

DRAINAGE SUMMARY

PROJECT: HONOAPIILANI HIGHWAY WIDENING, Maalaea Road to North Kihei Road

PROJECT NO.: NH-030-1(28)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2002	11	72

ITEM NO.	206. 206. 206. 503. 503. 602. 602. 603. 603. 603. 603. 603. 603. 604. 604. 604. 604. 604. 604. 604. 612. 612. 656.																										
	UNIT USED																										
BASELINE STATION (From)	BASELINE STATION (To)	2020 C.Y.	7000 C.Y.	8000 C.Y.	1300 C.Y.	1301 C.Y.	0400 LS.	0401 LS.	0010 C.Y.	1010 LF.	1012 LF.	1014 LF.	1024 LF.	2100 EA.	2200 EA.	2300 EA.	5100 EA.	5200 EA.	5210 EA.	5211 EA.	5212 EA.	5220 EA.	5230 EA.	6400 LF.	6410 C.Y.	1000 CY.	
St. (-)15+43± Lt.																2											
St. (-)15+43± Rt.																		1									
St. (-)12+50± o/s 43± Lt.	St. (-)12+50± Lt.	3								1	5						1			1							
St. (-)9+22± o/s 55± Lt.		73	15		5	9	1090	1280	3																	15	
St. (-)8+97± o/s 36' Rt.		59	14		8	6	950	1000	3																		
Maalaea Rd. St. 32+74± o/s 39' Rt.		30			8		500		4			18			1												
St. (-)8+55 o/s 140' Rt.	St. 14+50 o/s 90' Rt.																							2305		140	
St. (-)9+17 o/s 57' Lt.	St. (-)8+00 o/s 45± Lt.	122							25				121														
St. (-)8+00 o/s 45± Lt.	St. (-)6+00 o/s 45± Lt.	197							40				196							1							
St. (-)6+00 o/s 45± Lt.	St. (-)4+05± o/s 39± Lt.	193							38		191										1			1			
St. (-)1+00 Rt.	St. (-)0+20 o/s 27± Lt.	423	125		5	62	1000	9230	257																13		
St. 4+50 Rt.	St. 5+00± o/s 27± Rt.	102							16		79																
St. 5+00± o/s 27± Rt.	St. 5+00± Lt.																				1						
St. 5+00± Lt.	St. 7+00 Lt.	194							39		192										1						
St. 7+00 Lt.	St. 9+10± Lt.	210							42		208										2						
St. 9+10± o/s 27± Rt.	St. 9+10± Rt.	71							11		56											1					
SUBTOTAL		1677	154	0	26	77	3540	11510	479	0	731	18	317	0	1	2	1	1	1	6	1	0	1	2305	28	140	

- DRAINAGE NOTES:**
- Existing drainage systems will be functional at all times during construction. The Contractor is to furnish materials, equipment, labor, tools and incidentals necessary to accomplish maintenance of flow. The cost shall be incidental to the various Contract Items.
 - The Contractor shall verify the locations of all existing culverts and utilities in the field. Any existing culverts and utilities damaged during construction shall be repaired or replaced by the Contractor at his own expense.
 - Only non-pneumatic type of drill as approved by the Engineer be permitted for drilling holes in concrete. Where indicated on Plans, the approximate diameter of drilled holes for installation of dowels shall be 3/4", and voids after installing dowels shall be filled with epoxy grout.
 - Demolishing, removing, and disposing all or portions of existing drainage structures and headwalls shall not be paid for separately, but shall be considered incidental to the various Contract Items.
 - GRP Channel Transitions shall not be paid for separately, but shall be considered incidental to the GRP for Lined Channel.
 - Gutter, Type 2(61614) Transitions shall not be paid for separately, but shall be considered incidental to the Type 2(61614) Gutter.
 - Box Culvert Transitions and connections shall not be paid for separately, but shall be considered incidental to Items 503.1301 and 602.0401.
 - Cutting and plugging existing culverts shall not be paid for separately, but shall be considered incidental to the various contract items.
 - For Typical Details of Gutter, Type 2(61614), see Sht. No. H25.
 - For Typical Details of Earth Ditch and "6121" Swale, see Sht. No. H12.
 - For details of culvert trench and pavement, see Sheet No. H26.
 - For added reinforcing around existing and new culverts at new drainage structures, see Standard Plan H-05.
 - Chamfer all exposed concrete edges 1".

SURVEY PLOTTED BY: _____ DATE: 7/31/95
 DRAWN BY: _____
 CHECKED BY: _____
 ORIGINAL PLAN: _____
 NOTE BOOK: _____
 REVISIONS: _____
 CHECKED BY: _____

DRAINAGE SUMMARY

PROJECT: HONOAPIILANI HIGHWAY WIDENING, Maalaea Road to North Kihei Road
PROJECT NO.: NH-030-1(28)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2002	12	72

ITEM NO.	UNIT USED	206.	206.	206.	503.	503.	602.	602.	603.	603.	603.	603.	603.	603.	603.	604.	604.	604.	604.	604.	604.	604.	604.	604.	604.	612.	612.	656.
		2020	7000	8000	1300	1301	0400	0401	0010	1010	1012	1014	1024	2100	2200	2300	5100	5200	5210	5211	5212	5220	5230	6400	6410	1000		
		C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	LS.	LS.	C.Y.	LF.	LF.	LF.	LF.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	LF.	C.Y.	CY.
BASELINE STATION (From)	BASELINE STATION (To)	Structure Excavation for Drainage Systems	Structure Backfill for Concrete Box Culverts & Drainage Struc.	Filter Material	Concrete in Concrete Inlet and Outlet Structures (Class A)	Concrete in Concrete Box Culverts (Class A)	Reinforcing Steel for Concrete Inlet & Outlet Struc. (14,310 lbs.)	Reinforcing Steel for Concrete Box Culverts (33,110 lbs.)	Bed Course Material for Culverts.	18-Inch ASRP, 1'-0.105" or 18-Inch RCP, Cl. III or 18-Inch HDPP, Type S	18-Inch HDPP, Type S	24-Inch ASRP, 1'-0.105" or 24-Inch RCP, Cl. III or 24-Inch HDPP, Type S	36-Inch RCP, Cl. III	29"x18" Corrugated Aluminum Pipe Arch	Type "1" Reinf. Conc. Collar	Type "2" Reinf. Conc. Collar	Type "61614P" Grate	Type "A" SDMH, 4.00 ft. to 4.99 ft.	Type "A" SDMH, 6.00 ft. to 6.99 ft.	Type 61614P GDI, 3.00 ft. to 3.99 ft.	Type 61614P GDI, 4.00 ft. to 4.99 ft.	Type 61614P GDI, 5.00 ft. to 5.99 ft.	Modified Type 61614P GDI, 5.00 ft. to 5.99 ft.	Special Type 61614P GDI, 4.00 ft. to 4.99 ft.	Grouted Rubble Paving for Lined Channel	Grouted Rubble Paving for Inlet and Outlet Structures	Dumped Riprap	
# Sta. 13+71± Rt.	# Sta. 14+32 o/s 24' Lt.	410	310	25	74	150	10400	21600	41																		16	
# Sta. 14+18± o/s 27± Rt.	# Sta. 14+11± o/s 24± Rt.	2							1	5	1											1						
# Sta. 14+57± o/s 27' Lt.	# Sta. 16+00 Lt.	140							28	139																		
# Sta. 16+00 Lt.	# Sta. 18+00 Lt.	199							40	197										1								
# Sta. 18+00 Lt.	# Sta. 20+15± Lt.	214							43	212											2							
N.B. # Sta. 2+70± o/s 22± Rt.	N.B. # Sta. 2+70± o/s 85' Rt.	33			5		370		5	24				1						1								
SUBTOTAL		998	310	25	79	150	10770	21600	158	5	573	0	0	1	0	0	0	0	0	4	0	1	0	0	0	16	0	
TOTAL		2675	464	25	105	227	14310	33110	637	5	1304	18	317	1	1	2	1	1	1	10	1	1	1	1	2305	44	140	

SURVEY PLOTTED BY: _____ DATE: 1/31/95
 DRAWN BY: _____
 TRACED BY: _____
 CHECKED BY: _____
 ORIGINAL PLAN: _____
 NOTE BOOK: _____
 REVISIONS: _____
 CHECKED BY: _____

DRAINAGE SUMMARY

PROJECT: HONOAPIILANI HIGHWAY WIDENING, Maalaea Road to North Kihei Road
PROJECT NO.: NH-030-1(28)

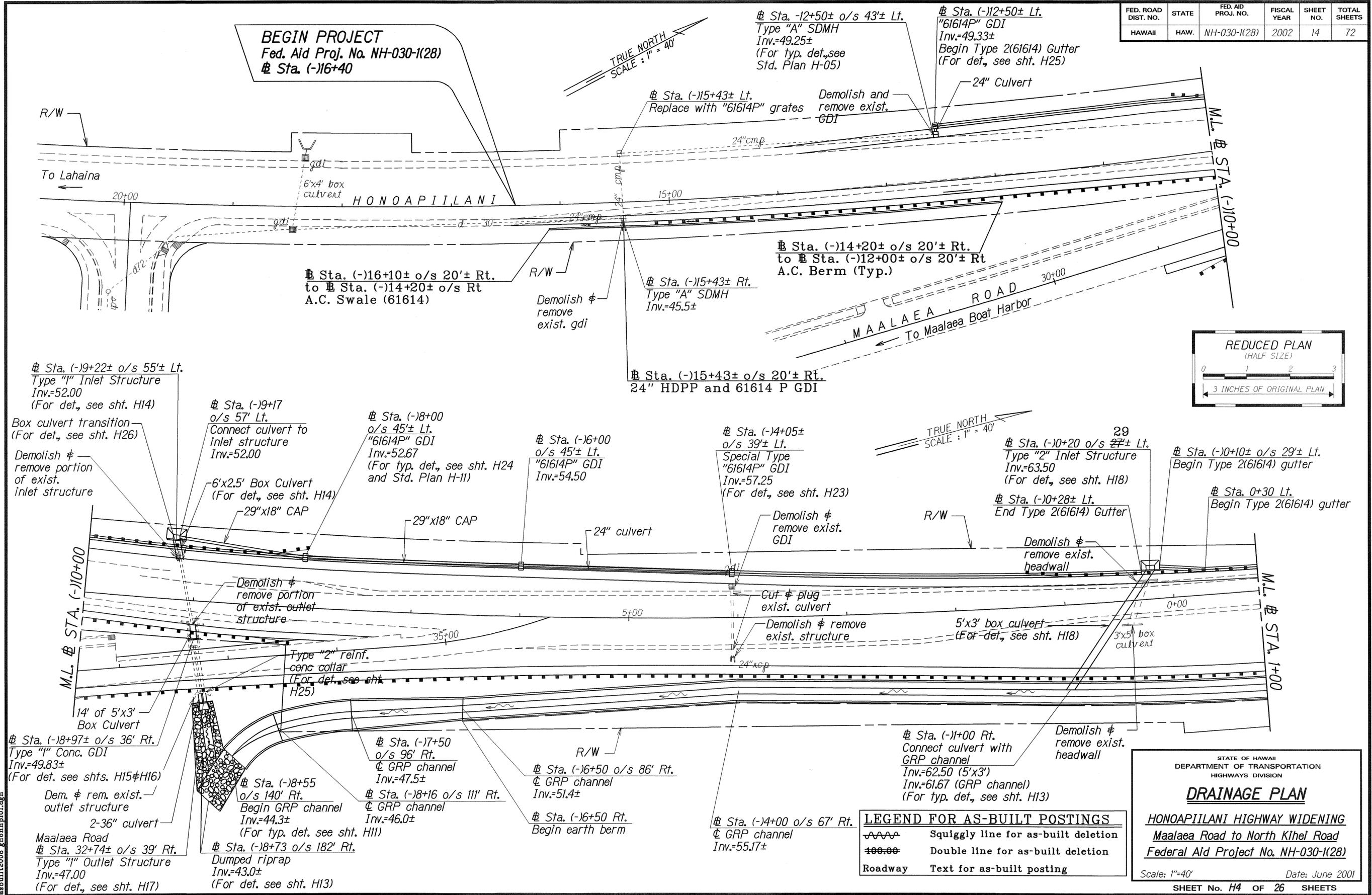
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2002	13	72

DRAINAGE SUMMARY OF GUTTER, TYPE 2(61614)		
ITEM NO.		609.
UNIT USED		2200
BASELINE STATION (From)	BASELINE STATION (To)	LF.
⊕ Sta. (-)12+50± Lt.	⊕ Sta. (-)0+28± Lt.	1222
⊕ Sta. (-)0+10± o/s 29± Lt.	⊕ Sta. 0+30 Lt.	42
⊕ Sta. 0+30 Lt.	⊕ Sta. 14+22± Lt.	1392
⊕ Sta. 14+64± o/s 30' Lt.	⊕ Sta. 16+00 Lt.	127
⊕ Sta. 16+00 Lt.	⊕ Sta. 25+89 Lt.	989
TOTAL		3772

DRAINAGE SUMMARY OF EARTH AND TYPE (6121) SWALE AND EARTH BERM				
UNIT USED		LF.	LF.	LF.
BASELINE STATION (From)	BASELINE STATION (To)	Earth Swale	Swale, Type 6121	Earth Berm
⊕ Sta. (-)6+50 Rt.	N.B. ⊕ Sta. 7+00 Rt.			3939
⊕ Sta. 14+50 o/s 90' Rt.	N.B. ⊕ Sta. 7+00 o/s 76' Rt.	1237		
⊕ Sta. 19+00± o/s 86' Rt.	⊕ Sta. 25+00± o/s 86' Rt.		600	
TOTAL		1237	600	3939

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
DRAWN BY	TRACED BY	CHECKED BY
NOTE BOOK	REVISIONS BY	DATE
BY	DATE	DATE

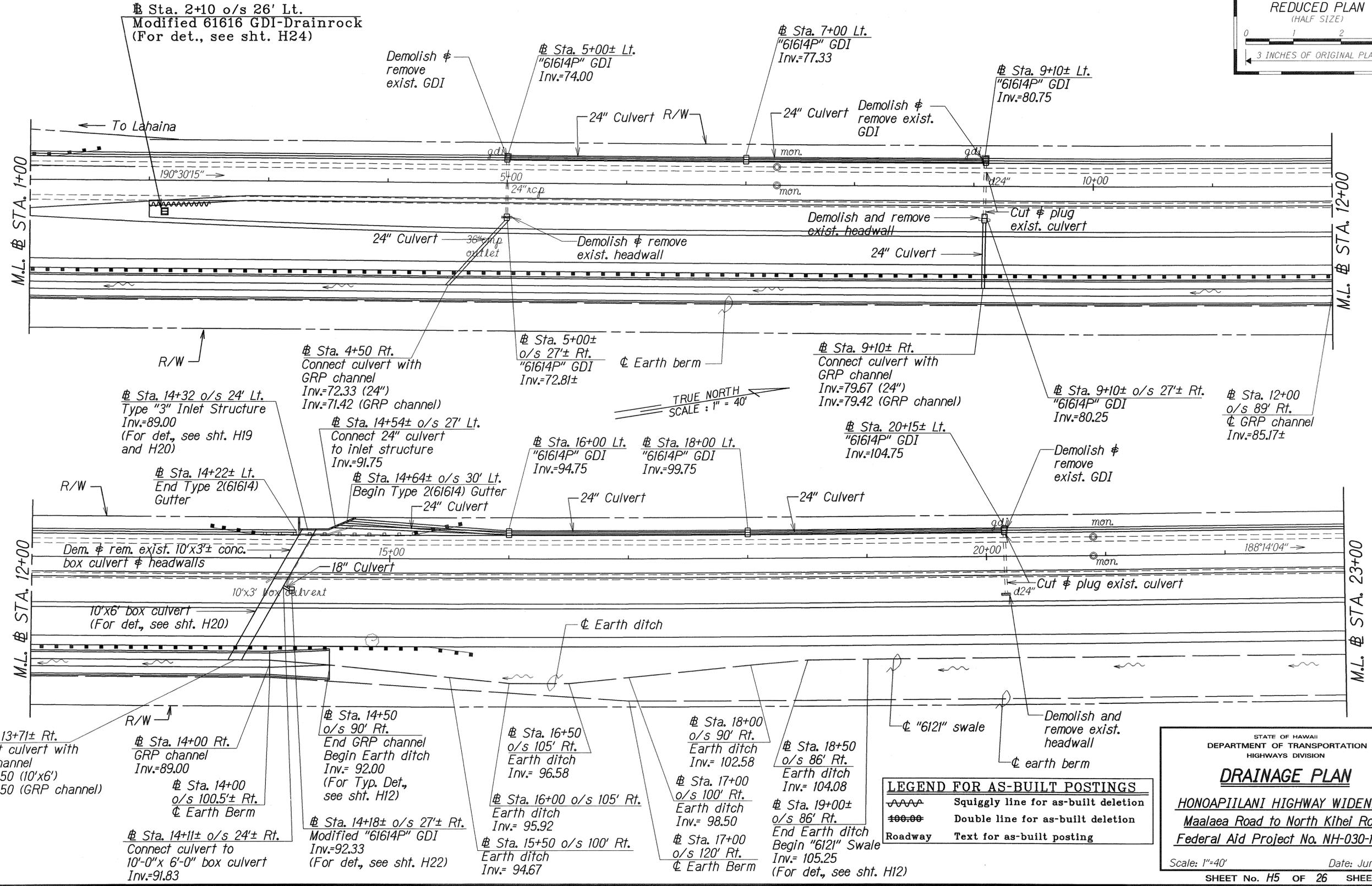
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2002	14	72



SURVEY PLOTTED BY: DATE: 11/29/00
 PLAN DRAWN BY: A. MAALAE
 TRACED BY: A. MAALAE
 NOTE BOOK DESIGNED BY: C. MAALAE
 CHECKED BY: A. MAALAE
 DESIGNED BY: A. MAALAE
 ASBUILT2008_gbonhpi01.dgn

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-K(28)	2002	15	72

TRUE NORTH
SCALE: 1" = 40'



ORIGINAL PLAN
DATE: 11/21/98
DESIGNED BY: A. M. M. M.
CHECKED BY: C. M. M. M.
AS-BUILT 2008 ghonhpi02.dgn

LEGEND FOR AS-BUILT POSTINGS

	Squiggly line for as-built deletion
	Double line for as-built deletion
	Text for as-built posting

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

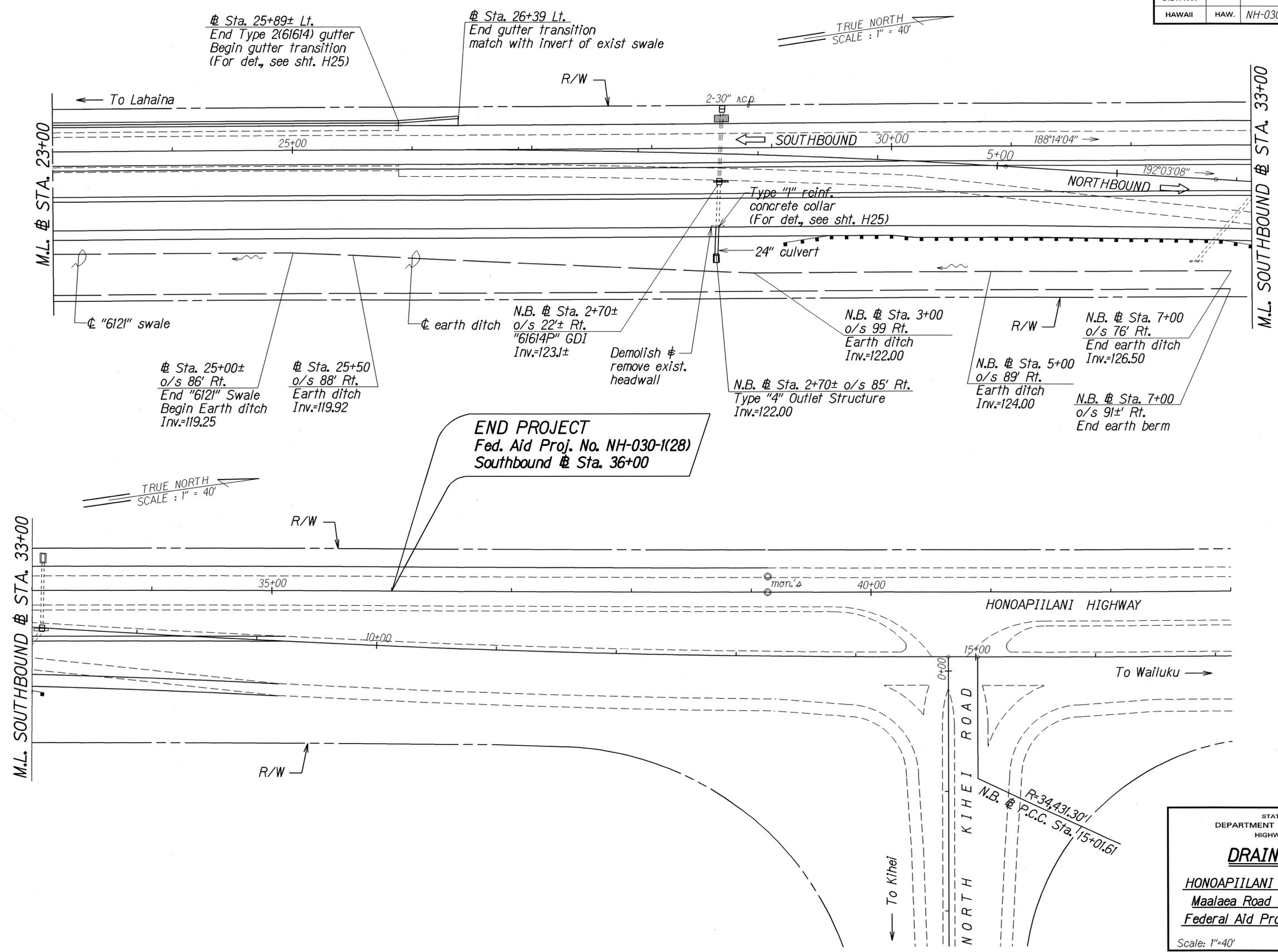
DRAINAGE PLAN

HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
Federal Aid Project No. NH-030-K(28)

Scale: 1"=40' Date: June 2001
SHEET No. H5 OF 26 SHEETS

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2002	16	72



END PROJECT
 Fed. Aid Proj. No. NH-030-1(28)
 Southbound # Sta. 36+00

DATE	2/10/03
SURVEY PLOTTED BY	J. Mahanani
DRAWN BY	J. Mahanani
DESIGNED BY	C. P. P. P.
CHECKED BY	C. P. P. P.

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

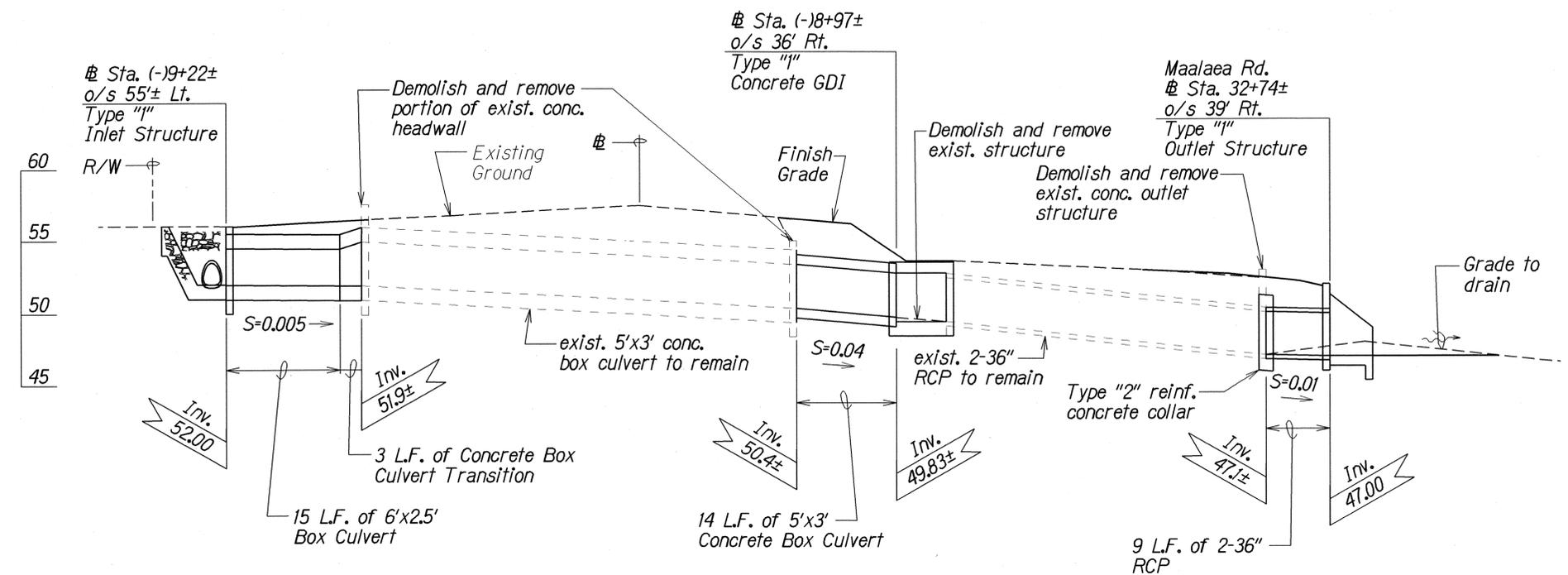
DRAINAGE PLAN

HONOAPIILANI HIGHWAY WIDENING
 Maalaea Road to North Kihel Road
 Federal Aid Project No. NH-030-1(28)

Scale: 1"=40' Date: June 2001

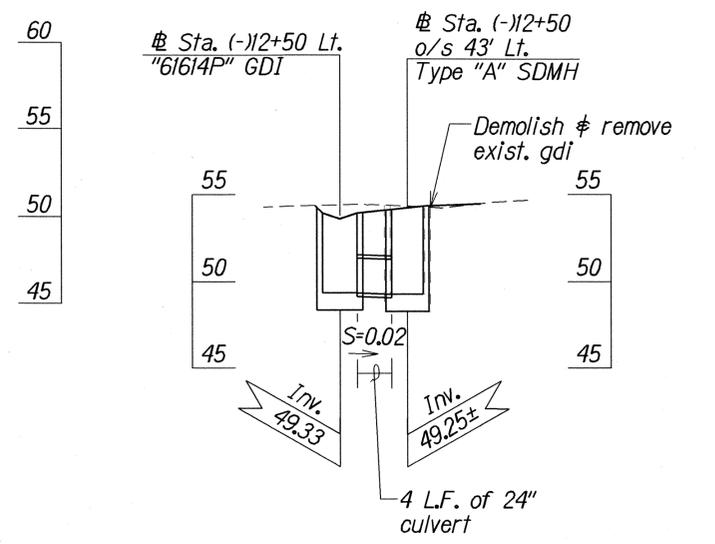
SHEET No. H6 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2002	17	72



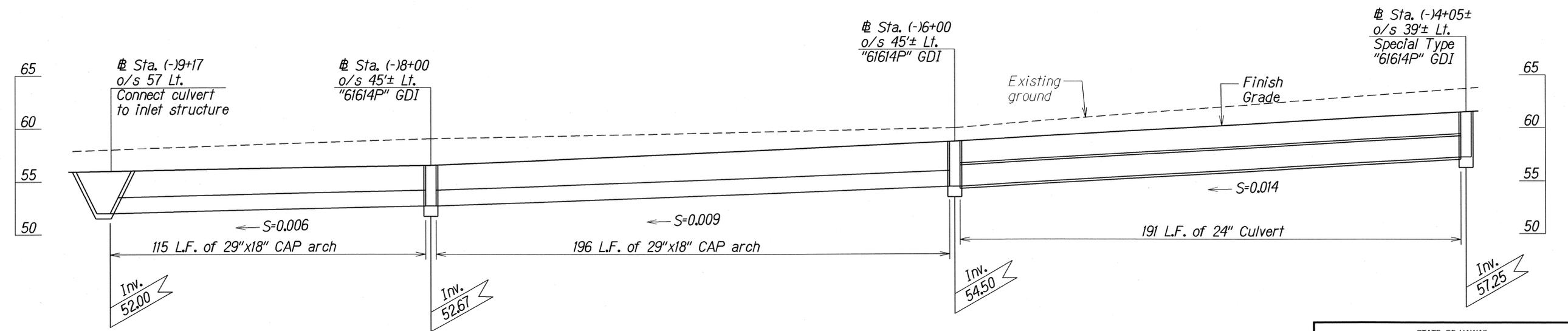
PROFILE-HONOAPIILANI HIGHWAY # STA. (-)9+22± O/S 55'± LT. TO MAALAEA RD # STA. 32+74± O/S 39' RT.

Scale: Horiz. 1"=10'
Vert. 1"=5'



PROFILE-HONOAPIILANI HIGHWAY # STA. (-)12+50 LT. TO (-)12+50 O/S 43' LT.

Scale: Horiz. 1"=10'
Vert. 1"=5'



PROFILE-HONOAPIILANI HIGHWAY # STA. (-)4+05± O/S 39± LT. TO # STA. (-)9+17 O/S 57' LT.

Scale: Horiz. 1"=20'
Vert. 1"=5'

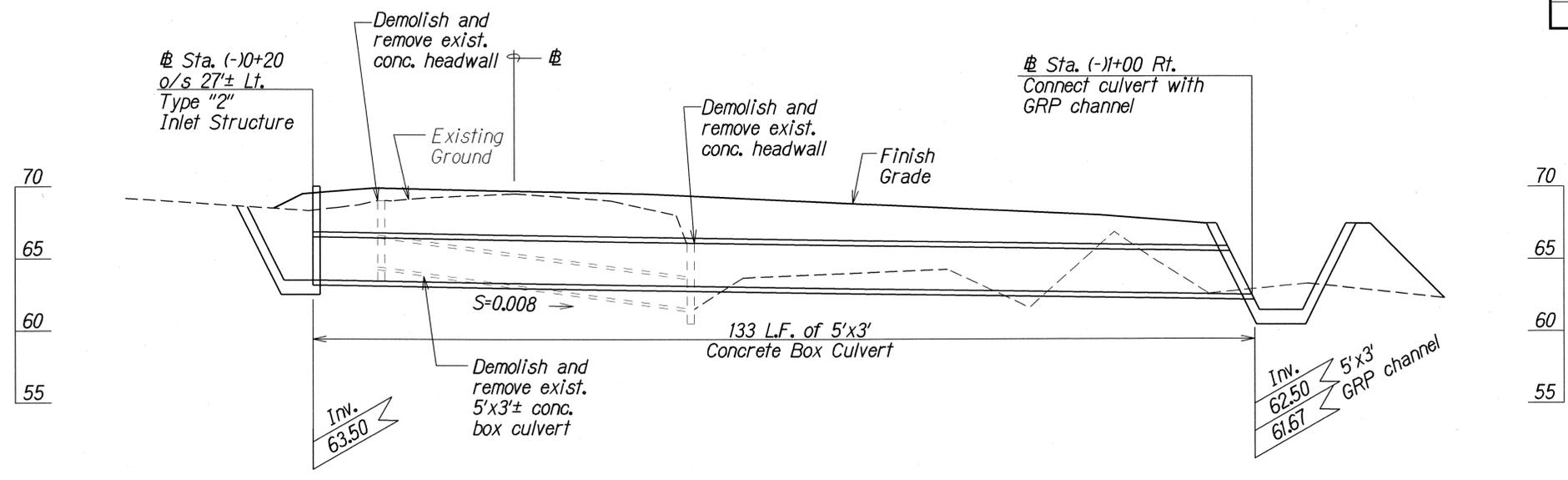
DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
TRACED BY	_____
DESIGNED BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
PROJECT NO.	_____
DATE	_____

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PROFILE
HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
Federal Aid Project No. NH-030-1(28)

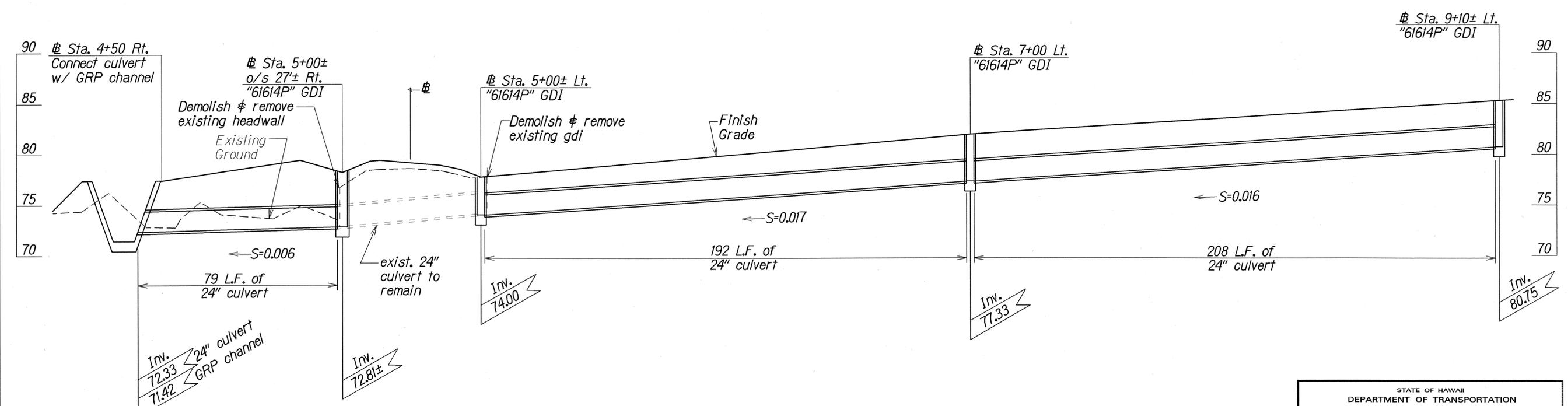
Scale: As Shown Date: June 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2002	18	72



PROFILE-HONOAPIILANI HIGHWAY # STA. (-)0+20 O/S 27'± LT. TO # STA. (-)1+00 RT.

Scale: Horiz. 1"=10'
Vert. 1"=5'



PROFILE-HONOAPIILANI HIGHWAY # STA. 9+10± LT. TO # STA. 4+50 RT.

Scale: Horiz. 1"=20'
Vert. 1"=5'

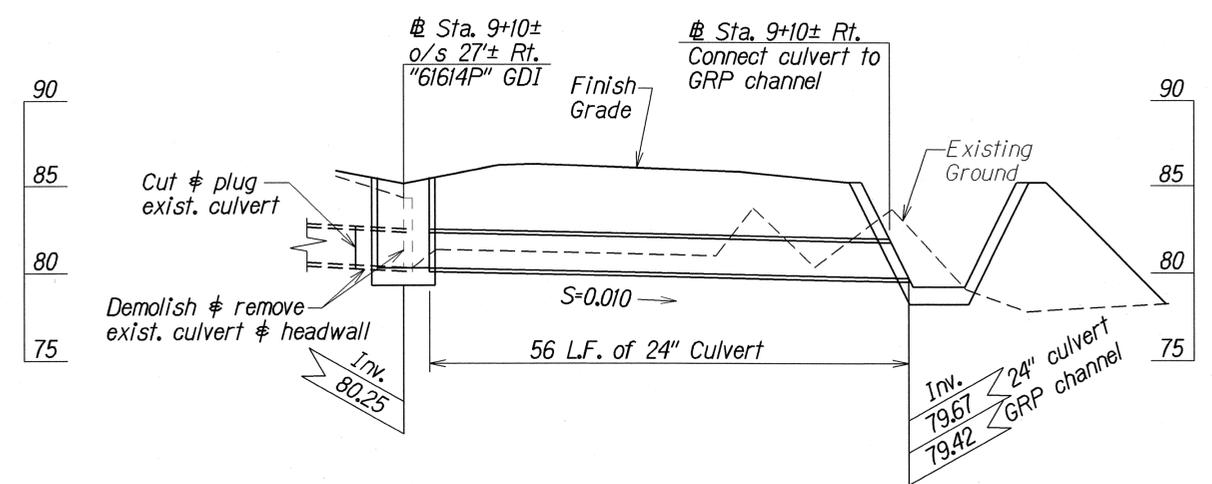
SURVEY PLOTTED BY _____ DATE _____
 DRAWN BY _____
 CHECKED BY _____
 ORIGINAL PLAN _____
 NOTE BOOK _____
 REVISIONS BY _____
 CHECKED BY _____

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

DRAINAGE PROFILE
HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
Federal Aid Project No. NH-030-1(28)

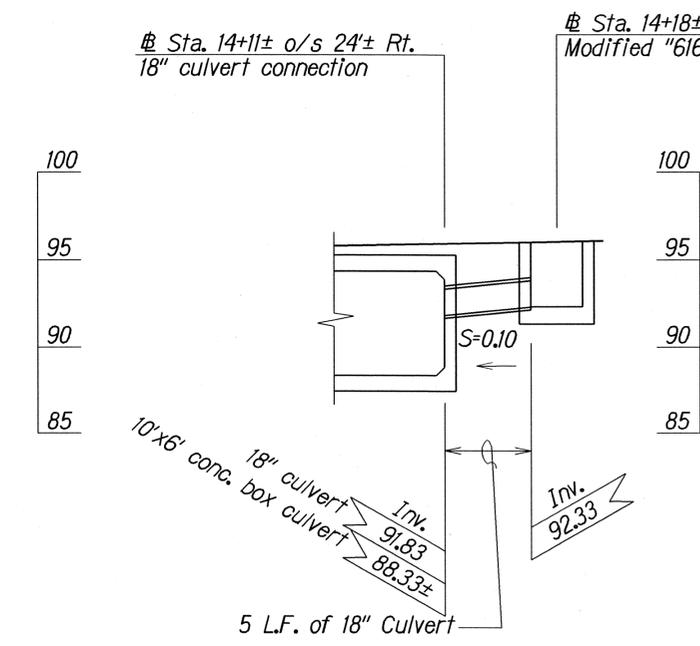
Scale: As Shown Date: June 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2002	19	72



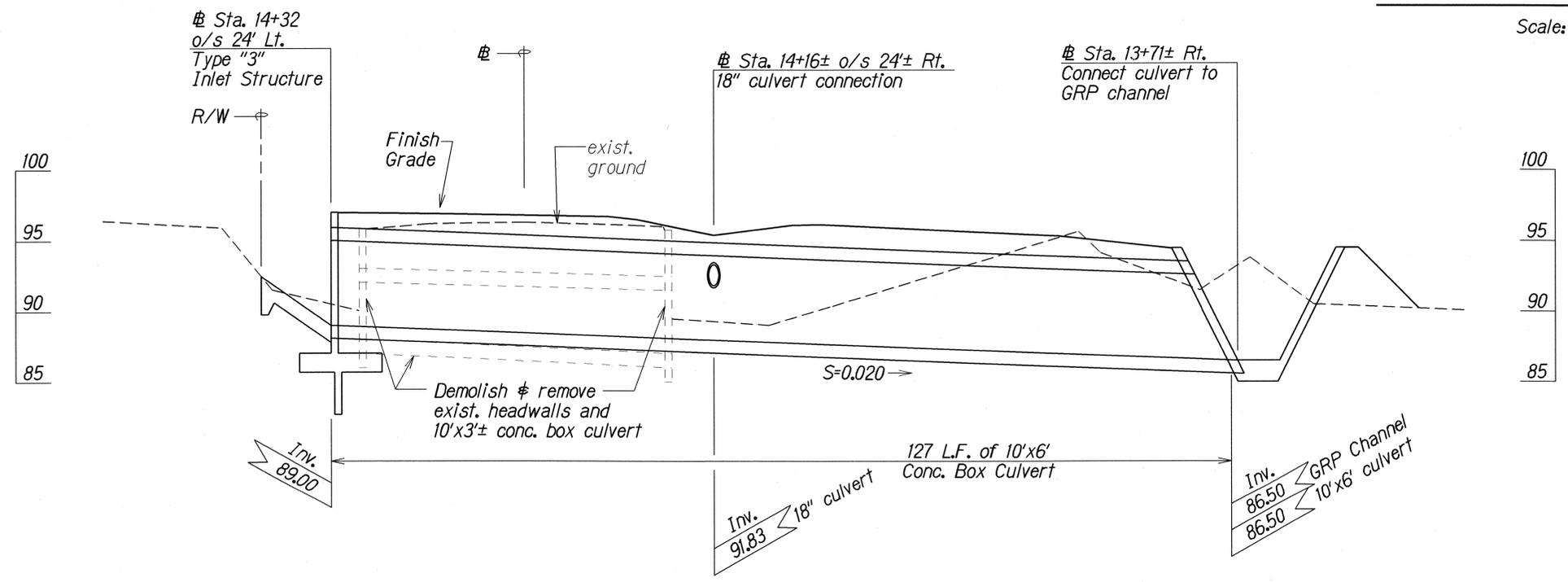
**PROFILE-HONOAPIILANI HIGHWAY @ STA. 9+10± O/S 27± RT.
TO @ STA. 9+10± RT.**

Scale: Horiz. 1"=10'
Vert. 1"=5'



**PROFILE-HONOAPIILANI HIGHWAY @ STA. 14+11± O/S 24± RT.
TO @ STA. 14+18± O/S 27± RT.**

Scale: Horiz. 1"=5'
Vert. 1"=5'



PROFILE-HONOAPIILANI HIGHWAY @ STA. 14+32 O/S 24' LT. TO @ STA. 13+71± RT.

Scale: Horiz. 1"=10'
Vert. 1"=5'

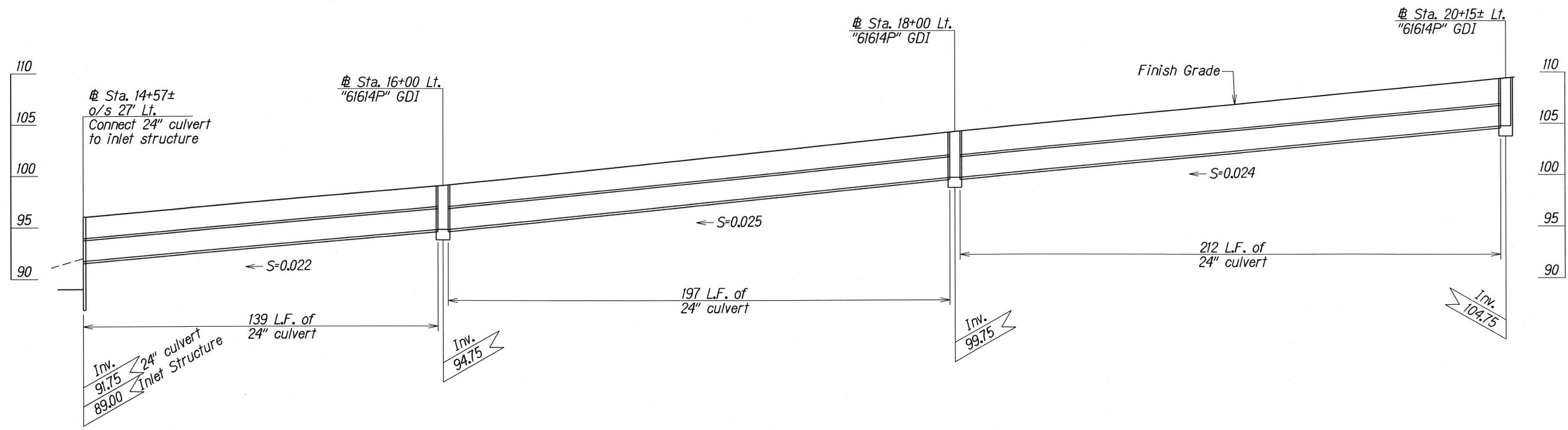
DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
NOTE BOOK	_____
REVISIONS BY	_____
CHECKED BY	_____

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PROFILE
HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
Federal Aid Project No. NH-030-1(28)

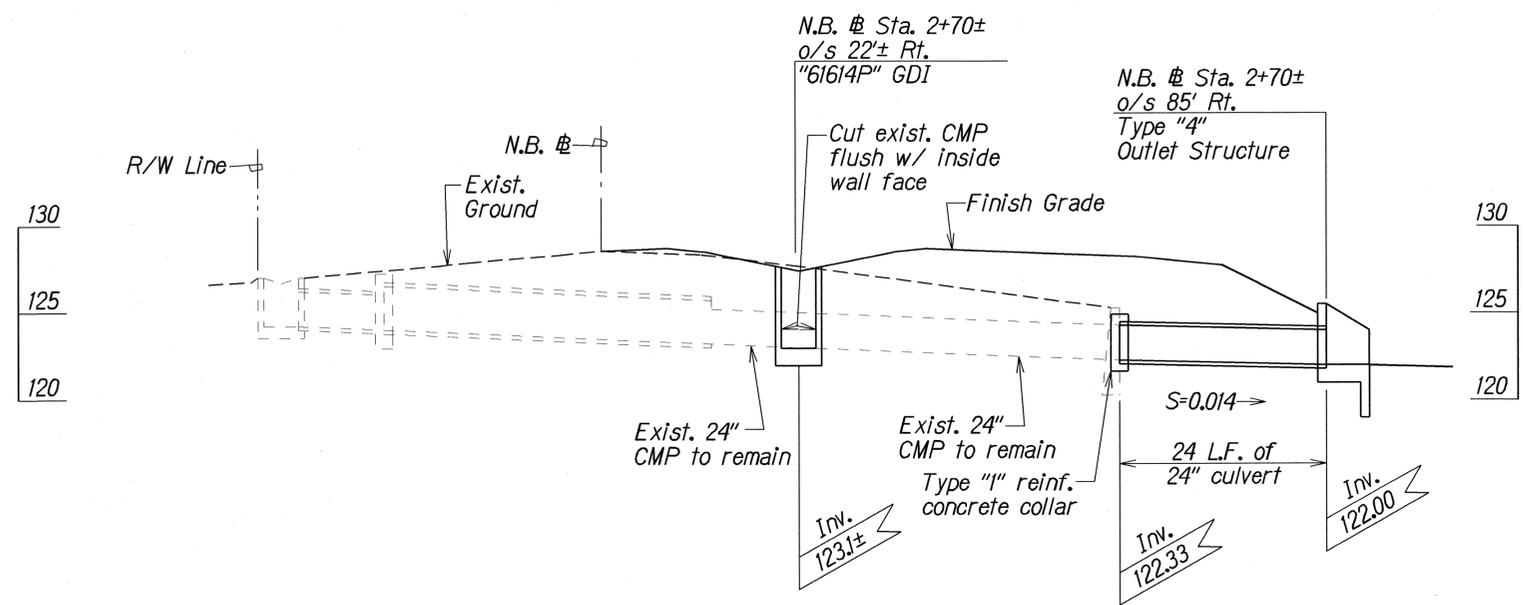
Scale: As Shown Date: June 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2002	20	72



PROFILE- HONOAPIILANI HIGHWAY @ STA. 14+57± O/S 27' LT. TO @ STA. 20+15± LT.

Scale: Horiz. 1"=20'
Vert. 1"=5'



PROFILE- HONOAPIILANI HIGHWAY N.B. @ STA. 2+70± O/S 22± RT. TO @ STA. 2+70± O/S 85' RT.

Scale: Horiz. 1"=10'
Vert. 1"=5'

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
NOTE BOOK	
REVISIONS BY	
CHECKED BY	

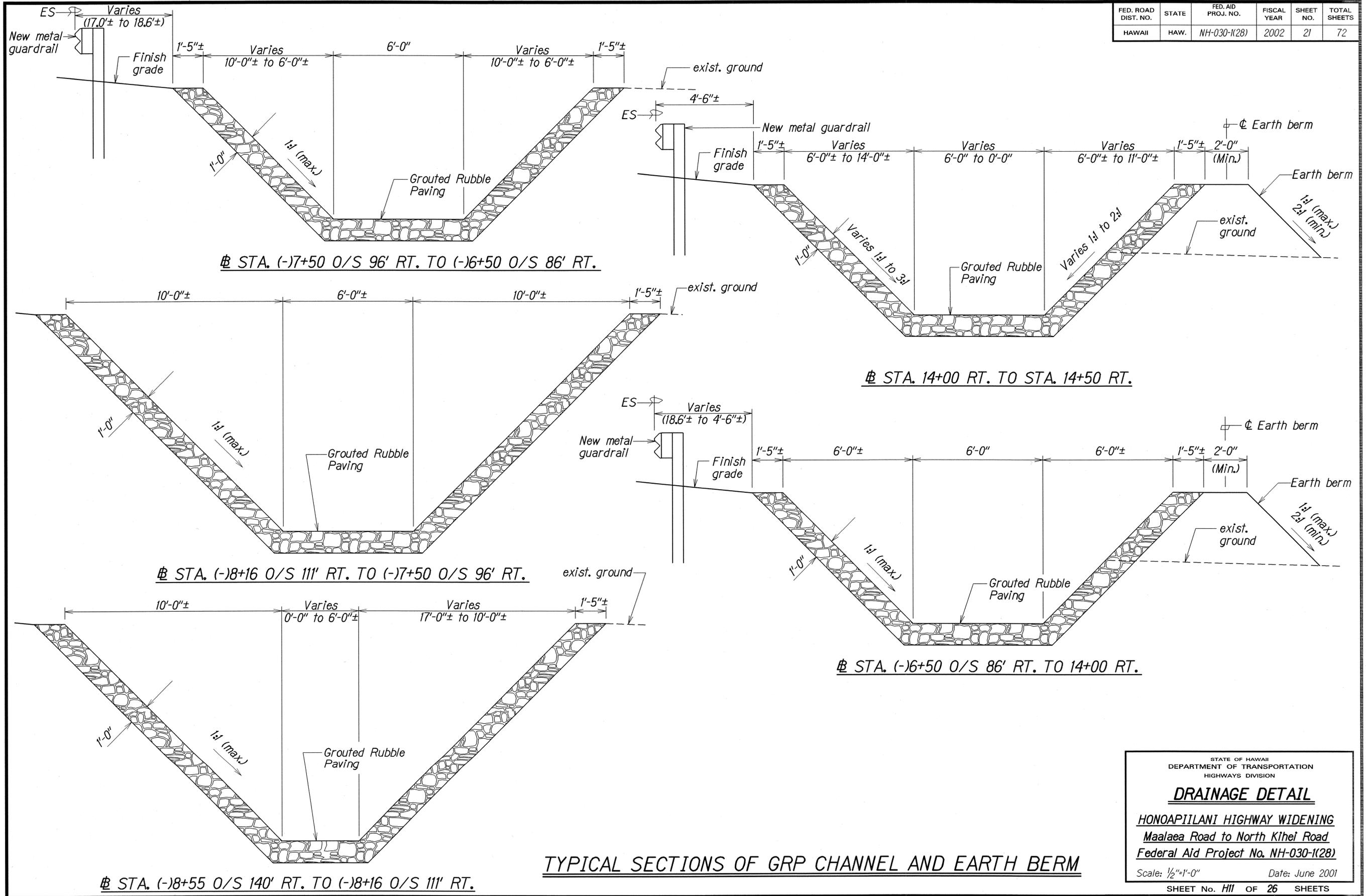
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PROFILE
HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
Federal Aid Project No. NH-030-1(28)

Scale: As Shown Date: June 2001

SHEET No. 110 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2002	21	72



DATE	1/16/01
SURVEY PLOTTED BY	
DRAWN BY	F. Silva, A. Nominer
TRACED BY	COLLETT M.
DESIGNED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
PROJECT NO.	0301000000
CHECKED BY	0301000000

TYPICAL SECTIONS OF GRP CHANNEL AND EARTH BERM

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAIL

HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
Federal Aid Project No. NH-030-1(28)

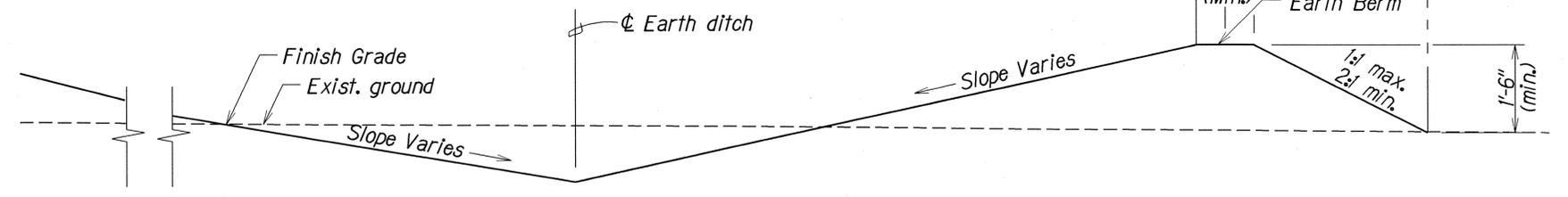
Scale: 1/2"=1'-0" Date: June 2001

SHEET No. *III* OF 26 SHEETS

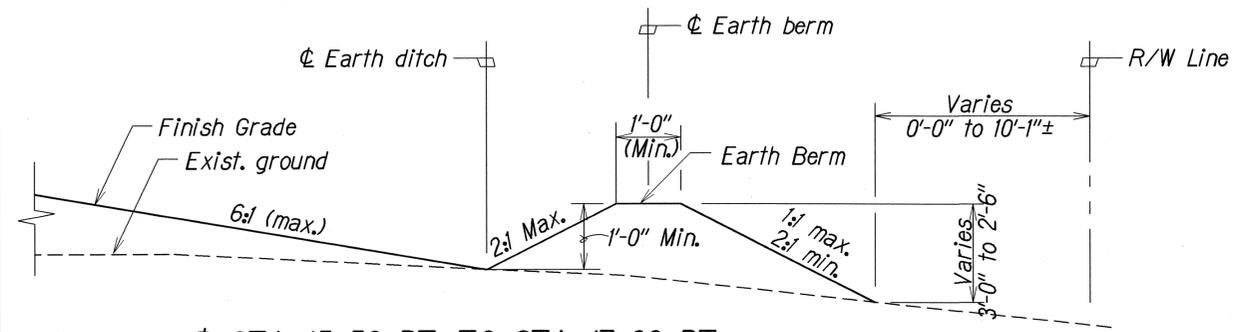
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HAWAII	HAW.	NH-030-1(28)	2002	22	72



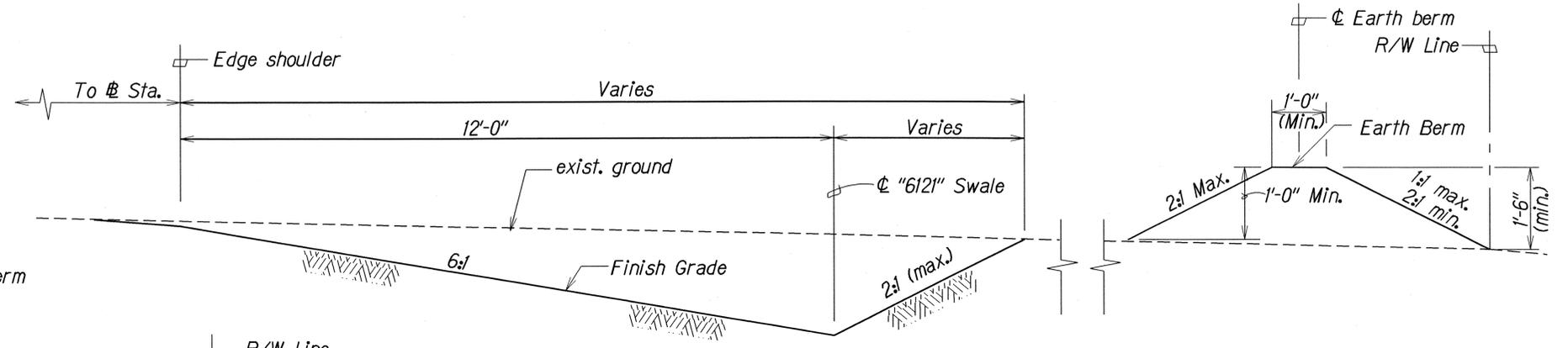
STA. 17+00 RT. TO STA. 19+00± RT.



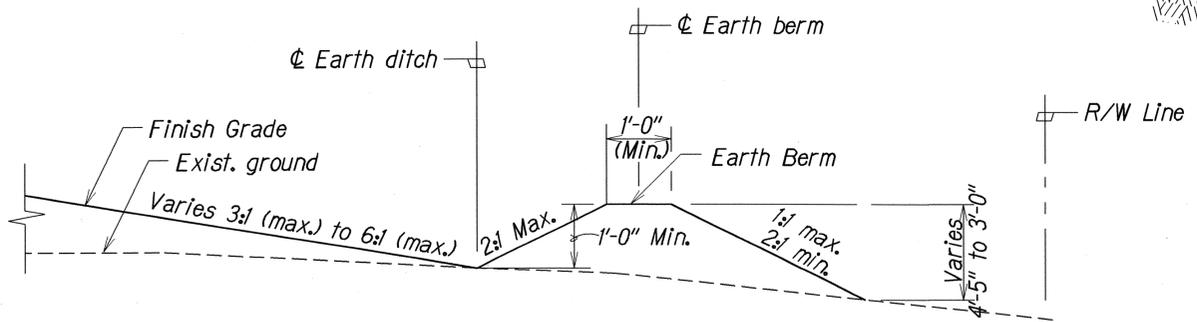
STA. 25+00± RT. TO N.B. STA. 7+00 RT.



STA. 15+50 RT. TO STA. 17+00 RT.



STA. 19+00± RT. TO STA. 25+00± RT.



STA. 14+50 RT. TO STA. 15+50 RT.

TYPICAL SECTIONS OF EARTH SWALE AND EARTH BERM

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
DESIGNED BY	CHECKED BY	
APPROVED BY		

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

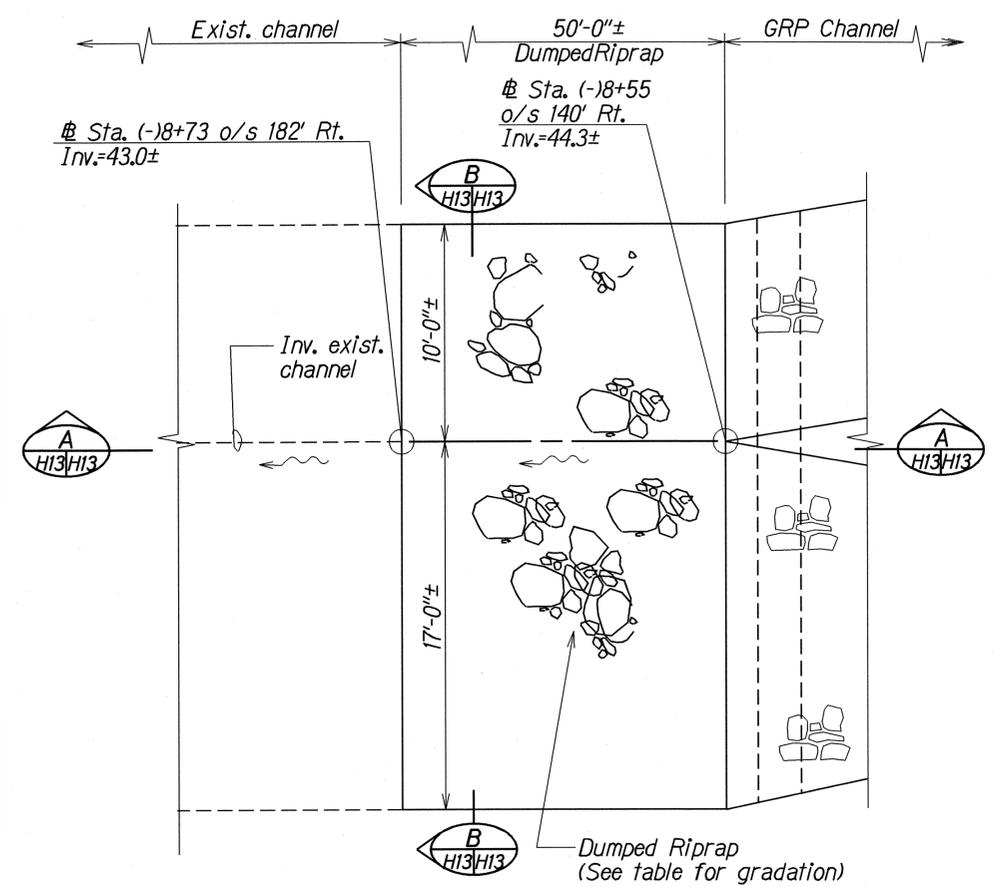
DRAINAGE DETAIL

HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
Federal Aid Project No. NH-030-1(28)

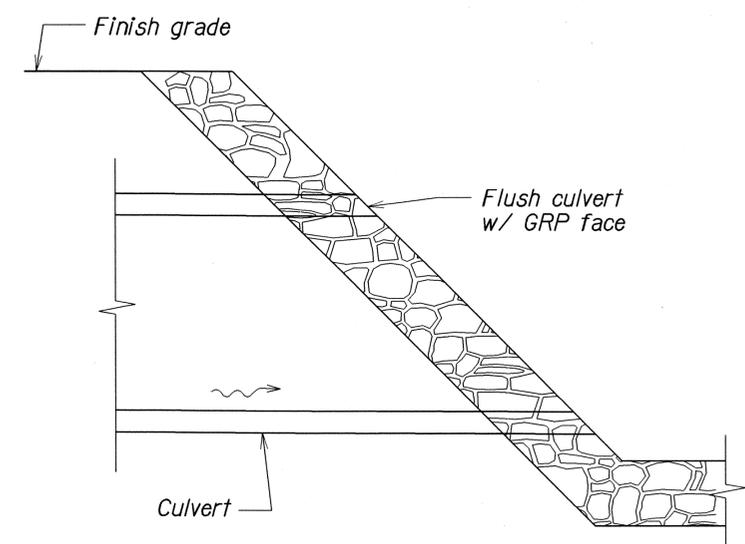
Scale: 3/4" = 1'-0" Date: June 2001

SHEET No. H12 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2002	23	0



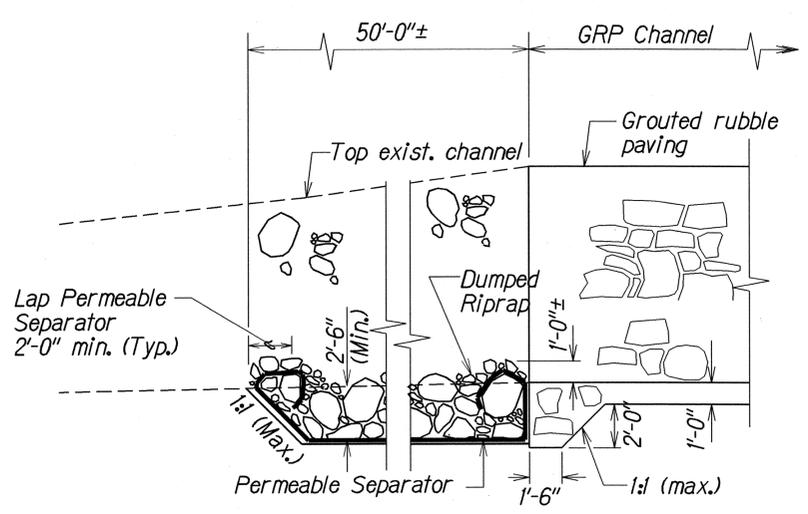
STONE SIZE (lbs)	PERCENT OF STONE SMALLER THAN
500	100
250	50
30	10



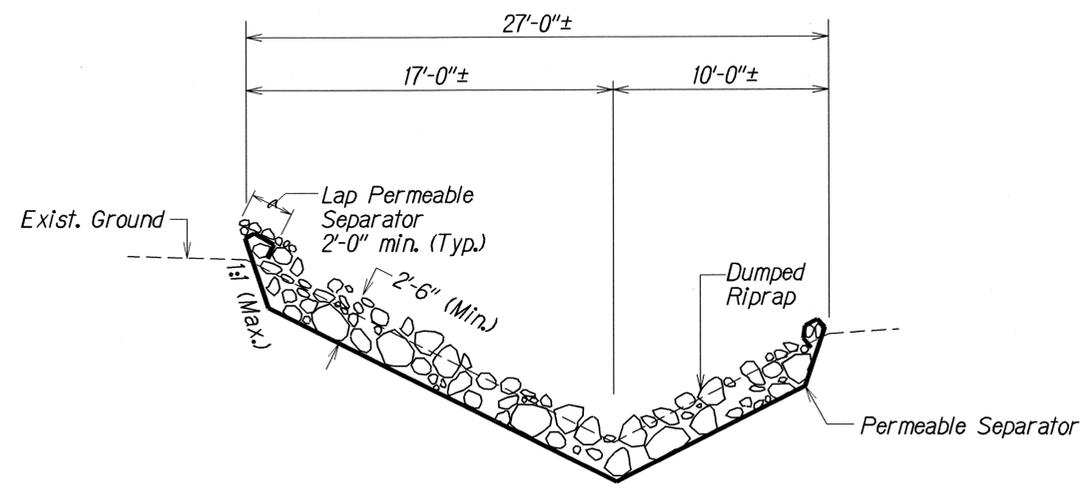
TYPICAL DETAILS OF CULVERT CONNECTION TO GRP CHANNEL

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

PLAN



SECTION A
H13/H13



SECTION B
H13/H13

DETAILS OF DUMPED RIPRAP FROM STA. (-)8+55 O/S 140' RT. TO STA. (-)8+73 O/S 182' RT.

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

DATE: 1/16/02
 SURVEY PLOTTED BY: [Name]
 DRAWN BY: [Name]
 DESIGNED BY: [Name]
 CHECKED BY: [Name]

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

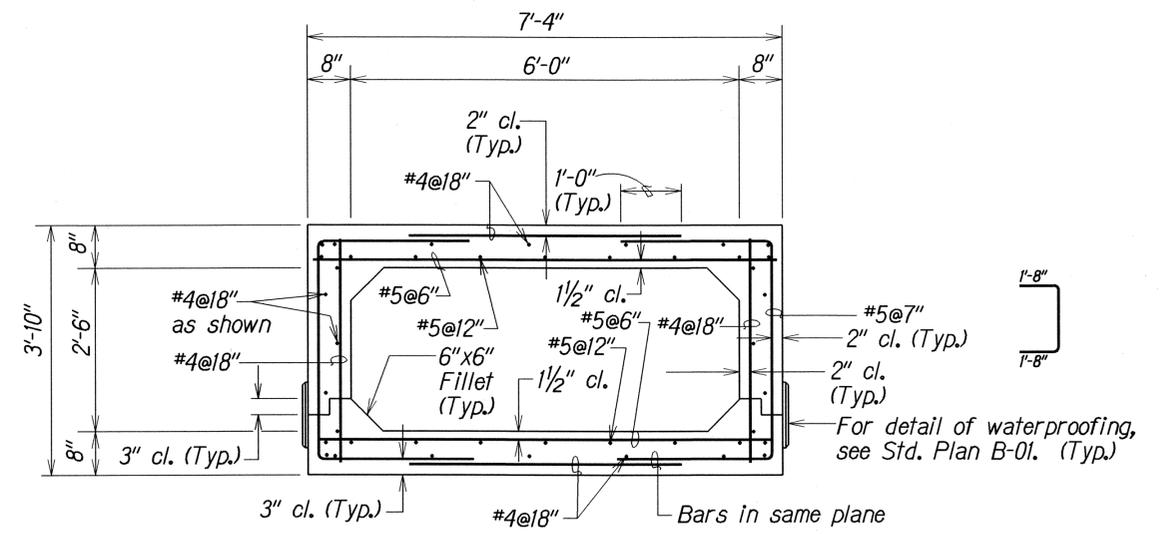
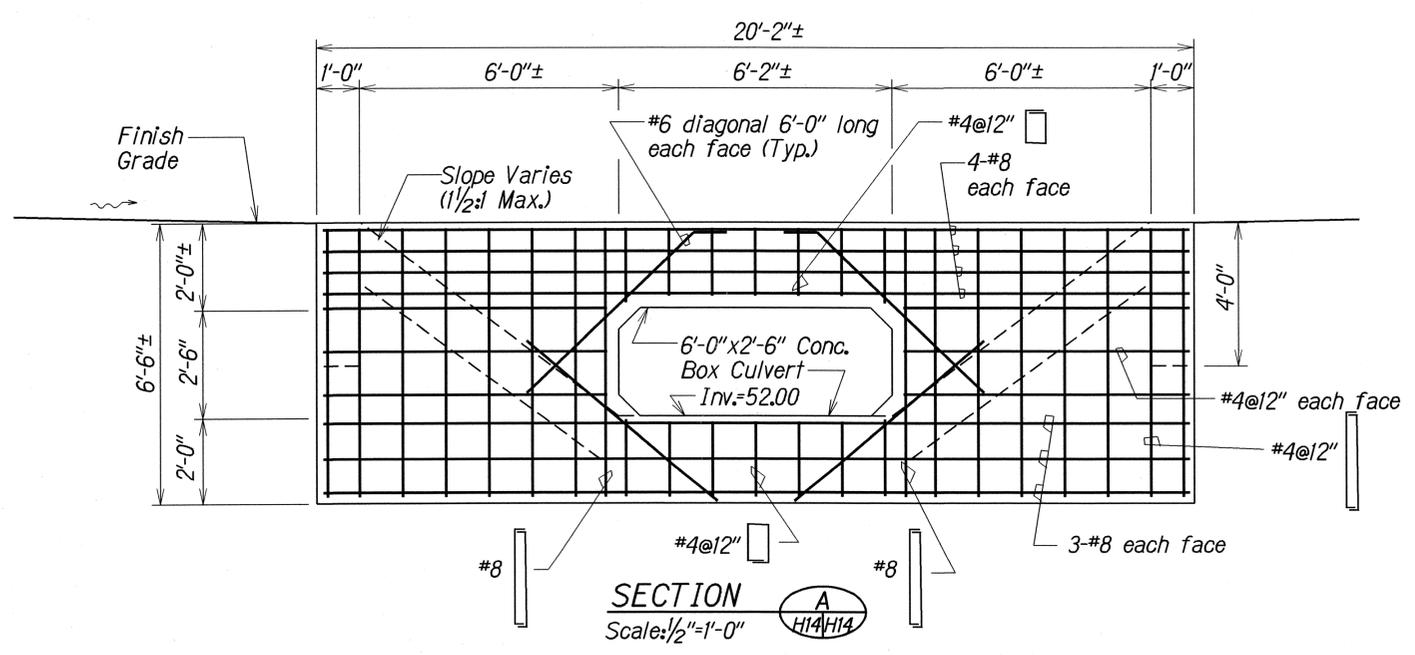
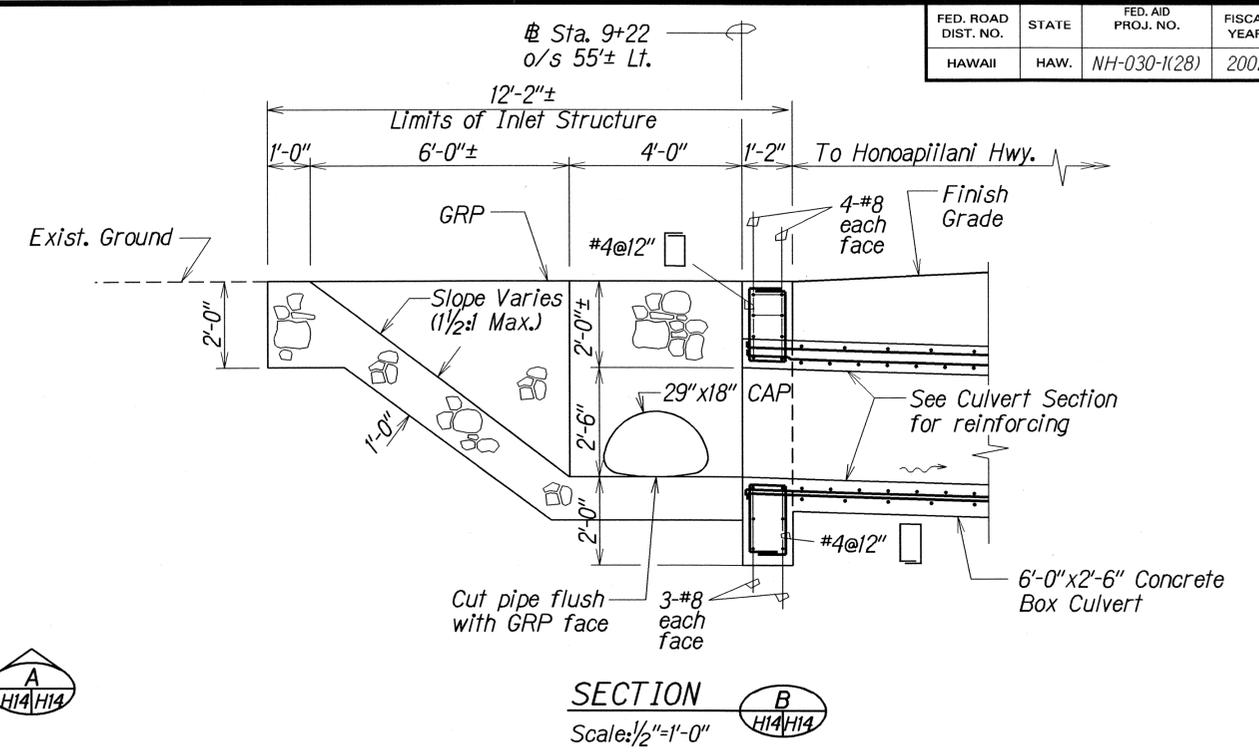
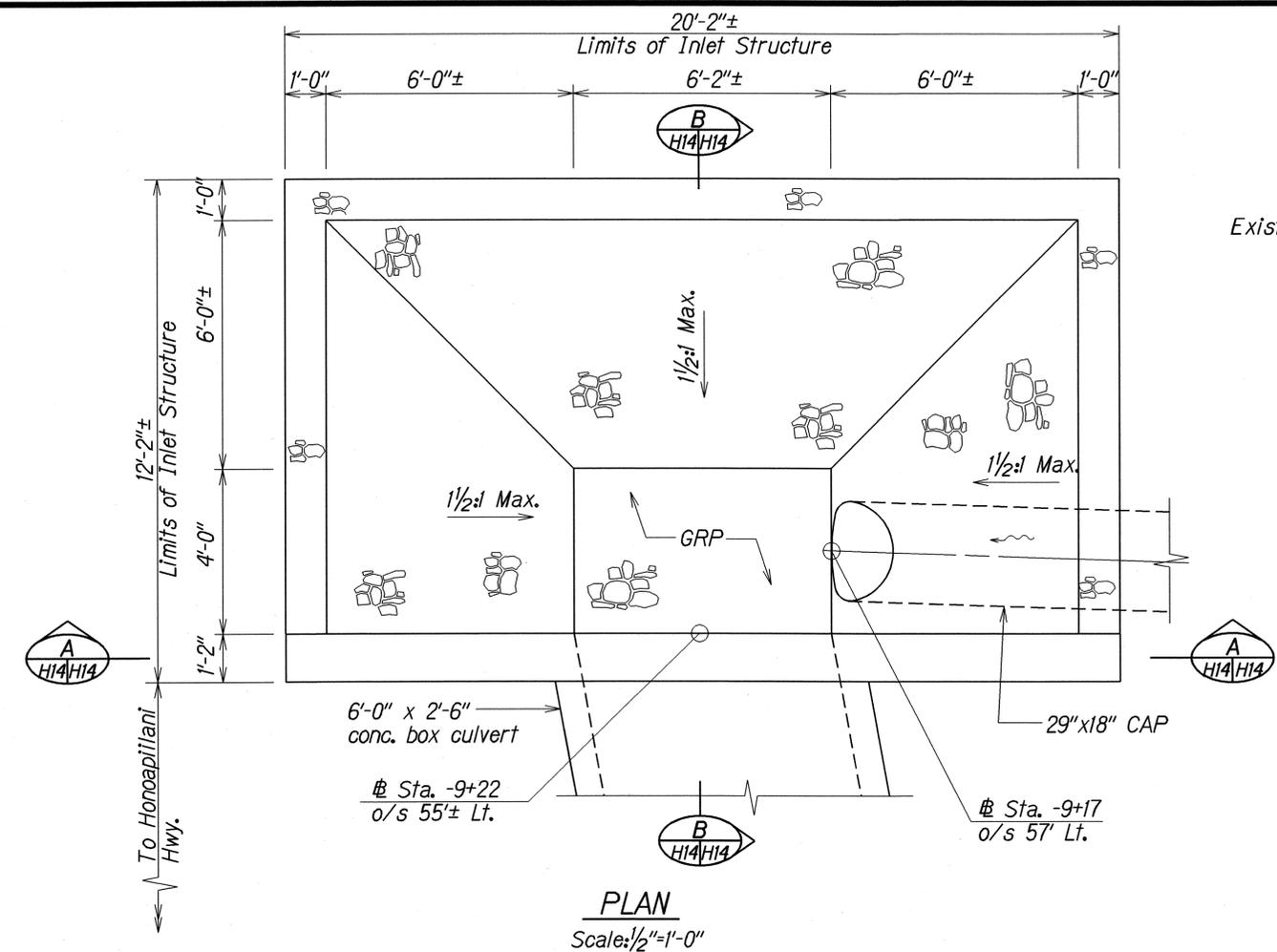
DRAINAGE DETAIL

HONOAPIILANI HIGHWAY WIDENING
 Maalaea Road to North Kihei Road
 Federal Aid Project No. NH-030-1(28)

Scale: As shown Date: June 2001

SHEET No. H13 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2002	24	72



DETAILS OF TYPE "1" INLET STRUCTURE AT STA -9+22± O/S 55'± LT.

Note: For box culvert trench detail, see sht. H26.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAIL

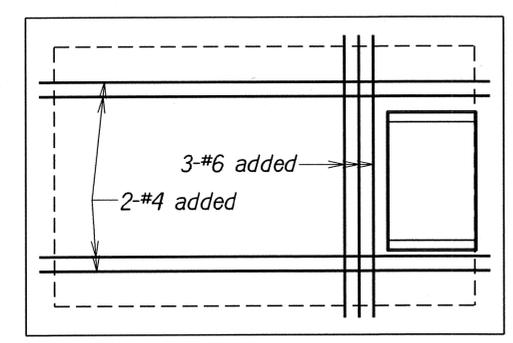
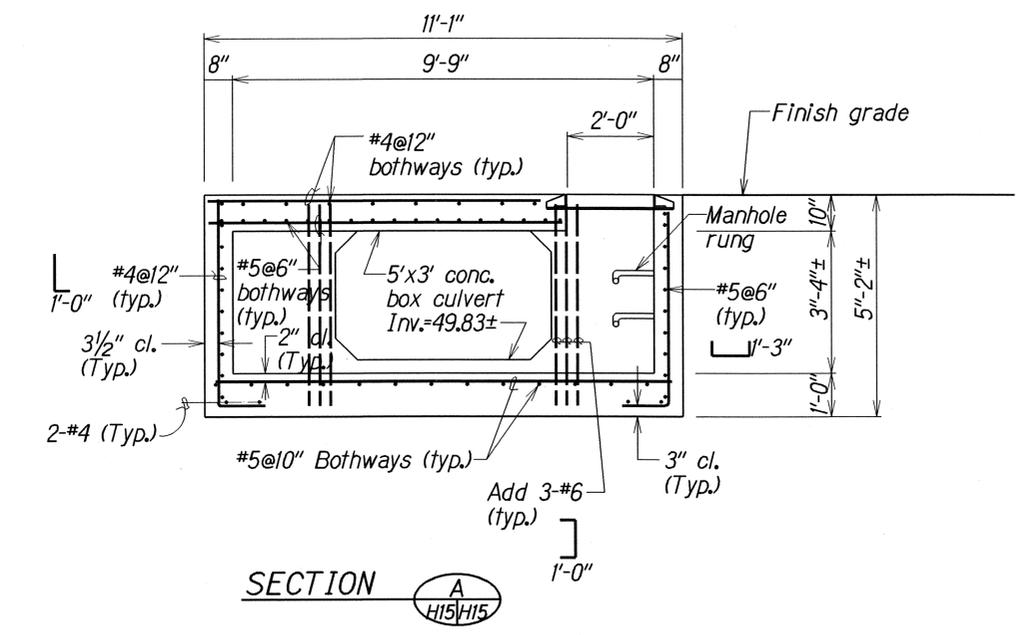
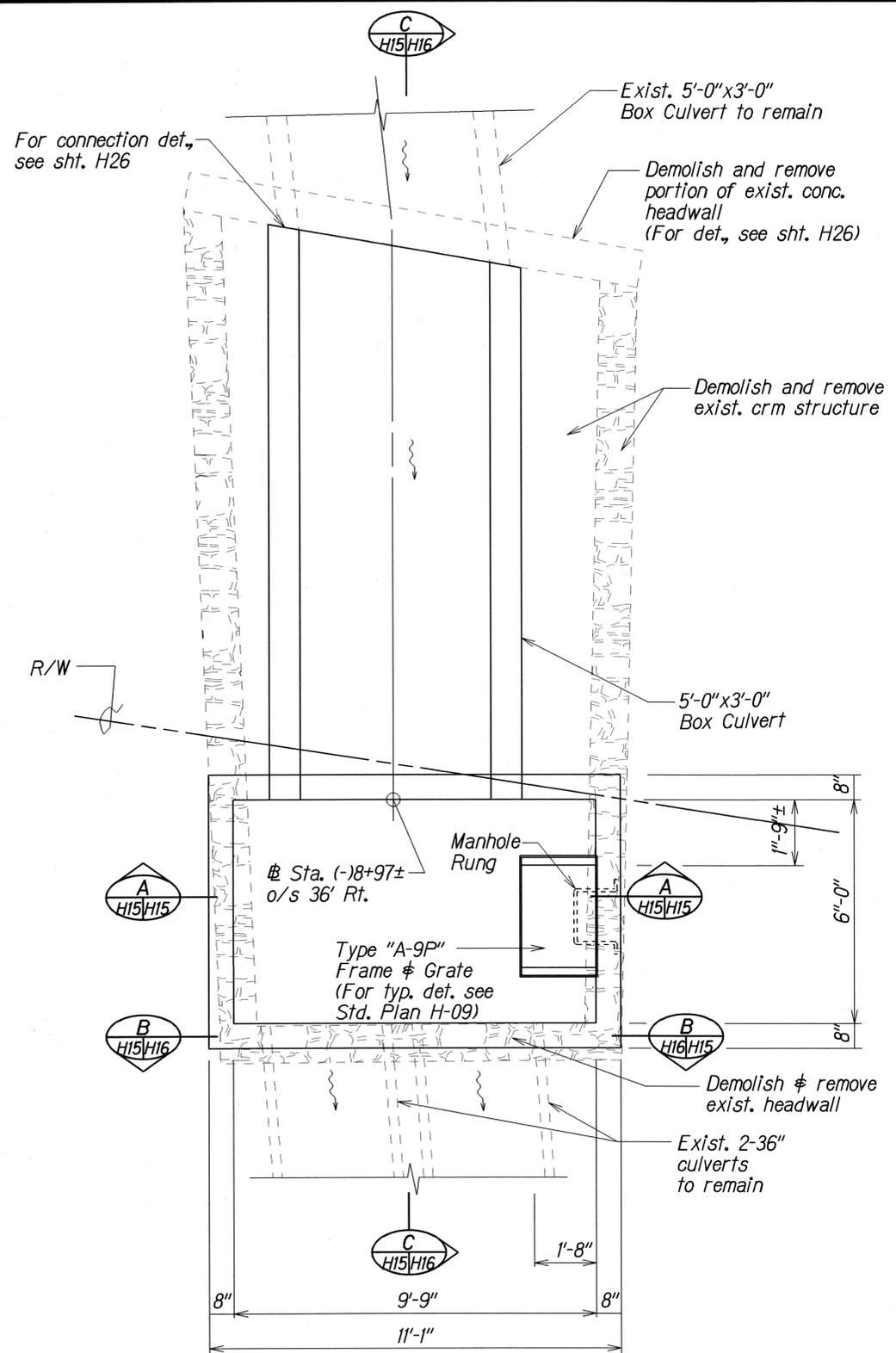
HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
Federal Aid Project No. NH-030-1(28)

Scale: As shown Date: June 2001

SHEET No. H14 OF 26 SHEETS

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2002	25	72



DETAILS OF TYPE "1" CONCRETE GDI AT ⊕ STA. -8+97± o/s 36' RT.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
REVISIONS	CHECKED BY	
	DATE	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

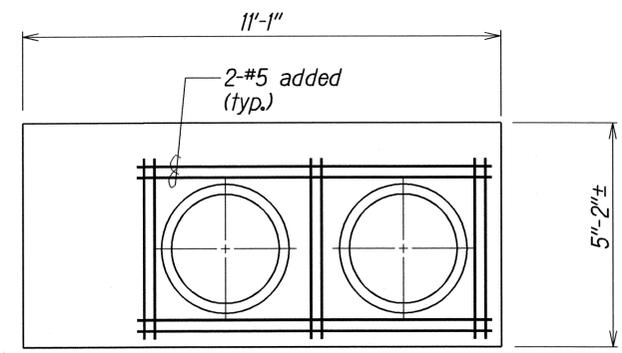
DRAINAGE DETAIL

HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
Federal Aid Project No. NH-030-1(28)

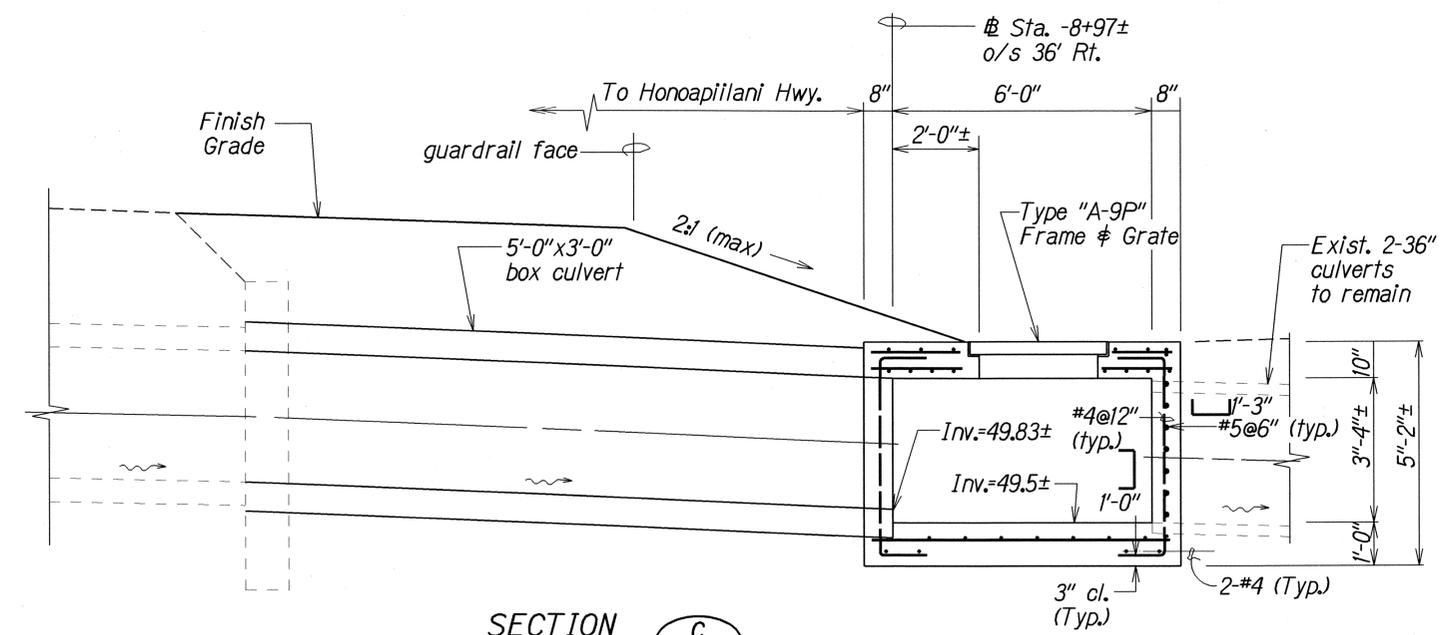
Scale: 1/2"=1'-0" Date: June 2001

SHEET No. H15 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2002	26	72



SECTION **B**
H15/H16



SECTION **C**
H15/H16

DETAILS OF TYPE "1" CONCRETE GDI AT # STA. -8+97± o/s 36' RT.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	DESIGNED BY	
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

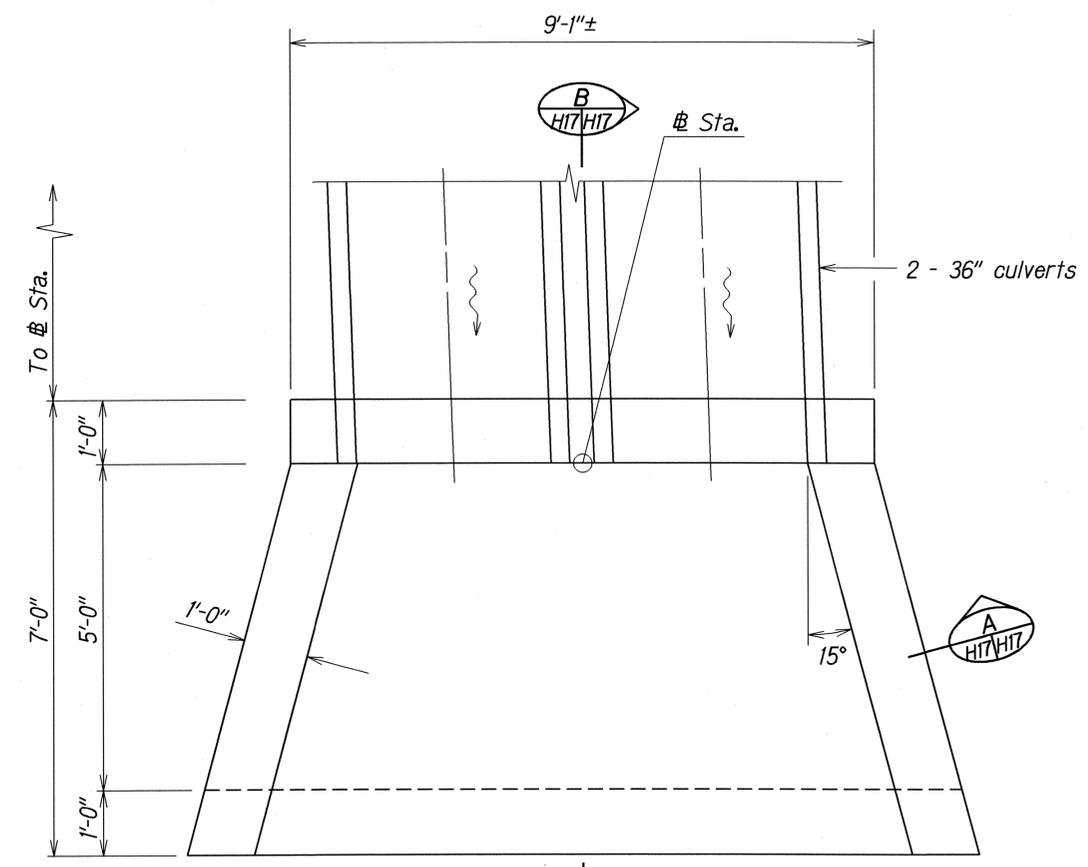
DRAINAGE DETAIL

HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
Federal Aid Project No. NH-030-1(28)

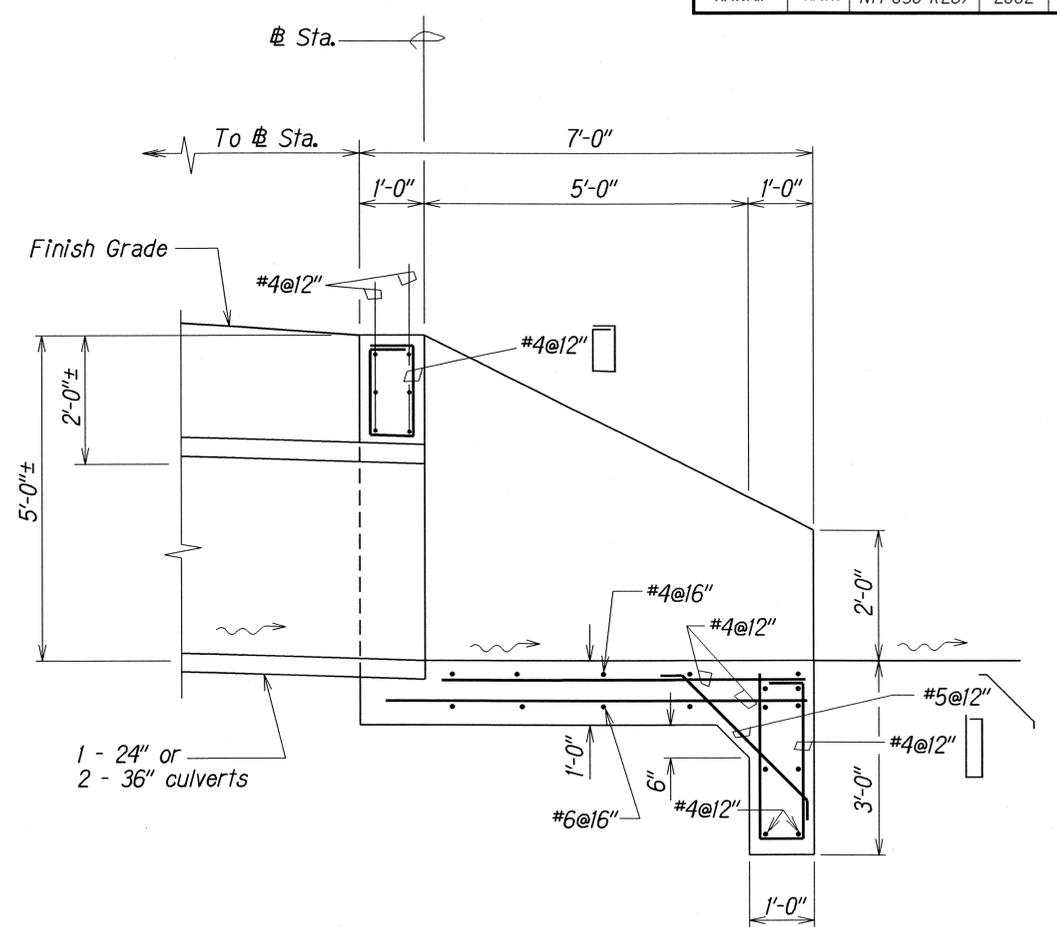
Scale: 1/2"=1'-0" Date: June 2001

SHEET No. H16 OF 26 SHEETS

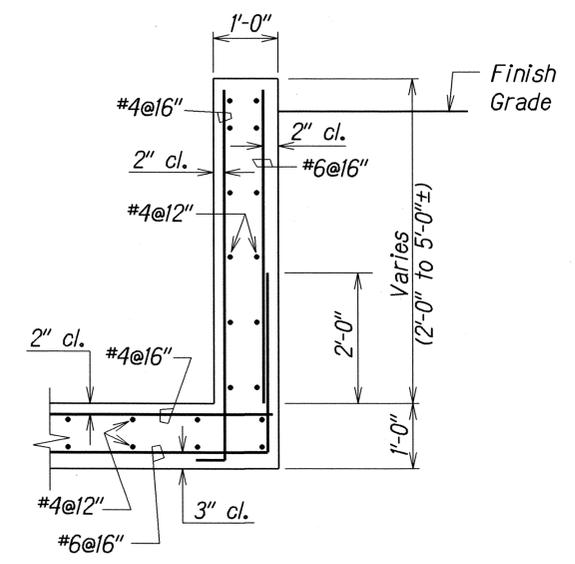
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2002	27	72



PLAN



SECTION B



SECTION A

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	DESIGNED BY	
	CHECKED BY	

DETAILS OF TYPE "1" OUTLET STRUCTURE AT MAALAEA RD. # STA. 32+74± O/S 39' RT.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

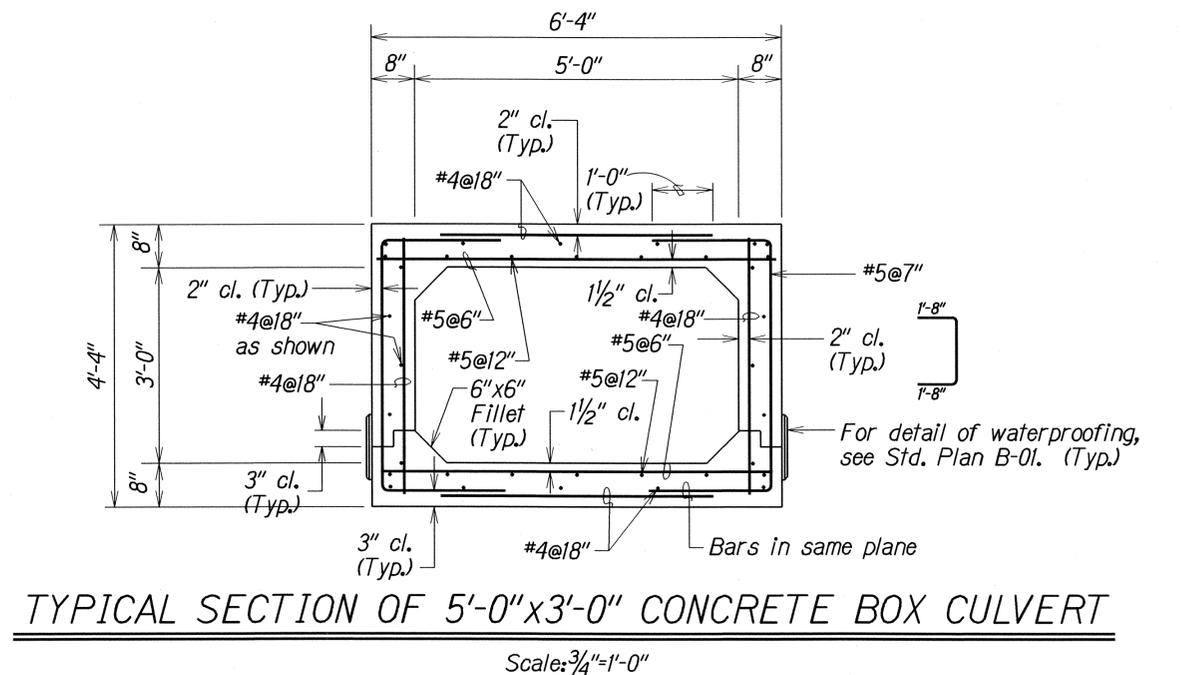
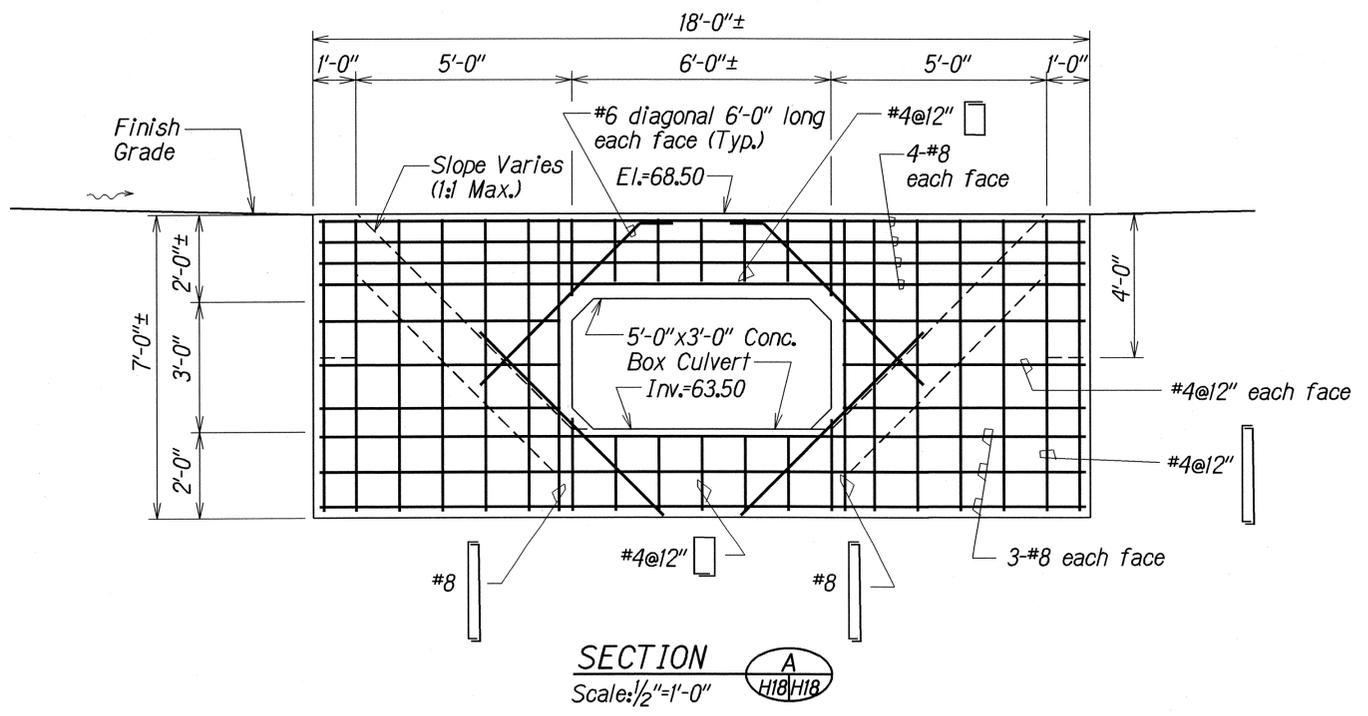
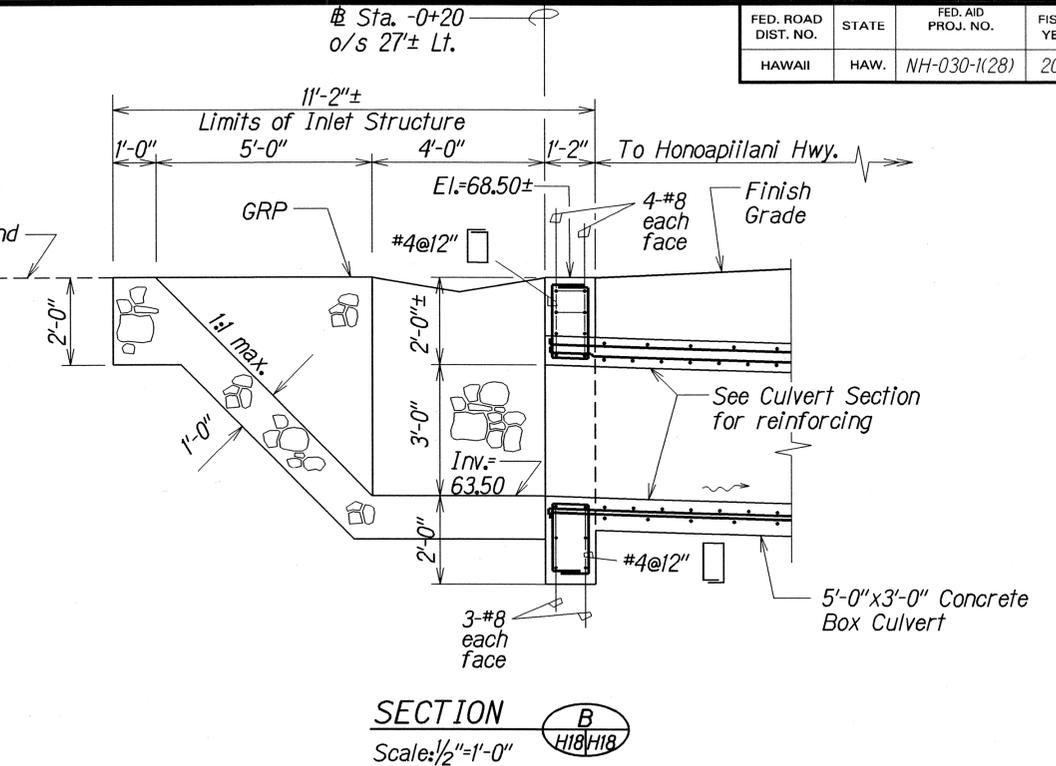
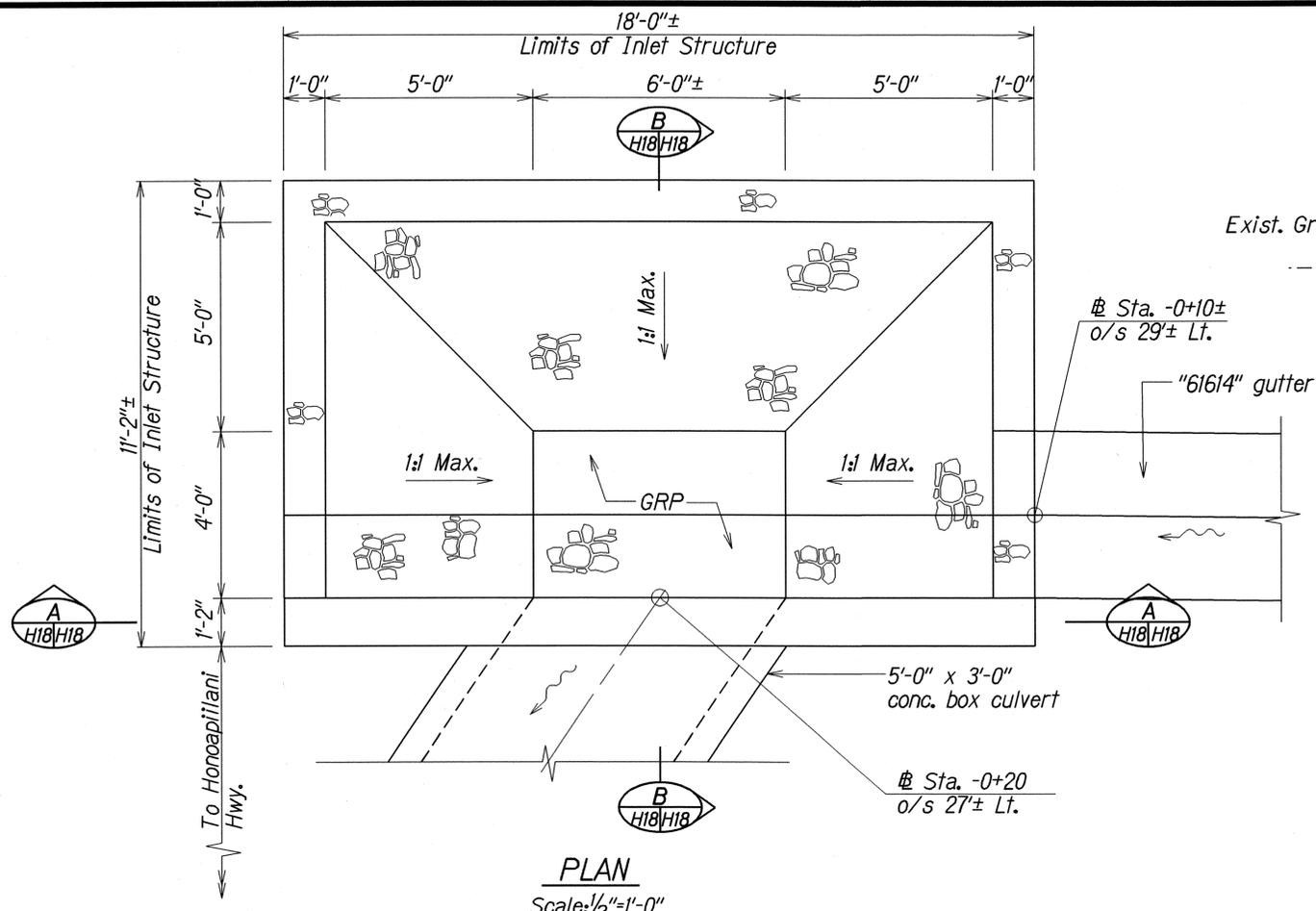
DRAINAGE DETAIL

HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
Federal Aid Project No. NH-030-1(28)

Scale: 3/4"=1'-0" Date: June 2001

SHEET No. *H17* OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2002	28	72



Note: For box culvert trench detail, see sht. H26.

DETAILS OF TYPE "2" INLET STRUCTURE AT STA -0+20 O/S 27± LT.

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
DESIGNED BY	
CHECKED BY	
APPROVED BY	

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

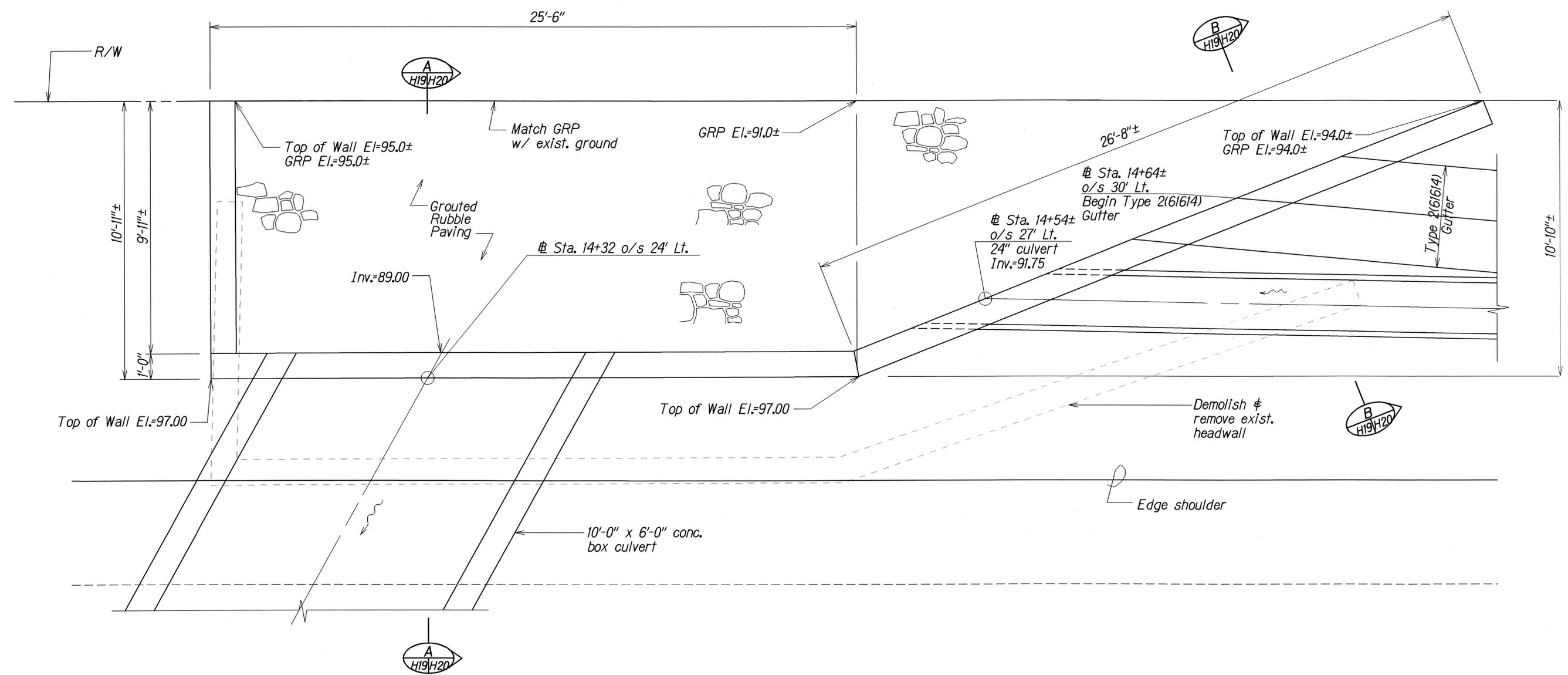
DRAINAGE DETAIL

HONOAPIILANI HIGHWAY WIDENING
 Maalaea Road to North Kihei Road
 Federal Aid Project No. NH-030-1(28)

Scale: As shown Date: June 2001

SHEET No. H18 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2002	29	72



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

ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
APPROVED BY	

DETAILS OF TYPE "3" INLET STRUCTURE AT # STA. 14+32 o/s 24' LT.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

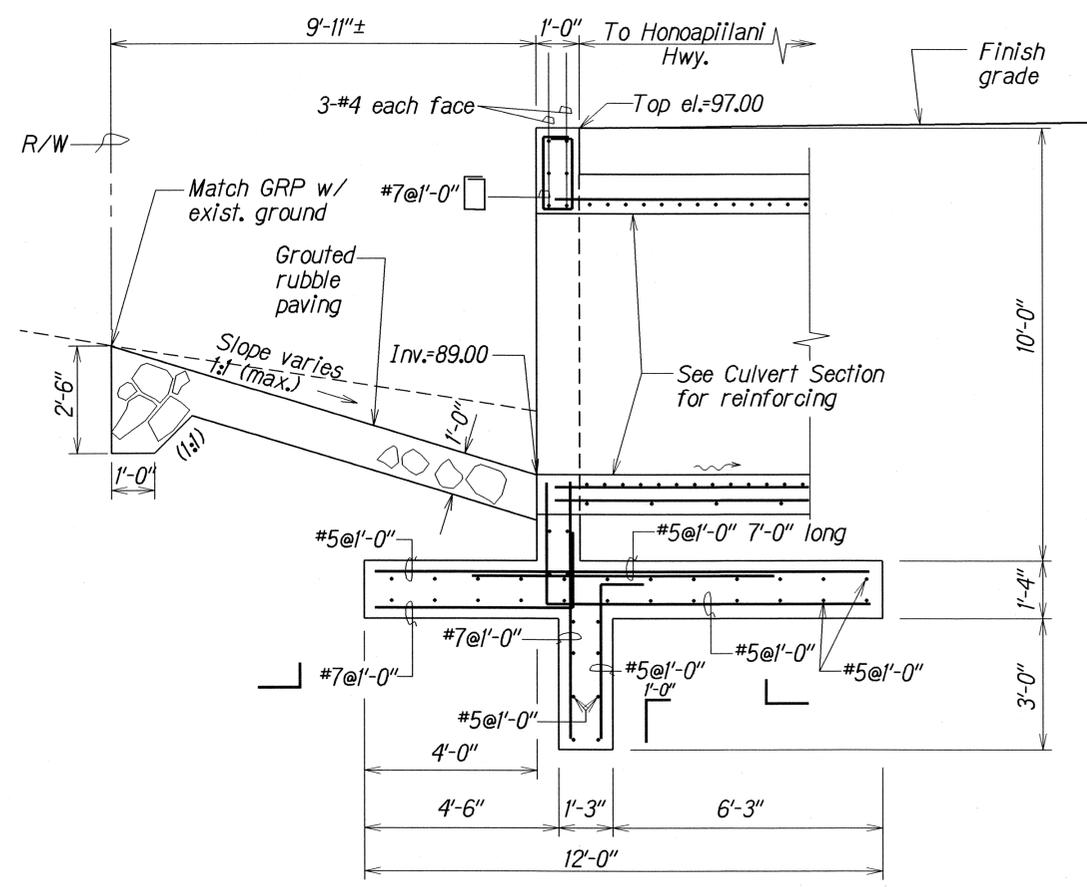
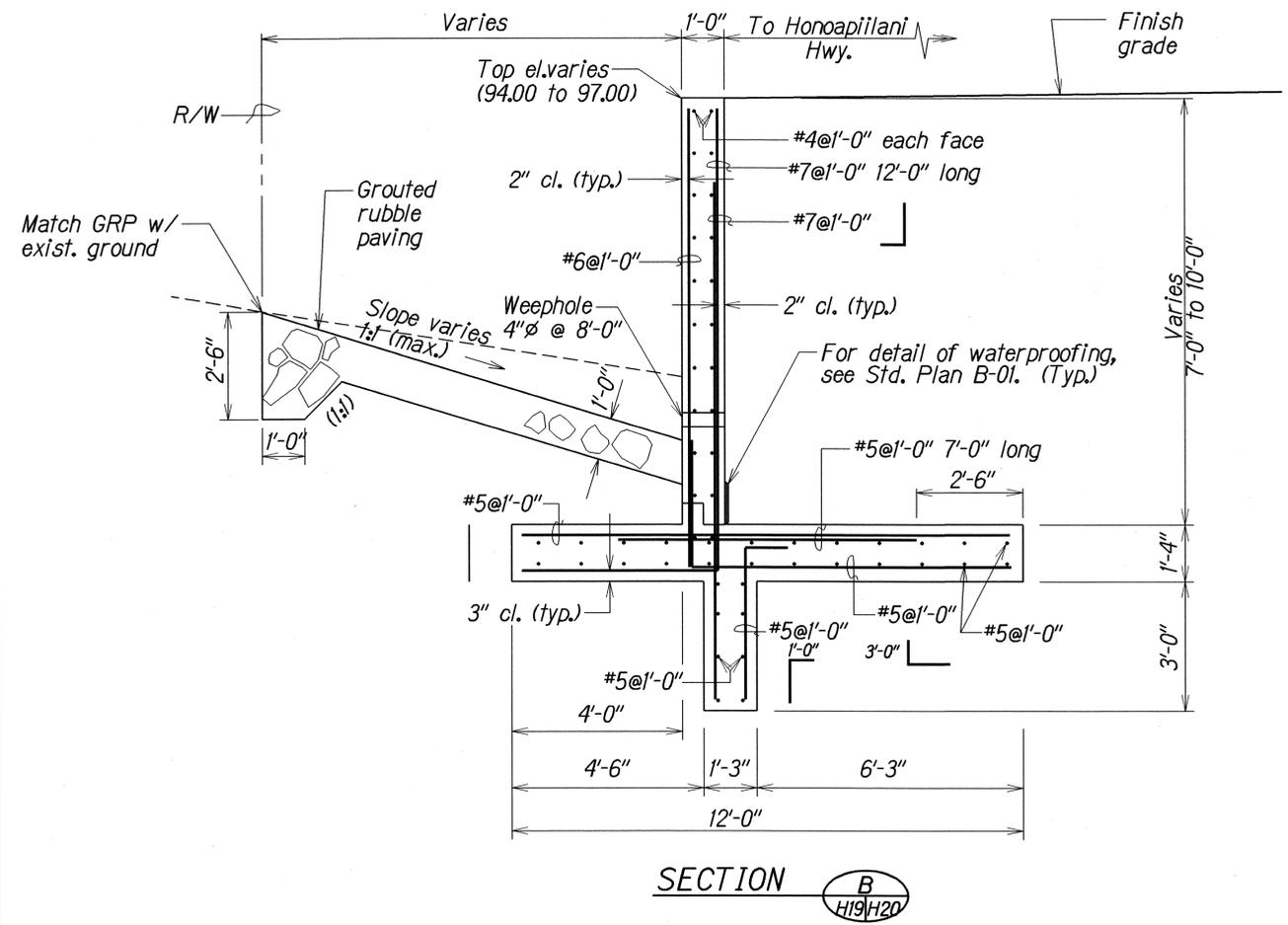
DRAINAGE DETAIL

HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
Federal Aid Project No. NH-030-1(28)

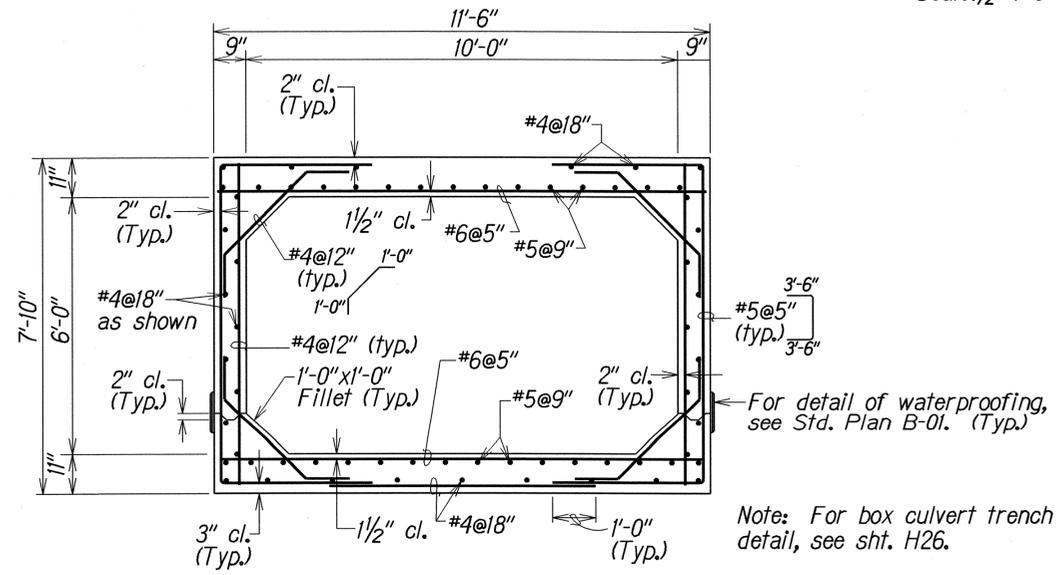
Scale: As Shown Date: June 2001

SHEET No. **H19** OF 26 SHEETS

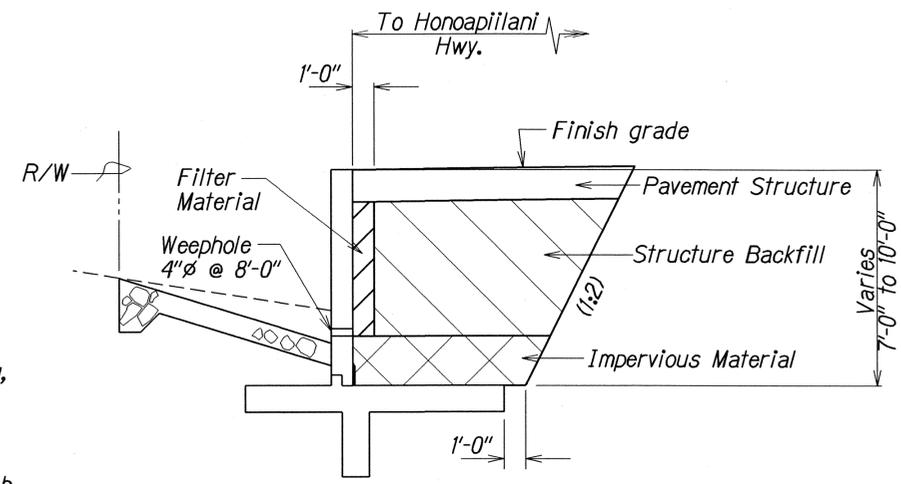
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2002	30	72



DETAILS OF TYPE "3" INLET STRUCTURE AT STA. 14+32 o/s 24' LT. Scale: 1/2"=1'-0"



TYPICAL SECTION OF 10'-0" x 6'-0" CONCRETE BOX CULVERT Scale: 1/2"=1'-0"



EXCAVATION AND BACKFILL PAY LIMITS Scale: 1/4"=1'-0"

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

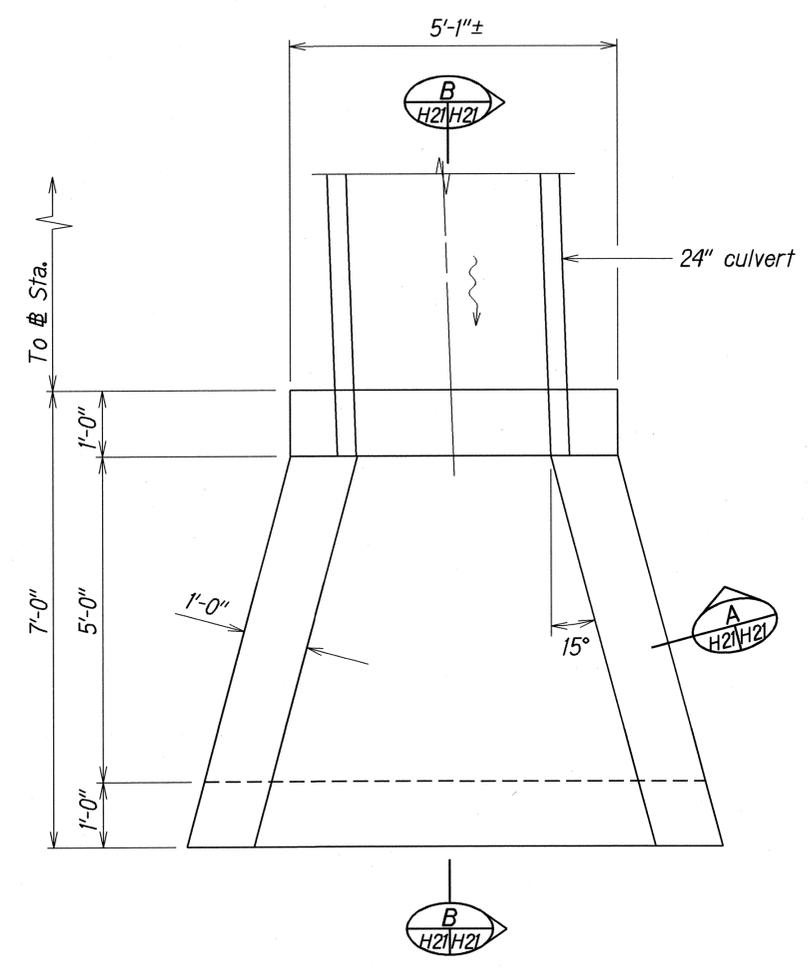
DRAINAGE DETAIL

HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
Federal Aid Project No. NH-030-1(28)

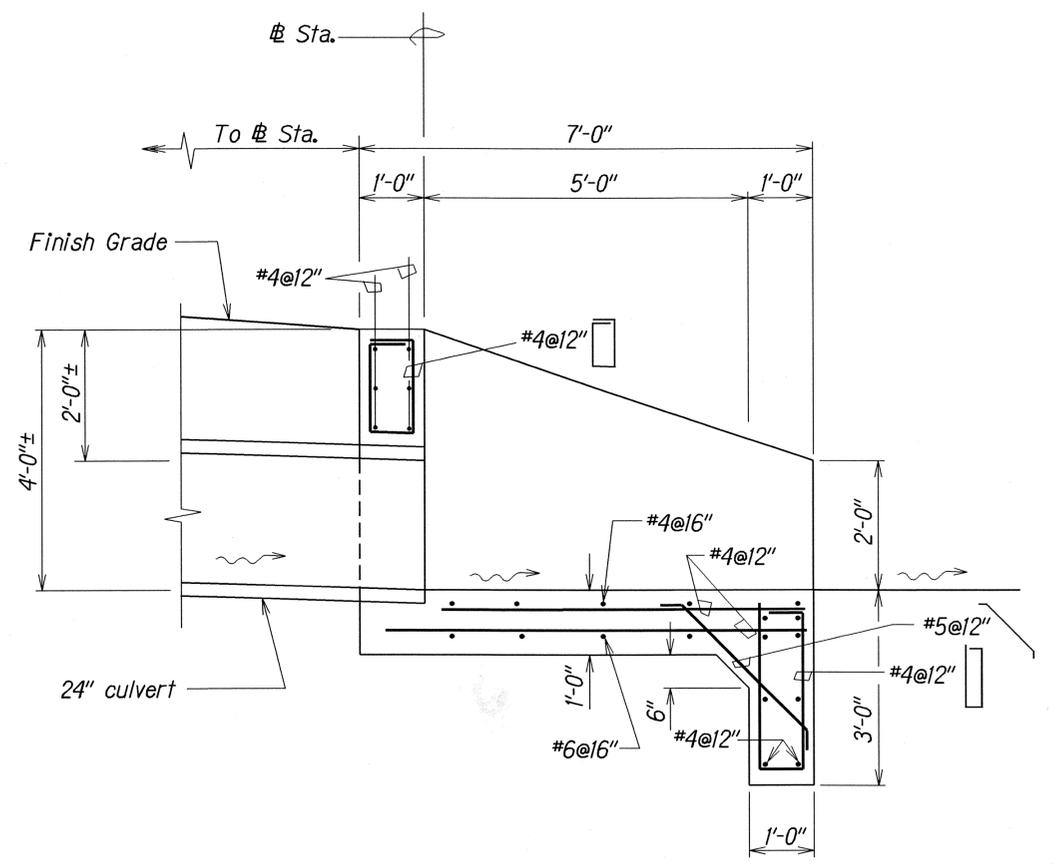
Scale: As Shown Date: June 2001

SHEET No. H20 OF 26 SHEETS

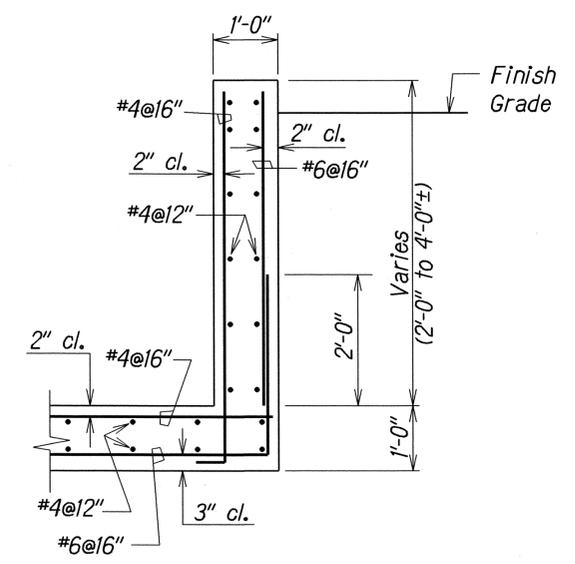
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2002	31	72



PLAN



SECTION B
H21/H21



SECTION A
H21/H21

DETAILS OF TYPE "4" OUTLET STRUCTURE AT # STA. 2+70± 0/S 85' RT.

ORIGINAL SURVEY PLOTTED BY: _____ DATE: _____
 DRAWN BY: _____
 CHECKED BY: _____
 DATE: _____

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

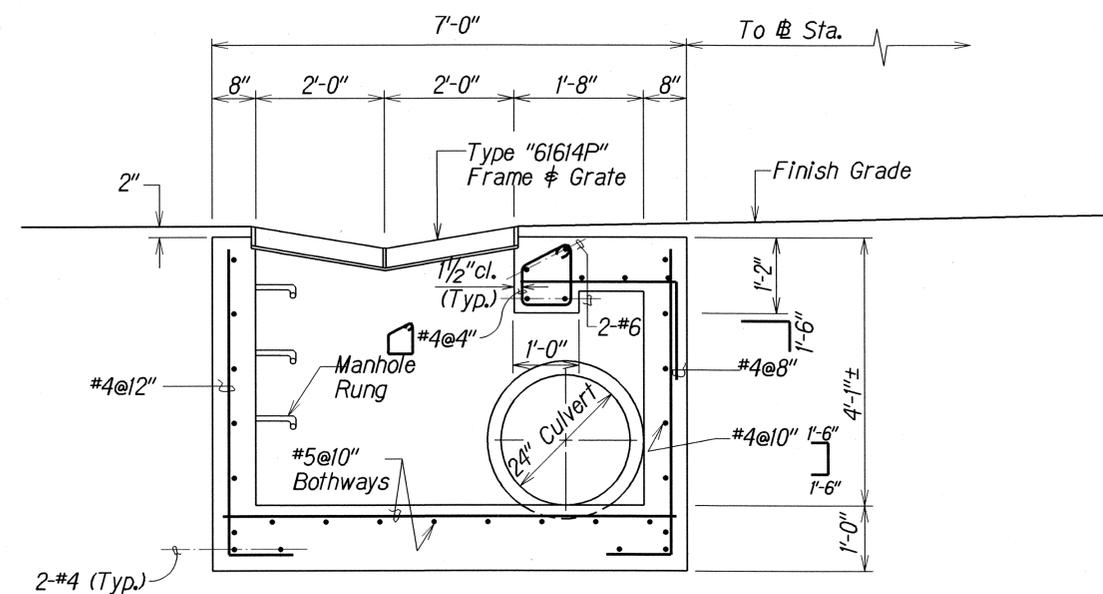
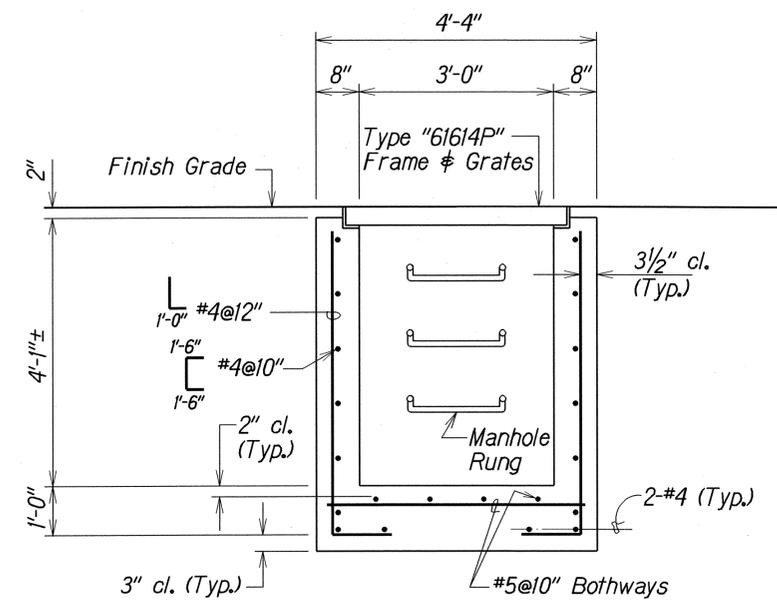
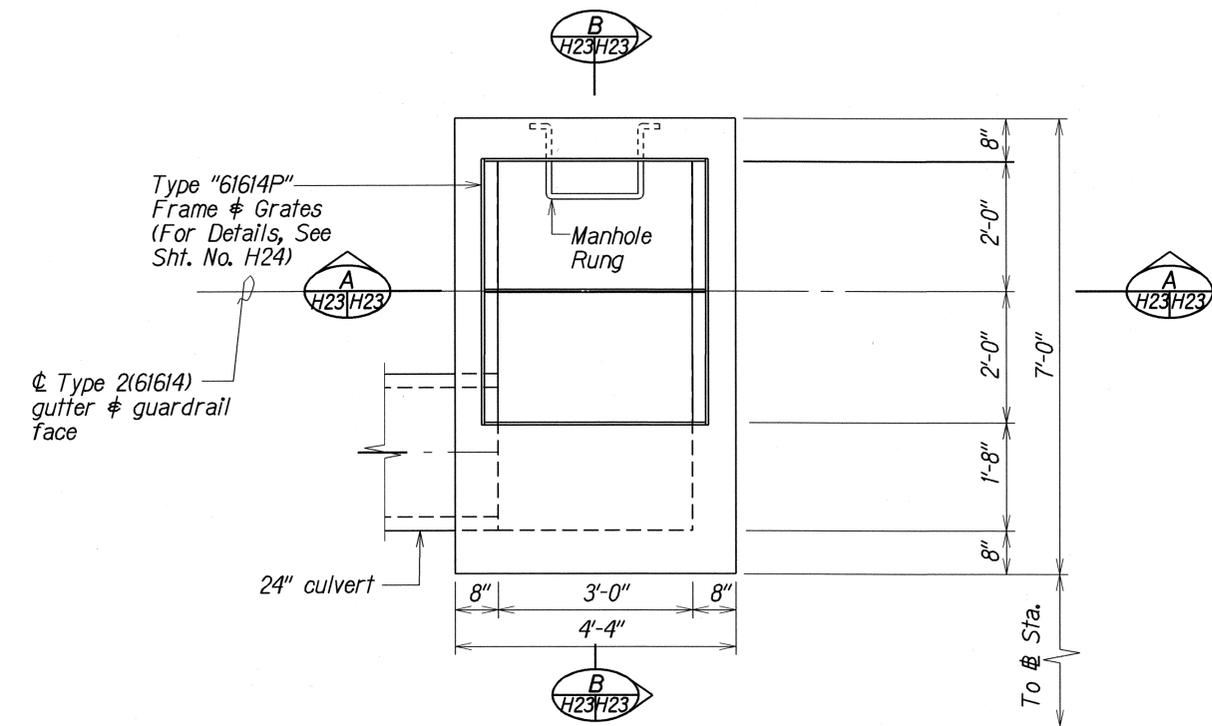
DRAINAGE DETAIL

HONOAPIILANI HIGHWAY WIDENING
 Maalaea Road to North Kihei Road
 Federal Aid Project No. NH-030-1(28)

Scale: 3/4"=1'-0" Date: June 2001

SHEET No. H21 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2002	33	72



ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
TRACED BY	
NOTE BOOK	
DESIGNED BY	
CHECKED BY	

DETAILS OF SPECIAL TYPE "61614P" GRATED DROP INLET AT # STA. (-) 4+05± 0/S 39± LT.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

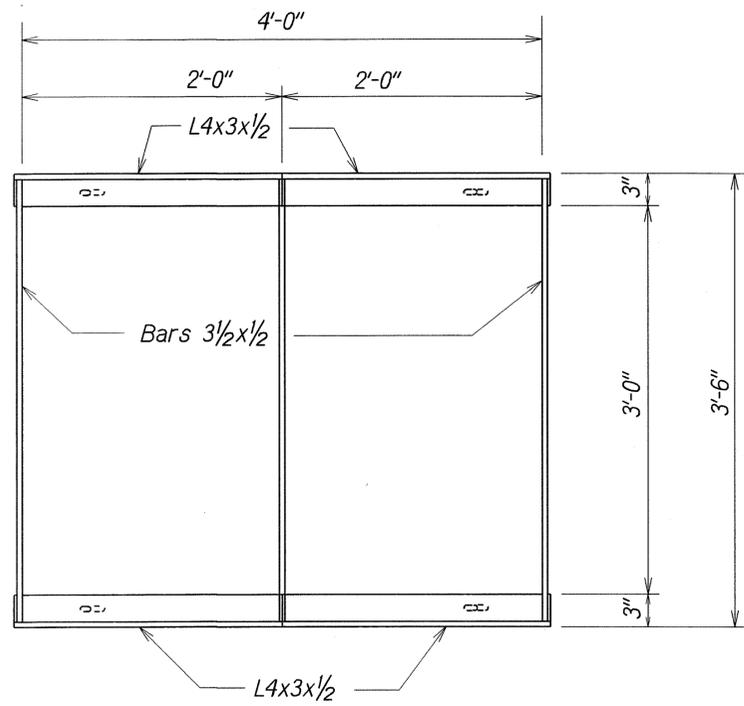
DRAINAGE DETAIL

HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
Federal Aid Project No. NH-030-1(28)

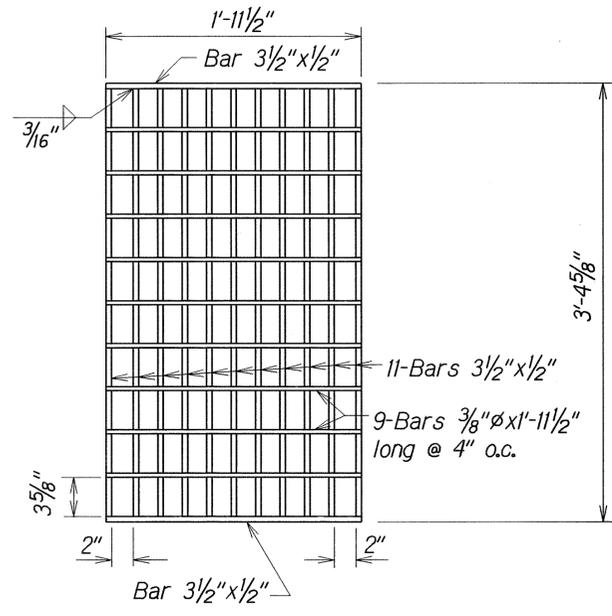
Scale: 3/4" = 1'-0" Date: June 2001

SHEET No. H23 OF 26 SHEETS

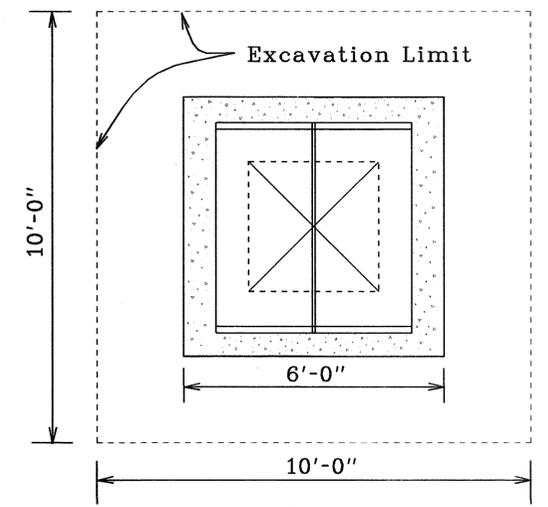
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2002	34	72



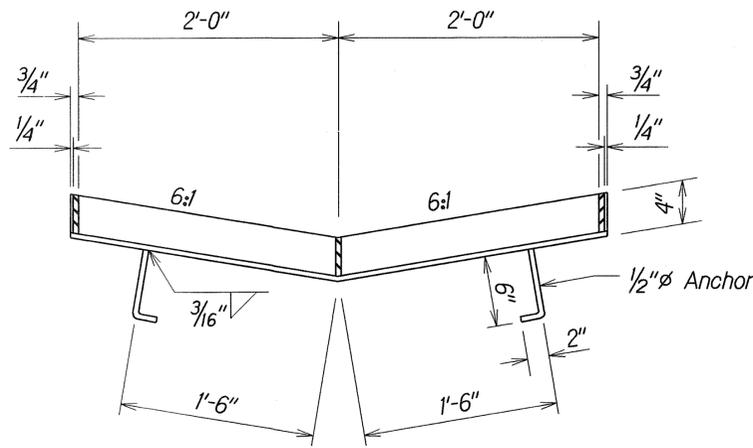
PLAN



PLAN



PLAN

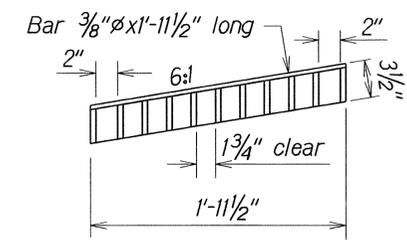


SECTION

FRAME

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

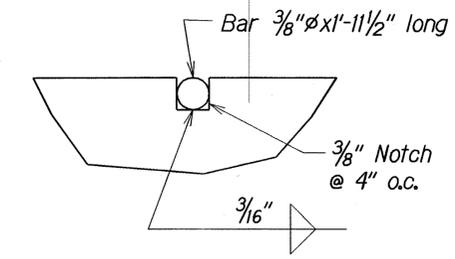
NOTE:
All welds 3/8" unless otherwise noted.



SECTION

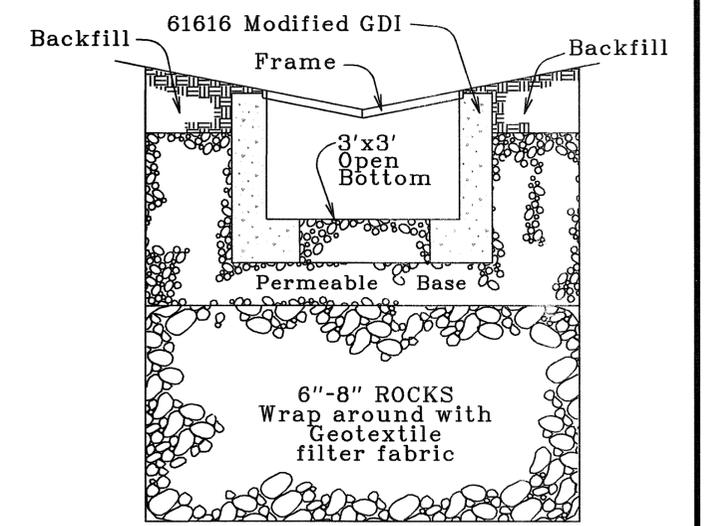
GRATE

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



NOTCH DETAIL

Full Size



SECTION

TYP. DET. OF MOD. 61616 GDI-DRAINROCK
STA 2+10± Rt.

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



LEGEND FOR AS-BUILT POSTINGS

	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAIL

HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
Federal Aid Project No. NH-030-1(28)

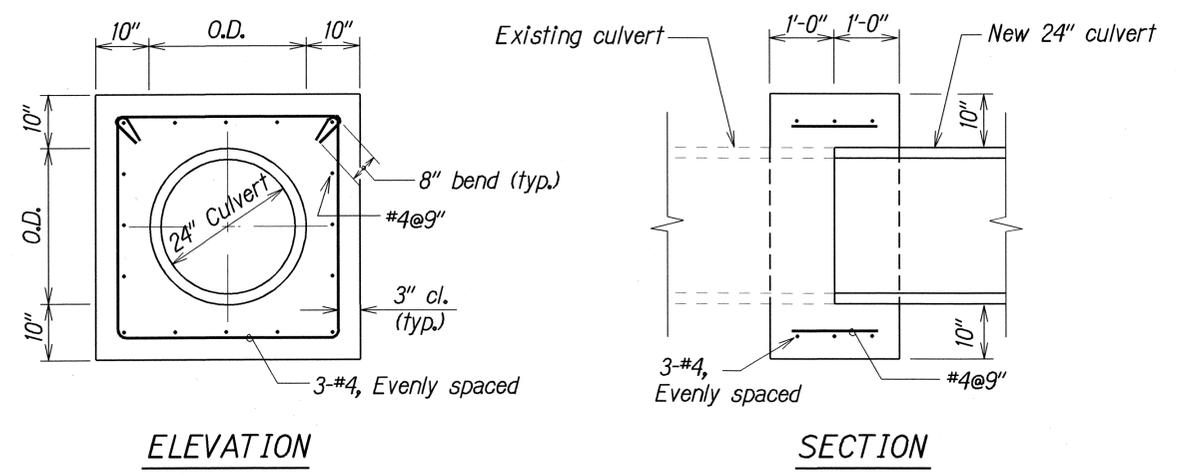
Scale: ~~1/2"=1'-0"~~ As noted Date: June 2001
SHEET No. H24 OF 26 SHEETS

TYPICAL DETAILS OF TYPE "61614P" STEEL FRAME AND GRATES

"AS-BUILT"

ORIGINAL PLAN
DATE: 1/27/02
SURVEY PLOTTED BY: [blank]
DRAWN BY: A. HONOHU
DESIGNED BY: C. HOFFMANN
CHECKED BY: [blank]
asbuilt2008_ghonh09.dgn

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2002	35	72



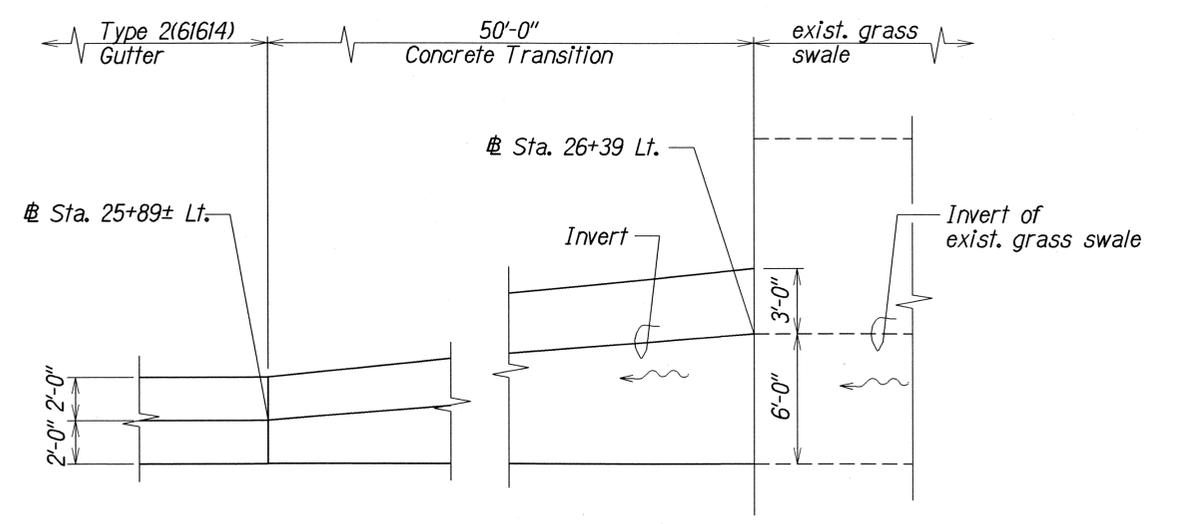
ELEVATION

SECTION

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

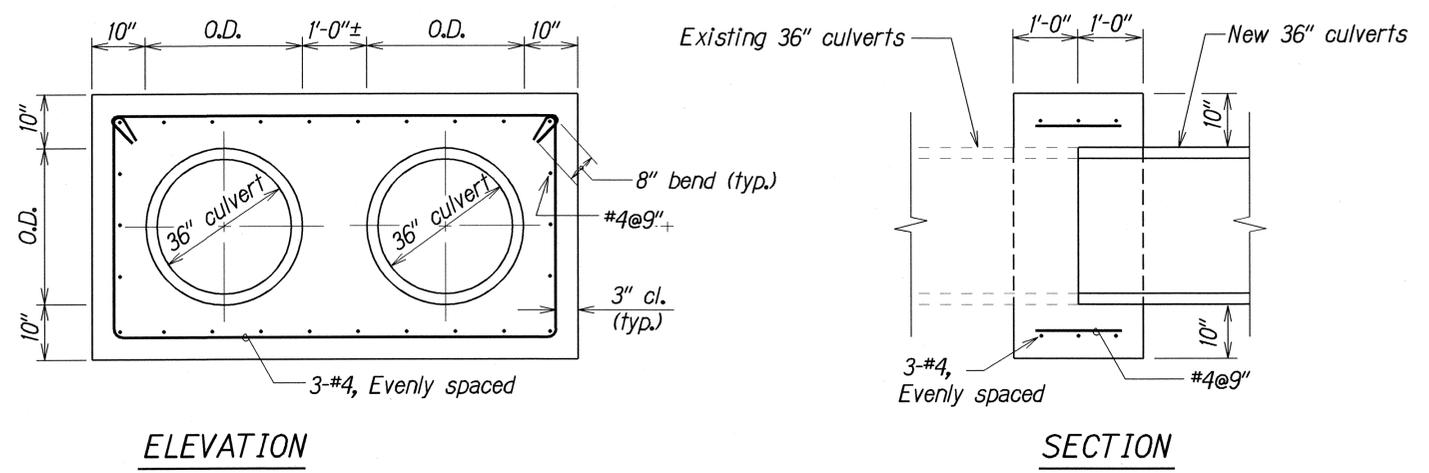
TYPICAL DETAILS OF TYPE "1" REINFORCED CONCRETE COLLAR

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



DETAILS OF GUTTER TRANSITION

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



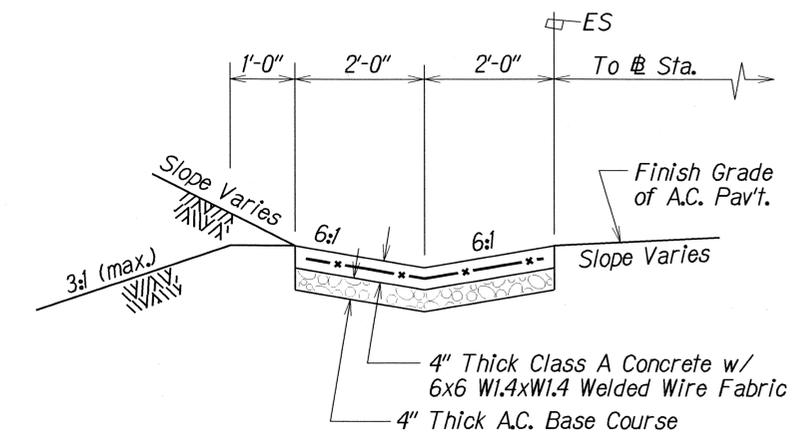
ELEVATION

SECTION

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

TYPICAL DETAILS OF TYPE "2" REINFORCED CONCRETE COLLAR

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



TYPICAL DETAILS OF GUTTER, TYPE 2(61614)

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

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	TRACED BY	
QUANTITIES BY	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

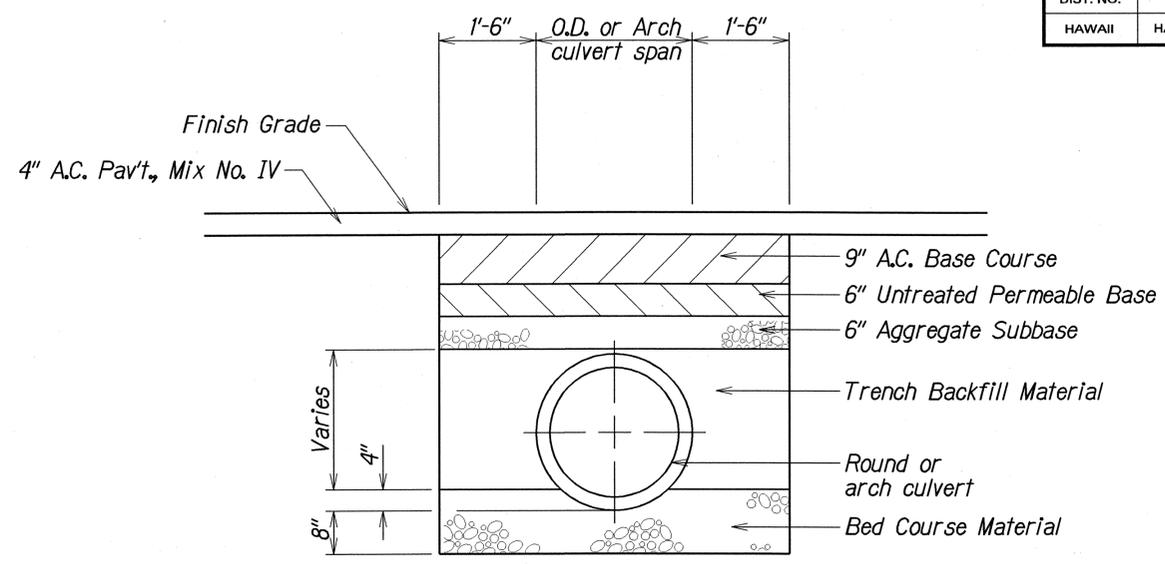
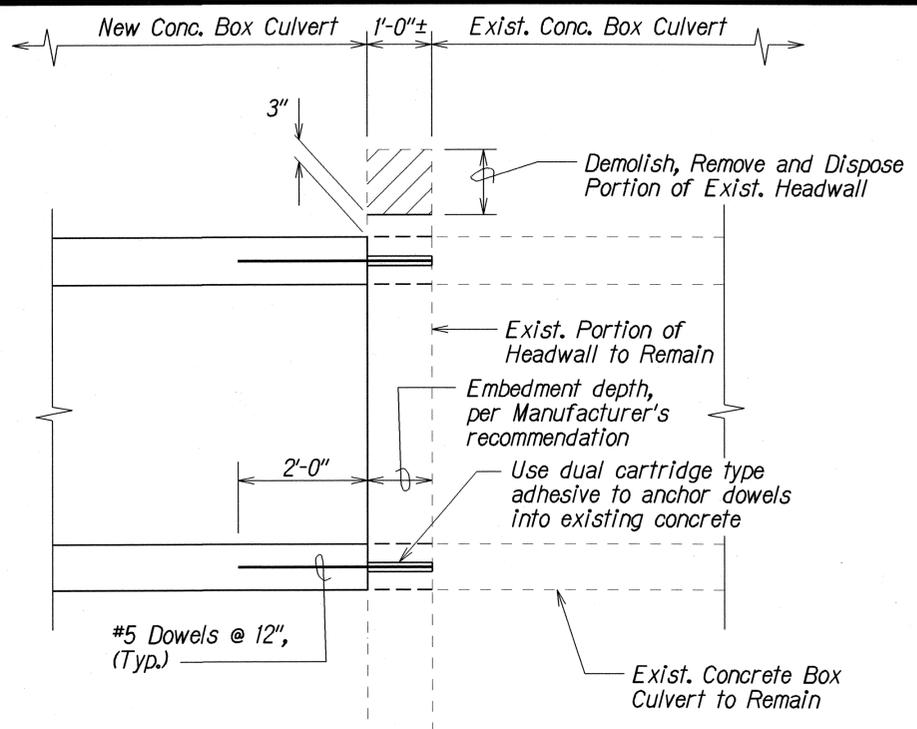
DRAINAGE DETAIL

HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihei Road
Federal Aid Project No. NH-030-1(28)

Scale: As shown Date: June 2001

SHEET No. H25 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2002	36	72

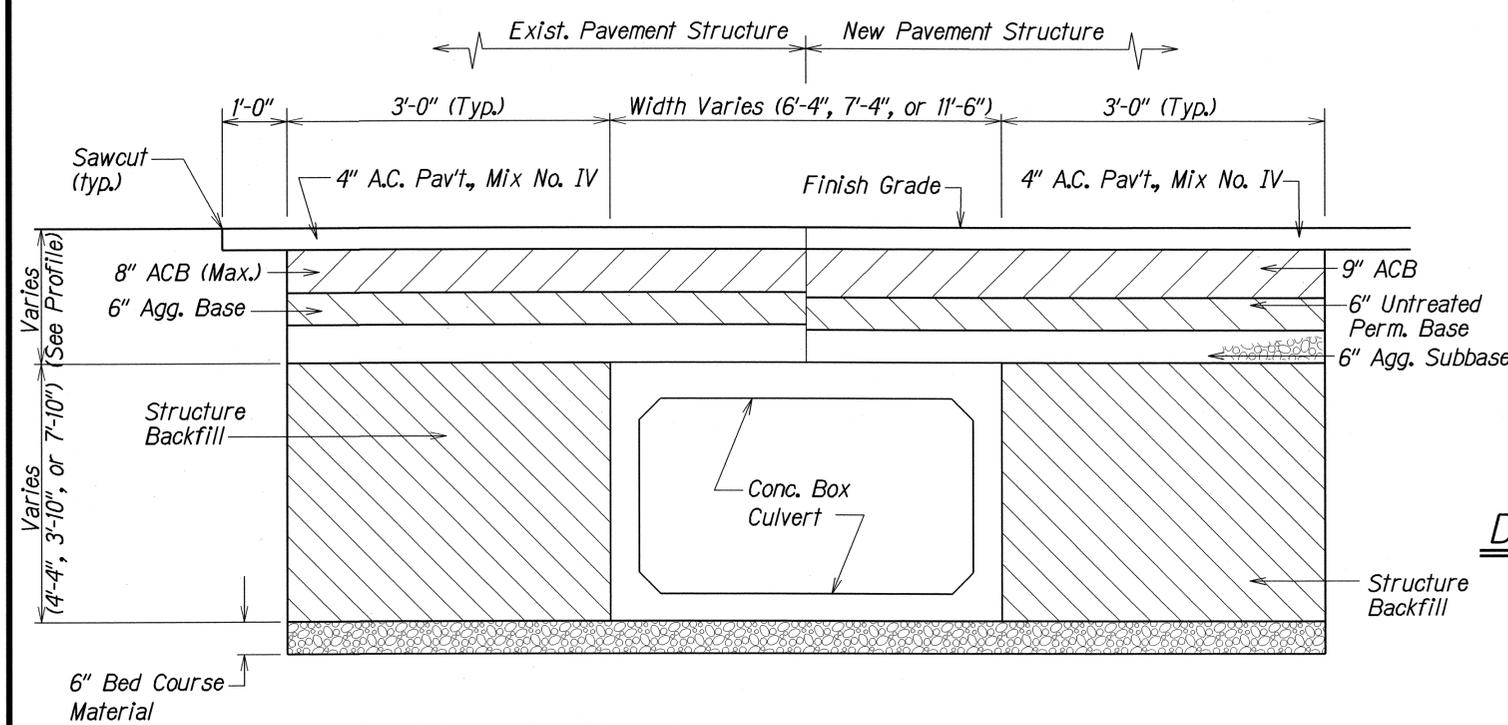


PARTIAL DEMOLITION AND BOX CULVERT CONNECTION DETAIL AT STA. -9+22± O/S 55± LT AND STA. -8+97± O/S 36' RT.

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

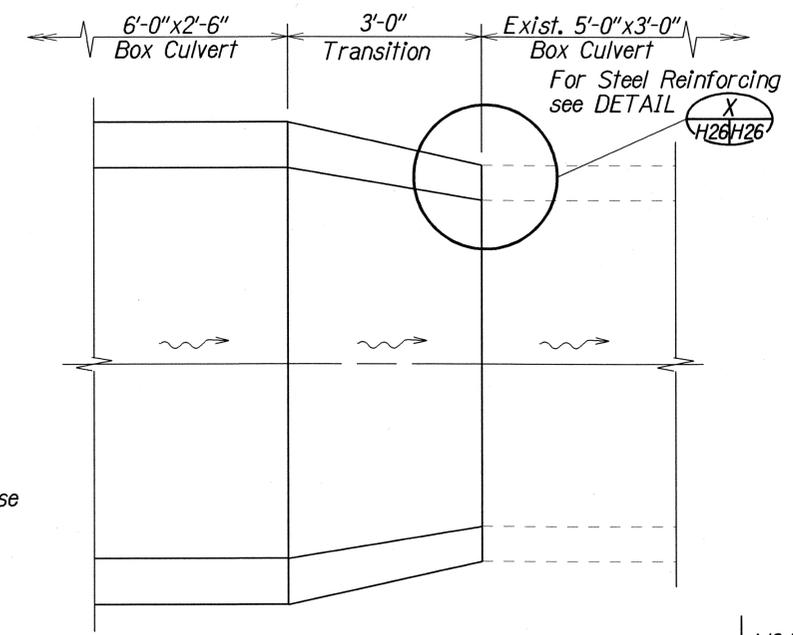
TYPICAL DETAILS OF CULVERT TRENCH RESTORATION

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



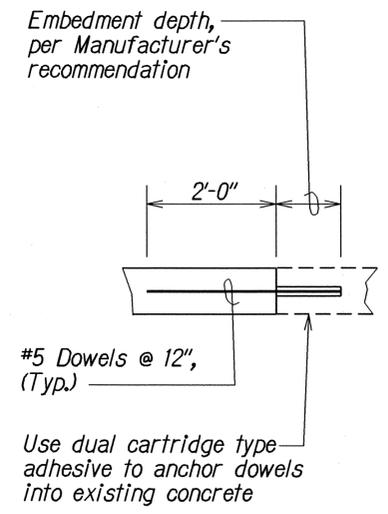
TYPICAL TRENCH AND BACKFILL DETAIL FOR CONCRETE BOX CULVERT

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



DETAIL OF BOX CULVERT TRANSITION

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



DETAIL X H26/H26

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

1/2/02 Revised culv. & box. restoration details

DATE	REVISION
------	----------

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

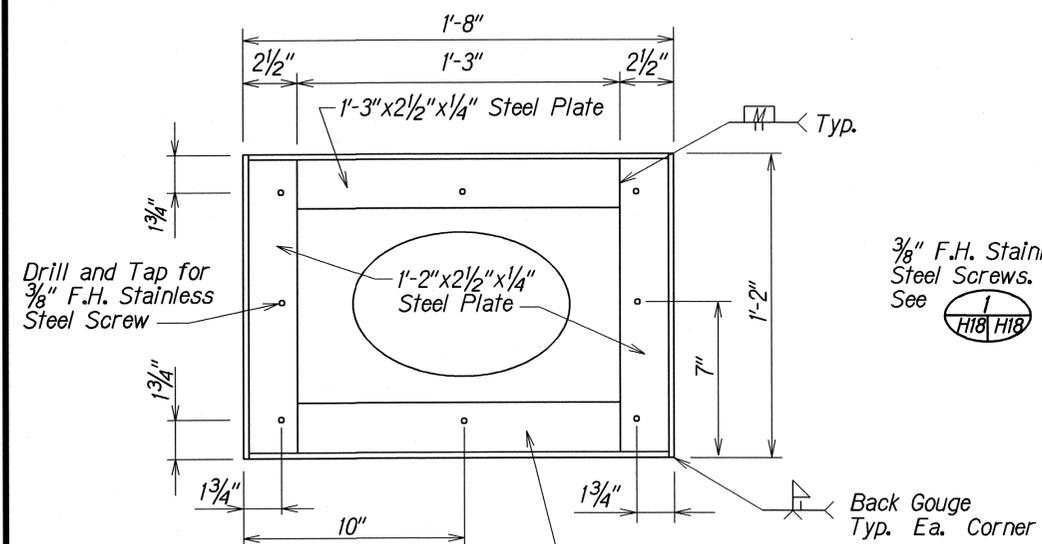
DRAINAGE DETAIL

HONOAPIILANI HIGHWAY WIDENING
Maalaea Road to North Kihai Road
Fed. Aid Proj. No. NH-030-1(28)

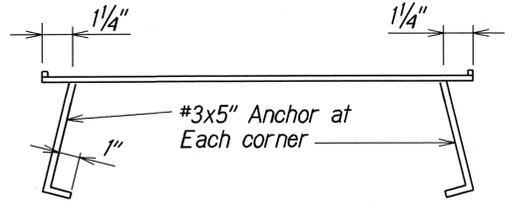
Scale: As Shown Date: June 2001

SHEET No. H26 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2002	ADD 36 S-1	72

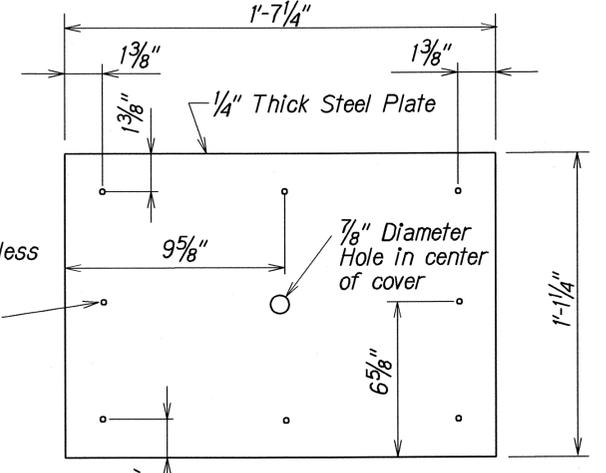


PLAN

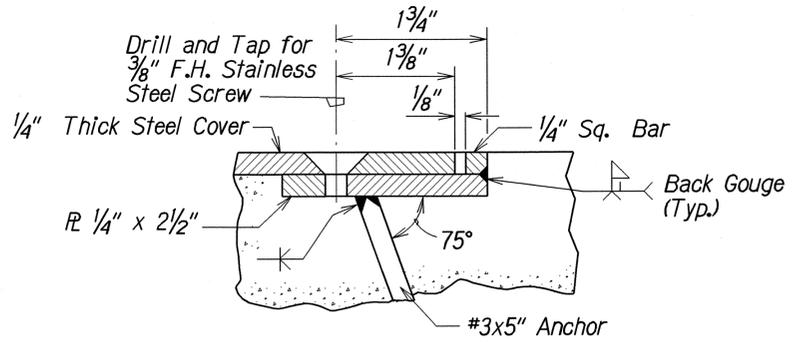


SECTION

DETAILS OF STEEL FRAME



PLAN
DETAIL OF STEEL COVER

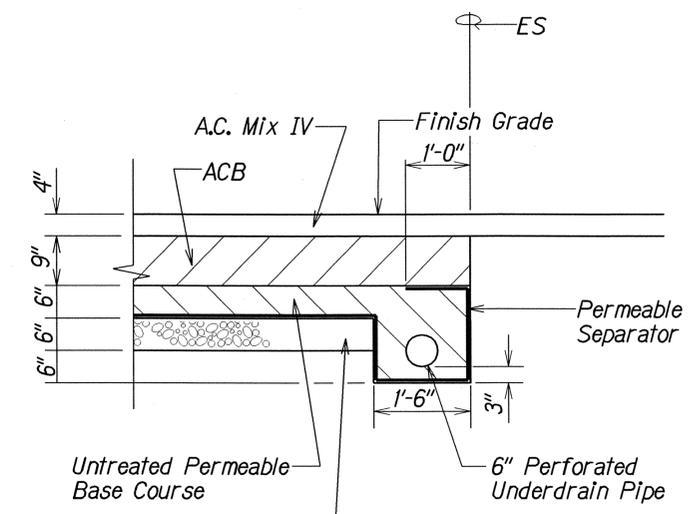


DETAIL
Full Size

NOTE: All Steel Parts shall be galvanized in accordance with the requirements of ASTM A123.

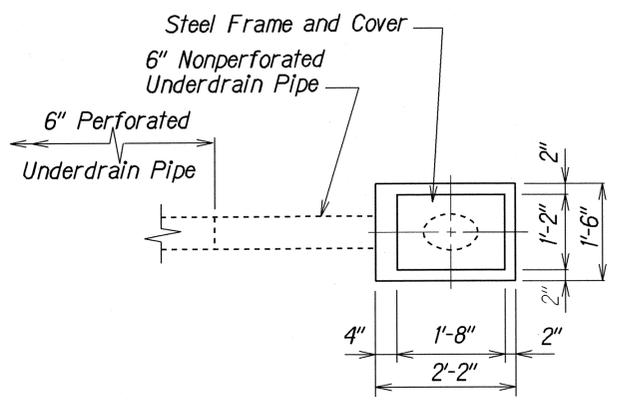
DETAILS OF STEEL FRAME AND COVER FOR CLEANOUT

Scale: 3"=1'-0"

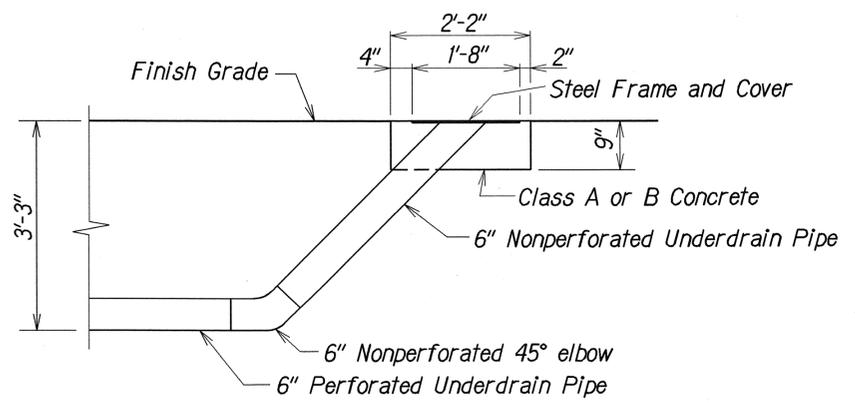


TYPICAL DETAILS OF 6" UNDERDRAIN

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



PLAN



ELEVATION

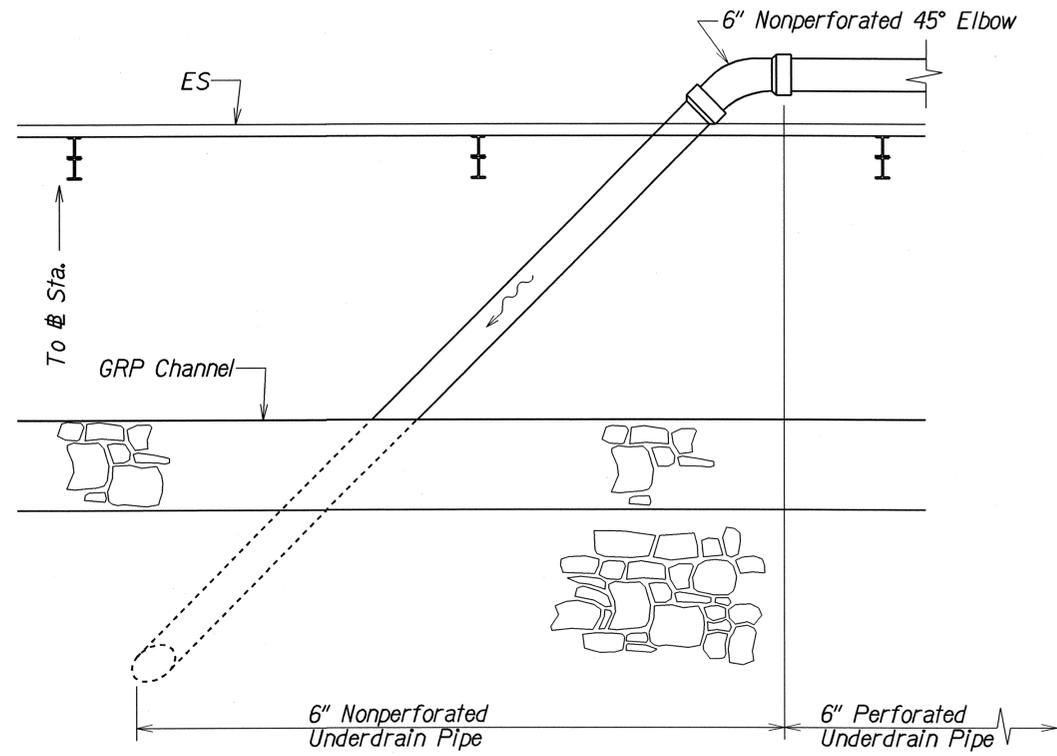
TYPICAL DETAILS OF CLEANOUT

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

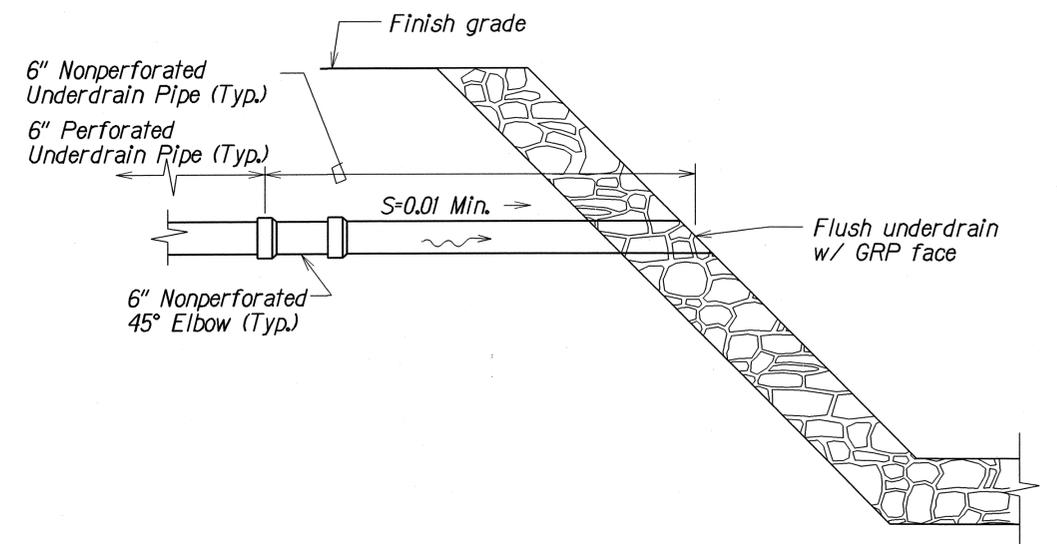
DATE	1/22/02
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

1/2/02	added detail sheet
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
DRAINAGE DETAIL	
HONOAPIILANI HIGHWAY WIDENING Maalaea Road to North Kihei Road Federal Aid Project No. NH-030-1(28)	
Scale: As Shown	Date: Jan, 2002
SHEET No. H26A OF 26 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(28)	2002	ADD 36 S-2	72



PLAN



ELEVATION

TYPICAL DETAILS OF 6" UNDERDRAIN CONNECTION TO GRP CHANNEL

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

UNDERDRAIN PIPE SCHEDULE		
6" LONGITUDINAL UNDERDRAIN PIPE	UNDERDRAIN CONNECTION TO GRP CHANNEL	UNDERDRAIN CLEANOUT
(-)-7+50 Rt. to (-)-5+00 Rt.	(-)-7+50 Rt.	
(-)-5+00 Rt. to (-)-3+00 Rt.	(-)-5+00 Rt.	
(-)-3+00 Rt. to (-)-1+00 Rt.	(-)-3+00 Rt.	
(-)-0+85 Rt. to 1+00 Rt.	(-)-0+85 Rt.	
1+00 Rt. to 3+00 Rt.	1+00 Rt.	
3+00 Rt. to 4+55 Rt.	3+00 Rt.	
4+60 Rt. to 7+00 Rt.	4+60 Rt.	
7+00 Rt. to 9+02 Rt.	7+00 Rt.	
9+15 Rt. to 12+00 Rt.	9+15 Rt.	
12+00 Rt. to 13+66 Rt.	12+00 Rt.	
13+84 Rt. to 16+00 Rt.	13+84 Rt.	
16+00 Rt. to 19+00 Rt.		16+00 Rt.
19+00 Rt. to 22+00 Rt.		19+00 Rt.
22+00 Rt. to 25+00 Rt.		22+00 Rt.
25+00 Rt. to N.B. 2+00 Rt.		25+00 Rt.
N.B. 2+00 Rt. to N.B. 5+00 Rt.		N.B. 2+00 Rt.
N.B. 5+00 Rt. to N.B. 8+00 Rt.		N.B. 5+00 Rt.
		N.B. 8+00 Rt.

Estimated Quantities:
 6" Perforated Underdrain Pipe = 3,940 L.F.
 6" Non-Perforated Underdrain Pipe = 160 L.F.
 Cleanout = 7 EA.

DATE	1/2/02
SURVEY PLOTTED BY	
DRAWN BY	
NOTE BOOK	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

1/2/02	added detail sheet
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
DRAINAGE DETAIL	
HONOAPIILANI HIGHWAY WIDENING Maalaea Road to North Kihei Road Federal Aid Project No. NH-030-1(28)	
Scale: As Shown	Date: Jan, 2002
SHEET No. H26B OF 26 SHEETS	