FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	72A-01-96M	1996	21	55

GENERAL NOTES

DESIGN SPECIFICATIONS--AASHTO:

AASHTO Standard Specifications for Highway Bridges (15th edition), with subsequent Interim Specification 1992.

Seismic Design Catagory B a=0.17

ALLOWABLE DESIGN STRESSES:

1. Reinforced concrete: $f_c = 0.40\ f'_c$
2. Reinforced steel: $f_s = 24{,}000$ psi for Grade 60

MATERIALS:

1. Reinforced concrete: Class A
2. Reinforced steel: ASTM A 615, Grade 60
3. Admixture in concrete: See Special Provisions
4. All expansion and premolded joint filler shall be incidental to concrete and will not be paid for separately.
5. All structural steel shall be ASTM A 36 hot-dip galvanized after fabrication.
6. All anchor bolts, washers and nuts shall be ASTM A 325, hot-dip galvanized after fabrication, unless noted otherwise.
7. Anchor bolt length shall be such that a snug fit of the elements and full thread engagement plus 1/4" (min.) is attained.

CONSTRUCTION METHODS:

1. Refer to Hawaii Standard Specifications for Road, Bridge and Public Works Construction, 1994 Edition and Special Provisions.
2. Except as noted otherwise, all vertical dimensions are measured plumb.
3. For concrete finish, see Special Provisions.
4. Pneumatic or impacting type of equipment will not be permitted for drilling of holes.
5. For steel reinforcing, stagger all splices where possible.
6. Steel reinforcing shall be supported, bent and placed as per the ACI Detailing Manual, 1994.
7. For cast-in-place concrete, minimum reinforcement cover:
   Concrete cast against earth: 3"
   Retaining wall: 2"
8. At time concrete is placed, reinforcing shall be free from mud, oil, laitance or other coatings adversely affecting bond capacity.
9. Reinforcement, dowels and other embedded items shall be positively secured before pouring.
10. All footings shall bear on firm undisturbed natural soils or properly compacted structural fill.
11. Weepholes, 4 inches in diameter, shall be placed not more than 10 feet on center along walls. A 12 inch minimum thick filter gravel drain shall be placed along the entire length of wall connecting weepholes. Weepholes shall be incidental to concrete in retaining walls.
12. Contraction joints shall be provided for the retaining walls as specified in Standard Plan B-01.

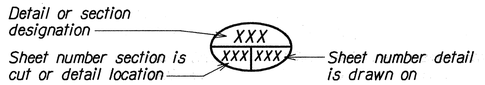
REFERENCE:

1. Refer to Standard Plans for additional details and notes not covered by details and typical drawings.

GENERAL:

1. All items noted incidental will not be paid for separately.
2. The Contractor shall verify the locations of all existing utility lines and notify their respective owners before commencincing with any work.
3. The Contractor shall verify all grades and dimensions in the field before commencing with any work. The control point elevation is for reference only and not the actual elevation.
4. The Contractor shall be solely responsible for the protection of adjacent property, utilities and existing and new structures from damage due to construction. Repairing any damage shall be at the Contractor's own expense, to the satisfaction of the Engineer. He shall conduct his work in such a manner and provide such temporary shoring or other measures as may be necessary to insure the safety of all concerned and to protect existing structures. Particular care shall be given to the area of the existing culvert C.R.M. headwall.
5. Excavation for all footings and footing keys shall be accomplished by maintaining as near a vertical cut as possible.
6. In the event of over-excavation, the space between the footing or footing key and ground shall be filled with a minimum of Class D concrete at the Contractor's expense and as directed by the Engineer.
7. Unless noted otherwise, chamfer all exposed concrete edges three-quarters (3/4) of an inch.
8. The following items connected to or part of the concrete retaining wall shall be incidental to Item 503.1050 "Concrete in Retaining Walls:
   A. W6x9 Spacer Blocks for Thrie Beams
   B. H.S. Anchor Bolts, Nuts, Cap PL and Washers
   C. Double-nested Thrie Beam
   D. Holes in Concrete Wall for Anchor Bolts
   E. All Equipment, Tools, Labor and Additional Materials and Incidentals necessary for the connection of the Guardrail to the Concrete Retaining Wall

SYMBOL:



ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	QUANTITIES
202.0110	Removal of Structures and Obstructions (Existing Wall)	Lump Sum	(6 Cu. Yd.)
206.5000	Structural Excavation for Retaining Walls	Cu. Yd.	57
206.7250	Structural Backfill for Retaining Walls	Cu. Yd.	47
206.8300	Filter Material for Retaining Walls	Cu. Yd.	5
503.1050	Concrete in Retaining Walls	Lump Sum	(25 Cu. Yd.)
602.0050	Reinforcing Steel in Retaining Walls	Lump Sum	(7,250 lbs.)

ORIGINAL PLAN		DATE
	SURVEY PLOTTED BY	
	DRAWN BY KSG	MAY 1996
	TRACED BY	
NOTE BOOK	DESIGNED BY DCO	MAY 1996
	QUANTITIES BY DCO	MAY 1996
No. 0010_1.dgn	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

RETAINING WALL AT STA. 32+10±

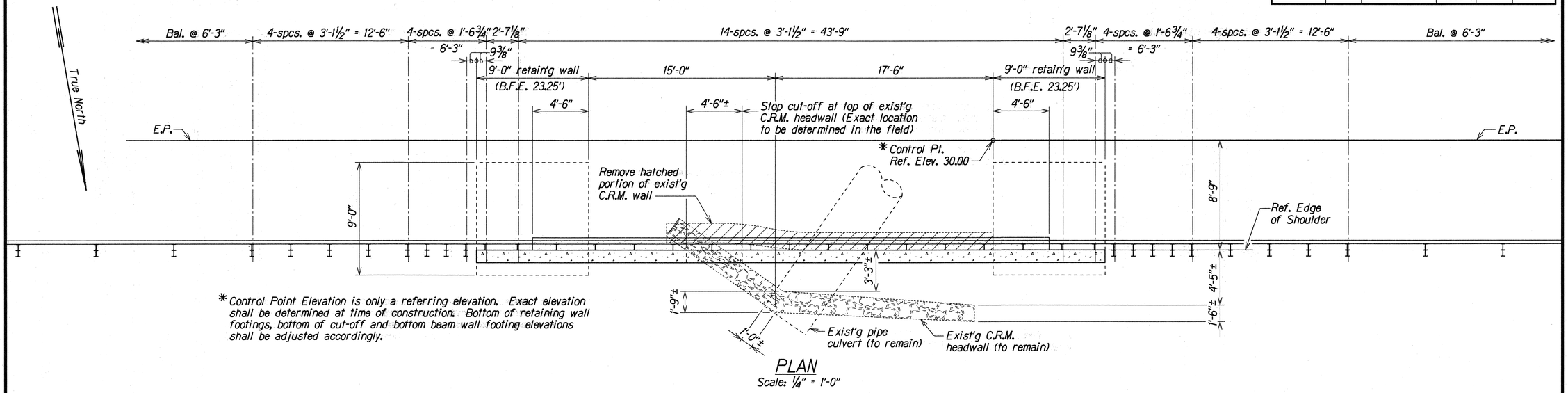
GENERAL NOTES AND ESTIMATED QUANTITITES

KALANIANAOLE HIGHWAY RESURFACING
KAILUA ROAD TO HILU STREET
Project No. 72A-01-96M

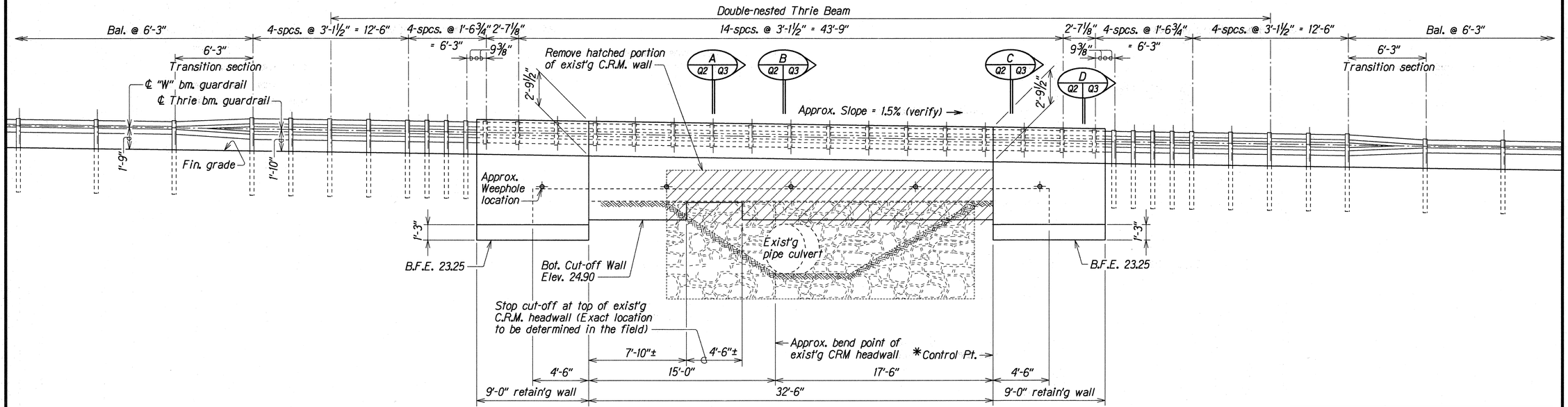
Scale: As Noted Date: May, 1996

SHEET No. 01 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	72A-01-96M	1996	22	55



PLAN
Scale: ¼" = 1'-0"



ELEVATION
Scale: ¼" = 1'-0"

RETAINING WALL AT ℄ STA. 32+10±

ORIGINAL PLAN		DATE
	SURVEY PLOTTED BY	
	DRAWN BY KSG	MAY 1996
	TRACED BY	
NOTE BOOK	DESIGNED BY DDD	MAY 1996
	QUANTITIES BY DDD	MAY 1996
N. Ndo 2.dgn	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

RETAINING WALL AT STA. 32+10±

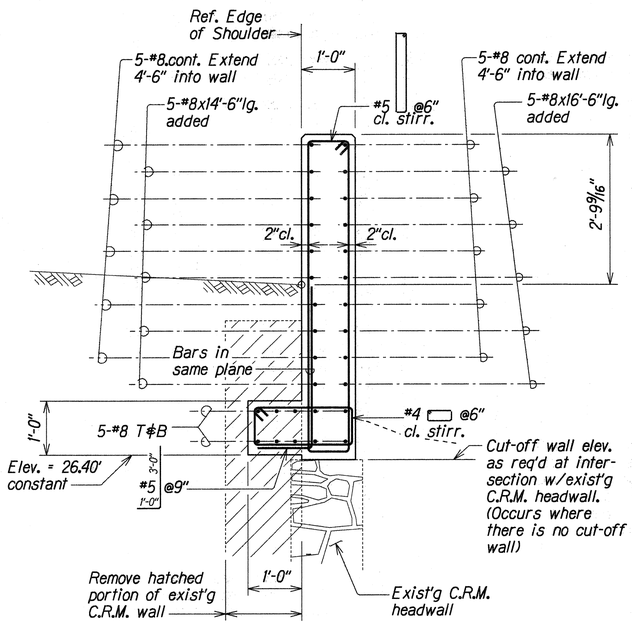
PLAN AND ELEVATION

KALANIANAOLE HIGHWAY RESURFACING
KAILUA ROAD TO HILU STREET
Project No. 72A-01-96M

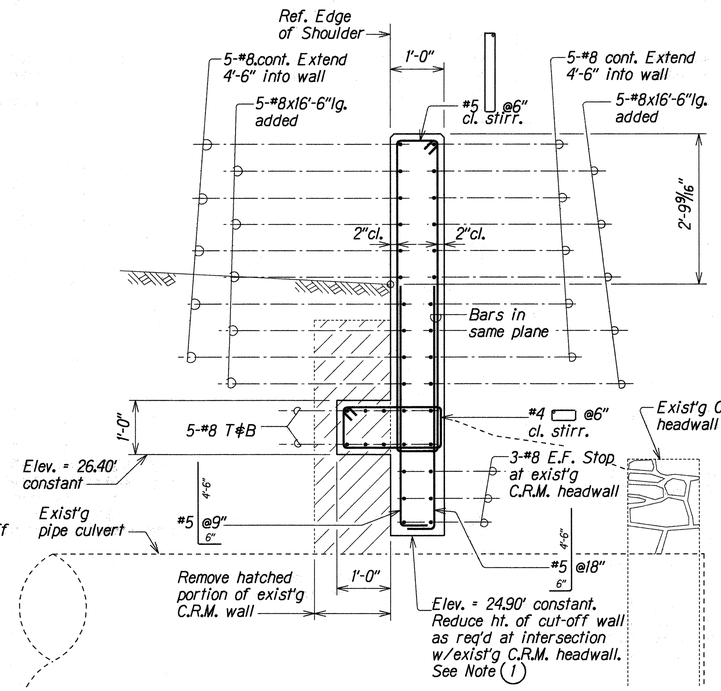
Scale: As Noted — Date: May, 1996

SHEET No. Q2 OF 4 SHEETS

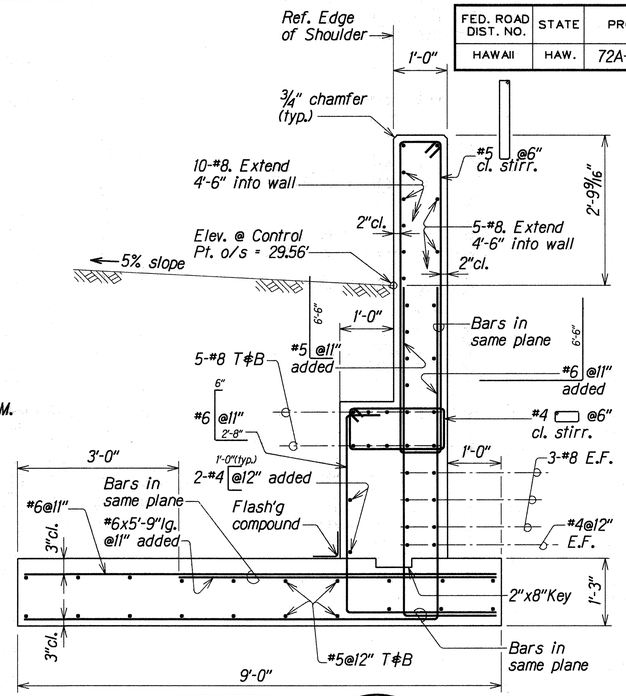
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	72A-01-96M	1996	23	55



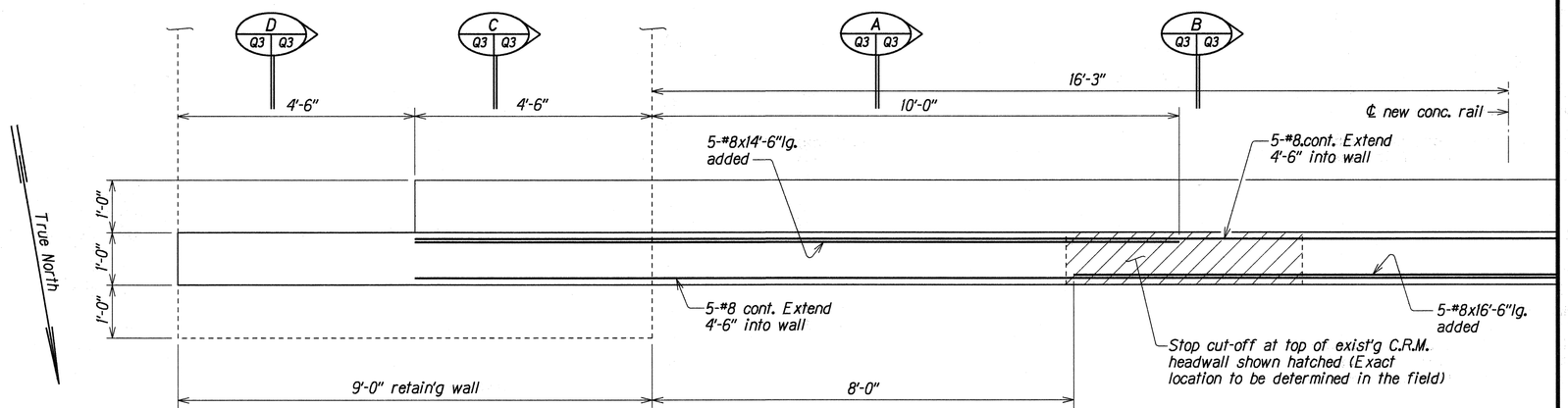
SECTION A
Scale: 3/4" = 1'-0"
Q3 Q3 Q2



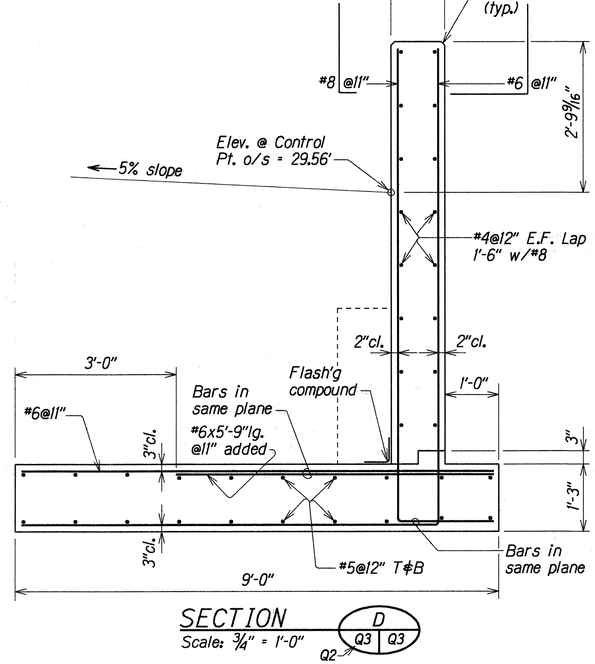
SECTION B
Scale: 3/4" = 1'-0"
Q3 Q3 Q2



SECTION C
Scale: 3/4" = 1'-0"
Q3 Q3 Q2



PARTIAL PLAN
Scale: 3/4" = 1'-0"



SECTION D
Scale: 3/4" = 1'-0"
Q3 Q3 Q2

NOTES:

1. Bottom of Cut-off Wall elevation shall be adjusted if the wall Bottom Footing Elevation (B.F.E.) is closer than six (6) inches from the top of the existing Pipe Culvert. Provide a minimum of six (6) inch clearance.
2. Bearing pressure for both retaining walls = 2.50 K.S.F. (Group I)

ORIGINAL PLAN		DATE
	SURVEY PLOTTED BY	MAY 1996
	DRAWN BY KSG	
	TRACED BY DDD	MAY 1996
NOTE BOOK	DESIGNED BY DDD	MAY 1996
	QUANTITIES BY	
N. 080 3.dgn	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

RETAINING WALL AT STA. 32+10±

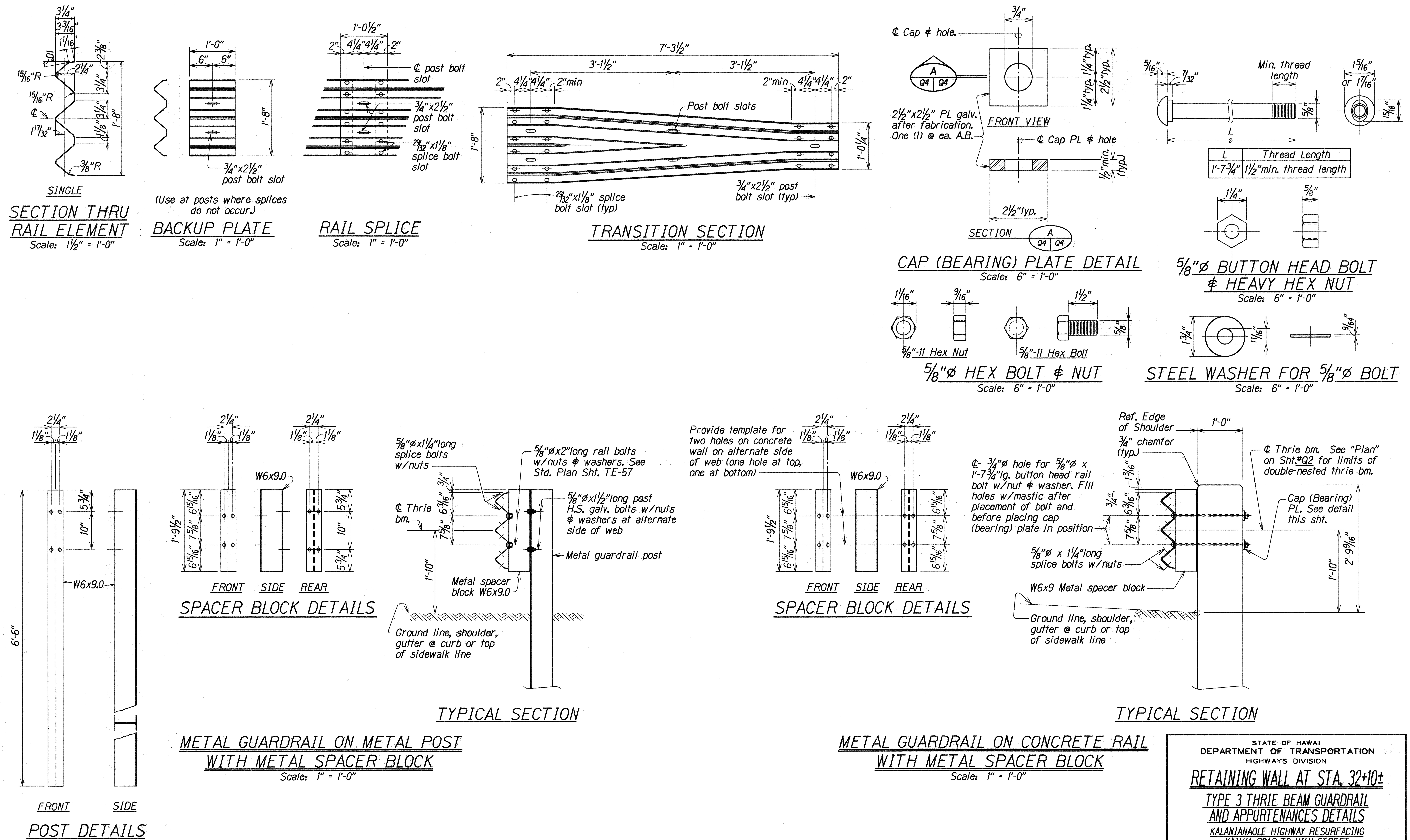
RETAINING WALL SECTIONS

KALANIANAOLE HIGHWAY RESURFACING
KAILUA ROAD TO HILU STREET
Project No. 72A-01-96M

Scale: As Noted — Date: May, 1996

SHEET No. Q3 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	72A-01-96M	1996	24	55



ORIGINAL PLAN		DATE
SURVEY	PLOTTED BY KSG	MAY 1996
DRAWN BY		
TRACED BY		
DESIGNED BY	DCO	MAY 1996
QUANTITIES BY	DCO	MAY 1996
CHECKED BY		
NOTE BOOK No. nolo_4.dgn		

TYPE 3 THRIE BEAM GUARDRAIL AND APPURTENANCES DETAILS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

RETAINING WALL AT STA. 32+10±

TYPE 3 THRIE BEAM GUARDRAIL AND APPURTENANCES DETAILS

KALANIANAOLE HIGHWAY RESURFACING
KAILUA ROAD TO HILU STREET
Project No. 72A-01-96M

Scale: As Noted   Date: May, 1996

SHEET No. Q4 OF 4 SHEETS