

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(45)	1999	5	20

GENERAL:

1. The existing bridge information shown in these drawings was obtained from the original bridge drawings and is presented for reference purposes only. No responsibility is assumed for the accuracy of the existing information presented. It is the contractor's responsibility to verify independently all of the as-built information.
2. The Contractor shall visit the construction site and shall verify all dimensions and conditions prior to starting any work and shall be Responsible for Coordination of all Work and Materials including those furnished by Sub-Contractors. The Hawaii Department of Transportation (D.O.T.) Representative shall be notified immediately of any discrepancies found.
3. The Contract Structural Drawings and Specifications represent the finished structure. They do not indicate the method of construction. The Contractor shall provide all measures necessary to protect the structure during construction.
4. The Contractor shall provide adequate shoring for all existing and adjacent structures. Shoring for construction loads shall be designed by a Hawaii licensed Structural Engineer experienced in this kind of work.

**BASIS FOR SEISMIC RETROFIT:**

1. The goal of the proposed retrofit work is to reduce the risk of collapse during an earthquake and not the prevention of all structural and non-structural damage.
2. The earthquake loading considered is the ARS Curve for 5% damping at 0 feet to 10 feet by Caltrans with an expected maximum acceleration at bedrock of  $A=0.38g$ .
3. Abutment Concrete Blocking is provided to use the soil behind the back wall to resist longitudinal movement of the bridge during a seismic event. A small gap is provided to permit normal movements.
4. Abutment Pedestal Restrainers are provided to prevent large transverse movements of the bridge and to prevent girder drop at Abutment No. 1.
5. The Design methodology is per Bridge Memo to Designers 20-4 by the California Department of Transportation, December 31, 1995.

GENERAL NOTES:

1. General Specifications: Hawaii Department of Transportation, Standard Specifications for Road, Bridge, and Public Works Construction, 1994, together with Provisions Prepared for this Contract.
2. Design Specifications: AASHTO, Standard Specifications for Highway Bridges, 16th Edition (1996).

- ### 3. Seismic Loading:

- |                                 |      |
|---------------------------------|------|
| a. Seismic Performance Category | D    |
| b. Seismic Performance Category | 0.38 |

- #### 4. Concrete Classes:

- a. Existing: (Assumed in Analysis)

Columns, Pier Cap Beams

$$f'_c = 4,000 \text{ psi}$$

### Footings

$$f'_c = 4,000 \text{ psi}$$

- b. New:

### Shear Keys, Catchers

$$f'_c = 3,000 \text{ psi}$$

### Abutment Concrete Blocking

$$f'_c = 2,500 \text{ psi}$$

- ### 5. Reinforcing Steel:

- a. Existing: (Assumed in Analysis)

Column Main Reinforcing & Dowels

$$f_y = 44,000 \text{ psi}$$

*All Others*

$$f_y = 44,000 \text{ psi}$$

- b. New:

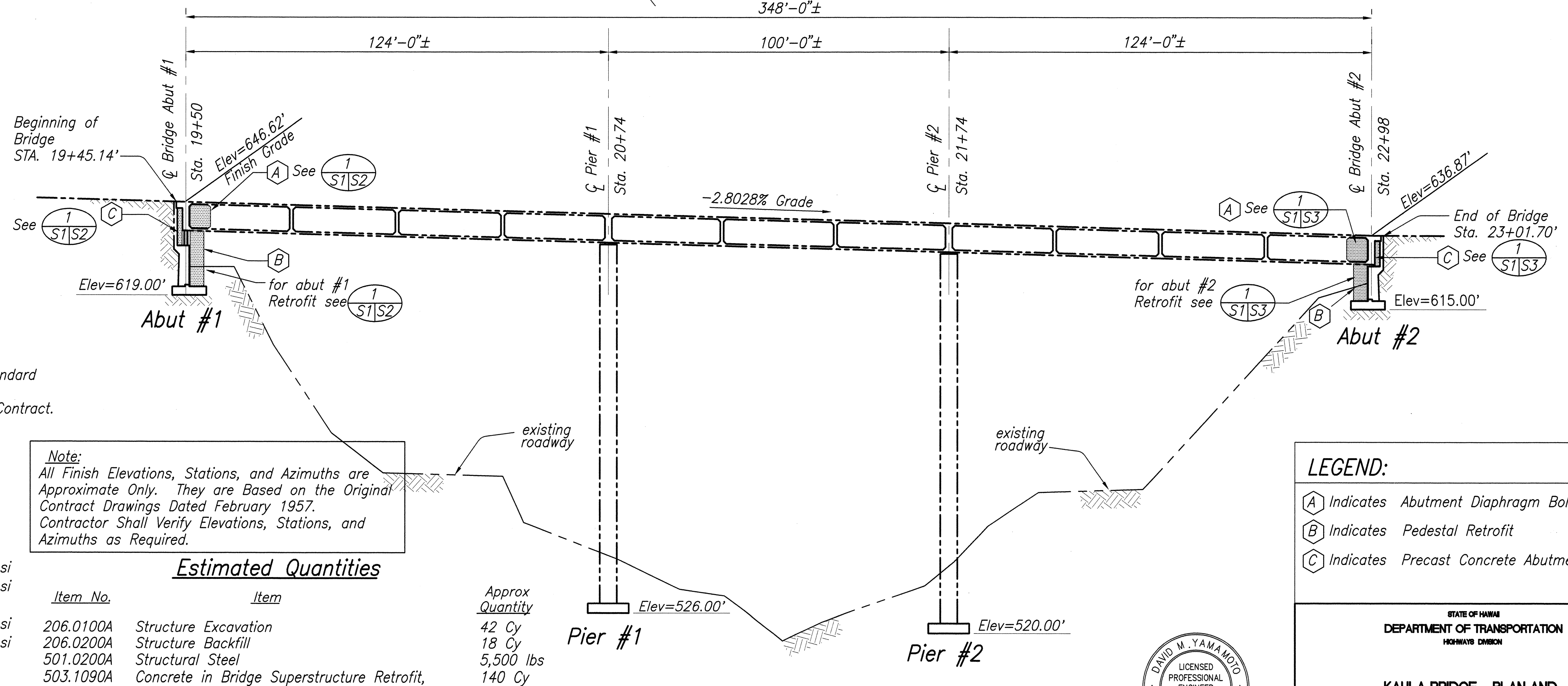
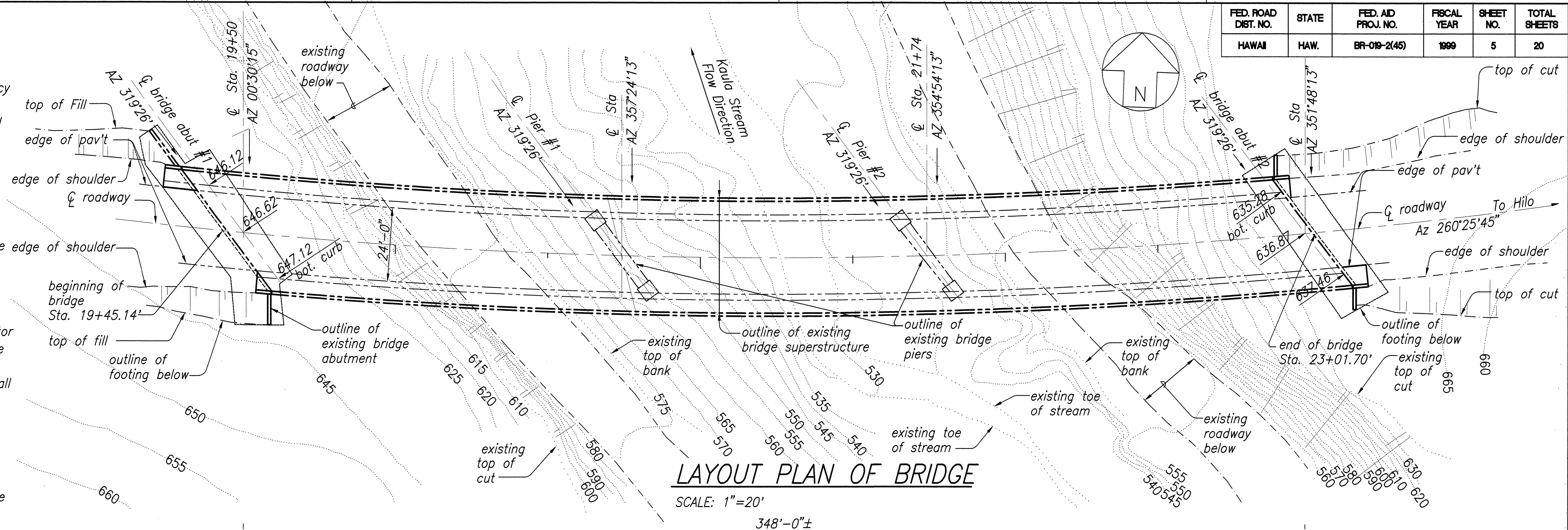
*All Bars, Dowels & stirrups*

$$f_y = 60,000 \text{ psi}$$

6. *Structural Steel:*

- a. Steel Plate for Tube Guide - ASTM A-36  $f_y = 36,000 \text{ psi}$

- b. Steel Tube Restrainer—ASTM A500, Grade B  $f_y = 46,000$  psi



Note:  
All Finish Elevations, Stations, and Azimuths are Approximate Only. They are Based on the Original Contract Drawings Dated February 1957.  
Contractor Shall Verify Elevations, Stations, and Azimuths as Required.

<u>Estimated Quantities</u>		
<u>Item No.</u>	<u>Item</u>	<u>Approx Quantity</u>
206.0100A	Structure Excavation	42 Cy
206.0200A	Structure Backfill	18 Cy
501.0200A	Structural Steel	5,500 lbs
503.1090A	Concrete in Bridge Superstructure Retrofit, including Beam Seats, Bolsters, Catchers, Creep Blocks, and Pedestals	140 Cy
602.0090A	Reinforcing Steel in Bridge Superstructure, including Beam Seats, Bolsters, Catchers, Creep Blocks, and Pedestals	21,700 lbs
653.0100A	Access Opening, Soffit	6
655.0100A	Drilling Holes and Installing Dowel Rebars	1,580
657.0100A	Abutment Concrete Blocking	43 Cy

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**LEGEND:**

- (A) Indicates Abutment Diaphragm Bolster Retrofit  
 (B) Indicates Pedestal Retrofit  
 (C) Indicates Precast Concrete Abutment Blocking

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

### KAULA BRIDGE - PLAN AND LONGITUDINAL SECTION RETROFIT SCHEDULE

## HAWAII BELT ROAD, SEISMIC RETROFIT OF VARIOUS BRIDGES.

VICINITY OF OOKALA  
FEDERAL AID PROJECT NO. PB-019-2(45)

**SCALE:** AS NOTED                      **DATE:** AUGUST 1998

SHEET No. 51 OF 16 SHEETS

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