CONSTRUCTION PLANS FOR

KLAWOCK AIRPORT LIGHTING

KLAWOCK, ALASKA

AIRPORT LIGHTING

A.I.P. NO. 3-02-0154-05

70388

1992

SPONSORED BY THE STATE OF ALASKA

STATE OF ALASKA

DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

SOUTHEAST REGION DESIGN & CONSTRUCTION

RAJ BHARGAVA ASSOCIATES

ENGINEERING IN ALASKA

301 E. Fireweed Lane, Anchorage, Alaska 99503 (907) 276-3768

STATE OF ALASKA 49th Thomas D. Humphrey No. 4415-E REGISTERED PROFESSIONAL ENGINEER

APPROVED _____ DATE _____

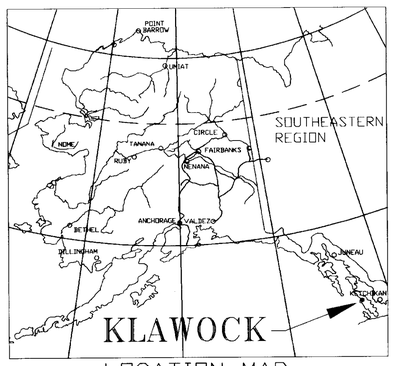
D.D. DIECKMEYER, DIRECTOR, SOUTH EAST REGION, DESIGN & CONSTRUCTION

ESTIMATED QUANTITIES

NO.	ITEM	UNIT	QUANTITY
100	MOBILIZATION AND DEMOBILIZATION	L.S.	ALL REQ'D
120	DBE ADJUSTMENT	C.S.	ALL REQ'D
125	ENGINEERING TRANSPORTATION	L.S.	ALL REQ'D
330	UNCLASSIFIED EXCAVATION	L.S.	ALL REQ'D
1000a	REGULATOR. L-828 (15KW)	EACH	1
1000d	THRESHOLD LIGHT, L861E	EACH	12
1000e	MEDIUM INTENSITY RUNWAY MARKER LIGHT, L-861	EACH	49
1000f	TAXIWAY MARKER LIGHT, L-861T	EACH	28
1000g	HANDHOLE, L-867	EACH	110
1000i	2" RIGID STEEL CONDUIT	L.F.	30
1000k	2" PVC CONDUIT	L.F.	12,695
1000l	UNDERGROUND CABLE #8 AWG, COPPER, 5KV TYPE "B", L-824	L.F.	25,000
1000m	#6 BARE COPPER GROUND CONDUCTOR	L.F.	13,200
1000p	UNDERGROUND CABLE, COPPER 600 VOLT, TYPE "B", L-824	L.F.	680
1000q	GROUND ROD	EACH	27
1000r	TAXIWAY LOCATION & HOLD LINE SIGNS L-858L & L-858R	EACH	2
1005a	ELECTRICAL EQUIPMENT ENCLOSURE	L.S.	ALL REQ'D
1005b	STANDBY GENERATOR	L.S.	ALL REQ'D
1005c	ELECTRICAL EQUIPMENT INSTALLATION	L.S.	ALL REQ'D
1005d	APRON LIGHTS	L.S.	ALL REQ'D
1007	PRECISION APPROACH PATH INDICATOR (PAPI) SYSTEM (SET OF 4) L-880B	SET	2
1008	RUNWAY END IDENTIFIER LIGHTS (REIL) L-849A	PAIR	2
1010	8-FOOT LIGHTED WIND CONE L-807 STYLE 1 SIZE 1	L.S.	ALL REQ'D
1020	AIRPORT LIGHT BEACON L-801	L.S.	ALL REQ'D
1025	ELECTRICAL POWER AND TELEPHONE SERVICE	L.S.	ALL REQ'D

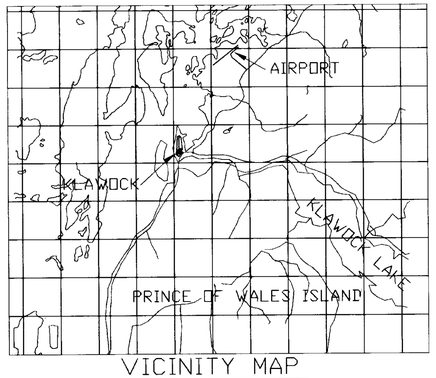
INDEX

SHEET TITLE	SHEET NO.
TITLE SHEET	1
OVERALL PROJECT PLAN	2
LIGHTING PLAN (NORTH)	3
LIGHTING PLAN (SOUTH)	4
ELECTRICAL DETAILS	5
ELECTRICAL DETAILS	6
ELECTRICAL DETAILS	7
CONTROL WIRING DIAGRAMS	8
ENCLOSURE DETAILS	9
LIGHTED WIND CONE	10
PAPI	11
REIL, THRESHOLD & BEACON DETAILS	12



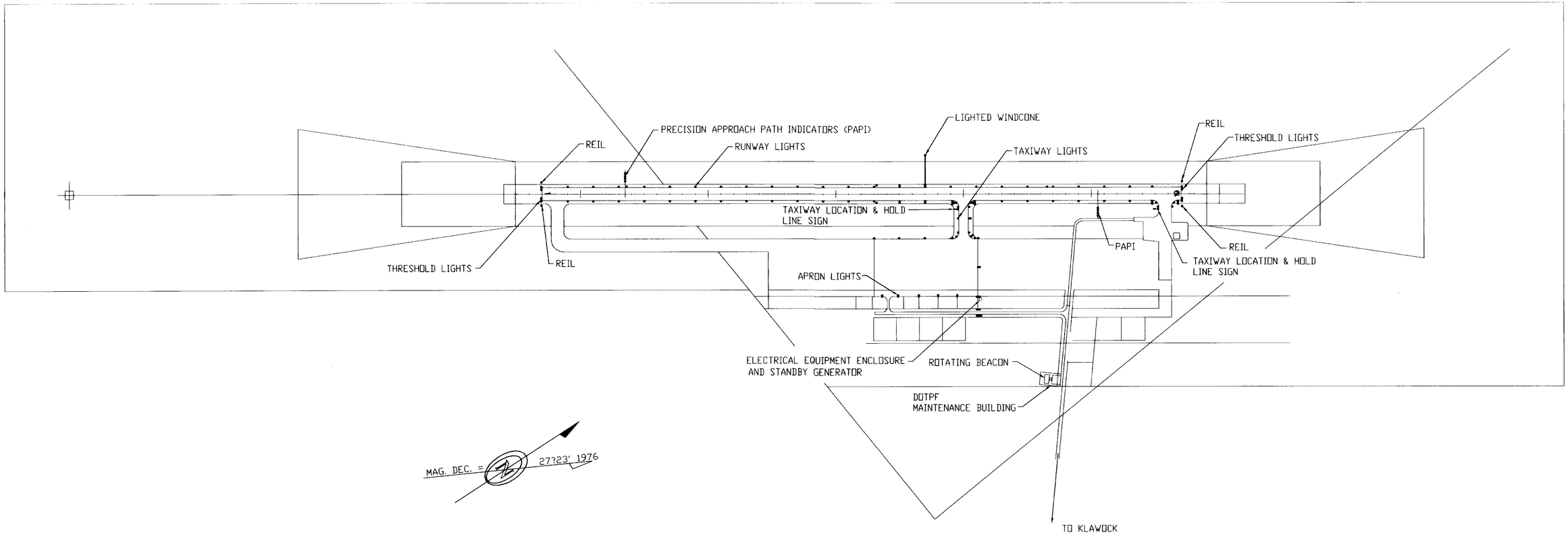
LOCATION MAP

NO SCALE



VICINITY MAP

NO SCALE



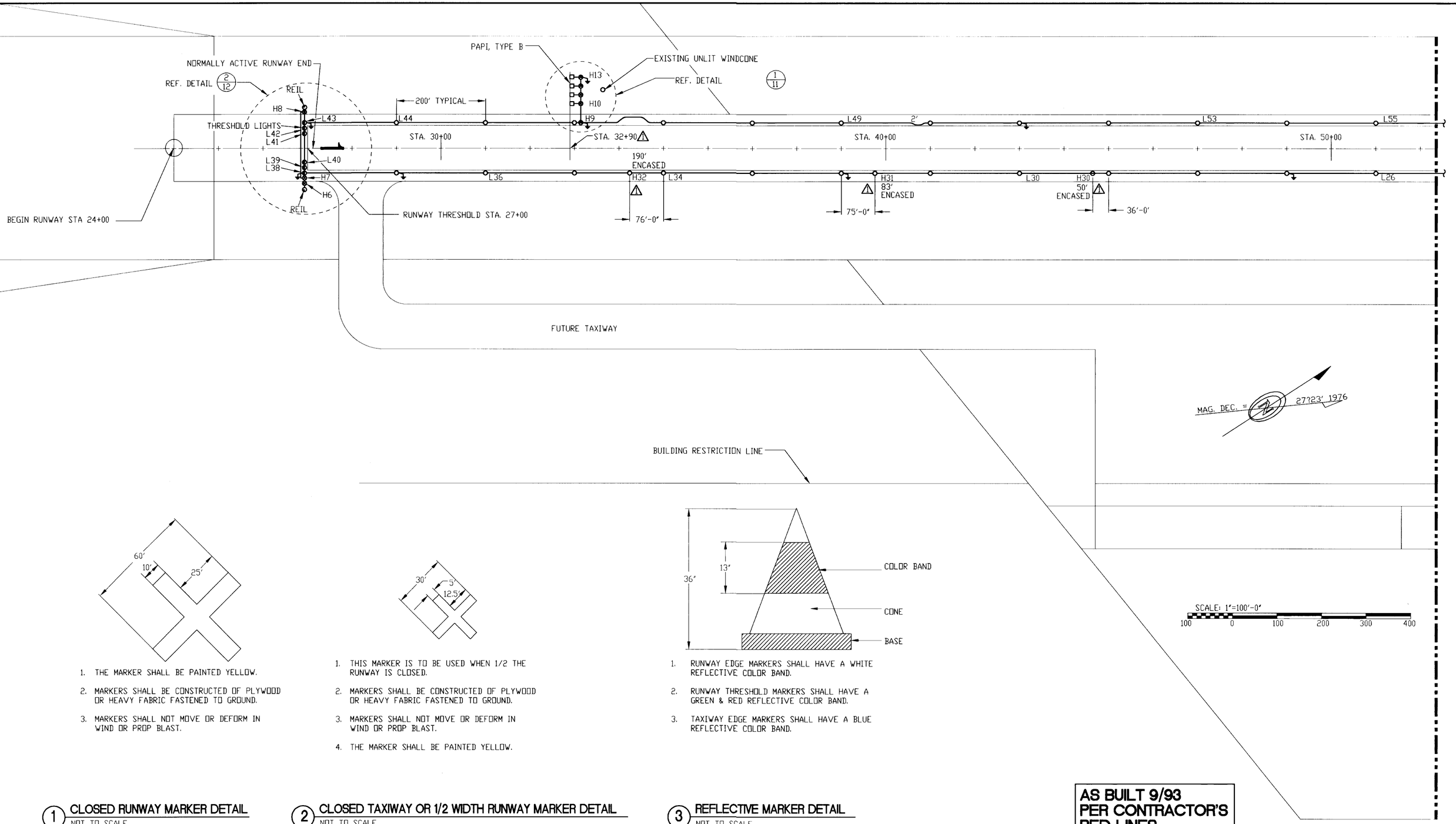
1 **OVERALL PROJECT PLAN**
SCALE: 1"=400'-0"

400 0 400 800 1200 1600

AS BUILT 9/93
PER CONTRACTOR'S
RED LINES

NOTE: DO NOT SCALE FROM THESE PLANS-USE DIMENSIONS

ENGINEER'S SEAL
STATE OF ALASKA



1. THE MARKER SHALL BE PAINTED YELLOW.
2. MARKERS SHALL BE CONSTRUCTED OF PLYWOOD OR HEAVY FABRIC FASTENED TO GROUND.
3. MARKERS SHALL NOT MOVE OR DEFORM IN WIND OR PROP BLAST.

1 CLOSED RUNWAY MARKER DETAIL
NOT TO SCALE

1. THIS MARKER IS TO BE USED WHEN 1/2 THE RUNWAY IS CLOSED.
2. MARKERS SHALL BE CONSTRUCTED OF PLYWOOD OR HEAVY FABRIC FASTENED TO GROUND.
3. MARKERS SHALL NOT MOVE OR DEFORM IN WIND OR PROP BLAST.
4. THE MARKER SHALL BE PAINTED YELLOW.

2 CLOSED TAXIWAY OR 1/2 WIDTH RUNWAY MARKER DETAIL
NOT TO SCALE

1. RUNWAY EDGE MARKERS SHALL HAVE A WHITE REFLECTIVE COLOR BAND.
2. RUNWAY THRESHOLD MARKERS SHALL HAVE A GREEN & RED REFLECTIVE COLOR BAND.
3. TAXIWAY EDGE MARKERS SHALL HAVE A BLUE REFLECTIVE COLOR BAND.

3 REFLECTIVE MARKER DETAIL
NOT TO SCALE

AS BUILT 9/93 PER CONTRACTOR'S RED LINES

NOTE: DO NOT SCALE FROM THESE PLANS-USE DIMENSIONS

ENGINEER'S SEAL

STATE OF ALASKA 49th Thomas D. Humphrey No. 4415-E REGISTERED PROFESS IONAL ENGINEER

BY:	DATE:	DESCRIPTION OF CHANGE:
S.B./RBA	9/93	⚠ AS BUILT PER CONTRACTOR'S RED LINES

RECORD OF REVISIONS

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
SOUTHEAST REGION DESIGN & CONSTRUCTION

RAJ BHARGAVA ASSOCIATES
ENGINEERING IN ALASKA
301 E. Fireweed Lane, Anchorage, Alaska 99503 (907) 276-3768

LIGHTING PLAN (SOUTH)
KLAWOCK AIRPORT LIGHTING
A.I.P. No. 3-02-0154-05

DESIGNED BY: T.D.H.	PROJECT NO. 70388
DRAWN BY: E.RAEL	DATE: 8/9/92
CHECKED BY: T.D.H.	SHEET 3 OF 12

NEW L-806 LIGHTED WINDCONE REF. DETAIL 1/10 5/5 6/5

H15

250'

(3)2" RIGID STEEL CONDUITS (EXISTING) LOCATED AT STA. 52+98, 30' ENCASED (USE TO CROSS UNDER RUNWAY WITH PAPI CIRCUIT) ⚠1

REMOVE EXISTNG UNLIT WINDCONE AND SEGMENTED CIRCLE

H28 ⚠

H14

L56

L59

STA.60+00

H27

L63

L-861 RUNWAY EDGE LIGHT (TYPICAL OF 49) REF. DETAIL 3/7

STA.70+00

L65

STA. 70+50

⚠H26 70' ENCASED

RUNWAY END IDENTIFIER LIGHTS (REIL) L849E (TYP. OF 4)

⚠H17

NORMALLY INACTIVE RUNWAY END

REF. DETAIL 1/5 TAXIWAY LIGHT PLAN

25'

REF. DETAIL 2/12 THRESHOLD AND REIL PLAN

FUTURE RUNWAY EXTENSION STA. 82+00

H16

L68

THRESHOLD LIGHTS L861E (TYP. OF 12)

19

L25

H5

L23

20'

L11

125'

97'

(2)2"RMC (EXISTING) USE UNDER PAVING

L89

EDGE OF PAVEMENT

OFFSET 5'

L13

⚠H29

L15

H4

L10

L8

L7

CULVERT

H20

L85

49'

L83

125'

L74

⚠H25 70' ENCASED

L81

L79

28'

L78

L71

HI8

H21

REF. DETAIL 1/11 L861T (TYP. OF 28)

⚠H19

H24

REIL

ENCASED⚠

END RUNWAY STA. 80+00

THRESHOLD RUNWAY 18 STA. 77+00

TAXIWAY LOCATION & HOLD LINE SIGNS L-858L & L-858R B 1-19

L16

⚠B-1-19

L5

PAPI (TYPE B) TAXIWAY LOCATION & HOLD LINE SIGNS L-858L & L-858R C 19

USE EXISTING CONDUIT UNDER PAVING

EXISTING UNLIT WINDCONE

EDGE OF PAVEMENT

INSTALLED L-18A & L-18B

OFFSET 5'

L1

L3

L19⚠

L22

⚠ 2' PER ENGINEER

GROUND ROD REF. DETAIL 2/7 (TYPICAL OF 19)

L90⚠

L91⚠

EXISTING HANGAR

L-867 HANDHOLE REF. DETAIL 4/7

H3

EXISTING ACCESS ROAD

L92

APRON

⚠ APRON LIGHTS LAYED OUT BY PROJECT ENGINEER

ELECTRICAL EQUIPMENT ENCLOSURE

⚠ RELOCATED

REF. DETAIL 2/5 (TYPICAL OF 5)

⚠ 2' PER ENGINEER

H1

H2

BUILDING RESTRICTION LINE

L93

RAIN SHELTER (EXISTING)

MH3

STANDBY GENERATOR

MH2

MH1

BLOCK 20

BLOCK 30

SECURITY GATE

BLOCK 40

PROPOSED AL&P OH POWER + PTI TELEPHONE LINE (NIC)

ACCESS ROAD

25KVA 120/240V 1Ø

REF. DETAIL 3/9

MAG. DEC. = 27?23' 1976

SCALE: 1"=100'-0"

100 0 100 200 300 400

AIRPORT BEACON REF. DETAIL 6/12

DOTPF MAINTENANCE FACILITY

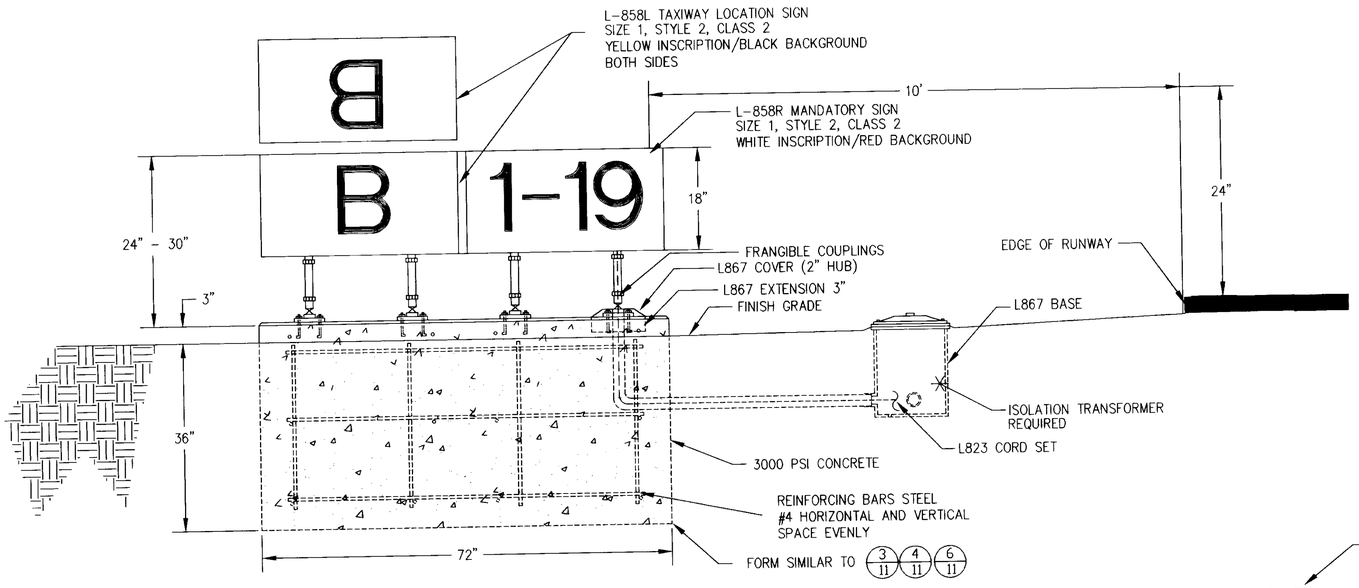
PROPOSED OH LINE

AS BUILT 9/93 PER CONTRACTOR'S RED LINES

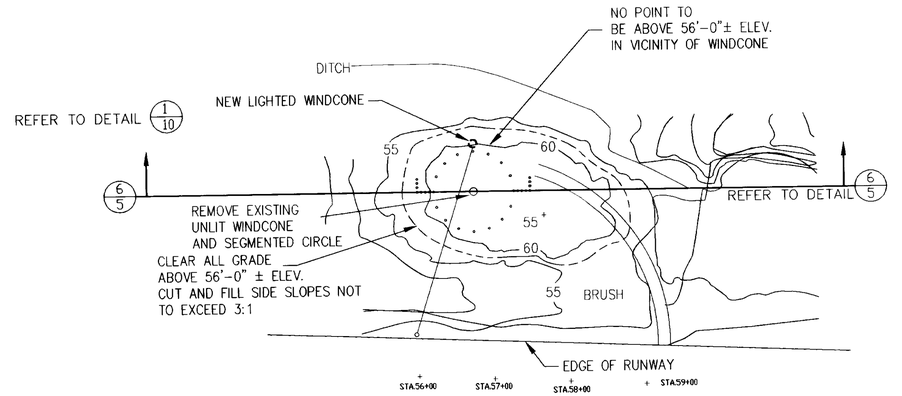
NOTE: DO NOT SCALE FROM THESE PLANS-USE DIMENSIONS

ENGINEER'S SEAL

STATE OF ALASKA

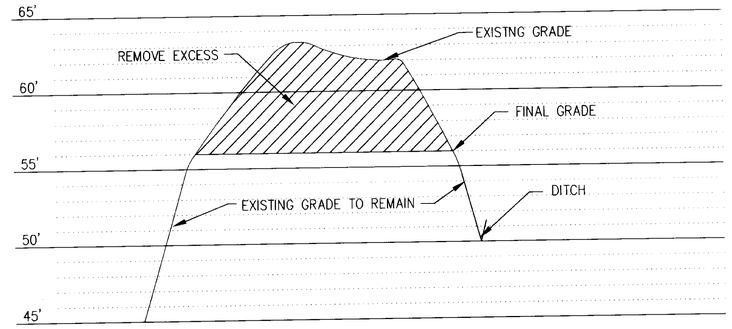


4 TAXIWAY LOCATION + HOLD LINE SIGN
NOT TO SCALE (C19 SIMILAR)

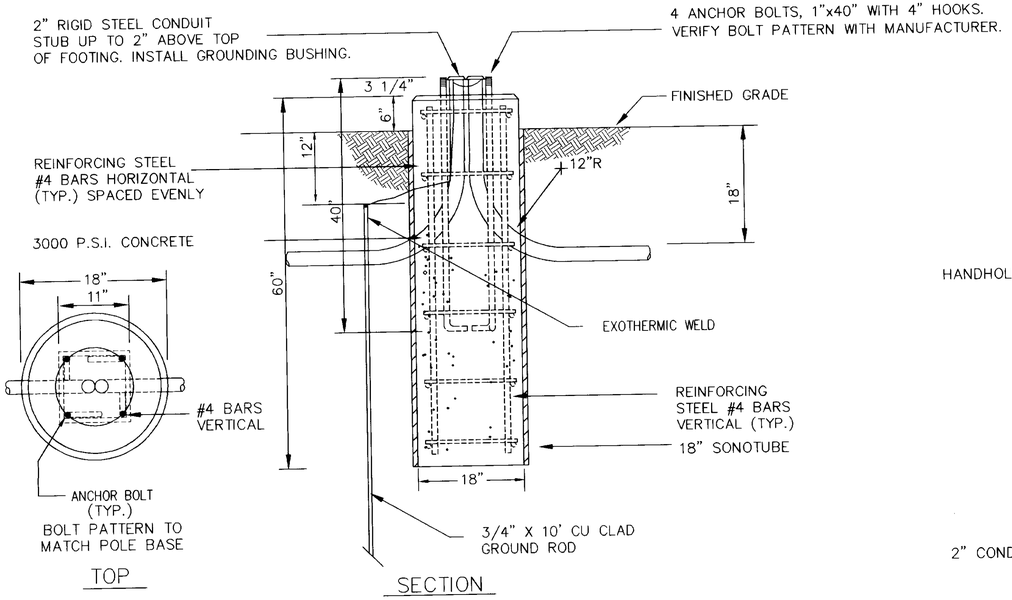


5 WINDCONE GRADING PLAN
SCALE: 1"=100' CONTOUR INTERVAL= 5'

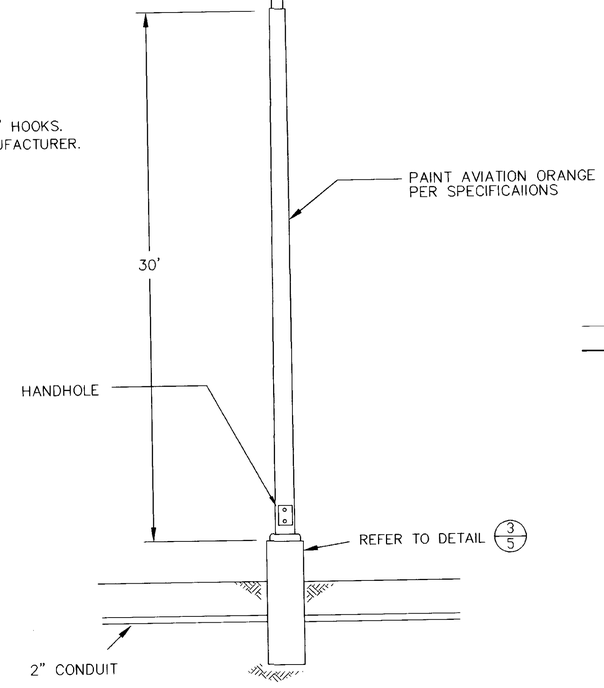
MAG. DEC. 27°23' 1976



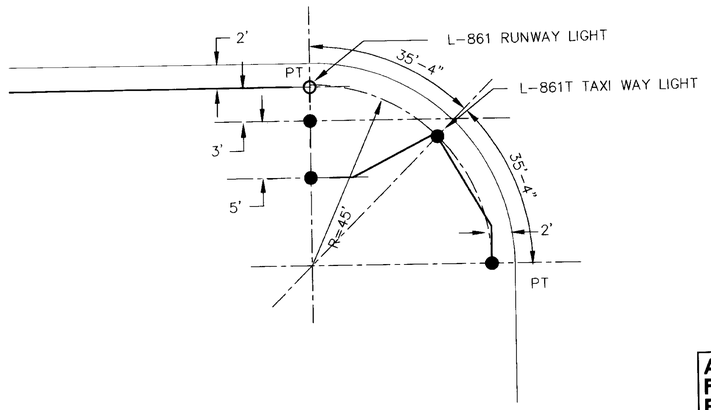
6 WINDCONE PROFILE
SCALE: 1"=100' HOR.
1"=5'-0" VERT.



3 LIGHT POLE FOUNDATION DETAIL
NOT TO SCALE



2 APRON LIGHTING
NOT TO SCALE



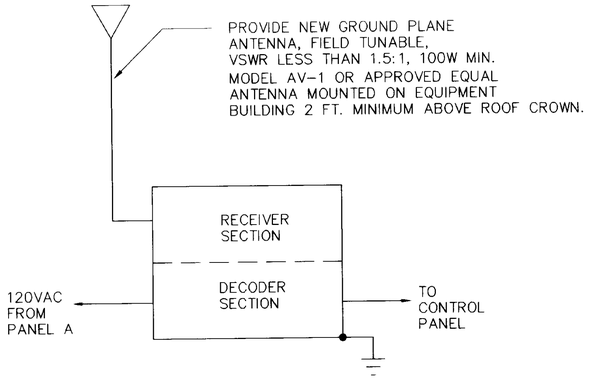
PT- POINT OF TANGENCY

AS BUILT 9/93
PER CONTRACTOR'S
RED LINES

1 ENTRANCE-EXIT LIGHTS LOCATION DETAIL
NOT TO SCALE

NOTE: DO NOT SCALE FROM THESE PLANS-USE DIMENSIONS

ENGINEER'S SEAL
STATE OF ALASKA
49th



NOTES: 1. VHF RADIO CONTROLLER TO BE FAA TYPE L-854
2. FAA ASSIGNED FREQUENCY-122.9 MHZ
3. CONTROLLER TO SENSE 3,5, OR 7 PULSES WITHIN 5 SEC., ACTIVATE APPROPRIATE RELAYS AND SHUT DOWN AFTER 15 MIN. TIME INTERVAL.

(1) RADIO CONTROLLER
NOT TO SCALE

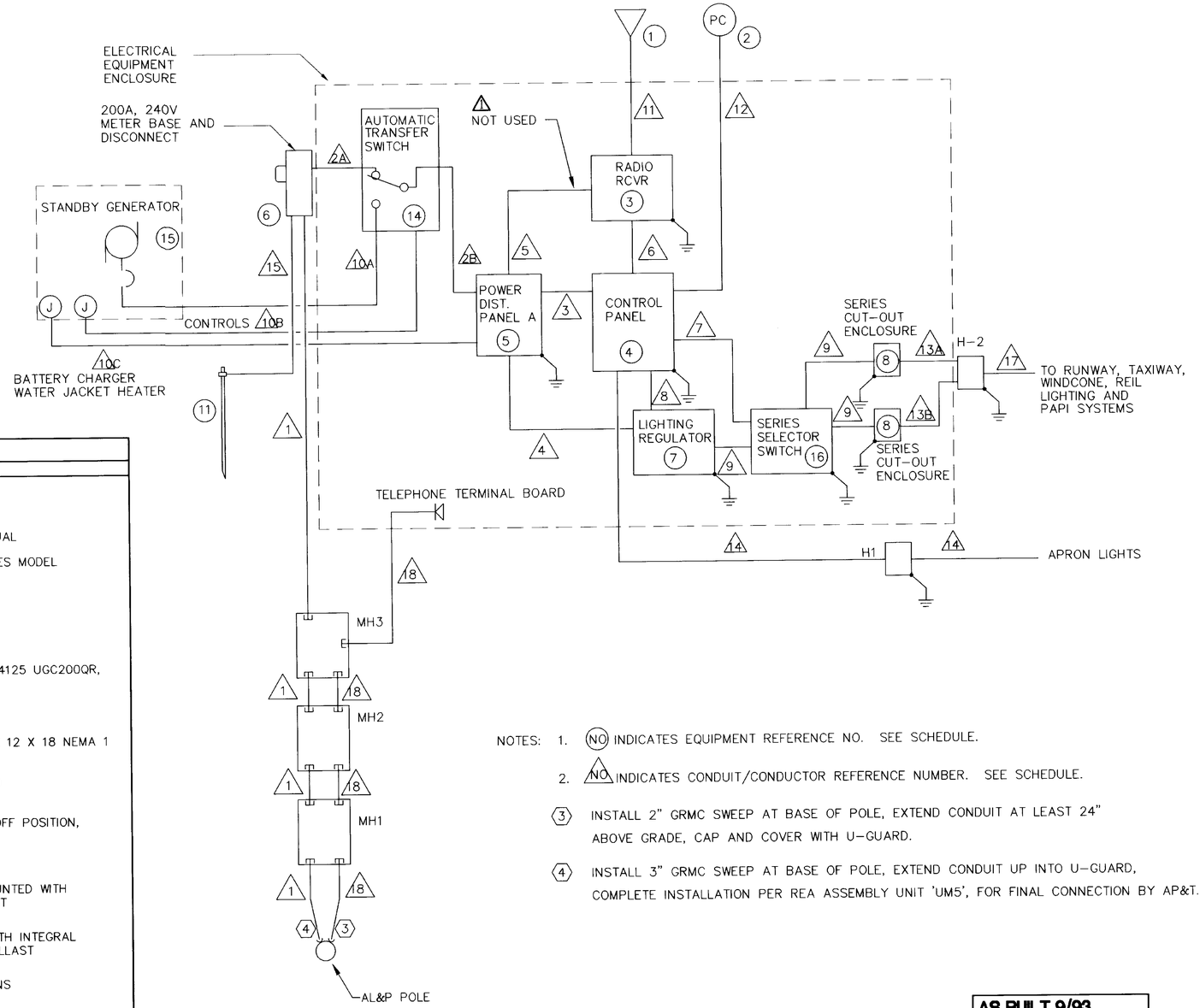
CONDUIT/CONDUCTOR SCHEDULE

REF. NO.	CONDUIT SIZE IN.	CONDUIT TYPE	NO. OF COND.	TYPE	FROM	TO
1	3	RSC	4	NO. 3/0 (2)	POLE	METER BASE
2A	3	RSC	4	NO. 3/0	METER BASE	XFER SWITCH
2B	2 ⚠1	RSC	4	NO. 3/0	XFER SWITCH	PANEL A
3	3/4	RSC	8	NO. 12	PANEL A	CONT. PNL
4	1 ⚠1	RSC	2	NO. 4	PANEL A	LTG. REG.
5	3/4	RSC	2	NO. 12	PANEL A	RADIO CONT.
6	3/4	RSC	5	NO. 12	CONT. PNL	RADIO CONT.
7	3/4	RSC	4	NO. 12	CONT. PNL	CIRC SEL SW
8	3/4	RSC	5	NO. 12	CONT. PNL	LTG. REG.
9	1-1/2	RSC	2	NO. 8	LGT. REG.	CO ENCL
			1	NO. 6G		
10A	3	RSC	4	NO. 2/0	GENERATOR	XFER SWITCH
10B	3/4	RSC	2	NO. 12	XFER SWITCH	GENERATOR
10C	3/4	RSC	4	NO. 12	PANEL A	GENERATOR
11	3/4	RSC	1	RG58/AU	RADIO CONT.	ANTENNA
12	3/4	RSC	3	NO. 12	CONT. PNL	PHOTOCELL
13A&B	2	RSC	2	NO. 8 5 KV	CO. ENCL	H6
			1	NO. 6G		
14	1-1/2	RSC	4	NO. 10	CONT. PNL	APRON LTG
15	3/4	RSC	1	NO. 2G	METER BASE	GND. ROD
17	2	PVC	4	NO. 8 5KV	H6	RUNWAY LTG
			1	NO. 6G		PAPI SYSTEMS
18	2	RSC	1	PULL WIRE	POLE	TEL. TERM. BD

NOTES: (1) ALL CONDUCTORS 600V COPPER XHHW UNLESS NOTED OTHERWISE
(2) ONE CONDUCTOR TAPE OFF SPARE FOR FUTURE THREE PHASE SERVICE
(3) IMC MAY BE USED INSTEAD OF RSC ABOVE GRADE INSIDE OF ENCLOSURE

EQUIPMENT LIST

REF. NO.	DESCRIPTION
(1)	RADIO CONTROL ANTENNA, ANTENNA SPECIALISTS MODEL VA1 OR EQUAL
(2)	PHOTOELECTRIC CONTROL, TORK NO. 2101 OR EQUAL
(3)	RADIO RECEIVER/CONTROLLER, CONTROL INDUSTRIES MODEL NOL RC-IT51A OR FAA APPROVED EQUAL
(4)	CONTROL PANEL, SEE SPECIFICATIONS,
(5)	CIRCUIT BREAKER PANEL, 225A 120/240V 3ø 4W SQ.D CL1630 NQOD OR EQUAL
(6)	COMBINATION METER BASE/DISCONNECT SQ.D CL 4125 UGC200QR, 120/240V 3ø 200A WITH 200A SELF CONTAINED KWHR METER (125A MAIN CIRCUIT BREAKER)
(7)	CONSTANT CURRENT REGULATOR, 15.0KW
(8)	5KV SERIES CUT-OUTS, SEPCO NO. 30196. 14 X 12 X 18 NEMA 1 ENCLOSURE
(9)	HEATER, ELECTRIC, 240V, 2000 W WALL MOUNTED MARKEL H3422 OR EQUAL
(10)	THERMOSTAT, LINE VOLTAGE, 40 TO 90?F, WITH OFF POSITION, WALL SURFACE MOUNTED
(11)	GROUND ROD 5/8" X 8' COPPER CLAD
(12)	HID LIGHT FIXTURE, 50W, 120V, HPS. CEILING MOUNTED WITH PRISMATIC POLYCARBONATE LENS, -40?F BALLAST HUBBELL NRG-401 OR EQUAL
(13)	HID EXTERIOR LIGHT FIXTURE, 70W, 120V, HPS WITH INTEGRAL PHOTOCELL CONTROL, WALL MOUNTED, -40?F BALLAST HUBBELL NRG-307 OR EQUAL
(14)	AUTOMATIC TRANSFER SWITCH, SEE SPECIFICATIONS
(15)	STANDBY GENERATOR, SEE SPECIFICATIONS
(16)	CIRCUIT SELECTOR SWTICH (L-847, 2 CIRCUIT)



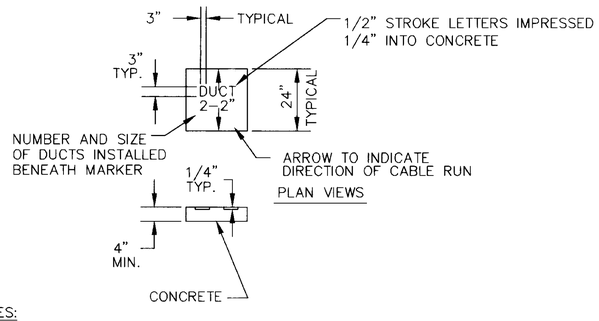
NOTES: 1. (NO) INDICATES EQUIPMENT REFERENCE NO. SEE SCHEDULE.
2. ⚠NO. INDICATES CONDUIT/CONDUCTOR REFERENCE NUMBER. SEE SCHEDULE.
(3) INSTALL 2" GRMC SWEEP AT BASE OF POLE, EXTEND CONDUIT AT LEAST 24" ABOVE GRADE, CAP AND COVER WITH U-GUARD.
(4) INSTALL 3" GRMC SWEEP AT BASE OF POLE, EXTEND CONDUIT UP INTO U-GUARD, COMPLETE INSTALLATION PER REA ASSEMBLY UNIT 'UM5', FOR FINAL CONNECTION BY AP&T.

AS BUILT 9/93 PER CONTRACTOR'S RED LINES

(2) RUNWAY LIGHTING SCHEMATIC DIAGRAM
NOT TO SCALE

NOTE: DO NOT SCALE FROM THESE PLANS-USE DIMENSIONS

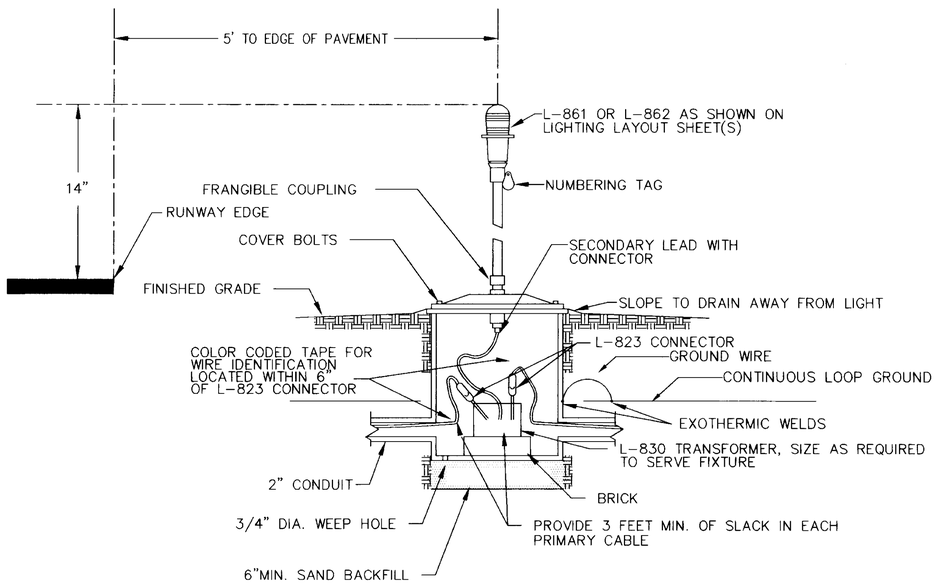
ENGINEER'S SEAL
STATE OF ALASKA



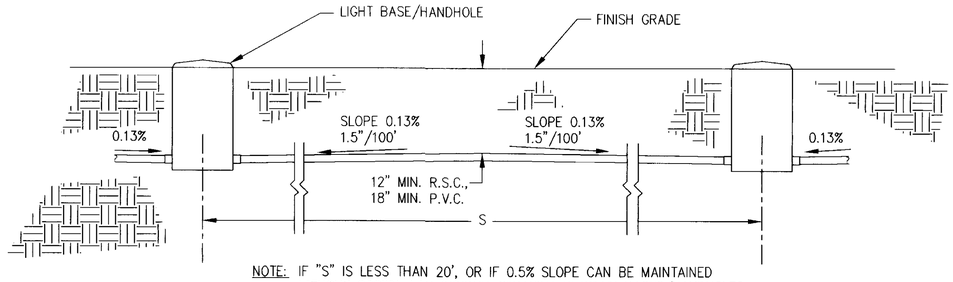
NOTES:

1. MARKERS SHALL BE PLACED ON EACH SIDE OF ALL PAVED OVER CROSSINGS, CORNER POINTS AND EVERY 1000' MIN.
2. COST OF CONCRETE MARKERS IS INCIDENTAL TO THE ASSOCIATED ITEMS OF DUCT OR CABLE.
3. EDGE EXPOSED CONCRETE WITH A 1/4" RADIUS TOOL.
4. WHERE ADDITIONAL SPACE TO FIT THE LEGEND IS REQUIRED, THE FOLLOWING METHODS SHALL BE EMPLOYED.
   A. REDUCE LETTER SIZE TO 3" HIGH, 2" WIDE.
   B. INCREASE THE MARKER SIZE TO 30" x 30" MAX.
   C. PROVIDE ADDITIONAL MARKERS PLACED SIDE BY SIDE

(1) CABLE AND DUCT MARKERS
NOT TO SCALE

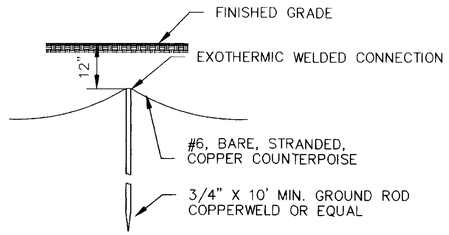


(3) MEDIUM / HIGH INTENSITY LIGHT - BASE MOUNTED
VIEW IS PARALLEL TO RWY. EDGE



NOTE: IF "S" IS LESS THAN 20', OR IF 0.5% SLOPE CAN BE MAINTAINED WITHOUT CROWN, LAY CONDUIT STRAIGHT BETWEEN BASES/HANDHOLES.

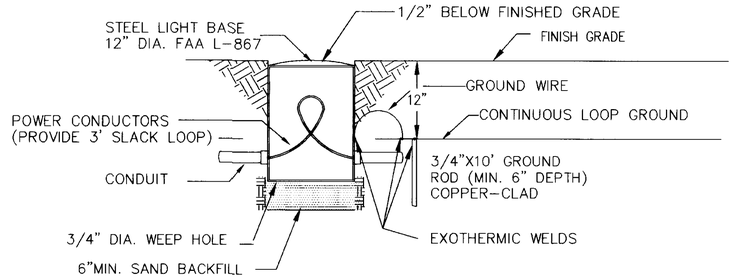
(7) CONDUIT INSTALLATION DETAIL
NOT TO SCALE



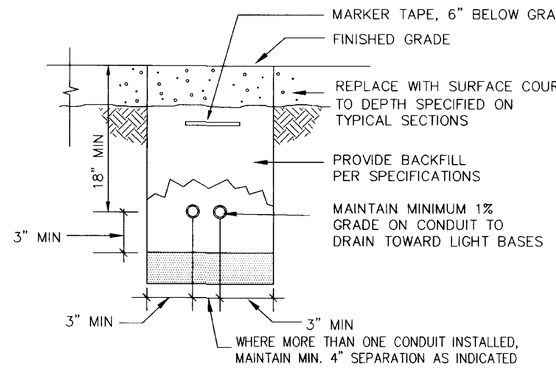
NOTES:

1. TYPE AND MINIMUM NUMBER OF GROUND RODS SHALL BE AS SPECIFIED ON THE PLAN.
2. THE RESISTANCE TO GROUND OF THE COUNTERPOISE GROUNDING SYSTEM SHALL NOT EXCEED 25 OHMS.
3. COST OF GROUND RODS IS INCIDENTAL TO THE ASSOCIATED ITEMS REQUIRING GROUNDING UNLESS OTHERWISE SPECIFIED.

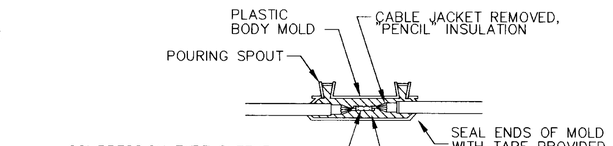
(2) GROUND ROD
NOT TO SCALE



(4) HAND HOLE DETAIL
NOT TO SCALE



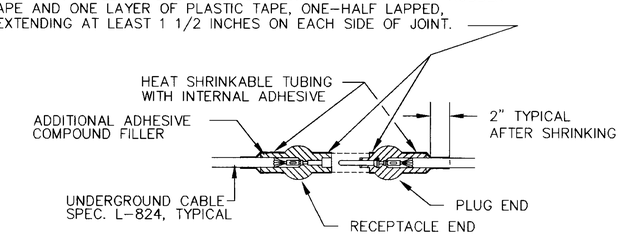
(5) TRENCH DETAIL
NOT TO SCALE



TYPE A

FOR SPLICES IN HOMERUNS AND FOR EXTENSIONS TO EXISTING CABLES ONLY

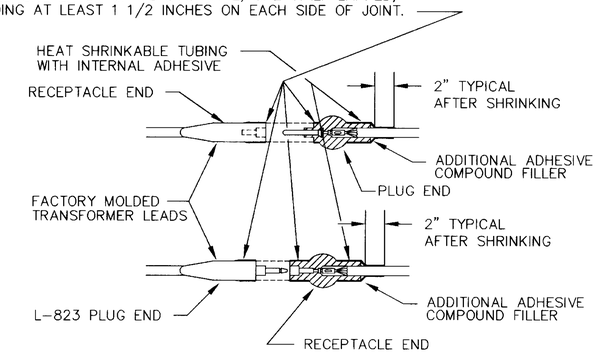
WRAP WITH AT LEAST ONE LAYER OF RUNNER OR SYNTHETIC RUBBER TAPE AND ONE LAYER OF PLASTIC TAPE, ONE-HALF LAPPED, EXTENDING AT LEAST 1 1/2 INCHES ON EACH SIDE OF JOINT.



TYPE B

FOR SPLICES FOR USE AT JUNCTION OF HOMERUN WITH LOOP CIRCUIT

WRAP WITH AT LEAST ONE LAYER OF RUNNER OR SYNTHETIC RUBBER TAPE AND ONE LAYER OF PLASTIC TAPE, ONE-HALF LAPPED, EXTENDING AT LEAST 1 1/2 INCHES ON EACH SIDE OF JOINT.



TYPE C

FOR SPLICES AT RUNWAY LIGHTS

NOTES:

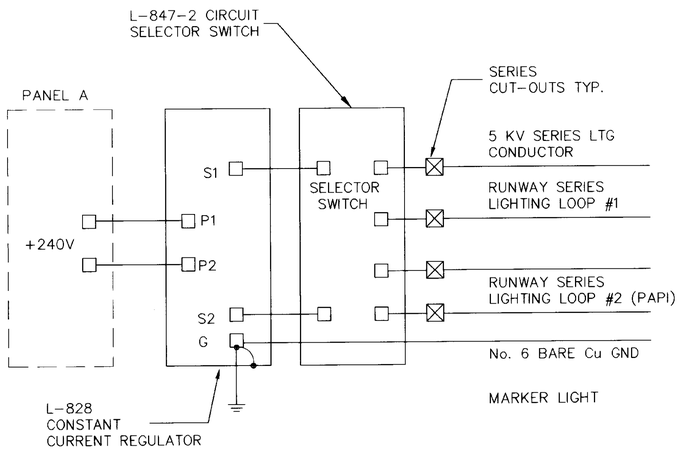
1. SEE LIGHTING LAYOUT SHEET(S) FOR SPLICE TYPE (TYPE C SPLICES IN HANDHOLES ONLY FOR THIS PROJECT.)
2. INSIDE DIAMETER OF CONNECTOR SHALL PROPERLY MATCH THE OUTSIDE DIAMETER OF CABLE

(6) CABLE SPLICES
NOT TO SCALE

AS BUILT 9/93
PER CONTRACTOR'S
RED LINES

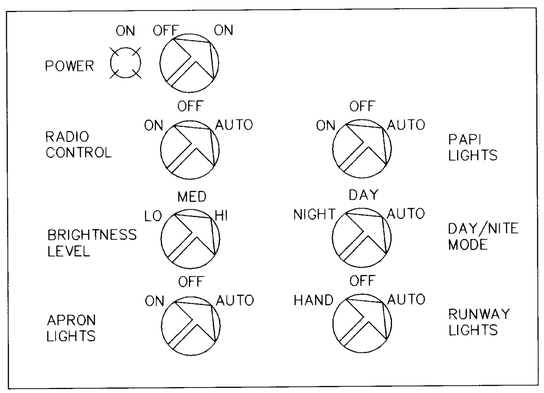
ENGINEER'S SEAL

NOTE: DO NOT SCALE FROM THESE PLANS-USE DIMENSIONS



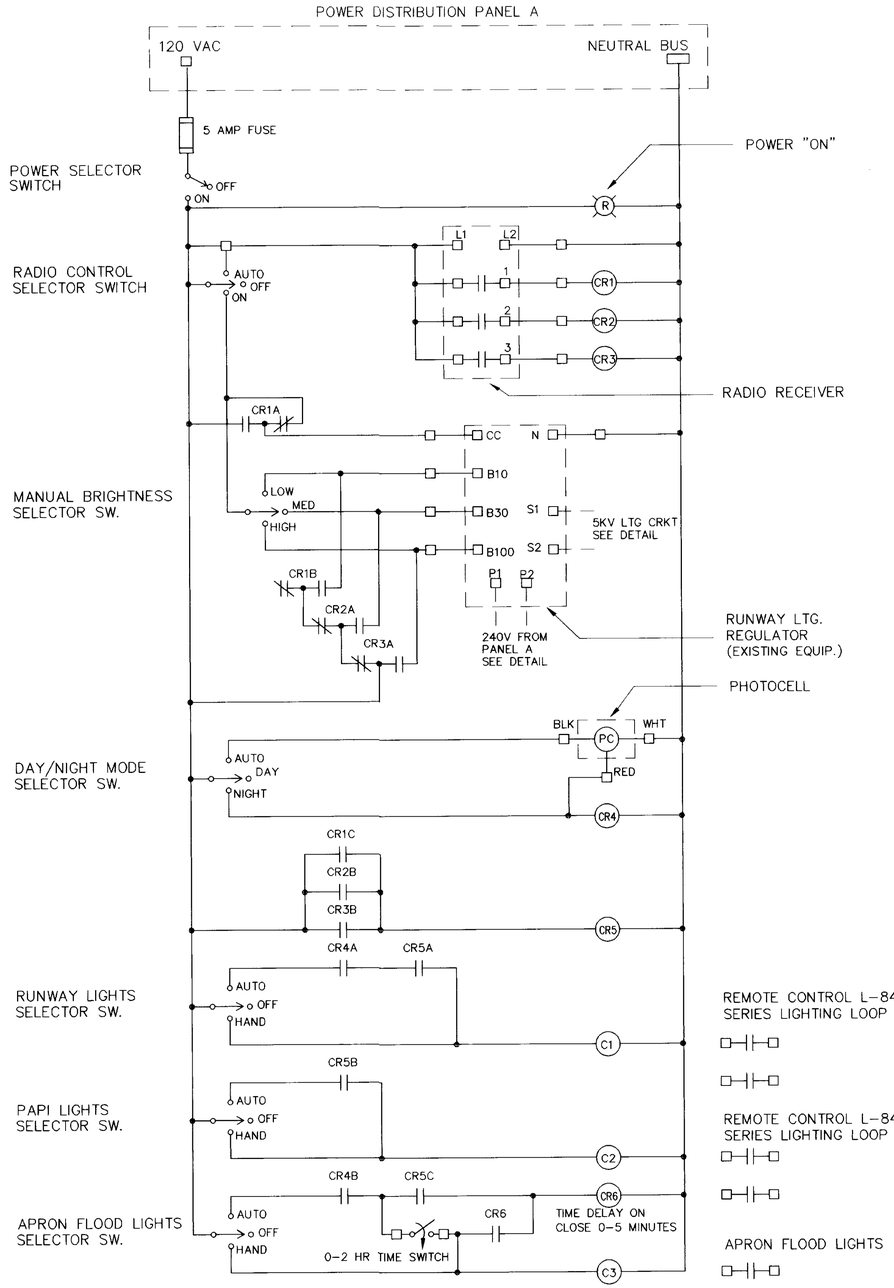
NOTE: 1. PROVIDE NEMA 1 ENCLOSURE FOR PLUG CUT-OUT.

1 **LIGHTING CIRCUIT DIAGRAM**
NOT TO SCALE



NOTES: 1. MOUNT CONTROL DEVICES ON CABINET FACE AS SHOWN.
2. PROVIDE NEMA 12 STEEL CABINET WITH HINGED DOOR AND NEOPRENE GASKET, WITH INNER HINGED PANEL.

2 **CONTROL PANEL DETAIL**
NOT TO SCALE



NOTES: 1. PROVIDE NEW LIGHTING CONTROLS AS SHOWN ABOVE.

3 **LIGHTING CONTROL DIAGRAM**
NOT TO SCALE

LIGHTING CONTROL OPERATION

CONTROL PANEL FEATURES:

POWER SELECTOR SWITCH AND PILOT LIGHT
THIS IS THE MAIN POWER SWITCH TO THE CONTROL PANEL. THE PILOT LIGHT INDICATES THE CONTROL PANEL IS ENERGIZED.

LIGHTING SELECTOR SWITCH
THIS THREE POSITION SWITCH ALLOWS SELECTION BETWEEN AUTO (RADIO CONTROL), OFF, OR ON (MANUAL) OF THE RUNWAY LIGHTING.

PAPI SELECTOR SWITCH
THIS THREE POSITION SWITCH ALLOWS SELECTION BETWEEN AUTO (RADIO CONTROL), OFF, OR ON (MANUAL) OF THE PAPI SYSTEMS.

MANUAL BRIGHTNESS SELECTOR SWITCH.
THIS THREE POSITION SELECTOR SWITCH ALLOWS MANUAL SELECTION OF INTENSITY WHEN THE LIGHTS ARE BEING OPERATED MANUALLY.

DAY/NIGHT/AUTO SELECTOR SWITCH
THIS THREE POSITION SELECTOR SWITCH ALLOWS SELECTION OF DAY (OFF), NIGHT (ON), OR AUTOMATIC (ENABLE PHOTOCELL CONTROL).

APRON LIGHTS SELECTOR SWITCH
THIS THREE POSITION SELECTOR SWITCH ALLOWS HAND-OFF-AUTO CONTROL OF THE APRON LIGHTS.
A 0-15 MINUTE TIME DELAY RELAY IS TO BE INSTALLED TO ALLOW DELAYED ACTIVATION OF THE APRON LIGHTS.

EXTERNAL DEVICES:

PHOTOCELL
THE PHOTOCELL CONTROLS THE AUTOMATIC DAY/NIGHT MODE SELECTION. DURING DAY MODE ONLY THE PAPI CAN BE TURNED ON BY RADIO CONTROL.

RADIO CONTROL UNIT
THE RADIO CONTROL UNIT HAS THREE OUTPUTS BASED ON 3, 5, OR 7 PULSES FROM THE PILOT. DURING DAY MODE ANY OF THE THREE OUTPUTS WILL TURN THE PAPI SYSTEM ON. DURING NIGHT MODE THE THREE OUTPUTS TURN ON ALL LIGHTING CIRCUITS IE RUNWAY, TAXIWAY, THRESHOLD, REIL, WINDCONE, PAPI AND APRON LIGHTS. IN EITHER MODE LIGHTS ARE AUTOMATICALLY TIMED OFF AFTER 15 MINUTES UNLESS RETRIGGERED BY THE PILOT.

RUNWAY LIGHTING REGULATOR
THE RUNWAY LIGHTING REGULATOR PROVIDES POWER TO THE RUNWAY, TAXIWAY, THRESHOLD, REIL, WINDCONE, AND PAPI SYSTEMS. IT HAS THREE INTENSITY LEVELS SET BY EITHER 3, 5, OR 7 PULSES.

CIRCUIT SELECTOR SWITCH
A SEPARATE CIRCUIT HAS BEEN PROVIDED FOR THE PAPI SYSTEM TO ALLOW THE PAPI TO OPERATE DURING DAYLIGHT HOURS (L-847-2).

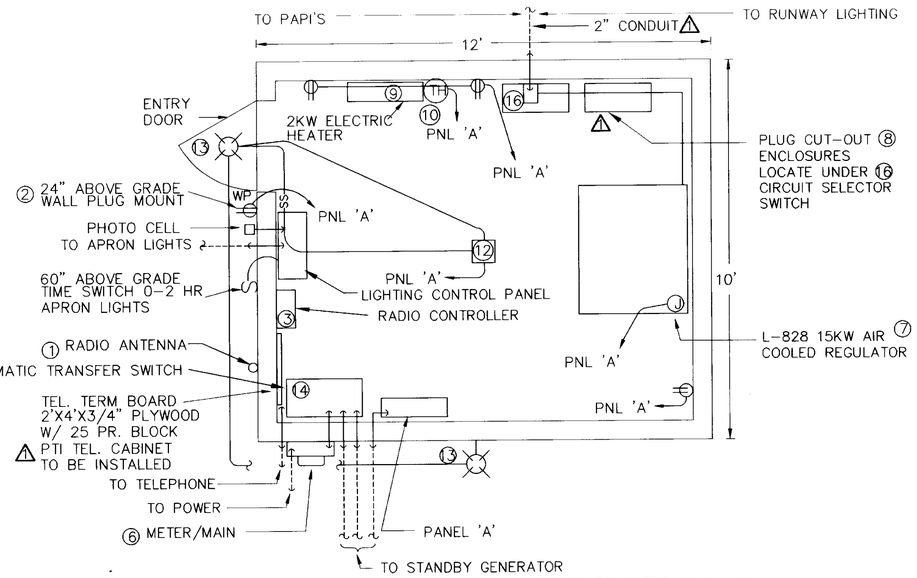
APRON LIGHTING TIME SWITCH.
A SEPARATE 2 HOUR TIME SWITCH IS MOUNTED OUTSIDE THE BUILDING TO ALLOW THE APRON LIGHTS TO BE TURNED ON MANUALLY FROM THE GROUND. THIS TIME SWITCH OVERRIDES AUTOMATIC OPERATION.

RELAYS AND/OR CONTACTORS C1, C2, C3 TO BE SIZED APPROPRIATE TO LOAD REQUIREMENTS.

AS BUILT 9/93
PER CONTRACTOR'S
RED LINES

ENGINEER'S SEAL

NOTE: DO NOT SCALE FROM THESE PLANS-USE DIMENSIONS

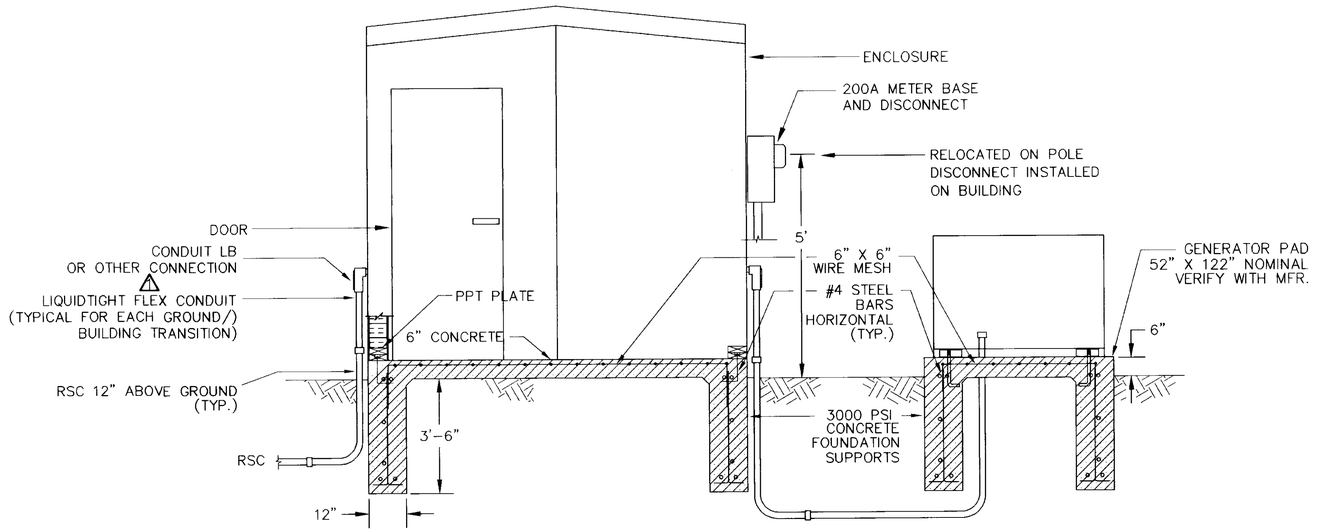


NOTES: 1. LIGHT FIXTURE BALLASTS TO BE RATED FOR -40° F.

2. (NO) INDICATES EQUIPMENT REFERENCE NO. SEE SCHEDULE (SHEET 6 OF 12).

① ELECTRICAL EQUIPMENT ENCLOSURE PLAN
SCALE 1/2"=1'

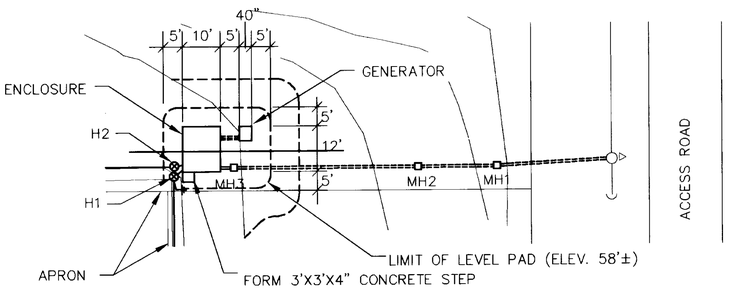
MAG. DEC. = 27°23' 1976



NOTES: 1. ALL WALLS, CEILING PANELS TO BE INSULATED.

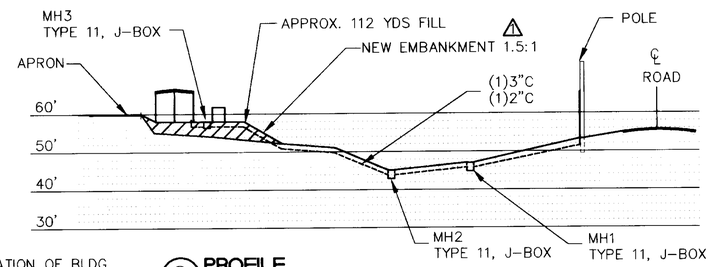
2. STRUCTURAL DETAILS SHOWN HERE ARE FOR ILLUSTRATION ONLY. CONTRACTOR IS REQUIRED TO FURNISH STRUCTURAL BUILDING AND FOUNDATION DESIGN FOR APPROVAL. SEE SPECIFICATIONS.

② ELECTRICAL EQUIPMENT ENCLOSURE DETAILS
NOT TO SCALE



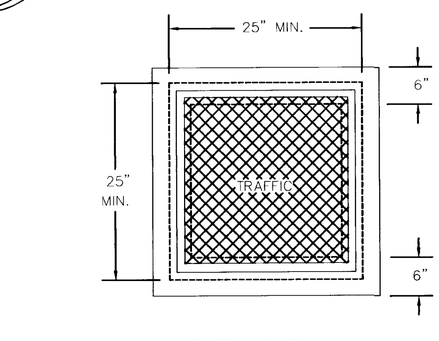
⚠ NOTE: LOCATION CHANGED PER ENGINEER (DOT) BLDG. MOVED 2' SOUTH. TO ALLOW FOR INCREASE IN ELEVATION

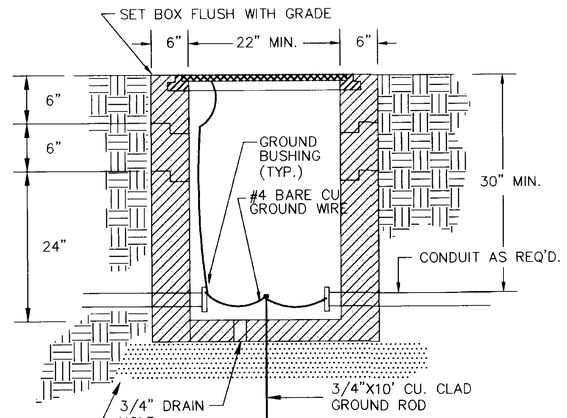
⑤ PLAN
SCALE 1"=20'



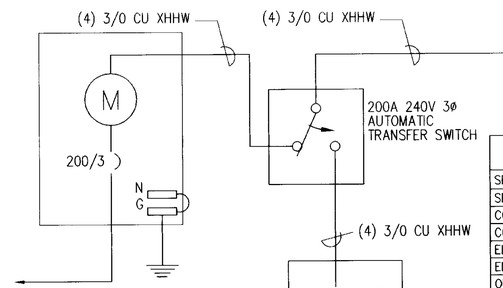
⚠ NOTE: ELEVATION OF BLDG. CHANGED BY ENGINEER (DOT) STEM WALL HEIGHT INCREASED TO 4'

⑥ PROFILE
SCALE: HORI. 1"=20' VERT. 1"=20'





③ MANHOLE DETAIL
NOT TO SCALE



(4) NO.4/0 CU XHHW (1 SPARE) 3" RSC LEAVE LOOP AT TOP OF POLE RISER FOR FINAL CONNECTION BY UTILITY ⚠

⚠ PANEL A — ⚠ 225A 3ø 120/208V 3ø 4W

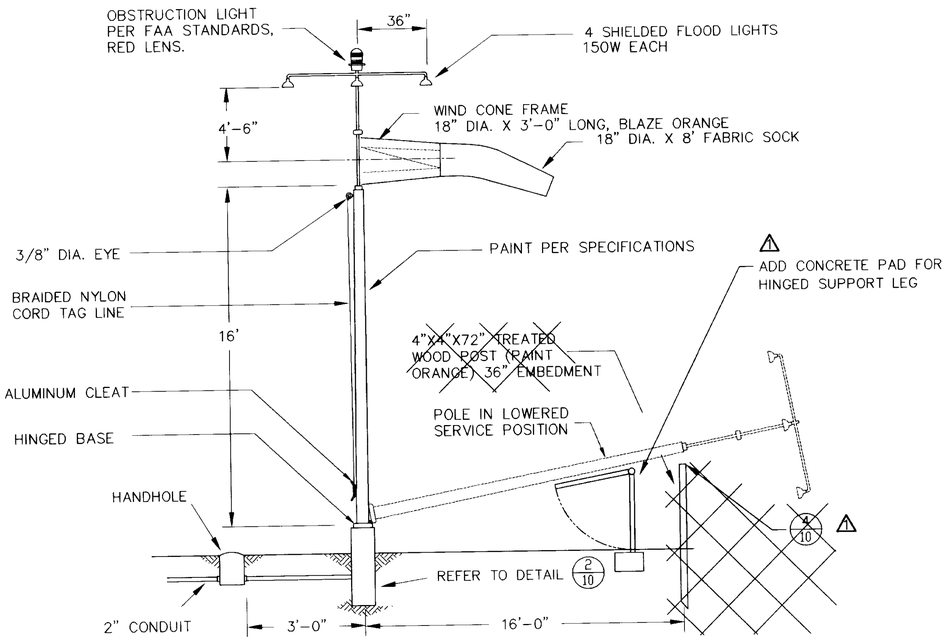
LOAD DESCRIPTION	TRIP AMPS			TRIP AMPS	LOAD DESCRIPTION
SPARE	20/1	1	2	20/1	LIGHT CONTROL
SPARE	20/1	3	4	20/1	SHELTER LIGHT
CONSTANT CURRENT REGULATOR	20/1	5	6	20/1	SELECTOR SWITCH
CONSTANT CURRENT REGULATOR	30/2	7	8	30/2	SPARE
ELECTRIC HEATER	20/1	9	10	20/1	APRON LIGHTS
ELECTRIC HEATER	20/2	11	12	20/2	APRON LIGHTS
OUTSIDE LIGHT	20/1	13	14	20/1	GFI RECEPTACLES
BATTERY CHARGER	20/1	15	16	20/1	GFI RECEPTACLES
WATER JACKET HEATER	20/1	17	18	20/1	SPARE
GFI RECEPTACLE	20/1	19	20	20/1	SPARE

AS BUILT 9/93 PER CONTRACTOR'S RED LINES

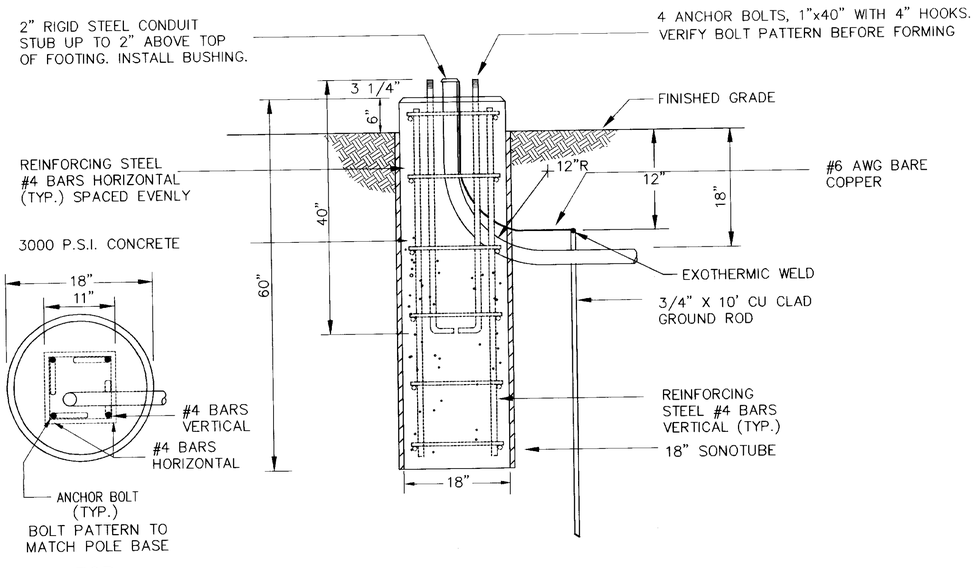
④ POWER DISTRIBUTION-ELECTRICAL EQUIPMENT ENCLOSURE
NOT TO SCALE

NOTE: DO NOT SCALE FROM THESE PLANS-USE DIMENSIONS

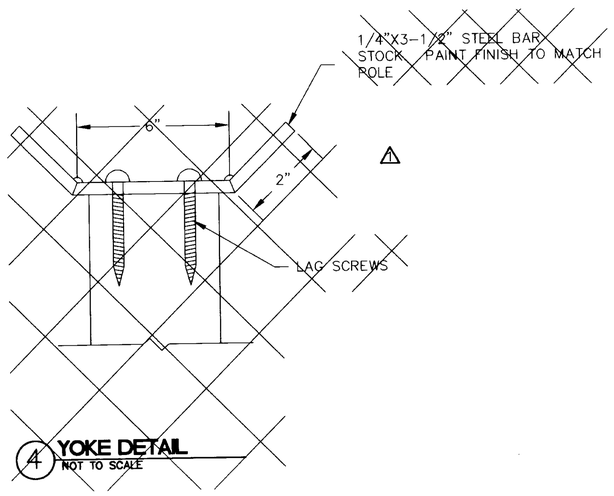
ENGINEER'S SEAL



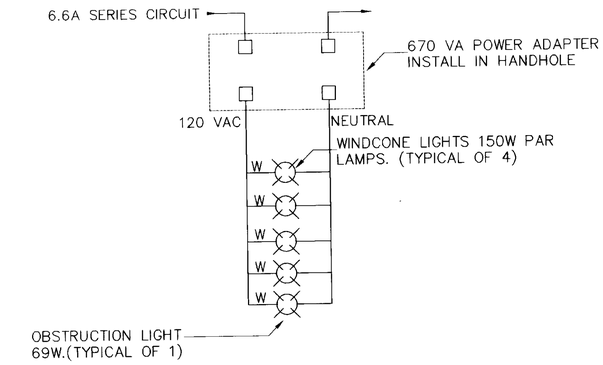
1 LIGHTED WINDCONE
NOT TO SCALE



2 WINDCONE FOUNDATION DETAIL
NOT TO SCALE



4 YOKE DETAIL
NOT TO SCALE



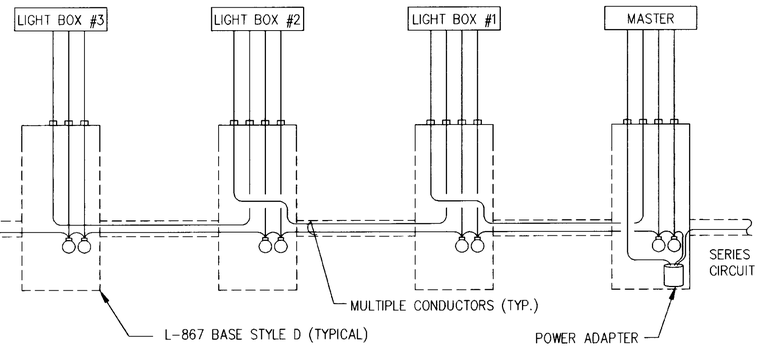
NOTE: 1. PROVIDE NEW LIGHTED WINDCONE PER DETAILS THIS SHEET AND OTHERS.

3 WINDCONE LIGHTING DIAGRAM
NOT TO SCALE

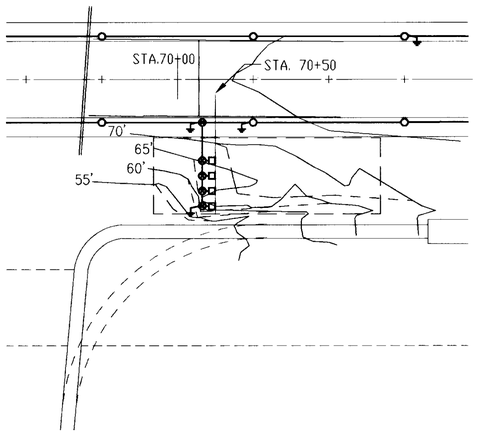
AS BUILT 9/93
PER CONTRACTOR'S
RED LINES

NOTE: DO NOT SCALE FROM THESE PLANS-USE DIMENSIONS

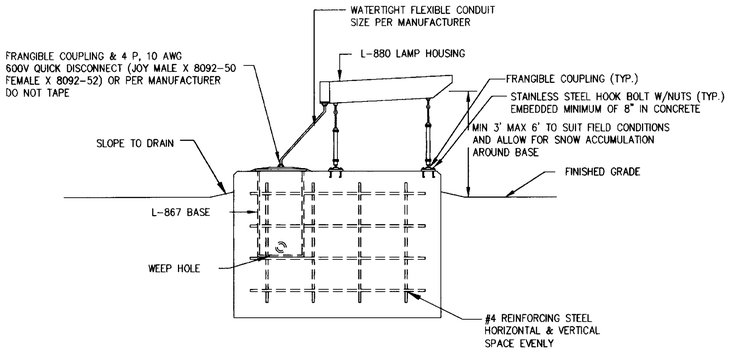
ENGINEER'S SEAL



1 **L-880 STYLE B - SIMPLIFIED WIRING DIAGRAM**
NOT TO SCALE

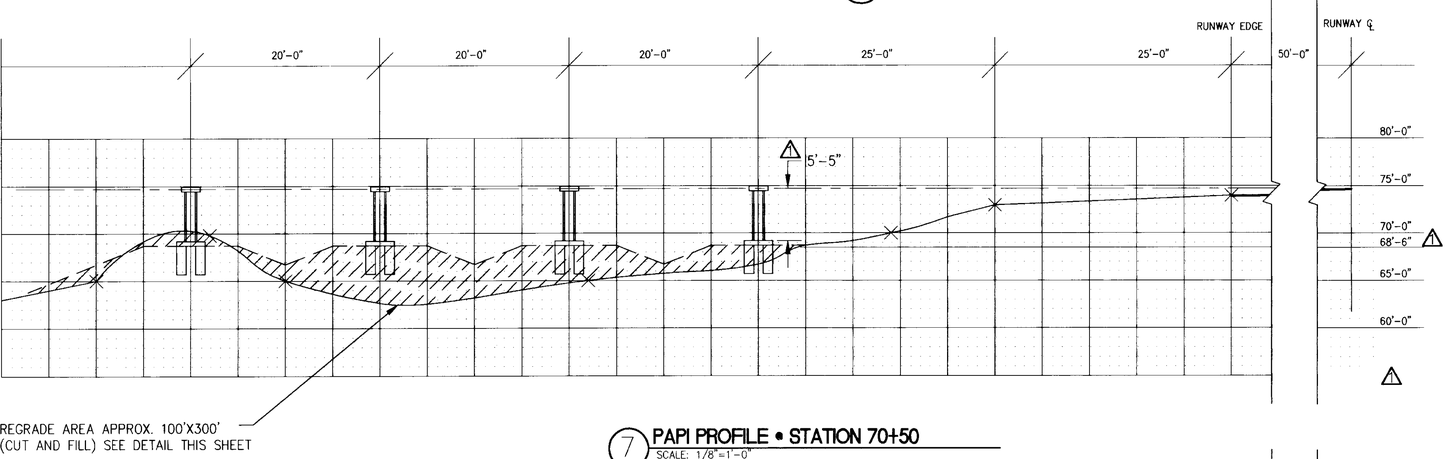


2 **PAPI PLAN • STA 70+50**
SCALE: 1"=100'

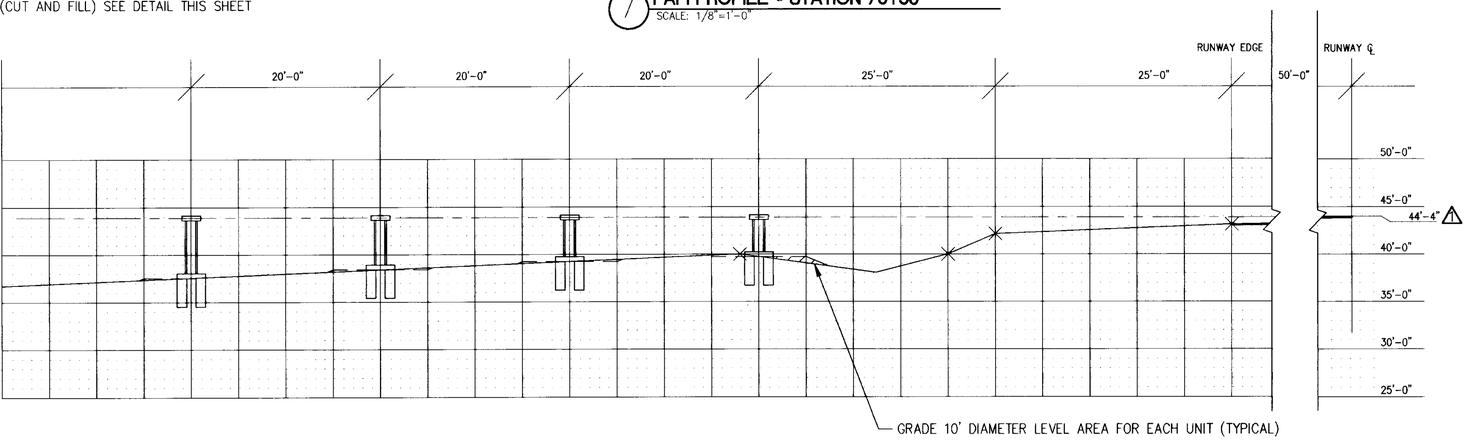


3 **SIDE VIEW**
NOT TO SCALE

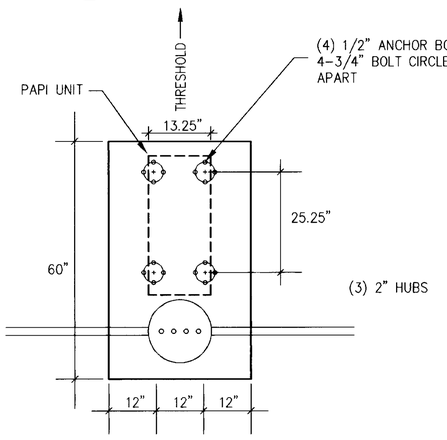
DESCRIPTION	RUNWAY END 1	RUNWAY END 19
DIMENSION A	686'	1034'
DIMENSION B	50'	50'
DIMENSION C	20'	20'
THRESHOLD ELEVATION	39.3	79.9
THRESHOLD CLEARANCE HEIGHT	32.0'±	28.0'±
APERTURE ELEVATION UNIT 1	44.4	68.6
APERTURE ELEVATION UNIT 2	44.4	68.6
APERTURE ELEVATION UNIT 3	44.4	68.6
APERTURE ELEVATION UNIT 4	44.4	68.6
AIMING ANGLE UNIT 1	3°30'	3°30'
AIMING ANGLE UNIT 2	3°10'	3°10'
AIMING ANGLE UNIT 3	2°50'	2°50'
AIMING ANGLE UNIT 4	2°30'	2°30'



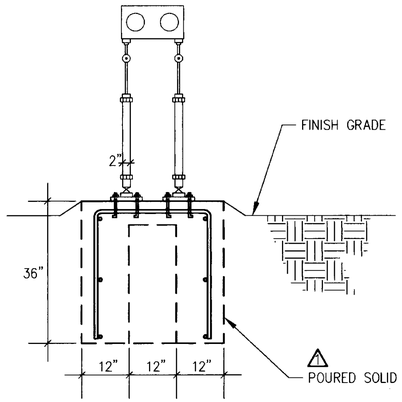
7 **PAPI PROFILE • STATION 70+50**
SCALE: 1/8"=1'-0"



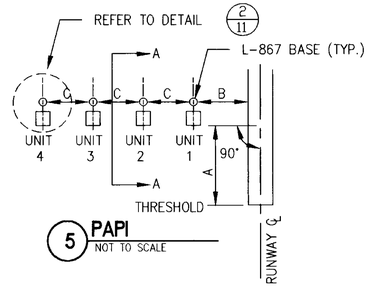
8 **PAPI PROFILE • STATION 32+90*** ⚠
SCALE: 1/8"=1'0"
* APPROXIMATE



4 **PAPI PLAN LAYOUT**
NOT TO SCALE



6 **END VIEW**
NOT TO SCALE



5 **PAPI**
NOT TO SCALE

NOTES:

1. PROVIDE FRANGIBLE MOUNTINGS FOR ALL LIGHT UNITS AND POWER ADAPTERS.
2. NUMBER AND CONFIGURATION OF LEGS PER MANUFACTURER.
3. QUICK DISCONNECTS ARE NOT REQUIRED IN CABLES ENTERING/LEAVING THE POWER ADAPTER.
4. GROUND EACH LAMP HOUSING AND POWER ADAPTER PER MANUFACTURER.
5. APPLY "NEVER SEEZ" OR APPROVED EQUAL TO ALL THREADED BOLTS AND CONNECTIONS.
6. AZIMUTHAL AIMING. EACH LIGHT UNIT SHALL BE AIMED OUTWARD INTO APPROACH ZONE ON A LINE PARALLEL TO THE RUNWAY CENTERLINE WITHIN A TOLERANCE OF ? 1/2 DEGREE.
7. MOUNTING HEIGHT TOLERANCES. THE BEAM CENTERS OF ALL LIGHT UNITS SHALL BE WITHIN 1 INCH OF HORIZONTAL PLANE, THIS HORIZONTAL PLANE SHALL BE WITHIN ± 1 FOOT (0.3 M) OF THE ELEVATION OF THE RUNWAY CENTERLINE AT THE INTERCEPT POINT OF THE VISUAL GLIDEPATH WITH THE RUNWAY.
8. TOLERANCE ALONG LINE PERPENDICULAR TO RUNWAY. THE FRONT FACE OF EACH LIGHT UNIT IN A BAR SHALL BE LOCATED ON A LINE PERPENDICULAR TO THE RUNWAY CENTERLINE WITHIN ? 6 INCHES.
9. FURNISH, INSTALL, AND WIRE POWER ADAPTERS, ETC. PER MANUFACTURERS INSTRUCTION'S.
10. THE DIFFERENCE IN LATERAL SPACING BETWEEN THE LIGHT UNITS SHALL NOT EXCEED ONE FOOT.
11. CONTRACTOR SHALL EXCAVATE TO LEVEL SITE FOR PAPI INSTALLATION AS REQUIRED. PAPI DIMENSION A MAY BE ADJUSTED ± 50' WITH ENGINEER'S PERMISSION TO BETTER SUIT FIELD CONDITIONS (TO MINIMIZE EXCAVATION) AND OBTAIN NECESSARY OBSTACLE CLEARANCE SURFACE.
12. ALL UNCLASSIFIED EXCAVATION, GRADING, AND SEEDING FOR PAPI SITE PREPARATION IS INCIDENTAL TO PAPI INSTALLATION.
13. RESEED ALL DISTURBED AREAS PER SPECIFICATIONS.

NOTE: DO NOT SCALE FROM THESE DRAWINGS – USE DIMENSIONS

	DATE:	DESCRIPTION OF CHANGE:
BA	9/93	⚠ AS BUILT PER CONTRACTOR'S RED LINES

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
SOUTHEAST REGION DESIGN & CONSTRUCTION

RAJ BHARGAVA ASSOCIATES
ENGINEERING IN ALASKA

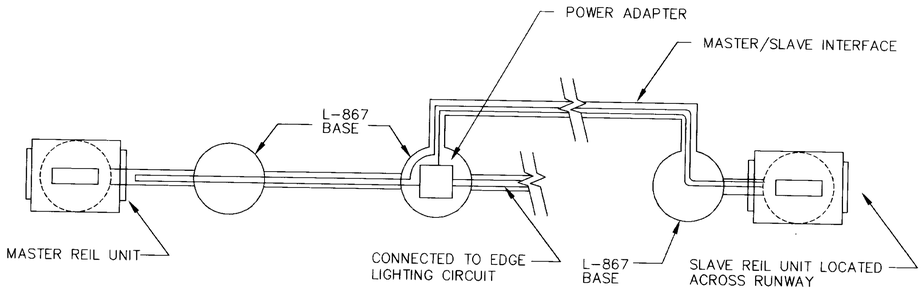
PAPI
KLAWOCK AIRPORT LIGHTING
A.I.P. No. 3-02-0154-05

DESIGNED BY: T.D.H.	PROJECT NO. 70388
DRAWN BY: E.RAEL	DATE: 8/9/92
CHECKED BY:	

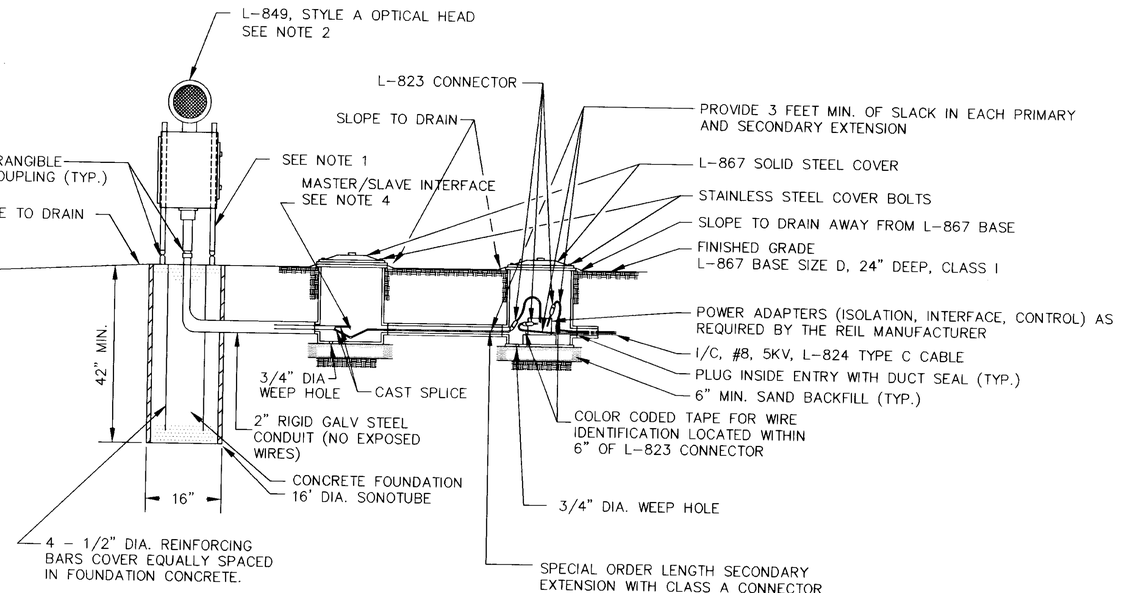
ENGINEER'S SEAL
STATE OF ALASKA 49th
Thomas D. Humphrey No. 4415-E
REGISTERED PROFESSIONAL ENGINEER

GENERAL NOTES

1. NUMBER OF MOUNTS PER MANUFACTURER. ONE OF THE LEGS SHALL BE USED AS WIREWAY.
2. OPTICAL HEAD MAY BE ALSO MOUNTED ON FRONT OR SIDE OF THE POWER & CONTROL UNIT.
3. ADJUSTABLE CURRENT SENSING ON/OFF CONTROL CIRCUIT SHALL BE PROVIDED.
4. NUMBER, SIZE AND TYPE OF CONDUCTORS BETWEEN THE POWER SUPPLY/CONTROL TRANSFORMERS, AND THE MASTER POWER AND CONTROL UNIT SHALL BE PER MANUFACTURER. SAME SHALL APPLY TO WIRING BETWEEN THE MASTER AND THE SLAVE UNITS, EXCEPT THAT THE CABLE SHALL BE L-824, TYPE C.
5. COLOR CODED WIRE IDENTIFICATION TAPE AS FOLLOWS: WHEN FACING LIGHT WITH BACK TO PAVEMENT, CABLE TO LEFT IS CODED RED AND CABLE TO THE RIGHT IS CODED BLUE.

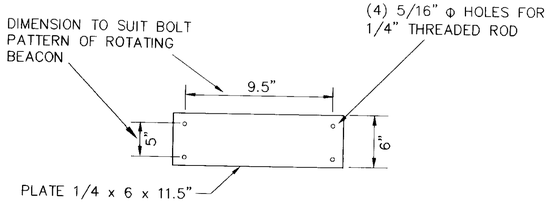


7 **REIL WIRING DETAIL**
NOT TO SCALE

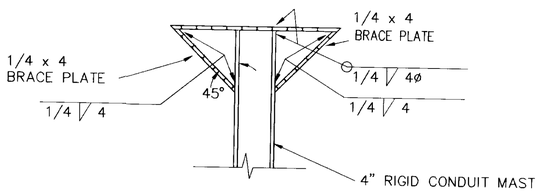


PROFILE VIEW

1 **REIL LIGHT DETAIL**
NOT TO SCALE

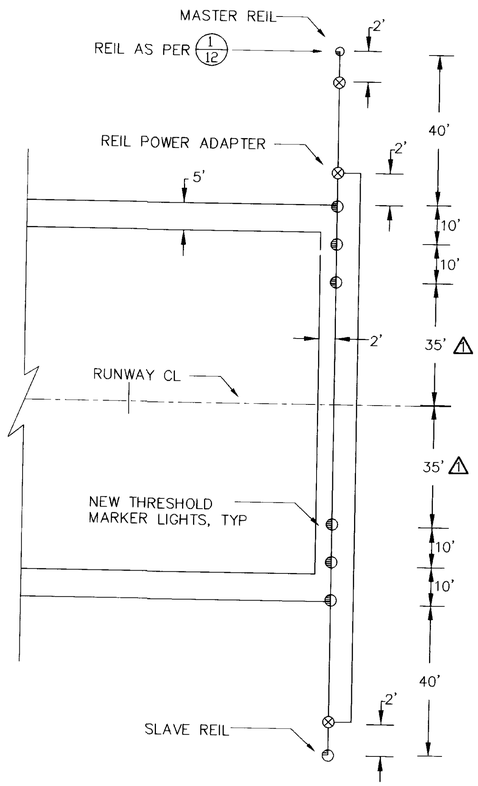


PLAN

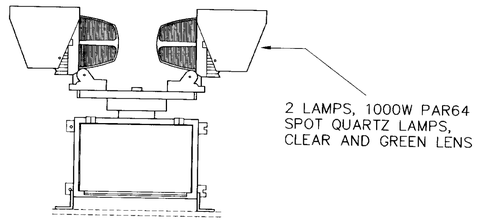


SECTION

3 **MAST DETAILS**
NOT TO SCALE

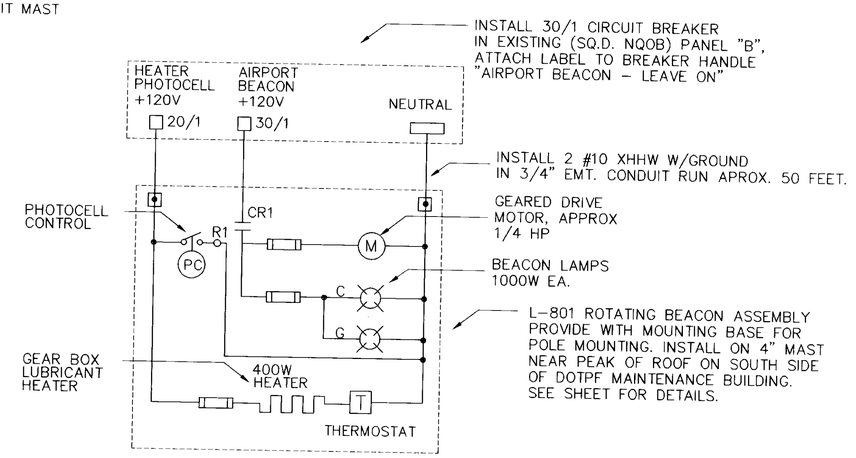


2 **REIL AND THRESHOLD LIGHT CONFIGURATION**
NOT TO SCALE

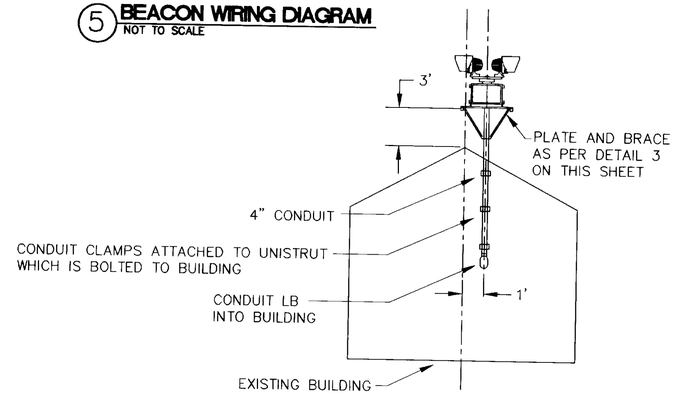


NOTES:
1. BEACON ROTATION SPEED TO BE 11.4 RPM
2. BEACON TO BE FAA TYPE L801.

4 **BEACON DETAIL**
NOT TO SCALE



5 **BEACON WIRING DIAGRAM**
NOT TO SCALE



6 **BEACON BUILDING DETAIL**
NOT TO SCALE

AS BUILT 9/93 PER CONTRACTOR'S RED LINES

ENGINEER'S SEAL