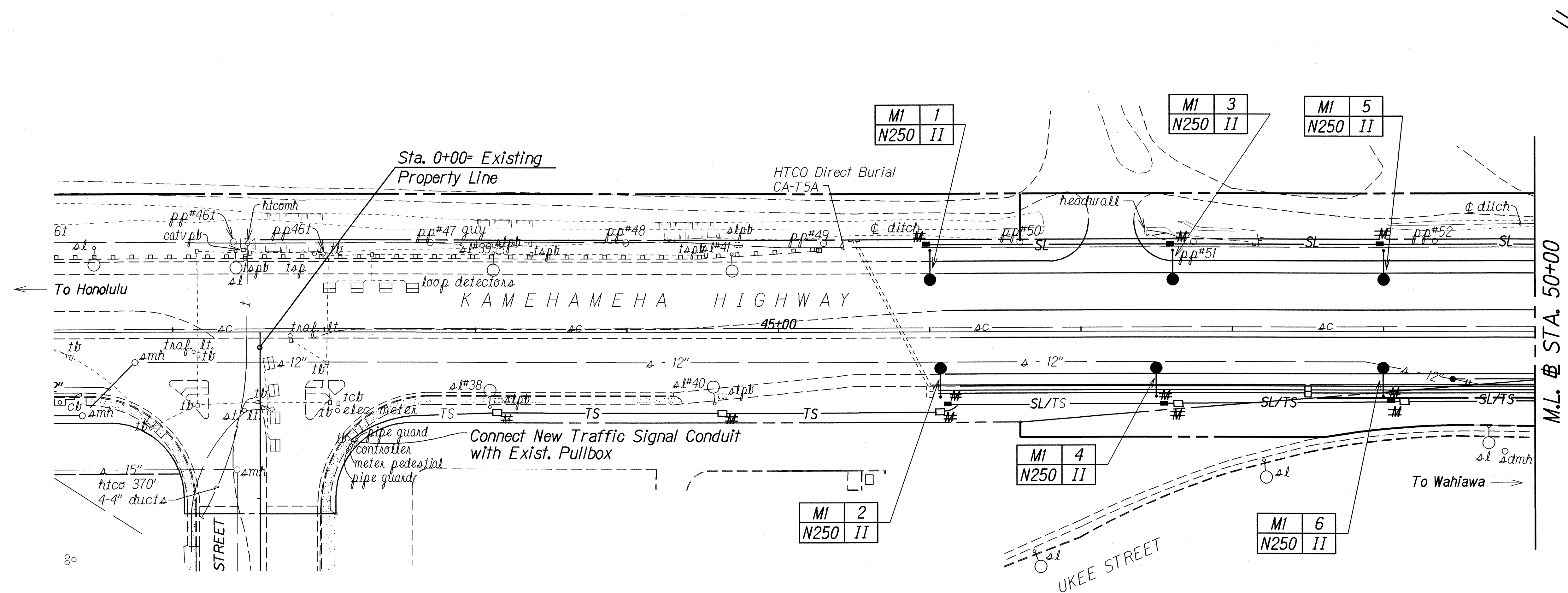


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-099-1(12)	1996	44	64



LEGEND

- Exist. Highway Lighting Standard
- New Highway Light Standard with 15-Foot Bracket Arm and 250 Watt High Pressure Sodium Luminaire
- SL — New Street Lighting Circuit
- SL/TS — New Street Lighting Circuit/Traffic Signal Circuit (in same trench)
- TS — New Traffic Signal Conduits and Cables (1-2" Conduit, Sch. 80 PVC & 1-12 Pair #19 Interconnect Cable)
- Exist. Highway Lighting Pullbox
- New Type A Pullbox (Hwy. Lighting)
- ~~■ M New Type A Pullbox with Modified Cover (Hwy. Lighting)~~
- ~~■ M New Type B Pullbox with Modified Cover (Traffic Signal)~~
- C New Type C Pullbox (Hwy. Lighting) (For Details, See Sht. No. T 11)
Note: Cover shall read "HWY LIGHTING"

A	B
C	D

A - Meter Number
B - Light Pole Number
C - Lamp Data, N for HSP
D - Refractor Data

LEGEND FOR AS-BUILT POSTINGS

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

SURVEY PLOTTED BY	DATE
DESIGNED BY	11/14/95
CHECKED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING PLAN

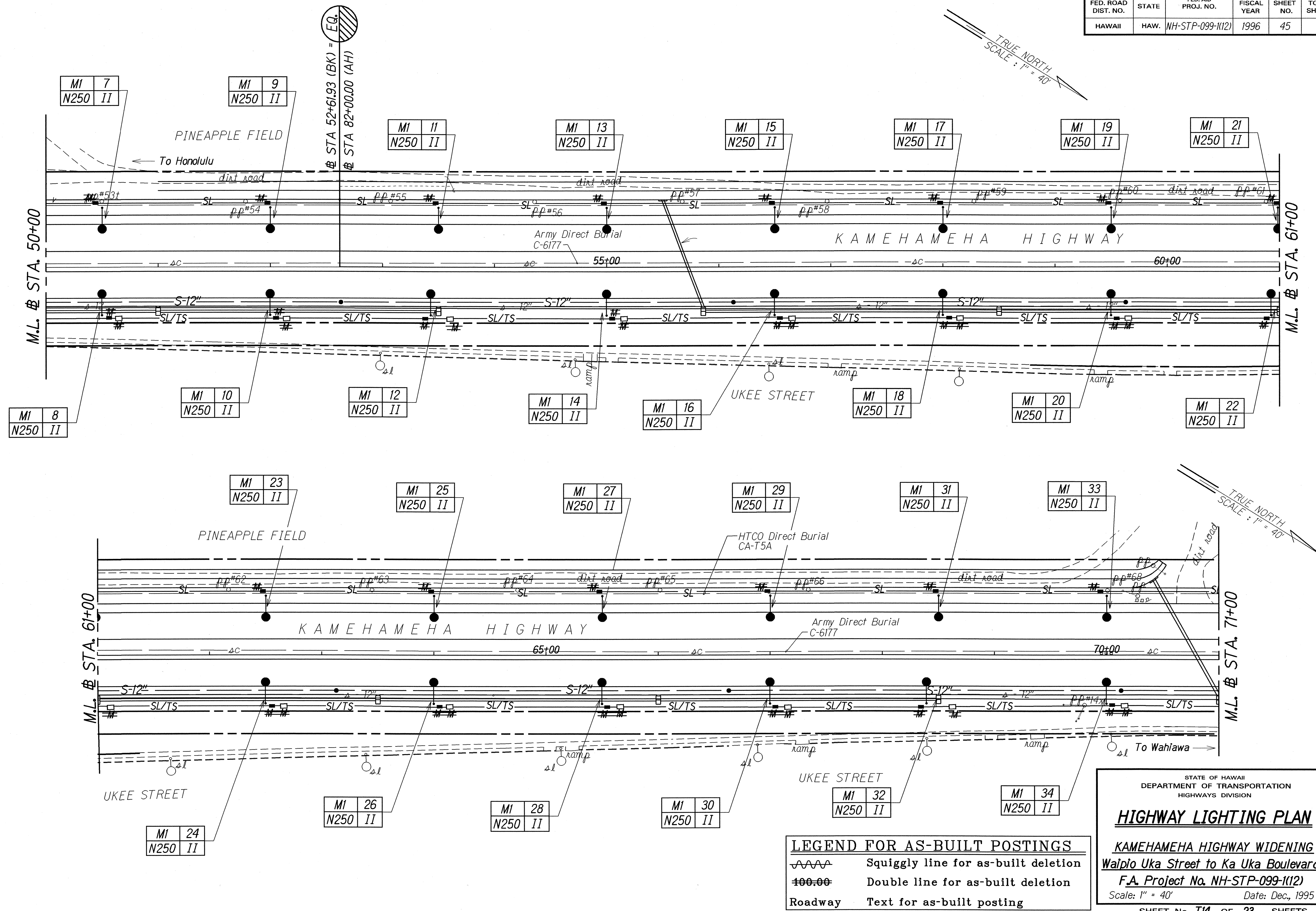
KAMEHAMEHA HIGHWAY WIDENING
Waipio Uka Street to Ka Uka Boulevard
F.A. Project No. NH-STP-099-1(12)
Scale: 1" = 40' Date: Dec., 1995

SHEET No. 713 OF 23 SHEETS

AS-BUILT

44

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-099-1(12)	1996	45	64



ORIGINAL PLAN	DATE
NOTE BOOK	11/14/95
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

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

KAMEHAMEHA HIGHWAY WIDENING
Waipio Uka Street to Ka Uka Boulevard
F.A. Project No. NH-STP-099-1(12)
Scale: 1" = 40' Date: Dec., 1995

SHEET No. 714 OF 23 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-099-1(12)	1996	48	64

NOTES:

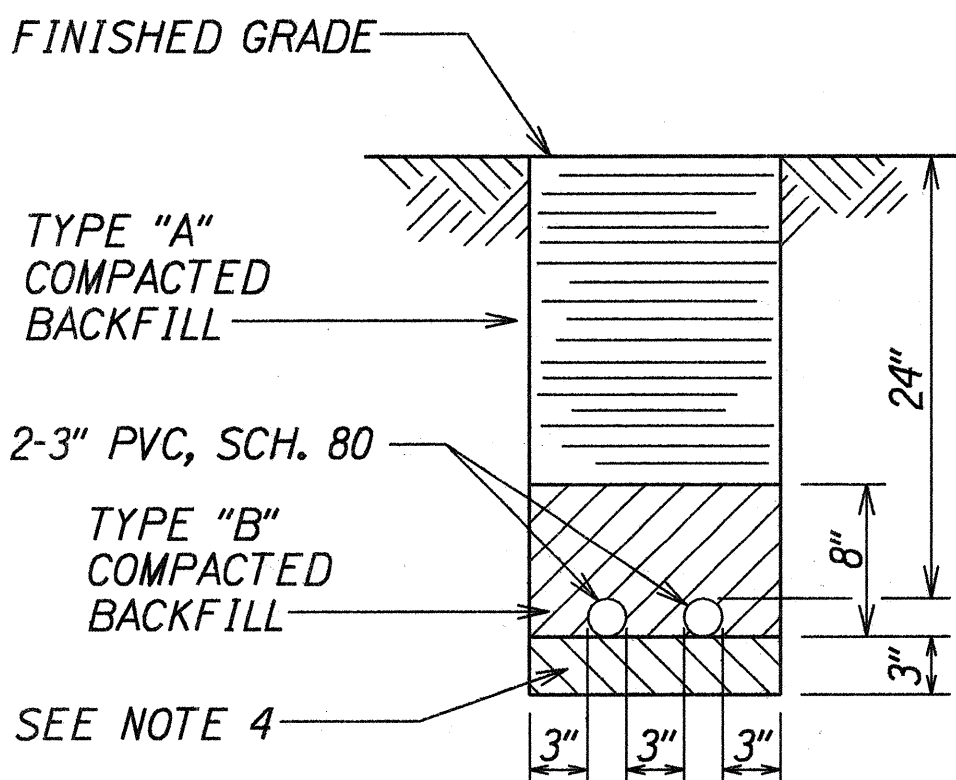
- ALL STEEL SHAFTS, PLATES, MAST ARMS, BOLTS, SCREWS, NUTS AND WASHERS TO BE GALV. AFTER FABRICATION OR MODIFICATION.
- 4" X 6½" HANDHOLE REINFORCED W/ #3 GA. RING 1½" WIDE WELDED TO OUTSIDE OF POLE COVER OF 10 GA. PLATE LOCATE 90 DEGREES OF MAST ARM UNLESS SHOWN OTHERWISE.
- ROUND TAPERED STEEL TUBE W/MAX. TAPER OF 0.15"/FOOT.
- NO. 11 GAGE SHEET STEEL OF WELDABLE GRADE ACCEPTABLE IF STEEL AFTER FABRICATION HAS A MIN. YIELD STRENGTH OF 40,000 PSI.
- THE COST FOR CABLES AND EXCAVATING & BACKFILLING THE CONDUIT TRENCH SHALL BE INCIDENTAL TO THE CONDUITS.

NOTES:

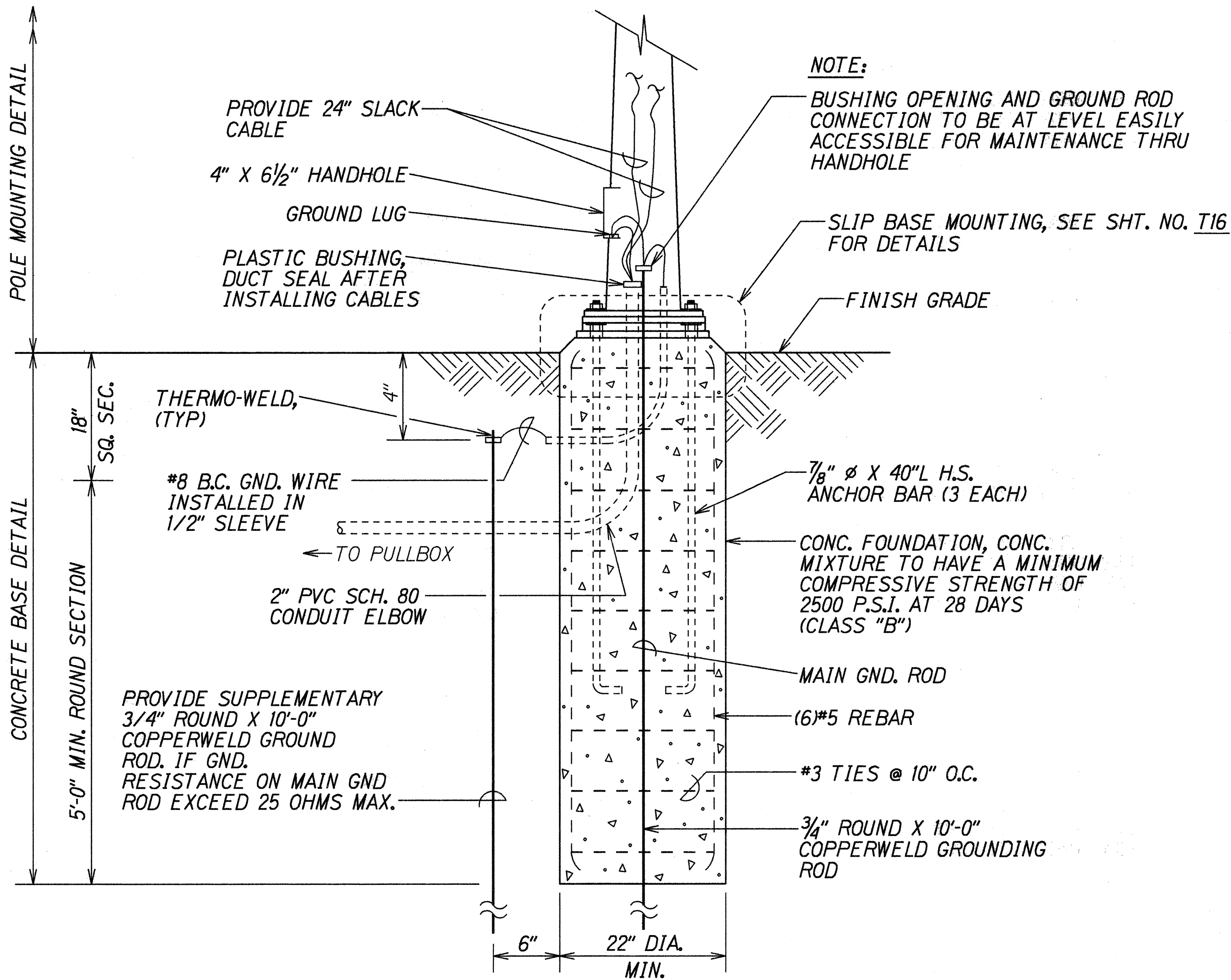
- ALL CONDUIT SHALL BE "PVC" SCHED. 80 FOR DIRECT BURIED OR CONCRETE ENCASEMENT, U.O.N.
- BACKFILL OVER CONCRETE DUCT SECTIONS SHALL BE TYPE "A"
- BACKFILL OVER DIRECT BURIED CONDUITS SHALL BE TYPE "B"
- IF THE NORMAL MATERIAL IN THE BOTTOM OF A TRENCH CONTAINING A DIRECT BURIAL CONDUIT IS NOT TYPE "B"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

BACKFILL TYPES ARE:

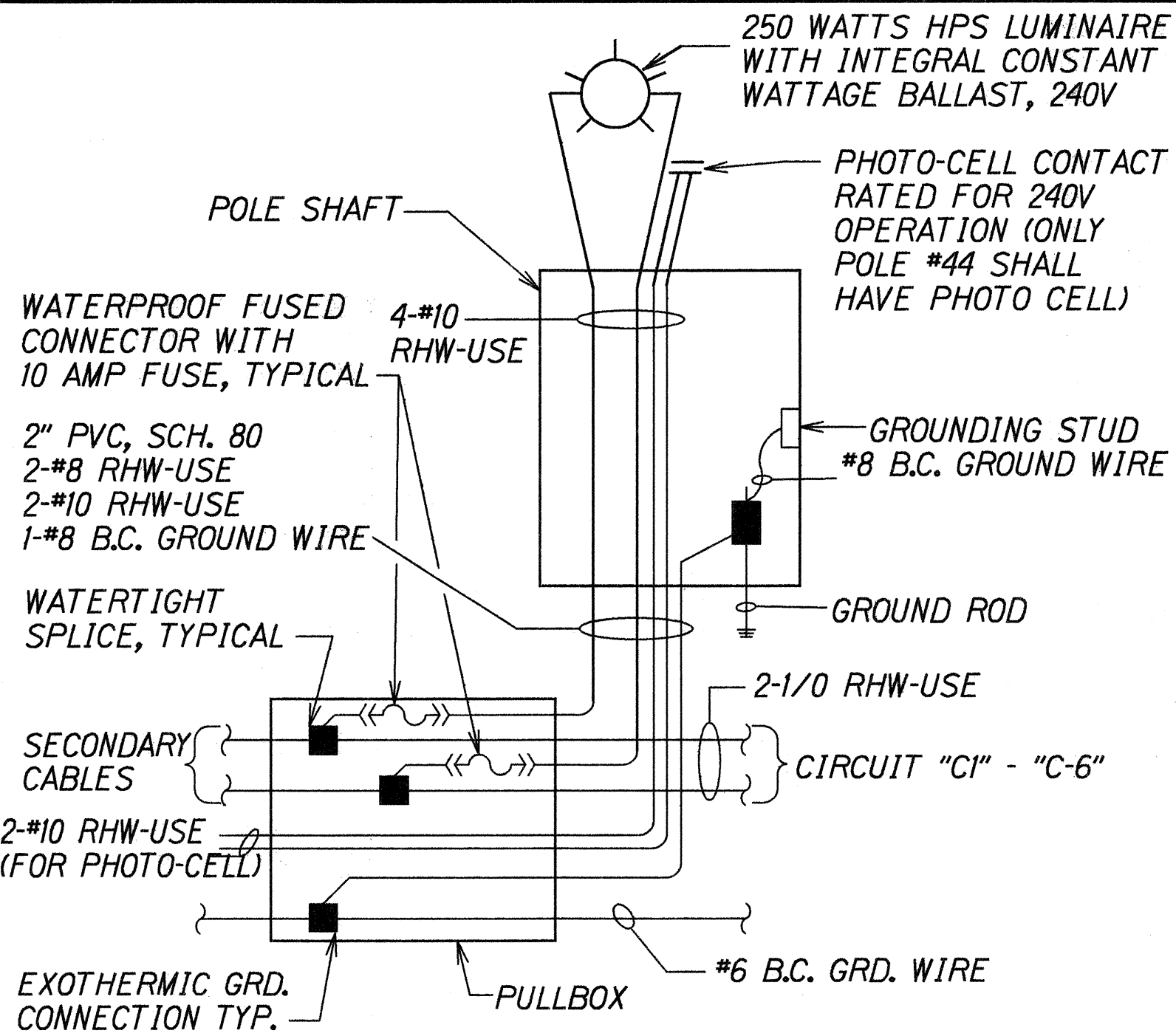
- TYPE "A": BEACH SAND, EARTH, OR EARTH AND GRAVEL. IF EARTH AND GRAVEL USED, THE MAXIMUM ROCK SIZE SHALL BE 1" AND THE MIXTURE SHALL CONTAIN NOT MORE THAN 50% BY VOLUME OF ROCK PARTICLES.
- TYPE "B": BEACH SAND, EARTH, OR EARTH AND GRAVEL. IF EARTH AND GRAVEL USED, MIXTURE MUST PASS A ½" MESH SCREEN AND CONTAIN NOT MORE THAN 20% BY VOLUME OF ROCK PARTICLES.



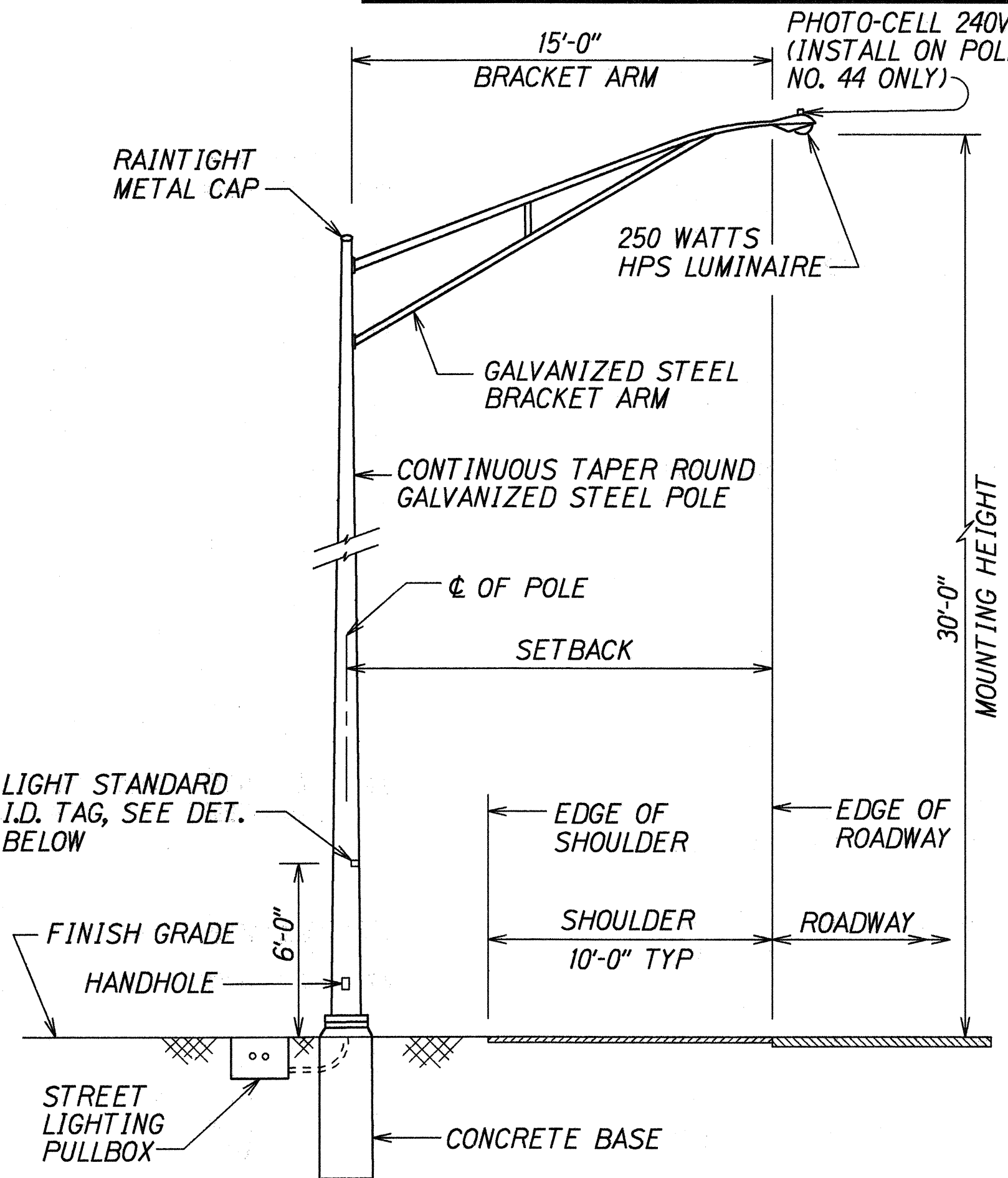
TYPICAL DUCT SECTION
(DIRECT BURIED)



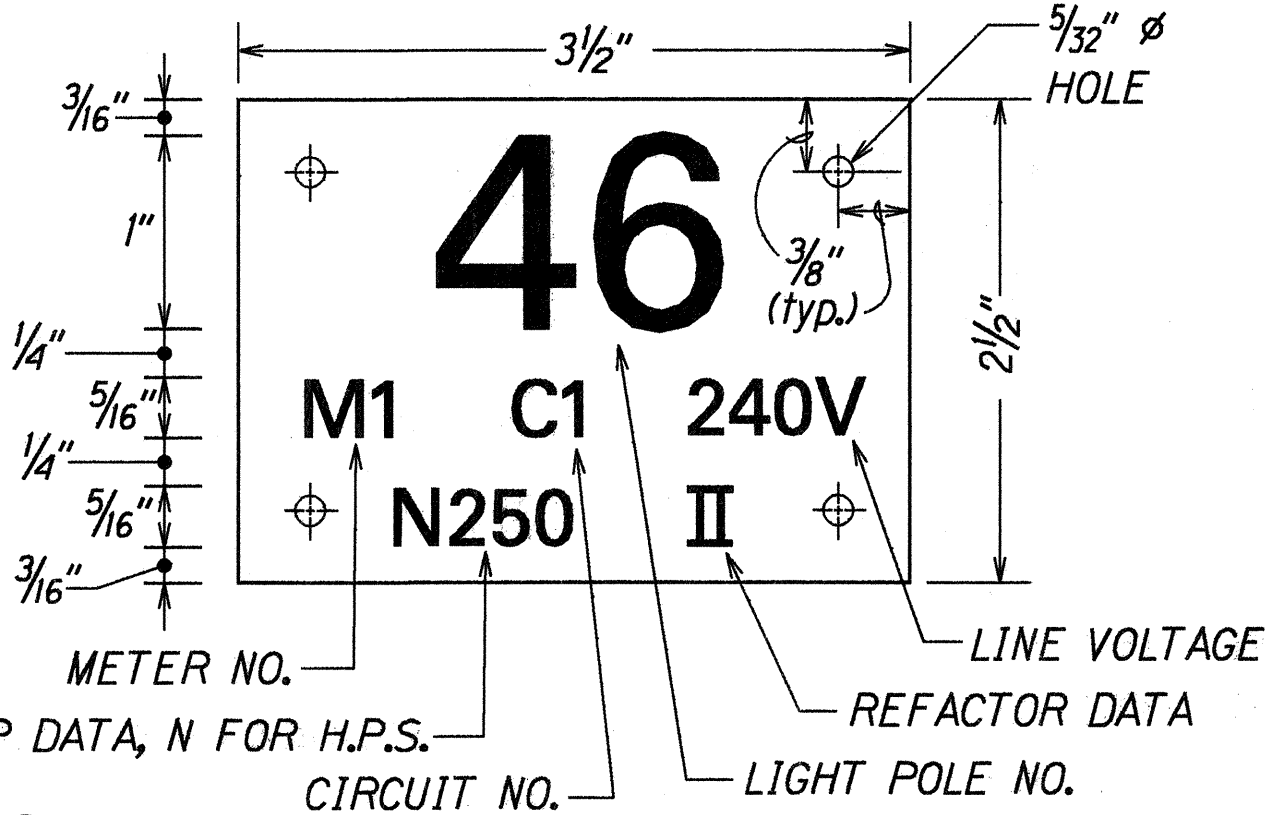
CONCRETE BASE AND POLE MOUNTING DETAIL SLIP BASE



TYPICAL WIRING CONNECTION DIAGRAM
FOR HIGHWAY LIGHTING



TYPICAL LIGHT STANDARD INSTALLATION
SLIP BASE



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 ⅛" WIDE, WHITE IN COLOR (NUMBER AS REQUIRED).
- NOMENCALTURE SIZE SHALL BE ⅝" HIGH AND EXGRAVED ⅛" WIDE, WHITE IN COLOR (METER NUMBER, CIRCUIT NUMBER, LINE VOLTAGE, LAMP DATA AND REFRACTOR DATA AS REQUIRED).

HIGHWAY LIGHT I.D. TAG DETAIL
METERED SYSTEM

NOTES: (CONTINUED)

- ATTACH TO ALUMINUM AND STEEL POLES WITH NO. 8 STAINLESS STEEL, ½" LONG DRIVE SCREWS IN ⅛" DRILL HOLE. ATTACH TO WOOD POLES WITH 4D ALUMINUM NAILS.
- NUMBERS ARE INSCRIBED BY CUTTING THROUGH "BLACK CAP SHEET" TO EXPOSE "WHITE LETTERS".
- ASSIGN CURCUIT NUMBER FOR SYSTEMS WITH TWO OR MORE CIRCUITS (LETTER INDICATES PANEL BOARD, NUMBER INDICATES CIRCUIT).

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

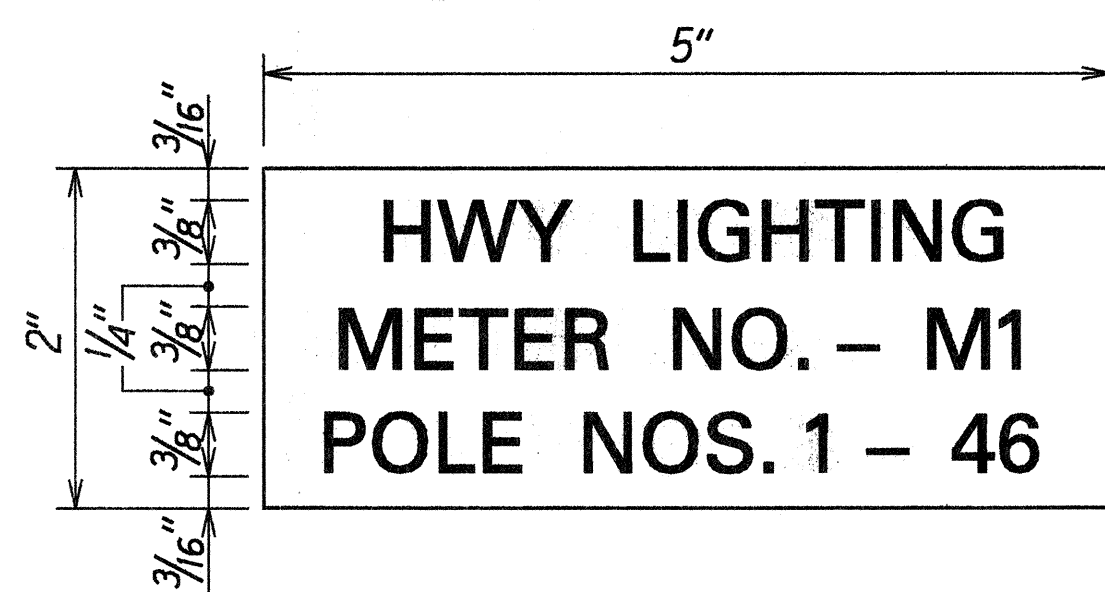
HIGHWAY LIGHTING DETAILS

KAMEHAMEHA HIGHWAY WIDENING
Waipio Uka Street to Ka Uka Boulevard
F.A. Project No. NH-STP-099-1(12)
Not to Scale Date: Dec., 1995

SHEET No. T17 OF 23 SHEETS

ORIGINAL PLAN	DATE	2/25/95
DESIGNED BY	DATE	
CHECKED BY	DATE	
NOTED BY	DATE	
FOR	DATE	
BY	DATE	

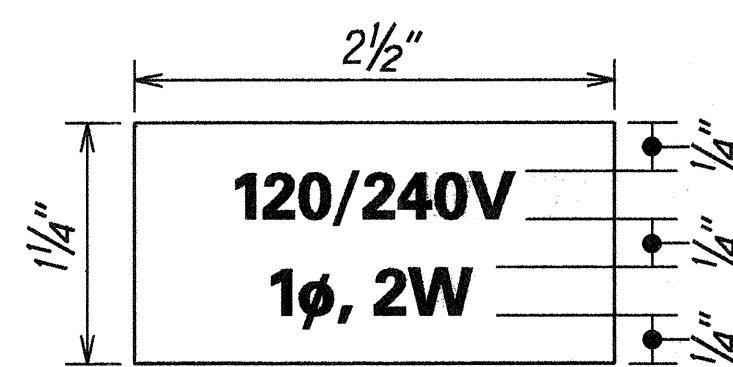
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-099-1(12)	1996	49	64



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".
- ATTACH TO METER SOCKET USING SCOTCH 3M BRAND VERY HIGH BOND (VHB) DOUBLE COATED ACRYLIC FOAM TAPE OR EQUIVALENT.
- LETTERS/NUMBERS SHALL BE 3/8" HIGH, 1/16" STROKE (WHITE IN COLOR).
- LETTERS/NUMBERS AREA INSCRIBED BY CUTTING THROUGH "BLACK CAP SHEET" TO EXPOSE WHITE LETTERS/NUMBERS.

METER ID TAG DETAIL



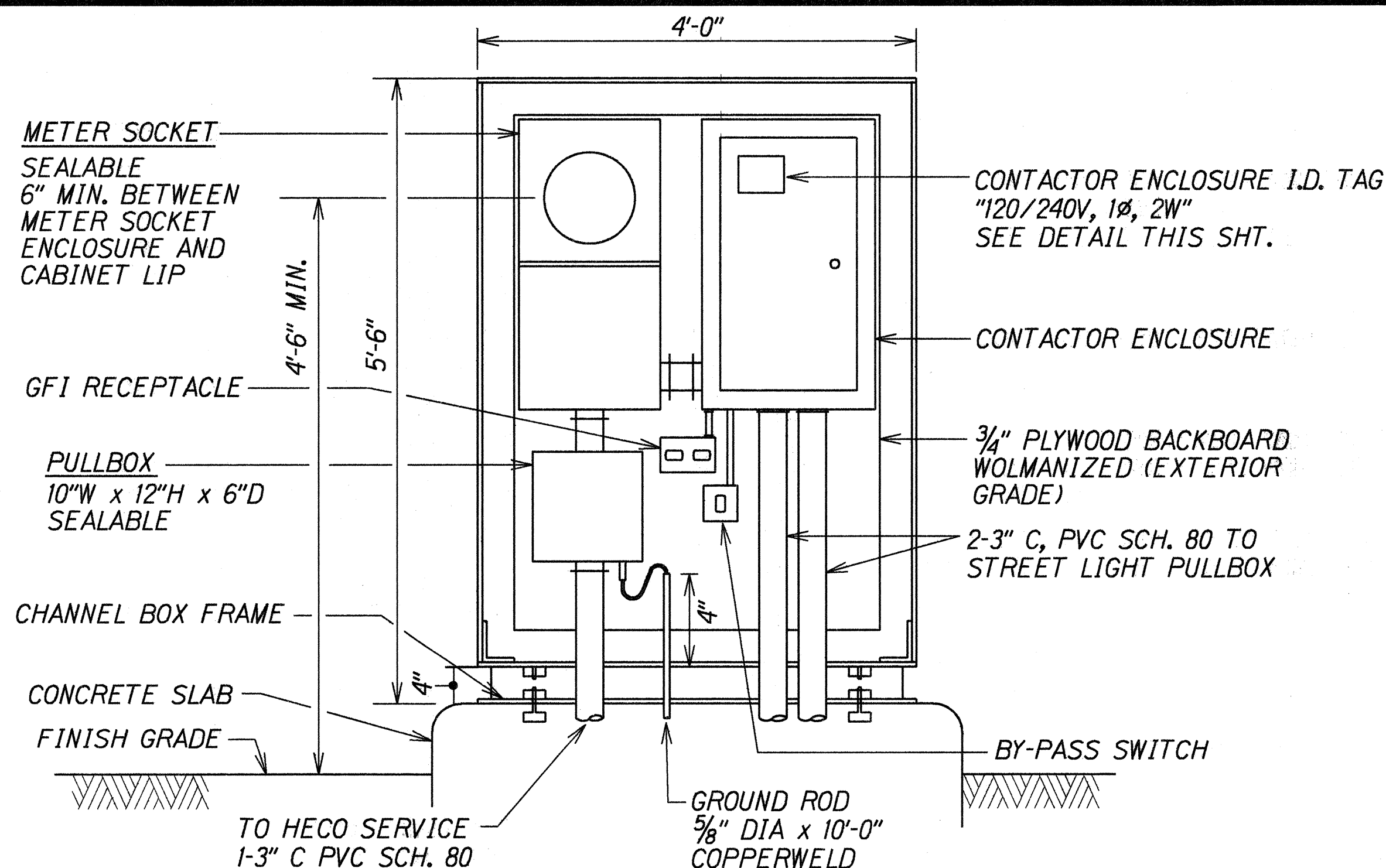
NOTES:

- USE 2 PLY PLASTIC - BLACK, WHITE.
- LETTER SIZE SHALL BE 1/4" HIGH AND ENGRAVED 1/32" WIDE, WHITE IN COLOR.
- ATTACH TO PANEL USING SCOTCH 3M BRAND VERY HIGH BOND (VHB) DOUBLE COATED ACRYLIC FOAM TAPE OR EQUIVALENT.

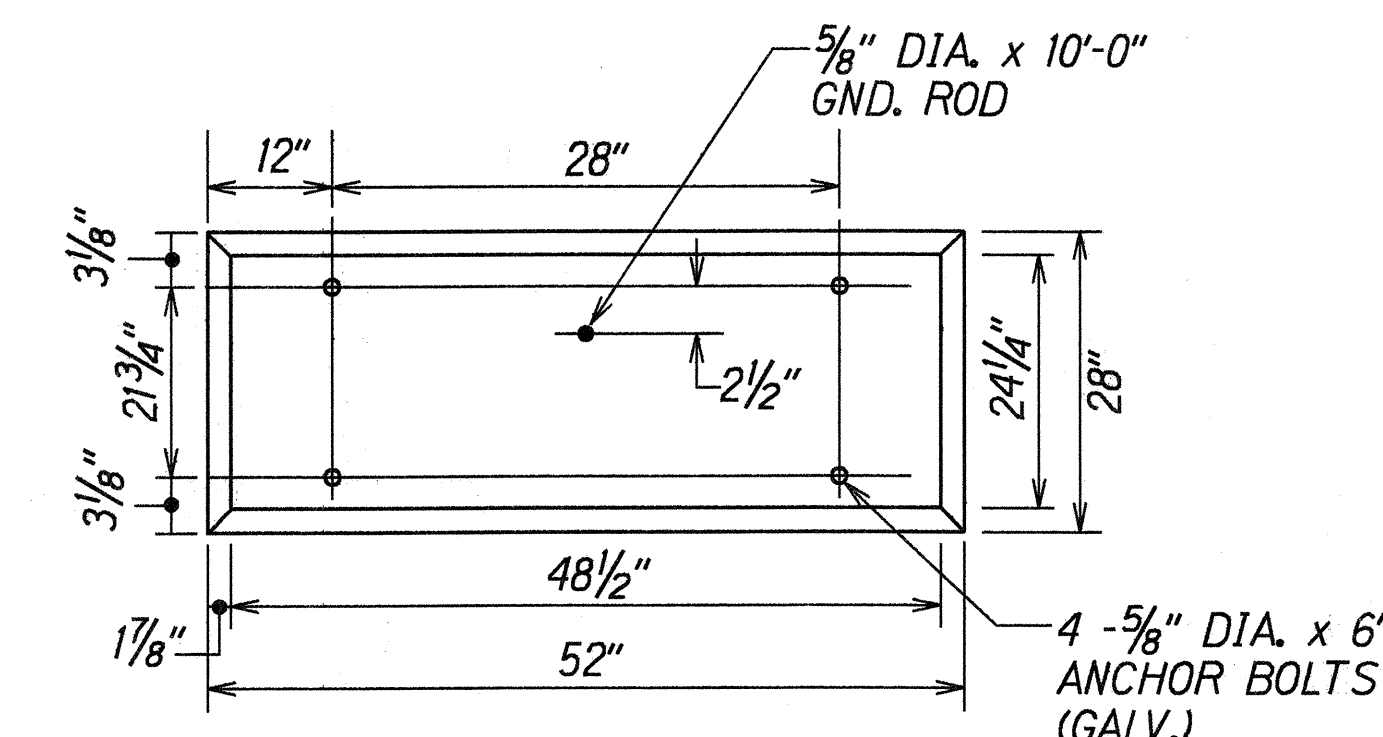
CONTACTOR ENCLOSURE I.D. TAG DETAIL

NOTES:

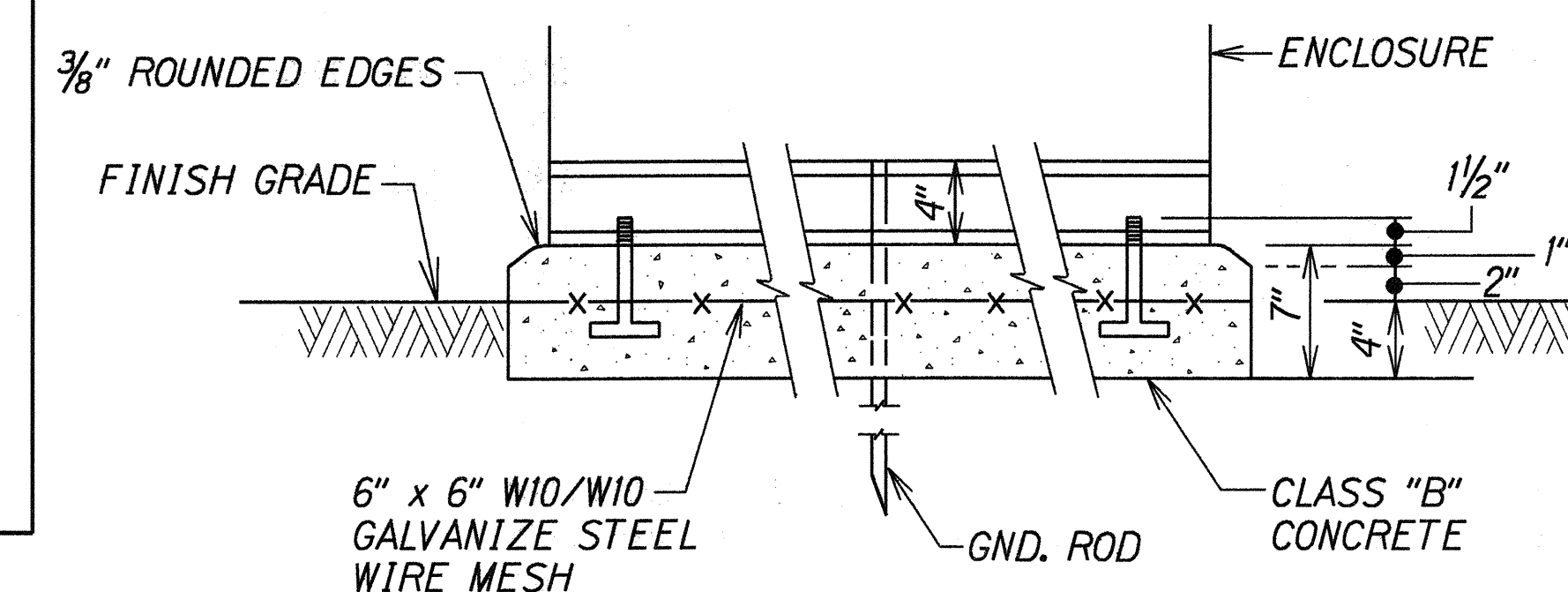
- CABINET TO BE PRIMED WITH ONE COAT SHOP PRIMER.
- PLYWOOD TO BE 3/4" THICK (MIN.) TREATED (WOLMANIZED) PLYWOOD. (EXTERIOR GRADE)
- MADE FROM 10 GA. GALV. SHEET STEEL.
- PROVIDE ACRYLIC ENAMEL FINISH, COLOR TO MATCH TRANSFORMER. (2 COATS)
- ENCLOSURE SHALL BE NEMA 3R WITH NEOPRENE GASKETING.
- PADLOCKS: 2 - CONTRACTOR FURNISHED, BRASS CORBIN SESAME COMBINATION (CONTRACTOR TO PROVIDE 3 SETS OF KEYS PER PADLOCK: 1 SET TO HECO 1 SET TO STATE HIGHWAYS ENGINEER 1 SET TO CITY & COUNTY DTS, ELECTRICAL & MAINTENANCE DIVISION)
- WASH CHANNEL WITH SOLUTION OF CHEMICAL PHOSPHORIC METAL ETCH AND ALLOW TO DRY. APPLY 2 COATS OF GALVANIZED METAL PRIMER AND 2 COATS OF ENAMEL TO MATCH CABINET.
- SHOP FABRICATION DRAWINGS SHALL BE SUBMITTED FOR APPROVAL.
- LOCATION OF OPENING FOR METER READER TO CORRESPOND WITH LOCATION OF METER.



HIGHWAY LIGHTING SERVICE ELEVATION

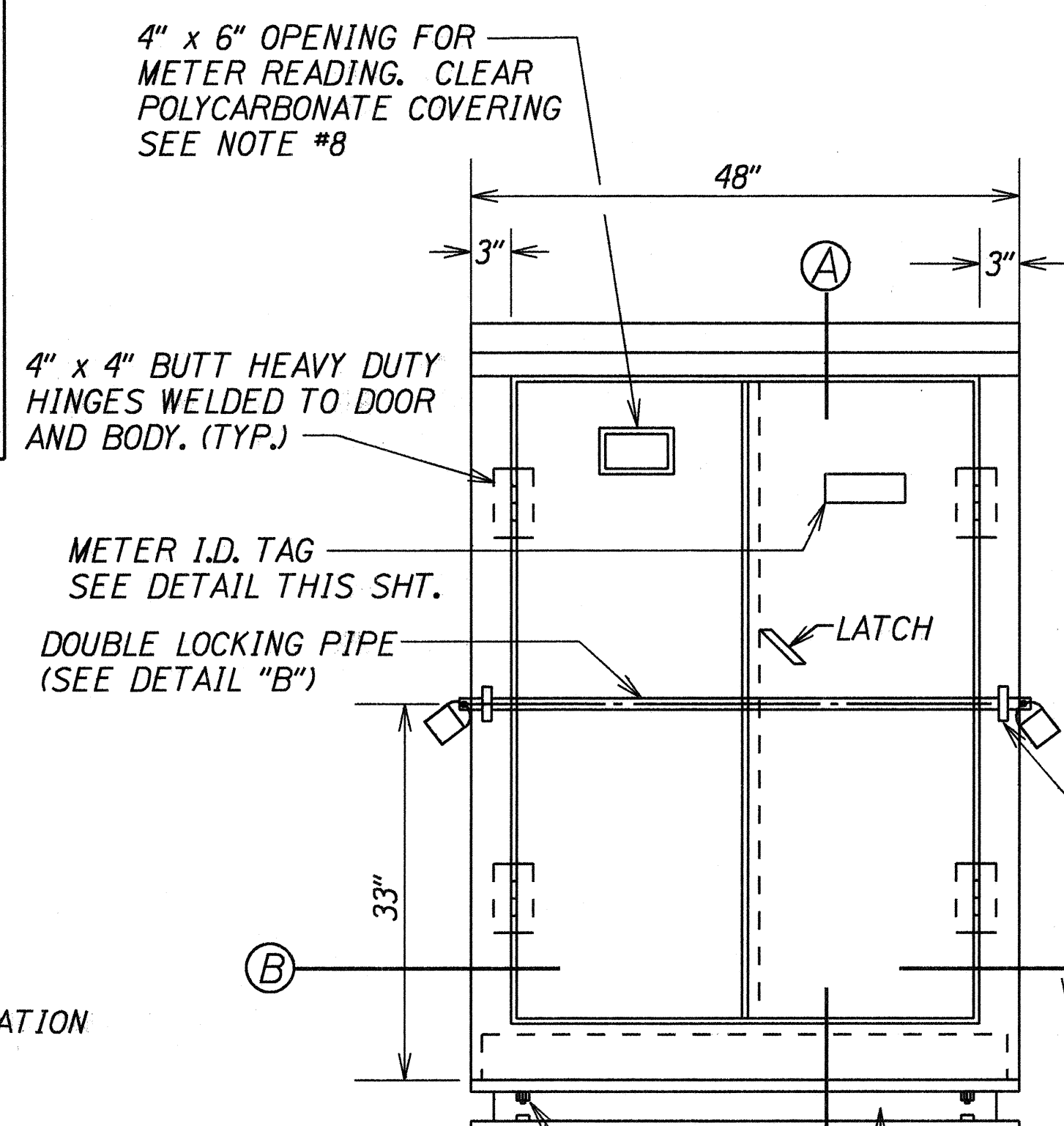


PLAN



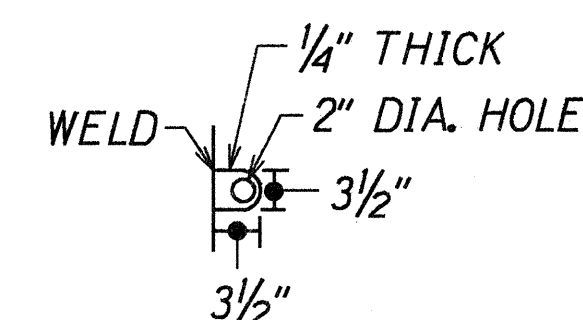
FRONT

CONCRETE PAD

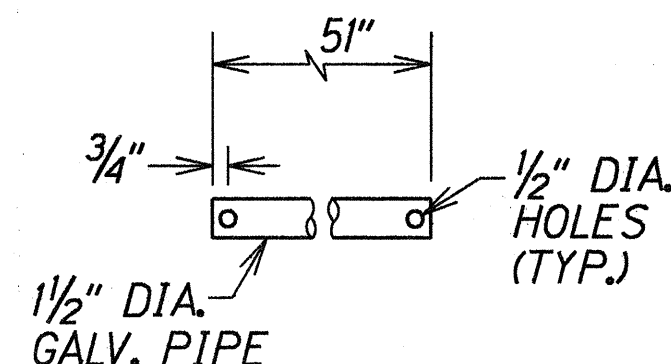


ELEVATION

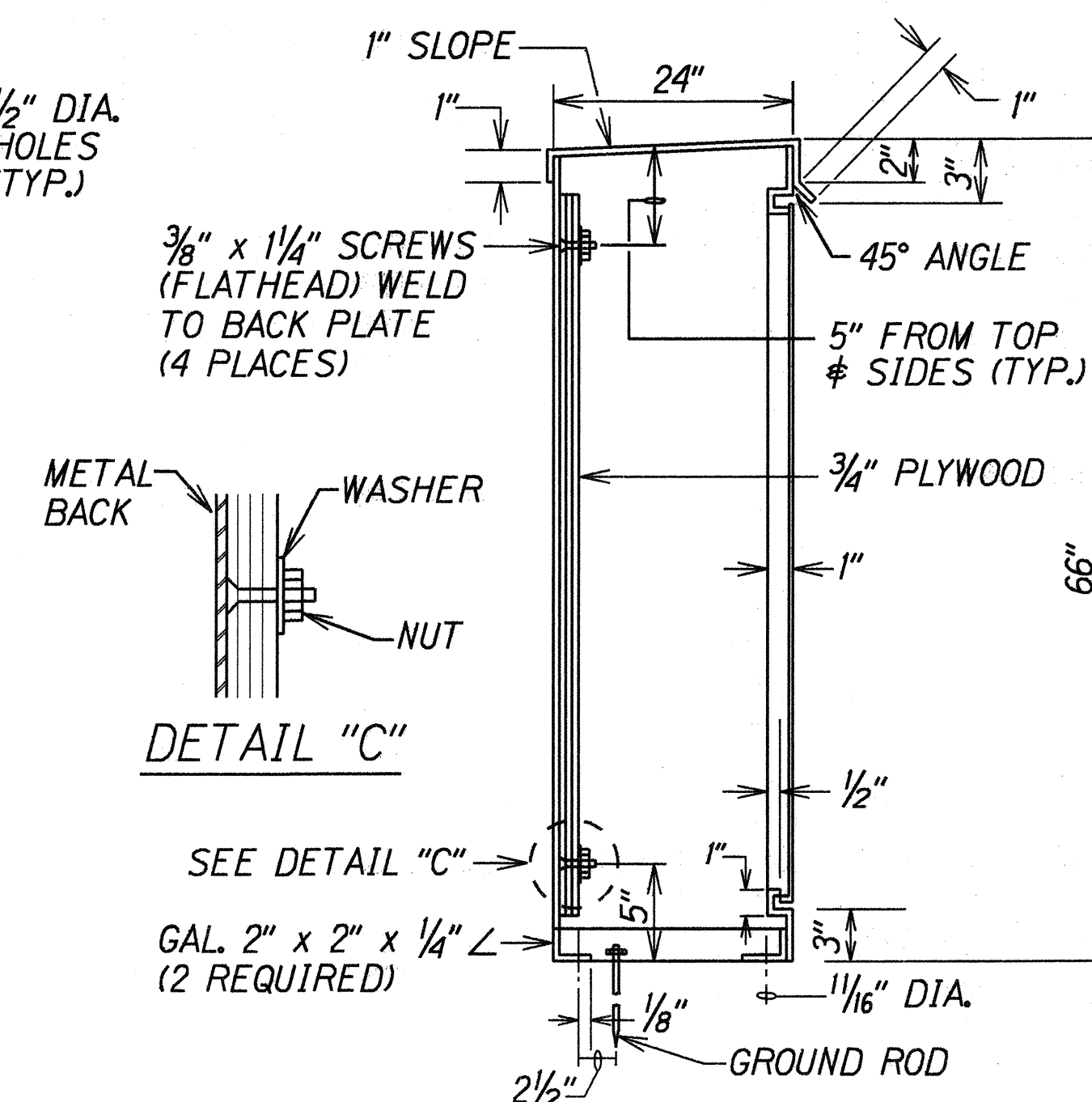
HIGHWAY LIGHTING METER CABINET



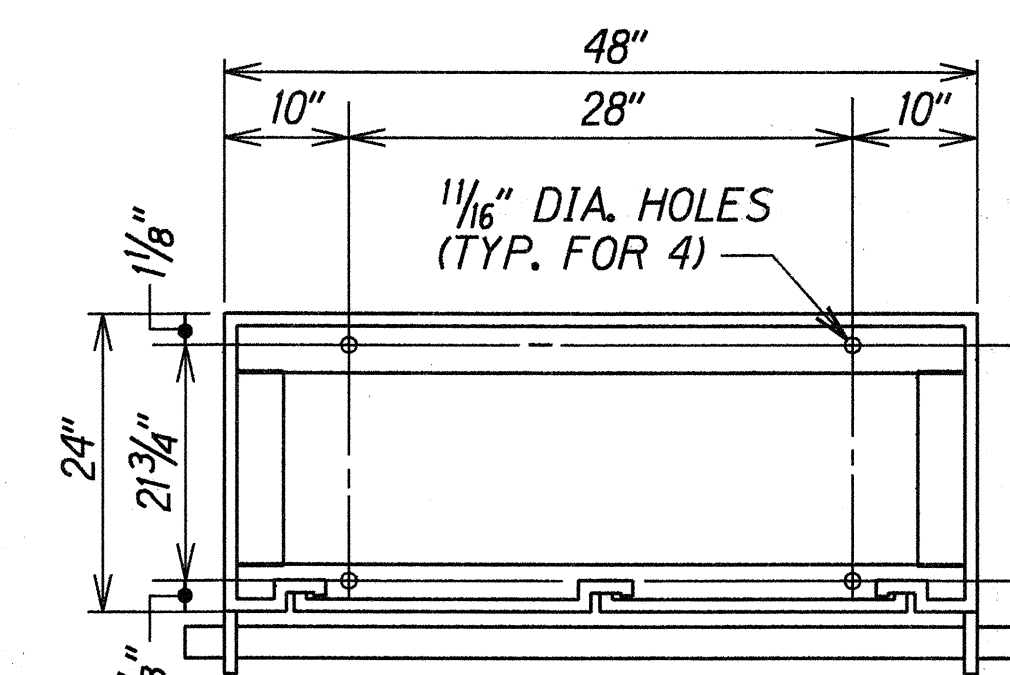
DETAIL "A" SIDE VIEW



DETAIL "B"



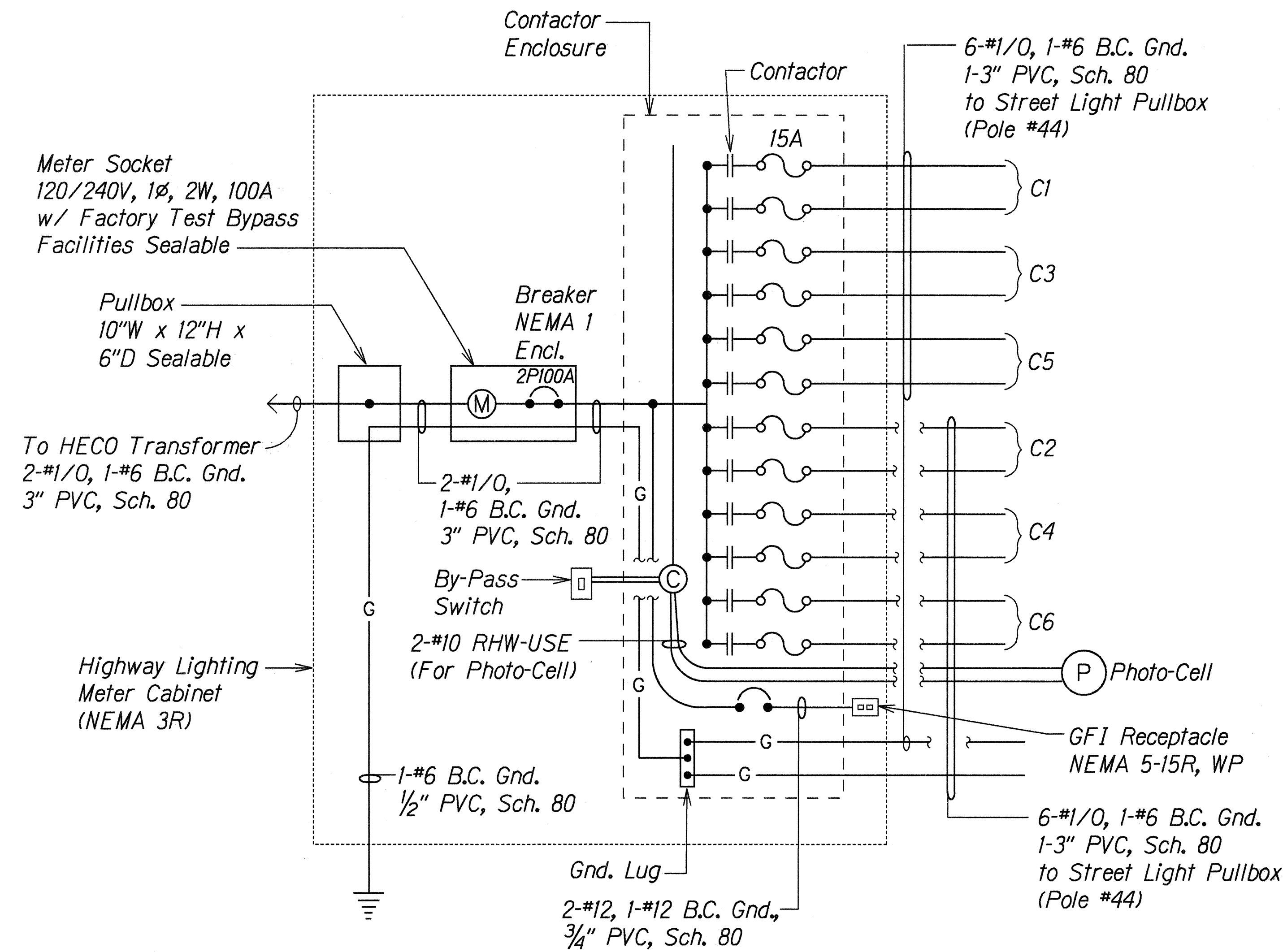
SECTION "A"



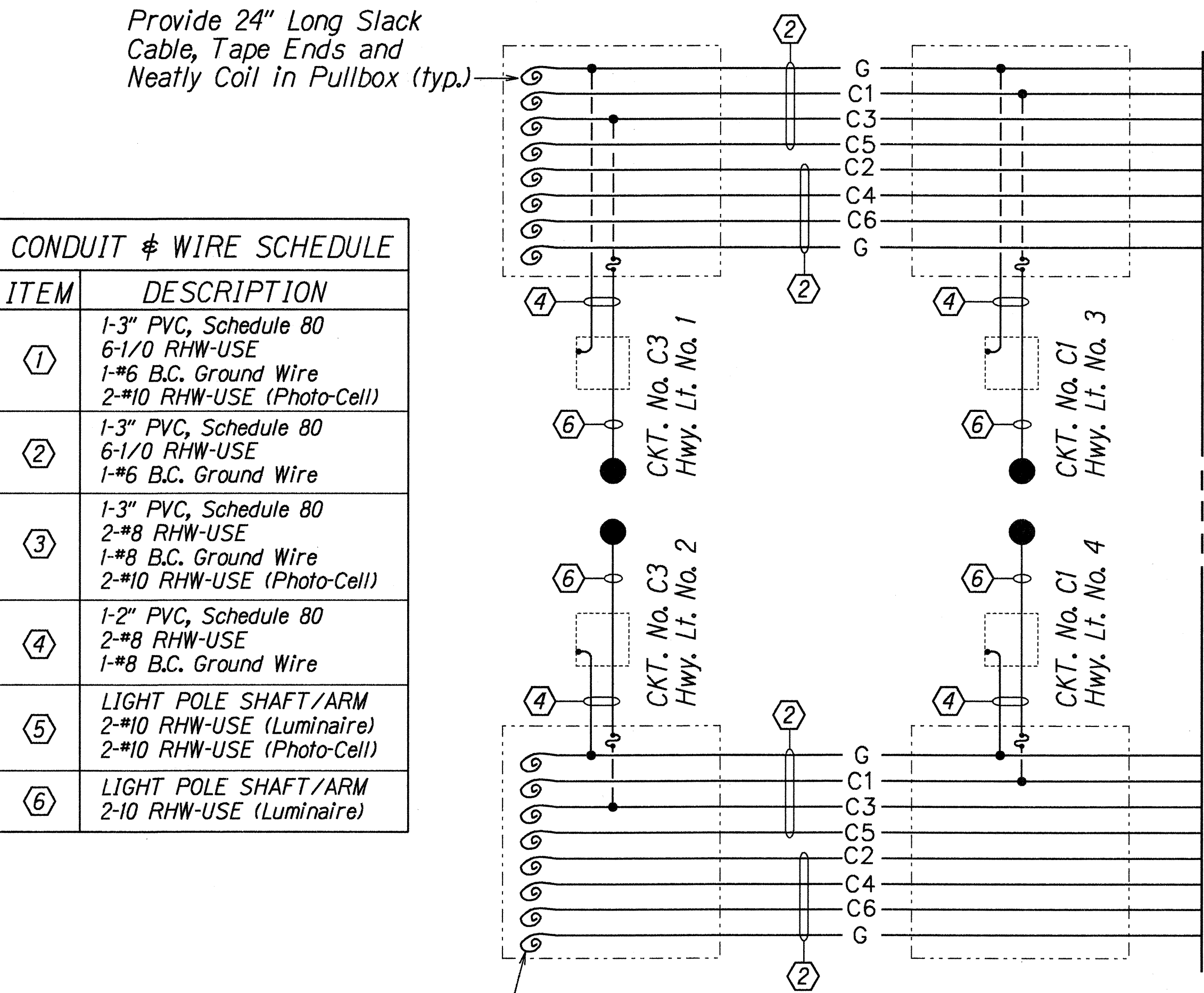
SECTION "B" (GALV. ANGLE FRAME)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING DETAILS
KAMEHAMEHA HIGHWAY WIDENING
Waipio Uka Street to Ka Uka Boulevard
F.A. Project No. NH-STP-099-1(12)
Not to Scale
Date: Dec, 1995



HIGHWAY LIGHTING SERVICE ONE-LINE DIAGRAM



CONDUIT & WIRE SCHEDULE	
ITEM	DESCRIPTION
①	1-3" PVC, Schedule 80 6-1/0 RHW-USE 1-#6 B.C. Ground Wire 2-#10 RHW-USE (Photo-Cell)
②	1-3" PVC, Schedule 80 6-1/0 RHW-USE 1-#6 B.C. Ground Wire
③	1-3" PVC, Schedule 80 2-#8 RHW-USE 1-#8 B.C. Ground Wire 2-#10 RHW-USE (Photo-Cell)
④	1-2" PVC, Schedule 80 2-#8 RHW-USE 1-#8 B.C. Ground Wire
⑤	LIGHT POLE SHAFT/ARM 2-#10 RHW-USE (Luminaire) 2-#10 RHW-USE (Photo-Cell)
⑥	LIGHT POLE SHAFT/ARM 2-10 RHW-USE (Luminaire)

HIGHWAY LIGHTING CONNECTION DIAGRAM

SEE SHEET NO. T20 FOR CONTINUATION

SURVEY PLOTTED BY	DATE
DRAWN BY	5/10/96
CHECKED BY	
NOTES BOOK	
101-101	
101-101	
CHECKED BY	
101-101	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING DETAILS

KAMEHAMEHA HIGHWAY WIDENING
Waipio Uka Street to Ka Uka Boulevard
F.A. Project No. NH-STP-099-1(12)
Not to Scale
Date: Apr., 1996

SHEET No. T19 OF 23 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-099-1(12)	1996	51	64

CONDUIT & WIRE SCHEDULE	
ITEM	DESCRIPTION
①	1-3" PVC, Schedule 80 6-1/0 RHW-USE 1-#6 B.C. Ground Wire 2-#10 RHW-USE (Photo-Cell)
②	1-3" PVC, Schedule 80 6-1/0 RHW-USE 1-#6 B.C. Ground Wire
③	1-3" PVC, Schedule 80 2-#8 RHW-USE 1-#8 B.C. Ground Wire 2-#10 RHW-USE (Photo-Cell)
④	1-2" PVC, Schedule 80 2-#8 RHW-USE 1-#8 B.C. Ground Wire
⑤	LIGHT POLE SHAFT/ARM 2-#10 RHW-USE (Luminaire) 2-#10 RHW-USE (Photo-Cell)
⑥	LIGHT POLE SHAFT/ARM 2-10 RHW-USE (Luminaire)

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

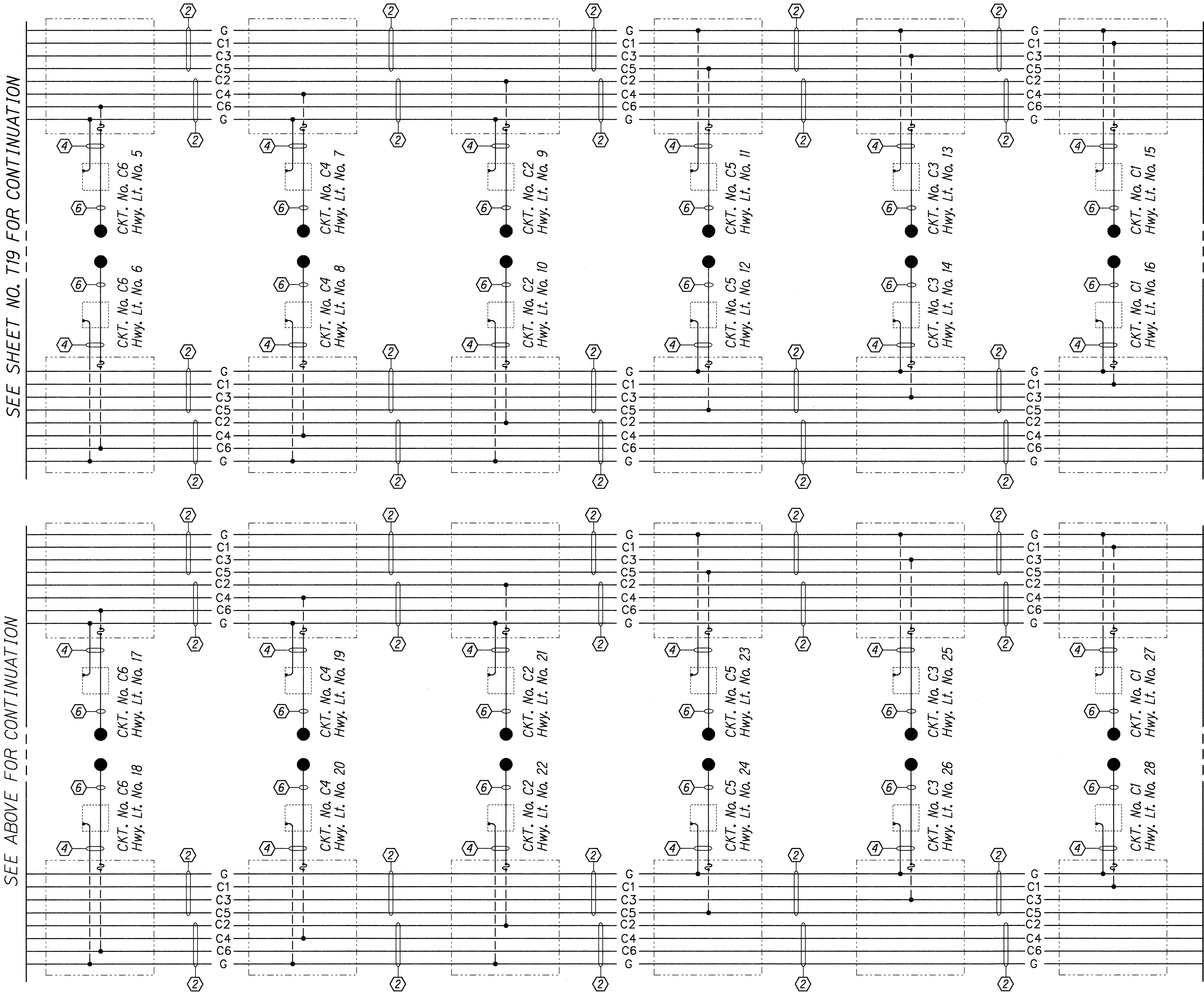
HIGHWAY LIGHTING DETAILS

KAMEHAMEHA HIGHWAY WIDENING
Waipio Uka Street to Ka Uka Boulevard
F.A. Project No. NH-STP-099-1(12)
Date: May, 1996

SHEET No. T20 OF 23 SHEETS

SEE BELOW FOR CONTINUATION

SEE SHEET NO. T21 FOR CONTINUATION



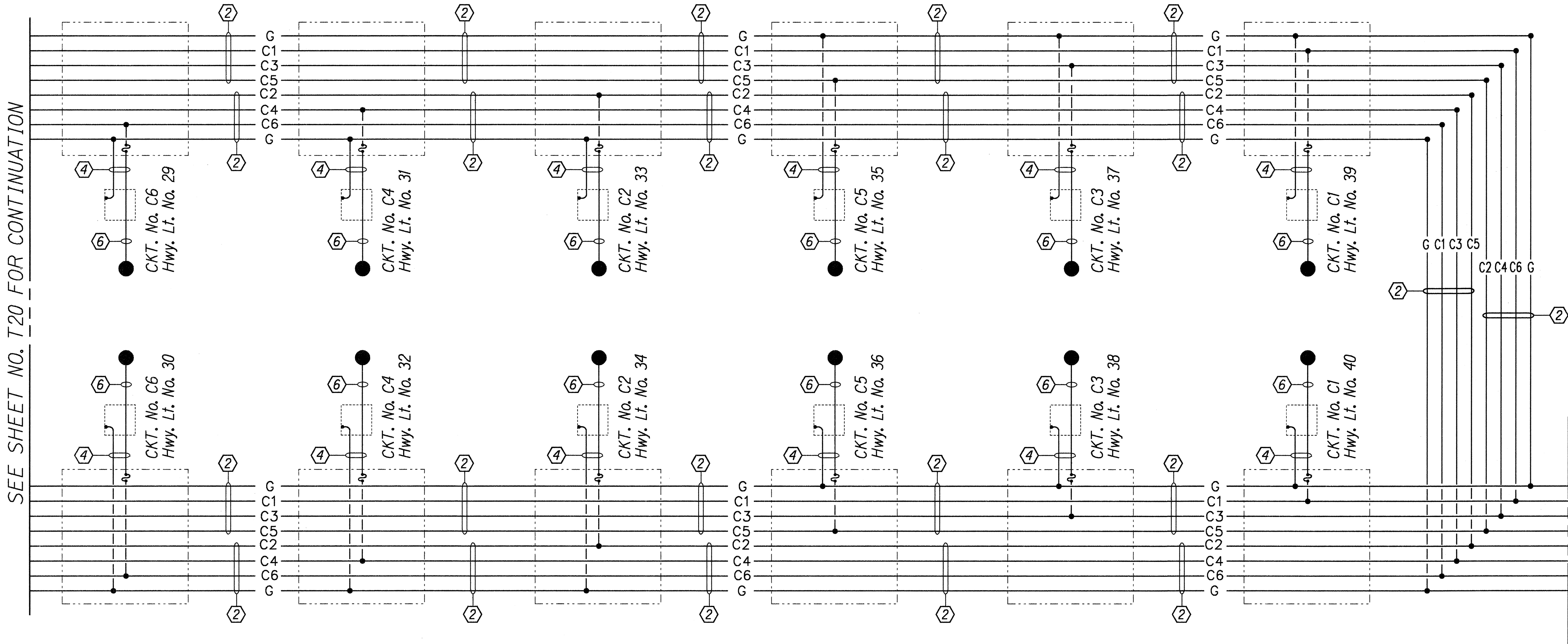
HIGHWAY LIGHTING CONNECTION DIAGRAM

SEE ABOVE FOR CONTINUATION

SEE SHEET NO. T19 FOR CONTINUATION

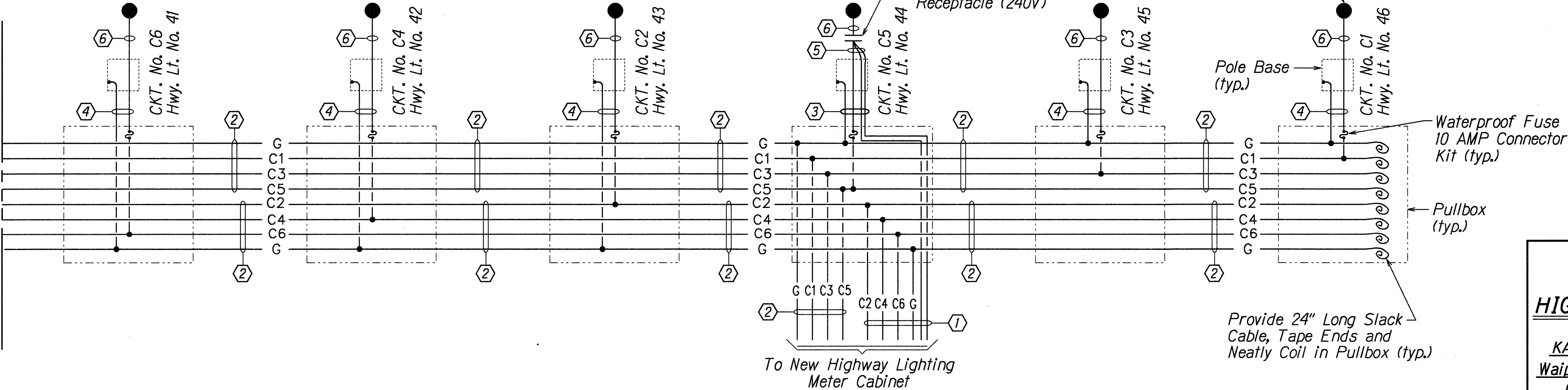
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	5/19/96
QUANTITIES BY	CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-STP-099-1(12)	1996	52	64



CONDUIT & WIRE SCHEDULE	
ITEM	DESCRIPTION
①	1-3" PVC, Schedule 80 6-1/0 RHW-USE 1-#6 B.C. Ground Wire 2-#10 RHW-USE (Photo-Cell)
②	1-3" PVC, Schedule 80 6-1/0 RHW-USE 1-#6 B.C. Ground Wire
③	1-3" PVC, Schedule 80 2-#8 RHW-USE 1-#8 B.C. Ground Wire 2-#10 RHW-USE (Photo-Cell)
④	1-2" PVC, Schedule 80 2-#8 RHW-USE 1-#8 B.C. Ground Wire
⑤	LIGHT POLE SHAFT/ARM 2-#10 RHW-USE (Luminaire) 2-#10 RHW-USE (Photo-Cell)
⑥	LIGHT POLE SHAFT/ARM 2-10 RHW-USE (Luminaire)

SEE ABOVE FOR CONTINUATION



HIGHWAY LIGHTING CONNECTION DIAGRAM

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHTING DETAILS

KAMEHAMEHA HIGHWAY WIDENING
Waipio Uka Street to Ka Uka Boulevard
F.A. Project No. NH-STP-099-1(12)
Date: May, 1996

SHEET No. T21 OF 23 SHEETS

ORIGINAL PLAN	DATE
DRAWN BY R. A. H.	5/19/96
DESIGNED BY G. A. H.	
CHECKED BY N. C. H.	