

REGION	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	HI	HI A-AD 6(7)	S1	S16

1. General:

- (A) The contractor shall verify the location of all utility lines and notify the respective owners before commencing the work of excavation, including any temporary piling or sheeting.
- (B) See specifications for bridge deck concrete finish.
- (C) Construction joints may be relocated or added subject to the approval of the engineer.
- (D) Unless otherwise noted, all exposed concrete edges shall be chamfered 3/4".
- (E) For standard detail drawings refer to typical structural details, except for modifications as may be required for special conditions. For such modifications, refer to the corresponding detailed drawings.
- (F) See also project specifications.
- (G) Design specifications: "A.A.S.H.T.O. L.R.F.D. Bridge design specification", 5th Edition.

2. Loads:

- (A) Dead load: an allowance of 25 psf for future wearing surface has been provided.
- (B) An allowance of 150 plf (at each side of the bridge) has been provided in the design for future utilities
- (C) Live load: HL-93
- (D) Seismic forces:
Peak Ground Acceleration (PGA = 0.582g), modified by the Site Coefficient ($F_{PGA} = 1.00$) to give a spectrum acceleration, $A_s = 0.582g$. Short period acceleration at 0.2 seconds ($S_s = 1.263g$) modified by the Site Coefficient ($F_s = 1.00$) to give the short period spectrum acceleration, $S_{ps} = 1.263g$. Long period acceleration at 1.0 seconds ($S_l = 0.558g$) modified by the Site Coefficient ($F_v = 1.30$) to give the long period spectrum acceleration, $S_{pl} = 0.725g$. Site Class = C. Seismic Zone = 4

3. Materials:

- (A) All concrete shall be in accordance to the specifications.
- (B) All reinforcing steel shall be AASHTO M31, Grade 60, unless otherwise noted.

4. Concrete:

- (A) All concrete shall be structural concrete Class C(AE) with the following minimum 28 day compressive strength.

Element	28 day strength (PSI)
(1) Suspended slab	4000
(2) Beam seat	4000

- (B) Admixtures: (See specifications).

- (1) All concrete shall use corrosion inhibiting admixtures. The corrosion inhibiting admixture shall contain a minimum of 30% calcium nitrate by mass and shall be added at dosage rate of 4.0 gallons per cubic yard of concrete. The admixture shall be rheocrete CNI calcium nitrite-based corrosion inhibitor, DCI S corrosion inhibitor, or an approved equal. Addition of corrosion inhibiting admixture shall be as recommended by manufacturer. Calcium nitrite shall comply with the requirements of AASHTO M 194, Type C (accelerating). Other type of corrosion inhibiting admixtures shall be according to ASTM C 1582.

- (2) Concrete topping, and abutments - use water reducing and retarding admixture (2 hour retardation).

- (3) Other concrete - use of admixtures not specified shall be submitted for review and approval by the engineer.

- (C) The use of any calcium chloride in any concrete is prohibited.

5. Reinforcement:

- (A) The minimum concrete cover measured from the surface of the concrete to the face of any reinforcing bars shall be as follows (typical unless noted otherwise):
- (1) Deck top bars = 2 1/2" Clear
- (2) Deck bottom bars = 1 1/2" Clear
- (3) Formed surfaces exposed to earth and weather = 2" Clear
- (4) Bottom and sides of footing = 3" Clear
- (5) Underpass wall exposed to earth and weather = 2" Clear
- (6) Formed surface not exposed to earth and weather = 1 1/2" Clear

- (B) All dimensions relating to the reinforcing bars (eg. Spacing of bars, etc.,) are to centers of bars unless otherwise noted.
- (C) Reinforcing bars shall be securely tied at all intersections and lap splices except where the spacing of intersections is less than 12 inches in each direction, in which case alternate intersections shall be tied.

- (D) Splices in adjacent bars shall be staggered.

- (E) Minimum lap requirements:

Rebar Size	Minimum lap requirement
#3	1'-6"
#4	2'-0"
#5	2'-6"
#6	3'-0"
#7	4'-0"
#8	5'-0"
#9	6'-0"
#10	7'-6"
#11	9'-6"

- (F) Slab bottom reinforcing shall not be spliced within the middle half of the bridge deck span.

7. Construction Methods:

- (A) See project specifications and special provisions.
- (B) Unless as otherwise noted, all vertical dimensions are measured plumb.

8. Foundation Design Data:

- (A) Active earth pressure = 34 PCF
- (B) At-rest earth pressure = 54 PCF
- (C) Friction angle = 42 Degrees
- (D) Dynamic lateral earth forces (H^2 PLF)
Depending on lateral movement in inches:

Dynamic lateral earth forces (H^2) PLF	Lateral movement (Inches)
30	4.0

- (E) Bearing pressure:
(1) Service limit state = 4000 PSF

Note:

Foundations were designed in accordance with recommendations contained in "Saddle Road West Side project. HI A-AD6 (6) Preliminary recommendations for bridge structure design" and dated August 6, 2010 prepared by Geolabs, Inc. Underpass is above boring no.101,102 and 103.

AS-BUILT DRAWINGS/SPECIFICATIONS

This certifies that the dimensions and details shown on this sheet reflect the dimensions and details and specifications as constructed in the field.

GOODFELLOW BROS., INC.
Contractor's Name:

Signature: *[Signature]* Date: 1/2/14



This work was prepared by me or under my supervision

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

UNDERPASS GENERAL NOTES

APPROVED FOR CONSTRUCTION Expiration Date License 4/30/2014

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								R. GARCIA	N. SARJO	B. HAYASHI	N/A		1 of 16	March 2013	-