PRELIMINARY STRUCTURE SELECTION REPORT

SOLS WASH BRIDGE
STRUCTURE # 2819

WICKENBURG - KINGMAN HIGHWAY (US93)
PROJECT NO. 093-B(xxx)
TRACS NO. 093 YV 198 H 5825 01 C

JUNE 30, 2004

WICKENBURG - KINGMAN HWY (US93)
WICKENBURG INTERIM BYPASS
093-B(XXX)
093 YV 198 H 5825 01 C

SOLS WASH BRIDGE
STR. NO. 2819
MP 199.50

Prepared by	______________________ Larry Altuna	Senior Bridge Engineer	Date: _________
Approved by	______________________ Henry Sung	Bridge Design Section Leader	Date: _________
Approved by	______________________ Jean Nehme	State Bridge Engineer	Date: _________

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INTRODUCTION:

This Structure Selection Report presents an engineering evaluation to establish the structure type and layout that is most cost effective and functional for this bridge location. The Sols Wash Bridge will be a new structure in the Wickenburg Interim Bypass of US Route 93. The segment is one of several involved in a US93 corridor reconstruction from Wickenburg to Interstate 40. The bridge site is located in Maricopa County in the Town of Wickenburg on US 93 at milepost 199.50±. The existing roadway (US 93, Tegner St.) near the site is 5 lanes carrying north and south bound traffic. The new roadway will have 4 lanes carrying north and south bound traffic. The new structure will consist of two lanes carrying northbound traffic and two lanes carrying southbound traffic, divided by a flush median. Pedestrian access will be provided on the south edge of the structure by a sidewalk with a separation barrier.

The existing roadway (US 93, Tegner St.) utilizes the existing Sols Wash Bridge to carry traffic over the wash. The existing Sols Wash Bridge was built in 1999. The bridge is a 225 ft and 9 ¼ in long, six span, reinforced concrete box culvert bridge. The final design concept report (DCR) for this highway section recommends bypassing the Town of Wickenburg creating a new alignment for US 93 and constructing a new 4 - span 230ft long bridge to carry northbound and southbound lanes over the Sols Wash. This project will construct the new US 93 alignment and bridge. The existing roadway and bridge will be utilized for carrying traffic until the new roadway and bridge are constructed and open to traffic.

The primary purposes of the bridge are to span the wash and to provide for equestrian movements. Sols Wash is an ephemeral waterway and is not very environmentally sensitive, however, reasonable care will be taken to minimize disturbance during construction.

ROADWAY ALIGNMENT:

The roadway along the Sols Wash Bridge site is on a horizontal tangent. The vertical profile of the bridge lies within a vertical curve. The following is a summary of the alignment information provided by Jacobs Civil, Inc.:

Horizontal Tangent:

	Bearing
US 93 Constr. C.L.	N 38° 54' 00" W

Vertical Curve:

	PI*	Elevation*	L*	G1	G2
US 93 Constr. C.L.	118+65.00	2054.00	1000.00	-0.4225%	+0.4019%

* Measured in feet

BRIDGE LAYOUT:

The bridge location and length are controlled by the Sols Wash design drainage width, roadway alignment, roadway profile and abutment type. If possible, piers should not be placed in the center of the stream's low flow channel to improve drainage. For constructability, bridges should be kept as simple as possible by avoiding skews, curves and irregular shapes. Stream cross sections upstream will be used to determine the natural stream cross section at the bridge. The new bridge length will fit the natural streambed width and will be high enough to clear the high water elevation with freeboard. A bridge opening of 248 feet will be provided to meet the parameters noted above.

BRIDGE TYPICAL SECTION:

The bridge width is measured normal to the construction centerline (horizontal tangent) and is constant throughout the length of the bridge. The overall deck width will be 77 ft - 7 ¾ in, which includes two 16 ft lanes, two 12 ft lanes, one 12 ft flush median, one 1 ft – 5 in F-Shape barrier, one 1 ft - 2 ¾ in F-Shape separation barrier a 6 ft sidewalk, 10 in parapets and 2 in clear deck outside of parapet.. The bridge deck will also have a varying cross slope that begins with a -0.01 ft/ft Lt. and –0.02 ft/ft Rt. superelevation and transitions into a 0.02 ft/ft crown.

DRAINAGE & SCOUR:

Drainage information have been provided by West Consultants, Inc., with the following design information:

Q_{50} = xx,xxx cfs **Q_{100} = xx,xxx cfs**

Bridge	Thalweg El. (ft)	50-year event		100-year event	
		HW (ft)	V (fps)	HW (ft)	V (fps)
	2040.00	2049.85	xx.xx	xxxx.xx	xx.xx

Scour information have been provided by West Consultants, Inc., with the following design information:

Bridge	50-year event		100-year event	
	Total Scour (ft)	**Scour Elev. (ft)**	**Total Scour (ft)**	**Scour Elev. (ft)**
	XX.XX	XXXX.XX	XX.XX	XXXX.XX

It is recommended that abutment foundations be designed for the same scour elevation as the piers. Deck drainage will be contained by the barriers and deposited to the north approach roadway curb and gutters. Sidewalk drainage will be deposited at the end of the northwest wingwall.

VISUAL APPEARANCE:

The bridge will be visible from existing Wickenburg Way (US 60) and new US 93 roadway due to the relative position and approach to the US 60/93 intersection. The bridge falls within the Town of Wickenburg and will be visible from adjacent residences, community center and park. The appearance of the bridge will affect the selection of bridge components and the final bridge selection. Any surface treatments, colors, etc. will be determined during final design and construction.

TRAFFIC CONTROL:

No traffic control devices are required on the bridge. During construction, the existing roadway (US 93, Tegner St.) and bridge will carry traffic while the new bridge is built. Traffic will then be switched to the new US 93 alignment and bridge when construction is complete.

UTILITIES:

There is no significant existing utility involvement at this bridge site. At this time, no new utility installations have been identified in the vicinity of the structure.

DESIGN LOADS:

Design loads are based on AASHTO HS20-44 and the Alternate Military loading with other applicable loads specified in *AASHTO Standard Specifications for Highway Bridges, seventeenth edition, 2002* and *ADOT Bridge Group, Bridge Practice Guidelines.*

For seismic considerations the bridge is classified as an Importance Classification I structure. ADOT's Seismic Contour Map of Arizona shows a ground acceleration of

0.035 g with a 90% probability of non-exceedance within 50 years, therefore, the site is classified as Seismic Performance Category (SPC) A.

BRIDGE STRUCTURES

SUPERSTRUCTURE:

The superstructure alternates considered will provide a bridge opening of 248 feet. The roadway profile and the high water of the river plus freeboard will allow for a maximum superstructure depth of only 1.88 feet. Due to this drainage constraint, normally considered alternates such as AASHTO I-Girders, AASHTO Box Beams, AASHTO Slab units, CIP Box Girders and Steel Plate I-Girders are not feasible options. Precast AASHTO I-Girders and Box Beams are of fixed depths and exceed the maximum superstructure depth. CIP Box Girders, Steel Plate I-Girders and AASHTO Slab units could meet the maximum superstructure depth, but would require shorter spans and smaller girder/web/unit spacing, increasing the cost considerably. For the required 248ft bridge opening, a seven span reinforced concrete slab superstructure will be the only appropriate and feasible option for this bridge site.

CIP REINFORCED CONCRETE SLAB:

Cast-In-Place (CIP) reinforced concrete slab bridges can easily adapt to curved roadways, but offers no considerable advantage due to the horizontal tangent alignment. Along with meeting superstructure depth requirements the shallower superstructure is aesthetically more pleasing than a deep one. However, this type of structure does not provide much flexibility when considering span arrangements due to acceptable depth to span ratios. The cast-in-place concrete construction method is common in Arizona, and the required materials and equipment are readily available.

Falsework is required to construct this superstructure type and is a distinct disadvantage when constructing bridges over water crossings, involving the possibility of a flow event and risking the removal of falsework.

FOUNDATIONS:

Reinforced concrete slab bridges are normally supported by wall or bent cap substructures. Such substructures are supported by spread footings, drilled shafts or driven piles. Spread footings cannot be used due to the scour depth and the lack of bedrock at this site. Drilled shafts cannot be used due to the scour depth and the cost increase associated with the use of multiple short spans. Driven piles are also not cost effective due to the cost of driving piles, scour depth and cost increase associated with the use of multiple short spans. A bottom slab foundation with cut off walls at both the upstream and downstream edges of the structure will be the most feasible option. It can support both the abutment/pier walls and bent cap substructures, in addition provide scour protection for the structure.

Geotechnical information indicates that non-erodable rock is not present at the bridge location and no additional structural backfill measures will be needed to support the bottom slab floor. The final design of the foundation of the substructure is contingent on the Final Geotechnical Report.

ABUTMENTS:

The abutments will be constructed on new roadway embankment at both approaches. Full height wall abutments are the practical type considered, due to the concrete slab superstructure and the bottom slab foundation. To match the stream flow orientation of the wash, the abutment walls will be constructed parallel to the stream flow and the bridge skew. Wingwalls supported by spread footings will be used to contain the roadway embankments and aid flow direction in the wash.

PIERS:

Full height wall piers are the practical type considered, due to the concrete slab superstructure and the bottom slab foundation. To match the stream flow orientation of the wash, the pier walls will be constructed parallel to the stream flow and the bridge skew. The end edges of the pier walls will have a semi-circular nose and tail aid the flow of the wash.

ALTERNATE COMPARISONS:

The following factors are considered in comparison of alternates:

- Cost
- Constructability
- Aesthetics
- Maintenance

Due to the restrictive design features of this bridge site only one superstructure alternate and the associated substructures have been thoroughly discussed. Leaving only one feasible option. The following is a breakdown of the items mentioned above as it pertains to the single alternate featured in this report.

Alternative #1: Seven Span, CIP Reinforced Concrete Super-Box Culvert Bridge

Estimated Cost: $1,529,528

Constructability: Falsework construction is required for this bridge type and is not normally recommended at water crossings. The superstructure falsework may be subject to a water flow event. Construction should be scheduled to avoid normal rainfall seasons at the site. However, phase constructing the foundation to allow a flow detour for the stream may be considered, if the bridge construction has to take place during a rainfall season. Ground leveling and structural excavation will be required to provide a uniform base for the bottom slab foundation. However, the bottom slab of the structure can aid in providing a solid base for falsework construction. Construction time could be accelerated for this structure to minimize the risk of a water flow event during construction.

Aesthetics: This alternate is aesthetically considered to be moderately attractive. The pier walls fill the entire width of the bridge and provide a cavernous look to the structure. The multiple short spans offer a less pleasant visual effect from adjacent businesses and residences.

Maintenance: This alternate requires very little maintenance over the life of the structure. Maintenance may be required for the ground cover over the bottom slab after rain events to maintain proper drainage and equestrian access.

RECOMMENDATION:

Alternative #1

A 7 - Span, CIP Reinforced Concrete Super-Box Culvert Bridge is the recommended alternate for this site. This bridge type Consists of a CIP slab superstructure, supported by full height abutment and pier walls, with a bottom slab foundation. Wingwalls supported by spread footings will be located at both abutments.

This bridge type offers considerable cost savings, compared to other superstructure types considered. This alternate was also rated moderate for constructability and high for maintenance although it is not rated high aesthetically. Additionally, this bridge type has been commonly used for similar sites and design criteria throughout the state highway system and has performed well.

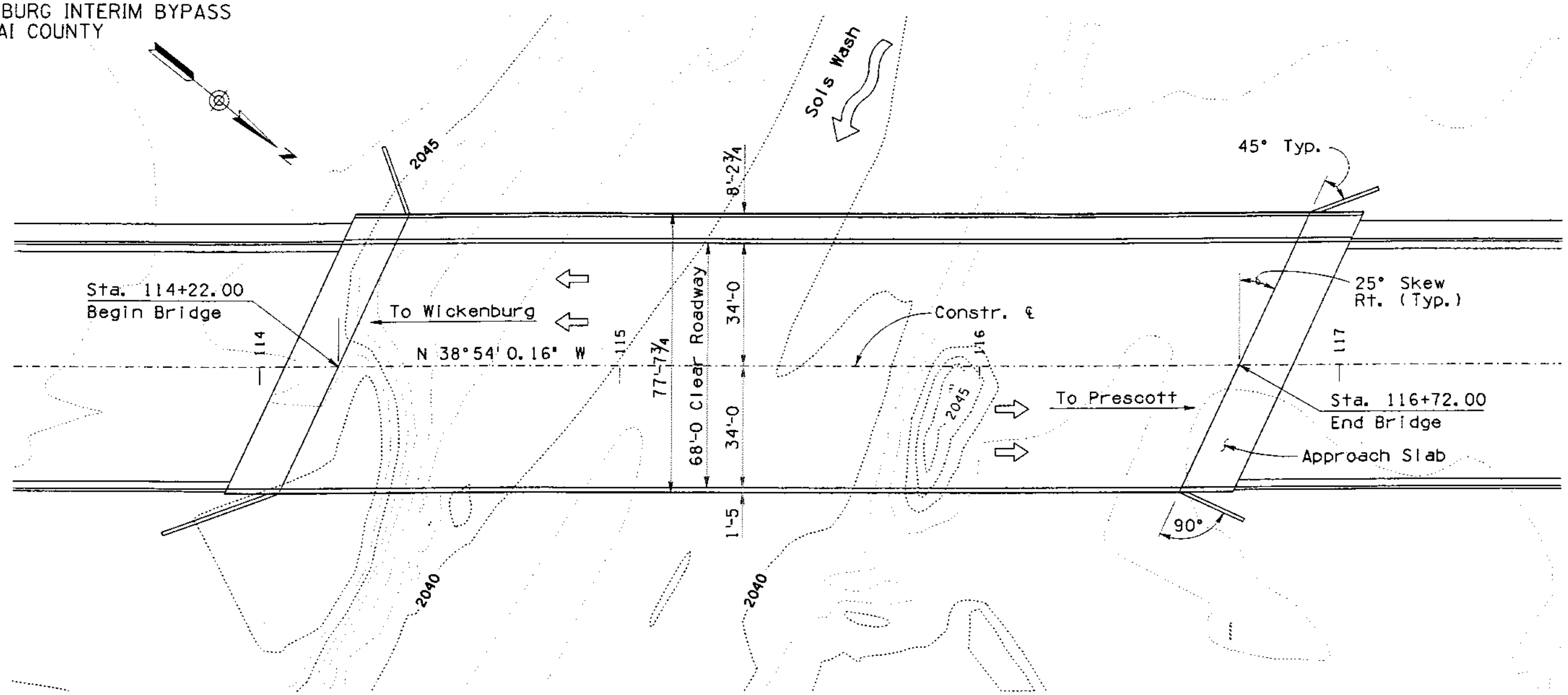
APPENDIX A

Plans for the Recommended Alternate

WICKENBURG - KINGMAN HWY. (US 93)
WICKENBURG INTERIM BYPASS
YAVAPAI COUNTY

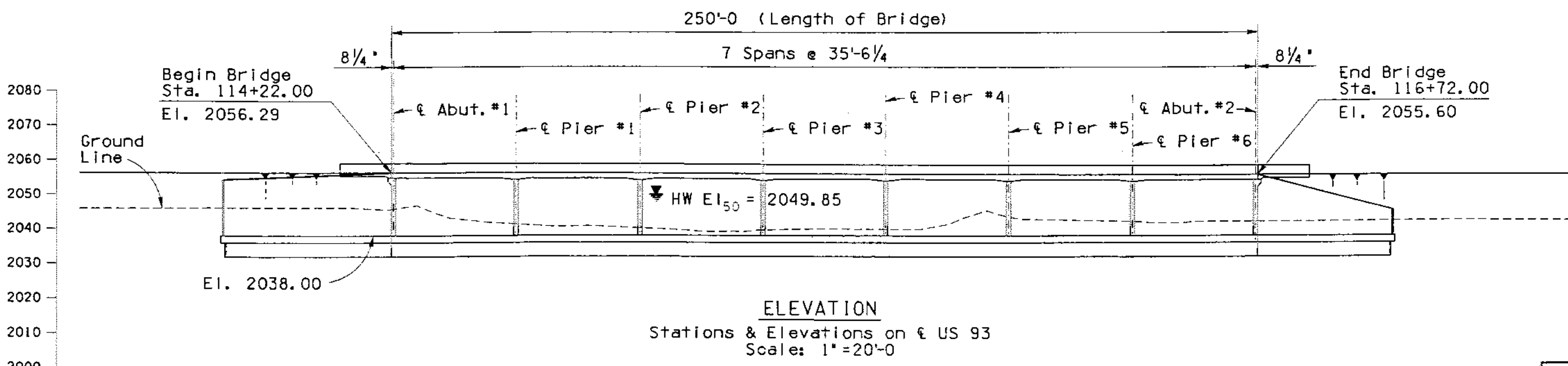
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	093-			

93 YV 198



LOCATION PLAN

New 7 Span R.C. Box Culvert Bridge
Skew 25° Rt.
Scale: 1" = 20'-0



ELEVATION

Stations & Elevations on ℄ US 93
Scale: 1" = 20'-0

TOP OF DECK STATIONS & ELEVATIONS								
	℄ ABUT. #1	℄ PIER #1	℄ PIER #2	℄ PIER #3	℄ PIER #4	℄ PIER #5	℄ PIER #6	℄ ABUT. #2
Station	114+22.69	114+58.21	114+93.72	115+29.24	115+64.76	116+00.28	116+35.79	116+71.31
Elevation	2056.28	2056.15	2056.04	2055.93	2055.83	2055.75	2055.67	2055.61

SHEET LIST

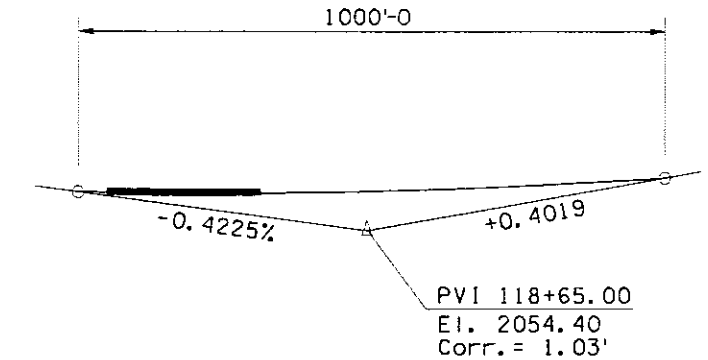
TITLE	DRAWING NO.
GENERAL PLAN	S-2.1
QUANTITIES AND TYPICAL SECTION	S-2.2
FOUNDATION LAYOUT	S-2.3
FOUNDATION DETAILS	S-2.4
ABUTMENT #1 PLAN AND ELEVATION	S-2.5
ABUTMENT #2 PLAN AND ELEVATION	S-2.6
ABUTMENT DETAILS	S-2.7
WINGWALL DETAILS	S-2.8
PIER DETAILS	S-2.9
DECK PLAN	S-2.10
DECK DETAILS	S-2.11
MISCELLANEOUS DETAILS	S-2.12
STRUCTURAL EXCAVATION AND BACKFILL	S-2.13

SD SHEET LIST

CONCRETE BARRIER AND TRANSITION SD-1.01
APPROACH SLAB DETAILS SD-2.01

SF SHEET LIST

FOUNDATION DATA .... SF-2.1 Thru SF-2.x



US93 PROFILE GRADE

HYDRAULIC DATA

Q_{50} = XXXXX cfs
Q_{100} = XXXXX cfs
HW_{50} = 2049.85 ft.
HW_{100} = XXXXX ft.

BRIDGE DESIGN SECTION 'B'		DATE
DESIGN	L. Altuna	2-04
DESIGN CK'D	L. Altuna	2-04
DRAWN	R. Yingling	2-04
DWG CK'D	L. Altuna	2-04
APPROVED-PROJ. ENGINEER	L. Altuna	2-04
APPROVED-DESIGN LEADER	H. Sung	2-04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
BRIDGE GROUP

STA. 114+
SOLS WASH BRIDGE
GENERAL PLAN

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

US93 (ROUTE) | XXXX (MILEPOST) | 2819 (STRUCTURE NO.)

LOCATION: WICKENBURG INTERIM BYPASS

DWG. S-2.1 OF

TRACS NO. H 5825 01 C | 093- | ___ OF ___

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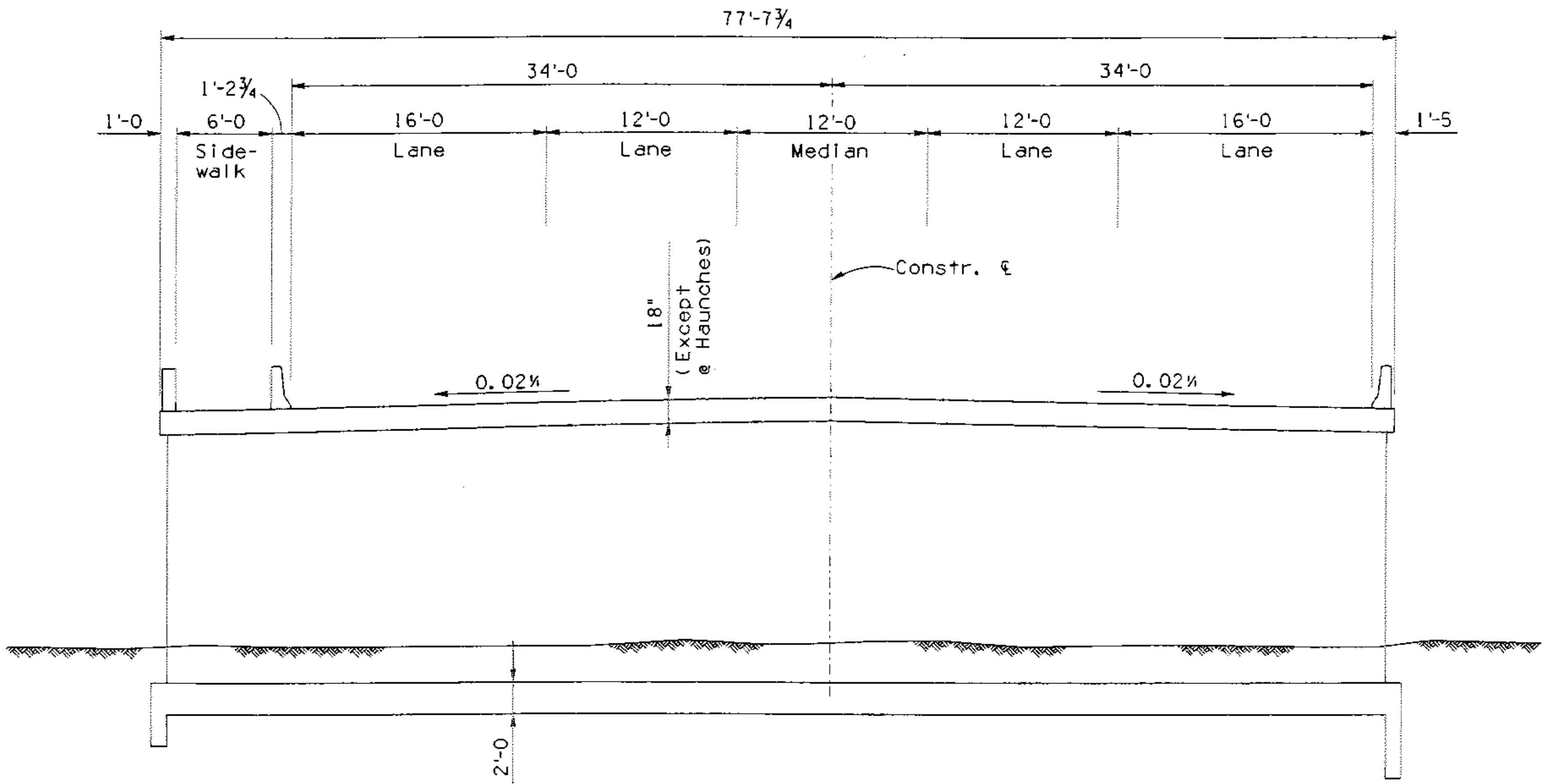
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	093-			

93 YV 198



TYPICAL SECTION
(At Pier #3)
Scale: 3/16" = 1'-0

ITEM	STRUC. EXCAV.	STRUC. BKFILL.	CLASS 'S' CONCRETE f'c=3500psi	CLASS 'S' CONCRETE f'c=4500psi	REINFORCING STEEL
	C.Y.	C.Y.	C.Y.	C.Y.	LBS.
Abutment #1					
Piers #1 - #6					
Abutment #2					
Superstructure					
Bottom Slab					
TOTAL					
As-built Total					

APPROXIMATE QUANTITIES

F-Shape Bridge Concrete Barrier (SD-1.01, 32 inch) .... XXX LF
Approach Slab (SD-2.01) .... XXXX SF
Concrete Bridge Parapet and Rail .... XXX LF

GENERAL NOTES:

Construction Specification - Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, Edition of 2000.

Design Specifications - AASHTO Standard Specifications for Highway Bridges, 17th Edition, 2002.

Dead Load - Dead Load includes allowance of 25 pounds per square foot for future wearing surface.

Loading Class - HS20-44 and/or Interstate Alternate Loading.

Seismic Performance Category * (Acc = 0.035 g)

Inventory and operating ratings for HS20-44 are in accordance with AASHTO Manual for Condition Evaluation of Bridges, Edition of 1994 in accordance with the Load Factor Method.

Inventory Rating HS-****
Operating Rating HS-****

All concrete shall be Class 'S' unless noted otherwise.

Reinforcing steel shall conform to ASTM Specification A615. All reinforcing shall be furnished as Grade 60.

All bends and hooks shall meet the requirements of AASHTO Article 8.23. All bend dimensions for reinforcing steel shall be out-to-out of bars. All placement dimensions for reinforcing steel shall be to center of bars unless noted otherwise.

All reinforcing steel shall have 2 inch clear cover unless noted otherwise.

Stresses:
Superstructure except barriers ... f'c = 4500 psi
Barriers .... f'c = 4000 psi
Abutments .... f'c = 3500 psi
Piers .... f'c = 3500 psi
All other Class 'S' concrete ..... f'c = 3000 psi
Grade 60 Longitudinal deck Reinf.. fs = 20000 psi
All other Grade 60 .... fs = 24000 psi

Barriers shall be constructed after spans have taken dead load deflection. Barriers shall not be slip formed.

Chamfer all exposed corners ¾" unless noted otherwise.

Dimensions shall not be scaled from drawings.

BRIDGE DESIGN SECTION		DATE
DESIGN	L. Altuna	2-04
DESIGN CK'D	L. Altuna	2-04
DRAWN	R. Yingling	2-04
DWG CK'D	L. Altuna	2-04
APPROVED-PROJ. ENGINEER	L. Altuna	2-04
APPROVED-DESIGN LEADER	H. Sung	2-04

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
BRIDGE GROUP

STA. 114+
SOLS WASH BRIDGE
NOTES AND QUANTITIES

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

ROUTE	MILEPOST	STRUCTURE NO.	LOCATION
US93	XXXX	2819	WICKENBURG INTERIM BYPASS

DWG. S-2.2 OF

TRACS NO. H 5825 01 C | 093- | ___ OF ___

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APPENDIX B

Cost Estimates for Alternate

ARIZONA DEPARTMENT OF TRANSPORTATION
BRIDGE GROUP
BRIDGE DESIGN SECTION 'B'

30% COST ESTIMATE
ALTERNATE #1

HWY NAME : US 93
PROJECT NAME : WICKENBURG BYPASS
BR. NAME : SOLS WASH BRIDGE
STR. No. : 2819

PROJECT No. :
TRACS No. : H 5825 S1D
PREPARED BY : D. Benton
DATE : 03/17/2004

ITEM No.	ITEM DESCRIPTION	Unit	Qty.	Unit Cost	COST
2030501	STRUCTURAL EXCAVATION	CY	5775	$8.00	$46,200.00
2030506	STRUCTURE BACKFILL	CY	470	$20.00	$9,400.00
6010003	STRUCTURAL CONCRETE (CLASS S) (F'c=3500 psi)	CY	2090	$300.00	$627,000.00
6010005	STRUCTURAL CONCRETE (CLASS S) (F'c=4500 psi)	CY	1114	$375.00	$417,750.00
6011130	F-SHAPE BRIDGE CONCRETE BARRIER (SD-1.01, 32 INCH)	LF	560	$50.00	$28,000.00
6011365	APPROACH SLAB (SD-2.01)	SF	2329	$10.00	$23,290.00
6015301	CONCRETE BRIDGE PARAPET AND RAIL	LF	280	$75.00	$21,000.00
6050002	REINFORCING STEEL	LB	713775	$0.50	$356,887.50
		SUBTOTAL			$1,529,527.50
		The Bridge Area in SQ. FT. =		19411	
	(This total represents bridge cost minus appr. Slab)	The Bridge Cost per SQ. FT. =		$77.60	
		15% Contingency			$229,429.13
		10% CE Cost			$152,952.75
		TOTAL			$1,911,909.38

APPENDIX C

Design Information

Larry Altuna

From: Leo Kreymborg [leok@westconsultants.com]
Sent: Tuesday, May 25, 2004 10:55 AM
To: Larry Altuna
Cc: Gary Freeman; Dan Stough; George Wallace; John Fyie
Subject: Sols Wash Bridge water surface elevation, bridge type

Dear Larry,

For the superbox design, the water surface elevation for determination of the Sols Wash Bridge freeboard is 2049.85 feet. This results from the 10-year flood in the Sols joining with the 50-year Hassayampa flood.

As you mentioned during our phone call this morning, the station of the low point for the current Sols Wash superbox design is at the upstream face on the north abutment, at elevation 2053.23. This leaves 3.38 feet of freeboard.

Changing to the thicker box beam structure you mentioned at last Tuesday's meeting in Wickenburg would require raising the road profile.

Regards,
Leo Kreymborg

Leo Ramos Kreymborg, P.E.
WEST Consultants, Inc.
960 West Elliot Road
Suite 201
Tempe, Arizona 85284
(480) 345-2155
(480) 345-2156 Fax
http://www.westconsultants.com

Ninyo & Moore
5035 South 33rd Street, Phoenix AZ 85040 ♦ Phone 602/243-1600 ♦ Fax 602/243-2699 ♦ www.ninyoandmoore.com

Transmittal

To:	Mr. George Wallace, P.E.	**Date:**	May 27, 2004
Firm:	Jacobs Civil, Inc.	**Fax No:**	
Address:	825 W. Elliot Road, Suite 201 Tempe, Arizona 85284	**Telephone No:**	
From:	John Niedzielski	**Total Pages Including Transmittal:**	11
Subject:	Drilled Shaft Capacity Charts	**Project No:**	600503001

☐ **Urgent** ☐ **For Approval** ☒ **For Your Use** ☐ **Please Reply** ☐ **As Requested**

Original Document: ☐ **Will Not Follow** ☐ **Will Follow** ☐ **By U.S. Mail** ☐ **By Other**

George,

Enclosed please find 2 copies of the drilled shaft capacity charts for the 5 soil borings drilled to date at the Hassayampa River and Sols Wash structures. Borings B-3, B-9 and B-14 were drilled at the abutments and Pier 3 of the proposed Hassayampa River bridge, and borings B-18 and B-22 were drilled at the abutments for the proposed Sols Wash structure. The drilled shaft concrete weights are included in the capacity charts. We assumed 30 feet of scour (to elevation 2006 to 2007) below the river bed and Sols Wash bed at each of the boring locations. The ground surface elevations at the boring locations were estimated from the topographic contour lines shown on the plan and profile sheets. The approximate stations and surface elevations at the boring locations are indicated below:

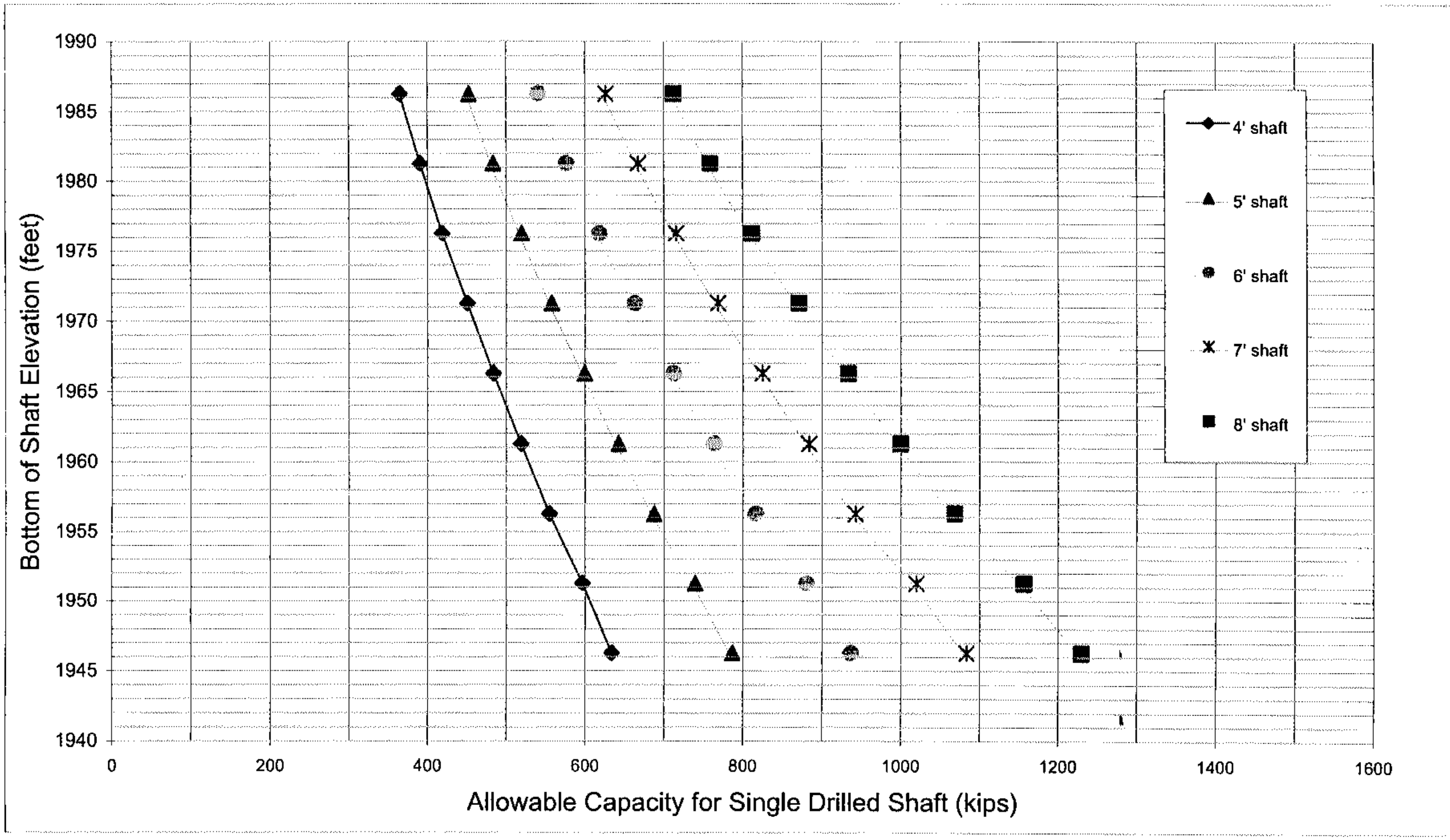
Boring No.	Location	Station/Offset	Surface Elevation
B-3	Abut. 1	104+30±/45′ R±	2051±
B-9	Pier 3	107+49±/50′ R±	2037±
B-14	Abut. 2	108+90±/60′ L±	2036±
B-18	Abut. 1 (Sols)	114+20±/0′ ±	2046±
B-22	Abut. 2 (Sols)	116+76±/34′ R±	2042±

Please call if you have any questions.

John C. Niedzielski, P.E.

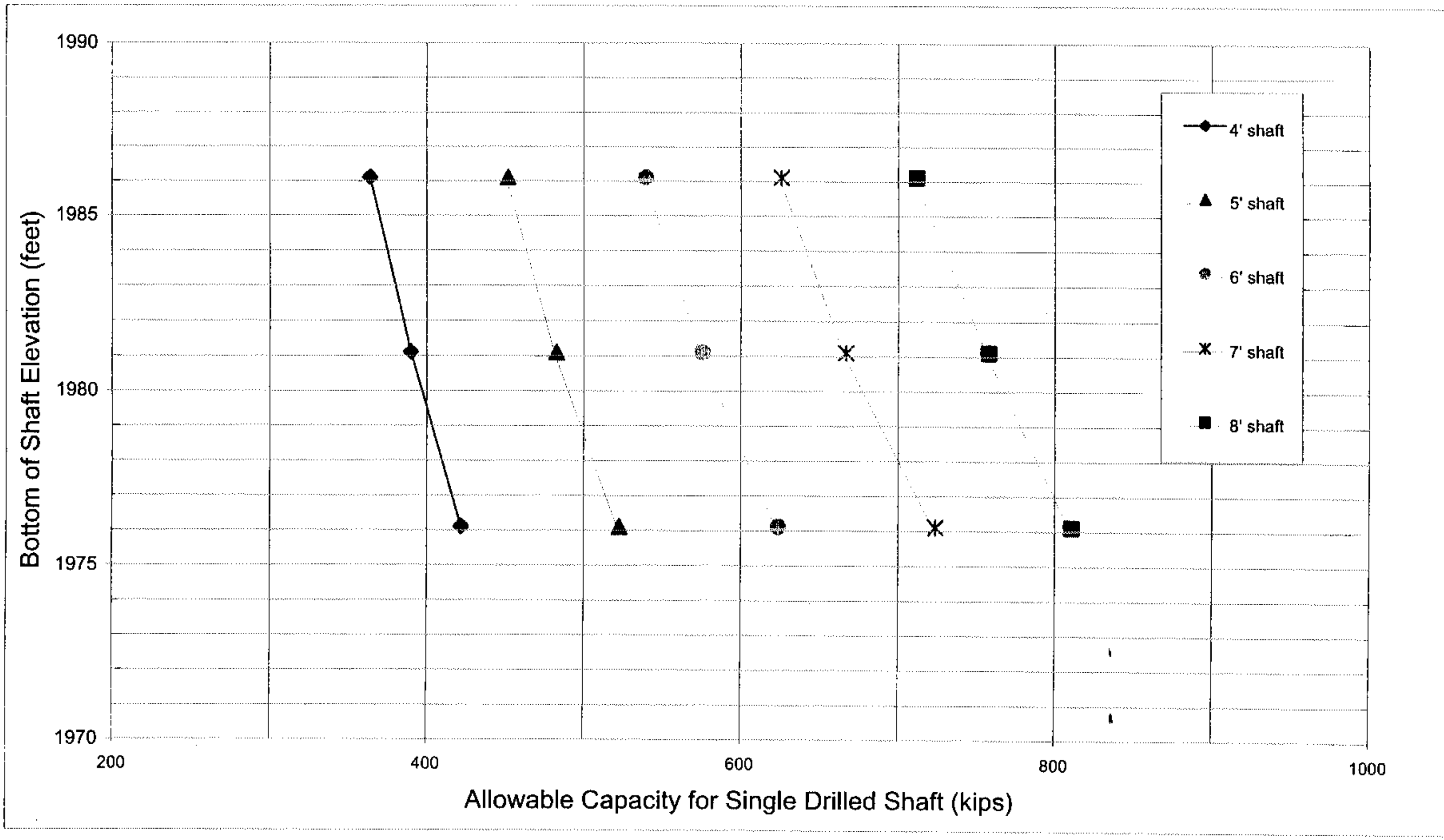
- Geotechnical Engineering
- Engineering Geology
- Materials Testing and Inspection
- Construction Management
- Engineering Design
- Environmental Engineering
- Environmental Site Assessments
- Regulatory Compliance and Permitting
- Water Quality and Resource Evaluations
- Hazardous Waste Management
- Soil and Groundwater Remediation
- Asbestos and Lead-Based Paint Surveys
- Geophysical Studies
- Mineral Resource Evaluations
- Value Engineering
- Forensic Studies
- Expert Witness Testimony

FIGURE 4 - BORING B-18, ABUTMENT 1
ALLOWABLE CAPACITY FOR SINGLE DRILLED SHAFT (kips)
US-93, WICKENBURG BYPASS OVER SOLS WASH
WICKENBURG, ARIZONA



Ninyo Moore Project No. 600503001

FIGURE 5 - BORING B-22, ABUTMENT 2
ALLOWABLE CAPACITY FOR SINGLE DRILLED SHAFT (kips)
US-93, WICKENBURG BYPASS OVER SOLS WASH
WICKENBURG, ARIZONA



Ninyo Moore Project No. 600503001

SuperBox (2)

PI Sta= 11865.00	ELEV= 2054.400		
G1= -0.004225		G2= 0.004019	
PC Sta= 11365.00	L= 1000.00	PT Sta= 12365.00	
ELEV= 2056.513		ELEV= 2056.40950	
x= 57.00	x Sta= 11422.00	x Sta= 10430	
	x ELEV= 2056.285	x slope= -0.0119331	

	Sta	Elev
Grade to Rt	11497.63	2052.924
Grade to Lt	0.00	2104.530

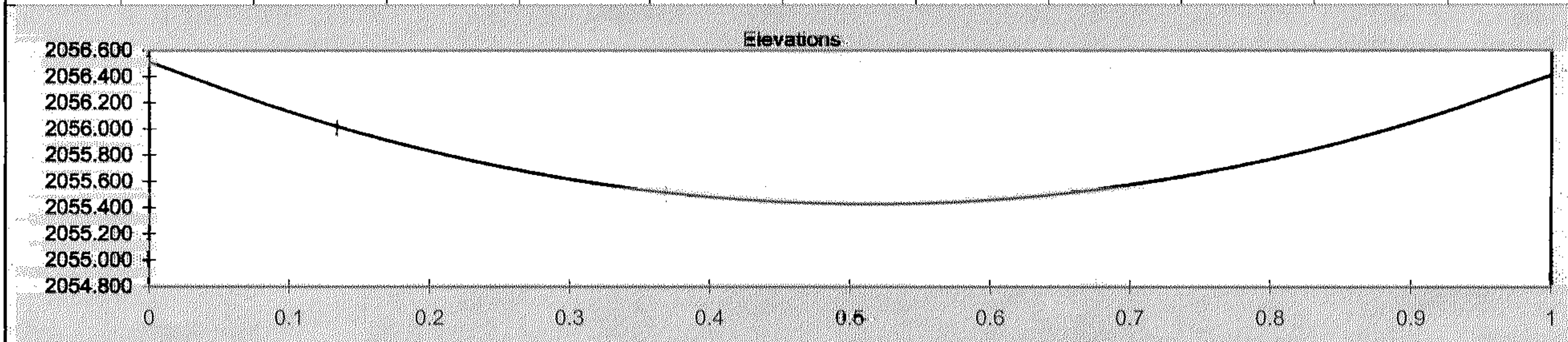
Crest or Sag at:

Sta= 11877.49

x= 512.493935

Elev= 2055.430

1/10 pts	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
sta	11365.00	11465.00	11565.00	11665.00	11765.00	11865.00	11965.00	12065.00	12165.00	12265.00	12365.00
ELEV	2056.513	2056.131	2055.832	2055.616	2055.482	2055.431	2055.461	2055.575	2055.771	2056.049	2056.410



Sols Wash Bridge

	Sta.	Elev.				Super Lt.	Super Rt.		Sta.	Super Lt.	Super Rt.
Beg Br.	11422.00	2056.285	2056.29			-0.010	-0.020		10525.00	-0.02	-0.02
CL Abut 1	11422.69	2056.282	2056.28	0.69		-0.010	-0.020		10758.33		-0.02
CL Pier 1	11458.21	2056.155	2056.15	35.52		-0.016	-0.020		10875.00	0.04	-0.04
CL Pier 2	11493.72	2056.037	2056.04	35.52		-0.020	-0.020		11130.00	0.04	-0.04
CL Pier 3	11529.24	2055.930	2055.93	35.52		-0.020	-0.020		11246.67		-0.02
CL Pier 4	11564.76	2055.833	2055.83	35.52		-0.020	-0.020		11480.00	-0.02	-0.02
CL Pier 5	11600.28	2055.747	2055.75	35.52		-0.020	-0.020				
CL Pier 6	11635.79	2055.671	2055.67	35.52		-0.020	-0.020				
CL Abut 2	11671.31	2055.605	2055.61	35.52		-0.020	-0.020				
End Br.	11672.00	2055.604	2055.60	0.69		-0.020	-0.020				

Type B IV-48 box girders									
	Abut 1 face Sta =	11423.38	Skew = 25	Superstructure depth =		1.50		Highwater elev =	2049.85
								Low chord el.=	2054.13
	offset	sta	CL el.	super	deck elev	bott gir el.	freeboard		
Lt. Edge	-42.23	11443.07	2056.208	-0.014	2055.63	2054.13	4.28		
CL	0.00	11423.38	2056.280	0	2056.28	2054.78	4.93		
Rt. Edge	35.42	11406.86	2056.343	-0.007	2056.08	2054.58	4.73		
	Pier 1 Sta =	11493.72	Skew = 25	Superstructure depth =		1.50		Highwater elev =	2049.85
								Low chord el.=	2053.63
	offset	sta	CL el.	super	deck elev	bott gir el.	freeboard		
Lt. Edge	-42.23	11513.42	2055.976	-0.02	2055.13	2053.63	3.78		
CL	0.00	11493.72	2056.037	0	2056.04	2054.54	4.69		
Rt. Edge	35.42	11477.21	2056.090	-0.02	2055.38	2053.88	4.03		
	Pier 2 Sta =	11493.72	Skew = 25	Superstructure depth =		1.50		Highwater elev =	2049.85
								Low chord el.=	2053.63
	offset	sta	CL el.	super	deck elev	bott gir el.	freeboard		
Lt. Edge	-42.23	11513.42	2055.976	-0.02	2055.13	2053.63	3.78		
CL	0.00	11493.72	2056.037	0	2056.04	2054.54	4.69		
Rt. Edge	35.42	11477.21	2056.090	-0.02	2055.38	2053.88	4.03		
	Pier 3 Sta =	11529.24	Skew = 25	Superstructure depth =		1.50		Highwater elev =	2049.85
								Low chord el.=	2053.53
	offset	sta	CL el.	super	deck elev	bott gir el.	freeboard		
Lt. Edge	-42.23	11548.93	2055.875	-0.02	2055.03	2053.53	3.68		
CL	0.00	11529.24	2055.930	0	2055.93	2054.43	4.58		
Rt. Edge	35.42	11512.73	2055.978	-0.02	2055.27	2053.77	3.92		
	Pier 4 Sta =	11564.76	Skew = 25	Superstructure depth =		1.50		Highwater elev =	2049.85
								Low chord el.=	2053.44
	offset	sta	CL el.	super	deck elev	bott gir el.	freeboard		
Lt. Edge	-42.23	11584.45	2055.784	-0.02	2054.94	2053.44	3.59		
CL	0.00	11564.76	2055.833	0	2055.83	2054.33	4.48		
Rt. Edge	35.42	11548.24	2055.877	-0.02	2055.17	2053.67	3.82		

SuperBox (2)

	Pier 5 Sta =	11600.28	Skew = 25	Superstructure depth =		0.00		Highwater elev =	2049.85		
								Low chord el.=	2053.36		
	offset	sta	CL el.	super	deck elev	bott gir el.	freeboard				
Lt. Edge	-42.23	11619.97	2055.703	-0.02	2054.86	2053.36	3.51				
CL	0.00	11600.28	2055.747	0	2055.75	2054.25	4.40				
Rt. Edge	35.42	11583.76	2055.786	-0.02	2055.08	2053.58	3.73				
	Pier 6 Sta =	11635.79	Skew = 25	Superstructure depth =		0.00		Highwater elev =	2049.85		
								Low chord el.=	2053.29		
	offset	sta	CL el.	super	deck elev	bott gir el.	freeboard				
Lt. Edge	-42.23	11655.48	2055.633	-0.02	2054.79	2053.29	3.44				
CL	0.00	11635.79	2055.671	0	2055.67	2054.17	4.32				
Rt. Edge	35.42	11619.28	2055.705	-0.02	2055.00	2053.50	3.65				
	Abut 2 face Sta =	11670.62	Skew = 25	Superstructure depth =		1.50		Highwater elev =	2049.85		
								Low chord el.=	2053.23		
	offset	sta	CL el.	super	deck elev	bott gir el.	freeboard				
Lt. Edge	-42.23	11690.31	2055.574	-0.02	2054.73	2053.23	3.38				
CL	0.00	11670.62	2055.606	0	2055.61	2054.11	4.26				
Rt. Edge	35.42	11654.10	2055.636	-0.02	2054.93	2053.43	3.58				