FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H1E-01-98	1998	5	13

GENERAL NOTES

1. Work on this project shall include the installation of a complete traffic signal system including an interconnect to an adjacent signal system.
2. All work shall be done in accordance with the "Standard Specifications for Road and Bridge Construction", dated 1994, as amended, of the State Highways Division, Department of Transportation, and the project's Special Provisions, except as otherwise specified.
3. The Contractor shall verify with the respective utility companies and government agencies, the locations of all existing electric, telephone, traffic signal, street light, gas, water, sewer, drain and other lines crossing the excavation path or in excavation areas whether shown or not.
4. The locations of all new traffic signal system facilities shown on the drawings are approximate. Exact locations shall be staked out by the Contractor and approved by the Engineer prior to any excavation.
5. Structures, pavements, signs, markings, and other topographic features shown on the drawings are existing and are to remain, unless noted or indicated otherwise.
6. The Contractor shall provide, install and maintain all necessary signs, lights, flares, temporary guardrails, barricaded, markers, cones, and other protective facilities and shall take all necessary precautions for the protection and for the convenience and safety of the public. All such protective facilities and precautions to be taken shall conform to the "Rules and Regulations Governing the Use of Traffic Control Devices of Work Sites On or Adjacent to Public Streets and Highways" adopted by the Highway Coordinator and the U.S. Federal Administration's "Manual on Uniform Traffic Control Devices for Streets and Highways, Part M - Traffic Controls for Highway Construction and Maintenance Operations", dated 1988, and amendments.
7. Full compensation for all additional materials and labor, not specifically shown or called for which are necessary to completion of the project, shall be considered incidental to the various contract items in the Proposal and no additional compensation will be allowed therefor.
8. All cables except Type 4 sensor loop cables shall be installed in conduits in groups of one or more cables between pullboxes as specified on the project plans. Type 4 cables shall be installed in sawcuts and conduits in the groups shown on the details for sensor loops.
9. The Contractor shall remove all silt and debris resulting from his work and deposited in drainage facilities, roadways and other areas. The costs incurred by any necessary remedial action by the Engineer shall be payable by the Contractor.
10. The Contractor, at his own expense, shall keep the project area and surrounding areas free from dust nuisance. The work shall be in conformance with Air Pollution Control Standards and Regulations of the State Department of Health.
11. All saw cutting shall be considered incidental to other items of work in the Proposal.
12. No materials and/or equipment shall be stockpiled or otherwise stored within the right-of-way except at locations designated and approved in writing by Engineer.
13. The Contractor shall remove all equipment and other obstructions to passage of public traffic at the end of each work day.

TYPES OF TRAFFIC SIGNAL STANDARDS

I-10	New Type I Standard, 10 feet high
II-25	New Type II (Mast Arm Type) Standard with 25 foot Mast Arm

ELECTRICAL & MAINTENANCE SERVICES DIVISION NOTES:

1. The Contractor shall notify the Joint Pole Committee two (2) weeks in advance of any relocation of utility pole (s) that may be necessary.
2. The Contractor shall notify the Electrical & Maintenance Services Division, Department of Transportation Services, three (3) working days prior to commencing work on the Street Lighting System (Phone: 527-6002).
3. The Contractor shall notify the Electrical & Maintenance Services Division, Department of Transportation Services, three (3) working days prior to commencing work on the Traffic Signal System (Phone: 523-4589).
4. The Contractor shall notify the Electrical & Maintenance Services Division, Department of Transportation Services, three (3) working days prior to commencing work on the Fiber Optic System (Phone: 523-4689).
5. The street lighting, traffic signal, and fiber optic systems shall be kept operational during construction. Any relocation or changeover required shall be approved by the Electrical & Maintenance Services Division, Department of Transportation Services, and performed and paid for by the Contractor.
6. The Contractor shall be responsible for any damages to existing Street Lighting, Traffic Signal, and Fiber Optic facilities, including the Traffic Signal Interconnect System and any and all damages to these facilities shall be repaired by the Contractor at his cost in accordance with the requirements of the City and County of Honolulu.

TYPES OF CABLES

TYPE 1	SIGNAL LOOP CABLE: Stranded No. 14, 26 conductors
TYPE 2	DETECTOR LEAD-IN CABLE AND PEDESTRIAN PUSH BUTTON CIRCUIT CABLE: Stranded, No. 14, 2 conductors
TYPE 3	INTERCONNECT CABLE: Solid No. 19, 12 pairs, conforming to IMSA Spec. 19-2
TYPE 4	LOOP SENSOR CABLE: Stranded No. 14, single conductor, conforming to IMSA Spec. 51-5.
TYPE 5	CABLE FROM SIGNAL LOOP TO SIGNAL HEAD: Stranded, No. 14.
TYPE 6	SERVICE CABLE: No. 1, 3 conductors.
TYPE 7	OPTICAL DETECTOR CABLE: From optical detector to optical discriminator in controller cabinet; 3 conductor #20 AWG stranded copper in Berktek Type B shielded jacket and one #20 AWG bare stranded ground.

ABBREVIATIONS

A.C.	Asphalt concrete
e.p.	Edge of pavement
e.s.	Edge of paved shoulder
P.C.C.	Portland cement concrete
pp	Wooden utility pole
slp	Street light pole
tss	Traffic signal standard
tspb	Traffic signal pullbox

CONDUIT AND CABLE SCHEDULE

DESIGNATION	CONDUITS	CABLES
1	2 - 2"	1 - TYPE 2
		(1 - SPARE)
2	2 - 2"	2 - TYPE 2
		(1 - SPARE)
3	4 - 2"	1 - TYPE 1, GROUND WIRE
		1 - TYPE 7
		(2 - SPARES)
4	4 - 2"	1 - TYPE 1, GROUND WIRE
		2 - TYPE 2
		(2 - SPARES)
5	4 - 2"	1 - TYPE 1, GROUND WIRE
		3 - TYPE 2
		(2 - SPARES)
6	6 - 2"	1 - TYPE 1, GROUND WIRE
		1 - TYPE 7
		4 - TYPE 2
		1 - TYPE 6
		(2 - SPARES)
7	5 - 2"	1 - TYPE 1, GROUND WIRE
		1 - TYPE 7
		5 - TYPE 2
		1 - TYPE 6
		(1 - SPARE)
8	4 - 2"	1 - TYPE 1, GROUND WIRE
		2 - TYPE 7
		(2 - SPARES)
9	3 - 2"	1 - TYPE 2
		1 - TYPE 3, GROUND WIRE
		(1 - SPARE)
10	6 - 2"	1 - TYPE 1, GROUND WIRE
		1 - TYPE 1
		6 - TYPE 2
		3 - TYPE 7
		1 - TYPE 3
		(1 - SPARE)
11	2 - 2"	1 - TYPE 3, GROUND WIRE
		(1 - SPARE)
12	1 - 2"	1 - TYPE 6, GROUND WIRE
13	6 - 2"	1 - TYPE 1, GROUND WIRE
		1 - TYPE 7
		3 - TYPE 2
		1 - TYPE 6
		(2 - SPARES)

GENERAL NOTE ON CABLES:

Type 5 cables between signal face and TSPB and Type 7 cables between optical detector and TSPB are not noted or called out on the intersection plan, but shall be furnished and installed in sufficient numbers and lengths as required. Type 5 cables shall be incidental to installation of signal faces. Type 7 cable shall run continuously, without splices, from optical detector to controller cabinet.

LEGEND FOR TRAFFIC SIGNAL SYSTEM PLANS

- New 12" Signal face, R-Y-G
- New 12" Signal face, R-Y-G
- New 12" Signal face, R-Y-G
- New 12" Programmed Visibility Signal face, R-Y-G
- New Type B Traffic Signal Pullbox (TSPB)
- New Type D Traffic Signal Pullbox (TSPB)
- New Optical Detector
- New Type 170 Controller Assembly with 2 - 3' x 3' concrete pads. See sheet 12.
- New Meter Pedestal
- New Type I-10 Traffic Signal Standard (A) with new
  1 Vehicular Signal Face.
  2 Pedestrian Signal Face.
- New Type II Traffic Signal Standard (B) with 25' Mast Arm and new
  1 Programmed Visibility Signal Face.
  2 Optical Detector.
  3 Vehicular Signal Face.
  4 Pedestrian Signal Face.
- New Conduit(s) with Size and Number and Types of New Cables as indicated on Schedule.
- New Conduit(s) with Size and Number and Types of New Cables as indicated on Schedule, with Conc. Jacket.
- New 6' x 6' Sensor Loops
- Existing Street Light Pole
- Existing Street Light Conduit
- Existing Street Light Pullbox
- Existing 24" Drain
- Existing Drain Inlet
- Existing Telephone Line (Underground)

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

PAUL T. TANIGUCHI — LICENSED PROFESSIONAL ENGINEER NO. 964-C — HAWAII, U.S.A.

THIS WORK WAS DONE BY ME OR UNDER MY SUPERVISION

BY _____

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL NOTES AND LEGEND

TRAFFIC SIGNAL SYSTEM

INTERSTATE ROUTE H-1, WAIAU I.C.

Traffic Signals at Moanalua Road

PROJECT NO. H1E-01-98

Scale: None — Date: Nov., 1997

SHEET No. 1 OF 8 SHEETS