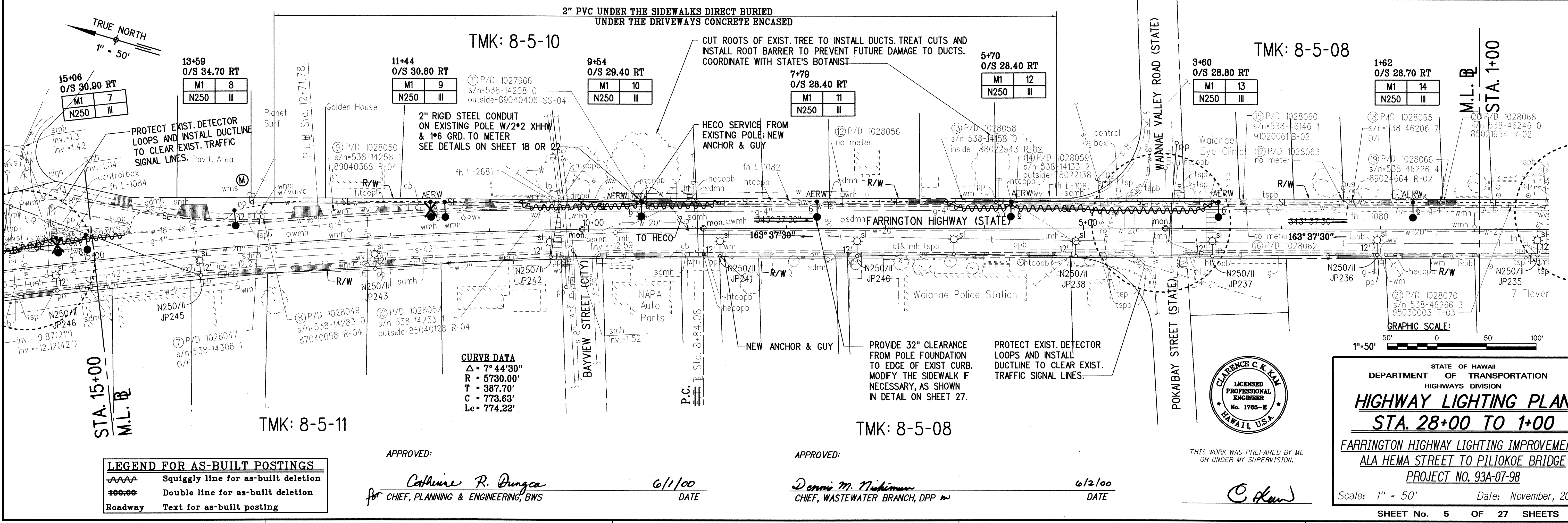
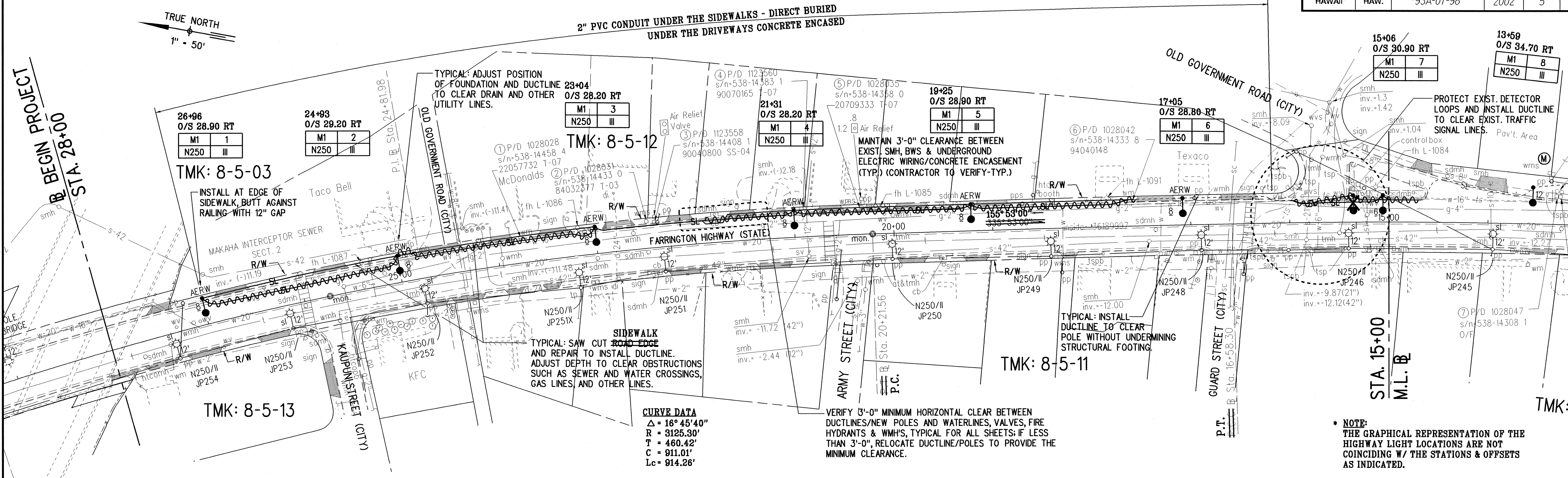
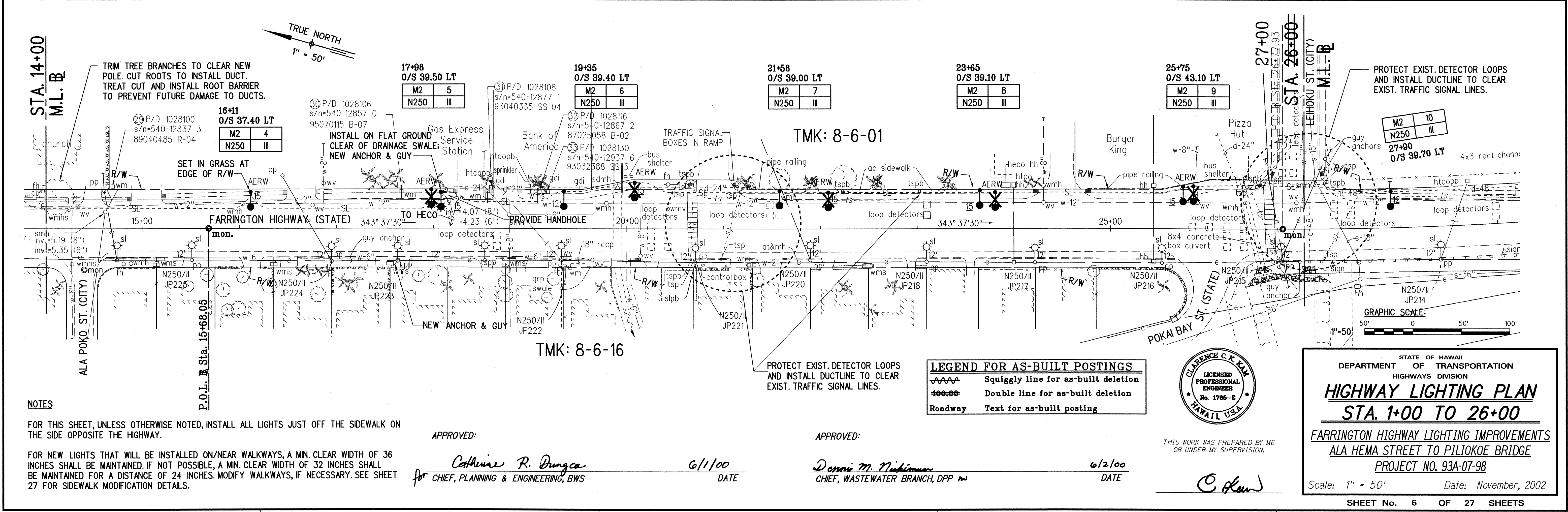
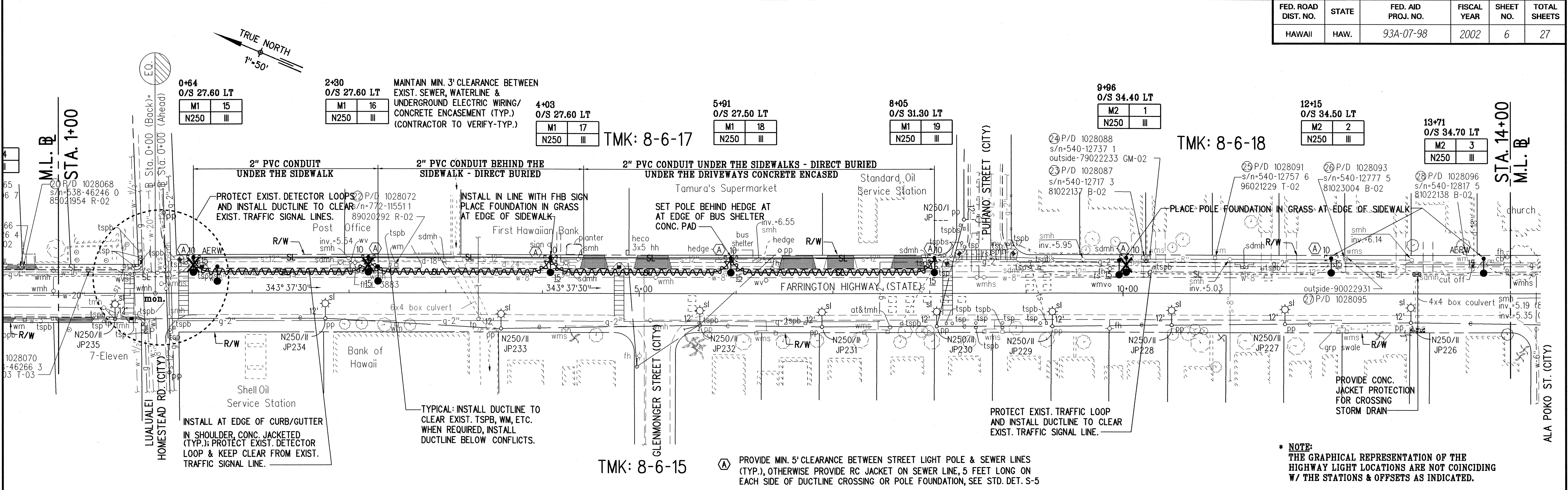


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93A-07-98	2002	5	27



"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93A-07-98	2002	6	27



DATE	_____
SURVEY PLOTTED BY	_____
FRACED BY	_____
NOTES BY	_____
CHECKED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
NO.	_____

NOTES

FOR THIS SHEET, UNLESS OTHERWISE NOTED, INSTALL ALL LIGHTS JUST OFF THE SIDEWALK ON THE SIDE OPPOSITE THE HIGHWAY.

FOR NEW LIGHTS THAT WILL BE INSTALLED ON/NEAR WALKWAYS, A MIN. CLEAR WIDTH OF 36 INCHES SHALL BE MAINTAINED, IF NOT POSSIBLE, A MIN. CLEAR WIDTH OF 32 INCHES SHALL BE MAINTAINED FOR A DISTANCE OF 24 INCHES. MODIFY WALKWAYS, IF NECESSARY. SEE SHEET 27 FOR SIDEWALK MODIFICATION DETAILS.

APPROVED: *Catherine R. Dringca*
for CHIEF, PLANNING & ENGINEERING, BWS

6/1/00
DATE

APPROVED: *Dennis M. Nickerson*
CHIEF, WASTEWATER BRANCH, DPP

6/2/00
DATE



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

C. Kim

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING PLAN
STA. 1+00 TO 26+00

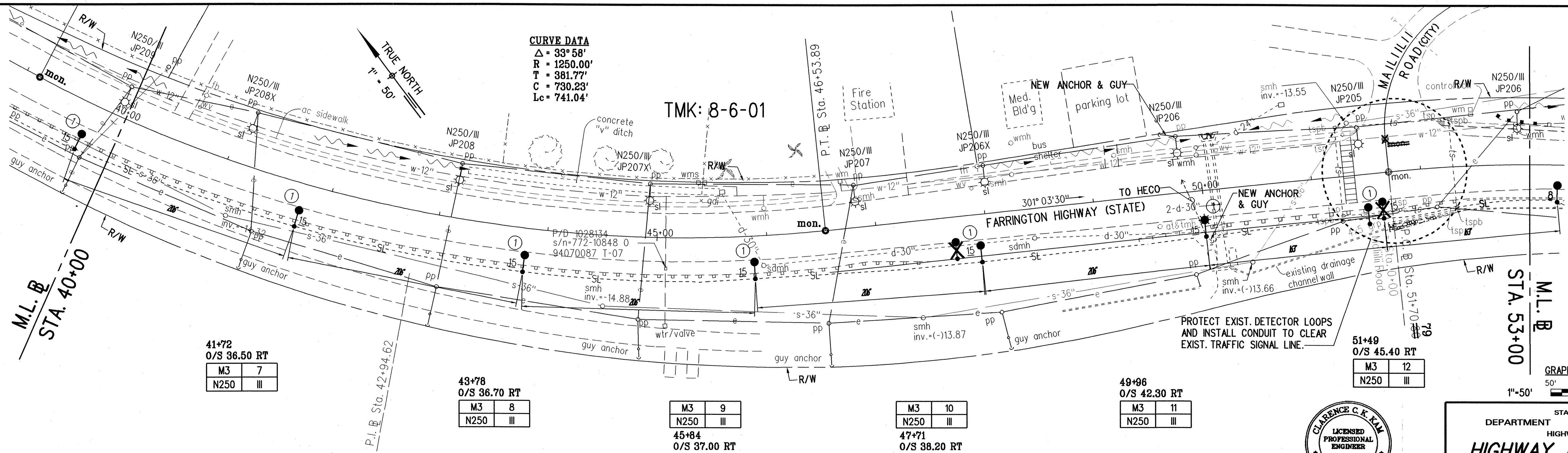
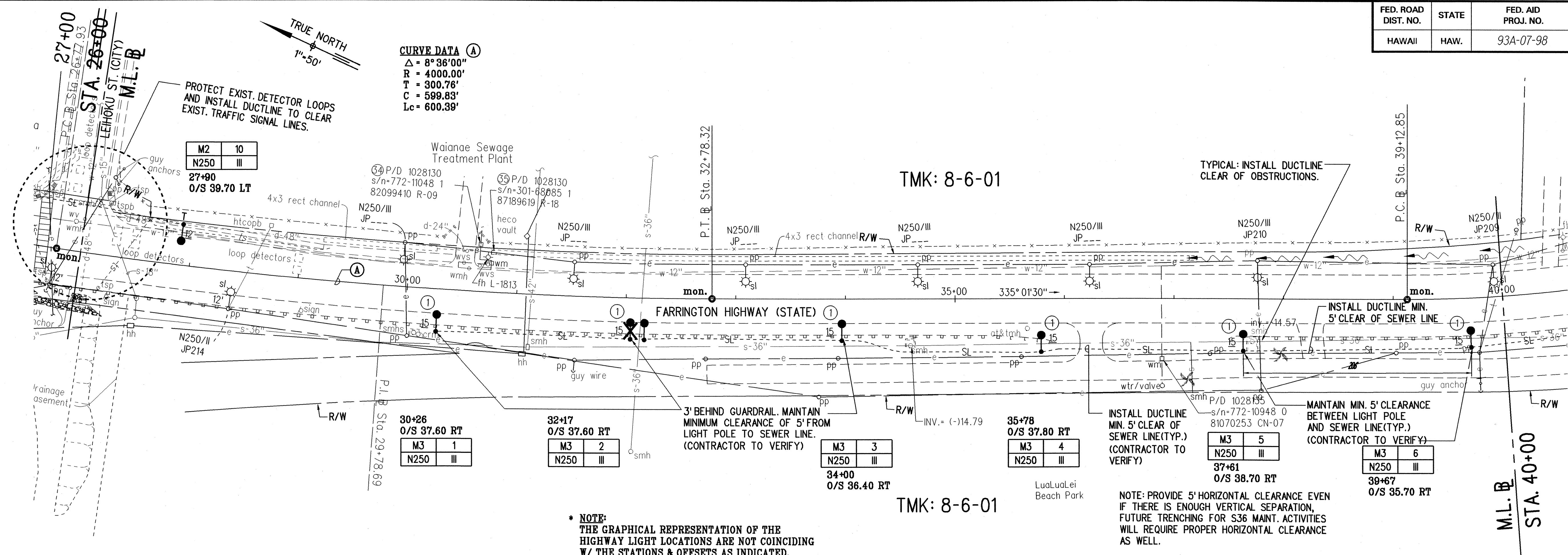
FARRINGTON HIGHWAY LIGHTING IMPROVEMENTS
ALA HEMA STREET TO PILIOKOE BRIDGE
PROJECT NO. 93A-07-98

Scale: 1" = 50' Date: November, 2002

SHEET No. 6 OF 27 SHEETS

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93A-07-98	2002	7	27



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

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

APPROVED: *Dennis M. Nickerson* 6/2/00  
CHIEF, WASTEWATER BRANCH, DPP  
DATE



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

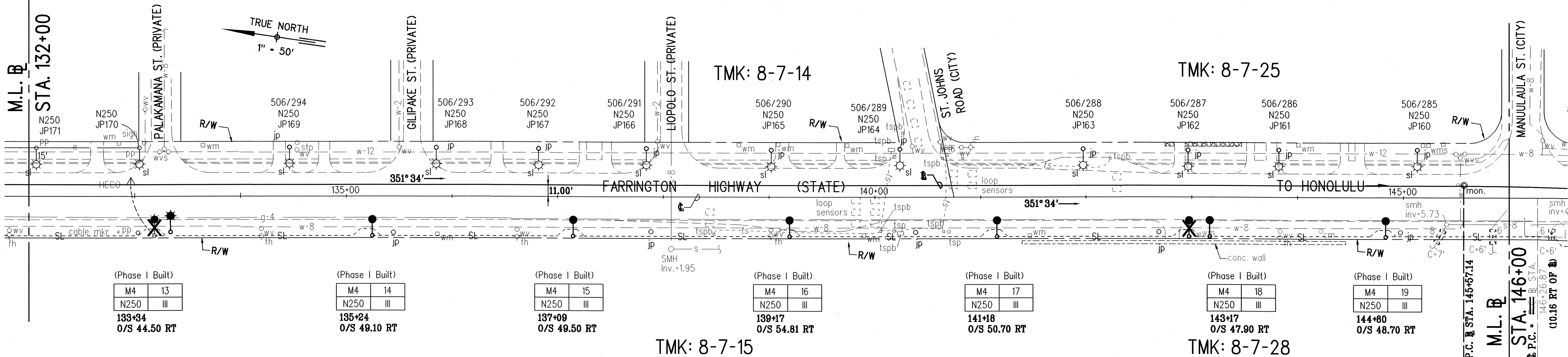
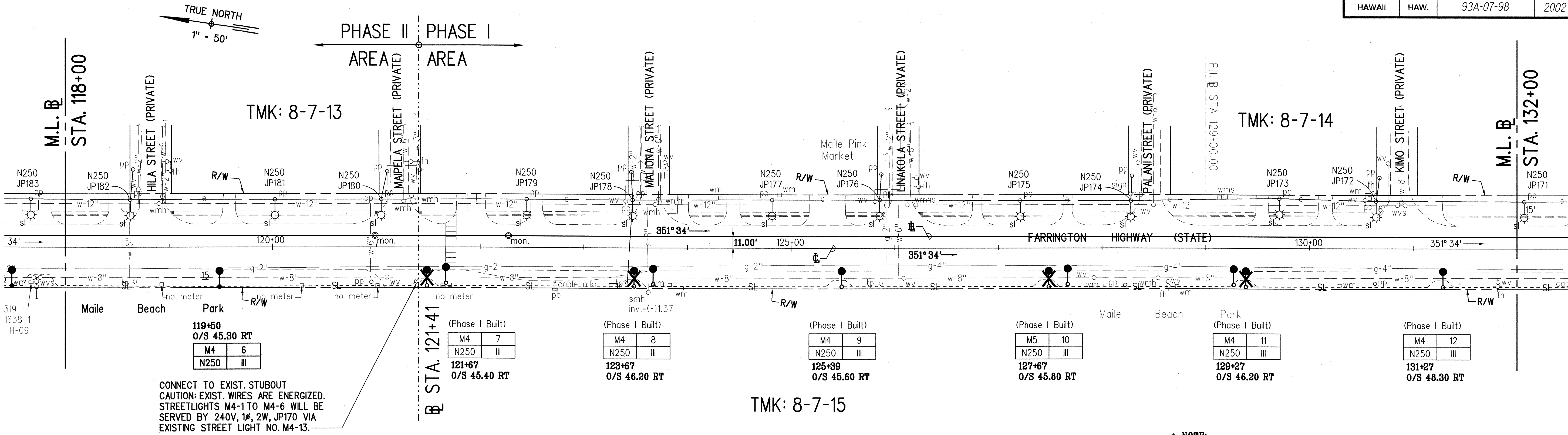
*C. Kim*

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**HIGHWAY LIGHTING PLAN**  
**STA. 26+00 TO 53+00**  
FARRINGTON HIGHWAY LIGHTING IMPROVEMENTS  
ALA HEMA STREET TO PILIOKOE BRIDGE  
PROJECT NO. 93A-07-98  
Scale: 1" = 50' Date: November, 2002  
SHEET No. 7 OF 27 SHEETS

"AS-BUILT"



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93A-07-98	2002	9	27

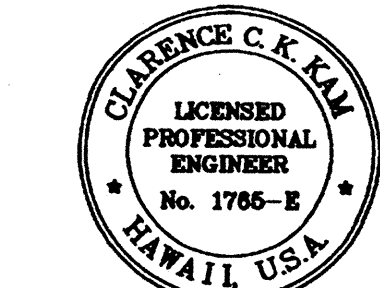
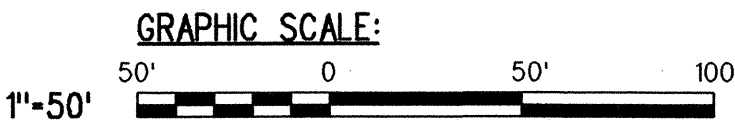


NOTE: PHASE I HAS BEEN BUILT. ONLY LIGHT FIXTURES WILL BE REPLACED.

APPROVED:

*Dennis M. Nakamura*  
CHIEF, WASTEWATER BRANCH, DPP

6/2/00  
DATE



THIS WORK WAS PREPARED BY ME  
OR UNDER MY SUPERVISION.

*C. Kail*

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

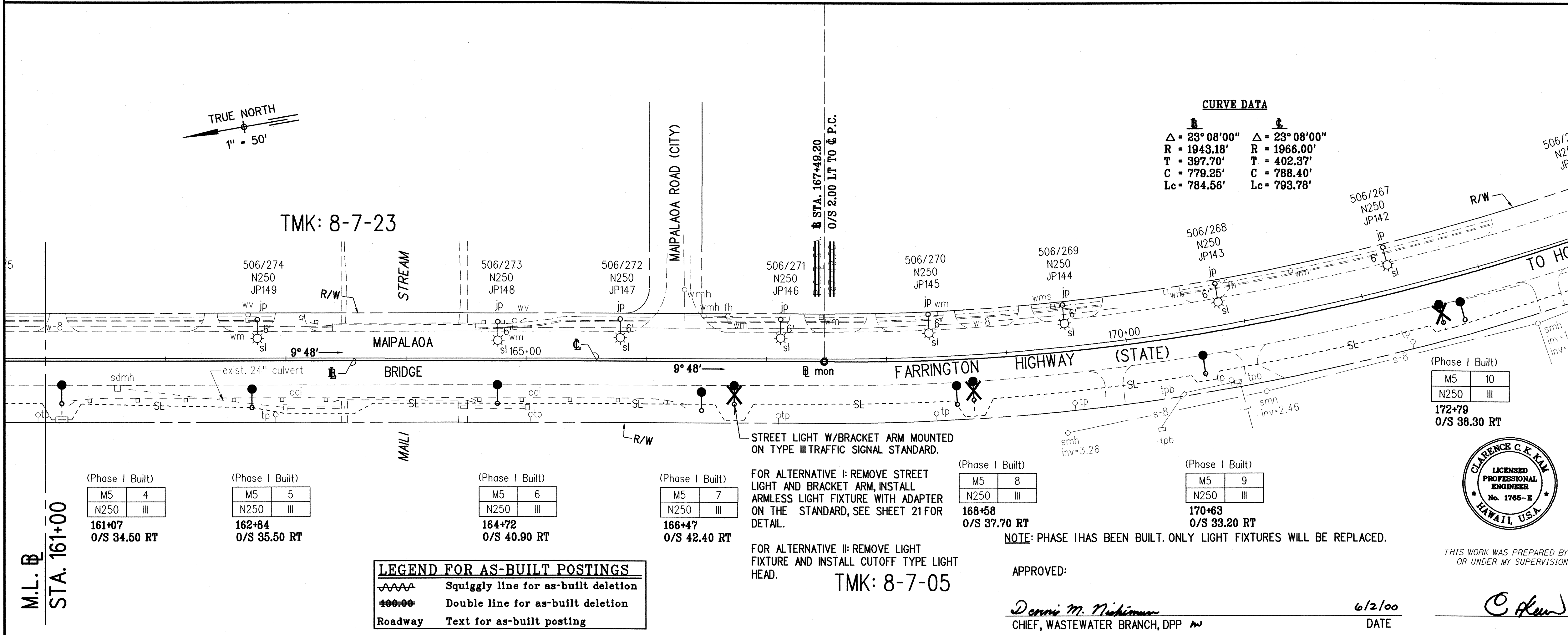
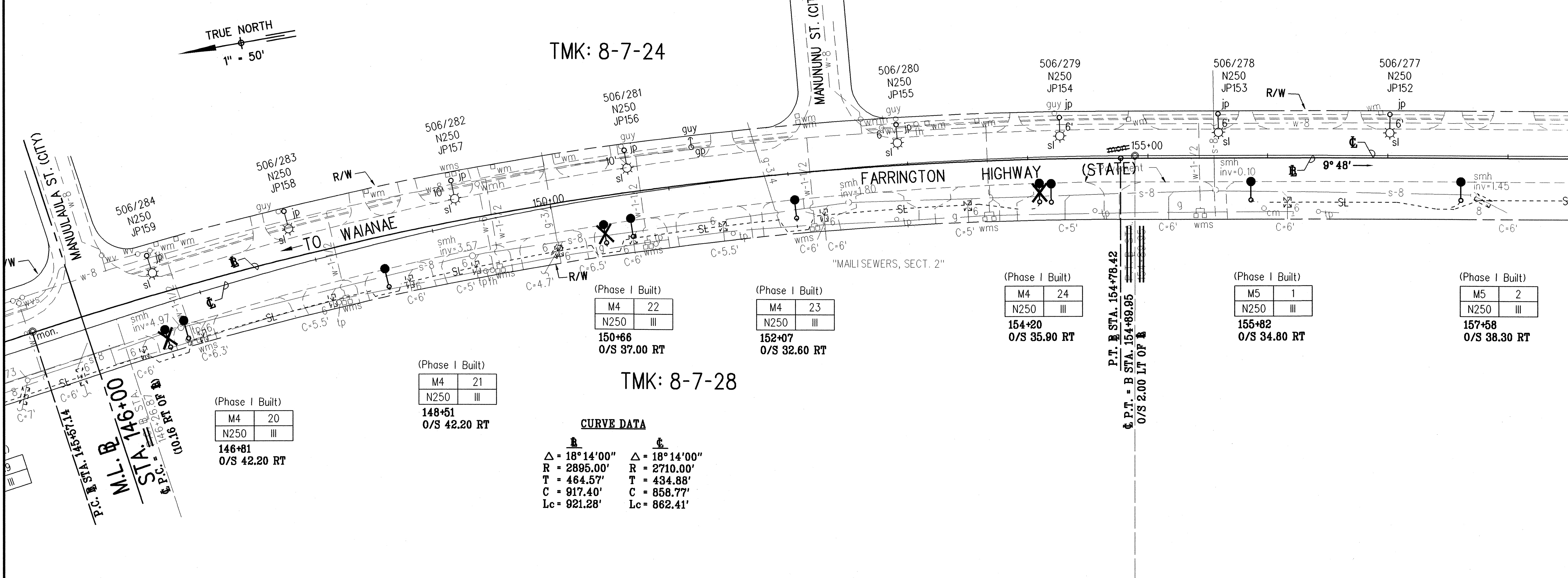
**HIGHWAY LIGHTING PLAN**  
**STA. 118+00 TO 146+00**

FARRINGTON HIGHWAY LIGHTING IMPROVEMENTS  
ALA HEMA STREET TO PILIOKOE BRIDGE  
PROJECT NO. 93A-07-98

Scale: 1" = 50' Date: November, 2002

SHEET No. 9 OF 27 SHEETS

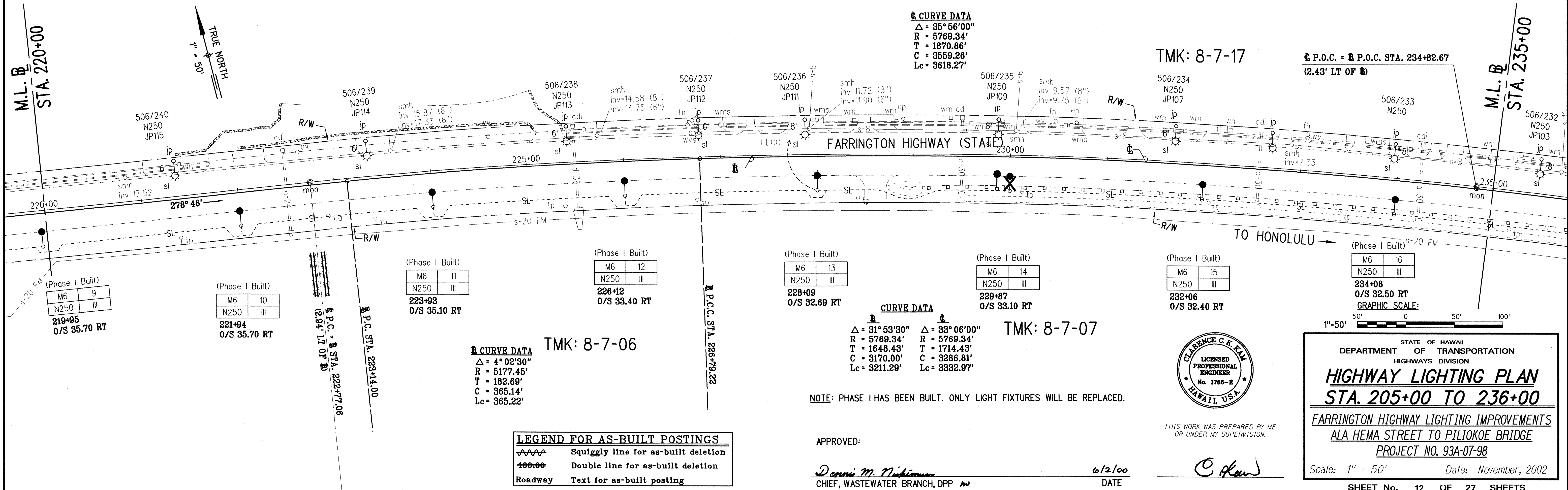
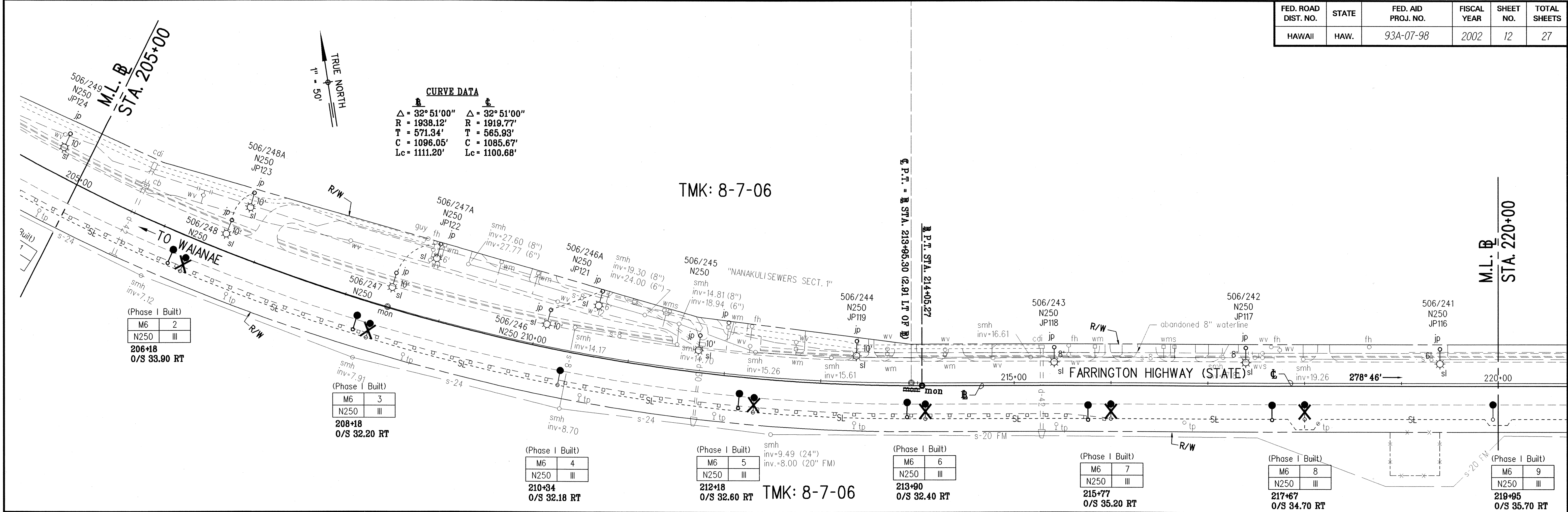
"AS-BUILT"

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10



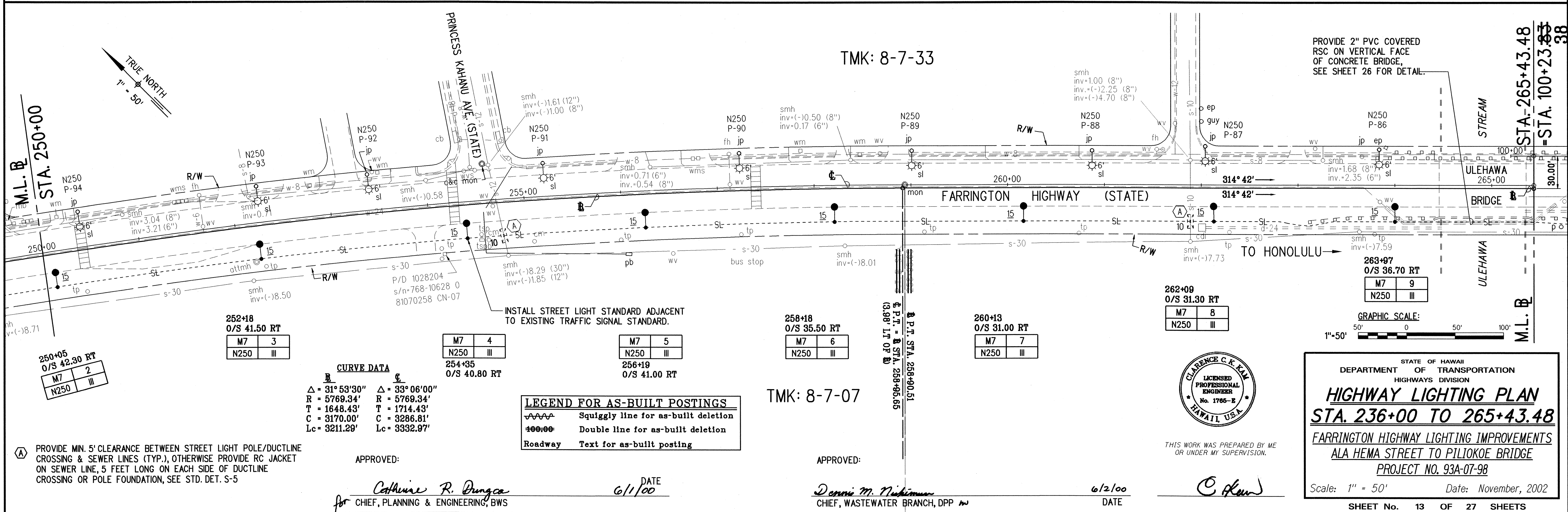
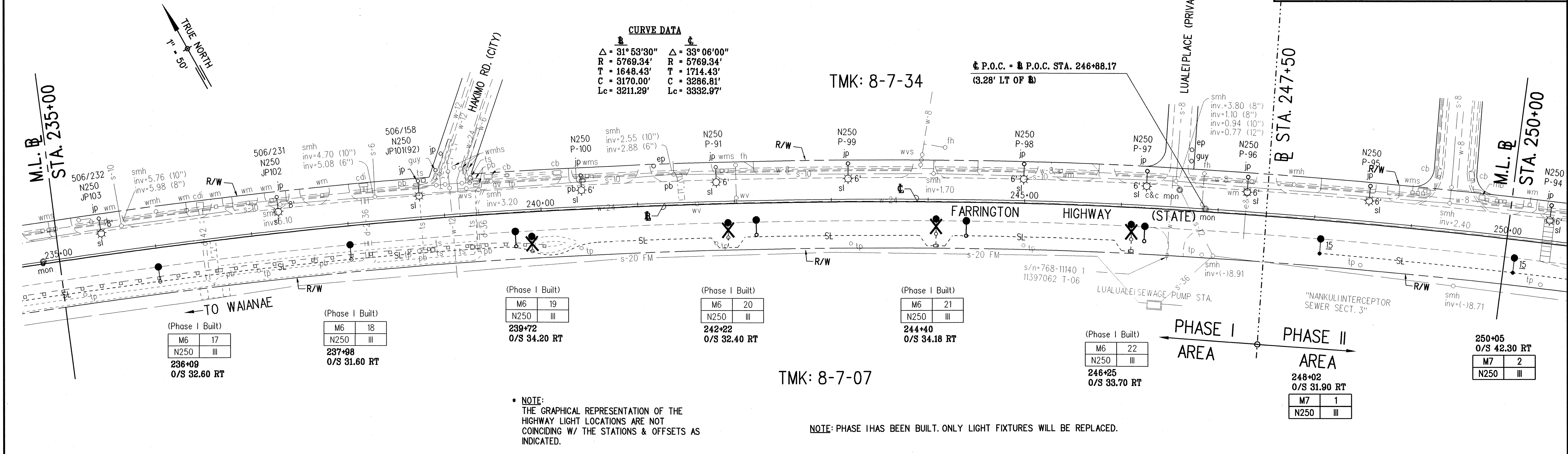
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93A-07-98	2002	12	27



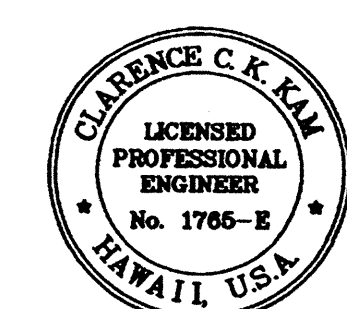
DATE	_____
SURVEY PLOTTED BY	_____
DESIGNED BY	_____
CHECKED BY	_____
NOTE BOOK	_____
NO.	_____

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93A-07-98	2002	13	27



DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
IN CHARGE	_____



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

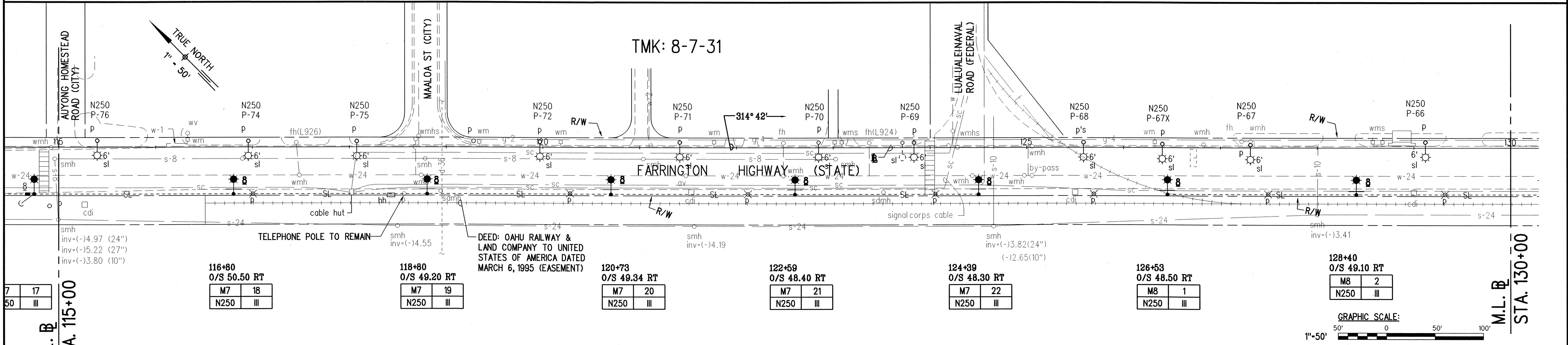
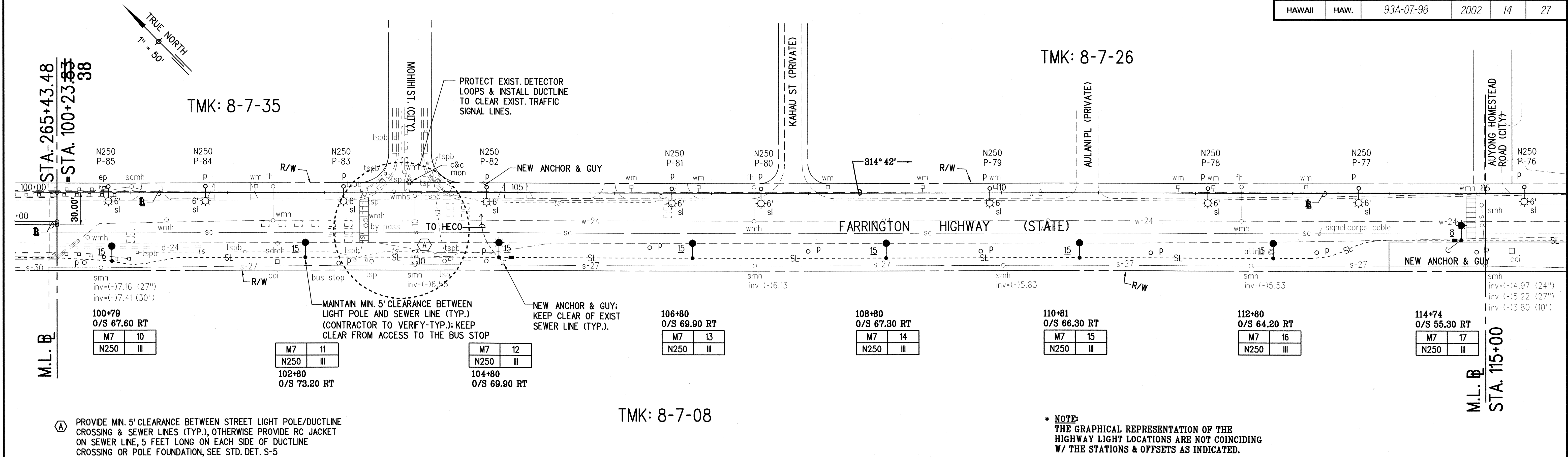
**HIGHWAY LIGHTING PLAN**  
**STA. 236+00 TO 265+43.48**  
**FARRINGTON HIGHWAY LIGHTING IMPROVEMENTS**  
**ALA HEMA STREET TO PILIOKOE BRIDGE**  
**PROJECT NO. 93A-07-98**

Scale: 1" = 50' Date: November, 2002

SHEET No. 13 OF 27 SHEETS

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93A-07-98	2002	14	27



DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
NO.	_____

NOTE:  
REMOVE EXISTING TELEPHONE POLES BETWEEN NEW STREET LIGHT POLES *M7-17 AND *M8-22 UNLESS OTHERWISE NOTED. RESUPPORT EXISTING TELEPHONE LINES ON NEW LIGHT POLES. ALIGN NEW POLES WITH EXISTING TELEPHONE POLES. SEE SHEET 19 OR 23 FOR INSTALLATION DETAILS. ARRANGE WITH HTCO FOR REMOVAL OF THEIR FACILITIES, PAY FOR ALL REMOVAL CHARGES, AND OBTAIN HTCO APPROVAL FOR NEW WORK.

WORK IN THE NEAR VICINITY OF THE EXISTING RAILWAY TRACKS SHALL BE DONE WITH EXTREME CAUTION. THE TRACKS ARE HISTORICAL PROPERTIES AND SHALL NOT BE DISTURBED OR DAMAGED. ANY DAMAGE TO THE TRACKS SHALL BE SUBJECT TO A PENALTY CHARGE AND ALL COSTS TO REPAIR TO THE SATISFACTION OF THE STATE AND SPECIAL REQUIREMENTS OF HAWAII HISTORICAL PRESERVATION SOCIETY.

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

APPROVED: 6/1/00  
GTE HAWAIIAN TEL. DATE

APPROVED: 6/2/00  
Dennis M. Nishimura DATE  
CHIEF, WASTEWATER BRANCH, DPP



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STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

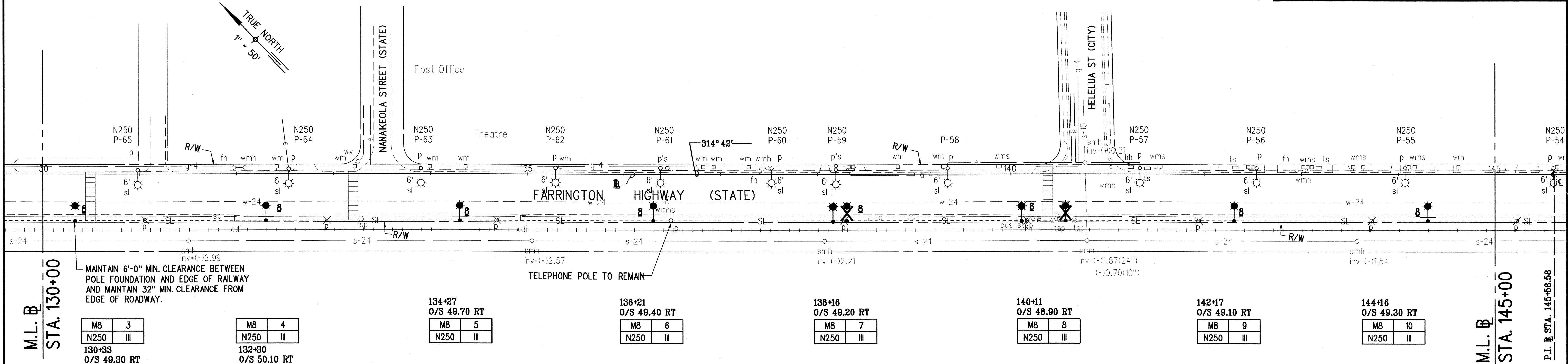
**HIGHWAY LIGHTING PLAN**  
**STA. 265+43.48 TO 130+00**  
FARRINGTON HIGHWAY LIGHTING IMPROVEMENTS  
ALA HEMA STREET TO PILIOKOE BRIDGE  
PROJECT NO. 93A-07-98

Scale: 1" = 50'      Date: November, 2002

SHEET No. 14 OF 27 SHEETS

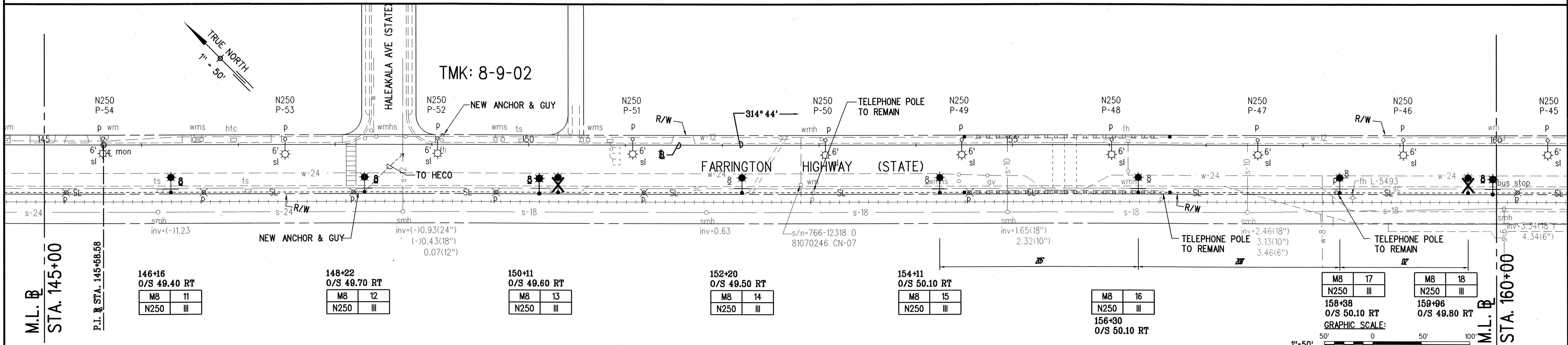
"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93A-07-98	2002	15	27



TMK: 8-7-08

* NOTE:  
THE GRAPHICAL REPRESENTATION OF THE  
HIGHWAY LIGHT LOCATIONS ARE NOT COINCIDING  
W/ THE STATIONS & OFFSETS AS INDICATED.

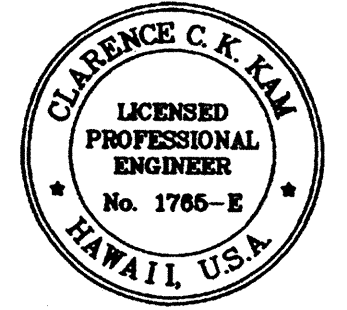


TMK: 8-9-01

NOTE:  
REMOVE EXISTING TELEPHONE POLES BETWEEN NEW STREET LIGHT POLES *M7-17 AND *M8-22  
UNLESS OTHERWISE NOTED. RESUPPORT EXISTING TELEPHONE LINES ON NEW LIGHT POLES.  
ALIGN NEW POLES WITH EXISTING TELEPHONE POLES. SEE SHEET 19 OR 23 FOR INSTALLATION  
DETAILS. ARRANGE WITH HTCO FOR REMOVAL OF THEIR FACILITIES, PAY FOR ALL REMOVAL  
CHARGES, AND OBTAIN HTCO APPROVAL FOR NEW WORK.  
  
WORK IN THE NEAR VICINITY OF THE EXISTING RAILWAY TRACKS SHALL BE DONE WITH  
EXTREME CAUTION. THE TRACKS ARE HISTORICAL PROPERTIES AND SHALL NOT BE DISTURBED  
OR DAMAGED. ANY DAMAGE TO THE TRACKS SHALL BE SUBJECT TO A PENALTY CHARGE AND  
ALL COSTS TO REPAIR TO THE SATISFACTION OF THE STATE AND SPECIAL REQUIREMENTS OF  
HAWAII HISTORICAL PRESERVATION SOCIETY.

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

APPROVED: 6/1/00  
GTE HAWAIIAN TEL. DATE  
  
APPROVED: 6/2/00  
Dennis M. Nishimura DATE  
CHIEF, WASTEWATER BRANCH, DPP



THIS WORK WAS PREPARED BY ME  
OR UNDER MY SUPERVISION.

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**HIGHWAY LIGHTING PLAN**  
**STA. 130+00 TO 160+00**  
FARRINGTON HIGHWAY LIGHTING IMPROVEMENTS  
ALA HEMA STREET TO PILIOKOE BRIDGE  
PROJECT NO. 93A-07-98  
Scale: 1" = 50' Date: November, 2002  
SHEET No. 15 OF 27 SHEETS

"AS-BUILT"

TRUE NORTH  
1" = 50'

TMK: 8-9-05

506/96  
N250  
P-31  
JP-40

506/95  
N250  
P-29  
JP-39

506/94  
N250  
P-29  
JP-38

160+00

161+76  
O/S 49.40 RT

163+57  
O/S 49.30 RT

165+46  
O/S 49.20 RT

167+38  
O/S 48.40 RT

169+31  
O/S 49.40 RT

171+30  
O/S 49.80 RT

174+00

FARRINGTON HIGHWAY (STATE)

TELEPHONE POLE TO REMAIN

NEW ANCHOR & GUY

PROTECT EXIST DETECTOR LOOP; INSTALL DUCTLINE AND POLE TO CLEAR EXIST TRAFFIC SIGNAL LINE

18  
0 III

18  
N250 III  
161+76  
O/S 49.40 RT

19  
N250 III  
163+57  
O/S 49.30 RT

20  
N250 III  
165+46  
O/S 49.20 RT

21  
N250 III  
167+38  
O/S 48.40 RT

22  
N250 III  
169+31  
O/S 49.40 RT

23  
N250 III  
171+30  
O/S 49.80 RT

NOTE:

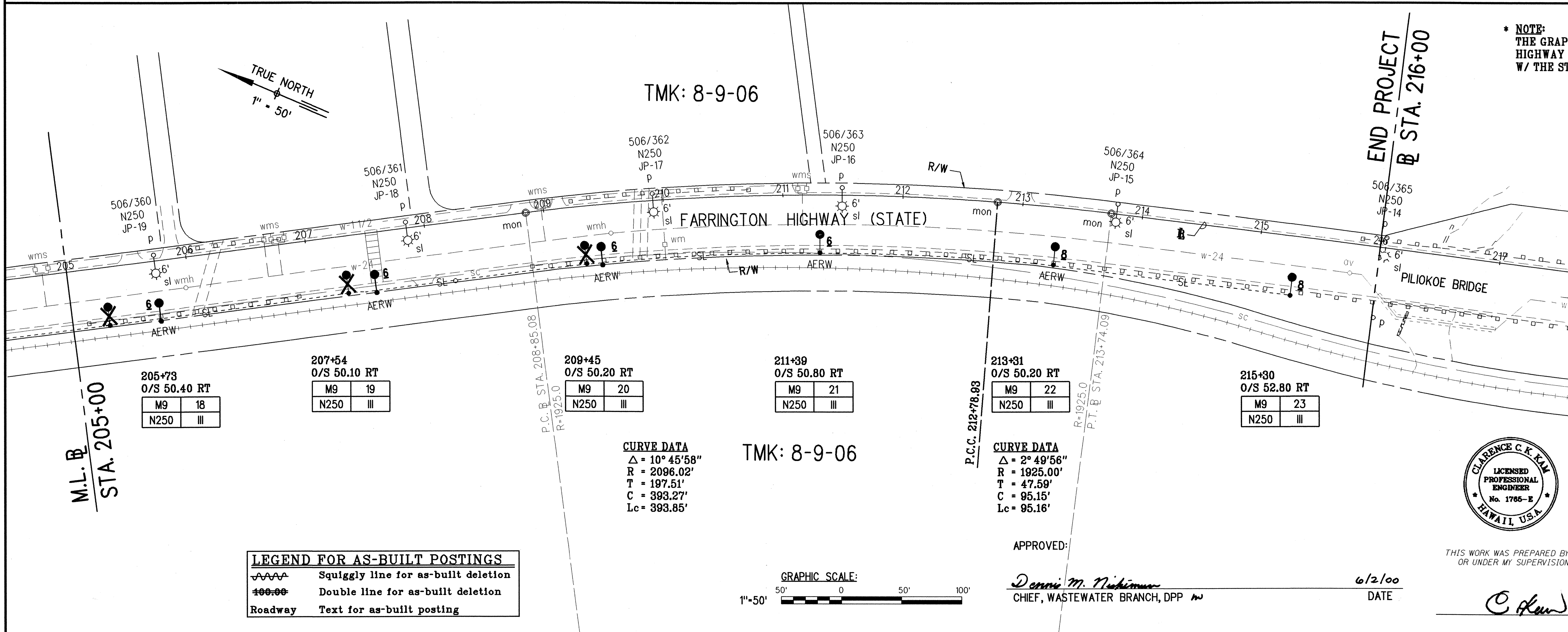
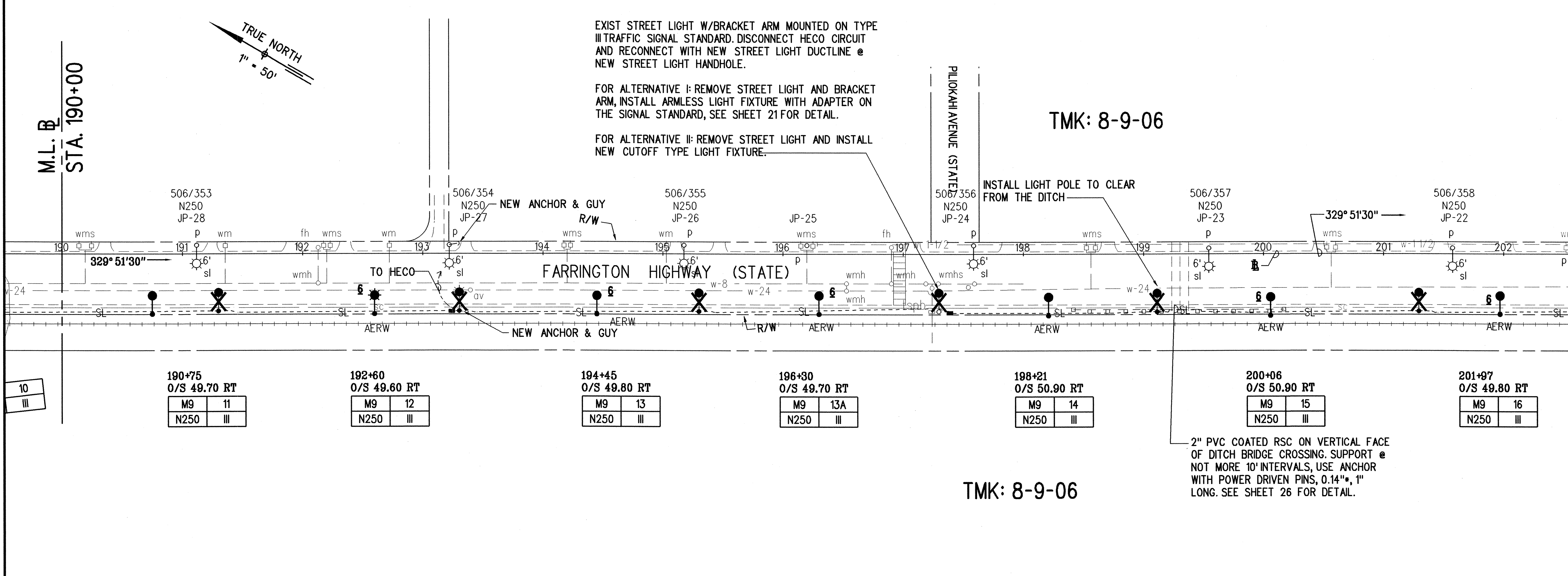
REMOVE EXISTING TELEPHONE POLES BETWEEN NEW STREET LIGHT POLES *M7-17 AND *M8-22 UNLESS OTHERWISE NOTED. RESUPPORT EXISTING TELEPHONE LINES ON NEW LIGHT POLES. ALIGN NEW POLES WITH EXISTING TELEPHONE POLES. SEE SHEET 19 OR 23 FOR INSTALLATION DETAILS. ARRANGE WITH HTCO FOR REMOVAL OF THEIR FACILITIES, PAY FOR ALL REMOVAL CHARGES, AND OBTAIN HTCO APPROVAL FOR NEW WORK.

WORK IN THE NEAR VICINITY OF THE EXISTING RAILWAY TRACKS SHALL BE DONE WITH EXTREME CAUTION. THE TRACKS ARE HISTORICAL PROPERTIES AND SHALL NOT BE DISTURBED OR DAMAGED. ANY DAMAGE TO THE TRACKS SHALL BE SUBJECT TO A PENALTY CHARGE AND ALL COSTS TO REPAIR TO THE SATISFACTION OF THE STATE AND SPECIAL REQUIREMENTS OF HAWAII HISTORICAL PRESERVATION SOCIETY.

TMK: 8-9-01

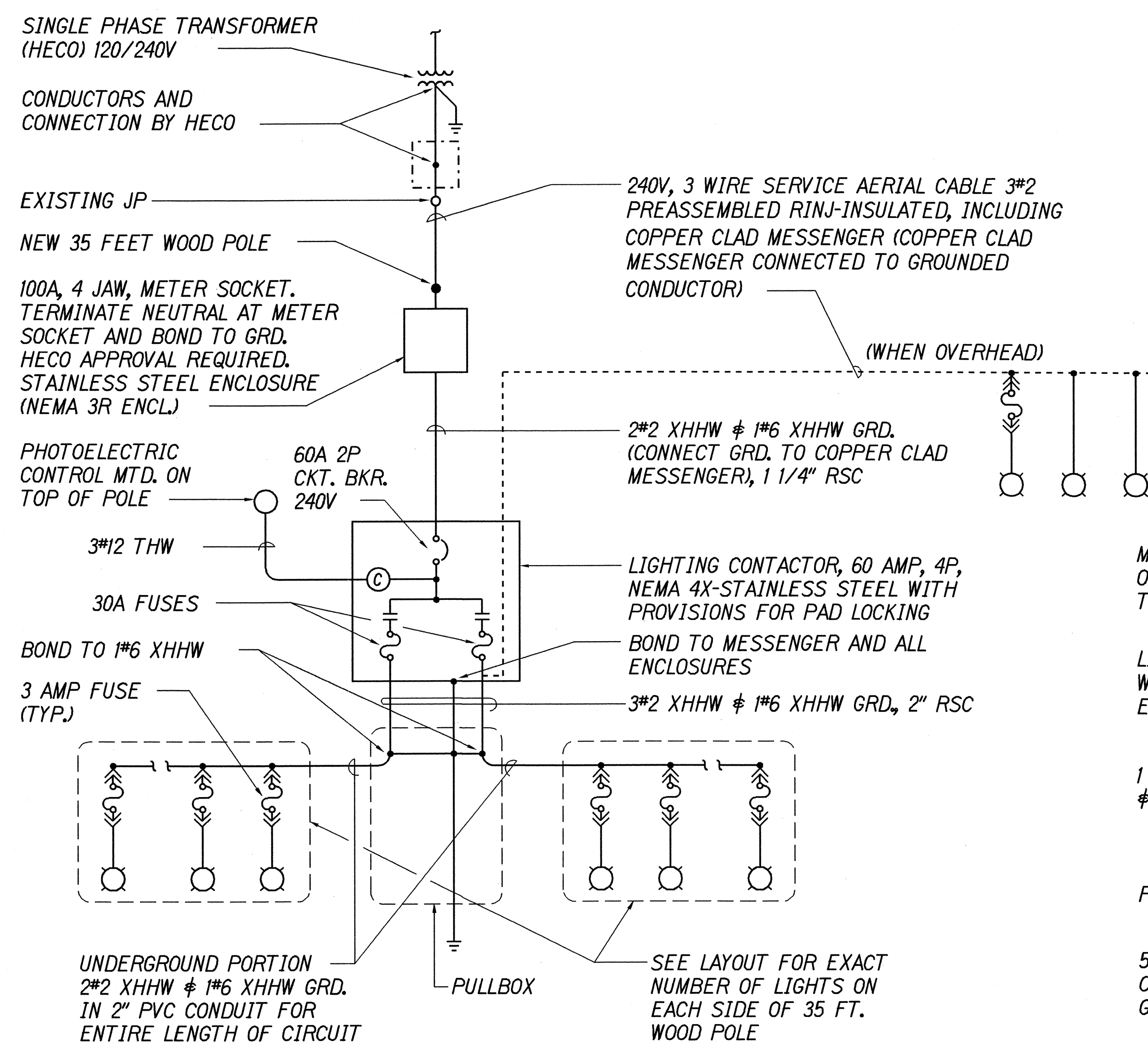
* NOTE:  
THE GRAPHICAL REPRESENTATION OF THE HIGHWAY LIGHT LOCATIONS ARE NOT COINCIDENT WITH THE STATIONS & OFFSETS AS INDICATED.

* NOTE:  
THE GRAPHICAL REPRESENTATION OF THE  
HIGHWAY LIGHT LOCATIONS ARE NOT COINCIDING  
W/ THE STATIONS & OFFSETS AS INDICATED.

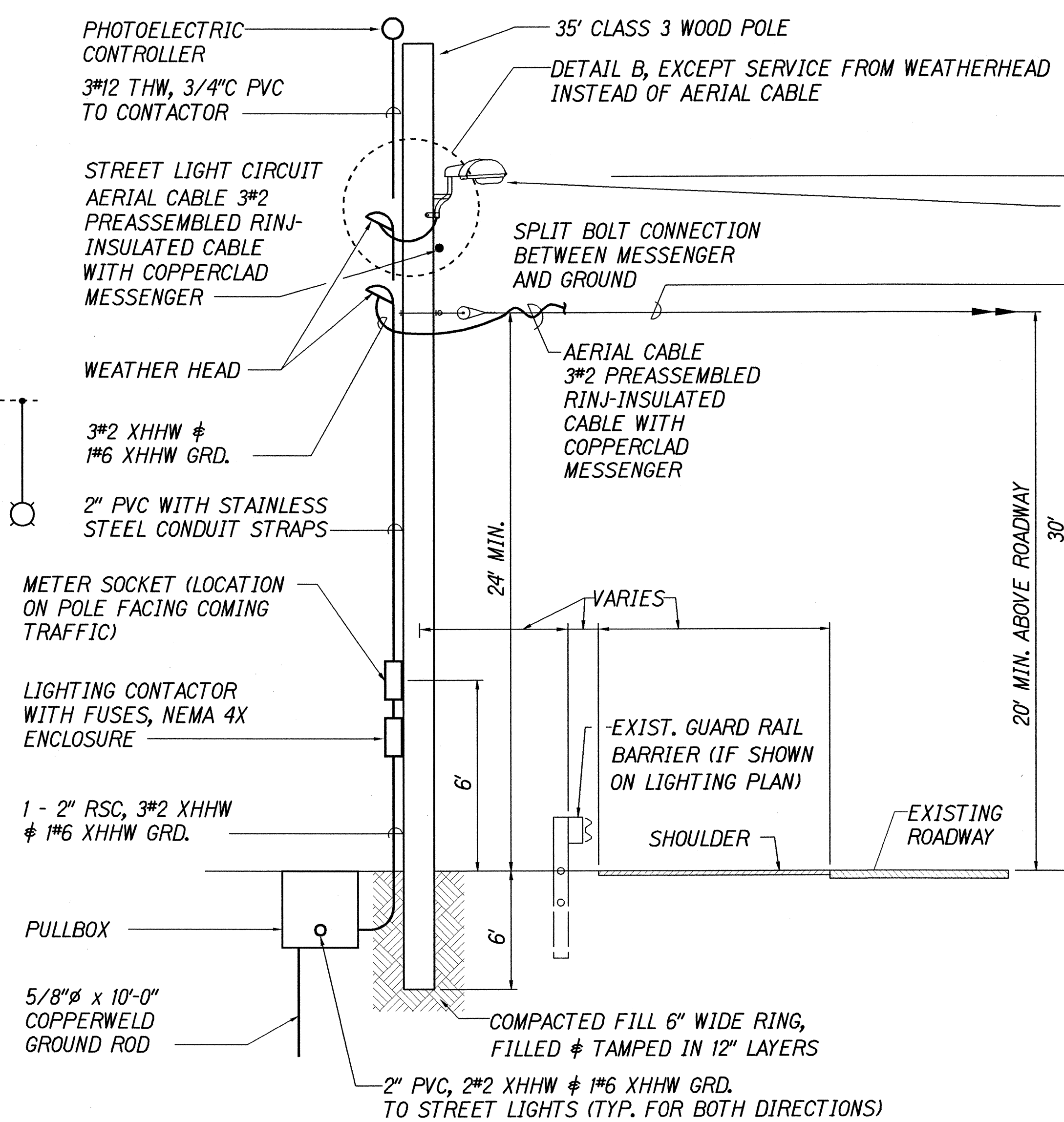
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"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93A-07-98	2002	18	27



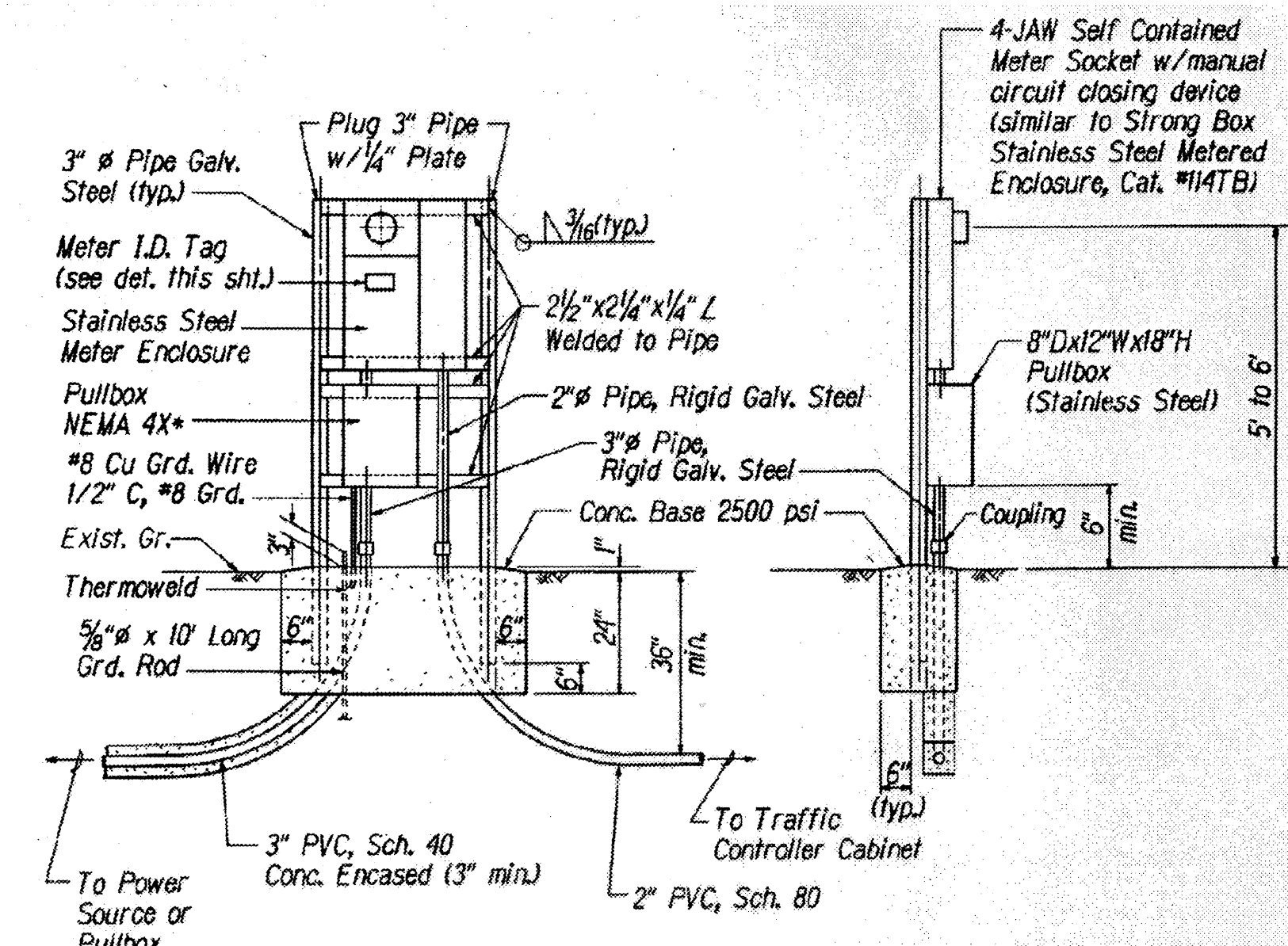
TYPICAL ONE-LINE DIAGRAM



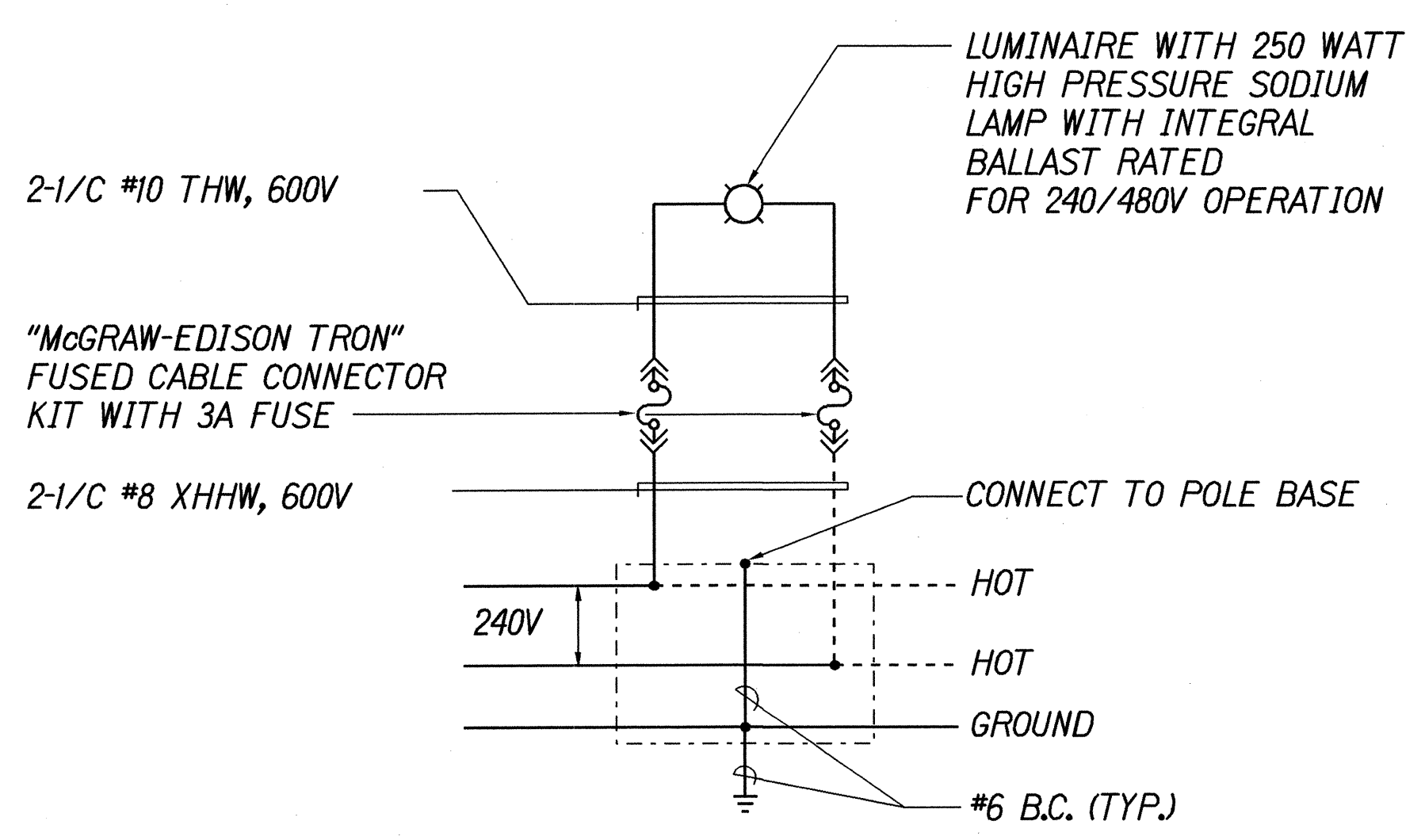
WOOD POLE FOR HECO SERVICE, TYP.  
(M1-10, M2-5, M3-11, M7-12, M8-12, M9-12)

250 WATT HPS ARMLESS TYPE LUMINAIRE

TO JP ACROSS ROADWAY FOR CONNECTION TO HECO SERVICE. AT JP PROVIDE MIN. 3' SLACK NEATLY COILED FOR FINAL CONNECTION BY HECO. CONTRACTOR SHALL TERMINATE AERIAL CABLE AT JP AND COORDINATE WITH HECO FOR GUYS



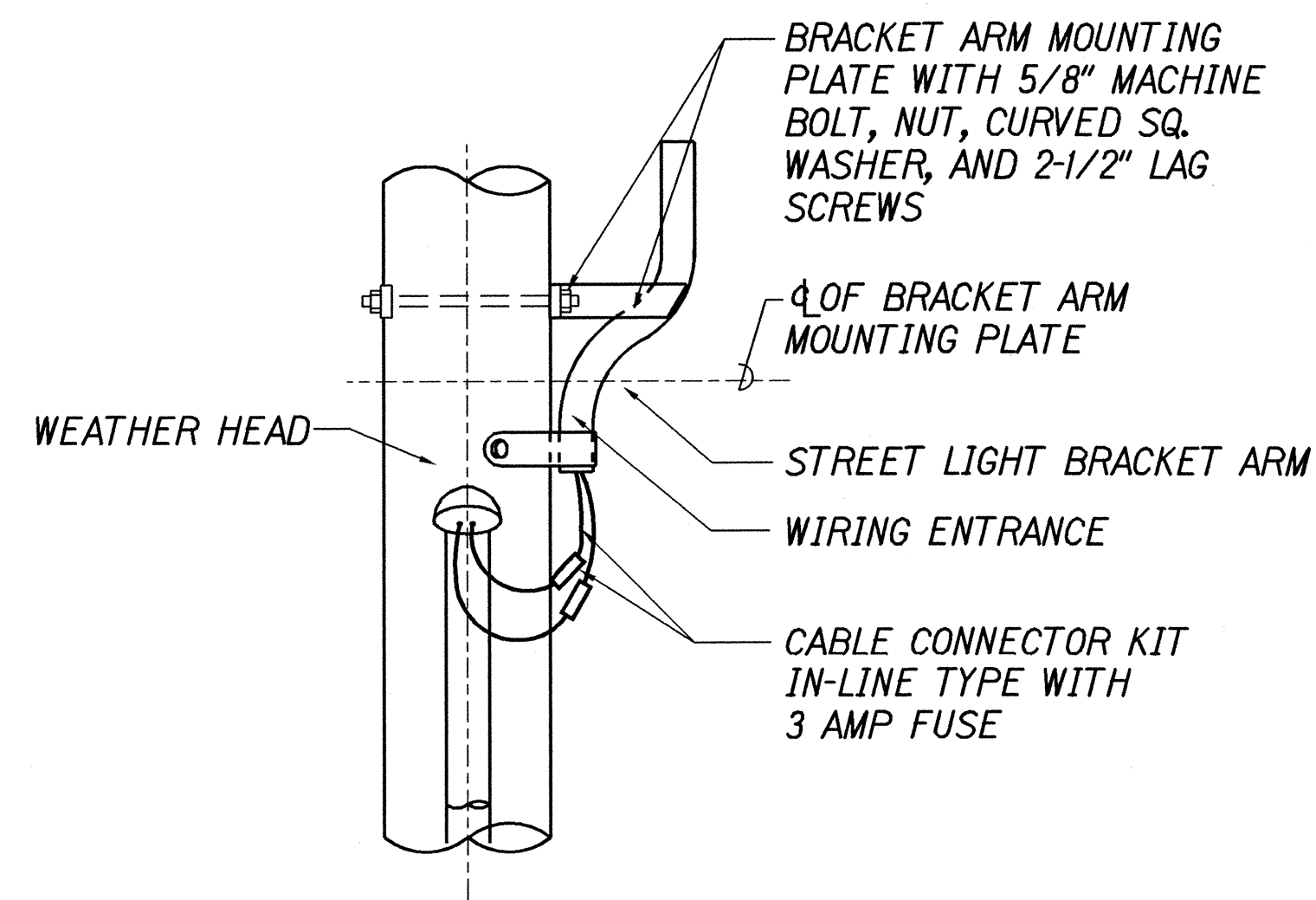
FRONT ELEVATION SIDE ELEVATION  
HECO SERVICE AT M2-5



TYPICAL LUMINAIRE CONNECTION DIAGRAM

ONE-LINE DIAGRAM LEGEND:

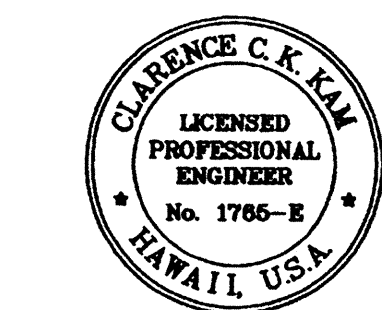
- STREET LIGHT AND POLE NUMBER
- FUSE ELEMENT
- CONNECTION
- CONNECTION TO HECO TRANSFORMER SECONDARY BY HECO
- GROUND ROD



STREET LIGHT MAST ARM MOUNTING  
STREET LIGHT ON WOOD POLE DETAIL B

DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
NO.	_____

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



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DRAWING REVIEW:  
Reviewed for HECO's Facilities Only

Date _____ By _____

Distribution Engineering Department  
Hawaiian Electric Company, Inc.

HECO's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on Customer's behalf from the responsibility for engineering, design, materials and any liability associated with this project.

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

WOOD POLE DETAILS #  
ONE-LINE DIAGRAM (ALT 1)  
FARRINGTON HIGHWAY LIGHTING IMPROVEMENTS  
ALA HEMA STREET TO PILILOKOE BRIDGE  
PROJECT NO. 93A-07-98

Scale: Not to Scale
Date: November, 2002

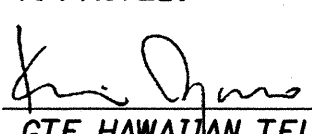
SHEET No. 18 OF 27 SHEETS

"AS-BUILT"

# MATERIAL LIST

ITEM NO.	DESCRIPTION
1	LUMINAIRE 250 W H.P.S. & BRACKET AS SHOWN.
2	CONCRETE DEADMAN 1'-6"Ø W/ GALV. SQ. WASHER.
3	IN LINE FUSE HOLDER W/ 3A FUSE.
4	WIRE, #10 AWG STRANDED COPPER, TYPE RHW BLACK.
5	WIRE, #10 AWG STRANDED COPPER, TYPE RHW RED.
6	IN LINE UNFUSED, INSULATED SEPARABLE CONNECTOR.
7	GUY WIRE GUARD, GALV.
8	THIMBLE CLEVIS W/ EYELET.
9	WIRES, 2 - #2 XHHW COPPER W/COPPER CLAD MESSENGER.
10	PREFORMED GUY GRIP.
11	GUY WIRE, 3/8" EHS, GALV.
12	ANCHOR GUY HOOK W/3/4"Ø THRU BOLT & 2-1/4" SQ. WASHER.
13	MESSENGER HANGER, 5/8"Ø THRU BOLT & 2-1/4" SQ. WASHER.
14	INSULATOR, PORCELAIN.
15	LAG SCREW (SIZE AS REQUIRED).
16	5/8"Ø GALV. THRU BOLT W/ 2-1/2" SQ. GALV. WASHER (LENGTH AS REQUIRED).
17	PERFORMED DEADEND.
18	ANCHOR ROD 1"Ø X 8'-0" COPPER CLAD.

NOTE:  
ALL HARDWARE SHALL BE HOT DIPPED GALV. STEEL.

APPROVED:   
GTE HAWAIIAN TEL. 6/1/00  
DATE

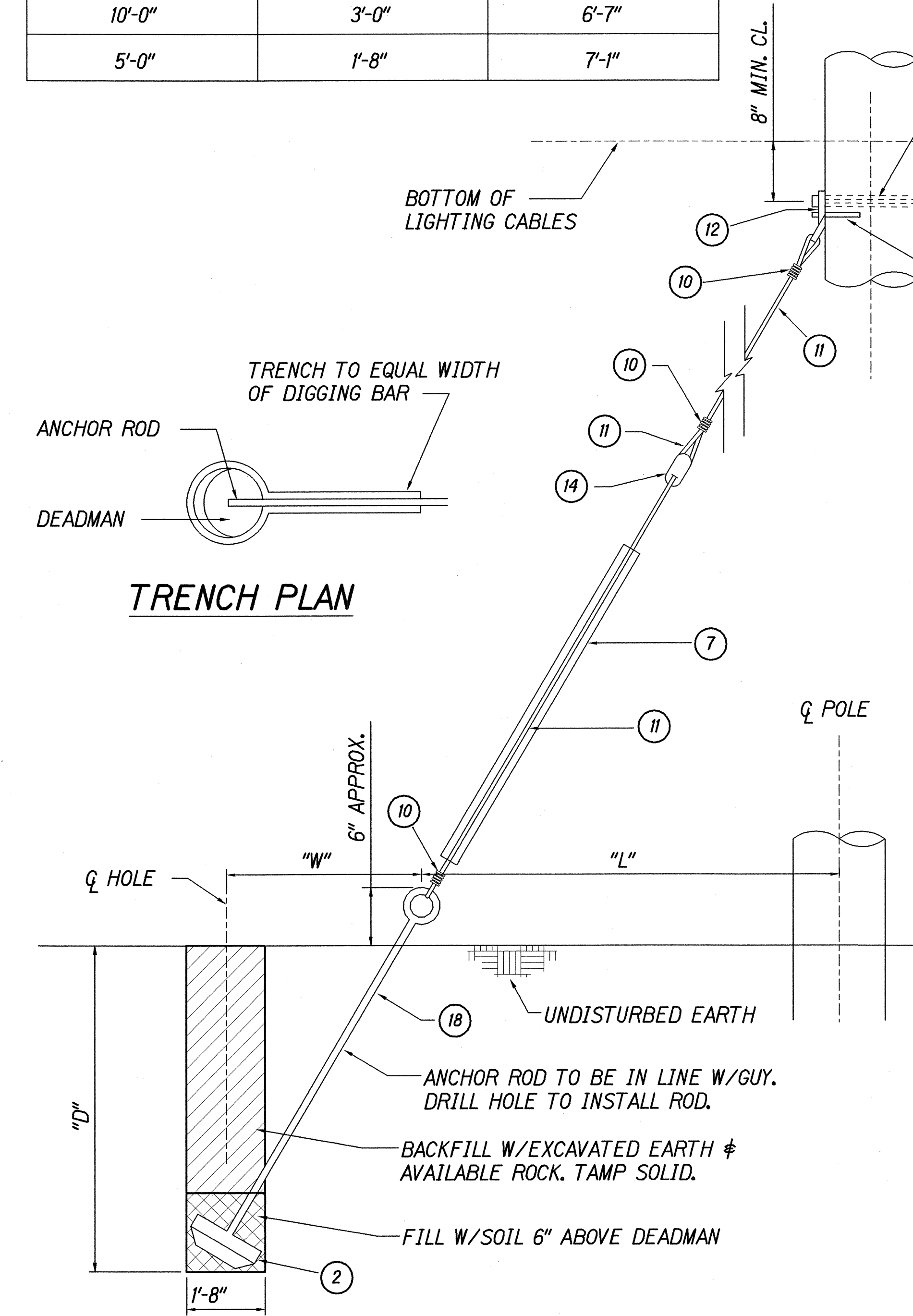


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**WOOD POLE INSTALLATION**  
**MISCELLANEOUS (ALT 1)**  
FARRINGTON HIGHWAY LIGHTING IMPROVEMENTS  
ALA HEMA STREET TO PILIOKOE BRIDGE  
PROJECT NO. 93A-07-98  
Scale: None Date: November, 2002  
SHEET No. 19 OF 27 SHEETS

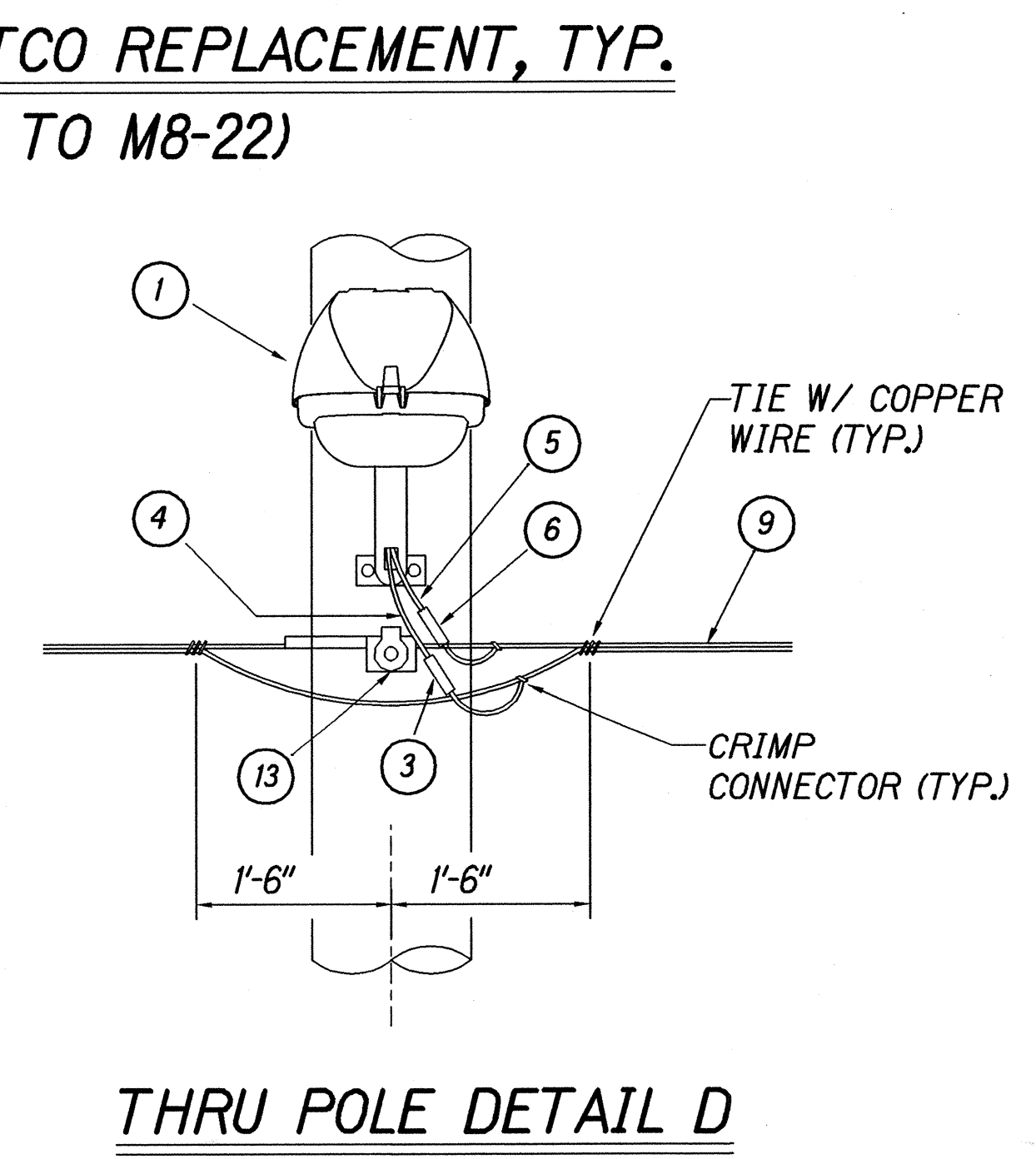
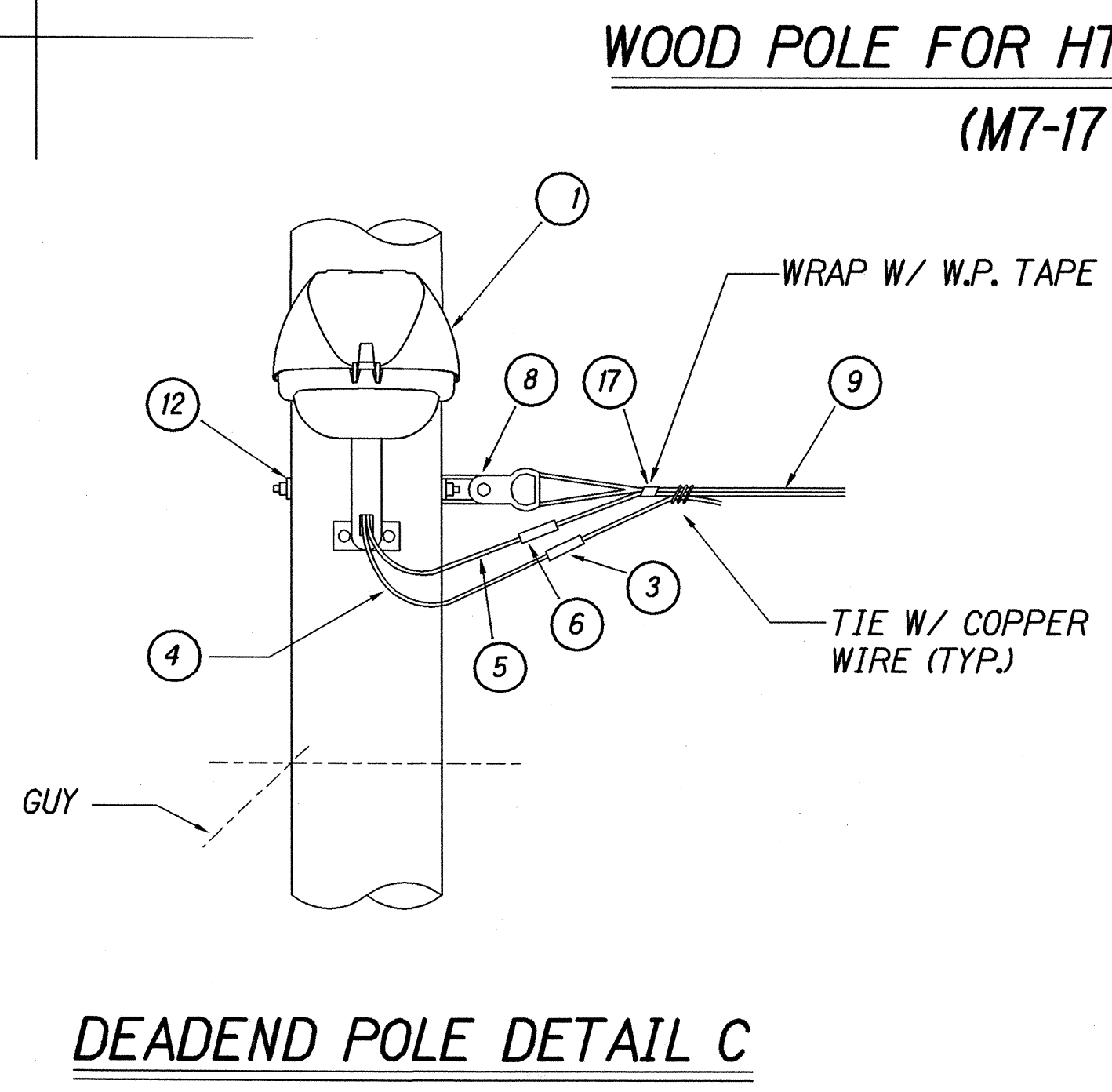
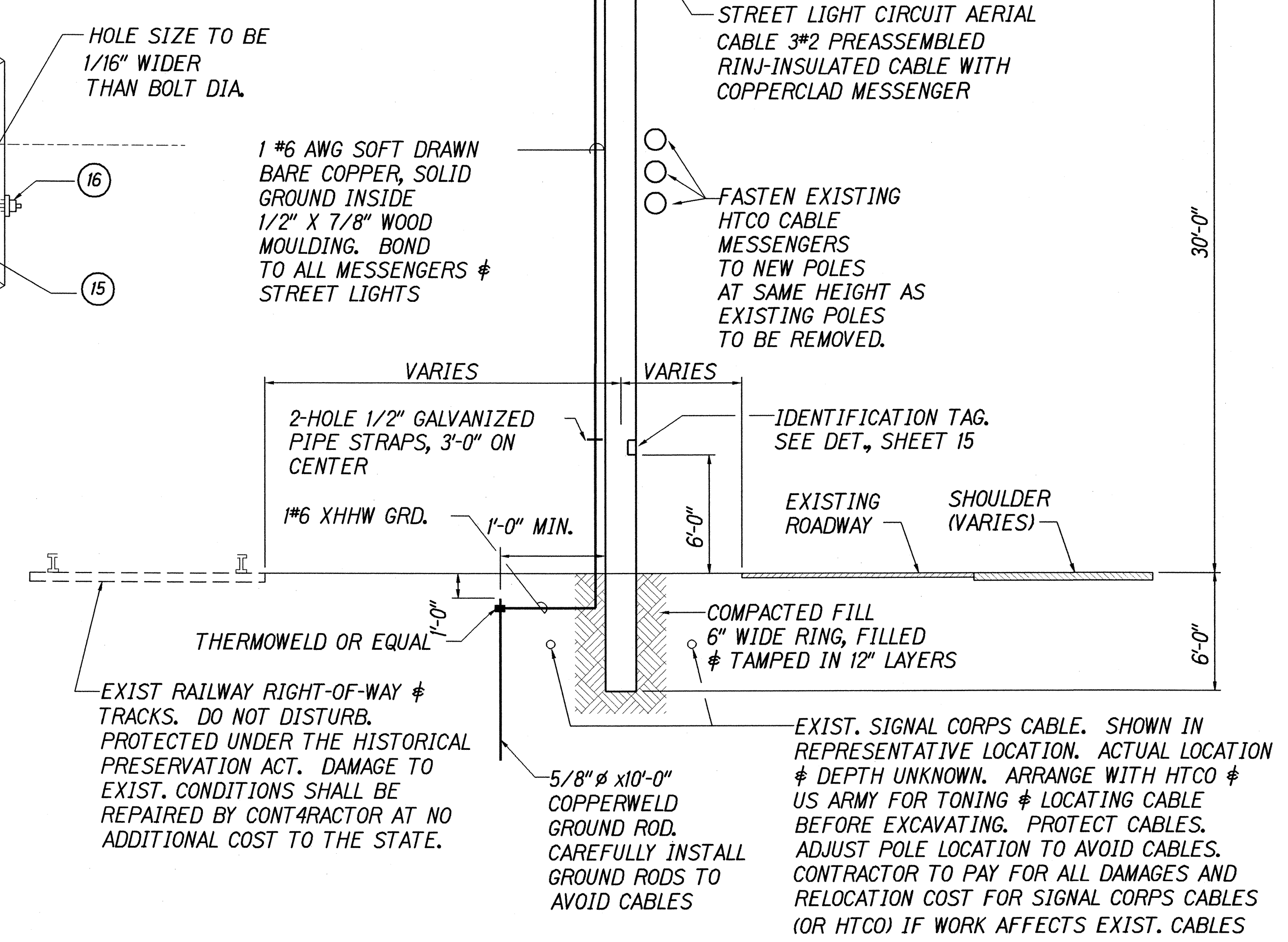
ANCHOR ROD & DEADMAN DIM.		
"L" C POLE TO ANCHOR ROD EYE	"W" C HOLE TO ANCHOR ROD EYE	"D" VERTICAL DEPTH
20'-0"	4'-8"	5'-6"
15'-0"	4'-0"	6'-1"
10'-0"	3'-0"	6'-7"
5'-0"	1'-8"	7'-1"



## ANCHOR & GUY WIRE DETAILS (ONLY AT POLE M3-11)

POLE M1-10, M2-5, M7-12, M8-12 & M9-12 WERE DELETED DUE TO THE RIGHT OF WAY BEING ONLY 6" TO THE OTHER PROPERTY LINE

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



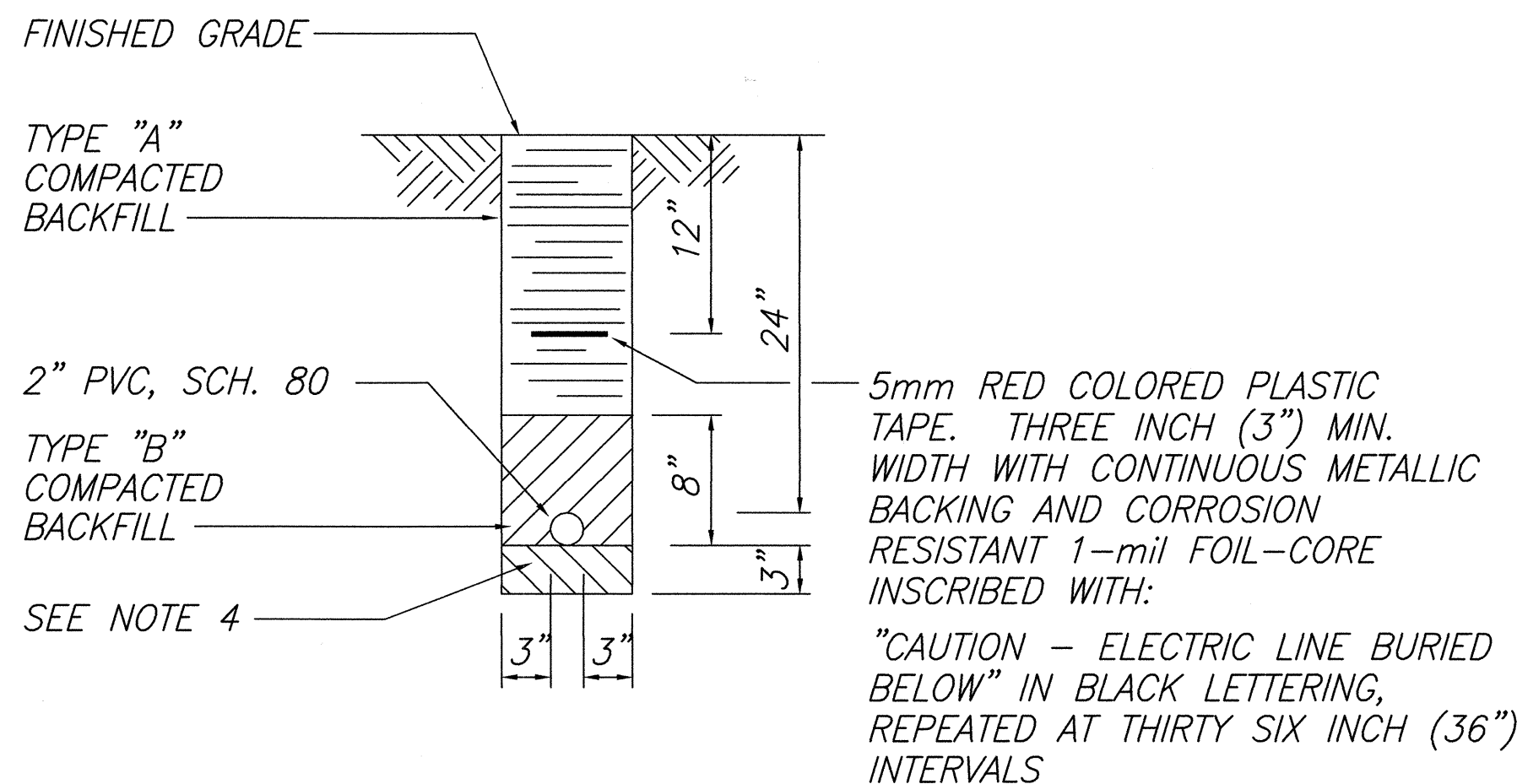
NOTES:

1. ALL CONDUIT SHALL BE "PVC" SCHED. 80 FOR DIRECT BURIED OR CONCRETE ENCASEMENT, U.O.N.
2. BACKFILL OVER CONCRETE DUCT SECTIONS SHALL BE TYPE "A"
3. BACKFILL OVER DIRECT BURIED CONDUITS SHALL BE TYPE "B"
4. IF THE NORMAL MATERIAL IN THE BOTTOM OF A TRENCH CONTAINING A DIRECT BURIAL CONDUIT IS NOT TYPE "B" AN ADDITIONAL 3" SHALL BE EXCAVATED AND TYPE "B" BACKFILL PROVIDED.
5. CONCRETE FOR DUCTS TO BE 2500 P.S.I. IN 28 DAYS.

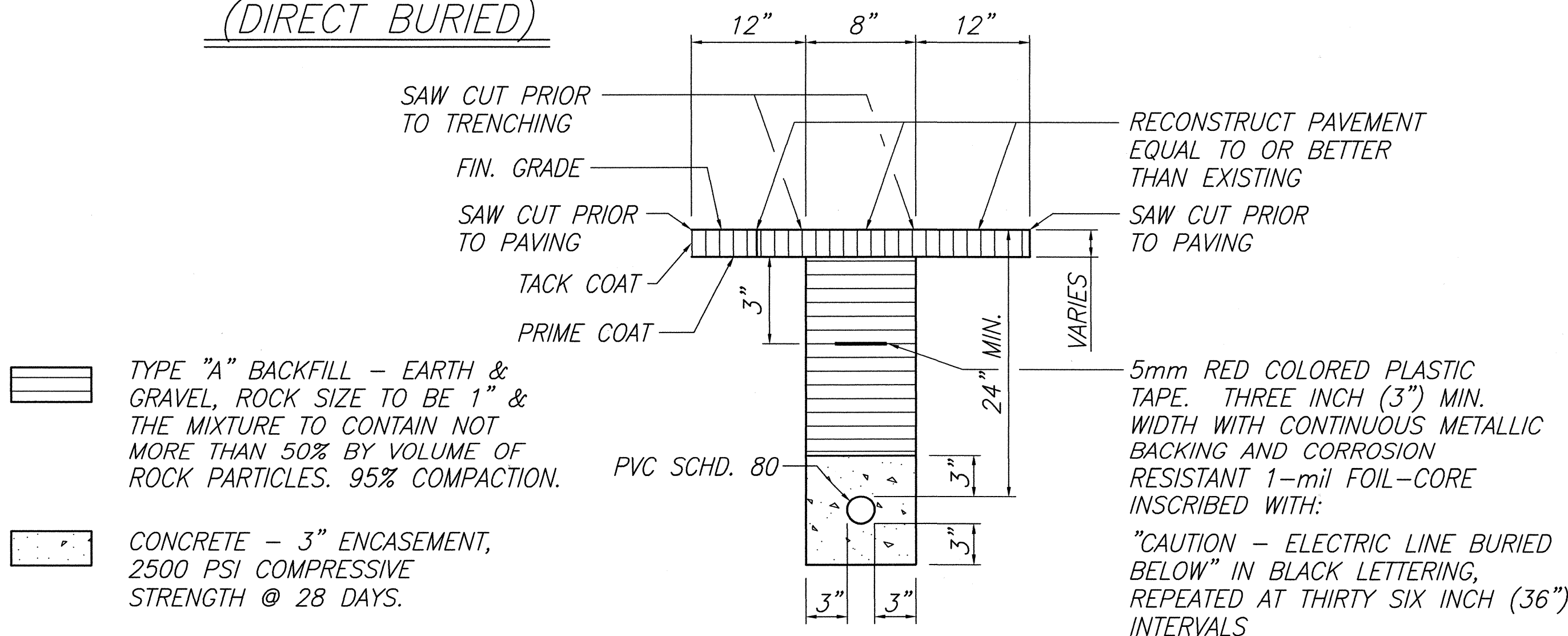
BACKFILL TYPES ARE:

TYPE "A": BEACH SAND, EARTH, OR EARTH AND GRAVEL. IF EARTH AND GRAVEL USED, THE MAXIMUM ROCK SIZE SHALL BE 1" AND THE MIXTURE SHALL CONTAIN NOT MORE THAN 50% BY VOLUME OF ROCK PARTICLES.

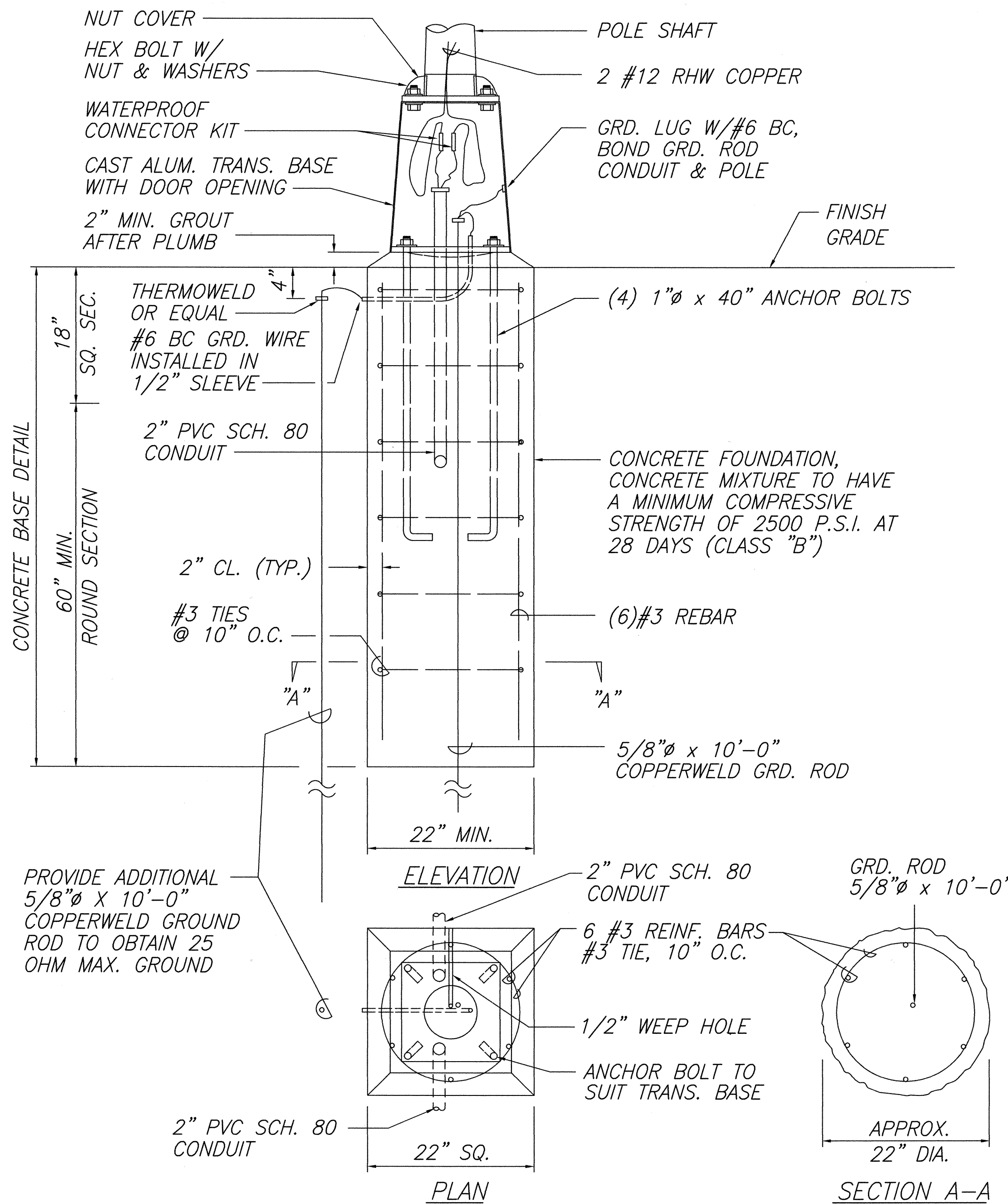
TYPE "B": BEACH SAND, EARTH, OR EARTH AND GRAVEL. IF EARTH AND GRAVEL USED, MIXTURE MUST PASS A 1/2" MESH SCREEN AND CONTAIN NOT MORE THAN 20% BY VOLUME OF ROCK PARTICLES.



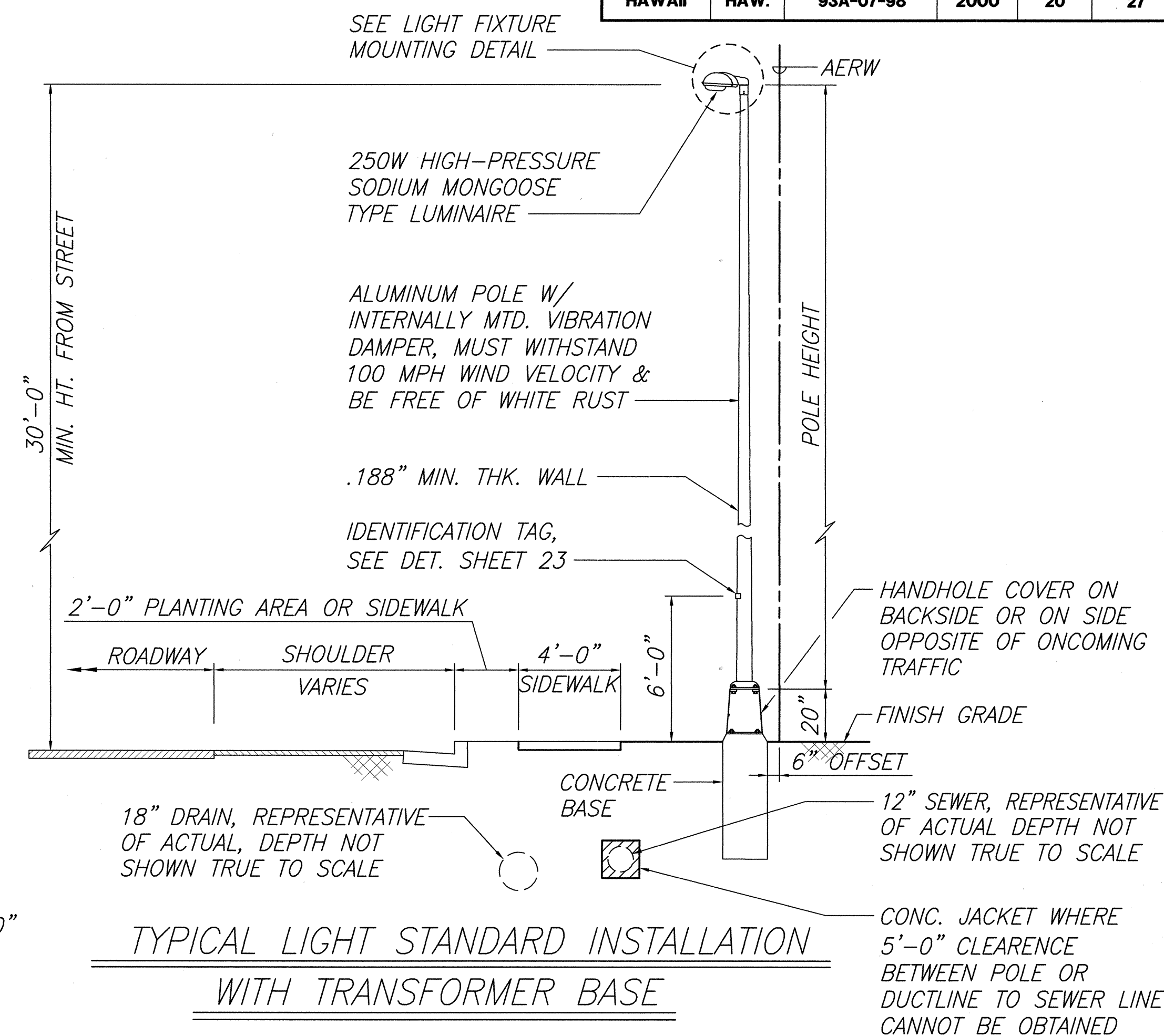
TYPICAL DUCT SECTION
(DIRECT BURIED)



TYPICAL TRENCH DETAIL - STREET LIGHT
NOT TO SCALE

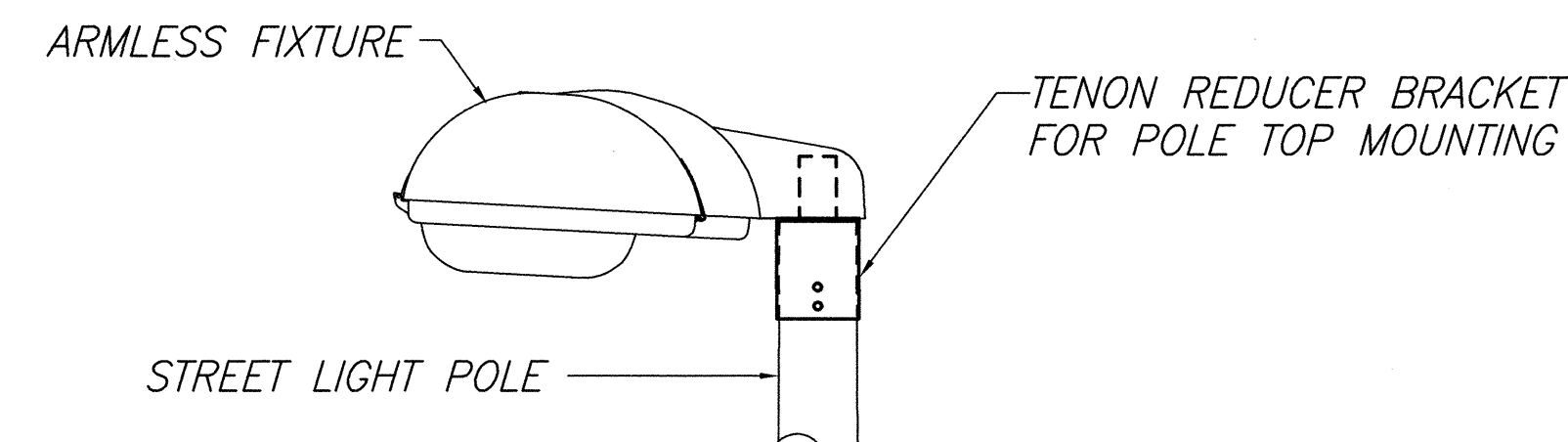


CONCRETE FOUNDATION AND TRANSFORMER BASE DETAIL



NOTE:

SEE SHT-21 & SHT-26 FOR SPECIAL LIGHT INSTALLATION DETAILS.

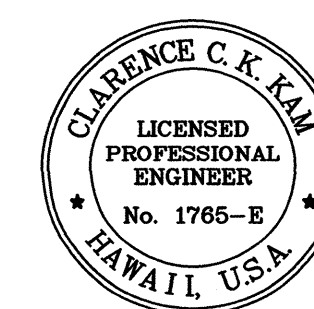


LIGHT FIXTURE MOUNTING DETAIL (TYP.)
NOT TO SCALE

APPROVED:

Dennis M. Nishimura
CHIEF, WASTEWATER BRANCH, DPP

6/2/00
DATE

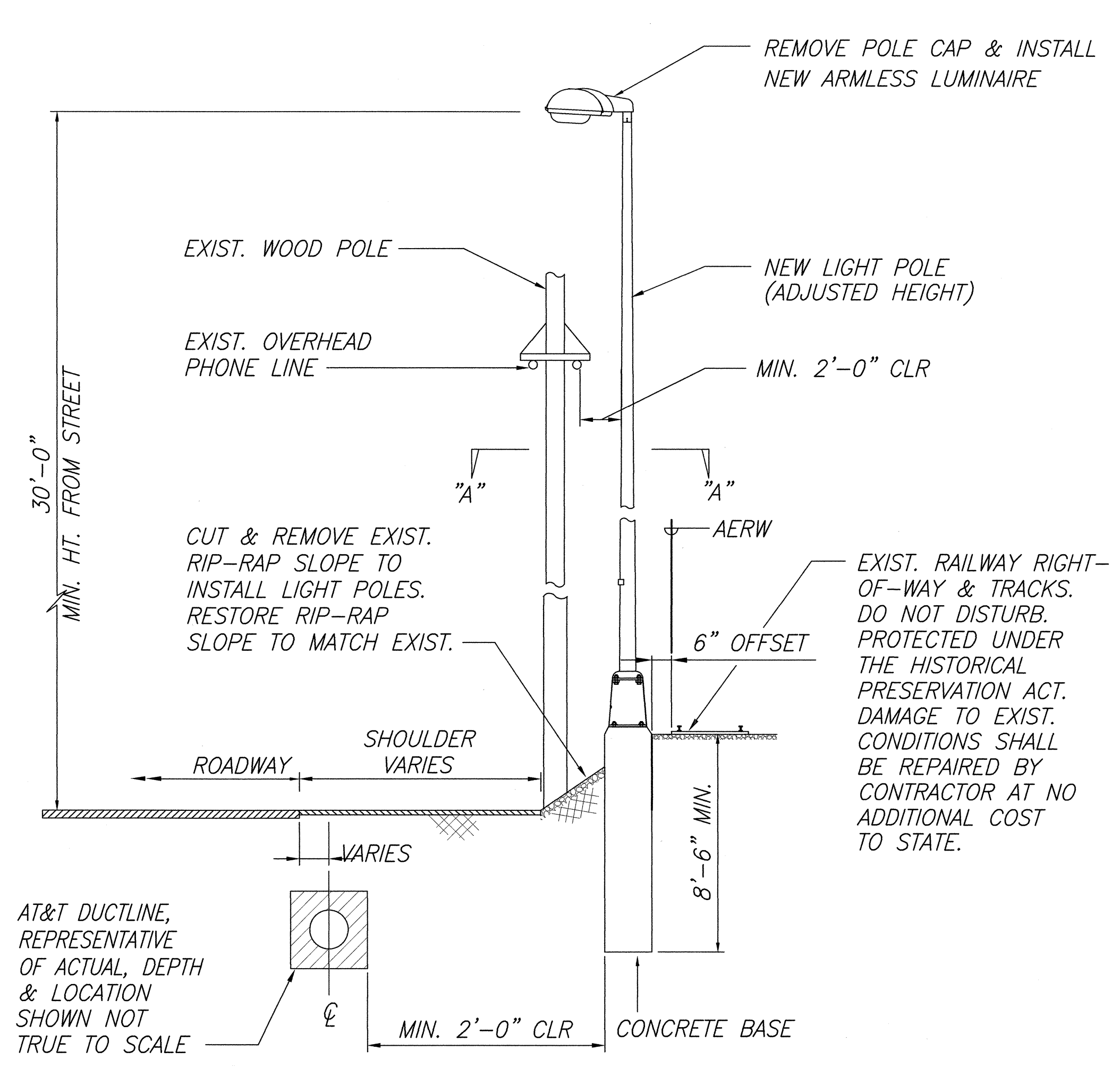


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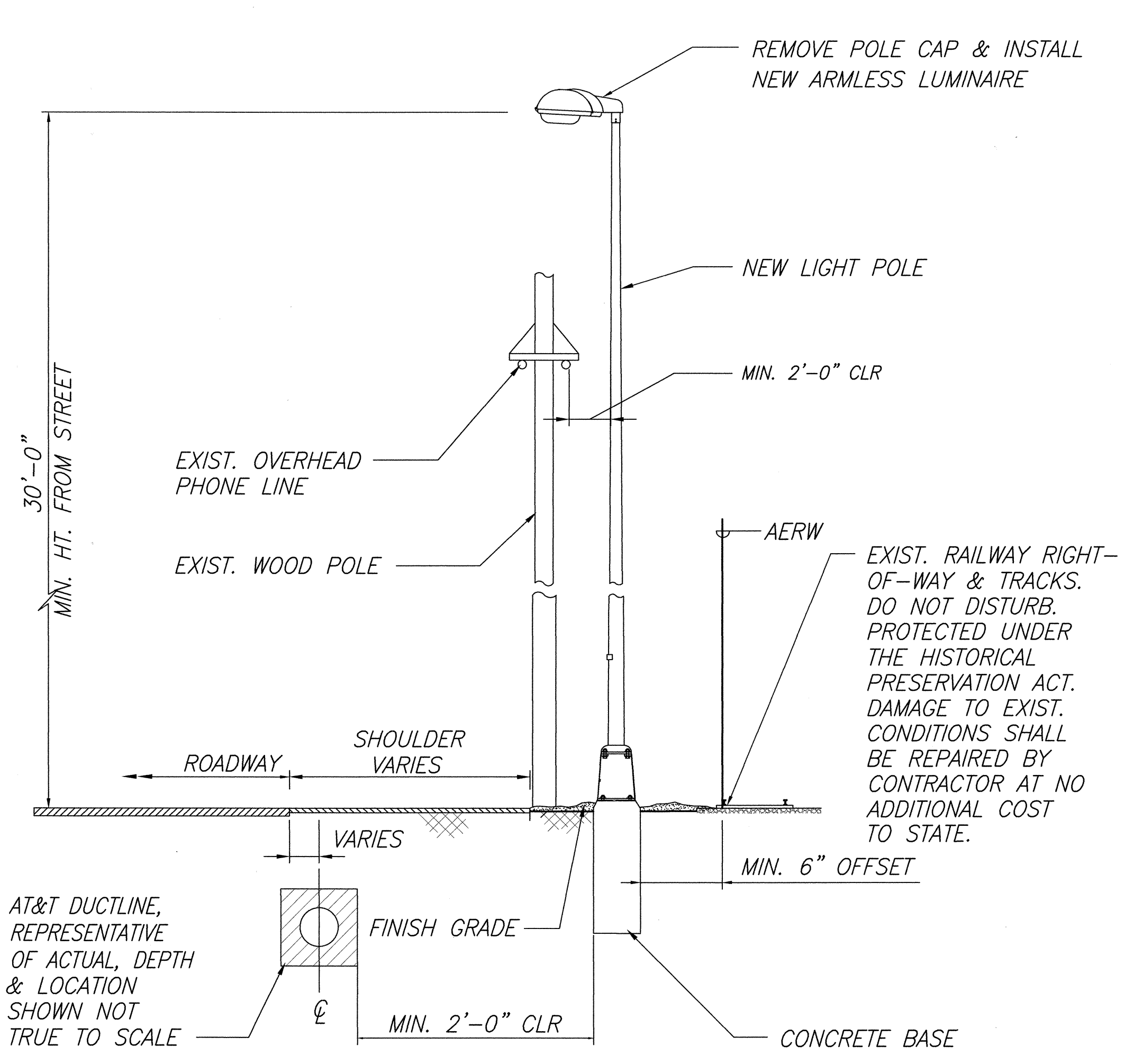
C. Kim

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TYPICAL TRANSFORMER
BASE POLE DETAILS (ALT 1)
FARRINGTON HIGHWAY LIGHTING IMPROVEMENTS
ALA HEMA ST TO PILIOKOE BRIDGE
PROJECT NO. 93A-07-98
SCALE: None
SHEET No. 20 OF 27 SHEETS

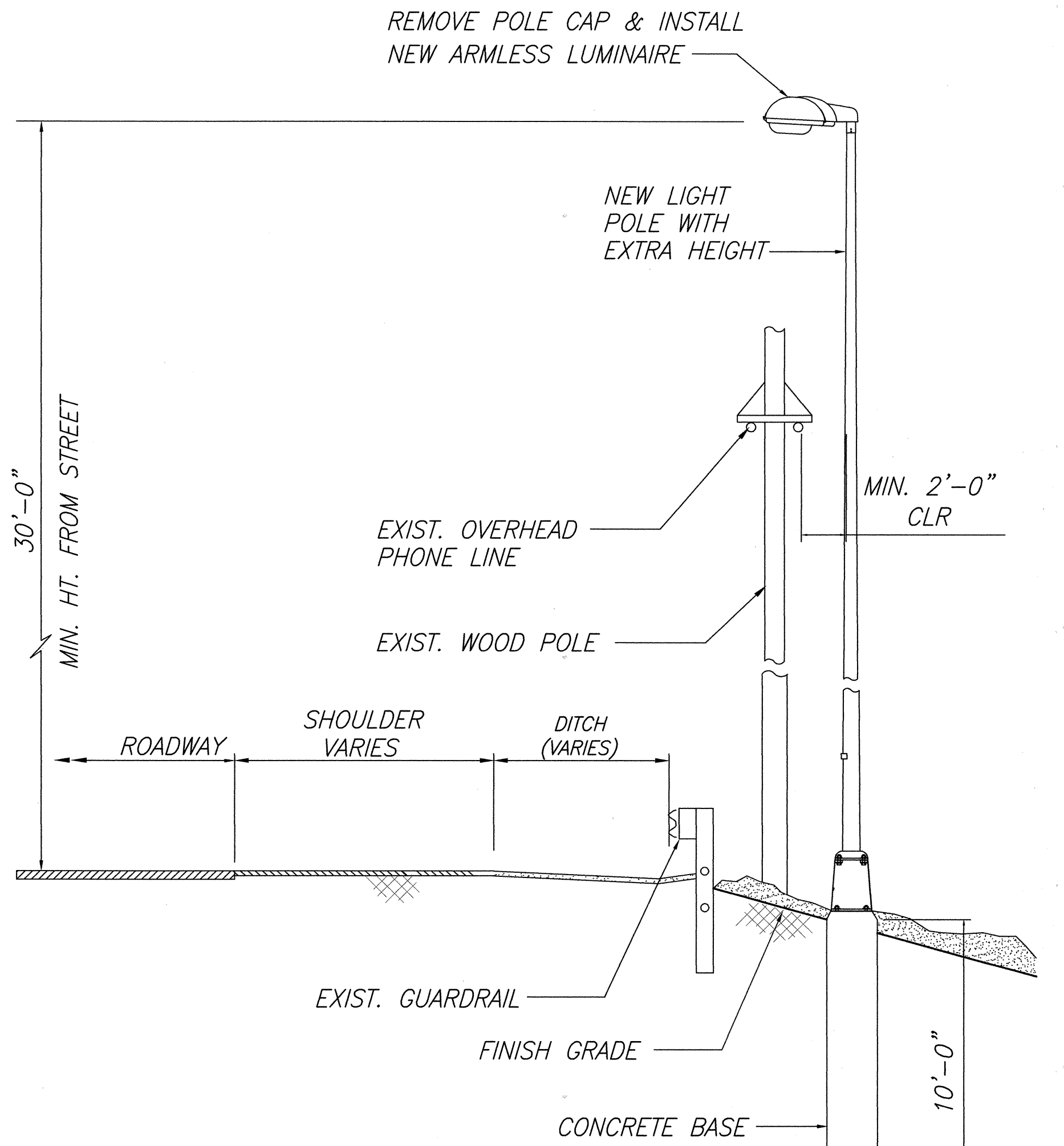
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|---------------------|-------|-----------|-------------|-----------|--------------|
| HAWAII | HAW. | 93A-07-98 | 2000 | 21 | 27 |



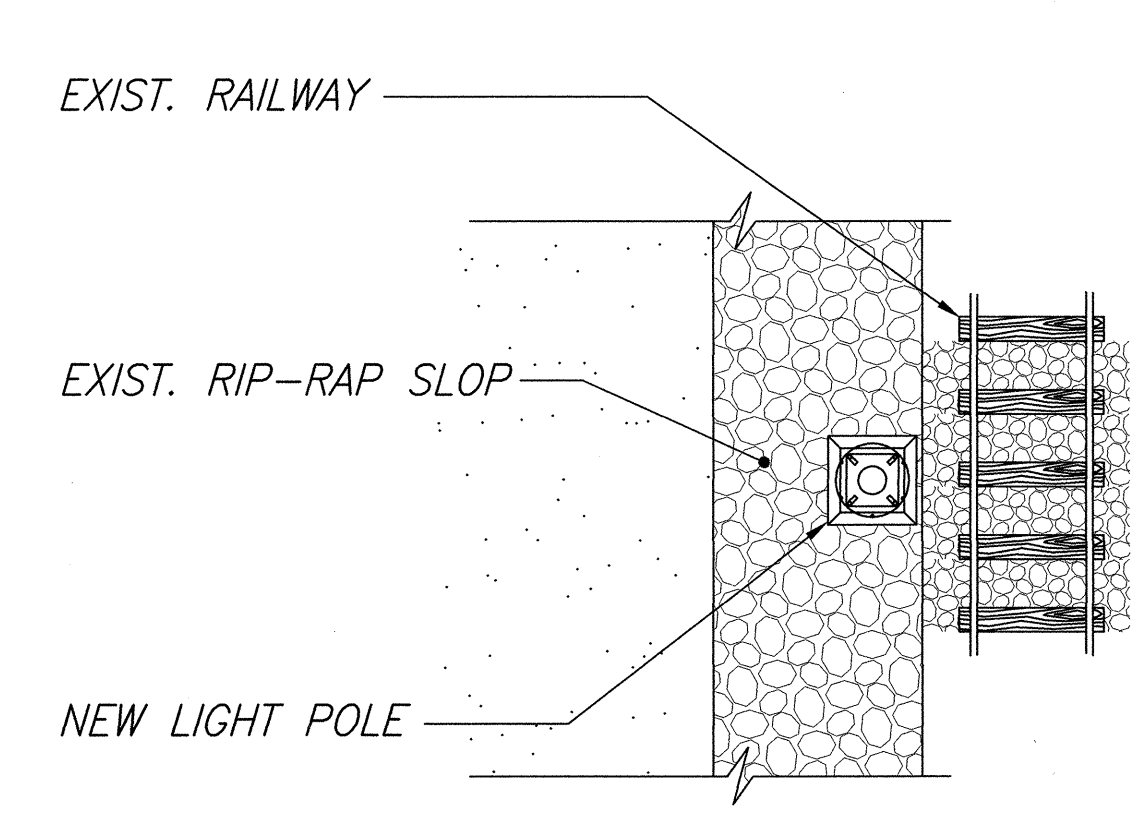
LIGHT POLE STANDARD INSTALLATION
ALONG EXIST. RIP-RAP SLOPE



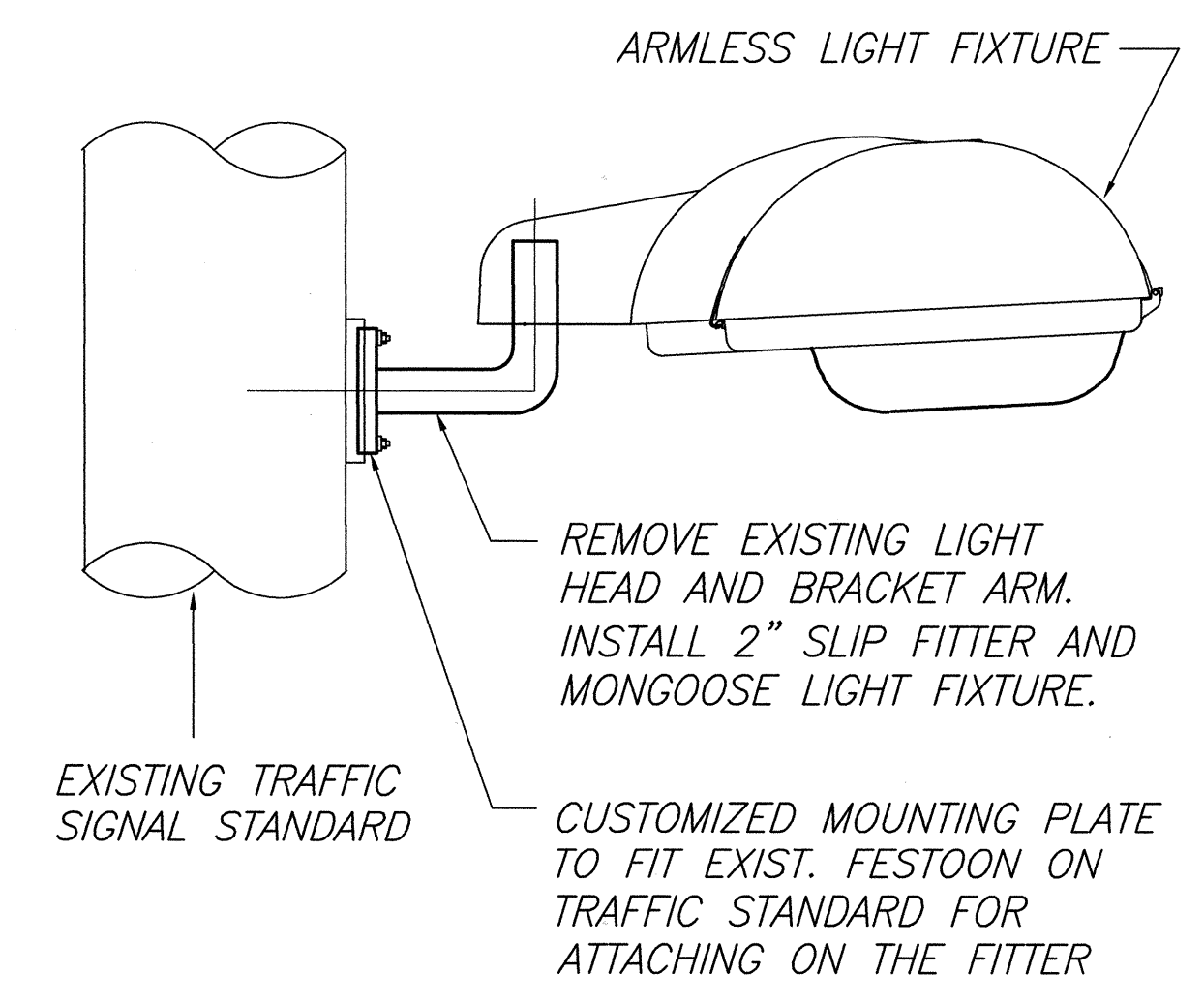
LIGHT POLE STANDARD INSTALLATION
NEAR EXIST. PHONE LINE



LIGHT POLE STANDARD INSTALLATION
AT DOWN SLOPING SIDE



SECTION A-A



LIGHT FIXTURE REPLACEMENT ON EXISTING
TRAFFIC SIGNAL STANDARD (TYP.)

| | | |
|---------------|-------------------|------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
| NOTE BOOK | DRAWN BY | |
| | DESIGNED BY | |
| | CHECKED BY | |
| No. | | |

APPROVED:
[Signature]
GTE HAWAIIAN TEL.

6/1/00
DATE



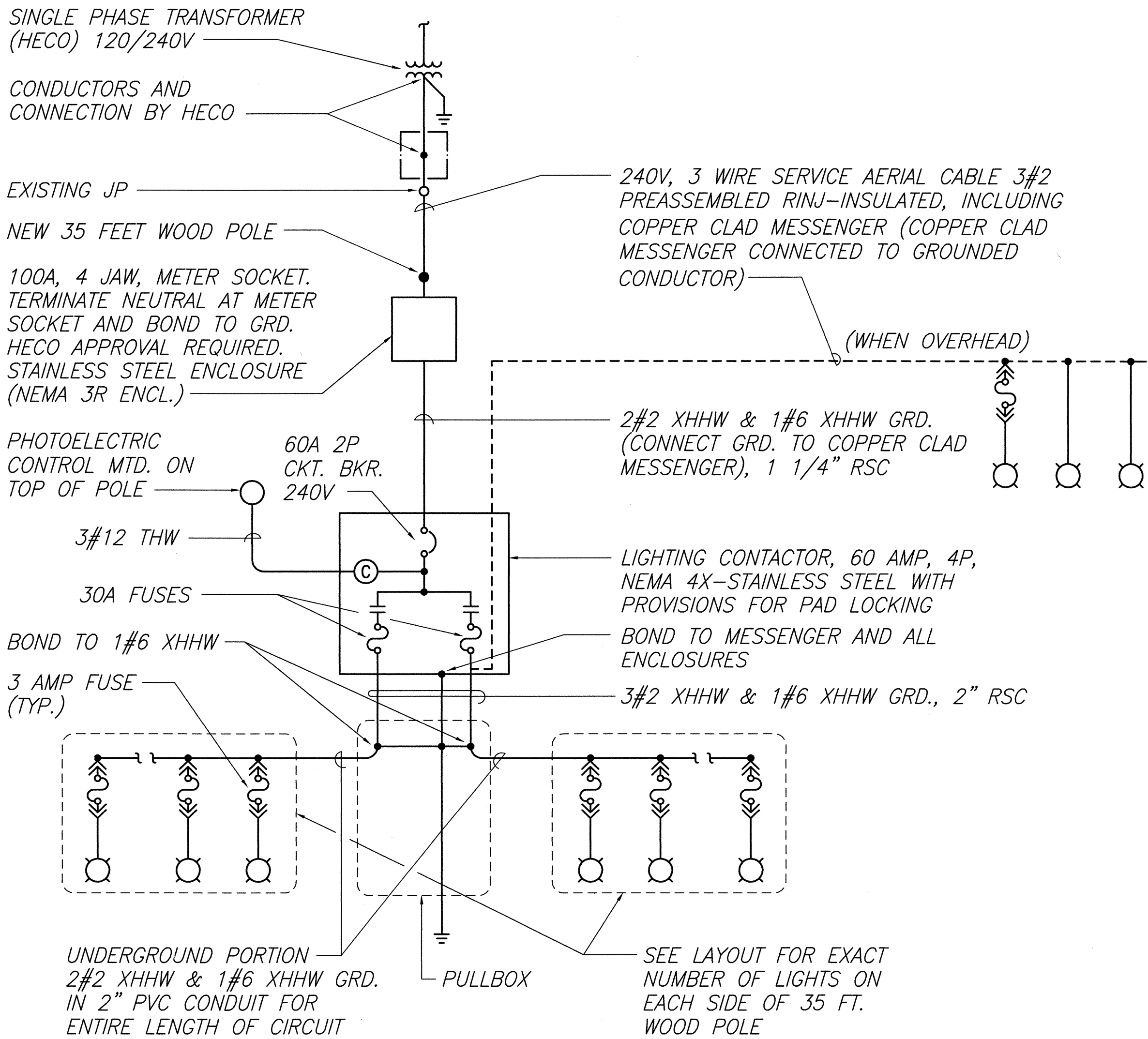
THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION

[Signature]

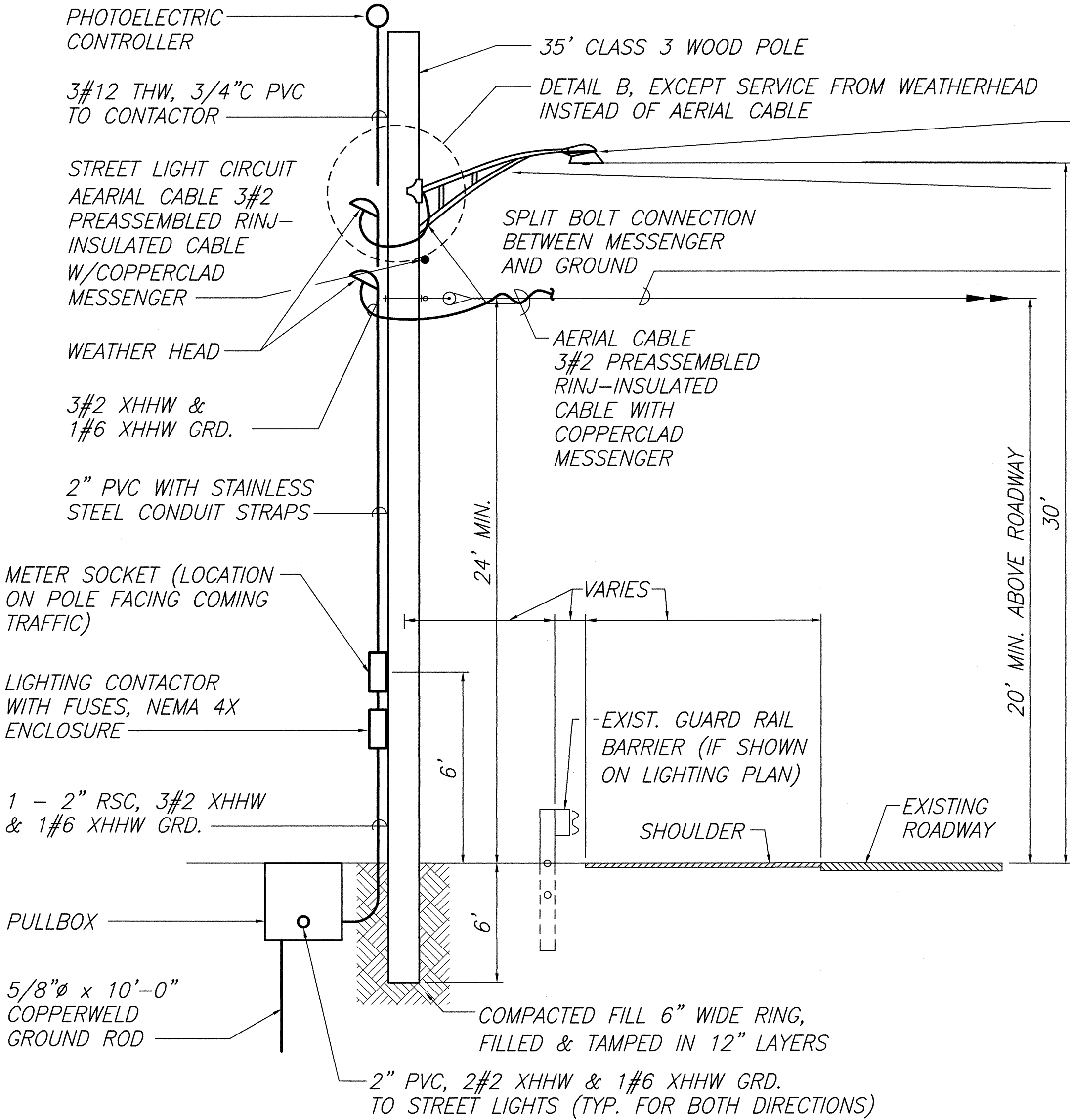
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
SPECIAL HIGHWAY LIGHTING
INSTALLATION DETAILS (ALT 1)
FARRINGTON HIGHWAY LIGHTING IMPROVEMENTS
ALA HEMA ST TO PILIOKOE BRIDGE
PROJECT NO. 93A-07-98
SCALE: Not to Scale
2000
SHEET No. 21 OF 27 SHEETS

BY FAX-HAWAII RE-DESIGN MONGOOSE VEH-2128.DWG
05/24/2000

| FED. ROAD DIST. NO. | STATE | PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|-----------|-------------|-----------|--------------|
| HAWAII | HAW. | 93A-07-98 | 2000 | 18 | 27 |

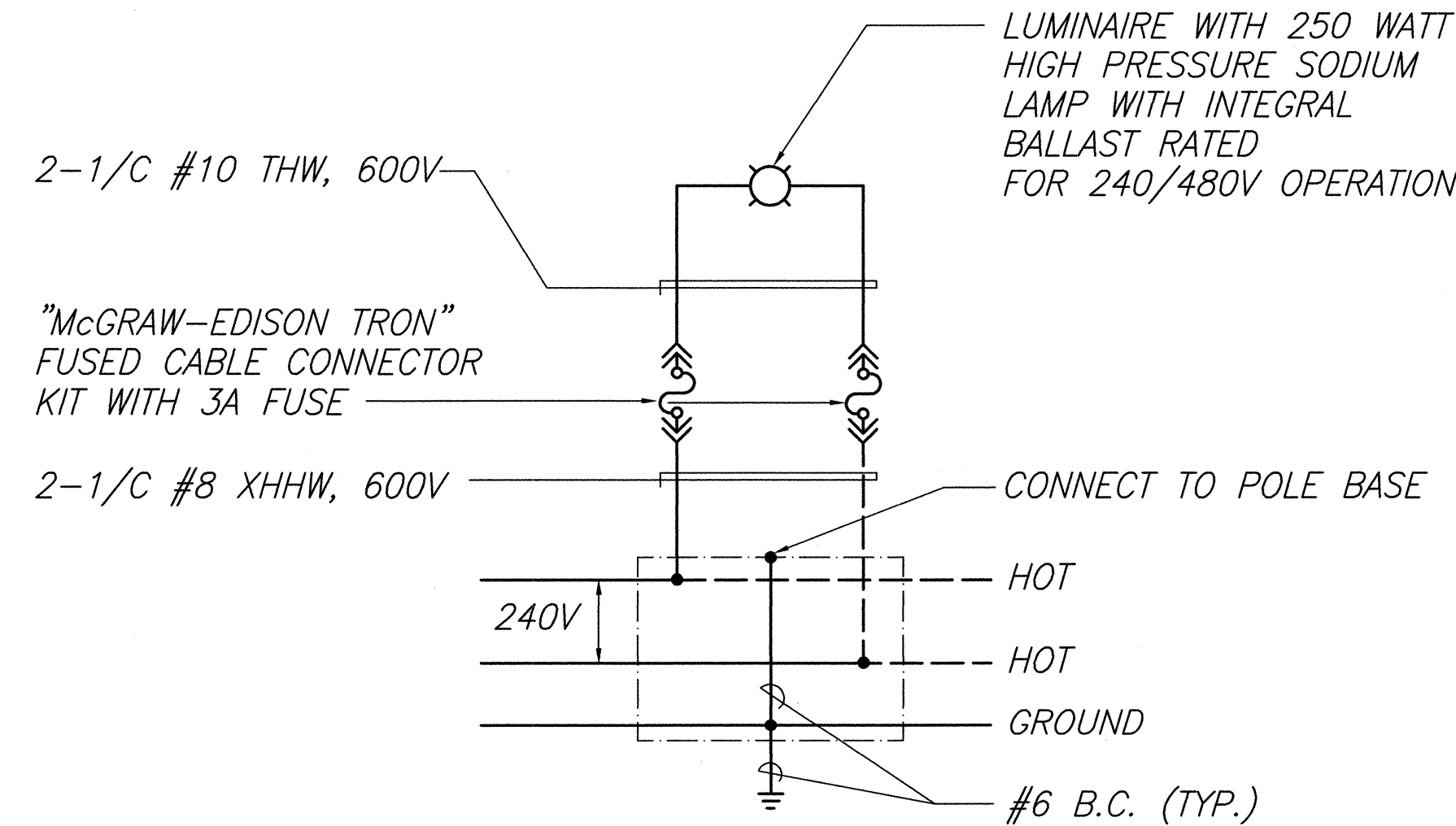


TYPICAL ONE-LINE DIAGRAM



WOOD POLE FOR HECO SERVICE, TYP.

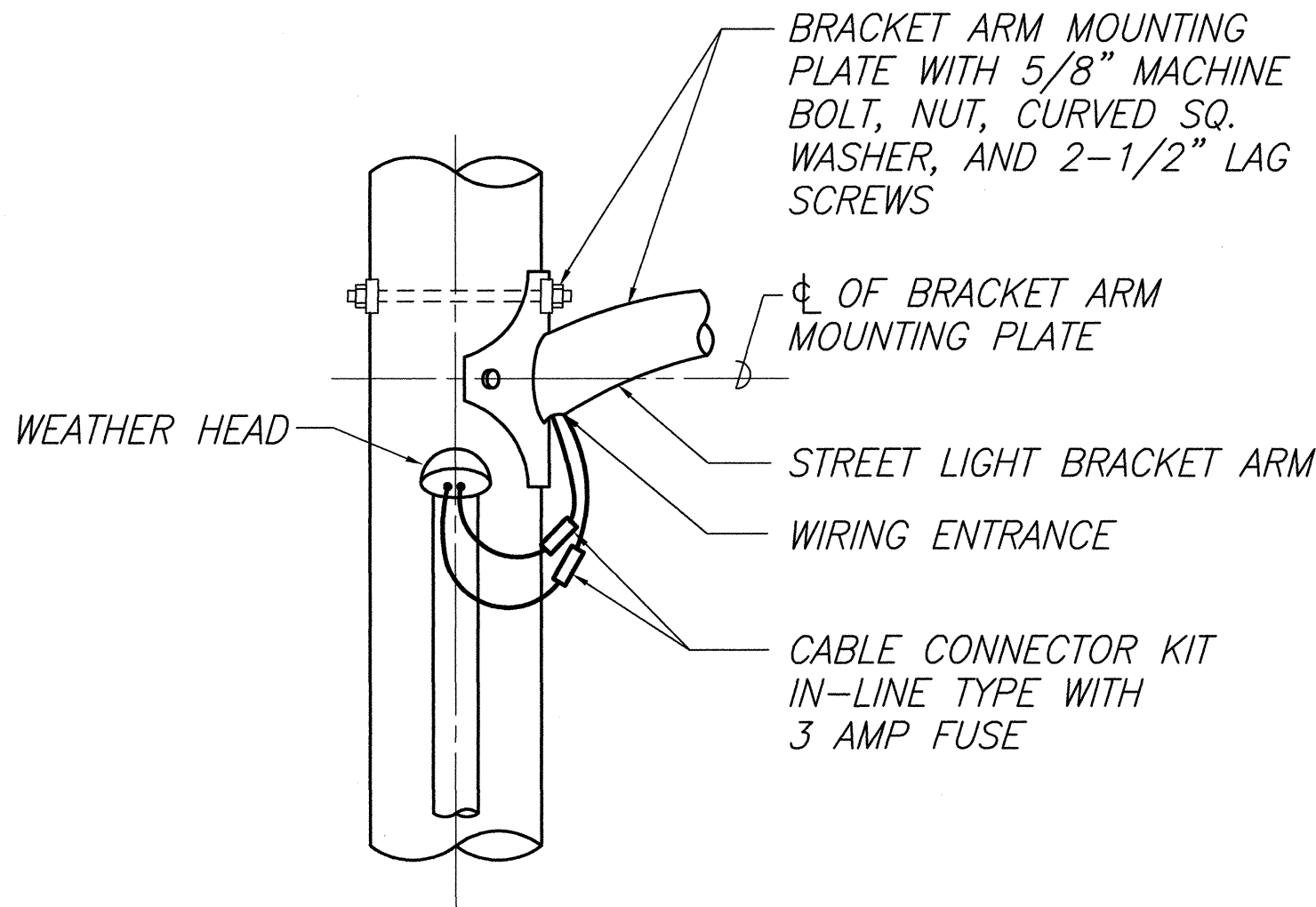
(M1-10, M2-5, M3-11, M7-12, M8-12, M9-12)



TYPICAL LUMINAIRE CONNECTION DIAGRAM

ONE-LINE DIAGRAM LEGEND:

- STREET LIGHT AND POLE NUMBER
- FUSE ELEMENT
- CONNECTION
- CONNECTION TO HECO TRANSFORMER SECONDARY BY HECO
- GROUND ROD



STREET LIGHT MAST ARM MOUNTING

STREET LIGHT ON WOOD POLE DETAIL B

DRAWING REVIEW:
Reviewed for HECO's
Facilities Only

Date 6/2/00 By CLM
BF

Distribution Engineering Department
Hawaiian Electric Company, Inc.

HECO's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on Customer's behalf from the responsibility for engineering, design, materials and any liability associated with this project.



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**WOOD POLE DETAILS &
ONE-LINE DIAGRAM (ALT II)**

FARRINGTON HIGHWAY LIGHTING IMPROVEMENTS
ALA HEMA ST TO PILIOKOE BRIDGE
PROJECT NO. 93A-07-98

SCALE: As Noted

SHEET No. 22 OF 27 SHEETS

| FED. ROAD DIST. NO. | STATE | PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|-----------|-------------|-----------|--------------|
| HAWAII | HAW. | 93A-07-98 | 2000 | 19 | 27 |

| ANCHOR ROD & DEADMAN DIM. | | |
|------------------------------|------------------------------|--------------------|
| "L" C POLE TO ANCHOR ROD EYE | "W" C HOLE TO ANCHOR ROD EYE | "D" VERTICAL DEPTH |
| 20'-0" | 4'-8" | 5'-6" |
| 15'-0" | 4'-0" | 6'-1" |
| 10'-0" | 3'-0" | 6'-7" |
| 5'-0" | 1'-8" | 7'-1" |

MATERIAL LIST

| ITEM NO. | DESCRIPTION |
|----------|--|
| 1 | LUMINAIRE 250 W H.P.S. & BRACKET AS SHOWN. |
| 2 | CONCRETE DEADMAN 1'-6"Ø W/ GALV. SQ. WASHER. |
| 3 | IN LINE FUSE HOLDER W/ 3A FUSE. |
| 4 | WIRE, #10 AWG STRANDED COPPER, TYPE RHW BLACK. |
| 5 | WIRE, #10 AWG STRANDED COPPER, TYPE RHW RED. |
| 6 | IN LINE UNFUSED, INSULATED SEPARABLE CONNECTOR. |
| 7 | GUY WIRE GUARD, GALV. |
| 8 | THIMBLE CLEVIS W/ EYELET. |
| 9 | WIRES, 2 - #2 XHHW COPPER W/COPPER CLAD MESSENGER. |
| 10 | PREFORMED GUY GRIP. |
| 11 | GUY WIRE, 3/8" EHS, GALV. |
| 12 | ANCHOR GUY HOOK W/3/4"Ø THRU BOLT & 2-1/4" SQ. WASHER. |
| 13 | MESSENGER HANGER, 5/8"Ø THRU BOLT & 2-1/4" SQ. WASHER. |
| 14 | INSULATOR, PORCELAIN. |
| 15 | LAG SCREW (SIZE AS REQUIRED). |
| 16 | 5/8"Ø GALV. THRU BOLT W/ 2-1/2" SQ. GALV. WASHER (LENGTH AS REQUIRED). |
| 17 | PERFORMED DEADEND. |
| 18 | ANCHOR ROD 1"Ø X 8'-0" COPPER CLAD. |

NOTE:

ALL HARDWARE SHALL BE HOT DIPPED GALV. STEEL.

APPROVED:

GTE HAWAIIAN TEL.

6/1/00

DATE



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C. Kim

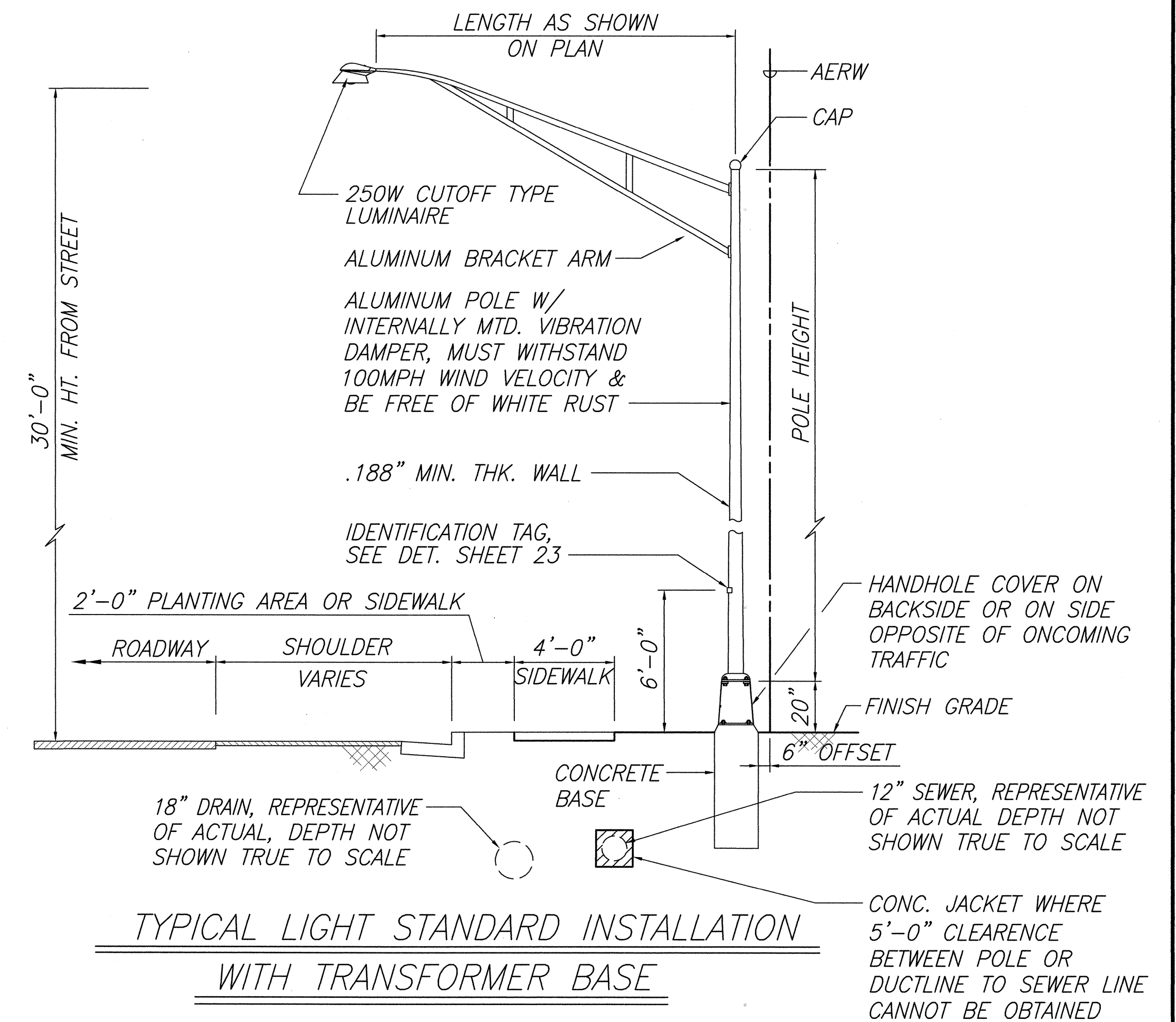
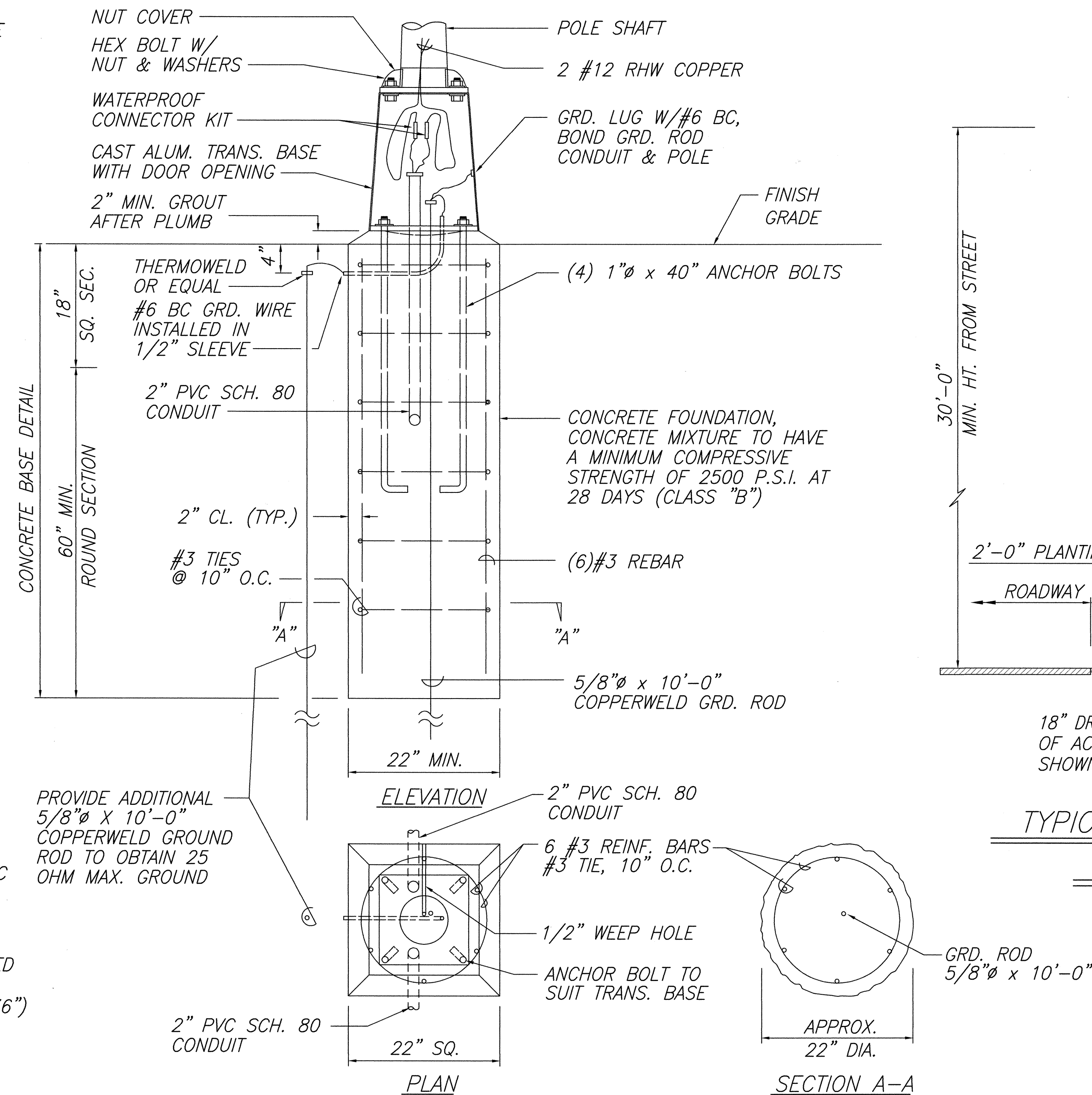
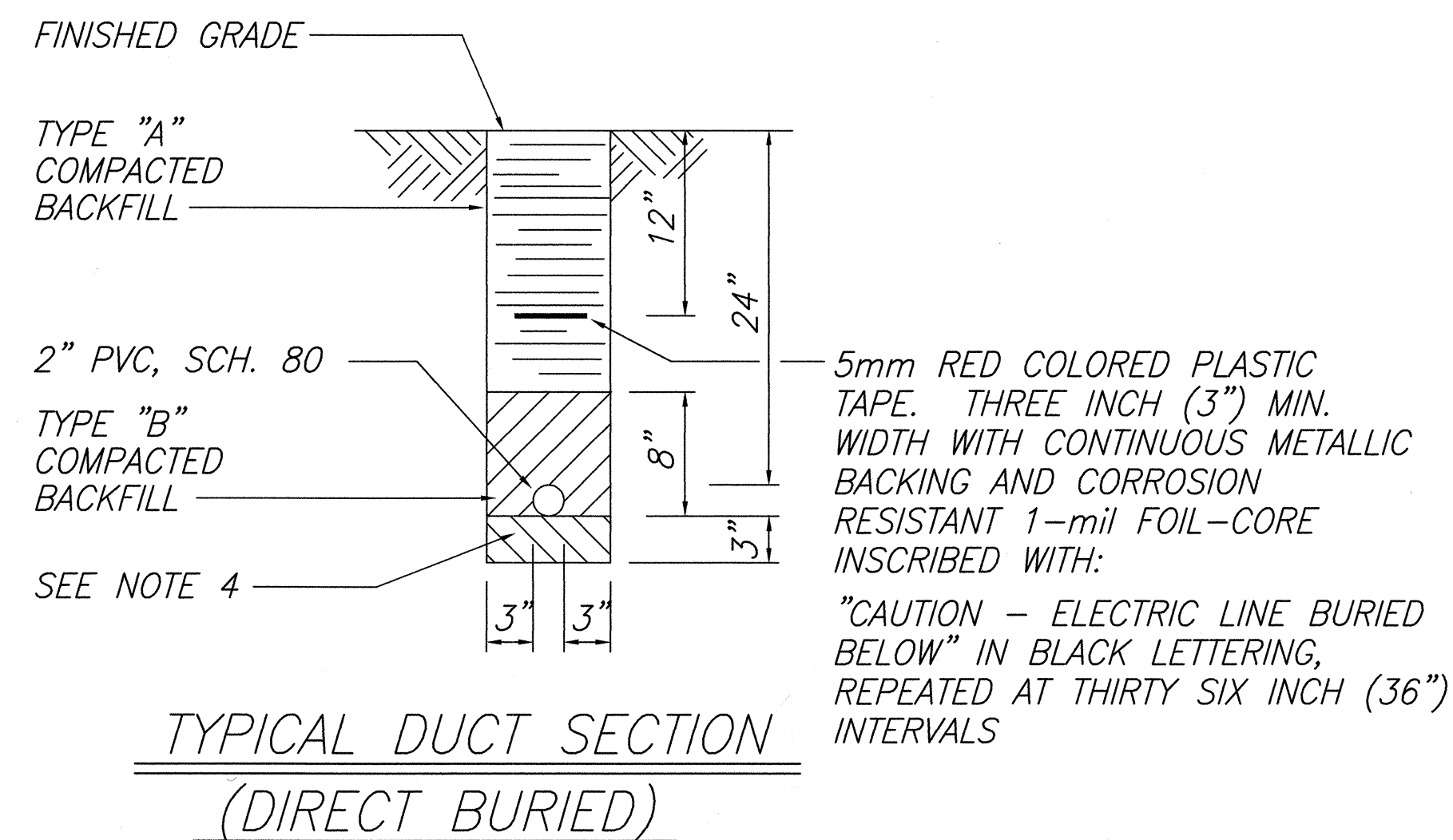
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**WOOD POLE MISCELLANEOUS
DETAILS (ALT II)**
FARRINGTON HIGHWAY LIGHTING IMPROVEMENTS
ALA HEMA ST TO PILIOKOE BRIDGE
PROJECT NO. 93A-07-98
SCALE: None 2000
SHEET No. 23 OF 27 SHEETS

W. 93A-07-98 DESIGN CUTOFF PL-22-23 DWG
February 24, 2000

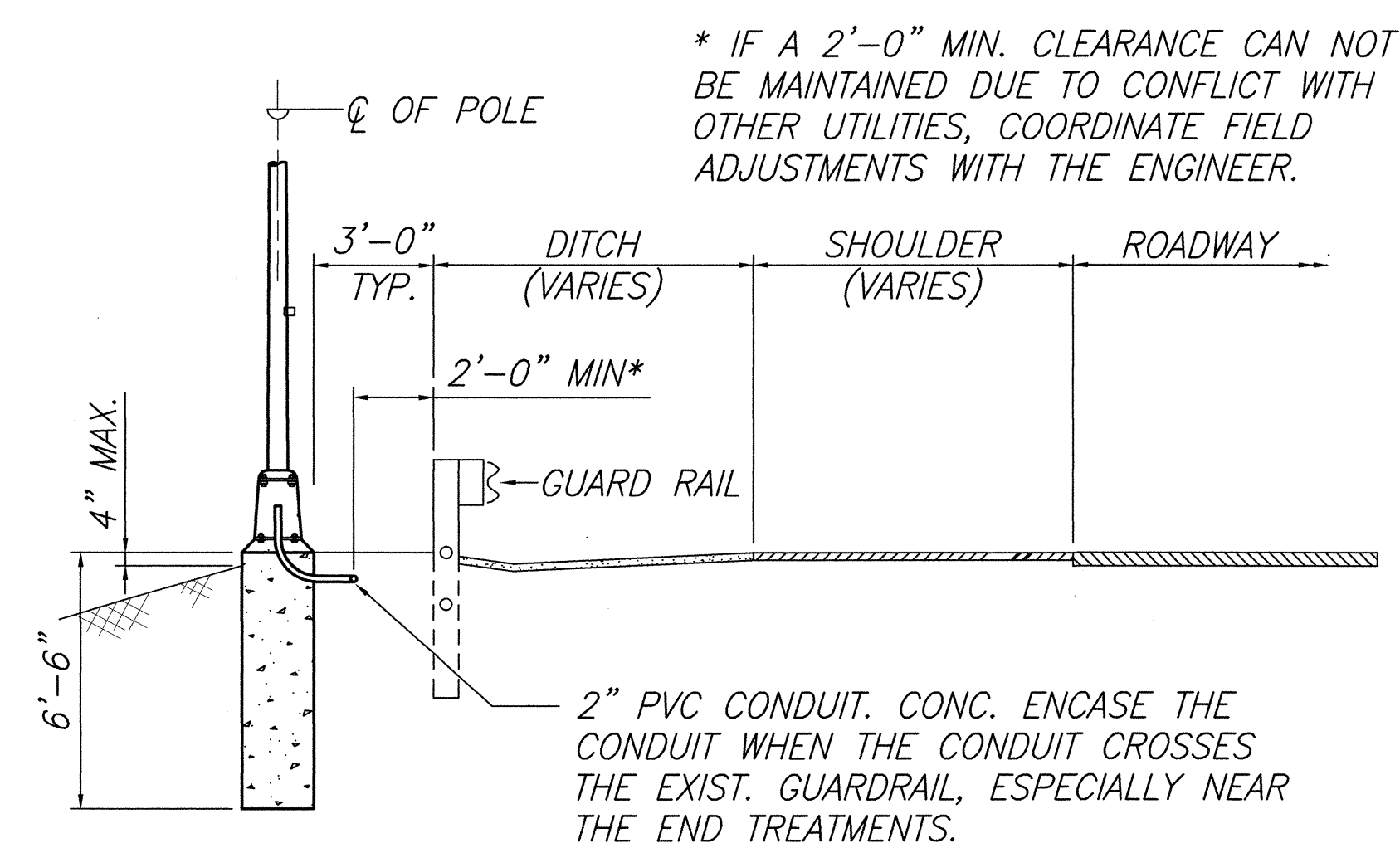
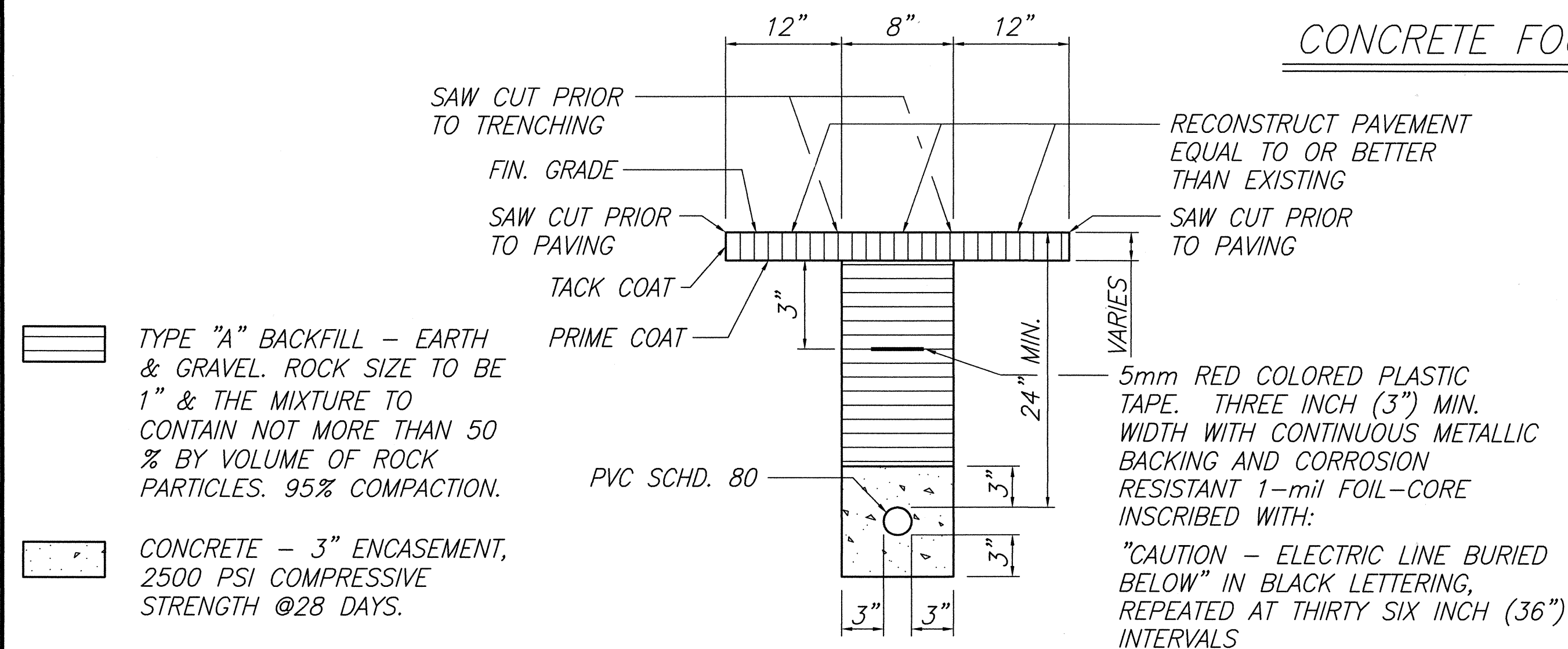
| FED. ROAD
DIST. NO. | STATE | PROJ. NO. | FISCAL
YEAR | SHEET
NO. | TOTAL
SHEETS |
|------------------------|-------|-----------|----------------|--------------|-----------------|
| HAWAII | HAW. | 93A-07-98 | 2000 | 20 | 27 |

- BACKFILL TYPES ARE:

TYPE "B": BEACH SAND, EARTH, OR EARTH AND GRAVEL. IF EARTH AND GRAVEL USED, MIXTURE MUST PASS A 1/2" MESH SCREEN AND CONTAIN NOT MORE THAN 20% BY VOLUME OF ROCK PARTICLES.

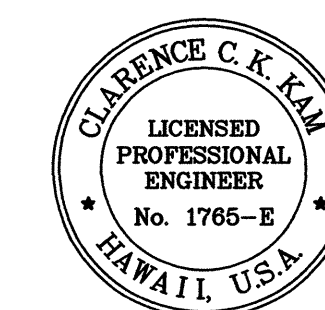


SEE SHT-25 & SHT-26 FOR SPECIAL LIGHT INSTALLATION DETAILS.



Dennis M. Nishimura
CHIEF, WASTEWATER BRANCH, DPP m

6/2/00
DATE



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

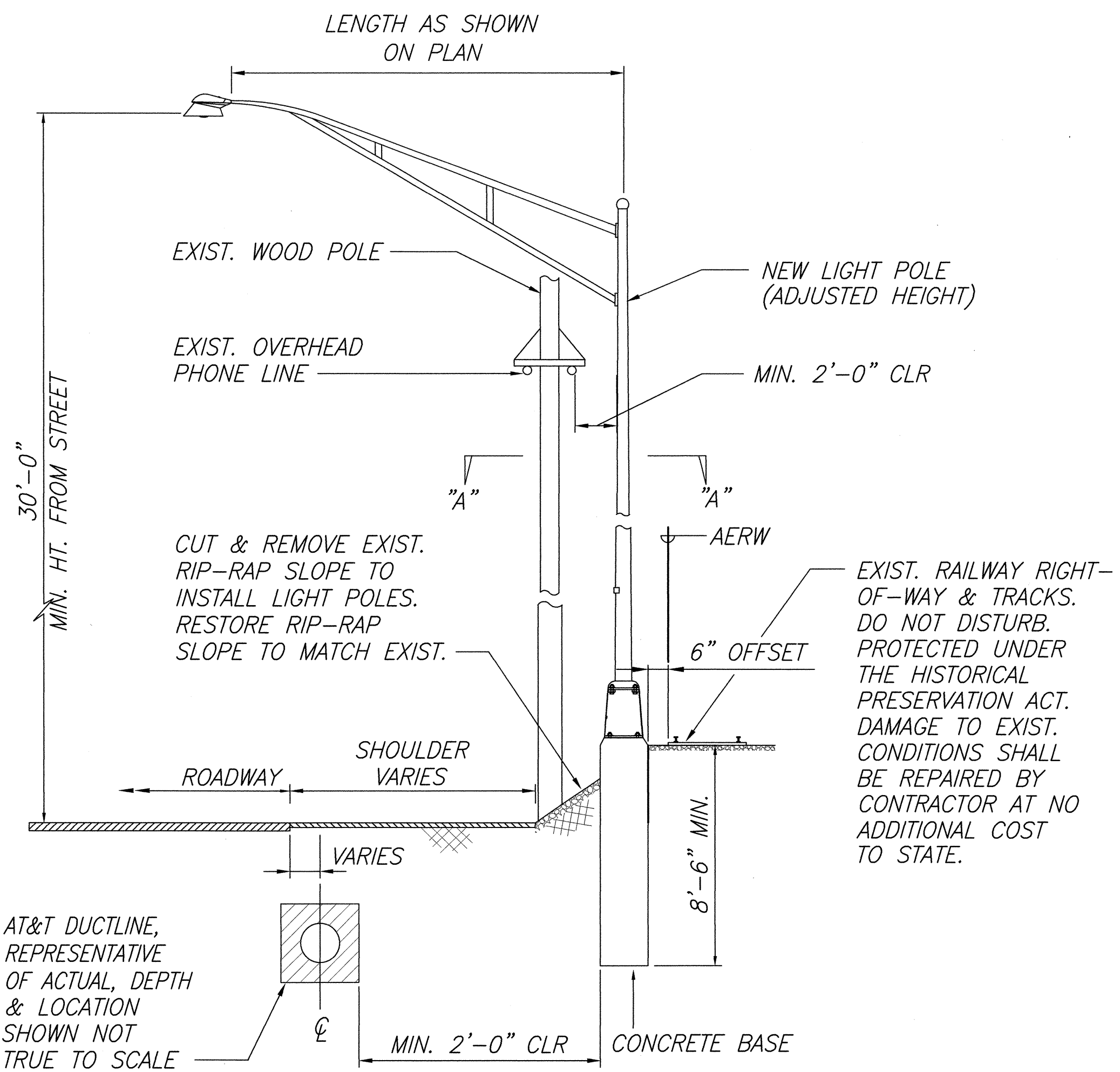
TYPICAL TRANSFORMER BASE
POLE DETAILS (ALT II)

FARRINGTON HIGHWAY LIGHTING IMPROVEMENTS
ALA HEMA ST TO PILILOKOE BRIDGE
PROJECT NO. 93A-07-98

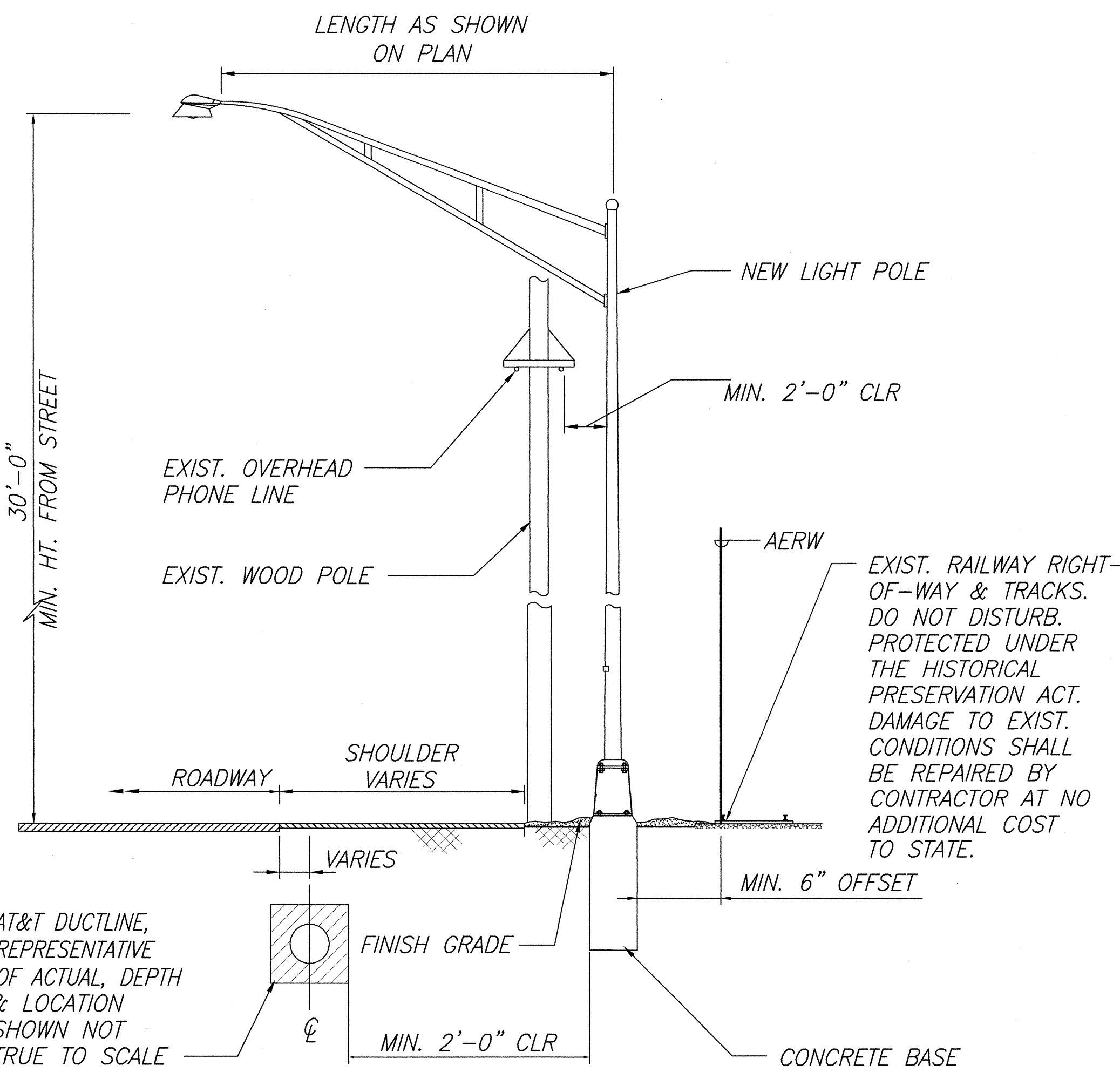
SCALE: None 2000

SHEET No. 24 OF 27 SHEETS

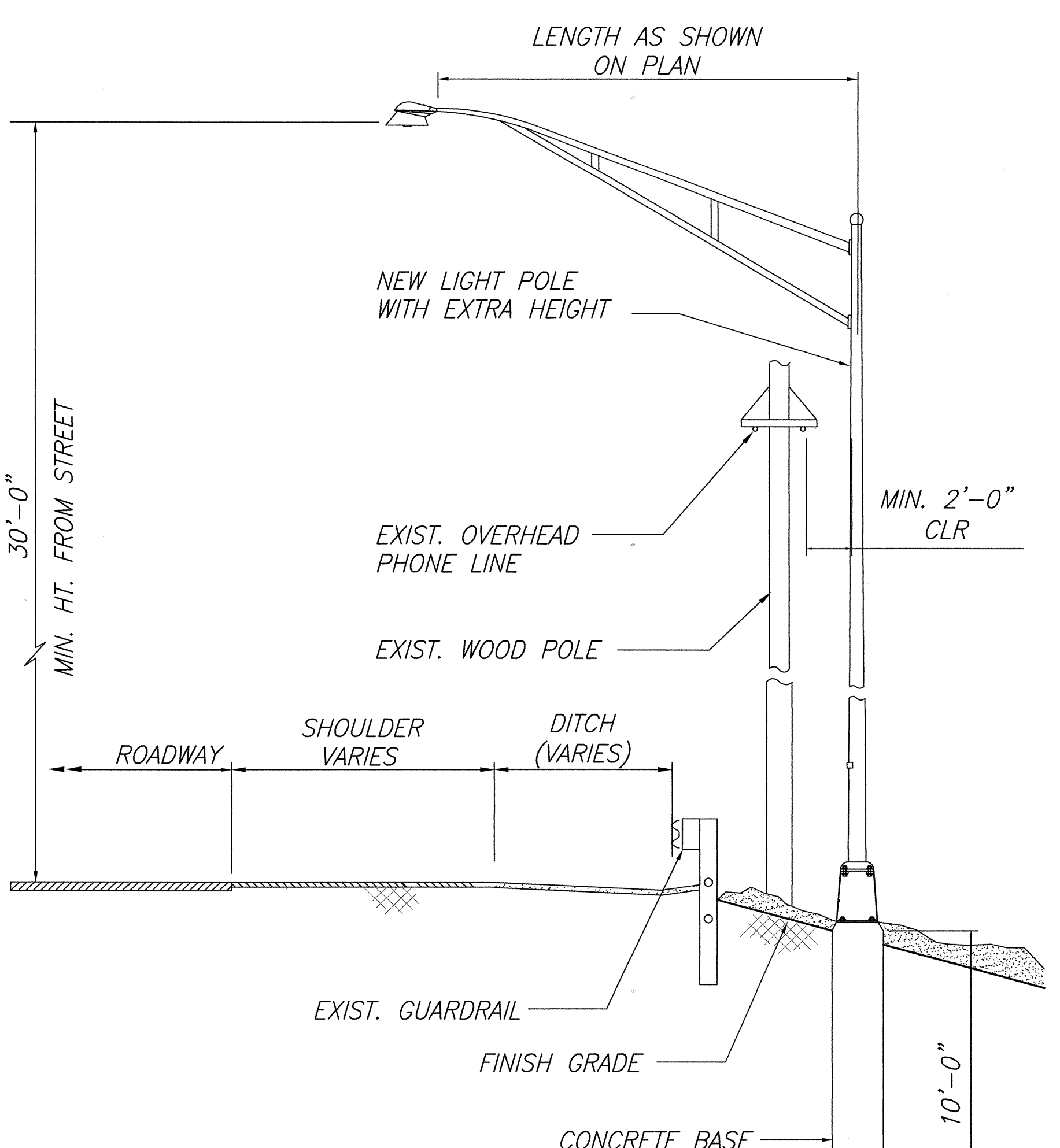
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|---------------------|-------|-----------|-------------|-----------|--------------|
| HAWAII | HAW. | 93A-07-98 | 2000 | 21 | 27 |



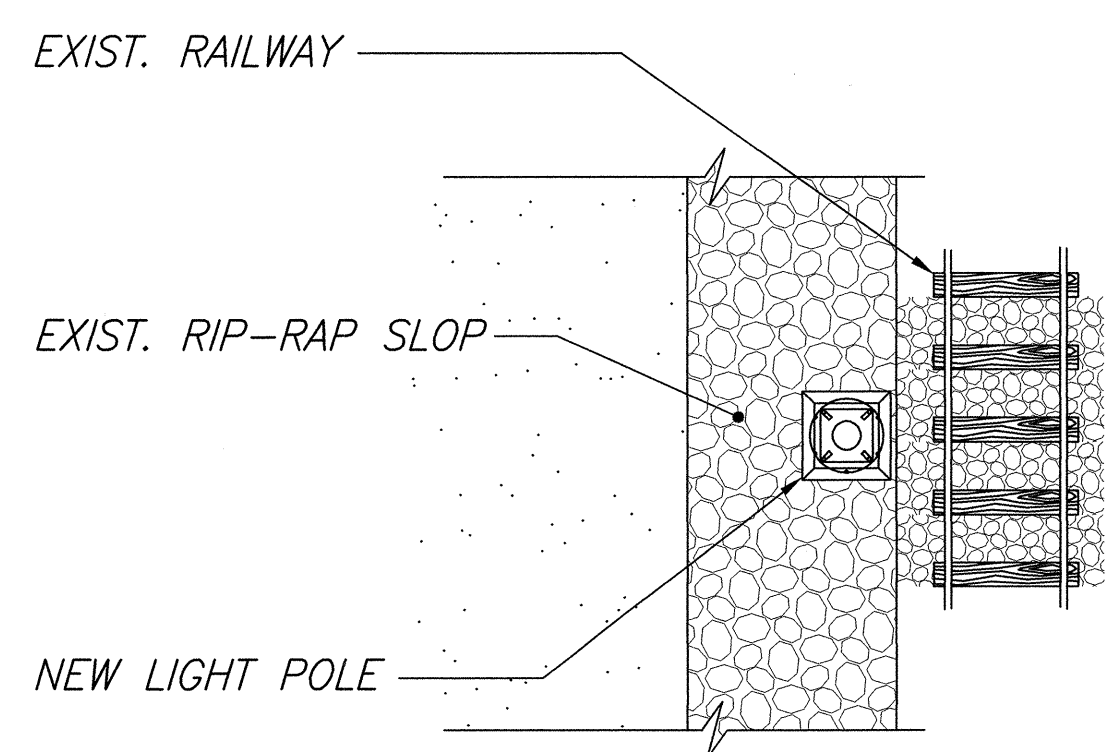
LIGHT POLE STANDARD INSTALLATION
ALONG EXIST. RIP-RAP SLOPE



LIGHT POLE STANDARD INSTALLATION
NEAR EXIST. PHONE LINE



LIGHT POLE STANDARD INSTALLATION
AT DOWN SLOPE SIDE



SECTION A-A

| | | |
|---------------|-------------------|------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
| NOTE BOOK | DRAWN BY | " " |
| No. | DESIGNED BY | " " |
| | CHECKED BY | " " |

APPROVED: *[Signature]*
GTE HAWAIIAN TEL. 6/1/00
DATE



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ME OR UNDER MY SUPERVISION

[Signature]

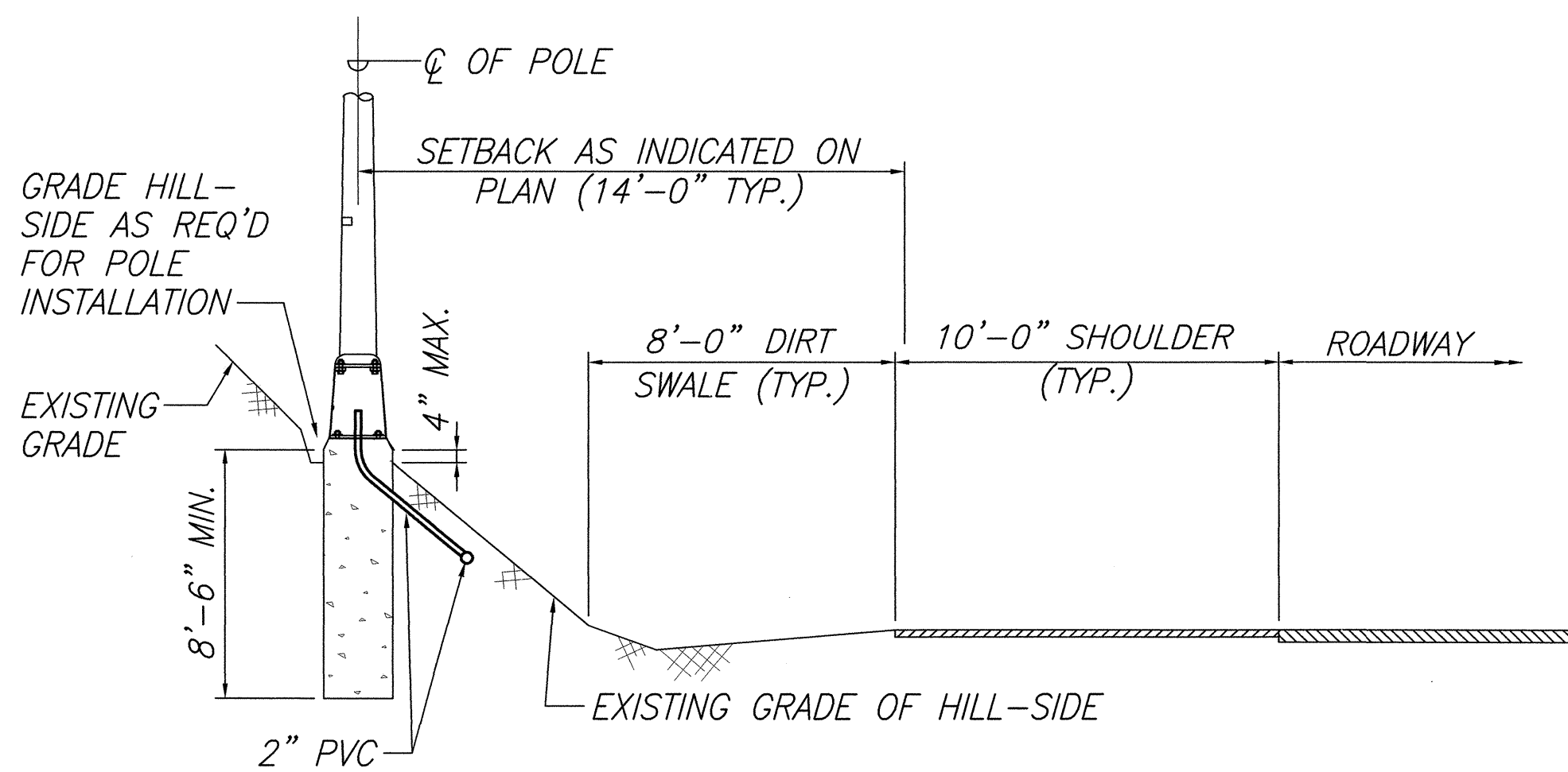
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
SPECIAL HIGHWAY LIGHTING
INSTALLATION DETAILS (ALT II)
FARRINGTON HIGHWAY LIGHTING IMPROVEMENTS
ALA HEMA ST TO PILIOKOE BRIDGE
PROJECT NO. 93A-07-98
SCALE: Varies
2000
SHEET No. 25 OF 27 SHEETS

25

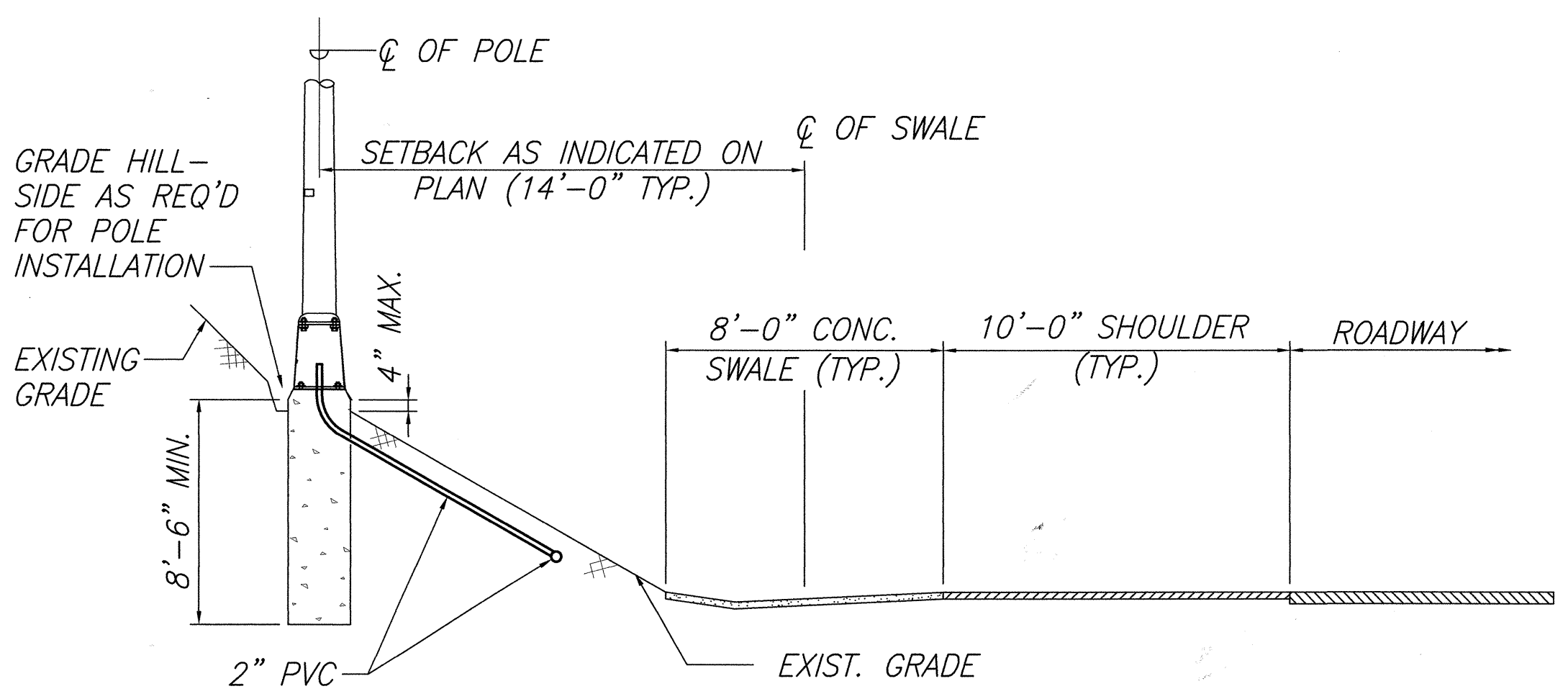
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|---------------------|-------|-----------|-------------|-----------|--------------|
| HAWAII | HAW. | 93A-07-98 | 2000 | 22 | 27 |

\* IF A 2'-0" MIN. CLEARANCE CAN NOT BE MAINTAINED DUE TO CONFLICT WITH OTHER UTILITIES, COORDINATE FIELD ADJUSTMENTS WITH THE ENGINEER.

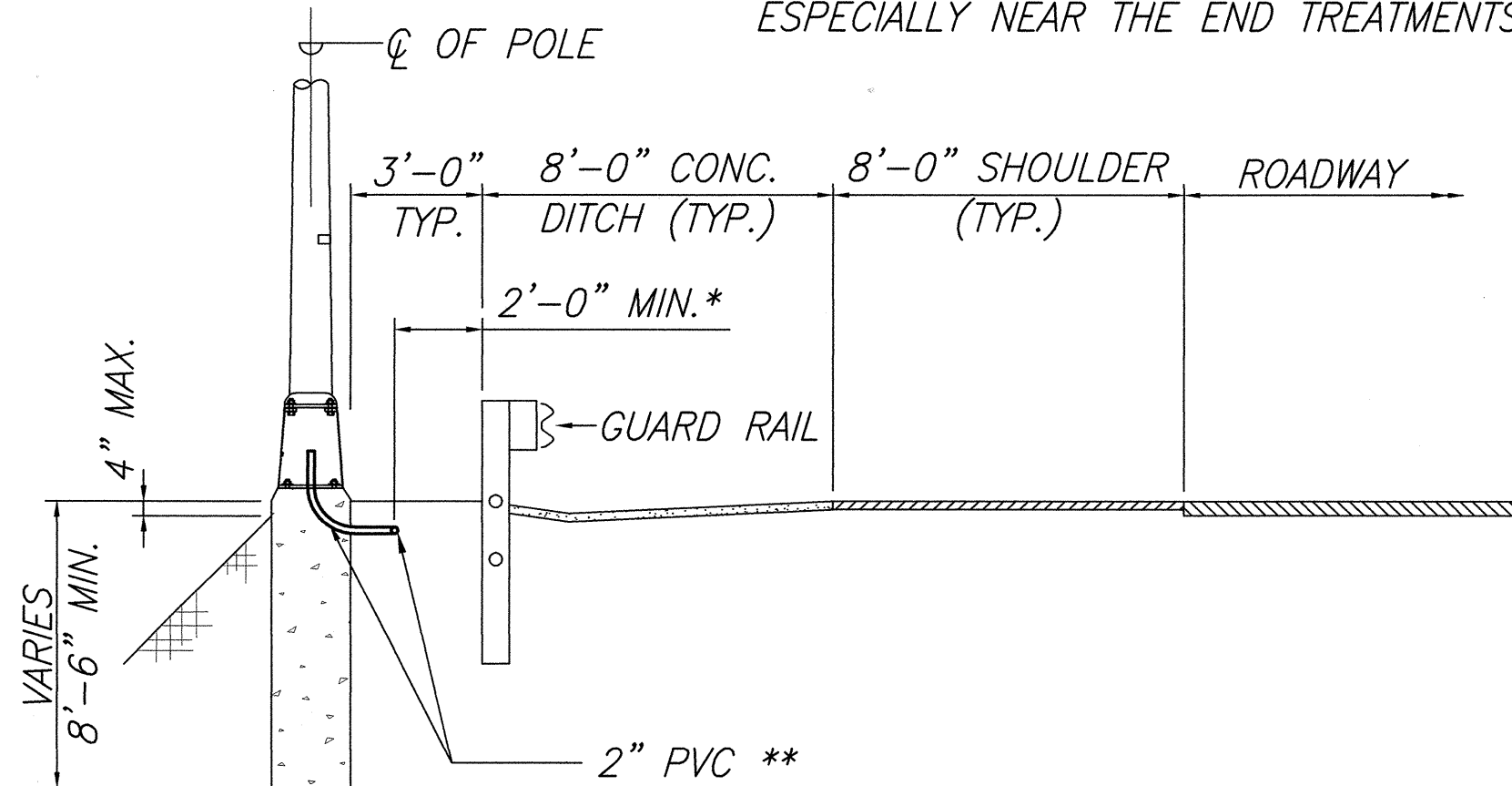
\*\* CONC. ENCASE THE CONDUIT WHEN THE CONDUIT CROSSES THE EXIST. GUARDRAIL, ESPECIALLY NEAR THE END TREATMENTS.



LIGHT STANDARD INSTALLATION DETAIL
ALONG HILL-SIDE



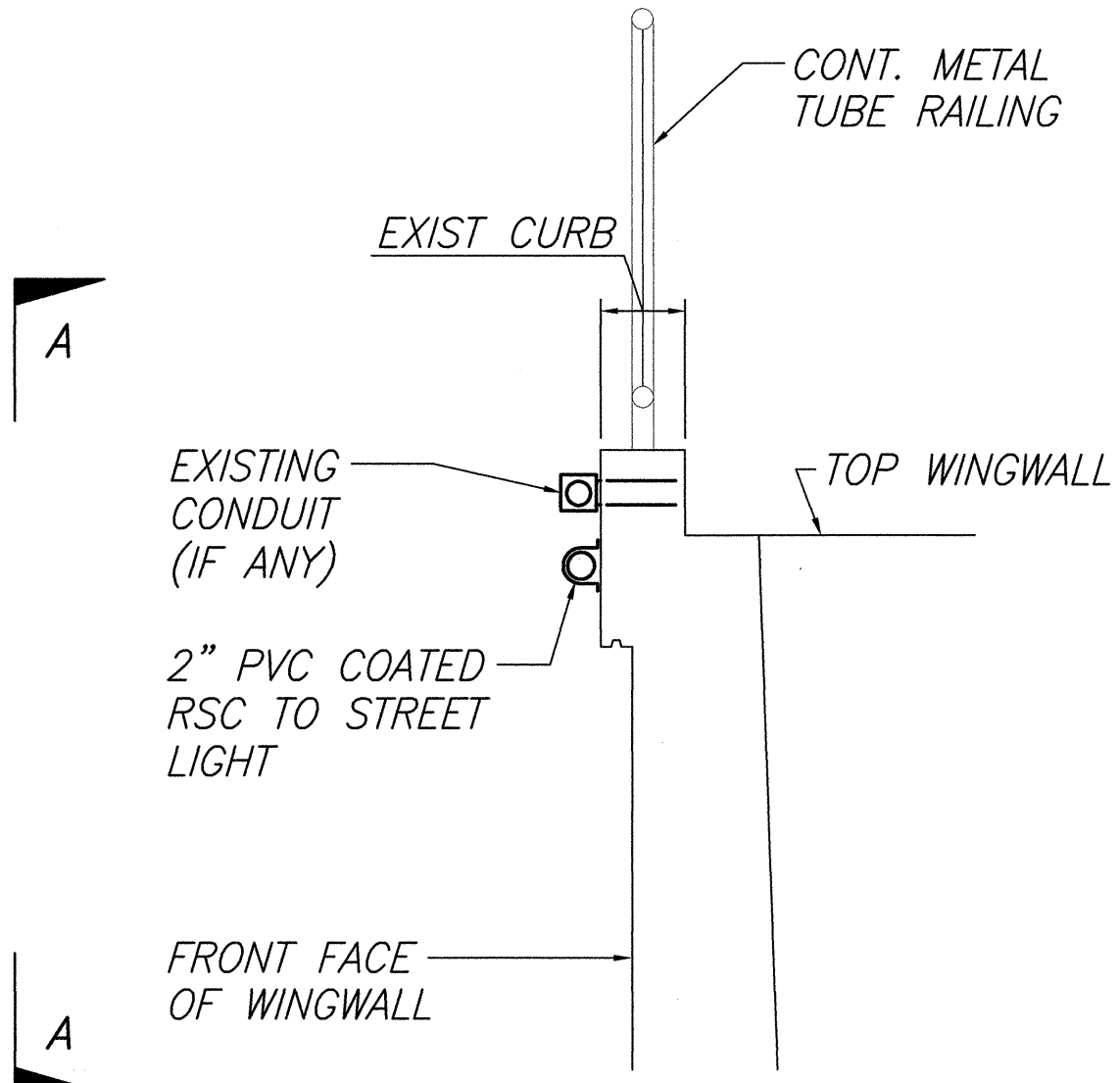
LIGHT STANDARD INSTALLATION DETAIL
ALONG EXIST. GRADE



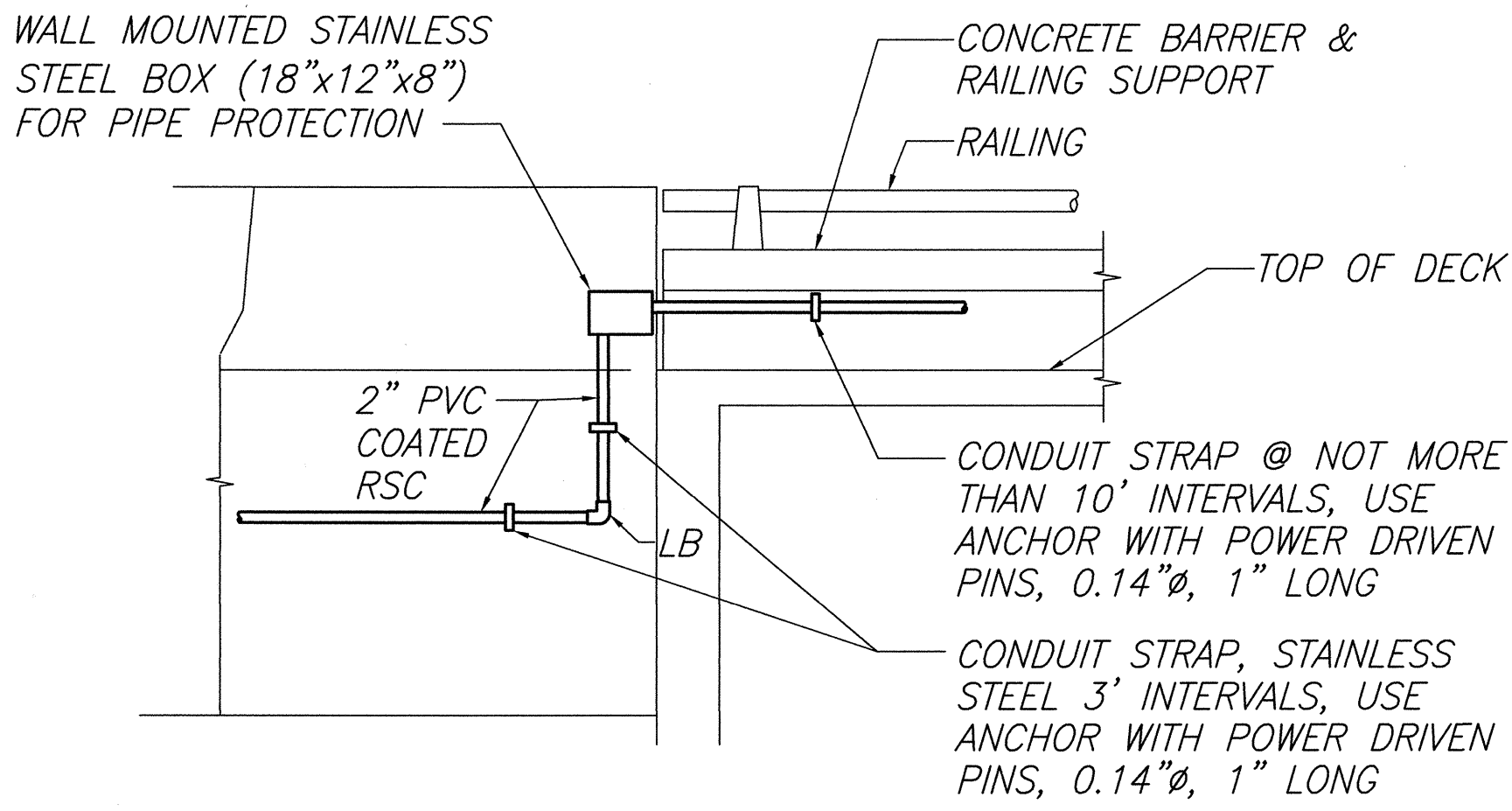
TYPICAL LIGHT STANDARD INSTALLATION DETAIL
ALONG GUARD RAIL & CONC. DITCH

NOTE:

THE LENGTH OF CONCRETE FOUNDATION SHALL BE BASED ON SOIL AND/OR GROUND SLOPING CONDITIONS.



SIDE VIEW



SECTION A-A (@ ABUTMENT JOINT)
(SIMILAR DETAIL @ OPPOSITE END)

CONDUIT MOUNTING AT BRIDGES, TYP.

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



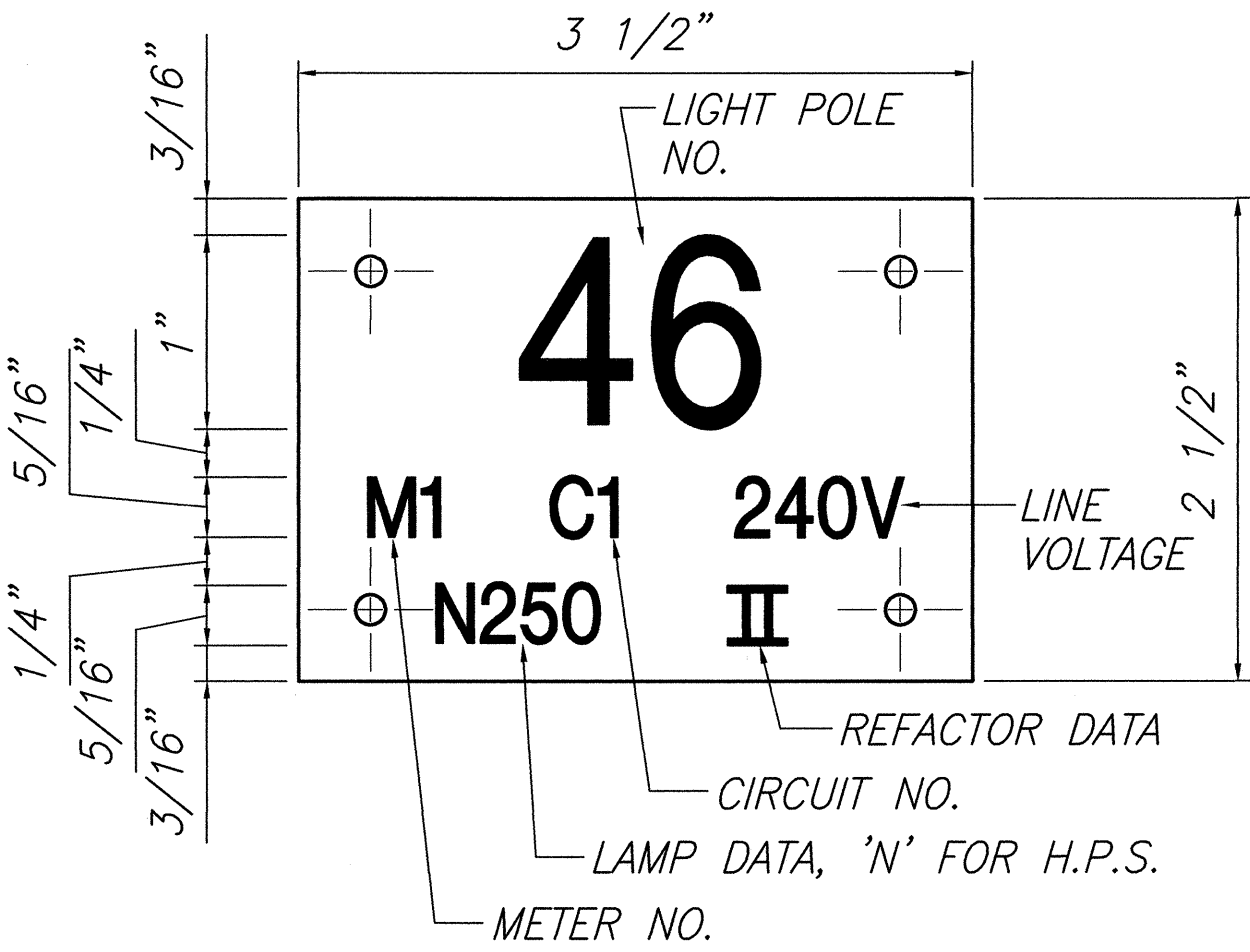
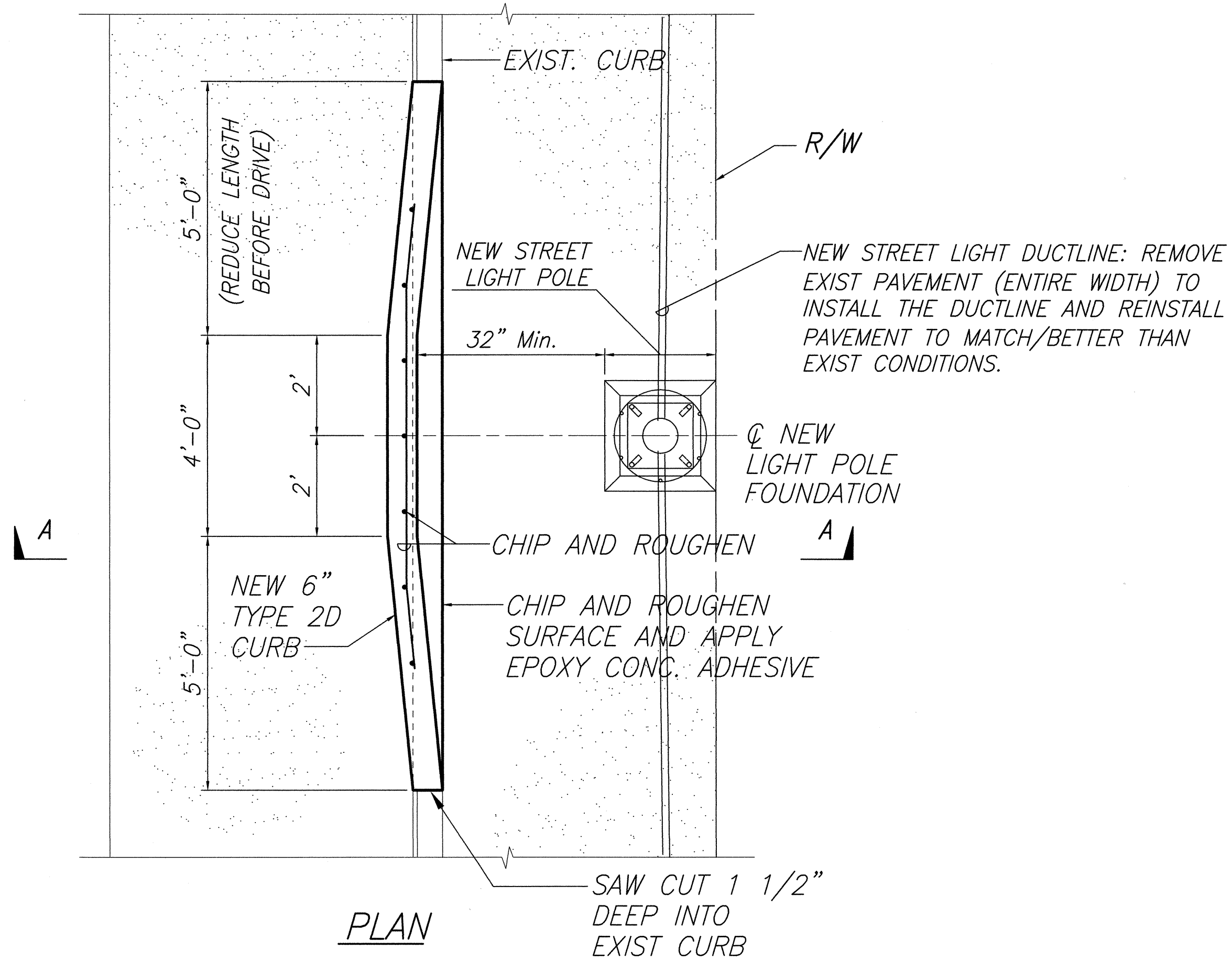
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

C. Kim

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**SPECIAL HIGHWAY LIGHTING
INSTALLATION DETAILS**
FARRINGTON HIGHWAY LIGHTING IMPROVEMENTS
ALA HEMA ST TO PILIOKOE BRIDGE
PROJECT NO. 93A-07-98
SCALE: Not to Scale

2000
SHEET No. 26 OF 27 SHEETS

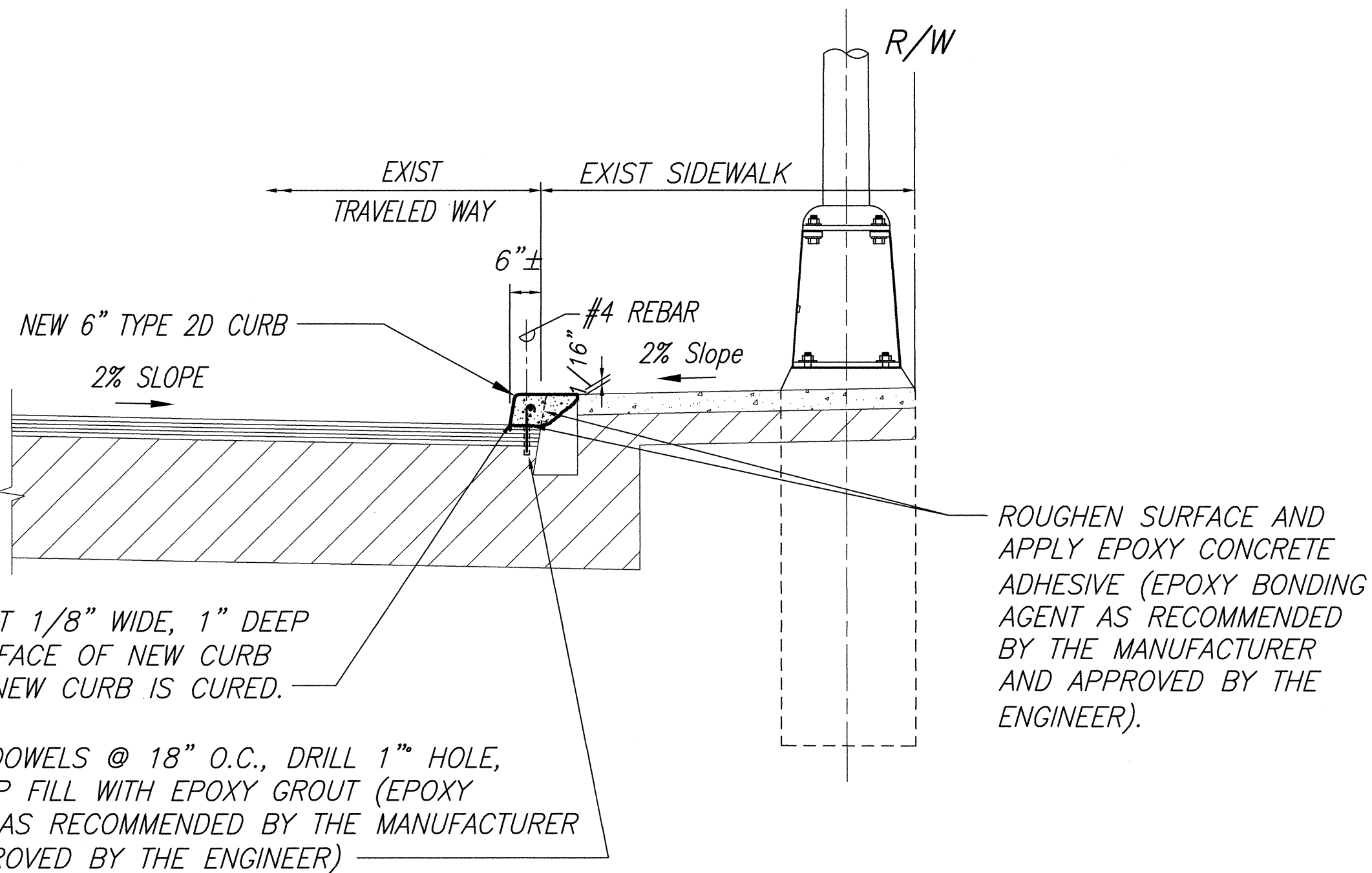
| FED. ROAD DIST. NO. | STATE | PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|-----------|-------------|-----------|--------------|
| HAWAII | HAW. | 93A-07-98 | 2000 | 23 | 27 |



HIGHWAY LIGHT I.D. TAG DETAIL
METERED SYSTEM, TYP.

Not to Scale

- NOTES:
- USE 3 PLY LAMINATED FLEXIBLE PLASTIC BLACK-WHITE-BLACK THICKNESS; BLACK CAP SHEET-0.010"; WHITE BASE SHEET-0.052"; BLACK BASE SHEET-0.010".
 - LIGHT POLE NUMBER SIZE SHALL BE 1" HIGH AND ENGRAVED 1/8" WIDE, WHITE IN COLOR (NUMBER AS REQUIRED).
 - NOMENCALTURE SIZE SHALL BE 5/16" HIGH AND EXGRAVED 1/32" WIDE, WHITE IN COLOR (METER NUMBER, CIRCUIT NUMBER, LINE VOLTAGE, LAMP DATA AND REFACTOR DATA AS REQUIRED)
 - ATTACH TO ALUMINUM AND STEEL POLES WITH NO. 8 STAINLESS STEEL, 1/2" LONG DRIVE SCREWS IN 1/8" DRILL HOLE. ATTACH TO WOOD POLES WITH 4D ALUMINUM MAILS.
 - NUMBERS ARE INSCRIBED BY CUTTING THROUGH "BLACK CAP SHEET" TO EXPOSE "WHITE LETTERS".
 - ASSIGN CIRCUIT NUMBER FOR SYSTEMS WITH TWO OR MORE CIRCUITS (LETTER INDICATES PANEL BOARD, NUMBER INDICATES CIRCUIT).



SIDEWALK MODIFICATION DETAIL - BULB-OUT

Not to Scale



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C. Kim

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MISCELLANEOUS DETAILS
FARRINGTON HIGHWAY LIGHTING IMPROVEMENTS
ALA HEMA ST TO PILIOKOE BRIDGE
PROJECT NO. 93A-07-98
SCALE: None
2000