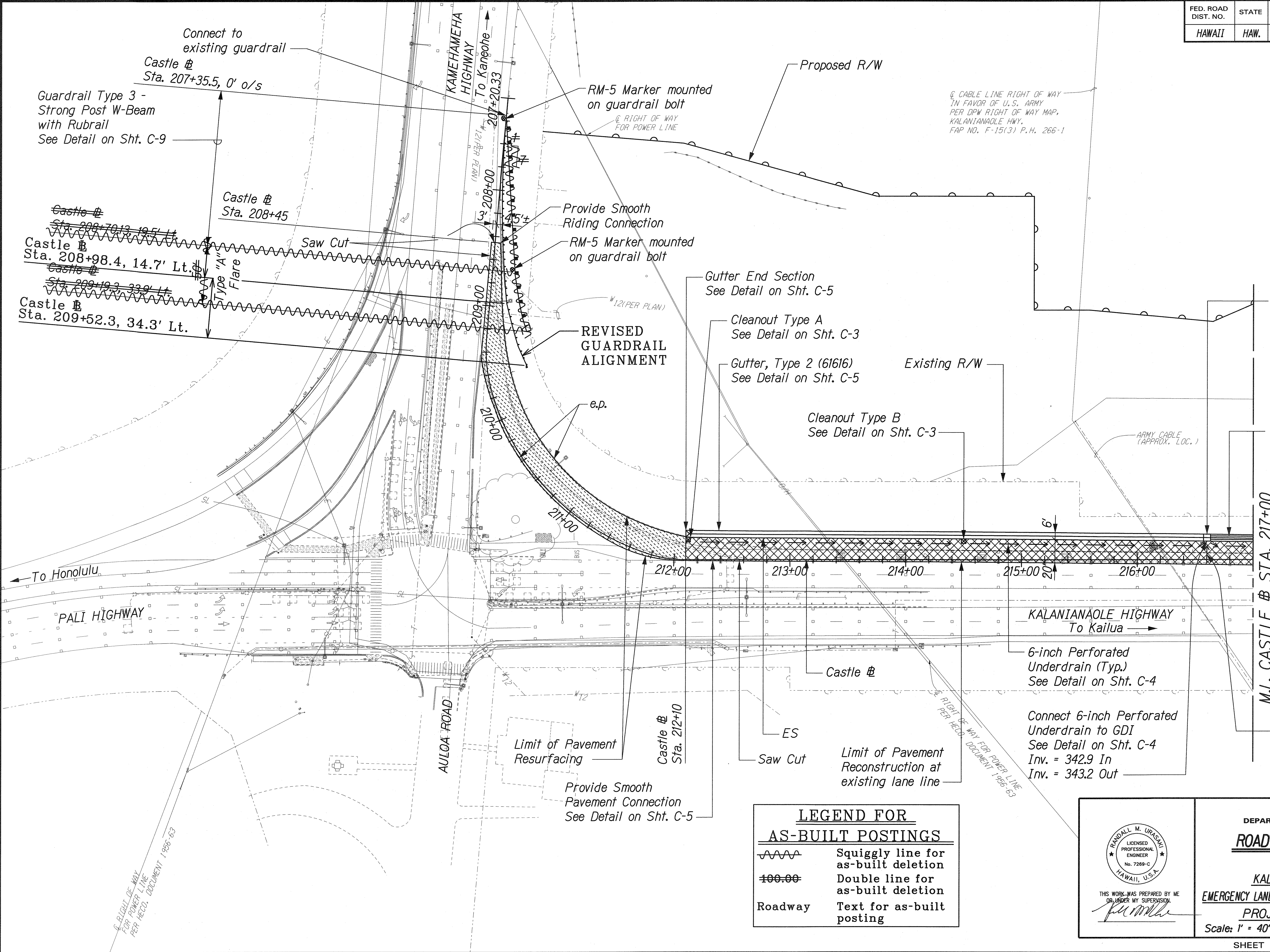
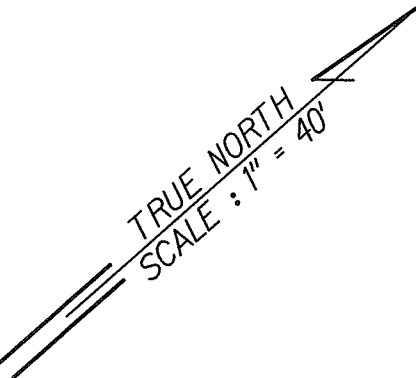


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61C-01-04	2004	13	91

02-04



Type 61616 Grated Drop Inlet  
See Std. Plan H-12  
Castle # Sta. 216+60, 18.9' Lt.  
Inv. = 340.5  
See Std. Plan H-04 for  
added reinforcing at culvert  
opening and culvert  
seat detail.

24-inch Reinforced Concrete  
Pipe, Class III, or 24-Inch  
High Density Polyethylene  
Pipe

M.L. CASTLE # STA. 217+00

6-inch Transverse  
Underdrain  
See Detail on Sht. C-4

6-inch Perforated  
Underdrain (Typ.)  
See Detail on Sht. C-4

Connect 6-inch Perforated  
Underdrain to GDI  
See Detail on Sht. C-4  
Inv. = 342.9 In  
Inv. = 343.2 Out

**LEGEND FOR  
AS-BUILT POSTINGS**

Squiggly line for  
as-built deletion

Double line for  
as-built deletion

Text for as-built  
posting

Roadway

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STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**ROADWAY CONSTRUCTION**  
**& DRAINAGE**  
KALANIANA'OLE HIGHWAY  
EMERGENCY LANDSLIDE REPAIRS AT CASTLE JUNCTION  
PROJECT NO. 61C-01-04 02-04  
Scale: 1" = 40'  
Date: Sept. 26, 2003

ORIGINAL PLAN	DESIGNED BY	DATE
NOTE BOOK	TRACED BY	
	QUANTITIES BY	
	CHECKED BY	

1/2 CASTLE JUNCTION ROADWAY/RC-01.dgn

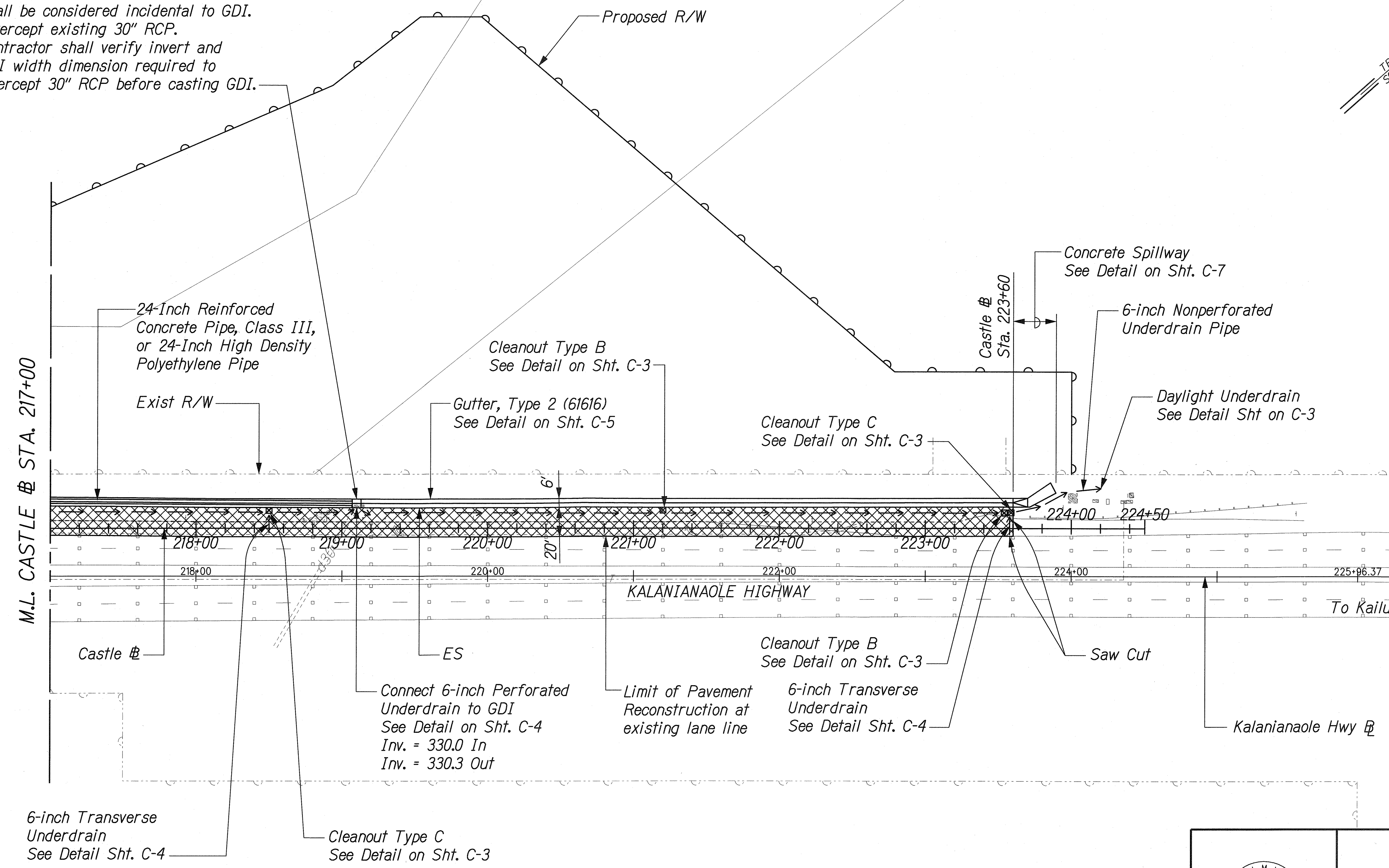
RIGHT OF WAY  
FOR POWER LINE  
PER HECO, DOCUMENT 1955-53

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61C-01-04#	2004	14	91

02-04

Type 61616 Grated Drop Inlet  
See Std. Plan H-12  
Castle # Sta. 219+10±, 17.1'± Lt.  
Inv. = 326.8±  
See Std. Plan H-04 for additional  
reinforcing at culvert opening  
and culvert seat detail.  
Remove exist. headwall.  
Payment for removal of headwall  
shall be considered incidental to GDI.  
Intercept existing 30" RCP.  
Contractor shall verify invert and  
GDI width dimension required to  
intercept 30" RCP before casting GDI.

TRUE NORTH  
SCALE: 1" = 40'



ORIGINAL PLAN	DATE
NOTED BY	
DESIGNED BY	
CHECKED BY	
IN CHARGE	

J:\CASTLE JUNCTION\ROAD\RC-02.dgn

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*Rumla*

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ROADWAY CONSTRUCTION**

**\* DRAINAGE**

**KALANIANA'OLE HIGHWAY**

**EMERGENCY LANDSLIDE REPAIRS AT CASTLE JUNCTION**

PROJECT NO. 61C-01-04# 02-04  
Scale: 1" = 40' Date: Sept. 26, 2003

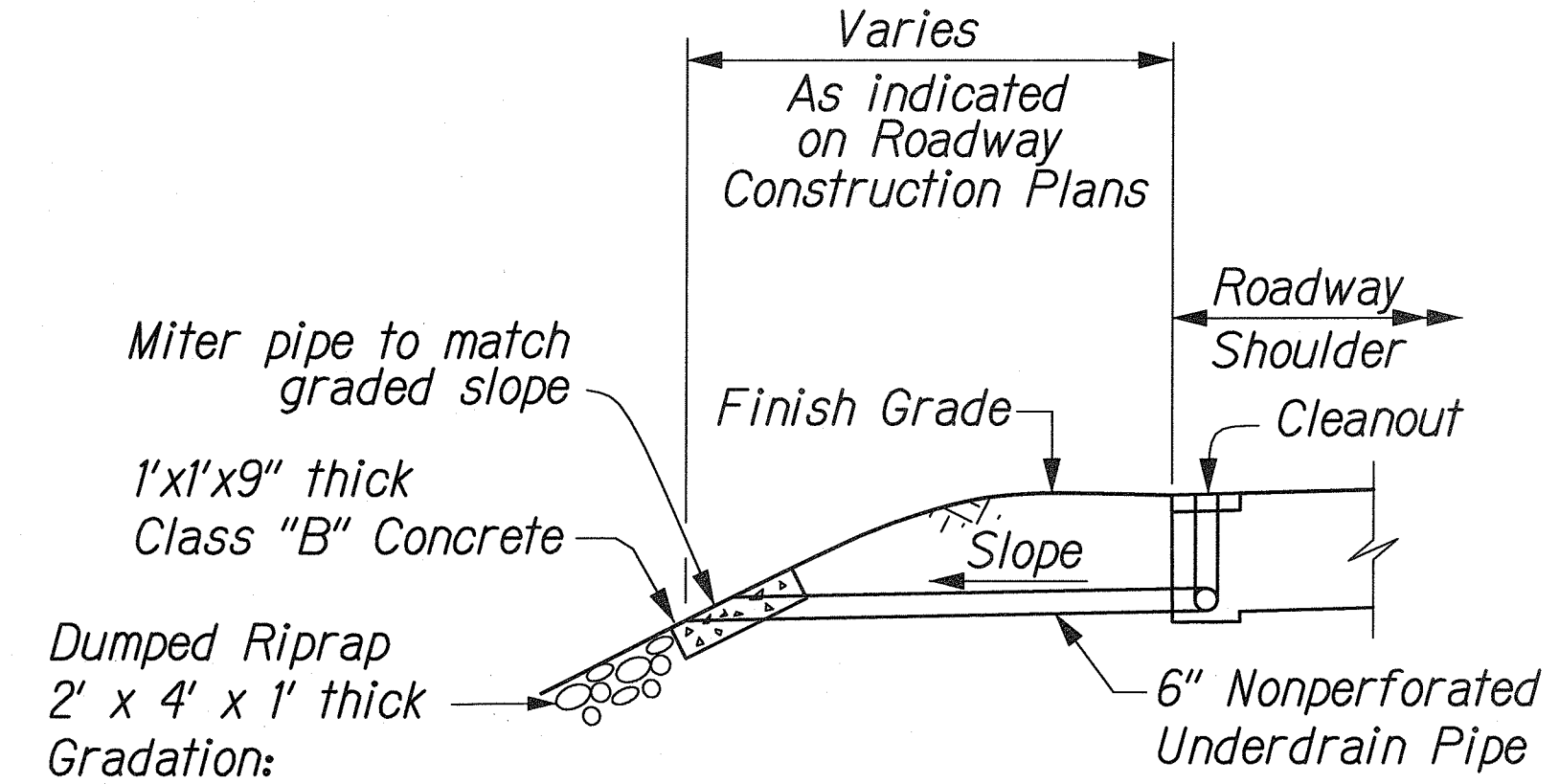
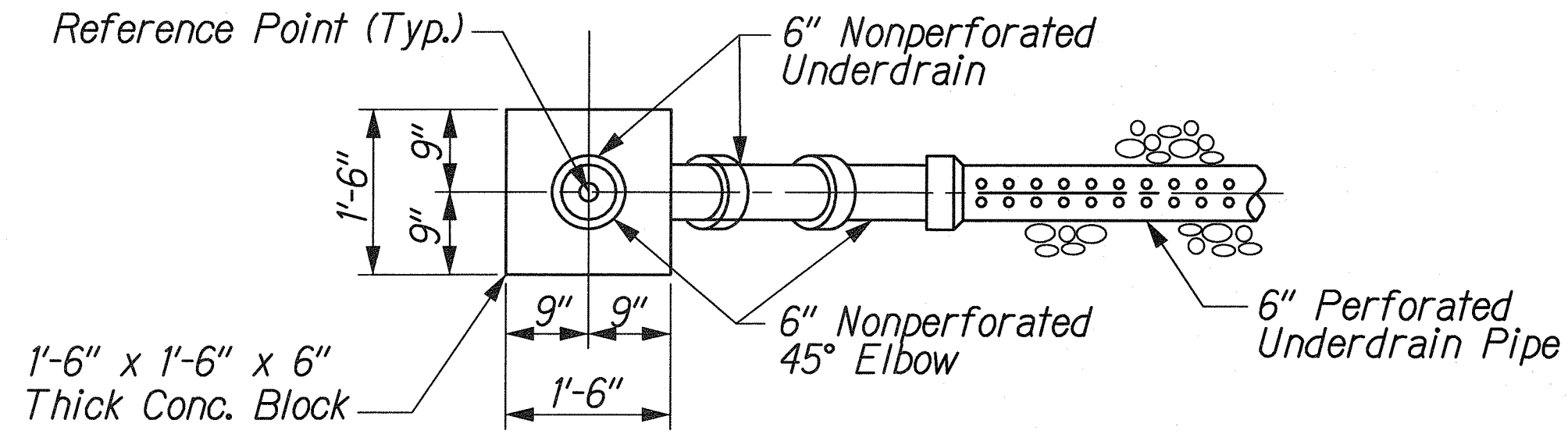
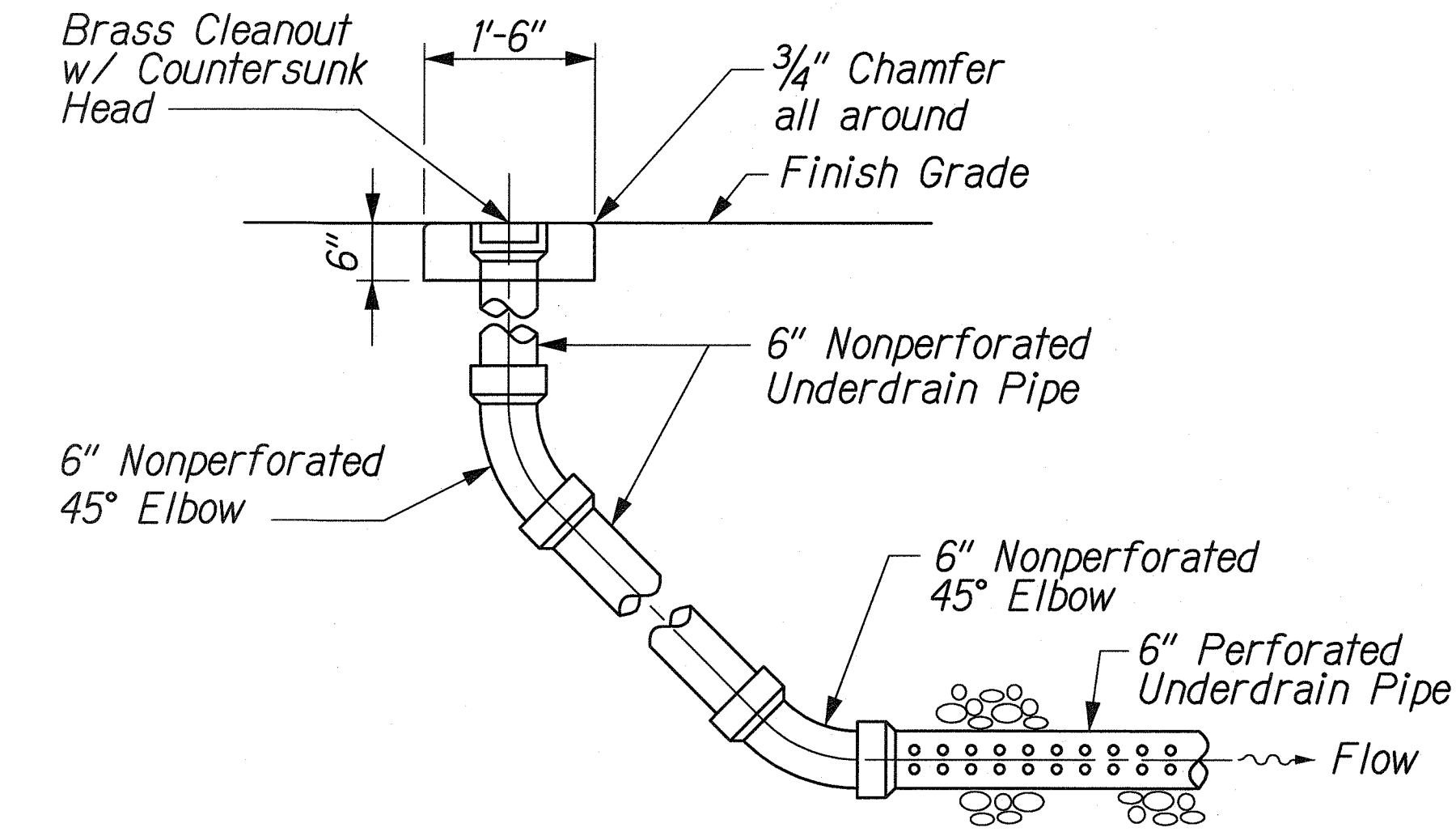
SHEET No. C-2 OF 12 SHEETS

"AS-BUILT"



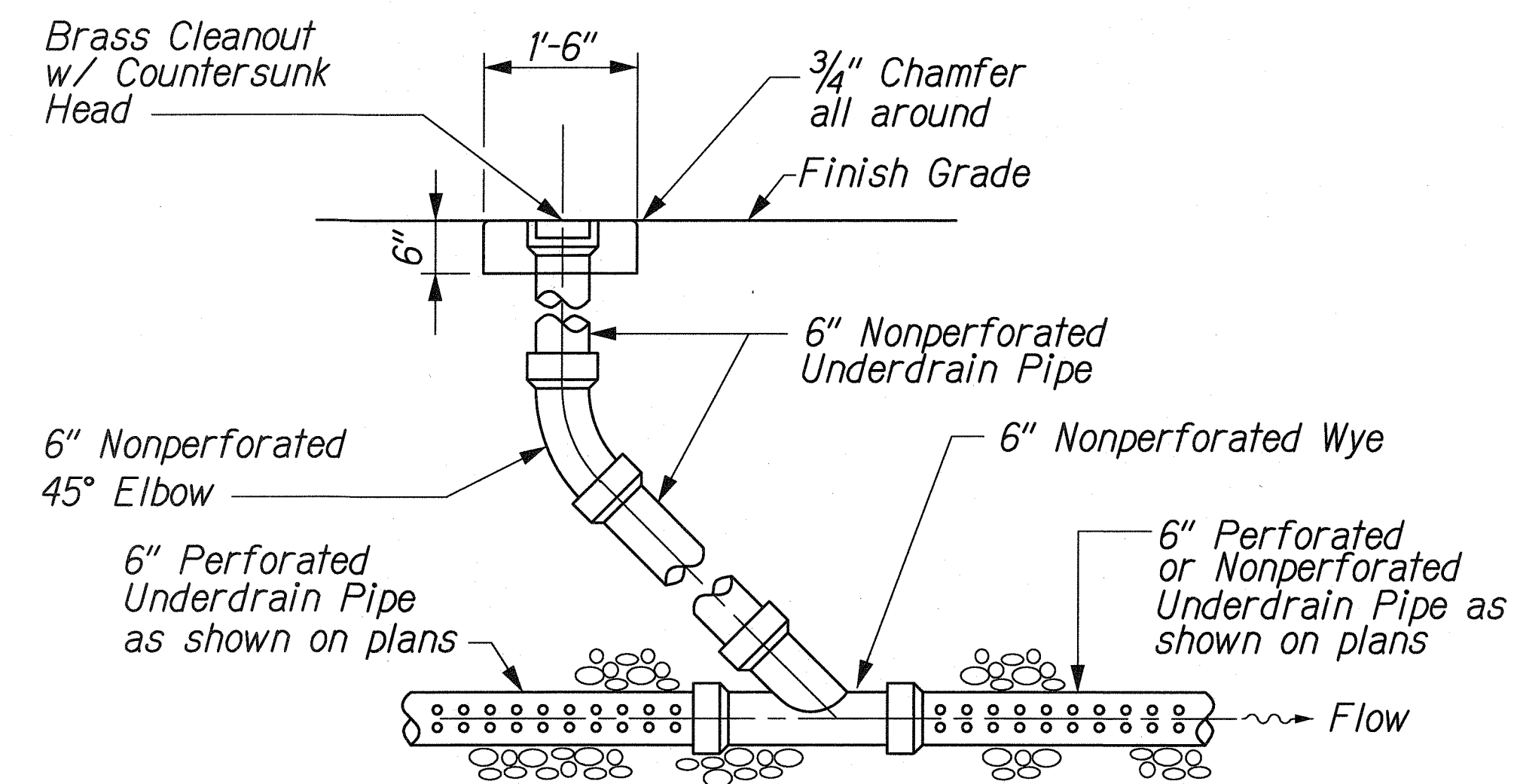
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61C-01-04#	2004	15	91

02-04



NOTE: Payment for Daylighting Underdrain in Graded Areas shall be considered incidental to 6-inch Nonperforated Underdrain Pipe.

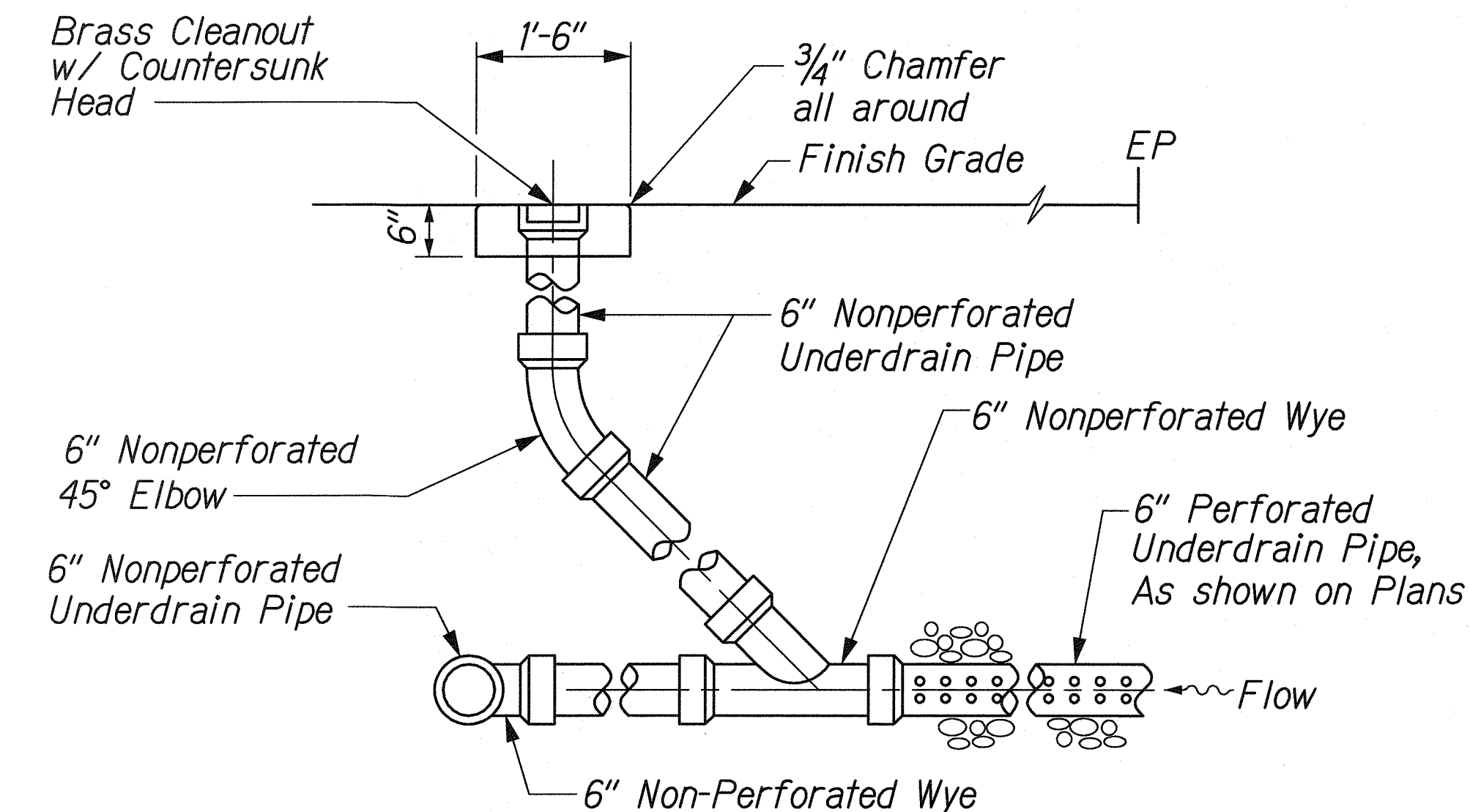
D<sub>100</sub> = 12"  
D<sub>85</sub> = 10"  
D<sub>50</sub> = 6"  
D<sub>15</sub> = 3½"



UNDERDRAIN SUMMARY				
FROM BASELINE STATION (Castle Baseline)	TO BASELINE STATION (Castle Baseline)	6-INCH PERFORATED UNDERDRAIN PIPE	6-INCH NONPERFORATED UNDERDRAIN PIPE	TRANSVERSE UNDERDRAIN
UNIT	UNIT	LIN FT	LIN FT	LIN FT
212+12, Lt.	214+50, Lt.	238		
214+51, Lt.	216+60, Lt.	209		
216+60, Rt.	216+60, Lt.			19
216+60, Lt.	218+50, Lt.	190		
218+50, Rt.	218+50, Lt.			19
218+51, Lt.	219+10, Lt.	59		
219+10, Lt.	221+20, Lt.	210		
221+21, Lt.	223+58, Lt.	237		
223+59, Rt.	223+59, Lt.			19
223+60, Lt.	224+25, Lt.		65	
TOTAL		1143	65	57
ROUNDED TOTAL		1150	70	60

CLEANOUT SUMMARY				
BASELINE STATION (Castle Baseline)	LOCATION	CLEANOUT TYPE A	CLEANOUT TYPE B	CLEANOUT TYPE C
UNIT		EACH	EACH	EACH
212+11	Lt.	1		
214+50	Lt.		1	
218+50	Lt.			1
221+20	Lt.		1	
223+58	Lt.		1	
223+59	Lt.			1
TOTAL		1	3	2

NOTE: Payment for Cleanout Types A, B, and C shall be paid under Pay Item No. 605.2000 Cleanout.



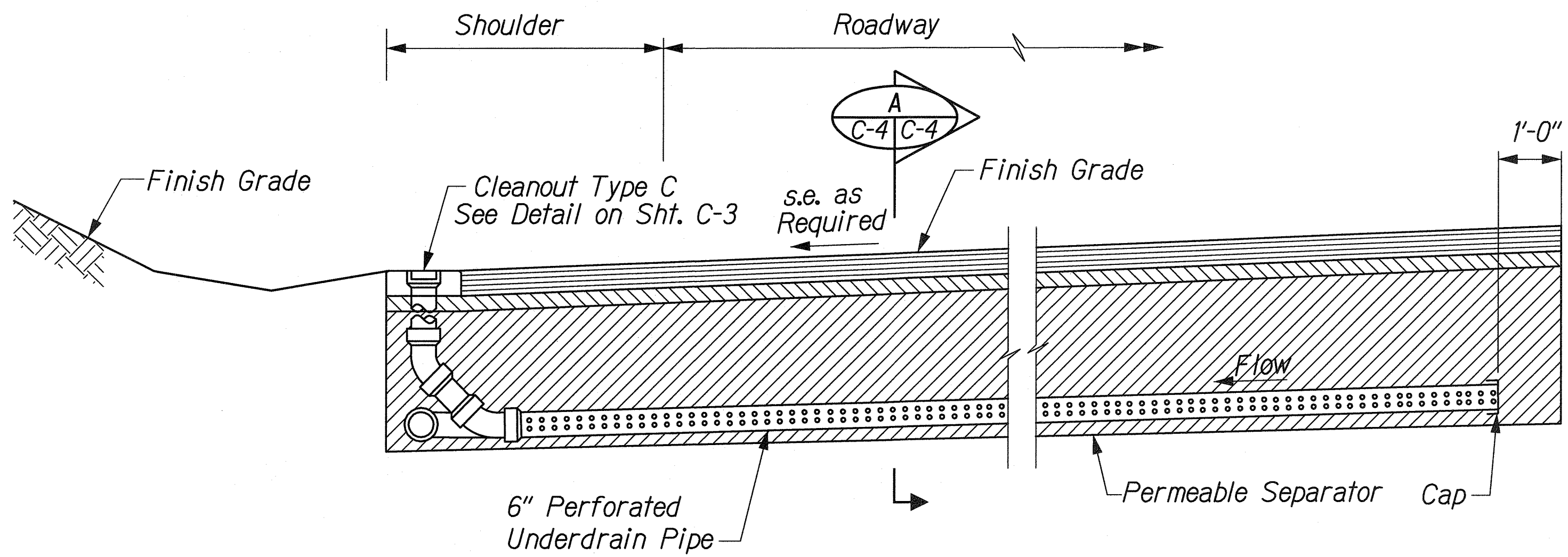
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	DESIGNED BY	
	CHECKED BY	

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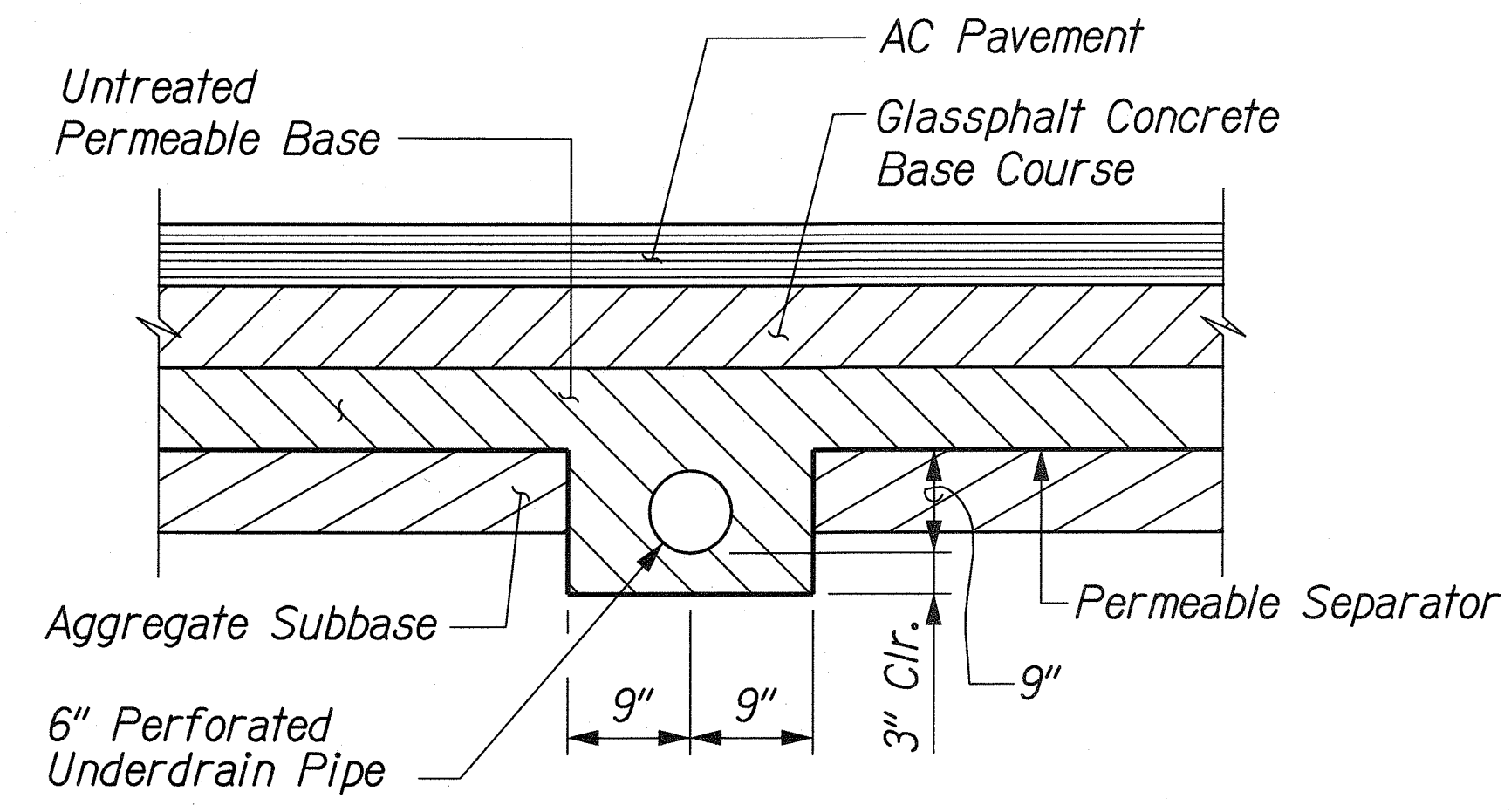
"AS-BUILT"

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61C-01-04#	2004	16	91

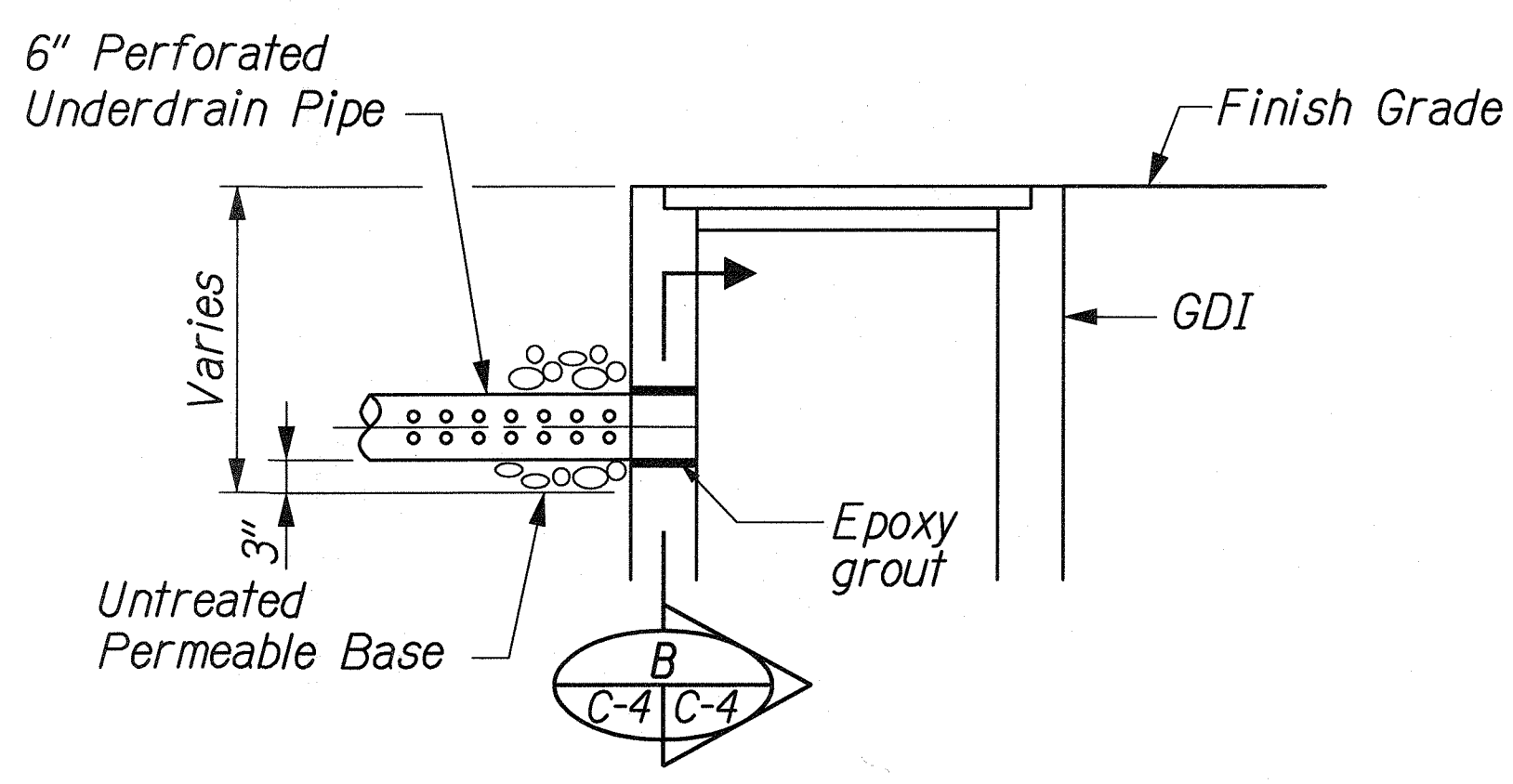
02-04



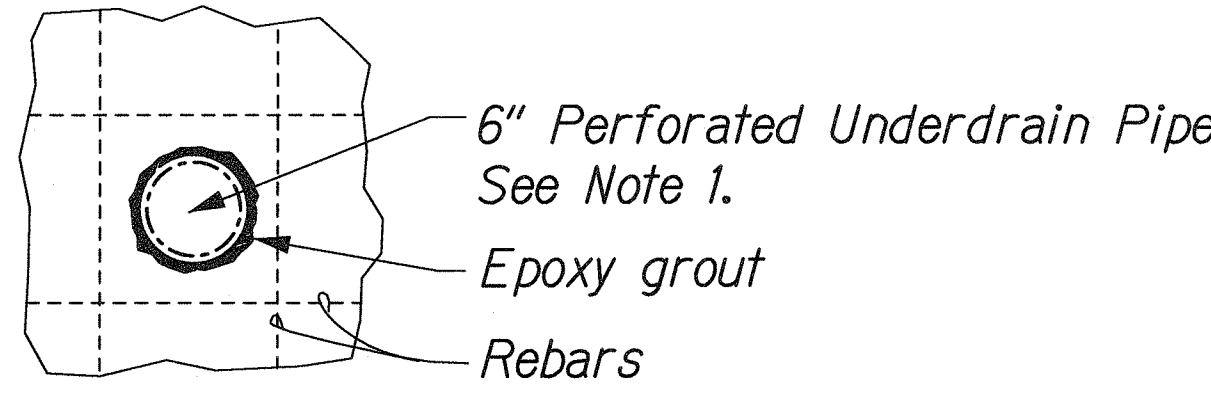
TRANSVERSE UNDERDRAIN  
Not to Scale



SECTION A  
C-4 C-4

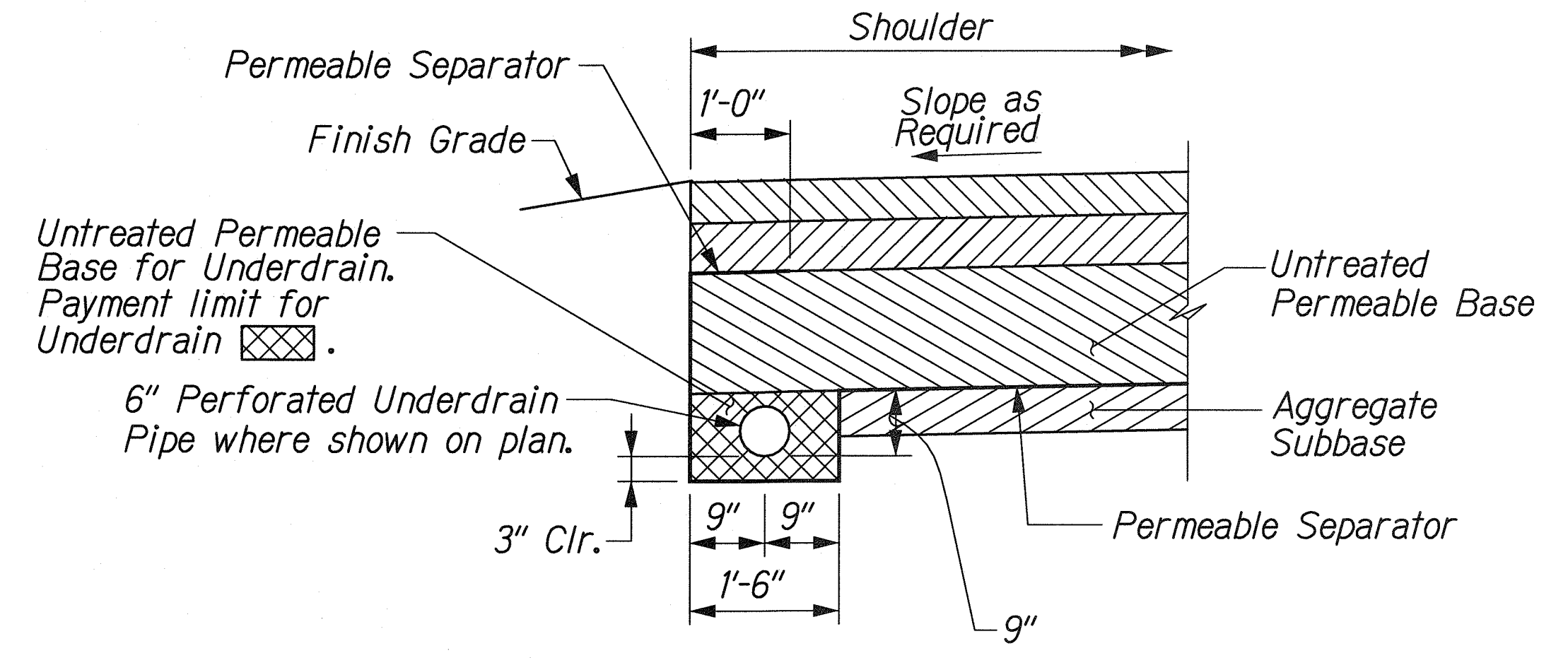


UNDERDRAIN CONNECTION DETAIL  
TO DRAINAGE STRUCTURES  
Not to Scale



- NOTE:**
1. The Contractor shall avoid cutting the rebar. In case the pipe opening interferes with the rebar, the opening shall be enlarged and the location of the pipe shall be adjusted to pass between the rebar as shown. The enlarged hole shall be patched with epoxy grout.
  2. Payment for connection to drainage structures shall be considered incidental to 6-inch Perforated Underdrain Pipe.

SECTION B  
C-4 C-4



UNDERDRAIN DETAIL  
Not to Scale

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
REVISIONS	

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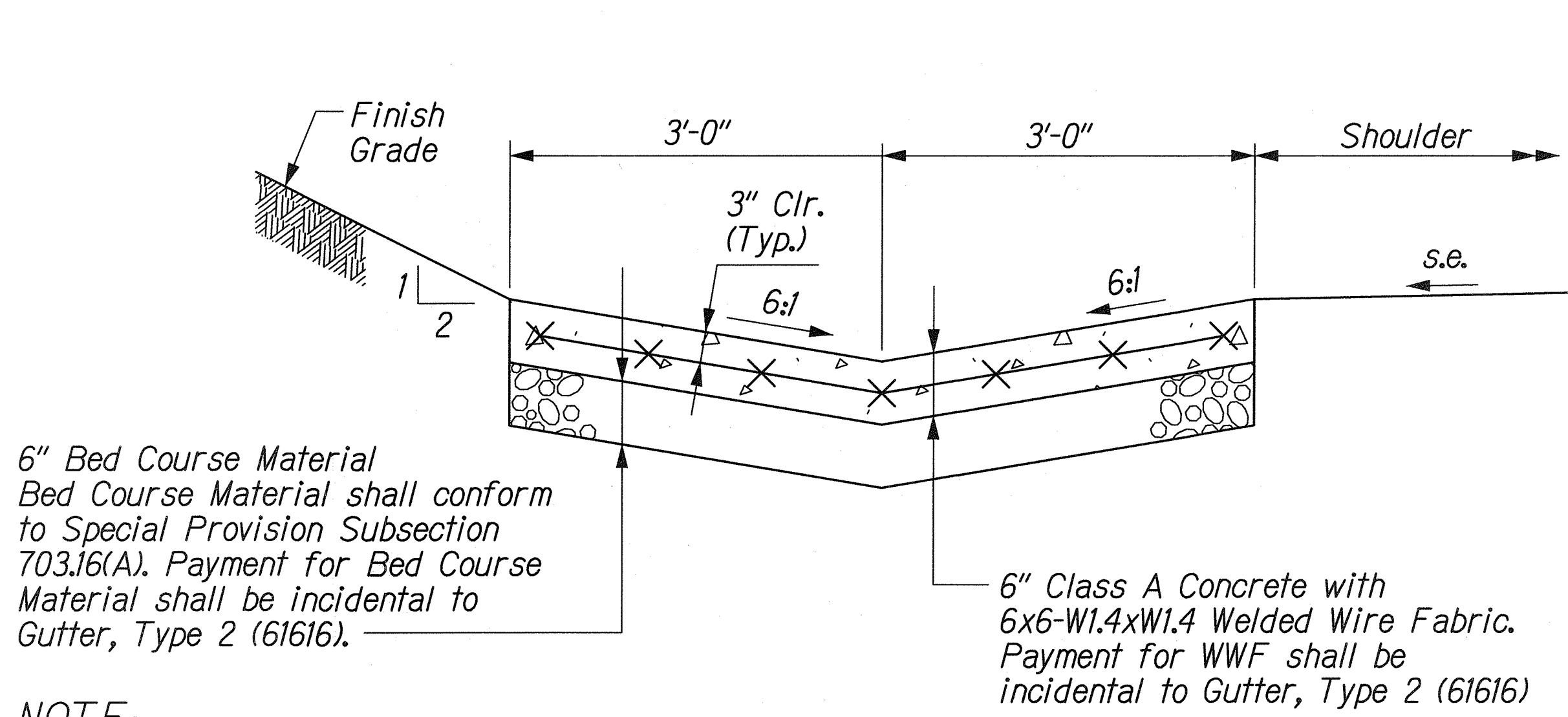
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STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**ROADWAY CONSTRUCTION**  
**UNDERDRAIN DETAILS**  
KALANIANA'OLE HIGHWAY  
EMERGENCY LANDSLIDE REPAIRS AT CASTLE JUNCTION  
PROJECT NO. 61C-01-04# 02-04  
Scale: As Shown Date: Sept. 26, 2003



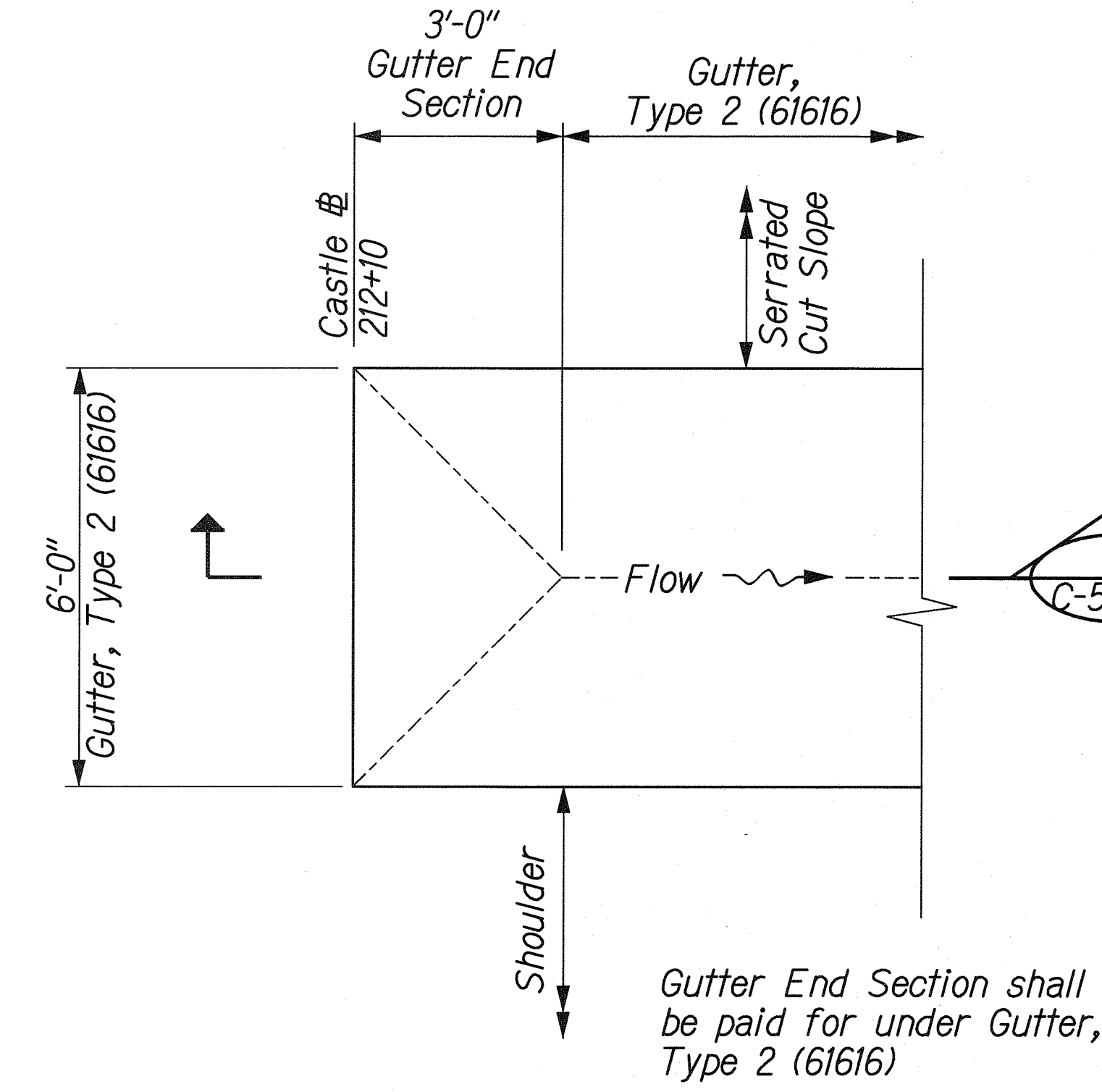
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61C-01-041#	2004	17	91

02-04

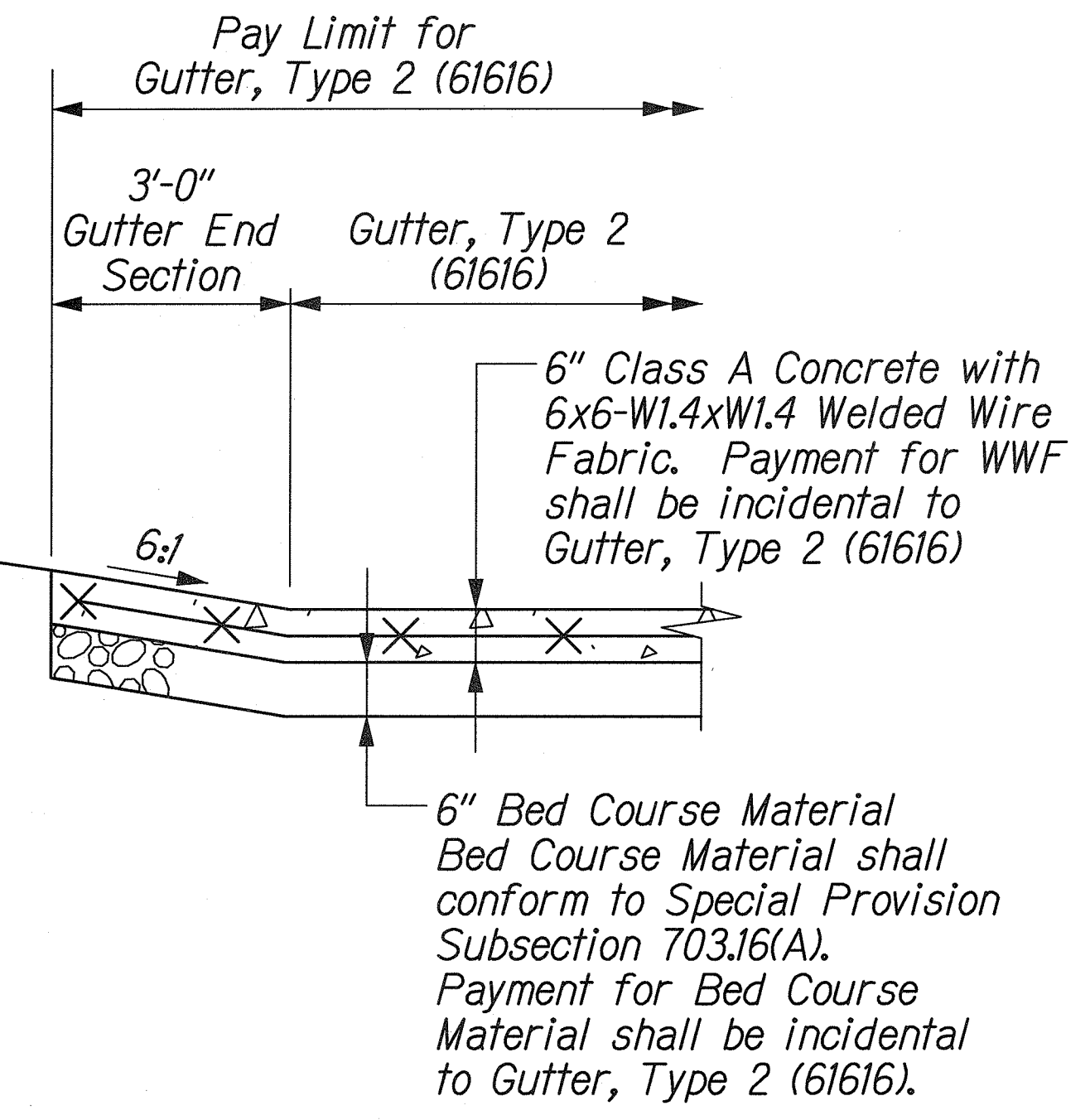


**NOTE:**  
The Contractor shall provide contraction joints at 30' max. spacing and expansion joints at 90' max. spacing. Payment for contraction and expansion joints shall be incidental to Gutter, Type 2 (61616)

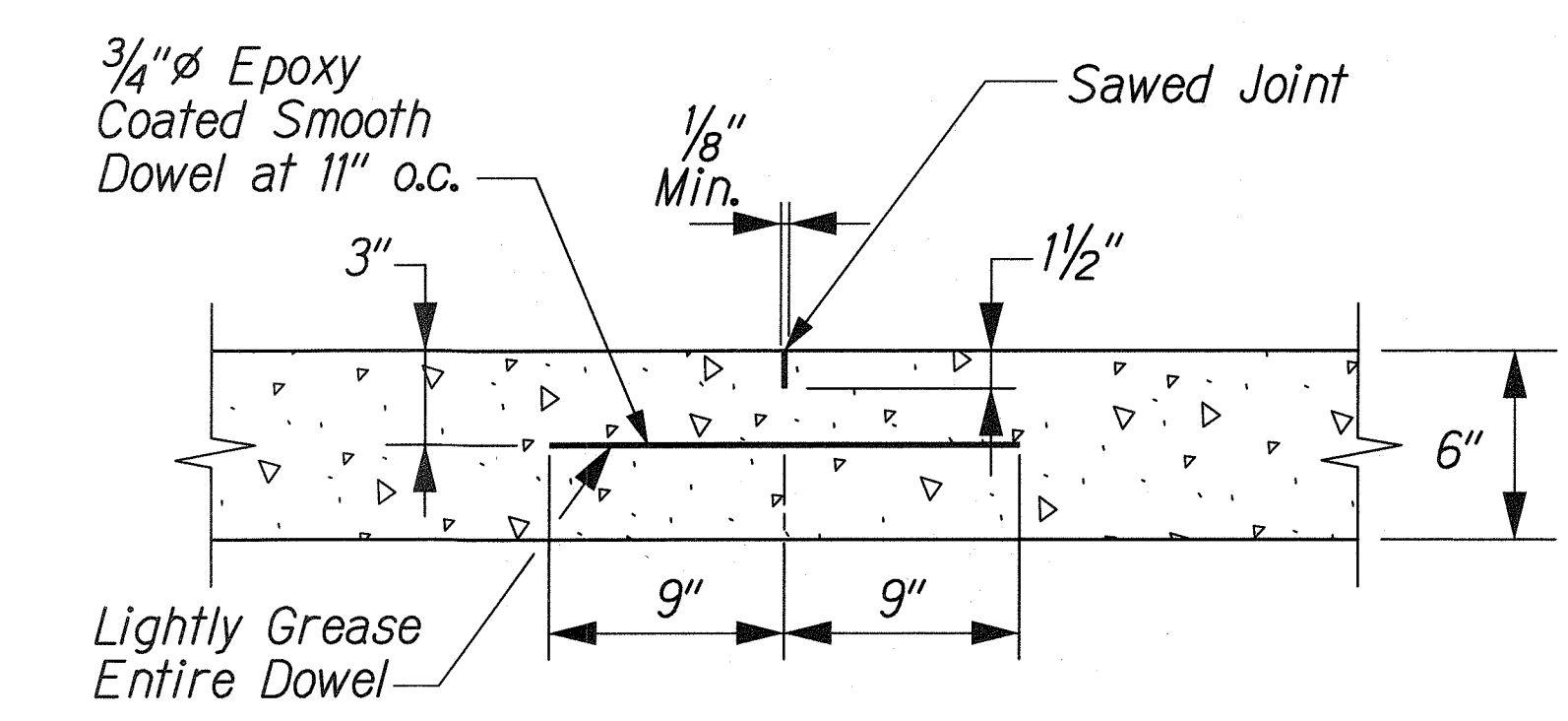
**GUTTER, TYPE 2 (61616)**  
Scale 1" = 1'-0"



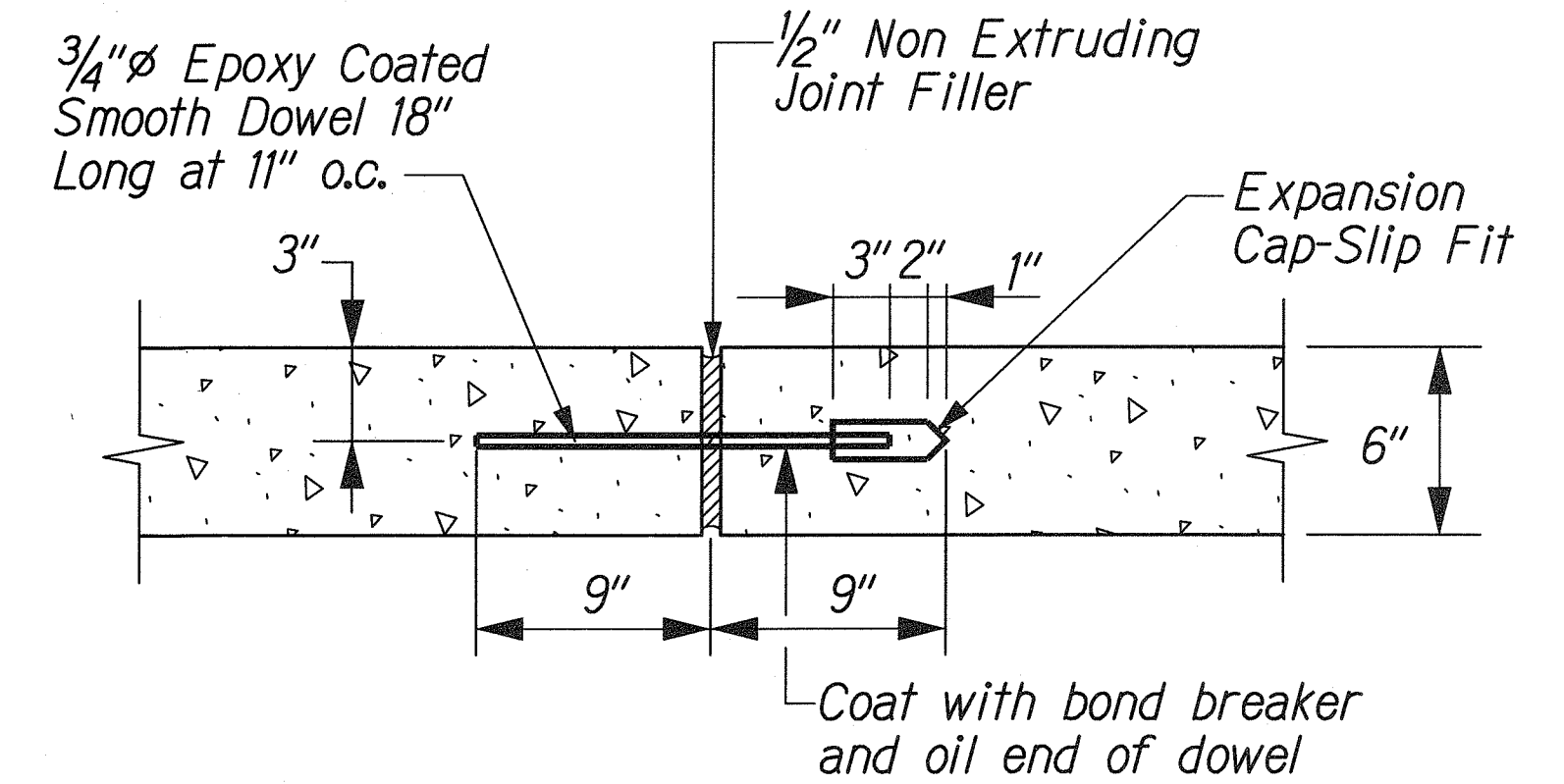
**GUTTER END SECTION DETAIL**  
Scale 1/2" = 1'-0"



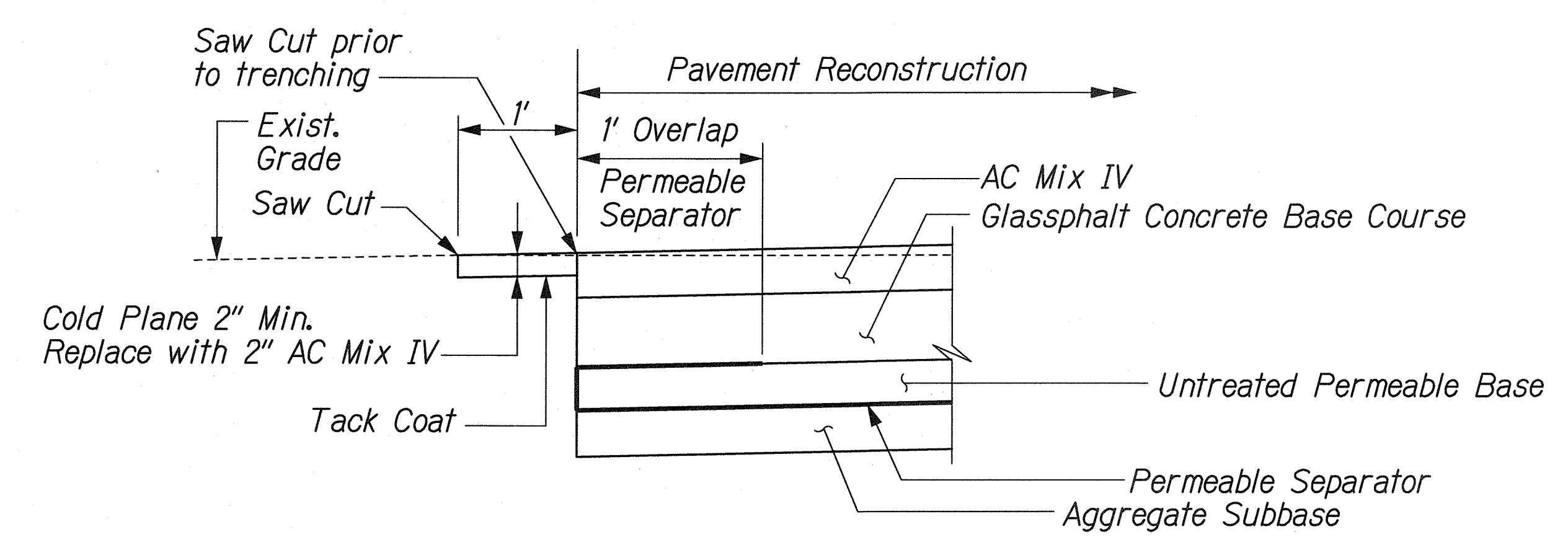
**SECTION A**  
Scale: 1/2" = 1'-0"



**CONTRACTION JOINT DETAIL**  
Not to Scale

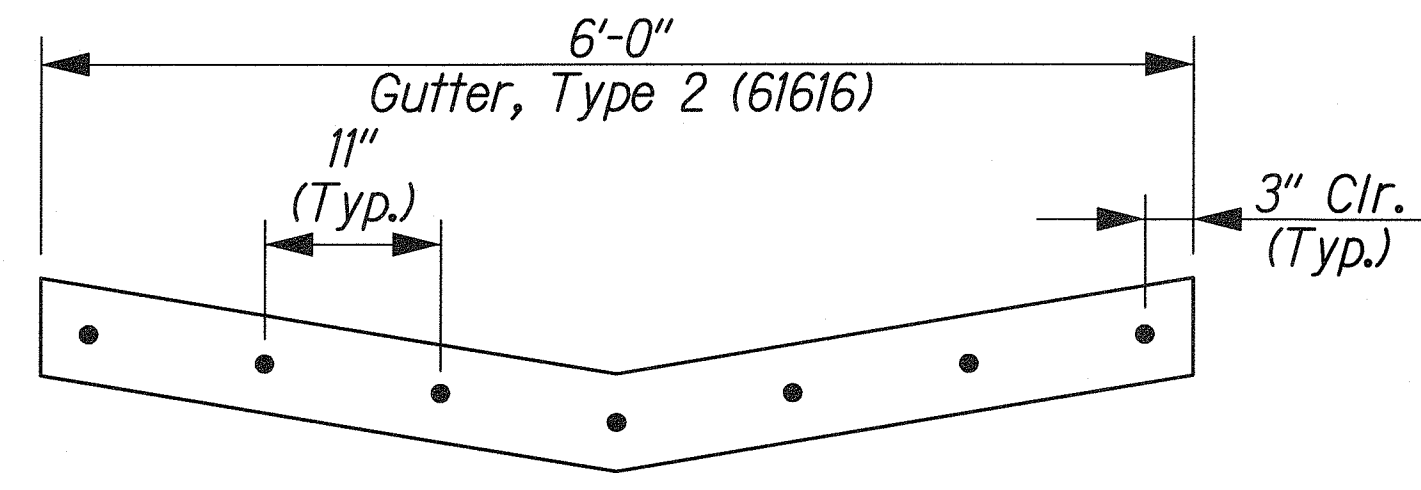


**EXPANSION JOINT DETAIL**  
Not to Scale



**SMOOTH PAVEMENT CONNECTION DETAIL**  
Not to Scale

- CONTRACTION / EXPANSION JOINT NOTES:**
- Epoxy coated dowels shall conform to AASHTO M 284/M 284 M Grade 40 or 60.
  - Contraction joints shall be placed at 30' max. spacing along gutter. Expansion joints shall be placed at 90' max. spacing along gutter.
  - Payment for contraction and expansion joints shall be incidental to Gutter, Type 2 (61616).
  - For expansion joints, either one piece or threaded split type dowels may be used.
  - For joint filler, see specification section 705.04(B).



**DOWEL PLACEMENT AT JOINT LOCATIONS**  
Not to Scale

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DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ROADWAY CONSTRUCTION DETAILS**

KALANIANA'OLE HIGHWAY

EMERGENCY LANDSLIDE REPAIRS AT CASTLE JUNCTION

PROJECT NO. 61C-01-041# 02-04

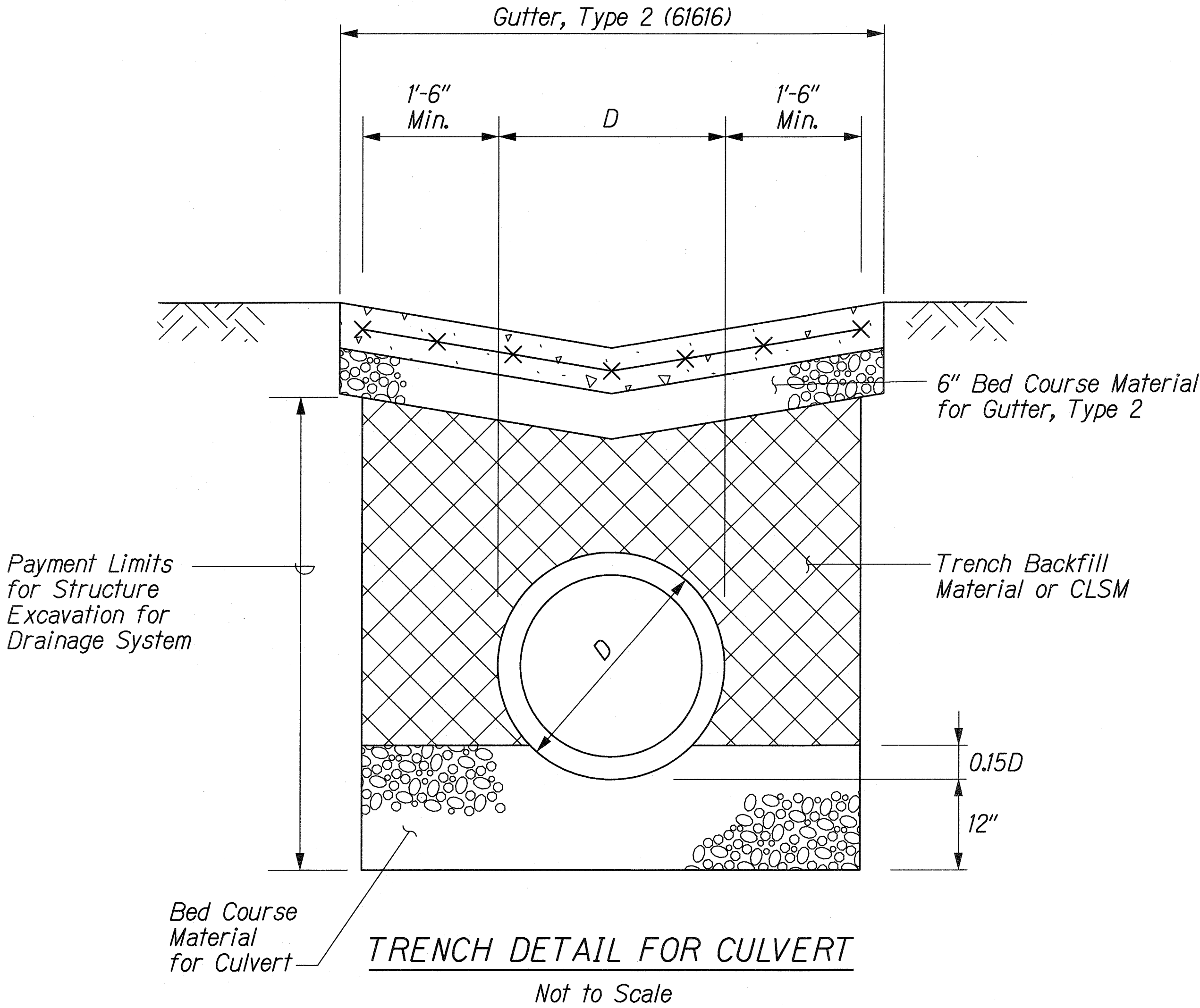
Scale: As Shown Date: Sept. 26, 2003

SHEET No. C-5 OF 12 SHEETS

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	61C-01-04#	2004	18	91

02-04



DRAINAGE SUMMARY						
FROM CASTLE BASELINE STATION	TO CASTLE BASELINE STATION	STRUCTURE EXCAVATION FOR DRAINAGE SYSTEM	BED COURSE MATERIAL FOR CULVERT	24-INCH REINFORCED CONCRETE PIPE, CLASS III, OR 24-INCH HIGH DENSITY POLYETHYLENE PIPE	TYPE 61616 GDI (5.00 FEET TO 5.99 FEET)	TYPE 61616 GDI (6.00 FEET TO 6.99 FEET)
UNIT		C.Y.	C.Y.	LIN FT	EACH	EACH
216+60, Lt.					1	
216+63, Lt.	219+07±, Lt.	246	64	244		
219+10±, Lt.						1
TOTAL		246	64	244	1	1
ROUNDED TOTAL		250	65	250	1	1

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

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DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ROADWAY CONSTRUCTION**  
**DRAINAGE DETAIL & SUMMARY**  
KALANIANA'OLE HIGHWAY

EMERGENCY LANDSLIDE REPAIRS AT CASTLE JUNCTION

PROJECT NO. 61C-01-04# 02-04

Scale: None Date: Sept. 26, 2003