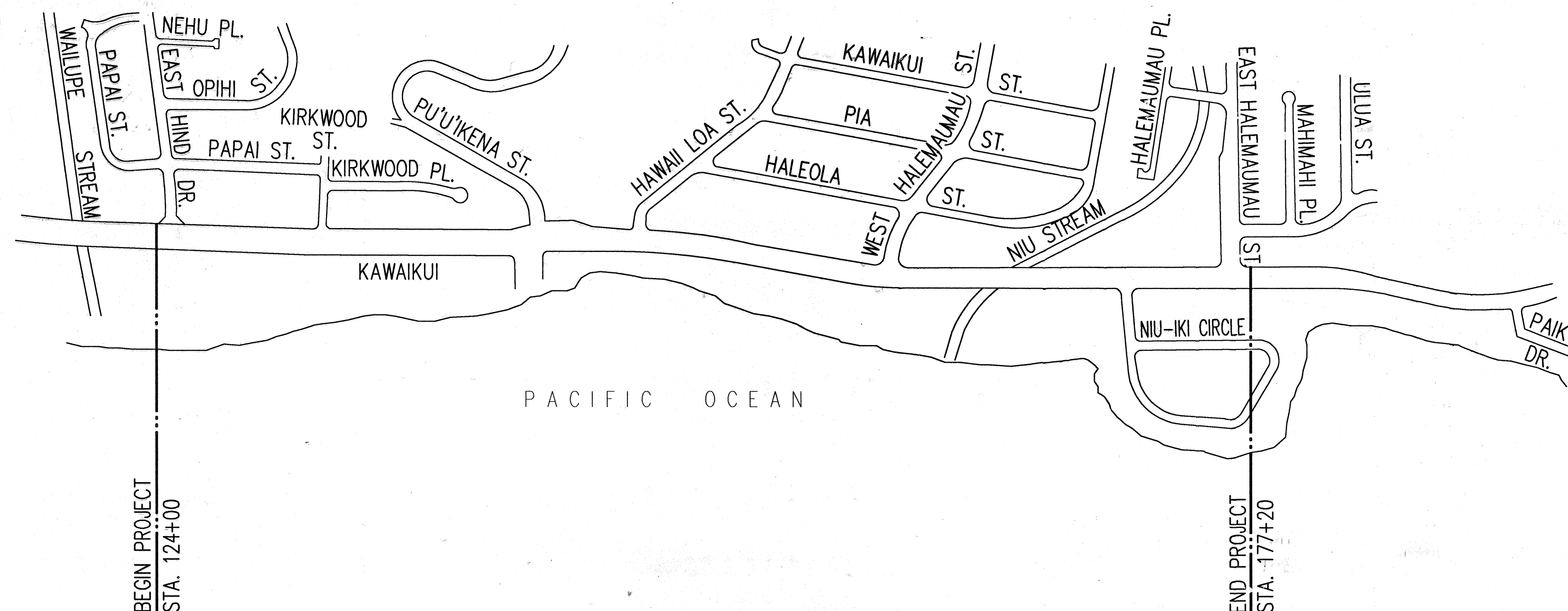


GENERAL CONSTRUCTION NOTES

1. LOCATIONS OF EXISTING UNDERGROUND STRUCTURES AND UTILITIES SUCH AS PIPELINES, CONDUITS, CABLES, ETC., SHOWN ON PLANS ARE APPROXIMATE ONLY. IT IS NOT THE INTENT OF THESE PLANS TO SHOW THE EXACT LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES WITH THE RESPECTIVE OWNERS. EXISTING UTILITIES DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN COST.
2. 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.
3. MAINTENANCE OF TRAFFIC THROUGH THE CONSTRUCTION AREA SHALL BE IN ACCORDANCE WITH PART VI OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS", FEDERAL HIGHWAY ADMINISTRATION (1988) AND AS SPECIFIED IN THE SPECIAL PROVISIONS. THE CONTRACTOR SHALL FURNISH AND MAINTAIN ADEQUATE BARRICADES, BLINKERS, CONSTRUCTION SIGNS, ETC., FOR THE SAFETY OF THE MOTORING PUBLIC.
4. DEPARTMENT OF TRANSPORTATION SERVICES, CITY AND COUNTY OF HONOLULU, WILL ASSIST THE ENGINEER IN CONSTRUCTION INSPECTION FOR THE TRAFFIC SIGNAL SYSTEM.

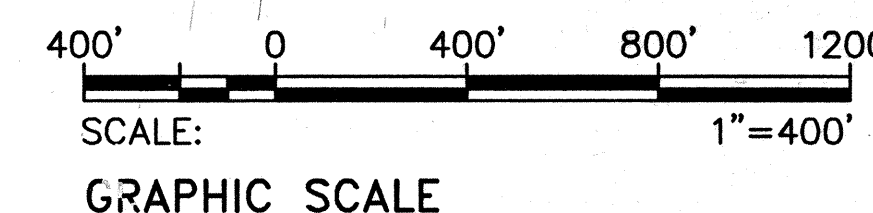
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	119	123



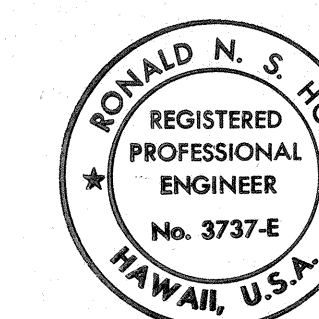
ORIGINAL PLAN	DATE
DESIGNED BY	
TRACED BY	
NOTED BY	
QUANTITIES BY	
CHECKED BY	



UTILITY LAYOUT PLAN
SCALE: 1"=400'



APPROVED:	
<i>[Signature]</i>	1/4/91
HAWAIIAN ELECTRIC CO.,	DATE
HAWAIIAN TELEPHONE CO.,	DATE
CABLEVISION CO.,	DATE



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.
Ronald N. S. Ho
8/10/90

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
UTILITY LAYOUT PLAN & GENERAL NOTES
KALANIANA'OLE HIGHWAY WIDENING
E. HIND DR. TO E. HALEMAUMAU ST.
F.A. PROJECT NO. F-072-1(34)B
SCALE: 1"=400' DATE: 8/90
SHEET No. E-1 OF 45 SHEETS

GENERAL NOTES FOR HAWAIIAN TELEPHONE CO., OCEANIC CABLEVISION, AND HAWAIIAN ELECTRIC CO.

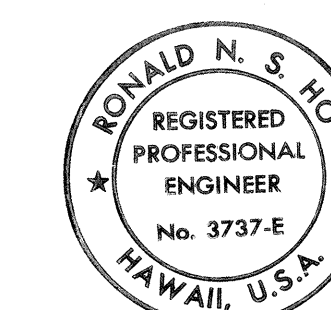
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	120	123
DATE		REVISION			
7/1/91		REVISED PER ADD #1 DATED 11/15/90			

- ALL EXISTING HTCO, HECO, AND OCEANIC FACILITIES SHALL REMAIN IN PLACE UNTIL THE PROPOSED PERMANENT FACILITIES ARE COMPLETED.
- ALL EXISTING FACILITIES SHOWN ARE APPROXIMATE ONLY. UTILITY COMPANIES TO VERIFY THEIR LOCATIONS. ~~AND SHALL MAKE ADJUSTMENTS TO ANY NEW OR EXISTING FACILITIES AS DIRECTED BY THE STATE'S RESIDENT ENGINEER.~~
- ALL PROPOSED MANHOLES, PULLBOXES, CONDUITS/DUCTLINES INCLUDING RISER BENDS, MANHOLE FRAMES AND COVERS, AND GROUND RODS REQUIRED BY HTCO, HECO AND OCEANIC WITHIN THE HIGHWAY RIGHT-OF-WAY SHALL BE INSTALLED BY THE CONTRACTOR.
- THE STATE'S SPECIAL PROVISIONS, PROPOSAL CONTRACT AND BOND - SECTION 630 AND SECTION 646 SHALL APPLY TO THE PROJECT.
- THE TERM ENGINEER FOR THE UTILITY COMPANIES SHALL ALSO MEAN HIS DELEGATED REPRESENTATIVE AND/OR THE UTILITIES' INSPECTOR OF RECORD.
- THE TERM PULLBOX SHALL MEAN SPLICE CAN, SPLICE OR SERVICE BOX, PULLBOX OR HANDHOLE.
- THE TERM MANHOLE SHALL MEAN ANY SUBSURFACE ENCLOSURE IN WHICH MEN MUST ENTER TO WORK.
- THE CONTRACTOR TO STAKEOUT ALL FACILITIES FOR VERIFICATION BY THE UTILITY INVOLVED AND/OR AFFECTED BEFORE PROCEEDING.
- THE LOCATION AND DEPTH OF ALL MANHOLES AND PULLBOXES AND THE ROUTING OF ALL DUCTLINES SHALL BE VERIFIED BY THE UTILITIES BEFORE EXCAVATION STARTS.
- THE CONTRACTOR SHALL FURNISH ALL MATERIALS REQUIRED TO COMPLETE THE CONSTRUCTION OF THE DUCTLINE SYSTEM.
- ALL MANHOLES, PULLBOXES AND DUCTLINES TO BE INSTALLED IN CONCRETE SHALL BE INSPECTED AND APPROVED BY THE UTILITY COMPANY BEFORE PLACING CONCRETE. NOTIFY UTILITY COMPANY 48 HOURS BEFORE PLACING CONCRETE.
- MANHOLE DEPTHS SHOWN ON PLANS REFER TO INSIDE DEPTH OF MANHOLE.
- THE MINIMUM DEPTH OF DUCTLINES FROM FINISH GRADE TO TOP OF CONCRETE ENCASEMENT OR COVER IS AS FOLLOWS:
 - WITHIN ROADWAY 3'-0"
 - WITHIN SIDEWALK AREA 1'-6"
 - IN PRIVATE PROPERTY 1'-6"
- ALL COMPLETED DUCTLINES SHALL BE MANDREL TESTED BY THE CONTRACTOR IN THE PRESENCE OF THE UTILITY COMPANY'S INSPECTOR USING THE UTILITY COMPANY'S STANDARD PRACTICE.
- THE CONTRACTOR SHALL INSTALL A 1/8" POLYOLEFIN PULL LINE IN ALL COMPLETED DUCTLINES AFTER MANDREL TESTING IS COMPLETE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PROPOSED WORK WITHIN PRIVATE PROPERTY TO ENABLE THE CONVERSION FROM OVERHEAD TO UNDERGROUND OR THE CHANGE OVER TO NEW OR REPLACED SERVICE POLES. HE SHALL COORDINATE ALL WORK WITH THE UTILITY COMPANIES.
- THE CONTRACTOR SHALL FURNISH HIS CONSTRUCTION SCHEDULE TWENTY (20) WORKING DAYS PRIOR TO STARTING ANY HTCO AND CATV WORK.
- THE CONTRACTOR SHALL GIVE HTCO AND CATV TEN (10) WORKING DAYS NOTICE TO PROCEED WITH IT'S PORTION OF THE WORK.
- HTCO AND CATV SHALL COORDINATE IT'S WORK IN SUCH A MANNER AS NOT TO IMPEDE CONSTRUCTION.
- HTCO AND CATV SHALL REMOVE ALL EXISTING HTCO FACILITIES EXCEPT AS NOTED ON PLANS.

- THE CONTRACTOR SHALL FURNISH HIS CONSTRUCTION SCHEDULE TWENTY (20) WORKING DAYS PRIOR TO STARTING ANY HECO WORK.
- THE CONTRACTOR SHALL GIVE HECO ^{THIRTY 30} ~~FIFTEEN (15)~~ WORKING DAYS NOTICE TO PROCEED WITH IT'S PORTION OF THE WORK.
- HECO SHALL COORDINATE IT'S WORK IN SUCH A MANNER AS NOT TO IMPEDE CONSTRUCTION.
- BARRICADING OF HECO'S FACILITIES, IF REQUIRED, SHALL BE DONE BY ~~HECO~~ ^{THE CONTRACTOR}. BREAKING INTO EXISTING HECO FACILITIES SHALL BE DONE BY HECO.
- HECO SHALL REPAIR ALL TEMPORARY OPENINGS IN MANHOLES AND PULLBOXES AFTER COMPLETION OF TEMPORARY CONSTRUCTION.
- HECO SHALL REMOVE ALL EXISTING HECO FACILITIES EXCEPT AS NOTED ON THE PLANS.
- HECO SHALL BE THE JP ERECTING COMPANY.
HTCO SHALL BE THE JP REMOVAL COMPANY.
- SPECIAL NOTE
THE EXISTING ELECTRICAL CIRCUITS WILL REMAIN ENERGIZED DURING CONSTRUCTION. THE CONTRACTOR WILL WORK CAUTIOUSLY AT ALL TIMES TO AVOID ACCIDENTS AND/OR DAMAGE TO THESE CIRCUITS, WHICH CAN RESULT IN ELECTROCUTION. THE CONTRACTOR SHALL NOT DISTURB BARRICADES ERECTED BY HECO. HE SHALL WORK CAUTIOUSLY TO AVOID ACCIDENTS AND DAMAGES TO EXISTING FACILITIES.
- THE CONTRACTOR WILL IMMEDIATELY REPORT DAMAGES DISCOVERED OR CAUSED BY HIS WORK TO:
 - HTCO @ PH. NO. 611
 - HECO @ PH. NO. 543-7874
 - OCEANIC @ PH. NO. 834-4134
- THE FOLLOWING TERMS WILL BE USED INTERCHANGEABLY THROUGHOUT THIS PROJECT:
 - HTCO OR T FOR HAWAIIAN TELEPHONE CO.
 - HECO OR E FOR HAWAIIAN ELECTRIC CO.
 - OCEANIC OR V FOR OCEANIC CABLEVISION
- THE CONTRACTOR WILL COORDINATE THE DRAIN LINE CONSTRUCTION, ESP. BETWEEN STA. 124+00 RT AND STA. 127+75 RT, AND INSTALLATIONS OF STREET LIGHTING FOUNDATIONS WITH THE ELECTRIC, TELEPHONE, AND CABLEVISION UTILITY CONSTRUCTION. WHERE CONFLICT OCCURS, THE UTILITY CONSTRUCTION WILL BE ROUTED AROUND THE CONFLICT.
- SHOULD IT BECOME NECESSARY, AS DETERMINED BY THE ENGINEER, RELOCATION OF HECO (OVERHEAD) FACILITIES SHALL BE DONE BY HECO. HECO TO BE RESPONSIBLE FOR JP COORDINATION, CONTRACTOR FOR ALL OTHER NON-JP COORDINATION.
- THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN THE EXCAVATION IS IN CLOSE PROXIMITY TO UNDERGROUND ELECTRICAL FACILITIES AND SHALL MAINTAIN 13'-0" CLEARANCE FOR HIS EQUIPMENT WHILE WORKING CLOSE TO AND/OR UNDER OVERHEAD FACILITIES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY SHEETING AND BRACING THE EXCAVATION AND STABILIZING THE EXISTING GROUND WHEN TRENCH EXCAVATION IS ADJACENT TO OR UNDER EXISTING STRUCTURES OR FACILITIES TO RENDER IT SAFE AND SECURE FROM POSSIBLE SLIDES, CAVE-INS, AND SETTLEMENTS, AND FOR PROPERLY SUPPORTING EXISTING STRUCTURES AND FACILITIES WITH BEAMS, STRUTS, OR UNDERPINNING TO FULLY PROTECT IT FROM DAMAGE.

OWN	DATE
ANAL	
PLANNED	
DESIGNED	
BY	
NOTED	
BOOK	
QUANTITIES	
BY	
CHECKED	
BY	

APPROVED:	
HAWAIIAN ELECTRIC CO.,	DATE
HAWAIIAN TELEPHONE CO.,	DATE
CABLEVISION CO.,	DATE



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.
Ronald N. S. Ho
8/10/90

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
HTCO, HECO, & OCEANIC GENERAL NOTES	
KALANIANA'OLE HIGHWAY WIDENING E. HIND DR. TO E. HALEMAUMAU ST. F.A. PROJECT NO. F-072-1(34)B	
SCALE: NONE	DATE: 8/90
SHEET No. E-2 OF 45 SHEETS	

ADD. 120

UTILITY SYMBOLS AND LEGEND

ITEM	DESCRIPTION
	EXISTING LUMINAIRE, BRACKET ARM AND EXISTING WOOD POLE TO BE REMOVED, UNLESS OTHERWISE NOTED.
	EXISTING RELOCATED LUMINAIRE AND BRACKET ARM ONTO NEW UTILITY COMPANY WOOD POLE.
	EXISTING RELOCATED LUMINAIRE AND BRACKET ARM ONTO NEW TEMPORARY STREET LIGHT WOOD POLE.
	EXISTING LUMINAIRE AND BRACKET ARM TO BE REMOVED AND RELOCATED EXISTING WOOD POLE TO BE REMOVED.
	EXISTING LUMINAIRE, BRACKET ARM AND WOOD POLE TO REMAIN.
	EXISTING LUMINAIRE, BRACKET ARM AND METAL STANDARD TO REMAIN.
	NEW OVERHEAD LIGHTING CIRCUIT CONDUCTORS.
	NEW UNDERGROUND LIGHTING SYSTEM RACEWAY
	NEW METAL STANDARD ON GRADE WITH FOUNDATION, WITH 15'-0" ARM AND 250 WATT H.P.S. LUMINAIRE.
	NEW TEMPORARY LIGHTING SYSTEM LUMINAIRE, BRACKET ARM AND WOOD POLE.
	NEW TEMPORARY LIGHTING SYSTEM LUMINAIRE AND BRACKET ARM ONTO NEW UTILITY COMPANY WOOD POLE.
	NEW STANDARD TRAFFIC AND PEDESTRIAN SIGNAL HEADS MOUNTED ON TYPE I SIGNAL STANDARD, HEIGHT = 10'-0".
	NEW STANDARD TRAFFIC SIGNAL HEADS MOUNTED TYPE II SIGNAL STANDARD, ARM SPREAD SHOWN IS 30'-0".
	EXISTING TRAFFIC SIGNAL STANDARD.
	EXISTING TRAFFIC SIGNAL STANDARD TO BE REMOVED AND CONCRETE BASE TO BE DEMOLISHED AND REMOVED.
	NEW UNDERGROUND TRAFFIC SIGNAL SYSTEM RACEWAY.
	NEW TRAFFIC SIGNAL HEAD
	LOOP DETECTOR
	NEW TRAFFIC SIGNAL SYSTEM CONTROLLER CABINET AND FOUNDATION.
	AUXILIARY SELECTOR CABINET
	NEW SIGN CONTROLLER CABINET AND FOUNDATION
	EXISTING TRAFFIC SIGNAL SYSTEM PULLBOX.

ITEM	DESCRIPTION
	NEW TRAFFIC SIGNAL SYSTEM TYPE "A" PULLBOX.
	NEW TRAFFIC SIGNAL SYSTEM TYPE "B" PILLBOX.
	EXISTING TRAFFIC SIGNAL SYSTEM PULLBOX TO BE DEMOLISHED AND REMOVED.
	NEW UTILITY COMPANY MANHOLE.
	EXISTING UTILITY COMPANY MANHOLE.
	EXISTING UTILITY COMPANY WOOD JOINT POLE TO REMAIN, JOINT POLE NUMBER "170" INDICATED.
	EXISTING UTILITY COMPANY WOOD JOINT POLE TO BE REMOVED.
	NEW UTILITY COMPANY WOOD JOINT POLE.
	NEW UTILITY COMPANY PULLBOX, TYPE AS INDICATED ON PLANS.
	EXISTING UTILITY COMPANY PULLBOX OR HANDHOLE.
	EXISTING UNDERGROUND RACEWAY TO BE ABANDONED IN PLACE.
	NEW UNDERGROUND RACEWAY RISER UP UTILITY COMPANY WOOD POLE.
	NEW UNDERGROUND DISTRIBUTION DUCTS.
	NEW UNDERGROUND TRUNKING DUCTS.
	EXISTING OVERHEAD HTCO CONDUCTORS.
	EXISTING OVERHEAD HECO CONDUCTORS.
	EXISTING OVERHEAD OCEANIC CONDUCTORS.
	NOTE INDICATOR, "SEE NOTE NO. 1" INDICATED.
	EXISTING HECO VAULT
	NEW HECO VAULT

ARROW INDICATES DIRECTION OF VIEW

INDICATES BOTTOM OF DUCT BANK
BAR INDICATES CUTTING PLANE

DUCT SECTION INDICATOR, NUMERAL INDICATES SIZE . . . EX: 3/4", 2", 3", 4", 5", 6" & 8", ALPHABET INDICATES OWNERSHIP . . . EX: V = OCEANIC CABLEVISION, T = HAWAIIAN TELEPHONE COMPANY, E = HAWAIIAN ELECTRIC COMPANY.

REFER TO SHEET E-14 FOR PROFILE LEGEND

DATE	REVISIONS	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
7/1/91	REVISED PER ADD #1 DATED 11/15/90	HAWAII	HAW.	F-072-1(34)B	1991	121	123
7/1/91	REVISED PER HECO R & C DATED 11/7/90						

HECO CONSTRUCTION STANDARDS APPLICABLE TO THIS PROJECT

DRAWING TITLE	HECO STANDARD DWG. NO.
MANHOLE TYPE No. 1 (6'-0" x 14'-0") UNDERGROUND STANDARDS	71133
MANHOLE TYPE No. 4 (7'-2" x 16'-0") STRUCTURAL PLAN, SECTIONS & DETAILS	15588
HANDHOLE TYPE 46 (4'-0" x 6'-0") UNDERGROUND STANDARDS	18842
HANDHOLES, TYPE 35 & 35V PRECAST HANDHOLE (3'-0" x 5'-0") UNDERGROUND STANDARDS	18841
SERVICE BOX, 1'-6" x 3'-6" INSTALLATION DETAILS UNDERGROUND	30-2005
1'-6" x 3'-5 1/2" x 1'-0" DP CONCRETE SERVICE BOX EXTENSION	011311
CONCRETE COVER FOR 1'-6" x 3'-5 1/2" SERVICE BOX	011312
MISCELLANEOUS DETAILS HANDHOLES & MANHOLES UNDERGROUND STANDARDS	16688
HANDHOLE, PRECAST TOP SLAB FOR 4x6', 5'x8', & 6'x11' HANDHOLE UNDERGROUND TYPICAL CONSTRUCTION	26922
HANDHOLE & MANHOLE, PRECAST COMPONENTS INSTALLATION DETAILS UNDERGROUND TYPICAL CONSTRUCTION	26923
10 PADMOUNTED TRANS. SITE PREPARATION UNDERGROUND INSTALLATION	30-5001
10 PADMOUNTED TRANS. 3'-4"x4'-2" CONCRETE PAD	011249
30 PADMOUNTED DEADFRONT TRANS. CONCRETE PAD UNDERGROUND INSTALLATION	30-5011
TYPICAL DUCT CONSTRUCTION INSTALLATION DETAILS UNDERGROUND DETAILS	30-1030
PLASTIC DUCTS INSTALLATION DETAILS UNDERGROUND STRUCTURES	30-1035

AUTOMATIC TRANSFER DUCTLINE LAYOUT, SW. PAD & VAULT, RETAINING WALL

APPROVED:	DATE
HAWAIIAN ELECTRIC CO.,	DATE
HAWAIIAN TELEPHONE CO.,	DATE
CABLEVISION CO.,	DATE

070813
071466
071486
REGISTERED PROFESSIONAL ENGINEER
No. 57937-E
HAWAII, U.S.A.
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
3/10/90

HTCO CONSTRUCTION STANDARDS APPLICABLE TO THIS PROJECT

DRAWING TITLE	HTCO STANDARD DWG. NO.
TYPE "A-3" MANHOLES FOR 6.0' TO 7.0' HEADROOM	34064
TYPE "A-3" MANHOLES FOR 7.5' TO 10.0' HEADROOM	34065
STANDARD DETAILS FOR 3660TB PULL BOX	34082
LARGE PULL BOX No. 435 T-B	34056
STANDARD DUCT FORMATIONS, MANHOLE DETAILS	34028
TYPE "B" AND "S8" 27" DIA. MANHOLE FRAMES & COVER	34037
X-CONNECTED PAD DETAILS, 5' x 7' x 4"	34079-C

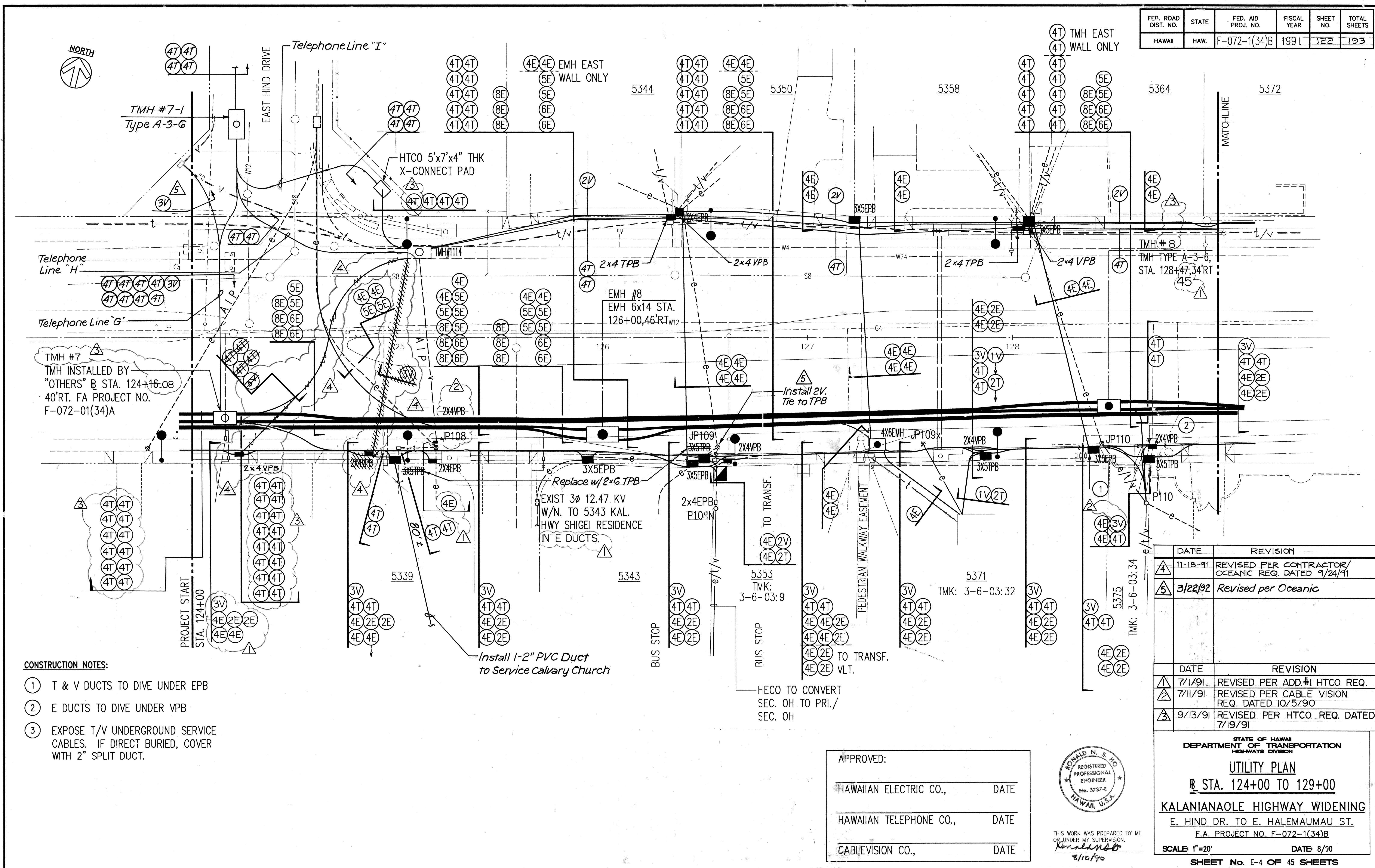
CATV CONSTRUCTION STANDARDS AND NOTE APPLICABLE TO THIS PROJECT

DRAWING TITLE	DRAWING NO.
LARGE PULL BOX No. T-B	HTCO STD. DWG. NO. 34056
STANDARD DUCTS FORMATIONS, MANHOLE DETAILS (SEE "TYPICAL PVC CONDULET BEND INSTALLATION DETAILS")	HTCO STD. DWG. NO. 34028
TYPICAL DUCT CONSTRUCTION INSTALLATION DETAILS UNDERGROUND DETAILS	HECO STD. DWG. NO. 30-1030
PLASTIC DUCTS INSTALLATION DETAILS UNDERGROUND STRUCTURES	HECO STD. DWG. NO. 30-1035

CABLE TELEVISION NOTES
1. USE STANDARD ELECTRIC DUCT SPACING FOR CABLE TELEVISION DUCTS ENTERING OR EXITING HANDHOLES AND MANHOLES. SEE HECO STANDARD DRAWING NUMBER 30-1030.

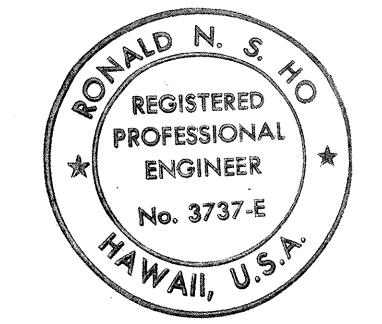
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
UTILITY SYMBOLS AND LEGEND
KALANIANA'OLE HIGHWAY WIDENING
E. HIND DR. TO E. HALEMAUMAU ST.
F.A. PROJECT NO. F-072-1(34)B
SCALE: NONE ADD 120 DATE: 8/90
SHEET No. E-3 OF 45 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	122	123



- CONSTRUCTION NOTES:**
- 1 T & V DUCTS TO DIVE UNDER EPB
 - 2 E DUCTS TO DIVE UNDER VPB
 - 3 EXPOSE T/V UNDERGROUND SERVICE CABLES. IF DIRECT BURIED, COVER WITH 2" SPLIT DUCT.

APPROVED:	
HAWAIIAN ELECTRIC CO.,	DATE
HAWAIIAN TELEPHONE CO.,	DATE
CABLEVISION CO.,	DATE



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Ronald N. S. Ho
 8/10/90

DATE	REVISION
11-18-91	REVISED PER CONTRACTOR/OCEANIC REQ. DATED 9/24/91
3/22/92	Revised per Oceanic
DATE	REVISION
7/1/91	REVISED PER ADD.#1 HTCO REQ.
7/11/91	REVISED PER CABLE VISION REQ. DATED 10/5/90
9/13/91	REVISED PER HTCO. REQ. DATED 7/19/91

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

UTILITY PLAN
 STA. 124+00 TO 129+00

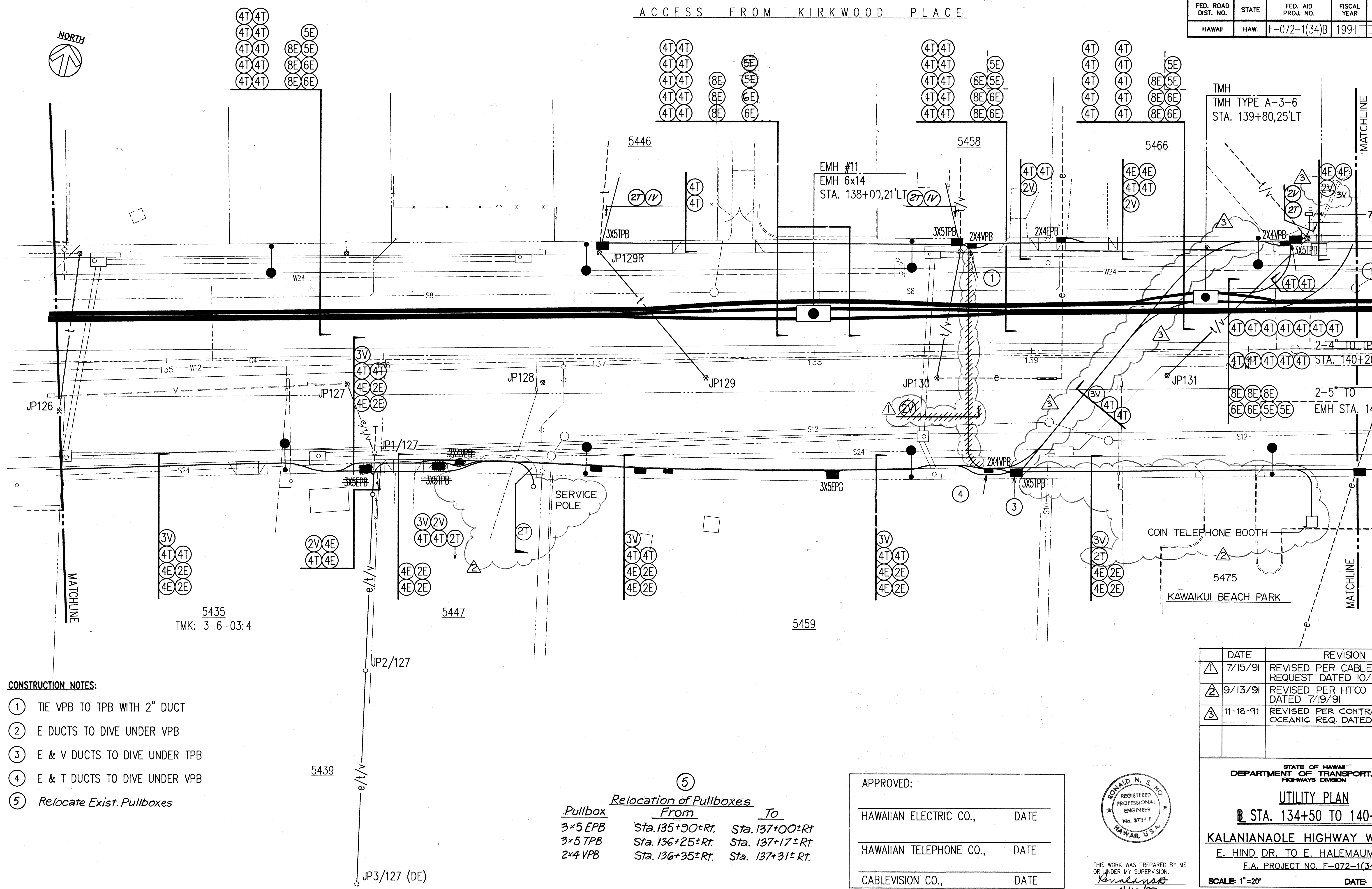
KALANIANA'OLE HIGHWAY WIDENING
 E. HIND DR. TO E. HALEMAUMAU ST.
 F.A. PROJECT NO. F-072-1(34)B

SCALE: 1"=20' DATE: 8/30

SHEET No. E-4 OF 45 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	124	123

ACCESS FROM KIRKWOOD PLACE



CONSTRUCTION NOTES:

- ① TIE VPB TO TPB WITH 2" DUCT
- ② E DUCTS TO DIVE UNDER VPB
- ③ E & V DUCTS TO DIVE UNDER TPB
- ④ E & T DUCTS TO DIVE UNDER VPB
- ⑤ Relocate Exist. Pullboxes

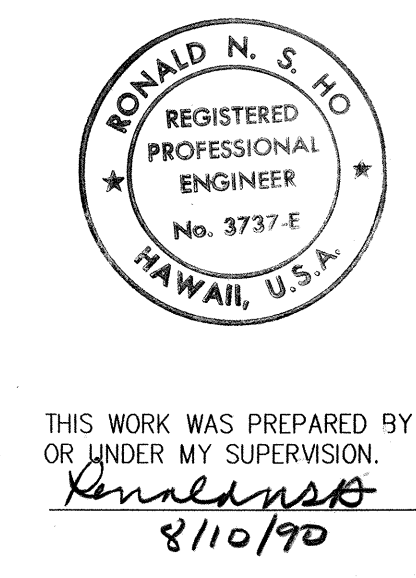
⑤

Relocation of Pullboxes

Pullbox	From	To
3x5 EPB	Sta. 135+30±Rt.	Sta. 137+00±Rt.
3x5 TPB	Sta. 136+25±Rt.	Sta. 137+17±Rt.
2x4 VPB	Sta. 136+35±Rt.	Sta. 137+31±Rt.

APPROVED:

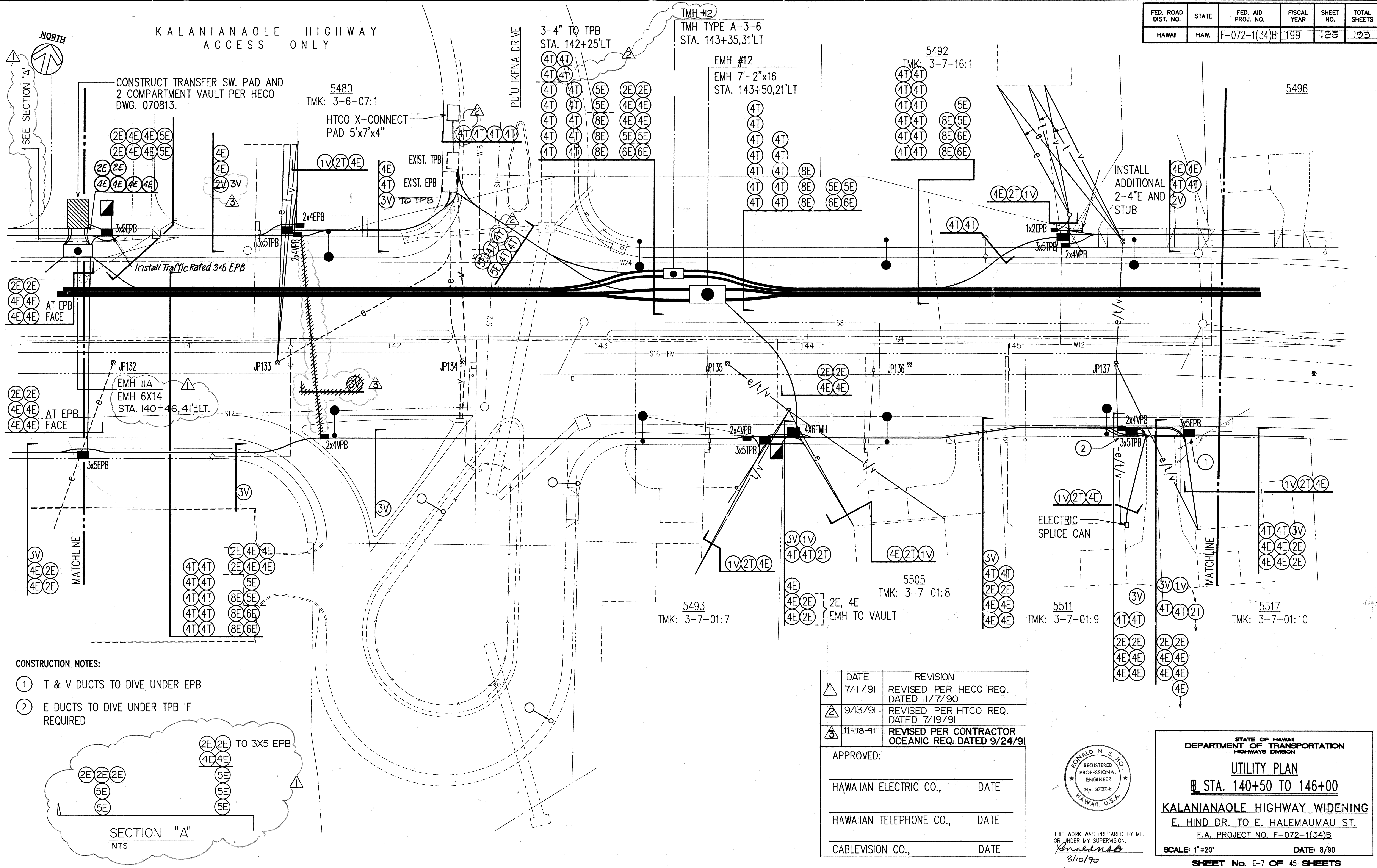
HAWAIIAN ELECTRIC CO.,	DATE
HAWAIIAN TELEPHONE CO.,	DATE
CABLEVISION CO.,	DATE



DATE	REVISION
7/15/91	REVISED PER CABLEVISION REQUEST DATED 10/5/90
9/13/91	REVISED PER HTCO REQUEST DATED 7/19/91
11-18-91	REVISED PER CONTRACTOR/OCEANIC REQ. DATED 9/24/91

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
<u>UTILITY PLAN</u>	
<u>B. STA. 134+50 TO 140+50</u>	
KALANIANA'OLE HIGHWAY WIDENING	
E. HIND DR. TO E. HALEMAUMAU ST.	
E.A. PROJECT NO. F-072-1(34)B	
SCALE: 1"=20'	DATE: 8/90
SHEET NO. E-6 OF 45 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	125	123



CONSTRUCTION NOTES:

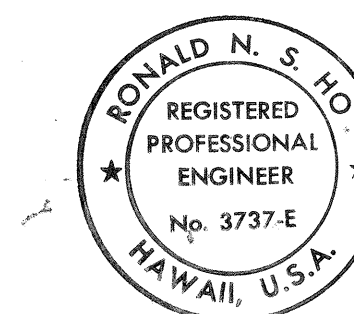
- 1 T & V DUCTS TO DIVE UNDER EPB
- 2 E DUCTS TO DIVE UNDER TPB IF REQUIRED

SECTION "A"
NTS

DATE	REVISION
7/1/91	REVISED PER HECO REQ. DATED 11/7/90
9/13/91	REVISED PER HECO REQ. DATED 7/19/91
11-18-91	REVISED PER CONTRACTOR OCEANIC REQ. DATED 9/24/91

APPROVED:

HAWAIIAN ELECTRIC CO.,	DATE
HAWAIIAN TELEPHONE CO.,	DATE
CABLEVISION CO.,	DATE



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
8/10/90

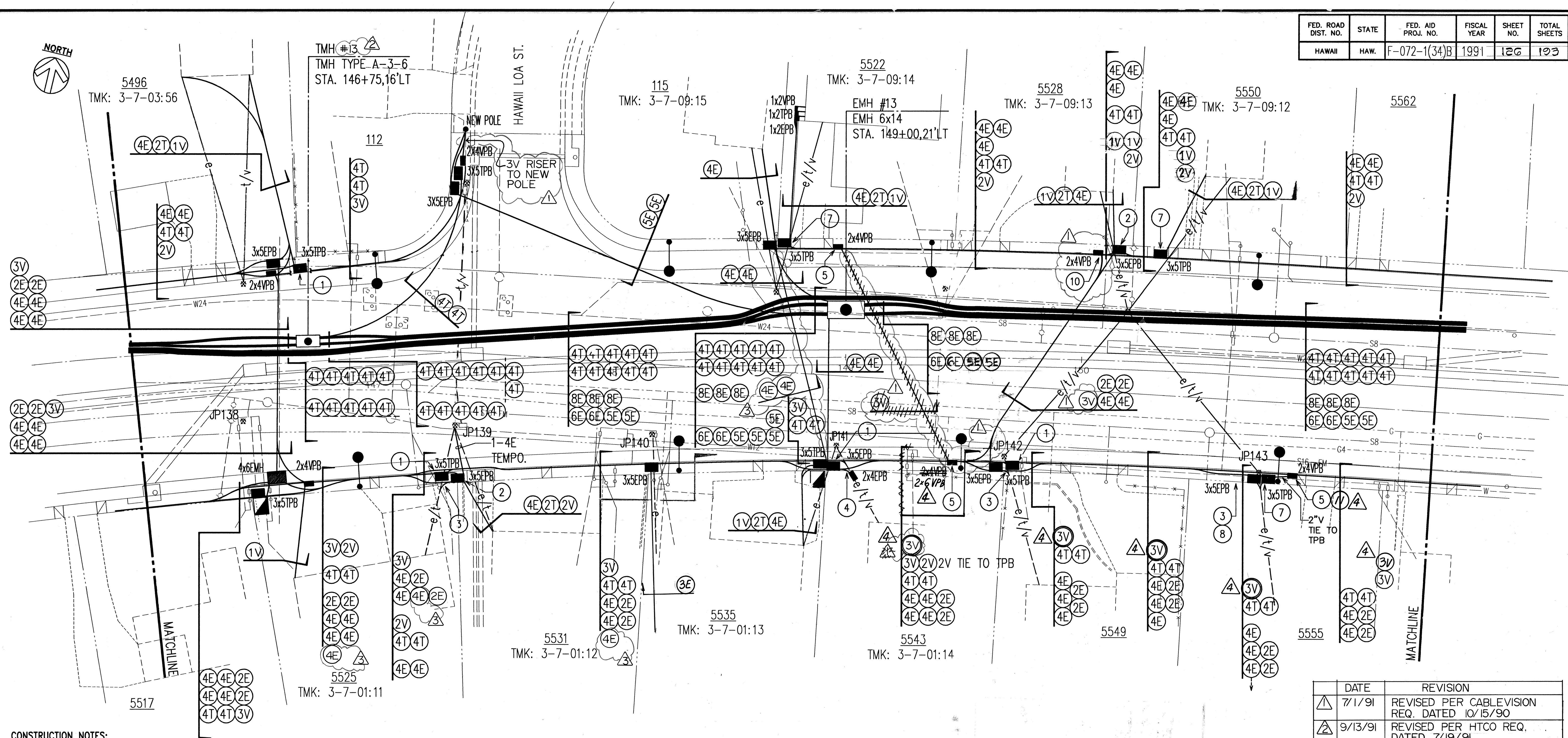
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITY PLAN
B STA. 140+50 TO 146+00

KALANIANA'OLE HIGHWAY WIDENING
E. HIND DR. TO E. HALEMAUMAU ST.
F.A. PROJECT NO. F-072-1(34)B

SCALE: 1"=20' DATE: 8/90
SHEET No. E-7 OF 45 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	126	103



CONSTRUCTION NOTES:

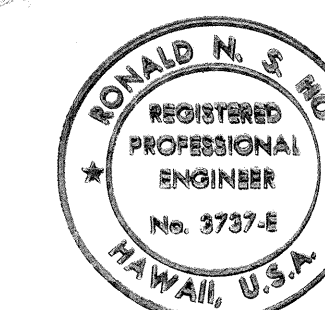
- ① V DUCT(S) TO DIVE UNDER TPB
- ② T & V DUCTS TO DIVE UNDER EPB
- ③ RE-ROUTE E DUCT TO EPB
- ④ RE-ROUTE EXISTING UNDERGROUND SERVICES TO NEW PULLBOXES
- ⑤ E & T DUCTS TO DIVE UNDER VPB
- ⑥ RE-ROUTE V DUCT TO NEW VPB. DIVE UNDER TPB & EPB
- ⑦ E & V DUCTS TO DIVE UNDER TPB
- ⑧ RE-ROUTE T DUCT TO NEW TPB
- ⑨ RE-ROUTE V DUCT TO NEW VPB. DIVE UNDER NEW TPB
- ⑩ T DUCT TO DIVE UNDER VPB
- ⑪ 1-3V to Bypass CATV Pullbox ④

APPROVED:

HAWAIIAN ELECTRIC CO., DATE

HAWAIIAN TELEPHONE CO., DATE

CABLEVISION CO.,	DATE
------------------	------



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.
Ronald Smith
8/10/90

	DATE	REVISION
①	7/1/91	REVISED PER CABLEVISION REQ. DATED 10/15/90
②	9/13/91	REVISED PER HTCO REQ. DATED 7/19/91
③	9/13/91	REVISED PER HECO REQ. DATED 8/2/91 AND 9/6/91
④	3/19/92	Revised Per OCI Req. dated 3/19/92

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITY PLAN

B STA. 146+00 TO 151+50

KALANIANA'OLE HIGHWAY WIDENING

E. HIND DR. TO E. HALEMAUMAU ST.

F.A. PROJECT NO. F-072-1(34)B

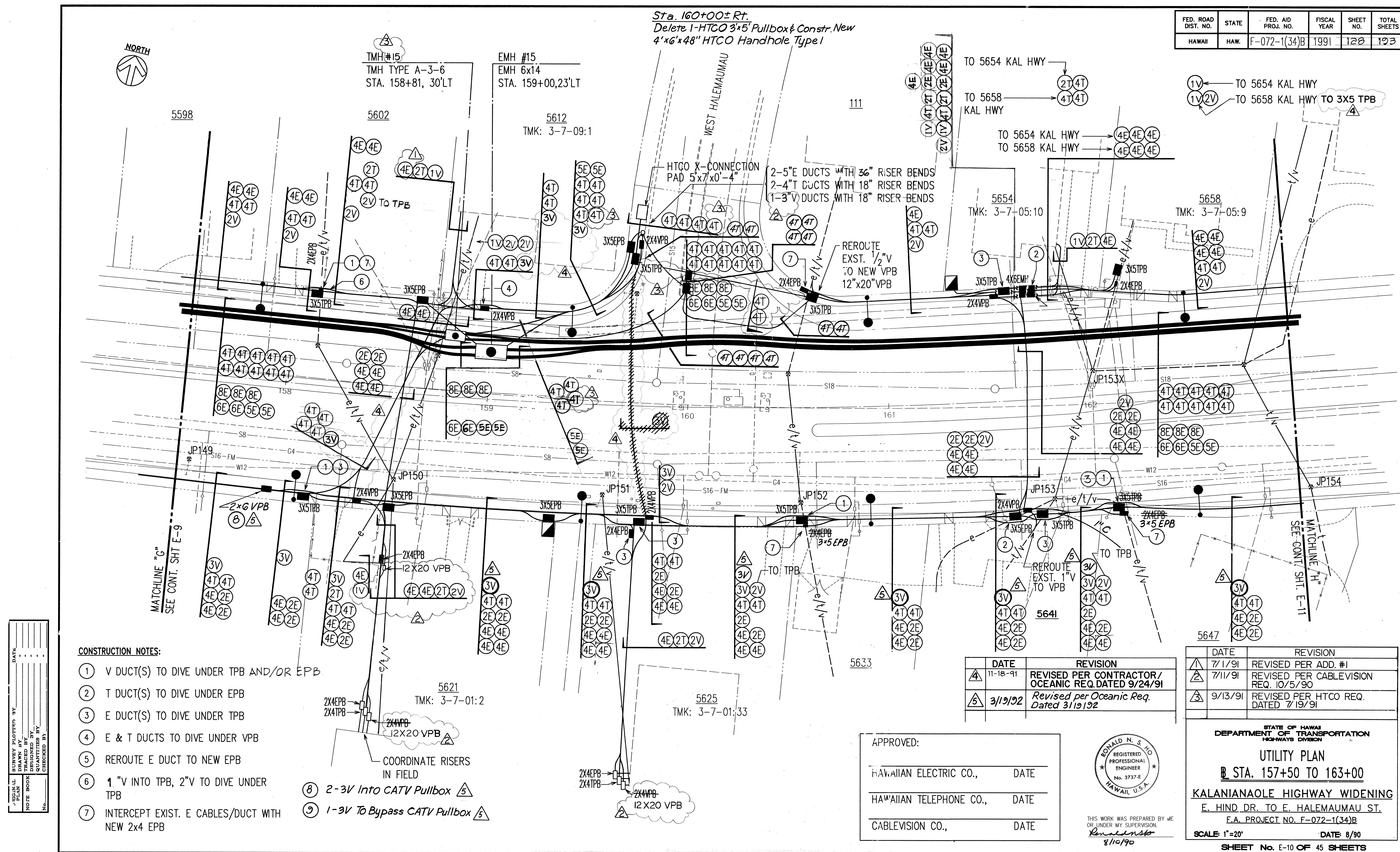
SCALE: 1"=20'

DATE: 8/90

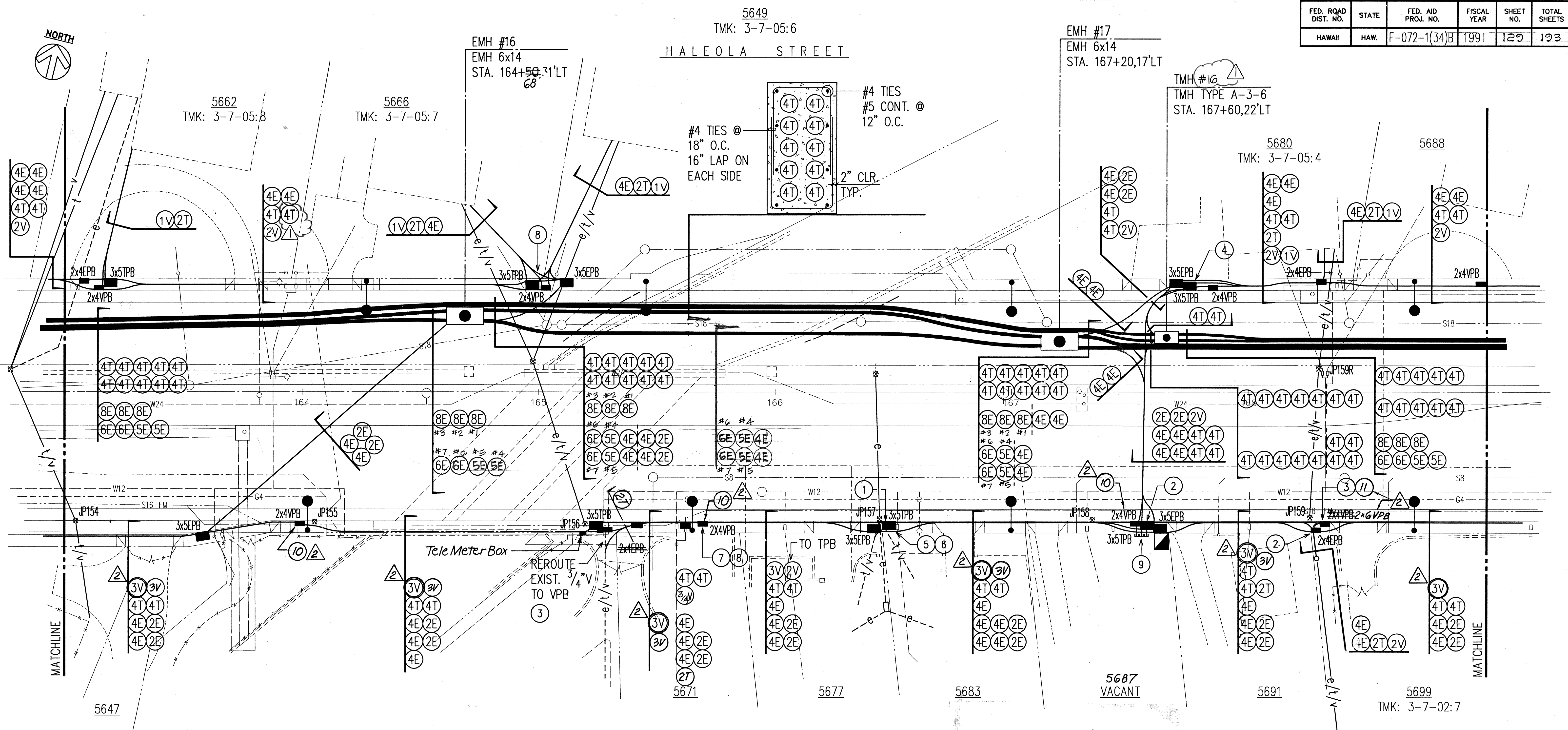
SHEET No. E-8 OF 45 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	128	123

Sta. 160+00± Rt.
Delete 1-HTCO 3'x5' Pullbox & Constr. New
4'x6'x48" HTCO Handhole Type I



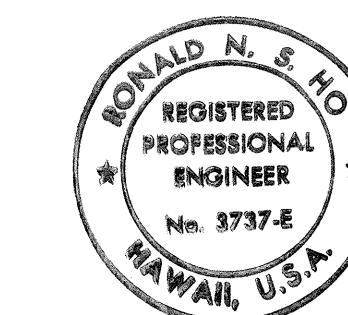
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	129	133



CONSTRUCTION NOTES:

- V DUCT TO DIVE UNDER TPB
- T DUCT TO DIVE UNDER EPB
- V DUCT TO DIVE UNDER EPB
- V DUCT TO DIVE UNDER TPB
- REROUTE T DUCT UNDER EPB TO NEW TPB
- INSTALL TEMPORARY 2" T RISERS
- T DUCT TO DIVE UNDER VPB
- E DUCT TO DIVE UNDER TPB
- STUB 1-4" E, 1-2" T, & 1-1" V @ PROPERTY LINE. E DUCTS TO DIVE UNDER TPB. ADJUST LOCATION OF BOXES AS REQUIRED TO ALLOW FOR DIVING.
- 1-3V to Bypass CATV Pullbox
- 2-3V into CATV Pullbox

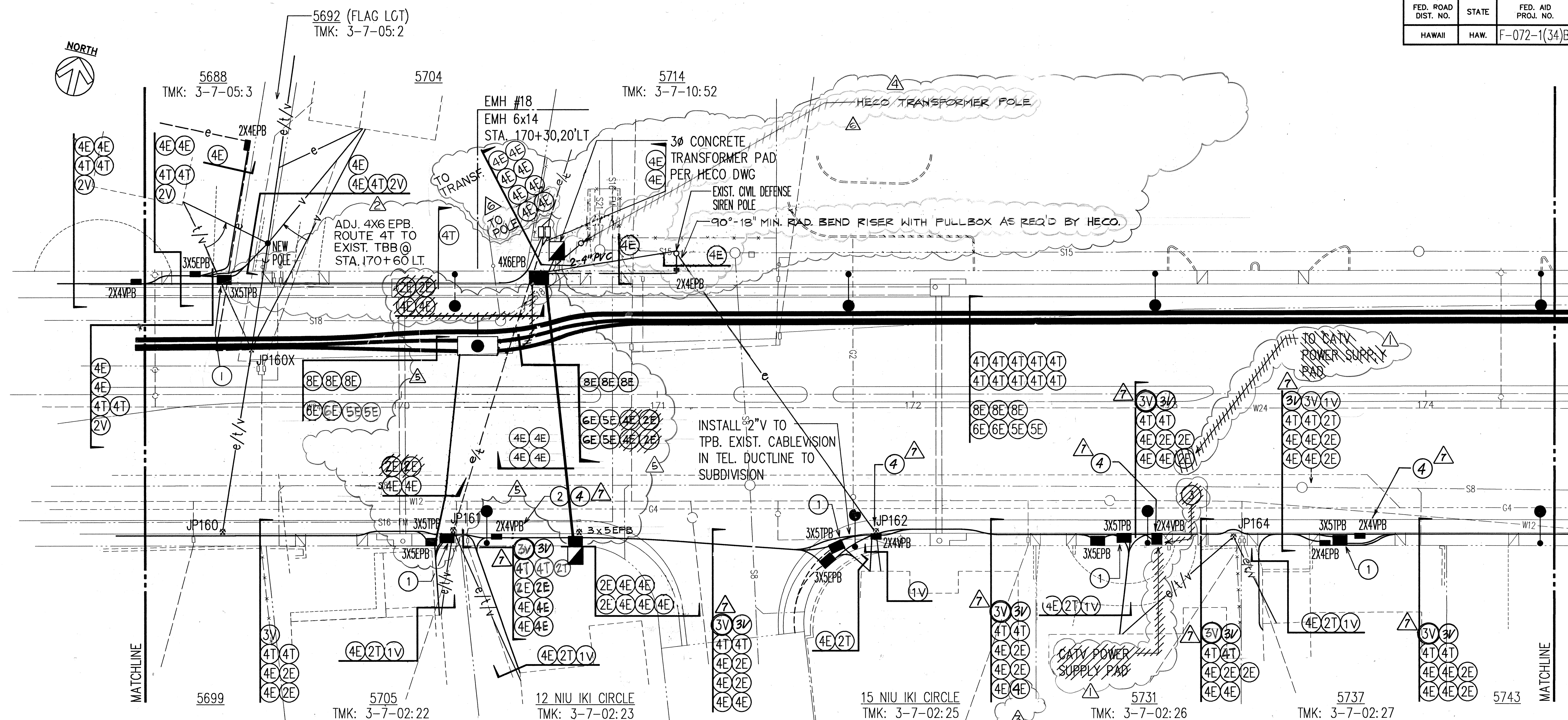
DATE	REVISION
9/13/91	REVISED PER HTCO REQUEST DATED 7/19/91
3/13/92	Revised per Oceanic Req. Dated 3/13/92
APPROVED:	
HAWAIIAN ELECTRIC CO.,	DATE
HAWAIIAN TELEPHONE CO.,	DATE
CABLEVISION CO.,	DATE



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Ronald N. S. Ho
 8/10/90

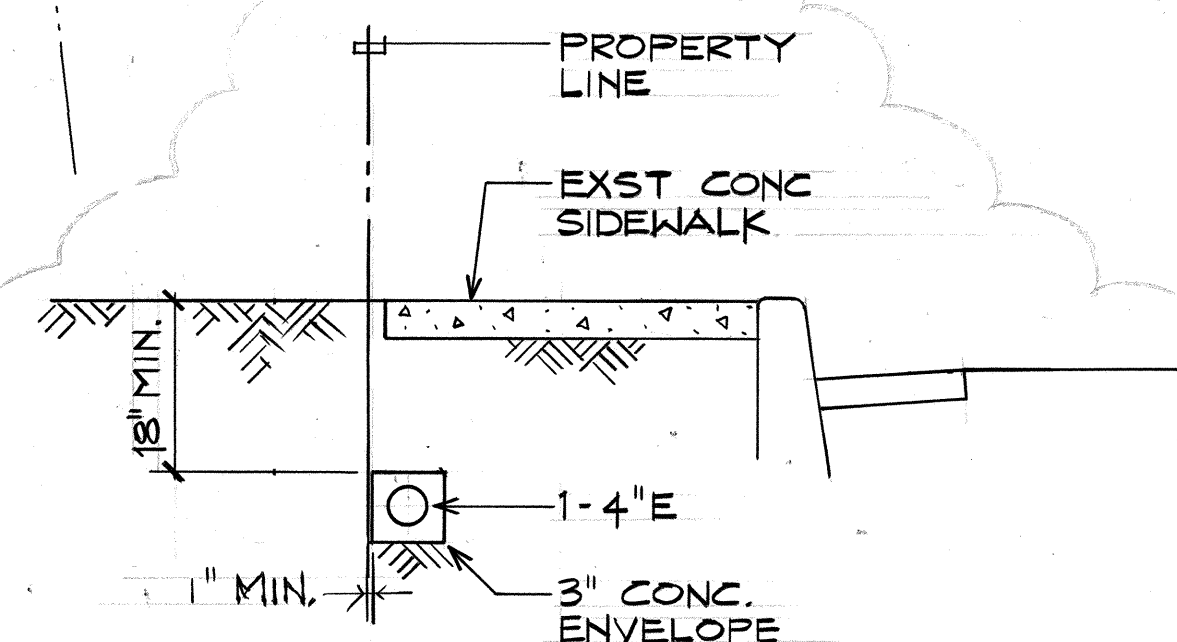
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
UTILITY PLAN	
B STA. 163+00 TO 169+00	
KALANIANA'OLE HIGHWAY WIDENING	
E. HIND DR. TO E. HALEMAUMAU ST.	
F.A. PROJECT NO. F-072-1(34)B	
SCALE: 1"=20'	DATE: 8/90
SHEET No. E-11 OF 45 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	130	133



CONSTRUCTION NOTES:

- ① V DUCT(S) TO DIVE UNDER TPB
- ② E & T DUCTS TO DIVE UNDER VPB
- ③ INSTALL 3"V TIE BETWEEN CATV POWER SUPPLY PAD AND VPB
- ④ 1-3V to Bypass CATV Pullbox



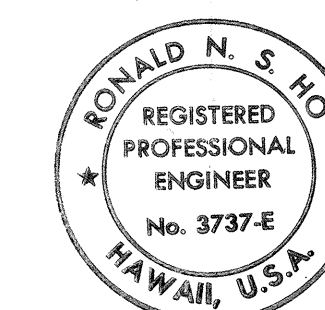
TYP. SECTION LOOKING UP-STATION
BETWEEN 4x6 EPB & 2x4 EPB @
STATION 170+90 ± LEFT
N.T.S.

APPROVED:

HAWAIIAN ELECTRIC CO., DATE

HAWAIIAN TELEPHONE CO., DATE

CABLEVISION CO., DATE

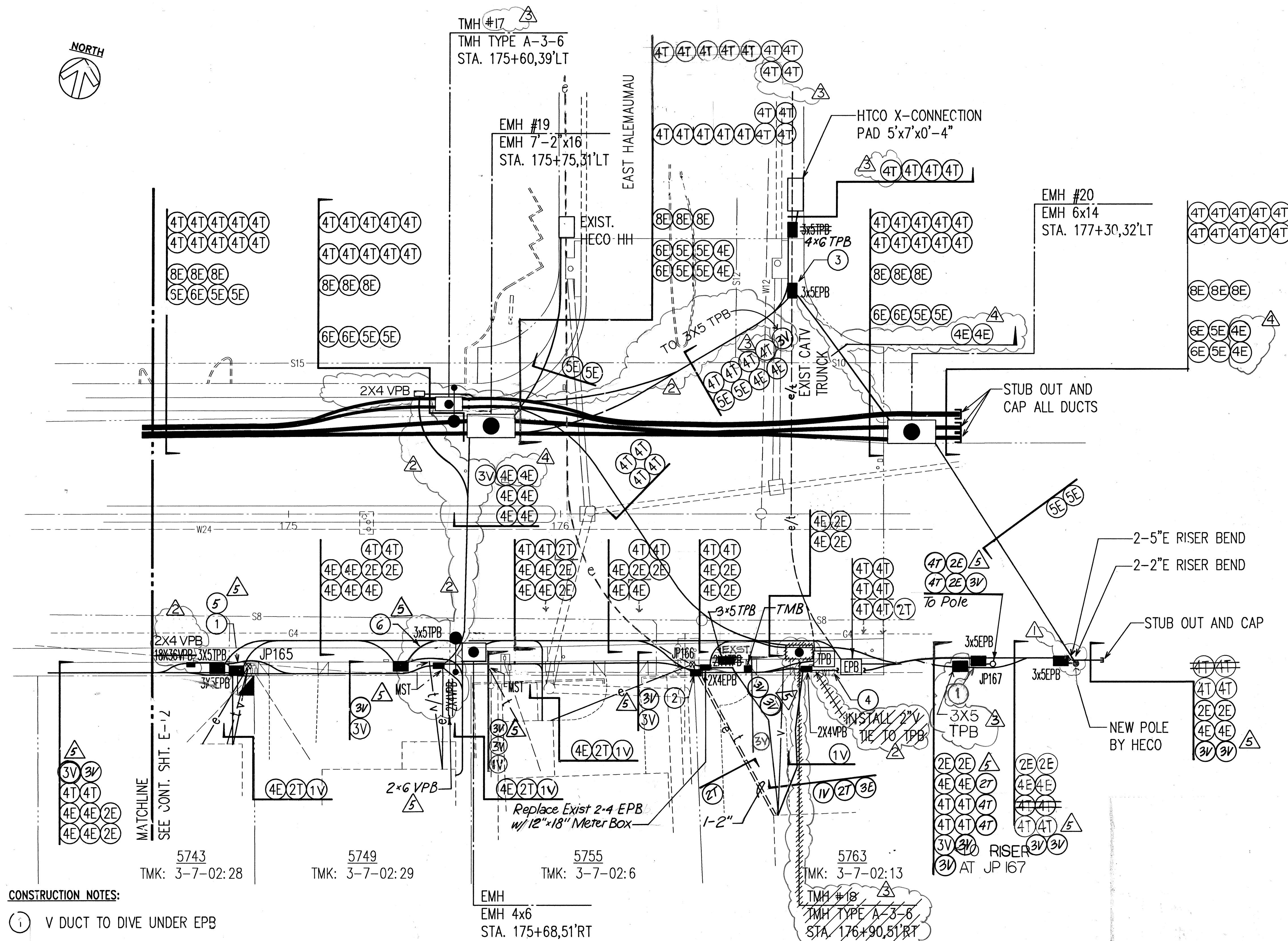


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OR UNDER MY SUPERVISION.
Ronald N. S. Ho
8/10/90

DATE	REVISION
7/15/91	REVISED PER CABLEVISION REQ. DATED 10/5/90
9/13/91	REVISED PER HTCO REQ. DATED 7/19/91
9/13/91	REVISED PER HECO REQ. DATED 9/6/91
9/13/91	REVISED PER SDOT-HECO AGREEMENT OF 7/1/91
12/12/91	REVISED DUCT TIES @ EMH #18, ADDED DUCT TIES BET. 4x6 EPB STA. 170+65 ± LT. & 3x5 EPB.

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
UTILITY PLAN	
B STA. 169+00 TO 174+50	
KALANIANA'OLE HIGHWAY WIDENING	
E. HIND DR. TO E. HALEMAUMAU ST.	
F.A. PROJECT NO. F-072-1(34)B	
SCALE: 1"=20'	DATE: 8/90
SHEET No. E-12 OF 45 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	131	133



CONSTRUCTION NOTES:

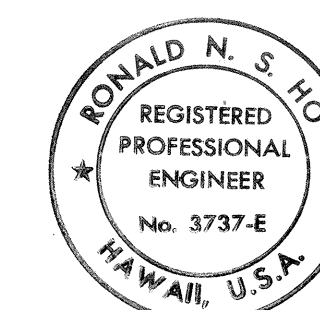
- ① V DUCT TO DIVE UNDER EPB
- ② V DUCT TO DIVE UNDER TPB
- ③ T DUCTS TO DIVE NEXT TO EPB
- ④ EXISTING TPB TO BE DEMOLISHED AFTER NEW TELEPHONE SYSTEM IS IN OPERATION
- ⑤ 1-3V to Bypass CATV Pullbox
- ⑥ 2-3V Into CATV Pullbox

APPROVED:

HAWAIIAN ELECTRIC CO., DATE

HAWAIIAN TELEPHONE CO., DATE

CABLEVISION CO., DATE

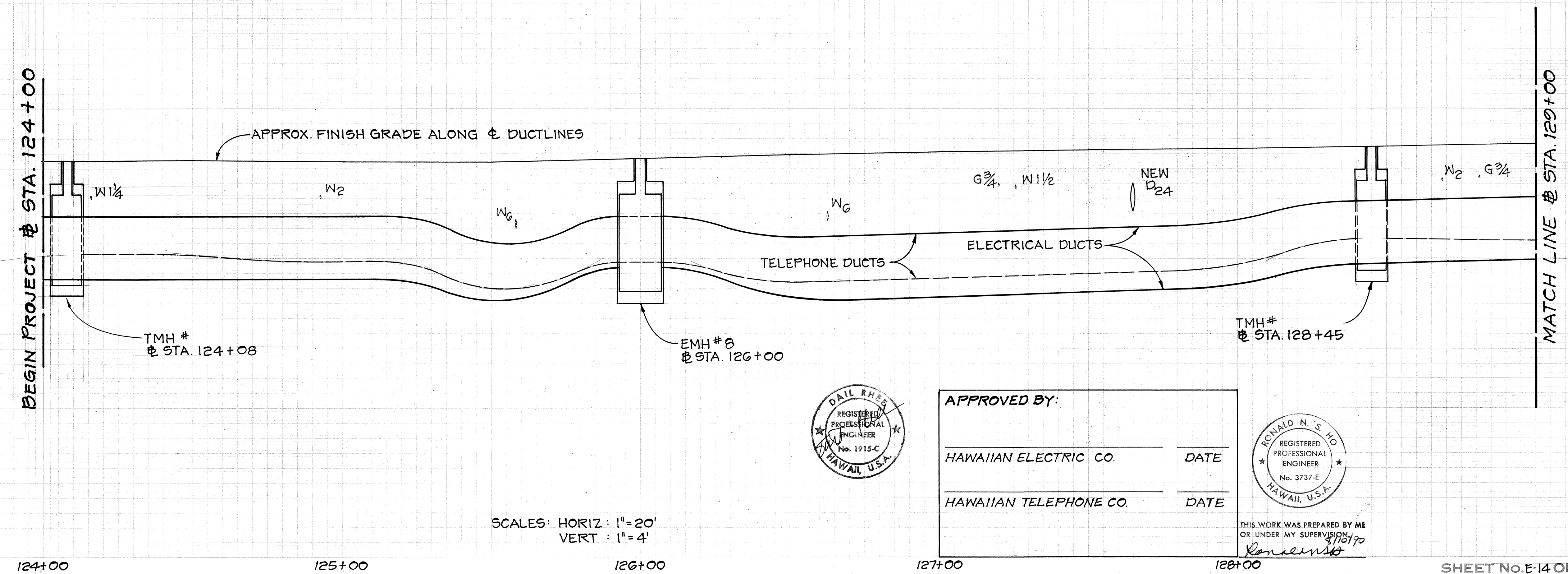
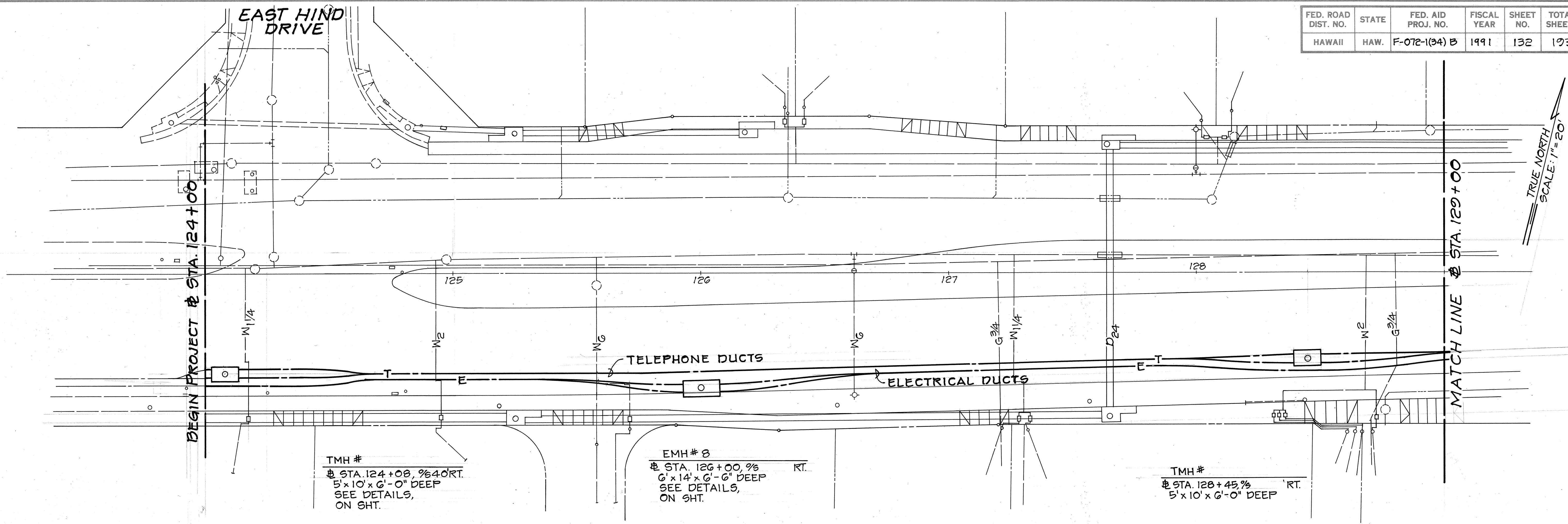


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Ronald N. S. Ho
 8/10/90

DATE	REVISION
7/1/91	REVISED PER ADD. #1
7/15/91	REVISED PER CABLEVISION REQ. DATED 10/5/91
9/13/91	REVISED PER HTCO REQ. DATED 7/19/91
9/13/91	REVISED PER HECO REQ. DATED 8/2/91 AND 9/6/91
3/19/92	Revised per Oceanic Req. Dated 3/19/92

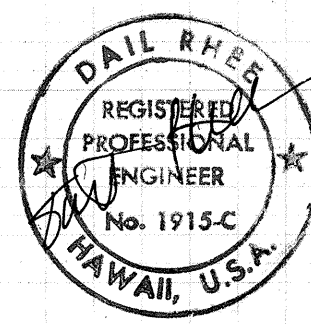
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
UTILITY PLAN
STA. 174+50 TO 177+20
KALANIANA'OLE HIGHWAY WIDENING
E. HIND DR. TO E. HALEMAUMAU ST.
F.A. PROJECT NO. F-072-1(34)B
SCALE: 1"=20' DATE: 8/90
SHEET No. E-13 OF 45 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34) B	1991	132	173



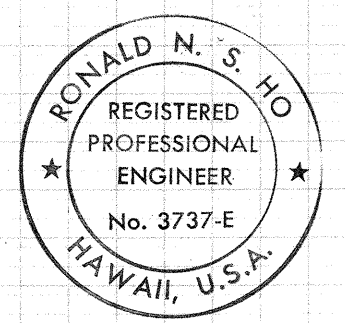
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NO.	

SCALES: HORIZ : 1" = 20'
VERT : 1" = 4'



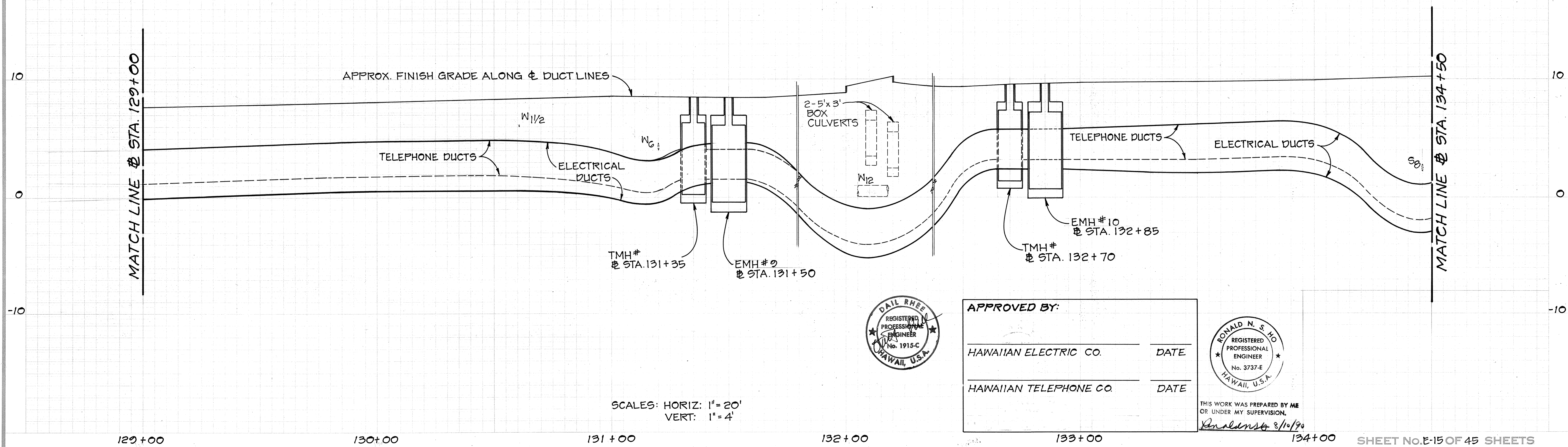
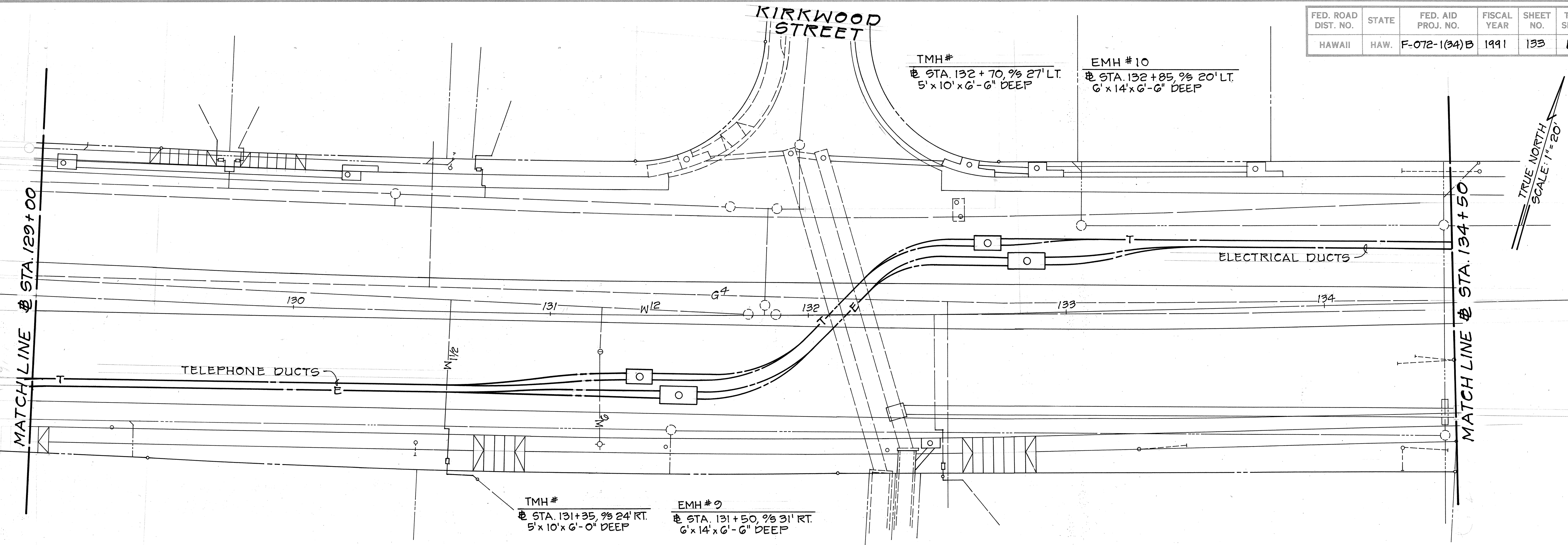
APPROVED BY:

HAWAIIAN ELECTRIC CO.	DATE
HAWAIIAN TELEPHONE CO.	DATE



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
8/18/90
R. S. Ho

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	133	173



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



APPROVED BY:

HAWAIIAN ELECTRIC CO.	DATE
HAWAIIAN TELEPHONE CO.	DATE



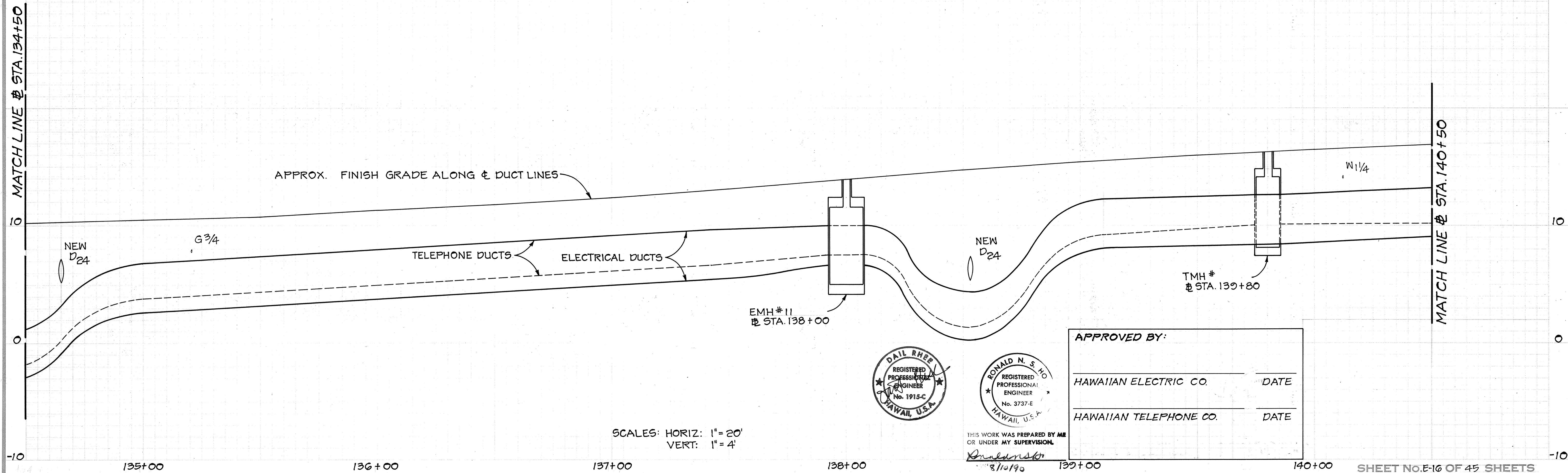
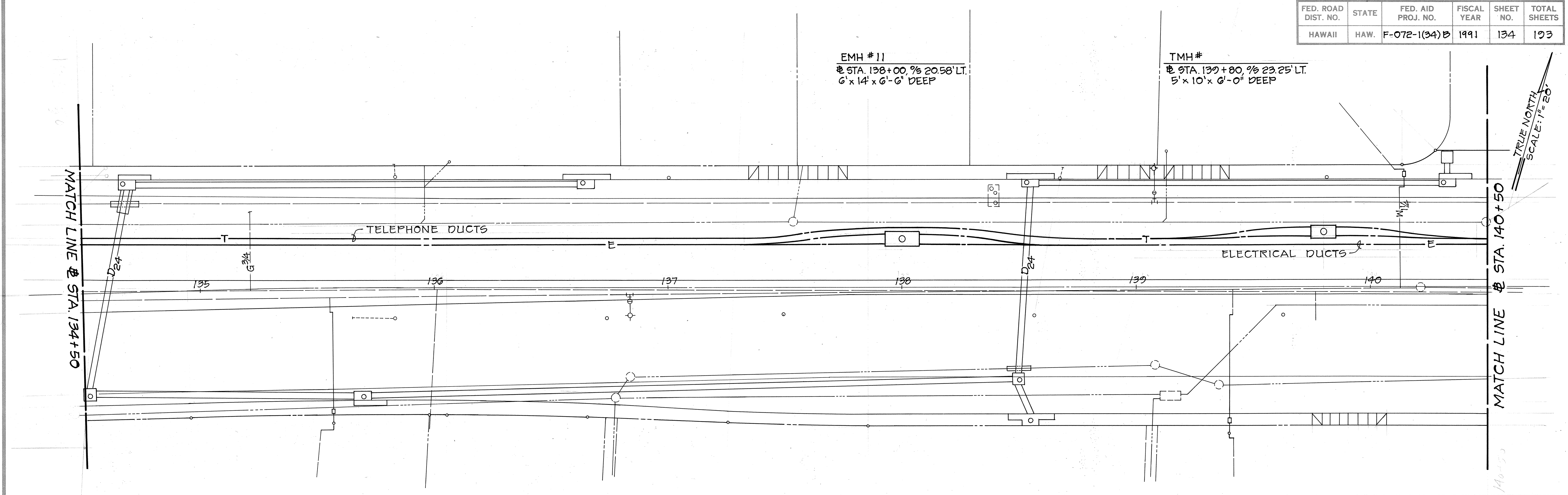
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Ronald N. S. Ho 3/10/90

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	134	133

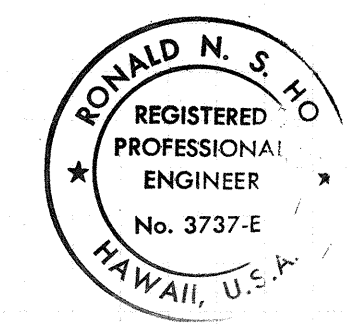
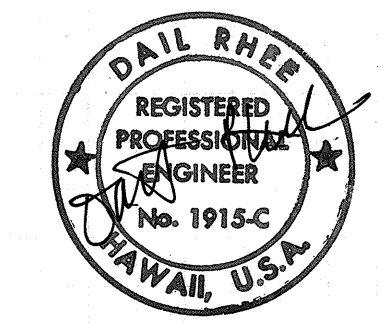
EMH #11
 @ STA. 138+00, 7% 20.58' LT.
 6' x 14' x 6'-6" DEEP

TMH #
 @ STA. 139+80, 7% 23.25' LT.
 5' x 10' x 6'-0" DEEP

TRUE NORTH
 SCALE: 1" = 20'



SCALES: HORIZ: 1" = 20'
 VERT: 1" = 4'



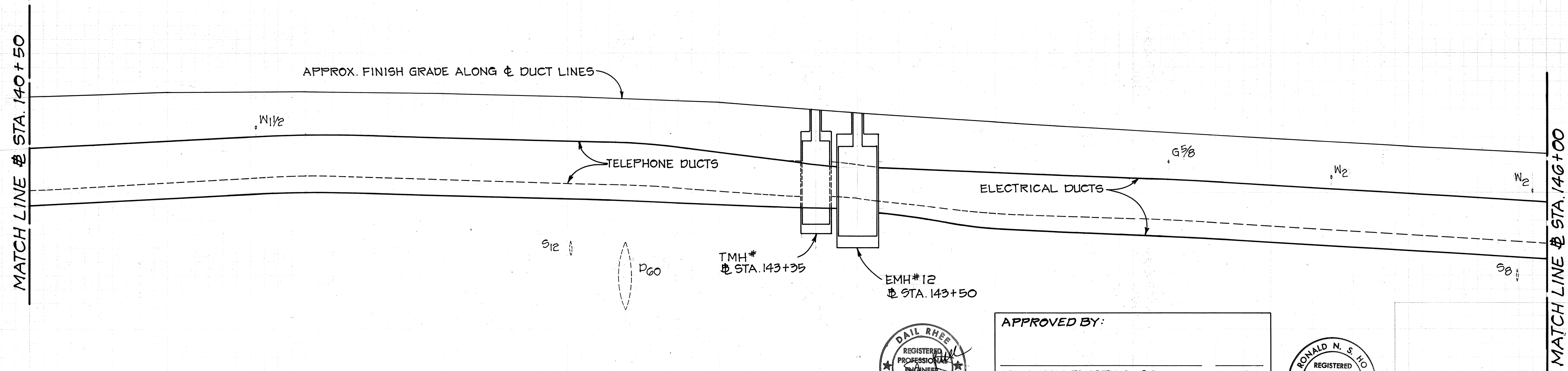
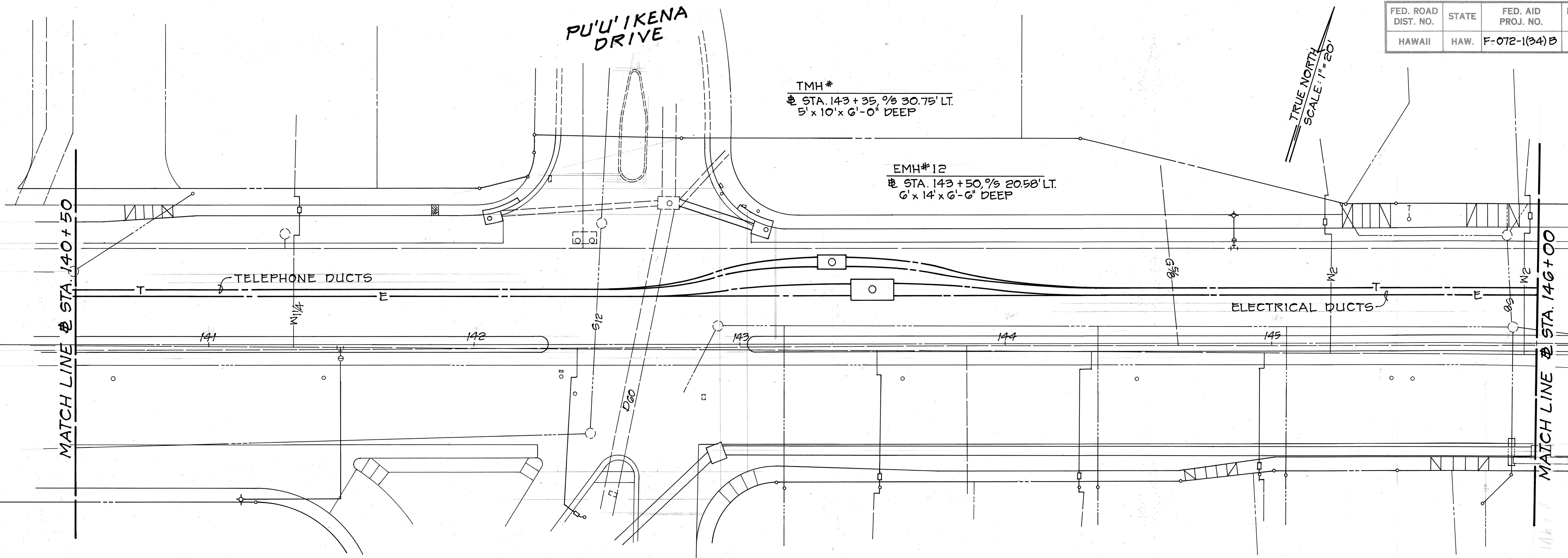
THIS WORK WAS PREPARED BY ME
 OR UNDER MY SUPERVISION.
 8/10/90

APPROVED BY:

HAWAIIAN ELECTRIC CO.	DATE
HAWAIIAN TELEPHONE CO.	DATE

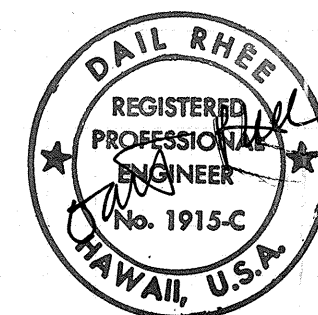
SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	135	193



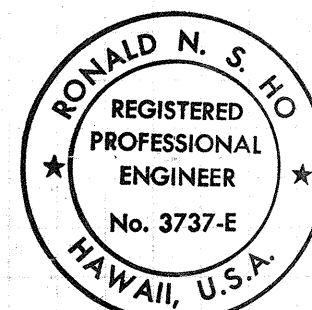
SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	

SCALES: HORIZ: 1" = 20'
VERT: 1" = 4'



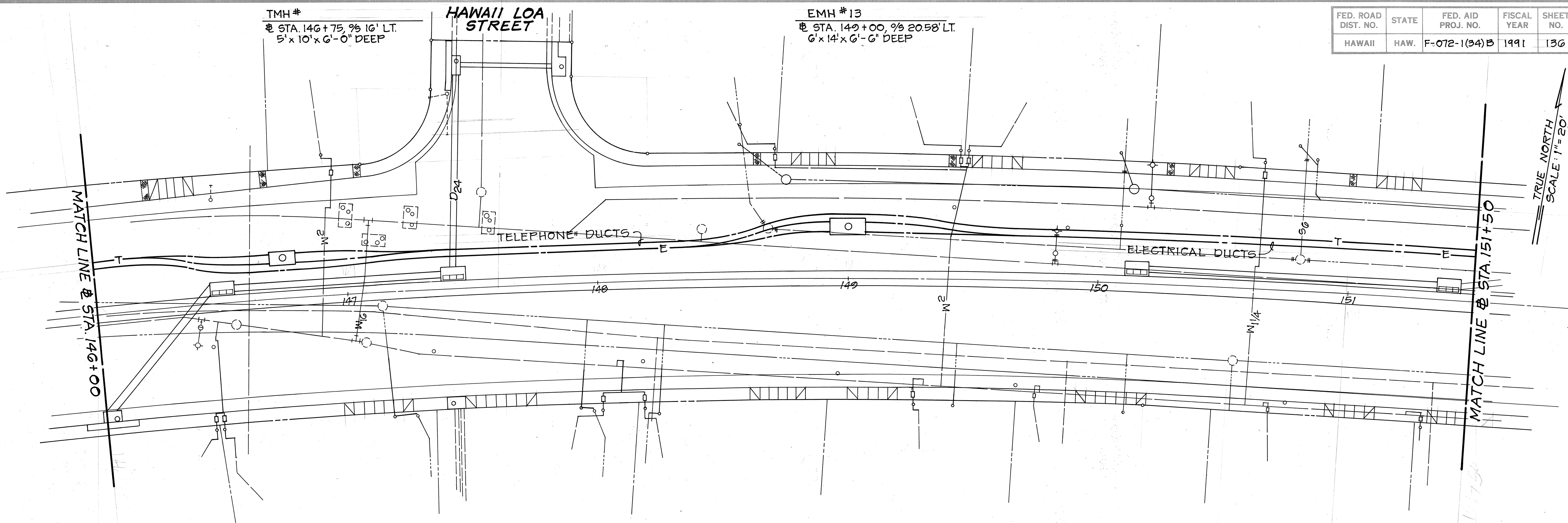
APPROVED BY:

HAWAIIAN ELECTRIC CO.	DATE
HAWAIIAN TELEPHONE CO.	DATE



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OR UNDER MY SUPERVISION.
Ronald N. S. Ho
8/10/90

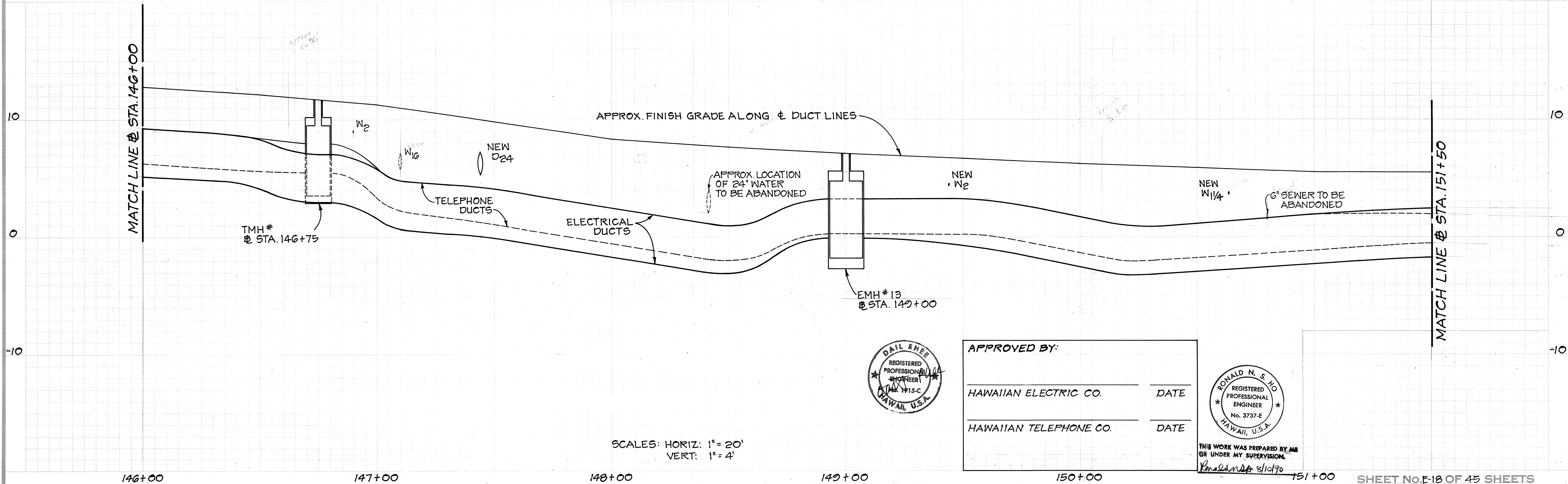
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	136	133



TRUE NORTH
SCALE 1"=20'

MATCH LINE @ STA. 146+00

MATCH LINE @ STA. 151+50



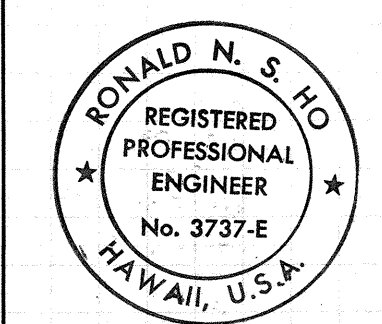
SCALES: HORIZ: 1"=20'
VERT: 1"=4'



APPROVED BY:

HAWAIIAN ELECTRIC CO. DATE

HAWAIIAN TELEPHONE CO. DATE



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OR UNDER MY SUPERVISION
R. S. Ho 5/10/90

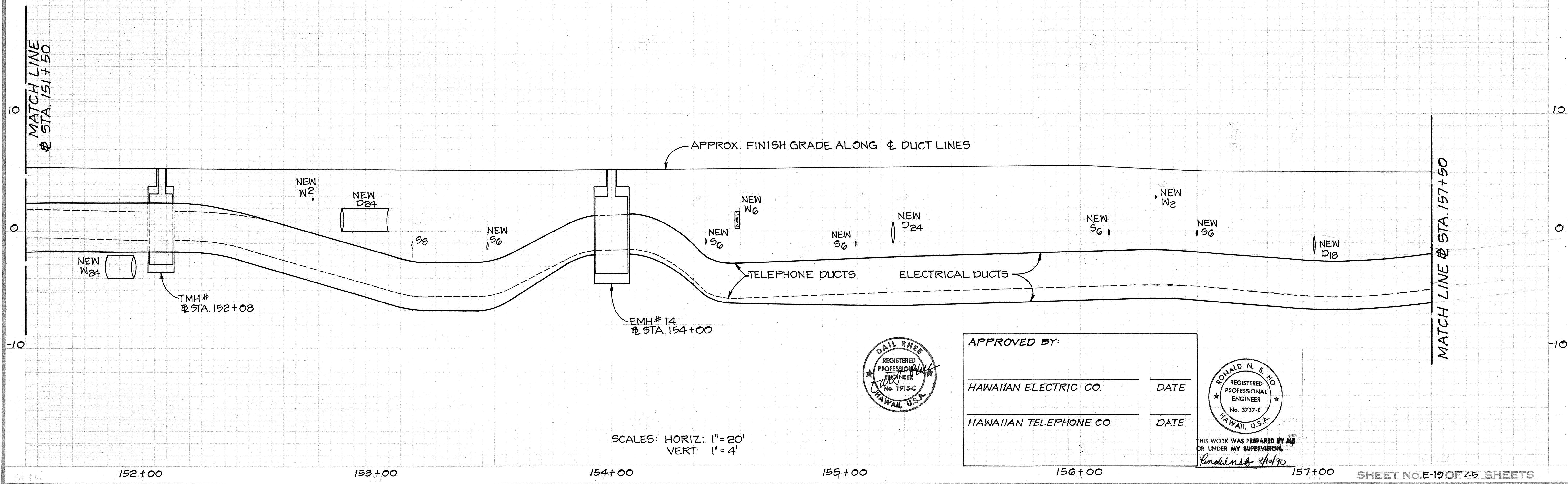
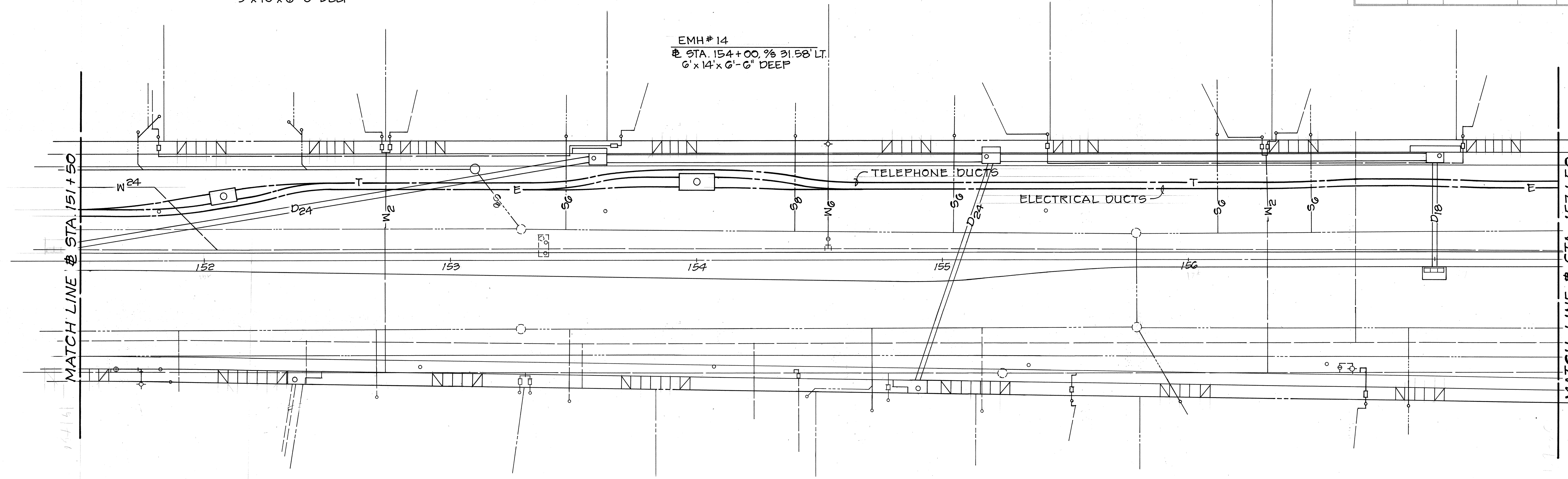
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	CHECKED BY	
	QUANTITIES BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	137	123

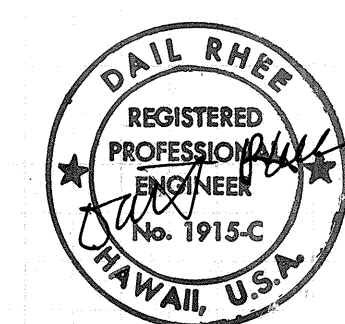
TMH #
 @ STA. 152+08, 9/8 26' LT.
 5' x 10' x 6'-0" DEEP

EMH # 14
 @ STA. 154+00, 9/8 31.58' LT.
 6' x 14' x 6'-6" DEEP

TRUE NORTH
 SCALE: 1" = 20'

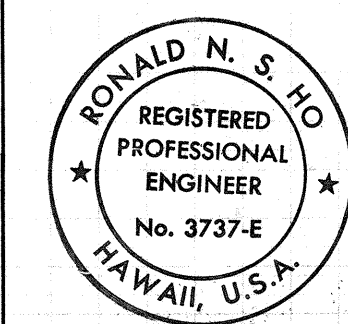


SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	No.



APPROVED BY:

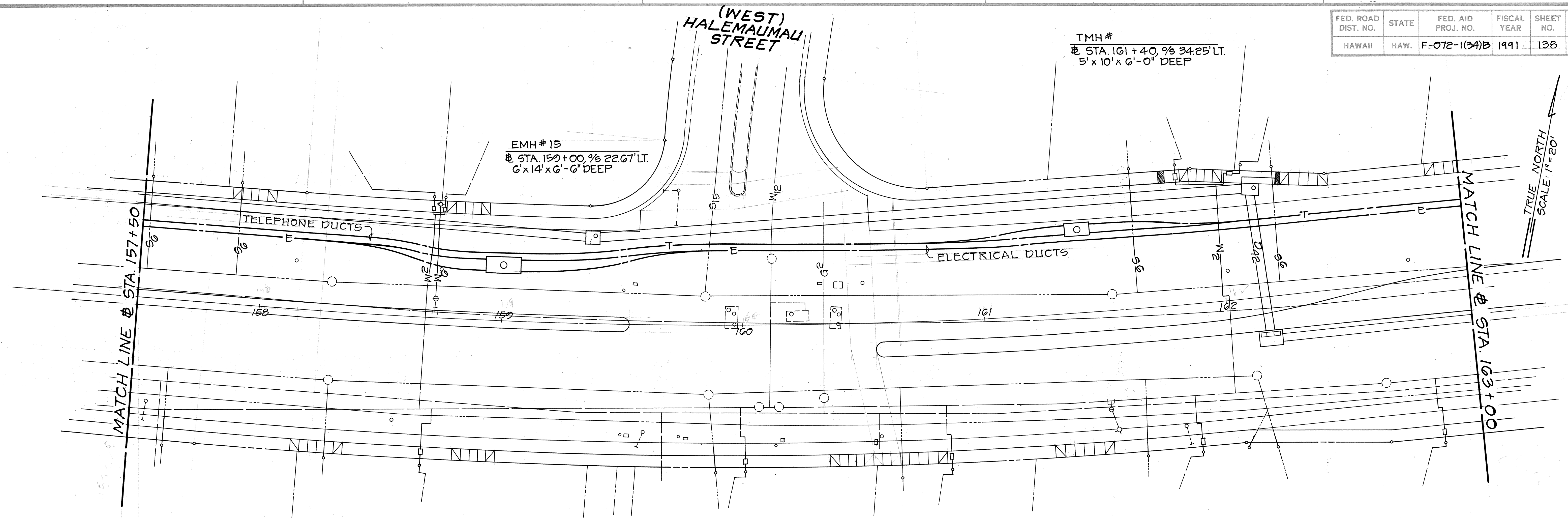
HAWAIIAN ELECTRIC CO.	DATE
HAWAIIAN TELEPHONE CO.	DATE



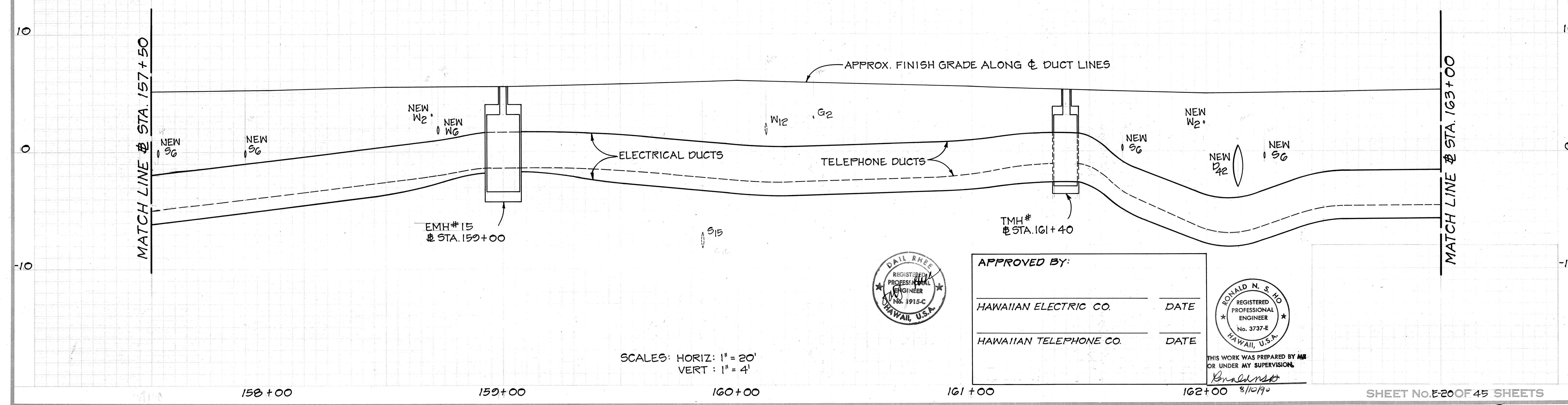
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
 Ronald N. S. Ho 8/10/90

SCALES: HORIZ: 1" = 20'
 VERT: 1" = 4'

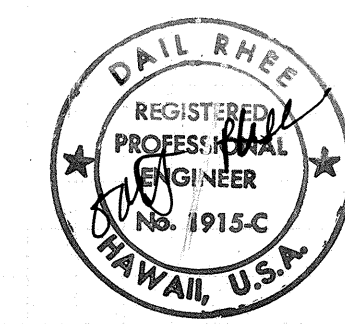
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	138	123



TRUE NORTH
SCALE: 1" = 20'

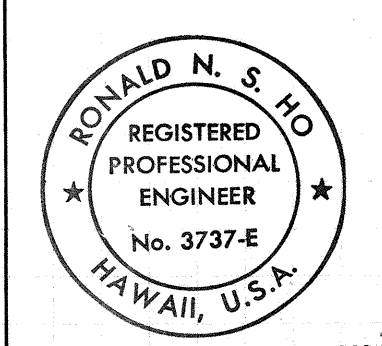


SCALES: HORIZ: 1" = 20'
VERT: 1" = 4'



APPROVED BY:

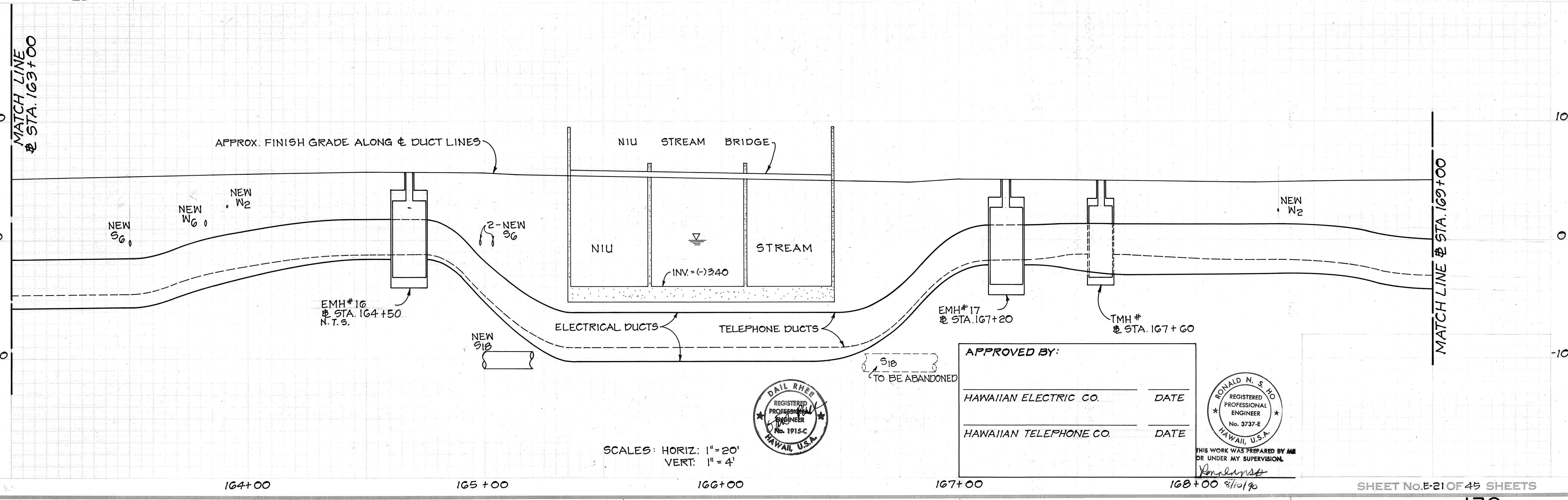
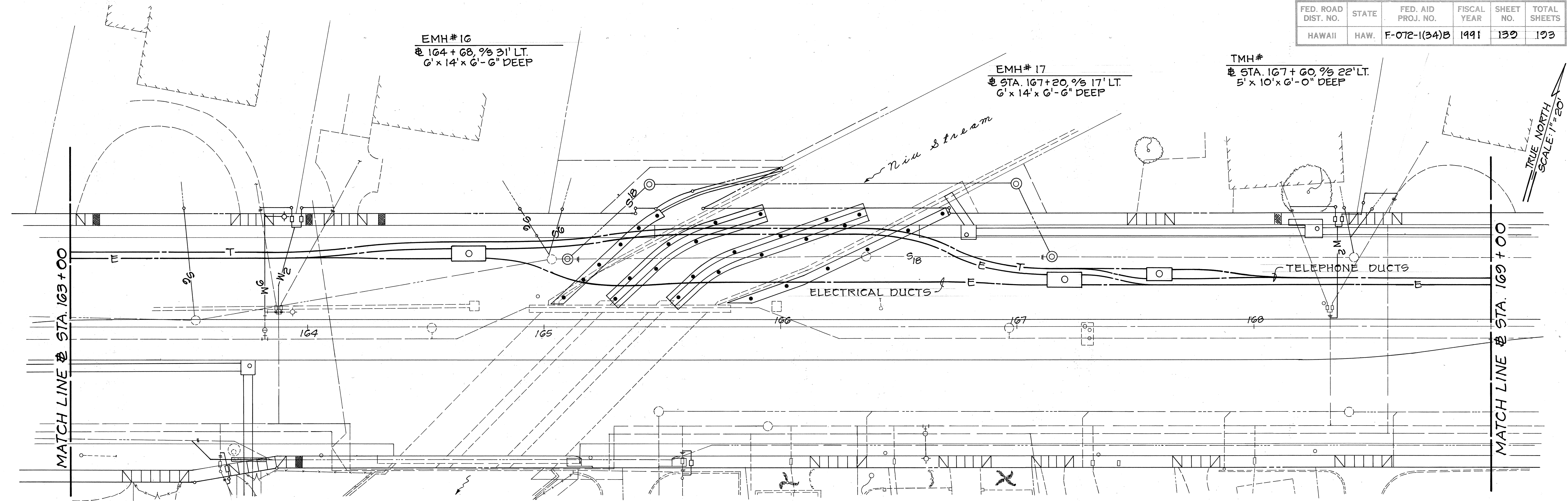
HAWAIIAN ELECTRIC CO.	DATE
HAWAIIAN TELEPHONE CO.	DATE



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Ronald N. S. Ho
8/10/90

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	132	123



ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
CHECKED BY	



APPROVED BY:

HAWAIIAN ELECTRIC CO. DATE

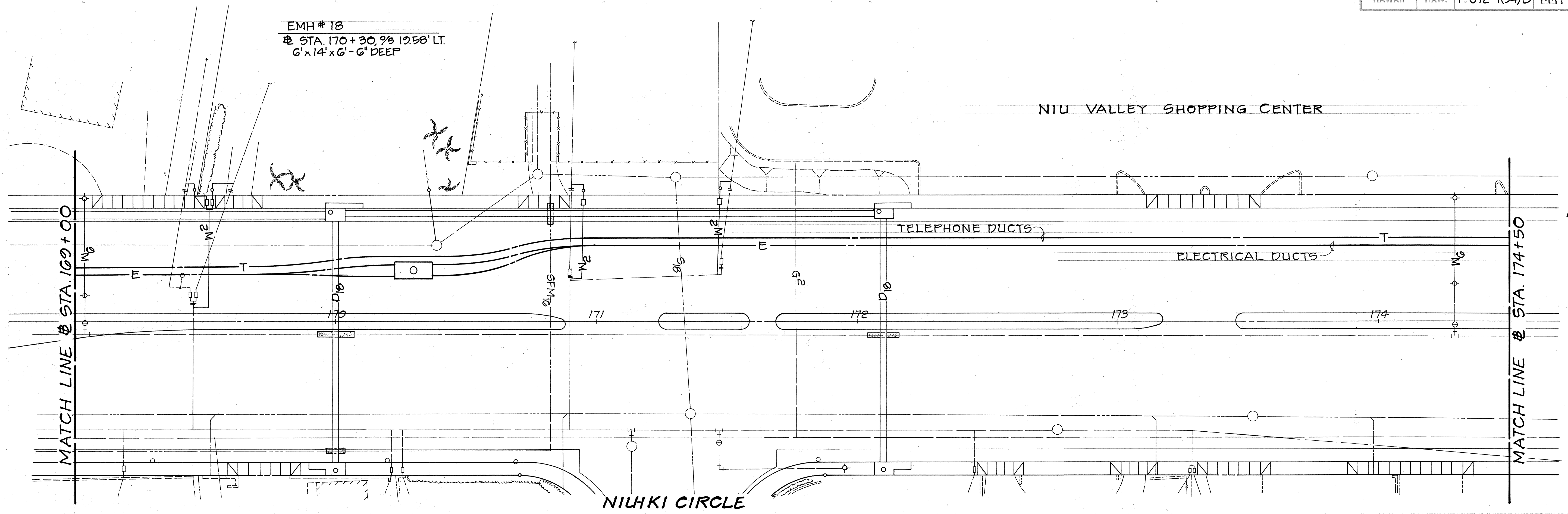
HAWAIIAN TELEPHONE CO. DATE



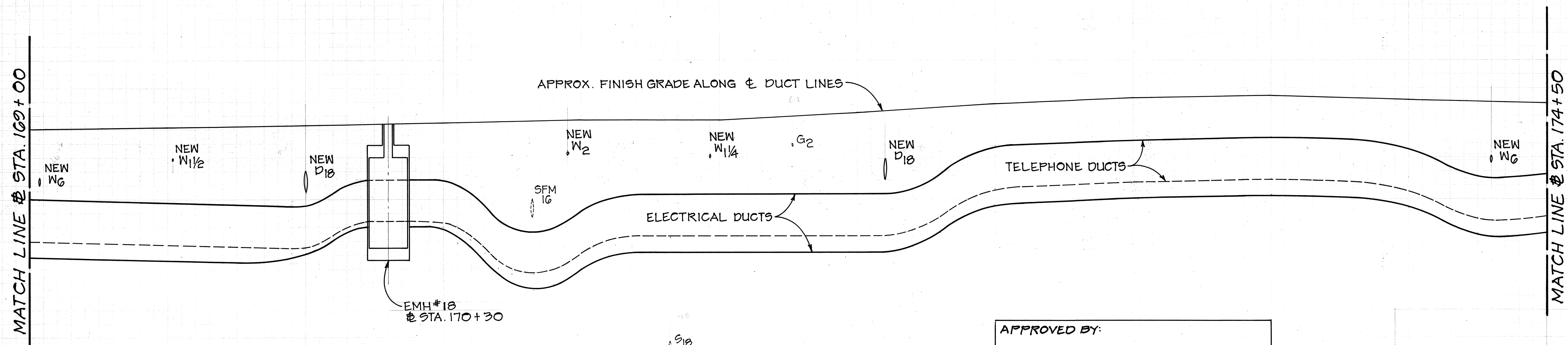
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SCALES: HORIZ: 1"=20'
VERT: 1"=4'

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	140	193



TRUE NORTH
 SCALE: 1" = 20'



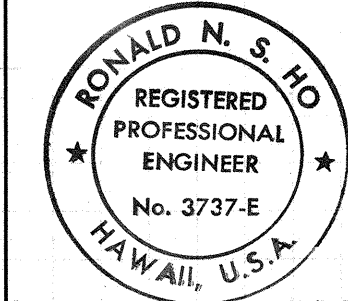
SCALES: HORIZ: 1" = 20'
 VERT: 1" = 4'



APPROVED BY:

HAWAIIAN ELECTRIC CO. _____ DATE _____

HAWAIIAN TELEPHONE CO. _____ DATE _____

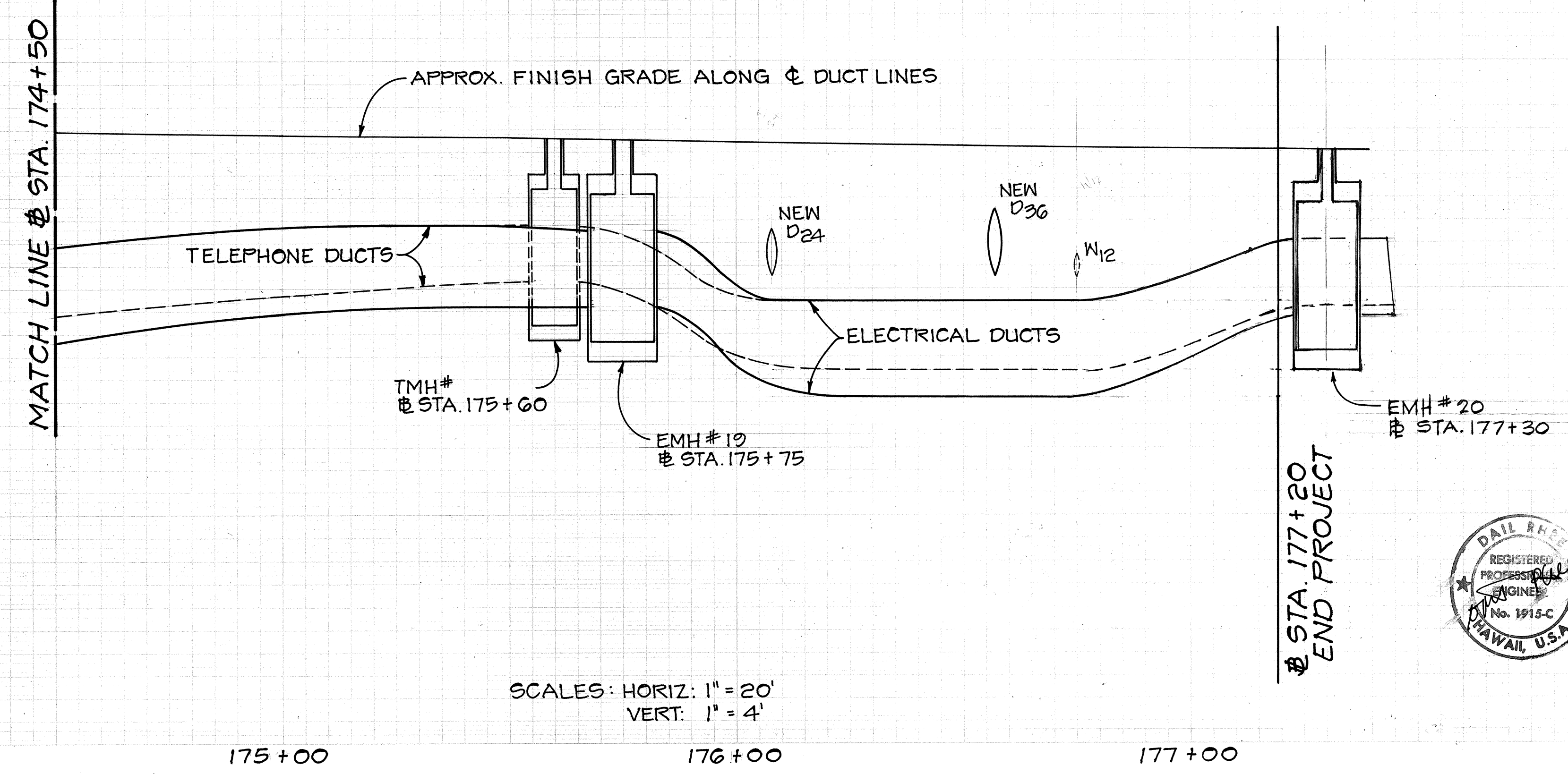
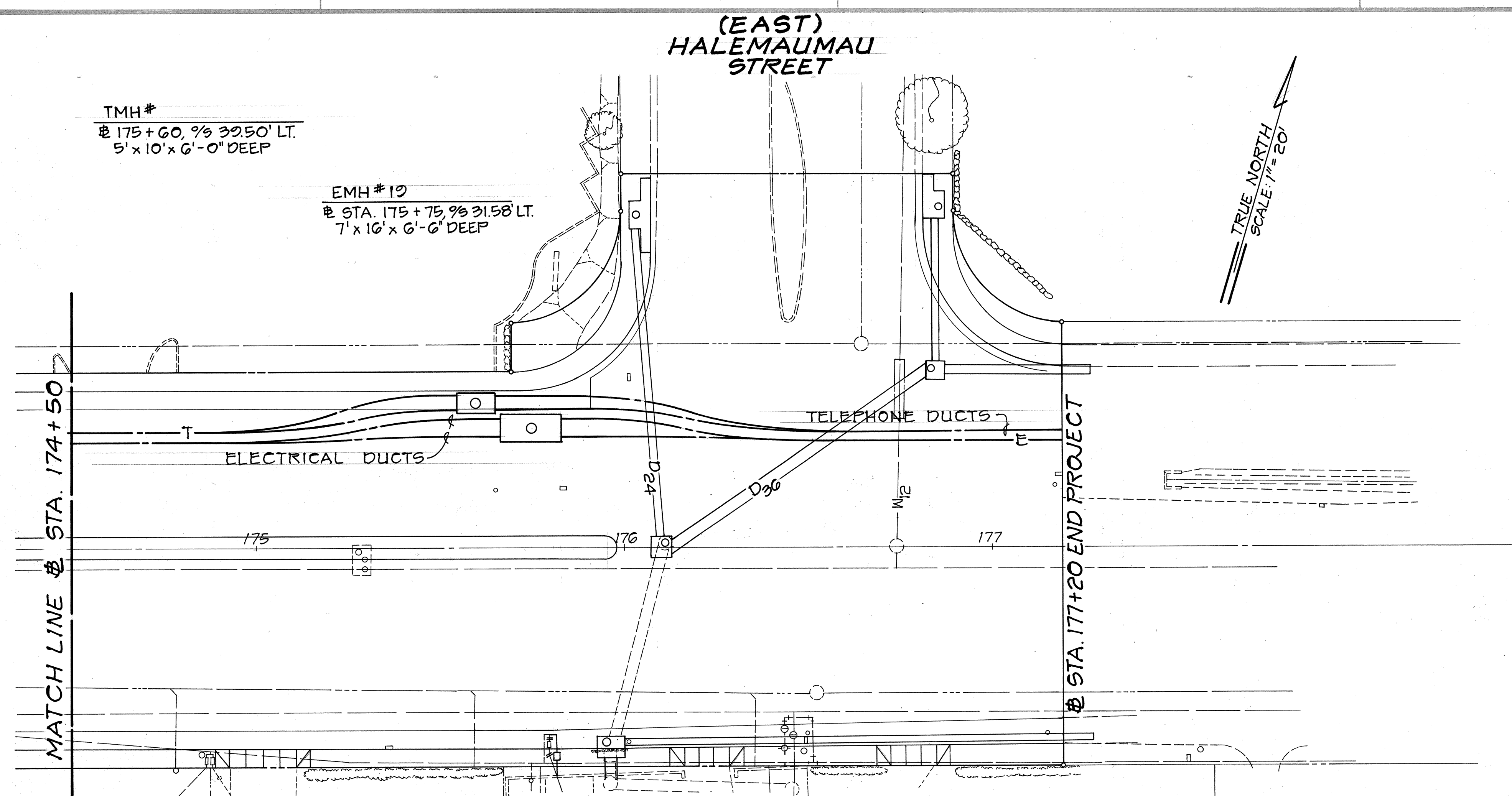


THIS WORK WAS PREPARED BY ME
 OR UNDER MY SUPERVISION.

Ronald N. S. Ho
 9/10/90

ORIGINAL PLAN	DATE
DRAWN BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	
No.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	141	193



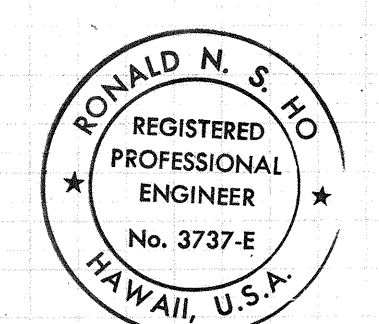
SCALES: HORIZ: 1" = 20'
 VERT: 1" = 4'



APPROVED BY:

HAWAIIAN ELECTRIC CO. _____ DATE _____

HAWAIIAN TELEPHONE CO. _____ DATE _____



THIS WORK WAS PREPARED BY ME
 OR UNDER MY SUPERVISION.
Ronald N. S. Ho
 8/10/90

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	142	123

LEGEND:

- (5E) REFER TO PROJECT PLAN DUCT SECTION INDICATOR FOR DUCT SIZES, OWNERSHIP, AND CONFIGURATION.
- TYPE "A" BACKFILL SHALL CONSIST OF: BEACH SAND, EARTH OR EARTH AND GRAVEL. IF EARTH AND GRAVEL, THE MAXIMUM ROCK SIZE SHALL BE 1" AND THE MIXTURE SHALL CONTAIN NOT MORE THAN 50% BY VOLUME OF ROCK PARTICLES.
- TYPE "B" BACKFILL SHALL CONSIST OF: BEACH SAND, EARTH OR EARTH AND GRAVEL. IF EARTH AND GRAVEL, THE MIXTURE MUST PASS A 1/2" MESH SCREEN AND CONTAIN NOT MORE THAN 20% BY VOLUME OF ROCK PARTICLES.
- FOR DISTRIBUTION AND SERVICE DUCTLINE IN SIDEWALK AREAS, IF THE NORMAL MATERIAL IN THE BOTTOM OF THE TRENCH IS NOT TYPE "B", AN ADDITIONAL 3" SHALL BE EXCAVATED AND TYPE "B" BACKFILL SHALL BE PROVIDED.

DUCT DIMENSIONS

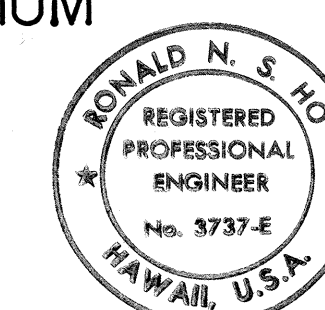
ID	OD
3/4"	1.05(3/64)" (PW PIPE CO.)
2"	2.375(3/8)"
3"	3.500(1/2)"
4"	4.500(1/2)"
5"	5.563(9/16)"
6"	6.625(5/8)"
8"	8.625(5/8)" (PRECAST INC.)

DUCT SEPARATION REQUIREMENTS:

E - E	= 1 1/2"	E = ELECTRIC
E - T	= 3"	T = TELEPHONE
E - V	= 3"	V = CABLEVISION
T - T	= 1 1/2"	
T - V	= 1 1/2"	
V - V	= 1 1/2"	

- NOTES: 1. THE DUCT SEPARATION REQUIREMENTS SHALL NOT APPLY TO THE MAIN TRUNK LINES CONTAINING THE 8" HECO DUCTS EXCEPT FOR THE TELEPHONE TO TELEPHONE DUCT CLEARANCES WHICH SHALL REMAIN AS 1 1/2". THE ELECTRIC TO ELECTRIC DUCT CLEARANCES SHALL BE AS NOTED ON THE CROSS SECTION DETAILS. THE ELECTRIC DUCT BANK TO THE TELEPHONE DUCT BANK CLEARANCE SHALL BE 1'-0" IF SEPARATED BY SOIL OR BACKFILL. IF A COMMON POUR OF LIGHT WEIGHT CONCRETE IS USED TO CROSS THIS GAP, THE ELECTRIC DUCT TO TELEPHONE DUCT CLEARANCE SHALL REMAIN AT 1'-0". COMMON POUR SHALL ONLY BE USED WHERE DUCT LINE CROSSES UNDER STREAM BEDS AND AS ALLOWED BY THE STATE'S RESIDENT ENGINEER.
2. ALL DISTRIBUTION & SERVICE DUCTLINE CROSSING KALANIANA'OLE HIGHWAY SHALL BE LOWERED TO 3'-0" MIN. CLEARANCE AND BE ENCASED IN A 3" MIN. CONCRETE JACKET.
3. REFER TO PROFILES FOR TRENCH DETAILS.
4. ALL DIMENSIONS SHOWN ARE MINIMUM.

5. THE ELECTRIC DUCTS IN THE MAIN TRUNK LINES SHALL BE IDENTIFIED AS NUMBERED IN THE TYPICAL MAIN TRUNKING DUCT SECTION DETAILS. THE DUCT RELATIONSHIP SHALL BE CONSTANT IN ALL MANHOLES LOOKING UPSTATION. THESE DUCTS & THEIR RELATIONSHIPS SHALL HAVE PRECEDENCE OVER OTHER DUCTS ENTERING OR LEAVING THE MANHOLES EXCEPT AS NOTED ON THE PLANS AT EMH No's 9, 16, & 17.
6. ALL RISER BENDS UP POLES TO BE 36 INCH MINIMUM RADIUS 90 DEGREE BENDS.
7. BENDS INTO PRIVATE PROPERTY FOR SERVICE CONVERSIONS TO BE 18 INCH MINIMUM RADIUS 90 DEGREE BENDS.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Ronald N. S. 9/10/90

APPROVED:

HAWAIIAN ELECTRIC CO., DATE
HAWAIIAN TELEPHONE CO., DATE
CABLEVISION CO., DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT SECTION DETAILS TYPICAL SECTIONS & GENERAL NOTES

KALANIANA'OLE HIGHWAY WIDENING

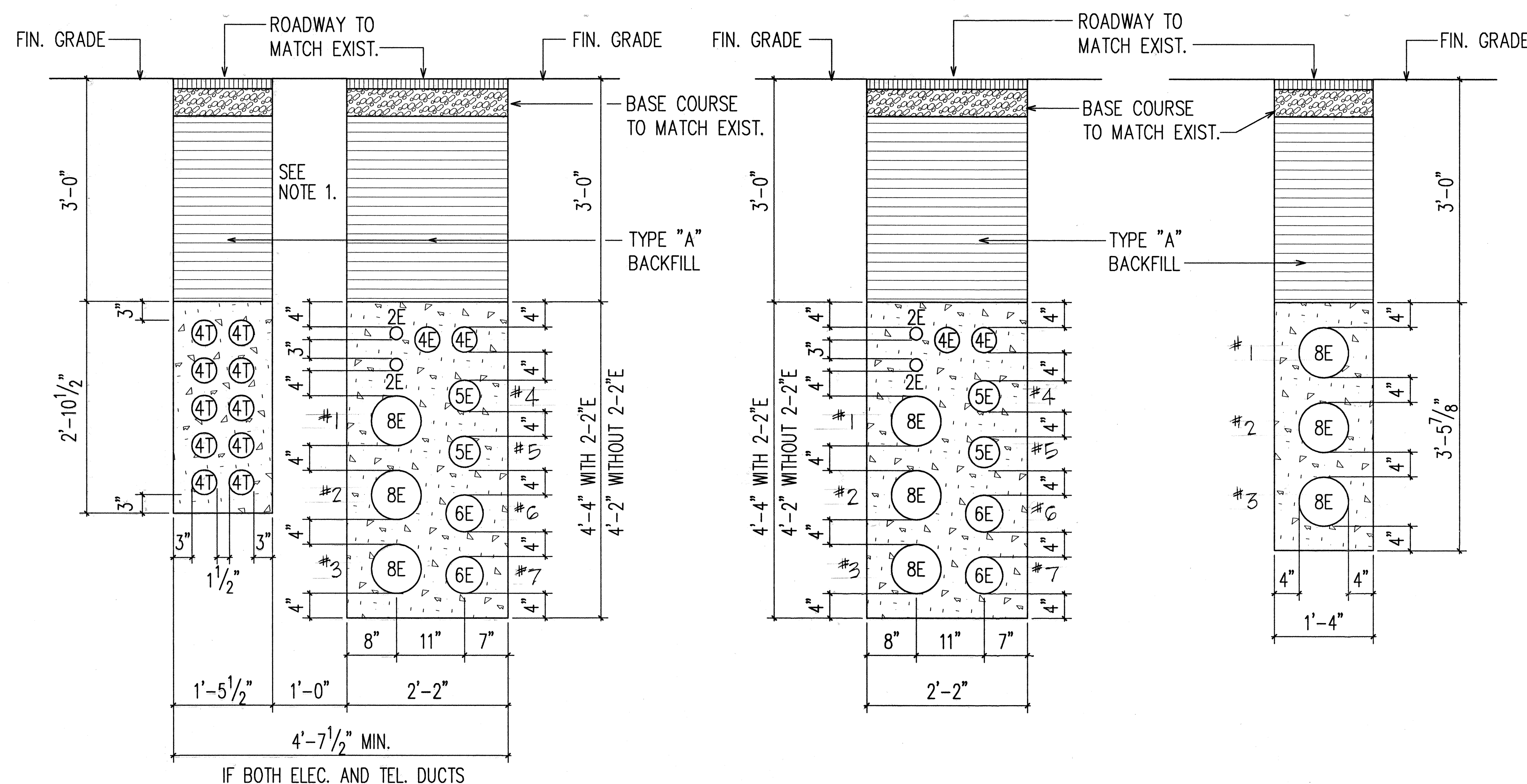
E. HIND DR. TO E. HALEMAUMAU ST.

F.A. PROJECT NO. F-072-1(34)B

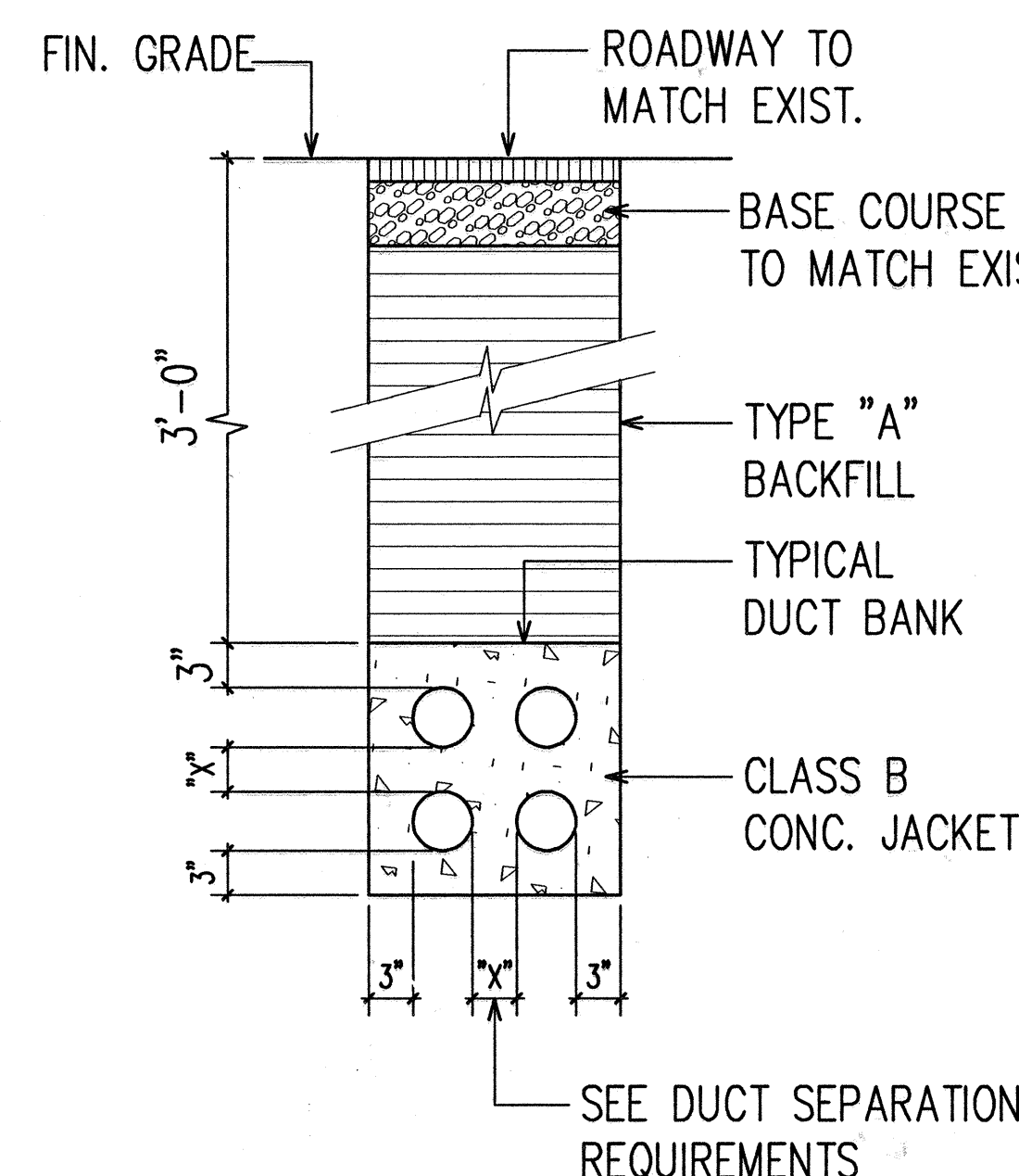
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DATE: 8/90

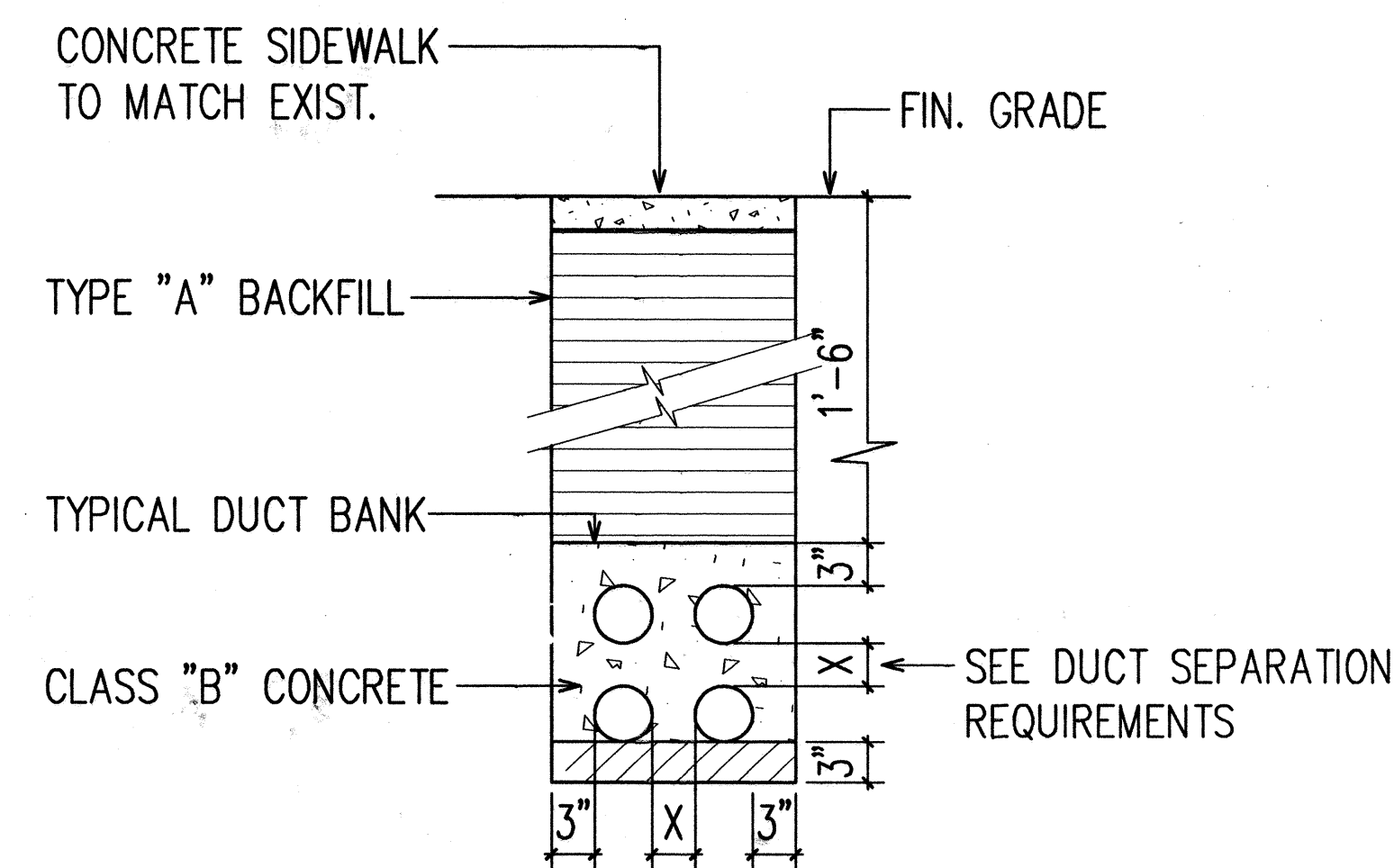
SHEET NO. E-24 OF 45 SHEETS



TYPICAL MAIN TRUNKING DUCT SECTION DETAILS
N.T.S.



TYPICAL DUCT SECTION DETAIL
WITHIN ROADWAY AREAS
N.T.S.

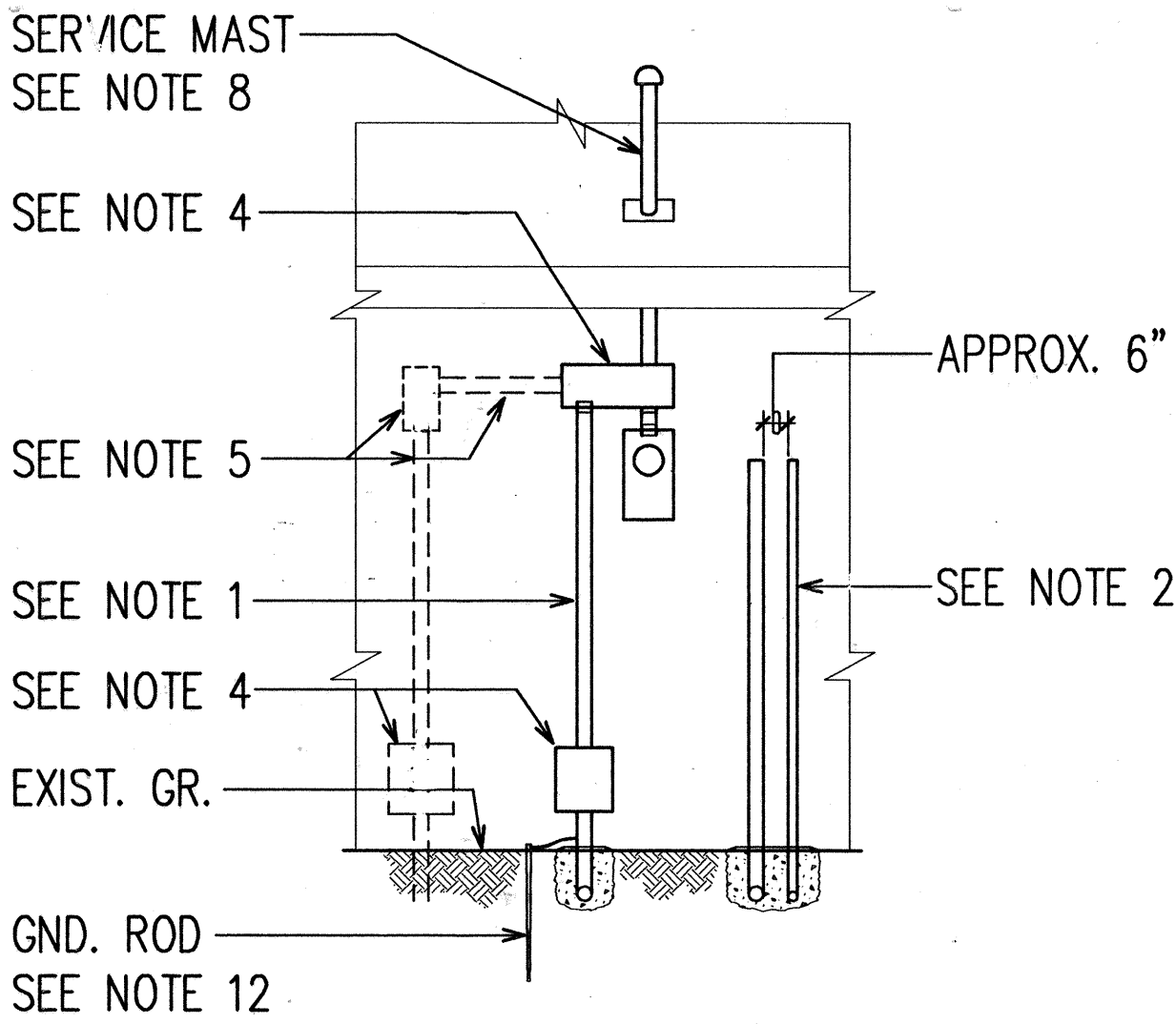


TYPICAL DUCT SECTION DETAIL WITHIN
SIDEWALK AREAS & PRIVATE PROPERTY
N.T.S.

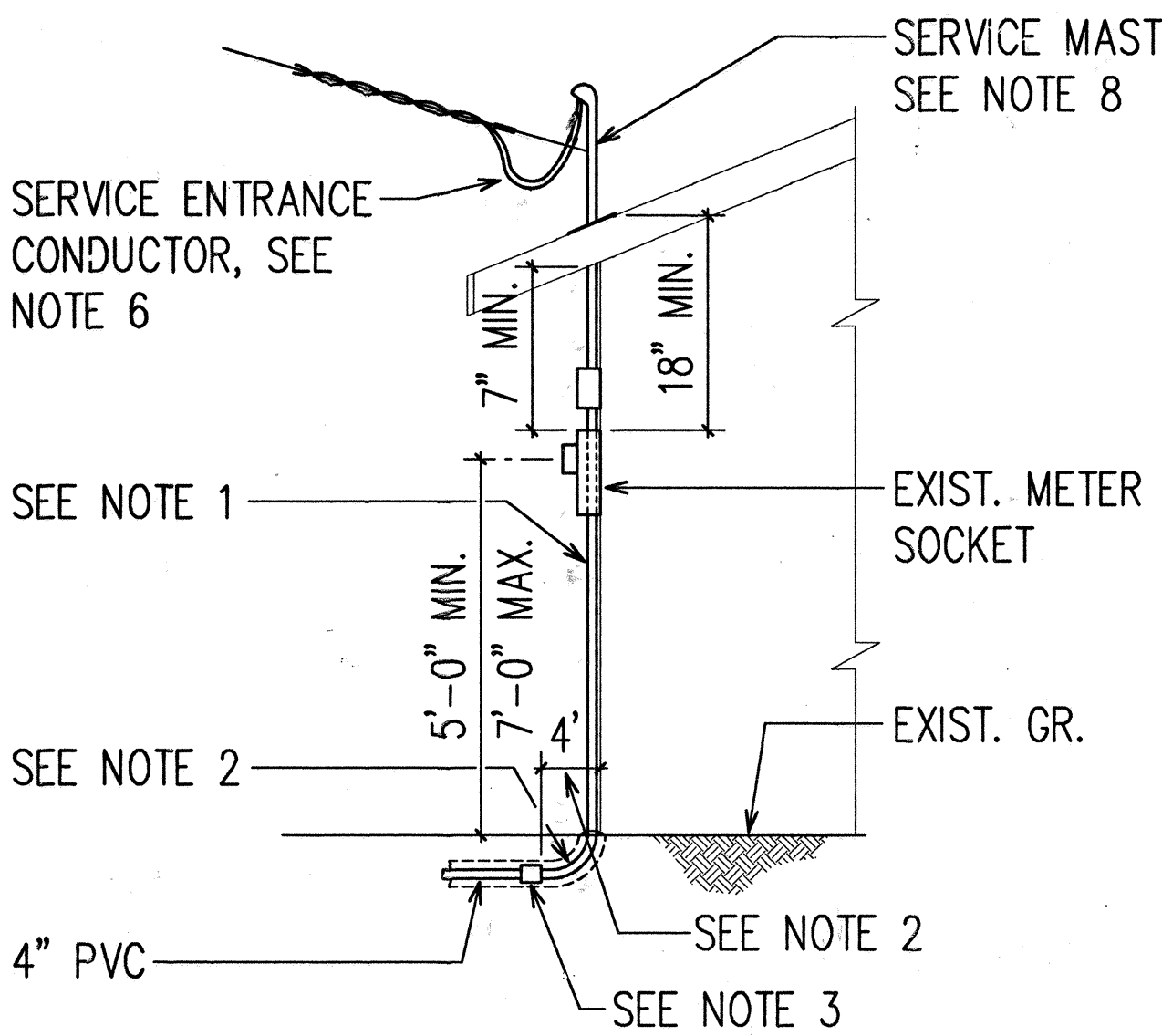
ORIGINAL PLAN
DATE
DRAWN BY
DESIGNED BY
QUANTITIES BY
CHECKED BY

NOTES:

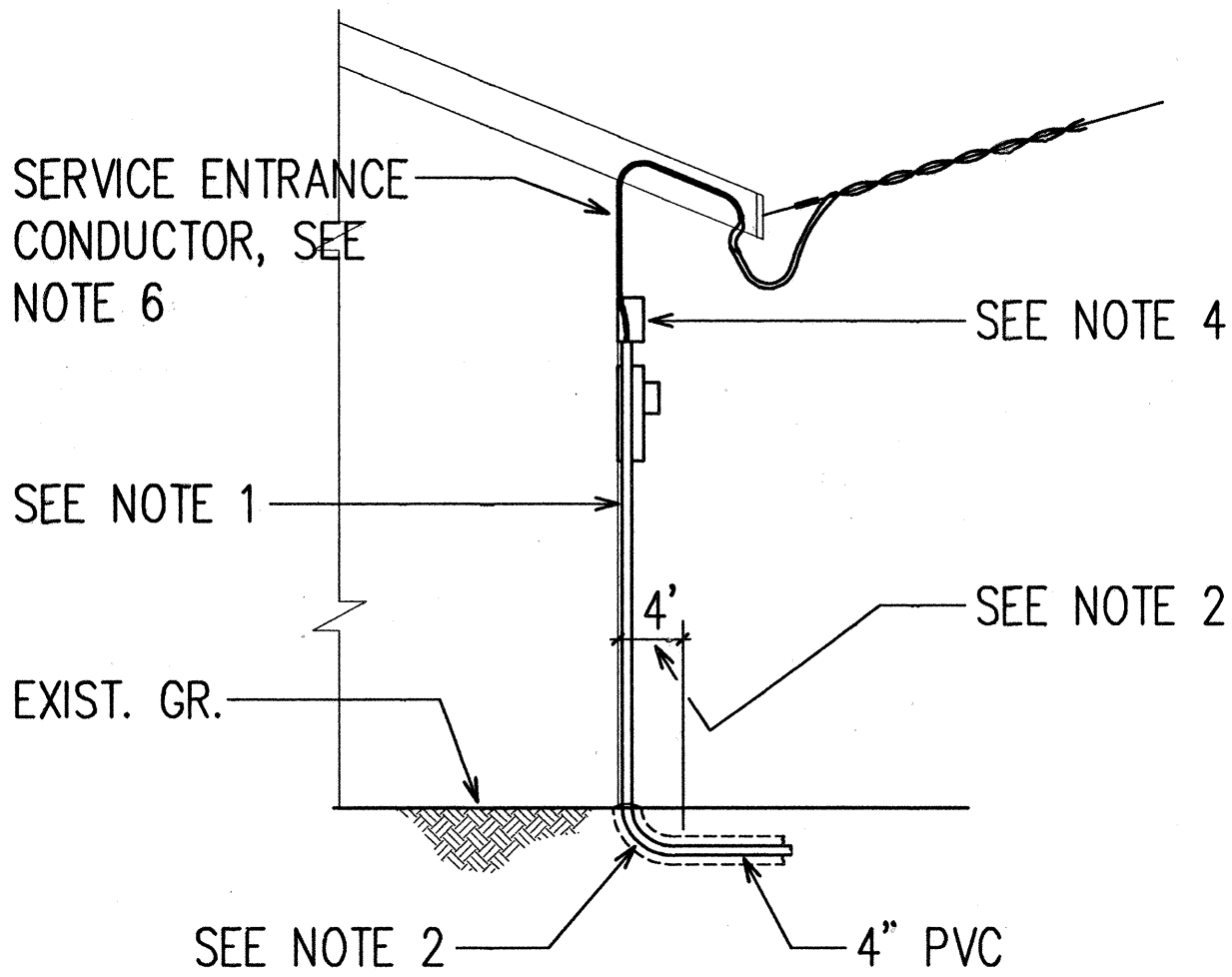
1. THE ELECTRICAL RISER CONDUIT SHALL BE SCHEDULE 40 PVC CONDUIT WITH 18" MIN. RADIUS 90 DEGREE BENDS.
2. THE TELEPHONE AND CABLEVISION RISER CONDUITS SHALL BE 2" AND 3/4" RIGID STEEL RESPECTIVELY, WITH 10" MIN. RADIUS 90 DEGREE BENDS EXTENDING 4'-0" FROM WALLS.
3. A SUITABLE CONNECTION COUPLING SHALL BE USED TO CONNECT THE RIGID STEEL RISER TO THE PVC RUN TO THE PROPERTY LINE.
4. A 10" x 12" x 6" DEEP SEALABLE PULL BOX SHALL BE INSTALLED BETWEEN THE NEW RISER CONDUIT AND THE EXISTING METER SOCKET APPROXIMATELY AS SHOWN. THE PULLBOX SIZE TO BE DETERMINED BY HECO.
5. IF GREATER OFFSET IS REQUIRED DUE TO OBSTRUCTIONS OR CONDITIONS, COORDINATE WITH HECO DISTRIBUTION ENGINEERING DEPARTMENT.
6. WHENEVER POSSIBLE, THE EXISTING SERVICE ENTRANCE CONDUCTOR SHALL BE REROUTED TO THE NEW PULLBOX.
7.
 - a. ALL ELECTRICAL WORK IS TO BE COORDINATED WITH THE HAWAIIAN ELECTRIC CO., INC. CONTACT _____ @ PH. # _____ WITH _____ WORKING DAYS NOTICE.
 - b. ALL TELEPHONE WORK IS TO BE COORDINATED WITH THE HAWAIIAN TELEPHONE CO., INC. CONTACT _____ @ PH. # _____ WITH _____ WORKING DAYS NOTICE.
 - c. ALL CABLEVISION WORK IS TO BE COORDINATED WITH OCEANIC CABLEVISION CO., INC. CONTACT _____ @ PH. # _____ WITH _____ WORKING DAYS NOTICE.
8. REMOVE SERVICE MAST UPON COMPLETION OF ELECTRICAL AND TELEPHONE CO. WORK. PATCH AND RESTORE ROOF WITH WATERTIGHT FLASHING OR AS APPROPRIATE.
9. PRIME NEW WORK ONE COAT AND PAINT TWO COATS TO MATCH EXISTING COLOR.
10. ALL EXISTING SERVICE DROPS TO BE REMOVED BY THE RESPECTIVE UTILITY CO. (E, T, OR C) UPON COMPLETION OF THE OVERHEAD TO UNDERGROUND CONVERSION.
11. ALL NEW RISERS SHALL BE INSTALLED AS CLOSE TO THE EXISTING SERVICE POINT AS POSSIBLE, OBSTRUCTIONS AND CONDITIONS PERMITTING.
12. BOND AND GROUND ALL NEW METALLIC HARDWARE AS REQUIRED BY THE N.E.C.
13. ALL ELECTRICAL WORK TO BE DONE BY THE CONTRACTOR IS TO BE DONE UNDER SUPERVISION OF A LICENSED ELECTRICIAN.
14. THE CONTRACTOR SHALL LIMIT ALL WORK EXCEPT FOR INGRESS AND EGRESS TO A STRIP 5'-0" ON EACH SIDE OF THE UNDERGROUND TRENCH. HE WILL REPAIR ALL DAMAGE CAUSED BY HIS WORK AND/OR OPERATIONS. HE WILL REMOVE ALL HIS CONSTRUCTION DEBRIS FROM THE WORK SITE.
15. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND COORDINATE WITH BOTH THE PROPERTY OWNER/ RESIDENTS WITH A 7 DAYS NOTICE POIR TO ENTRY.
16. REFER TO SHEETS E-4 THROUGH E-13 FOR DUCTLINE ENTRY AT PROPERTY LINE.



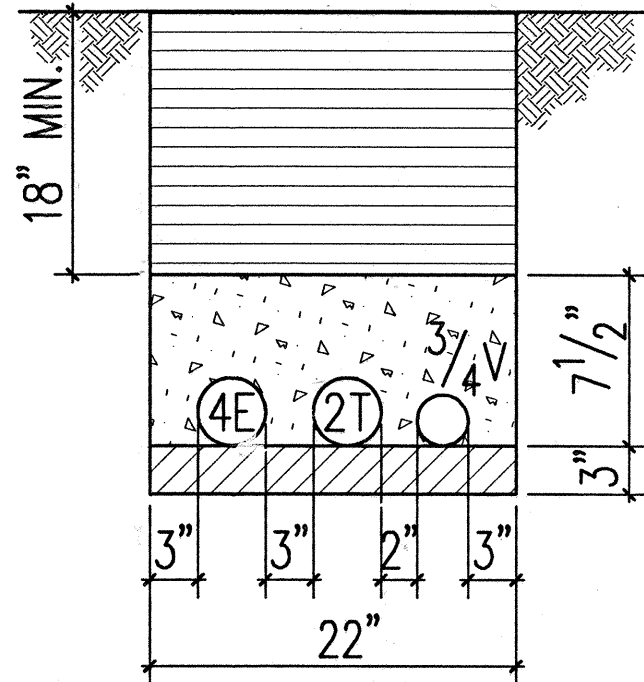
FRONT VIEW
N.T.S.



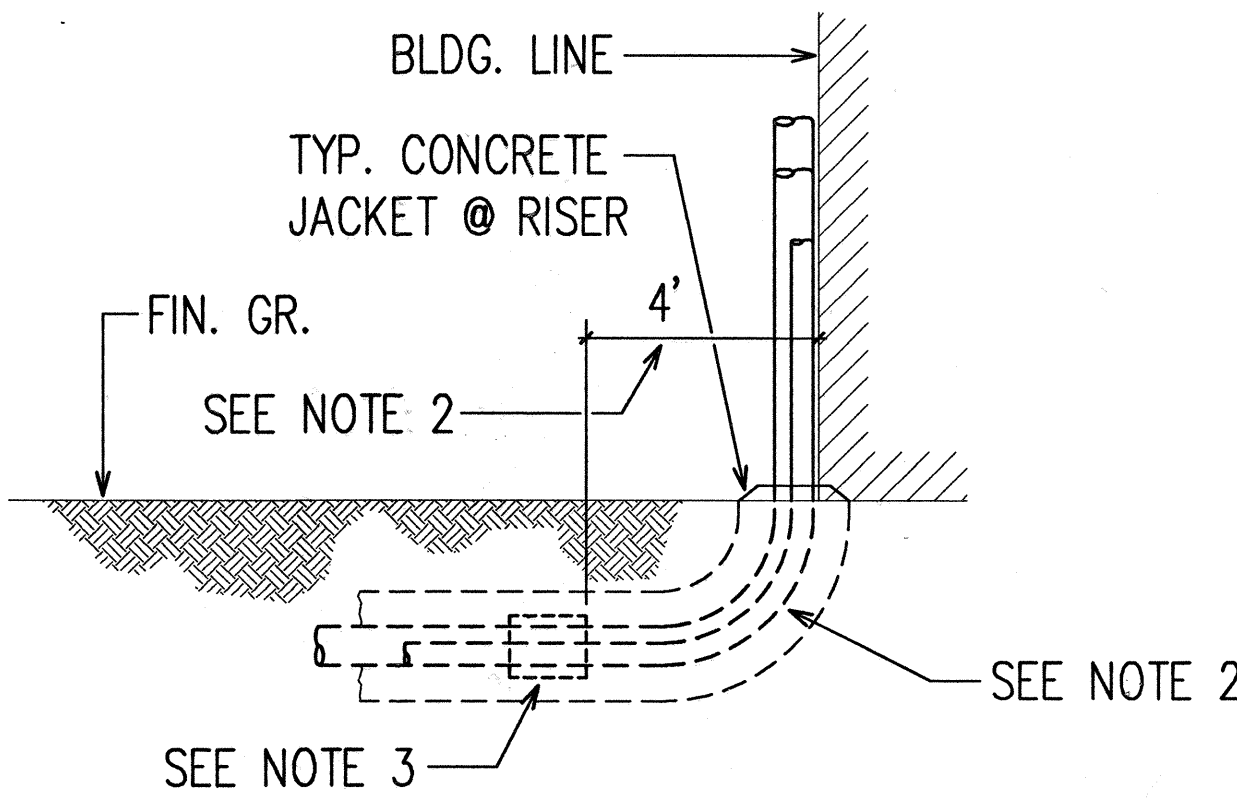
TYPE I SIDE VIEW
N.T.S.



TYPE II SIDE VIEW
N.T.S.



TYP. DUCT SECTION
N.T.S.

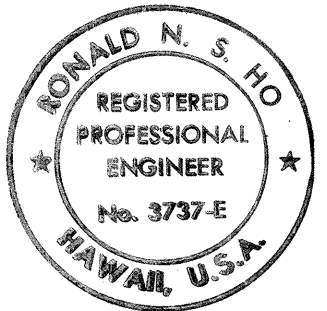


TYP. CONCRETE DETAIL
N.T.S.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-072-1(34)B	1991	143	123

DATE	REVISION
7/1/91	REVISED PER ADD. #1

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
OVERHEAD SERVICE CONVERSIONS
GENERAL NOTES AND TYPICAL DETAILS
KALANIANA'OLE HIGHWAY WIDENING
E. HIND DR. TO E. HALEMAUMAU ST.
F.A. PROJECT NO. F-072-1(34)B
SCALE: AS NOTED DATE: 8/90
SHEET No. E-25 OF 45 SHEETS



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.
8/1/90

APPROVED:	
HAWAIIAN ELECTRIC CO.,	DATE
HAWAIIAN TELEPHONE CO.,	DATE
CABLEVISION CO.,	DATE

DATE	____
DESIGNED BY	____
CHECKED BY	____
NOTED BY	____
QUANTITIES BY	____
NO.	____