Lower Hassayampa River Watercourse Master Plan

Volume 1

Data Collection Report

Prepared for

December 2005

Submitted to:
Flood Control District of Maricopa County
2801 W. Durango Street
Phoenix, AZ 85009

Submitted by:
JE Fuller/Hydrology & Geomorphology, Inc.
8400 S. Kyrene Road, Suite 201
Tempe, AZ 85284

Lower Hassayampa River Watercourse Master Plan

Volume 1

Data Collection Report

December 2005

Submitted to:
Flood Control District of Maricopa County
2801 W. Durango Street
Phoenix, AZ 85009

Submitted by:
JE Fuller/Hydrology & Geomorphology, Inc.
8400 S. Kyrene Road, Suite 201
Tempe, AZ 85284

Table of Contents

Table of Contents 2
List of Tables 3
List of Figures 3
Executive Summary 5
Introduction 6
Project Description 6
Scope of Project 7
Data Collection Results 7
  Engineering 8
    Flood Control Planning 8
    Hydrology 9
    Hydrologic Models 12
    Hydraulics 12
    Sediment Transport 13
  River Behavior 14
    Historic Aerial Photography 15
    Historic Topography 16
  Historic Ground Photos 19
  Surveying 24
  Land Use Data 24
  Existing and Future Land Uses 25
  Sand and Gravel Mining 25
  Groundwater Recharge 26
  Environmental Conditions 27
  Regulatory – Required Permits and Regulations 29
  Existing Drainage Regulations, Stormwater Quality, and Required Permits 30
  Identification of Flooding Problems 31
  Existing Facilities Exhibit 33
Summary 35
References 36

List of Tables

Table 1. Historic Aerial Photography 15
Table 2. Historic Topography Sets 16
Table 3. Photos from USGS Records in Tempe (on CD) 21
Table 4. Photos from FCD Library 22
Table 5. Other Photos 23

List of Figures

Figure 1. Study Area Location Map 7
Figure 2. Distribution of Existing Detailed Topography 17
Figure 3. Historic USGS Topographic Quadrangles in the Study Corridor 18
Figure 4. Photo date 10-29-1963 19
Figure 5. Photo date 10-07-1970 19
Figure 6. Photo date 11-03-2000 20
Figure 7. WESTCAPS Strategy Map 27
Figure 8. Hassayampa River Watershed (modified from JEF, 2004) 32
Figure 9. Mean monthly flows at USGS Gaging Station Hassayampa near Arlington .. 33
Figure 10. Topography in Vicinity of Union Pacific Railroad Bridge (2002 topography (in green) over 1958 USGS Quad (brown contours)) 34

List of Plates

Plate 1 – Landform by Soil Unit and General Geology Map
Plate 2 – Recent Satellite and Aerial Photo Imagery
Plate 3 – Existing and Future Land Use
Plate 4 – Public Land Ownership and Sand and Gravel Mining Permits
Plate 5 – Vegetation and Land Cover Distributions Based on National Satellite Data
Proposed Master Planned Communities
Existing Facilities Exhibit

Appendices

As-Builts
- CAP siphon
- CAP bank protection
- ATT fiber optic lines
- Interstate 10 bridge
- Union Pacific railroad bridge
- Kinder Morgan petroleum line
- WillTel fiber optic line
- Palo Verde NGS water supply line
- Old US Highway 80
- Various power transmission lines

Flood Control Articles

Miscellaneous Historical Documents

Miscellaneous Technical Documents

Walnut Grove Dam Information

CD/DVD –
- Disk 1 (CD) – GIS data, collected reports, DCR, HEC-1, HEC-2, HEC-RAS data, exhibit pdf files, photographs, as-builts, 1992 aerials
- Disk 2 (DVD) – semirectified historical aerial photographs, maps, other misc. raster data sets

Addenda

Report on Drainage and Stormwater, Recharge and Environmental Conditions

Executive Summary

This report contains summary of information compiled during the data collection portion of the Lower Hassayampa River Watercourse Master Plan (LHWCMP). The work was performed under contract FCD 2004C001 for the Flood Control District of Maricopa County by the JE Fuller/Hydrology & Geomorphology, Inc. consultant team. The work was performed in the summer of 2004.

The Data Collection Report contains a description of known flooding problems within the study area and a summary of the data collected. Targeted data included engineering data on previous hydrologic, hydraulic, and sediment transport analyses, historic and geologic data reflecting flood and erosion potential, existing and future land use, location of existing facilities in the area, and environmental and other regulatory constraints for future flood control planning in the area. The primary objective of the data collection activity was to provide a foundation for the hydrologic, hydraulic, and river behavior analyses being conducted for the current technical phase of the WCMP. In addition, these data and references provide background and easy access for flood control planning in a later future phase of the WCMP process.

This report is organized by category of information collected. Both printed and electronic data sets were collected. Summaries of the most important documents are presented first followed by a bibliographic listing of all documents identified. Finally, the appendices contain electronic copies of documents, photographs, and other data collected as part of this report that are not otherwise available in existing District databases. As additional data become available or are discovered during the course of the study, they will be added to this report.

The results of the data collection activities indicate that flood and erosion impacts have been limited primarily to agricultural activities in the downstream portion of the study corridor. Damage to irrigation facilities in particular has been the primary impact of flooding experienced to date. Several large important infrastructure features are present within the corridor including powerlines, water supply lines, a petroleum supply line, and transportation crossings. The area is expected to intensely develop in the future placing pressure on the natural river system. Needs for sand and gravel and additional transportation crossings are expected. Impacts of development on existing and future infrastructure will be an important element of the WCMP.

Introduction

This report contains summary of information compiled during the data collection portion of the Lower Hassayampa River Watercourse Master Plan (LHWCMP). The work was performed under contract FCD 2004C001 for the Flood Control District of Maricopa County by the JE Fuller/Hydrology & Geomorphology, Inc. consultant team. The consultant team consisted of JE Fuller/Hydrology & Geomorphology, Inc. (JEF), WEST Consultants, Inc. (WEST), C.L. Williams Consulting, Inc. (CLW), Wass-Gerke & Associates (WGA), and EDAW, Inc. The work was performed in the summer of 2004.

This report is organized by category of information collected. Both printed and electronic data sets were collected. Summaries of the most important documents are presented first followed by a bibliographic listing of all documents identified. Finally the appendices contains electronic copies of documents, photographs, and other data collected as part of this report that are not otherwise available in existing District databases.

Project Description

The Lower Hassayampa River Watercourse Master Plan (WCMP) will be divided into two phases. The first phase (current contract) will identify the existing river hydraulics, lateral migration and sediment transport issues and hazards, along with other data collection activities. This will require research into and location of historical photographs, geomorphic data, previous flood hazard reports and hydrology for the study area, including but not limited to drainage reports, existing topographic mapping, historical flooding information, as-built plans for existing structures, Federal Emergency Management Agency (FEMA) flood insurance rate maps, and other pertinent information. In addition, the study will review and modify and/or develop existing condition models for the hydrology, hydraulics, and sediment transport associated with the lower Hassayampa River. The study will also make preliminary recommendations for alternatives and technical guidelines for consideration in the future Phase II study. Phase I of the WCMP study will include public outreach activities.

The purpose of a WCMP is to identify and develop a plan and technical guidance/criteria for managing flooding hazards, lateral migration of the watercourse, and the cumulative impacts of existing and future development/encroachment into the floodplain consistent with Arizona State law.

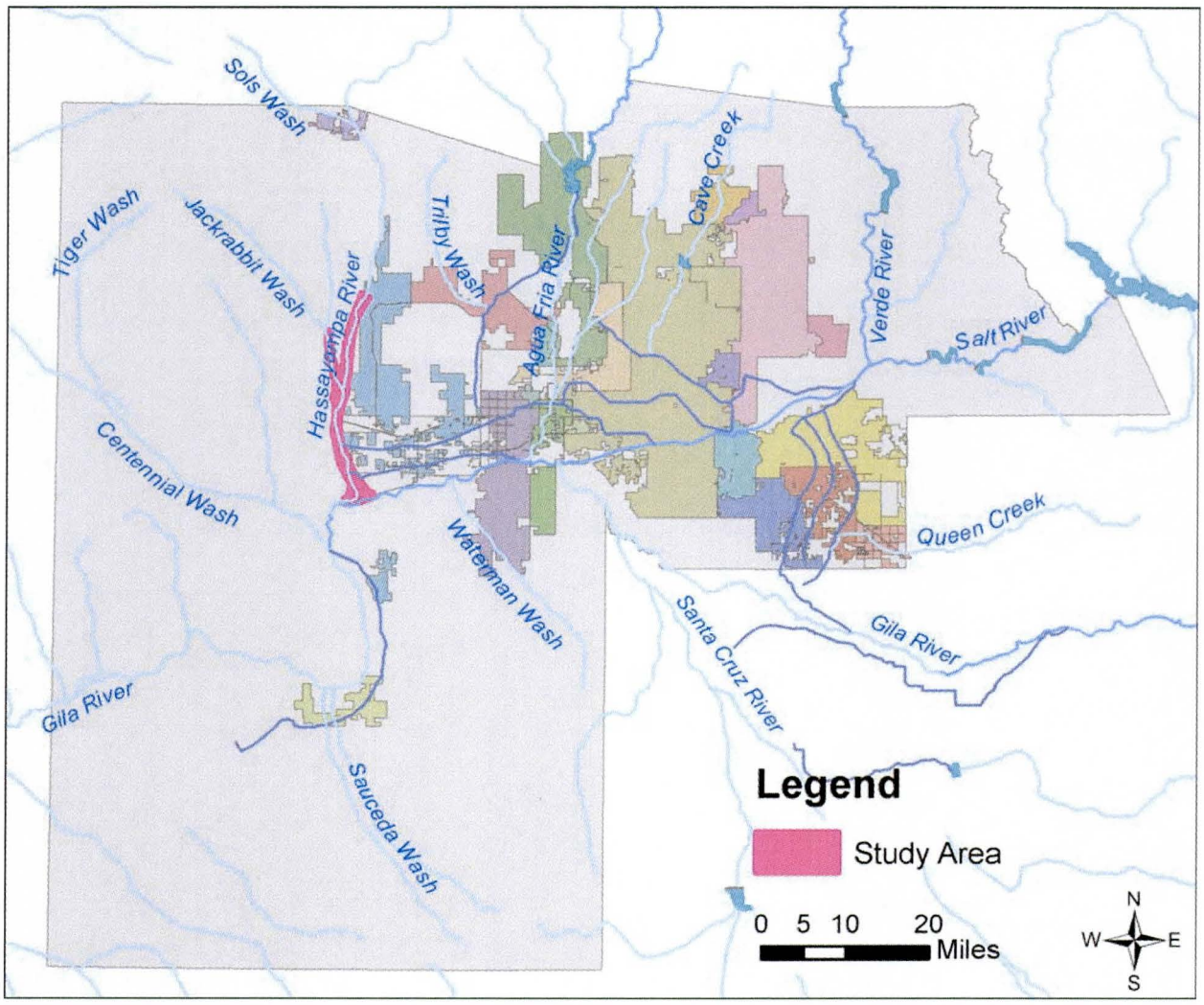


Figure 1. Study Area Location Map

Scope of Project

The current project is primarily limited to the technical analyses relating to past and future flood and erosion processes on the lower Hassayampa River. The extensive flood control alternatives development and evaluation are not part of the current contract. Rather, the current study will provide the technical foundation from which the alternatives analysis can be performed.

Data Collection Results

The results of the data collection are presented in the following sections. The data collection presentation uses three forms. First a description of the data collection approach and overview of the results for each major discipline is presented. Second, a brief abstract of the most important resources collected for each discipline is provided. Finally, a complete bibliographic listing is provided along with information on where the data were collected for difficult to find resources. The intention is to make it easier for future investigators to locate these resources if necessary.

Libraries and archives of major institutions and agencies were researched to identify documents of interest. Focus was made on documents containing descriptions of the past and existing flood and erosion related history of the Hassayampa River within the study corridor. In addition, infrastructure within the corridor was identified and as-built or other specific data regarding these facilities was obtained. Libraries and archives researched included the Arizona State Archives, Arizona State University libraries, the Buckeye Valley Museum, and the Flood Control District of Maricopa County. In addition, data from the State and County Transportation Departments, Arizona Public Service, irrigation districts, and the Union Pacific Railroad were collected.

Engineering

Flood Control Planning

Hassayampa Project, Arizona, Project Planning Report No. 3-8b.1-0 & 3-8b.1-2 (USBR 1945 & 1948) – The Bureau of Reclamation published preliminary and final versions of a Hassayampa Project Planning Report dated 1945 and 1948 that recommended the construction of a dam on the Hassayampa River at Box Canyon. The earlier report states that the construction of this dam will prevent flood damage to the town of Wickenburg, and included estimated discharges for tributaries to the watershed and estimated damage costs associated with differing discharge magnitudes. The second report presents a history of damages on the river pre-1945 as well as more in-depth analyses of estimated damages to residential land, business, agriculture, and roads at differing discharge magnitudes. The report notes about 2,000 acres of irrigated land and the Southern Pacific Railroad bridge as improvements subject to flood and erosion damage within the LHWCMP study reach. Flood damage estimates were not differentiated by sub-reach. However, total damages for a flow of about 55,000 cfs (WCMP 100-year peak discharge estimate (JEF, 2004)) range from about $100,000 to $250,000 (in 1945 dollars) for the entire Hassayampa River below Box Canyon. The Bureau reports are the earliest flood control analyses found on the Hassayampa River, and are therefore important for all future studies. Copies of these reports can be found in the District Engineering Library.

Hassayampa River Preliminary Report (1961) & Flood Control Report Section II, Western Maricopa County (1962) (Johannessen & Girand, 1961 & 1962) – The Johannessen and Girand Hassayampa River Flood Control Reports of 1961 and 1962 are extremely relevant to the LHWCMP because they outline hazards and mitigations for the lower Hassayampa study area, and have given a good example of representing a need for flood control on the Hassayampa River. The preliminary report addresses hydrologic hazards in several places along the river, while including the western slopes of the White Tank Mountains which is now controlled by the Buckeye Flood Retarding Structures. It specifically addresses flooding hazards to agriculture downhill from the western slopes of the White Tank Mountains where there are irrigation canals, pumps, and wells that can be damaged. The preliminary report is also useful in expressing why a flood control structure is necessary by accounting flood damage in Wickenburg with letters from citizens. In the later report, Johannessen and Girand propose the usefulness of a dam for flood control, recreation, irrigation, groundwater recharge through percolation, and power generation. It discusses conservative estimates of flood damages to structures along the Hassayampa. The report also proposes the clearing of

vegetation from the channels of the Hassayampa at the confluence of the Gila River. They contend that the growth of salt cedars and tamarisk retards flow, causing the water to back up into canals and over its banks into cultivated areas. It also allows for the greater deposition of silt, which reduces the flow capacity of the streams. They further argue that the water used by phreatophytes consumes valuable water that could be used elsewhere. Copies of these reports can be found in the District Engineering Library.

The Bureau of Reclamation and Johannessen and Girand reports are both in strong support of a new dam on the Hassayampa River at Box Canyon, though none was ever constructed.

Watershed Work Plan, Buckeye Watershed (SCS, 1963) - Shortly after the Johannessen & Girand reports, the Soil Conservation Service published the Buckeye Watershed Plan which also detailed flood control plans to mitigate flood and erosion damage in the Buckeye area. The watershed plan eventually resulted in the construction of Buckeye Flood Retarding Structures No. 1, 2, and 3. The three dams are interconnected with FRS No. 3 draining to FRS No. 2 which drains to Buckeye FRS No. 1. Outflows from all three FRSs drain via relatively small diameter pipes. For events up to and including the 100-year event, flows to the Hassayampa River are limited to about 500 cfs from FRS No. 1. Though small in magnitude, the duration of drawdown from a full pool event at the FRSs would be more than 10 days. A major tributary, White Tanks Wash, which flows parallel to the Hassayampa River along much of the study reach, enters the river from the east just upstream of the railroad bridge crossing of the river. White Tanks Wash caused significant damage to the Roosevelt Irrigation District Canal and the railroad during flooding in Aug. 1951. Today Buckeye FRS No. 1 controls runoff from White Tanks Wash at Interstate 10 releasing floodwater slowly just upstream of the Interstate 10 bridges.

Hydrology

Due to the presence of U.S. Geological Survey gaging stations at Box Canyon, near Morristown, and near Arlington on the Hassayampa River, statistical analyses of the data collected at these stations have served as the basis for most of the hydrologic analyses performed for the Hassayampa River basin over the years. Analyses of the gaging station annual maximum series form the basis of the hydrologic analysis for peak discharges for the current WCMP as well. These analyses are presented in the Hydrology Report for the WCMP (JEF, 2004).

<u>Hassayampa River</u>

Design Memorandum No. 2 (USACE, 1974) – The U.S. Army Corps of Engineers conducted hydrologic investigations of the Hassayampa River as part of their Design Memorandum No. 2, Hydrology, Part 1 report for the Gila River Basin, New River and Phoenix City Streams report in 1974. This analysis was variously updated as described in their later Hydrology, Part 2 report (1982). Peak flow rates for rivers around Maricopa County were estimated for the purpose of design of flood control measures including New River, Adobe, and Cave Buttes Dams, the Arizona Canal Diversion Channel, and the Agua Fria River channelization downstream of the New River. The Corps'

Hydrology Part 1 and Part 2 reports form the foundation of much of the future flood control analyses and design in Maricopa County. In fact, many of the methods developed in these documents are implemented within the Drainage Design Manual for Maricopa County. Statistical analyses performed for this report were used in the FEMA FIS to establish discharges for the floodplain delineations which was later restudied by Cella Barr & Associates (CBA, 1988). The Hydrology Part 1 and Part 2 reports are available in the FCDMC's Engineering Library.

CAP Siphon Design (Maish, 1976) – In 1976, Charles Maish performed an analysis for the Bureau of Reclamation for the design of the Central Arizona Canal crossing of the Hassayampa River. Maish computed the 100-year flood peak at the proposed siphon crossing of 50,700 cfs and scour depths of 10 feet for design of burial of the siphon. Maish also discusses two earlier reports which did some hydrologic analysis. He refers to a prior study by the Phoenix Development Office (presumably of the USBR) in 1966 which estimated a 100-year peak of 68,000 cfs at the siphon location. He states that the PDO estimate was based on data from a 1964 Corps report on flood control for Phoenix and vicinity. Maish's hydrology was based on statistical calculations from the gage data and consideration of drainage area differences between the gage and siphon locations. A pdf of two Maish reports are included with the Data Collection Report in the appendices on Disk 1. These were received from the Central Arizona Project office in Phoenix.

Old US 80 Bridge Re-design (Simons, Li & Associates, 1986) – Simons, Li & Associates conducted hydrologic analyses in conjunction with their proposed hydraulic design of the proposed new Old US Highway 80 bridge. Their analysis focused on computation of the 50-year flow. They computed peak discharge and developed a hydrograph for use in their design. Their report also includes data on sediment gradation and scour estimates for the proposed bridge.

Hassayampa Flood Insurance Re-study (Cella Barr & Associates, 1988) – Cella Barr conducted a floodplain delineation of the Hassayampa River from the Gila River to the Maricopa County line. The portion from about the Morristown gaging station to the County line re-studied an earlier analysis by the U.S. Army Corps of Engineers. The hydrologic analyses performed for the FIS were reported in a separate report entitled "Hydrologic Analysis of the Hassayampa River in Maricopa County, Arizona". The FIS Re-study was performed for FEMA directly. Their hydrology report presents a good comparison with other studies. Again, the general approach for determination of peak discharges was the USGS gage data. CBA also present an adjustment approach between the Morristown and Arlington stations to account for attenuation losses and the influence of Jackrabbit Wash. Their estimate of the 100-year peak flow rate near the CAP siphon was about 60,100 cfs and 75,000 cfs below Jackrabbit Wash. The results of the CBA study represent the current effective floodplain for the WCMP study reach. A copy of the report is available in the FCDMC Engineering Library.

USGS Statistical Summary Reports (Garrett & Gellenbeck, 1991; Pope, et al., 1998) – Two USGS reports have been published summarizing statistical analyses of gaging stations in Arizona. The 1991 report summarizes data collected through 1989 while the 1998 report summarizes data through 1996. Computed statistics include frequency

analyses of peak discharge as well as flow duration statistics. Statistical summaries are provided for Box Canyon, Morristown, Arlington and the Jackrabbit Wash stations. Both of these documents are available in the FCDMC Engineering Library.

CAP Bank Stabilization, (Higgins & Lynch, 1997) – Severe bank erosion along the east bank of the Hassayampa near the CAP Canal in 1993 prompted analysis, design, and construction of bank stabilization measures in late 2000. CH2M Hill performed the Planning and Design Analysis Report for the Corps of Engineers in 1997 (Higgins & Lynch, 1997). They used a Log Pearson III analysis of the Morristown and Arlington gage data to compute the 100-year peak discharge for use in their design. A 100-year peak flow rate of 43,400 cfs was estimated and a toe down depth of 11 feet was recommended. A bank protection height of 8 feet plus 3 feet freeboard (total of 11 feet) was also recommended. Based on their analysis they claim that the 1993 maximum flow was about a 20-year flood. Rates of bank movement due to flooding in the 1990s are also estimated. Their report also includes photos of erosion experienced at the CAP from the 1993 flooding. Unfortunately, the copies obtained are of very poor quality. The pdf file obtained from the CAP is provided on CD Disk 1 with this report.

Jackrabbit Wash

Jackrabbit Wash FDS (Burgess & Niple, 1991) – Burgess & Niple performed detailed HEC-1 modeling for the entire Jackrabbit Wash watershed in conjunction with their Floodplain Delineation Study in 1991. The HEC-1 modeling was performed using methods in the 1990 version of the Hydrology Manual for Maricopa County. Although a large flood in October 2000 exceeded the 100-year peak discharge estimates from the 1991 FDS report at some locations, a flood reconstruction analysis by JE Fuller/Hydrology & Geomorphology, Inc. in 2002 (JEF, 2002) found that the October 2000 flood had a lower frequency than the 100-year flood. The JEF report concluded that the FDS estimates of the 100-year peak discharges for Jackrabbit Wash were reasonable. For these reasons, the 1991 FDS results are recommended for use in the floodplain delineation restudy downstream of the CAP being conducted as part of the LHWCMP. Both the Burgess & Niple and JEF reports are available in the FCDMC Engineering Library.

Other tributaries

Wagner Wash (FCDMC, 1991) - The FCDMC conducted a hydrologic analysis of the Wagner Wash watershed for the Wagner Wash Floodplain Delineation Study (HDR, 1991). The estimated 100-year discharge at the Hassayampa confluence was 15,700 cfs.

Daggs Wash Floodplain Delineation Study (A-N West, 1993) – AN-West completed a detailed floodplain delineation study of Daggs Wash in 1993 for the Flood Control District of Maricopa County. The discharges used in their study were adopted from the Jackrabbit Wash FDS hydrology (B&N, 1991). The total drainage area of Daggs Wash at the Hassayampa River was estimated at 28.1 square miles with a 100-year 24-hour discharge estimate of 3,041 cfs.

Hydrologic Models

The primary rainfall-runoff model for the WCMP area was developed for the Jackrabbit Wash FDS (B&N, 1991). The HEC-1 model for that study covers essentially all of the western drainages entering the Hassayampa River along the study reach. The modeling used the 1990 version of the Hydrology Manual for Maricopa County. Transmission losses were also applied to larger channel routing reaches. The results were found to be reasonable following a very large flood in October 2000 (JEF, 2002). The 1991 hydrologic model also served as the basis for peak discharges for use in the Watershed OO approximate floodplain delineation study, the Luke Wash FDS, the Daggs Wash FDS, and the Star Wash FDS all performed for the FCDMC since 1991.

Another rainfall-runoff model was created as part of the hydrology report for the WCMP. That report is currently under review at the FCDMC (JEF, 2004).

Hydraulics

Hassayampa River

Hassayampa River Floodplain Study (Williams & Ellis, 1966) – Aerial photography and four-foot contour interval topography were generated for the lower Hassayampa River by Williams & Ellis in 1964 and 1966. The photos and maps were collected from the FCDMC flat file library. However, we were unable to locate any further information about this apparent study.

Hassayampa River Flood Insurance Re-study (Cella Barr & Associates, 1988) – Cella Barr completed the current effective floodplain in a study for FEMA in 1988. The floodplain delineation was computed using HEC-2. No specific written report was located. The study consultant suggests that the data found in the September 4, 1991 version of the FEMA Flood Insurance Study "brown book" is the only formal written documentation associated with the hydraulic study. The HEC-2 models are provided on CD Disk 1 with this report.

Another hydraulics model and report of interest to the WCMP was the *Gila River FIS* performed by Dames & Moore in 1988. This study establishes effective floodplain and floodway for the Gila River at its confluence with the Hassayampa River. The topographic and hydraulic data from the Dames & Moore analyses may help set the downstream boundary conditions for the new hydraulic modeling being performed for the WCMP. The HEC-2 models are provided on CD Disk 1 with this report.

Jackrabbit Wash

The effective floodplain for Jackrabbit Wash downstream of the Central Arizona Project Canal is an approximate Zone A special flood hazard area. No specific documentation on the determination of this zone was identified. This reach is being restudied using detailed methods as part of the WCMP.

Sediment Transport

Hassayampa River

CAP Siphon

The Maish (1976) study presents scour analysis for the purpose of determining the burial depth of the CAP siphon.

CAP Bank Stabilization

The Higgins & Lynch (1997) report for the concept design of the CAP bank stabilization measures near the siphon crossing presents lateral and vertical erosion analyses. In 1993, large flooding on the river caused severe erosion to the east bank along the CAP canal. Since then smaller storms have increased the erosion and have threatened the integrity of the canal. The report noted that the river is naturally migrating eastward and could damage the CAP canal, and its fence and electrical towers. They estimated a lateral erosion amount of 180 feet during a 100-year storm. Vertical scour depths were computed using methods in Pemberton & Lane (1984). Alternative design concepts were investigated for this report to protect the CAP canal and its electrical towers. The significance of damage to the Hassayampa pumping plant is quantified with respect to costs of repair, and threats to water delivery. An environmental and archaeological impact analysis is also included in this report which is included on CD Disk 1 in the Appendix.

Old US 80

When the Old US Highway 80 Bridge over the Hassayampa River was rebuilt, a hydrologic, hydraulic and sedimentation analysis was conducted in 1986. In it, they determine a design discharge, a design water-surface profile, and a comprehensive scour analysis for the new bridge. The report contains a 50-year flood hydrograph, sediment size distribution curves, a historic bed profile comparison, and proposed channel improvements.

There were two reports for the Bridge Scour Analysis of the Old US Highway 80 Bridge over the Hassayampa River. The first report (Cannon, 1996) determined the bridge as "scour critical" because it was determined to not have the capacity to resist the load of a low chord flow (larger than a 100-year recurrence interval flow). The second report, "Bridge Scour Investigation and Design of Corrective Measures, Final Report, Old US 80 Highway Bridge over Hassayampa River," (INCA, 1997) constructed a multiple cross-section HEC-RAS hydraulic model to assess hydraulic characteristics and suggest alternatives to mitigate the scour.

River Behavior

A number of data sets and references will be used in support of the river behavior assessment for the WCMP. In addition to the hydrologic and hydraulic and other data to be developed as part of the current project, previously published data on soils, geology, historical aerial photographs, historical topographic data, and the events associated with the failure of the Walnut Grove Dam in 1890 were collected to assist in the river behavior assessment for the WCMP.

Plate 1 shows the NRCS soil units for the study area classified by landform as described in the Soil Surveys (Hartman, et al., 1977; Camp, 1986). Note the strong correlation of the FEMA floodplain and the NRCS floodplain landform areas. Also shown on Plate 1 are the general geologic units as mapped in Reynolds, et al. (1997). The geology map shows how the youngest Quaternary units lie within the older Tertiary terraces through most of the study reach. The geology data also show how the river is confined on the west by the volcanic late Tertiary/ early Quaternary basalts near the Old US Highway 80 alignment.

Historic Aerial Photography

A number of sets of historical aerial photographs were collected for use in the WCMP. The objective in selection of photos was to obtain the oldest set available, bracket several large flood periods, and provide good resolution/scale over as much of the study corridor as possible. Table 1 lists the aerial photographs collected and rectified for use in the WCMP. These photographs will provide a crucial component of documenting and characterizing the river's past behavior and to predict the location, direction, and magnitude of future changes in river morphology in the study corridor. Plate 2 shows relatively recent satellite and aerial photo coverage of the study corridor. Data not in the existing District GIS database are included on CD with this report.

Table 1. Historic Aerial Photography

Date	Source	Other
1934	Fairchild photos from: Salt River Project Archives	Obtained in digital format from SRP. (on CD 4)
1949	ASCS from: FCDMC digital library	Flight Dates Feb. 1949 (at FCD)
1953	Army Mapping Service from: FCDMC digital library	Flight Dates Aug. 1953 (on CD 2)
1964	Williams & Ellis	T1S & 1N (on CD 8 & 9)
1966	Williams & Ellis	T2N – 4N (on CD 8 & 9)
1972	USGS Ortho Quads	Printed maps at 1:24,000 (scans on CD 6 & 7)
1988	Cooper for CBA for FIS Restudy	Study performed by Cella Barr & Associates under direct contract with FEMA (on CD 3)
1992	NAPP	1:40,000; flight dates Feb. 1992. (on CD 2)
1997	FCDMC; NAPP	T1N & 1S flight dates Jan. 1997; (on CD 10) T4N May 1997 (on CD 10)
1998	FCDMC	T2N & 3N Feb. 1998 (on CD 10)
2001	FCDMC	County orthophotos; Flight dates Dec. 16,17,27, 2000 (at FCD)
2003	FCDMC	Flight Dates Dec. 5-6, 2002 (at FCD)
2004	FCDMC	Flight Dates Dec. 9,10,13,14,22, 2003 (at FCD)

Historic Topography

Similar to the historic aerial photographs, sets of historical topographic data were collected for the study corridor. Again, data sets that covered the area and provided reasonable resolution were preferentially selected. Table 2 lists the topographic data sets collected.

Additional 2-foot contour interval topography is currently under development for the northern study reach, Jackrabbit Wash, and some small areas along the west portion of the reach along the Buckeye Sun Valley mapping. These data will complement the existing data to provide a comprehensive 2-foot contour data set for use in the hydraulic modeling and other analyses for the WCMP. Figure 2 shows the distribution of existing detailed digital topography and the general areas of additional new mapping being produced for the WCMP.

Table 2. Historic Topography Sets

Date	Source	Other
1957-62	USGS 15' & 7.5' Quads	See Figure 3 for details
1966	Williams & Ellis for FCDMC	Based on 1964 (T1N & 1S) and 1966 aerial photographs (T2N-4N)
1988	Cella Barr & Associates for FEMA	4-foot contour interval; used for effective FIS
2000	FCDMC 10-ft	Countywide topography used to orthorectify 1-ft pixel aerial photos
2002	FCDMC 2-ft	See Figure 2 for details
2004	FCDMC 2-ft	Under development, see Figure 2

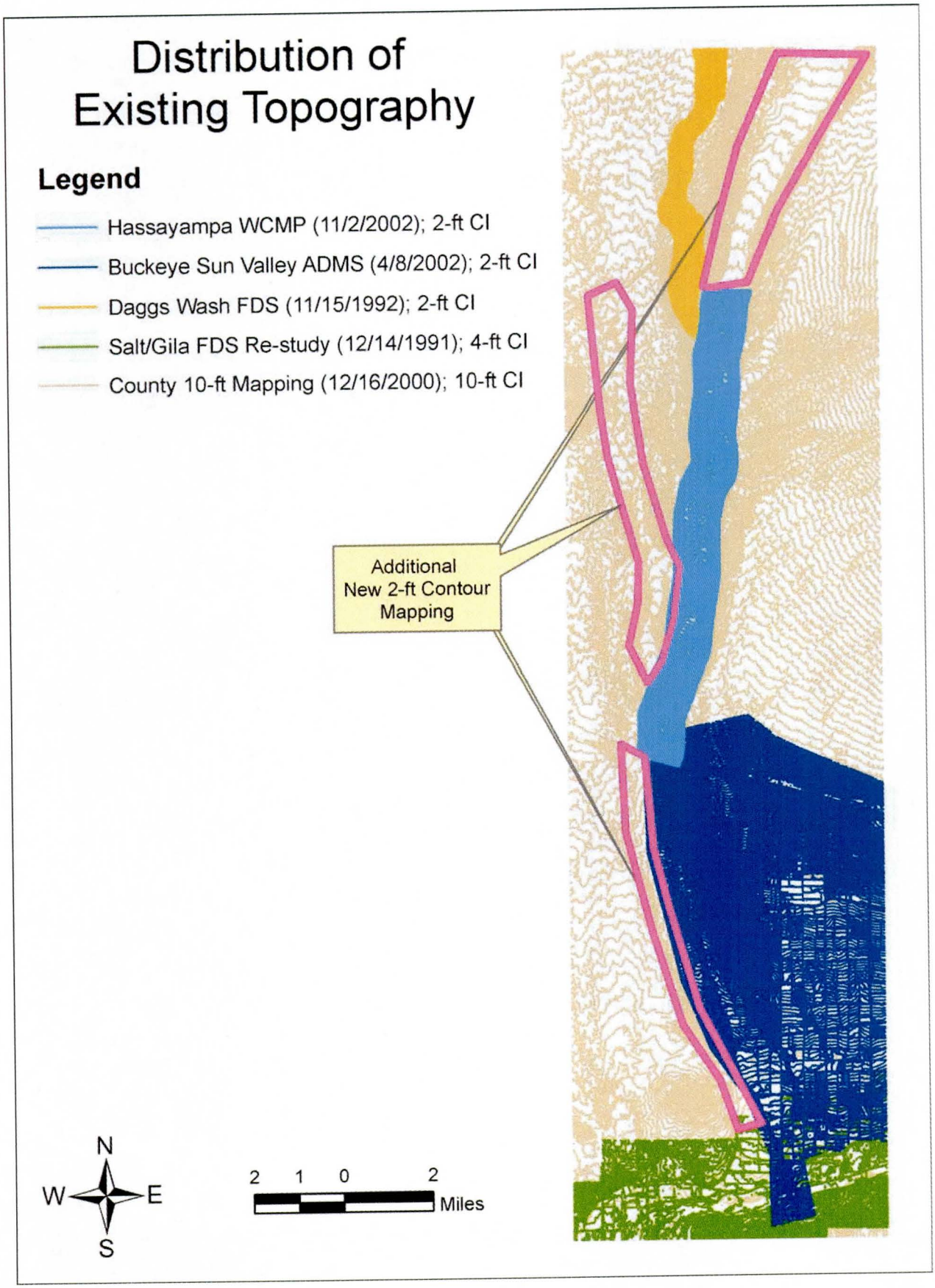


Figure 2. Distribution of Existing Detailed Topography

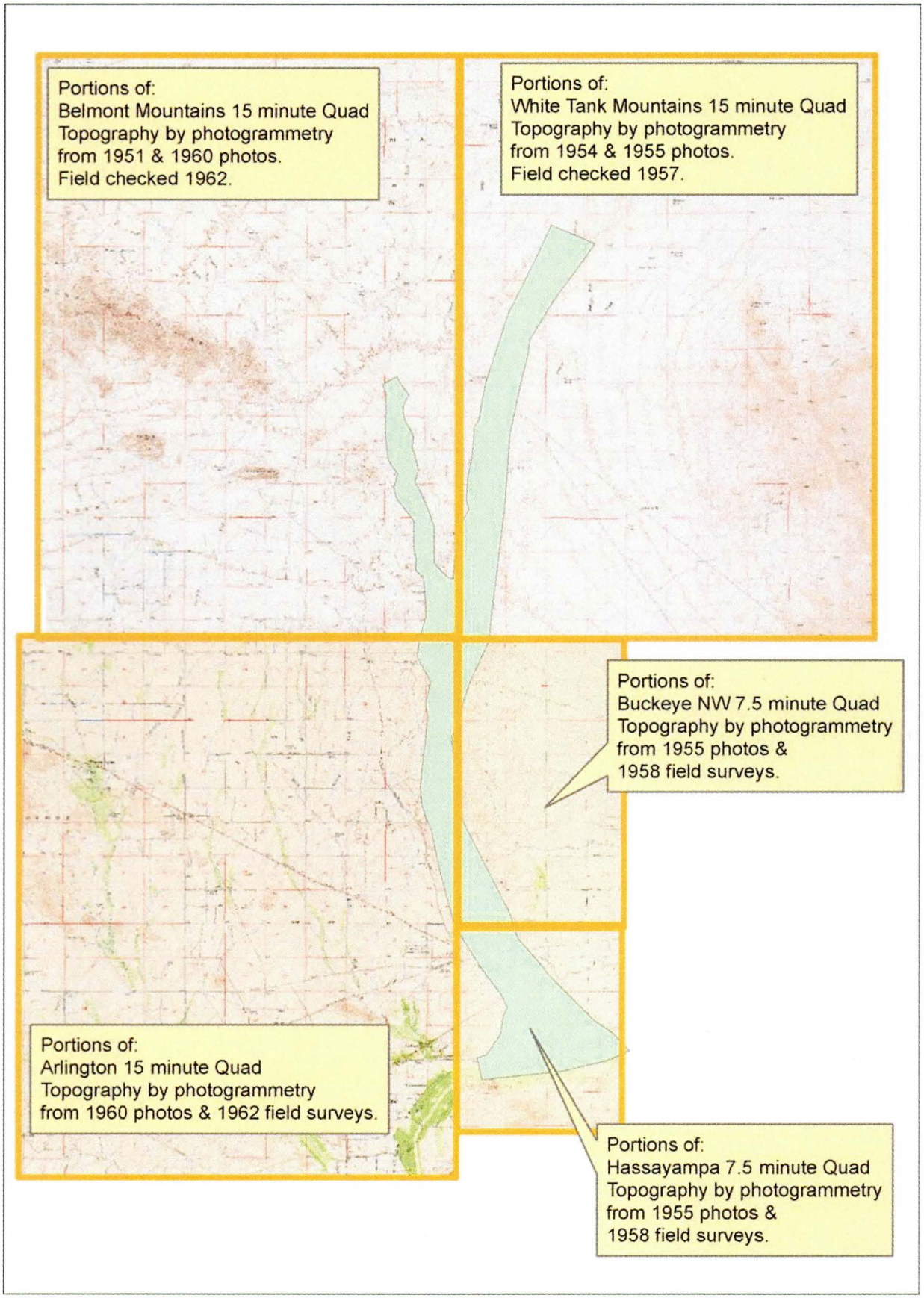


Figure 3. Historic USGS Topographic Quadrangles in the Study Corridor

Historic Ground Photos

Historic photography taken at ground level was researched. In particular, photographs of flooding or flood damage were sought. Although numerous photos in the upper watershed associated with Walnut Grove Dam and the Wickenburg area were noted, few photos of the study reach were identified. The best repeat photography found was taken by the US Geological Survey at the Arlington gage site. Photos spanning the period from 1963 to 2000 were collected. Figure 4 through Figure 6 show examples of the USGS photos. Table 3 to 5 summarize the photos collected. Those with digital files are also found on CD Disk 1 with this report.

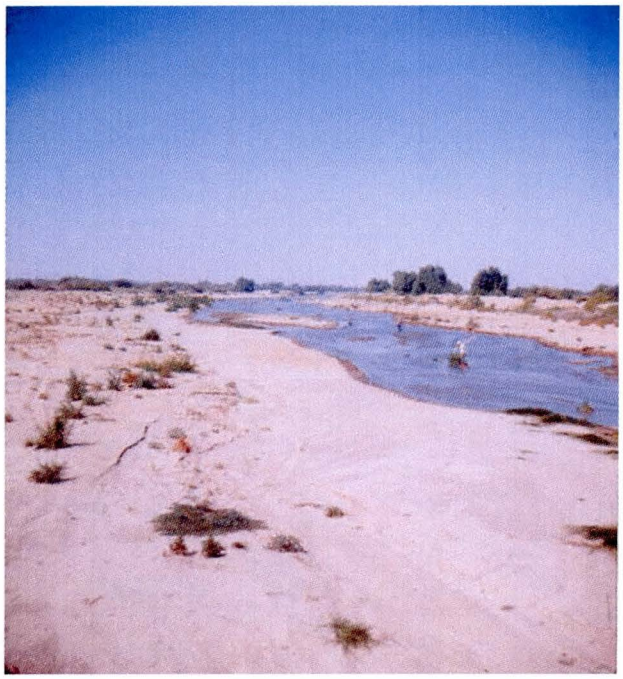


Figure 4. Photo date 10-29-1963

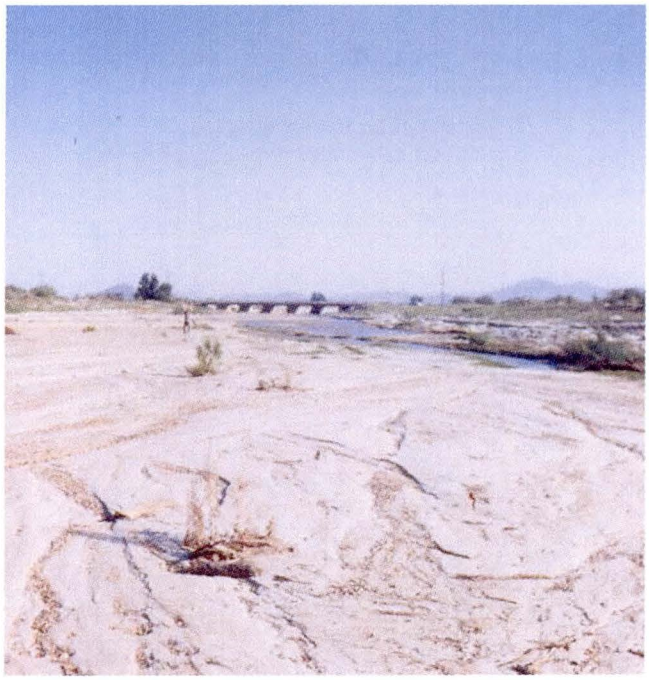


Figure 5. Photo date 10-07-1970

Figure 6. Photo date 11-03-2000

Table 3. Photos from USGS Records in Tempe (on CD)

File name	Description	Photo Date	Flood Date
Photos near Arlington gage site			
10-29-63_1.jpg	Looking upstream from RB at LB X Sections 1&2	10/29/63	08/25/63
10-29-63_2.jpg	Looking downstream from 3	10/29/63	08/25/63
10-29-63_3.jpg	Looking upstream from Center of Bridge at reach on x sec 4&5	10/29/63	08/25/63
09-21-65_1.jpg	Looking upstream at gage	09/21/65	09/03/65
09-21-65_2.jpg	Looking downstream of channel	09/21/65	09/03/65
09-21-65_3.jpg	Looking downstream along L.B. from upper end of reach	09/21/65	09/03/65
09-21-65_4.jpg	Looking downstream at center of rec 3	09/21/65	09/03/65
04-04-67o_1.jpg	Oblique aerial of leveed reach from north	4/4/1967	n/a
04-04-67o_2.jpg	Oblique aerial of leveed reach from north	4/4/1967	n/a
05-19-70_1.jpg	Looking downstream at overflow at sec 1	05/19/70	03/02/70
05-19-70_2.jpg	Looking downstream at main channel at sec 1	05/19/70	03/02/70
05-19-70_4.jpg	Looking downstream from above reach man at reach 1	05/19/70	03/02/70
05-19-70_3.jpg	Looking upstream from bridge. Man at sec 2	05/19/70	03/02/70
10-07-70_1.jpg	Looking downstream at sec 3	10/07/70	09/05/70
10-07-70_2.jpg	Looking downstream at sec 1	10/07/70	09/05/70
10-07-70_3.jpg	Looking downstream 3 across at RB of sec 1 Rock is volcanic bedrock	10/07/70	09/05/70
10-07-70_4.jpg	Looking downstream at Sec 2	10/07/70	09/05/70
10-07-70_5.jpg	Looking downstream at LB of Sec 2	10/07/70	09/05/70
10-07-70_6.jpg	Looking downstream at RB of Sec 2	10/07/70	09/05/70
11-21-72_1.jpg	Looking upstream from 200 ft upstream of bridge	11/21/72	10/07/72
11-21-72_2.jpg	Looking downstream along RB side of reach. Man at B2	11/21/72	10/07/72
11-02-87_1.jpg	View upstream from just upstream of bridge	11/2/1987	11/1/1987
11-02-87_2.jpg	View downstream from bridge	11/2/1987	11/1/1987
01-12-93_1.jpg	View east across downstream face of bridge	1/12/1993	1/8/1993
01-12-93_2.jpg	View downstream toward RB from LB downstream of bridge	1/12/1993	1/8/1993
01-12-93_3.jpg	View downstream along LB and HWM from peak flow	1/12/1993	1/8/1993
08-20-97.jpg	View downstream from bridge	8/20/1997	n/a
11-03-00_1.jpg	View downstream from bridge	11/3/2000	10/27/2000
11-03-00_2.jpg	View downstream from downstream of bridge	11/3/2000	10/27/2000
11-03-00_3.jpg	Another view downstream from bridge	11/3/2000	10/27/2000
Photos near Morristown gage site			
m10-08-70_1.jpg	Looking upstream at sec 3 water near top of ROD	10/08/70	09/05/70
m10-08-70_2.jpg	Looking downstream at sec 1. Water near top of ROD	10/08/70	09/05/70
m02-17-95.jpg	View upstream from gage	2/17/1995	2/15/1995
m04-16-98.jpg	View downstream from bluff above gage	4/16/1998	4/16/1998

Note: all digital photos are found on Disk 1 in the Appendices to this report.

Table 4. Photos from FCD Library

Photos	Reference	Date	Type	Note
Man pushing carriage across Hassaympa	Pry, M. Town on the Hassayampa	1916	print, paper	B&W, probably near Wickenburg
Confluence with Hassayampa and Gila	FCD Binder	1992	oblique	2 versions of scan, color
Centennial Wash	Johannessen and Girand	1961	oblique	B&W
Confluence with Hassayampa and Gila	Johannessen and Girand	1961	oblique	B&W, looking north
Hassayampa River, White Tanks in Background	Johannessen and Girand	1961	oblique	B&W, looking east, paint on picture
Railroad Crossing Hassayampa	Johannessen and Girand	1961	oblique	B&W, looking north
Buckeye FRS concept illustration	Johannessen and Girand	1961	oblique	B&W
Hassayampa River and Wagoner Wash	Johannessen and Girand	1961	oblique	B&W
Walnut Grove Dam	FCD Binder	1880's	print	B&W, date behind picture is wrong, these are pics of dam before the break.
Hassayampa River at Wickenburg	Army Corps of Engineers Flood Plain Information Report	Apr-70	print, photocopy	pp.13-15, flooding on river and Wickenburg
Images Identified But Not Acquired				
Hassayampa River, nondescript photo	FCD Binder, "Flood Control Slides:..." call 007.186	3/3/1978	slide	Showing bankful Hassayampa, but cannot tell location
Buckeye Structure outlet, Hassayampa R from Bridge	FCD Binder, "Flood Control Photos:..." call 007.137		photo print	"south of Wickenburg," not good quality

Table 5. Other Photos

Photos	Reference	Date	Type	Note
Walnut Grove Dam construction camp	Dill, 1987, Journal of Arizona History	fall 1987	print, photocopy	Dill, 1987, p.291
Walnut Grove Dam reservoir	Dill, 1987, Journal of Arizona History	fall 1987	print, photocopy	Dill, 1987, p.297
Walnut Grove Dam before and after flood	Dill, 1987, Journal of Arizona History	fall 1987	print, photocopy	Dill, 1987, p.299
Hassayampa Channel Clearing	Buckeye Valley News	4/29/1962	print, photocopy	
U.S. 60-70 Crossing Hassayampa in Wickenburg	Arizona Highways	May-56	air photocopy	p.35
Fully flowing Hassayampa, probably Wickenburg	Stein, Ewald	1947	print, photocopy	p.10
Hassayampa R, Wickenburg and farther south	http://photos.lib.az.us/	1900-1940	prints; thumbnails	search on Hassayampa yields 41; many near Prescott or Wickenburg
Images Identified But Not Acquired				
Ocampo Family Photos	ASU Arizona Room	1930	photo print	Small, bad view of river, and in Wickenburg
Walnut Grove Dam site	ASU Arizona Room	2/22/1905	photo print	
William G. Bass Collection, 1890-1970.	Collection number: NAU.PH.96.24	1890-1970	prints	Cline Library. Special Collections and Archives Department, NAU; probably concentrated in Wickenburg area

Surveying

The detailed topographic mapping to be used in the WCMP was supplied by the FCDMC. Several separate contracts and contractors were used to develop this mapping (see also Figure 2). In addition, supplemental surveying of the Interstate 10, Old US 80, and Southern Pacific railroad bridges will be performed to supplement as-built data for the hydraulic modeling of the river.

Land Use Data

Existing and future land uses were investigated. Electronic and printed sources were collected. Plate 3 shows the existing and future land uses for the study corridor including a number of new planned communities in the northern half of the area. These maps show a nearly complete conversion of the area from agriculture and undeveloped land to residential and commercial uses. One highlight of the new planned communities is a general acceptance of the best use of the riparian corridors as open space as reflected in the Town of Buckeye General Plan. However, sand and gravel mining within the riparian areas are acknowledged as potential permittable uses given proper identification of adverse environmental impacts and mitigation assurances.

Printed resources are summarized below with a few of the important aspects of each document listed.

Town of Buckeye General Development Plan – Adopted September 18, 2001.

Plan update with Growing Smarter Plus Elements including

- Open Space Element – Existing outdoor assets including Town park and recreation facilities, farmland and desert mountain preserves, and open space recommendations
- Environmental Planning Element – Environmental conditions including land resources, water conditions, surface water and drainage, air quality, natural attributes, and environmental recommendations
- Water Resource Element – Buckeye water supply including provider services, projected demand, water management, and water resource recommendations
- Growth Areas Element – Identified growth areas including master plan communities, freeway interchange centers, central Buckeye development, employment corridors, annexation growth, and growth areas recommendations
- The Development Plan also includes a cost of development element and an implementation strategy.

Town of Buckeye Land Use District Map, Updated 2004

Map indicates Planning Area Boundary and land use districts including Rural Residential, Planned Residential, Mixed Residential, Planned Community, Commercial, General Commercial and Special Use Areas.

Municipal Planning Area of the Town of Buckeye, Updated, 2003.

Map indicates Planning Area Boundaries and current Buckeye Annexations.

Town of Buckeye Development Code, Community Development Department, Revised March 2003

Development code relates to zoning, subdivision, building construction and comprehensive planning.

Residential Developments and Master Planned Communities, map graphic and profile charts

These maps are available as pdf files at http://www.buckeyedevelopment.com/ and are also included on a CD-ROM with this report.

Existing and Future Land Uses

Plate 3 shows existing and future land use distributions along the study corridor. The data come from the FCD GIS database and documents at from the Town of Buckeye. Some modification of the FCD data was made to remove obvious errors in the dataset.

The existing conditions are one of generally sparse development in the corridor. Agricultural activity dominates the floodplain in the southern reaches from the Gila River to about Lower Buckeye Road. Recent sand and gravel mining activity has taken place in the vicinity of the Tonopah Salome Highway north of Interstate 10. Additional historic mining associated with the Toyota Proving Ground and CAP construction is located in the right overbank at the northern limit of the study area.

The broader watershed is also largely undeveloped in the existing conditions. Relatively small areas of west of the River are sparsely occupied by single-lot type development. The Town of Wickenburg upstream covers another small portion of the watershed with urbanization at the present time.

Future development of the watershed and study corridor is expected to be significant. Several master planned communities are planned for the study corridor and the immediately adjacent piedmonts of the White Tank, Vulture, and Belmont Mountains. Wickenburg is also expected to experience continuing growth. Much of the upper watershed lies within the National Forest and is therefore not expected to develop. A small potion of the upper watershed in the vicinity of Prescott will likely urbanize in the future.

Sand and Gravel Mining

Plate 4 shows the distribution of existing gravel mines and permits along the study corridor. Currently there are four approved permits and two closed permits. Plate 4 also shows some of the new planned communities in the area. Rock products will be needed to supply the construction of these and other developments in the area. It is unlikely that the existing permits will be sufficient to supply the planned developments. Therefore, additional mining within the corridor is likely.

Plate 4 also shows the distribution of State Trust Land in the corridor. More than four miles of the study corridor floodplain lie within State Trust Land. It is likely that these lands will become future sources of sand and rock providing some of the supply needed for the planned development in the area.

Groundwater Recharge

There is currently an ADWR managed project jointly funded by a group of private developers evaluating groundwater resources in the Hassayampa River valley. The study will evaluate water supply and demand resulting from future development in the valley. The study is expected to be completed within about a year and a half.

Previously completed groundwater recharge related documents identified during the data collection are listed below with a brief description of their important content.

Arizona Department of Water Resources, List of Underground Storage Facility Permits. December 2003.

- Tonopah Irrigation District – CAP water.
- West Maricopa Combine, Inc – CAP water

Arizona Department of Water Resources, Third Management Plan for Phoenix Active Management Area, 2000 to 2010. December 1999.

- Information on regulations regarding augmentation and recharge program

Arizona Water Banking Authority, *Annual Report 2003*. July, 22, 2004.

- List of Storage Facilities Available includes Tonopah and West Maricopa Combine

Halpenny, Leonard. Groundwater in the Hassayampa River Valley. Maricopa County, Arizona. Presentation at the Rocky Mountain Groundwater Conference, Phoenix Arizona September 16, 1986. (FCDMC Library) Prepared by Water Development Corp.

- Hydrogeological investigation of 48,000 acres in the Hassayampa River Valley
- Identified the Hassayampa River basin as one of the only remaining groundwater basins in central, southern or southeast Arizona to be undeveloped.
- Field investigations included 9-test holes dig to static water and 4 water samples collected.

Maricopa Association of Governments. *208 Water Quality Management Plan Update*: Amendment for Town of Buckeye Festival Ranch Water Reclamation Facility. October 2003.

- Up to 4 million gallons per day discharge into Wagner Wash possible

Stulik, R.S. Map Showing Ground-Water Conditions in the Lower Hassayampa Area, Maricopa County. Arizona. Arizona Water Commission Bulletin 8. August 1974. Prepared for USGS. (FCDMC library)

- Field work performed (1968 to 1973) on existing wells to measure water level and collect water samples.
- Map indicates altitude of groundwater levels, which range from 1020' in Township 2 North to 740' at the confluence with the Gila River.

Ungerman Engineering Inc. Opportunities for Groundwater Recharge in Central Arizona. Prepared for Central Arizona Water Conservation District. Oct. 1987. (FCDMC library)

- Opportunities identified include Jackrabbit Wash and the Hassayampa River bottom.
- Tonopah cone of depression quantified

Town of Buckeye, Buckeye Town Lake Engineering Feasibility Study. Prepared by URS/BRW. November 2001.

- Potential to use Buckeye Water Conservation and Drainage District water from de-watering activities to fill and maintain the proposed project, currently the water is discharged into the Gila River.

WESTCAP, WESTCAP Recharge Strategy. Adopted by General Commmittee June 2000. (see also Figure 7 below)

- West Maricopa Combine

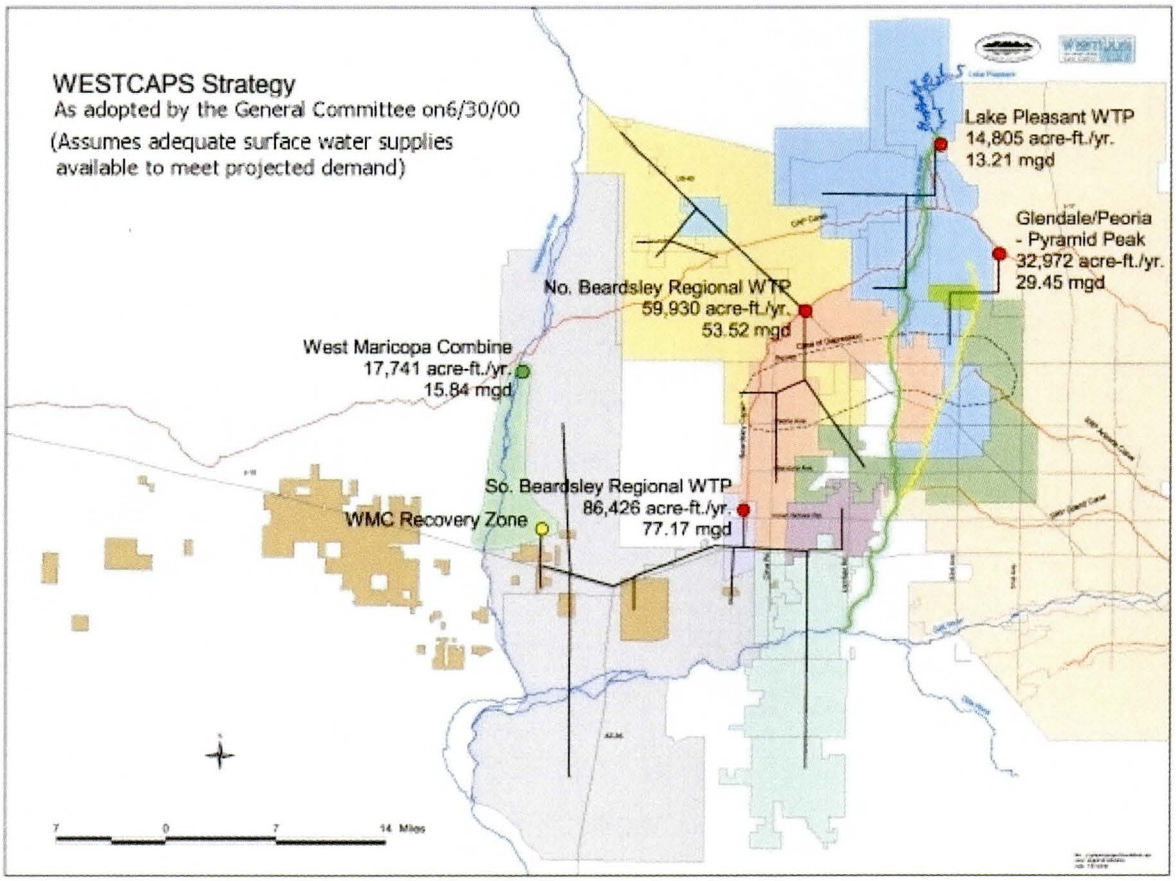


Figure 7. WESTCAPS Strategy Map

Environmental Conditions

Previously completed documents related to environmental conditions in the study area which were identified during the data collection are listed below with a brief description of their important content. An emphasis was placed on the riparian environment. Plate 5 shows the National Biological Survey vegetation and the National Land Cover Data

distributions for the study corridor for additional context on the environmental conditions in the reach.

Arizona Game and Fish Department. Correspondence from Ginger Ritter dated August 5, 2004.

- List of the five species of special concern in the project reach

Horton, J.L. et al., Physiological Response to Groundwater Depth Varies among Species and with River Flow Regulation. *Ecological Applications* Vol 11 (4) 2001. pp. 1046-1058. (Noble Library)

- Investigated response of cottonwood, willow, and salt cedar in Hassayampa River upstream of our study reach.

Maricopa Association of Governments. *208 Water Quality Management Plan Update*. October 2002. Prepared by Carollo Engineers.

- Good source of information on current and future planned wastewater treatment and water reclamation facilities and their discharge locations.

Pedroli, Bas. et al. "Setting targets in strategies for river restoration." *Landscape Ecology*. Vol. 17 (suppl.1) 5-18. 2002. (Noble Library)

- European perspective on restoration, river dynamics, and natural function of river systems focus on declining biodiversity.

Stromberg. J.C. "Marsh development after large floods in an alluvial arid-land river." *Wetlands*. Vol. 17 No 2. June 1997. pp. 292-300. (Noble Library)

- Change in riverine marsh following the flood in the winter of 1993, study was on the Hassayampa River north of the study area.

Stromberg, J.C. "Growth and Survivorship of Freemont Cottonwood, Godding Willow, and Salt Cedar Seedlings after Large Floods in Central Arizona." *Great Basin Naturalist*. Vol. 57 (3) pp. 198 – 208. 1997. (Noble Library)

- Change in cottonwood and willow establishment following the flood in the winter of 1993, study was on the Hassayampa River north of the study area.

Stromberg, J.C. "Response of a Sonoran Riparian Forest to a 10-Year Return Flood." Stromberg. *Great Basin Naturalist.* Vol. 53 (2) pp. 118 – 130. 1993. (Noble Library)

- Change in the Sonoran Desert habitat following the flood in the winter of 1993, study was on the Hassayampa River north of the study area.

US Fish and Wildlife Service. Correspondence from Steven Spangle dated August 24, 2004.

- General information on endangered, threatened, proposed, and candidate species.
- Special note regarding activities in riparian areas and the US Army Corp of Engineers regulation under Section 404 of the Clean Water Act

US Fish and Wildlife Service, County Species List – Maricopa County. September 2004. http://arizonaes.fws.gov.

- 13 listed species (2 plant and 11 wildlife)
- 1 proposed species
- 1 candidate species

US Fish and Wildlife Service, Letters to US Corp of Engineering regarding applications for US Army Corps of Engineers Section 404 Clean Water Act permits.

- Festival Ranch master planned community November 13, 2003
- Stardust Development, Inc January 28, 2004

Regulatory – Required Permits and Regulations

The current project is limited to establishing the technical foundation for the Watercourse Master Plan. In particular, hydraulics, sediment transport, and geologic investigations will be performed to evaluate the existing distribution and magnitude of flood and erosion hazards. These data will serve as the foundation for development and evaluation of flood control alternatives as part of a later phase of the WCMP. Regulations of particular concern for the development of the WCMP will be FEMA NFIP regulations, local floodplain regulations, Federal Clean Water Act requirements, and other Federal environmental regulations.

Existing Drainage Regulations, Stormwater Quality, and Required Permits

The following is a list of pertinent documents governing drainage and other stormwater regulations in the study area. The regulations described in these documents will need to be adhered to upon development and evaluation of alternatives in later phases of the WCMP process.

Flood Control District of Maricopa County, Uniform Drainage Policies and Standards for Maricopa County. Feb 1987.

Flood Control District of Maricopa County, Drainage Design Manual for Maricopa County. Volume 1 - Hydrology. 1995.

Flood Control District of Maricopa County, Drainage Design Manual for Maricopa County. Volume 2 - Hydraulics. 1996.

Flood Control District of Maricopa County, Drainage Design Manual for Maricopa County. Volume 3 – Erosion Control. 1993.

Flood Control District of Maricopa County, Buckeye/Sun Valley Area Drainage Master Plan. (Project to be completed June 2005)

- Identify preliminary stormwater management solutions

Maricopa Association of Governments. *208 Water Quality Management Plan Update*. October 2002. Prepared by Carollo Engineers.

- Non-point source plan includes: urban and agricultural runoff

Town of Buckeye, Town of Buckeye General Development Plan Update: Growing Smarter Plus Elements. Adopted September 18, 2001.

- Focus on planning of open space, environment, water resources, and growth areas.

Town of Buckeye, Land Use District Map, Update. January 2004.

- Location of annexed lands and proposed development areas

Identification of Flooding Problems

Flooding along the Hassayampa River occurs along an entrenched corridor below higher geologic terraces along most of the study reach. High Tertiary terraces lie 30 to 40 feet above the channel from the northern study limit to about Dobbins Road. Downstream of the Southern Pacific Railroad bridge the river widens across a broad triangular delta area. It is likely that prior to the construction of US Highway 80 and the agricultural levees downstream from there, the Hassayampa River channel periodically moved from side to side across the delta area in response to large floods. Since that time the main river channel has been primarily confined to the man-made levees.

The existing regulatory floodplain was delineated in 1988 by Cella Barr & Associates. The 100-year discharges used in that study were about 58,000 cfs near the CAP siphon and increased to about 75,000 cfs downstream of Jackrabbit Wash.

Large floods can be generated from several sub-portions of the watershed (see Figure 8). The upper Hassayampa watershed upstream of Morristown can generate the largest floods. The largest flow in the period of stream gaging record occurred in September 1970. The peak flow was generated primarily from the watershed upstream of Box Canyon where the peak discharge was estimated at 58,000 cfs.

The subwatersheds near Wickenburg, Sols Wash and Martinez Creek, can also generate relatively large floods independently. The September 1997 flood resulting from dissipating Tropical Storm Nora produced about 15,000 cfs at Wickenburg.

The Jackrabbit Wash watershed can also produce relatively large flows within the study reach. The 100-year discharge estimate from Jackrabbit Wash alone at the Hassayampa is 32,500 cfs. A flow of similar magnitude actually occurred in October 2000. That flood resulted in about a 25-year flood on the Hassayampa River downstream.

Another important tributary that enters the Hassayampa within the study corridor is White Tanks Wash. Prior to the early 1970s, White Tanks Wash entered the Hassayampa near the Southern Pacific railroad crossing. In August 1951, a large flood on White Tanks Wash caused significant damage to irrigation facilities and farmland in the lower study reach. Since 1974, Buckeye FRS No. 1 has controlled runoff from White Tanks Wash reducing peak discharges and releasing the attenuated flows into the Hassayampa just upstream of Interstate 10. Outflows from the principal outlet are limited to about 500 cfs.

Finally, other smaller tributaries including Daggs Wash, Wagner Wash, and numerous other unnamed washes can produce moderate discharges on the Hassayampa River independent of runoff from any other part of the watershed. Wagner Wash in particular has a 100-year discharge estimate of 15,700 cfs. This would be about a 10-year flood on the Hassayampa.

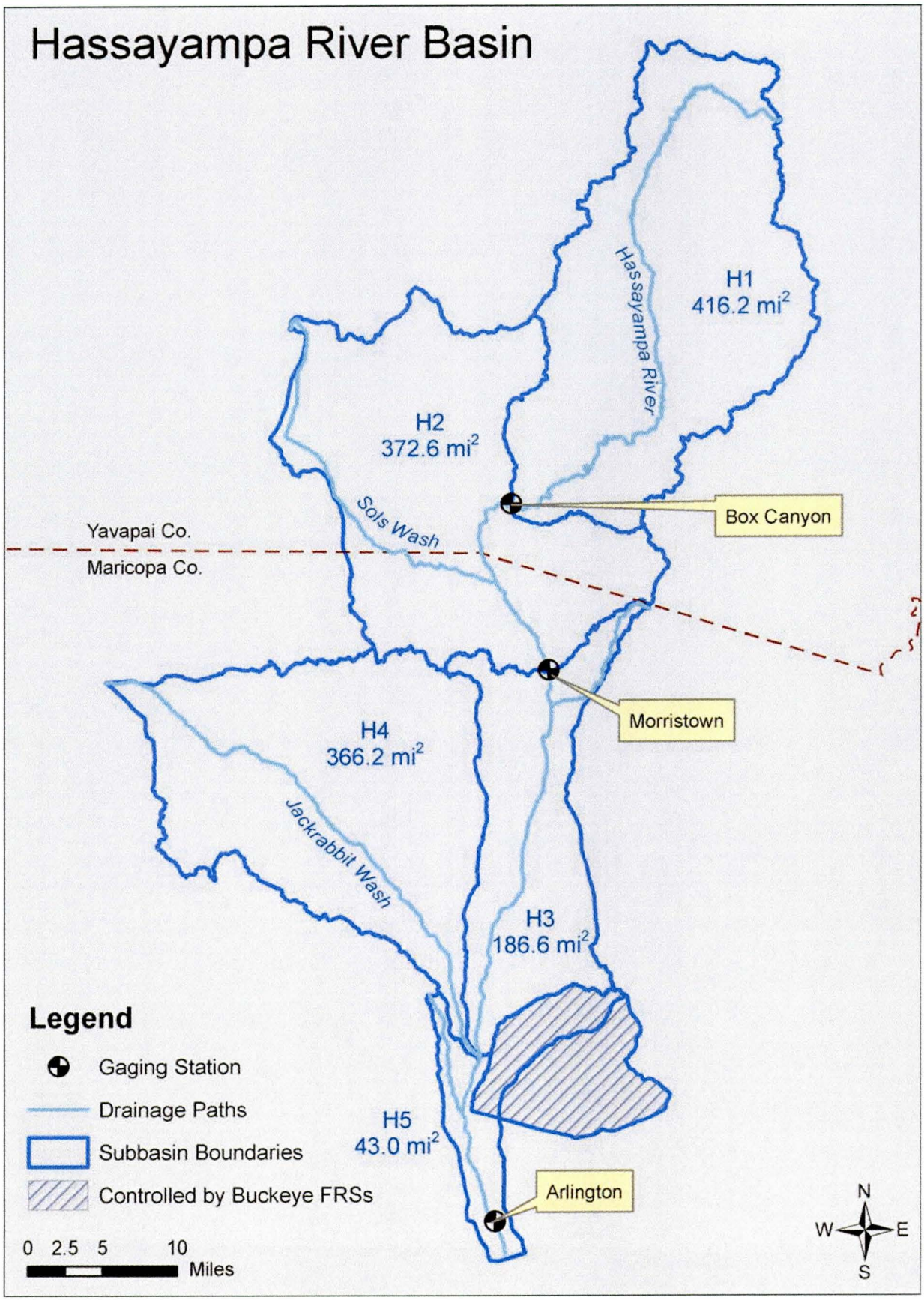


Figure 8. Hassayampa River Watershed (modified from JEF, 2004)

Existing Facilities Exhibit

There are relatively few existing facilities within the study corridor. The Existing Facilities Exhibit shows that the river is crossed by several canals, powerlines, roadways, and pipelines.

The canals are the CAP Canal, or Granite Reef Aqueduct, in the north and the Arlington Canal in the far south. The CAP and Arlington Canals both cross beneath the river in siphons. The CAP siphon passes beneath the entire river floodplain. The Arlington Canal siphon crosses only the narrow leveed main channel.

Previously, the Roosevelt Canal and the Buckeye Canal used to cross the Hassayampa. Apparently, repeated damage to the crossings combined with pumping technology and groundwater levels resulted in the abandonment of these crossings quite some time ago. Both the Roosevelt and Buckeye Canals do contribute relatively significant quantities of irrigation return, or tailwater to the Hassayampa River. In particular, the Buckeye Canal tailwater creates a nearly perennial stream of greater than 50 cfs most of the year from about one half mile north of Old US Highway 80 to the Gila River (Figure 9).

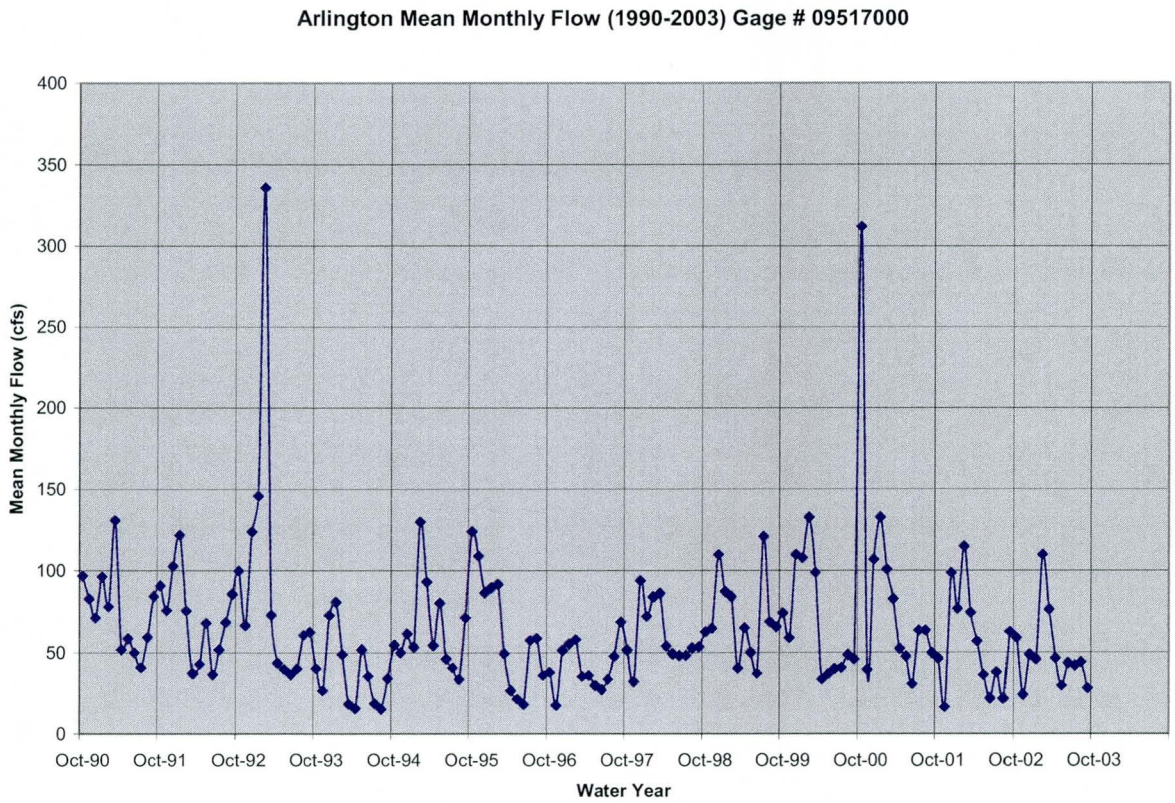


Figure 9. Mean monthly flows at USGS Gaging Station Hassayampa near Arlington

Powerlines cross the river corridor just upstream of the Wagner/Daggs confluence area as well as near the Buckeye Road alignment. Several powerline towers stand within the river's main channel or floodplain. In addition, a powerline delivering electricity to the CAP Canal pumping station east of the Hassayampa runs parallel to the river north of

the CAP siphon crossing. Erosion of the river bank during flooding in 1993 prompted the design and construction of soil cement bank stabilization measures to protect this powerline and the CAP canal in 2000.

Roadway crossings in the study corridor are relatively limited. From north to south the river is crossed by an at-grade crossing at the Tonopah-Salome Highway, a bridge each for the east- and westbound Interstate 10, another at-grade crossing at Baseline Road, and a relatively new bridge at the Old US Highway 80 crossing. Examination of the Interstate 10 as-builts suggests that the tops of the 2.5 ft high pier footings lie only about 10 feet below the current river bed elevation. The threat to the I-10 bridge from scour and long-term degradation will be evaluated as part of the WCMP.

The other bridge in the corridor was built in 1925 for the Southern Pacific Railroad crossing. As-builts provided by the Union Pacific Railroad (owners of the railroad today) show that the bridge piers as founded on "caliche" or "malpais" (lava flow). The depth of the footings is shown at about elevation 840 feet. Based on existing topography, the base of the pier footings is probably about 20-25 feet below the current river bed elevation (see Figure 10).

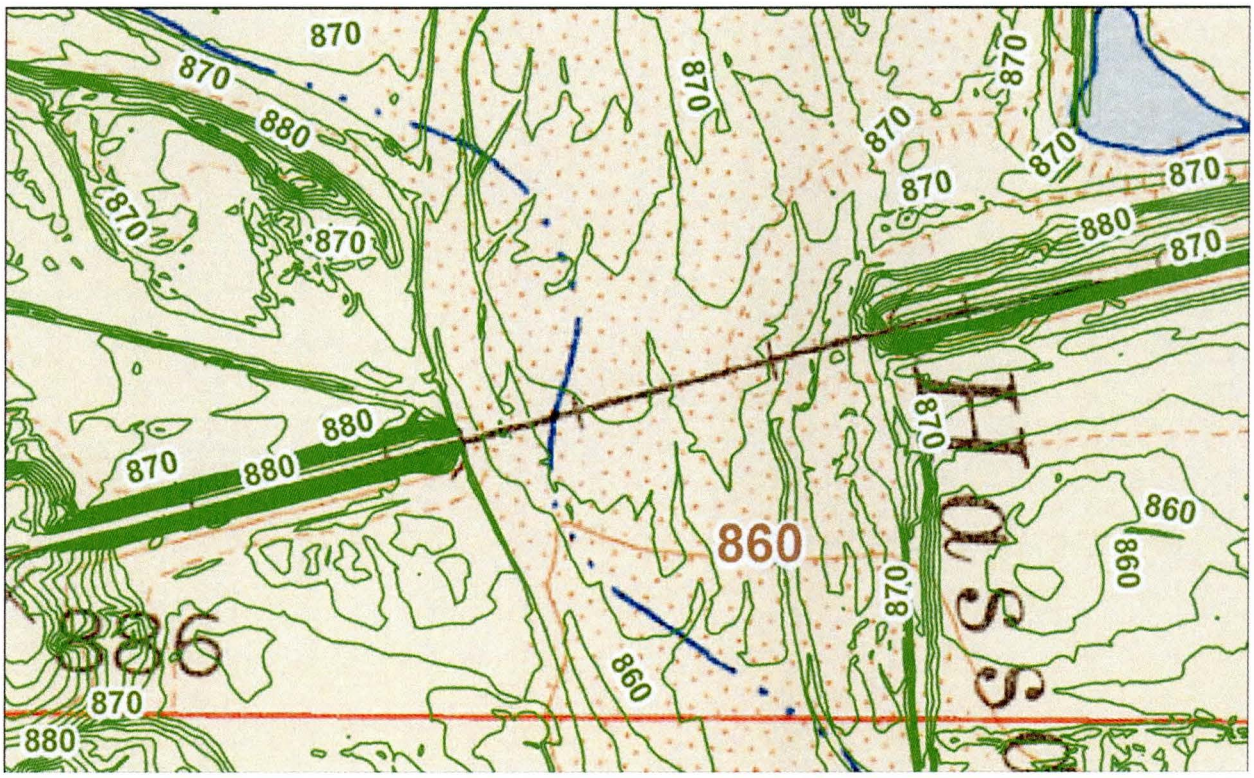


Figure 10. Topography in Vicinity of Union Pacific Railroad Bridge (2002 topography (in green) over 1958 USGS Quad (brown contours))

Along the railroad alignment are three additional utilities of interest. Just downstream of the railroad bridge run a fiber optic line, a 12-inch petroleum gas pipeline, and the water supply line to the Palo Verde Nuclear Generating Station.

As-built drawings for as many of these facilities as possible were collected. Despite numerous requests, Kinder-Morgan, owner of the petroleum pipeline, never supplied as-builts. Photocopies of the other utilities are found in the Appendix. In addition, scanned images of the as-builts are supplied on CD-ROM with this report. Finally, as mentioned in the Survey section, new survey of the bridge crossings is being performed as part of the WCMP to resolve vertical datum issues and clarify uncertainties discovered in review of the bridge as-builts. The new survey data is provided in the Hydraulics Report for the WCMP (Volume 3).

Summary

Published and electronic data affecting and reflecting the behavior of the Hassayampa River within the study corridor were collected and reviewed. These data were used in conjunction with other original analyses and interpretations as part of this study to provide baseline technical information to guide future management of the Lower Hassayampa River as part of the WCMP.

References

Agricultural Stabilization and Conservation Service, 1949, Aerial photographs. Flight date February 14, 1949, scale 1:20,000.

A-N West, Inc., 1993, Daggs Wash Floodplain Delineation Study, FCD 92-08, prepared for the Flood Control District of Maricopa County.

Arizona Citizen, 1/31/1874, page2, columns 2,3 "Thomas Ewing nearly drowns in the Hassayampa River " This date covers much of this date's flood., AZ state capital microfilm, poor quality film

Arizona Department of Water Resources, 2003, List of Underground Storage Facility Permits. December 2003, including Tonopah Irrigation District – CAP water and West Maricopa Combine, Inc – CAP water

Arizona Department of Water Resources, 1999, Third Management Plan for Phoenix Active Management Area, 2000 to 2010. December 1999.

Arizona Game and Fish Department. 2004, Correspondence from Ginger Ritter dated August 5, 2004.

Arizona Journal-Miner, Feb 21, 1890. "The Storm. An Unprecedented Downpour of Rain", ASU Hayden Library, Microfilm

Arizona Journal-Miner, Feb 24, 1890. "Disastrous Flood, A Second Johnstown Horror reported on the Hassayampa River", ASU Hayden Library Microfilm

Arizona Republic, 1962, "Farmers Urge Building of Flood Control Dam", 10/1/1962, p.12

Arizona Republic, 1962, "Field Study Ready to Start on Buckeye Flood Control", 2/24/1962.

Arizona Republic, 1964, "Aid Sought for Victims of Flood in Wickenburg," 7/17/64

Arizona Water Banking Authority, 2004, *Annual Report 2003*. July, 22, 2004.

Buckeye Valley News, 1960, "Hassayampa Flood Survey Now Starting," 9/29/1960

Buckeye Valley News, 1962, "Flood Control Planning Starts Here Next Week," 3/1/1962

Buckeye Valley News, 1962, "Farmers, Soil Conservation District, Canal Firms Cooperate to Clear Hassayampa Channel," 4/29/62

Buckeye Valley News, 1966, "Grandaddy of Local Floods," 2/24/1966, Discusses the extent of flood damage during 1891 to Buckeye

Burden, K., 1956, "The Hassayampa River of Arizona," Arizona Highways May 1956, pp.34-37

Burgess & Niple, Inc., 1991, Jackrabbit Wash Floodplain Delineation Study: Hydrology, Volumes 1 and 2, FCD 90-05, prepared for the Flood Control District of Maricopa County.

Camp, P.D., 1986, Soil Survey of Aguila-Carefree Area, Parts of Maricopa and Pinal Counties, Arizona: U.S. Soil Conservation Service Report, 306 p., 53 maps, scale 1:24,000.

Cannon & Associates, Inc., 1996, Final Bridge Scour Assessment Reports for 16 Maricopa County Bridges, Volume II. Prepared for MCDOT.

Capesius, Joseph P. and Lehman, Ted W., 2002, Determination of channel change for selected streams, Maricopa County, Arizona, WRIR 01-4209, prepared in cooperation with the Flood Control District of Maricopa County. U.S. Geological Survey, Water Resources Division.

Cella Barr & Associates, 1988, Hydrologic Analysis of the Hassayampa River in Maricopa County, Arizona for Federal Emergency Management Agency, dated May 2, 1988, FEMA Contract No. EMW-88-C-2603.

Cella Barr & Associates, 1988, Flood Insurance Re-Study of the Hassayampa River, FEMA.

Christian, Edith Mae Sandall, 1988, Buckeye, The First 100 Years 1888-1988, Jostens Printing and Publishing Division, Visalia, CA.

Cooper Aerial Survey, 1988, Aerial photographs, flight date 3/18/1988, flown for Cella Barr & Associates Flood Insurance Re-Study of the Hassayampa River, scale 1" = 400 ft.

Dames & Moore, 1988, Floodplain Delineation Study Gila River Gillespie Dam to Bullard Ave., prepared for FCDMC under contract FCD 86-28.

Dill, David B., 1987, "Terror on the Hassayampa, The Walnut Grove Dam Disaster," Journal of Arizona History, Fall 1987, pp.283-306.

Field, J.J., and P.A. Pearthree. 1991. *Surficial geology around the White Tank Mountains, Central Arizona*. Arizona Geological Survey Open File Report 91-8. 7p.

FCDMC, 1998, Semi-rectified aerial photographs, T2N & T3N, flight date Feb. 1998.

FCDMC, 1997, Semi-rectified aerial photographs, T1S & T 1N, flight date Jan. 1997.

FCDMC, 1991, A Hydrologic Analysis of Wagner Wash Watershed, Revised January 1991, prepared by Flood Control District of Maricopa County-FCD Hydrology Division.

FCDMC, 1987, Uniform Drainage Policies and Standards for Maricopa County. Feb 1987.

FCDMC, 1995, Drainage Design Manual for Maricopa County. Volume 1 – Hydrology.

FCDMC, 1996, Drainage Design Manual for Maricopa County. Volume 2 – Hydraulics.

FCDMC, 1993, Drainage Design Manual for Maricopa County. Volume 3 – Erosion Control.

FCDMC, Buckeye/Sun Valley Area Drainage Master Plan. (Project to be completed June 2005)

Fossum, Kenneth D., and Davis, Raymond G., 1996, Physical, chemical, biological, and toxicity data from the study of urban stormwater and ephemeral streams, Maricopa County, Arizona, water years 1992-95; prepared in cooperation with the Flood Control District of Maricopa County. U.S. Geological Survey.

Pry, Mark E., The Town on the Hassayampa, A History of Wickenburg, AZ state capital library call AZ 979.14 W633pt

Garrett, J. M., and Gellenbeck, D. J., 1991, Basin characteristics and streamflow statistics in Arizona as of 1989, U.S. Geological Survey Water Resource Investigations Report 91-4041, prepared in cooperation with the Arizona. Dept. of Water Resource and Flood Control District of Maricopa County

Halpenny, Leonard, 1986, Groundwater in the Hassayampa River Valley. Maricopa County, Arizona. Presentation at the Rocky Mountain Groundwater Conference, Phoenix Arizona September 16, 1986. (FCDMC Library) Prepared by Water Development Corp.

Hartman, G.W., R. Schurig, R. Barmore, N. Davis, J. Powell, B. Whitney, G. Tanaka, and L. deMoulin. 1977. *Soil survey of Maricopa County, Arizona, Central Part.* U.S. Department of Agriculture-Soil Conservation Service.

HDR Engineering, Inc., 1991, Wagner Wash Flood Insurance Study, Final Hydraulic Report (FIS), prepared for the Flood Control District of Maricopa County.

HDR Engineering. Inc, 1991, Wagner Wash Technical Data Notebook (Contains 3 Survey Books), prepared for Flood Control District of Maricopa County

Higgins, K. & Lynch, S., 1997, Hassayampa River Planning and Design Analysis Report, report prepared for the US Army Corps of Engineers, Los Angeles District, dated August 1997.

Hirschberg, Douglas M., et al., 2001, Digital data for construction material sources reported by the Arizona Department of Transportation in 1977 for Maricopa County,Arizona [computer file]. U.S. Dept. of the Interior, U.S. Geological
Jenkins, Michael Edward, 1989, Groundwater and Surface Water Assessments Supporting Instream Flow Protection at the Hassayampa River Preserve, Wickenburg, AZ, MS Thesis, Univ. of Arizona.

Horton, J.L. et al., 2001, Physiological Response to Groundwater Depth Varies among Species and with River Flow Regulation. *Ecological Applications* Vol 11 (4). pp. 1046-1058.

INCA Engineers, Inc. and Wood/Patel & Associates, Inc., 1997, Bridge Scour Investigation and Design of Corrective Measures, Final Report, Old US Highway 80 Highway Bridge Over Hassayampa River, prepared for Maricopa County Dept. of Transportation, Oct. 24, 1997.

JE Fuller/Hydrology & Geomorphology, Inc., 2004, (Draft) Hydrology Report, Lower Hassayampa River Watercourse Master Plan, report prepared for FCDMC, July 2004.

JE Fuller/Hydrology & Geomorphology, Inc., 2002, October 2000 Flood Reconstruction Using Precipitation, Indirect, Satellite, and Geomorphic Information, report prepared for the Flood Control District of Maricopa County under contract FCD 2000C013, Work Assignment No. 8, dated Feb. 2002.

Johannessen and Girand Consulting Engineers, Inc., 1962, Flood Control Report Section II, Western Maricopa County.

Johannessen and Girand Consulting Engineers, Inc., 1961, Maricopa County Flood Control Hassayampa River Preliminary Report, Jan. 16, 1961.

Lively, Irven, 194-?, "The Curse of the Hassyampa", *in* Camp and Trail, Incidents of Pioneer Life in AZ. AZ Historical Society Library.

Long, M. R., 1982, Maps showing groundwater conditions in the Hassayampa sub-basin of the Phoenix Active Management Area, Maricopa and Yavapai Counties,Arizona -- 1982; prepared in cooperation with the United States Geological Survey. Arizona. Dept. of Water Resources.

Maish, Charlie A., 1976, Hassayampa River Siphon Crossing, 100-year Flood Study, September 1976.

Maricopa Association of Governments. 2003, *208 Water Quality Management Plan Update*: Amendment for Town of Buckeye Festival Ranch Water Reclamation Facility. October 2003.

Maricopa Association of Governments. 2002, *208 Water Quality Management Plan Update*. October 2002. Prepared by Carollo Engineers.

McGreevey, John, 1949, "The Flood at Walnut Grove", The Butane Corporation presents Arizona Adventure, script for a radio play dated October 5, 1949. ASU Arizona Room in Hayden Library.

Mitten, Charles A., 1971, Buckeye Printer. -located both at AZ Historical Society, Tempe and Arizona Historical room at State Capitol library.

National Aerial Photography Program, 1997, Aerial photographs, flight date May 24, 1997, scale 1:40,000.

National Archive, 1949, Black and white aerial photographs, scale 1:20,000.

Parker, J.T.C., 1995, Channel change and sediment transport in two desert streams in central Arizona, 1991-92, Water-Resources Investigations, No.WRI 95-4059, 42p. Publisher: U. S. Geological Survey, [Reston, VA], United States.

Parker, J.T.C., 1992, Channel change in desert rivers from moderate flows; initial results of a monitoring program, Maricopa County, Arizona, Eos, Transactions, American Geophysical Union, 73(43 Suppl.), p.226; American Geophysical Union, 1992 fall meeting, San Francisco, CA, Dec. 7-11, 1992. Publisher: American Geophysical Union, Washington, DC, United States.

Parkman, I.H., 1987, History of Buckeye Canal, book presented to Buckeye Irrigation Company in commemoration of 100 years of service, Parkman's original text published 1957 and updated by W.W. Weigold, N. Weigold, & E. Grandy, 46 p.

Pedroli, Bas. et al. 2002, "Setting targets in strategies for river restoration." *Landscape Ecology*. Vol. 17 (suppl.1) 5-18. 2002.

Pemberton & Lane, 1984, Computing Degradation and Local Scour, Technical Guideline for Bureau of Reclamation, US Bureau of Reclamation, January 1984.

Phillips, Jeff V., and Ingersoll, Todd L., 1998, Verification of roughness coefficients for selected natural and constructed stream channels in Arizona, prepared in cooperation with the Flood Control District of Maricopa County, U.S. Geological Survey

Phillips, Jeff V., et al., 1998, Method to estimate effects of flow-induced vegetation changes on channel conveyances of streams in central Arizona, prepared in cooperation with the Flood Control District of Maricopa County, U.S. Dept. of the Interior, U.S. Geological Survey.

Phoenix Gazette, 1962, "Planning Begins in Buckeye Area," 2/24/62

Phoenix Gazette, 1970, "Study of Hassayampa Dam Sought," 7/7/1970

Pope, G.L., Rigas, P.D., and Smith, C.F., 1998, Statistical Summaries of Streamflow Data and Characteristics of Drainage Basins for Selected Streamflow-Gaging Stations in Arizona Through Water Year 1996, USGS Water-Resources Investigations Report 98-4225.

Powell, J.W., 1893, Thirteenth Annual Report of the USGS to the Secretary of the Interior 1891-92, Part III Irrigation, Walnut Grove Dam Section.

Reynolds, S.J. 1997. *Digital Representation of the Geological Map of the Phoenix North 30' x 60' Quadrangle: Central Arizona, Digital Information Series, DI-4, version 1.1*. Arizona Geological Survey, Tucson, Arizona.

Reynolds, S.J., and M.J. Grubensky. 1993. *Geologic map of the Phoenix north 30'x60' quadrangle*. Arizona Geological Survey Open File Report 93-17.

Reynolds, S.J., and S.J. Skotnicki. 1993. *Geologic map of the Phoenix south 30'x60' quadrangle*. Arizona Geological Survey Open File Report 93-18.

Roeske, R.H., 1971, Floods of September 1970 in Arizona, Utah, and Colorado, report prepared by U.S. Geological Survey for the Arizona State Land Department, April 1971.

Salt River Project, 1934, Aerial photographs. Flight date Feb. 1934.

Simons, Li & Associates, 1986, Hydrologic, Hydraulic, & Sedimentation Analysis of New Bridge at Old U.S. Highway 80 over the Hassayampa River, Maricopa County, Arizona, report prepared for Royden Engineering Company, June 9, 1986.

Smith, Winchell, and Heckler, Wilbur L., 1955, Compilation of Flood Data in Arizona 1862-1953. Prepared in cooperation with the AZ State Land Department, Roger Ernst Commissioner, Open File Report, Tucson AZ, 1955 pp. 99-100.

Soil Conservation Service, 1963, Watershed Work Plan, Buckeye Watershed, Maricopa County, Arizona, October 1963.

Stein, E. A., 1947, Legend of the Hassayampa, and the valley through which it flows. Small pamphlet.

Stromberg. J.C., 1997, "Marsh development after large floods in an alluvial arid-land river." *Wetlands*. Vol. 17 No 2. June 1997. pp. 292-300.

Stromberg, J.C., 1997, "Growth and Survivorship of Fremont Cottonwood, Goodding Willow, and Salt Cedar Seedlings After Large Floods in Central Arizona," Great Basin Naturalist, Vol.57 (3), pp.198-208

Stromberg, J.C., et al, 1993, "Response of a Sonoran Riparian Forest to a 10-Year Return Flood," Great Basin Naturalist, Vol. 53(2), pp.118-130.

Stulik, R. S., Laney, R. L., 1975, Maps showing ground-water conditions in the lower Hassayampa area, Maricopa County, Arizona--1975; prepared in cooperation with the Arizona Water Commission. U.S. Geological Survey.

Stulik, R.S. 1974, Map Showing Ground-Water Conditions in the Lower Hassayampa Area, Maricopa County. Arizona. Arizona Water Commission Bulletin 8. August 1974. Prepared for USGS. (FCDMC library)

Tellman, B, et al, 1997, Where to Find Information about the History of Arizona Rivers, Issue Paper #17, Water Resources Research Center, University of Arizona

Tellman, B., Yarde, R., and Wallace, M. G., 1997, Arizona's Changing Rivers, How People Have affected the rivers of Arizona, Isssue Paper #19, Water Resources Research Center, University of Arizona.

Thomas, Blakemore E., Hjalmarson, H.W., and Waltemeyer, S.D., 1997, Methods for Estimating Magnitude and Frequency of Floods in the Southwest United States: U.S. Geological Survey, Water Supply Paper 2433, 195 p.

Thomsen, B. W., and Hjalmarson, H. W., 1991, Estimated Manning's roughness coefficients for stream channels and flood plains in Maricopa County, Arizona / prepared in cooperation with the Flood Control District of Maricopa County by the U.S. Geological Survey, Water Resources Division.

Tillery, Anne C., Phillips, Jeff V., and Capesius, Joseph P, 2001, Potential errors associated with stage-discharge relations for selected streamflow-gaging stations, Maricopa County, Arizona; prepared in cooperation with the Flood Control District of Maricopa County. U.S. Dept. of the Interior, U.S. Geological Survey.

Town of Buckeye, 2004, Land Use District Map, updated 2004.

Town of Buckeye, 2003, Municipal Planning Area of the Town of Buckeye, Updated, 2003.

Town of Buckeye, 2003, Town of Buckeye Development Code, Community Development Department, Revised March 2003

Town of Buckeye, 2001, Buckeye Town Lake Engineering Feasibility Study. Prepared by URS/BRW. November 2001.

Town of Buckeye, 2001, Town of Buckeye General Development Plan – Adopted September 18, 2001.

Ungerman Engineering Inc., 1987, Opportunities for Groundwater Recharge in Central Arizona. Prepared for Central Arizona Water Conservation District. Oct. 1987. (FCDMC library)

Unknown, 1960, "Dam is Recommended as Flood Control Aid," no source mentioned 5/23/1960, FCDMC library

Unknown, not reported, "Gila River Floods South of Buckeye;" FCDMC library

U.S. Army Corps of Engineers, Los Angeles District, 1982, Gila River Basin, New River and Phoenix City Streams, Arizona, Design Memorandum No. 2, Hydrology, Part 2, 1982.

U.S. Army Corps of Engineers, Los Angeles District, 1974, Gila River Basin, New River and Phoenix City Streams, Arizona, Design Memorandum No. 2, Hydrology, Part 1, October 1974.

U.S. Army Corps of Engineers, Los Angeles District, 1972, Flood Plain Information, Hassayampa Report v.7, Vicinity of Wickenburg, Arizona, prepared for FCDMC, April 1972.

U.S. Army Mapping Service, 1953, Large format black and white aerial photography. From FCDMC archives. Scale = approximately 1:14,400.

U. S. Bureau of Reclamation, 1977, Central Arizona Project: geology and ground-water resources report : Maricopa and Pinal Counties, Arizona/ U.S. Department of the Interior, Bureau of Reclamation, Lower Colorado Region, Arizona Projects Office.

U.S. Bureau of Reclamation, 1948, Hassayampa Project, Arizona, Project Planning Report No. 3-8b.1-2, Feb. 1948.

U.S. Bureau of Reclamation, 1945, Hassayampa Project, Arizona, Project Planning Report No. 3-8b.1-0, Preliminary Draft, Sep. 1945.

U.S. Department of Agriculture, Soil Conservation Service, 1994, State Soil Geographic (STATSGO) data base for Arizona: U.S. Department of Agriculture, Soil Conservation Service, Fort Worth, Texas, ArcINFO coverage with relate tables.

U.S. Fish and Wildlife Service, 2004, County Species List – Maricopa County. September 2004. http://arizonaes.fws.gov.

U.S. Fish and Wildlife Service, 2004, Correspondence from Steven Spangle dated August 24, 2004 including general information on endangered, threatened, proposed, and candidate species. Also includes a special note regarding activities in riparian areas and the US Army Corp of Engineers regulation under Section 404 of the Clean Water Act.

U.S. Fish and Wildlife Service, 2004, Letters to US Corp of Engineering regarding applications for US Army Corps of Engineers Section 404 Clean Water Act permits for Stardust Development, Inc January 28, 2004

U.S. Fish and Wildlife Service, 2003, Letters to US Corp of Engineering regarding applications for US Army Corps of Engineers Section 404 Clean Water Act permits for Festival Ranch master planned community November 13, 2003

U.S. General Land Office, 1882, Public Land Survey maps.

U.S. General Land Office, 1915, Public Land Survey maps.

U.S. Geological Survey, provisional 1990, Belmont Mountain, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, provisional 1990, Black Butte, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, provisional 1990, Daggs Tank, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, provisional 1990, Flatiron Mountain, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, provisional 1990, Forepaugh Peak, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, provisional 1990, Hummingbird Spring, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, provisional 1990, Outlaw Hill, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, provisional 1990, Star Well, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, provisional 1990, Tiger Well, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, provisional 1990, Vulture Mine, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, provisional 1990, Vulture Peak, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, provisional 1990, Wildcat Well, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, 1988, Wagner Wash Well, Ariz. Quadrangle (topographic), 7.5 minute series, Provisional Edition, scale 1:24,000 (photo date 1984).

U.S. Geological Survey, 1985, Wintersburg, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, 1984, Arlington, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, 1982, Buckeye NW, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000 (photo date 1955, originally published 1958; photo revised in 1982 using 1978 photography).

U.S. Geological Survey, 1982, Wittmann, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000 (originally published 1965 from photos taken 1962; photo inspected 1978).

U.S. Geological Survey, 1980, Iron Springs, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, 1978, Hassayampa, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000 (originally published 1958; original photo date 1955, photo inspected 1978).

U.S. Geological Survey, 1978, Red Picacho, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000 (originally published 1965; photo inspected 1978).

U.S. Geological Survey, 1978, White Tank Mtns NE, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000 (original photo date 1954, published 1957; photo revised 1971, and photo inspected with no changes made in 1978).

U.S. Geological Survey, 1978, Wickenburg, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000 (originally published 1964; photo inspected 1978).

U.S. Geological Survey, 1978, Wickenburg SW, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000 (originally published 1967; photo inspected 1978).

U.S. Geological Survey, 1977, Battleship Butte, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, 1977, Battle Flat, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, 1977, Groom Creek, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, 1973, Arlington, Ariz. Quadrangle (orthographic), scale 1:24,000 (original photo date 1972), ASU call #: 43315, A4, 1971, Arlington.

U.S. Geological Survey, 1973, Buckeye NW, Ariz. Quadrangle (orthographic), scale 1:24,000 (photo date Nov. 1972), ASU call #: 43315, A4, 1971, Buckeye.

U.S. Geological Survey, 1973, Congress, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, 1973, Congress SW, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, 1973, Daggs Tank, Ariz. Quadrangle (orthographic), scale 1:24,000 (photo date Nov. 1972), ASU call #: 43315, A4, 1971, Daggs Tank.

U.S. Geological Survey, 1973, Flatiron Mtn, Ariz. Quadrangle (orthographic), scale 1:24,000 (photo date Aug. 1972), ASU call #: 43315, A4, 1971, Flatiron Mtn..

U.S. Geological Survey, 1973, Hassayampa, Ariz. Quadrangle (orthographic), scale 1:24,000 (photo date Nov. 1972), ASU call #: 43315, A4, 1971, Hassayampa.

U.S. Geological Survey, 1973, Minnehaha, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, 1973, Morgan Butte, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, 1973, Star Well, Ariz. Quadrangle (orthographic), scale 1:24,000 (photo date Nov. 1972), ASU call #: 43315, A4, 1971, Star Well..

U.S. Geological Survey, 1973, Wagner Wash Well, Ariz. Quadrangle (orthographic), scale 1:24,000 (photo date Aug. 1972), ASU call #: 43315, A4, 1971, Wagner Wash Well..

U.S. Geological Survey, 1973, Wilhoit, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, 1973, Wintersburg, Ariz. Quadrangle (orthographic), scale 1:24,000 (photo date Nov. 1972), ASU call #: 43315, A4, 1971, Wintersburg.

U.S. Geological Survey, 1973, Yarnell, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, 1972, Copperopolis, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, 1972, Crown King, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, 1972, Flores, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, 1972, O'Neill Pass, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, 1972, Peeples Valley, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, 1972, Sam Powell Peak, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, 1972, Walnut Grove, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, 1972, Wagoner, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, 1972, Weaver Peak, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000.

U.S. Geological Survey, 1971, White Tank Mtns, Ariz. Quadrangle (topographic), 7.5 minute series, scale 1:24,000 (original photo date 1954, published 1957; photo revised 1971).

U.S. Geological Survey, 1962, Belmont Mountains, Ariz. Quadrangle (topographic), 15 minute series, scale 1:62,500 (photo dates 1951 and1960).

U.S. Geological Survey, 1962, Arlington, Ariz. Quadrangle (topographic), 15 minute series, scale 1:62,500 (photo date1960).

U.S. Geological Survey, 1957, White Tank Mtns, Ariz. Quadrangle (topographic), 15 minute series, scale 1:62,500 (photo dates 1954-55).

U.S. Water Resources Council, 1982, Guidelines for Determining Flood Flow Frequency, Bulletin #17B of the Hydrology Committee; Washington, D.C.

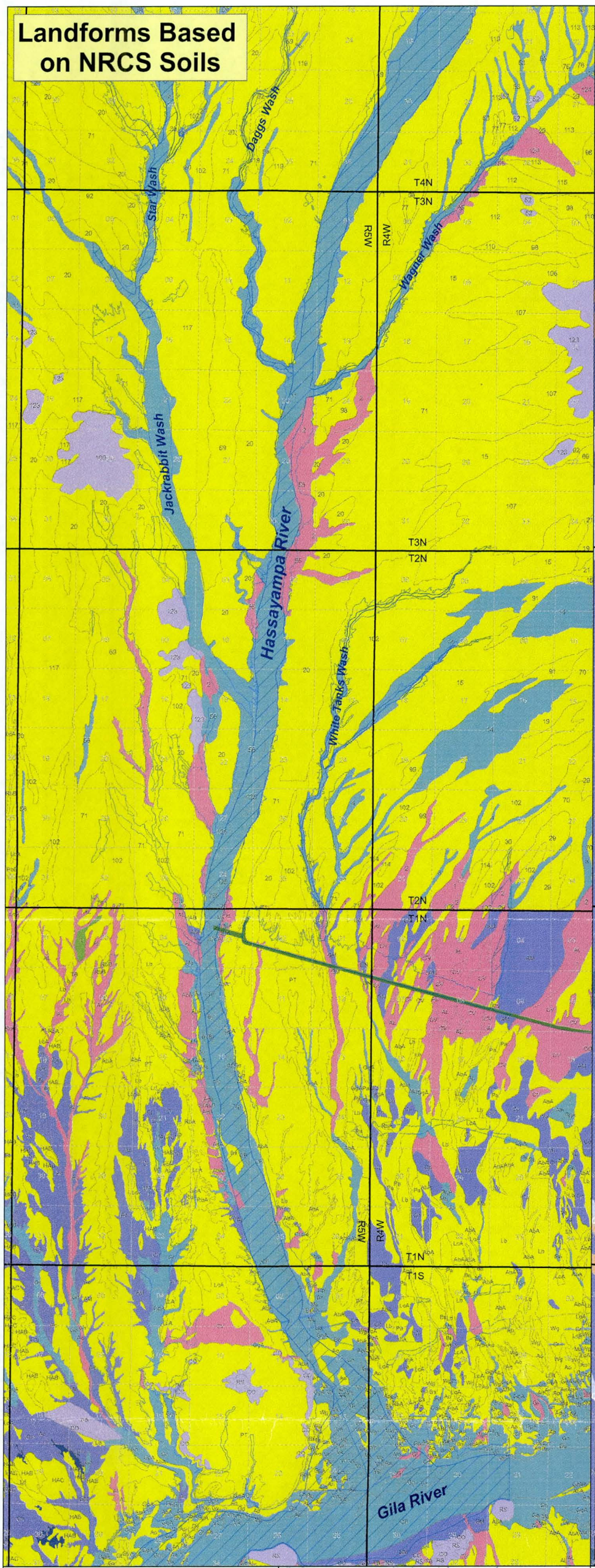
WESTCAP, 2000, WESTCAP Recharge Strategy. Adopted by General Commmittee June 2000.

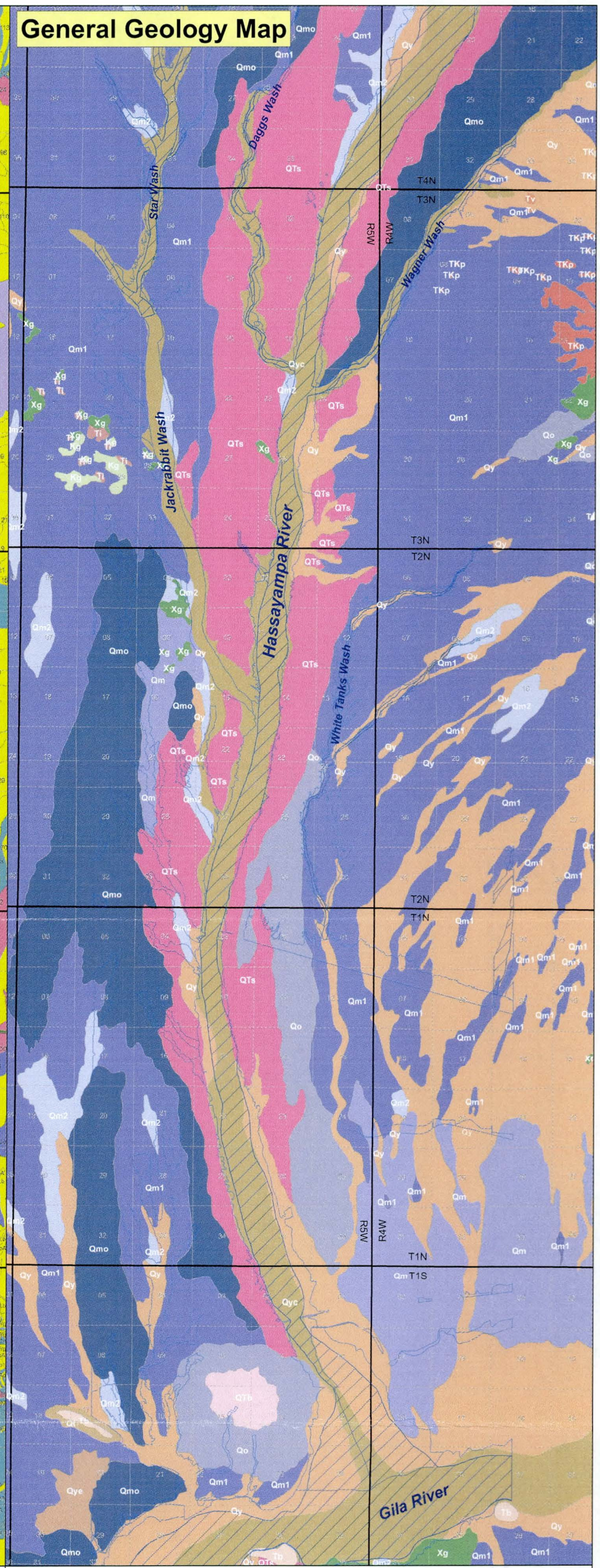
Wickenburg Sun, 1960, "Move is Started to Relieve Flood Conditions Here," 5/20/1960 p.5.

Wickenburg Sun, 1987, 'Reserve Begins Transformation from Ranching Area," 5 part series, 3/26/87, 4/2/87,4/9/87,4/16/87,4/23/87, AZ state capital AZ historical room Wickenburg general folder.

Williams and Ellis, 1966, Hassayampa River Flood Control Project, Middle Hassayampa Area, just north of 1964 reach. Mylar air photos and topographic maps, and accompanying contact prints. FCDMC library, archive drawer #404

Williams and Ellis, 1964, Hassayampa River Flood Control Project, Lower Hassayampa Area, confluence with Gila, Air Photos and topographic maps on mylar, and Contact Prints.-FCDMC library, archive drawer #404.





FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

Lower Hassayampa River Watercourse Master Plan

PLATE 1

Landform by Soil Unit and General Geology Map

September 2004

0 0.5 1 2 Miles

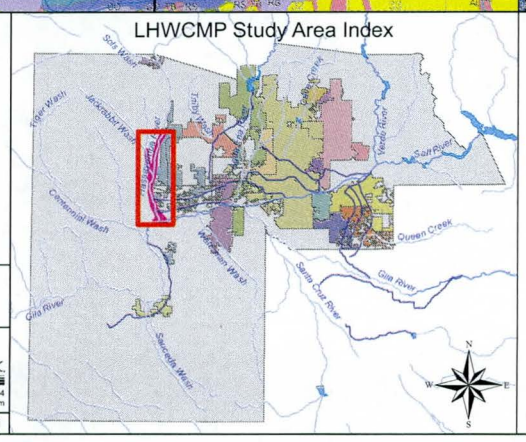
JE FULLER HYDROLOGY & GEOMORPHOLOGY, INC.

8400 S. Kyrene Rd., Suite 201
Tempe, AZ 85284

(480) 752-2124
www.jefuller.com

Sheet 1 of 1

LHWCMP Study Area Index



Landform Based on NRCS Soil Unit

Landform

- Alluvial Fan
- Dunes
- Fill
- Floodplain
- Gravel Pit
- Levee
- Mountain Slopes
- Pediment
- Terrace
- Valley Plain
- Floodplain
- Floodway

(Camp, 1986; Hartman, 1977)

LEGEND

Geologic Units

Holocene Units

UNIT
- d
- Q
- Qy
- Qyc
- Qye
- Qt

Quaternary/Upper Tertiary

UNIT
- QTs - alluvium
- QTb - basalts

Pleistocene Units

UNIT
- Qm
- Qm1
- Qm2
- Qmo
- Qo
- Qt

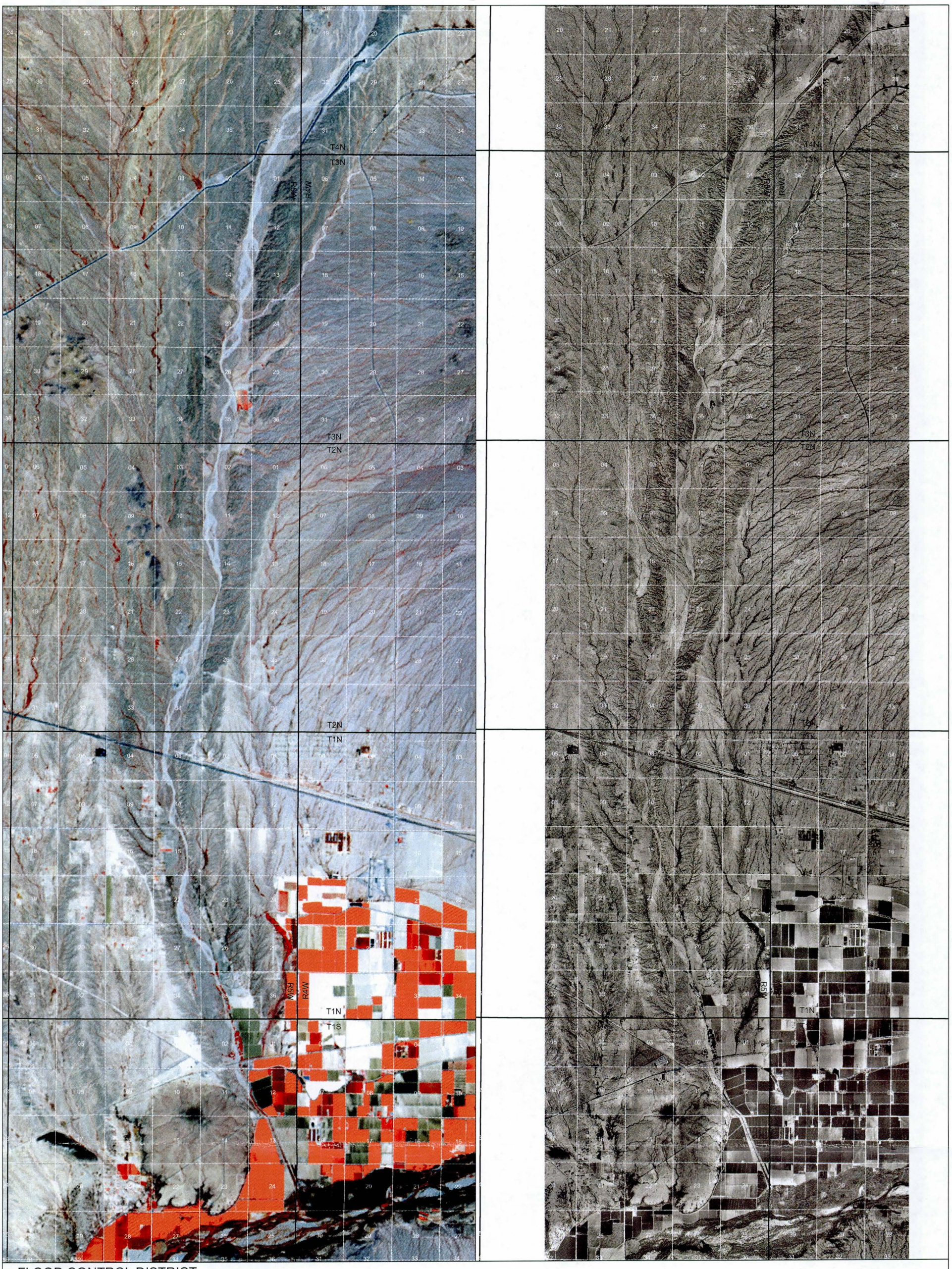
Tertiary Bedrock

UNIT
- TKp
- Tb
- Ti
- Tv

Proterozoic Bedrock

UNIT
- Kg
- Xg
- Xgm
- Xt

(Reynolds, 1997)

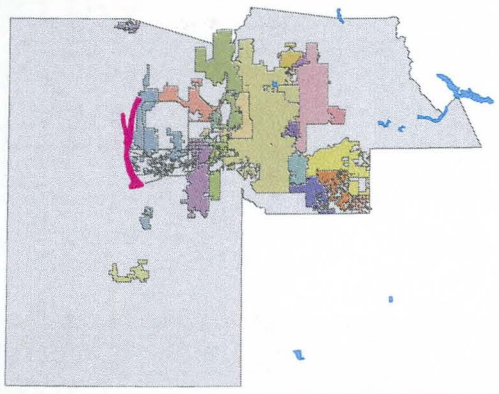


FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

Lower Hassayampa River
Watercourse Master Plan

Recent Satellite
and Aerial Photo Imagery

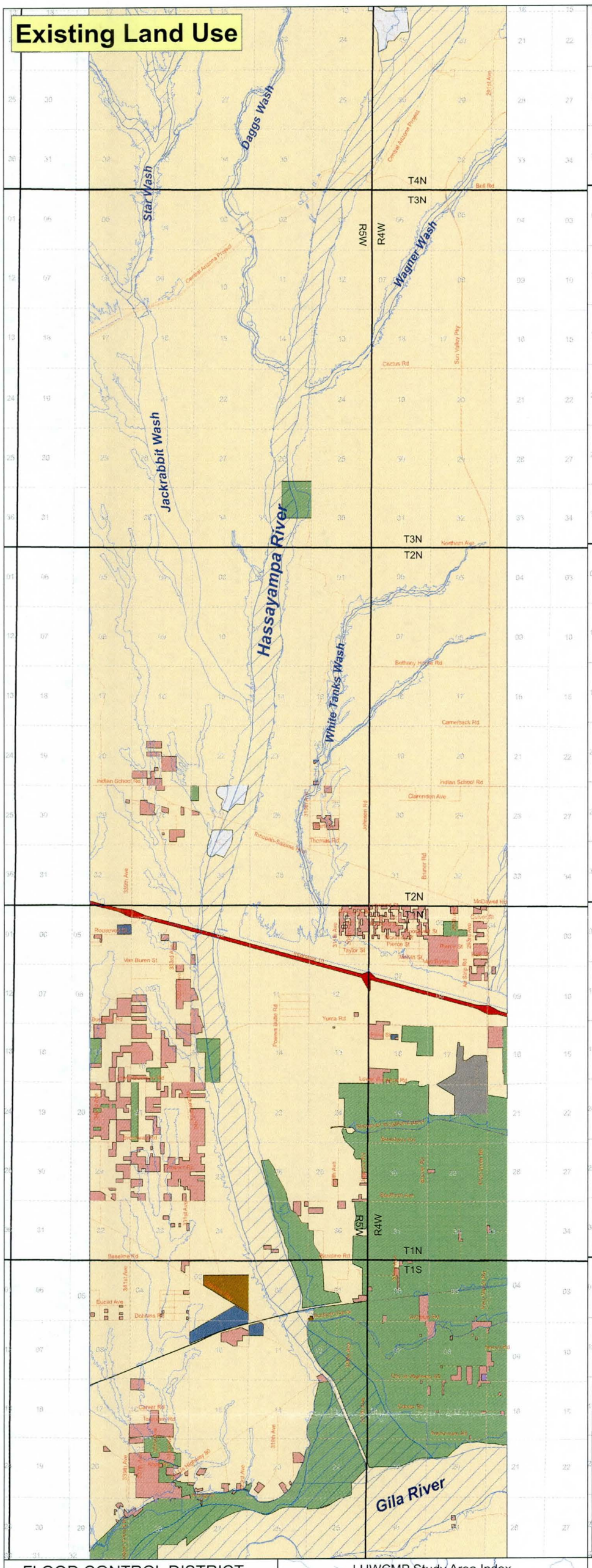
September 2004

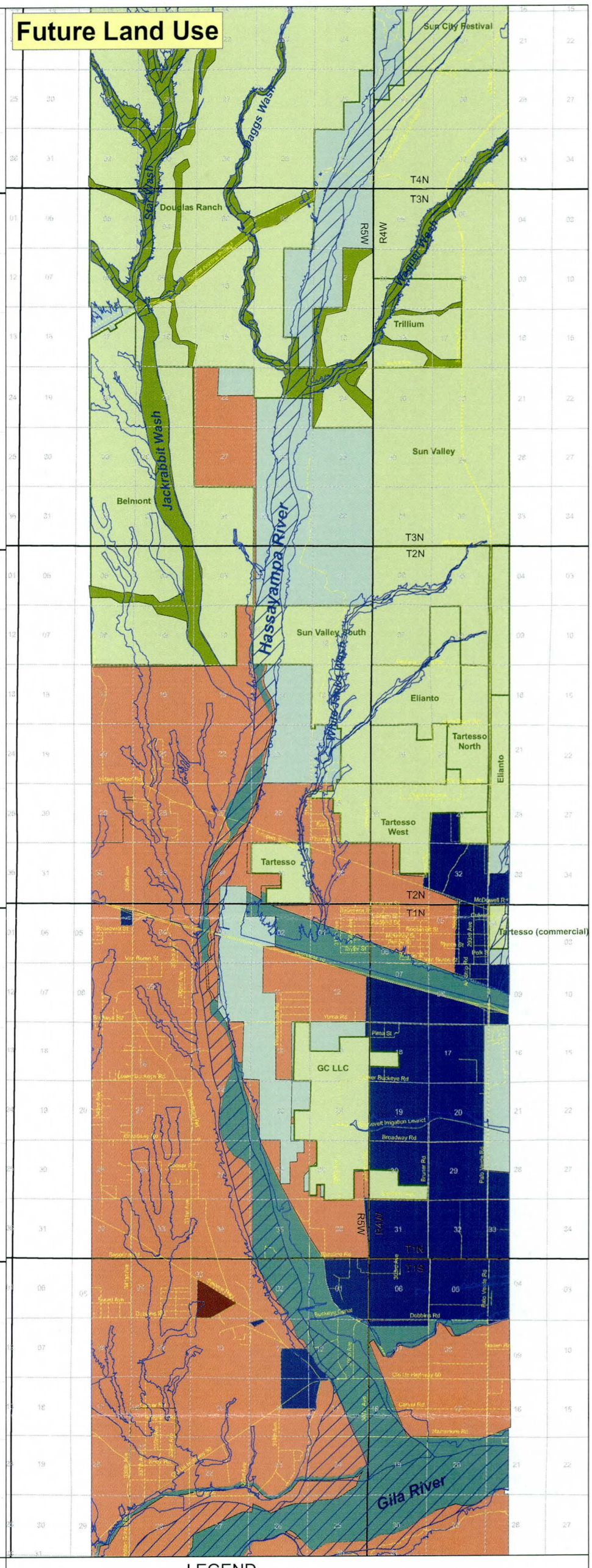


0 0.5 1 2
Miles

JE FULLER
HYDROLOGY & GEOMORPHOLOGY, INC.
8400 S. Kyrene Rd., Suite 201
Tempe, AZ 85284
(480) 752-2124
www.jefuller.com

Sheet 1 of 1





FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

Lower Hassayampa River
Watercourse Master Plan

PLATE 3

Existing and Future Land Uses

September 2004

0 0.5 1 2
Miles

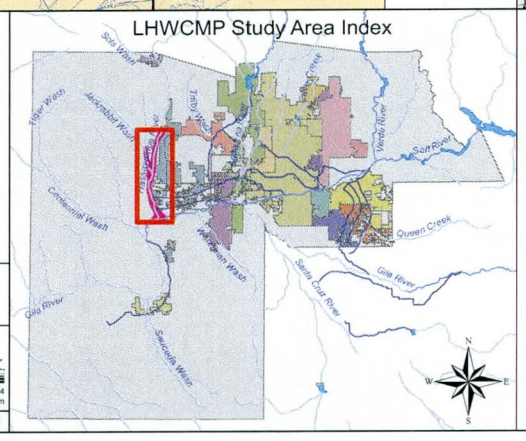
JE FULLER
HYDROLOGY & GEOMORPHOLOGY, INC.

8400 S. Kyrene Rd., Suite 201
Tempe, AZ 85284

(480) 752-2124
www.jefuller.com

Sheet 1 of 1

LHWCMP Study Area Index



LEGEND

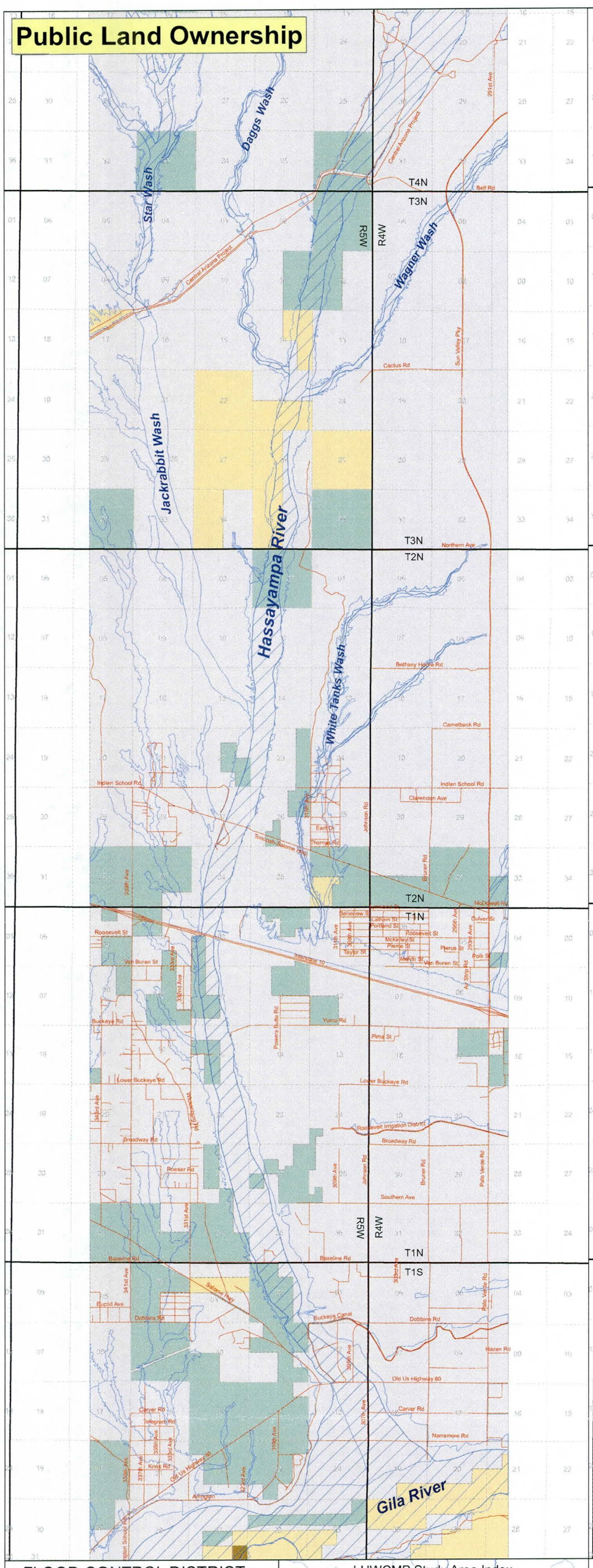
Floodplain
- Floodplain
- Floodway

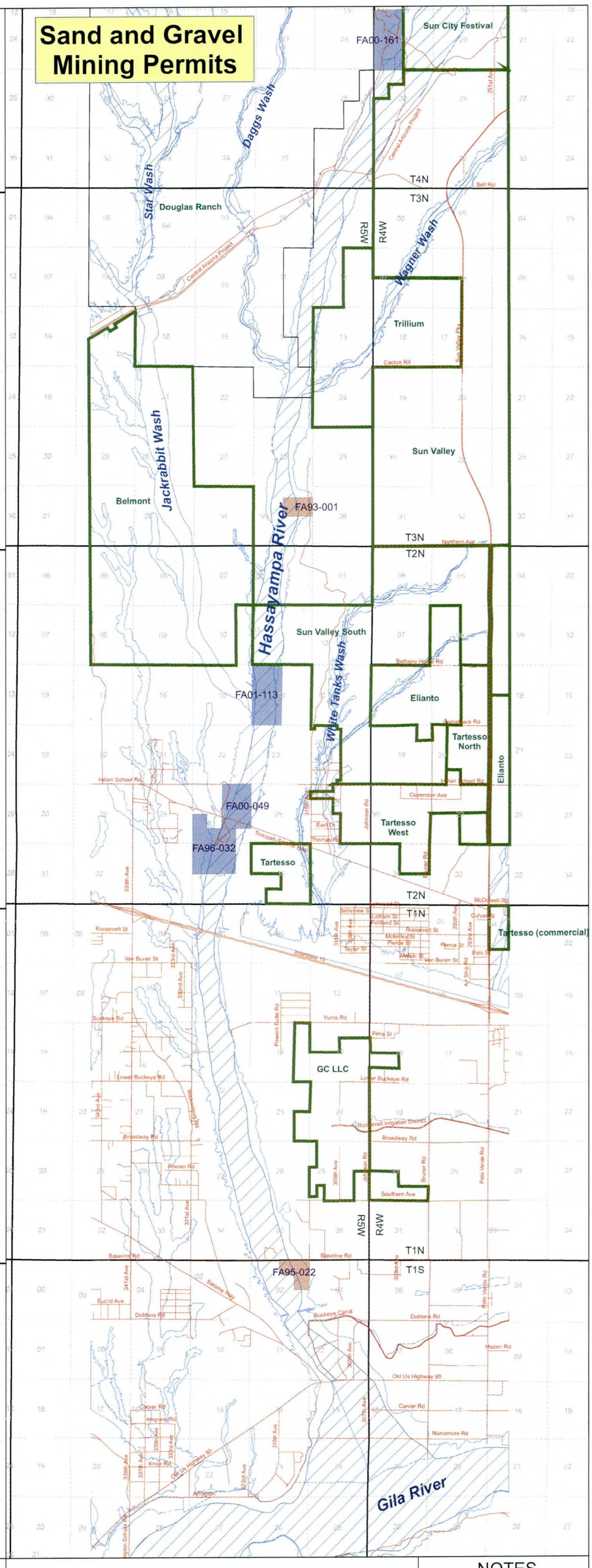
Existing Land Use
- Agriculture
- Airport
- Commercial
- Industrial
- Rural Residential
- Sand & Gravel Mines
- Schools
- Transportation
- Vacant

Source: modified from MAG data obtained from FCDMC 2004

Future Land Use
- Active Open Space (Includes parks)
- Industrial
- New planned communities
- Other planned community areas
- Commercial
- Rural Residential
- Planned Open Space

Source: modified from MAG data obtained from FCDMC 2004 and from Town of Buckeye (2004; 2003)





FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

Lower Hassayampa River
Watercourse Master Plan
PLATE 4

Public Land Ownership and
Sand and Gravel Mining Permits

September 2004

0 0.5 1 2
Miles

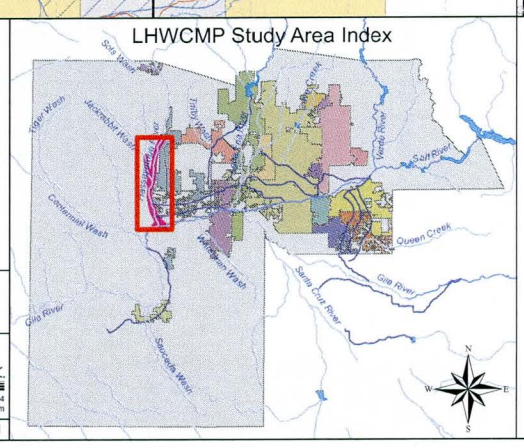
JE FULLER
HYDROLOGY & GEOMORPHOLOGY, INC.

8400 S. Kyrene Rd., Suite 201
Tempe, AZ 85284

(480) 752-2124
www.jefuller.com

Sheet 1 of 1

LHWCMP Study Area Index



Legend

Owner

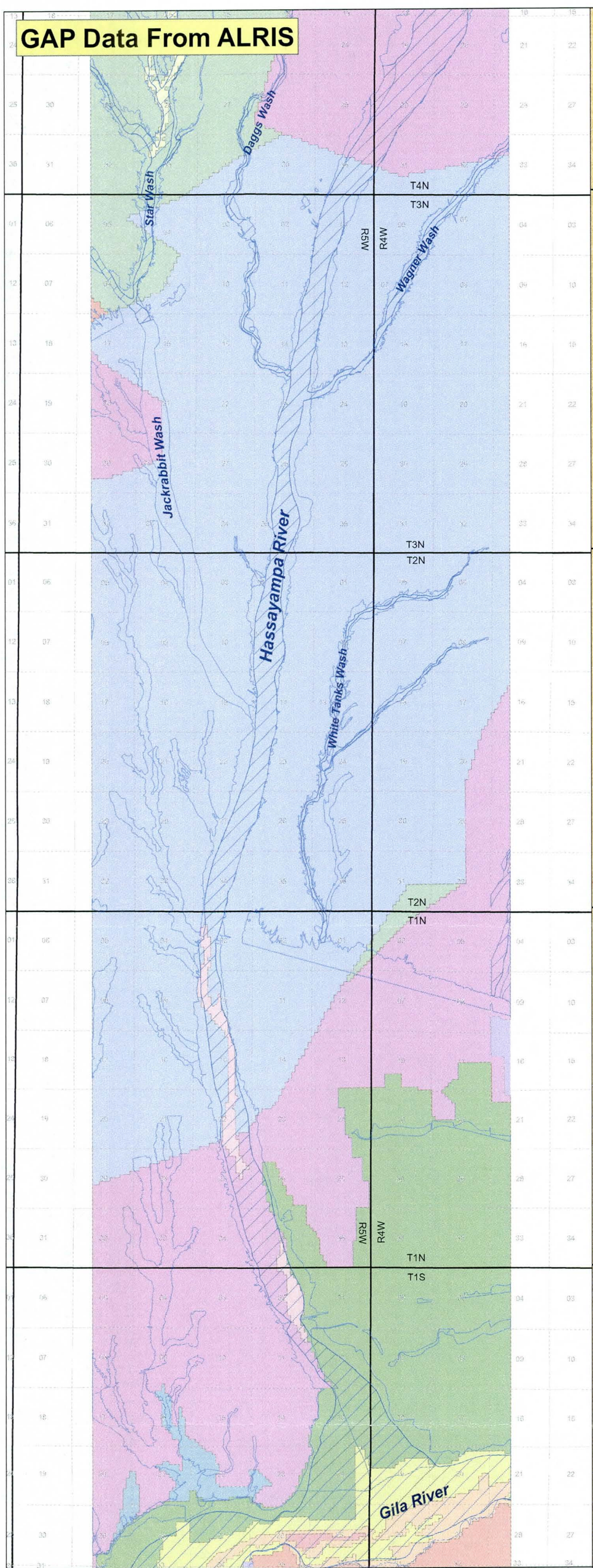
- Bureau of Land Management
- Game & Fish
- Private
- State Trust
- Floodplain
- Floodway

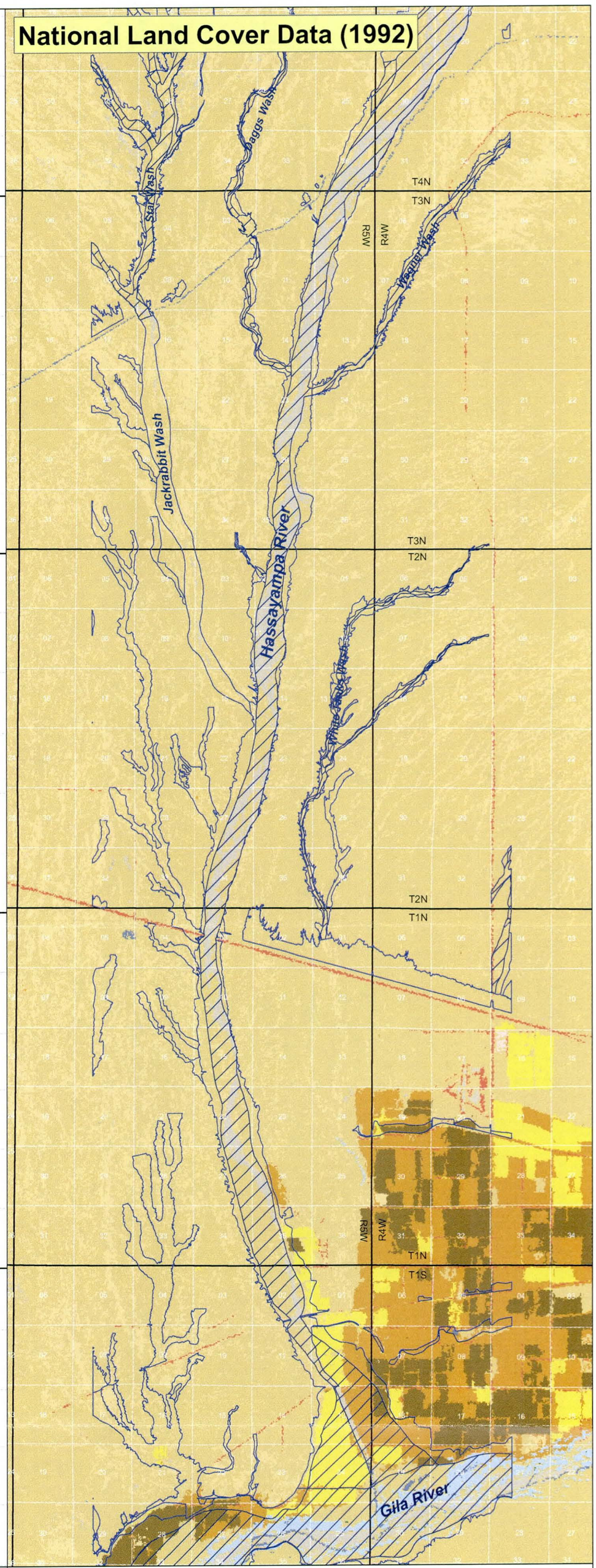
STATUS

- Approved
- Cancelled
- Closed
- New planned communities

NOTES

Sand and Gravel Permits from FCDMC as of September 2004.





FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY

Lower Hassayampa River
Watercourse Master Plan

PLATE 5

Vegetation and Land Cover Distributions
Based on National Satellite Data

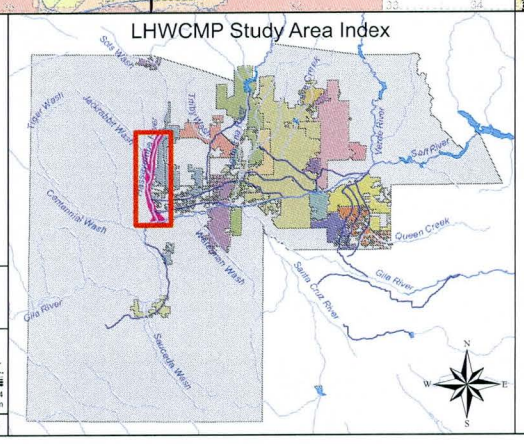
September 2004

0 0.5 1 2
Miles

JE FULLER
HYDROLOGY & GEOMORPHOLOGY, INC.
8400 S. Kyrene Rd., Suite 201
Tempe, AZ 85284
(480) 752-2124
www.jefuller.com

Sheet 1 of 1

LHWCMP Study Area Index



LEGEND

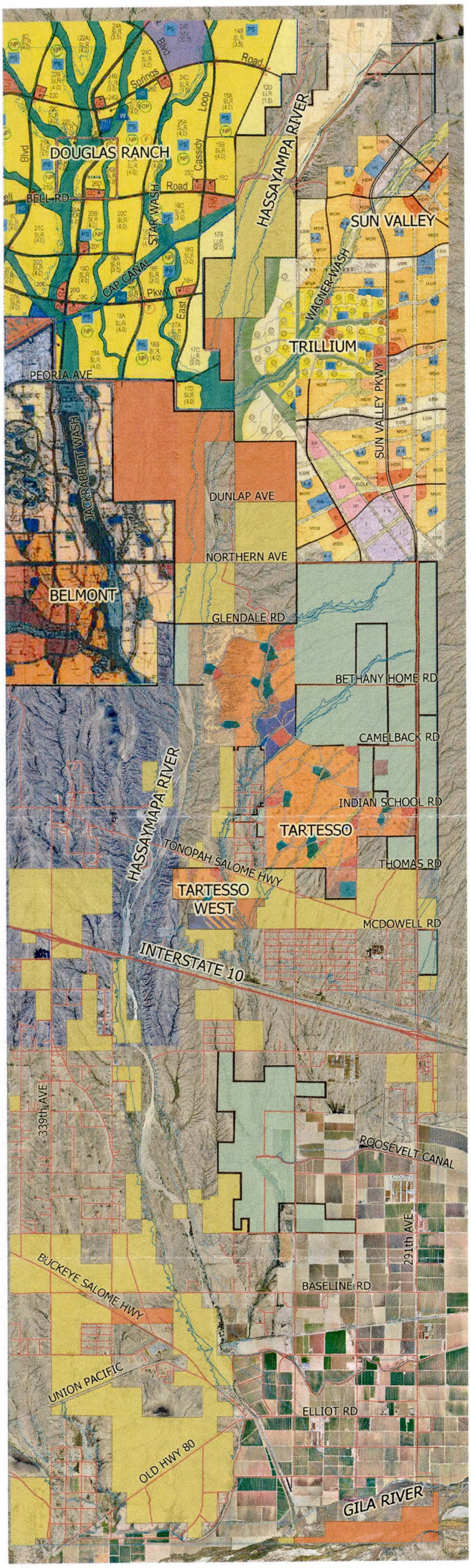
National Biological Survey GAP Data (1993)

Vegetation Units

- Agriculture
- Mixed
- Riparian/Flood-damaged 1993
- Son. Riparian/Leguminous Short-Tree Forest/Scrub
- Son. Riparian/Mesquite Forest
- Son. Riparian/Mixed Riparian Scrub
- Sonoran Creosotebush Scrub
- Sonoran Creosotebush-Bursage Scrub
- Sonoran Creosotebush-Bursage-Paloverde-Mixed Cacti (wash)
- Sonoran Creosotebush-Mesquite Scrub
- Sonoran Paloverde Mixed Cacti/Sonoran Creosote-Bursage
- Water

Land Cover Units (NLCD, 1992)

- 11 - Open Water
- 21 - Low Intensity Residential
- 23 - Commercial/Industrial/Transportation
- 31 - Bare Rock/Sand/Clay
- 32 - Quarries/Mines/Gravel Pits
- 41 - Deciduous Forest
- 42 - Evergreen Forest
- 43 - Mixed Forest
- 51 - Shrubland
- 71 - Grasslands/Herbaceous
- 81 - Pasture/Hay
- 82 - Row Crops
- 83 - Small Grains
- 85 - Urban/Recreational Grasses
- 91 - Woody Wetlands
- 92 - Emergent Herbaceous Wetlands



KEY

LOW DENSITY RESIDENTIAL - 0-2.0 DUA

MEDIUM DENSITY RESIDENTIAL - 2.0-5.0 DUA

HIGH DENSITY RESIDENTIAL - 5.0-7.0 DUA

STATE LANDS

BLM LANDS (BUREAU OF LAND MANAGEMENT)

FUTURE MASTER PLANNED COMMUNITES

COMMUNITIES WITHIN THE HASSAYAMPA RIVER

DOUGLAS RANCH

A LARGE AREA FOLLOWING THE JACKRABBIT AND STARR WASH HAS BEEN RETAINED AS OPEN SPACE. LOW AND MEDIUM DENSITY RESIDENTIAL TYPICALLY BACK UP TO THE OPEN SPACES. THE CAP CANAL CROSSES THE SOUTH END AND THE PROPERTY ADJACENT TO THE CAP CANAL IS DESIGNATED AS OPEN SPACE.

BELMONT

JACKRABBIT WASH RUNS THROUGH THE PROPERTY INTO THE HASSAYAMPA RIVER. THE DIRECT PATH OF THE WASH HAS BEEN PRESERVED AS OPEN SPACE WITH SURROUNDING LAND ZONED AS VERY LOW TO LOW URBAN RESIDENTIAL USES. DRAINAGE FLOWS HAVE BEEN REDIRECTED INTO A NATURALIZED CHANNEL AT THE SOUTH END OF THE PROPERTY WHERE IT EXITS INTO THE RIVER. A MIX OF USES INCLUDING COMMERCIAL AND HIGH DENSITY RESIDENTIAL BACK UP ONTO THIS WASH.

SUN VALLEY NORTH

THE SUN VALLEY PROPERTY STRADDLES THE SUN VALLEY PARKWAY WITH THE WAGNER WASH RUNNING DIAGONALLY THROUGH THE PROPERTY. NORTH OF THE GRANITE REEF AQUEDUCT WASH, THE NORTHERN PORTION OF THE PROPERTY THAT FALLS WITHIN THE HASSAYAMPA FLOODWAY IS BEING PROPOSED FOR INTERIM USE FOR SAND AND GRAVEL MINING OPERATIONS UNDER A CONDITIONAL PERMIT PROCESS. THE SITE WILL EVENTUALLY BE RECLAIMED AND USED AS A 404 MITIGATION SITE ONCE THE MINING IS TERMINATED. A COMMERCIAL PARK AND HIGH DENSITY RESIDENTIAL USES BACK UP ONTO THE WAGNER WASH WHILE A MIX OF MEDIUM TO LOW DENSITY RESIDENTIAL USES ARE LOCATED ADJACENT TO THE HASSAYAMPA RIVER.

TRILLIUM

OPEN SPACE HAS BEEN PRESERVED WHERE THE HASSAYAMPA RIVER CROSSES THE WEST END OF THE PROPERTY. LOW AND MEDIUM DENSITY RESIDENTIAL BACK UP TO THE OPEN SPACE ALONG TWO MAIN WASHES THAT LINK TO THE WAGNER WASH WITHIN THE PROPERTY.

TARTESSO

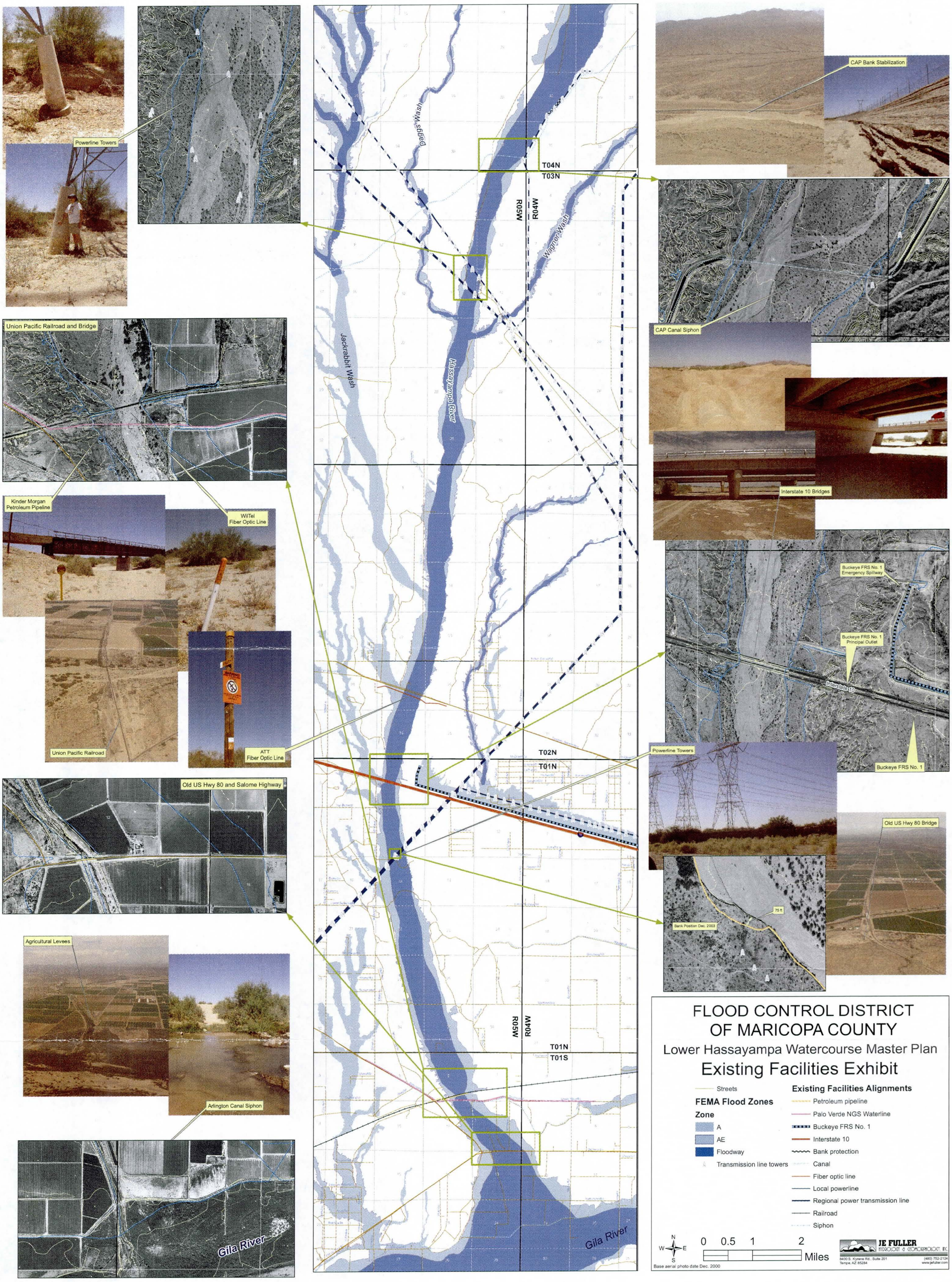
THE PROPERTY BORDERS THE EASTERN EDGE OF THE HASSAYAMPA RIVER AND TRIBUTARIES CROSS THROUGHOUT THE TARTESSO PROPERTY. THE WEST EDGE OF THE PROPERTY ABUTTING THE RIVER IS DESIGNATED OPEN SPACE AND LOW DENSITY RESIDENTIAL. MEDIUM DENSITY RESIDENTIAL BACKS UP ALONG THE MAJORITY OF THE SMALLER WASHES. A WASTE WATER TREATMENT AND RECHARGE FACILITY ARE LOCATED AT THE SOUTH END OF TARTESSO SOUTH PROPERTY.Z

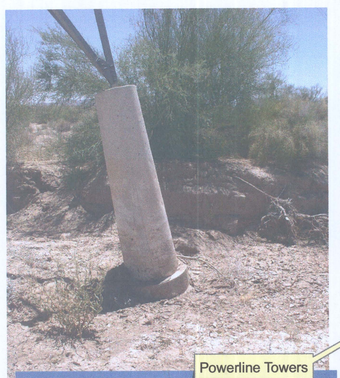
N.T.S

EDAW

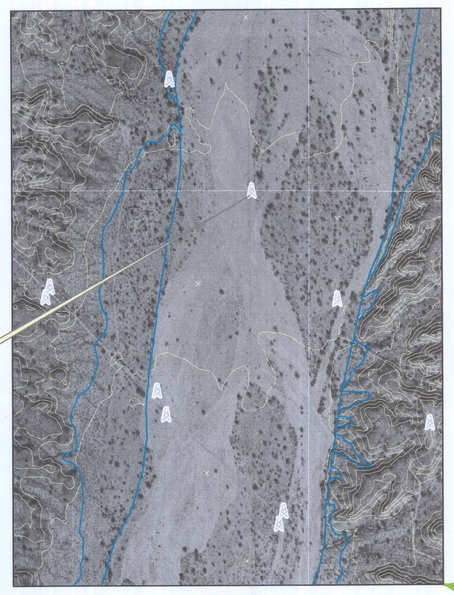
PROPOSED MASTERPLANNED COMMUNITES WITHIN THE FLOODPLAIN

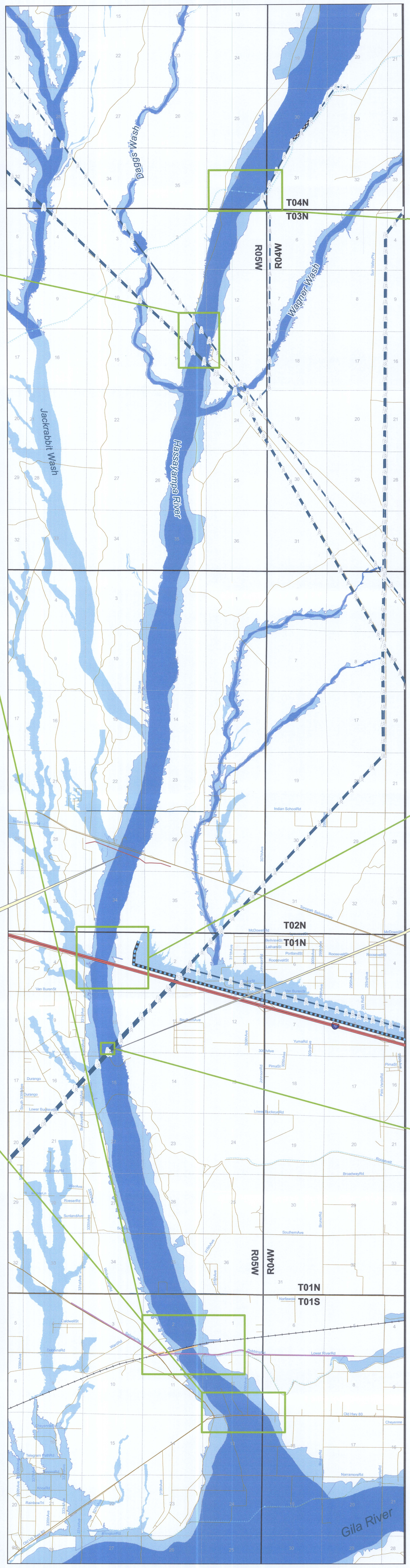
LOWER HASSAYAMPA WATERCOURSE MASTERPLAN

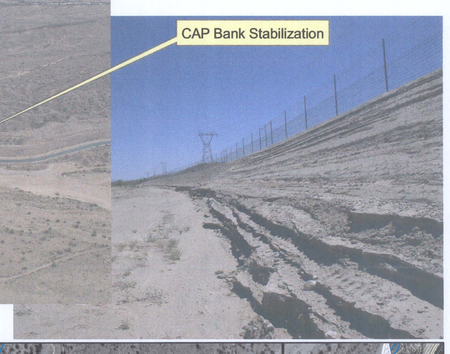

Powerline Towers
Union Pacific Railroad and Bridge
Kinder Morgan Petroleum Pipeline
WilTel Fiber Optic Line
Union Pacific Railroad
ATT Fiber Optic Line
Old US Hwy 80 and Salome Highway
Agricultural Levees
Arlington Canal Siphon
Gila River
Jackrabbit Wash
Hassayampa River
Wagner Wash
T04N
T03N
R05W
R04W
T02N
T01N
T01S
CAP Bank Stabilization
CAP Canal Siphon
Interstate 10 Bridges
Buckeye FRS No. 1 Emergency Spillway
Buckeye FRS No. 1 Principal Outlet
Interstate 10
Buckeye FRS No. 1
Powerline Towers
Old US Hwy 80 Bridge
Bank Position Dec. 2003
75 ft
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
Lower Hassayampa Watercourse Master Plan
Existing Facilities Exhibit
Streets
FEMA Flood Zones
Zone
A
AE
Floodway
Transmission line towers
Existing Facilities Alignments
Petroleum pipeline
Palo Verde NGS Waterline
Buckeye FRS No. 1
Interstate 10
Bank protection
Canal
Fiber optic line
Local powerline
Regional power transmission line
Railroad
Siphon
N
W
E
S
0 0.5 1 2
Miles
Base aerial photo date Dec. 2000
JE FULLER
HYDROLOGY & GEOMORPHOLOGY, INC.
8400 S. Kyrene Rd., Suite 201
Tempe, AZ 85284
(480) 752-2124
www.jefuller.com



Powerline Towers

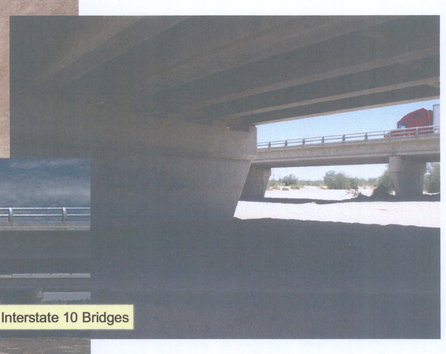




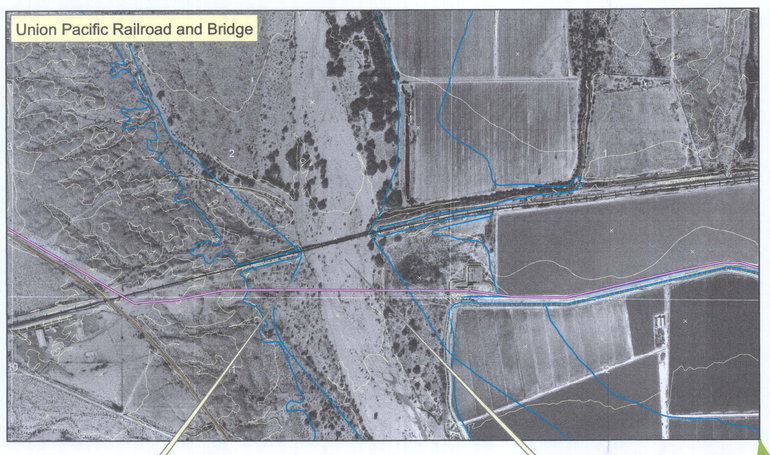


CAP Bank Stabilization

CAP Canal Siphon



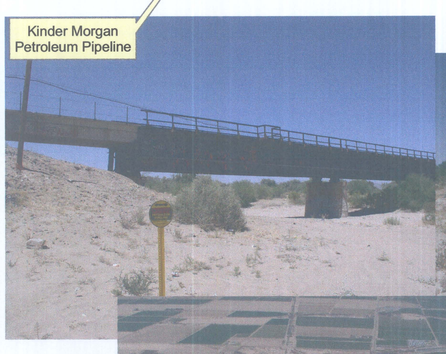
Interstate 10 Bridges

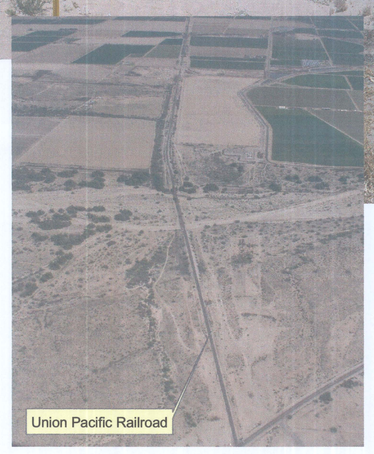


Union Pacific Railroad and Bridge

Kinder Morgan Petroleum Pipeline

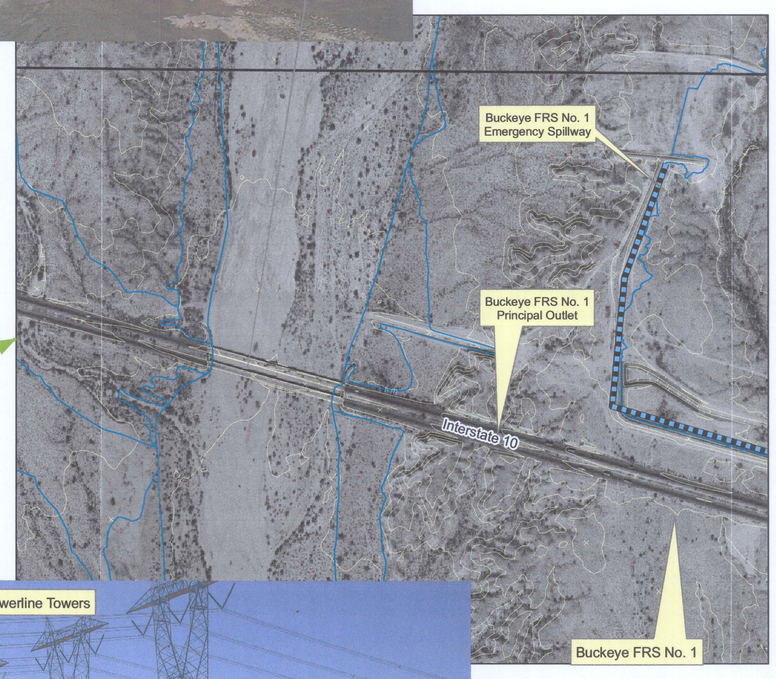
WilTel Fiber Optic Line

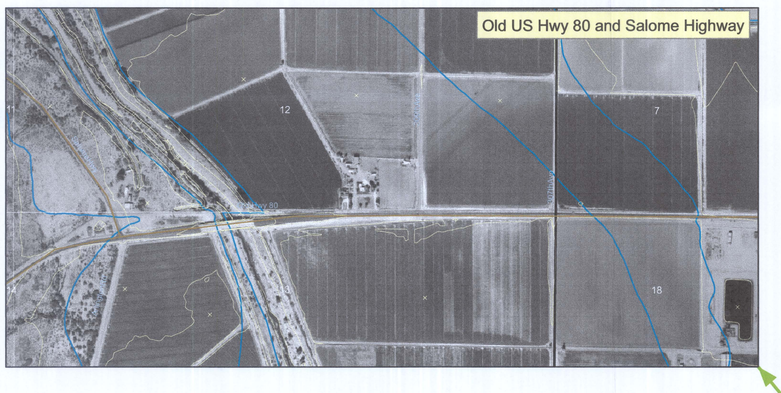




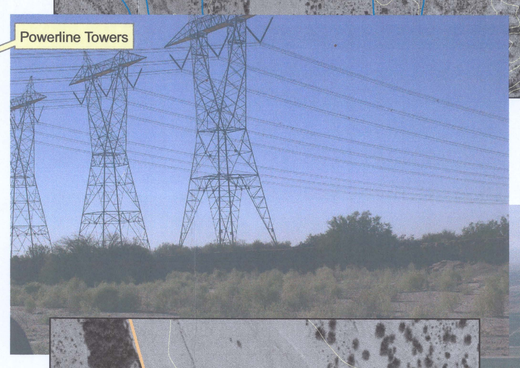
Union Pacific Railroad

ATT Fiber Optic Line

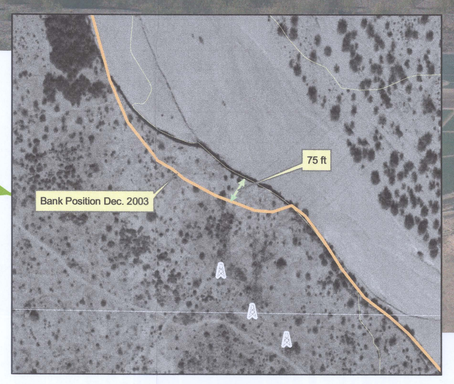




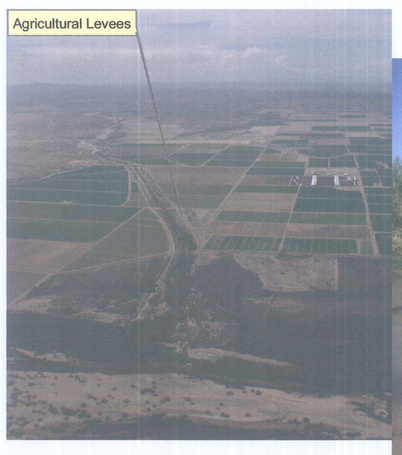
Old US Hwy 80 and Salome Highway



Powerline Towers



Old US Hwy 80 Bridge



Agricultural Levees

Arlington Canal Siphon

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

Lower Hassayampa Watercourse Master Plan

Existing Facilities Exhibit

Streets

FEMA Flood Zones

Zone

- A
- AE
- Floodway
- Transmission line towers

Existing Facilities Alignments

- Petroleum pipeline
- Palo Verde NGS Waterline
- Buckeye FRS No. 1
- Interstate 10
- Bank protection
- Canal
- Fiber optic line
- Local powerline
- Regional power transmission line
- Railroad
- Siphon

N W E S

0 0.5 1 2 Miles

Base aerial photo date Dec. 2000

JE FULLER HYDROLOGY & GEOMORPHOLOGY, INC.
8400 S. Kyrene Rd., Suite 201
Tempe, AZ 85284
(480) 752-2124
www.jefuller.com

Appendices

As-Builts

CAP siphon – see pdfs on Disk 1

CAP bank protection – see pdfs on Disk 1

ATT fiber optic lines – see pdfs on Disk 1

Interstate 10 bridge – see pdfs on Disk 1

Union Pacific railroad bridge – see pdfs on Disk 1

Kinder Morgan petroleum line - data never obtained – see planimetric location on PV NGS water line as-bulits, on Existing Facilities Exhibit and in shapefiles on Disk 1

JE Fuller/ Hydrology & Geomorphology, Inc.

Jon Fuller, PE, RG, PH, MS, CFM	**Mike Kellogg, M.S., G.I.T.**	**8400 S. Kyrene Rd., Suite 201**
Brian Iserman, P.E.	**Cory Helton, M.S.**	**Tempe, Arizona 85284**
John Wallace, P.E.	**Rob Lyons, E.I.T.**	**1-877-752-2124 (toll free)**
Ted Lehman, P.E.	**Brooks Dillard, E.I.T.**	**480-752-2124 (voice)**
W. Scott Ogden, P.E.	**Nick Headley, A.A.S.**	**480-839-2193 (fax)**
Jeffrey A. Despain, P.E.	**Annette Griffin, A.A.S.**	**www.jefuller.com**
Pat Deschamps, P.E., L.S.		

October 6, 2004

Don Quinn
Kinder Morgan Energy Partners
1100 Town & Country
Orange, CA 92868

RE: Lower Hassayampa Watercourse Master Plan -
Request for information regarding petroleum products pipeline parallel to Union Pacific Railroad across the Hassayampa River in Maricopa County, Arizona

Dear Mr. Quinn:

The Flood Control District of Maricopa County (District) is preparing a Watercourse Master Plan for the Lower Hassayampa River. JE Fuller/ Hydrology & Geomorphology, Inc. is the prime consultant to the District for this study. The study reach extends from the Central Arizona Project Canal crossing to the Gila River confluence. The study is intended to provide an in-depth understanding of the river and its floodplain, areas threatened by potential erosion and scour by the watercourse, and existing and proposed land uses and features. The project is currently in the data collection phase.

The District recognizes the importance of potential impacts to utilities as part of the watercourse planning process as well as the constraints those utilities have to viable potential alternatives. We have noted a Kinder Morgan pipeline marked in the field crossing the Hassayampa River parallel to the Union Pacific Railroad alignment in T1S, R5W, Sec. 2 in Maricopa County, Arizona.

In order to provide an adequate inventory of important infrastructure in the study area, we would like to request information regarding the specific planimetric and vertical location of the pipeline. If as-built or design plan data are available we would like to obtain copies if possible. Again, the purpose it to provide an inventory to the planning process in order to accurately identify potential impacts and constraints as the District's planning process proceeds.

Please call me or the District's project manager, John Hathaway (602-506-1501) if you have any questions regarding the Watercourse Master Plan or this request. Thank you in advance for your assistance with this matter.

Sincerely,
JE Fuller/Hydrology & Geomorphology, Inc.

Ted Lehman, PE
Assistant Project Manager

WillTel fiber optic line - data never obtained – see planimetric location on Existing Facilities Exhibit and in shapefiles on Disk 1

JE Fuller/ Hydrology & Geomorphology, Inc.

Jon Fuller, PE, RG, PH, MS, CFM
Brian Iserman, P.E.
John Wallace, P.E.
Ted Lehman, P.E.
W. Scott Ogden, P.E.
Jeffrey A. Despain, P.E.
Pat Deschamps, P.E., L.S.

Mike Kellogg, M.S., G.I.T.
Cory Helton, M.S.
Rob Lyons, E.I.T.
Brooks Dillard, E.I.T.
Nick Headley, A.A.S.
Annette Griffin, A.A.S.

8400 S. Kyrene Rd., Suite 201
Tempe, Arizona 85284
1-877-752-2124 (toll free)
480-752-2124 (voice)
480-839-2193 (fax)
www.jefuller.com

October 21, 2004

WilTel Communications
Attn: Linda Rodgers
11th Floor
100 S. Cincinnati Avenue
Tulsa, OK 74103

RE: Lower Hassayampa Watercourse Master Plan -
Request for information regarding fiber optic line parallel to Union Pacific Railroad across the Hassayampa River in Maricopa County, Arizona

Dear Ms. Rodgers:

The Flood Control District of Maricopa County (District) is preparing a Watercourse Master Plan for the Lower Hassayampa River. JE Fuller/ Hydrology & Geomorphology, Inc. is the prime consultant to the District for this study. The study reach extends from the Central Arizona Project Canal crossing to the Gila River confluence. The study is intended to provide an in-depth understanding of the river and its floodplain, areas threatened by potential erosion and scour by the watercourse, and existing and proposed land uses and features. The project is currently in the data collection phase and technical analysis phase.

The District recognizes the importance of potential impacts to utilities as part of the watercourse planning process as well as the constraints those utilities have to viable potential alternatives such as river channelization. We have noted a WilTel fiber optic line marked in the field crossing the Hassayampa River parallel to the Union Pacific Railroad alignment in T1S, R5W, Sec. 2 in Maricopa County, Arizona. A map showing the location is also attached.

In order to provide an adequate inventory of important infrastructure in the study area, we would like to request information regarding the specific planimetric and vertical location of the pipeline. If as-built or design plan data are available we would like to obtain copies if possible. Again, the purpose it to provide an inventory to the planning process in order to accurately identify potential impacts and constraints as the District's planning process proceeds.

Please call me or the District's project manager, John Hathaway (602-506-1501) if you have any questions regarding the Watercourse Master Plan or this request. Thank you in advance for your assistance with this matter.

Sincerely,
JE Fuller/Hydrology & Geomorphology, Inc.

Ted Lehman, PE
Assistant Project Manager

Network-Operations
One Technology Center
100 S. Cincinnati Avenue
Tulsa, Oklahoma 74103

November 17, 2004

JE Fuller/Hydrology & Geomorphology, Inc.
Attn: Ted Lehman
8400 S. Kyrene Rd., Suite 201
Tempe, AZ 85384

RE: Lower Hassayampa Watercourse: parallel to Union Pacific RR, crossing Hassyampa River
WilTel No: UR-4765

Dear Mr. Lehman:

WilTel Communications has received your letter dated October 29, 2004 in which you provide plans for the referenced event. The plans are currently being reviewed by WilTel's Outside Plant Drafting Department. I will contact you once a determination has been made regarding conflict between your event and WilTel's fiber optic facilities.

Please address all future correspondence concerning this project or other projects:

WilTel Communications, LLC
Relocations, Network Operations
Attention: Linda J. Rodgers
100 S. Cincinnati Avenue
Tulsa, Oklahoma 74103

Should you require further information, please contact me via telephone or by the E-mail address provided below.

Sincerely,

WilTel Communications, LLC

Linda J. Rodgers

Linda J. Rodgers
Operations - Relocations

WilTel Communications, LLC
Linda.Rodgers@wiltel.com

Direct Dial 918/547-9919
Facsimile 918/547-8018

Palo Verde NGS water supply line – see pdfs on Disk 1

Old US Highway 80– see pdfs on Disk 1

Various power transmission lines - data never obtained – see planimetric location on Existing Facilities Exhibit and in shapefiles on Disk 1

JE Fuller/ Hydrology & Geomorphology, Inc.

Jon Fuller, PE, RG, PH, MS, CFM	**Mike Kellogg, M.S., G.I.T.**	**8400 S. Kyrene Rd., Suite 201**
Brian Iserman, P.E.	**Cory Helton, M.S.**	**Tempe, Arizona 85284**
John Wallace, P.E.	**Rob Lyons, E.I.T.**	**1-877-752-2124 (toll free)**
Ted Lehman, P.E.	**Brooks Dillard, E.I.T.**	**480-752-2124 (voice)**
W. Scott Ogden, P.E.	**Nick Headley, A.A.S.**	**480-839-2193 (fax)**
Jeffrey A. Despain, P.E.	**Annette Griffin, A.A.S.**	**www.jefuller.com**
Pat Deschamps, P.E., L.S.		

December 6, 2005

Carla Cristelli
Western Area Power Authority
PO Box 6457
Phoenix, AZ 85005-6457
602-605-2630 fax

RE: Lower Hassayampa Watercourse Master Plan -
Request for as-built and ownership information for power transmission line across the Hassayampa River in Maricopa County, Arizona

Dear Ms. Cristelli:

The Flood Control District of Maricopa County (District) is preparing a Watercourse Master Plan for the Lower Hassayampa River. JE Fuller/ Hydrology & Geomorphology, Inc. is the prime consultant to the District for this study. The study reach extends from the Central Arizona Project Canal crossing to the Gila River confluence. The study is intended to provide an in-depth understanding of the river and its floodplain, areas threatened by potential erosion and scour by the watercourse, and existing and proposed land uses and features.

The District recognizes the importance of potential impacts to utilities as part of the watercourse planning process as well as the constraints those utilities have to viable potential alternatives. We have noted major power transmission lines in the field crossing the Hassayampa River at several locations in Maricopa County, Arizona as listed below:

T1N, R5W, Sec. 10, S1/2,

T1N, R5W, Sec. 15, NW1/4

T3N, R5W, Sec. 11, SE1/4

T3N, R5W, Sec. 13, W1/2

T3N, R5W, Sec. 14, E1/2

T4N, R4W, Sec. 31, W1/2

T4N, R5W, Sec. 36, SE1/4

In order to provide an adequate inventory of important infrastructure in the study area, we would like to request information regarding the specific planimetric and vertical location of the transmission line towers. If as-built or design plan data are available, especially for the footings/foundations, we would like to obtain copies if possible. Again, the purpose it to provide an inventory to the planning process in order to accurately identify potential impacts and constraints as the District's planning process proceeds.

Please call me or the District's project manager, John Hathaway (602-506-1501) if you have any questions regarding the Watercourse Master Plan or this request. Thank you in advance for your assistance with this matter.

Sincerely,
JE Fuller/Hydrology & Geomorphology, Inc.

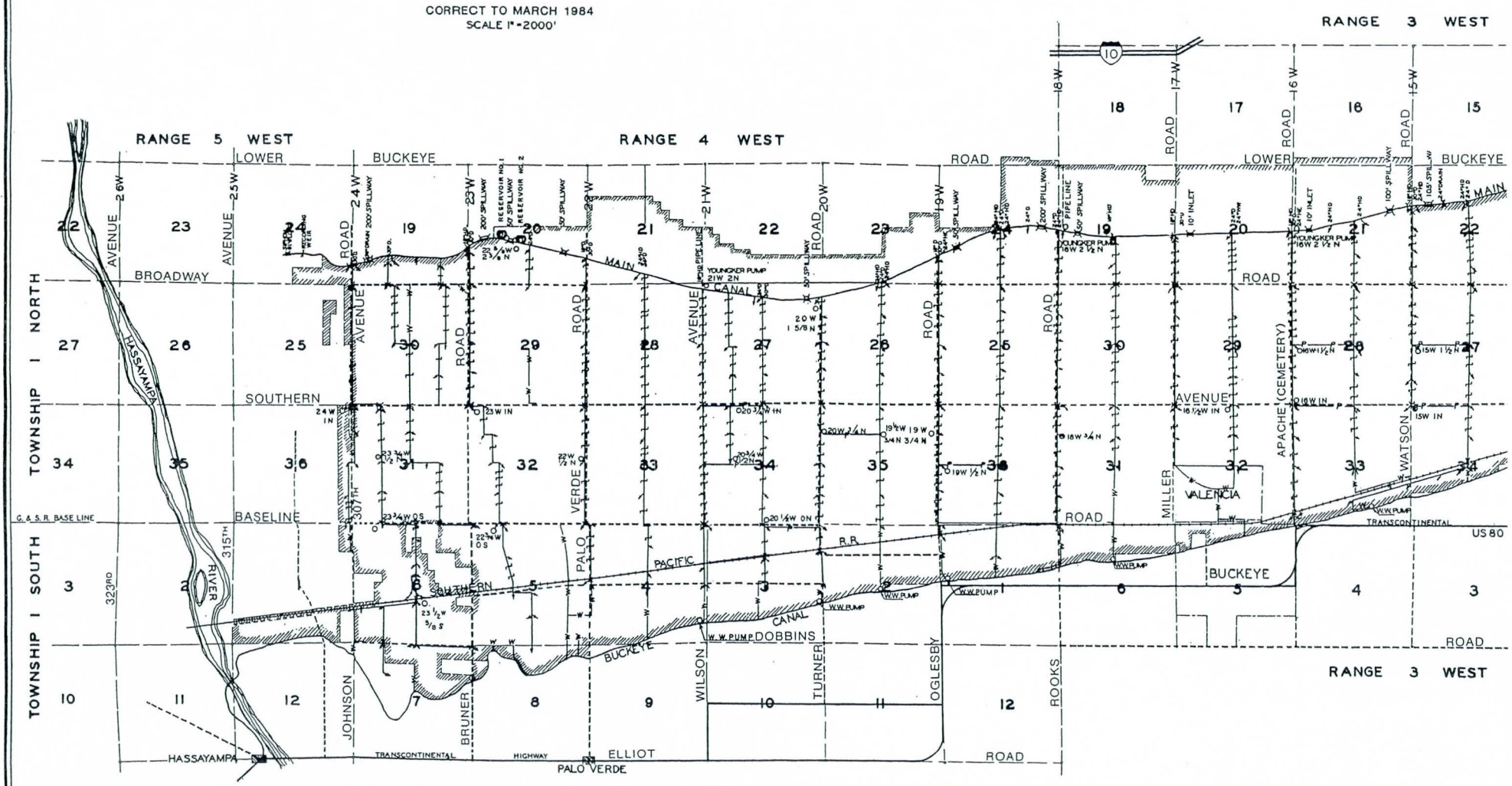
Ted Lehman, PE
Assistant Project Manager

MAP OF
ROOSEVELT IRRIGATION DISTRICT
MARICOPA COUNTY, ARIZONA

CORRECT TO MARCH 1984
SCALE 1" = 2000'

LEGEND

- DISTRICT BOUNDARY
- PAVED HIGHWAYS
- COUNTY ROADS
- POWER LINES
- TELEPHONE LINES
- MAIN CANAL
- LATERALS
- TOWN BOUNDARY
- WASTE DITCH
- PARTY DITCH



Flood Control Articles

Buckeye Valley News - 4-19-62

12

BEFORE and after aspects of Hassayampa River channel clearing work are graphically illustrated in photos above. One at left shows dense growth of tamarisk trees and brush that choked channel before work was undertaken; that at right shows cleared channel after work was completed.

Farmers, Soil Conservation District, Canal Firms Cooperate to Clear Hassayampa Channel

CLEARING OF the lower five miles of the channel of the Hassayampa River to prevent flood damage to adjacent farms recently was completed as a joint project of three valley farmers, local irrigation projects, and the Buckeye Soil Conservation District.

The project also assured protection of the Hassayampa bridge on what was U.S. 80 before the Buckeye-Gila Bend cutoff was built.

IRRIGATION companies participating in the work were the Buckeye Irrigation Company and the Arlington Canal Company. The farmers were Murray Johnson, who owns the property on the north side of the road just east of he Hassayampa, and Lyle King and Delmar Johns, who own the "old Buckeye ranch" on the south side.

Johnson, King, and Johns pooled their Agricultural Stabilization and Conservation payments to help pay the cost of the work, furnished equipment, and did the work. Soil Conservation Service engineers designed and laid out the channel-clearing job.

THE AREA between the railroad bridge and the bridge on old Highway 80 was done by the BIC and Johnson while that below the highway bridge was carried out by the Arlington Canal Co. and the three farmers.

Greatest danger from a future flood was to an inverted siphon that carries Buckeye water to the west side of the Hassayampa and to part of the main Buckeye canal as well as to a bit of the Arlington canal.

The channelization, which is 200 feet wide, extends above the siphon, about three-quarters of a mile north of the highway bridge, to the Gila River, about four miles below the bridge.

In recent years there have been no big floods down the Hassayampt to keep its channel scoured out and reasonably clear. Instead there have been a number of minor floods that washed sand into what little channel there was leaving more than a foot of clearance unde rthe bridge.

IT WAS FEARED that, in any big freshet, driftwood would pile up against the bridge and the water would spread all over the countryside.

FLOOD-CONTROL SURVEYS

Gazette 2-26-62

Planning Begins In Buckeye Area

Planning for a proposed $4.2 million flood control program for the Buckeye area will get under way soon, it was announced today by Mrs. Ruth A. O'Neil, a member of the Maricopa County Board of Supervisors.

The planning, which will consist of field surveys, will begin March 12 and will be completed in about a year, and will be carried out by a team of U.S. Soil Conservation specialists.

THEY WILL determine the location and type of flood control projects which will be constructed, Mrs. O'Neil said.

A flood control project is needed in the Buckeye area to confine the run-off from the White Tank Mountains, according to John Lowry, county flood control engineer.

In the past, floodwaters have inflicted heavy damage on agricultural lands, roads, homes and businesses in the Buckeye district.

If the project is approved by local agencies and Congress, it will be financed mostly by the federal government under the Small Watershed Act, Lowry stated.

FLOOD CONTROL structures, such as dams, would be financed by the federal government with the state and county sharing the rest of the cost.

Farmers and ranchers in the affected area would carry out the land treatment phases of the program, Lowry said. Involved in the project will be the Buckeye, Roosevelt, Agua Fria and Wickenburg soil conservation districts.

Study Of Hassayampa Dam Sought

A detailed study on the feasibility of constructing a multipurpose dam across the Hassayampa River in Box Canyon, eight miles northeast of Wickenburg, will be sought by the county supervisors.

The board is asking the Arizona congressional delegation to urge the U.S. Bureau of Reclamation to make the study and furnish a report on its findings.

The supervisors acted on the recommendation of the county flood control district chief engineer and county parks and recreation department officials.

SUCH A DAM, though located in Yavapai County, would store water for irrigation use in Maricopa County, Robert E. Cron Jr., flood control district chief engineer, said.

Cron pointed out that during the mid-forties the reclamation bureau prepared a study and feasibility report on constructing a dam in Box Canyon.

The report's conclusion at that time was that the dam was not economically feasible because income from irrigated land would not be enough to repay the costs.

If the project were restudied, it is believed the results would be far different today, said Cron, who inspected the site in May while examning the flood control problems at Wickenburg.

"The Hassayampa River does not produce appreciable flood damage in Wickenburg and without further detailed investigation, I would be unable to state that as of this date the dam would have flood control benefits," he contined. "However, repayment capacity of the irrigated land undoubtedly is much higher at this time than before.

"By far the greatest increase in justification for the project would come from a consideration of recreational benefits in the economic study.

"I BELIEVE that the policy of the federal government with respect to recreational benefits has changed materially during the past 15 years. Data obtained from the Arizona Game and Fish Departments provides an indication of that fact.

"Based upon this information, it appears recreational benefits of at least $400 an acre of water surface per year would accrue from a lake at the site in question.

Susan B. Anthony, pioneer leader for women's rights, was the second of eight children.

Phoenix Gazette
July 7, 1960

BUCKEYE VALLEY NEWS
THURSDAY, SEPT. 29, 1960 NO. 39

Hassayampa Flood Survey Now Starting

Part of Quarter-Million-Dollar County Plan

By Don Marshall

A survey of flood control needs in the Hassayampa Basin from Box Canyon damsite near Wickenburg to Gillespie Dam is now beginning.

The survey is part of a $250,000 study to be made of flood control needs in Maricopa County.

Col. Robert E. Cron, chief engineer and manager of the Maricopa County Flood Control District, told a Buckeye Chamber of Commerce meeting Wednesday of district plans to complete a comprehensive survey for the entire county by 1963.

Of interest to Buckeye residents was a plan, which has been approved for construction by congressional public works committees, for the "Salt River Floodway." The floodway, beginning the other side of Tempe and running to the Gillespie Dam, would enable water to flow through that area at a rate of about 80,000 acre-feet a second without causing damage to the structures in the area.

Peak estimated flood level is in the neighborhood of 160,000 acre-feet per second, but the surplus would be controlled by a proposed dam on the Salt River just below the conflux with the Verde. The floodway project includes levees for low-lying areas near Tempe and in South Phoenix, but construction will not begin until the fall of 1962.

Another part of the project would be clearing a swath 2,000 feet wide through the underbrush along the path of the Gila River as it passes near Buckeye.

Still another project under study is a Western watercourse around Phoenix to divert water from Cave Creek, Skunk Creek and New River into the Agua Fria River bottom. Possible floodwaters from those areas would join the Salt River Floodway South of Avondale and flow along the Gila River path to Gillespie Dam.

A problem which will have to be studied is what to do with all the possible floodwaters which will come along the floodway as well as down the Hassayampa Basin and join above Gillespie Dam posing a threat to residents of Gila Bend.

Flood Control Planning Starts Here Next Week

Details of the proposed $4,200,000 flood control program for the Buckeye area were explained to members of the Buckeye Chamber of Commerce at its luncheon meeting yesterday (Wednesday) by county officials.

In the county group attending the luncheon were Mrs. James T. O'Neil, chairman of the Maricopa County Board of Supervisors; Col. (ret.) John C. Lowry, county flood control engineer; Sam Lanford, county engineer, and Dave Davenport foreman of the county highway department's district 2.

Othel Narramore of Palo Verde and Charles Davis of Buckeye, this area's representatives on the county's flood control advisory board, attended the luncheon meeting and conferred with the county officials after the meeting closed.

Colonel Lowry said he intends to get together with Narramore and Davis again within the next few weeks.

The project, he explained, envisions a flood water retention dam some 20 feet high and 14½ miles long. In the vicinity of Buckeye it would be 4½ miles north of Highway 80 and about a mile north of the route of the proposed Brenda cutoff.

FIELD WORK on the program which will be carried out in the Buckeye watershed, is expected to begin by March 12.

The planning work, which is expected to be completed within a year, will be conducted by specalists from the U. S. Soil Conservation Service.

THE SURVEY team will be composed of an engineer, geologist, hydrologist, and an economist.

A flood control project is needed in the Buckeye area to confine the run-off from the White Tank Mountains according to Colonel Lowry.

IN THE PAST, floodwaters have inflicted heavy damage on agricultural lands, roads, and homes and businesses in the Buckeye area, he pointed out.

"The watershed specialists will be responsible for selecting sites for retarding basins, planning of stream channel improvements and preparing the over-all work plan to control floods in the area," Colonel Lowry said.

THE PROJECT, if approved by local agencies and Congress, will be financed largely by the federal government under the Small Watersheds Act. All flood control structures such as dams would be built with federal funds, with the state and county sharing other costs.

Field Study Ready To Start On Buckeye Flood Control

Supervisors Rescind Public Notice Policy

Arizona Republic 2-27-62

Should a governmental agency inform the public of the location of flood-prone lands and of lands on which flood control projects may be built?

The answer to that question could cost Maricopa County Supervisors and the taxpayers $2.6 million.

Yesterday the board of supervisors rescinded a resolution it adopted last June 12 which declared:

The supervisors "feel it is in the best interest of the inhabitants of the county and deem it their legal obligation and duty as directors of the flood control district that public notice be given of all contemplated and proposed flood control areas within the district . . ."

BOARD Chairman Mrs. Ruth A. O'Neil said the resolution was rescinded because the issue is now pending in Superior Court.

These are the developments which brought the legal question before the courts:

On May 23, 1960, the supervisors initiated a study of the feasibility of constructing a flood control reservoir on a 4,500-acre tract 7 miles southeast of Lake Pleasant.

The study was based on a preliminary report by the U.S. Corps of Army Engineers which indicated the land was prone to flooding and would be a logical site of a flood control reservoir, Mrs. O'Neil said.

At the same time the supervisors passed a resoultion giving public notice that the study was being made.

Last February two property owners in the proposed flood control area protested the supervisors' resolution charging it had blocked sale of the land under study.

THEIR argument was that no one would buy land that in the near future might be the bottom of a lake, Mrs. O'Neil said.

To appease the protesting owners, the supervisors in June 1961 rescinded the earlier resolution applying to this specific project. But at that time, the supervisors adopted another resolution stating their belief that they have a legal obligation to inform the public of such actions in general. That was the resolution they rescinded yesterday.

At the same time they ordered a lawsuit filed so the courts could determine their exact legal obligation.

THE PROPERTY owners, in the meantime, asked Judge Ross Jones to permit them to enter the lawsuit and ask $2.6 million damages from the supervisors, both as county officials and as individuals, Attorney Donald D. Meyers said.

Meyers, who represents the supervisors in the suit, said the property owners claim the county destroyed the value of their land by passing the original resolution.

Jones has the property owners' request for damages from the supervisors under advisement.

Meyers estimated the Superior Court would rule in the case within the next month. However, it is expected that the case will then be submitted to the state Supreme Court for final decision.

One Year Given For Survey

FIELD WORK on a proposed $4.2 million flood control program in the Buckeye watershed of west central Maricopa County will begin March 12, Supervisor Ruth A. O'Neil said yesterday.

The planning work, which is expected to be completed in about one year, will be conducted by specialists from the U.S. Soil Conservation Service.

The survey team will be composed of an engineer, geologist, hydrologist and an economist. They will determine the location and type of flood control projects which should be constructed.

The Buckeye project is needed to confine the runoff floodwaters from the White Tank Mountains, John Lowry, county flood control engineer, declared.

"The watershed specialists will be responsible for selecting sites for floodwater retarding basins, planning of stream channel improvements and preparing the over-all work plan to control floods in the area," he asserted.

In the past, floodwaters from the Buckeye watershed have inflicted heavy damages to agricultural lands, roads, homes and businesses in the area, he said.

THE PROJECT, if approved by local agencies and by Congress, will be financed largely by the federal government under the Small Watershed Act, Lowry explained.

All flood control structures, such as dams, would be financed by the federal government with the state and county sharing the rest of the cost, he said.

Land treatment phases of the program would be conducted by the farmers and ranchers in the watershed area, Lowry explained.

The project was initiated by the county flood control advisory board at the request of the Buckeye, Roosevelt, Agua Fria and Wickenburg soil conservation districts, Mrs. O'Neil said.

The project is endorsed by the town of Buckeye, Arlington Canal Co., Roosevelt and Buckeye irrigation districts.

Lowry said he will meet next week with Odel Narramore, county flood control board member from Buckeye, Buckeye officials, and representatives from the conservation and irrigation districts involved in the project to work out details of the field study.

Buckeye Council Race Draws 12

BUCKEYE — Twelve persons have filed petitions to run for the seven-man Buckeye Town Council in the April 15 election.

Incumbents running for re-election are Mayor John Beloat, Vice Mayor Earl Herring, Gary Strander, Gentry Arnold and Joe Luquez.

Others filing include James C. Eikner, Carmen C. Yanez, Harlan Rains, Fred R. Rasell, Gil

nel improvements and preparing the over-all work plan to control floods in the area," he asserted.

In the past, floodwaters from the Buckeye watershed have inflicted heavy damages to agricul- lands, roads, homes and s in the area, he said.

THE PROJECT, if approved by local agencies and by Congress, will be financed largely by the federal government under the Small Watershed Act, Lowry explained.

All flood control structures, such as dams, would be financed by the federal government with the state and county sharing the rest of the cost, he said.

Land treatment phases of the program would be conducted by the farmers and ranchers in the watershed area, Lowry explained.

The project was initiated by the county flood control advisory board at the request of the Buckeye, Roosevelt, Agua Fria and Wickenburg soil conservation districts, Mrs. O'Neil said.

The project is endorsed by the town of Buckeye, Arlington Canal Co., Roosevelt and Buckeye irrigation districts.

wry said he will meet next th Odel Narramore, coun- d control board member from Buckeye, Buckeye officials, and representatives from the conservation and irrigation districts involved in the project to work out details of the field study.

Buckeye Council Race Draws 12

BUCKEYE — Twelve persons have filed petitions to run for the seven-man Buckeye Town Council in the April 15 election.

Incumbents running for re-election are Mayor John Beloat, Vice Mayor Earl Herring, Gary Strander, Gentry Arnold and Joe Luquez.

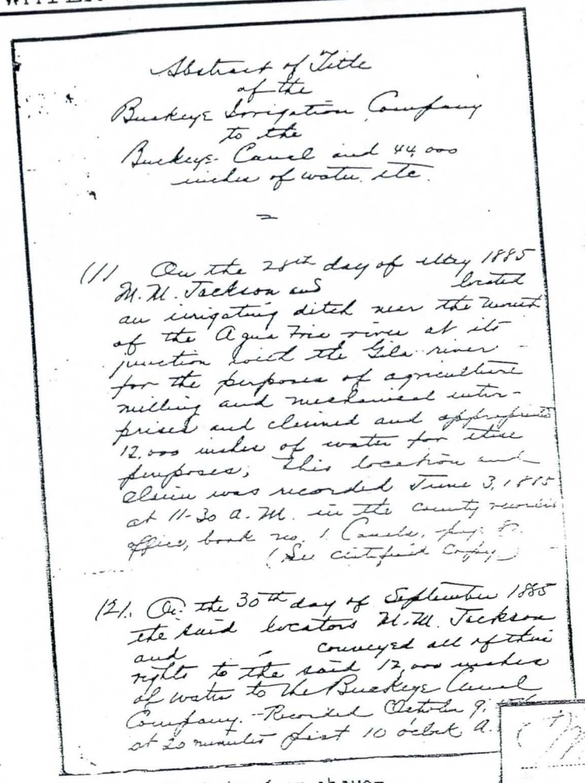
Others filing include James C. Eikner, Carmen C. Yanez, Harlan Rains, Fred B. Paselk, Gilbert L. Calvert, Charles W. Godfrey and Morris S. Saba.

---

tersheds Act. structures such built with fede state and cou costs.

Miscellaneous Historical Documents

WATER IN THE BUCKEYE VALLEY (1885)



Abstract of Title
of the
Buckeye Irrigation Company
to the
Buckeye Canal and 44,000
inches of water, etc.

(1) On the 28th day of May 1885 M. M. Jackson located an irrigating ditch near the mouth of the Agua Fria river at its junction with the Gila river for the purpose of agriculture milling and mechanical uses - filed and claimed and appropriated 12,000 inches of water for these purposes. This location and claim was recorded June 3, 1885 at 11:30 a.m. in the county recorder's office, book no. 1 Canals, page 80. (See certified copy)

(2). On the 30th day of September 1885 the said locators M. M. Jackson and conveyed all of their rights to the said 12,000 inches of water to the Buckeye Canal Company. Recorded October 9, at 10 minutes first 10 o'clock a.

M. M. JACKSON

LOCATOR and FOUNDER

President

Clockwise from above-

Page 1 of "Abstract of Title" to the Buckeye Canal

Malie Monroe Jackson

Jackson's signature on a share of stock in the Buckeye Canal Company

1885 - May 28 - "M.M. Jackson and others located an irrigating ditch near the mouth of the Agua Fria River at its junction with the Gila River."
-- June 3 - The location and claim was recorded in the County Recorder's office. Book No. 1, Canals, page 80.
-- September 22 - Mose E. Clanton and others organized the Buckeye Canal Company.
-- September 25 - Buckeye Canal Company Articles of Organization filed in the office of the Territorial Secretary.
-- September 30 - Malie Monroe Jackson and locators conveyed all their rights to the 12,000 inches of water to the Buckeye Canal Company (Recorded: October 9, 1886).

WATER IN THE BUCKEYE VALLEY (1886-1893)

1886 - July 24 - B.C.C. claimed 38,000 additional inches of water. (Total: 50,000 inches) Recorded October 8,1886. Book No. 1, pages 80,94.

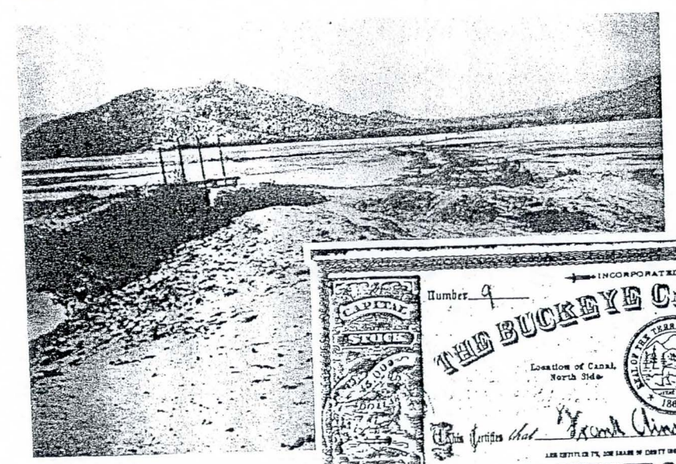
1888 - October 13 - William O. O'Neill and associates organized the Buckeye Irrigation Company. (Certified by the Territorial Secretary)
-- October 28 - B.C.C. sold to William O'Neill, excepting 6,000 inches of water representing 75 outstanding shares of stock.
-- October 31 - William O. O'Neill conveyed all his interest (et.al) with the Buckeye Canal Company to the Buckeye Irrigation Company.
-- December 10 - Buckeye Irrigation Co. executed a mortgage to the Union Trust Company of New York.

1889 - January 31 - A supplemental mortgage (was obtained, same company) for a total of $301,000.00.

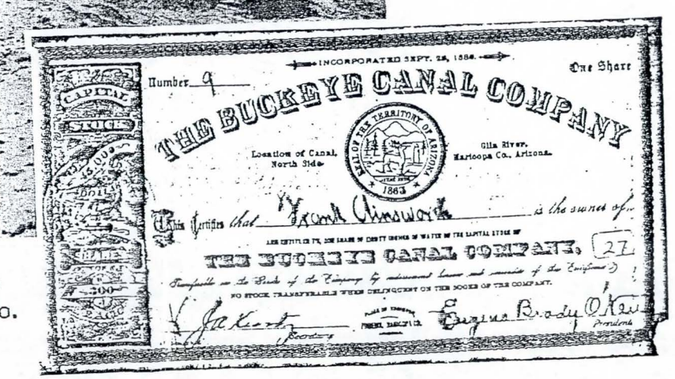
1890 - February 1 - Walnut Grove Dam on the Hassayampa River broke and released a torrent of water stored behind it, and many lives were lost.

1891 - February - After a winter of unprecedented snowfall on the Salt River water shed, there came several days of warm rain on the snow, and by February 21st a great flood developed! In Phoenix the water reached as far north as Jefferson and Fifth Streets, and it was flooding the Buckeye Valley. The water was coming through the Toothaker Slough (later the Ralph Cooper Ranch); it broke the South Extension Canal and followed the Alkali Swail clear across the Valley. Liberty and the ranches south and west from there were on an island; there was a running river on both sides of them. The water flooded all the country around where the Buckeye disposal plant now stands and covered almost as far north as the present Monroe Street.

1893 - March 11 - Wm. O'Neill and Wm. Barnes bought two sections of land in the lower end of Buckeye Valley.



Looking south across the Gila at the washed out dam, c. 1891.



INCORPORATED SEPT. 28, 1886

One Share

Number 9

THE BUCKEYE CANAL COMPANY

Location of Canal, North Side

Gila River, Maricopa Co. Arizona.

Eugene Brady O'Neill

President

Stock shares sold by the Buckeye Canal Co.

WATER IN THE BUCKEYE VALLEY (1896-1904)

1896 - July - It started to rain in July and rained every few days for two months. The dam and canal broke faster than the company could fix it. Many farmers moved away, but the stockmen were pleased because the desert was green as a wheat field, with the cattle up to their bellies in desert grass.

1898 - July 1 - Wm. O'Neill, the owner of the B.C.C., was killed in the Spanish American war at San Juan Hill, Cuba. His widow, Pauline O'Neill, became the owner of his Buckeye property.

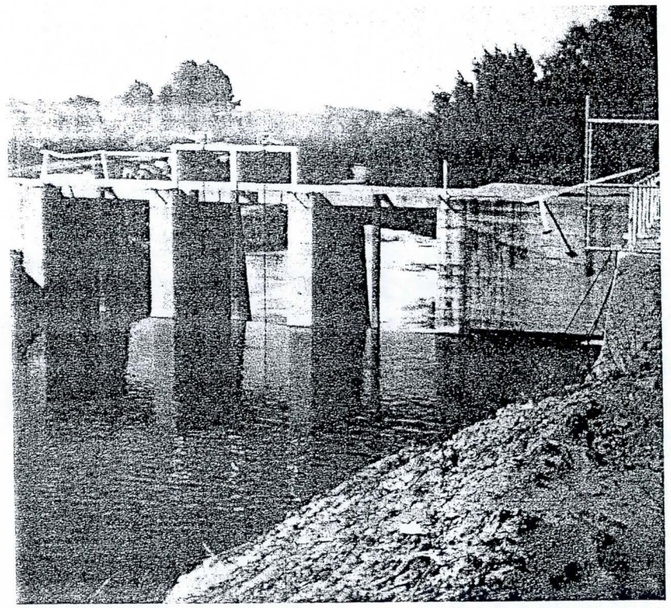
1899 - Arlington Canal. The intake, or head, of this canal was south of the town of Buckeye (on the Gila River). It was built by the farmers and homesteaders. It irrigated all the land west of the Hassayampa River that was formerly irrigated by B.C.C. (1886) except what is known as the Tovera Ranch (1899 - George W. Christean Ranch).

1900 - June 4 - W.W. Messinger, J. Ernest Walker, and J. Curtiss Wasson organized and incorporated the Buckeye Canal and Land Company.
-- June 5 - The Buckeye Canal and Land Co. bought the Buckeye Canal Co. and 3,000 acres of land under it for $30,000.00.
-- September 27 - A sheriff's deed against the Buckeye Canal Co. for the sum of $11,292.23 was assigned to the Buckeye Canal and Land Company.

1902 - March - The Buckeye Canal and Land Company sold to James R. Thorpe of Denver, Colorado. The office was moved from Phoenix to Buckeye. Wessex Co. of Denver constructed a telephone line through the Valley; 40 miles of line and 75 telephones.

1903 - White Tanks Canal Co. organized. Wessex Co. sold telephone line to Buckeye Canal and Land Co.

1904 - Telephone line extended through Arlington to Gila Bend, also, to Billy Moore's in Coldwater.
-- August 1 - The Gila, Salt and Agua Fria Rivers flooded at the same time. The break in the dam was 660 feet long and 2 to 20 feet deep. High water continued for six weeks and the dam and canal would be



Buckeye Canal Heading located approximately 1/2 mile east of Bullard Rd. (147th Avenue) at the Gila River.

WATER IN THE BUCKEYE VALLEY (1905-1907)

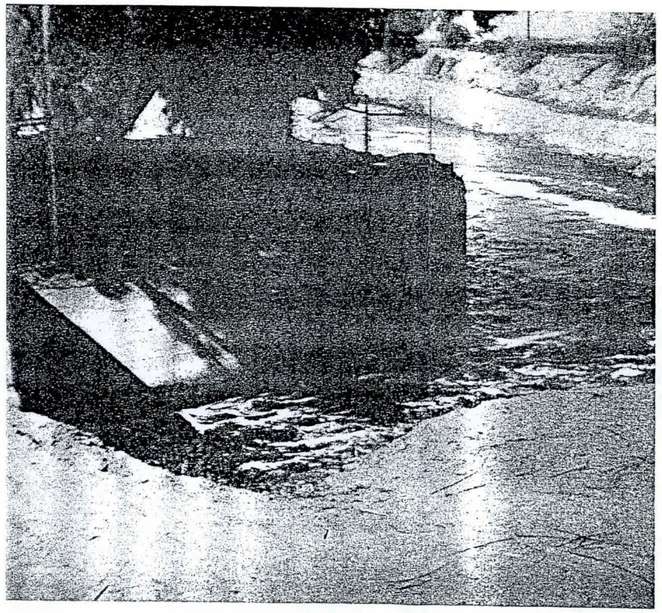
washed out almost as soon as repaired.

1905 - New Year's Eve - (Dec. 31, 1904) It started to rain. In a few days the Gila was in flood and remained in that condition until the middle of May. The dam went out Jan. 10 and was not repaired until June. The Hassayampa River flooded and washed out the new overhead flume. Five farmers had sued the Canal Co. after the 1904 flood, alleging neglect in repairing the dam; many others threatened lawsuits.
-- April 7 - The creditors of the Canal Co. asked the Court to appoint a receiver. Mr. Frank P. Trott, a civil engineer of Phoenix, also the Court Water Commissioner for the Salt River Valley System, was appointed.

1905 - Combined water of the Gila and Colorado Rivers all but flooded Yuma into oblivion. The bank of the Colorado was broken and the river poured into the Imperial Valley, creating California's Salton Sea.
-- June 6 - Trial in Justice Court of the damage suit against the Canal Co. Decision in favor of plaintiff; verdict appealed. Test case: Clanton in Buckeye Canal and Land Co. held in District Court.
-- Nov. 27 - Verdict: in favor of defendant.

1906 - More floods

1907 - Buckeye Valley farmers met and decided they would try to buy the Canal Co. from Mr. Thorpe. A committee was appointed, and an agreement was drawn up and presented to a mass meeting at the Buckeye School House March 2, 1907. The articles were voted on by an acreage vote - 2/3 of the acreage favored ratifying the agreement. Buckeye Irrigation Company was chosen as the name and the Articles of Incorporation were adopted. A price of $92,900.00 for the Canal Co. was agreed upon, and the new company assumed a bonded indebtedness of $85,000.00.
-- March 5 - Officers for the Company elected . By vote, the South Extension Canal was taken into the Company and 5,089 acres were signed



WATER IN THE BUCKEYE VALLEY (1907-1917)

up for stock in the Company. Each acre of irrigatable land would represent one share of stock at a par value of $10.00 per share. Only owners of the land could own stock.
-- April - Anyone holding stock in the White Tank Canal could transfer to the Buckeye Company and receive an equal amount of Buckeye stock. (B.I.C. took over White Tank Canal)

1911 - March 7 - BIC Office. Lot 5, block 9 was bought for $100.00. Lot 7, block 9 was given to the Company by T.N. Clanton.

1917 - Nov. 14 - Watersuit later called the Benson - Allison Decree: to determine the rights to the water in the Gila, Salt and Agua Fria Rivers -- of each individual piece of land (Buckeye Valley) and the date of such right.
-- Lower lands becoming water logged.

In the Superior Court of Maricopa County,
State of Arizona.

NELS BENSON,
Plaintiff.
vs.
JOHN ALLISON and Four Hundred Fifty-four Others,
Defendants.

DECREE.

The above entitled cause having come on regularly to be heard upon the complaint of the plaintiff, and upon the pleas and answers of the various defendants herein, and upon the default of certain defendants in appearing and answering; the plaintiff appearing herein by Messrs. Kibbey, Bennett & Curtis, his attorneys, and the various defendants by Messrs. Chalmers, Kent & Stahl, J. L. Gust, Charles B. Ward, James E. Nelson, J. H. Langston, A. D. Leyhe and H. B. Wilkinson, their attorneys, and the court having heard and received the evidence, both oral and documentary, of the parties hereto, and having considered the same and now being fully advised in the premises;

NOW, THEREFORE,

IT IS BY THE COURT ORDERED, ADJUDGED and DECREED, that the various parties hereto, and their successors in interest be, and they hereby are, entitled to divert or to have diverted from the water flowing in the Salt, Agua Fria and Gila Rivers to and upon the land owned or possessed by them as their interest may appear, for beneficial use upon such land, such amount of water as may be necessary and proper for the economical and successful irrigation and cultivation of such land, in area and extent, and in duration, and according to the relative rights in priority of appropriation, and in the amount, as shown, set forth and determined in the accompanying tables, which are incorporated in and made a part of this decree and to which reference is hereby made for exact and particular description thereof:

IT IS FURTHER ORDERED and DECREED that for the purpose of this case forty-eight (48) miner's inches constant flow to the quarter section of land measured and delivered at the land is the standard of the duty of water, subject, however, to an increase or decrease of such standard as conditions may hereafter require. An allowance for loss by seepage and evaporation will be made equal to one and one-half (1½) per cent of the amount of water diverted for each mile of the length of the diversion canal from its head to the distributing lateral supplying the land.

The costs of this action shall be apportioned among the various parties hereto, in the proportion of the number of acres entitled to water.

The court retains jurisdiction of this cause and of the issues embraced herein and, upon good cause shown, may from time to time modify, enlarge, or abrogate any portion of this decree or of the tables attached hereto as a part hereof, by order or supplemental decree to be entered at the foot hereof.

This court also retains jurisdiction of this cause for the purpose of appointing a Water Commission for the purpose of enforcing this decree, whose duties shall be prescribed by the court, and for such other purposes as the court may from time to time determine.

This decree shall be in full force and effect from and after the 14th day of November, 1917.

Done in open court this 14th day of November, 1917.

R. C. STANFORD,
Judge.

1883

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
S.W.¼	31	1N	2E	120	N. P. McCallom

1885

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
N.E.¼	31	1N	1E	160	J. L. Gant
W.½ N.W.¼	32	1N	1E	73	J. L. Gant

1887

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
W.½ N.E.¼	4	1S	2W	80	L. O. Brown
E.½ N.E.¼	4	1S	2W	80	H. A. Hammels
W.½ N.W.¼	3	1S	2W	80	H. A. Hammels
N.W.¼	5	1S	2W	160	N. A. Sanders
N.E.¼ S.W.¼	5	1S	2W	40	G. W. Royce
S.W.¼ (All South of Buckeye Canal)	2	1S	4W	142	Jas. S. Day
N.W.¼	11	1S	4W	160	Jas. S. Day
N.E.¼	11	1S	4W	160	Geo. Day

1888

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
W.½ S.W.¼	1	1S	3W	80	S. R. Conley
S.½ S.W.¼	2	1S	3W	80	C. B. Carlton
N.E.¼	3	1S	3W	160	Fenton Jones Benjamin Jones Mary V. Jones Don Paul Jones
S.W.¼	4	1S	3W	160	H. Towner
N½ S.W.¼; S.E.¼ S.W.¼	5	1S	3W	120	Buckeye Twnsite
S.W.¼ S.W.¼	5	1S	3W	40	Geo. B. Brown
N.E.¼ S.E.¼; N.½ N.W.¼ S.E.¼; S.E.¼ N.W.¼ S.E.¼	5	1S	3W	70	Chas. W. Clanton
S.E.¼ N.W.¼; S.W.¼ N.E.¼	5	1S	3W	80	T. W. Clanton
S.E.¼ N.E.¼	5	1S	3W	40	Kate McClarty
N.E.¼ N.E.¼ (All South of Buckeye Canal)	5	1S	3W	36	E. B. and Nancy Stacy
S.½ S.E.¼	5	1S	3W	80	Walter Stone
W.½ N.W.¼; N.E.¼ N.W.¼; N.W.¼ N.E.¼ (All under Buckeye Canal)	5	1S	3W	95	L. H. Thayer
W.½ N.W.¼	8	1S	3W	80	Nels Benson
S.½ S.E.¼	2	1S	4W	80	E. B. Collins
N.½ S.E.¼ (All South of Buckeye Canal)	2	1S	4W	75	E. A. Lyman
W.½ S.W.¼	7	1S	4W	100	Nels Benson
E.½ S.W.¼	11	1S	4W	80	A. L. Nelson
W.½ S.W.¼	11	1S	4W	80	W. A. Wood
N.W.¼ N.W.¼	18	1S	4W	50	Nels Benson
N.½ S.W.¼; N.W.¼ S.E.¼ (All East of Hassayampa River)	19	1S	4W	110	Jas. S. Day
S.½ S.½ (All out of Gila River)	19	1S	4W	15	M. Ryan
N.W.¼ N.E.¼ (All out of Gila River)	20	1S	4W	25	E. L. Narramore
N.½; W.½ S.E.¼; E.½ S.W.¼	12	1S	5W	480	Flower Pot Cattle Co.
E.½ S.E.¼	12	1S	5W	80	W. A. Evans

1888

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
N.E.¼ N.E.¼	36	1N	1W	40	James Cilson
E.½ N.W.¼	36	1N	1W	75	B. Ramirez
S.½ S.W.¼; S.W.¼ S.E.¼ (All South of Canal)	29	1N	2W	80	J. R. Norton
S.E.¼ (All South Canal)	30	1N	2W	20	Jno. Allison
N.½	31	1N	2W	160	Fred Walls
N.W.¼; W.½ N.E.¼	32	1N	2W	240	J. R. Norton
S.E.¼	33	1N	2W	160	H. A. Hammels
E.½ S.W.¼	33	1N	2W	80	G. E. Harer
N.W.¼ S.W.¼	33	1N	2W	40	S. D. and Mary L. Cooper
E.½ S.W.¼ S.W.¼	33	1N	2W	20	A. J. Walters, Jr.
W.½ S.W.¼ S.W.¼	33	1N	2W	20	F. W. Porter
N.W.¼; W.½ S.E.¼	34	1N	2W	240	J. H. Knight
S.E.¼ (All South of Buckeye Canal)	34	1N	3W	150	S. H. Rorabaugh
N.½ S.W.¼; S.E.¼ N.W.¼; S.W.¼ N.E.¼ (All South of Buckeye Canal)	35	1N	3W	150	A. R. Pawson
N.W.¼ N.E.¼; W.½ N.E.¼ N.E.¼ (All under Buckeye Canal) and N.½ N.½ S.W.¼ N.E.¼	36	1N	3W	50	Thos. Levy
N.½ S.W.¼; N.W.¼ S.E.¼	4	1S	2W	120	Wessex Co.
E.½ N.E.¼	5	1S	2W	80	T. E. Sheppard
E.½ W.½ N.E.¼	5	1S	2W	40	J. Lafferty
W.½ W.½ N.E.¼	5	1S	2W	40	A. J. Walters
S.E.¼	5	1S	2W	160	John Bonner
S.W.¼ S.W.¼	5	1S	2W	40	W. R. Beloat
N.W.¼ S.W.¼	5	1S	2W	40	J. E. Clanton
S.½; S.½ N.½	6	1S	2W	240	W. R. Beloat
S.E.¼	1	1S	3W	160	W. R. Blackmer
E½ S.W.¼	1	1S	3W	80	W. D. Baxter

1889

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
N.E.¼ S.E.¼	31	1N	2W	40	N. A. Sanders
E.½ S.W.¼; N.W.¼ S.W.¼	32	1N	2W	120	N. A. Sanders
S.W.¼ S.E.¼	32	1N	2W	40	L. O. Brown
S.E.¼ S.E.¼	32	1N	2W	40	F. W. Porter
S.½ N.E.¼	33	1N	2W	80	A. J. Menard
S.W.¼ N.W.¼ (Below Buckeye Canal)	35	1N	3W	20	J. H. Tracy
N.W.¼ S.E.¼; S. 30 a. S.W.¼ N.E.¼; N.E.¼ N.W.¼ (All South of Canal) N.½ S.E.¼ N.W.¼	36	1N	3W	110	Carter Hazleton
S.E.¼ N.E.¼; E.½ N.E.¼ N.E.¼	36	1N	3W	60	Fred Walls
N.½ N.W.¼	7	1S	2W	40	Wm. McDonald
N. 50 a. N. E. ¼	7	1S	2W	50	M. M. Maxwell
S.½ S.E.¼	2	1S	3W	80	F. M. Hollenbeck
S.½ S.E.¼	3	1S	3W	80	R. H. Fields
N.½ N.E.¼ (All South of Buckeye Canal)	10	1S	3W	80	R. H. Fields
S.E.¼	9	1S	4W	160	F. G. Millage

1890

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
N.½ N.E.¼	33	1N	2W	80	Robt. McKnight
W.½ N.E.¼	4	1S	3W	80	H. F. Couch
N.½ N.W.¼	12	1S	3W	80	J. R. and J. N. Carter
N.½ N.E.¼	12	1S	3W	80	L. H. Slagle
N.½	16	1S	4W	320	W. C. Dawes

1891

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
S.½ N.E.¼ (All South of Buckeye Canal)	2	1S	4W	4	J. H. Harbison

1892

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
W.½ N.E.¼	36	1N	1W	75	J. Melendez
W.½ N.W.¼	36	1N	1W	70	J. M. Iberri
S.W.¼	34	1N	2W	160	H. A. Hammels
N.½ N.½ (60 a along N. side)	11	1S	3W	60	N. P. Conrey
S.W.¼ (All South of Buckeye Canal)	3	1S	4W	60	Conger and Reid
W.½ N.W.¼	10	1S	4W	80	R. H. Campbell
E½ N.W.¼	10	1S	4W	80	E. M. Conger
W.½; W.½ E.½	24	1S	5W	473	L. H. Mitchell
N.½ N.W.¼; N.W.¼ N.E.¼ (E.½)	25	1S	5W	70	L. H. Mitchell

1893

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
N[illegible] (All out of river)	31	1N	1E	80	E. K. Baker
N.½ S.½ N.W.¼	31	1N	1E	40	J. L. Gant
N.E.¼	1	1S	3W	160	W. R. Blackmer
E.½ N.W.¼ (N.½)	8	1S	3W	80	A. Shilling
S.½ N.E.¼; N.E.¼ N.E.¼; S.E.¼ N.W.¼ (All S. Buckeye Canal)	8	1S	4W	140	Jno. G. Roberts

1894

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
East 30 acres S.E.¼ S.E.¼ (All S. of Canal)	29	1N	2W	27	G. E. Warner
West 10 S.E.¼ S.E.¼	29	1N	2W	6	J. H. Tracy
N.E. [illegible]	32	1N	2W	40	A. F. Lafferty
N[illegible]	32	1N	2W	40	A. Fehlhemy
E.½ [illegible]	4	1S	2W	160	V. O. Shepard
S.½ [illegible]	4	1S	3W	80	J. N. Carter
S.½ N.W.¼ (All under Buckeye Canal)	6	1S	3W	70	J. M. Carter
S.½ N.E.¼ (All under Buckeye Canal)	6	1S	3W	72	B. A. Hadsell
S.E.¼	12	1S	4W	160	Phoenix Savings Bank & Trust Co.

1895

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
S½ N.W.¼	3	1S	3W	80	N. Peterson
S.W.¼ (N.½)	7	1S	3W	80	Minor Owens
S.½ N.E.¼; N.W.¼ S.E.¼; N.E.¼ S.W.¼; S.E.¼ N.W.¼ (All N. of River)	10	1S	3W	200	Mary Conley
S.½ N.½ (All S. Buckeye Canal)	1	1S	4W	60	Wessex Co.
E½ S.W.¼ (All S. Buckeye Canal)	7	1S	4W	61	H. W. Davis
S.W.¼	8	1S	4W	120	M. S. Bruner
N.E.¼	10	1S	4W	160	G. H. Drew
S.½ N.W.¼; S.W.¼	9	1S	4W	240	J. F. Goucher
N.W.¼	17	1S	4W	160	M. A. Hazen
E.½ N.W.¼	18	1S	4W	80	I. H. Parkman
E.½ S.W.¼ N.W.¼	18	1S	4W	22	O. Wedgeworth
W.½ S.W.¼ N.W.¼	18	1S	4W	22	C. T. Baker

1896

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
S.E.¼	27	1N	1W	160	L. E. Graham
N.W.¼	35	1N	1W	160	J. & J. R. Holmes
W.½ S.E.¼ (N. 60 acres)	21	1N	2W	60	W. H. Griggs
S.E.¼ N.E.¼; N.½ S.E.¼; S.W.¼ S.E.¼	35	1N	3W	160	S. P. Wayne
S.½ S.W.¼	4	1S	2W	80	J. & M. Brewster
W.½ S.W.¼	1	1S	4W	80	A. C. McDonald
E.½ S.W.¼	1	1S	4W	80	B. H. McDonald
S.W.¼ N.W.¼ (All S. of Buckeye Canal)	8	1S	4W	35	Geo. C. Rubel
W.½ S.E.¼	3	1S	4W	80	P. H. Benson
E.½ S.E.¼	3	1S	4W	80	L. W. Harper
N.½ N.W.¼ (All S. Buckeye Canal)	9	1S	4W	75	A. C. Woods
S.E.¼	11	1S	4W	160	R. M. Tuckey
S.W.¼	12	1S	4W	160	J. R. & A. V. Marshall
E.½ N.W.¼; W.½ N.E.¼	12	1S	4W	160	M. M. Williams
W.½ S.E.¼	17	1S	4W	80	J. H. Porter
N.E.¼	18	1S	4W	160	Geo H. Newton
W.½ N.W.¼	35	1N	1W	80	James Holmes
E.½ N.W.¼	35	1N	1W	80	J. R. Holmes

1897

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
N.½ S.W.¼	27	1N	2W	75	C. C. Dixon
W.½ S.E.¼	27	1N	2W	70	J. C. LeBail
E.½ S.W.¼; N.W.¼ S.W.¼; W.½ N.W.¼; E.½ S.E.¼ N.W.¼ (All S. of Buckeye Canal)	36	1N	3W	190	C. H. Odell
E.½ S.E.¼	36	1N	3W	80	W. R. Beloat
S.W.¼	6	1S	3W	160	W. W. Greene
W.½ S.E.¼	1	1S	4W	80	Wessex Co.
E.½ S.E.¼	1	1S	4W	80	W. W. Greene
E.½ N.E.¼	12	1S	4W	80	W. W. Greene
E.½ S.E.¼	17	1S	4W	80	E. L. Narramore
N.½ N.E.¼; S.W.¼ N.E.¼	17	1S	4W	120	Wm Walton
S.E.¼ N.E.¼	17	1S	4W	40	Carl Wish

1898

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
S.W.¼ N.W.¼	26	1N	2W	40	L. K. Duke
N.E.¼ S.E.¼	27	1N	2W	40	John Bonner
S.E.¼ S.E.¼	31	1N	2W	40	Mont Anderson
S.W.¼ S.W.¼ (East 20 acres)	32	1N	2W	20	Mont Anderson
N.E.¼ S.E.¼	32	1N	2W	40	S. D. & Mary L. Cooper
W.½ N.E.¼	34	1N	2W	80	C. T. Menard
S.½ S.W.¼	35	1N	3W	80	J. N. Carter
S.E.¼ S.W.¼	5	1S	2W	40	J. Brewster
N.E.¼ N.W.¼	8	1S	2W	40	J. Brewster
W.½ N.W.¼	8	1S	2W	80	E. Brewster
N.½ N.W.¼	4	1S	3W	80	L. E. Sheppard
S.W.¼ N.W.¼	4	1S	3W	40	L. A. DeRosier
S.E.¼ N.W.¼	4	1S	3W	40	S. C. & J. E. Miller
S.E.¼ (N. 80 acres and 8 acres in N.W. cor. of S.½)	4	1S	3W	88	W. W. Jones
S.E.¼ (All S. of Buckeye Canal)	3	1S	4W	95	G. H. Drew
N.E.¼	9	1S	4W	160	F. G. Millage
W.½ N.W.¼	12	1S	4W	80	C. G. Clugston
N.½ N.W.¼; N.E.¼	34	1N	1W	150	J. O. Lockhart

1899

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
S.W.¼ S.W.¼	29	1N	1E	40	E. Baker
W.½ S.E.¼ S.W.¼	29	1N	1E	20	R. W. Thomas
E.½ S.E.¼ S.W.¼; W. 10 acres of S.W.¼ S.E.¼	29	1N	1E	30	Fred Carlon
E.½ S.W.¼ S.E.¼; E.½ W.½ S.W.¼ S.E.¼	29	1N	1E	30	Chas. Smith
W.½ N.E.¼; S.W.¼ N.E.¼ (All out of river)	8	1S	2W	100	M. E. Allison
N.W.¼ N.W.¼ (All out of river)	9	1S	2W	20	M. E. Allison
S.E.¼	6	1S	3W	160	W. B. Long
S.E.¼	7	1S	3W	150	J. E. Clanton
S.W.¼	10	1S	4W	160	W. H. Greene
S.½	16	1S	4W	320	J. B. Wedgeworth
N.E.¼ N.W.¼; N.W.¼ N.E.¼	21	1S	4W	50	J.W.Wedgeworth

BENSON-ALLISON DECREE (cont)

1900

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
N.E.¼ (All N. of River)	35	1N	1W	60	L. Melendez
E.½ S.E.¼ (All S. of Canal)	28	1N	2W	65	L. E. Griffen
E.½ N.W.¼	2	1S	3W	80	J. N. Carter
S.W.¼ (All S. Buckeye Canal)	4	1S	4W	4½	Geo. C. Rubel
S.½ S.E.¼ (All S. Buckeye Canal)	4	1S	4W	23	F. G. Millage
S.W.¼ N.W.¼ (All S. Buckeye Canal)	7	1S	4W	25	R. & H. Cocke
S.E.¼	10	1S	4W	160	C. M. Zander
N.W.¼	15	1S	4W	160	F. G. Millage
N.E.¼	15	1S	4W	160	C. M. Zander
S.W.¼	17	1S	4W	160	M. M. Williams
W.½ N.W.¼ and all North of Arlington Canal in E.½ N.W.¼	20	1S	4W	125	W. Neelson

1901

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
S.½ S.½ (All out of river)	30	1N	2E	65	James Benham
W.½ S.W.¼ N.W.¼	33	1N	2W	20	A. Feldkemy
E.½ S.W.¼ N.W.¼	33	1N	2W	20	C. M. McCoy
S.½	18	1S	4W	320	Wessex Co.
E.½ N.E.¼	19	1S	4W	80	W. G. Narramore
S.W.¼ N.E.¼	19	1S	4W	40	H. M. Watson
N.W.¼ N.E.¼	19	1S	4W	40	E. H. & F. R. Doty
N.E.¼; E.½ S.E.¼	13	1S	5W	240	Wessex Co.
W.½; W.½ S.E.¼	13	1S	5W	267	L. H. Mitchell

1902

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
N.W.¼	26	1N	2E	110	N. P. McCallom
N.E.¼	27	1N	2E	125	N. P. McCallom
N.W.¼	27	1N	2E	120	N. P. McCallom
N.E.¼	31	1N	2E	160	J. W. Jackson
E.½ N.W.¼ (All S. of New State Canal)	25	1N	1E	60	W. J. Galbraith
S.½ S.E.¼ (All S. of Buckeye Canal)	33	1N	3W	50	D. Haugh
N.½ S.E.¼	27	1N	2E	70	N. P. McCallom
N.½ S.W.¼	27	1N	2E	80	N. P. McCallom

1905

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
S.½ N.½	28	1N	1E	160	M. E. Gehon
N.½ S.½	3	1S	3W	160	S. W. Stewart

1906

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
N.½ N.W.¼	33	1N	2W	80	R. H. Fields
W.½ N.W.¼	7	1S	3W	80	J. G. Schweikart
E.½ N.W.¼	7	1S	3W	80	J. M. Carter
E.½ S.E.¼	23	1S	5W	67	L. H. Mitchell

1907

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
S.E.¼ S.E.¼	25	1N	3W	40	D. F. Watkins
S.W.¼ S.E.¼	36	1N	3W	40	J. A. Watkins
N.E.¼ N.E.¼	2	1S	3W	40	W. H. Howe
N.W.¼ N.E.¼; S.E.¼ N.E.¼	2	1S	3W	80	D. F. Watkins

1908

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
W. 37½ acres of N.E.¼	25	1N	1E	37½	John Ivy
E. 2½ acres of W.½ W.½ N.E.¼; W. 35 acres of E.½ W.½ N.E.¼	25	1N	1E	37½	Sarah E. Wilson
E. 5 acres of W.½ N.E.¼ and W. 20 acres of E.½ N.E.¼	25	1N	1E	25	Cordelia Ivy
N.½ S.W.¼ (S. of Buckeye)	34	1N	3W	20	Wm. B. Christophor
N.W.¼ S.W.¼	15	1S	4W	40	A. C. DeWitt

1909

DESCRIPTION	Sec.	Twp.	Range	Avrg.	Name of Owner
N.E.¼ (All out of river)	28	1N	2E	100	N. P. McCallom
S.E.¼	28	1N	2E	160	N. P. McCallom
S.W.¼ S.W.¼	28	1N	2E	40	N. P. McCallom
N.½ S.W.¼	28	1N	2E	70	N. P. McCallom
S.E.¼ S.W.¼	28	1N	2E	30	Belle Levison
N.½ S.E.¼	29	1N	2E	50	N. P. McCallom
N.½ N.W.¼	33	1N	2E	35	Belle Levison
N.E.¼ (All N. of river)	32	1N	1E	80	Earl Webster
S.W.¼; W.½ S.E.¼ (All S. of Canal)	28	1N	2E	200	R. H. Fields
S.½ S.W.¼	27	1N	2W	50	S. Crutchfield
N.½ N.½ S. 60 acres	6	1S	2W	60	J. J. Myers

1910

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
N.½ S.E.¼ and N.½ S.W.¼ (All under St. Johns Canal in R. 80)	30	1N	1E	50	C. G. Davis
N.½ S.½ and S.½ N.W.¼ (All below Buckeye Canal and N. of River)	25	1N	2W	175	J. E. Lewis
S.½ N.E.¼; N.½ S.E.¼; S.W.¼ S.E.¼; E.½ S.W.¼; S.E.¼ N.W.¼ (All S. of Canal and all N. of River)	26	1N	2W	115	T. E. Bonner
S.W.¼ S.W.¼	26	1N	2W	40	L. Lafferty
S.E.¼ S.E.¼	27	1N	2W	40	L. Lafferty
W.½ N.E.¼ N.E.¼	34	1N	2W	20	J. E. Clanton
N.W.¼	1	1S	3W	160	C. H. Davis
N.W.¼ N.W.¼	2	1S	3W	40	Martha J. Charlton
S.½ N.E.¼ (All below Buckeye Canal)	7	1S	4W	30	H. E. Steele
N.½ N.W.¼ (Only 25a under Buckeye Canal)	8	1S	4W	15	J. L. Johnson
N.W.¼	19	1S	4W	160	Wessex Co.

1911

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
S.E.¼ S.E.¼ (In S.E. cor.)	25	1N	1W	40	Fred Harrison
S.E.¼ S.W.¼; E.½ S.W.¼ S.W.¼	34	1N	3W	80	Rasmus Neilson
N.½ N.W.¼	3	1S	3W	80	Rasmus Neilson
S.½ S.W.¼ S.E.¼; S.½ S.E.¼ S.W.¼	9	1S	3W	40	Chas. Turner
W.½ S.W.¼ S.W.¼	34	1N	3W	20	Chas. W. Clanton

1912

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
S.½ S.½	29	1N	2E	120	N. P. McCallom
N.W.¼ N.W.¼	25	1N	1E	40	J. M. Cox
E.½ S.E.¼	7	1S	4W	80	W. K. Barkley
W.½ S.E.¼	7	1S	4W	80	Geo. H. Newton
N.W.¼ N.W.¼ (All N. of Arlington Canal)	21	1S	4W	18	Jack F. Wedgeworth

1914

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
N.W.¼ S.W.¼	32	1N	1E	40	Wm. Kay
E.½ N.W.¼ S.W.¼	12	1S	5W	20	Geo. F. Cocke
E.½ N.E.¼ and N.E.¼ S.E.¼	24	1S	5W	100	Wm. Walton

1915

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner
30 A. in S.W.¼ S.E.¼ and S.½ S.W.¼	25	1N	1W	120	Walter Hill
S.½ N.E.¼ (All out of River)	14	1S	4W	65	A. C. Haizler
S.E.¼ (Between Arlington Canal and Gila River)	15	1S	4W	50	P. H. Hayes

---

TABLE B.

LANDS HERETOFORE DECREED WATER BY JUDGMENT IN THE CASE OF THE UNITED STATES, GUARDIAN, ETC., VERSUS N. W. HAGGARD ET AL, RENDERED IN THE DISTRICT COURT OF THE THIRD JUDICIAL DISTRICT OF THE TERRITORY OF ARIZONA, ON THE 11TH DAY OF JUNE, 1903.

Prior to the Year 1894	Acres	Acres	Annual Totals
Indian land in T. 1 S., R. 1 E., and T. 1 N., R. 1 E., G.& S.R.B.& M.	480		
N.W.¼ Sec. 1, T. 1 S., R. 1 E., G.& S.R.B.& M.	100	580	580 Acres prior to.

1894

	Acres	Acres	Annual Totals
Indian land in T. 1 S., R. 1 E., and T. 1 N., R. 1 E.	75		
N.E.¼ Sec. 31, T. 1 N., R. 2 E.	60		
N.W.¼ Sec. 31, T. 1 N., R. 2 E.	160		
S.W.¼ Sec. 31, T. 1 N., R. 2 E.	36		
N.½ of S.W.¼ Sec. 36 T. 1 N., R. 1 E.	64		
S.½ of N.W.¼ and N.½ of S.W.¼ of Sec. 32, T. 1 N., R. 2 E.	100	495	1075 acres prior to 1895.

1895

	Acres	Acres	Annual Totals
Indian land in T. 1 S., R. 1 E., and T. 1 N., R. 1 E.	75		
N.E.¼ Sec. 1, T. 1 S., R. 1 E.	112		
N.W.¼ of N.W.¼ Sec. 6, T. 1 S., R. 2 E.	32		
S.½ of S.½ Sec. 30, T. 1 N., R. 2 E.	34		
N.E.¼ of S.E.¼ Sec. 35, T. 1 N., R. 1 E.	40		
S.E.¼ of S.E.¼ Sec. 35, T. 1 N., R. 1 E., and strip in N.E.¼ Sec. 2, T. 1 S., R. 1 E.	40		
S.E.¼ of N.E.¼ Sec. 36, T. 1 N., R. 1 E.	40		
N.W.¼ of S.E.¼ Sec. 36, T. 1 N., R. 1 E.	40		
S.E.¼ of S.W.¼ Sec. 36, T. 1 N., R. 1 E.	40		1568 acres prior
S.W.¼ of S.W.¼ Sec. 36, T. 1 N., R. 1 E.	40	493	to 1896.

1896

	Acres	Acres	Annual Totals
Indian land in T. 1 S., R. 1 E., and T. 1 N., R. 1 E.	75		
S.W.¼ of N.E.¼ Sec. 36, T. 1 N., R. 1 E.	40		
N.½ of N.E.¼ Sec. 36, T. 1 N., R. 1 E.	40		
S.½ of N.W.¼ Sec. 36, T. 1 N., R. 1 E.	40		
S.E.¼ of S.E.¼ Sec. 36, T. 1 N., R. 1 E.	40		1843 acres prior
S.W.¼ of S.E.¼ Sec. 36, T. 1 N., R. 1 E.	40	274	to 1896.

1897

	Acres	Acres	Annual Totals
Indian land in T. 1 S., R. 1 E., and T. 1 N., R. 1 E.	75	75	1918 acres prior to 1898.

1898

	Acres	Acres	Annual Totals
Indian land in T. 1 S., R. 1 E., and T. 1 S., R. 1 E.	75	75	1993 acres prior to 1899.

1899

	Acres	Acres	Annual Totals
Indian land in T. 1 S., R. 1 E., and T. 1 N., R. 1 E.	75		
N.½ of N½ Sec. 34, T. 1 N., R. 1 E.	80		
S.W.¼ Sec. 29, T. 1 N., R. 1 E.	160		
N.½ of S.W.¼ Sec. 27, T. 1 N., R. 1 E.	80		
S.W.¼ Sec. 26, T. 1 N., R. 1 E.	160		2608 acres prior
N.W.¼ Sec. 35, T. 1 N., R. 1 E.	60	615	to 1900.

1900

	Acres	Acres	Annual Totals
Indian land in T. 1 S., R. 1 E., and T. 1 N., R. 1 E.	75	75	2683 acres prior to 1901.

1901

	Acres	Acres	Annual Totals
Indian land in T. 1 S., R. 1 E., and T. 1 N., R. 1 E.	75		
N.E.¼ of N.W.¼ of Sec. 6, T. 1 S., R. 2 E.	36		
S.½ of N.E.¼ of Sec. 32, T. 1 S., R. 2 E.	80		3034 acres prior
N.½ of N.½ of Sec. 32, T. 1 N., R. 2 E.	160	351	to 1902.

TABLE C.

GRAVITY WATER AND PUMP WATER ON AGUA FRIA.

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner	Year
NE.¼ N.E.¼	9	1N	1W	40	Jno. W. Sergeant	1912
E.½ S.E.¼	4	1N	1W	75	Jno. W. Sergeant	1912
S.½ S.W.¼	15	1N	1W	60	Earnest Bettler	1912
N.E.¼ S.E.¼ (In S.E. cor.)	9	1N	1W	10	Albert R. Hill	1913
W.½ S.E.¼ (E. 44 acres)	10	1N	1W	44	Jno. A. Hill	1899
S.½ N.W.¼ (20 a. in east part)	10	1N	1W	20	Jno. A. Hill	1913
E.½ N.E.¼; E.½ S.E.¼	10	1N	1W	75	Henry A. Hill	1908
E.½ N.W.¼ E.½ S.W.¼ (E. 100 a.)	3	1N	1W	100	Henry T. Toginzi	1908
W.½ N.W.¼; N.W.¼ S.W.¼ (E. 30 a.)	3	1N	1W	30	Henry T. Toginzi	1913
S.W.¼ N.E.¼ (On W. side)	15	1N	1W	20	Jno. W. Parkman	1909
N.W.¼ (40 a. in N.W. cor. and 50a. in E.½ N.W.¼)	27	2N	1W	90	Wm. J. Morgan	1912
N.E.¼ S.W.¼ (5 a. in N.E. cor.)	27	2N	1W	5	Wm. J. Morgan	1912
N.W.¼ S.E.¼ (5 a. in N.W. cor.)	27	2N	1W	5	Wm. J. Morgan	1912
N.W.¼ N.E.¼ (S. 30 a.)	27	2N	1W	30	Wm. J. Morgan	1912
S.W.¼ N.E.¼ (N. 10 a.)	27	2N	1W	10	Wm. J. Morgan	1912
S.W.¼ S.W.¼	12	2N	1W	20	James Thompson	1912
W.½ S.W.¼; N.W.¼ S.W.¼ (60 a.)	13	2N	1W	60	James Thompson	1912
N.W.¼ (70 acres)	28	2N	1W	70	Martha K. Erickson (One year only)	1912
N.E.¼ (120 acres)	28	2N	1W	120	W. G. Kreigbaum (One year only)	1912
N.E.¼ S.E.¼	28	2N	1W	20	W. G. Kreigbaum (One year only)	1912
N.½ S.E.¼; S.W.¼	28	2N	1W	75	Mont Sanders (One year only)	1912
S.E.¼ (40 a. unlocated)	22	2N	1W	40	Mary E. Skelly (One year only)	1912
S.½	20	2N	1W	40	F. S. Cart (One year only)	1912

LANDS UNDER PUMPING PLANTS.

DESCRIPTION	Sec.	Twp.	Range	Acrg.	Name of Owner	Year
E.½ S.E.¼; S.E.¼ N.E.¼ (All cultivated)	34	2N	1W	120	G. G. Fuller	1913
N.E.¼	3	1N	1W	160	G. G. Fuller	1913
S.½ S.W.¼; N.W.¼ S.W.¼; S.W.¼ N.W.¼	35	2N	1W	160	G. G. Fuller	
E. 30 acres of S.E.¼ S.E.¼ (30 acres N. of Canal)	29	1N	2W	3	G. E. Warner	1914

WATER IN THE BUCKEYE VALLEY (1919-1955)

1919 - Drainage District organized.

1928 - January 16 - At a B.I.C. meeting, a protest was brought against the Roosevelt Canal Co. (Buckeye farmers). This resulted in a lawsuit against all water users on the Salt and Gila Rivers clear to the New Mexico line.

1944 - The 1929 water suit was settled after 15 years. The compromise gave Buckeye $15,000.00 from the Carl Pleasant group (Agua Fria River), S.R.P. agreed to turn over a percentage of water each year, and the Roosevelt Irrigation District (RID) agreed to pay some pumping costs, and the federal government appropriated $10,000.00 to the Indians to pay their share of the settlement.

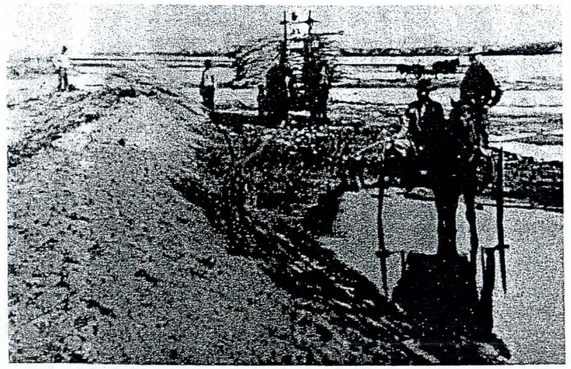
1948 - April 1 - 6,300 acres of land was reported to be water-logged.

1950 - January 14 - Buckeye Irrigation Co. celebrated the paying off of all debts.

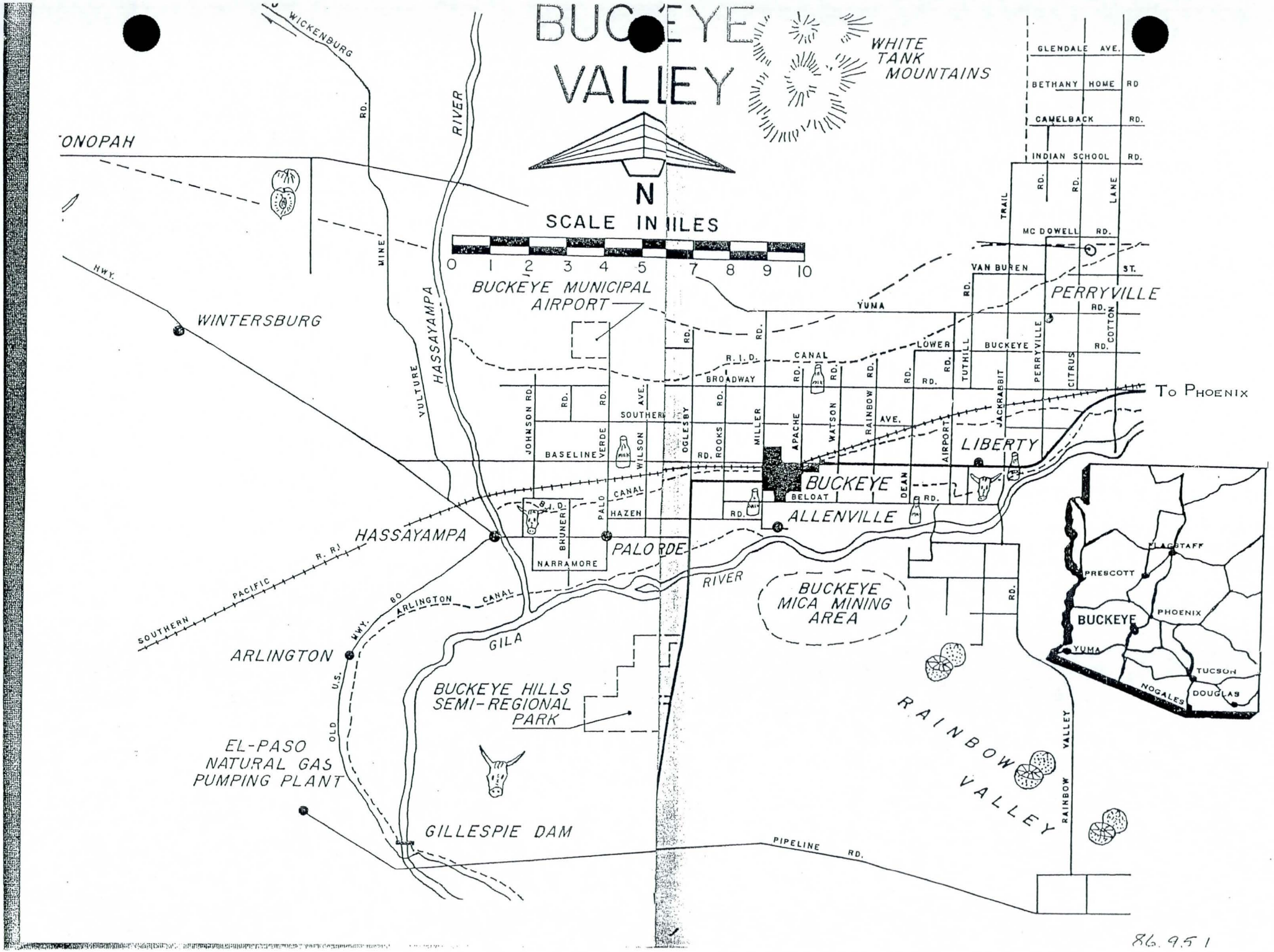
1952 - Discussion in the board meetings: water shortage! The problems had made the full circle: too much, to too little. The budget included money to cement ditches to conserve water.

1955 - Water level continues to decline.

This concludes the research into the first 70 years history of the water in the Buckeye Valley.



An earthen dam was built across the Gila River in 1886. After several floods, the dam was rebuilt. (above)


BUCKEYE VALLEY
WHITE TANK MOUNTAINS
N
SCALE IN MILES
0 1 2 3 4 5 7 8 9 10
ONOPAH
WICKENBURG RD.
MINE
HWY.
WINTERSBURG
VULTURE
HASSAYAMPA
RIVER
BUCKEYE MUNICIPAL AIRPORT
YUMA
R.I.D.
CANAL
BROADWAY
SOUTHERN
AVE.
BASELINE
JOHNSON RD.
VERDE
WILSON
OGLESBY
ROOKS
MILLER
APACHE
WATSON
RAINBOW
DEAN
AIRPORT
TUTHILL
JACKRABBIT
PERRYVILLE
CITRUS
COTTON
LOWER
BUCKEYE
BELOAT
HAZEN
PALO
BRUNER
NARRAMORE
HASSAYAMPA
PALO VERDE
ALLENVILLE
BUCKEYE
LIBERTY
PERRYVILLE
VAN BUREN ST.
MC DOWELL RD.
INDIAN SCHOOL RD.
CAMELBACK RD.
BETHANY HOME RD
GLENDALE AVE.
TRAIL
LANE
TO PHOENIX
SOUTHERN PACIFIC R.R.
ARLINGTON CANAL
HWY. 80
U.S.
OLD
ARLINGTON
GILA
RIVER
BUCKEYE MICA MINING AREA
BUCKEYE HILLS SEMI-REGIONAL PARK
EL-PASO NATURAL GAS PUMPING PLANT
GILLESPIE DAM
PIPELINE RD.
RAINBOW VALLEY
RAINBOW VALLEY
FLAGSTAFF
PRESCOTT
PHOENIX
BUCKEYE
YUMA
TUCSON
NOGALES
DOUGLAS

86.951

much of the time cigars were too much of a luxury for a country editor.

Here's a little dig at the tobacco men, but he wasn't really after them. You can pick up the "dig" at the Democrats. The *News*, August 21, 1919:

> Don't get excited over the silly boast that cigarettes won the war. Cigarettes no more won the war than Woodrow Wilson kept us out of it. Nor did cigarettes and tobacco have any more to do with winning the war than the Democratic party did with reducing the high cost of living. The bunch handling tobacco wants advertising just the same as the Democratic party needs votes.

CONFISCATION

Along about this time, 1919, some of the more affluent had begun to realize the impact of the income tax. Of course it took a lot of income to make a big dent, but on a million dollars a year the government could take as much as seven or eight hundred thousand dollars. This item is a little caustic, and humorous, too: The *News*, August 21, 1919:

> What shall it profit a man to make a million dollars and then have to turn around and give eight hundred thousand of it to the government in income taxes? No wonder the country editors are discouraged.

LEGALS BUILDING UP

As the fall of 1919 approaches the pages of the *News* are filled with legal notices – and profitable ones too. Several Sheriff's Sale notices are seen and each week several Final Proof notices of homesteaders appear. Only 11 display ads appear in the issue of October 16, and six of these were small ads. In fact, there was more advertising in the early years of publication in 1912 to 1916 than in later years. The legal publishing has increased and is far more profitable than the display ads and took much less time to compose and solicit.

Two general merchandise ads were part of the 11 ads on October 12. Johnson & Millecam and the 3-H Mercantile Company were the two largest. In all its time in printing, the *News* never missed an ad from the Buckeye Valley Bank although it was only 2 columns by 3 inches much of the time.

O'Malley was a constant advertiser and seldom changed copy.

Two garages, the Carter and Skinner Garage and Campbell and Minor, had ads. Also the telephone company was almost always aboard.

DRAINAGE BONDS CARRY

The *News* of November 20, 1919:

> The Buckeye Valley is going to have a drainage system. It may be a more expensive system than some of our citizens wanted but we know them well enough to know that they are going to submit gracefully to the will of the majority and put their shoulder to the wheel and make one grand lift, altogether, which will put the whole country out of the mud and on to firm ground.
>
> Now, while we are all in good humor and progressive spirit, let's finish up the job by putting in, at the earliest possible moment, a dam.

COURT ACTION A SUCCESS

The *News* of November 20, 1919:

> Last week the *News* mentioned that the officers of the Buckeye Irrigation Company and others were in town on Thursday attending the hearing in Judge Stanford's division of the Superior Court which was being held to determine a petition that had been filed by the Company's attorney asking for an increased water allowance.
>
> The original Stanford decree allowed the lands under the Buckeye canal 48 miner's inches to each quarter section, with a 1½ per cent per mile of canal loss for evaporation. This, when figured out, gave us a constant flow of a little less than eight thousand inches.

RAIN

Rain comes along with winter weather. As the *News* went to press on December 4, 1919, the Agua Fria River and the Hassayampa were up and both canals, Arlington and Buckeye, had been damaged.

> The Arlington canal suffered its usual losses by the big flood last week. The head is in fairly good shape, but the canal is broken in several places. The heaviest damage was sustained at the mouth of the Hassayampa River. It will be several days yet before an estimate of the damage can really be made.
>
> Much damage was done throughout the Valley and in various other communities around the state. Probably the Buckeye Valley suffered the most by the destruction of the approaches to the road bridge across the Agua Fria which were carried away as was also

about a third of the cement bridge across this stream.

The Arizona Eastern bridge was almost completely demolished and as yet nothing definite is known as to when train service will again resume.

Old timers report that the Hassayampa reached a higher stage than has been known for many years.

Members of the Board of Directors of the Buckeye Irrigation Company visited the dam Monday with the purpose of determining the amount of damage done by last week's flood and to decide on a course of action.

"I TOLD YOU SO"

Part of the damage caused by the big flood of early December, 1919, is listed in this item of December 4, 1919:

> Everybody in the Buckeye Valley was in position to say, "I told you so," when it was learned that the approaches to the big cement bridge across the Agua Fria river had been washed away by the recent high flood waters.
>
> This we believe is the third time these long fills have been swept away by flood. The last time they were reconstructed the work was done over the protest of every taxpayer in the Buckeye Valley, against the recommendation of every reputable civil engineer in the state, and against the wishes of the County Supervisors.
>
> The work was absolutely under the control and supervision of the State Engineer, an incompetent, bull-headed, obstinant egotist, whose only claim and recommendation for the position was the fact that he had always been a strong supporter of Governor George W. P. Hunt.
>
> The last time this pile of sand was washed away by flood was April, 1918, we believe, and at the same time the Arizona and Eastern bridge was destroyed. The following day the writer drove up to Coldwater to view the wreck and investigate the damage. We walked out on the broken A. & E. bridge as far as we could and there found a man sitting on a rail, looking complacently up the stream – it was Lamar Cobb, State Engineer. Water was flowing under the bridge to capacity, with twice that amount running down the new channel west of the bridge where the long fill had stood. In response to our query, as to whether he thought he would ever be able to force that amount of water under a bridge of that length, he looked wise and replied: "O yes, O yes; the proposition is very simple and I have the solution now." And he did. As soon as the high water subsided he proceeded to build another sand pile, broader and higher than the previous one.
>
> My only regret is that I didn't shove the bonehead off into the muddy stream and let him float down the Gila River to the Antelope Bridge, another dry weather structure that stands as a monument to the stupidity and incompetency of this same man. By so doing we would have saved the taxpayers $50,000 and the people of the Valley loads of grief during the winter of 1919-20.

CHARLEY IN SAN FRANCISCO

Here's an item of interest to the publisher, December 25, 1919:

> The editor received a very nice and appreciated announcement yesterday which he is willing to accept as his Christmas present this year. A telegram from his son, Corporal Charles A. Mitten, conveying the good news that he had arrived in San Francisco that morning from the Orient, where he has spent the past year. He will no doubt receive his discharge from the Marines within a few days and be sent home.

STILL AFTER OIL

The *News,* December 25, 1919:

> Indications are that there will be something doing in the way of operation on the Palo Verde Oil well shortly after the New Year that will be worth while . . . . To carry out these plans an expenditure of $7,500 will be necessary . . . .

From the reading of the above item my father is still boosting for this venture in which Mr. Millage has sunk his last dollar, as my dad comments; "There is no reason why this small sum cannot be raised among home people."

SUGAR SHORTAGE

Sugar, one of the war staples, one of the first to be placed on quotas and usually the last to be removed, was still on short supply over a year after the Armistice had been signed. Here's an item of December 25, 1919:

> A car load of sugar, containing 1000 sacks, was received in Phoenix Tuesday. But by evening it was gone. It was distributed to the retail dealers of the county and as a consequence everyone will have sugar for their coffee Christmas morning. This supply will be exhausted in a few days and nothing definite is known as to when another shipment will be received. The price is high and the stores are forced to sell it at 15¢ per pound.

NEW YEAR HOLIDAY

My dad was a glutton for work. Not only did he live to work

HASSAYAMPA DUMPS MAC

The *News* of July 17, 1919:

> Takes Annual Bath – Mac, which is for Mr. McRoberts, the genial mail carrier between Buckeye and Arlington, received a thorough ducking last Friday, and had it not been for spectators, it might have been something worse. When he reached the Hassayampa that afternoon, the river was running channel full, but Mac had crossed it so many thousand times that without hesitating, he drove his team into the current. When about halfway across the force of the water upset his wagon and the team followed suit, while the driver was generally scrambled, together with team, wagon, mail bags, etc. Fortunately, with the assistance of men who had been watching his exploit, everything was saved and no great damage done, although it will cost Mr. McRoberts several dollars to have his wagon repaired, and many patrons of the Arlington post-office wondered why their mail reached them in such a condition. The victim of this near catastrophe believes that he is now vindicated in changing back from the Ford to the good old reliable team, for, in his opinion, had he still been driving the Ford the darn thing would now be half way across the Pacific ocean and still going in high.

NO FENCE DISTRICT PETITIONED

The *News,* July 10, 1919:

> George P. Brown went to Phoenix Monday with a petition asking the Board of Supervisors to declare the Buckeye Valley a no fence district. This petition was signed by fully 80 per cent of the resident tax payers of the district. In fact, so far as we are able to learn, only four men in the Valley refused to sign it. In all probability the Board will act favorably on the matter this week.

BLACK GOLD FADING

How much money was invested by local people in the Palo Verde Oil and Refining Company, a venture of Mr. Millage, we don't know. We know it broke Mr. Millage. The *News,* at one time, was a great booster for the oil drilling operation and urged its readers to back the venture.

From time to time the *News* has printed items regarding the progress of the drilling. This was on the Millage farm about a mile east of Palo Verde.

The *News* had this to say on July 31, 1919:

> The Palo Verde Oil and Refining Company now has its new engine on the ground and also a supply of casing which is being sunk as rapidly as possible and if no bad luck prevents, drilling will be resumed tomorrow morning.
>
> Those actually connected with the company's operation are very enthusiastic and Mr. Millage informs us that every indication points

> to the early tapping of an oil strata. He says, basing his belief on reports of geologists who have carefully gone over the log of the well, that there is a strong probability that oil will be struck within the next hundred feet. The organization is now financed so that if necessary drilling can be continued indefinitely.

ACCIDENTAL BREAK IN DAM

A break in the Buckeye Dam early yesterday morning is not only causing a temporary shortage of water for irrigating purposes, but is also causing a good deal of speculation on the part of those familiar with the work as to just how and why it happened.

At five o'clock yesterday morning, when the gage reading was taken, the canal was running practically at its maximum and had a stream of water something like fifteen thousand miners' inches. On going to work just after breakfast, Superintendent Wainscott was surprised to find that there was no water at all at the headgate. A quick investigation was made and it was found that a break about sixty feet in width had occured something like a half a mile above the camp.

The accident has a number of most peculiar features, not the least of them being the fact that the part of the dam carried away was some new work which had stood about ten days, and which was resting on solid foundation, and most heavily weighted down with rock. In fact it was considered the strongest part of the dam.

Another unusual feature is the fact that part of the structure carried away was not totally lost, as is the usual case, but the portion of the dam, in huge chunks, still intact, were found to be lodged only a very short distance away.

It will probably require three or four days to repair the break, for the water was rushing through it in a channel about seven feet in depth and something like sixty feet wide. However, the material is almost all now on the ground for repairing and the work will be rushed to the very limit.

BUCKEYE VALLEY AN OIL FIELD

Mr. J. E. Faber, an oil man, writes the Palo Verde Oil & Refining Company, expressing his opinion on the Buckeye Valley as an oil field. We print his letter in full, and it is good news to the people of this region.

Phoenix, Ariz. April 2, 1920.
Palo Verde Oil & Refining Co.
Gentlemen:

Having occasion to be in Phoenix several weeks on a deal for California oil lands, I became interested in your work in the Buckeye Valley, and made a personal investigation of that region.

I was not surprised to find it oil country, but was astonished to find so great an area, and so pronounced an oil basin, geologically. After making several extensive trips into your field and the surrounding country, I am very sure that developement work--drilling, will disclose three (3) great oil structures in the field.

My business is petroleum production; and having operated quite extensively in California and Wyoming, I am considered fully able to judge field conditions. I do not hesitate in placing myself on record when I say that it is my belief that your efforts will bring in an oil field in the Buckeye Valley.

You gentlemen are to be congratulated on your thorough geological work in this region, and your clean cut method of doing business, Phoenix and Maricopa county should offer you every encouragement and support. I believe your success is assured.

Yours truly,
(Signed) J. E. Faber.

PHONE DRUG ORDERS TO 54
Mohr's Pharmacy, Buckeye

Work is progressing rapidly on

BOOSTER ORGANIZATION FORMED

One of Buckeye's long felt wants is now being filled. We have already organized, a real live Chamber of Commerce, or at least an organization that will function as such.

Pursuant to a call published in last weeks News, about thirty-five interested citizens met in Josiln's hall Saturday evening for the purpose of forming some sort of an organization that would tend to promote the interests of our town, and as a result of that meeting committees were appointed and begun action on formulating a system of organization and operation. The meeting adjourned to meet again Tuesday evening, and the excellent attendance at the latter gathering was sufficient proof that the citizens realize the necessity of a civic organization, and are ready to get behind it.

At Tuesday evening's meeting a set of by-laws or Articles were adopted and the Buckeye Progressive Club came into being. Sometning over thirty members have already signed as charter members and this number will grow until at least a hundred will belong.

At the last meeting the following officers were elected: R. E. Brannen, President, C. G. Clugston, Vice President, C. A. Narramore Secretary and Mrs. C. L. Harper Treasurer.

Dr. G. C. Rubel, C. G. Clugston and W. D. Baxter were appointed as a committee to take up with the public, and present to the meeting a report on such matters as require the urgent attention of the Club, and no doubt the report, which will be presented at the next meeting, will result in an active campaign of improvement in various lines being launched.

Mrs. H. A. Hughes Jr., Mrs. P. G. Morison and Mrs. T. S. Shoemaker were appointed as a

These stories were big news in July, 1919.

DEDICATION

This short (1912-1923) narrative of the Buckeye Valley and the birth and demise of a community weekly newspaper, the *Buckeye Valley News,* is dedicated to the pioneers of the Buckeye Valley and especially those living there between the years of 1912 and 1923. A hardy, thrifty, enthusiastic bunch, many of them life-long friends of mine, they lived and enjoyed some of the best years our country has experienced, or may ever experience. Many names long lost come to mind as I perused the old pages of the *News,* and to mention names would increase the size of this little book to a huge volume. However, there are three men: H. M. Watson, cashier of the Buckeye Valley Bank; George P. Brown, manager of the Wessex Company; and I. H. Parkman, farmer, who seemed to be at the head of every good and progressive movement which was initiated in the Valley. To these three, I dedicate this book.

PREFACE

It is doubtful that there is a period in a person's life more educational, exciting, enjoyable and carefree than the so-called teenage years.

This is the period of time I spent in Buckeye. I had just turned 13 when we arrived in Buckeye, where I was to spend the next 11 years. It is an exciting time in one's life.

These are the years in which we hear the story of the birds and bees, albeit not from our parents but on the school grounds and on the canal banks. These are the years we learn there is a difference between work and play, the value of a dollar and then, suddenly, how attractive the girls are becoming.

This narrative of 11 years' growth in Arizona's Buckeye Valley, and more particularly in Buckeye itself, is not intended to be a history of those years. Rather, the aim is to depict the events that occurred in the 1912-23 period, and the impact thereon of a newspaper family struggling to establish a weekly that would not only be of service to the community but would also be a profitable enterprise for the publisher. That effort failed. Nevertheless, the *Buckeye Valley News* did have a great influence on the community's development.

To better understand this story of 11 years in the life of an apprentice printer and the struggle of a weekly newspaper family, I present the following information on the Buckeye Valley as we found it in 1912:

The landowners in the Buckeye Valley had, in 1907, purchased the canal, headgates and dam from private owners.

According to the first issue of the *Buckeye Valley News* in 1912 there were about 16,000 acres of land under cultivation and some 1500 souls living in the Valley from Liberty to the Hassayampa River.

The struggle to establish a weekly newspaper in the little dusty town of Buckeye was a tremendous undertaking and required a lot of hard work, faith and a great optimistic outlook.

There had been an effort to establish a weekly paper prior to my father's venture. In fact the paper, the *Buckeye Blade,* published 41 issues in 1891, after which publication was suspended. The "swan song" of the *Buckeye Blade* appears as an appendage to this short history.

C. M. Zander, a very well educated and popular man and a real estate operator in Buckeye at the time the *News* was established, made many contributions to the columns during his time in the Valley.

In the first issue of the *News* (February 12, 1912) Mr. Zander wrote a long article telling the history of the Buckeye Canal, the Buckeye Irrigation Company, the crops and to some extent the future of the Valley as he saw it. I am quoting from this article to give the background for the pages which follow:

THE BUCKEYE VALLEY

By C. M. Zander

The reclamation of the desert is a fascination that is irresistible. To view a wild waste and one that has repelled every touch of man and forbidden his habitation he was filled with fear but at the same time he could conceive in his boldest dreams a golden harvest and if water could be brought to the parched land he could make a blade of grass grow where none grew before.

Water Distribution

The Buckeye Canal is 31 miles in extent. Its heading is at the juncture of the Agua Fria and Gila rivers a few miles below the mouth of the Salt River. It has a headgate, four waste gates, a flume under the Hassayampa River at the lower end, 15 checks or raisers, 200 lateral gates and 75 miles of laterals.

The actual cost of water figures less than 90 cents an acre on 13,000 acres watered during the past year. Several changes were made which will greatly reduce the cost of water, which cost has been steadily decreasing since the people bought the canal.

Land

The Buckeye Valley proper is about 16 miles long and from two to three miles wide. There are 16,000 acres of land with water rights under the Buckeye Canal.

Development

There are three towns under the Buckeye Canal; Liberty in the eastern end of the Valley, Buckeye in the middle and Palo Verde in the western end. Liberty has two churches, a store, post office, blacksmith shop and a four-room brick school. Three teachers are employed and about 80 students enrolled.

Buckeye has three churches, two fraternal orders, a four-room brick school with three teachers and 115 pupils, a well-equipped blacksmith shop, two livery stables, a lumber yard, harness shop, a jail and justice court, a barber shop, pool hall, a butcher shop, two hotels, a restaurant, two telephone systems, a jeweler, a post office, a drug store, three general merchandise stores, tinner, contractors and builders in all lines, a bank, a newspaper and city water.

Palo Verde has a new two-room school with two teachers and 65 pupils, a general merchandise store, a lumber yard, a post office, a butcher shop and one church.

People

There are 1500 people under the Buckeye Canal.

The early history of the Buckeye Dam, canal, the headgate, early promoters, owners, etc., can be learned from a history compiled by I. H. Parkman and printed in March, 1957.

The above information is printed herewith to give my readers a background and setting of the time at which the *Buckeye Valley News* was established.

DEFINITIONS

The *News* often mentions the terms, "Miner's Inches" and "Acre Feet".

An acre foot of water is that amount of water necessary to cover one acre to one foot in depth.

A Miner's Inch of water is a stream of water equivalent to 1/40th cubic foot of water per second, or 11.22 gallons per minute; or the amount of water expelled from a one-inch-square opening with a six-inch head pressure measured from the center of the square inch opening and discharge must be free flowing, that is, the discharge must have a drop at the outflow.

December 23, 1915:

> M. J. Young is the name of the barber who has taken up his residence in Buckeye. He and his family are keeping house in Mrs. King's rooms. Mr. Young, we understand, is a brother-in-law of Mr. Keeling who is living west of town on the Green Ranch.

Cy went on to help organize the Buckeye town baseball team and he and Wilmer Harper have had many a duel on the pitcher's mound. Wilmer played for Palo Verde. Cy had a slow curve and was a deliberate player. Of course much of the speed had gone out of his arm but he was a steady and consistent player and a real team leader.

THIS WAS 50 YEARS AGO

One can read an article like it in most any newspaper or magazine today. It was written along with the regular news items and in the local news columns. It appeared January 6, 1916:

> I don't know what you think about it, but it occurs to me that the young people, the pupils of the Buckeye school, are attending entirely too many parties and dances for their own good and the good of the school. I suggest that the parents see to it that these social affairs are curtailed for the balance of the school year. I believe the school faculty would welcome such an idea and I know it would stimulate work at school and be the direct cause of better grades. The trouble with young people now-a-days is they have too many advantages and too many privileges, especially high school pupils. Instead of accumulating knowledge, their fancy turns to silk socks, green neckties and football.

Of course anyone reading this can tell the writer was the parent of high school students – my brother and I.

And here's some more editorializing in the news columns. This item follows the one above in the news columns on the same date. And again the blow was probably directed at me because I was a Latin student and couldn't spell.

> If I were running the country I would compel every student, whether they be in a country school, the high school or in the greatest institution of learning in all the land, to stand up and recite the Rules of Syntax three times every week. I would grade them 90 percent on their Syntax and 10 percent on the other junk that is forced into their skulls. I would also force a spelling lesson every day and compel a drill on simple arithmetic problems of the practical kind several times a week. I am likely an old fogy, but it seems to me that "have went" and the "shure" brand of students are in no condition to be forced into the ranks of higher education. The business world won't pay much attention to your Thebes and your Latin and your theory if you hand in an ungrammatical and badly spelled letter.

Apparently I had done a poor job at the type case that day.

MORE DESTRUCTION ON THE AGUA FRIA

The *News*, January 6, 1916:

> The rain storm of last week totaled more than 2½ inches and while it was welcomed and did considerable good, it also caused considerable damage . . . . the first train since last Thursday was an extra that pulled into Buckeye last night about sundown with several car loads of freight and took out two cars of cattle.
>
> The construction work on the county bridge was also damaged considerably but at this writing it is not known to what extent. The Buckeye Dam went out, but the damage was not as serious as a year ago. As usual we were without mail for two days.

THAT CALIFORNIA WEATHER

The *News* of January 14, 1916:

> You will observe that we are saying very little about the weather this week. The fact is our weather would be all right, just as warm and pleasant as ever if it wasn't for those cold winds that sweep in from California.

ye Valley

UCKEYE, ARIZONA, THURSDAY, JUNE 8, 1916

BUCKEYE DEPOT GOES UP IN SMOKE!

Mysterious Fire Destroys Fine Large Depot of the A. & E. at an Early Hour Tuesday Morning

The depot of the Arizona & Eastern Railway at Buckeye, one of the finest depot buildings on the entire system was consumed by fire early Tuesday morning, together with all its contents, including freight and express on hand. The origin of the fire is still a mystery and probably will remain so. The building was a large frame structure and made a most spectacular blaze, and was seen for miles up and down the Valley. The fire occurred about two o'clock in the morning and very few of the residents of Buckeye were aware of the calamity that had befallen us until morning. The few who were awakened by the bright light and hurried to the scene of the conflagration, say that the building was one seething mass of flame upon their arrival, and that it was impossible to determine what part of the building caught fire first or where the fire originated. In the absence of any other reasonable theory the loss is attributed to the carelessness of some hoboes who have been camping along the canal bank. About three or four hours before the fire was discovered these hoboes stole a couple of chickens from Hans O. Malmberg, and it maybe they were preparing their feast near the depot platform and in their carlessness set the platform on fire.

Outside the destructio. of the building, the loss to the railroad company will not be very heavy. Agent T. W. Benson informs us there was very little freight and express in the depot at the time, probably less than at any time since he has been agent here.

Officials of the railroad company were out from Phoenix Tuesday and brought a box car with them to be used temporarily for an office. They will also build a temperary platform for handling freight. They also announce that the depot will be rebuilt immediately.

There was no money in the depot at the time of the fire, as the safe is a very poor contraption and Mr. Benson has never depended upon it for safety. The night before the fire he deposited all money in the Buckeye Valley Bank, and was therefore safe. Books and papers that were in the safe were badly charred and it was with difficulty that Mr. Benson was enabled to decipher them and make out duplicates.

A box car almost loaded with grain, the crop of S. Neimeyer was standing near the depot and was somewhat scorched and would have been entirely consumed by the fire had not the citizens present, with considerable difficulty moved down the track out of reach of the flames.

When a fire starts, it usually ended in total destruction because there was no fire fighting equipment in the Valley.

DOESN'T WANT COMPETITION

As the summer of 1916 reaches the half-way mark, the columns of the *News* begin to fill with political announcements, stories, and, if you please, a little propaganda. Here's an announcement from no less a person than the editor. July 27, 1916:

At the earnest solicitation of his wife and other members of his family, the editor of this paper has decided to ask the people of this Justice precinct to again honor him with the office of Justice of the Peace for the ensuing two years. During the past 18 months I have been giving my best efforts to the requirements of the office. I can promise no more if re-elected. I want the office or I wouldn't ask for it. It is up to you voters to say whether you want me for another term. I wish to thank those who have signed my nomination petition and also those who have promised me their liberal support. While it is highly improbable and hardly to be expected, I would appreciate the office still more if it is given me without opposition. It would save me lots of time and trouble and save you voters a lot of trouble as well.

FORD CUT PRICES

Ford cars, already underselling all competitors, announce a price reduction in the *News* of August 3, 1916:

The price on the different models of Ford cars are reduced as follows:

Ford Touring Car	$413.25
Ford Runabout	398.25
Ford Couplet	563.25
Ford Town Car	643.25
Ford Sedan	703.25

The Ford company guarantees that there will be no further reduction in prices until August, 1917 – one year hence. However, there is no guarantee that the above prices will hold for any certain length of time.

MORE RAIN, MORE DAM DAMAGE

Heading the story "Flood No. 2" – the *News* reports on October 12, 1916:

Another big rain visited this section of the county last week and did considerable damage to feed and the second seed crop. More than two inches of rain fell.

The Agua Fria River was up again and damaged the railroad bridge to such an extent that no trains reached Buckeye until Tuesday. Another calamity caused by the high water and keenly felt by the ranchers is the loss of about 500 feet of the Buckeye Dam on the North bank of the river. Repair work is going forward rapidly however.

ye Valley

BUCKEYE, ARIZONA, THURSDAY, JUNE 8, 1916

BUCKEYE DEPOT GOES UP IN SMOKE!

Mysterious Fire Destroys Fine Large Depot of the A. & E. at an Early Hour Tuesday Morning

The depot of the Arizona & Eastern Railway at Buckeye, one of the finest depot buildings on the entire system was consumed by fire early Tuesday morning, together with all its contents, including freight and express on hand. The origin of the fire is still a mystery and probably will remain so. The building was a large frame structure and made a most spectacular blaze, and was seen for miles up and down the Valley. The fire occurred about two o'clock in the morning and very few of the residents of Buckeye were aware of the calamity that had befallen us until morning. The few who were awakened by the bright light and hurried to the scene of the conflagration, say that the building was one seething mass of flame upon their arrival, and that it was impossible to determine what part of the building caught fire first or where the fire originated. In the absence of any other reasonable theory the loss is attributed to the carelessness of some hoboes who have been camping along the canal bank. About three or four hours before the fire was discovered these hoboes stole a couple of chickens from Hans O. Malmberg, and it maybe they were preparing their feast near the depot platform and in their carlessness set the platform on fire.

Outside the destruction of the building, the loss to the railroad company will not be very heavy. Agent T. W. Benson informs us there was very little freight and express in the depot at the time, probably less than at any time since he has been agent here.

Officials of the railroad company were out from Phoenix Tuesday and brought a box car with them to be used temporarily for an office. They will also build a temporary platform for handling freight. They also announce that the depot will be rebuilt immediately.

There was no money in the depot at the time of the fire, as the safe is a very poor contraption and Mr. Benson has never depended upon it for safety. The night before the fire he deposited all money in the Buckeye Valley Bank, and was therefore safe. Books and papers that were in the safe were badly charred and it was with difficulty that Mr. Benson was enabled to decipher them and make out duplicates.

A box car almost loaded with grain, the crop of S. Neimeyer was standing near the depot and was somewhat scorched and would have been entirely consumed by the fire had not the citizens present, with considerable difficulty moved down the track out of reach of the flames.

When a fire starts, it usually ended in total destruction because there was no fire fighting equipment in the Valley.

DOESN'T WANT COMPETITION

As the summer of 1916 reaches the half-way mark, the columns of the *News* begin to fill with political announcements, stories, and, if you please, a little propaganda. Here's an announcement from no less a person than the editor. July 27, 1916:

At the earnest solicitation of his wife and other members of his family, the editor of this paper has decided to ask the people of this Justice precinct to again honor him with the office of Justice of the Peace for the ensuing two years. During the past 18 months I have been giving my best efforts to the requirements of the office. I can promise no more if re-elected. I want the office or I wouldn't ask for it. It is up to you voters to say whether you want me for another term. I wish to thank those who have signed my nomination petition and also those who have promised me their liberal support. While it is highly improbable and hardly to be expected, I would appreciate the office still more if it is given me without opposition. It would save me lots of time and trouble and save you voters a lot of trouble as well.

FORD CUT PRICES

Ford cars, already underselling all competitors, announce a price reduction in the *News* of August 3, 1916:

The price on the different models of Ford cars are reduced as follows:

Ford Touring Car	$413.25
Ford Runabout	398.25
Ford Couplet	563.25
Ford Town Car	643.25
Ford Sedan	703.25

The Ford company guarantees that there will be no further reduction in prices until August, 1917 – one year hence. However, there is no guarantee that the above prices will hold for any certain length of time.

MORE RAIN, MORE DAM DAMAGE

Heading the story "Flood No. 2" – the *News* reports on October 12, 1916:

Another big rain visited this section of the county last week and did considerable damage to feed and the second seed crop. More than two inches of rain fell.

The Agua Fria River was up again and damaged the railroad bridge to such an extent that no trains reached Buckeye until Tuesday. Another calamity caused by the high water and keenly felt by the ranchers is the loss of about 500 feet of the Buckeye Dam on the North bank of the river. Repair work is going forward rapidly however.

became connected with the Arizona Laundry which was owned by his father-in-law.

Harry's leaving Buckeye put a tremendous load on my father and me. Harry was an excellent and fast type setter and his vacant stool at the type case was a heart-breaker.

Except for a short (19 months) term in the U. S. Marines and a year at Phoenix Union High School, I remained in business with my father until his death in 1947.

THE ELECTION OF 1916

As the fall election of 1916 approaches the *News* columns are loaded with political announcements. While my father was an ardent Republican, he seemed to share the *News* columns equally with the Democrats and the Republicans, and although he was a candidate to succeed himself as Justice of the Peace he didn't use the news columns to advance his candidacy. He did work hard in the campaign and travelled from one end of the Valley to the other seeking support.

AGUA FRIA UP AGAIN

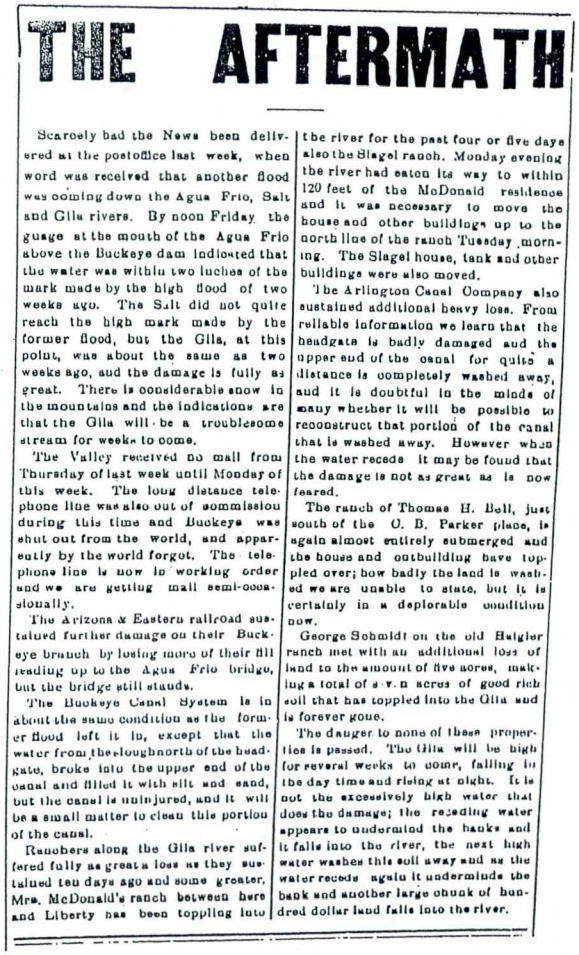
The *News* of September 14, 1916:

> Freak Rain – what the Californians would call a "freak rain" visited this portion of Arizona last Friday.
>
> The storm commenced last Friday morning. During the day and night 3.29 inches of water fell. Many ranchers had hay down and quite a few had their second crop of seed on the ground, and even the seed that was standing was to some extent damaged.
>
> Water came rushing down from the White Tank Mountains and covered the desert to depth of from six inches to 2 feet, causing much damage to the railroad track between here and Liberty, also washing out the wagon road in many places.
>
> Both the Hassayampa and Agua Fria Rivers were up and unfordable causing much delay in traffic. As usual the Arizona Eastern was out of commission for several days. We received no daily papers from Friday noon up to one o'clock Tuesday, although they managed to deliver the first class mail to us on Monday.

ELECTION DAY DINNER 35¢

Election day dinners have been in vogue from time immemorial and here's the dinner as advertised in the issue of November 2, 1916:

> The Ladies Aid of the Baptist church will serve dinner in the Buckeye Irrigation Company building on election day, Tuesday, November 7th. The proceeds of the dinner will go toward a fund for purchasing a piano for the Baptist Church. You will not only



THE AFTERMATH

Scarcely had the News been delivered at the postoffice last week, when word was received that another flood was coming down the Agua Frio, Salt and Gila rivers. By noon Friday the guage at the mouth of the Agua Frio above the Buckeye dam indicated that the water was within two inches of the mark made by the high flood of two weeks ago. The Salt did not quite reach the high mark made by the former flood, but the Gila, at this point, was about the same as two weeks ago, and the damage is fully as great. There is considerable snow in the mountains and the indications are that the Gila will be a troublesome stream for weeks to come.

The Valley received no mail from Thursday of last week until Monday of this week. The long distance telephone line was also out of commission during this time and Buckeye was shut out from the world, and apparently by the world forgot. The telephone line is now in working order and we are getting mail semi-occasionally.

The Arizona & Eastern railroad sustained further damage on their Buckeye branch by losing more of their fill leading up to the Agua Frio bridge, but the bridge still stands.

The Buckeye Canal System is in about the same condition as the former flood left it in, except that the water from the slough north of the headgate, broke into the upper end of the canal and filled it with silt and sand, but the canal is uninjured, and it will be a small matter to clean this portion of the canal.

Ranchers along the Gila river suffered fully as great a loss as they sustained ten days ago and some greater. Mrs. McDonald's ranch between here and Liberty has been toppling into the river for the past four or five days also the Slagel ranch. Monday evening the river had eaten its way to within 120 feet of the McDonald residence and it was necessary to move the house and other buildings up to the north line of the ranch Tuesday morning. The Slagel house, tank and other buildings were also moved.

The Arlington Canal Company also sustained additional heavy loss. From reliable information we learn that the headgate is badly damaged and the upper end of the canal for quite a distance is completely washed away, and it is doubtful in the minds of many whether it will be possible to reconstruct that portion of the canal that is washed away. However when the water recedes it may be found that the damage is not as great as is now feared.

The ranch of Thomas H. Bell, just south of the O. B. Parker place, is again almost entirely submerged and the house and outbuilding have toppled over; how badly the land is washed we are unable to state, but it is certainly in a deplorable condition now.

George Schmidt on the old Haigler ranch met with an additional loss of land to the amount of five acres, making a total of s v n acres of good rich soil that has toppled into the Gila and is forever gone.

The danger to none of these properties is passed. The Gila will be high for several weeks to come, falling in the day time and rising at night. It is not the excessively high water that does the damage; the receding water appears to undermind the banks and it falls into the river, the next high water washes this soil away and as the water recedes again it undermines the bank and another large chunk of hundred dollar land falls into the river.

One of the many flood stories appearing in the *News* over the 11 years of publishing: THE AFTERMATH.

homes had any universal lighting. The old coal oil lamps, gasoline lamp and the carbide gas-lighting systems did the work.

However, with the coming of the Delco plants several of the larger places installed these popular plants. According to the *News* Delco was to light many firms in the Ware Building. The *News* was a tenant in this building. The item states the installation will be made by McArthur Brothers and those to enjoy the electric lights and fans are: P. G. Morrison, Hendron Brothers, Riley Johnson, H. M. Watson and Haugh and Nelson.

FORD SELF-STARTER

The *News* goes to some length (over half a column) to explain the new Ford self-starter. With Mr. Mitten as the local agent and no other auto agency advertising in the *News* there was no reason for not going "all out" to tell about the Heinze-Springfield electric starter and lighting system. The price of the Ford car at this time was $414.85 plus the electric cranking and lighting system.

ONE OF THE FIRST TRACTORS

March 29, 1917:

> C. N. Towner and father have purchased a Moline tractor plow to be used on their big ranch east of Buckeye. The tractor cost more than a team of mules but it doesn't eat except when at work.

WILL DRILL FOR OIL

Many attempts have been made over the years to strike oil in various parts of the state and Buckeye has had its boom and bust regarding the black gold.

Here's a story in the *News* of March 29, 1917:

> Will Drill For Oil – after futile attempts to interest capital in a proposition to bore for oil on his ranch west of Buckeye, F. G. Millage, the owner, has just completed arrangements for sinking a prospect well on his own account .... No one knows what the outcome of this experiment will be but we all know what it will mean to the community if it proves to be successful. It occurs to us that a few dollars invested in this enterprise is more than a gamble .... and we would suggest that local capital come to the assistance of Mr. Millage.

SEND NO ARMY

As the European war goes into its third year and the German torpedo menace becomes more severe, war talk is spreading across the Nation.

The *News* carries an editorial on its thinking about the war. The editorial is titled "Send No Army to Europe" and proposes that help be given in material and in other ways. Our shipping should be protected but my father was opposed to sending any army to Europe.

My father urges all who favor war to write their Congressman and those who oppose should also write him their thinking.

I have no doubt that my dad was thinking of his two sons, now 18 and 19, as well as other young manhood in the country.

THE BUCKEYE DAM IS OUT

One of the items which can be used year after year is that "the Buckeye dam is gone." It appears to me that there was more rain in the old days than now. At any rate, the Agua Fria River caused the citizens of the Buckeye Valley more trouble and the dam more loss of money then in any other period of our time. As I read the old files of the teens about life and times in Buckeye I learn that at times the entire citizenry of the Valley were at the throat of the Board of Supervisors to bridge the Agua Fria.

And after each flood on the Gila at its junction with the Salt and Agua Fria the old rock and brush dam would go out totally or partially.

Many is the time, as we looked up from our typesetting stools, would we see the 4-horse fresnos and the 2-horse sloops loaded on wagons heading toward the dam site.

It was not feasible for the irrigation company to keep all the teams and equipment necessary to repair each break. As the water receded after each flood the superintendent of the company would issue a call for teams and equipment. If the farmers did not respond it meant no water.

Here's a small item dealing with the matter in the April 26, 1917, issue:

> The reconstruction of the Buckeye dam is progressing as rapidly as possible with the limited supply of teams. It is impossible at this time to predict just when the water will be running in the canal, it is simply a matter of help. If a sufficient number of teams could be procured water would be running in the canal by Sunday.

motorized. July 26, 1917:

> E. S. McRoberts, who has been carrying mail in and out of Buckeye ever since Columbus discovered America, and for the past seven years has been making daily trips between Buckeye and Arlington, has discarded old Dobbin and is now carrying Uncle Sam's letters and parcel post via the trusty Ford. Mac is so used to leaving Arlington before day break in order to reach Buckeye before the train leaves that he now arrives here before the Buckeye post office is open.

Tractors are also helping to reduce the horse population as each week the *News* announces one or more farmers buying tractors. On June 19, 1917, the *News* reports:

> The Miller Brothers (Carl and Simon) received this week a new Sampson tractor to be used in their farm work. The tractor will soon be as common and indispensable to this Valley as the Ford car. They are a cheaper power than horse flesh and much more satisfactory during the hot summer months.

Also the next week, August 2, 1917:

> George Day is another prominent and progressive rancher in the Valley to adopt the tractor method. He received this week a new 30-horse power Bates Steel Mule and drove it out to his ranch west of town where it can be seen in operation most any day.

OLD MAN RIVER

Those summer rains which visited the Valley always did a lot of damage to the grain and alfalfa seed crops. Occasionally they did become so general that old man Agua Fria and the Buckeye canal became involved.

As reported in an earlier chapter, the Legislature appropriated money to bridge the Agua Fria and in due time, just prior to this date, the bridge was completed.

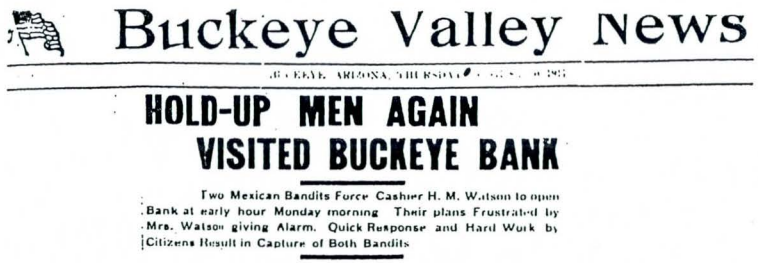
However, the bridge was too short for the heavy winter floods and consequently the approaches had to extend to some distance each way from the bridge.

Lamar Cobb, state engineer at the time of construction, was cautioned by many in Buckeye, who had seen the river on a rampage, that the approaches wouldn't hold.

Here's the *News* story concerning the high water of this summer, August 2, 1917:

> The west approach to the county bridge across the Agua Fria is

> gone – swept away by the high waters the first of the week. This is not a startling piece of information. The disaster was inevitable. This approach was built at great expense to the state over the protest of the Board of Supervisors, over the protest of the Phoenix Chamber of Commerce and the protest of thousands of tax-payers who petitioned the State Engineer not to build this long fill out of sand. But the obstinancy and incompetency of State Engineer Lamar Cobb prevailed and at least $12,000 of state money was willfully and wrongfully fed to the raging Agua Fria. The tax payers should feel thankful that this incompetent public official has been removed from office.



Buckeye Valley News

BUCKEYE, ARIZONA, THURSDAY

HOLD-UP MEN AGAIN VISITED BUCKEYE BANK

Two Mexican Bandits Force Cashier H. M. Watson to open Bank at early hour Monday morning Their plans Frustrated by Mrs. Watson giving Alarm. Quick Response and Hard Work by Citizens Result in Capture of Both Bandits

BANK ROBBERY

A second attempt to rob the Buckeye Valley Bank within the year was frustrated early Monday morning by the timely arrival of citizens from all parts of the Valley in response to telephone calls sent to every subscriber who could be reached by the local manager, Wm. Snell. Not only was the robbery frustrated but many believe the life of Cashier H. M. Watson was also saved.

Between three and four o'clock Monday morning two Mexican outlaws, recently from Mexico, entered the residence of H. M. Watson and after stealing a shotgun, two watches, some rings, stick pins and other small trinkets, went to the screen room sleeping apartments of Mr. and Mrs. Watson and at the point of a gun awakened Mr. Watson and commanded him to dress and accompany them to the bank, about two blocks from the residence. After entering the bank they commanded him to open the vault and give them the money it contained. The vault door was opened and the loose change outside the safe amounting to about $12 was given them. Then they demanded that he open the safe, but there being a time lock on the safe he was unable to do so and tried to explain that the safe could not be opened by any one before seven o'clock in the morning on account of that time lock. They either didn't 'sabe' the time lock or thought Mr. Watson was lying to them, for after parleying a few seconds one of them pulled out his watch and

any good result. The robbers only ran a short distance and then crossed over into the Clanton field and back to their auto, which was standing beside the road about half way between the telephone office and Bert Clanton's residence. The trio then headed east at a lively rate without lights.

Manager Wm. Snell of the local exchange of the telephone company, heard the explosion and as soon as he could ascertain the trouble attempted to notify all the people of the Valley, but quickly discovered that the telephone wires including long distance had been cut by the robbers. Couriers were at once sent in both directions to arouse the people and by daylight most of the people in the Valley were in Buckeye ready to lend their assistance toward capturing the bandits. Within a few minutes after Mr. Snell discovered that the wires were cut he had the long distance wires spliced and notified the Sheriff's office. The Sheriff was soon on the spot and with constable Jones and a number of Buckeye citizens are now scouring the country for the robbers.

The robbers secured no booty, but the damage to the vault, safe, furniture and building will amount to considerable. Even the books and papers are badly mutilated.

Mr. Keeling, who was shot and seriously injured by the robbers, was taken to Phoenix this morning in the L. E. Shepard car for the purpose, if possible of locating the bullets with the aid of the x-ray machine.

At three o'clock this afternoon we were notified by the Sheriff's office that the car that is supposed to have left Buckeye this morning with the bandits was found near Phoenix, but it was positively known that only one man was riding in the car, the other two presumably dropped along the road are now in hiding.

VOLUME VII

Young Men Register for the Draft; First Issue of Six Pages; Valley Huge Honey Shipper; Rivers Up, Dam Damaged; Flu Comes to Buckeye; I Join the Marines; Father Re-elected J.P.

Anyone reading this item can easily believe that the writer might be a Ford agent. I take this story from February 14, 1918:

> Jay Jones has a new Ford car, traded his old one in on a new one. The record made by Mr. Jones with his Ford car is very gratifying to himself and the Ford agency. He had the old car exactly fifteen months and expended less than a dollar for repairs. The car had exceptionally hard usage but was well taken care of. Last summer he and his brother hauled several thousand feet of heavy timbers and lumber from Wenden across the desert to their cattle ranch in the Ford car, also numerous large loads of supplies from Buckeye to this ranch, a distance of ninety miles over bad roads, also in his official capacity as Constable he has made a great many hard drives over rough roads and over the desert where there were no roads. In fact there is no car in the Valley that has seen more service than the Jones Ford car. Last Friday he turned the old Ford car in at the garage in Phoenix, paid them $150 and drove home a new car. The average cost of the car for the fifteen months was just $10.00 per month. This is the very reason that many people are discarding their heavy cars and buying the Universal car. If the present increase in the cost of tires and gasoline continues, and it probably will until after the war, the upkeep of the big cars will be still more.

BEATING THE AGUA FRIA

As our readers will notice, many articles appear concerning the Agua Fria and Gila Rivers and the Buckeye Dam.

No one knows the time, tempers and money expended on trying to control these rivers for the convenience of the Buckeye Valley residents. Many are the experiences of the old-timers in getting to and from Phoenix due to high water in the Agua Fria.

Here's a new one on beating the river: March 14, 1918:

> A Novel Experience – J. M. Carter and daughter Oma started to Phoenix yesterday in their new Ford car. But when they reached the river they found it unfordable. A gentleman on the other side of the river headed this way suggested that they exchange Fords.

The exchange was agreed to and each party walked the railroad bridge and took charge of the other's car. The Carters proceeded on their way to Phoenix and the other party came on to Buckeye. After transacting their business each drove back to the river and there exchanged cars and drove home. They were strangers to one another.

CHAUTAUQUA COMES TO BUCKEYE

One of the most popular, educational and interesting events which came to the small communities in the "good old days" was the chautauqua.

Generally 20 to 40 citizens guaranteed the promoters and also helped to choose the speakers and performers, much in the manner of today's Executive Dinner Clubs. The first chautauqua came to Buckeye on March 21, 1918.

Here's the first notice in the *News* of the event:

> The Radcliffe Chautauqua, which is under contract to show in this Valley, has announced its dates for April 2, 3, and 4, that is one week from next Tuesday, Wednesday and Thursday.

Usually the event was held in a tent supplied by the chautauqua people, as few communities had suitable auditorium facilities.

LANDMARK GOES

One of the old landmarks and contributors to the welfare of the Valley was the Flower Pot Cattle Company, with headquarters at Arlington and owned by three fine men. It was in business at the time the *News* was founded in 1912 but apparently the partners decided to turn the ranching chores over to other hands as the *News* reports in the March 28, 1918, issue:

> The Flower Pot Cattle Company has disposed of its range stock and ranch property in the Arlington and Enterprise Valley as well as their large holdings under the Buckeye canal and the company will go out of business.
>
> We do not know what the individual members of the company expect to do, but trust they will not leave the Valley. We can ill afford to lose such men as John Montgomery, Dan Millett and George Cocke and their estimable families. The firm has been quite successful in the cattle industry and we know of no good reason why they should not remain with us and make more money.

STILL NO ELECTRICITY IN BUCKEYE

As has been recorded elsewhere, we do not recall when the general use of electricity came to Buckeye but the McArthur Brothers of Phoenix did a splendid job of bringing in the popular Delco systems. Cy Young, one of the popular men of the town, especially of the teen crowd, is mentioned in the April 4, 1918 issue:

> One of the noticeable and substantial improvements made in Buckeye this Spring by any of the business men, has been made by M. J. Young, proprietor of Cy's place.
>
> He recently installed a Delco Lighting System, together with lights and fans and that popular hang-out now boasts the coolest, best lighted place in town.

THIRD LIBERTY LOAN OVER-SUBSCRIBED

Buckeye Valley over-subscribed its quota on the Third Liberty Loan Drive as published in the April 18, 1918, issue. Each buyer and the amount of his purchase is listed in the *News* of this issue:

> We are publishing this week the names of the subscribers together with the amount of Bonds subscribed for by them. This is done so that all may know who the financial slackers are. In some of the Eastern States the papers are publishing the names of those who did not subscribe. In a small community like ours this is hardly necessary. By reading the following list one can readily note the names that are missing, and as the financial rating of all are so well known it will be easy to determine who is shirking his duty as well as those who are doing their share and more.

LIBERTY LOAN FLAG ARRIVES

The *News* of May 2, 1918:

> Please gaze on that Liberty Loan Flag floating in the breeze in front of the Buckeye Valley Bank, as you motor through town. You will find one in every precinct in the Buckeye Valley, and Buckeye was the first precinct in the county to reach its full quota, and at the rate subscriptions are still pouring in we are very liable to have a star added. A star is added each time a community doubles its quota.

ered with the beautiful blue flowers which kept the bees busy and the huge mesquite thickets along the rivers and canal banks produced one of the most flavorable honeys imaginable.

Here's one of the many items to appear in the *News:*

> A valuable car load of food products left the Buckeye Valley last Saturday. The shipment consisted of 410 cases of honey which brought $9,000 or $22.00 per case. The shippers were Mrs. McDonald of Liberty, P. H. Benson of Palo Verde, T. J. Patterson of Arlington and J. H. Tracy of Buckeye. The shipment goes direct to France and will be enjoyed by the soldier boys. This is the best price ever received by the bee men of the Buckeye Valley.

OLD MAN RIVER AGAIN

August 8, 1918:

> Another raise in the Agua Fria River early this morning stopped automobile traffic between Buckeye and Phoenix. The Wish Stage Line now has a car on each side of the river and is transporting passengers and making regular trips.

AND THE BUCKEYE DAM

August 15, 1918:

> Superintendent Daniel of the Buckeye Irrigation Company has been working unceasingly for the past ten days in an effort to replace the washed out dam. As a result of his labors water was turned into the canal this afternoon.

POLITICAL DIPLOMACY

I have often in this narrative mentioned the zeal and enthusiasm my father exhibited in politics. It was, next to his paper and family, his life. He was a devoted and loyal Republican throughout his life. Yet, due to the heavy Democratic registration over Republican, it was necessary to move cautiously and wisely in the political arena in order to secure the necessary political and legal advertising.

Apparently he became repentant over some remark or item in the paper which inspired this on August 22, 1918:

> I have made a lot of mistakes in my time, pulled a lot of boneheads and turned myself into a fool on numerous occasions. Reviewing all of them I find that I made the biggest chump out of myself when I got mad at friends over politics. The man who lets politics sever the golden links of friendship needs to be made over. Vote as you please and let your friends do likewise and don't lose your temper over it.

WAR AFFECTS ADS

The war has made display advertising almost unnecessary in the *Buckeye Valley News.* In the issue of October 3, 1918, there were ten display ads – all small and one of them was a typical war ad calling for fruit and nut pits. Here's part of the message printed in the ad of the Buckeye Valley Market owned by Walter H. Haugh and E. J. Hendron:

> A few peach stones may save a soldier's life; leave yours here and help make gas masks: Peach Stones, Prune Pits, Plum Pits, Apricot Pits, Olive Pits, Cherry Pits, Date Seeds, Brazil Nut Shells, Hickory Nut Shells, Walnut Shells and Butternut Shells. We need them now! Remember the list. Under no circumstances deposit any other pits or shells.

This particular issue was crowded with legals.

Other merchants, Riley Johnson and Dan Millecam, had a display ad on Page 1 urging people to buy Liberty Bonds. Such was the trend in advertising. I suppose some of these merchants wanted the paper to survive and also were of the patriotic kind who were all out to win the war.

The fall and winter of 1918 was the year of the Spanish Flu and on October 17, 1918, the schools were closed, but one item states: "School has been suspended for another week but will open Monday if no cases of the flu are in the Valley at that time, unless forbidden by the County Health Board."

I JOIN THE MARINES

Here's an item of more than passing interest to the writer and the publisher but of little interest to most others: October 31, 1918:

> Two more young men from this Valley entered the U. S. Marine Service last Tuesday. Fay Richardson of Arlington and Charles A. Mitten of Buckeye. In company with 23 other young men of their age they left Phoenix on the S. P. for Mare Island Tuesday evening. We don't know how the Richardson Ranch will get along during the next few months, but we know the *News* Office has been pretty hard hit.

but he rose early to tackle whatever chore was at hand. And he insisted that the rest of the family and anyone else with whom he had any supervision or control was on the job. And he worked late.

Here's a little of his philosophy as to holiday labor: December 31, 1919:

> It again becomes our painful duty to protest against the manner in which some of the Buckeye Business men desecrate the first day of the New Year by wilfully and negligently abandoning their business and indulging themselves in light and trifling affairs of pleasure. New Year's Day is not a holiday. It is the one day of the year when all should engage in labor, not only for the purpose of acquiring the habit but for the good example it may set to others. Watch the *News* Office; when you find it closed, then you may know a real holiday has arrived.

A PERMANENT DAM

My father had long been a booster for a permanent dam by the Buckeye Irrigation Company. Here's an excerpt taken from the issue of January 8, 1920. Part of the story deals with a land sale in the Avondale area where land was selling for $250 uncultivated and $300 where planted to alfalfa:

> This deal, it appears to the *News*, points a very distinctive object lesson to the people of the Buckeye Valley. If this land, which is not as rich as that under the Buckeye Canal, is worth $250 to $300 with practically no improvements and dependent entirely upon a pumping plant for a water supply, what would our well developed ranches be worth if we had some insurance of a permanent water supply? We honestly believe that, with a permanent dam, the lands in this Valley would find ready purchasers at from $400 to $600 an acre, and that belief is not just a guess.
>
> Land around Phoenix no better than ours, is renting from $50 to $70 an acre while all over the Salt River Valley ranchers are changing hands every day at figures around $500 an acre.

A PROMINENT WEDDING

The writer has listed only a few of the many weddings, deaths, births, during the life of the *News* from 1912 to date (January 15, 1920). It is with pride and a lot of emotion that I list part of the item printed about the marriage of two of my life-long friends, Neva Miller and Marshall Long. Not only did we do a lot of dating in the same auto but also took a lot of the same lies home to our

A PERMANENT DAM

-o-

Stockholders of the Buckeye Irrigation Company Unanimously Agree to take Immediate Steps to Assure an Adquate and Permanent Water Supply.

-o-

History was made in the Buckeye Valley last Tuesday when the stockholders of the Buckeye Irrigation Company, at their regular meeting came out unequivocally for a program of advancement, progress and prosperity. We believe that no other meeting of such far-reaching results was ever held in this end of the county, and the News wishes to congratulate the people of the Valley and the officers of the Company on the steps that have been taken.

After the routine business of the meeting was gone over, the election of a Board of Directors for the coming year was the first matter that was taken up that was of major importance. The final results showed more or less change in the personnel of the Board. Three faithful men were lost, but others who will doubtless prove to be of the right caliber were installed in their place. We refer to C. G. Clugston, who refused the nomination for reelection, Wm. Walton and Geo. E. Harer. Mr. Harer had attended only one meeting of the board, having been appointed in December to fill the vacancy caused by H. A. Hammel's removal from the district, but during his short tenure of office he showed every mark of developing into an excellent member. Messrs Clugston and Walton have served the Company faithfully for many years and deserve the sincerest thanks for their faithful efforts.

To replace these three gentlemen, Messrs Peter Van Lier, L. A. Derosier and P. A. Yarborough were elected and they will everyone, we believe, develop into indefatigable workers for the best interests of the stockholders.

After the election of the Board a question was put to the meeting which has caused much discussion for several weeks, a matter which the News has supported and believed in, all along, that would be put into effect. We refer to Mr. Zander's resolution providing for the authorization of indebtedness in the sum of Three Hundred Thousand Dollars for the purpose of constructing permanent headworks and for completing the rock and wire dam, and a further authorization of Two Hundred Thousand Dollars to be used when deemed necessary to develop this rock and wire dam into a permanent concrete structure. This resolution brought out much discussion and some slight criticism but after the Company's engineer, Harry L. Hancock, had been quizzed as to his opinion of the merits of the proposition, we believe everyone present was delightfully surprised to hear the resolution adopted without a single dissenting vote.

It develops that this program cannot be carried out in its entirety at this time, since the Articles of Incorporation limit the Company's indebtedness to One Hundred Thousand Dollars. In order to change the Articles to cover the situation, thirty days notice is necessary, and plans did not crystalize in time to allow this. However the meeting adjourned for thirty-five days, or until February 16th, and in the meantime all technicalities will be cared for, and the stockholders will again assemble and complete the work so well started.

Under the present circumstances, the Board now has authority to raise funds up to a hundred thousand dollars, but provision is made that fifty-five thousand dollars of this amount must be devoted to taking up the present outstanding bonds. This leaves a balance as a working fund of forty-five thousand dollars, and doubtless steps will be taken before the next meeting to start the ball rolling. It is hoped, by the Board of Directors, that sufficient funds will be available to complete the rock and wire structure across the main channel of the river before the low water period and that ample protection work can be performed before the summer floods. This will give a guarantee of much better service, even within a very few months, and with the necessity for haste, we fully expect to see much of the most urgent work done in time to offset any danger that might be done by the next winter flood season.

NINETEEN MONTHS DROUTH BROKEN BY DESTRUCTIVE STORM

Wind and Rainstorms Visit Various Parts of the Community, Causing Great Damage To Canals and Irrigation Ditches. Phoenix Flooded.

Since our last issue the country has been visited by one of the greatest downpours in its history. In the immediate vicinity of Buckeye four inches of rain has fallen. The resultant damage from the storm has been immense not only in the Buckeye Valley, but in other parts of the county.

The first rain commenced falling Friday night and in a short space of time two inches of rain fell here. As a result of the heavy rainfall on the desert north of us the canal up near the J. H. Tracy place was broken as well as a large chunk of the Beckeye dam taken out. During Friday and Saturday arrangements were completed for commencing repair work on the canal and dam, but Sunday morning another two inch rain visited the valley and as a result the canal was badly damaged as well as the remainder of the dam swept away besides other losses.

Buckeye was not the only community to suffer from flood waters. Phoenix as well was visited by the most disastrous flood in its history causing some three or four hundred thousands of dollars. The cause was the usual one, the flood waters from Cave Creek which have been menacing the capital city for years.

The entire west end of the city and thousands of acres of farm land to the west were covered with water form a depth of a few inches to a depth of five feet. A numbre of buildings up near Six Points were washed off their foundations and some toppled over in the water. More than seven hundred homes were flooded; the State Capitol Building had two feet of water on the first floor of the building damaging the carpets and furniture in every room on the first floor, as well as destroying many valuable records in the basement of the building.

Both the Santa Fe and Buckeye railroad tracks south of the capital building were washed away, delaying traffic on the Santa Fe for forty-eight hours, and the Buckeye road indefinately.

It is reported that the newly paved roads were not damaged to any great extent by the flood. Chairman Jones of the Highway Commission makes the statement that $100 will cover all damage. We hope this is true, but from what we can learn from other sources we are convinced that Mr. Jones has underatimated the damage.

The Agua Fria river, it is said by those who are familiar with the stream, was higher than it has been for years. We doubt whether this is true. The new pile bridge, dubed the "tooth pick" bridge by many withstood the flood in fine shape and is in just as good a condition today as when built. Of course the west end fill which was left open for just such emergencies is the cause. Had this been done four or five years ago as was rquested by those familiar with this treacherous stream, we would still have a good concrete structure instead of the "tooth-pick". However, autoes are crossing the Agua Fria today on their own power, thanks to the opening of the west end of the bridge.

Earl Wish, a former well known Buckeye man was hard hit by the Phoenix flood. Earl is running a service station on Van Buren street just east of the Santa Fe tracks. For twelve hours water to the depth of five feet rushed through his place of business.

The Hassayampa bridge below Palo Verde went out with Friday night's storm, or the east half of it. This is another case of not enough bridge and too much fill.

The Friday night storm did considerable damage in the Glendale and Peoria district. Their damage was caused entirely from the wind. An unusual heavy wind storm struck these towns between five and six o'clock in the evening. Their fine big High school auditorium was badly damaged, the roof and north wall of the building was torn away; a brick garage was badly damaged, the north wall of the building caving in, killing one man and injuring another. Other smaller and lighter buildings were twisted off their foundations and many tent houses torn down and big cotton wood trees uprooted. The same storm struck Peoria unroofing several buildings and causing other property losses. The same storm reached Buckeye about seven o'clock that evening, but the wind had spent its force before reaching her, and the two inch rain that fell here was accompained by very little wind.

This reprint of an article appearing in the *News* of August 25, 1921. One of the most severe and damaging floods in our time. Water from this flood reached the floors of the Capitol in Phoenix.

TOO HOT FOR BOLL WEEVIL?

In the fall of 1921 farm prices had sagged to a deplorable level and many farmers had difficulty in financing their annual water payments and preparing their fields for fall planting. The *News* of November 10, 1921, carried a long, disheartening article "What is in Store For Us in the Future." The writer harrangued the city papers for crying prosperity when nothing in the Buckeye Valley seemed to coincide with that phrase.

Grain prices were down, the market for hay had slipped and long staple cotton was entirely out of the picture. In this article it was proposed that inasmuch as the boll weevil had made the cultivation of cotton a losing enterprise in the southern states that perhaps a few hundred acres in the Buckeye Valley might be tried as an experiment because "In fact the cotton growing states in the south had entered into an agreement not to raise cotton for at least three years in the hope of eradicating the boll weevil. This it seems to us is driving the cotton industry to the Southwest where the weevil cannot live in our summer climate."

When I read my dad's statement about the boll weevil I contacted a friend, former county agricultural agent John O'Dell. John says that my dad's statement was more fancy than fact. Mr. O'Dell says the boll weevil as well as most other cotton pests seem to thrive on Arizona's sunshine and summer heat. The story came at a time when the farmers of the Southwest were looking for something that would bring them a profit -- and my dad was helping with the problem – or thought he was.

CAUSTIC EDITORS

In many instances editors of distant papers, and on many occasions not too distant, started feuding between themselves and in the early days – prior to our time – duels have been fought to settle the honor of one or the other editors. My dad never missed an opportunity to dig at the Phoenix dailies and part of this was to keep business at home and to help local merchants in their businesses.

However, the *News* of January 12, 1922, states:

> It is plain that great interest is being shown in the revival meetings which are now being held at Wickenburg. Glory be! For if there is a town in the state that needs religion it is Wickenburg. For years they have been noticed as a most quarrelsome set of people in the

the 11 years he published the Buckeye paper he carried very few display ads in competition to Buckeye merchants. Without the legal notices coming out of Phoenix as the capital and county seat, the *Buckeye Valley News* could not have survived as long as it did.

This issue of August 4, 1921, prints an item about alfalfa seed which is a sample of hundreds of similar items in boosting the Buckeye Valley:

> Mulford Windsor, while in Phoenix recently, disclosed that Yuma county was the premier alfalfa seed district of the world. All right, Mulford, we will remember this the next time you run for governor or something.
>
> What he should have said was that Yuma was the premier alfalfa seed district of Yuma County. The Buckeye Valley has long held the distinction as being the premier alfalfa seed district of the world and still holds it. Just to prove it we will quote figures. The average yield in the Yuma Valley this year was 150 pounds per acre, while in the Buckeye Valley the average was 250 pounds per acre. Several ranchers in the Buckeye Valley report a yield of 500 pounds per acre on forty acre fields and several 100 and 200 acre fields made an average of 400 pounds per acre. Buckeye is not the largest body of land surrounded by desert in Arizona but it is the premier alfalfa seed county in the world.

THOSE GOOD OLD DAYS

Entertainment in the Buckeye Valley in the teens and early 20's consisted principally of the yard parties on Sunday, the Saturday night dances in Joslin Hall and the baseball games between teams of Palo Verde, Buckeye and Liberty.

The open air movies had their place and during the years of the *Buckeye Valley News,* 1912 to 1923, many efforts were made by several promoters to keep the summer show going. It was about this time that the phonograph began to appear on the market and this item in the *News* of August 18, 1921, lists some of the aristocrats who were able to enjoy them:

> We are glad to note that times in the Buckeye Valley are gradually getting back to normal. We are led to this belief by the numerous sales of phonographs that have been made recently. During the week Buck Bean, Mrs. Harold Miller and Miss Lena Stansbury had each purchased an Edison machine.

OIL DREAM BLOWS

Over the years many dreams of wealth have come to all men.

Many such dreams have been printed in the *News* as possible realities if only given a try. We are not sure just how deep a well was drilled by Mr. Millage in his efforts to find oil, nor do we know how far those who took over from him drilled.

However, here's the folding of the oil dream and the loss of money suffered by a lot of Buckeye citizens. On August 18, 1921, the *News* reports the passing of the oil dream:

> Many people of the Buckeye Valley are wondering where they stand with reference to their investment in Palo Verde Oil and Refining Company stock. They know that the drill rig, casing, tools, buildings and other equipment, the only physical evidence of their money, has been removed from the Valley, and it is supposed that it has been located somewhere on the desert out near the White Tanks, but they do not know what led up to this removal, what will be done with the property, who is in charge of the affairs of the company, what the future plans are, and a great many other things about the entire business.

MITTENS NOT VACATIONERS

As the summers came and went at Buckeye and my youth passed into manhood I can remember few vacations the Mittens ever took. Of course the paper had to be printed each week and there were two printers in town, my dad and I. This allowed for few outings.

Not only the time schedule but also the matter of money entered into the summer vacation dreams of the Mittens. Our farmer friends could get away between hay cuttings and seed harvest and businessmen could take turns with their partners to get away from the tremendous summer heat. But here's the argument of the editor of the *News* on taking a trip. August 18, 1921:

> We have determined that should we ever decide to take a vacation we will go and come on the "varnished car" route. We wouldn't drive a car from here to the coast or the northern part of the state if someone would furnish the gas. Sure, lots of folks do it and claim they enjoy it while others eat salads, play golf all day, read Dickens works and Ring Lardner junk, and even go up on the canal bank and cook a meal for an "outing". What a wonderful thing this freedom is, so we can all think as we blamed please, only some of us merely think. We never say anything.

BIG FLOOD OF AUGUST, 1921

Here is a reprint concerning one of the most disastrous floods to hit Buckeye and the entire Salt River Valley. This is a reprint from the *News* of August 25, 1921:

Phoenix. In fact, as soon as the cement is uncovered, we can drive from the bank in town to Chandler, Mesa and other parts without once getting on the dirt with the exception of a short fill at the Agua Fria.

DAM - DRAINAGE?

In the 11 years of the life of the *Buckeye Valley News* and my connection with it during those years from 1912 to 1923, there was probably never a year that the Buckeye Dam was not damaged by flood waters of the Gila, the Salt or the Agua Fria Rivers. And usually all three rivers made an assault at the same time.

Later, as the land of the entire Salt River Valley became in need of drainage, the Buckeye lands also began to need drainage.

At long last a plan was worked out for a permanent dam and a drainage system. Plans were accepted for a permanent dam by the directors of the Irrigation Company.

As with many similar committees it was a most difficult matter to get both ends of the valley to agree on a permanent dam and a drainage district all worked into one bond issue. The cool and persuasive minds of such men as George P. Brown, H. M. Watson, J. G. Schwiekart, Nate Sanders and others held the organization together, but legal battles initiated by a few kept the plan of the majority from bearing fruit. Because of misunderstandings, unsettled financial conditions and to a certain degree some selfishness, the Buckeye Dam as a permanent structure was never completed.

COULD IT BE THE REPUBLICAN REGIME?

The days of the disastrous cotton debacle of 1920 seemed to have disappeared and a very prosperous time has come into being in the Buckeye Valley according to this item of June 29, 1922:

> The merchants of the valley are doing a better business than for the last two years; farmers are working from daylight to dark; the garages are running to capacity; labor is at a premium and there is a job for everyone who wants to work; fried chicken is plentiful; water melons and cantaloupes are getting ripe; roasting ears will soon be ready for eating; there is plenty of water in the canal for irrigation purposes, and enough left over for an evening swim; summer crops are being planted; the thousand cows of the valley are producing a generous cream check every month; barley is a fair price; we can borrow enough on our wheat – if we do not wish to sell it – to care for our immediate needs; the interest on our notes is paid and part of the notes themselves have been taken up. Looking at it from every view point we don't agree with those who say that prosperity is returning. "She has already came."

TRAIN SERVICE CUT

One of the first and disappointing results of the paved road from Phoenix to Buckeye is the curtailing of telegraph and railroad service to Buckeye. On August 24, 1922, the *News* reports;

> The town of Buckeye, as a railway metropolis, will cease to exist on the first day of September, for on that date the local office of the Arizona Eastern Railway Company will be closed indefinitely. This will also mean the closing of the only Western Union telegraph office nearer than Phoenix. The regular tri-weekly train schedule will be discontinued and for the time being at least, one train a week will be run over the line . . . .

STYLES THEN AND NOW

With the mini, the maxi, and the midi which is so much in the news today (1970) we learn that women's fashions are always in discussion both in the press and on the street. This editorial is taken from the issue of September 14, 1922:

> There are many arguments both for and against long skirts. Those favoring them say they will sweep the country, once they get started. The longer skirts will require more material, which will give more men employment in the factories. There being little to see, they say, the men would just as soon work anyway. The great army of men unemployed are not out of work because of principle, but are merely taking in the sights. Those who oppose them say that the long skirt will not be popular, because of the fact that many well formed evidences, now plainly seen, will be left to mere conjecture. They claim that they are likely to cause estrangement between the sexes because we will not see as much of the women as we now do. While we have endeavored to remain neutral, it strikes us that the men who favor long skirts are short sighted. The study of anatomy has to us been one of the most interesting in nature, and we should regret to see it become a lost art. However, the question of lengthening the skirts should be referred to the extension department.

NEW BUCKEYE JUDGE

After four two-year terms as Justice of the Peace in the Valley my father was defeated in the 1922 election by a neighbor, E. J.

be forced to give ocular proof that this is untrue, but in order to continue publication, as we have intended to do all the time, we must of necessity prove that somebody has exaggerated to say the least. Whenever the *News* suspends publication its readers will be notified and as we stated some time ago you are going to keep right on getting your paper despite rumors to the contrary.

As we close this narrative of the 11-year existence of the *Buckeye Valley News,* established February 12, 1912, we are searching for the last issue under P. R. Mitten ownership. One of the Beloats, Mrs. Irene Butler, handed me a copy of the *News* dated March 29, 1923. Apparently its demise came soon after this date.

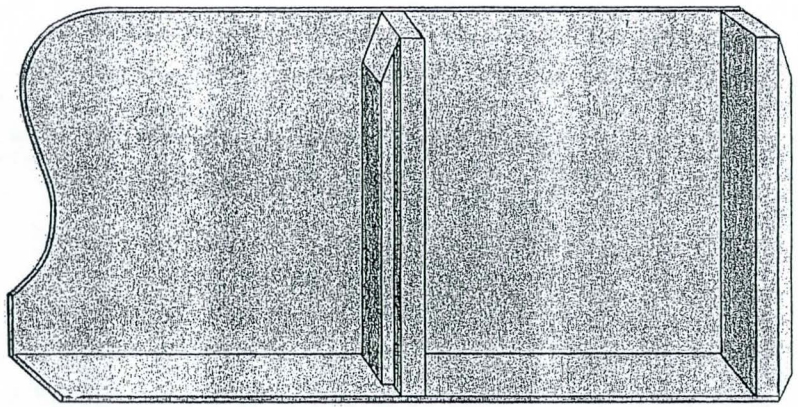
I have searched the State Library, the Arizona State University Library, the Arizona Historical Society and the Arizona Museum at Tucson seeking the last issue, but to no avail.

After two denials of the coming suspension I wonder what the editor wrote in the last issue?

Were the paid-in-advance subscribers refunded?

These are questions which are becoming more and more difficult to answer as the pioneers pass from this world.

My apprenticeship on the *News,* my youthful adventures in hunting, courting, and to some degree schooling, are perhaps the most interesting and carefree of my 71 years on earth.



Composing Stick – About obsolete. Used in hand-setting body type for hand-set papers.

APPENDIX

There were two great floods recorded in the early papers of Buckeye.

The *Buckeye Blade* of March 2, 1891, records probably the most disastrous flood of the Valley's history and loss of life and property was reported at a minimum only because the Salt River Valley and Buckeye Valley were so sparsely settled and the lack of communication eliminated the present day opportunities of getting and transporting the news. There was undoubtedly loss of persons, animals and property not mentioned.

In the flood of 1891 the waters of the Gila, Salt and Agua Fria Rivers were in no way impeded by dams. The flood of 1921 as recorded on Page 176 was impeded to some extent by the Roosevelt Dam. However, the other dams, the Horse Mesa, Mormon Flat and Stewart Mountain on the Salt, the Coolidge Dam on the Gila and the Bartlett and Horseshoe on the Verde had not yet been constructed. (Reprinted from *Buckeye Blade,* March 2, 1891)

THE FLOOD
The Gila Combined With the Salt And Agua Fria Make Terrific River

No time in the history of the County has the Salt and Gila Rivers ever been as high as those of recent date, and the County is very fortunate from the fact that there is such a small amount of damage to property and loss of lives, if any. It is true that Maricopa and Phoenix railroad company are heavy losers, and considerable damage occurred to Phoenix and Eastern addition. The loss of the former could not have been prevented but the latter is a victim of tin-horn speculation and down right carelessness, by the parties controlling the Maricopa and Grand Canals. Phoenix has time and again been warned by the defective headgates in the above canal, but as experience generally teaches a sad lesson, it is to be hoped that the country east of it will be immediately protected.

The head of the Buckeye Canal was severely damaged. The headgate and cribbing were washed away and the canal filled to a depth of about seven feet for about a mile from the head. About two and half miles from the head the canal broke, which allowed the debris and sand to wash out, leaving the canal clean and at

about the natural grade excepting the first half mile. The main current is sweeping through where the headgate formerly stood.

Mr. Toothaker's station at the Buckeye crossing, four miles below the head of the canal, was completely washed away. The family saved all their household effects and are now living as comfortably as circumstances will permit in a couple of tents just across the canal.

On the South Extension, the ranches nearest the river were partially over-flowed, which was more of a benefit than damage.

Mr. A. Akins' house and corral on the bank of the river south of town went off in the swim.

The ranches of Messrs. J. A. Weilder and Ed Tovrea, four miles southwest of town, were completely inundated. The water raising around the houses to the depth of five feet. Although built of lumber, fortunately the water failed to move them an inch.

The ranch of Mr. W. H. Weinscott is completely ruined. The best land, about eighty acres, was very low and close to the river, was nearly all cut off into the river.

Mr. G. A. Roberts and family were placed in a very critical position for several hours. A strip of land runs around on the north side of their ranch, and as the river rose this swag formed a slough which at its highest stage was half a mile wide. Before the water had raised up to the house, the slough on the north was running like a millrace, and they discovered after it was too late, that they were imprisoned on an island which would not stand more than a raise of twelve inches higher to cover it. The family was compelled to vacate their house as a portion of it was adobe, and move upon higher ground, where in the open air and rain they experienced a most miserable night. The neighbors, recognizing the perilous position of those on the island, hurriedly constructed a raft for the purpose of rescuing them. It was about 9 o'clock p. m. when Messrs. J. C. Barnes, W. D. Shakler and Irvin Barnes, put out from shore on the raft to cross the slough, which was accomplished without much trouble. Mrs. Roberts and her daughters, Misses Lillie and Callie, were first taken aboard, but the raft would not bear the weight and they were obliged to return and wait until the raft was taken ashore and enlarged. In the second attempt the two boys, Oscar and John, were taken on the raft. But as it began to reach deep water it began to sink, and not until the water was up their knees did all except J. C. Barnes desert the raft and wade back to the island. The raft, relieved of its load, came to the surface, drifted a short distance and coming in contact with a mesquite tree it turned up on its side and sank. Mr. Barnes quietly climbed the tree and after a few minutes rest plunged into the water and soon joined the others on the island, which was then reduced to about an acre. Charles Parker came to Buckeye about 11 o'clock for assistance and said a boat was necessary in order to reach the island. So all hands went to work in dead earnest to build a boat, Judge L. O. Wiley acting as designer, contractor, and carpenter with A. J. Akins and Mr. Elder as assistants. After the boat was finished, a drive of six miles had to be made. It was daylight when the relief party arrived on the ground and the river had fallen several feet but the boat was launched and it floated like a cork, and in a short time all were landed.

At the head of Wolfey's dam the residence of Colonel Dennis Madigan was surrounded by water to the depth of several feet. The Colonel seemed to think it didn't amount to much and mechanically erected a booth for himself and wife in the boughs of a large mesquite tree, where they were prepared for the siege. The following day John Mullen discovered their temporary residence and riding to hailing distance asked if they didn't want to come out. "No," answered the Colonel, "we are all right."

Taking everything into consideration, the Buckeye country fared remarkably well, from the fact that the greatest flood ever seen in this country, has only covered a small portion of the lowest land.

THERE IS NO BUCKEYE DAM NOW

The 11 volumes of the *Buckeye Valley News* which have been covered in this short narrative tell of the havoc wrought by the muddy Gila, Salt and Agua Fria rivers and of the money spent by the farmers in repairing the canal, headgates and of rebuilding the rock and brush dam.

The Mittens left Buckeye in the spring of 1923 and since that time the stockholders of the Buckeye Irrigation Company have fought the droughts, the floods, water-logged land and instigated many a court battle for their fair share of the precious water needed for crops.

Inasmuch as there is no Buckeye Dam today my readers, not familiar with the history following suspension of the *News*, will wonder how the farmers of this prosperous Valley get their water.

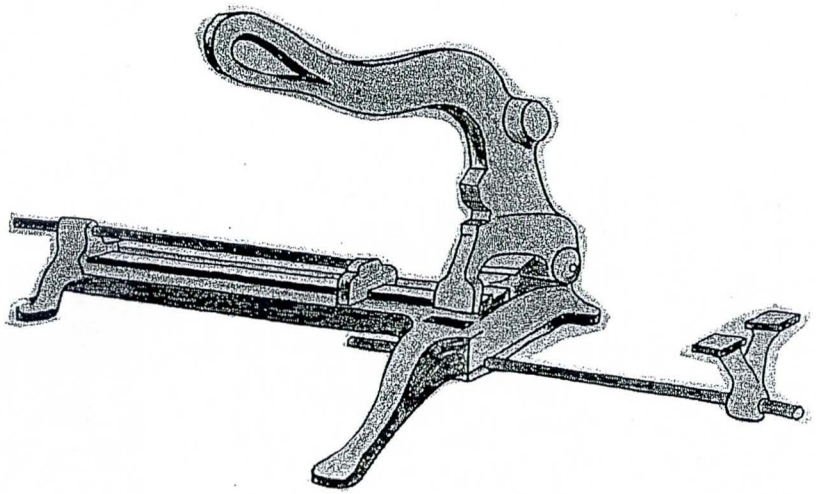
Litigation between the shareholders of the Buckeye Irrigation Company and the Salt River Valley Water Users Association and many other water users along the headwaters of these streams has resulted in a court order to have released to the farmers of the

Buckeye Valley sufficient water to satisfy the original filings in 1890 of the 50,000 miner's inches as recorded at that time.

These amounts of water coupled with pumps along the canal right-of-way and in other locations have done away with the old dam.

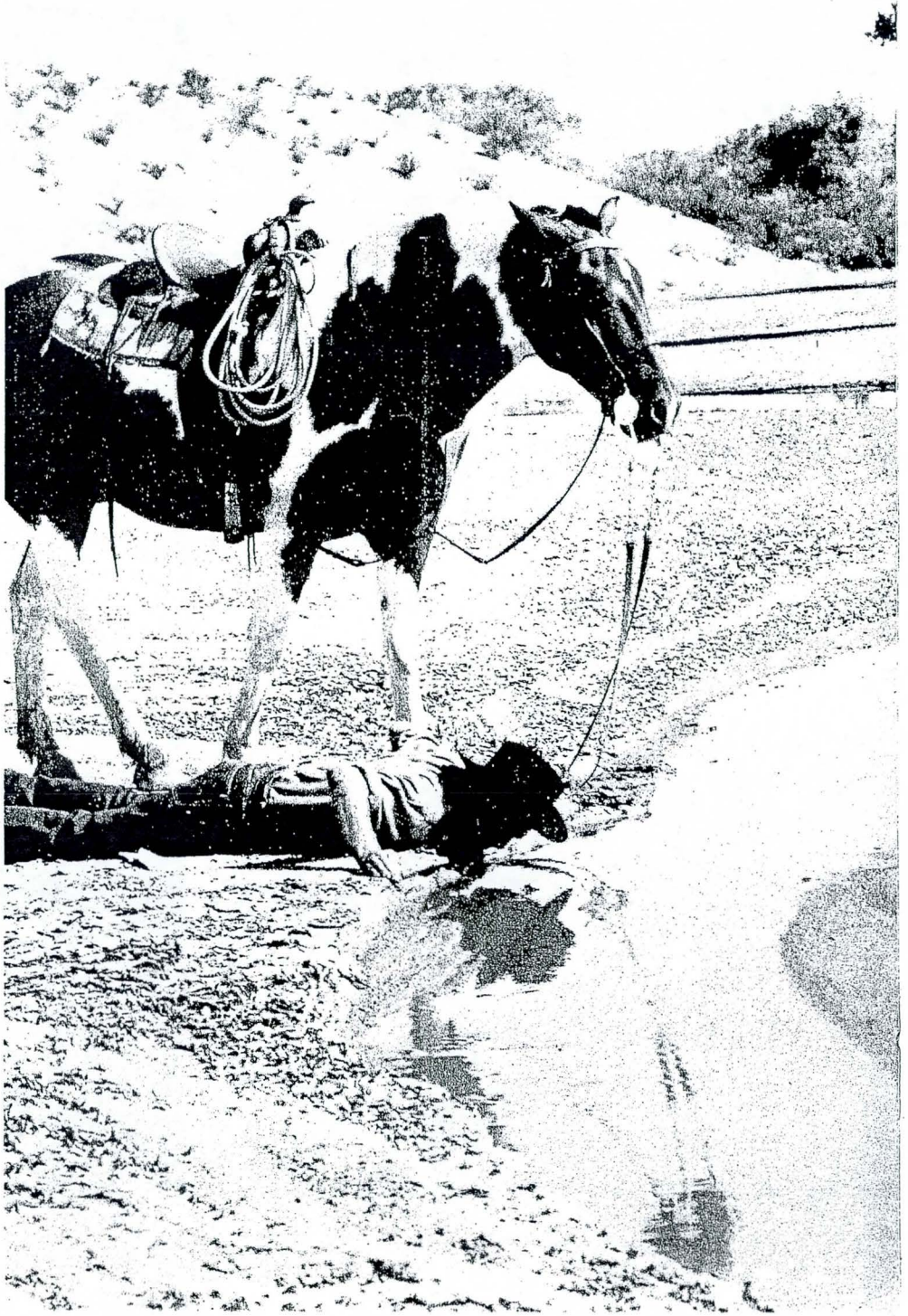
The dams along the three rivers, and the water later appropriated by the various Indian tribes along the headwaters of the rivers, have almost completely dried up these streams and there is no need today for the Buckeye Dam. It is only about once in ten or twelve years that any river water passes the old Buckeye Dam site.

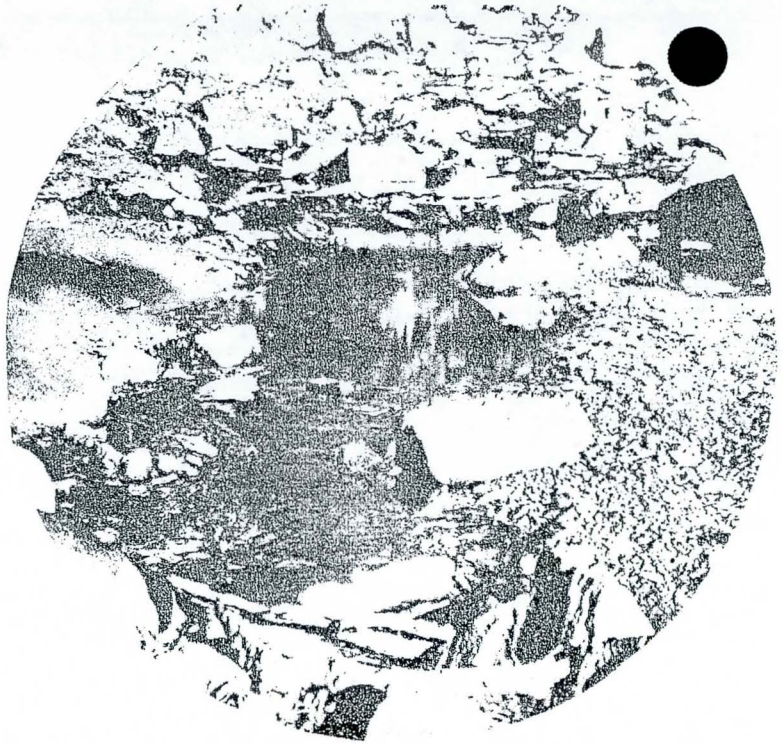
The history of the Buckeye Irrigation Company is an interesting story and well told by I. H. Parkman in his history dated January, 1957.



Rule and Slug Cutter – Not used much nowadays and only in hand-set and commercial printing shops.

CA Stm And the Valley through which it flows





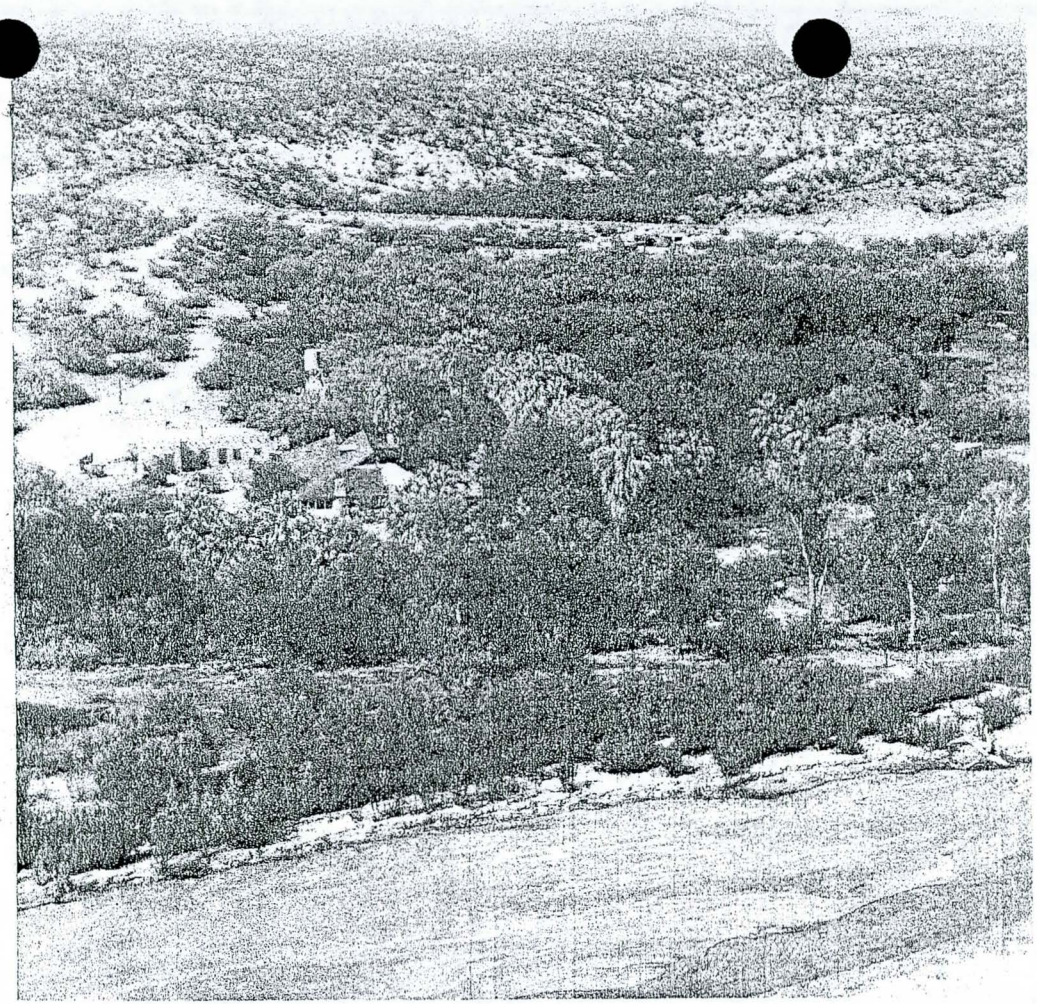
In a quiet little canyon on the rock-strewn slopes of the Prescott district's Mount Union, not far from the exact center of the State of Arizona, is a quiet crystal-clear pool. Its face beams with the reflection of the blue sky above, and through the patches of shadow cast by the foliage overhead are visible a host of varigated colors that rise from its shallow depths. At the lower end of its scant five feet in circumference its face is only slightly dimpled by the ripple of its overflow. The water that spills out between the rocks could be measured in teaspoonfuls. As it is difficult to foresee the strength and stature of the man that is to follow from the first glimpse of a new-born babe, so the first look at this infant beginning gives little indication of the mighty stream that is to develop from this tiny trickling, once it has gathered volume and force.

Here life pulses but feebly in the serenity of the pine forest. Here without fanfare a great river is quietly born; and it is from a birth as humble as this that rises the famous and powerful Hassayampa.

The name "Hassayampa" is an illegitimate one. Originally listed as the Oolkilsipava in the first historical records of the white man's exploration of central Arizona, the old Indians in the area described it as "the river that flows upside-down." 'Tis said that its present name originated with Pauline Weaver who, upon reaching its banks as the head of

an exploration party, took note of its prodigious underground flow and the wide expanse of its sandy body, and called it the "Aziamp" or "Assiamp." The name apparently was brought with him from the Indian tongues he knew while guiding and trapping in western Arizona and means "water that is hidden." This latter description is the more accurate, for the water of the river's flow is almost entirely concealed in the sand and gravel of its bed that lies up to a hundred feet deep upon solid bedrock, with only a small stream visible here and there on the surface. In later historical records the name "Aziamp" was changed to read "Hassayamp" by the recorder who "kept books" for the Walker Mining District flanking its course, because, to use his own words, "it sounds more Spanish." Subsequently those who lived and worked along the banks of the river became known as "Hassayampers" and it was the reflection from this quaint appelation that brought about the addition of an "a" to the original spelling. Since then the full name "Hassayampa," illegitimacy and all, has been generally accepted and remains in use to this day.

Coursing its way merrily for the first half of its one hundred and fifty miles of length through the rugged timber country of the higher elevations of central Arizona, where winter snows breathe into it the breath of life and pine needles form a cushion for its head, the Hassayampa flows with equal gayety for the latter half of its length through the bosom-warm sands of the lower elevations of the state to the south, locally called "the desert." Here ten miles west of Buckeye it buries its feet firmly in the valley of the Gila, where the waters of the two streams merge and elope full-grown to the Rio Colorado, the Gulf of California, and thence to the Pacific. Enroute it flows through but one sizable community — Wickenburg. Throughout its valley along the way are to be found some outstanding gems of scenic beauty, a climate that is without superior anywhere and many other manifestations of a beneficent nature that set it apart as a place especially favored by a kind Providence. For those who care to look more closely there are also to be found the footprints of history, the birthmarks of a rising culture and a current way of life that is best delineated by the gently swirling patterns left in the sands of its great bed by the waters of an occasional flood.



Going over the backtrack of history, very properly the Hassayampa could be called the parent of greater Arizona's early exploration and subsequent development. It was the glitter of gold — placer gold, generously fortified with sizable nuggets — first found in extensive quantities in the valley of the Hassayampa, that originally lured the adventurers of the 1860's to the hitherto unexplored wilderness of central Arizona. As the news of their wealthy finds became widespread the first result was consideration by the federal government, at that time sorely in need of gold. Arizona was split off from New Mexico and established as a separate Territory. A territorial government complete with military facilities for the "protection" of the population of miners was provided. Transportation of that day was expanded and rerouted to supply the new rapidly growing area. New businesses came into existence because of the demand. Sizable communities were built, ever growing larger and

humming with activity. Eventually the demand for supplies grew to such proportions that the idea for the irrigation and bringing into production of the large flats along the Salt River to the south was conceived and executed, resulting in what is now the Salt River Valley Irrigation Project.

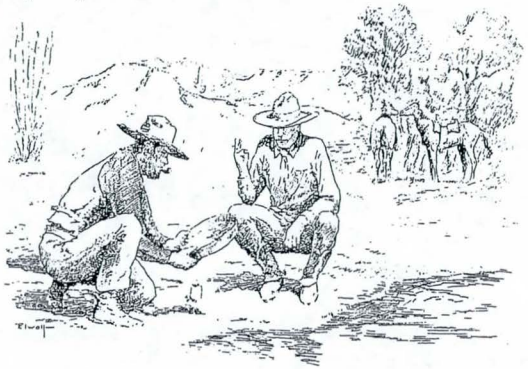
Because of all this activity, the railroad with its construction camps established every fifty miles came in. Settlers were attracted, farms and ranches were laid out, others came in to occupy them; the Territory achieved statehood, and so the present State of Arizona came into existence. And the point of beginning for all of this "white man's development" was at the headwaters of the Hassayampa.

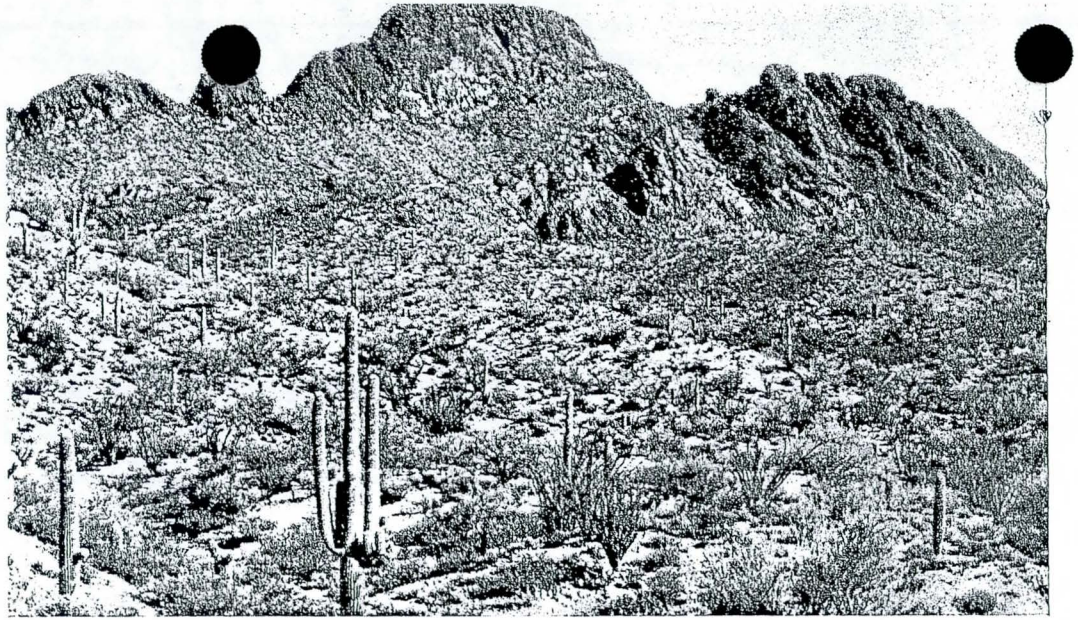
Detailing the process a bit, it was Joseph Reddeford Walker who started the influx into central Arizona Territory. As a young man he had come west with Bonneville, and later trapped for beaver along Arizona's rivers between 1834 and 1840. During that time he reportedly found "a metal" along the banks of one of the streams which many years later while in San Francisco he identified as gold. Organizing a party of nineteen men at Keyesville, California, in 1861, he set out to re-discover the source of his precious sample, and in the ensuing months traveled as far east as the Little Colorado River north of Winslow. The quest proving futile, he and his party spent the winter in other pursuits in southern Colorado, and the following spring re-organized to resume the search. Coming down through Taos, New Mexico to Fort Craig the party followed the "old trail" (later to become the Butterfield Stage Trail) to Tucson, and thence across the "Great Desert" or "Gila Desert" to the Pima Villages, located to the northwest along the banks of the Gila River. From here the line of march continued down the Gila to Oatman Flat where a crossing was made so that the Hassayampa, leading up into the mountains, could be reached more quickly by overland travel. This was in the spring of 1863, and as the weather grew warmer the party moved up that stream to the pine-clad slopes that beckoned a cool welcome in the distance. Establishing a camp only a few miles south of the present site of the City of Prescott, near the head-waters of the stream, short explorations were made to adjacent creek beds; and it was a member of the party by the name of Sam Miller who first found gold on Lynx Creek only a short distance away. By this time food supplies were running low and it was decided to cache all belongings and make a hurried trip back to the Pima Villages for supplies. While there, and to let the rest of civilization know where he and his party were, Walker left letters with the friendly natives addressed to the freighters who occasionally came through. These letters, revealing the discovery of gold, brought a flood of prospectors and adventurers to the banks of the Hassayampa, principally from California where gold-seekers were finding their diggings less and less profitable.

These letters also brought attention from the administration of President Lincoln in Washington, at that time in dire need of gold for financing the cost of the Civil War and the reconstruction period to follow. To make secure the area and its new-found wealth for the Union, Arizona was established as a separate territory from New Mexico and a governor appointed. Assigned a military escort, this group came in from the northeast and established "Camp Clark" at "Del Rio" near the head of Chino Valley some distance to the south of the present town of Ashfork, as a "safeguard" for the members of the Walker party and the others that were to follow. After contact had been established between the two groups, the camp, later called Fort Whipple, was moved down to the southern end of Chino Valley just north of the present City of Prescott where it has remained ever since. So was laid the ground work for the development of Northern Arizona.

As the news of the discovery of gold in the central portion of Arizona Territory became widespread it eventually reached the ears of one A. H. Peeples who was becoming more and more dissatisfied with his workings on the Kern River in California. With two others he decided to come over and try his luck in the new field. Arriving at Fort Yuma, he met Pauline Weaver who had been guiding parties in the La Paz area, and induced him to join his party as a guide. At the same time the party also picked up an emigrant from Germany who was well versed in minerology by the name of Henry Wickenburg. This small band, now known as the Weaver Party, headed up the main stream of the Rio Colorado, left it at the mouth of the Bill Williams to travel east, and eventually wound up in the vicinity of what is now Yarnell Hill. Here Peeples one day killed three antelope atop a flat-topped mountain, and as a result named it Antelope Hill, a name which has endured to this generation. After packing the kills back to camp, the party "jerked" the meat, (cut it into strips for drying,) and while it was curing set out to do a little prospecting. One of the party was rewarded with a modest strike. This find established the presence of gold in a second locality bordering the Hassayampa. Subsequently many other rich strikes were made in what is now known as the Weaver District and the adjacent areas, the more famous of which are Rich Hill, Octave, and the Congress properties.

The third and by far the richest discovery of gold along the course of the Hassayampa, however, was made by Henry Wickenburg in 1863 at a point about fifteen miles west of the community which now bears his name. Having listened around the campfires in Peeples Valley just north of Antelope Hill to the glowing tales told by the famous scout K. S. Woolsey of gold supposedly existing in large quantities in the mountains which cropped up out of the desert to the southwest, Wickenburg became interested. In the fall of 1863 he organized a party to explore the region. After properly outfitting themselves with the traveling necessities of that day, he, Theodore Green Rusk (also known as "Verde Green"

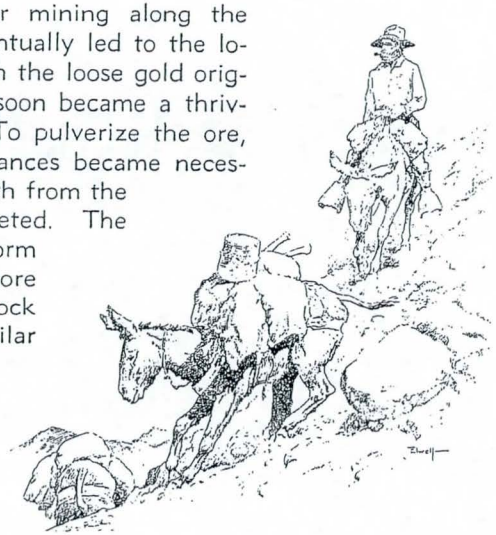


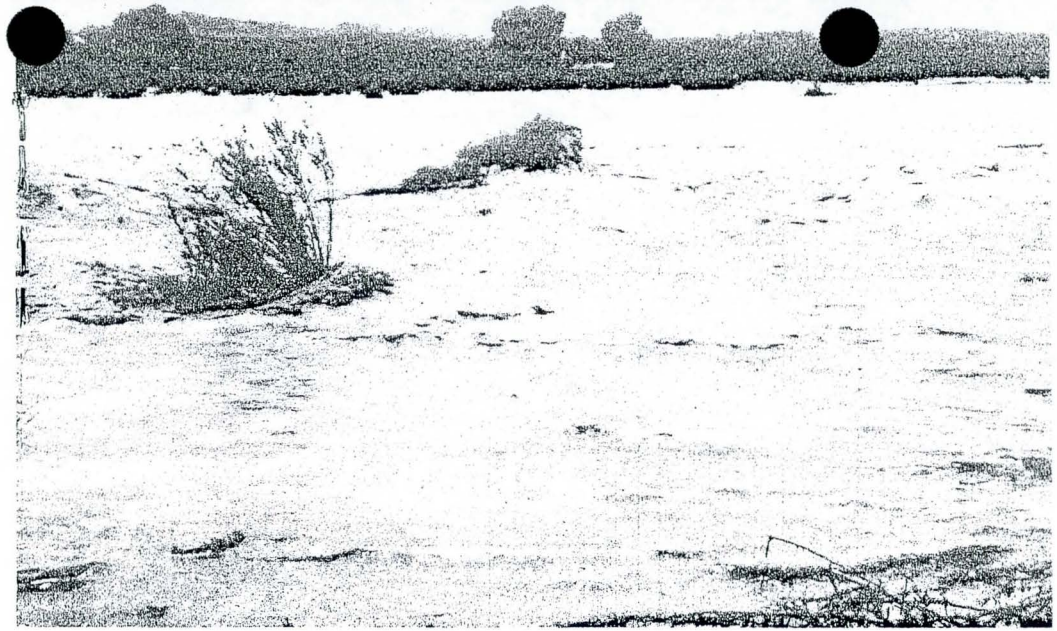


or Theodore Green) and one E. A. Van Bebber journeyed down the course of the Hassayampa to "the sink," site of the present Town of Wickenburg, where several springs poured their cool contributions into the bed of the river. Here they established a base camp. From this point the party scoured the waterless region to the west as far as the Harcuvar and Harquahala Mountains, a distance of some fifty miles, where the rich gold deposits were supposed to be. In spite of the wide extent and the thoroughness of their search not a single promising prospect was uncovered. Discouraged, tired, and with food and water supplies running low the party eventually gave up the quest and returned to the base camp on the river. In the coming and going, however, the dauntless and active Wickenburg, who had led his companions a merry race over the whole rock-strewn area, wanted to detour to the south where he had noticed a prominent dyke-formed (dyke is used in the geological meaning) mountain rearing its dome-shaped head into the blue sky above. The rest of the party out-voted him on this proposal apparently for they all continued their return journey to the banks of the Hassayampa. Wickenburg, after a day's rest, began agitating for a second exploration trip, but when his companions expressed themselves as preferring the cool shade of the Cottonwoods along the stream to the trying, difficult, dangerous and highly speculative prospect of another unrewarded endeavor, Wickenburg was forced to set out by himself. Exactly what happened while he was out alone is the subject of many conflicting versions and much controversy, but the story most generally accepted is that after some difficulty he finally arrived at the base of the mountain which had originally attracted his attention and made camp. After searching the area thoroughly he found little to encourage him. About to pack his burros and leave, Wickenburg had difficulty in rounding up one of the hobbled beasts that had learned to run three-legged fashion in spite of its hobbles. Exasperated and completely out of patience with the elusive animal which had led him a lengthy chase some distance from camp, Wickenburg, normally a very patient individual, picked up a piece of rock and threw it at the ornery critter to give vent to his feelings. As the rock sailed through the air Wickenburg's keen eye caught a gleam of reflected sunlight. Recovering the piece in great haste Wickenburg examined it carefully, and sure enough, there — embedded in its rough surface — was gold — free gold. Shortly thereafter, Wickenburg returned to the base camp on the Hassayampa and reported his find to his companions. Indifference and doubt seemed to exist on their part, however, for it was some time before the group could be sold by the energetic and optimistic Wickenburg on the idea of returning with him to explore and develop his discovery. Examination proved the property very promising, however, and the party immediately set up the customary monuments marking the corners of the claim, under the influence of an entirely new attitude toward their roseate friend. It was during this operation that Wickenburg, always alert to what was going on about him, noticed a vulture wheel overhead and then alight on the top of a ridge to watch the odd behavior of the human beings below. This happening prompted him to call his find "The Vulture," a gold mine which in the years that have passed since has produced over ten million dollars worth of gold bullion.

Thus it was, that in the space of two short years the region of the Hassayampa zoomed to top importance in Arizona, made famous by three major gold strikes in the area bordering its shores. An odd condition attendant is the fact that the three men who were identified with the making of these strikes all wore names beginning with "w" — Walker, Weaver, and Wickenburg.

As the pursuit of placer mining along the course of the Hassayampa eventually led to the location of the ledges from which the loose gold originated, hard-rock mining also soon became a thriving industry in the vicinity. To pulverize the ore, construction of milling contrivances became necessary to recover the hidden wealth from the hard rock in which it was secreted. The first of such devices took the form of arrastres, which were little more than oversized burro-operated rock and cement grinding tables similar to those used of old for grinding grain. These crude affairs served their purpose well but required the use of water to complete the recov-





ery. As a result, most of them were built on the banks of the Hassayampa, and at one time more than forty of these devices were in operation at what was then called Wickenburg's Ranch. As more and more people came in, the place grew, and the word "ranch" was dropped. So there came into existence the community of Wickenburg. At one time the Wickenburg of that day had a population of over 1200 people, the largest community in the Territory, and the claim is made that on one occasion, it missed by only two votes the distinction of being made the capital of the Territory.

Only once in its existence so far has the Hassayampa ever been harnessed, and then only for a short time. At the height of its gold-producing fame those who lived and worked along the shores of the Hassayampa had one difficult problem, that of securing enough supplies. Machinery, tools, and all the necessities of life either had to be brought over from California by boat to Ft. Yuma and La Paz and then be "freighted" in from the west, or they had to make the long overland wagon-trip from New Mexico. Neither was very satisfactory as far as food was concerned. To overcome the difficulty several of the more progressive and far-sighted citizens of the area conceived the idea of building dams across the river to provide water for irrigation and farming. One such project organized along the upper reaches of the river was designed to first use the water for sluicing down the larger placer fields on the slopes of Rich Hill, and then re-use the water that was to be recovered in the wash below for irrigating purposes. The project attracted considerable attention and also some eastern capital.

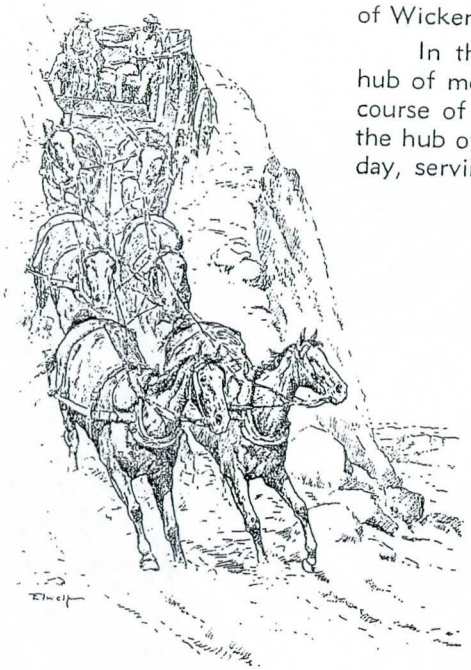
In the late 1880's construction was started on the first dam at Walnut Grove, an earth-fill structure a hundred feet high. In the early winter of 1889-1890 the project was rapidly nearing completion when a series of heavy rains set in. By February of 1890 the dam was brim-full and the rains were still falling. The workers struggled feverishly to finish the job. Nightshifts were put to work and all available hands concentrated their efforts, but to no avail. On the night of February 22nd, its inadequate spillway choked with debris and its flood-gate jammed with logs that had been washed down from above, the water finally overflowed the top of the dam to a depth of several feet as the result of a sudden downpour, and in the space of a few short minutes thereafter destroyed it completely. Old-timers say that it took the water that was released only 45 minutes to travel the forty miles from Walnut Grove to Wickenburg, and that in some of the "narrows" the wall of water that came down was forty feet high. Among the material losses of the disaster was a large safe belonging to the leading saloon in the construction camp. Many are those who have spent time since trying to locate it in the sandy bottom of the river, in the belief that it still contains a sizable fortune in gold-dust and jewelry. The greater part of the pleasant little ranches that bordered the river at that time were destroyed or made worthless by the flood, and their occupants driven to higher ground. Seventy-nine bodies were recovered and buried as the waters receded, most of them residents of the construction camp that was located just below the site of the dam.

So the mighty Hassayampa shook off the restraining influence of man's attempt to impound its power for his own purposes. A few scars of that unhappy attempt are still visible on the canyon walls, but the waters of the river, completely unaware of the toll they have extracted to keep their freedom, pay no attention to them as they now once more glide smoothly along southbound. In the years that followed, all plans for the construction of irrigation projects designed to supply the resi-

dents of the Hassayampa district were transferred to the valley of the Salt River to the south. This venture proved to be highly successful, and thus was laid the foundation for the huge present-day development of central Arizona in general and the Phoenix area in particular, an occurrence which can definitely be credited to conception along the banks of the Hassayampa.

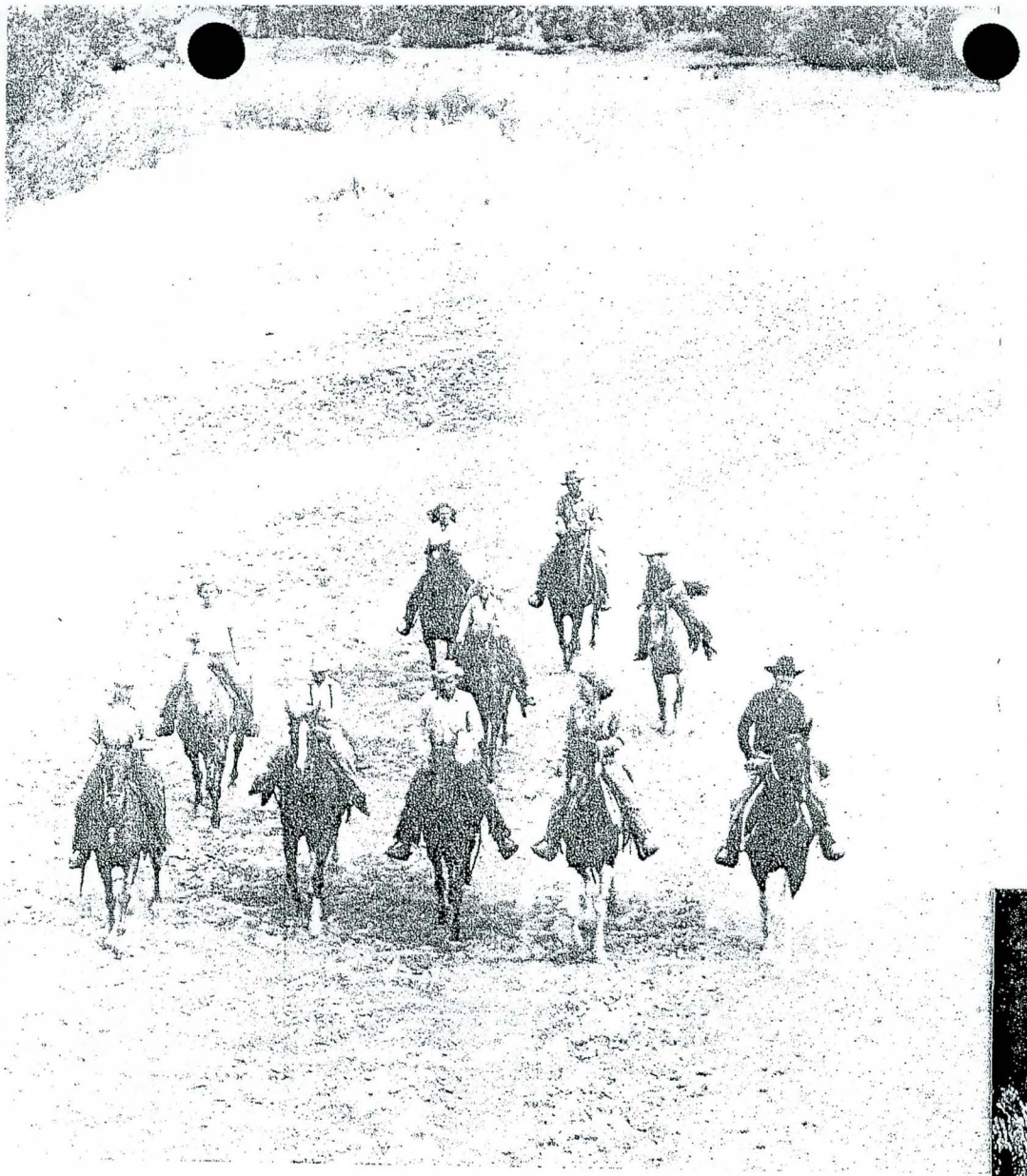
Turning from its glamorous historical background of the past to the present, today the mighty Hassayampa is still active as an influence in the development of Arizona. Of its wealth of metallic gold which attracted the first prospectors to its shores it is still yielding profitable quantities to the operators of several large mining properties. The cattle and sheep outfits which began grazing on its far-flung ranges soon after the arrival of the first settlers it is still supporting generously. And the benefits of its intermediate location and its splendid year-round climate it is still distributing abundantly to all comers without prejudice. But in the matter of siring a new activity in the state, the Hassayampa has reenacted its original role, and for the second time has become a parent.

During recent years the delightful climate of the Hassayampa's vast valley has attracted large numbers of climate seekers. Many of these, who originally came with the intention of spending only a short period of time in its friendly surroundings, eventually decided to remain permanently as residents. Because of this the area bordering the Hassayampa has increased in population and popularity with tremendous strides during the last two decades. Most of this increase has become apparent in the vicinity of the Town of Wickenburg.



In the old days Wickenburg, being the hub of most of the mining activity along the course of the Hassayampa, soon also became the hub of the transportation facilities of that day, serving the entire district. Later it became an important junction point for the stage lines operating through the territory with stage routes radiating west to Ehrenberg, north to Weaverville and Prescott, and south to Tucson. As these eventually developed into highways for the use of the modern traveler, Wickenburg assumed increasing importance as the crossroads for central Arizona. This distinction it still enjoys. During later years all three of the highways passing through Wickenburg, which followed the old stage routes, were designated as part of the trans-continental highway system of the nation. To be specific these highways were U.S. 60, U.S. 70 and U.S. 89. Today they carry a large part of the coast-to-coast and the border-to-border traffic in the southwest. It has been their great volume of travel both past and present that has given further impetus to the development of the valley of the Hassayampa in the current years.

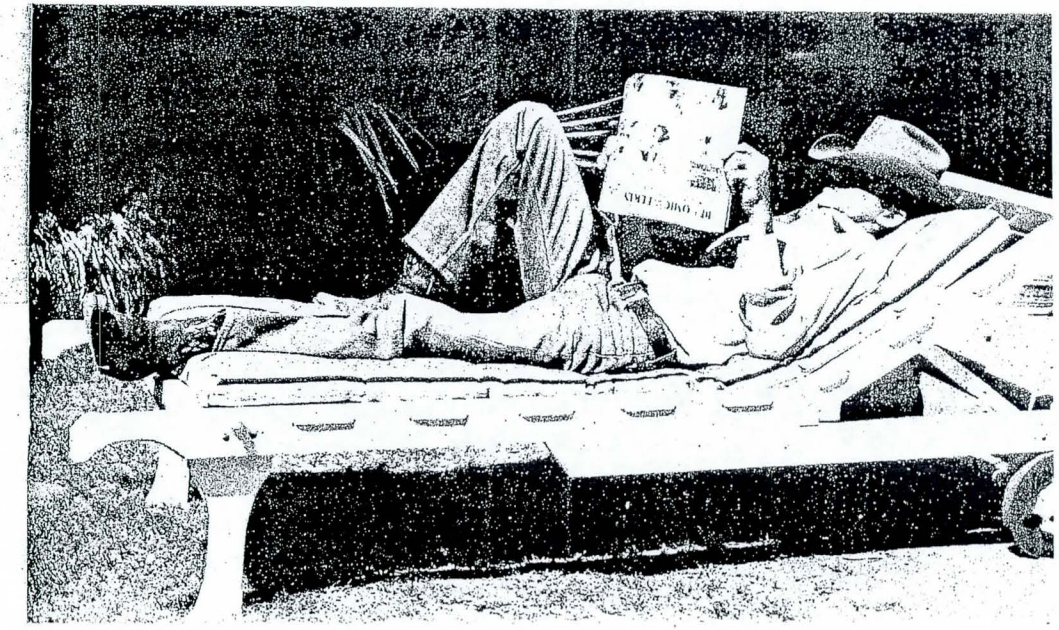
In the valley, Wickenburg is the logical stopping point for those who are passing through. Here the tourist and the commercial traveler alike pause with profit to refresh themselves. It is during just such short innocent stops as this that many an unsuspecting wayfarer has been captivated by the charm of the place and has eventually yielded to the desire to remain awhile. In recent years this age-old quality of the Valley of the Hassayampa enabling it to stop and attract people has led to the development of a whole new industry. This industry is known as guest-ranching, and its operators make a business of housing, feeding and entertaining those who would like to spend time in the delightful area under ranch-life conditions. In Wickenburg this industry has grown and flouished out of all proportion to other developments in the vicinity, and today the town calls itself "The Guest-Ranch Capital of the World." Truly no finer appointments can be found anywhere for the accommodation of the ranch visitor than those which are to be found in this attractive area. Here the guest can sleep luxuriously, eat excellently, ride, play and loaf leisurely, and in every way enjoy his stay to the utmost. Few indeed are those who go away failing to sing praises of the delightful experiences to be enjoyed while vacationing at the ranches along the banks of the Hassayampa around Wickenburg. Most return again and again for additional periods. And many come to love the country so well that they eventually decide to adopt the place permanently as the land of their golden dreams.



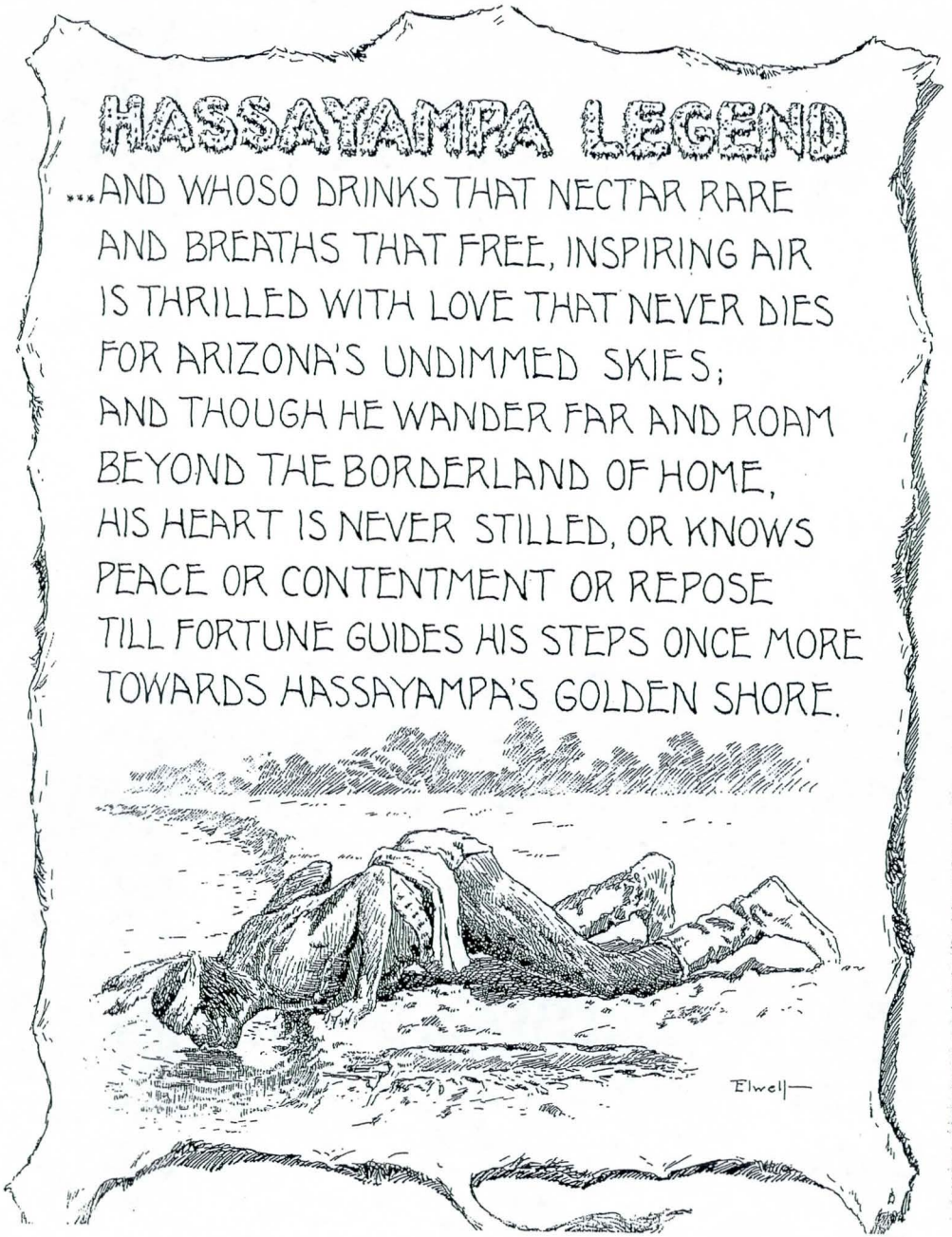
The combination of a superb winter climate plus the excellence of its accommodations has attracted not only nationally-known but also many world-famous personages to the Wickenburg area. One of these, J. B. Priestly, noted English author, who wrote "Midnight on the Desert" while staying at a local ranch, once said in an article appearing in Harper's:

"This town claims, with some success, to have the best winter climate in Arizona. It has, therefore, one of the best winter climates in the world, which is notoriously short of good winter climates. I prophesy that this Wickenburg district will become increasingly important in the near future."

This prophesy is being rapidly fulfilled. Each year more and more people from greater and greater distances are coming to spend time at Wickenburg's ranches from both this country and abroad. Here, as in years gone by, people from every walk of life find a special delight in the glow of the warm sunshine, the tonic of an early morning ride, the quiet peace of a glorious sunset. It is pleasant to hear the happy laughter of a group of riders as they lope along horseback over the suface dry chest of the Hassayampa. It is amusing to observe the intensity with which a pair of visitors apply themselves in trying to pan out a few "colors" of gold from the river's sands. And on Sunday afternoons the "whoops" and "hollers" that accompany the witnessing of a local rodeo give ample evidence that those who are in atterdance have forgotten the last fragment of their "back-home" identity, along with its responsibilities and cares. Here along the banks of the Hassayampa there is freedom from the intricacies of present day big city life. Here human beings commune with nature as they should normally. Here men, women and children alike take time to relax and absorb the gifts of a bountiful Creator. In making available to the visitor from outside its many benevolences the Hassayampa has for the second time in its history injected new life into the development of Arizona. This time its contribution has been the creation of the guest-ranch industry.

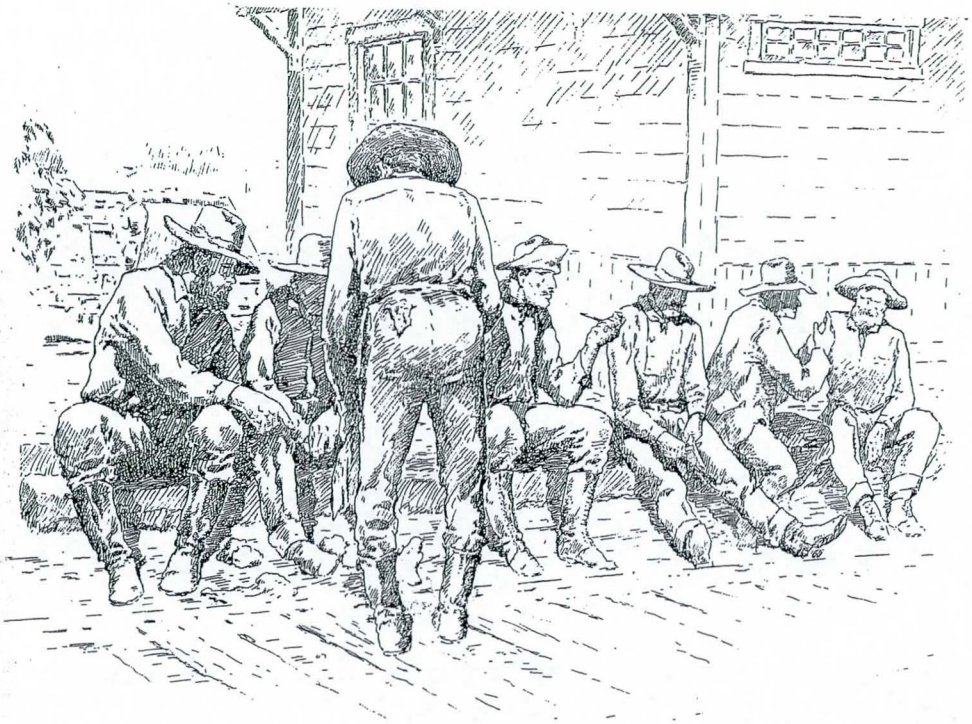


During the years that have bound together the past and the present the waters of the Hassayampa have become quite famous in legend. Perhaps this has come about because those who have lived along its course are so enthusiastic about it. The Indians who inhabited the region before the coming of the white man had a legend that translated reads:



During the time that mining activity was at its height along the full length of the river, a second legend came into existence. Because others in the territory were inclined not to believe the stories of the great gold strikes claimed to have been made by miners who came out to spend some of their wealth, it soon became the standing joke of the day to place the blame for the apparently exaggerated stories of the rich finds, on the drinking of the waters of the Hassayampa. This legend was eventually put into verse by Andrew Downing and said:

There's a legend centuries old
By the early Spaniards told
Of a sparkling stream that "lies"
Under Arizona skies
Hassayampa is its name
And the title to its fame
Is a wonderous quality
Known today from sea to sea
Those who drink its waters bright
Red man, white man, boor or knight
Girls, or women, boys or men
Never tell the truth again



Of later years a third legend has come into existence. Time has seemed to indicate that those who have prospered and "done well" along the banks of the Hassayampa are proselytes, having either willingly or by the dictates of their better judgment subscribed to a sort of "creed" peculiar to the region. They are the ones who have come, seen and appreciated; and have remained permanently to enjoy a wealth of benediction. Those, however, who have come, sniffed and turned up their noses seem to have fared otherwise. This legend also often attributed to the Hassayampa's power, is expressed in the verses of a poem entitled "Voice of the Hassayampa." It goes like this:

1

Traveler, walk softly on my banks
And for my blessings offer thanks
Respectfully
Words of wisdom I would impart
Concerning a way of life
That has satisfied many a yearning heart
Seeking refuge from strain and strife

2

Here on my shores are peace and rest
For those with eyes to see
I lavish both on comers all
If they just list to me

3

The meek and humble I quietly call
And gather to my fold
I shower them with joy and health
And often add some gold

4

The timid souls I strengthen
The frightened I restore
So healed they gamely come and knock
Once more at life's great door

5

The little ones I coddle
The aged I help along
The young I gently push ahead
And urge with love's sweet song

6

The foolish I pass idly by
The sour I give a prod
The mean I smash in tiny bits
And shovel under sod

7

The arrogant and haughty
I break apart and crush
The whiners and complainers
I send home labelled "rush"

8

The selfish ones I whittle
Down to a smaller size
Those who would trample others
I trip up and capsize

9

The gossipers I maul a bit
The windbags I deflate
The nasty I destroy post haste
And leave their souls to Fate

10

The loud I give a warning
The stupid, cuff their ear
But the wise I greatly favor
For they mark what's been said here

11

Traveler, pay heed to what I say
If you would come to live this way
Happily.
The gentle plant I greatly bless
With my waters and my clay
But the hardest rock I grind to dust
And quietly wash away

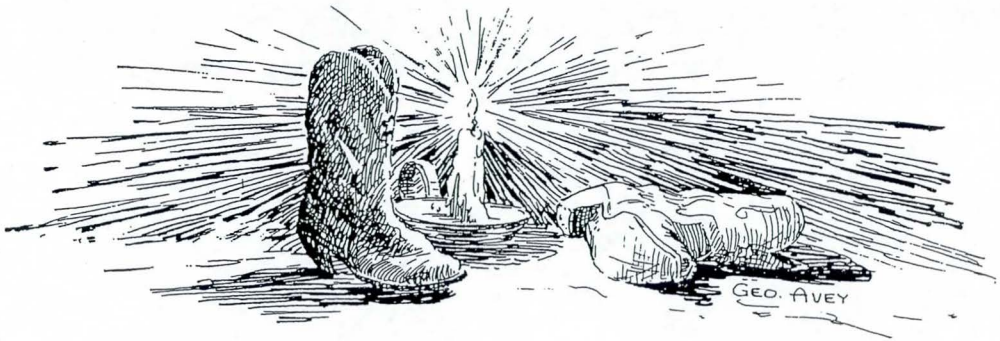
Whatever the powers of the waters of the Hassayampa may be, it is a fact that few people who have left its "golden shores" ever again seem to overcome the "hankering" to return. Whether the reason be the legends, the climate, the setting, the people, or a combination of these, makes little difference. The fact remains, undisputed.

The current trend in the Valley of the Hassayampa is toward great expansion. Wickenburg as its center is enjoying a phenomenal growth. Where once it appeared that the place might become a ghost town with the passing of the peak in gold-mining, today the community has attained its greatest population ever. Where only a short time ago many store fronts were boarded up, today a busy Frontier Street with its unique architecture of the old days, bustles with business activity. Where the stage coaches of another century churned the thick dust of wagon-ruts, today the sleek stream of present day travel speeds along at a fancy pace. And where once only a cluster of miner's shacks stood, there today glisten in the sun the modern and picturesque buildings of a guest-ranch, resort, or motel, the shining face of a new business establishment, or the delightful grounds of a typically western home which symbolizes the fulfillment of someone's dream expressed in the verses of the song "Little Grey Home in the West."

But through the heart of the great valley of the Hassayampa the river itself flows placidly on, unmindful as a modest child of its importance. Its influence upon history has been great. What its influence on the future will be is yet to be seen. But whatever it is, and it is a foregone conclusion there will be an influence, you can bet your bottom dollar that it will be good.

Of such are the legends of the River Hassayampa.

Ewald A. Stein
1947



Camp & Trail, Incidents of Pioneer life in Ariz. by W. Irven Lively

THE CURSE OF THE HASSAYAMPA

✦

Back in the early eighties,
In the old Hell-roaring days,
When the "Land that God forgot"
Was wild in its looks and ways,
Where the Hassayampa River
Wound, trickling, o'er the sand,
And rattlesnakes and 'phobe skunks,
And Apaches roamed the land,
One day, came Jim McGregor,
From the land of the doughty Scott,
He fitted in, for McGregor,
Like the land, had been forgot.

Scotch in feature and accent,
Scotch in his manner, dour,
Scotch in his habit of drinking
Scotch whiskey by the hour.

Out in the Camp where he tarried,
As with tenderfeet everywhere,
They told him the River legend,
And the danger of drinking there.
If ever he quaffed its waters
With his head downstream, forsooth,
From then to the end of his life,
He would never tell the truth.

McGregor listened in silence,
His face set poker-wise,
Scotch-like, determined to try it,
When occasion should arise.

Out in the hills one summer day,
With his canteen drained bone dry,
He headed down to the River,
With its scant stream trickling by.
Belly-flat in the cool sand,
That caressed him like a dream,

He bent his lips to the water,
With his head turned square down stream.
McGregor was hot and thirsty.
He drank till it soaked through his hide;
And rose up the biggest liar
West of the Great Divide!

From camp to camp, through the country,
His fame spread far and near.
As a mass-production liar,
McGregor had no peer.
He lied in the early morning,
He lied at noon and night.
He lied when he was sober,
And he lied when he was tight.
He hated the truth, and shunned it
With aversion strong and deep.
Some of the boys contended
He lied when he talked in his sleep.

McGregor was strong and wiry,
As tough as a pitch-pine knot;
One of the kind that Old Man Time
Has trouble to put on the spot.
But too much straight Scotch whiskey
Will tally, as time goes by;
One day McGregor crumpled,
And went in the wink of an eye.

O'Hara and three other men
Were told off to dig the hole,
To plant the famous McGregor
In the graveyard up on the knoll.
We carried him up the pathway,
In a home-made coffin of pine,
And stood by the open grave
In a solemn, silent line.
No sound but the ring of the picks,
The thud of the dirt thrown out;
When McGregor sat up in the coffin,
And asked what the fuss was about!

When someone told him, he chuckled,
And swore that he wasn't dead.

He didn't want to be buried,
He wanted a drink instead.
Then up spoke Irish O'Hara,
"Go on wid the diggin', Boys,
An' don't be mindin' at all,
That the corpse is makin' a noise.
He always was such a dom liar,
You couldn't believe what he said;
If McGregor says he's a livin',
Bedad, it's a cinch that he's dead."

THE LAST RIDE

Come a little nearder, Pardner,
Hyst my head a little higher;
An' hol' the tin cup to my lips,
Fer this fever burns like fire.
It's all over with me, Pardner,
An' I caint las' very long.
Strange, how jist a spell o' fever,
Saps the stren'th from one so strong.

You've been good to me, Ol' Pardner!
If I never tol' you so,
I jist tried to act toward you,
So's you'd somehow kind o' know.
For the cowboy's life's a rough one,
An' the rin' gits purty hard;
But you know, way down inside him,
He has lots of feelin's, Pard.

What's thet you're a sayin', Pardner?
Well, I swan, was thet a tear?
What's thet you're a sayin', Pardner?
You're chokin' up so's I caint hear.
Well, no matter what you're sayin',
Fer I somehow understand.
Words could never tell it halfway,
Like thet big drop on my hand.

From Wickenburg Folder
AZ State Archives

RELEASE AT WILL:

YOU TOO CAN BE A HASSAYAMPER!

In the late 1800's Wickenburg, Arizona was a roaring boom town reveling in gold, silver and copper glory holes. Wickenburgers were so effusive in their exaggerations of potential wealth of the area that it became common in the West to call any tall tale or story teller a "Hassayamper" in honor of the Hassayampa River which flows through the area. When it flows, that is, because it is usually bone dry! The connection between tall stories and the dry river inspired visitor Andrew Downing to pen his famous "Legend of the Hassayampa".

There is a legend centuries old,
by the early Spaniards told
of a sparkling stream that "lies"
under Arizona skies.

Hassayampa is its name
and the title to its fame
is a wonderous quality
known today from sea to sea
those who drink its waters bright
red man, white man, boor or knight,
girls or women, boys or men,
never tell the truth again!

For over 100 years the powers of the Hassayampa River have gone unchallenged. Old Andrew would be proud to see Wickenburgers doing their best to live up to his legend while keeping the sense of humor which started it all. In his spirit the town put "No Fishing From Bridge" signs on the bridge over the dry river, and the Roundup Club gleefully sells "Little Brown Jugs" of Hassayampa River Water with the legend attached so visitors will have an excuse for exaggerating the wonders of Wickenburg and the Hassayampa Valley.

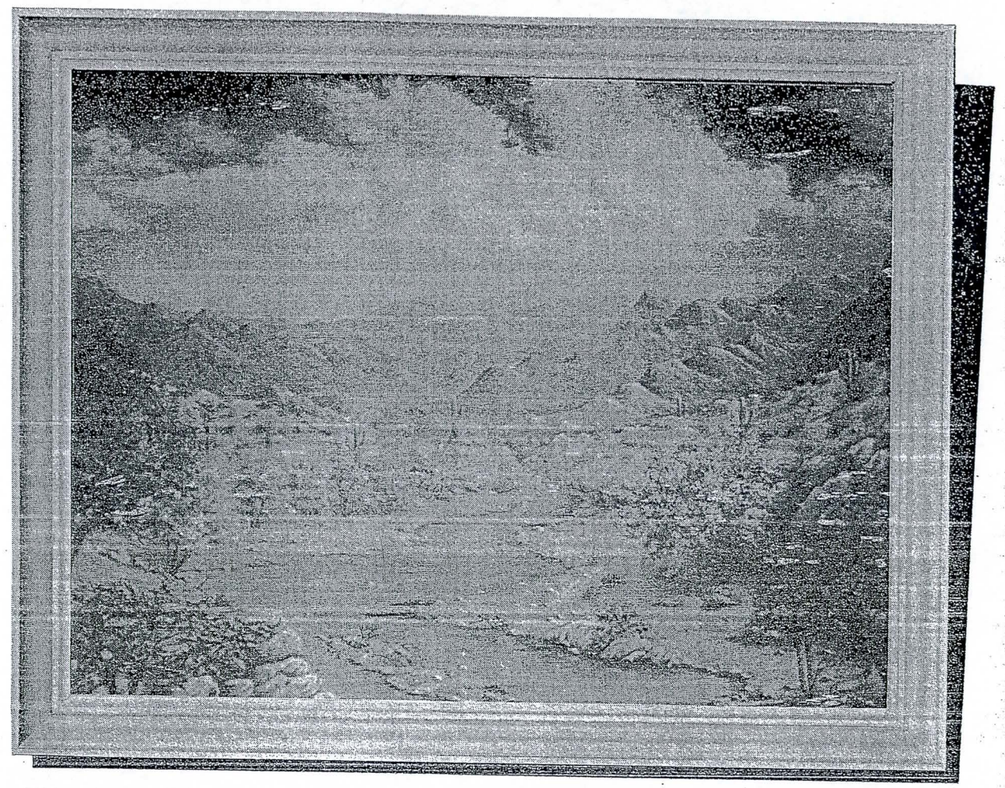
If you visit Wickenburg, stop at the Wishing Well by the river, [illegible]k of the Hassayampa and you too can be a Hassayamper!

(end)

:oundup Club
'ickenburg, Az. 85358

THE HASSAYAMPA RIVER
OF ARIZONA

Arizona Highways
pp. 34-37
May 1956 issue
Hayden
Ash



This painting, "The Hassayampa" by Amor Ita, hangs in the wardroom of the U.S.S. Hassayampa.

BY KATE BURDEN

The Hassayampa River, one hundred and fifty miles in length, was born in a peaceful little canyon on the rocky slopes of Mount Union, near Prescott, Arizona.

Coursing its way through the rugged timber country of Central Arizona, it flows through but one sizeable community, the Town of Wickenburg, Arizona. The town gathers itself along its banks, lined with cottonwood trees, and sprawls out onto the mesas and surrounding hills.

The Indians called the River "the upside down river," for the water is almost wholly concealed in the sand of its bed, underground. Looking up into Box Canyon, towards the majestic Bradshaw Mountains, one may behold water. The mountains are snow-capped in winter, but in the spring their snowy tops melt in the warm sun, the water coming to the surface to make a resurgent river, seeping into Box Canyon. Spring fed in some places, the river doles out small streams here and there, eagerly sought by white-faced cattle, as they roam the dry river bed.

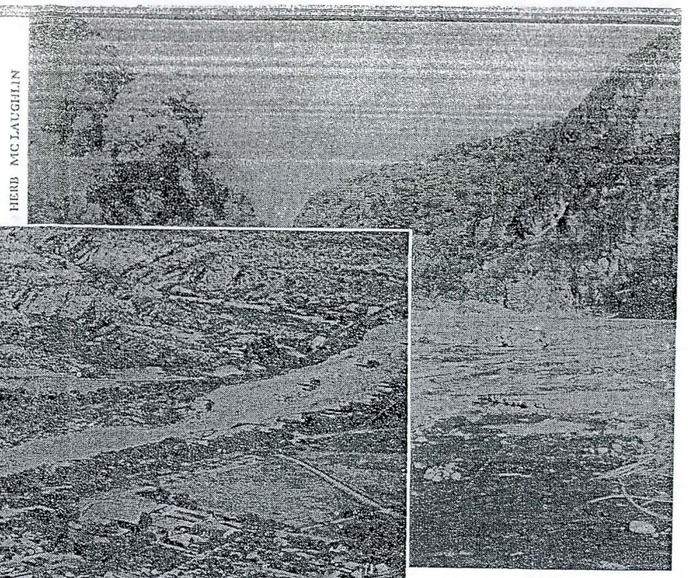
Seldom do the waters entirely rise from their underground home. Only after prolonged, heavy rains does the river transform itself into a raging beast bent from captivity, rushing, swirling and gnawing at its own banks.

It is said that the name Hassayampa originated with the explorer, Pauline Weaver, who upon reaching its banks and perceiving the fabulous underground flow, named it the Assiamp River, from an Indian word meaning "water that is hidden." Later, this name was changed to Hassayamp, by the recorder who kept books for the Walker Mining District. Those who lived and worked along its banks became known as Hassayampers, which evolved, with the substitution of an "A," into the present name, Hassayampa. This name has been generally accepted through the years and remains today.

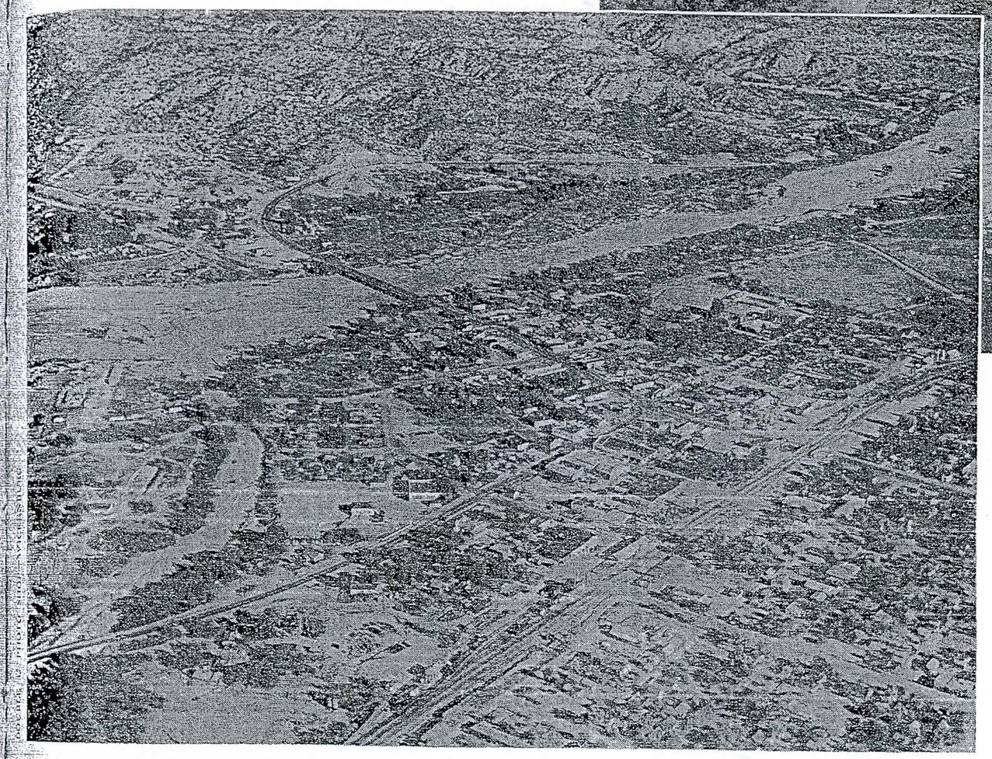
The pioneers also had a legend for the Hassayampa River.

"And whoso drinks that nectar rare
And breathes that free, inspiring air
Is thrilled with love that never dies
For Arizona's undimmed skies
Beyond the borderland of home
His heart is never stilled, or knows
Peace or contentment or repose
Till Fortune guides his steps once more
Towards Hassayampa's gold-[illegible]

HERB MCLAUGHLIN



The Hassayampa near Wickenburg



This air view of Wickenburg shows the U.S. 60-70 bridge crossing the Hassayampa.

There must be some truth in the legend, for the Town of Wickenburg attracts people from all over the world. They come to the guest ranches for a vacation in the sun, for Wickenburg, with seven guest ranches in the area, is a noted winter vacation and travel center. Guests stop at the many attractive motels in the town for an overnight stay and return to stay longer. They come to visit and stay to build their own homes on the surrounding hills, overlooking the wide Hassayampa River.

The business section of the town bustles with activity. Stores, retaining the unique architecture of the old days, serve the inhabitants and the visitors the necessities of life coupled with the Indian and Western glamour in clothes and jewelry and leather goods.

It was the glitter of gold that first lured the intrepid adventurers of the 1860's to Arizona, and many rich strikes were made in localities bordering the Hassayampa. The stories of these rich finds were looked upon with a measure of disbelief by others of the territory. It soon became a standing joke of the day to blame the drinking of the waters of the Hassayampa for the supposedly tall tales.

[illegible]

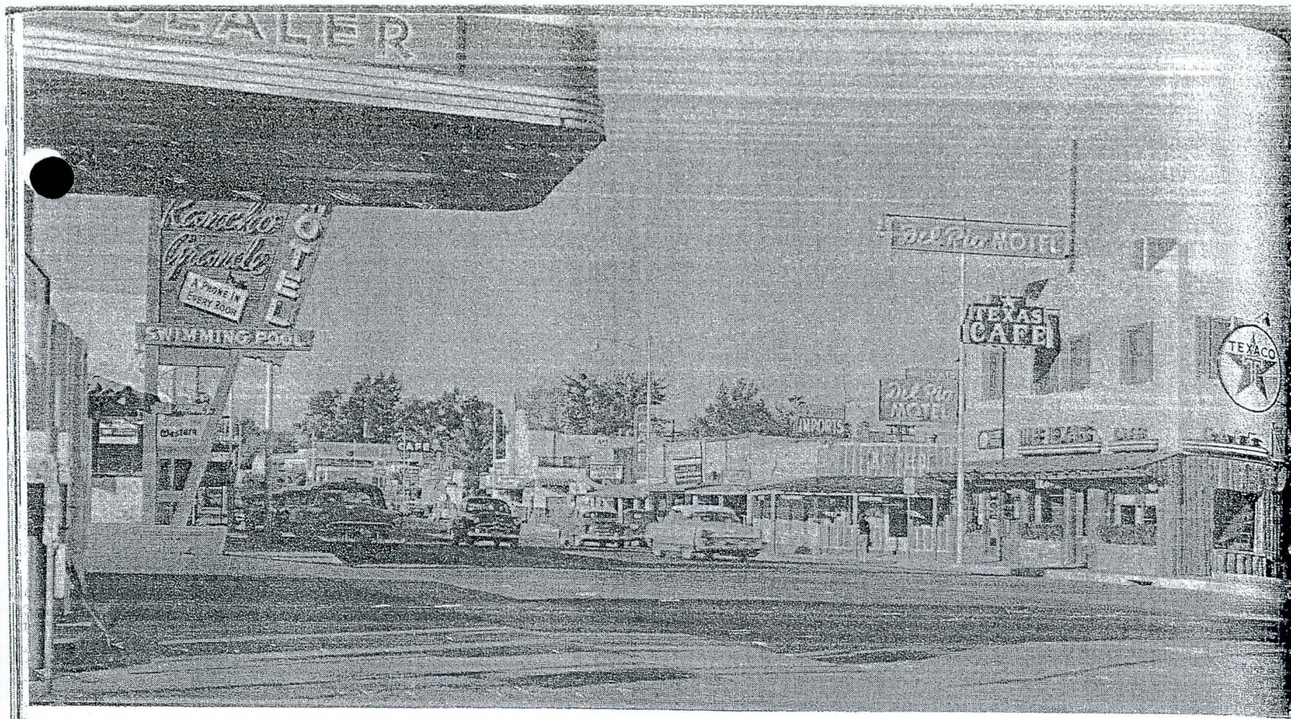
sayampa River and put to verse by Andrew Downing.

There's a legend centuries old
By the early Spaniards told
Of a sparkling stream that "lies"
Under Arizona skies
Hassayampa is its name
And the title to its fame
Is a wondrous quality
Known today from sea to sea
Those who drink its waters bright
Red man, white man, boor or knight
Girls, or women, boys or men
Never tell the truth again.

Despite this legend, the third and by far the richest discovery of gold was made by Henry Wickenburg in 1863, along the course of the Hassayampa, at a point about fifteen miles west of the community which now bears his name. He called his find "The Vulture" after the bird, that even today may be seen soaring and swooping over Vulture Mountain, near the mine.

Vulture Mine, in the years that have passed, produced over ten million dollars worth of gold bullion.

[illegible]



Main street, Wickenburg, on the Hassayampa

The "West" still lives at Wickenburg.

BILL BASS

and mineral resources has been scratched in the State of Arizona. Realizing this and with the enormous trend in mining enthusiasm today, Wickenburg and its vicinity is again luring mining enterprises to the course of the Hassayampa River and its surrounding mountains.

Only once in its existence has the Hassayampa been harnessed and then only for a short time. Those who lived along its banks at the height of its gold producing fame, had great difficulty in securing supplies. To overcome this hazard, several of the more progressive citizens conceived the idea of building dams across the upper reaches of the river to provide water for farming.

In the year 1880, construction was started on the first dam at Walnut Grove. Ten years later, as it neared completion, a series of heavy rains set in. By February, 1890, the torrential rains still persisted and the dam was brim full. The men struggled frantically to finish the job, but to no avail. On the night of February 22nd, the spillway of the dam was choked with debris and its floodgate jammed with logs. The raging waters roared over the top of the dam and in the space of a few minutes destroyed it completely. Oldtimers say that it took the released waters only 45 minutes to travel the forty miles from Walnut Grove to Wickenburg.

So the great Hassayampa rebelled against the restraining influence of man's attempt to leash its power and remains today serene, independent, strong in its underground home.

Such a river was destined to become historically important and to take its place in the annals of our country.

According to the tradition of our Navy to name their fleet of oil tankers after rivers of the United States, the Navy's newest and largest oil tanker, the U.S.S. Hassayampa was commissioned at Philadelphia on April 19th of last year.

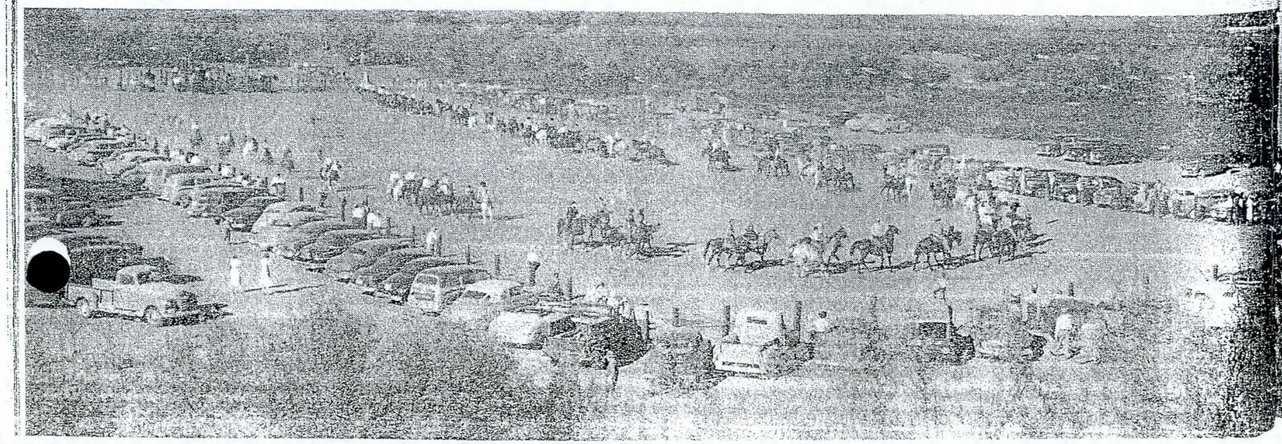
Many miles away in the town of Wickenburg, Amor Ita, a well-known artist of the Southwest, was commissioned by the *Sun*, Wickenburg's weekly newspaper, to paint a picture of the Hassayampa River. From her easel, Amor Ita looked towards Box Canyon to the Bradshaw Mountains and captured the beauty and enchantment of the river.

The picture now hangs in the wardroom of the ship, while a jug of Hassayampa water may well carry the legends of the Hassayampa River to many foreign ports as the Tanker U.S.S. Hassayampa plies the seas, refueling Uncle Sam's ships.

The Hassayampa River, mysterious, ageless, has added its Indian and Western tradition to the long and glorious tradition of our United States Navy, with a jug of its own waters and the inspiring picture of the river, itself, framed by desert, canyons, mountains.

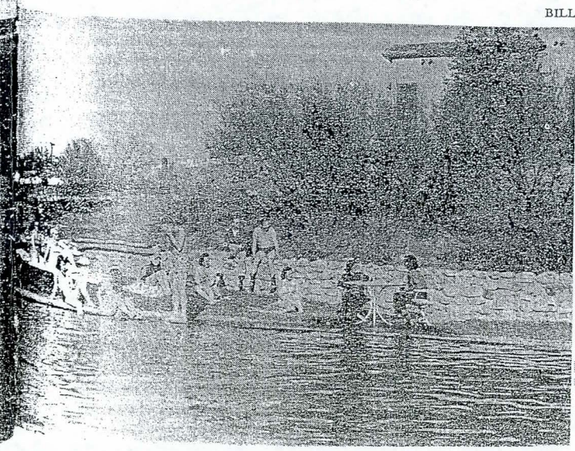
Rodeo time is a gay time at a guest ranch at Wickenburg.

BILL BASS

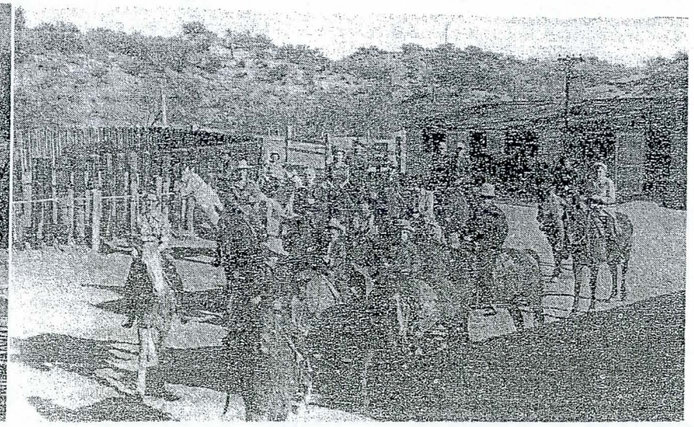


A winter day at Wickenburg

BILL BASS

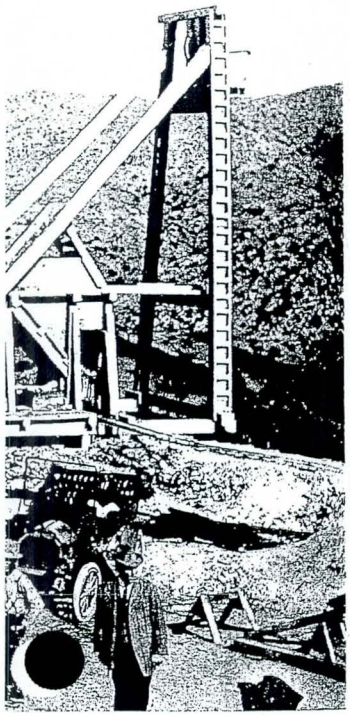


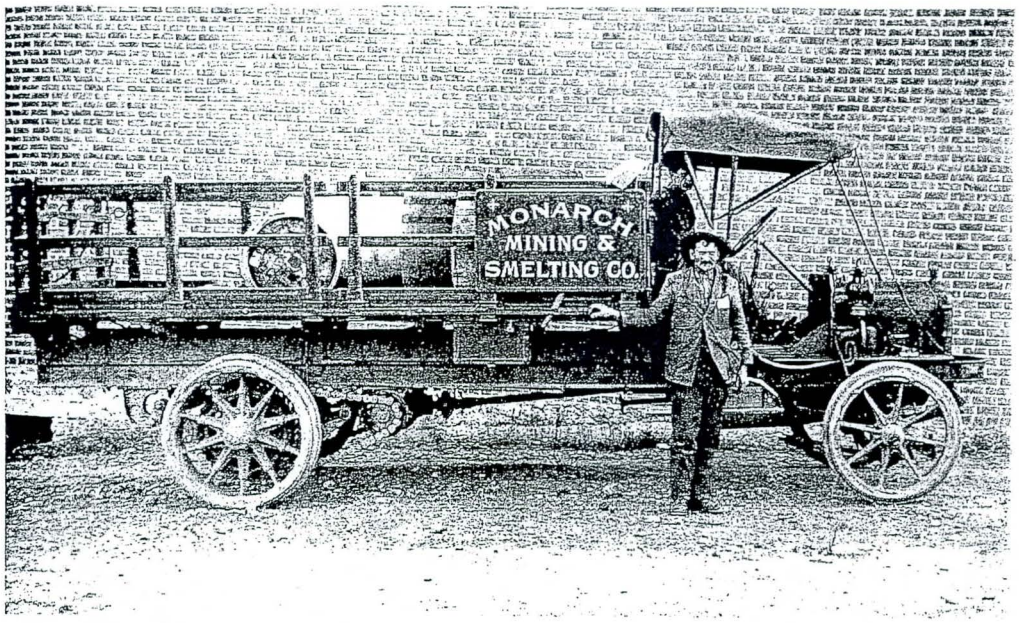
Riders along the Hassayampa



The town on the Hassayampa

by Mark E. Fry





Mining and

916.

"Crossing the Hassayampa, circa 1916"

Wickenburg was severely hampered by the lack of a reliable bridge across the Hassayampa River. Until 1914, when the first bridge across the riverbed was built by the county, drivers had to ford the river—if they could cross at all. Only two years after the concrete structure was built, one of its spans was washed out by flooding, and the town again had no bridge until a new one was built in 1920–21. Even the new bridge, constructed of steel and concrete, was not immune to damage; one of its approaches washed out in the winter of 1927.

The construction of the second Hassayampa bridge was one of several projects that inaugurated a period of intense road-building in the 1920s as Arizona, stimulated by new federal highway legislation, began to improve its roads and integrate them into the evolving national highway system. Wickenburg was luckier than most Arizona communities when it came time for the highway department to select the routes for the state's new federal highways. Not only was the Phoenix-Prescott road designated as part of Arizona's main north-south highway (US 89); the Phoenix-Ehrenberg road also was included, as part of the main transcontinental highway across the southern United States (US 60). Originally, state engineers wanted the north-south highway to run through the Black Canyon, along the route now followed by I-17, but pressure from Yavapai County—which had just passed a highway bond issue to finance improvements on the existing road—persuaded them to accept the Prescott-Wickenburg-Phoenix alignment instead. Thus, in 1922, Wickenburg found itself astride the intersection of two major highways, one of which (US 60) would carry all of the automobile and truck traffic between central Arizona and the West Coast.

Inclusion in the federal highway system did not bring immediate benefits, however, for the quality of the roads still left much to be desired. By 1925, the road from Phoenix to Wickenburg was only half paved; of the remaining half, part was "improved" gravel and the rest consisted of dirt stretches that were prone to flooding and washouts. The road north to Prescott was in even worse condition; though it was improved as far as Congress Junction, the remainder was not even in the state road system and was officially classified as "rough."

As for the highway
dirt road not yet inc

Although the stat
parsimony was mor
increased federal hi
of stimulating the e
highway system was
way from Phoenix t
two years later, in 19
on US 60 from Wic
1931, the road was im
proved dirt from Sa
there to the border. I
tion was paved and a
converted to improv
between Wickenburg
by October 1934. Co
Grand Canyon proc
1933, the road was pa
highway between As
White Spar Highwa
that final, mountain

The Depressi

From the perspect
the road constructio
possible to make the
hours by automobil
burg, the benefits of
largely because the D
at home.

As it was for many
was a mixed experien
collapse of the stock

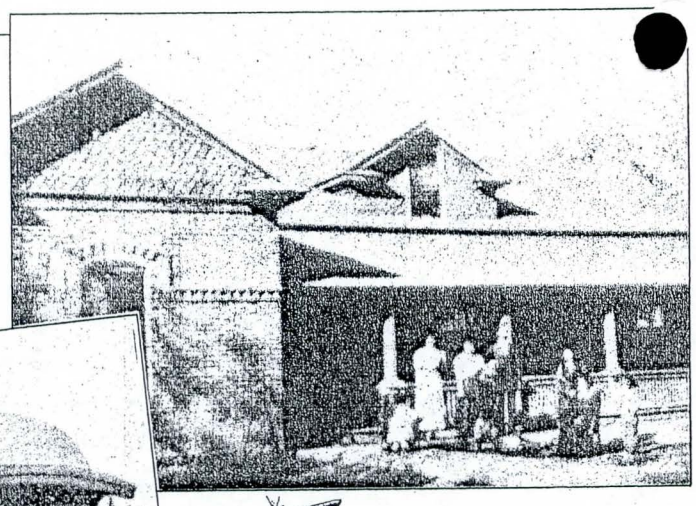
formed; using federal grant money and town funds, the town paved alleys, buried utility wires, and added parking spaces. Also, the old Santa Fe (formerly the Santa Fe, Prescott & Phoenix) railroad depot was restored and taken over by the Chamber of Commerce for use as a visitor's center and office. In 1985, a consulting firm hired by the town completed a survey of historic buildings that identified more than twenty-five properties that were architecturally or historically distinctive. One of them, the Garcia School (formerly the Wickenburg Grammar School), was already on the National Register of Historic Places, but the others were still unprotected. By 1986, an additional twenty-six buildings—including the railroad depot, Vernetta Hotel, first town hall and jail, Echeverria house, and high school—had been placed on the National Register.

Over time, a few of Wickenburg's historic buildings have been lost to decay or demolition; the Baxter Opera House, for example, was demolished by the Desert Caballeros Western Museum to make way for the park and statue that now stands at the intersection of Wickenburg Way and Tegner. Still, by the mid-1990s, the number of protected historic buildings had grown to thirty-two. And, perhaps more importantly, the downtown was enjoying new life as tourists and residents alike rediscovered the simple pleasures of strolling and shopping on streets laid out when the railroad was still the principal means of intercity transportation.

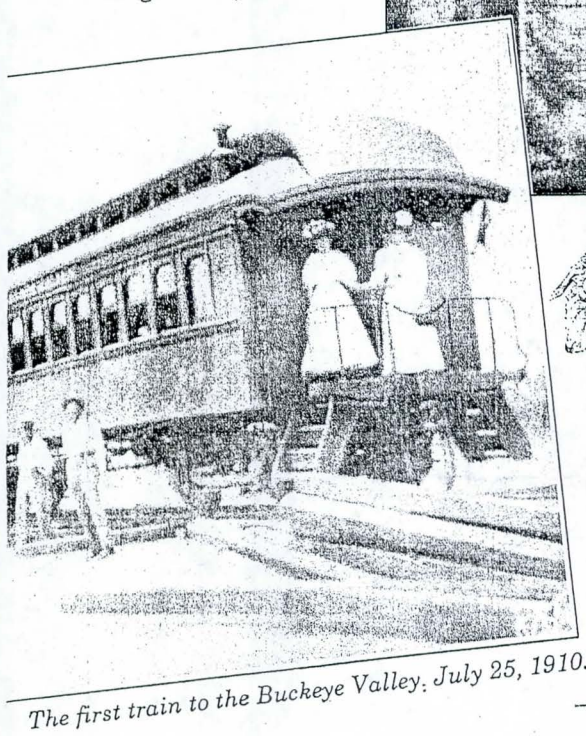
The downtown has not been the only historic feature of Wickenburg to receive renewed attention in recent years. Tourists new to the area might find it hard to believe that the Hassayampa River was once the lifeblood of Wickenburg when it was a small farming and mining community. But there is one section south of town where the river flows year-round, its waters forced upward by bedrock that rises to the surface. An oasis in the desert—it was once Frederick Brill's homestead and, later, the Garden of Allah guest ranch—this thickly vegetated stretch of river was in danger of being sold to a gravel mining company in the mid-1980s. Concerned that a vital part of Arizona's human and natural heritage might be lost, the Arizona Nature Conservancy bought the property in 1987 and established the Hassayampa River Preserve.

Now, residents and visitors who wish to experience the Hassayampa River valley as it was before the gold miners arrived in the 1860s can visit the preserve's spring-fed pond and groves, which offer a shady respite from the desert's summer heat. Here they will glimpse remnants of the cottonwood and mesquite forests that once lined the river for miles in either direction and provided early miners with the fuel they needed for their stamp mills, the wildlife and seasonal plants that led the Yavapai Indians to establish so many *rancherias* along the river, and the flowing water that has provided drinking and irrigation water to generations of inhabitants. The Hassayampa River has changed considerably over the years—nothing will bring back the rich farming soil washed away in the Walnut Grove Dam flood—yet it still flows past Wickenburg, a living link to the town's rich and colorful past as a farming, mining, and tourist community.

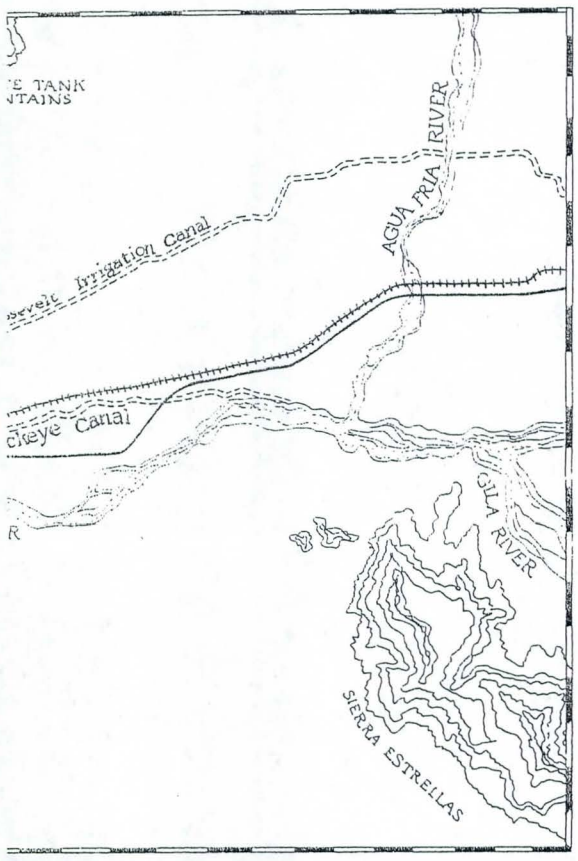
ɔany, 1912.
e corner
ɔgraph.

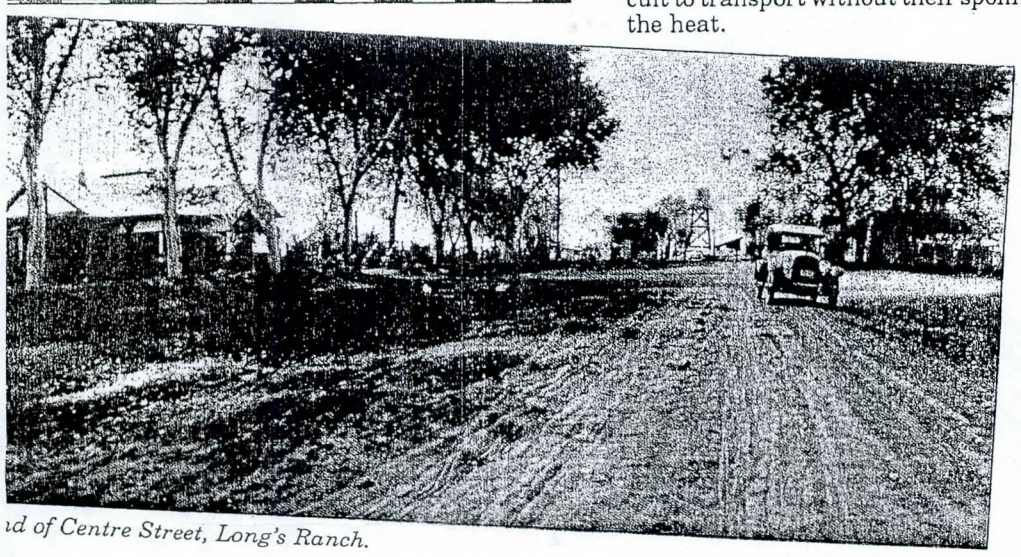


Long's Hotel, circa 1913.



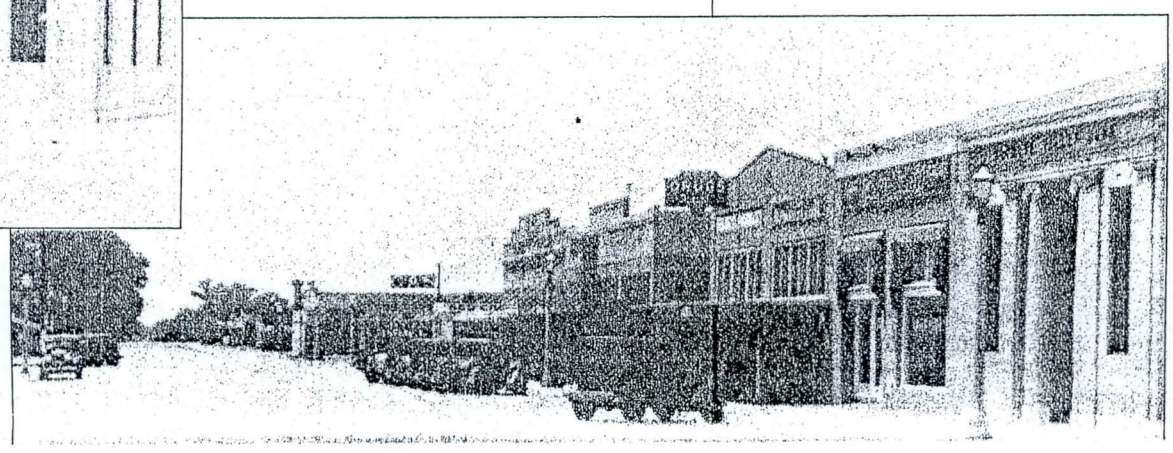
The first train to the Buckeye Valley, July 25, 1910.





d of Centre Street, Long's Ranch.

Buckeye Valley Bank, circa 1930.



Farming the Desert

The Buckeye Valley has always been perceived as being ideal for farming. In 1889, an early Arizona resident described the Buckeye Valley as "far ahead of the section around Phoenix, as a fruit country, the soil is better, the altitude as good or better, no winters, and scarcely any frost, during the last two winters. This country would have been settled up long ago but for the Gila River washing out all the canals in 1883 and 1884 on account of their bad location and bad construction." (p. 3, "History of the Buckeye Canal," by I.H. Parkman, 1957.)

During the 1880's, the hardy settlers in the Buckeye Valley rapidly transformed the riverine areas and the surrounding desert into productive farms. The soil in the area is a rich sandy loam — very fertile and productive. Hardpan or adobe deposits prevalent in the southwest are noticeably absent. The shallow groundwater also was considered beneficial because crops required less irrigation water.

Although the great flood of 1891 was a setback to the farming community, by 1892, Buckeye was surrounded by 50,000 acres of fertile, level land awaiting cultivation and 10,000 acres already being farmed.

The first crops were alfalfa, wheat, barley, maize, and other sorghum grains. The soil was also suitable for oranges, grapes, and other fruit.

For many years, the distance from the market place made the delivery of crops such as hay, grain, and livestock extremely difficult. Cattle and dairy products which comprised a major part of the Buckeye Valley economy could not be delivered to Phoenix without great labor and expense. The well-fattened stock were sure to lose weight during the long trail drive to Phoenix, and dairy products were difficult to transport without their spoiling in the heat.

These conditions combined with the high price of seed led farmers to turn to growing alfalfa seed — it was cheap to grow and easy to market. A two- to three-ton load of seed could be taken to Phoenix by one man with four horses and was worth between fourteen and sixteen cents per pound. In time, Buckeye became known as the "Alfalfa Capital of the World."

Honey also was an important crop. Alfalfa is one of the greatest honey plants known, especially when it is grown for seed and not cut while blooming. In 1911, there were about 3,500 to 4,000 hives of bees in the Buckeye area, yielding an average of five gallons per hive.

The coming of the railroad to Buckeye in 1910 greatly improved the ability to transport crops from the Buckeye Valley to the marketplace.

From 1917 to 1920, there was a cotton boom. Cotton prices rose dramatically to $1.32 per pound. The demand for cotton grew in 1920 after the submarine warfare of World War I had interfered with shipments from Egypt. The nation's tire companies, large users of long-staple cotton, were responsible for the rapid expansion of the cotton industry.

As a result, extra-long staple cotton became an important crop in the Buckeye Valley. Goodyear Farms and the Goodyear Company were the growers or prime forces behind the crop. Dunlop Tire Company established Buckeye's first cotton gin, and in 1920 offered financial aid or lines of credit to encourage the growing of cotton. Electricity was brought to Buckeye to provide power to the ginning plant.

However, in December of 1920, the combination of record high cotton imports and a post war depression caused the price of cotton to plummet to twelve cents a pound. Farmers were faced with the costs of replanting their acreage back to alfalfa and replacing dairy cows that had been sold during the cotton boom. By 1921, there were many Arizona banks whose failures could have been caused in part by the cotton crash.

In 1921, the Pima Cotton Growers' Association was organized to revitalize the failing industry. The Association's efforts were sufficiently successful to keep cotton in Buckeye. As much as 38,000 acres of cotton were planted in the Buckeye Valley between 1928 and 1929. In fact, until 1939, 97 percent of all long-staple cotton grown in the United States was grown in Arizona.

Cotton camps developed in the 1930's to house the seasonal cotton workers. There were as many as twenty camps around the Buckeye Valley. Some of these camps housed as many as 250 people.

By 1952, Buckeye had the largest grain storage bins of their kind in the country. Buckeye could gin twelve to fifteen million dollars worth of cotton. In 1954, Buckeye Irrigation Company landowners had 5,000 acres planted in cotton and 12,000 acres in alfalfa, barley, and other grains. Farmers served by the Roosevelt Irrigation District had 15,000 acres in cotton and 20,000 acres of grains. Cattlemen estimated that 30,000 head of cattle were fattened annually at a dozen or more pen-feeding operations scattered throughout the Buckeye vicinity.

By 1955, Buckeye, which had once been primarily a seasonal farming town, had stabilized its agricultural economy with cotton picking machines and the growing of diversified crops, notably sugar beet seed, Kaffir corn, oats, lettuce, potatoes, and other vegetables.

Recent but
No

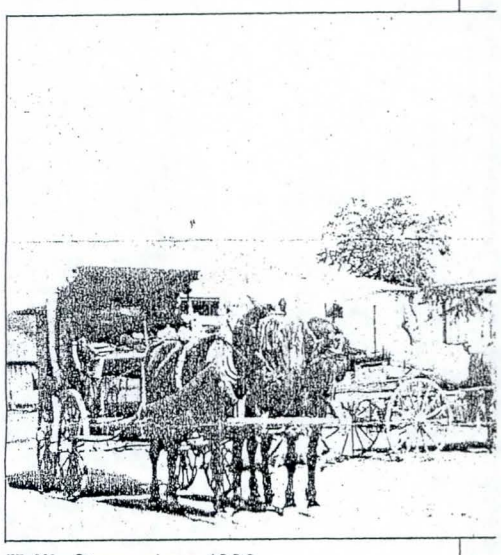
Building a Community

Many historic buildings are still standing in Buckeye and reflect important elements and personages of the town's past. Several notable buildings and their relationship to Buckeye's story are included here.

The Old Spain House, constructed about 1886, is one of the first homes built in the Buckeye Valley. J.L. Spain was the first European to settle in the Valley and was significant to the development of Buckeye because he and Jackson located and claimed the site for the Buckeye Canal.

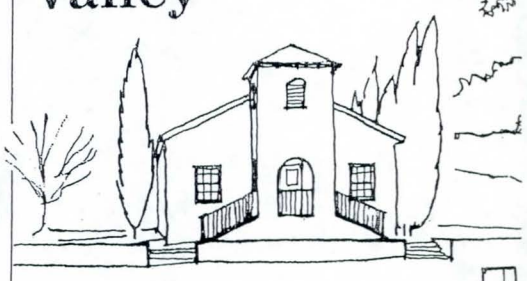
The oldest building in Buckeye is the Kell Store located on Centre Avenue. It was originally built by Grant McWilliams and Joe Irvine in 1890. It was operated as a saloon until it was sold to Herbert E. Kell. Kell, who married Clanton's daughter Cora in 1895, moved the Post Office into the building with his general merchandise business. Later, Kell's store was used as a residence by different families until the building was sold to Kelly Carmony who opened the building as the "South Side Grocery."

The Ware Building was built in 1910 as part of the new business district that was built around the new railroad station. The building still stands although it has



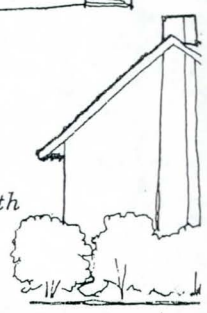
Kell's Store, circa 1890.

Churches of the Buckeye Valley



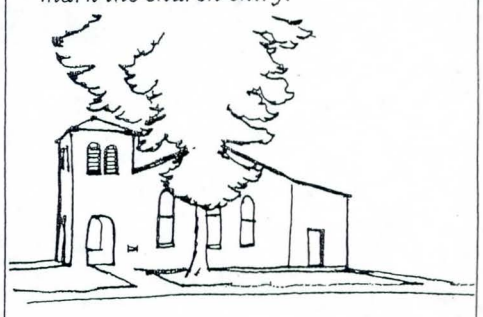
Church of the Nazarene
North 4th Street and Eason, Buckeye

Founded in 1936, the church structure is an elegant classic design with a formal entry.



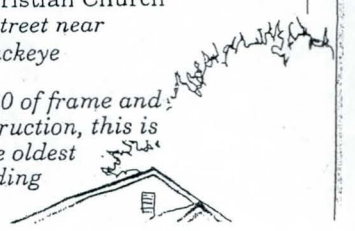
First Baptist Church
North 4th Street and Narramore, Buckeye

This adobe structure was built in 1931 and has a prominent bell tower to mark the church entry.



Buckeye Christian Church
South 5th Street near Clanton, Buckeye

Built in 1910 of frame and stucco construction, this is probably the oldest church building in Buckeye.



with the Agua Fria and Salt Rivers and east of its confluence with the Hassayampa River. This location has provided residents with an abundance of the desert's most valuable resource: water.

Because of its significant location with access to water, the Buckeye Valley may have been settled as early as 9000 B.C. by tribes of hunters and gatherers. These people stayed in the Valley and became farmers. They diverted the waters of the nearby rivers onto their fields and thrived.

These early settlers, generally believed to be the Hohokam, had an advanced civilization for their time. Evidence of their culture has been found in the Buckeye area and includes irrigation canals, distinctive red-on-buff pottery, clay figurines, elaborate craftwork, and ball courts and platforms.

The nearby rivers and their rich alluvial floodplains not only provided the Hohokam with rich soils and water; these lush riverine areas also contained construction materials for their buildings, wood for their fires, and fish and game for their food.

The weather cycle that the Hohokam had enjoyed changed in the 1200's, culminating in the "Great Drought" late in the century. It is believed that these weather changes caused the Hohokam to move away when they no longer had sufficient water to support their population.

Not much is known about the Buckeye Valley for the next 500 years. Pima and Papago tribes lived in the general vicinity, and conflicts were recorded between these tribes and Spanish explorers who visited the region in the seventeenth and eighteenth centuries.

During the eighteenth century, Arizona was part of Spain. The Mexican War of Independence, from 1810 to 1821, brought the land into Mexico. This was followed by the Mexican War which was fought by the United States to open up a wagon road to California. In 1848, the Treaty of Guadalupe Hildalgo terminated this war, bringing a portion of Arizona into the United States.

This effectively split the Buckeye Valley — north of the Gila River belonged to the United States, and south of the river remained part of Sonora, Mexico. The United States purchased the remainder of what is now known as Arizona from Mexico in the Gadsen Purchase in 1854.

In 1863, the first Governor of the Territory of Arizona was named. Farming in the Salt River Valley began in 1867 and was greatly encouraged by the passage of the 1877 Desert Land Act which provided that a settler could gain title to 640 acres if he irrigated the lands.

Pioneers Settle into the Valley

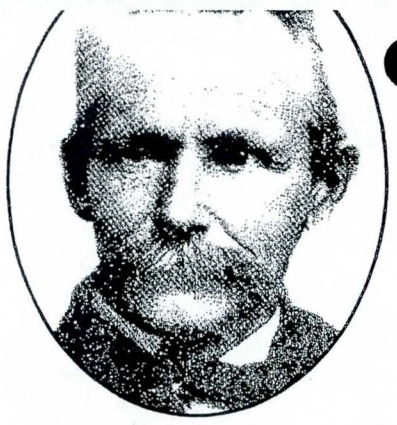
It was also in 1877 that the founder of the settlement that was to eventually become the Town of Buckeye led a party of six men, three women, and ten children, from Creston, Iowa, bound for Arizona. The leader of this party was Thomas Newt Clanton whose purpose for coming west was to regain his health. It was a good move for him; he lived in Arizona for 49 years before his death at age 82.

After spending several years as a rancher in Yavapai County, he moved to Phoenix in 1880 where he ran a butcher shop, kept a corral, and managed a ranch in Buckeye Valley.

Development in the Valley received its first great boost with the construction of the Buckeye Canal. In 1884, Malin M. Jackson and two others claimed land two miles below the confluence of the Agua Fria and Gila Rivers for the purpose of developing an irrigation canal intake. Jackson named the canal that was built there in honor of his native state of Ohio, the "Buckeye State." Clanton built ten miles of the canal, which was completed in 1886.

In 1887, Clanton and his family moved to Buckeye, becoming the first permanent Anglo residents. Clanton and Jackson envisioned a need for a townsite near the center of the Buckeye Valley, so in 1888, the two along with William "Bucky" O'Neill, who was later to become known as a famous Rough Rider, laid out the townsite on a portion of the Clanton Homestead.

The first post office in the area was established the same year with the postal station called Buckeye. Also in 1888, Bucky O'Neill and Associates organized the



Buckeye Irrigation Company and had it certified by the Territorial Secretary.

Jackson named the new town Sidney, after his home town in Ohio. However, because of the significance of the canal, over time the town became known as Buckeye, and the name was legally changed in 1910.

Over the next twenty years, Sidney and its neighboring communities, which included Liberty, Arlington, and Palo Verde, grew. Many built their own post offices, schools, churches, and stores. However, Sidney remained the most significant.

In 1889, the first school was built in Sidney. The following year saw the construction of a saloon which was later converted to a store and post office. The first Buckeye newspaper, *The Buckeye Blade*, was started by Thomas Schultz in 1890. During the same year, a two-story hotel, the Long's Hotel, was built, offering 12 pleasant rooms, a bath, and home-cooked meals.

Advances in transportation put Buckeye on the map. In 1910, the Arizona Eastern Railroad came to Buckeye; in 1911, the first car; by 1912, a steam rail line connecting with Phoenix; and by 1915, a State Highway. The coming of the railroad was so significant that the business district was moved to accommodate the location of the railroad station.

As a result, Buckeye was booming. By 1912, many major buildings were constructed, including the Ware Building, the Bank Building, the Joslin Building, and a new Courthouse and Jail.

Expansion of the business community included the addition of an ice plant, a bakery, an ice cream parlor, a movie theater, a four-room brick school, a blacksmith shop, two livery stables, a lumber yard, a harness shop, a butcher shop, two hotels, a barber shop, three general merchandise stores, and others.

Buckeye was incorporated in 1929 and included 440 acres. The first mayor was Hugh M. Watson, who started the Buckeye Valley Bank. His son, Hugh Watson, Jr., also served as mayor from 1956 to 1958.

In 1935, the Buckeye Chamber of Commerce started the Hellzapoppin Days which has become a local tradition. The festivities included street dances, a parade, a carnival and a rodeo. Proceeds were given to local churches who distributed the funds to the needy and for scholarships. The events were attended by celebrities such as cowboy singing star Gene Autry. Similar local holidays, such as the annual Pioneer Days, are still celebrated in Buckeye today.

"The Emerald Gem"

What brought people to Buckeye? A 1913 Tour Book of Arizona provides a description that could well apply to the Buckeye Valley:

The Salt River Valley surrounding Phoenix has thousands of smiling farms, orchards blossoming, palms and roses nodding in the sunshine.

The Salt River Valley has 240,000 acres of irrigated land— the richest soil in the world — under the finest and most complete irrigation system yet conceived and built.

The valley is an emerald gem, set in a diadem of purple hills; overhead the bluest of skies and the smiling sun lightening the task of labor, to the rippling of canals brimful of life-giving water.

(Source: *Arizona Good Roads Association Illustrated Road Maps and Tour Book*, 1913, reprinted by the Arizona Highways, 1987.)

Water Brings Life and Growth

Canals have been essential to bring water to crops in the desert since the days of prehistoric Indians. The Hohokam constructed as many as 250 miles of canals in the Salt River Valley using stone hoes. Most of the routes they developed are incorporated into the modern canal system.

Buckeye's economy and growth depended upon the taming of the nearby rivers and channelling the water onto agricultural fields. The construction of the Buckeye Canal was the first important step. The Buckeye Canal Company was formed in 1885 to obtain the water and develop the canal. Water was first turned into the Buckeye Canal in 1888.

In 1891, after a long winter of heavy snowfall in the mountains, several days of warm rain caused a torrent of water to rush down the Salt River and into the Gila. The floods reached almost as far north as the present Monroe Avenue in Buckeye and to Jefferson Street and Fifth Street in Phoenix. The small dams constructed as part of the canal were washed out and all the flat country on the north side of the canal was submerged. The season's crops were lost.

While some hardy farmers returned to their homesteads, others left, never to return. The Buckeye Irrigation Company (which had acquired the Buckeye Canal Company) was unprepared for this emergency, but they persevered and rebuilt the canal and its headgates.

The Canal and dams again washed out in July 1896. This disaster and the ongoing battles for water in the desert among canal/irrigation companies prompted Bucky O'Neill to propose a solution to the National Irrigation Congress in 1896. This proposal called for the federal government to establish a national irrigation and conservation policy.

Subsequent legislation passed in 1902 provided a fund from the sale of public land to be used for the construction of reclamation works. One of the first projects was the $10.5 million Roosevelt Dam on the Salt River which was begun in 1905.

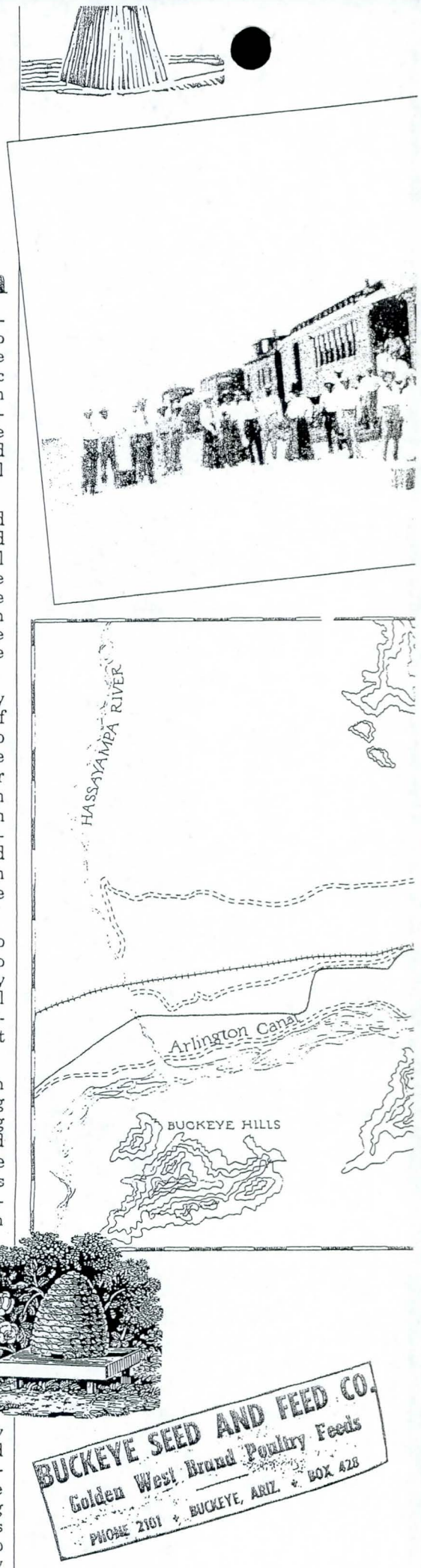
In 1900, the Buckeye Irrigation Company was purchased by the Buckeye Canal and Land Company which constructed various improvements to the canal over the next three years. However, the flooding and damages continued, and water rates continued to rise, causing irate farmers to create the White Tanks Canal Company in 1903.

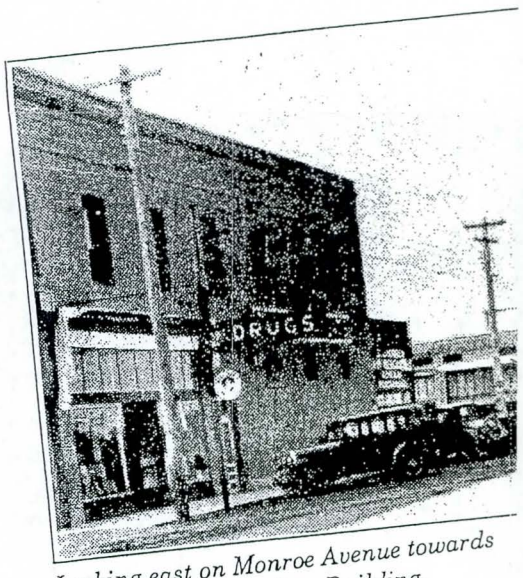
In August of 1904, another great flood occurred. The Gila, Salt, and Agua Fria Rivers all flooded at the same time. The flooding continued well into 1905, and there were lawsuits filed alleging neglect in repairing the dams.

The result was the farmers in Buckeye joined forces in a cooperative venture and formed a new Buckeye Irrigation Company to purchase the Canal system. This new nonprofit corporation also acquired the White Tanks Canal Company. It was a bold move by the farmers in the Buckeye area who relied upon the faith of their community for the success of their venture. It was a happy day in 1950 when the Company celebrated paying off all its debts after forty-three years.

The flooding that had plagued the Buckeye Valley was largely controlled by the federal reclamation projects constructed on the Salt and Verde Rivers, even though the major purpose of these projects was to augment and stabilize the water supplies rather than to control floods.

However, the floods had left their mark on the Buckeye Valley. Many acres of land were so waterlogged that they were unusable. In 1923, the Roosevelt Irrigation District was formed by the Salt River Water Users Association to drain these waterlogged lands near the Salt and Agua Fria Rivers and pump the water to where it could be used on crops. The District served a contract for electricity for its pumping and used the waters over its 38,000 acres.





Looking east on Monroe Avenue towards 4th Street and the Ware Building.

Miscellaneous Technical Documents

USGS Tempe

2003 WY

P.09517000 Hassayampa River near Arlington, AZ

Station History

1961	Feb. 8	Levels run.
	Feb. 17	Station established.
1962	Apr. 2	Channel work above & below gage, being done by bulldozer.
1963-64	No changes.	
1965	Jan. 11	Recent bulldozer work on channel bank to bank.
1966	July 14	5-foot crest stage gage installed 1/4 mile downstream of gage on right bank.
1967	Sept. 19	Levels run for SA, flood of Sept. 5.
	Nov. 30	Levels run to lower crest stage gage washed out by peaks.
1968	May 3	Two crest stage gages installed 300 ft. upstream from gage on left bank and levels run to tie CSG's to gage datum.
1969	During summer months low-water channel bulldozed clean to just past crest stage gages 300 ft. upstream and high-water channel bulldozed several hundred yards above crest stage gages.	
1970	Jan. 5	Channel freshly plowed below gage.
	May 19	Levels run for SA, flood of March 2.
	Sept. 5	Flood washed out lower crest stage gage.
	Dec. 30	Levels run after lower crest stage was re- installed downstream of gage on right bank.
1971	Jan. 1	Channel work done.
1972	No changes	
1973	Jan. 22	Channel being worked on 1000 ft. upstream of gage.
1974	July 9	Levels run.
	Dec. 2	Evidence of recent bulldozing work in channel.
1975	Feb. 4	Channel upstream shaped and brush cleared for several hundred feet.
	Feb. 18	A dike 3 feet high built across channel at upstream side of bridge above gage.

	May 1	Gage well raised .13 feet and rebraced.
	May 2	Levels run.
1976	June 1	Evidence of bulldozing work upstream in vicinity of crest stage on left bank.
	Oct. 12	Levels run.
1977	Jan. 7	Levels run in slope area reach above gage including crest stage gage.
	Dec. 5	Streambed was channelized from gage to about 300 ft. downstream.
1978	Mar. 21	Bulldozer work being done on channel about 100 ft. above gage.
	Dec. 14	Channel was bulldozed.
1979	Apr. 16	Levels run.
1980	Jan. 16	Channel was bulldozed a short distance above and below the gage.
1981	Aug. 17	Channel was bulldozed above and below gage.
1982	No changes.	
1983	Nov. 22	Levels run.
1984	Jan. 11	The right bank side of the channel from gage to about 400 ft. downstream was sloped by bulldozer.
	Mar. 2	Gage moved to downstream bridge pier 30 ft. to west of old gage.
1985	May 15	Levels run.
	Nov. 4	Dozer work on channel upstream of gage.
1986	May 23-24	Corp of Engineers installed Satellite Telemetry equipment.
1987-88	No changes.	
1989	May 4	Levels run, did not reset reference gages; the datum corrections found off -.08 ft. to inside and -.11 ft. to outside.
1990		No changes.
1991	Dec. 7	Earth mover cleared and graded channel.

	Apr. 10	Cross braces installed on stilling well supporting structure to stop settling.
	Oct. 30	Corps of Engineers removed DCP.
	Dec. 5	Earth mover graded channel.
	Dec. 12	Installed Synergetics DCP, Manning Sampler and related equipment for sediment project.
	Apr. 30	Repaired graphic pen carriage assembly & replaced chain.
1992	Dec. 16	Levels run. Staffs found more than .1 ft. off - reset. Removed Synergetics DCP and Manning Sampler equipment. Installed Handar 524 DCP.
	Jan. 8	Ran Slope Area measurement.
1993	Nov. 29	Station dismantled and equipment removed. New bridge constructed 500 ft. downstream. Levels run to stilling well prior to removal.
1994	Feb. 2	Site activated as pressure transducer station at new bridge location on west bank (upstream side). Levels run to orifice and outside staff.
	Oct. 10	Rodents ate and shredded gage house log sheets.
1995	Mar 8-10	Slope area run by R.W. Cruff and class.
	Mar 15	Backhoe work to free orifice so it could be raised. Levels run to new orifice elevation and RP-1 from RM-1.
1996	May 3	Lower orifice line
	May 24	Installed (2) CSGs. Levels run to new CSGs.
1997	Aug. 14	Slope area run.
	Sept. 26	As a result of a flood event all flow in channel has shifted to 2 channels on the left side of channel, will need backhoe to re-excavate channel to re-establish flow to orifice.
1998	Oct. 15	Backhoe excavated channel to re-establish flow to orifice pier.
	Nov. 16	Gage house equipment stolen.
	April 14	Replaced Handar 570 with Sutron 8200.
	Nov. 20	Lowered orifice approx. 0.9 ft.
1999	Jan. 5	Replaced Sutron 8200A DCP, antenna, and coax. cable.

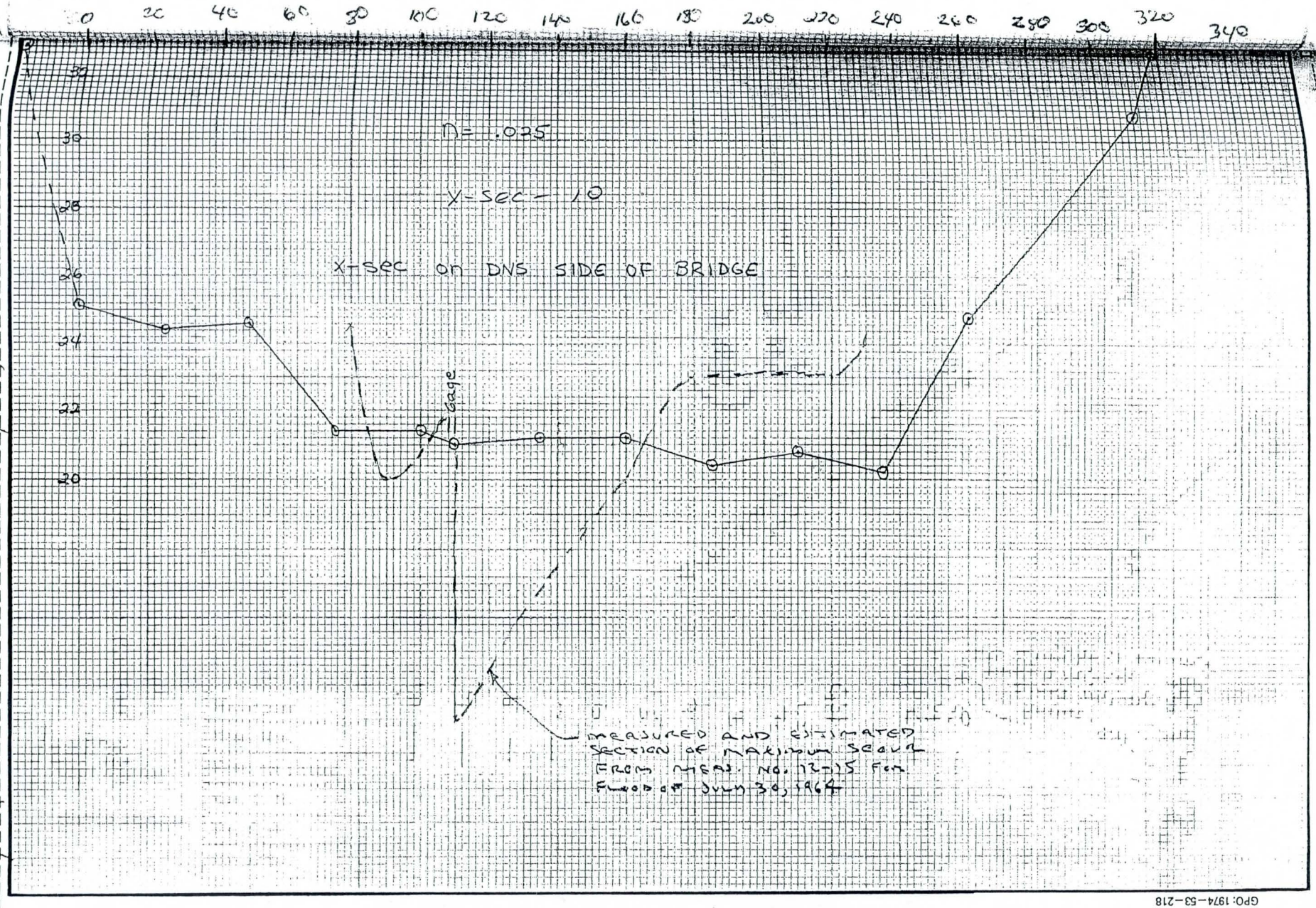
	Feb. 5	Replaced Sutron 8200A DCP.
2000	Aug. 11	Ran Levels
2001	Oct. 16	Replaced battery.
	Nov. 11	Installed new CSG, outside staff and orifice line to LB pier.
	Dec. 7	Lowered orifice tip by 0.70 ft.
	Mar. 15	Lowered orifice tip by 0.67 ft.
	Apr. 11	Bulldozer moved channel to LB gage.
	Apr. 24	Installed H-350 and gas manifold system.
	May 18	Replaced battery. Added solar panel. Upgraded H-350 firmware.
	June 18	Extended lowest outside staff plate.
	June 21	Extended and lowered orifice line.
2002	July 25	Painted gage house
2003	Apr. 17	Installed OTT radar under bridge
	May 28	Replaced vandalized mast, solar panels and coax cable
	July 09	Replaced battery

Step Backwater computation results of Sept 20, 1978

File 09517000

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

HASSAYAMPA RIVER NEAR ARLINGTON, ARIZONA



Checked by _____

Date _____

9-213-E
(March 1949)
Cross-Section

GPO: 1974-53-218

1J754/SWPLO

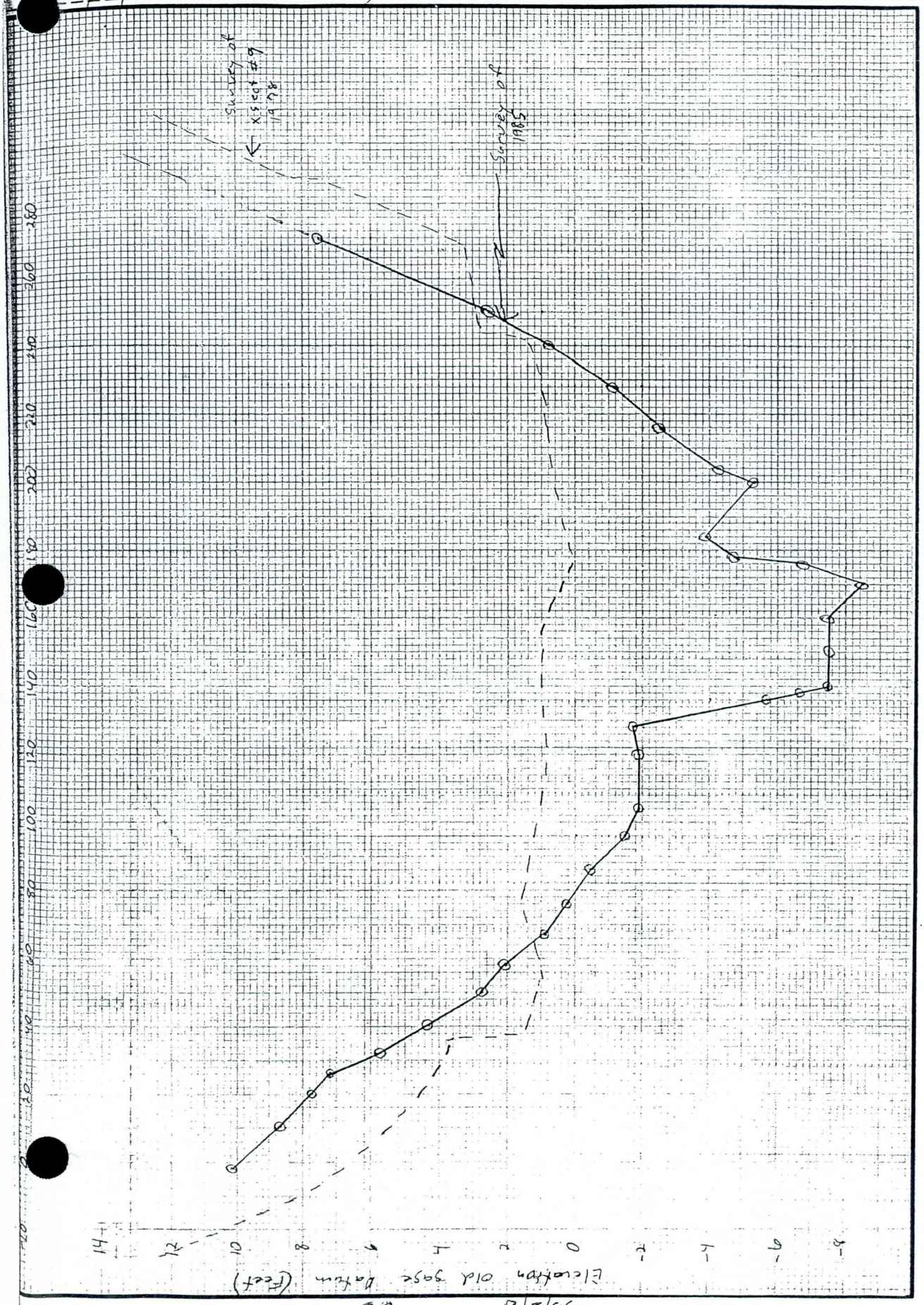
May 15 & 16, 1985 Gila R. Basin

Part of Regular Survey Step - back water

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

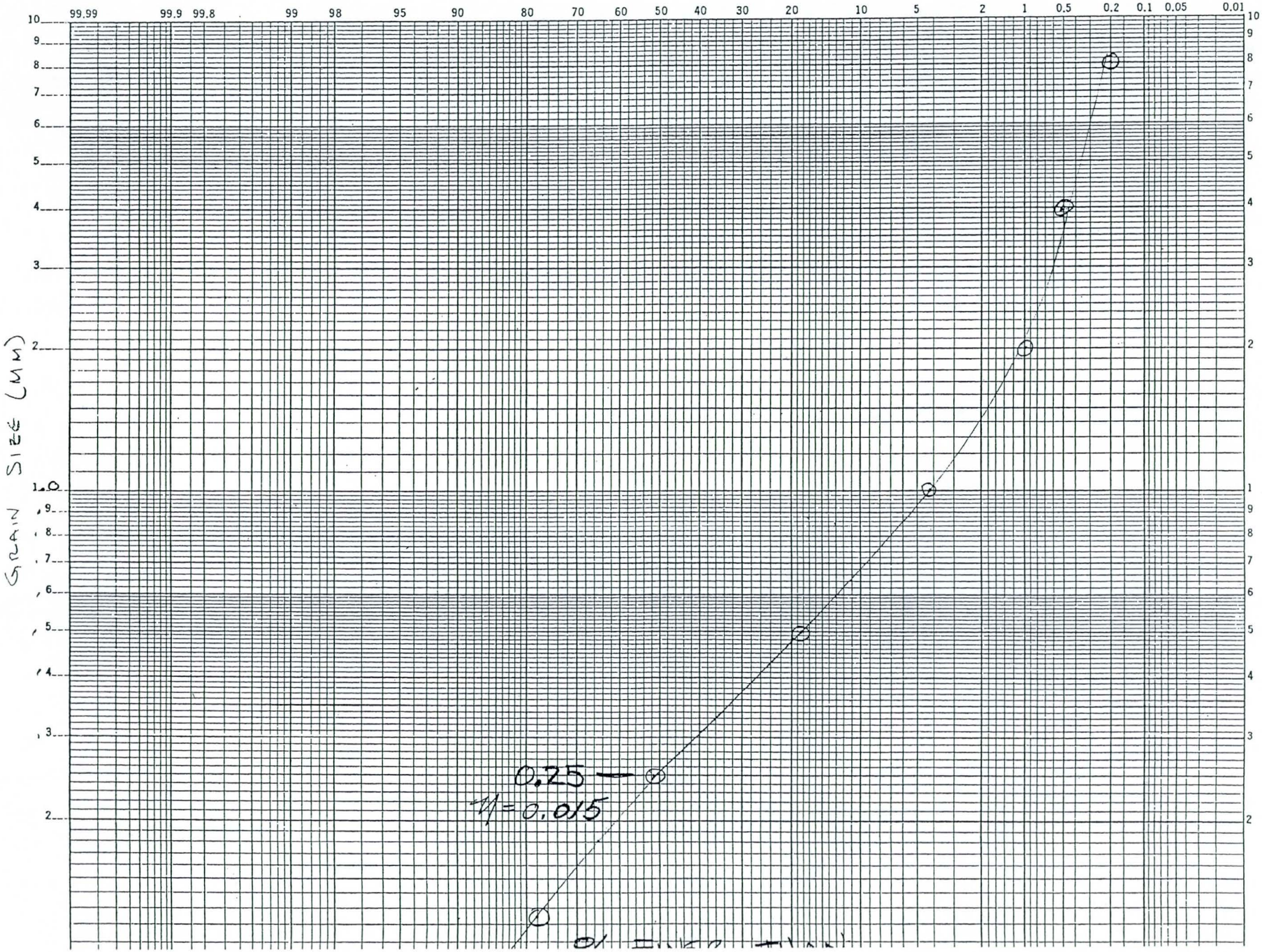
File 09517000

Hassayampa River Nr Arlington AZ.



Sheets Prepared by SB Date 7/5/85 Checked by Date

K·E PROBABILITY X LOGARITHMIC 359-24
KEUFFEL & ESSER CO. MADE IN U.S.A.
2 CYCLES



DATA SHEET FOR SIEVE ANALYSIS

Sample No. 1of.4 Locality Hassayampa River Nr Arlington X-Section 1

Analyst W. Garrett Date 10/22/70 Remarks Flood of 9/5/70 S.A. of 10/8/70

Initial Weight 115.0 Total weight of fractions 115.3 ; ~~loss~~ gain 0.3 gm — %

Retained on Mm.	U.S. No.	0	Raw Wt.	Cumulative Weight	Cumulative Percent Finer	Individual Percent
8.00	5 16"	-3.0	--	--	--	--
4.00	5	-2.0	--	115.3	--	--
2.00	10	-1.0	0.1	115.2	100	--
1.00	18	0.0	2.7	112.5	97.6	2.3 *
0.50	35	1.0	2.2	110.3	95.7	1.9 *
0.25	60	2.0	7.0	103.3	89.6	6.1
0.125	120	3.0	31.1	72.2	62.6	27.0
0.0625	230	4.0	41.4	30.8	26.7	35.9
	Pan		30.8			26.7
Totals						

Gravel % --

Sand % 37.4

Silt + Clay % 62.6

* mud balls

DATA SHEET FOR SIEVE ANALYSIS

Sample No. 2 of 4 Locality Hassayampa River Nr Arlington X-section 2

Analyst M. Garrett Date 10-27-70 Remarks Flood of 9/5/70 S.A. of 10/8/70

Initial Weight 130.0 Total weight of fractions 129.7 ; ~~gain~~ loss 0.3 gm — %

Retained on Mm.	U.S. No.	0	Raw Wt.	Cumulative Weight	Cumulative Percent Finer	Individual Percent
8.00	5 16"	-3.0	- -	129.7	100	
4.00	5	-2.0	0.3	129.4	99.8	0.2
2.00	10	-1.0	0.3	129.1	99.6	0.2
1.00	18	0.0	4.1	125.0	96.4	3.2
0.50	35	1.0	25.6	99.4	76.7	19.7
0.25	60	2.0	59.8	39.6	30.6	46.1
0.125	120	3.0	32.8	6.8	5.3	25.3
0.0625	230	4.0	5.3	1.5	1.2	4.1
	Pan		1.5			1.2
Totals						

Gravel % 0.4

Sand % 94.3

Silt + Clay % 5.3

DATA SHEET FOR SIEVE ANALYSIS

Sample No. 3 of 4 Locality Hassayampa River nr Arlington X-Section 3

Analyst W. Garrett Date 10/28/70 Remarks Flood of 9/5/70 S.A. of 10/8/70

Initial Weight 115.1 Total weight of fractions 114.8 ; ~~gain~~ loss 0.3 gm — %

Retained on Mm.	U.S. No.	0	Raw Wt.	Cumulative Weight	Cumulative Percent Finer	Individual Percent
				114.8	100	
8.00	5 16"	-3.0	1.1	113.7	99.2	1.0
4.00	5	-2.0	0.8	112.9	98.5	0.7
2.00	10	-1.0	0.2	112.7	98.3	0.2
1.00	18	0.0	3.4	109.3	95.3	3.0
0.50	35	1.0	17.2	92.1	80.3	15.0
0.25	60	2.0	48.7	43.4	37.9	42.4
0.125	120	3.0	35.0	8.4	7.4	30.5
0.0625	230	4.0	5.8	2.6	2.3	5.1
	Pan		2.6			2.3
Totals						

Gravel % 1.9

Sand % 90.7

Silt + Clay % 7.4

DATA SHEET FOR SIEVE ANALYSIS

Sample No. 4 of 4 Locality Hassayampa River Nr Arlington X-Section 4

Analyst W Garrett Date 10/22/70 Remarks Flood of 9/5/70 SA of 10/8/70

Initial Weight 102.5 Total weight of fractions 102.8 ; ~~loss~~ gain 0.3 gm — %

Retained on Mm.	U.S. No.	0	Raw Wt.	Cumulative Weight	Cumulative Percent Finer	Individual Percent
8.00	5 16"	-3.0	--			
4.00	5	-2.0	--	102.8	100	
2.00	10	-1.0	1.9	100.9	98.1	1.8 *
1.00	18	0.0	5.0	95.9	93.3	4.8 *
0.50	35	1.0	20.0	75.9	73.9	19.4
0.25	60	2.0	39.4	36.5	35.6	38.3
0.125	120	3.0	22.0	14.5	14.2	21.4
0.0625	230	4.0	5.5	9.0	8.8	5.4
	Pan		9.0			8.8
Totals						

Gravel % 1.8

Sand % 84.0

Silt + Clay % 14.2

Sept. 1970

09-5170.00 HASSAYAMPA RIVER NEAR ARLINGTON, ARI
GILA RIVER BASIN
PART 9-1970 CREST-GAGE STATION

FLOOD OF SEPTEMBER 5, 1970

Type of measurement: 3-section slope-area

Location of site: Reach starts 900 ft upstream and ends 250 ft downstream of crest-gage. Reach ends 150 ft upstream of bridge.

Survey of site: Site was selected and flagged on Sept. 14, 1970 by Werho and Arteaga. Highwater marks and cross-sections were surveyed on Oct. 7, 1970 by Hjalmarson, Schneider and Bentley. Survey datum was

24.84 ft below gage datum. Instrument was checked and adjusted by two-peg test on Sept. 24, 1970 and had no error in 200 ft.

Discharge and gage height: 39,000 cfs; flood crest was above top of crest-gage: ~~16.4~~ 12.6' ft from poorly defined highwater profile past gage. Gage-height at recording gage was 8.90 ft from HWM in the well and is used as the gage height for the peak.

Drainage area: 1,470 sq mi

Unit Discharge: 26.5 csm

Nature of flood: Large amount of rainfall, mostly above Wickenburg, that occurred in bursts of high intensity. Recorded

rainfall at Weather Bureau gages was:

Gauge	Rainfall Sept 4	Sept 5	Sept 6
Wickenburg	1.43	.42	1.57
Crown King	.85	4.50	1.66
Walnut Grove	1.65	3.65	0

<u>Field conditions</u>: The reach is straight; the channel shape is trapezoidal. Both banks are sparsely covered with grass and small weeds. Both banks are man-made levees and a small amount of flow (about 50 cfs) overflowed the right bank at sec. 1 and re-entered the main channel below sec. 3.

The high water marks were generally

debris and debris lines. The survey party had a very difficult time finding the flagged marks because they were densely covered with weeds. The yellow flagging added to the difficulty because the weeds had many yellow flowers. Therefore, some flagged marks were probably not surveyed. The profiles were poorly defined.

The channel is mostly sand with some gravel and silt. There is a small outcrop of volcanics on the right side of the channel at section 1. The sand channel is unstable throughout the reach.

The "n" value determined from the bed sample (d_{50} = .25mm) was 0.015. An "n" value determined from a bed sample for a previous flood was 0.019. The "n" value for grain roughness from Strickler's Equation (D_{65} = .34mm) was 0.011.

"n" values used for previous measurements are as follows:

Date	Q (cfs)	"n"	Review comment
9-5-67	5,270	.020	—
8-14-67	1,380	.024 → .025	"n" should be .020 to .022
9-3-65	2,960	.025 → .027	"n" values are high
8-23 or 26, 63	1,930	.030	"n" may be high

The "n" values selected in the field for this measurement were 0.026 (Sec 1), 0.025 (Secs. 2 & 3). On the basis of the bed sample analysis, the review comments from previous measurements, WSP 1498E, the small channel irregularities, and the depth of flow, the "n" values might be 0.020. The peak discharge

corresponding to an "n" of 0.020, however, is about equal to the peak discharge at Morristown of 47,500 cfs and therefore is probably too great because of the small amount of tributary inflow ~~fo~~ between the stations and because there was about a 15 percent reduction of peak discharge between Bay Damsite and Morristown. The "n" values selected in the field, therefore, are used.

Fifteen stereo photos were taken.

<u>Computations</u>: The results of the computer computation were:

Reach	Q	% SPREAD
1-2	30505	> 70
2-3	51869	
1-3	39017	

Cross Section	π	A	
1	.96	2461	> contracting
2	1.00	2417	> expanding
3	.91	2751	

The 3-section peak discharge of 39,000 cfs is considered the most reliable.

<u>Evaluation</u>: Use 39,000 cfs and consider it poor. Profiles were poorly defined, the reach is expanding, the "n" is uncertain, the channel is unstable, and the spread is

sub-reach discharge was 70 percent.

Previous computations: See section on Field conditions.

H W Halmarson
1-25-71

Buckeye Development Code.

1. Developments of exceptional quality are encouraged to offer Town residents a sense of community and well being through appropriate subdivision design. If all design elements as contained in Section 7-7-6 are satisfied, a subdivision shall be deemed "Exceptional Quality".

2. Common areas serve a public purpose by improving the quality of life of the residents and minimize the cost to the Town by reducing the extent of utilities and roads needed within a development. Requirements and definition of common areas are given in Section 7-7-6.

TABLE 5-A RESIDENTIAL DENSITY BONUS

Note: Only those developments deemed "exceptional quality" are eligible for a density bonus

Common Area	Density Bonus
Ten (10%) percent or more	0.5
Fifteen (15%) percent or more	1.0
Twenty (20%) percent or more	1.5
Twenty-five (25%) percent or more	2.0

Density Bonus is added dwelling units per acre allowed in addition to Subsection 7-5-4 (D)

Common Area is the amount of common area provided within an approved plat as a percentage of the total land area within said plat.

SECTION 7-5-5 FLOOD CONTROL

A. FLOODPLAIN MANAGEMENT

The Maricopa County Flood Control District is responsible for all floodplain management activities within the Town corporate limits of the Town. The District is authorized to exercise the powers and duties set forth in Title 45, Chapter 10, Article 4, Arizona Revised Statutes, within all areas of the Town.

B. DRAINAGE PROVISIONS

1. GENERAL REQUIREMENTS

Provisions for drainage shall meet the requirements of the Uniform Drainage Policies and Standards for Maricopa County. Facilities shall be installed to provide for the adequate containment and disposal of surface water and to maintain any natural drainage course, on any property or parcel within or affecting the Town.

2. DRAINAGE REPORT

Prior to approval of any commercial, industrial, multiple family residential, or subdivision development, a drainage report shall be submitted to and approved by the Town Engineer.

3. DRAINAGE CLEARANCE

Drainage Clearance shall be required prior to permit issuance for any development or substantial improvement which may have an adverse effect on existing drainage.

4. FINAL INSPECTION

Drainage Inspection Approval shall be obtained prior to issuance of a Certificate of Occupancy or final building inspection of any site or structure.

C. DRAINAGE DESIGN

1. GENERAL

The entire drainage detention and runoff conveyance system shall be designed to eliminate or minimize storm water runoff effects and convey the runoff through development with minimum detrimental effect. No system shall be approved if the effect may cause an increase in the peak discharge, volume or velocity of runoff or change the point of entry of drainage onto other property during the runoff event.

2. STORM FREQUENCY CRITERIA

The rainfall event, based upon the one hundred (100) year storm duration generating the peak discharge for the area contributing runoff to the development shall be used in designing the overall drainage system.

3. RETENTION OF STORM DRAINAGE

a. The retention system shall be designed to reduce the post-development runoff to less than or equal to the pre-development runoff. For rural developments, on-lot retention is encouraged. For urban developments, on-site two (2) hour one hundred (100) year retention volume may be required.

b. On-site retention facilities may include natural depressions or human-made basins. Dry wells are prohibited.

c. Individual lot retention shall not be permitted in residential subdivisions with a lot size less than one-half (½) acre, except in conjunction with multiple family development.

d. If reasonable alternatives are not available, retention in the Town's right-of-way may be allowed upon approval of the Public Works Director.

e. A public utility easement shall not be designated for retention without approval of affected utility companies.

f. Off-site drainage shall either be to the street or to a designated drainage easement with adequate outfall.

4. STORM WATER DISPOSAL

On-site runoff that has been retained shall be disposed of within thirty-six (36) hours either by percolation, catch basins or drainage into an approved drainageway. Flows from

basins shall not exceed pre-development flows and shall be in the location and direction of the historic flows.

5. FINISHED FLOOR ELEVATION

Finished floors shall be elevated a minimum of one (1) foot above the high point of the building site. A finished floor elevation may be other than the minimum permitted provided it is determined by technical data certified by an Arizona Registered Professional Engineer to be the minimum necessary to be safe from inundation by the one hundred (100) year peak runoff event. Finished floor elevation shall be referenced to a known benchmark.

SECTION 7-5-6 LANDSCAPING

A. PURPOSE

Landscaping has a two-fold purpose: (1) to create an aesthetic environment; (2) to maintain groundcover for control of dust and weeds.

B. LANDSCAPING REQUIRED

All new development, other than individual single family dwellings, shall provide landscaping in accordance with Table 5-B. The applicant shall submit a landscape plan to the Administrator for approval prior to building permit issuance.

1. All commercial and industrial development shall provide landscaping within the front setback area or between the building and the street frontage, whichever is less. On corner lots, landscaping is to be provided on both street frontages within the setback area or between the building (s) and the street frontages, whichever is less.

2. Landscaping shall be provided by a developer or subdivider between the public roadway improvements and the property line. Landscaping along collector and arterial streets shall be provided at a minimum rate of one (1) tree and three (3) shrubs for each thirty feet (30) of linear street frontage. Maintenance of the landscaping will be the responsibility of the developer unless accepted by the Town.

C. IRRIGATION AND MAINTENANCE

All landscaping improvements shall include a suitable method for irrigation. Failure to maintain landscaping shall be cause for permit revocation or other enforcement action.

D. RIGHT-OF-WAY ENCROACHMENT

Landscaping allowed in the public right-of-way shall be a maximum height of three (3) feet. Trees may be allowed if branches are trimmed up to six (6) feet above ground level. The Public Works Director shall have the authority to order removal of any landscaping which, in the opinion of the Director, poses a hazard to the public.

Buckeye General Plan

B.8 Character/Environmental Plan Element

The vast expanse of land that makes up the Buckeye Planning Area offers a variety of natural and man-made resources and environments which, if artfully managed in the context of a Plan, should over the long-term produce desirable results and benefits not only locally, but to the Phoenix Metro Area as well. Buckeye has set as its goal to promote the "integrated" development of its Planning Area, that is, development that builds upon the existing natural and man-made resources while maintaining and enhancing its heritage and the environment. Buckeye is envisioned as a progressive community which manages its resource base in the context of a plan or vision.

As perceived and desired by the Town of Buckeye's residents embodied in the Planning Committee, the Buckeye Planning Area would evolve into a planned region that balances urban economic growth with agriculture and structured open space. The future Buckeye is envisioned as a structured system of well contained, functional and identifiable districts or urban villages provided with their own infrastructure amenities and services. These villages would be interconnected by a system of trails and open space.

The Character/Environmental Plan Element provides the complementary instruments which may enable the Town to fulfill its vision. The Plan focuses on the natural environment, the heritage of the Buckeye Valley and the man-made environment.

B. 8.1 Natural Environment

River Riparian Basins

Objective 1. The Town shall protect its unique riparian basins, ecology and natural environment.

Policies:

1. Plan for the preservation of riparian basins that are rich in wildlife and plant community. Establish river riparian buffer zones along the perimeters of the Gila and Hassayampa Rivers.

2. Compatible development with the river riparian buffer zones shall be allowed only with provisions for maintaining wildlife habitat, movement, and access to rivers.

3. New operations and expansion of existing sand and gravel companies may be permitted on a case by case basis, provided that adverse environmental impacts are identified and that assurances for impact mitigation are to the satisfaction of the Town.

4. The dumping and/or long-term storage of solid and hazardous wastes in the zones shall not be permitted.

Native Plants, Wildlife and Mountain Zone

Objective 1. The Town shall plan, develop and enforce guidelines to protect and enhance native vegetation and wildlife which are characteristic of the Buckeye Valley (Sonoran desert and river riparian basins).

Walnut Grove Dam Information

Memorandum JE Fuller/ Hydrology & Geomorphology, Inc.

DATE: August 27, 2004

TO: File

FROM: Ted Lehman, P.E.

RE: Walnut Grove Dam Failure

CC: Jon Fuller, P.E., Project Manager

This memorandum describes the reconstruction of the Walnut Grove Dam failure performed by JE Fuller/ Hydrology & Geomorphology, Inc. for the Lower Hassayampa River Watercourse Master Plan (LHWCMP). The approach to the reconstruction was highly simplified. The primary purpose of the analysis was to provide context on the possible contamination of geologic evidence within the study reach due to the flood. In addition, depending on its magnitude, the dam failure flood may have imposed a condition on the river that it has had to adjust to since. (For example, if the flood was significantly larger than other natural floods during the Holocene, …)

The approach adopted was to use the dam failure tools in HEC-1. These tools are simple but can give an idea of the flood wave and hydrograph generated by sudden evacuation of a reservoir. In addition, the hydrograph can be subsequently routed downstream. HEC-1 KK routing blocks were already available from the recent draft hydrology report (JEF, 2004).

For the reconstruction information about the dam and its reservoir were required to parameterize the HEC-1 model. Information regarding the dam was taken from two publications – Dill (1987) and Powell (1893). Geometric information shown in Figure 3 was combined with interpretation of data from the 7.5 minute USGS topographic quadrangle (see Figure 2). The location of the dam was estimated from the descriptions, photographs, and geometries in Dill (1987), Powell (1893), and the topographic quadrangles. In addition, personal recollection from visits to the general area and discussions with FCD personnel in the past suggest the selected location is most probably very close. No field visit was made as part of this project.

The time of failure of the dam was assumed to be 0.25 hours.

The HEC-1 KK block used for the dam failure analysis is given below:

```
KK   WGD
KM   WALNUT GROVE DAM RESERVOIR FOR DAM BREAK
KO     1
RS     1    ELEV    3413
SA     0     251     520    1040    1495
SE  3310    3320    3360    3400    3420
SS  3405      26     3.0     1.5
SL  3314      12    0.67     0.5
ST  3410     420     2.7     1.5
SB  3310     150       1    0.25    3413
```

The results of the HEC-1 modeling are summarized in Table 1 below:

Table 1. Summary of Various Model Results			
Model	Dam Failure Q	Q at Gila River	Travel Time
WGD.DAT	700,000 cfs	173,000 cfs	8 hrs

Many uncertainties in the analysis exist. However, some of the written historical evidence also discussed in Dill and Powell help us evaluate the models and evaluate the reasonableness of their results.

For example, eye witnesses at the dam report three feet of flow over the dam before failure. This data was used to set the elevation in the reservoir at time of failure (3413 ft). The dam was said to have failed very suddenly just after midnight on the morning of Feb. 22, 1890. The pool was said to have drained nearly dry within about two hours. The models take about 5 hours to drain (Dill, 1987).

The flood wave was said to have advance at twenty miles per hour and was described as a nearly perpendicular wall fifty feet high (Dill, 1987). The HEC-1 model hydrologic routing to Box Canyon yields a depth of about 40 feet and a travel time to Wickenburg consistent with a 20 mph velocity.

Parkman (1987) writes about the failure of the Walnut Grove Dam in his History of the Buckeye Canal. He says:

> "Walnut Grove Dam on the Hassayampa broke and released a torrent of water stored behind it, that came rushing down the otherwise dry creek bed of the Hassayampa. It reached the Buckeye Canal at 9:30 AM on the morning of February 22. As the channel of the creek was at that time quite small, of much more than a big splash, the water spread out over the flats on each side of the channel where Highway 80 now crosses, it was at least a mile wide running better than waist deep thru the house on the old Evans homestead. After the flood was gone the former little channel had cut out to a creek of considerable width, something near its present size. …it was at least 8 times as big as it was before the flood."

The HEC-1 model routes the peak to the Gila River in about 8 hours, again consistent with the reported evidence. The routed peak discharge is about 175,000 cfs at the Gila River. The river valley is about 5,900 feet wide near (Old) Highway 80. Assuming normal-depth, S = 0.004, n = 0.04, and "better than waist deep" = 4 feet, the discharge is estimated at about 139,000 cfs.

It is concluded that the failure of Walnut Grove Dam produced a very large flood on the Hassayampa River that had a peak discharge through the study reach two to four times larger than the 100-year flood estimated in the Draft Hydrology Report for the WCMP.

Based on the same normal-depth section described above, the 100-year flow would be about 2.5 feet shallower than the Walnut Grove Dam near Old US Highway 80. In a narrow section the difference would increase somewhat. It is likely that low terraces along the river study corridor were inundated and modified by erosion and deposition by this flood.

The US Army Corps of Engineers has estimated the Standard Project Flood (SPF) as about twice the 100-year flood in various places around Maricopa County. Further, they have estimated a return period for the SPF of about 200-250 years. Therefore, the Walnut Grove Dam flood may have been greater than the 500 year flood in the study reach.

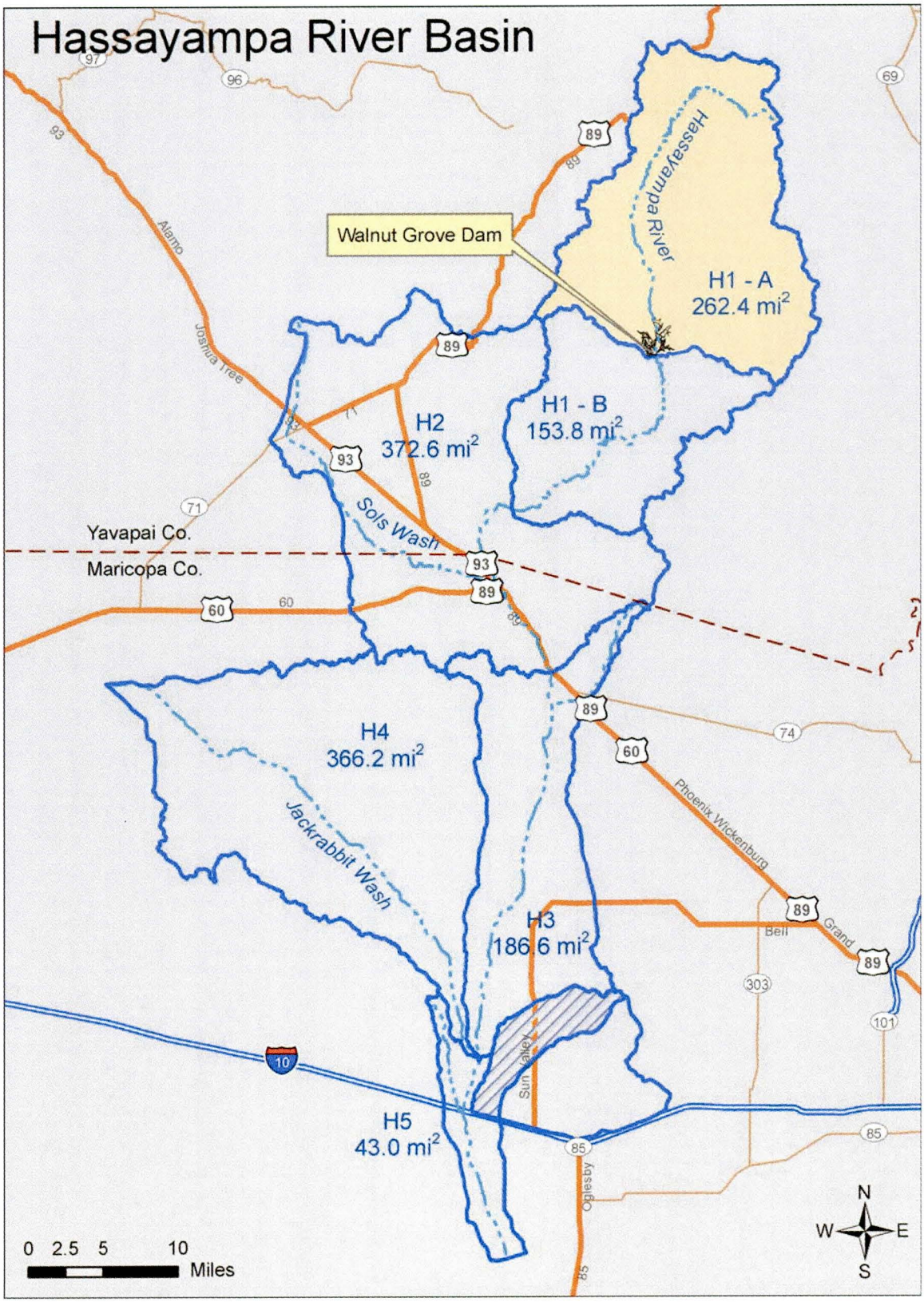


Figure 1. Walnut Grove Dam and Hassayampa River Watershed

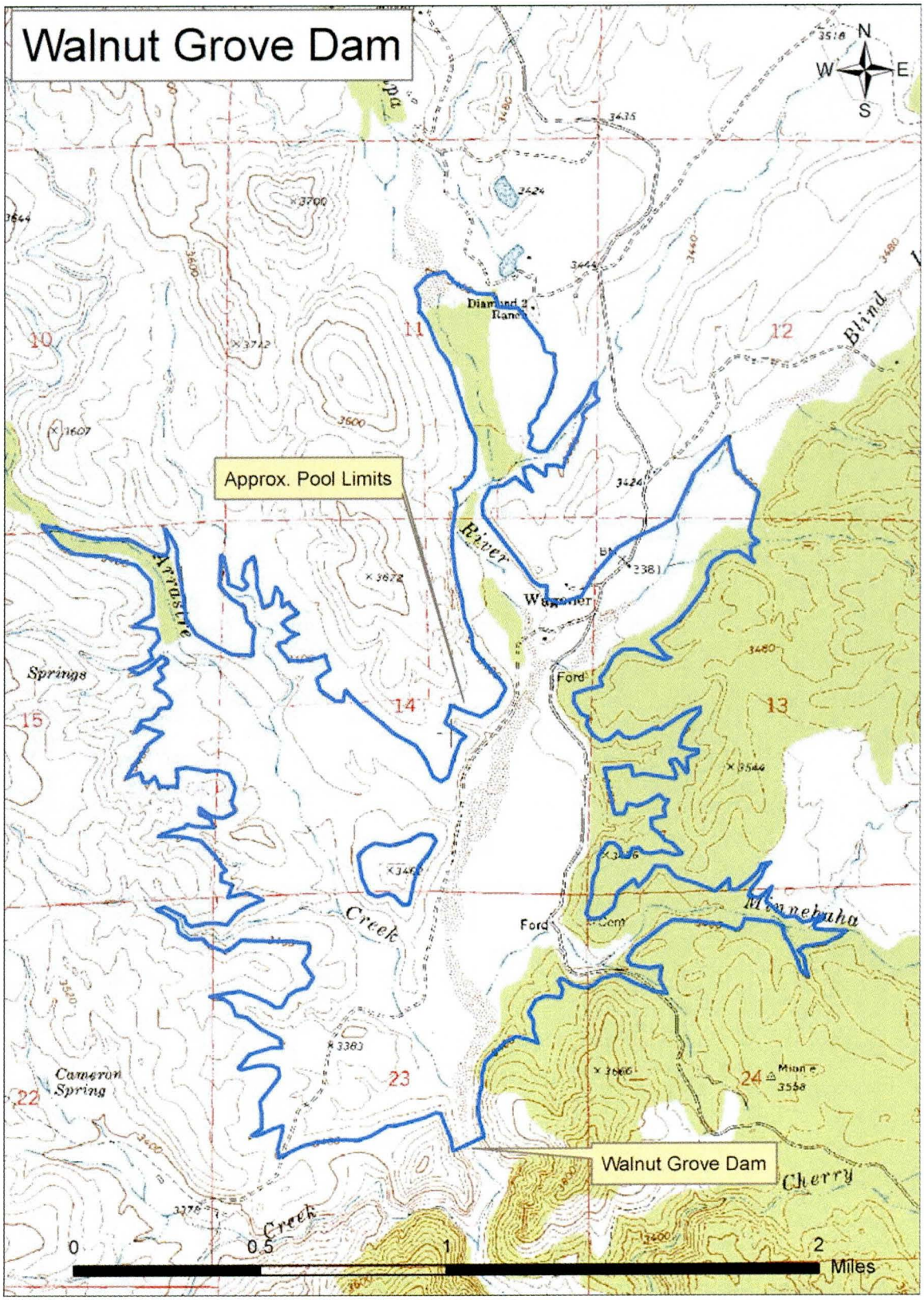


Figure 2. Approximate Location and Top of Dam Pool Limits for Walnut Grove Dam

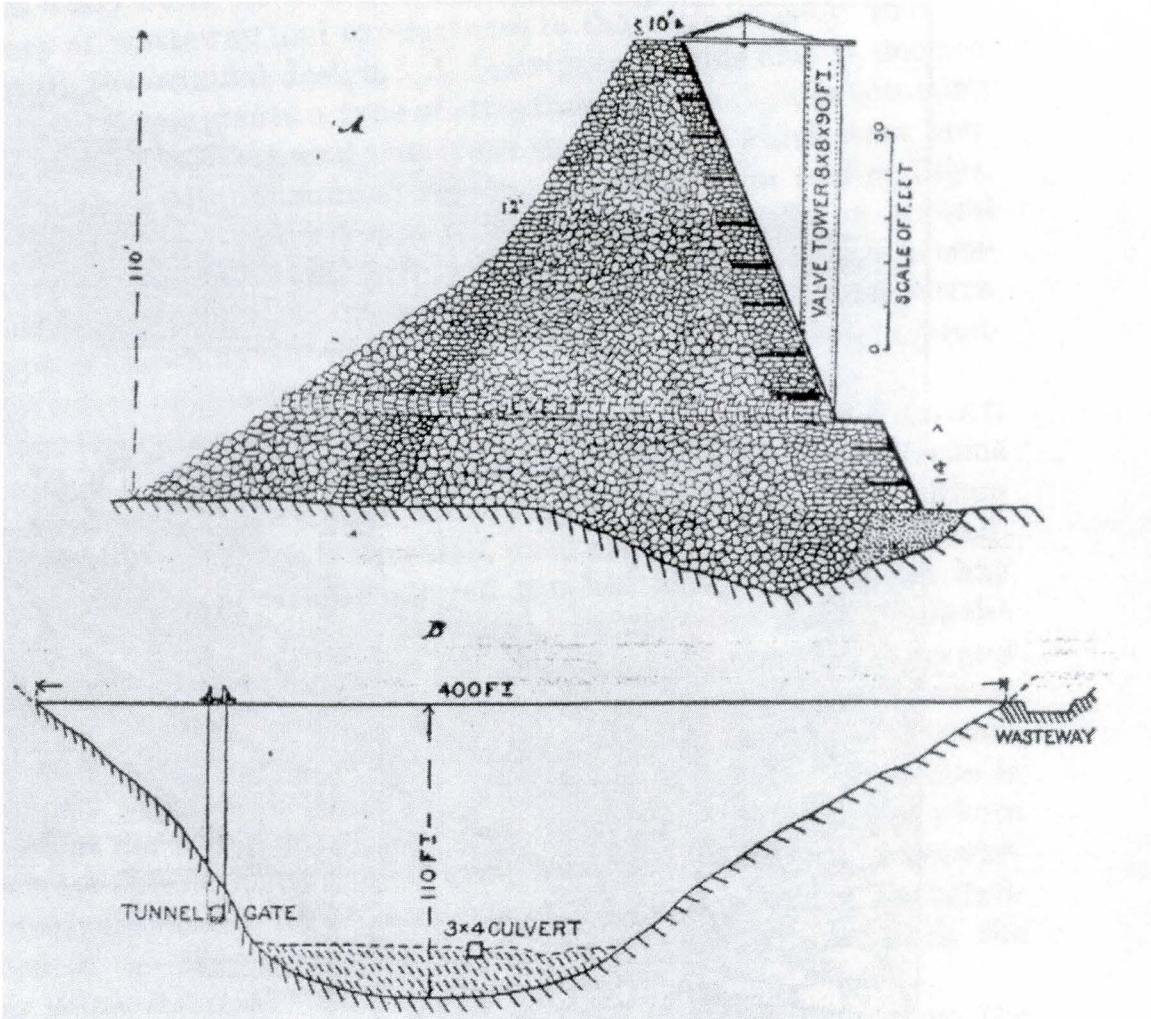


FIG. 132.—Walnut Grove dam. Cross section and elevation.

Figure 3. Walnut Grove Dam Cross Sections and Geometry (Source: Powell (1893))

Figure 4. Walnut Grove Dam Reservoir (Source: Dill (1987))

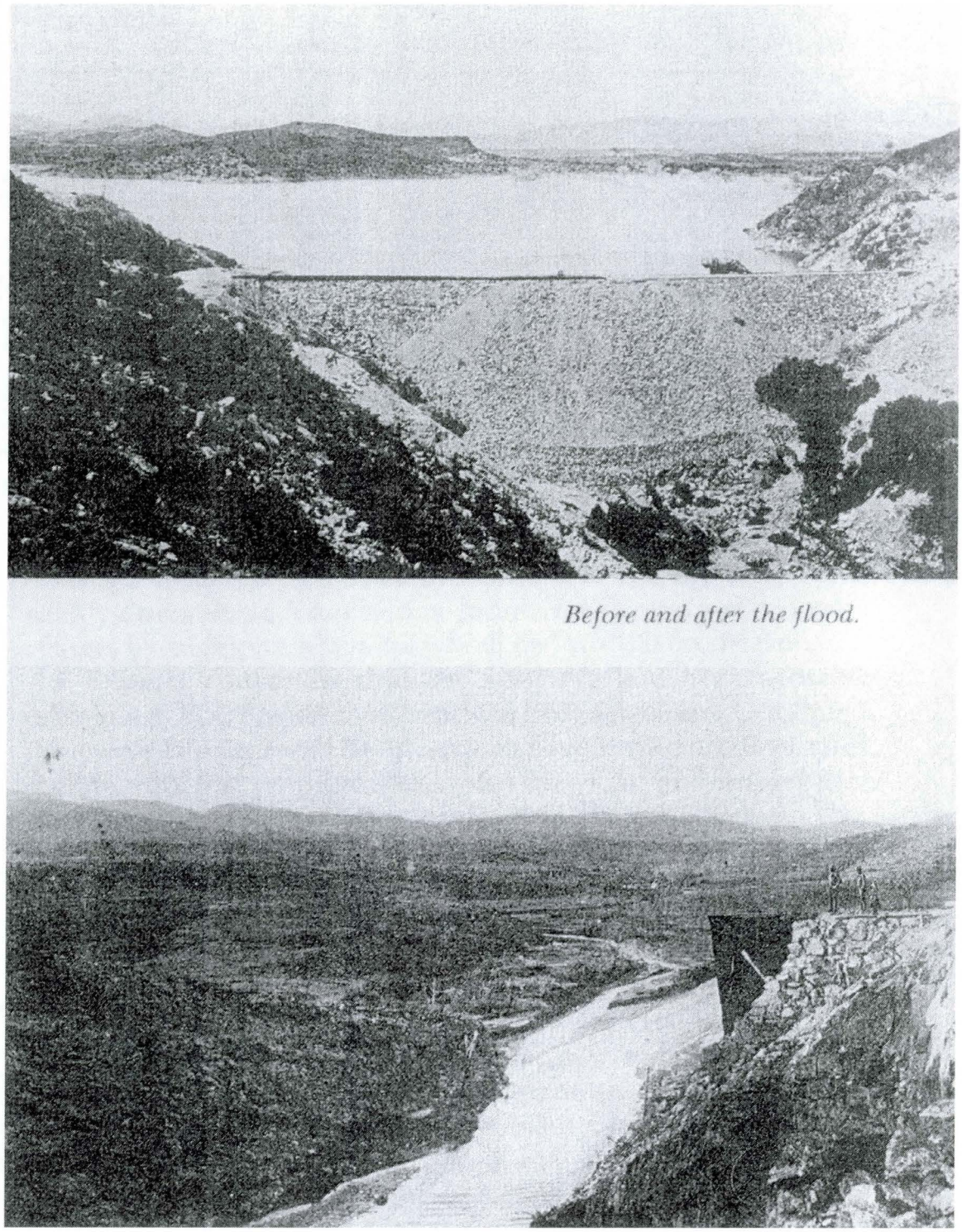


Figure 5. Walnut Grove Dam Before and After Failure midnight Feb. 22nd, 1890 (Source: Dill (1987)

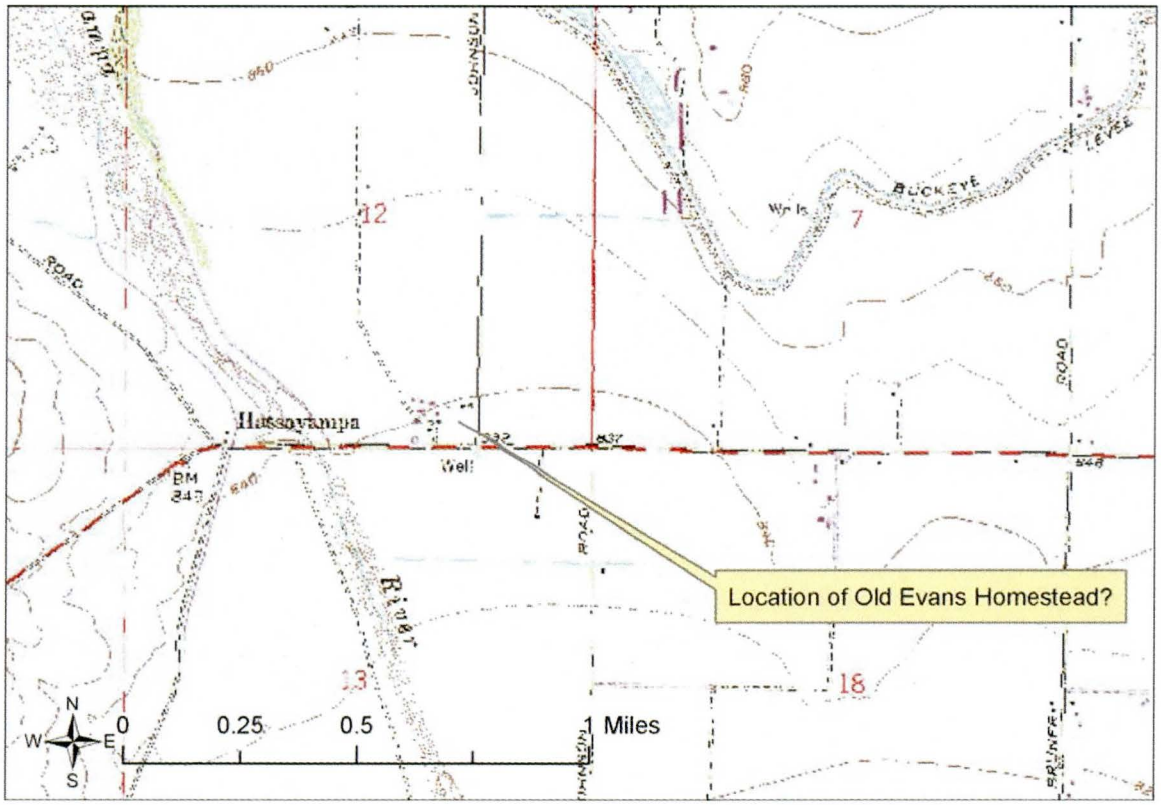


Figure 6. USGS Quad Near Old Evans Homestead

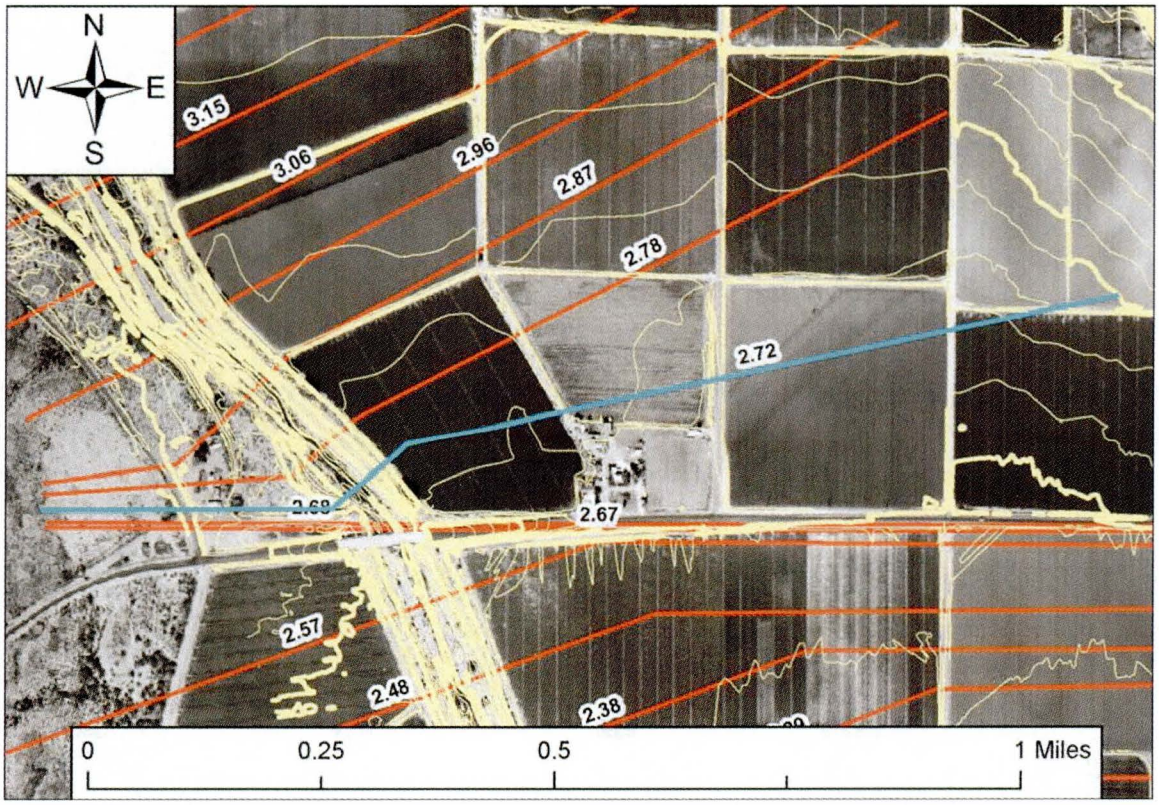


Figure 7. FDS Cross Sections Presumed Location of Old Evans Homestead

References

Dill, David B., 1987, "Terror on the Hassayampa, The Walnut Grove Dam Disaster," Journal of Arizona History, Fall 1987, pp.283-306.

JEF, 2004, Draft Hydrology Report for the Lower Hassayampa River Watercourse Master Plan, submitted to the Flood Control District of Maricopa County July 2004.

Parkman, I.H., 1987, History of Buckeye Canal, book presented to Buckeye Irrigation Company in commemoration of 100 years of service, Parkman's original text published 1957 and updated by W.W. Weigold, N. Weigold, & E. Grandy, 46 p.

Powell, J.W., 1893, Thirteenth Annual Report of the USGS to the Secretary of the Interior 1891-92, Part III Irrigation, Walnut Grove Dam Section.

HISTORY

of

BUCKEYE CANAL

by

I. H. PARKMAN

FOREWORD...

That the story of the Buckeye Canal might be kept for all to read and know, I have compiled this short history from records on file in the Court House at Phoenix, from records unearthed in the vaults of the Buckeye Irrigation Company and from personal memories and recollections and talks with the old timers of the Valley. Among the records found, was a 60 page foolscap paper written in long hand, of the Buckeye Canal. It was written in the 90's for Bucky O'Neil, when he was on the deal to buy the Canal, and covered every transaction in connection with the Canal in minute detail up to that time. Other records of importance were found among the old papers unearthed in the Canal Company vaults and are now on display in the Buckeye Historical and Archaeological Museum. In the history of the Buckeye Valley is interwoven the story of the lives, struggles and sacrifices of those heroic characters who located and built the Buckeye Canal and started the reclamation of 20,000 acres of Arizona Desert. Although hindered and deterred by the mighty flood of 1891 that destroyed the head works of the canal and filled it with sand and debris for miles, only to be followed by the 11 year drought of 1894 to 1905, when the river was practically dry a good part of the year and again from the floods of 1905 up into the early 20's when many of the farmers along the river bank stood and saw acre after acre of their land fall into the swirling muddy waters, to be carried away and be eventually deposited in the Gulf of California. But they stood firm and built a vision of the future, when they and their children, each one, could sit down under his own "vine and fig tree" and enjoy the fruits of their labors.

To the Jacksons, the Spains, the Collins, the Beloats, the Clantons, the Charltons, the Harers, the Hazeltons, the Phippneys, the Burches, the Evans, the Roberts, the Parkers, the Conleys and the many more that first settled the Valley and stood firm through drought and flood, good times and bad, to give to us today our beautiful Valley with its miles of paved roads and concreted ditches and numerous fields of green alfalfa, waving grain and snowy white cotton, we pay tribute today for their untiring energy and devotion to a vision for which they untiringly labored to see come true.

I. H. PARKMAN
Jan. 1, 1957.

* ✶ *

To all the Old Timers and Pioneers who by their courage, strength and perserverance, labored untiringly to reclaim that portion of the Arizona desert known today as the Buckeye Valley and to make it "Bloom as the Rose" for all future generations to enjoy, I most humbly dedicate this book.

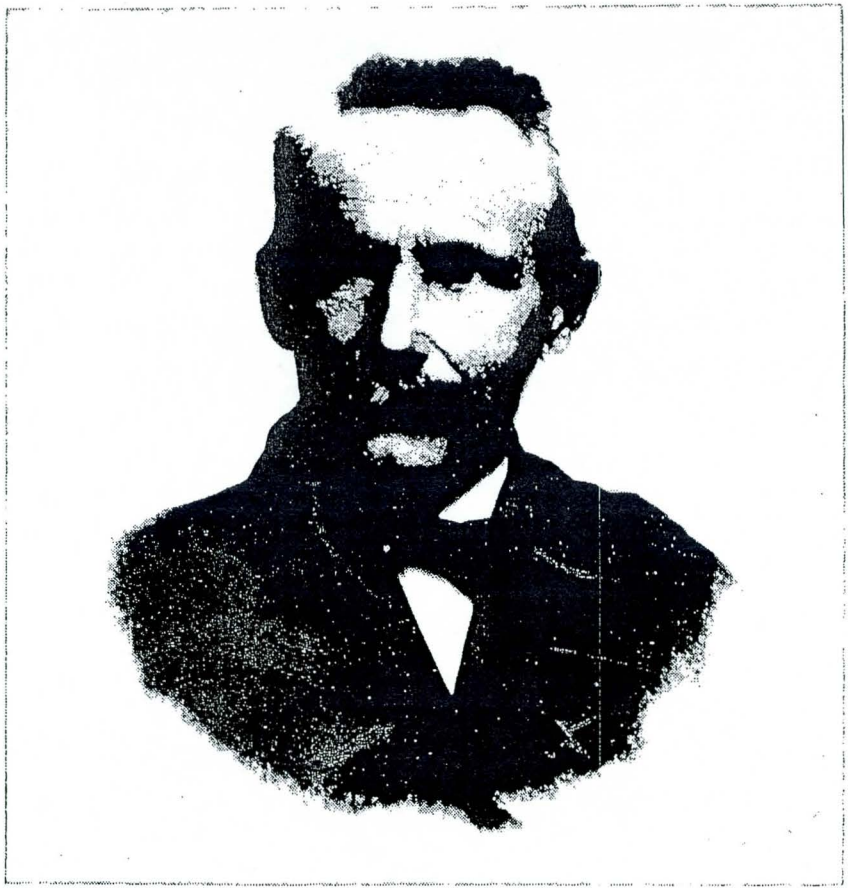
I. H. PARKMAN
January 1, 1957

THIS BOOK IS PRESENTED TO

_____

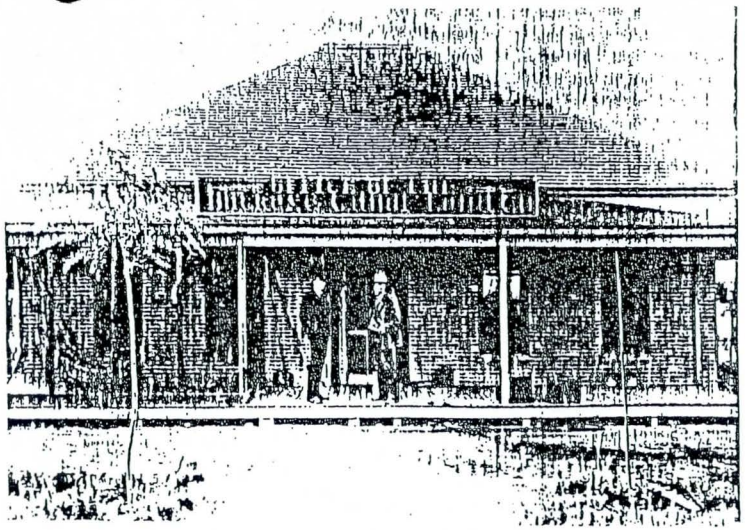
BY THE BUCKEYE IRRIGATION COMPANY IN COMMEMORATION OF ITS ONE HUNDRED YEARS OF SERVICE TO ITS STOCKHOLDERS, MARCH 4, 1907 - MARCH 4, 1987.

History added on since 1957.
Written by: Wilbur W. Weigold, Nan Weigold and assisted by Eleanor Grandy.



M. M. JACKSON

LOCATOR and FOUNDER of BUCKEYE CANAL



Buckeye Canal And Land Co. Office

This is the Phoenix office of the Buckeye Canal and Land Co. about 1905. The building was located in the Valley Bank Block, bounded by Center, Wall, Washington and Jefferson Streets (where Patriots Park stands today). The two men on the porch are unidentified.

The Buckeye canal was laid out in 1885 by G. L. Spain and M. M. Jackson to supply water to agricultural land in western Maricopa County. Jackson built the canal by hand and with the help of a horse-drawn digging implement called a slipscraper. He named the canal after his home state of Ohio.

The canal began below the junction of the Salt, Gila and Agua Fria rivers and flowed west to the Hassayampa, zigzagging along the way to maintain elevation and to avoid numerous mesquite thickets near the river. The first water was turned into the canal in 1887.

The next year, Spain and Jackson sold their company to Buckey O'Neill and William Barnes, who began to promote land development as well as water sales in the area. That was just a year or two before the wettest decade in Arizona history. In 1890 after heavy rains, the Walnut Dam broke on the Hassayampa; in 1891 the Salt River flooded Phoenix, running eight miles wide below its confluence with the Verde. The men spent all their time and money repairing storm damage.

As if that weren't enough, Buckeye went off to fight in the Spanish American War with Teddy Roosevelt's Rough Riders and was killed in Cuba in 1898. His widow sold the company to a California firm.

After that, the canal company had a series of owners, who renamed it the Buckeye Canal and Land Co., but didn't do much else. In 1907, the local farmers in the Buckeye Valley, fed up with bad management and sporadic water delivery, bought the company, pledging one acre of land for each share of stock. They renamed it the Buckeye Irrigation Company, the name still used today. *Photo courtesy Arizona Historical Society, Phoenix, research by Burnice Armstrong. © Arizona Capitol Times. From Arizona Capitol Times, issue of 5-5-87.*

1887 - 1987

IN COMMEMORATION

Of The

100TH ANNIVERSARY

Of

IRRIGATION

— BUCKEYE VALLEY —

ONE HUNDRED YEARS AGO, in the year 1887, development work began on the irrigation system which was to supply the necessary water to develop the arid land known as the present Buckeye Valley. This enterprise turned the desolate acreage into a prosperous and highly productive valley. It all started with a vision shared by Malin M. Jackson, Joshua L. Spain, and Henry Mitchell, three Ohio natives of a wonderful opportunity to utilize an abundance of water. They discovered this water flowing 23 miles west of the junction of the Agua Fria River and the Salt River, situated in the central part of Maricopa County. The system was first operated as a corporaton serving as a common carrier from the date of construction until 1907 when negotiations were completed whereby the Valley land owners purchased the irrigation works outright, and it is still operating successfully under the same cooperative, non-profit organization today.

For many years all of the water for irrigation of the approximately 20,000 acres of developed land was supplied from the regular flow of the Gila River, which drains more than half of the State, and is the largest stream in the State except for the Colorado River. However, due to the many dams and up-stream users, irrigation wells had to be drilled to supply adequate water needed for all the land. At the present, some of the water supply is being purchased as effluent from the City of Phoenix and others; thus, effluent, stream flow and pumps together provide the water to meet all the demand.

The booklet is in commemoration of the 100th thriving and successful year of agriculture and industry in our right Buckeye Valley. We want to give homage especially to Malin M. Jackson, Joshua L. Spain, and Henry Mitchell for their forsight, determination and courage in developing the Valley irrigation system later known as "The Buckeye Irrigation Company." We also want to recognize our forefathers who pioneered in the development of the Valley and through their perserverance, founded the present Valley towns and communities that are good friendly places to enjoy life.

HISTORY

Of

BUCKEYE CANAL

By

I. H. PARKMAN

CHAPTER 1

The following history of the Buckeye Canal is written from a long personal knowledge and from talking with old timers that were here from the beginning and from old records that have lately come in my possession and are now on file with the historical paper of the Buckeye and West Gila Valley Old Settlers Union:

On a spring day in 1885 three men hooked a team of horses to a wagon and loading in beds, cooking utensils and a supply of food left Phoenix and headed west. These men were Malin M. Jackson, Joshua L. Spain and Henry Mitchell. Following the old Yuma freight road to the Agua Fria River 18 miles until they reached the Gila River. They looked over the land adjacent to that stream seeking some place that would be easy to develop an irrigation system. Returning to Phoenix a little later, they made a second trip down and investigated some land on the south side of the Gila. But not being satisfied with the outlook there, they returned to the north side to a point near and just west of where the Agua Fria flows into the Gila River and there made location of a dam site and canal heading. Not having brought pencil or paper with them and fearful that some one might beat them to the location they proceeded to post a notice anyway, by taking an ax and hewing a smooth flat place on a willow tree and with charcoal wrote their location notice that would serve for the time being. Hurrying back to Phoenix, they prepared a notice and building themselves a triangle, returned to the place and posted a legal notice May 28, 1885.

Taking their triangle, they proceeded to run a level over the first three miles to see if they could get the water out on the land. Henry Mitchell operated the machine, the other men helping.

For the benefit of those who do not know, a triangle is made out of one by four lumber in the form of a letter A with the cross bar near the bottom. The two legs are generally 16 to 20 feet apart at the bottom. From the apex of the A a cord with a weight called a plumb bob attached was suspended. By placing the feet of a triangle on stakes driven down in a pond of water so the top of the stakes were at the exact water level, the string and plumb bob would hang at the exact center on the cross bar of the triangle. This was marked on the cross bar and now by raising one leg an inch at a time the the plumb bob swing was marked on the cross bar at each rise. Then the operation was reversed and the other side marked, thus giving the operator a complete scale to determine the rise or fall of the land at each set. As the machine had to be set each 20 feet and the proper calculations made at each set, it will readily be seen what a slow tedious operation it was to run the three miles. But they satisfied themselves that their project was feasible, and returned to Phoenix and filed their notice of location in the recorder's office June 30, 1885.

The notice of location stated that —"the head of said ditch commencing in an old slough immediately under the high bank on the north side of the Gila River and then westward about

one fourth of a mile and then turns northward, leaving the river bank and running north-westerly passing Taboo Point on the Gila River."

The purpose of the canal or ditch was said to be "for agricultural, milling or mechanical enterprises." Twelve thousand inches of water was located and claimed by the locators and a right of way over the public domain forty feet wide to the Hassayampa creek on which to build their canal.

It was named the "Buckeye Canal" by Mr. Jackson in honor of his native state, Ohio, "the Buckeye State."

In September, 1885, M. E. Clanton and others organized the Buckeye Canal Company and had the new Company's articles of organization recorded with the territorial's secretary, on Sept. 25, 1885.

The new company paid the original locators $300.00 for their interest. The work of building the canal was taken up and Mr. T. N. Clanton was awarded the contract of the first five miles.

An engineer by the name of Berry was employed to make the survey. E. H. (Pompey) Spain acted as head linesman on the survey.

On July 24, 1886 the Buckeye Canal Company filed notice of location of 38,000 inches more water to be added to the 12,000 originally claimed by the first locators, making a total of 50,000 inches. This location was recorded at Phoenix, the county seat Oct. 8, 1886.

The original canal survey extended from the dam at the Agua Fria River to the lower end of Arlington near the present Gillespie Dam and was completed to the Hassayampa in the latter part of 1886. The water was to be carried across the Hassayampa river by means of a sand dam built across the river four or five feet high. The water ran in above the dam until the dam was full, and then it ran out on the other side. This means of carrying the water across the river was maintained for many years although the dam was washed out every time a little flush of water came down the Hassayampa.

On Oct. 28, 1888, the Buckeye Canal Company entered into a contract with William (Bucky) O'Neil to sell and transfer to him all their right and title to the 50,000 inches of water that they had filed an appropriation on with the exception of 6,000 inches that they had already appropriated and was represented by 75 shares of stock which had been previously issued.

These 75 shares of stock to have first and prior rights in the canal up to the amount of 6,000 inches.

On Oct. 13, 1888, William O'Neil had formed a company to be known as the Buckeye Irrigation Company, and on the 31st day of October, he transferred his lately acquired title to the Buckeye Canal Co. to the newly formed company.

They took up the work of extending the canal from the Hassayampa to the lower end of the present Arlington Valley.

On this same date, October 13, the company entered into a contract with O'Neil to construct a good substantial dam at the head of the canal across the Gila River sufficient to divert at least 6,000 inches of water therefrom into the canal at all times for the benefit of the 75 share holders in the old Buckeye Canal Co., and to deliver to them free the 6,000 inches of water for a period of 21 years and thereafter at a price not to exceed $1.00 per inch per year. The said company further agreed to keep the water in the canal at least 20 days out of every month except for the years 1889 and 1890 when they might turn all the water out to enlarge and extend the canal. Their contract was signed and recorded on Oct. 26, 1888.

On the 10th day of December 1888, the Buckeye Irrigation Company executed a mortagage to the Union Trust Co. of New York and on the 31st day of January, 1889 a supplement mortgage was added calling for the issuance of $301,000 in bonds to be issued by the Irrigation Co. to the Trust Co. presumably to be used in extending and enlarging the canal and building a substantial dam.

On March 1, the Buckeye Canal Co. made an official transfer for all canal property to the Buckeye Irrigation Co. as they had fulfilled all the requirements they had entered into in a former contract with the Irrigation Company.

On June 28, 1888 the law firm of Baker and Campbell of Phoenix rendered

the following opinion as to the title of the Buckeye Canal Co., to 50,000 inches of water in the Gila River.

Phoenix, June 28, 1888

Mr. William O'Neil
Prescott, Arizona Territory

Dear Sir:

Upon examination we find Malie Jackson and J. L. Spain on the 28th day of May 1885 legally appropriated 12,000 inches of water of the Gila River and thereafter on the 30th day of September 1885 duly transferred all their rights in said location to the Buckeye Canal Company.

Upon the 28th day of July, 1886, the Buckeye Canal Co. legally appropriated 38,000 inches of water made by valid and legal location. No one can successfully by litigation prevent the Buckeye Canal Co. from using 50,000 inches of water appropriated when it has constructed a canal capable of carrying it all.

Respectfully,
Baker and Campbell

The following opinion was prepared and presented by E. T. Edwards, an attorney of Phoenix.

Phoenix, Arizona
March 8, 1889

This is to certify that I have this day examined the foregoing abstract of title and the opinion of Messrs. Baker and Campbell attached thereto and I concur in their opinion. And I further testify that in my opinion the foregoing mortgage to the Union Trust Co. of New York by the Buckeye Irrigation Co. is a first lien on the property of the Buckeye Canal Co. and 50,000 inches of water, etc., subject to the prior rights of the old Buckeye stockholders to 6,000 inches of water as stated in said abstract.

Very respectfully,
E. T. Edwards, Att. at Law

On Jan. 9, 1889 Maj. Edward H. Wilton reported to William O'Neil, secretary of the Buckeye Irrigation Co., "that in "pursuance of instruction of Dec. 22, 1888, he had made a survey of the Buckeye Canal with a view of enlarging it to a capacity of 50,000 inches to irrigate 100,000 acres of land. He reported that a canal to carry 50,000 inches of water would have to be 50 feet on the bottom; six feet deep and a grade of 1.58 feet per mile, (about 22 inches) with a bank slope of 1 to 1. That the capacity of the present head gate was about 9000 inches with a dam raise of the water in the river of 2.3 ft." He goes on to make recommendation about a dam on top the present one and in regards to a new dam a quarter of a mile up stream and as to width the availability of rock, etc., and winds up by saying: "the location of the head of the canal is the best in the valleys of the Salt and Gila rivers as it catches all the water from the Salt and Verde and Gila Rivers, and also of the Agua Fria and Cave Creek; in fact, it catches the drainage of northern and northeastern Arizona, northwestern and western New Mexico and northeastern Sonora (Mexico). A vast territory larger than all the New England States".

He submitted an estimate of enlarging the canal to the Hassayampa, a distance of 23.84 miles, building the dam, enlarging head gates, etc. at $107,040.00.

The Major goes on and says, "I claim that the land under the Buckeye Canal is far ahead of the Salt River Valley. West of the Hassayampa water is near the surface and at Mullins Well only 4 ft. from the surface. In section 17, 21, 27 or 26, Township 1 north, Range 5 west, I have a fall for water power of 40 ft.

"I look at this place as far ahead of the section around Phoenix, as a fruit country, the soil is better, the altitude as good or better, no winters, and scarcely any frost, during the last two winters. This country would have been settled up long ago but for the Gila River washing out all the canals in 1883 and 1884 on account of their bad location and bad construction."

After saying all these nice things about the country, he went on to say that a canal 48 miles long could be constructed for $225,907.00 and it would cover 29,120 acres east of the Hassayampa and west 34,580 acres west of surveyed land and 48,000 acres of unsurveyed land making a total of 111,700 acres.

In December 1888 and January 1889, William Barnes, president of the Buckeye Irrigation Co. and Charles N.

Fowler, president of the Equitable Mortgage Co., of Kansas City entered into a verbal discussion in regards to providing the necessary money to finance the enlargement of the canal and a new and more substantial dam. The matter was brought before the Board of Directors of the mortgage company in Kansas City and a very lengthy letter was dispatched to Mr. Barnes on Jan. 23, 1889. Some of the highlights of the letter follow. (It seems that irrigation bonds were something new at that time and the Irrigation Co. deal with the Union Trust Co. of New York had been called off, hence this new attempt to get money to finance the canal enlargement.) Extracts from the letter follow: "Hon. William Barnes: We have certainly considered the Buckeye ditch matter and while we appreciate the intrinsic merit of the Bonds, we feel as though we should also recognize the fact that Bonds of their character are quite unusual and that it may be difficult to find purchasers for them. We, of course, must look upon them from the standpoint of sellers and compare them with other securities of equal or not very different merit, but about which the public is quite well informed.' They go on to say, "6 per cent bonds are now being purchased from fruit lands at from 80 to 90."

They then proposed to advance $30,000 upon its note each month at 6% interest until sufficient had been advanced to complete the work up to $240,000 when at such time the Irrigation Co. should turn over to them the whole issue of $300,000 in bonds and $120,000 in stock as collateral for the loan.

They also reserved the right to investigate at any time, during the progress of the work, to determine if all the money advanced was going into the construction and necessary repairs.

Mr. Barnes in his answer to the Mortgage Co.'s letter stated, "That he had hoped for better terms but the credit of your company would be of advantage to us in addition to the loan of the money. The speedy commencement of the work is also an urgent necessity with us. I, therefore, as president of the Buckeye Irrigation Co. accept your proposal, subject to the approval of our board of directors."

Shortly after this exchange of letters, Mr. Barnes whose headquarters were in New York and Mr. H. P. Churchill of Kansas City, as a representative of the Mortgage Co. made a trip to Arizona and Mr. Churchill made an elaborate report to his company on his findings in regard to the canal and country on March 3, 1889.

Some extracts from his report follow: "Arizona courts recognize the first appropriation in a river of all the water appropriated up to extent of his appropriation; an inch of water in Arizona is considered enough to irrigate two acres of land—after land has been irrigated a few years an inch will irrigate three or four acres; to the ability of the Buckeye Irrigation Co., to continuously and perpetually supply the amount of water its appropriation entitles it to. I enclose a map showing its water shed of about 30,000 square miles. The annual rain fall around Salt River Valley is 7.5 inches while in the vicinity of Prescott it is 15.18 inches.

The extent of the area drained —and the known annual rainfall— assures beyond doubt of a permanent supply of water far in excess of the appropriation.

The strategic location of the Buckeye Dam at a point just below the junction of the Salt and Gila rivers and the Agua Fria enables the Buckeye Company to command the water of the entire water-shed.

"As the Salt and Gila Rivers are the largest rivers in Arizona and as the Buckeye is the only canal that commands their united volume, it is in my opinion and must remain the most valuable canal property in Arizona."

"I was amused at the wonderful products of the valley, alfalfa produces 5 and 6 crops a year, everything nearly, which the temperate zones and tropics produce are produced here—and it is confidently predicted that at no distant day this valley will take a higher rank in its fruit products than California."

Mr. Churchill then goes into a lengthy array of figures of what in income yearly from the proposed canal system would be from the sale of water and water rights. He winds up his report by recommending the

loan as a good investment.

After some more correspondence between Mr. Barnes and the Mortgage Co. offices, a contract was drawn up by the Mortgage Co. with about the same proposal that was made at first, only the sum to be advanced each month to be $24,000 instead of the $30,000 and to remain in the Mortgage Co.'s possession, and draw 3% interest until expended and the Irrigation Co. was to set aside in a sinking fund one half of all monies received from the sale of water and stock to pay off the mortgage bonds when they became due.

On April 9, 1889, A. W. Chamberlin, general solicitor for Equitable Mortgage Co. reported to Charles N. Fowler, president of the Mortgage Co. that the Irrigation Co.'s affairs were all in good shape and carried out legally in every respect. But he had unearthed another problem that might be a detriment to the loan.

The United States Congress passed an Act on October 2, 1888 to become effective June 30, 1889 where: "All lands which hereafter may be designated or selected by United States surveys for sites for reservoir, ditches or canals for irrigation purposes and all lands made susceptible of irrigation by such reservoirs or ditches or canals are from this time henceforth reserved from sale as the property of the United States, and shall not be subject after the passage of the act, to entry settlement or occupation until further provided by law. Provided that the President may at any time in his discretion by proclamation open any portion or all the lands reserved by this provision to settlement under the homestead laws." Mr. Chamberlin further writes that as this would without question apply to the Buckeye Disrict, the homesteads or entry men could not gain title to their land, or file on more so he states with these facts staring one in the face it would be hardly wise to invest directly or indirectly in the Buckeye Canal."

Mr. Churchill who had done most of the dickering about the loan with Mr. Barnes, left the United States for a short time just at the time Mr. Chamberlin made his report and upon his return again took up the matter with Mr. Barnes as he did not agree with Mr. Chafberlin's interpretation of the law. The result was that he suggested to Mr. Barnes that the Mortgage Co. supply sufficient money to put in the dam and improve and enlarge the already going canal and that by that time the law would be clarified or repealed by Congress and that they could then go ahead and finish the work. Several nationally known law firms were consulted; among them Hobbs and Gifford of New York, they said, "They did not think the Act of Congress has the effect to prevent the location of water rights and the building of reservoirs, ditches and dams for the purpose of irrigation by private enterprises."

In September and October, 1889, Donald W. Campbell, consulting engineer and George W. Hobbs as lawyer for the Equitable Mortgage Co., made a visit to Arizona and the Buckeye country and spent considerable time looking over the situation and lay of the country. On Nov. 2, 1889 Mr. Campbell made a lengthy and comprehensive report to the company finding, "the cost of construction is a low rate per acre—and the enterprise is a remarkably good one."

A table of estimated receipts and expenditures was attached, showing that there was more land covered by the canal than could be cared for by the water appropriated. He listed 132,-960 acres as the total of all lands under the canal.

His estimate of constructing 41 miles of main canal and 20 miles of laterals was $232,660.

Dam	$53,163
Levee	12,235
Headgates & others	38,100
Bridges	10,000
Engineering	12,000
Office & Travel	14,642
Int. on lyr. bonds	37,200
Total cost	$456,000

He estimated the first year's income at $257,500, mostly from the sale of not less than 20,000 acres of water rights at $12.50 per acre or $250,000 from sale of 10,000 acres of water at 75c or $7,500. From these totals he deducted an estimated expense of $76,500 leaving a total of $180,800 to be placed in a sinking fund to pay off the bonds for constructing the project when they became due. He figured that the total

project could be paid in five years. In Feb., 1890 a verbal agreement was entered into between the representative of the Mortagage Co. and William Barnes and Wm. O'Neil for the Buckeye Irrigation Co. in which the Mortgage Co. would organize a new company with a capital stock of $1,000,000, and that they would turn over to Barnes and O'Neil $400,000 of this stock and retain the other $600,000. And the Mortgage Co. agreed to furnish the new company a sum not exceeding $600,000 for the construction and completion of the canal system as outlined by Engineer Donald W. Campbell and to buy the new bonds at 80% par value at 7% interest.

On May 9, 1890, Mr. Campbell made another report to the Mortgage Co., and said that his assistant had completed another survey to the 61st mile.

From the record as far as we are able to learn the new survey took the canal in a big circle crossing the Hassayampa River, taking most of what we now know as the Centennial wash District and coming out on the top of the hill at Gillespie Dam where the records show it was 138 ft. above the river bed and about 48 ft. above a dam proposed by Gov. Wolfley at this place. There it was to cross the river in a seven foot siphon 3600 ft. long and cover 53,000 acres on the east and south side of the river. Mr. Campbells estimate for this construction was $415,716 and it would bring 123,-000 acres under irrigation.

On Feb. 1, 1890 Walnut Grove Dam on the Hassayampa broke and released a torrent of water stored behind it, that came rushing down the otherwise dry creek bed of the Hassayampa. It reached the Buckeye Canal at 9:30 A. M. on the morning of February 22. As the channel of the creek was at that time quite small, of much more than a big splash, the water spread out over the flats on each side of the channel so where Highway 80 now crosses, it was at least a mile wide running better than waist deep thru the house on the old Evans homestead. After the flood was gone the former little channel had cut out to a creek of considerable width, something near its present size. So maintaining the sand dam across the creek bed, to carry the canal water from the east side to the west side, and on down into the Arlington country, developed into quite an undertaking as it washed out every time a rain of any size at all fell in the hills or on the desert above there. According to an old timer who lived here before the flood, two men and teams could put the dam across the channel in a day. In 1895 the author helped to put it back after a washout and it took sixteen men and teams from sunup to dark to do the job, so it was at least 8 times as big as it was before the flood.

Then came the big flood of 1891 which is talked about, not only by Buckeye Old Timers, but by Phoenicians as well, who told of it getting up to Jefferson Street at the vicinity of the intersection of Fifth Street. Buckeye old timers say it was up almost to the present Buckeye town.

After a winter of unprecedented snowfall in the Salt River Water shed, there came a warm rain on the snow about Feb. 18 and 19 and the 21st the flood had developed, reaching up into Phoenix as we have above stated. A few hours later it was flooding the Buckeye Valley, coming from the river in what was known as Toothaker Slough, where the Ralph Cooper ranch is now, it broke the South Extension canal and followed the Alkali Swail down, clear across the valley, getting almost into Buckeye, flooding all the country around where the Buckeye disposal plant now stands and for a time what is now Liberty and the ranches south and west from there were on an island, as there was a running river on both sides of them.

The dam and gates at the head of the canal were washed out and all the low flat country on the north side of the canal under water, for several miles down.

After the flood was gone the Buckeye Canal was in a sorry mess. The Canal was washed out or filled up with drift or sand for the first five or six miles.

With this condition staring the new settlers in the face and no chance of getting water in time for crops, that year, many of the farmers moved out. Some to return to their homesteads later and some never. It was at this junction that T. N. (better known as Newt) Clanton came into the picture.

While the Buckeye Irrigation Co. had talked big things that would cost a half million or so dollars, when this emergency arrived they were not prepared to do anything about it. It was then Mr. Clanton got busy and circulated around among the remaining farmers with a petition setting forth how much they would contribute, by work or money to put the canal back in shape, and repair the dam and headgates, so they could again get water on their lands. It was slow work for the few farmers left in the valley and it was months before the canal and dam were again in shape and water flowing in the ditch.

On Jan. 16, 1893, a Mr. S. A. Davidson filed notice of a dam and canal location on the south side of the Gila river just south across the river from the Buckeye Canal and head works. The canal to begin in a point of rocks jutting out into the river bed and to be 66 feet wide. He filed notice on 50,000 inches of water or so much thereof as was necessary to irrigate all land covered by a canal extending 85 miles down the river on the south side and covering land that was planned to be covered by the Buckeye Canal by water carried across the river at a flume at what is now the Gillespie Dam.

The location notice was witnessed by F. P. Trott, a well known engineer (Arizona), C. J. Dyer and Jose Urielnay. As far as we have been able to determine nothing was ever done about constructing the proposed canal.

The 1891 flood seemed to have put a crimp in the Equitable Co.'s plan to organize a million dollar canal company and build a 65 mile canal to irrigate a total of 133,000 acres of land, for we find that on March 11, 1893, Wm. O'Neil and Wm. Barnes bought two sections of land in the lower end of the Buckeye Valley for $6400.00 that had come into the Mortgage Co's. possession. The sale was made by Sheriff J. K. Murphy at the order of the judge of the District Court of the third Judicial District of the Territory of Arizona, to partly satisfy a judgment for $179,981.67. The judgment was obtained by Barnes and O'Neil against the Equitable Mortgage Co. in said court on February 11, 1893.

The next two or three years things settled down and the water flowed uniterrupted except for the dam washing out now and then and the canal breaking from rains on the desert north of the canal and the White Tank mountains. In the summer of 1896, it started to rain in July and rained every few days for the next two months, breaking the canal faster than the company could fix it. Pioneer George Day told us of a break in the canal (near what is known now as the Day corner, 2 miles west of Buckeye), from one rain that was over 100 feet wide. A day or so later before the hole was fixed another rain came and broke another hole 75 feet wide, 150 feet west of the first hole and it is still open. And yet, some people say, "It Never Rains in Arizona."

The farmers were depended upon by the canal company to fix all breaks for which labor, they were issued time checks payable in water only. That is, they could be used only in paying for water. Wages were $1.50 per day for men, he to board himself, and $1.00 for team as all work was done by team and scraper.

Time checks issued by the Company for labor at $1.50 per day as they were sold for as low as 50c and 75c on the dollar by some people who had no land, and so, no need for water, and by others who had accumulated more than they wanted for the year and needed the cash for living expenses. On account of so much rain the desert was green as a wheat field, with the cattle up to their bellies in desert grasses and weeds.

The farmers were most dependent on the cattlemen for the sale of their crops and so, for their living. With all their free feed on the desert it was almost out of the question for the farmers to dispose of crops to the cattlemen, and when they did, at such a low figure that it was ridiculous.

One such instance was the sale of 60 acres of sorghum 2 miles west of Buckeye to Oscar Roberts for $100.00, —in ordinary years it would have brought from 8 to 10 hundred dollars. This will give some idea of why the farmers needed the money so badly.

As canal service had not been of the best for some years past, a bunch of the farmers got together and appointed three of their members, M. E. Clanton, J. F. Wilcox and M. M. Jack-

son to negotiate a lease with the Buckeye Canal Co., (who were again operating the canal) for a term of two years. The agreement was signed on the 10th day of February, 1897 by T. N. Clanton, President and J. L. Alexander, Secretary for the Canal Co., and the three above named gentlemen, for the farmers. The agreement set forth that the Canal Co. was to furnish the farmers $2000.00 with which they were to build a flume across the Hassayampa that would carry 1,000 inches of water and to build five other flumes under the canal where the large washes from the mountains crossed the canal. They also agreed to furnish all materials, nails, lumber, etc. to fix and maintain the headgates at the head of the canal, and to furnish the provision to board the men and the hay and grain to feed the horses while working on the dam and headgates during the year 1897. The agreement was to run until Jan. 1899 when the farmers were to turn the canal back to the company without any debts incurred during the time of the lease and with all new improvements paid for.

On Oct. 5, 1899, the O'Neil interests in the Buckeye Canal system was sold to W. Moultrie of Fresno, Calif., by Wm. O'Neil's widow. William (Bucky) O'Neil had ben killed in the Spanish American War at San Juan Hill, Cuba, July 1, 1898. And so the bulk of his property, among which was canal property, had gone to his widow, Pauline. J. H. Braley of Los Angeles had negotiated the deal and it was closed for the sum of $6400.00. On June 5, 1900, J. H. Braley again acting for W. Moultrie sold to J. Ernest Walker and J. Curtiss Wasson the Buckeye Canal and 3000 acres of land under it, for the sum of $30,000.

The day before, June 4, 1900, they, with W. W. Messinger had signed articles of Incorporation for a new canal company to be known as the Buckeye Canal and Land Co. with main office at Phoenix and on the 10th day of August they filed their incorporation papers with C. H. Akers, secretary of state.

On September 27, 1900 they were issued a sheriff's deed against the Buckeye Canal Co. on a judgment obtained by W. Moultrie on the 24th day of February 1900 for the sum of $11,292.23 and assigned by him, to the new company and so passed into oblivion the old Buckeye Canal Co.

During 1901, an effort was made by the farmers under the People's ditch or the South Extension to get the Canal Co. to take over and operate their ditch. Originally the canal company had built the South Extension to where it intersected the Salt and Gila Base line and the farmers from there on had built and maintained their own ditch. But having no company or system of operation, things were not very satisfactory—the upper ranchers getting most or all the water and those on the lower end little or none. This resulted in several of the farmers building expensive ditches known as "burrow" ditches from th main canal. They were in places built across the alkali flat that lay between the canal and the land they desired to irrigate and were eight and ten feet high, on top of a dirt dyke that was forever breaking from dry weather cracks or gopher holes. But even this was more preferable than trying to get water through the South Extension.

The Buckeye Canal and Land Co. did not make much of a hit with the Buckeye farmers so in 1902 they began trying to sell out their interest and contacted a Denver man, James R. Thorpe who sent an engineer, J. C. Ulrich to look over and appraise the property. So on Jan. 15, 1902 he made a report back to Mr. Thorpe on what he had found and his recommendations that existed at that time.

The canal is diverted from the North Bank of the Gila River at a point about 20 miles Southwest of the city of Phoenix (and is designed to water the land lying between the Canal and the river, and between this point of diversion and the Hassayampa, a stream from the north entering the Gila at a point about 45 miles southwest of Phoenix.

This canal consists of a main line and one branch or lateral which is diverted toward the south at a point about 5 miles between the Main Headgate and the river and is designed to irrigate lands near the river, which are separated from the main tract by a depression. I did not examine this branch and will therefore confine my

description to the main line.

Between the point of diversion (the dam) and the south branch above refered to, the bottom width of the channel varies between 12 and 16 feet and the depth of the water when running full is about 5 feet. Between the dam and the waste gate, a distance of about three miles, the channel consists of a cut or excavation from 6 to 12 feet deep. The waste gate is designed as an outlet through which surplus water may be returned to the river when there is more in the Canal than is required by the consumers below. From the south branch to the end of the canal proper, which is at the Hassayampa, a distance of about 20 miles from 12 feet to about 4.

Most of the canal is reasonably well constructed and in fair condition with the exception of a distance of perhaps a mile where the channel is constructed on embankments above the general level of the ground. These banks or fills should be strengthened by giving them a greater width. The entire channel from beginning to end is encumbered with weeds and brush which seriously reduces its carrying capacity. This should be cleared off and kept clean in the interest of effective service.

The only important structures on the ditch aside from the headgate and dam are the waste gate already referred to, and the small flume across the Hassayampa near the lower end of the works. Both of these are new structures and should serve for many years without much expense for repairs. They appeared to be well designed and executed. The waste gate cost $650 and the flume $1300.

The headgate is old and in very bad condition. Its replacement by a new structure is now under consideration and should be executed with no more delay than is necessary, because the existing structure is too weak to withstand the strain that may be brought against it at any time by high water when the Gila is in flood. There should also be a waste gate located at or near the headgate for the purpose of discharging surplus water during moderate rises in the river and to assist in the disposition of sand which may otherwise enter and clog the channel of the water-way.

The dam which is about 1800 feet long consists essentially of a ridge of loose rock piled across the channel of the river diagonally from the headgate to the opposite side. It is at present in fair condition, having been recently improved by the expenditure of $5000 or $6000. It can, however, be made stronger and safer by the deposition of an additional quantity of rock so placed as to increase its width without adding to its height. I would recommend that this work be done, and the expenditure required would amount to $4000 or $5000. The rock for this purpose is obtained from the granite hill on the south side of the river and about a half mile up stream from the dam site. Heretofore it has been hauled in wagons and dumped by hand upon the dam. This is rather an expensive method, laborious at all times, and impossible during periods of floods. This work could be done more economically and with greater expedition if a suspended cable were created from the quarry to and across the damsite. The stone could be conveyed from the quarry to the damsite in metal receptacles suspended from this cable and dumped upon the dam at any desired point. Under this plan the work could be executed during periods of high water when under the old regime it would be impossible to proceed with it.

A plant of this character would approximate to an insurance of the efficiency of the dam. I would recommend that this arrangement be investigated and if determined to be practicable that it be adopted. The most vulnerable feature of the enterprise, because of the treacherous character of the Gila River, is the dam; it must be made reasonably safe or the enterprise will be of doubtful value.

THE LANDS UNDER THE SYSTEM

As nearly as I could determine from the maps of the company and the statements of the people living in that vicinity, there are about 16,000 acres of land between the headgate and the Hassayampa that can be watered by this canal. Of this area probably about 12,000 acres are good tillable land for which water will be actually required. This area when all cultivated will result in a demand for about 6,000 inches of water, which practically determines

the scope of this enterprise.

This area, in the main smooth desert land, not quite so phenominally regular in surfaces as that in the vicinity of Phoenix, but nevertheless essentially level. It can, with but little expense be put into such condition as to insure the very best results from irrigation. Most of it is a rich sandy loam, unsurpassed in fertility and capable of producing alfalfa in quantities not exceeded anywhere else in the region. All other crops common to the Salt River Valley can be produced, but alfalfa appears to be the most profitable and is therefore the favorite crop.

This is a comparatively new region and therefore the improvements are as yet neither so extensive nor so elaborate as in the older settlements, but there is an evident air of thrift and energy which proves that the settlers have full confidence in the ultimate outcome of the enterprise. Probably one-third of the tillable area is as yet unimproved, but is practically all in the hands of private owners and likely to be developed at an early date, and will then add to the revenues of the canal through its demand for water.

Water under this system is delivered under what is known as the inch measurement upon the basis of one-half of an inch to an acre of land. From an examination of the books of the company. I have concluded that about 3500 inches were actually applied to land during the year 1901, and there appeared reason to justify the conclusion that 4,000 inches would be called for during the year 1902. The delivery for last year indicated an area of about 7,000 acres under cultivation, and it is expected that not less than 8,000 acres will be farmed this year. The price which the company receives for this water is $3.00 per inch; consequently the gross income for last year was about $10,500 and it is expected. with reason, that it will reach $12,000 this year.

Some of the water consumers own shares of stock in the company and others have "water rights"; both are entitled to the use of the water; a share of stock conveying a right to the use of the same volume that is guaranteed by the water right. The volume so conveyed is in both cases 20 inches, which is the amount generally used on 40 acres of land. The shareholders and owners of the water right fare alike so far as the cost of the water is concerned, each paying at the rate of $3.00 per inch per annum for its carriage, the Company acting in the capacity of a common carrier of water to shareowners and water right holders.

Persons holding neither water rights nor shares of stock are not entitled to the use of the water even though willing to pay the carriage charges. All the water rights and all the shares of stock (400 in number of each) are now disposed of and in the hands of individuals.

The essential difference between a water right and a share of stock is this: a water right gives the owner the right to the use of water upon the payment to the company of $3 per inch per annum for is carriage, but does not give him a right to vote upon questions concerning the operation of the canal; he has no voice in the management or operation in the plant, no ownership in the canal itself, nor does he participate in the distribution of dividends if any are realized. The owner of a share of stock has no right by virtue of this share alone the use of water from the canal; but he has a voice in the management in proportion to the amount of his stock. He also receives his pro-rata of the dividends if any are earned. The company, as such, no longer has any water rights for sale nor does it own any land, therefore its only source of dividends is in the excess of income from water carriage charges. Over the cost of maintenance; up to the present date no dividends have been realized. On the contrary, an indebtedness of $13,000 has been accumulated, which represents the excess of the cost of operation and maintenance over the gross income. Two factors have contributed to this result; first, prior to its reorganization, which took place about two years ago, its affairs had been conducted in a desultery manner, because of lack of funds, there being prior to that date only a few farmers operating under the system. Under this regime, the works were permitted to run down and the channel to fill with mud and brush. Having a weak and ineffective dam, the latter partially failed about

a year ago with the cleaning out of the canal and general improvement of other parts of the plant resulted in the accumulation of the indebtedness referred to.

There appears to be good reason to justify the belief that the income from the operation of 1902 will be sufficient to defray the expenses of operation and maintenance, but no dividends may be expected before the end of the year 1903.

It has been the universal experience of those personally conducting farming operations in the Salt River Valley that wherever the water supply is sufficient and continuous, success results from such operations when skillfully conducted; but the water supply from either the Salt or Gila Rivers is usually deficient throughout much of the year, much of that passing through the dry season, sinking in the deep sands of the river channel and thus becoming unavailable for irrigation.

This canal, however, has been fortunate in the selection for its headworks of a point where, because of the comparative proximity of bed rock to the surface, there is a constant flow of water even when the channel, a few miles above or below, is perfectly dry. As a result of this condition, this Canal has a continuous supply of water when all other ditches in this region are dry. I do not give this as a fact of my own personal knowledge, but I know from personal observation, that this canal was running full and wasting at least one-third of its capacity back into the river at the time of my visit, and that no other canal in this valley was enjoying similar conditions at this time. I therefore have every reason to believe that its supply of water is superior to that of any other enterprise in this region.

The area of land that can be watered is limited, but its quality is equal to that of the very best in the arid region. The proximity of the great Salt River Valley of which Phoenix is the center, which suffers annually for lack of water insures that the superior advantages of a sufficient and certain water supply will be known and appreciated and guarantees a rapid settlement and development by a class of settlers who are accustomed to the practice of irrigation as it is here conducted. This practically eliminates one of the most common elements of weakness involved in the average irrigation enterprises; that of being compelled to carry the enterprise many years without income pending the settlement of the country by immigrants from distant regions.

The isolation of its location, 35 miles from the nearest railroad, will be by some considered a decided disadvantage. This will be particularly true with reference to those settlers who are looking for locations upon small sites for permanent homes. It will therefore, be limited to its acquisition of settlers to those who intended to engage in alfalfa and cattle raising. For this purpose, it appears to be especially adapted, and there appears to be every reason to predict marked success for those embarking in these enterprises.

From the standpoint of the investor who undertakes the development of the enterprise for the dividends which may result from its operation, the limited scope of its operation may be considered a serious drawback. Even though the percentage of dividends which my estimates here indicate are fully realized, the aggregate value of the profits is too small to attract the majority of non-resident capitalists.

The element of uncertainty connected with the maintenance of a dam in so treacherous a stream as the Gila is another disadvantage, and while I believe that this dam can be accomplished with reasonable certainty and at reasonable expense the possibility to damage to this structure by floods is a liability which it may be well not to lose sight of (if you think seriously of becoming interested in the proposition.)

I am not an enthusiast in the subject of irrigation investments, and I make it a principle never to strongly advise anyone to embark in such enterprises. I would not however, by any means, feel justified in advising you not to take up this proposition, because I feel satisfied from the information I have gathered, that if its affairs are skillfully and honestly conducted it will return a good profit from the investment of the capital which I have herein referred to as the most of the enterprise. I will mention in this connec-

tion that this is a conclusion which I have been able to reach in connection with but few of the enterprises upon which I have reported during recent years.

In consideration the estimates of cost which I herein submit, it must be understood that they are not the result of actual measurements nor the consideration of actually completed plans, but they are simply based upon a comparison with the cost of similar works that I have personally designed and executed elsewhere. To have made up estimates based upon actual survey and designs would have required a month of time devoted to the work whereas I only put in two days (three days out from Phoenix) upon the examination of this plant. All that I can say for these figures is that I have endeavored in their compilation to be very liberal in my estimates of the expenditures required and have attempted to be decidedly conservative in my deductions for revenue to be expected. I therefore feel justified in believing that under a skillful and efficient management dividends substantially as I have indicated, may be anticipated, and that they may be realized within the periods which I have designated. In the event, however, that you should purchase this property and it should develop that my figures may not be borne out by the facts, you would still have a certain redress that would protect you from loss in the operation of the plant. This redress will be found in your contracts with water consumers which prescribe that you may increase the price from water delivery up to a limit of $5 if this course becomes necessary; by increasing the price from $3 to $4 per inch, it appears to me that you could safely count upon a profit even though your dam should be partly destroyed every year.—(Signed J. C. Ulrich.)

In 1899 the people on the lower end of the canal in what is now known as Arlington, got together and organized a new canal company and named it the Arlington Canal, with its head south of the town of Buckeye in the Gila River. The canal was built by the farmers and homesteaders of that region during the winter of 1899 and spring and early summer of 1900. When it was completed it covered and irrigated all land west of the Hassayampa that was formerly irrigated by the Buckeye Canal Co., except what is now known as the Tovrea Ranch, but then as the Christian Ranch.

After Ulrich, consulting engineer, for the James R. Thorpe interests of Denver, made his report, Mr. Thorpe entered into and completed negotiations for the purchase of the canal which was consumated in March, 1902.

Steps were at once taken to move the office from Phoenix to Buckeye and were set up on a ranch one and one-half miles west of Buckeye with Herman Apgar as secretary. A new system of bookkeeping was set up, as the books under the old company were poorly kept.

The capital stock of 400 shares at a par value of $250.00 was recognized and so were entered on the new books.

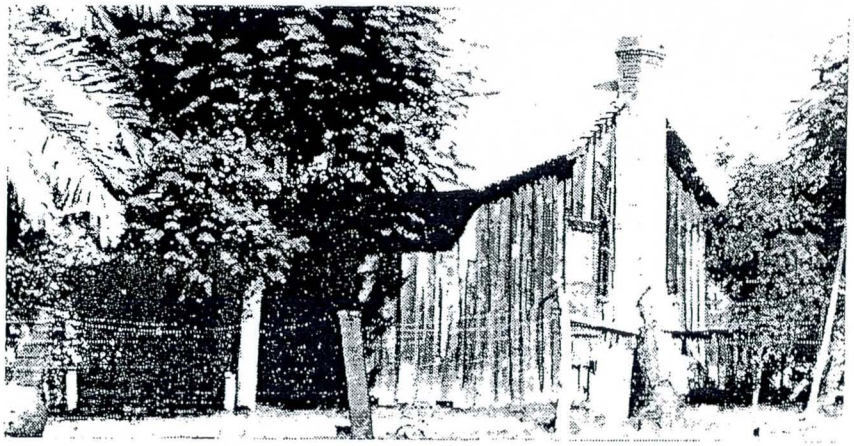
During the year 1902 G. H. Christian, owner of the land now known as the Tovrea Ranch entered into a contract with the Thorpe interests to construct an overhead flume across the Hassayampa to get a better water supply to his ranch. This was done at a cost of $1500.00. The flume was made out of 2x12 lumber and was 3 feet wide and 2 feet deep, and carried across the river on 9 piers made out of 6x6 timbers.

In June of that year a tramway one and one quarter mile long was built at the dam to better get rock out on the dam where needed. Heretofore it had to be handled by wagon and team. During the summer and up to Dec. 15, 1902 a crew of men of from 20 to 50 were kept on the job at all times. The result was a dam of from 40 to 60 feet wide, with an average width of 50 feet, instead of the old one of 10 or 12 feet wide.

During the summer of 1902, there were eleven floods of sufficient volume to flow over the new dam but none of them caused any trouble. Five of them came from the Agua Fria and five from the Gila and one from the Salt River.

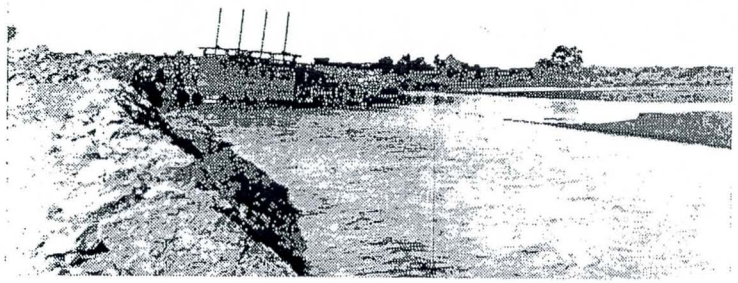
During this year the Wessex Co. of Denver constructed a telephone line through the valley stringing 40 miles of line and installing 75 telephones.

In the latter part of this year a start



The old Spain home built in 1886

This part still in use 1956



Buckeye Canal Headgate 1907

was made to install measuring weirs in all service laterals and ditches. Heretofore the Zanjero had carried a measuring stick with him and had to stop and set it in the ditch any time he desired to measure water.

Water rates were $3.00 per inch per annum up to April 1, 1903, but at that time they were raised to $4.00 to cover the increased costs of improvements and operations. They had gone $1600 in the red during 1902.

The only thing of importance to happen during the year 1903, outside of the raise in the price of water and incident thereto, was a bunch of angry farmers, incensed about said raise, organized the White Tanks Canal Co. Their purpose was to parallel the Buckeye Canal on the north side from the dam to the Hassayampa, to supply their own land with water and eventually put the Buckeye Canal out of business. The incorporators were John R. Norton, Nels Benson, T. N. Clanton, H. W. Davis and F. G. Millage.

In July of this year the largest flood since 1891 came down the river and washed out the northwest end of the dam but was rebuilt and water again running inside of three days.

On May 1, 1903, the canal company purchased the telephone line from the Wessez Co. for $1200.00 and took over the operation of same. During 1904 the line was extended through the Arlington country to Gila Bend, and from the Buckeye dam to Bill Moore's, Coldwater, on the Agua Fria. There were over 100 phones in use at this time.

On Aug. 1, 1940 came the largest flood down the river since the '91 flood The Gila, Salt and Agua Fria rivers all came down together at near the same time and the three, combined made the big river. And it didn't last just a few days but continued with fluctuations up and down until about the middle of September. Superintendent James Day was on the job at all times with men and teams and when the river would drop a day or so, would plug up the biggest holes with big trees anchored to dead men by inch cables and so would get water back in the canal for a few days until a new freshet would come down and tear it out again, so it would have to be done all over again. When the floods were over it was found that the break in the dam was 660 ft. long and from 2 to 20 ft. deep. The dam was immediately rebuilt about 50 ft. wide and water turned permanently into the canal on September 18. Work on the dam was continued until December 1 when it was again declared to be in A-1 condition.

Three times during the floods the canal was entirely obliterated from the dam to the old headgates by sand and had to be removed by team and slip scraper. The canal company spent about $5,500 on the dam during this flood.

Later in the fall, five suits for damage against the Canal Company were brought by ranchers alleging neglect in repairing the dam, and between 40 and 50 more threatened, totaling $40,000.00 altogether.

On New Year's Eve 1905, it started to rain again and in a few days the Gila was in flood and remained in that condition until the middle of May. Again the dam was in danger but withstood the flood until January 10 when it went out and water was out of he canal until June 14. But owing to the extensive and frequent local rains the crops did not suffer too much.

During this rainy period the Hassayampa also got on a rampage and washed out the new overhead flume, five of the nine bents having to be rebuilt.

On April 7, 1905, the creditors of the Canal Company made petition to the court for the appointment of a receiver for the Canal Co.; and the court appointed Mr. Frank P. Trott, a well known civil engineer of Phoenix, who also was court water commissioner for the Salt River Valley canal system.

During the height of the flood the Gila shifted its main channel to the north side of the river bed and cut away about 700 feet of the canal beginning at a point one half mile west of the canal headgates. This was rebuilt farther back from the river at a cost of $8,087.00. The damage suffered by the South Extension was repaired for about $120.00. Repairs on dam from this flood amounted to $4,000.00.

Buckeye was not the only canal company to suffer from this long

drawn out flood. Salt River canals reported a damage of over $100,000.00. Railroad bridges were washed out time and again and many farmers along the rivers involved suffered losses from a few acres to as much as practically their entire farm, and all the way from Safford to Yuma. It was this flood from the Gila joining with the Colorado flood that broke over into the Imperial Valley with such devastating results, and in which the best engineers of the nation and all the resources of the Southern Pacific railroad were called upon before it was stopped.

On June 6, 1905, the first of the damage suits against the Canal Co. was brought to trial in Justice Court, and a verdict rendered to the plaintiff. An appeal was made at once to the District Court. On November 27 a test case of Clanton vs. Buckeye Canal Company was tried in the District Court, and a verdict was rendered the defendant Canal Company.

On September 20 of the year 1905, the District Court raised the rate of water from the $4.00 the farmers were so incensed about to $4.50 per inch as it was found by the receiver that with all the unforseen damage done by the floods that the canal could not be operated for less. This was like rubbing a sore spot for the farmers, but they could do nothing about it, as it was a court order, except push harder for the construction of the White Tank Canal. The following are a few of the larger items of expense listed for the year 1905 up to November 1st: New canal $15,194.72; canal repairs, $3,648.58; dam repairs, $5,411.81; canal breaks, $517.85; new headgate, $850.50; South Extension, $368.21; Hassayampa Flume, $385.31. The new headgate was built mostly from railroad timbers from washed out bridges, salvaged during the big spring flood. Engineers had estimated the gate would cost at least $5,000.00, but by using these timbers the cost was cut to $850.00.

During the year 1906, more floods came and along near the close of the year, one flood cut into the canal back of the headgate on the upper side and part ran down the canal and part back through the headgate into the river. The management of the Canal Company fearing a larger rise in the river and so much water would go down the canal that it would tear it to pieces below, proceeded to put a dirt dam across the canal about 200 yards below the headgates and so stopped all water from going into the canal.

A few of the wise cool, level headed farmers began to realize something would have to be done shortly if they were going to survive as a community as the Wessex Water Company was not giving satisfactory service in operating the canal and that the building of the White Tank Canal was going to be a long drawn out affair even after the canal was built, the farmers' troubles were only beginning, as each and every ditch from the canal would have to cross the canal and an easement across the right of way. With the Wessex Water Company going to court with the farmers' every move, it could be seen it was going to be a long drawn out affair. So a few of the farmers decided the best thing to do was to try and secure an option to buy the Buckeye Canal from the Wessex Water Company. So in the fall and winter of 1906, Mr. Thorpe, president of the Water Company was contacted and he talked very favorably The committee that had made the negotiations was composed of N. Benson, J. S. Day, G. C. Simons, Fred Walls, W. R. Beloat, C. M. Zander and C. H. Odell.

CHAPTER II

The Beginning of The Buckeye Irrigation Company

On February 28, 1907 articles of agreement were drawn up and presented to a mass meeting of the Valley farmers called at the Buckeye School House March 2, 1907. The articles of agreement were read and discussed and voted upon by an acreage vote with the result that more than two thirds of the acreage was in favor of ratifying the agreement. Then they proceeded to select a name of the company and C. M. Zander presented the name of Buckeye Irrigation Company, which was adopted. Articles of Incorporation previously prepared by lawyers Lewis of Phoenix were read and adopted and the following farmers were named as directors of the new company (the number of seven having

been decided upon): Geo. Day, P. H. Benson, P. E. Moore, Geo. Drew, H. A. Hammels, Chas. Barkley and L. H. Thayer.

The agreement adopted at this meeting, was to the effect that a physical appraisal of the canal system be made by two engineers, with a third in case of disagreement. Mr. Ulrich of Denver was Mr. Thorpe's engineer and Ad Farish of Phoenix was selected by the newly formed company. They in turn selected a Mr. Parker of Los Angeles as the third man. Work of measuring and cross-sectioning the canal was begun at once by Messrs. Ulrich and Farish and Zanjero I. H. Parkman as head chairman. This committee of engineers fixed the physical valuation of the canal system at $97,-900.00 and after some more mass meetings and more dickering back and forth a sale price was at last agreed upon at $92,900.00.

The new company was organized along different lines from all its predecessors, in that it made the acre the basis of stock. Each acre of irrigable land would represent one share of stock up to 16,000 shares, at a par value of $10 per share. It was a purely co-operative affair and only land owners could own stock. Each share when issued became perpetually appurtenant to that particular acre of land and could not be sold or transferred without the sale of the land. In purchasing the canal the new company assumed a bonded indebtedness of $86,500.00 from the Wessex Company payable $8,000.00 per year.

On March 4 at another called meeting, the first board of officers for the new company was elected as follows: H. A. Hammels, President; George Drew, Vice President; George P. Brown, Secretary; and P. E. Moore, Treasurer. At this meeting 5089 acres were signed up for stock in the Company. On May 8, 1907 at a called stockholders meeting it was voted to take over and operate the South Extension of the canal for its full length. Previous to this time, the Company had only operated it as far as the Base Line Road and the farmers getting water through it, the rest of the way. On May 24, 1907 a committee that had been appointed to draw up a code of by-laws, made its report to the stockholders at another called meeting. After considerable discussion and amending they were adopted and constituted the by-laws of the company, with a few changes and additions, operate under at the present time.

On May 28, the Board of Directors met and employed Tom Levy as superintendent at a salary of $125.00 per month. He thereby became the first superintendent of the new Company.

On June 4, George P. Brown was employed as secretary at a salary of $75.00 per month. He had been acting secretary ever since the canal company had been organized, and at this time the office of treasurer was joined to that of the secretary, so he assumed the responsibility of both offices. Also at this meeting the salary of the Zanjero I. H. Parkman was fixed at $100.00 per month, he to furnish his own transportation.

On June 24, 1907 Mr. Levy, the superintendent died and Henry Wilkey was hired at a salary of $150.00 to fill his place as superintendent.

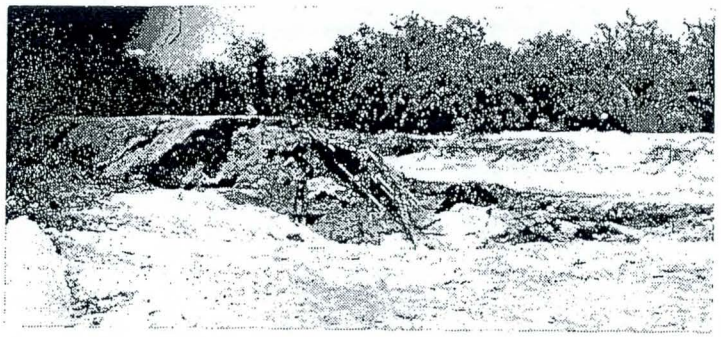
After the farmers got hold of the canal, they began to find out what the old companies had been up against in trying to operate the system on water at $2.00 an inch, and so the board of directors ordered an assessment of $2.50 per inch for the six month period beginning October 1, 1907.

On September 23, the board of directors met in special session and at that meeting the usual procedure of selling water by the inch was changed and from that time on it was sold by the acre. One half inch being allowed per acre.

The price of water was then fixed at $1.25 per acre for each six months period.

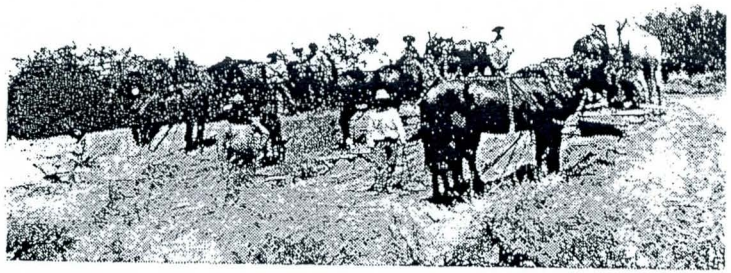
In February, 1908, a large crew of men were put to work on the canal cleaning and enlarging it for its full length. The work was supervised by P. E. Moore.

In March this same year, negotiations were started between the Buckeye Irrigation Company and the White Tank Canal Company with the object in view of the Buckeye system taking over the White Tank Company. By the middle of April an agreement had been reached wherein anyone holding stock



Break In Canal 1907

CANAL BREAK 70 Ft. Wide — July 1907



Repairing break in canal July 1907

in the White Tank Canal could transfer to the Buckeye Company and receive an equal amount of stock in the latter company.

When the original canal had been built the contractor did not follow the original survey across the Hassayampa Valley but cut straight across the valley and so saved a mile or so of canal. At a regular meeting of the board of directors on February 2, 1909, it was decided to build the canal where it should have been in the first place. So, H. M. Lewis was secured to make a new survey and work was begun shortly thereafter. Instead of crossing the Hassayampa with an overhead flume, an underground flume was put in, and so solved the trouble of floods down the river.

By the beginning of 1909, the farmers had so improved their water system that the price of water was fixed at $1.00 per acre for the period from April 1 to October 1 for stockholders and at $1.50 for non-stockholders.

At the annual meeting of the stockholders held in February 8, 1910 among other things it was decided to hire a Zanjero for the upper division of the canal and leave the superintendent free to oversee the whole system better. Heretofore, he had to look after the distribution of the water on the upper river and superintend the system at the same time.

During the period of years following the big floods of 1905, the river had swung over and along the north bank and each succeeding flood threatened the canal and ranches along its course. While it was not the canal's concern particularly, about the threatened ranches, yet it was much concerned about it cutting into the canal again as it did in 1905. So various engineers were consulted and different plans put into execution to try and stop it cutting any further north. This condition existed for several years and much money was spent on the work, so much that at different times it was necessary to levy special assessments in the capital stock to pay for the work.

During these first years, stealing water was a common practice among many of the farmers, and at almost every directors meeting some one would be up before the board for breaking locks, gates, etc., and taking water that did not belong to them. In many instances some of the better known farmers were implicated. The usual fine was the loss of an hour run of water and a cash fine to cover any damage done to company property.

During these formative years many stockholders meetings were held, some times two or three a month, and much verbal steam expended. Some of the meetings were bitter and fiery, and lasted from morning to late at night and in a case or two lasted for two days. But out of it finally came a system that the makers are proud of.

Back as early as 1910, some of the farmers began talking about pumping plants. There was an over abundance of water during the winter and spring but at times in the summer when water was needed most, it got too short to grow successful crops.

At a meeting of the directors on June 17, 1911 the question came up of building an office building, as heretofore the secretary had been furnishing his own office, generally in his home or place of business.

On March 7, 1911 it was decided to buy lot 5 in block 9 in Buckeye for $100.00 and Mr. T. N. Clanton, owner, gave the company Lot 7 in the same block.

Work was started shortly thereafter with the result that their present office building came into existence. At this meeting it was found that water should be sold to stockholders for 75c per acre and non-stockholders for $1.25. Quite a reduction from the $2.50 they started at, when they took over the canal.

On April 2, 1912 at the regular meeting of the directors a committee was appointed to select a site for a home for the lower Zanjero not to cost more than $700.00.

On May 2 the committee reported that it had selected 80 acres lying mostly on the north side of the canal in the S½ of NE¼ Sec. two miles west, of J. H. Harbinson. Later this site was not thought desirable and on July 2 a new site of 2½ acres was secured from George Day and the present house erected with some improvements added later. The estimated cost was $500.00.

The upper Zanjero house was built

in the summer 1910 on a ten acre tract purchased from John Bonner, about one-fourth mile east of the South Extension diversion gate.

As there were a little more than 4000 acres of land under the canal for which there was no water stock and most of which the owners of same were desirous of obtaining stock so many plans were from time to time advanced but none adopted as desirable or feasible. But at the annual meeting on June 13, 1913, George Brown introduced a resolution in regard to it, that was adopted. The resolution provided among other things that the holders of 4,000 acres organize another and separate company and bond their lands or a sufficient amount to install sufficient pumps to develop 2000 inches of water, and that they pay for three-fourths of the expense of enlarging the canal to carry this extra amount of water. The Irrigation Company would supervise distribution of the water at the price they charged their regular stockholders. And after the new company had operated long enough to demonstrate that they were going to make a success of the venture then the Irrigation Company would take over and issue them stock in their company in lieu of the stock in the new company.

The Brown resolution, like so many before it, was indefinitely postponed by the action of the stockholders at a meeting on February 10.

In march of this year the first automobile came into use by the Irrigation Company when the superintendent, Guy Vernon, purchased one for his use, in place of a horse and buggy, for his work on the canal. The canal board allowed him $175.00 per year for its upkeep.

During the summer of 1913, Harry Hancock, engineer, was employed by the company to measure the water of several small ditches coming out of the Salt River west of Phoenix and to keep a record of the amount being run and date of same, as it seemed that some of the ditches were getting more than their share of water. This evidence was used later in a law suit determining the amount of water each ditch or canal was entitled to under prior appropriation.

On May 25, 1914 a resolution was adopted at a special stockholder's meeting, adopting a lateral system for both irrigation and waste ditches that had been presented to the company directed by Engineer Hancock some time before. In this resolution the board was instructed to float a $35,000.00 bond issue, and with same to refund the present bond indebtedness of $19,000.00 and use the rest for the construction of the lateral systems as far as it would go and to assess capital stock from time to time to complete the work as needed.

In September, 1914, the State Fair Commissioner of the Agriculture Division attended the regular directors monthly meeting, pleading for a special exhibit from the Buckeye Valley, with the result that the board appropriated $100.00 for the collection of the exhibit and appointed I. H. Parkman to look after it. This procedure was kept up for the next three years, and resulted in quite an advertisement for Buckeye Valley.

As the Gila River was still threatening cutting into the canal west of the head gates for some 3 or 4 miles, the directors entered into a contract on May 6, 1915, with the River Currents Control Company of San Francisco, to install three of its patented Dean's Channel Changes and River Bank Protectors at strategic points along the section of the river bank, at a total cost of $654.00. As they were not the success that was claimed for them no more were installed.

At the regular meeting of the canal board in March, 1916, the matter of developing water from the Agua Fria was taken up and discussed at some length, with the result that a committee was appointed to go into the matter more fully and report at a later meeting. On March 27 after looking over the Agua Fria situation the board ordered the superintendent to put a dam in the Agua Fria and open up a channel into the canal, and divert water into the canal, as the Gila was on a rampage and the dam was out so that no water could be diverted into the canal from that stream. He was ordered to keep up this arrangement as long as the Agua Fria supplied water for as much as one-fourth time. When it dropped lower than that he was to rebuild the dam and take the

water again from the Gila.

At the annual stockholders meeting on June 15, 1917, a bond issue of $55,000.00 was authorized by the stockholders, as the $30,000.00 bond issue ordered in 1914 had never been floated. This bond issue was to do the work contemplated by the former un-issued bonds, to-wit: Headwork improvement, $21,400.00; canal enlargement $11,-600.00; service laterals $10,000.00; water laterals $7,000.00; river bank protection $5,000.00; total of $55,000.00.

The bonds were to run 15 years and start to coming due in 5 years at $5,000.00 per year until all were paid. The Phoenix Savings Bank and Trust Company later bought these bonds at par, and they were to bear interest at 6%.

In May, 1917, a movement was set on foot by the directors to complete the White Tank Canal down to now the upper spill way of the Canal and utilize it instead of the present canal and so get back farther from the river as every rise in the river was a constant threat to its breaking into the canal. The White Tank had been partially completed down as far as they contemplated using it. And Engineer Hancock estimated it could be completed and put in operation for $20,000.00.

During this month it was also ordered by the directors that a Monighan Dragline Excavator be purchased at a price of $9,850.00, and that it be placed to work on the upper end of the canal cleaning and enlarging it as soon as it arrived.

During the summer of 1917, a priority suit was instituted in Superior Court with Judge Stanford presiding to determine Buckeye's rights to water in the Gila, Salt and Agua Fria Rivers. It was later known as the Benson-Allison Decree and established the rights of each individual piece of land to water and the date of such right. Many of the old timers of the Valley were called to the stand to testify as to the date certain pieces of land were put into cultivation from which their rights to water were based. The decree was issued November 14, 1917.

In the winter of 1917 a bunk house was built at the dam 24x36 feet, with concrete floor at a total cost of $400; it was later used for a dining room and kitchen and now for a dwelling.

As some of the lower lands of the valley were fast becoming water logged from irrigation on the higher grounds a movement was started at the annual meeting on January 18, 1918 to develop some system of drainage for same. Later an engineer was appointed and a general survey of the water logged sections made.

On January 21 at an adjourned stockholders meeting the matter of issuing new stock was taken up and ordered.

When the company was formed the articles called for 16,000 shares at a par value of $10,000. At the meeting the articles were amended to read 20,000 shares and the price to be fixed by the board of directors for the new stock. At an adjourned stockholders meeting on April 19, 1918 the board reported that they had agreed on the following prices for the 4000 shares of new stock:

For 1918-19	$20.00 per Share
1920	22.00 per Share
1921	24.00 per Share
1922	26.00 per Share
1923	28.00 per Share
1924	30.00 per Share

and the price thereafter to be fixed by action of the stockholders at their annual meetings. Payments to be made of 5% on date of purchase and 5% on each April 1 and October 1 thereafter. This set up was almost unanimously carried by a stock vote of the farmers.

At the annual Stockholders Meeting in 1919, February 10, the matter of drainage was again taken up and after a lot of discussion and the introduction of a resolution or two that failed to pass, the folowing resolution was offered by John Norton and unanimously carried: "Whereas the best interests of the water users and land owners under the Buckeye Canal rests in the immediate drainage of wet lands and the development of more water by pumping and

"Whereas it is evident that the most speedy and practical way of accomplishing these ends is through the organization of a drainage district;

"Therefore, be it resolved that the stockholders of the Buckeye Irrigation Co. endorse and support the organization of the drainage district, the boundaries of which shall conform to the boundaries by the company's articles of incorporation which designates the lands to be served by the company's canal, but which district shall exclude all plotted town sites; and the company pay whatever costs there be incurred in organizing said drainage district and

"Be It Further Resolved, that a committee of five be appointed by the president to supervise and direct the organization of said drainage district."

C. M. Zander, C. N. Towner, Wm. Walton, N. A. Sanders and John R. Norton were appointed on the committee.

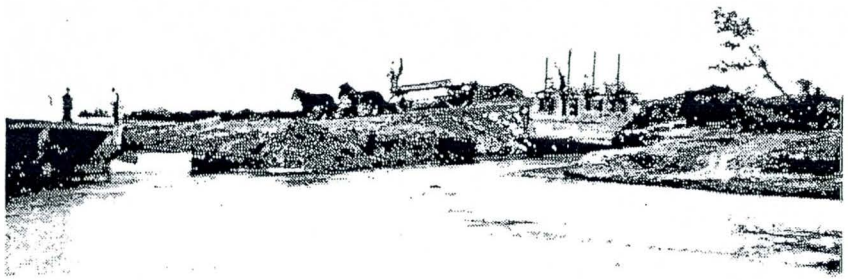
No other thing of any great importance happened during the year 1919 ,but at the annual meeting of 1920 on January 12, a resolution was introduced wherein it proposed to bond the district for the sum of $300,000 for the purpose of first: take up the present outstanding bonds of the company in the amount of $55,000; second, to construct permanent headwater sluiceways, river bank protection and any other safeguards that was thought desirable; third, to complete the rock and wire dam already started.

Ever since the inception of the Buckeye Canal the dam had been the bane of every company to operate the canal. Built on a bed of quick sand for its entire length, the first brush and rock dam 8 or 10 feet wide washed out every time a heavy dew fell on any of its water shed. So every ownership investigated the possibility of a permanent dam. It was thought that by building the dam 40 to 60 feet wide of rock with the highest elevation at the edge up stream and tapering off to nothing down stream would solve the problem, but they soon found out that the quick sand could swallow up their rocks faster than they could replace them. Of course it was far better than the old narrow brush and rock dam but washed out just the same at every protracted freshet. Much money was spent and some of the best engineers had studied the situation, but so far nothing permanent had been devised.

One engineer referred them to a dam on a river in India, similar to the Gila, that was proving quite a success and it was voted to try it out here. It was known as the "Sausage Dam." Made of rock and heavy net fencing wire six feet wide. Two widths of this, 50 feet long, was laid on the sand side by side and wired together; on the wire was laid as many rock as desired, when the wire was lapped over the rocks and wired together the same as the under-side was fixed, and then the sides and the open end of the sausage was wired together, making a big sausage 50 feet long, laying up and down stream. Then another one was made along side of the first one and so on for the length of the dam. As soon as the second one was finished another one was made on top of the two, lapping half way over the other and so binding them together so on until the desired height was reached. That was the sort of dam referred to in the $300,-000.00 bond resolution and looked like it would be an end to their worries. But with all of their experience they still did not know the Gila River. It was found later that the water would undermine the lower end of the "sausage" and they would gradually sink. But there is no question that in the course of time the sand would become full, from the constant repairs and a firm foundation finally be set up. But that time never came as some fool (?) decided what is the use of trying to raise the water and force it into the canal; why not go up the river and lead it in, and do away with a costly dam. This was done and the dam troubles were over. But we are getting ahead of our story.

On February 16, 1920 at an adjourned stockholders meeting the $300,000 bond issue was voted and authorized for the purposes above stated, and also at this meeting it was voted to increase the amount of the bonded indebtedness limitation for the company from $100,000 to $500,000, therefore paving the way for the $300,000 bond issue.

On February 24, 1920 the directors at a special meeting voted to employ Charles Kirby Fox, a nationally known Los Angeles engineer, as designing engineer on terms quoted by him to the board, to-wit: That he be paid $10,000.00 for his services; $5,000.00



Buckeye Canal Head 1916

Remains of dam. Supt. Wainscot and Engineer Fox 1920

when the preliminary plans were turned in and $5,000 when the final plans are submitted. At an adjourned meeting of the board May 11, 1920, Charles Kirby Fox was instructed to prepare plans for dam "Type C", weir, eight feet in height, 2800 feet in length, with concrete breast and toe walls and down stream apron enmeshed in wire netting at a cost of from $125.00 to $150.00 per linear foot. He was also instructed to prepare plans for a concrete intake and spillways to cost approximately $60,000.00 and for levees and river bank protection, $40,000.00.

In June, 1920, Mr. W. H. Sanders of Los Angeles was employed by the board to act as consultant engineer to work with Mr. Fox on plans and construction of the proposed new dam. Nothing else of importance happened during the year 1920, although there were frequent meetings at which time, plans for the new dam were discussed. This held good through 1921 until late in the year. Just routine matters of conducting the water system came up; together with frequent meetings with the engineers and plans, and more plans, for the new dam.

At the annual meeting January 9, 1922 it developed that the company had been going in the red for some time and the stockholders authorized the directors to borrow $30,000.00 on the company note or notes to care for the indebtedness, to-wit: $13,862.00 on new dam; $6,138.00 operating expenses and the balance to be used to operate on up to April, 1922.

At the board meeting on February 7 the loan committee reported that the $30,000 the stockholders had instructed the board to borrow could be secured through the Imperial Livestock and Mortgage Company of Los Angeles, an agent for the War Finance Corporation; provided that each Buckeye Stockholders furnish a financial statement of his net worth. The offer was accepted and the stockholders instructed to prepare the financial statement. Later on in the year the loan was refused.

On April 4, a delegation of land owners on the north side and adjacent to the Buckeye Canal appeared before the Canal Board and presented a petition asking permission to organize an irrigation and drainage district to help finance the new dam, to pay for the enlargement of the canal, and to install pumps to provide water for the land in question, where there was not enough water in the river to provide sufficient water for all lands in the Buckeye area and the proposed new company. It was set forth in the petition that by enlarging the canal sufficiently and pumping the water out of the canal and taking it north that as much as 10,000 acres could be covered and reclaimed. The petition was signed by G. C. Reubel, M. W. Pace, Fred Walls, T. J. Roberts and George Drew.

At a stockholders meeting on May 10, 1922, the company by-laws were amended changing the annual meeting from the second Monday in January to the third Monday.

On February 21, 1923 at a joint meeting of the canal directors and the directors of the Buckeye Water Conservation and Drainage District, Mr. Harry L. Hancock was employed to lay out plans for the drainage system and to supervise construction on a 5% basis. A resolution was passed also at this meeting calling for open drainage instead of tile in the first five units running north and south of the drainage district, and George Brown for the Wessex Company was given permission to construct a drain on Wessex land in the lower end of the valley to be reimbursed from drainage funds when they became available.

At a special called meeting on June 20, 1923 of the stockholders it was revealed that former plans to finance the drainage plans had fallen through and it seemed there was no prospect of immediate relief to the water logged lands, so a resolution was introduced directing the board to directors to borrow $75,000.00 on the company note and construct the most necessary units as outlined by Engineer Hancock.

Mr. Schmalhausen who was present, representing the Jennings Construction and Engineering Company of El Paso, proposed to take the contract and to accept the company's note in payment, subject to the approval of the company's lawyers.

In July, 1923, Mr. G. A. Punteney of Phoenix presented an option contract to the board of directors for their

approval, giving him the right to buy all drainage water developed by the district up to, but not exceeding 50,000 acre feet per year, and to pay to the district the rate of 50 cents per foot. The option to be in full force and effect up to and including November 1, 1923. He agreed to pick up the water at or near the mouth of the different discharge drainage ditches. The board approved the option but it was never carried out.

On July 12 the Jennings Construction Company asked that the Irrigation Company amend their articles of incorporation so that they could have power to construct drainage project. So at a called meeting of the stockholders on August 18 the following was added to articles of Incorporation, "To construct, operate and maintain ditches, conduits, pipe lines, tile drains and other drainage works for draining any or all of the lands receiving water or entitled water from the irrigation works of the corporation,

"Provided, however, that no further expenditures shall be made, or indebtedness created for the purpose of drainage works construction when and in the event Eighty Thousand Dollars shall have been so expended for such purpose."

In July, 1924, some of the Gillespie land owners brought suit against the Buckeye and Arlington Canals to determine if said companies were using water that belonged to them, they putting a claim on all drainage water from these respective districts. The two companies joined in the defense in the suit; Buckeye to bear 75% and Arlington 25% of the costs.

The firm of Hayes, Laney, Stanford and Allee was retained to defend the suit.

On November 6, 1924, there appeared this most interesting item in the minutes of the directors meeting of that date, viz: "On motion duly made, seconded and carried, the superintendent was instructed to eliminate the purchase of eggs at the present high price." (Was that yesterday?)

At the annual stockholders' meeting of January 19, 1925, it was ordered by the stockholders that all water logged land assessments be canceled upon the request of the land owner. Over the past 10 years the assessements had accumulated to the amount of $29,739.31. When the land was dewatered the stockholder could renew his right to water and go on from there.

On April 19, 1918 a price of $20.00 per share was fixed on 4000 shares of new stock issued by the canal company. Each year thereafter the price was to increase $2.00 per share until it had reached $30.00. At this annual meeting it was revealed that only 327½ shares had been sold since issued. Seeing the stock was not going to sell at these prices the stockholders ordered that all future sales be fixed at $10.00 per share, the same as the old and original 16,000 shares had been sold.

During the spring of 1925, F. A. Reid and S. C. Miller and the Gillespie Water Co. both made propositions to the Irrigation Company to de-water the valley for the use of the water, by pumps or otherwise. But as neither offered anything concrete at the time, no action was taken.

On April 7, the bids for $200,000.00 bonds of the drainage district were opened at the irrigation office and it was found that the First Securities Company of Los Angeles was the highest of the three bidders at $93.03 and the irrigation board recommended that the drainage board accept the bid.

On Sept. 8, 1925 bids were opened for a new head gate and waste way and Henry Galbraith having submitted the lowest bid, it was awarded to him.

On October 6, 1925 S. C. Miller again came before the board and offered them a new proposition for de-watering the water-logged lands of the valley, and after considerable discussion the Miller-Reid agreement was accepted. It required that the Irrigation Co. secure pump easements on 90% of the lands of the valley. But as the company was unable to secure required amount of easements, Mr. Miller again appeared before the board on Aug. 8 and offered to amend the agreement cutting the easements down to 75%. This was agreed to, and another try was made.

In the year 1927 at the annual meeting it was voted that from then on any farmer desiring a lateral to his ranch

would have to build it himself but the company would build all gates and structures in it so the water could be conserved and used beneficially. Where a private ditch was already built the farmers were to enlarge, and put it in shape before the company would take it over as a lateral. This resulted in a mad scramble to get ditches built, or enlarged so that the company would take them over. Result, many new laterals, for the company to maintain, coming into use during the year.

All records, no matter how dry, now and then have some humor scattered through them at different times, so on July 5, 1927 at a regular board meeting appeared an item that at this distance strikes us as a little humorous. At that time it was probably serious enough. Maybe is was the heat, or else the board had not fully recovered from the day before, the 4th of July.

It was moved and seconded that the secretary's salary be cut in half, and was carried by a 4 to 3 vote. It was then moved that the directors' per diem be cut from $5.00 to $3.00 and carried by a 5 to 2 vote. Later in the meeting a motion was made to rescind the motion to cut the directors' per diem and carried by a 4 to 3 vote. Then that not seeming just right a vote was taken on rescinding the cut in the secretary's salary and carried by a 4 to 3 vote. So they were back where they started from; the only employee getting anything out of the deal was a raise in the Zanjero's salary to $200.00 per month. They were operating with only one Zanjero at this time. The superintendent looking after the upper end of the canal.

At the August 3 meeting of the directors a contract was entered into by the board and the Ruth Dredger Mfg. Co. for the purchase of a Ruth Dredger at the total price of $11,750 f.o.b. Huntington Park, California.

On October 18, the dredger having arived and set up on the Zander Ranch for the excavation of a waste lateral, the board visited at and inspected the machine and its work and decided that the type of crawlers on which it was mounted was not suitable for this country and the work it would have to do. So Mr. T. A. Burch, the representative for the dredger company offered to get and install another type of crawler for the additional amount of $3,200.00.

On November 17, the board again visited the dredger with the new crawlers installed and after inspecting the one mile of work done, decided to purchase the machine at the agred price of $14,950.00.

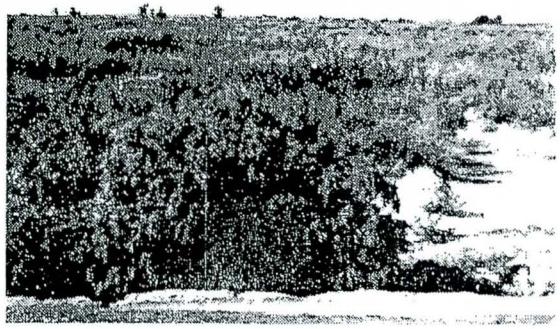
At the annual meeting on January 16, 1928, among other things to come up, Mr. Wm. Walton made a protest against the newly formed Roosevelt Canal Co. pumping water from the Buckeye Canal drainage district in Salt River Valley and asked that his protest be entered on the minutes of this meeting. This was the opening gun of the law suit against all water users on the Salt and Gila Rivers clear to the New Mexico line. All summer long at every meeting some phase of the proposed water suit was discussed.

On October 22, the Arlington Co. was invited to join in the suit on an 80-20 basis of expense. The Arlington Co. to accept the latter figure, which they agreed to. Attorney Floyd Stahl had been retained as their attorney to represent them in the suit.

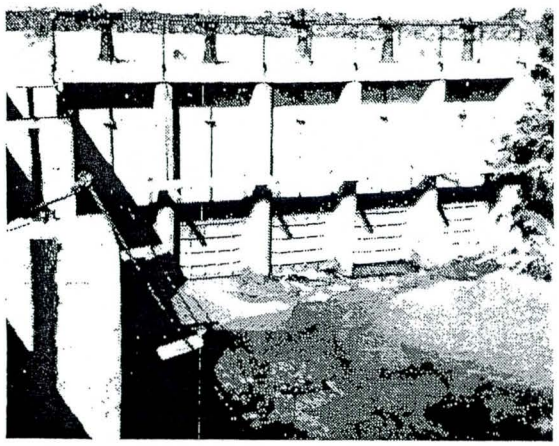
All during the year 1928, there had been considerable discussion about putting down wells to increase the flow of water, and at one time the board, by official action, advised the Drainage District board to put down at least ten wells and later at another meeting increased it to twenty.

In February, 1929, Engineer Hancock employed I. H. Parkman and James Wainscott to gather evidence for the contemplated suit, by putting down holes, measuring wells, etc., in the south and west end of the Salt River Valley, up to Agua Fria as far as Peoria and up to the Gila as far as Sacaton as the Drainage District was having trouble disposing of their bonds at a reasonable figure, it was finally decided that the Irrigation company had better take over the installation of pumps, both for irrigation and drainage up to $100,000.00.

Then, at such time that the drainage company could sell sufficient bonds at a reasonable figure, to repay the irrigation company the $100,000.00, or such part of it as had actually been expended.



Gila River South of Head 1956



Canal Heading 1956

At the annual meeting of January 13, 1931, a resolution was passed putting the sale of water on an acre foot basis when the river flow fell below 6,000 inches, for a period of five days or more. The company had during the meantime installed eight pumps and the water was now ready for use; hence the change of sale and distribution. Water was fixed at the price of $1.00 per acre foot.

During the year several plans were set up or suggested for operating the acre foot plan of selling water, and finally a system that was fair to all and workable was adopted.

During the years 1932 and 1933, the big depression was on, farm prices had dropped to nothing and the farmers in many instances could not pay for water to make crops, so, during these two years the main concern of the board of directors was to try to devise ways and means so all could have water and meet their payments, so the company would have money to operate on.

At the annual meeting of 1933, a plan was adopted authorizing the secretary to accept crop mortgages, in some cases, in lieu of cash, for the payment of water. A great many took advantage of this, with the result that a year or so later the company found they were in possession of a lot of worthless paper as the crops were insufficient to redeem the notes and mortgages, or the proceeds from the sale of crops were used for other purposes and not turned in on the mortgage. So it was ordered that all mortgages be cancelled and the indebtedness revert back to the books of the company as delinquent payements and be treated as such. A plan was adopted whereby the stockholder could pay a portion of the delinquent payments twice a year when he paid his current water bill. It was a continual struggle during this period for the company to keep its head above water, and it resulted in wage cuts to all employees. But during the year 1935, these wages and salaries wese restored to their former level.

During this year the company purchased a drag-line machine to add to their equipment, and put down two more wells.

The next few years were without any incident of any importance save the numerous meetings with government officials looking toward the still pending water suit. Some of these meetings made it necessary for one or more of the company officials to make trips to Washington, Denver, Los Angeles and other places to meet with the different officials.

On August 8, 1940, the canal board instructed the superintendent to proceed with putting down well No. 12 to be located near the James Carter home on the bank of the canal.

As the river bed was fast growing up with Tamarac Trees and Salt Cedar bush it became a worry to the board and others as to what would happen if a big river came down as it had done at times in the past. The board started a movement trying to interest the county and state officials in doing something about it, and later the Federal Government. They got a lot of talk and promises, but no action and the river today is still in the same condition.

The board at their June meeting 1940, authorized the purchase of a small Caterpillar Tractor, a machine they had long needed.

In 1942 a drainage well was put down one mile west and a half mile south of Palo Verde store and put into operation with the result that water levels in that district were lowered quite perceptibly as long as it ran continually.

In the year 1940, well No. 12 was put down near the Jimmy Carter Ranch and put into production.

Only routine matters came up for attention until June, 1941 when the board added to the canal equipment a small Caterpillar tractor, of which they had been in great need.

The Board had been trying out the policy of running "free water" during the periods when the river was in flood, and on August 5, 1941 they voted to run no pumps as long as the river furnished as much as 3,000 inches, but if the demand for more water became greater then they would charge the regular acre foot rate.

On June 2, 1942, a drainage well was ordered put down and equipped, one mile west and one-half mile of the Palo Verde Store on Lateral 23. As

this was one of the worst water-logged sections of the Valley, it would be a good chance to see what a drainage well would do when placed in a strategic place.

By this time the Ruth-Dredger that had been purchased back in '37 was getting pretty well worn out and the board began casting about for one to take its place. Hearing of a used one in Fallon, Nev. a committeee was sent up to look it over and returned with a favorable report. Action was taken to close the deal. It was purchased for $7,500.00 plus freight from the shipping point.

January 4, 1944, was an eventful day for the Buckeye Irigation Co. when the water suit instituted in 1929 was brought to a successful conclusion, after 15 years of bickering. The settlement was in the form of a compromise, with the Carl Pleasant outfit on the Agua Fria paying to the Buckeye Co., $15,000.00 cash and the Salt River Water Users agreeing to turn over to the Buckeye Canal above its head 1% of all stored water it ran each year, but never to exceed 1600 inches at any one time. The water to be run on demand of the Irrigation Co. both as to the time and amount. At the close of each year all unusued water, if any, was to be canceled and to start over again.

The Roosevelt Irrigation District was to pay for pumping up to 8000 inches of water using Buckeye pumps, and if Buckeye did not use up the full amount, then in that case, what was left over to be added to next year's amount. While Congress had appropriated $10,000.00 to the Indians to pay their share for the settlement of the suit, it was not yet available to the Buckeye as the Indian Tribal Council had to sign certain papers which they were as yet loathe to do. They were signed sometime later, October, 1947, and the money was made available to the Buckeye Company.

This money was paid to the Valley National Bank for notes held by them and the Company indebtedness lessened by that much.

On March 7, 1944, the board put all water on an acre foot basis, flood water and all, only at a reduced price. This brought some objections from certain farmers that needed the "mud water" to build up their lands, but finally it was taken as a matter of course and no more is said about the matter.

During the next year or so, things moved along in a quiet and orderly manner. Two new wells were put down, one near old well No. 4 that had to be abandoned on account of a crooked casing caused from repeated cave-ins.

During the year 1947, a representative of Phelps-Dodge mining interests at Morenci approached the Buckeye Secretary, A. T. Jones and offered to buy the water Buckeye had coming to them from the Salt River Valley Water Users Association in their settlement of the water suit some years before. After some dickering back and forth the following schedule was worked out and incorporated in a four year contract. Phelps-Dodge to pay Buckeye $25,000.00 upon signing the contract and $25,000.00 on Feb. 15, 1948 and beginning January, 1948 to pay $10.00 per acre foot for all water Buckeye had coming from the Water Users, and at the rate of $15.00 per acre for 1949, and $20.00 per acre for 1950 and 1951 when the contract would expire.

At a Stockholders meeting October 2, 1947, the set-up was explained to them and they voted to enter into the contract if their attorney found they could do so without jeopardizing their rights to the water. The lawyers recommending that it could be done safely, the deal was closed.

Immediately a well driller was put to work on new wells so that enough could be in production in the spring of 1948 to take care of the water they had contracted away. This well drilling and installing pumps has been going on ever since, so that today (Aug. 1949) the Company has 24 wells in production.

On December 6, 1947, the board met with Mr. A. J. McMillan and Mr. B. Withrow of Holtville, Concrete Pipe Company to discuss the costs and the feasibility of installing tile drains in this valley

The Board sometime before had gone down to Imperial Valley and inspected some systems that had been put in and were working.

After the Board and the gentlemen

from Holtville Concrete Pipe Co. had made an inspection of the valley it was agreed that they would tile three different tracts, to-wit: 60 acres for Carl Towner, 20 acres for Long Bros. and 80 acres for Tom Thedford, provided that fair and suitable contracts could be arranged with the parties concerned.

At a meeting on January 6, 1948 this record appears in the secretary's book, as follows:

Motion made and seconded, (1) that $40.00 per acre be charged landowners for such lands as are tiled and drained; (2) landowners to be given 5 years to pay the amount charged for the tile drainage starting 3 years from completion date of tile installation; (3) the rate of interest to be 5% per annum to start after 3 year period; (4) if tile drainage proves unsuccessful, no charge to be made landowner for installing said tile nor any expense connected thereto; (5) a 3-man board to determine when and if, lands are drained (explains how chosen); (6) if tile is successful charges made by the Buckeye Irrigation Co. against landowners subject to above terms and to be a lien against such property as are tiled and drained until charges are fully paid.

On January 16, 1948 a contract was entered into with the firm of Davis and Wardlow to tile the above mentioned lands. The price agreed upon was 51½ cents for 4 inch drain and 58 cents for 6 inch.

April 1, 1948 Roy C. Decker of the Soil Conservation Service, who had made a survey of the water-logged lands of the Valley, made a report that there were 6,300 acres already water-logged or on the verge of becoming so, and that 56,000 acre feet of water would have to be removed from this area annually to effectively drain the area and that it would cost, in a 30 to 40 year period from $129.00 to $176.00 per acre, according to the method used for drainage.

On April 6, 1948 at an adjourned meeting of Stockholders the following amendment was added to the company's by-laws: "In the event any board member is absent for three consecutive regular monthly meetings, the remaining members shall appoint another stockholder who is otherwise qualified to serve for the balance of the unexpired term, and in the event any board member fails to attend as many as six regular monthly meetings during the year, such member shall not be eligible for re-election at the regular stockholders' meeting."

On October 5, 1948 C. M. Ainsworth, consulting engineer for the U. S. Borders Commission came before the canal board and reported as to the condition and necessity of cleaning the river channel in some way before a big flood came down it. The Army engineers were planning to make a survey of conditions from Granite Reef to Gillespie Dam, but advised the board to do anything possible they could do in the meantime.

On February 8, 1949, a new set-up of canal management was instituted by the Board. Mr. Archie Enloe having resigned from the Board of Directors was made general superintendent of the Canal Company at a salary of $500.00 per month, and Carroll Parkman was retained as Company engineer at his regular salary.

At the October 5 meeting, the "Right To Work Bill" came up for discussion and it was ordered that the secretary be instructed to send $200.00 to them as a donation to help in the passage of the said bill. It was also ordered after a full discussion that the Company send $1600.00 to the Central Arizona Project Association to help in the fight against California for Arizona's just share of the Colorado River water. At this same meeting, C. M. Ainsworth was retained as engineer to look after Buckeye's interest in the river clearance problem and do whatever surveying that was necessary. On Nov. 3, the superintendent was ordered to purchase 4 more pumps, two to be delivered in January 1949 and two in March.

On December 11, Mr. Ainsworth reported that after a conference with the engineers representing the Water Users Association, it was his opinion they were not much concerned or doing much of anything about the river clearance problem.

At the Annual Stockholders meeting on January 17, 1949, the same Board of Directors was elected, with the exception of E. H. Johnson, who

was replaced by C. A. Elms. At the meeting of the newly constituted board, A L. Lanford was retained as president and J. R. Beloat as Vice-President, with W. W. Weigold retained as secretary-treasurer.

On February 8, a new set-up was adopted by the Board on Canal management. A. W. Enloe was named superintendent at a salary of $500.00 per month, and Carroll Parkman retained as engineer at the salary of $350.00 per month. Upon Enloe's resignation as director, L. D. Hazen was appointed to fill the vacancy for Enloe's unexpired term. During the year, several pieces of much needed machinery were added to canal equipment, lessening hand labor and tending to lower the cost of maintenance. Among the machinery purchased was a skip-loader, an International Truck, three pick-up trucks, a D-7 Caterpillar, winch and Angle Dozer and Ditching Machine.

A continuation of the discussion of salt cedar eradication along the river was had from time to time with the Company Consulting Engineer C. M. Ainsworth and Federal and Army Representatives, but no definite plan or start on the work was undertaken. Superintendent Parkman did do considerable surveying of the river bed at the suggestion of the Army Engineers.

In September, 1948 a movement was launched for a big celebration when the company had paid off its last bond and would be debt free. The date was set for January 16, 1949 with L. D. Hazen, John Beloat and Othel Narramore in charge of arrangements. A full detail of the celebration will be found in a later chapter.

At the Annual Stockholders meeting this year, (1950), Messrs. Bob Long, Othel Narramore, A. L. Lanford, L. D. Hazen, C. A. Elms, John Beloat and Wallace Bales received the highest votes and were declared elected as directors. Lanford was elected again as president and Beloat as vice-president, with W. W. Weigold as secretary-treasurer.

During the year, the talk of the river bottom clearance went on, and on June 3rd Engineer Ainsworth stated at a meeting of the Board of Directors that the Army Engineers informed him that even if the project is approved, it will take from 5 to 6 years to get an appropriation and do the work. The estimated cost was put at $3,000,000.00 for the 77 miles of clearance 2000 ft. wide. As river water kept getting less and less, in the past few years, it was quite evident that more pumps would have to be installed to take care of the shortage and furnish the required amount of water needed. On October 18, the board authorized the drilling of 14 new wells, at strategic points throughout the Valley. On Dec. 12, the board, after inspection, bought a used well drilling rig for $6000.

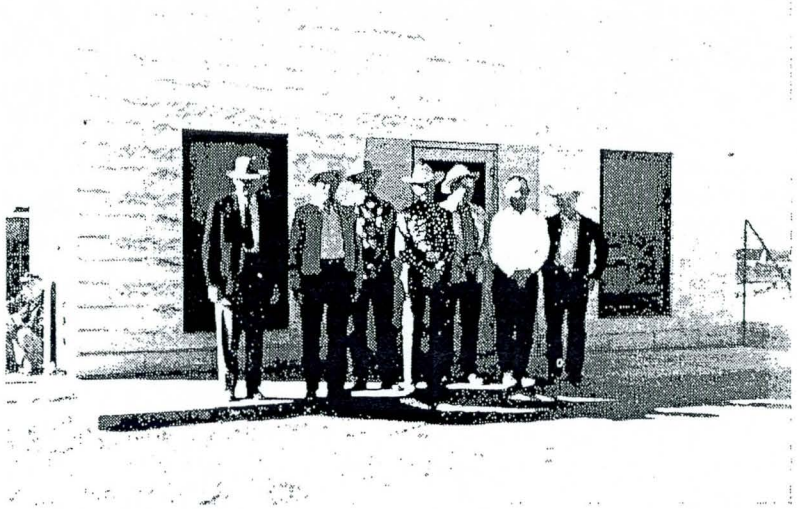
At the regular directors meeting on January 2, 1951, the matter of new wells being drilled on the Indian Reservation came up for discussion with representatives from Arlington present. A. T. Jones stated there were 20 wells drilled within 10 miles of the head of the Canal since the settlement of the old water suit and close enough to the rivers to perhaps dry them up entirely. It was decided to talk the matter over with their attorneys and take action if possible.

At the Annual Stockholders meeting on January 15, Messrs. Bob Long, C. A. Elms, P. G. Pfluger, Elmer Shepard, Othel Narramore and A. W. Enloe were elected as directors with W. W. Weigold retained as secretary-treasurer. L. D. Hazen was elected president and Bob Long as vice-president and Carroll Parkman retained as superintendent.

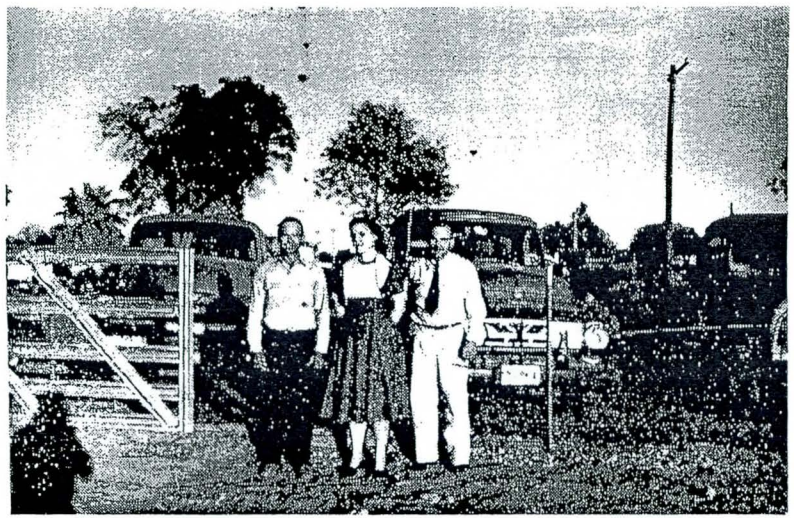
At the board meeting on January 23, the salaries of most of the employees of the Irrigation Company were given a slight raise in keeping with the times and cost of living.

At the board meeting on February 21, it was decided to appoint L. D. Hazen as temporary superintendent, while Caroll Parkman worked on the suit against the farmers that had installed wells in the St. Johns-Laveen District. His salary was fixed at $500 —he to furnish his own transportation. An Engineer Harding was retained to help in the Underground Water suit, if any was had.

At the December 4 meeting of the directors, L. D. Hazen proposed that the secretary take over the duties of general manager of the Company as



BOARD MEMBERS (Left to right): Othel Narramore, Lee Lanford, Bert Schweikart, Carl Arnold, Vern Beloat, Wallace Bales and Marshall Long, Jr.



Robert Stearman, Supt., Mary McCauley, W. W. Wigold, Mgr.

he wished to be relieved of the duties as of January 1, 1952. His resignation was accepted and Weigold appointed to the duties.

At the Annual Stockholders meeting held Jan. 21, 1952, Messrs. O. Narramore, Vernon Beloat, B. E. Schweikart, Carl Arnold, A. W. Enloe, P. G. Pfluger and Hazen were elected to constitute the board of directors for the coming year. Othel Narramore was named as president and Vernon Beloat as vice-president. W. W. Weigold was named as Secretary-manager and he was empowered to find someone for superintendent that could work with and under him and to employ someone for full time service in the office.

During the year 1952, short water was one of the major problems of worry and discussion of the Board, so they set aside $25,000 early in the year to cement line laterals and try and save some seepage waste that they were losing. On January 26, 1953 discussion was had in regards to setting aside another $25,000 for the same purpose. At this same meeting, A. T. Jones asked to be relieved of part of his duties as Court Water Commissioner, and it was arranged to let the watchman at the head, do the measuring of the water in the river, under the supervision of Jones, and that Jones' salary be reduced from $80.00 to $50.00 per month.

During the past year or so, Arlington Canal Co. and the Buckeye Co. had been having some trouble over Buckeye waste water. Arlington had been damming up the water into their canal. This made it necessary to back the water up several feet in the ditch and so tend to water-log the adjoining land and also cause the deep ditches to cave in more or less.

On February 3 representatives from Arlington appeared before the Buckeye Board and worked out a plan whereby they could use the water, by signing a contract agreeing to take all responsibility for damage and to build and maintain all needed structures.

In March, a new Gradall was purchased and put to work on the South Extension. Talk during the year was carried on from time to time in regards to threatened suit against Phoenix and Salt River Water Users for holding water behind Horseshoe Dam for Phoenix, contending that Phoenix acted illegally in closing the gates before water was pouring over Gillespie Dam. Judge Tuller of Tucson was named to hear the case.

At the Annual election of 1954 the old board was unanimously elected by acclamation. Othel Narramore was again retained as president and B. E. Schweikart elected vice-president. W. W. Weigold was again appointed secretary-manager.

During the first of the year, the Carl Hegi home burned and his wife and one child lost their lives in the fire, so in April the Board ordered that $100.00 be cut off of his water assessment as a neighborly good will gesture and to help him out in time of need.

In May the Board of Directors appropriated $25,000 more for the lining of ditches. It seems that there has been a widespread demand for ditch lining since it once got under way, and much water saved thereby.

Also in May, Mr. Ott Dixon filed suit against the Canal Company for alleged damages to the extent of $200,000. His cause for action was listed: 1. To have boundary lines between Dixon and Johnson and between Dixon and Baker moved west 400 ft. 2. The Company using ditches between the places. 3. The Company failed to deliver water to 70 acres of barley and set the damage at $10,000. 4. Claims of insufficient water for past 4 years, because gates were not kept locked and water being stolen by other stockholders. 5. That Directors and Manager were illegally elected at last Stockholders meeting.

During the year an agreement was made with the U. S. Department of the Interior for use of one of the Company's wells on a test to determine whether it was feasible to de-mineralize water used for irrigation. Well No. 2 was placed at their disposal. The necessary machinery was installed and the tests started.

On January 17, 1955, the annual stockholders meeting was held and Narramore, Beloat, Pfluger, Schweikart, Lanford, Arnold and Bales were

elected directors and Narramore and Schweikart were elected president and vice-president, with Weigold retained as secretary-manager.

During the year, the company granted the County of Maricopa a right of way across their property at the head of canal for a road to provide a means of ingress and egress to a County Park opened up in the hills across the river to the south.

In February of this year, the Board of Directors revealed that water levels all over the district were lowering fast. No. 11 well was cited as an example. In 1952, static water level was 22.4 ft. and 1955 42.9 ft. This was given as a general trend over most of the district.

On Sunday, March 15, the upper Zanjero's house burned down and at the next meeting the board ordered a block house constructed at a cost of approximately $3500.00. Insurance on the burned house of $2000.00 was carried by the Company.

The Annual Stockholdes meeting of 1956 named the following gentlemen to the Board of Directors, to-wit: Narramor, Beloat, Schweikart, Lanford, Arnold, Bales and Marshall Long. Jr. O. Naramore was again elected as president and B. E. Schweikart as vice-president with W. W. Weigold retained as Secretary-Manager.

At this meeting it was stressed by several stockholders that many of the pumps have had long hard service, and it would be the wise thing to check all pumps as to condition and to set up a replacement fund to be used when needed.

The Dixon vs. Irrigation Co. suit has been set for trial several times, but each time before the date came around for trial, it has been postponed to a later date and at this time has not yet been called for a hearing. Several meetings have been had by the interested parties trying to work out a compromise, but without success.

CHAPTER III

The following articles taken from the records of the Buckeye Irrigation Co. will refresh the memories of the old timers, of those men who were chosen, sometimes in torrid sessions, to represent them and direct the affairs of the company for the year in which elected.

A seven man board of directors was ordered by the stockholders meeting that adopted the first by-laws, and by mutual consent, no record being adopted ordering it, it was agreed that they should be selected from men scattered up and down the valley, and not all from one locality. Generally two from each end of the valley and the rest in between. For many years there was a strong rivalry between Palo Verde and Liberty, as to who would control the board. Sometimes it swung one way, sometimes the other. The people of Palo Verde being on the lower end of the canal naturally got the rough end of the water distribution, whether intentional or not. Liberty being on the upper end drew from a full canal and a Zanjero could turn on a head of water one day and come back two days or more later and it would be just the same as he left it, as it was drawing from a full canal. But let the lower Zanjero try it and see how far he got. With the canal fluctuating from night and day raise and fall in the river, dropping in too many checks at once and diverse causes.

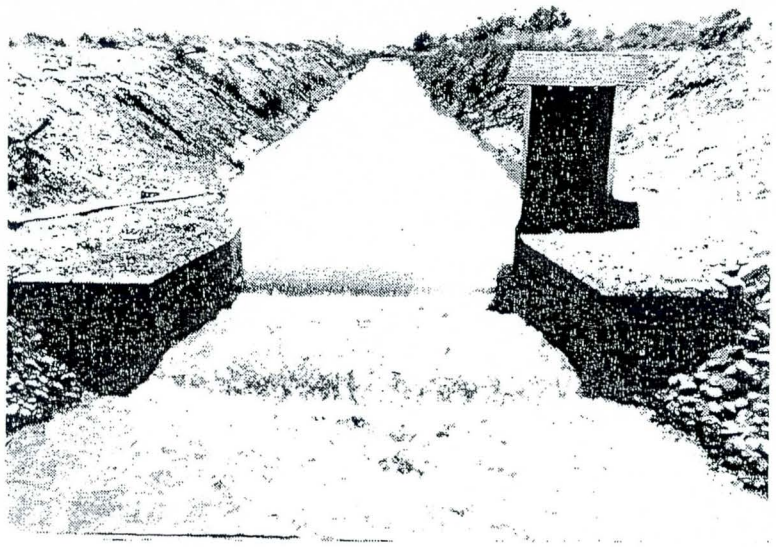
It is told of one of the Zanjeros who had worked on the upper end for sometime being transferred to the lower end, and after a week or so quit. Being asked why he quit said, "I don't have enough water down there to go around."

At another time when Palo Verde got in the saddle and put in a superintendent of their choosing, a conversation something like this took place between a Palo Verde director and a Liberty man. Said the man from Liberty, "Why did you fire the old superintendent?" Palo Verde director, "Because he was no good. He was unfair."

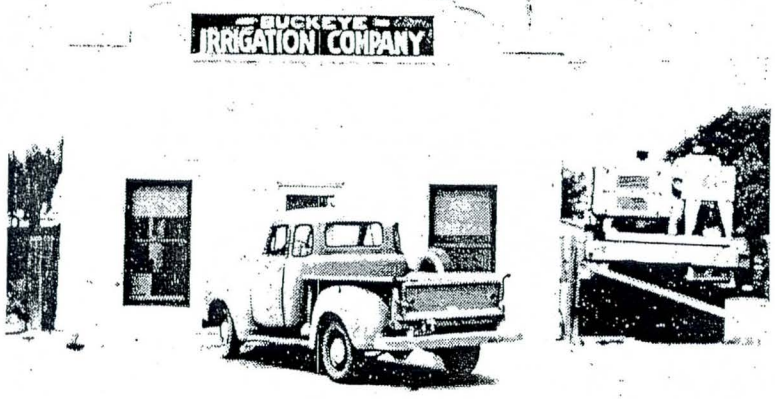
'Well, he might have been unfair to you, but he was a mighty good man to us."

But those days are gone and both ends today work in harmony and agreement.

The Buckeye Canal was first located by M. M. Jackson and J. L. Spain, by filing on an appropriation of 12,000 inches of water in the Gila River. The filing was recorded at Phoenix in the recorder's office May 28, 1885. On



Measuring Weir at Canal Head



Company Office

Sept. 25, 1885 M. E. Clanton and others organized the Buckeye Canal and paid the original locators $300.00 for their location. On July 24, 1886 the company increased their appropriation by 38,000 inches making a total of 50,000 inches appropriated. On Oct. 31, 1888 Wm. (Bucky) O'Neil formed the first Buckeye Irrigation Co. and purchased the interests of the Buckeye Canal Co. and operated the canal until sold for debt to W. Moultrie of Fresno, Calif. for $6,500.00. He only had it for 9 months and again sold it to Wasson and Walker who in June, 1900 had organized the Buckeye Canal and Land Co. to handle the deal. On Sept. 27 of that same year they took charge and started to operate. In March 1902, James R. Thorp of Denver bought out the Wasson and Walker interest and operated the canal under the name of Wessex Water Company.

But they, like all their predecessors, failed to make a go of it and it went into the hands of a receiver. All the company up until now had been operated with the hope of dividends for their stockholders, but none at anytime had ever been declared.

On March 2, 1907, in the old one room Buckeye School there came into existence the present Buckeye Irrigation Co. (the second of that name). The name was suggested by C. M. Zander and at once adopted. A deal was made with Thorp's interest and the canal was bought at the price of $92,900.00.

The gentlemen that carried on the negotiations with Thorp were N. Benson, J. S. Day, G. C. Simmons, Fred Walls, W. R. Beloat, C. M. Zander and C. H. Odell.

Articles of incorporation were drawn and the following men signed as incorporators: J. S. Day, Nels Benson and C. M. Zander. This company was organized along entirely different lines from any of its predecessors, and operated only for service to its stockholders with no view whatever of any dividends.

A seven member board of directors was decided upon and the following men elected on the first board: Geo. Day, P. H. Benson, P. E. Moore, Geo. Drew, H. A. Hamels, Chas. Barkley, and Dr. L. H. Thayer.

On March 4, the newly elected board met and chose from their number the officers for the new company. H. A. Hamels, president; P. E. Moore, treasurer; Geo. Drew, vice-president, and Geo. P. Brown was named secretary. Later the office of the treasurer and secretary was combined into one office with Geo. Brown in charge.

Following are the names of every man that served on the Board of Directors, the year he was first elected, the number of years served and his present place of abode if he is still living as far as we know:

Henry Hamels was elected on the first board, and became the first president and died recently in Phoenix. He served all told eleven years.

Geo. Drew, 1907, served 12 years. He has been dead many years. First vice-president.

P. H. Benson, 1907, 3 years, dead. Chas. Barkley, 1907, 5 years, dead. Dr. L. H. Thayer, 1907, 5 years, dead. P. E. Moore, 1907, 3 years, dead, first treasurer. Geo. Day, 1907, 4 years, dead. W. A. Evans, 1908, 1 year, dead. W. R. Beloat, 1908, 5 years, dead. Geo. Cocke, 1909, 3 years, dead.

Wm. Walton, 1910, 14 years, dead. He was in point of service fourth man, but was dropped from the board and later re-elected oftener than any man ever serve. This happened six different times. It had been said about him "that he made trouble when he was on the board, and that when they left him off he made more trouble, so they put him back on again." He was a man of strong convictions and not afraid to express them and willing to go to any length if he thought he was in the right.

Geo. Brown, 1911, 10 years, died in 1948. Chas. Clanton, 1912, 1 year, dead.

N. Benson, 1912, 9 years, dead. The man who would take the opposite side any time to get a good argument. John Knight, 1913, 4 years, dead. Fred Walls, 1913, 4 years. Died some years ago in Prescott. A. C. McDonald, 1913, 1 year, lost track of him. R. H. Campbell, 1913, 2 years, dead.

J. H. Tracy, 1913, years, died in 1949. D. H. McDonald, 1915, 2 years. Lost trace of him. E. L. Narramore, 1916, 3 years. Died in 1918 flu epidemic. Dick Conley, 1917, 1 year. Lives in Phoenix. C. G. Clugston, 1917, 3 years.

Has been dead several years. W. D. Baxter, 1919, 6 years. Killed in an accident while president of Canal Co., P. A. Yarbo, 1920. 1 year. Unknown. Yarbo, 1920. 1 year. Unknown.

Pete VanLiere, 1920, served 24 years. He now lives in California somewhere around San Diego. He served every year from 1920 to 1944 when he sold his ranch and moved from the valley.

L. A. DeRosier, 1920, 5 years. Now operates a store west of Avondale. L. E. Shepard, 1921, 3 years. N. A. Sanders, 1921, 3 years. Died several years ago. Simon Miller, 1922. 6 years. Lives in California. A. C. Wood. 1924, 7 years. Dead. J. G. Schweikart, 1924, 3 years. Dead. J. R. Bloat, 1925, has served 11 years. A Liberty farmer. C. T. Baker, 1924, served 20 years, third longest time served. Ranching, Palo Verde. A. D. Bowers, 1925, 2 years. Dead. Mark Hindman, 1926, 3 years. Lives west of town. Robert Long, 1927. Bob is second high man in point of service, having served 23 years. Lives west of town. T. W. Bales. 1928, 2 years. Has been dead for several years. Hans Terkelson, 1929, served 3 years. Home in Denver. Colorado.

M. W. Pace, 1930, 6 years. Lives at Liberty. Mark Kellogg, 1930, 9 years before moving from the valley. Now lives in California. Arthur Beloat, 1934, 5 years. Lives in Phoenix. E. M. Shepard, 1935. served the company 9 years. Jack lives east of town.

A. L. Lanford, 1936, served 14 years and a member of the present board. Lives at Palo Verde. Ralph Cooper, 1943, on the board 7 years. Home near the head of the Buckeye District. Othel Narramore, 1940. has been and still is on the board 10 years. Ranches at Palo Verde. E. H. Johnson, 1944, 4 years. Ranches at Palo Verde, lives in Phoenix

C. A. Elms, 1949, a new man, on one year. Home in west central part of district. L. D. Hazen. 1949, ten months, appointed to fill the unexpired term of Archie Enloes. Archie Enloes 1944 to 1949. 5 years 2 months. Lives in California.

This completes the list of men who have served as directors from the organization of the present canal company until now, 1949. From the board of seven directors elected each year, one of their number was elected by them as president for the annual term. Following is the list of presidents, the year elected, and total years served:

H. A. Hamels, 1907, 4 years. Dr. L. H. Thayer, 1910, 2 years. Geo. P. Brown, 1913, 8 years W. D. Baxter, 1921, 4 years. Pete Van Liere, 1925, 17 years. J. D. Miller, 1926, 2 years. A. L. Lanford, 1944, served 6 years.

At the same time a president was chosen, a vice-president was also elected. There were twice as many vice-presidents chosen as presidents, in the same period of time. Seven presidents and 16 vice-presidents. They all follow:

Geo. Drew, 7 years; W. A. Evans, 1 year; H. A. Hamels, 2 years; J. R. Gipson, 1 year; Geo. P. Brown, 1 year; W. D. Baxter, 1 year; N. A. Sanders, 3 years; L. A. DeRosier, 1 year; J. G. Schweikart, 2 years; Pete Van Liere, 1 year; Bob Long, 1 year; Wm. Walton, 3 years; Mark Kellogg, 8 years; A. L. Lanford, 4 years; J. R. Beloat, 6 years.

The different superintendents who have managed the affairs of the company since its organization, in the order of service follow: Tom Levy, 2 months, died on the job; Henry Wilkey, 2 years; E. J. Richardson, 5 years; Guy Vernon, 5 years. James Wainscott, 10 years; Luke Hardin, 2 years; I. H. Parkman, 1 year; Bob Mitchell, 6 months; M. L. Smith, 8 years 6 months; Walter Jones, 4 years; A. T. Jones, 1 year; Carroll Parkman, 4 years. 2 months; Archie Enloe, 10 months.

The names of the secretaries follow: Geo. Brown, 4 years; Walter Haugh, 7 years; S. G. Bridges, 6 months; C. A. Narramore, 16½ years; A. T. Jones, 13 years; Wilbur Weigold, served as assistant secretary for two years and has since served as secretary to date 1956. The officers of the company from 1949 to 1957 will be found in the last part of Chapter 3 as elected from year to year.

CHAPTER IV

BUCKEYE IRRIGATION CO. CELEBRATES PAYING OFF INDEBTEDNESS

Saturday, January 14, 1950, was a big day with the farmers of the Buckeye Irrigation Co. The day they had been looking for, for the last 43 years, celebrating the fact that they were free of debt, something few canal companies of comparable size can say.

It was decided by the board of directors some months ago, to put on some sort of celebration as befitting the occasion. A bag barbecue was the final decision, with all the stockholders past and present and their families to participate.

Jack and Pete Narramore were selected to cook the meat. And we will say here and now they did a mighty good job of it. A beef and a half, 600 lbs. was prepared for the feed. Johnny Dew, Carroll Parkman and Olin Webb cooked the beans. 100 lbs. of them, with the women of the Buckeye Grammar School Cafeteria, where the big event was held, preparing the cole slaw and supervising the serving of the meal.

It was estimated that about 350 people were fed. This was considerably lower than was anticipated by the committee as they had made preparations to feed about 600.

After dinner, Thornton Jones took over and put on a short porgram over a loud speaker system installed by the Auctioneer Herman Moore of Phoenix. Mr. Jones introduced some of the men who had helped organize the present Buckeye Irrigation Co. and had had a leading part in the conduct of its affairs. Among those introduced were Henry Hamels, the first president, 1907; W. A. Evans, vice president, 1908; Judge Stanford, who was judge in the water suit known as the Benson-Allison degree, 1917; Attorney Floyd Stahl who handled the legal side of the recently concluded water suit begun in 1929, against the Roosevelt, Salt River Water Users and other canal companies. Also John L. Gust, Jr., son of the late John L. Gust who was the company's attorney for 40 years or more, and L. G. Galland who helped many farmers over a rough place with a timely loan, was present and also introduced.

Mr. Jones gave a brief review of the organization and first location of the Buckeye Canal down to the organization of the present company in March, 1907. He read the names and gave the years of service of every man that had served on the board from the organization in 1907 down to the present time, introducing any of the old members that were present. He also gave a list of all of the former presidents and the number of years each one served. He then reviewed the growth and work of the present company down to date, emphasizing the fact that the company was out of debt and now had a clear slate to start writing on. One of the present directors expressed himself as "now being out of debt we want to so manage the affairs of the company that from now on out, we pay our way as we go and not go in debt again."

The Buckeye High School Band furnished music for the occasion under the direction and leadership of their band master, John McConnell.

The committee of canal board members responsible for the big day and its complete success were Bob Long, Othel Narramore and Lloyd Hazen.

As a sequel to the "History of the Buckeye Canal" by I.H. Parkman, March 4, 1957 and in commemoration of the 100th anniversary of irrigation in the Buckeye Valley, the following is added:

Shortage of water supply for adequate irrigation became a major problem in the year 1947. The Company started a program of drilling greatly needed irrigation wells to supplement the available source of water which had been extremely reduced by dams up-stream. A lateral-lining program was also being pushed in the early '50s to help conserve water. Replacement wells were drilled where some of the old well casings had collapsed, etc. Others were repaired and adjustments made to improve the efficiency of the existing pumps to insure sufficient water for maximum production. The lateral lining work was scheduled on an annual basis as funds were available. The work had to be scheduled when laterals were not in service. At the present time 70 miles of laterals and other ditches have been lined for more efficient delivery and conservation of water. Thirty-one additional wells were added to the original thirteen, which makes a total of forty-four wells operating for irrigation purposes and eleven for drainage.

In 1951 local rains continued for two weeks and water from the White Tanks area caused much flooding. At that time the natural desert washes from the White Tanks ran in a southwesterly direction, with an unusually large wash near the community of Palo Verde. A huge mass of water from the wash destroyed much of the lower section of the canal, causing flooding in many homes. The Palo Verde Road was washed away and a 10-to-15 foot gully resulted just below the canal. The flume under the Hassayampa River to the Tovrea property was washed out also.

A 25-year dry period on the Salt River watershed ended on January 4, 1966, when the "Big Flood" on the Salt River occured. This was the first flood coming down the Gila River since December 31, 1941. Much damage was done to the main canal with the peak water flow at the head being 75,000 CFS (cubic feet per second) causing the lead-in channel to be destroyed. Repair work was begun immediately which required extensive mending at the heading to restore water supply to normal.

Each big flood washes the dam and canal intake at the head, where the river is diverted, and the head has to be reconstructed as quickly as possible to get water back into the canal. When the 1966 flood subsided, the river flowed at the toe of a butte on the south side of the broad river bed. The intake was high and dry and was separated from the new channel by a stretch of "quick" sand. Two bulldozers were sent in to excavate a ditch diagonally across the sand. It was no easy task, and one bulldozer was used to pull the other out of the "quick" sand. However, it was eventually completed and all the water flowed into the canal heading again.

Each flood raised the water level in the irrigation and drainage wells. One well, a mile away, showed a recovery of four feet, and the level of one located at the River rose 32 feet.

Another big flood hit the Valley September 8, 1970, mostly from the local storm, and from the White Tanks area. It caused great damage to the upper half of the main canal and other points west. Many portions of the canal had to be constructed, as there were more than two dozen major breaks in the entire canal system. Since this time, flood control dikes have been installed by the Government in conjunction with protecting I-10 and the channeling of the runoff from the White Tanks Mountain area.

Since 1970, four additional major floods occured. The first one happened on March 4, 1978. Some of the old timers thought it was the biggest flood ever to hit Central Arizona. Heavy rains caused massive floods form both the Gila and Salt Rivers. Records show 125,000 CFS at the peak at the Company head. Saltcedars, other debris and silt in the river bottom forced water into strange new patterns, and lands that escaped such flooding in recent years were covered. Roosevelt Lake filled up, and water

was released which caused even greater flood and disaster to farms, livestock, property and equipment near the River. During this flood, families along Beloat Road loaded up belongings, installed sand bags and moved livestock. Yet, many young pigs were lost in the swirling water. A large number of homes had three-to-four feet of water running through the doors and windows, and some had as much as eight feet of water surrounding them. Great damage was done to the north bank of the River and also to the South Extension just above Highway 85 and Perryville Roads. Some acreage was lost into the River and several dairies moved their herds to higher ground in order to continue operations.

The second flood of that year came December 18, which was larger than the one in March with the peak at the head being recorded at 150,000 CFS. The diversion channel was destroyed; the same ditches were damaged to an even greater degree. However, because of the new dike and a good river channel on the south side of the river, the head remained undamaged. Due to greater damage of latter floods, Federal Aid was applied for and received through the Buckeye Water Conservation & Drainage District.

The other flood mentioned came January 2, 1979. A peak of 140,000 CFS was recorded at the Company head, causing an even greater degree of damage. During this flood, extensive damage was created in the Palo Verde areas to most of the lands near the River. In some farms, boulders that were once a part of the river-bed before the Valley was put into cultivation, were uncovered.

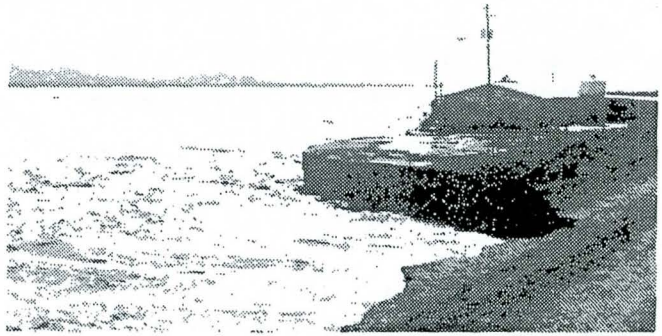
On February 13, 1980, the following year, a similar flood took place when the Roosevelt Dam released considerable water which caused even more flooding along and near the River.

In 1951 Buckeye went under the original 1948 Water Code. Thirty years later, in 1980, a comprehensive Ground Water Code was passed by the State Legislature. The goal of the 1980 Ground Water Code was to balance the water budget for the State and to avoid excess ground water overdraft, although some ground has always been in this status. After the floods and the recharge of effluent, the Buckeye Valley was again waterlogged and was not overddrafting ground water. The Buckeye Irrigation Company and its neighbors, the Arlington Canal Company and St. Johns Irrigation District, joined together to be removed from the unreasonable ground water conservation requirements. The Legislature, in response to Buckeye's call for relief, passed House Bill 2222. The bill exempted the three Districts while a comprehensive study of the hydrology and farming practices was completed. The study was completed in December of 1987, and the Arizona Department of Water Resources recommended the area be removed from active management and should be exempt from the ground water conservation regulations. The Legislature may rule on the Department's recommendation in 1988. [Special thanks for the many hours of lobbying the Legislature are due to Kyle Hindman and Robert Towner.]

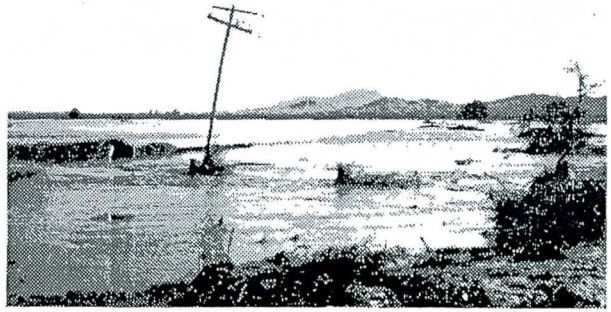
Each year the Company books and records are audited by a Certified Public Accountant. Also, a committee appointed by the stockholders, according to the laws of the Company audit the receipts, expenditures and vouchers. Serving on this committee since 1953 is Dorothy Pfluger, and serving with her for several years is Wanda Narramore. Others who have served on this committee are S. L. Hardin, George Hegi and Eliza Narramore.

Mr. John S. "Jack" Schaper, a specialist in water laws and administration, has been the Company attorney and legal advisor since April, 1960. He has been a loyal defender of water rights and relative position of the Company in retrospect to other water users.

Mr. Eldon Towner, father of Robert Towner, was one of the Company Attorneys from 1954 to 1958. He gave valuable legal advice and assistance. Other attorneys serving the Company were Mr. Floyd Stahl, Mr. John Maddon and Mr. John Gust.



1980 Flood - Highway 85 - South Extension Canal - Hog Farm.



Tail end of South of Wasteway & Benbow Road
looking East - Flood 1980

Leonard Halpenny

Mr. Leonard Halpenny continues to serve as Company Engineer and Consulting Hydrologist. He is a widely acclaimed and highly respected authority in his field, rendering a lot of beneficial services since 1958. Among the many books that he has written are *Waterlogging Within the Buckeye Water Conservation and drainage District, Buckeye Valley* (March, 1984) and *Interrelations Between Groundwater and Surface Water Within the Buckeye Water Conservation and Drainage District, Maricopa County, Arizona.* (October, 1987)

In October, 1960 the Company started negotiating on purchasing the Stillman property at 205 Roosevelt Avenue, the present site of the Company office. The previous Company office was located at 203 South 4th Street. The 4th Street building was constructed by H.M. Watson, and it also housed the Buckeye Valley Bank. On January 16, 1961, the Stockholders made the final decision on the new office purchase and soon thereafter, Buckeye Irrigation Company moved into the former Massey-Ferguson Implement Company building. In the fall of 1981, the Company office was remodeled, making two attractive office rooms and a main conference room out of the original implement display room. All work was done by Company personnel including Jess Hooten and Dan Keck.

The Buckeye Irrigation Company has been served by many long-time employees. Among the retired is Lloyd Hamilton, who carried out his duties for 42 years, working basically on pump maintenance. J. D. Estes began employment in January, 1950 and served as a heavy equipment operator for 35 years. Gene Ray, Glen Narramore and Dan Keck are among the past Superintendents of the Company.

In the year of 1922 The Buckeye Water Conservation & Drainage District came into existence to promote proper irrigation drainage. Its boundaries are identical to The Buckeye Irrigation Company. The District operates as a Political Subdivision of the State of Arizona and is a municipal corporation, with separate Board of Directors who are currently as follows: R. N. Narramore, who has served since the mid '70s, Kyle Hindman serving since November, 1983, and Wilbur Bushong serving since November, 1984, replacing O. L. Holly upon his death. Holly had served on the Board 23 years. Others who have served on the District Board are H. D. Couch, Othel Narramore, Leslie Narramore, A. L. Lanford and James P. Parker.

The Flood Control District of Maricopa County was established in 1959 and is subsidized by the Federal government. Through approval of the County Board of Supervisors, the District started on a County-wide flood control program. This program affects all areas of Maricopa County including Wickenburg, Gilbert, Cave Creek, Buckeye, and Gila Bend.

The flood program attacks flood problems in many critical areas of Maricopa County, including the clearing and lining of channels and construction of dams, dikes, retarding basins and other structures. The program also proposes channelization of other waterways, such as the Salt, Gila, Agua Fria and New Rivers. This flood program has recently completed the channeling of the Gila River that is adjacent ot the Buckeye Irrigation Company's south boundaries and also reinforced the river's north bank east of Highway 85 and Perryville Roads.

Effected communities have a continuing voice in plans for the flood control program, through an informal advisory group representing every community in the County. In addition, the District Advisory Board meets regularly to vote on the district's actions.

Boston Ionics of Boston, Massachusetts, in April of 1954 asked permission to use #2 irrigation well on the east end of the Valley for a test well in experimentation of desalting the water. The request was granted and the testing process lasted for one year. A much improved quality of water resulted. Due to the high cost of the electronic process, it was decided that

the expense was too great for irrigation purposes. In 1962 the Town of Buckeye approved and built their first desaltinization plant supplied by the same Company, and again in 1987 built a new desaltinization plant, which proved to be a great asset to the Town.

A new measuring weir was constructed in the canal intake head in 1953 according to specifications from the University of Arizona. Ed Stearman of Stearman Construction Company was the job engineer. Ed's son, Bob Stearman, was Superintendent of the Buckeye Irrigation Company in the 50's.

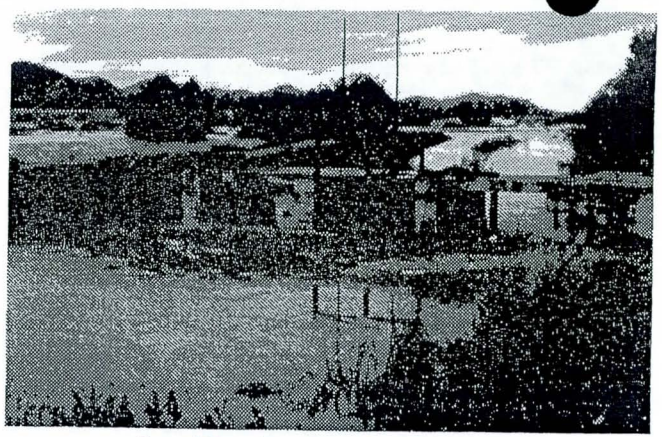
In 1965 the Company began bargaining for the purchase of the effluent water from the City of Phoenix and other cities. The following year, 1966, approval was given for 30,000 acre foot of water per year. Delivery was started in 1971, and this water has proved to be a boost to the water delivery in the Valley.

Arizona Public Service entered into a 25-year power contract with the Buckeye Water Conservation & Drainage District in 1953, after the government ruled Arizona Public Service not qualified to keep the block of power of government-owned Colorado River power. They sold the power to five municipalities, dividing it up according to the use of the five Districts (one being Buckeye), thus resulting in a much cheaper rate than the regular price of power. This contract was rewritten in 1987 under new terms.

In October of 1978, discussion began about the purchase of radios for Company use. It was proposed that 4 units and a base station be purchased from Motorola. A license for 10 units was agreed upon even if not all units were needed at the present time. These units were installed in 1980, and 2 new radios were purchased August 4, 1981, for two pickups. This communication system has proved to be most useful and time-savings, especially in water deliveries and maintenance.

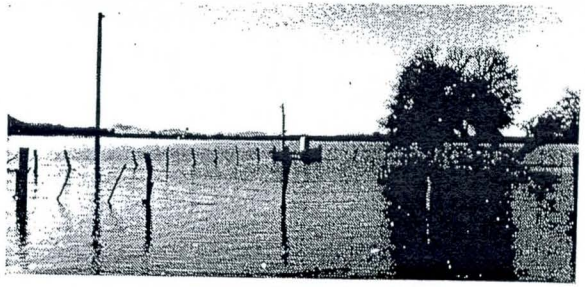
Wilbur Wiegold retired in January, 1980, from the Secretary-Manager position after 34 years with the company. For most of those years he had the responsibility and management of the Company's entire operations, including controlling the volume of water from effluent, river flow and pump water to meet the peak demands of the farmers. During this time he was spokesman in many conferences and convention, while serving on the Maricopa Flood Control Board for 15 years. Weigold was replaced by Charles "Chuck" Kupcik, a position he held for one and a half years. Travis Jones became Secretary-Manager in August, 1981, for a period of six years. The present Secretary-Manager is Gary Colvin.

The present Board of Directors is Don Narramore, President; William Hardison, Vice-President; Steve Bales, Twain Black, Robert Towner, Detmar Holly and Lonny Carmichael, members; Gary Colvin, Secretary-Manager; Ross Dixon, Superintendent; Eleanor Grandy, Office Manager; and Pat Simms, Zanjero Clerk. Elearnor Grandy retired in 1988 after 20 years of service and was replaced by Patti Newberry. Mention should be given to Murry Johnson who retired from the Company Board in January, 1987, after serving 24 years. Two Board members were elected February 1988, Stephen Grandy and William Perry.

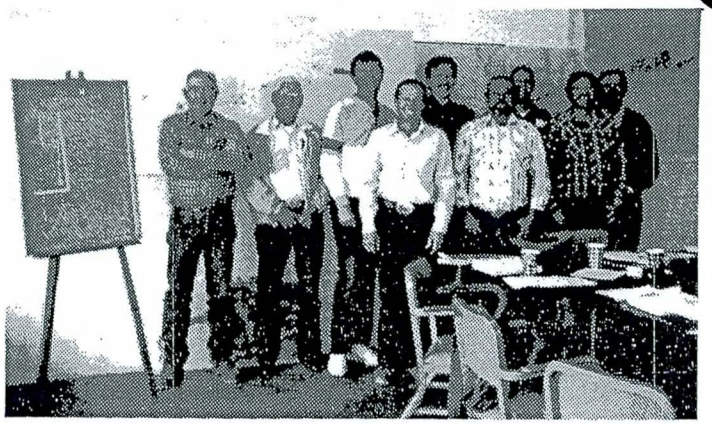


Canal Heading 1978 Buckeye Flood

After 1978 Flood, Lueck House, Beloat Road



1979 Flood - Bruner Road.



1987 BOARD MEMBERS (Left to right): Wilbur Bushong, William Hardison, Kyle Hindman, Robert Towner, Lonny Carmichael Donald Narramore and Gary Colvin.
Detmar Holly, Steve Bales

Eleanor Grandy
Wilbur Weigold, Nan Weigold

A seven-man Board of Directors is elected annually to represent stockholders in the management of the Company. The board has always taken a "hands on" position in leading the activities of the Company. A special thank you goes to the Buckeye Valley Farmers listed below who have spent untold hours contributing to the guidance and success of the Company.

J. R. Beloat served for 26 years (1925-1950). He also served as President. He retired from farming and cattle feeding and died several years ago.

R. K. Cooper served 7 years (1943-1949). He farmed in the East end of the Valley and he is also now deceased.

A. W. Enloe served 9 years (1944-1949)/(1951-1954). He has been retired many years and lives in Phoenix.

E. H. Johnson served 4 years (1944-1947). He operated acreage near the Hassayampa River, retired and has been deceased for many years.

Robert Long served 25 years (1927-1951), operated acreage adjacent West to the Town of Buckeye and has been deceased for many years.

Othel Narramore served as President 6 years and was on the Board 18 years (1940-1957). He presently livest in Palo Verde.

A. L. Lanford served 21 years (1936-1956) and was President for several years. He is now deceased.

C. A. Elms served 3 years (1949-1951). He farmed in Palo Verde and is now deceased.

Wallace Bales was first elected in 1950 and again for 7 years (1955-1961) a total of 8 years. He now lives at 720 Eason Avenue in Buckeye.

L. D. Hazen served on the Board 4 years (1949-1952). He is now deceased.

Elmer Shepard was elected in 1951 and served one year. He is retired and lives in Shepard Estates in Buckeye.

P. G. Pfluger served 5 years (1951-1955). He farmed in Liberty and is now deceased.

B. E. Schweikart served on the Board 23 years (1953-1975) and also served as President for several years. He is retired and lives in Ranch Sunora northeast of Buckeye.

Carl Arnold served 9 years (1952-1972). He is retired and lives in Ranch Sunora northeast of Buckeye.

Marshall Long, Jr. served 6 years (1952-1972). He is retired and lives at 701 Edison in Buckeye.

Richard Roberts served on the Board 2 years (1957-1958). He lives at his ranch home West of Palo Verde and still operates his farm.

Laurence Narramore served on the Board 22 years (1959-1980). He served as President for several years and is now retired.

O. L. Holly served on the Board 8 years (1959-1966). He was a farmer and Cotton Gin Manager from East Liberty and is now deceased.

William "Bill" Hardison has served on the Board for the past 24 years (1962, 1965-1987). He continues to be active; a farmer and dairyman. He lives in West Palo Verde.

Wayne King served 5 years (1962-1966). He is now retired and lives near Arlington.

M. A. Johnson retired after 24 years on the Board (1963-1986). He is still residing on his farm where he has operated a cattle feeding business.

Lyle King served on the Board for 6 years (1967-1972). He still farms near Gila Bend.

Dallas Holly served 13 years (1968-1980). He retired from farming and now lives in Scottsdale.

Tom Bales served 2 years (1971-1972) and is now residing in Tacna as manager of Poco-Dinero Ranch.

Norman Nichols served 4 years (1973-1976). He farmed Southwest of Liberty and is now deceased.

Twain Black has served 10 years (1973-1975 and again 1980-1988), and is currently on the Board. He farms 1½ miles SW of Buckeye.

Jewell Turner served 8 years (1976-1983) and is now retired from farming and lives in Prescott.

Ted Hazen served 4 years (1977-1980). He is a cattle feeder and farmer and lives on West Hazen Road near Palo Verde.

Steve Bales is currently serving and has served 12 years (1976-1988). He is a cattle feeder and a farmer in Liberty.

Don Narramore is presently the Board President, having served on the Board for the past 8 years (1980-1988). He farms and feeds cattle near Palo Verde.

Robert Towner has served for the past 7 years (1981-1988). He is a farmer east of town and a Real Estate Broker.

Detmar Holly, a third generation serving on the Board at the present time (1984-1988), is farming in the Liberty area.

Lonny Carmichael is now serving on the Board (1987-1988) replacing M. A. Johnson upon his retirement. He is farming in West Palo Verde area.

There are many, many people who have given generously of their time and talent in making this Company what it is today. Any omission of any of these contributors is not intentional.

May we continue to progress and strive toward even a BETTER IRRIGATION SYSTEM, BETTER COMMUNITY AND BETTER VALLEY.

ARIZONA JOURNAL-MINER.

J. C. MARTIN, Editor.

MONDAY, FEBRUARY 24, 1890.

DISASTROUS FLOOD

A SECOND JOHNSTOWN HORROR REPORTED ON THE HASSAYAMPA RIVER.

The Dams, Flumes, and Other Property of the Walnut Grove Water Storage Company

Reported Washed Away, Attended By Loss of Life.

"Both dams gone. Everything washed away. Forty people drowned. Miss Hamlen safe." Such was the brief telegram which flashed across the wires on Saturday night. It was addressed to H. S. Van Beuren, president of the Walnut Grove Water Storage company, who was in Phenix, and was signed by J. W. Keddington, one of his engineers at the lower dam. The courier who brought the news was Frank Stumbo, who lived about six miles below the the lower dam, who reached Prescott about eight o'clock at night. Soon after filing the above and other telegrams, Mr. Stumbo was found by the JOURNAL-MINER man, and interviewed in regard to the great disaster, the substance of his story being as follows:

"I was stopping at Rourke's ranch, about six miles below the lower dam, there being two other men stopping in the house with me. About midnight we were awakened by a great roar of water, and on looking out could faintly see, in the darkness, that an immense body of water was going down the stream. We all laid down again, however, thinking that there was no danger, but about 2 o'clock were again awakened by a much louder and more deafening roar. We all jumped out of bed and took to the hills, barely reaching high ground before

A SOLID BODY OF WATER,

Which seemed thirty feet high, rushed madly by us, sweeping away the house we had just left and everything surrounding. The water continued to flow at an immense height for about three hours. At daylight, a man was sent to the Walnut Grove Water Storage Company's lower dam, to learn of the damage done, and the result was the above telegram, which I brought to town."

Mr. Stumbo said that the largest [illegible] trees were lifted up bodily

About noon, G. Arthur Allen, who was formerly identified with the enterprise, in company with John McDonald, of the Blue Dick mine, went out on the Dosoris divide, where an excellent view of the dam can be had. They took a telescope and a pair of powerful field glasses along. Mr. Allen returned in the evening and reported that the wreck of the dam could be plainly seen. He said the break seemed to be on the east side of the dam. The waste water way could be plainly seen high and dry on the cliffs of the western slope of the hill. He said he could also see the stumps of trees, where the water of the dam formerly stood.

As the town of Wickenburg is on the banks of the Hassayampa away further down the stream, fears are entertained for the safety of it and its few inhabitants if the worst fears should be realized. There are also

SEVERAL FAMILIES

Living along the banks of the stream between the lower dam and the above named town.

Telegrams have been pouring in from all portions of the United States, asking for further information of the disaster and inquiring as to the safety of various individuals, no fewer than ten having been received by the editor of this paper yesterday.

Lieut. Brodie, who has been in charge of the work, was in Phenix with President Van Beuren at the time of the disaster.

Charles Bracken, one of the number reported missing, was a brother of Mrs. C. A. Peter, whose husband was formerly assistant cashier of the Bank of Arizona.

L. W. Edwards, who came up from Kirkland Valley yesterday, says that Skull Valley seemed to be deserted as he came through, its citizens having probably gone to the scene of the flood.

THE DAMS REPORTED BROKEN

Were built by the Walnut Grove Water Storage company. The upper one, which is about forty miles from Prescott, was built to form a reservoir for the storage of water for use for driving machinery, washing gravel, etc. Work was commenced in 1886, the original promoter of the enterprise being Wells H. Bates. The dam was completed about October, 1887. It was built in a narrow box-canyon of the Hassayampa river, just below its confluence with

(Continued on third page.)

Dissolution Notice.

ROCHESTER, N. Y.,
February 1st., 1890

THE partnership heretofore existing between the undersigned under the firm name and style of "The Mocking Bird Mining and Milling Company," under articles of agreement dated July 29th, 1889, and subsequent agreements dated Aug. 20th, 1889. Aug. 31, 1889, Aug. 24 h, 1889, Oct. 21st, 1889, Nov. 13 h 1889 and Nov. 12 h, 1889, is this day dissolved by mutual consent. That an account shall at once be prepared, and all accounts of each individual account stated

WM. H. REID.
RICHARD DeKUHN.
JAS. C. HART.
A. C. JOHNSON.
SAMUEL STEIN.
R. A. ADAMS.
CLARENCE WILLIAMS.

NOTICE.—All of the mines, mining claims and personal property of the co-partnership above described have been transferred to a corporation incorporated under the laws of the State of New York, under the name of "Mocking Bird Mining and Milling Company," which said corporation will carry on its business with its principal office at Rochester, N. Y., and its mines, mill, etc., at Cherry Creek, Yavapai County, Arizona.

RICHARD DeKUHN,
President.

CLARENCE WILLIAMS,
Secretary and Treasurer.

Pioneer Hotel,

G. Schuerman Prop.

Successor to Dan Hatz, S. Montezuma Prescott.

Board and Lodging (week) $10
Board by the day $1

Large and Airy Rooms

Stable and Bakery Attached
Fresh Bread Delivered to any part of town

E. H. GRASSLEY. D. W. PRITCHETT

E. H. Grassley & Co.

Undertakers and Embalmers.

EMBALMING

A specialty.

BODIES PREPARED for SHIPMENT

Artificial Flowers made to order.

Rooms: Gurley St., Granite Bridge

W. C. BAHSFORD. R. H. BARMISTER

Prescott Lunber Co,

AT THEIR

SAW MILL,

Northwest of Prescott.

And Yard, east side of Plaza, next to Gold Water's store, have the Largest assortment o

LUMBER

three hours. At daylight, [illegible] sent to the Walnut Grove. Water Storage Company's lower dam, to learn of the damage done, and the result was the above telegram, which I brought to town."

Stumbo said that the largest [illegible]wood trees were lifted up bodily [illegible] the roots, by the resistless power of the flood. After the water had subsided some, he said the banks of the stream were strewn by hundreds upon hundreds of dead fish. Before he left he said that five bodies had been recovered. Among

THOSE REPORTED MISSING

Were the following:

Mr. Haynes, wife and four children.

Mr. Boone and daughter.

Charles Bracken.

James Reynolds.

Mr. McMillen, the company's teamster.

Mrs. McCarty, housekeeper for Mr. Van Beuren and family.

An unknown man and seven Chinamen.

Taylor Frush, the ex-circus man, who has been engaged in freighting, sent a note to John Ross requesting him to send a telegram to his wife and daughter in Phenix announcing the safety of himself and son.

The news of the disaster created the greatest excitement in Prescott, and [illegible]ps of men could be seen on every [illegible]ner and in saloons and stores, discussing and theorizing in regard to it.

Sheriff O'Neill and Dr. Miller started within an hour and a half after the news reached Prescott for the scene of the disaster, to minister to the wants of the living and to attend to the burial of the dead.

A subscription paper was also started, and within a few minutes $1,000 had been subscribed for the aid of those in need of it.

Notwithstanding the positive information contained in the dispatch, a feeling of doubt existed in the minds of many as to whether the upper dam had gone out. It was argued that it was only forty miles from Prescott, while the courier who brought the news had come all the way around by Stanton, sixty miles, to reach Prescott. "If the upper dam had been swept away, why had not the information reached Prescott direct from there?" was asked. Many went home on Saturday night with this

FEELING OF HOPE

[illegible] in their breast. All day Sunday [illegible]ws were eagerly watched for, and as no news came, this was taken as a good and favorable omen.

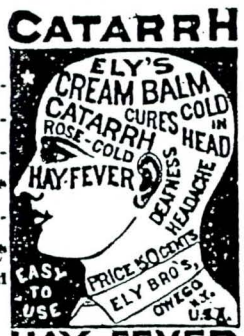
F. S. OSGOOD.

F. S. Osgood, of Osgood Bros., the prominent druggists of Seventh and Broadway, Oakland, in a letter to the Edwin W. Joy Co., July 18th, says, "We have no preparation on our shelves, that shows such results as Joy's Vegetable Sarsaparilla. A customer of ours living on Ninth St., tells us that it relieved her almost immediately of her dispepsia; and another on Broadway reports, that three bottles entirely cured him of his constipation. A year ago we only bought a sixth of a dozen bottles at a time. Now we buy it by the gross. It recommends itself."

ELY'S CATARRH

Cream Balm

Cleanses the Nasal Passages, Allays Pain and Inflammation, Heals the Sores, Restores the Senses of Taste and Smell.



Try the Cure. HAY-FEVER

A particle is applied into each nostril, and is agreeable. Price 50 cents at Druggists; by mail, registered, 60 cents.
ELY BROTHERS, 56 Warren St., New York.

WHAT

SCOTT'S EMULSION CURES

CONSUMPTI
SCROFULA
BRONCHITIS
COUGHS
COLDS
Wasting Diseases

Wonderful Flesh Producer

Many have gained one pound per day by its use.

Scott's Emulsion is not a secret remedy. It contains the stimulating properties of the Hypophosphites and pure Norwegian Cod Liver Oil, the potency of both being largely increased. It is used by Physicians all over the world.

PALATABLE AS MILK.

Sold by all Druggists.

SCOTT & BOWNE, Chemists, N. Y.

MARVELOUS DISCOVERY MEMORY

Mind wandering cured. Books learned in one reading. Testimonials from all parts of the globe. Prospectus POST FREE, sent on application to Prof. A. Loisette, 237 Fifth Ave. New York.

And Yard, east side of Plaza, next to Gold Water's store, have the Largest asso[illegible]ment o[illegible]

LUMBER

We are prepared at the shortest notice to fill all orders with promptness and dispatch

Flour, Grain and Bran

Taken in Exchange for Lumber at Market Rates.

PRESCOTT LUMBER CO.

Big Property For Sale!
IN CENTER OF PRESCOTT.

Fourteen houses, rented, in addition to a First Class Saloon business, on the corner, in new iron building.

The property will be sold for a reasonable price, and on easy terms.

Big Bargain,

As the rents will pay a big interest on the investment.

Appply to

JOHN SORG,

At Union Saloon, corner Granite and Goodwin.

R. K. ROBINSON, M. D. HARRY BRISLEY PH. G.

—PROPRIETORS—

MOUNTAIN CITY DRUG STORE!

The public is hereby informed that an interest in the Drug business until now carried on solely by Dr. R. K. Robinson, has been sold to Mr. HARRY BRISLEY, a Graduate in Pharmacy, and a druggist of 12 years' experience in ENGLAND, CANADA and the U. S. Mr. Brisley will take full charge of

The Prescription Department,

and devote special attention to the accurate filling of Physicians' and Domestic Prescriptions. All Medicines leaving this store may be relied on for

Chemical Purity and Efficiency.

Dr. Robinson's patrons may depend on finding him as usual at the old stand. The stock, already large, is being rapidly increased, particularly in Prescription Medicines, giving us facility for business second to none in Prescott

EASTERN PRICES

Still Rule.

Give us a call; we shall be pleased to make your acquaintance. Orders from the country solicited, and will receive immediate attention. f14

Tickets, Admi

POS

Friday

PRO

SEALED P[illegible] the unde[illegible] livery at Pr[illegible]

200

Or for that [illegible] kiln.

Prosoal [illegible] 1890. For fu[illegible] Post Trader [illegible] served to re[illegible]

February [illegible]

A

Assa

Assays of [illegible] ly Ex[illegible]

Qualitive [illegible] ses of all pr[illegible] Mining p[illegible] upon; in reg[illegible] ern buyers. [illegible] tigating the [illegible] ment of ore [illegible] Contracts [illegible] for assaying [illegible] BLAKE or [illegible] his personal [illegible] ever so desi[illegible]

Geo.

MINING EN[illegible]

M

Office in [illegible]

P[illegible]

P

Prai

Evergreen F[illegible] Flowering S[illegible] Fruit Trees.

GOOD [illegible]

Send for our [illegible] offer you.

m2 PINNE

Damage by the Flood.

The rains last week seem to have en general over a large area of county news are just beginning to from neighboring valleys of losses sustained.

The ranches of P. A. Williams, Thos. rown and John Dieruff, on Aspen eek, five miles from town, were all idly washed, and their aggregate loss ill reach $2,000 or more.

Our Kirkland valley correspondent rites, under date of February 22d, at, "owing to high water and big rain Friday, the "School House" dance, Sol Jackson's, was postponed until ebruary 28th. Very big floods, he so writes, the biggest known, have sited Kirkland valley. The China-an, Lou Kee, had just gotten the omstock ranch seeded down in small aim. What did not wash out was vered up with sediment, and ditches d fences all gone. The water in the omstock house was four inches deep. l Jackson and Ed. Kirkland lost conlerable fence and some crops. The ter is still up, but going down. ads washed so badly they are imssable."

The Verde river was higher than er before known, and the Etta mill reported badly damaged, while occupied by Chas. A. Gird- and wife is also reported as being shed down the stream with all its ntents, including their clothing.

Serious washouts are also reported on Atlantic & Pacific railroad, among em being the reported loss of the dge across the Little Colorado river, tween Holbrook and Winslow.

It was rumored on the streets to-day at great loss of property attended th loss of life had occurred in the rde valley last week, but it could t be traced to any reliable source.

A man in from Lynx creek says that acer miners there were cleaned out the high water, from one end of the eek to the other. The head-gate of e ditch of the Lynx Creek hydraulic orks was slightly injured, but has en repaired. The water was never own to be as high in Lynx creek beore.

Metropolitan Airs.

Recognizing the fact that the big gs try to eat the little ones, we have nd to put Climax Tobacco down s per plug, for full weight Seal of North Carolina plug t, three 4-ounce packages for 50 cts., ith a chrome. All other goods in proortion. Having a car load of tobacco route, and some stored in different arts of the town, we design hogging e tobacco trade.

We have obtained permission from

DISASTROUS FLOOD.

(Continued from Second Page.)

five large tributaries of the stream, which drains scores of square miles of territory. It was 110 feet long at its base, and 400 feet on top. It was 110 feet thick at base, and 10 feet on top, being 110 feet high. The lake of water formed by it was two and a half miles in length, by three quarters of a mile wide, covering over 1,100 acres, the average depth of the water being 60 feet. A waste-way thirty feet wide and eight feet deep was built around the west side to allow of the escape of water when the dam was full. In addition to this there were

TWO IMMENSE IRON PIPES.

In the bottom of the dam, which were twenty-two inches each in diameter, for use in letting the water out at times of floods, as well as for service below when needed. The new service dam is located about fifteen miles below the storage reservoir. It was commenced about a year ago, and was completed within the past month. It was only thirty feet high, and was built to direct the water into the flumes, to be carried a distance of fifteen miles further down for use in hydraulic mining. The dam and flume had just been completed, and President Van Beuren and Lieut. Brodie's mission at Phenix was to ship hydraulic machinery to the gravel beds, expecting to commence operations next week.

The company has expended close to $1,000,000 on the enterprise, and was just on the eve of realizing on its investment when the resistless power of the flood swept it all away in a few hours.

In addition to the hydraulic operations of the company owning these dams, the Electric Placer Mining company had just completed arrangements for the purchase of water for driving machinery for a plant they contemplated putting in, requiring an expenditure of $250,000.

Engineers Barry and Wilton came in to-day from their camp south of town. They report having seen a large body of water south of their camp at 4 o'clock yesterday afternoon, and thought it might have been the lake at the Walnut Grove dam. Aside from this nothing whatever had been received up to the hour of going to press this afternoon, and nothing like even an approximate estimate of the damage can be formed from the meagre particulars at hand. A messenger promised to be sent by Sheriff W. O. O'Neill on his arrival there is expected at any moment.

No mail from the south since the arrival of the stage due last Friday even-

Dyspepsia

Makes many lives miserable, and often leads to self-destruction. Distress after eating, sick headache, heartburn, sour stomach, mental depression, etc., are caused by this very common and increasing disease. Hood's Sarsaparilla tones the stomach, creates an appetite, promotes digestion, relieves headache, clears the mind, and cures dyspepsia.

In a Terrible Condition.

"I owe my life to Hood's Sarsaparilla. For two years I was in a terrible condition with dyspepsia. I could eat nothing but soda crackers, and my weight fell from 170 to 138 pounds. Hood's Sarsaparilla helped me at once, and after using 12 bottles I was entirely cured. I have gained my usual weight, 170 pounds, and have had excellent health ever since." T. J. WILCOX, 20-26 1st South Street, Salt Lake City, Utah.

Headache—Hot Flashes.

"I had headache, hot flashes, soreness and swelling across my body, pain in my right side, with frequent vomiting. I used Hood's Sarsaparilla with the best results. I am in better health than for four years. Hood's Sarsaparilla is safe, reliable, and sure." J. C. WILLSON, Auburn, Cal.

Hood's Sarsaparilla

Sold by druggists. $1; six for $5. Prepared only by C. I. HOOD & CO., Apothecaries, Lowell, MASS.

100 Doses One Dollar

MAIL LETTINGS.

Notice to Contractors.

POST OFFICE DEPARTMENT,
WASHINGTON, D. C., FEB. 1, 1890.

PROPOSALS will be received at the Contract Office of this Department until 4 p. m. of April 10th, 1890, for carrying the mails of the United States upon the routes, and according to the schedule of arrival and departure specified by the Department, in the Territory of Arizona, from July 1st, 1890, to June 30th, 1894.

Lists of routes, with schedules of arrivals and departures, instructions to bidders, with forms for contracts and bonds, and all other necessary information, will be furnished upon application to the Second Assistant Postmaster General.

JOHN WANAMAKER,
Postmaster General.

f12w6

WEDNESDAY.....FEB. 19, 1890

A Good Mine For Sale

A first-class mining property in Yavapai county, and one that will bear the strictest investigation, can be had on reasonable terms. Plenty of oak, pine and juniper wood adjacent to the mine. Wagon road to within a mile of it. Water for milling and mining purposes can be had in the mine, which can also be worked to a depth of over 1000 feet, by tunnels, no expensive hoisting works being needed.

HARDY

Barbe

Picks

P

POW

Minin

THOS HUMPHREY

Hu

THE

Fresh

Choice

ry to eat the little ones, we have
ided to put Climax Tobacco down
cents per plug, for full weight
. Seal of North Carolina plug
ree 4-ounce packages for 50 cts.,
chrome. All other goods in pro-
n. Having a car load of tobacco
some stored in different
e town, we design hogging
bacco trade.

have obtained permission from
ndlord to build a two-story brick
ng with large bay windows, man-
oof, with all modern improve-
: Provided, we furnish the money,
ay more rent. Nothing small
our landlord. Another car load
r just received and stored in the

stock consists of the following
f goods: Full and complete stock
ardware, Dry-Goods, Groceries,
iture, Paints and Oils. Boots and
, Drugs and Medicines, Harness
Saddles, Cigars and Tobacco,
s and Confectionery, Stationery,
ns, Stove Polish, Shoe Blacking,
ll in car load lots.

give away the following brands of
co, to induce customers to buy our
goods: Queen Bee, Old Judge,
y Fair, Sweet Caporal, Perique,
Kiln Club, Plug Cut, Durham, and
Jack. Don't forget the place:
& Co., Montezuma Street. When
ou igar, we treat you to a new

mportant Announcement.

watch
s, fine Jewelry of all descriptions,
s, Silverware, Spectacles, etc., go
o. H. Curry, who carries the larg-
e of these goods in Arizona: Also
, Pistols, Cartridges and Sporting
s.

tch work, in all its branches we
a specialty of. All watch work
nteed.

carefully attend to the cutting
mounting of all kinds of native
mens. GEO. H. CURRY,
-tf Prescott.

Good Business Opportunity.

New York Accident Insurance
pany, accepting "preferred" risks
desires an A 1 man to represent
in this territory. Address,
SKOWITZ & CHILDS, Gen'l Ag'ts.
50 and 51 Jacobson Building,
w3t Denver, Colorado.

Witnesses Wanted.

e have been requested to state that
it in the case of J. W. Clay
r ansas City Mining Com-
, requested to be present in
on Tuesday of next week, March
the date on which it is set for trial.

hour of going to press this afternoon, and nothing like even an approximate estimate of the damage can be formed from the meagre particulars at hand. A messenger promised to be sent by Sheriff W. O. O'Neill on his arrival there is expected at any moment.

No mail from the south since the arrival of the stage due last Friday evening.

L. C. Adams is still enjoying the salubrious climate of Prescott, cracking jokes with the boys. His detention is compulsory on account of railroad washouts, but he accepts the situation gracefully.

The Washington Star says that Senator Farwell, of Illinois, who went to Europe for his health some time ago, was seen by an interviewer recently at his luxurious apartments in the Hotel Victoria, London, which, however, he quits disgusted with the cooking. He expressed himself as delighted with the English climate, and says he feels better than he has for two years. He looks upon the recent large investment of British capital in the United States as the surest proof of the prosperity that results from a protective tariff. He considers the currency question the greatest issue of the day. Last week he dined with the manager of the National Provincial Bank, who is a strong bimetalist; an ex-manager of the Bank of England, who has similar views, and Mr. Goshen, M. P., who is a bimetalist at heart, but keeps his ideas to himself for fear of imperiling his office. These three voiced the sentiment of the commercial world here, and this guarantees a speedy and satisfactory settlement of the silver question.

Again Postponed.

On account of the Walnut Grove disaster, the Militia ball postponed until to-night, has been again postponed until Friday evening, February 28th. td

$15 Reward.

Lost, January 13th 1890, about 200 yards east of D. W. Thorne's ranch, a box, belonging to the United States goverement. Box weighs 204 pounds; is marked "Stationery," and is addressed to the quartermaster at Fort Verde. J. R. Slack, whose postoffice address is Prescott, Arizona, will pay $15 reward for information leading to recovery of box. tf

Pianos on Installments.

Pianos sold on easy installments. First-class, fine toned instruments B. M. Goldwater, Prescott, Ariz. tf

tion, can be had on reasonable terms. Plenty of oak, pine and juniper wood adjacent to the mine. Wagon road to within a mile of it. Water for milling and mining purposes can be had in the mine, which can also be worked to a depth of over 1000 feet by tunnels, no expensive hoisting works being needed.

BIG BARGAIN !

For further particulars address
"MINER,"
Drawer F, Prescott.

Announcement.

I have now in stock Tobacco, Cigars, Confectionery, Nuts, Fresh Fruits, Cutlery, Books and Novelties. I have a full line of Stationery, School Supplies and Notions on the road I am buying for cash only, in the cheapest markets on the continent, and

Will Not Be Undersold !

Do me the favor to call and price my goods and be convinced. Respectfully,

T. M. EARNHART,
West Side of Plaza, Prescott.

Pioneer Shops

BRECHT & THRONE
At the Old Stand.

Carry a full stock of all kinds of Blacksmt and wagon material, and are prepared to do all kinds of

Blacksmith and Wagonwork
On Short Notice.

Agents for the Shuttler Wagons.
Adams' Self Regulating
Wind Mills.

Rooms to Let.

WALDO HOUSE—NICE, COMFORTABLY furnished rooms to let reasonably by the day, week, or month. jltf

NICELY FURNISHED ROOMS TO LET—At the corner of Montezuma and Willis Sreet Mrs. Blackburn.

THE

Fresh

Choice

S

Meats delivered to

USE
PEA
TH
MADE ONLY
GEO. A. M

STIL

Best Go

0

I have been rece
tinue to rec
fore be

Dry Goods,
MILL
Gloves, Spring

Boys' Clothing, I
stock of Ladie
and serv

Boot a

Special attention, and to
best and most serviceabl
hope, by a system of fair
fair share of the patrona

D

Arizona Journal-Miner

Feb 21, 1890

Phenix papers describe Attorney General Clark Churchill's new residence as being the finest in the territory. J. H. A. Marsh, a former Prescottite, was the builder of it.

The Herald says that, for $800, Moses E. Clanton conveyed to Wm O. O'Neill lots 3, 11 and 13, block 3; and lots 1 and 3, block 5; and lots 2, 4, 5, 12 and 14, block 36, town of Sidney.

Despite the rain last night, the meeting of the Eastern Star lodge was well attended, and after the transaction of routine business a luncheon was enjoyed by those present. The lodge has a good membership and a plethoric treasury.

F. W. Blake and G. J. Rockwell have entered into a copartnership under the name of the Arizona Assaying and Mining office. Their assaying establishment is in the rear of Wells, Fargo & Co.'s new office on the corner of Cortez and Gurley Streets.

A Chicago gambler has exploded the superstition that touching a hunchback brings luck. He touched thirteen [illegible] and not only lost his last dollar at faro but was arrested by one of the hunchbacks for assault and battery and had to pay a fine of $50.

In response to a telegram received yesterday from Richard DeKuhn, president of the Mockingbird mining company, J. W. Akers left for Cherry creek this morning, to put the mill in readiness to start up again as soon as Mr. DeKuhn returns from the east.

J. H. Braly, a San Diego banker, who is negotiating for the purchase of the C. P. Head estate's interest in the Williamson valley stock ranch, is expected to arrive to-morrow, to close up the business. Mr. Braly is making the purchase for his son, who expects to reside in this county.

Elsewhere in this issue will be found the advertisement of the Arizona Assaying and Mining office. The members of the firm are already well known to the mining public, being F. W. Blake and G. J. Rockwell. Their office is in the rear of Wells, Fargo & Co.'s express office, and any assaying [illegible] entrusted to them will receive [illegible] and accurate attention.

Mining Intelligence.

G. J. Rockwell contemplates starting mining bureau at an early day in Prescott.

T. E. Murray has sold one half inter-

THE STORM.

An Unprecedented Downpour of Rain.

The storm which commenced on Tuesday has been gradually increasing in violence ever since. A steady rain continued all day Thursday and during the entire night accompanied by considerable wind. This morning it seemed to redouble its efforts, and from a steady, quiet but continuous downpour, the rain commenced descending in torrents. By nine o'clock Granite creek at the crossing of Gurley street was impassible with teams, and communication with the west side was confined to the foot bridge entirely. The rapid current continued the work commenced by the last flood, of cutting away the bank on the west side of the creek, in the vicinity of the ice factory, and at noon had undermined the storage room of the above institution two-thirds of the distance back to where it connects with the main building. It also carried the lower portion of it away. The Chinese wash house, adjoining it, is in a perilous situation, the water at noon having cut the bank away clear up to the building, and cut a channel around the well, leaving it far out in the stream.

The incoming train was stopped at Willow creek, by the washing away of the bridge over that stream, and the mail and express was brought to town in hand cars.

The south bound stage got as far as Lynx creek, where it was compelled to turn back to town, on account of high water.

A six-horse team, belonging to Shull & Austin, had a narrow escape while crossing Granite creek below the railroad bridge. Just as it reached the middle of the stream the trail wagon upset and swung down the stream with the force of the current, and it was with difficulty that the driver succeeded in getting the animals on terra firma. Just as they reached the bank, the near wheeler fell down, and getting entangled in the harness, the driver unhitched his animals, leaving the wagons to the mercy of the flood.

The public schools were closed this afternoon, on account of the storm, owing to the slim attendance in the morning.

Salt Water Good for the Eyes.

Once or twice a week, at least, bathe the eyes in salt and water; and occasionally, where the eyes are dull, a little

Militia Ball.

On account of the storm, the Militia ball, announced for to-night, has been postponed until Monday evening, February 24th.

Masonic Meeting.

Aztlan lodge F. & A. M., No. 1, will hold its regular monthly meeting tomorrow night. Members and sojourning brothers are requested to attend. By order of the W. M. S. E. Bright, secretary.

Man and Wife

Wanted, to take charge of a Station in Kirkland valley. A splendid location, and a good opening for a sober and industrious man. For particulars, call at this office, or apply to J. M. More, Kirkland valley. tf

Important Announcement.

For fine Gold and Silver Watch Chains, fine Jewelry of all descriptions, Clocks, Silverware, Spectacles, etc., go to Geo. H. Curry, who carries the largest line of these goods in Arizona: Also Guns, Pistols, Cartridges and Sporting Goods.

Watch work, in all its branches we make a specialty of. All watch work guaranteed.

We carefully attend to the cutting and mounting of all kinds of native specimens. GEO. H. CURRY,
f15-tf Prescott.

"Do you ever receive contributions written on both sides of the paper?" asked a gentleman entering a newspaper office. "No, sir; never," emphatically replied the editor. "All right; I was going to endorse this check to your order, but I don't want you to break your rules." Then he went out, leaving the editor in a deep green study.—Yonkers Statesman.

Dyspepsia

Makes many lives miserable, and often leads to self-destruction. Distress after eating, sick headache, heartburn, sour stomach, mental depression, etc., are caused by this very common and increasing disease. Hood's Sarsaparilla tones the stomach, creates an appetite, promotes digestion, relieves headache, clears the mind, and cures dyspepsia.

In a Terrible Condition.

"I owe my life to Hood's Sarsaparilla. For two years I was in a terrible condition with dyspepsia. I could eat nothing but soda crackers, and my weight fell from 170 to 128 pounds. Hood's Sarsaparilla helped me at once, and after using 12 bottles I was entirely cured. I have gained my usual weight, 170 pounds, and have had excellent health ever since." T. J. WILCOX, 20-26 1st South Street, Salt Lake City, Utah.

HARD

Barb

Pick A

POV

Min

ST

Best (

I have been
tinue to
fore

Dry Good

MIL

Gloves, Spr

Boys' Clothin
stock of La
and

copy, B Jess Resolution

NAL-MINER.

90.

TOMES.

ains.
and dismal
ns.
bysmal
ns.
to borrow.
to-morrow
ous sorrow,
ns.

umbrella
s.
rith Bile.
s
Mellie,
Dell,
melancholy
s.
th the living
s.
orgiving
y.
y Mosek!
rub their noses,
air, woes is
s.
ville Journal.

at present.
n Maier 's.
A. Aitken's.
for Mayer's sta-

st sold at
s as be on

State Lottery
has the agency

ages, Lemons,
uts, Smokers'
Ford's.

of J. H. Lee, of
s recently ap-
tore keeper at

ALE.
Call at Mou
tf
at the Moun-
tf
Drug Store is
iness. tf
50c to 65c per
Drug Store. tf
n town of Fer-
fountain City
tf
s stickum" for
fountain City
tf.
litrate of Mag-
ty" at Moun-
tf.
er, or
rtges,
tf
will remain in
y 22d. Parties
all before that
td
the effects of
ey's Fragrant
tain City Drug
tf

Phenix papers describe Attorney General Clark Churchill's new residence as being the finest in the territory. J. H. A. Marsh, a former Prescottite, was the builder of it.

The Herald says that, for $800, Moses E. Clanton conveyed to Wm O. O'Neill lots 3, 11 and 13, block 3; and lots 1 and 3, block 5; and lots 2, 4, 5, 12 and 14, block 36, town of Sidney.

Despite the rain last night, the meeting of the Eastern Star lodge was well attended, and after the transaction of routine business a luncheon was enjoyed by those present. The lodge has a good membership and a plethoric treasury.

F. W. Blake and G. J. Reckwell have entered into a copartnership under the name of the Arizona Assaying and Mining office. Their assaying establishment is in the rear of Wells, Fargo & Co.'s new office on the corner of Cortez and Gurley Streets.

A Chicago gambler has exploded the superstition that touching a hunchback brings luck. He touched thirteen of them and not only lost his last dollar at faro but was arrested by one of the hunchbacks for assault and battery and had to pay a fine of $50.

In response to a telegram received yesterday from Richard DeKuhn, president of the Mockingbird mining company, J. W. Akers left for Cherry creek this morning, to put the mill in readiness to start up again as soon as Mr. DeKuhn returns from the east.

J. H. Braly, a San Diego banker, who is negotiating for the purchase of the C. P. Head estate's interest in the Williamson valley stock ranch, is expected to arrive to-morrow, to close up the business. Mr. Braly is making the purchase for his son, who expects to reside in this county.

Elsewhere in this issue will be found the advertisement of the Arizona Assaying and Mining office. The members of the firm are already well known to the mining public, being F. W. Blake and G. J. Reckwell. Their office is in the rear of Wells, Fargo & Co.'s express office, and any assaying business entrusted to them will receive prompt and accurate attention.

Mining Intelligence.

G. J. Reckwell contemplates starting a mining bureau at an early day in Prescott.

T. E. Murray has sold one half interest in the Calamity mining claim, Black Hills district, to J. H. Boyd and J. A. Webb, for $50.

New life has evidently been infused into the mining industry of this territory. Word reaches us from all points, of old camps starting up, more discoveries being made, mills being erected, and claims paying handsome returns that were formerly considered worthless. From reliable sources we learn that the copper mines in the northern part of the territory are being worked to their utmost capacity, and not an idle miner to be seen. The famous Mammoth mine is working a strong force of men, and will shortly afford employment for double the crew now employed; and scattered over hill and dale, rocky peak and river bottom,

THE STORM.

An Unprecedented Downpour of Rain.

The storm which commenced on Tuesday has been gradually increasing in violence ever since. A steady rain continued all day Thursday and during the entire night accompanied by considerable wind. This morning it seemed to redouble its efforts, and from a steady, quiet but continuous downpour, the rain commenced descending in torrents. By nine o'clock Granite creek at the crossing of Gurley street was impassible with teams, and communication with the west side was confined to the foot bridge entirely. The rapid current continued the work commenced by the last flood, of cutting away the bank on the west side of the creek, in the vicinity of the ice factory, and at noon had undermined the storage room of the above institution two-thirds of the distance back to where it connects with the main building. It also carried the lower portion of it away. The Chinese wash house, adjoining it, is in a perilous situation, the water at noon having cut the bank away clear up to the building, and cut a channel around the well, leaving it far out in the stream.

The incoming train was stopped at Willow creek, by the washing away of the bridge over that stream, and the mail and express was brought to town in hand cars.

The south bound stage got as far as Lynx creek, where it was compelled to turn back to town, on account of high water.

A six-horse team, belonging to Shull & Austin, had a narrow escape while crossing Granite creek below the railroad bridge. Just as it reached the middle of the stream the trail wagon upset and swung down the stream with the force of the current, and it was with difficulty that the driver succeeded in getting the animals on terra firma. Just as they reached the bank, the near wheeler fell down, and getting entangled in the harness, the driver unhitched his animals, leaving the wagons to the mercy of the flood.

The public schools were closed this afternoon, on account of the storm, owing to the slim attendance in the morning.

Salt Water Good for the Eyes.

Once or twice a week, at least, bathe the eyes in salt and water; and occasionally, where the eyes are dull, a little orange-peel juice squeezed in them at night will give them brilliancy without injury. Belladonna, only as a beautifier, should be absolutely avoided. It gives a large brilliant look to the eyes for a time at the expense of every healthful function. Oculists are occasionally compelled to use it, but except when under the care of a specialist it should never be touched. Never strain the eyes on rising; do not read before eating. Tired eyes may be bathed in a solution of alum and rose water, and early sleep be taken to restore their brilliancy.—Ex.

Metropolitan Airs.

Recognizing the fact that the big hogs try to eat the little ones, we have concluded to put Climax Tobacco down

Militia Ball.

On account of the storm, the Militia ball, announced for to-night, has been postponed until Monday evening, February 24th.

Masonic Meeting.

Aztlan lodge F. & A. M., No. 1, will hold its regular monthly meeting to-morrow night. Members and sojourning brothers are requested to attend. By order of the W. M. S. E. Bright, secretary.

Man and Wife

Wanted, to take charge of a Station in Kirkland valley. A splendid location, and a good opening for a sober and industrious man. For particulars, call at this office, or apply to J. M. More, Kirkland valley. tf

Important Announcement.

For fine Gold and Silver Watch Chains, fine Jewelry of all descriptions, Clocks, Silverware, Spectacles, etc., go to Geo. H. Curry, who carries the largest line of these goods in Arizona: Also Guns, Pistols, Cartridges and Sporting Goods.

Watch work, in all its branches we make a specialty of. All watch work guaranteed.

We carefully attend to the cutting and mounting of all kinds of native specimens. GEO. H. CURRY,
f15-tf Prescott.

"Do you ever receive contributions written on both sides of the paper?" asked a gentleman entering a newspaper office. "No, sir; never," emphatically replied the editor. "All right; I was going to endorse this check to your order, but I don't want you to break your rules." Then he went out, leaving the editor in a deep green study.—Yonkers Statesman.

Dyspepsia

Makes many lives miserable, and often leads to self-destruction. Distress after eating, sick headache, heartburn, sour stomach, mental depression, etc., are caused by this very common and increasing disease. Hood's Sarsaparilla tones the stomach, creates an appetite, promotes digestion, relieves headache, clears the mind, and cures dyspepsia.

In a Terrible Condition.

"I owe my life to Hood's Sarsaparilla. For two years I was in a terrible condition with dyspepsia. I could eat nothing but soda crackers, and my weight fell from 170 to 138 pounds. Hood's Sarsaparilla helped me at once, and after using 12 bottles I was entirely cured. I have gained my usual weight, 170 pounds, and have had excellent health ever since." T. J. WILCOX, 20-26 1st South Street, Salt Lake City, Utah.

Headache—Hot Flashes.

"I had headache, hot flashes, soreness and swelling across my body, pain in my right side, with frequent vomiting. I used Hood's Sarsaparilla with the best results. I am in better health than for four years. Hood's Sarsaparilla is safe, reliable, and sure." J. C. WILLSON, Auburn, Cal.

Hood's Sarsaparilla

Sold by druggists. $1; six for $5. Prepared only by C. I. HOOD & CO., Apothecaries, Lowell, Mass.

100 Doses One Dollar

WASHINGTON'S BIRTHDAY!

Grand Ball

—AND—

H

HARDWARE

IS TH

Barbed W

GRANI

Picks, Sh
Anvils
Eng

Paints

POWDE

Mining Tool

Call

STILL I

I am

Best Goods

Of any

I have been receiving si
tinue to receive, ne
fore been hand

Dry Goods, Dres

MILLINE

Gloves, Spring and
Gent

Boys' Clothing, Boys' D
stock of Ladies' and
and servic able

Boot and

Special attention, and to make it a
best and most serviceable goods to
hope, by a system of fair dealing a
fair share of the patronage of the p

D. J

FO

Engin

Built b
MERS.
11x20 in

THIRTEENTH ANNUAL REPORT

OF THE

UNITED STATES GEOLOGICAL SURVEY

TO THE

SECRETARY OF THE INTERIOR

1891–'92

BY

J. W. POWELL
DIRECTOR

IN THREE PARTS

PART III—IRRIGATION

MATTHEWS LIBRARY

WASHINGTON
GOVERNMENT PRINTING OFFICE
1893

across the stream to bed rock through about 20 feet of sand and gravel under the direction of Prof. Blake. Col. E. N. Robinson, of San Francisco, who succeeded Prof. Blake as chief engineer, had constructed several dams of the same kind in California which have successfully withstood the floods of a quarter of a century. Under Col. Robinson the dam was recommenced in the rear of Prof. Blake's foundation wall. It consists of front and back walls 14 feet thick at the base and 4 feet thick at the top, with a loose rock filling between, the whole made water-tight by a wooden sheathing. Mr. Robinson designed a

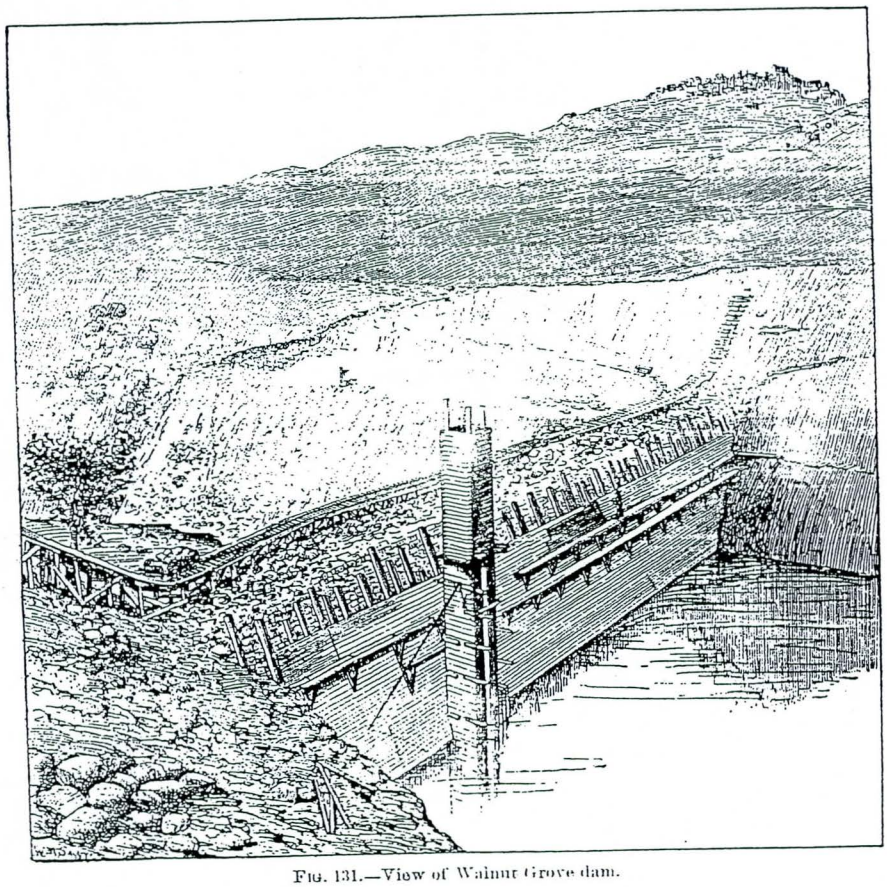


FIG. 131.—View of Walnut Grove dam.

wasteway 55 feet wide and 12 deep cut through a ridge one-half mile north of the dam and spilling into a separate watercourse, which would in all probability have carried off the great flood of 1890. For some unaccountable reason a much smaller wasteway was ultimately constructed.

The side walls of the dam consisted of rough blocks of granite, laid without mortar or cement, and the water face was planked with two thicknesses of yellow pine plank, 3 by 8 inches, spiked to pine timbers

was 5 feet in 100, and at its terminus was a steep drop to the river bed below.

One of the much discussed points in connection with the construction of this dam was its foundation; it was intended that it should be founded on bed rock. Witnesses before the courts, men who had taken part in its construction, claimed that the foundation did not reach bed rock on the upstream face, as shown in Fig. 132. The body of the loose rock rested on the gravel bed of the river. The lower wall rested on bed rock, but a portion of the upper wall rested only on river gravels. This fact was discovered during the construction of the dam. An excavation was made under the dam and a masonry wall 14 feet deep and about 14 feet wide was let down, presumably to bed rock, with another portion of this wall turning inward to rest on bed rock. It was claimed, however, that this wall did not come within 5 feet of bed rock, so that in fact even after the alterations the dam still rested on the gravels. The main upstream wall of the dam rested for only 2½ feet on this secondary base which was built under it, the remainder of the thickness of the wall resting on the buttress which inclined inward to bed rock. The correctness of this view of the construction of the dam is indicated by the fact that considerable water passed under or through the dam in spite of its plank sheathing.

In constructing the dam (Fig. 131) quarries were opened upon both banks of the stream above the top of the dam, the stone was loaded upon cars and was lowered on the dam by a bull wheel and brake. A three-rail railroad was laid upon a trestle across the dam, its height being from 10 to 15 feet. These loaded cars were dumped into the center of the dam, forming the loose rock filling, and the legs of the trestle were left in the wall, only the caps and stringers being removed during the first stages of construction. Derricks were used to distribute the larger stones; later on the center was kept high and the stones for the wall were moved by bars. The effect of this upon the stability of the dam was bad, as the stones tended to form a convexly curved bed whose slopes made acute angles with the direction of the resultant pressure. The manner of leaving the stones loosely piled in the center of the dam with large timbers mixed in with them doubtless permitted considerable settlement as the high floods topped the dam and thus produced a strong outward thrust to rupture the loosely laid, uncemented confining walls. In the construction of the wooden sheathing, juniper logs from 8 to 10 inches in diameter and about 6 feet long were built into the wall upon the upper face, as before described, and projected from its surface about 1 foot; vertical stringers about 6 by 10 inches, of varying size, were bolted to the logs, the stringers being about 4 feet apart. At the joints of the stringers logs were built into the wall about 2 inches above the top of the stringer and two 4x10 spliced pieces were built to the logs and spiked to the stringers by galvanic bolt spikes, thus completing the joint. Upon the main wall of the

never occurred to him that such a cloud-burst might break above the dam, and owing to the insufficiency of its waste way and the imperfect method of operating the outlet sluices destroy it, as it did.

To prevent high waves from splashing over the dam a 2-inch plank was carried half way across the top of the dam. In the great flood which ruptured this structure the water flowed uniformly over its crest to a depth of 3 feet. The only eyewitness to its destruction claims that the dam collapsed and fell into the reservoir, thus indicating that it was undermined where it did not rest on bed rock, and that its destruction was not entirely due to its being topped by the waves. One engineer, who had watched the construction of the dam and who was acquainted with the circumstances attending its construction and destruction, says that he believes the dam to have been destroyed by undermining and by a settling of the interior rock filling, leaving a dry rubble shell.

CASTLEWOOD RESERVOIR.

A very interesting composite irrigation scheme, combining as it does two different systems of water storage, is the project of the Denver Water Storage Company. The system comprises a main storage reservoir known as Castlewood lake, situated on Cherry creek, Colorado, at a narrow point in the canyon and about 30 miles southeast of the city of Denver; of a diversion weir a mile and a half lower down on Cherry creek, which diverts the water that has been turned into Cherry creek from the reservoir and passes it into the Arapahoe canal which heads at the weir; of the main line of the Arapahoe canal which conveys the water to the irrigable tract situated immediately southeast of Denver and west of Cherry creek; and of a series of four secondary reservoirs situated in different portions of the irrigable lands in natural depressions in the surface. This system of secondary reservoirs will be filled by water brought down by the canal when not wanted for the irrigation of the land or when a superabundant flow in Cherry creek would otherwise be wasted. The area of good irrigable land commanded by this system as at present constructed is 30,000 acres.

Cherry creek above the reservoir site has a catchment area of about 200 square miles, the available run off of which is estimated to average about 2,300 acre-feet per annum, while the maximum flood anticipated is about 7,000 second-feet. In ordinary seasons Cherry creek sinks to a mere rill, discharging a few second-feet, but it is hoped that in average seasons the flood discharges will fill the reservoir. The dam site is located at a point where Cherry creek flows through a rather narrow gorge between the rock bluffs and above and behind which is a broad flat which will afford an abundant storage space. The reservoir has a surface area of about 200 acres and a capacity of about 5,300 acre-feet.

The design of the dam which closes this reservoir is peculiar, and

autobiography, see Nicholas Roosevelt, *A Front Row Seat* (Norman: University of ›ma Press, 1953).

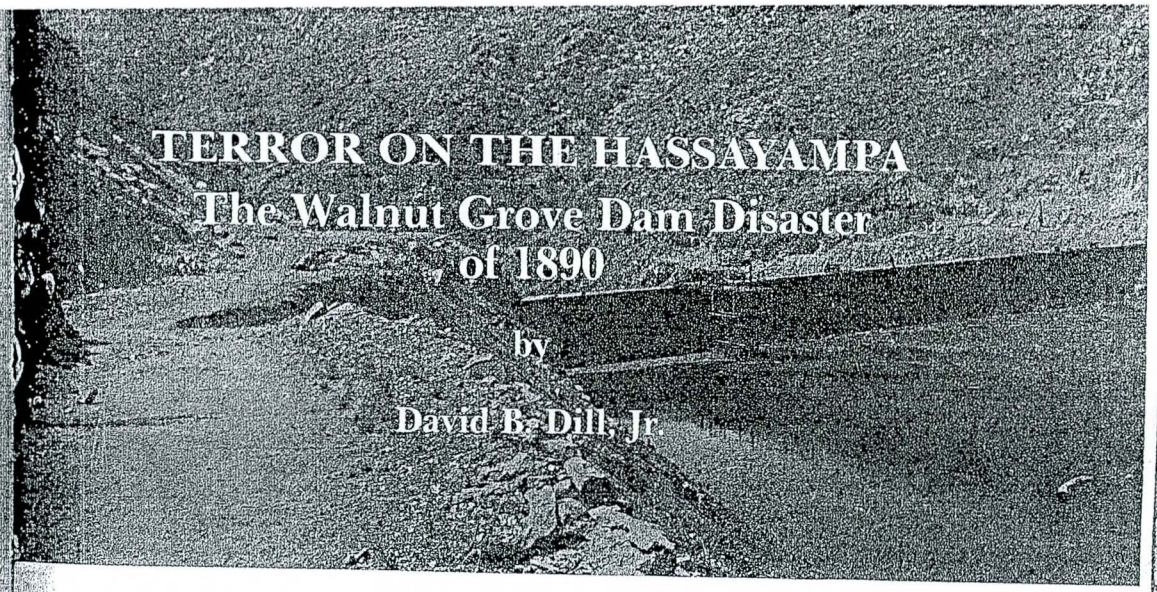
ıas Roosevelt's account of the 1913 trip to the Grand Canyon and photographs of the ›n through northern Arizona are in the George Arents Research Library at Syracuse sity, New York.

las Roosevelt, *Theodore Roosevelt: The Man as I Knew Him* (New York: Dodd, Mead ıpany, 1967). Theodore Roosevelt's account of the trip, accompanied by several as Roosevelt photographs, appeared in three installments of *The Outlook*, vol. 105 ɜr 4, 11, and 18, 1913), pp. 259-66, 309-317, and 365-73, respectively.

ɜate copies of many of the photographs are housed in the study collection at Grand ı National Park.

TS—The photograph on page 263 is courtesy of the Arizona Historical Society/ ; on page 269, courtesy of the George Arents Research Library, Syracuse University, ɜe, New York; all other photographs are courtesy of Grand Canyon National Park.

From Journal of Arizona History Fall, 1987 pp. 283-306



TERROR ON THE HASSAYAMPA
The Walnut Grove Dam Disaster of 1890

by

David B. Dill, Jr.

IN THE PITCH-BLACK EARLY-MORNING HOURS of February 22, 1890, in a canyon of the Hassayampa River, prospector John Hardee awoke to a "deafening roar." Leaping from his bed, he shouted to his two partners: "My God, boys, the dam has broken! Get up and run for your lives!" The startled gold seekers miraculously survived, as four billion gallons of impounded water poured in an immense wave over the top of the Walnut Grove Dam, wreaking death and destruction along forty miles of riverbed. Tragically, Arizona's greatest disaster could have been avoided. Faulty engineering, shoddy construction, and negligent management had doomed the Walnut Grove project from the beginning.[1]

Nearly thirty years earlier, in 1863, two groups of prospectors led by mountain men Joseph Walker and Pauline Weaver had discovered placer gold along the upper Hassayampa and on two of its tributaries, Antelope and Weaver creeks, in north-central Arizona. A fabulous find of coarse nuggets strewn over the surface of Rich Hill on Antelope Creek attracted swarms of gold seekers

A retired mining engineer, David B. Dill, Jr., is a doctoral candidate in history at the University of Arizona. An earlier version of this article was awarded the prize as best graduate student paper at the 1987 Arizona Historical Convention, Flagstaff.

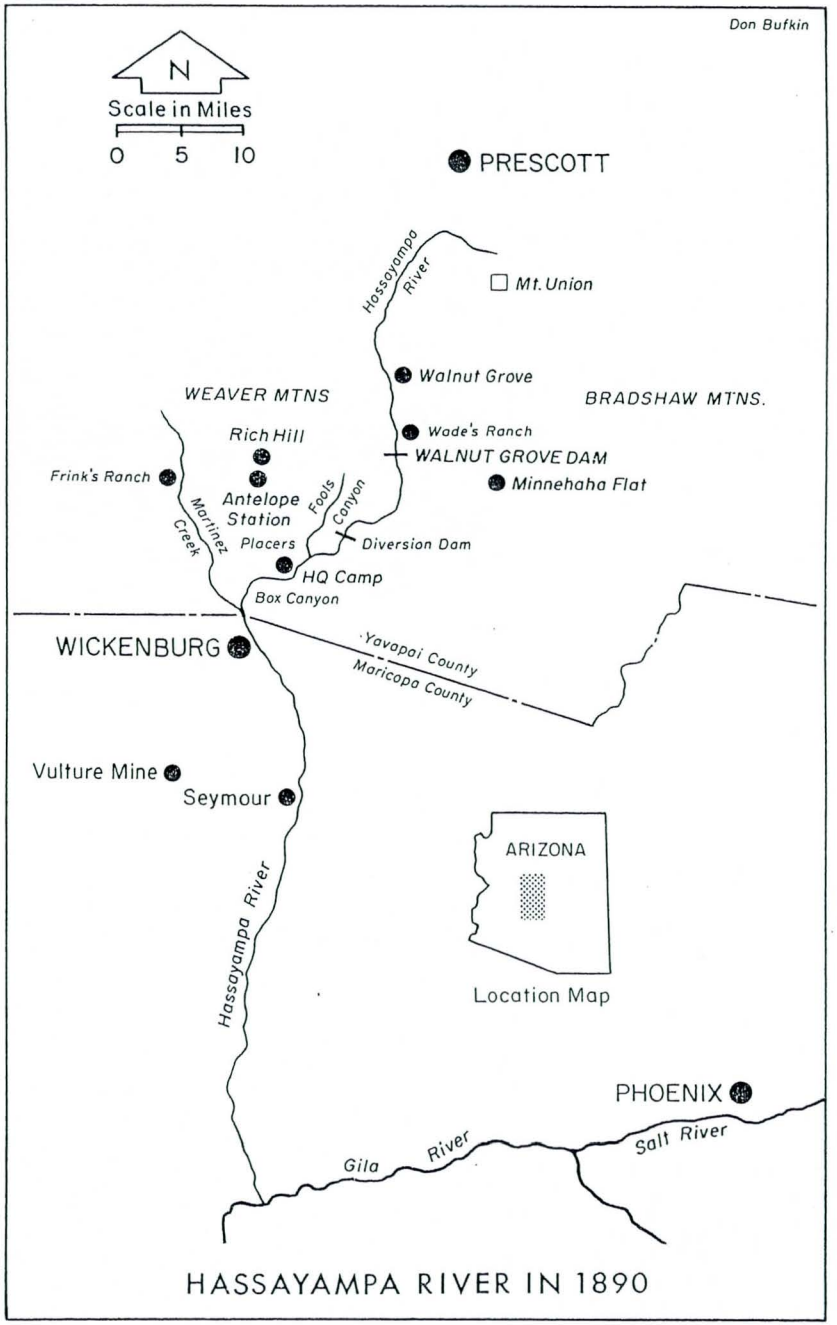
rom California. Large boulders in the gravel below the hill, however, hindered placering by pick and shovel. More lisheartening was the scarcity of water for washing gold from the lry gravel terraces that extended for six miles along the base of the Weaver Mountains to Antelope Creek.[2]

From its source in the pine-clad peaks of the Bradshaw Mountains, nine miles south of Prescott, the Hassayampa River lescended rapidly through bare, rugged hills and then emerged into the gravelly piedmont at Wickenburg. Miners and ranchers iving along the river were well acquainted with the cycle of lternating flash floods and searing drought, "where at times an cean steamer might be floated, and where at other seasons . . . the sh must carry canteens." Unfortunately, the Hassayampa was one dry during most of the year, as floods from seasonal rains uickly soaked into the deep outwash of the desert.[3]

As far back as the 1850s, hydraulic miners in the California Mother Lode country had found a solution to the problem of erratic water supply. In "hydraulicking," water discharged through high-ressure nozzles washed down gold-bearing earth from stream anks into sluice boxes. Because streams in the Sierra Nevadas were ry from June until November, mine operators built large masonry ams and storage reservoirs. Ditches and flumes, often over fifty iles long, carried water from the reservoirs to the mining perations. The successful and highly profitable California system rved as an example for hydraulic mining on the Hassayampa.[4]

Wells H. Bates, a New York mining man, seized the opportu-ty in January of 1881, when he and his brother, DeWitt, purchased e small Marcus gold mine a mile or two west of Rich Hill. While perating the mine, Wells became interested in the nearby Weaver acers, and by the end of 1882 he had developed plans for hydraulic ining, California-style. On February 17, 1883, Bates rode to the ivapai County courthouse in Prescott and recorded a location otice claiming, for mining purposes, all of the water in the assayampa River. As the site for a dam and storage reservoir, he lected land owned by rancher Abner Wade in the Walnut Grove alley.

Bates next filed a claim for placer mining rights, and on April Territorial Deputy Surveyor Edward H. Wilton erected a "U.S. ineral Monument" at the junction of the Hassayampa and Fools



HASSAYAMPA RIVER IN 1890

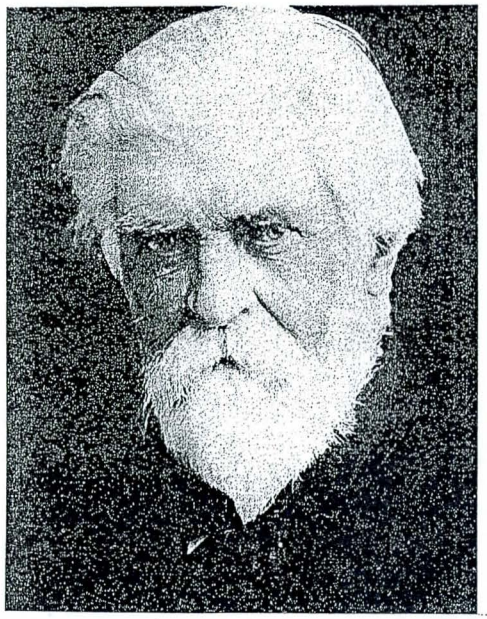
Canyon Creek, as a reference marker. The following day, the Bates brothers arrived with a six-man crew and staked Placer Claim No. 1. By the end of May, they had located sixty-three placer claims of 160 acres each, extending in a sixteen-square-mile block from the river west to Weaver Creek. Two months later, Wells Bates assumed full title to the claims and looked for eastern capital to finance his mining scheme.[5]

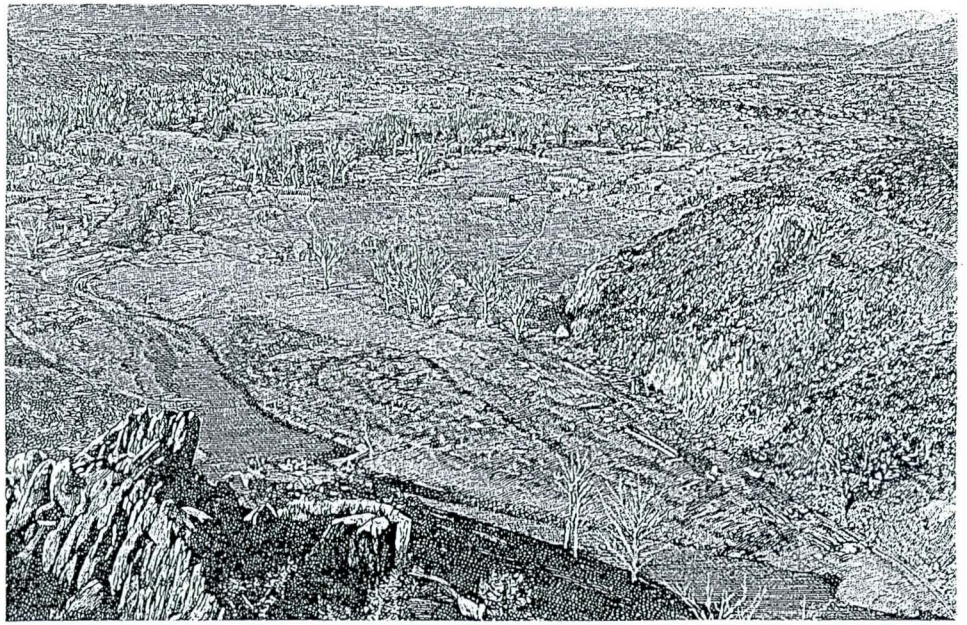
To Bates's chagrin, potential backers lacked his enthusiasm. Many eastern investors doubted that the Hassayampa claims would yield significant quantities of gold, or that the region received enough rain to fill a storage reservoir. After two frustrating years, Bates finally sold New York capitalists Charles H. Dillingham and J. N. Newberry on his idea. As the financiers prepared to float stock, they called in William P. Blake, a nationally recognized mining consultant. A tall, dignified gentleman with a flowing white beard, the sixty-year-old mineralogist had received a scientific and classical education at Yale (Class of 1852), and was the grandnephew of inventor Eli Whitney. At a meeting with Dillingham, Newberry, and the Bates brothers in New York in February of 1886, Blake agreed to examine the Walnut Grove project and furnish a report to be incorporated in a stock prospectus. In addition to the usual consulting fee, he would receive stock in the enterprise.[6]

At 7:00 A.M. on February 27, Blake stepped from the Southern Pacific train at Maricopa in Arizona Territory and climbed aboard the Phoenix stage. At the Phoenix Hotel, he and Wells Bates outfitted themselves for camp life and, a week later, embarked on the Wickenburg stage to Antelope Station. Barney Miller, the station operator, helped the two men set up camp at the old Peralta ranch on the Hassayampa flats, not far downstream from Fools Canyon. Blake set to work immediately with his gold pan, testing the river banks and terraces. After four days of panning and rockering, he figured that the Bates placers contained an impressive $1.32 of gold per cubic yard.

Blake and Bates next rode north over the Weaver Mountains and down Cottonwood Creek to the damsite on Abner Wade's ranch. Blake seemed satisfied with the features of the site, situated at the lower end of an open valley where the stream entered a steep-walled canyon of granitic rock a thousand feet above the placer claims. At the Wade ranch house, the consultant witnessed a legal

William P. Blake





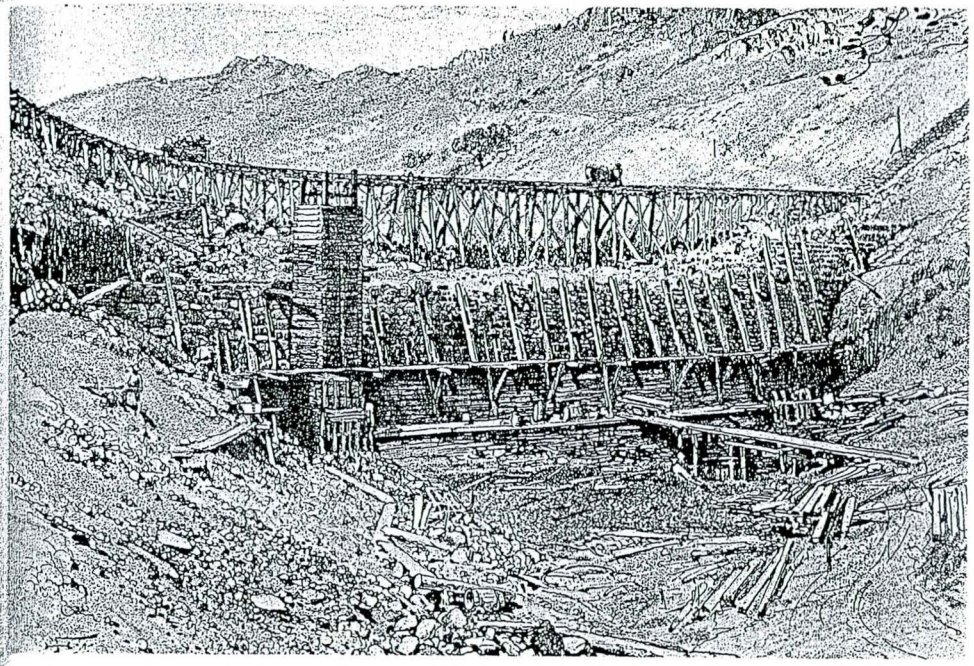
"View of Lake Basin, Walnut Grove, Ariz., Before Building of Dam." From Scribner's Magazine, *January 7, 1890.*

ıgreement whereby Bates acquired from Wade the right to construct : dam up to sixty feet high on the property. After two days, Blake ıad completed his inspection, and on March 19, he and Bates started ›ack to Phoenix. Passing Rich Hill, they swung by Martinez Creek o investigate the Frink stock range, which Bates had recommended he company purchase as the nucleus for a ranching operation.[7]

Back in New York on April 15, Blake reported favorably to)illingham and Newberry on the Walnut Grove project. In the neantime, the entrepreneurs had formed two Kentucky corpora-ions—the Walnut Grove Water Storage Company and the ʔiedmont Cattle Company. With Blake's report in hand, they were ›oised to act. On May 6, Wells Bates accepted $100,000 and a lirectorship in the two corporations, in return for his placer claims .nd other assets. The following month, the Water Storage Company ›urchased Abner Wade's ranch and his timber land at Minnehaha ʔlat, high in the Bradshaw Mountains eight miles to the east. At the ame time, the Piedmont Cattle Company—with Blake as ›resident—bought the Frink stock range and the Barney Martin anch at Antelope Creek.[8]

Walnut Grove Water Storage Company officers also appointed ʒlake chief engineer and superintendent of the dam project, and uthorized him to hire his twenty-six-year-old son, Francis (Frank), s civil engineer at a salary of $250 per month. Certainly, Blake must ave recognized his own lack of dam-building experience, but the romise of a stock interest, the opportunity to boost his son's career, nd supreme self-confidence outweighed any doubts.[9]

On August 10, carrying surveying equipment and camping ear, Blake set out from Prescott with Frank and twenty-year-old ˙. Whitney (Whit), a younger son. They reached Wade's ranch the ›llowing day and set up a tent camp. Over the next month, the lakes surveyed the damsite, hired a work force, and built roads, an ffice building, a boarding house, and a sawmill. During the fall, ·orkmen opened quarries and built a diversion dam. By late ·ecember, the foundation wall of the main dam had reached a eight of twenty-five feet. Blake boasted to ex-Governor Frederick . Tritle, who visited the camp, that the completed project would and eighty or more feet high, 100 feet wide at the base and 300 feet : the crest. He estimated the total cost at $100,000, but did not aborate on construction methods. Young Frank frequently took



Construction of the dam.

charge of the work when his father was away examining mining property. Together, the Blakes accomplished a great deal in a short time.[10]

A few days before Christmas, Dillingham and Wells Bates arrived from New York, accompanied by E. N. Robinson of San Francisco, a civil engineer. On an inspection with Dillingham of the company's sawmill at Minnehaha Flats, Blake talked at length—possibly to Dillingham's annoyance—with Washington K. Ferris, a farmer and prospector, about purchasing Ferris's mining claims on Humbug Creek. Christmas Day at the damsite turned out to be enjoyable. Blake recorded that "it was a good celebration the fatted turkey having been killed," after which the visitors left for Prescott.[11]

On January 15, 1887, Dillingham returned to Wade's ranch where, abruptly and without warning, he discharged William and

Frank Blake, telling them that he had contracted the construction work to the San Francisco firm of Nagle and Leonard. Whit Blake would remain as company surveyor, but E. N. Robinson would take over immediately as chief engineer and superintendent. The aggrieved elder Blake scribbled in his notebook that he and his sons had been the pioneers and had completed the hardest and most difficult work. Nevertheless, he and Frank turned over the task to Robinson and contractor George D. Nagle, and on January 30 left in a buckboard for Prescott.[12]

Construction accelerated as Robinson redesigned the dam, doubling its storage capacity. The new plan called for a "mining type," rock-fill structure 110 feet high (thirty-five feet higher than Blake had envisioned) and 410 feet along the crest, patterned after the Bowman Dam on the Yuba River in California. Front and back walls would be of masonry, laid without mortar and encasing a loose-rubble filled interior. Two thicknesses of plank, waterproofed with tar and caulked and painted with paraffin, would sheath the upstream face. Finally, two twenty-inch pipes opening from a gate-controlled intake tower would discharge water at the downstream base of the dam into a twenty-mile-long flume leading to the placers. To prevent floodwaters from overtopping the crest of the dam, Robinson designed an ample spillway, fifty-five feet wide and twelve feet deep, to be cut through a low divide one-half mile east of the dam.[13]

Robinson soon encountered problems, however. He discovered that Blake's wall leaked so badly that fish seven inches long were reported to have passed through it. Robinson, therefore, abandoned the old wall completely and constructed a solid rock base eighteen feet thick in back of it. On this base, he erected the front face of the dam.

To their discomfort, Robinson and Assistant Engineer John M. Currier also found that company officials in New York were more interested in selling stock than in building a substantial dam. Wells Bates, the resident director and prime motivator, seemed to share the same attitude. Moreover, the engineers were unable to rely on Nagle, the California contractor, for good work. In spite of these difficulties, Robinson performed the most professional job of any of the engineer-superintendents involved in the Walnut Grove project.

The construction camp and the diversion dam.

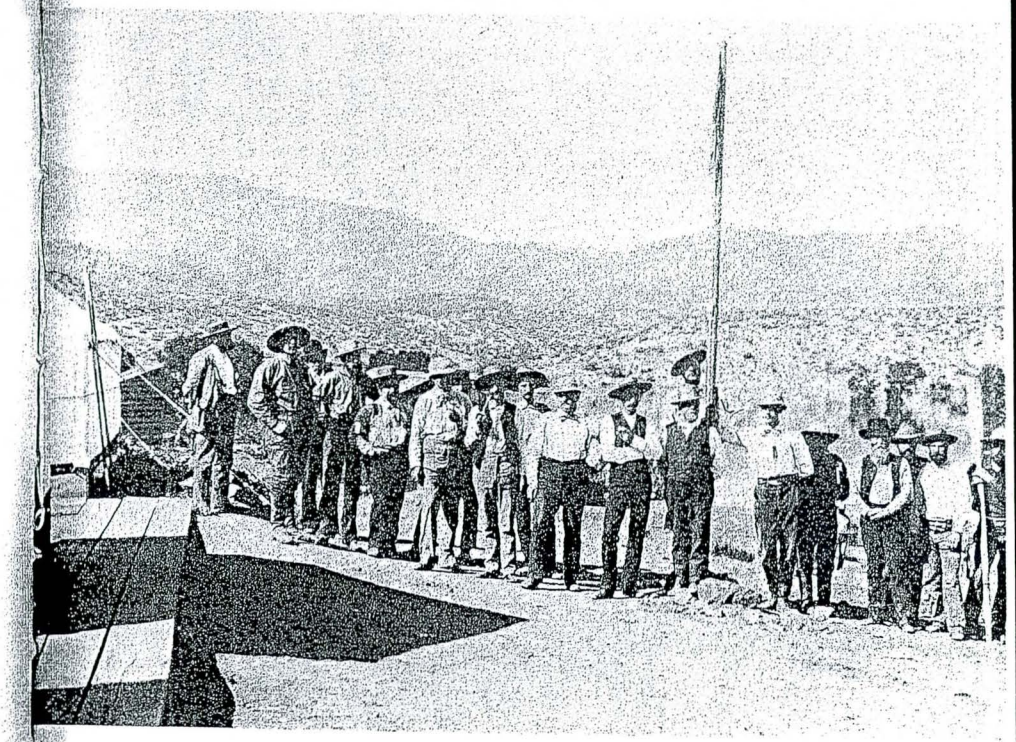
Nevertheless, after four months and with the dam only one-third completed, Robinson learned that he had been fired as general superintendent and replaced by twenty-one-year-old Walter G. Bates. Two weeks after Robinson's departure, John Currier resigned as superintendent of construction, disgusted by Nagle's slipshod work. He was alarmed by a bulge in the back wall and by a heavy dynamite blast the contractor had carelessly set off within forty feet of the dam, shaking the foundation. Most critical of all, the company unaccountably scrapped Robinson's spillway plan in favor of a cheaper five-by-twenty-foot structure close to the dam.[14]

For over a month after Currier's resignation, Nagle handled all of the construction unsupervised. Working twenty-four hours a day in shifts, his 200-man crew raised the dam an additional twenty feet. Prescott businessman and booster Nathan O. Murphy brought two Michigan visitors to the construction site one night and found a scene of intense activity under electric lights, with a hundred men blasting, hauling, and dumping rocks and laying walls, while boats sailed serenely in the reservoir forming behind the dam.

On August 10, Luther Wagoner—like Robinson, a well-known San Francisco civil engineer—took charge of the dam project. The new superintendent delegated an assistant as day-to-day inspector of the works, while he surveyed the proposed flume line below the dam. Wagoner left the project before construction began on the spillway, but later maintained that he had warned the company that, without an adequate spillway, the combination of a full reservoir and a major flood could pose a serious hazard.[15]

Excavation of the spillway commenced in December, with thirty-five men blasting out a channel twenty-six feet wide and seven feet deep at the west end of the dam. The spillway was so close to the structure that the overflow would discharge onto or near the toe of the back wall. Following Wagoner's earlier recommendation, workers hauled the blasted rock out to the center of the dam and dumped it over the back wall, in an effort to strengthen weak places.[16]

Delivering water from the storage reservoir to the company placers and ranch lands remained a persistent problem. Surveyors had labored for months on the flume line, when, in September of 1888, the company suddenly abandoned the project. Instead, it decided to allow the water to follow its natural course to a diversion



Work crew.

dam fourteen miles downstream. From there it would be routed through a wooden flume to the placers. Work on the diversion dam began in October, but because of incompetent management, progress over the next ten months was slow.[17]

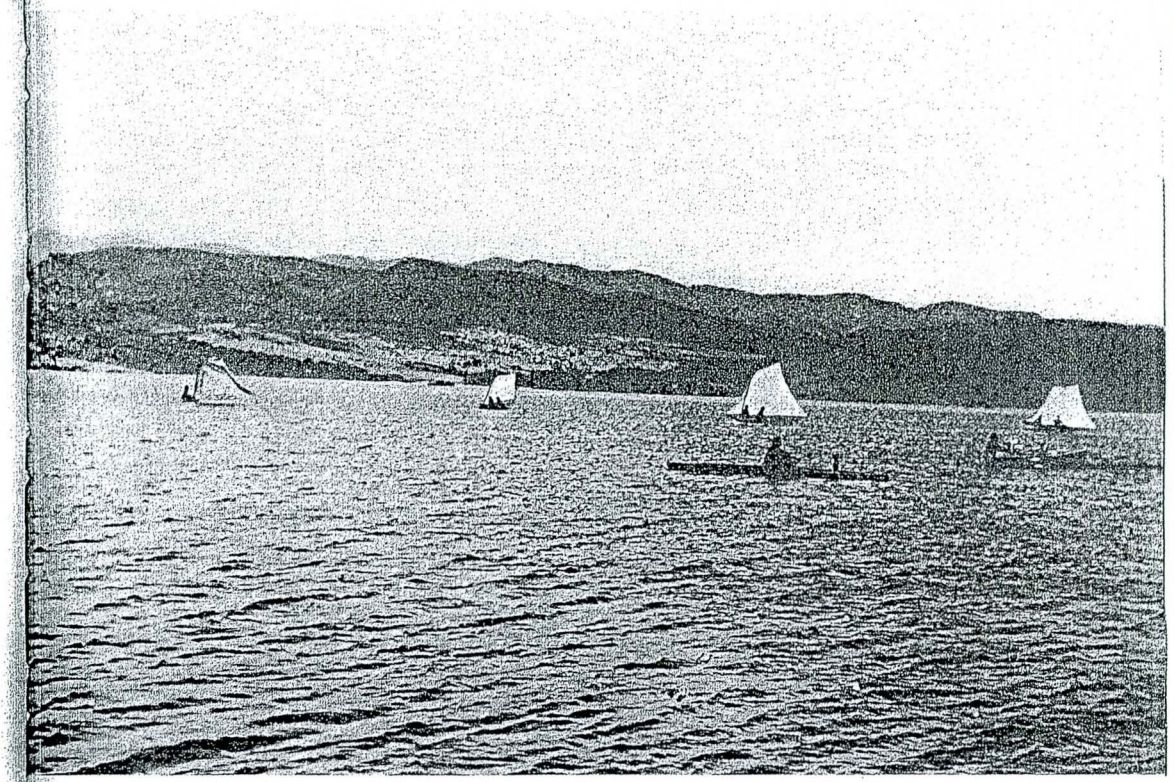
At this time, Henry Spingler Van Beuren replaced Dillingham as president and dominant figure in the Walnut Grove Water Storage Company. Previously, in 1887, Van Beuren and his mother had bought out the interest of director J. N. Newberry, and shortly thereafter the board elected Van Beuren vice president. Immensely wealthy, the Van Beurens owned one-fourth interest in the Spingler-Van Beuren estate, whose ancestral holdings included a tract on West Fourteenth Street in New York City. The family derived an annual income of nearly one million dollars from rentals on their property.[18]

Distressed by local criticism and labor unrest at the diversion ım, Van Beuren appointed Alexander O. Brodie chief engineer ıd superintendent. A West Point graduate and man of action, rodie had left the army in 1877 to dabble in cattle and mining. He ıd served as assistant engineer at the Walnut Grove project from 88 until June of 1889, when he took a leave of absence to ırticipate in a short-lived government hydrographic survey in the io Grande Valley. Back at Walnut Grove in August, Brodie uickly reorganized work at the diversion dam and at the adquarters camp. To speed up construction of the dam and ume, he contracted for twenty teams to haul lumber from the wmill at Minnehaha Flat. Robert Brow, the company storekeeper, marked that in one month Brodie made greater progress than had is predecessors over the previous ten months.[19]

Company interest in conditions at the Walnut Grove Dam gged, however. William P. Blake had visited back in December of 88, when the reservoir level stood at the sixty-foot mark. He tected a distinct inward bend in the back wall and at the same time oted that water leaked out faster than it ran in. Two months later, told a meeting of mining engineers in New York that the leak as an "agreeable surprise" and actually benefited the company. ater users downstream would be less likely, in his opinion, to iticize the dam for diverting too much water.

From March 14 through 17, 1889, heavy rainfall soaked the radshaws, with a total of 2.45 inches recorded at Fort Whipple near rescott. Runoff filled the Walnut Grove reservoir above its 900-acre ıpacity and washed away Abner Wade's house at the upper end of ıe lake. Superintendent Brodie reported that water rose to within foot of the top of the dam and for the first time flowed through ıe spillway. If workmen had not cleared a logjam in the overflow ıannel, the dam might have ruptured then. The flood also swept way the works at the diversion dam down the canyon and carried f a large amount of lumber. Chief Engineer J. E. Anderson oparently was unconcerned, as he allowed the 125 employees to main at the headquarters camp below the diversion dam. The my did, however, establish a Signal Service weather station at alnut Grove.[20]

Finally, in December of 1889, Wells Bates took action, ordering moderate enlargement of the spillway and calling in Benjamin S.



Boaters sailing on the reservoir behind the dam.

Church, the dean of American hydraulic engineers. Workers already were widening the channel when Bates and Church reached the dam. Church confirmed that the existing spillway was inadequate.[21]

Company president Van Beuren, meanwhile, had arrived in Arizona a month earlier, intending to spend a pleasant winter on the Hassayampa with his daughter, Eleanor, and niece, Mary Hanlon. Van Beuren did what he could to help Brodie speed things along, and by mid-February, 1890, workers had completed the diversion dam and pushed forward construction of the flume. Hydraulic mining could commence at the placers within the month. Van Beuren and Brodie, therefore, left for Phoenix to arrange for the transportation to Walnut Grove of a large quantity of pipe and hydraulic machinery that had arrived by rail. Eleanor accompanied her father, while her cousin Mary remained in camp.[22]

As the Van Beurens and Brodie prepared to leave the Hassayampa on Sunday, February 16, a torrential rain drenched the California coast. By Monday, the storm had swept eastward into the Sierra Nevadas and became the winter's worst blizzard. The full force of the storm struck northern Arizona on Tuesday. Runoff from the heavy rain and melting snow caused the Salt River to rise seventeen feet in fifteen hours, washing away a large section of the railroad bridge at Phoenix. In Prescott, rain descended in torrents from Tuesday until Friday evening. Granite Creek reached its highest level in ten years—possibly the highest in Territorial history—backing up into Gurley Street, floating away the ice factory and undermining the adjacent Chinese wash house. At nearby Fort Whipple, the Signal Service observer recorded 2.59 inches of precipitation during the week.[23]

Unusually heavy rainfall throughout the previous December—weather watchers measured over seven inches of precipitation at both Fort Whipple and Walnut Grove—had thoroughly saturated the 400-square-mile drainage basin of the Walnut Grove Dam. The engorged reservoir could not accommodate the February storm.

Moses and Robert Moore, brothers from Colorado, had been prospecting below the dam when heavy rain on Thursday forced them to take refuge in the company bunkhouse on a ridge above the reservoir and close to the dam. Moses Moore later recalled that on Friday morning water at the dam was rising at the rate of eighteen

The reservoir, with Wade's ranch in the foreground and the construction camp in the distance.

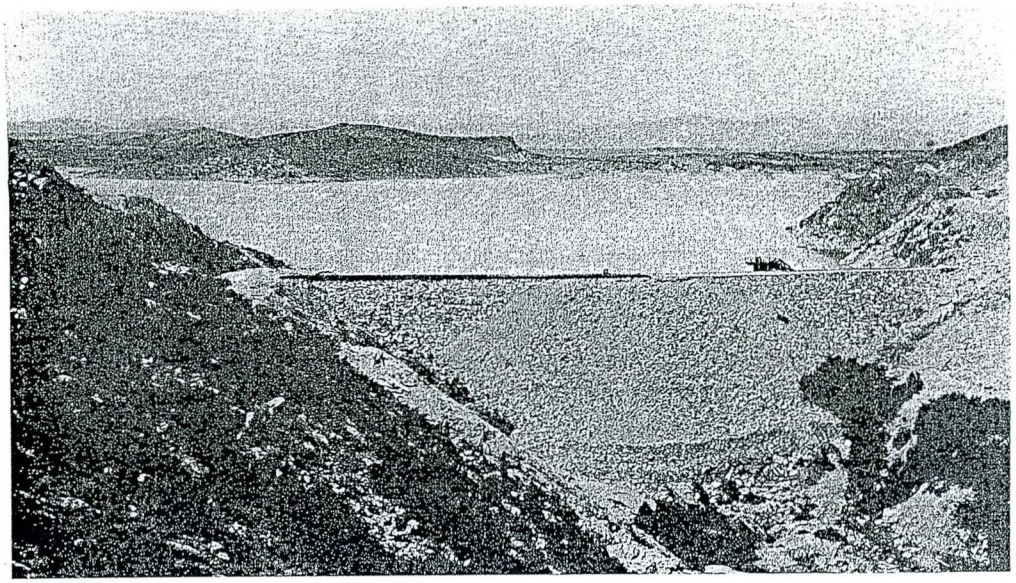
ınches an hour, even with both discharge pipes running full. In a hard, driving rain, dam superintendent Thomas H. Brown put fifteen men to work blasting and widening the spillway. By afternoon, water rushed through the spillway with such force that the side of the channel closest to the dam gave way.[24]

Certain that the dam would break, Brown tried to warn residents downriver. Unfortunately, the only man available who knew the country was Dan Burke, a blacksmith and habitual drunkard. At about half-past two in the afternoon, Brown mounted Burke on the best horse in camp and sent him off, cautioning him not to tarry on the road. Instead, Burke stopped at Frank Goodwin's groggery and later at James Cameron's ranch. A second messenger, William Akard, found Burke drunk at Cameron's late in the evening. Akard lost his life in the river within sight of the diversion dam.[25]

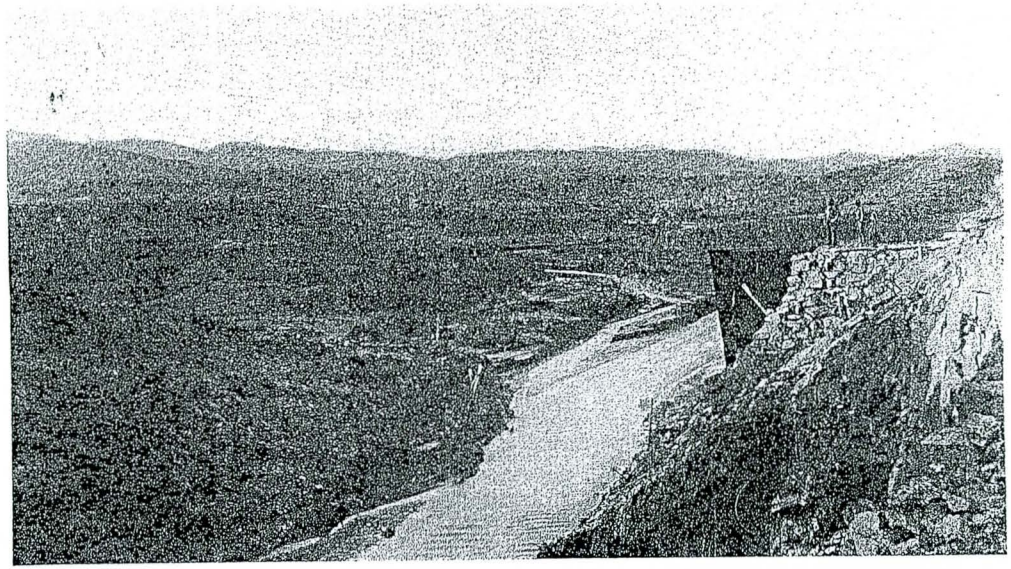
Even with the spillway running full, water crept higher at the Walnut Grove Dam. At nine o'clock at night, it began to spill over the crest and plunge thunderously into the canyon below. Brown and a friend, retired army Brevet Lieutenant Colonel Thomas B. Hunt, kept vigil on a bluff just twenty feet from the east end of the dam. Hunt later told a reporter that the pair watched helplessly as a solid wall of water three feet deep cascaded over the vulnerable back wall. As a forewarning of imminent disaster, a steel cable reaching from the intake tower to the east side drew taut and then snapped with a loud report. The tower tottered briefly before collapsing into the reservoir.

Shortly after midnight on the morning of February 22, the dam suddenly broke. The entire structure appeared to move downstream as a body, carrying everything with it. The roar of the water, combined with the rumbling and grinding of the rocks forming the dam, was deafening. The Moore brothers tumbled out of the nearby bunkhouse in the darkness and saw the rushing water. The level in the reservoir dropped so swiftly that boats were stranded at their moorings. Within two hours, the reservoir was an empty sea of mud.[26]

The front wave of the flood advanced at twenty miles per hour through the narrow, twisting canyon of the Hassayampa, scouring it clean of rocks and vegetation. At 2:00 A.M., the wave demolished the diversion dam, submerged the construction camp, and swept



Before and after the flood.



away the company headquarters. The roar of the approaching deluge gave the terrorized and shrieking construction workers little time to scramble and claw desperately in the darkness for higher ground. For many, the attempt was futile. Eyewitnesses described the front wave as a nearly perpendicular wall, fifty feet high, sparkling and phosphorescent in the inky blackness. On it sped, through Box Canyon, past Wickenburg, destroying ranches and completely obliterating the settlement of Seymour, twelve miles below. As the water receded, household goods, broken wagons, machinery, and dead horses and cattle littered the river bottom for forty miles.[27]

News of the Walnut Grove disaster reached Prescott at eight o'clock on Saturday evening. Within two hours, newly elected Yavapai County Sheriff William O. (Buckey) O'Neill arrived on the scene with a doctor and several deputies. Meanwhile, Maricopa County Sheriff William T. Gray set out from Phoenix with a rescue party, as citizens of both communities organized relief committees. Sheriff O'Neill was horrified by the devastation and misery he found at the headquarters and construction camps. Survivors, clothes ripped off their backs by the force of the floodwaters, walked about clad in coarse grain sacks. Battered and mutilated bodies scattered the shoreline for miles. Workmen at the construction camp quickly fashioned coffins and floated them to makeshift burial sites downstream. O'Neill seemed to be everywhere, wading in the water amid the coffins. The Yavapai County lawmen met Sheriff Gray at Seymour on Wednesday and, together, proceeded downstream toward the Gila River, burying bodies and assisting the homeless.[28]

At headquarters camp, Mary Hanlon survived the flood, but the Van Beuren maid and coachman drowned. The dead—mostly company employees—included laborers, engineers, ranchers, and miners. O'Neill counted thirty-eight bodies and confirmed fourteen more people as lost. The final count, he feared, might reach sixty-five to seventy dead.[29]

Local interest in the tragedy dropped sharply after little more than a week. Phoenix and Prescott editors condemned careless construction at the dam, but showed no inclination to pursue the question of responsibility.

The national press, on the other hand, accorded the Walnut Grove disaster attention second only to the 1889 Johnstown,

Mary Hanlon (Mrs. Alexander Brodie) shortly after the turn of the century.

Pennsylvania, flood. The *New York Times* extended front-page coverage, while the *San Francisco Chronicle* and the New York weekly *Engineering News* became forums for charges and counter-charges by engineers, several of whom had worked on the dam.

Experts concurred that the spillway had been grossly inadequate. But, beyond that, there was little agreement. Certainly, the loosely laid back wall could not long have resisted overflow, and shoddy work had resulted in leaks that may have undermined the structure. The settling of loose rock-fill in the space between the walls probably created a void, or hollow shell, high in the dam, weakening it against the sustained force of the rising water. The editor of the *Engineering News* blamed the disaster on Van Beuren's "foolish tinkering" and the New York financier's misguided belief that anyone could be an engineer.

A week after the flood, Major John Wesley Powell, director of the U.S. Geological Survey, offered a brusque explanation of the Walnut Grove tragedy to the House Committee on Irrigation. "If that stream received two inches of rainfall, after a rain that has previously soaked the ground, almost the whole amount will be delivered in the wash below," he explained. "An ignorant engineer believes the dam is safe . . . for he has never seen it at flood time . . . Once in ten or twenty years there comes a storm which becomes a vast flood, and then the dam goes." Powell added that in planning

for storage reservoirs in arid lands, engineers must provide for every contingency. Guessing at the amount of water to be controlled could be dangerous to life and property, he warned. A hydrographic survey was indispensable.[30]

On March 8, Van Beuren returned to Prescott for the first time since the catastrophe. Accompanying him were his daughter, his niece, and Superintendent Brodie. Van Beuren had nothing to say to the press but paid out nearly $6,000 in claims to employees and contractors. On March 19, the people of Prescott and a group of survivors surprised the company president with an astonishing testimonial. The Fort Whipple band serenaded Van Beuren at his hotel, after which Arizona Chief Justice James H. Wright delivered a flowery address expressing gratitude and appreciation for the company's efforts. He offered special praise for the courageous behavior of Mary Hanlon on the night of the tragedy and presented the heroine with a five-and-one-half-ounce gold nugget that survivors had found in the exposed riverbed below the storage dam just after the flood.[31]

Not all survivors felt so benevolent toward Van Beuren. On April 1, fourteen Maricopa County residents filed suit against the Walnut Grove Water Storage Company for damages totaling $93,000. The suits included a request for $50,000 on behalf of two sisters, Carrie and Adelia Haynes, who had been orphaned by the drowning deaths of their parents. Aging pioneer rancher Henry Wickenburg filed the next largest claim, for nearly $8,000.

On May 20, 1890, Judge Joseph H. Kibbey heard the case for the Haynes sisters in district court at Phoenix. Clark Churchill and J. B. Woodward, attorneys for the plaintiffs, charged that "by reason of the defective construction and negligent management of the dam, it broke away discharging the immense body of water stored in the reservoir; that this water, suddenly and without warning flowed down the Hassayampa in irresistible volume, drowning the father and mother of the Haynes children." Harris Baldwin, an attorney for the water-storage company, responded with a masterful presentation, arguing for dismissal on jurisdictional grounds. Judge Kibbey sided with the defense. In dismissing the suit, the judge ruled that the plaintiffs should have presented their case in Yavapai County. Apparently, the claimants never bothered to refile in the proper district.[32]

Survivors of the flood.

Staving off the damage suit, however, was not enough to save the foundering water company. Van Beuren departed immediately for New York, leaving Brodie behind in Prescott to forestall a pending bankruptcy. The superintendent enlisted the support of prominent local businessmen, but could not satisfy the company's major creditor—the Farmers Loan and Trust Company of New York. In October, 1891, the New York firm brought action in Yavapai County district court to foreclose on the $100,000 mortgage that Walnut Grove had taken in 1886 to purchase Wells Bates's placer claims. On October 30, the court ordered Brodie to prepare to meet the creditor's demands.[33]

From its conception, the Walnut Grove Dam had been a disaster in the making. William Blake, a mining man with no civil engineering experience, had designed the dam without regard for unusual contingencies. Robinson, his successor, had redesigned the structure according to sound engineering principles, but the owners

disregarded his key plan for the safe disposal of excess floodwater. Shoddy contractors heightened the danger by allowing serious defects in the dam walls. Finally, on the night the dam broke, management failed to warn people living below the dam, thus causing a great loss of life. After the catastrophe, the public criticized the poor construction of the dam but displayed little concern when company lawyers successfully averted damage suits on technicalities. The events on the Hassayampa illustrated a corporate lack of social conscience and a popular admiration for wealth typical of late-nineteenth-century Arizona. On the positive side, the Walnut Grove disaster provided a valuable lesson for future dam-builders. Thereafter, meticulous surveys became an integral part of the planning and building of high dams in the arid Southwest.

NOTES

[1]*Arizona Journal Miner* (Prescott), February 27, 1890; *San Francisco Chronicle*, February 28, 1890. J. H. McClintock, *Arizona: Prehistoric, Aboriginal, Pioneer, Modern*, 3 volumes (Chicago: The S. J. Clarke Publishing Company, 1916), vol. 1, pp. 63-64; Jay J. Wagoner, *Arizona Territory 1863-1912: A Political History* (Tucson: University of Arizona Press, 1970), pp. 396-97. Few Arizona histories mention the disaster.

[2]William P. Blake, "Report of the Territorial Geologist," in *Report of the Governor of Arizona to the Secretary of the Interior, 1899* (Washington, D.C.: Government Printing Office, 1899), pp. 49, 66. Arizona Bureau of Mines, *Arizona Gold Placers and Placering* (Tucson: University of Arizona, 1933), pp. 26-27. Wagoner, *Arizona Territory*, pp. 26-27.

[3]William P. Blake, "Notes Upon Some Results of the Storage of Water in Arizona," *Transactions of the American Institute of Mining Engineers*, vol. 17 (1888-89), p. 477.

[4]James D. Schuyler, *Reservoirs for Irrigation, Water-Power, and Domestic Water-Supply* (New York: J. Wiley & Sons, 1901), pp. 71-73; Augustus J. Bowie, Jr., *A Practical Treatise in Hydraulic Mining in California* (New York: D. Van Nostrand, 1885), pp. 84, 90, 135, and Table 13. Blake's inscribed and annotated copy is in the University of Arizona Library. Bowie did not emphasize that in 1880 protests of farmers downstream from the hydraulic mining operations had led to a California law almost eliminating the practice.

[5]Deed Book 13, p. 264; Mill Sites and Water Rights Book 1, p. 106; Deed Book 19, p. 264; Deed Book 18, p. 99, all in the Yavapai County Recorder's Office (YCRO), Prescott, Arizona.

[6]*Prescott Weekly Courier*, April 4, 1890. Notebook 195, William P. Blake Collection, Arizona Historical Society, Tucson. David B. Dill, Jr., "William Phipps Blake (1826-1910): Early Arizona Geologist," manuscript, author's files.

[7]Notebooks 195 and 196, Blake Collection.

[8]Notebooks 196 and 197, *ibid.* Deed Book 21, pp. 532, 583, 593; Deed Book 22, p. 292, YCRO.

[9]Notebook 197, Blake Collection. Blake was among the last of the nineteenth-century universal men, who were versed in a wide field of interests but specialized in few.

[10]Notebooks 197 and 198, Blake Collection. *Prescott Courier*, October 12, 1886; *Hoof and Horn* (Prescott), November 18, 1886.

[11]Notebooks 198 and 199, Blake Collection.

[12]Notebook 199, *ibid. Journal-Miner* (Prescott), February 3, 1887. In New York, Dillingham withheld Blake's salary and refused to settle, making a countercharge of $30,000 for "necessary alterations" to the dam. Furious, Blake recorded that "their game is to steal away all my interest in both corporations under the pretense that I did not build, or start, the dam properly! Villains!" On November 21, 1887, Blake finally gave a release, retaining nothing. Notebooks 198 and 202, Blake Collection.

[13]Alexander O. Brodie, "Report to the Yavapai County Board of Supervisors, August 19, 1889," in the *Journal-Miner*, August 24, 1889. Luther Wagoner, "Notes on the Walnut Grove Dam," *Transactions of the Technical Society of the Pacific Coast*, vol. 5 (October, 1888), pp. 73-78. *San Francisco Chronicle*, February 28, 1890; *Engineering News* (New York), March 1, 1890. Schuyler, *Reservoirs*, pp. 58-63.

[14]*San Francisco Chronicle*, February 26, 28, 1890; *Weekly Journal-Miner*, May 19, June 1, 1887. Herbert M. Wilson, "American Engineering, Part III: Irrigation," in *Thirteenth Annual Report of the Geological Survey, 1891-92* (Washington, D.C.: Government Printing Office, 1893), p. 298. Robinson suffered humiliation even more brutal than Blake's. In mid-May, young Walter Bates (apparently related to the Bates brothers) broke into and seized Robinson's office. The following day, Robinson received a telegram of dismissal. He later suspected that the telegram had been faked, because when he sought a settlement in New York, Dillingham and Newberry urged him to return to the Walnut Grove project. Robinson never received a satisfactory settlement. *San Francisco Chronicle*, February 28, 1890.

[15]*Weekly Journal-Miner*, July 20, 1887. Wagoner later claimed that he had personally inspected the dam at least weekly. *Engineering News*, April 5, 1890.

[16]*Weekly Journal-Miner*, December 21, 1887; *San Francisco Chronicle*, February 24, 1890. Wilson, "American Irrigation Engineering," pp. 299-300.

[17]*Weekly Journal-Miner*, September 12, and October 17, 1888; *Hoof and Horn*, August 15, 1889. Brodie, "Report," in *Journal-Miner*, August 24, 1889.

[18]*Prescott Weekly Courier*, April 4, 1890; *New York Times*, October 15, 1893, and August 9, 1927.

[19]*Weekly Journal-Miner*, September 11, 1889. Larry W. Kittell, "The Administration of Alexander O. Brodie, Arizona Territorial Governor, 1902-1905" (M.A. thesis, University of Arizona, 1973), pp. 12-13. Wagoner, *Arizona Territory*, p. 396.

[20]Notebook 205, Blake Collection. Blake, "Notes Upon Some Results," p. 478. *Weekly Journal-Miner*, March 20, 1889; *Prescott Weekly Courier*, April 4, 1890. U.S. Army Signal Service, "Monthly Meteorological Reports, Whipple Barracks, March 1889," microfilm 3376, National Archives.

[21]*Prescott Weekly Courier*, April 4, 1890.

[22]*Journal-Miner*, February 17, 1890; *San Francisco Chronicle*, February 24, 26, 1890. Mary Hanlon became the wife of Alexander O. Brodie and the first lady of Arizona when Brodie assumed the territorial governorship.

[23]*San Francisco Chronicle*, February 16-21, 1890; *Journal-Miner*, February 20-22, 1890. Signal Service, "Monthly Meteorological Reports, Whipple Barracks, February 1890."

[24]*Journal-Miner*, February 27, 1890; *Prescott Weekly Courier*, February 26, 1890. Signal Service, "Monthly Meteorological Reports, Whipple Barracks, December 1889," and "Walnut Grove, December 1889."

[25]*Journal-Miner*, February 27, and March 1, 13, 14, 1890; *San Francisco Chronicle*, February 26, 27, 1890; *Daily Gazette* (Phoenix), February 27, 1890; *Prescott Weekly Courier*, March 13, 1890. At daylight, Burke reappeared at the Walnut Grove Dam but left when threatened with lynching. Sheriff O'Neill's deputies found the fugitive and took him to Prescott under protective custody, until he was arraigned before Judge Henry W. Fleury on March 13 on a charge of manslaughter. Judge Fleury discharged Burke from custody. Once free, Burke maintained his innocence in an interview with the *Prescott Weekly Courier*, March 13, 1890.

[26]*San Francisco Chronicle*, February 27, 1890; *Journal-Miner*, February 27, 1890.

[27]*Daily Gazette*, February 25, 27, 1890; *San Francisco Chronicle*, February 26, 1890; *Journal-Miner*, February 27, 1890.

[28]*Journal-Miner*, February 24, 27, 1890; *Prescott Weekly Courier*, February 26, 1890; *San Francisco Chronicle*, February 26, 28, 1890; *Daily Gazette*, February 27, 1890.

[29]*San Francisco Chronicle*, February 28, 1890.

[30]*Daily Gazette*, February 26, 28, and March 1, 6, 1890; *San Francisco Chronicle*, February 24-28, 1890; *Engineering News*, March 1, 8, and April 26, 1890. Wilson, "American Irrigation," p. 302. John Wesley Powell statement before the House Committee on Irrigation, in *Eleventh Annual Report of the U.S. Geological Survey, 1889-90* (Washington, D.C.: Government Printing Office, 1891), pp. 228-29.

[31]*Journal-Miner*, March 8, 13, 1890; *Prescott Weekly Courier*, March 20, 1890; *Daily Gazette*, March 21, 1890.

[32]*Daily Gazette*, April 1, and May 21, 1890; *Arizona Republican* (Phoenix), May 21, 1890.

[33]Deed Book 81, p. 527, YCRO. Kittle, "Administration of Alexander O. Brodie," p. 15. Over the years (as recently as 1929), Van Beuren, Brodie, and later Van Beuren's daughter Eleanor and her husband Joseph Wittmann, made recurrent efforts to rebuild the dam—all for naught.

CREDITS—The photographs on pages 283, 291, 293, and 303 are courtesy of Sharlot Hall Museum, Prescott; on page 289, from *Scribner's Magazine*, January 7, 1890; on page 301, courtesy of Special Collections, University of Arizona Library, Tucson; all other photographs are courtesy of the Arizona Historical Society/Tucson.

Addenda

Report on Drainage and Stormwater, Recharge and Environmental Conditions

1 Introduction

This report is prepared for the Flood Control District of Maricopa County, Arizona as part of the Lower Hassayampa River Watercourse Master Study (LHRWMS). It summarizes the data collection efforts on drainage regulations and stormwater quality management plans, groundwater recharge, and environmental conditions in the Lower Hassayampa River. The purpose of the report is to help establish baseline conditions, policies, and opportunities for the river reach. The information will be significant for the development of preliminary recommendations for river alternatives if the District pursues Phase II of this project.

2 Study Location

The study area is located in southwestern Maricopa County, west of the White Tank Mountains. The region includes lands in the Town of Buckeye, annexed lands of the Town of Buckeye, as well as unincorporated portions of Maricopa County. The study area consists of the floodplain and erosion hazard areas of the lower Hassayampa River from the Central Arizona Project (CAP) canal crossing south to the confluence with the Gila River, southwest of the Buckeye Town center. Jackrabbit Wash was not included in the study area for drainage regulations, recharge and environmental conditions; however, Jackrabbit Wash is included in other hydrology studies associated with this project.

3 Drainage Regulations and Stormwater Quality Management Practices

The water quality in the Hassayampa River is greatly impacted by the stormwater draining into to the River. This section contains a review of local jurisdictions existing drainage regulations, stormwater quality management practices, and required permits. The objective is to develop preliminary recommendations for improvements needed to protect the river as future developments are designed in the region.

3.1 Drainage Regulations

The Town of Buckeye Development Codes (Town of Buckeye, 2003) state the Flood Control District of Maricopa County (FCDMC) is responsible for management of the flood plain in the Town of Buckeye. However as of November 2004, the County transferred the authority of drainage regulation from the Flood Control District of Maricopa County to Maricopa County Planning and Development Department (MCPDD). The Drainage Regulations for Maricopa County were introduced as the new and currently governing document (MCPDD, 2004).

The FCDMC is currently preparing an Area Drainage Master Study (ADMS) for the Buckeye/Sun Valley Area. The ADMS will identify known and potential flooding and erosion hazards in the region which has a 280 square mile watershed. The first phase of

the project which includes data collection and identification of hazards is anticipated to be completed in 2005.

The Town of Buckeye has a General Development Plan that contains policies on land use, environmental planning, and open space. In addition the Town has a Development Code that contains specific standards for property development. The Development Code contains minimum standards for drainage and dust control.

The Development Code requires a drainage report to be submitted and approved by the Town Engineer for all commercial, industrial, multiple family residential, or subdivisions. The Code requires a detention and conveyance system which prevents any change in runoff volume, velocity, or point of entry to another property. A 100-year storm shall be used for the purposes of determining quantity and duration of rainfall and flood elevations. All finished floors shall be at an elevation one foot above the highest point on the site, and safe from flooding in the 100-year peak run-off event. For urban developments, on-site retention for 2 hours of 100-year rainfall is required. Retained waters must percolate and/or evaporate such that no standing water is present for more than 36 hours to prevent the breeding of mosquitoes.

3.2 Hassayampa River Quality

The majority of the year the upper portions of Lower Hassayampa River are dry. Flows are ephemeral in response to runoff from local and regional rainfall events. Discharges from the Buckeye Irrigation and Drainage District and the Roosevelt Irrigation District provide year round flows to the lower reach.

Water quality in the Lower Hassayampa River is also a concern. Streambed sediments and biological tissue samples taken below the below the Buckeye Canal Discharge indicate Polychlorinated Biphenyls (PCBs) and organochlorine pesticides levels in excess of guidelines for the protection of human health and aquatic life (Anning, 2004). The US Environmental Protection Agency (USEPA) describes the reach as "Impaired", due to the presence of pesticides, toxaphene, atrazine, DDT metabolites, and dieldrin (USEPA, 2000).

3.3 Management Practices

The Drainage Design Manual, Volume III Erosion Control, (FCDMC, 1993) contains guidance for stormwater management and Best Management Practices. In September 2004, a draft updated Drainage Design Manual - Erosion Control (FCDMC, 2004) was released in response to Arizona's new authority over pollutant discharge permits. The new manual has not been approved and may be revised again if discharge permitting authority is returned to the Federal level (see Section 2.3 Required Permit). The manual provides guidance to agencies, municipalities, developers, property owners, engineers, and contractors for methods to manage stormwater from regulated construction activities.

3.4 Required Permits

Permits from the federal, state, county, and town may be required for construction activities within or affecting the Town of Buckeye.

The Federal government regulates activities within rivers and washes including the Hassayampa River and tributary washes such as Jackrabbit Wash and Wagner Wash. Under the Clean Water Act (CWA), a Federal permit is required for dredging or filling activities within areas deemed "Waters of the U.S.". The U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers (USACE) administer the CWA Program and issues 404 permits, for such activities.

The quantity, quality, and location of water discharged from a site are governed by the National Pollutant Discharge Elimination System (NPDES) permits. Prior to December 2002 the USEPA issued NPDES permits for such activities. In the recent past, the Arizona Department of Environmental Quality (ADEQ) has had the authority to issue Arizona Pollutant Discharge Elimination System (AZPDES) permits. This authority may be returned to the US Environmental Protection Agency based upon the decision issued August 22, 2005 by the Ninth Circuit Court of Appeals in the case Defenders of Wildlife versus USEPA which throws into question the validity and status of permits issued and managed under the Arizona Pollution Discharge Elimination System. The Ninth Circuit's orders take effect on October 13, 2005 or upon resolution of a petition for re-hearing, which is expected to be filed. As such, the final outcome will not be known for several months to a year. As it currently stands, AZPDES permits remain in effect until the order takes effect.

Maricopa County Planning and Development Department regulates drainage of all unincorporated lands within Maricopa County for the health and safety of all county residents. MCPDD reviews Drainage Clearance Plans, conducts site inspections (when needed) and issues Drainage Clearances.

Currently, Maricopa County does not issue permits for stormwater quality however they are working with ADEQ and may develop permits in the future. The Maricopa County Environmental Services Department does provide resources and aid on issues of stormwater quality.

The Town of Buckeye regulates Drainage Clearances for incorporated lands. A Drainage Clearance can be issued when a Drainage Report is approved by the Town Engineer. In addition, Drainage Inspection Approval is required prior to issuance of a Certificate of Occupancy.

3.5 Preliminary Recommendations

Based on a review of the current drainage regulations and stormwater quality management the following improvements are preliminary recommendations:

- Coordinate with Town of Buckeye so that General Plan and Development Codes updates to support drainage and stormwater management in such a way as to allow for opportunities for preservation of existing desert washes and the restoration of riparian habitat.
- Coordinate the Sun Valley/Buckeye Area Drainage Master Study with the Lower Hassayampa River Master Study to identify potential opportunities for drainage and stormwater management within the Hassayampa River.

4 Groundwater Recharge

Groundwater recharge is the storage of excess waters in subsurface aquifers. There are two types of recharge: natural and artificial. Natural recharge occurs as a result of rainfall, runoff, and stream flow. Natural recharge is extremely limited in the Lower Hassayampa River, since it is primarily a dry river and the region receives an average of only 8 inches of rainfall per year. Artificial recharge is replenishment of aquifers with imported water, such as canal water or treated wastewater effluent.

The Arizona Department of Water Resources (ADWR) has a goal to achieve safe-yield by the year 2025 through the increased use of renewable water supplies and decreased groundwater withdrawals in conjunction with efficient water use. Both natural and artificial recharge of groundwater is an important part of meeting their goal. The Lower Hassayampa River contains the Hassayampa Subbasin, which is one of the seven subbasins located in the Phoenix Active Manage Area.

4.1 Groundwater Data

Investigations on the groundwater conditions of the Hassayampa River date back to the late 1960's. In 1974, the Arizona Water Commission published a map of groundwater conditions, based on USGS field investigation of wells from 1968 and 1973. The maps indicate the approximate elevation of the groundwater table and the elevation of the ground surface. In 1986, Leonard Halpenny published a paper on the groundwater conditions in the Hassayampa River in Maricopa County. The table below summarizes available information on the historic depth to groundwater at select points along the study reach of the Hassayampa River.

Historic Depths to Groundwater in the Lower Hassayampa River, Maricopa County, AZ

Location	Surface Elevation (ft)	Groundwater Table Elevation (ft)	Depth to Groundwater (ft)
Thunderbird Road Alignment [1]	N/A	N/A	400
Van Buren Road [2]	1010	965	45
Southern Pacific Railroad [2]	840	820	20
Arlington Canal Siphon [2]	800	745	55

[1]Halpenny, 1986. N/A = Not Available
[2]Stulik, 1974.

4.2 Literature Review

Leonard Halpenny's 1986 paper on the groundwater conditions in the Hassayampa River in Maricopa County, presented results of a hydrogeological investigation of 48,000 acres in the Lower Hassayampa River Valley. He summarized that at the time of the report, the Hassayampa region was one of the only remaining groundwater basins in central, southern, or southeastern Arizona to be undeveloped. He noted that a few wells existed for supplying livestock and two wells were installed to provide construction water for the CAP canal. His investigations included digging 9 test holes to evaluate subsurface geology and depth to static water. Water samples were collected from 4 test holes.

A 1987 report evaluated the opportunities for groundwater recharge in the Lower Hassayampa Subbasin. Five locations in the Hassayampa River and Jackrabbit Wash were identified. The study cited limitations in "long-term storage sites because of the lack of control over the water once recharged." The depth to the groundwater was about 200 feet in the south and 300 feet in the northern reaches, such an elevation gradient is thought to indicate the movement of subsurface waters toward the Gila River. Near Tonopah a cone of depression has been identified with depths to the groundwater table ranging from 300 to 400 feet. The storage capacity at the Tonopah depression is estimated at 80,000 to 90,000 acre-feet (CAWCD, 1987).

4.3 Artificial Recharge

Recharge of imported water, either canal water or treated wastewater, is termed artificial recharge. Artificial recharge can be used to serve several functions including minimize groundwater table declines and land subsidence, underground storage of future water supplies and effluent disposal. Numerous artificial recharge projects are planned for the Lower Hassayampa River subbasin.

4.3.1 Underground Storage Facilities

Two Underground Storage Facilities are planned in the Hassayampa subbasin: Tonopah Desert Recharge Project and West Maricopa Combine Project.

The Tonopah Desert Recharge Project seeks to directly recharge up to 150,000 acre-feet per year of Central Arizona Project (CAP) water in the desert 7 miles northwest of Tonopah. The project currently in construction and anticipated to be complete as early as November 2005 (CAP, 2005). The Tonopah recharge site is located in the Hassayampa Subbasin, but due to it distance from the Hassayampa River is not anticipated to have impacts on the Hassayampa River surface water supply or environmental conditions.

West Maricopa Combine, Inc has a permit to operate an Underground Storage Facility for up to 25,000 acre-feet per year (Permit USF 71-550601). The project seeks to recharge excess CAP water in basins near the Hassayampa River and CAP canal crossing (WMC, 2005). Construction of the recharge facility has not yet started. If constructed this project could have immediate impacts on surface water and environmental conditions in the Hassayampa River.

4.3.2 Effluent Recharge

The Town of Buckeye is actively undergoing a population boom as historic farms are being developed into residential communities. In order to keep up with the increasing wastewater flows from the new residents, the Town of Buckeye plans to expand the capacity at their existing Central Buckeye Wastewater Treatment Plant (WWTP). The current capacity of the facility, located south of Beloat Road, between Miller and Apache Roads, is 2.0 million gallons per day (mgd), and the facility has sought approval from Maricopa Association of Governments to expand to a built-out capacity of 16.6 mgd. The facility discharges under an AZPDES permit to the Arlington Canal (MAG, 2005). The Arlington Canal siphons under the Hassayampa River and continues west to Arlington. The capacity of the existing canal may not be sufficient to carry an additional 14.6 mgd of effluent from Buckeye WWTP.

The twenty-first century has brought renewed interest in residential development in the Sun Valley Area of the Hassayampa River. The Town of Buckeye has annexed large plots of lands adjacent to the river however water and wastewater services will not be constructed/supplied by the Town of Buckeye. Developers are being tasked with acquiring adequate water resources, which likely include recharge and recover strategies. Issues concerning groundwater supplies are key elements of sustainability of future development.

Construction is currently underway on the first phase of Festival Ranch Community and Wastewater Reclamation Facility. The 4,274 acre master planned community is located east of the Hassayampa River and south of the CAP canal. The community has approval for a 4 mgd water reclamation plant to produce A+ effluent for golf course reuse,

landscape irrigation, and groundwater recharge and recovery; construction of the Festival Ranch Wastewater Reclamation Facility is also underway (Coe and Van Loo, 2003). Effluent discharge plans include an AZDPES permit to Wagner Wash, a tributary of the Hassayampa River (MAG, 2003b).

Trillium is a 3,029 acre master-planned community to be constructed about 11 miles north of I-10 adjacent to the Hassayampa River and west of the Sun Valley Parkway. The community is planned to intersect Wagner Wash and other unnamed tributaries of the Hassayampa River. The proposed community will contain a wastewater treatment facility, but details regarding the facility location, capacity, treatment, and discharge are not yet available (USACE, 2005).

The Tartesso West Master Plan Community anticipates a population of 140,000 residents by 2022. Buckeye Tartesso West Water Reclamation Facility will be constructed in 1.2 million gallon per day (mgd) increments with an ultimate capacity of 18 mgd. The facility plans to meet ADEQ Title 18 Class A+ Effluent Standards for reuse and recharge. Preliminary estimate state for 85 to 100% of the effluent to be recharged in exchange for groundwater recharge credits, with less than 15% of the effluent directly reused for golf course irrigation. The facility shall be located north of interstate I-10 west of Sun Valley Parkway (MAG, 2003a).

Douglas Ranch boosts to be Arizona's largest Master planned Community, covering 36 square miles, located on the west bank of the Hassayampa River. Jackrabbit Wash and the CAP canal both flow through the proposed site. The community anticipates 83,000 homes for a population of approximately 250,000. (Buckeye Valley Chamber, 2005) Early reports are the community intends to utilize groundwater supplies and use effluent recharge to minimize land subsidence. (Town of Buckeye, 2002)

4.4 Preliminary Recommendations

Based on the review of the groundwater conditions and preliminary plans for recharge the following preliminary recommendations could be considered for future development:

- Artificial and natural recharge should be encouraged in the study reach of the Lower Hassayampa River and its tributary washes. Such action would likely enhance in-stream habitat development, provide a drought-resistant water source, and reduce land subsidence on the affected area.
- Communities should be encouraged to locate recharge area adjacent to the existing or potentially high quality habitat area(s).
- Water quality of existing discharges and underlying aquifer should be assessed with respect to its compatibility with planned or proposed recharge water sources.
- Individual recharge efforts should be coordinated throughout the watershed to optimize opportunities including but not limited to: wildlife corridors, passive/low impact recreation, and/or nuisance management (i.e. vector control).

5 Environmental Conditions

A planning level investigation was conducted to establish the environmental conditions in the study area. The investigation consisted of a literature review, one site visit, and an investigation of current aerial photographs of the project site. The purpose of the investigation is to provide information on the environmental conditions to assist in the alternative analysis process of the planning study.

5.1 Literature Review

Two major types of literature were collected on the environment of the Hassayampa River. The first were documents that characterize the environment from a regional prospective. The second were results of vegetation research efforts on the Hassayampa River and similar riparian systems.

5.1.1 Regional Habitat

The Lower Hassayampa River is located in the Sonoran Desert. The Sonoran Desertscrub is divided into six subdivisions and Maricopa County is classified as Lower Colorado River Valley. Two main series are represented in the Hassayampa River region, the Creosotebush-White Bursage series in the uplands and the Mixed Scrub Series within the tributary washes and flood plain of the river.

Creosotebush-White Bursage Series
The creosotebush and white bursage form the most abundant vegetative community in the Lower Colorado River Valley Subdivision. These species have a unique ability to survive in very dry soil conditions, and in many portions of the Sonoran Desert they have little competition from other species.

Mixed Scrub Series
Increased soil moisture along desert washes and riverbeds, allow for a more diverse community of vegetation. The Mixed Scrub Series includes blue palo verde (*Cercidium floridum*), ironwood (*Olneya tesota*), desert lavender (*Hyptis emoryi*), and other species typical of the Sonoran desert.

5.1.2 Vegetation Research

Numerous research investigations have been conducted on vegetation in the Hassayampa River. Results of several are published in peer reviewed journals including *Wetlands*, *Ecological Applications*, and *Great Basin Naturalist*. The research focus includes impact of groundwater levels and flood events on vegetation species and diversity.

Arizona State University professor Juliet Stromberg published several papers on the impact of floods on riparian species. The first focused on the response of Sonoran

riparian forest to a 10-year return flood. Native plants were found to have a high resilience to flood disturbance. Post-flood herbaceous understory vegetation improved in diversity from nearly monotypic stands of exotic annuals to a mixture of native and exotic annual grasses and forbs. The second focused on the development of marsh habitat after large flood in an alluvial arid-land river (1997). The research investigated the scouring effects of the 1993 and 1995 flood events and the redevelopment of riparian species. Findings indicated that the flood event destroyed mature riverine stands but the receeding floodwaters provided moist soils for sprouting young saplings. The third focused on growth and survivorship of cottonwood, willow, and salt cedar after the 1993 flood. The goal of the research was to help identify methods for managing restoration to favor native tree species over non-native invasive species. Findings suggest that the timing of the flood may effect the seed germination; flooding prior to the late spring may favor cottonwood and willow, while summer events favor germination of salt cedar. In addition, salt cedar may be less tolerant of scouring effects of floods (100 percent mortality versus 96 percent of cottonwood and willow in the 1995 flood), but better capacity of surviving longer flood inundation. All three research investigations included as a reference site the upstream perennial reach of the Hassayampa River outside Wickenburg, Arizona.

Northern Arizona State University doctoral student Jonathan Horton (2001) published a paper on the physiological response of cottonwood (*Populus fremontii*) and willow (*Salix goodgingii*) to groundwater depths and changes in river flows. The research sites included the Hassayampa River upstream of the project area of the LHRWMS.

5.2 Field Investigations

On June 22, 2004 field investigations were conducted on the Lower Hassayampa study area. The study area was divided into three sections (Upper, Middle, and Lower) for simplification. The upper reach is from the CAP canal crossing to approximately the confluence of Jackrabbit Wash, the middle reach is from Jackrabbit Wash to the Roosevelt Irrigation Canal discharge, and the Lower from the Roosevelt discharge to the confluence with the Gila. Vegetation was identified and evaluated every 0.5 to 1.0 miles along the river. At each location, photographs were taken upstream (facing north) and downstream (facing south), dominant and co-dominant plant species were identified, and gps coordinates were recorded. In addition comments were also recorded regarding the presence of wildlife or unique environmental features.

In general, the upper reach of the river is predominately dry, sandy cobbles, dominated by palo verde complexes. The middle reach is similar to the upper portion; however, it is sandier, has a wider open channel, and less palo verde. The lower reach is dominated by salt cedar trees and shrubs. This is likely a direct result of regular water supply from the Roosevelt and Buckeye Canal discharges. Wildlife observed included: hawks, quail, jackrabbit. Domestic cattle were also seen grazing in the middle stretch of the Hassayampa River.

5.3 Agency Correspondence and Regulations

Letters were sent to both the Arizona Game and Fish Department (AGFD) and US Fish and Wildlife Service (USFWS) informing them of the study, project location, and requesting information on threatened or endangered species potentially in the area.

AGFD provided a list of special status species within 3-miles of the project area, shown in **Table 1**.

Table 1 Special Status Species within 3-miles of the Lower Hassayampa River Watercourse Master Study area

Name	Common Name	ESA	USFS	WSCA	ANPL
Coccyzus americanus occidentalis	Western Yellow-billed Cuckoo	C	S	WSC	
Gopherus agassizii	Sonoran Desert Tortoise	SC		WSC	
Opuntia echinocarpa	Straw-top Cholla				SR
Rallus longirostris yumanensis	Yuma clapper rail	LE		WSC	
Rana yavapaiensis	Lowland leapord frog	SC	S	WSC	

ESA = Endangered Species Act
USFS = United States Forest Service
WSCA = Wildlife Species of Concern in Arizona
ANPL= Arizona Native Plant Law
C = Candidate for listing
LE = Listed Endangered
S = Sensitive
SC = Special Concern
SR = Salvage Restricted
WSC= Wildlife Species of Concern

Endangered Species Act of 1973 (ESA)
The Endangered Species Act of 1973 is one of the most extensive programs for wildlife conservation. The purposes of this act are to provide protection and conservation programs for threatened and endangered species, to conserve the ecosystems upon which these species depend, and to take the appropriate steps to achieve these goals. Authorization is given to the USFWS to provide most of this protection and conservation. In addition to these purposes, Federal agencies shall cooperate with State and local agencies to resolve water resource issues that pertain to the conservation of endangered species.

By this act, "endangered species" is defined as any species which is in danger of extinction throughout all or a significant portion of its range. The term "threatened species" refers to any species which is "likely to become endangered within the foreseeable future" throughout all or a signification portion of its range. The term "critical habitat" is used to describe specific areas 1) within the geographical area occupied by a listed species that contains the physical or biological features essential to the conservation of the species and which may require special management or protection and 2) outside the geographical area of the species but deemed essential for the conservation of the species.

US Forest Service (USFS)
The US Forest Services identifies species occurring on National Forests in Arizona, which are considered sensitive by the Regional Forester.

Arizona Native Plant Law of 1993 (ANPL)
Arizona has some of the rarest and most unusual native plants in the United States. Several of these native plants take years to grow and are irreplaceable if damaged or removed. Thus in order to protect these native plants, the Arizona Native Plant Law was established in 1993. According to ANPL, all law enforcement agencies in the state monitor the native plant law activities. Many of Arizona's native plants fall into one of five categories of protections. These categories of protected plants are:

HS – Highly Safeguarded: no collection allowed.
SR – Salvage Restricted: collection only with permit.
ER – Export Restricted: transport out of State prohibited.
SA – Salvage Assessed: permits required to remove live trees.
HR – Harvest Restricted: permits required to remove plant by-products.

Wildlife of Special Concern in Arizona (WSCA)
Wildlife of Special Concern in Arizona was designated in 1996 by the Arizona Game and Fish Department to identify species whose occurrence in Arizona is or may be in jeopardy. This includes species with known or perceived threats or population declines. Species indicated to be WC (Wildlife of Special Concern) are also the same as those in the Threatened Native Wildlife in Arizona of 1988.

5.3.1 Wildlife Potential

5.3.1.1.1 Special Species

Western yellow-billed cuckoo, *Coccyzus americanus*, is a small, slender, jay-sized bird, which prefers to reside in moist thickets, willows, and overgrown pastures. Suitable habitat might be found in the lower reaches of the Hassayampa River and adjacent agricultural fields south of the Southern Avenue alignment and at the confluence with the Gila River.

Sonoran desert tortoise, *Gophurus agassizii*, is a medium size (8-15 inches in length) brownish tan shelled tortoise. In Arizona, the tortoise prefers to reside on steep, rocky slopes in the creosote - scrub shrub associations. The presence of suitable soils for burrowing is essential for survival since this tortoise burrows to escape the desert heat. The middle reach of the project area contains several rock outcrops and buttes that may provide appropriate slopes for the Sonoran desert tortoise.

The Yuma clapper rail, *Rallus longirostris yumanensis,* is a chicken-sized rail, of grayish-brown color. It resides in fresh and brackish water marshes, preferring dense cattails, bulrushes, and other aquatic vegetation. It feeds on fish, crayfish, and other small aquatic creatures. Yuma clapper rail prefers to reside amongst the reeds in marshes of the mesic/hydric riparian communities. As such, the riparian wetlands created at the

discharge of the Buckeye Canal and at the confluence of the Gila River are likely the only currently suitable habitat for the rail.

The Lowland leopard frog, (*Rana yavapaiensis*), is a small amphibian that generally resides in permanent waters below 3,000 feet in elevation. The water bodies vary from small to medium streams, to ponds and occasionally large rivers. The aquatic systems are typically surrounded by desert scrub and semidesert grasslands. Suitable habitat exists in the water bodies downstream of the Buckeye Canal discharge.

Straw-top cholla, *Opuntia echinocarpa,* is a native plant, which grows in dry washes and streambeds in the Lower Sonoran desert. It may be present in the Hassayampa River corridor. Construction, such as levees or bridge abutments, should avoid Straw-top cholla, but if avoidance is not possible then the plant should be salvaged and relocated under a permit, available from the Arizona Department of Agriculture.

5.3.1.1.2 Migratory Birds

Approximately half of the state of Arizona's 500 species of birds are neotropical migratory birds, wintering in Arizona but breeding in the northwestern United States or Canada. Arizona's river system acts as migratory corridors offering resting places with shelter and foraging opportunities. Most migratory birds feed on insects and spiders. (Arizona Partners in Flight, 2004) The project reach of the Lower Hassayampa River does not provide the lush riparian habitat to support extensive use as a winter residence for most neotropical migratory birds, however its connection between the upstream Hassayampa River Preserve and the downstream Gila River make it a potential connective corridor.

4.4 Opportunities

Many changes are planned for the future of the Lower Hassayampa River. With these changes bring opportunities and challenges as we blend development and the demand for water supplies with the preservation of the environment and native wildlife. Based on the research discussed above and experience in other river systems in the Phoenix metropolitan area, the following recommendations are made:

- Reduce cattle grazing in the river channel to increase the diversity and density of native vegetation as well as improve water quality during low flows on the river.
- Reduce exotic species such as salt cedar through the creation and maintenance of open water and native riparian habitats.
- Incorporate new effluent discharges into the river to improve riparian habitat as well as allow aquifer recharge through the porous river cobbles.
- Coordinate with developers to plan for stormwater management and river discharges in an attempt to promote the establishment or survival of native plants and minimize the establishment of exotic species.

REFERENCES

Anning, David W., 2004. "Effects of Natural and Human Factors on Stream Water Quality in Central Arizona" USGS. Arizona Water Resources Supplement. January – February 2004.

Arizona Department of Water Resources (ADWR), 2003. List of Underground Storage Facility Permits. December 31, 2003.

Brown, David E. (1994) *Biotic Communities: Southwest United States and Northwestern Mexico*. University of Utah Press.

Buckeye Valley Chamber, 2005. http://www.buckeyevalleychamber.org

Central Arizona Project (CAP) 2005. http://www.cap-az.com/recharge/

Central Arizona Water Conservation District (CAWCD) 1987. Opportunities for Groundwater Recharge in Central Arizona. Prepared by Ungerman Engineering, Inc. Phoenix, Arizona.

Coo and Van Loo (2003) Clean Water Act Plan 208 Amendment for the Town of Buckeye Festival Ranch Water Reclamation Facility. Prepared for Pulte Homes.

Flood Control District of Maricopa County (FCDMC), 2004. Drainage Design Manual for Maricopa County, Erosion Control. Draft. September 2004.

Flood Control District of Maricopa County (FCDMC), 1993. Drainage Design Manual Volume III Erosion Control.

Halpenny, Leonard, 1986. "Groundwater in the Hassayampa River Valley, Maricopa County, Arizona" Prepared by Water Development Corporation. Presentation for Rocky Mountain Groundwater Conference, Phoenix, Arizona, September 16, 1986.

Maricopa Association of Governments (MAG) 2003a. Minutes from the Maricopa Association of Governments Water Quality Advisory Committee Meeting. July 28, 2003.

Maricopa Association of Governments (MAG) 2003b. Minutes from the Maricopa Association of Governments Water Quality Advisory Committee Meeting. October 16, 2003.

Maricopa Association of Governments (MAG) 2005. Agenda for the Maricopa Association of Governments Water Quality Advisory Committee Meeting. July 12, 2005.

Maricopa County Planning and Development Department (MCPDD), 2004. Drainage Regulations for Maricopa County.

Stromberg, Juliet *et al,* 1997. "Marsh Development After Large Floods in an Alluvial Arid-Land River" *Wetlands.* Vol. 17 No. 2. pp 292-300.

Stromberg, J.C., 1997. "Growth and Survivorship of Freemont Cottonwood, Goodings Willow, and Salt Cedar after Large Floods in Central Arizona" *Great Basin Naturalist.* Vol. 57 No. 3. pp. 198-208.

Stromberg J.C. *et al*, 1993. "Response of the Sonoran Riparian Forest to a 10-year Return Flood." *Great Basin Naturalist.* Vol. 53 No. 2. pp. 118-130.

Stulik, R.S., 1974. Ground-water Conditions in the Lower Hassayampa Area, Maricopa County, Arizona. Arizona Water Commission Bulletin 8. Prepared by the U.S. Geological Survey.

Town of Buckeye, 2001. General Development Plan Update: Growing Smarter Plus Elements. With April 2002 Housing Element.

Town of Buckeye, 2002. Minutes of the Regular Meeting of the Community Planning and Development Board. September 24, 2002.

Town of Buckeye, 2003. Development Code. Prepared by the Community Development Department.

U.S. Army Corps of Engineers (USACE), 2005. Public Notice Trillium West Application for Clean Water Act Section 404 Permit. Prepared by SWCA Environmental Consultants.

U.S. Bureau of Reclamation (USBR), 1945. Hassayampa Project, Arizona. Project Planning Report No. 3-8b.1-0.

U.S. Environmental Protection Agency (USEPA), 2000. Watershed Assessment Tracking and Environmental Results System. 305(b). Hassayampa River, Buckeye Canal-Gila River. http://oaspub.epa.gov/

West Maricopa Combine (WMC), 2005. http://www.wmcwater.com/