AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE	OF PAGES
	1	4

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. *(If applicable)*
0001	08/27/2004		AZ-NV HPP 93(3)

6. ISSUED BY CODE 6905001

FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION
12300 WEST DAKOTA AVENUE, SUITE 167
LAKEWOOD, COLORADO 80228

7. ADMINISTERED BY *(If other than Item 6)* CODE

8. NAME AND ADDRESS OF CONTRACTOR *(No., street, county, State and ZIP Code)*

CODE FACILITY CODE

(✓) ✔

9A. AMENDMENT OF SOLICITATION NO.
AZ-NV HPP 93(3), Hoover Dam Colorado River Bridge

9B. DATED *(SEE ITEM 11)*
06/08/2004

10A. MODIFICATION OF CONTRACT/ORDER NO.

10B. DATED *(SEE ITEM 13)*

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

✔ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☐ is extended, ✔ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing Items 8 and 15, and returning 1 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

(✓)

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: *(Specify authority)* THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES *(such as changes in paying office, appropriation date, etc.)* SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

D. OTHER *(Specify type of modification and authority)*

E. IMPORTANT: Contractor ☐ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION *(Organized by UCF section headings, including solicitation/contract subject matter where feasible.)*

See attached SF30 continuation sheets for summary of changes. All changes are revised effective 08/27/2004.

NOTE:
The bid opening will be held in Room 160 at the address specified on Page A-1, Block 8, of the Invitation for Bid. Be advised that entrance to the building will require security check-in. It is the bidder's responsibility to allow adequate time for this process in order to submit bids. Security personnel are NOT authorized to accept bids. Bids must be received by an authorized Government official no later than 2 p.m. on September 16, 2004.

FAILURE TO ACKNOWLEDGE THIS AMENDMENT BY THE DESIGNATED DATE AND HOUR SPECIFIED ABOVE MAY RESULT IN REJECTION OF YOUR BID (REFER TO ITEM 11.)

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER *(Type or print)*		16A. NAME AND TITLE OF CONTRACTING OFFICER *(Type or print)*	
15B. CONTRACTOR/OFFEROR *(Signature of person authorized to sign)*	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY *(Signature of Contracting Officer)*	16C. DATE SIGNED

PREVIOUS EDITION UNUSABLE

STANDARD FORM 30 (Rev. 10-83)
Prescribed by GSA
FAR (48 CFR) 53.243

Save Data Only | Clear Form | Save Data & Form

SF30 CONTINUATION SHEET Item 14 Description of Amendment/Modification

----------Invitation for Bid----------

Remove Page 1 of 4, Notice to Bidders, and replace with new Page 1 of 4. Added responsibility submittal and summary of questions to the bidders checklist.

Remove Page A-3 and replace with new Page A-3. Added "Summary of questions received and responses given during advertisement period" to the documents available electronically with requirement for Contractor review.

Remove Page A-4 and replace with new Page A-4. Added sentence stating that questions during the advertisement period are an integral element of the contract.

Remove Page B-1 and replace with new Page B-1. Added clarification that responsibility submittal is due at bid opening with bid package.

Remove Page B-7 and replace with new Page B-7. In Bid Schedule Instructions, Schedule A, flagger total bid amount changed from $720,000 to $607,500 to match Bid Schedule Item 63509A Flagger. Added two-step Notice to Proceed.

Remove Pages G-1 through G-22 and replace with new Pages G-1 through G-26. Replace Davis Bacon Wage Rates with most current rates; rates changed as of August 13, 2004.

Remove Page I-8 and replace with new Page I-8. Added sentence to third paragraph in Section 104.03 (a) addressing reviews of submittals received during the Christmas holiday.

Remove Page I-12 and replace with new Page I-12. Added dynamic wind evaluation and mitigation measure submittal requirements in Section 104.03 (c) (2) submittal table.

Remove Page I-34 and replace with new Page I-34. Revised beginning of contract time to the onsite Notice to Proceed in Section 108.01.

Remove Pages I-63 and I-64 and replace with new Pages I-63, I-63A and I-64. Revised escort and permit requirements in Section 156.06 (r) (1).

Remove Page I-90 and replace with new Page I-90. Revised subdrill requirement in third sentence of Step Drilling and Cushion Blasting in Section 205.07(a).

Remove Page I-93 and replace with new Page I-93. Revised subdrill requirement in first sentence of the fourteenth paragraph of Section 205.08(a).

Remove Page I-146 and replace with new Page I-146. Added requirement for certification of fabricating plant for structural steel access platforms in Section 553A.03.

Remove Page I-147 and replace with new Page I-147. Section 555.05 (b) ultrasonic inspection acceptance standards revised.

Remove Page I-159 and replace with new Pages I-159 and I-159A. Section 555B.08(g) (12) deck joint warranty revised.

Remove Page I-160 and replace with new Page I-160. Section 562.01 paragraph 4 was revised to clarify a change to the K-sheet erection scheme.

Remove Page I-165 and replace with new Page I-165. Section 563.07 painting requirement for interior of box girders revised.

Remove Page I-169 and replace with new Page I-169. Section 564.01 bearing warranty revised.

Remove Page I-194 and replace with new Page I-194. Section 582.01 (3) revised to include PT bar hardware in scope of work for approach span columns.

Remove Page I-218 and replace with new Page I-218. First sentence of the Section 638.10(1) revised.

Remove Page I-228 and replace with new Page I-228. First sentence of the Section 639.10(1) revised.

----------Plan Sheets----------

Remove Sheet 89 and replace with new Sheet 89. Arch reinforcing steel quantity in the lump sum item breakdown revised from 2,997,400 lbs to 3,209,200 lbs.

Remove Sheet 171 and replace with new Sheet 171. Size and dimension of the reinforcing steel bar in the skewback footing and column was revised.

Remove Sheet 218 and replace with new Sheet 218. Reinforcing steel “E” values in Arch Segment Reinforcing table revised.

Remove Sheet 227 and replace with new Sheet 227. Structural steel grade for angles revised from HPS70W to M270 Grade 50 in Note 1.

Remove Sheet 284 and replace with new Sheet 284. Minimum form section properties were deleted in Note 3.

Remove Sheet 333 and replace with new Sheet 333. Tables showing maximum and minimum cable forces and cable elongations were added.

Remove Sheet 352 and replace with new Sheet 352. Table was updated for B1 - B3 strands.

Remove Sheet 355 and replace with new Sheet 355. Section-Backstay Collar pipe diameter revised from 6” radius to 3” radius.

Remove Sheet 364 and replace with new Sheet 364. Added last two sentences to Note 4.

Remove Sheet 385 and replace with new Sheet 385. Revised bar K129 to reflect change in Sheet 171.

Remove Sheet 390 and replace with new Sheet 390. Arch rib bar list revised to reflect change in Sheet 218.

NOTICE TO BIDDERS AND OFFERORS

REVISED 08/27/2004

Before mailing your offer, please recheck the following:

(1) Does your offer set forth full, accurate, and complete information as required by this solicitation, including representations and certifications and acknowledgement of any amendments which may have been issued?

(2) ***Have you included three (3) copies of the responsibility submittal?***

~~(2)~~(3) Have you completed the bid schedule and rechecked your bid figures, including calculations on your work sheets?

(4) ***Have you reviewed the summary of questions located at www.hooverdambypass.org for the most current up-to-date record?***

~~(3)~~(5) If bid guarantee is required, is it enclosed in proper form and amount including Power of Attorney Affidavit? See FAR Provision 52.228-1

~~(4)~~(6) Have you completed and signed all required documents?

INVITATION FOR BID BOOKLET AND BID SUBMITTAL

It is the responsibility of the bidder to verify that this solicitation booklet is complete as provided in the bid submittal package. Also, the bidder is responsible for submitting all required forms and documents with the bid.

Applicable FAR provisions and clauses in this IFB are incorporated by reference or full text. FAR provisions and clauses incorporated by reference can be accessed on the Internet at www.arnet.gov/far/. Bidders are strongly encouraged to review the provisions and clauses referenced in this document before submitting a bid.

Bidders **must** fill out and submit with their offers completed page 1 of 4, "Notice to Bidders and Offerors," which indicates interest in partnering, pages numbered A-l through D-9, and pages F-3 and F-8 of the Contract Clauses indicating Bidder's option to waive the price evaluation preference for HUBZone Certified Firms and/or the price evaluation adjustment for Small Disadvantaged Business Concerns. The remaining pages may be retained by the bidder for their information.

PARTNERING (See Section I, Subsection 103.05 of the Special Contract Requirements)

Please indicate your interest in participating in Partnering by checking the appropriate blank below.

__ The offeror is interested in participating in partnering.

__ The offeror is not interested in participating in partnering.

ADDITIONAL SOLICITATION INFORMATION

Block 9: DATA AVAILABLE FOR REVIEW

The following materials are available electronically:

Manual of Uniform Traffic Control Devices for Streets and Highways, (Current Edition published by U.S. Government Printing Office found at http://mutcd.fhwa.dot.gov .

AASHTO Manuals found at http://fhwapap04.fhwa.dot.gov/index.jsp under the Standard Specifications and Supplements link.

FP-96, Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, 1996, found at http://www.cflhd.gov/design/index.cfm# under the Construction Specs tab.

Contractor Guidelines for Quality Control Plans and example QC Plans found at http://www.cflhd.gov/design/index.cfm# under the Construction Specs tab.

Summary of questions received and responses given during preadvertisement informational review period found at www.hooverdambypass.org under the bidder's tab.

Summary of questions received and responses given during advertisement period found at www.hooverdambypass.org under the bidder's tab. These are considered an integral part of the contract documents. Contractor is required to review this document within 48 hours prior to bid opening for the most up-to-date record.

Raw anemometer wind data measured at the site, found at www.hooverdambypass.org under the bidder's tab.

The following materials are available electronically on CD ROM and will be provided with hard copies of the plan sets obtained through A&D Draft-aid:

Digital terrain model (DTM) and aerial photo.

Final Report, Colorado River Bridge High-Strength Concrete Testing Program, April 23, 2004.

Control and Containment of Rock Release from Colorado River Bridge Skewback Excavation, January 24, 2003, with August 31, 2003, addendum.

Phase II Wind Study, Hoover Dam ByPass Bridge, Dec. 2002.

Earthwork Summary.

The following hard copy materials can be obtained by calling (720) 963-3355 or (720) 963-3353:

Final Geotechnical Investigation Report, Colorado River Bridge, September 16, 2003.

FP-96, ENGLISH, Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, 1996.

For amendments, bid results and tabulations or other procurement information please visit our website at www.cflhd.gov/procurement

Block 13: A bid guarantee not less than 20 percent of the amount bid or $3 million, whichever is less, is required. If the bidder fails to accompany the bid with the required bid guarantee, such failure may require rejection of the bid. See FAR Provision 52.228-1, Bid Guarantee. If the bid guarantee is a bid bond, it must be submitted on Standard Form 24.

Block 26: The Contractor shall submit invoices to:

FHWA, CFLHD, Project Engineer's Office (Address to be designated at preconstruction conference), for submission to the designated billing office shown in Block 7.

Final billing shall be submitted directly to the address shown in Block 7.

Other: The estimated price range of the project work is greater than $70,000,000.

All inquiries and technical questions must be submitted in writing to:

zanetell.hooverdam@fhwa.dot.gov

All questions will be summarized and posted at www.hooverdambypass.org throughout the advertisement period. Bidders are responsible for review of this information. ***It is an integral element of the contract documents.***

PLEASE NOTE: No questions will be answered within 7 days in advance of the bid opening date and time.

FOR ACCESS DURING THE ADVERTISEMENT PERIOD:

Potential bidders wishing to view the project should note that access to the project site is restricted. Notify the Hoover Dam Police Office between 7:00 a.m. and 5:00 pm at (702) 293-8312 prior to any onsite activity. The Police Office is located in the parking area immediately adjacent to the Nevada Spillway.

Construction activities are ongoing on both at Arizona and Nevada approach projects. Site visits must be approved 7 days in advance. Contact Bob Nichols at 702-293-1903 to schedule site visits. Scheduled appointments are preferred Thursday through Saturday. Please note questions and inquiries are not allowed during this site visit. The project staff are prohibited from participating in site reviews.

BIDDER'S RESPONSIBILITY

PLEASE NOTE THAT THIS SOLICITATION CONTAINS VERY SPECIFIC RESPONSIBILITY CRITERIA IN ACCORDANCE WITH FAR PART 9.104. INSTRUCTIONS FOR THE GENERAL AND SPECIAL RESPONSIBILITY STANDARDS FOLLOW.

IN ORDER TO BE DETERMINED A RESPONSIBLE BIDDER AND BE ELIGIBLE FOR AWARD, PROSPECTIVE BIDDERS MUST CLEARLY AND COMPLETELY ADDRESS THESE RESPONSIBILITY STANDARDS. RESPONSIBILITY SUBMITTAL SHALL NOT EXCEED 40 PAGES IN LENGTH.

Submit 3 copies of the responsibility submittal *at the time of bid opening with bid package.*

If the bidder is proposing as a joint venture or is using another General Contractor (GC) for work performed on the project, the following shall be addressed: (a) Explain why you are proposing a Joint Venture (additional GC) rather than proposing as a single respondent. (b) If the bidders have worked together in the past, describe the projects; provide a copy of the joint venture agreement and the joint venture agreement for this Contract. (c) If the bidders have not worked together in the past, provide a copy of their typical joint venture agreement and the joint venture agreement for this Contract. (d) If neither has joint venture experience, provide a copy of the joint venture agreement for this Contract. Copies of joint venture agreements do not count against the 40-page submittal limit.

Subcontracting Plan: In accordance with FAR Clause 52.219-8, an acceptable subcontracting plan will be required from the successful low bidder prior to award. It is not mandatory to return this sub-contracting plan at the time bid documents are due; however, in an attempt to expedite the award process, a sample subcontracting plan and a full text copy of FAR Clause 52.219-9 is provided for your convenience. However, failure on the part of the successful bidder to complete and return an acceptable plan prior to award may result in rejection of bid. Submittal of a subcontracting plan will not count against the 40-page submittal limit.

GENERAL RESPONSIBILITY STANDARDS—FAR 9.104-1

Bidders must state what part of their organization (GC, JV Partner, or subcontractor) is being proposed as meeting the following general responsibility standards.

1. PROJECT TEAM (include GC, JV Partner, or subcontractor information):

   a. Organization

      Provide an organizational chart of the overall entity (or entities if a joint venture). Provide an organizational chart of how the work force will be organized for this project. As a minimum, show all home office personnel having a direct project responsibility, Project Manager, Project Superintendent and Project Engineer, and key Construction Engineering personnel on site or in office.

BID SCHEDULE INSTRUCTIONS:

This Bid Proposal is comprised of one schedule as follows:

Schedule A - Grading, drainage, and bridge.

- ✓ Insert a unit bid price, in figures, for each pay item for which a quantity appears in the bid schedule. Multiply the unit price by the quantity for each pay item and show the amount bid. When the words "Lump Sum" appear as a unit bid price, insert an amount for each lump sum pay item.

- ✓ The following Items are listed in the Bid Schedule and on the Summary of Quantities as Contract Quantities (See FP-96 - ENGLISH, Subsection 109.02 (b)): 55201FA, 55201FB, 55401, 55501C, 55501D, 55502C, 55507A, 55601AF, 55601AGQ, 55601AGS, 55601BP, 54601CC, 54601CD, and 54601CE.

- ✓ A fixed unit price has been entered and computed for Bid Item 15901 Lane Rental and Bid Item 63509A Flagger. The unit bid price for Flagger will be $45/hour for a total bid amount of ~~$720,000~~ ***$607,500***. A lump sum unit bid price and total bid amount for Lane Rental will be $450,000. No variation in unit bid price or computed amount will be accepted.

- ✓ Total all amounts bid for each pay item and show the Construction Cost Subtotal (Part A).

- ✓ ***Two Notices to Proceed will be issued: one for offsite activities, and one for onsite activities. The offsite Notice to Proceed will be issued approximately 30 days following award. The target date for issuance of the onsite Notice to Proceed is January 31, 2005.***

- ✓ When completing the schedule, provide the number of calendar days necessary to complete all contract work from the Issuance of the ***onsite*** Notice to Proceed until the day of final construction completion, both dates included. The FHWA **anticipates** an award approximately 45 days following bid opening~~, and **anticipates** a Notice to Proceed approximately 30 days following award~~. The minimum number of calendar days bid shall not be less than 1,095 and a maximum number of calendar days not more than 1,365.

- ✓ Multiply the number of days bid by the Road User/Administrative Cost of $8,000.00 per day to determine the Road User/Administrative Cost Subtotal (Part B).

- ✓ Add the Construction Cost Subtotal (Part A) to the Road User/Administrative Cost Subtotal (Part B) to determine the Total Cost Basis. The successful bidder will be determined as the low bidder with the lowest Total Cost Basis, regardless of the Construction Cost Subtotal Amount.

To be eligible for award of contract, the offeror shall submit prices for each item in the bid schedule. The offeror shall also provide the number of calendar days necessary to complete all contract work ***from the date of the onsite Notice to Proceed***. The total number of calendar days bid will become the basis for determining the fixed contract completion date (see Subsection 108.03). It is against this date that liquidated damages will be assessed according to Subsection 108.04, as amended, by the Special Contract Requirements.

When evaluating the bids, the Government will consider the combination of the Construction Cost Subtotal plus Road User/Administrative Cost Subtotal (**Total Cost Basis**). Accordingly, award of contract, if made, will be made on a **Total Cost Basis** to the lowest responsive, responsible bidder, if funds are available. The awarded amount will be the Construction Subtotal (Part A).

Contract completion date will be no earlier than 1,095 days following Issuance of the *onsite* Notice to Proceed and must be completed no later than 1,365 days following Issuance of the *onsite* Notice to Proceed.

WAGE RATES

THIS ADVERTISEMENT USES THE CURRENT DAVIS BACON WAGE RATE DETERMINATION FOR THE STATE OF NEVADA, CLARK COUNTY, AND WILL BE DESIGNATED AS "HEAVY/HIGHWAY" CONSTRUCTION

GENERAL DECISION: **NV20030005** 08/13/2004 NV5 Date: August 13, 2004
General Decision Number: **NV20030005** 08/13/2004

Superseded General Decision Number: NV020005

State: Nevada

Construction Types: Heavy and Highway

Counties: Nevada Statewide.
CARSON CITY, CHURCHILL, DOUGLAS, ELKO, EUREKA, HUMBOLDT, LANDER, LYON, MINERAL, PERSHING, STOREY, WASHOE AND WHITE PINE COUNTIES

HEAVY AND HIGHWAY CONSTRUCTION PROJECTS (Except construction projects at the NEVADA TEST SITE and TONOPAH TEST RANGE) (and Excluding Water Well Drilling)

Modification Number	Publication Date
0	06/13/2003
1	10/31/2003
2	11/21/2003
3	12/19/2003
4	12/29/2003
5	02/27/2004
6	03/12/2004
7	07/23/2004
8	08/13/2004

* CARP0034-007 07/01/2004
CARSON CITY, CHURCHILL, DOUGLAS, ELKO, EUREKA, HUMBOLDT, LANDER, LYON, MINERAL, PERSHING, STOREY, WASHOE AND WHITE PINE COUNTIES

	Rates	Fringes
Diver Standby.....	$ 33.89	17.175
Diver Tender.....	$ 32.89	17.175
Diver, Wet.....	$ 67.78	17.175
Pile Driver (Bridge, Warf & Dock Builders).....	$ 29.90	17.175

CARP0971-003 01/01/2004
CHURCHILL, DOUGLAS, ELKO, EUREKA, HUMBOLDT, LANDER, LYON, MINERAL, PERSHING, STOREY, WASHOE, AND WHITE PINE.

	Rates	Fringes
Carpenter.....	$ 24.08	8.92

CARP1780-001 07/01/2003
CLARK, ESMERALDA, LINCOLN AND NYE COUNTIES

	Rates	Fringes
Carpenters:		
30 Mile radius around Las Vegas (Measured from the intersection of Maryland Parkway and Charleston Blvd.).....	$ 26.61	11.41
30 to 50 Mile radius around Las Vegas (same as above).....	$ 28.11	11.41
Laughlin Area.....	$ 28.61	11.41
Over 50 mile Mile radius around Las Vegas (same as above).....	$ 29.86	11.41

ELEC0357-003 09/29/2003
CLARK, LINCOLN, AND NYE (South of the Mt. Diablo Base Line) COUNTIES

	Rates	Fringes
Electrician.....	$ 31.72	11.71+3%

ELEC0357-004 06/01/2002
CLARK, LINCOLN, AND NYE COUNTIES

	Rates	Fringes
Line Construction:		
(1) Area bound by a 25 mile radius from the intersection of Main Street and Fremont Street in Las Vegas (Free Area) Groundman.....	$ 21.20	8.16+3%
Line Equipment Operators...	$ 25.78	8.86+3%
Lineman.....	$ 28.82	9.33+3%
(2) Area between a 25 mile radius and 55 mile radius from Main and Fremont Streets Groundman.....	$ 25.70	8.23+3%
Line Equipment Operators...	$ 30.28	8.93+3%
Lineman.....	$ 33.32	9.40+3%

ELEC0401-002 06/01/2002
CHURCHILL, DOUGLAS, ELKO, ESMERALDA, EUREKA, HUMBOLDT, LANDER, LYON, MINERAL, PERSHING, STOREY, WASHOE, AND WHITE PINE COUNTYS.

	Rates	Fringes
Electricians:		
CABLE SPLICER.....	$ 29.89	7.20+3%
ELECTRICIANS.....	$ 27.17	7.20+3%

ELEC0401-003 02/01/1993
CHURCHILL, DOUGLAS, ELKO, ESMERALDA, EUREKA, LANDER, LYON, MINERAL, PERSHING, STOREY, WASHOE, AND WHITE PINES COUNTYS.

	Rates	Fringes
Line Construction:		
Cable Splicer.....	$ 23.91	5.34+3-3/4%
Equipment Operator.....	$ 19.57	5.34+3-3/4%
Groundman.....	$ 14.13	5.34+3-3/4%
Lineman.....	$ 21.74	5.34+3-3/4%

ENGI0012-006 08/01/1999

	Rates	Fringes
Hydraulic Suction and Clamshell Dredge		
Barge mate.....	$ 30.14	8.00
Deck Captain.....	$ 31.30	8.00
Deckhand (can operate anchor scow under direction of mate), Bargeman	$ 29.53	8.00
Dozer.....	$ 30.73	8.00
Leverman.....	$ 34.20	8.00
Watch Engineer, Welder and Deckmate.....	$ 30.62	8.00
Winchman (Stern Winch on dredge).....	$ 30.07	8.00

ENGI0012-007 07/01/2003
CLARK, ESMERALDA LINCOLN AND NYE COUNTIES

	Rates	Fringes
Crane Operator		
Group 1.....	$ 30.09	13.15
Group 2.....	$ 31.04	13.15
Group 3.....	$ 31.33	13.15
Group 4.....	$ 31.47	13.15
Group 5.....	$ 31.69	13.15
Group 6.....	$ 31.80	13.15
Group 7.....	$ 31.92	13.15
Group 8.....	$ 32.09	13.15
Group 9.....	$ 32.26	13.15
Group 10.....	$ 33.26	13.15
Group 11.....	$ 34.26	13.15
Group 12.....	$ 35.26	13.15
Group 13.....	$ 36.26	13.15

CRANES, PILEDRIVING & HOISTING EQUIPMENT

Power Equipment Operators - Tunnel and Underground Work:		
Group 1.....	$ 29.59	13.15
Group 2.....	$ 30.54	13.15
Group 3.....	$ 30.83	13.15
Group 4.....	$ 30.97	13.15
Group 5.....	$ 31.19	13.15
Group 6.....	$ 31.30	13.15
Group 7.....	$ 31.42	13.15
Power equipment operators:		
Group 1.....	$ 28.74	13.15
Group 2.....	$ 29.69	13.15
Group 3.....	$ 29.98	13.15
Group 4.....	$ 31.47	13.15
Group 5.....	$ 31.57	13.15
Group 6.....	$ 31.69	13.15
Group 7.....	$ 31.79	13.15
Group 8.....	$ 31.80	13.15
Group 9.....	$ 31.90	13.15
Group 10.....	$ 31.92	13.15
Group 11.....	$ 32.02	13.15
Group 12.....	$ 32.09	13.15
Group 13.....	$ 32.19	13.15
Group 14.....	$ 32.22	13.15
Group 15.....	$ 32.30	13.15
Group 16.....	$ 32.42	13.15
Group 17.....	$ 32.59	13.15
Group 18.....	$ 32.69	13.15
Group 19.....	$ 32.80	13.15
Group 20.....	$ 32.92	13.15
Group 21.....	$ 33.09	13.15
Group 22.....	$ 33.19	13.15
Group 23.....	$ 33.30	13.15
Group 24.....	$ 33.42	13.15
Group 25.....	$ 33.59	13.15

From the City Hall of Las Vegas 20 Miles to 40 Miles-add $1.50 per hour to wage rates.
40 Miles to 60 Miles-add $2.50 per hour to wage rates.
Over 60 Miles-add $3.00 per hour to wage rates.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS:

GROUP 1: Bargeman, brakeman, compressor operator (when more than five (5) 900 CFM or larger units, additional operator required), ditch witch, with seat or similar type equipment, elevator operator-inside, engineer oiler, Forklift Operator (under 5 tons capacity) generator operator, generator, pump or compressor plant operator, pump operator, signalman, switchman.

GROUP 2: Asphalt-rubber plant operator, Nurse Tank Operator Concrete mixer operator-skip type, conveyor operator, Fireman, Forklift Operator(over 5 tons), Hydrostatic pump operator, oiler crusher (asphalt or concrete plant), Rotery Drill Helper(Oilfield), skiploader (wheel type up to 3/4 yd. without attachment),soils field technician, tar pot fireman, temporary heating plant operator, trenching machine oiler.

GROUP 3: Asphalt-rubber blend operator, equipment greaser (rack), ford ferguson (with dragtype attachments), helicopter radioman (ground),power concrete curing machine operator, power concrete saw operator, power-driven jumbo form setter operator, stationary pipe wrapping and cleaning machine operator.

GROUP 4: Asphalt plant fireman, Backhoe operator (mini-max or similar type), Boring Machine Operator, Boxman or Mixerman (asphalt or concrete), Building and/or Structure Inspector, Chip Spreading Machine Operator, Concrete Cleaning Decontamination Machine Operator, Concrete pump operator (small portable), Drilling Machine Operator, small auger types (Texoma super economatic or similar types-Hughes 100 or 200 or similar types-drilling depth of 30' maximum), Equipment Greaser (Grease Truck), guard rail post driver operator, highline cableway signalman, hydra-hammer-aero stomper, Power Concrete Curing Machine Operator, Power Concrete Saw Operator, Power-Driven Jumbo Form Setter Operator, power sweeper operator, roller operator (compacting), screed operator (asphalt or concrete), trenching machine operator (up to 6ft.), concrete cleaning decontamination machine operator, power concrete curing machine operator.

GROUP 5: Equipment Greaser (Grease Truck).

GROUP 6: Asphalt plant engineer, batch plant operator, bit sharpener, concrete joint machine operator (canal and similar type), concrete planer operator, deck engine operator, derrickman (oilfield type), drilling machine operator, bucket or auger types (Caldwell 100 bucket or similar types-Watson 1000 auger or similar types-Texoma 330, 500 or 600 auger or similar types-drilling depth of 45' maximum), drilling machine operator(including water wells),hydrographic seeder machine operator (straw, pulp or seed) Jackson track maintainer, or similar type, Kalamazoo switch tamper, or similar type, machine tool operator, Maginnis internal full slab vibrator, mechanical berm, curb or gutter (concrete or asphalt),mechanical finisher operator (concrete, Clary-Johnson-Bidwell or similar type),pavement breaker operator (truck mounted), road oil mixing machine operator, roller operator (asphalt or finish), rubber-tired earth moving equipment (single engine, up to and including 25 yds. struck),self-propelled tar pipelining machine operator, skiploader operator (crawler and wheel type, over 3/4 yd. and up to and

including 1-1/2 yds.),slip form pump operator (power driven hydraulic lifting device for concrete forms),tractor operator- bulldozer, tamper-scraper (single engine, up to 100 h.p. flywheel and similar types, up to and including D-5 and similar types), tugger hoist operator(1 drum), Ultra High Pressure Waterjet Cutting Tool System Operator, Vaccum Blasting Machine operator, Welder-General.

GROUP 7:Welder-General(Multi-Shift).

GROUP 8: Asphalt or concrete spreading operator (tamping or finishing), asphalt paving machine operator (Barber Greene or similar type-1 screedman required), Asphalt-rubber distributor operator, backhoe operator (up to and including 3/4yd.), small Ford, Case or similar, cast-in-place pipe laying machine operator, combination mixer and compressor operator (gunite work), compactor operator (self-propelled), concrete mixer operator (paving), crushing plant operator, drill doctor, drilling machine operator, bucket or auger types (Caldwell 150 bucket or similar types-Watson 1500, 2000, 2500 auger or similar types-Texoma 700, 800 auger or similar types-drilling depth of 60' maximum), elevating grader operator, grade checker, gradall operator, grouting machine operator, heavy-duty repairman, Heavy Equipment Robotics Operator, kalamazoo ballast regulator or similar type, Kolman belt loader and similar type, Le Tourneau blob compactor or similar type, loader operator (Athey, Euclid,Sierra and similar), Master Environmental Maintenance Mechanic, Pneumatic concrete placing machine operator (Hackley-Presswell or similar type), pumpcrete gun operator, rotary drill operator(excluding caison type), Rubber-tired earth-moving equipment operator (single engine, Caterpillar, Euclid, Athey Wagon, and similar types with any and all attachments over 25 yds. and up to and including 50 cu. yds. struck), rubber-tired earth-moving equipment operator (multiple engine up to and including 25 yds. struck), rubber-tired scraper operator (self-loading paddle wheel type-John Deere,1040 and similar single unit),self-propelled curb and gutter machine operator, skipload operator (crawler and wheel type over 1-1/2 yds. up to and including 6-1/2 yds.), Soil Remediation Plant Operator (C.M.I. Enviro Tech Thermal or Similar Types)(Oiler Required Group 2), surface heaters and planer operator, tractor compressor drill combination operator, tractor operator (any type larger than D-5-100 flywheel h.p. and over, or similar-bulldozer, tamper, scraper and push tractor single engine), tractor operator (boom attachments), traveling pipe wrapping, cleaning and bending machine operator, trenching machine operator (over 6 ft. depth capacity, oiler required),Ultra High Pressure WaterJet Cutting Tool System Mechanic.

GROUP 9:Heavy duty repairman.

GROUP 10: Drilling machine operator,bucket or auger types (Caldwell 200 B bucket or similar types-Watson 3000 or 5000 auger or similar types-Texoma 900 auger or similar types-drilling depth of 105' maximum), dual drum mixer, Heavy Duty Repairman-welder Combination, monorail locomotive operator (diesel, gas or electric), motor patrol-blade operator (single engine), multiple engine tractor operator (Euclid and similar type-except Quad 9 cat.) rubber-tired earth-moving equipment operator (single engine, over 50 yds. struck), rubber-tired earth-moving equipment operator (multiple engine, Euclid, Caterpillar and similar over 25 yds. and up to 50 yds.), tower crane repair person, tractor loader operator (crawler and wheel type over 6-1/2 yds.), Welder-Certified, Woods mixer operator (and similar pugmill equipment).

GROUP 11: Dynamic compactor LDC350 (or similar types-two operators required), Heavy Duty Repairman Welder Combination, welder-certified.

GROUP 12: Auto grader operator, automatic slip form operator,drilling machine operator, bucket or auger types (Caldwell, auger 20 CA or similar types-Watson auger 6000 or similar types-drilling depth of 175' maximum),hoe ram or similar with compressor, mass excavator operator, mechanical finishing machine operator, mobile form traveler operator, motor patrol operator (multi-engine), pipe mobile machine operator, rubber-tired earth-moving equipment operator (multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck), rubber-tired self-loading scraper operator (paddle-wheel-auger type self-loading-two (2) or more units),Vermeer Rock Trencher (or similar type).

GROUP 13: Rubber-tired earth-moving equipment operator operating equipment with push-pull system (single engine,up to and including 25 yds. struck).

GROUP 14: Canal liner operator, canal trimmer operator, remote-control earth-moving equipment operator, wheel excavator operator.

GROUP 15: Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (single engine, Caterpillar, Euclid, Athey Wagon and similar types with any and all attachments over 25 yds. and up to and including 50 yds. struck), rubber-tired earth-moving equipment operator, operating equipment with push-pull system (multiple engine-up to and including 25 yds. struck).

GROUP 16: Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (single engine, over 50 yds. struck), rubber-tired earth-moving equipment operator, operating equipment with push-pull system (multiple engine, Euclid, Caterpillar and similar, over 25 yds. and up to 50 yds. struck).

GROUP 17: Rubber-tired earth-moving equipment operator, operating equipment with push-pull system (multiple engine, Euclid, Caterpillar and similar, over 50 cu. yds. struck), tandem tractor operator (operating crawler type tractors in tandem-Quad 9 and similar type).

GROUP 18: Rubber-tired earth-moving equipment operator, operating in tandem (scrapers,belly dumps and similar types in any combination, excluding compaction units-single engine, up to and including 25 yds. struck).

GROUP 19: Rotex concrete belt operator (or similar types), rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, including compaction units-single engine, Caterpillar, Euclid, Athey Wagon and similar types with any and all attachments over 25 yds. and up to and including 50 cu. yds. struck), rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units-multiple engine, up to and including 25 yds. struck).

GROUP 20: Rubber-tired earth-moving equipment operator, operating in tandem (scrapers,belly dumps and similar types in any combination, excluding compaction units-single engine, over 50 yds. struck), rubber-tired earth moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units-multiple engine, euclid, caterpillar and similar over 25 yds. and up to 50 yds. struck).

GROUP 21: Rubber-tired earth-moving equipment operator, operating in tandem (scrapers, belly dumps and similar types in any combination, excluding compaction units-multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck).

GROUP 22: Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (single engine, up to and including 25 yds. struck).

GROUP 23: Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (single engine, Caterpillar, Euclid, Athey Wagon and similar types with any and all attachments over 25 yds. and up to and including 50 yds. struck), rubber-tired earth-moving equipment operator, operating with the tandem push-pull system (multiple engine, up to and including 25 yds. struck).

GROUP 24: Rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (single engine, over 50 yds. struck), rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (multiple engine, Euclid, Caterpillar and similar, over 25 yds. and up to 50 yds. struck).

GROUP 25: Concrete pump operator-truck mounted (oiler required when boom over 105' or 36 meters), rubber-tired earth-moving equipment operator, operating equipment with the tandem push-pull system (multiple engine, Euclid, Caterpillar and similar type, over 50 cu. yds. struck).

CRANES, PILEDRIVING AND HOISTING EQUIPMENT CLASSIFICATIONS:

GROUP 1: Engineer oiler; Fork lift operator (under 5 tons capacity)

GROUP 2: Truck crane oiler

GROUP 3: A-frame or winch truck operator; Ross carrier operator (jobsite)

GROUP 4: Bridge-type unloader and turntable operator; Helicopter hoist operator

GROUP 5: Stinger crane (Austin-Western or similar type); Tugger hoist operator (1 drum)

GROUP 6: Bridge crane operator; Cretor crane operator; Fork lift operator (over 5 tons); Hoist operator (Chicago boom and similar type); Lift mobile operator; Lift slab machine operator (Vagtborg and similar types); Material hoist operator; Shovel, backhoe, dragline, clamshell operator (over 3/4 yd. and up to 5 cu. yds. mrc); Tugger hoist operator

GROUP 7: Pedestal crane operator; Shovel, backhoe, dragline, clamshell operator (over 5 cu. yds. mrc); Tower crane repair; Tugger hoist operator (3 drum)

GROUP 8: Crane operator (up to and including 25 ton capacity); Crawler transporter operator; Derrick barge operator (up to and including 25 ton capacity); Hoist operator, stiff legs, Guy derrick or similar type (up to and including 25 ton capacity); Shovel, backhoe, dragline, clamshell operator (over 7 cu. yds. mrc)

GROUP 9: Crane operator (over 25 tons and up to and including 50 tons mrc); Derrick barge operator (over 25 tons up to and including 50 tons mrc); Highline cableway operator; Hoist operator, stiff legs, Guy derrick or similar type (over 25 tons up to and including 50 tons mrc); K-crane operator; Polar crane operator; Tower crane operator

GROUP 10: Crane operator (over 50 tons and up to and including 100 tons mrc); Derrick barge operator (over 50 tons up to and including 100 tons mrc); Hoist operator, stiff legs, Guy derrick or similar type (over 50 tons up to and including 100 tons mrc)

GROUP 11: Crane operator (over 100 tons and up to and including 200 tons mrc); Derrick barge operator (over 100 tons up to and including 200 tons mrc); Hoist operator, stiff legs, Guy derrick or similar type (over 100 tons up to and including 200 tons mrc); Mobile tower crane operator (over 100 tons up to and including 200 tons mrc)

GROUP 12: Crane operator (over 200 tons up to and including 300 tons mrc); Derrick barge operator (over 200 tons up to and including 300 tons mrc); Hoist operator, stiff legs, Guy derrick or similar type (over 200 tons, up to and including 300 tons mrc); Mobile tower crane operator (over 200 tons, up to and including 300 tons mrc)

GROUP 13: Crane operator (over 300 tons); Derrick barge operator (over 300 tons); Helicopter pilot; Hoist operator, stiff legs, Guy derrick or similar type (over 300 tons); Mobile tower crane operator (over 300 tons)

TUNNEL CLASSIFICATIONS

GROUP 1: Skiploader (wheel type up to 3/4 yd. without attachment)

GROUP 2: Power-driven jumbo form setter operator

GROUP 3: Dinkey locomotive or motorman (up to and including 10 tons)

GROUP 4: Bit sharpener; Equipment greaser (grease truck); Slip form pump operator (power-driven hydraulic lifting device for concrete forms); Tugger hoist operator (1 drum); Tunnel locomotive operator (over 10 and up to and including 30 tons); Welder-general

GROUP 5: Backhoe operator (up to and including 3/4 yd.); Small Ford, Case or similar; Drill doctor; Grouting machine operator; Heading shield operator; Heavy-duty repairperson; Loader operator (Athey, Euclid, Sierra and similar types); Mucking machine operator (1/4 yd., rubber-tired, rail or track type); Pneumatic concrete placing machine operator (Hackley-Presswell or similar type); Pneumatic heading shield (tunnel); Pumpcrete gun operator; Tractor compressor drill combination operator; Tugger hoist operator (2 drum); Tunnel locomotive operator (over 30 tons)

GROUP 6: Heavy duty repairman-welder combination

GROUP 7: Tunnel mole boring machine operator

ENGI9993-003 01/01/2004
CHURCHILL, DOUGLAS, ELKO, EUREKA, HUMBOLDT, LANDER, LYON, MINERAL, PERSHING, STOREY, WASHOE, WHITE PINE AND CARSON CITY

	Rates	Fringes
Power Equipment Operators - Piledrivers:		
Group 1.....	$ 36.39	14.60
Group 2.....	$ 34.85	14.60
Group 3.....	$ 33.40	14.60
Group 4.....	$ 31.89	14.60
Group 5.....	$ 29.67	14.60
Group 6.....	$ 27.75	14.60
Power equipment operators - steel erection:		
Group 1.....	$ 36.92	14.60
Group 1a.....	$ 30.75	14.60
Group 1b.....	$ 28.79	14.60
Group 2.....	$ 35.41	14.60
Group 2a.....	$ 30.50	14.60
Group 2b.....	$ 28.58	14.60
Group 3.....	$ 34.17	14.60
Group 3a.....	$ 30.28	14.60
Group 3b.....	$ 28.36	14.60
Group 3c.....	$ 29.95	14.60
Group 4.....	$ 32.44	14.60
Group 5.....	$ 31.34	14.60
Power equipment operators: (Except Piledriving and Steel Erection)		
Group 1.....	$ 21.62	14.60
Group 1A.....	$ 24.38	14.60
Group 2.....	$ 24.91	14.60
Group 3.....	$ 25.18	14.60
Group 4.....	$ 25.92	14.60
Group 6.....	$ 26.39	14.60

Group 7.....	$ 26.64	14.60
Group 8.....	$ 27.23	14.60
Group 9.....	$ 27.55	14.60
Group 10.....	$ 27.90	14.60
Group 10a.....	$ 28.09	14.60
Group 11.....	$ 28.33	14.60
Group 11a.....	$ 29.97	14.60
GROUP 11b:.....	$ 30.78	14.60

AREA 1:

POWER EQUIPMENT OPERATOR CLASSIFICATIONS CHURCHILL, DOUGLAS, ELKO, EUREKA, HUMBOLDT, LANDER, LYON, MINERAL, PERSHING, STOREY, WASHOE, WHITE PINE, CARSON CITY

(EXCLUDING PILEDRIVING AND STEEL ERECTION)

GROUP 1: Engineer Assistant

GROUP 1a: Oiler; Partsman (heavy duty repair shop parts room when needed); Heavy duty repairman helper

GROUP 2: Compressor Operator; Material Loader and/or Conveyor Operator (handling building materials); Pump Operator

GROUP 3: Bobcat or similar loader (1/4 cu. yd. or less); Concrete Curing Machines (streets, highways, airports, canals); Conveyor belt operator(tunnel); Forklift (under 20 ft.); Engineer Generating plant (500 K.W.); Mixer box operator (concrete plant); Motorman; Rodman/ Chainman; Rotomist Operator; Oiler (truck crane)

GROUP 4: Concrete mixer, skip type; Dinky; Forklift (20' and over) or Lumber stacker; Ross Carrier; Skip Loader (under 1 cu. yd); Tie Spacer.

GROUP 5: Concrete mixer (over 1 cu. yd); concrete pumps or pumpcrete guns; Elevator and material Hoist (1 drum); Groundman for Asphalt Milling and similar.

GROUP 6: Auger type drilling equipment up to and including 30 ft. depth digging capacity m.r.c.; Boom Truck or Dual Purpose "A" Frame Truck; B.L.H. Lima road pactor or similar; Chip box spreader (flaherty type or similar); Concrete batch plant (wet or dry); Concrete saws (highways, streets, airports, canals); Locomotive (over 30 tons); Lubrication and service engineer (mobile & grease rack); Maginnis international full slab vibrator (airports, highways, canals, warehouses); Mechanical finishers (concrete)(clary, Johnson, Bidwell Bridge Deck or similar types); Mechanical Burn, Curb and/or Curb and Gutter Machine (concrete or asphalt); Pavement breaker,truck mounted, with compressor combination; Pavement breaker or tamper (with or without compressor (combination); Power Jumbo (setting slip-forms, etc. in tunnels); Roller

(except asphalt); Self-propelled tape machine; Self-propelled compactor (single engine); Self-propelled power sweeper; slip form pump (power-driven by hydraulic, electric, air, gas, etc. lifting device for concrete forms); Small Rubber-tired Tractors; Snooper Crane, Paxton-Mitchell or similar; Stationary Pipe Wrapping, Cleaning and Bending Machine Operator.

GROUP 7: Auger type drilling equipment over 30 ft. depth digging capacity m.r.c.; Compressor (over 2); Concrete conveyor or concrete pump, truck equipment mounted (boom length to apply); Concrete conveyor, building site; Drilling and boring Machinery, vertical and horizontal (not to apply to waterliners, wagon drills or jackhammers); Crusher Plant Engineer; Generators; Kolman Loader; Material Hoist (2 or more drums); Mechanical finishers or spreader machine (asphalt, Barber-Greene and similar); (Screedman required); Mine or shaft hoist; Pipe bending machines (pipelines only); Pipe cleaning machines (tractor propelled and supported); Pipe wrapping machines (tractor propelled and supported); Portable crushing and screening plants; Post driller and/or driver; Pumps (over 2); Roller operator (asphalt); Screedman (except asphaltic or concrete paving; Screedman (Barber-Green and similar)(Aspaltic or concrete paving); Self-propelled boom-type lifting device (center amount) (on 10 ton capacity or less); Slusher; Soil tester (certified); Soils and material tester; Surface heater and planer; Trenching machine (maxiumum digging capacity 3 feet depth); Truck type loader; Welding machines (gasoline or diesel).

GROUP 8: Asphalt plant Engineer; Asphalt milling machine; Cast-in-place pipe laying machine; Combination slusher and motor operator; Concrete batch plant (multiple units); Dozer Operator; Drill doctor; Elevating grader; Gradesetter, Grade checker; Grooving and grinding machine (highway); Ken-seal; Loader (up to and including 2 1/2 cu. yds.); Mechanical trench shield; Mixermobile; Push cats; Road oil mixing machine (wood-mixer and other similar pugmill equipment); Rubber-tired earth-moving equipment (up to and including 35 cu. yds. "struck" M.R.C. Euclid, T-pulls, DW's 10, 20, 21, and similar); Self-propelled compactor with dozer; Hyster 450 or cat 825 or similar; Sheepfoot; Small tractor (with boom); Soil stabilizer (P & H or equal); Timber skidder (rubber-tired and/or similar equipment); Tractor-drawn scraper; Tractor; Tractor- mounted compressor drill combination; Trenching machine (over 3 feet depth); Tri-batch paver; Tunnel badger or tunnel boring machine; Tunnel mole boring machine; Vermeer T-600b rock cutter.

GROUP 9: Chicago boom; Combination backhoe and loader (up to and including 3/8 yard); Combination mixer and compressor (gunite); Lull hi-lift (20 feet or over); Mucking machine; Sub-grader (gurries or other types); Tractor (with boom) (D6 or larger); Track-laying-type earthmoving machine (single engine with tandem scrapers).

GROUP 10: Boom-type backfillng machine; Bridge crane; Carylift or similar; Chemical grouting machine; Derricks (two (2) Group 10 operators required when swing engine remote from hoist); Derrick barges (except excavation work); Euclid loader and similar types; Heavy-Duty rotary drill rigs; Lift-slab (vagtborg and similar types); Loader (over 2 1/2 cu yds. up to and

including 4 cu. yds); Locomotive (over 100 tons) (single or multiple units); Multiple-Engine earth-moving machines (euclid, dozers, etc.); Pre-stress wire-wrapping machine; Rubber-tried scraper, self-loading; Single-engine scraper (over 35 cu. yds); Shuttle car (reclaim station); Train loading station; Trenching machine multi-engine with sloping attachment (jefco or similar); Vacuum cooling plant; Whirley crane (up to and including 25 tons).

GROUP 10a: Backhoe (up to and including 1 cu. yd hydraulic); Backhoe (up to and including 1 cu. yd. cable); CMI dual lane auto-grader SP30 or similar; Cranes (not over twenty five (25) tons (hammerhead and gantry); Finish Blade; Gradalls (up to and in- cluding 1 cu. yd); Motor patrol; Power shovels, Clamshells, Draglines, Cranes (up to and including 1 cu. yd.); Rubber-tried scraper, self-loading (twin-engine); Self-propelled boom-type lifting device (center mount) (over 10 tons up to and including 25 tons).

GROUP 11: Automatic asphalt or concrete slip-form paver; Automatic railroad car dumper; Canal trimmer; Cary lift, campbell or similar; Cranes (over 25 tons); Euclid loader when controled from the pullcat; Highline cableway operator; Loader (over 4 cu yds. up to and including 12 cu. yds.); Multi-Engine earthmoving equipment (up to and including 75 cu. yds. "struck M.R.C); Multi ple Engine Scrapers (when used to push pull); Power shovels, Clam-shells, Draglines, Backhoes, Gradealls (over 1 cu. yd. and up to and including 7 cu. yds. M.R.C.); Self-propelled Boom type lifting device (over 25 tons M.R.C.); Self-propelled Compactor (with multiplepropulsion power units); Single-engine rubber-tried earthmoving machine (with tandem scraper); Slip-form paver (concrete or asphalt)(one (1) Operator and two (2) screedman); Tandem cats and scrapers; Tower crane mobile (including rail-mounted); Truck-mounted hydraulic crane when remote-control equipped (over 10 tons up to and including 25 tons); Universal Liebher and tower cranes (and similar types)(in the erection, dismantling and moving of equipment there shall be an additional operating engineer at group 8 rates); Wheel excavator (up to and including 750 cu. yds. per hour); Whirley cranes (over 25 tons).

GROUP 11a: Band wagons (in conjuction with wheel excavators); Operator of helicopter (when used in construction work); Loaders (over 12 cu. yds.); Multi-engine earthmoving equipment (over 75 cu. yds. "struck" M.R.C.); Power shovels, Clamshells, Draglines, Backhoes and Gradalls (over 7 cu. yds. M.R.C.); Remote-controlled Earthmoving equipment; Wheel excavator (over 750 cu. yds. per hour)(two (2) Group 11A operators required).

GROUP 11b: Holland loader or similar or loader (over 18 cu. yds)

PILEDRIVING CLASSIFICATIONS GROUP

GROUP 1: Derrick barge pedestal mounted over 100 tons; Clam-shells over 7 cu. yds.; Self propelled boom type lifting device over 100 tons; Truck crane or crawler, land or barge mounted over 100 tons;

GROUP 2: Derrick barge pedestal mounted 45 tons up to and including 100 tons; Clamshells up to and including 7 cu. yds; Self propelled boom type lifting device over 45 tons; Truck crane or crawler, land or barge mounted over 45 tons up to and including 100 tons.

GROUP 3: Derrick barge pedestal mounted under 45 tons; self propelled boom type lifting device 45 tons and under; Skid/Scow Piledriver, any tonnage; (any assistance required shall be by an employee covered by this agreement); Truck crane or crawler, land or barge mounted 45 tons and under.

GROUP 4: Forklift, 10 tons and over

GROUP 5: Deck engineer

GROUP 6: Deckhand, Fireman

STEEL ERECTORS AND FABRICATORS GROUP

GROUP 1: Cranes, over 100 tons; Derrick over 100 tons, Self-propelled boom type lifting devices over 100 tons.

GROUP 1a: Truck crane oiler

GROUP 1b: Oiler

GROUP 2: Cranes, over 45 tons up to and including 100 tons; Derrick 100 tons and under, Self-propelled boom type lifting device, over 45 tons; Tower Crane.

GROUP 2a: Truck crane oiler.

GROUP 2b: Oiler

GROUP 3: Cranes, 45 tons and under; Self propelled boom type lifting device, 45 tons and under

GROUP 3a: Truck crane oiler

GROUP 3b: Hydraulic

GROUP 3c: Oiler

GROUP 4: Chicago boom; Forklift, 10 tons and over; Heavy Duty Repairman/Welder.

GROUP 5: Boom cat

AREA DEFININITIONS AND PAY RATES

AREA 1: ALL AREA FALLING WITHIN 50 ROAD MILES OF EITHER THE CARSON CITY COURTHOUSE OR THE WASHOE COUNTY COURHOUSE SHALL BE CONSIDERED FREE AREA.

AREA 2: ALL WORK FALLING BETWEEN 50 AND 150 ROAD MILES OF THE WASHOE COUNTY COURTHOUSE SHALL BE COMPUTED AT AN ADDITIONAL $2.00 PER HOUR ABOVE THE BASE RATE.

AREA 3: ALL WORK FALLING BETWEEN 150 AND 300 ROAD MILES OF THE WASHOE COUNTY COURTHOUSE SHALL BE COMPUTED AT AN ADDITIONAL $3.00 PER HOUR ABOVE THE BASE RATE.

AREA 4: ANY WORK PERFORMED IN EXCESS OF 300 ROAD MILES OF THE WASHOE COURTHOUSE SHALL BE COMPUTED AT AN ADDITIONAL $4.00 PER HOUR ABOVE THE BASE RATE.

ENGI9993-006 07/01/1997

CHURCHILL, DOUGLAS, ELKO, EUREKA, HUMBOLDT, LANDER, LYON, MINERAL, PERSHING, STOREY, WASHOE, WHITE PINE AND CARSON CITY

	Rates	Fringes
Hydraulic Suction & Clamshell & Dipper Dredge		
GROUP 1:		
Area 1.....	$ 31.04	11.89
Area 2.....	$ 33.04	11.89
GROUP 2:		
Area 1.....	$ 26.08	11.89
Area 2.....	$ 28.08	11.89
GROUP 3:		
Area 1.....	$ 24.96	11.89
Area 2.....	$ 26.96	11.89

DREDGING CLASSIFICATIONS

GROUP 1: Day Mate(Captain); Leverman/Operator

GROUP 2: Booster Pump Operator, Deck Engineer, Deck Mate, Dredge Dozer; Dredge Tender; Heavy Duty Repairman; Watch Engineer; Winchman

GROUP 3: Bargeman; Deckhand; Fireman; Leveehand; Oiler

AREA DEFININITIONS

AREA 1: ALL AREA FALLING WITHIN 50 ROAD MILES OF EITHER THE CARSON CITY COURTHOUSE OR THE WASHOE COUNTY COURHOUSE SHALL BE CONSIDERED FREE AREA.

AREA 2: ALL WORK FALLING BETWEEN 50 AND 150 ROAD MILES OF THE WASHOE COUNTY COURTHOUSE.

AREA 3: ALL WORK FALLING BETWEEN 150 AND 300 ROAD MILES OF THE WASHOE COUNTY COURTHOUSE.

AREA 4: ANY WORK PERFORMED IN EXCESS OF 300 ROAD MILES OF THE WASHOE COURTHOUSE.

IRON0027-009 07/01/2001
ELKO, EUREKA, AND WHITE PINE COUNTIES

	Rates	Fringes
Ironworkers:		
Fence Erectors: Machinery Movers Ornamental: Reinforcing: Rigger Structural.....	$ 25.19	14.575

IRON0155-001 07/01/2003
CHURCHILL, CLARK, DOUGLAS, ESMERALDA, HUMBOLDT, LANDER, LINCOLN, LYON, MINERAL, NYE, PERSHING, STOREY, WASHOE, AND WHITE PINE COUNTIES

	Rates	Fringes
Ironworkers:		
FENCE ERECTORS (Excluding Clark County).....	$ 26.42	13.20
STRUCTURAL, ORNAMENTAL AND REINFORCING.....	$ 27.31	13.20

LABO0169-003 10/01/2003
CHURCHILL, DOUGLAS, ELKO, EUREKA, HUMBOLDT, LANDER, LYON, MINERAL, PERSHING, STOREY, WASHOE, WHITE PINE, CARSON CITY

	Rates	Fringes
Laborers:		
Group 1.....	$ 19.55	5.92
Group 1-A.....	$ 16.68	5.92
Group 2.....	$ 19.65	5.92
Group 3.....	$ 19.80	5.92
Group 4.....	$ 20.05	5.92
Group 5.....	$ 20.35	5.92
Group 6.....	$ 20.35	5.92
Group 7.....	$ 20.05	5.92
Group 8.....	$ 19.70	5.92
Group 9.....	$ 14.39	5.92

From the Washoe County Courthouse:
50 Miles to 150 Miles - add $1.50 per hour to wage rates.
150 Miles to 300 Miles - add $2.00 per hour to wage rates.
Over 300 Miles - add $3.00 per hour to wage rates.

CLASSIFICATIONS

GROUP 1: All cleanup work of debris, grounds and building including windows and tile; dump or spotter (other than asphalt); general laborers; limber, brushloader and piler.

GROUP 1-A: Flagmen.

GROUP 2: Choker setter or rigger (clearing work only); Pittsburgh chipper and similar type brush shredders; concrete worker (wet or dry) all concrete work not listed in Group 3; crusher or grizzle tender; Guinea chaser (stake); panel forms (wood or metal) handling, cleaning and stripping of; loading and unloading of all rods and materials for reinforcing concrete; railroad track (builders); sloper; semi-skilled wrecker (salvaging of building materials other than those listed in Group 3).

GROUP 3: Asphalt workers (ironers, shoveler, cutting machine); buggymobile; chainsaw, faller, logloader and bucker; compactor (all types); concrete mixer, under 1/2 yd.; concrete pan work (breadpan type) (handling, cleaning, stripping); concrete saw, chipping, grinding, sanding, vibrator; cribbing, shoring, lagging, trench jacking, hand-guided lagging hammer; curbing or divider machine; curb setter (precast or cut); Ditching machine (hand-guided); driller's tender, chuck tender; form raiser, slip forms; grouting of concrete walls, windows and door jams; headerboard; jackhammer, pavement breaker, air spade; mastic worker (wet or dry); pipe wrapper, kettle, pot, and workers applying asphalt, Creosote and similar type materials; all power tools (air, gas or electric); post driver; riprap stonepaver and rock slinger, including placing of sack concrete, wet or dry; roto tiller; rigging and signaling in connection with laborers work, sandblaster, pot men; vibrascreed; skilled wrecker (removing and salvaging of sash windows, doors, plumbing and electrical; fixtures).

GROUP 4: Burning and welding in connection with laborers' work; joy drill model TWM-2A, gardener denver model DN 143 and similar type drills; track drillers, diamond core drillers, wagon drillers, mechanical drillers on multiple units; high scalers; concrete pump; heavy duty vibrator with stinger 5" diameter or over; pipelayer, caulker and bander; pipelayer - waterline, sewerline, gasline, conduit; asphalt rakers.

GROUP 5: Blaster and powder, all work of loading, placing and blasting of all powder and explosive of any type, regardless of method used used for such loading and placing; asbestos removal; lead abatement, hazardous waste and material removal.

GROUP 6: Nozzlemen, Rodman.

GROUP 7: Gunmen, Materialmen.

GROUP 8: Reboundmen.

GROUP 9: Landscaper.

LABO0872-003 07/01/2002
CLARK, ESMERALDA, AND LINCOLN COUNTIES; NYE COUNTY (South half, including Highway #6)

	Rates	Fringes
Laborers:		
Group 1.....	$ 19.76	12.95
Group 2.....	$ 19.97	12.95
Group 3.....	$ 20.07	12.95
Group 4.....	$ 20.16	12.95
Group 5.....	$ 20.26	12.95
Group 6.....	$ 20.07	12.95
Group 7.....	$ 17.26	12.95

30-50 Miles From City Hall, Las Vegas $1.50 above the base rate.
50-70 Miles From City Hall, Las Vegas $2.50 above the base rate.
Over 70 Miles From City Hall, Las Vegas $3.00 above the base rate.
Laughlin Area $2.25 above the base rate.

LABORER CLASSIFICATIONS:

Group 1: Dry Packing of concrete and filling of form-bolt holes; fine grader, highway and street paving, airport runaways and similar type heavy construction; gas and oil pipeline laborer; guinea chaser; laborer, general; construction or demolition laborer; packing rod steel and pans; laborers; temporary water lines (portable type); landscape gardener and nursery worker (must have knowledge of plant materials and how to plant them lay out plant arrangements to-follow the landscape plan); tarman and mortarman; kettleman; potman and worker applying asphalt lay-kold creosote, lime and similar type materials ("applying" means applying, dipping, brushing or handling of such materials for pipe wrapping and waterproofing); underground laborer, including caisson bellowers; window cleaner; scafford erector - (excludes tenders); fence erector-chain link; mortarless, barrier wall and/or retaining walls; mechanical stabilized earth wall; landscape decorative rock installer-ponds, water fall etc.; material handler- (incidental to trade).

Group 2: Asphalt raker, ironer, spreader, Luteman, buggymobile man; cement dumper (on 1 yard or larger mixers and handling bulk cement); cesspool digger and installer; chucktender (except tunnels); concrete core cutter; concrete curer, impervious membrane and oiler of all materials; concrete saw, excluding tractor type, cutting, scoring old or new concrete; gas and oil pipeline wrapper, pot tender and form; making and caulking of all non metallic pipe joints; operators and tenders of pneumatic and electric tools, vibrating machines, hand-propelled trenching machines, impact wrench, multiplate and similar mechanical tools not separately classified herein; operator of cement grinding machine; riprap stonepaver; roto-scraper; sandblaster (pot tender); scaler; septic tank digger and installer; tank scaler and cleaner; tree climber, faller, chain saw operator, pittsburgh chipper and similar type brush shredders.

Group 3: Cutting torch operator; gas and oil pipeline wrapper; gas and oil pipeline laborer, certified; jackhammer and/or pavement breaker, laying of all non-metallic pipe, including landscape sprinklers, sewerpipe, drain pipe, and underground tile; mudcutter; concrete vibrator, all sizes; rock slinger; scaler (using Bos'n chair or safety belt or power tools); forklift (incidental to trade) a journeyman shall hold OSHA certification at time of referral.

Group 4: Cribber or shorer, lagging, sheeting, trenching bracing hand guided lagging hammer; head rock slinger; powder-blaster, all work of loading holes, placing and blasting of all powder and explosives of whatever type, regardless of method used for such loading and placing; sandblaster (nozzle operator); steel headerboard.

Group 5: Driller (core, diamond or wagon); joy driller model TW-M-2a, Gardener-Denver Model DH 143 and similar type drills (in accordance with memorandum of understanding between laborers and operating engineers dated Miami, Florida, February 3, 1954); Gas and oil pipeline fusion; gas and oil pipeline wrappers, 6" pipe and over.

Group 6: Environmental specialist (asbestos abatement, lead abatement, Hazardous waste abatement, petro-chemical abatement, radiation remediation.)

Group 7: Flag and Signal Person.

LABO0872-006 07/01/2002
CLARK, ESMERALDA, AND LINCOLN COUNTIES; NYE COUNTY (South half, including Highway #6)

	Rates	Fringes
Laborers:		
Group 1.....	$ 21.50	12.95
Group 2.....	$ 21.00	12.95
Group 3.....	$ 20.75	12.95
Group 4.....	$ 21.36	12.95
Group 5.....	$ 21.00	12.95

30-50 Miles From City Hall, Las Vegas $1.50 above the base rate.
50-70 Miles From City Hall, Las Vegas $2.50 above the base rate.
Over 70 Miles From City Hall, Las Vegas $3.00 above the base rate.
Laughlin Area $2.25 above the base rate.

CLASSIFICATIONS

GROUP 1: Shaft, Raise, Stope Miner.
GROUP 2: Miner - Tunnel (Hardrock).
GROUP 3: BullGang, Mucker, Trackman.
GROUP 4: Miner - Welder.
GROUP 5: Pipe Jacking, Micro-Tunneling, Tunnel Boring Machine.

PAIN0159-004 07/01/2002
CLARK, ESMERALDA, LINCOLN AND NYE COUNTIES

	Rates	Fringes
Painters:		
Brush, Roller, Paperhangers, Spray, Sandblasters, Pot Tender, Nozzleman, Tapers, Marbleizing, Metal Leafing Sign Painters, Acid Staining, Graining and Buffing.....	$ 27.52	6.26
Special Coating.....	$ 27.52	6.26
Steeplejack.....	$ 29.32	6.26
Structural Steel Paint and Sandblasting, Buffing Steel.	$ 27.92	6.26

PAIN0567-005 10/01/2001
CARSON CITY, CHURCHILL, DOUGLAS, ELKO, EUREKA, HUMBOLDT, LANDER, LYON, MINERAL, PERSHING, STOREY, WASHOE AND WHITE PINE COUNTIES

	Rates	Fringes
Painters:		
Brush and Roller.....	$ 20.53	5.06
Drywall Taper.....	$ 22.08	5.06
Special Coatings Application - Spray Steel...	$ 21.78	5.06
Spray; Paperhangers; and Sandblaster; Special Coatings Application-Brush..	$ 21.03	5.06
Steeplejack-Taper, over 40 ft. with open space.....	$ 23.58	5.06
Structural Steel (not to include stairways, tube steel, Q-decks & trust joints worked off powered lift in enclosed building); Steeplejack Brush/Spray over 40 feet with open space below; Special Coatings Application - Spray.....	$ 21.53	5.06

PLAS0241-004 10/01/2001
CHURCHILL, DOUGLAS, ELKO, ESMERALDA, EUREKA, HUMBOLDT, LANDER, LYON, MINERAL, PERSHING, STOREY, WASHOE, AND WHITE PINE COUNTIES

	Rates	Fringes
Cement Masons:		
Cement Masons.....	$ 17.52	6.23
Mastic, magesite and all composition masons.....	$ 17.77	6.23

PLAS0797-005 07/01/2004
CLARK, ESMERALDA, LINCOLN AND NYE COUNTIES

	Rates	Fringes
Cement Masons:		
0 to 30 Miles from City Hall in Las Vegas.....	$ 23.28	12.90
30 to 50 Miles from City Hall in Las Vegas.....	$ 24.78	12.90
50 to 70 Miles from City Hall in Las Vegas.....	$ 25.78	12.90
Over 70 Miles from City Hall in Las Vegas.....	$ 25.78	12.90

PLUM0350-005 08/01/2003
CHURCHILL, DOUGLAS, ELKO, EUREKA, HUMBOLDT, LANDER, LYON, MINERAL, PERSHING, STOREY, WASHOE, WHITE PINE, CARSON CITY COUNTIES, and NYE COUNTY (North of Hwy. #6 including the City of Tonopah)

	Rates	Fringes
Plumbers and Pipefitters.....	$ 25.10	11.80

PLUM0525-003 06/01/2003
CLARK, ESMERALDA AND LINCOLN, COUNTIES; NYE COUNTY (South of Hwy. #6 including the City of Tonopah)

	Rates	Fringes
Plumbers and Pipefitters.....	$ 31.51	12.11

ROOF0162-002 06/01/2004

	Rates	Fringes
Roofer.....	$ 20.10	5.08

SHEE0026-003 02/01/2004
CHURCHILL, DOUGLAS, ELKO, EUREKA, HUMBOLDT, LANDER, LYON, MINERAL, PERSHING, STOREY, WASHOE, CARSON CITY AND NYE COUNTY (North of the First Standard Parallel Line north of the 38th Parallel)

	Rates	Fringes
Sheet metal worker.....	$ 23.34	11.76

SHEE0088-004 07/01/2002
CLARK, ESMERALDA, AND LINCOLN COUNTIES; NYE COUNTY (South of the First Standard Parallel Line north of the 38th Parallel); WHITE PINE COUNTY

	Rates	Fringes
Sheet metal worker.....	$ 32.57	9.68

TEAM0533-001 07/01/2002

	Rates	Fringes
Dump Truck Driver		
Under 4 yards.....	$ 20.32	7.90
3 yards & under 25 yards....	$ 20.57	7.90
4 yards and under 8 yards...	$ 20.54	7.90
8 yards & under 18 yards....	$ 20.75	7.90
100 yards & over.....	$ 24.20	7.90
150 yards & under 250 yards.	$ 26.20	7.90
25 yards & under 60 yards...	$ 21.34	7.90
250 yards & under 350 yards.	$ 29.20	7.90
60 yards & under 75 yards...	$ 22.78	7.90
75 yards & under 100 yards..	$ 23.52	7.90
Over 350 yards.....	$ 30.70	7.90
Helicopter Pilot		
Helicopter Pilot (when transporting men or materials).....	$ 34.94	7.90
Mechanic		
Tire Repairman.....	$ 20.75	7.90
Truck Repairman.....	$ 21.08	7.90
Truck Driver - Transit Mix Under 8 yards.....	$ 20.75	7.90
8 yards & including 12 yards	$ 20.86	7.90
Over 12 yards.....	$ 21.08	7.90
Truck drivers:		
18,000 lbs & over (single unit).....	$ 20.48	7.90
18,000 lbs. & over.....	$ 20.59	7.90
Bootman, combination bootman and road oiler.....	$ 20.81	7.90
Flat Rack (2 or 3 axle unit)	$ 18.64	7.90
Fuel Man & Fuel Island Man..	$ 20.48	7.90
Fuel Truck Driver.....	$ 20.48	7.90
Heavy Duty Transport (Gooseneck Low Bed).....	$ 20.92	7.90
Heavy Duty Transport (High bed).....	$ 20.92	7.90
Lift Jitneys & Fork Lift....	$ 20.59	7.90
Oil Tanker With Pup.....	$ 21.34	7.90
Oil Tanker.....	$ 20.92	7.90
Pick-up Truck & Pilot Car (over the road).....	$ 20.43	7.90
Pick-up Truck & Pilot Cars (Job Site).....	$ 18.44	7.90
Teamsters Warehouse Clerk...	$ 20.54	7.90
Tiltbed or Flatbed Pull Trailers.....	$ 20.92	7.90
Truck Oil and Greaser.....	$ 20.48	7.90
Up to 18,000 lbs.(single unit).....	$ 20.37	7.90
Winch Truck & "A" Frame Drivers: Under 18,000 lbs..	$ 20.48	7.90
Truckdriver, Water Truck 2,500 gallons & over.....	$ 20.75	7.90

DW20's and 21's and other similar cat type, Terra cobra, Le Tourneau pulls, Tournerocker, Euclid and similar type equipment when pulling Aqua/pak, Water tank trailers and fuel and/or Grease Tank trailer or other miscellaneous trailers (except as defined under dump trucks).....	$ 21.03	7.90
Up to 2,500 gallons.....	$ 20.54	7.90
Warehouse Spotter.....	$ 20.43	7.90

AREA 1: All that area falling within fifty (50) road miles of either the Carson City or Washoe County Courthouse shall be considerer a free area.

AREA 2: All work falling between fifty (50) and (150) road miles of the Washoe County Courthouse shall be computed at and additional $1.50 per hour.

AREA 3: All work falling between one hundred and fifty (150) and three hundred (300) road miles of the Washoe County Courthouse shall be computed at additional $2.00 per hour.

AREA 4: Any work performed in excess of three hundred (300) road miles of the Washoe County Courthouse shall be computed at $3.00 per hour.

TEAM0631-001 07/01/2003

CLARK, ESMERALDA, LINCOLN COUNTIES AND NYE COUNTY (South of and excluding Highway #6)and White Pine County (South and East of Highway #6)

	Rates	Fringes
Truck drivers:		
GROUP 1:.....	$ 22.56	11.11
GROUP 2:.....	$ 22.67	11.11
GROUP 3:.....	$ 22.88	11.11
GROUP 4:.....	$ 23.06	11.11
GROUP 5:.....	$ 23.21	11.11
GROUP 6:.....	$ 23.56	11.11

30-50 Miles from City Hall, Las Vegas add $1.00 above the base rate.
50-70 Miles from City Hall, Las Vegas add $2.00 above the base rate.
70-80 Miles from City Hall, Las Vegas add $3.00 above the base rate.
Over 80 Miles from City Hall, Las Vegas add $3.50 above the base rate.
Laughlin and Mesquite Areas, add $3.00 above the base rate.

CLASSIFICATIONS

GROUP 1: Dump trucks (less than 12 yards water level); trucks (legal payload capacity less than 15 tons); water and fuel trucks (under 2500 gallons); pickup driver; service station attendant; drivers of busses (on jobsite used for transportation of up to 16 passengers); teamster equipment (highest rate for dual craft operation); warehouseman.

GROUP 2: Dump trucks (12 yards but less than 16 yards water level); trucks (legal payload capacity between 15 and 20 tons); transit mix trucks (under 3 yds.; dumpcrete trucks (less than 6-1/2 yds. water level); gas and oil pipeline working truck drivers; including winch truck and all sizes of trucks; water and fuel truck drivers (2,500 gallon to 4,000 gallon); truck greaser; drivers of busses (on jobsite used for transportation of sixteen (16) passengers); warehouse clerk.

GROUP 3: Dump trucks (16 yds. up to and including 22 yds. water level); driver of trucks (legal payload cap. 20 tons but less than 25 tons); dumpster trucks; drivers of transit-mix trucks (3 yds. but less than 6 yds.); dumpcrete trucks (6-1/2 yds. water level and over); fork lift driver; ross carrier driver; highway water and fuel drivers (4,001 gallons but less than 6,000 gallons); stock room clerk; tireman.

GROUP 4: Transit-mix trucks (6 yds. or more); dump trucks (over 22 yds. water level); trucks (legal payload capacity 25 tons and over); fuel and water trucks (6,000 gallons and over).

GROUP 5: Drivers of trucks and trailers in combination (six axles or more).

GROUP 6: All offroad equipment; truck repairmen; transport drivers and drivers of road oil spreader trucks DW 10 and DW 20 euclid-type equipment, letourneau pulls, terra cobras and similar types of equipment; also PB and similar type trucks when performing work within Teamsters' jurisdiction, regardless of types of attachment including power units pulling off-highway belly dumps in tandem.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

Section 104. - CONTROL OF WORK

104.03 Specifications and Drawings. Delete the text and substitute the following:

FAR Clause 52.236-21 - Specifications and Drawings for Construction is supplemented as follows:

(a) General. Prepare drawings as necessary to adequately construct the work. Drawings include, but are not limited to, layouts that show the relative position (vertical and horizontal, as appropriate) of work to be performed, fabrication details for manufactured items and assemblies, installation and erection procedures, details of post-tensioning and other systems, earthwork operations plans, detailed trench and excavation procedures that conform to OSHA requirements, traffic control implementation drawings, and methods for performing work near existing structures or other areas to be protected.

Limit drawings to a drawing size of 11 inches by 17 inches. Include an electronic copy of each shop drawing in .pdf format. Include on each drawing and calculation sheet, the project number, name, and other identification as shown in the contract.

Furnish 5 sets of cut sheets and supporting calculations for acceptance before performing work covered by the drawings. Furnish one paper copy along with the electronic copy of each shop drawing. Provide all submittals in customary U.S./English units. If drawings are returned for revision, correct and resubmit for acceptance. Allow 45 calendar days per submission for segmental structures and 30 calendar days per submission for all other structures. Allow 120 calendar days for review of submittals for contractor alternative erection methods. If submittals are incomplete or if drawings must be resubmitted, the time for acceptance starts over with receipt of the amended submittal. Obtain prior written approval for changes or deviations from accepted drawings. ***For submittals received between December 21 and January 1 of each year, time will not be counted during this period or counted against the CO's response time.***

(b) Specific requirements for concrete and miscellaneous structures. Drawings will be reviewed in the order they are received. The review time as specified in (a) above is applied separately to each drawing submitted. The CO may request additional specific drawings for unique situations in order to clarify layout, construction details, or methodology.

(1) Furnish drawings for the following:

- **(a)** Fabrication drawings for bridge railings and parapets
- **(b)** Fabrication drawings for pre-stressed members
- **(c)** Fabrication and installation drawings for expansion joint assemblies
- **(d)** Fabrication drawings for bearing assemblies
- **(e)** Construction joint location and concrete deck placement sequences not shown on the plans
- **(f)** Structural steel fabrication drawings
- **(g)** Utility hangar details
- **(h)** Detour layouts
- **(i)** Fabrication and installation drawings for pre-cast items

The following list is the minimum list of shop drawing submittal requirements for the precast and cast-in-place segmental construction work. Additional submittals are necessary to describe all facets of the work. Identify in writing those individual submittal requirements which are met by a particular drawing with submittal of the drawing.

ITEM NO.	DESCRIPTION	SUBMITTALS	P.E. REQ'D	SUBMITTAL TIME FRAME
1	Erection Method Proposal	Written description and drawings	No	30 days after award
2	Bearing Devices	Drawings showing complete dimensional details & provision for replacement	No	(2)
3	Temporary supports or Bearings	Complete details for temporary restraints during erection and bearing installation	Yes	(1)
4	Erection Sequence, procedure and Construction Loads	Details of erection sequence, construction loads, erection analysis info, casting and erection schedules***; dynamic wind evaluation and mitigation measures.***	Yes (3)	(2)
5	Contractor's modifications to PT	Changes due to post-tensioning systems and/or post-tensioning sequences, & calculations. Details & drawings to demonstrate that changes produce the same dead load condition as shown on the plans.	Yes	(2)
6	Integrated Concrete Segment drawings	Integrated, scaled drawings depicting complete dimensions of each segment, all blisters, recesses and block outs; post-tensioning ducts and anchorages, reinforcing, and embedded items	No	(2)
7	Casting Machine	Complete drawings of the system to be used to fabricate precast segments	No	(1)
8	Casting Curves & Construction Loads submittal	Numerical data showing curve to which segments are cast	Yes (3)	(2); After CO review of erection seq.
9	Casting Control	Details of casting and geometry control plan	No	(2); After CO review of erection seq.
10	Segment Handling	Details of precast segment handling, storage and transportation, including calculations showing sufficiency of procedures	Yes	Prior to submittal of integrated drawings
11	Erection Equipment	Design and testing program for erection equipment/form travelers	Yes	(1)
12	Temporary erection structures	Drawings, details and calculations for all temporary structures and devices to be used for erection.	Yes	(1)

thereafter to respond to changes in Contractor or FHWA staffing. Provide the CO two working days notice of all new staff that requires handling training. All personnel will be responsible to adhere to the guidelines presented at this training and be able to provide certification of completing this training.

107.11 Protection of Forests, Parks, and Public Lands. Add the following:

The project limits are within the Hoover Dam Reservation Area. Limit construction activity to the construction limits/clearing limits and TCE unless otherwise directed by the CO. If disturbance does occur outside the construction limits, the CO may require that the Contractor install temporary construction fence at the construction limits throughout the entire length of the project, for no additional compensation to provide a protective barrier and contain work within the construction limits. The CO, in conjunction with the BOR, will determine the cost to the Contractor to mitigate the area of disturbance beyond the construction limits. If the problem persists, the operation causing the disturbances will be shut down.

Under the direction of the CO, the Contractor must allow designated Native American Tribal representatives the opportunity to observe construction in the vicinity of Sugarloaf Mountain area located on the eastern flank of Sugarloaf Mountain.

Steam clean all earth moving equipment of soil and noxious weed seeds to the approval of the CO prior to entering the project site. Keep a log of all equipment on site and date of cleaning. Re-clean equipment when re-entering the project site from other sites. Clean hauling vehicles before their initial entrance into the project site; subsequent re-entries will not require cleaning unless requested by the CO. Clean all equipment outside of the boundaries of the project site.

Section 108. - PROSECUTION AND PROGRESS

108.01 Commencement, Prosecution, and Completion of Work. Delete the first sentence of the second paragraph and substitute the following:

A preconstruction conference will be held after the contract is awarded and before beginning work. A Notice to Proceed must be issued before commencement of any work. Begin contract time upon issuance of the ***onsite*** Notice to Proceed and run continuously until final acceptance.

Add the following:

Limit operations as follows:

(a) No work will be performed on the project site on the following holiday periods:

Thanksgiving	November 25-28, 2004
Christmas to New Years	December 24, 2004 – January 1, 2005
Thanksgiving	November 24-27, 2005

charges per Section 159. If traffic is backed up within the Contractor's designated safety zone around the blast site at the scheduled blasting time, disconnect the lead-in line and guard the blast until traffic has moved a safe distance away.

(l) Maintain one lane in each direction at all times on US93 with the following exceptions or as permitted by the CO:

One lane or two lane closures are allowed during the following construction activities and subject to the lane rental requirements in Section 159:

(1) Blasting near existing US93, where the Contractor anticipates a safety hazard for the traveling public.
(2) Short term closures for bridge construction near existing US93 during footing construction at the hairpin turn that may be a hazard.
(3) Access and egress of construction equipment and/or materials to and from existing US93.
(4) Construction of optional US93 hairpin widening.

(m) During contractor use of the Lower Portal Access Road provide pilot car/flaggers as necessary to allow access to the Lower Portal Access Road by rafting parties and BOR personnel as outlined in Section 108. Coordinate with Nevada Approach Contractor.

(n) No obstructions to traffic flow due to construction activities will be allowed during any weekends or during holidays specified in Subsection 108.01.

(o) Provide access to the WAPA towers during construction as necessary.

(p) The BOR maintains a security checkpoint on both sides of Hoover Dam to check all traffic on US93 approaching the dam. Coordinate access to the BOR Nevada security checkpoint during construction. Construction activities that may affect the checkpoint include various blasting and hauling operations.

(q) Checkpoint operations will be ongoing throughout the construction project. The Contractor will coordinate with the BOR checkpoint staff on all temporary road closures by providing notice at least 48-hours in advance.

(r) Deliveries to the Project Site. The Contractor is responsible for all deliveries to the project site. As the Hoover Dam Reservation Area is within a National Security Zone, observe extra precautions inside the boundaries of the reservation, provided as follows:

(1) Delivery *Permits and* Escort for Trucks greater than 1-ton. All deliveries made to the project, both material and equipment, will be stopped at the security check points in Arizona and Nevada ~~and be held for escort to the project site by a contractor-provided pilot car~~ ***be inspected either for a Bureau of Reclamation (BOR) truck permit or be held for escort to the project site***

by a Contractor provided escort. Only vehicles holding a valid truck permit will be permitted to proceed without an escort. Only personnel with background checks completed and approved by the Hoover Dam Police Department shall act as escorts. No more than 15 employees may be designated as escorts.

All truck permit requests will be submitted to the CO for review and approval prior to processing by the BOR Police. Provide the following information for all vehicles and drivers that will potentially receive truck permits:

- ***(a) Photocopies of vehicle registration listing, including license plate numbers for the truck and trailer***
- ***(b) Photocopies of Drivers License Information for each driver***
- ***(c) Contractor/Subcontractor Name and Name of Supervisor***
- ***(d) Company Phone Numbers (Prime contractor Contact Number and Truck Company Phone Number)***
- ***(e) Description of Business***
- ***(f) Material(s) being Hauled***

The CO reserves the right to set permit expiration dates or suspend any permit without reason or notice.

Vehicles hauling/transporting explosives or fuel will require an escort, and all loads must be able to be inspected by checkpoint personnel.

Provide a list of potential escort drivers at the preconstruction meeting and two weeks prior to any new escorts starting work for background checks by the Hoover Dam Police.

Provide credentials for all escorts including the following:

(a) Full Name
(b) Drivers License Information
(c) Social Security Number
(d) Date of Birth
(e) Contractor Name and Name of Supervisor of Escort

Approved escorts will wear contractor provided photo identification badges that are clearly visible to the Hoover Dam security check point officials.

~~Escorts~~ ***Contractor*** will maintain records of all deliveries and ingress/egress of delivery trucks from the project site. These records will be available for inspection by the CO. The records will include date of delivery, items delivered, and name of escort. Once delivered the Contractor will control and store material as outlined in Subsection 105.04.

No trucks will be allowed to pass security check points without ***a truck permit or*** an accompanying, approved escort. Multiple escorts may be required during high-volume traffic periods or delays of deliveries at the check point may result.

Provide communication radios for all escorts and security check point personnel. Provide radios to BOR security personnel at both the Arizona and Nevada checkpoints using the same frequency as the escorts to assist in apprising the BOR security officials of deliveries and of any traffic delays that may be expected, such as those due to blasting.

The Lower Portal Access Road is a secure area that is maintained with a locked gate. The gate will remain locked at all times. Provide an approved escort for contractor entry to the locked gate at Portal Access Road. All ingress and egress at the locked gate will be done with an approved escort. Also, provide appropriate flaggers and signing as shown in the plans to provide safe passage from Portal Access Road onto existing US93.

No separate measurement or payment will be made for providing escorts, escort cars, or the communication equipment specified above to escort deliveries to the project site.

(2) Inspection of Personal Vehicles and Trucks 1-ton Capacity or less. All personal vehicles and 1-ton trucks carrying materials are subject to existing, in-place search operations at the security check points. Contact the BOR Police Department (Chief Richard Melim at 702-294-3562) for existing security check point restrictions. Materials found in vehicles not meeting the requirements of the security checkpoint will not be allowed to pass.

Smooth (Presplitting and Trim) Blasting. Perform smooth blasting for the sides of all excavations in rock requiring blasting that are staked at 0.6:1 (H:V) or steeper, and elsewhere when directed by the CO. Smooth blasting techniques are those whose purpose is to propagate a shear plane or tension crack through, rather than around, rock blocks bounded by natural fractures, seams, faults, or joints. Do not presplit more than 500 sq. ft. of slope area in any blast. Use trim blasting rather than presplitting for any control hole within 50 ft at any point to any natural rock surface steeper than 1:1, or anywhere that the firing of confined controlled blasthole charges would contribute to slope instability.

Step Drilling and Cushion Blasting. Use step drilling on slopes flatter than 0.6:1 where blasting is required. Reduce hole spacing and limit subdrill to 6 inches when forming the foundation bevels at the bases of the skewbacks. Reduce subdrill to ~~2 ft~~ ***6 inches*** or less when forming any other surfaces that will receive concrete or bear structural load. Use cushion blasting to provide a natural appearance if so directed by the CO.

Pioneering. When pioneering or removing hazardous or unstable rock formations, use fan or downhole angle holes as appropriate to the access available. Limit the blast hole diameters and hole spacings to values that will not cause loss of control of the rock, but not more than 2.5 inches and 5 feet, respectively.

(b) Drilling. Delete the text and substitute the following:

Notify the CO prior to drilling each shot.

Stake all lifts and excavation limits within the cut as it is brought down.

Remove all overburden soil and loose or decomposed rock along the top of the excavation for a distance of at least 30 ft beyond the end of the production hole drilling limits, or to the end of the cut, before drilling any blast holes. Do not remove such materials by blasting. Pioneer the tops of cuts as stipulated in the Excavation Technical Proposal. Do not perform clearing further than 8 ft beyond the staked cut limits unless approved by the CO.

Pioneering the tops of cuts and preparing a working platform to begin the controlled blasting drilling operations may require unusual working methods and use of equipment. For rock cut areas not accessible for use of standard track drill equipment, use hand drilling, specialized drill equipment, or horizontal drill holes. Use close hole spacing and light charges to prevent rock escaping beyond the construction limits.

Following approval of the blasting plan, drilling for blast holes may commence. Log the holes and record drilling production. Record and keep a log of each blast hole drilled that identifies the depth, color, and character of the cuttings, penetration rate, hole collar location and hole attitude, and other pertinent information such as sticking steel, loss of air, or sloughage. Keep the log available for inspection by the CO at any time, and provide a copy upon request. When variations in the rock formation are indicated by the drill holes that are significant enough to call into question the suitability of the blast pattern, stop the drilling and revise and resubmit the blasting plan to the CO for review. After approval of the revised plan, commence drilling according to the revised plan.

Do not drill production blast holes closer than 5 ft to the buffer hole line unless approved by the CO.

For all controlled blasting, do not exceed 4 inches in diameter for any production holes bottoming within 20 ft of the cut slope toe, unless approved by the CO.

Reduce production hole diameters if necessary to reduce cut slope disturbance, to reduce maximum fragment size from blasting, or to reduce vibrations or air blast.

Detonate production holes on a delay sequence toward the point of best relief. Develop relief using trench blasting or sinker cuts if required to generate adequate relief without risking rock spillage into the canyon. Slash out to the final cut limits.

Adjust blast hole burden according to the mass of rock remaining, in order to prevent horizontal displacement and blowouts. When widening the cut toward the canyon wall in rock with minimum fracture spacing of 3 ft or more, limit the burden on blast holes to no more than 1/2 the width of intact, unfractured rock between the last row of blast holes and the canyon wall. When widening the cut toward the canyon wall in rock with minimum fracture spacing 3 ft or less, limit the burden to a maximum of ¼ the width of such fractured rock between the last row of blast holes and the canyon wall.

Use sand or other dry angular granular material, all of which passes the ¾inch sieve, for stemming materials.

Employ all necessary precautions in the production blasting to minimize blast damage to the rock backslope.

Adjust production blasting to prevent escape of material beyond the construction limits shown on the plans.

Contain material that may migrate over the canyon faces when production blasting, pioneering, blockholing, mudcapping, or breaking rock down mechanically, and to prevent rock escape beyond the construction limits.

Reduce subdrill to a maximum of 6 inches when forming the skewback bevels and ~~to 2 feet or less~~ when blasting to the designed bearing elevation in all structure foundations in rock that will receive concrete or bear structural load. Adjust the burden, spacing and loading accordingly.

Halt production blasting, and submit a written plan for corrective action to the CO, if any of the following occur:

(1) Slopes are unstable.

(2) Slopes exceed tolerances.

(3) Unsafe quantities of rock are released.

(There are no fracture critical items shown on the plans.) ***Fabricating plant for structural steel access platforms (only) may be AISC Certified in Category Simple Steel Bridges.*** The fabricator selected by the Contractor will be subject to the approval of the CO. Provide written evidence documenting the fabricator's qualifications to perform this work. Include information regarding the education and level of experience of the fabricator's key personnel at the fabrication plant; the name, location, and capacity of the fabrication plant to be used and available capacity as of the date of this contract; and the recent history of the fabricator (a minimum of the five preceding years) in the quality and timely delivery of major structural steel bridge components for other projects of similar or larger scope. Do not initiate fabrication shop drawings until the CO has received the required documentation and approved the fabricator in writing. The acceptability of the fabricator to perform the work, as determined solely by the CO, will not in any way relieve the Contractor from sole responsibility for the adequacy of the work.

Perform welding and weld qualification tests according to the provisions of ANSI/AASHTO/AWS Bridge Welding Code D1.5, latest edition.

Furnish and fabricate steel for members and components of members designated as fracture critical on the project plans to meet or exceed the longitudinal Charpy V-Notch (CVN) impact value requirements specified herein.

Material	Impact Value (ft-lb)
AASHTO M270, Grade 36	25 at 40 deg. F
AASHTO M270, Grade 50, 50W (2" and under)	25 at 40 deg. F
AASHTO M270, Grade 50, 50W (over 2" to 4")	30 at 40 deg. F
AASHTO M270, GradeHPS 70W	35 at -10 deg. F

Furnish and fabricate steel members and components of members designated as tension members and components, but not designated as fracture critical, to meet or exceed the longitudinal Charpy V-Notch (CVN) impact value requirements specified herein.

Material	Impact Value (ft-lb)
AASHTO M270, Grade 36	15 at 40 deg. F
AASHTO M270, Grade 50, 50W (2" and under)*	15 at 40 deg. F
AASHTO M270, Grade 50, 50W (over 2" to 4")*	20 at 40 deg. F
AASHTO M270, Grade HPS 70W	25 at -10 deg. F

*If the yield strength of the material (as reported in the certified "Mill Test Report") exceeds 65 ksi, reduce the temperature for the CVN value for acceptability by 15 deg. F for each increment of 10 ksi above 65 ksi.

Sampling procedures for CVN testing are to conform to the requirements of ASTM A673. Use the H (Heat) frequency of testing for all grades of non-fracture critical structural steel. Use the P (Piece) frequency of testing for all grades of fracture critical structural steel.

Determine CVN impact values in accordance with ASTM E23. All tests are to be performed in the presence of and approved by the CO's authorized representative. Properly identify and ship broken test specimens to a location to be determined by the CO for storage.

Include a complete set of non-destructive testing results with interpretative reports for welding procedure qualification tests where required by ANSI/AASHTO/AWS Bridge Welding Code D1.5.

All calculations, erection and other working drawings, and any fabrication drawings of redesigned members and/or connections as a result of alternative or optional detailing by the Contractor, as permitted in the contract documents, are to be prepared and sealed by a registered professional engineer with proven experience in construction of this type of bridge. Submit complete and comprehensive experience history and qualifications of the registered professional engineer to the CO for review and approval prior to proceeding with the work. The acceptability of the engineer to perform the work, as determined solely by the CO, will not in any way relieve the Contractor from sole responsibility for the adequacy of the work.

The erector selected by the Contractor is to be certified under the AISC Quality Certification Program as an Advanced Steel Erector and subject to approval by the CO. Submit written evidence documenting the erector's qualifications to perform the work, including information regarding education and level of experience of the erector's key personnel assigned to the work. Include the recent history of the erector's work for at least the five preceding years in the erection of structural steel bridge components of similar or larger scope. The documentation for each project is to include a brief description of the project; methods of erection; names of key personnel, including the design engineer, the project location, and the name of the contracting agency. The acceptability of the erector to perform the work, as determined solely by the CO, will not in any way relieve the Contractor from sole responsibility for the adequacy of the work.

555A.05 Inspection.

(b) Delete the text and substitute the following:

Use supplementary requirements S2.1 for acceptance standards.

555A.06 Drawings (Shop Drawings, Erection Drawings, and Transportation Drawings)

(a) Shop drawings. Add the following:

Member dimensions shown on the shop drawings are to take into account camber requirements noted on the project plans and steel temperature at the time of fabrication such that the completed bridge conforms to the dimensions shown on the project plans under full dead load at 75 degrees F.

(b) Erection drawings. Delete the last two sentences and substitute the following:

Submit calculations showing temporary loads, stresses, and deflections at each stage of erection for temporary and permanent members and supporting technical data for any manufactured items to the CO as part of the erection submittal for review and approval.

See Section 562 for additional requirements.

(12) Warranty. Provide a ten-year assignable ***manufacturer's*** warranty to NDOT guaranteeing the performance and durability of the expansion joint system. Conditions constituting unsatisfactory performance and durability as determined by Nevada DOT, are to include, but not be limited to, broken welds or bolts (including field splices), cracks in steel members, fatigue damage, loss of precompression in springs or bearings, debonded PTFE, breakdown of corrosion protection, and leakage. ~~The Contractor is to replace or repair any expansion joint system component demonstrating unsatisfactory performance or durability within the ten-year period commencing from the date of completion of the contract. All warranty material and labor costs are to be paid for by the Contractor.~~ ***Provide manufacturer's representative on site to observe and approve installation of warranted items. Provide written certification from manufacturer that warranted items are installed according to manufacturer's instructions.***

Measurement

555B.21 Delete the first paragraph and substitute the following:

Measure modular deck joint assemblies by the linear foot, complete and in place. Measure along the centerline of the joint and at the surface of roadway or sidewalk from face-of-curb or barrier to face-of-barrier and to the nearest linear foot. No separate measurement is to be made for sidewalk support and slider plates, connection hardware, or that portion of the deck joint assembly required by plan details to extend into the curb or barrier.

Payment

555B.22 Add the following:

Pay Item	Pay Unit
55502C Bridge Expansion Joints, Modular	Linear foot

Section 556. - BRIDGE RAILING

Measurement

556.11 Delete the first sentence and substitute the following:

Measure concrete bridge railing by the linear foot in place, including all concrete, reinforcing steel within the barrier, steel slider plate assemblies and anchors, and all appurtenances necessary for a complete installation in accordance with the plans and these specifications.

Add the following:

Measure steel bridge railing, pedestrian by the lineal foot in place, including all concrete panels, concrete curb, reinforcing steel within the curb and concrete panels, base plates, slider plates and connection hardware, anchor bolts, steel railing components and connections, and all appurtenances necessary for a finished railing in accordance with the plans and specifications.

Payment

556.12 Add the following:

	Pay Item	**Pay Unit**
55601AF	Concrete Bridge Railing, median barrier	Linear Foot
55601AGS	Concrete Bridge Railing, type F barrier, 54-in	Linear Foot
55601AGQ	Concrete Bridge Railing, type F barrier, 42-in	Linear Foot
55601BP	Steel Bridge Railing, pedestrian	Linear Foot

Section 562. - FORMS AND FALSEWORK

Delete the title and text of this Section and substitute the following:

Section 562. - TEMPORARY WORKS

Description

562.01 This work consists of the design, construction, inspection, and removal of temporary works for the construction and repair of permanent structures. Temporary works includes all temporary facilities used in construction that do not become a functional part of the permanent structure. Such temporary works include, but are not limited to, falsework, formwork, form travelers, temporary towers, foundations for temporary works, travelers and equipment, temporary stay cables and attachments, temporary bracing, stay anchorages and anchor blocks, cofferdams, tiebacks, shoring, slope screening and excavation supports.

A partial set of temporary works is shown on the contract plans as “K” sheets. These temporary works plans are not complete in all details. Provide all additional temporary works, design and related details as is necessary in order to complete construction of the bridge.

The temporary works shown on the “K” sheets are based on assumptions and limitations stated on the plans. The plans identify the interface between the Contractor and the CO for finalizing erection data for the main arch. In the course of tuning the erection data for the Contractor’s specific equipment, column selection and schedule, the CO reserves the right to modify specific requirements for stay cable size and jacking within the material quantity for main structural items shown on the plans for temporary works. The results of this modification shall be implemented by the Contractor at no cost to the Government.

The temporary works shown on the K sheets represent a unified erection scheme that may be used at the election of the Contractor. The Contractor may otherwise utilize an alternative erection method approved by the CO. Any change to the structures, sequence or design parameters of the temporary works shown on the K sheets will void the K sheets as contract documents, and require a complete submission of temporary works as an alternative erection method by the Contractor. ***Engineer's update of camber and cable installation performed according to notes 5 and 15 on drawing K.01 do not constitute a change to the K sheet erection scheme.***

The CO will deduct the actual costs to the Government for review of alternative erection methods from payment under 56203. See note 3 on plan sheet K.01. The Government costs for review of a single alternative erection scheme will not exceed 1% of the Construction Cost Subtotal (Part A) or $750,000, which ever is greater. This cap on Government costs will apply to each alternative erection scheme submitted for review.

Section 563. - PAINTING

Description

563.01 Add the following:

This work consists of surface preparation, test panels, and painting the exposed concrete components of the Colorado River Bridge. The surfaces to be painted are defined in 563.10. Test panels will be used for color selection. Coordinate with the CO to pre-select colors. Use Nevada DOT paint palate.

This work consists of surface preparation and painting steel components of the Colorado River Bridge. The surfaces to be painted are defined in 563.07. Paint the exposed steel surfaces with the same paint color to be determined by test panels. Coordinate with the CO to pre-select colors. Use Nevada DOT paint palate.

563.03 Protection of Public, Property, and Workers.

(a) Delete the text and substitute the following:

Manufacturer's material safety data sheets and product data sheets listing the application or use requirements, the paint or stain constituents, and their proportions for all cleaning, painting and staining products.

Add the following:

(h) Methods of protecting vehicular traffic.

563.07 Structural Iron and Steel. Add the following:

Paint all exposed steel surfaces and steel frames for arch struts.

Paint the interior of all box girders with 2 coats ~~of white~~ - primer ***and white intermediate coat***.

Do not paint galvanized steel stay-in-place deck forms. Do not paint steel surfaces that will be in direct contact with concrete or grout (embedded or bearing plates).

The manufacturer is to demonstrate experience in the design, manufacture, and installation of high-load multi-rotational disc bearings of load capacity and movement rating similar to those required on the project plans; and be certified under the AISC Quality Certification Program for Simple Steel Bridges (SBr). Provide written qualifications of manufacturer, including evidence that manufacturer has a licensed professional engineer on staff with a minimum of 5 years experience in design and testing of disc bearings. The manufacturer selected by the Contractor is subject to the approval of the CO. Submit written evidence documenting the manufacturer's qualifications to perform the work, including a brief description of at least five projects on which they successfully installed disc bearings, the name and location of the project, contract value, and the name of the contracting agency. The acceptability of the manufacturer to perform the work, as determined solely by the CO, will not in any way relieve the Contractor from sole responsibility for the adequacy of the work.

Fabricate bearings at facilities operated or supervised by the manufacturer; the manufacturer being the entity responsible for design, fabrication, and delivery of the bearings.

Provide a ten-year ***manufacturer's*** warranty, assignable to the Nevada DOT, guaranteeing the performance and durability of the bearing devices. Conditions constituting unsatisfactory performance and durability, as determined by Nevada DOT, are to include, but are not limited to, sliding surface failures, failure or yielding of metal components, debonding, or decomposition of the rotational element. ~~The Contractor is to replace or repair any bearing device or component demonstrating unsatisfactory performance or durability within the ten-year period commencing from the date of completion of the contract. All material, equipment and labor costs are to be paid for by the Contractor.~~ ***Provide manufacturer's representative on site to observe and approve installation of warranted items. Provide written certification from manufacturer that warranted items are installed according to manufacturer's instructions.***

Materials

564.02 Delete the text and substitute the following:

Conform to the following Subsection.

Grout for setting bearings	725.22(b)

Construction Requirements

564.03 General

(a) Drawings. Add the following:

Submit the following to the CO for review and approval:

Mill test certificates, showing conformance of all materials to the standards referenced herein.

Calculations, showing conformance of the bearings to the specified design requirements.

Add the following Section:

Section 582. - CONCRETE APPROACH SPAN COLUMNS

Description

582.01 This work consists of all labor, materials and equipment to construct the approach span columns in accordance with the plans and specifications, and applies to both cast in place and precast column options. The scope of this work includes the following items:

(1) Approach columns from the interface with the footings to the top of the columns; including all concrete, dowels from footings into columns, all reinforcing and post-tensioning.
(2) Concrete caps, including all connections with columns, and all concrete, reinforcing, post-tensioning, and embedments into or out of the concrete caps. Limits of concrete cap are from the top of column to the bottom surface of concrete deck, as extended through the cap.
(3) PT bars ***and hardware*** for connection of steel girders to caps.
(4) All curing, patching and finishing of approach concrete prior to painting.

This Section is to define the limits of lump sum work for the approach columns. Refer to plans for all technical requirements. Erect cast in place columns to same tolerances as for precast columns.

Material

582.02 Provide materials in conformance with the Plans, these Special Contract Requirements, and the Standard Specifications.

(1) Concrete, Section 552 and 552A.
(2) Reinforcing steel, Section 554.
(3) Precast concrete, post-tensioning and erection, Section 553.

Acceptance

582.03 Materials for concrete will be evaluated under Sections 552A. For concrete approach span columns compressive strength evaluation, the total lump sum price will be adjusted in accordance with Subsection 106.05, Statistical Evaluation of Work and Determination of Pay Factor.

For purposes of statistical evaluation a factor of 350 per cubic yard will be used for the cast in place concrete in accordance with 106.05.

In accordance with Subsection 106.05 if a lot is terminated the calculated pay factor will be applied to the percentage of work the lot represents. If a lot is concluded or terminated with fewer than three samples, the samples will be combined with those of an adjacent lot. In the event there is no adjacent lot, the material will be accepted according to Subsection 106.04.

Table 638-2
Performance Test

Test Sequence	Test Load Increment							
	AL	0.25DL	0.50DL	0.75DL	1.00DL	1.25DL	1.33DL	Adjust to lock-off load (DL)
1	X	X						
2	X	X	X					
3	X	X	X	X				
4	X	X	X	X	X			
5	X	X	X	X	X	X		
6	X	X	X	X	X	X	X	X

AL = Alignment load, DL = Design/lock-off load

Hold the maximum test load for a minimum of 10 minutes. Re-pump the jack as necessary in order to maintain a constant load. Begin the load-hold period as soon as the maximum test load is applied.

Measure and record the tendon movement at intervals of 1, 2, 3, 4, 5, 6, and 10 minutes. If the tendon movement between 1 and 10 minutes exceeds 0.04 inch, continue holding the maximum test load and record tendon movement at 15, 20, 25, 30, 45, and 60 minutes. If the load is held for 60 minutes, plot a creep curve showing the creep movements between one minute and 60 minutes as a function of the logarithm of time. Plot the tendon movement versus the maximum load and plot the residual movement of the tendon at each alignment load versus the highest previously applied load.

638.09 Tensioning & Lock off. Upon completion of the proof or performance test, reduce the load to the specified design/lock-off load (DL) and transfer the load to the anchorage. After transferring the load and before removing the jack, measure the lift-off load. If the lift-off load is not within 10 percent of the specified lock-off load, reset the anchorage and re-measure the lift-off load. Repeat as necessary. Tension the rock anchor to 100 percent of the specified design/lock-off load (1.0 DL).

After tensioning, lock-off the rock anchor at the specified design/lock-off load.

638.10 Acceptance. Material for rock anchors will be evaluated under Subsections 106.02 and 106.03.

Construction of rock anchors will be evaluated under Subsections 106.02 and 106.04.
Installed rock anchors will be accepted based on meeting the following proof or performance test results, as applicable:

(1) Proof test: The total movement at the maximum test load exceeds 80 percent of the theoretical elastic elongation of the unbonded length, ~~and~~ ***or*** the creep movement at the maximum test load between 1 and 10 minutes is less than 0.04 inch.

Table 639-2
Performance Test

Test Sequence	Test Load Increment							
	AL	**0.25DL**	**0.50DL**	**0.75DL**	**1.00DL**	**1.25DL**	**1.33DL**	**Adjust to lock-off load (DL)**
1	X	X						
2	X	X	X					
3	X	X	X	X				
4	X	X	X	X	X			
5	X	X	X	X	X	X		
6	X	X	X	X	X	X	X	X

AL = Alignment load, DL = Design/lock-off load

Hold the maximum test load for a minimum of 10 minutes. Re-pump the jack as necessary in order to maintain a constant load. Begin the load-hold period as soon as the maximum test load is applied.

Measure and record the tendon movement at intervals of 1, 2, 3, 4, 5, 6, and 10 minutes. If the tendon movement between 1 and 10 minutes exceeds 0.04 inches, continue holding the maximum test load and record tendon movement at 15, 20, 25, 30, 45, and 60 minutes.

Plot the tendon movement versus the maximum load and plot the residual movement of the tendon at each alignment load versus the highest previously applied load.

639.09 Tensioning & Lock off. Upon completion of the proof or performance test, reduce the load to the specified design/lock-off load (DL) and transfer the load to the anchorage. After transferring the load and before removing the jack, measure the lift-off load. If the lift-off load is not within 10 percent of the specified lock-off load, reset the anchorage and re-measure the lift-off load. Repeat as necessary. Tension the tieback to 100 percent of the specified design/lock-off load (1.0 DL).

After tensioning, lock-off the tieback at the specified design/lock-off load.

639.10 Acceptance. Material for tiebacks will be evaluated under Subsections 106.02 and 106.03.

Construction of tiebacks will be evaluated under Subsections 106.02 and 106.04.

Installed tiebacks will be accepted based on meeting the following proof or performance test results:

(1) Proof test: The total movement at the maximum test load exceeds 80 percent of the theoretical elastic elongation of the unbonded length, ~~and~~ ***or*** the creep movement at the maximum test load between 1 and 10 minutes is less than 0.04 inches.

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
9	AZ/NV	AZ/NV HPP93(3)	89	392

ITEM NO		ESTIMATED QUANTITIES FOR BRIDGE RG2741 ITEM	UNIT	PLAN QUANTITY
15205		BRIDGE SURVEY AND STAKING	LS	1
15205B		BRIDGE SURVEY AND STAKING, ARCH LAYOUT	LS	1
20505		ROCK FALL CONTAINMENT SYSTEM	LS	1
26001A		ROCK SCALING	LS	1
26003B		SPECIAL ROCK FEATURE REINFORCEMENT	LS	1
26003A		SPECIAL ROCK FEATURE REMOVAL	LS	1
20811A		STRUCTURE EXCAVATION, ARCH SKEWBACKS	CY	31207
20801A		STRUCTURE EXCAVATION, FOOTINGS & ABUTMENTS	CY	11173
20801B		STRUCTURE EXCAVATION, COLLUVIUM	CY	6000
20803		STRUCTURAL BACKFILL	CY	5466
55201FB		STRUCTURAL CONCRETE CLASS A F'c=4500 PSI	CY	5484
55201FA		STRUCTURAL CONCRETE CLASS A F'c=4000 PSI	CY	6676
55401		REINFORCING STEEL	LB	2496600
55507A		STRUCTURAL STEEL GRADE 70W, FURNISHED, FAB'D & DELIVERED	LB	721200
55501C		STRUCTURAL STEEL, BOX GIRDERS FURNISHED, FAB'D AND ERECTED	LB	6148300
55501D		STRUCTURAL STEEL ACCESS PLATFORMS FURNISHED, FAB'D AND ERECTED	LB	74800
55502C		BRIDGE EXPANSION JOINTS, MODULAR	LF	164
55601AF		CONCRETE BRIDGE RAILING, MEDIAN BARRIER	LF	1954
55601AGS		CONCRETE BRIDGE RAILING, TYPE F BARRIER 54 INCH	LF	1954
55601AGQ		CONCRETE BRIDGE RAILING, TYPE F BARRIER 42 INCH	LF	2022
55601BP		STEEL BRIDGE RAILING, PEDESTRIAN	LF	1953
56203		TEMPORARY WORKS (FOR CONCRETE ARCH ERECTION)	LS	1
56301AB		PAINTING, STEEL STRUCTURE, BRIDGE	LS	1
56301CB		PAINTING CONCRETE STRUCTURE, BRIDGE	LS	1
56401CC		DISK BEARING DEVICE, FREE	EA	1
56401CD		DISK BEARING DEVICE, GUIDED	EA	19
56401CE		DISK BEARING DEVICE, PINNED	EA	4
58001		CONCRETE ARCH	LS	1
58101		PRECAST OR CAST- IN- PLACE CONCRETE SPANDREL COLUMNS	LS	1
58201		PRECAST OR CAST- IN- PLACE CONCRETE APPROACH SPAN COLUMNS	LS	1
61005		BRIDGE DRAIN SYSTEM	LS	1
61401		LEAN CONCRETE BACKFILL	CY	151
63603		ELECTRICAL INSTALLATION	LS	1
63812A		ROCK ANCHORS, SKEWBACK	LF	6975
63812B		ROCK ANCHORS, FOOTINGS	LF	1995
63812C		ROCK ANCHORS, CONTINGENCY	LF	4170
63813		ROCK ANCHORS, PERFORMANCE TEST	EA	40
63910		TIEBACK ANCHORS	LF	1480
63911		TIEBACK ANCHOR, PERFORMANCE TEST	EA	5

LUMP SUM ITEM BREAKDOWN:
The following approximate quantities of material are estimates and will not be used as the basis for measurement.

ITEM NO		ITEM	UNIT	PLAN QUANTITY
58001		**CONCRETE ARCH**		
		STRUCTURAL CONCRETE CLASS A(R) F'c=10000 FOR ARCH	CY	8199
		SUPPLY PRECAST PANEL STRUT COVERS	CY	147
		ERECT PRECAST PANEL STRUT COVERS	LS	1
		POST TENSIONING BARS - ARCH STRUTS	LB	76100
		REINFORCING STEEL - ARCH	LB	3209200
		STRUCTURAL STEEL, ERECT ARCH STRUTS	EA	1
58101		**PRECAST / CAST-IN-PLACE CONCRETE SPANDREL COLUMNS**		
		STRUCTURAL CONCRETE CLASS P(C) F'c=6000 FOR R/C CAPS	CY	1487
		POST TENSIONING STRAND - R/C CAPS	LB	53600
		POST TENSIONING BARS - R/C CAPS	LB	44000
		REINFORCING STEEL R/C CAPS	LB	269100
		For Precast option:		
		POST TENSIONING BARS SPANDRELS - PC	LB	408500
		FURNISH PRECAST SEGMENTS - SPANDRELS - PC	CY	3739
		LIGHTWEIGHT CONCRETE INFILL	CY	1360
		REINFORCING STEEL SPANDRELS - PC	LB	871700
		For Cast-In-Place Option:		
		POST TENSIONING BARS SPANDRELS - CIP	LB	43400
		STRUCTURAL CONCRETE CLASS P(C) F'c=6000 FOR SPANDRELS - CIP	CY	5092
		REINFORCING STEEL SPANDRELS - CIP	LB	1636600
58201		**PRECAST / CAST-IN-PLACE CONCRETE APPROACH SPAN COLUMNS**		
		STRUCTURAL CONCRETE CLASS P(C) F'c=6000 FOR R/C CAPS	CY	674
		POST TENSIONING STRAND - R/C CAPS	LB	26800
		POST TENSIONING BARS - R/C CAPS	LB	20400
		REINFORCING STEEL R/C CAPS	LB	143600
		For Precast option:		
		POST TENSIONING BARS COLUMNS - PC	LB	216400
		FURNISH PRECAST SEGMENTS - COLUMNS - PC	CY	2474
		LIGHTWEIGHT CONCRETE INFILL	CY	700
		REINFORCING STEEL COLUMNS - PC	LB	576700
		For Cast-In-Place Option:		
		POST TENSIONING BARS COLUMNS - CIP	LB	21600
		STRUCTURAL CONCRETE CLASS P(C) F'c=6000 FOR COLUMNS - CIP	CY	3174
		REINFORCING STEEL COLUMNS - CIP	LB	902500

GENERAL:

All layout dimensions are vertical and horizontal at 75 degrees F for final service condition, unless noted otherwise. K drawings include target geometry during construction, as noted. Use only noted dimensions. Do not scale drawings.

Centerline Bridge for the curve in Span 1 is defined as the tangent extension of the structural framing centerline in the straight portion of bridge. Structural framing is all on this tangent line. Station and alignment for bridge deck construction control is all referenced to centerline US 93.

Patch all construction holes, embeds, brackets and keys with approved concrete or epoxy patch, and provide min 1-1/2" cover over all metal items. Finish concrete surfaces to conceal patches and pour-backs.

Chamfer all exposed concrete edges 3/4" unless noted otherwise.

Construct deck slab transverse construction joints perpendicular to bridge centerline.

The plans show joints with coupled ducts, plate connections or mechanical couplers for both mild steel and HS bar. In cases where these joints allow reinforcing to cross between separate pours, tolerances on placing the initial bar and coupler are defined by the size of the bar and the need for alignment within the subsequent pour or segment. The contractor shall take note of these cases and apply special tolerances on placement, including but not limited to special jigs, templates or rigid extensions as are necessary to assure proper alignment of the splice and spliced bar within the second placement.

Where mechanical couplers are shown on the plans or otherwise approved for use, the bar supplier shall mark all bar ends with a paint or other non-destructive marking that denotes the end of the threaded engagement length needed for proper installation of the coupler. The supplier shall assure that the method of marking does not impair the performance or durability of either the bar or the coupler.

The plans show alternative designs for pier construction. There are precast segmental post-tensioned piers and cast-in-place reinforced piers as an alternative for all spandrel and approach piers. Options may not be split (all piers must be same option).

REINFORCING STEEL:

Reinforcing Steel AASHTO M31 & M42, Grade 60 or ASTM A706, Grade 60

Reinforcing bar bend dimensions are out to out, unless noted otherwise. Reinforcing bar spacing is from centerline to centerline of bar, unless noted otherwise. Reinforcing bars with out to out bends that are shown to fit within clear cover shall be fabricated according to special tolerances as necessary in order to place reinforcing with the required cover as shown on the Plans.

Reinforcing bars are dimensioned on the basis of graphical layout evaluations to minimize interferences, without reference to fabrication or placement tolerances. Adjust placement to accommodate fabrication tolerances as required. See FP-96, Section 554 for placement tolerances.

Where the plans show headed bars for anchorage the contractor may substitute a std. 180 degree hook around a transverse bar at the extreme (far face) of cover, subject to approval of the CO. Resolve all congestion for rebar and concrete placement resulting from any such substitution.

All splices on drawings are considered in-plane unless noted otherwise. Splice reinforcing steel at alternate bars, staggered at least one splice length, unless shown otherwise on the plans.

Unless otherwise noted on the plans, clear cover for reinforcing shall be 1-1/2" typical, and 2-1/2" for the roadway deck surface.

The following splice lengths shall be used, unless noted otherwise on the plans.

REINFORCING BAR SPLICE LENGTH FOR 4000 & 4500 PSI CONCRETE								
Bar Size	#4	#5	#6	#7	#8	#9	#10	#11
Class B	16"	20"	23"	29"	39"	49"	62"	76"
Class B, Top bar	22"	27"	33"	41"	54"	68"	87"	106"
REINFORCING BAR SPLICE LENGTH FOR 6000 PSI CONCRETE								
Class B	16"	20"	23"	27"	31"	40"	51"	62"
Class B, Top bar	22"	27"	33"	38"	44"	56"	71"	87"
REINFORCING BAR SPLICE LENGTH FOR 10000 PSI CONCRETE								
Class B	16"	20"	23"	27"	31"	35"	40"	48"
Class C, Top bar	29"	36"	43"	50"	57"	64"	73"	88"

PRESTRESSING:

Post-tensioning Bar AASHTO M275, Type 2, Grade 150 (HS Bar). Apply Supplement S1 for HS Bars in cap and strut connections. Where post-tensioning (HS) bars are shown on the plans, strand may not be substituted for bars.

7 wire low relaxation Post-tensioning Strand AASHTO M203, Grade 270

Post-tensioning characteristics assumed for design:

Prestressing strand		
	Friction curvature coefficient	0.20
	Friction wobble coefficient	0.0002/ft
	Anchor set	3/8"
Prestressing bars		
	Friction curvature coefficient	0.30
	Friction wobble coefficient	0.0002/ft
	Anchor set	1/20"

A minimum compressive strength of 4,000 psi shall be attained in the concrete prior to prestressing.

Force in all permanent high strength prestressing tendons shall not exceed:
75% of the guaranteed ultimate strength of the tendon prior to seating.
70% of the guaranteed ultimate strength of the tendon after seating.

Force in all permanent high strength prestressing bars shall not exceed:
78% of the guaranteed ultimate strength of the bar prior to seating.
72% of the guaranteed ultimate strength of the bar after seating and elastic loss.

Force in all temporary high strength prestressing bars shall not exceed:
60% of the guaranteed ultimate strength of the bar after seating.

Use prebent ducts for prestressing tendons with radius less than 30 feet.

Stress each individual tendon within +/-5% of the theoretical jacking force (Pjack) for PT tendons; and +5%/-0% for HS bar steel to concrete connections. Elongations shall be within +/-7% of the theoretical elongation computations provided by contractor.

Epoxy column precast segment joints and prestress with a minimum of 4 bars in a doubly symmetric pattern and a minimum stress of 40 psi prior to placing the next segment in accordance with SCR Section 553.09. Install anchor plates at a maximum spacing of 40 feet and stress bars to the theoretical jacking force (Pjack) at each anchor plate.

Complete grouting of the column post-tensioning on each precast column following the stressing of all column bars in the top segment. See project SCR Section 553.09. Grout precast column post-tensioning beginning at the bottom of the column in separate lifts from anchor plate to anchor plate.

After completion of all post-tensioning and grouting operations, seal vents and fill blockouts with concrete of equal strength as the element being stressed in accordance with SCRs.

Design local zone reinforcement for all PT and stay anchorages.

Design all grouting and injection details for full injection of annulus surrounding all strand and HS bars to be water tight after sealing.

PROFESSIONAL ENGINEER - STATE OF NEVADA
W. DAVID GOODYEAR
EXP. 6-30-05
CIVIL
No. 15457
8-12-04

0 1 Inch

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U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION, DENVER, COLORADO

BOR - HOOVER DAM RESERVATION AREA
COLORADO RIVER BRIDGE
AT HOOVER DAM
ARIZONA/NEVADA
NDOT STRUCTURE NO. B2704
ADOT STRUCTURE NO. 2685

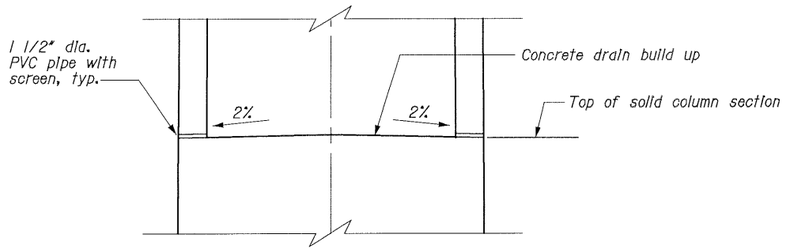
GENERAL NOTES 2
ESTIMATE OF QUANTITIES

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS
1	8-27-04	DG	Edit approximate arch rebar quantity				

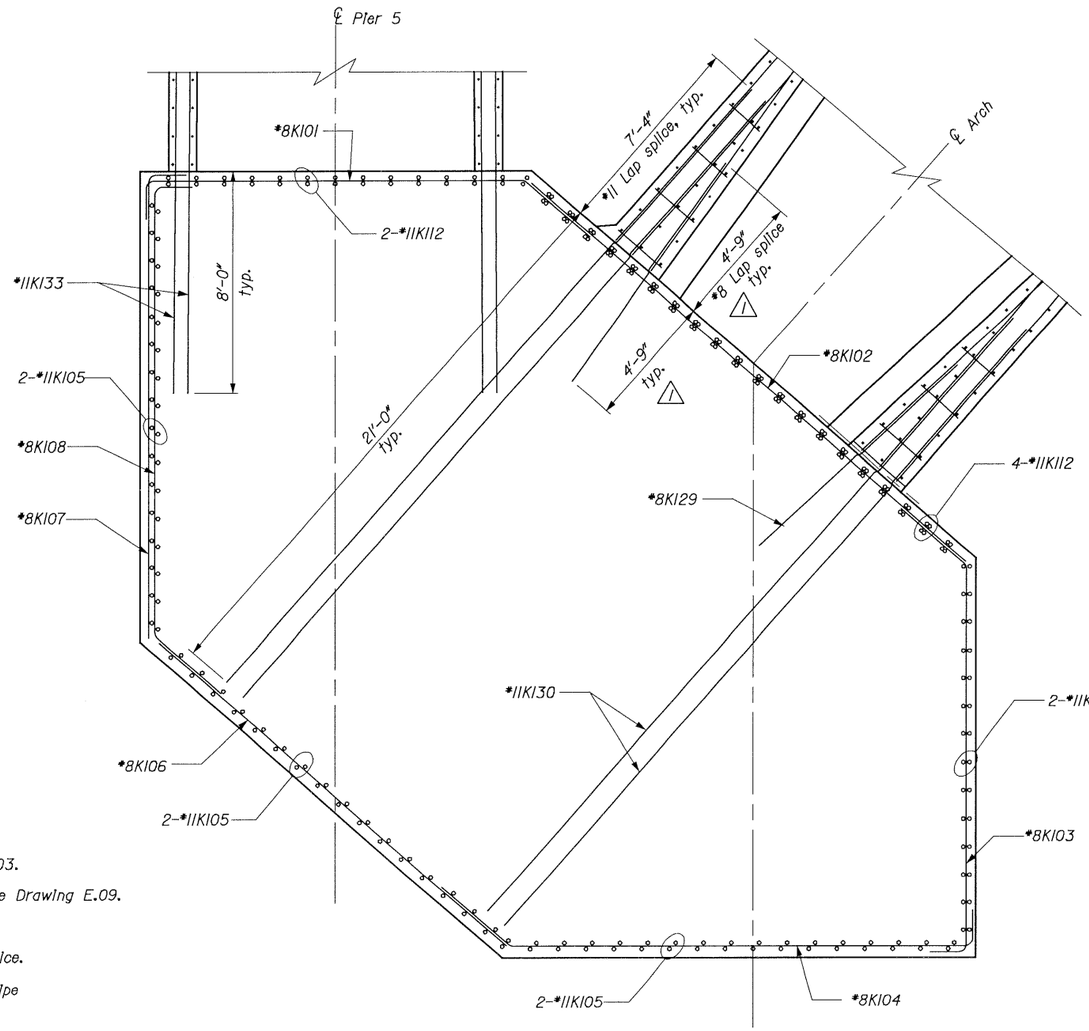
DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER
Goodyear	J.Schiewe	S.Chee		David Goodyear, PE

BRIDGE DRAWING	DATE	DRAWING NO.
5 of 308	11-17-03	RG2741-A.05

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
9	AZ/NV	AZ/NV HPP93(3)	171	392

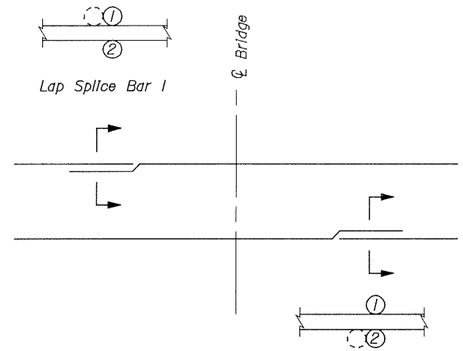


COLUMN DRAIN DETAIL
No Scale

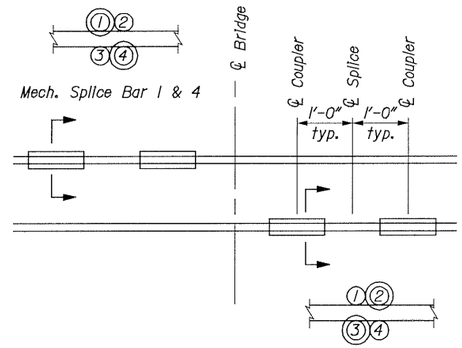


SECTION (B / E.02)
CIP Column Alternative Only
Pier 5 shown, Pier 14 similar
Scale: 3/16"=1'-0"

0 1 Inch



2-*11KI12



4-*11KI12

STAGGERED SPLICE LAYOUT DETAIL
No Scale

NOTES:

1. *NV skewback shown. AZ opposite hand.*
2. *For details not shown, see Drawing E.02 & E.03.*
3. *For skewback CIP column reinforcing details, see Drawing E.09.*
4. *For arch reinforcing details, see Drawing H.02.*
5. *See Drawing E.02 for location of staggered splice.*
6. *Provide minimum 2% slope in 1 1/2" dia. PVC pipe and concrete drain build up.*
7. *Provide 1/2" minimum clearance from exit of 1 1/2" dia. PVC pipe to top of footing.*
8. *Adjust bars as necessary to clear 1 1/2" dia. PVC pipe.*
9. *See Drawing E.09 for location of 1 1/2" dia. PVC pipe in plan view.*

PROFESSIONAL ENGINEER, STATE OF NEVADA
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6.12.04

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CENTRAL FEDERAL LANDS HIGHWAY DIVISION, DENVER, COLORADO

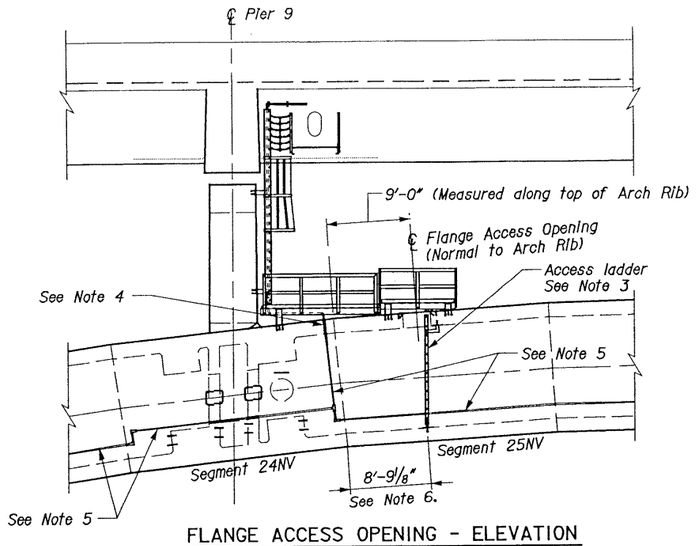
BOR - HOOVER DAM RESERVATION AREA
COLORADO RIVER BRIDGE
AT HOOVER DAM
ARIZONA/NEVADA
NDOT STRUCTURE NO. B2704
ADOT STRUCTURE NO. 2685
NV & AZ SKEWBACK
FOOTING SECTIONS (CIP COLUMN ALT.)

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS
1	8-27-04	CAW	Update dimension, bar size.				

DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER
C.Werts	B.Mason	K.Ross	AS NOTED	David Goodyear, PE

BRIDGE DRAWING	DATE	DRAWING NO.
87 of 308	11-17-03	RG2741-E.04

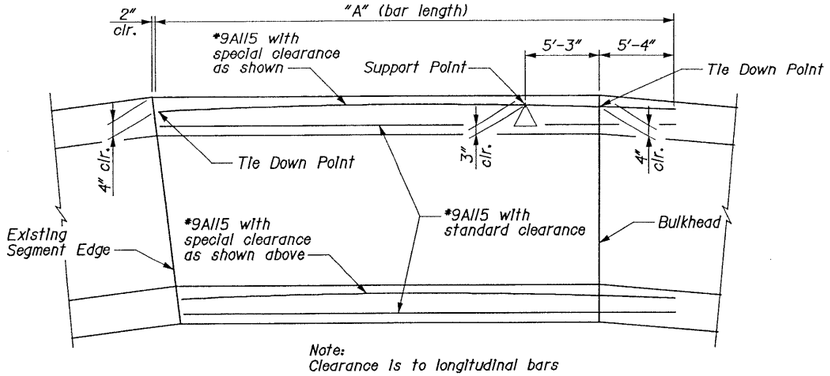
REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
9	AZ/NV	AZ/NV HPP93(3)	218	392



FLANGE ACCESS OPENING - ELEVATION

(Typical Each Arch Rib)

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



Note:
Clearance is to longitudinal bars

SCHEMATIC TYPICAL ARCH SEGMENT ELEVATION

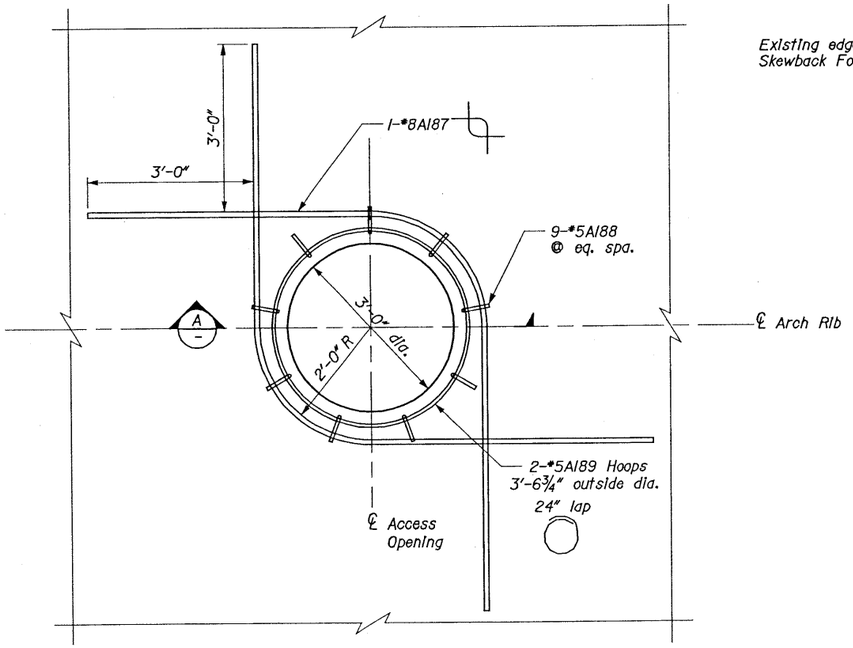
NTS

ARCH SEGMENT REINFORCING						
Segment	"A"	"B"	"C"	"D"	"E" *	Bar Size**
NV1	16'-0"	0'-5 3/8"	9	9"	1'-0"	#6
NV2	31'-3"	0'-8 1/8"	32	9"	9"	#6
NV3	31'-3"	0'-8 7/8"	32	9"	9"	#6
NV4	31'-3"	0'-9 1/8"	32	9"	9"	#6
NV5	31'-3"	0'-9 1/8"	32	9"	9"	#6
NV6	31'-3"	0'-9 1/4"	32	9"	9"	#6
NV7	29'-6"	0'-10 1/4"	44	10"	6"	#8
NV8	30'-6"	0'-9 3/8"	31	9"	9"	#6
NV9	30'-6"	0'-9 3/8"	31	9"	9"	#6
NV10	30'-6"	0'-9 5/8"	31	9"	9"	#6
NV11	30'-6"	0'-9 3/4"	31	9"	9"	#6
NV12	30'-6"	0'-9 3/4"	31	9"	9"	#6
NV13	29'-6"	0'-10 3/4"	44	10"	6"	#8
NV14	27'-0"	1'-1"	26	9"	9"	#6
NV15	27'-0"	1'-0 1/2"	26	9"	9"	#6
NV16	27'-0"	1'-0 3/4"	26	9"	9"	#6
NV17	27'-0"	1'-0 7/8"	26	9"	9"	#6
NV18	27'-0"	0'-9 3/4"	40	6"	6"	#6
NV19	29'-6"	0'-11 1/8"	44	10"	6"	#6
NV20	30'-3"	0'-10 1/2"	46	8"	6"	#6
NV21	30'-3"	0'-10 1/2"	46	8"	6"	#6
NV22	30'-3"	0'-10 1/2"	46	8"	6"	#6
NV23	30'-3"	0'-10 5/8"	46	8"	6"	#6
NV24	29'-6"	0'-11 5/8"	44	10"	6"	#6
NV25	28'-6"	0'-11 1/2"	28	10"	9"	#6
NV26	28'-6"	0'-11 3/8"	28	10"	9"	#6

NV segments called out in table, AZ segments similar.

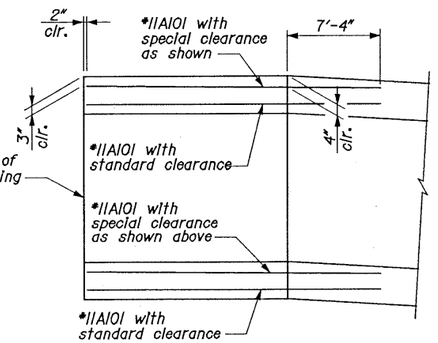
* "E" Spacing for Segments 7, 13, 19 & 24 is approximate, but not to exceed 1'-0" U.O.N. See Drawings H.31, H.33, H.34 & H.35.

** Bar size shown in table refers to transverse reinforcing bars only.



FLANGE ACCESS OPENING - PLAN

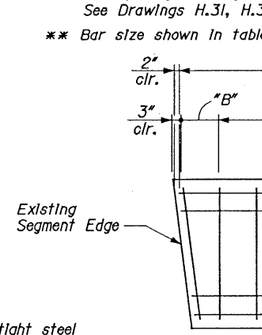
Scale: 3/8"=1'-0"



Note:
Clearance is to longitudinal bars

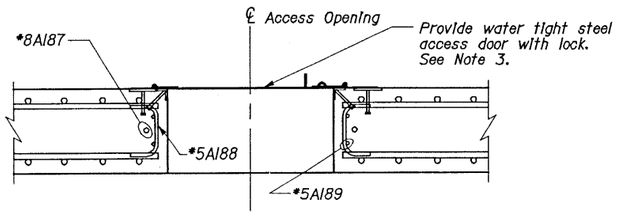
SCHEMATIC ARCH STARTER SEGMENT ELEVATION

NTS



SCHEMATIC ARCH SEGMENT ELEVATION

NTS



SECTION A

Scale: 3/8"=1'-0"

NOTES:

1. See Drawings J.09 for Arch Access Platform.
2. Transverse bars *6AI07, *6AI08, *6AI09, *6AI10 & *6AIII to be substituted with bars *8AI43, *8AI44, *8AI45, *8AI46 & *8AI47, respectively for Segments 7 & 13.
3. See Drawing H.36 for access ladder details and flange access opening details.
4. 2 1/2" Dia. PVC sleeve with bell ends for electrical conduit. Fill gap between sleeve and conduit with approved water tight sealant.
5. Electrical conduit to be mounted to inside face of inside arch rib web using galvanized epoxy anchors. See Drawing H.03 for typical layout and Drawings H.05, H.14, H.17, H.23 & H.29 for additional anchor locations.
6. Dimensions are based on final geometry. Adjust as necessary to ensure that ladder is plumb at end of construction.

0 1 Inch

PROFESSIONAL ENGINEER - STATE OF NEVADA
W. DAVID GOODYEAR
EXP. 6-30-05
CIVIL
No. 15457
11-17-04

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CENTRAL FEDERAL LANDS HIGHWAY DIVISION, DENVER, COLORADO

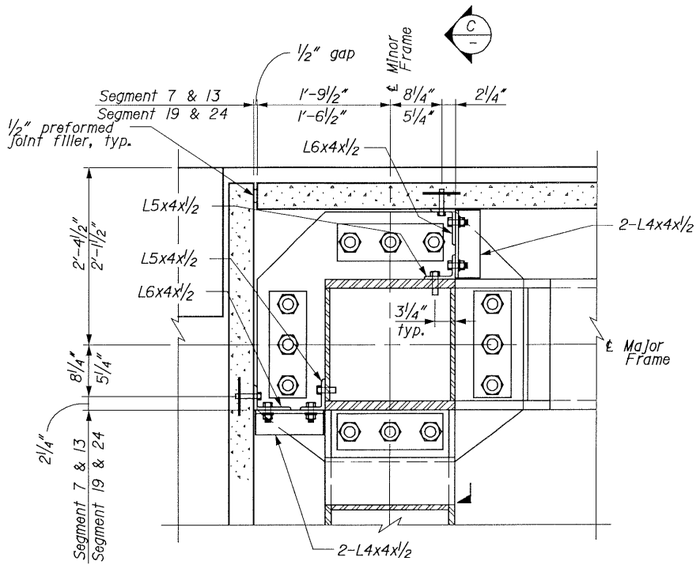
BOR - HOOVER DAM RESERVATION AREA
COLORADO RIVER BRIDGE
AT HOOVER DAM
ARIZONA/NEVADA
NDOT STRUCTURE NO. B2704
ADOT STRUCTURE NO. 2685
CIP CONCRETE ARCH
TYPICAL SEGMENT DETAILS

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS
1	8-27-04	CW	Reinforcing Table - "E" values				

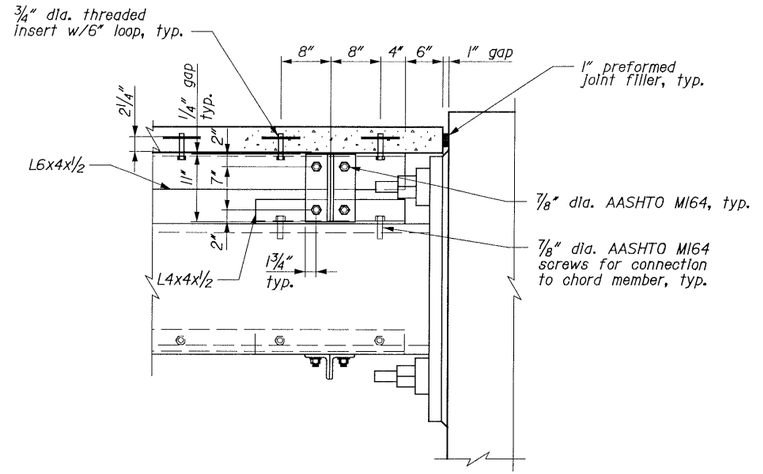
DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER
C.Werts	B.Mason	H.Lee	AS NOTED	David Goodyear, PE

BRIDGE DRAWING	DATE	DRAWING NO.
134 of 308	11-17-03	RG2741-H.04

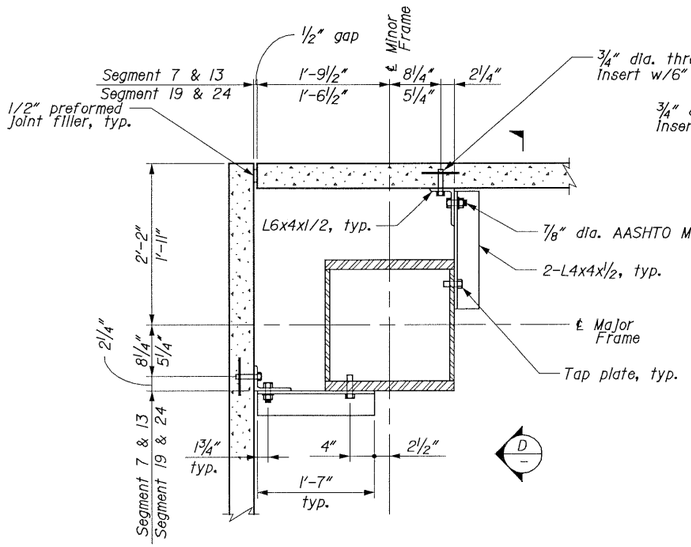
REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
9	AZ/NV	AZ/NV HPP93(3)	227	392



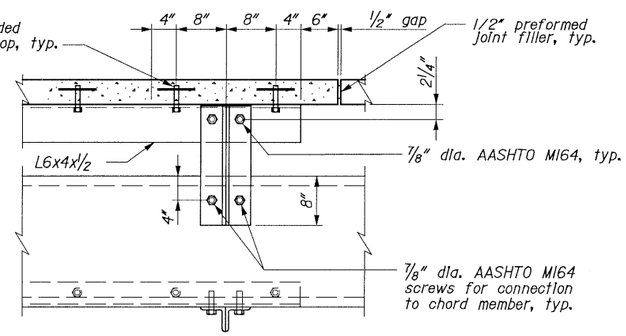
DETAIL (1 / H.11)
Scale: 1/2"=1'-0"



SECTION (C / –)
Diagonal members not shown for clarity
Scale: 1/2"=1'-0"



DETAIL (2 / H.11)
Scale: 1/2"=1'-0"



SECTION (D / –)
Scale: 1/2"=1'-0"

NOTES:

1. All angles connected to main chord members shall be connected using tap screws. Angle material M270 Gr 50, paid for under 55507A.
2. Welds on chord members shall be ground smooth where angles are to be attached.
3. Double angles to be stitch welded together on two edges prior to installation.

PROFESSIONAL ENGINEER - STATE OF NEVADA
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8-12-04

0 1 Inch

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CENTRAL FEDERAL LANDS HIGHWAY DIVISION, DENVER, COLORADO

BOR - HOOVER DAM RESERVATION AREA
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ARIZONA/NEVADA
NDOT STRUCTURE NO. B2704
ADOT STRUCTURE NO. 2685

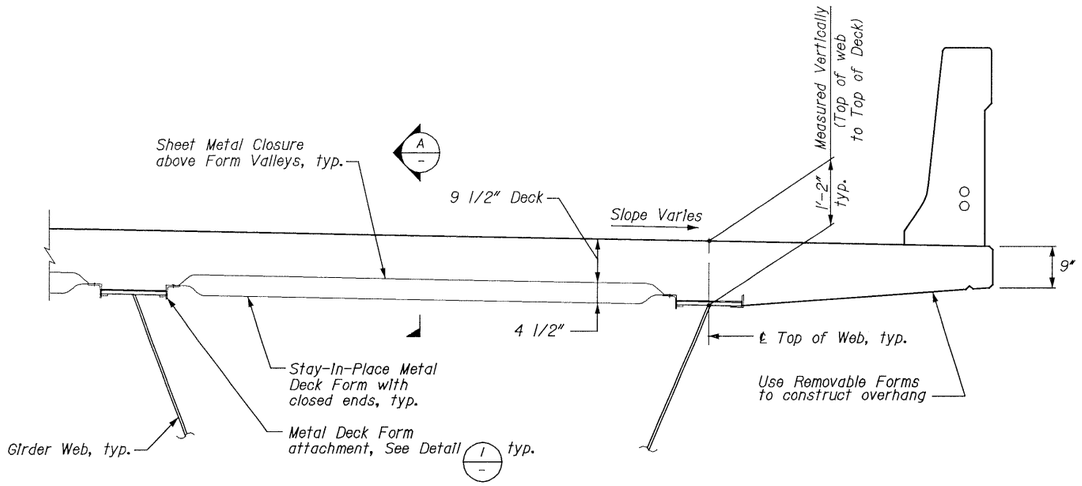
ARCH SEGMENTS 7, 13, 19 & 24
ARCH STRUT PRECAST PANEL DETAILS 2

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS
1	8-27-04	CW	Edit angle material, note 1.				

DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER
C.Werts	B.Mason	H.Lee	AS NOTED	David Goodyear, PE

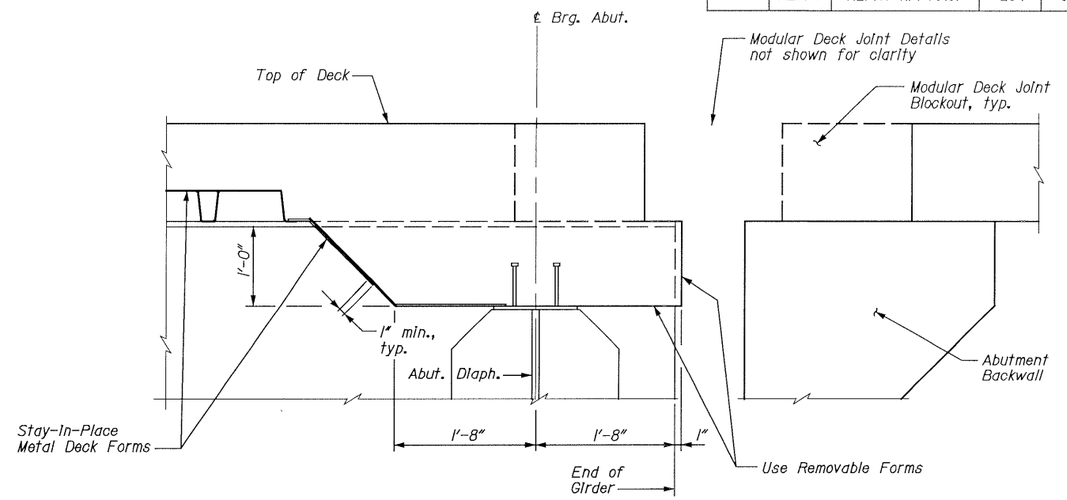
BRIDGE DRAWING	DATE	DRAWING NO.
143 of 308	11-17-03	RG2741-H.13

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
9	AZ/NV	AZ/NV HPP93(3)	284	392



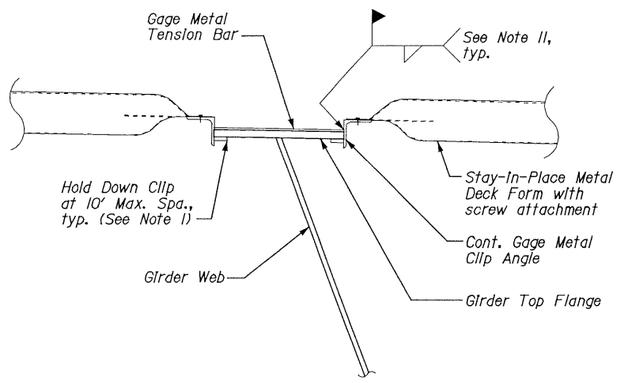
STAY-IN-PLACE METAL DECK FORM DETAIL

(Girder GI Shown, Others SImilar)
No Scale

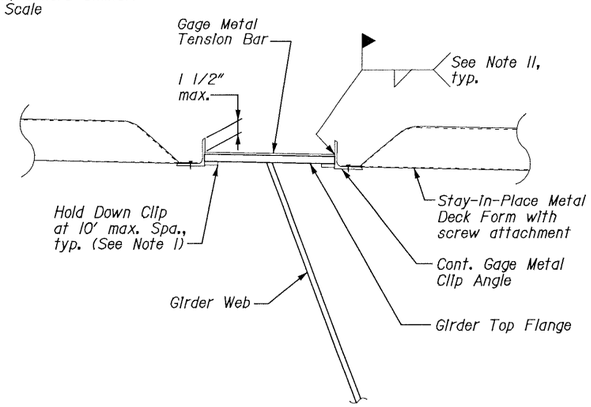


DETAIL AT MODULAR DECK JOINT

No Scale



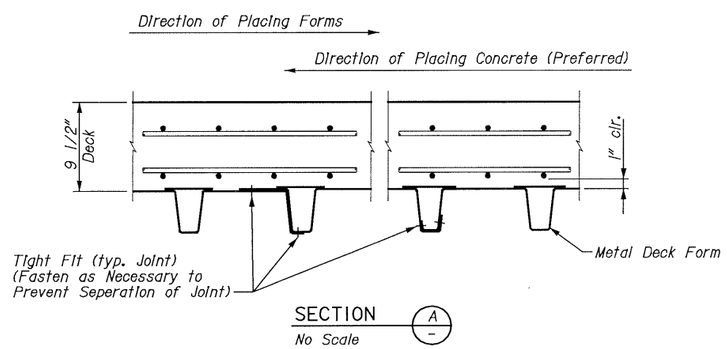
OPTION 1



OPTION 2

DECK FORM ATTACHMENT DETAIL

No Scale



SECTION A

No Scale

Stay-In-Place Metal Deck Form Notes:

1. Contractor to use this drawing as a guide in the preperation of shop drawings and design calculations for stay-in-place metal deck forms.
2. Shop drawings to show thickness and size of support elements and forms, along with length, size, and spacing of attachments.
3. Minimum thickness of steel for stay-in-place forms, cover plates, clip angles, and tension bars is 20 gage. ⚠
4. Fabricate permanent stay-in-place metal deck forms and supports from steel conforming to ASTM A653 coating designation G210, any grade except grade 50, class 3.
5. Stay-in-place forms shall be closed-end with form valleys cover-plated. Seal closures to ensure that bleed water does not drain out. Maximum weight of form system is 7.5 psf.
6. Design all form supports and their attachments to carry dead load of deck slab plus a minimum 50 psf for construction loads.
7. Include all resultant horizontal loads due to forming of cantilever overhangs in the design of form supports and attachment details.
8. Securely fasten all forms to form supports and provide a minimum bearing length of 1" at each end.
9. Attach form sheets properly to avoid hazards that can result from lateral movement or sudden uplift. Provide safety stops where necessary.
10. Clip angles to be continuous.
11. Weld clip angle to tension bars only. Welding to girders and weld splatter on structural steel members will not be permitted.
12. Contractor may provide metal clip attachments in lieu of welding.
13. Stay-In-Place Metal Deck Forms and accessories to be galvanized.
14. Clean, wire brush, and paint with 2 coats of zinc-rich paint (FSS-TT-P-64ld type II, no color added) any permanently exposed form metal where the galvanized coating has been damaged. Minor heat discoloration in areas of welds need not be touched up.
15. Stay-in-place metal deck forms must be omitted above concrete pier caps and above girder to concrete pier cap connections between longitudinal box girder webs.
16. For additional information, see SCR Section 567.

0 1 Inch

Notes:

1. Concrete deck thickness to be 9 1/2" between girder flanges.
2. Contractor to determine the top of girder elevations by survey after the steel erection work is complete. The elevations shall be submitted to the CO for review. No forming will be permitted until the CO has approved the elevations as being in acceptable relationship to the theoretical deck elevations.
3. For Deck Pouring Sequence Details, See Drawing 1.33.
4. Overhang Form Brackets must be supported by the bottom flange of the box girder.

PROFESSIONAL ENGINEER - STATE OF NEVADA
W. DAVID GOODYEAR
EXP. 6-30-05
CIVIL
No. 15457
8-17-04

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U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION, DENVER, COLORADO

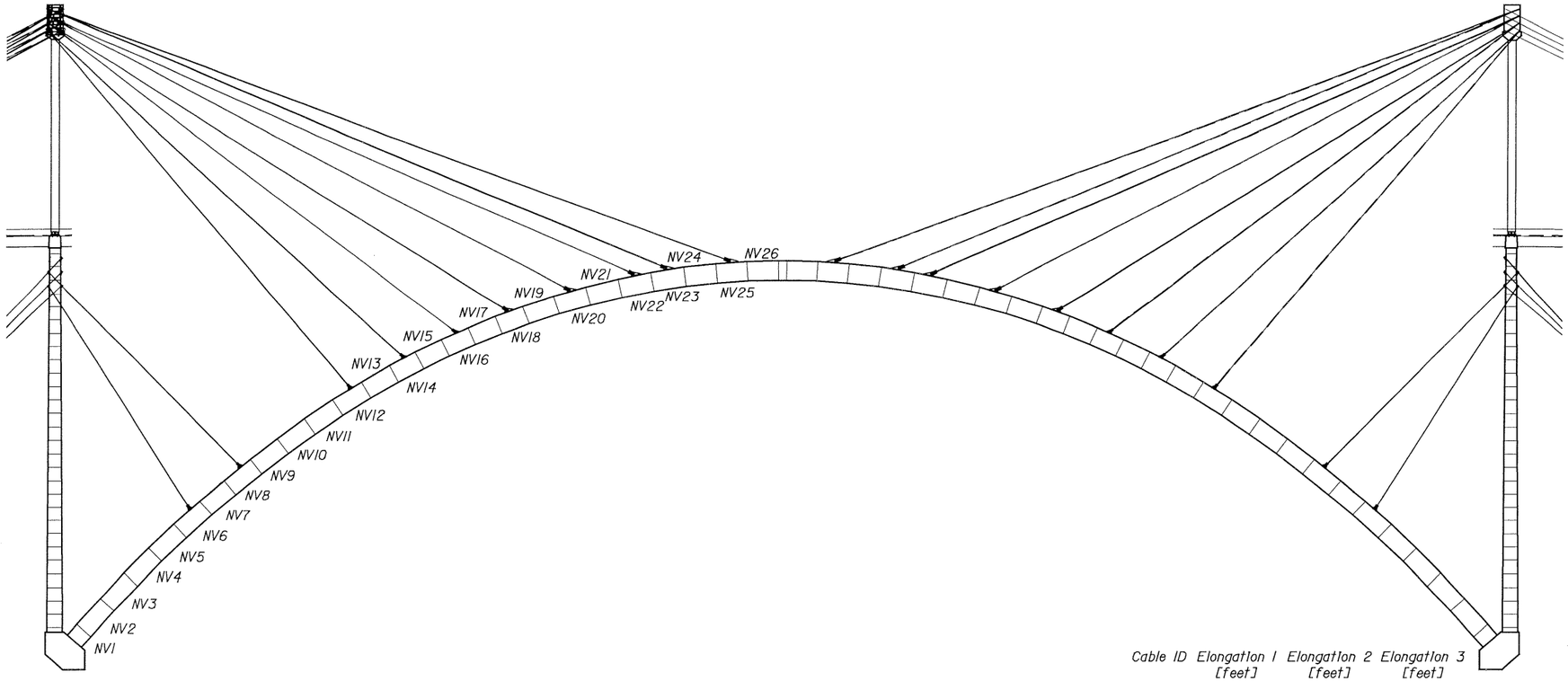
BOR - HOOVER DAM RESERVATION AREA
COLORADO RIVER BRIDGE
AT HOOVER DAM
ARIZONA/NEVADA
NDOT STRUCTURE NO. B2704
ADOT STRUCTURE NO. 2685

DECK
SIP FORM DETAILS

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS
1	8-27-04	RT	Amend note 3				

DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
R. Eaton	S.Magill	M. Bunner	AS NOTED	David Goodyear, PE	200 of 308	11-17-03	RG2741-1.34

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
9	AZ/NV	AZ/NV HPP93(3)	333	392



Cable ID	Max Force [kips]	Cable ID	Max Force [kips]
NV - L - 1	639	NV - R - 1	638
NV - L - 2	971	NV - R - 2	959
NV - L - 3	1227	NV - R - 3	1227
NV - L - 4	1129	NV - R - 4	1128
NV - L - 5	1154	NV - R - 5	1154
NV - L - 6	1232	NV - R - 6	1231
NV - L - 7	1184	NV - R - 7	1184
NV - L - 8	1067	NV - R - 8	1066
NV - L - 9	1670	NV - R - 9	1666
NV - L 10	1707	NV - R -10	1706
NV - L -11	1229	NV - R -11	1229
NV - L -12	2175	NV - R -12	2173
NV - L -13	961	NV - R -13	960
NV - L - A1	416	NV - R - A1	475
NV - L - A2	305	NV - R - A2	341
NV - L - B1	734	NV - R - B1	763
NV - L - B2	946	NV - R - B2	983
NV - L - B3	935	NV - R - B3	982
NV - L - C	1882	NV - R - C	1897
NV - L - D	1346	NV - R - D	1354
NV - L - E	1674	NV - R - E	1689
NV - L - F	1774	NV - R - F	1789
AZ - L - 1	639	AZ - R - 1	638
AZ - L - 2	1002	AZ - R - 2	1000
AZ - L - 3	1223	AZ - R - 3	1225
AZ - L - 4	1131	AZ - R - 4	1129
AZ - L - 5	1151	AZ - R - 5	1150
AZ - L - 6	1246	AZ - R - 6	1245
AZ - L - 7	1186	AZ - R - 7	1186
AZ - L - 8	1067	AZ - R - 8	1067
AZ - L - 9	1669	AZ - R - 9	1668
AZ - L -10	1705	AZ - R -10	1705
AZ - L -11	1228	AZ - R -11	1228
AZ - L -12	2174	AZ - R -12	2173
AZ - L -13	960	AZ - R -13	960
AZ - L - A1	479	AZ - R - A1	478
AZ - L - A2	368	AZ - R - A2	368
AZ - L - B1	602	AZ - R - B1	730
AZ - L - B2	791	AZ - R - B2	960
AZ - L - B3	882	AZ - R - B3	883
AZ - L - C	1879	AZ - R - C	1878
AZ - L - D	1358	AZ - R - D	1357
AZ - L - E	1663	AZ - R - E	1663
AZ - L - F	1765	AZ - R - F	1764

CLOSURE

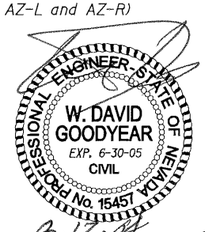
No Scale

Cable ID	Elongation 1 [feet]	Elongation 2 [feet]	Elongation 3 [feet]
1	0.10	0.05	
2	0.12	0.08	0.10
3	0.10	0.10	0.20
4	0.10	0.20	
5	0.15	0.20	0.20
6	0.50		
7	0.25		
8			
9	0.40		
10	0.50	0.20	
11			
12			
13			

Note: These elongations occur at each of the four headings, (Ie. NV-L, NV-R, AZ-L and AZ-R)

Closure and cable release sequence notes:

1. *Closure form traveler including form weight = 28 tons.*
2. *All cables shall be released with jacks.*
3. *Sequence shall be carried out symmetrically (about center of span and between left and right ribs) to ensure out of balance release of force no greater than 50% of cable ultimate (G.U.T.S.).*
4. *Cables 3, 4 and Backstays B1, B2 shall be released first.*
5. *Tower backstay cables then released simultaneously until archstays go slack.*
6. *Tower to be braced as required during release of cables.*



0 1 Inch

T.Y.LIN INTERNATIONAL | HDR

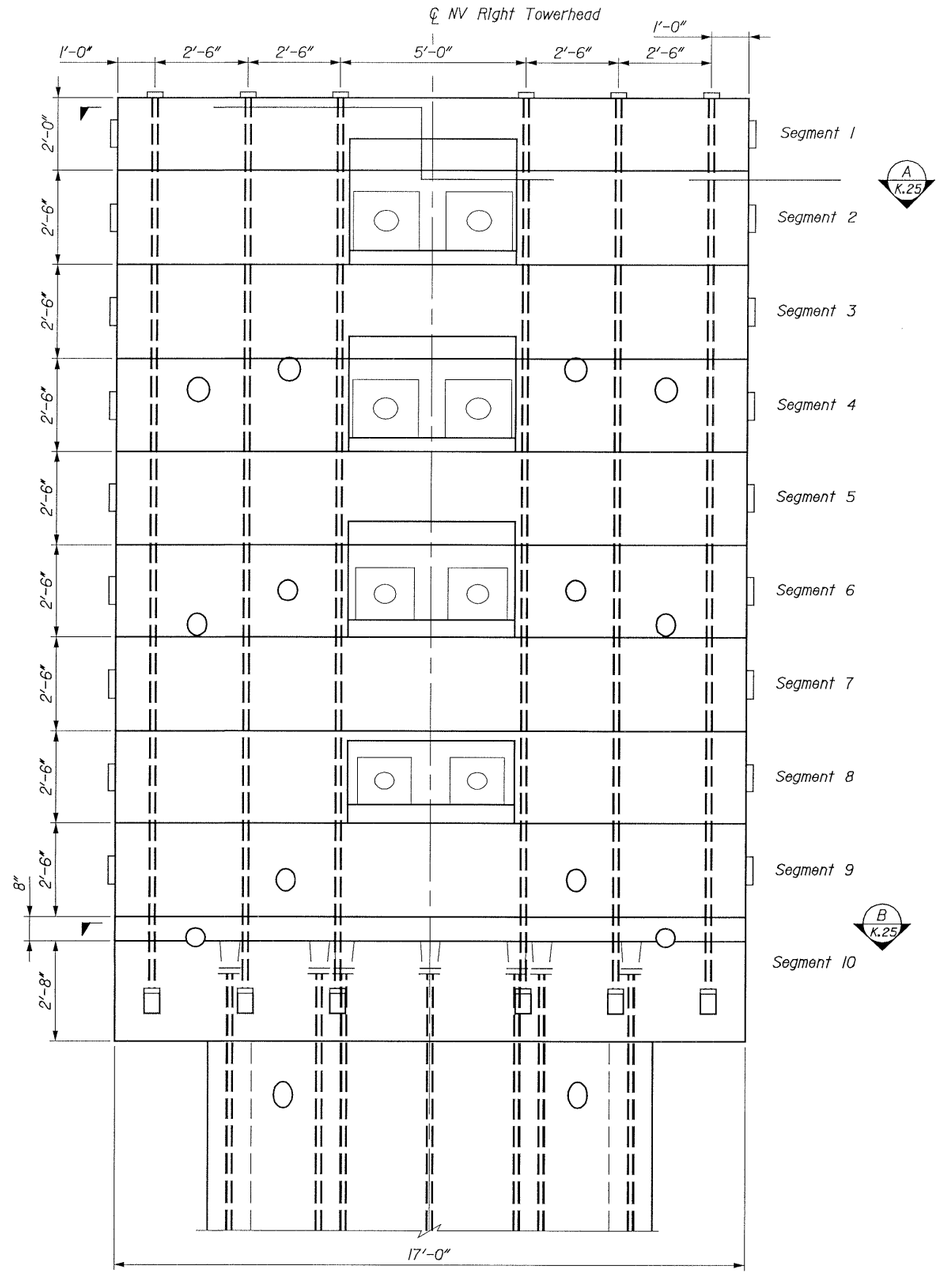
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION, DENVER, COLORADO

BOR - HOOVER DAM RESERVATION AREA
COLORADO RIVER BRIDGE
AT HOOVER DAM
ARIZONA/NEVADA
NDOT STRUCTURE NO. B2704
ADOT STRUCTURE NO. 2685
ARCH ERECTION
CLOSURE

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS
1	8-27-04	DG	Add max/min and elong cable tables				

DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
Pedersen	J.Schiewe	H.Lee	AS NOTED	David Goodyear, PE	249 of 308	11-17-03	RG2741-K.07

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
9	AZ/NV	AZ/NV HPP93(3)	352	392



VIEW - TOWER HEAD (TYP.) (B K.24)

(NV-Right Towerhead shown, NV-Left and AZ similar except when noted otherwise)
Scale: 1/4"=1'-0"

Backstay Cables - Stays through Skewback Pier								
WP (1)	Station	Elevation	Offset [ft] (2	A1 [deg]	A2 [deg]	A3 [deg]	# strands	Cable
1	184+27.41	1360.25	26.30	40.70	0.69	49.34	12-0.6"	NV-R-A1
			18.70				12-0.6"	
2	184+27.41	1371.16	26.30	37.59	0.69	52.74	12-0.6"	NV-R-A2
			18.70				12-0.6"	
3	184+27.41	1482.71	27.33	46.63	1.89	43.61	12-0.6"	NV-R-B1
			17.67				12-0.6"	
4	184+27.41	1492.31	27.33	45.27	1.89	44.96	16-0.6"	NV-R-B2
			17.67				16-0.6"	
5	184+27.41	1502.36	27.33	43.92	1.89	46.36	16-0.6"	NV-R-B3
			17.67				16-0.6"	
6	184+27.41	1362.19	-19.69	51.62	1.04	38.42	12-0.6"	NV-L-A1
			-25.31				12-0.6"	
7	184+27.41	1373.54	-19.69	46.96	1.04	43.46	12-0.6"	NV-L-A2
			-25.31				12-0.6"	
8	184+27.41	1483.16	-17.67	48.99	1.90	41.26	12-0.6"	NV-L-B1
			-27.33				12-0.6"	
9	184+27.41	1492.62	-17.67	47.55	1.90	42.70	16-0.6"	NV-L-B2
			-27.33				16-0.6"	
10	184+27.41	1502.53	-17.67	46.11	1.90	44.18	16-0.6"	NV-L-B3
			-27.33				16-0.6"	
11	184+27.41	1356.16	26.82	26.68	5.32	63.36	19-0.6"	NV-R-1**
			18.18				19-0.6"	
12	184+27.41	1371.29	26.99	36.13	3.66	53.91	19-0.6"	NV-R-2**
			18.01				19-0.6"	
13	184+27.41	1479.69	26.50	32.44	2.58	57.64	19-0.6"	NV-R-3**
			18.50				19-0.6"	
14	184+27.41	1492.23	26.45	44.76	1.90	45.35	19-0.6"	NV-R-4**
			18.55				19-0.6"	
15	184+27.41	1503.63	26.42	55.95	1.49	34.20	19-0.6"	NV-R-5**
			18.58				19-0.6"	
16	195+17.41	1359.58	25.30	37.85	0.47	52.20	12-0.6"	AZ-R-A1
			19.70				12-0.6"	
17	195+17.41	1370.08	25.30	33.55	0.46	56.52	12-0.6"	AZ-R-A2
			19.70				12-0.6"	
18	195+17.41	1483.29	27.30	49.39	0.82	40.63	12-0.6"	AZ-R-B1
			17.70				12-0.6"	
19	195+17.41	1492.39	27.30	45.84	0.82	44.28	16-0.6"	AZ-R-B2
			17.70				16-0.6"	
20	195+17.41	1502.65	27.30	42.29	0.82	48.37	16-0.6"	AZ-R-B3
			17.70				16-0.6"	
21	195+17.41	1359.58	-19.70	37.85	0.47	52.20	12-0.6"	AZ-L-A1
			-25.30				12-0.6"	
22	195+17.41	1370.08	-19.70	33.55	0.46	56.51	12-0.6"	AZ-L-A2
			-25.30				12-0.6"	
23	195+17.41	1484.90	-17.73	65.44	0.33	24.61	12-0.6"	AZ-L-B1
			-27.27				12-0.6"	
24	195+17.41	1494.04	-17.73	60.26	0.33	29.88	16-0.6"	AZ-L-B2
			-27.27				16-0.6"	
25	195+17.41	1504.18	-17.73	55.09	0.33	35.67	16-0.6"	AZ-L-B3
			-27.27				16-0.6"	

Table notes:

1. WP taken at Intersection of ℄ cable and ℄ skewback. See Drawing K.27 for WP locations.
2. Measured from ℄ Bridge.
3. Cable angle A1 is along a chord. Cable angle A3 is the exit angle along a catenary.

** Cables are symmetric about ℄ Bridge and arch midspan (values for NV-right are tabulated, NV-left, AZ-left and AZ-right are similar).

PROFESSIONAL ENGINEER - STATE OF NEVADA
W. DAVID GOODYEAR
EXP. 6-30-05
CIVIL
No. 15457
8-19-04

0 1 Inch

TY LIN INTERNATIONAL | HDR

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION, DENVER, COLORADO

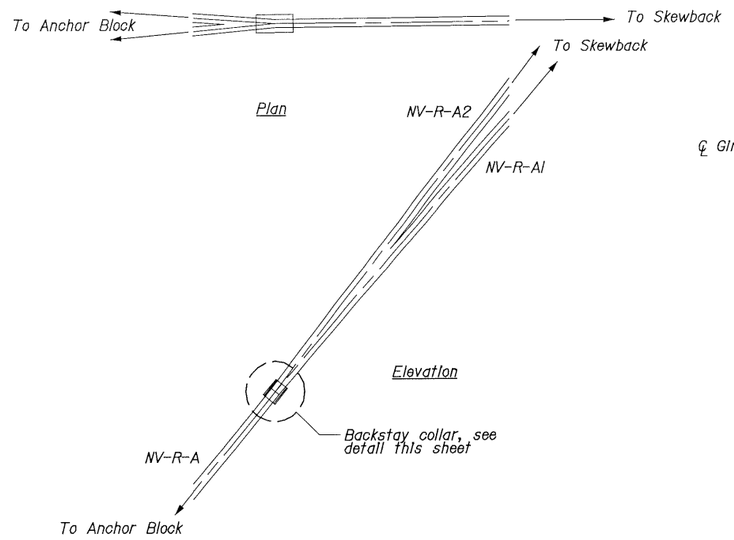
BOR - HOOVER DAM RESERVATION AREA
COLORADO RIVER BRIDGE
AT HOOVER DAM
ARIZONA/NEVADA
NDOT STRUCTURE NO. B2704
ADOT STRUCTURE NO. 2685
ARCH ERECTION
STAY ANCHORAGE DETAILS 2
(PIER 5 & 14)

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS
1	8-27-04	MW	Update table for B1 - B3 strands				

DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER
M.Winoto	J.Schiewe	H.Lee	AS NOTED	David Goodyear, PE

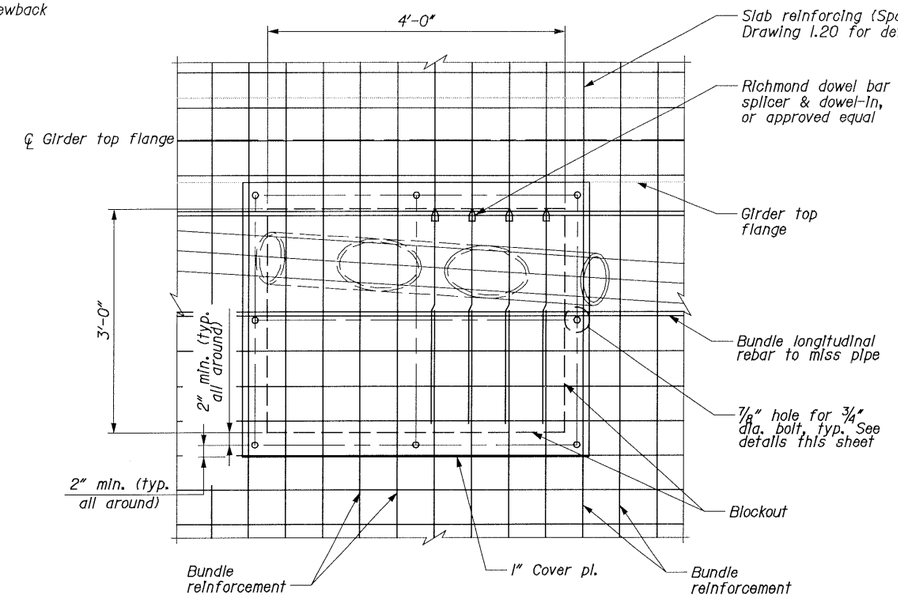
BRIDGE DRAWING	DATE	DRAWING NO.
268 of 308	11-17-03	RG2741-K.28

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
9	AZ/NV	AZ/NV HPP93(3)	355	392



SCHEMATIC OF BACKSTAY AT COLLAR

(Backstay NV-R-A shown, NV-L-A, NV-R-B, NV-L-B, AZ-R-B and AZ-L-B similar)
No Scale

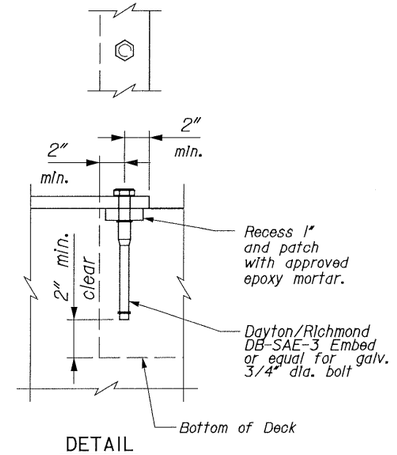


DETAIL - DEVIATOR PIPE THROUGH DECK (1 / K.30)

(Bottom transverse layer and bottom longitudinal layer not shown for clarity, bottom layers similar)
No Scale

Construction sequence:

1. Place deck concrete w/ blockout.
2. Install deviator pipe.
3. Install stay cables and erect arch.
4. Remove stay cables and deviator pipes.
5. Splice deck reinforcement.
6. Place concrete at blockout.

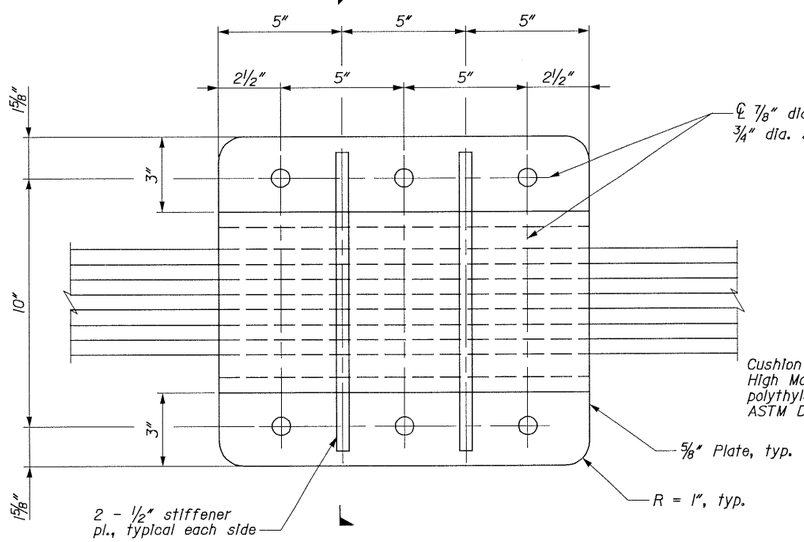


DETAIL

No Scale

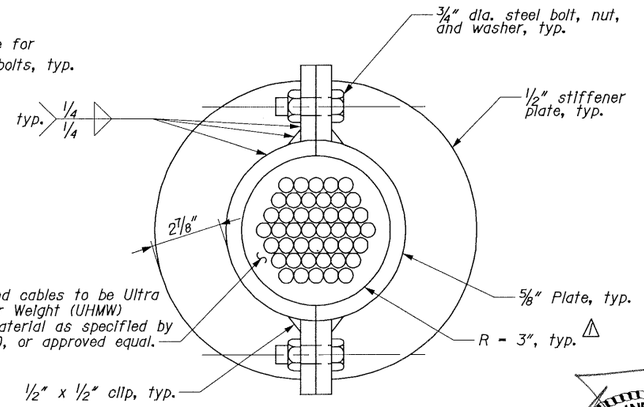
Collar notes:

1. Restrain collar to prevent from sliding along backstay cable.
2. Galvanize or paint white, typical all exposed steel.



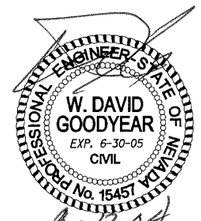
BACKSTAY COLLAR DETAIL

No Scale



SECTION - BACKSTAY COLLAR (A / -)

No Scale



0 1 Inch

T.Y.LIN INTERNATIONAL | HDR

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION, DENVER, COLORADO

BOR - HOOVER DAM RESERVATION AREA
COLORADO RIVER BRIDGE
AT HOOVER DAM
ARIZONA/NEVADA
NDOT STRUCTURE NO. B2704
ADOT STRUCTURE NO. 2685

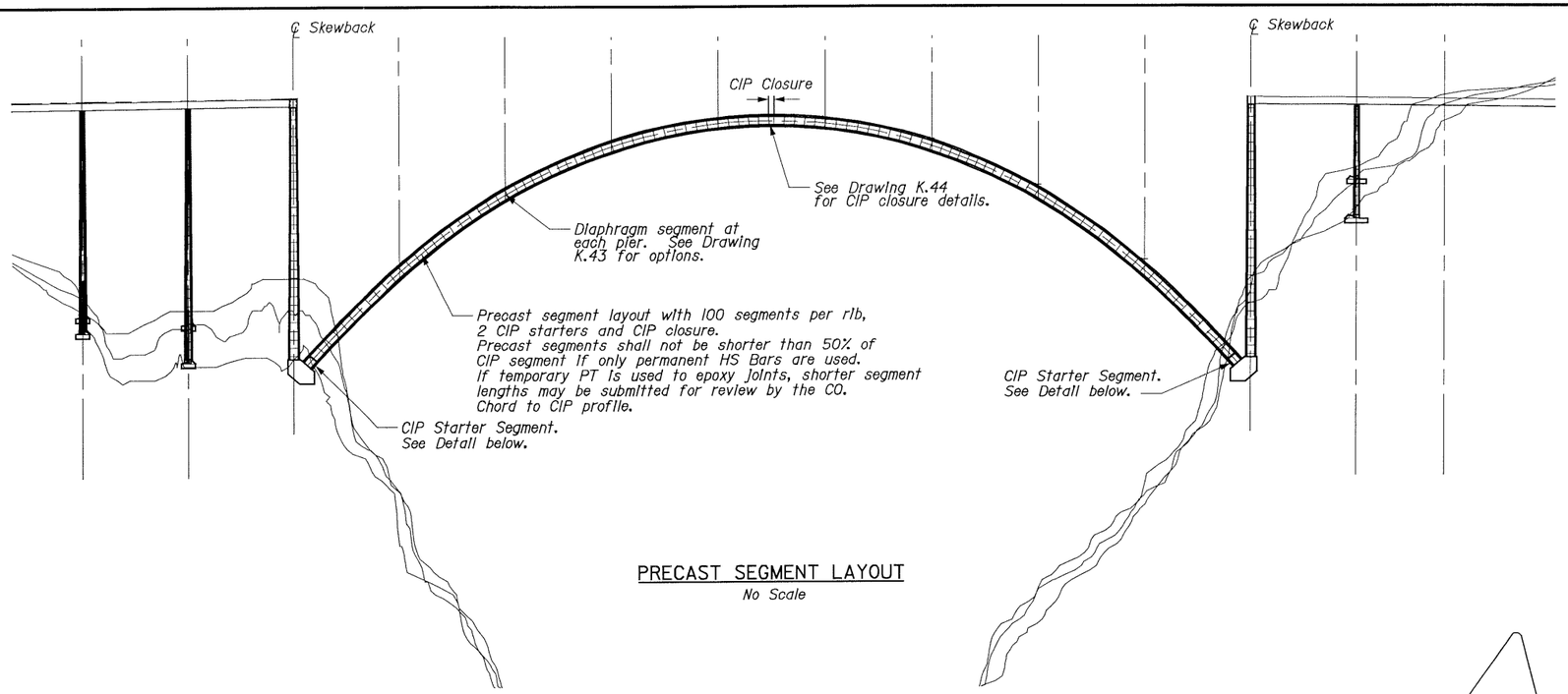
ARCH ERECTION - BACKSTAY COLLAR DETAILS

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS
1	8-27-04	DG	Corrected pipe radius				

DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER
M.Winoto	J.Schiewe	H.Lee	AS NOTED	David Goodyear, PE

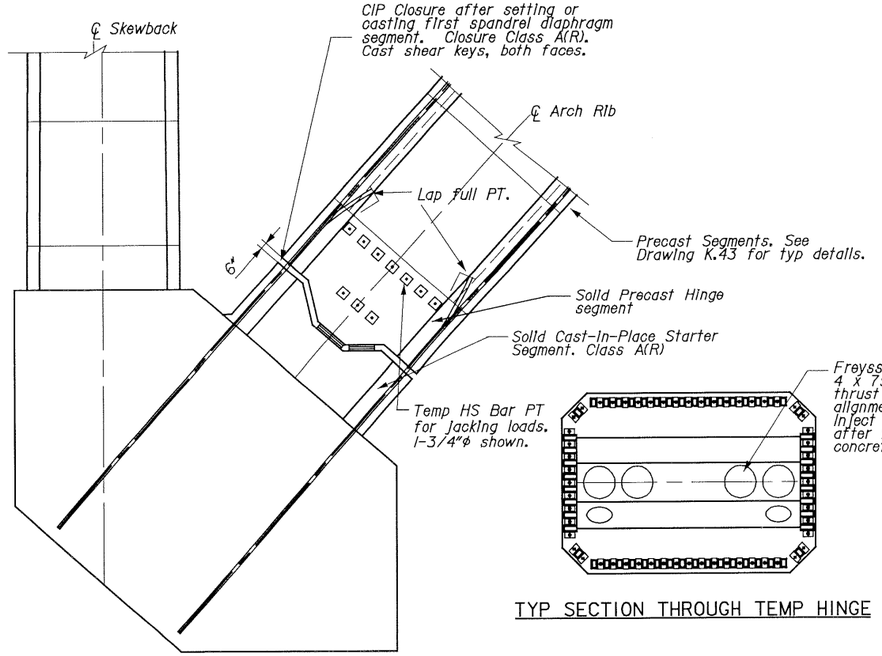
BRIDGE DRAWING	DATE	DRAWING NO.
271 of 308	11-17-03	RG2741-K.31

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
9	AZ/NV	AZ/NV HPP93(3)	364	392



PRECAST SEGMENT LAYOUT

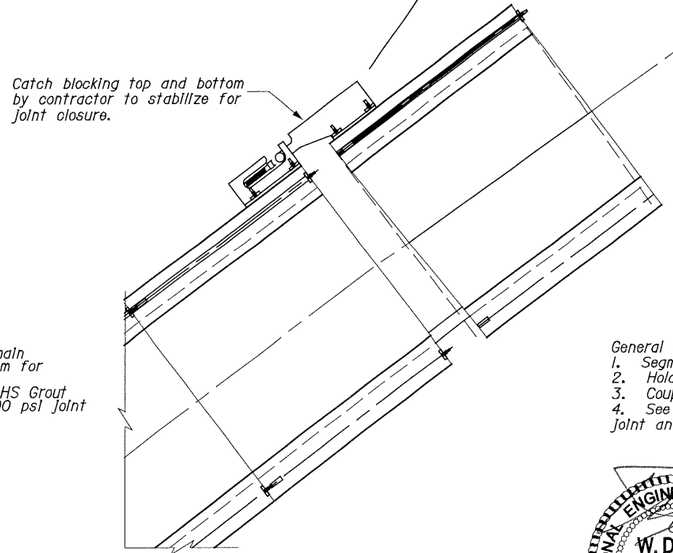
No Scale



PRECAST SEGMENTS WITH CIP STARTER + HINGE

No Scale

TYP SECTION THROUGH TEMP HINGE



PRECAST SEGMENT ERECTION SCHEMATIC

No Scale

PRECAST ARCH RIB OPTION - GENERAL REQUIREMENTS

1. The precast option for the arch ribs is a contractor erection option. Details shown are conceptual to establish general requirements for an erection alternative. Provide complete design and detailing of erection alternative to the CO for review. See Drawing K.01 for conditions that apply to all options.

2. Provide all reinforcing shown on the Plans for the CIP option as min steel in the precast option, except as specifically noted on Drawings K.42 to K.44. Replace main longitudinal rib steel with #6 or larger bars (1 for 1) and PT (see Note 4).

3. Apply epoxy bonding agent to both faces of precast arch rib segments. See SCRs for epoxy requirements.

4. Design and provide CIP starter segment. Replace typ longitudinal reinforcing with PT and #6 bars (min) embedded in footing as shown for CIP plans. Strand may be used (no strand couplers) only if contractor provides equivalent section stiffness as for section shown on the plans for the reinforced arch. Core form of typical arch segment may be modified to suit precast alternative, subject to above requirements and subject to approval by CO. Do not reduce web thickness. ⚠1

5. Construct using one of three options for diaphragm segments:

a. CIP Option: Provide fly-in form support to cast diaphragm segment in place. Provide 6" CIP closure to next PC segment.

b. PC Shell Option: Provide PC rib shell segments with threaded couplers for all HS Bars and reinforcing shown for diaphragms and anchor blisters. Cast diaphragms and blisters after PC shells erected. Do not carry PC joint across vertical elements of column transverse wall connection.

c. PC Segment Option: Cast entire diaphragm segment to dimensions for CIP segment, and set in one piece.

6. Do not use shims for geometry correction of precast elements. Use only CIP wet joints with 10,000 psi concrete. Submit details for wet joints to CO for review and approval.

7. Hinge shown on this drawing is a Contractor erection option to monolithic CIP starter segment shown on Plans. Contractor to include full detailing of all hinge details and procedures in alternative erection scheme submittal. Contractor to assure alignment across closure within .003 rad of approved target geometry after placing and post-tensioning closure.

General Notes:
1. Segment catch blocks and jacks required to stabilize closure.
2. Hold segment with HS Bars tangent for coupling.
3. Couple all bars prior to applying epoxy.
4. See Special Contract Requirements for additional joint and epoxy requirements.

PROFESSIONAL ENGINEER - STATE OF NEVADA
W. DAVID GOODYEAR
EXP. 6-30-05
CIVIL
No. 15457
8-12-04

0 1 Inch

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CENTRAL FEDERAL LANDS HIGHWAY DIVISION, DENVER, COLORADO

BOR - HOOVER DAM RESERVATION AREA
COLORADO RIVER BRIDGE
AT HOOVER DAM
ARIZONA/NEVADA
NDOT STRUCTURE NO. B2704
ADOT STRUCTURE NO. 2685

PRECAST ARCH RIB OPTION
GENERAL LAYOUT

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS
1	8-27-04	DG	Edit note 4.				

DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER
Goodyear	Goodyear	H.Lee	AS NOTED	David Goodyear, PE

BRIDGE DRAWING	DATE	DRAWING NO.
280 of 308	11-17-03	RG2741-K.42

S = Bar is included in substructure quantities
L = Lump sum quantity
T S or E = Tie, Stirrup or Earthquake

E = Bar is to be epoxy coated.
V = Bar dimensions vary between dimensions shown on this line and the following line.

MARK NO.	LOCATION	SIZE	NO. REQUIRED	BEND TYPE	T, S or E	LUMP SUM	SUBSTR.	EPOXY COAT	VARIES	DIMENSIONS (Out to Out) U Ft.	U In.	W Ft.	W In.	X Ft.	X In.	Y Ft.	Y In.	Z Ft.	Z In.	Q1 Deg.	Q2 Deg.	LENGTH Ft.	LENGTH In.	WEIGHT Lbs.
	SKEWBACK – FOOTING																							*421690*
K101	TOP FACE	8	156	80			S			13	6	3	0	1	4	0	7	0	7	38.9	90	17	7	7324
K102	FRONT DIAG FACE	8	156	50			S			20	8											20	8	8608
K103	FRONT FACE	8	156	80			S			13	10	3	0	1	4	0	7	0	7	31.1	90	17	11	7457
K104	BOTTOM FACE	8	156	80			S			16	8	3	0	1	4	0	7	0	7	38.9	90	20	9	8643
K105	(A) LONGIT BACK FACES	11	196	54			S			48	0											50	0	52067
K105	(B) LONGIT BACK FACES	11	196	54			S			38	6											40	6	42175
K106	BACK DIAG FACE	8	156	50			S			17	0											17	0	7081
K107	BACK FACE	8	156	54			S			16	7											17	11	7463
K108	BACK FACE	8	156	80			S			16	4	3	0	1	4	0	7	0	7	31.1	90	20	5	8499
K109	HORZ END FACE	8	12	50			S			29	7											29	7	948
K110	HORZ END FACE	8	52	50			S		V	15	1											15	1	0
		8								28	10											28	10	3049
K111	HORZ END FACE	8	44	50			S		V	17	0											17	0	0
		8								29	0											29	0	2702
K112	(A) LONGIT FACE	11	272	50			S			48	0											48	0	69367
K112	(B) LONGIT FACE	11	272	50			S			38	6											38	6	55638
K113	SHEAR STIRRUP	8	264	56	T		S			21	7											24	3	17093
K114	SHEAR STIRRUP	8	88	56	T		S			18	7											21	3	4993
1 K129	ARCH LONG	8	288	50			S			9	6											9	6	7305
K130	ARCH LONG	11	688	50			S			28	4											28	4	103568
K131	VERT END FACE	8	68	50			S		V	17	5											17	5	0
		8								27	9											27	9	4100
K132	VERT END FACE	8	64	50			S		V	14	7											14	7	0
		8								27	8											27	8	3610
	SKEWBACK – FOOTING (CIP COLUMN ALT ONLY)																							
K133	COLUMN LONGIT – FTG 1	11	192	50			S			18	6											18	6	18872
K133	COLUMN LONGIT – FTG 2	11	192	50			S			13	3											13	3	13516
	SKEWBACK – PC COLUMN ALT																							*444277*
K115	TRANS IF	5	3816	14			S			12	9	1	1	1	1	2	0	2	0			18	11	75290
K116	TRANS OF	5	3816	80			S			14	9	0	9	0	9	0	5.5	0	5.5	90	90	15	11	63199
K117	TRANS OF	5	3816	50			S		V	5	8											5	8	0
		5								9	8											9	8	30514
K118	TRANS IF	5	7632	80			S		V	4	10	0	0	0	9	0	0	0	5.5	0	90	5	5	0
		5								6	10	0	0	0	9	0	0	0	5.5	0	90	7	5	50928
K119	TRANS DIAG IF	5	7632	14			S			3	10	0	10	0	10	0	0	0	0			8	8	37147
K120	TIE – CORNER	4	13920	58	T		S			0	11											1	8	15498
K121	TIE – WALL	4	62152	58	T		S			0	9											1	6	62276
K122	(A) LONGIT 10' SEGMENTS	5	10176	50			S			9	8											9	8	102598
K122	(B) LONGIT 9'–6" SEGMENTS	5	352	50			S			9	2											9	2	3365
K122	(C) LONGIT FIXED CAP	5	336	50			S			4	0											4	0	1402
K122	(D) LONGIT BASE	5	400	50			S			2	5											2	5	1008
	SKEWBACK – CIP COLUMN ALT																							*819983*
K115	TRANS IF	5	2304	14			S			12	9	1	1	1	1	2	0	2	0			18	11	45458
K116	TRANS OF	5	2304	80			S			14	9	0	9	0	9	0	5.5	0	5.5	90	90	15	11	38158
K117	TRANS OF	5	2304	50			S		V	5	8											5	8	0
		5								9	8											9	8	18424
K118	TRANS IF	5	4608	80			S		V	4	10	0	0	0	9	0	0	0	5.5	0	90	5	5	0
		5								6	10	0	0	0	9	0	0	0	5.5	0	90	7	5	30749
K119	TRANS DIAG IF	5	4608	14			S			3	0	0	10	0	10	0	0	0	0			4	8	22429
K120	TIE – CORNER	4	9216	58	T		S			0	11											1	8	10260
K121	TIE – WALL	4	31104	58	T		S			0	9											1	6	31166
K127	LOWER LONGIT – TYP	11	3456	50			S			21	3											21	3	390187
K128	(A) UPPER LONGIT – TYP	9	2816	50			S			19	4											19	4	185105
K128	(B) UPPER LONGIT – CAP 1	9	176	50			S			14	8											14	8	8777
K128	(C) UPPER LONGIT – CAP 2	9	176	50			S			11	6											11	6	6882
	SPANDREL – PC COLUMN ALT																							*423168*
S101	TRANS OF	5	4032	14			S			12	9	1	1	1	1	2	0	2	0			18	11	79552
S102	TRANS IF	5	3888	80			S			14	8	0	9	0	9	0	5.5	0	5.5	90	90	15	10	64054
S103	(A) TRANS OF – P 6 & 13	5	2136	50			S		V	2	8											2	8	0
		5								5	2											5	2	8726
S103	(B) TRANS OF – P 7 & 12	5	1136	50			S		V	2	8											2	8	0
		5								4	0											4	0	3949
S103	(C) TRANS OF – P 8 & 11	5	512	50			S		V	2	8											2	8	0
		5								3	3											3	3	1580
S103	(D) TRANS OF – P 9 & 10	5	200	50			S		V	2	8											2	8	0
		5								2	11											2	11	582
S104	(A) TRANS IF – P 6 & 13	5	4272	80			S		V	3	2	0	0	0	9	0	0	0	5.5	0	90	3	9	0
		5								4	5	0	0	0	9	0	0	0	5.5	0	90	5	0	19410
S104	(B) TRANS IF – P 7 & 12	5	2272	80			S		V	3	2	0	0	0	9	0	0	0	5.5	0	90	3	9	0
		5								3	10	0	0	0	9	0	0	0	5.5	0	90	4	5	9632
S104	(C) TRANS IF – P 8 & 11	5	1024	80			S		V	3	2	0	0	0	9	0	0	0	5.5	0	90	3	9	0
		5								3	6	0	0	0	9	0	0	0	5.5	0	90	4	1	4163
S104	(D) TRANS IF – P 9 & 10	5	400	80			S		V	3	2	0	0	0	9	0	0	0	5.5	0	90	3	9	0
		5								3	4	0	0	0	9	0	0	0	5.5	0	90	3	11	1591
S105	TRANS DIAG IF	5	7744	14			S			3	0	0	10	0	10	0	0	0	0			4	8	37693
S106	TIE – CORNER	4	15488	58	T		S			0	11											1	8	17243
S107	TIE – WALL	4	53156	58	T		S			0	9											1	6	53262
S108	(A) LONGIT 10' SEGMENTS	5	7488	50			S			9	8											9	8	75497
S108	(B) LONGIT 9'–6" SEGMENTS	5	304	50			S			9	2											9	2	2906
S108	(C) LONGIT 9'–9" SEGMENTS	5	304	50			S			9	5											9	5	2986
S108	(D) LONGIT 9'–7" SEGMENTS	5	304	50			S			9	3											9	3	2933
S108	(E) LONGIT BRG CAP	5	456	50			S			2	8											2	8	1268
S108	(F) LONGIT FIXED CAP	5	288	50			S			4	0											4	0	1202
S108	(G) LONGIT PIER 6&13 BASE	5	336	50			S			12	0											12	0	4205
S108	(H) LONGIT PIER 7&12 BASE	5	320	50			S			9	2											9	2	3059
S108	(I) LONGIT PIER 8&11 BASE	5	304	50			S			6	9											6	9	2140
S108	(J) LONGIT PIER 9&10 BASE	5	304	50			S			11	2											11	2	3541
S109	BRG CAP TIE – SHORT	6	1008	58	T		S			4	8											6	4	9589
S110	BRG CAP TIE – LONG	6	360	56	T		S			14	8											16	8	9012
S119	(A) PLINTH HORZ OF–P 6&13	5	40	50			S		V	0	9											0	9	0
		5								5	8											5	8	134
S119	(B) PLINTH HORZ OF–P 7&12	5	24	50			S		V	1	2											1	2	0
		5								4	4											4	4	69
S119	(C) PLINTH HORZ OF–P 8&11	5	8	50			S			3	10											3	10	32

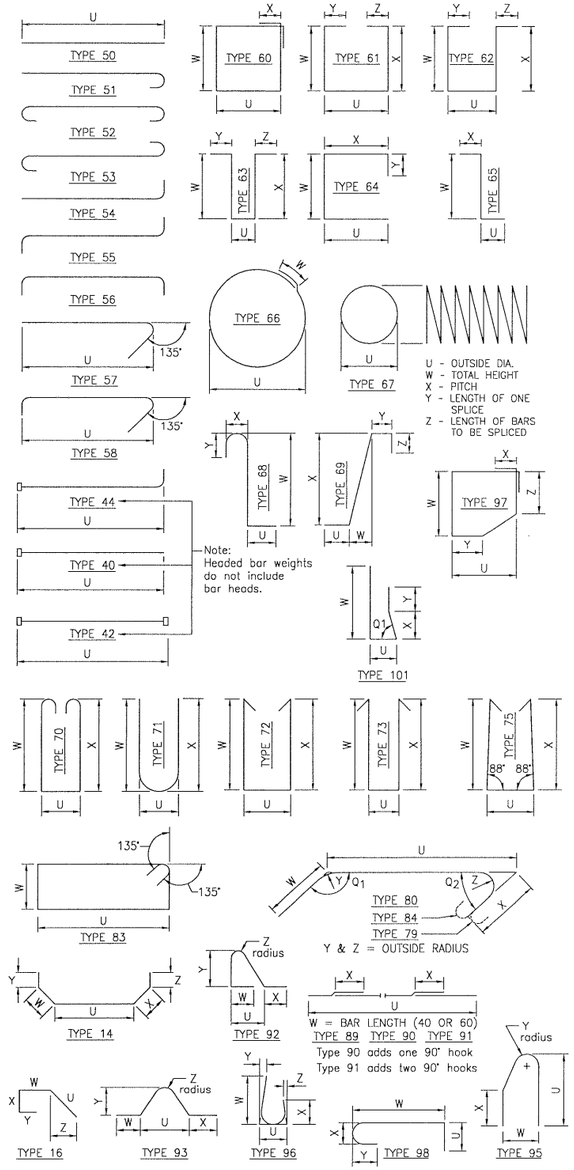
S = Bar is included in substructure quantities
L = Lump sum quantity
T S or E = Tie, Stirrup or Earthquake

E = Bar is to be epoxy coated.
V = Bar dimensions vary between dimensions shown on this line and the following line.

MARK NO.	LOCATION	SIZE	NO. REQUIRED	BEND TYPE	TIE OR STIR.	LUMP SUM	SUBSTR.	EPOXY COAT	VARIES	DIMENSIONS (Out to Out) U Ft.	U In.	W Ft.	W In.	X Ft.	X In.	Y Ft.	Y In.	Z Ft.	Z In.	Q1 Deg.	Q2 Deg.	LENGTH Ft.	LENGTH In.	WEIGHT Lbs.
S120	(A) PLINTH HORZ IF–P 6&13	5	40	50			S		V	1	9											1	9	0
		5								6	8											6	8	176
S120	(B) PLINTH HORZ IF–P 7&12	5	24	50			S		V	2	2											2	2	0
		5								5	4											5	4	94
S120	(C) PLINTH HORZ IF–P 8&11	5	8	50			S			4	10											4	10	40
S121	(A) PLINTH VERT–P 6 & 13	5	336	50			S		V	0	9											0	9	0
		5								6	10											6	10	1329
S121	(B) PLINTH VERT–P 7 & 12	5	320	50			S		V	0	8											0	8	0
		5								4	1											4	1	793
S121	(C) PLINTH VERT–P 8 & 11	5	304	50			S		V	0	7											0	7	0
		5								2	4											2	4	462
S121	(D) PLINTH VERT–P 9 & 10	5	304	50			S		V	0	7											0	7	0
		5								1	1											1	1	264
	SPANDREL – CIP COLUMN ALT																							*816541*
S101	TRANS OF	5	2768	14			S			12	9	1	1	1	1	2	0	2	0			18	11	54613
S102	TRANS IF	5	2624	80			S			14	8	0	9	0	9	0	5.5	0	5.5	90	90	15	10	43230
S103	(A) TRANS OF – P 6 & 13	5	1424	50			S		V	2	8											2	8	0
		5								5	2											5	2	5817
S103	(B) TRANS OF – P 7 & 12	5	776	50			S		V	2	8											2	8	0
		5								4	0											4	0	2698
S103	(C) TRANS OF – P 8 & 11	5	360	50			S		V	2	8											2	8	0
		5								3	3											3	3	1111
S103	(D) TRANS OF – P 9 & 10	5	160	50			S		V	2	8											2	8	0
		5								2	11											2	11	466
S104	(A) TRANS IF – P 6 & 13	5	2848	80			S		V	3	2	0	0	0	9	0	0	0	5.5	0	90	3	9	0
		5								4	5	0	0	0	9	0	0	0	5.5	0	90	5	0	12940
S104	(B) TRANS IF – P 7 & 12	5	1456	80			S		V	3	2	0	0	0	9	0	0	0	5.5	0	90	3	9	0
		5								3	10	0	0	0	9	0	0	0	5.5	0	90	4	5	6172
S104	(C) TRANS IF – P 8 & 11	5	624	80			S		V	3	2	0	0	0	9	0	0	0	5.5	0	90	3	9	0
		5								3	6	0	0	0	9	0	0	0	5.5	0	90	4	1	2537
S104	(D) TRANS IF – P 9 & 10	5	224	80			S		V	3	2	0	0	0	9	0	0	0	5.5	0	90	3	9	0
		5								3	4	0	0	0	9	0	0	0	5.5	0	90	3	11	891
S105	TRANS DIAG IF	5	5224	14			S			3	0	0	10	0	10	0	0	0	0			4	8	25427
S106	TIE – CORNER	4	10448	58	T		S			0	11											1	8	11632
S107	TIE – WALL	4	27236	58	T		S			0	9											1	6	27290
S109	BRG CAP TIE – SHORT	6	1008	58	T		S			4	8											6	4	9589
S110	BRG CAP TIE – LONG	6	360	56	T		S			14	8											16	8	9012
S111	(A) LONG TYP	11	2848	50			S			21	3											21	3	321543
S111	(B) UPPER LONG CAP1+SEG	11	152	50			S			23	1											23	1	18642
S111	(C) LOWER LONG CAP2+SEG	11	152	50			S			17	10											17	10	14402
S111	(D) LOWER LONG – BASE 1	11	56	50			S			15	3											15	3	4537
S111	(E) LOWER LONG – BASE 1	11	56	50			S			21	3											21	3	6322
S111	(F) LOWER LONG – BASE 1	11	48	50			S		V	15	3											15	3	0
		11								21	3											21	3	4654
S111	(C) LOWER LONG – BASE 2	11	56	50			S			20	6											20	6	6099
S111	(H) LOWER LONG – BASE 2	11	56	50			S			26	6											26	6	7884
S111	(I) LOWER LONG – BASE 2	11	48	50			S		V	20	6											20	6	0
		11								26	6											26	6	5993
S112	(A) UPPER LONG TYP	9	608	50			S			19	4											19	4	39966
S112	(B) UPPER LONG CAP 1	9	152	50			S			16	2											16	2	8355
S112	(C) UPPER LONG CAP 2	9	152	50			S			12	10											12	10	6632
S113	(A) LOWER LONG TYP	11	640	50			S			21	3											21	3	72257
S113	(B) LOWER LONG – BASE 1	11	56	50			S			17	11											17	11	5331
S113	(C) LOWER LONG – BASE 1	11	56	50			S			21	3											21	3	6322
S113	(D) LOWER LONG – BASE 1	11	48	50			S		V	17	1											17	11	0
		11								21	3											21	3	4994
S113	(E) LOWER LONG – BASE 2	11	56	50			S			23	2											23	2	6893
S113	(F) LOWER LONG – BASE 2	11	56	50			S			26	6											26	6	7884
S113	(G) LOWER LONG – BASE 2	11	48	50			S		V	23	2											23	2	0
		11								26	6											26	6	6333
S114	(A) PIER 8 & 11 LONG TYP	8	288	50			S			18	8											18	8	14354
S114	(B) UPPER LONG CAP 1	8	144	50			S			10	0											10	0	3845
S114	(C) UPPER LONG CAP 2	8	144	50			S			7	4											7	4	2820
S114	(D) LOWER LONG – BASE 1	8	56	50			S			17	0											17	0	2542
S114	(E) LOWER LONG – BASE 1	8	56	50			S			18	8											18	8	2791
S114	(F) LOWER LONG – BASE 1	8	32	50			S		V	17	0											17	0	0
		8								18	8											18	8	1524
S114	(G) LOWER LONG – BASE 2	8	56	50			S			19	8											19	8	2941
S114	(H) LOWER LONG – BASE 2	8	56	50			S			21	4											21	4	3190
S114	(I) LOWER LONG – BASE 2	8	32	50			S		V	19	8											19	8	0
		8								21	4											21	4	1752
S114	(J) PIER 9 & 10 LONG	8	112	50			S			15	1											15	1	4511
S114	(K) PIER 9 & 10 LONG	8	112	50			S			15	7											15	7	4660
S114	(L) PIER 9 & 10 LONG	8	64	50			S		V	15	1											15	1	0
		8								15	7											15	7	2620
S119	(A) PLINTH HORZ OF–P 6&13	5	40	50			S		V	0	10											0	10	0
		5								5	6											5	6	132
S119	(B) PLINTH HORZ OF–P 7&12	5	24	50			S		V	1	2											1	2	0
		5								4	1											4	1	66
S119	(C) PLINTH HORZ OF–P 8&11	5	8	50			S			3	1											3	1	26
S120	(A) PLINTH HORZ IF–P 6&13	5	40	50			S		V	1	10											1	10	0
		5								6	6											6	6	174
S120	(B) PLINTH HORZ IF–P 7&12	5	24	50			S		V	2	2											2	2	0
		5								3	1											5	1	91
S120	(C) PLINTH HORZ IF–P 8&11	5	8	50			S			4	1											4	1	34

STEEL REINFORCING BAR QUANTITIES NOT INCLUDED IN THIS BAR LIST

TRAFFIC BARRIER, PC PANELS
TIEBACK WALL, SHORING WALL.



NOTES:

1. *Varied bar quantities for K110, K111, K131, K132, K117 & K118 cover 4 skewback column locations.*
2. *Varied bar quantities for S103, S104, S119, S120 & S121 cover 4 spandrel column locations.*
3. *Varied bar quantities for S108, S111, S113 & S114 cover 4 spandrel column locations.*
4. *All bar marks listed under the headings for Skewback Columns & Spandrel columns are for information only, and not to be used as measurement of payment. These bars are measured as part of the lump sum item Concrete Spandrel Columns.*

PROFESSIONAL ENGINEER – STATE OF NEVADA
W. DAVID GOODYEAR
EXP. 6-30-05
CIVIL
No. 15457
6-12-04

TY LIN INTERNATIONAL | HDR

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
9	AZ/NV	AZ/NV HPP93(3)	385	392

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION, DENVER, COLORADO

BOR – HOOVER DAM RESERVATION AREA
COLORADO RIVER BRIDGE
AT HOOVER DAM

ARIZONA/NEVADA

NDOT STRUCTURE NO. B2704
ADOT STRUCTURE NO. 2685

BAR LIST 6
SKEWBACK & SPANDREL, COLUMNS & FTGS

NO.	DATE	BY	REVISIONS
1	8/27/04	CAW	Update K129, Skewback Footing quantity.

DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
C.Werts	B.Mason	H.Lee	AS NOTED	David Goodyear, PE	301 of 308	11–17–03	RG2741–M.06

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
9	AZ/NV	AZ/NV HPP93(3)	390	392

S = Bar is included in substructure quantities
L = Lump sum quantity
T S or E = Tie, Stirrup or Earthquake

E = Bar is to be epoxy coated.
V = Bar dimensions vary between dimensions shown on this line and the following line.

MARK NO.	LOCATION	SIZE	NO. REQUIRED	BEND	TYPE T, S or E	LUMP SUM	SUBSTR.	EPOXY COAT	VARIES	DIMENSIONS (Out to Out) U Ft.	U In.	W Ft.	W In.	X Ft.	X In.	Y Ft.	Y In.	Z Ft.	Z In.	Q1 Deg.	Q2 Deg.	LENGTH Ft.	LENGTH In.	WEIGHT Lbs.
	ARCH RIBS																							*2934777*
A101	Typical Long Segment 1	11	688	50						16	0											16	0	58486
A102	Typical Long Segment 1	8	288	80						5	8	10	4	0	0	0	6	0	0	173	0	16	0	12303
A103	Headed Diaph Segment 1	8	128	42						13	8											13	8	4671
A104	Headed Diaph Segment 1	8	80	42						19	8											19	8	4201
A105	Headed Diaph Segment 1	8	8	42						18	4											18	4	392
A106	Headed Diaph Segment 1	8	16	42						11	7											11	7	495
A107	Transverse Typical	6	7100	50						15	8											15	8	167072
A108	Transverse Typical	6	7100	14						10	8	2	8	2	8	3	0	3	0			22	0	234612
A109	Transverse Typical	6	7100	56						18	0											20	0	213284
A110	Transverse Typical	6	7100	56						11	4											13	4	142189
A111	Transverse Diaphragm	6	14200	50						3	6											3	6	74649
A112	Transverse Diaphragm	6	80	56					V	18	0											20	0	0
		6								16	0											18	0	2283
A113	Transverse Diaphragm	6	80	56					V	11	4											13	4	0
		6								9	4											11	4	1482
A115	(A) Longitudinal Seg 2–6	9	3440	50						31	3											31	3	365500
A115	(B) Longitudinal Seg 8–12	9	3440	50						30	6											30	6	356728
A115	(C) Longitudinal Seg 14–18	9	3440	50						27	0											27	0	315792
A115	(D) Longitudinal Seg 20–23	9	2752	50						30	3											30	3	283043
A115	(E) Longitudinal Seg 25–26	9	1376	50						28	6											28	6	133334
A115	(F) Longitudinal Seg 7,13,19,2	9	2752	50						29	6											29	6	276026
A115	(G) Add'l Long Seg 18,20,23	9	768	50						29	6											29	6	77030
A116	(A) Segment 1 – Web Tie	4	44	58	T					1	1.5											1	10	55
A116	(B) Segment 1 – Web Tie	4	44	58	T					1	2.7											2	0	58
A116	(C) Segment 1 – Web Tie	4	44	58	T					1	4											2	1	61
A116	(D) Segment 1 – Web Tie	4	44	58	T					1	5.3											2	2	64
A116	(E) Segment 1 – Web Tie	4	44	58	T					1	6.5											2	4	67
A116	(F) Segment 1 – Web Tie	4	44	58	T					1	7.8											2	5	71
A116	(G) Segment 1 – Web Tie	4	44	58	T					1	9											2	6	73
A117	(A) Segment 1 – Flange Tie	4	92	58	T					1	5.5											2	2	136
A117	(B) Segment 1 – Flange Tie	4	92	58	T					1	6.7											2	4	142
A117	(C) Segment 1 – Flange Tie	4	92	58	T					1	8											2	5	149
A117	(D) Segment 1 – Flange Tie	4	92	58	T					1	9.3											2	6	155
A117	(E) Segment 1 – Flange Tie	4	92	58	T					1	10.5											2	8	161
A117	(F) Segment 1 – Flange Tie	4	92	58	T					1	11.8											2	9	168
A117	(G) Segment 1 – Flange Tie	4	92	58	T					2	1											2	10	174
A143	Transverse	8	752	50						15	8											15	8	31456
A144	Transverse	8	752	14						10	8	2	8	2	8	3	0	3	0			22	0	44172
A145	Transverse	8	752	56						18	0											20	8	41495
A146	Transverse	8	752	56						11	4											14	0	28110
A147	Transverse	8	1504	50						3	6											3	6	14055
A190	Arch Rib Flange Tie	4	18906	58	T					1	2											1	11	24206
A191	Arch Rib Web Tie	4	10686	58	T					0	10											1	7	11302
	WEB ACCESS OPENINGS Pier 6 Arch Segment 7																							
A310	Long. Headed bar	9	8	40						20	2											20	2	549
A311	Long. Headed bar	9	8	40						6	6											6	6	177
A312	Long. Headed bar	9	16	40						20	4											20	4	1106
A313	Long. Headed bar	9	16	40						6	9											6	9	367
A314	Trans. Headed bar	8	16	80						2	8	3	5	3	0	0	4	0	4	45	45	7	8	326
A315	Trans. Headed bar	8	8	80						2	8	3	7	3	0	0	4	0	4	45	45	7	10	167
A316	Trans. Headed bar	8	8	80						2	8	4	2	3	0	0	4	0	4	45	45	8	5	179
A317	Trans. Headed bar	8	16	44						4	4											5	8	242
A318	Trans. Headed bar	8	8	44						4	6											5	10	125
A319	Trans. Headed bar	8	8	44						5	1											6	5	137
	Pier 7 Arch Segment 13																							
A320	Long. Headed bar	9	8	40						19	11											19	11	542
A321	Long. Headed bar	9	8	40						6	8											6	8	181
A322	Long. Headed bar	9	16	40						20	3											20	3	1102
A323	Long. Headed bar	9	16	40						6	10											6	10	372
A324	Trans. Headed bar	8	16	80						2	8	4	2	3	0	0	4	0	4	45	45	8	5	358
A325	Trans. Headed bar	8	16	80						2	8	3	7	3	0	0	4	0	4	45	45	7	10	334
A326	Trans. Headed bar	8	16	80						2	8	3	5	3	0	0	4	0	4	45	45	7	8	326
A327	Trans. Headed bar	8	16	44						5	1											6	5	274
A328	Trans. Headed bar	8	16	44						4	6											5	10	249
A329	Trans. Headed bar	8	16	44						4	4											5	8	242
	Pier 8 Arch Segment 19																							
A330	Long. Headed bar	9	8	40						16	0											16	0	435
A331	Long. Headed bar	9	8	40						10	7											10	7	288
A332	Long. Headed bar	9	16	40						16	3											16	3	884
A333	Long. Headed bar	9	16	40						10	10											10	10	589
A334	Trans. Headed bar	6	8	80						2	8	4	4	3	0	0	3	0	3	45	45	8	11	107
A335	Trans. Headed bar	6	16	80						2	8	3	6	3	0	0	3	0	3	45	45	8	1	194
A336	Trans. Headed bar	6	8	80						2	8	3	4	3	0	0	3	0	3	45	45	7	11	95
A337	Trans. Headed bar	6	8	80						2	8	3	10	3	0	0	3	0	3	45	45	8	5	101
A338	Trans. Headed bar	6	8	44						5	3											6	3	75
A339	Trans. Headed bar	6	16	44						4	5											5	5	130
A340	Trans. Headed bar	6	8	44						4	4											5	4	64
A341	Trans. Headed bar	6	8	44						4	9											5	9	69
	Pier 9 Arch Segment 24																							
A342	Long. Headed bar	9	8	40						16	3											16	3	442
A343	Long. Headed bar	9	8	40						10	4											10	4	281
A344	Long. Headed bar	9	16	40						16	6											16	6	898
A345	Long. Headed bar	9	16	40						10	7											10	7	576
A346	Trans. Headed bar	6	16	80						2	8	3	10	3	0	0	3	0	3	45	45	8	5	202
A347	Trans. Headed bar	6	16	80						2	8	3	6	3	0	0	3	0	3	45	45	8	1	194
A348	Trans. Headed bar	6	8	80						2	8	3	5	3	0	0	3	0	3	45	45	8	0	96
A349	Trans. Headed bar	6	16	44						4	9											5	9	138
A350	Trans. Headed bar	6	16	44						4	5											5	5	130
A351	Trans. Headed bar	6	8	44						4	4											5	4	64
A148	2'–6" Access – All Piers	5	32	80						6	8	6	8	0	0	1	10			90		12	7	419
A149	2'–6" Access – All Piers	4	128	56						0	9.5											2	2	182
A150	2'–6" Access – All Piers	5	32	66						3	0	2	0									11	3	376
A187	3'–0" Access – Pier 9	8	8	80						7	2	7	2	0	0	2	1			90		13	5	287
A188	3'–0" Access – Pier 9	5	36	56						0	11											2	7	97
A189	3'–0" Access – Pier 9	5	8	66						3	6	2	0									12	10	107

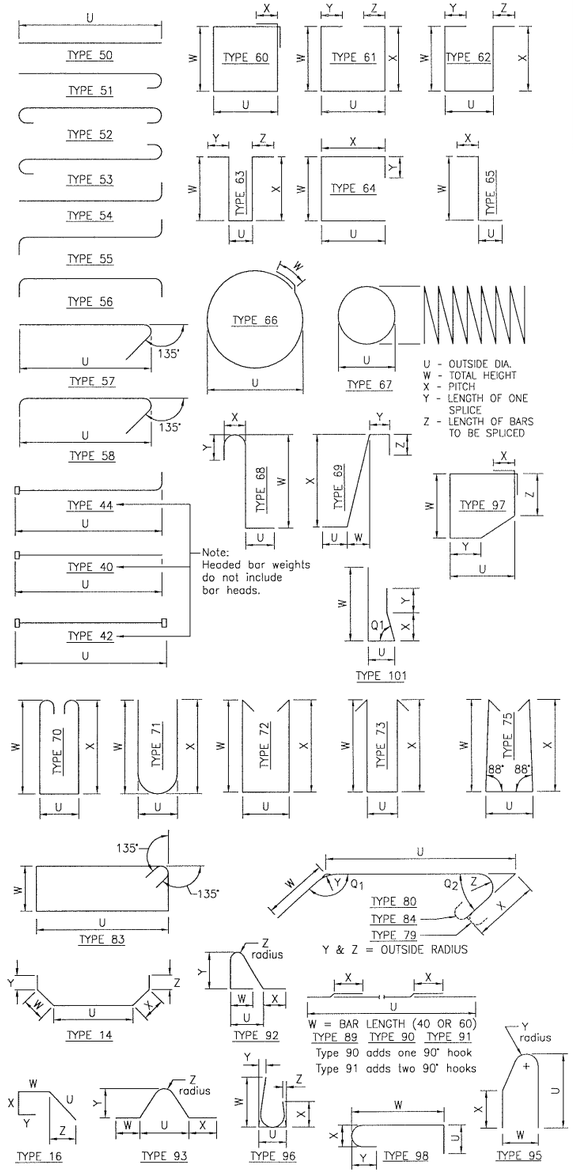
S = Bar is included in substructure quantities
L = Lump sum quantity
T S or E = Tie, Stirrup or Earthquake

E = Bar is to be epoxy coated.
V = Bar dimensions vary between dimensions shown on this line and the following line.

MARK NO.	LOCATION	SIZE	NO. REQUIRED	BEND	TIE OR STIR.	LUMP SUM	SUBSTR.	EPOXY COAT	VARIES	DIMENSIONS (Out to Out) U Ft.	U In.	W Ft.	W In.	X Ft.	X In.	Y Ft.	Y In.	Z Ft.	Z In.	Q1 Deg.	Q2 Deg.	LENGTH Ft.	LENGTH In.	WEIGHT Lbs.
	STRUT CONNECTION BLISTERS																							*7321*
A140	Typical Blister – P6	6	352	60						3	0	3	10	0	6							13	11	7341
A141	Typical Blister – P6	7	64	60						4	1	2	2	0	6							12	7	1647
A142	Typical Blister – P6	5	256	50						10	9											10	9	2870
A142	Non–Typical Blister – P6	5	232	50						10	9	3	10	0	6							10	9	2601
A155	Non–Typical Blister – P6	6	176	97						3	0	3	10	0	6	2	8	3	5			13	9	3636
A156	Non–Typical Blister – P6	6	176	97						3	0	3	10	0	6	1	7	2	2			13	1	3456
A157	Non–Typical Blister – P6	7	64	97						4	1	2	2	0	6	3	5	1	3			12	3	1600
A401	Blister–Diaphragm Tie – P6	4	44	58	T					0	9											1	6	44
A402	Blister–Diaphragm Tie – P6	4	44	58	T					1	3											2	0	59
A403	Blister–Diaphragm Tie – P6	4	44	58	T					2	9											3	6	103
A404	Blister–Diaphragm Tie – P6	4	44	58	T					2	2											2	11	86
A140	Typical Blister – P7	6	352	60						3	0	3	10	0	6							13	11	7341
A141	Typical Blister – P7	7	64	60						4	1	2	2	0	6							12	7	1647
A142	Typical Blister – P7	5	256	50						10	9											10	9	2870
A142	Non–Typical Blister – P7	5	240	50						10	9											10	9	2691
A195	Non–Typical Blister – P7	6	176	97						3	0	3	10	0	6	1	11	1	10			13	2	3477
A140	Non–Typical Blister – P7	6	176	60						3	0	3	10									13	2	3489
A197	Non–Typical Blister – P7	7	64	97						4	1	2	2	0	6	3	6	1	11			12	6	1631
A405	Blister–Diaphragm Tie – P7	4	44	58	T					0	8											1	5	83
A407	Blister–Diaphragm Tie – P7	4	44	58	T					2	3											3	0	88
A220	Typical Blister – P8	5	352	60						2	7	3	4	0	6							12	2	4472
A221	Typical Blister – P8	5	64	60						3	7	1	8	0	6							10	10	724
A222	Typical Blister – P8	5	128	50						10	9											10	9	1435
A222	Non–Typical Blister – P8	5	128	50						10	9											10	9	1435
A235	Non–Typical Blister – P8	5	176	97						2	7	3	4	0	6	1	11	1	3			11	8	2142
A220	Non–Typical Blister – P8	5	176	60						2	7	3	4									11	5	2100
A237	Non–Typical Blister – P8	5	64	97						3	7	1	8	0	6	3	2	0	5			10	7	704
A408	Blister–Diaphragm Tie – P8	4	88	58	T					0	9											1	6	88
A220	Typical Blister – P9	5	704	60						2	7	3	4	0	6							12	2	8945
A221	Typical Blister – P9	5	128	60						3	7	1	8	0	6							10	10	1448
A222	Typical Blister – P9	5	256	50						10	9											10	9	2870
A409	Blister–Diaphragm Tie – P9	4	88	58	T					0	9											1	6	88
	PRECAST PANELS																							*8273*
A192	Trans Bars – Type 1 Panel	4	456	50						8	0											8	0	2437
A192	Trans Bars – Type 2 Panel	4	900	50						8	0											8	0	4810
A192	Trans Bars – Type 3 Panel	4	192	50						8	0											8	0	1026

STEEL REINFORCING BAR QUANTITIES NOT INCLUDED IN THIS BAR LIST

TRAFFIC BARRIER, PC PANELS
TIEBACK WALL, SHORING WALL.



NOTES:

1. *All bar marks listed on this sheet for arch reinforcement are for information only, and not to be used as measurement for payment. These bars are measured as part of the lump sum item Concrete Arch.*

PROFESSIONAL ENGINEER – STATE OF NEVADA
W. DAVID GOODYEAR
EXP. 6-30-05
CIVIL
No. 15457
9.12.04

TY LIN INTERNATIONAL | HDR

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION, DENVER, COLORADO

BOR – HOOVER DAM RESERVATION AREA
COLORADO RIVER BRIDGE
AT HOOVER DAM

ARIZONA/NEVADA

NDOT STRUCTURE NO. B2704
ADOT STRUCTURE NO. 2685

BAR LIST 11
ARCH RIBS & STRUT CONNECTION BLISTERS

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
1	8/27/04	CAW	Update Arch Rib quantities					C.Werts	B.Mason	H.Lee	AS NOTED	David Goodyear, PE	306 of 308	11–17–03	RG2741–M.11