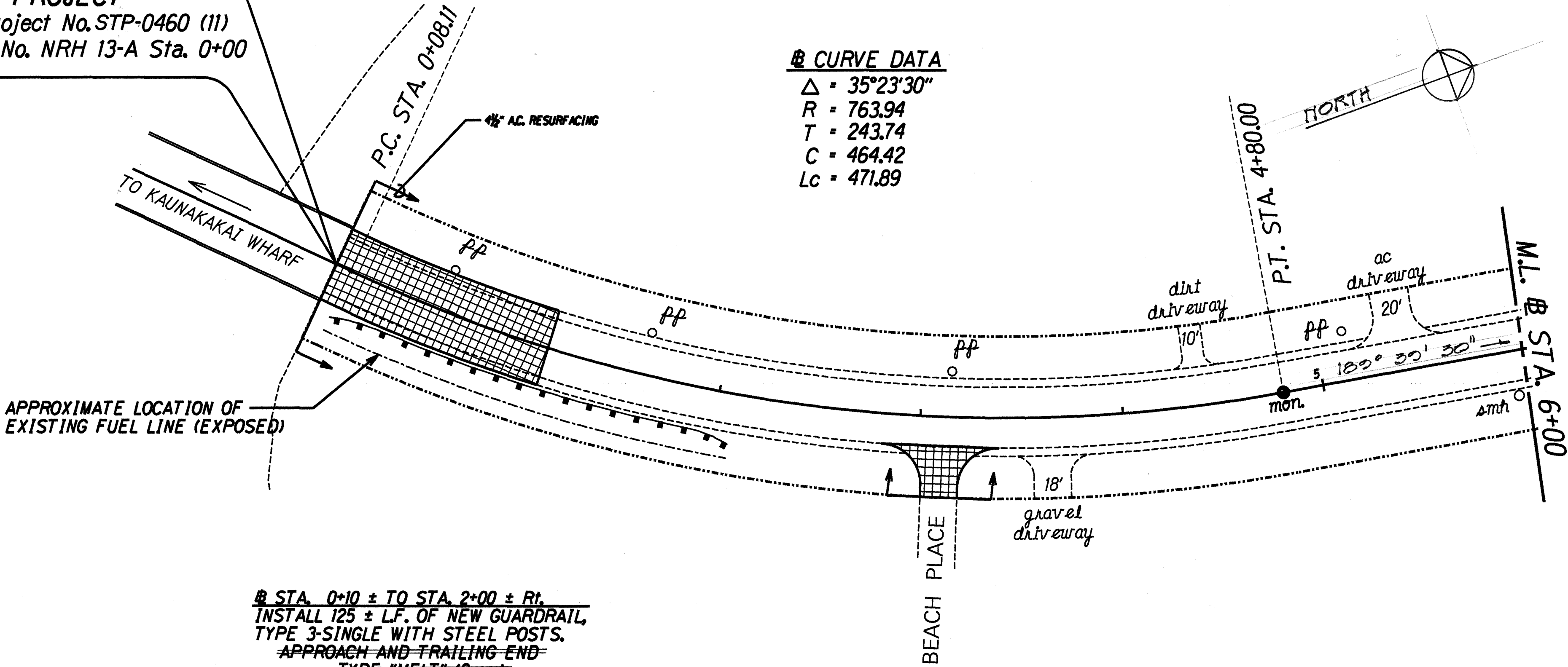


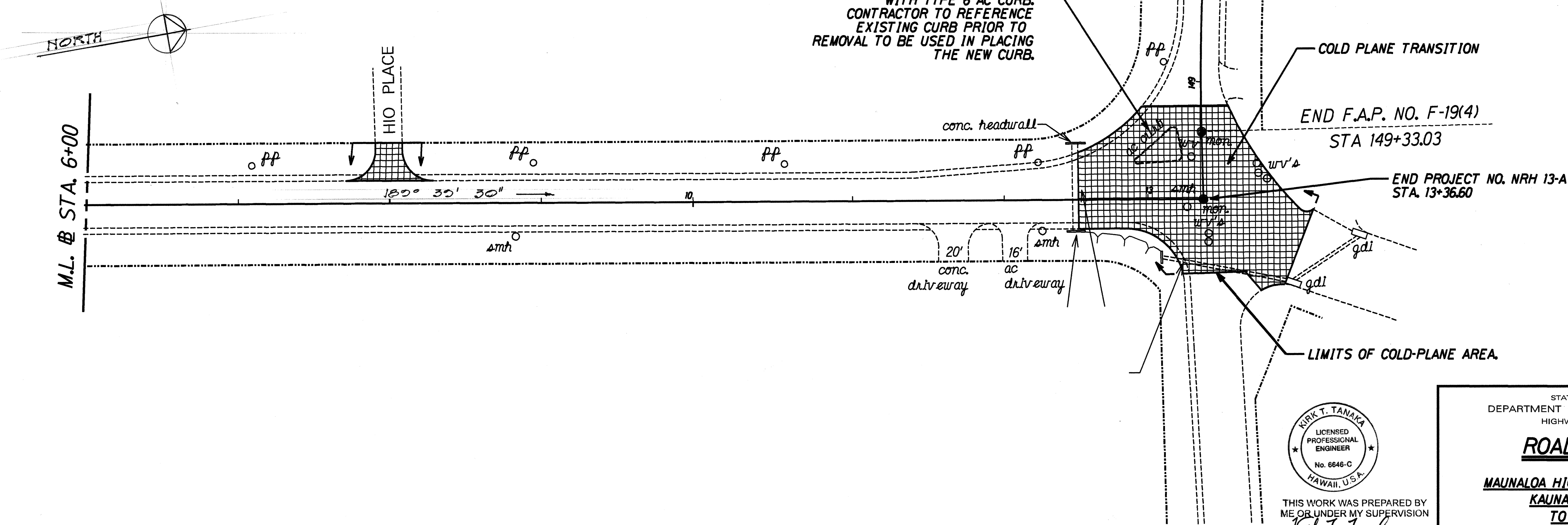
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0460 (11)	1996	6	39

BEGIN PROJECT
Federal Aid Project No. STP-0460 (11)
U.S.P.W. Project No. NRH 13-A Sta. 0+00

CURVE DATA
 $\Delta = 35^{\circ}23'30''$
 $R = 763.94$
 $T = 243.74$
 $C = 464.42$
 $Lc = 471.89$



STA. 0+10 ± TO STA. 2+00 ± R/L
INSTALL 125 ± L.F. OF NEW GUARDRAIL,
TYPE 3-SINGLE WITH STEEL POSTS.
APPROACH AND TRAILING END -
TYPE "MELT" (2 00.)
APPROACH END - TYPE ET-2000
TRAILING END - TYPE SRT 350



REPLACE EXISTING AC CURB
WITH TYPE 6 AC CURB.
CONTRACTOR TO REFERENCE
EXISTING CURB PRIOR TO
REMOVAL TO BE USED IN PLACING
THE NEW CURB.

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

U.S.P.W. PROJECT NO. NRH 13-A SECTION

THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION

R. T. Tanaka

R. T. TANAKA ENGINEERS, INC.
CIVIL ENGINEERING - LAND SURVEYING

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

**MAUNALO A HIGHWAY RESURFACING
KAUNAKAKAI WHARF
TO HOOLEHUA**

FEDERAL AID PROJECT NO. STP-0460 (11)

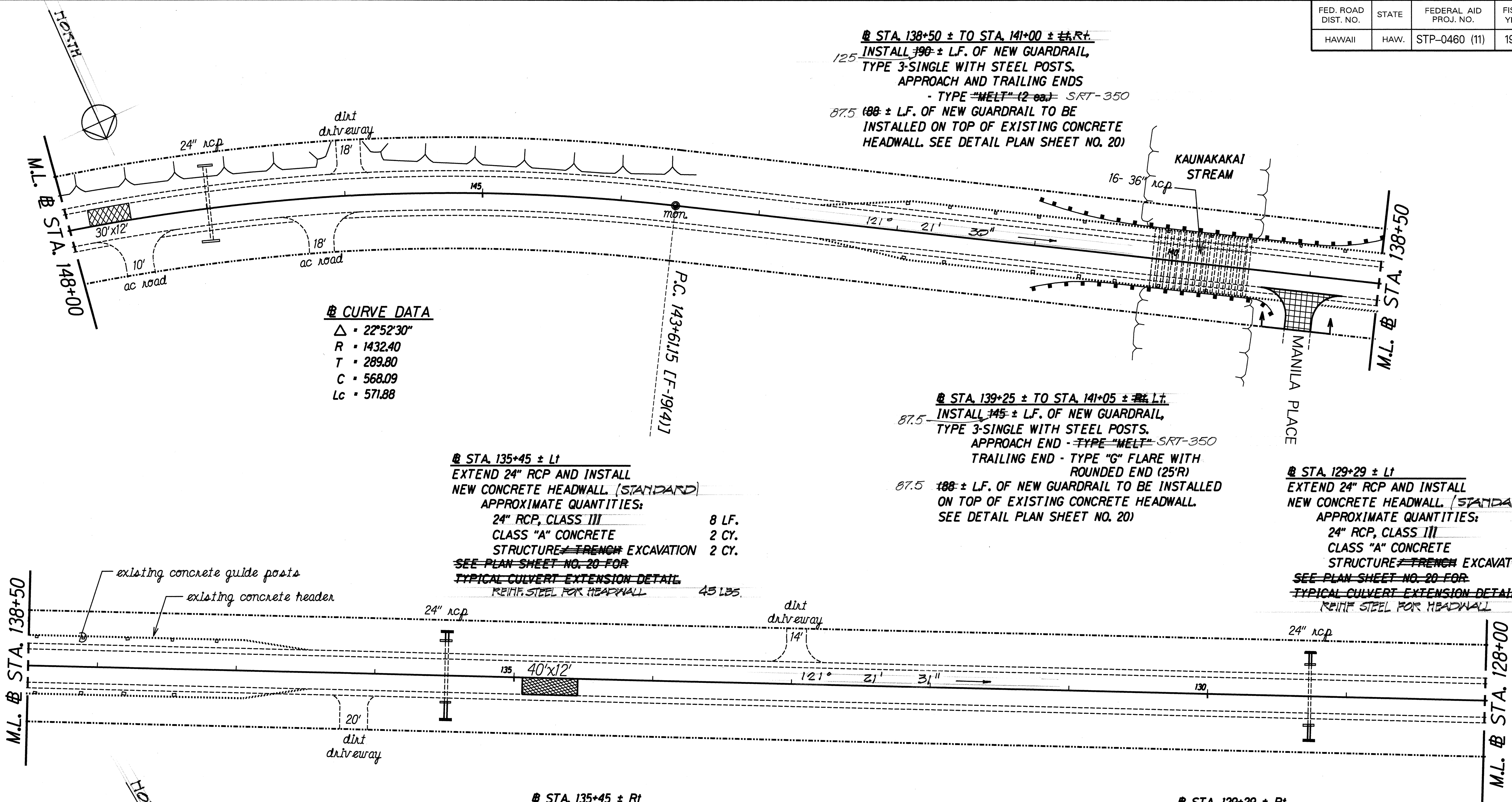
Scale: 1" = 40' Date: MAY, 1996

SHEET No. 1 OF 14 SHEETS

6

"AC-BUILT"

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0460 (11)	1996	7	39



CURVE DATA
Δ • 22°52'30"
R • 1432.40
T • 289.80
C • 568.09
Lc • 571.88

STA. 135+45 ± LI
EXTEND 24" RCP AND INSTALL
NEW CONCRETE HEADWALL (STANDARD)
APPROXIMATE QUANTITIES:
24" RCP, CLASS III 8 LF.
CLASS "A" CONCRETE 2 CY.
STRUCTURE ~~TRENCH~~ EXCAVATION 2 CY.
SEE PLAN SHEET NO. 20 FOR
TYPICAL CULVERT EXTENSION DETAIL
REINF. STEEL FOR HEADWALL 45 LBS.

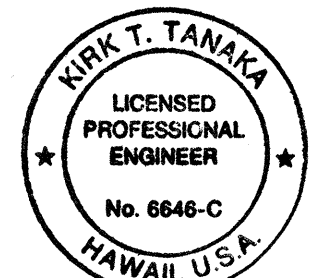
STA. 139+25 ± TO STA. 141+05 ± LI
INSTALL 145 ± LF. OF NEW GUARDRAIL,
TYPE 3-SINGLE WITH STEEL POSTS.
APPROACH END - TYPE "MELT" SRT-350
TRAILING END - TYPE "G" FLARE WITH
ROUNDED END (25'R)
87.5 188 ± LF. OF NEW GUARDRAIL TO BE
INSTALLED ON TOP OF EXISTING CONCRETE
HEADWALL. SEE DETAIL PLAN SHEET NO. 20)

STA. 129+29 ± LI
EXTEND 24" RCP AND INSTALL
NEW CONCRETE HEADWALL (STANDARD)
APPROXIMATE QUANTITIES:
24" RCP, CLASS III 8 LF.
CLASS "A" CONCRETE 2 CY.
STRUCTURE ~~TRENCH~~ EXCAVATION 2 CY.
SEE PLAN SHEET NO. 20 FOR
TYPICAL CULVERT EXTENSION DETAIL
REINF. STEEL FOR HEADWALL 45 LBS.

STA. 135+45 ± RI
EXTEND 24" RCP AND INSTALL
NEW CONCRETE HEADWALL (STANDARD)
APPROXIMATE QUANTITIES:
24" RCP, CLASS III 14 LF.
CLASS "A" CONCRETE 2 CY.
STRUCTURE ~~TRENCH~~ EXCAVATION 3 CY.
SEE PLAN SHEET NO. 20 FOR
TYPICAL CULVERT EXTENSION DETAIL
REINF. STEEL FOR HEADWALL 45 LBS.

STA. 129+29 ± RI
EXTEND 24" RCP AND INSTALL
NEW CONCRETE HEADWALL (STANDARD)
APPROXIMATE QUANTITIES:
24" RCP, CLASS III 10 LF.
CLASS "A" CONCRETE 2 CY.
STRUCTURE ~~TRENCH~~ EXCAVATION 3 CY.
SEE PLAN SHEET NO. 20 FOR
TYPICAL CULVERT EXTENSION DETAIL
REINF. STEEL FOR HEADWALL 45 LBS.

NOTE:
SEE PLAN SHEET 20 FOR TYPICAL
CULVERT EXTENSION DETAIL



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CIVIL ENGINEERING - LAND SURVEYING

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

MAUNALO A HIGHWAY RESURFACING
KAUNAKAKAI WHARF
TO HOOLEHUA
FEDERAL AID PROJECT NO. STP-0460 (11)

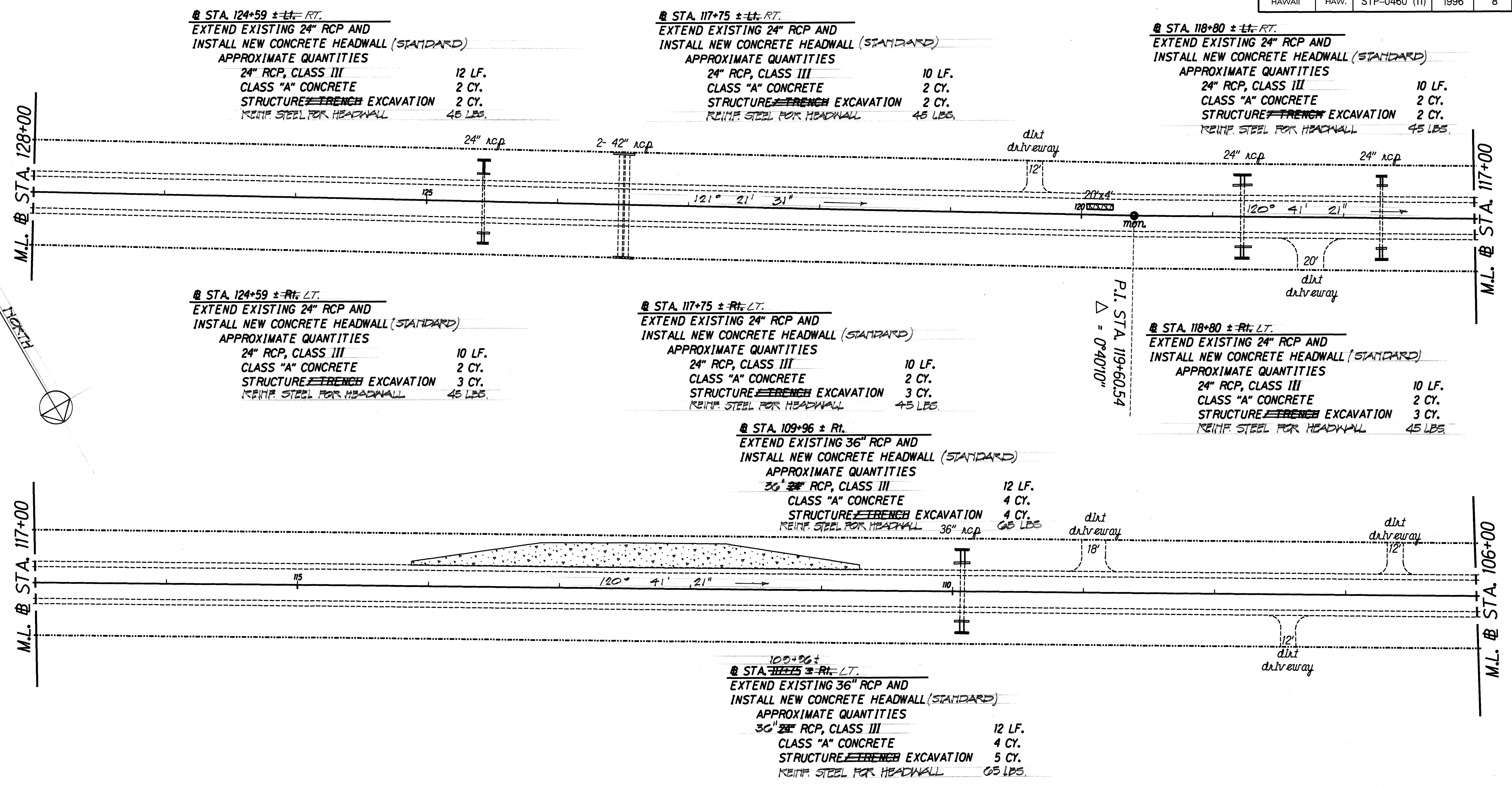
Scale: 1" = 40' Date: MAY, 1996

SHEET No. 2 OF 14 SHEETS

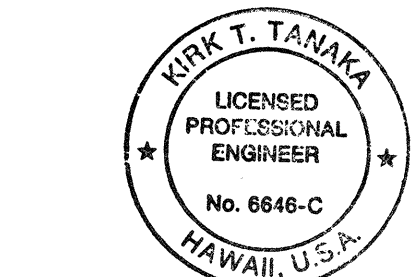
"AS-BUILT"

ORIGINAL PLAN	DATE
NOTE BOOK	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0460 (11)	1996	8	39



DESIGNED BY	DATE
TRACED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	



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R. T. Tanaka
R. T. TANAKA ENGINEERS, INC.
CIVIL ENGINEERING - LAND SURVEYING

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

**MAUNALOHA HIGHWAY RESURFACING
KAUNAKAKAI WHARF
TO HOOLEHUA**

FEDERAL AID PROJECT NO. STP-0460 (11)

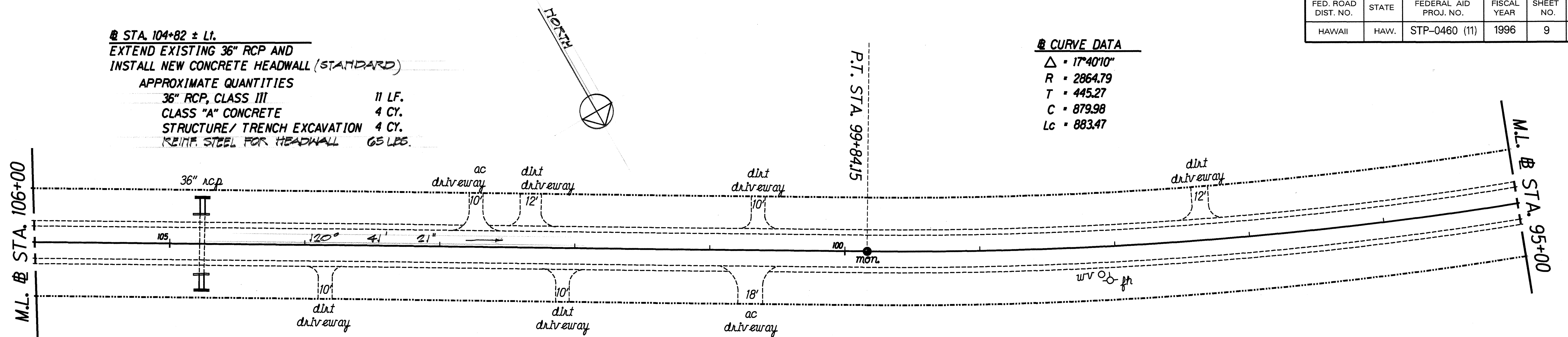
Scale: 1" = 40' Date: MAY, 1996

SHEET No. 3 OF 14 SHEETS

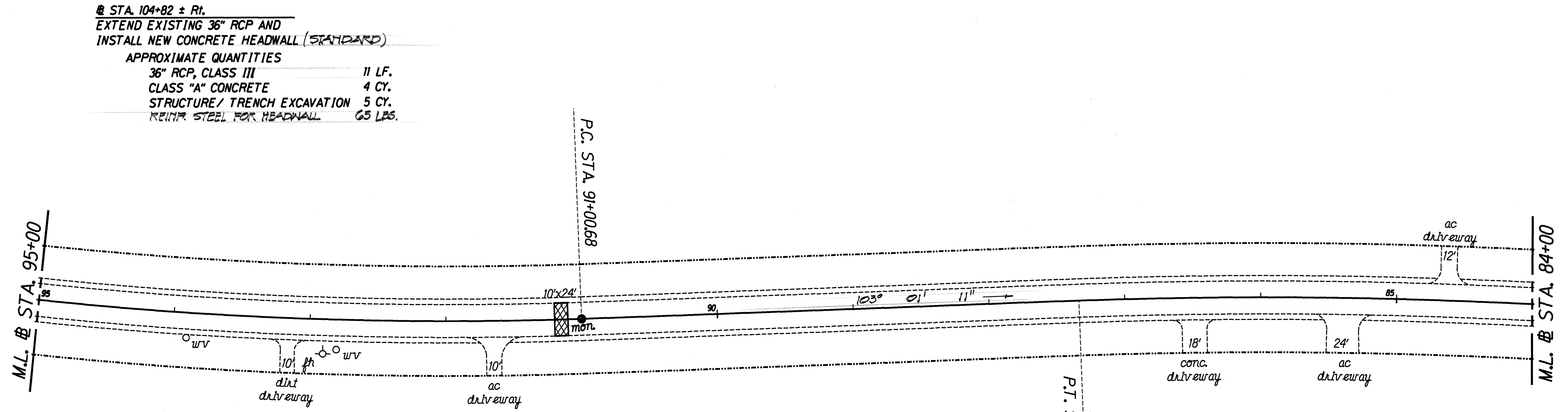
F.A.P. NO. F-19(4) SECTION

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0460 (11)	1996	9	39



@ STA. 104+82 ± Lt.
 EXTEND EXISTING 36" RCP AND
 INSTALL NEW CONCRETE HEADWALL (STANDARD)
 APPROXIMATE QUANTITIES
 36" RCP, CLASS III 11 LF.
 CLASS "A" CONCRETE 4 CY.
 STRUCTURE/ TRENCH EXCAVATION 4 CY.
 REINFR. STEEL FOR HEADWALL 65 LBS.



@ CURVE DATA
 Δ = 31°12'05\"
 R = 3819.72
 T = 1066.53
 C = 2054.49
 Lc = 2080.09

DATE	_____
DESIGNED BY	_____
DRAWN BY	_____
CHECKED BY	_____
IN CHARGE	_____
NOTED BY	_____
REVISION	_____

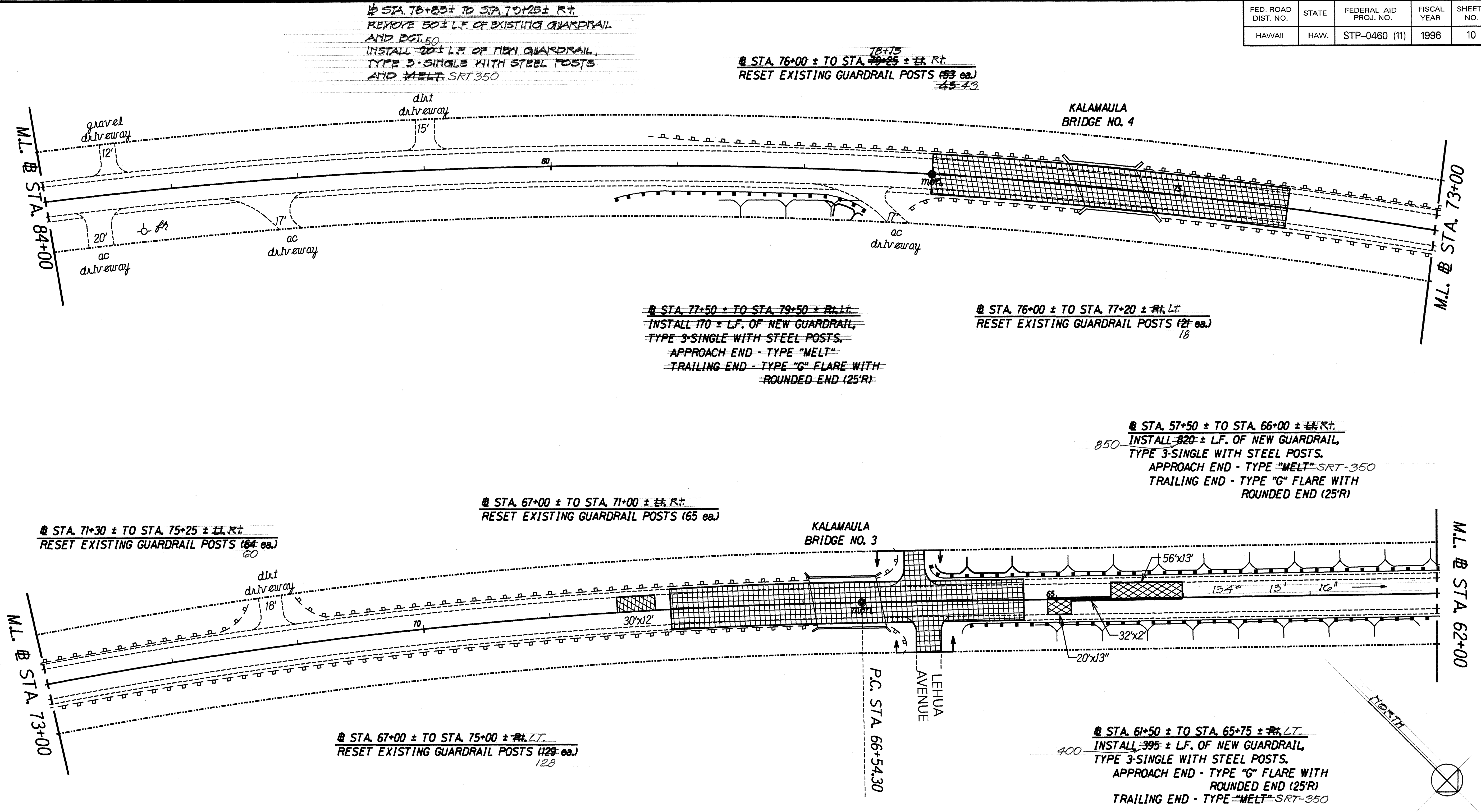
F.A.P. NO. F-19(4) SECTION



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 R. T. TANAKA ENGINEERS, INC.
 CIVIL ENGINEERING - LAND SURVEYING

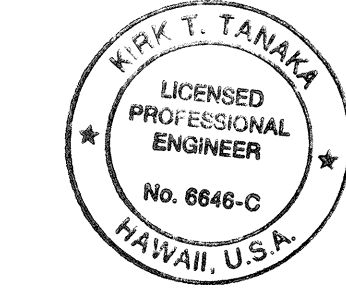
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
ROADWAY PLAN
 MAUNALOA HIGHWAY RESURFACING
 KAUNAKAKAI WHARF
 TO HOOLEHUA
 FEDERAL AID PROJECT NO. STP-0460 (11)
 Scale: 1" = 40' Date: MAY, 1996
 SHEET No. 4 OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0460 (11)	1996	10	36



DATE	_____
DESIGNED BY	_____
DRAWN BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
QUANTITIES BY	_____
CHECKED BY	_____

F.A.P. NO. F-19(4) SECTION



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

MAUNALO A HIGHWAY RESURFACING
KAUNAKAKAI WHARF
TO HOOLEHUA

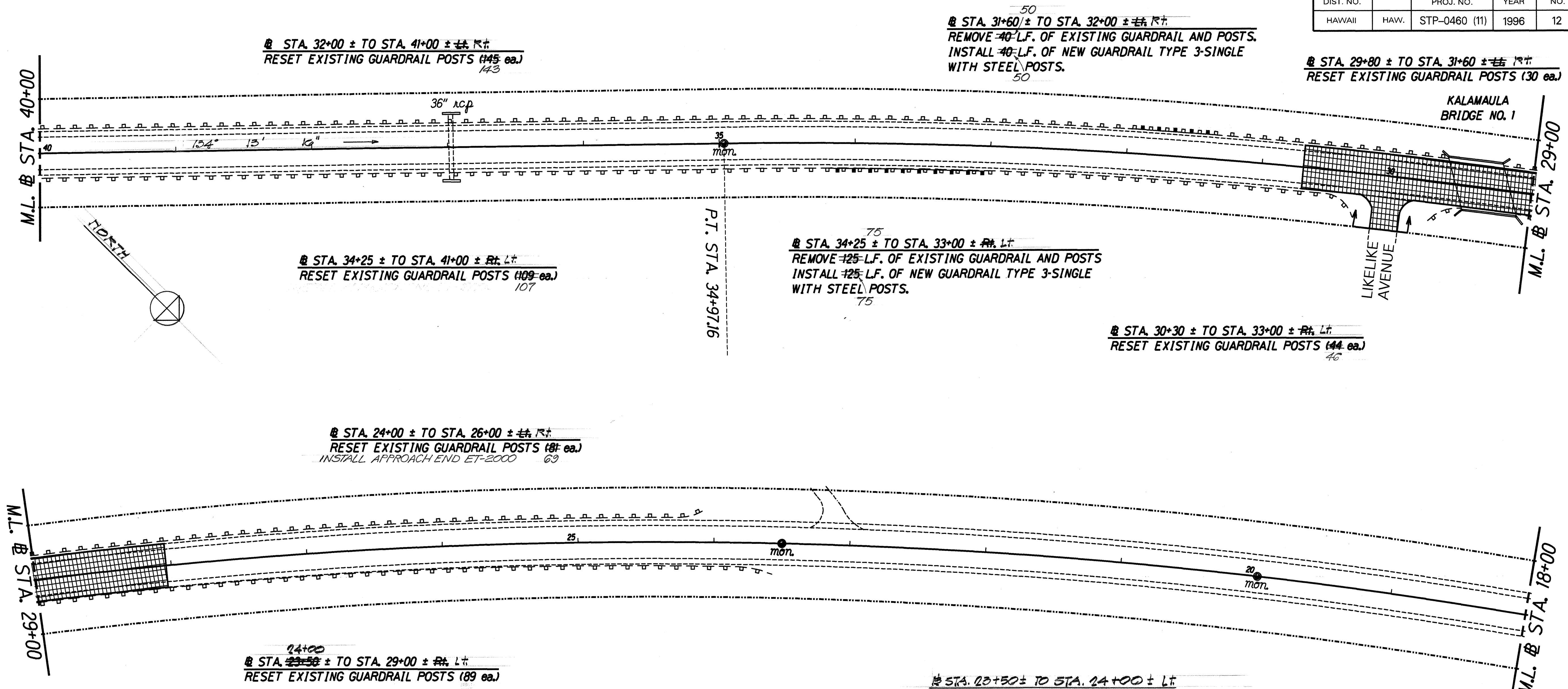
FEDERAL AID PROJECT NO. STP-0460 (11)

Scale: 1" = 40' Date: MAY, 1996

SHEET No. 5 OF 14 SHEETS

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0460 (11)	1996	12	39



Q CURVE DATA
Δ = 45°51'50"
R = 3819.72
T = 1616.02
C = 2976.61
Lc = 3057.59

Q STA. 23+50 ± TO STA. 24+00 ± L+
REMOVE 50 ± L.F. OF EXISTING GUARDRAIL AND POSTS. 62.5
INSTALL 50 ± L.F. OF NEW GUARDRAIL, TYPE 3-SINGLE WITH STEEL POSTS AND 1/2" BLT. SRT-350

DATE	_____
SURVEY PLANNED BY	_____
DRAWN BY	_____
TRACED BY	_____
NOTE BOOK DESIGNED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____

WIKI T. TANAKA
LICENSED PROFESSIONAL ENGINEER
No. 6646-C
HAWAII, U.S.A.
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
R. T. Tanaka

R. T. TANAKA ENGINEERS, INC.
CIVIL ENGINEERING - LAND SURVEYING

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

**MAUNALOA HIGHWAY RESURFACING
KAUNAKAKAI WHARF
TO HOOLEHUA**

FEDERAL AID PROJECT NO. STP-0460 (11)

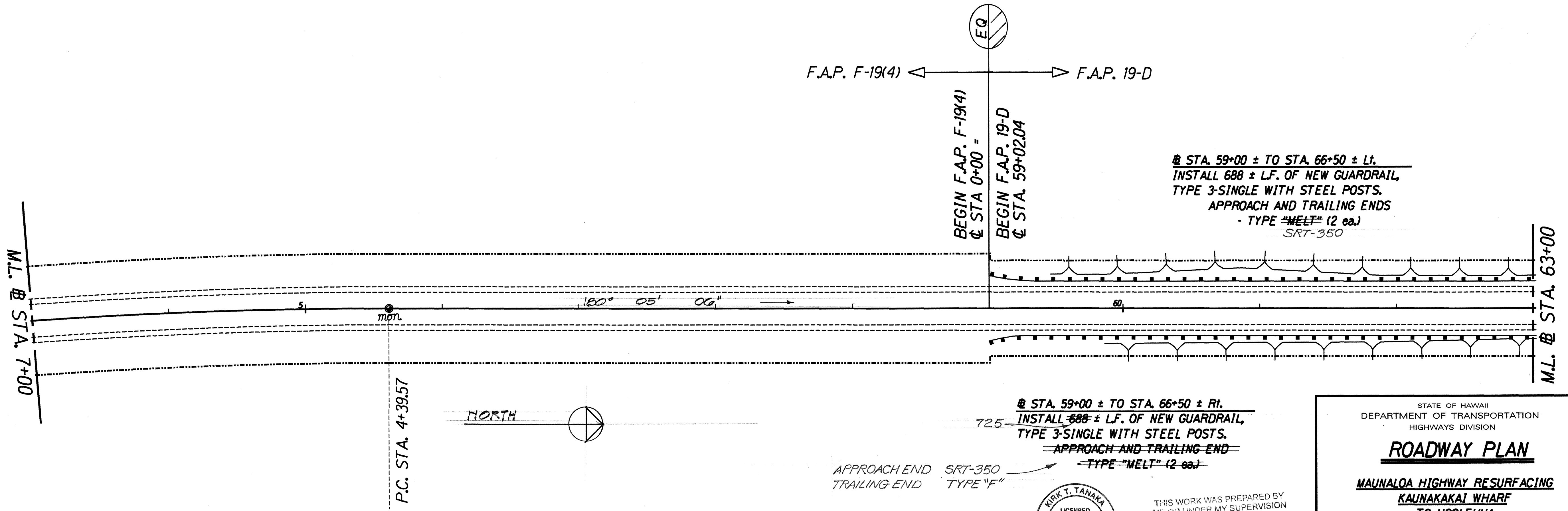
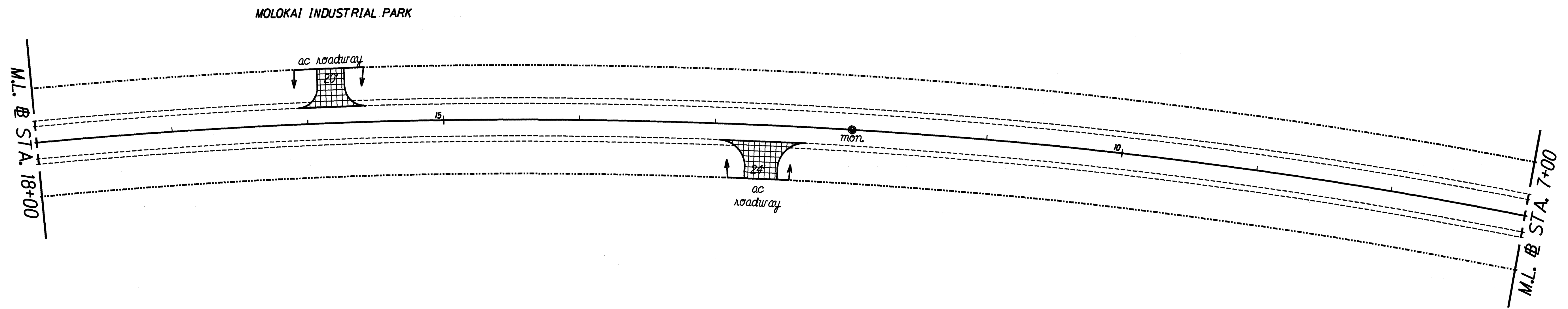
Scale: 1" = 40' Date: MAY, 1996

SHEET No. 7 OF 14 SHEETS

F.A.P. NO. F-19(4) SECTION

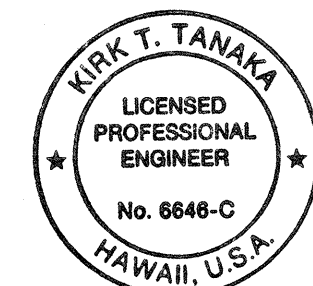
"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0460 (11)	1996	13	39



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
10/23/1996	DESIGNED BY	
	CHECKED BY	

F.A.P. NO. F-19(4) SECTION



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CIVIL ENGINEERING - LAND SURVEYING

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HIGHWAYS DIVISION

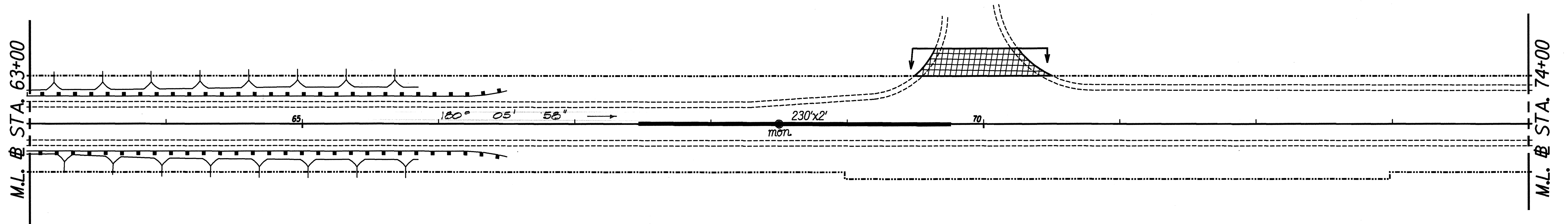
ROADWAY PLAN

MAUNALO A HIGHWAY RESURFACING
KAUNAKAKAI WHARF
TO HOOLEHUA
FEDERAL AID PROJECT NO. STP-0460 (11)

Scale: 1" = 40'
Date: MAY, 1996
SHEET No. 8 OF 14 SHEETS

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0460 (11)	1996	14	39



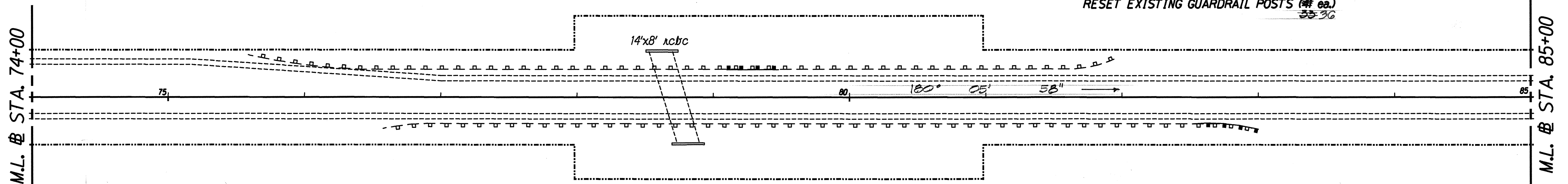
@ STA. 75+55 ± TO STA. 76+05 ± L.I.
REMOVE 50 ± L.F. OF EXISTING GUARDRAIL
AND DOT 25
INSTALL 40 ± L.F. OF NEW GUARDRAIL,
TYPE 3 - SINGLE WITH POSTS AND MELT SRT-350

76+05
@ STA. 76+05 ± TO STA. 79+10 ± L.I.
RESET EXISTING GUARDRAIL POSTS (58 ea.)
50

@ STA. 79+10 ± TO STA. 79+50 ± L.I.
REMOVE 40 L.F. OF EXISTING GUARDRAIL AND POSTS.
INSTALL 40 L.F. OF NEW GUARDRAIL, TYPE 3-SINGLE
WITH STEEL POSTS.

@ STA. 81+50 ± TO STA. 82+00 ± L.I.
REMOVE 50 ± L.F. OF EXISTING GUARDRAIL
AND DOT 25
INSTALL 40 ± L.F. OF NEW GUARDRAIL,
TYPE 3 - SINGLE WITH POSTS AND MELT SRT-350

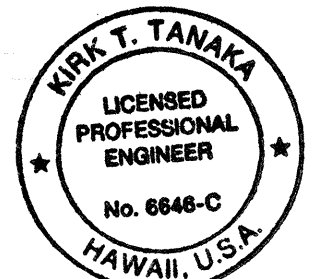
81+50
@ STA. 79+50 ± TO STA. 82+00 ± L.I.
RESET EXISTING GUARDRAIL POSTS (58 ea.)
50



@ STA. 76+50 ± TO STA. 77+00 ± R.I.
REMOVE 50 ± L.F. OF EXISTING GUARDRAIL
AND DOT 25
INSTALL 40 ± L.F. OF NEW GUARDRAIL,
TYPE 3 - SINGLE WITH POSTS AND MELT SRT-350

77+00
@ STA. 76+50 ± TO STA. 82+50 ± R.I.
RESET EXISTING GUARDRAIL POSTS (58 ea.)
50

82+50
@ STA. 82+50 ± TO STA. 83+00 ± R.I.
REMOVE 50 L.F. OF EXISTING GUARDRAIL AND B.C.T.
INSTALL 20 ± L.F. OF NEW GUARDRAIL, TYPE 3-SINGLE
WITH POSTS AND A MELT SRT-350



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CIVIL ENGINEERING - LAND SURVEYING

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

MAUNALO A HIGHWAY RESURFACING
KAUNAKAKAI WHARF
TO HOOLEHUA

FEDERAL AID PROJECT NO. STP-0460 (11)

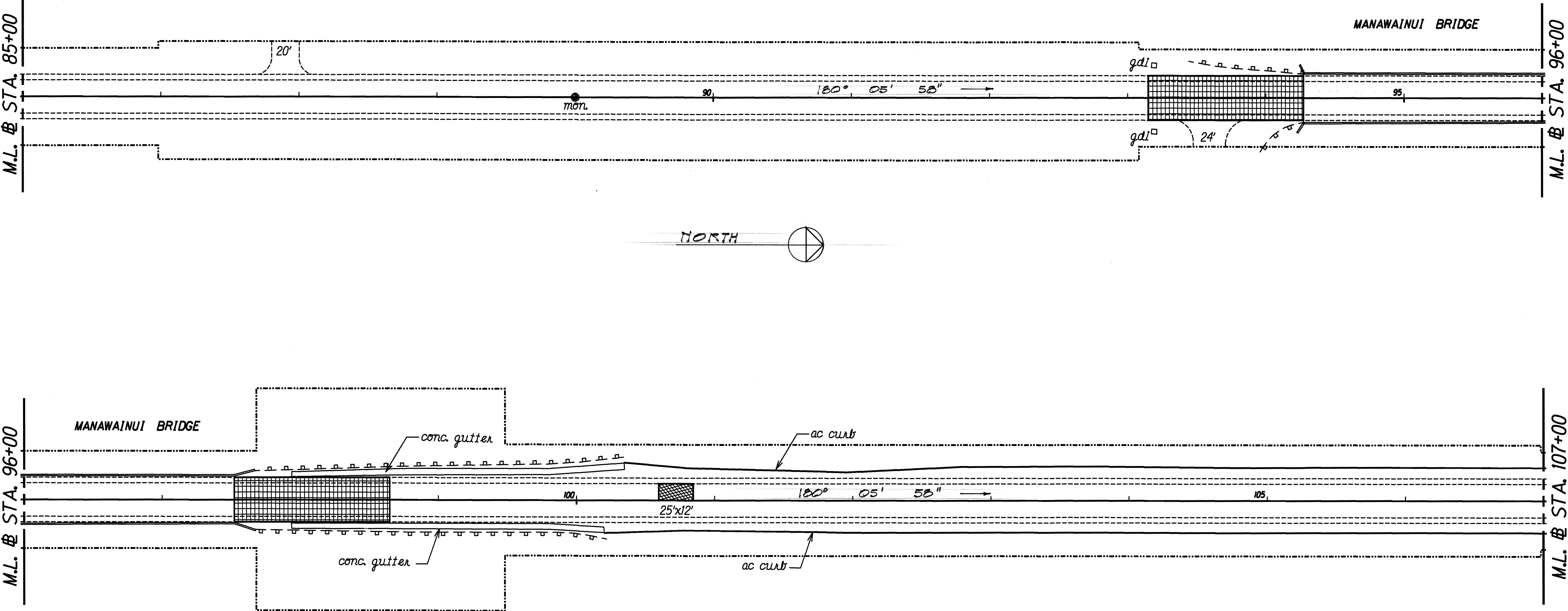
Scale: 1" = 40' Date: MAY, 1996

SHEET No. 9 OF 14 SHEETS

F.A.P. NO. 19-D SECTION

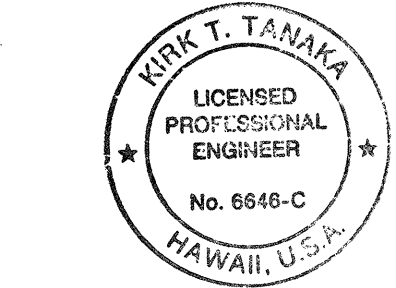
"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0460 (11)	1996	15	39



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
2/14/1995	DESIGNED BY	
10/1/95	QUANTITIES BY	
	CHECKED BY	

F.A.P. NO. 19-D SECTION

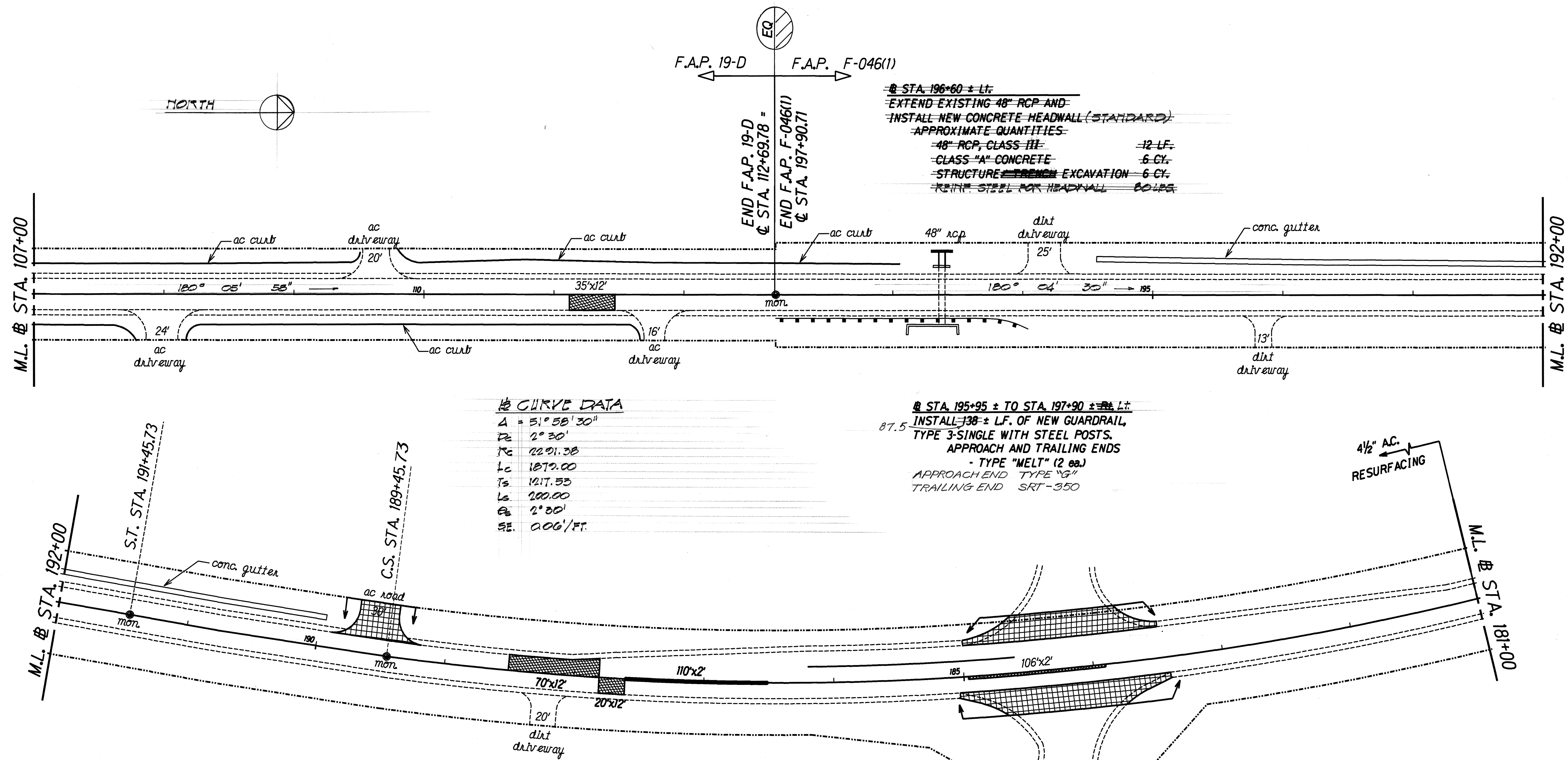


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CIVIL ENGINEERING - LAND SURVEYING

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY PLAN
MAUNALO A HIGHWAY RESURFACING
KAUNAKAKAI WHARF
TO HOOLEHUA
FEDERAL AID PROJECT NO. STP-0460 (11)
Scale: 1" = 40' Date: MAY, 1996
SHEET No. 10 OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0460 (11)	1996	16	39



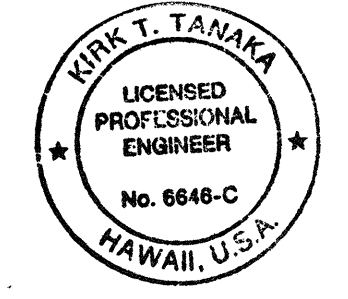
CURVE DATA

A	= 51° 58' 30"
Pt	2° 30'
Re	2201.38
Lc	1879.00
Ts	1217.53
Ls	200.00
Pe	2° 30'
Ss	0.06'/FT.

STA. 195+95 ± TO STA. 197+90 ± L.F.
INSTALL 138 ± LF. OF NEW GUARDRAIL,
TYPE 3-SINGLE WITH STEEL POSTS.
APPROACH AND TRAILING ENDS
- TYPE "MELT" (2 ea.)
APPROACH END TYPE "G"
TRAILING END SRT-350

4 1/2" AC.
RESURFACING

SURVEY PLOTTED BY	DATE
DRAWN BY	
NOTED BY	
CHECKED BY	



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R. T. TANAKA ENGINEERS, INC.
CIVIL ENGINEERING - LAND SURVEYING

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

MAUNALOA HIGHWAY RESURFACING
KAUNAKAKAI WHARF
TO HOOLEHUA
FEDERAL AID PROJECT NO. STP-0460 (11)

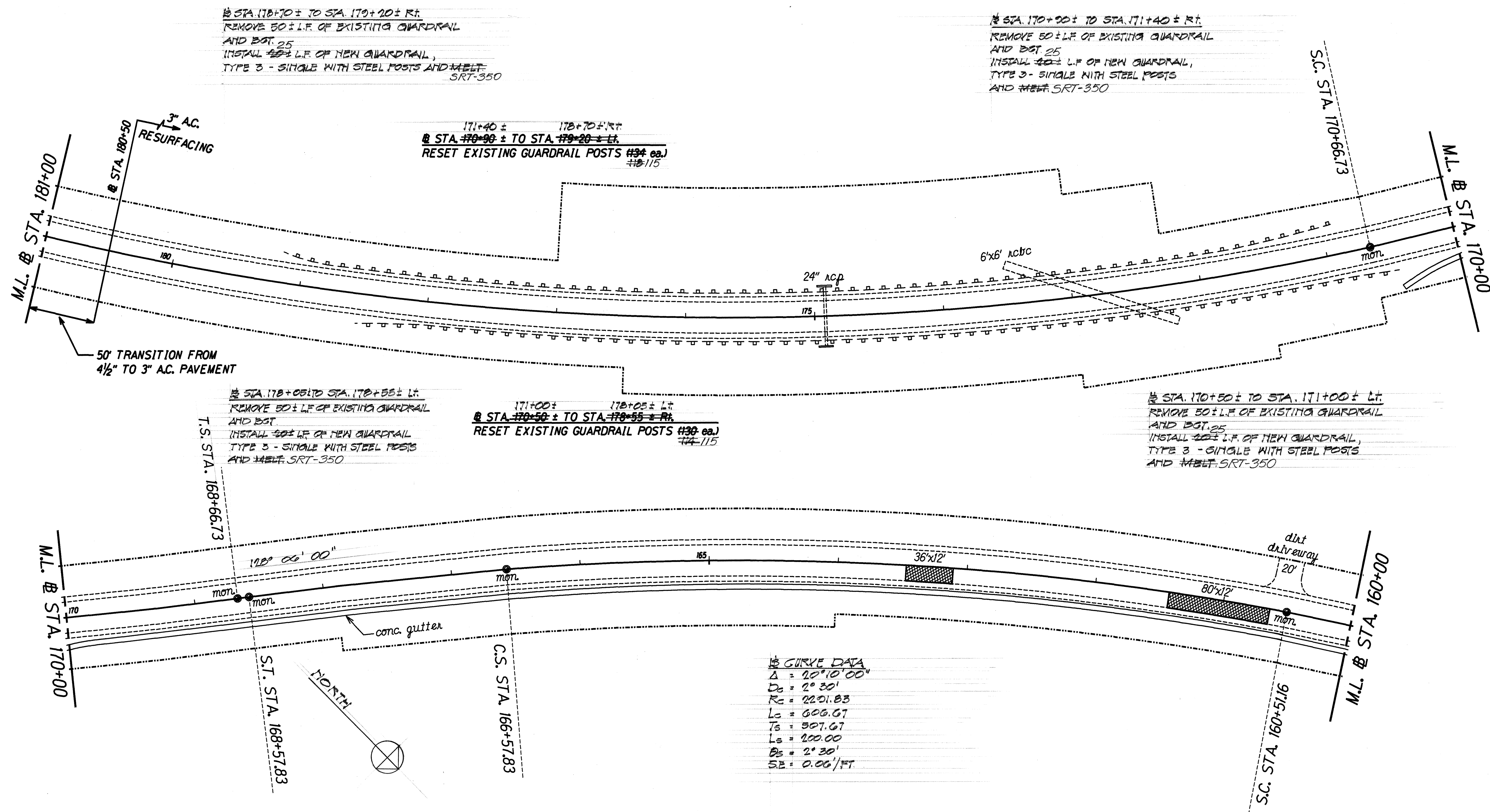
Scale: 1" = 40' Date: MAY, 1996

SHEET No. 11 OF 14 SHEETS

F.A.P. NO. F-046(1) SECTION

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0460 (11)	1996	17	39



DATE	_____
DESIGNED BY	_____
DRAWN BY	_____
CHECKED BY	_____
IN CHARGE	_____
NOTED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____

F.A.P. NO. F-046(1) SECTION

KIRK T. TANAKA
 LICENSED PROFESSIONAL ENGINEER
 No. 6648-C
 HAWAII, U.S.A.

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R. T. Tanaka
 R. T. TANAKA ENGINEERS, INC.
 CIVIL ENGINEERING - LAND SURVEYING

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

ROADWAY PLAN

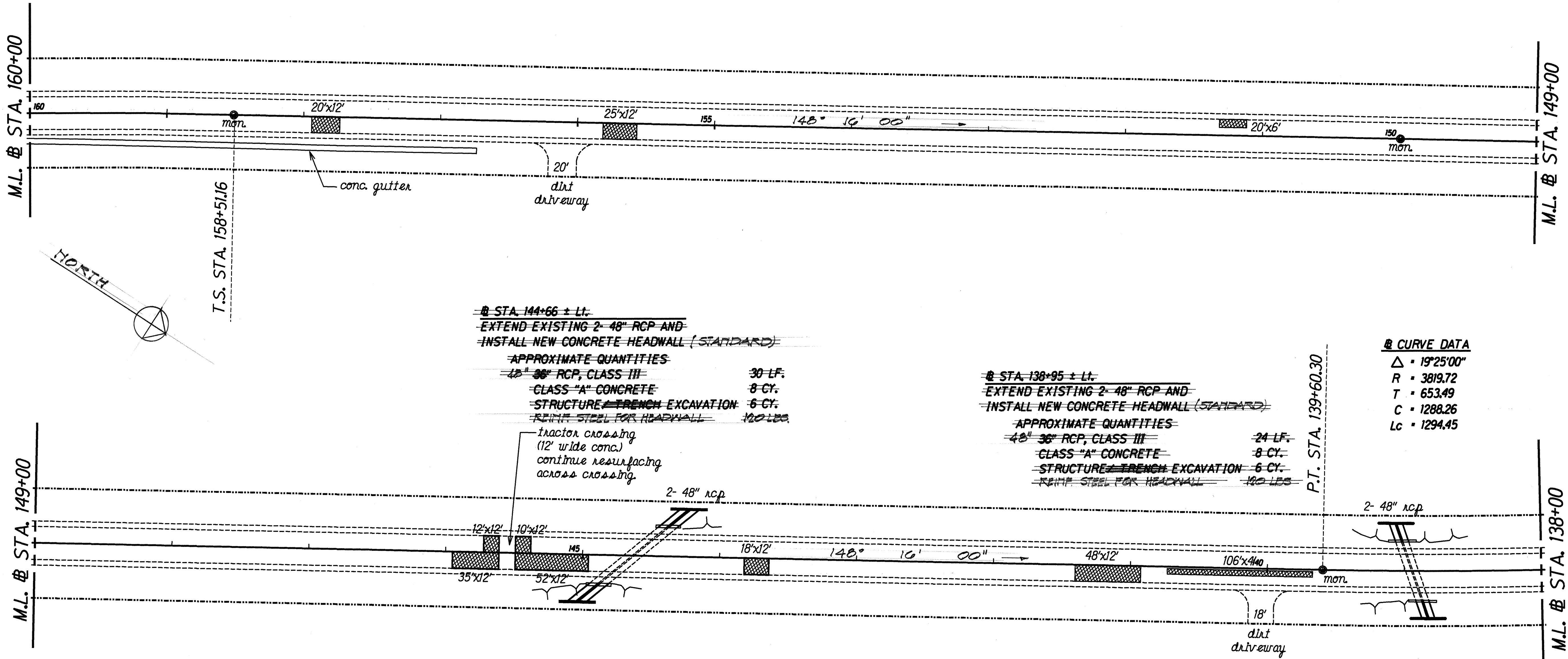
MAUNALO A HIGHWAY RESURFACING
 KAUNAKAKAI WHARF
 TO HOOLEHUA
 FEDERAL AID PROJECT NO. STP-0460 (11)

Scale: 1" = 40' Date: MAY, 1996

SHEET NO. 12 OF 14 SHEETS

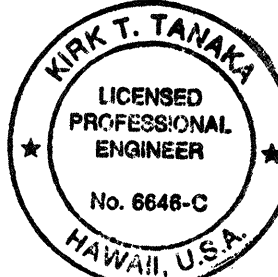
"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0460 (11)	1996	18	39



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

F.A.P. NO. F-046(1) SECTION



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R. T. TANAKA ENGINEERS, INC.
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN

MAUNALOHA HIGHWAY RESURFACING
KAUNAKAKAI WHARF
TO HOOLEHUA

FEDERAL AID PROJECT NO. STP-0460 (11)

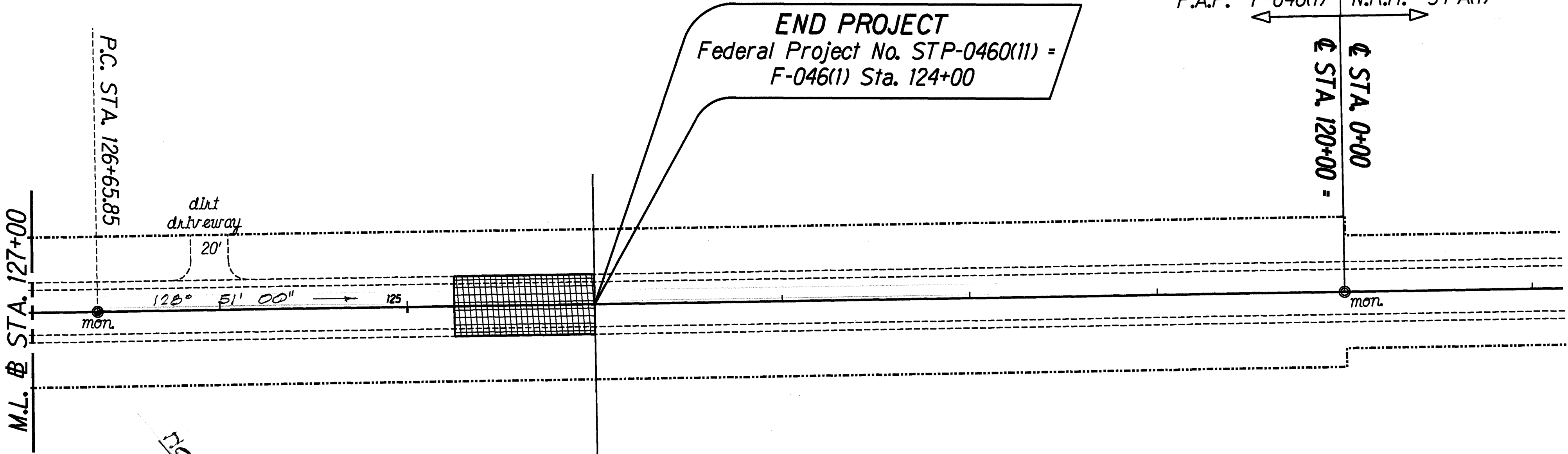
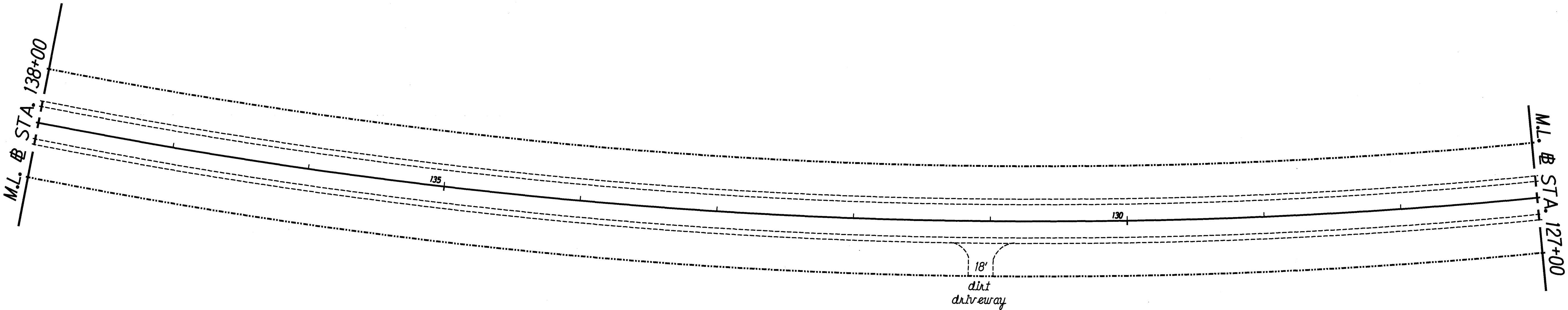
Scale: 1" = 40'

Date: MAY, 1996

SHEET No. 13 OF 14 SHEETS

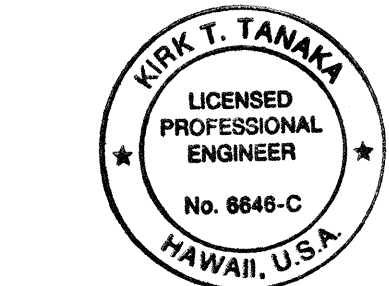
"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0460 (11)	1996	19	39



DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
QUANTITIES BY	
MAINTAINED BY	
NO.	

F.A.P. NO. F-046(1) SECTION



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R. T. Tanaka

R. T. TANAKA ENGINEERS, INC.
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ROADWAY PLAN
MAUNALOA HIGHWAY RESURFACING
KAUNAKAKAI WHARF
TO HOOLEHUA
FEDERAL AID PROJECT NO. STP-0460 (11)
Scale: 1" = 40' Date: MAY, 1996
SHEET No. 14 OF 14 SHEETS