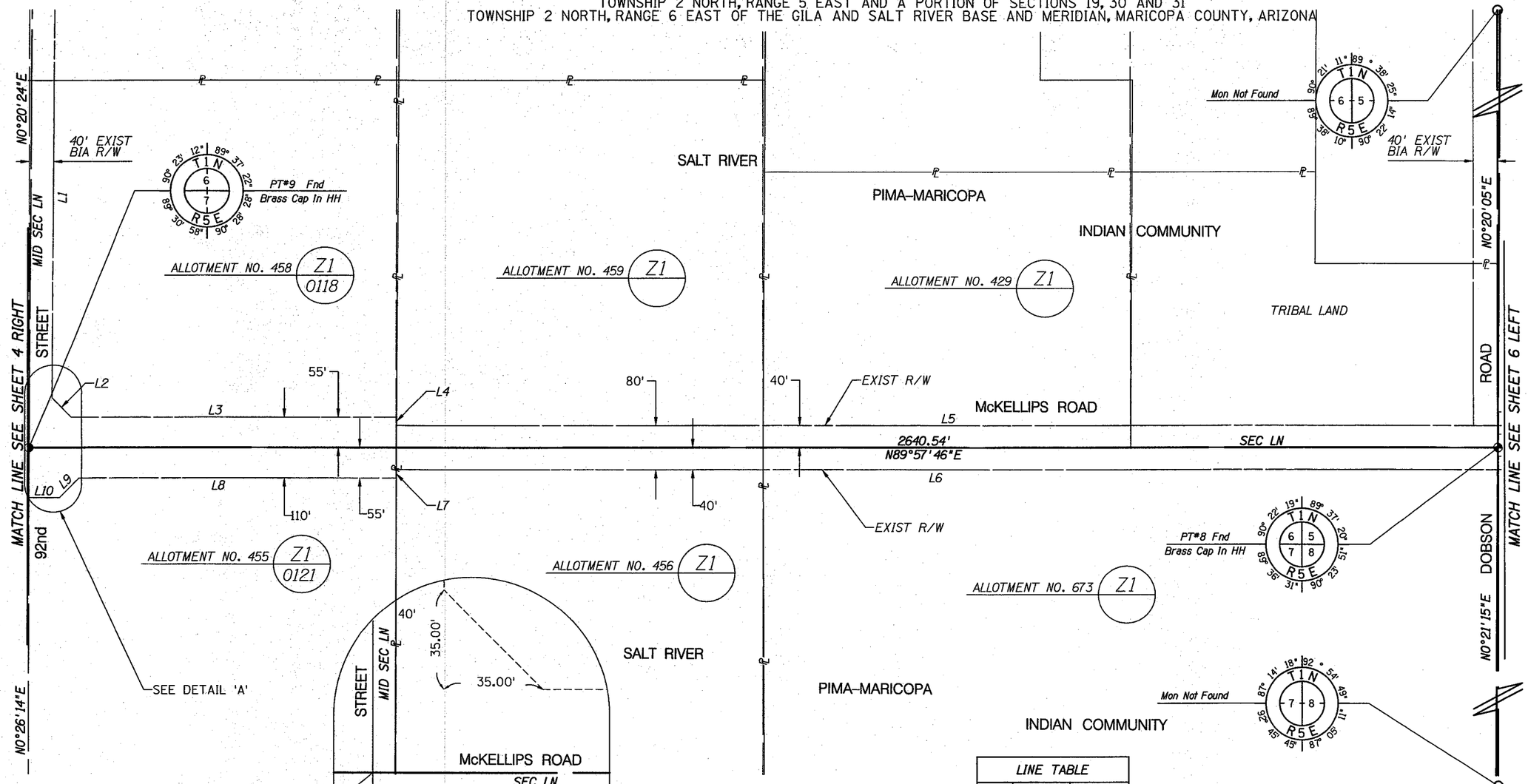
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ	TT199	5	12	

RESULTS OF SURVEY

A PORTION OF SECTIONS 4 THROUGH 9, 16, 17 AND 18 TOWNSHIP 1 NORTH, RANGE 5 EAST, A PORTION OF SECTIONS 24, 25 AND 36 TOWNSHIP 2 NORTH, RANGE 5 EAST AND A PORTION OF SECTIONS 19, 30 AND 31 TOWNSHIP 2 NORTH, RANGE 6 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA



SCALE: 1" = 100'

LINE TABLE		
LINE No.	LENGTH	BEARING
L1	2551.80	S0°20'24"W
L2	49.34	S44°50'55"E
L3	585.27	N89°57'46"E
L4	15.00	S0°19'49"W
L5	1980.26	N89°57'46"E
L6	1980.10	N89°57'46"E
L7	15.00	N0°07'14"E
L8	570.58	N89°57'46"E
L9	49.70	N45°12'00"E
L10	55.00	N89°57'46"E

DETAIL 'A'
N.T.S.

TWO WORKING DAYS BEFORE YOU DIG, CALL 602-263-1100 BLUE STAKE

Dibble Engineering

NO.	REVISION	BY	DATE
3			
2			
1			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGE
PROJECT NO. TT199

	BY	DATE
SURVEYED	RANDALL J. BILYEU	7/09
DRAWN	GABRIEL SAINZ	7/09
CHECKED	KURT BALDWIN	7/09

Registered Land Surveyor CERTIFICATE NO. 45834 RANDALL J. BILYEU Date Signed 07/30/09 ARIZONA, U.S.A. Expires 06/30/10

RESULTS OF SURVEY

SHEET 5 OF 12

TRACS NO.

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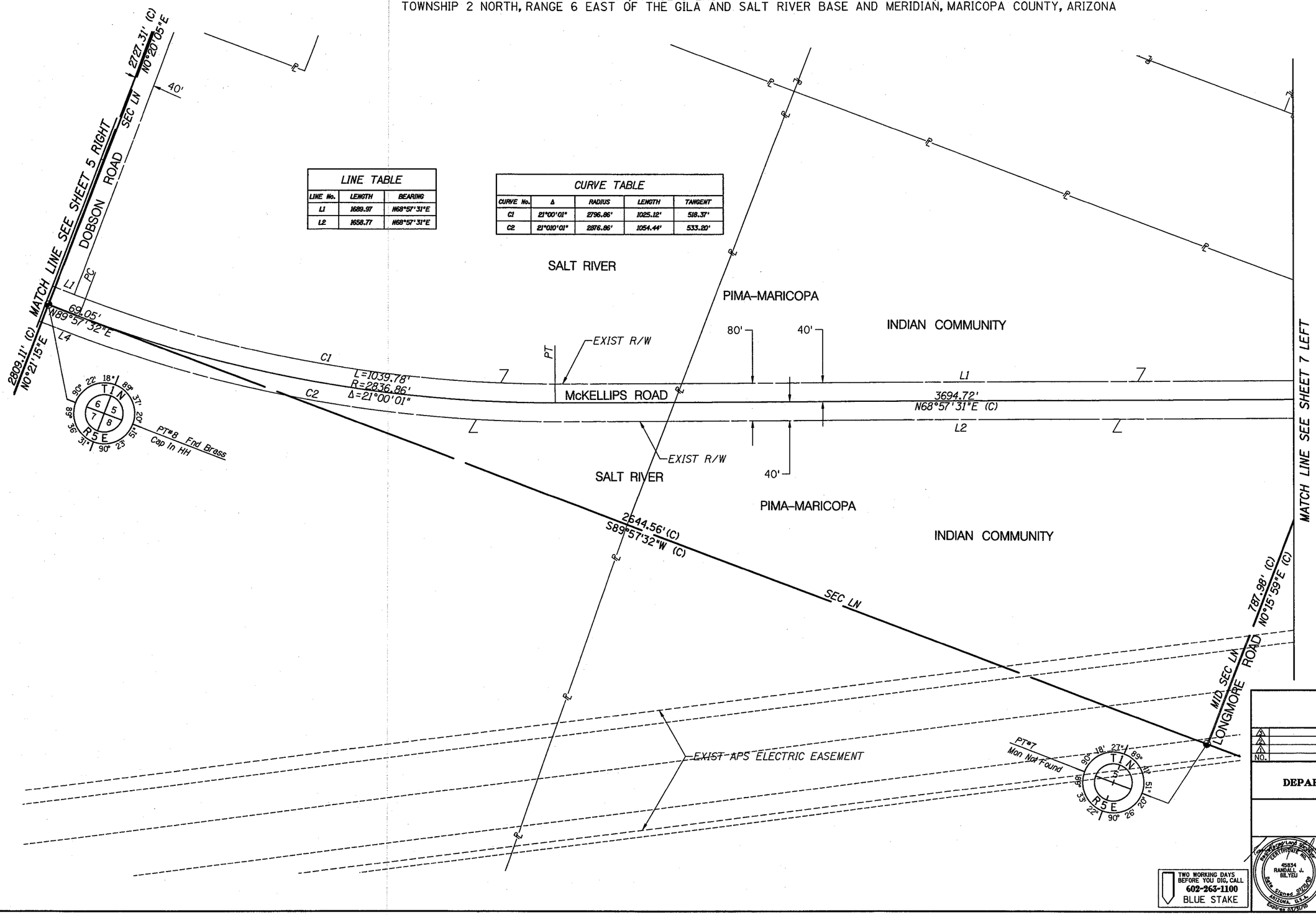
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ	TT199	6	12	

RESULTS OF SURVEY

A PORTION OF SECTIONS 4 THROUGH 9, 16, 17 AND 18 TOWNSHIP 1 NORTH, RANGE 5 EAST, A PORTION OF SECTIONS 24, 25 AND 36 TOWNSHIP 2 NORTH, RANGE 5 EAST AND A PORTION OF SECTIONS 19, 30 AND 31 TOWNSHIP 2 NORTH, RANGE 6 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA



LINE TABLE		
LINE No.	LENGTH	BEARING
L1	1689.97	N68°57'31"E
L2	1658.77	N68°57'31"E

CURVE TABLE				
CURVE No.	Δ	RADIUS	LENGTH	TANGENT
C1	21°00'01"	2796.86'	1025.12'	518.37'
C2	21°010'01"	2876.86'	1054.44'	533.20'

TWO WORKING DAYS BEFORE YOU DIG, CALL 602-263-1100 BLUE STAKE

Dibble Engineering

NO.	REVISION	BY	DATE
3			
2			
1			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGE
PROJECT NO. TT199

	BY	DATE
SURVEYED	RANDALL J. BILYEU	7/09
DRAWN	GABRIEL SAINZ	7/09
CHECKED	KURT BALDWIN	7/09

Registered Land Surveyor CERTIFICATE NO. 45834 RANDALL J. BILYEU Date Signed 07/09/09 ARIZONA, U.S.A. Expires 03/31/10

RESULTS OF SURVEY

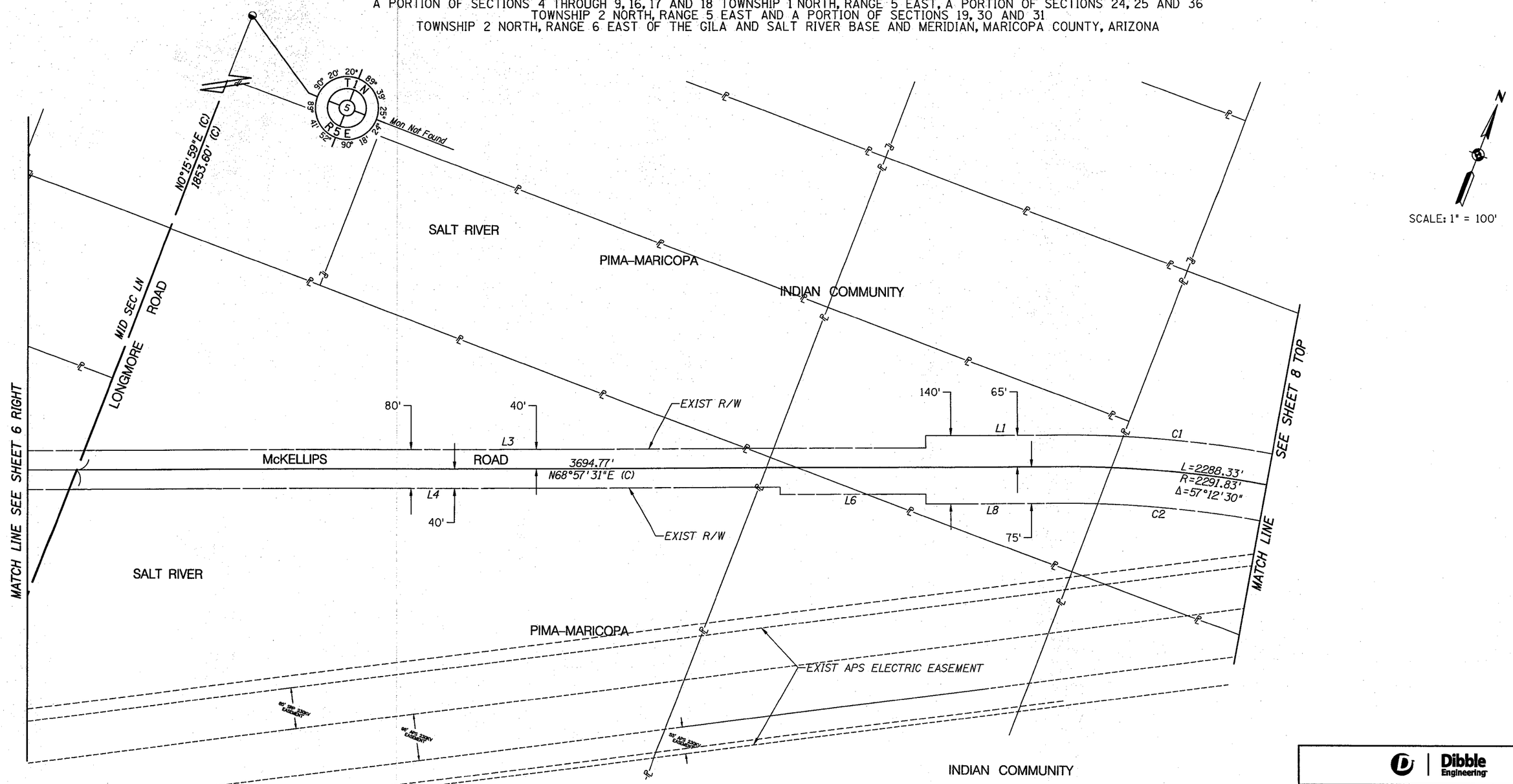
SHEET 6 OF 12

$DATE$ $TIME$ $FILE$

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ	TT199	7	12	

RESULTS OF SURVEY

A PORTION OF SECTIONS 4 THROUGH 9, 16, 17 AND 18 TOWNSHIP 1 NORTH, RANGE 5 EAST, A PORTION OF SECTIONS 24, 25 AND 36 TOWNSHIP 2 NORTH, RANGE 5 EAST AND A PORTION OF SECTIONS 19, 30 AND 31 TOWNSHIP 2 NORTH, RANGE 6 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA



LINE TABLE		
LINE No.	LENGTH	BEARING
L1	275.10	S68°57'31"W
L2	25.00	S21°02'29"E
L3	1729.65	S68°57'31"W
L4	1460.86	N68°57'31"E
L5	15.00	S21°02'29"E
L6	300.00	N68°57'31"E
L7	20.00	S21°02'29"E
L8	275.10	N68°57'31"E

CURVE TABLE				
CURVE No.	Δ	RADIUS	LENGTH	TANGENT
C1	8°40'04"	2356.83'	356.54'	178.61'
C2	8°36'27"	2216.83'	333.03'	166.83'

TWO WORKING DAYS BEFORE YOU DIG, CALL **602-263-1100** BLUE STAKE

Dibble Engineering

NO.	REVISION	BY	DATE
3			
2			
1			

MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGE
PROJECT NO. TT199

	BY	DATE
SURVEYED	RANDALL J. BILYEU	7/09
DRAWN	GABRIEL SAINZ	7/09
CHECKED	KURT BALDWIN	7/09

REGISTERED LAND SURVEYOR CERTIFICATE NO. 45834 RANDALL J. BILYEU ARIZONA, U.S.A. EXPIRES 06/30/10

RESULTS OF SURVEY

SHEET 7 OF 12

TRACS NO.

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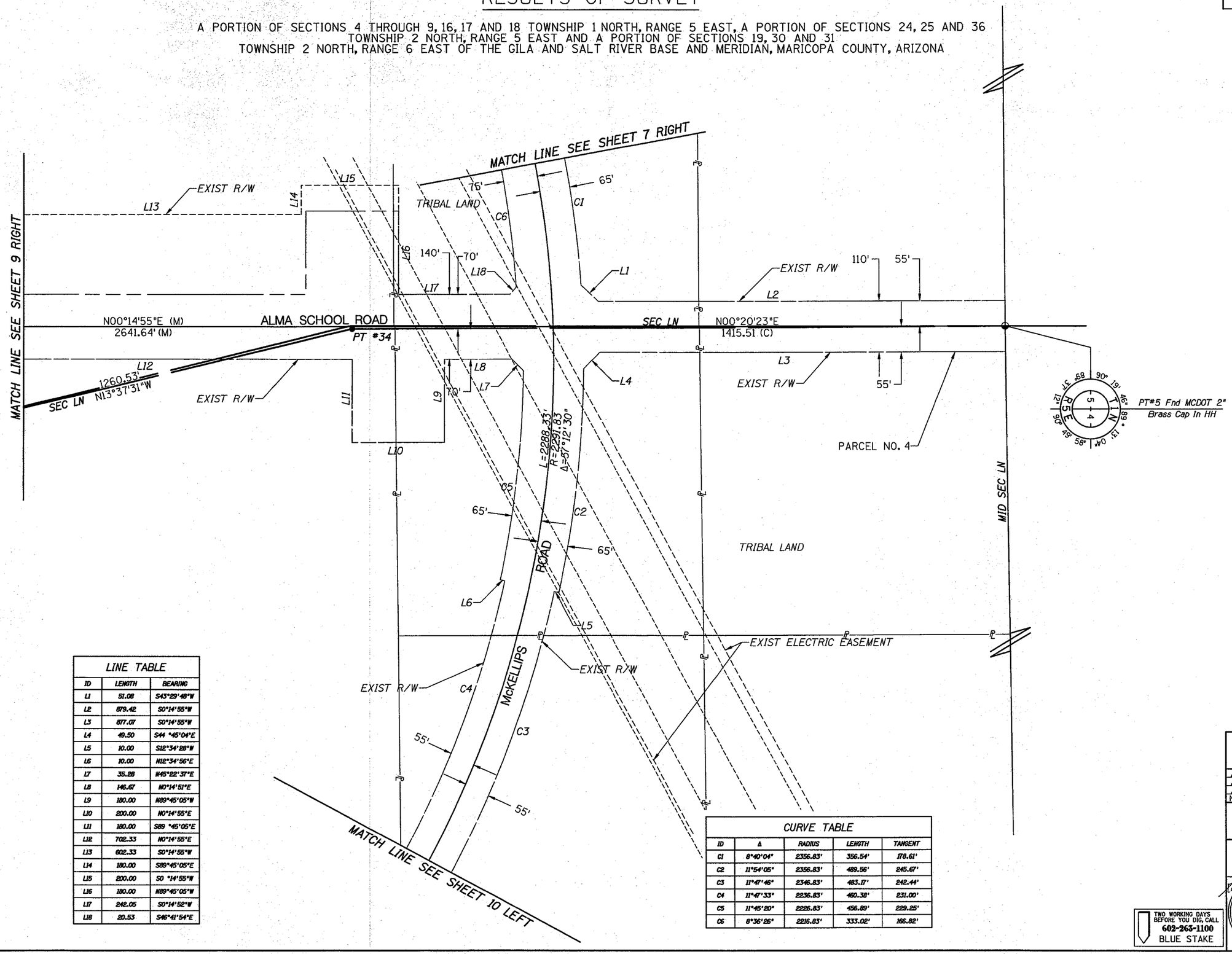
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ	TT199	8	12	

RESULTS OF SURVEY

A PORTION OF SECTIONS 4 THROUGH 9, 16, 17 AND 18 TOWNSHIP 1 NORTH, RANGE 5 EAST, A PORTION OF SECTIONS 24, 25 AND 36 TOWNSHIP 2 NORTH, RANGE 5 EAST AND A PORTION OF SECTIONS 19, 30 AND 31 TOWNSHIP 2 NORTH, RANGE 6 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA

SCALE: 1" = 100'



LINE TABLE		
ID	LENGTH	BEARING
L1	51.08	S43°29'48"W
L2	879.42	S0°14'55"W
L3	877.07	S0°14'55"W
L4	49.50	S44 °45'04"E
L5	10.00	S12°34'28"W
L6	10.00	N12°34'56"E
L7	35.28	N45°22'37"E
L8	146.67	N0°14'51"E
L9	180.00	N89°45'05"W
L10	200.00	N0°14'55"E
L11	180.00	S89 °45'05"E
L12	702.33	N0°14'55"E
L13	602.33	S0°14'55"W
L14	180.00	S89°45'05"E
L15	200.00	S0 °14'55"W
L16	180.00	N89°45'05"W
L17	242.05	S0°14'52"W
L18	20.53	S46°41'54"E

CURVE TABLE				
ID	Δ	RADIUS	LENGTH	TANGENT
C1	8°40'04"	2356.83'	356.54'	178.61'
C2	11°54'05"	2356.83'	489.56'	245.67'
C3	11°47'46"	2346.83'	483.17'	242.44'
C4	11°47'33"	2236.83'	460.38'	231.00'
C5	11°45'20"	2226.83'	456.89'	229.25'
C6	8°36'26"	2216.83'	333.02'	166.82'

TWO WORKING DAYS BEFORE YOU DIG, CALL
602-263-1100
BLUE STAKE

Dibble Engineering

NO.	REVISION	BY	DATE
3			
2			
1			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGE
PROJECT NO. TT199

	BY	DATE
SURVEYED	RANDALL J. BILYEU	7/09
DRAWN	GABRIEL SAINZ	7/09
CHECKED	KURT BALDWIN	7/09

Registered Land Surveyor, Certificate No. 45834, RANDALL J. BILYEU, Date Signed 07/31/09, ARIZONA, U.S.A., Expires 06/30/10

RESULTS OF SURVEY

SHEET 8 OF 12

TRACS NO.

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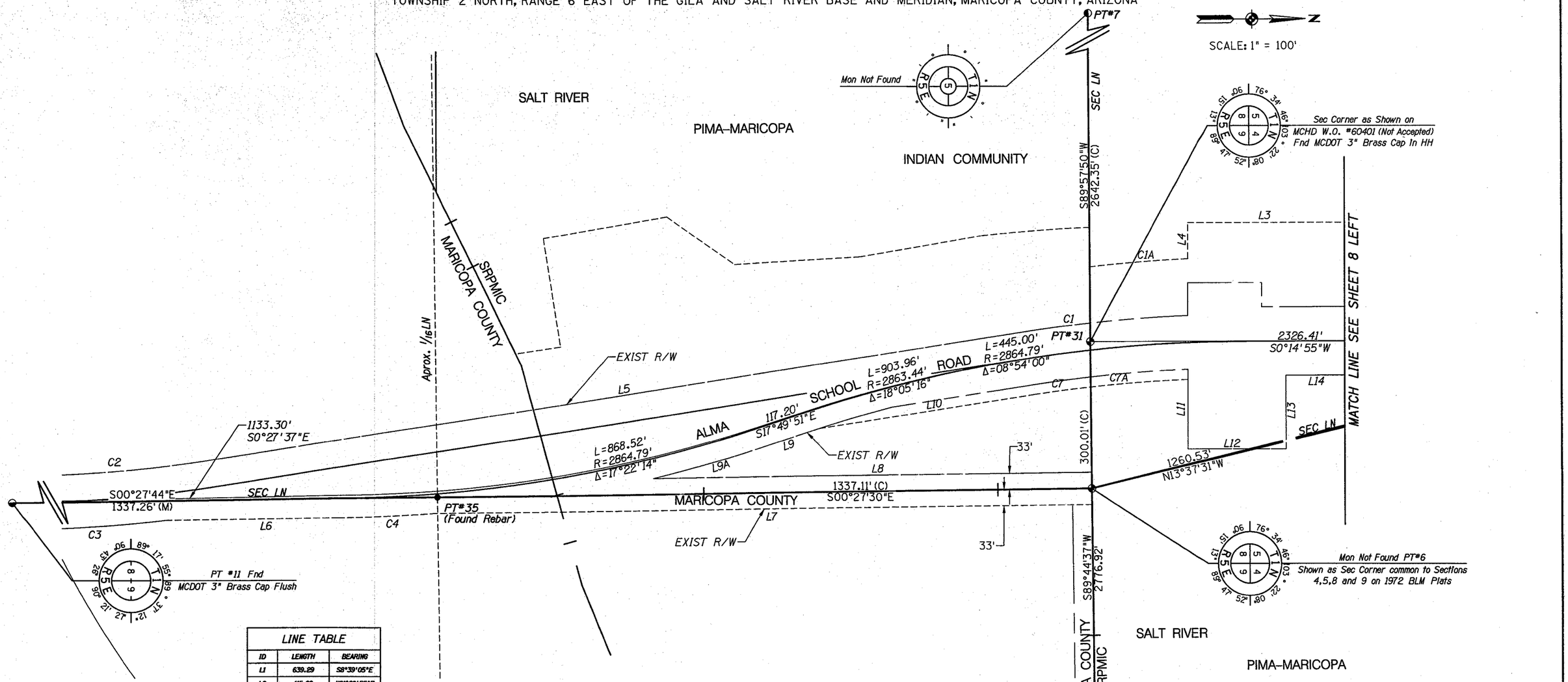
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ	TT199	9	12	

RESULTS OF SURVEY

A PORTION OF SECTIONS 4 THROUGH 9, 16, 17 AND 18 TOWNSHIP 1 NORTH, RANGE 5 EAST, A PORTION OF SECTIONS 24, 25 AND 36
TOWNSHIP 2 NORTH, RANGE 5 EAST AND A PORTION OF SECTIONS 19, 30 AND 31
TOWNSHIP 2 NORTH, RANGE 6 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA



LINE TABLE		
ID	LENGTH	BEARING
L1	639.29	S8°39'05"E
L2	115.00	N81°20'55"E
L3	87.90	S8°39'05"E
L4	224.36	N81°16'23"E
L5	256.86	S9°30'37"E
L6	168.15	S35°29'25"W
L7	255.54	S3°03'11"E
L8	252.38	S9°30'37"E
L9	80.14	S89°57'50"W
L10	73.00	S89°45'05"E
L11	326.18	S0°14'55"W
L12	127.67	N0°14'55"E
L13	150.00	N89°45'05"W
L14	200.00	N0°14'55"E
L15	162.58	S89°45'05"E
L16	290.55	N8°39'05"W
L17	117.20	N17°49'51"W
L18	893.95	S0°27'37"E
L19	1339.54	S0°27'37"E
L20	350.84	S0°27'37"E

CURVE TABLE				
ID	Δ	RADIUS	LENGTH	TANGENT
C1	8°11'29"	2809.79'	401.70'	201.19'
C2	4°09'21"	3127.26'	226.83'	113.46'
C3	3°45'11"	3047.55'	199.63'	99.85'
C4	6°31'22"	2809.79'	319.87'	160.11'
C5	3°16'37"	2823.46'	161.48'	80.76'
C6	4°29'54"	2904.79'	228.05'	114.08'
C7	3°58'43"	2904.79'	201.70'	100.89'
C8	5°48'37"	2919.79'	296.09'	148.17'

TWO WORKING DAYS BEFORE YOU DIG, CALL
602-263-1100
BLUE STAKE

Dibble Engineering

NO.	REVISION	BY	DATE
3			
2			
1			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGE
PROJECT NO. TT199

	BY	DATE
SURVEYED	RANDALL J. BILYEU	7/09
DRAWN	GABRIEL SAINZ	7/09
CHECKED	KURT BALDWIN	7/09

Registered Land Surveyor
CERTIFICATE NO. 45834
RANDALL J. BILYEU
Date Signed 07/09/09
ARIZONA, U.S.A.
Expires 06/30/10

RESULTS OF SURVEY

SHEET 9 OF 12

TRACS NO.

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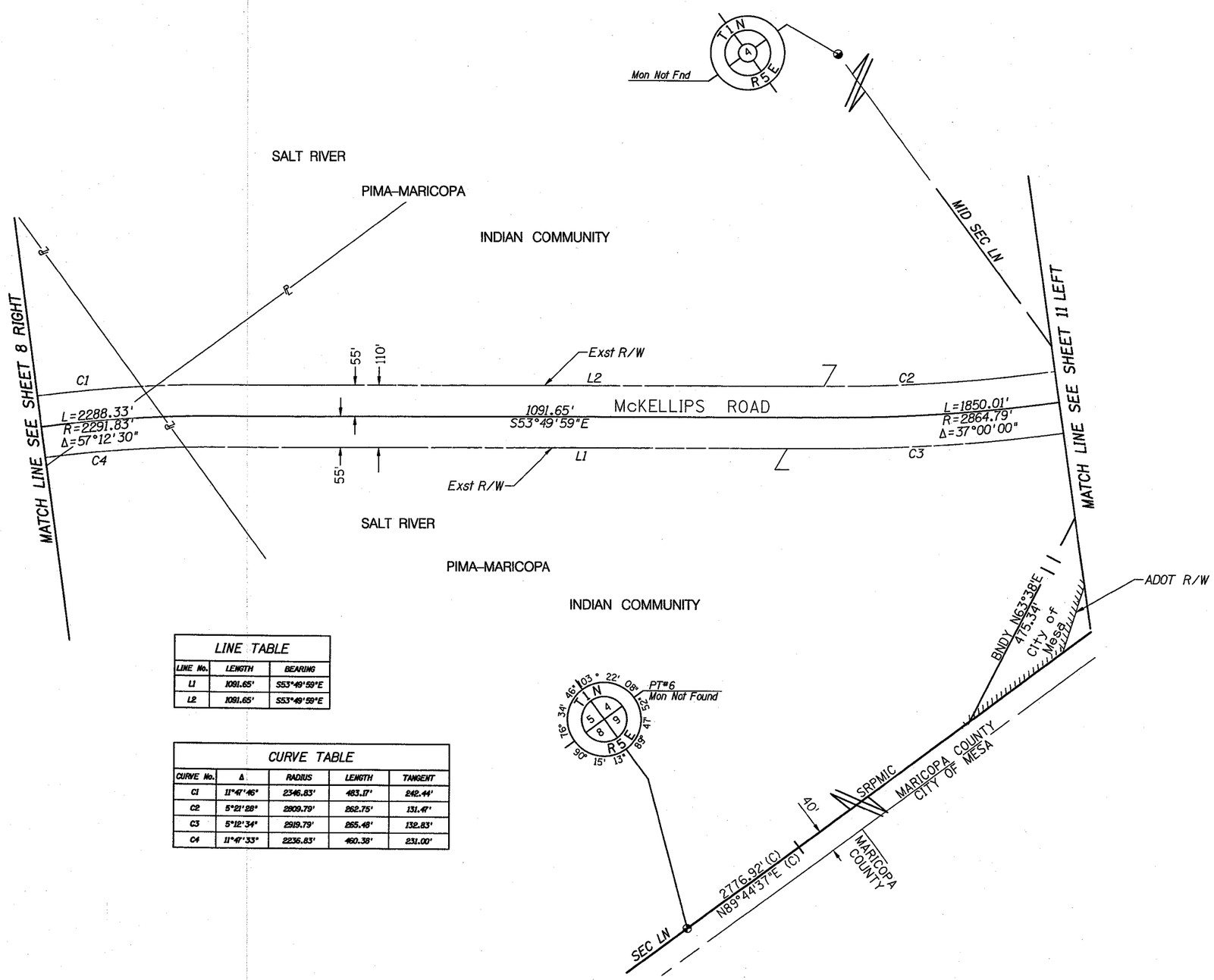
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ	TT199	10	12	

RESULTS OF SURVEY

A PORTION OF SECTIONS 4 THROUGH 9, 16, 17 AND 18 TOWNSHIP 1 NORTH, RANGE 5 EAST, A PORTION OF SECTIONS 24, 25 AND 36 TOWNSHIP 2 NORTH, RANGE 5 EAST AND A PORTION OF SECTIONS 19, 30 AND 31 TOWNSHIP 2 NORTH, RANGE 6 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA

SCALE: 1" = 100'



LINE TABLE		
LINE No.	LENGTH	BEARING
L1	1091.65'	S53°49'59"E
L2	1091.65'	S53°49'59"E

CURVE TABLE				
CURVE No.	Δ	RADIUS	LENGTH	TANGENT
C1	11°47'46"	2346.83'	483.17'	242.44'
C2	5°21'28"	2809.79'	262.75'	131.47'
C3	5°12'34"	2919.79'	265.48'	132.83'
C4	11°47'33"	2236.83'	460.38'	231.00'

TWO WORKING DAYS BEFORE YOU DIG, CALL. 602-263-1100 BLUE STAKE

Dibble Engineering

NO.	REVISION	BY	DATE
3			
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGE
PROJECT NO. TT199

	BY	DATE
SURVEYED	RANDALL J. BILYEU	7/09
DRAWN	GABRIEL SAINZ	7/09
CHECKED	KURT BALDWIN	7/09

RESULTS OF SURVEY

SHEET 10 OF 12

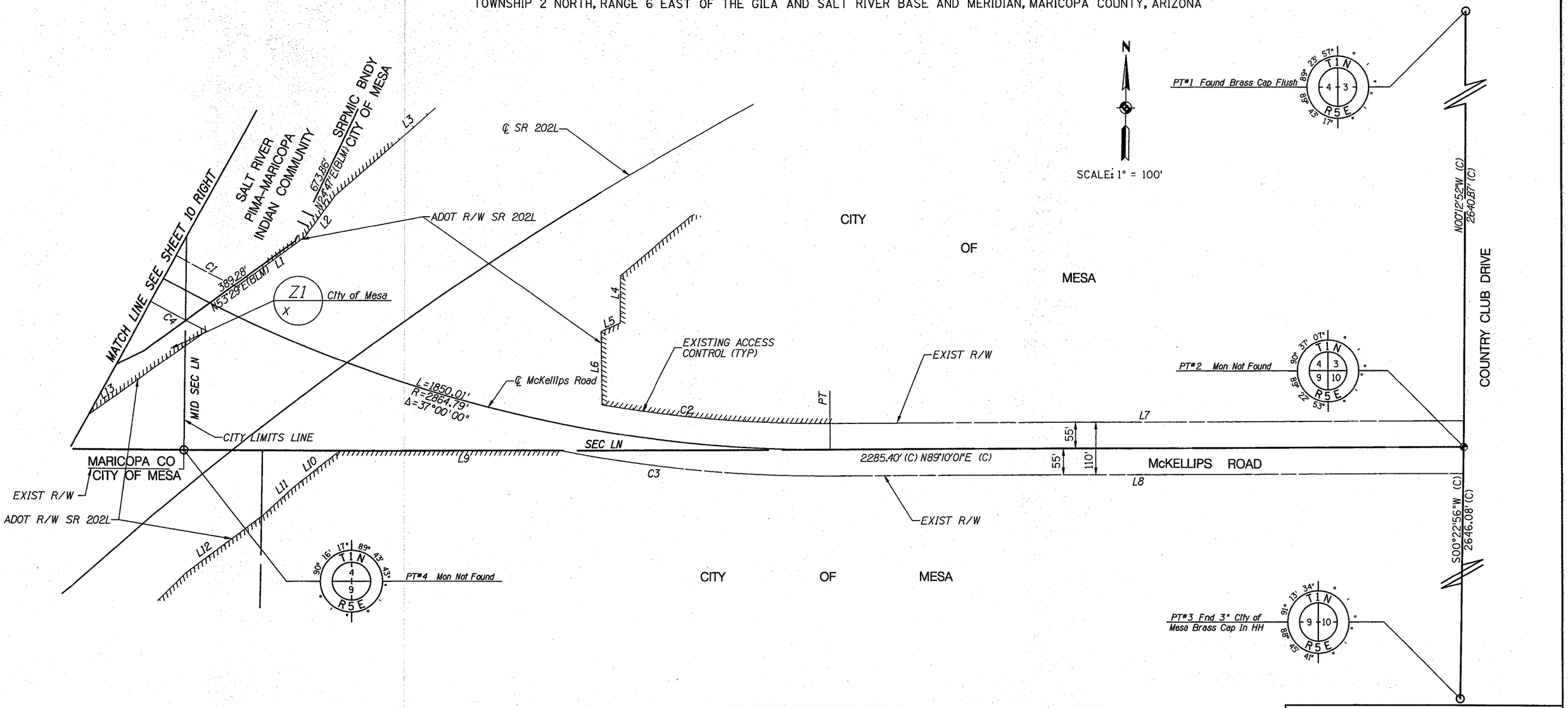
TRACS NO.

$DATE$ $TIME$ $FILE$

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ	TT199	11	12	

RESULTS OF SURVEY

A PORTION OF SECTIONS 4 THROUGH 9, 16, 17 AND 18 TOWNSHIP 1 NORTH, RANGE 5 EAST, A PORTION OF SECTIONS 24, 25 AND 36
TOWNSHIP 2 NORTH, RANGE 5 EAST AND A PORTION OF SECTIONS 19, 30 AND 31
TOWNSHIP 2 NORTH, RANGE 6 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA



LINE TABLE		
ID	LENGTH	BEARING
L1	176.36	S53°24'49"W
L2	109.44	S35°30'03"W
L3	315.09	S48°21'34"W
L4	99.09	S0°31'42"E
L5	43.70	S65°37'15"W
L6	156.80	S1°21'06"E
L7	1326.30	N89°10'01"E
L8	1325.14	N89°10'01"E
L9	464.57	N89°15'12"E
L10	123.09	N51°22'40"E
L11	85.47	N46°38'39"E
L12	201.96	N52°45'05"E
L13	429.61	N54°08'27"E

CURVE TABLE				
ID	Δ	RADIUS	LENGTH	TANGENT
C1	5°21'28"	2809.79'	262.75'	131.47'
C2	9°46'28"	2809.79'	479.34'	240.25'
C3	11°08'19"	2919.79'	567.62'	284.71'
C4	5°12'34"	2919.79'	265.48'	132.83'

TWO WORKING DAYS BEFORE YOU DIG, CALL
602-263-1100
BLUE STAKE

Dibble Engineering

NO.	REVISION	BY	DATE
3			
2			
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGE
PROJECT NO. TT199

Registered Land Surveyor
CERTIFICATE NO.
45834
RANDALL J. BILYEU
Date Signed 07/30/09
ARIZONA, U.S.A.
Expires 06/30/10

	BY	DATE
SURVEYED	RANDALL J. BILYEU	7/09
DRAWN	GABRIEL SAINZ	7/09
CHECKED	KURT BALDWIN	7/09

RESULTS OF SURVEY

SHEET 11 OF 12

TRACS NO.

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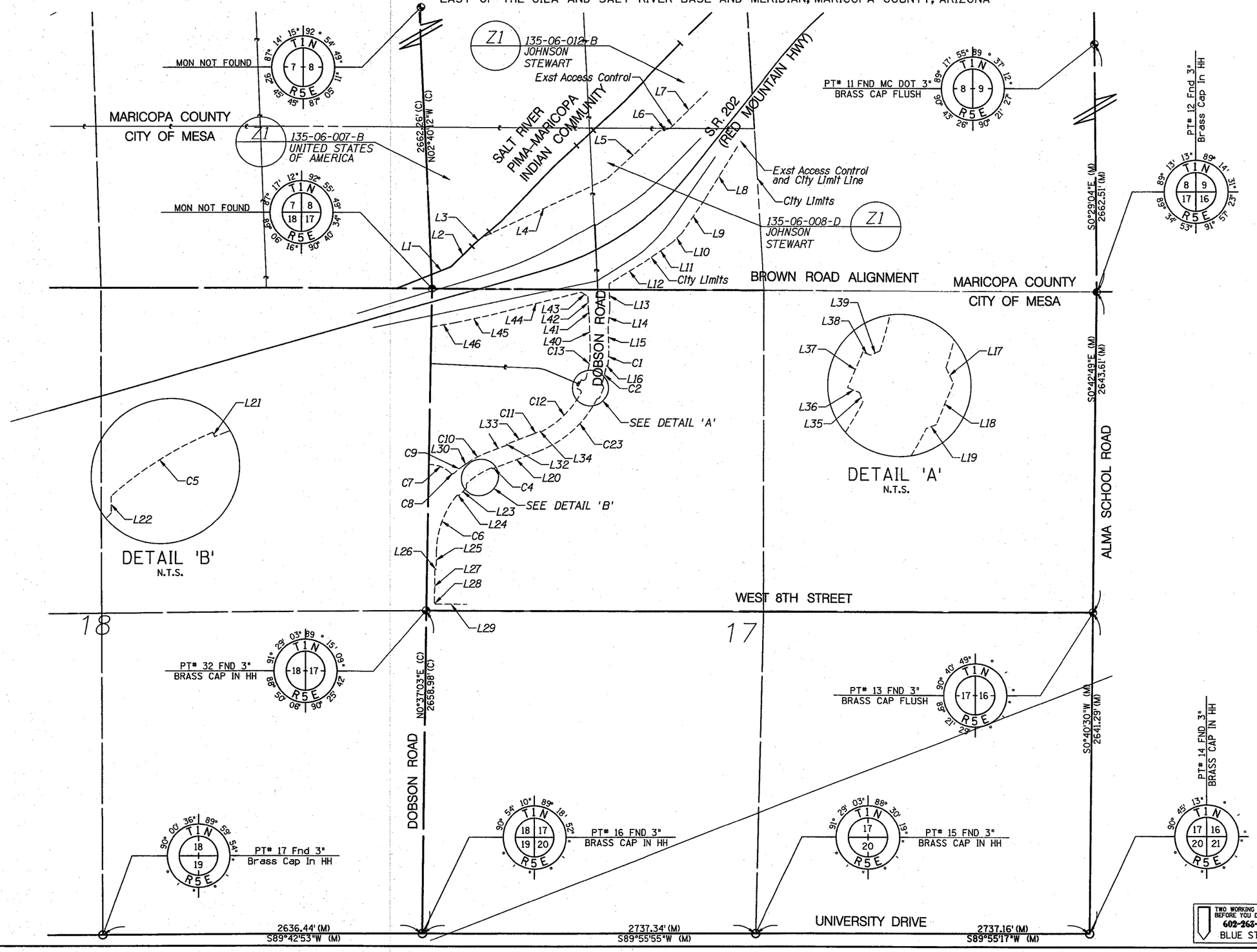
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ	TT199	12	12	

RESULTS OF SURVEY

A PORTION OF SECTIONS 4 THROUGH 9, 16, 17 AND 18 TOWNSHIP 1 NORTH, RANGE 5 EAST, A PORTION OF SECTIONS 24, 25 AND 36 TOWNSHIP 2 NORTH, RANGE 5 EAST AND A PORTION OF SECTIONS 19, 30 AND 31 TOWNSHIP 2 NORTH, RANGE 6 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA



LINE TABLE		
LINE No.	LENGTH	BEARING
L1	172.51	S68°08'24"W
L2	271.23	S45°23'14"W
L3	78.84	S50°09'40"W
L4	1132.67	S64°52'09"W
L5	593.34	S47°51'54"W
L6	92.14	S76°24'13"W
L7	430.58	S45°38'03"W
L8	511.56	S31°39'54"W
L9	337.84	S34°01'06"W
L10	113.08	S46°14'26"W
L11	225.89	S55°03'32"W
L12	392.86	S58°39'52"W
L13	201.75	S1°58'42"E
L14	160.95	S5°10'04"W
L15	159.69	S1°58'31"E
L16	10.00	N81°45'54"W
L17	35.90	S25°15'19"E
L18	92.12	S22 °38'40"W
L19	22.20	S68°20'45"W
L20	380.00	S69°23'40"W
L21	10.00	N22°30'59"W
L22	34.34	S0°35'42"E
L23	81.00	S44°03'16"W

LINE TABLE		
LINE No.	LENGTH	BEARING
L24	20.43	S86°58'36"W
L25	151.25	S0°56'12"W
L26	10.00	N89°03'48"W
L27	280.03	S0°56'12"W
L28	14.04	S44°27'07"E
L29	253.50	S89°48'39"E
L30	21.53	S57°48'11"W
L31	159.38	S69°23'40"W
L32	10.00	S20°36'20"E
L33	220.62	S69°23'40"W
L34	10.00	N26°33'08"W
L35	20.54	S20°08'17"E
L36	26.40	S66°56'41"E
L37	80.00	S23°03'19"W
L38	16.39	N66°56'41"W
L39	20.53	S66°13'27"W
L40	255.49	S1°58'31"E
L41	64.09	S6°26'15"E
L42	100.12	S1°58'44"E
L44	763.62	N75°48'28"E
L45	300.66	N77°51'14"E
L46	204.39	N79°45'01"E

CURVE TABLE				
CURVE No.	Δ	RADIUS	LENGTH	TANGENT
C1	10°12'37"	893.51'	159.23'	79.82'
C2	9°49'16"	883.51'	151.44'	75.91'
C3	42°50'03"	893.51'	667.99'	350.47'
C4	1°54'39"	743.51'	24.80'	12.40'
C5	18°56'09"	753.51'	249.03'	125.66'
C6	38°23'03"	743.51'	498.10'	258.80'
C7	50°59'56"	220.00'	195.82'	104.93'
C8	87°18'51"	22.50'	34.29'	21.47'
C9	7°04'18"	884.51'	109.17'	54.65'
C10	13°33'23"	883.51'	209.04'	105.01'
C11	5°56'48"	743.51'	77.17'	38.62'
C12	36°12'28"	753.51'	476.18'	246.34'
C13	20°47'27"	743.51'	269.80'	136.40'

Dibble Engineering

NO.	REVISION	BY	DATE
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MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

DOBSON ROAD BRIDGE
PROJECT NO. TT199

	BY	DATE
SURVEYED	RANDALL J. BILYEU	7/09
DRAWN	GABRIEL SAINZ	7/09
CHECKED	KURT BALDWIN	7/09

Registered Land Surveyor
Certificate No. 45834
RANDALL J. BILYEU
Date Signed 07/21/09
ARIZONA, U.S.A.
Expires 12/31/2010

RESULTS OF SURVEY

SHEET 12 OF 12

TRACS NO.

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