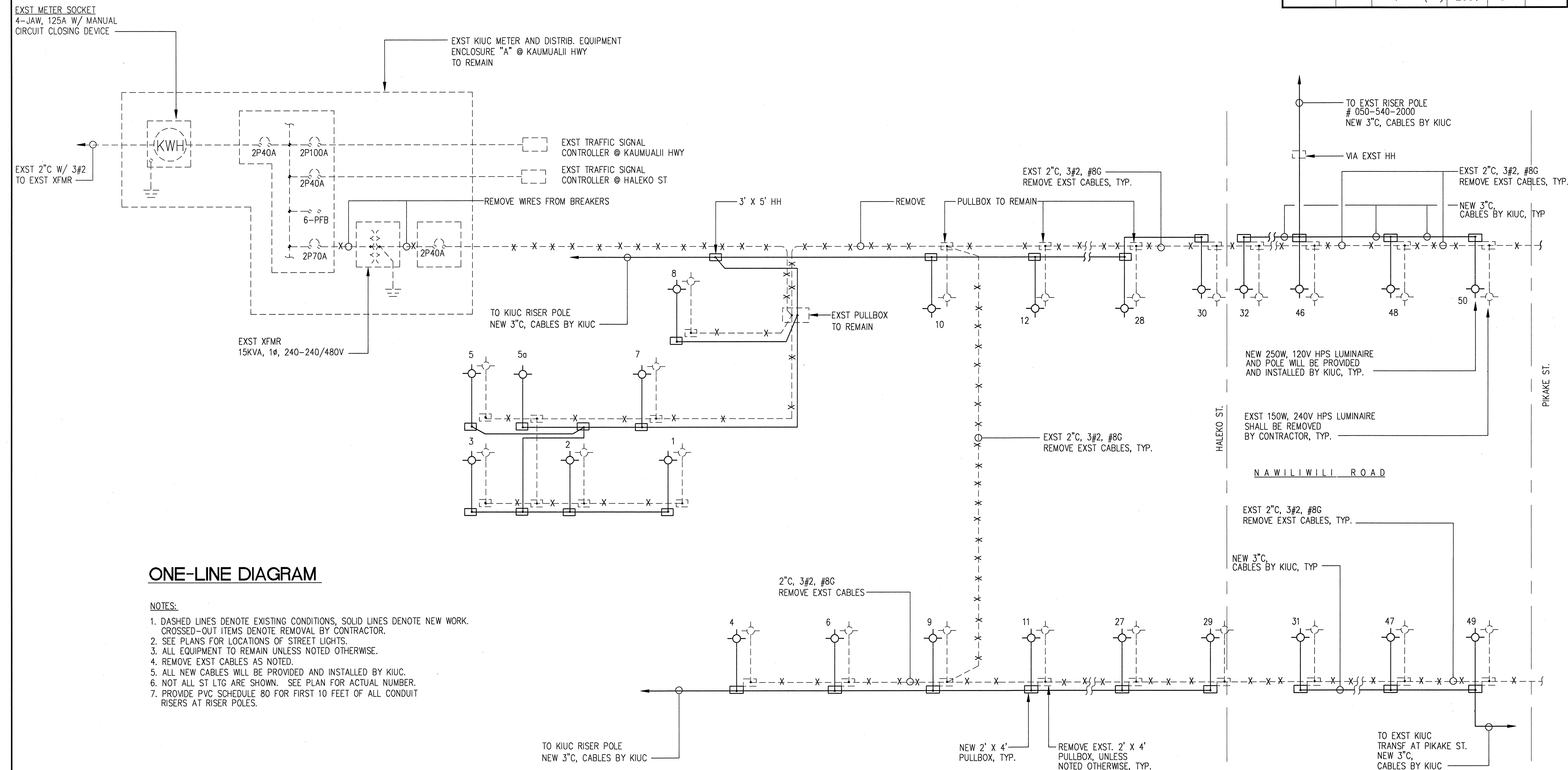


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-700(45)	2004	34	44



ONE-LINE DIAGRAM

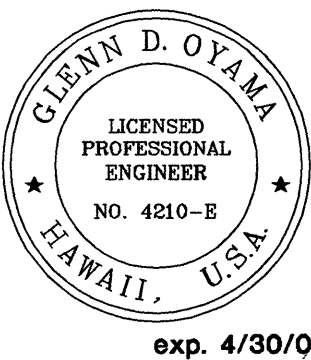
- NOTES:
1. DASHED LINES DENOTE EXISTING CONDITIONS, SOLID LINES DENOTE NEW WORK. CROSSED-OUT ITEMS DENOTE REMOVAL BY CONTRACTOR.
 2. SEE PLANS FOR LOCATIONS OF STREET LIGHTS.
 3. ALL EQUIPMENT TO REMAIN UNLESS NOTED OTHERWISE.
 4. REMOVE EXST CABLES AS NOTED.
 5. ALL NEW CABLES WILL BE PROVIDED AND INSTALLED BY KIUC.
 6. NOT ALL ST LTG ARE SHOWN. SEE PLAN FOR ACTUAL NUMBER.
 7. PROVIDE PVC SCHEDULE 80 FOR FIRST 10 FEET OF ALL CONDUIT RISERS AT RISER POLES.

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

APPROVED :

[Signature] 1/22/04

KAUAI ISLAND UTILITY COOPERATIVE DATE



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[Signature]

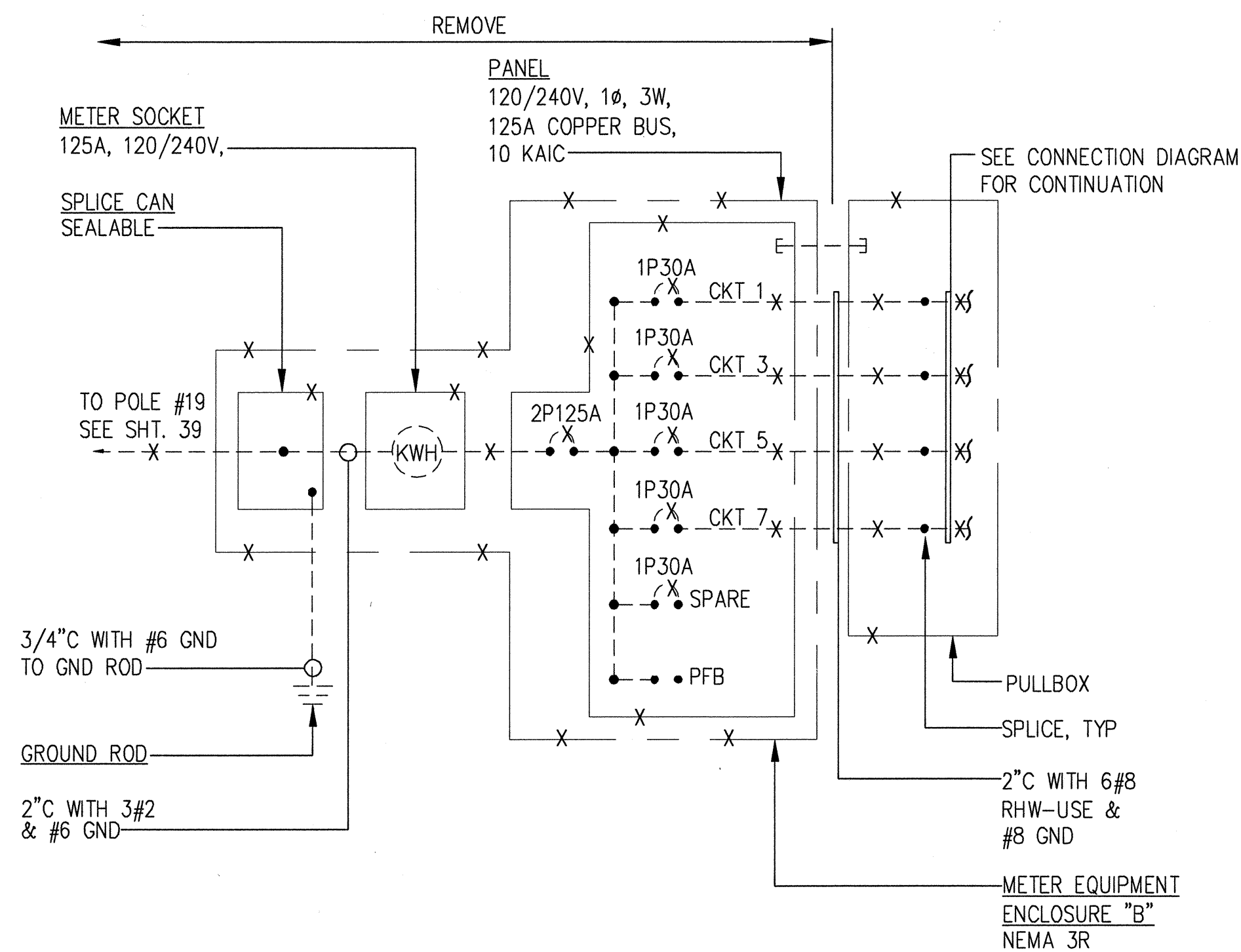
NAKAMURA, OYAMA & ASSOC., INC.
CONSULTING ENGINEERS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ONE-LINE DIAGRAM
TRAFFIC SIGNAL MODERNIZATION
At Various Highway Locations Kauai
Federal Aid Project No. CMAQ-700(45)R
Scale: As Noted Date: JULY, 2003

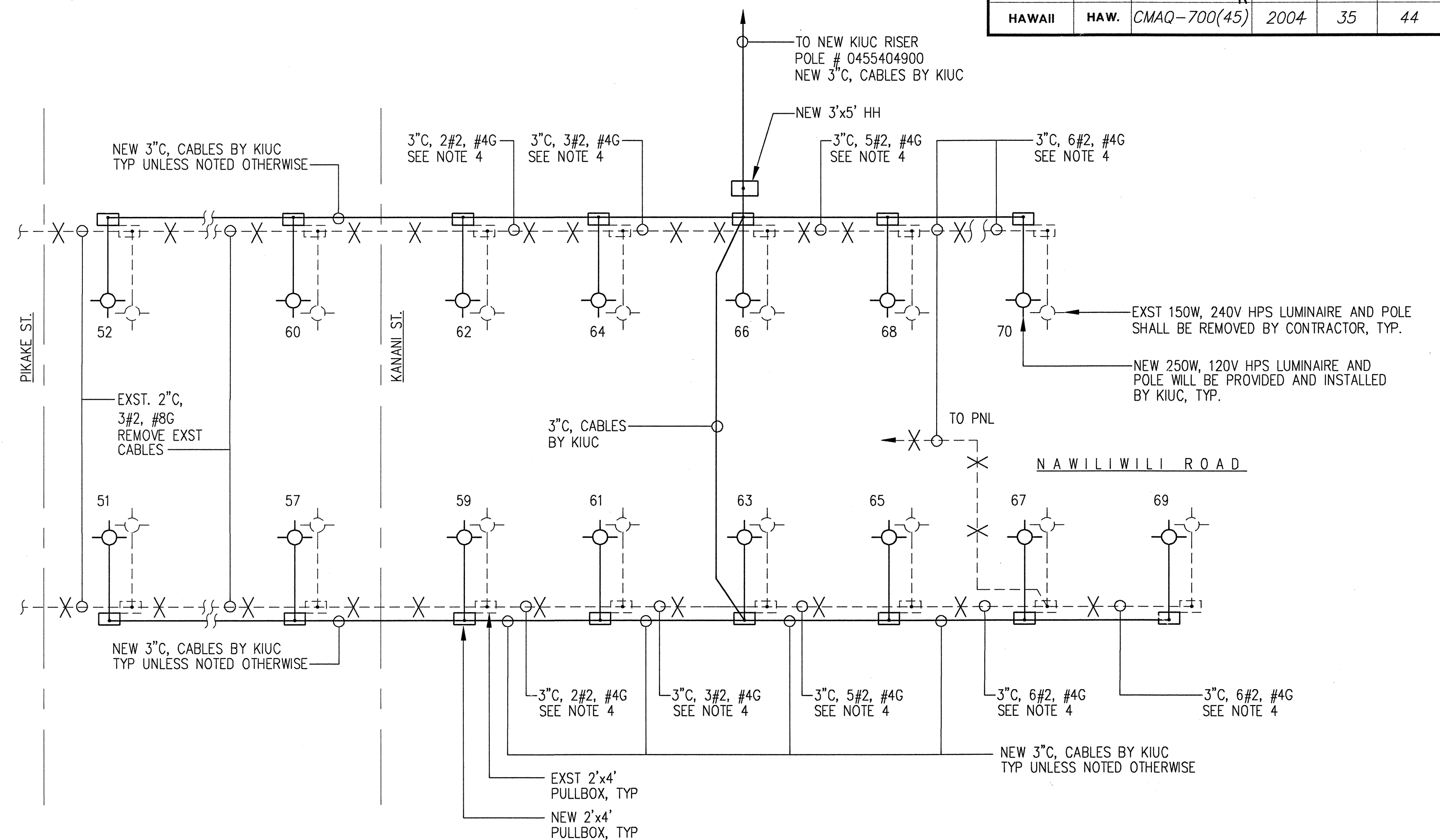
SHEET No. 1 OF 2 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMQAQ-700(45)	2004	35	44



ONE-LINE DIAGRAM

NOTES: 1. DASHED LINES DENOTE EXISTING CONDITIONS, SOLID LINES DENOTE NEW WORK.
2. CROSSED-OUT ITEMS DENOTE REMOVAL BY CONTRACTOR.
3. SEE PLANS FOR LOCATIONS OF STREET LIGHTS.
4. ALL EQUIPMENT TO REMAIN UNLESS NOTED OTHERWISE.



STREET LIGHT CONNECTION DIAGRAM

(FOR STREET LIGHTS FROM PIKAKE ST TO END OF PROJECT)

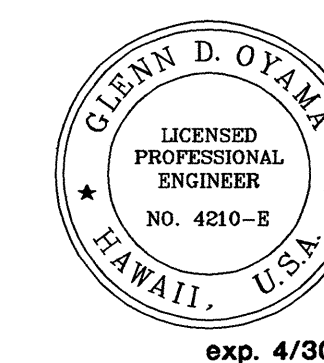
NOTES:

1. DASHED LINES DENOTE EXISTING CONDITIONS, SOLID LINES DENOTE NEW WORK. CROSSED-OUT ITEMS DENOTE REMOVAL BY CONTRACTOR.
2. SEE PLANS FOR LOCATIONS OF STREET LIGHTS.
3. ALL EQUIPMENT TO REMAIN UNLESS NOTED OTHERWISE.
4. REMOVE EXST CABLES AS NOTED.
5. ALL NEW CABLES WILL BE PROVIDED AND INTALLED BY KUC.
6. NOT ALL ST LGT ARE SHOWN. SEE PLAN FOR ACTUAL NUMBER.
7. PROVIDE PVC SCHEDULE 80 FOR FIRST 10 FEET OF ALL CONDUIT RISERS AT RISER POLES.


APPROVED :

James 1/22/04
KAUAI ISLAND UTILITY COOPERATIVE DATE

ORIGINAL PLAN	SURVEY PLOTTED BY _____	DATE _____
NOTEBOOK	DRAWN BY _____	NOA _____
	TRACED BY _____	DESIGNED BY _____
	QUANTITIES BY _____	ML _____
	CHECKED BY _____	GO _____
No. _____		



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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

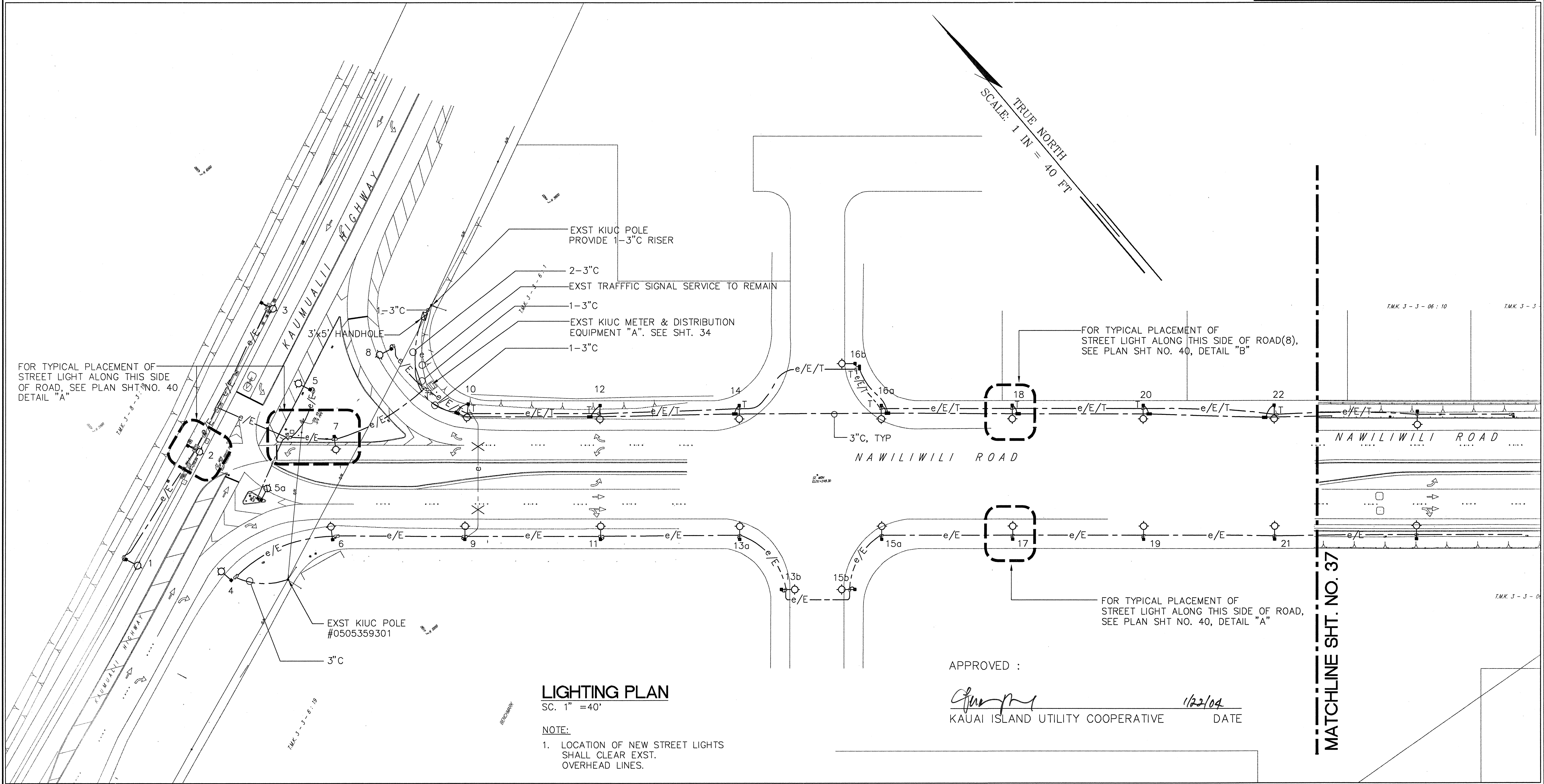
ONE-LINE DIAGRAM

TRAFFIC SIGNAL MODERNIZATION
At Various Highway Locations Kauai
Federal Aid Project No. CMAQ-700(45)R

Scale: As Noted Date: JULY, 2003

SHEET No. 2 OF 2 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-700(45) R	2004	36	44



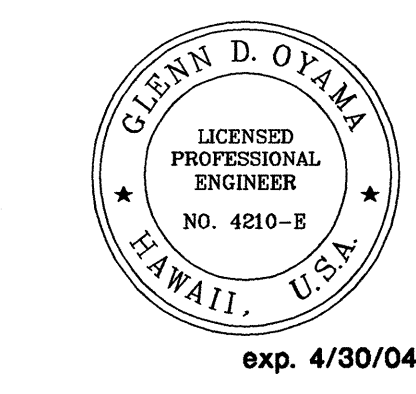
LIGHTING PLAN
SC. 1" = 40'

NOTE:
1. LOCATION OF NEW STREET LIGHTS SHALL CLEAR EXST. OVERHEAD LINES.

APPROVED :
[Signature] 1/22/04
KAUAI ISLAND UTILITY COOPERATIVE DATE

GENERAL NOTE:
UNDERGROUND PUBLIC UTILITIES SHOWN HEREON ARE FOR INFORMATION ONLY, HAVING BEEN OBTAINED FROM THE BEST AVAILABLE SOURCES BUT FROM OTHERS NOT CONNECTED WITH THIS COMPANY. THEREFORE, NO GUARANTEE IS MADE ON THE ACCURACY OR COMPLETENESS OF SAID INFORMATION.

LEGEND:	
A.C.	ASPHALT CONCRETE
APPROX.	APPROXIMATE
ARV	AIR RELIEF VALVE
BC	BOTTOM CURB
BFP	BACKFLOW PREVENTOR
BW	BOTTOM WALL
BX	BOX
CATV	CABLE TELEVISION
C.B.	CATCH BASIN
C.L.	CHAIN LINK
C.O.	CLEAN OUT
COMM.	COMMUNICATION
CONC.	CONCRETE
CRM	CONCRETE RUBBLE MASONRY
D	DIAMETER OR DRAIN
D.I.	DRAIN INLET
D.S.	DOWN SPOUT
E/ELEC	ELECTRIC
ELEV./EL.	ELEVATION
F.H.	FIRE HYDRANT
G	GAS
G.I.	GRADED INLET
GND.	GROUND
G.P.	GUARD POST/GUY POLE
G.W.	GUY WIRE
H	HEIGHT
H.B.	HOSE BIB
KIUC.	KAUAI ISLAND UTILITY COOPERATIVE
HH	HANDHOLE
HTCo.	HAWAIIAN TELEPHONE CO.
INV.	INVERT
MH	MANHOLE
O/H	OVERHEAD UTILITY LINE
S	SEWER
SDMH	STORM DRAIN MANHOLE
SMH	SEWER MANHOLE
TC	TOP CURB
TP	TOP PIPE
TS	TOP STEM
TSL	TRAFFIC SIGNAL LIGHT
TV	TOP VALVE
TW	TOP WALL
U.P.	UTILITY POLE
W	WATER
WM	WATER METER
WV	WATER VALVE
X-WALK	CROSS WALK



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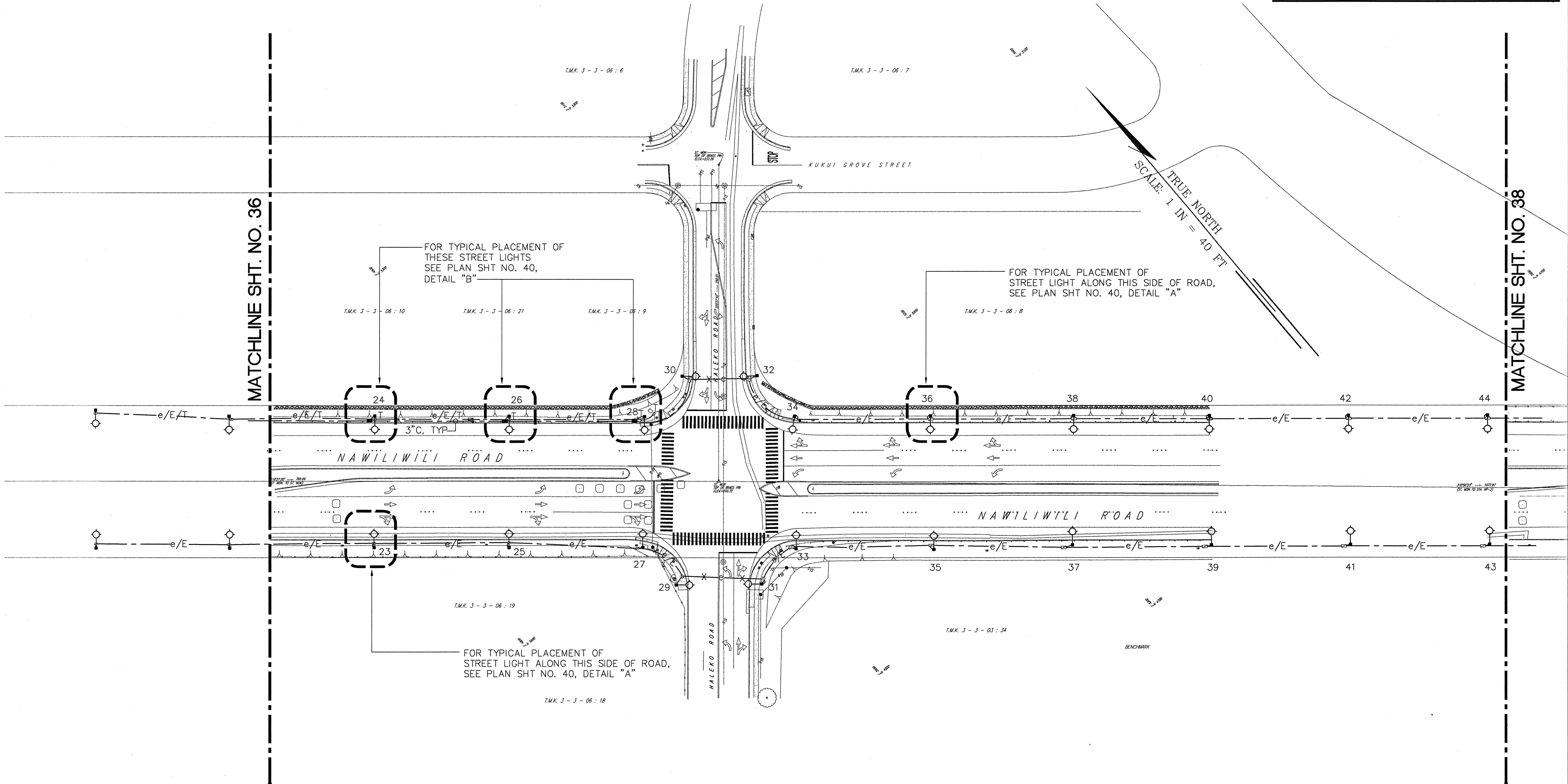
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

LIGHTING PLAN, GENERAL
NOTES AND LEGEND
TRAFFIC SIGNAL MODERNIZATION
At Various Highway Locations Kauai
Federal Aid Project No. CMAQ-700(45)R
Scale: As Noted Date: JULY, 2003

SHEET No. 1 OF 4 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-700(45) ^R	2004	37	44



SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NOTED BY	
NO.	

LIGHTING PLAN

SC. 1" = 40'

NOTE:

1. LOCATION OF NEW STREET LIGHTS SHALL CLEAR EXST. OVERHEAD LINES.

APPROVED :

[Signature]
KAUAI ISLAND UTILITY COOPERATIVE

1/22/04

DATE



exp. 4/30/04

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[Signature]
NAKANURA, OYAMA & ASSOC., INC.
CONSULTING ENGINEERS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

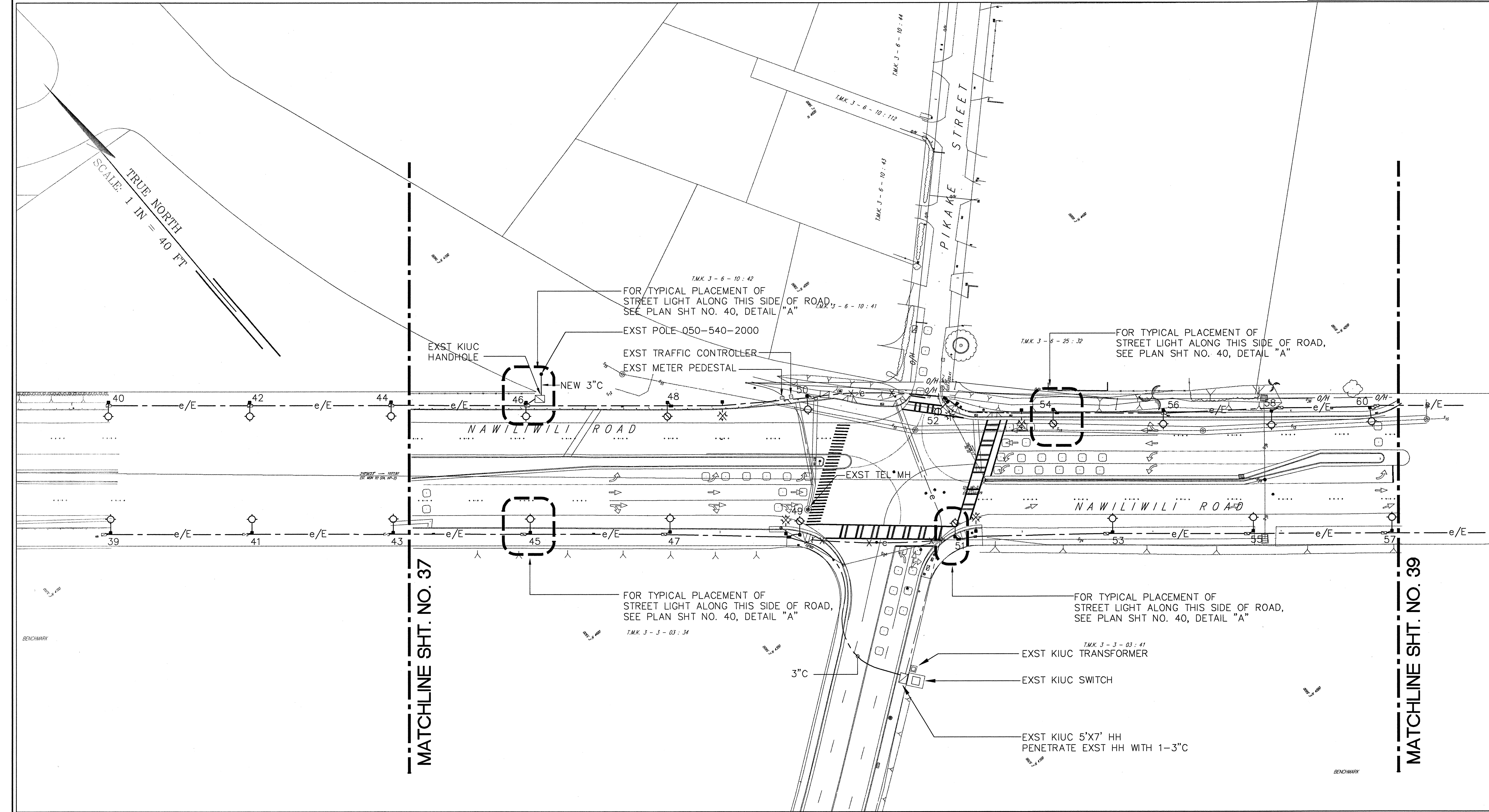
LIGHTING PLAN

TRAFFIC SIGNAL MODERNIZATION
At Various Highway Locations Kauai
Federal Aid Project No. CMAQ-700(45)^R

Scale: As Noted Date: JULY, 2003

SHEET No. 2 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-700(45) ^R	2004	38	44



SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NO.	

LIGHTING PLAN

SC. 1" = 40'

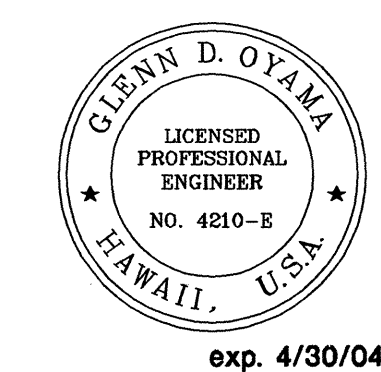
NOTE:

1. LOCATION OF NEW STREET LIGHTS SHALL CLEAR EXST. OVERHEAD LINES.

APPROVED :

[Signature] 1/22/04
KAUAI ISLAND UTILITY COOPERATIVE

DATE



exp. 4/30/04

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[Signature]
NAKAMURA, OYAMA & ASSOC., INC.
CONSULTING ENGINEERS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

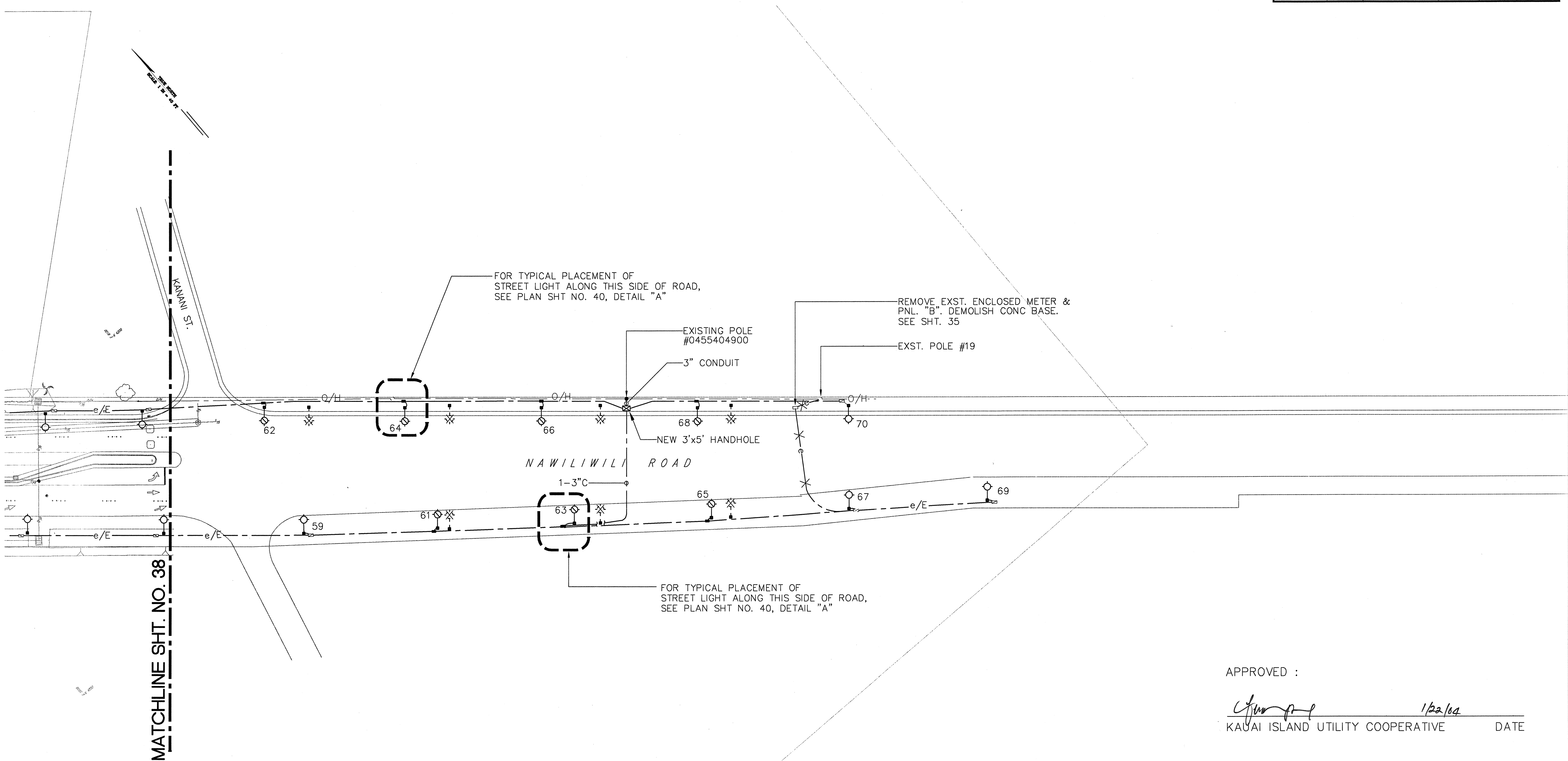
LIGHTING PLAN

TRAFFIC SIGNAL MODERNIZATION
At Various Highway Locations Kauai
Federal Aid Project No. CMAQ-700(45)^R

Scale: As Noted Date: JULY, 2003

SHEET No. 3 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-700(45)R	2004	39	44



SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTEBOOK	
No.	

LIGHTING PLAN
 SC. 1" = 40'

NOTE:

1. LOCATION OF NEW STREET LIGHTS SHALL CLEAR EXST. OVERHEAD LINES.

GLENN D. OYAMA
 LICENSED PROFESSIONAL ENGINEER
 NO. 4210-B
 HAWAII, U.S.A.

exp. 4/30/04

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Glenn D. Oyama
 NAKANURA, OYAMA & ASSOC., INC.
 CONSULTING ENGINEERS

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

LIGHTING PLAN

TRAFFIC SIGNAL MODERNIZATION
 At Various Highway Locations Kauai
 Federal Aid Project No. CMAQ-700(45)R

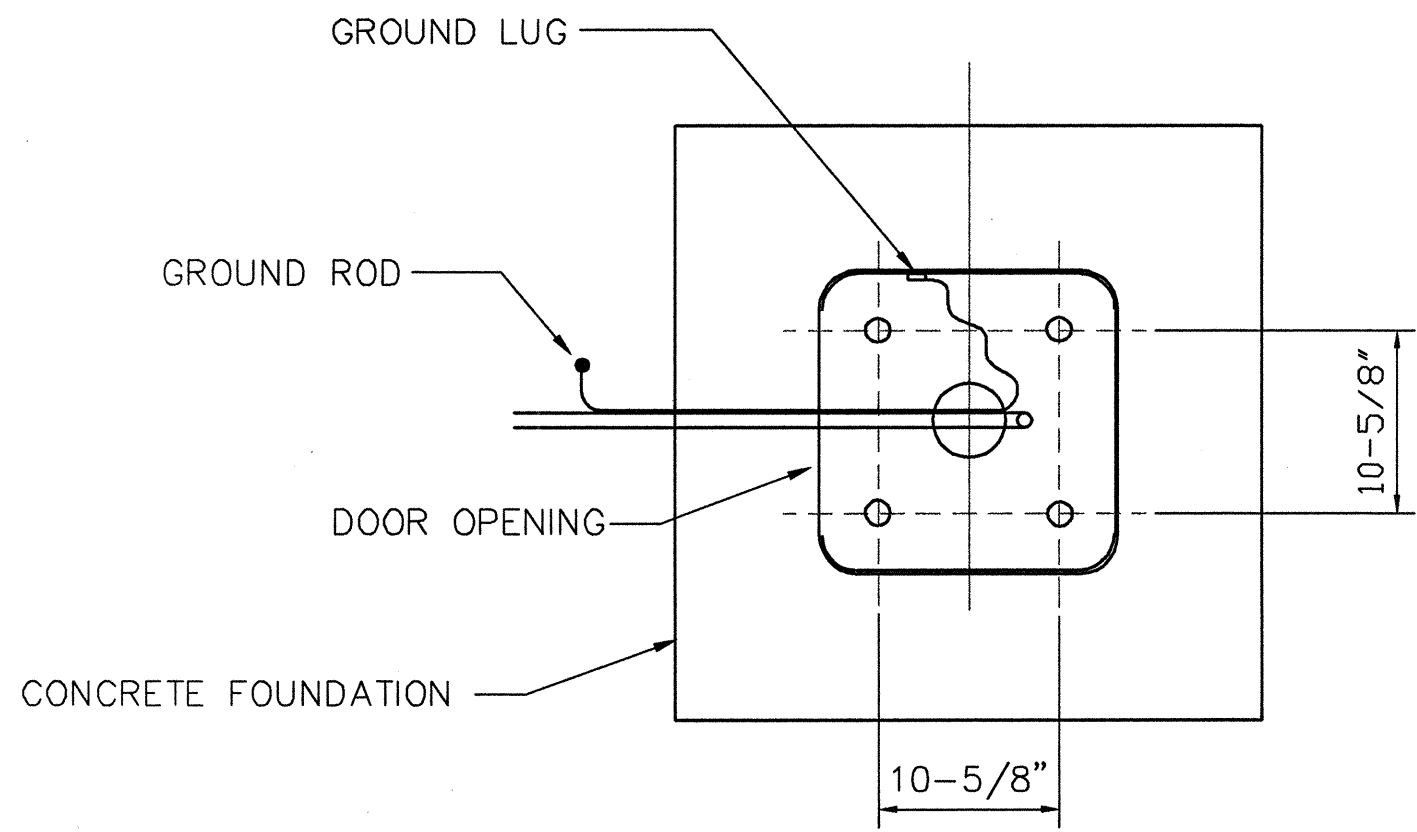
Scale: As Noted Date: JULY, 2003

SHEET No. 4 OF 4 SHEETS

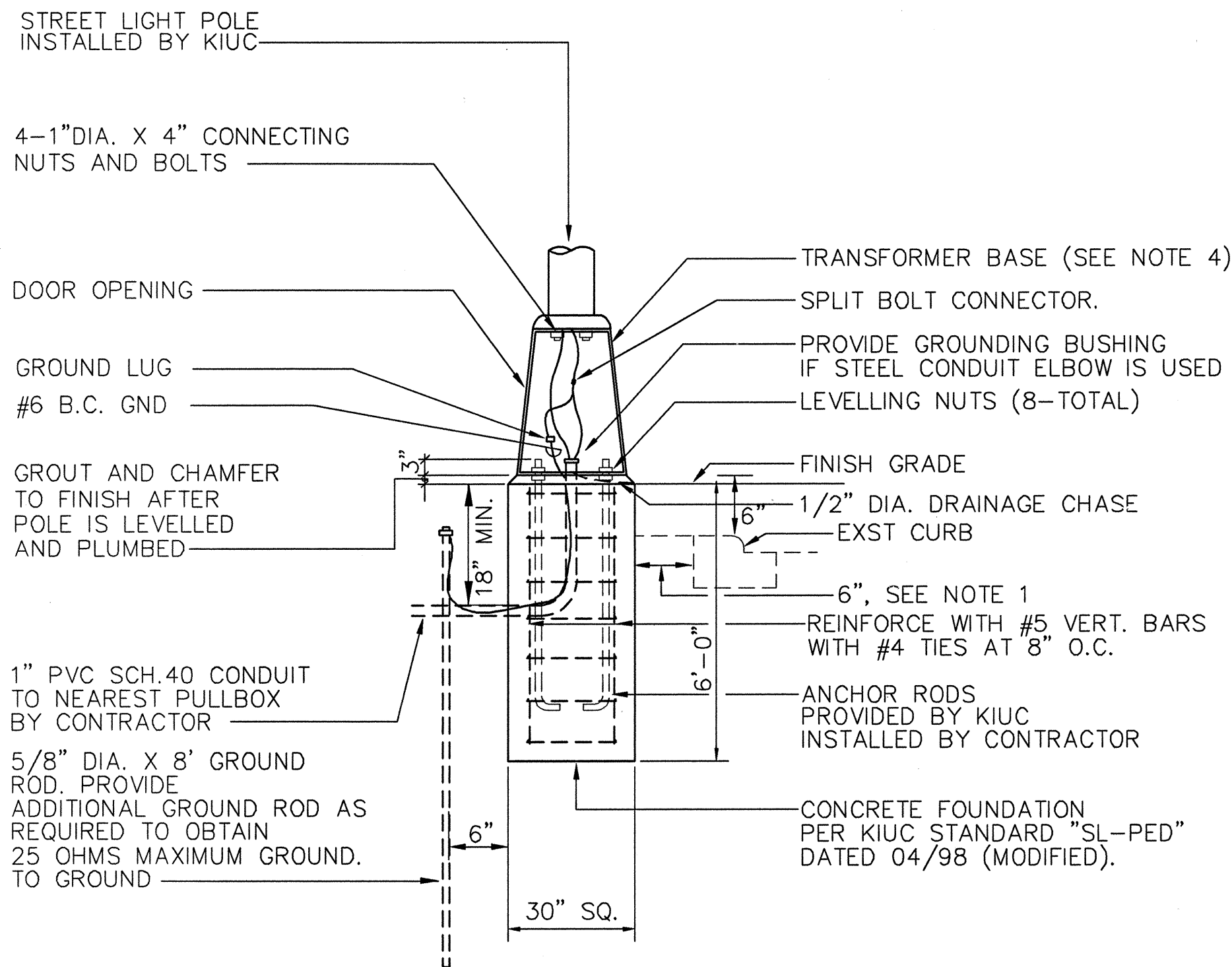
APPROVED :

Glenn D. Oyama 1/22/04
 KAUAI ISLAND UTILITY COOPERATIVE DATE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-700(45)R	2004	40	44



PLAN AT BASE



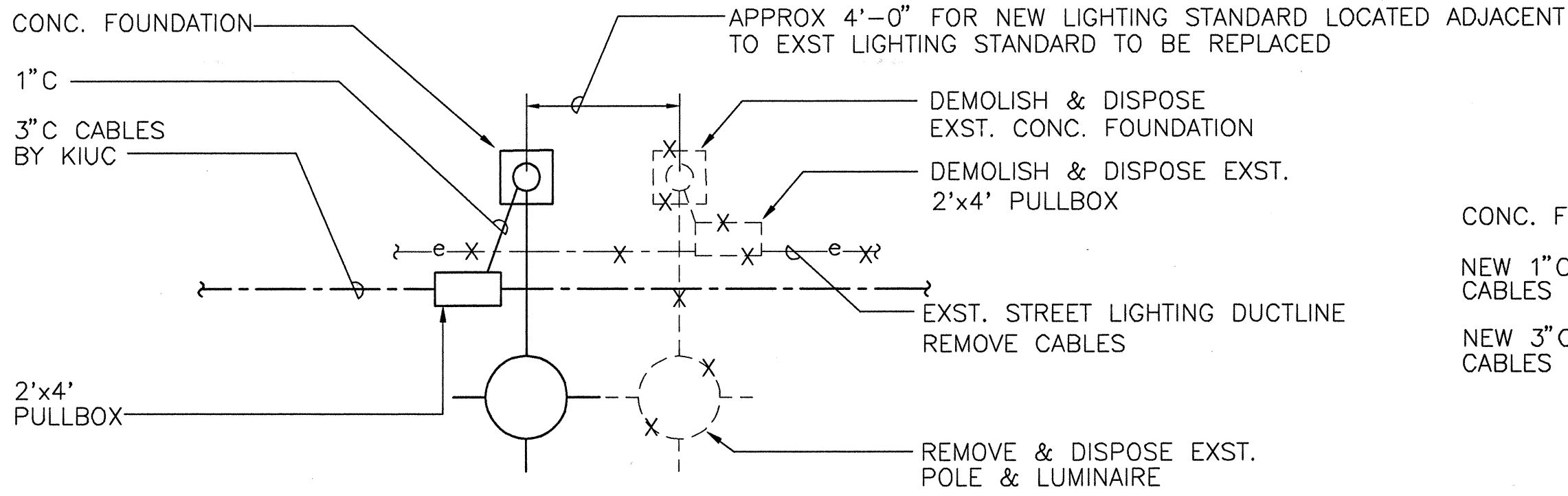
ELEVATION

STREET LIGHT CONCRETE FOUNDATION DETAIL

NTS

NOTES:

1. CONCRETE FOUNDATION TO BE 6" AWAY FROM CURBING. THIS APPLIES TO STREETS WITH CURB AND GUTTER CONSTRUCTION.
2. CONCRETE FOUNDATION: 3000 PSI (28-DAY COMPRESSIVE STRENGTH)
3. ANCHOR RODS: TO BE SUPPLIED BY KIUC UNLESS NOTED IN THE CONSTRUCTION DRAWINGS.
4. TRANSFORMER BASE: TO BE PROVIDED BY KIUC AND INSTALLED BY CONTRACTOR.
5. FOUNDATION: TO BE CONSTRUCTED BY CONTRACTOR.

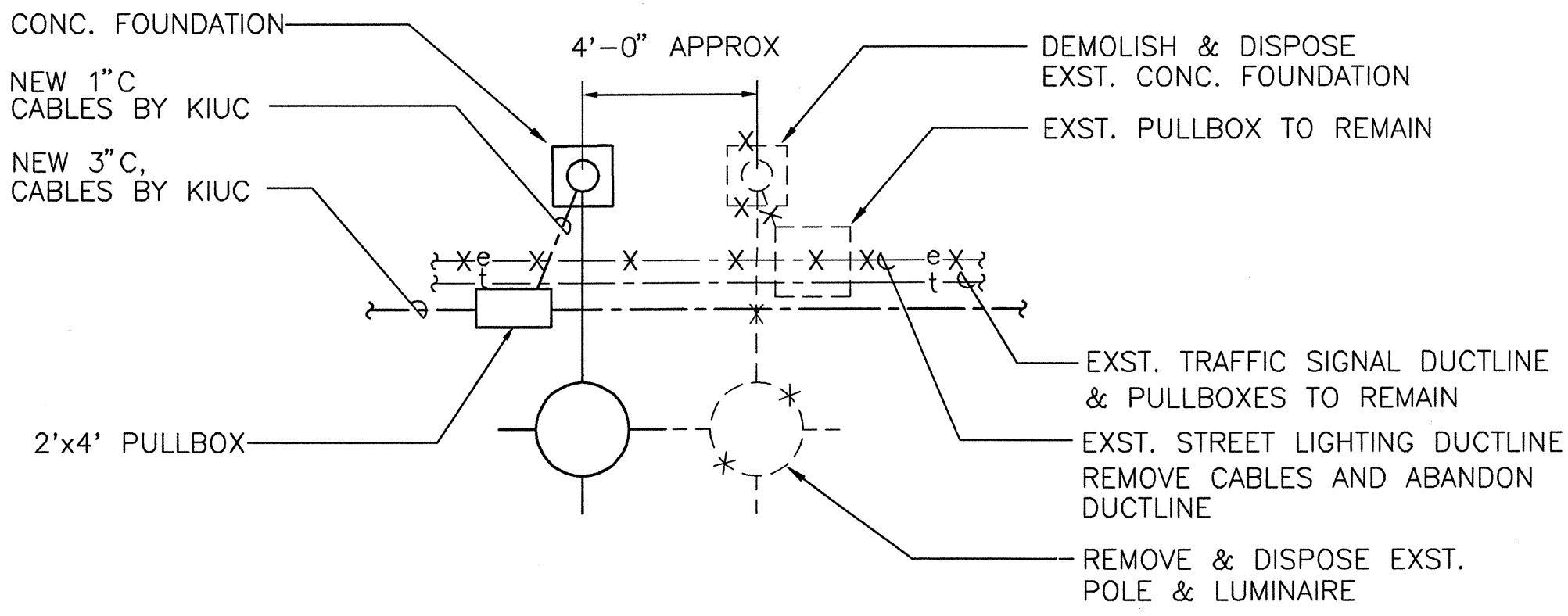


TYPICAL STREET LIGHT PLACEMENT - DETAIL "A"

NTS

NOTES :

1. CUT EXST. CONCRETE FOUNDATION 12" BELOW FINISH GRADE & BACKFILL. COST SHALL BE INCIDENTAL TO VARIOUS ITEMS IN THE PROPOSAL.

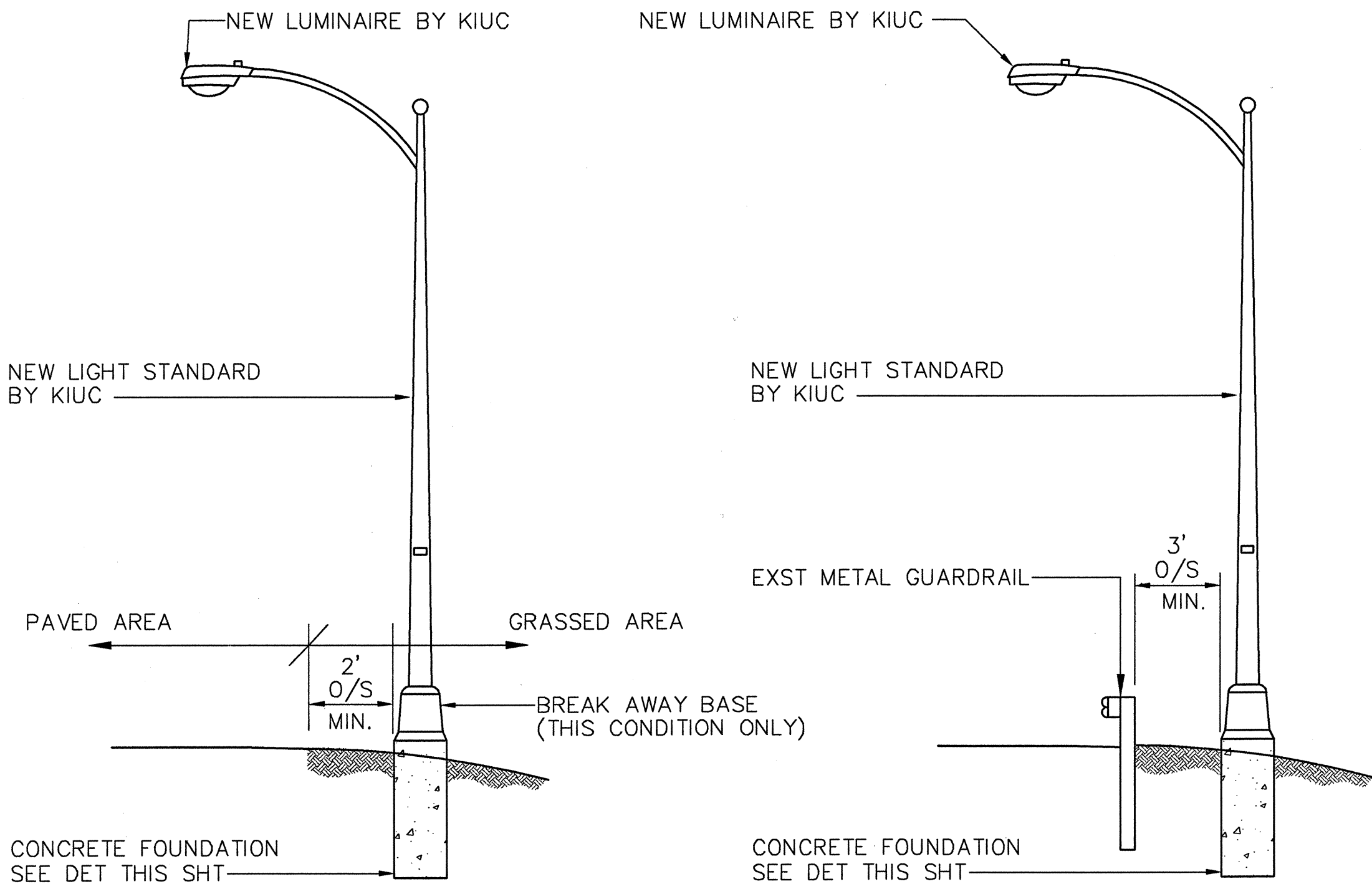


TYPICAL STREET LIGHT PLACEMENT - DETAIL "B"

NTS

NOTES :

1. CUT EXST. CONCRETE FOUNDATION 12" BELOW FINISH GRADE & BACKFILL. COST SHALL BE INCIDENTAL TO VARIOUS ITEMS IN THE PROPOSAL.

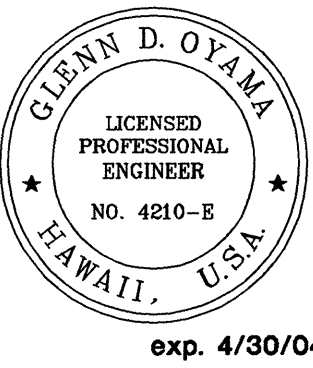


CONDITION AT GRASSED AREA STREET LIGHT DETAIL

NTS

CONDITION AT GUARD RAIL STREET LIGHT DETAIL

NTS



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AKAMURA, OYAMA & ASSOC., INC.
CONSULTING ENGINEERS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

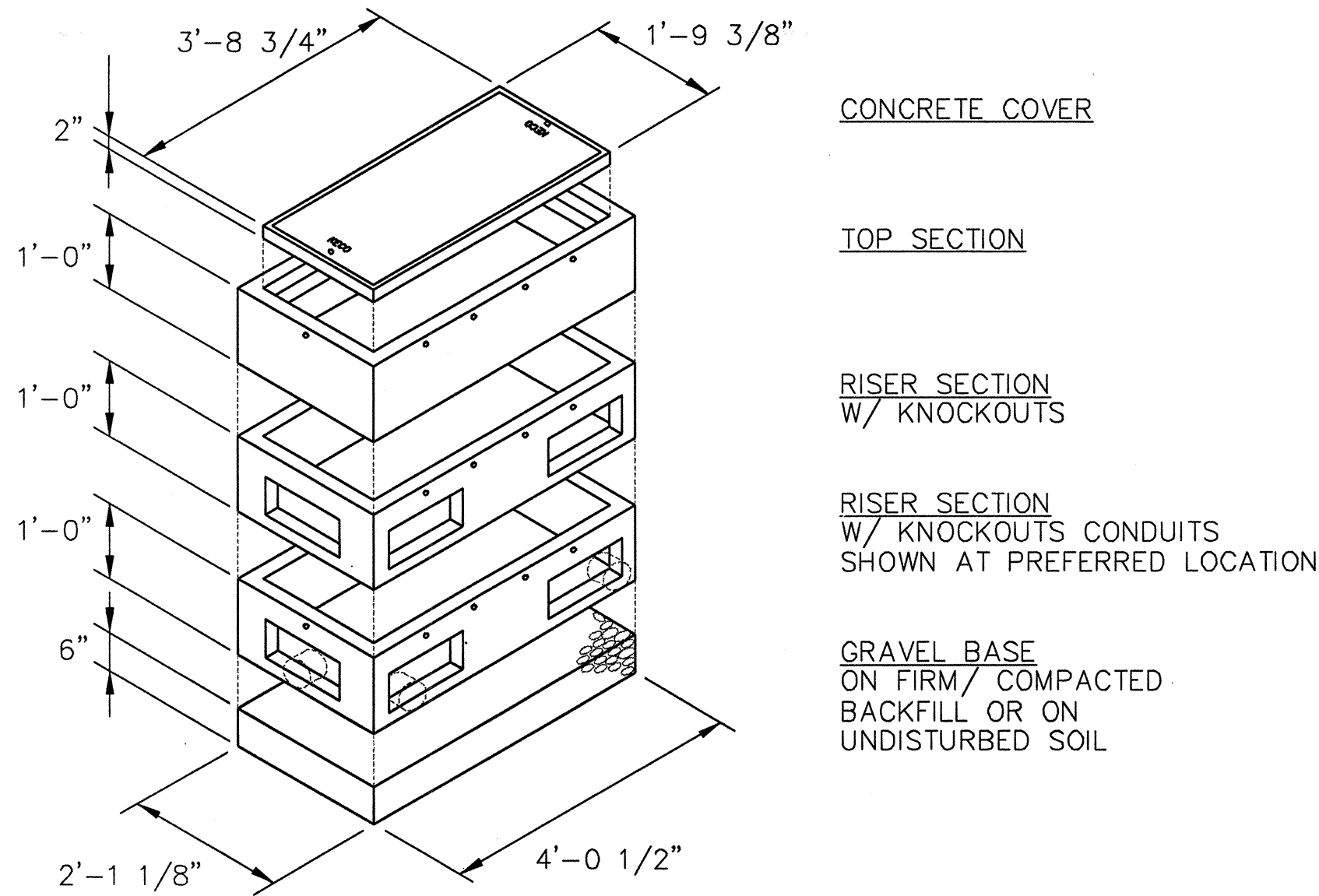
DETAILS

TRAFFIC SIGNAL MODERNIZATION
At Various Highway Locations Kauai
Federal Aid Project No. CMAQ-700(45)R
Scale: As Noted Date: JULY, 2003

SHEET No. 1 OF 2 SHEETS

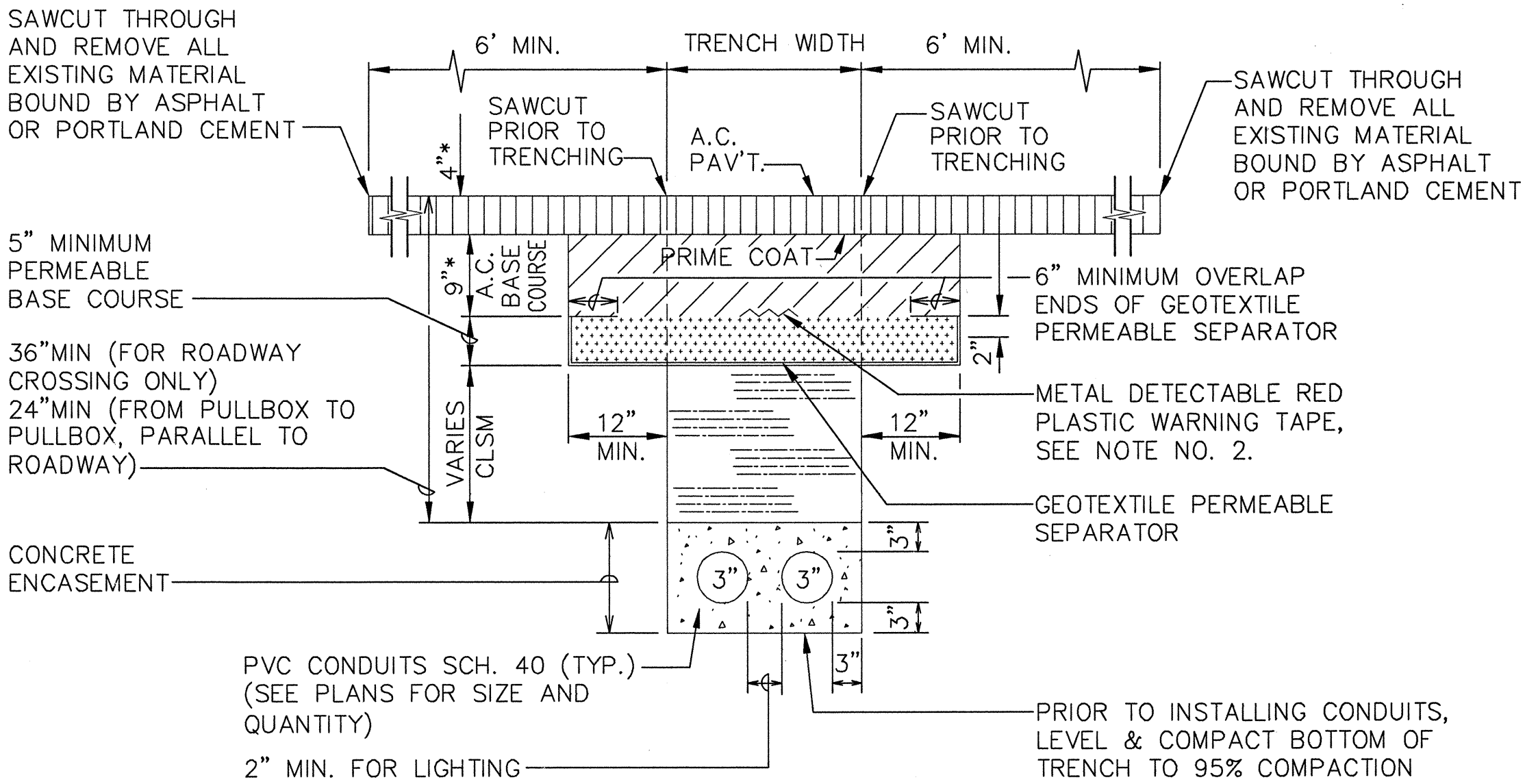
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTEBOOK	
No.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-700(45) ^R	2004	41	44



2'-1 1/8" X 4'-0 1/2"
PRECAST PULLBOX

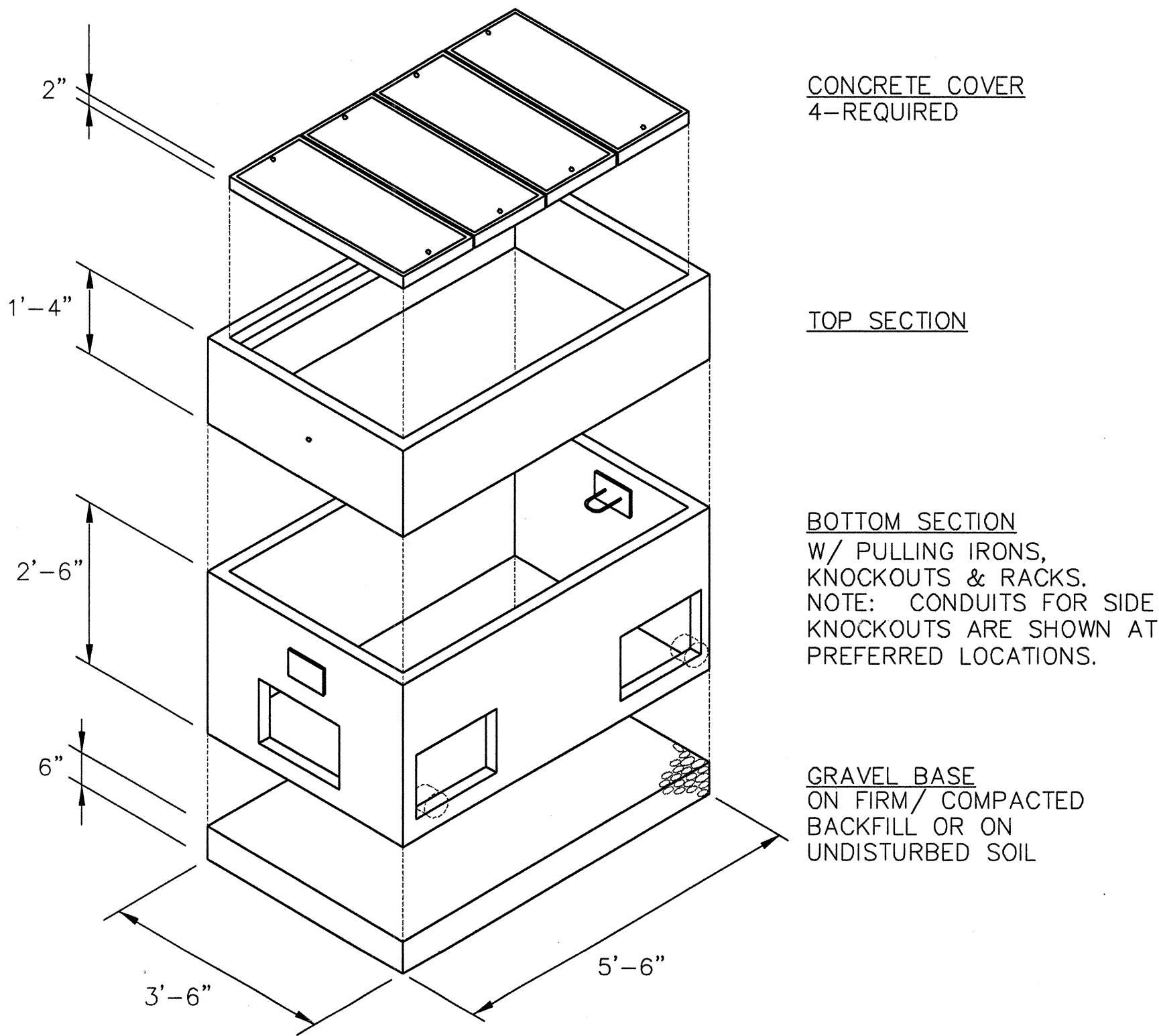
NOTE:
REFER TO NOTE #22 OF THE KIUC UNDERGROUND CONSTRUCTION NOTES & REQUIREMENTS.



TYPICAL BACKFILL SECTION
WITH CONCRETE ENCASED DUCTS

NOTES:

- IF TRENCH IS LOCATED ON UNPAVED AREA, THE CONTRACTOR SHALL REPLACE 9" A.C. BASE COURSE AND 4" A.C. PAVEMENT WITH TYPE "A" BACKFILL MATERIAL.
- THE METAL DETECTABLE RED 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 CARE. THE MESSAGE ON THE TAPE SHALL READ, "CAUTION - STATE HWY LIGHTING BURIED BELOW," UTILIZING 1 1/2 INCHES SERIES "C" BLACK LETTERING. THE MESSAGE WILL BE REPEATED WITH A 4 1/4" SPACING BETWEEN TOP LINE OF MESSAGE AND START OF NEXT REPEAT.
- THE CONTRACTOR MAY BEGIN BACKFILLING THE CONDUIT TRENCH WHEN THE CONCRETE REACHES 3000 PSI COMPRESSIVE STRENGTH AFTER 3 DAYS.
- TRENCHING ACROSS ROADWAYS AND DRIVEWAYS SHALL BE MADE PERPENDICULAR TO ROADWAYS OR DRIVEWAYS.
- FOR TRENCHING & PULLBOXES, REFER TO NOTE #5 OF THE KIUC UNDERGROUND CONSTRUCTION NOTES AND REQUIREMENTS.

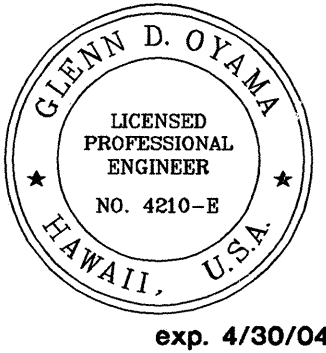


3'-6" X 5'-6"
PRECAST PULLBOX

NOTE:
REFER TO NOTE #22 OF THE KIUC UNDERGROUND CONSTRUCTION NOTES & REQUIREMENTS.

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTEBOOK	
No.	

APPROVED :
[Signature]
KAUAI ISLAND UTILITY COOPERATIVE
DATE 1/22/04



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NAKAMURA, OYAMA & ASSOC., INC.
CONSULTING ENGINEERS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAILS
TRAFFIC SIGNAL MODERNIZATION
At Various Highway Locations Kauai
Federal Aid Project No. CMAQ-700(45)^R
Scale: As Noted Date: JULY, 2003

SHEET No. 2 OF 2 SHEETS