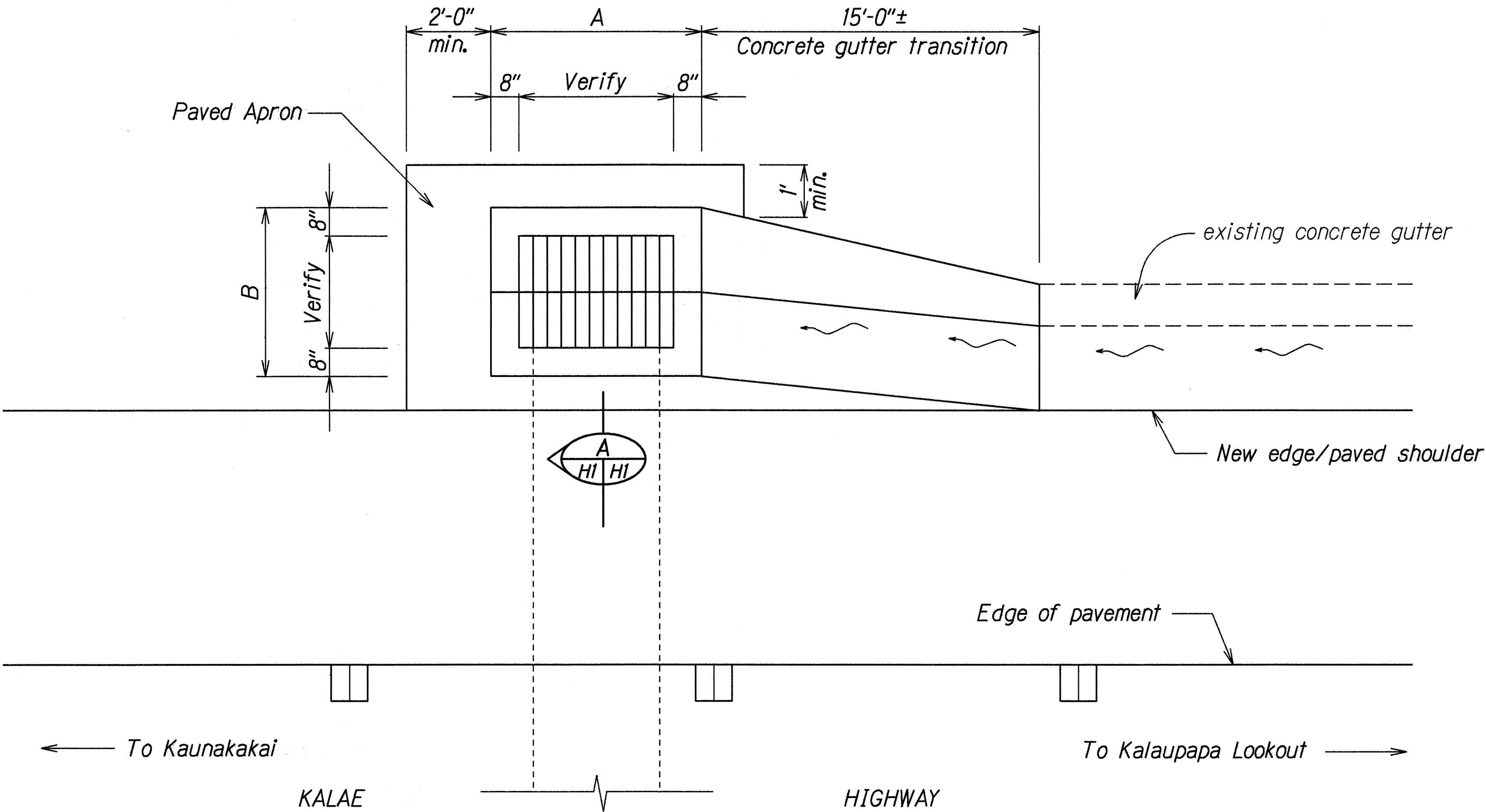


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0470(4)	1997	6	16

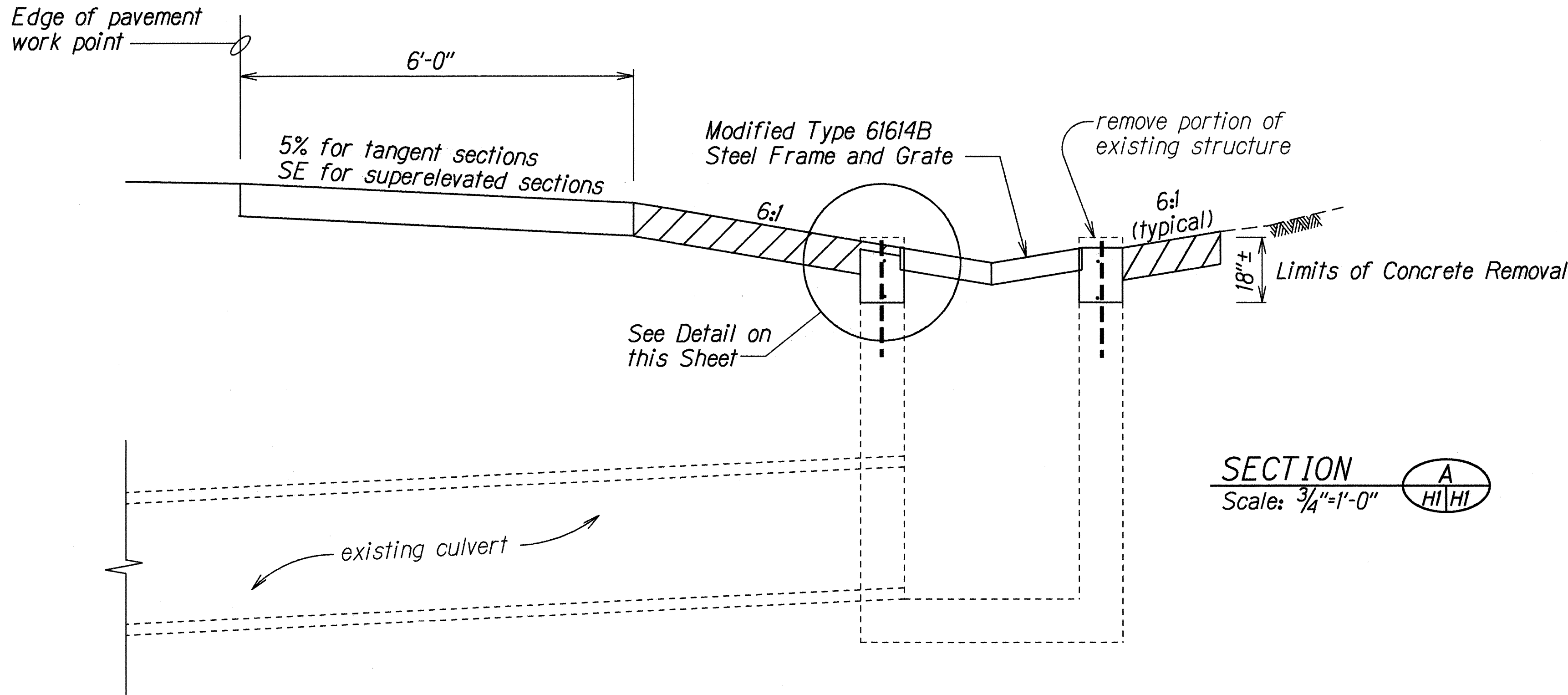
LOCATION	TYPE	SIZE (AxB)
Sta. 21+10 Lt.	Modified Type 61614B	5'x4'
Sta. 44+90 Lt.	Modified Type 61614B	4'x4'
Sta. 51+00 Lt.	Modified Type 61614B	4'x4'

GENERAL NOTES:

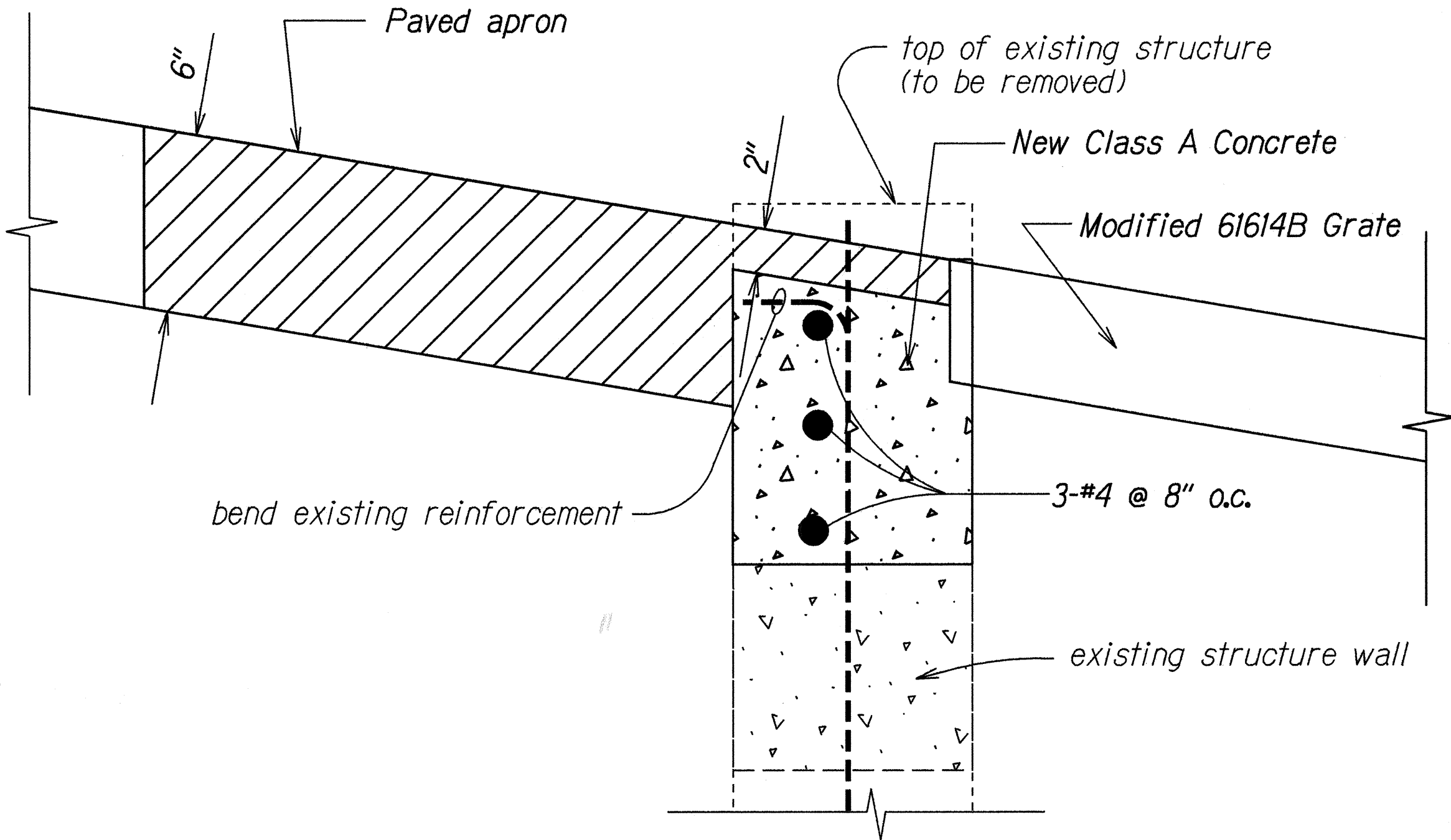
- Contractor shall verify measurement of existing inlet structures.
- Shop drawings for steel frame and grate shall be submitted to Engineer upon verification of field measurement. Fabrication of these frame and grates shall commence only upon receipt of approved Shop drawings. Refer to Standard Plan Sht. H-15 for additional frame and grate details.
- Concrete for modified drainage structure will not be paid for separately but shall be considered incidental to "Modified Type 61614B Steel Frame and Grate" pay item.
- Concrete gutter transition will not be paid for separately but shall be considered incidental to various items.



PLAN  
Scale: 1/2" = 1'-0"



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

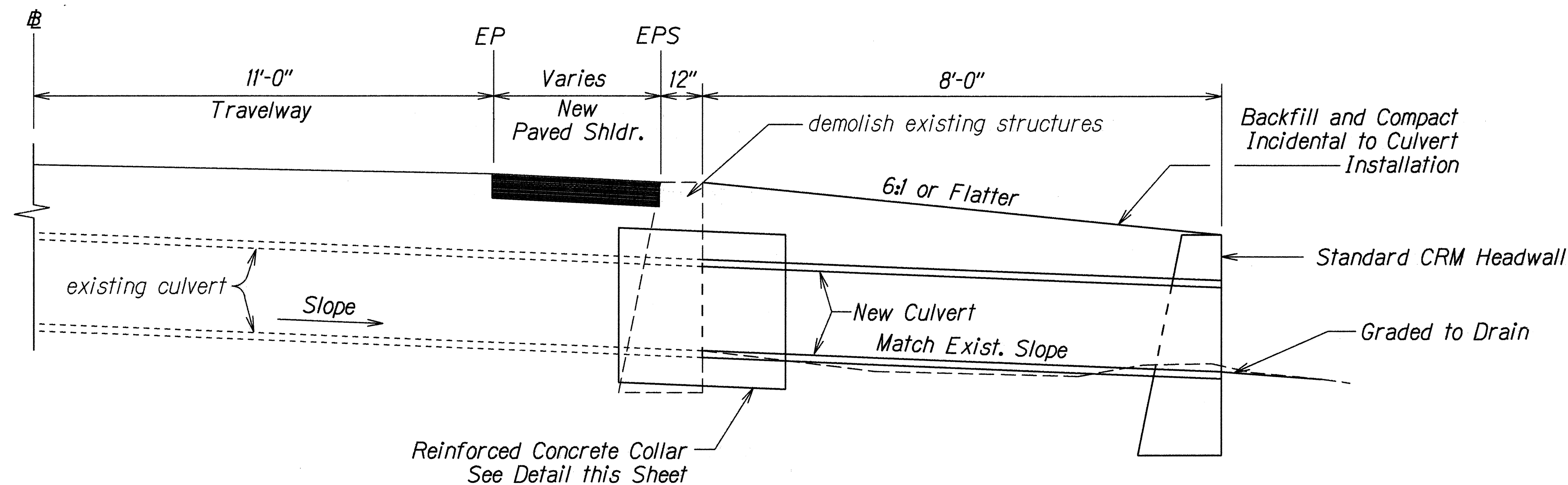


DETAIL  
Scale: 3" = 1'-0"

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

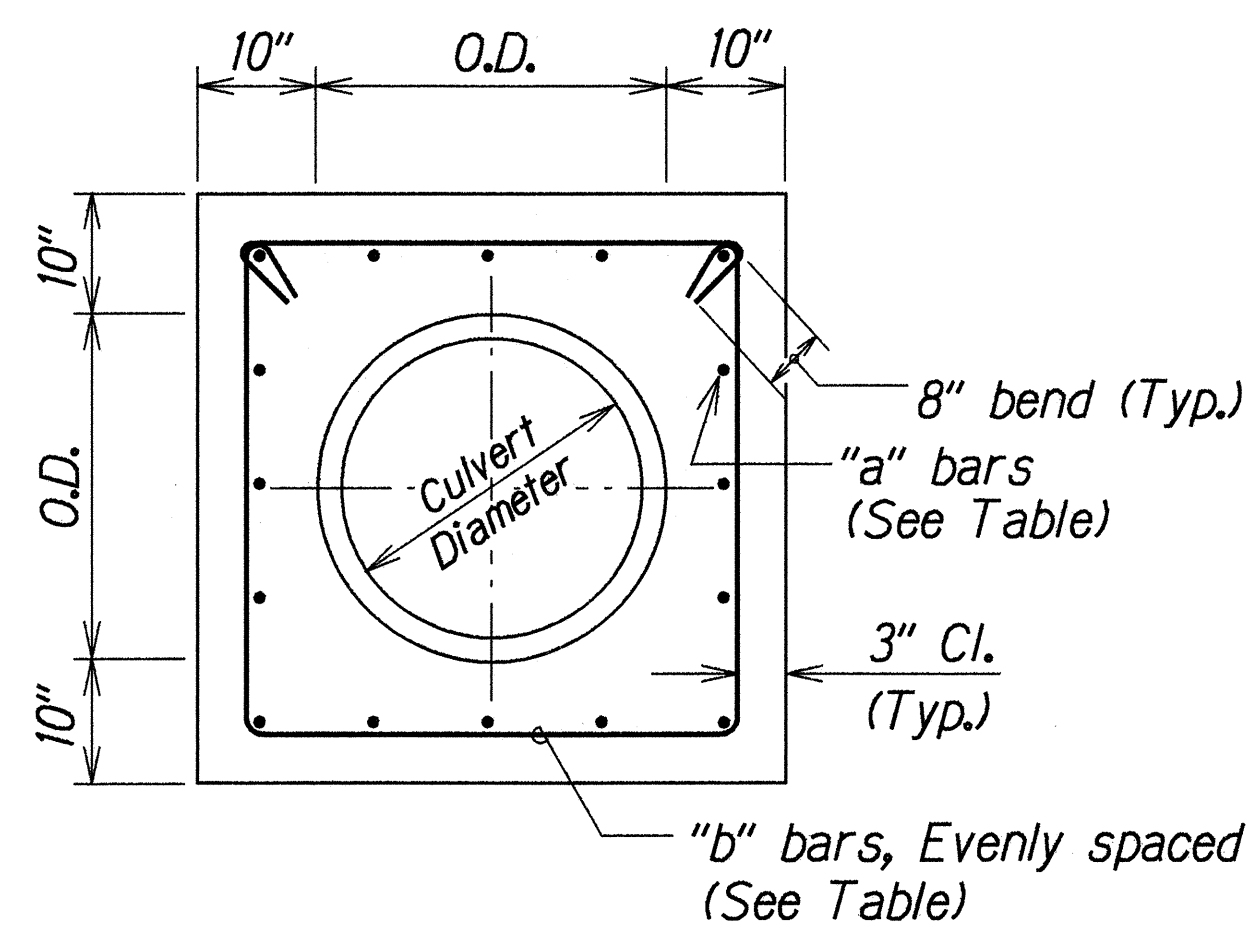
**DRAINAGE DETAILS**  
KALAE HIGHWAY  
GUARDRAIL & SHOULDER IMPROVEMENTS  
Maunaloa Highway to Farrington Avenue  
Fed. Aid Project No. STP-0470(4)  
Scale: As Shown      Date: Sept., 1995  
SHEET No. H1 OF H3 SHEETS

SURVEY PLOTTED BY	DATE
DESIGNED BY	Sept. 1995
NOTED BY	
QUANTITIES BY	
CHECKED BY	

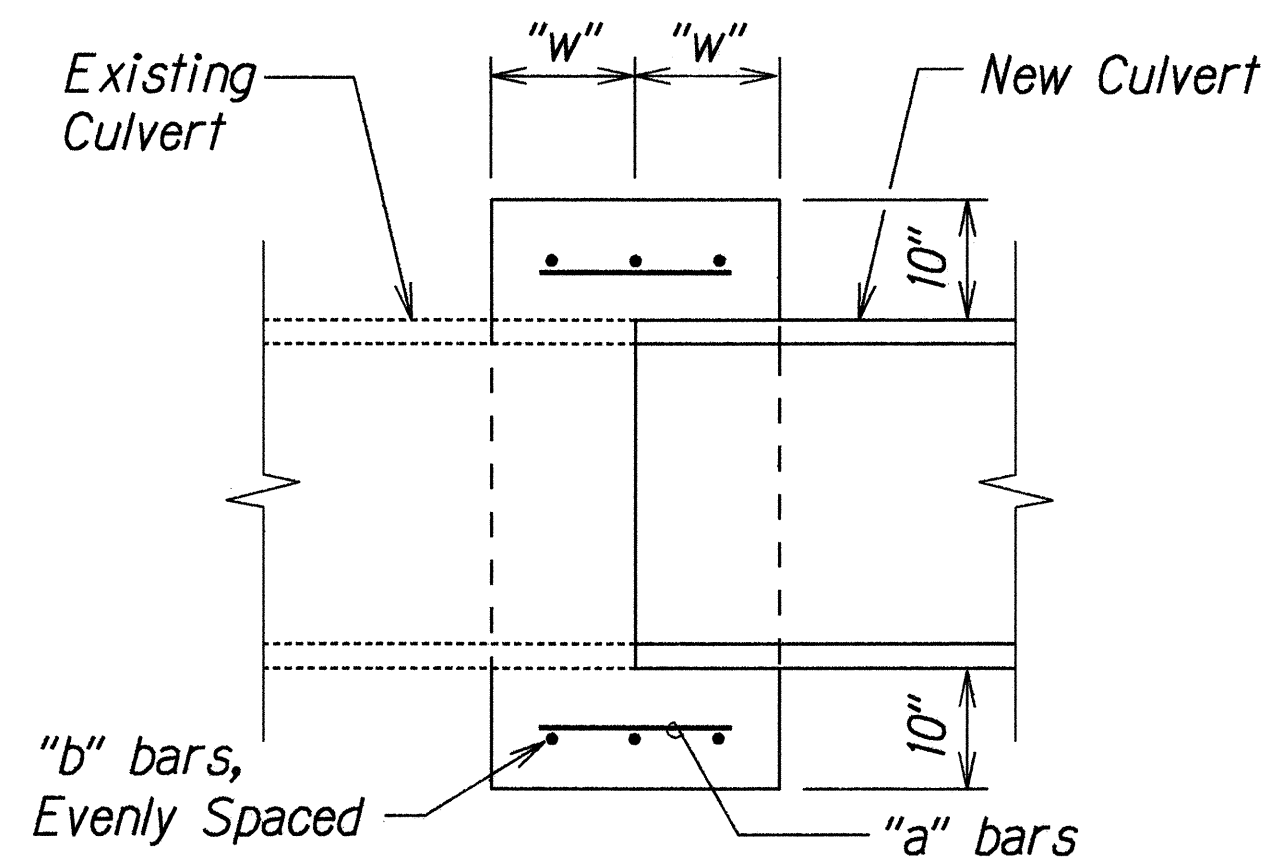


**TYPICAL CULVERT EXTENSION DETAIL**

Scale: 1/2"=1'-0"



**ELEVATION**



**SECTION**

Culvert Diameter	"a" bars	"b" bars	"w"
18" to 30"	#4 @ 9"	3- #4	12"
36" to 48"	#5 @ 9"	4- #4	15"

Note: Reinforcing Steel for Concrete Collar shall conform to the requirements of ASTM 615-Grade 60.

**TYPICAL DETAILS OF REINFORCED CONCRETE COLLAR**

**DRAINAGE NOTES:**

- Existing drainage system will be functional at all times during construction. Contractor is to furnish materials, equipment, labor, tools and incidentals necessary to accomplish maintenance of flow, the cost of which shall be incidental to the various contract items.
- Demolishing and/or removing a portion or the entire existing structure shall not be paid for separately, but shall be considered incidental to the various contract items.
- Culverts within the grated drop inlets shall be cut flush with the inside face of the wall. Above work shall be considered incidental to the various contract items.
- Contractor shall verify the locations of all culverts in the field. Any culvert damaged during construction shall be repaired or replaced by the Contractor at his expense.
- Concrete for grated drop inlets, headwalls and other structures shall be Class "A".
- Inlet and Outlet conditions shall be graded to permit free flow of run-off or as directed by the Engineer. Grading shall be to the satisfaction of the Engineer. Above work shall be considered incidental to the various contract items.
- The Contractor shall provide bedding materials for culvert, Class "C" bedding. Payment for this work will not be paid for separately but will be considered incidental to the appropriate culvert pay items.
- The Contractor's attention is directed to Section 102.05 of the Standard Specifications. It is anticipated that borrow materials will be used to backfill the new drainage structures; culverts, etc. Payment for this work will be considered incidental to various culvert pay items.
- Reinforcing Steel for Concrete Structures will not be paid for separately but shall be considered incidental to various concrete pay items.
- Location and elevations of new structures must be laid out in the field for the Engineer's approval prior to construction of said structures.
- Chamfer all exposed edges 1".
- Quantities are approximate only. Contractor shall conduct an independent survey of worksites to verify and validate pay quantities.
- Reinforced concrete collar will not be paid for separately but shall be considered incidental to installation of culverts.
- Engineer will provide finish grade elevations of drainage structures, i.e. top grate elevations.

DESIGNED BY	DATE
NOTED BY	DATE
CHECKED BY	DATE
ORIGINAL	DATE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**DRAINAGE DETAILS**

KALAE HIGHWAY  
GUARDRAIL & SHOULDER IMPROVEMENTS  
Maunaloa Highway to Farrington Avenue  
Fed. Aid Project No. STP-0470(4)

Scale: As Shown Date: Sept., 1995

SHEET No. H2 OF H3 SHEETS



