

### ELECTRICAL SYMBOLS

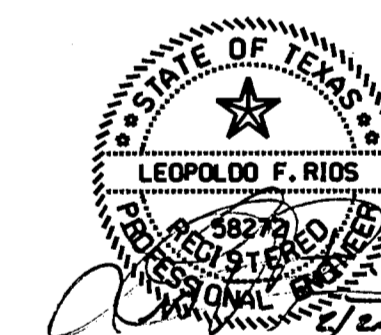
ALL SYMBOLS SHOWN DO NOT NECESSARILY APPEAR ON DRAWINGS

	DISTRIBUTION SWITCHBOARD OR PANELBOARD (LETTER DENOTES PANEL IDENTIFICATION)		FIRE ALARM HORN/BELL COMPLETE WITH ADA APPROVED STROBE LIGHT	\$	SINGLE POLE SWITCH (4'-0" AFF) UNLESS NOTED OTHERWISE		NEUTRAL, HOT, ISOLATED GROUND, SWITCH LEG, EQUIPMENT GROUND, CONDUCTORS
	SURFACE MOUNTED BRANCH PANELBOARD (LETTERS DENOTES PANEL IDENTIFICATION)		FIRE ALARM FLOW SWITCH	\$WP	SINGLE POLE WEATHERPROOF SWITCH (4'-0" AFF) UNLESS NOTED OTHERWISE		HOMERUN TO PANELBOARD AS INDICATED
	FLUORESCENT LIGHT FIXTURE, EMERGENCY CIRCUIT, W/EMERG. BATTERY/ INVERTER PACK (LETTER DENOTES FIXTURE TYPE)		FIRE ALARM SMOKE DETECTOR ("H" INDICATES FIRE ALARM HEAT DETECTOR)	\$2	DOUBLE POLE SWITCH (4'-0" AFF) UNLESS NOTED OTHERWISE		BRANCH CIRCUITS PROTECTED BY SINGLE POLE DEVICES ("X" DENOTES PANELBOARD SPACE CIRCUIT NUMBERS)
	FLUORESCENT LIGHT FIXTURE (LETTER DENOTES FIXTURE TYPE)		FIRE ALARM TAMPER SWITCH	\$3	THREE WAY SWITCH (4'-0" AFF) UNLESS NOTED OTHERWISE		BRANCH CIRCUITS PROTECTED BY 2 POLE DEVICES ("X" DENOTES PANELBOARD SPACE CIRCUIT NUMBERS)
	FLUORESCENT LIGHT FIXTURE - WALL MOUNTED (LETTER DENOTES FIXTURE TYPE)		FIRE ALARM MANUAL PULL STATION	\$4	FOUR WAY SWITCH (4'-0" AFF) UNLESS NOTED OTHERWISE		BRANCH CIRCUITS PROTECTED BY 3 POLE DEVICES ("X" DENOTES PANEL BOARD SPACE CIRCUIT NUMBERS)
(WALL)	SURFACE MOUNTED TUNNEL LIGHTING AS INDICATED; LETTER DENOTES FIXTURE TYPE; ALPHA-NUMERIC CHARECTERS INDICATE BRANCH CIRCUIT.		FIRE ALARM SMOKE DETECTOR - DUCT TYPE	\$M	MANUAL MOTOR CONTROLLER WITH OVERLOAD PROTECTION (EQUIPMENT MOUNTED, UNLESS INDICATED OTHERWISE)		CONDUIT EMBEDDED OR CONCEALED IN CEILING OR WALL
(WALL)	SUPPLEMENTAL EMERGENCY LIGHTING UNIT WITH EMERGENCY BATTERY/INVERTER PACK; LETTER DENOTES FIXTURE TYPE.		EXTERIOR TYPE FIRE ALARM BELL W/ADA APPROVED STROBE LIGHT		CONDUIT STUB OUT AND CAP		BRANCH CIRCUITS / DESIGNATION: REFERENCE FEEDER SCHEDULE, SHEET 181.
	FLUORESCENT STRIP LIGHT FIXTURE (LETTER DENOTES FIXTURE TYPE)		WALL MOUNTED VISUAL ALARM SIGNAL APPLIANCE WITH ADA APPROVED STROBE LIGHT		MULTI-OUTLET ASSEMBLY, SURFACE MOUNTED, RECEPTACLES SPACINGS AS INDICATED ON DRAWINGS. POWER, DATA, TELE. COMPARTMENTS AS REQUIRED FOR APPLICATION.		MOTOR
	EXIT LIGHT - CEILING MOUNTED (LETTER DENOTES FIXTURE TYPE, SHADED AREA INDICATES FACE, ARROW DIRECTIONAL ARROW)		FIRE ALARM MAGNETIC DOOR HOLDER W/ RELEASE SWITCH ABOVE.		CONDUIT IN OR UNDER FLOOR		MOTOR FEEDER SCHEDULE DESIGNATION (REF. SHEET E181)
	EXIT LIGHT - WALL MOUNTED (LETTER DENOTES FIXTURE TYPE, SHADED AREA INDICATES FACE, ARROW DIRECTIONAL ARROW)		FIRE ALARM CONTROL PANEL		CONDUIT EXPOSED		(REFERENCE SHEET 183 FOR SYMBOLS / ABBREVIATIONS NOT DEFINED HERE)
	TELEPHONE BACKBOARD (4' X 8' X 3/4" PLYWOOD) MOUNTED HORIZONTALLY		FIRE ALARM ANNUCIATOR PANEL		FLEXIBLE CONDUIT AND WIRES TO FIXTURE, MOTOR OR EQUIPMENT CONNECTION		PROPOSED OVERHEAD/UNDERGROUND ELECTRICAL PRIMARY (BY ELECTRIC UTILITY COMPANY)
	TELEPHONE OUTLET - WALL MOUNTED (18" AFF) UNLESS NOTED OTHERWISE		POWER TRANSFORMER		CONDUIT STUBBED UP		PROPOSED UNDERGROUND TELEPHONE SERVICE (BY TELEPHONE UTILITY COMPANY)
	EMERGENCY TELEPHONE OUTLET COMPLETE WITH EMERGENCY TELEPHONE/CALL BOX (SEE SPECIFICATIONS), LOCATED 48" A.F.F. UNLESS INDICATED OTHERWISE.		JUNCTION BOX - CEILING MOUNTED		CONDUIT STUBBED DOWN		UNDERGROUND DUCT FOR FACILITY TELEPHONE UTILITIES
	TELEPHONE OUTLET - WALL MOUNTED (42" AFF) UNLESS NOTED OTHERWISE		JUNCTION BOX - WALL MOUNTED		AMMETER		UNDERGROUND DUCT FOR FACILITY PRIMARY UTILITIES
	CEILING/WALL BRACKET MOUNTED BLUE LIGHT (LETTER DENOTES FIXTURE TYPE)		PHOTOCELL		VOLTMETER		UNDERGROUND DUCT FOR FACILITY ELECTRICAL UTILITIES
	20A, 125V, 2P, 3W GROUNDING DUPLEX RECEPTACLE NEMA 5-20R DEDICATED TO OWNERS GENERAL COMPUTER/APPLIANCE EQUIPMENT (18" AFF) UNLESS NOTED OTHERWISE		LIGHTING CONTACTOR		TELE/DATA FLOOR OUTLET, FLUSH MOUNTING		UNDERGROUND DUCT FOR EMERGENCY GENERATOR SERVICE
	20A, 125V, 2P, 3W GROUNDING DUPLEX RECEPTACLE NEMA 5-20R (18" AFF) UNLESS NOTED OTHERWISE		TIME SWITCH (SPECIFY VOLTS, AMPS PER CONTACT, CIRCUIT)		AUTOMATIC TRANSFORMER SWITCH		PAD-MOUNT TRANSFORMER (BY ELECTRIC UTILITY COMPANY) CONCRETE PAD AND PROVISIONS BY CONTRACTOR
	DUPLEX RECEPTACLE WITH BUILT-IN GROUND FAULT PROTECTION, 18" AFF, UNLESS NOTED OTHERWISE		PHASE SELECTOR SWITCH, AMMETER	AFF	ABOVE FINISH FLOOR		EMERGENCY GENERATOR ON CONCRETE HOUSEKEEP PAD
	DUPLEX RECEPTACLE MOUNTED HORIZONTAL 6" ABOVE COUNTER UNLESS NOTED OTHERWISE (COORDINATE EXACT HEIGHT WITH ARCHITECT PRIOR TO INSTALLATION)		PHASE SELECTOR SWITCH, VOLTMETER	AFG	ABOVE FINISH GRADE		ELECTRIC UTILITIES MANHOLE
	GROUND	WP	WEATHERPROOF		3 POLE FUSED DISCONNECT SWITCH, RATING AS INDICATED		TELEPHONE UTILITIES MANHOLE EXISTING AIRFIELD MANHOLE/HAND HOLE TO REMAIN
	SPECIAL PURPOSE RECEPTACLE, NEMA CONFIG. AS INDICATED		WATT-HOUR METER		COMBINATION MAGNETIC STARTER AND FUSED SWITCH	PP	OVERHEAD ELECTRICAL PRIMARY UTILITY POWER POLE (BY ELECTRIC UTILITY COMPANY)

### GENERAL NOTES:

- A. ALL ELECTRICAL INSTALLATIONS SHALL CONFORM TO THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, NATIONAL ELECTRICAL SAFETY CODE, NATIONAL FIRE PROTECTION ASSOCIATION, UNDERWRITERS LABORATORIES, LOCAL AND STATE CODES, AS ADOPTED BY THE CITY OF ADDISON; SEE SPECIFICATIONS.
- B. ALL DRAWINGS ARE DIAGRAMMATIC REPRESENTATIONS; COORDINATE/VERIFY EXACT LOCATIONS OF LIGHTING FIXTURES, DEVICES, EQUIPMENT, ETC., AS INDICATED WITH OTHER DISCIPLINES, TUNNEL STRUCTURAL PLANS, EQUIPMENT AND APPURTENANCES.
- C. ALL ELECTRICAL PROVISIONS/APPURTENANCES PROVIDED BY THESE DRAWINGS SHALL BE CORROSION RESISTANT/WEATHERPROOF. CONDUIT UTILIZED THROUGHOUT THIS PROJECT SHALL BE 3/4" MINIMUM, UNLESS INDICATED OTHERWISE.
- D. HOMERUNS TO PANELBOARD SHALL UTILIZE NO. 10 AWG CONDUCTORS UNLESS INDICATED OTHERWISE OR BY SPECIFICATIONS; EMPTY CONDUIT SHALL BE PROVIDED WITH PULL-WIRE.
- E. CONDUIT SHALL BE PVC COATED GALVANIZED RIGID STEEL (GRS) EMBEDDED IN CONCRETE WHERE POSSIBLE, AND PROPERLY SECURED IN PLACE (DUE TO CONCRETE PLACEMENT UNDER HIGH-PRESSURE/MACHINERY); COORDINATE WITH STRUCTURAL CONTRACTOR. ALL EXPOSED CONDUIT AND STUB-UPS SHALL BE GRS, UNLESS INDICATED OTHERWISE.
- F. LIGHTING, POWER, COMMUNICATIONS, EMERGENCY, FIRE ALARM, LIFE SAFETY SYSTEMS ARE SEPARATE SYSTEMS AND SHALL BE PROVIDED WITH THEIR OWN CONDUIT, FITTINGS AND APPURTENANCES; I.E., RACEWAY SYSTEMS SHALL NOT BE SHARED.
- G. WHERE FEEDERS ARE IN EXCESS OF 400 FT. AND/OR CONDUIT RUNS REQUIRE 360 DEGREE OR MORE OF BENDING RADIUS, PULL-BOXES SHALL BE PROVIDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL.

REFER TO RFI #927  
EXTRA CONDUIT IN TUNNEL  
VARIIFICATION OF QUANTITIES



THE SEAL APPEARING ON THIS DOCUMENT WAS AUTHORIZED BY LEOPOLDO F. RIOS, P.E., 58272 ON SEPTEMBER 9, 1996

**FINAL RECORD DRAWING**  
Date: 12/25/99

2 REVISION PER RFI # 927

ADDENDUM No. 1 HDR 2-12-97

No.	REVISION	BY	DATE
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**TEXAS TURNPIKE AUTHORITY  
ADDISON AIRPORT TUNNEL**

**SYMBOLS, ABBREVIATIONS,  
SCHEDULES & GENERAL NOTES**

**HDR** HDR Engineering, Inc. SECTION XIII

DRAWN: WTD DATE: 12/05/96 DESIGNED: LR DATE: 08/28/96  
CHECKED: BL DATE: 08/28/96 SCALE: NONE

CONTRACT No. DNT-260 SHEET **E153** OF 166

### LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER / DESCRIPTION	VOLTAGE	LAMPS		MOUNTING	REMARKS
			NO.	TYPE		
A	G.E. LIGHTING SYSTEMS/MODEL NO. TUN-40-S-5-M-25-MC3-09-CG-F "TUNNEL GUARD" LUMINAIRE	480V	1	400W HPS E-18	SEE DETAIL	TYPICAL TUNNEL LIGHTING LUMINAIRE; ULL LISTED, SUITABLE FOR WET LOCATIONS, GLASS LENS, HEAVY DIE-CAST ALUMINUM HOUSING, FUSED.
B	G.E. LIGHTING SYSTEMS/MODEL NO. TUN-15-S-5-M-2-MC4-09-CG-F "TUNNEL GUARD" LUMINAIRE	480V	1	E-23 1/2" HPS 150W	SEE DETAIL	SAME AS ABOVE EXCEPT 150 W HPS LAMPS.
BR	G.E. LIGHTING SYSTEMS/MODEL NO. TUN-15-S-5-K-2-MC4-09-CG-F "TUNNEL GUARD" LUMINAIRE	480V	1	150W HPS E-23 1/2"	SEE DETAIL	SAME AS ABOVE EXCEPT 150 W HPS LAMPS; PROVIDE HOT RE-START BALLAST FOR EMERGENCY LIGHTING.
C	HUBBELL LIGHTING/MODEL NO. NVQ GG-SERIES D'AC 3003	277V	1	18 W QUAD PL	SURFACE/WALL	BLUE LIGHT STATION FIXTURE; NON-METALIC VAPORTITE SERIES, HARSH LOCATION INDUSTRIAL LUMINAIRE. PROVIDE MATCHING BLUE GLASS GLOBE WITH GUARD AND SURFACE MOUNTING BRACKET HARDWARE AS REQUIRED.
D	HOLOPHANE LIGHTING/MODEL NO. WL3K-07OH-NAT-GR-F1-PS-U HUBBELL NRG 307-PC/NG-B3	120V	1	E-23 1/2" HPS 70W	SURFACE/WALL	EXTERIOR UTILITY AREA WALLPACK LUMINAIRE; PROVIDE MODEL NO. WL KPR20/24/27/34 W/INTEGRAL PHOTO CONTROL KIT. EXTERIOR MOUNTED FIXTURES ONLY AND NO. WL KWG WIRE GUARD.

### LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER / DESCRIPTION	VOLTAGE	LAMPS		MOUNTING	REMARKS
			NO.	TYPE		
E	HUBBELL SW42R-B4-WG-ALUM-EM WILLIAMS 76-4-2320C-2320C-EB-ALUM-EM	277V	2	F3218/741	SUSPENDED/CHAIN (8'-0" A.F.F.)	INDOOR UTILITY FLUORESCENT; PROVIDE COMPLETE WITH EMERGENCY BATTERY/INVERTER PACK
G	USI COLUMBIA LIGHTING MODEL NO. LU240-WL-EL HUBBELL EWL-042R-TADR-LB4/UFO-2PI	277V	2	F3218/741	SURFACE/CEILING	INDOOR UTILITY FLUORESCENT; PROVIDE COMPLETE WITH REMOTE EMERGENCY BATTERY/INVERTER PACK ELECTRONIC LOW TEMP
H	HUBBELL LIGHTING MODEL NO. EWLO42H-TPDR-HI WILLIAMS 92-4-248H-EDUB	120V	2	F48T12/ CW/HO	SURFACE/WALL (SEE NOTE *3)	SUMP PIT LIGHTING; ULL LISTED FOR WET LOCATION (DUST/MOISTURE TIGHT) WITH PLASTIC HOUSING, ELECTRONIC LOW TEMP BALLAST
J	HUBBELL LIGHTING MODEL NO. NVQ-GG SERIES	120V	1	18W QUAD PL	SURFACE/CEILING	SUMP PIT LIGHTING; NON-METALIC VAPORTITE SERIES HARSH LOCATION INDUSTRIAL LUMINAIRE. PROVIDE MATCHING CLEAR GLASS GLOBE WITH GUARD AND SURFACE/CEILING MOUNTING HARDWARE AS REQUIRED.
W	DUALITE H4X4H-HEAT-40G HUBBELL H46-25-2-MOD	277V	2	SELF-CONTAINED H7553 12 WATT HALOGEN	SUSPENDED/CHAIN (8'-0" A.F.F.)	SUPPLEMENTAL EMERGENCY LIGHTING; PROVIDE COMPLETE WITH SELF-DIAGNOSTICS, WIRE GUARD, HEATER OPTION, PURE LEAD BATTERY. CONTRACTOR SHALL PROVIDE WALL-MOUNT BRACKET AND FIELD ADJUST HEADS SO AS TO ILLUMINATE WALKWAYS.
X	DUALITE EX 21X01 HUBBELL D42 SERIES	277V	NA	SELF-CONTAINED	SURFACE/WALL CEILING (UNIVERSAL)	EXIT LIGHT; EMERGENCY VANDAL PROOF EXIT WITH SELF-DIAGNOSTICS, PURE LEAD BATTERY

**LIGHTING FIXTURE SCHEDULE NOTES:**

1. TUNNEL ILLUMINATION IS BASED ON LUMINANCE VALUES IN ACCORDANCE WITH IES/ANSI STANDARD RP-22-87, MEASURED IN CD/M. LIGHTING DESIGN IS BASED ON FIXTURE AS SCHEDULED. COMPUTER GENERATED STATISTICAL POINT-BY-POINT LUMINANCE/PHOTOMETRIC CALCULATION DATA SCALE DRAWING SHALL BE SUBMITTED FOR REVIEW AND APPROVAL AS SHOP DRAWING DATA.
2. FIXTURE LOCATED AT EXTERIOR OF ELECTRICAL ROOM SHALL BE MOUNTED 6 INCHES CLEAR BELOW ROOF LINE, OR 8'-0" ABOVE FINISHED FLOOR/GRADE.
3. PIT LIGHTING SHALL BE MOUNTED 6 INCHES MINIMUM BELOW INSTALLED GRATE.
4. COORDINATE/VERIFY FIXTURE LAMP DATA WITH MANUFACTURER PRIOR TO OPERATING.