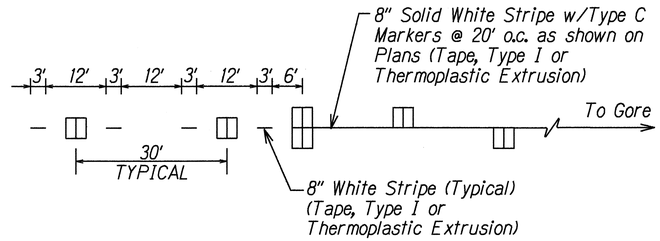
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101-02-97	1998	82	102

LEGEND

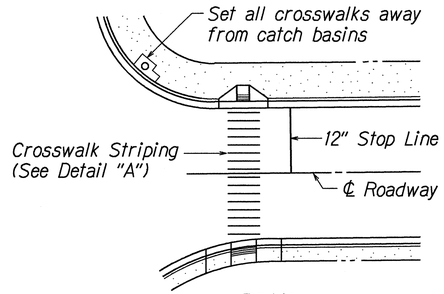
- 4 each Type A Raised Pavement Markers
  Type C Raised Pavement Markers @ 40'-0" o.c.
- 4 each Type J Raised Pavement Markers
  Type D Raised Pavement Markers @ 40'-0" o.c.
- 8" White Stripe with Type C Raised Pavement Markers @ 20'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)
- 4" Double Solid Yellow with Type D Raised Pavement Markers @ 20'-0" o.c. (Tape, Type I or Thermoplastic Extrusion))
- 4" Double Solid Yellow Stripes with Type H Raised Pavement Markers @ 20'-0" o.c. (Tape, Type II or Thermoplastic Exrusion))
- 4" Yellow Edge Stripe with Type H Raised Pavement Markers @ 40'-0" o.c. (Tape, Type II or Thermoplastic Extrusion))
- 4" Double Solid White Stripes with Type C Raised Pavement Markers @ 20'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)
- Lane Change Restriction Marking
  4 each Type A Raised Pavement Markers
  Type C Raised Pavement Markers @ 20'-0" o.c.
  4" White Stripe (Tape, Type I or Thermoplastic Extrusion)
- 4" or 8" White Edge Stripe with Type C Raised Pavement Markers @ 40'-0" o.c. (Tape, Type II or Thermoplastic Extrusion)
- 4" White Guide Lines (Tape, Type III or Thermoplastic Extrusion except for bus bays)
- Transverse Median Marking (Tape, Type II or Thermoplastic Extrusion)
- Transverse Shoulder Marking (Tape, Type II or Thermoplastic Extrusion)
- Channelizing Island or Deceleration Lane Gore (Tape, Type II or Thermoplastic Extrusion)
- Crosswalk and Stop Line. All Stop Lines shall be 10'-0" from Crosswalk unless otherwise noted. The circled number indicates the number of lanes for payment (Tape, Type III or Thermoplastic Extrusion)
- Pavement Arrow (Tape, Type III or Thermoplastic Extrusion)
- STOP Pavement Word (Tape, Type III or Thermoplastic Extrusion)
- 4 Each Type J Raised Pavement Markers
  Type D Raised Pavement Markers @ 40'-0" o.c.
  Type H Raised Pavement Markers (Reflective Surface facing no-passing direction)
  4" Single Solid Yellow Stripe (Tape, Type I or Thermoplastic Extrusion)
- 10' 10' 10' 10' Extension of Edge Line, 4" Wide x 2'-0" Long White Stripe @ 10'-0" o.c. w/Type C Markers @ 40'-0" o.c. (Tape, Type III or Thermoplastic Extrusion)

NOTES

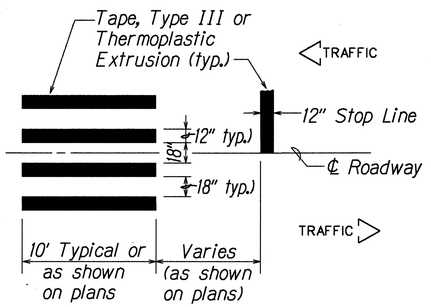
1. Layout of pavement markings and striping shall be done by the Contractor and approved by the Engineer prior to any installation work.
2. Existing pavement markings not incorporated in the final traffic pattern shall be removed as directed by the Engineer. Costs shall be incidental to the various pavement marking items.
3. Raised pavement markers shall not be installed within crosswalks.
4. Final locations of all signs shall be approved by the Engineer prior to any installation work.
5. Existing signs not shown on these plans shall remain as posted unless otherwise directed by the Engineer. Removal and disposal of existing signs and/or posts as designated on these plans shall be incidental to the various signing items.
6. Final locations of all Stop Lines shall be approved by the Engineer prior to installation.
7. All pavement striping shall be as noted on the legend or plans.
8. All preformed pavement marking tapes over existing pavement shall be applied with an approved primer as recommended by the tape manufacturer and as approved by the Engineer. The primer shall be allowed to dry to the tacky stage prior to tape application.
9. The Contractor shall erect at the beginning of the project and at the end of the project advance construction warning signs placed as indicated on the plans or as directed by the Engineer for the duration of the highway project and shall be maintained by the Contractor. These signs shall be placed in addition to the required traffic control signs called for in Section 645 - Traffic Control. The advance construction warning signs shall be new and become the property of the State. The Contractor shall remove, clean, and deliver the signs and posts to the District Baseyard, or as directed by the Engineer, upon the completion of the project.
10. Existing signs that are to be replaced shall not be removed until new signs are installed as replacements, or the messages are no longer necessary.
11. Backing for all new regulatory and warning signs shall not be spliced.
12. All sign panels shall conform to Section 621 of Special Provisions and the latest editions and amendments of the following FHWA publications:
    a. "Manual on Uniform Traffic Control Devices for Street and Highways" (MUTCD)
    b. "Standard Highway Signs"
    c. "Standard Alphabets for Highway Signs"
13. All new and relocated signs and markers installed on pipe post or light standard are to be mounted with band brackets and steel braces.
14. Removing and reinstalling existing Signs on Regulatory and Warning Sign Post shall not be paid for separately but shall be considered incidental to the various signing items.
15. Existing signs not shown on these plans shall remain as posted unless otherwise directed by the Engineer. Removal and disposal of existing signs and/or posts as designated on these plans shall be incidental to the various signing items.
16. The Contractor shall notify the Oahu Transit Services Inc. (OTS), Ed Sniffen, at 848-4571 or Lowell Tom at 848-4578 two weeks prior to beginning any work, informing them of location, scope of work, proposed closure of any street or traffic lanes, and the need to relocate any bus stop.



LANE DROP MARKING
Not to Scale



PLAN



DETAIL "A"

CROSSWALK STRIPING DETAIL
Not to Scale

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY M. Takatsuji	
NOTE BOOK	TRACED BY Steven Yoshida	
	DESIGNED BY td/mg	
	QUANTITIES BY N. d'arling	
	CHECKED BY	

R 1-1-98

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

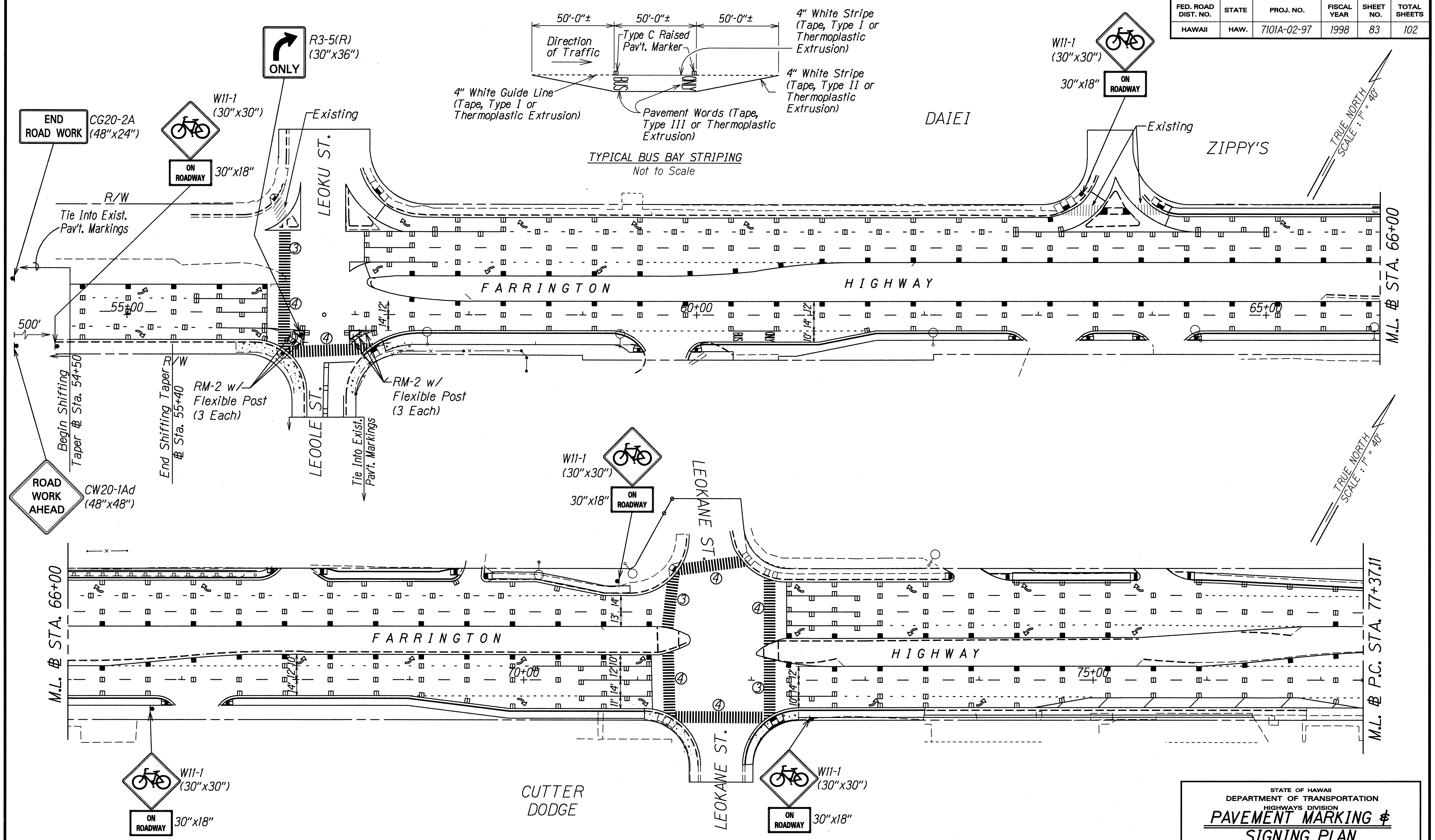
PAVEMENT MARKING LEGEND, DETAIL & NOTES

FARRINGTON HIGHWAY SIDEWALKS
Leoole Street to Awanui Street &
Leoku Street to Paiwa Street
Project No. 7101A-02-97

Scale: As Noted Date: March, 1998

SHEET No. 71 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-02-97	1998	83	102



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

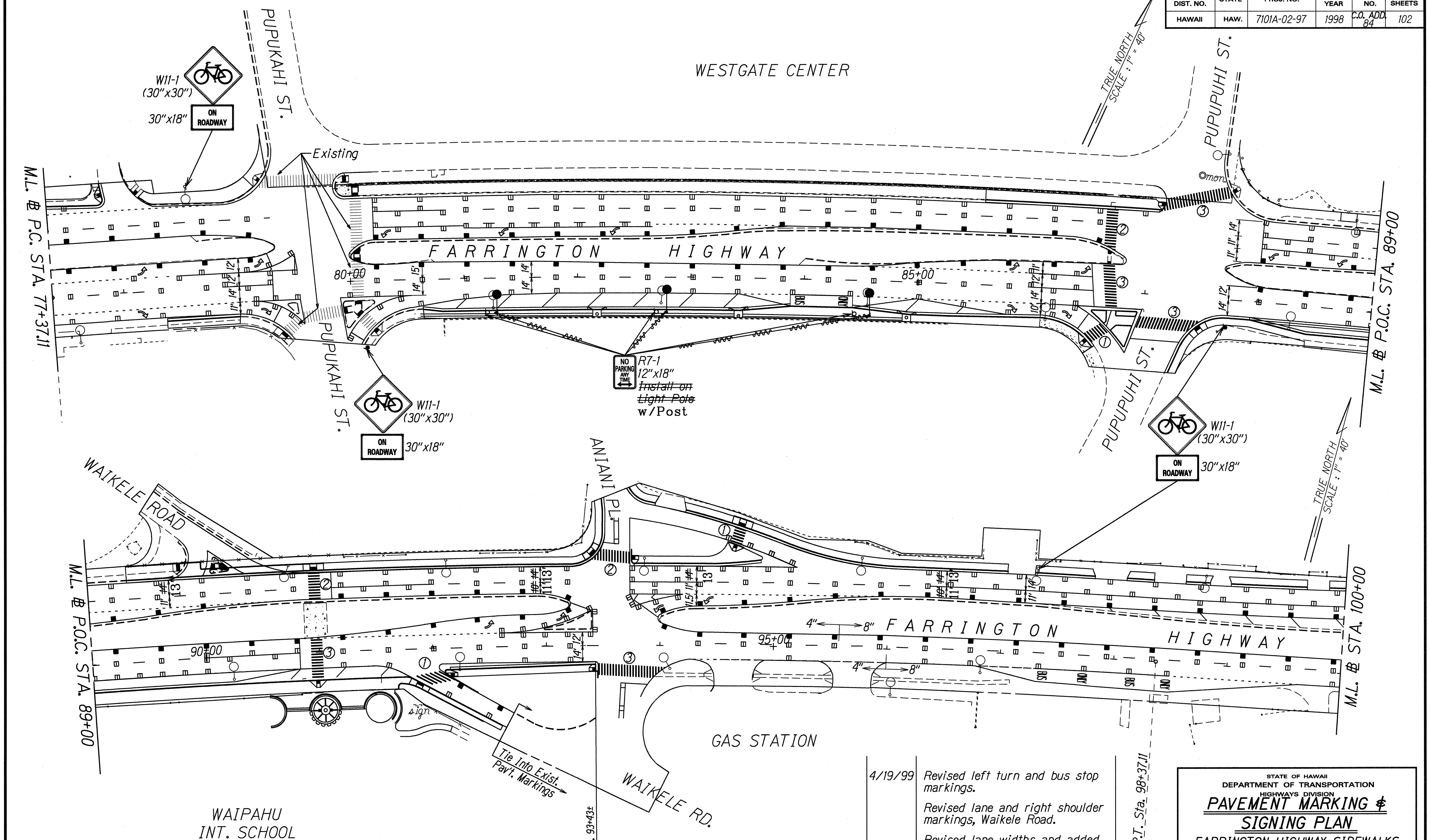
PAVEMENT MARKING & SIGNING PLAN

FARRINGTON HIGHWAY SIDEWALKS
Leoole Street to Awanui Street and
Leoku Street to Paiwa Street
Project No. 7101A-02-97

Scale: 1"=40.0' Date: March 1998

SHEET No. T2 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-02-97	1998	C.O. ADD. 84	102



ORIGINAL PLAN	
SURVEY PLOTTED BY	
DRAWN BY	M. Takafuji
TRACED BY	
DESIGNED BY	Steven Yoshida
QUANTITIES BY	
CHECKED BY	
DATE	4-2-98
NOTE BOOK No.	

LEGEND FOR AS-BUILT POSTINGS

~~	Squiggly line for as-built deletion
~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

DATE	REVISION
4/19/99	Revised left turn and bus stop markings.
	Revised lane and right shoulder markings, Waikele Road.
	Revised lane widths and added left shoulder striping.
6/17/98	Add pavement markings, Waikele Rd.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PAVEMENT MARKING & SIGNING PLAN

FARRINGTON HIGHWAY SIDEWALKS
Leoole Street to Awanui Street and Leoku Street to Paiwa Street
Project No. 7101A-02-97

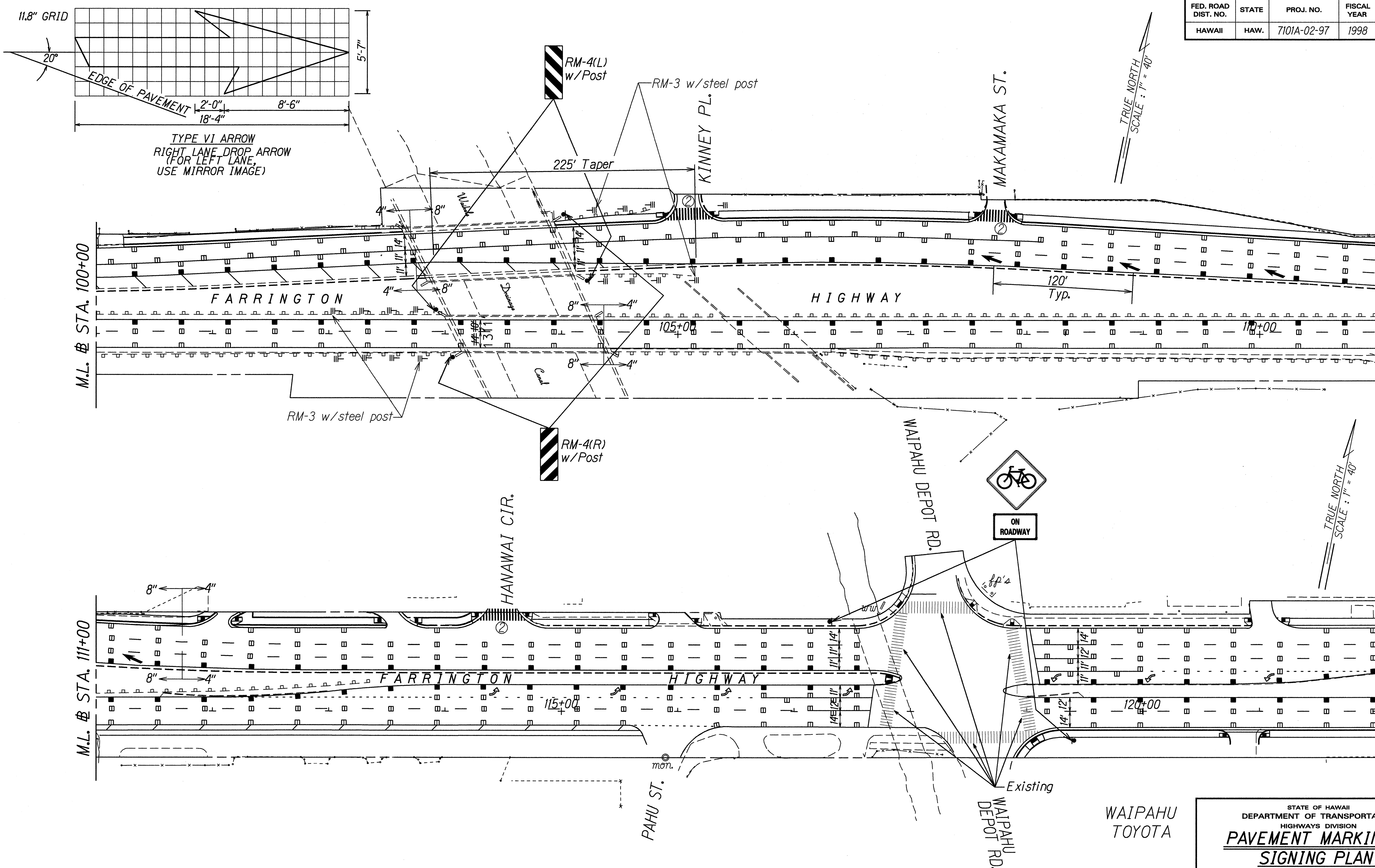
Scale: 1"=40.0' Date: March 1998

SHEET No. T3 OF 21 SHEETS

"AS-BUILT"

C.O. ADD. 84

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-02-97	1998	C.O. 85	102



SURVEY PLOTTED BY	DATE
DRAWN BY M. Takafuji	4-2-98
TRACED BY	
DESIGNED BY Steven Yoshida	
QUANTITIES BY	
CHECKED BY	

ORIGINAL PLAN
NOTE BOOK fdfcmy No. dfarfp3

LEGEND FOR AS-BUILT POSTINGS	
~~	Squiggly line for as-built deletion
~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

DATE	REVISION
4/19/99	Revised lane widths and relocate lane drop

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PAVEMENT MARKING & SIGNING PLAN

FARRINGTON HIGHWAY SIDEWALKS
Leoole Street to Awanui Street and
Leoku Street to Paiwa Street
Project No. 7101A-02-97

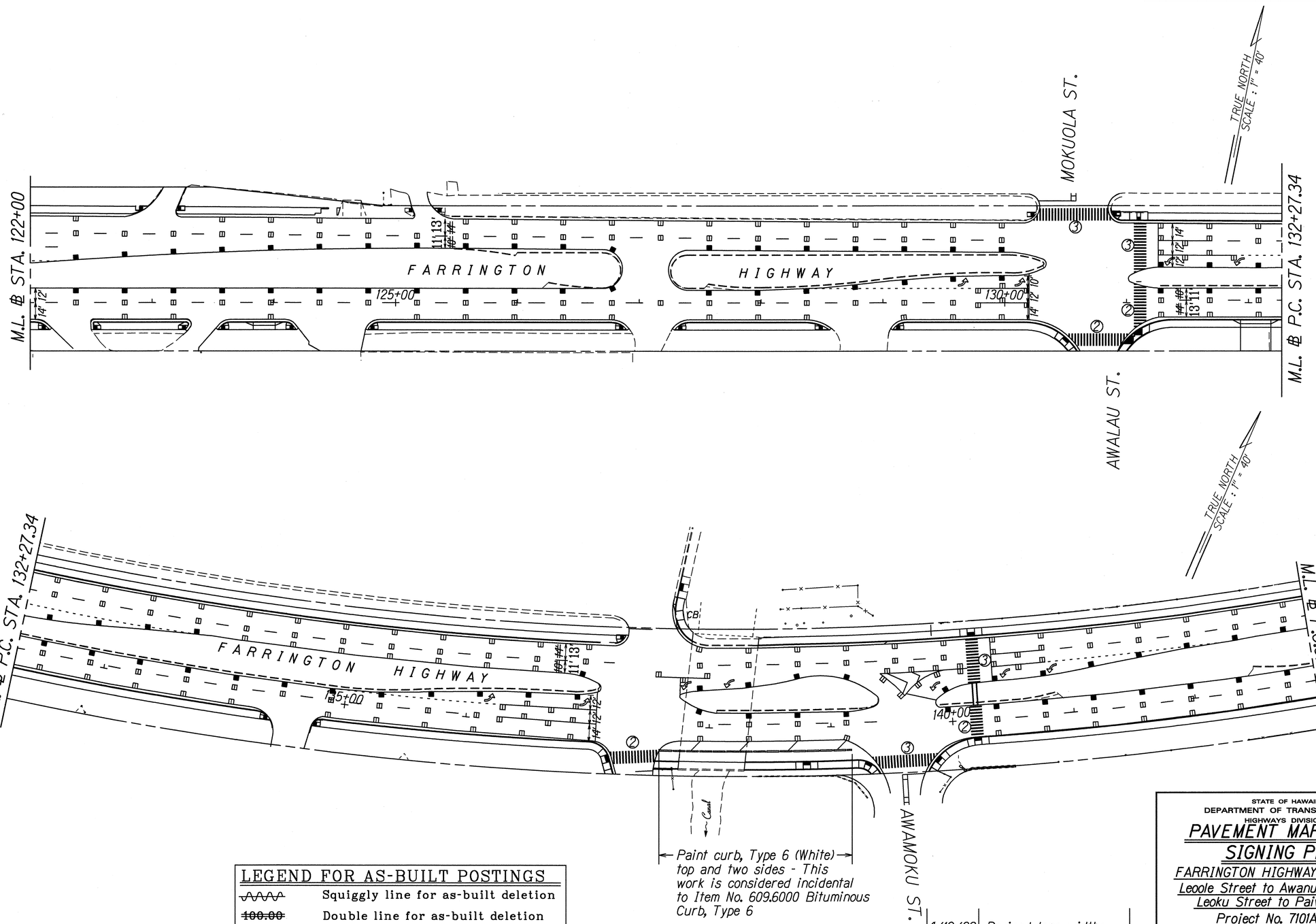
Scale: 1"=40.0' Date: March 1998

SHEET No. T4 OF 21 SHEETS

"AS-BUILT"

C. O. 85

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-02-97	1998	C.O. 86	102



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 4-2-98
	DRAWN BY M. Takeuji	
	TRACED BY	
NOTE BOOK	DESIGNED BY Steven Yoshida	
No. dfar1pf	QUANTITIES BY	
	CHECKED BY	

LEGEND FOR AS-BUILT POSTINGS

~~^^^^~~	Squiggly line for as-built deletion
~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

DATE	REVISION
4/19/99	Revised lane widths

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PAVEMENT MARKING & SIGNING PLAN

FARRINGTON HIGHWAY SIDEWALKS
Leoole Street to Awanui Street and
Leoku Street to Paiwa Street
Project No. 7101A-02-97

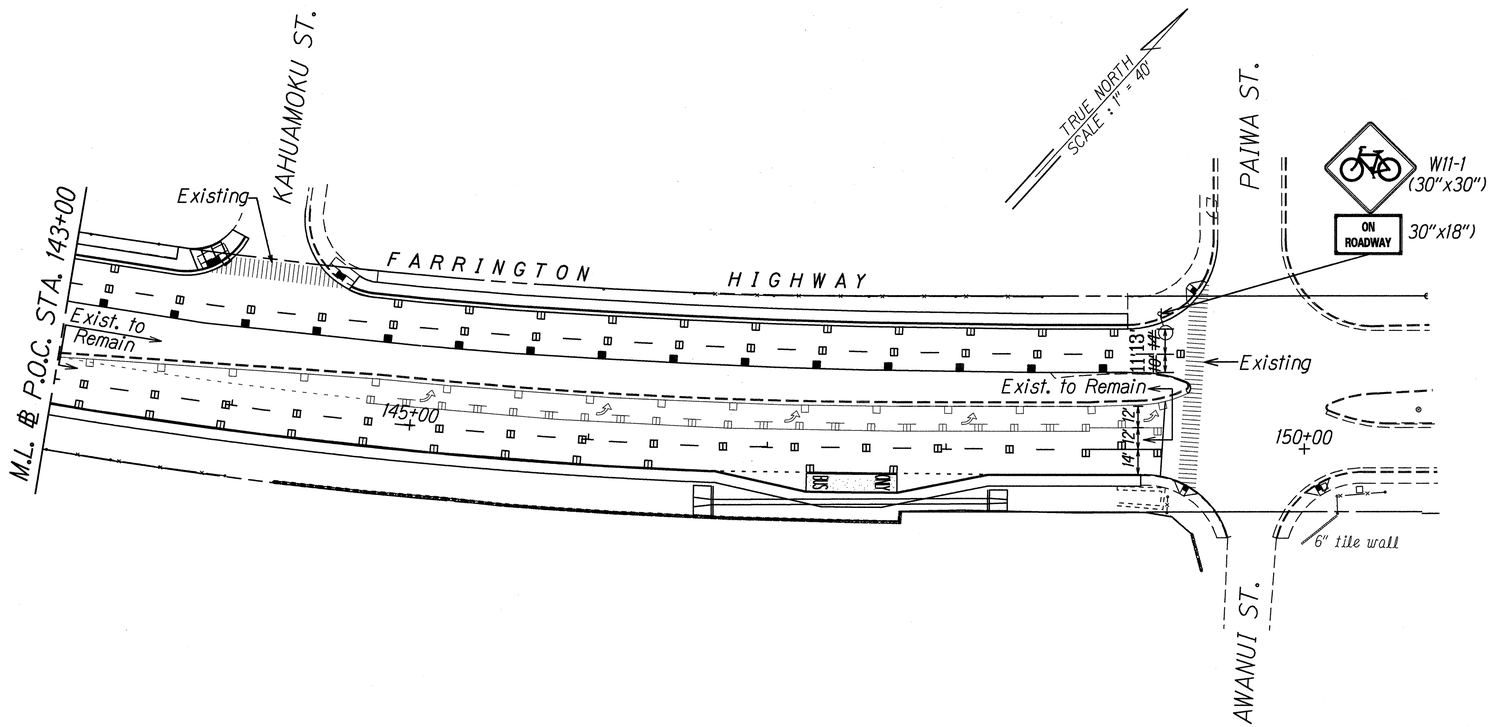
Scale: 1"=40.0' Date: March 1998

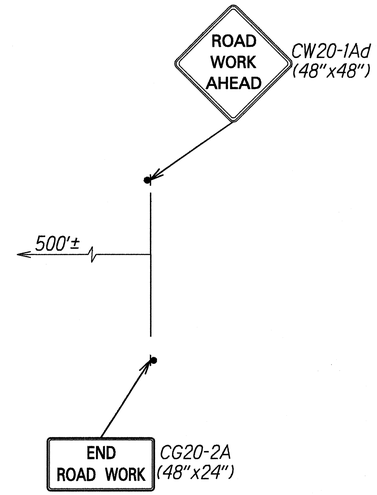
SHEET No. T5 OF 21 SHEETS

"AS-BUILT"

C.O. 86

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-02-97	1998	C.O. 87	102





ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 4-2-98
	DRAWN BY M. Takahiji	
NOTE: NONE	TRACED BY	
	DESIGNED BY Shawn Toshida	
	QUANTITIES BY	
	CHECKED BY	

LEGEND FOR AS-BUILT POSTINGS	
~~^^^^~~	Squiggly line for as-built deletion
~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

DATE	REVISION
4/19/98	Revised lane widths

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PAVEMENT MARKING & SIGNING PLAN

FARRINGTON HIGHWAY SIDEWALKS
Leoole Street to Awanui Street and
Leoku Street to Paiwa Street
Project No. 7101A-02-97

Scale: 1"=40.0' Date: March 1998

SHEET No. T6 OF 21 SHEETS

"AS-BUILT"

C.O. 87

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101-02-97	1998	88	102

PAVEMENT MARKING SUMMARY

DESCRIPTION	QUANTITY
PAVEMENT MARKERS	
TYPE A	6,152 EA.
TYPE C	1,092 EA.
TYPE H	368 EA.
TAPE - TYPE I OR THERMOPLASTIC EXTRUSION	
4-INCH PAVEMENT STRIPE (WHITE)	620 L.F.
8-INCH PAVEMENT STRIPE (WHITE)	2,930 L.F.
TAPE - TYPE II OR THERMOPLASTIC EXTRUSION	
4-INCH PAVEMENT STRIPE (WHITE)	17,280 L.F.
4-INCH PAVEMENT STRIPE (YELLOW)	15,535 L.F.
8-INCH PAVEMENT STRIPE (WHITE)	2,705 L.F.
8-INCH PAVEMENT STRIPE (YELLOW)	1,795 L.F.
12-INCH PAVEMENT STRIPE (WHITE)	625 L.F.
TAPE - TYPE III OR THERMOPLASTIC EXTRUSION	
4-INCH PAVEMENT STRIPE (WHITE)	3900 L.F.
8-INCH PAVEMENT STRIPE (WHITE)	1,030 L.F.
12-INCH PAVEMENT STRIPE (WHITE)	1,181 L.F.
CROSSWALK MARKINGS	85 LANES
PAVEMENT ARROW	69 EA.
PAVEMENT WORD	6 EA.

REFLECTOR MARKER SUMMARY

TYPE	QUANTITY				
	W/FLEXIBLE POST		W/STEEL POST		
	YELLOW	WHITE	YELLOW	WHITE	YELLOW W/BLACK
RM-2		6			
RM-3	1	2	7	6	
RM-4(L)					2
RM-4(R)					2

Scale: ¼" = 1"

Legend - Black
Background - Yellow

TRAFFIC SIGN SUMMARY

SIGN NO.	MESSAGE	QUANTITY			
		10 SQ. FT. OR LESS		GREATER THAN 10 SQ. FT.	
		W/POST	W/O POST	W/POSTS	W/O POSTS
R3-5(R)	ONLY	1			
R7-1	NO PARKING ANY TIME ⟷		3		
W11-1		8	4		
	ON ROADWAY		12		
	TOTAL	9	19		

CONSTRUCTION SIGN SUMMARY

SIGN NO.	LOCATION	MESSAGE	W/POSTS	W/O POST
CW20-1Ad	FARRINGTON HWY. ℄ STA. 49+50 RT.	ROAD WORK AHEAD	1	
CG20-2A	FARRINGTON HWY. ℄ STA. 49+50 LT.	END ROAD WORK	1	
CW20-1Ad	FARRINGTON HWY. ℄ STA. 154+50 RT.	ROAD WORK AHEAD	1	
CG20-2A	FARRINGTON HWY. ℄ STA. 154+50 LT.	END ROAD WORK	1	
		TOTAL	4	

ORIGINAL PLAN
SURVEY PLOTTED BY
DRAWN BY M. Takeuchi
TRACED BY
DESIGNED BY Steven Toshiba
QUANTITIES BY
CHECKED BY
NOTE BOOK
DATE
DATE X

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SUMMARIES & SIGN DETAILS

FARRINGTON HIGHWAY SIDEWALKS
Leoole Street to Awanui Street &
Leoku Street to Paiwa Street
Project No. 7101-02-97

Date: March, 1998

SHEET No. 77 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101-02-97	1998	89	102

TRAFFIC SIGNAL NOTES

1. The locations of the Traffic Signal Standards, Traffic Signal Standards w/Mast Arms, Pedestrian Push Buttons, Pullboxes, Conduits and Loop Detectors shall be staked out in the field by the Contractor and approval of the locations shall be obtained from the Engineer prior to construction and installation.

2. All splicing shall be done in the pullboxes.

3. Furnishing and installing the conduit stubouts (pullboxes to edge of pavement) will not be paid for separately but shall be considered incidental to the various contract items.

4. A solid #8 bare copper wire shall be pulled with the traffic signal control cable for equipment ground. Cost shall be incidental to the installation of the control cable.

5. Should any defect be encountered during the warranty period, the manufacturer will be notified and he shall promptly correct such defect. Service call (by factory qualified representative) during the warranty period for repairs or other maintenance shall be answered within 24 hours and shall be done at no expense to the State. All repairs shall be done as soon as possible.

6. All traffic signal work shall conform to the requirements of the "Manual On Uniform Traffic Control Devices For Streets And Highways", Federal Highway Administration (1988) and Amendments.

7. Locations of traffic markings and markers (lane lines, Stop lines, crosswalk, etc.) shown on the plans shall be verified with the Engineer prior to the installation of the traffic signal system.

8. All Conduits between pullboxes and Traffic Signal/Highway Lighting Standards shall not be paid for separately but shall be considered incidental to the various contract items.

9. All Signal-Drop Cables (Type 5 Cables) from the various Types of Traffic Signal Head on the traffic signal standards and mast arms to the pullboxes shall not be paid for separately but considered incidental to the Traffic Signal Head.

10. After installing all the traffic signal cables, the Contractor shall duct seal all conduits in the pullboxes, traffic signal standards and traffic signal controller cabinet concrete base. The duct seal material shall be approved by the Traffic Signal Inspector/Engineer and shall not be paid for separately but considered incidental to the direct buried and/or concrete encased conduits.

11. After installing the Traffic Signal System, the Contractor shall apply grease to all parts of the Traffic Signal System (i.e. fittings, brackets, nipples, elbows, screws, signal head assemblies, bolts, hinges, etc.) as directed by the Traffic Signal Inspector, to prevent rust and corrosion. The grease material shall be approved by the Signal Inspector.

12. Connecting into existing traffic signal system and making all necessary adjustments shall not be paid for separately, but considered incidental to the various traffic signal contract items.

13. The Contractor shall notify the Traffic Signal Branch, Department of Transportation Services, City & County of Honolulu, (phone no. 527-5007) two weeks prior to commencing any work on the traffic signal system.

14. The Department of Transportation Services, City & County of Honolulu, will assist the Engineer in construction inspection for the traffic signal system. The Contractor shall notify the Electrical and Maintenence Services Division, Department of Transportation Services, three (3) working days prior to commencing work on the traffic signal system (phone no. 527-5007).

TRAFFIC SIGNAL NOTES (CONTINUED)

15. All existing pullboxes, traffic signal poles and controller bases not incorporated into the New Traffic Signal System shall be removed to 6 inches below grade.

16. Existing loop detectors and conduits not incorporated into the New Traffic Signal System shall be abandoned in place. Abandoned conduits shall be plugged with concrete. Remove existing cables.

17. The traffic signals shall be kept operational during construction. Any relocation required shall be approved by the Electrical and Maintenance Services Division, Department of Transportation Services, City and County of Honolulu and paid for by the Contractor.

18. The Contractor shall be responsible for any damages to existing Traffic Signal Facilities. Including the Traffic Signal Interconnect System, and any and all damages to these facilities shall be repaired by the Contractor at his cost in with the requirements of the City and County of Honolulu.

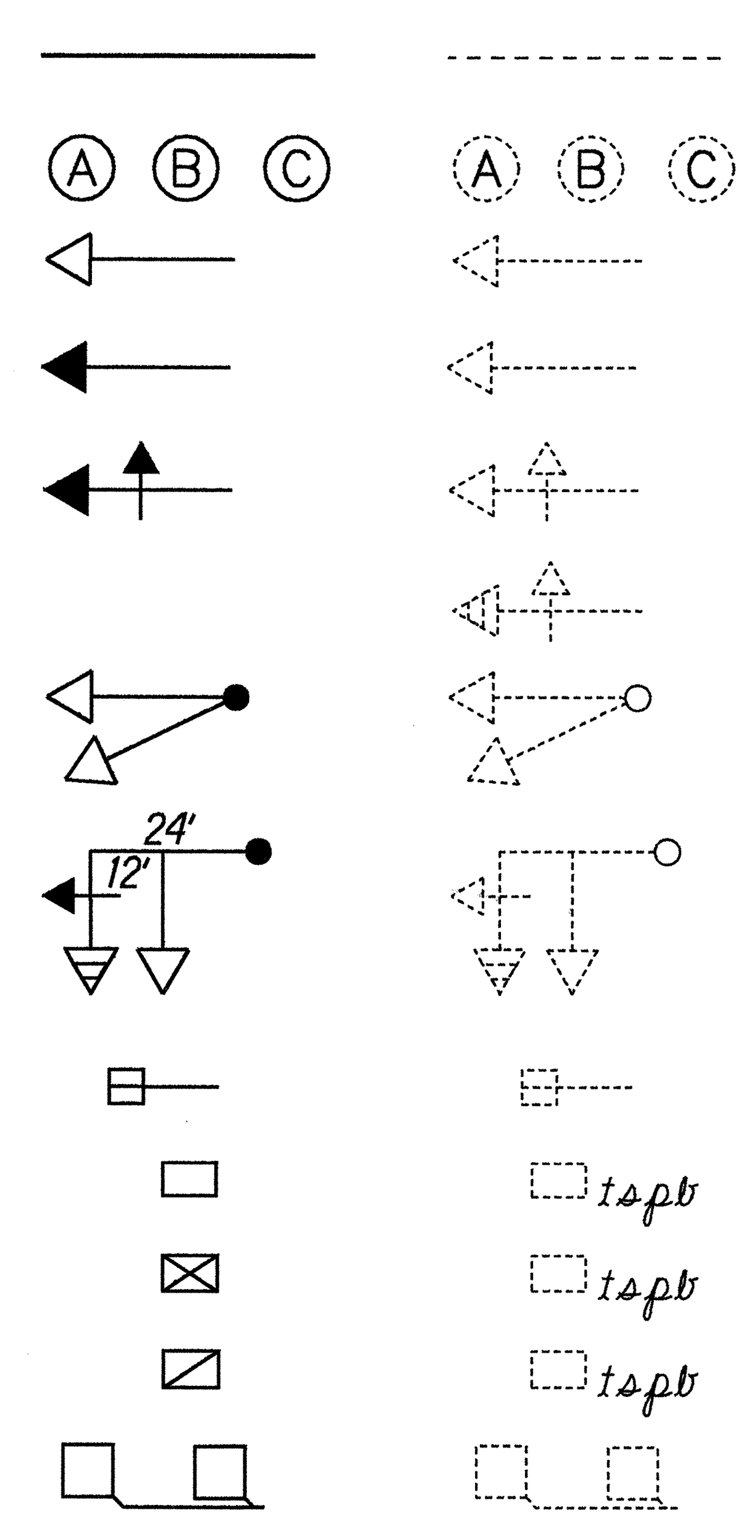
19. The concrete jacket for the Conduit By-Pass Details shown on this sheet, shall not be paid for separately but considered incidental to the various contract items. The Engineer shall determine if a concrete jacket is requried.

20. The Contractor's attention is directed to Plan Sheets Nos. 12 to 16, Curb Ramp Details, for planned locations of traffic signal poles and/or pedestals with pedestrian push buttons.

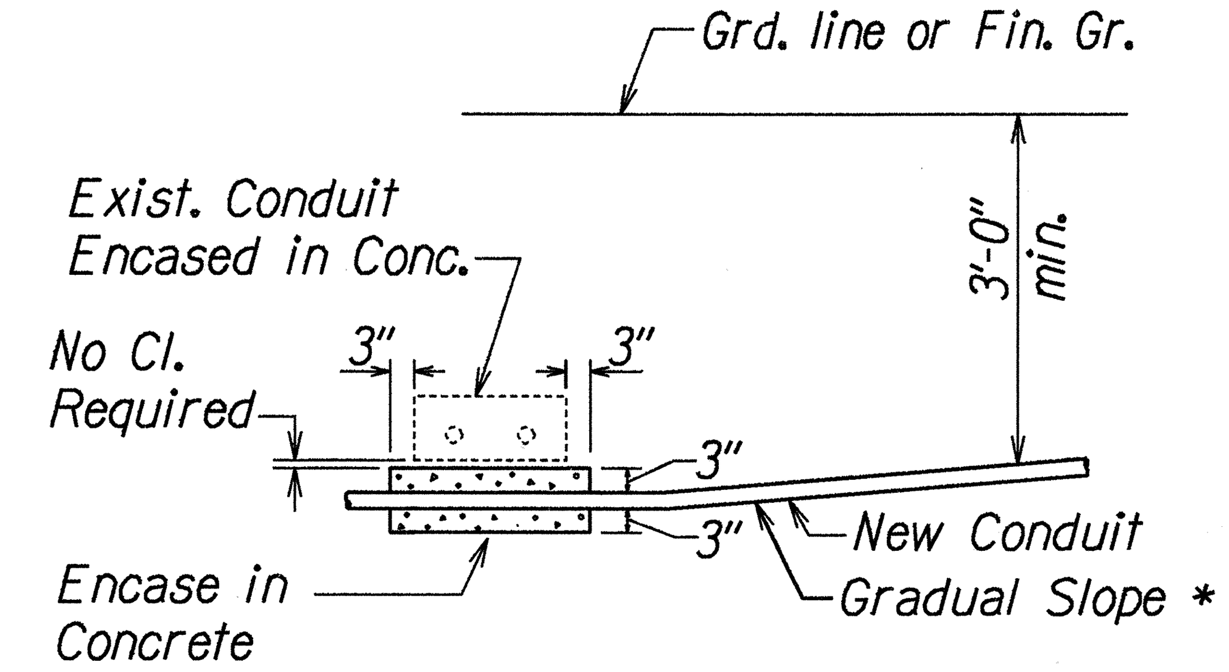
21. The Contractor's attention is directed to Highway Lighting Notes on Sheet T14 when working in close proximity to any utility.

TRAFFIC SIGNAL LEGEND

NEW — EXISTING



Traffic Signal Conduit
Equipment description, installation or item no.
12" RYG Traffic Signal Head
12" RY↑ Traffic Signal Head
12" RY← Traffic Signal Head
12" RY← Traffic Signal Head (Programmed Visibility)
Type I Standard and Attached Signals
Type II Standard with Signal Mast Arm and Attached Signals (Nos. indicates mast arm length & distance between signal heads as specified on plans)
Pedestrain Signal Head
Type A Pullbox
Type B Pullbox
Type C Pullbox
Loop Detectors



*To be determined by County Electrical Inspector/Engineer

CONDUIT BY-PASS DETAIL

Not to Scale

DATE	REVISION
7/30/98	Revised Traffic Signal Note 20 per Addendum No. 1.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL LEGEND AND NOTES

FARRINGTON HIGHWAY SIDEWALKS
Leoole Street to Awanui Street &
Leoku Street to Paiwa Street
Project No. 7101-02-97

Date: March, 1998

SHEET No. T8 OF 21 SHEETS

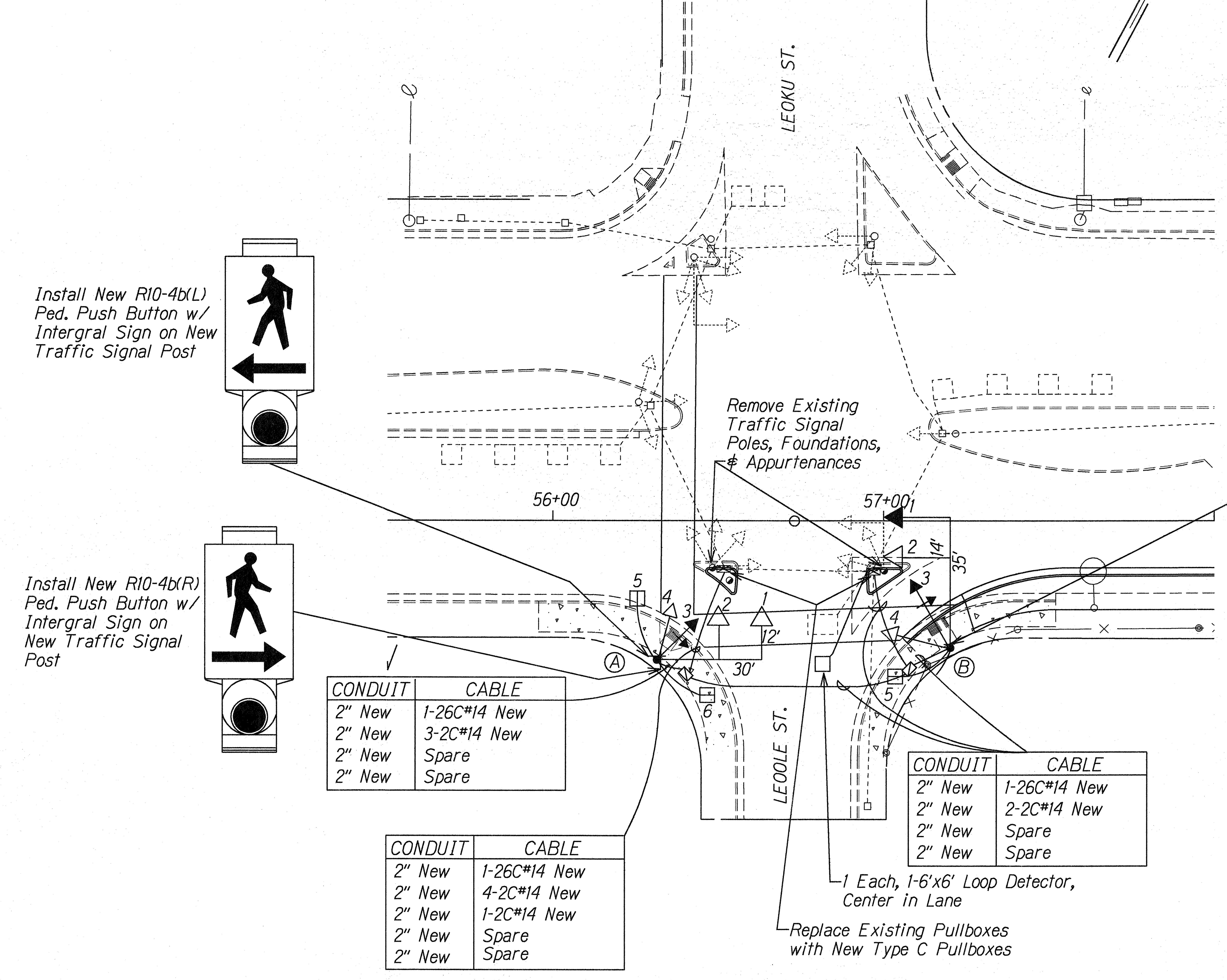
ORIGINAL PLAN | NOTE BOOK | SURVEY PLOTTED BY | DRAWN BY M. Takafuji | TRACED BY | DESIGNED BY Steven Yoshida | QUANTITIES BY | CHECKED BY | DATE

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101-02-97	1998	C.O. 90	102

TRAFFIC SIGNAL LEGEND

(A) Install New Type II Traffic Signal Standard with 30' Mast Arm, Signal Heads, and Type C Pullbox.

(B) Install New Type II Traffic Signal Standard with 35' Mast Arm, Signal Heads, and Type C Pullbox.



CONDUIT	CABLE
2" New	1-26C#14 New
2" New	3-2C#14 New
2" New	Spare
2" New	Spare

CONDUIT	CABLE
2" New	1-26C#14 New
2" New	4-2C#14 New
2" New	1-2C#14 New
2" New	Spare
2" New	Spare

CONDUIT	CABLE
2" New	1-26C#14 New
2" New	2-2C#14 New
2" New	Spare
2" New	Spare

TRAFFIC SIGNAL HEAD SCHEDULE

Traffic Signal Head Type and Description	12" RYG Traffic Signal Head	12" RY↑ Traffic Signal Head	12" RY← Traffic Signal Head	Pedestrian Signal Head
Pole Letter Signal Head Number	A-1 (New) A-2 (New) A-4 (New) B-2 (New) B-4 (New)	B-1 (New)	A-3 (New) B-3 (New)	A-5 (New) A-6 (New) B-5 (New)

* With Programmed Visibility

DATE	REVISION
1/21/00	Replace exist. Loop Detector with new Loop Detector at new location
7/27/99	Relocate new Type II Signal Standard with 30' Mast Arm. Revise Pedestrian Push Buttons.
7/14/98	Replace new 12" RYG Traffic Signal Head w/new 12" RY← Traffic Signal Head

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL & LIGHTING PLAN

FARRINGTON HIGHWAY SIDEWALKS
Leoole Street to Awanui Street &
Leoku Street to Paiwa Street
Project No. 7101-02-97

Scale: 1"=20' Date: March, 1998

SHEET No. T9 OF 21 SHEETS

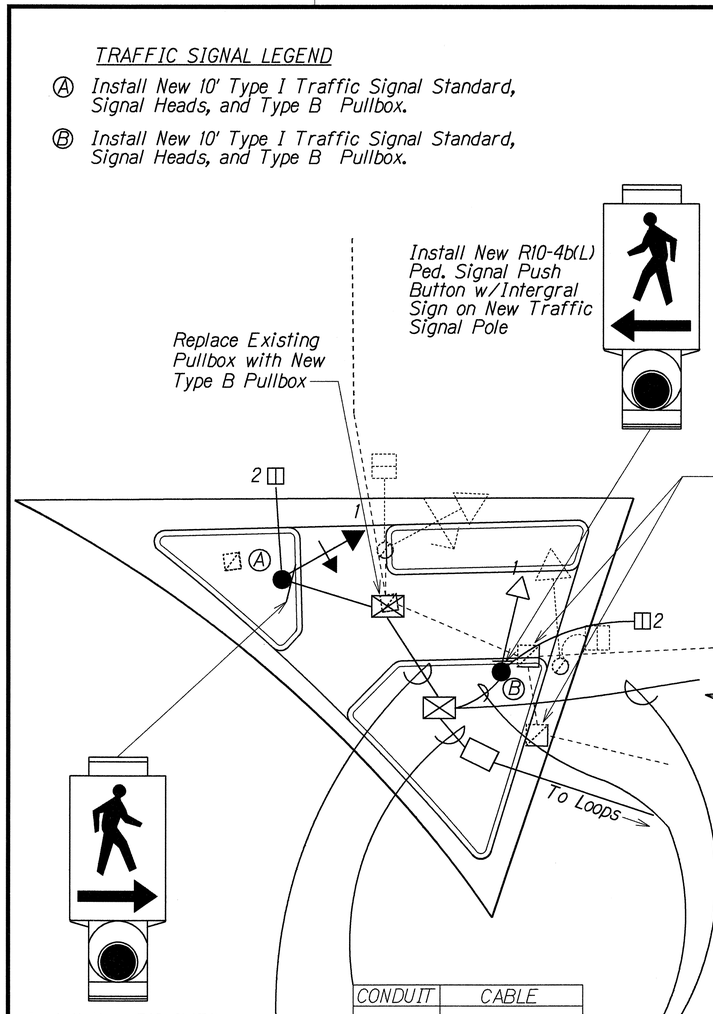
ORIGINAL PLAN
NOTE BOOK totmay dfartspl
SURVEY PLOTTED BY
DRAWN BY M. Takafuji
TRACED BY
DESIGNED BY Steven Yoshida
QUANTITIES BY
CHECKED BY
DATE

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101-02-97	1998	91	102

TRAFFIC SIGNAL LEGEND

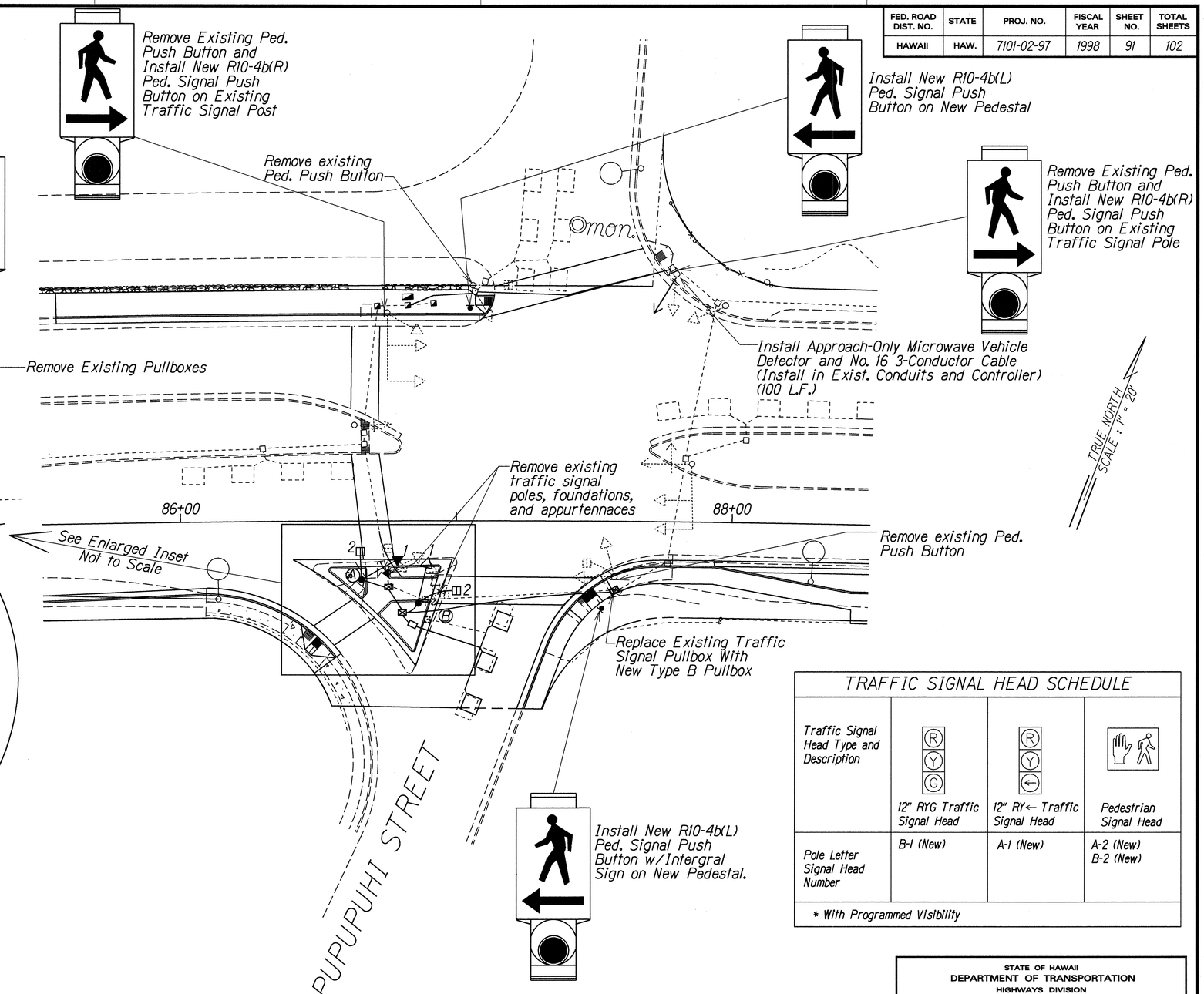
Ⓐ Install New 10' Type I Traffic Signal Standard, Signal Heads, and Type B Pullbox.

Ⓑ Install New 10' Type I Traffic Signal Standard, Signal Heads, and Type B Pullbox.



CONDUIT	CABLE
2" New	1-2C#14 New

CONDUIT	CABLE
2" New	1-26c#14 New
2" New	2-2C#14 New
2" New	Spare



TRUE NORTH
SCALE : 1" = 20'

TRAFFIC SIGNAL HEAD SCHEDULE			
Traffic Signal Head Type and Description	12" RYG Traffic Signal Head	12" RY← Traffic Signal Head	Pedestrian Signal Head
Pole Letter Signal Head Number	B-1 (New)	A-1 (New)	A-2 (New) B-2 (New)

* With Programmed Visibility

ORIGINAL PLAN

SHEET PLOTTED BY
DRAWN BY M. Takaki
TRACED BY
DESIGNED BY Steven Yoshida
QUANTITIES BY
CHECKED BY
DATE

NOTE BOOK
N:\farr99

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN

FARRINGTON HIGHWAY SIDEWALKS
Leoole Street to Awanui Street &
Leoku Street to Paiwa Street
Project No. 7101-02-97

Scale: 1"=20' Date: March, 1998

SHEET No. T10 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101-02-97	1998	C.O. 92	102

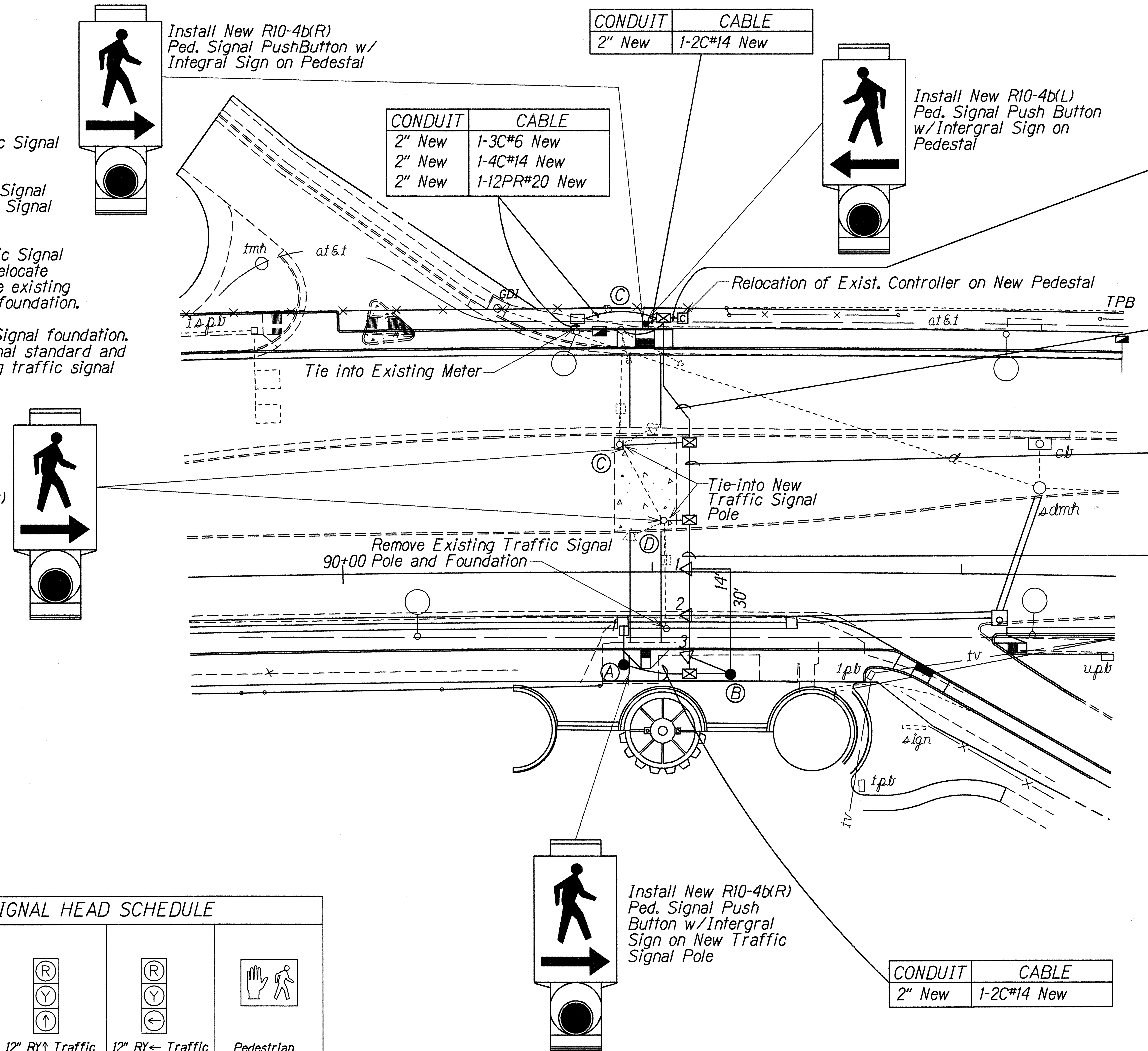
TRAFFIC SIGNAL LEGEND

(A) Install New 8' Type I Traffic Signal Standard and Signal Head.

(B) Install New Type II Traffic Signal Standard with 30' Mast Arm, Signal Heads, and Type B Pullbox.

(C) Install New 10' Type I Traffic Signal Standard and foundation. Relocate existing signal head. Remove existing traffic signal standard and foundation.

(D) Install New Type I Traffic Signal foundation. Relocate existing traffic signal standard and signal head. Remove existing traffic signal foundation.



CONDUIT	CABLE
2" New	1-2C#14 New

CONDUIT	CABLE
2" New	1-3C#6 New
2" New	1-4C#14 New
2" New	1-12PR#20 New

CONDUIT	CABLE
2" New	1-26C#14 New
2" New	2-2C#14 New
2" New	1-3C#6 New
2" New	1-12PR#20 New

CONDUIT	CABLE
2" New	1-26C#14 New
2" New	2-2C#14 New

CONDUIT	CABLE
2" New	1-26C#14 New
2" New	1-2C#14 New
2" New	Spare

CONDUIT	CABLE
2" New	1-26C#14 New
2" New	1-2C#14 New
2" New	Spare

CONDUIT	CABLE
2" New	1-2C#14 New

Note: Final location of relocated Controller shall be approved by the Engineer. The Contractor shall assure controller cabinet doors are fully accessible prior to final installation.

TRAFFIC SIGNAL HEAD SCHEDULE

Traffic Signal Head Type and Description	12" RYG Traffic Signal Head	12" RY↑ Traffic Signal Head	12" RY← Traffic Signal Head	Pedestrian Signal Head
Pole Letter Signal Head Number	B-1 (New) B-2 (New) B-3 (New)	x x	x x	A-1 (New)

* With Programmed Visibility

DATE	REVISION
5/20/99	Add new conduits and cables. Install new Type I Standards and foundations.
4/5/99	Install new pullbox, conduit, and cables. Relocate existing controller.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN

FARRINGTON HIGHWAY SIDEWALKS
Leoole Street to Awanui Street &
Leoku Street to Paiwa Street
Project No. 7101-02-97

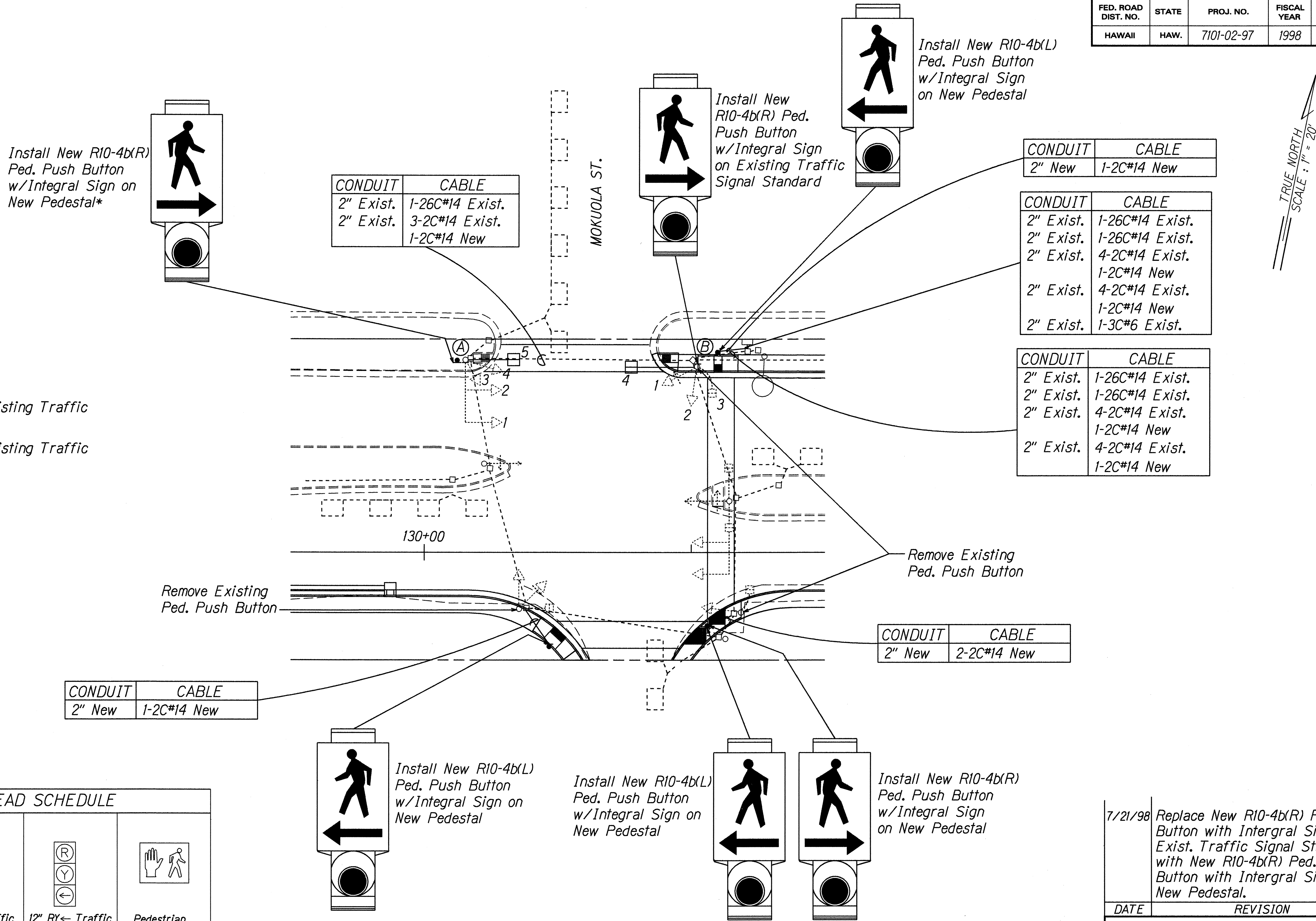
Scale: 1"=20' Date: March, 1998

SHEET No. T11 OF 21 SHEETS

C.O. 92

ORIGINAL PLAN — SURVEY PLOTTED BY / DRAWN BY M. Takafuji / TRACED BY / DESIGNED BY Steven Yoshida / QUANTITIES BY / CHECKED BY — DATE — NOTE BOOK tolmay N. dfartsp3

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101-02-97	1998	C.O. 93	102



TRAFFIC SIGNAL LEGEND

Ⓐ Install Signal Head on Existing Traffic Signal Pole.

Ⓑ Install Signal Head on Existing Traffic Signal Pole.

TRAFFIC SIGNAL HEAD SCHEDULE

Traffic Signal Head Type and Description	12" RYG Traffic Signal Head	12" RY↑ Traffic Signal Head	12" RY← Traffic Signal Head	Pedestrian Signal Head
Pole Letter Signal Head Number	A-1 (To Remain) A-2 (To Remain) A-3 (To Remain) A-4 (To Remain) B-2 (To Remain)	x x	B-1 (To Remain)	A-5 (New) B-3 (To Remain) B-4 (New)

* With Programmed Visibility

* The Contractor shall locate and utilize the existing traffic signal conduit stubout for the new Pedestrian Push Button with Intergral Sign on New Pedestal.

The Contractor shall install the new Pedestal on a portion of sidewalk which meets the maximum 2% cross slope.

DATE	REVISION
7/21/98	Replace New R10-4b(R) Ped. Push Button with Intergral Sign on Exist. Traffic Signal Standard with New R10-4b(R) Ped. Push Button with Intergral Sign on New Pedestal.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN

FARRINGTON HIGHWAY SIDEWALKS
Leoole Street to Awanui Street &
Leoku Street to Paiwa Street
Project No. 7101-02-97

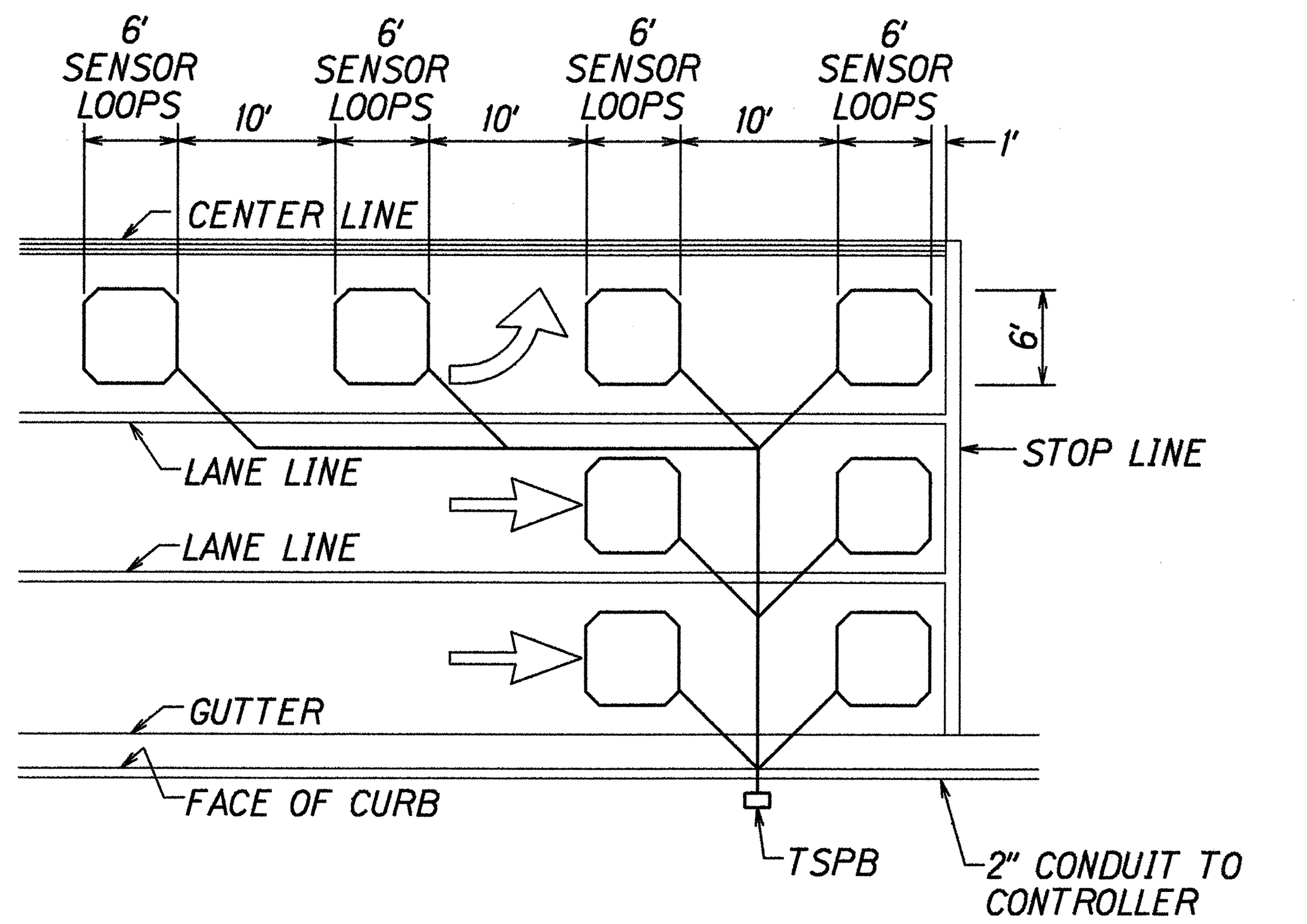
Scale: 1"=20' Date: March, 1998

SHEET No. T12 OF 21 SHEETS

C.O. 93

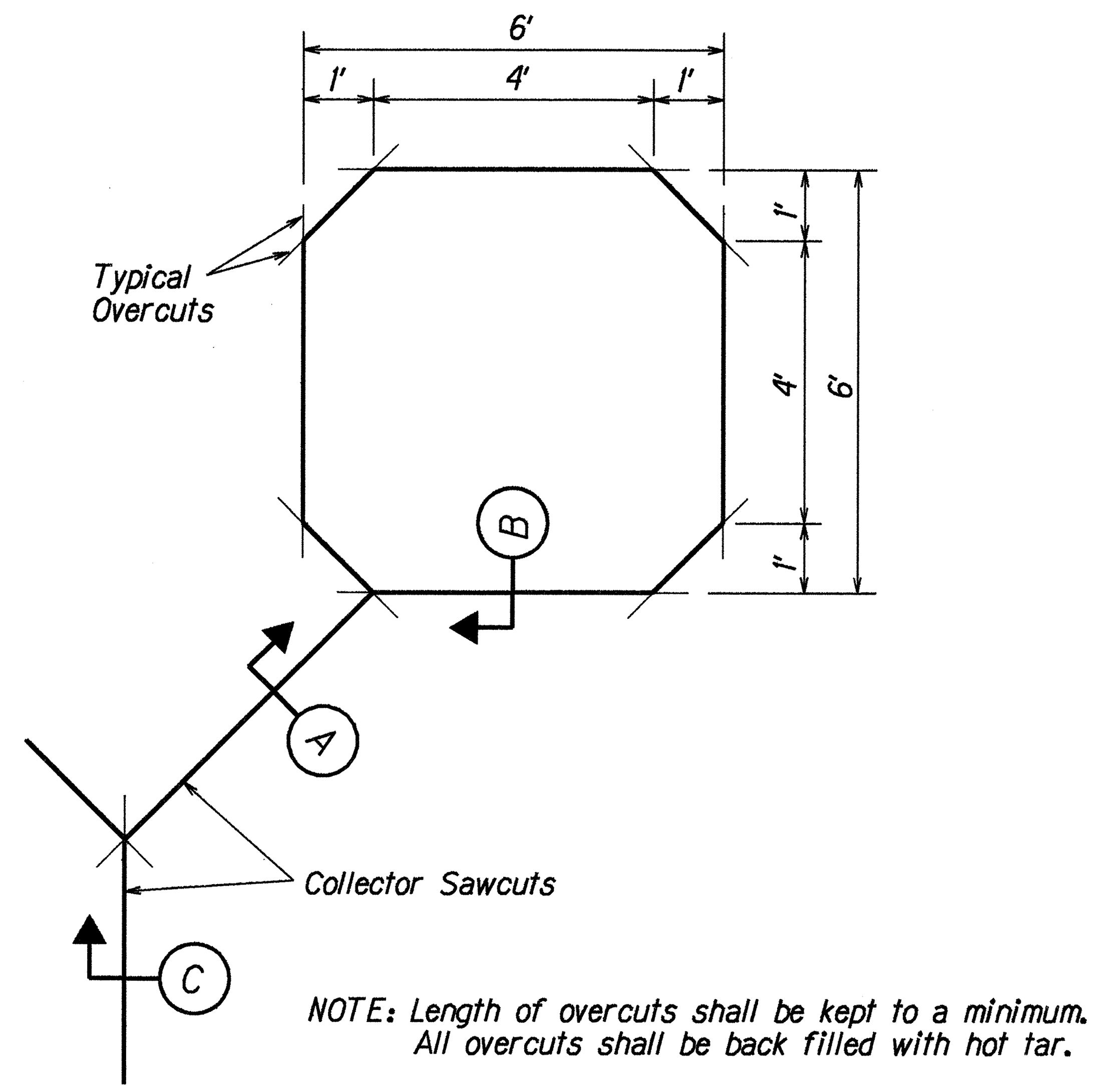
ORIGINAL PLAN | NOTE BOOK tol.may No. dfartsp4
SURVEY PLOTTED BY ___ DATE ___
DRAWN BY M. Takafuji X
TRACED BY
DESIGNED BY Steven Yoshida
QUANTITIES BY
CHECKED BY

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101-02-97	1998	94	102



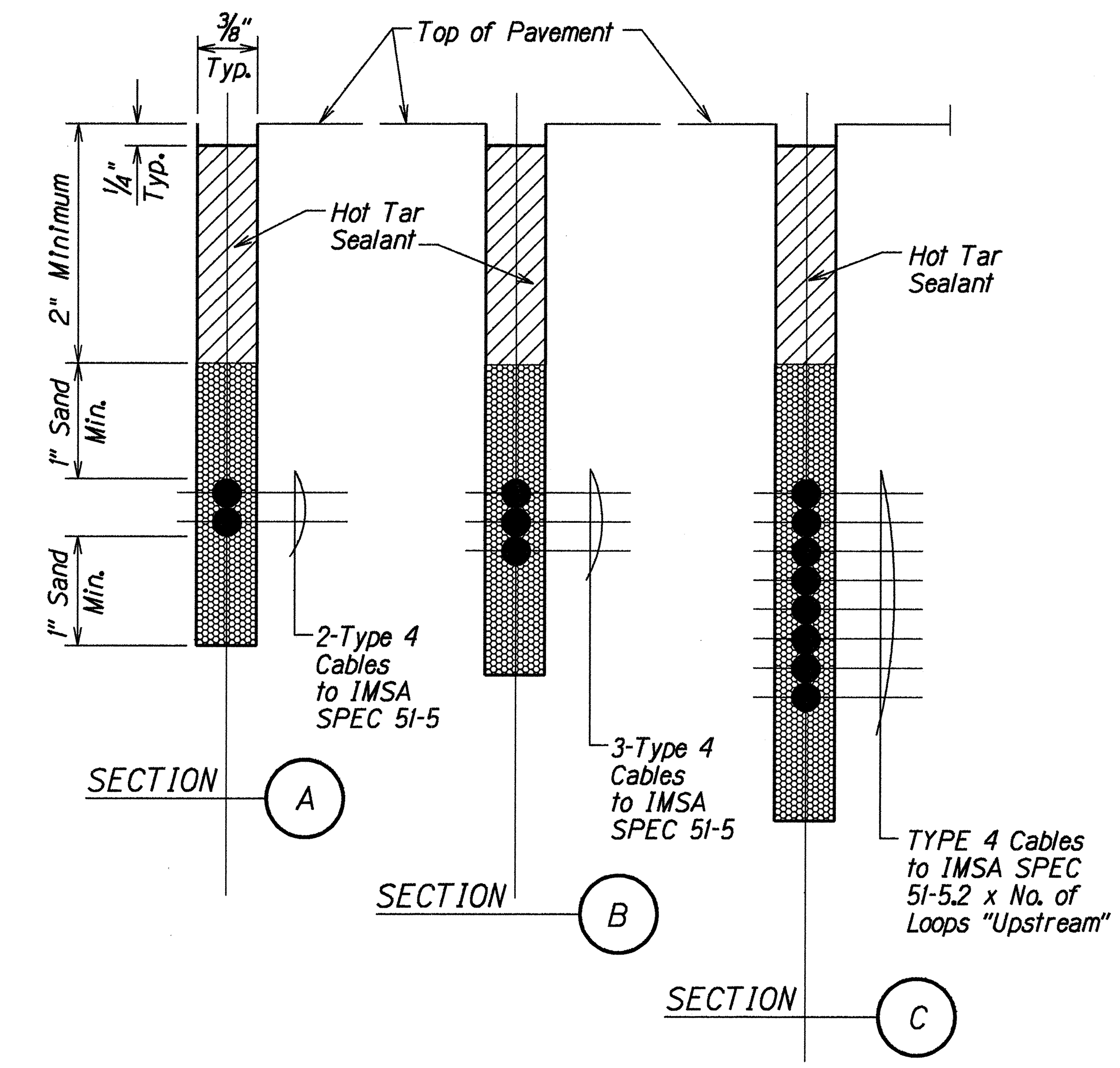
NOTES:
1. Center sensor loops in lanes.
2. Collector cables shall be twisted 2 turns per foot.
3. Number of loops and locations vary. See project plans.
4. Number and locations of collector sawcuts may be varied in the field to suit.

TYPICAL SENSOR LOOP LAYOUT

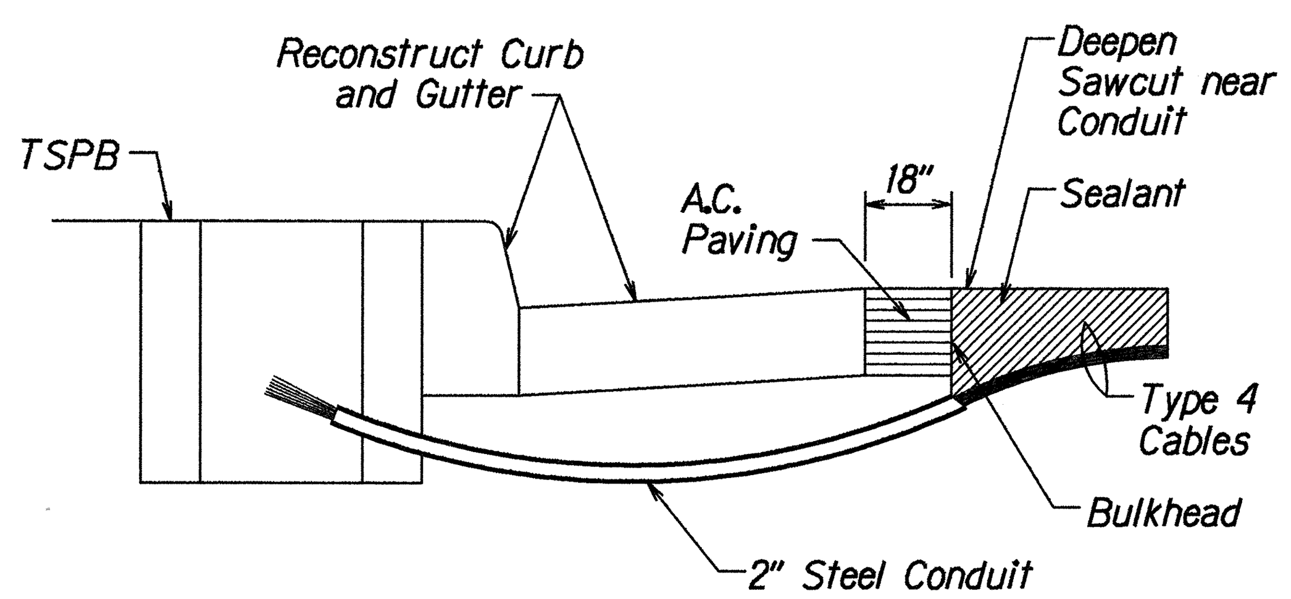


NOTE: Length of overcuts shall be kept to a minimum. All overcuts shall be back filled with hot tar.

TYPICAL SENSOR LOOP SAWCUT DETAIL



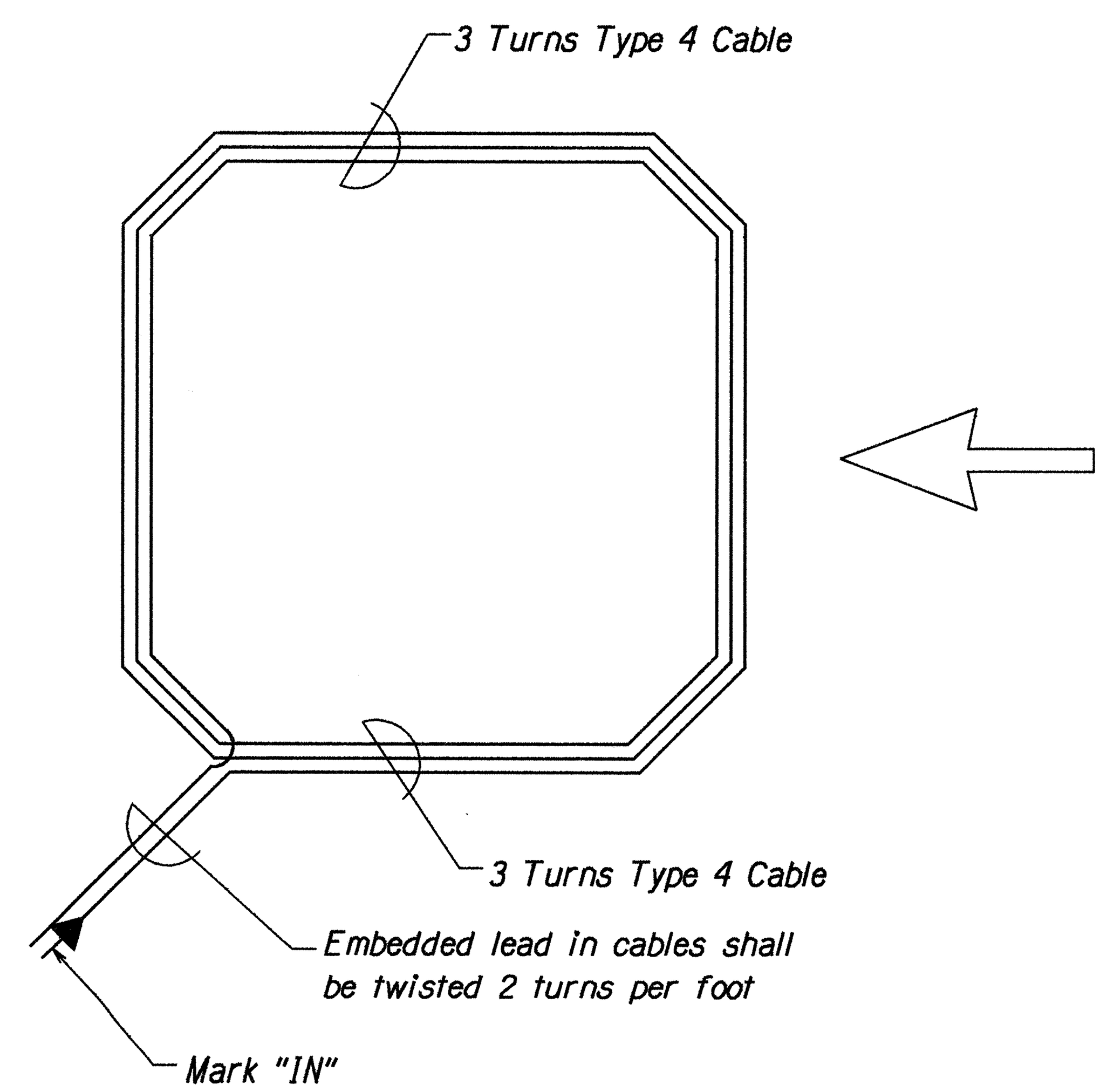
TYPICAL SECTION THROUGH SENSOR LOOP



NOTES ON CONSTRUCTION AT END OF SAWCUT

1. Seal roadway end of conduit after installation of conductors.
2. Install bulkhead across conduit trench.
3. Place hot tar in sawcut.
4. Backfill over conduit with new A.C.
5. Reconstruct curb and gutter as required.

DETAIL OF SENSOR LOOP INSTALLATION AT EDGE OF ROADWAY



TYPICAL SENSOR LOOP WIRING DIAGRAM

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

LOOP DETECTOR DETAILS

FARRINGTON HIGHWAY SIDEWALKS
Leoole Street to Awanui Street &
Leoku Street to Paiwa Street
Project No. 7101-02-97

Not to Scale Date: March, 1998

SHEET No. T13 OF 21 SHEETS

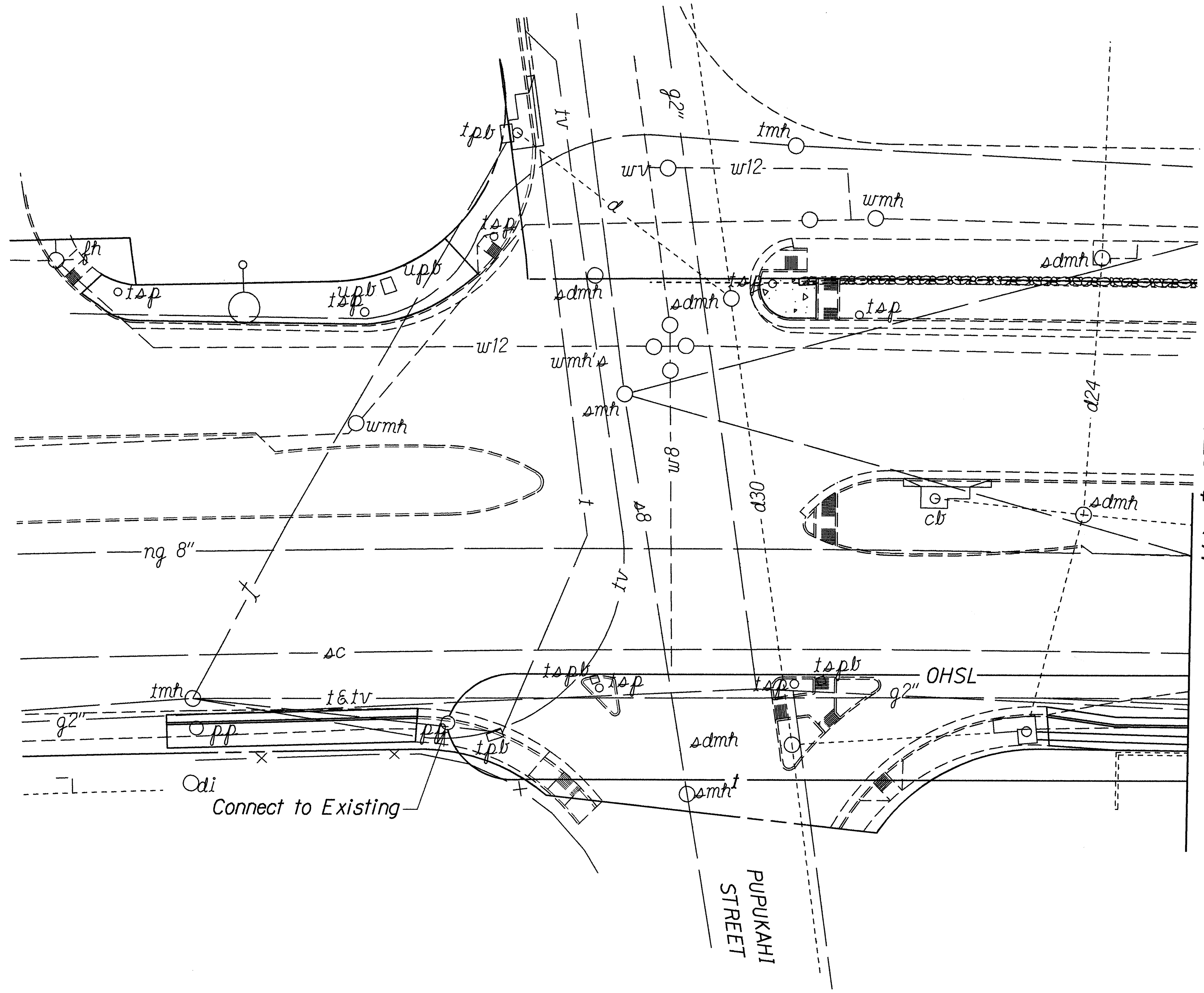
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101-02-97	1998	95	102

LEGEND

Symbol	Description
—— t ——	Existing overhead telephone line to be relocated by others (Contractor to coordinate work)
—— OHSL ——	New overhead street light line
—— UGSL ——	New underground street lighting circuit
○—○	Existing street light w/wood pole mast arm & luminaire to be removed
●—●	New highway light w/15'-0" mast arm, 250w HPS luminaire, and wood pole. For details, see Sheet No. T17 .
○—◒	New highway light w/15'-0" mast arm, 250W HPS luminaire, and breakaway transformer base. For details, see Sheet No. T18 .
■	Type A Pullbox — For details, see Sheet No. T21 . NOTE: Cover shall read "HWY LIGHTING"
□	Type B Pullbox

HIGHWAY LIGHTING NOTES

1. All luminaires to be 250 watt high pressure sodium.
2. Existing luminaires will not be removed or de-energized until it's replacement luminaire is placed in service.
3. Existing arms, luminaires, aerial cables and appurtenances shall be fully dismantled and stock piled as directed by the engineer. Existing pullboxes and pole footings or foundations shall be removed and be disposed of by the Contractor.
4. The location of overhead and underground facilities shown on the plans are from existing records with varying degrees of accuracy and are not guaranteed as shown.
5. The Contractor shall exercise extreme caution when the excavation and construction crosses or is in close proximity of underground telephone, signal cable facilities, water, sewer, and gas, and shall maintain a minimum 13'-0" clearance for his equipment while working close to and/or under overhead facilities. Any damages to the existing underground facilities shall be repaired and paid for by the Contractor.
6. The Contractor shall be liable for any damages to Hawaiian Electric Co. facilities and shall immediately report such damages to Hawaiian Electric Co.'s Trouble Dispatcher at 543-7864.
7. When trench excavation is adjacent of existing structures or facilities, the Contractor is responsible for properly sheeting and bracing the excavation and stabalizing the existing ground to render it safe and secure from possible slides, cave-ins, and settlement, and for properly supporting existing structures and facilities with beams, struts, or underpinning to fully protect it from damage.



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK tel.may N. dfarthipl	DRAWN BY M. Takafuji	
	TRACED BY	
	DESIGNED BY Steven Yoshida	
	QUANTITIES BY	
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

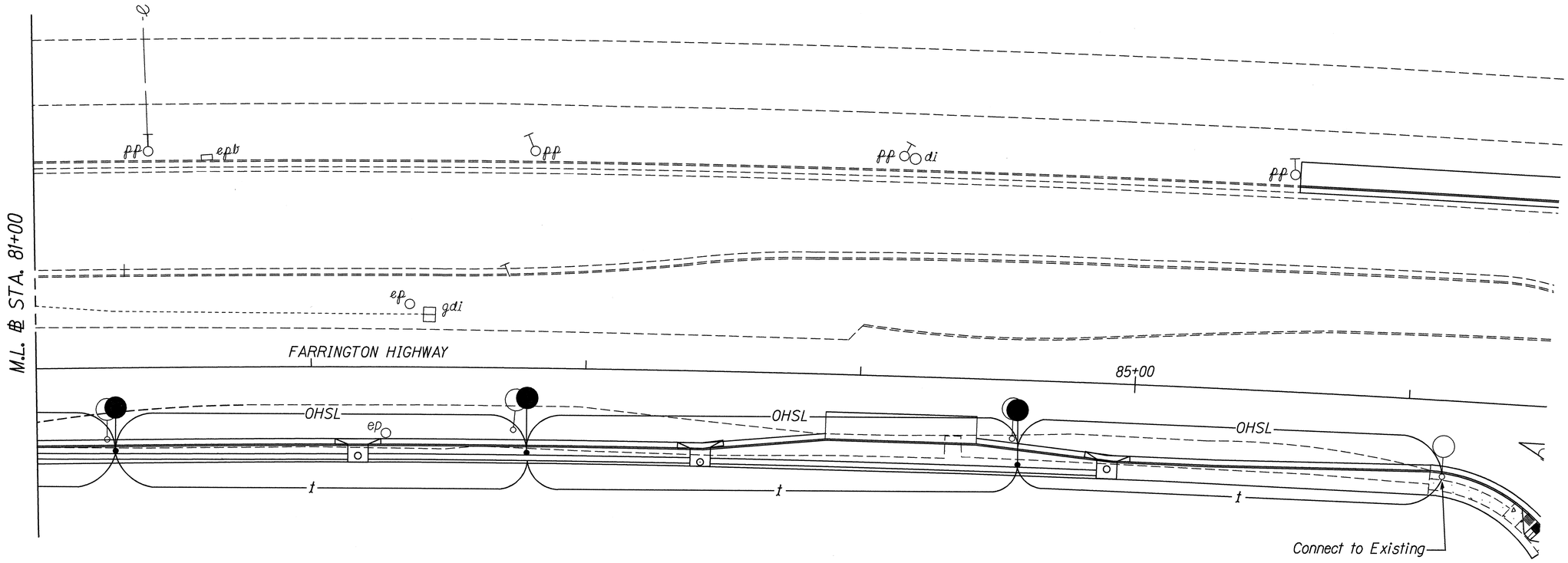
HIGHWAY LIGHTING PLAN

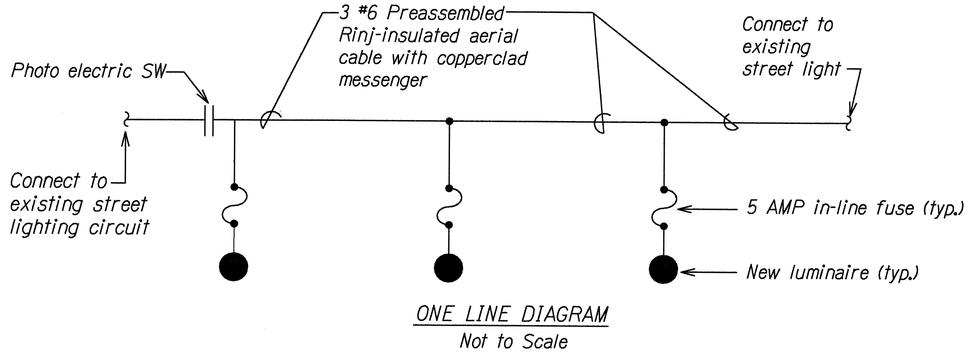
FARRINGTON HIGHWAY SIDEWALKS
Leoole Street to Awanui Street and
Leoku Street to Paiwa Street
Project No. 7101-02-97

Scale: 1"=20' Date: March, 1998

SHEET No. T14 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101-02-97	1998	96	102





ONE LINE DIAGRAM
Not to Scale

ORIGINAL PLAN
NOTE BOOK
SURVEY PLOTTED BY
DRAWN BY M. Takeuji
TRACED BY
DESIGNED BY Steven Yoshida
QUANTITIES BY
CHECKED BY
DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

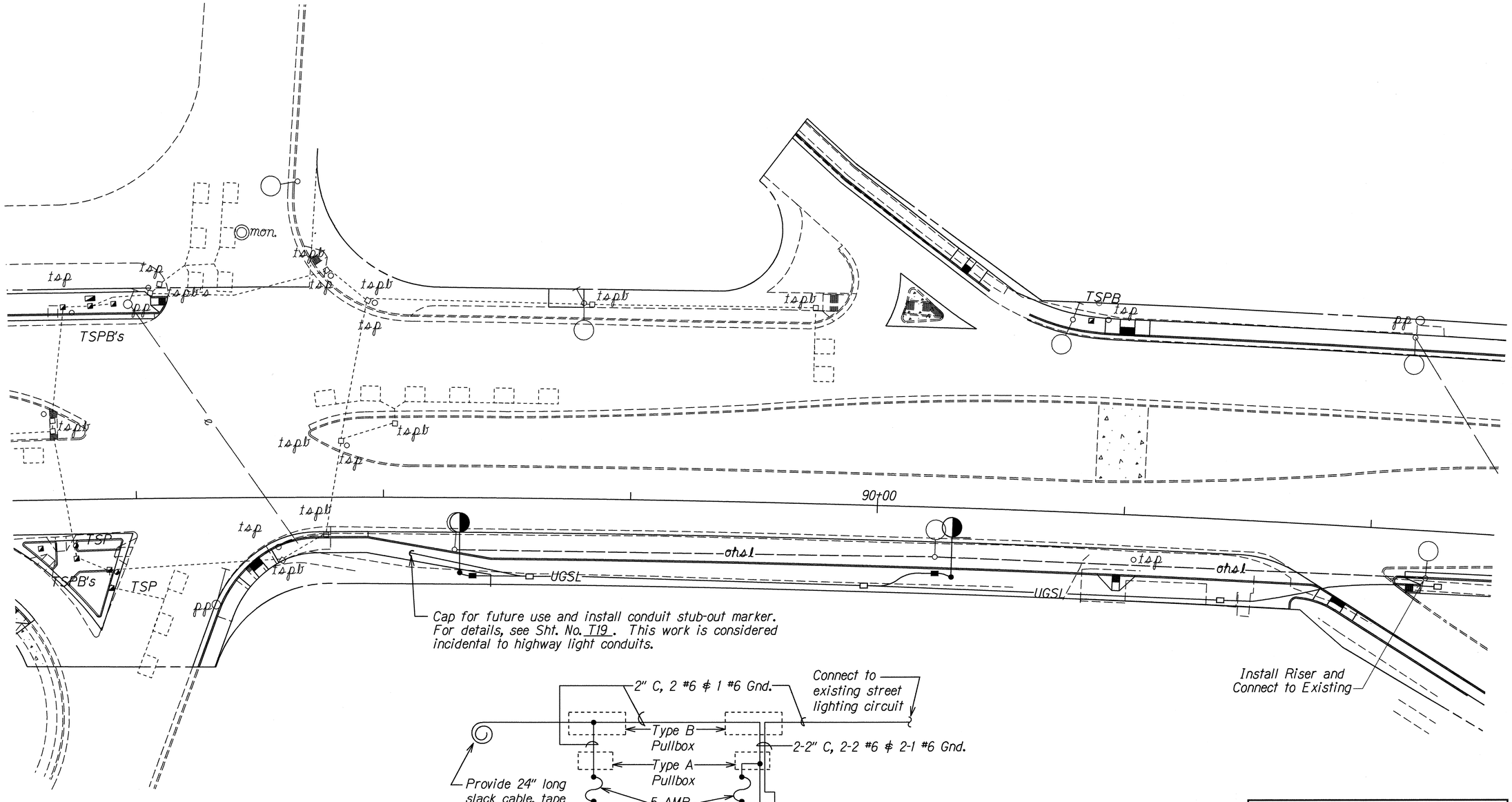
HIGHWAY LIGHTING PLAN

FARRINGTON HIGHWAY SIDEWALKS
Leoole Street to Awanui Street &
Leoku Street to Paiwa Street
Project No. 7101-02-97

Scale: 1"=20' Date: March, 1998

SHEET No. T15 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	X7101-02-97	1998	97	102



ONE LINE DIAGRAM
Not to Scale

ORIGINAL PLAN
SURVEY PLOTTED BY
DRAWN BY K. Kondo
TRACED BY
DESIGNED BY Steven Yoshida
QUANTITIES BY
CHECKED BY
DATE
NOTE BOOK
dfarthing

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

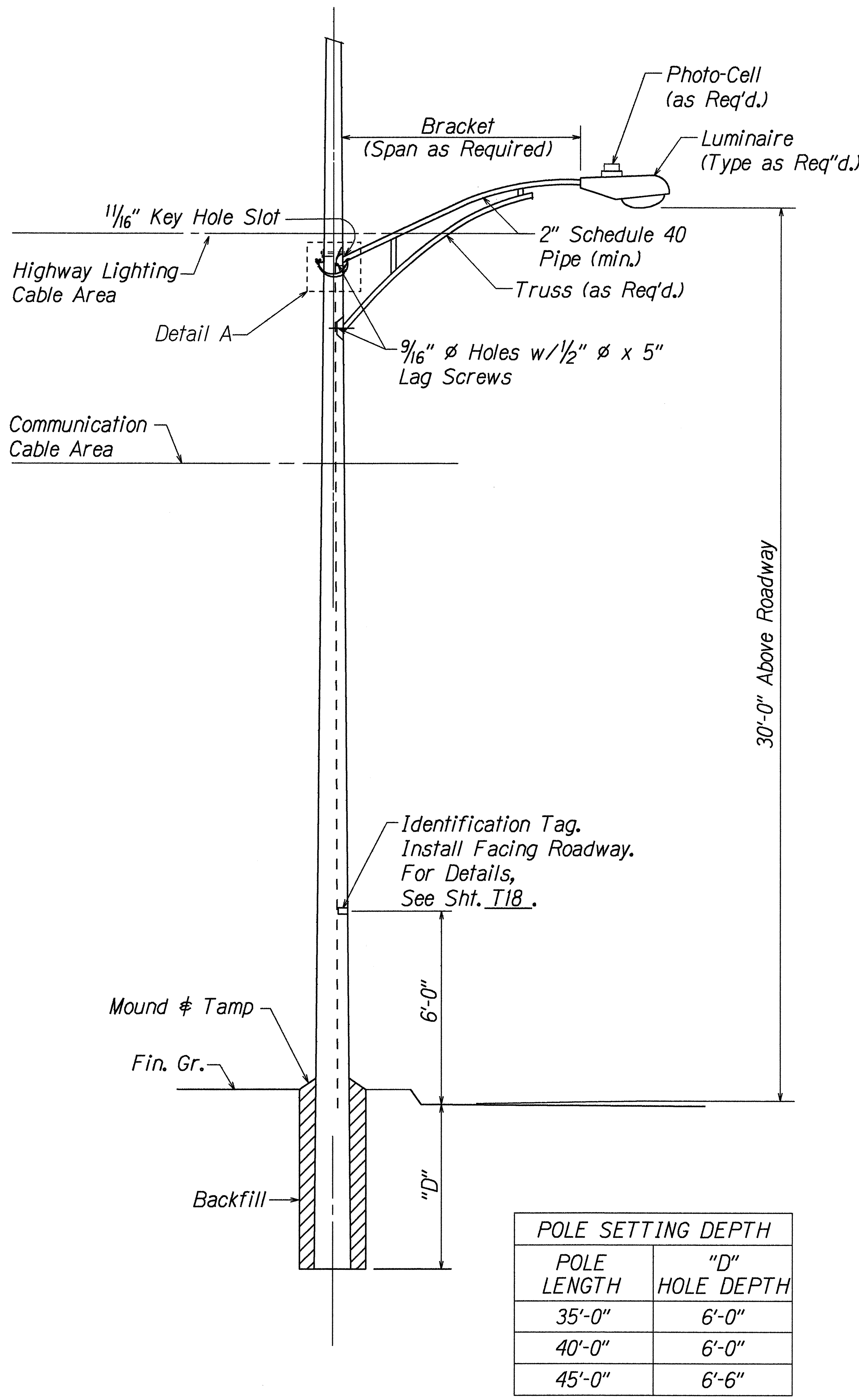
HIGHWAY LIGHTING PLAN

FARRINGTON HIGHWAY SIDEWALKS
Leoole Street to Awanui Street ⊄
Leoku Street to Paiwa Street
Project No. 7101-02-97

Scale: 1"=20' Date: March, 1998

SHEET No. T16 OF 21 SHEETS

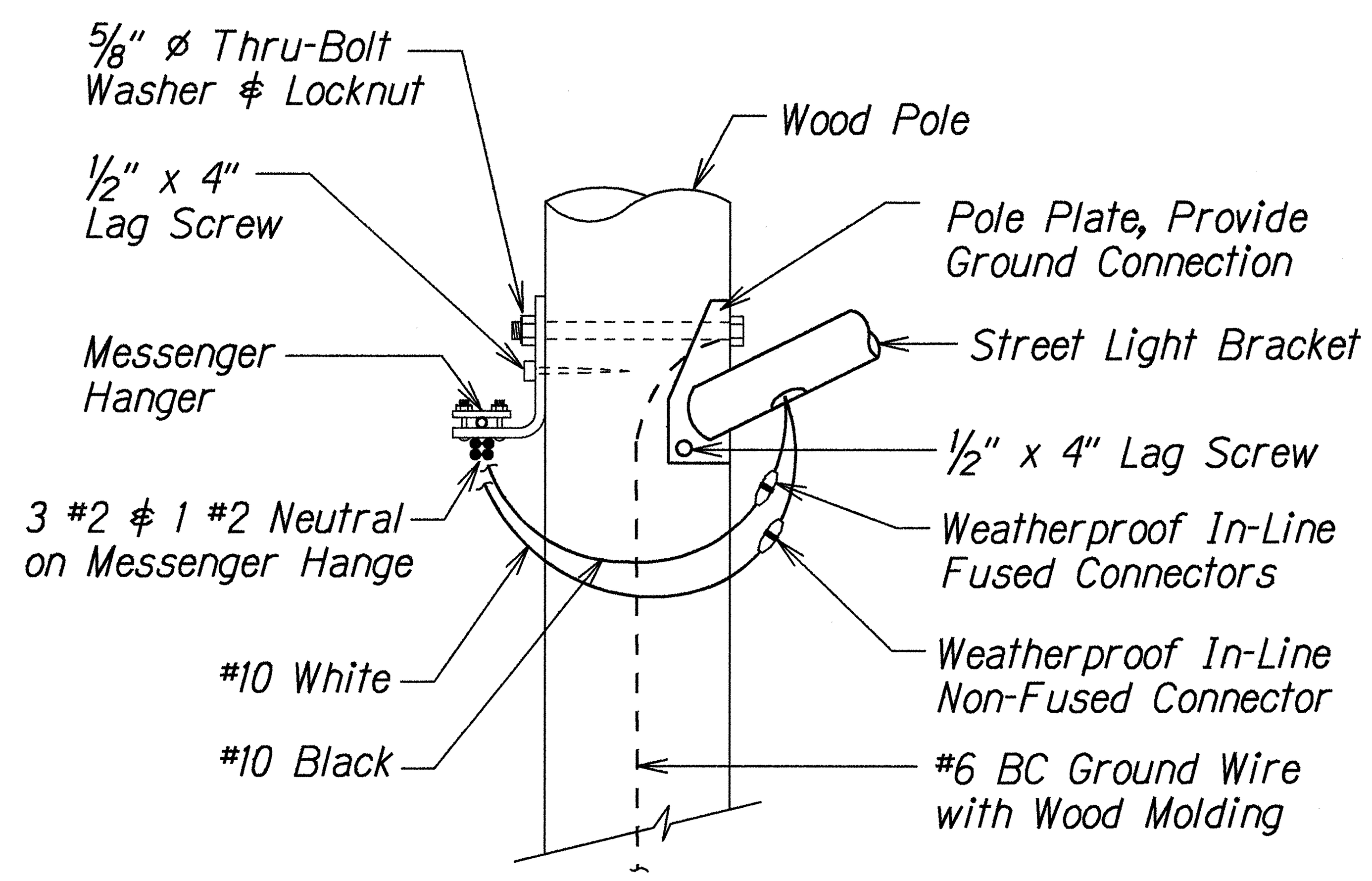
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101-02-97	1998	98	102



POLE SETTING DEPTH	
POLE LENGTH	"D" HOLE DEPTH
35'-0"	6'-0"
40'-0"	6'-0"
45'-0"	6'-6"

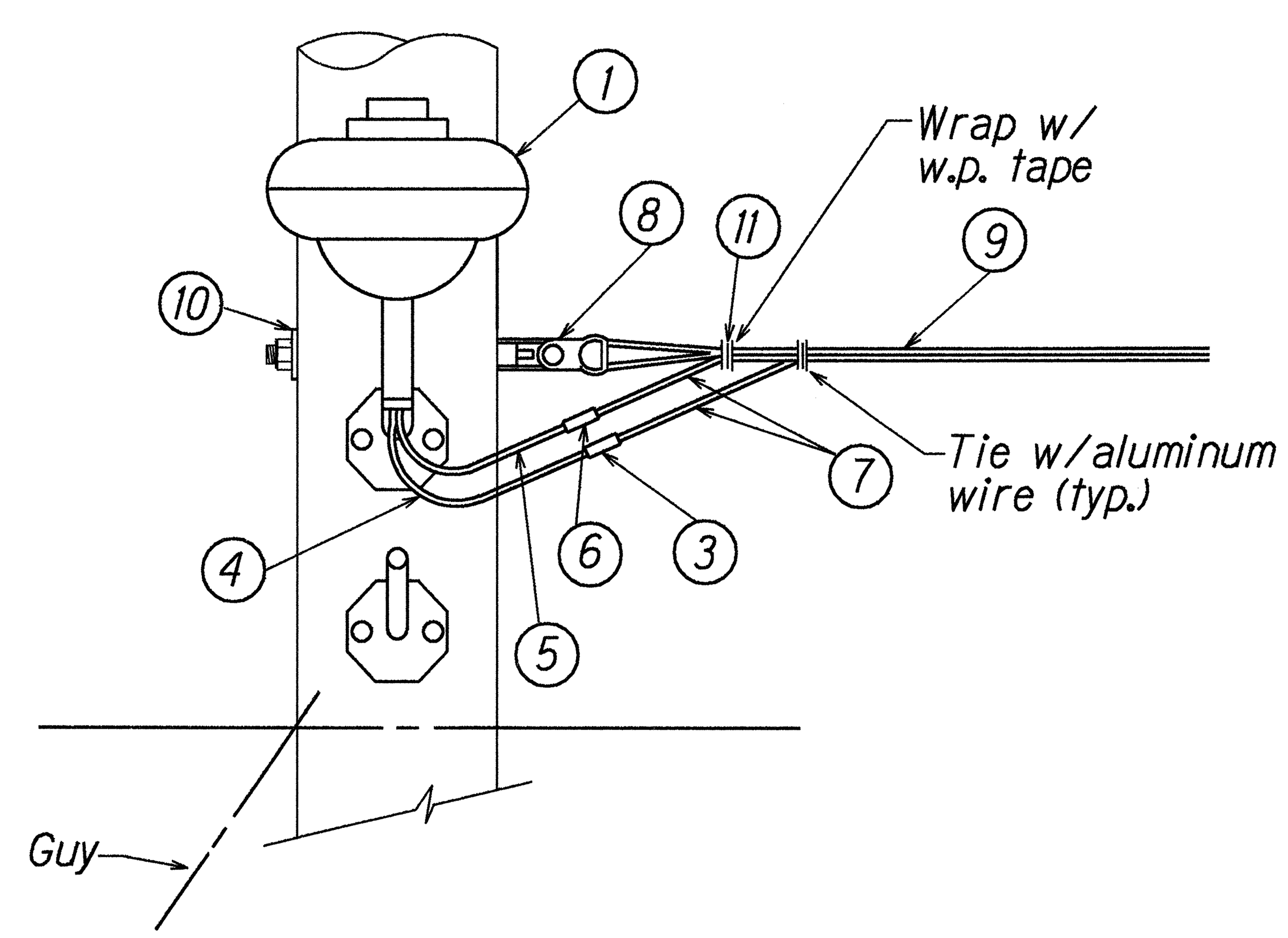
LUMINAIRE MOUNTED ON WOOD POLE

Not to Scale



DETAIL A

Not to Scale



DEADEND POLE DETAIL

Not to Scale

MATERIAL LIST

ITEM NO.	DESCRIPTION
1	Luminaire (Type as req'd. on plans) and Bracket (as req'd.) with Photo-Electric Control (as req'd.)
2	In Line Fuse Holder with 5A Fuse
3	Wire, #10 AWG Stranded Copper, Type RHW Black
4	Wire, #10 AWG Stranded Copper, Type RHW White
5	In Line Unfused, Insulated Separable Connector
6	Wire #8 AWG 7-Strand Aluminum, Type RHW
7	Thimble Clevis, Aluminum Alloy w/Aluminum Alloy Eyelet
8	Wires, 2-#1/0 Cross-Linked Polyethylene Aluminum w/#3/0 AAAC Neutral Messenger
9	Anchor guy book w/3/4"ø thru bolt & 2 1/4" sp. washer.
10	Alum. alloy preformed deadend.
11	Deadend spool & fork

NOTE:
All hardware, unless indicated as alum. or alum. alloy, shall be hot dipped galv. steel.

ORIGINAL PLAN	SURVEY PLOTTED BY / DRAWN BY M. Takafuji / TRACED BY / DESIGNED BY Steven Yoshida / QUANTITIES BY / CHECKED BY	DATE
NOTE BOOK	fd.may / n.dfarthld3	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

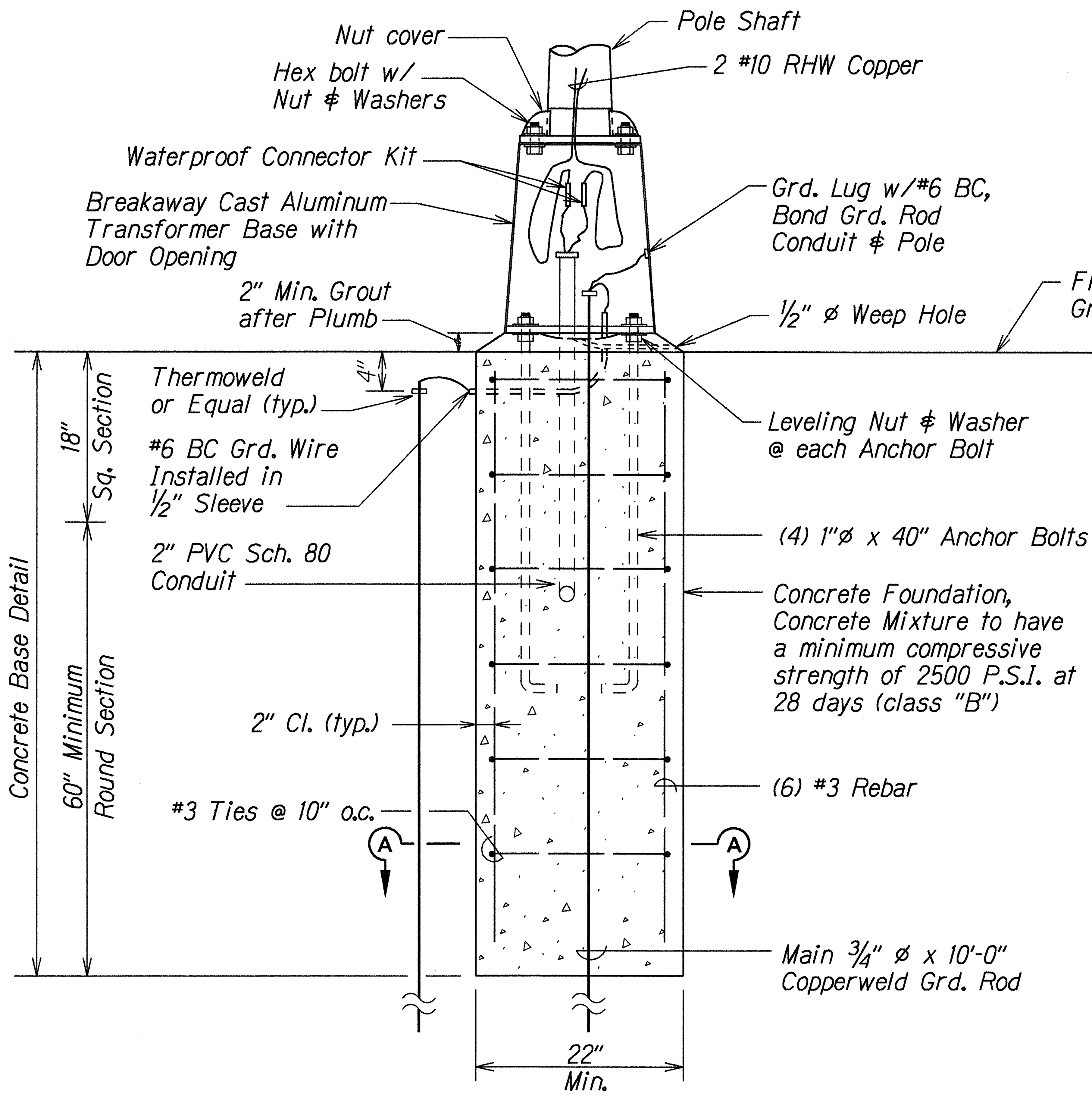
HIGHWAY LIGHTING DETAILS

FARRINGTON HIGHWAY SIDEWALKS
Leoole Street to Awanui Street &
Leoku Street to Paiwa Street
Project No. 7101-02-97

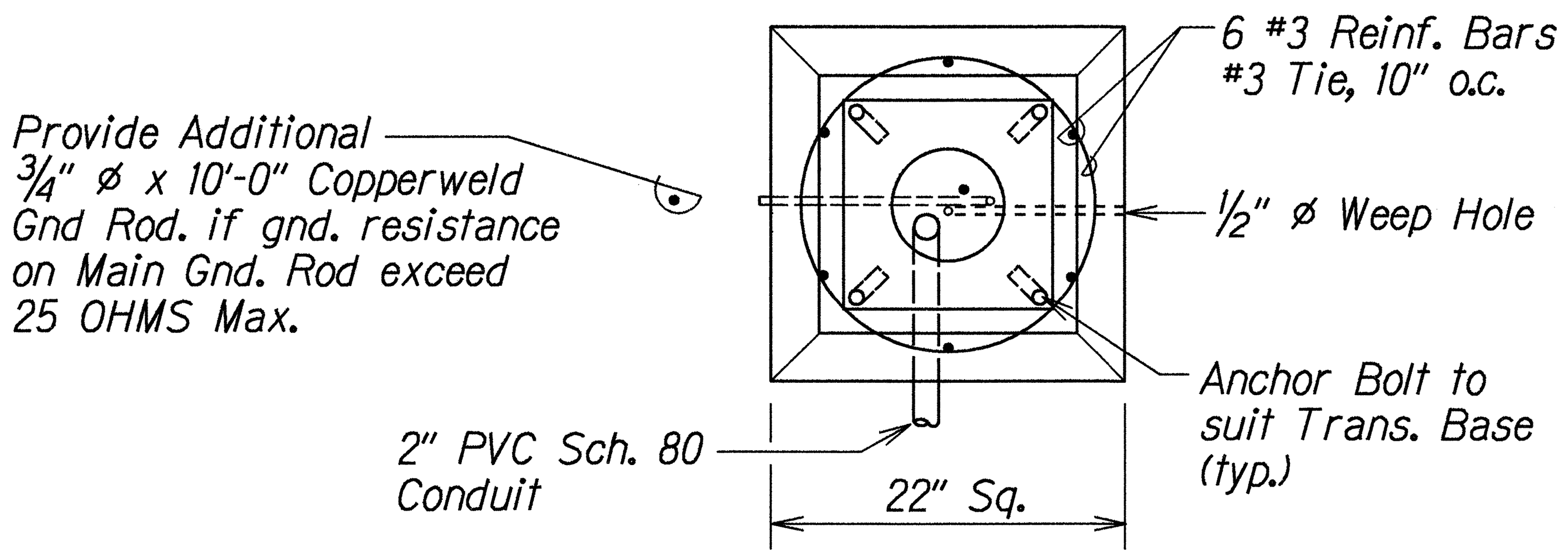
Scale: As Noted   Date: March, 1998

SHEET No. T17 OF 21 SHEETS

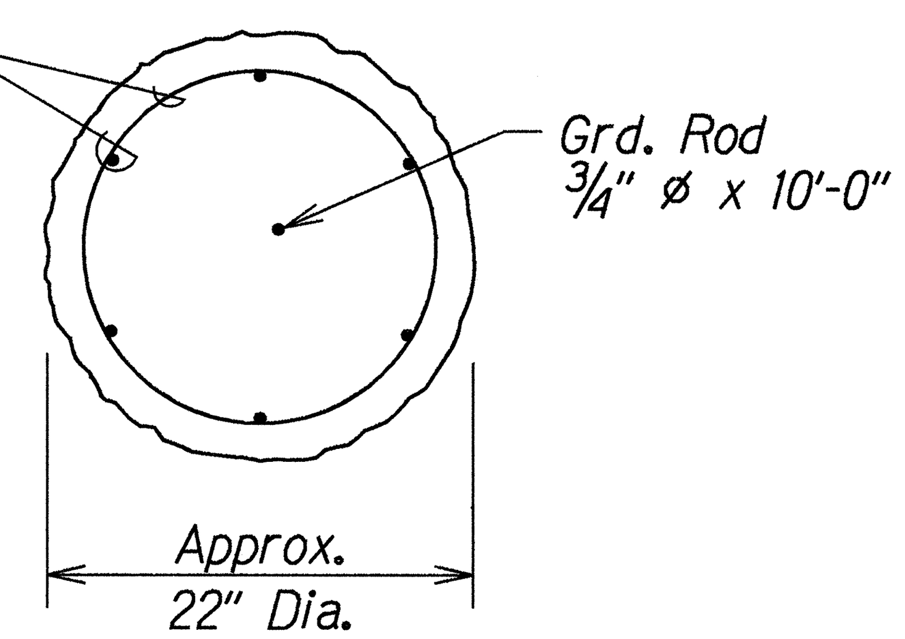
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101-02-97	1998	99	102



ELEVATION



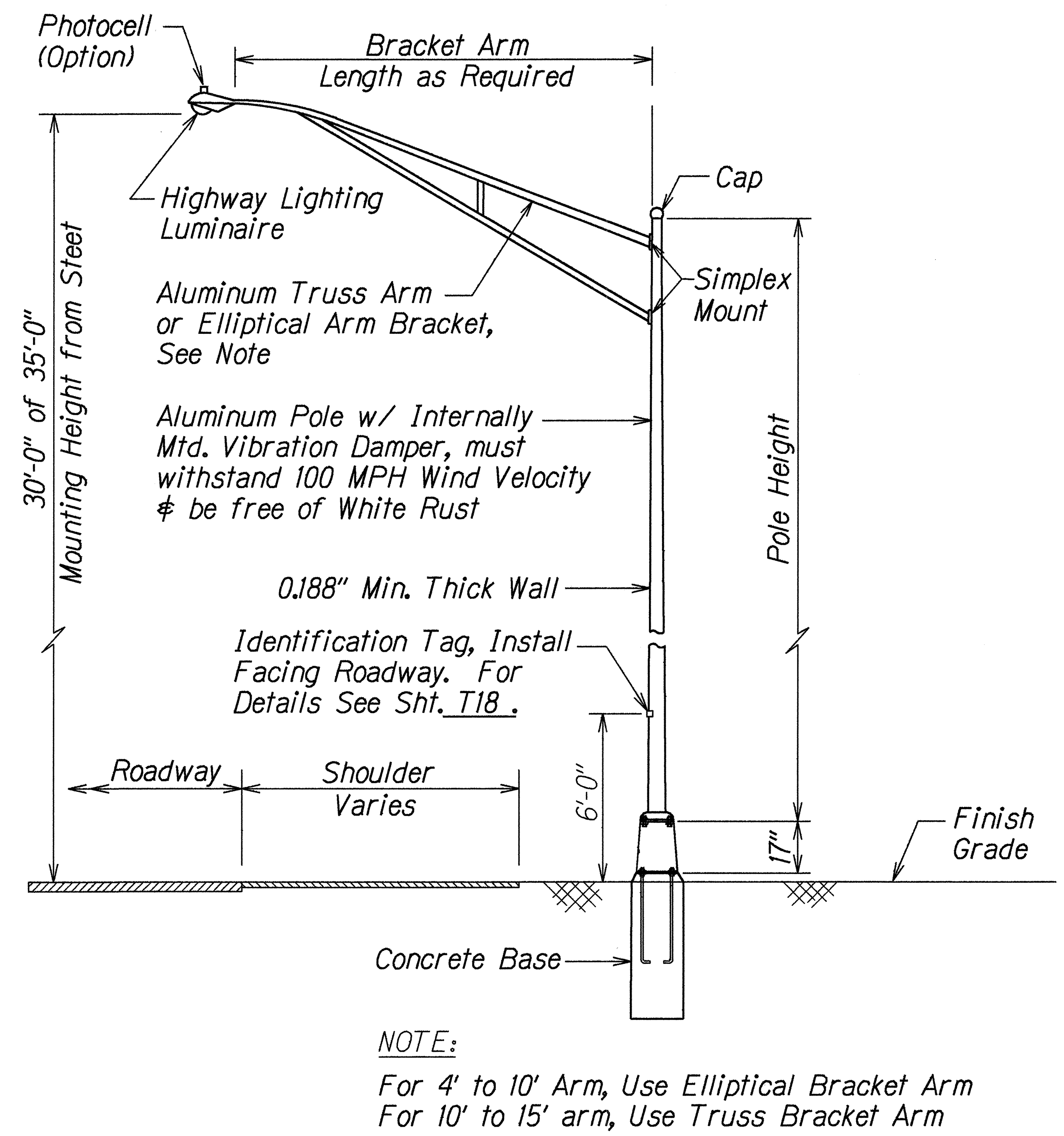
PLAN



SECTION A-A

TYPICAL CONCRETE FOUNDATION AND TRANSFORMER BASE DETAIL

Not to Scale

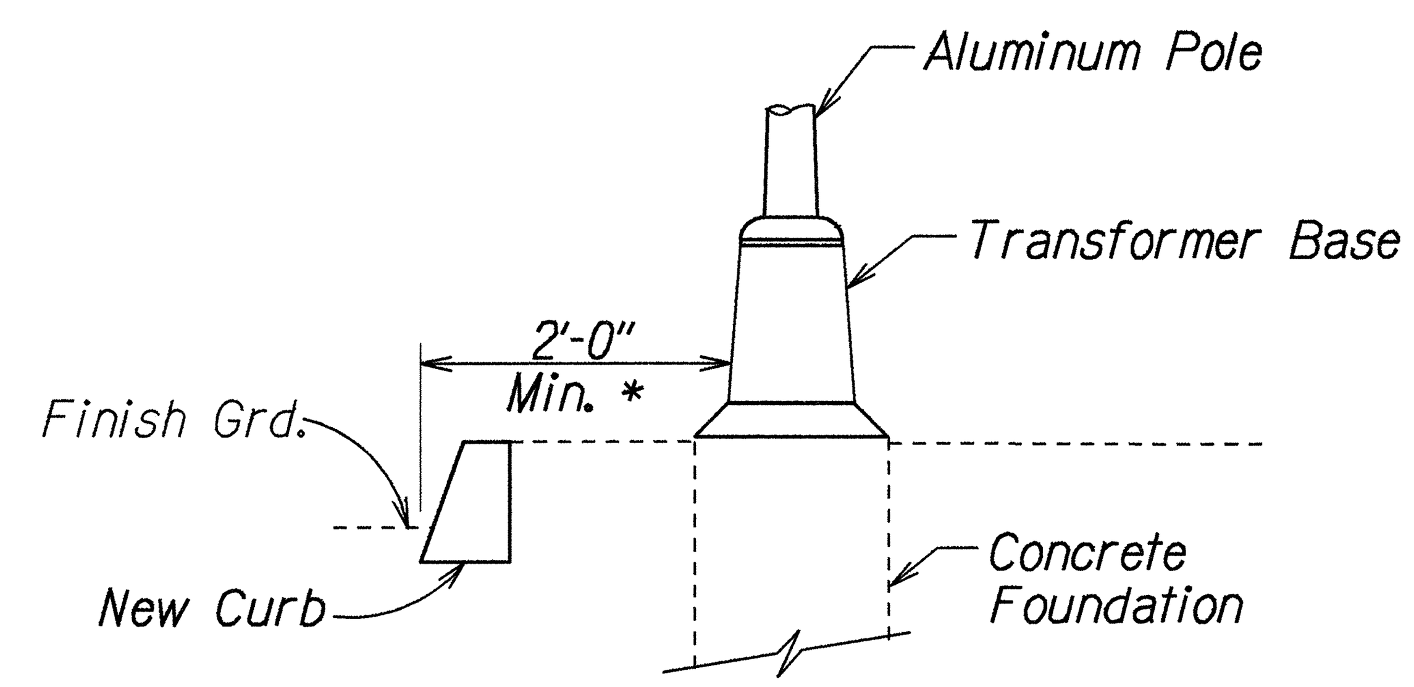


NOTE:

For 4' to 10' Arm, Use Elliptical Bracket Arm
For 10' to 15' arm, Use Truss Bracket Arm

TYPICAL LIGHT STANDARD INSTALLATION WITH TRANSFORMER BASE

Not to Scale



* - If 2'-0" min. can not be maintained due to conflict with other utilities, coordinate field adjustments with Engineer.

HIGHWAY LIGHTING DETAIL

Not to Scale

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING DETAILS

FARRINGTON HIGHWAY SIDEWALKS
Leoole Street to Awanui Street &
Leoku Street to Paiwa Street
Project No. 7101-02-97

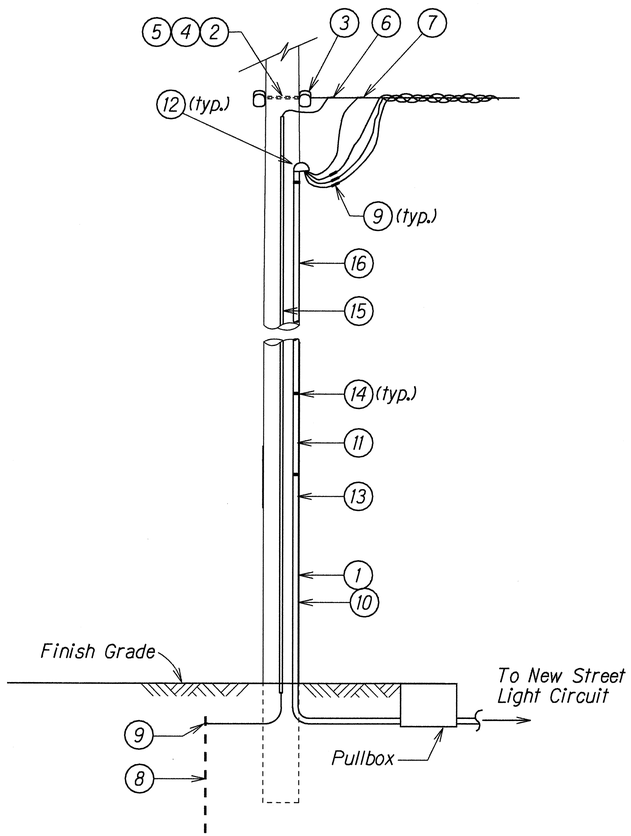
Not to Scale Date: March, 1998

SHEET No. T18 OF 21 SHEETS

ORIGINAL PLAN | NOTE BOOK tol.may No. dfarthld2 | SURVEY PLOTTED BY | DRAWN BY M. Takafuji | TRACED BY | DESIGNED BY Steven Yoshida | QUANTITIES BY | CHECKED BY | DATE

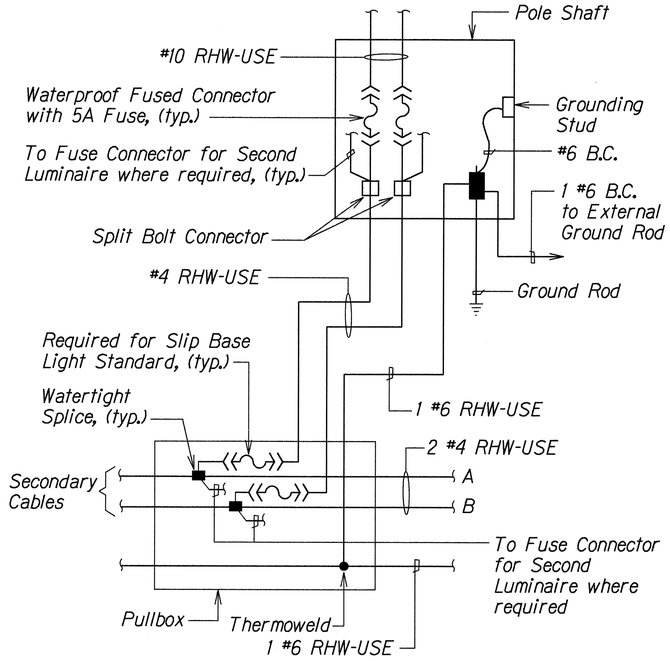
5/1/98

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101-02-97	1998	100	102



TYPICAL POLE RISER DETAIL

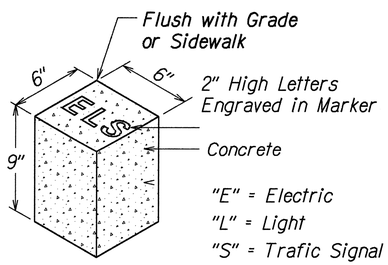
Not to Scale



WIRING CONNECTION DIAGRAM

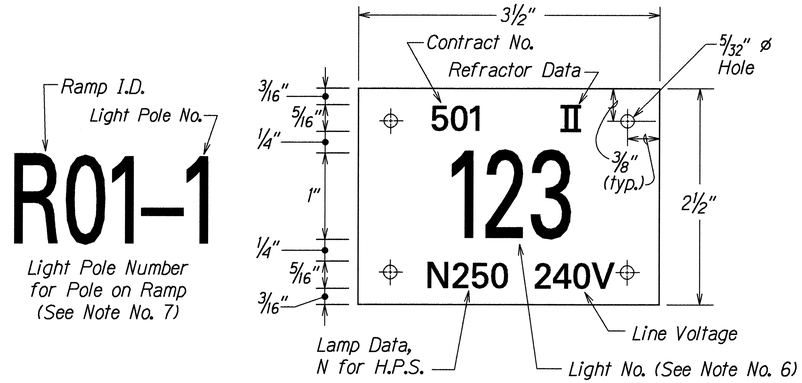
Not to Scale

LIST OF MATERIALS	
PART NO.	DESCRIPTION
1	Existing Utility Joint Wood Pole
2	Locknuts
3	Bracket, Insulated
4	Washer, Square, 2¼"
5	Bolt, Machine, ⅝" ø x Length as Required
6	Clamp, Loop Dead End
7	Connector, as Required
8	Ground Rod, ¾" ø x 8'-0", Copperclad Steel
9	Thermoweld Conncetion
10	#6 Ground Wire in Conduit, as Required
11	Conduit, Galvanized Rigid Steel, 1¼"
12	Weatherhead, Size as Required
13	Conduit LB Fitting, Galvanized
14	Conduit C-Clamp, Galvanized Steel
15	#6 Bare Copper Ground Wire, in Wood Molding
16	Conduit, Galvanized Rigid Steel, 2"



CONDUIT STUB-OUT MARKER

Not to Scale



NOTES:

1. Use 3 Ply Laminated Flexible Plastic Black-White-Black Thickness:
   0.010" - Black Cap Sheet
   0.052" - White Base Sheet
   0.010" - Black Base Sheet
2. Light Number Size shall be 1-inch high and engraved ⅛" wide, White in color (Number as required).
3. Nomenclature Size shall be 5/16" high and engraved 1/32" wide, White in color (Contract No., Line Voltage, Lamp Data and Refractor Data as required).
4. Attach to Aluminum and Steel Poles with no. 8 Stainless Steel, ½" long Drive Screws in ⅛" drilled hole. Attach to Wood Pole with 4D Aluminum Nails.
5. Numbers are inscribed by cutting through "Black Cap Sheet" to expose "White Letters".
6. Contract Number and Light Number shall be obtained from the State. Use an alphabet suffix to designate lights mounted on the same pole (e.g. 123A & 123B).
7. For Light Poles installed on Ramp, assign Numbers to include Ramp I.D. and Light Number. Legend may be less that one inch in height.

HIGHWAY LIGHT POLE TAG DETAIL
UNMETERED SYSTEM

Not to Scale

ORIGINAL PLAN
NOTE BOOK
SURVEY PLOTTED BY
DRAWN BY M. Takafuji
TRACED BY
DESIGNED BY Steven Yoshida
QUANTITIES BY
CHECKED BY
DATE X

5/1/98

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING DETAIL

FARRINGTON HIGHWAY SIDEWALKS
Leoole Street to Awanui Street &
Leoku Street to Paiwa Street
Project No. 7101-02-97

Scale: As Noted Date: March, 1998

SHEET No. T19 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101-02-97	1998	101	102

STATE RIGHT-OF-WAY BACKFILL NOTES

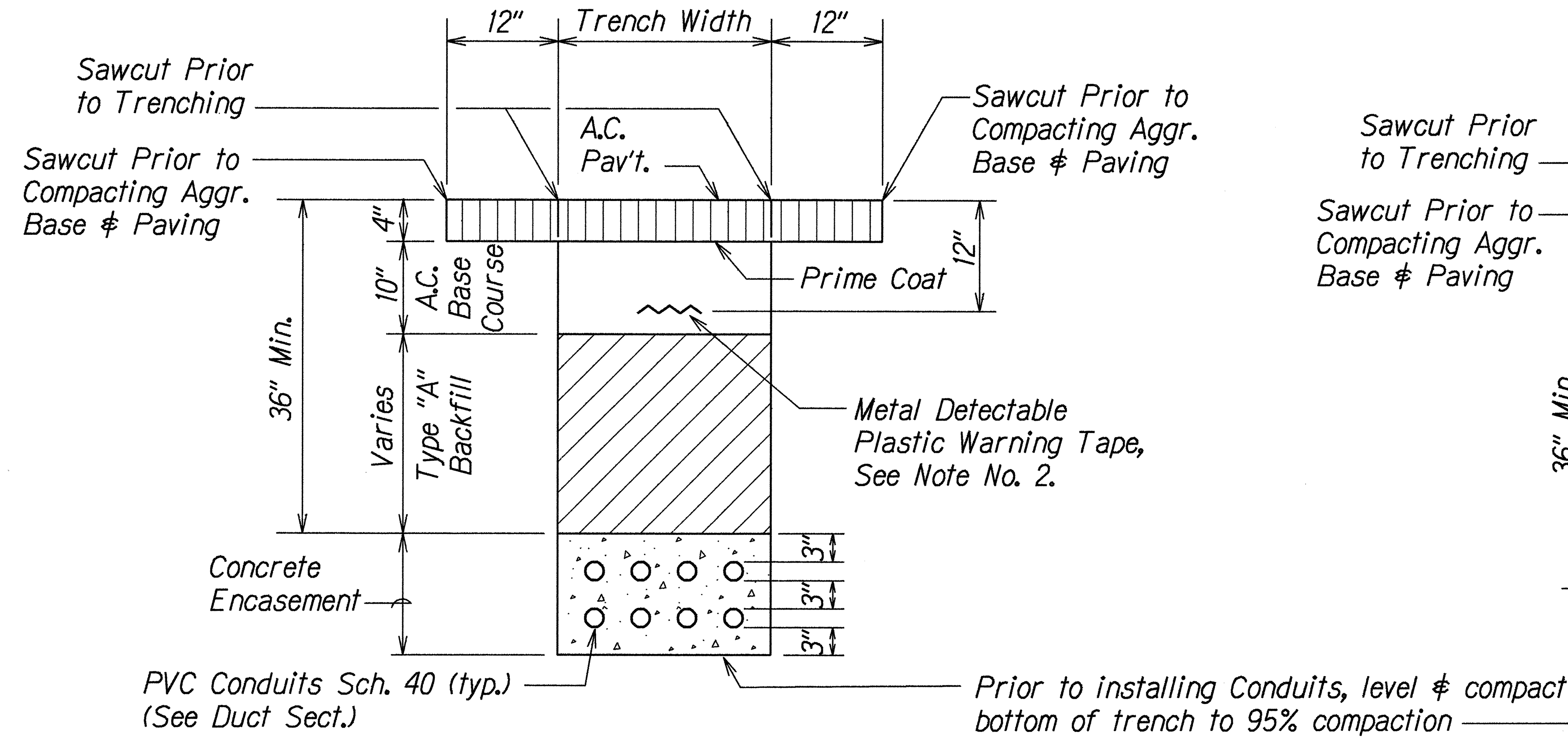
Trench Backfill Material "A"
Beach Sand, Earth, or Earth and Gravel. If Earth and Gravel used, the maximum shall contain not more than 50% by volume of rock particles. Maximum 8" loose fill per lift. Obtain 95% compaction for each lift.

Concrete
3000 psi compressive strength @ 3 days.

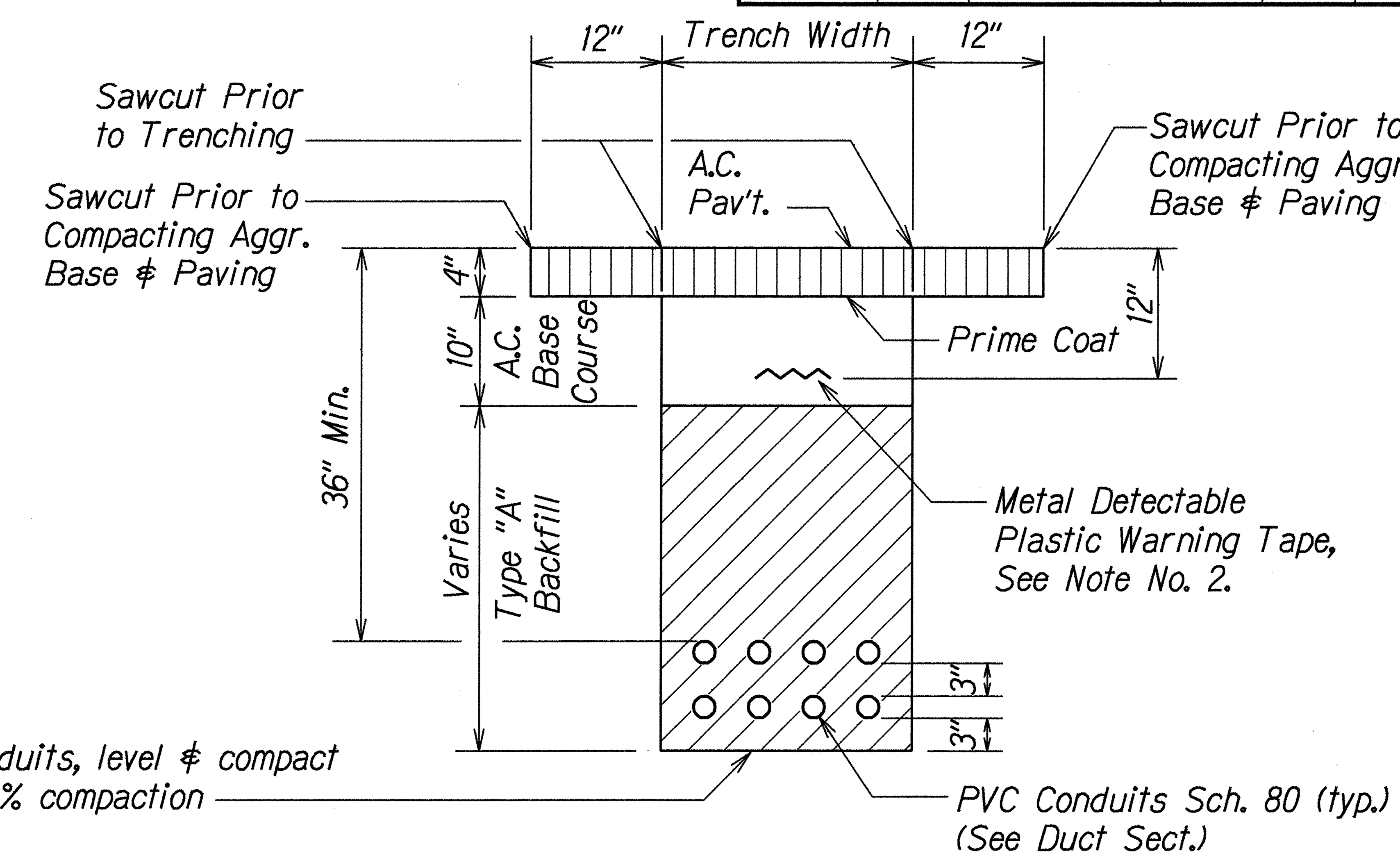
NOTE: Base Course & Sub-Base Course per 1994 State Standard Specifications for Highway Construction.

GENERAL NOTES

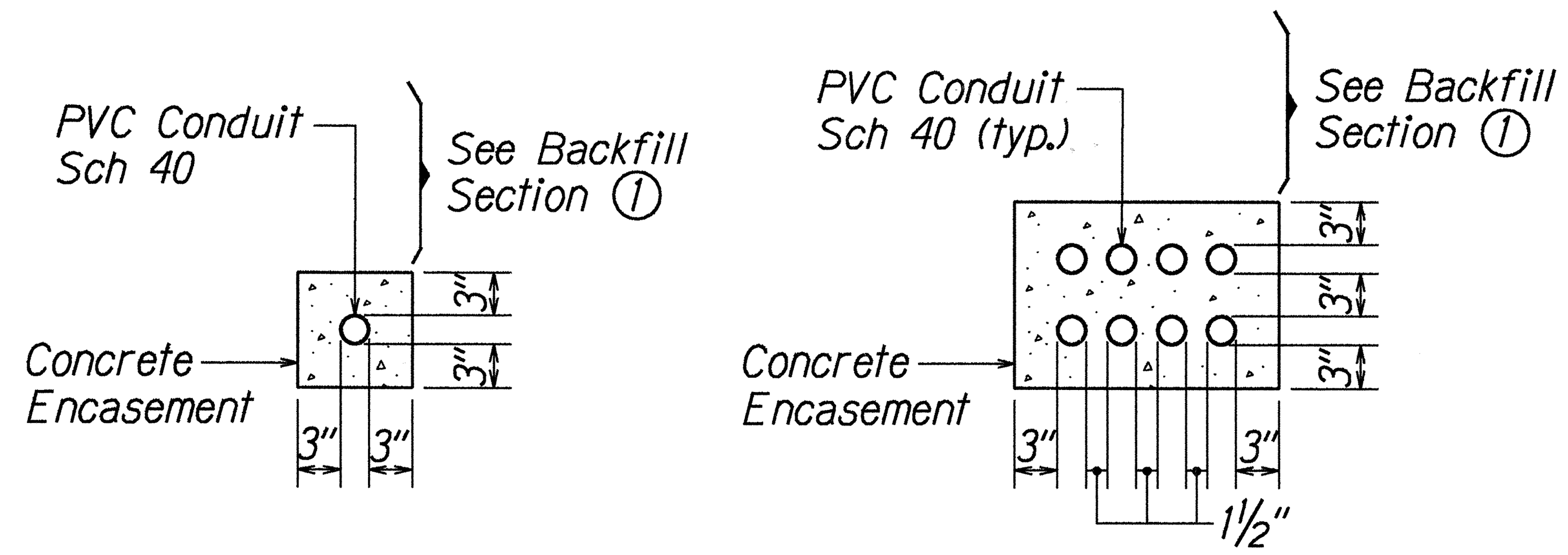
1. If trench is located on unpaved area, the Contractor shall replace 10" A.C. Base Course and 4" A.C. Pavement with Type "A" backfill material.
2. The Metal Detectable Yellow Plastic Warning Tape shall be a minimum 5 mils thick and 4" wide with a continuous metallic backing and corrosion resistant 1± mil thick foil core. The message on the tape shall read, "CAUTION - STATE TRAFFIC SIGNAL AND/OR HWY LIGHTING BURIED BELOW," utilizing 3 inch series "C" black lettering. The message will be repeated with a 36-inch spacing.
3. The Contractor may begin backfilling the conduit trench when the concrete reaches 3000 psi compressive strength after 3 days.
4. Maximum four (4) Conduits per row for multiple conduit duct section.
5. For direct buried duct sections, the concrete jacket required at the conduit by-pass for various utilities, shall not be paid for separately but considered incidental to the direct buried conduits.
6. After installing all the traffic signal cables, the Contractor shall duct seal all conduits in the pullboxes, traffic signal standards and traffic signal controller cabinet concrete base. The duct seal material shall be approved by the Traffic Signal Inspector/Engineer and shall not be paid for separately but considered incidental to the direct buried and/or concrete encased conduits.



① TYPICAL BACKFILL SECTION WITH CONCRETE ENCASED DUCTS



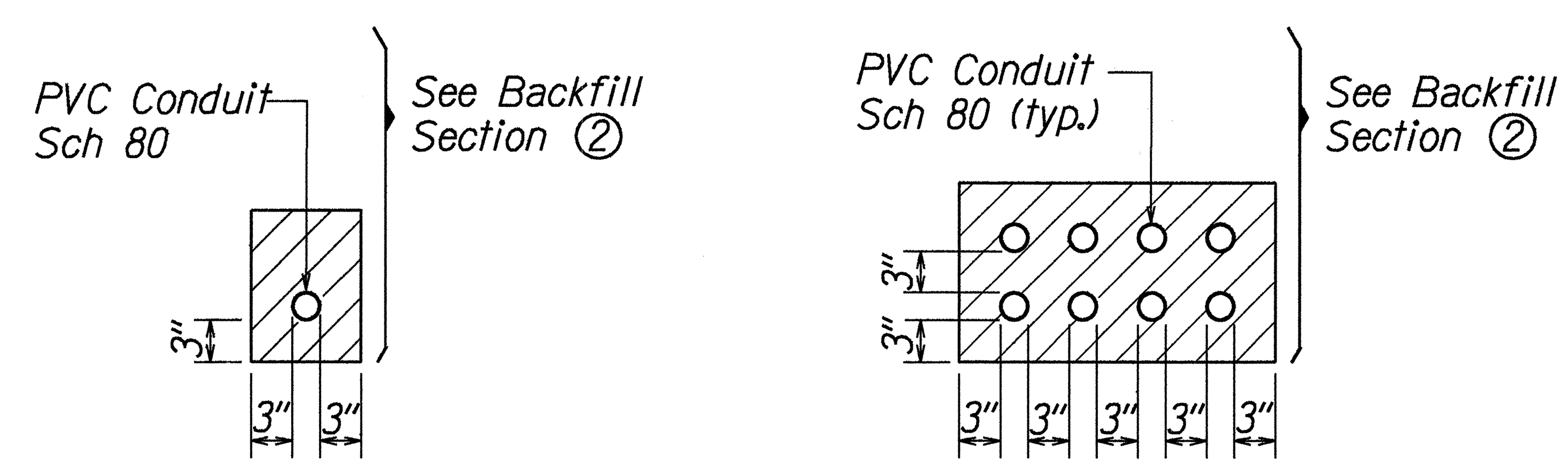
② TYPICAL BACKFILL SECTION DIRECT BURIED DUCTS



SINGLE CONDUIT

MULTIPLE CONDUIT

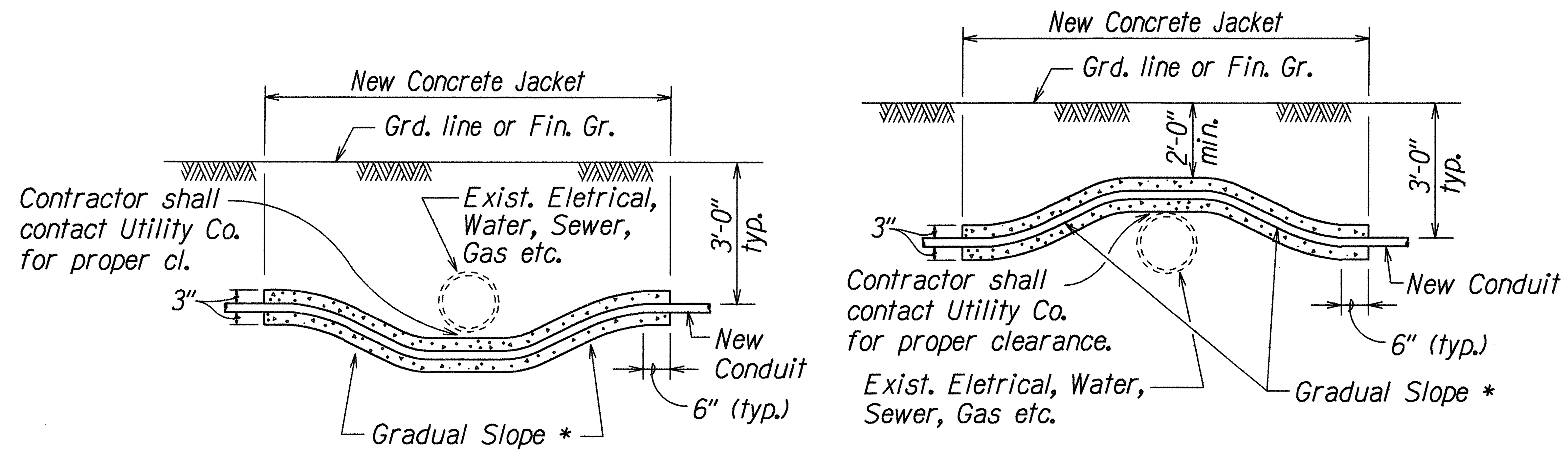
HIGHWAY LIGHTING DUCT SECTIONS - CONC. ENCASED



SINGLE CONDUIT

MULTIPLE CONDUIT

TRAFFIC SIGNAL DUCT SECTIONS - DIRECT BURIED



* To be determined by County Electrical Inspector/Engineer

CONDUIT BY-PASS DETAIL AT VARIOUS UTILITIES

Not to Scale

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LINE DETAILS

FARRINGTON HIGHWAY SIDEWALKS
Leoole Street to Awanui Street &
Leoku Street to Paiwa Street
Project No. 7101-02-97

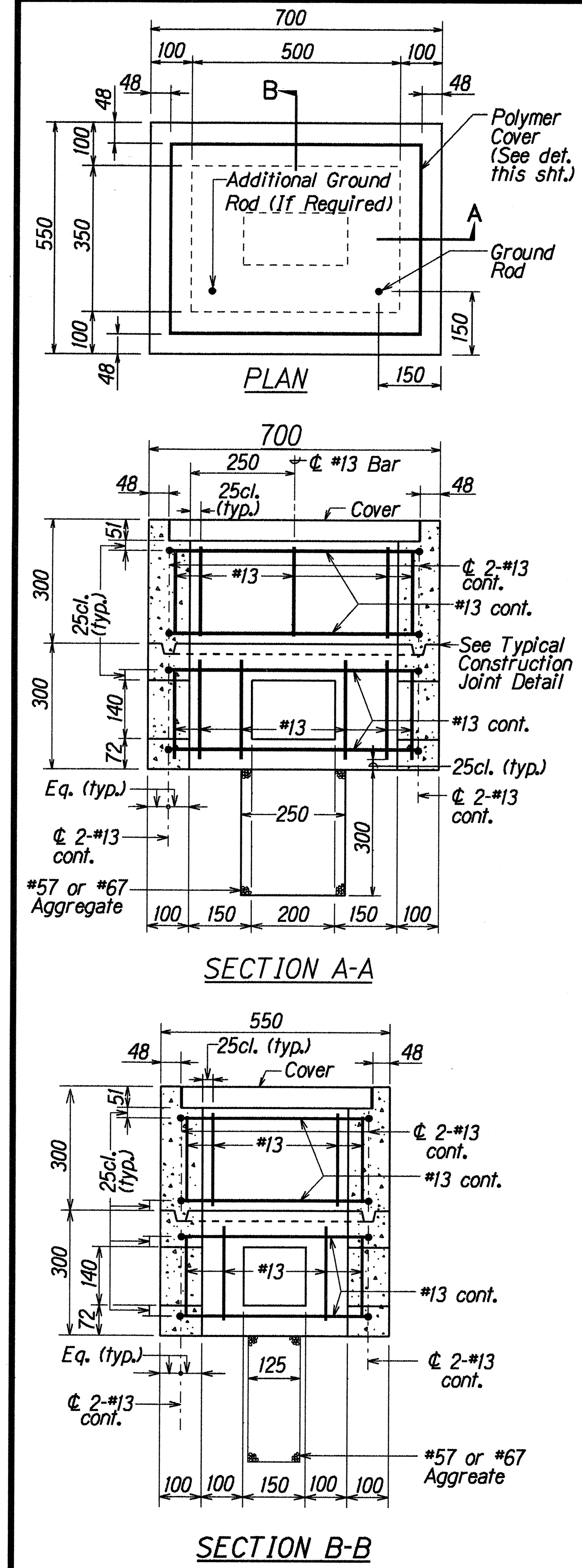
Not to Scale | Date: March, 1998

SHEET No. T20 OF 21 SHEETS

ORIGINAL PLAN | NOTE BOOK tot.may N. dfarlda | SURVEY PLOTTED BY | DRAWN BY M. Takafuji | TRACED BY | DESIGNED BY Steven Yoshida | QUANTITIES BY | CHECKED BY | DATE

R5/1/98

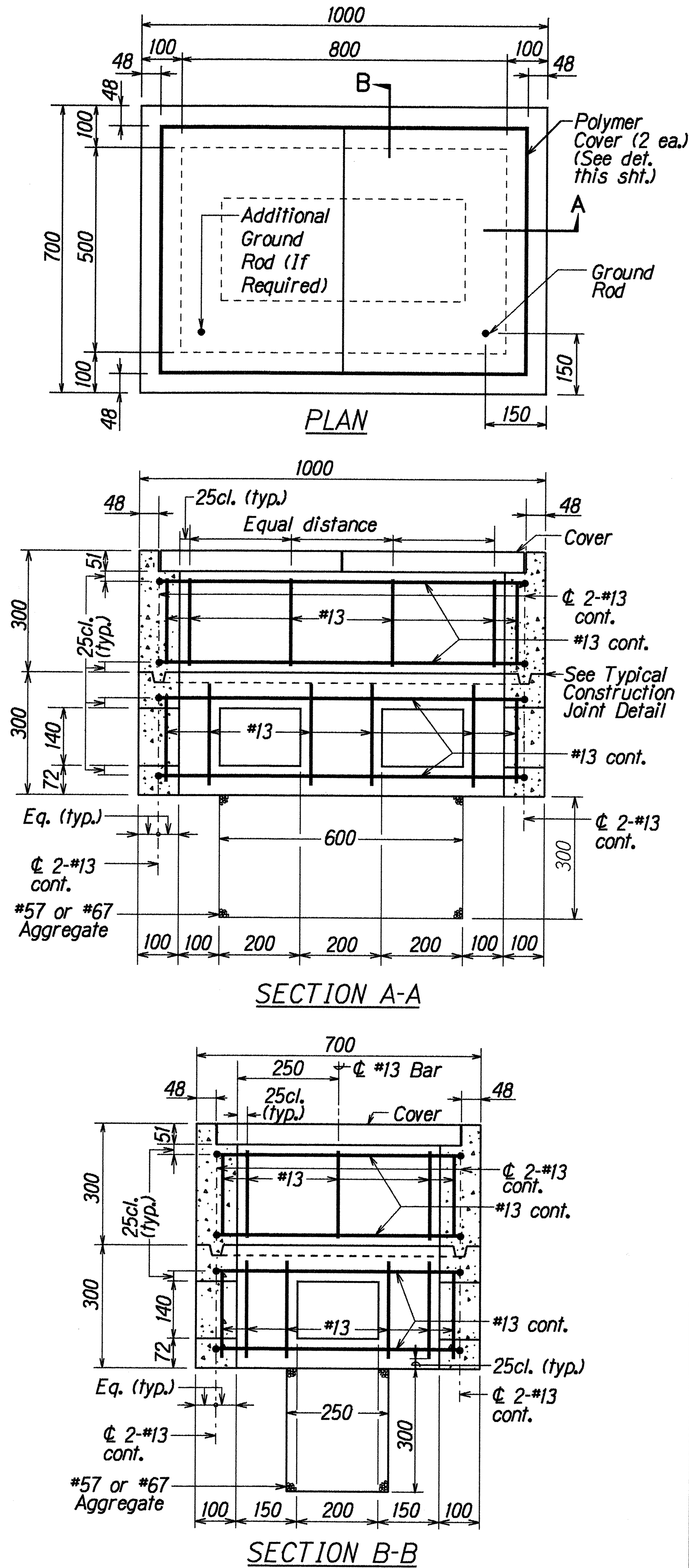
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101-02-97	1998	102	102



TYPE "A" PULLBOX

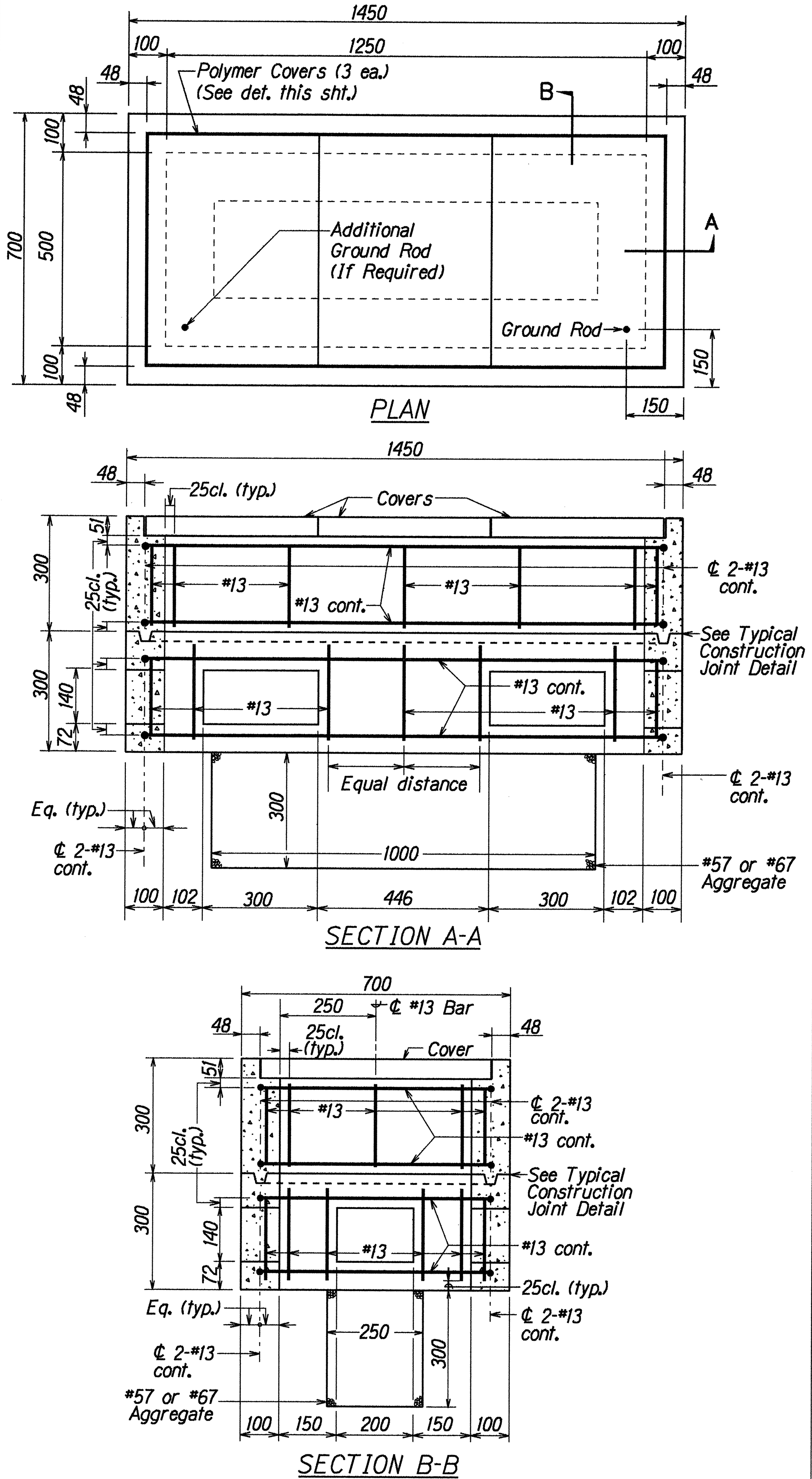
(Old Type "B")

Scale: 1 : 100



TYPE "B" PULLBOX (Old Type "C")

Scale: 1 : 100

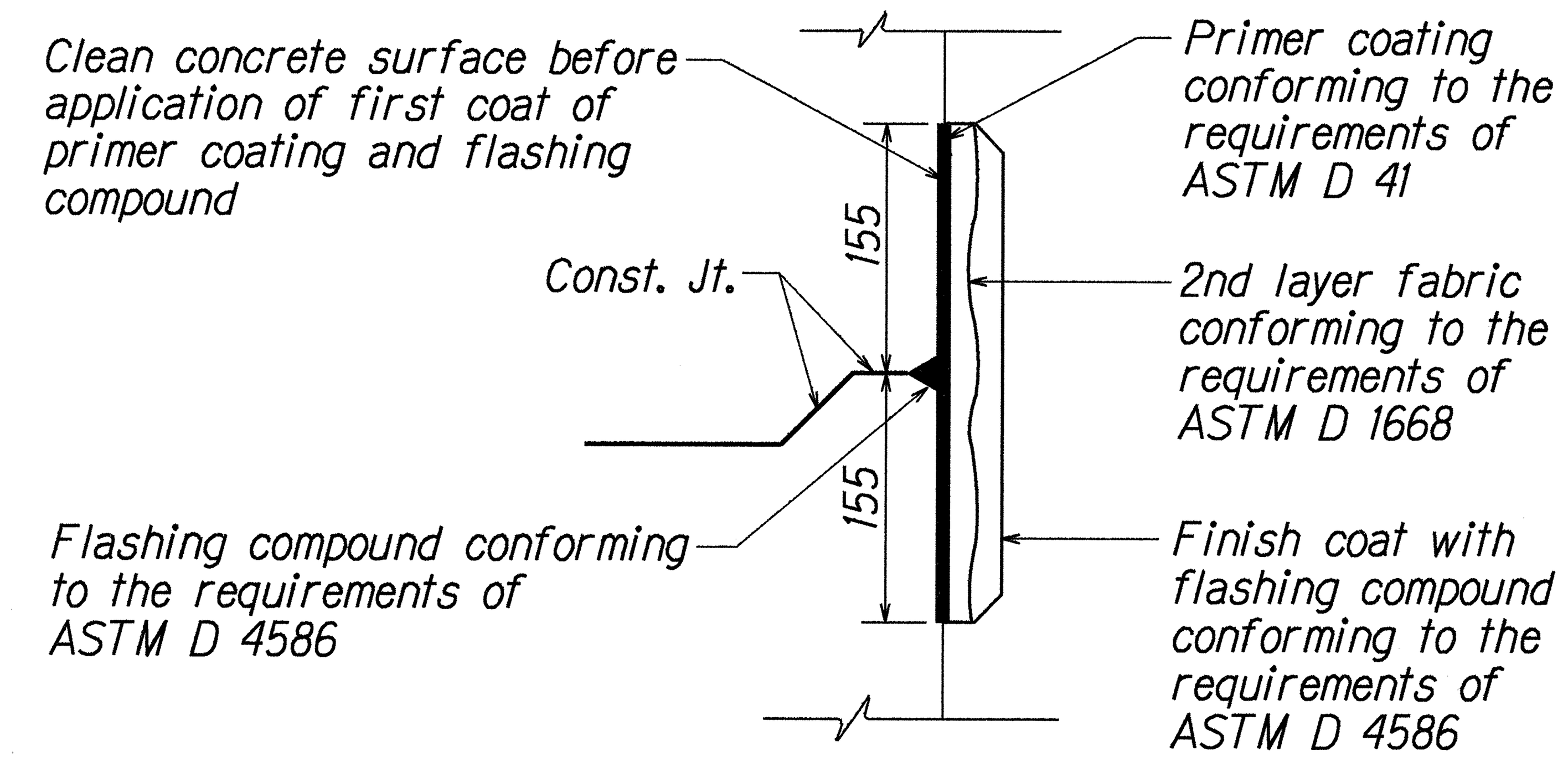


TYPE "C" PULLBOX (Old Type "D")

Scale: 1 : 100

GENERAL NOTES

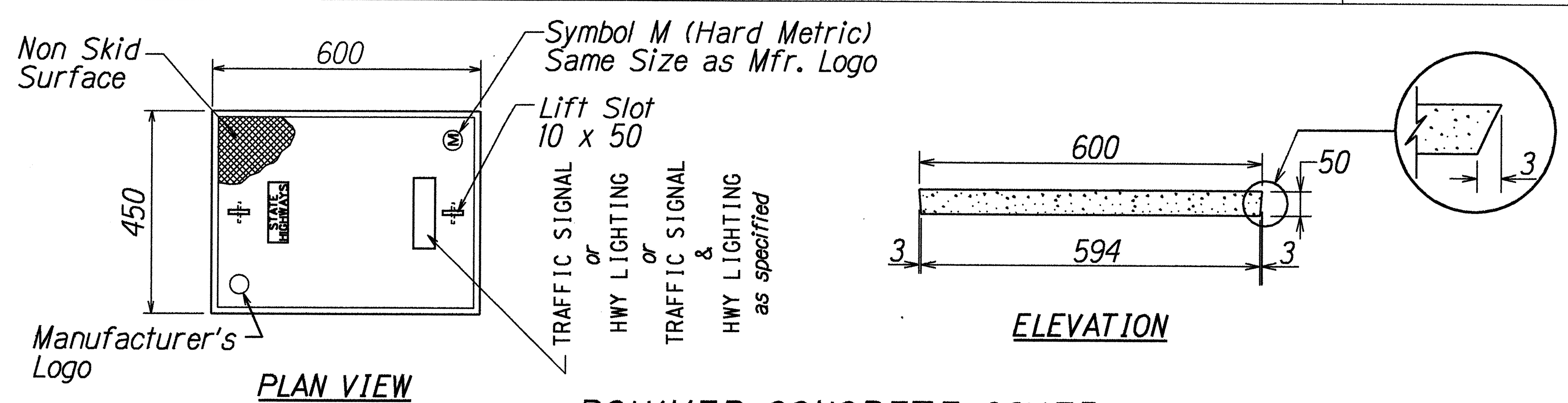
1. Provide a minimum of one 16 ø x 2.5m Copperweld Ground Rod in each pullbox. When directed by the Traffic Signal Inspector/Engineer, install additional Ground Rods. Cost of Ground Rods shall be incidental to the pullboxes.
2. All pre-cast concrete pullboxes shall be manufactured in two pieces.
3. The pullbox with cover shall be capable of supporting an MS 18 Loading.
4. The maximum weight of the pullbox cover shall not exceed 27 kilograms.
5. The openings for the conduits on all pullboxes shall be pre-cast concrete knockouts.
6. After installing the conduits in the openings of the pullboxes, the Contractor shall fill the excess opening in the pre-cast knockouts with concrete mortar.
7. Prior to installing the pullboxes, the Contractor shall level the bottom of the trench and achieve a minimum of 95% relative compaction of the bottom of the trench.
8. All concrete shall be Class A (25MPa, min.)
9. Rebars shall be Grade 300 and all lapped splices shall be 360mm minimum.
10. The #57 or #67 size aggregate shall conform to latest version of AASHTO M43 (ASTM D 448).
11. Type "C" Pullbox shall be installed in a location protected from vehicular traffic (i.e. raised sidewalk, behind A.C. curbs, traffic signal standard or pipe guards).



TYPICAL FLASHING COMPOUND WATERPROOFING DETAILS

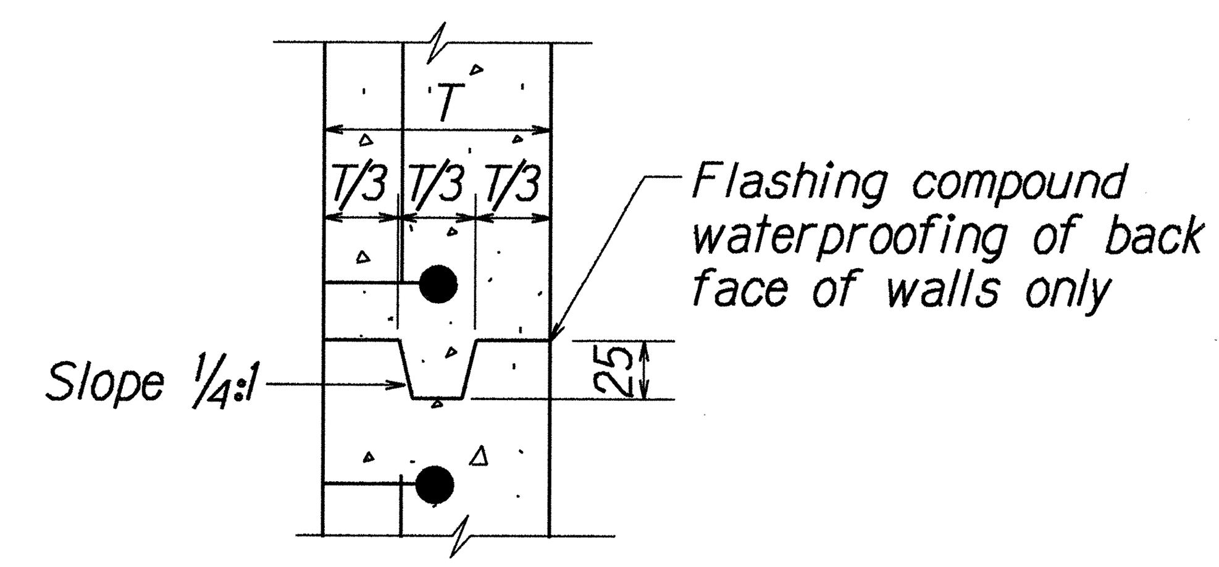
Not to Scale

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



POLYMER CONCRETE COVER

Not to Scale



TYPICAL CONSTRUCTION JOINT DETAIL

Not to Scale

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PULLBOX & COVER DETAILS

FARRINGTON HIGHWAY SIDEWALKS
Leoole Street to Awanui Street &
Leoku Street to Paiwa Street
Project No. 7101-02-97

Scale: As Shown — Date: March, 1998

SHEET No. T21 OF 21 SHEETS

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY M. Takafuji | TRACED BY | DESIGNED BY Steven Yoshida | QUANTITIES BY | CHECKED BY | NOTE BOOK | DATE