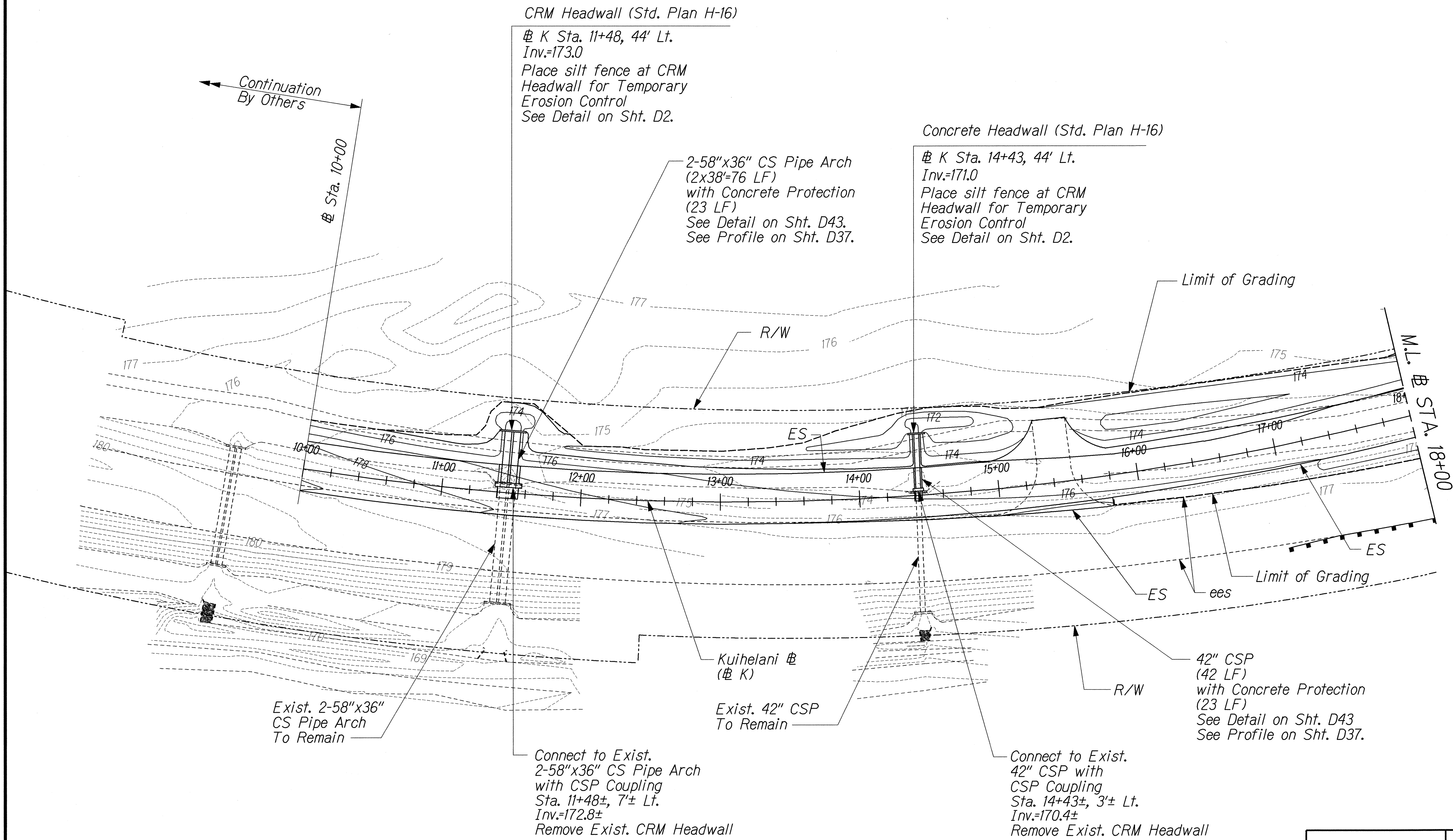
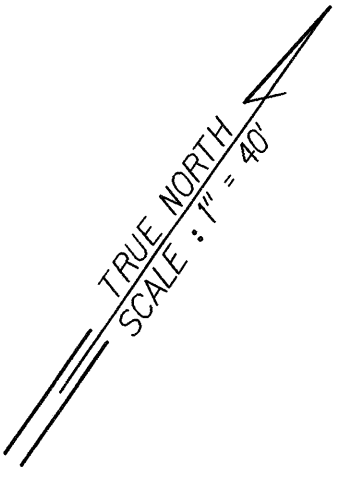


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	111	380



DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
DESIGNED BY	_____
CHECKED BY	_____
NOTE BOOK	_____
NO.	_____

U:\KUIHELANI\DRAIN\DR-01.dgn

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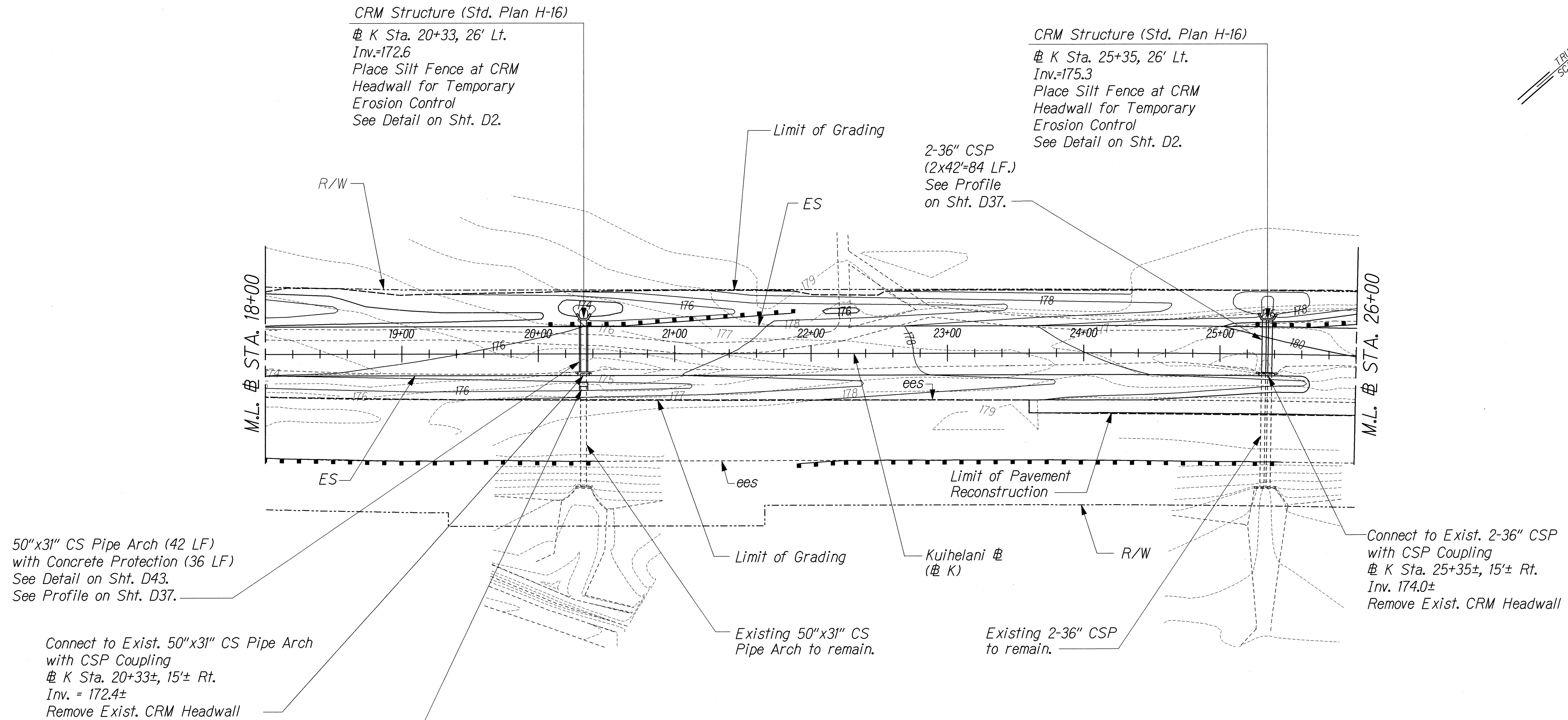
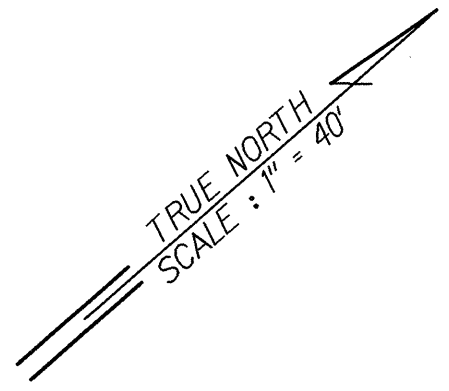
R. M. Urasaka 9/14/01

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

DRAINAGE & GRADING

KUIHELANI HIGHWAY WIDENING
 HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
 FEDERAL-AID PROJECT NO. NH-0380(9)
 Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	112	380



ORIGINAL PLAN	DATE
DESIGNED BY	
DRAWN BY	
CHECKED BY	
NOTED BY	
DATE	

16/KUIHELANI/RAIN/DR-02.dgn

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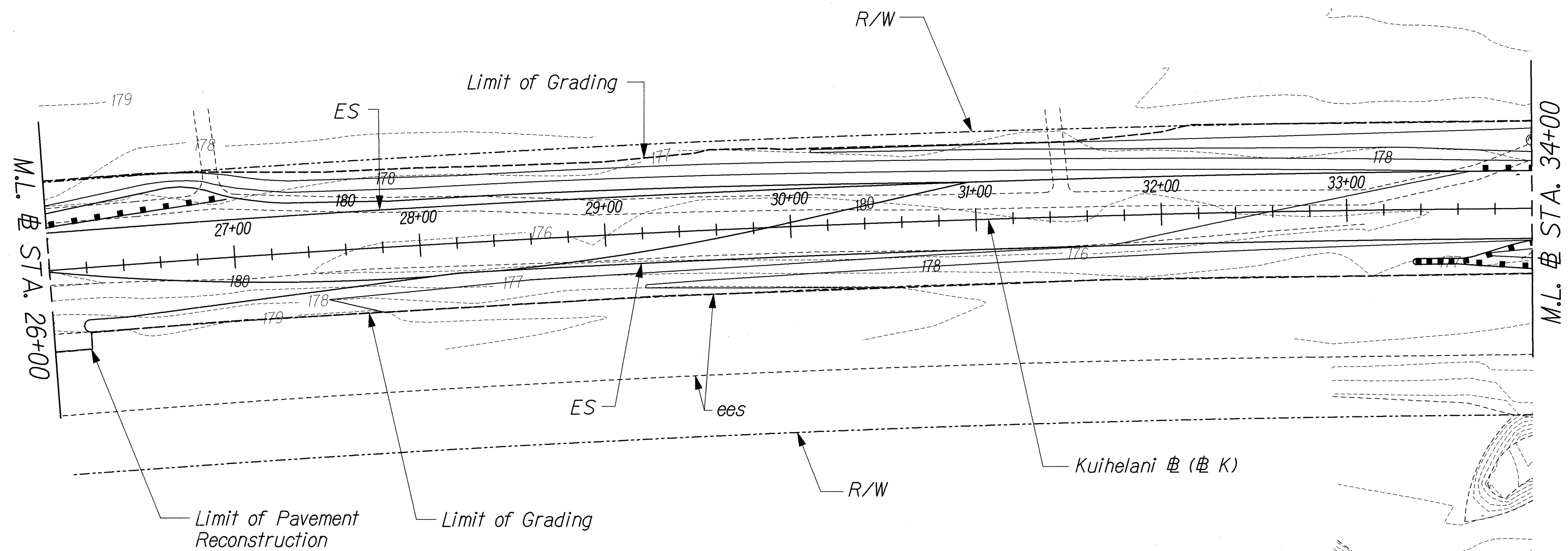
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE & GRADING

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

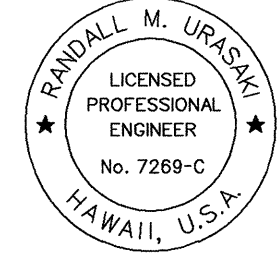
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	113	380

TRUE NORTH
SCALE: 1" = 40'



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTED BOOK	DRAWN BY	
N.	DESIGNED BY	
	CHECKED BY	

J6/KUIHELANI/DRAIN/DR-03.dgn



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9/14/01

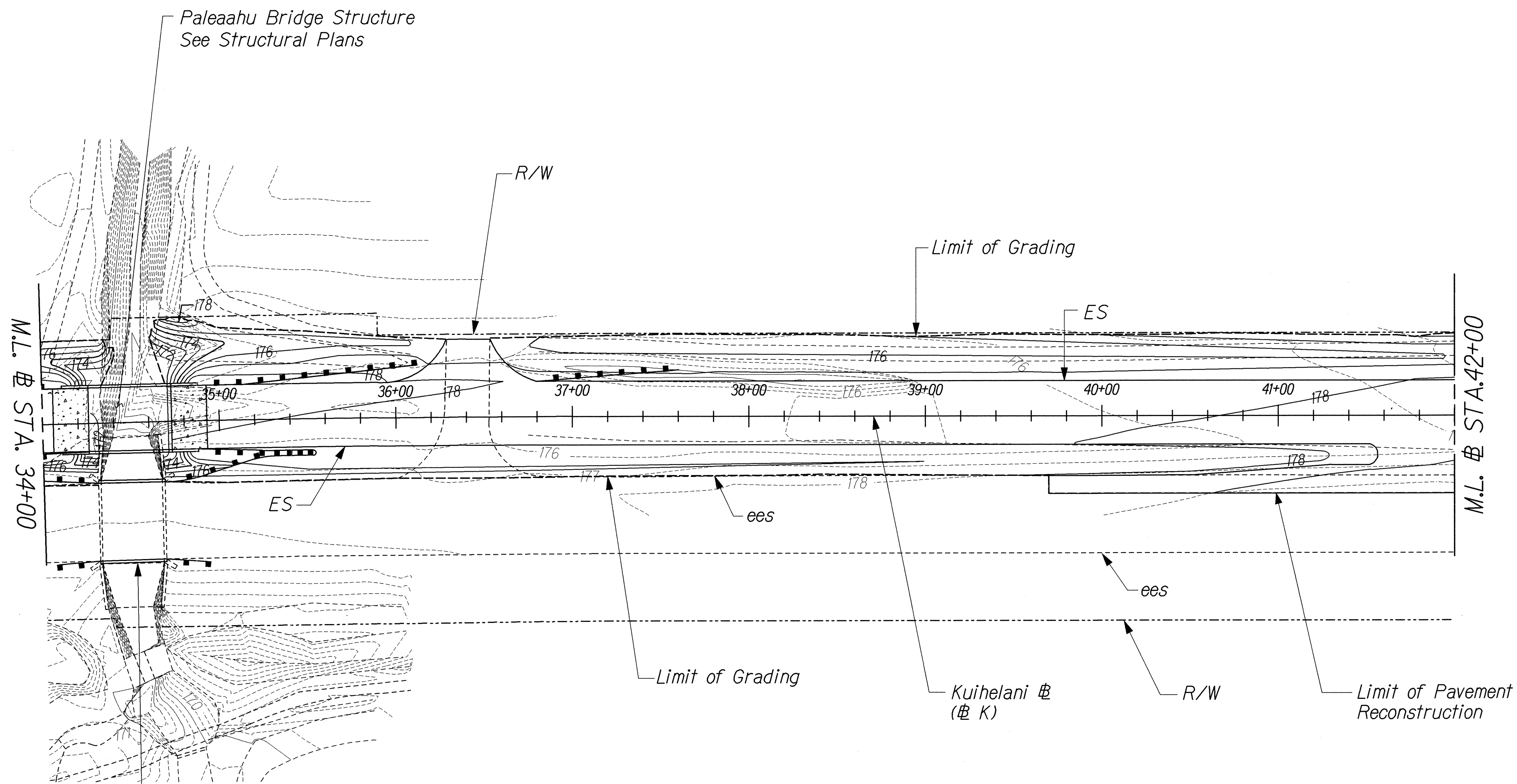
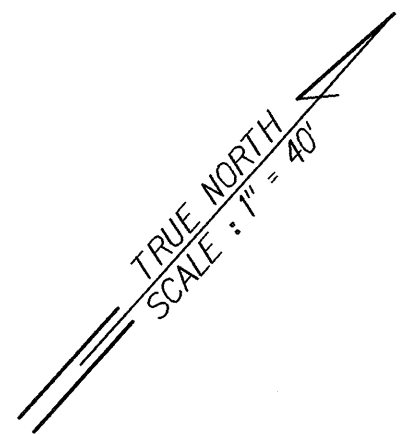
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE & GRADING

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

SHEET No. D5 OF 50 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	114	380



Bridge End Post
and Parapet Upgrade
Modifications (Typ.)
See Structural Plans

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

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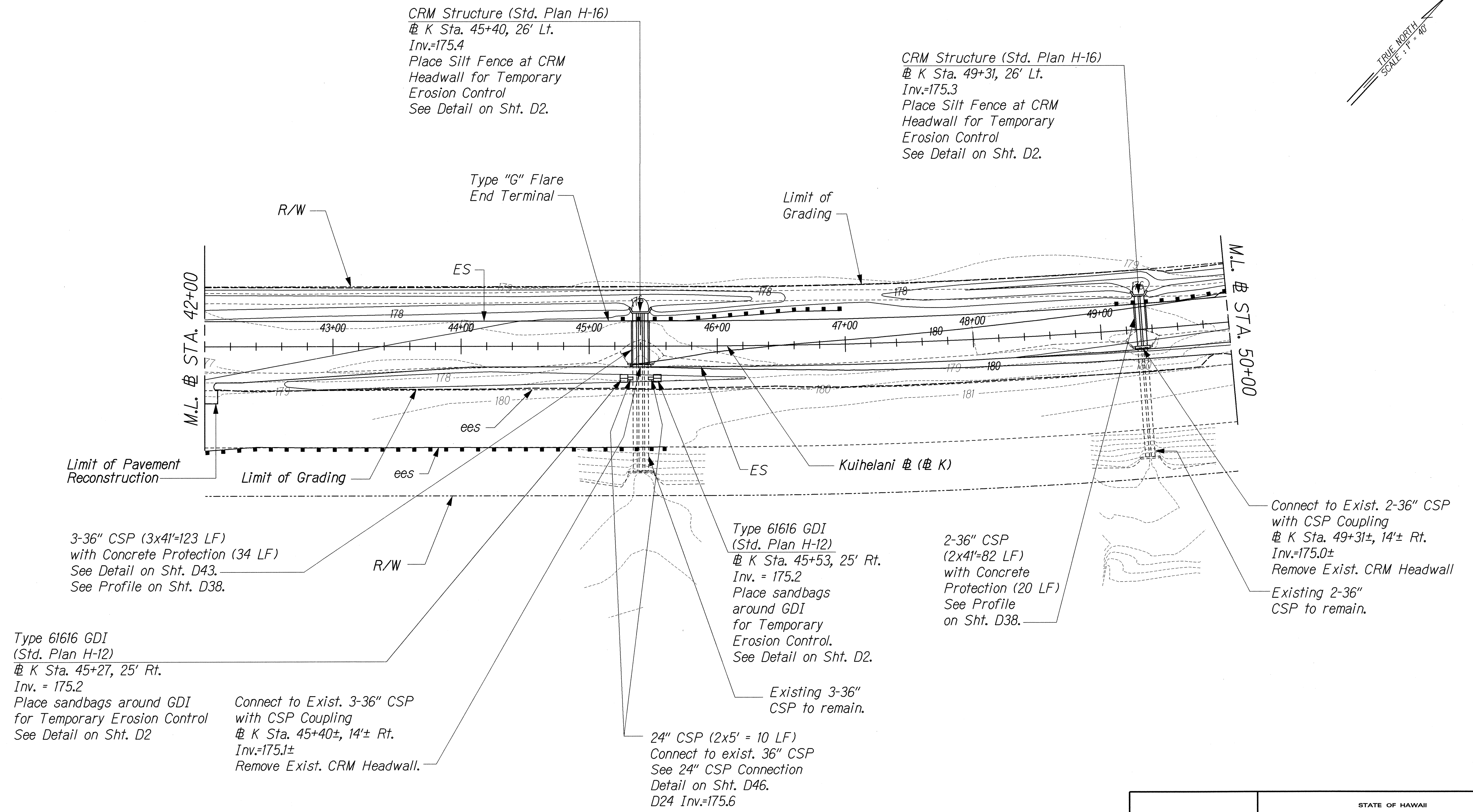
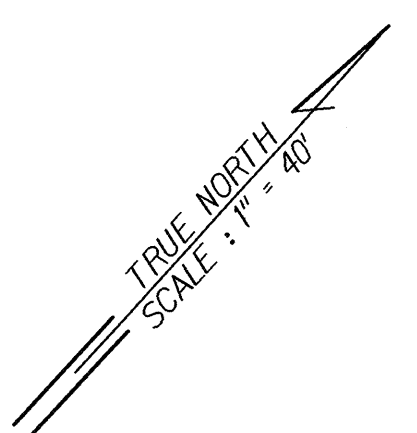
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE & GRADING

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

SHEET No. D6 OF 50 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	115	380



DATE	_____
SURVEY PLOTTED BY	_____
DESIGNED BY	_____
NOTED BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
QUANTITIES BY	_____
CHECKED BY	_____
N.	_____

16/KUIHELANI DRAIN/DR-05.dgn

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R. Urashima

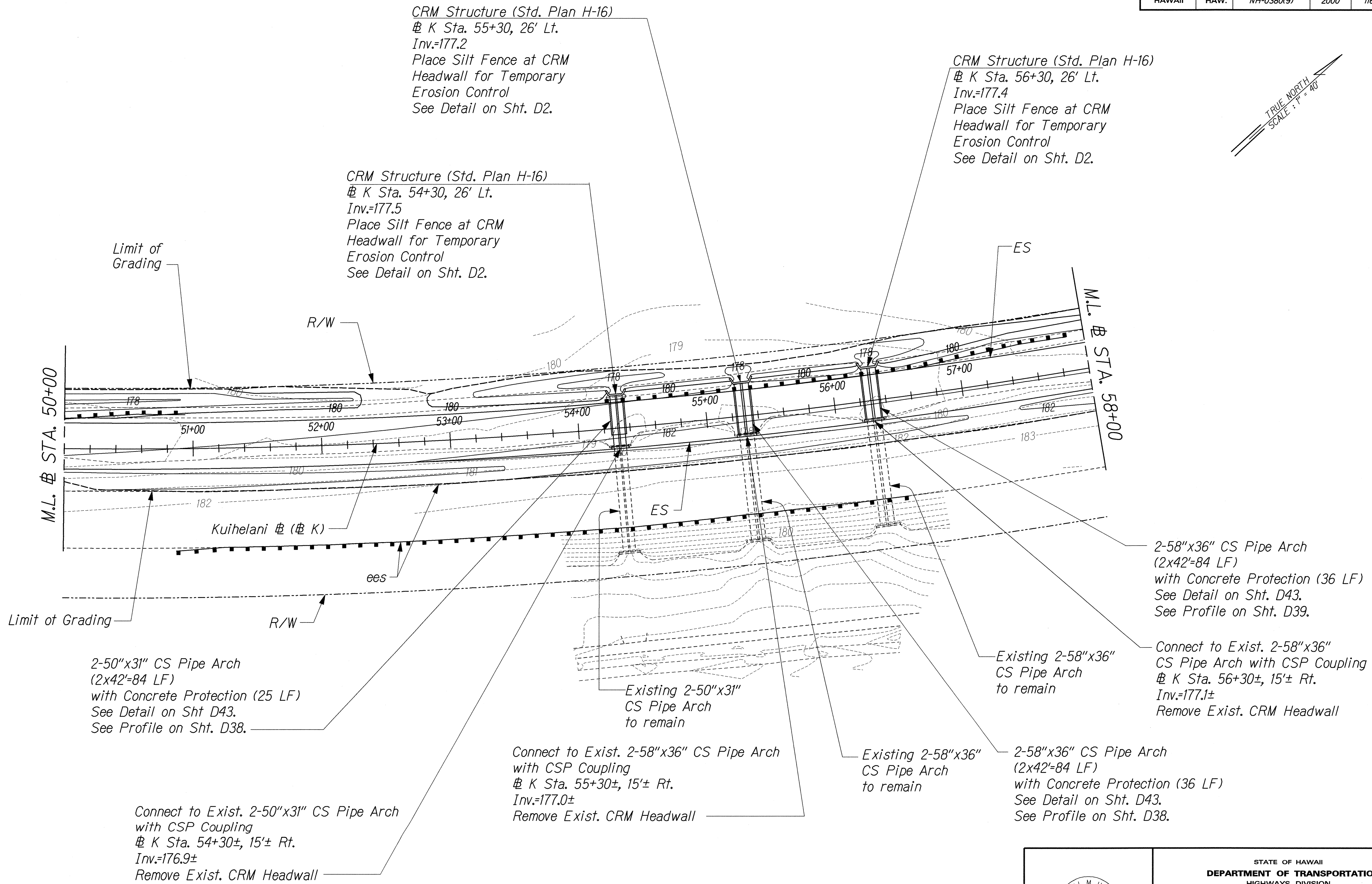
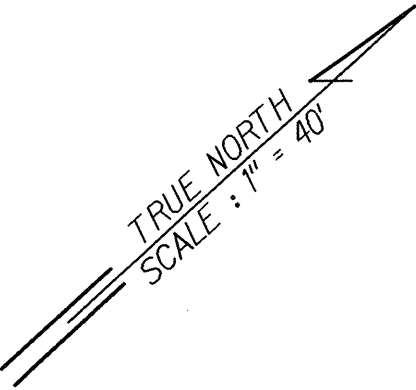
7/14/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE & GRADING

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	116	380



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

J:\KUIHELANI\DRAIN\DF-06.dgn

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R. M. Urasaki 7/14/01

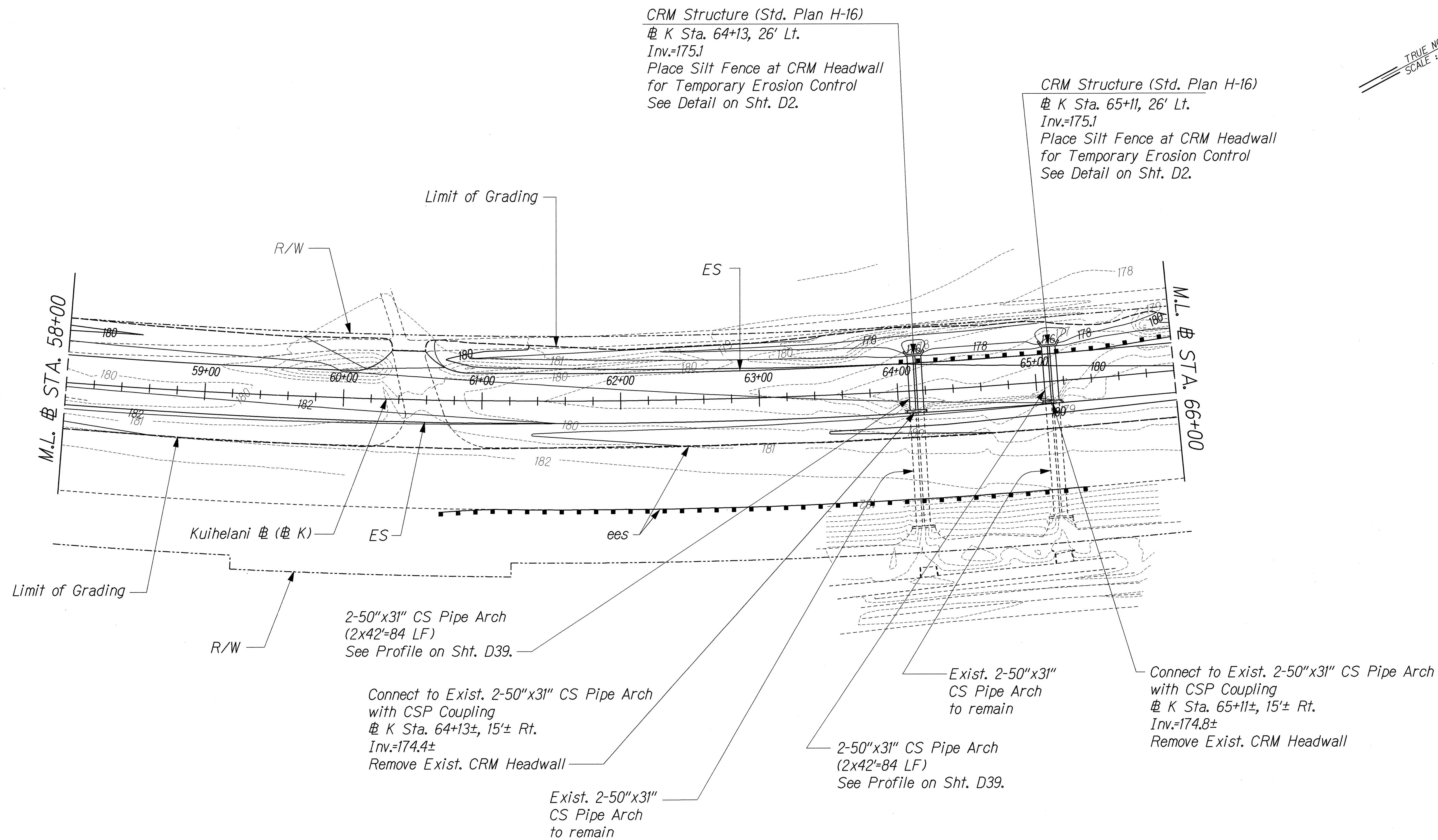
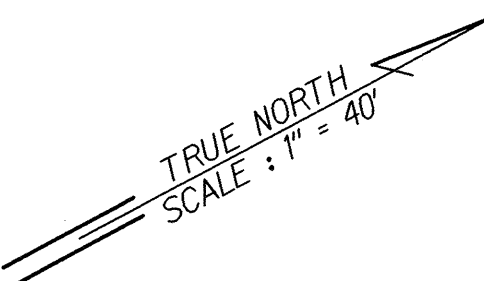
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

DRAINAGE & GRADING

KUIHELANI HIGHWAY WIDENING
 HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
 FEDERAL-AID PROJECT NO. NH-0380(9)

Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	117	380



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

U:\KUIHELANI\RAIN\DR-07.dgn

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1/1/01

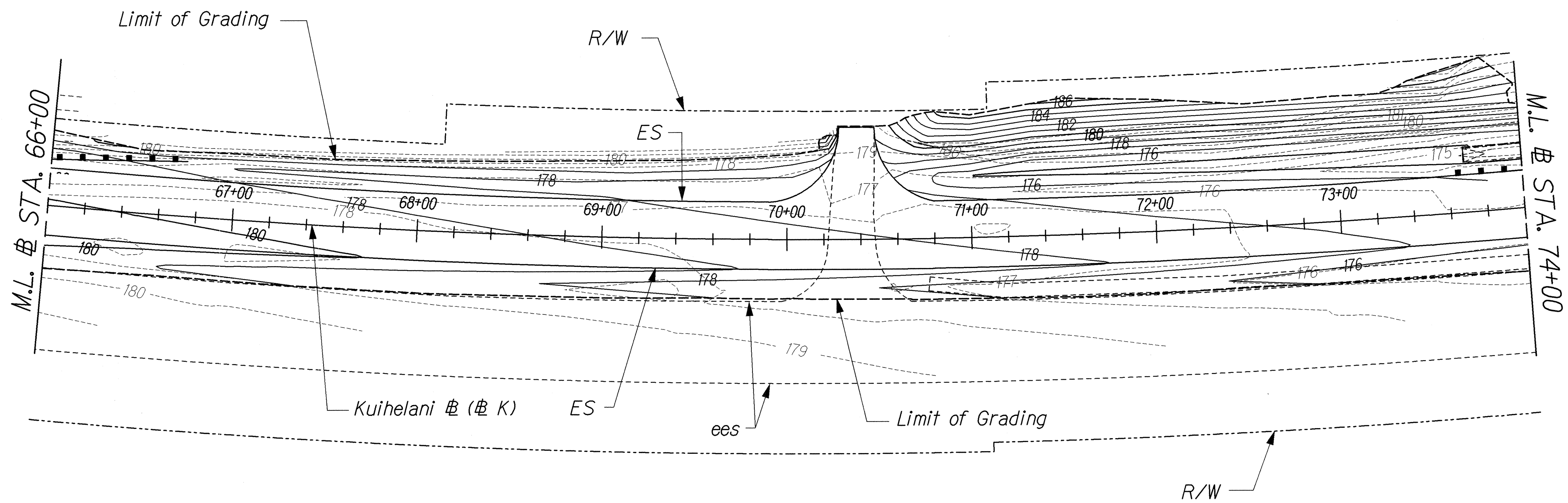
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE & GRADING

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

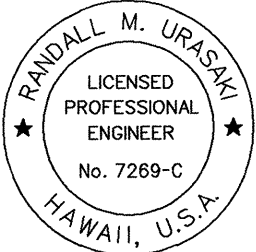
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	118	380

TRUE NORTH
SCALE: 1" = 40'



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
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J:\KUIHELANI\DRAIN\DR-08.dgn



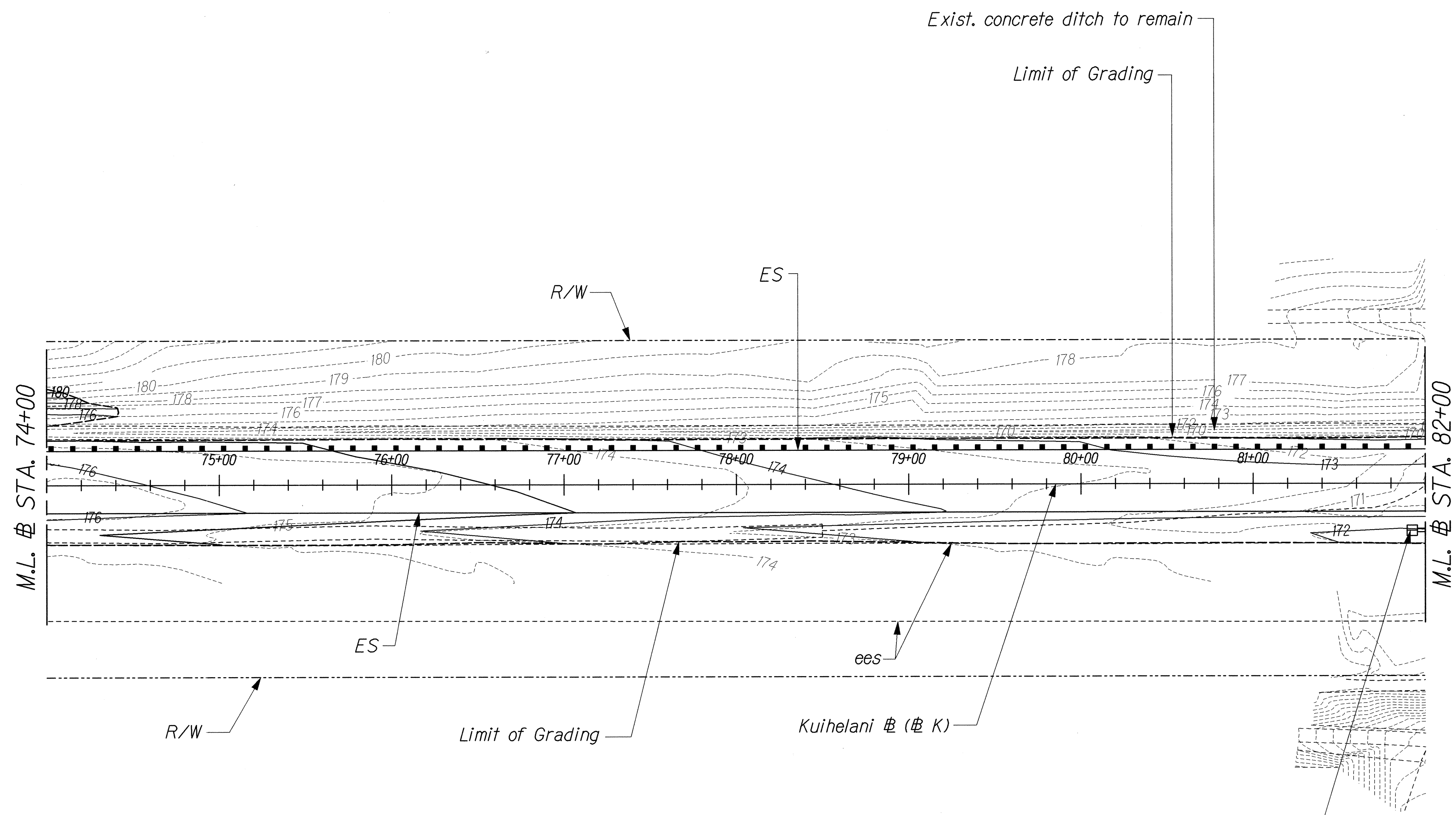
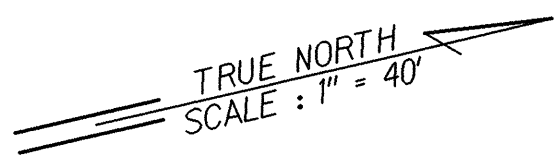
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R. M. Urasak
7/14/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE & GRADING

KUIHELANI HIGHWAY WIDENING
HONOAIIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	119	380



Type 61616 GDI (Std. Plan H-12)
 # K Sta. 81+92, 27' Rt.
 Inv.=166.8
 Place sandbags around GDI
 for Temporary Erosion Control.
 See Detail on Sht. D2.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
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Ran M. Urasaka 9/14/01

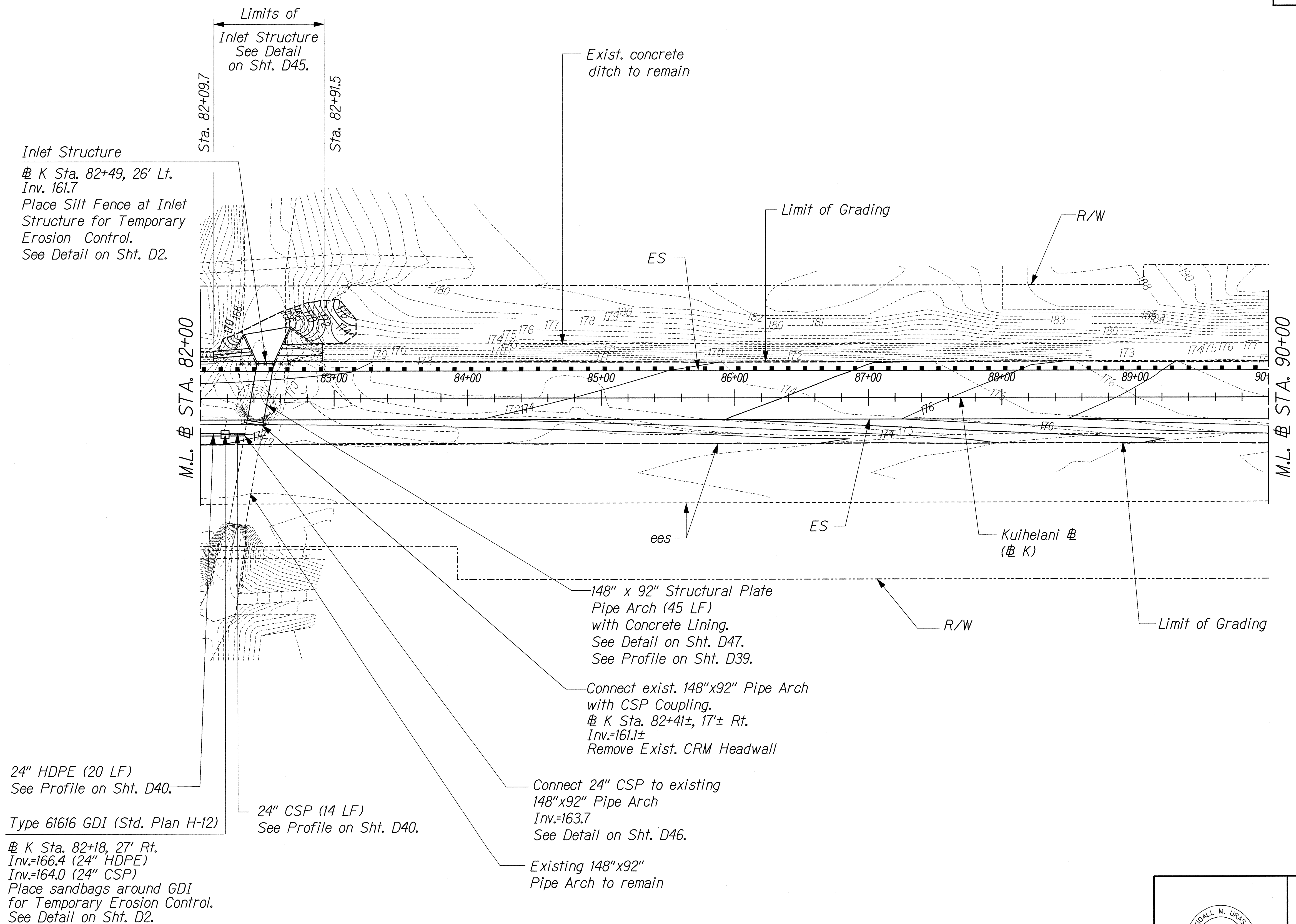
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE & GRADING

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	120	380

TRUE NORTH
SCALE: 1" = 40'



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

J: KUIHELANI DRAIN/DR-10.dgn

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE & GRADING

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

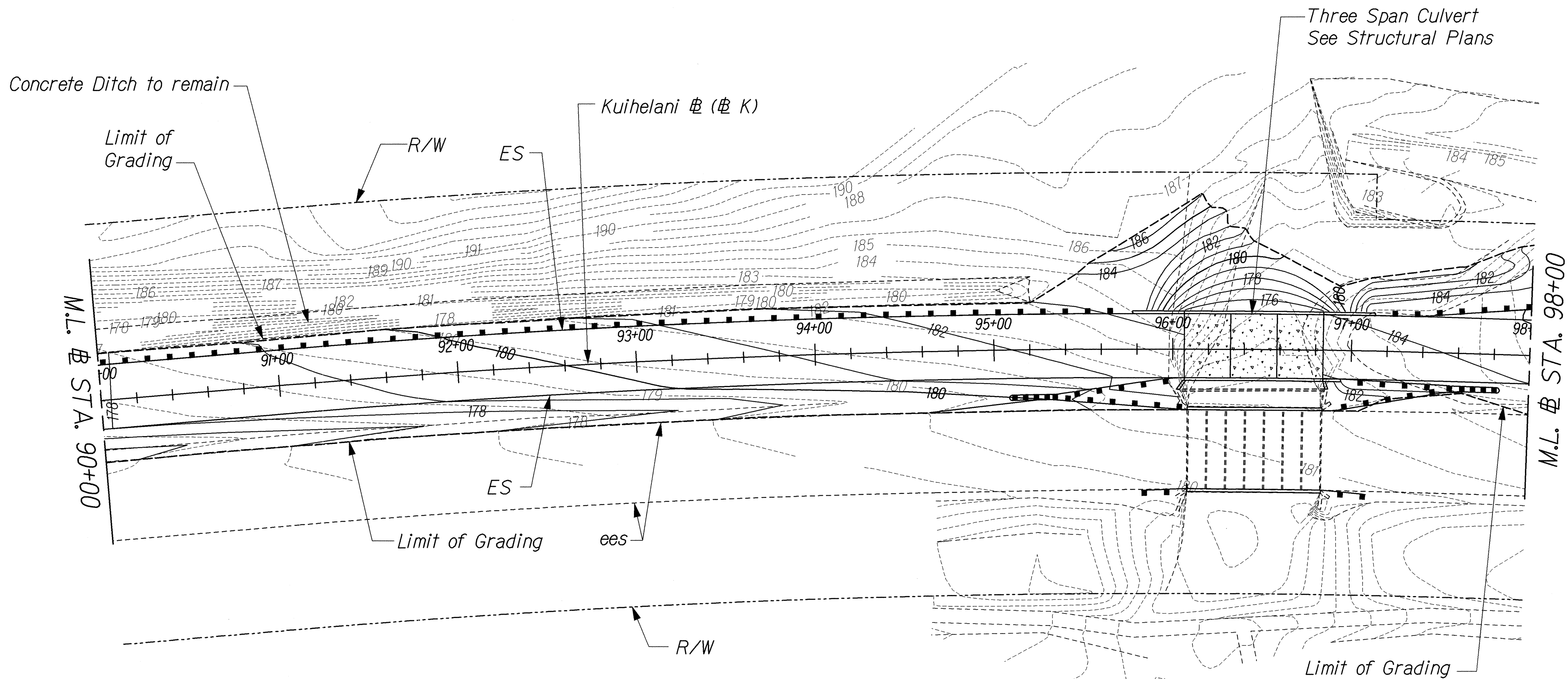
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Randall M. Urason

RANDALL M. URASON
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII, U.S.A.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	121	380

TRUE NORTH
SCALE : 1" = 40'



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

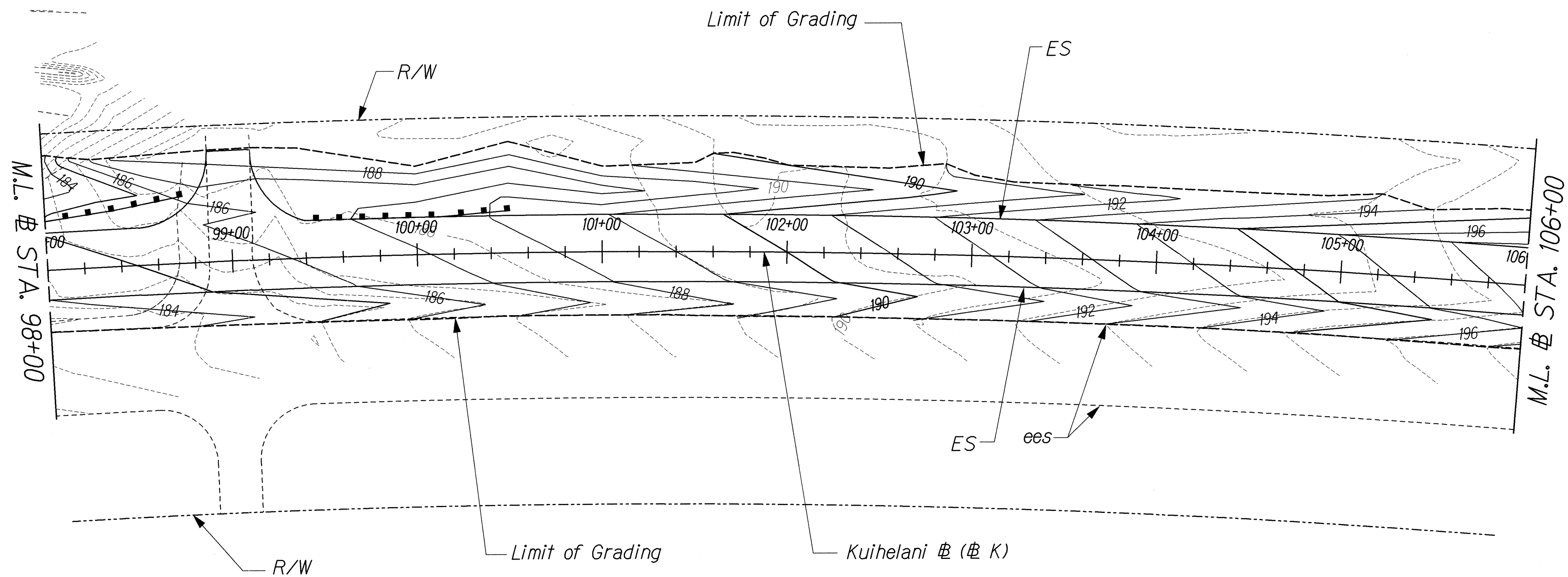
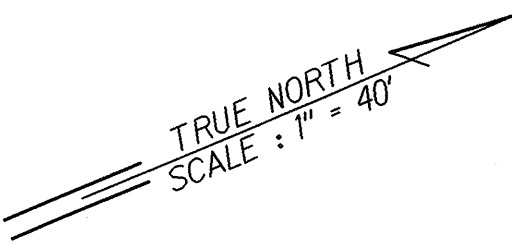
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Randall M. Urasani
9/14/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DRAINAGE & GRADING

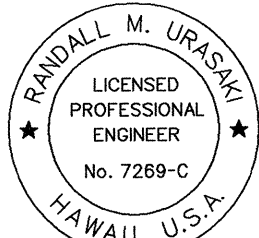
KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	122	380



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DESIGNED BY	
DRAWN BY	
CHECKED BY	
NOTED BY	
DATE	

J-1 KUIHELANI DRAIN/DR-12490



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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

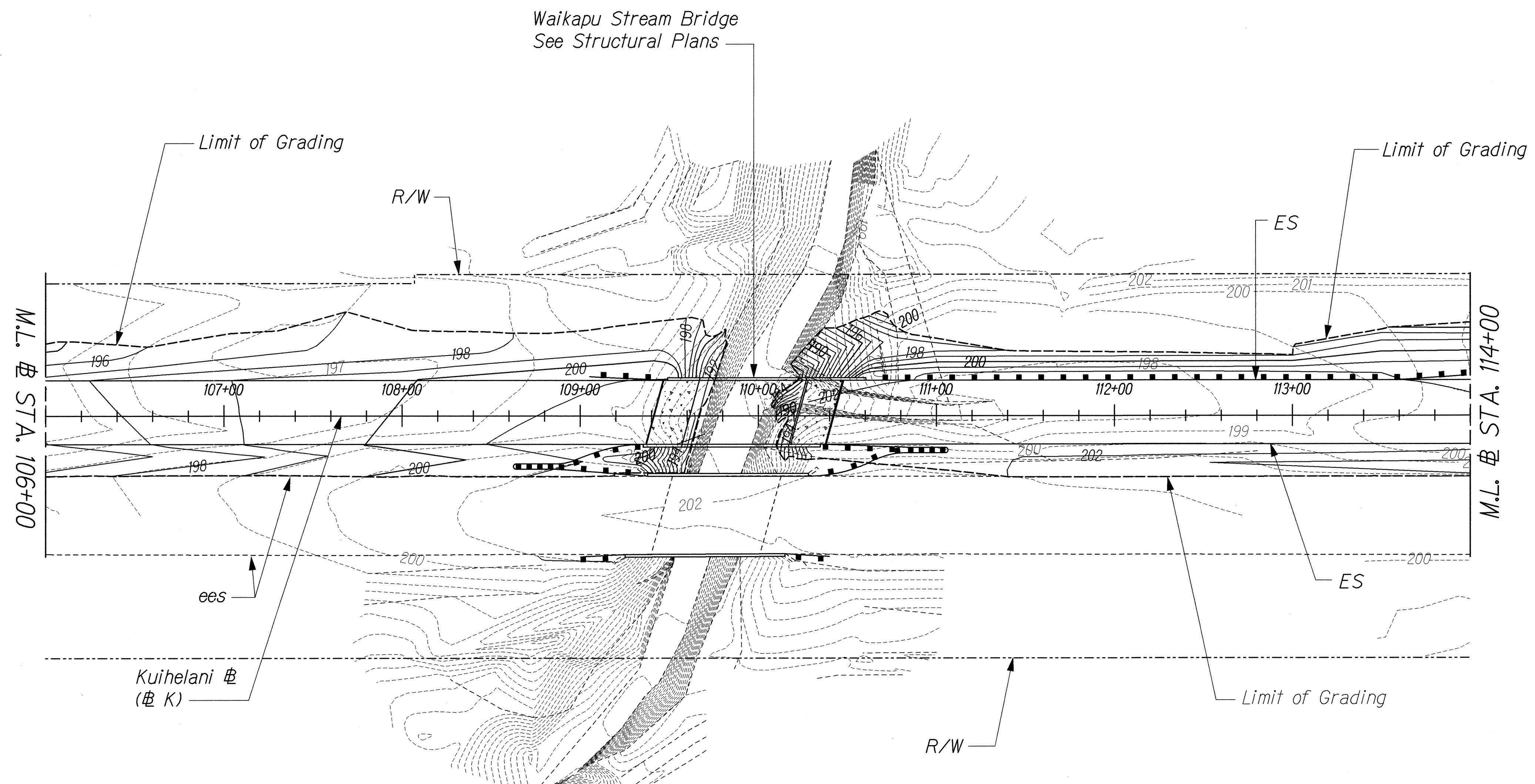
DRAINAGE & GRADING

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

SHEET No. D14 OF 50 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	123	380

TRUE NORTH
SCALE: 1" = 40'



ORIGINAL PLAN	DATE
NOTED BY	
DESIGNED BY	
CHECKED BY	

1/6 KUIHELANI DRAIN/DR-13.dgn

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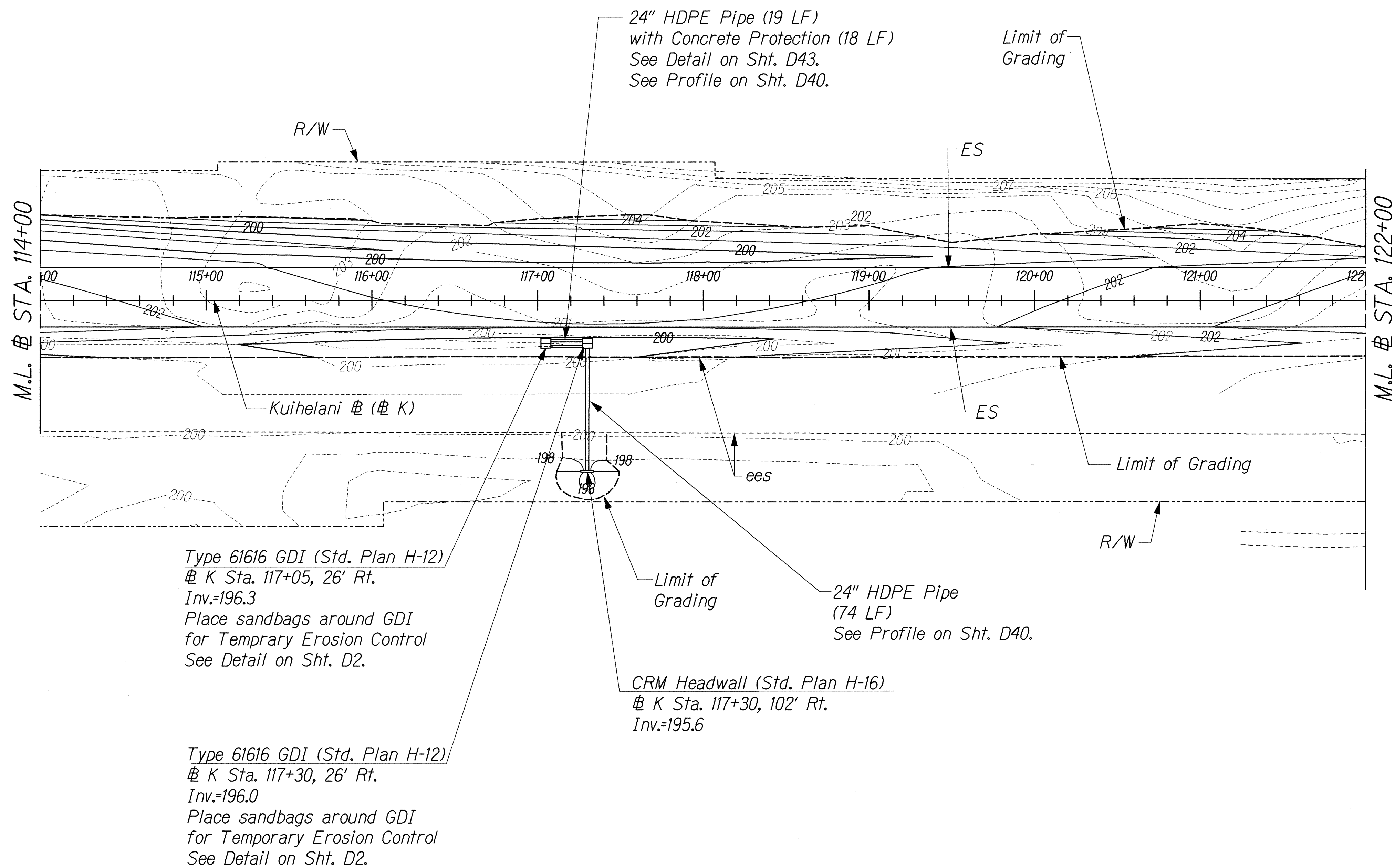
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE & GRADING

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	124	380

TRUE NORTH
SCALE: 1" = 40'



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
TRACED BY	DRAWN BY	
DESIGNED BY	CHECKED BY	
NOTED BY	CHECKED BY	
NO.		

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9/14/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

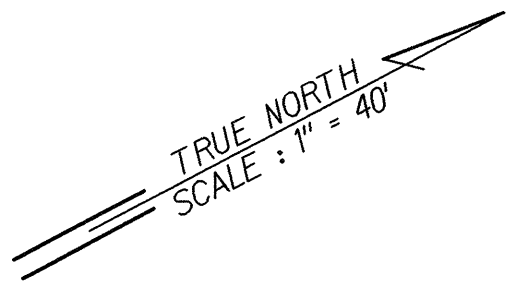
DRAINAGE & GRADING

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)

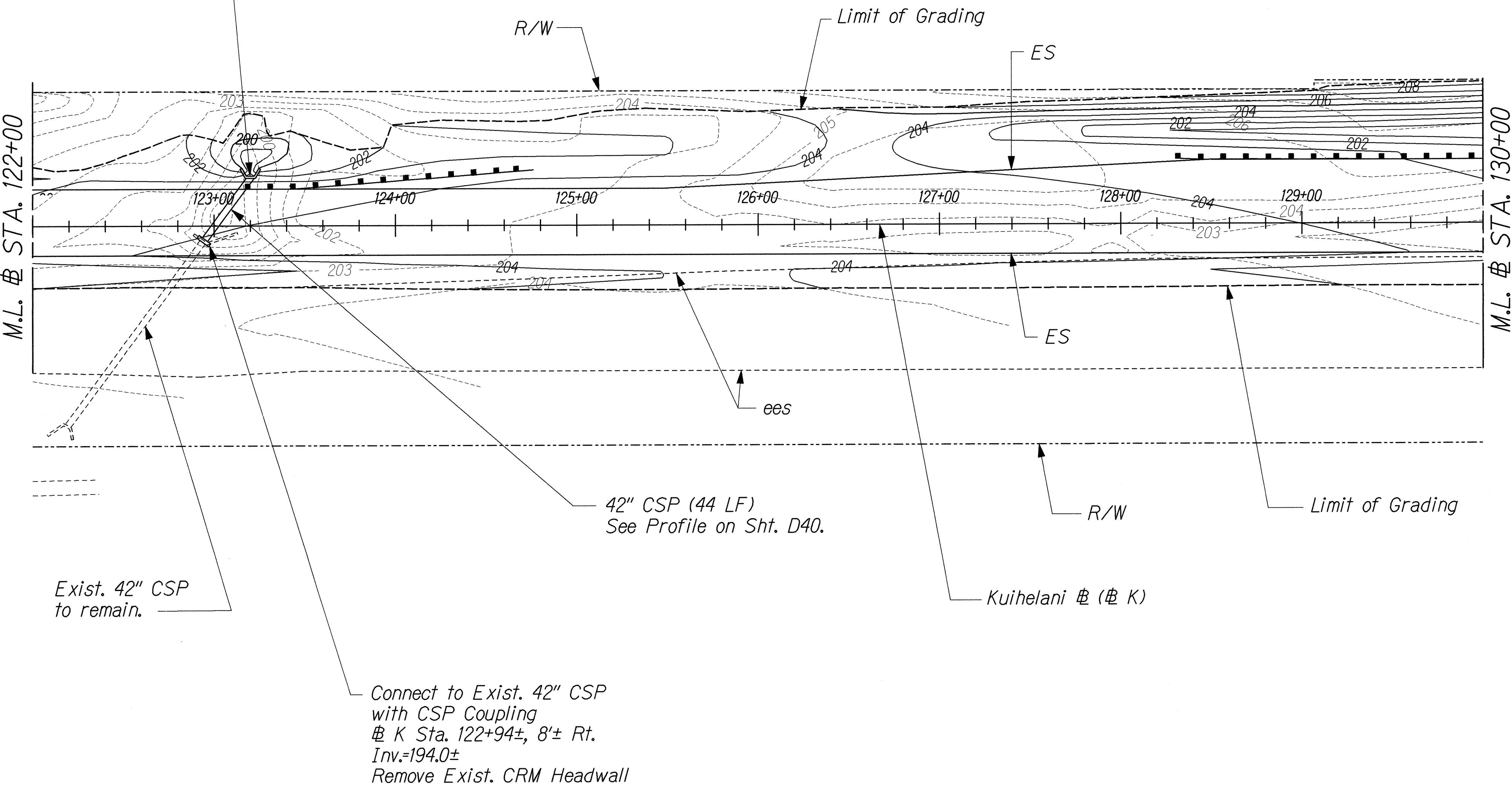
Scale: 1"=40' Date: Sept. 14, 2001

SHEET No. D16 OF 50 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	125	380



CRM Structure (Std. Plan H-16)
 @ K Sta. 123+20, 26' Lt.
 Inv.=198.0
 Place Silt Fence at CRM
 Headwall for Temporary
 Erosion Control.
 See Detail on Sht. D2.



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

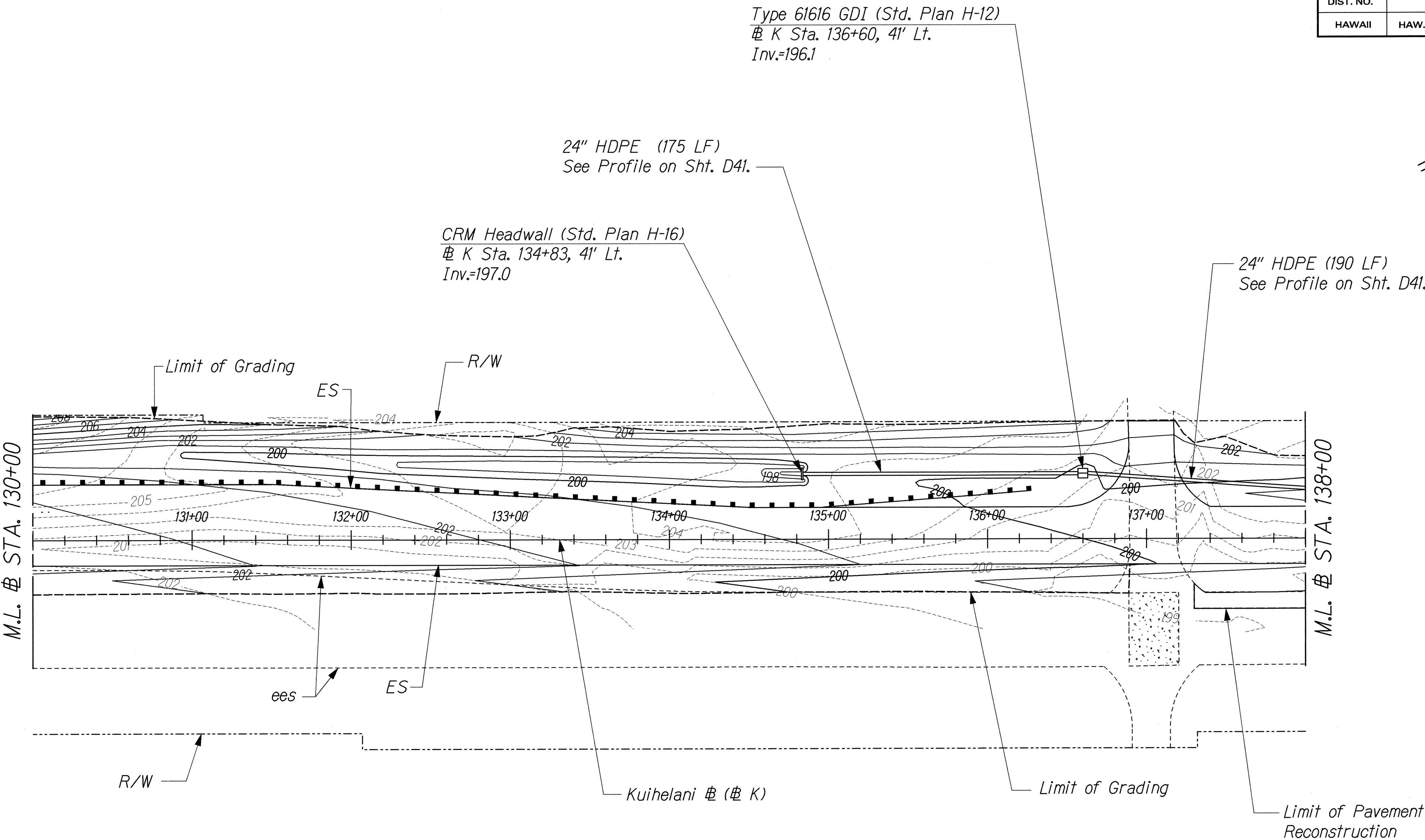
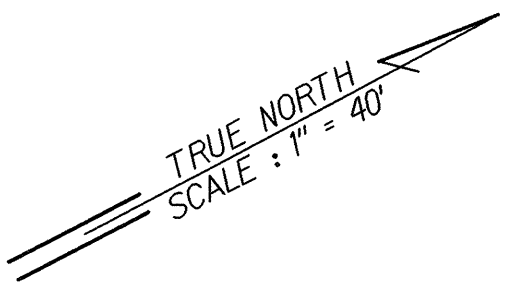
3/4 KUIHELANI DRAIN/DRAIN.DWG

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R. Urasano
 7/14/01

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
DRAINAGE & GRADING

KUIHELANI HIGHWAY WIDENING
 HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
 FEDERAL-AID PROJECT NO. NH-0380(9)
 Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	126	380



DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
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IN CHARGE	

36 KUIHELANI DRAIN/DR-16.dgn

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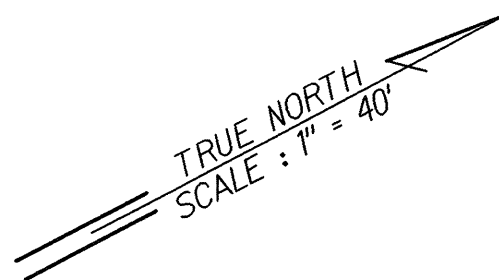
R. M. Urasaki
1/11/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE & GRADING

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	127	380



Type 61616 GDI (Std. Plan H-12)
 @ K Sta. 138+56, 27' Lt.
 Inv. = 194.7

24" HDPE (190' LF)
 See Profile on Sht. D41.

2-24" HDPE (2x45'=90 LF)
 See Profile on Sht. D41.

Type 61616 GDI (Std. Plan H-12)
 @ K Sta. 144+78, 47' Lt.
 Inv.=192.8

3'x1'-6" Box Culvert (106 LF)
 See Detail on Sht. D44.
 See Profile on Sht. D41

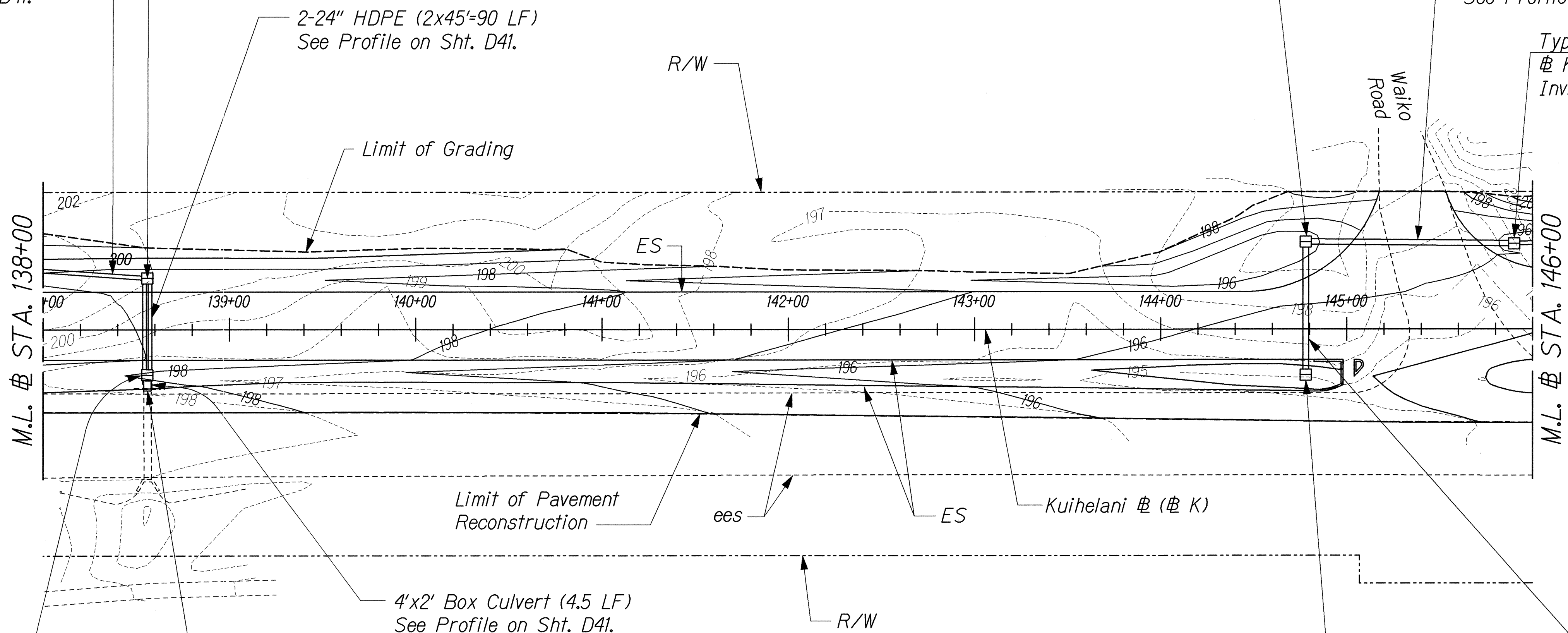
Type 61616 GDI (Std. Plan H-12)
 @ K Sta. 145+90, 46' Lt.
 Inv.=192.3

Type 61616 GDI (Std. Plan H-12)
 @ K Sta. 138+56, 24' Rt.
 Inv. = 194.5
 Place sandbags around GDI
 for Temporary Erosion Control
 See Detail on Sht. D2.

Connect to Exist.
 4'x2' Box Culvert
 See Detail on Sht. D44
 Remove Exist. Drop
 Intake and Headwall

Type 61616 GDI (Std. Plan H-12)
 @ K Sta. 144+78, 24' Rt.
 Inv.=193.1

3'x1'-6" Box Culvert (65 LF)
 See Detail on Sht. D44
 See Profile on Sht. D41.



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

J:\KUIHELANI\DRAIN\DR-17.dgn

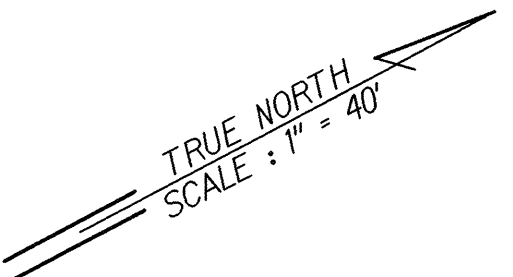
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R. M. Urasaki
9/14/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE & GRADING

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	128	380

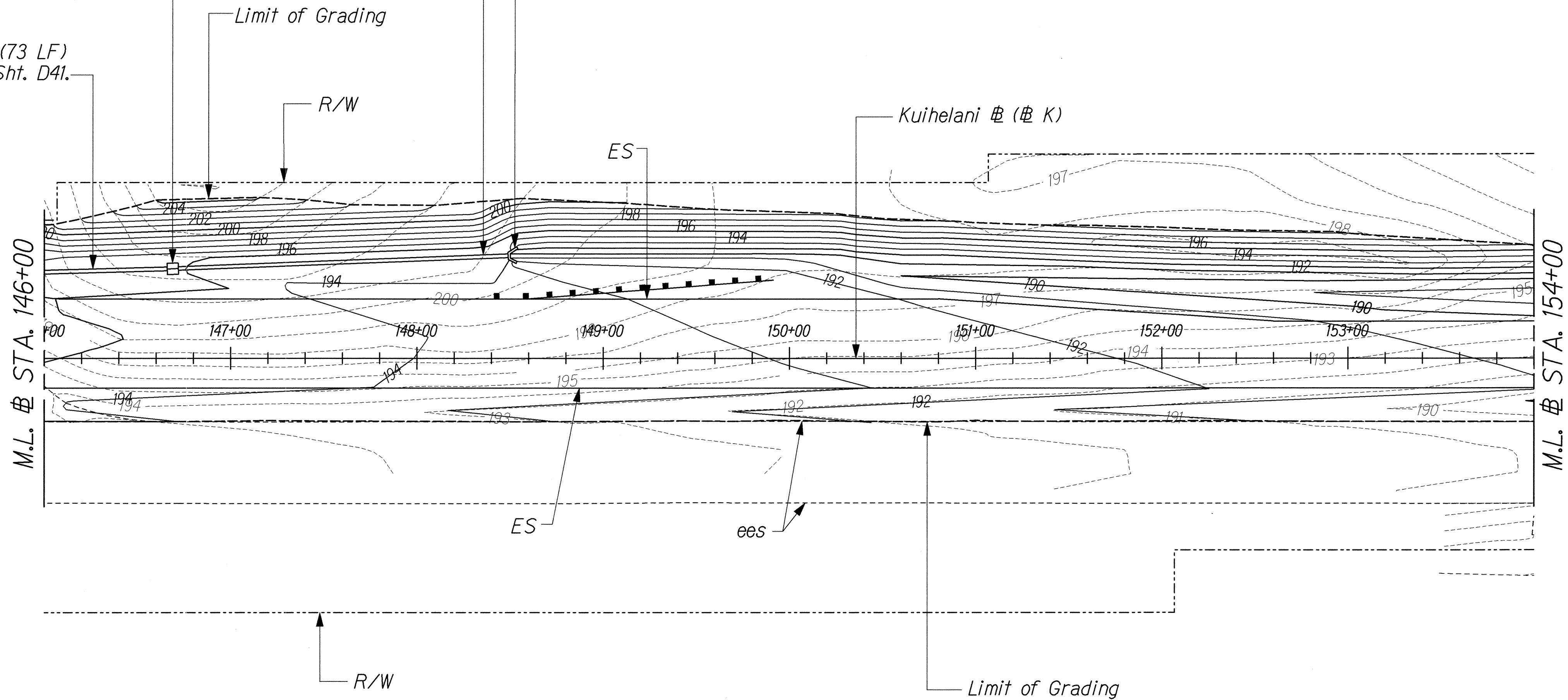


Type 61616 GDI (Std. Plan H-12)
 # K Sta. 146+69, 48' Lt.
 Inv. = 191.9

24" HDPE Pipe (179 LF)
 See Profile on Sht. D41.

CRM Structure (Std Plan H-16)
 # K Sta 148+50, 55' Lt.
 Inv.=191.0

24" HDPE Pipe (73 LF)
 See Profile on Sht. D41.



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
DRAWN BY		
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CHECKED BY		
DATE		

Jr/KUIHELANI/DRAIN/DR-18.dgn

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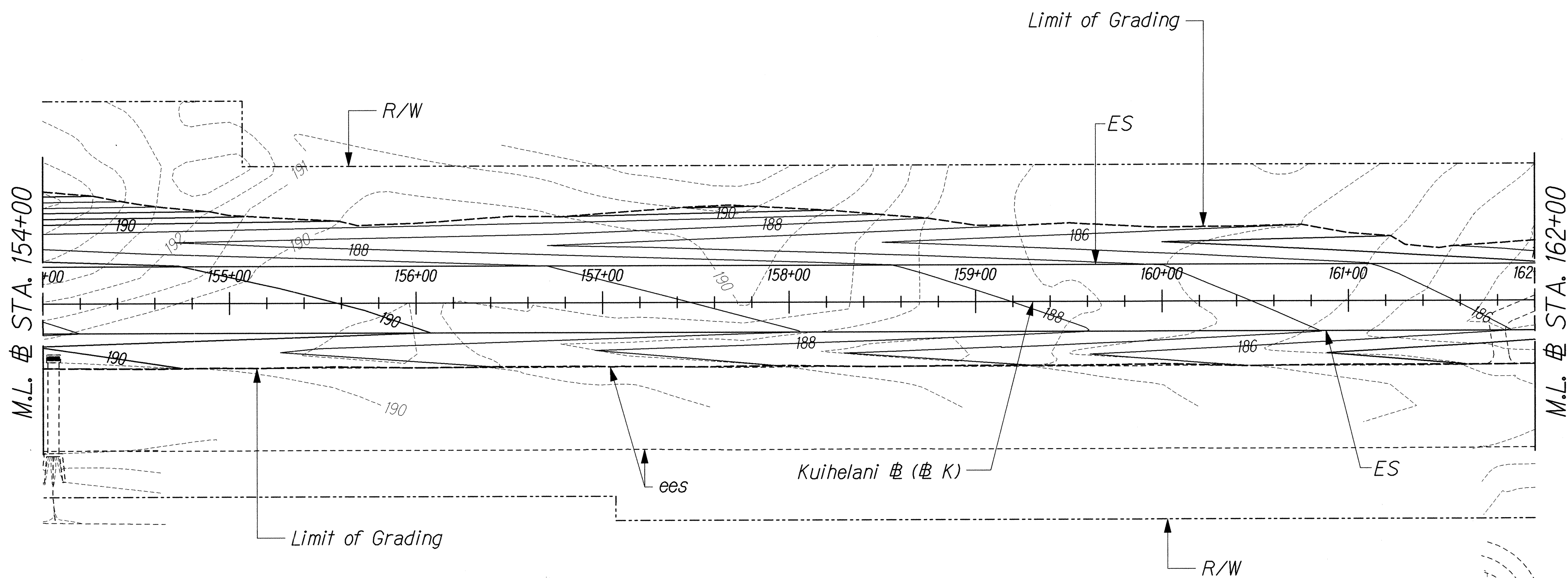
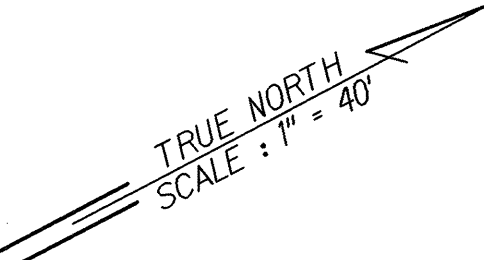
R. Urasano
7/1/01

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

DRAINAGE & GRADING

KUIHELANI HIGHWAY WIDENING
 HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
 FEDERAL-AID PROJECT NO. NH-0380(9)
 Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	129	380



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
DRAWN BY		
DESIGNED BY		
CHECKED BY		
NOTED BY		
DATE		

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R. M. Urasani
9/14/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

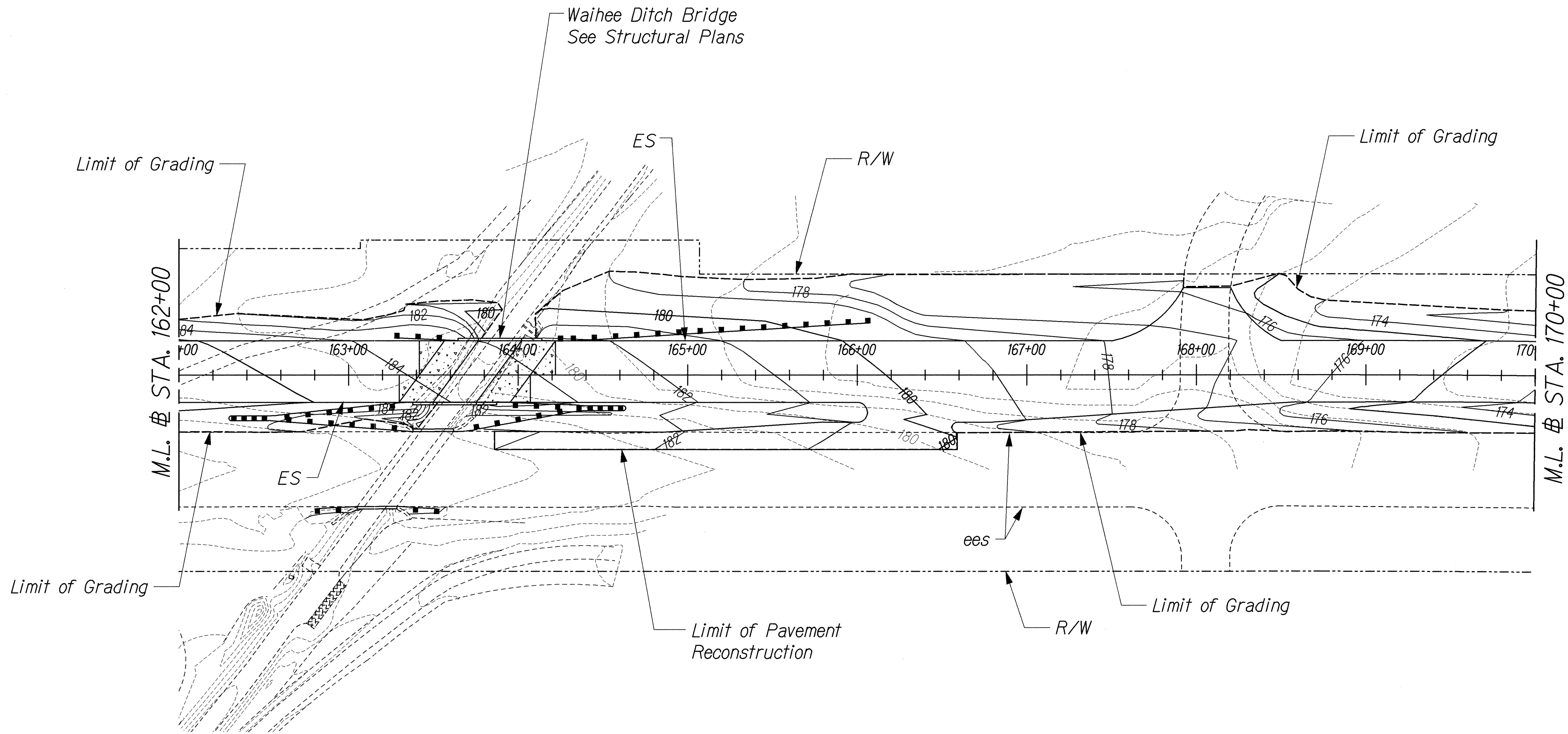
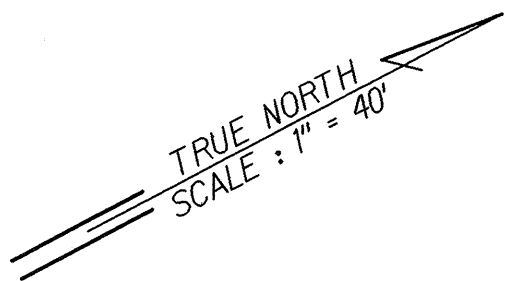
DRAINAGE & GRADING

**KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)**

Scale: _____ Date: Sept. 14, 2001

SHEET No. D21 OF 50 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	130	380



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

J-1 KUIHELANI DRAIN/DR-20.dgn

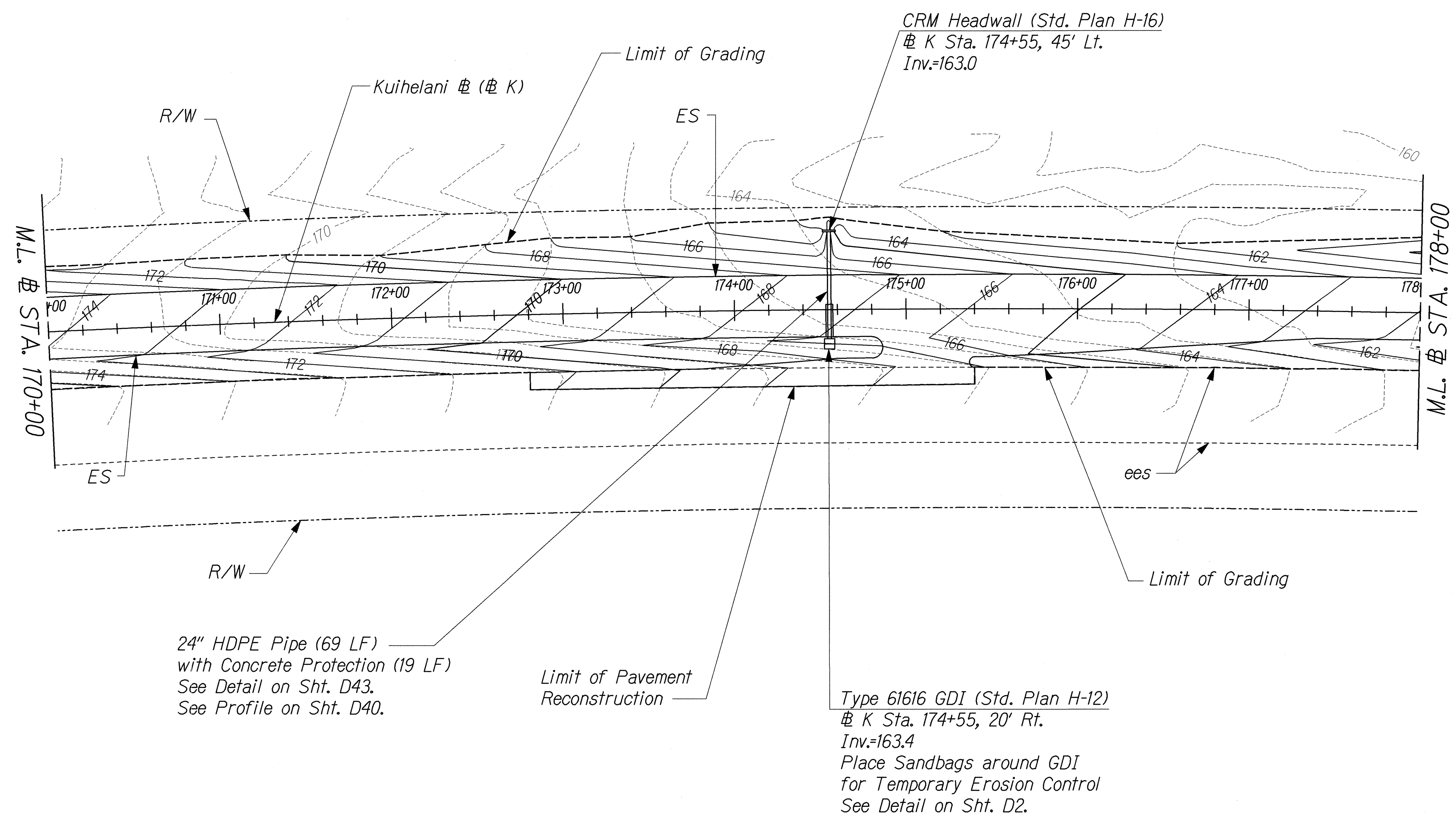
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R. M. Urasinski
7/14/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE & GRADING

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	131	380



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
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Randall M. Urasaki
7/14/01

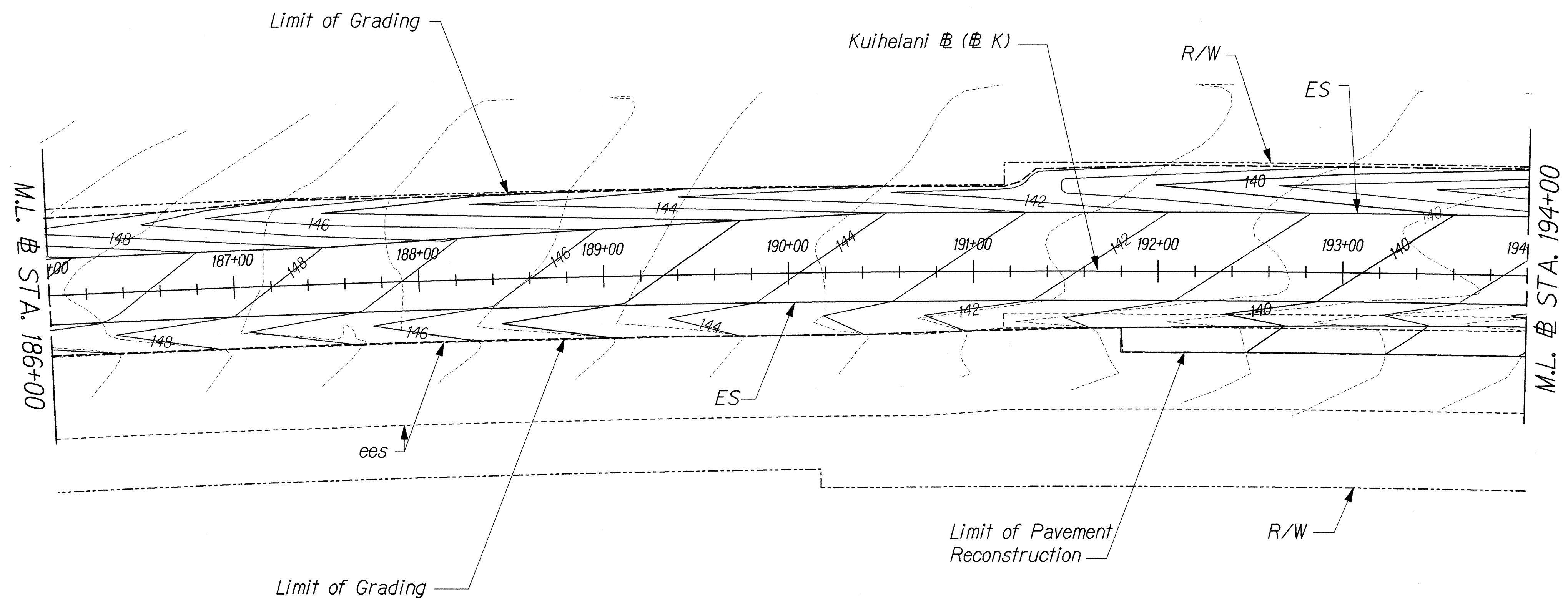
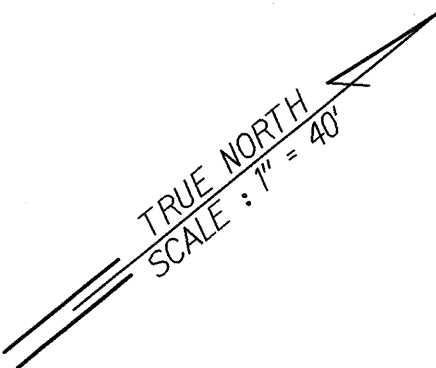
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE & GRADING

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)

Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	133	380



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTED BOOK	DRAWN BY	
	TRACED BY	
	QUANTITIES BY	
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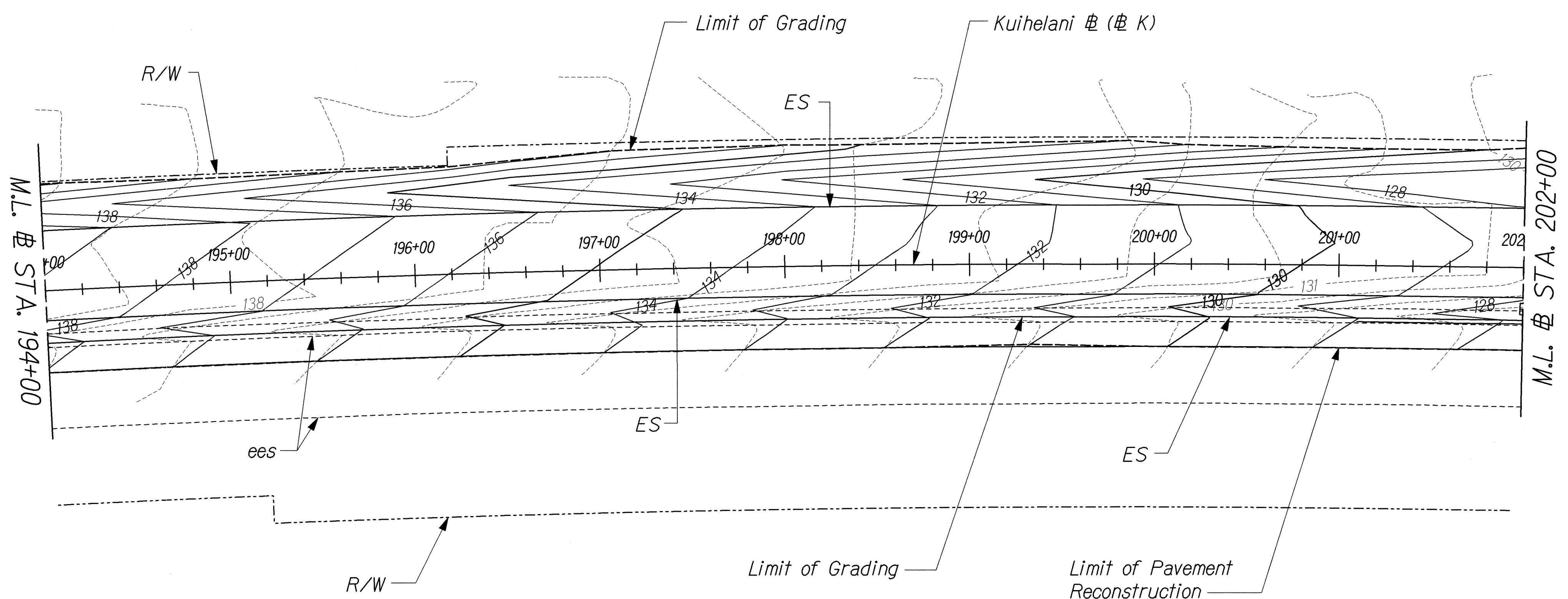
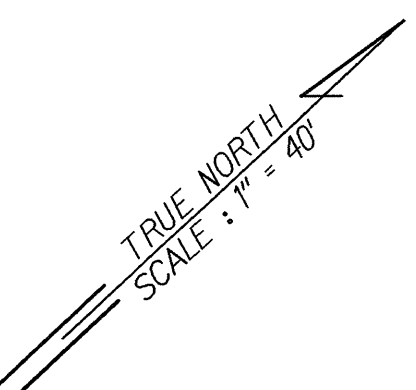
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE & GRADING

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

SHEET No. D25 OF 50 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	134	380



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

J:\KUIHELANI\RAIN\DR-24.dgn

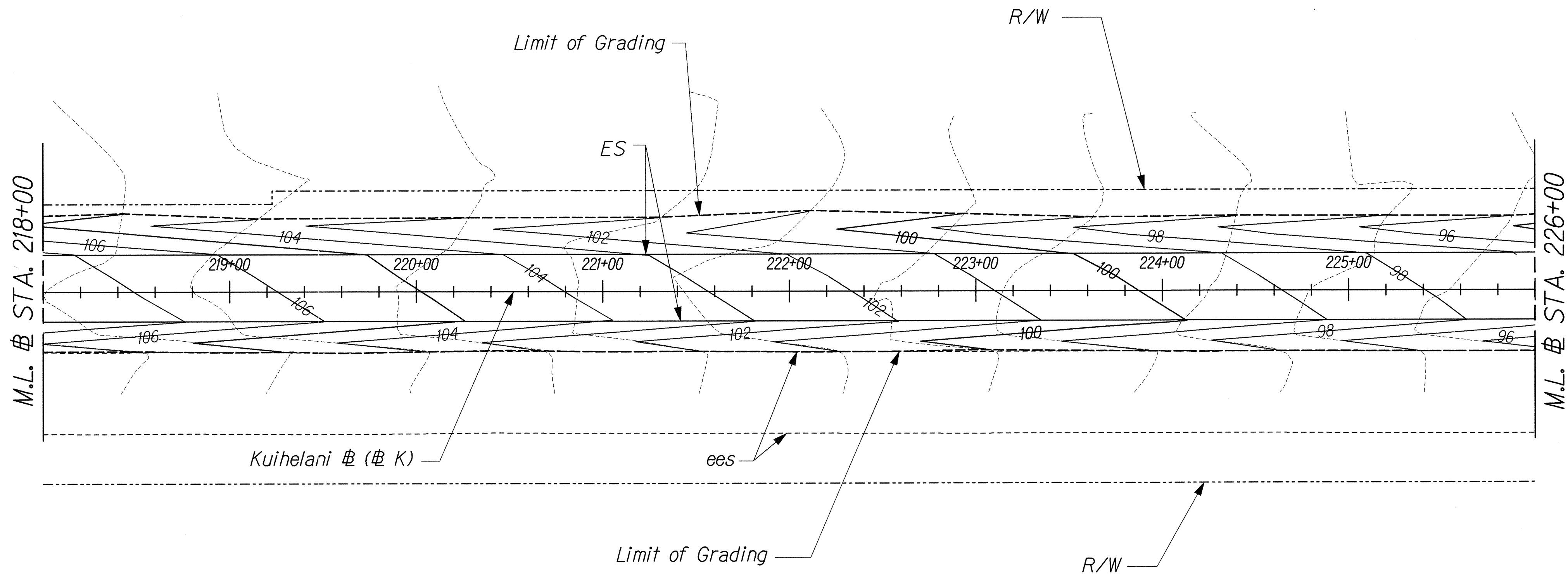
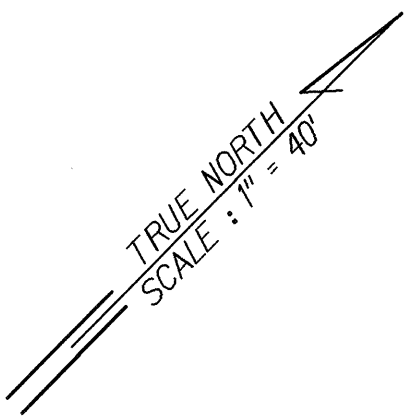
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R. M. Urabek 9/14/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE & GRADING

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	137	380



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

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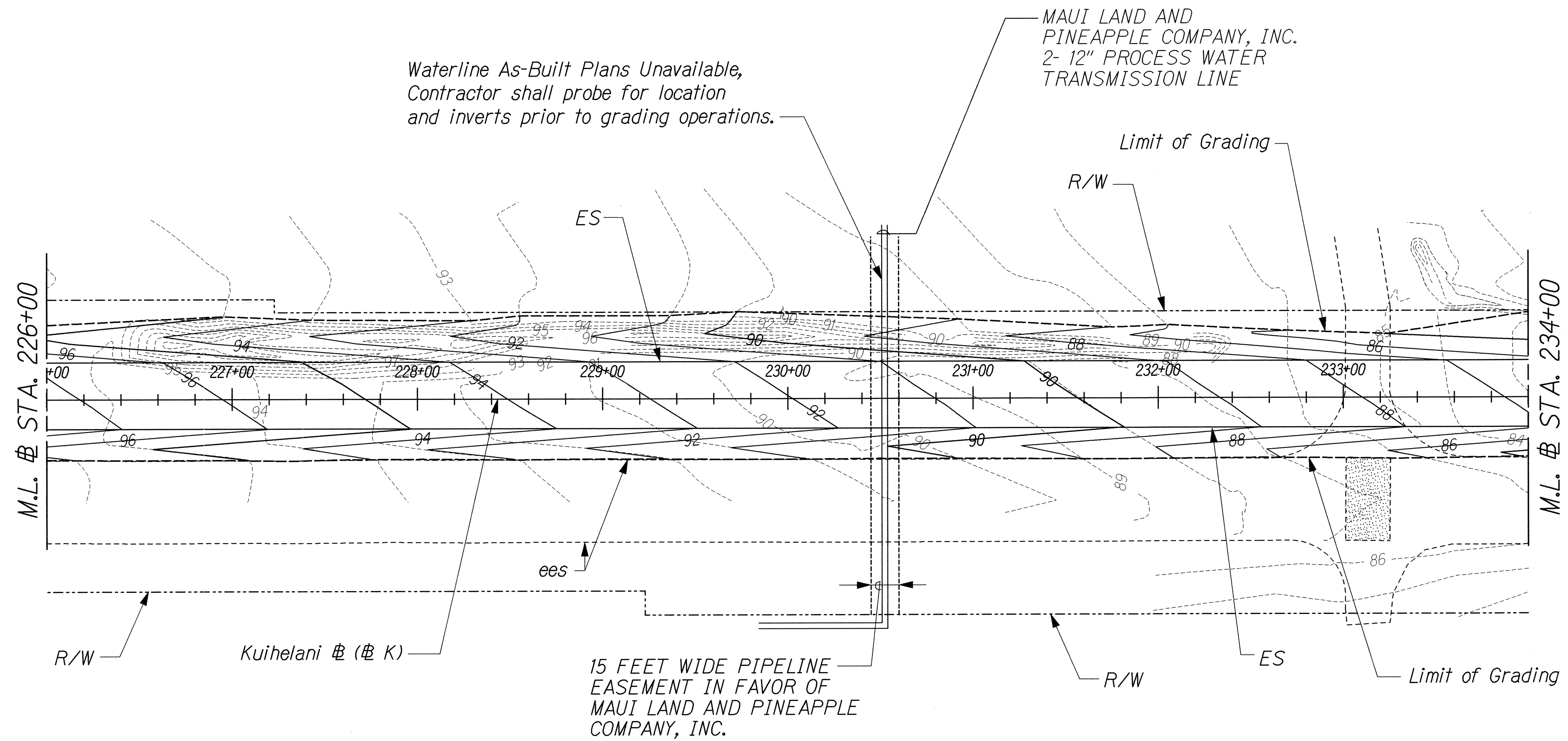
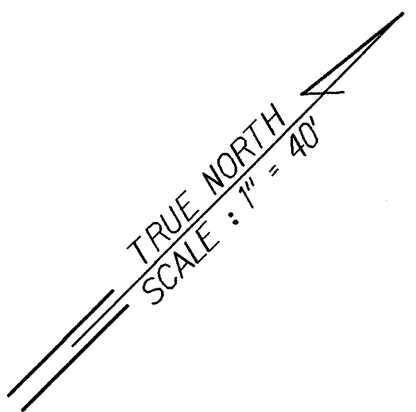
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DRAINAGE & GRADING

**KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)**

Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	138	380



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	DESIGNED BY	
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J6/KUIHELANI/DRAIN/DR-28.dgn

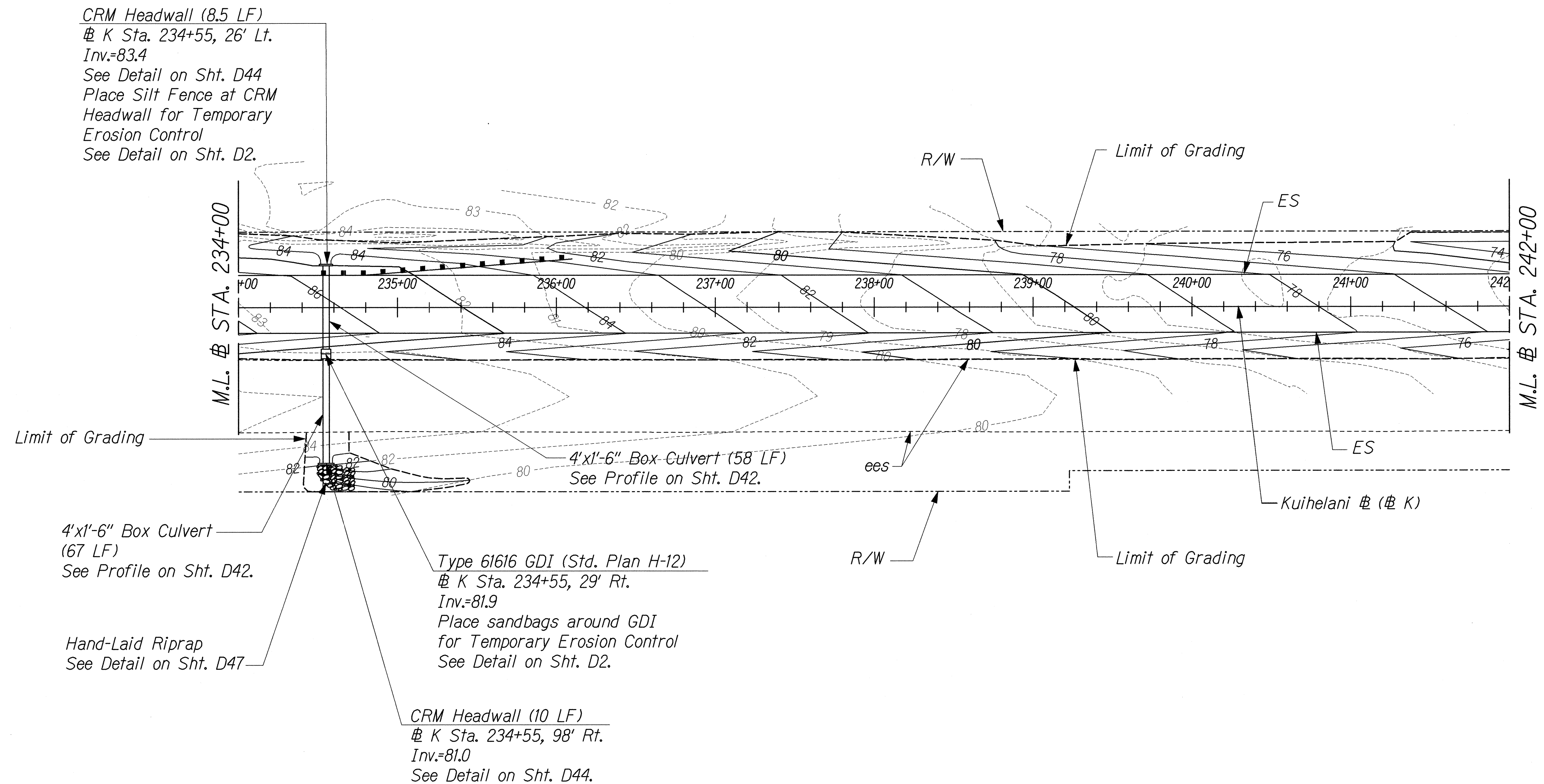
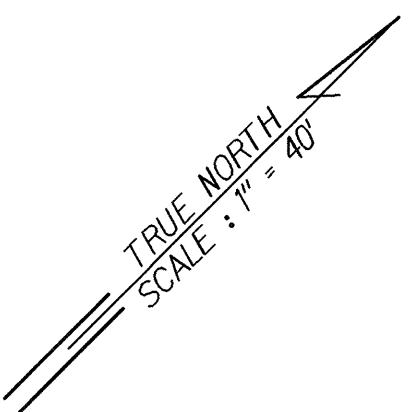
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R. Urasaki 9/14/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DRAINAGE & GRADING

**KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)**

Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	139	380



ORIGINAL PLAN	DATE
DRAWN BY	
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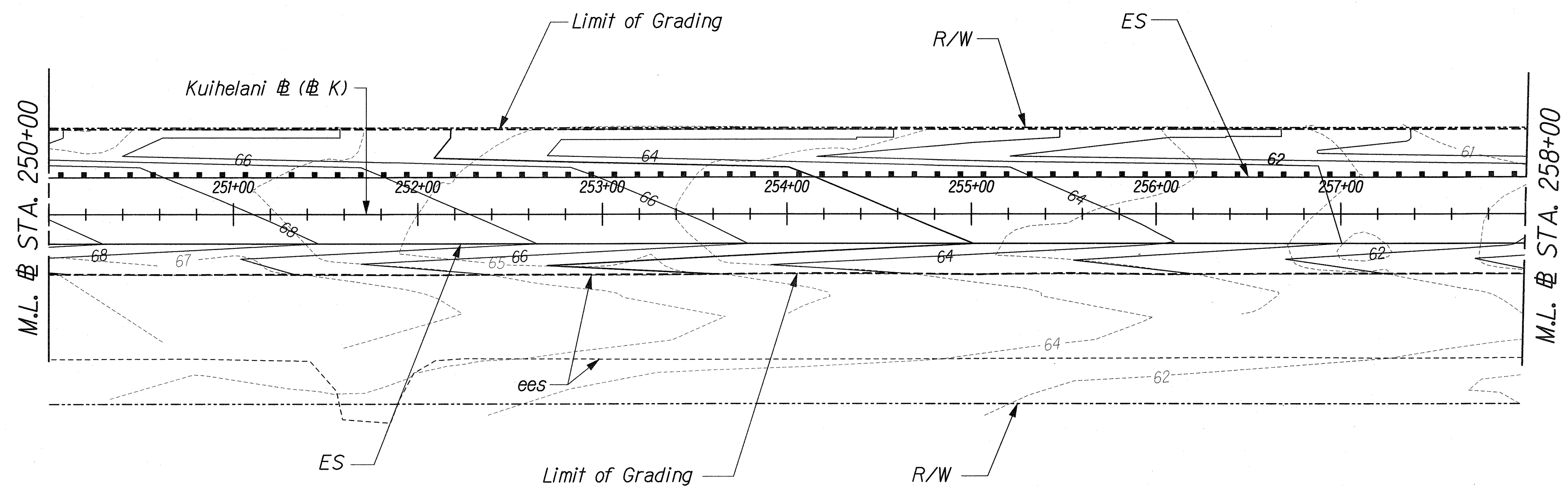
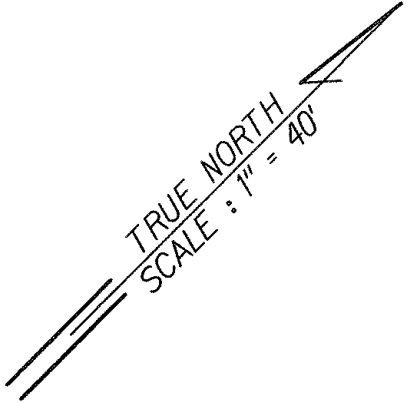
J:\KUIHELANI\DRAIN\DR-28.dgn

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R. Urashy 9/14/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DRAINAGE & GRADING

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	141	380



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

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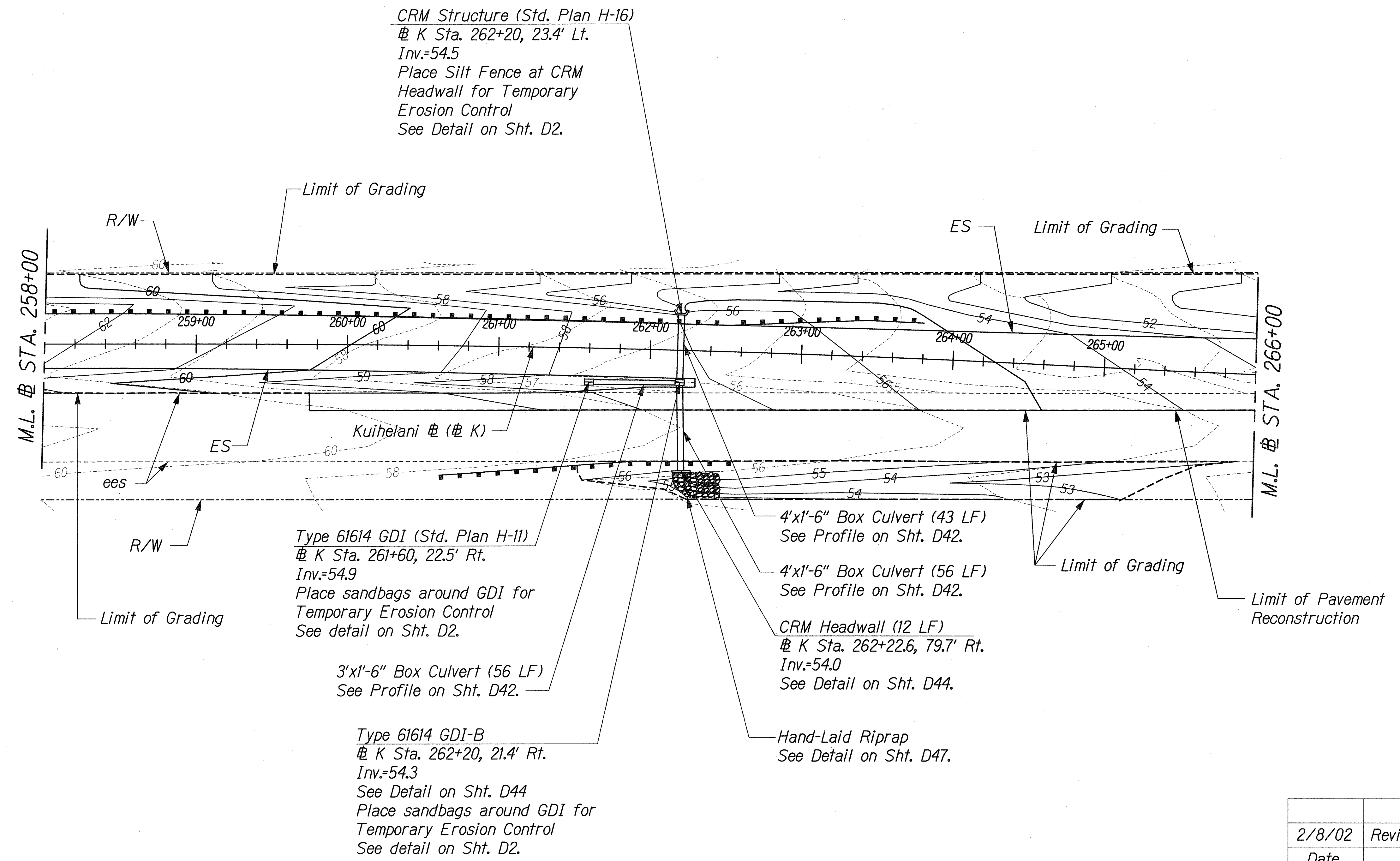
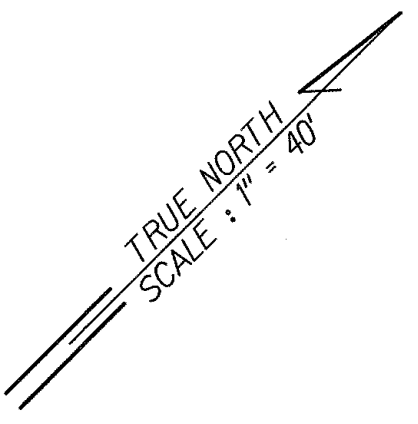
2/8/02	Revised Sheet
Date	Revision

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R.M. Urashima
2/8/02

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DRAINAGE & GRADING

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: Feb. 8, 2002

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	142	380



SURVEY PLOTTED BY	DATE
DESIGNED BY	
TRACED BY	
NOTED BY	
CHECKED BY	

6-KUIHELANI/CHANGE ORDER/PARK-AND-RIDE/DRAIN/DRAIN-DP-3200.dgn

2/8/02

Date

Revised Sheet

Revision

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R. Urashima

2/8/02

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

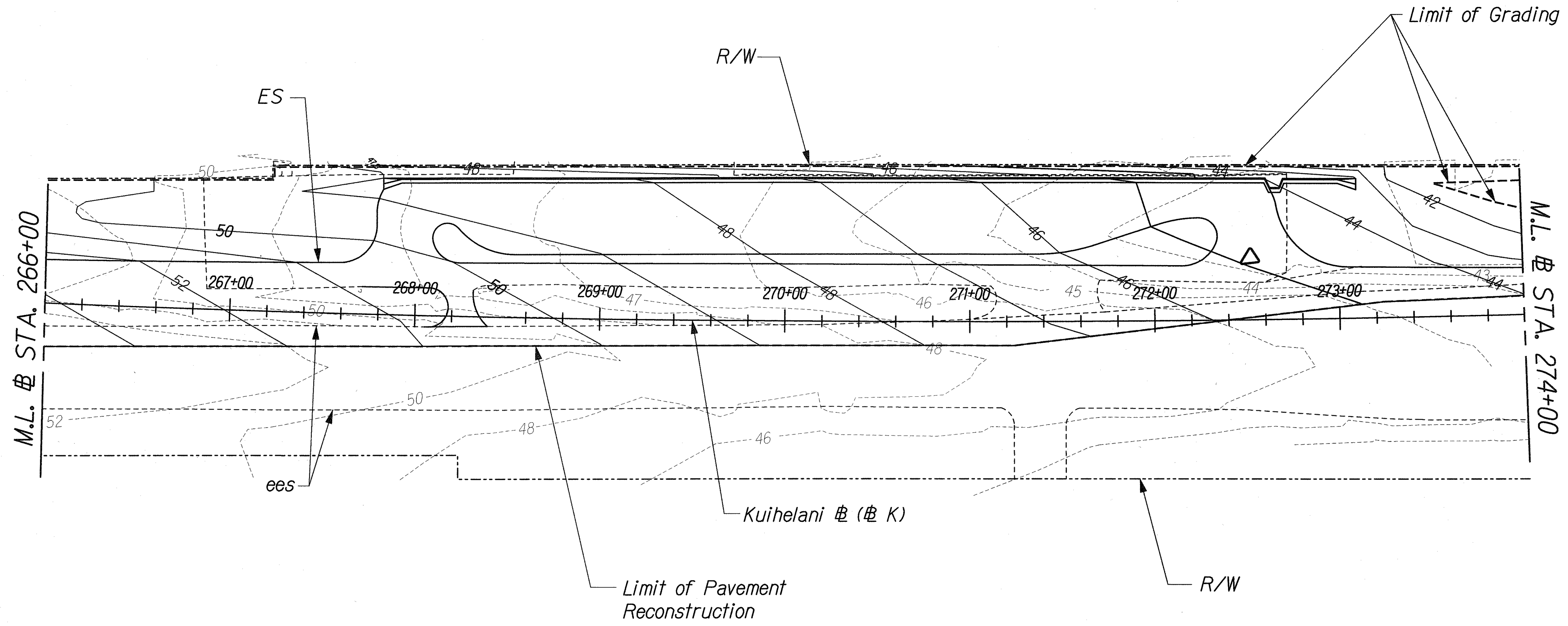
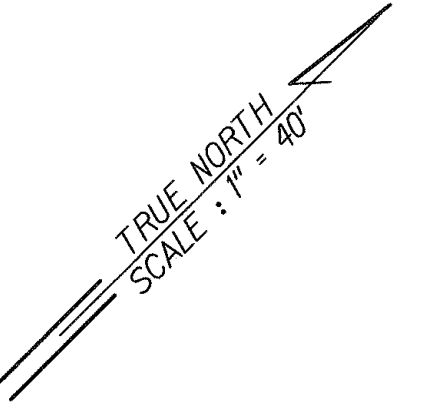
DRAINAGE & GRADING

**KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)**

Scale: 1"=40' Date: Feb. 8, 2002

SHEET No. D34 OF 50 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	143	380



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	CHECKED BY	
	QUANTITIES BY	
	DESIGNED BY	
	IN CHARGE	

\\KUIHELANI\CHANGE ORDER\PAK-AND-RIDE\JUN02 REV\DR-3300.dgn

6/26/02	Revised Grading from Sta. 269+00 to 274+00
2/8/02	Revised Sheet
Date	Revision

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R.M. Uraski

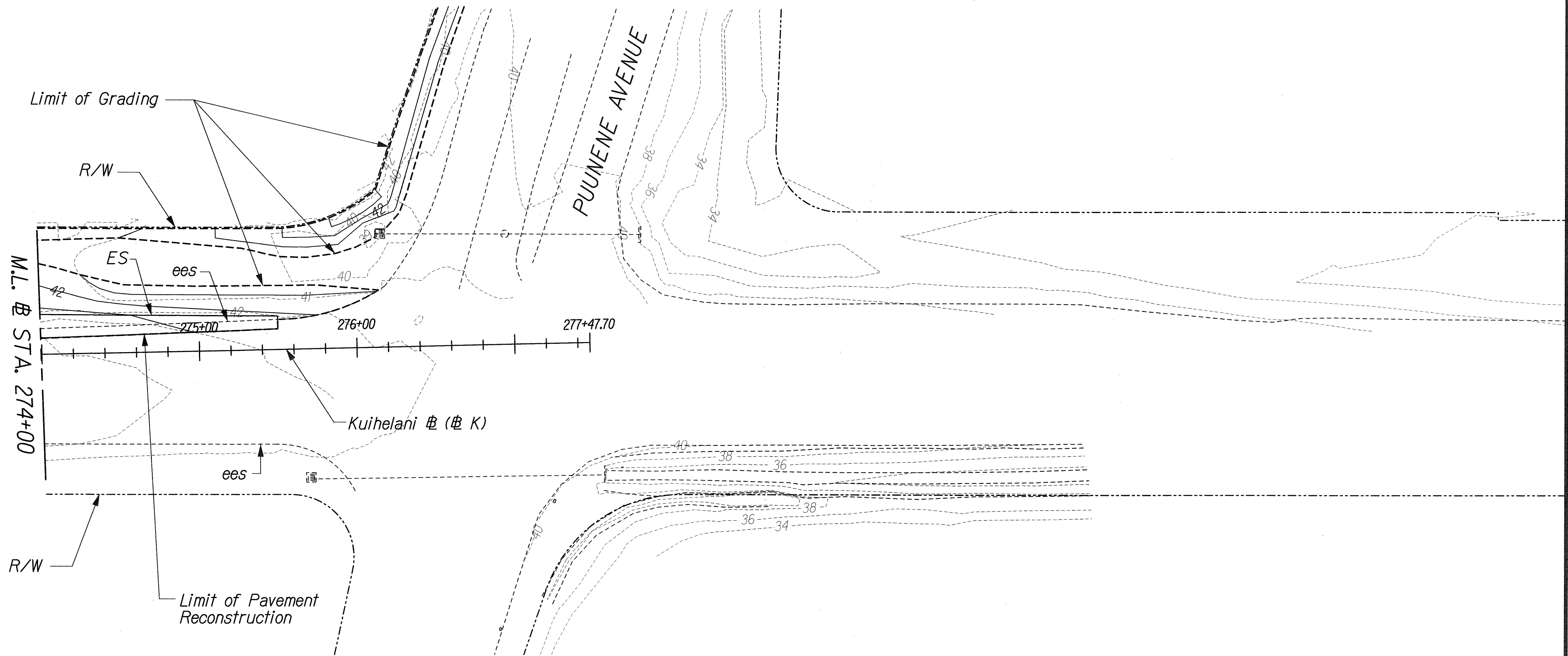
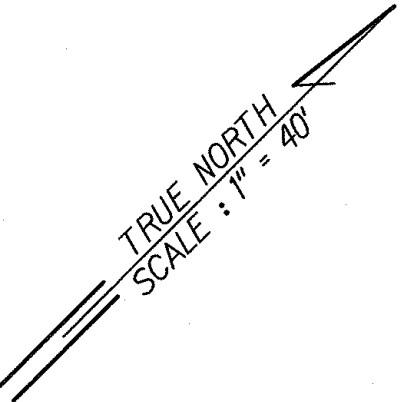
6/26/02

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DRAINAGE & GRADING

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=40' Date: June 26, 2002

SHEET No. D35 OF 50 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	144	380



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
DRAWN BY	TRACED BY	
NOTE BOOK	QUANTITIES BY	
	CHECKED BY	
No.		

J:\KUIHELANI\CHANGE ORDER\PAVING AND RIDE /DRAIN\DR-3400.dgn

2/8/02	Revised Sheet
Date	Revision

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2/8/02

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

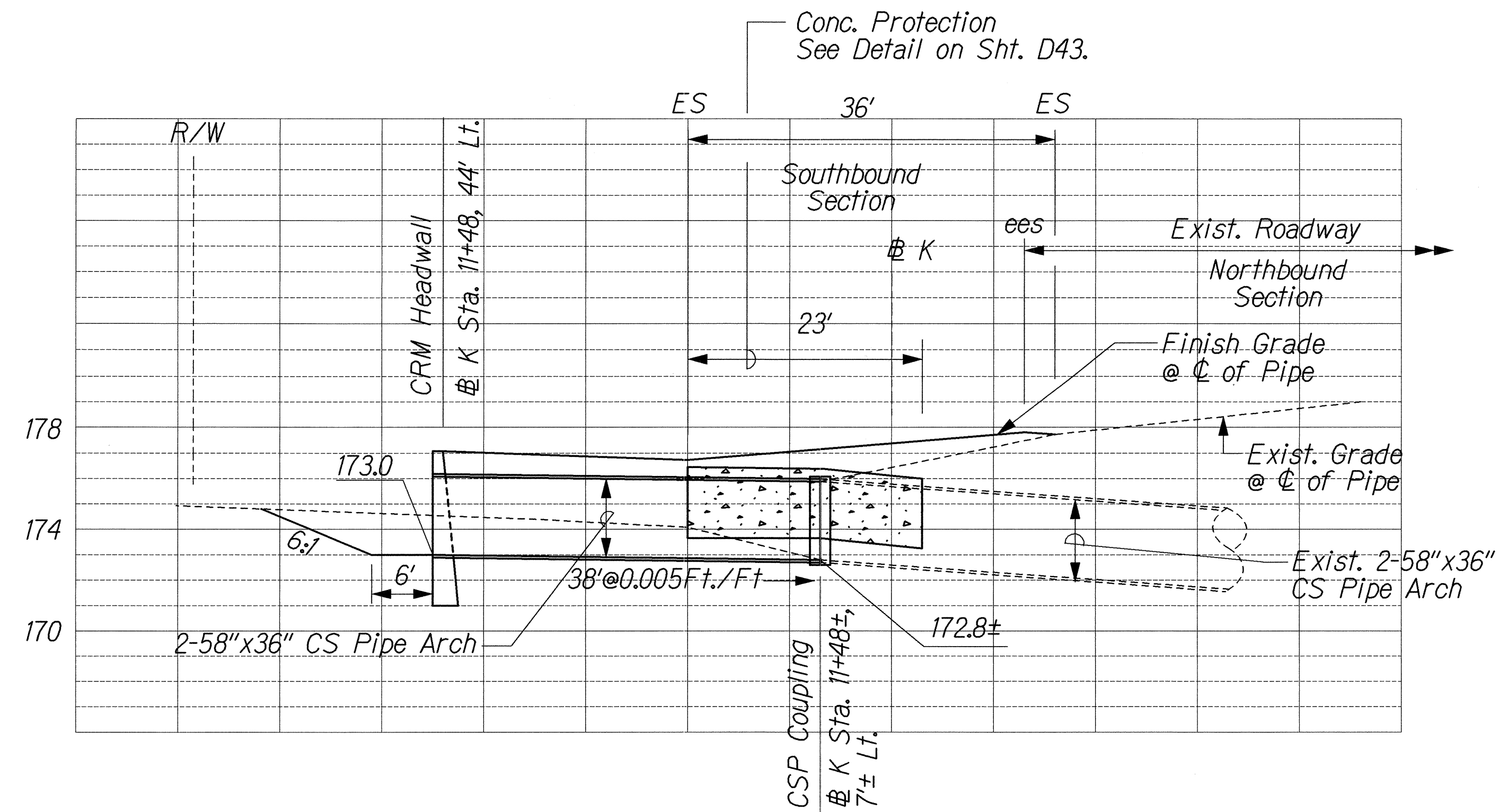
DRAINAGE & GRADING

**KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE**

FEDERAL-AID PROJECT NO. NH-0380(9)

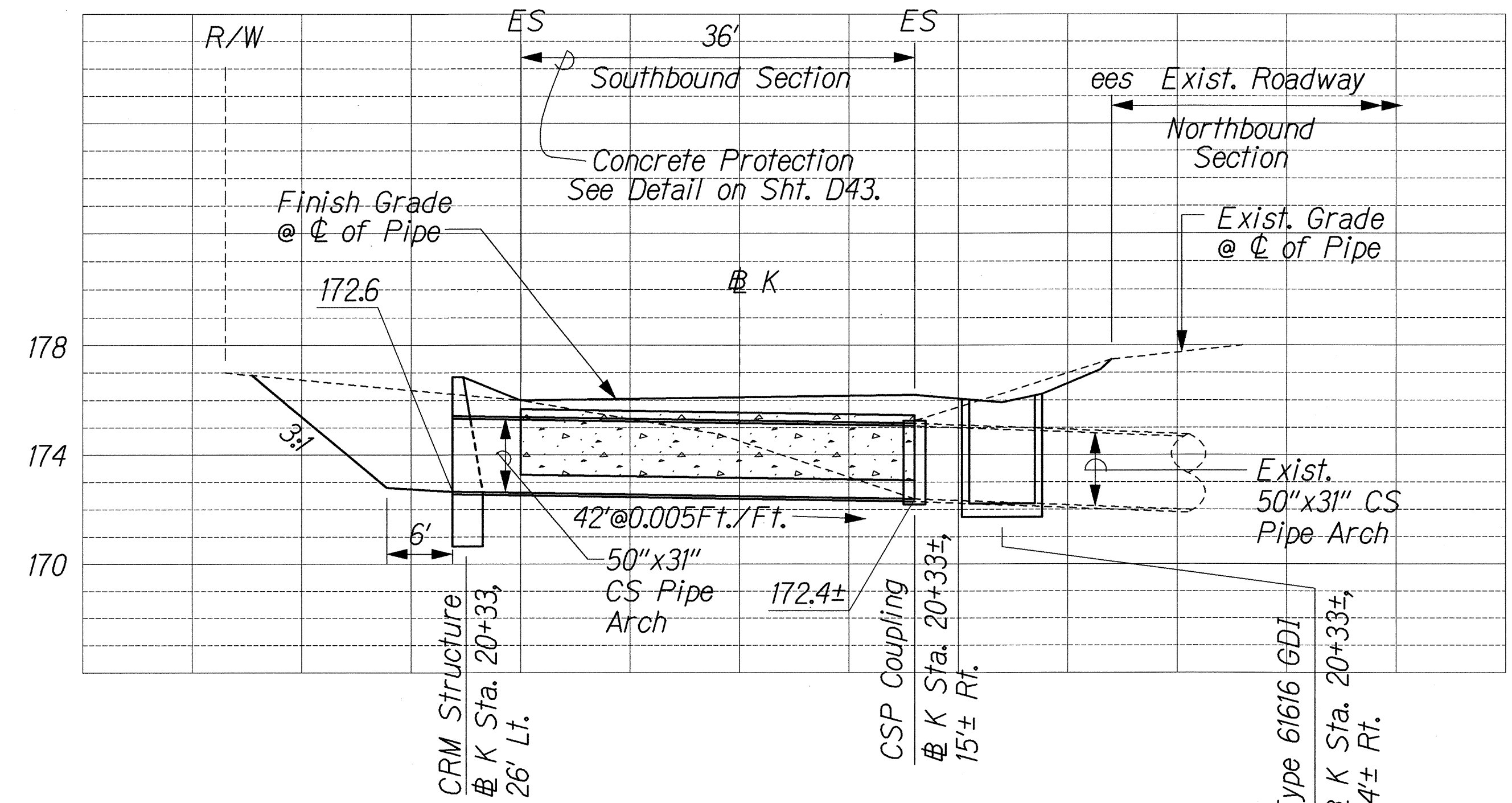
Scale: 1"=40' Date: Feb. 8, 2002

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	145	380



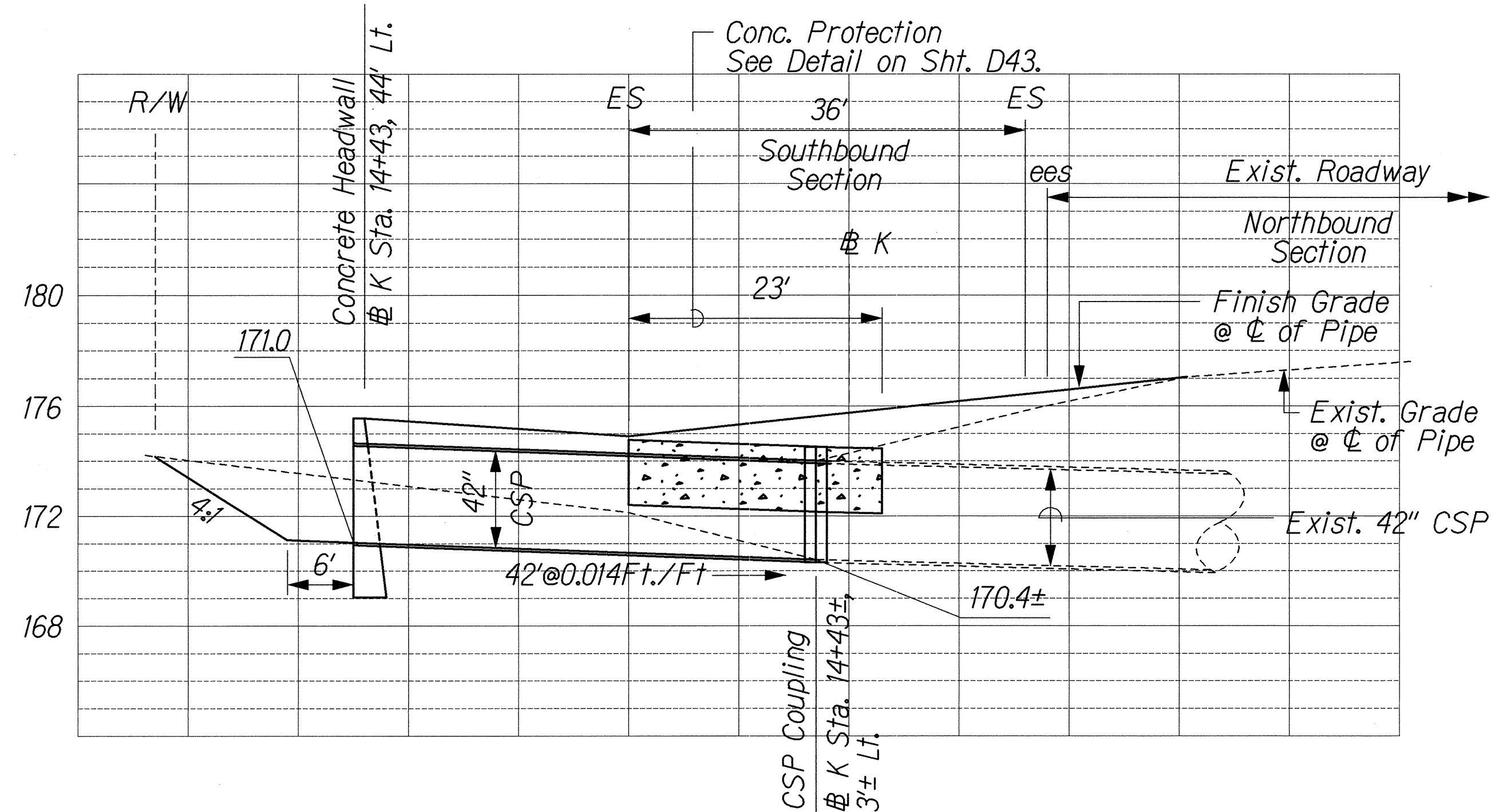
PROFILE - 2-58"x36" CS PIPE ARCH CULVERT # K STA. 11+48

Scale: Horiz. 1"=10'
Vert. 1"=4'



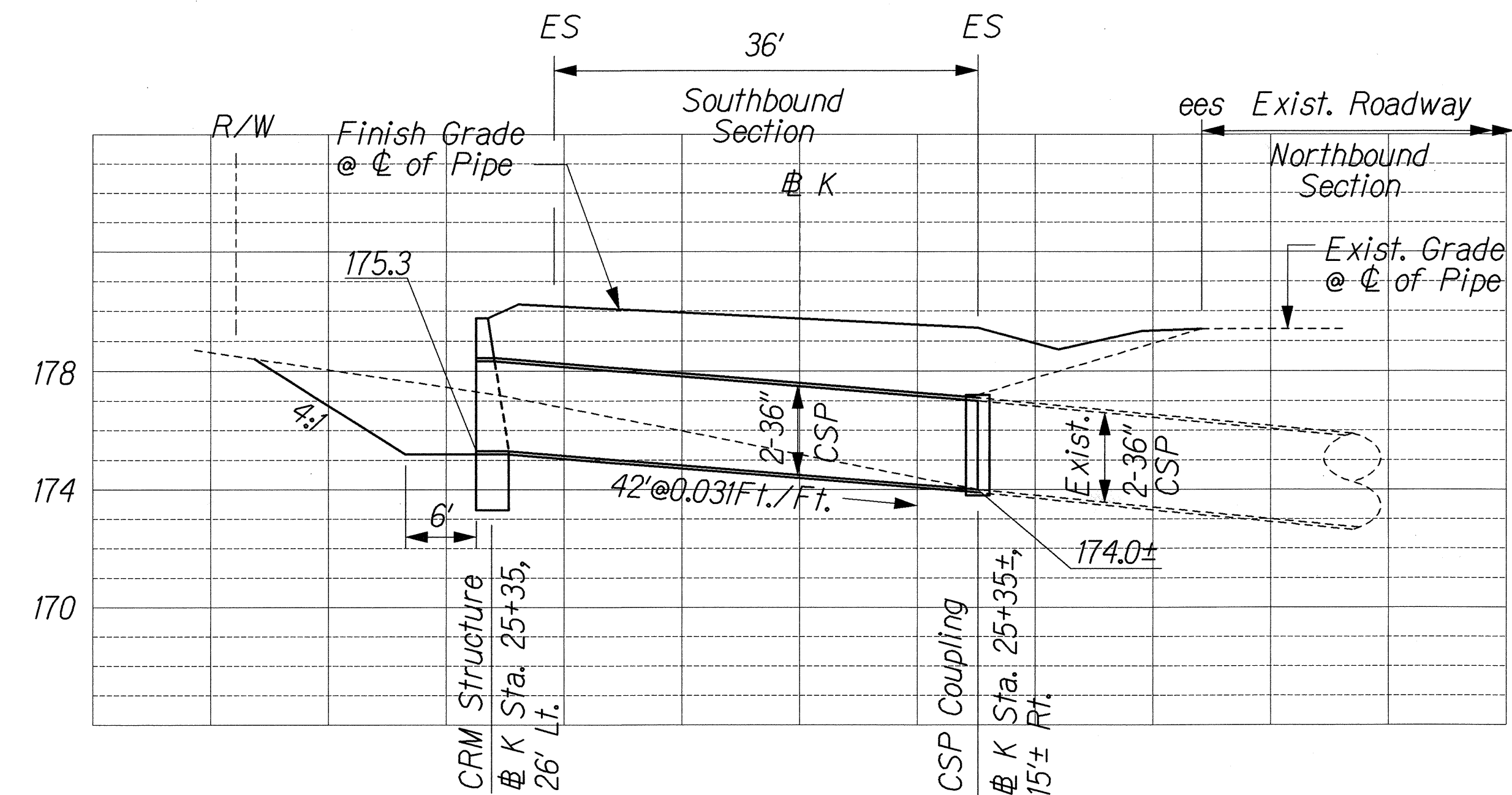
PROFILE - 50"x31" CS PIPE ARCH CULVERT # K STA. 20+33

Scale: Horiz. 1"=10'
Vert. 1"=4'



PROFILE - 42" CSP CULVERT # K STA. 14+43

Scale: Horiz. 1"=10'
Vert. 1"=4'

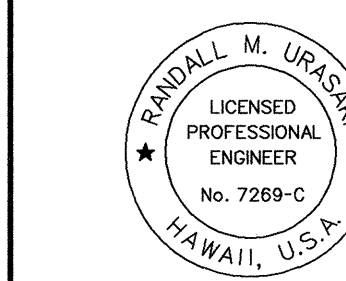


PROFILE - 2-36" CSP CULVERT # K STA. 25+35

Scale: Horiz. 1"=10'
Vert. 1"=4'

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

J: KUIHELANI/RAIN/DP-01dgn



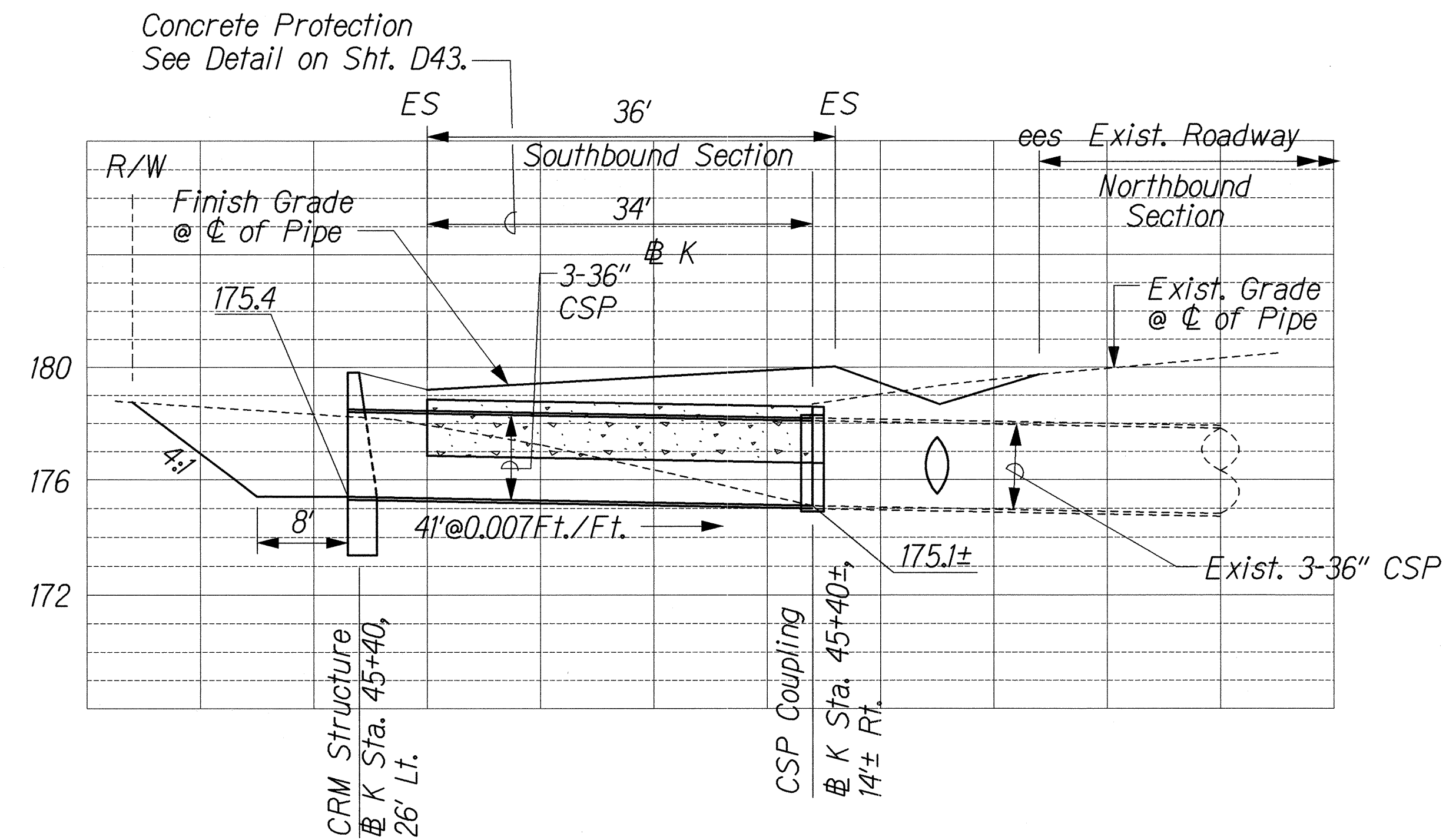
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R. M. Urasak 9/1/00

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DRAINAGE PROFILES

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: As Shown Date: Sept. 14, 2001

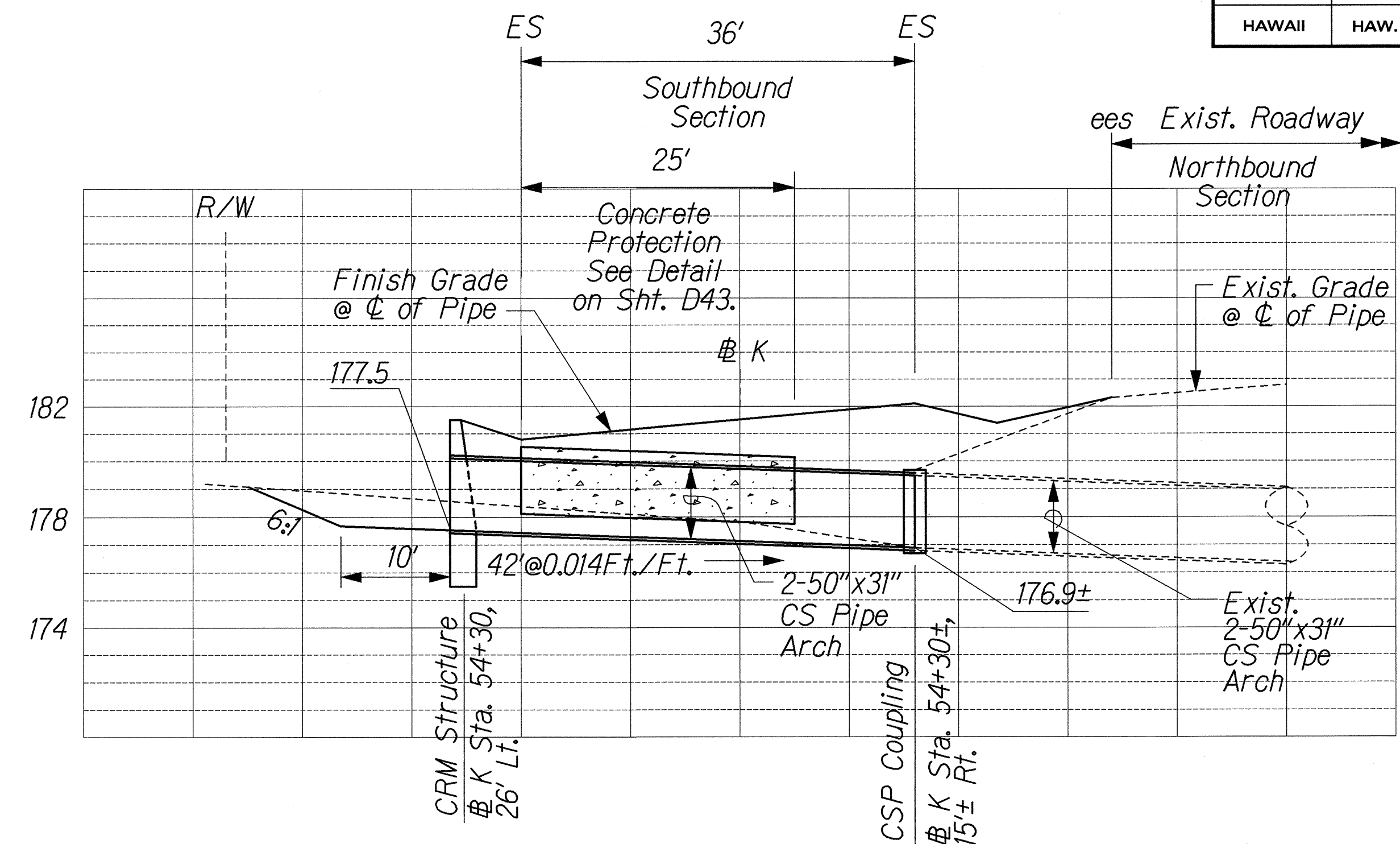
SHEET No. D37 OF 50 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	146	380



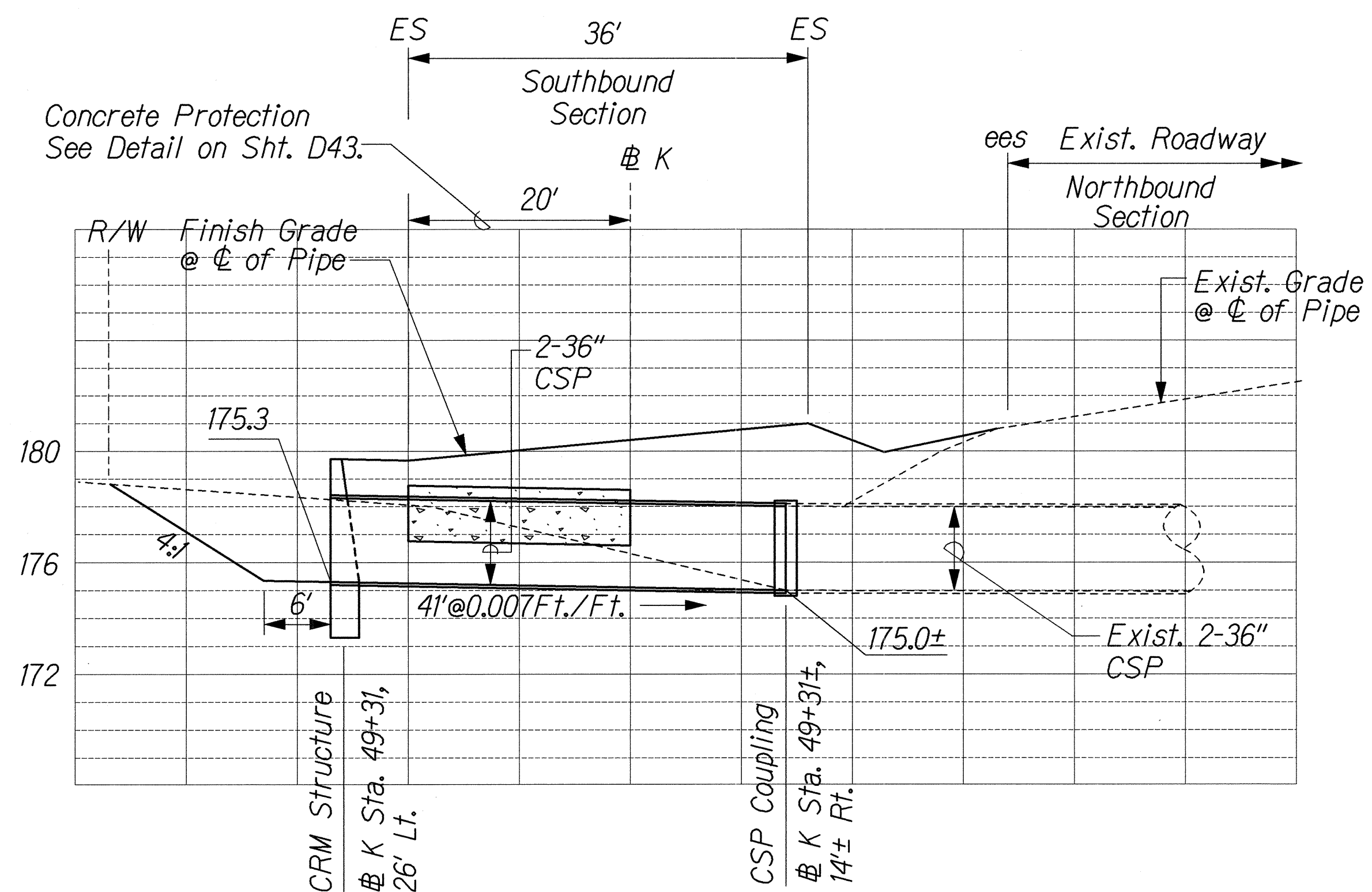
PROFILE - 3-36" CSP CULVERT ϕ K STA. 45+40

Scale: Horiz. 1"=10'
Vert. 1"=4'



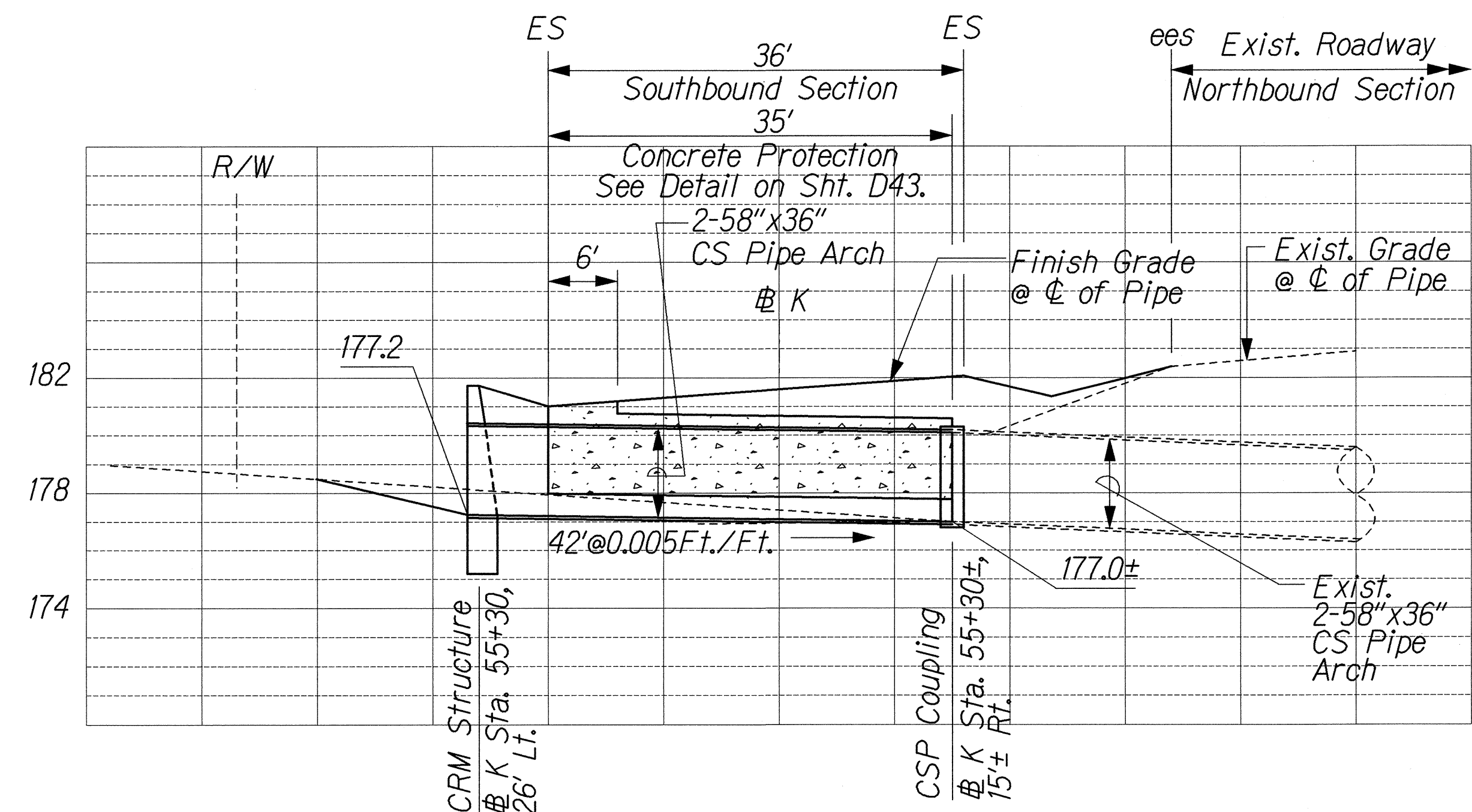
PROFILE - 2-50"x31" CS PIPE ARCH CULVERT ϕ K STA. 54+30

Scale: Horiz. 1"=10'
Vert. 1"=4'



PROFILE - 2-36" CSP CULVERT ϕ K STA. 49+31

Scale: Horiz. 1"=10'
Vert. 1"=4'



PROFILE - 2-58"x36" CS PIPE ARCH CULVERT ϕ K STA. 55+30

Scale: Horiz. 1"=10'
Vert. 1"=4'

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

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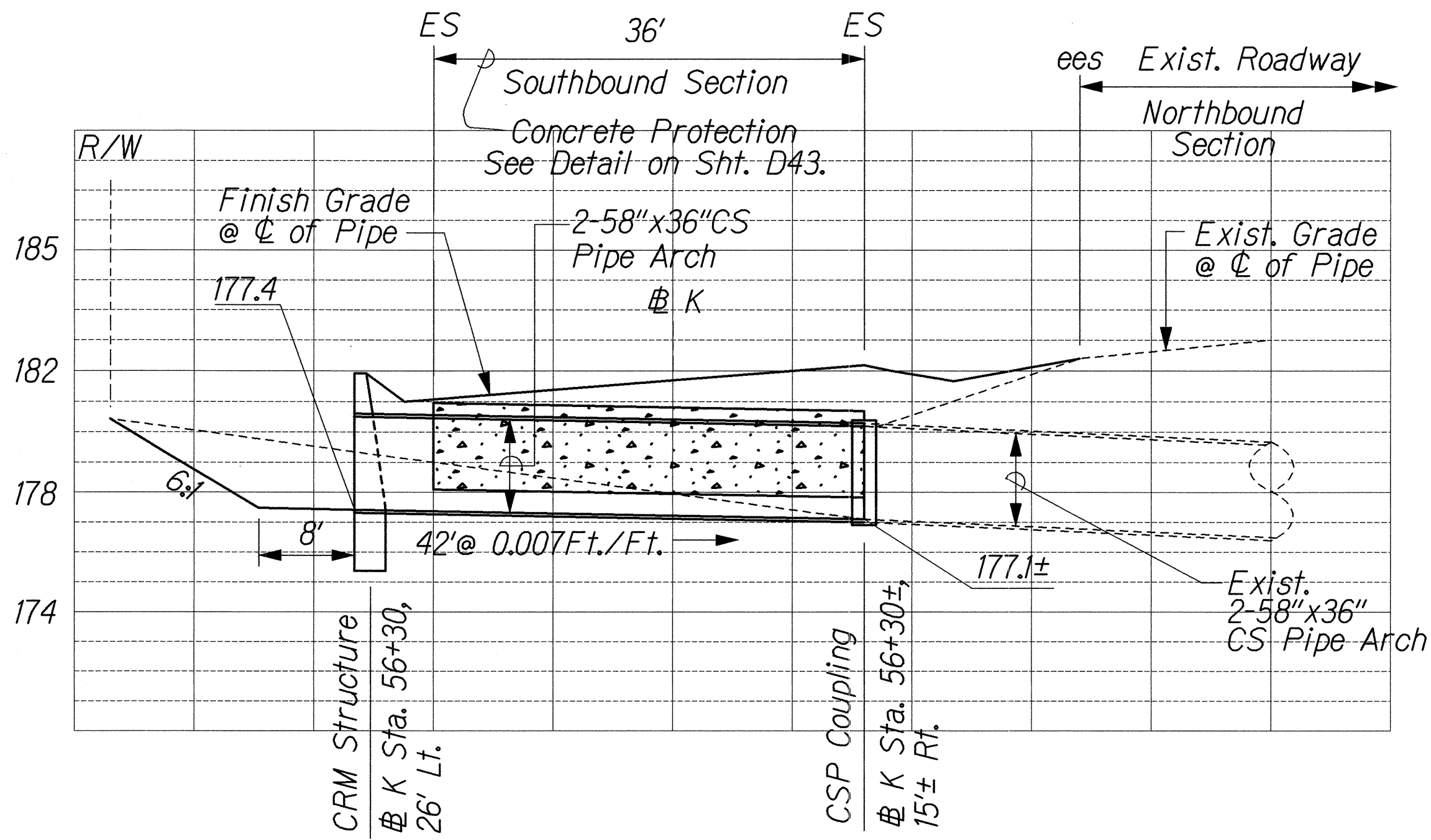
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PROFILES

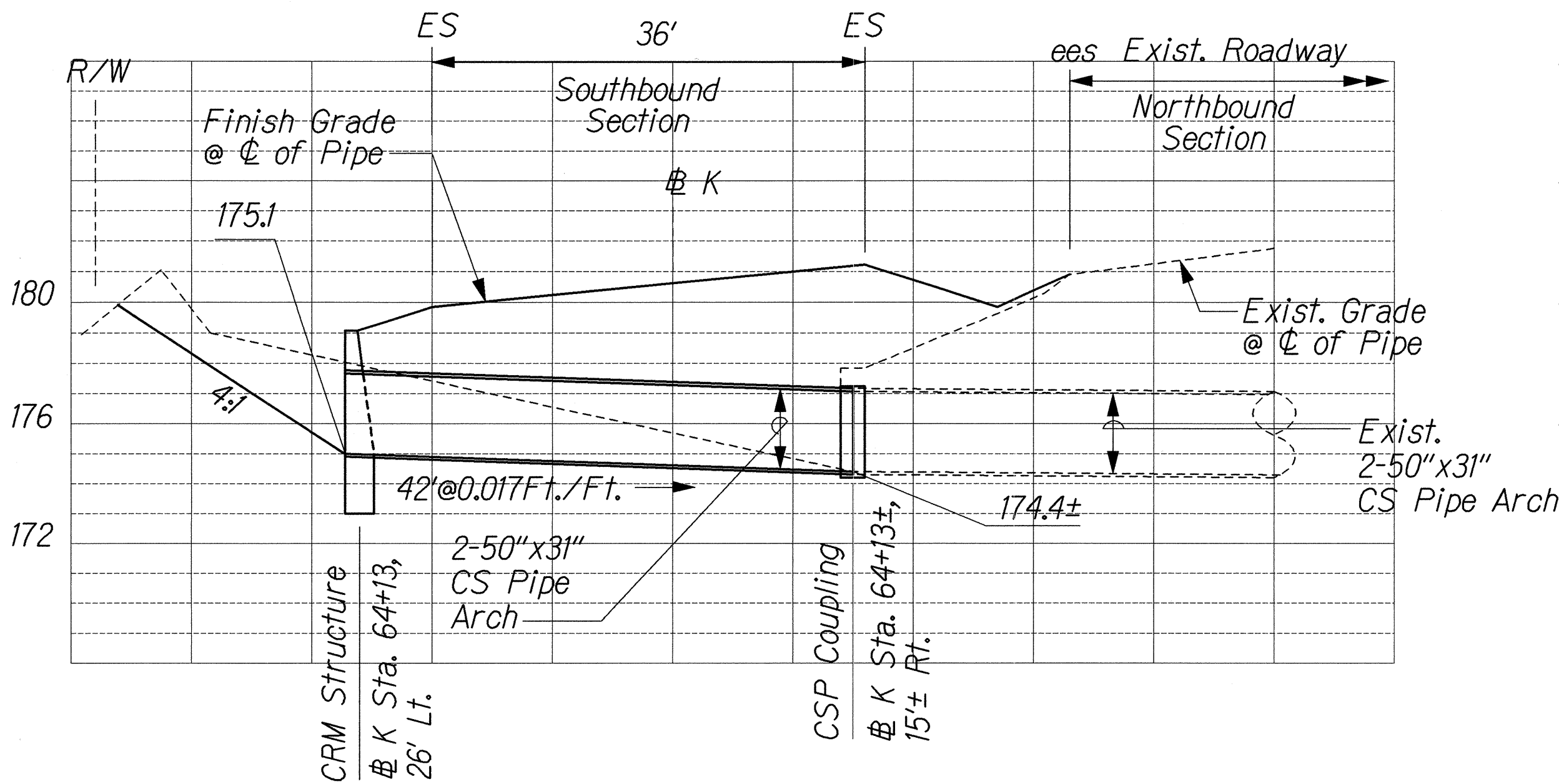
KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: As Shown Date: Sept. 14, 2001

SHEET No. D38 OF 50 SHEETS

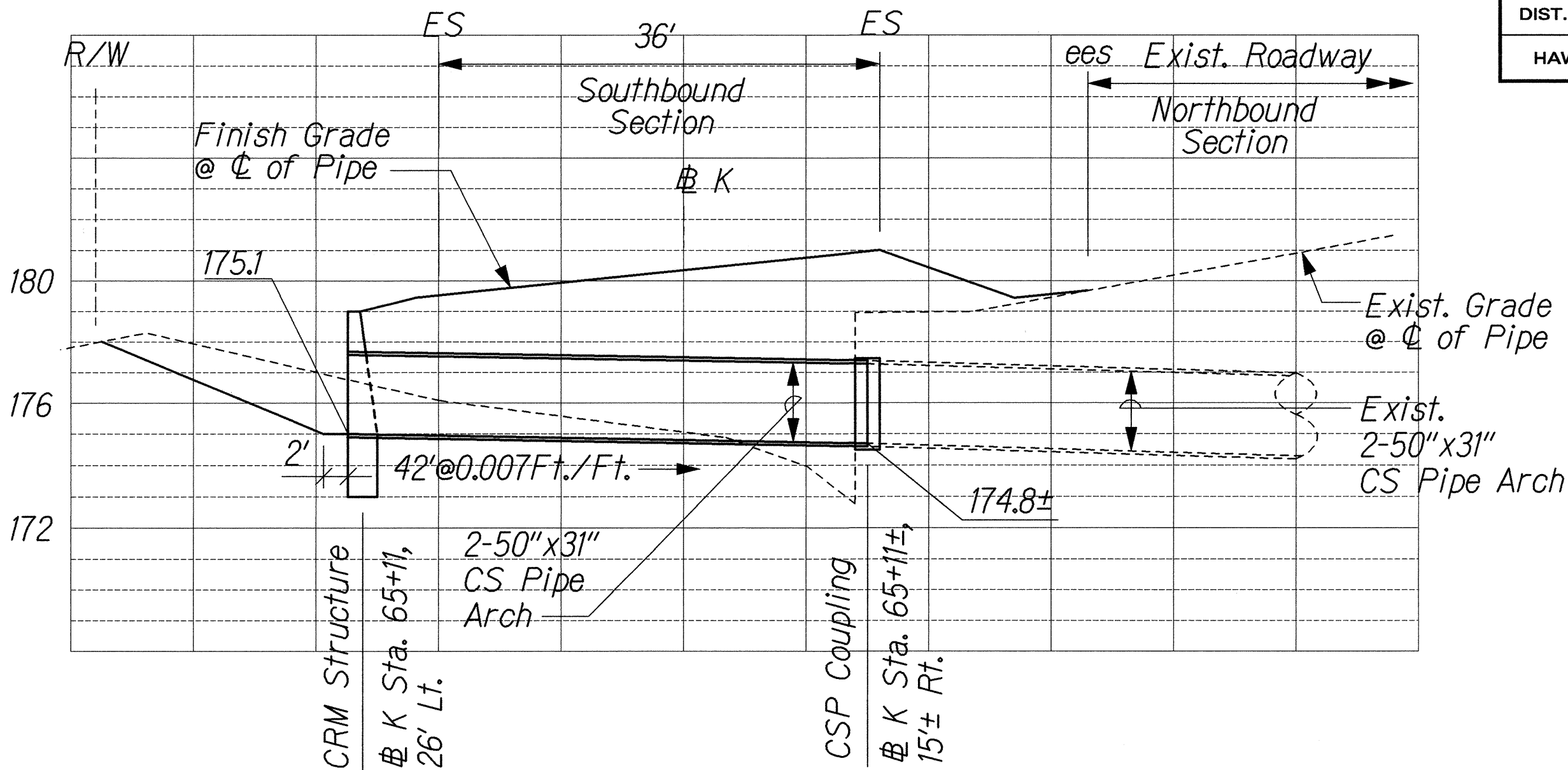
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	147	380



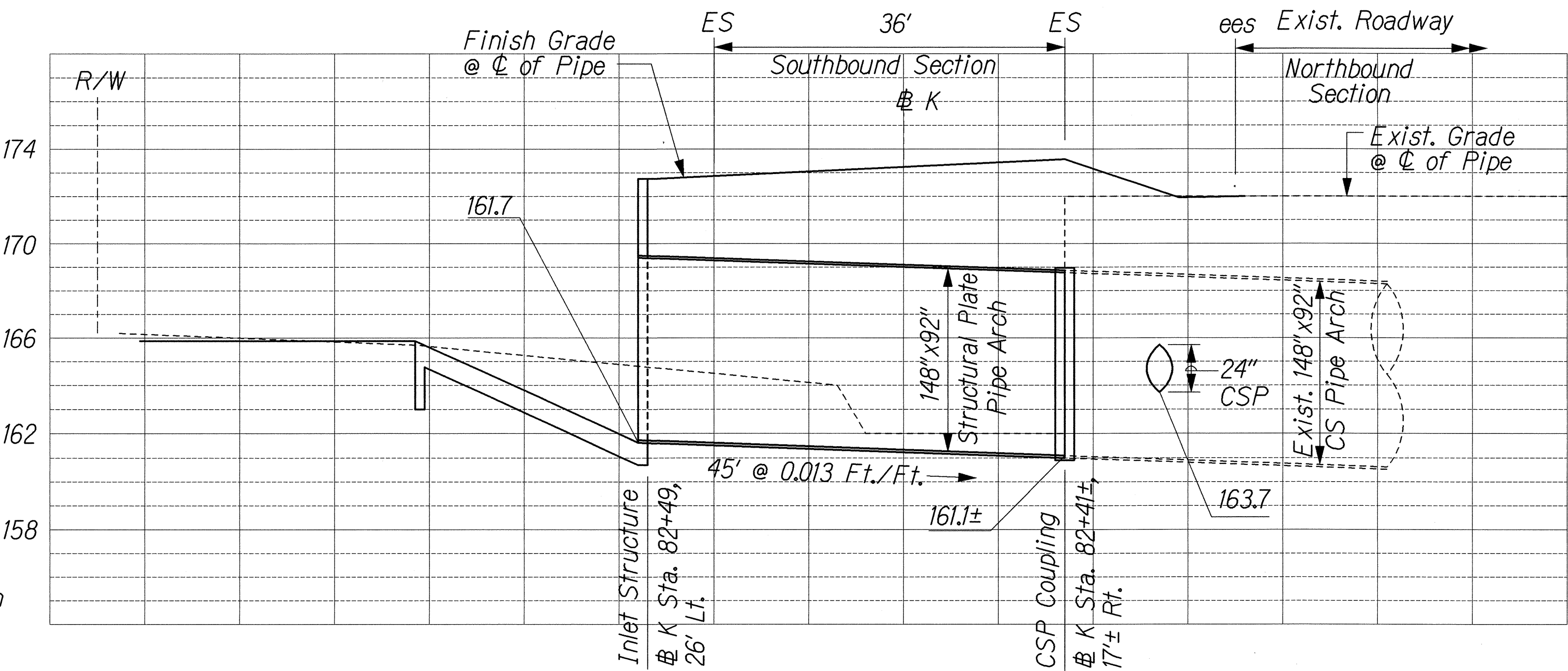
PROFILE - 2-58"x36" CS PIPE ARCH CULVERT
K STA. 56+30
Scale: Horiz. 1"=10'
Vert. 1"=4'



PROFILE - 2-50"x31" CS PIPE ARCH CULVERT
K STA. 64+13
Scale: Horiz. 1"=10'
Vert. 1"=4'



PROFILE - 2-50"x31" CS PIPE ARCH CULVERT
K STA. 65+11
Scale: Horiz. 1"=10'
Vert. 1"=4'



PROFILE - 148"x92" STRUCTURAL PLATE PIPE ARCH CULVERT
K STA. 82+44±
Scale: Horiz. 1"=10'
Vert. 1"=4'

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
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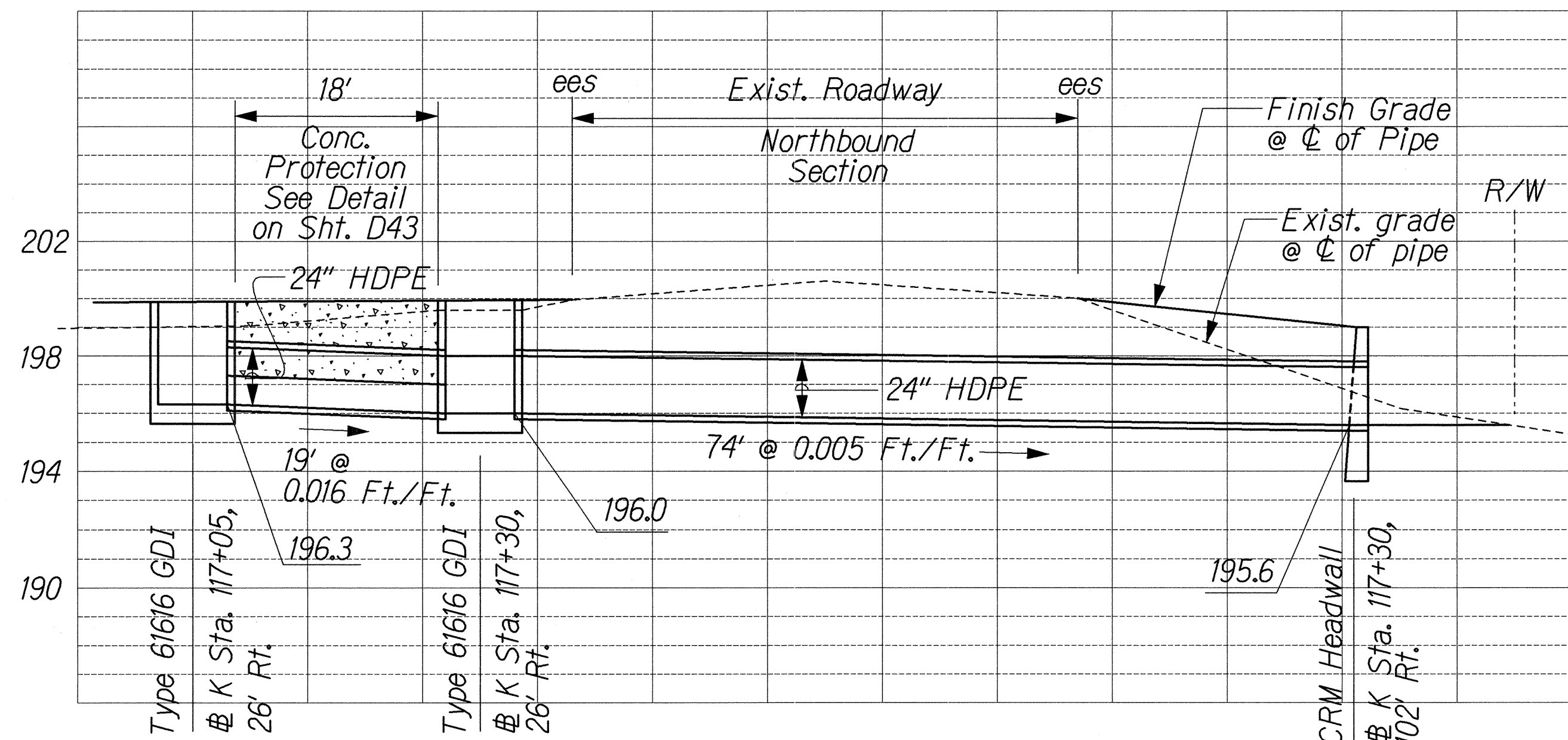
R. M. Urayama 9/14/00

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

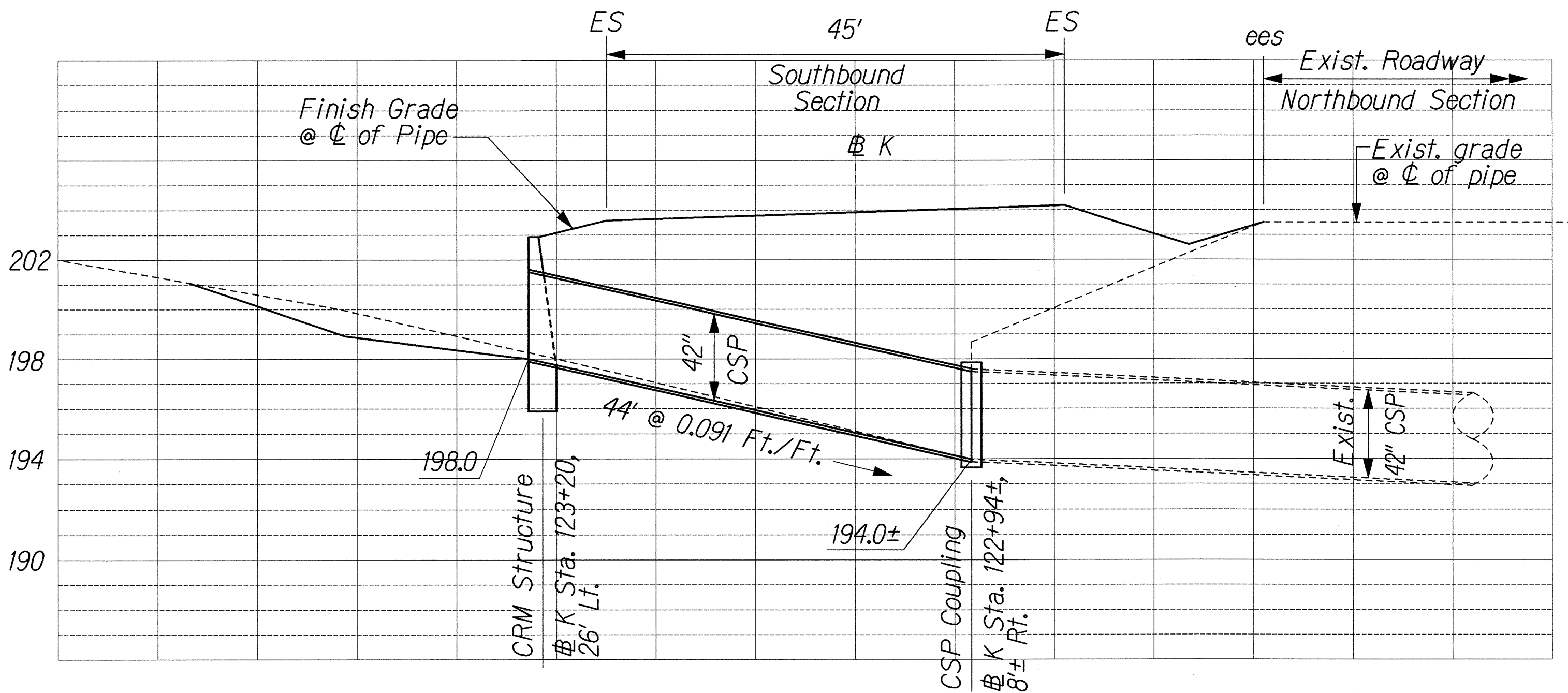
DRAINAGE PROFILES

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: As Shown Date: Sept. 14, 2001

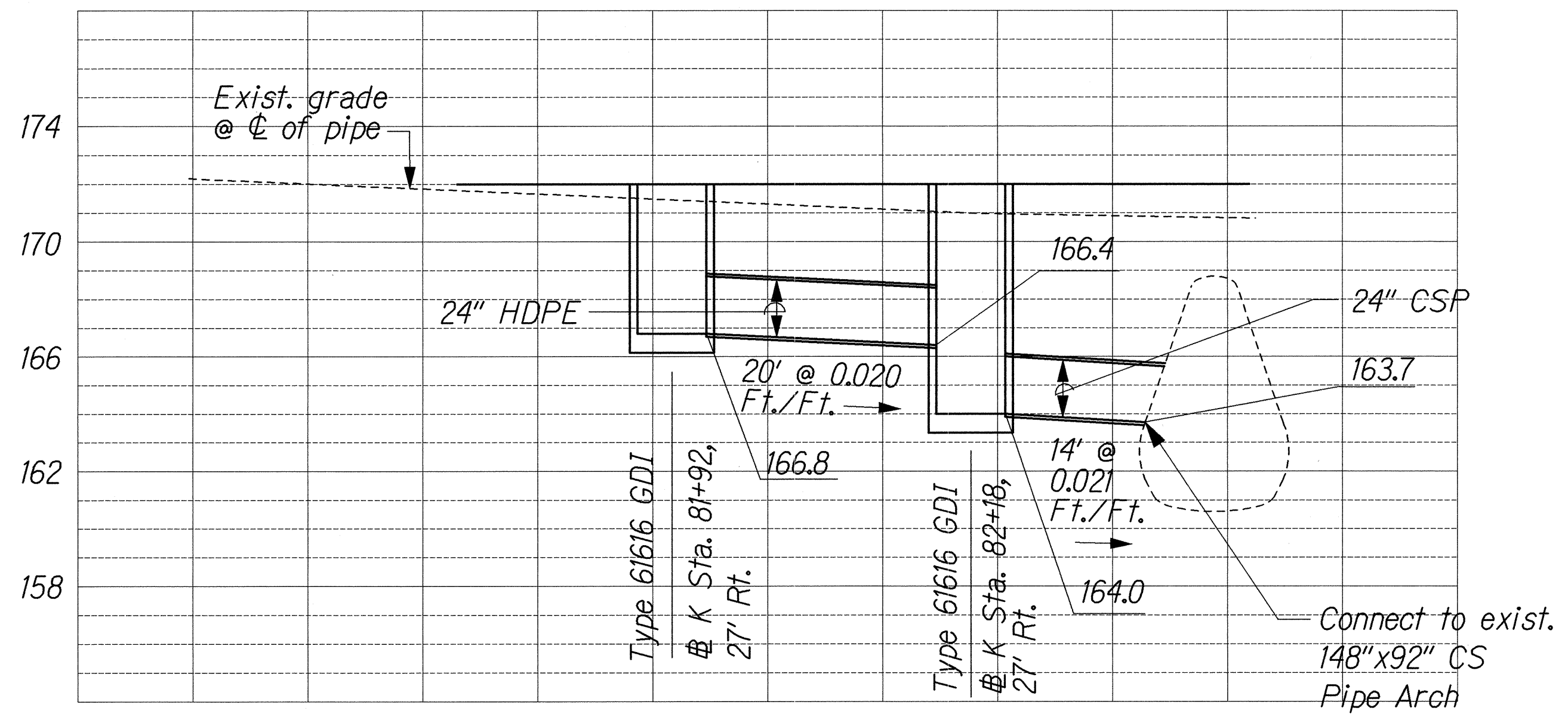
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	148	380



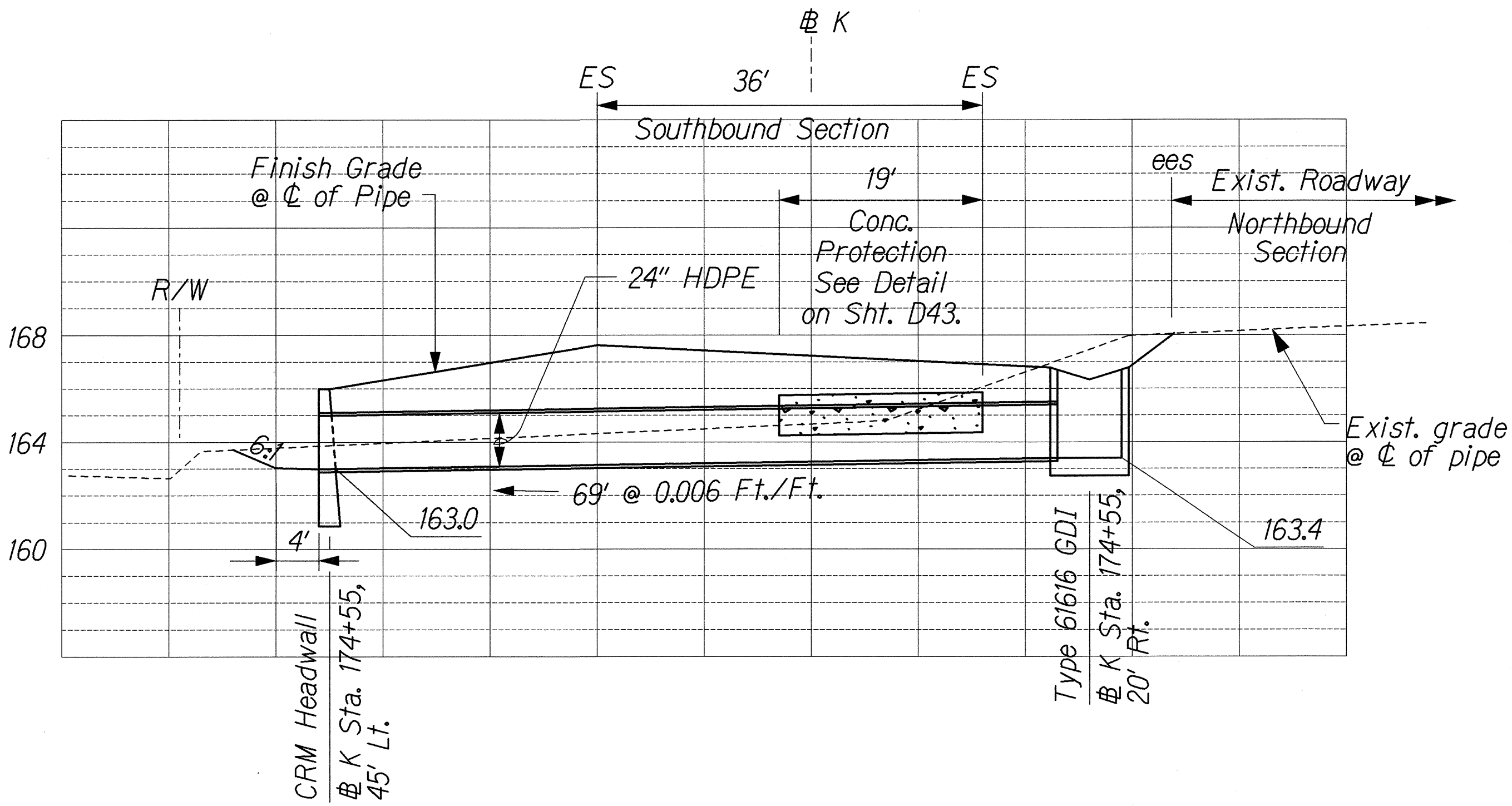
PROFILE - 24" HDPE PIPE
K STA. 117+30
 Scale: Horiz. 1"=10'
 Vert. 1"=4'



PROFILE - 42" CSP CULVERT # K STA. 123+00
 Scale: Horiz. 1"=10'
 Vert. 1"=4'



PROFILE - 24" HDPE/CS PIPE
K STA. 81+92 TO EXISTING 148"X92" CS PIPE ARCH CULVERT
 Scale: Horiz. 1"=10'
 Vert. 1"=4'



PROFILE - 24" HDPE PIPE # K STA. 174+55
 Scale: Horiz. 1"=10'
 Vert. 1"=4'

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	CHECKED BY	
	QUANTITIES BY	
	NOTED BY	
	DESIGNED BY	
	IN CHARGE	
	APPROVED BY	
	DATE	

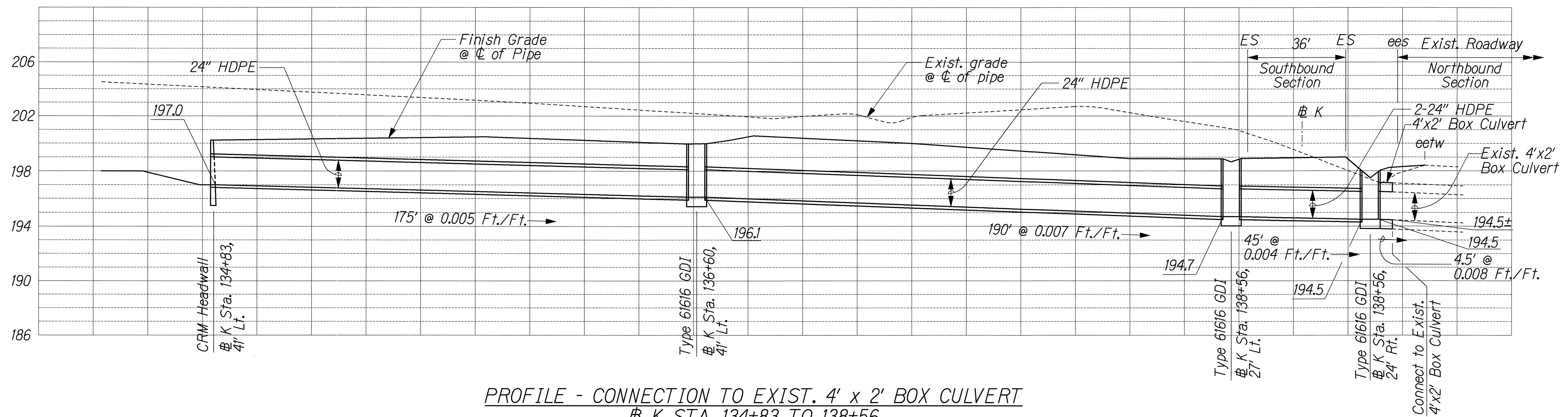
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Randall M. Urasaka 1/14/01

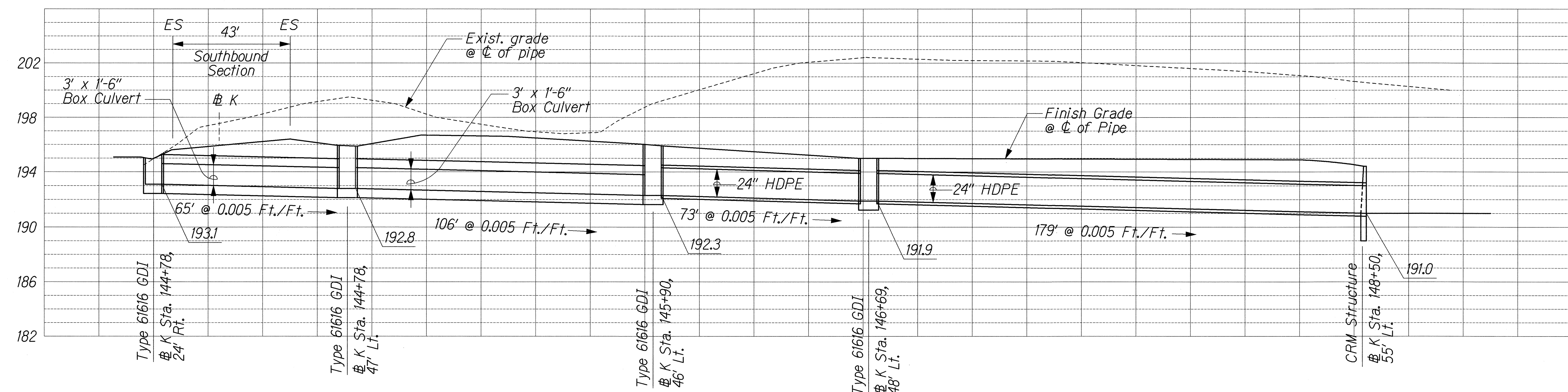
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
DRAINAGE PROFILES

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
 Scale: As Shown Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	149	380



PROFILE - CONNECTION TO EXIST. 4' x 2' BOX CULVERT
 @ K STA. 134+83 TO 138+56
 Scale: Horiz. 1"=20'
 Vert. 1"=4'



PROFILE - 3' x 1'-6" BOX CULVERT AND 24" HDPE PIPE
 @ K STA. 144+78 TO 148+50
 Scale: Horiz. 1"=20'
 Vert. 1"=4'

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
Nc.	

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R. M. Urasmy 7/14/01

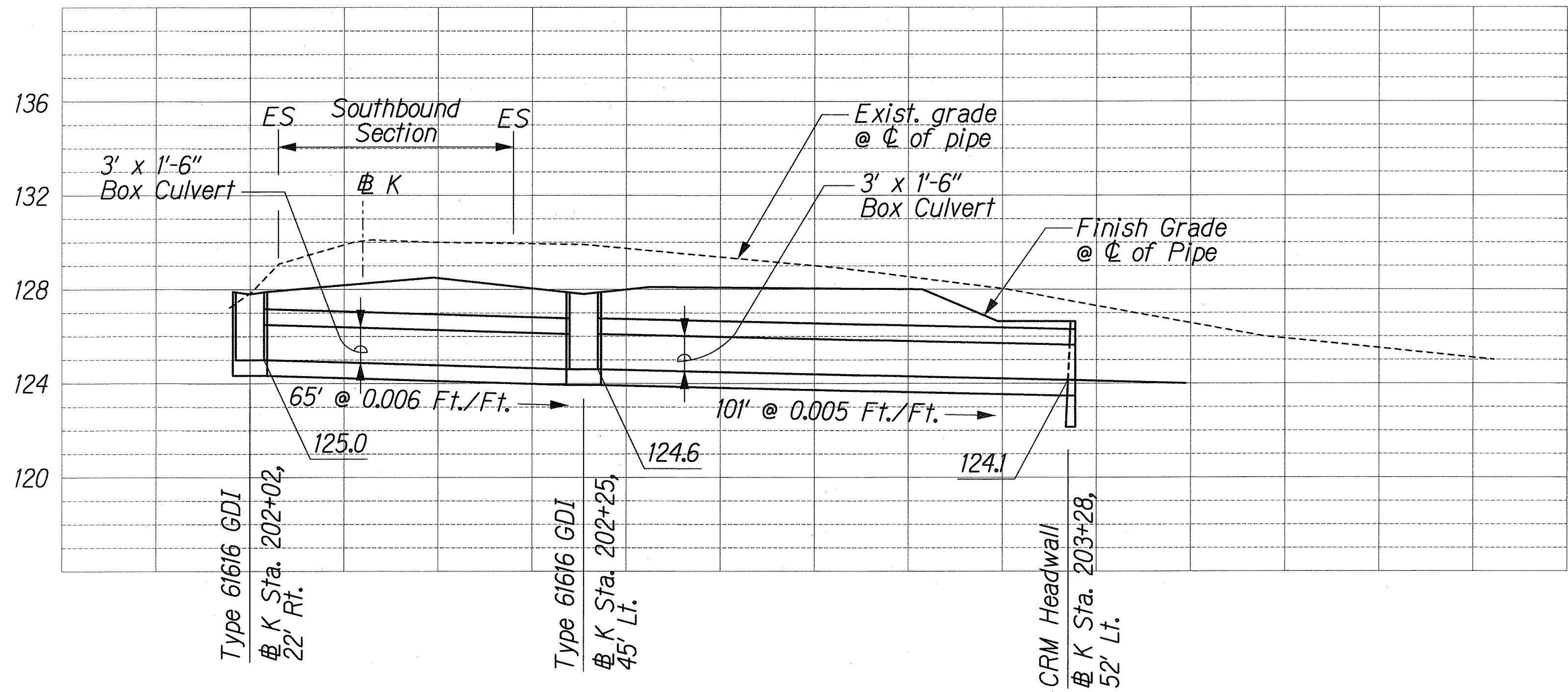
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

DRAINAGE PROFILES

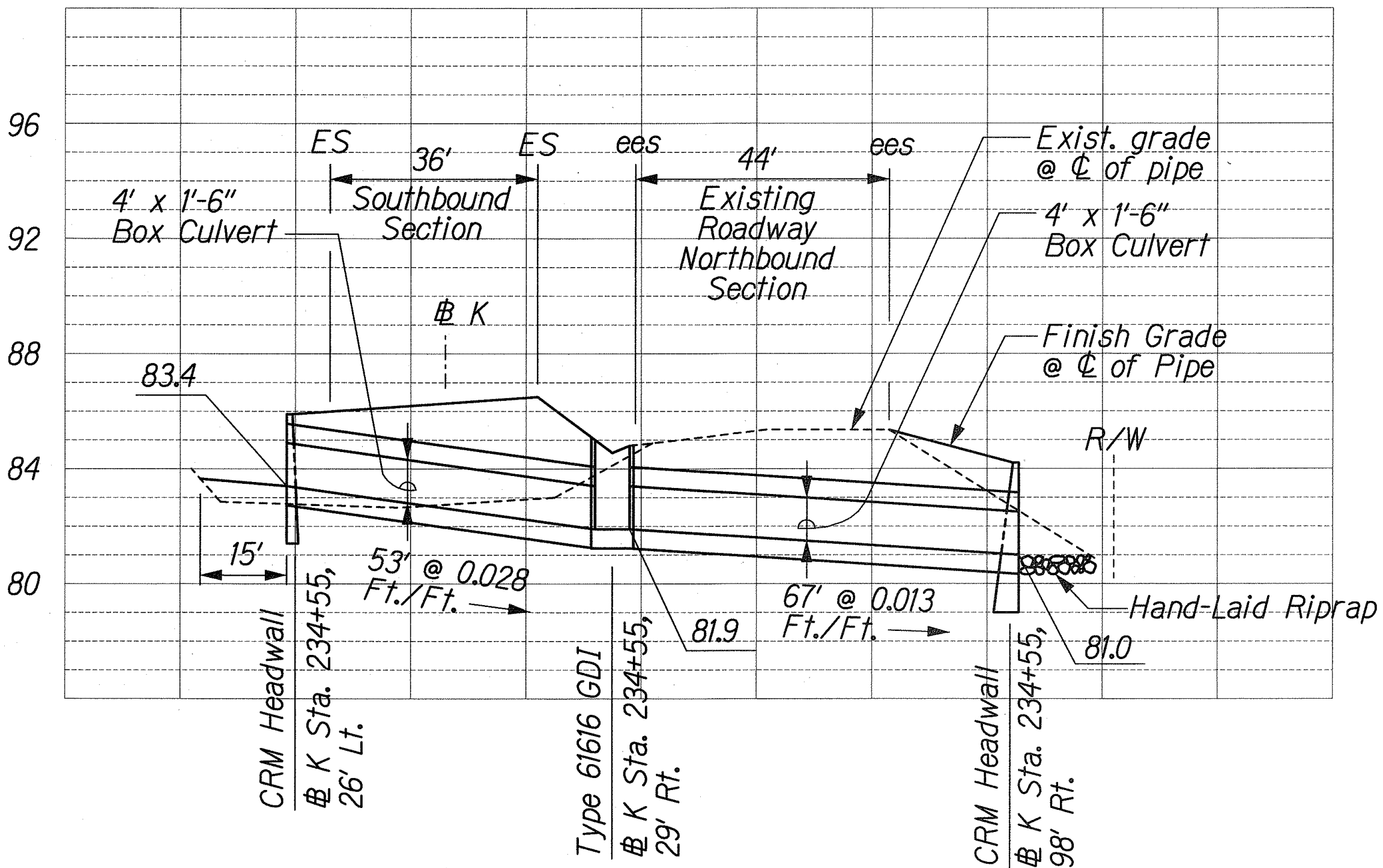
KUIHELANI HIGHWAY WIDENING
 HONOAIIANI HIGHWAY TO PUUNENE AVENUE
 FEDERAL-AID PROJECT NO. NH-0380(9)
 Scale: As Shown Date: Sept. 14, 2001

SHEET No. D41 OF 50 SHEETS

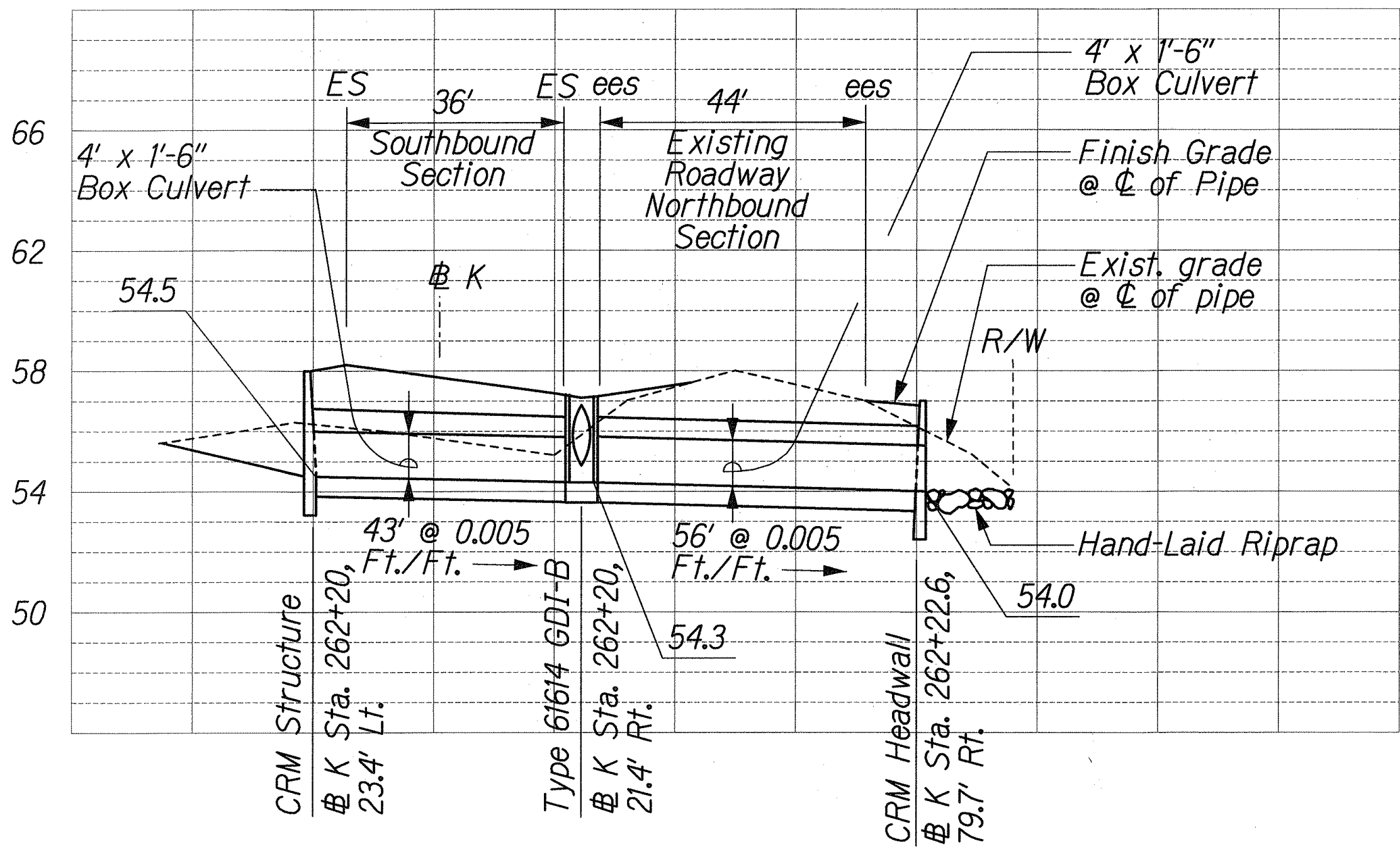
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	150	380



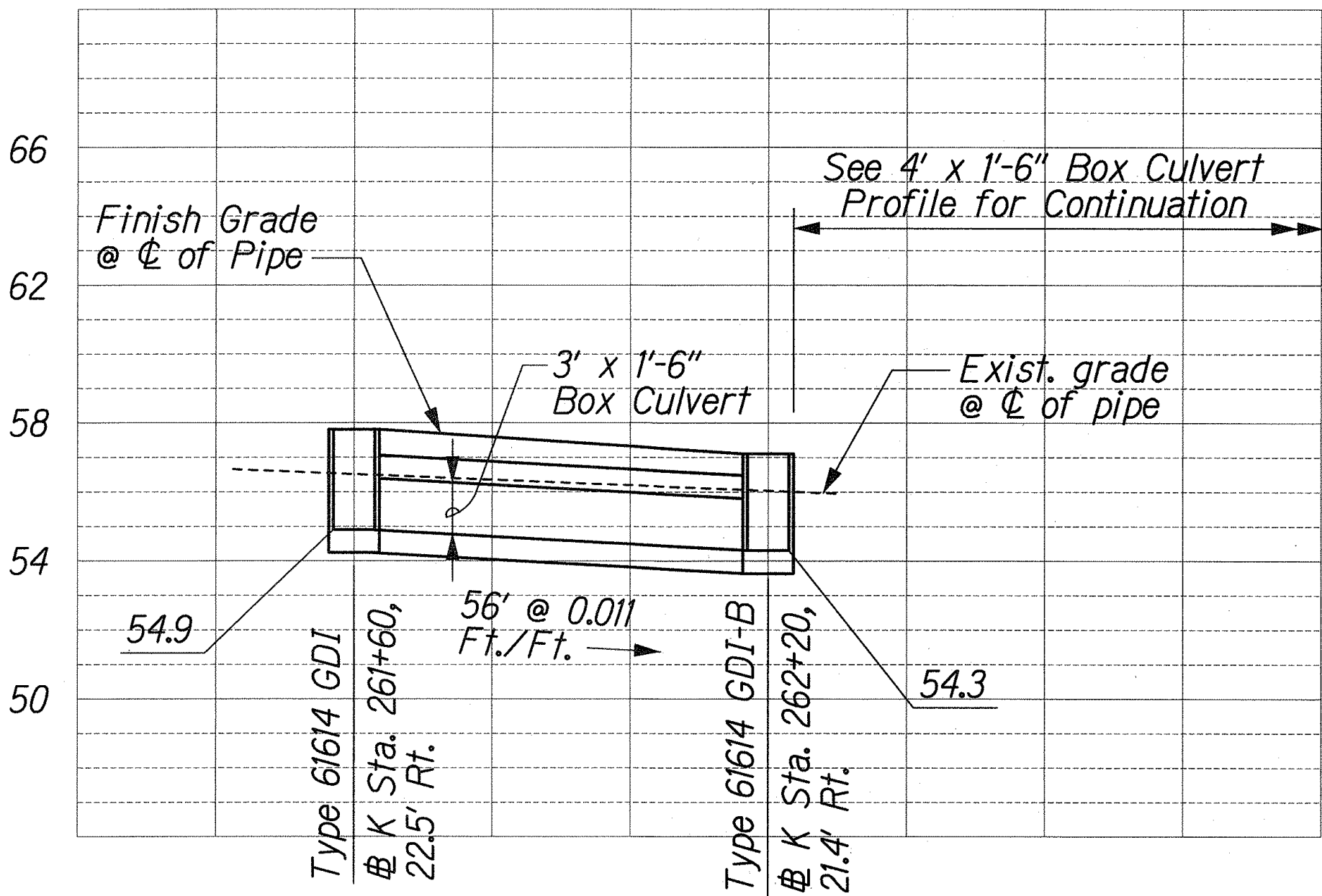
PROFILE - 3' x 1'-6" BOX CULVERT # K STA. 202+02 TO 203+28
Scale: Horiz. 1"=20'
Vert. 1"=4'



PROFILE - 4' x 1'-6" BOX CULVERT # K STA. 234+55
Scale: Horiz. 1"=20'
Vert. 1"=4'



PROFILE - 4' x 1'-6" BOX CULVERT # K STA. 262+20
Scale: Horiz. 1"=20'
Vert. 1"=4'



PROFILE - 3' x 1'-6" BOX CULVERT # K STA. 261+60 TO 262+20
Scale: Horiz. 1"=20'
Vert. 1"=4'

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
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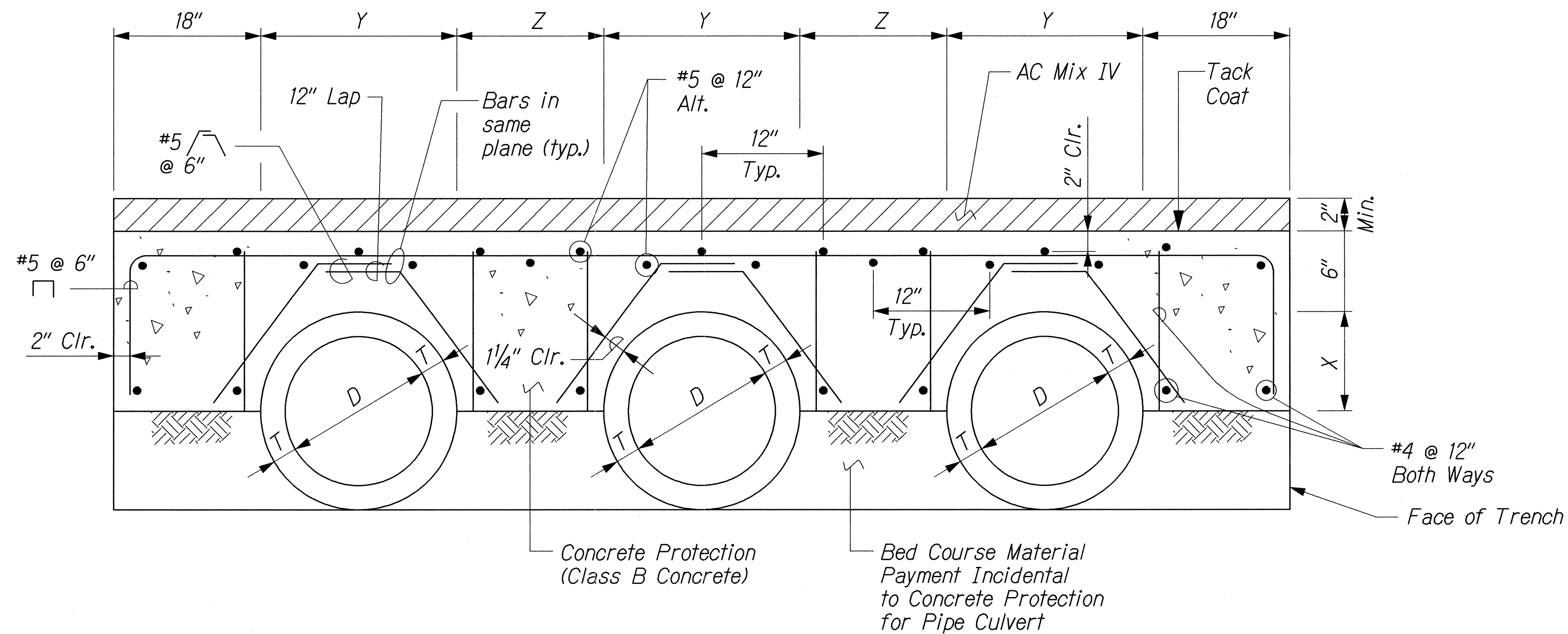
R. Urasak

2/8/02

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PROFILES

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: As Shown Date: Feb. 8, 2002



CONCRETE PROTECTION FOR CIRCULAR PIPE CULVERTS

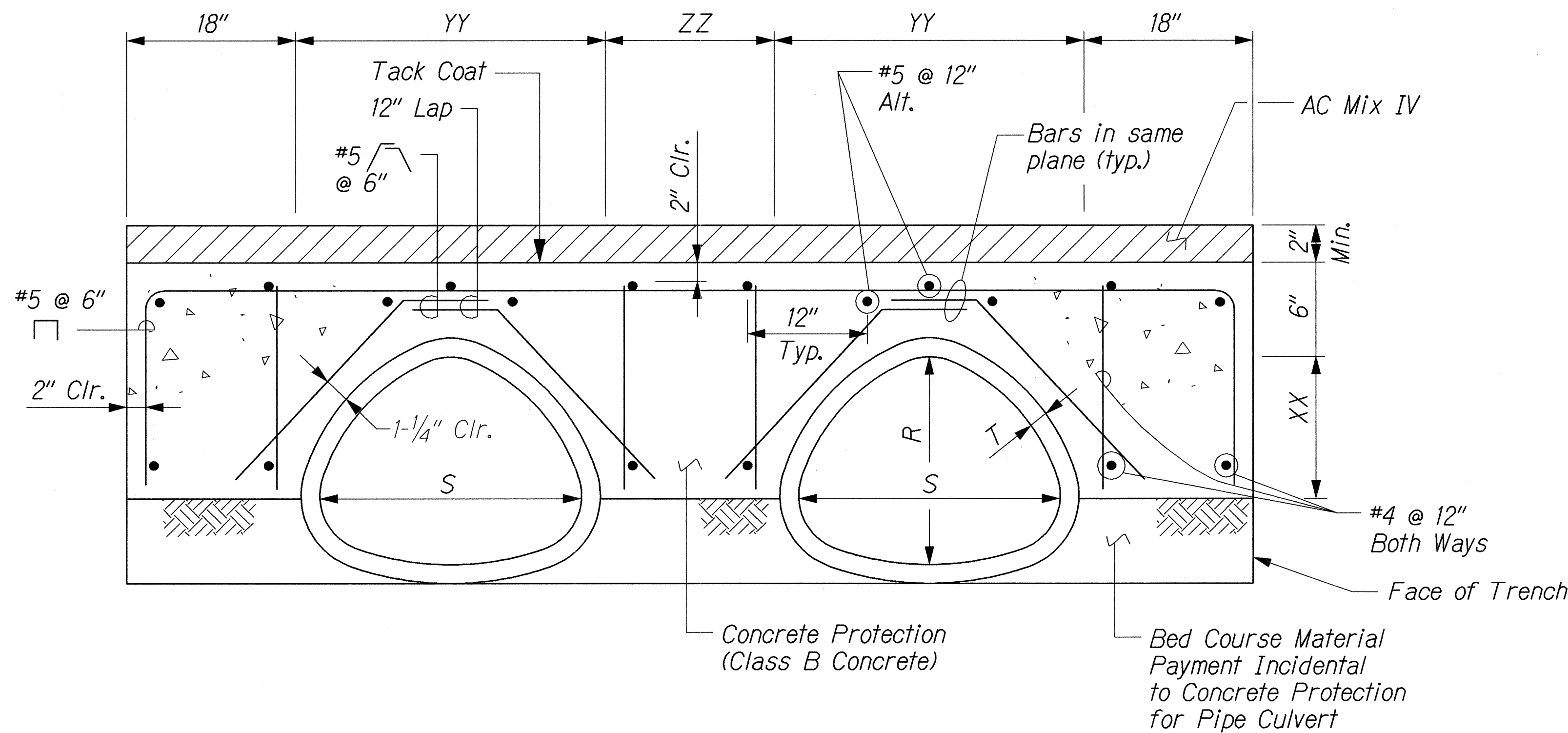
Not to Scale

SINGLE & MULTIPLE CIRCULAR PIPE CONCRETE PROTECTION DATA

No. of Pipes	Diameter D (in.)	X	Y	Z
1	24	$D/2 + T$	$D + 2T$	-
1	42			-
3	36			1'-6"
2	36			1'-6"
2	24			1'-0"

NOTES:

- Concrete Protection Details to be used when cover is less than 24".
- Dimension 'XX' shall be the depth corresponding to the pipe arch span dimension, S, at the maximum width.



CONCRETE PROTECTION FOR PIPE ARCH CULVERTS

Not to Scale

SINGLE & MULTIPLE PIPE ARCH CONCRETE PROTECTION DATA

No. of Pipes	Span S (in.)	Rise R (in.)	XX	YY	ZZ
2	58	36	See Note 2	$S + 2T$	1'-7"
1	50	31			-
2	50	31			1'-5"

SURVEY PLOTTED BY	DATE
DRAWN BY	
CHECKED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
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\\KUIHELANI\DRAIN\dd-04ddgn

RANDALL M. URASAKI

LICENSED PROFESSIONAL ENGINEER

No. 7269-C

HAWAII, U.S.A.

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R. M. Urasaki 9/14/01

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

DRAINAGE & GRADING

CONCRETE PROTECTION DETAIL

KUIHELANI HIGHWAY WIDENING

HONOAPIILANI HIGHWAY TO PUUNENE AVENUE

FEDERAL-AID PROJECT NO. NH-0380(9)

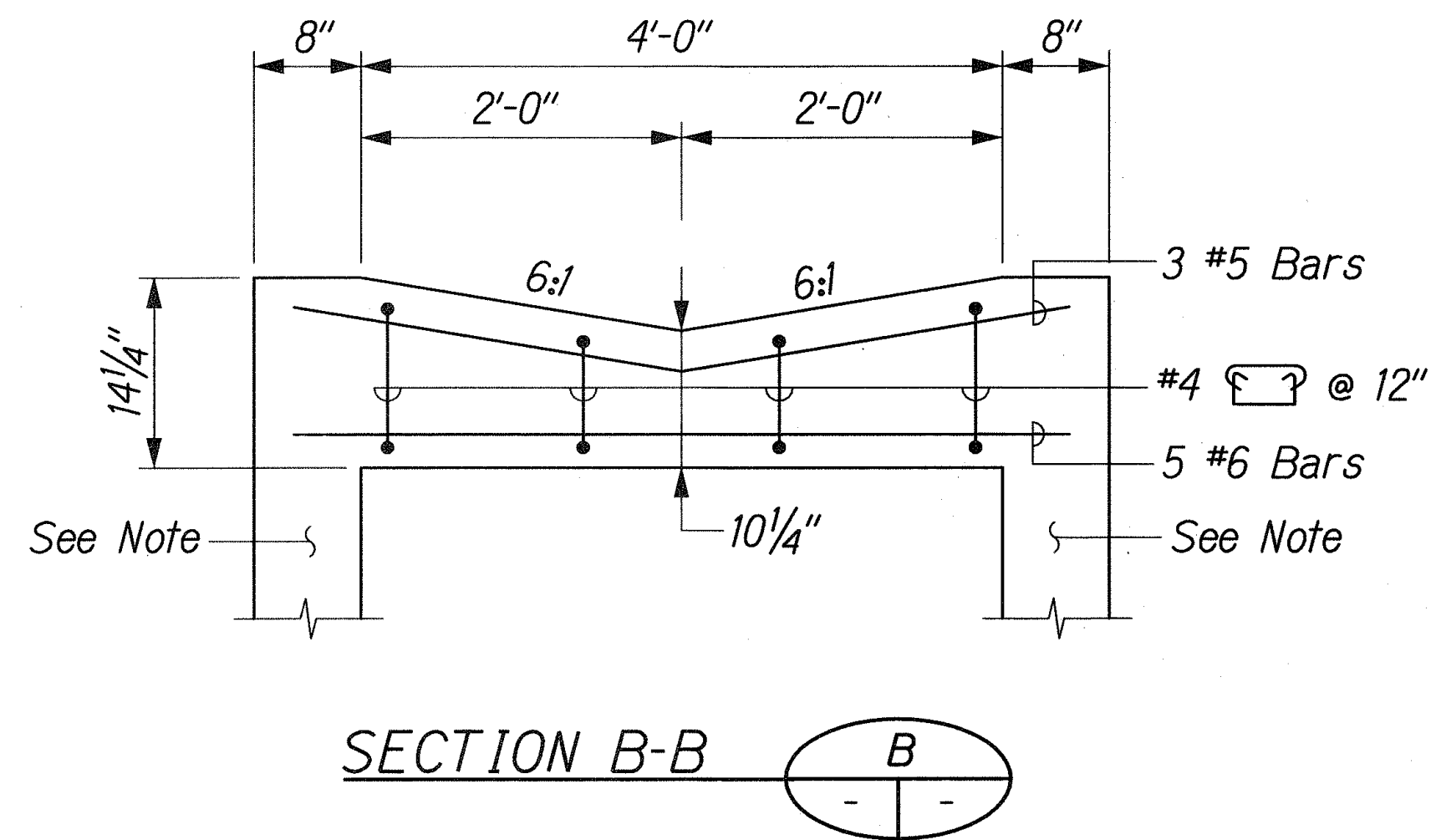
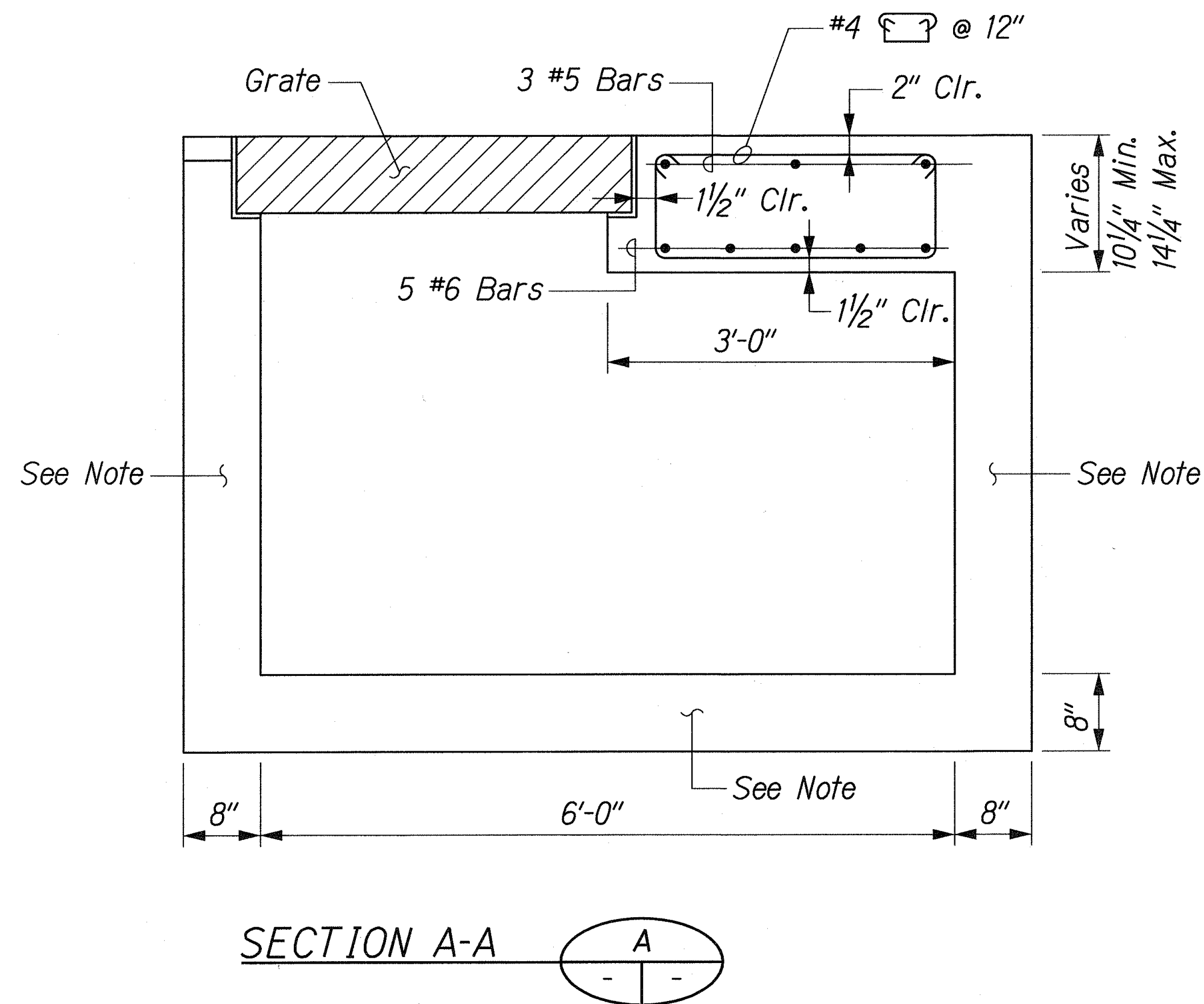
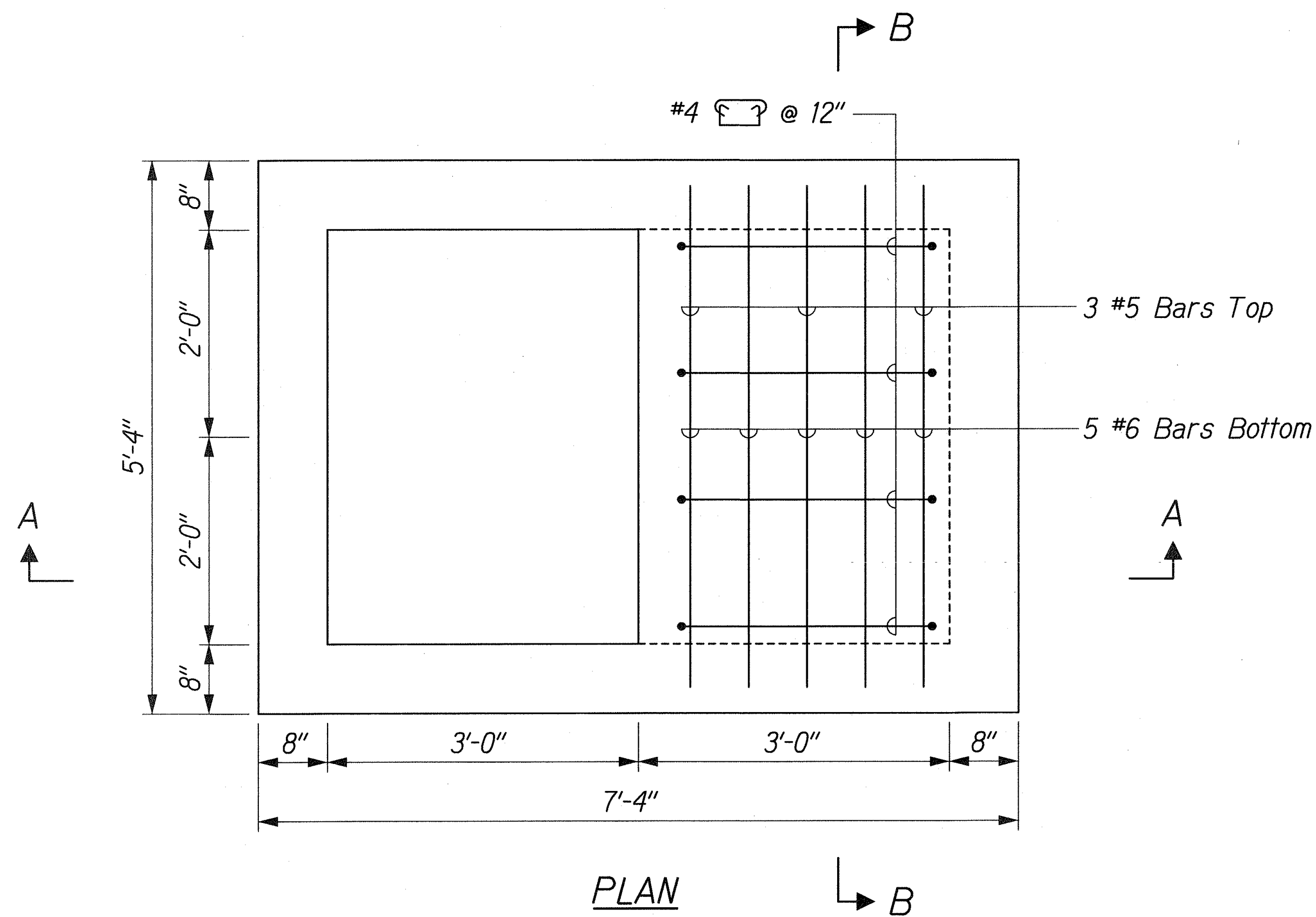
Scale: NONE

Date: Sept. 14, 2001

SHEET No. D43 OF 50 SHEETS

151

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	C.O. 152S-1	380



NOTE:
For Wall & Bottom Slab
Reinforcement not shown,
See Standard Plan H-11.

GDI-B DETAIL

2/8/02	Added Sheet
Date	Revision

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Hui Pang Chen

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE AND GRADING DETAILS

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: 1"=1'-0" Date: Feb. 8, 2002

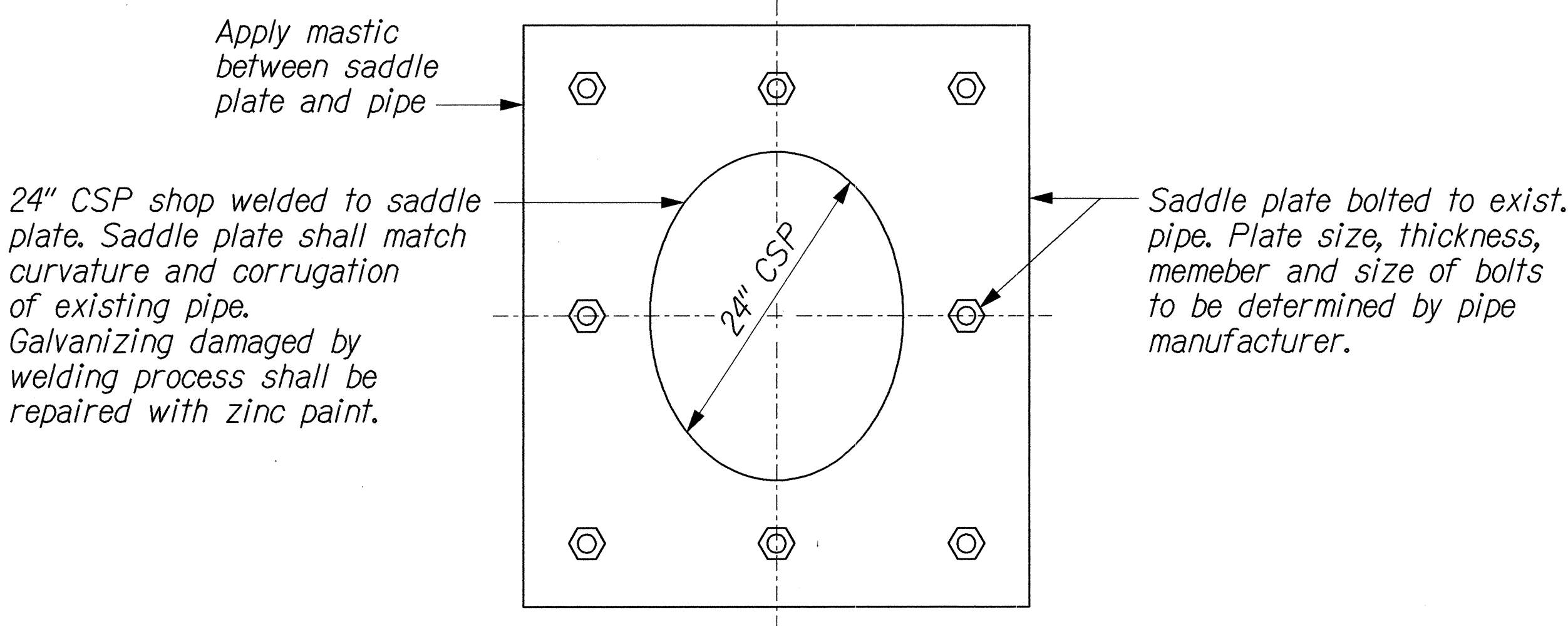
SHEET No. D44A OF 50 SHEETS

C.O. 152S-1

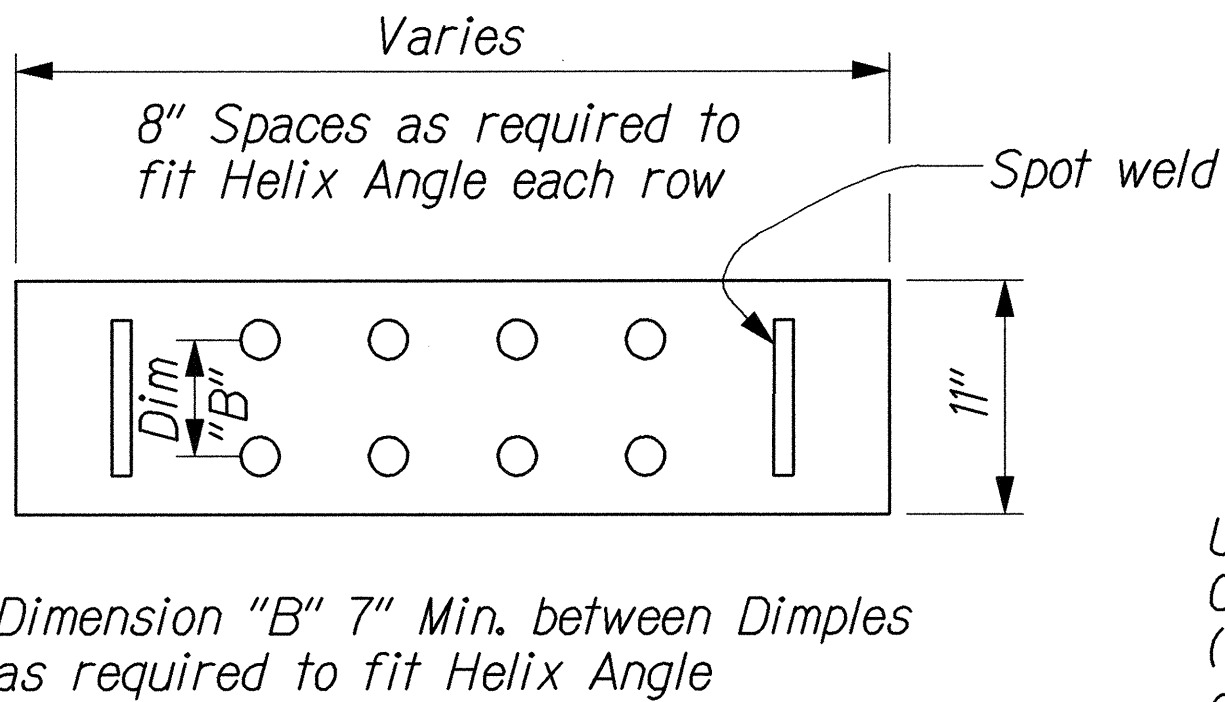
SURVEY PLOTTED BY	DATE
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TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
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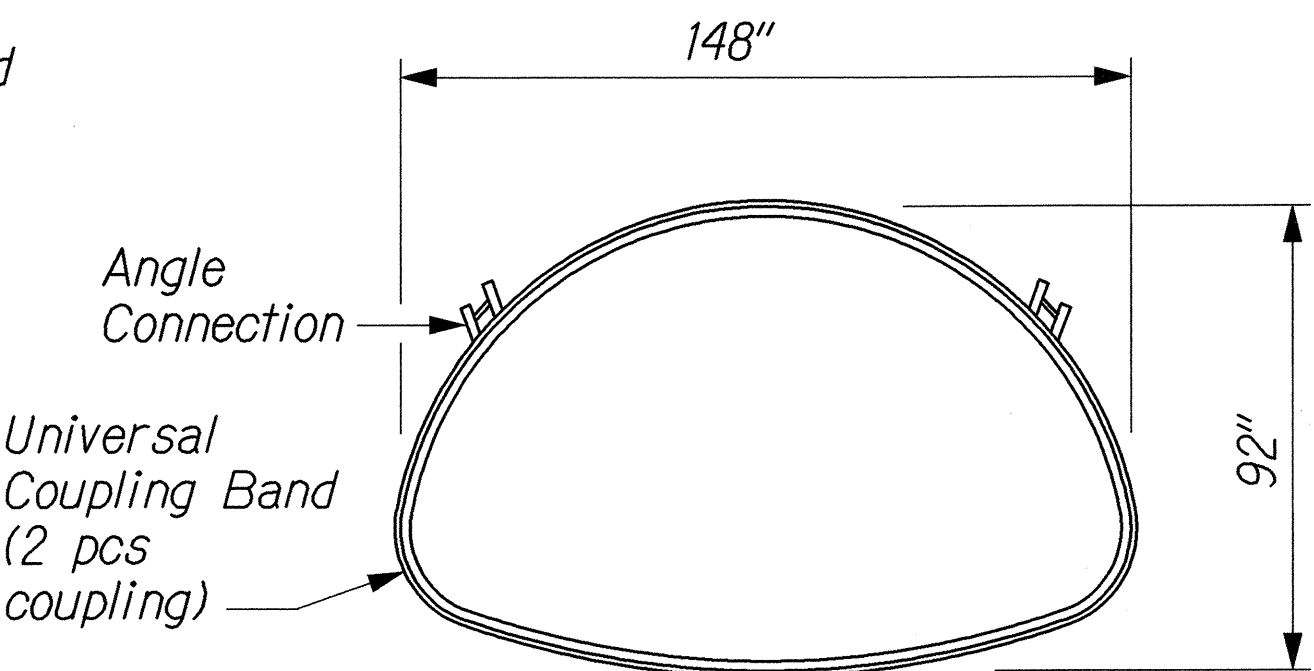
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	154	380



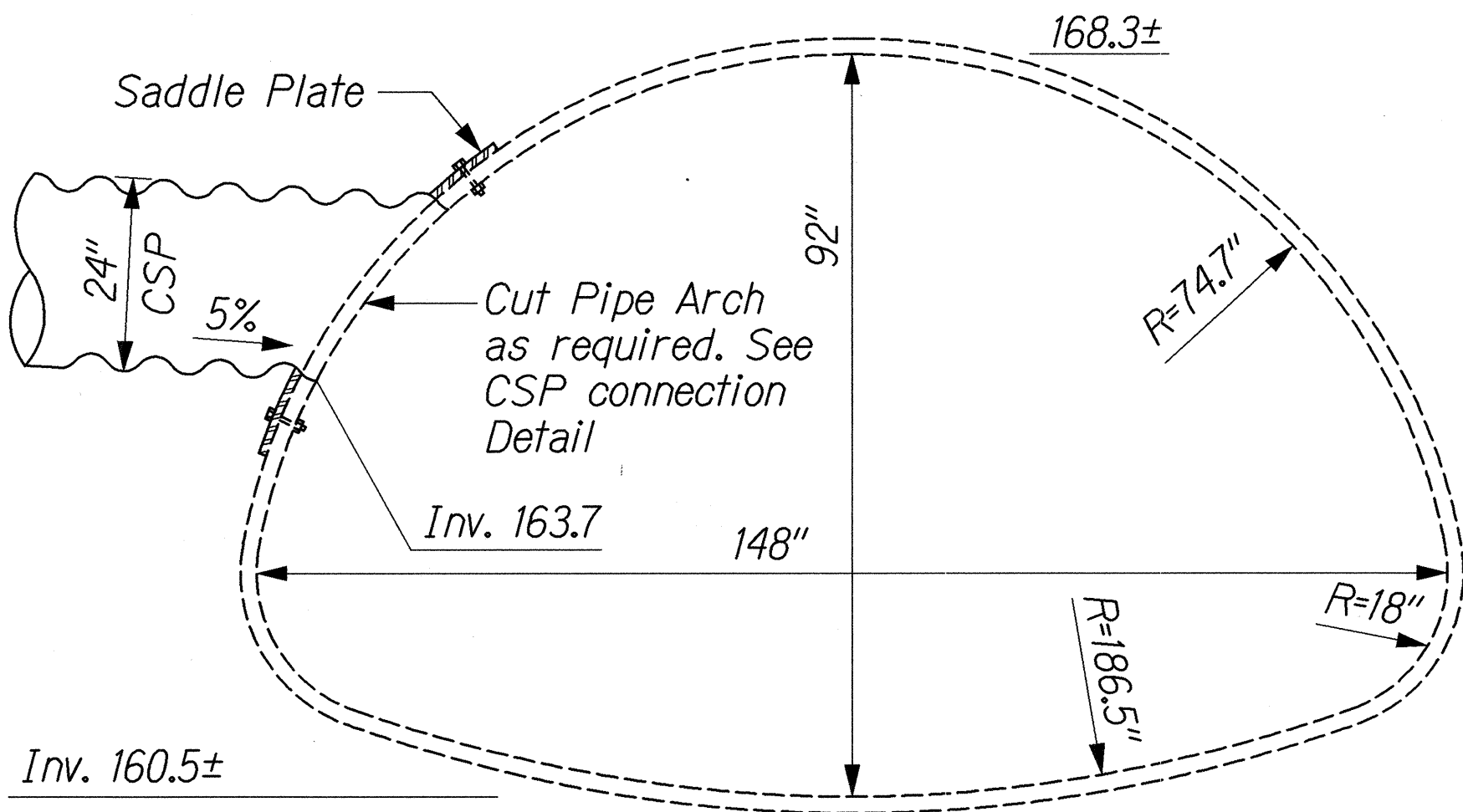
24" CSP CONNECTION DETAIL



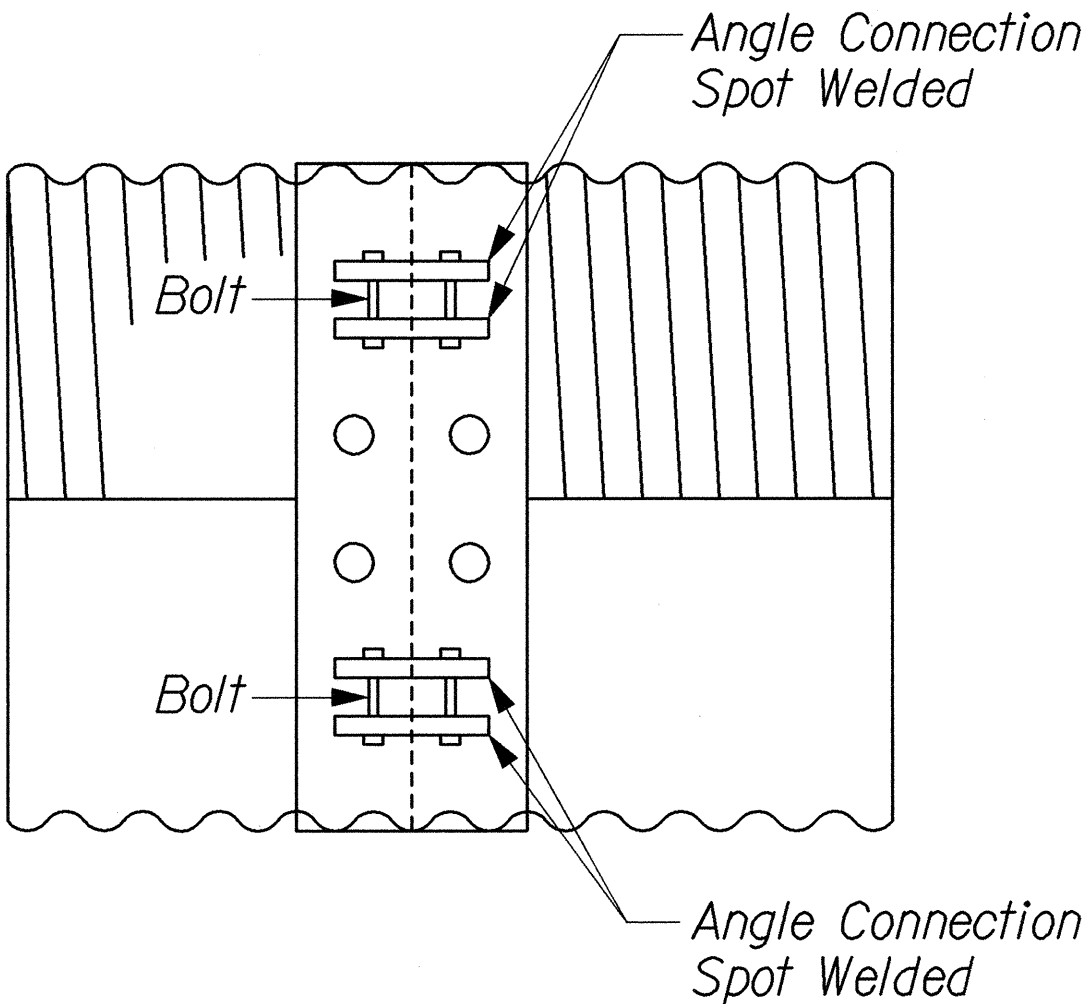
UNIVERSAL COUPLING BAND
ANGLE CONNECTION



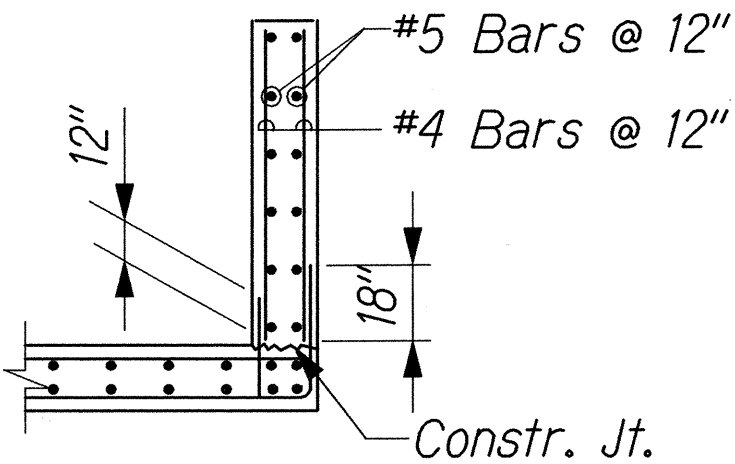
ELEVATION VIEW OF PIPE ARCH



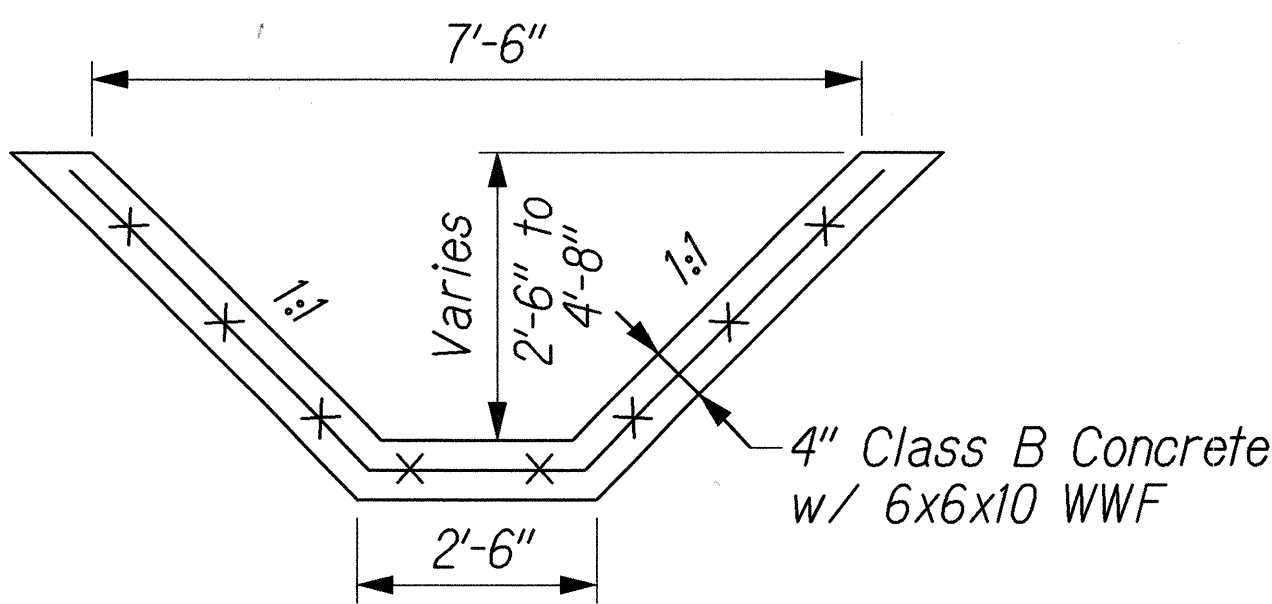
24" CSP CONNECTION TO 148"x92" PIPE ARCH



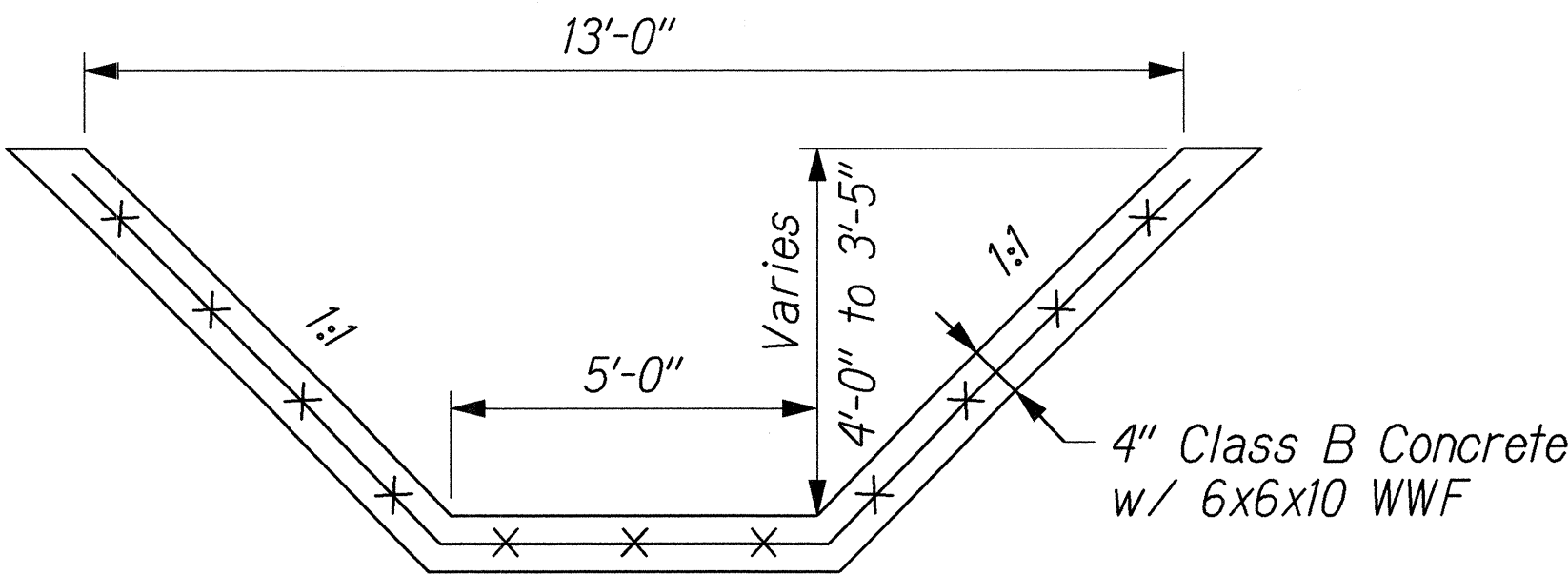
TOP VIEW OF PIPE



12" WING WALLS
Not to Scale



TYPE A CONCRETE DITCH



TYPE B CONCRETE DITCH

SURVEY PLOTTED BY	DATE
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CHECKED BY	
QUANTITIES BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	

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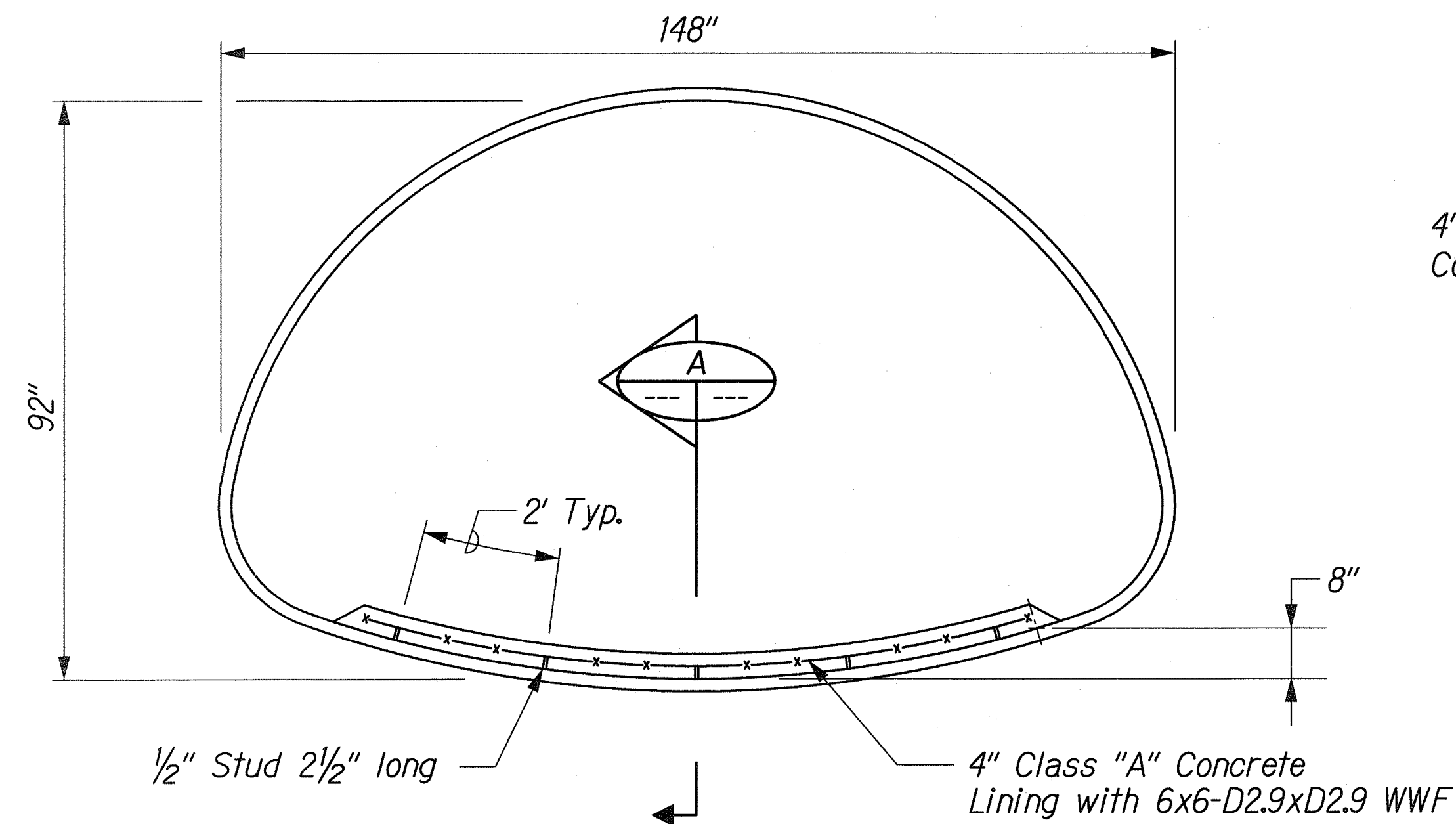
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R. M. Urasick 7/14/01

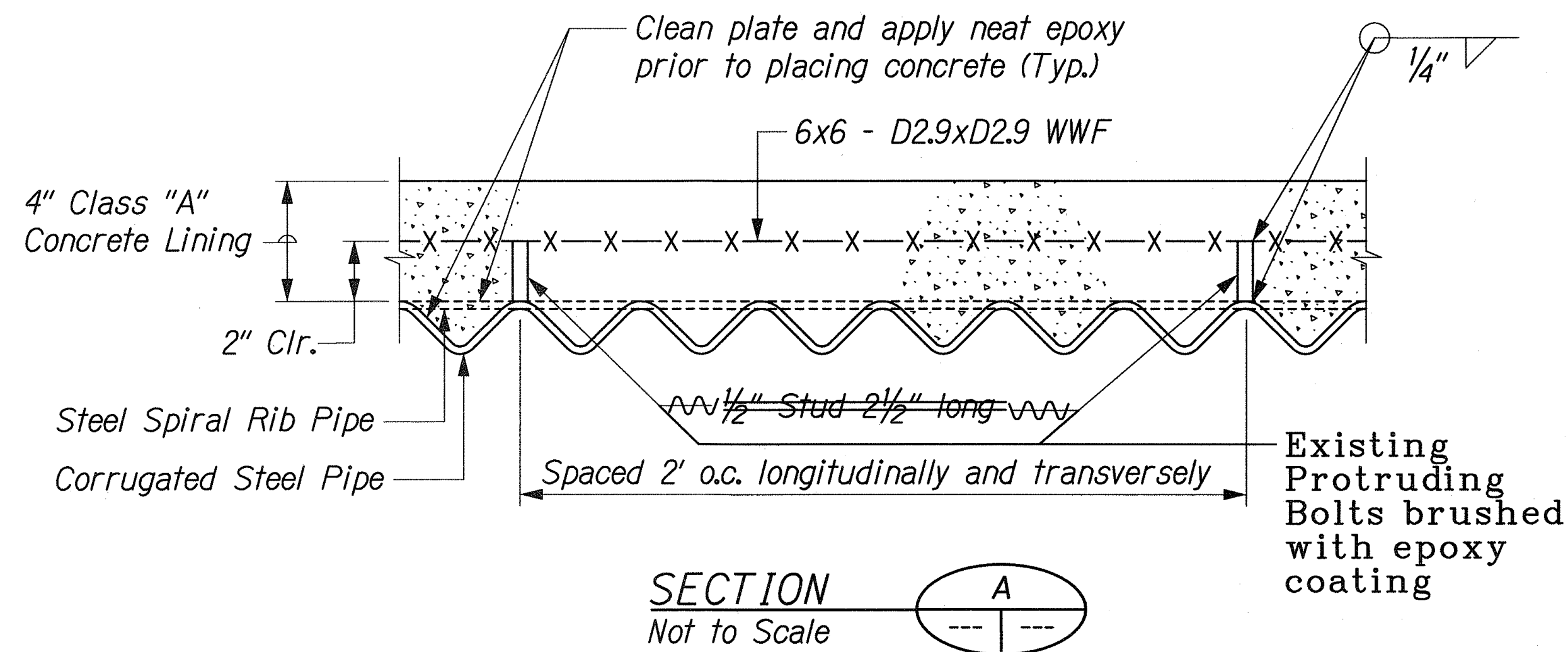
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DRAINAGE DETAILS

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: Not to Scale Date: Sept. 14, 2001

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	155	380

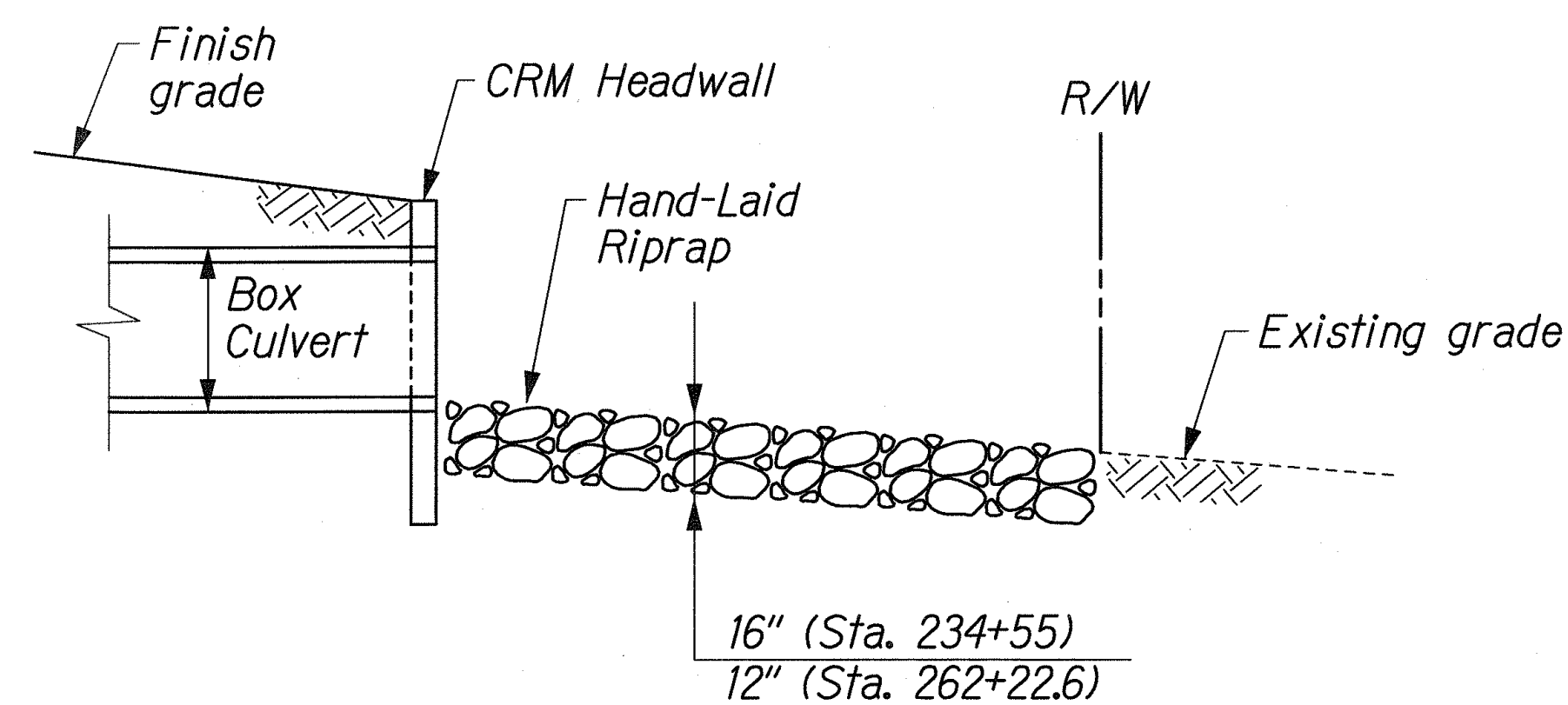


CONCRETE LINING FOR 148"x92" PIPE ARCH
Scale: 1/2" = 1'-0"



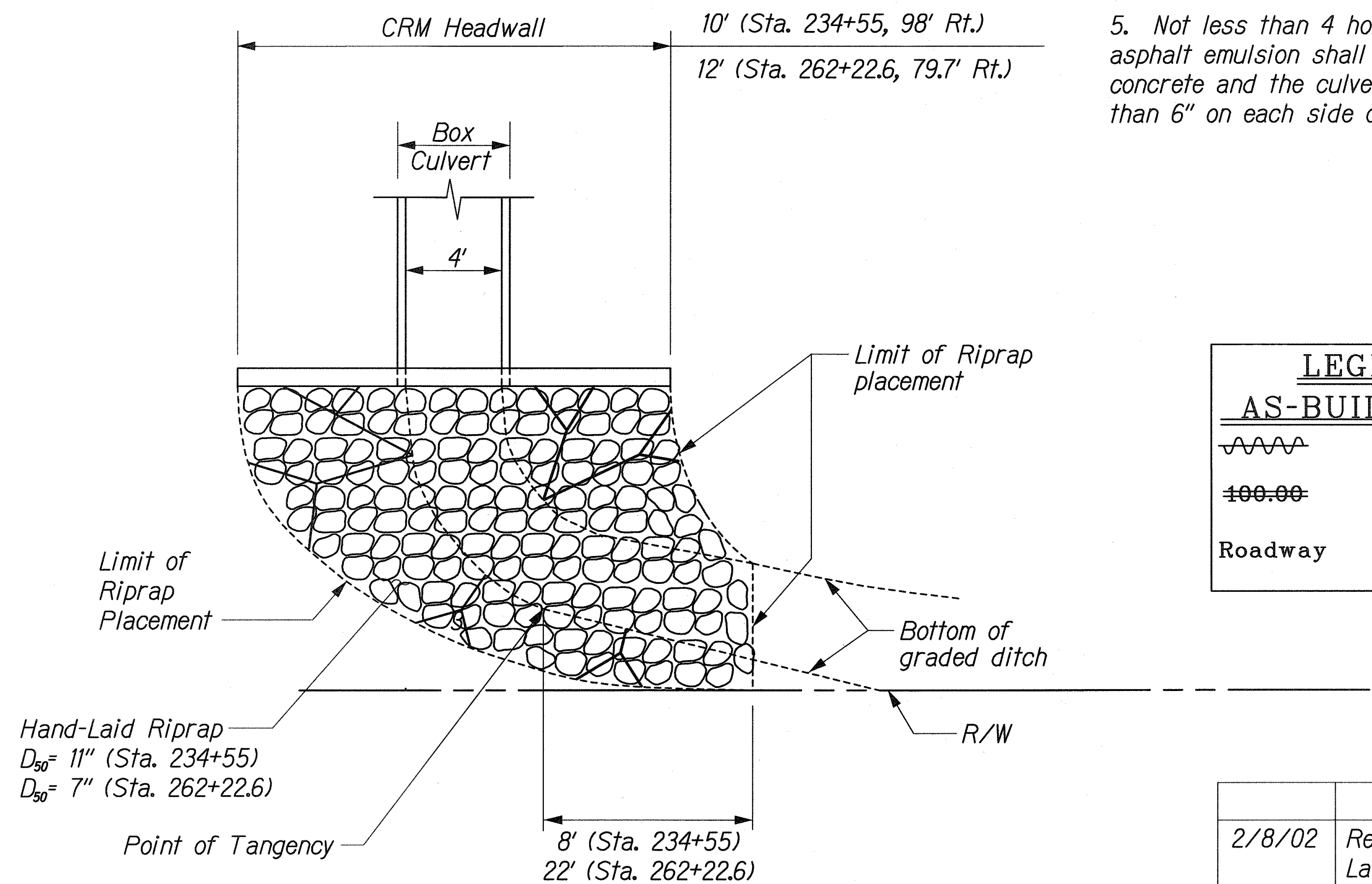
GENERAL NOTES

1. Do not place the concrete lining until the backfill and embankment over the pipe is complete.
2. The concrete shall cure for a minimum period of 48 hours before water is permitted to flow on the invert.
3. The concrete lining shall be finished to a smooth surface acceptable to the Engineer. Within 18 hours after completion of finishing, the surface shall be protected by an approved curing cover or an approved membrane curing compound.
4. The concrete shall be scored 3/4" deep longitudinally 18" o.c.
5. Not less than 4 hours after finishing, an asphalt emulsion shall be coated between the concrete and the culvert to extend not less than 6" on each side of the junction.



ELEVATION

HAND-LAID RIPRAP AT CULVERT OUTLET DETAIL
Not to Scale



PLAN

LEGEND FOR AS-BUILT POSTINGS	
	Squiggly line for as-built deletion
	Double line for as-built deletion
	Text for as-built posting

2/8/02	Revised Stations for Hand-Laid Riprap Detail
Date	Revision

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R. Uraski

2/8/02

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

DRAINAGE DETAILS

RIPRAP DETAILS

KUIHELANI HIGHWAY WIDENING

HONOAPIILANI HIGHWAY TO PUUNENE AVENUE

FEDERAL-AID PROJECT NO. NH-0380(9)

Scale: As Shown Date: Feb. 8, 2002

DRAINAGE SUMMARY
ESTIMATED QUANTITIES

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	156	380

SHEET NUMBER	FROM BASELINE STATION NO.	TO BASELINE STATION NO.	STRUCTURE EXCAVATION FOR DRAINAGE SYSTEM	BED COURSE MATERIAL	3'-0" X 1'-6" BOX CULVERT	4'-0" X 1'-6" BOX CULVERT	4'X2' BOX CULVERT	148" X 92" STRUCTURAL PLATE PIPE ARCH	58" X 36" CS PIPE ARCH	50" X 31" CS PIPE ARCH	42" CSP	36" CSP	24" CSP	24" HDPE	TYPE A CONCRETE DITCH	TYPE B CONCRETE DITCH	TYPE 61616 GDI	CONCRETE HEADWALL	CRM HEADWALL	CRM STRUCTURE	INLET STRUCTURE	148" X 92" CSP COUPLING	58" X 36" CSP COUPLING	50" X 31" CSP COUPLING	42" CSP COUPLING	36" CSP COUPLING	CONCRETE PROTECTION FOR DRAINAGE CULVERT	CONCRETE LINING OF STRUCTURAL PLATE CULVERT	HAND-LAID RIPRAP
	UNIT		C.Y.	C.Y.	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	LIN FT	S.Y.	C.Y.
D3	11+48 Lt.																		1										
	11+48 Lt.	11+48± Lt.	108	24					76																				
	11+48 Lt.	11+48± Lt.																									23		
	11+48± Lt.																						2						
	14+43 Lt.																1												
	14+43 Lt.	14+43± Lt.	56	11							42																		
	14+43 Lt.	14+43± Lt.																									23		
	14+43± Lt.																								≠2				
D4	20+33 Lt.																			1									
	20+33 Lt.	20+33± Rt.	46	11					42 41																			36	
	20+33 Lt.	20+33± Rt.																						≠2					
	20+33± Rt.																1												
	25+35 Lt.																			1									
	25+35 Lt.	25+35± Rt.	71	16																									
	25+35± Rt.																									≠4			
D7	45+40 Lt.																				1								
	45+40 Lt.	45+40± Rt.	103	22																									
	45+40 Lt.	45+40± Rt.																										34	
	45+40± Rt.																										≠6		
	45+27 Rt.																1												
	45+53 Rt.																1												
	45+27 Rt.	45+34± Rt.	4	1										5															
	45+46± Rt.	45+53 Rt.	4	1									5																
	49+31 Lt.																				1								
	49+31 Lt.	49+31± Rt.	71	16																									
	49+31 Lt.	49+31± Rt.																										20	
	49+31± Rt.																									≠4			
D8	54+30 Lt.																			1									
	54+30 Lt.	54+30± Rt.	81	20					84																				
	54+30 Lt.	54+30± Rt.																										25	
	54+30± Rt.																							≠4					
	55+30 Lt.																			1									
	55+30 Lt.	55+30± Rt.	104	21					84																				36
	55+30 Lt.	55+30± Rt.																											
	55+30 Rt.																												
	56+30 Lt.																			1									
TOTAL THIS SHEET			648	143					160	126	42	289	10				3	1	1	7				≠6	≠6	≠2	≠16	197	
											41	282																	

ORIGINAL PLAN

NOTE BOOK

No.

SURVEY PLOTTED BY

DRAWN BY

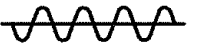
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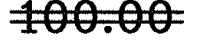
DATE

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LEGEND FOR
AS-BUILT POSTINGS



Squiggly line for as-built deletion

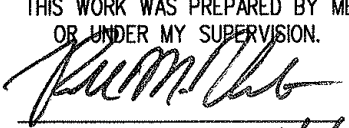


Double line for as-built deletion



Text for as-built posting

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII, U.S.A.

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9/14/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE SUMMARY

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: None Date: Sept. 14, 2001

DRAINAGE SUMMARY
ESTIMATED QUANTITIES

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	157	380

SHEET NUMBER	FROM BASELINE STATION NO.	TO BASELINE STATION NO.	STRUCTURE EXCAVATION FOR DRAINAGE SYSTEM	BED COURSE MATERIAL	3'-0" X 1'-6" BOX CULVERT	4'-0" X 1'-6" BOX CULVERT	4'X2' BOX CULVERT	148" X 92" STRUCTURAL PLATE PIPE ARCH	58" X 36" CS PIPE ARCH	50" X 31" CS PIPE ARCH	42" CSP	36" CSP	24" CSP	24" HDPE	TYPE A CONCRETE DITCH	TYPE B CONCRETE DITCH	TYPE 61616 GDI	CONCRETE HEADWALL	CRM HEADWALL	CRM STRUCTURE	INLET STRUCTURE	148" X 92" CSP COUPLING	58" X 36" CSP COUPLING	50" X 31" CSP COUPLING	42" CSP COUPLING	36" CSP COUPLING	CONCRETE PROTECTION FOR DRAINAGE CULVERT	CONCRETE LINING OF STRUCTURAL PLATE CULVERT	HAND-LAID RIPRAP
	UNIT		C.Y.	C.Y.	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	LIN FT	S.Y.	C.Y.
D8	56+30 Lt.	56+30± Rt.	103	22					84																				
	56+30 Lt.	56+30± Rt.																									36		
	56+30± Rt.																												
D9	64+13 Lt.																			1									
	64+13 Lt.	64+13± Rt.	92	19						8482																			
	64+13± Rt.																												
	65+11 Lt.																			1									
	65+11 Lt.	65+11± Rt.	91	19						8480																			
	65+11± Rt.																												
D11	81+92 Rt.																1												
	81+92 Rt.	82+00 Rt.	4	1										5															
D12	82+49 Lt.																				1								
	82+49 Lt.	82+41± Rt.	108	60																									
	82+49 Lt.	82+41± Rt.																										47	
	82+41± Rt.																												
	82+00 Rt.	82+18 Rt.	16	3										15															
	82+18 Rt.																1												
	82+18 Rt.	82+33± Rt.	22	3									14																
	82+10 Lt.	82+40 Lt.													30														
	82+57 Lt.	82+91 Lt.														34													
D16	117+05 Rt.													21'-6"			1												
	117+05 Rt.	117+30 Rt.	14	3										19														18	
	117+30 Rt.																1												
	117+30 Rt.	117+30 Rt.	55	13										74					1										
D17	123+20 Lt.																			1									
	123+20 Lt.	122+94± Rt.	74	10																									
	122+94± Rt.																												
D18	134+83 Lt.													172					1										
	134+83 Lt.	136+60 Lt.	156	32										175															
	136+60 Lt.																1												
	136+60 Lt.	138+00 Lt.	131	25																									
D19	136+00 Lt.	138+56 Lt.	54	10																									
	138+56 Lt.																1												
	138+56 Lt.	138+56± Lt.	46	13																									
	138+56± Lt.																												
	TOTAL THIS SHEET		966	233					45	84			14	568	30	34	6		2	3	1	1	2	4	8	4	54	47	

46'-5"

162

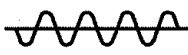
42

576'-3"

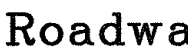
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	DESIGNED BY	
	CHECKED BY	
		

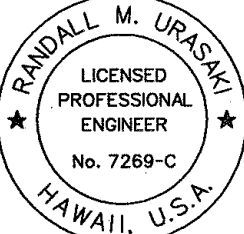
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R. M. Urash
9/14/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE SUMMARY

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: None Date: Sept. 14, 2001

DRAINAGE SUMMARY
ESTIMATED QUANTITIES

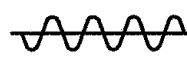
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-0380(9)	2000	158	380

SHEET NUMBER	FROM BASELINE STATION NO.	TO BASELINE STATION NO.	STRUCTURE EXCAVATION FOR DRAINAGE SYSTEM	BED COURSE MATERIAL	3'-0" X 1'-6" BOX CULVERT	4'-0" X 1'-6" BOX CULVERT	4'X2' BOX CULVERT	148" X 92" STRUCTURAL PLATE PIPE ARCH	58" X 36" CS PIPE ARCH	50" X 31" CS PIPE ARCH	42" CSP	36" CSP	24" CSP	24" HDPE	TYPE A CONCRETE DITCH	TYPE B CONCRETE DITCH	TYPE 61616 GDI	CONCRETE HEADWALL	CRM HEADWALL	CRM STRUCTURE	INLET STRUCTURE	148" X 92" CSP COUPLING	58" X 36" CSP COUPLING	50" X 31" CSP COUPLING	42" CSP COUPLING	36" CSP COUPLING	CONCRETE PROTECTION FOR DRAINAGE CULVERT	CONCRETE LINING OF STRUCTURAL PLATE CULVERT	HAND-LAID RIPRAP
	UNIT		C.Y.	C.Y.	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	LIN FT	S.Y.	C.Y.
D19	138+56± Rt.																1												
	138+56 Rt.	138+56± Rt.	8	2			4.5																						
	144+78 Rt.																1												
	144+78 Rt.	144+78 Lt.	58	14	65																								
	144+78 Lt.																1												
	144+78 Lt.	145+90 Lt.	119	23	106												1												
	145+90 Lt.																												
	145+90 Lt.	146+00 Lt.	6	1										7															
D20	146+00 Lt.	146+69 Lt.	56	12										66															
	146+69 Lt.																1												
	146+69 Lt.	148+50 Lt.	149	32										179															
	148+50 Lt.																			1									
D23	174+55 Lt.																		1										
	174+55 Lt.	174+55 Rt.	49	12										69															
	174+55 Lt.	174+55 Rt.												63													19		
	174+55 Rt.																1												
D27	202+02 Rt.																1												
	202+02 Rt.	202+25 Lt.	61	14	65																								
	202+25 Lt.																1												
	202+25 Lt.	203+28 Lt.	117	22	101																								
	203+28 Lt.																		1										
D31	234+55 Lt.																		1										
	234+55 Lt.	234+55 Rt.	55	13		53																							
	234+55 Rt.																1												
	234+55 Rt.	234+55 Rt.	72	16		67																							
	234+55 Rt.																		1										
	234+55 Rt.																												7.4
D34	262+90 Rt.																1												
	262+90 Rt.	263+50 Rt.	36	10										54															
	263+50 Lt.																			1									
	263+50 Lt.	263+50 Rt.	43	10		44																							
	263+50 Rt.	263+50 Rt.	48	13		51											1												
	263+51.5 Rt.																		1										
	263+51.5 Rt.													369															6.1
														375															
TOTAL THIS SHEET			877	194	337	215	4.5										11		5	2							19		13.5
GRAND TOTAL			2491	570	337	215	4.5	45	244	294	86	289	24	943	30	34	20	1	8	12	1	1	6 10	7 14	2 6	7 16	270	47	13.5
						46'-5"			83			282			945'-3"														

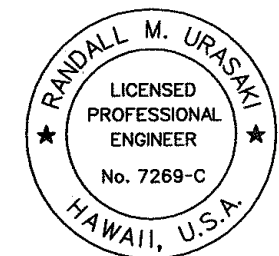
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

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R. M. Urasaki 9/14/01

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE SUMMARY

KUIHELANI HIGHWAY WIDENING
HONOAPIILANI HIGHWAY TO PUUNENE AVENUE
FEDERAL-AID PROJECT NO. NH-0380(9)
Scale: None Date: Sept. 14, 2001