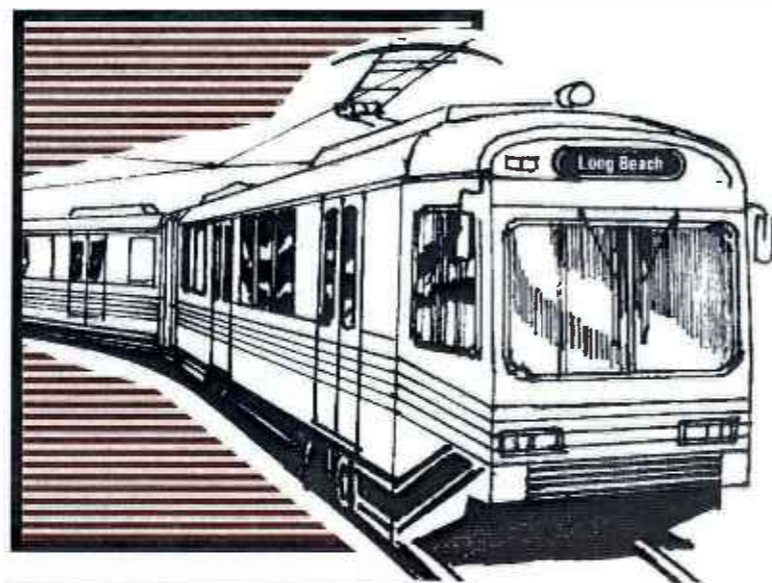


**RAIL
TRANSIT
DESIGN
CRITERIA &
STANDARDS**



JOAN VERTREES/RMC REFERENCE

MTA Construction

NO. 2310

■ Volume V

■ Directive Drawings

Los Angeles County Metropolitan Transportation Authority

VOLUME V
DIRECTIVE DRAWINGS
TRACKWORK

**MTA BASELINE DOCUMENT
NO. R92-DE305.01**

BASELINE STATUS REPORT: DIRECTIVE/STANDARD DRAWINGS

DRAWING NO.	REV.	DATE MODIFIED	DRAWING TITLE / Change Title	REMARKS
<u>R92-DE305-01</u> DIRECTIVE DRAWINGS: TRACKWORK				
TD-000	0	05/18/94	INDEX OF DRAWINGS Baseline issue	
TD-002	0	05/18/94	TURNOUT DATA Baseline issue	
TD-003	0	05/18/94	DOUBLE CROSSOVER DATA TANGENT TRACK BETWEEN TURNOUTS AND CROSSINGS Baseline issue	
TD-004	0	05/18/94	DOUBLE CROSSOVER DATA CURVED TRACK BETWEEN TURNOUTS AND CROSSINGS Baseline issue	
TD-005	0	05/18/94	CENTER POCKET TRACK DATA Baseline issue	

DWG
NO TITLE

GENERAL

- COVER SHEET
- TITLE SHEET
- TD-000 INDEX OF DRAWINGS
- TD-002 TURNOUT DATA
- TD-003 DOUBLE CROSSOVER DATA
TANGENT TRACK BETWEEN
TURNOUTS AND CROSSINGS
- TD-004 DOUBLE CROSSOVER DATA
CURVED TRACK BETWEEN
TURNOUTS AND CROSSINGS
- TD-005 CENTER POCKET TRACK DATA

REV	DATE	BY	SUB	APP	DESCRIPTION
0	5.18.94	JBV	GMC		BASELINE ISSUE

DESIGNED BY
B. YU
DRAWN BY
A. MEGERDOOMIAN
CHECKED BY
S. JOHNSON
IN CHARGE
J. VALENCIA
DATE
18 MAY 94

M LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

EDM/JM ENGINEERING MANAGEMENT CONSULTANT
an association of
Perrowe Brinkmann Qualls & Douglas, Inc.
Davis, N.Y., and
EJ-Valer Engineers & Planners
Los Angeles, California
Jenkins, Collins & Associates, Inc.
The Northrup Group, Inc.

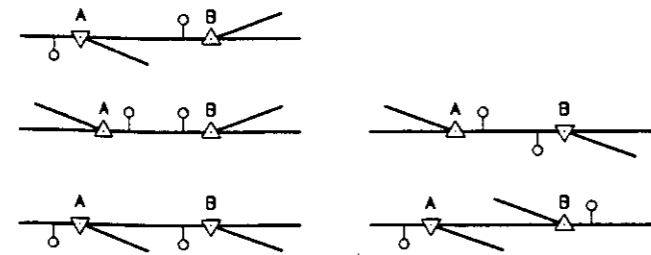
SUBMITTED *J. Valencia*
APPROVED *J. Valencia*

TRACKWORK DIRECTIVE

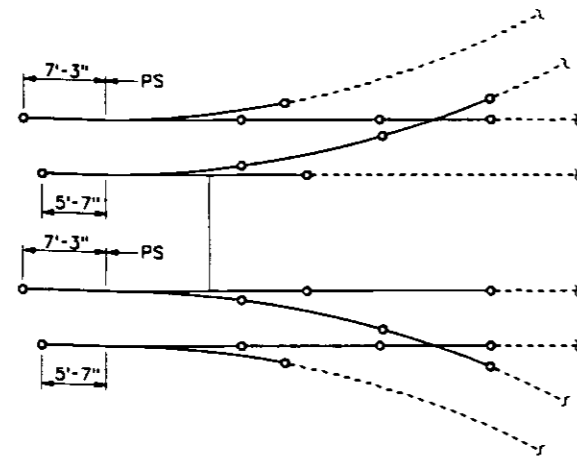
INDEX OF DRAWINGS

CONTRACT NO.	
DRAWING NO.	REV
TD-000	0
SCALE	
NO SCALE	
SHEET NO.	

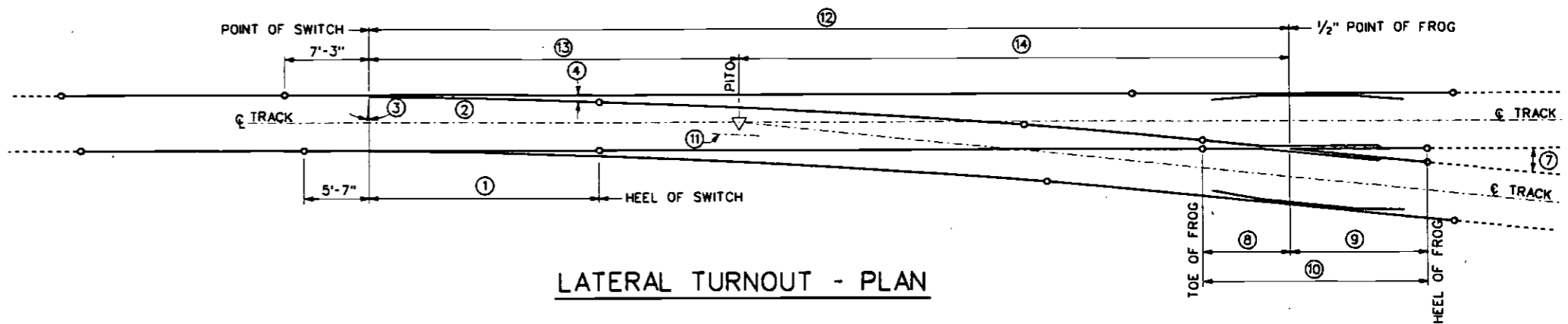
PLOTTED BY: JAV/ESS
 DATE: 5/18/94 10:00 AM



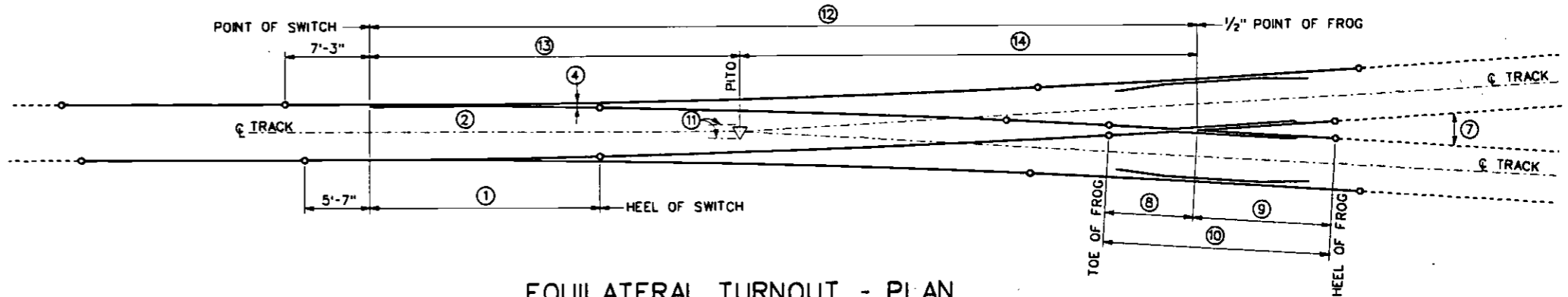
POSSIBLE SPECIAL TRACKWORK COMBINATIONS DETAIL ① TD-002



STOCK RAIL ARRANGEMENT DETAIL ② TD-002



LATERAL TURNOUT - PLAN



EQUILATERAL TURNOUT - PLAN

TURNOUT DATA

TURNOUT NUMBER	TURNOUT TYPE	SWITCH				FROG			CURVED & RADIUS	ACTUAL LEAD	PS TO PITO DISTANCE	PITO 1/2" POINT OF FROG DISTANCE	MAXIMUM SPEED THROUGH TURNOUT (NOTE 2)		
		LENGTH	RADIUS	ANGLE AT POINT	HEEL ANGLE	ANGLE	LENGTH								
		① FT IN	② FEET	③ DEG MIN SEC	④ DEG MIN SEC	⑦ DEG MIN SEC	⑧ TOE FT IN	⑨ HEEL FT IN						⑩ TOTAL FT IN	
190' R	LATERAL	CURVED 11'-0"	192.40'	01° 11' 33"	04° 28' 06"	14° 15' 00"	5'-4 1/8"	5'-10 3/8"	11'-3"	190'	38.67'	38'-8"	19'-8 1/8"	18'-1 1/8"	12
5Y	EQUILATERAL	STRAIGHT 11'-0"	—	—	02° 42' 50"	11° 25' 16"	5'-1/2"	6'-3"	11'-4 1/2"	323.86'	41.60'	41'-7 1/4"	17'-8 3/8"	23'-10 1/8"	16
6	LATERAL	STRAIGHT 11'-0"	—	—	02° 42' 50"	09° 31' 38"	3'-9"	7'-3"	11'-0"	262.78'	47.50'	47'-6"	19'-0"	28'-6"	14
8	LATERAL	CURVED 19'-6"	1222.17'	01° 04' 24"	01° 59' 15"	07° 09' 10"	5'-1"	7'-11"	13'-0"	497.25'	69.67'	69'-8"	31'-8"	38'-0"	19
8Y	EQUILATERAL	CURVED 19'-6"	2444.34'	01° 04' 24"	01° 59' 15"	07° 09' 10"	5'-1"	7'-11"	13'-0"	883.14'	67.75'	67'-9"	29'-8 1/8"	38'-0 7/8"	26
645' R	LATERAL	CURVED 21'-0"	647.35'	00° 30' 00"	02° 21' 56"	06° 55' 57"	6'-5"	10'-1"	16'-6"	645'	95.00'	95'-0"	33'-7 1/4"	39'-2 1/2"	22
10	LATERAL	CURVED 19'-6"	1222.17'	01° 04' 24"	01° 59' 15"	05° 43' 29"	6'-5"	10'-1"	16'-6"	806.09'	78.92'	78'-11"	31'-5"	47'-6"	25
10Y	EQUILATERAL	CURVED 19'-6"	2444.34'	01° 04' 24"	01° 59' 15"	05° 43' 29"	6'-5"	10'-1"	16'-6"	1632.84'	79.21'	79'-2 1/2"	31'-7 1/8"	47'-6 1/8"	35
12Y	EQUILATERAL	CURVED 19'-6"	2444.34'	01° 04' 24"	01° 59' 15"	04° 46' 19"	7'-9 1/2"	12'-6 1/2"	20'-4"	2493.88'	88.00'	88'-0"	30'-11 1/8"	57'-0 3/8"	43
15	LATERAL	CURVED 26'-0"	2464.55'	00° 50' 44"	01° 27' 00"	03° 49' 06"	9'-5"	14'-11 1/2"	24'-4 1/2"	1872.90'	113.42'	113'-5"	42'-2"	71'-3"	37
20	LATERAL	CURVED 39'-0"	3605.70'	00° 27' 19"	01° 04' 30"	02° 51' 51"	11'-0 1/2"	19'-10"	30'-10 1/2"	3329.91'	156.04'	156'-0 1/2"	61'-0 1/2"	95'-0"	50

NOTES:

- TURNOUTS CAN BE ARRANGED AS INDICATED IN DETAIL "1". THE LAYOUT AND REQUIRED DISTANCES FROM "A" TO "B" ARE GIVEN IN THE "SYSTEM DESIGN CRITERIA". ALL PROPOSED INSTALLATIONS MUST BE APPROVED BY THE ENGINEERING MANAGEMENT CONSULTANT.
- THE DATA SHOWN ARE SPEEDS THROUGH LEVEL TURNOUTS GIVING RIDE CONDITIONS EQUIVALENT TO THOSE OBTAINED IN TRAVERSING A CURVE WITH 3 INCHES OF UNBALANCED SUPERELEVATION. THE SPEEDS ARE CALCULATED BASED ON THE AREA FORMULA $E_a = 0.0007V^2D - 3$, WHERE "D" EQUALS THE DEGREE OF CURVATURE, AND "Ea" ACTUAL SUPERELEVATION, (FOR TURNOUTS, $E_a = 0$).

DESIGNED BY	B. YU
DRAWN BY	A. MEGERDOOMIAN
CHECKED BY	S. JOHNSON
IN CHARGE	J. VALENCIA
DATE	18 MAY 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

PERSONNEL: [List of names and titles]

SUBMITTED: [Signature]

APPROVED: [Signature]

TRACKWORK DIRECTIVE

TURNOUT DATA

CONTRACT NO.

DRAWING NO. TD-002

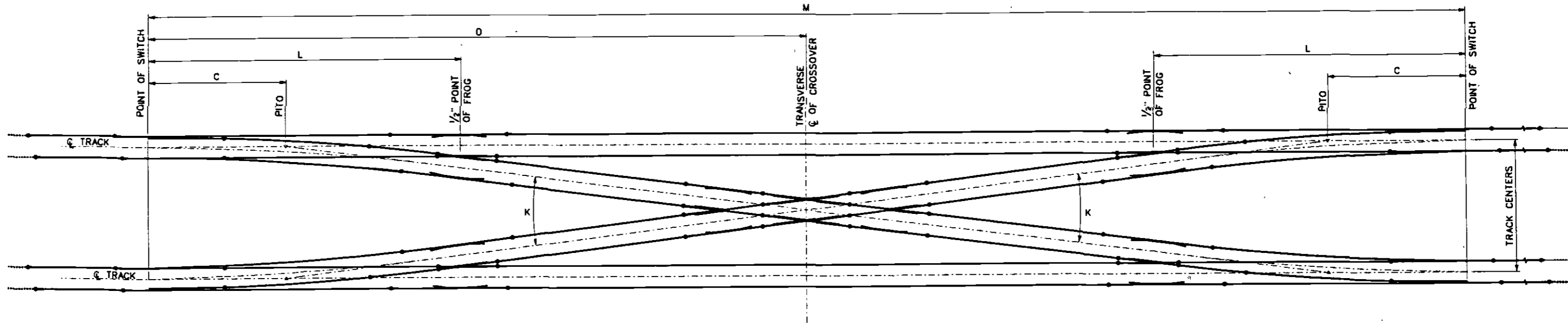
REV. 0

SCALE: NO SCALE

SHEET NO.

REV	DATE	BY	SUB	APP	DESCRIPTION
0	5.18.94	BY	JBV	GMC	BASELINE ISSUE

22-JAN-1994 09:43 PLOTTED BY: 04669



DOUBLE CROSSOVER - PLAN

DATA TABLE										
ITEM NO	TRACK CTRS	TURNOUT NO	TURNOUT ALIGNMENT	MANGANESE STEEL INSERT CROSSING	C	D	K	M	L	
1	14.00'	6	AREA PLAN 910 (SIMILAR)	AREA PLAN 761	19.00'	60.71'	19°-03'-16"	121.42'	47.50'	
2	14.00'	8	AREA PLAN 910 (SIMILAR)	AREA PLAN 761	30.00'	85.78'	14°-18'-20"	171.55'	68.00'	
3	16.00'	8	AREA PLAN 910 (SIMILAR)	AREA PLAN 761	30.00'	93.75'	14°-18'-20"	187.50'	68.00'	
4	18.00'	8	AREA PLAN 910 (SIMILAR)	AREA PLAN 761	30.00'	101.72'	14°-18'-20"	203.44'	68.00'	
5	14.00'	10	AREA PLAN 920 (SIMILAR)	AREA PLAN 769	31.42'	101.23'	11°-26'-58"	202.49'	78.92'	

NOTES:

1. ALL DIMENSIONS EXCEPT "K" AND "D" SHALL APPLY EQUALLY TO SINGLE CROSSOVERS.
2. ALL DIMENSIONS ARE SYMMETRICAL ABOUT CENTERLINE.
3. FOR TURNOUT DATA REFER TO DRAWING NO TO-002.
4. NO SUPERELEVATION WILL BE APPLIED TO ANY CROSSOVER.
5. DRAWING IS SYMMETRICAL ABOUT CENTERLINE.

REV	DATE	BY	SUB	APP	DESCRIPTION
0	5.18.94	BY	JBV	GMC	BASELINE ISSUE

DESIGNED BY
B. YU
DRAWN BY
L. DECHVORAKJ
CHECKED BY
S. JOHNSON
IN CHARGE
J. VALENCIA
DATE
18 MAY 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

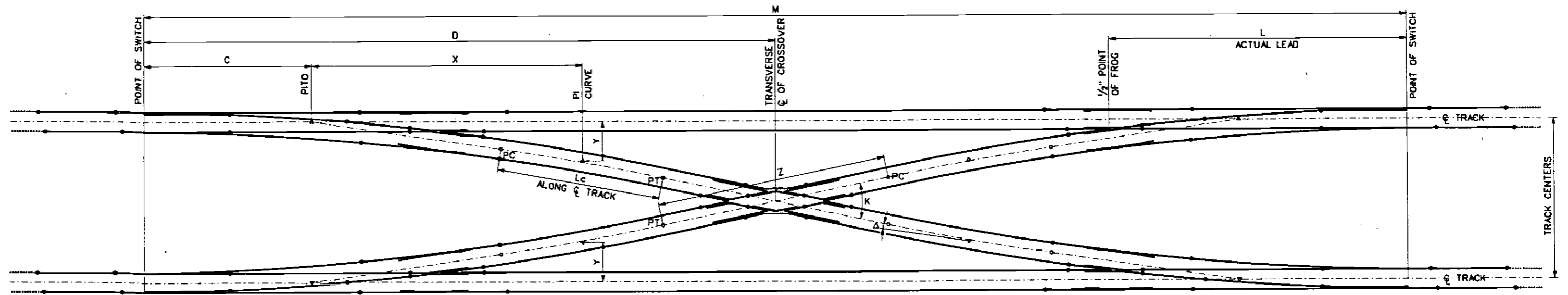
FORNIA ENGINEERING GROUP & CONSULTANTS, INC.
 2000 W. Century Blvd., Suite 1000
 Century City, CA 90045
 Telephone: (310) 451-1111
 Telex: 251111 FGM

SUBMITTED *Joseph P. Valencia*
 APPROVED *J.P.V.*

TRACKWORK DIRECTIVE

DOUBLE CROSSOVER DATA
TANGENT TRACK BETWEEN
TURNOUTS AND CROSSINGS

CONTRACT NO	
DRAWING NO	TD-003
REV	0
SCALE	NO SCALE
SHEET NO	



DOUBLE CROSSOVER - PLAN

DATA TABLE																
ITEM NO	TRACK CTRS	TURNOUT NO	TURNOUT ALIGNMENT	MANGANESE STEEL INSERT CROSSING	L	C	D	K	X	Y	M	Δ	R	T	Lc	Z
1	38'-10"	10	AREA 920 (SIMILAR)	AREA 761	78.92'	31.42'	180.64'	19° 11' 00"	84.37'	8.46'	361.27'	3° 52' 01"	806.09'	27.21'	54.40'	77.11'
2	42'-10"	10	AREA 920 (SIMILAR)	AREA 761	78.92'	31.42'	192.47'	19° 11' 00"	84.37'	8.46'	384.94'	3° 52' 01"	806.09'	27.21'	54.40'	101.12'
3	38'-6"	10	AREA 920 (SIMILAR)	AREA 761	78.92'	31.42'	179.65'	19° 11' 00"	84.37'	8.46'	359.30'	3° 52' 01"	806.09'	27.21'	54.40'	75.11'
4	38'-10"	645' R			72.85'	33.65'	154.01'	23° 40' 00"	66.18'	8.05'	308.01'	4° 54' 03"	645.00'	27.60'	55.17'	55.92'

NOTES:

1. ALL SINGLE AND DOUBLE CROSSOVER CONNECTING TRACKS WITH CENTERS EQUAL TO OR GREATER THAN 38'-6" SHALL BE DESIGNED WITH A MINIMUM 75' TANGENT CONNECTING THE TWO CURVES BETWEEN THE TURNOUT UNITS. FOR DOUBLE CROSSOVERS CONNECTING TRACKS WITH CENTERS LESS THAN 38'-6" REFER TO DRAWING NO TD-003.
2. ALL DIMENSIONS EXCEPT "K" SHALL APPLY EQUALLY TO SINGLE CROSSOVERS.
3. FOR TURNOUT DATA REFER TO DRAWING NO TD-002.
4. NO SUPERELEVATION WILL BE APPLIED TO ANY CROSSOVER.
5. DRAWING IS SYMMETRICAL ABOUT CENTERLINE.

DESIGNED BY B. YU	DATE 18 MAY 94
DRAWN BY L. DECHVORAKIJ	BY JBY/GMC
CHECKED BY S. JOHNSON	APP BASELINE ISSUE
IN CHARGE J. VALENCIA	
DATE 18 MAY 94	

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

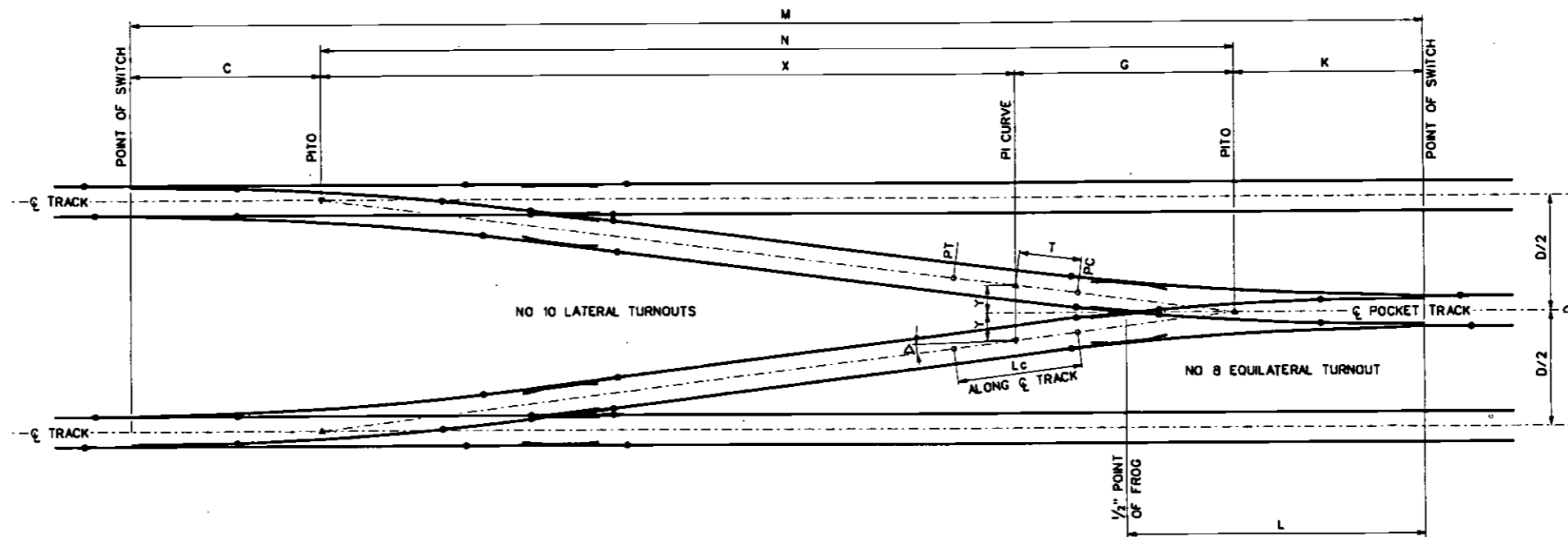
Submitted by: *Joseph B. Valencia*

Approved by: *[Signature]*

TRACKWORK DIRECTIVE

DOUBLE CROSSOVER DATA
CURVED TRACK BETWEEN
TURNOUTS AND CROSSINGS

CONTRACT NO	
DRAWING NO	TD-004
REV	0
SCALE	NO SCALE
SHEET NO	



CENTER POCKET TRACK - PLAN

ITEM NO	D (TRACK CTRS)	D/2	DATA TABLE							CURVE DATA					
			M	N	X	Y	C	K	L	G	Δ	R	T	Lc	Ea
1	38.83'	19.42'	278.20'	217.15'	154.83'	3.89'	31.42'	29.63'	67.70'	62.30'	2° 08' 54"	880.00'	16.50'	33.00'	0.00"
2	40.00'	20.00'	284.01'	222.96'	160.66'	3.89'	31.42'	29.63'	67.70'	62.30'	2° 08' 54"	880.00'	16.50'	33.00'	0.00"
3	42.83'	21.42'	298.15'	237.10'	174.80'	3.89'	31.42'	29.63'	67.70'	62.30'	2° 08' 54"	880.00'	16.50'	33.00'	0.00"

NOTES:

- FOR TURNOUT DATA REFER TO DRAWING NO TD-002.
- NO SUPERELEVATION WILL BE APPLIED TO THE TURNOUTS OR THE CONNECTING TRACK BETWEEN THEM.

REV	DATE	BY	SUB	APP	DESCRIPTION
0	5.18.94	BY	JBV	GMC	BASELINE ISSUE

DESIGNED BY
B. YU
DRAWN BY
A. DARDAN
CHECKED BY
S. JOHNSON
IN CHARGE
J. VALENCIA
DATE
18 MAY 94

M LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

BE&K ENGINEERING MANAGEMENT CONSULTANT
an affiliate of
Parsons Brinckerhoff Oser & Dunlap, Inc.
David Clark, Johnson & Mendenhall
Civil/Structural Engineers (SCE) Corp.
Engineers/Architects
James Gray, Inc.
The Hilltop Group, Inc.

SUBMITTED *[Signature]*
APPROVED *[Signature]*

TRACKWORK DIRECTIVE
CENTER POCKET TRACK DATA

CONTRACT NO	
DRAWING NO	TD-005
REV	0
SCALE	NO SCALE
SHEET NO	



VOLUME V
DIRECTIVE DRAWINGS
STRUCTURAL

MTA BASELINE DOCUMENT
NO. R92-DE305.02

BASELINE STATUS REPORT: DIRECTIVE/STANDARD DRAWINGS

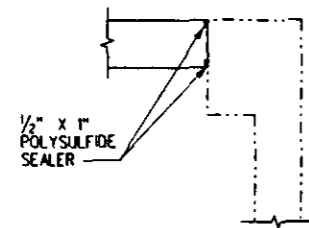
DRAWING NO.	REV.	DATE MODIFIED	DRAWING TITLE / Change Title	REMARKS
R92-DE305-02 DIRECTIVE DRAWINGS: STRUCTURAL				
SD-000	0	07/12/94	INDEX OF DRAWINGS Baseline issue	
SD-001	0	07/12/94	CLOSURE WALLS & DUST-PROOF PARTITIONS Baseline issue	
SD-002	0	07/12/94	CRITERIA FOR UNDERPINNING, PROTECTION WALL & SUPPORT Baseline issue	
SD-003	0	07/12/94	TYPICAL UNDERPINNING DETAILS Baseline issue	
SD-004	0	07/12/94	U-SECTION STRUCTURAL DIMENSION & REINFORCEMENT Baseline issue	
SD-005	0	07/12/94	U-SECTION DRAINAGE DETAILS Baseline issue	
SD-006	0	07/12/94	APPROACH SLAB TO U-SECTION OR BOX SECTION Baseline issue	
SD-007	0	07/12/94	EMERGENCY EXIT LAYOUT SCHEMES Baseline issue	
SD-008	0	07/12/94	STATION CROSS-SECTION AT OPEN PLATFORM AREA Baseline issue	
SD-009	0	07/12/94	STATION CROSS-SECTION AT MEZZANINE AREA Baseline issue	
SD-010	0	07/12/94	STATION CROSS-SECTION AT ANCILLARY AREA Baseline issue	
SD-011	0	07/12/94	CUT & COVER INTERFACE WITH TUNNEL Baseline issue	
SD-012	0	07/12/94	UNDERPLATFORM GENERAL ARRANGEMENT 28' - 0" WIDE PLATFORM Baseline issue	
SD-013	0	07/12/94	UNDERPLAFORM GENERAL ARRANGEMENT 32' - 0" WIDE PLATFORM Baseline issue	
SD-014	0	07/12/94	MEZZANINE GENERAL FRAMING ARRANGEMENT Baseline issue	
SD-015	0	07/12/94	MEZZANINE SLAB SECTIONS AND DETAILS Baseline issue	
SD-016	0	07/12/94	REINFORCED CONCRETE COLUMN DETAILS Baseline issue	
SD-017	0	07/12/94	ENTRANCE FROM STREET SURFACE Baseline issue	
SD-018	0	07/12/94	CONSTRUCTION JOINT SCHEDULE, WALL & SERVICE WALKWAY SCHEDULE Baseline issue	
SD-019	0	07/12/94	GENERAL ARRANGEMENT OF 645 FT RADIUS DOUBLE CROSSOVER STRUCTURE - TUNNEL SIDE Baseline issue	
SD-020	0	07/12/94	GENERAL ARRANGEMENT OF 645 FT RADIUS DOUBLE CROSSOVER STRUCTURE - PLATFORM SIDE Baseline issue	
SD-021	0	07/12/94	MEZZANINE/ANCILLARY FLOOR PLAN CROSSOVER STRUCTURE - TUNNEL SIDE Baseline issue	
SD-022	0	07/12/94	MEZZANINE/ANCILLARY FLOOR PLAN CROSSOVER STRUCTURE - PLATFORM SIDE Baseline issue	

BASELINE STATUS REPORT: DIRECTIVE/STANDARD DRAWINGS

DRAWING NO.	REV.	DATE MODIFIED	DRAWING TITLE / Change Title	REMARKS
R92-DE305-02 DIRECTIVE DRAWINGS: STRUCTURAL				
SD-000	0 1	07/12/94 04/01/97	INDEX OF DRAWINGS Baseline issue DE305-sbcn 7, revised & redrawn	
SD-001	0 1	07/12/94 04/01/97	CLOSURE WALLS & DUST-PROOF PARTITIONS Baseline issue DE305-sbcn 7, redrawn	
SD-002	0 1	07/12/94 04/01/97	CRITERIA FOR UNDERPINNING, PROTECTION WALL & SUPPORT Baseline issue DE305-sbcn 7, revised & redrawn	
SD-003	0 1	07/12/94 04/01/97	TYPICAL UNDERPINNING DETAILS Baseline issue DE305-sbcn 7, revised & redrawn	
SD-004	0 1	07/12/94 04/01/97	U-SECTION STRUCTURAL DIMENSION & REINFORCEMENT Baseline issue DE305-sbcn 7, revised & redrawn	
SD-005	0 1	07/12/94 04/01/97	U-SECTION DRAINAGE DETAILS Baseline issue DE305-sbcn 7, redrawn	
SD-006	0 1	07/12/94 04/01/97	APPROACH SLAB TO U-SECTION OR BOX SECTION Baseline issue DE305-sbcn 7, redrawn	
SD-007	0 1	07/12/94 04/01/97	EMERGENCY EXIT LAYOUT SCHEMES Baseline issue DE305-sbcn 7, revised & redrawn	
SD-008	0 1	07/12/94 04/01/97	STATION CROSS-SECTION AT OPEN PLATFORM AREA Baseline issue DE305-sbcn 7, revised & redrawn	
SD-009	0 1	07/12/94 04/01/97	STATION CROSS-SECTION AT MEZZANINE AREA Baseline issue DE305-sbcn 7, revised & redrawn	
SD-010	0 1	07/12/94 04/01/97	STATION CROSS-SECTION AT ANCILLARY AREA Baseline issue DE305-sbcn 7, revised & redrawn	
SD-011	0 1	07/12/94 04/01/97	CUT & COVER INTERFACE WITH TUNNEL Baseline issue DE305-sbcn 7, revised & redrawn	
SD-012	0 1	07/12/94 04/01/97	UNDERPLATFORM GENERAL ARRANGEMENT SHEET 1 OF 2 Baseline issue DE305-sbcn 7, revised & redrawn	
SD-013	0 1	07/12/94 04/01/97	UNDERPLATFORM GENERAL ARRANGEMENT SHEET 2 OF 2 Baseline issue DE305-sbcn 7, revised & redrawn	
SD-014	0 1	07/12/94 04/01/97	MEZZANINE GENERAL FRAMING ARRANGEMENT Baseline issue DE305-sbcn 7, revised & redrawn	
SD-015	0 1	07/12/94 04/01/97	MEZZANINE SLAB SECTIONS AND DETAILS Baseline issue DE305-sbcn 7, revised & redrawn	
SD-016	0 D 0	07/12/94 04/01/97	REINFORCED CONCRETE COLUMN DETAILS Baseline issue Deleted as per DE-305 Sbcn 7	
SD-017	0 1	07/12/94 04/01/97	ENTRANCE FROM STREET SURFACE Baseline issue DE305-sbcn 7, redrawn	
SD-018	0 1	07/12/94 04/01/97	CONSTRUCTION JOINT SCHEDULE, WALL & SERVICE WALKWAY SCHEDULE Baseline issue DE305-sbcn 7, redrawn	
SD-019	0 1	07/12/94 04/01/97	GENERAL ARRANGEMENT OF 645 FT RADIUS DOUBLE CROSSOVER STRUCTURE - TUNNEL SIDE Baseline issue DE305-sbcn 7, redrawn	

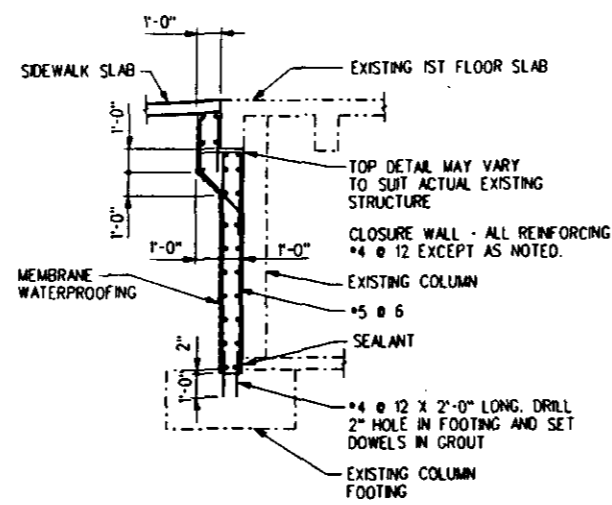
BASELINE STATUS REPORT: DIRECTIVE/STANDARD DRAWINGS

DRAWING NO.	REV.	DATE MODIFIED	DRAWING TITLE / Change Title	REMARKS
R92-DE305-02 DIRECTIVE DRAWINGS: STRUCTURAL				
SD-020	0 1	07/12/94 04/01/97	GENERAL ARRANGEMENT OF 645 FT RADIUS DOUBLE CROSSOVER STRUCTURE - PLATFORM SIDE Baseline issue DE305-sbcn 7, redrawn	
SD-021	0 1	07/12/94 04/01/97	MEZZANINE/ANCILLARY FLOOR PLAN CROSSOVER STRUCTURE - TUNNEL SIDE Baseline issue DE305-sbcn 7, redrawn	
SD-022	0 1	07/12/94 04/01/97	MEZZANINE/ANCILLARY FLOOR PLAN CROSSOVER STRUCTURE - PLATFORM SIDE Baseline issue DE305-sbcn 7, redrawn	
SD-023	0	04/01/97	BOX STRUCTURES DIMENSIONS & REINFORCEMENT Baseline issue / DE305-sbcn 7	
SD-050	0	04/01/97	TUNNEL ALIGNMENT AND WALKWAY CONTROL DATA Baseline issue per DE305-sbcn 7.00	
SD-088	0	04/01/97	CAST IN PLACE CONCRETE LINING TYPICAL SECTIONS AND DETAILS Baseline issue per DE305-sbcn 7.00	
SD-097	0	04/01/97	CAST IN PLACE CONCRETE LINING CROSS PASSAGES PLAN, SECTIONS AND DETAILS Baseline issue per DE305-sbcn 7.00	
SD-128	0	04/01/97	CAST IN PLACE LINING CONNECTION TO CUT AND COVER STRUCTURES Baseline issue per DE305-sbcn 7.00	
SD-130	0	04/01/97	CAST IN PLACE CONCRETE LINING CROSSPASSAGE STRUCTURES REINFORCING DETAILS Baseline issue per DE305-sbcn 7.00	
SD-135	0	04/01/97	CROSSPASSAGES AND SUMPS MISC REINFORCING DETAILS Baseline issue per DE305-sbcn 7.00	
SD-138	0	04/01/97	TUNNEL INVERT AND WALKWAY DIRECT FIXATION SUPERELEVATED TRACKS Baseline issue per DE305-sbcn 7.00	
SD-141	0	04/01/97	TUNNEL INVERT AND WALKWAY DIRECT FIXATION TANGENT TRACKS Baseline issue per DE305-sbcn 7.00	
SD-147	0	04/01/97	TUNNEL WALKWAY WITH METAL TROUGH SHEET 1 OF 2 Baseline issue per DE305-sbcn 7.00	
SD-148	0	04/01/97	TUNNEL WALKWAY WITH METAL TROUGH SHEET 2 OF 2 Baseline issue per DE305-sbcn 7.00	
SD-149	0	04/01/97	TUNNEL WALKWAY WITH CONCRETE TROUGH SHT 1 OF 2 Baseline issue per DE305-sbcn 7.00	
SD-150	0	04/01/97	TUNNEL WALKWAY WITH CONCRETE TROUGH SHT. 2 OF 2 Baseline issue per DE305-sbcn 7.00	



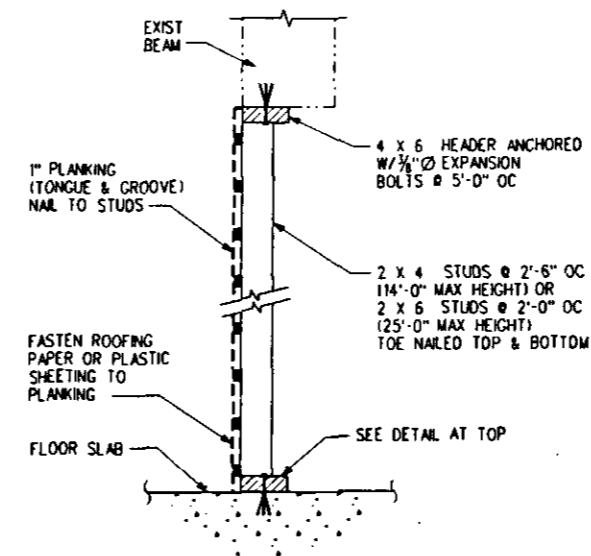
DETAIL

1
SD-001



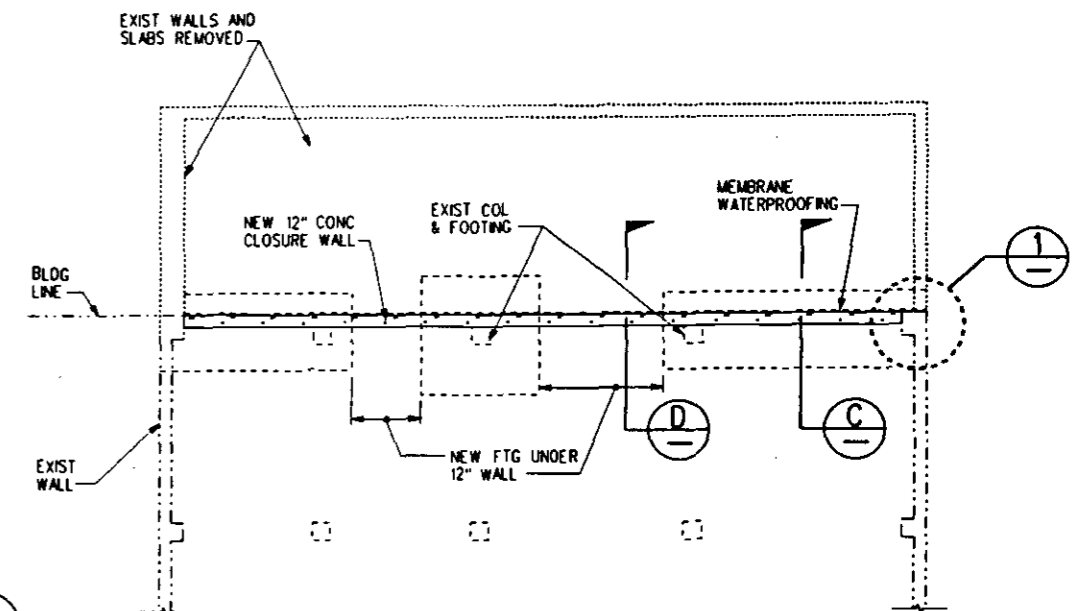
SECTION

C
SD-001

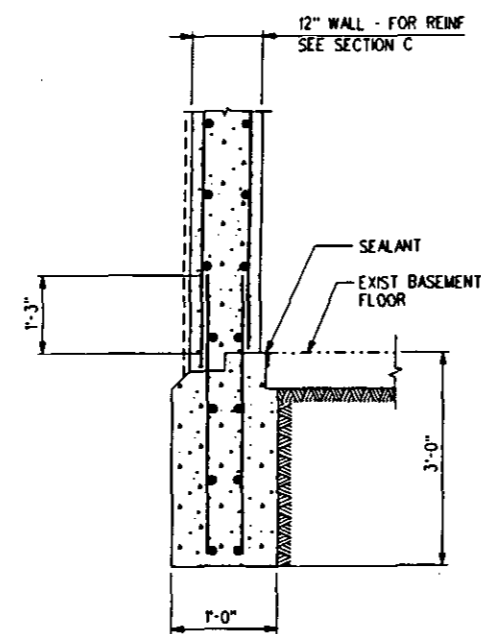


SECTION

A
SD-001

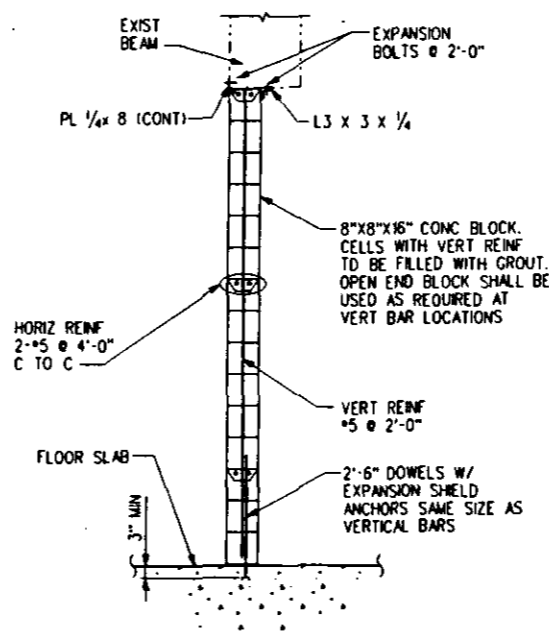


BASEMENT PLAN - RECONSTRUCTED



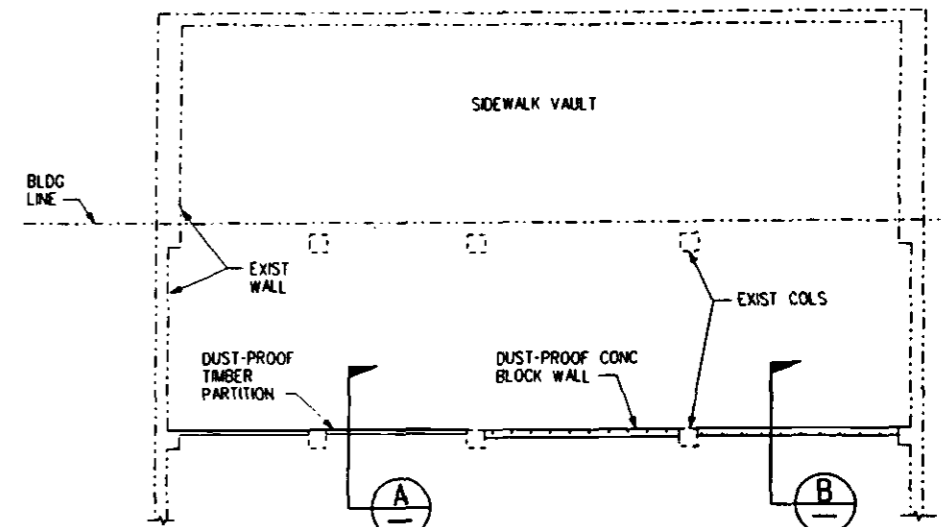
SECTION

D
SD-001



SECTION

B
SD-001



BASEMENT PLAN - EXISTING

NOTE: PLAN SHOWS INSTALLATIONS OF DUST-PROOF WALLS PRIOR TO UNDERPINNING OR SUBSIDEWALK VAULT REMOVAL.

REV	DATE	BY	APP	REQ NO	EXPIRES	SEAL HOLDER	DESCRIPTION
0	7/12/94						BASELINE ISSUE
1	4/1/97			32584	6/30/97	N.P. PANDYA	DE305-SBCN 7, REDRAWN

DESIGNED BY
N. PANDYA
DRAWN BY
R. BAUTISTA
CHECKED BY
P. LIN
IN CHARGE
N. PANDYA
DATE
6/30/94

A SIGNED ORIGINAL OF REV D OF THIS DRAWING IS MAINTAINED BY MTA

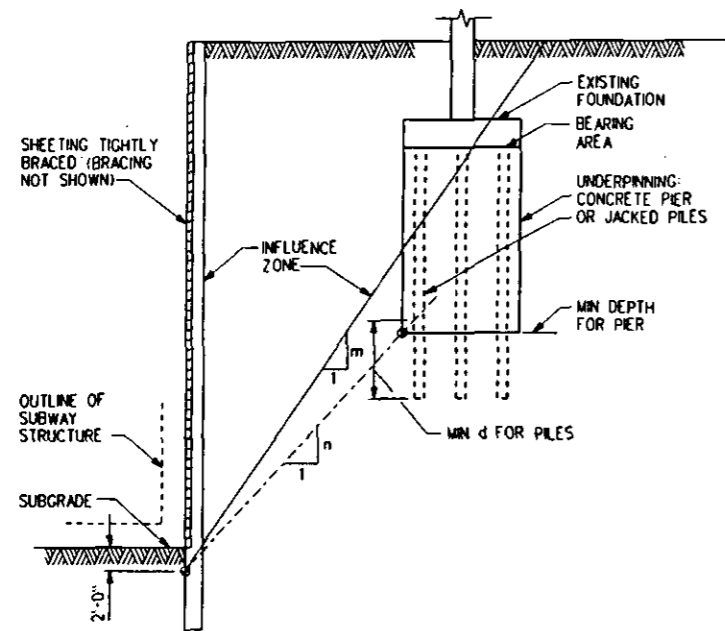
LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

SUBMITTED: N. P. PANDYA
APPROVED: K. N. MURTHY

STRUCTURAL DIRECTIVE
CUT & COVER SUBWAY
CLOSURE WALLS & DUST-PROOF
PARTITIONS

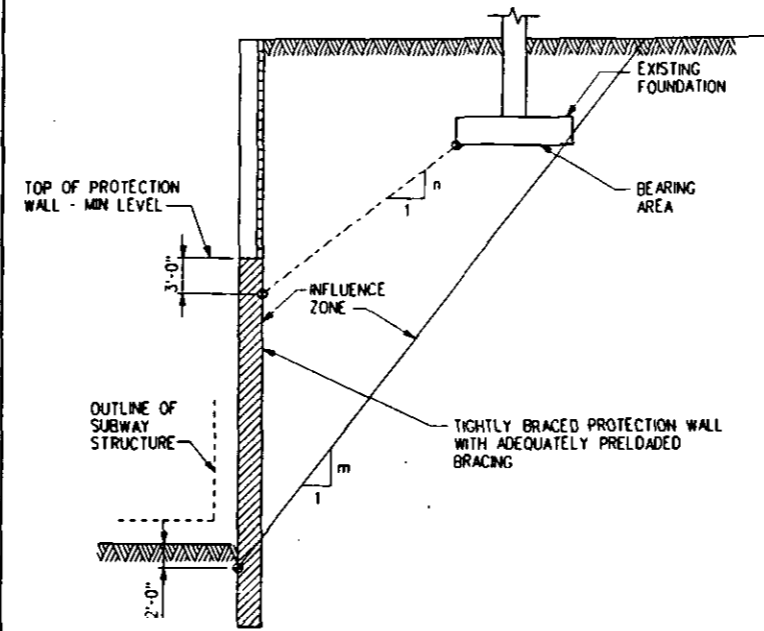
CONTRACT NO	
DRAWING NO	SD-001
REV	1
SCALE	NO SCALE
SHEET NO	



	m	n	d
MAJOR STRUCTURE	1.5	1.0	5'-0"
MINOR STRUCTURE	2.0	1.5	5'-0"

1. NO UNDERPINNING REQUIRED WHEN THE BEARING AREA OF EXISTING FOUNDATION DOES NOT ENCRoACH THE INFLUENCE ZONE.
2. UNDERPINNING REQUIRED WHEN THE BEARING AREA OF EXISTING FOUNDATION LIES ENTIRELY OR PARTIALLY WITHIN THE INFLUENCE ZONE.

CASE I
UNDERPINNING FOR VERTICAL CUT

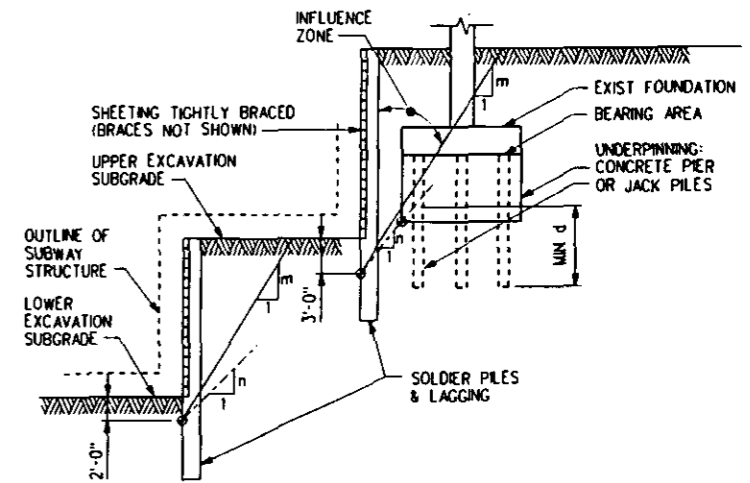


	m	n
MAJOR STRUCTURE	1.5	1.0
MINOR STRUCTURE	2.0	1.5

NO UNDERPINNING REQUIRED IF THE SOIL IS RETAINED BY PROTECTION WALL AS SHOWN

- PROTECTION WALL:
- A) INTERLOCKING SHEET PILING
 - B) SLURRY TRENCH REINFORCED CONCRETE
 - C) SOLDIER PILES & TREMIE CONCRETE
 - D) INTERSECTING REINFORCED CONCRETE CAISSONS
 - E) CLOSELY SPACED OR TANGENT SOLDIER PILES
 - F) ANY SIMILAR SYSTEM

CASE II
PROTECTION WALL FOR VERTICAL CUT



	m	n	d
MAJOR STRUCTURE	1.5	1.0	5'-0"
MINOR STRUCTURE	2.0	1.5	5'-0"

1. UNDERPINNING DETERMINED BY EITHER THE UPPER EXCAVATION OR LOWER EXCAVATION, OR BOTH.
2. NO UNDERPINNING REQUIRED IF PROPERLY BRACED PROTECTION WALL IS USED FOR CRITICAL EXCAVATION; APPLY CRITERIA FOR PROTECTION WALL.

CASE III
UNDERPINNING FOR BERMED EXCAVATION

DEFINITION OF STRUCTURES

MAJOR STRUCTURES

- A) HIGH ECONOMIC VALUE
- B) TRANSMITS HEAVY FOUNDATION LOAD
- C) OF RIGID CONSTRUCTION
- D) LANDMARK, CULTURAL, RELIGIOUS IMPORTANCE
- E) VITAL TRANSPORTATION/SERVICE FACILITY

MINOR STRUCTURES

- A) LOW ECONOMIC VALUE
- B) LIGHT IN WEIGHT
- C) OF FLEXIBLE CONSTRUCTION
- D) SCHEDULED FOR DEMOLITION

NOTE:

THE VALUES OF m & n INDICATED ON THIS DRAWING ARE FOR GENERAL CASES. THESE VALUES SHOULD BE VERIFIED WITH THE GEOTECHNICAL ENGINEER FOR SPECIFIC CASES.

REV	DATE	BY	APP	REG NO	EXPIRES	SERIAL HOLDER	DESCRIPTION
V	4/1/97			32584	6/30/97	N.P.PANDYA	DE305-SBCN 7, REVISED & REDRAWN
0	7/12/94						BASELINE ISSUE

DESIGNED BY
N.P.PANDYA
DRAWN BY
R.BAUTISTA
CHECKED BY
P.LIN
IN CHARGE
N.P.PANDYA
DATE
6/30/94

A SIGNED ORIGINAL OF REV 0 OF THIS DRAWING IS MAINTAINED BY MTA

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

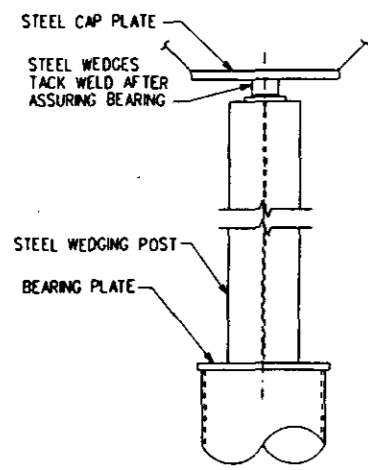
1000 Wilshire Blvd., Suite 1000, Los Angeles, CA 90017
 213-400-1000
 1000 Wilshire Blvd., Suite 1000, Los Angeles, CA 90017
 213-400-1000

SUBMITTED: N. P. PANDYA
APPROVED: K. N. MURTHY

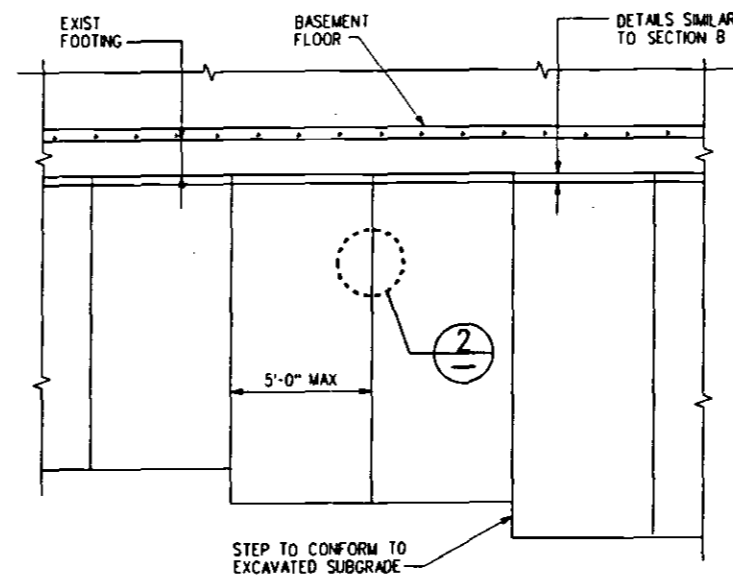
STRUCTURAL DIRECTIVE
CUT & COVER SUBWAY
CRITERIA FOR UNDERPINNING,
PROTECTION WALL & SUPPORT

CONTRACT NO	
DRAWING NO	SD-002
REV	1
SCALE	NO SCALE
SHEET NO	

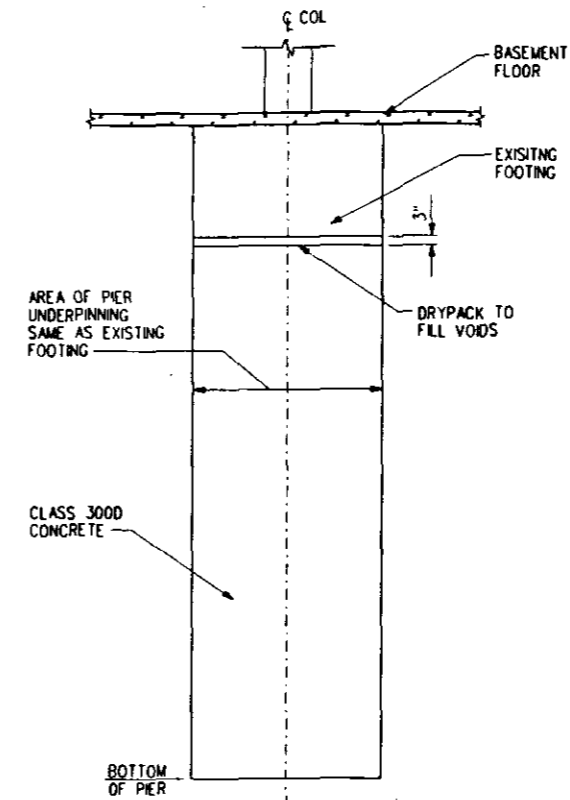
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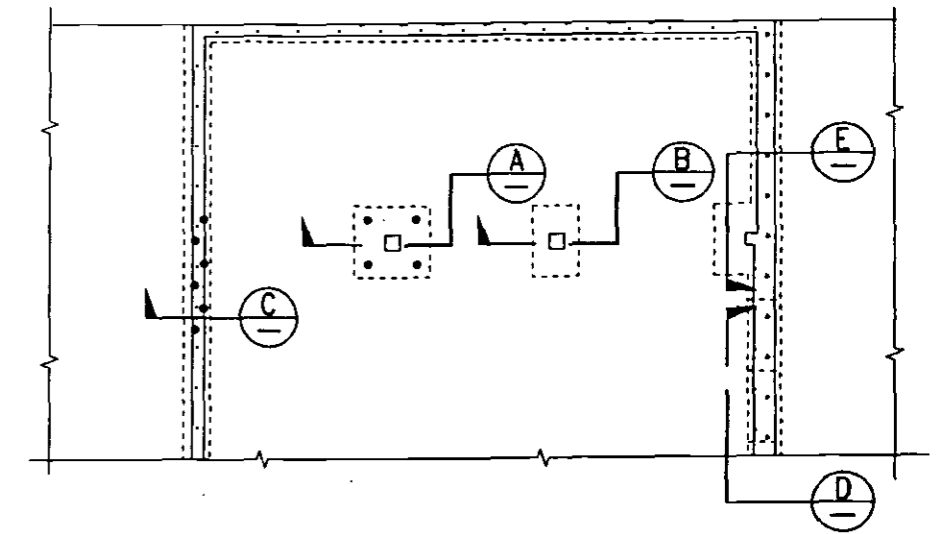
SECTION G
SD-003



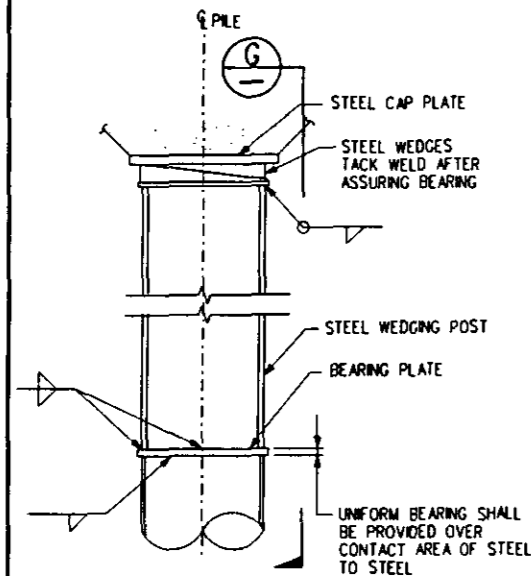
SECTION D
SD-003
PIER UNDERPINNING OF CONTINUOUS WALL



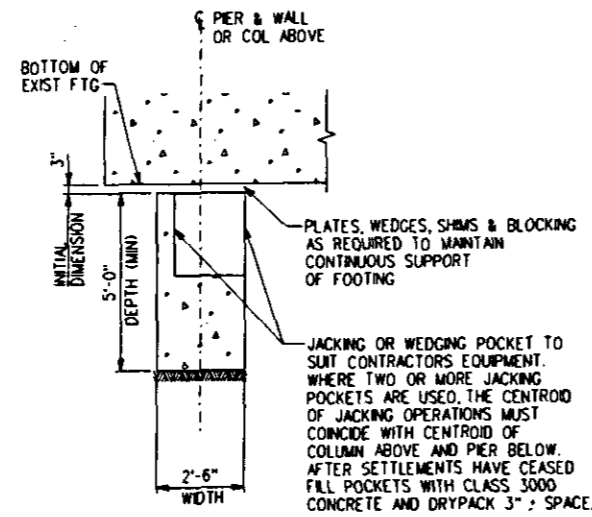
SECTION B
SD-003
PIER UNDERPINNING OF COLUMN



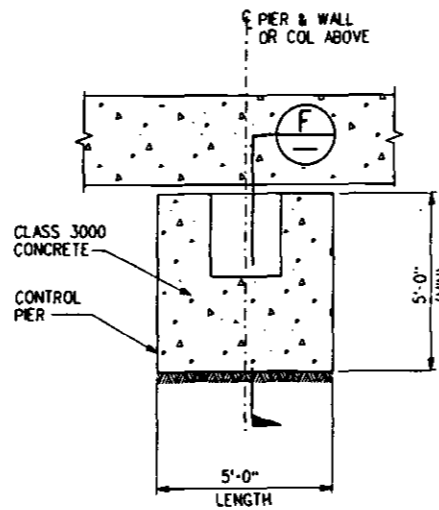
UNDERPINNING KEY PLAN



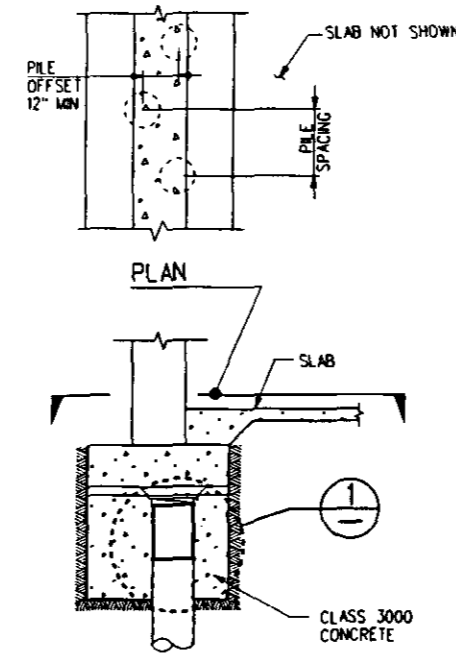
DETAIL I
SD-003



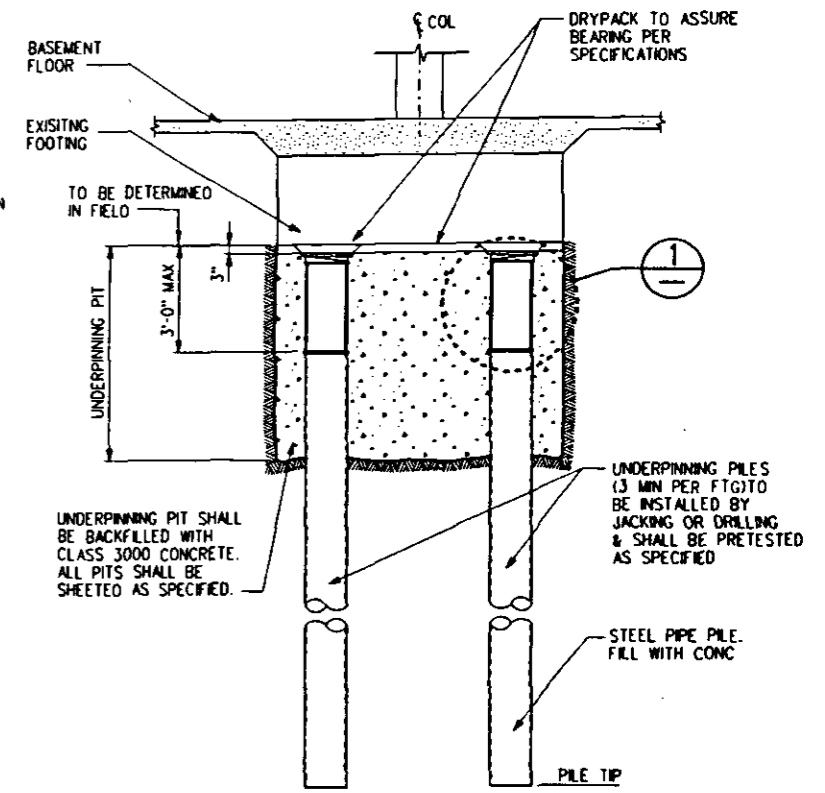
SECTION F
SD-003
UNDERPINNING CONTROL PIER



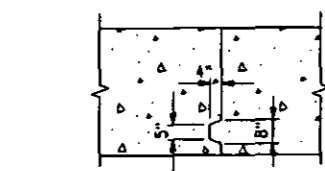
SECTION E
SD-003
UNDERPINNING CONTROL PIER



SECTION C
SD-003
PILE UNDERPINNING OF CONTINUOUS WALL



SECTION A
SD-003
PILE UNDERPINNING OF COLUMN



DETAIL F
SD-003
KEY FOR CONTIGUOUS PIERS

REV	DATE	BY	APP	REG NO	EXPIRES	SEAL HOLDER	DESCRIPTION
0	7/12/94						BASELINE ISSUE
1	4/1/97			32584	6/30/97	N.P.PANDYA	DE305-SBCN 7, REVISED & REDRAWN

DESIGNED BY
N.PANDYA
DRAWN BY
R.BAUTISTA
CHECKED BY
P.LIN
IN CHARGE
N.PANDYA
DATE
6/30/94

A SIGNED ORIGINAL OF REV 0 OF THIS DRAWING IS MAINTAINED BY MTA

M LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

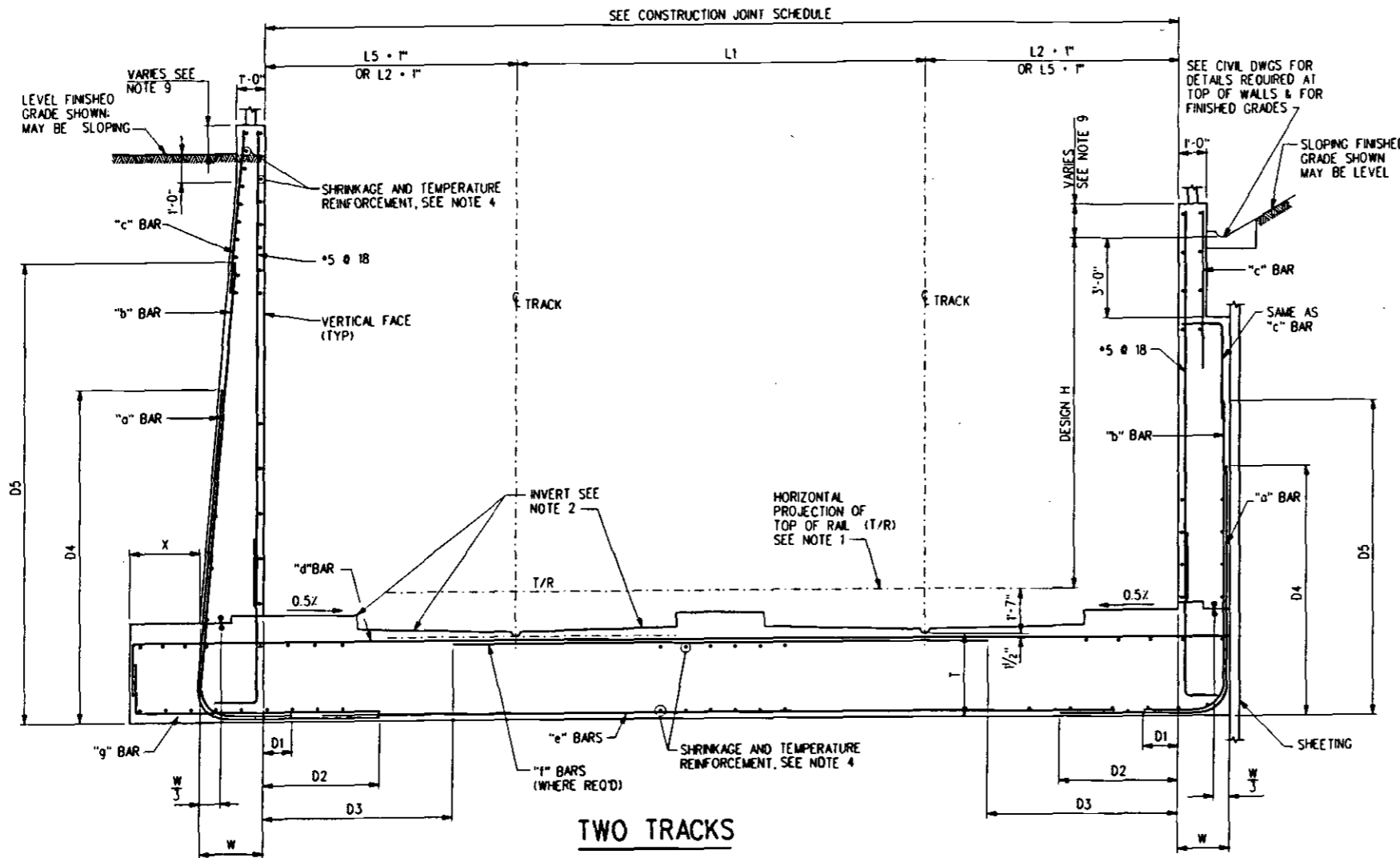
APPROVED BY: N. P. PANDYA
APPROVED BY: K. N. MURTHY

STRUCTURAL DIRECTIVE
CUT & COVER SUBWAY
TYPICAL UNDERPINNING DETAILS

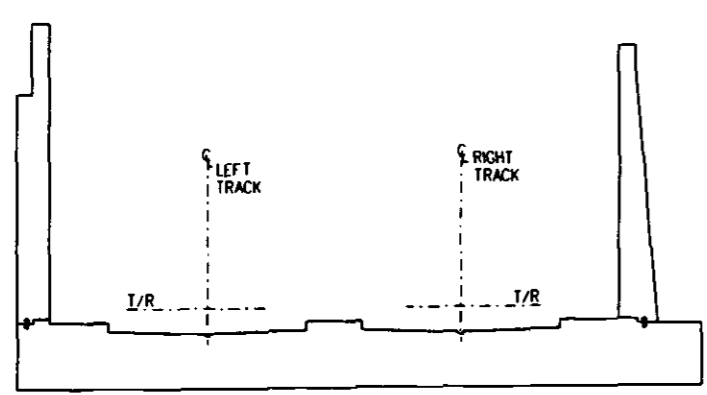
CONTRACT NO	
DRAWING NO	SD-003
REV	1
SCALE	NO SCALE
SHEET NO	

TAPERED WALL ALTERNATE TYPE (A)

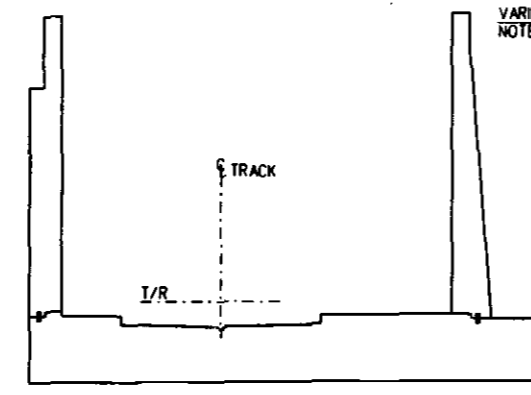
STRAIGHT WALL ALTERNATE TYPE (B)



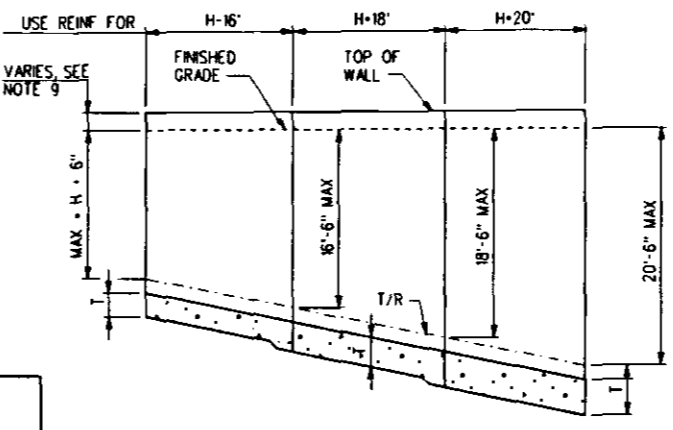
SCHEDULE OF DIMENSIONS AND REINFORCING STEEL											
RIGHT WALL (TYPE A OR B)	DESIGN H										
	a BAR										
	b BAR										
	c BAR										
	D1										
LEFT WALL (TYPE A OR B)	D2										
	D4										
	D5										
	W										
	X										
GRADE SLAB	d BAR										
	e BAR										
	f BAR										
	g BAR										
	D3										
	T										



TWO TRACKS



ONE TRACK



TYPICAL LAYOUT EXAMPLE

- NOTES:**
- TOP OF RAIL REFERS TO LOW RAIL OF SUPERELEVATED TRACKS.
 - INVERT FOR TANGENT ALIGNMENT IS SHOWN. DETAILS AND DIMENSIONS FOR THIS AND SUPERELEVATED INVERTS ARE SHOWN ON STANDARD DRAWING SS-015.
 - SELECTION OF WALL SHAPES TYPE A OR B MAY BE BY DESIGNER OR OPTIONAL BY CONTRACTOR TO SUIT CONSTRUCTION CONDITIONS.
 - SHRINKAGE AND TEMPERATURE REINFORCEMENT:
GRADE SLAB: T-24" TO 36", #6 @ 12 T & B
T-OVER 36", #7 @ 12 T & B
WALLS: WIDTH - 12" TO 18", #5 @ 16 EF
18" TO 24", #5 @ 12 EF
OVER 24", #6 @ 12 EF
 - LEVEL OR SLOPING FINISHED GRADE MAY PERTAIN TO EITHER TYPE A OR B WALL SHAPES.
 - MINIMUM 28-DAY COMPRESSIVE STRENGTH OF CONCRETE IS 4000 PSI.
 - REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60.
 - FOR BAR SPLICES SEE STANDARD DRAWING SS-019.
 - DISTANCE FROM FINISHED GRADE TO TOP OF WALL HERE SHOWN AS VARIES. DESIGNER TO DETERMINE BASED ON LOCAL DESIGN AND GRADING CONDITIONS.
 - THE DIMENSION "X" TO BE DETERMINED BY DESIGNER TO SUIT LOCAL CONDITION AND NEED FOR UPLIFT RESISTANCE.
 - FOR COLLECTOR GRID REQUIREMENT ON BASE SLAB REINFORCEMENT SEE DWG SS-033 SIMILAR.

REV	DATE	BY	APP	REC NO	EXPIRES	SEAL HOLDER	DESCRIPTION
0	4/1/97	WJF	gms	32584	6/30/97	N.P.PANDYA	DE305-SBCN 7, REVISED & REDRAWN
0	7/12/94						BASELINE ISSUE

DESIGNED BY
N.PANDYA
DRAWN BY
R.BAUTISTA
CHECKED BY
P.LIN
IN CHARGE
N.PANDYA
DATE
6/30/94

A SIGNED ORIGINAL OF REV 0 OF THIS DRAWING IS MAINTAINED BY MTA

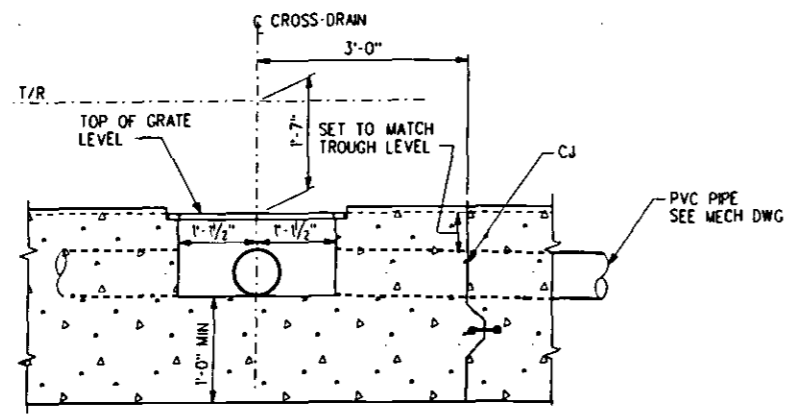
LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

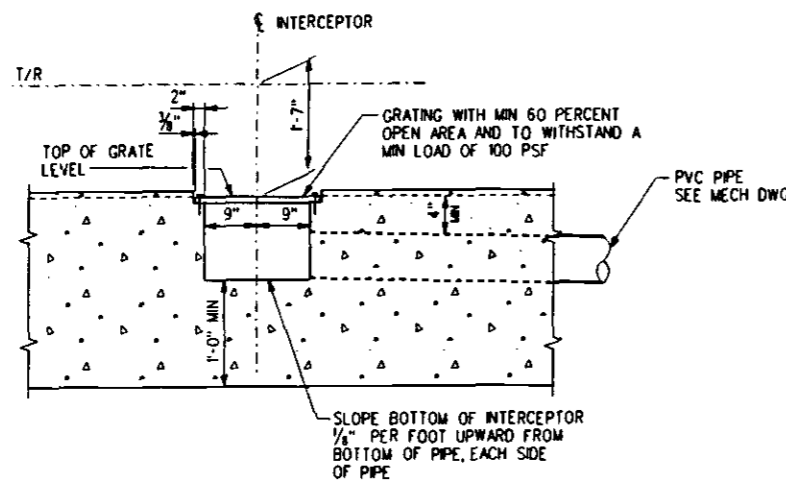
SUBMITTED: **N. P. PANDYA**
APPROVED: **K. N. MURTHY**

STRUCTURAL DIRECTIVE CUT & COVER SUBWAY U-SECTION STRUCTURAL DIMENSION & REINFORCEMENT

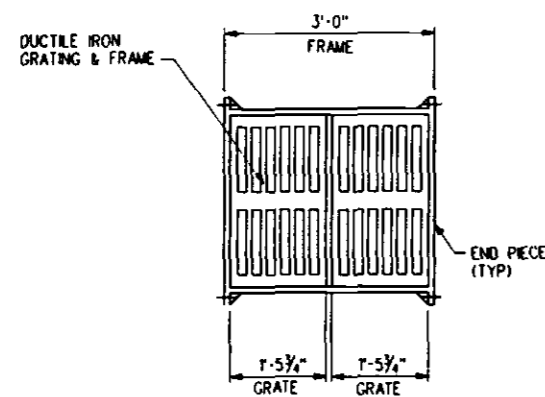
CONTRACT NO	
DRAWING NO	SD-004
SCALE	NO SCALE
SHEET NO	1



SECTION B SD-005

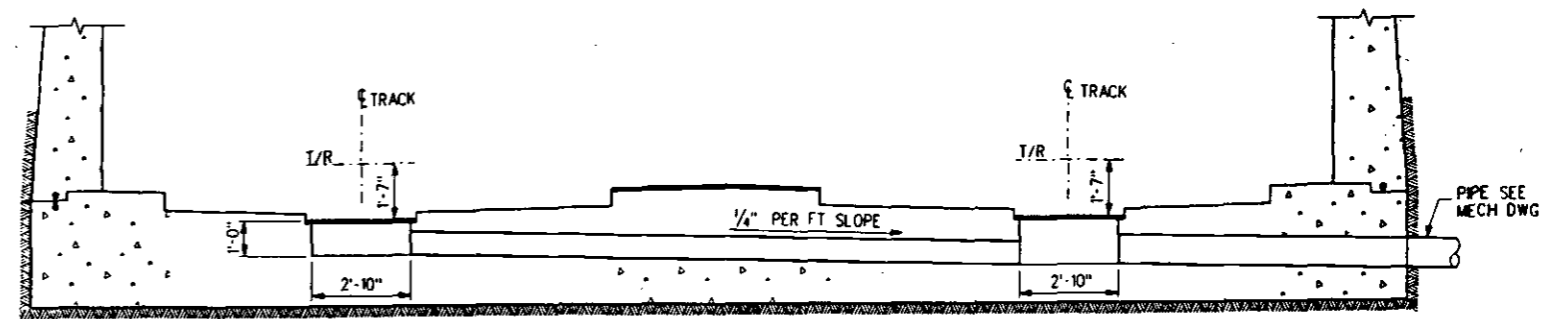


SECTION C SD-005

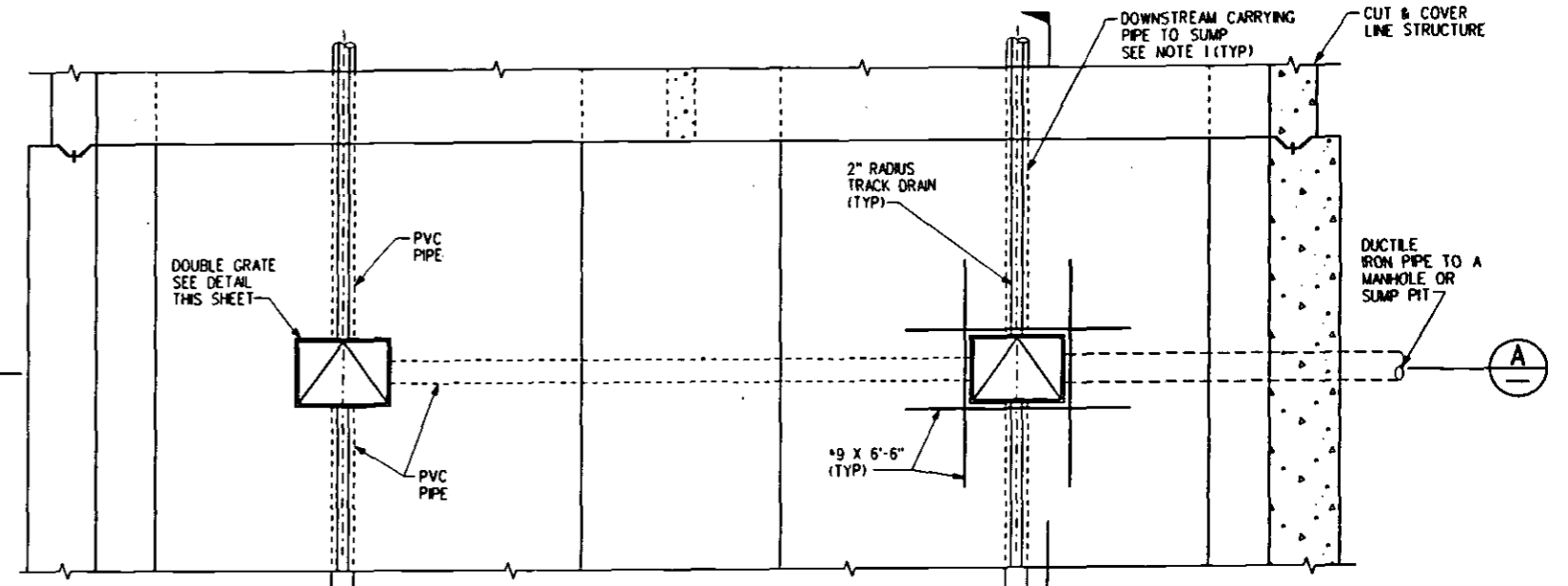


DOUBLE GRATE

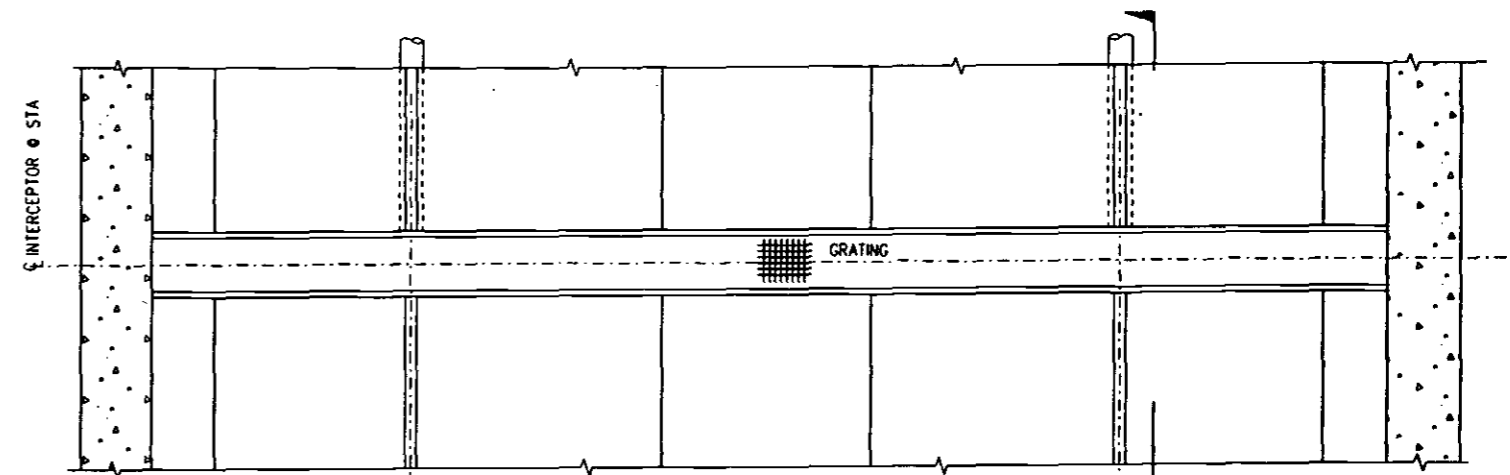
- NOTES:
1. AT THE PORTAL CROSS-DRAIN, COLLECTED RUN-OFF MAY BE DIVERTED TO ANY NEW OR MODIFIED STORM DRAIN SYSTEM IF CONDITIONS AND CODES SO PERMIT. FOR THIS CASE OMIT DOWNSTREAM CARRYING PIPES.
 2. SLAB REINFORCEMENT NOT SHOWN. MUST BE DETAILED TO SUIT SLAB DESIGN REQUIREMENTS AND CONFIGURATIONS AROUND INTERCEPTOR AND CROSS-DRAIN.
 3. INVERT FOR TANGENT ALIGNMENT AND WALKWAY BETWEEN TRACKS IS SHOWN, OTHERS ARE SIMILAR.



SECTION A SD-005



PLAN OF CROSS DRAIN IN OPEN CUT B

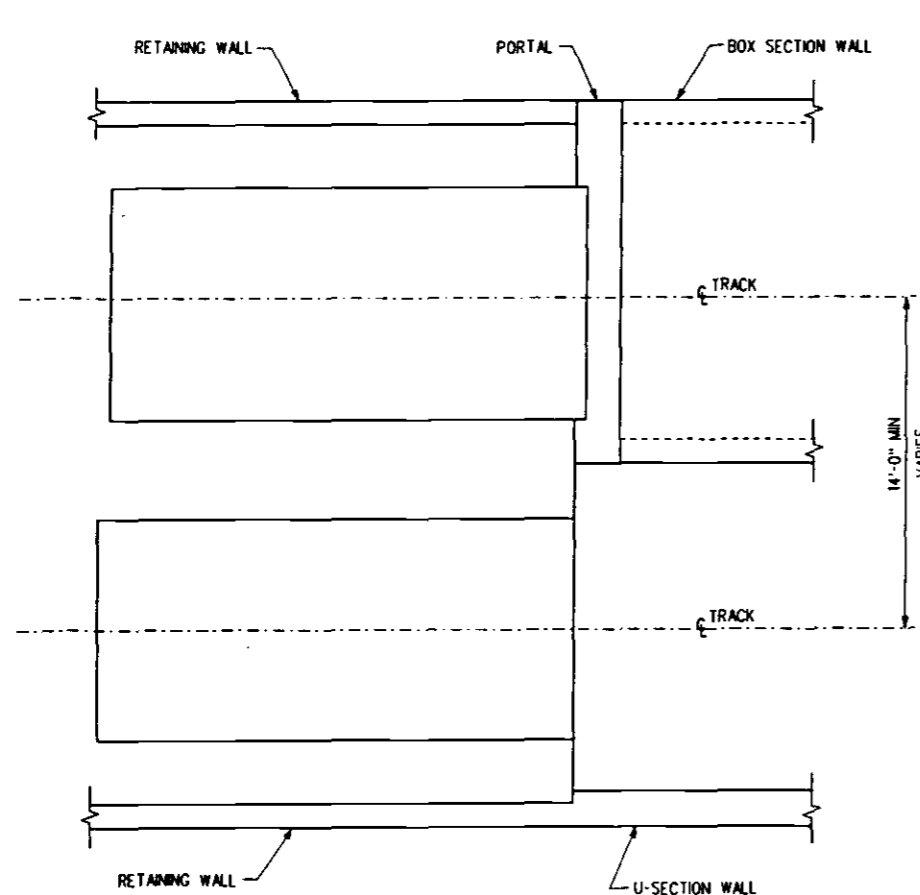


PLAN OF INTERCEPTOR

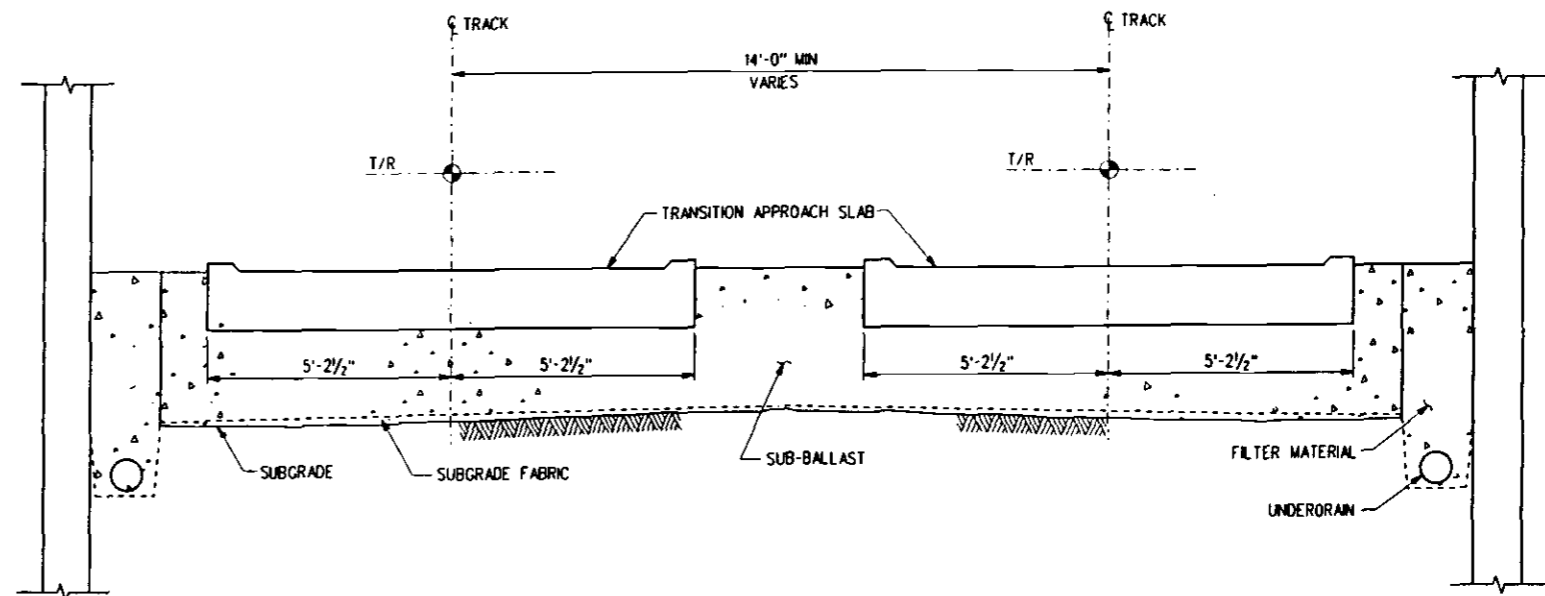
INTERCEPTOR TO BE LOCATED WITHIN 50' OF CROSS DRAIN

							DESIGNED BY N. PANDYA	A SIGNED ORIGINAL OF REV 0 OF THIS DRAWING IS MAINTAINED BY MTA		CONTRACT NO		
							DRAWN BY R. BAUTISTA			LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY	STRUCTURAL DIRECTIVE CUT & COVER SUBWAY U-SECTION DRAINAGE DETAILS	CONTRACT NO SD-005
							CHECKED BY P. LIN			ENGINEERING MANAGEMENT CONSULTANT	NO SCALE	REV 1
							IN CHARGE N. PANDYA			ENGINEERING MANAGEMENT CONSULTANT	NO SCALE	SHEET NO
REV	DATE	BY	APP	REG NO	EXPIRES	SEAL HOLDER	DESCRIPTION	SUBMITTED	APPROVED			
0	1/12/94			32584	6/30/97	N. PANDYA	DE305-SBON 7, REDRAWN	N. P. PANDYA	K. N. MURTHY			
							BASELINE ISSUE					

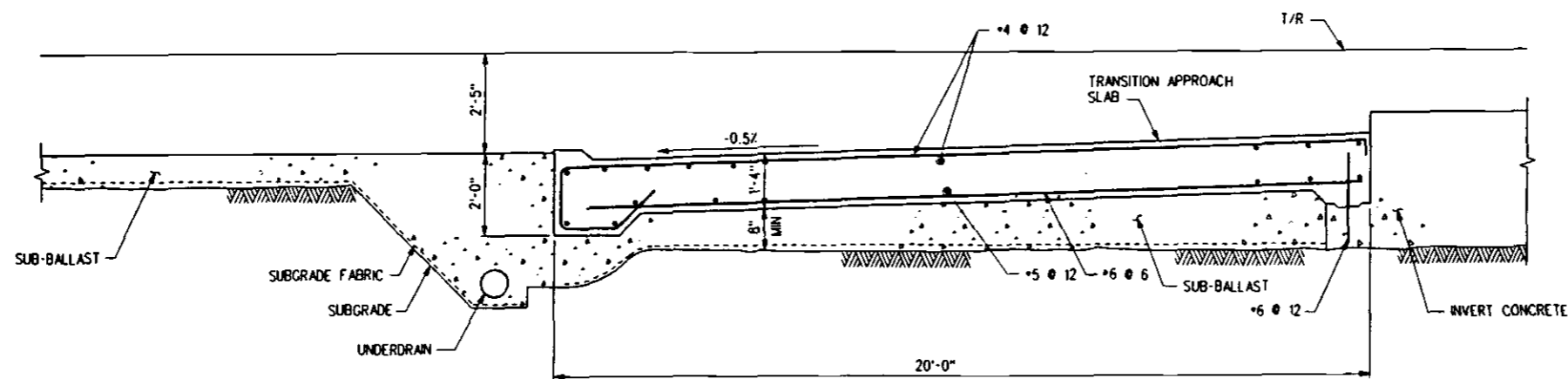
3 MAR 1997 13:32 / s:\mtd\pnc\cddr\gdr\stn\cut/rev/210005.dwg
 PLOTTED BY: ddb2000



PLAN
1/4" = 1'-0"



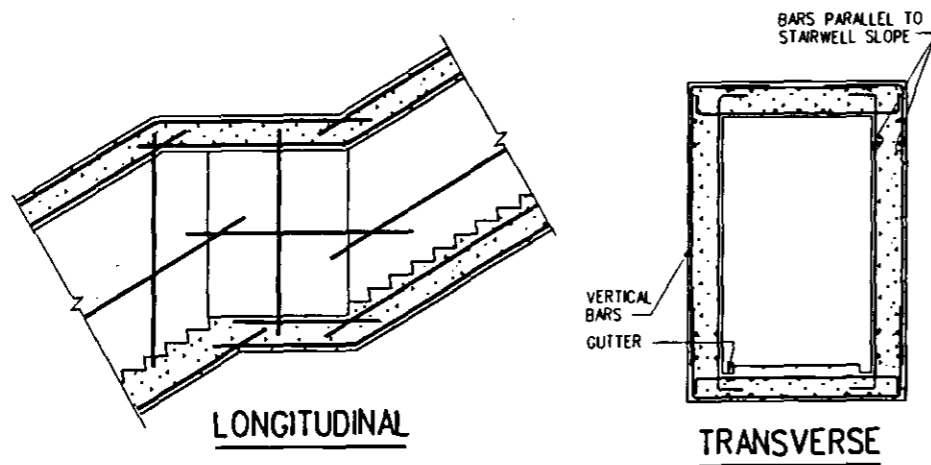
TRANSVERSE SECTION
1/2" = 1'-0"



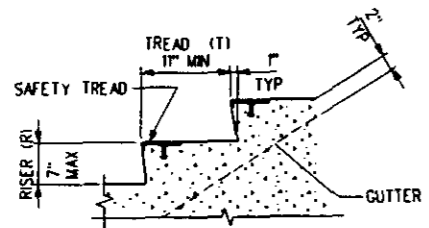
LONGITUDINAL TRANSITION BALLASTED TO DIRECT FIXATION
1/2" = 1'-0"

							DESIGNED BY N.PANDYA	LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY A SIGNED ORIGINAL OF REV 0 OF THIS DRAWING IS MAINTAINED BY MTA ENGINEERING MANAGEMENT CONSULTANT <small>Professional Engineers, Architects & Surveyors, Inc. 22 - 1st Street, Suite 100, Los Angeles, CA 90012 (213) 622-1111 Fax: (213) 622-1112 www.emc.com</small>	SUBMITTED <u>N. P. PANDYA</u> APPROVED <u>K. N. MURTHY</u>		CONTRACT NO. DRAWING NO. SD-006 REV 1 SCALE AS NOTED SHEET NO.	
							DRAWN BY R.BAUTISTA					
							CHECKED BY P.LIN					
							IN CHARGE N.PANDYA					
REV	DATE	BY	APP	REG NO	EXPIRES	SEAL HOLDER	DESCRIPTION	DATE				
0	7/12/94			32584	6/30/97	N.P.PANDYA	DE305-SBCN 7, REDRAWN	6/30/94				
1	4/1/97						BASELINE ISSUE					

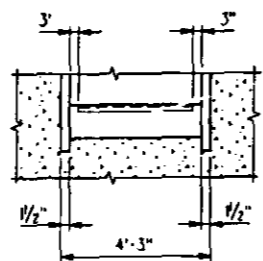
1. 10/18/97 11:13:13 - renuler/enc/eng/struct/rev/rev0608.dwg
 PLOTTED BY: 282240



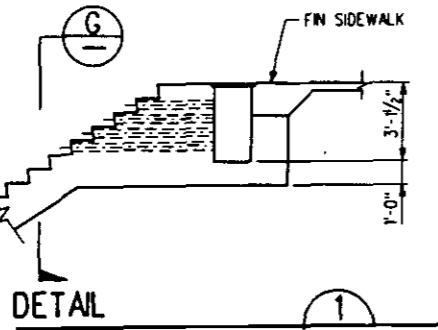
ARRANGEMENT OF REINFORCEMENT



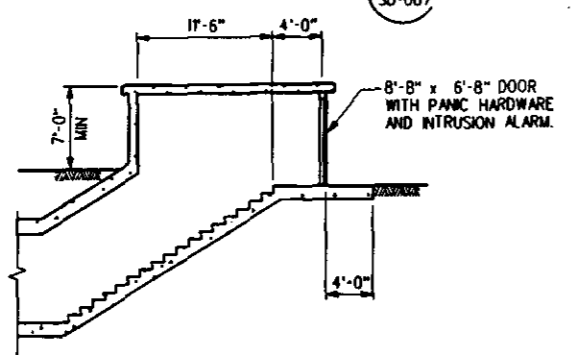
STAIR DETAILS



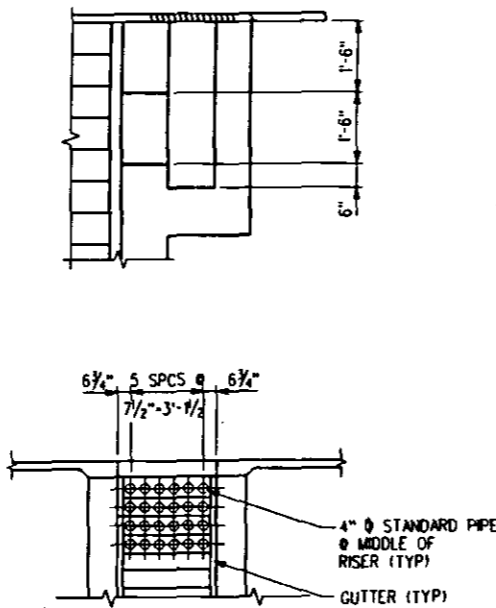
NOTE:
HDPE MEMBRANE NOT SHOWN,
MUST BE INDICATED ON
CONTRACT DRAWINGS.



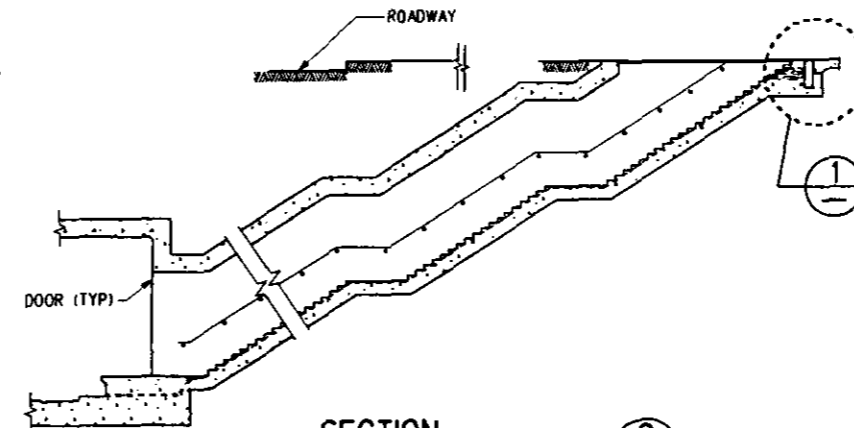
DETAIL



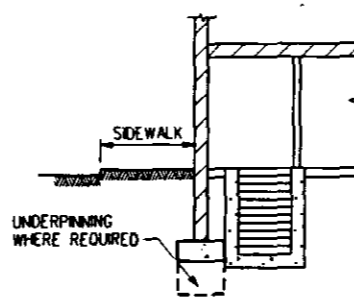
SECTION-EMERGENCY EXIT AT OPEN AREA



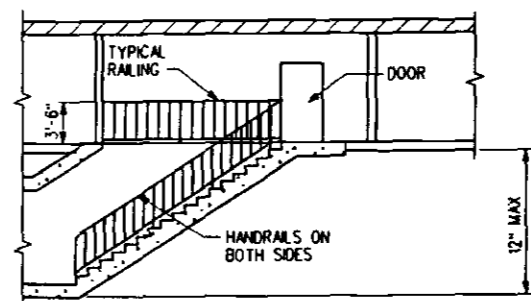
SECTION



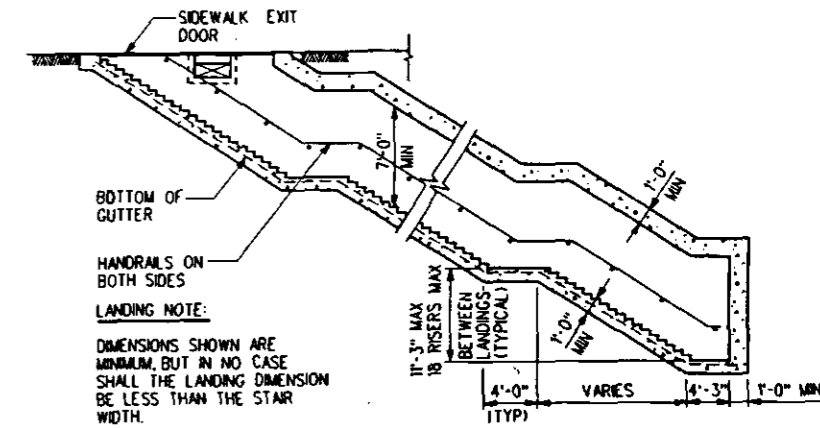
SECTION



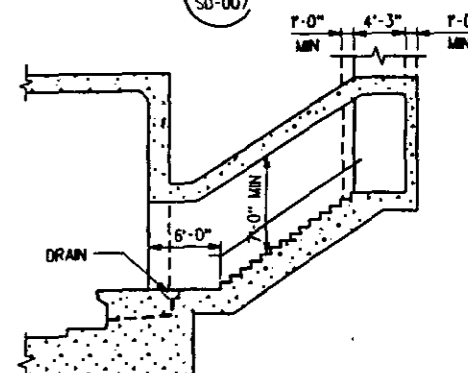
SECTION



SECTION



SECTION



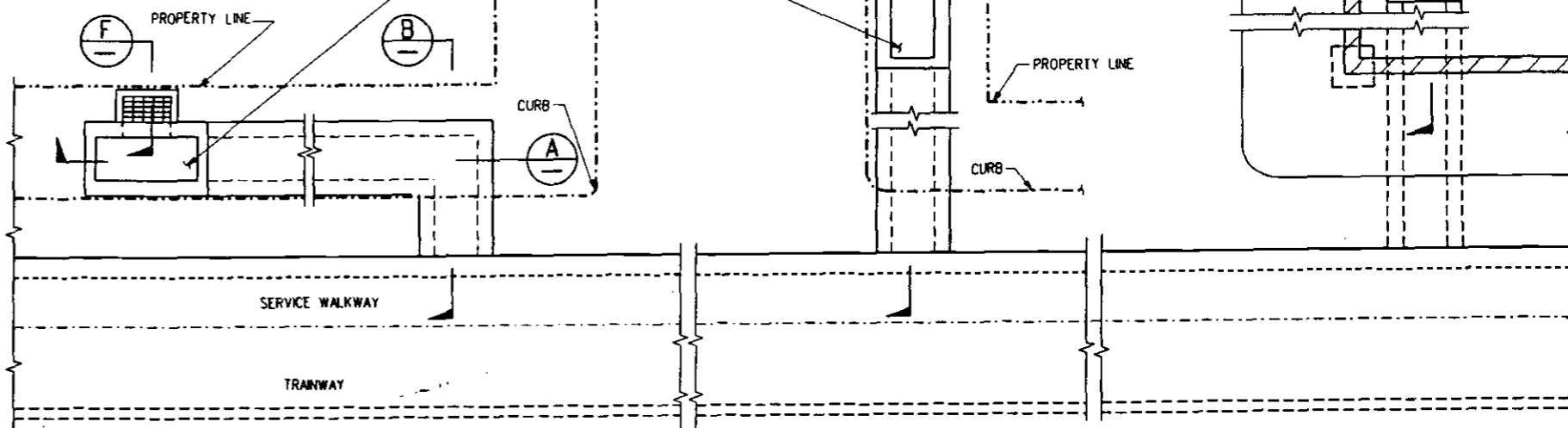
SECTION

SIDEWALK NOTE:
EXIT DOORS SHALL NOT BE LOCATED IN PUBLIC SIDEWALKS OR PEDESTRIAN WAYS UNLESS NO OTHER ALTERNATIVE LOCATION IS AVAILABLE.

LOCATION OF EXIT DOORS TO BE GOVERNED BY LOCAL SITE CONDITIONS

BUILDING NOTE:

EXITS THROUGH A BUILDING ARE ACCEPTABLE ONLY IF THE EXIT PASSAGEWAY IS INDEPENDENT OF THE BUILDING'S OPERATIONS AND HOURS.



PLAN-EMERGENCY EXIT IN SIDEWALK

PLAN-EMERGENCY EXIT THROUGH BUILDING

REV	DATE	BY	APP	REG NO	EXPIRES	SEAL HOLDER	DESCRIPTION
0	7/12/94						BASELINE ISSUE
1	4/1/97			32584	6/30/97	N.P.PANDYA	DE305-SBCN 7, REVISED & REDRAWN

DESIGNED BY
N.PANDYA

DRAWN BY
S.MARTINEZ

CHECKED BY
P.LIN

IN CHARGE
N.PANDYA

DATE
6/30/94

M LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

REGISTERED PROFESSIONAL ENGINEER

EXPIRES 12/31/99

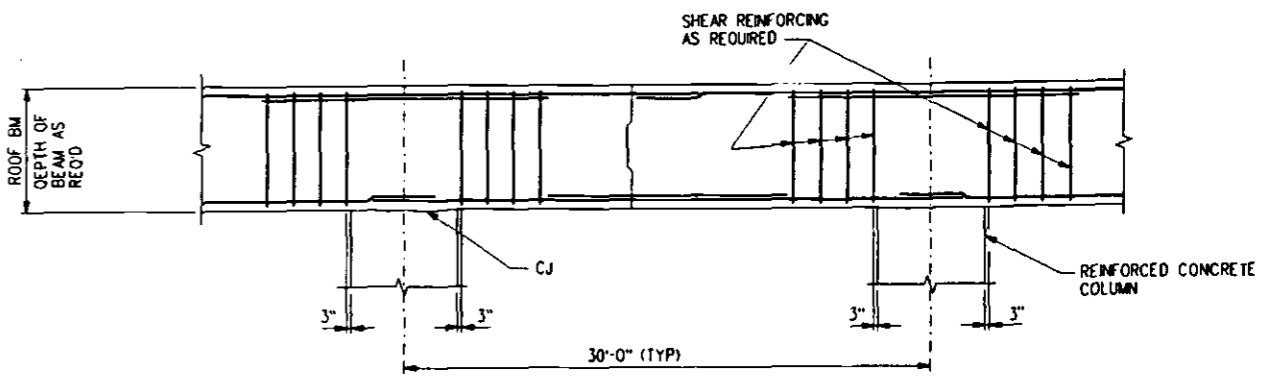
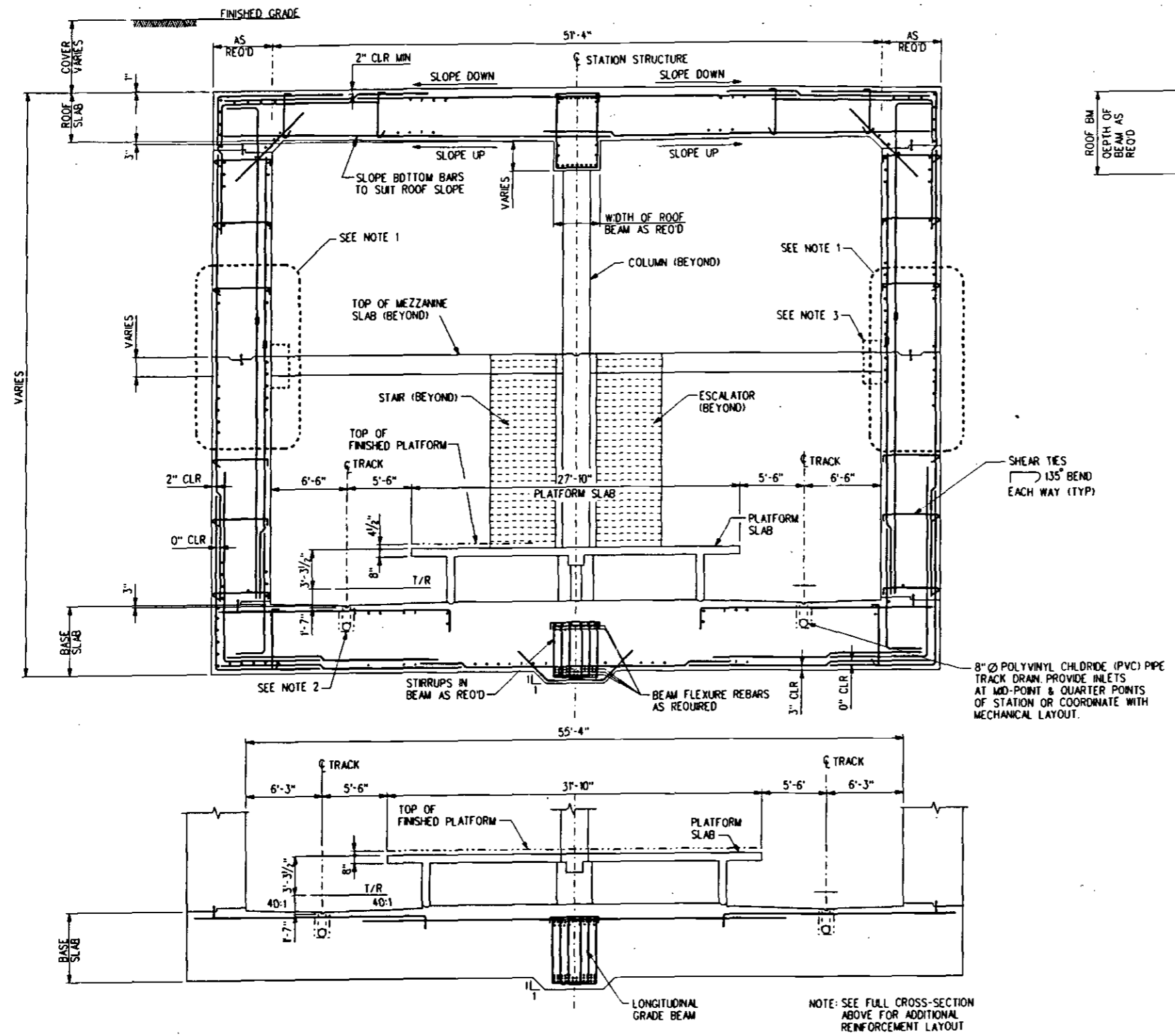
10000 Wilshire Blvd, Suite 1000
Beverly Hills, CA 90210
Tel: 310-277-1000

APPROVED
N. P. PANDYA

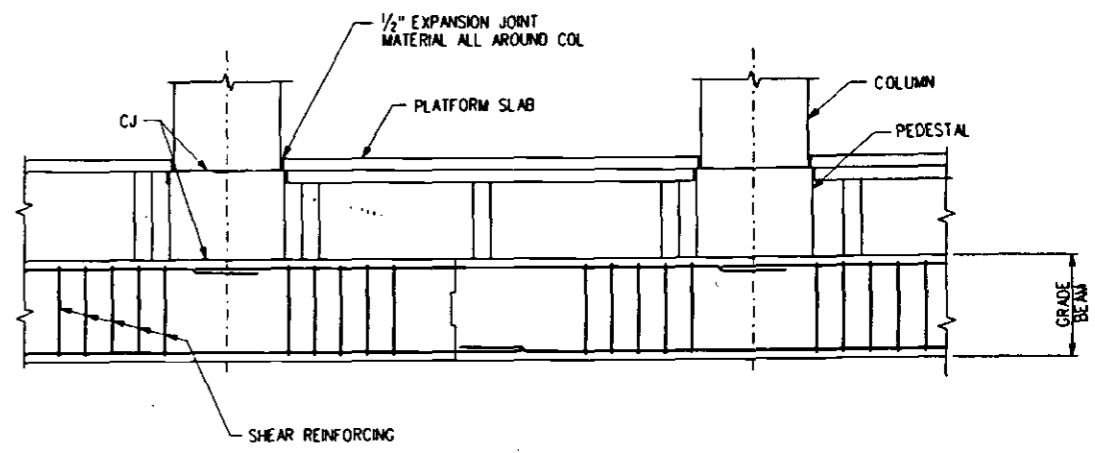
APPROVED
K. N. MURTHY

STRUCTURAL DIRECTIVE
CUT & COVER SUBWAY
EMERGENCY EXIT LAYOUT SCHEMES

CONTRACT NO	
DRAWING NO	SD-007
REV	1
SCALE	NO SCALE
SHEET NO	



ELEVATION OF LONGITUDINAL ROOF BEAM



ELEVATION OF LONGITUDINAL GRADE BEAM

- NOTES:
1. REQUIRE ADDITIONAL LONGITUDINAL REINFORCEMENT ON BOTH FACES OF EXTERIOR WALLS TO PROVIDE FOR THE EFFECT OF TRANSITION FROM MEZZANINE SLAB AREA TO OPEN PLATFORM AREA AND ALSO FROM ANCILLARY SLAB AREA TO OPEN PLATFORM AREA.
 2. SLOPE OF PIPE FROM ONE END OF STATION TO THE OTHER END TO BE ACCOMMODATED WITHIN THE HEIGHT AVAILABLE BETWEEN TOP AND BOTTOM LAYERS OF REINFORCEMENT OF BASE SLAB FOR WHICH THICKNESS HAS BEEN DETERMINED SOLELY FOR STRUCTURAL REASONS.
 3. WHERE OPEN PLATFORM AREA CONTAINS TRANSVERSE STRUTS FOR BRACING OF EXTERIOR WALLS, A HORIZONTAL BEAM WILL BE REQUIRED TO SPAN BETWEEN THE STRUTS. NOTE 1 WILL CONTINUE TO APPLY WITH THIS ARRANGEMENT.
 4. HOPE MEMBRANE NOT SHOWN. MUST BE INDICATED ON CONTRACT DRAWINGS.

REV	DATE	BY	APP	REG NO	EXPIRES	SEAL HOLDER	DESCRIPTION
0	4/1/97	[Signature]	[Signature]	32584	6/30/97	N.P.PANDYA	DE305-SBCN 7, REVISED & REDRAWN
0	7/12/94						BASELINE ISSUE

DESIGNED BY
N.PANDYA
DRAWN BY
R.BAUTISTA
CHECKED BY
P.LIN
IN CHARGE
N.PANDYA
DATE
6/30/94

A SIGNED ORIGINAL OF REV 0 OF THIS DRAWING IS MAINTAINED BY MTA

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

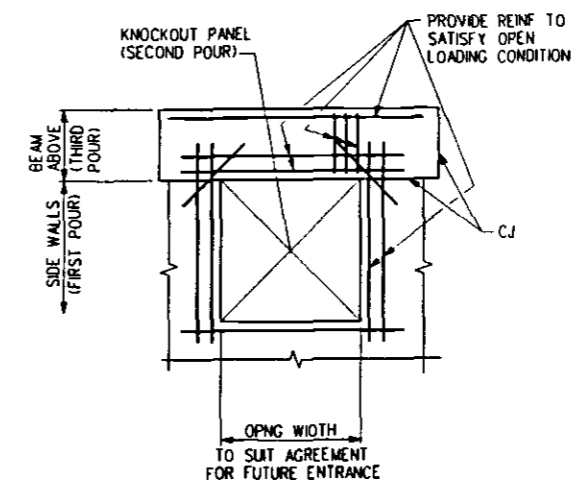
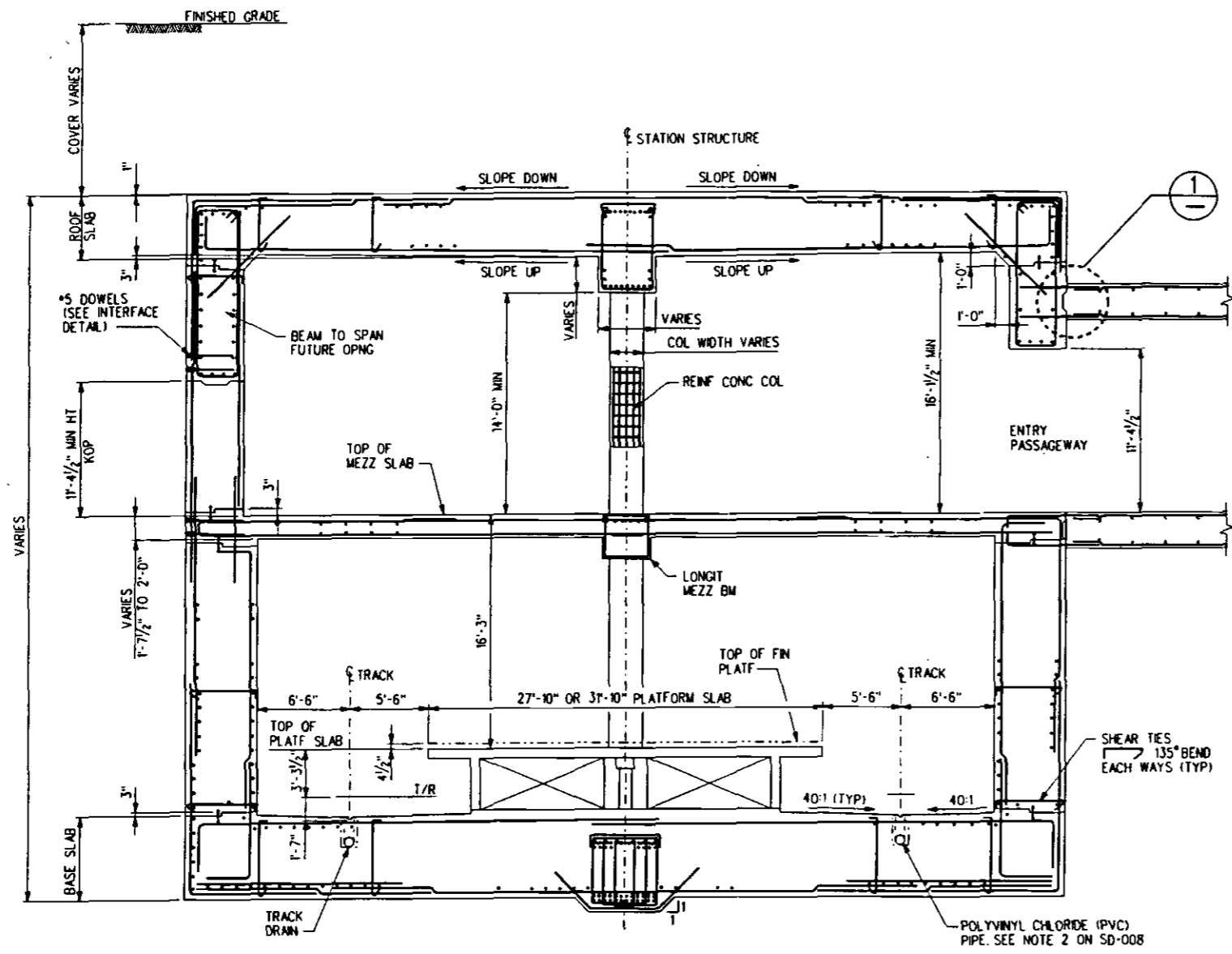
ENGINEERING MANAGEMENT CONSULTANT

Submitted: N. P. PANDYA
Approved: K. N. MURTHY

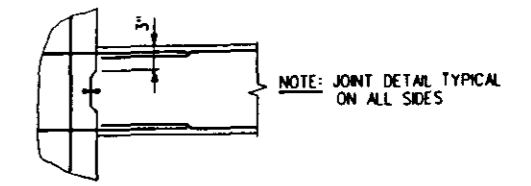
STRUCTURAL DIRECTIVE
CUT & COVER SUBWAY
STATION CROSS-SECTION AT OPEN
PLATFORM AREA

CONTRACT NO	
DRAWING NO	SD-008
REV	1
SCALE	NO SCALE
SHEET NO	

PLOTTED BY: [Signature]



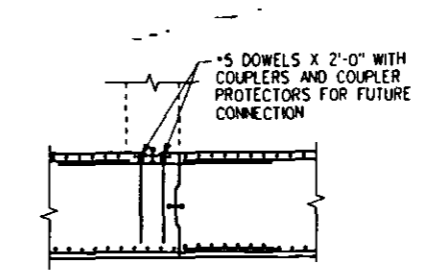
KNOCKOUT PANEL ELEVATION
BEAM CONSTRUCTION ABOVE OPENING TO BE A MONOLITHIC POUR



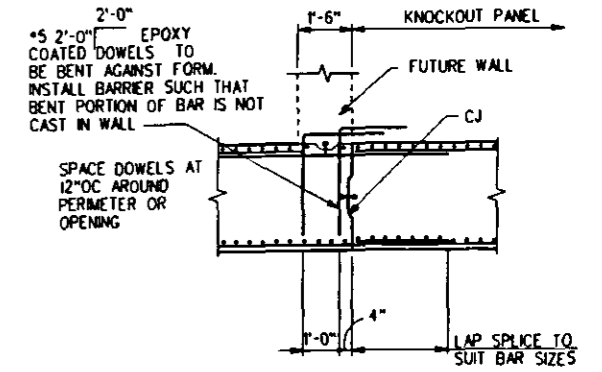
CONSTRUCTION JOINT AT ENTRY

PROVIDE SIMILAR JOINT AT KNOCKOUT PANEL INTERFACE FOR FUTURE ENTRY

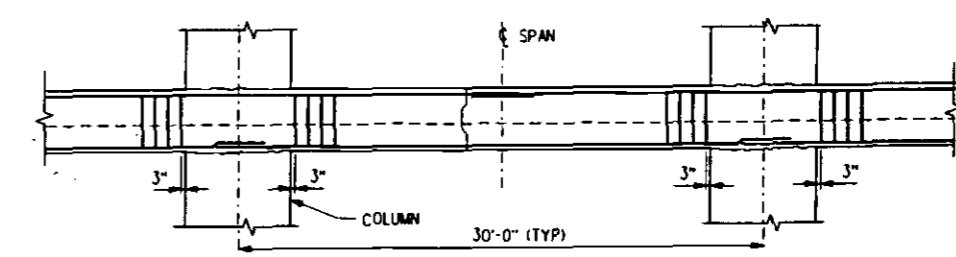
1
SD-009



INTERFACE DETAIL
TYPICAL AT WALLS, SIMILAR AT TOP AND BOTTOM OF PANEL



INTERFACE DETAIL



ELEVATION OF LONGITUDIAL MEZZANINE BEAM

- NOTES:
1. HDPE MEMBRANE NOT SHOWN MUST BE INDICATED ON CONTRACT DRAWINGS.
 2. NO TRANSVERSE BEAMS SHALL PROJECT BELOW THE SUSPENDED SLABS IN ORDER TO PRECLUDE ANY POSSIBILITY OF GAS ENTRAPMENT.

DESIGNED BY N.PANDYA	DATE 6/30/94						
DRAWN BY R.BAUTISTA	SEAL HOLDER						
CHECKED BY P.LIN							
IN CHARGE N.PANDYA							
DATE 6/30/94							
REV	DATE	BY	APP	REG NO	EXPRES	SEAL HOLDER	DESCRIPTION
0	7/12/94			32584	6/30/97	N.P.PANDYA	DE305-SBCN 7,REVISED & REDRAWN
1	4/1/97						BASELINE ISSUE

A SIGNED ORIGINAL OF REV 0 OF THIS DRAWING IS MAINTAINED BY MTA

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

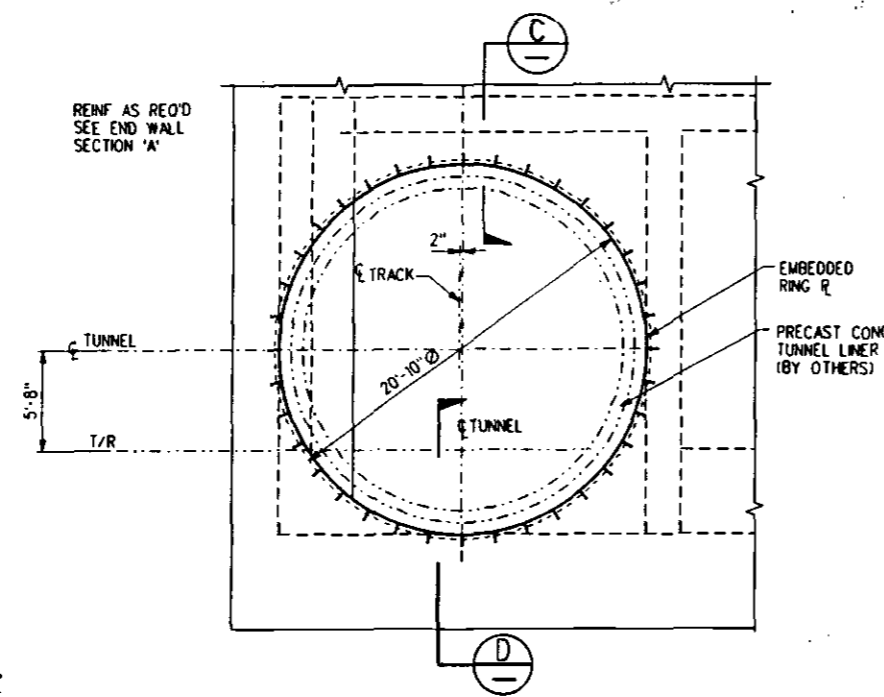
ENGINEERING MANAGEMENT CONSULTANT

SUBMITTED: N. P. PANDYA

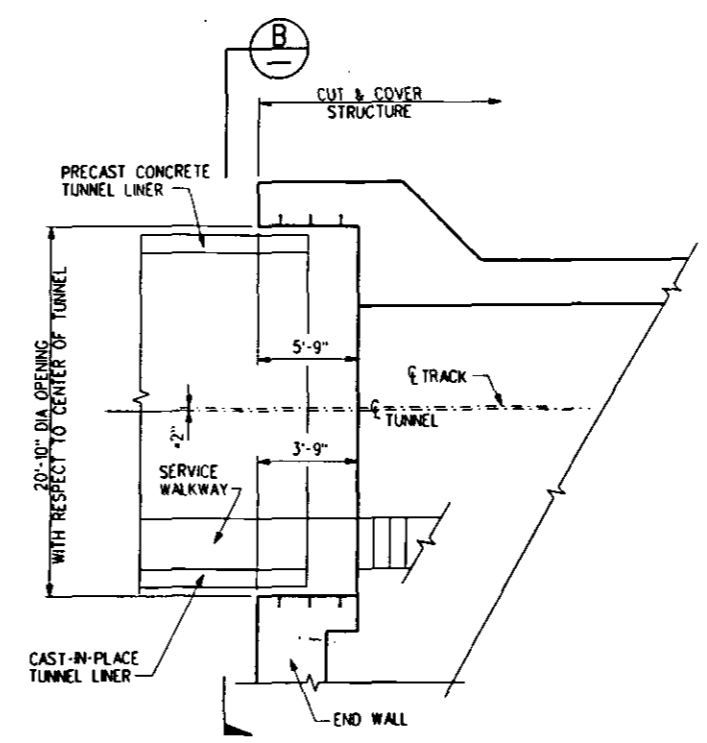
APPROVED: K. N. MURTHY

STRUCTURAL DIRECTIVE CUT & COVER SUBWAY STATION CROSS-SECTION AT MEZZANINE AREA

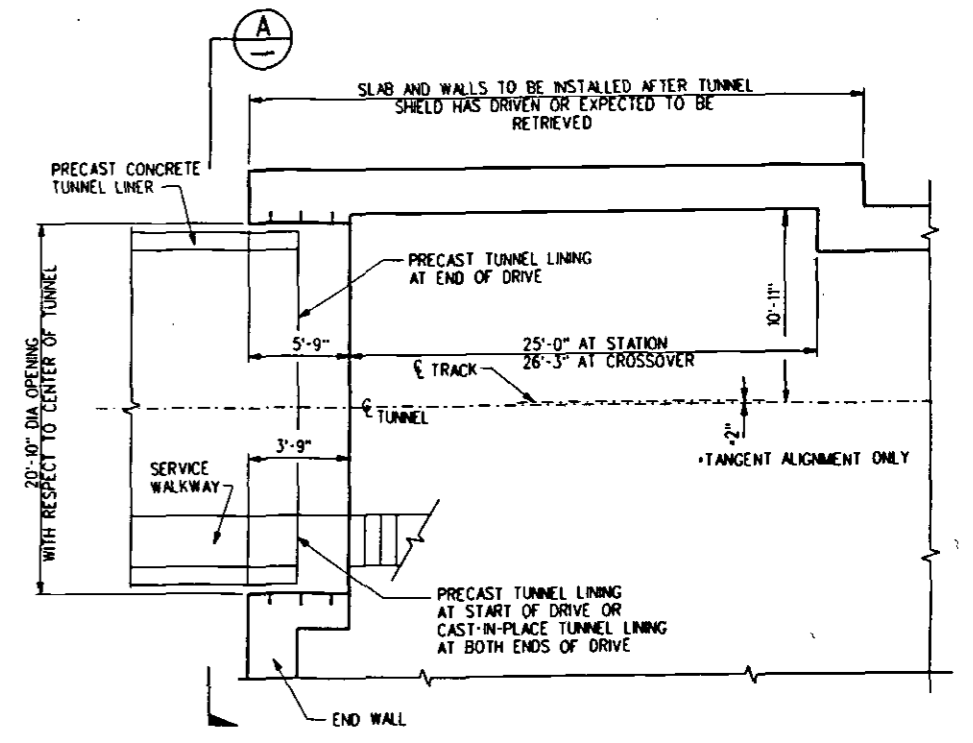
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DRAWING NO	SD-009
REV	1
SCALE	NO SCALE
SHEET NO	



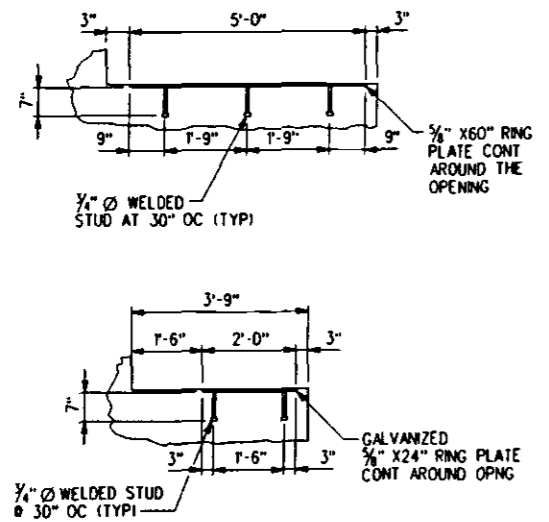
END WALL SECTION (B) SD-011



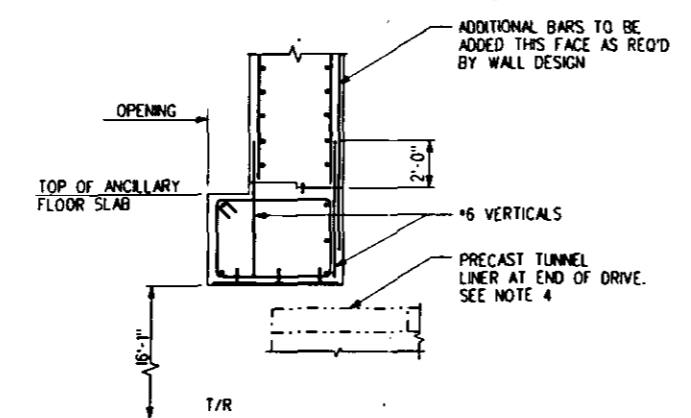
PLAN - INTERFACE W/O SHIELD CHAMBER



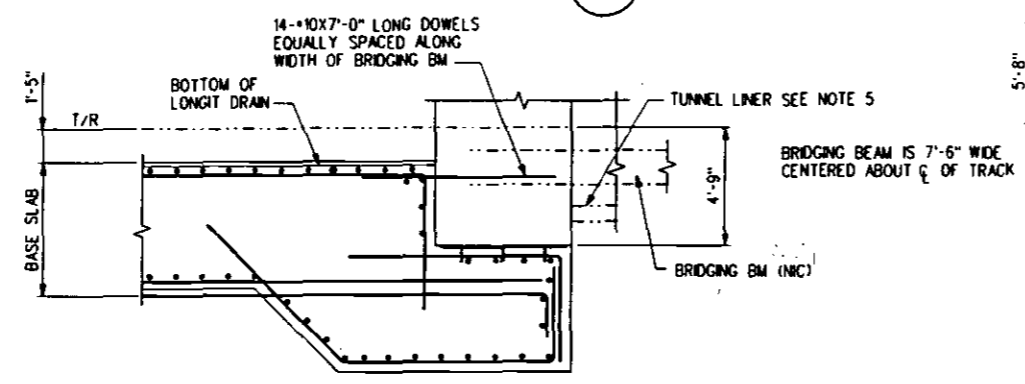
PLAN - INTERFACE W/ SHIELD CHAMBER



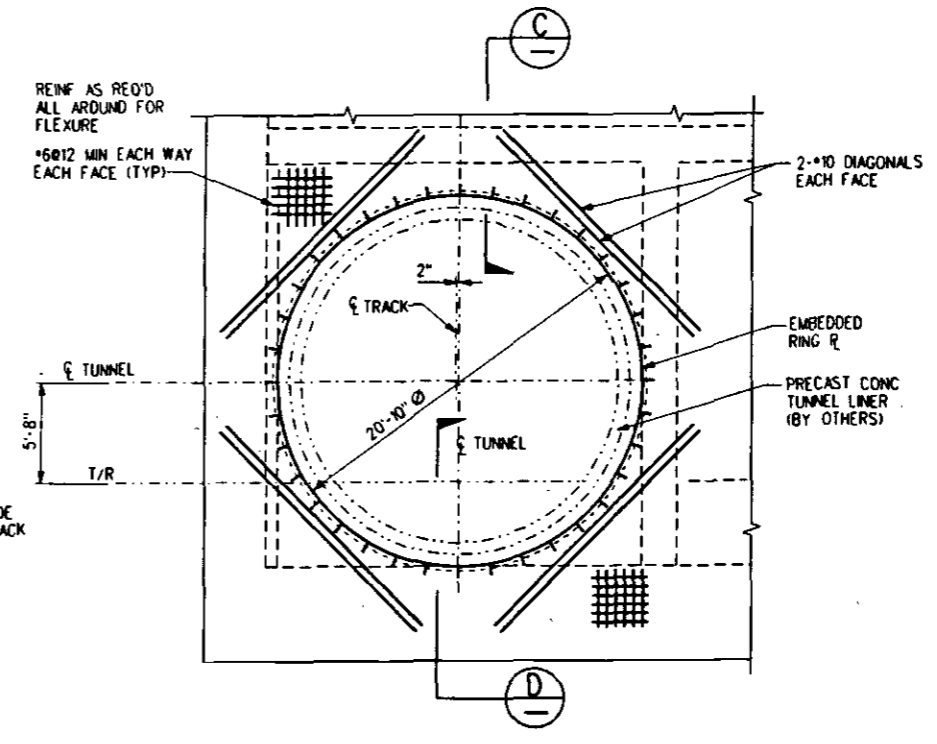
DETAILS OF RING PLATES



SECTION AT TOP (C) SD-011



SECTION AT BASE (D) SD-011



END WALL SECTION (A) SD-011

- NOTES:
1. THE SHIELD CHAMBER WITHIN THE CUT AND COVER STRUCTURE IS SIZED TO RECEIVE AND DISASSEMBLE AS NECESSARY THE TUNNELING SHIELD. ADDITIONAL CONSIDERATION MUST BE GIVEN TO THE ACTUAL REMOVAL OF THE SHIELD AND THESE REQUIREMENTS INCORPORATED IN THE CONTRACT DRAWINGS.
 2. FOR SPECIFIC GEOMETRY OF WALLS, OPENINGS, WALKWAYS, CLEARANCES ETC. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
 3. INSTALLATION OF SEAL BETWEEN TUNNEL LINER AND RING PLATE SHALL BE DONE BY EITHER THE TUNNEL CONTRACTOR OR THE CUT AND COVER CONTRACTOR DEPENDENT UPON THE SEQUENCE OF CONTRACT WORK. FOR DETAIL SEE TUNNEL DIRECTIVE DRAWINGS.
 4. THE 5'-9" DIMENSION WITH A 5'-0" WIDE RING PLATE ARE REQUIRED AT THE TERMINAL END OF TUNNEL DRIVE USING PRECAST TUNNEL LINER.
 5. THE 3'-9" DIMENSION WITH A 2'-0" WIDE RING PLATE ARE TO BE USED AT START OF DRIVE USING PRECAST TUNNEL LINER AND AT BOTH ENDS OF DRIVE USING CAST-IN-PLACE TUNNEL LINING.

REV	DATE	BY	APP	REG NO	EXPIRES	SEAL HOLDER	DESCRIPTION
0	7/12/94						BASELINE ISSUE
1	4/1/97			32584	6/30/97	N.P.PANDYA	DE305-SBCN 7, REVISED & REDRAWN

DESIGNED BY
N.PANDYA
DRAWN BY
R.BAUTISTA
CHECKED BY
P.LIN
IN CHARGE
N.PANDYA
DATE
6/30/94

A SIGNED ORIGINAL OF REV 0 OF THIS DRAWING IS MAINTAINED BY MTA

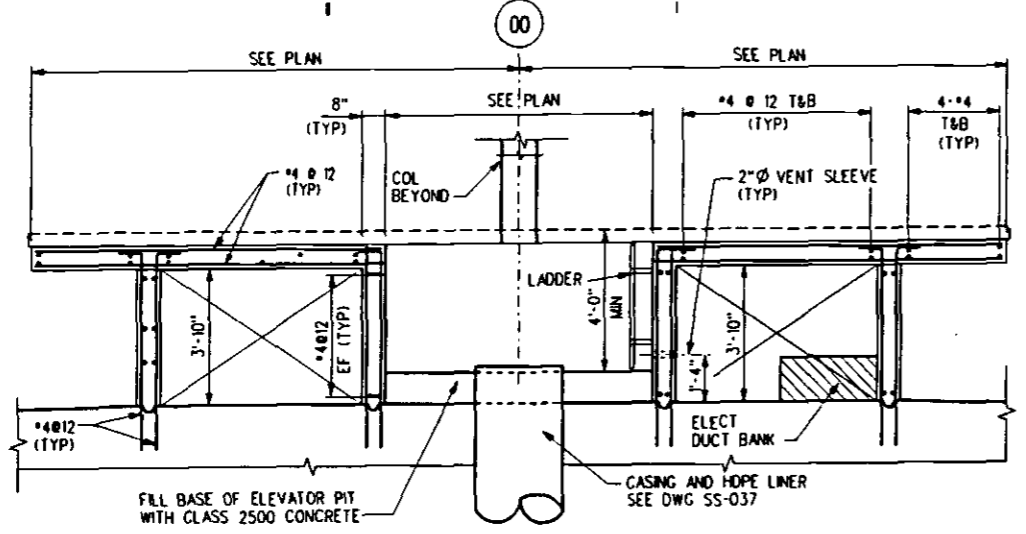
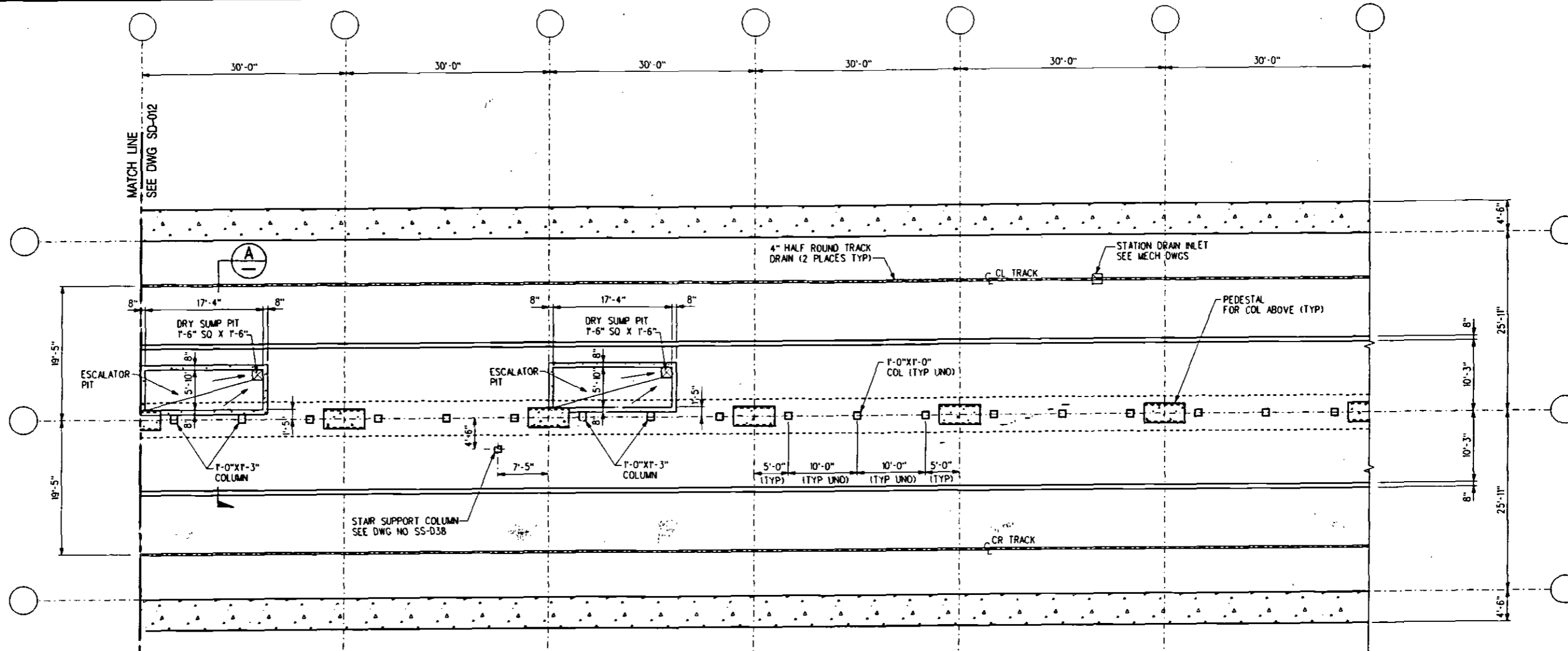
LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

SUBMITTED: N. P. PANDYA
APPROVED: K. N. MURTHY

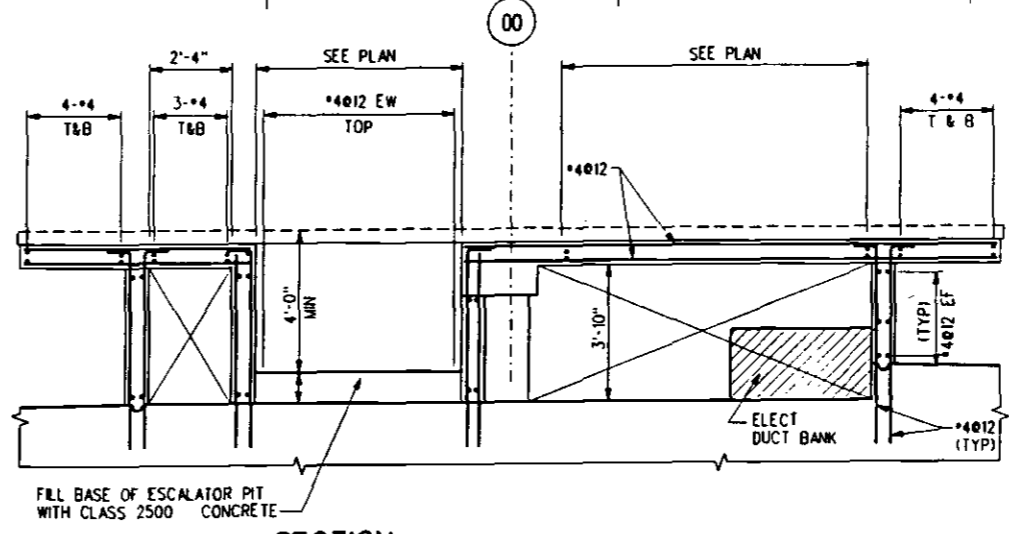
STRUCTURAL DIRECTIVE
CUT & COVER SUBWAY
CUT & COVER INTERFACE
WITH TUNNEL

CONTRACT NO	
DRAWING NO	SD-011
REV	1
SCALE	NO SCALE
SHEET NO	



SECTION AT ELEVATOR PIT

B
SD-0113 SD012



SECTION AT ESCALATOR PIT

A
SD-013

NOTE:
1. SEE NOTES ON DWG SD-012.

REV	DATE	BY	APP	REG NO	EXPRES	SEAL HOLDER	DESCRIPTION
0	4/1/97	N.P.		32584	6/30/97	N.P.PANDYA	DESIGN & DRAWING
0	7/12/94	P.L.					BASELINE ISSUE

DESIGNED BY
N.PANDYA
DRAWN BY
E.M.PEDRAJA
CHECKED BY
P.LIN
IN CHARGE
N.PANDYA
DATE
6/30/94

A SIGNED ORIGINAL OF REV 0 OF THIS DRAWING IS MAINTAINED BY MTA

M LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

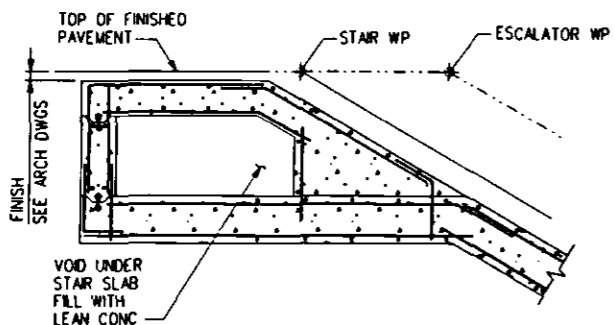
ENGINEERING MANAGEMENT CONSULTANT

FORNIA CONSULTANTS GROUP & ASSOCIATES, INC.
 Daniel, Mann, Johnson & Mendenhall
 27 Venice Engineers' Club Bldg
 Encinitas, California 92024
 The Hongkong & Shanghai Banking Corp., Ltd.

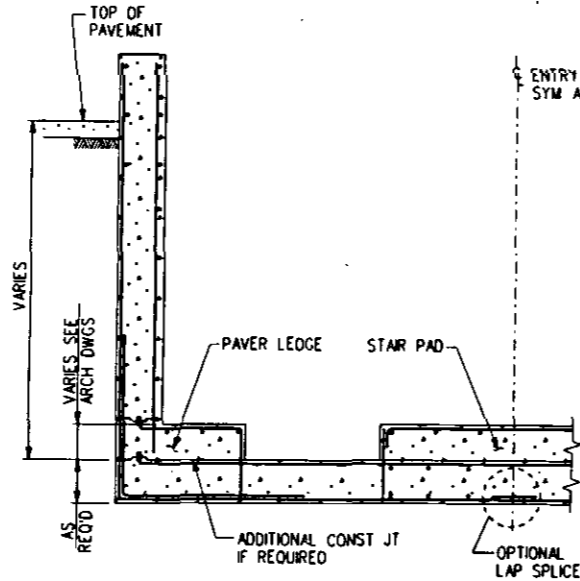
SUBMITTED: N. P. PANDYA
APPROVED: K. N. MURTHY

STRUCTURAL DIRECTIVE
CUT & COVER SUBWAY
UNDERPLATFORM
GENERAL ARRANGEMENT
SHEET 2 OF 2

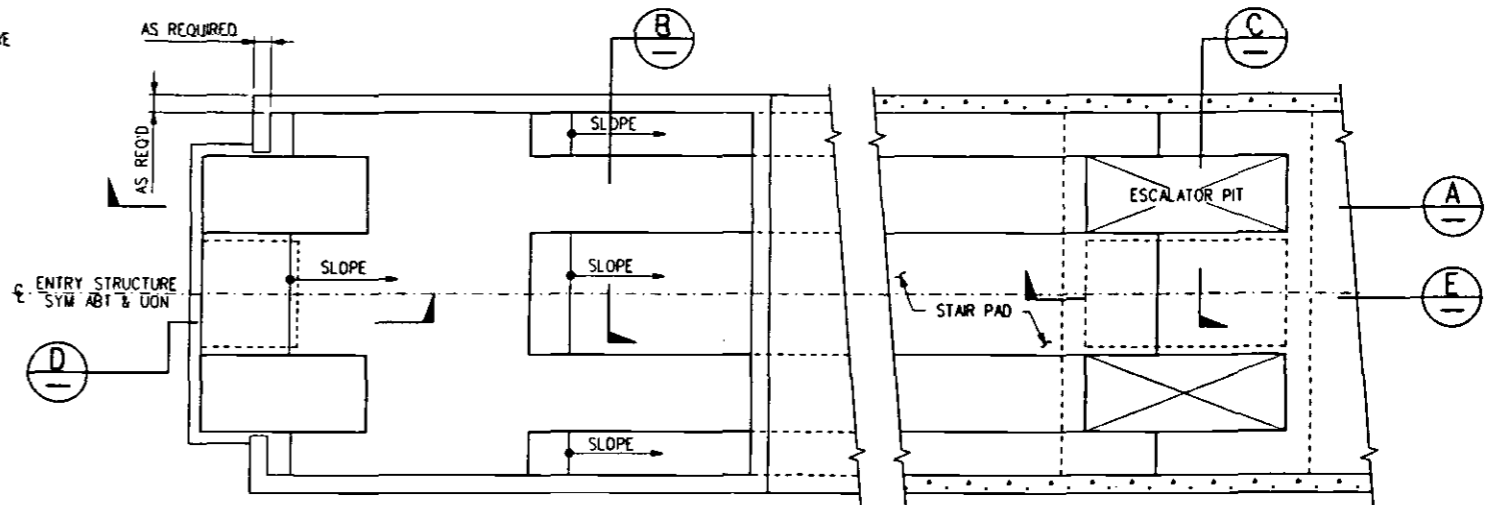
CONTRACT NO	
DRAWING NO	SD-013
REV	1
SCALE	NO SCALE
SHEET NO	



SECTION **D**
SD-017

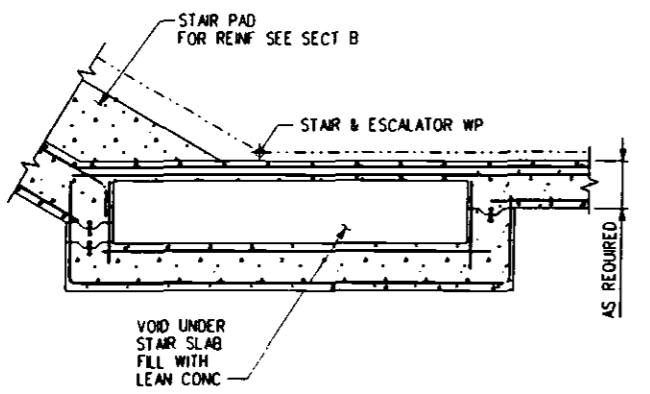


SECTION **B**
SD-017

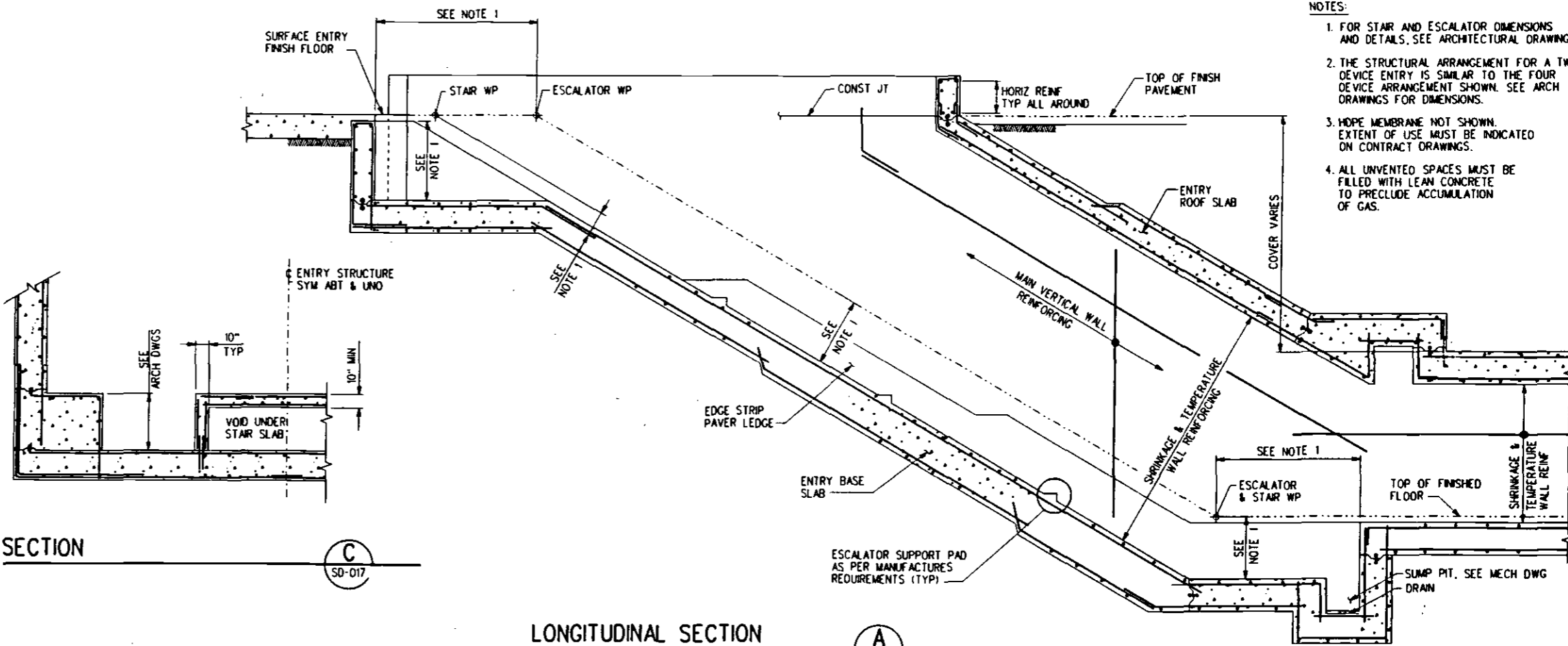


STREET LEVEL PLAN
FOUR DEVICES

PASSAGEWAY LEVEL PLAN
FOUR DEVICES



SECTION **E**
SD-017



LONGITUDINAL SECTION **A**
SD-017

- NOTES:
1. FOR STAIR AND ESCALATOR DIMENSIONS AND DETAILS, SEE ARCHITECTURAL DRAWING.
 2. THE STRUCTURAL ARRANGEMENT FOR A TWO DEVICE ENTRY IS SIMILAR TO THE FOUR DEVICE ARRANGEMENT SHOWN. SEE ARCH DRAWINGS FOR DIMENSIONS.
 3. HOPE MEMBRANE NOT SHOWN. EXTENT OF USE MUST BE INDICATED ON CONTRACT DRAWINGS.
 4. ALL UNVENTED SPACES MUST BE FILLED WITH LEAN CONCRETE TO PRECLUDE ACCUMULATION OF GAS.

REV	DATE	BY	APP	REC NO	EXPRES	SEAL HOLDER	DESCRIPTION
0	4/11/97	[Signature]		32584	6/30/97	N.P.PANDYA	DE305-SBCN 7, REDRAWN
0	7/12/94						BASELINE ISSUE
							DATE 6/30/94

DESIGNED BY
N.PANDYA
DRAWN BY
R.BAUTISTA
CHECKED BY
P.LIN
IN CHARGE
N.PANDYA
DATE
6/30/94

A SIGNED ORIGINAL OF REV 0 OF THIS DRAWING IS MAINTAINED BY MTA

M LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

FOR THE MTA

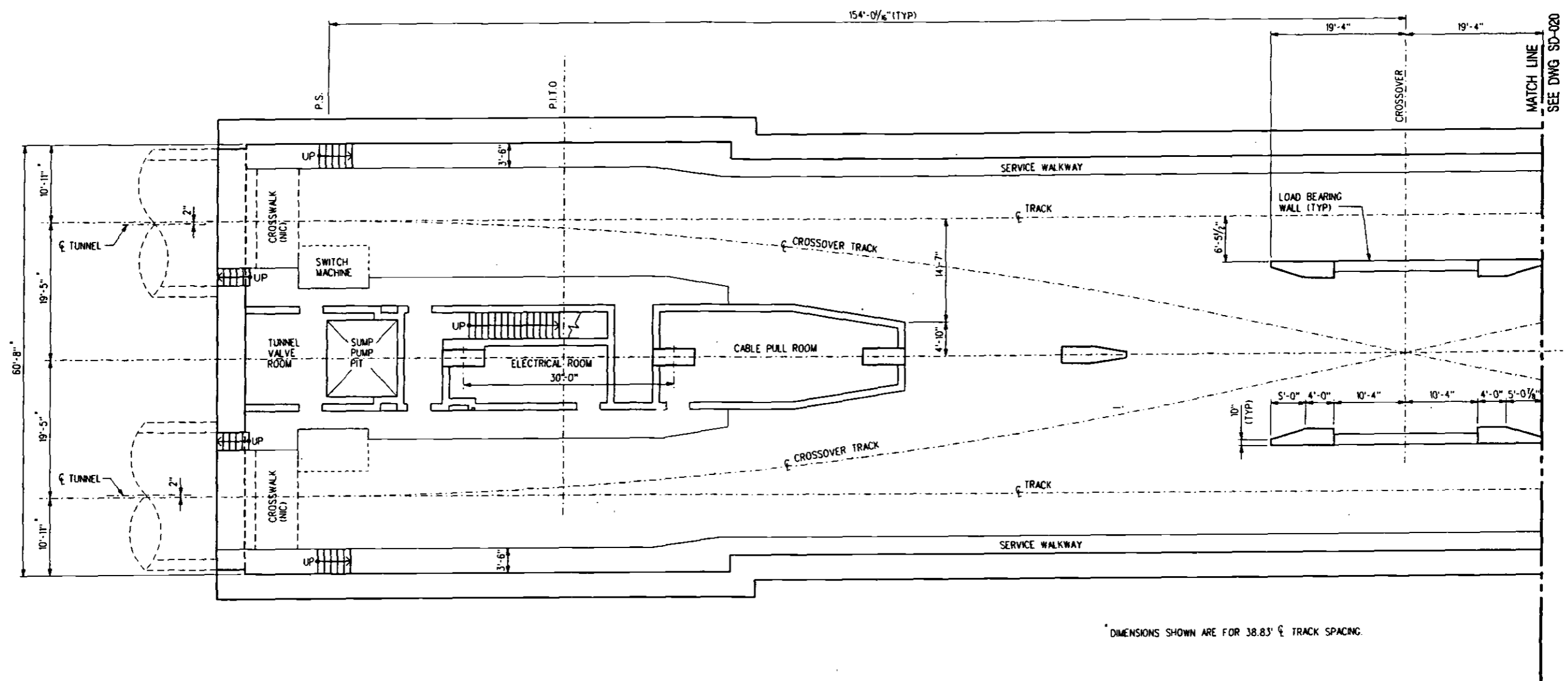
DESIGNED BY: N. P. PANDYA

APPROVED BY: K. N. MURTHY

STRUCTURAL DIRECTIVE
CUT & COVER SUBWAY
ENTRANCE FROM STREET SURFACE

CONTRACT NO.	
DRAWING NO.	SD-017
REV	1
SCALE	NO SCALE
SHEET NO.	

13 JUN 1997 13:33 / 7/12/94/ENC/DRG/004/STUCZ/REV/REV017.DWG
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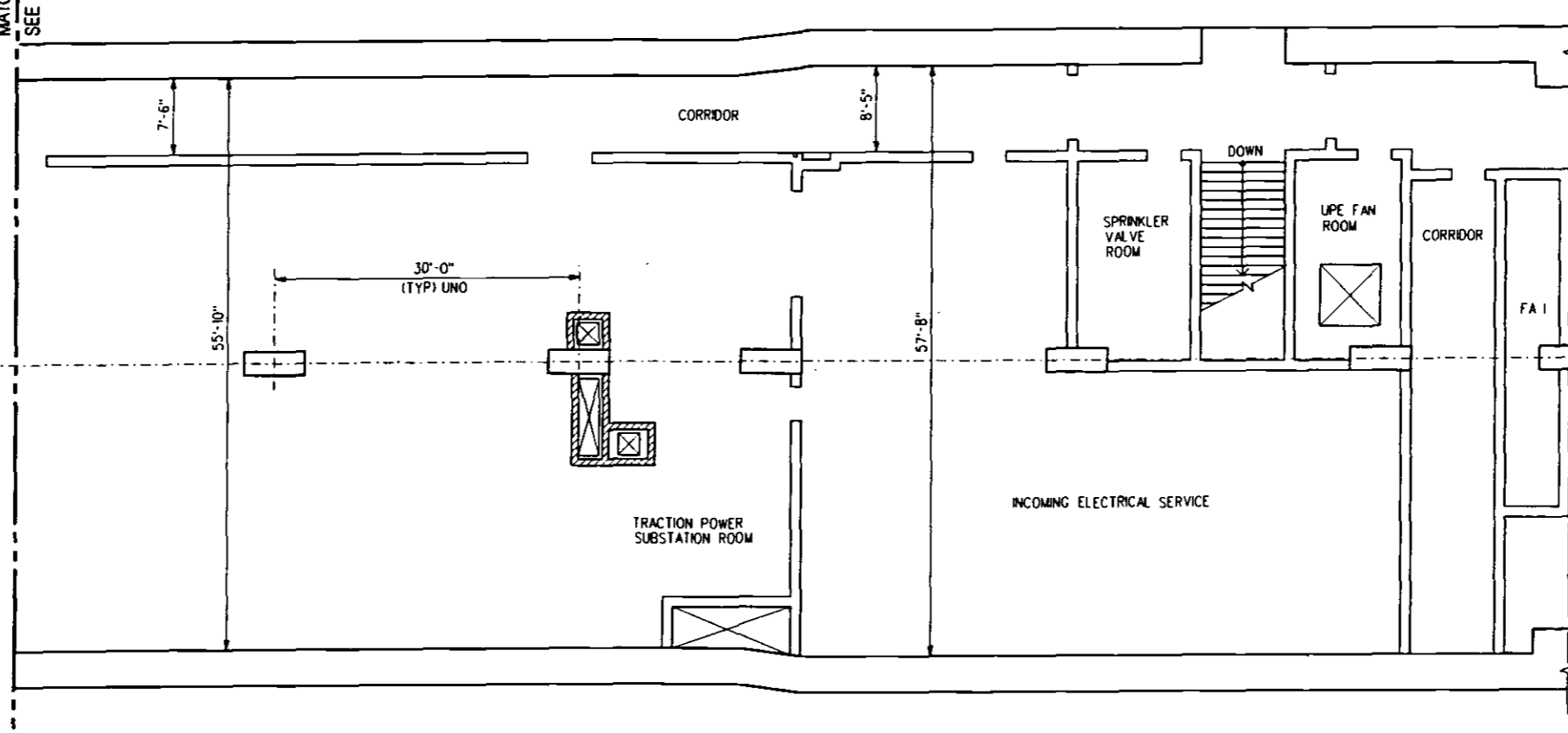
DIMENSIONS SHOWN ARE FOR 38.83' ϕ TRACK SPACING.

**TRACK LEVEL PLAN
DOUBLE CROSSOVER**
1/8" = 1'-0"

- NOTES:**
1. ALL TRACK GEOMETRY, UNLESS NOTED OTHERWISE, IS SYMMETRICAL ABOUT CENTERLINE OF CROSSOVER AND CROSSOVER STRUCTURE.
 2. STRUCTURAL WALLS AND COLUMNS ARE LOCATED BASED UPON NECESSARY CLEARANCE REQUIREMENTS. SUCH REQUIREMENTS INCLUDE DYNAMIC OUTLINE OF THE DESIGN VEHICLE, RUNNING CLEARANCE, TRACK AND WALL CONSTRUCTION TOLERANCES AND VEHICLE OVERHANGS.
 3. FOR DOUBLE CROSSOVER TRACK GEOMETRY, SEE TRACKWORK DIRECTIVE DRAWING.
 4. FOR LOCATION AND DETAILS OF REMOVABLE RAILING AND HANDRAIL, SEE STRUCTURAL STANDARD DRAWINGS.
 5. SEE MECHANICAL AND ELECTRICAL DWGS FOR MECH AND ELECT INFORMATION.
 6. CROSSWALKS ARE INSTALLED BY THE TRACKWORK CONTRACTOR.

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DESIGNED BY N.PANDYA	<p>A SIGNED ORIGINAL OF REV 0 OF THIS DRAWING IS MAINTAINED BY MTA</p>	<p>LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY</p>	<p>STRUCTURAL DIRECTIVE CUT & COVER SUBWAY GENERAL ARRANGEMENT OF 645 FT RADIUS DOUBLE CROSSOVER STRUCTURE-TUNNEL SIDE</p>		CONTRACT NO																													
DRAWN BY S.MARTINEZ			<p>ENGINEERING MANAGEMENT CONSULTANT</p> <p><small>Professional Engineer/Architect/Structural Engineer 12100 Wilshire Blvd, Suite 1000, Los Angeles, CA 90025 Tel: (310) 206-1100 Fax: (310) 206-1101 www.emc.com</small></p>	<p>SUBMITTED N. P. PANDYA</p>	<p>DRAWING NO SD-019</p>	<p>REV 1</p>																												
CHECKED BY P.J. IN			<p>APPROVED K. N. MURTHY</p>	<p>SCALE AS NOTED</p>	<p>SHEET NO</p>																													
IN CHARGE N.PANDYA			<p>DATE 6/30/94</p>	<p>DESCRIPTION BASELINE ISSUE</p>	<p>REV</p>	<p>DATE</p>	<p>BY</p>	<p>APP</p>	<p>REG NO</p>	<p>EXPIRES</p>	<p>SEAL HOLDER</p>																							

MATCH LINE
SEE DWG SD-021



**MEZZANINE/ANCILLARY PLAN
OVER DOUBLE CROSSOVER**

NOTE:
1. SEE NOTES ON DWG SD-021.

REV	DATE	BY	APP	REG NO	EXPIRES	SEAL HOLDER	DESCRIPTION
0	7/12/94			32584	6/30/97	N.P.PANDYA	BASELINE ISSUE
1	4/1/97						DE305-SBCN 2, REDRAWN

DESIGNED BY
N.PANDYA
DRAWN BY
S.MARTINEZ
CHECKED BY
P.LIN
IN CHARGE
N.PANDYA
DATE
6/30/94

A SIGNED ORIGINAL OF REV 0 OF THIS DRAWING IS MAINTAINED BY MTA

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

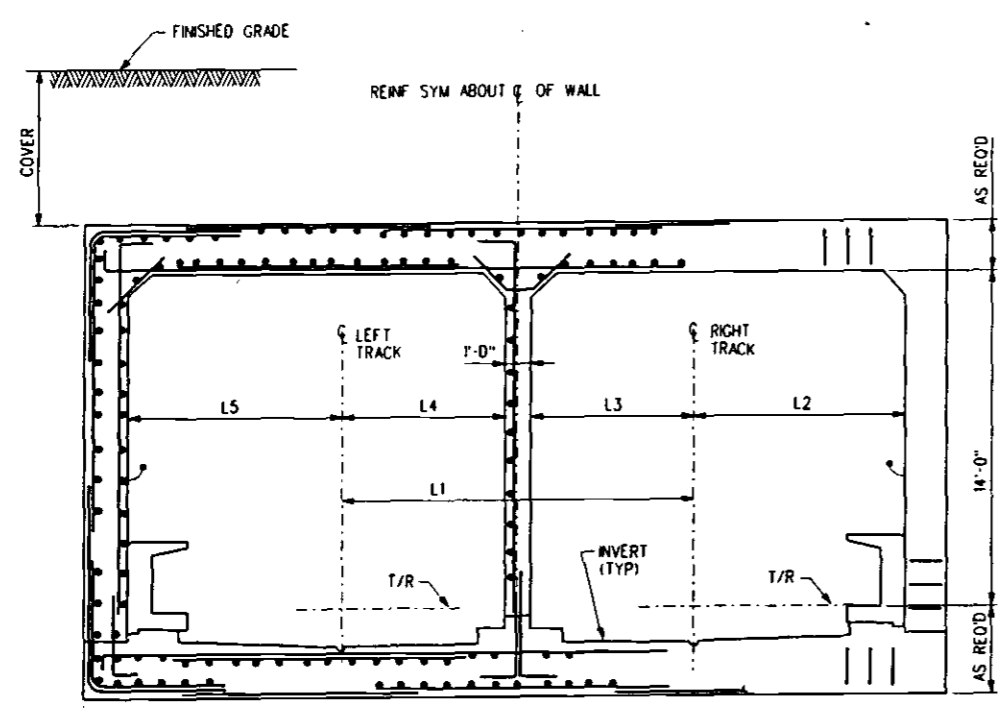
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Design, Drafting, Inspection & Supervision
Professional Engineers - C.E.B.I. Corp.
Executive/Planning Architects
General Contractors
The Metropolitan Group, Inc.

SUBMITTED: N. P. PANDYA
APPROVED: K. N. MURTHY

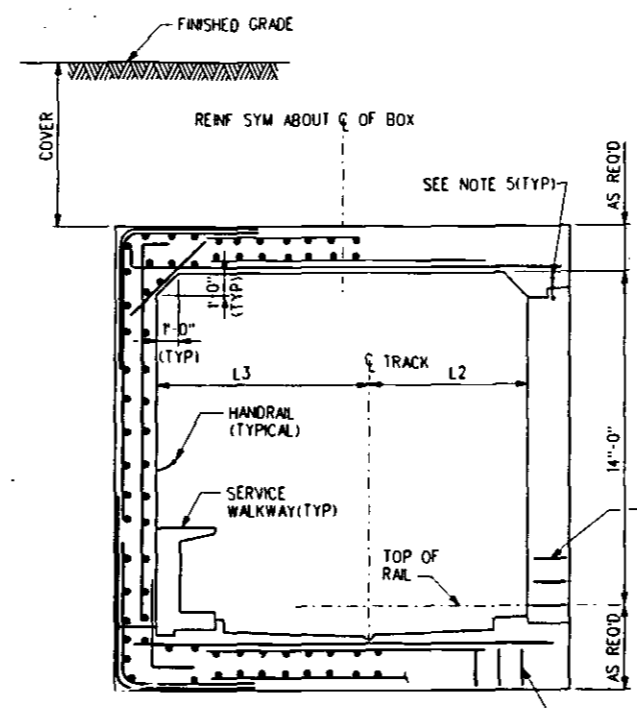
**STRUCTURAL DIRECTIVE
CUT & COVER SUBWAY
MEZZANINE/ANCILLARY FLOOR PLAN
CROSSOVER STRUCTURE
PLATFORM SIDE**

CONTRACT NO	
DRAWING NO	SD-022
REV	1
SCALE	1/8" = 1'-0"
SHEET NO	

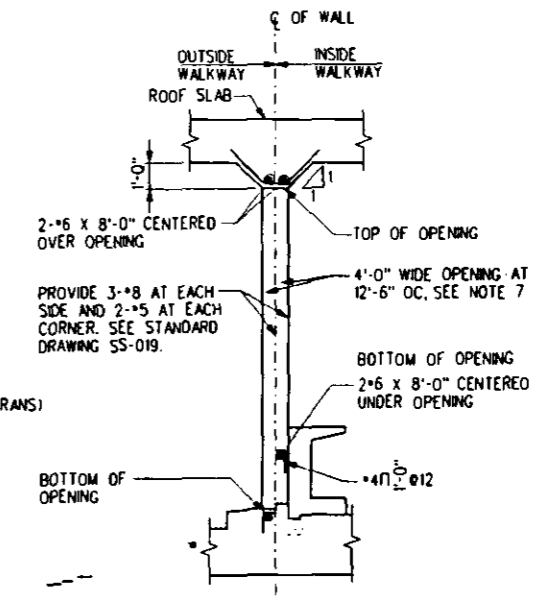
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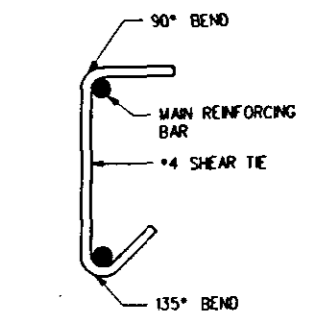
TYPE B



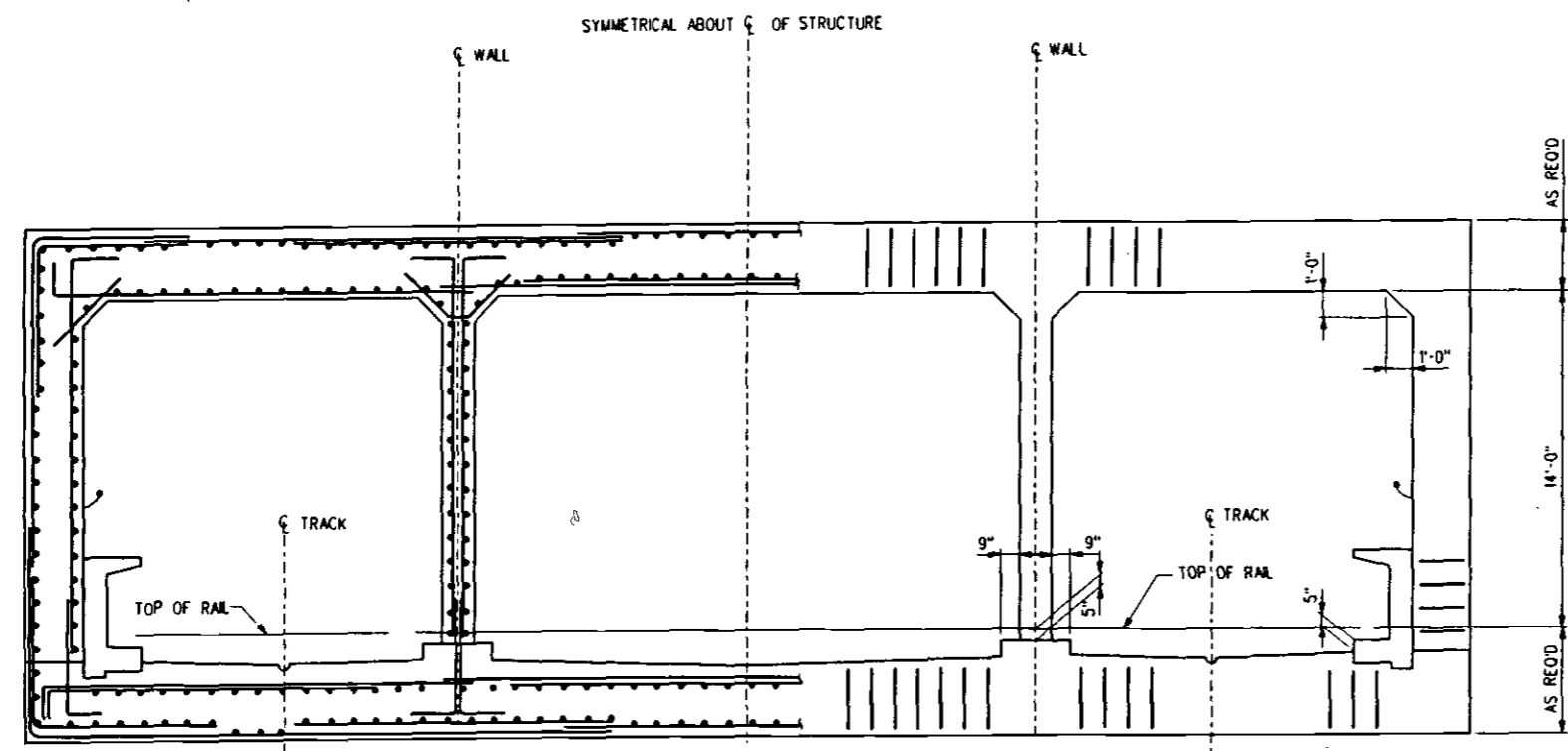
TYPE A



DETAIL
PERFORATED INTERIOR WALL CONFIGURATION



TYPICAL SHEAR TIE



TYPE C

GENERAL NOTES

- FOR INVERT DETAILS, SEE DRAWINGS SS-015.
- SERVICE WALKWAYS MAY BE LOCATED AT EITHER INSIDE OR OUTSIDE WALLS. FOR LOCATION AND DIMENSIONS, SEE KEY PLAN AND WALL AND SERVICE WALKWAY SCHEDULE. FOR DETAILS, SEE DRAWING SS-015.
- FOR DIMENSIONS L1 THRU L5 INCLUSIVE AT END OF CONCRETE POURS, SEE CONSTRUCTION JOINT SCHEDULE DRAWING.
- SEE KEY PLAN FOR LIMITS OF BOX TYPES.
- HORIZONTAL CONSTRUCTION JOINTS BETWEEN WALLS AND TOP SLAB MAY BE ADDED AT THE CONTRACTOR'S OPTION.
- FOR DETAILS OF INTERFACE BETWEEN FIXED INVERT AND FLOATING SLAB INVERT, SEE DRAWING SS-016.
- TRANSVERSE CONSTRUCTION JOINTS IN THE INTERIOR WALL SHALL BE LOCATED NOT CLOSER THAN 3'-0" FROM THE SIDES OF OPENING.

DESIGNED BY P.LIN	DATE 4/1/97	BY APP	REG NO	EXPIRES	SEAL HOLDER	DESCRIPTION BASELINE ISSUE / DE305-SBCN 7
DRAWN BY E.M.PEDRAJA						
CHECKED BY N.PANDYA						
IN CHARGE N.PANDYA						
DATE 4/1/97						

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

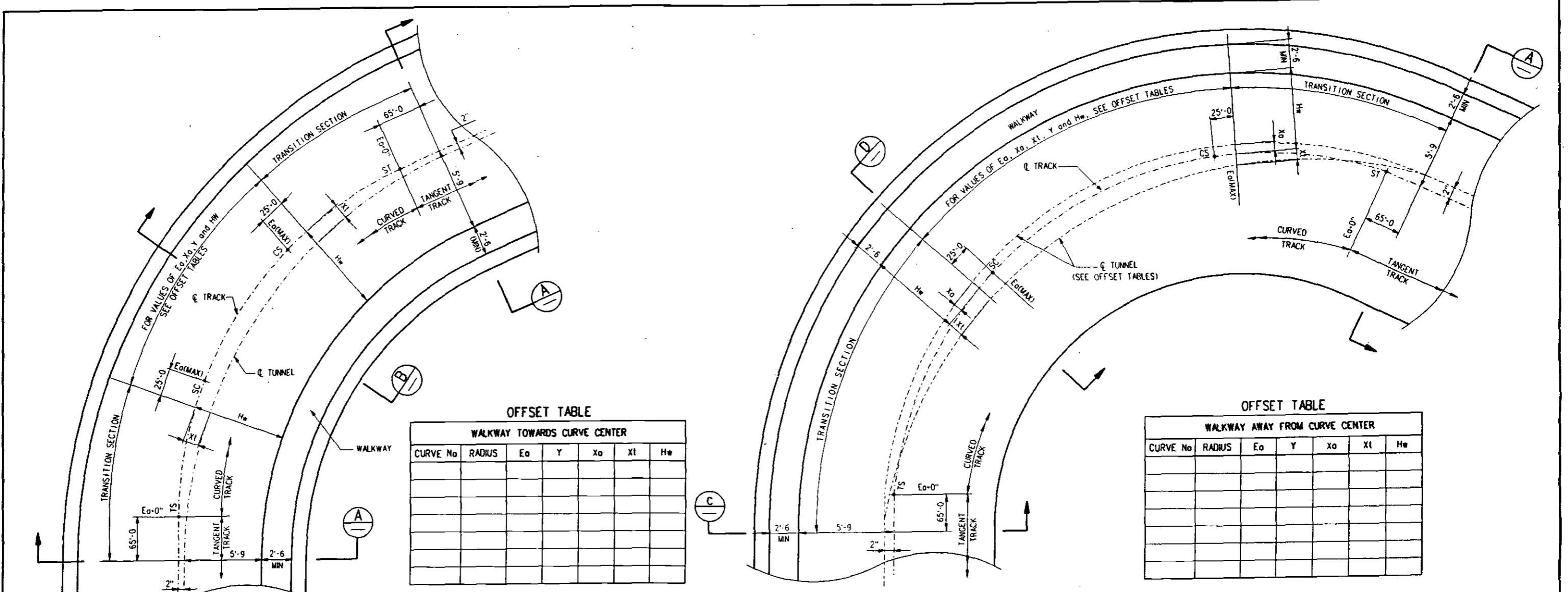
Submitted: *[Signature]*

Approved: *[Signature]*

**STRUCTURAL DIRECTIVE
CUT & COVER SUBWAY
BOX STRUCTURES
DIMENSIONS & REINFORCEMENT**

CONTRACT NO	
DRAWING NO	SD-023
REV	0
SCALE	NO SCALE
SHEET NO	

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OFFSET TABLE
WALKWAY TOWARDS CURVE CENTER

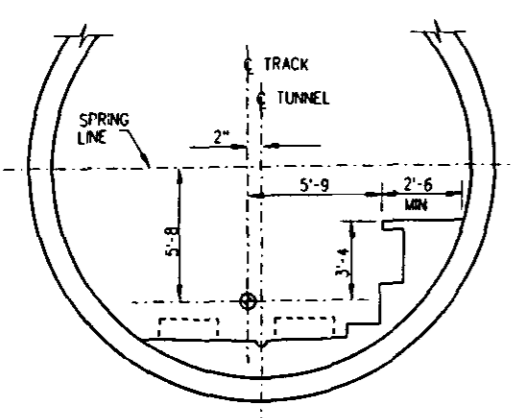
CURVE No	RADIUS	Eo	Y	Xo	X1	Hw

OFFSET TABLE
WALKWAY AWAY FROM CURVE CENTER

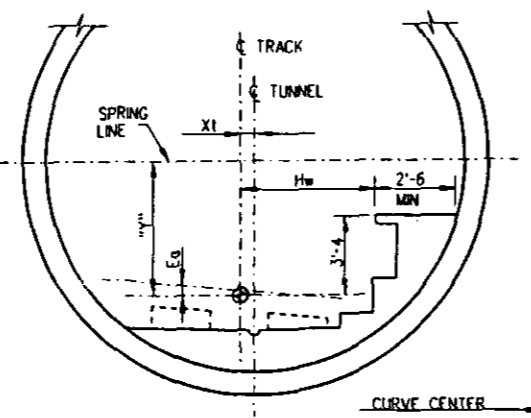
CURVE No	RADIUS	Eo	Y	Xo	X1	Hw

WALKWAY TOWARDS CURVE CENTER
NTS

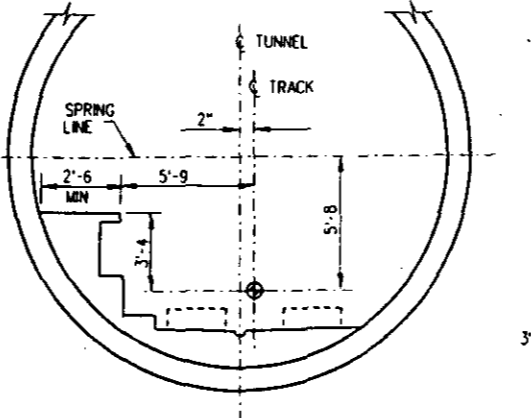
WALKWAY AWAY FROM CURVE CENTER
NTS



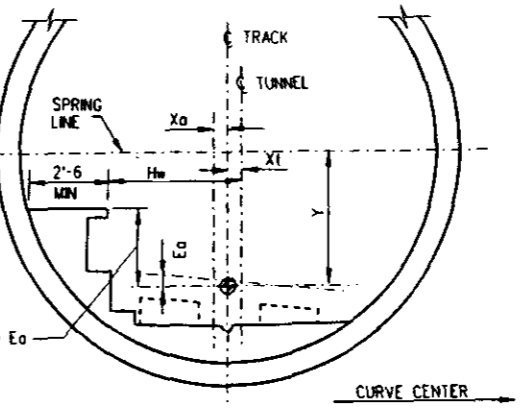
SECTION A
TANGENT



SECTION B



SECTION C
TANGENT

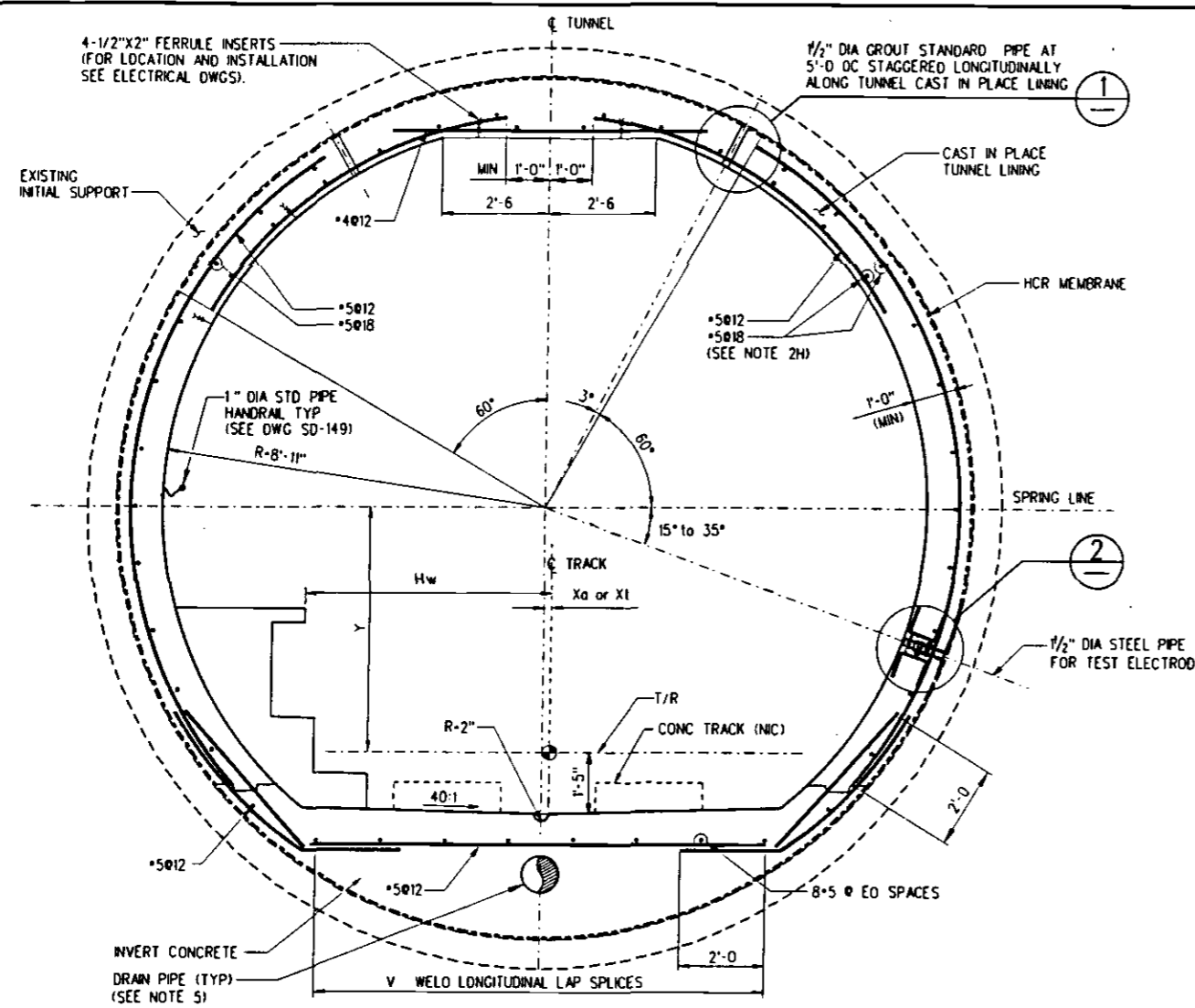


SECTION D

- NOTES:**
- VALUES OF Xo, X1 & Hw IN TRANSITION SECTION VARY LINEARLY BETWEEN TANGENT TRACK & CLEARANCE TABLE DIMENSIONS.
 - VALUE OF Eo & "Y" VARIES LINEARLY THRU THE LENGTH OF THE SPIRAL.
 - Hw IN CURVED SECTIONS IS BASED ON 10 FT. CHORD CONSTRUCTION.

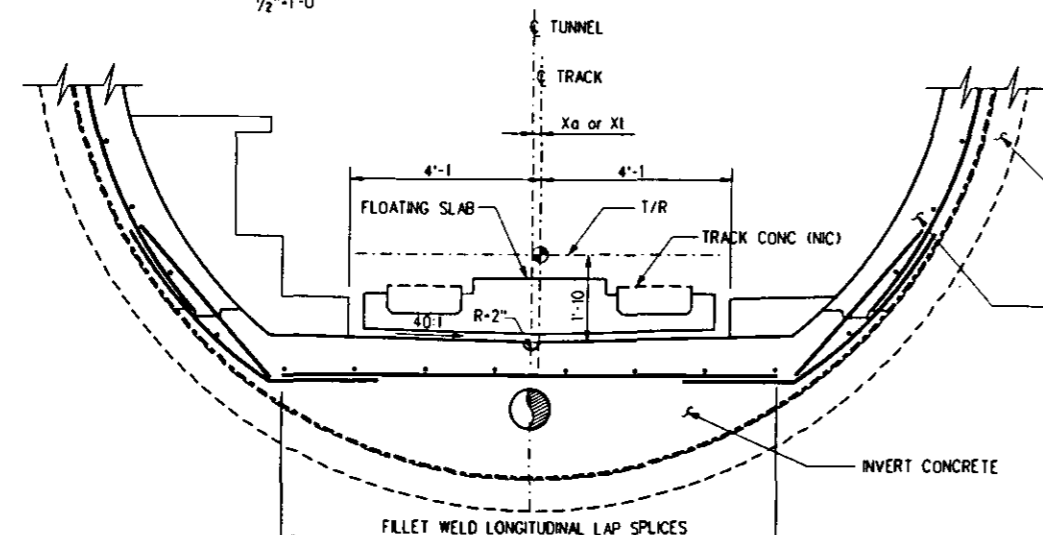
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REV</th> <th>DATE</th> <th>BY</th> <th>APP</th> <th>REG NO</th> <th>EXPIRES</th> <th>SEAL HOLDER</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>4/1/97</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>BASELINE ISSUE PER DE305-SBCN-7.00</td> </tr> </tbody> </table>	REV	DATE	BY	APP	REG NO	EXPIRES	SEAL HOLDER	DESCRIPTION	0	4/1/97						BASELINE ISSUE PER DE305-SBCN-7.00	DESIGNED BY F.FORTUNATO DRAWN BY I.M.GONZALEZ CHECKED BY F.FAZELI IN CHARGE F.FORTUNATO DATE 22 JUL 94	LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY ENGINEERING MANAGEMENT CONSULTANT <small>Professional Development Credit & Renewal not Subject Matter: Inspection & Maintenance ICF Kaiser Engineers & Architects Engineering Library Address: 74 James Cook Way, Los Angeles, CA 90001 The Northridge Grand, Inc.</small>	STRUCTURAL DIRECTIVE TUNNEL SUBWAY TUNNEL ALIGNMENT AND WALKWAY CONTROL DATA	CONTRACT NO. DRAWING NO. SD-050 SCALE 1/4"=1'-0" SHEET NO.
REV	DATE	BY	APP	REG NO	EXPIRES	SEAL HOLDER	DESCRIPTION													
0	4/1/97						BASELINE ISSUE PER DE305-SBCN-7.00													

6 MAY 1997 11:51 AM / ANSYS INC. / C:\ANSYS\1486350.PLOTTED BY: dadrivas



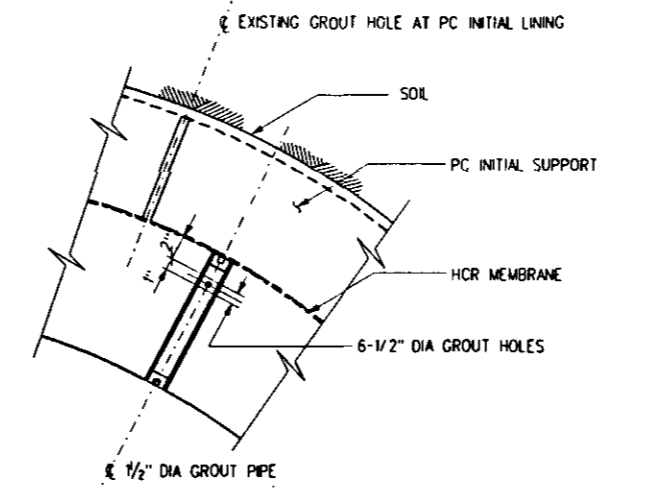
TYPICAL SECTION - DIRECT FIXATION

1/2" x 1'-0"



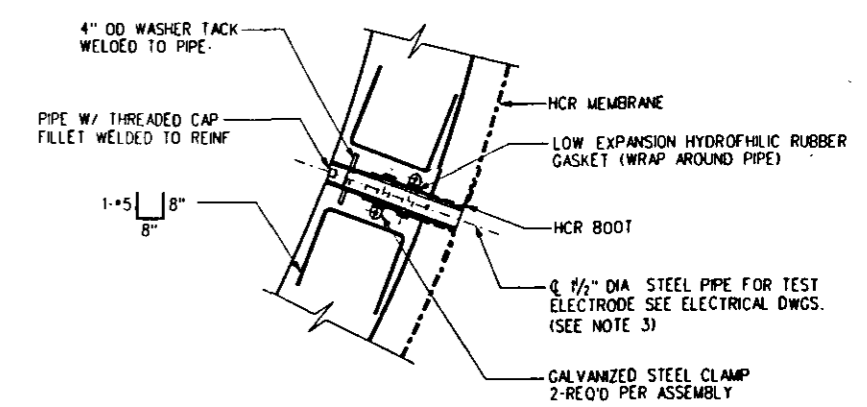
TYPICAL SECTION - FLOATING SLAB

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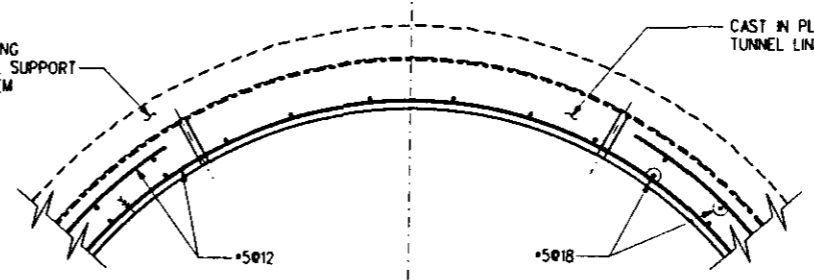
DETAIL 1

1/2" x 1'-0"



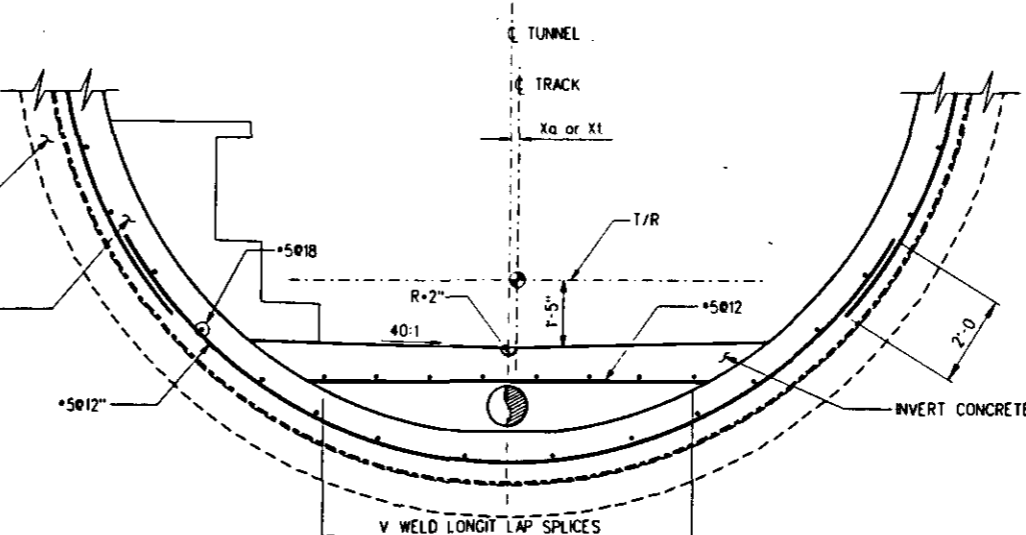
DETAIL 2

1/2" x 1'-0"



CROWN POURING ALTERNATIVE

1/2" x 1'-0"



INVERT POURING ALTERNATIVE

1/2" x 1'-0"

NOTES:

- DESIGN STRENGTH:
 - CAST IN PLACE CONCRETE $F_c=4,000$ PSIA 28 DAYS.
 - REINFORCING STEEL ASTM A-615 GRADE 60, $F_y=60,000$ PSI.
 - STRUCTURAL STEEL ASTM A-36 $F_y=36,000$ PSI.
 - WELDED WIRE FABRIC ASTM A-615 $F_y=75,000$ PSI.
 - CEMENT SHALL BE TYPE II.
- CONSTRUCTION NOTES:
 - CONSTRUCTION JOINTS SHALL BE FULLY BONDED. AGGREGATE SHALL BE EXPOSED BY ABRASIVE BLASTING OR SURFACE RETARDANTS, LOOSE PARTICLES SHALL BE REMOVED AND BONDING AGENT SHALL BE APPLIED PRIOR TO CONCRETE PLACEMENT.
 - CONSTRUCTION JOINTS AND REINFORCING STEEL SPLICE SHALL BE USED ONLY WHERE SHOWN OR APPROVED BY THE AUTHORITY OR ITS DESIGNEE.
 - THE INITIAL SUPPORT SHALL BE PLACED AND BE NORMAL TO THE GRADE OF THE TUNNEL.
 - INITIAL SUPPORT SHALL BE INSTALLED AND EXPANDED TO BE IN FIRM AND CONTINUOUS CONTACT WITH THE SURROUNDING GROUND.
 - NOT USED.
 - PUMP GROUT THROUGH GROUT PIPES TO FILL VOIDDS AT CROWN OF THE TUNNEL BETWEEN THE HCR (HYDRO-CARBON RESISTANT MEMBRANE) AND THE CAST IN PLACE CONCRETE LINING.
 - PLUG GROUT HOLE WITH THREADED PLUG AFTER GROUTING. CONTRACTOR MAY SUBSTITUTE WELDED WIRE FABRIC IN LIEU OF REINFORCING STEEL AT THE TUNNEL LINING ONLY. WWF 6X6- D12.4 or D11.0 WITH THE STRONGER WIRE IN THE CIRCUMFERENTIAL DIRECTION (MIN LAP 12")
- FOR TEST ELECTRODE PIPE DETAILS AND LOCATION, SEE DWG ES-104.
- FOR INVERT COLLECTOR GRID PLAN, SEE DWG NO
- FOR SIZE AND/OR LOCATION SEE MECHANICAL DWGS.

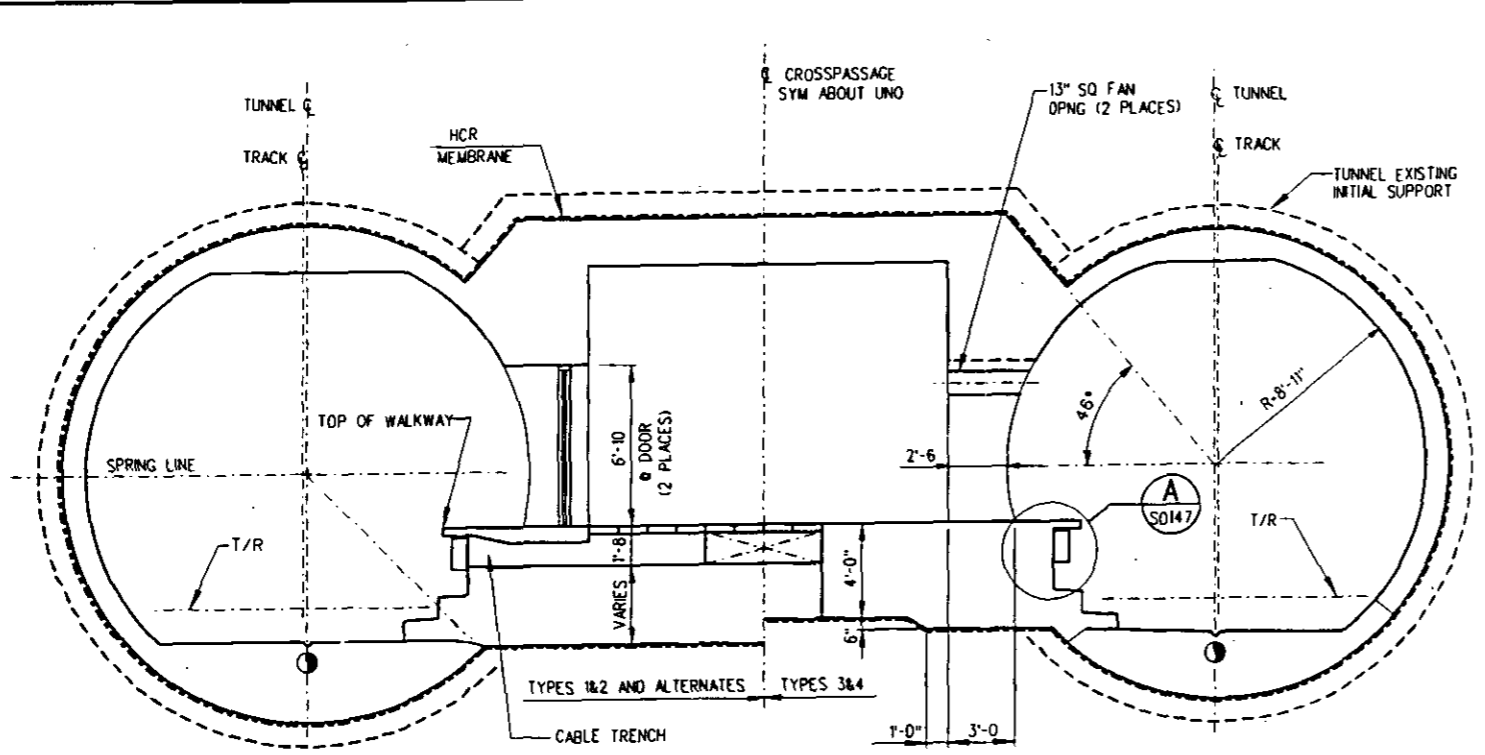
DESIGNED BY F. FORTUNATO	DATE 22 JUL 94						
DRAWN BY I.M. GONZALEZ							
CHECKED BY A. GOMEZ							
IN CHARGE F. FORTUNATO							
BASELINE ISSUE PER DE305-SBCH-7.00							
REV	DATE	BY	APP	REG NO	EXPIRES	SEAL HOLDER	DESCRIPTION
0	4/1/97						

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY
 ENGINEERING MANAGEMENT CONSULTANT
 SUBMITTED: *[Signature]*
 APPROVED: *[Signature]*

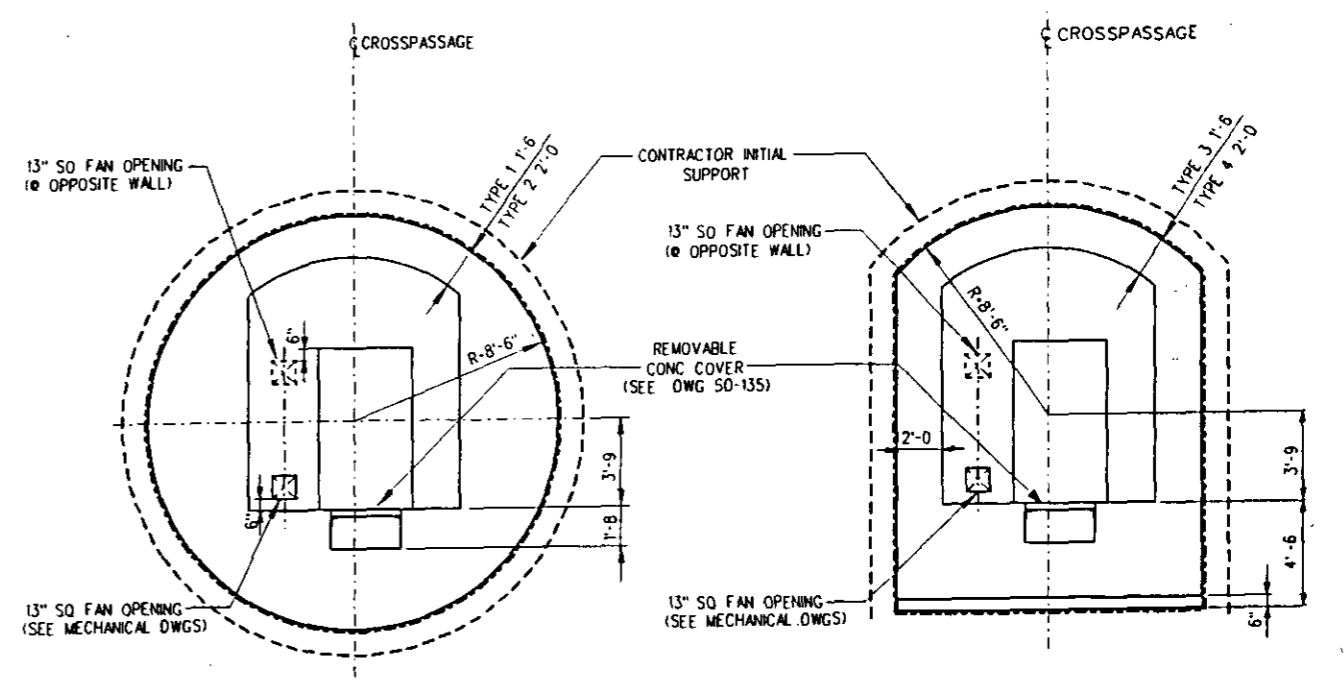
STRUCTURAL DIRECTIVE
 TUNNEL SUBWAY
 CAST IN PLACE CONCRETE LINING
 TYPICAL SECTIONS AND DETAILS

CONTRACT NO	
DRAWING NO	SD-088
REV	0
SCALE	AS NOTED
SHEET NO	

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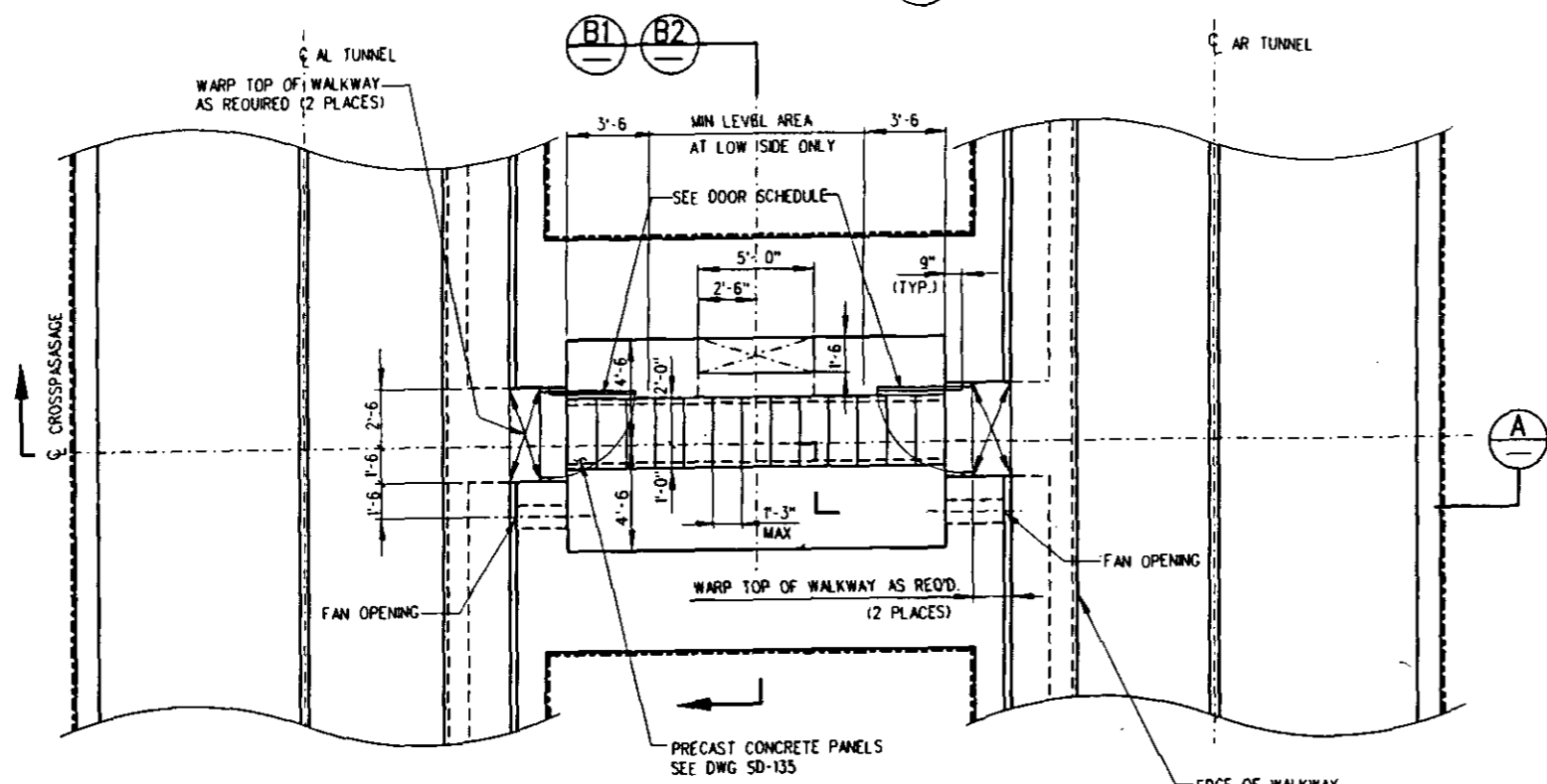


SECTION A

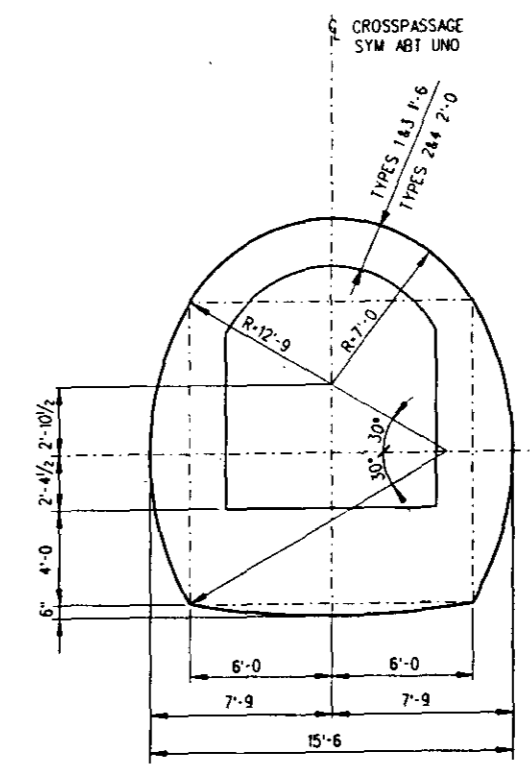


SECTION B1
TYPES 1 & 2

SECTION B2
TYPES 3 & 4



PLAN AT CROSS PASSAGE



ALTERNATE SECTION B1 B2

REV	DATE	BY	APP	REG NO	EXPIRES	SEAL HOLDER	DESCRIPTION
0	4/1/97						BASLINE ISSUE PER DE305-SBCN-7.00

DESIGNED BY
F. FORTUNATO
DRAWN BY
R. DEMIROJIAN
CHECKED BY
I.M. GONZALEZ
IN CHARGE
F. FORTUNATO
DATE
22 JUL 94

M LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

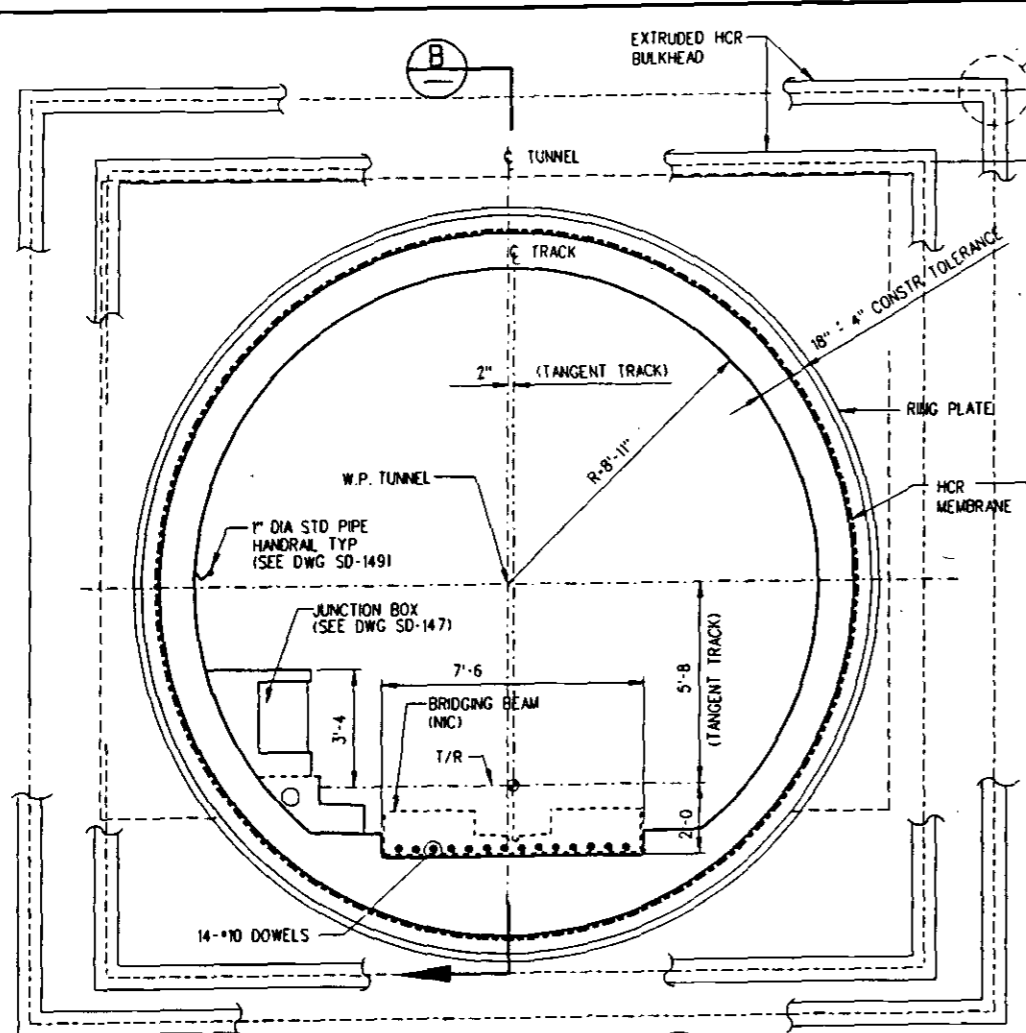
FOR THE AUTHORITY OF
PERSONNEL MANAGEMENT GROUP & STATION, INC.
DORIS, STAN, JENNIFER & ASSOCIATES
27 HUNTER EXPLORERS, CALIF. CO. INC.
15000-15TH AVENUE, JEROME, CA
JENNIFER, CARRIE, WALTER, INC.
THE HUNTER GROUP, INC.

SUBMITTED: *F. Fortunato*
APPROVED: *I.M. Gonzalez*

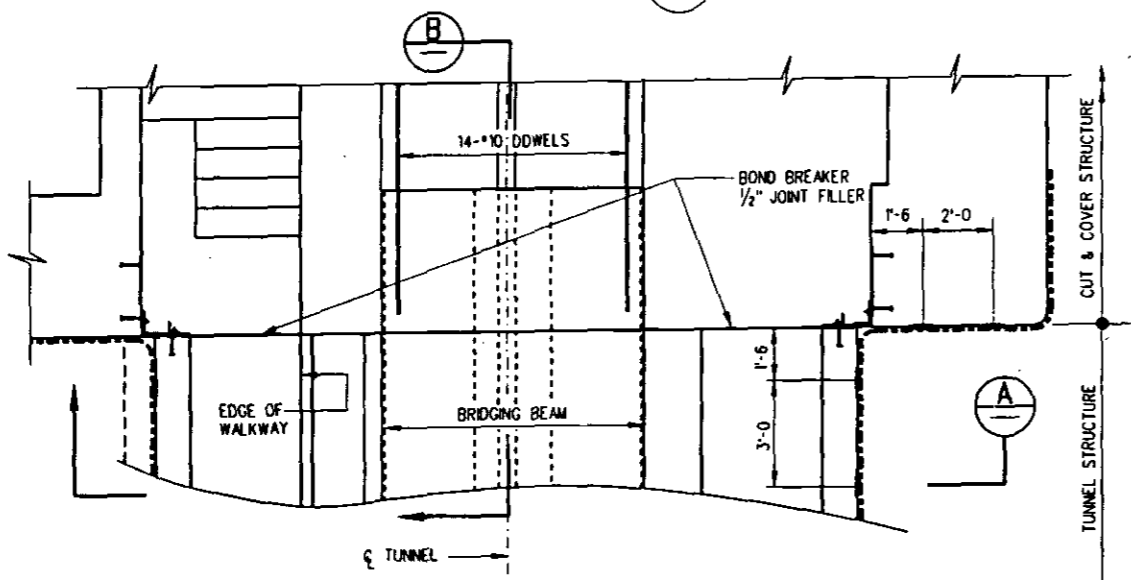
STRUCTURAL DIRECTIVE
TUNNEL SUBWAY
CAST IN PLACE CONCRETE LINING
CROSS PASSAGES
PLAN, SECTIONS AND DETAILS

CONTRACT NO.	
DRAWING NO.	SD-097
REV.	0
SCALE	1/4"=1'-0"
SHEET NO.	

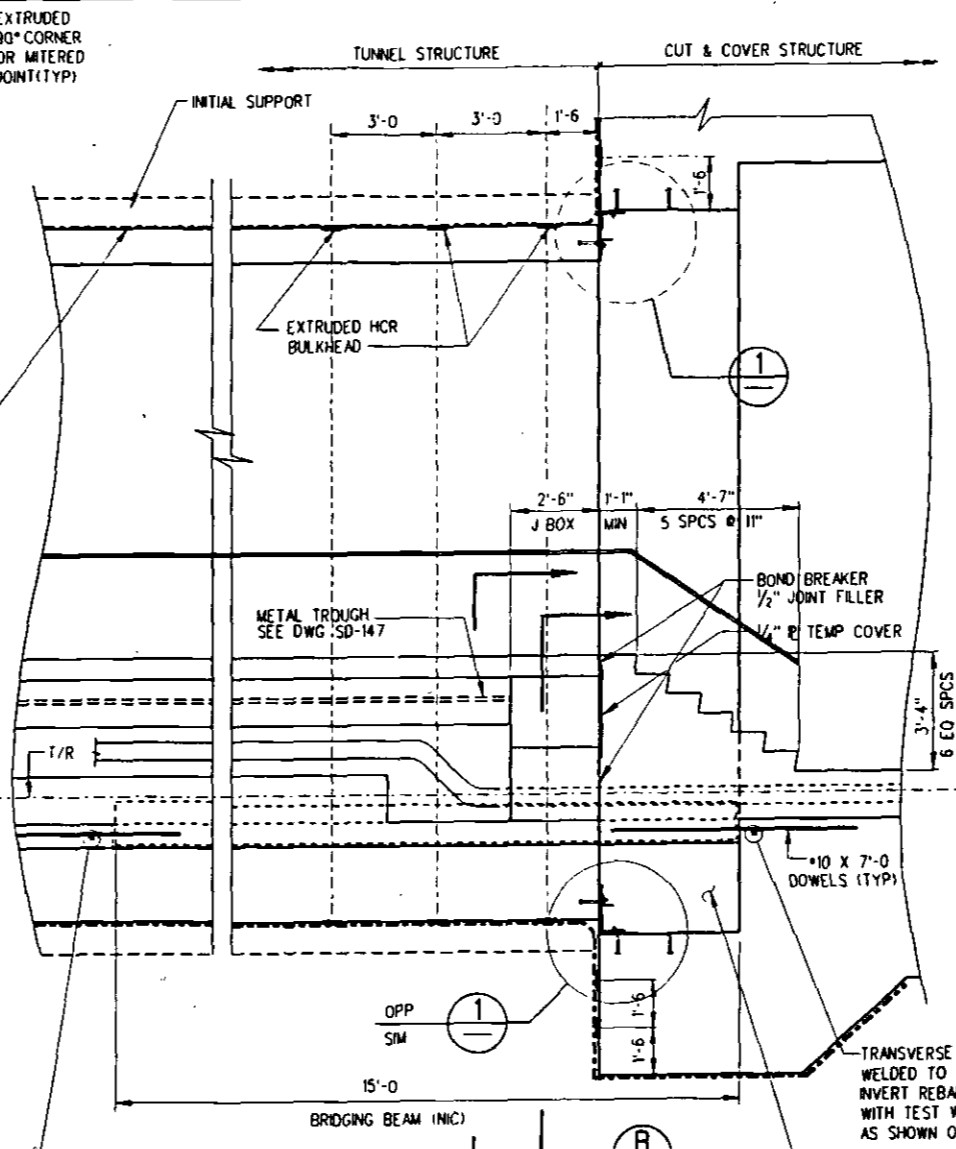
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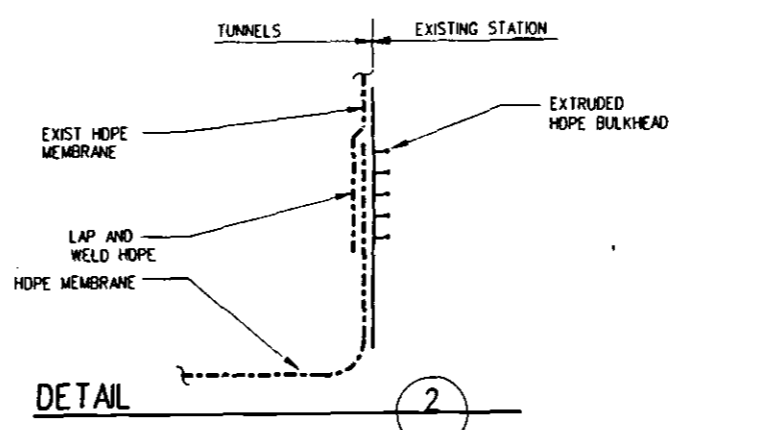
SECTION A



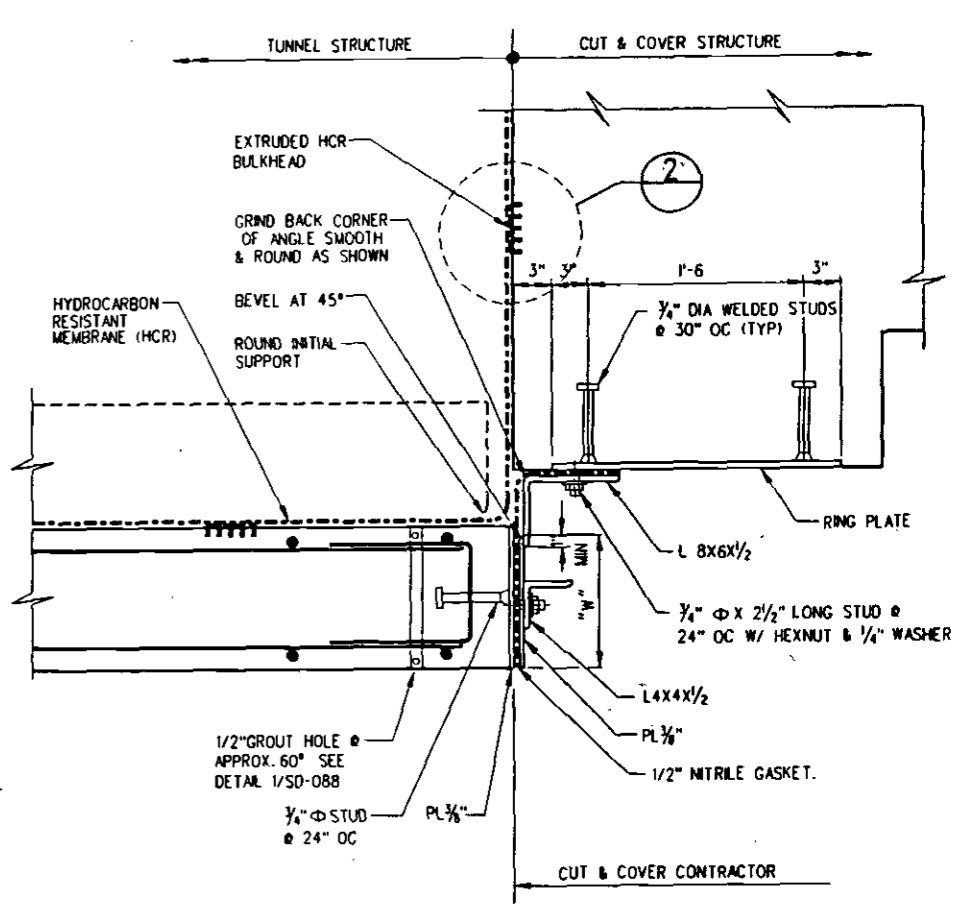
PLAN AT INTERFACE



SECTION B



DETAIL 2



RING PLATE DETAIL 1

1/2"-1'-0"

NOTES:

1. ANGLES AND PLATES SHALL BE CONTINUOUS AROUND PERIMETER IN 45 DEGREE ARC LENGTH.
2. ALL STEEL AT THE RING DETAIL ARE GALVANIZED.
3. CONTRACTOR SHALL MEASURE ACTUAL LOCATION OF TUNNEL LINING WITH RESPECT TO THE CUT AND COVER STRUCTURE TO DETERMINE WIDTH OF PLATE "W" PRIOR TO ITS FABRICATION.
4. ROUND END OF INITIAL SUPPORT CONCRETE SEGMENT TO APPROXIMATE 4" RADIUS TO ALLOW HOPE BENDING.
5. THE 3/8" PLATE AT THE END OF THE TUNNEL LINING SHALL BE IN A VERTICAL PLANE WITH A ALLOWED MAXIMUM DEVIATION OF 1/16" PER FOOT AROUND THE PERIMETER.
6. THE NITRILE GASKET SHALL BE IN FULL AND CONTINUOUS CONTACT WITH THE 3/8" PLATE AND SHALL BE COMPRESSED AS REQUIRED TO MAKE A WATER AND GAS-TIGHT SEAL.
7. INSTALL ADDITIONAL HCR EXTRUDED BULKHEADS ALL AROUND PENETRATION AS SHOWN.

DESIGNED BY F. FORTUNATO	DATE 22 JUL 94							
DRAWN BY B. HORNSTEIN								
CHECKED BY I.M. GONZALEZ								
IN CHARGE F. FORTUNATO								
DESCRIPTION BASELINE ISSUE PER DE305-SBCN-7.00								
REV	DATE	BY	APP	REC NO	EXPRS	SEAL	HOLDER	DESCRIPTION
0	4/1/97							

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

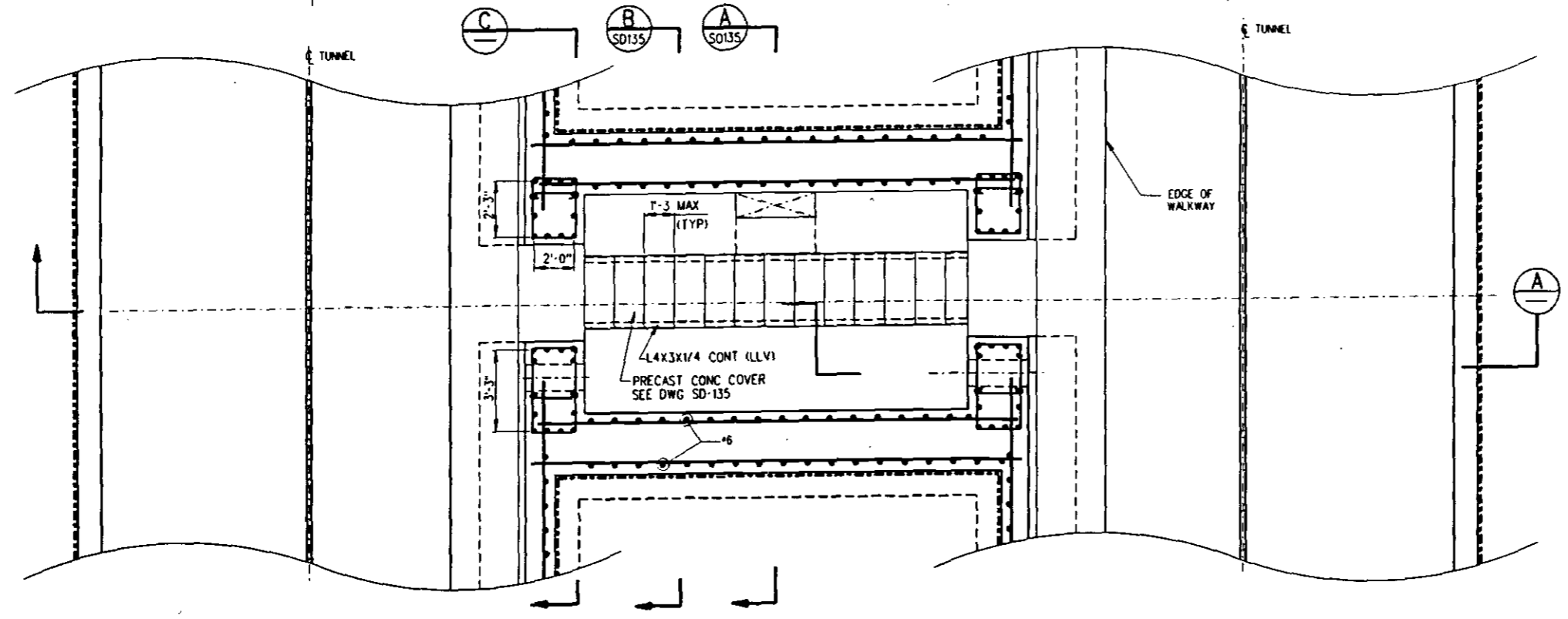
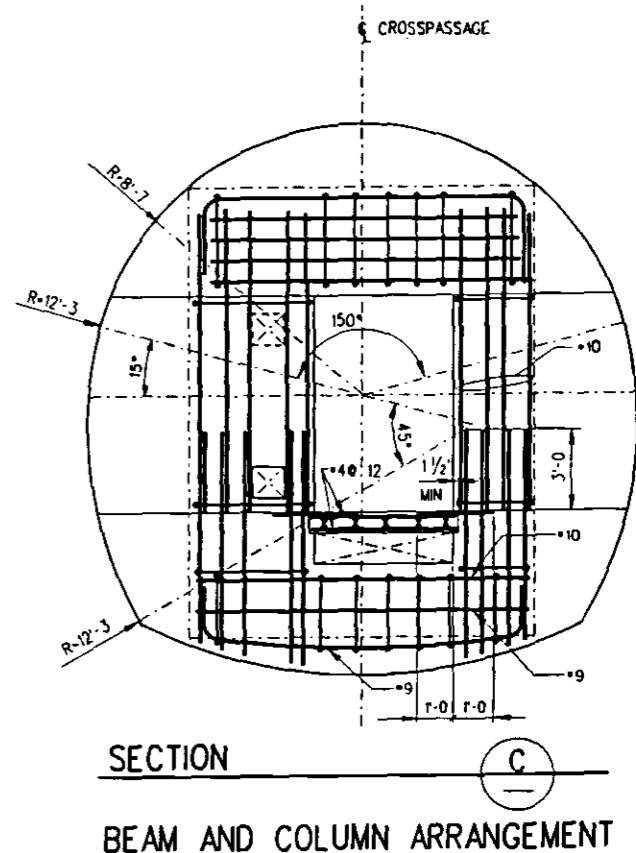
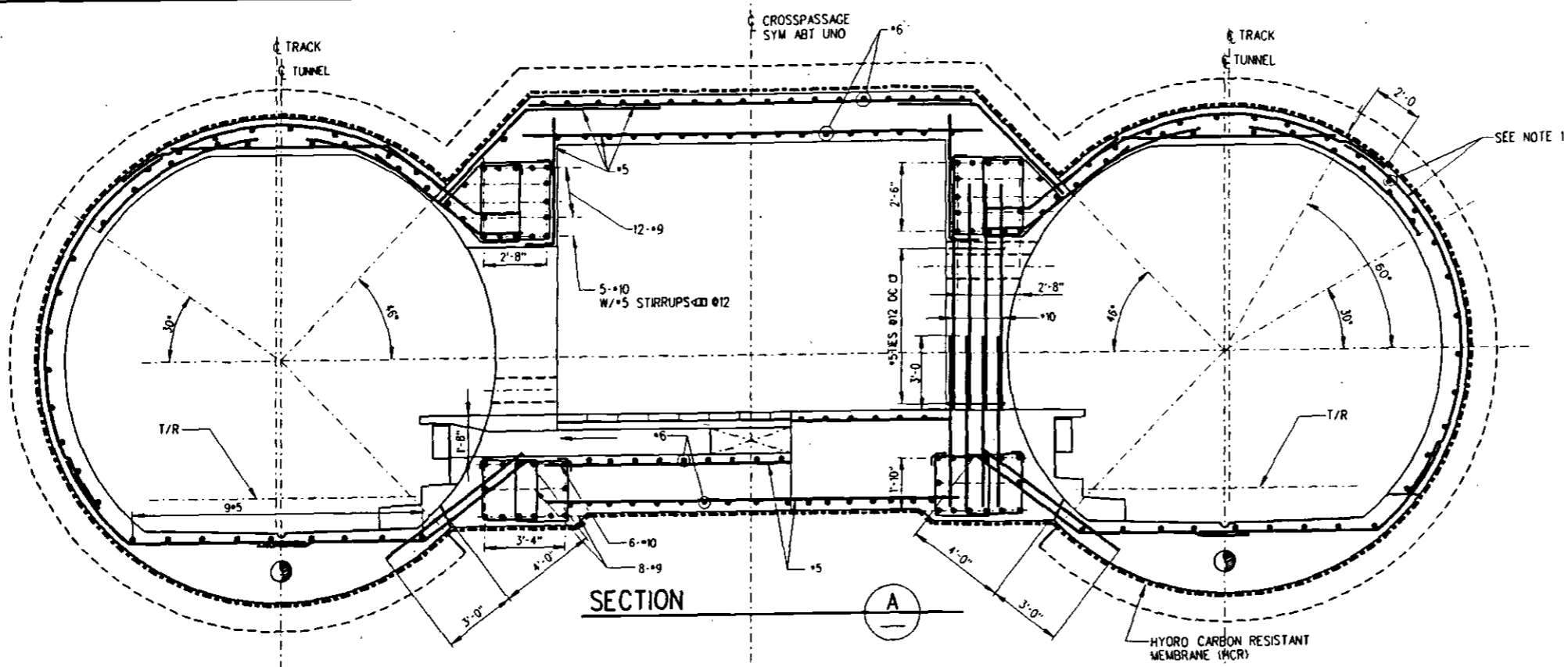
ENGINEERING MANAGEMENT CONSULTANT

SUBMITTED: *F. Fortunato*

APPROVED: *[Signature]*

STRUCTURAL DIRECTIVE
TUNNEL SUBWAY
CAST IN PLACE LINING CONNECTION
TO CUT AND COVER STRUCTURES

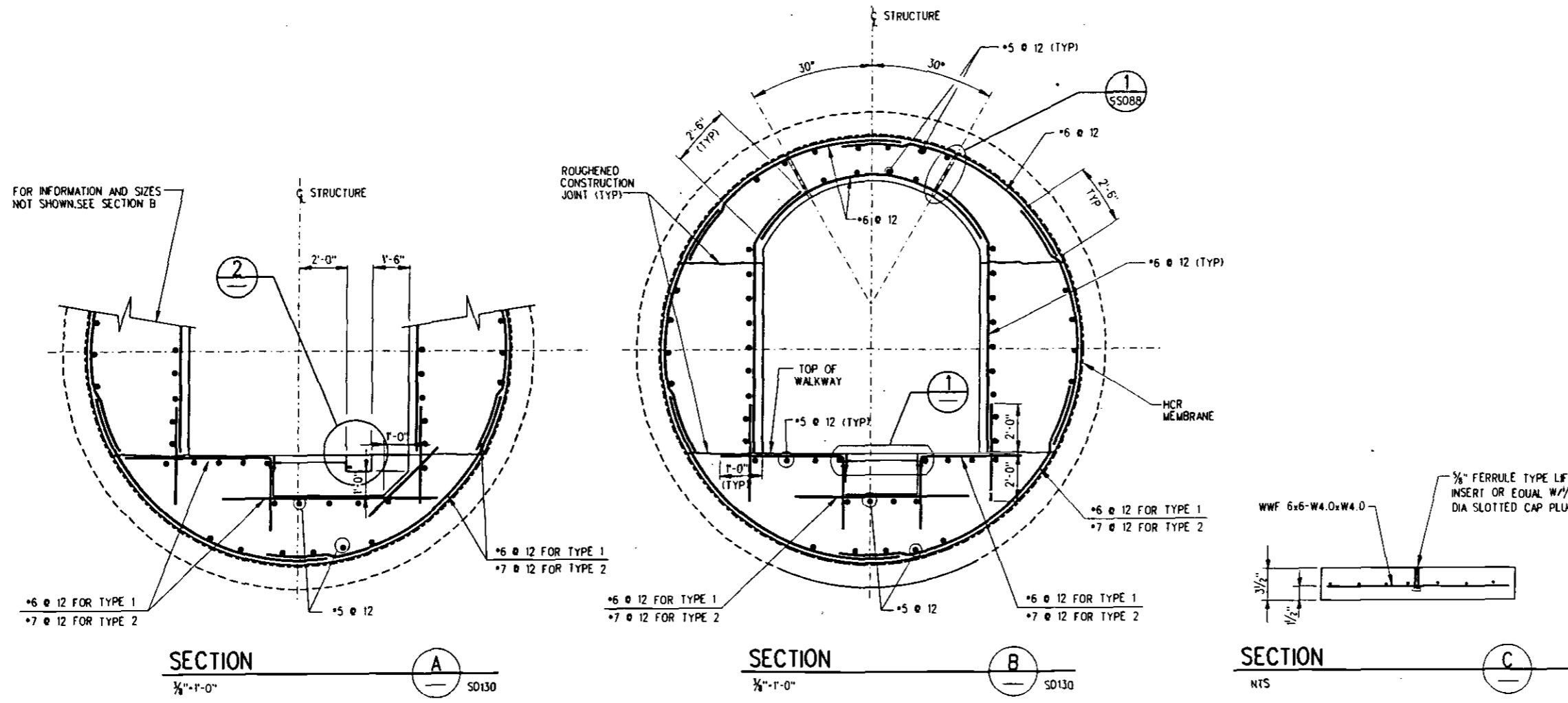
CONTRACT NO	
DRAWING NO	SD-128
REV	0
SCALE	3/8"=1'-0" UNO
SHEET NO	



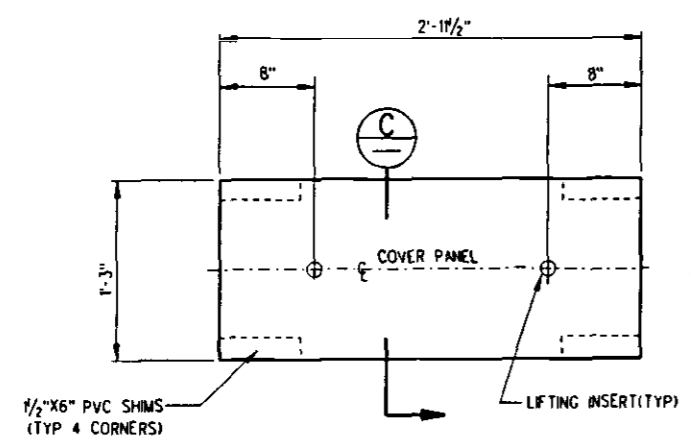
NOTE:
 1. ALL TUNNEL TRANSVERSAL REINFORCING IS #5@12
 ALL TUNNEL LONGITUDINAL REINFORCING IS #5@18 UNO.

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DESIGNED BY	F. FORTUNATO																																																																											
DRAWN BY	R. DEMIRDJIAN																																																																											
CHECKED BY	I.M. GONZALEZ																																																																											
IN CHARGE	F. FORTUNATO																																																																											
DATE	22 JUL 94																																																																											
REV	DATE	BY	APP	REC NO	EXPRES	SEAL HOLDER	DESCRIPTION																																																																					
0	4/1/99						BASLINE ISSUE PER DE305-SBCN-7.00																																																																					

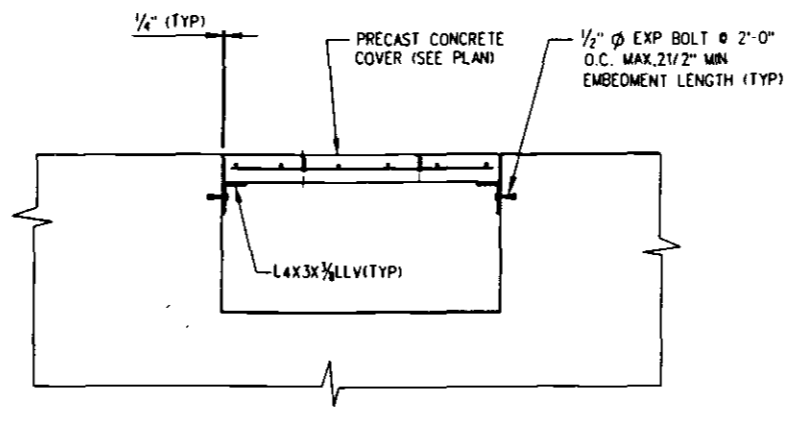
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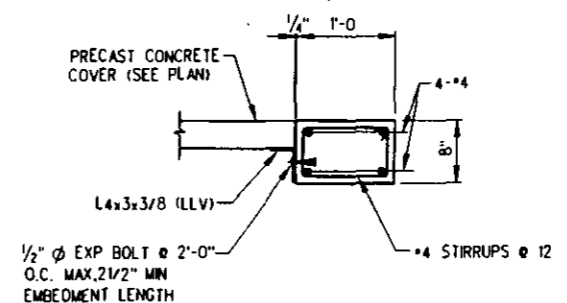
- NOTES:**
1. TYPES 1 & 2 CROSS PASSAGES ARE DESIGNED FOR CONSTRUCTION IN ALLUVIUM.
 2. DESIGN STRESS:
 - A. CONCRETE $f'_c=4000$ PSI IN 28 DAYS
 - B. REINFORCING STEEL, ASTM A-615 GRADE 60 $f_y=60,000$ PSI.
 3. GROUT PIPES AND ACCESSORIES, STEEL ASTM-A36. HOT DIPPED GALVANIZED ASTM-A123.
 4. CONSTRUCTION JOINTS AND REINFORCING STEEL SPLICES SHALL BE USED ONLY AS SHOWN ON THE DRAWINGS OR AT OTHER LOCATIONS APPROVED BY THE AUTHORITY OR ITS DESIGNEE.
 5. FOR EMBEDDED ELECTRICAL CONDUITS AND MECHANICAL ITEMS, SEE CROSS PASSAGE ELECTRICAL AND MECHANICAL DRAWINGS.
 6. REINFORCING ARRANGEMENT FOR ALTERNATE SECTION 'B1' & 'B2' ON DWG SD-097 IS SIMILAR TO SECTION 'B' ON THIS DWG.



PRECAST CONCRETE COVER PLAN
NTS



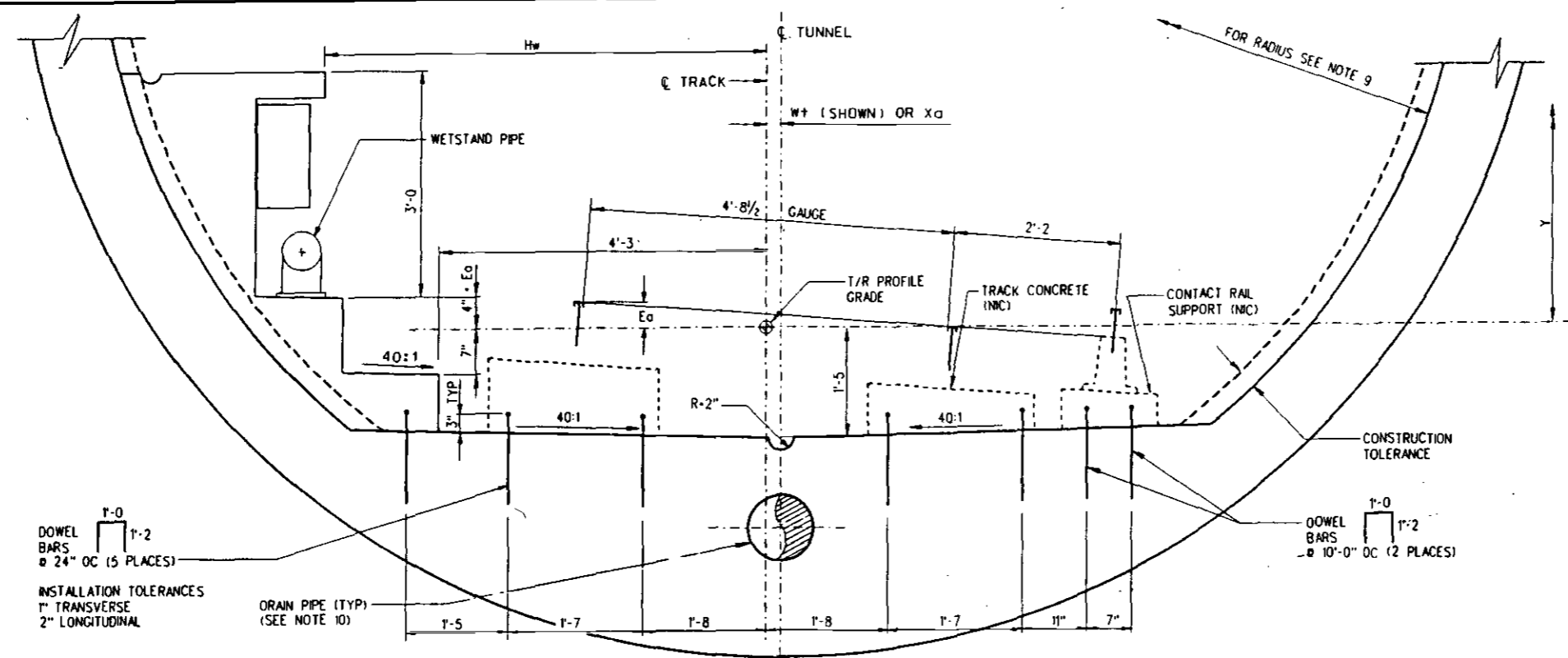
DETAIL 1
NTS



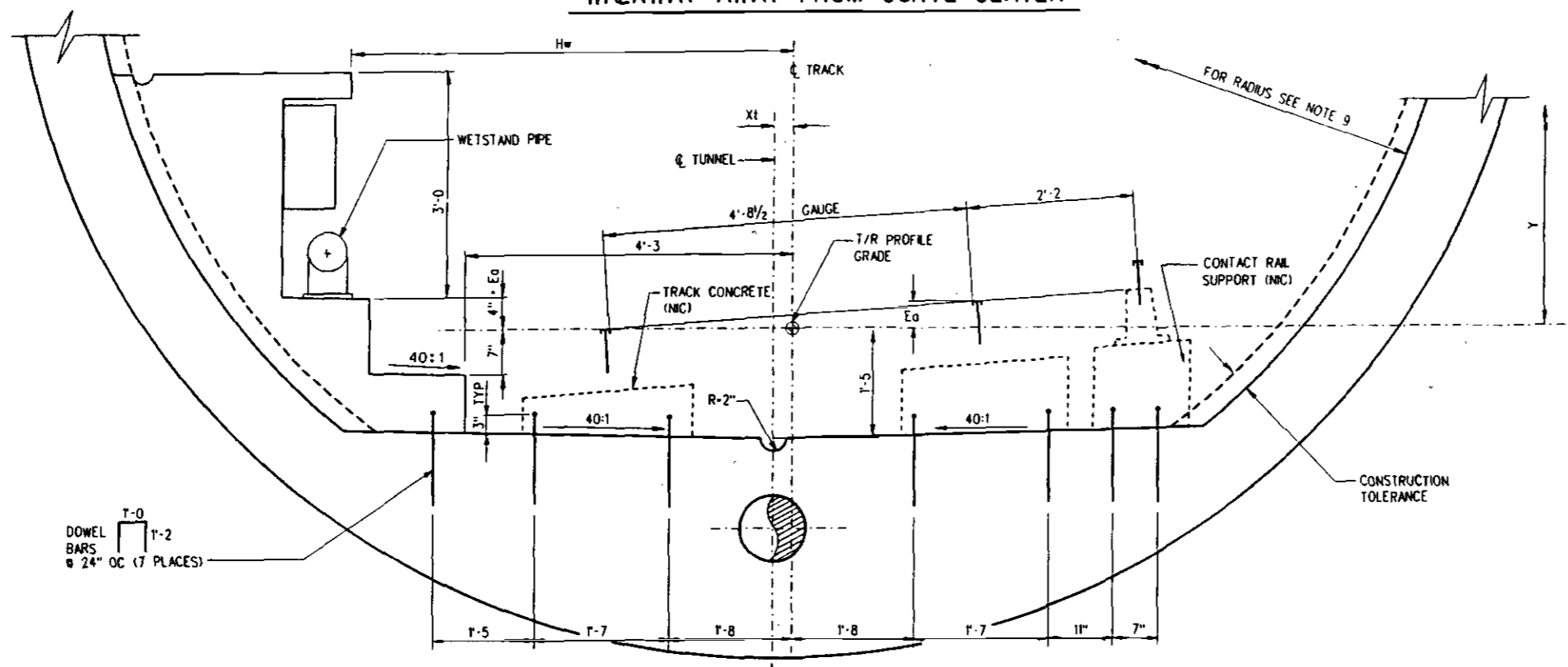
DETAIL 2
NTS

										DESIGNED BY F. FORTUNATO	 LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY	STRUCTURAL DIRECTIVE TUNNEL SUBWAY CROSSPASSAGES AND SUMPS MISC REINFORCING DETAILS		CONTRACT NO.	
										DRAWN BY L. GASTON				DRAWING NO. SD-135	REV 0
										CHECKED BY I.M. GONZALEZ				SCALE 3/8"=1'-0" UNO	SHEET NO.
										IN CHARGE F. FORTUNATO					
REV	DATE	BY	APP	REG NO	EXPIRES	SEAL HOLDER	DESCRIPTION	DATE	22 JUL 94	SUBMITTED <i>[Signature]</i> APPROVED <i>[Signature]</i>					

13 MAY 1997 13:41:13 AM / c:\p0001\mca\cmta\dwg\sd135.dwg / 135.DWG



WALKWAY AWAY FROM CURVE CENTER



WALKWAY TOWARD CURVE CENTER

- NOTES:
1. E_o - ACTUAL SUPERELEVATION.
 2. X_o & X_t - OFFSET OF C OF TUNNEL FROM C OF TRACK. (AWAY FROM OR TOWARD CENTER OF CURVE.)
 3. Y - VERTICAL DISTANCE BETWEEN PROFILE GRADE (TOP OF LOW RAIL) AND TUNNEL SPRING LINE.
 4. H_w - MINIMUM DISTANCE BETWEEN C OF TRACK AND EDGE OF WALKWAY.
 5. FOR E_o , X , Y AND H_w DIMENSIONS, SEE SCHEDULE ON TUNNEL ALIGNMENT & WALKWAY CONTROL DATA DWG.
 6. ALL REINFORCING BARS ARE #5 UNO.
 7. TRACK CONCRETE, RUNNING RAILS AND FASTENERS, CONTACT RAIL, PEDESTAL AND CONCRETE SUPPORT ARE NOT INCLUDED IN THIS CONTRACT (INC).
 8. X & Y DIMENSIONS SHALL BE USED ONLY TO DETERMINE TUNNEL ALIGNMENT.
 9. 17'-10" I.D. FOR CIP LINING (8'-11" RADIUS). 18'-4" I.D. FOR PC LINING (9'-2" RADIUS).
 10. FOR SIZE AND/OR LOCATION SEE MECHANICAL DWGS.

REV	DATE	BY	APP	REG NO	EXPIRES	SEAL HOLDER	DESCRIPTION
0	1/1/97						BASELINE ISSUE PER DE305-SBCN-7.00

DESIGNED BY
F. FORTUNATO
DRAWN BY
B. HORNSTEIN
CHECKED BY
I.M. GONZALEZ
IN CHARGE
F. FORTUNATO
DATE
22 JUL 94

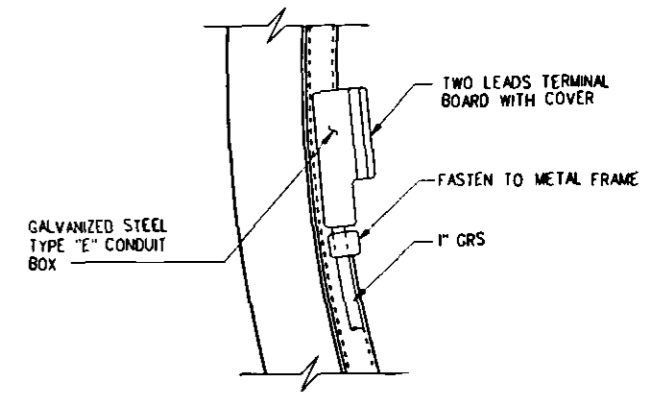
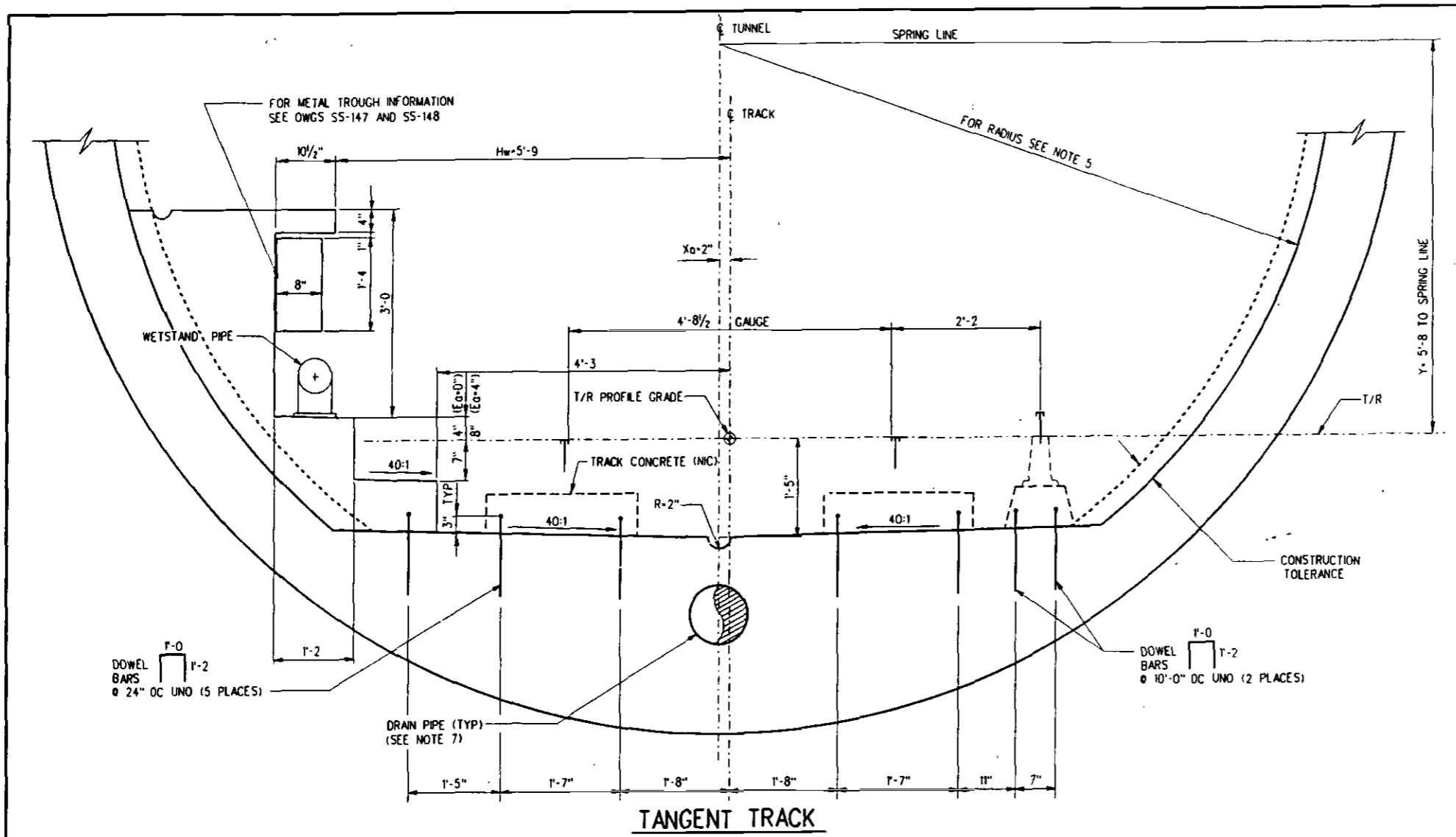
LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

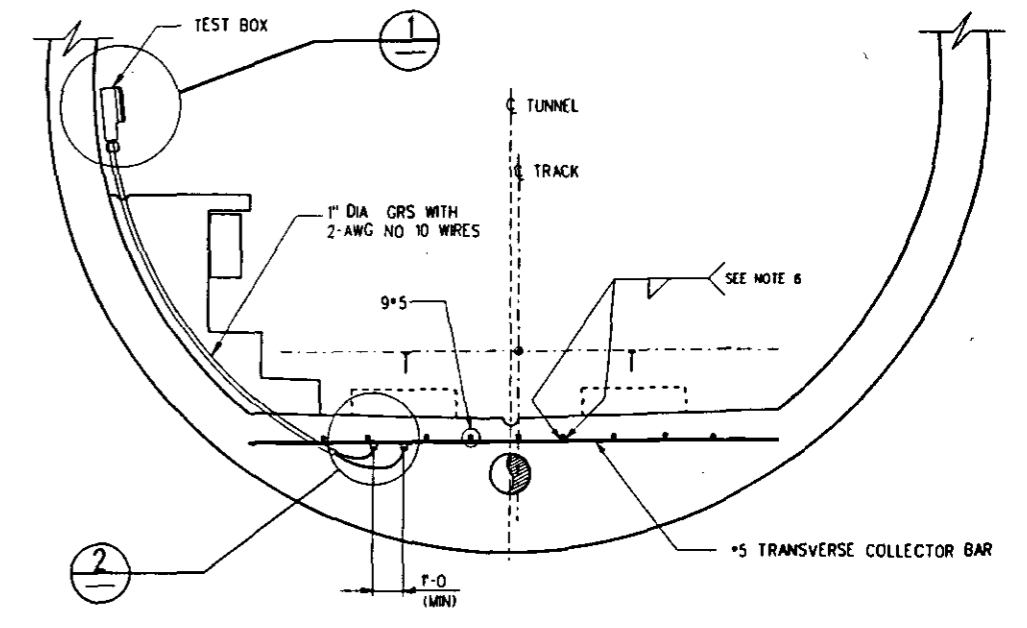
Submitted: *F. Fortunato*
Approved: *J.M.*

STRUCTURAL DIRECTIVE
TUNNEL SUBWAY
TUNNEL INVERT AND WALKWAY
DIRECT FIXATION
SUPERELEVATED TRACKS

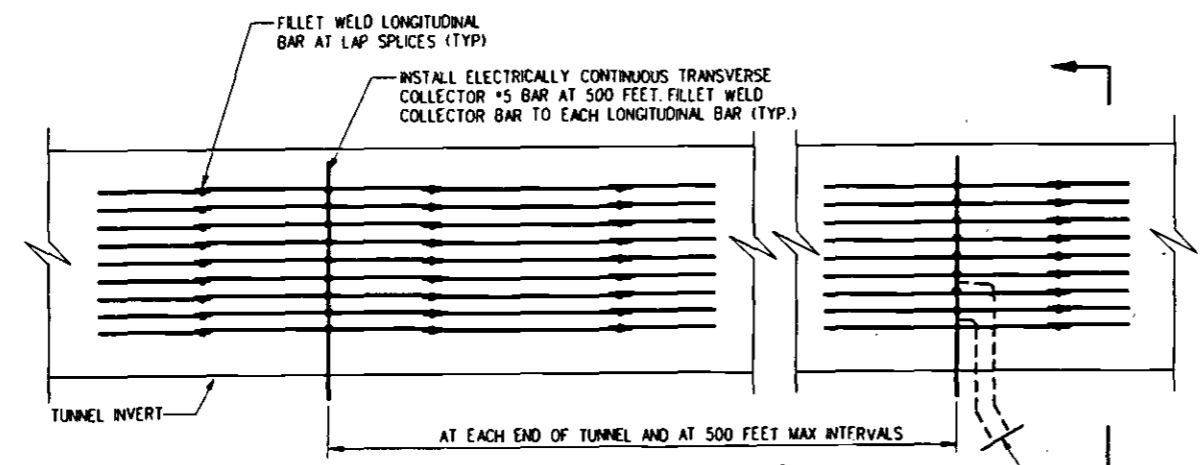
CONTRACT NO.	
DRAWING NO.	SD-138
REV.	0
SCALE	1"=1'-0"
SHEET NO.	



DETAIL 1
NTS

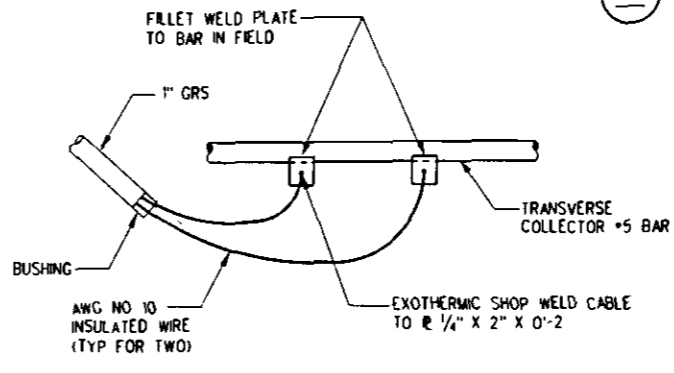


SECTION A-A
1/2" = 1'-0"



XHHW INSULATED AWG NO 10 STRANDED COPPER TEST WIRES, EXOTHERMIC WELD TO TRANSVERSE COLLECTOR BAR. WIRES TO BE TERMINATED IN A TEST BOX. TEST WIRES TO BE INSTALLED AT 1000 FOOT INTERVALS ALONG ENTIRE STRUCTURE AND AT ALL CONNECTIONS TO EXISTING OR FUTURE CUT AND COVER STRUCTURES.

INVERT COLLECTOR GRID PLAN
NTS



DETAIL 2
NTS

- NOTES:
1. X & Y DIMENSIONS SHALL BE USED ONLY TO DETERMINE TUNNEL ALIGNMENT.
 2. Hw = DISTANCE BETWEEN C OF TRACK AND EDGE OF WALKWAY.
 3. ALL REINFORCING BARS ARE #5 EXCEPT AS NOTED.
 4. TRACK CONCRETE, RUNNING RAILS AND FASTENERS, CONTACT RAIL, PEDESTAL AND CONCRETE SUPPORT, ARE NOT INCLUDED IN THIS CONTRACT.
 5. FOR CIP LINING 8'-11" RADIUS, FOR PRECAST ONE PASS LINING 9'-2" RADIUS.
 6. FOR ELECTRICAL CONTINUITY, WELD LONGITUDINAL BARS TO TRANSVERSE COLLECTOR BARS.
 7. FOR SIZE AND/OR LOCATION, SEE MECHANICAL DWGS.
 8. TRACKS AND CONTACT RAIL DOWEL BARS ARE NOT PART OF THIS CONTRACT (INC).

REV	DATE	BY	APP	REG NO	EXPIRES	SEAL HOLDER	DESCRIPTION
0	4/1/97						BASELINE ISSUE PER DE305-SBC1-7.00

DESIGNED BY
F. FORTUNATO

DRAWN BY
I.M. GONZALEZ

CHECKED BY
F. FAZELI

IN CHARGE
F. FORTUNATO

DATE
22 JUL 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

FORNUNATO

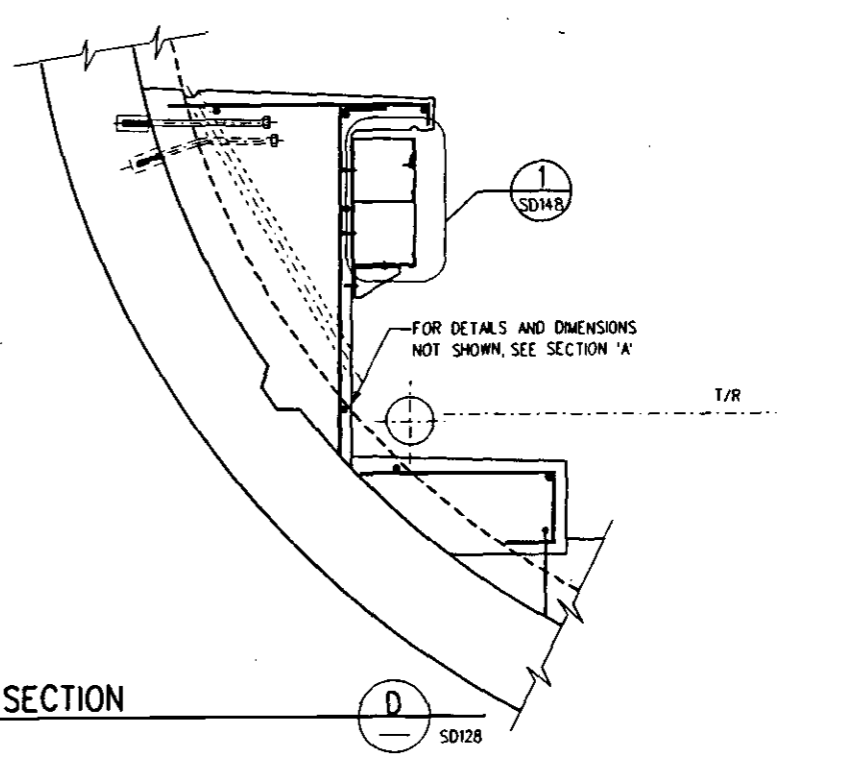
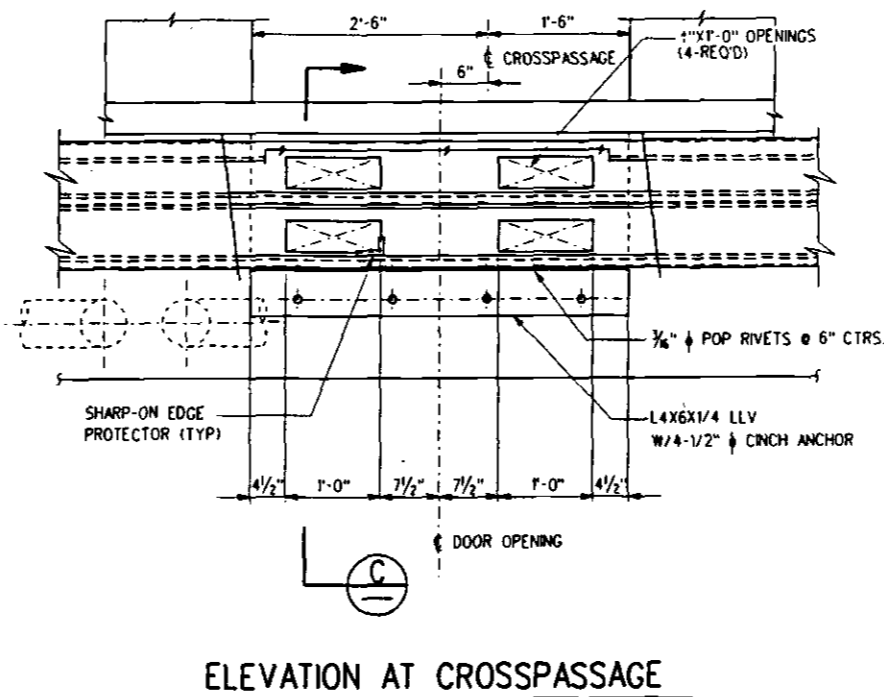
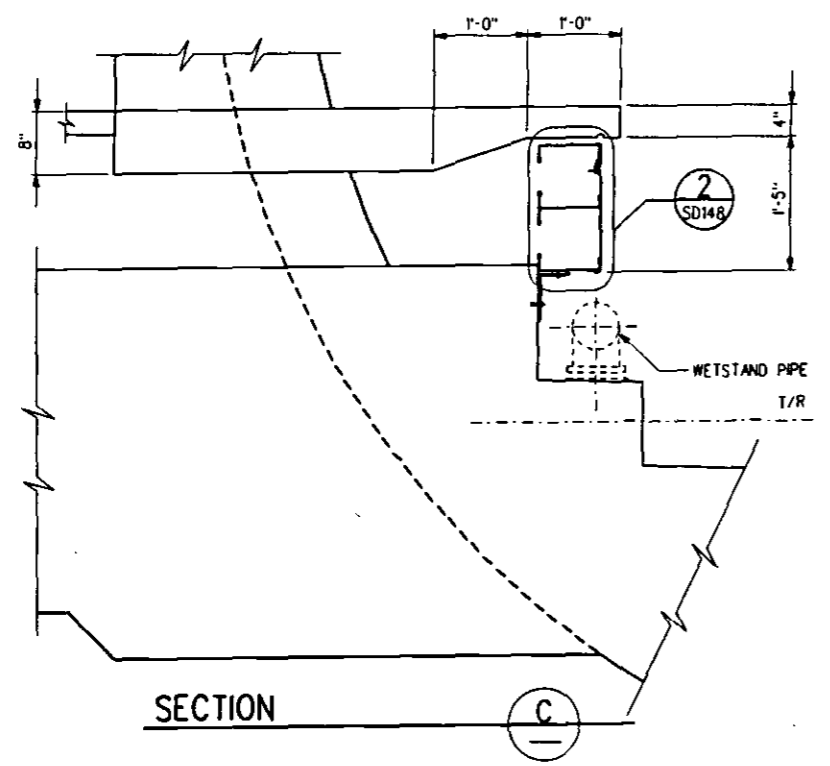
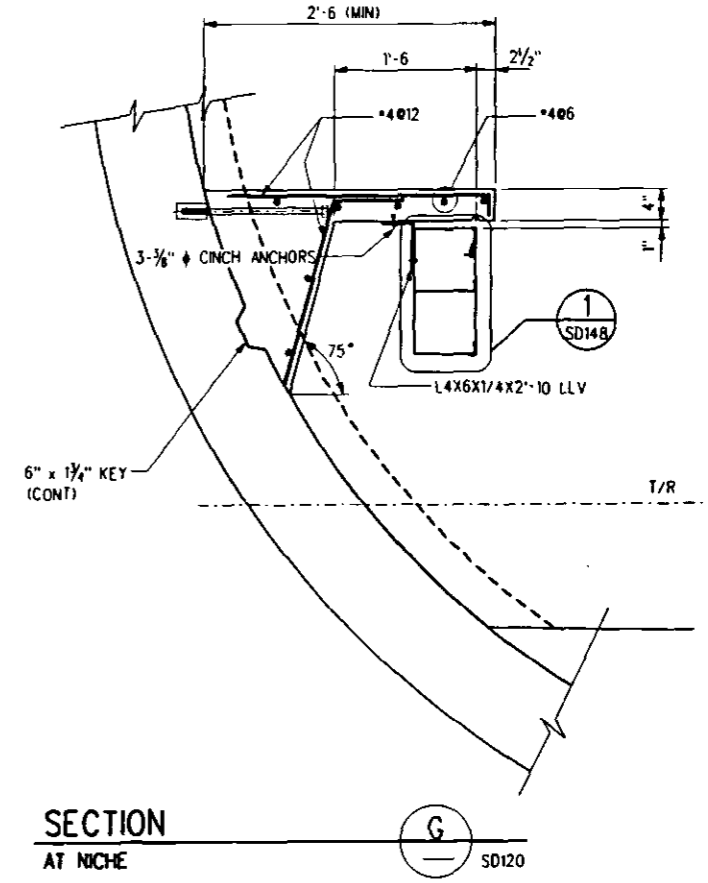
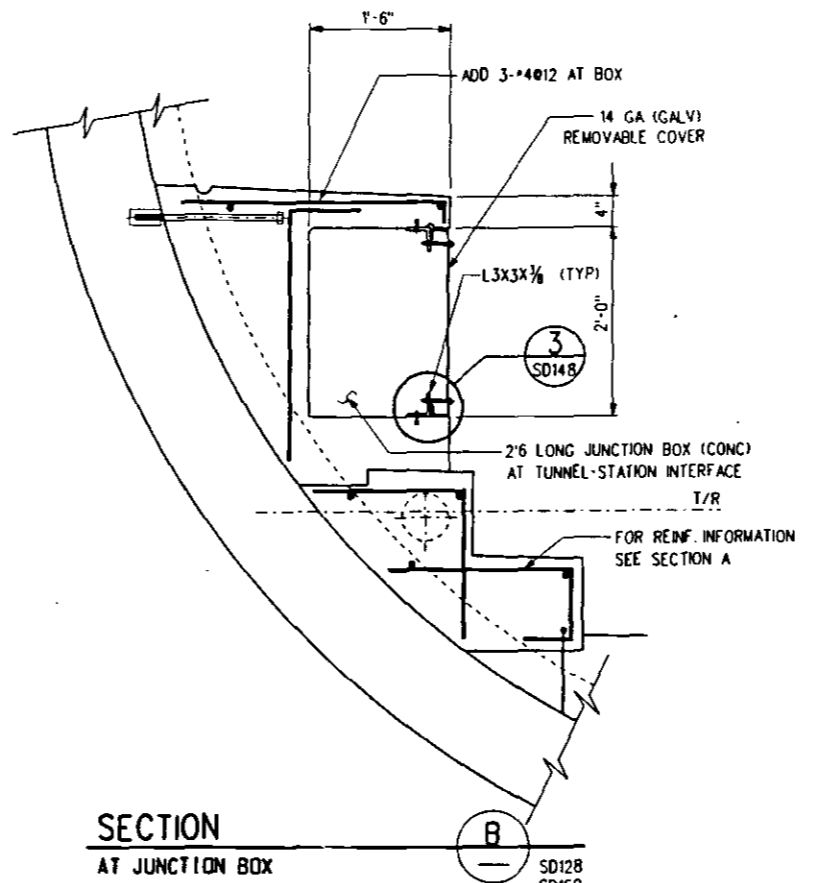
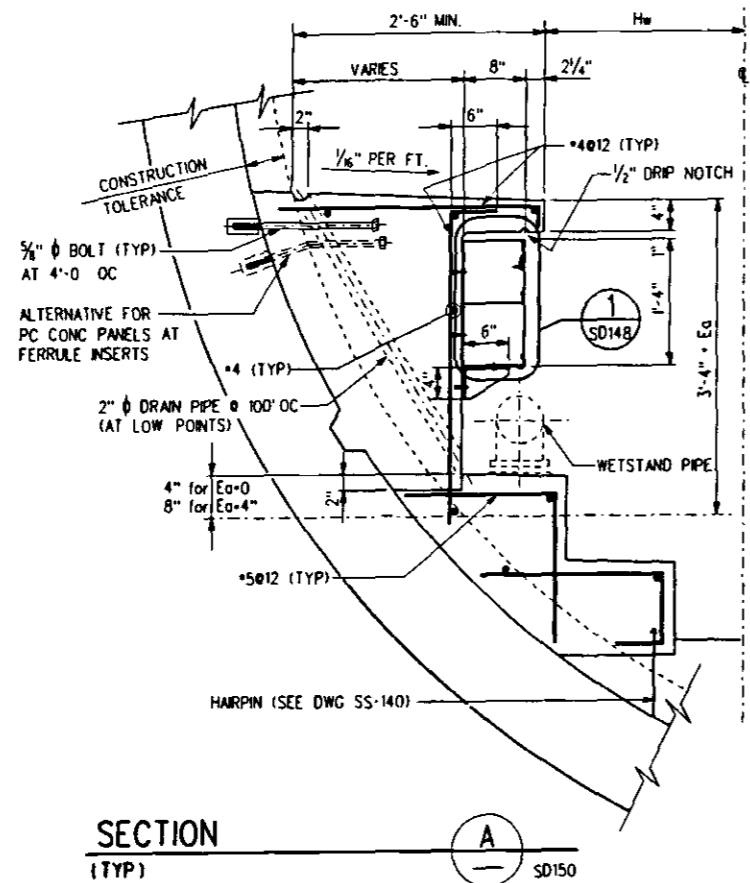
SUBMITTED

APPROVED

STRUCTURAL DIRECTIVE
TUNNEL SUBWAY
TUNNEL INVERT AND WALKWAY
DIRECT FIXATION
TANGENT TRACKS

CONTRACT NO	
DRAWING NO	SD-141
REV	0
SCALE	1" = 1'-0" UNO
SHEET NO	

DATE: 10/13/93 11:43 AM
 PLOTTED BY: approval



REV	DATE	BY	APP	REG NO	EXPIRES	SEAL HOLDER	DESCRIPTION
0	4/1/97						BASELINE ISSUE PER DE 305-SBCN-7.00

DESIGNED BY
F. FORTUNATO
DRAWN BY
I.M. GONZALEZ
CHECKED BY
M. ALI
IN CHARGE
F. FORTUNATO
DATE
JUL 22 94

M LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

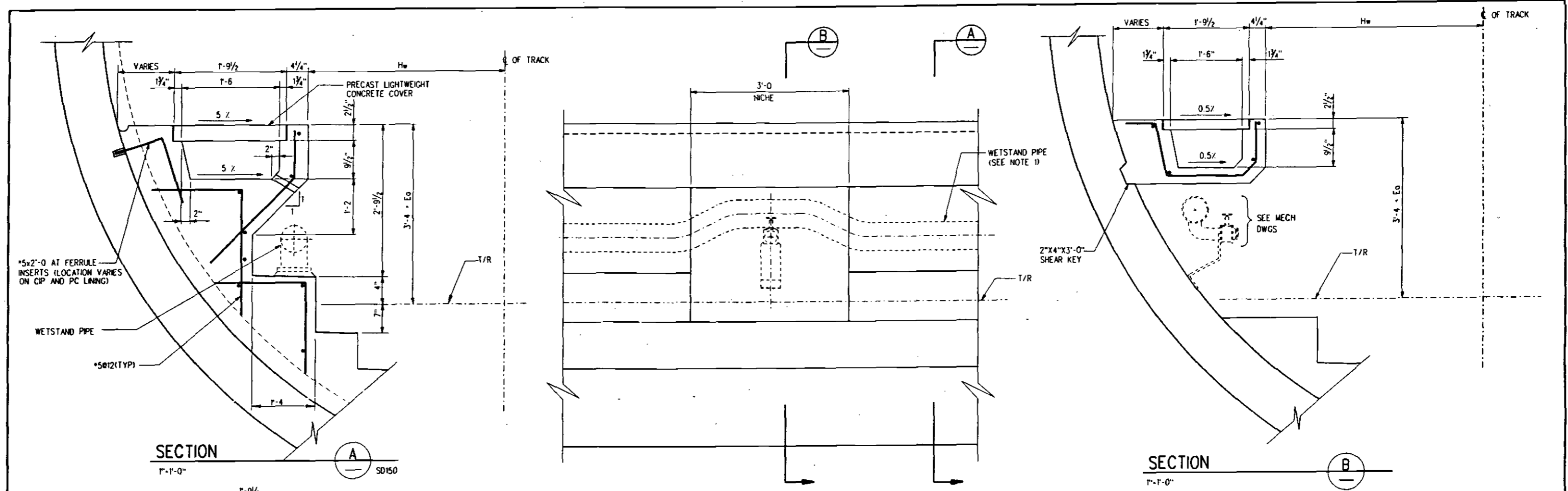
ENGINEERING MANAGEMENT CONSULTANT
an affiliate of
Parsons Brinckerhoff Quade & Bezdek, Inc.
Parsons, Brinckerhoff & Quade & Bezdek
17 Street, Emeryville, CA 94608
Licenses: Professional Engineers
James G. Quade, Inc.
The Northrup Group, Inc.

SUBMITTED *[Signature]*
APPROVED *[Signature]*

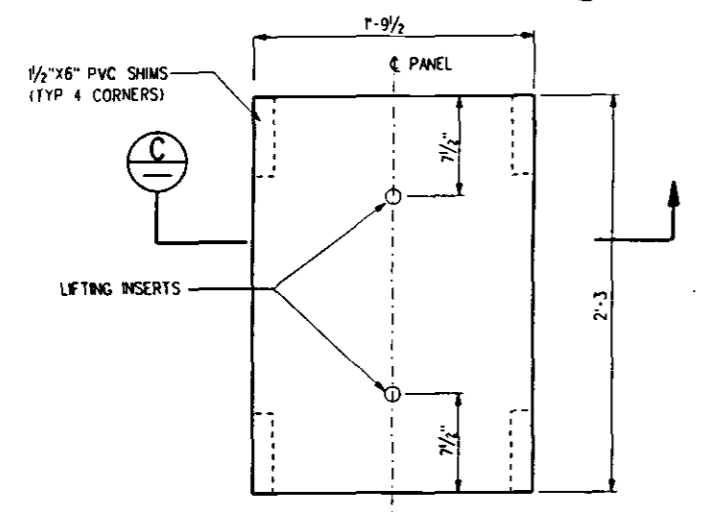
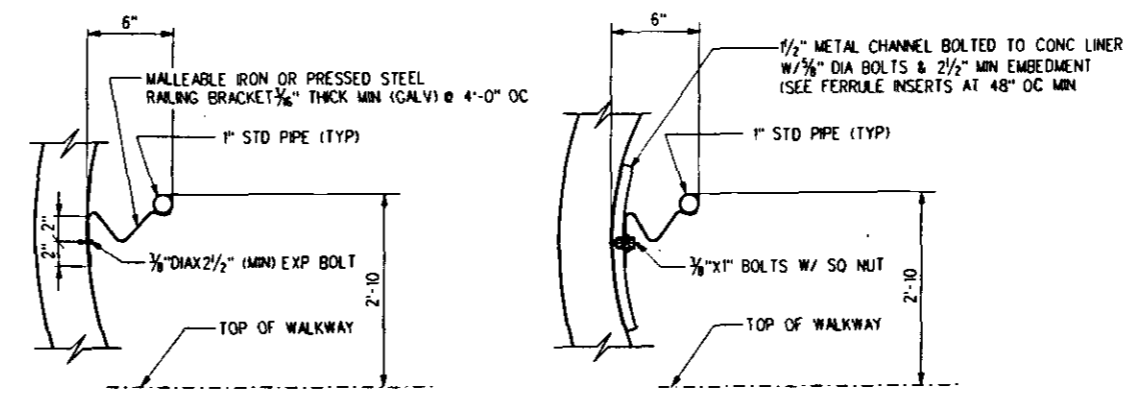
**STRUCTURAL DIRECTIVE
TUNNEL SUBWAY
TUNNEL WALKWAY
WITH METAL TROUGH SHEET 1 OF 2**

CONTRACT NO.	
DRAWING NO.	SD-147
REV.	0
SCALE	1"=1'-0"
SHEET NO.	

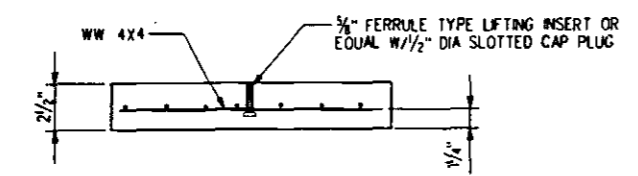
E:\m\1097\13-82\remold\mrc\dwg\fun\147\147.2.dwg



NICHE ELEVATION
(AT VALVE LOCATION)
1'-1'-0"



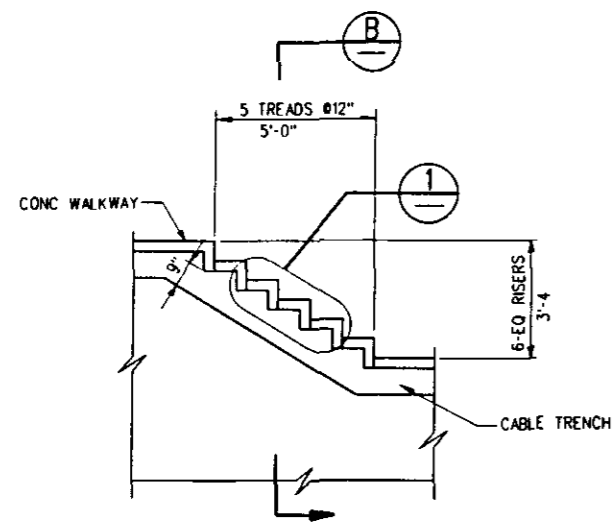
PRECAST CONCRETE COVER PLAN
NTS



SECTION C
NTS

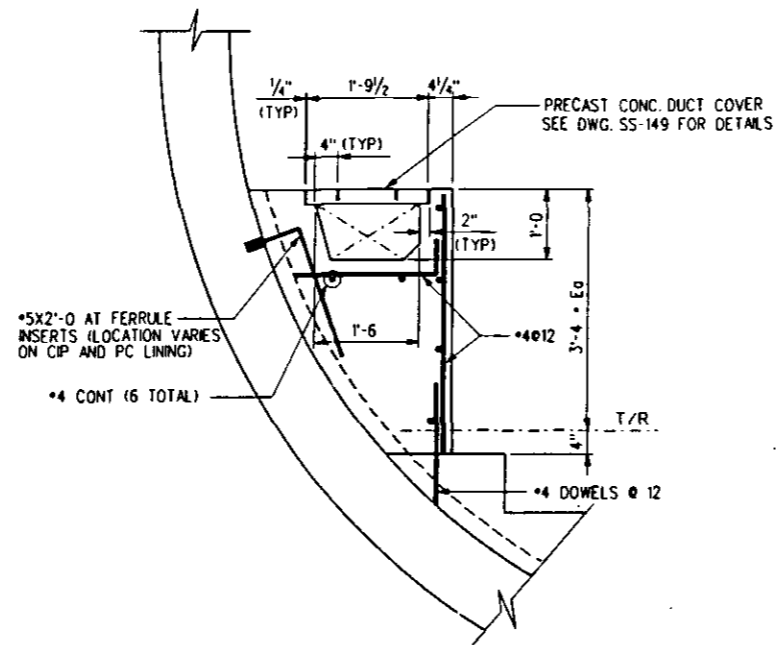
- NOTES:**
1. WETSTAND PIPE AND ASSOCIATED VALVES SHALL NOT PROJECT BEYOND OUTSIDE EDGE OF SAFETY WALK.
 2. ALL REINFORCING BARS ARE #5

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DESIGNED BY F. FORTUNATO					LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY																																																					
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DATE 22 JUL 94					STRUCTURAL DIRECTIVE TUNNEL SUBWAY TUNNEL WALKWAY WITH CONCRETE TROUGH SHT 1 OF 2																																																					
<table border="1"> <thead> <tr> <th>REV</th> <th>DATE</th> <th>BY</th> <th>APP</th> <th>REG NO</th> <th>EXPRES</th> <th>SEAL HOLDER</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>D</td> <td>4/1/97</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>BASELINE ISSUE PER DE305-SBCN-7.00</td> </tr> </tbody> </table>										REV	DATE	BY	APP	REG NO	EXPRES	SEAL HOLDER	DESCRIPTION	D	4/1/97						BASELINE ISSUE PER DE305-SBCN-7.00	SCALE AS NOTED		SHEET NO.																														
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D	4/1/97						BASELINE ISSUE PER DE305-SBCN-7.00																																																			



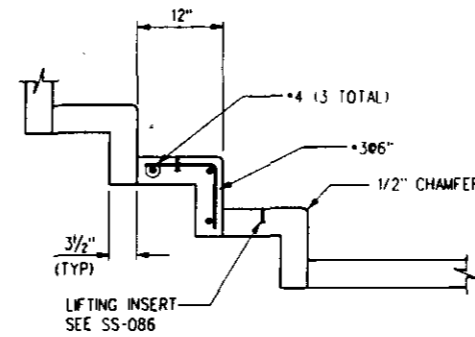
TRENCH IN STAIR

SECTION A-A
1/8" = 1'-0"



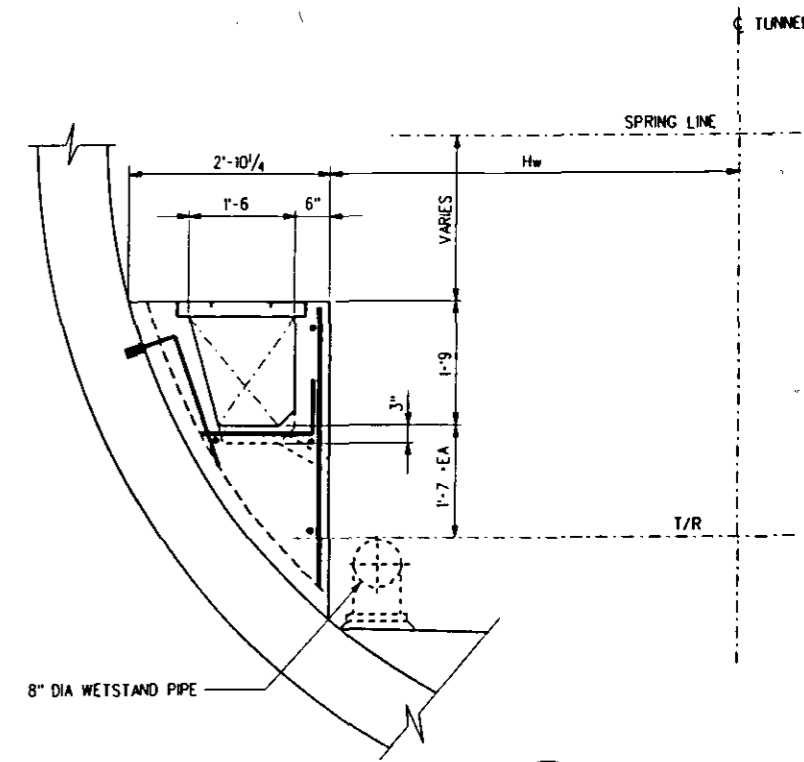
SECTION B-B

SECTION B-B
1/4" = 1'-0"



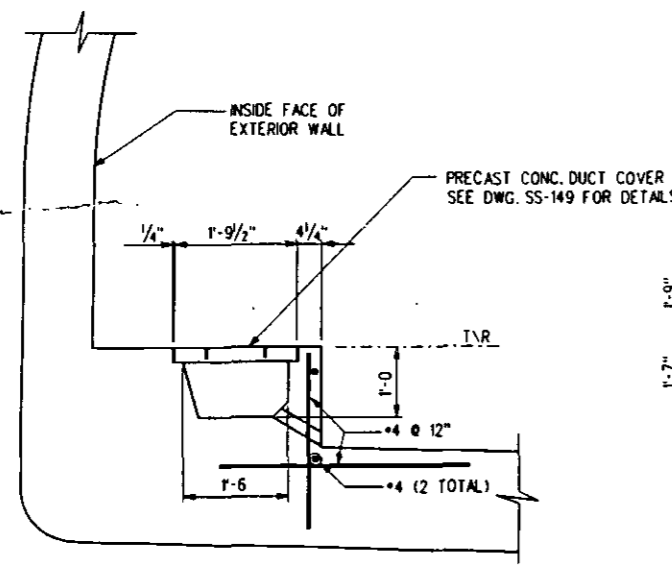
REMOVABLE STEPS

DETAIL 1-1
1/4" = 1'-0"



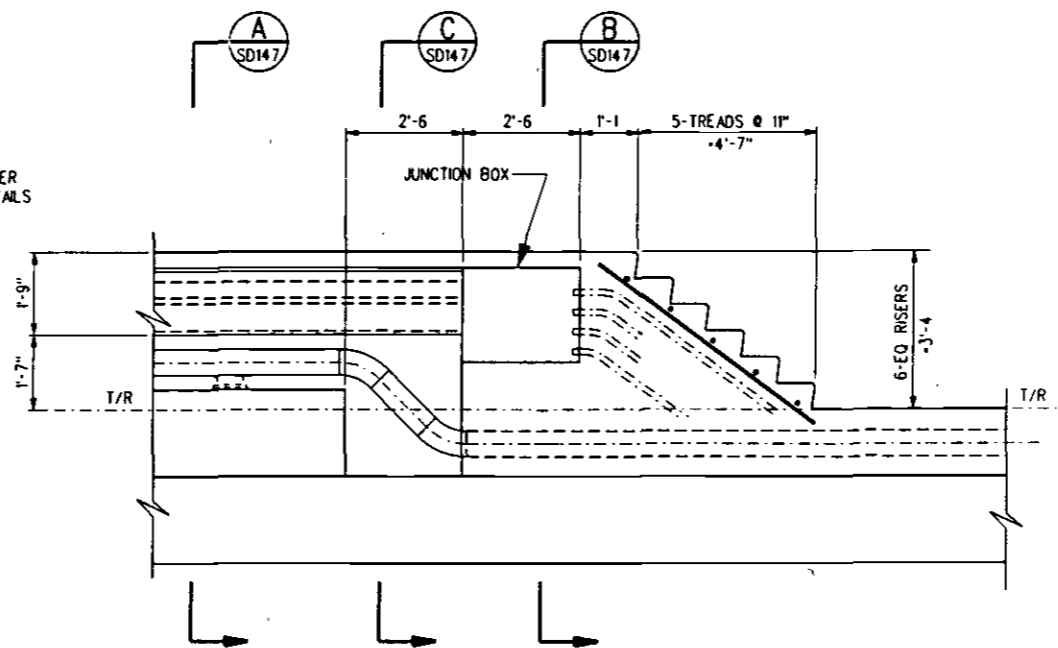
SECTION C-C

SECTION C-C
1/4" = 1'-0"



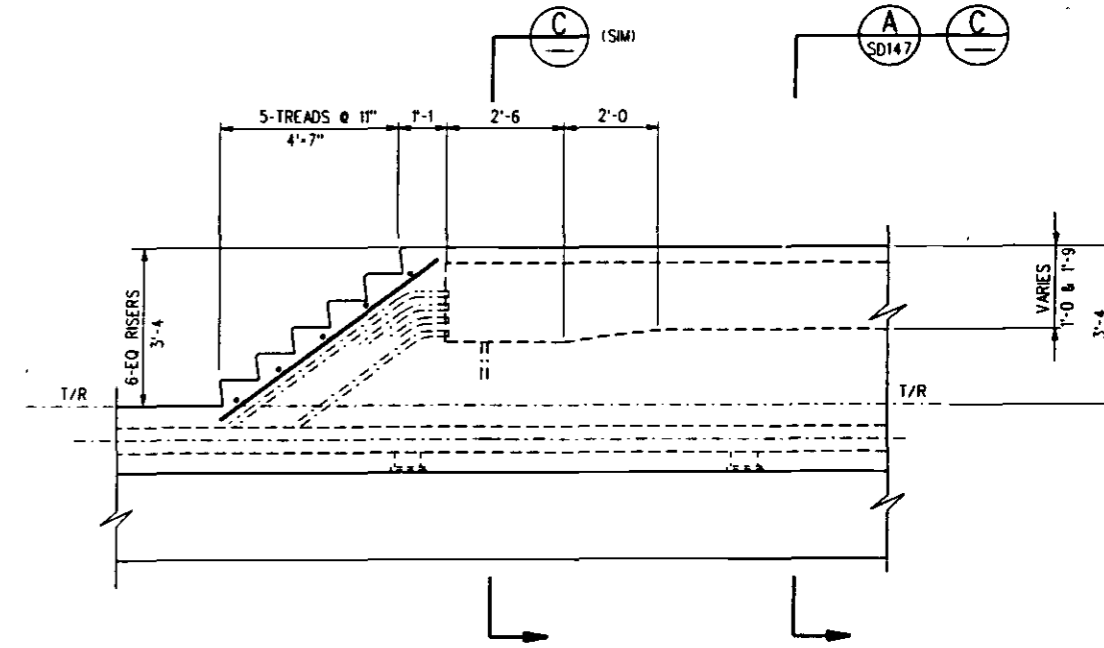
CABLE TRENCH AT TRACK LEVEL WALKWAY

3/4" = 1'-0"



TROUGH TRANSITION METAL TO EMBEDDED CONDUITS

1/2" = 1'-0"



TROUGH TRANSITION CONCRETE TO EMBEDDED CONDUITS

1/2" = 1'-0"

REV	DATE	BY	APP	REG NO	EXPIRES	SEAL HOLDER	DESCRIPTION
0	4/1/97						BASELINE ISSUE PER DE305-SBCN-7.00

DESIGNED BY F. FORTUNATO	
DRAWN BY I.M. GONZALEZ	
CHECKED BY M. ALI	
IN CHARGE F. FORTUNATO	
DATE 22 JUL 94	

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

Submitted: *F. Fortunato*

Approved: *[Signature]*

STRUCTURAL DIRECTIVE TUNNEL SUBWAY TUNNEL WALKWAY WITH CONCRETE TROUGH SHT 2 OF 2

CONTRACT NO	
DRAWING NO	SD-150
REV	0
SCALE	AS NOTED
SHEET NO	

5 MAY 1997 13:42 / sm/mt/arc/06/04/um/14810024



VOLUME V
DIRECTIVE DRAWINGS
MECHANICAL

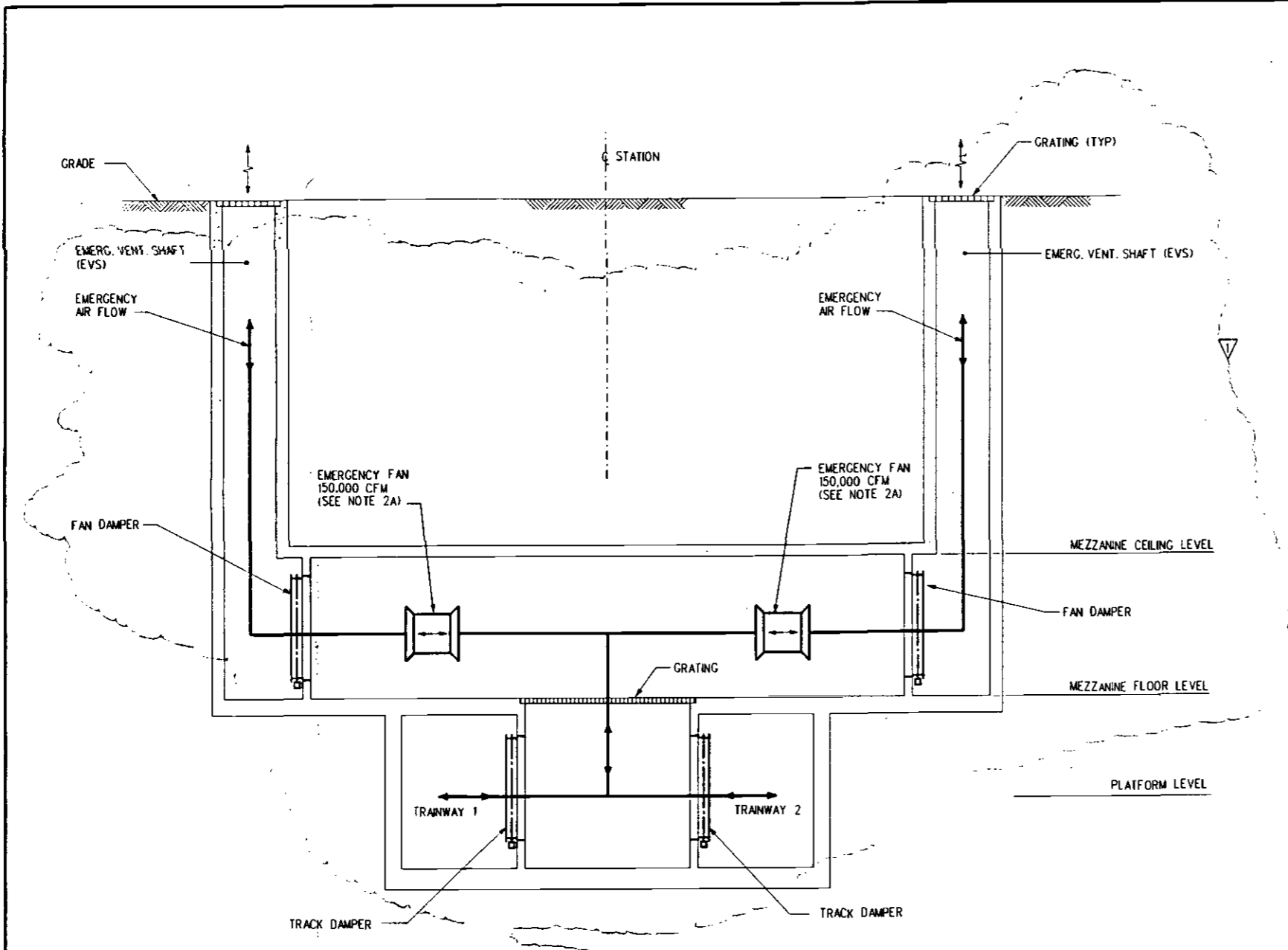
**MTA BASELINE DOCUMENT
NO. R92-DE305.04**

BASELINE STATUS REPORT: DIRECTIVE/STANDARD DRAWINGS

DRAWING NO.	REV.	DATE MODIFIED	DRAWING TITLE / Change Title	REMARKS
R92-DE305-04 DIRECTIVE DRAWINGS: MECHANICAL				
MD-001	0 1	04/12/94 12/28/95	INDEX OF DRAWINGS - MECHANICAL DIRECTIVES Rev. & redrawn per dcn 90-1, 91-9, 92-3 Rev. per DE 305-SBCN-10.00	
MD-002	0 1	04/12/94 12/28/95	VENTILATION AND AIR COOLING SYSTEMS SCHEMATIC AIRFLOW DIAGRAMS Baseline issue Rev. per DE305-SBCN-10.00	
MD-003	0 1	04/12/94 12/28/95	TRACTION POWER SUB-STATION FAN ROOM PLANS AND SECTIONS Baseline issue Rev. per DE305-SBCN-10.00	
MD-004	0 1	04/12/94 12/28/95	EMERGENCY FAN ROOM VENTILATION SHAFT CROSSOVER HORIZONTAL ARRANGEMENT SHEET 1 OF 2 Baseline issue Rev. per DE305-SBCN-10.00	
MD-005	0 1	04/12/94 12/28/95	EMERGENCY FAN ROOM VENTILATION SHAFT CROSSOVER HORIZONTAL ARRANGEMENT SHEET 2 OF 2 Baseline issue Rev. per DE305-SBCN-10.00	
MD-006	0	04/12/94 12/28/95	VENTILATION AND AIR COOLING SYSTEMS MID-TUNNEL FAN ROOM VENTILATION SHAFT SHALLOW TUNNEL LOCATION ALTERNATE 1 Baseline issue Drawing deleted per DE305-SBCN-10.00	
MD-007			NOT USED	
MD-008	0	04/12/94 12/28/95	VENTILATION AND AIR COOLING SYSTEMS MID-TUNNEL FAN ROOM VENTILATION SHAFT DEEP TUNNEL LOCATION ALTERNATE 1 Baseline issue Drawing deleted per DE305-SBCN-10.00	
MD-009	0	04/12/94 12/28/95	VENTILATION AND AIR COOLING SYSTEMS MID-TUNNEL FAN ROOM VENTILATION SHAFT DEEP TUNNEL LOCATION ALTERNATE 2 Baseline issue Drawing deleted per DE305-SBCN-10.00	
MD-010	0 1	04/12/94 12/28/95	CONTROL DIAGRAMS ANCILLARY ROOM VENTILATION AND SUMP PUMP Rev. & redrawn per dcn 91-9 Rev. per DE305-SBCN-10.00	
MD-011	0 1	04/12/94 12/28/95	TRACTION POWER SUBSTATION, TRAIN CONTROL AND COMMUNICATION ROOM CONTROL SCHEMATIC DIAGRAMS Rev. & redrawn per dcn 90-1 and 91-9 Rev. per DE305-SBCN-10.00	
MD-012			NOT USED	
MD-013	0 1	04/12/94 12/28/95	FIRE PROTECTION SCHEMATIC Rev. & redrawn per dcn 91-9, 93-23 Rev. per DE305-SBCN-10.00	
MD-014	0	04/12/94	TUNNEL WET STANDPIPE SYSTEM SCHEMATIC Rev. & redrawn per dcn 91-9, 93-12, 93-23	
MD-015	0	04/12/94	CROSS PASSAGE FIRE VALVE ASSEMBLIES - TYPICAL ARRANGEMENT Rev. & redrawn per dcn 91-9, 93-12	
MD-016	0 1	04/12/94 05/25/95	UNDER VEHICLE WATER SPRAY EXTINGUISHING SYSTEM Rev. & redrawn per dcn 91-9, 93-12 Rev. per DE305-SBCN-10.00	
MD-017	0 1	04/12/94 12/28/95	DUPLEX SUMP PUMP ARRANGEMENT AND DETAILS Baseline issue Rev. per DE305-SBCN-10.00	
MD-018	0 1	04/12/94 12/28/95	DRAINAGE DETAILS AND CASTINGS Rev. & redrawn per dcn 91-9 Rev. per DE305-SBCN-10.00	
MD-019			NOT USED	
MD-020	0 1	04/12/94 12/28/95	EQUIPMENT SUPPORT DETAILS Rev. & redrawn per dcn 91-9 Rev. per DE305-SBCN-10.00	

BASELINE STATUS REPORT: DIRECTIVE/STANDARD DRAWINGS

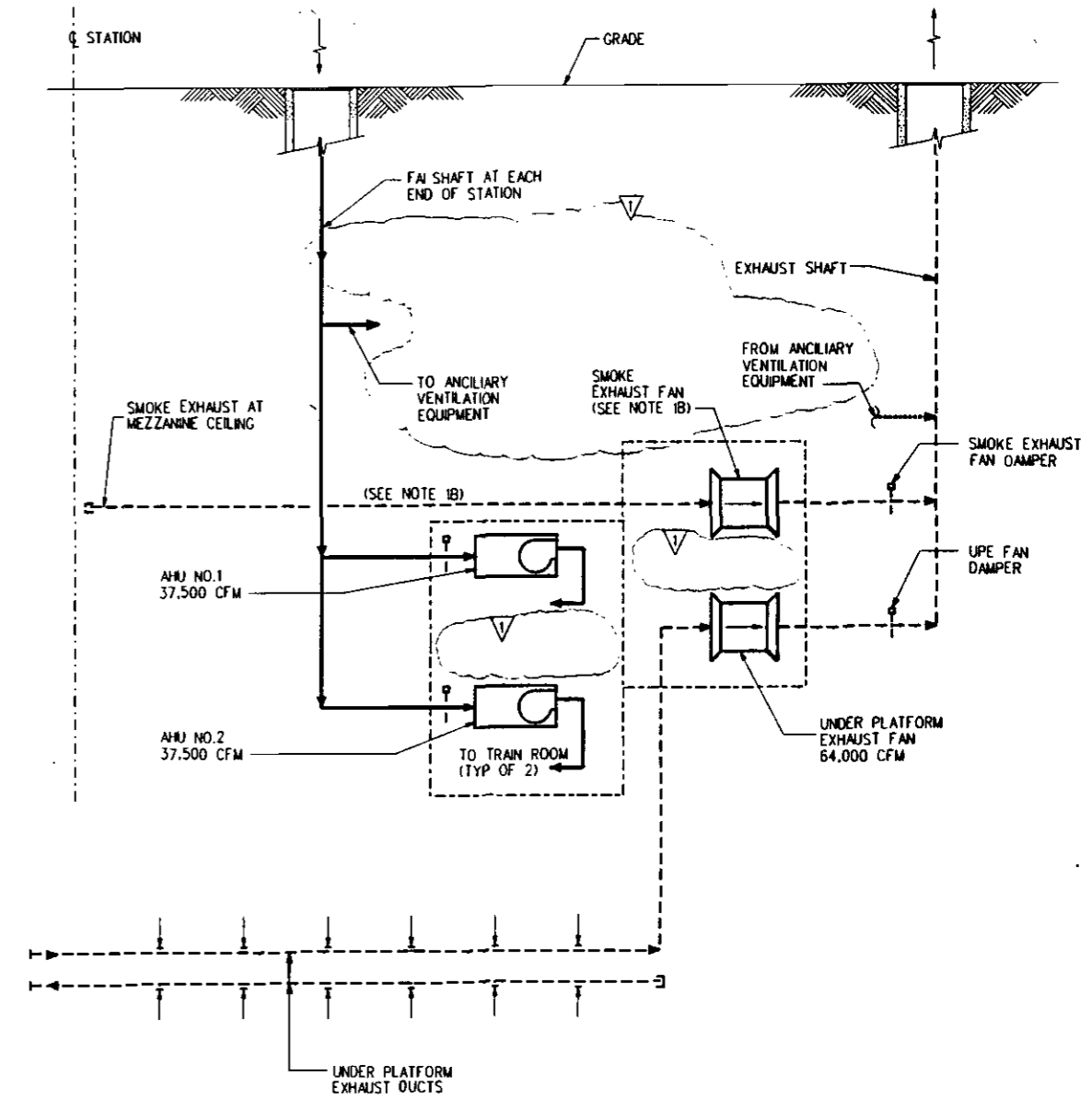
DRAWING NO.	REV.	DATE MODIFIED	DRAWING TITLE / Change Title	REMARKS
R92-DE305-04 DIRECTIVE DRAWINGS: MECHANICAL				
MD-021			NOT USED	
MD-022			NOT USED	
MD-023	0 1	04/12/94 12/28/95	STATION VENTILATION SCHEMATIC CONTROL DIAGRAM Rev & redrawn per dcn 93-63 Rev. per DE305-SBCN-10.00	
MD-024	0 1	04/12/94 12/28/95	UPE FAN SCHEMATIC CONTROL DIAGRAM Rev & redrawn per dcn 92-3 Rev. per DE305-SBCN-10.00	
MD-025	0 1	04/12/94 12/28/95	STATION EMERGENCY FANS SCHEMATIC CONTROL DIAGRAM Rev & redrawn per dcn 92-3 and 93-33 Rev. per DE305-SBCN-10.00	
MD-026	0 1	04/12/94 12/28/95	CROSSOVER EMERGENCY FANS SCHEMATIC CONTROL DIAGRAM Rev & redrawn per dcn 92-3 and 93-33 Rev. per DE305-SBCN-10.00	
MD-027	0	04/12/94 12/28/95	MID-TUNNEL FANS SCHEMATIC CONTROL DIAGRAM Rev & redrawn per dcn 92-3 and 93-33 Drawing deleted per DE305-SBCN-10.00	
MD-028	0	04/12/94 12/28/95	HVAC FLOW SWITCH DETAILS Rev & redrawn per dcn 93-22 Drawing deleted per DE305-SBCN-10.00	
MD-029	0 1	04/12/94 12/28/95	SEWAGE EJECTOR DETAILS Rev & redrawn per dcn 93-47 Rev. per DE305-SBCN-10.00	



AIR FLOW THROUGH EMERGENCY VENTILATION SHAFTS (1)
 (TYPICAL FOR BOTH ENDS OF STATION, EXCEPT AT CROSSOVERS)

EMERGENCY AND MID-TUNNEL DAMPER SIZES		
FAN CAPACITY CFM	TRACK DAMPER SQ FT	FAN DAMPER SQ FT
150,000	150	75
185,000	185	95

- NOTES:**
- 1A. EMERGENCY FANS ARE REVERSIBLE.
 - 2A. EMERGENCY FANS WORK IN UNISON TO SUPPLY OR EXHAUST AIR FROM EITHER TRAINWAY 1 OR 2 OR BOTH SIMULTANEOUSLY.
 - 3A. EMERGENCY FAN CAPACITY MAY INCREASE TO 185,000 CFM IN CERTAIN STATIONS.
 - 4A. FOR CONTROL DIAGRAM SEE DRAWINGS MD-025 AND MD-026



STATION AIR SUPPLY AND EXHAUST SYSTEM (2)
 (ONE-HALF OF STATION SHOWN, OTHER HALF SIMILAR)

- NOTES:**
- 1B. SMOKE EXHAUST FAN CAPACITY BASED ON 5 CFM/SQ FT MEZZANINE CEILING AREA
 - 2B. AHU NO. 1 & 2 ARE AT SAME LEVEL. FOR CONTROL DIAGRAM SEE DRAWING MD-023
 - 3B. PROVIDE FIRE DAMPER FOR DUCT PENETRATIONS INTO FAISHAFTS.
 - 4B. FOR UPE FAN CONTROL DIAGRAM SEE DRAWING MD-024

REV	DATE	BY	SUB	APP	DESCRIPTION
0	12 28 93	DSS			REV. PER OE 305-SBCN-10 00
		JL	EB	GMC	BASELINE ISSUE

DESIGNED BY
EMC
 DRAWN BY
R. SOLIS
 CHECKED BY
B. REAL
 IN CHARGE
E. BENCZE
 DATE
12 APR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

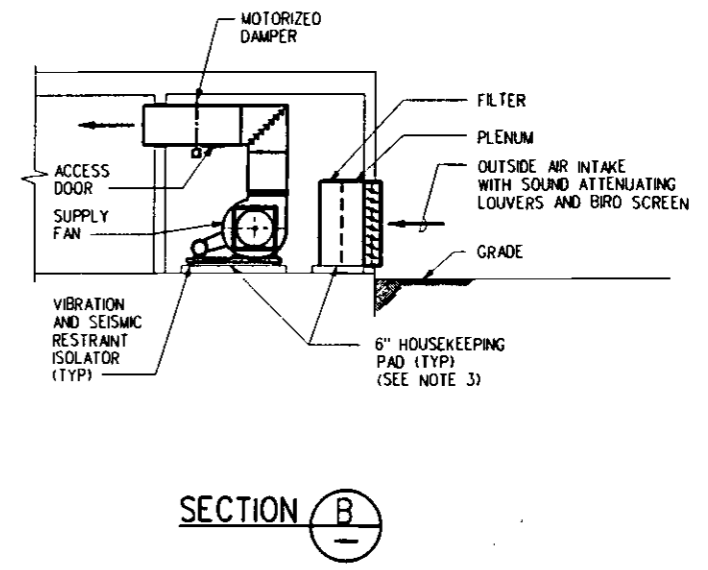
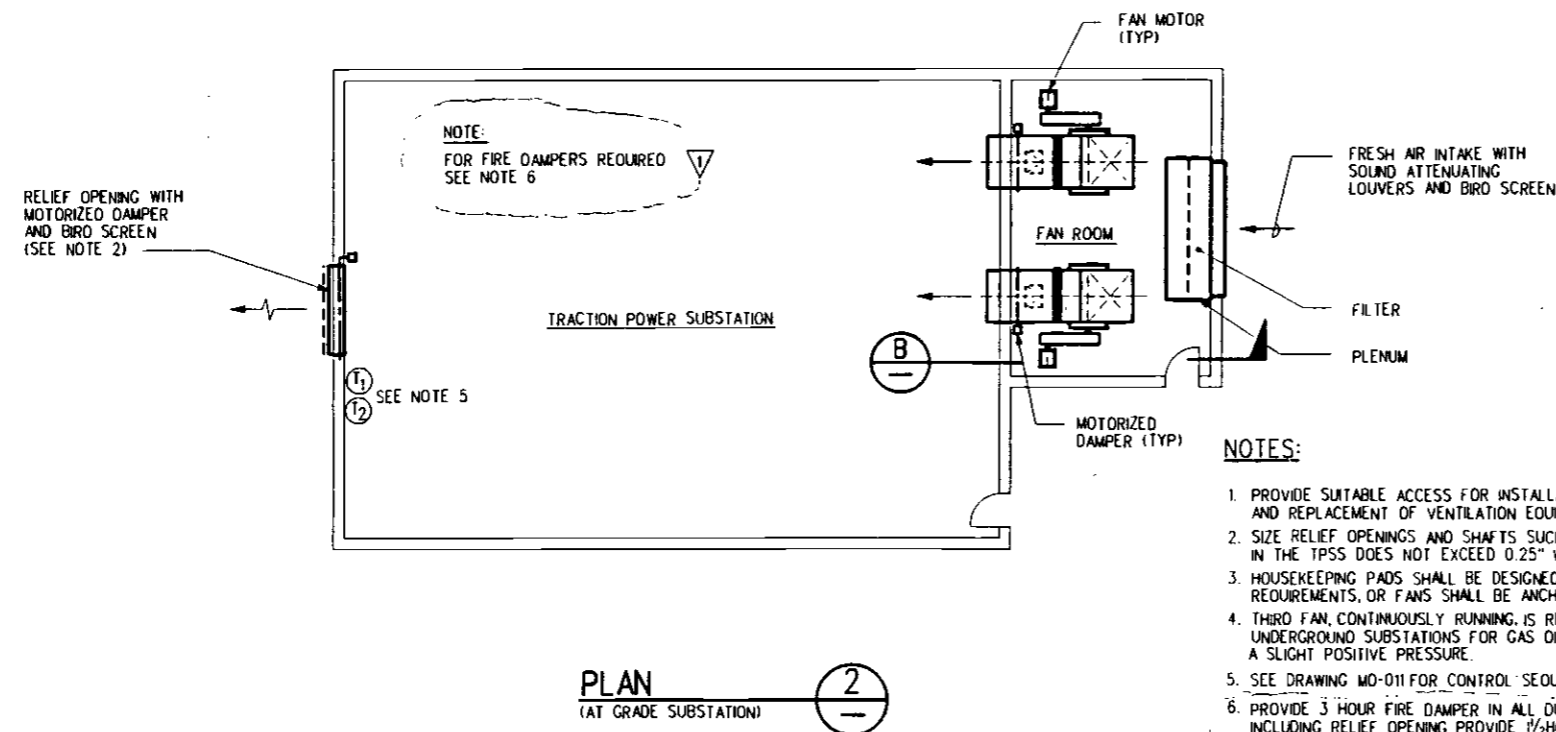
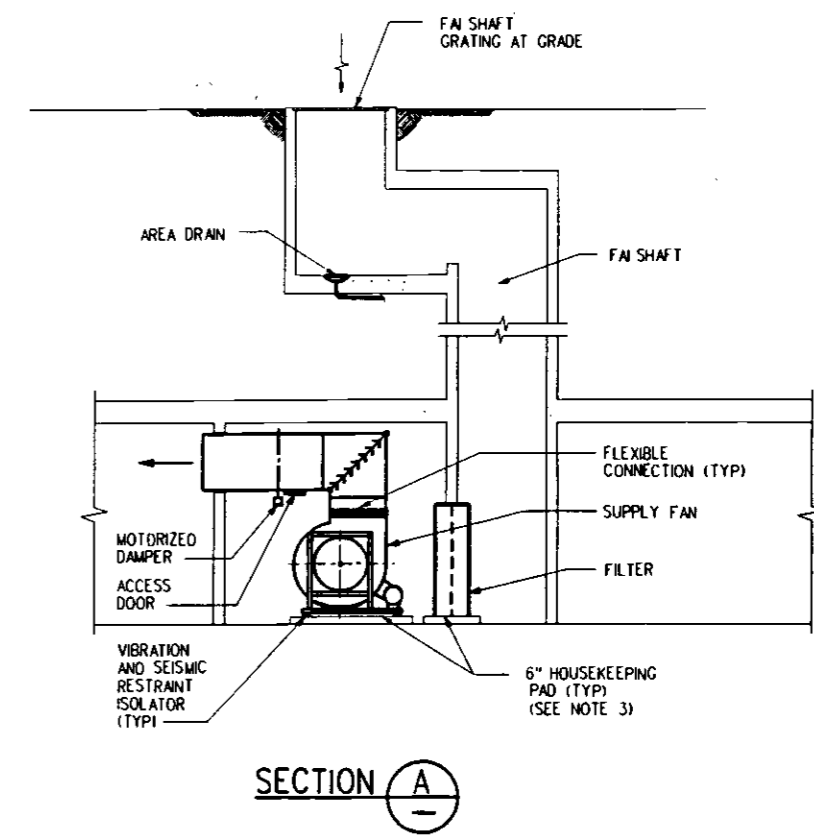
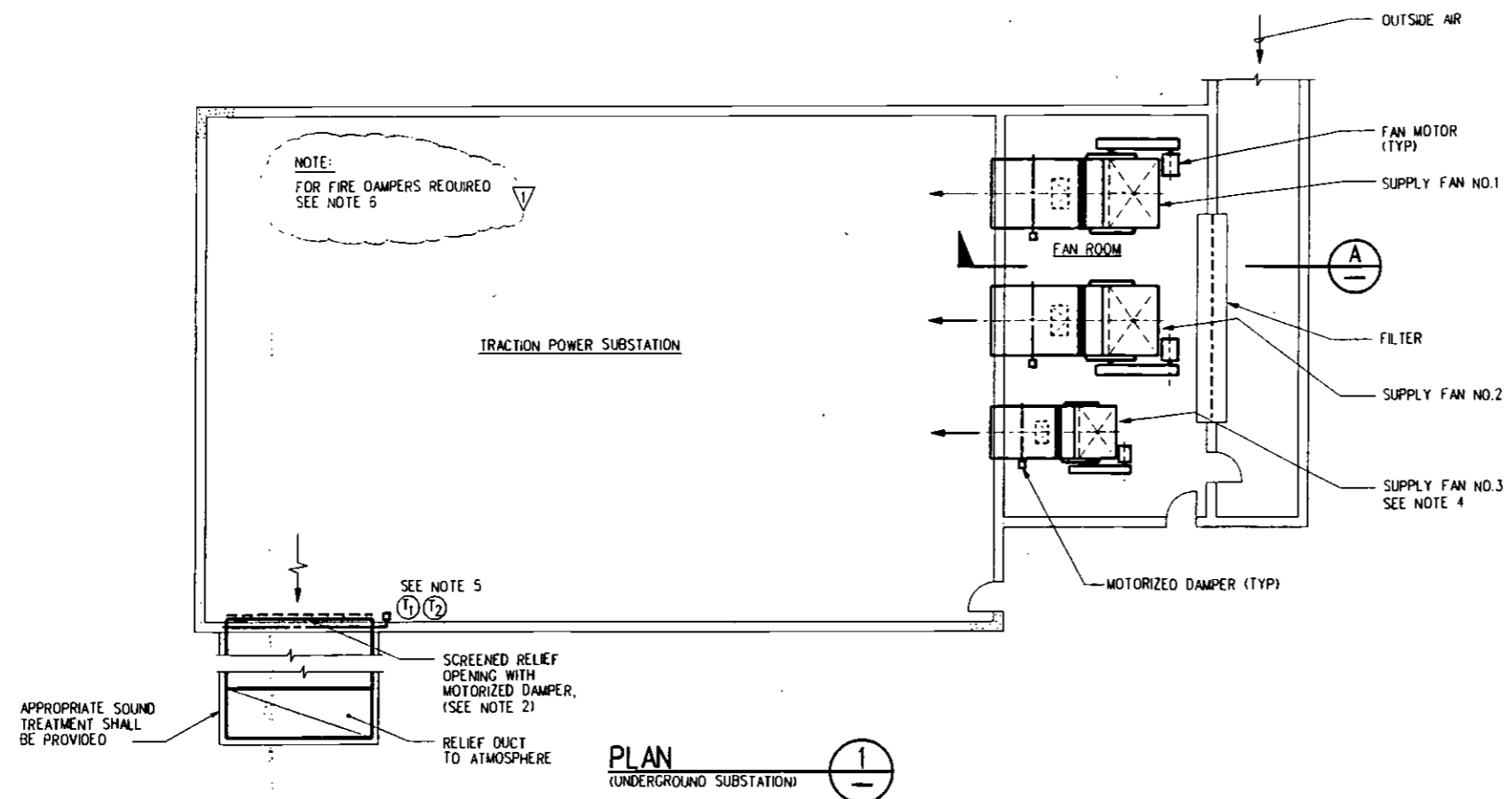
FOR THE ARCHITECT

Submitted: EVA BENCZE
 Approved: K. N. MURTHY

MECHANICAL DIRECTIVE VENTILATION AND AIR COOLING SYSTEMS SCHEMATIC AIR FLOW DIAGRAMS

CONTRACT NO.
 DRAWING NO. MD-002
 SCALE: NO SCALE
 SHEET NO.

CONTRACT NO.	
DRAWING NO.	MD-002
REV	1
SCALE	NO SCALE
SHEET NO.	



- NOTES:
1. PROVIDE SUITABLE ACCESS FOR INSTALLATION, MAINTENANCE AND REPLACEMENT OF VENTILATION EQUIPMENT.
 2. SIZE RELIEF OPENINGS AND SHAFTS SUCH THAT THE PRESSURE IN THE TPSS DOES NOT EXCEED 0.25" WATER GAUGE.
 3. HOUSEKEEPING PADS SHALL BE DESIGNED FOR ZONE 4 SEISMIC REQUIREMENTS, OR FANS SHALL BE ANCHORED TO BASE SLAB.
 4. THIRD FAN, CONTINUOUSLY RUNNING, IS REQUIRED ONLY IN UNDERGROUND SUBSTATIONS FOR GAS DILUTION AND TO MAINTAIN A SLIGHT POSITIVE PRESSURE.
 5. SEE DRAWING MD-011 FOR CONTROL SEQUENCE.
 6. PROVIDE 3 HOUR FIRE DAMPER IN ALL DUCT PENETRATIONS INTO TPSS. INCLUDING RELIEF OPENING. PROVIDE 1/2 HOUR FIRE DAMPER IN OPENINGS INTO FRESH AIR INTAKE SHAFTS FOR UNDERGROUND STATIONS.

REV	DATE	BY	SUB	APP	DESCRIPTION
0	12 APR 94	EB	GMC		BASELINE ISSUE

DESIGNED BY
EMC

DRAWN BY
R. SOLIS

CHECKED BY
B. REAL

IN CHARGE
E. BENCZE

DATE
12 APR 94

M LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

Submitted: EVA BENCZE

Approved: K. N. MURTHY

MECHANICAL DIRECTIVE
TRACTION POWER SUBSTATION
FAN ROOM PLANS AND SECTIONS

CONTRACT NO

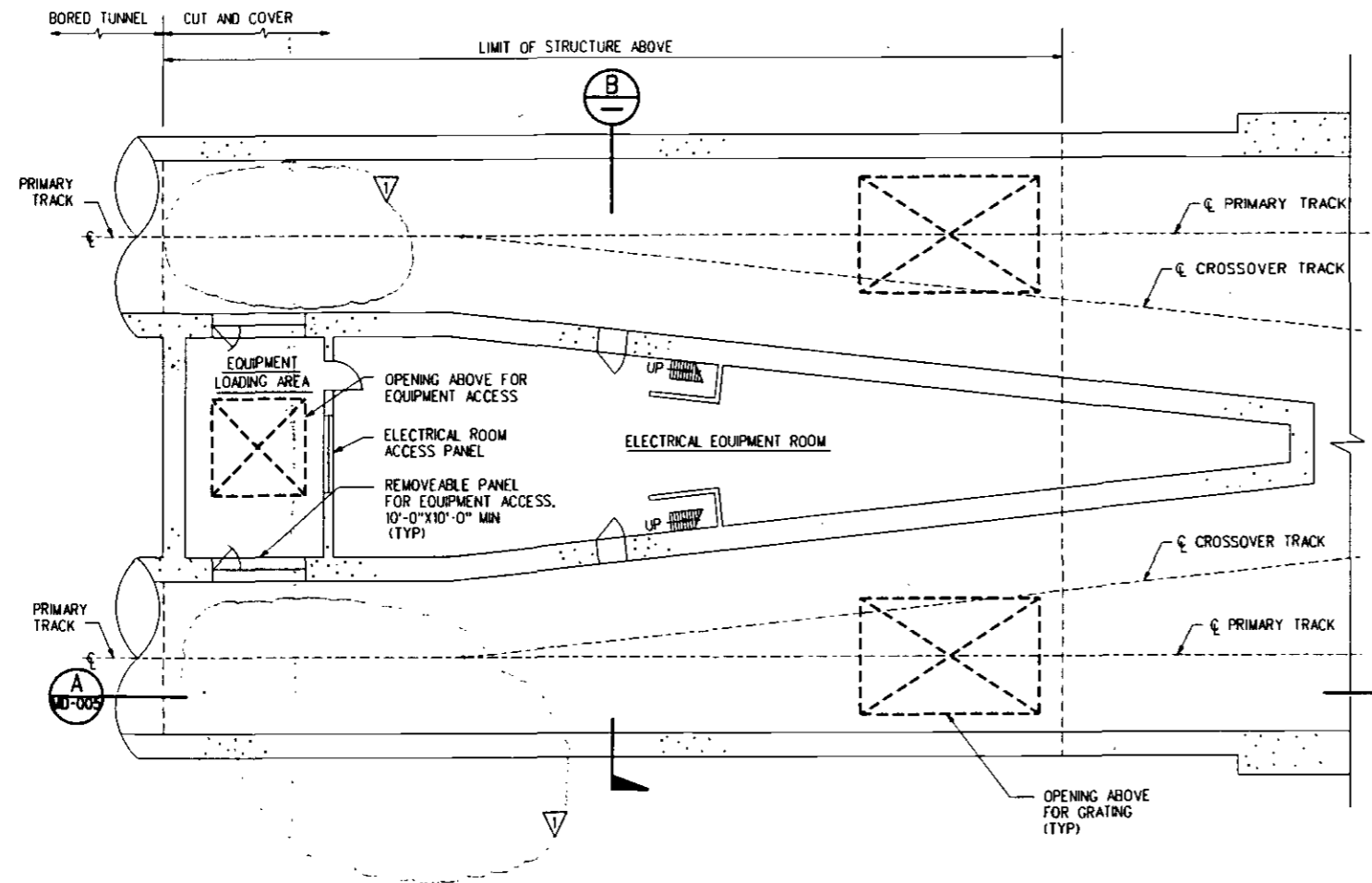
DRAWING NO
MD-003

REV
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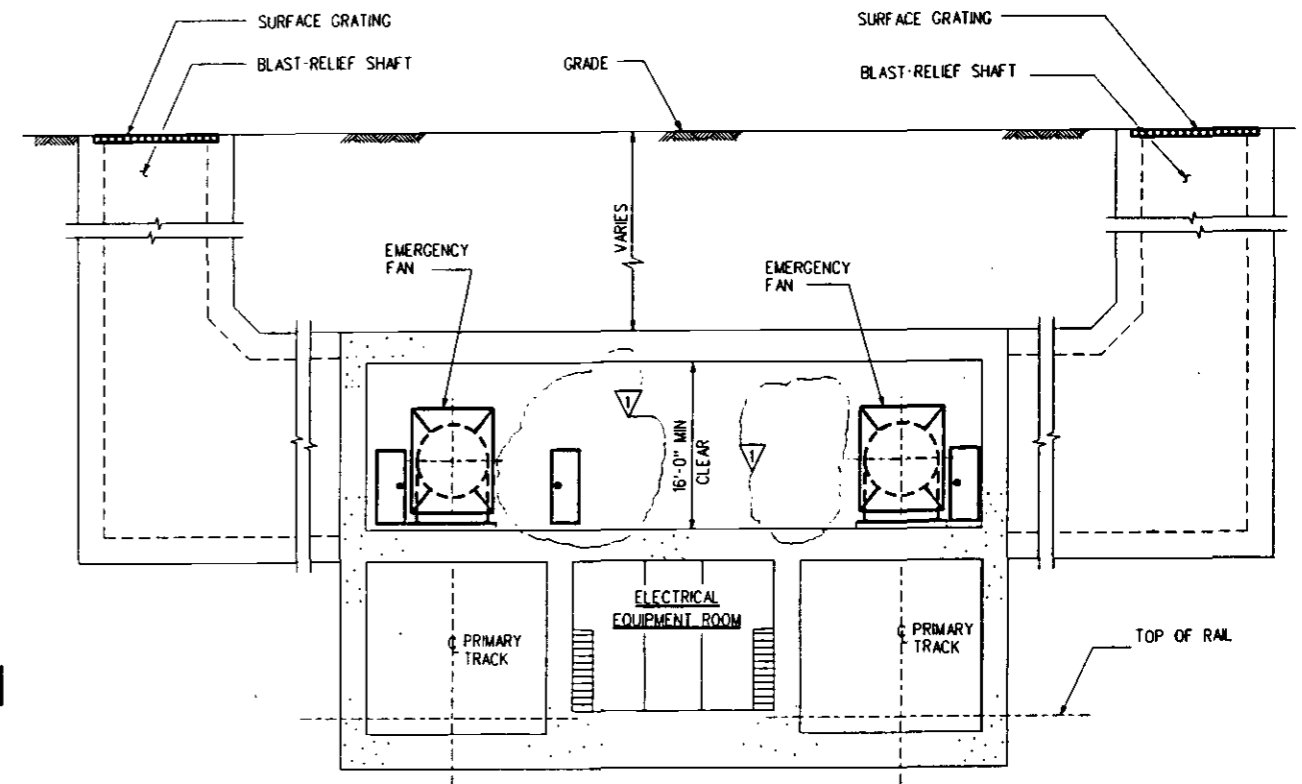
SCALE
NO SCALE

SHEET NO

24 FEB 1994 11:00 / remote/emc/brag/mech/rev/md003.dwg
 PLOT: BY: approv



PLAN AT TRACK LEVEL 1



NOTE:
1. FOR GENERAL NOTES SEE DRAWING MD-005.

SECTION B
MD-004, MD-005

REV	DATE	BY	SUB	APP	DESCRIPTION
0	12 28 93	DSS	EB	GMC	REV. PER DE 305-SBCN-10.00
0	12 28 93	JJ	EB	GMC	BASELINE ISSUE

DESIGNED BY
EMC
DRAWN BY
R. SOLIS
CHECKED BY
B. REAL
IN CHARGE
E. BENCZE
DATE
12 APR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

FOR THE ARCHITECT/ENGINEER

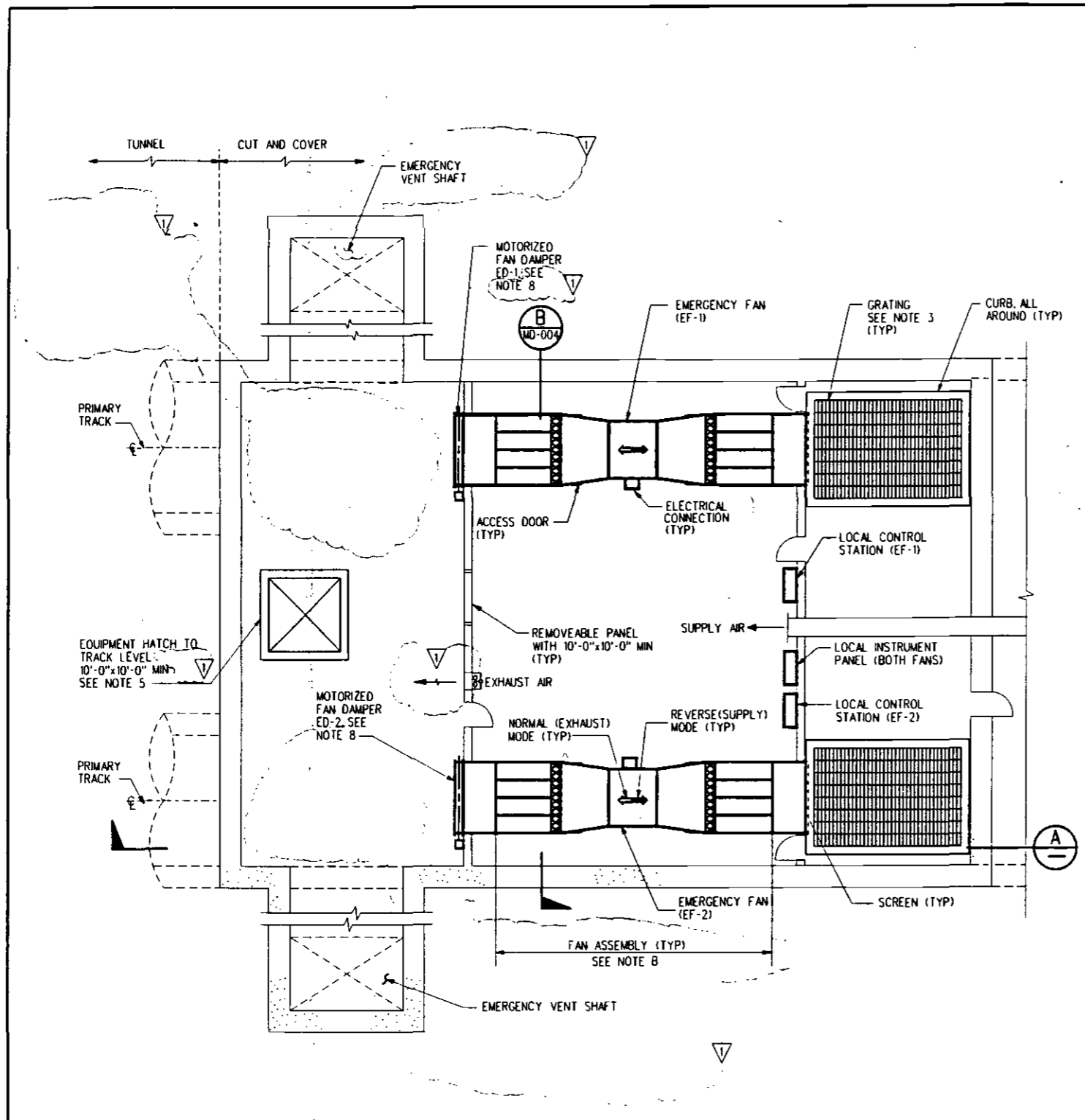
Submitted: EVA BENCZE
Approved: K. N. MURTHY

**MECHANICAL DIRECTIVE
EMERGENCY FAN ROOM
VENTILATION SHAFT CROSSOVER
HORIZONTAL ARRANGEMENT**

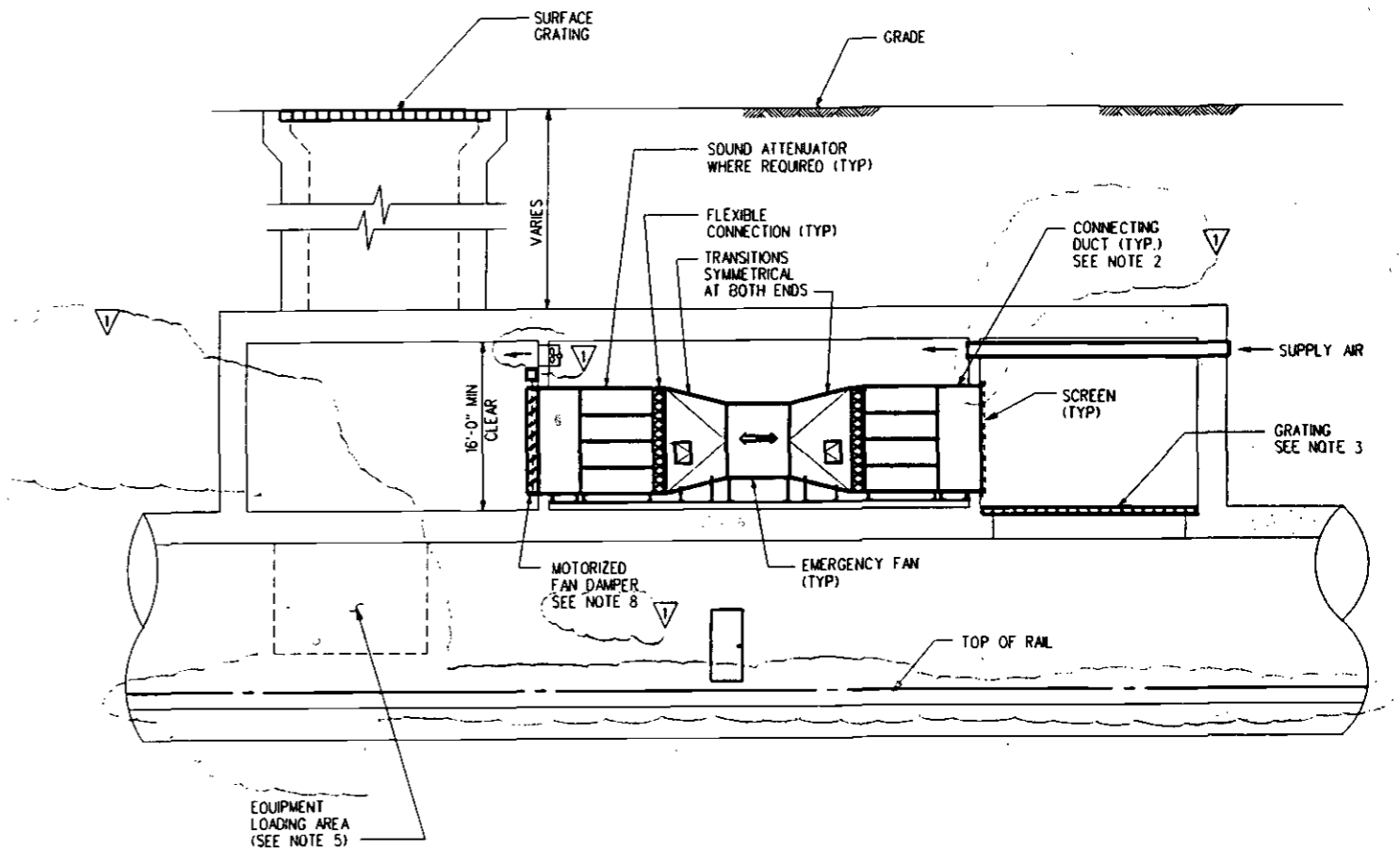
SHEET 1 OF 2

CONTRACT NO	
DRAWING NO	MD-004
REV	1
SCALE	NO SCALE
SHEET NO	

12/28/93 11:00 /remote/emc/arc/mch/rev/md004.dgn
 PLOTTED BY: gpr/evc



PLAN AT FAN ROOM LEVEL 1



SECTION A MD-004, MD-005

GENERAL NOTES:

1. VENTILATION SHAFTS SHOWN ARE TYPICAL. EXACT SHAFT CONFIGURATION SHALL BE DESIGNED TO SATISFY SITE CONDITIONS.
2. ALL ACCESS DOOR, REMOVEABLE PANELS AND CONNECTING DUCTWORK BE TIGHT AND SHALL BE CAPABLE OF WITHSTANDING A MINIMUM PRESSURE DIFFERENTIAL OF ±7.0 LBS/SQ. FT. PRESSURE FLUCTUATIONS UP TO 30 REVERSALS PER HOUR.
3. GRATING SHALL BE SIZED FOR FACE VELOCITY OF 1300 FPM.
4. DESIGNER SHALL ENSURE THAT EQUIPMENT LAYOUT IS COMPATIBLE WITH STRUCTURAL DESIGN AND REVISE FAN ROOM LAYOUT IF REQUIRED TO CLEAR STRUCTURAL MEMBERS.
5. PROVISIONS SHALL BE MADE FOR EQUIPMENT REMOVAL TO TRACKWAY OR STREET.
6. ALL VENTILATION SHAFTS SHALL TERMINATE AT OFF STREET LOCATIONS OR WITHIN SIDEWALKS.
7. FOR DAMPER SIZES SEE SCHEDULE ON DRAWING MD-002.
8. EMERGENCY FAN ASSEMBLY, FAN DAMPERS AND SCREENS ARE FURNISHED AND INSTALLED IN A SYSTEMWIDE PROCUREMENT CONTRACT.

REV	DATE	BY	SUB	APP	DESCRIPTION
0	12.28.95	DSS	EB	GMC	REV. PER DE.305-SBCN-10.00
					BASELINE ISSUE

DESIGNED BY EMC	12 APR 94
DRAWN BY R. SOLIS	
CHECKED BY B. REAL	
IN CHARGE E. BENCZE	

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

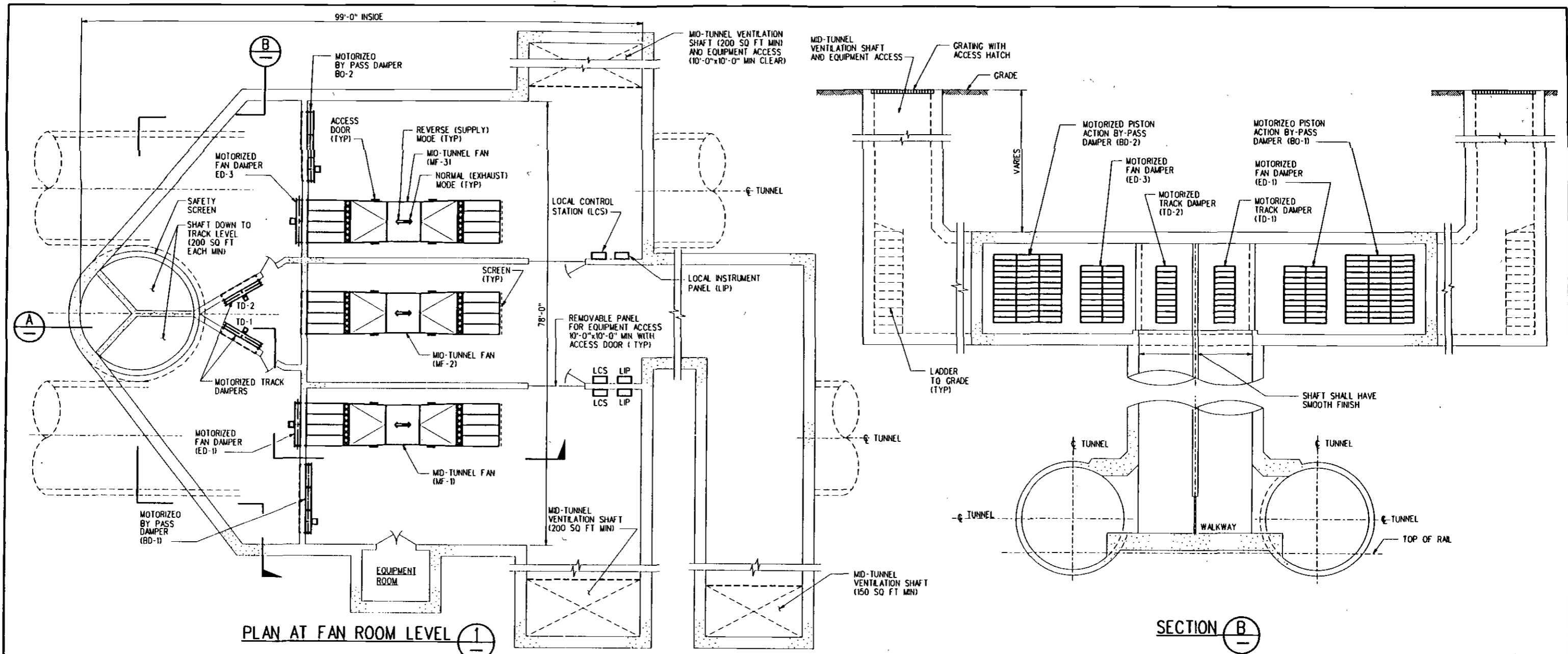
ENGINEERING MANAGEMENT CONSULTANT

Submitted: EVA BENCZE
Approved: K. N. MURTHY

MECHANICAL DIRECTIVE
EMERGENCY FAN ROOM
VENTILATION SHAFT CROSSOVER
HORIZONTAL ARRANGEMENT
SHEET 2 OF 2

CONTRACT NO	
DRAWING NO	MD-005
REV	1
SCALE	NO SCALE
SHEET NO	

22 FEB 1996 11:00 AM
 PLOTTED BY: gbr0345



PLAN AT FAN ROOM LEVEL ①

SECTION B

SECTION A

- NOTES:**
- SEE GENERAL NOTES ON DWG MD-006.
 - FOR ALTERNATIVE SHAFT TERMINALS AT GRADE SEE DWG MD-006.

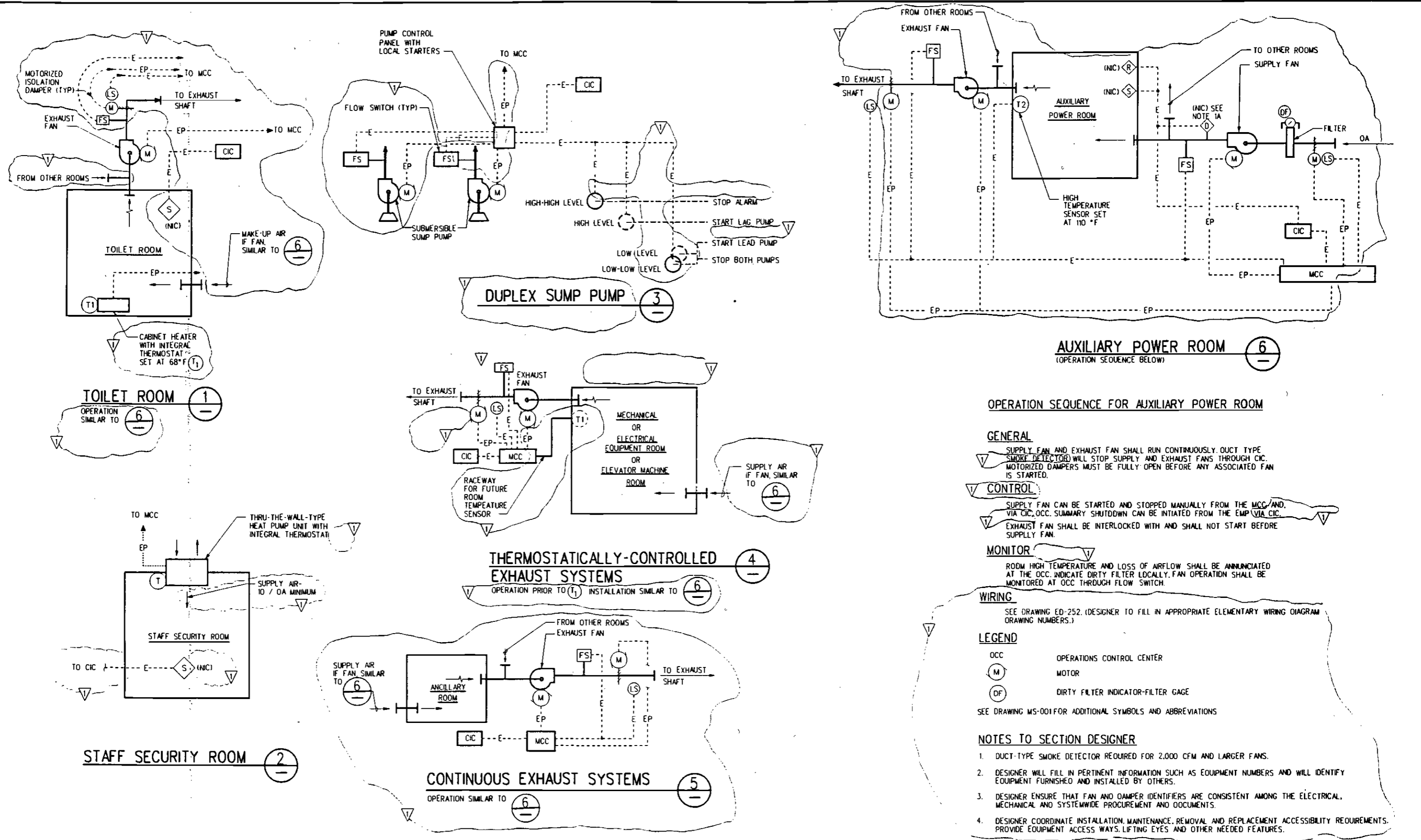
REV	DATE	BY	SUB	APP	DESCRIPTION
0	12 APR 94	JR	EB	GMC	BASELINE ISSUE

DESIGNED BY
EMC
DRAWN BY
R. SOLIS
CHECKED BY
B. REAL
IN CHARGE
E. BENCZE
DATE
12 APR 94

M LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY
 ENGINEERING MANAGEMENT CONSULTANT
 SUBMITTED *E. Bencze*
 APPROVED *[Signature]*

MECHANICAL DIRECTIVE
 VENTILATION AND AIR COOLING SYSTEMS
 MID-TUNNEL FAN ROOM VENTILATION
 SHAFT DEEP TUNNEL LOCATION
 ALTERNATE 1

CONTRACT NO.	DRAWING NO.	REV
	MD-008	0
SHEET NO.	SCALE	
	NO SCALE	



OPERATION SEQUENCE FOR AUXILIARY POWER ROOM

- GENERAL**
 SUPPLY FAN AND EXHAUST FAN SHALL RUN CONTINUOUSLY. DUCT TYPE SMOKE DETECTOR WILL STOP SUPPLY AND EXHAUST FANS THROUGH CIC. MOTORIZED DAMPERS MUST BE FULLY OPEN BEFORE ANY ASSOCIATED FAN IS STARTED.
- CONTROL**
 SUPPLY FAN CAN BE STARTED AND STOPPED MANUALLY FROM THE MCC AND VIA CIC. OCC. SUMMARY SHUTDOWN CAN BE INITIATED FROM THE EMP VIA CIC.
- MONITOR**
 ROOM HIGH TEMPERATURE AND LOSS OF AIRFLOW SHALL BE ANNUNCIATED AT THE OCC. INDICATE DIRTY FILTER LOCALLY. FAN OPERATION SHALL BE MONITORED AT OCC THROUGH FLOW SWITCH.

WIRING
 SEE DRAWING ED-252. (DESIGNER TO FILL IN APPROPRIATE ELEMENTARY WIRING DIAGRAM DRAWING NUMBERS.)

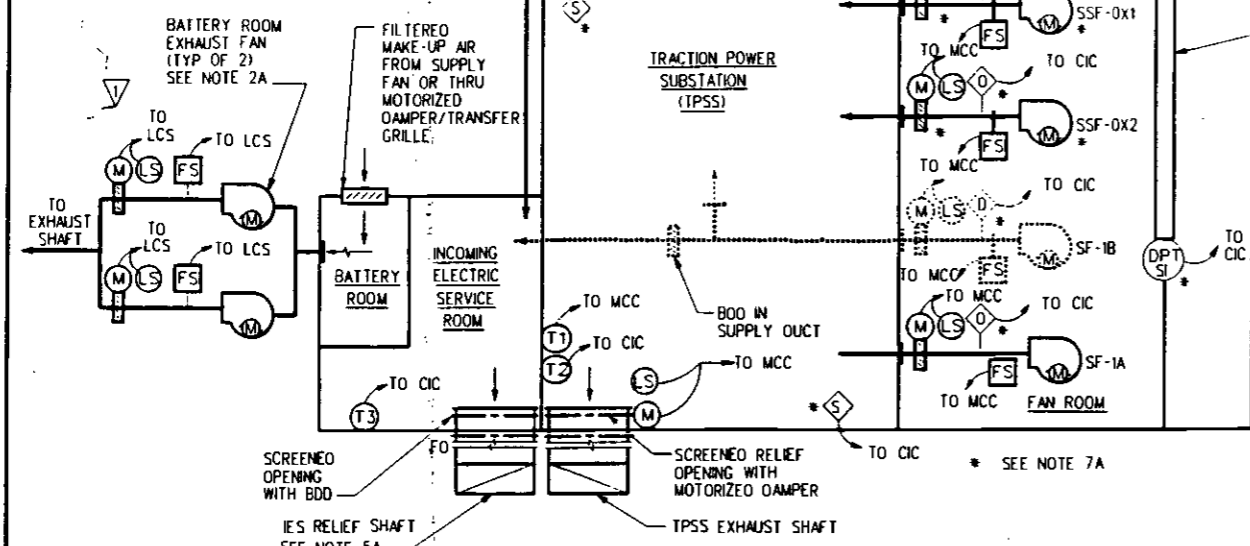
- LEGEND**
- OCC OPERATIONS CONTROL CENTER
 - (M) MOTOR
 - (DF) DIRTY FILTER INDICATOR-FILTER GAGE
- SEE DRAWING MS-001 FOR ADDITIONAL SYMBOLS AND ABBREVIATIONS

- NOTES TO SECTION DESIGNER**
1. DUCT-TYPE SMOKE DETECTOR REQUIRED FOR 2,000 CFM AND LARGER FANS.
 2. DESIGNER WILL FILL IN PERTINENT INFORMATION SUCH AS EQUIPMENT NUMBERS AND WILL IDENTIFY EQUIPMENT FURNISHED AND INSTALLED BY OTHERS.
 3. DESIGNER ENSURE THAT FAN AND DAMPER IDENTIFIERS ARE CONSISTENT AMONG THE ELECTRICAL, MECHANICAL AND SYSTEMWIDE PROCUREMENT AND DOCUMENTS.
 4. DESIGNER COORDINATE INSTALLATION, MAINTENANCE, REMOVAL AND REPLACEMENT ACCESSIBILITY REQUIREMENTS. PROVIDE EQUIPMENT ACCESS WAYS, LIFTING EYES AND OTHER NEEDED FEATURES.

										DESIGNED BY EMC	LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY										CONTRACT NO.	
										DRAWN BY R. SOLIS	ENGINEERING MANAGEMENT CONSULTANT										DRAWING NO MD-010	
										CHECKED BY B. REAL	PERSON: Brackett/Quinn & Douglas, Inc. DESIGN: James Johnson & Associates E.P. - Senior Engineers - ICBM & Corp EXECUTIVE: Edward J. Alchukis PROJECT: LADCO 94-0102, Inc. THE MICHIGAN GROUP, INC.										REV 1	
										IN CHARGE E. BENCZE	SUBMITTED EVA BENCZE										SCALE NO SCALE	
										DATE 12 APR 94	APPROVED K. N. MURTHY										SHEET NO.	
REV	DATE	BY	APP	DESCRIPTION	REV	DATE	BY	APP	DESCRIPTION													
0	12/28/95	JR	EB	GMC	REV. PER DE 305-SBCN-10 00																	
1	02/09/96	JR	EB	GMC	REV & REDRAWN PER OCN 91-9																	

GENERAL NOTES :

- DESIGNER WILL FILL IN PERTINENT INFORMATION SUCH AS AS EQUIPMENT.
- DESIGNER ENSURE THAT FAN AND DAMPER IDENTIFIERS ARE CONSISTENT AMONG THE ELECTRICAL, MECHANICAL AND SYSTEMWIDE PROCUREMENT DOCUMENTS.
- DESIGNER COORDINATE INSTALLATION, MAINTENANCE, REMOVAL, AND REPLACEMENT ACCESSIBILITY REQUIREMENTS PROVIDE EQUIPMENT ACCESS WAYS, LIFTING EYES AND OTHER NEEDED FEATURES.



TRACTION POWER SUBSTATION, INCOMING ELECTRICAL SERVICE ROOM AND BATTERY ROOM

OPERATING SEQUENCE

GENERAL

SUPPLY FANS (SF) SHALL RUN CONTINUOUSLY TO MAINTAIN POSITIVE PRESSURE OF 0.25 IN. W.G. OR LESS IN THE TPSS AND IES ROOMS. SUBSTATION SUPPLY FANS SSF-0X1 AND SSF-0X2 SHALL BE CONTROLLED BY TPSS THERMOSTAT T1. TPSS ROOM MOTORIZED RELIEF DAMPER SHALL BE OPEN BEFORE TPSS SF OR SSF FANS ARE STARTED. ACTUATION OF THE TPSS SPACE DETECTOR OR TPSS SF OR SSF DUCT DETECTOR SHALL CAUSE TPSS SF AND SSF TO BE STOPPED VIA CIC. ACTUATION OF IES SUPPLY FAN DUCT SMOKE DETECTOR SHALL CAUSE IES SUPPLY FAN TO BE STOPPED VIA CIC. ONE OF THE TWO BATTERY EXHAUST FANS SHALL BE RUNNING AT ALL TIMES. DE-ENERGIZED POSITION OF ALL DAMPERS IS CLOSED. INTERLOCK DAMPERS WITH THEIR ASSOCIATED FAN SO THAT THE DAMPER IS FULLY OPEN BEFORE ITS FAN CAN BE STARTED.

MANUAL CONTROL

FANS CAN BE STARTED AND STOPPED FROM MCC AND, IN REMOTE MODE, FROM THE OCC VIA CIC. PROVIDE SELECTOR SWITCH AT MCC FOR TPSS SSF FANS AND BATTERY ROOM FANS SO THAT LAG/LEAD FANS CAN BE ALTERNATED TO PROVIDE EQUAL WEAR. SUMMARY SHUTDOWN OF ALL FANS CAN BE INITIATED AT THE EMP, WHEN EITHER IN REMOTE OR LOCAL MODE. NO SUMMARY SHUTDOWN IS PROVIDED FOR OWP BATTERY ROOM EXHAUST FANS.

AUTOMATIC CONTROL

ON TEMPERATURE RISE SENSED BY TPSS T1 TO 86°F, LEAD SSF SHALL BE STARTED. ON TPSS TEMPERATURE T1 RISE TO 94°F, LAG SSF SHALL BE STARTED (BOTH SSF IN OPERATION). ON A DROP IN TPSS TEMPERATURE TO 90°F, LAG SSF SHALL BE STOPPED. ON A FURTHER DROP IN TPSS TEMPERATURE TO 80°F, LEAD SSF SHALL BE STOPPED. LOSS OF AIR FLOW FROM EITHER BATTERY ROOM EXHAUST FAN SHALL ACTIVATE THE OTHER FAN. OWP BATTERY EXHAUST FANS LOCAL CONTROL SHALL OVERRIDE OCC CONTROL.

MONITORING

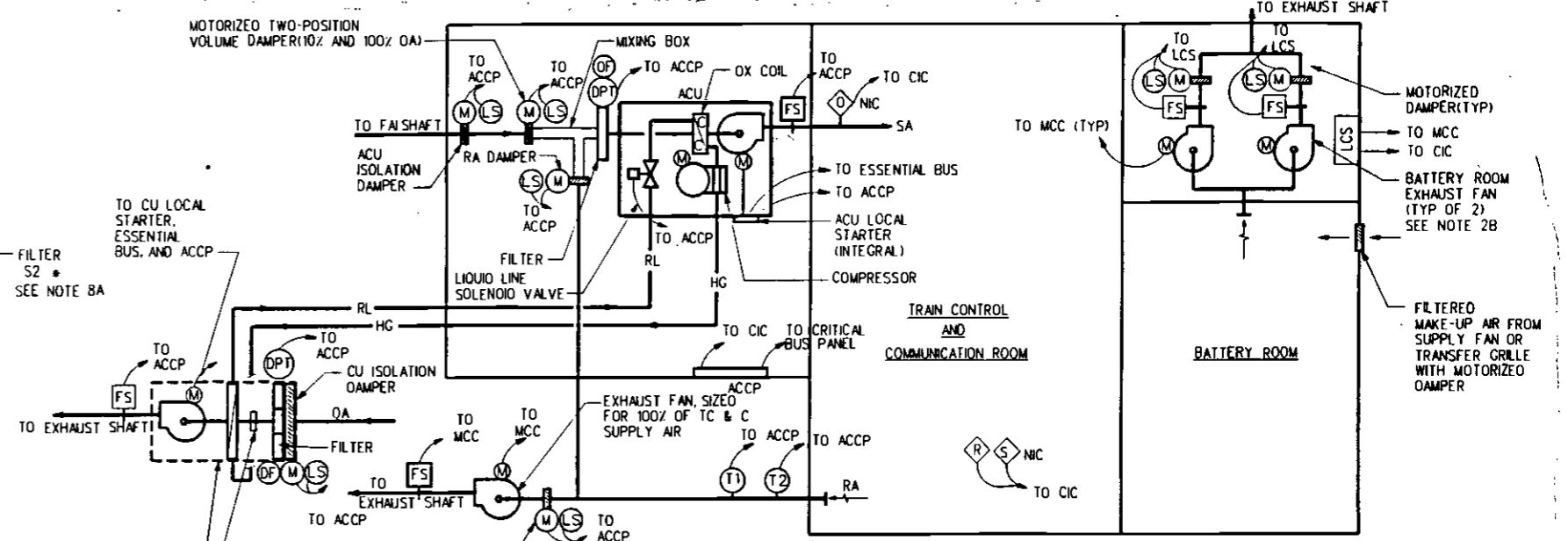
FAN OPERATION SHALL BE MONITORED AND ANNUNCIATED. FLOW SWITCH SHALL BE USED TO CONFIRM FAN ON/OFF STATUS. THE FOLLOWING FUNCTIONS SHALL BE MONITORED AND ANNUNCIATED SEPARATELY AT OCC VIA CIC: LOSS OF SF AIR FLOW, LOSS OF SSF-1 AIR FLOW, LOSS OF SSF-2 AIR FLOW, LOSS OF BATTERY ROOM LEAD EXHAUST FAN AIR FLOW, LOSS OF BATTERY ROOM LAG EXHAUST FAN AIR FLOW, TPSS ROOM HIGH (110 °F) TEMPERATURE (T2), IES ROOM HIGH (120 °F) TEMPERATURE (T3) AND DIRTY FILTER ALARM (DPT) SEE NOTE 7A.

WIRING

SEE ELECTRICAL DRAWING NO. ED-243 AND ED-250. (DESIGNER TO FILL IN APPROPRIATE ELEMENTARY WIRING DIAGRAM DRAWING NUMBERS)

NOTES TO SECTION DESIGNER

- COORDINATE IES ROOM DESIGN WITH LOS ANGELES DEPARTMENT OF WATER AND POWER (DWP). INCORPORATE DWP REQUIREMENTS INTO THE DESIGN AS PRIORITY ITEMS.
- IES/TPSS SUPPLY FAN ARRANGEMENT SF-1B SHALL NOT BE USED WITHOUT OWP CONCURRENCE.
- LOCATE IES ROOM VENTILATION EQUIPMENT (EXCEPT FOR T3) AND DUCTS OUTSIDE OF THE IES ROOM.
- LOCATE BATTERY ROOM EXHAUST FANS OUTSIDE OF IES AND BATTERY ROOMS.
- FAN NUMBERS ARE SHOWN FOR CLARITY ONLY AND MAY NOT BE THE NUMBERS ACTUALLY APPLIED.
- PROVIDE EXCLUSIVE USE SHAFT FOR IES EXHAUST. INCLUDE LADDER AND ACCESS TO BOO AND FIRE DAMPERS.
- INDICATE THAT FIRE DETECTORS (DUCT, HEAT, AND SMOKE) SSF FANS AND DAMPERS, FILTER S2, AND DPT SI ARE FURNISHED AND INSTALLED BY SYSTEMWIDE CONTRACTORS.
- IF REQUIRED FOR ADDITIONAL FILTERING CAPACITY, ADD FILTER BY STATION CONTRACTOR. HAVE STATION CONTRACTOR WIRE THE TWO DPT IN SERIES TO PROVIDE A SUMMARY SIGNAL TO CIC.



TRAIN CONTROL & COMMUNICATION ROOM AND BATTERY ROOM

OPERATING SEQUENCE

GENERAL

ACU SYSTEM: DURING NORMAL OPERATION, THE ACU SYSTEM IS SETUP FOR REMOTE OPERATION AND THE ACU SYSTEM IS ACTUATED FROM THE OCC VIA CIC. UPON ACTUATION, THE ACU FAN STARTS AND RUNS CONTINUOUSLY CIRCULATING 90 PERCENT RA 10 PERCENT OA. ACU COOLING (REFRIGERATION) FUNCTIONS ARE CONTROLLED THROUGH THERMOSTAT T1. EXCESSIVE ROOM TEMPERATURE ALARM IS PROVIDED THROUGH THERMOSTAT T2. T1 AND T2 ARE DUCT TYPE THERMOSTATS WITH SENSING ELEMENTS INSIDE THE RA DUCT NEAR THE TC&C ROOM RA GRILLES. SET POINTS: T1-75°F; AND T2-100°F. T1 AND T2 SHALL BE DUCT MOUNTED.

LOCAL CONTROL

ACU SYSTEM: THE ACU SYSTEM CAN BE PLACED IN THE MANUAL MODE FROM THE ACCP. THE ACU COOLING FUNCTION CAN BE STOPPED BY USE OF A SWITCH ON THE BASE PLATE OF T1. WHEN IN THE MANUAL MODE AND THE SWITCH AT T1 IS IN THE "AUTO" POSITION, THE ACU SYSTEM OPERATES AS DESCRIBED UNDER "GENERAL", ABOVE. WHEN IN THE MANUAL MODE AND THE SWITCH AT T1 IS IN THE "OFF" POSITION, THE ACU FAN IS ON, BUT THE COOLING FUNCTION IS OFF.

AUTOMATIC CONTROL

ACU SYSTEM: WHEN T1 CALLS FOR COOLING, THE LIQUID-LINE SOLENOID VALVE, COMPRESSOR, CU FAN DAMPER, AND CU ARE ACTUATED. THEY ARE DE-ACTUATED WHEN T1 IS SATISFIED. WHEN T1 CALLS FOR COOLING, THE LOW AMBIENT CONTROL FUNCTION IS ACTUATED, REGULATED, AND MONITORED BY CONTROLS INTERNAL TO THE CU AND/OR ACU. THE ACU AND CU MANUFACTURER PROVIDES INTERNAL CONTROLS AND EQUIPMENT REQUIRED FOR AUTOMATIC COMPRESSOR STARTUP AND SHUTDOWN, FOR LOW AMBIENT CONTROL, AND MONITORING/SUPERVISING OPERATION OF EVAPORATION/COMPRESSOR AND CONDENSING UNITS.

MONITORING

GENERAL: USE FLOW SWITCH TO MONITOR THE ON/OFF STATUS OF EACH FAN. TC&C ROOM: PROVIDE THREE SIGNALS FROM THE ACCP TO THE OCC VIA CIC. THE FIRST SIGNAL INDICATES THAT THE ACU SYSTEM IS BEING OPERATED. THE SECOND SIGNAL INDICATES THE ACU FAN LOCAL STATUS. THE THIRD SIGNAL IS A SUMMARY SIGNAL OF THE FOLLOWING: LOSS OF CONTROL POWER FOR THE ACCP OR ACU, LOSS OF ACU COOLING FUNCTION, TC & C ROOM HIGH TEMPERATURE, LOSS OF CU FAN AIR FLOW, DIRTY ACU FILTER, AND DIRTY CU FILTER.

WIRING

SEE ELECTRICAL DRAWING NO. ED-250 AND ED-251. (DESIGNER TO FILL IN APPROPRIATE ELEMENTARY WIRING DIAGRAM DRAWING NUMBERS)

LEGEND

SEE DRAWINGS MS-001 AND M- FOR ABBREVIATIONS AND SYMBOLS

NOTES TO SECTION DESIGNER

- THIS DIRECTIVE DRAWING IS BASED ON SELF-CONTAINED, SPLIT SYSTEM AIR CONDITIONING EQUIPMENT. IF ANOTHER TYPE OF EQUIPMENT IS USED, MODIFY CONTROLS AS NECESSARY TO BE COMPATIBLE WITH THE ACCP DESIGN.
- PROVIDE AN ACCESSIBLE LOCATION OUTSIDE OF THE BATTERY ROOM AND TC & C ROOM FOR THE BATTERY ROOM EXHAUST FANS, DAMPERS, AND LCS.
- DO NOT USE THE CU TO VENTILATE OR EXHAUST ANY ROOM OR SPACE.
- FIRE DETECTORS (DUCT, HEAT, AND SMOKE) ARE NIC.
- ADD A NOTE THAT THE FACILITIES CONTRACTOR IS TO FURNISH AND INSTALL ALL ADDITIONAL CONDUIT AND WIRING REQUIRED BY THE ACU/CU MANUFACTURER BETWEEN THE ACU AND CU FOR LOW AMBIENT CONTROL OR OTHER INTERNAL CONTROL FUNCTIONS.
- IF VARIABLE SPEED FAN MOTOR OR VOLUME CONTROL DAMPER IS USED BY THE MANUFACTURER FOR LOW AMBIENT CONTROL, THE MANUFACTURERS TO PROVIDE ACCEPTABLE POSITIVE INDICATION THAT THE FAN IS OPERATING (ON/OFF STATUS) IN LIEU OF THE FLOW SWITCH. THE POSITIVE INDICATION MUST BE PROVIDED USING PROVEN TECHNOLOGY HAVING A SIGNIFICANT HISTORICAL BASIS.
- UNDER WIRING, FILL IN APPLICABLE ELEMENTARY DIAGRAM AND BLOCK DIAGRAM DRAWING NUMBERS. UNDER LEGEND, FILL IN DRAWING NUMBERS.

DESIGNED BY EMC	12 APR 94
DRAWN BY J. IONESCU	
CHECKED BY B. REAL	
IN CHARGE E. BENCZE	
DATE 12 APR 94	

REV	DATE	BY	SUB	APP	DESCRIPTION
1	12/28/95	DSS			REV. PER DE-305-SBCN-10.00
2	02/09/96	JL			REV & REDRAWN PER DCN 90-1 AND 91-9

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

FOR ABBREVIATIONS AND SYMBOLS

SUBMITTED: EVA BENCZE

APPROVED: K. N. MURPHY

MECHANICAL DIRECTIVE

TRACTION POWER SUBSTATION
TRAIN CONTROL AND
COMMUNICATION ROOM
CONTROL SCHEMATIC DIAGRAMS

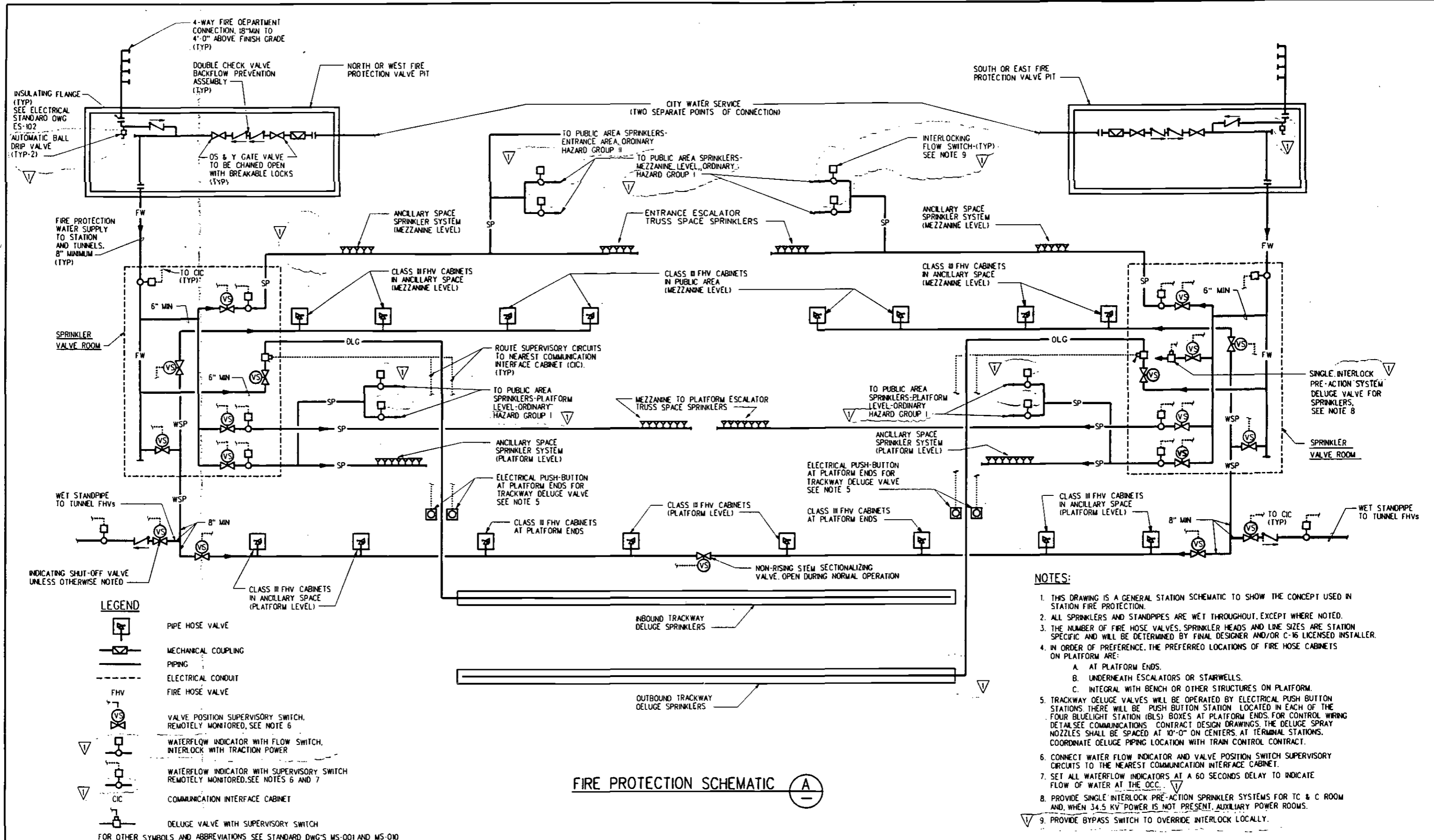
CONTRACT NO.

DRAWING NO. MD-011

SCALE: NO SCALE

SHEET NO.

CONTRACT NO.	
DRAWING NO.	MD-011
SCALE	NO SCALE
SHEET NO.	



FIRE PROTECTION SCHEMATIC (A)

- NOTES:**
- THIS DRAWING IS A GENERAL STATION SCHEMATIC TO SHOW THE CONCEPT USED IN STATION FIRE PROTECTION.
 - ALL SPRINKLERS AND STANDPIPES ARE WET THROUGHOUT, EXCEPT WHERE NOTED.
 - THE NUMBER OF FIRE HOSE VALVES, SPRINKLER HEADS AND LINE SIZES ARE STATION SPECIFIC AND WILL BE DETERMINED BY FINAL DESIGNER AND/OR C-16 LICENSED INSTALLER.
 - IN ORDER OF PREFERENCE, THE PREFERRED LOCATIONS OF FIRE HOSE CABINETS ON PLATFORM ARE:
 - AT PLATFORM ENDS.
 - UNDERNEATH ESCALATORS OR STARWELLS.
 - INTEGRAL WITH BENCH OR OTHER STRUCTURES ON PLATFORM.
 - TRACKWAY DELUGE VALVES WILL BE OPERATED BY ELECTRICAL PUSH BUTTON STATIONS. THERE WILL BE PUSH BUTTON STATION LOCATED IN EACH OF THE FOUR BLUELIGHT STATION (BLS) BOXES AT PLATFORM ENDS. FOR CONTROL WIRING DETAIL SEE COMMUNICATIONS CONTRACT DESIGN DRAWINGS. THE DELUGE SPRAY NOZZLES SHALL BE SPACED AT 10'-0" ON CENTERS AT TERMINAL STATIONS. COORDINATE DELUGE PIPING LOCATION WITH TRAIN CONTROL CONTRACT.
 - CONNECT WATER FLOW INDICATOR AND VALVE POSITION SWITCH SUPERVISORY CIRCUITS TO THE NEAREST COMMUNICATION INTERFACE CABINET.
 - SET ALL WATERFLOW INDICATORS AT A 60 SECONDS DELAY TO INDICATE FLOW OF WATER AT THE OCC.
 - PROVIDE SINGLE INTERLOCK PRE-ACTION SPRINKLER SYSTEMS FOR TC & C ROOM AND, WHEN 34.5 KV POWER IS NOT PRESENT, AUXILIARY POWER ROOMS.
 - PROVIDE BYPASS SWITCH TO OVERRIDE INTERLOCK LOCALLY.

DESIGNED BY EMC	DATE 12 APR 94
DRAWN BY R. SOLIS	
CHECKED BY B. REAL	
BY CHANGE E. BENCZE	
DATE 12 APR 94	

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

SUBMITTED: EVA BENCZE

APPROVED: K. N. MURTHY

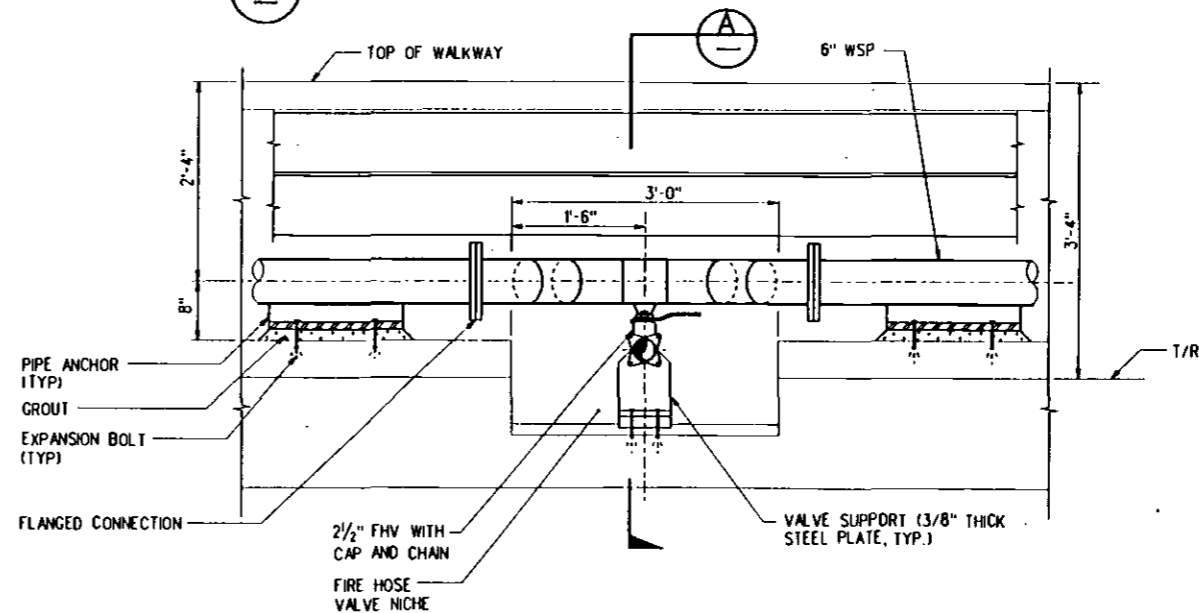
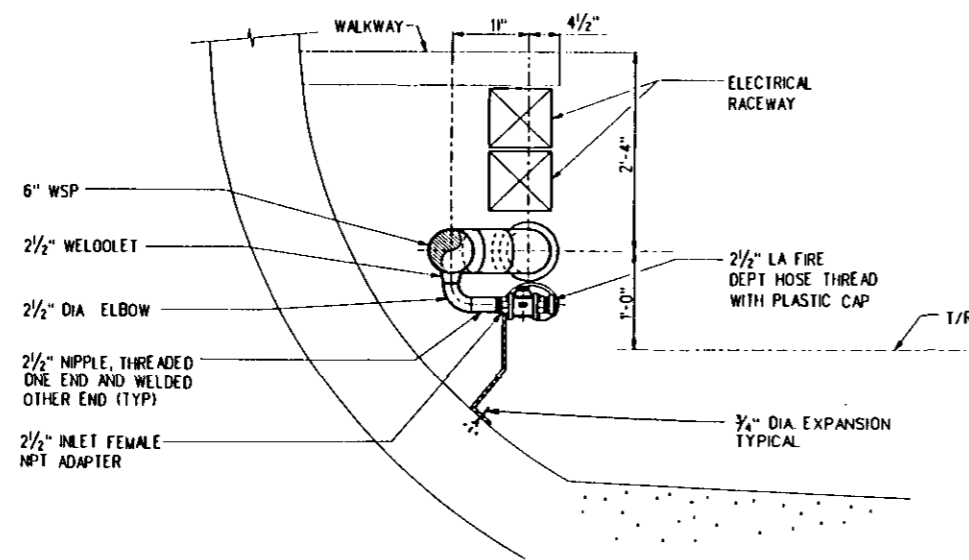
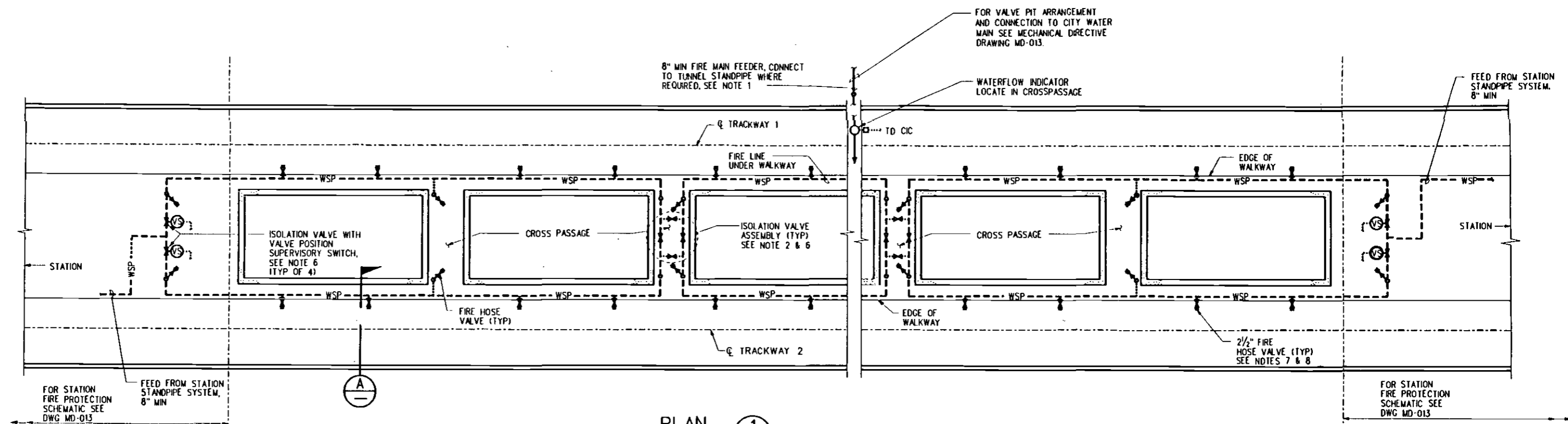
**MECHANICAL DIRECTIVE
FIRE PROTECTION SCHEMATIC**

CONTRACT NO. _____

DRAWING NO. MD-013

SCALE: NO SCALE

SHEET NO. 1



NOTES:

1. ADDITIONAL FIRE MAIN FEEDERS MAY BE REQUIRED DEPENDENT UPON LENGTH OF TRACKWAY, HYDRAULIC CALCULATIONS, CITY MAIN PRESSURE AND FLOW RATE.
2. ISOLATION VALVES ASSEMBLY SHALL CONSIST OF INDICATING MANUAL SHUT-OFF VALVES WITH SUPERVISORY SWITCH. LOCATE ISOLATION VALVE ASSEMBLY IN CROSS PASSAGES, 1500 FEET APART (MAXIMUM).
3. WET STANDPIPE (WSP) SYSTEM SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH NFPA 14.
4. APPROPRIATE PIPING ELEMENTS SUCH AS ANCHORS AND GROOVED TYPE JOINTS FOR FLANGES SHALL BE EMPLOYED IN THE DESIGN OF WSP.
5. SPECIAL ATTENTION SHALL BE GIVEN IN THE DESIGN OF WSP IN THE CURVED SECTIONS.
6. ROUTE SUPERVISORY SWITCH CIRCUITS TO NEAREST STATION CIC.
7. STANDPIPE/FIRE HOSE VALVE ASSEMBLY SHALL NOT PROJECT BEYOND EDGE OF WALKWAY.
8. FIRE HOSE VALVES SHALL BE SPACED AT 250 FEET INTERVALS, MEASURED FROM THE CENTER LINE OF THE CROSS PASSAGES. RESIDUAL SPACING OF LESS THAN 250 FEET SHALL BE LOCATED BETWEEN THE EDGE OF THE STATION PLATFORM AND THE NEAREST FIRE HOSE VALVE OR BETWEEN THE CENTER LINE OF CROSS PASSAGES WITHIN A CROSSOVER AND THE NEAREST FIRE HOSE VALVE.
9. FOR PIPE SUPPORTS AND ANCHOR DETAILS SEE DWG MS-005.
10. FOR SYMBOLS AND ABBREVIATIONS SEE MECHANICAL STANDARD DRAWINGS MS-001 AND MS-010.

REV	DATE	BY	SUB	APP	DESCRIPTION
0	12 APR 94	JL	EB	GMC	REV & REDRAWN PER DCN 91-9, 93-12, 93-23

DESIGNED BY
EMC
DRAWN BY
R. SOLIS
CHECKED BY
B. REAL
IN CHARGE
E. BENCZE
DATE
12 APR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

Submitted by: *E. Bencze*

Approved by: *[Signature]*

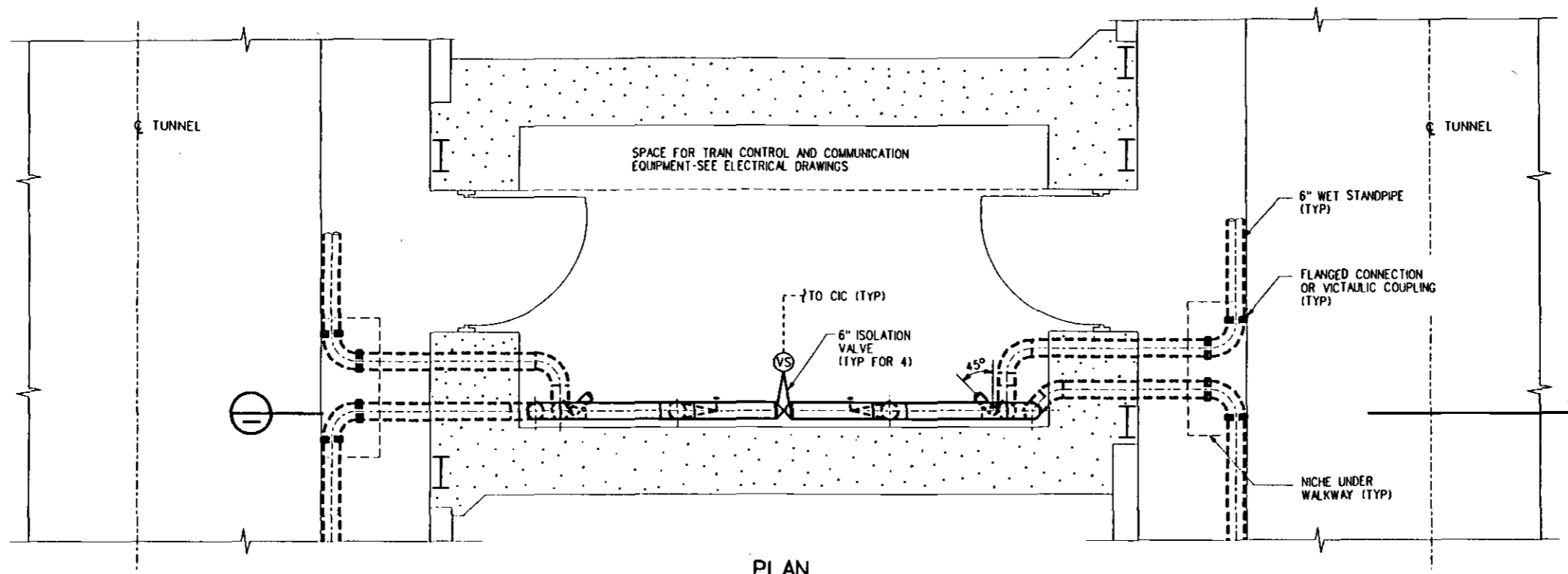
**MECHANICAL DIRECTIVE
TUNNEL WET STANDPIPE
SYSTEM SCHEMATIC**

CONTRACT NO. _____

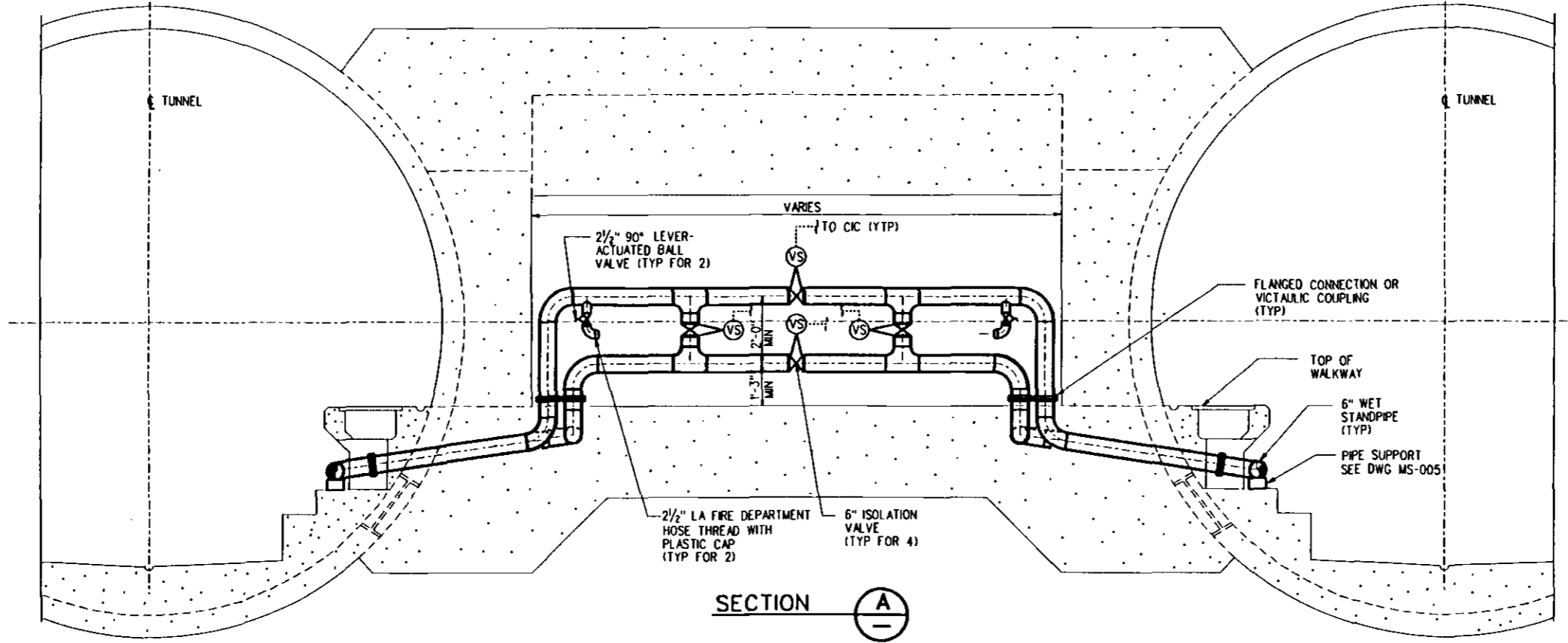
DRAWING NO. **MD-014** REV **0**

SCALE: **NO SCALE**

SHEET NO. _____



PLAN



SECTION A

- NOTES:**
- 1. FIRE VALVE ARRANGEMENT SHOWN IS TYPICAL. DESIGNER SHALL MAKE ADJUSTMENTS TO SUIT LOCAL CONDITIONS.
 - 2. PROVIDE PIPE SUPPORTS, HANGERS AND SLEEVES AS REQUIRED.
 - 3. WET STANDPIPE SHALL BE INSTALLED PER NFPA 14.
 - 4. ALL ISOLATION VALVES SHALL BE BUTTERFLY VALVES, ELECTRICALLY SUPERVISED.
 - 5. ALL TRANSITIONS FROM EMBEDDED TO NON-EMBEDDED PIPING SHALL HAVE FLANGES OR VICTAULIC TYPE COUPLINGS.

REV	DATE	BY	SUB	APP	DESCRIPTION
0	12 APR 94	JR	EB	GMC	REV & REDRAWN PER DCN 91-9 AND 93-12

DESIGNED BY EMC
DRAWN BY R. SOLIS
CHECKED BY B. REAL
IN CHARGE E. BENICZE
DATE 12 APR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

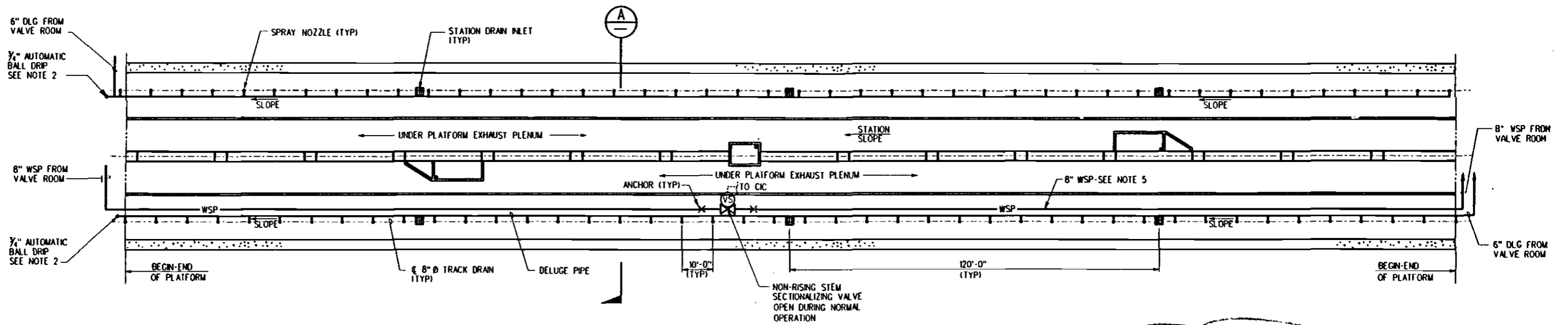
ENGINEERING MANAGEMENT CONSULTANT

PERMIT DISTRIBUTION? BOULE & BUREAU, INC.
 2620 W. 14TH ST., SUITE 100
 LOS ANGELES, CALIF. 90024

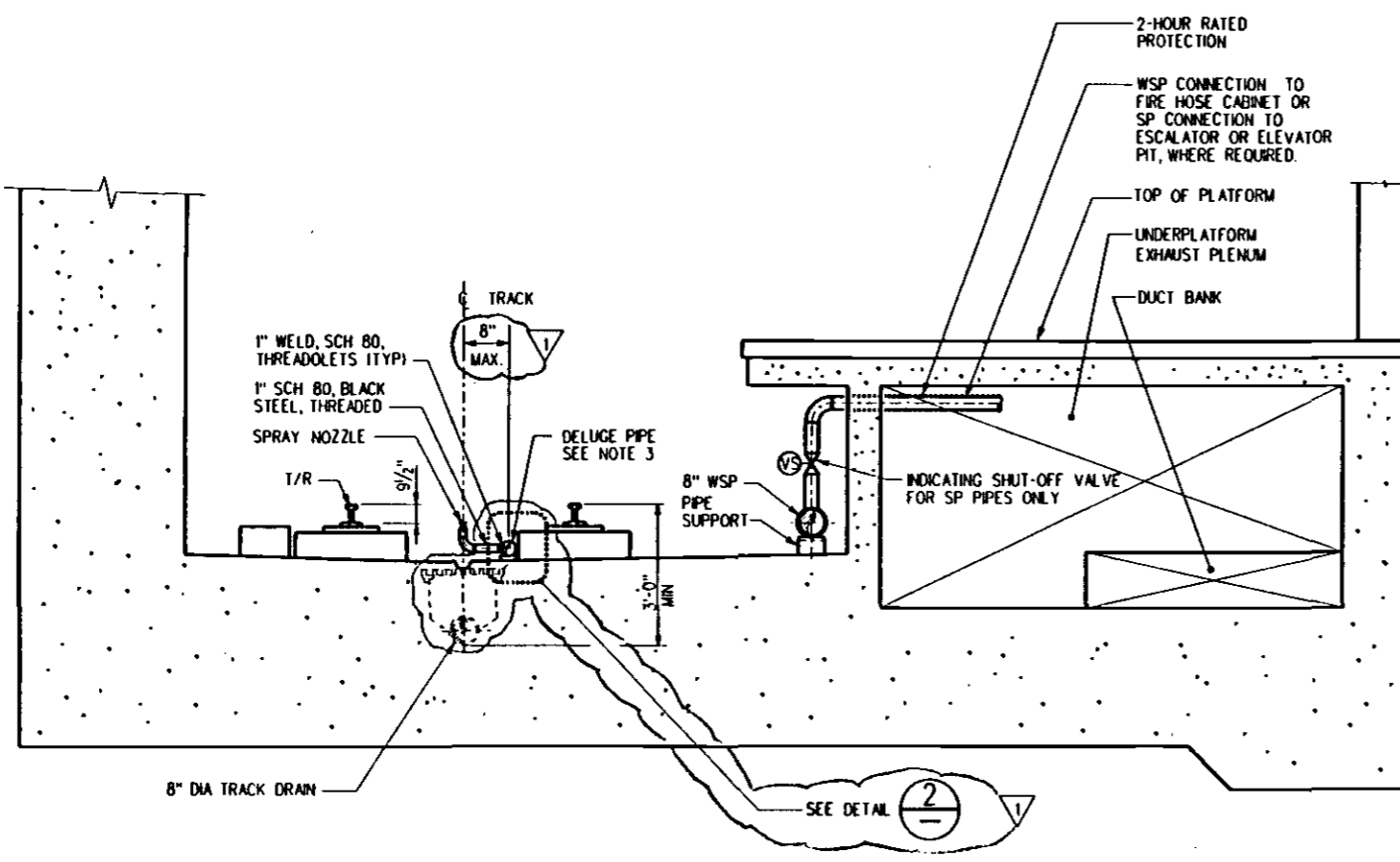
SUBMITTED: *Ken Bauer*
 APPROVED: *Jim*

MECHANICAL DIRECTIVE CROSS PASSAGE FIRE VALVE ASSEMBLIES TYPICAL ARRANGEMENT		CONTRACT NO.
DRAWING NO MD-015	REV 0	
SCALE NO SCALE		
SHEET NO.		

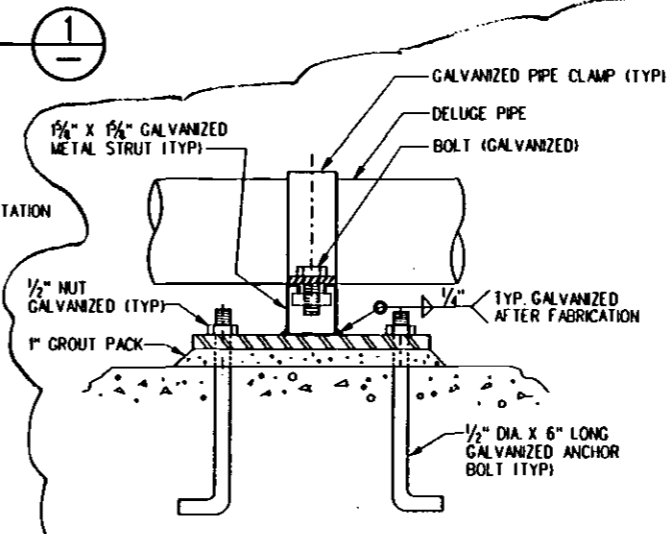
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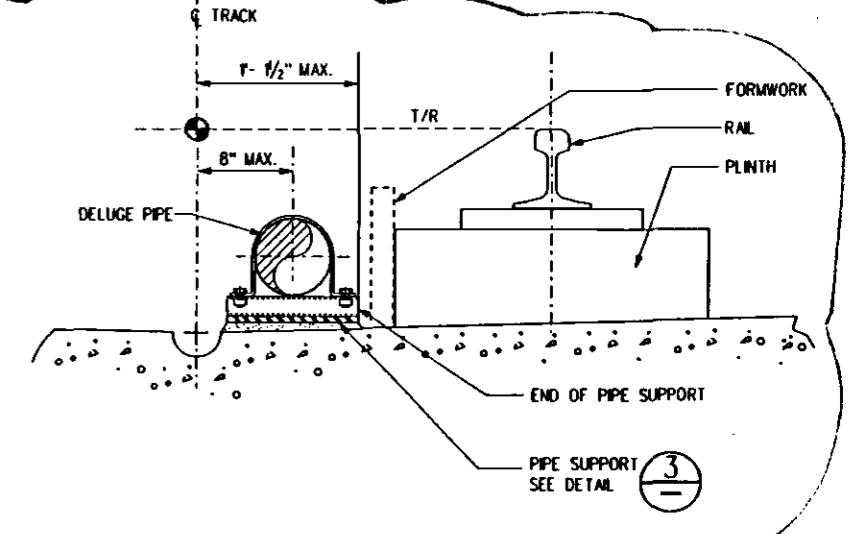
TRACK LEVEL PLAN
UNDER VEHICLE WATER SPRAY EXTINGUISHING SYSTEM



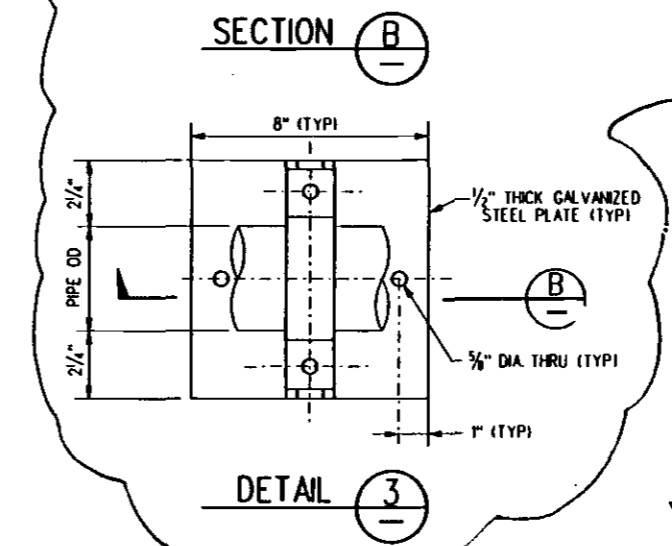
SECTION A



SECTION B



DETAIL 2



DETAIL 3

NOTES:

1. FOR FIRE PROTECTION SCHEMATIC SEE DRAWING MD-D13.
2. 3/4" AUTOMATIC BALL DRIP SHALL BE PROVIDED AT LOW POINT OF DLG PIPE.
3. PIPING SHALL BE SIZED TO PROVIDE EVEN DISTRIBUTION OF WATER TO EACH NOZZLE.
4. SYSTEM DESIGN CALCULATIONS SHALL BE PROVIDED IN ACCORDANCE WITH NFPA 15.
5. 8" WSP SERVES FIRE HOSE CABINETS, ESCALATOR WELL WAY SPRINKLERS AND HOISTWAY SPRINKLERS AT PLATFORM LEVEL.
6. AT TERMINAL STATIONS, COORDINATE DLG PIPING WITH AUTOMATIC TRAIN CONTROL CONTRACT.
7. FOR PIPE SUPPORTS, SEE MECHANICAL STANDARD DRAWINGS MS-005, MS-D11 AND MS-D14.
8. FOR SYMBOLS AND ABBREVIATIONS, SEE MECHANICAL STANDARD DRAWINGS MS-001 AND MS-D10.
9. THE DELUGE PIPING SHALL BE INSTALLED AFTER THE INSTALLATION OF THE PLINTH PAD.

REV	DATE	BY	SUB	APP	DESCRIPTION
0	5 25 95	LGJ	EB	GMC	REVISED PER SBCH NO. DE305-6 00
1	6 14 95	JR	EB	GMC	REV & REDRAWN PER DCN 91-9 AND 93-12

DESIGNED BY
EMC
DRAWN BY
R. SOLIS
CHECKED BY
B. REAL
IN CHARGE
E. BENCZE
DATE
12 APR 94

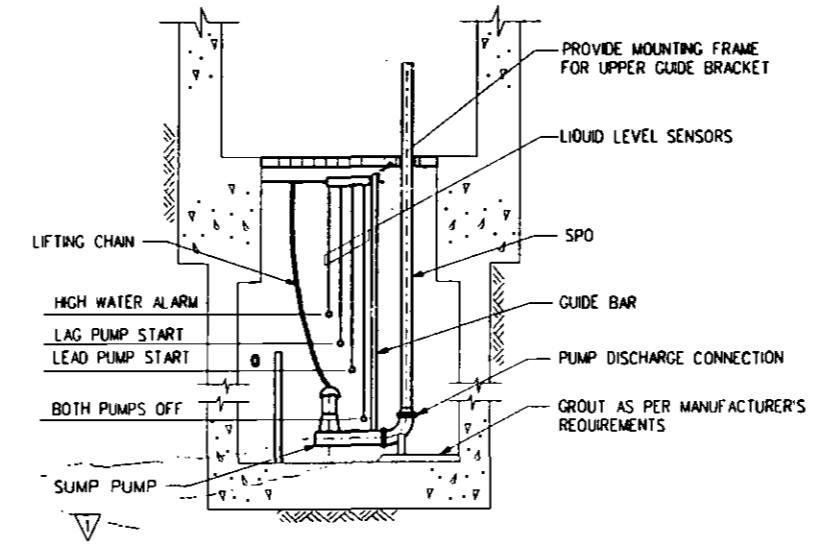
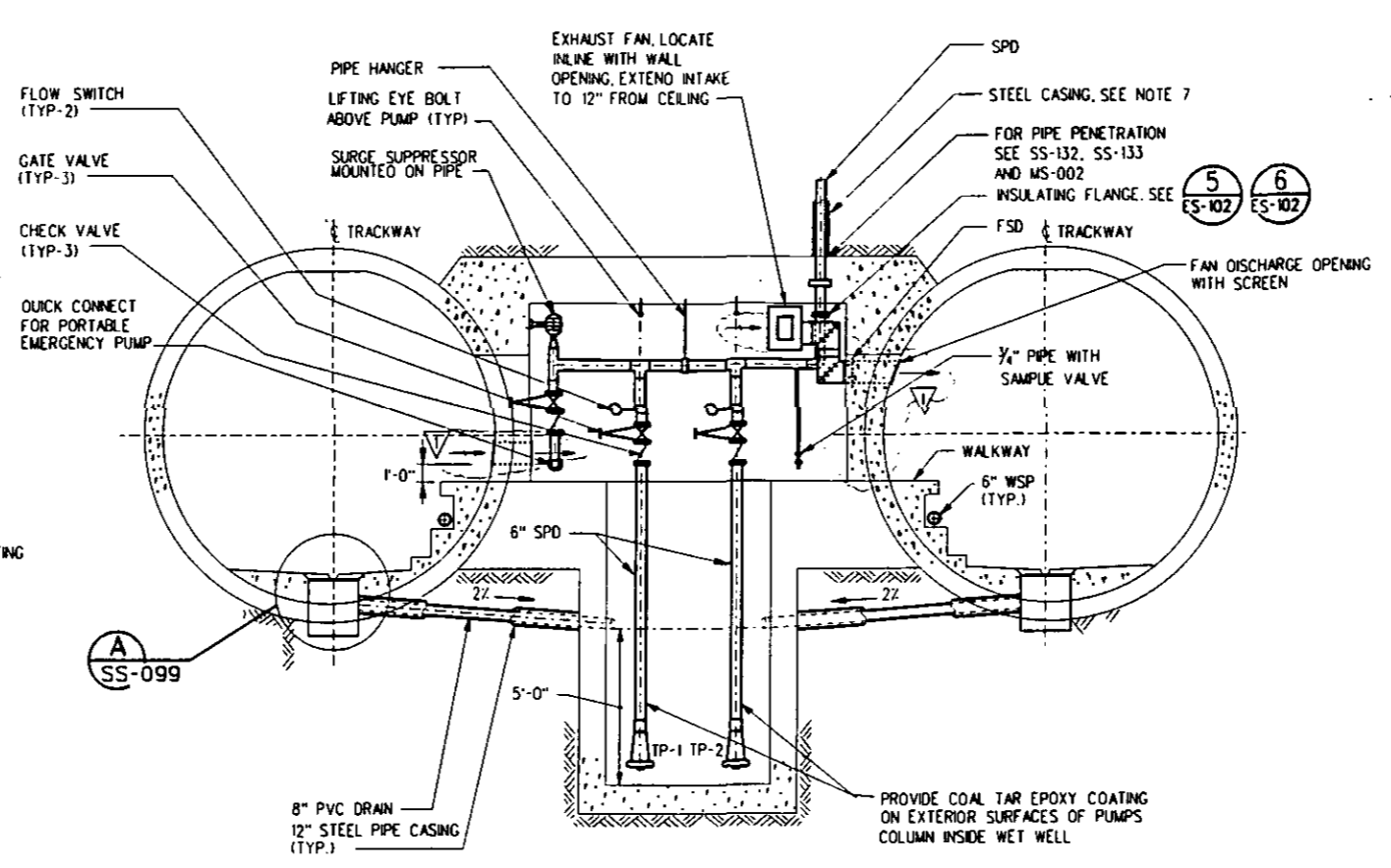
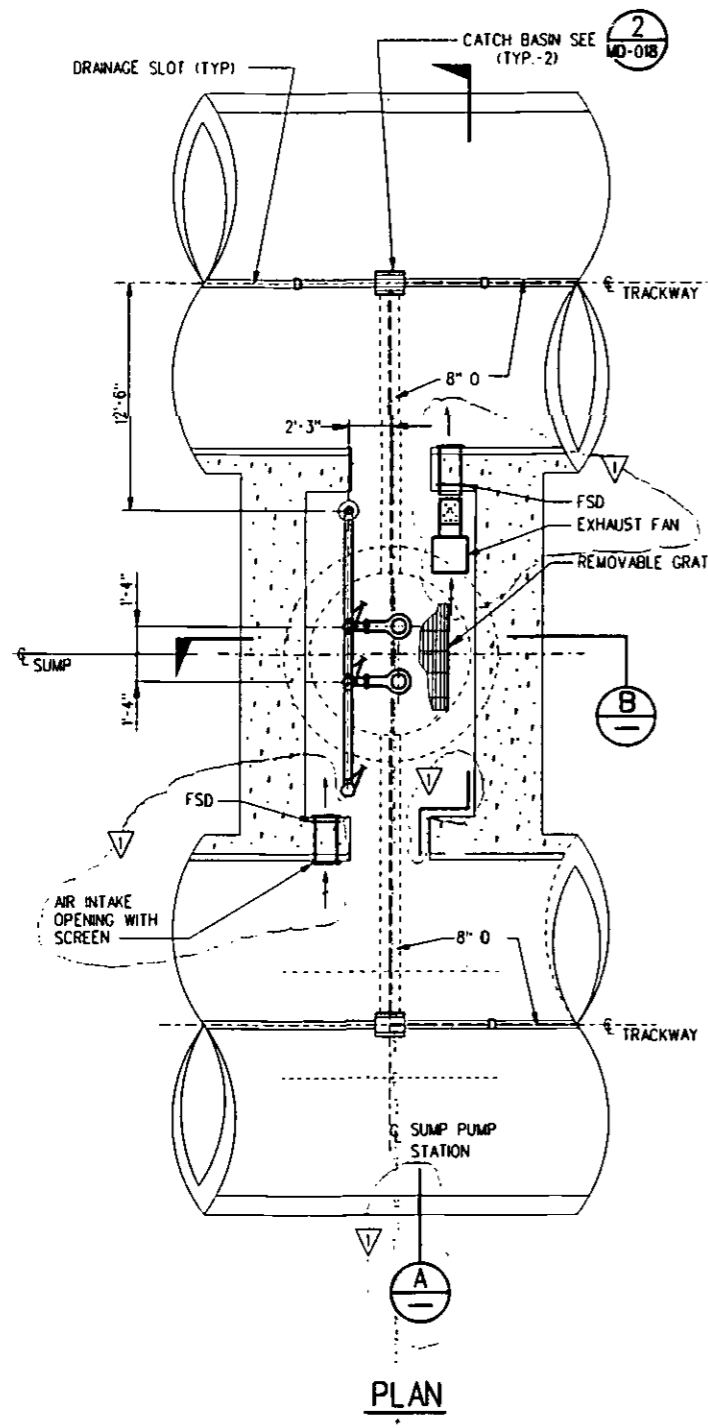
LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

Submitted: EVA I. BENCZE
Approved: K. N. MURPHY

MECHANICAL DIRECTIVE
UNDER VEHICLE WATER SPRAY
EXTINGUISHING SYSTEM

CONTRACT NO.	
DRAWING NO.	MD-016
REV	1
SCALE	NO SCALE
SHEET NO.	



- NOTES:
- PUMPING STATION SHOWN IS TYPICAL. SECTION DESIGNER SHALL MAKE ADJUSTMENTS TO SUIT LOCAL CONDITIONS.
 - PUMPS SHALL BE SUBMERSIBLE TYPE, WITH A MINIMUM CAPACITY OF 500 GPM EACH. PROVIDE WATER LEVEL CONTROLS, ELECTRIC PUMP ON/OFF SWITCH, ALARM AND REMOTE INDICATION AT THE OCC IN ACCORDANCE WITH CRITERIA SEE OWG MD-010.
 - PROVIDE EQUIPMENT AND PIPE SUPPORTS, HANGERS AND SLEEVES AS REQUIRED. SEE OWG MD-020 AND MECHANICAL STANDARD DWG'S MS-005, MS-011 AND MS-014.
 - DESIGNER SHALL ROUTE PUMP DISCHARGE TO STORM DRAIN.
 - PROVIDE EXHAUST VENTILATION IN ALL CROSS PASSAGES SIMILAR TO WHAT IS SHOWN FOR PUMP ROOM AND IN ACCORDANCE WITH CRITERIA. EXHAUST FANS SHALL BE INTERLOCKED WITH MOTORIZED FIRE/SMOKE DAMPERS (FSD). DAMPERS SHALL OPEN WHEN FAN IS ENERGIZED. IF EITHER FSD CLOSES UPON SMOKE DETECTION IN CROSS PASSAGE, FAN WILL STOP VIA INTERLOCK.
 - FOR SUMP PUMP PIT DETAIL SEE STRUCTURAL STANDARD DWG'S SS-099, SS-132 AND SS-133.
 - IF APPROVED BY EMC CORROSION CONTROL SPD MAY BE NON-METALLIC PIPING THAT DOES NOT REQUIRE A CASING.
 - FOR SYMBOLS AND ABBREVIATIONS, SEE OWG'S MS-001 AND MS-010.
 - TUNNEL SUMP PUMP SHOWN, STATION PRINCIPAL SUMP PUMP SIMILAR. SECONDARY SUMP PUMP INSTALLATIONS MAY USE SIMPLEX CONFIGURATION WHEN DESIGN VOLUME IS BELOW 100 GPM. SECONDARY SUMP PUMP MAY DISCHARGE INTO THE PRINCIPAL SUMP PUMP COLLECTION SYSTEM.
 - FOR ELEMENTARY WIRING DIAGRAMS SEE ELECTRICAL DRAWING EO-242. (DESIGNER TO FILL IN APPROPRIATE ELEMENTARY WIRING DIAGRAM NUMBERS.)
 - DESIGNER WILL FILL IN PERTINENT INFORMATION SUCH AS EQUIPMENT NUMBERS AND WILL IDENTIFY EQUIPMENT FURNISHED AND INSTALLED BY OTHERS.
 - DESIGNER ENSURE THAT PUMP, FAN AND DAMPER IDENTIFIERS ARE CONSISTENT AMONG THE ELECTRICAL, MECHANICAL DOCUMENTS.
 - DESIGNER COORDINATE INSTALLATION, MAINTENANCE, REMOVAL, AND REPLACEMENT ACCESSIBILITY REQUIREMENTS. PROVIDE EQUIPMENT ACCESSWAYS, LIFTING EYES AND OTHER NEEDED FEATURES.

DESIGNED BY EMC										
DRAWN BY R. SOLIS										
CHECKED BY B. REAL										
IN CHARGE E. BENCZE										
DATE 12 APR 94										
REV	DATE	BY	APP	DESCRIPTION						
0	12 APR 94	JJ	EB	GMC	BASELINE ISSUE					
					REV PER OE305-SBCN-10.00					

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

Submitted: EVA BENCZE

Approved: K. N. MURPHY

MECHANICAL DIRECTIVE

DUPLIX SUMP PUMP ARRANGEMENT AND DETAILS

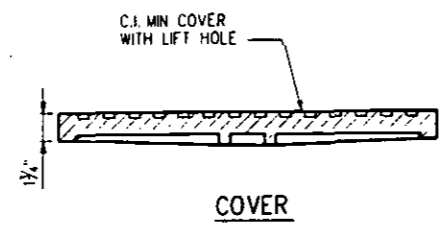
CONTRACT NO.

DRAWING NO. MD-017

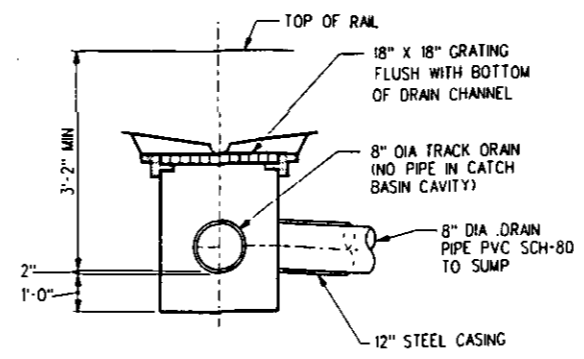
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SHEET NO.

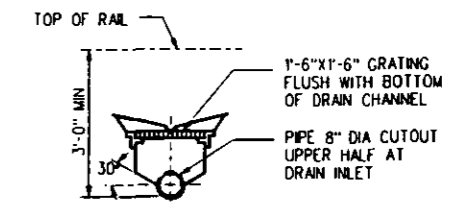
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SCALE	NO SCALE		
SHEET NO.			



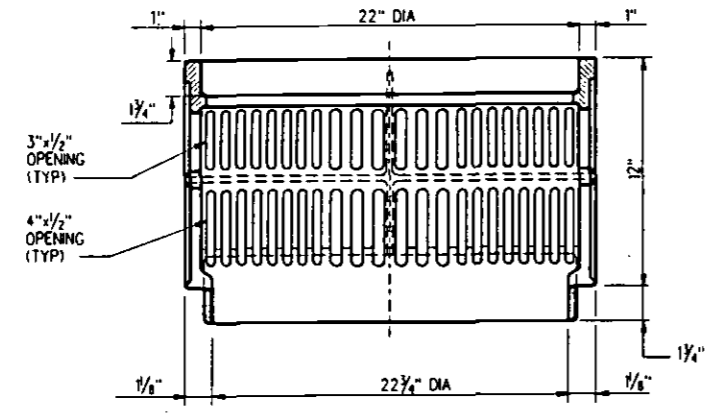
COVER



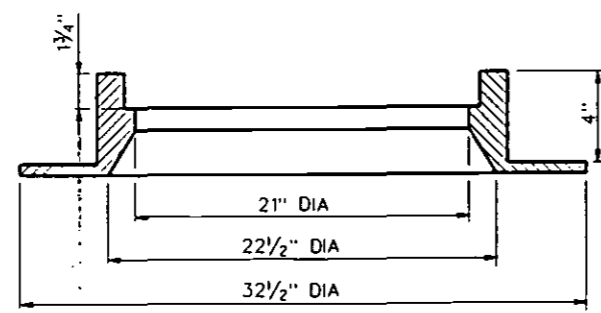
CATCH BASIN DETAIL ②



STATION DRAIN INLET DETAIL ③



BALLAST COVER



FRAME

BALLAST SCREEN DETAIL ①

DRAINS, CLEANOUTS, DRAIN INLETS AND BACKWATER VALVE SCHEDULE			
ITEM	SIZE	MAKE AND MODEL NO.	REMARKS
FLOOR DRAIN, FD-1	4"	ZURN MODEL Z-415, OR J. R. SMITH *2031A	WITH "B" TYPE STRAINER 8", VANDAL PROOF SECURED TOP, (USE C.I. P-TRAP WITH TRAP PRIMER CONNECTION)
FLOOR DRAIN, FD-2	3"	ZURN MODEL Z-509, OR J. R. SMITH * 2140	BOTTOM OUTLET WITH POLISHED BRONZE GRATE AND VANDAL PROOF SECURED TOP
FLOOR DRAIN, FD-3	3"	ZURN MODEL Z-509, OR J. R. SMITH * 2145	SIDE OUTLET WITH POLISHED BRONZE GRATE AND VANDAL PROOF SECURED TOP
FLOOR DRAIN, FD-4	3"	ZURN MODEL Z-415, OR J. R. SMITH * 2005	WITH "J" TYPE 8"x8" POLISHED NICKEL BRONZE STRAINER, VANDAL PROOF SECURED TOP
FLOOR DRAIN, FD-5	4"	ZURN MODEL Z-415, OR J. R. SMITH * 3510	WITH "E" TYPE POLISHED NICKEL BRONZE STRAINER, VANDAL PROOF SECURED TOP
SCUPPER DRAIN, SD-1	4"	ZURN MODEL Z-400, OR J. R. SMITH *1540	WITH "K" TYPE ANGULAR STRAINER, ADJUSTABLE, VANDAL PROOF SECURED TOP
AREA DRAIN, AD-1	4"	ZURN MODEL Z-105, OR J. R. SMITH * 1010	C.I. BODY WITH DOME STRAINER, VANDAL PROOF SECURED TOP
AREA SCUPPER DRAIN ASD-1	4"	ZURN MODEL Z-160, OR J. R. SMITH * 1580	WITH DOWNSPOUT ADAPTER
ROOF DRAIN, RD-1	3"-6"	ZURN MODEL Z-105-EA-R-C, J. R. SMITH * 1015	WITH VANDAL PROOF SECURED TOP
ROOF DRAIN, RD-2	3"-6"	ZURN MODEL Z-150, OR J. R. SMITH * 1409	14" WITH EXTENSION, VANDAL PROOF SECURED TOP
FLOOR AND WALL CLEANOUTS	AS REOD	ZURN MODEL Z-1400 OR J. R. SMITH * 4020	BRONZE PLUG, HEAVY DUTY TOP WITH VANDAL PROOF SECURED TOP
BACKWATER VALVE	4"	ZURN MODEL Z-1095, OR J. R. SMITH * 7022	WITH BOLTED COVER

NOTE:
MANUFACTURERS INDICATED ABOVE ARE FOR REFERENCE ONLY. CONTRACTOR MAY SUBSTITUTE APPROVED EQUAL.

DESIGNED BY EMC	DATE 12 APR 94
DRAWN BY R. SOLIS	
CHECKED BY B. REAL	
IN CHARGE E. BENCZE	
REV. PER DE305-SBCN-10.00	
REV & REDRAWN PER DCN 91-9	

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

Submitted: EVA BENCZE

Approved: K. N. MURTHY

MECHANICAL DIRECTIVE
DRAINAGE DETAILS AND CASTINGS

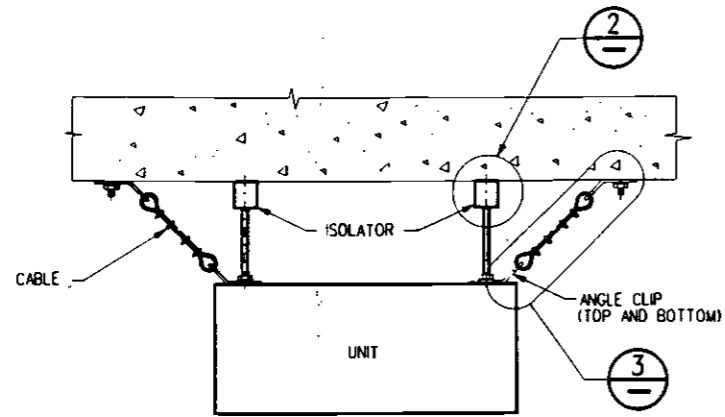
CONTRACT NO.

DRAWING NO. MD-018

SCALE: NO SCALE

SHEET NO.

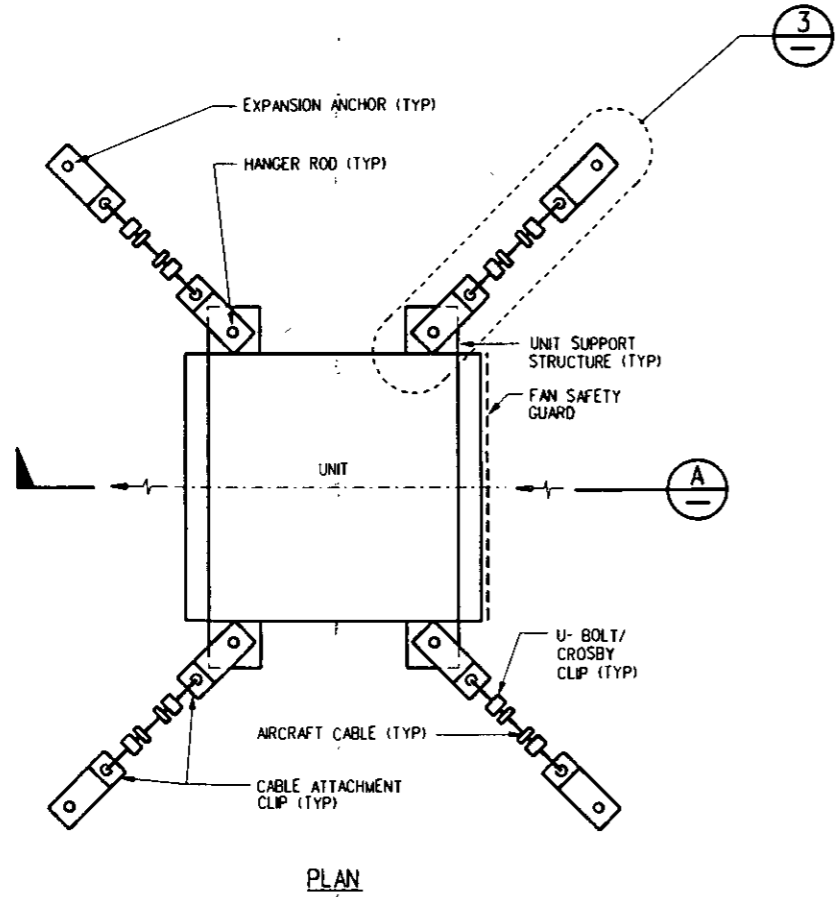
CONTRACT NO.	
DRAWING NO.	MD-018
REV.	1
SCALE	NO SCALE
SHEET NO.	



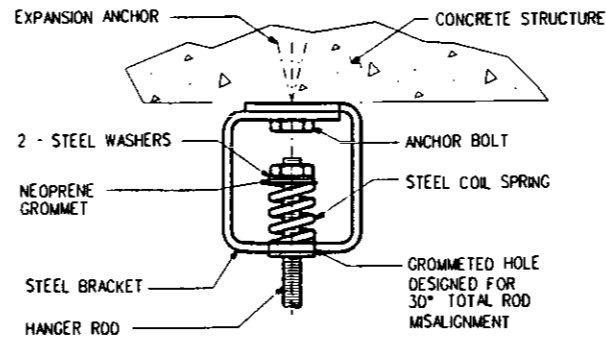
SECTION A

NOTES:

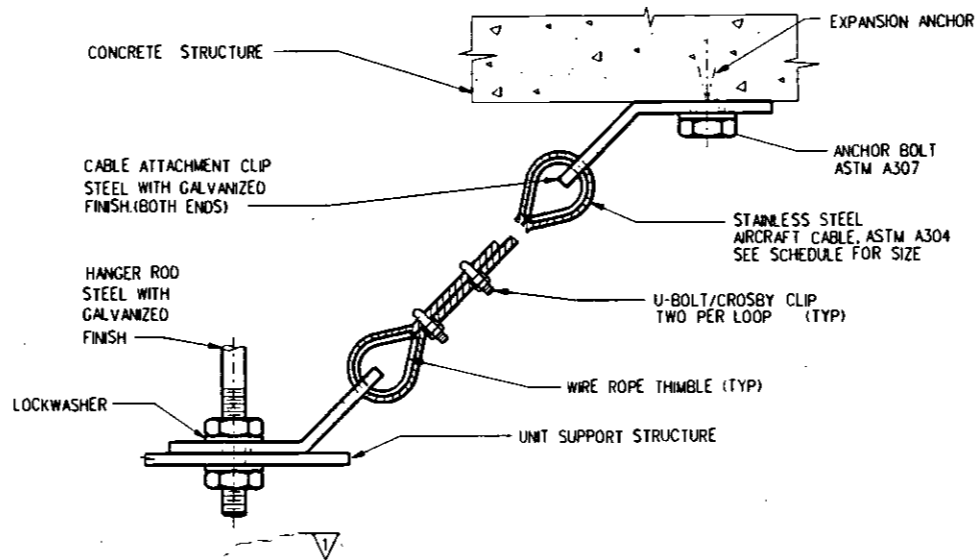
1. CABLES TO BE INSTALLED 1/4" SLACK.
2. CABLE IS 7x19 AIRCRAFT TYPE.
3. EACH UNIT SHALL HAVE FOUR OR MORE ISOLATORS AND CABLES.



PLAN



ISOLATOR DETAIL 2



EQUIPMENT SUPPORT ATTACHEMENT 3

VIBRATION ISOLATION SCHEDULE						
EQUIPMENT NUMBER	VIBRATION ISOLATOR NOTE 2	STATIC DEFLECTION (IN)	BASE TYPE NOTE 2	STEEL SIZE (IN)	SEISMIC RESTRAINT TYPE NOTE 2	REMARKS

NOTES:

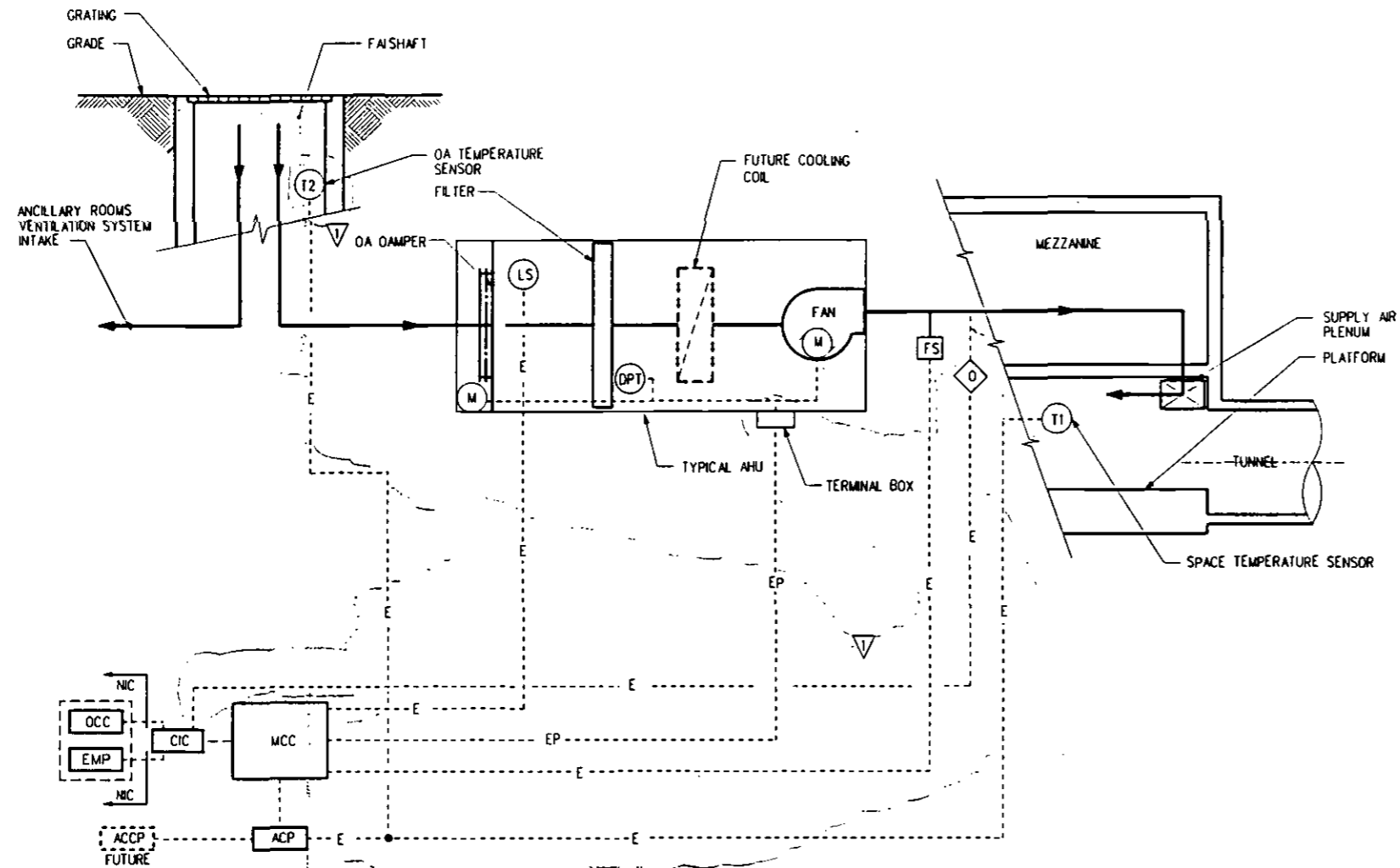
1. SECTION DESIGNER TO COMPLETE THE VIBRATION ISOLATION SCHEDULE.
2. REFER TO SPECIFICATIONS SECTION 15242-VIBRATION ISOLATION DEVICES FOR VIBRATION ISOLATOR TYPES, BASE TYPES AND SEISMIC RESTRAINT TYPES.

REV	DATE	BY	SUB	APP	DESCRIPTION

DESIGNED BY EMC	LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY ENGINEERING MANAGEMENT CONSULTANT <small>Professional: William G. Clarke & Douglas, Inc. Daniel Mann Johnson & Mendenhall; CF-Group Engineers, Inc. & Corp. Equipment Engineering Associates; James Cole, Inc.; The Engineering Group, Inc.</small>
DRAWN BY J. IONESCU	
CHECKED BY B. REAL	
IN CHARGE E. BENCZE	
DATE 12 APR 94	

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY ENGINEERING MANAGEMENT CONSULTANT	
SUBMITTED	EVA BENCZE
APPROVED	K. N. MURTHY

MECHANICAL DIRECTIVE EQUIPMENT SUPPORT DETAILS		
CONTRACT NO		
DRAWING NO	MD-020	REV 1
SCALE	NO SCALE	
SHEET NO		



STATION VENTILATION CONTROL DIAGRAM

ONE AHU SHOWN, OTHERS SIMILAR

LEGEND:

- OCC OPERATIONS CONTROL CENTER
- EMP EMERGENCY MANAGEMENT PANEL
- ACP AUXILIARY CONTROL PANEL
- ACCP AIR CONDITIONING CONTROL PANEL
- (M) MOTOR
- (T1) SENSOR FOR STATION TEMPERATURE
- (T2) SENSOR FOR OA TEMPERATURE
- (DFI) DIRTY FILTER INDICATOR
- (DPT) DIFFERENTIAL PRESSURE TRANSMITTER
- (M) DAMPER OPERATOR

FOR OTHER SYMBOLS AND ABBREVIATIONS SEE DWG MS-001

SEQUENCE OF OPERATION

GENERAL

- AHU ARE PART OF THE EMERGENCY GAS AND SEISMIC OPERATION PROCEDURES. WHEN IN THE REMOTE MODE OF OPERATION, EACH AHU CAN BE STARTED AND STOPPED INDIVIDUALLY FROM OCC AND EMP. (CONTROL FROM OCC AND EMP VIA CIC.)
- IN REMOTE MODE OF OPERATION, INDIVIDUAL AHU CAN BE STOPPED FROM EMP OR OCC VIA CIC IN RESPONSE TO A FIRE OR SMOKE ALARM.
- START AN AHU THROUGH A LIMIT SWITCH ON THE OA DAMPER OF THAT AHU. OPEN THE DAMPER BEFORE ITS AHU IS STARTED. CLOSE OA DAMPER WHEN ITS AHU IS STOPPED. DE-ENERGIZED POSITION OF OA DAMPERS IS CLOSED.

AUTOMATIC OPERATION

- AHU ARE NORMALLY OPERATED IN AUTOMATIC MODE. THE TWO AHU AT ONE END OF THE STATION OPERATE AS A GROUP SEPARATE FROM THE TWO AHU AT THE OTHER END OF THE STATION. A TEMPERATURE SENSOR SYSTEM (T1 AND T2) AT ONE END OF THE STATION CONTROLS BOTH AHU AT THAT END OF THE STATION ONLY. A SEPARATE TEMPERATURE SENSOR SYSTEM (T1 AND T2) AT THE OTHER END OF THAT STATION CONTROLS THE BOTH AHUS AT THAT END OF THE STATION ONLY.
- FOR SEQUENCE OF OPERATION, SEE THE TABLE BELOW:

	SPACE TEMP T-1 °F	OUTSIDE AIR TEMP T-2 °F	AHU GROUP
SPACE TEMP T-1 RISING	T-1 < 74		OFF
	T-1 ≥ 74	T-2 < T-1	ON
SPACE TEMP T-1 DROPPING	T-1 ≥ 74	T-2 > T-1	OFF
	T-1 > 70	T-2 < T-1	ON
	T-1 > 70	T-2 > T-1	OFF
	T-1 ≤ 70		OFF

MANUAL OPERATION

- AHU CAN BE MANUALLY STARTED AND STOPPED FROM THE ACP. WHEN STARTED MANUALLY, AHU RUN CONTINUOUSLY.

MONITORING

COMPONENT	INDICATION IN				
		OCC	MCC	ACP	EMP
OSA DAMPER OPEN/CLOSE		NO	NO	YES	NO
DIRTY FILTER ALARM (NOTE 6)		NO	YES	YES	NO
FLOW SWITCH POSITION (FAN STATUS) (NOTE 6A)		YES	YES	YES	YES
STATION HIGH TEMPERATURE OVER 105°F		YES	NO	YES	NO

NOTES:

- PROVIDE NUMBER OF OPERATORS ON EACH DAMPER AS REQUIRED FOR PROPER DAMPER ACTION. CONNECT OPERATORS IN PARALLEL AND WIRE TO TERMINAL BOX.
- FOR ELEMENTARY DIAGRAM SEE ELECTRICAL DRAWING ED-246. (DESIGNER TO FILL IN DRAWING NO.)
- STATION TEMPERATURE SENSOR T1 SHALL BE LOCATED APPROXIMATELY 7 FT ABOVE FINISHED FLOOR ON A COLUMN OR AT AN ACCEPTED LOCATION NEAR THE END OF THE PLATFORM.
- DESIGNER FILL IN PERTINENT INFORMATION (SUCH AS EQUIPMENT NUMBERS AND WHICH AHU CONTROLLED) AND IDENTIFY EQUIPMENT FURNISHED AND /OR INSTALLED BY OTHERS.
- DESIGNER PROVIDE UNIQUE IDENTIFICATION FOR TEMPERATURE SENSORS AT EACH END OF THE STATION.
- FLOW SWITCH AND DIRTY FILTER ALARM INDICATION MAY BE COMBINED AT MCC AND ACP.

REV	DATE	BY	SUB	APP	DESCRIPTION
0	07/28/95	DSS	EB	GMC	REV. PER DE305-SBCN-10-00
					REV & REDRAWN PER DCN 93-63

DESIGNED BY EMC
DRAWN BY R. SOLIS
CHECKED BY B. REAL
BY CHANGE E. BENCZE
DATE 12 APR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

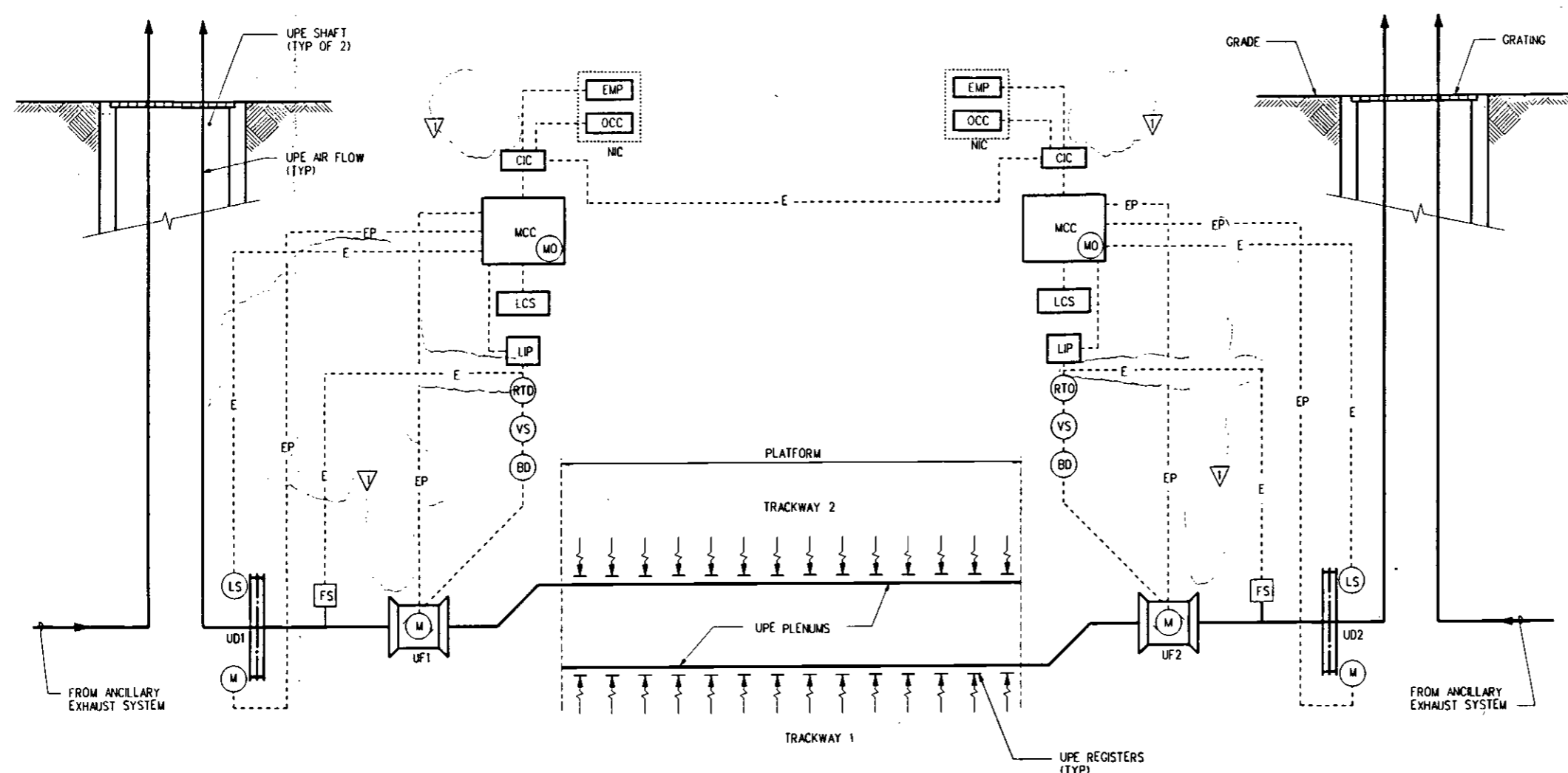
ENGINEERING MANAGEMENT CONSULTANT

Submitted: EVA BENCZE

Approved: K. N. MURTHY

MECHANICAL DIRECTIVE
STATION VENTILATION
SCHEMATIC CONTROL DIAGRAM

CONTRACT NO.	
DRAWING NO.	MD-023
REV	1
SCALE	NO SCALE
SHEET NO.	



TYPICAL UPE CONTROL DIAGRAM

LEGEND:

- LCS LOCAL CONTROL STATION
- UD UPE FAN DAMPER
- UF UPE FAN
- UPE UNDERPLATFORM EXHAUST
- LIP LOCAL INSTRUMENT PANEL
- (MO) MOTOR OVERLOAD
- (RTD) MOTOR WINDING TEMPERATURE
- (BD) BEARING DETECTOR (TEMPERATURE)
- (VS) VIBRATION SWITCH

FOR OTHER SYMBOLS AND ABBREVIATIONS SEE OWC MS-001 AND MO-023

NOTES:

1. PROVIDE NUMBER OF OPERATOR ON FAN DAMPERS AS REQUIRED FOR PROPER DAMPER ACTION. CONNECT ALL IN PARALLEL, AND WIRE TO A COMMON TERMINAL BOX.
2. FOR ELEMENTARY DIAGRAMS SEE ELECTRICAL DRAWINGS, ED-245. (DESIGNER PROVIDE OWC NO.)
3. DESIGNER WILL FILL IN PERTINENT INFORMATION SUCH AS EQUIPMENT NUMBERS AND WILL IDENTIFY EQUIPMENT FURNISHED AND INSTALLED BY OTHERS.
4. DESIGNER ENSURE THAT FAN AND DAMPER IDENTIFIERS ARE CONSISTENT AMONG THE ELECTRICAL, MECHANICAL AND SYSTEMWIDE PROCUREMENT DOCUMENTS.
5. DESIGNER COORDINATE INSTALLATION, MAINTENANCE, REMOVAL, AND REPLACEMENT ACCESSIBILITY REQUIREMENTS. PROVIDE EQUIPMENT ACCESS WAYS, LIFTING EYES AND OTHER NEEDED FEATURES.

SEQUENCE OF OPERATION

GENERAL

1. THE PRIMARY FUNCTION OF UPE FANS IS TO REMOVE HEAT GENERATED BY THE UNDERCAR EQUIPMENT OF TRAINS. UPE FANS ARE PART OF THE EMERGENCY OPERATION PROCEDURES (FIRE, SMOKE, GAS AND SEISMIC). UPE FANS MAYBE USED TO PROVIDE VENTILATION IN THE STATION AND ADJACENT TUNNELS DURING NON-REVENUE HOURS.
2. WHEN IN THE REMOTE MODE OF OPERATION, EACH UPE FAN CAN BE STARTED AND STOPPED INDIVIDUALLY FROM THE OCC AND EMP. (CONTROL FROM OCC AND EMP VIA CIC.) IN REMOTE MODE OF OPERATION, AN INDIVIDUAL UPE FAN CAN BE STOPPED FROM EMP OR OCC VIA CIC IN RESPONSE TO A FIRE OR SMOKE ALARM.
3. IN LOCAL MODE OF OPERATION, UPE FAN CAN BE STARTED AND STOPPED INDIVIDUALLY FROM MCC AND LCS.

NORMAL OPERATION

1. CURRENTLY, THE UPE FANS ARE NORMALLY ACTUATED FROM OCC VIA CIC. ONCE STARTED, UPE FANS RUN CONTINUOUSLY UNTIL SHUT DOWN BY OCC. PROCEDURES TO BE DEVELOPED BY THE AUTHORITY WILL ESTABLISH THE DURATION AND FREQUENCY OF FAN OPERATION.
2. IN THE FUTURE, UPE FAN OPERATION MAY INCLUDE AUTOMATED BLADE-PITCH CONTROL OR OTHER VARIABLE-VOLUME FEATURE THAT IS ACTUATED VIA COMMAND SIGNALS FROM THE AUTOMATIC TRAIN CONTROL OR ANOTHER REMOTE SYSTEM.

EMERGENCY OPERATION:

IN CASE OF FIRE, SMOKE, GAS, OR SEISMIC EVENT, UPE FANS BEING OPERATED IN AUTOMATIC MODE ARE CONTROLLED FROM OCC VIA CIC BY A COMPUTERIZED PREPROGRAMMED OPERATION SCENARIO. THE SCENARIO CAN BE OVERRIDDEN BY MANUAL OPERATION FROM THE OCC, EMP, LCS, OR MCC. (ALSO, SEE "GENERAL" ABOVE.)

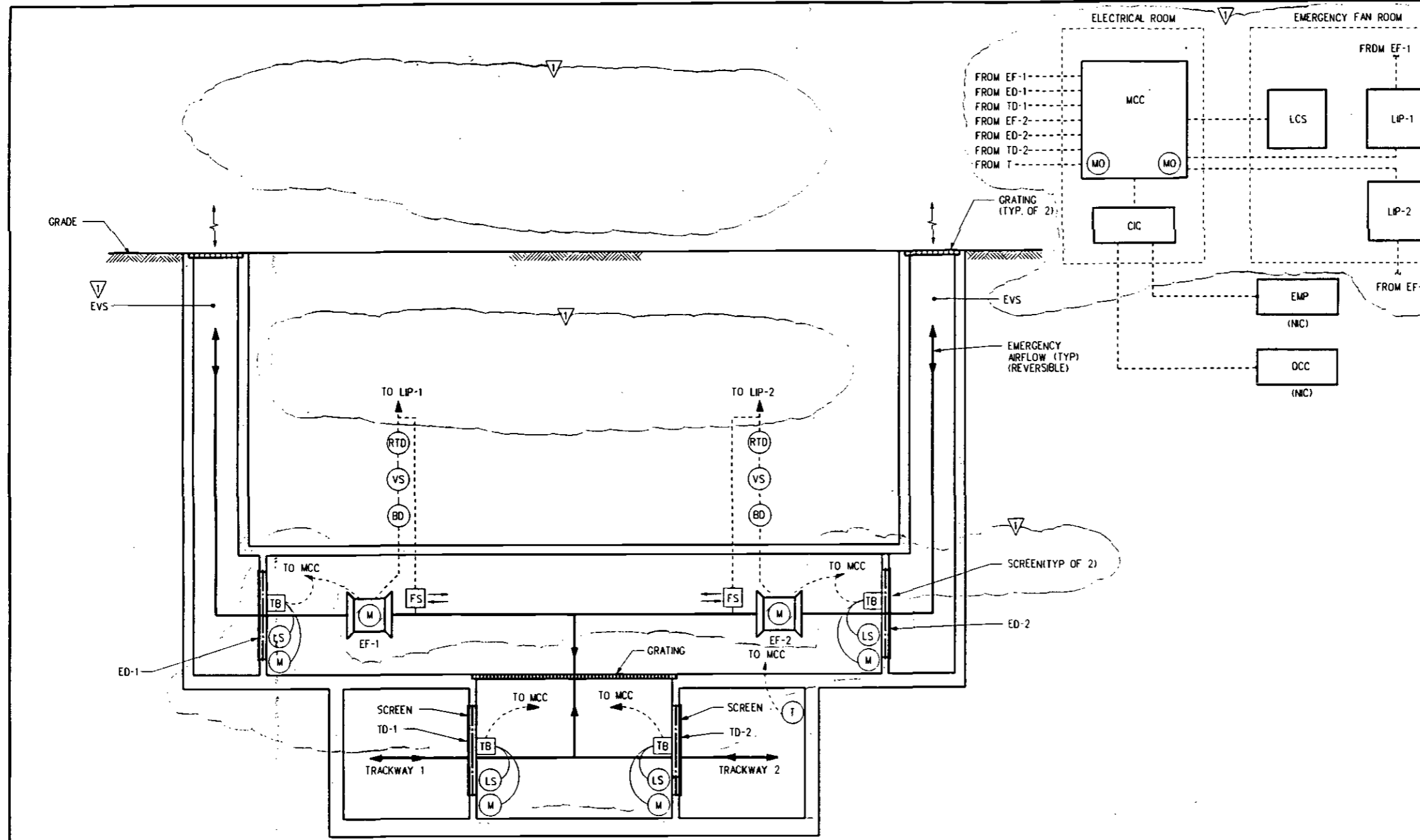
LOCAL OPERATION:

1. EACH UPE FAN CAN BE MANUALLY STARTED AND STOPPED FROM ITS LCS. WHEN STARTED MANUALLY, THE FAN RUNS CONTINUOUSLY UNTIL SHUT DOWN FROM THE LCS.
2. FOR TEST PURPOSES, EACH UPE FAN CAN BE STARTED FROM ITS MCC. PROCEDURES TO BE DEVELOPED BY THE AUTHORITY WILL ESTABLISH THE DURATION OF A TEST START. WHEN STARTED FROM THE MCC, THE FAN CAN BE STOPPED FROM THE MCC.
3. FAN BLADE PITCH CAN BE ADJUSTED MANUALLY. SEE FAN SPECIFICATION.

MONITORING:

COMPONENT	INDICATION IN				
	OCC	MCC	LCS	EMP	LIP
UD1, UD2 OPEN/CLOSED	NO	YES	YES	NO	NO
FAN MOTOR WINDING HIGH TEMPERATURE	NO	NO	NO	NO	YES
EXCESSIVE FAN VIBRATION	NO	NO	NO	NO	NO
EXCESSIVE CURRENT DEMAND(MO)	YES	YES	NO	NO	NO
MOTOR BEARING DETECTOR	NO	NO	NO	NO	NO
TROUBLE STATUS SIGNAL	YES	YES	YES	YES	NO
FLOW SWITCH POSITION (FAN STATUS)	YES	YES	YES	YES	YES

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY				MECHANICAL DIRECTIVE UPE FAN SCHEMATIC CONTROL DIAGRAM		CONTRACT NO. DRAWING NO. MD-024 REV 1 SCALE NO SCALE SHEET NO.
ENGINEERING MANAGEMENT CONSULTANT <small>Professional Engineers & Surveyors Daniel Mann Johnson & Mendenhall Civil Engineers (California) Corp. Excelsior-Fidelity Architects James C. Gentry Architects, Inc. The Westinghouse Group, Inc.</small>				SUBMITTED EVA BENCZE APPROVED K. N. MURTHY		
DESIGNED BY EMC DRAWN BY R. SOLIS CHECKED BY B. REAL IN CHARGE E. BENCZE DATE 12 APR 94				REV. PER 06.305-SBCN-10.00 REV & REORAWN PER DCN 92-3		
REV	DATE	BY	SUB	APP	DESCRIPTION	



TYPICAL STATION EMERGENCY VENTILATION SHAFT
TYPICAL FOR BOTH END OF STATION

LEGEND:

TB TERMINAL BOX
FOR OTHER SYMBOLS AND ABBREVIATIONS, SEE MS-001, MO-002, MO-023, AND MD-024.

NOTES:

1. PROVIDE NUMBER OF DAMPER OPERATORS ON EACH DAMPER AS REQUIRED FOR PROPER DAMPER ACTION. CONNECT OPERATORS IN PARALLEL, AND BRING WIRING TO A COMMON TERMINAL BOX ON EACH DAMPER.
2. FOR ELEMENTARY DIAGRAMS SEE ELECTRICAL DRAWINGS ED-247 AND ED-248 (DESIGNER TO PROVIDE DWG. NO.).
3. ELECTRICAL CONTROLS SHALL INCLUDE TIMERS TO PREVENT REVERSING OF ROTATION OF FAN FOR PERIOD OF 60 SECONDS, AND SET AT 20 SECONDS.
4. LOCATE TUNNEL THERMOSTAT ON TUNNEL SIDE OF EVS SHAFT (AWAY FROM STATION) AND APPROXIMATELY 7 FT ABOVE THE SAFETY WALKWAY.
5. PROVIDE DAMPER ACTUATED LIMIT SWITCHES (2) ON EACH SECTION OF EACH DAMPER FOR POSITIVE INDICATION OF FULL OPEN OR FULL CLOSED POSITION. CONNECT LIMIT SWITCHES IN SERIES TO PROVIDE SINGLE INDICATION FOR EACH POSITION OF THE DAMPER ASSEMBLY.
6. DAMPER SHALL RETURN TO FAIL SAFE POSITION 15 SECONDS AFTER BEING DE-ENERGIZED.
7. DESIGNER WILL FILL IN PERTINENT INFORMATION SUCH AS EQUIPMENT NUMBERS, AND WILL IDENTIFY EQUIPMENT FURNISHED AND INSTALLED BY OTHERS.
8. COINCIDING OCCURRENCE OF MOTOR OVERLOAD AND LOSS OF AIR FLOW FOR 10 SECONDS SHALL SHUTDOWN THE INCIDENT EMERGENCY FAN. NEITHER LOSS OF AIR ALONE NOR MOTOR OVERLOAD ALONE SHALL SHUTDOWN A FAN AFTER FLOW IS ESTABLISHED.
9. DESIGNER ENSURE THAT FAN AND DAMPER IDENTIFIERS ARE CONSISTENT AMONG THE ELECTRICAL, MECHANICAL AND SYSTEMWIDE PROCUREMENT DOCUMENTS.
10. DESIGNER COORDINATE INSTALLATION, MAINTENANCE, REMOVAL, AND REPLACEMENT ACCESSIBILITY REQUIREMENTS, PROVIDE EQUIPMENT ACCESS WAYS, LIFTING EYES AND OTHER NEEDED FEATURES.

SEQUENCE OF OPERATION
GENERAL

WITH FANS OFF, FAN DAMPERS (ED) ARE CLOSED (AND TRACK DAMPERS (TD) ARE OPEN. STARTING OF FANS IN EITHER MODE (EXHAUST OR SUPPLY) SHALL OPEN FAN DAMPERS (ED) POSITION. TRACK DAMPERS TO DIRECT THE FLOW OF AIR TO OR FROM THE TRACK IN WHICH AN EMERGENCY PREVAILS. THE TRACK DAMPER TO THE OTHER TRACK WILL BE CLOSED IN SUCH AN EMERGENCY. FOR FAN AND DAMPER OPERATION, SEE TABLE BELOW:

OPERATION	FAN/DAMPER	OPERATION/POSITION	POWER
NORMAL (ALL FANS OFF)	EF1, EF2 ED1, ED2 TD1, TD2	OFF CLOSED OPEN	OFF ON OFF
EMERGENCY (ALL FANS ON)	EF1, EF2 ED1, ED2 TD1, TD2	ON OPEN OPEN/CLOSE*	ON OFF OFF/ON
FAIL SAFE	EF1, EF2 ED1, ED2 TD1, TD2	OFF OPEN OPEN	OFF OFF OFF

* DEPENDS ON LOCAL EMERGENCY CONDITIONS

EMERGENCY OPERATION

FOR FIRE EMERGENCIES, FANS AND DAMPERS ARE ACTUATED IN THE CORRECT MODE BY PREPROGRAMMED EMERGENCY OPERATIONS PROCEDURES FROM OCC VIC. C.C. FANS CAN BE STARTED MANUALLY AND STOPPED INDIVIDUALLY IN EITHER MODE FROM OCC, MCC OR EMP FOR OTHER EMERGENCIES.

TEST AND MAINTENANCE

FANS CAN BE OPERATED FROM LCS. DAMPERS CAN BE MANUALLY OPERATED FROM MCC AND LCS.

MONITORING

FAN/DAMPER	OPERATION/POSITION	INDICATION IN				
		OCC	MCC	LCS	EMP	LIP
EF1, EF2	RUN-EXHAUST	YES	YES	YES	YES	NO
	RUN-SUPPLY	YES	YES	YES	YES	NO
ED1, ED2	OPEN/CLOSED	YES	NO	YES	NO	NO
	OPEN/CLOSED	YES	NO	YES	YES	NO
SUBWAY LINE SECTION HIGH TEMP OVER 105°F		YES	NO	NO	NO	NO
FAN MOTOR WINDING HIGH TEMPERATURE		YES	NO	NO	NO	YES
EXCESSIVE FAN VIBRATION		YES	NO	NO	NO	NO
EXCESSIVE CURRENT DEMAND (MO)		NO	YES	NO	NO	NO
TROUBLE STATUS SIGNAL		YES	YES	YES	YES	NO
FLOW SWITCH POSITION		YES	NO	NO	YES	NO
MOTOR BEARING DETECTOR		YES	NO	NO	NO	NO

REV	DATE	BY	SUB	APP	DESCRIPTION
0	12.28.95	JR	EB	GMC	REV. PER DE305-SBCN-10.00
1	04.12.96	JR	EB	GMC	REV & REDRAWN PER DCN 92-3 AND 93-33

DESIGNED BY EMC
DRAWN BY R. SOLIS
CHECKED BY B. REAL
IN CHARGE E. BENCZE
DATE 12 APR 94

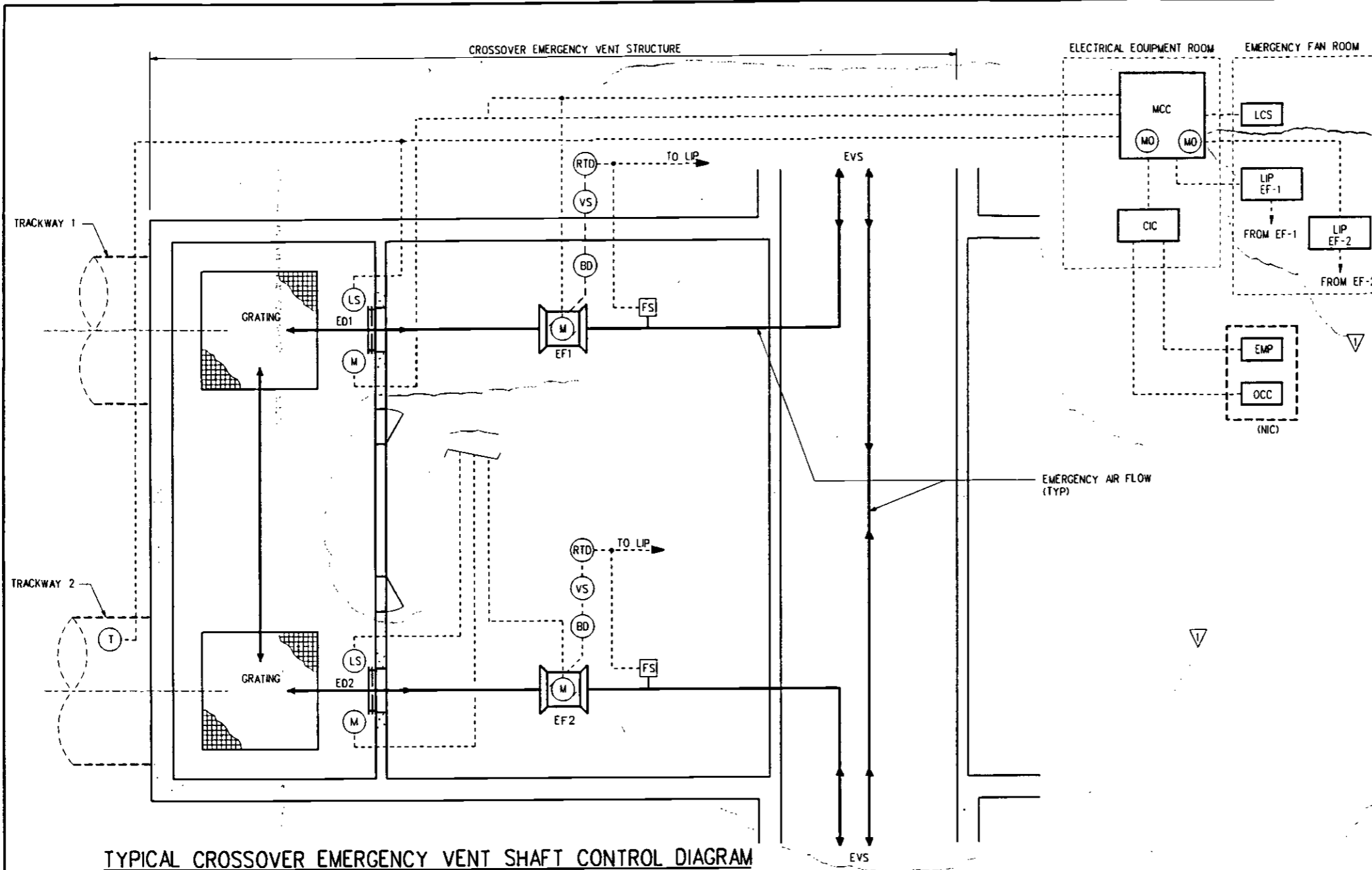
LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT
an association of
Parsons Brinckerhoff Quade & Douglas, Inc.
Dames & Moore
Carter Burgess
Eckstut & Associates
James C. Beckwith & Associates
The Hillier Group, Inc.

SUBMITTED EVA BENCZE
APPROVED K. N. MURPHY

MECHANICAL DIRECTIVE
STATION EMERGENCY FANS
SCHEMATIC CONTROL DIAGRAM

CONTRACT NO.
DRAWING NO. MD-025
SCALE NO SCALE
SHEET NO. 1



TYPICAL CROSSOVER EMERGENCY VENT SHAFT CONTROL DIAGRAM

NOTES:

1. PROVIDE NUMBER OF DAMPER OPERATORS AS REQUIRED FOR PROPER DAMPER ACTION. CONNECT OPERATORS IN PARALLEL AND BRING WIRING TO A COMMON TERMINAL BOX ON EACH DAMPER.
2. FOR ELEMENTARY WIRING DIAGRAMS SEE ELECTRICAL DRAWINGS ED-247 AND ED-248 (DESIGNER TO PROVIDE DWG. NO.).
3. ELECTRICAL CONTROLS SHALL INCLUDE TIMERS TO PREVENT REVERSING OF ROTATION OF FAN FOR PERIOD OF 60 SECONDS AND SET AT 20 SECONDS.
4. LOCATE TUNNEL THERMOSTAT IN TUNNEL, UPSTREAM OF CROSSOVER STRUCTURE BASED ON DIRECTION OF TRAIN TRAVEL, AND APPROXIMATELY 7 FT ABOVE SAFETY WALKWAY.
5. PROVIDE DAMPER ACTUATED LIMIT SWITCHES (2) ON EACH SECTION OF EACH DAMPER FOR POSITIVE INDICATION OF FULL OPEN OR FULL CLOSED POSITION SWITCHES SHALL BE CONNECTED IN SERIES TO PROVIDE SINGLE INDICATION OF POSITION OF THE DAMPER.
6. DAMPER SHALL RETURN TO "FAIL-SAFE" POSITION 15 SECONDS AFTER BEING DE-ENERGIZED.
7. DESIGNER WILL FILL IN PERTINENT INFORMATION SUCH AS EQUIPMENT NUMBERS, AND WILL IDENTIFY EQUIPMENT FURNISHED AND INSTALLED BY OTHERS.
8. COINCIDING OCCURRENCE OF MOTOR OVERLOAD AND LOSS OF AIR FLOW FOR 10 SECOND SHALL SHUT DOWN THE INCIDENT EMERGENCY FAN. NEITHER LOSS OF AIR FLOW ALONE NOR MOTOR OVERLOAD ALONE SHALL SHUT DOWN A FAN AFTER FLOW IS ESTABLISHED.
9. FOR SYMBOLS AND ABBREVIATIONS. SEE MS-001, MD-023, MD-024, AND MD-025

SEQUENCE OF OPERATION

GENERAL

WITH FANS OFF, FAN DAMPERS (ED) ARE CLOSED. STARTING OF FANS IN EITHER MODE (EXHAUST OR SUPPLY) SHALL OPEN FAN DAMPERS (ED) AUTOMATICALLY. FOR FAN AND DAMPER OPERATION SEE TABLE BELOW.

TABLE

OPERATION	FAN/DAMPER	OPERATION/POSITION	POWER
NORMAL (ALL FANS OFF)	EF1, EF2 ED1, ED2	OFF CLOSED	OFF ON
EMERGENCY (ALL FANS ON)	EF1, EF2 ED1, ED2	ON OPEN	ON OFF
FAIL SAFE OPERATION OF DAMPERS	ED1, ED2	OPEN	OFF

EMERGENCY OPERATION

FOR FIRE EMERGENCIES, FANS AND DAMPERS ARE ACTUATED IN THE CORRECT MODE BY PREPROGRAMMED EMERGENCY OPERATIONS PROCEDURES FROM OCC VIA CIC. FANS CAN BE STARTED MANUALLY, STARTED AND STOPPED INDIVIDUALLY IN EITHER MODE FROM OCC, MCC OR EMP FOR OTHER EMERGENCIES.

TEST AND MAINTENANCE

FANS CAN BE OPERATED FROM LCS. DAMPERS CAN BE MANUALLY OPERATED FROM MCC AND LCS.

MONITORING:

FAN/DAMPER	OPERATION/POSITION	INDICATION IN				
		OCC	MCC	LCS	EMP	LIP
EF1, EF2	RUN-EXHAUST	YES	YES	YES	YES	NO
	RUN-SUPPLY	YES	YES	YES	YES	NO
ED1, ED2	OPEN/CLOSED	YES	NO	YES	NO	NO
SUBWAY LINE SECTION HIGH TEMP OVER 105°F		YES	NO	NO	NO	NO
FAN MOTOR WINDING HIGH TEMPERATURE		YES	NO	NO	NO	YES
EXCESSIVE FAN VIBRATION		YES	NO	NO	NO	NO
EXCESSIVE CURRENT DEMAND (MO)		NO	YES	NO	NO	NO
TROUBLE STATUS SIGNAL		YES	YES	YES	YES	NO
FLOW SWITCH POSITION		YES	NO	NO	YES	NO
MOTOR BEARING DETECTOR		YES	NO	NO	NO	NO

DESIGNED BY EMC	DATE 12 APR 94
DRAWN BY R. SOLIS	
CHECKED BY B. REAL	
IN CHARGE E. BENCZE	
REV. PER DE 305-SBCN-10.00	
REV & REDRAWN PER DCN 92-3 AND 93-33	

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

FORNBERG BROTHERS QUINN & DONOVAN, INC.

10000 WILSON BOULEVARD, SUITE 1000, WEST GLENDALE, CA 91201

REGISTERED PROFESSIONAL ENGINEERS AND ARCHITECTS

STATE OF CALIFORNIA LICENSE NO. 10000

SUBMITTED: EVA BENCZE

APPROVED: K. N. MURTHY

MECHANICAL DIRECTIVE

CROSSOVER EMERGENCY FANS

SCHEMATIC CONTROL DIAGRAM

CONTRACT NO.

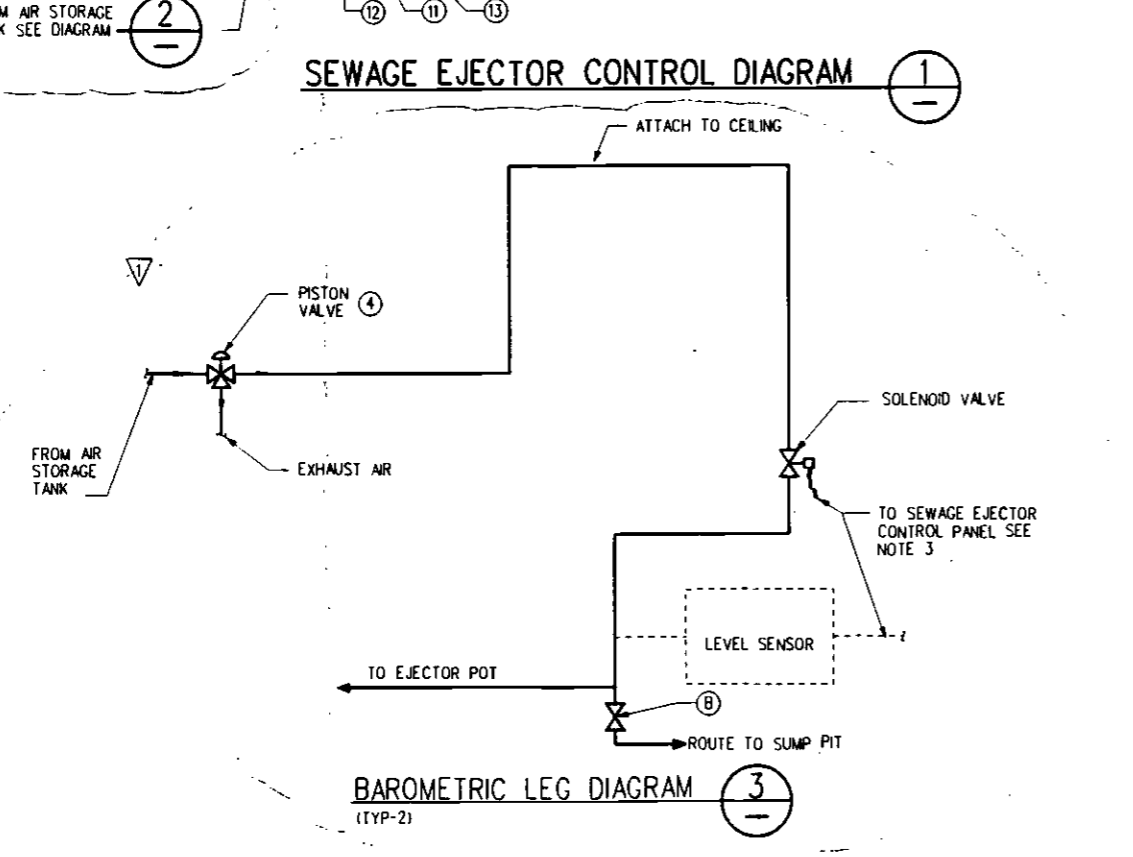
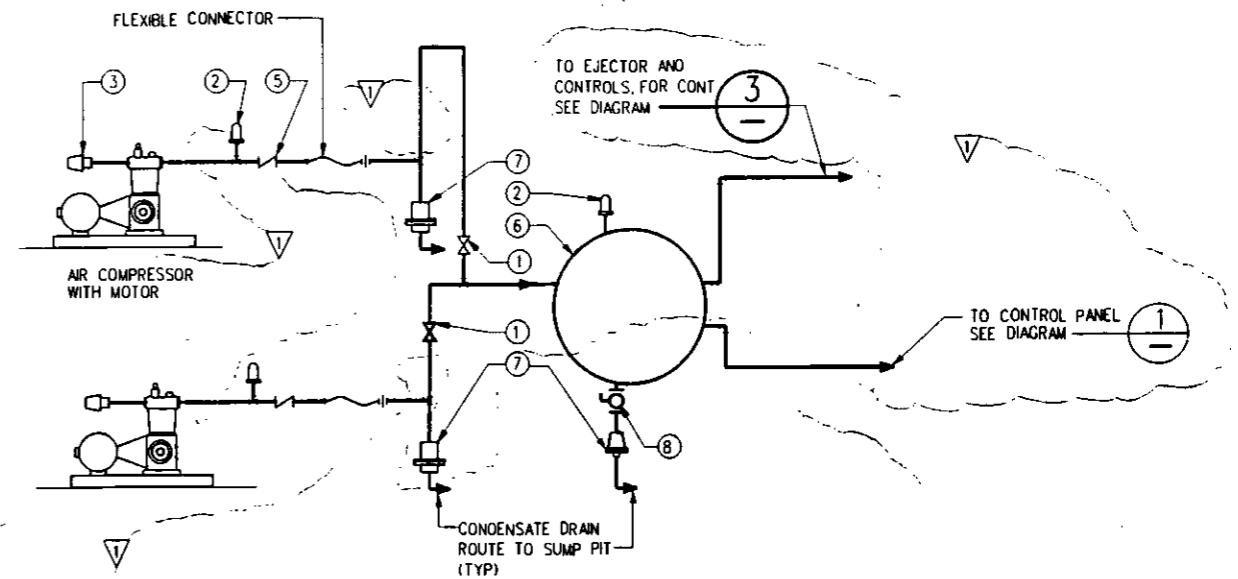
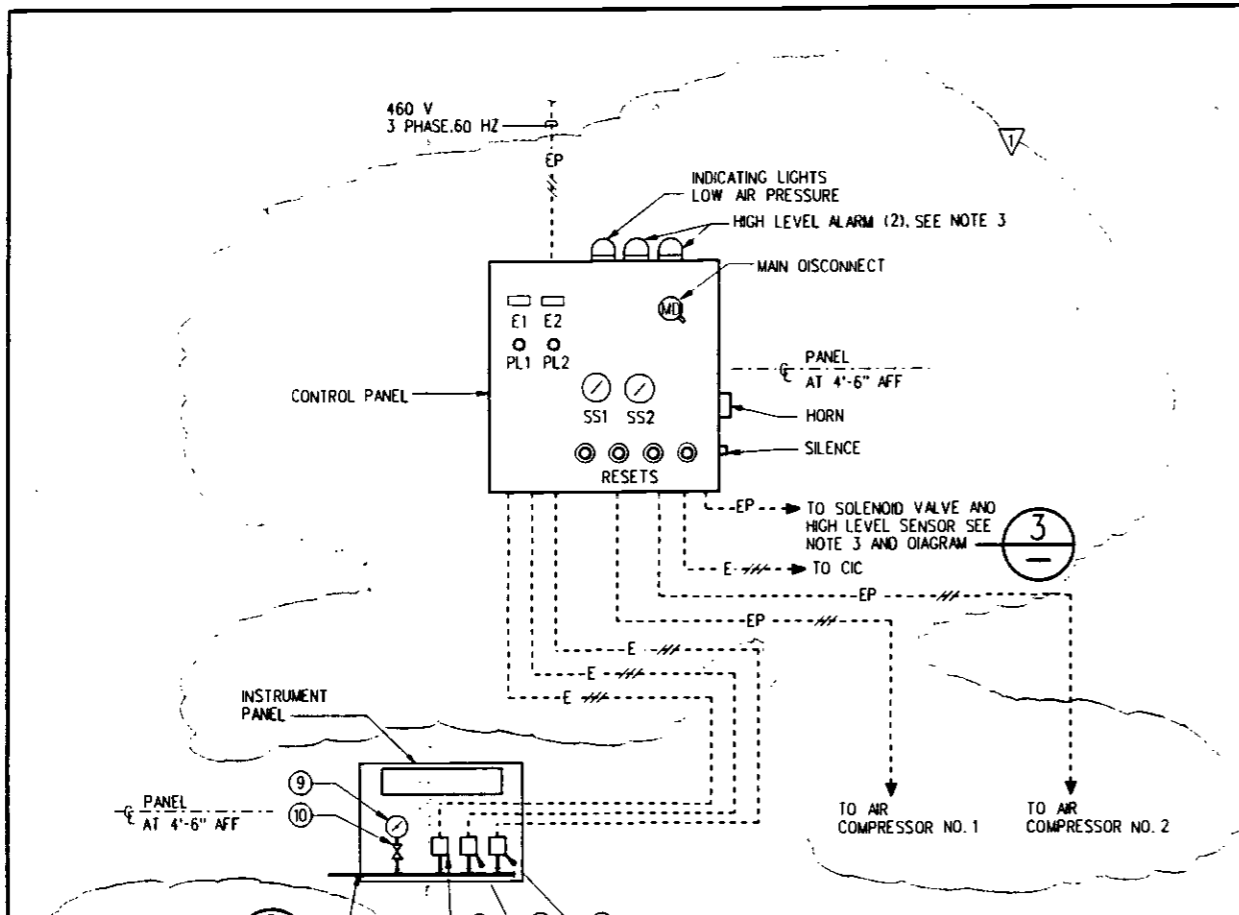
DRAWING NO. MD-026

SCALE: NO SCALE

SHEET NO.

CONTRACT NO.	
DRAWING NO.	MD-026
SCALE	NO SCALE
SHEET NO.	

DRAWN BY: R. SOLIS
 CHECKED BY: B. REAL
 IN CHARGE: E. BENCZE
 DATE: 12 APR 94



LEGEND

ITEM	DESCRIPTION	ITEM	DESCRIPTION
①	GATE VALVE	⑪	SERVICE AIR PRESSURE SWITCH
②	SAFETY VALVE	⑫	STANDBY AIR PRESSURE SWITCH
③	AIR FILTER	⑬	LOW AIR PRESSURE ALARM PRESSURE SWITCH
④	3-WAY PISTON VALVE	⑭	AUTOMATIC LIQUID DRAINER
⑤	CHECK VALVE	E1, E2	ELAPSED TIME INDICATOR
⑥	AIR STORAGE TANK WITH SADDLES	PL1, PL2	COMPRESSOR RUNNING INDICATOR LIGHT (RED)
⑦	AUTOMATIC LIQUID DRAINER	SSI, SS2	HAND/OFF/AUTO SELECTOR SWITCH
⑧	BLOW-OFF COCK		
⑨	PRESSURE GAUGE		
⑩	GAUGE COCK		

FOR OTHER SYMBOLS AND ABBREVIATIONS, SEE MS-001 AND MS-010

- NOTES:
- TYPICAL ARRANGEMENT SHOWN. ACTUAL ARRANGEMENT MAY VARY WITH SUPPLIERS.
 - LOCATE CONTROL PANEL AND PANEL FOR MECHANICAL DEVICES WITHIN SIGHT OF THE AIR COMPRESSOR, AND NEAR THEROOM ACCESS.
 - ROUTE BAROMETRIC LEG TO CEILING OF EJECTOR ROOM, IF BAROMETRIC LEG IS NOT ONE FOOT HIGHER THAN THE TOILETS, PROVIDE HIGH LEVEL SENSOR AND SOLENOID VALVE IN EACH LEG.

REV	DATE	BY	SUB	APP	DESCRIPTION
0	12.28.95	DSS	EB	GMC	REV. PER DE305-SBCN-10.00
1					REV & REDRAWN PER OCN 93-47

DESIGNED BY EMC
DRAWN BY J. IONESCU
CHECKED BY B. REAL
IN CHARGE E. BENCZE
DATE 12 APR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

FOR THE TRANSPORTATION DIVISION

FOR THE TRANSPORTATION DIVISION

FOR THE TRANSPORTATION DIVISION

SUBMITTED EVA BENCZE

APPROVED K. N. MURPHY

MECHANICAL DIRECTIVE
SEWAGE EJECTOR DETAILS

CONTRACT NO.

DRAWING NO. MD-029

REV 1

SCALE NO SCALE

SHEET NO.

23 FEB 1996 08:35 / c:\p001\mca\cme\mca\rev\md029.dwg
 PLOTTED BY: csp00142



VOLUME V
DIRECTIVE DRAWINGS
ARCHITECTURAL

**MTA BASELINE DOCUMENT
NO. R92-DE305.05**



BASELINE STATUS REPORT: DIRECTIVE/STANDARD DRAWINGS

DRAWING NO.	REV.	DATE MODIFIED	DRAWING TITLE / Change Title	REMARKS
R92-DE305-05 DIRECTIVE DRAWINGS: ARCHITECTURAL				
AD-000	0	06/20/94	INDEX OF DRAWINGS Baseline issue	
AD-001	0	06/20/94	PLATFORM STATION PLANS Baseline issue	
AD-002	0	06/20/94	END MEZZANINE STATION PLAN AND SECTION Baseline issue	
AD-003	0	06/20/94	CENTER MEZZANINE STATION PLAN AND SECTION Baseline issue	
AD-004	0	06/20/94	END ENTRANCE MEZZANINE STATION PLAN AND ELEVATION Baseline issue	
AD-005	0	06/20/94	STATION SECTIONS Baseline issue	
AD-006	0	06/20/94	STATION MEZZANINE TO PLATFORM ESCALATOR AND STAIR ELEVATIONS AND SECTIONS Baseline issue	
AD-007	0	06/20/94	STATION MEZZANINE TO PLATFORM ESCALATOR AND STAIR PLAN AND PARTIAL ELEVATION Baseline issue	
AD-008	0	06/20/94	STATION ENTRANCE STAIR AND ESCALATOR PLANS Baseline issue	
AD-009	0	06/20/94	STREET TO MEZZANINE ESCALATOR AND STAIR SECTIONS Baseline issue	
AD-010	0	06/20/94	PLATFORM STATION PLAN SHEET 1 OF 2 Baseline issue	
AD-011	0	06/20/94	PLATFORM STATION PLANS SHEET 2 OF 2 Baseline issue	
AD-012	0	06/20/94	STATION STAIR AND END OF PLATFORM PLANS Baseline issue	
AD-013	0	06/20/94	PLATFORM STATION PLANS SIGNING AND EDGE LIGHT Baseline issue	
AD-014	0	06/20/94	ELEVATOR DETAIL GRAPHICS SHEET 1 OF 2 Baseline issue	
AD-015	0	06/20/94	ELEVATOR DETAIL GRAPHICS SHEET 2 OF 2 Baseline issue	
AD-016	0	06/20/94	PLATFORM CONFIGURATIONS Baseline issue	
AD-017	0	06/20/94	KNOCKOUT PANEL DETAILS Baseline issue	
AD-018	0	06/20/94	ANCILLARY ROOM LAYOUTS AND ADVERTISING PANEL Baseline issue	

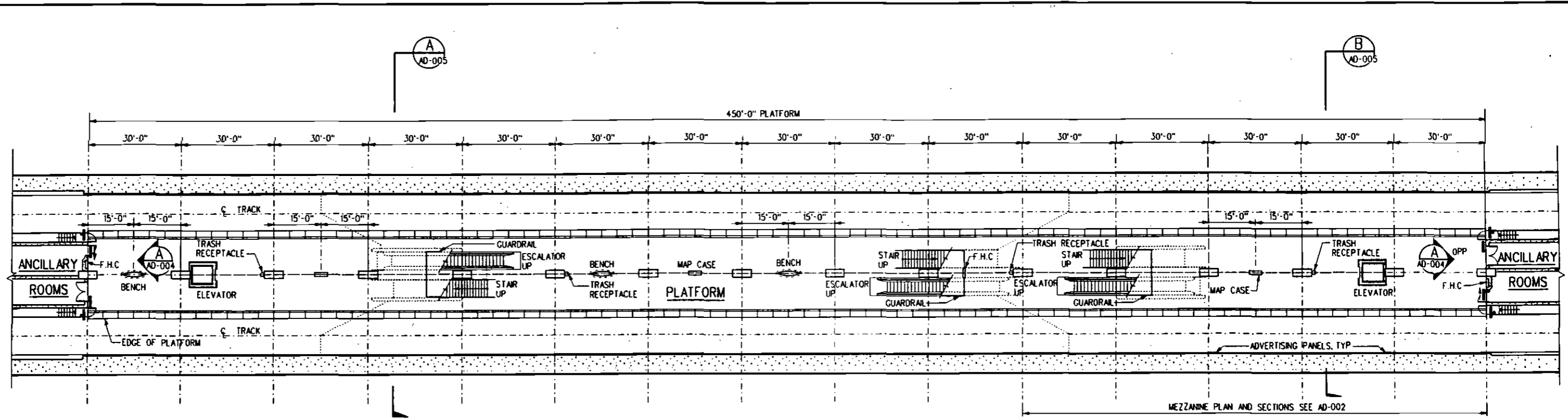
SHEET NUMBER	DRAWING NUMBER	DRAWING TITLE	ABOVE-GROUND STATION	UNDER-GROUND STATION
		COVER SHEET		
1	AD-000	INDEX OF DRAWINGS		
2	AD-001	PLATFORM STATION PLANS		X
3	AD-002	END MEZZANINE STATION PLAN AND SECTION		X
4	AD-003	CENTER MEZZANINE STATION PLAN AND SECTION		X
5	AD-004	END ENTRANCE MEZZANINE STATION PLAN AND ELEVATION		X
6	AD-005	STATION SECTIONS		X
7	AD-006	STATION MEZZANINE TO PLATFORM ESCALATOR AND STAIR ELEVATIONS AND SECTIONS	X	X
8	AD-007	STATION MEZZANINE TO PLATFORM ESCALATOR AND STAIR PLAN AND PARTIAL ELEVATION	X	X
9	AD-008	STATION ENTRANCE STAIR AND ESCALATOR PLANS		X
10	AD-009	STREET TO MEZZANINE ESCALATOR AND STAIR SECTIONS		X
11	AD-010	PLATFORM STATION PLAN SHEET 1 OF 2	X	
12	AD-011	PLATFORM STATION PLANS SHEET 2 OF 2	X	
13	AD-012	STATION STAIR AND END OF PLATFORM PLANS	X	
14	AD-013	PLATFORM STATION PLANS SIGNING AND EDGE LIGHT		X
15	AD-014	ELEVATOR DETAL GRAPHICS SHEET 1 OF 2	X	X
16	AD-015	ELEVATOR DETAL GRAPHICS SHEET 2 OF 2	X	X
17	AD-016	PLATFORM CONFIGURATIONS	X	
18	AD-017	KNOCKOUT PANEL DETAILS		X
19	AD-018	ANCILLARY ROOM LAYOUTS AND ADVERTISING PANEL		X

GENERAL NOTE :

THESE DIRECTIVE DRAWINGS ARE TO BE USED IN COMBINATION WITH THE ARCHITECTURAL CRITERIA SECTION 6 AND ARCHITECTURAL STANDARD DRAWINGS.

										DESIGNED BY J. HEGEDE	 LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY		ARCHITECTURAL DIRECTIVE INDEX OF DRAWINGS		CONTRACT NO.		
										DRAWN BY C. YU					DRAWING NO AD-000		REV 0
										CHECKED BY I. ROQUE	 ENGINEERING MANAGEMENT CONSULTANT <small>Partners: BermanKaufman & Shippin, Inc. Daniel, Mann, Johnson & Mendenhall CF-Group Engineers, CAE & Co. Construction Industry Association Andrew, Cole, Williams, Inc. The McGraw-Hill Group, Inc.</small>		SUBMITTED <i>[Signature]</i> APPROVED <i>[Signature]</i>		SCALE NO SCALE		
										IN CHARGE R. DELAHOUSIE					SHEET NO 1		
REV	DATE	BY	SUB	APP	DESCRIPTION	REV	DATE	BY	SUB	APP	DESCRIPTION	DATE 20 JUN 94					
						0	6.20.94				BASELINE ISSUE						

20 JUN 1994 11:25 / PRINTED BY: C:\PLOT\PRINT\PRINT.PLS



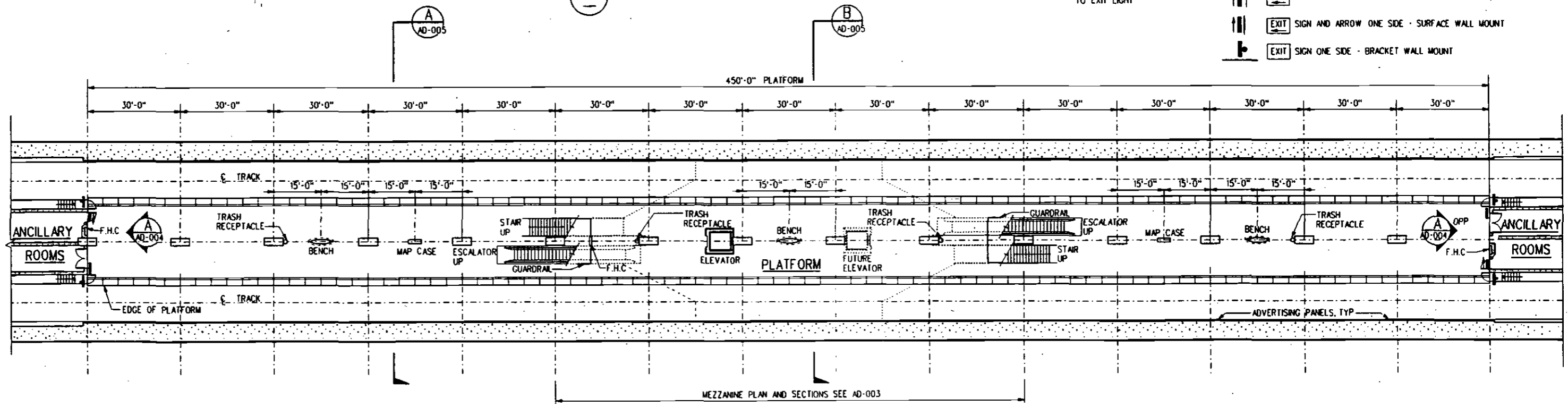
PLATFORM PLAN - DOUBLE END LOADED MEZZANINE STATION

CRITERIA : THESE PLANS SHOW TYPICAL CONDITIONS AT A DOUBLE END LOADED MEZZANINE AND CENTER MEZZANINE. SINGLE END MEZZANINES ARE ADJUSTED FROM THE ELEMENTS SHOWN ON THESE PLANS.

EXIT LIGHT LEGEND :

- EXIT SIGN ONE SIDE - SURFACE WALL MOUNT
- EXIT SIGN AND ARROW BOTH SIDES - BRACKET WALL MOUNT
- EXIT SIGN AND ARROW ONE SIDE - SURFACE WALL MOUNT
- EXIT SIGN ONE SIDE - BRACKET WALL MOUNT

Ceiling light fixtures or beams shall not block vision to exit light.



PLATFORM PLAN - CENTER MEZZANINE STATION

REV	DATE	BY	SUB	APP	DESCRIPTION
0	6.20.94				BASELINE ISSUE

DESIGNED BY
J. HEGEDE
DRAWN BY
Y. O. ZHANG
CHECKED BY
I. ROQUE
IN CHARGE
R. DELAHOUSIE
DATE
20 JUN 94

M LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

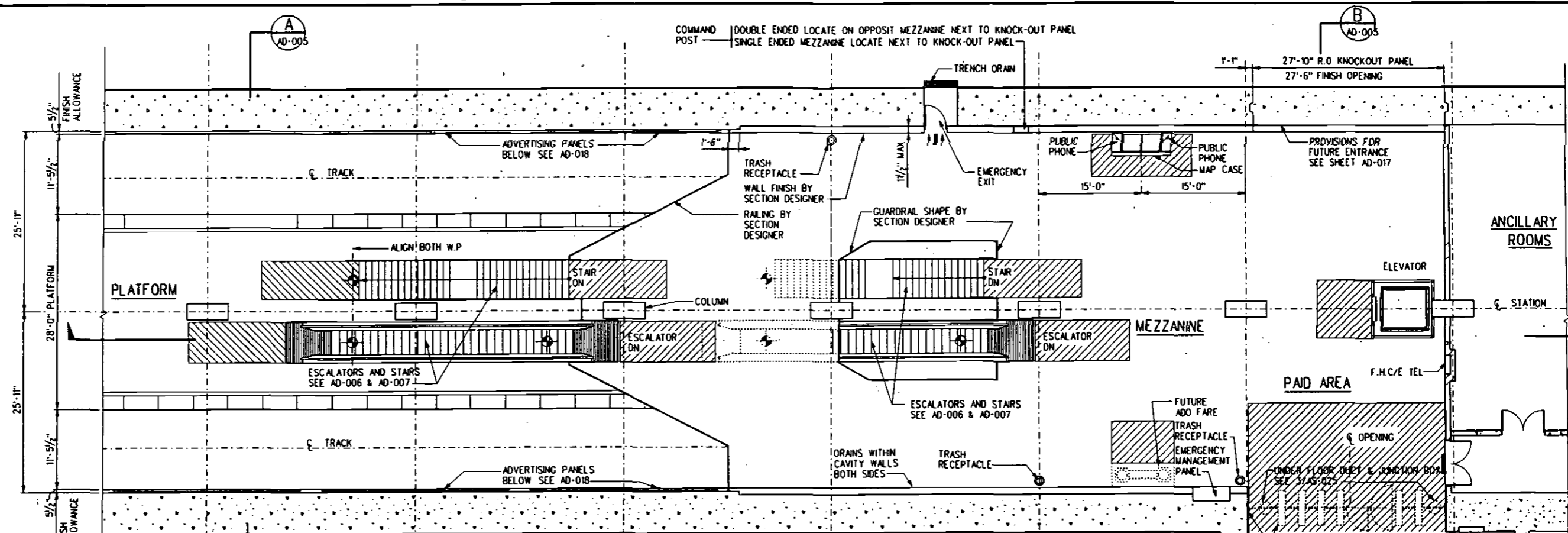
ENGINEERING MANAGEMENT CONSULTANT

SUBMITTED: *[Signature]*

APPROVED: *[Signature]*

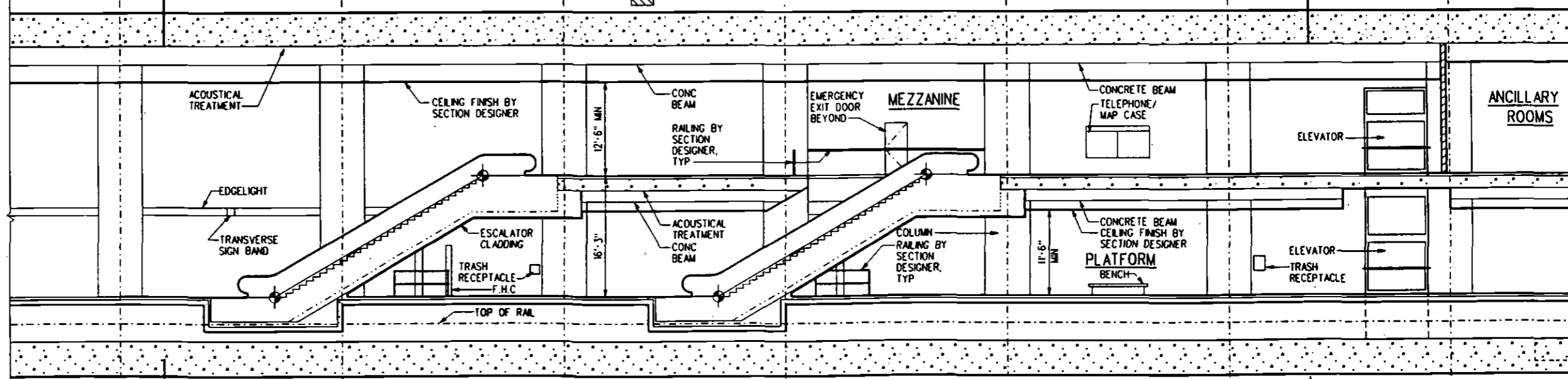
ARCHITECTURAL DIRECTIVE
PLATFORM STATION PLANS

CONTRACT NO.	
DRAWING NO.	AD-001
REV.	0
SCALE	1/8" = 1'-0"
SHEET NO.	2



TYPICAL END MEZZANINE PLAN 1

- CRITERIA :
1. STATION PLATFORM COLUMNS SHALL BE SINGLE COLUMNS AT 30'-0" ON CENTER ALONG THE CENTER LINE OF STATION. COLUMN SIZE AND CONFIGURATION TO BE DETERMINED BY SECTION DESIGNER, IN CONFORMANCE WITH STRUCTURAL STANDARD AND DIRECTIVE DRAWINGS.
 2. FOR EXIT LIGHT LEGEND SEE SHEET AD-001
- QUEUEING AREA SEE CRITERIA SUBURBAN STATION



TYPICAL LONGITUDINAL SECTION A

DESIGNED BY J. HEGEDE	DATE 20 JUN 94
DRAWN BY Y.D. ZHANG	
CHECKED BY I. ROOUE	
IN CHARGE R. DELAHOUSIE	
DESCRIPTION BASELINE ISSUE	

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

CONTRACT NO. _____

DRAWING NO. AD-002

SCALE 1/8" = 1'-0"

SHEET NO. 3

DESIGNED BY: J. HEGEDE
 DRAWN BY: Y.D. ZHANG
 CHECKED BY: I. ROOUE
 IN CHARGE: R. DELAHOUSIE
 DATE: 20 JUN 94

CONTRACT NO. _____

DRAWING NO. AD-002

SCALE 1/8" = 1'-0"

SHEET NO. 3

ARCHITECTURAL DIRECTIVE

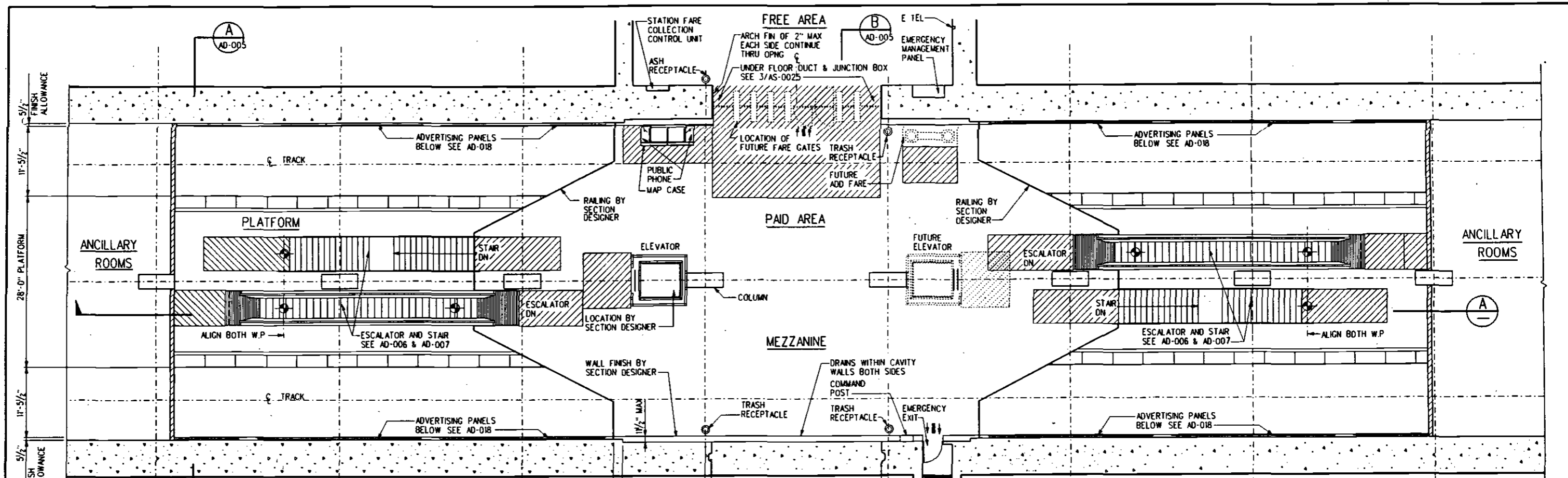
END MEZZANINE STATION
 PLAN AND SECTION

CONTRACT NO. _____

DRAWING NO. AD-002

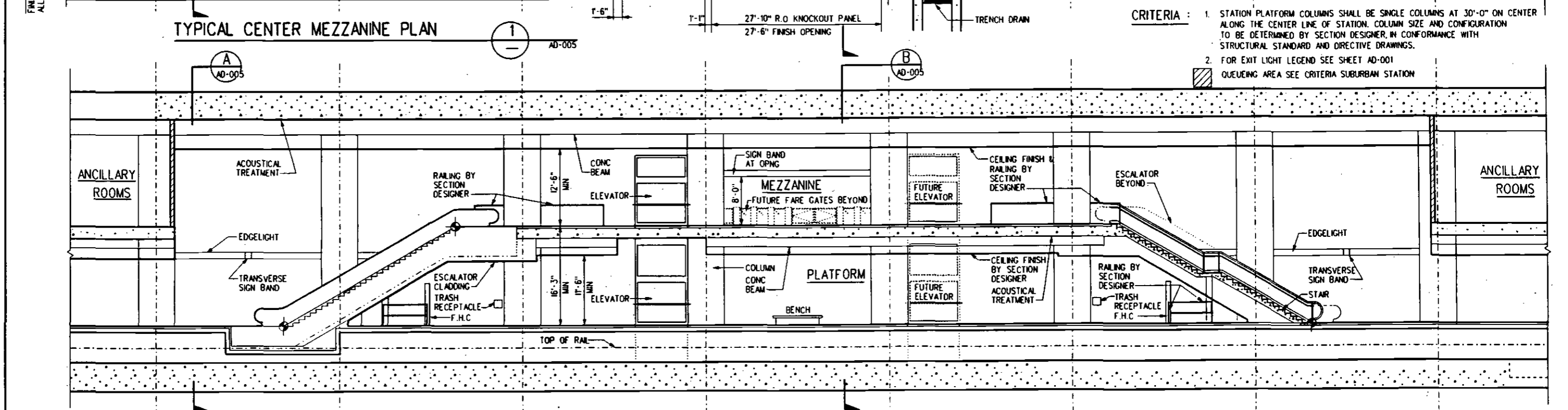
SCALE 1/8" = 1'-0"

SHEET NO. 3



TYPICAL CENTER MEZZANINE PLAN

- CRITERIA :**
1. STATION PLATFORM COLUMNS SHALL BE SINGLE COLUMNS AT 30'-0" ON CENTER ALONG THE CENTER LINE OF STATION. COLUMN SIZE AND CONFIGURATION TO BE DETERMINED BY SECTION DESIGNER, IN CONFORMANCE WITH STRUCTURAL STANDARD AND DIRECTIVE DRAWINGS.
 2. FOR EXIT LIGHT LEGEND SEE SHEET AD-001
- QUEUEING AREA SEE CRITERIA SUBURBAN STATION



TYPICAL LONGITUDINAL SECTION

REV	DATE	BY	SUB	APP	DESCRIPTION	REV	DATE	BY	SUB	APP	DESCRIPTION
0	6 20 94				BASELINE ISSUE						

DESIGNED BY
J. HEGEDE
DRAWN BY
C. YU
CHECKED BY
I. ROQUE
IN CHARGE
R. DELAHOUSIE
DATE
20 JUN 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

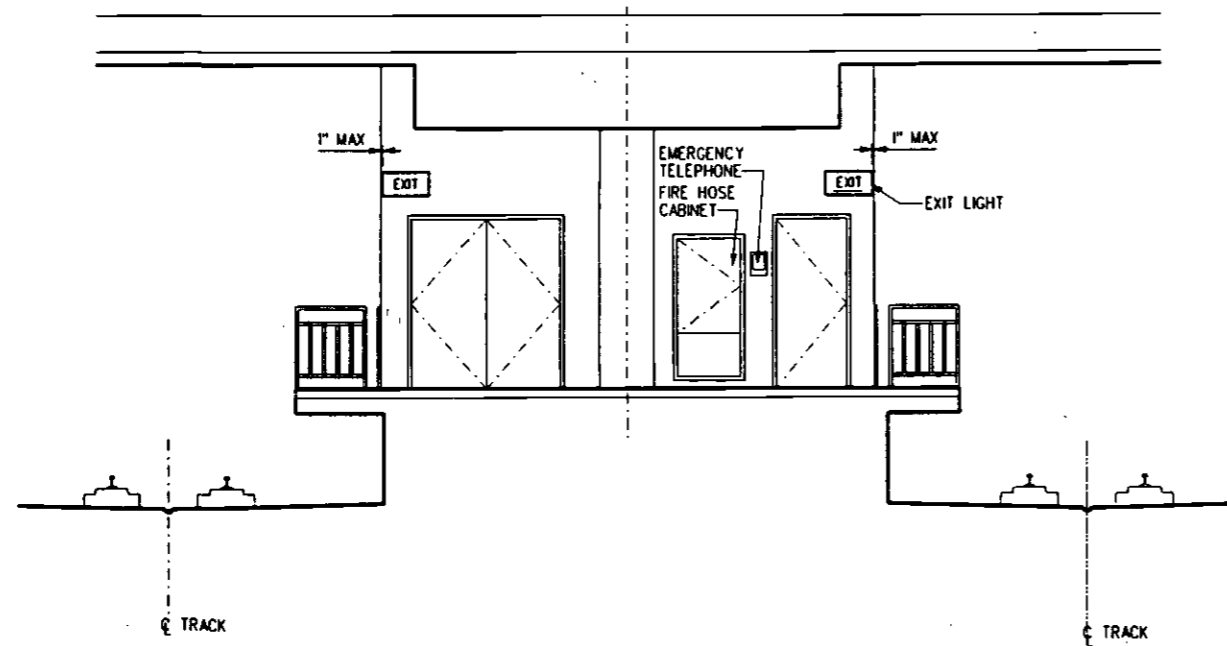
ENGINEERING MANAGEMENT CONSULTANT

SUBMITTED: *[Signature]*
APPROVED: *[Signature]*

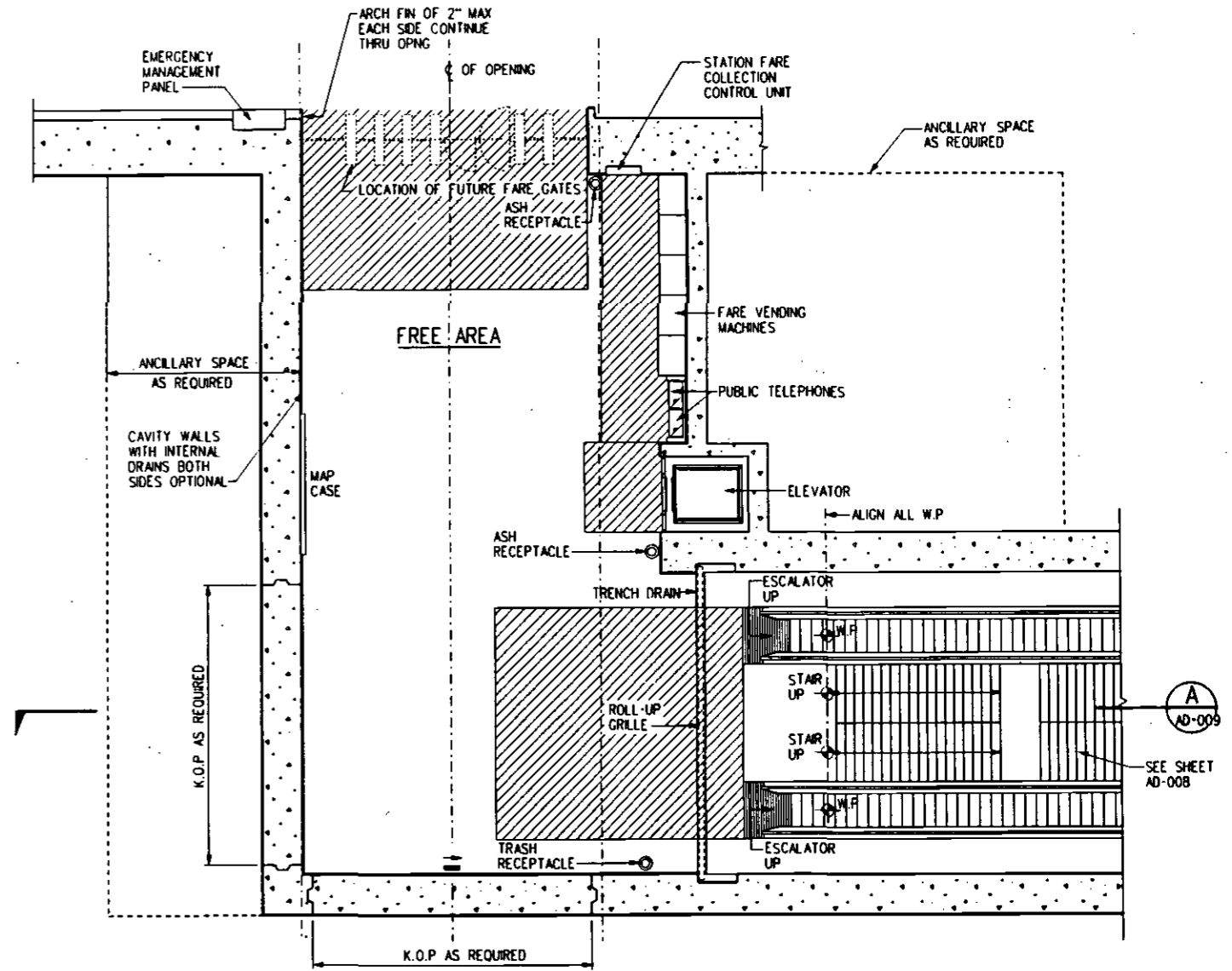
ARCHITECTURAL DIRECTIVE

CENTER MEZZANINE STATION
PLAN AND SECTION

CONTRACT NO.	
DRAWING NO.	AD-003
REV	0
SCALE	1/8" = 1'-0"
SHEET NO.	4



ELEVATION AT END OF PLATFORM A
1/4"=1'-0" AD-001



CRITERIA : FOR EXIT LIGHT LEGEND SEE SHEET AD-001
 QUEUING AREA SEE CRITERIA SUBURBAN STATION

ENTRANCE/MEZZANINE PLAN 1
1/8"=1'-0" AD-002
AD-008
AD-009

REV	DATE	BY	SLB	APP	DESCRIPTION
0	6 20 94				BASELINE ISSUE

DESIGNED BY
J. HEGEDE
 DRAWN BY
C. YU
 CHECKED BY
I. ROQUE
 IN CHARGE
R. DELAHOUSIE
 DATE
20 JUN 94



LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY



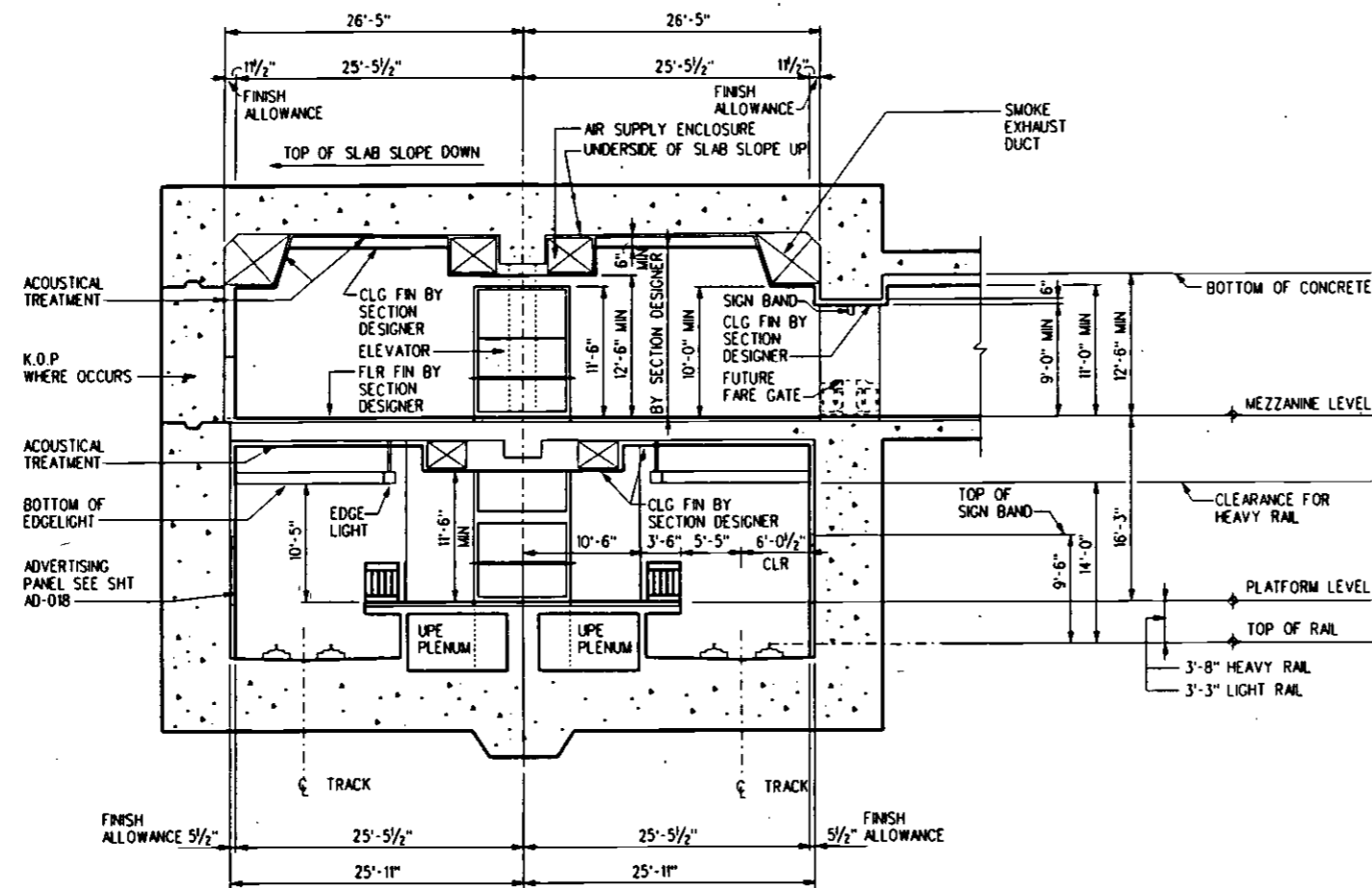
ENGINEERING MANAGEMENT CONSULTANT
 as a subsidiary of
 Parsons Brinckerhoff Dodge & Douglas, Inc.
 Daniel, Mann, Johnson & Mendenhall
 127 Flower Street, Suite 1400
 Los Angeles, California 90012
 Telephone: (213) 621-1000
 Telex: 750000
 The Metropolitan Group, Inc.

SUBMITTED
 APPROVED

R. Delahousie
[Signature]

ARCHITECTURAL DIRECTIVE
 END ENTRANCE MEZZANINE STATION
 PLAN AND ELEVATION

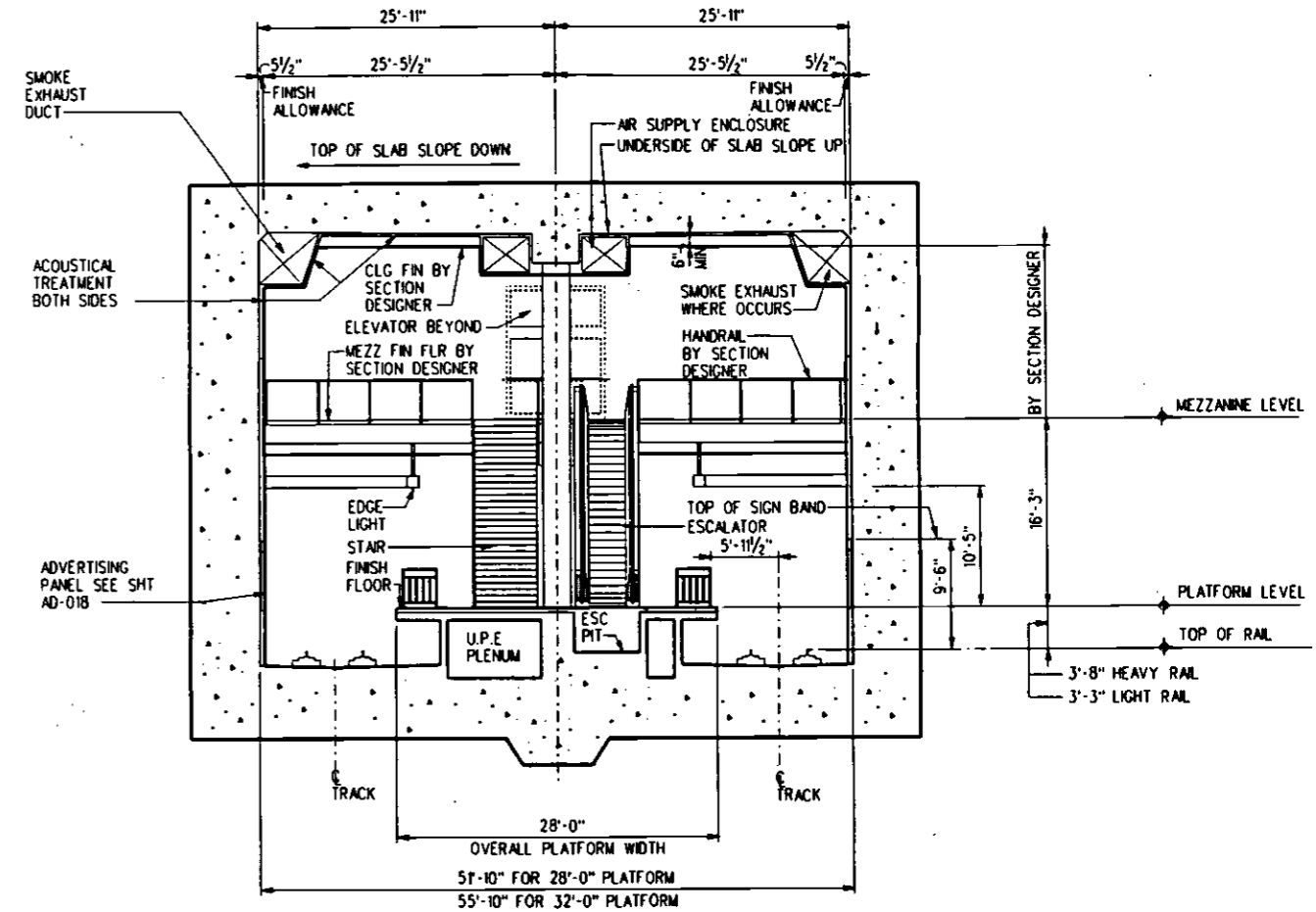
CONTRACT NO.	
DRAWING NO.	REV
AD-004	0
SCALE	
AS NOTED	
SHEET NO.	
5	



SECTION

B

AD-001
AD-002
AD-003



SECTION

A

AD-001
AD-002
AD-003

CRITERIA :

1. THESE SECTIONS ESTABLISH FIXED DIMENSIONS OF TRAINROOM ELEMENTS.
2. ELEVATION OF THE UNDERSIDE OF MEZZANINE/ ANCILLARY LEVEL FLOOR SLAB SHALL BE PARALLEL TO PLATFORM FINISH FLOOR ELEVATION.
3. FOR FARE GATES CONDUIT DETAILS SEE AD-017.

REV	DATE	BY	SUB	APP	DESCRIPTION
0	6/20/94				BASELINE ISSUE

DESIGNED BY:
J. HEGEDE
DRAWN BY:
Y. Q. ZHANG
CHECKED BY:
I. ROQUE
IN CHARGE:
R. DELAHOUSIE
DATE:
20 JUN 94

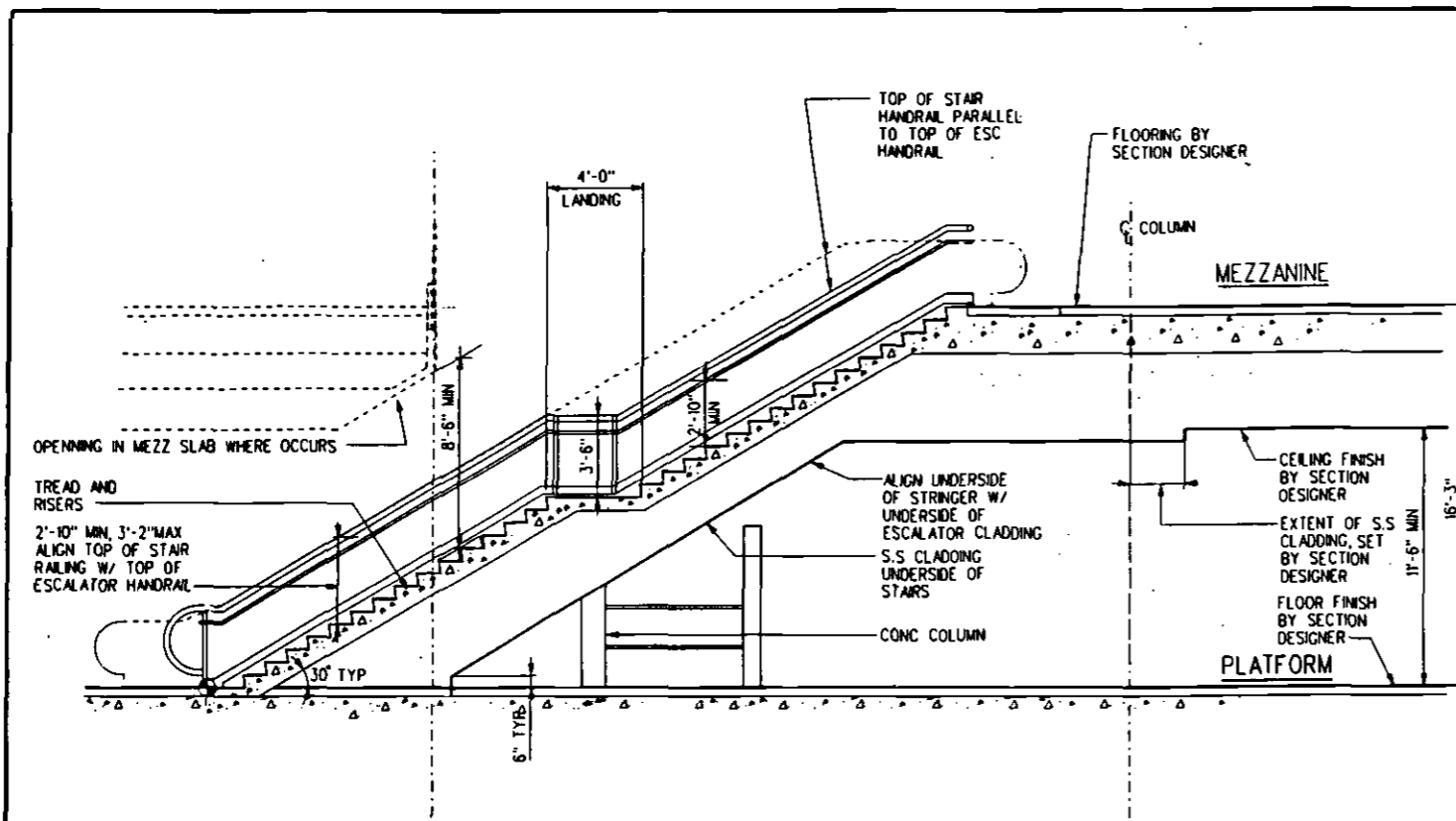
M LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

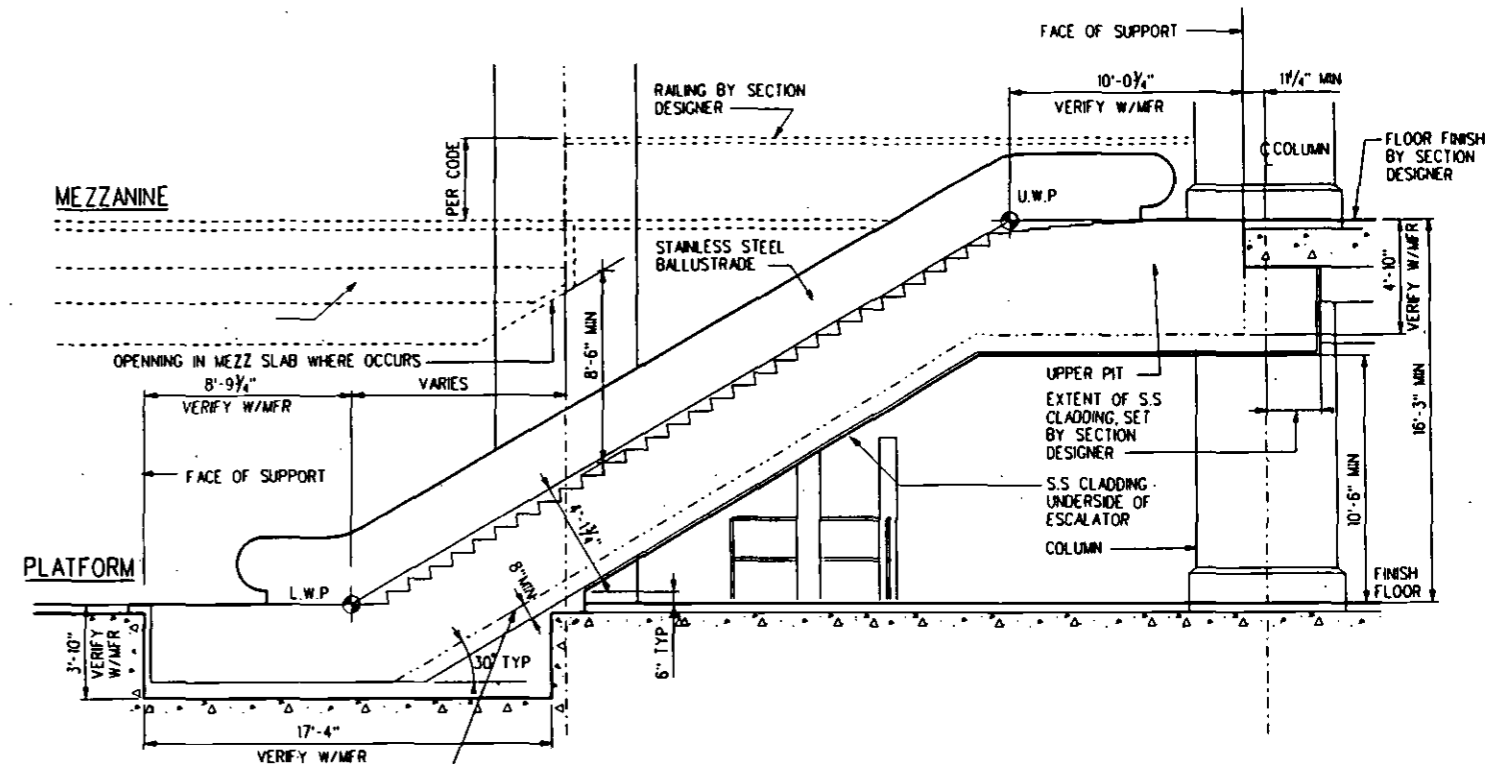
Submitted: *[Signature]*
Approved: *[Signature]*

ARCHITECTURAL DIRECTIVE
STATION SECTIONS

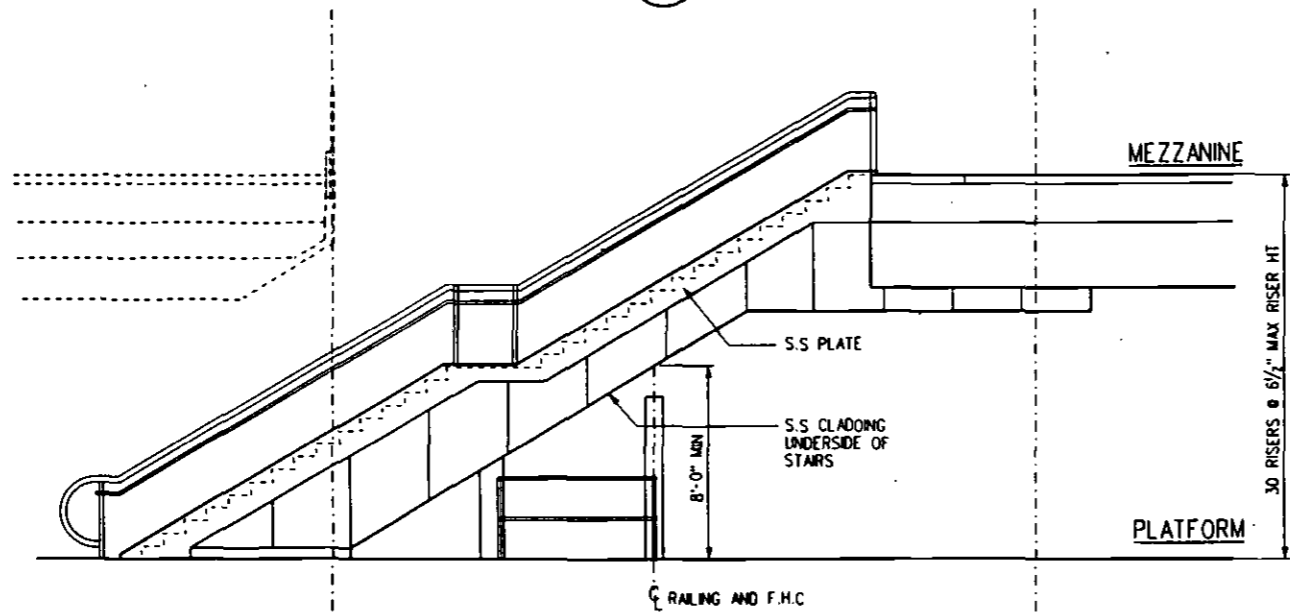
CONTRACT NO.	
DRAWING NO.	AD-005
REV.	0
SCALE	1/8" = 1'-0"
SHEET NO.	6



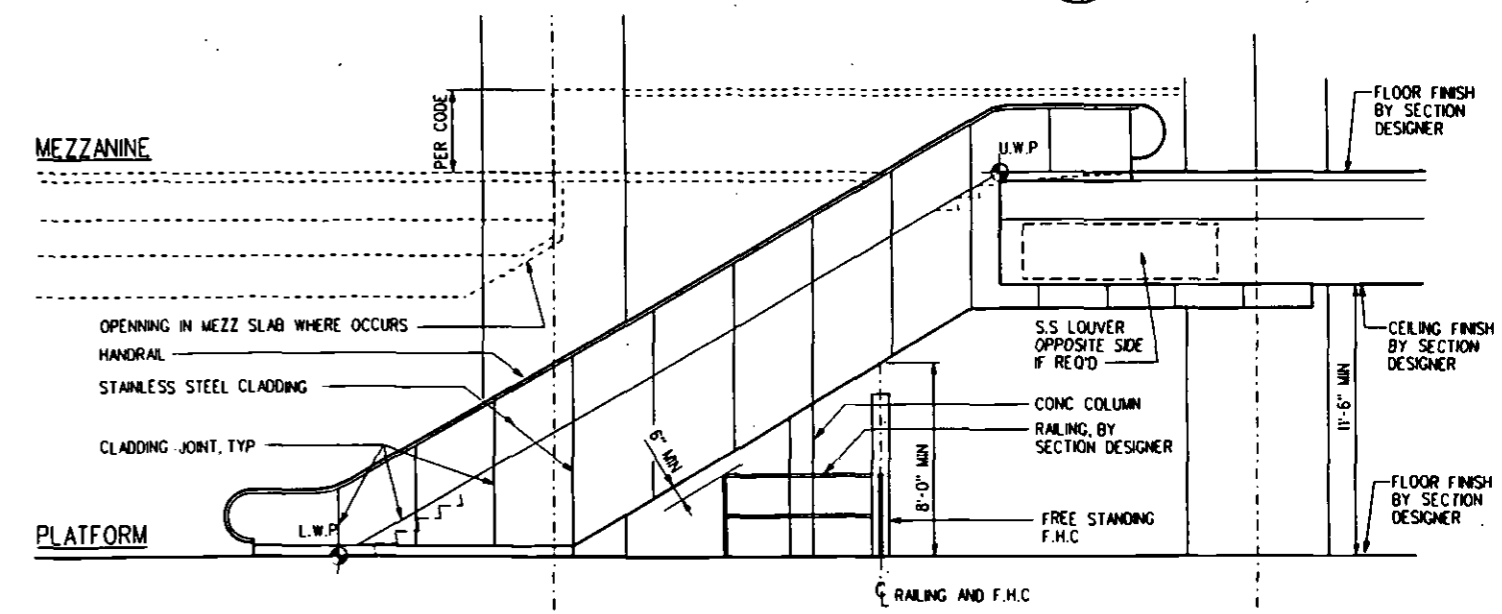
SECTION AT STAIR (C) AD-007



SECTION AT ESCALATOR (A) AD-007



ELEVATION AT STAIR (D) AD-007



ELEVATION AT ESCALATOR (B) AD-007

- CRITERIA:
1. RAILING OF STAIRS ARE SHOWN TO DEFINE REQUIRED HANDRAL AND SUPPORT RELATIONSHIPS.
 2. PROVIDE FIRE SPRINKLER AT UPPER AND LOWER PIT AREAS.
 3. ROUGH WIDTH DIMENSION OF LOWER AND UPPER PIT SHALL BE 5'-10".

REV	DATE	BY	SUB	APP	DESCRIPTION
0	6.20.94				BASELINE ISSUE

DESIGNED BY
J. HEGEDE
DRAWN BY
C. YU
CHECKED BY
I. ROQUE
IN CHARGE
R. DELAHOUSIE
DATE
20 JUN 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

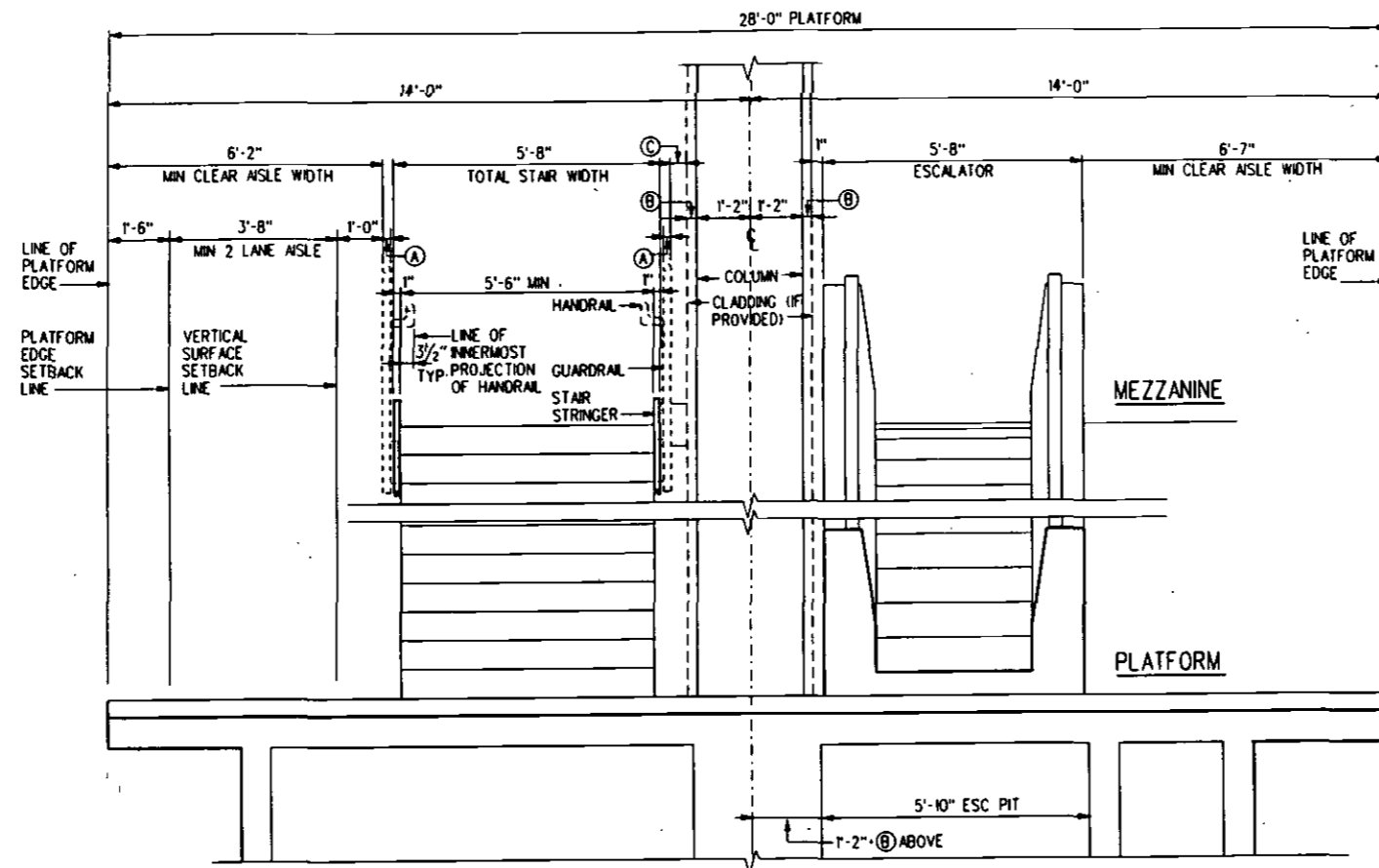
PERMISSION: Structural Steel & Concrete, Inc.
 Daniel Mann, Johnson & Mendenhall
 1777 Maple Canyon Road, Suite 1100
 Century City, Los Angeles, CA 90045
 (310) 552-1100

SUBMITTED: *Rafael Delahousie*
 APPROVED: *[Signature]*

ARCHITECTURAL DIRECTIVE

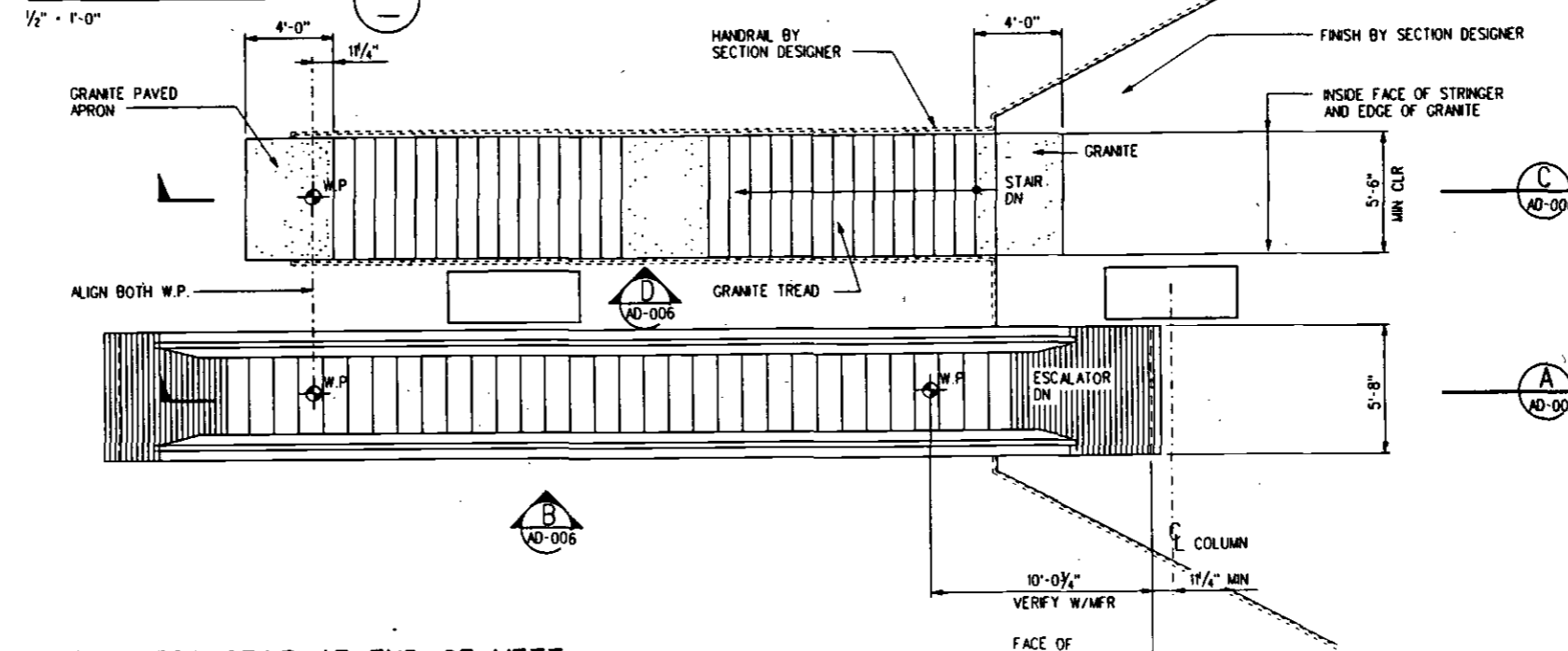
STATION MEZZANINE TO PLATFORM
 ESCALATOR AND STAIR
 ELEVATIONS AND SECTIONS

CONTRACT NO.	
DRAWING NO.	AD-006
REV.	0
SCALE	1/4" = 1'-0"
SHEET NO.	7



- CRITERIA :**
- HANDRAILS MAY PROJECT INTO THE MINIMUM CLEAR WIDTH OF STAIR BY 3/2"
 - DIMENSIONS TO BE DETERMINED BY SECTION DESIGNER:
 - (A) GUARDRAIL WIDTH
 - (B) COLUMN CLADDING WIDTH MAX 6"
 - (C) DIMENSION BETWEEN FACE OF GUARDRAIL AND FACE OF COLUMN CLADDING OR CONCRETE COLUMN IF NOT CLADD.
 - STAIR GUARDRAIL, HANDRAIL AND CLADDING DETAILING ARE PER SECTION DESIGNER.
 - ESCALATOR ROUGH (STRUCTURAL) OPENING WIDTH IS 5'-10"; ESCALATOR OVERALL WIDTH IS 5'-8".

PARTIAL ELEVATION



PLAN - ESC/STAIR AT END OF MEZZ

REV	DATE	BY	SUB	APP	DESCRIPTION
0	6/20/94				BASELINE ISSUE

DESIGNED BY
J. HEGEDE
DRAWN BY
C. YU
CHECKED BY
I. ROQUE
IN CHARGE
R. DELAHOUSIE
DATE
20 JUN 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

Submitted: *[Signature]*
Approved: *[Signature]*

ARCHITECTURAL DIRECTIVE

STATION MEZZANINE TO PLATFORM
ESCALATOR AND STAIR
PLAN AND PARTIAL ELEVATION

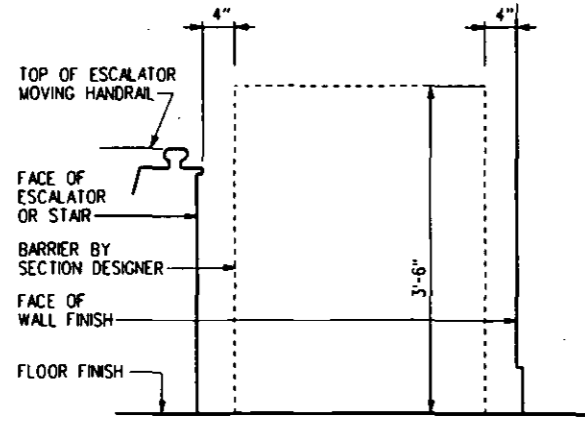
CONTRACT NO	
DRAWING NO	AD-007
SCALE	AS NOTED
SHEET NO	8

CRITERIA :

- SECTION DESIGNER TO PROVIDE DIMENSIONS OF STAIR RUNS, TREADS AND RISERS.
- SECTION DESIGNER TO LOCATE ENTRANCE ON SITE AT HIGHEST ELEVATION POSSIBLE WITH SUFFICIENT DRAINAGE AWAY FROM APRON.
- THE CONFIGURATION OF THE ENCLOSURE AT THE ENTRY AREA IS SHOWN TO SET MINIMUM CRITERIA. THE SECTION DESIGNER HAS THE OPTION TO USE THIS CONFIGURATION OR DEVELOP ALTERNATE SCHEMES USING THE DIMENSIONS ESTABLISHED AS A MINIMUM.
- IF REQUIRED BY SITE SPECIFIC CONDITIONS, SECTION DESIGNER MAY REQUEST MODIFICATION TO THIS DIMENSION.

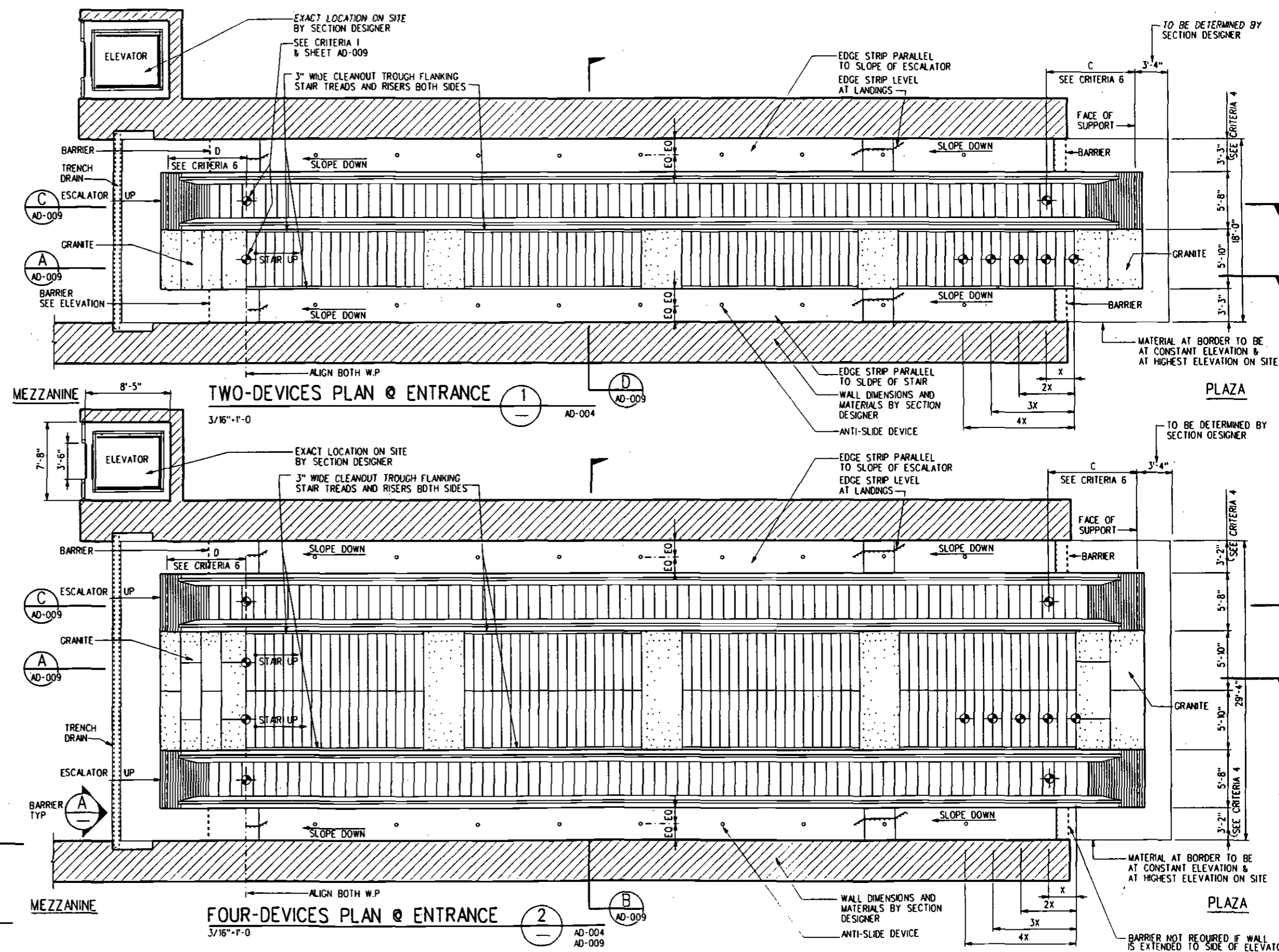
RISER	X = 4'-0"-T	LANDING REQ'D
48"	4X	4
30" TO 48"	3X	3
24" TO 36"	2X	2
12" TO 24"	X	1

- DIMENSIONS BETWEEN WORKING POINT AND FACE SUPPORTS VERIFY WITH MANUFACTURER.
 - CLASS B ESCALATORS
 - RISE BETWEEN 20 AND 40 FT
 - DIMENSION C IS 11'-2"
 - DIMENSION D IS 7'-8 17/32"
 - CLASS C ESCALATORS
 - RISE MORE THAN 40 FT
 - DIMENSION C IS 12'-8 1/2"
 - DIMENSION D IS 7'-8 17/32"



BARRIER

1/4" = 1'-0"



REV	DATE	BY	SUB	APP	DESCRIPTION
0	6.20.94				BASELINE ISSUE

DESIGNED BY
J. HEGEDE
DRAWN BY
Y. Q. ZHANG
CHECKED BY
T. ROQUE
IN CHARGE
R. DELAHOUSIE
DATE
20 JUN 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

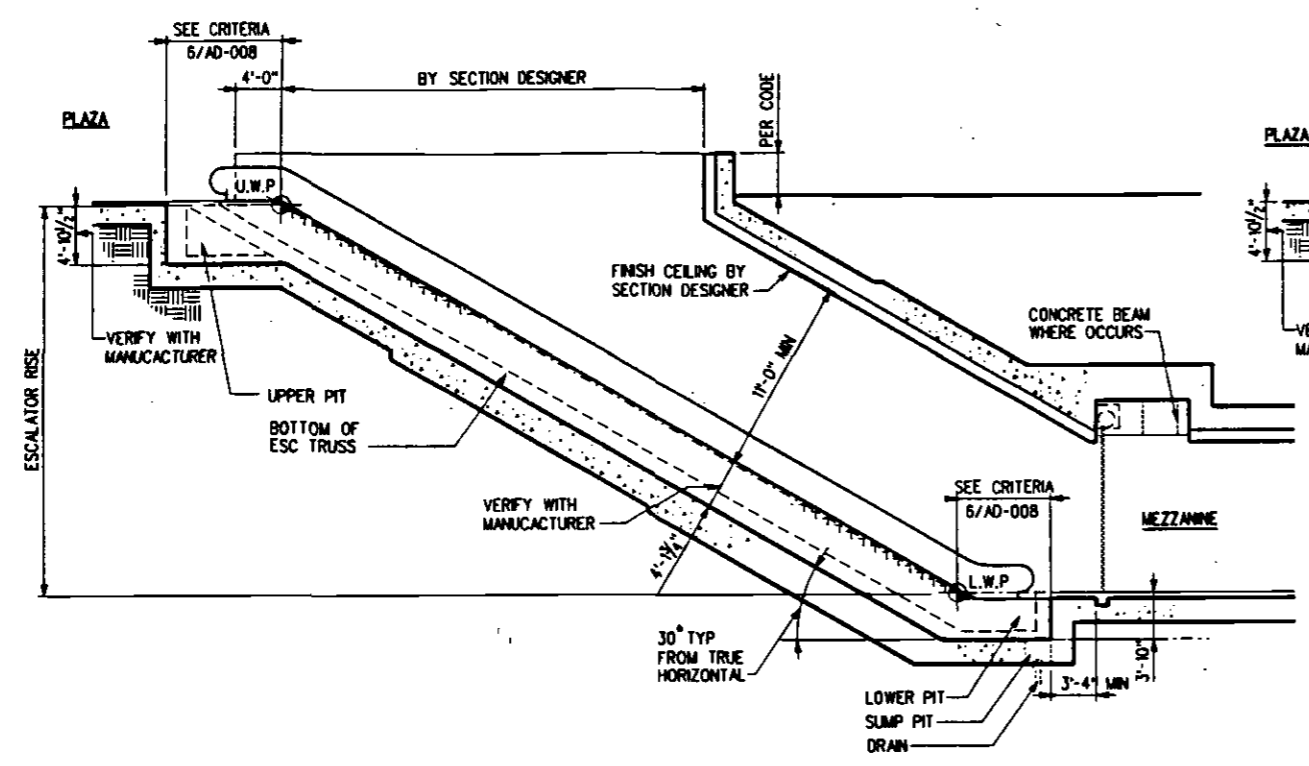
Submitted: *[Signature]*
Approved: *[Signature]*

ARCHITECTURAL DIRECTIVE

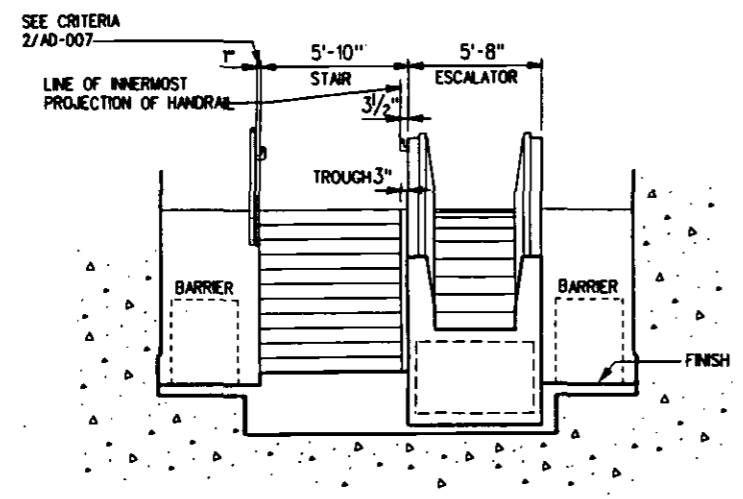
STATION ENTRANCE STAIR AND ESCALATOR PLANS

CONTRACT NO.	
DRAWING NO.	AD-008
REV	0
SCALE	AS NOTED
SHEET NO.	9

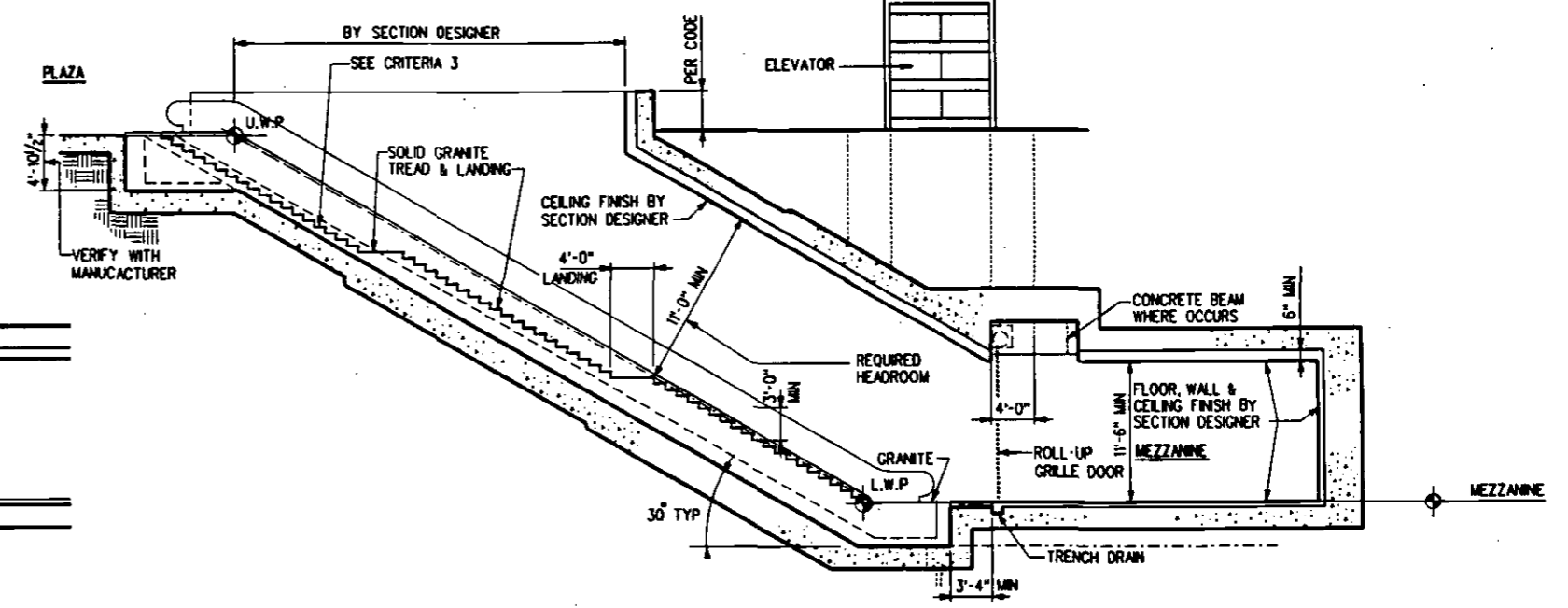
- CRITERIA :**
1. STANDARD RELATIONSHIP BETWEEN STAIR AND ESCALATORS DETERMINED BY A COMMON WORK POINT AT BOTTOM OF BOTH STAIR AND ESCALATOR.
 2. PROVIDE FIRE SPRINKLER IN UPPER AND LOWER PIT AREAS.
 3. STAIRS ADJACENT TO AN ESCALATOR SHALL PARALLEL THE ANGLE OF INCLINATION OF THE ESCALATOR (30 DEGREES). TREADS SHALL BE APPROX 11.50" WIDTH AND APPROX 6.64" HEIGHT RISERS.



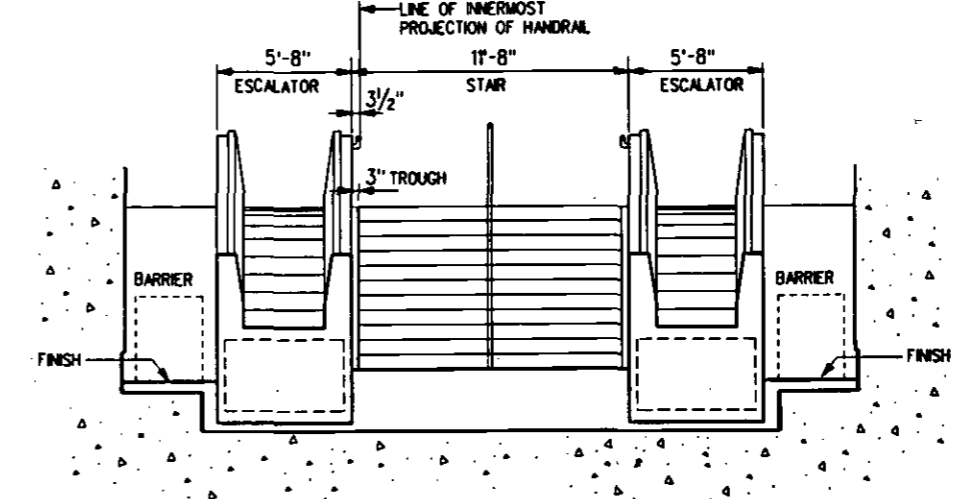
SECTION AT ESCALATOR (C) AD-008
1/8"=1'-0"



TRANSVERSE SECTION - 2 DEVICES (D) AD-008
1/4"=1'-0"



SECTION AT STAIRS (A) AD-008
1/8"=1'-0"



TRANSVERSE SECTION - 4 DEVICES (B) AD-008
1/4"=1'-0"

REV	DATE	BY	SUB	APP	DESCRIPTION
0	6.20.94				BASELINE ISSUE

DESIGNED BY
J. HEGEDE
DRAWN BY
C. YU
CHECKED BY
I. ROQUE
IN CHARGE
R. DELAHOUSIE
DATE
20 JUN 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

Submitted: *[Signature]*
Approved: *[Signature]*

ARCHITECTURAL DIRECTIVE

STREET TO MEZZANINE ESCALATOR AND STAIR SECTIONS

CONTRACT NO	
DRAWING NO	AD-009
REV	0
SCALE	AS NOTED
SHEET NO	10

LEGEND

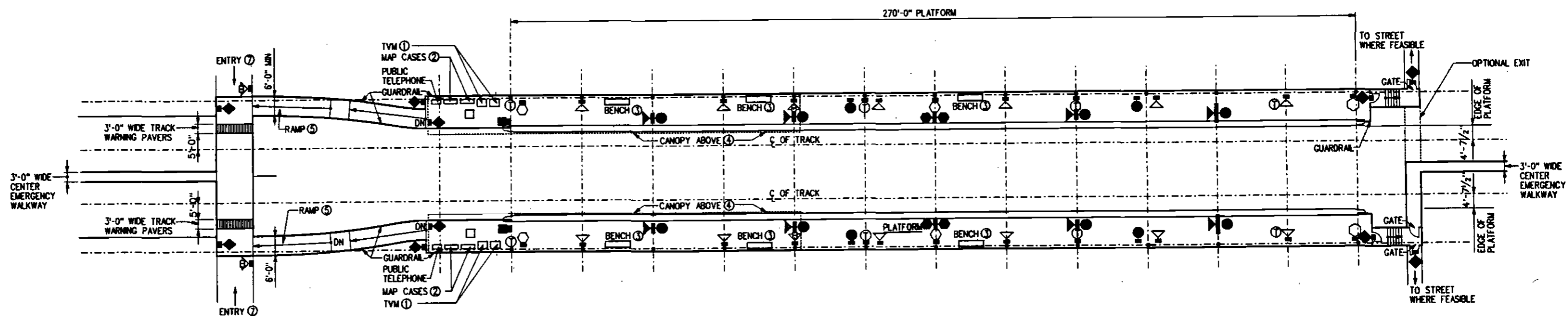
- ⊙ TRASH
- FREE/FARE ZONE

SIGN TYPE LEGEND

- △ STATION NAME
- ▲ DESTINATION
- ◇ HANDICAPPED
- ◆ RESTRICTIVE
- ▬ SIGN BAND
- ⊠ STATION NAME BRALLE
- VARIABLE MESSAGE SIGN
- EXIT
- ENTRY
- TO TRAIN
- TICKET
- ⬡ EMERGENCY TELEPHONE (E TEL)

CRITERIA :

- ① NUMBER DETERMINED BY STATION PATRONAGE.
- ② 2 REQUIRED FOR SINGLE SIDED CASES.
- ③ MIN 12 SEATS PER PLATFORM.
- ④ SEE DESIGN CRITERIA FOR MIN REQUIRED CANOPY
- ⑤ USE SLOPING WALKWAY WHERE FEASIBLE, OTHERWISE RAMP SLOPE 8% MAX.
- ⑥ MIN 7'-8" CLEAR TO EDGE OF PLATFORM.
- ⑦ 10'-0" MIN 15'-0" PREFERRED
- ⑧ TVMS, MAPCASES AND PUBLIC TELEPHONES LOCATED AT GRADE LEVEL ENTRY
- ⑨ THESE ARE COMPOSITE STATION PLANS SHOWING THE LOCATION OF THE MAJOR ELEMENTS AND DO NOT REPRESENT ANY SPECIFIC STATION.



AT-GRADE SIDE PLATFORM PLAN



REV	DATE	BY	SUB	APP	DESCRIPTION
0	6.20.94				BASELINE ISSUE

DESIGNED BY
J. HEGEDE

DRAWN BY
Y. Q. ZHANG

CHECKED BY
I. ROQUE

IN CHARGE
R. DELAHOUSIE

DATE
20 JUN 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

Submitted: *[Signature]*

Approved: *[Signature]*

ARCHITECTURAL DIRECTIVE

PLATFORM STATION PLAN

SHEET 1 OF 2

CONTRACT NO	
DRAWING NO	AD-010
REV	0
SCALE	1/8" = 1'-0"
SHEET NO	11

LEGEND

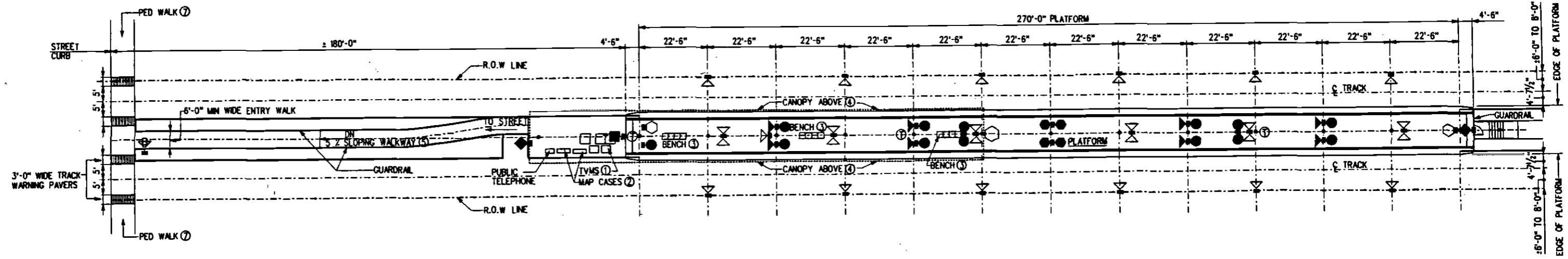
- ① TRASH
- FREE/FARE ZONE

SIGN TYPE LEGEND

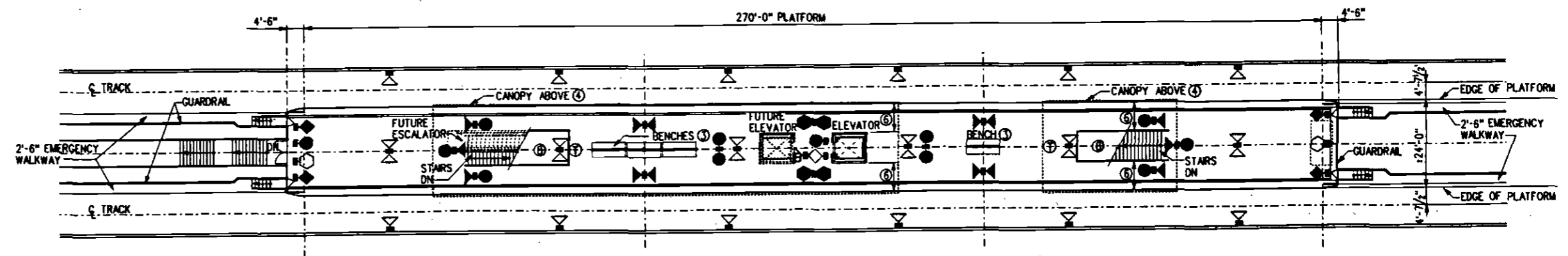
- △ STATION NAME
- ▲ DESTINATION
- ◇ HANDICAPPED
- ◆ RESTRICTIVE
- SIGN BAND
- ⚠ STATION NAME BRILLE
- VARIABLE MESSAGE SIGN
- EXIT
- ENTRY
- TO TRAIN
- TICKET
- EMERGENCY TELEPHONE (E TEL)

CRITERIA :

- ① NUMBER DETERMINED BY STATION PATRONAGE.
- ② 2 REQUIRED FOR SINGLE SIDED CASES.
- ③ MIN 12 SEATS PER PLATFORM.
- ④ SEE DESIGN CRITERIA FOR MIN REQUIRED CANOPY
- ⑤ USE SLOPING WALKWAY WHERE FEASIBLE, OTHERWISE RAMP SLOPE 8% MAX.
- ⑥ MIN 7'-8" CLEAR TO EDGE OF PLATFORM.
- ⑦ 10'-0" MIN 15'-0" PREFERRED
- ⑧ TVMS, MAPCASES AND PUBLIC TELEPHONES LOCATED AT GRADE LEVEL ENTRY
- ⑨ THESE ARE COMPOSITE STATION PLANS SHOWING THE LOCATION OF THE MAJOR ELEMENTS AND DO NOT REPRESENT ANY SPECIFIC STATION.



AT-GRADE CENTER PLATFORM PLAN (1)



ELEVATED CENTER PLATFORM PLAN (2)

REV	DATE	BY	SUB	APP	DESCRIPTION
0	6.20.94				BASELINE ISSUE

DESIGNED BY
J. HEGEDE
DRAWN BY
Y. Q. ZHANG
CHECKED BY
I. ROQUE
IN CHARGE
R. DELAHOUSIE
DATE
20 JUN 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

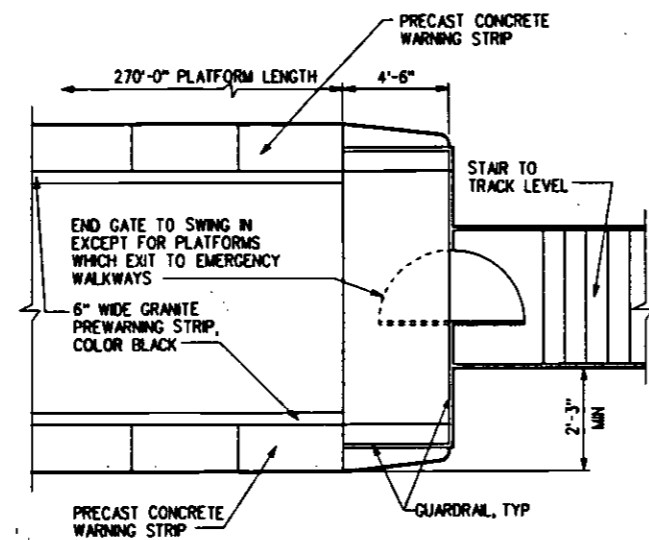
ENGINEERING MANAGEMENT CONSULTANT

Submitted by: *[Signature]*
Approved by: *[Signature]*

ARCHITECTURAL DIRECTIVE

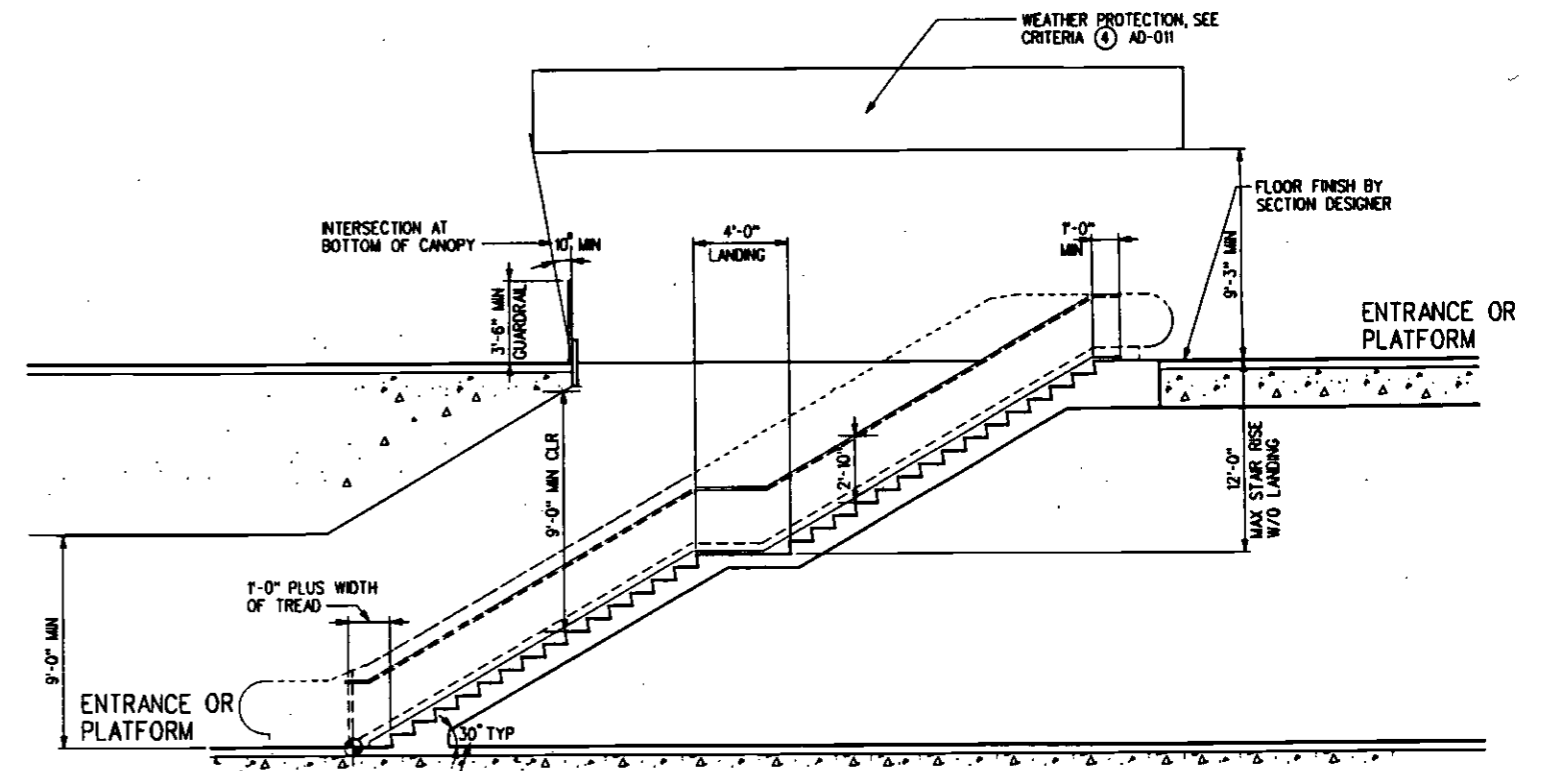
PLATFORM STATION PLANS
SHEET 2 OF 2

CONTRACT NO.	
DRAWING NO.	AD-011
REV	0
SCALE	1/8" = 1'-0"
SHEET NO.	12



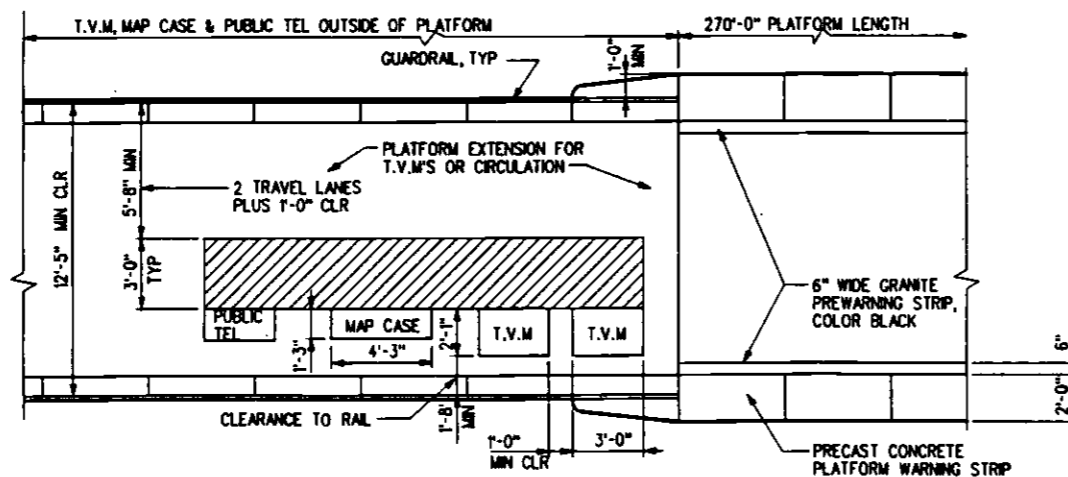
GRADE PLATFORM CONFIGURATION AT EXIT END

2
AD-010



GRADE STATION STAIR SECTION

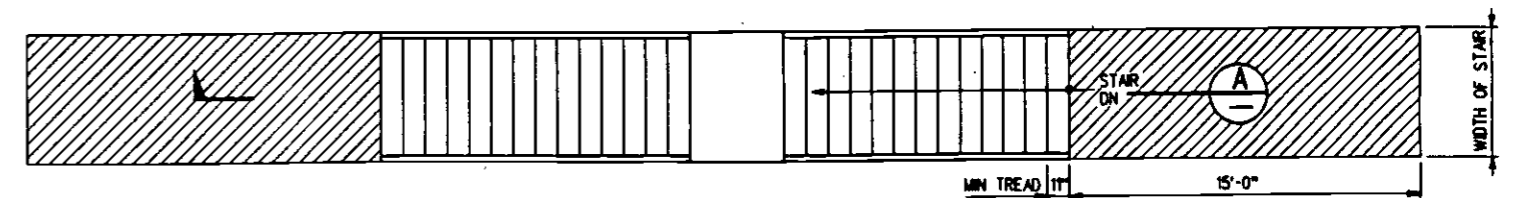
A



CRITERIA : 1. LOCATION FOR PUBLIC TEL, T.V.M'S OR MAP CASE, BY SECTION DESIGNER

GRADE PLATFORM CONFIGURATION AT ENTRY END

3
AD-010



CRITERIA : 1. QUANTITY, WIDTH AND DISTRIBUTION OF STAIRS AND RAILINGS SHALL BE DETERMINED PER SUBSECTION OF DESIGN PERFORMANCE CRITERIA AND ALL APPLICABLE CODE REQUIREMENTS.

STATION STAIR PLAN PUBLIC STAIRS

1

DESIGNED BY	J. HEGEDE
DRAWN BY	Y. Q. ZHANG
CHECKED BY	I. ROQUE
IN CHARGE	R. DELAHOUSIE
DATE	20 JUN 94

REV	DATE	BY	SUB	APP	DESCRIPTION
0	6.20.94				BASELINE ISSUE

M LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

FORWARD: [Signature]

APPROVED: [Signature]

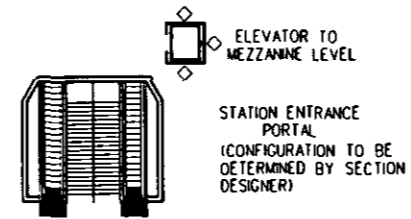
ARCHITECTURAL DIRECTIVE

STATION STAIR AND END OF PLATFORM PLANS

CONTRACT NO.	
DRAWING NO.	AD-012
REV	0
SCALE	1/4" = 1'-0"
SHEET NO.	13

CRITERIA : THIS IS A COMPOSITE STATION PLAN SHOWING THE LOCATION OF THE MAJOR SIGNING ELEMENTS AND THE EDGLIGHT, AND DOES NOT REPRESENT ANY SPECIFIC STATION.

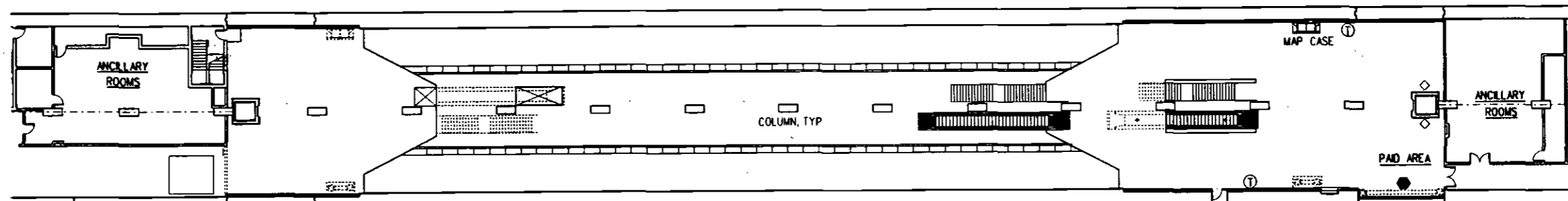
SPECIFIC SIGN SCHEDULES, QUANTITIES, TYPES AND MESSAGE REQUIREMENTS WILL BE PROVIDED TO THE SECTION DESIGNER BY THE GENERAL CONSULTANT.



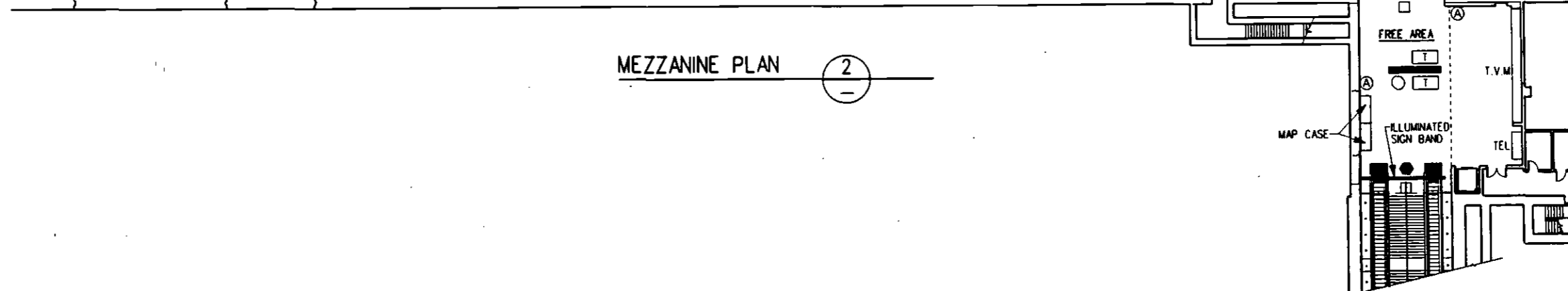
SIGN TYPE LEGEND

- △ STATION NAME
- ▲ DESTINATION
- ◇ HANDICAPPED
- ◆ BOARDING ZONE
- Ⓣ TRASH/NO SMOKING
- Ⓐ ASH/NO SMOKING
- TO STREET
- EXIT (GREEN LETTERS)
- FREE/FARE ZONE
- ENTRY
- TO TRAIN
- Ⓜ TICKETS
- SIGN BAND

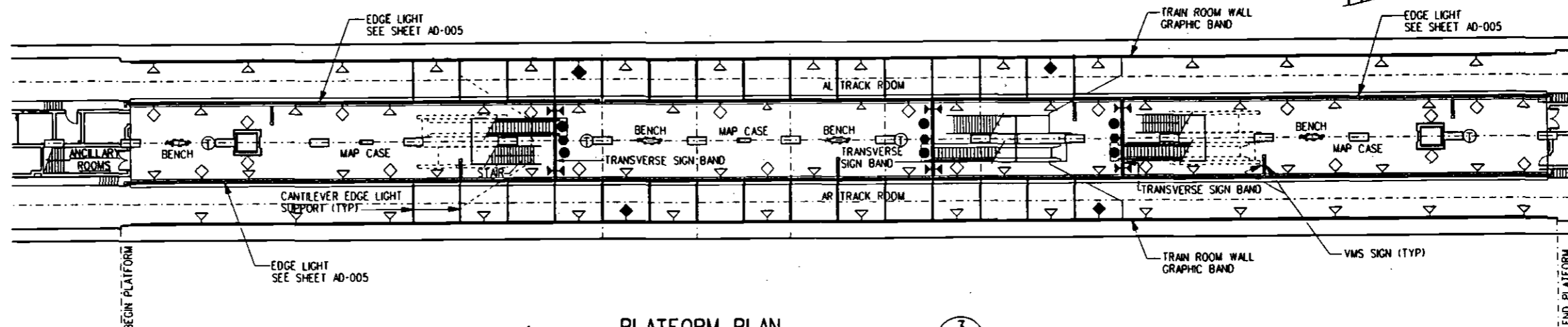
PLAZA PLAN



MEZZANINE PLAN



PLATFORM PLAN



REV	DATE	BY	SUB	APP	DESCRIPTION
0	6/20/94				BASELINE ISSUE

DESIGNED BY
J. HEGEDE

DRAWN BY
C. YU

CHECKED BY
I. ROQUE

IN CHARGE
R. DELAHOUSIE

DATE
20 JUN 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

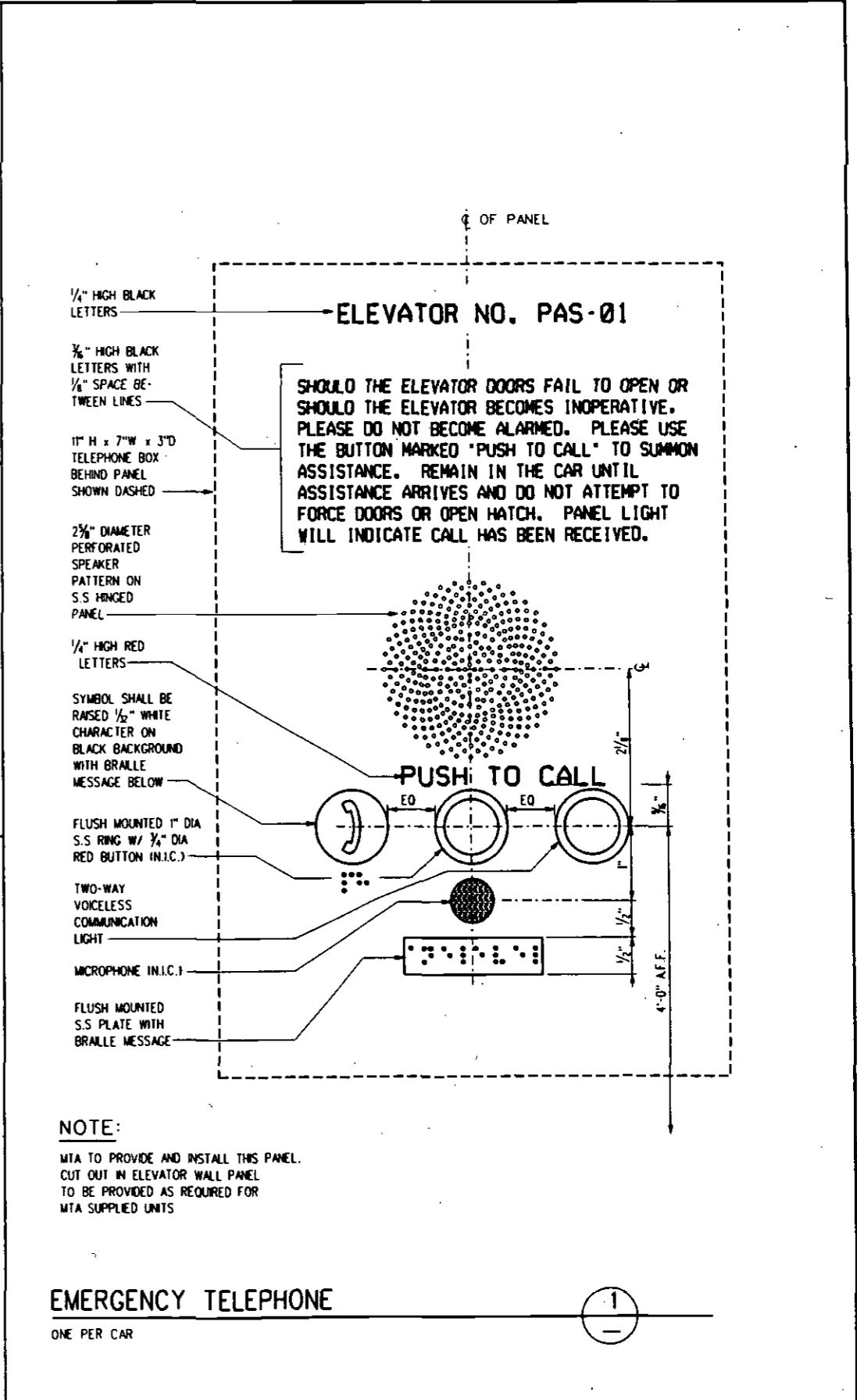
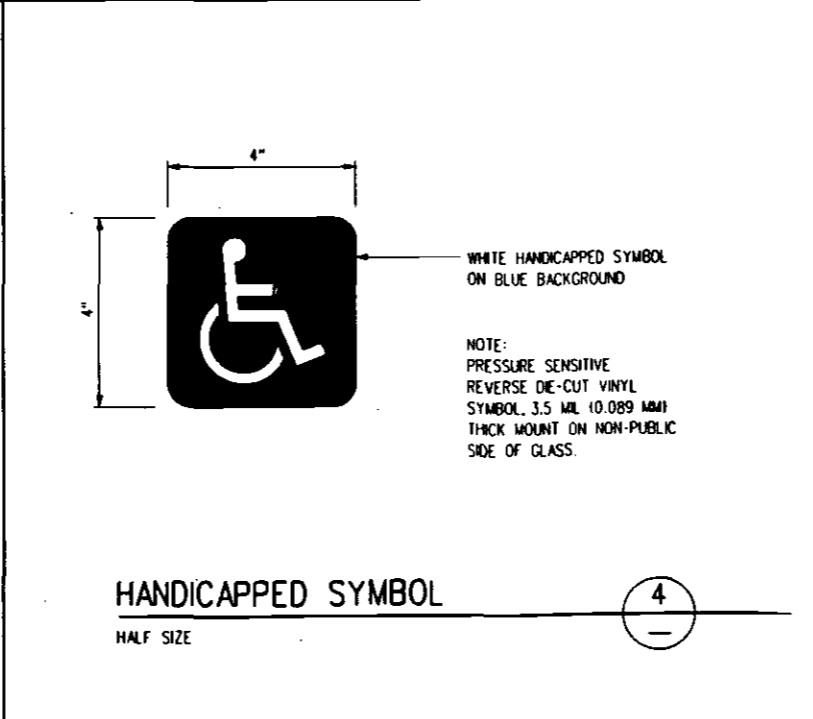
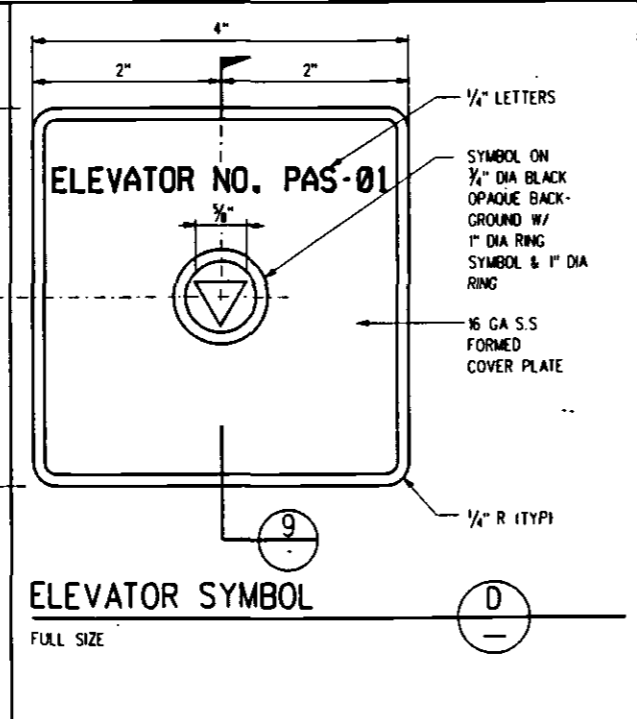
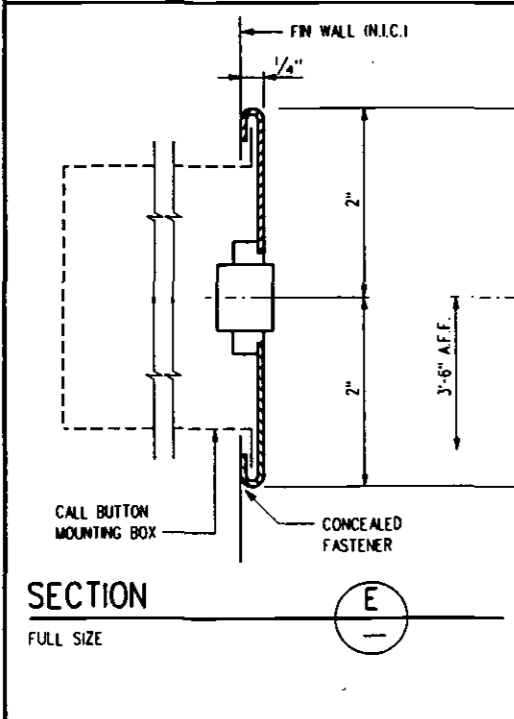
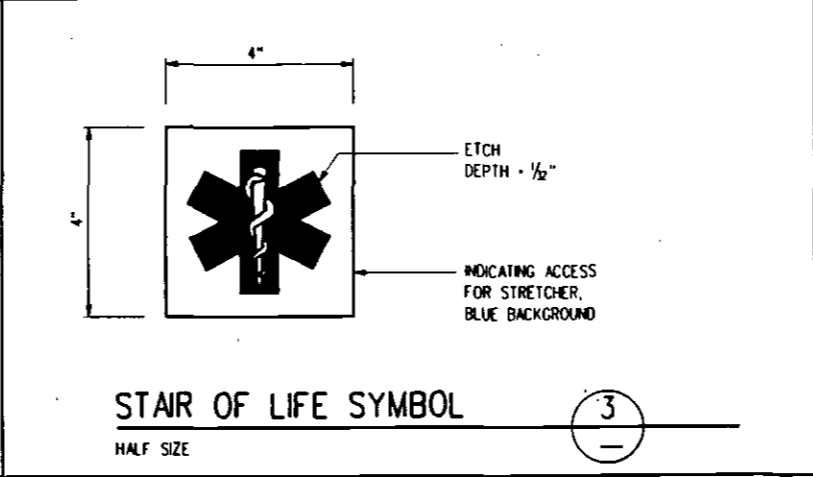
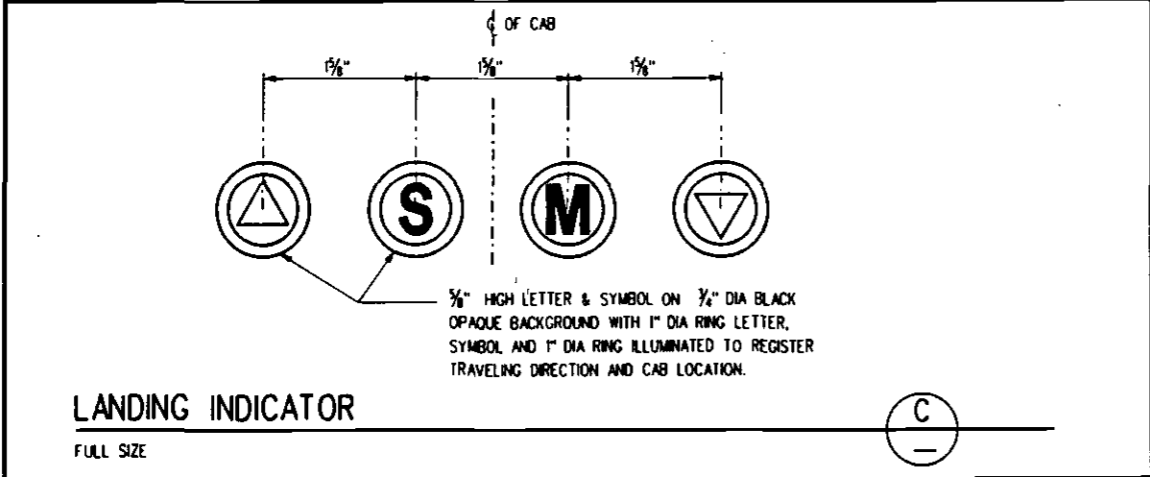
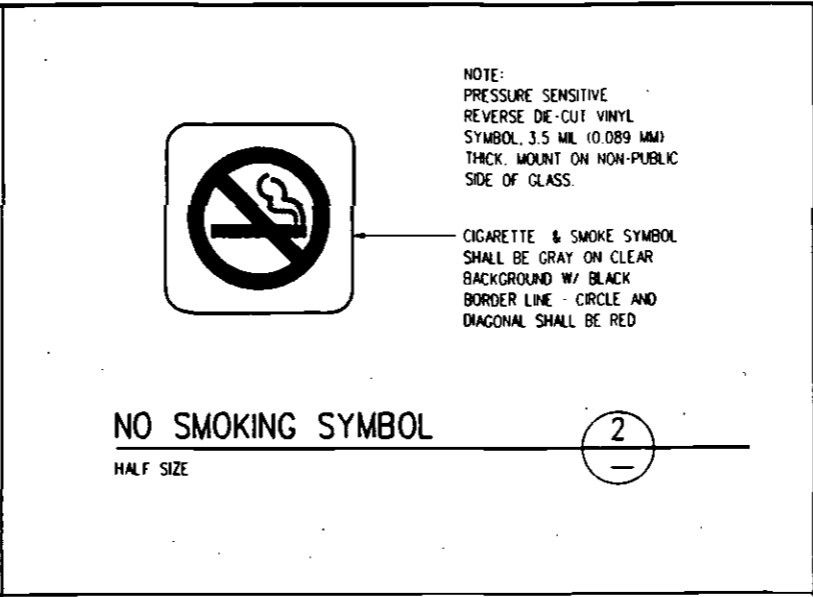
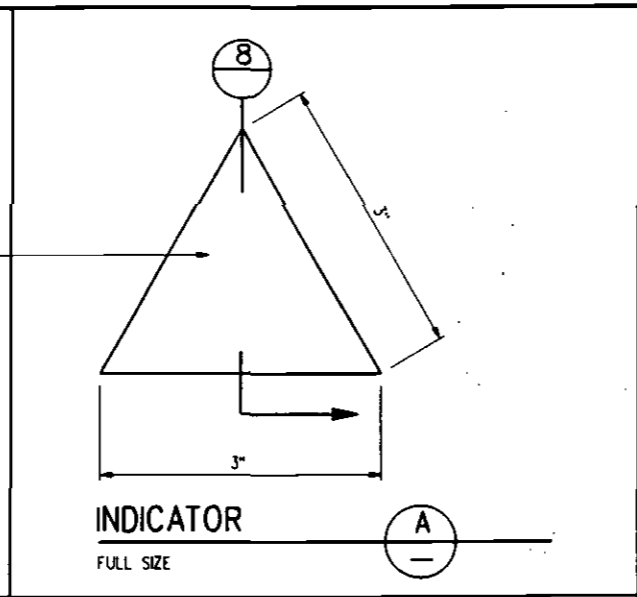
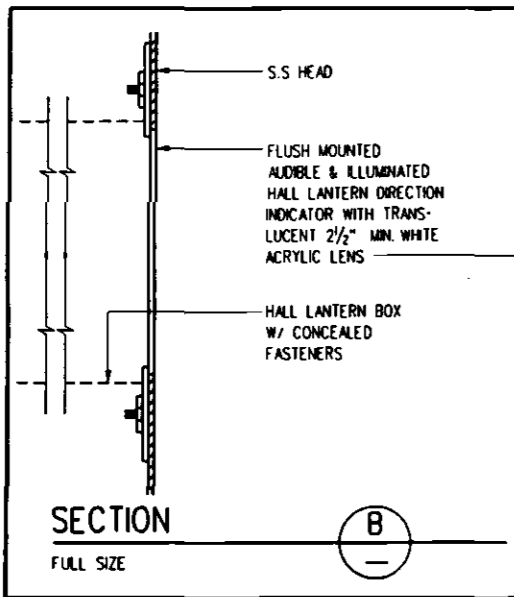
Submitted: *R. Delahousie*

Approved: *[Signature]*

ARCHITECTURAL DIRECTIVE

PLATFORM STATION PLANS
SIGNING AND EDGE LIGHT

CONTRACT NO.	
DRAWING NO.	AD-013
REV	0
SCALE	1"=20'-0"
SHEET NO.	14

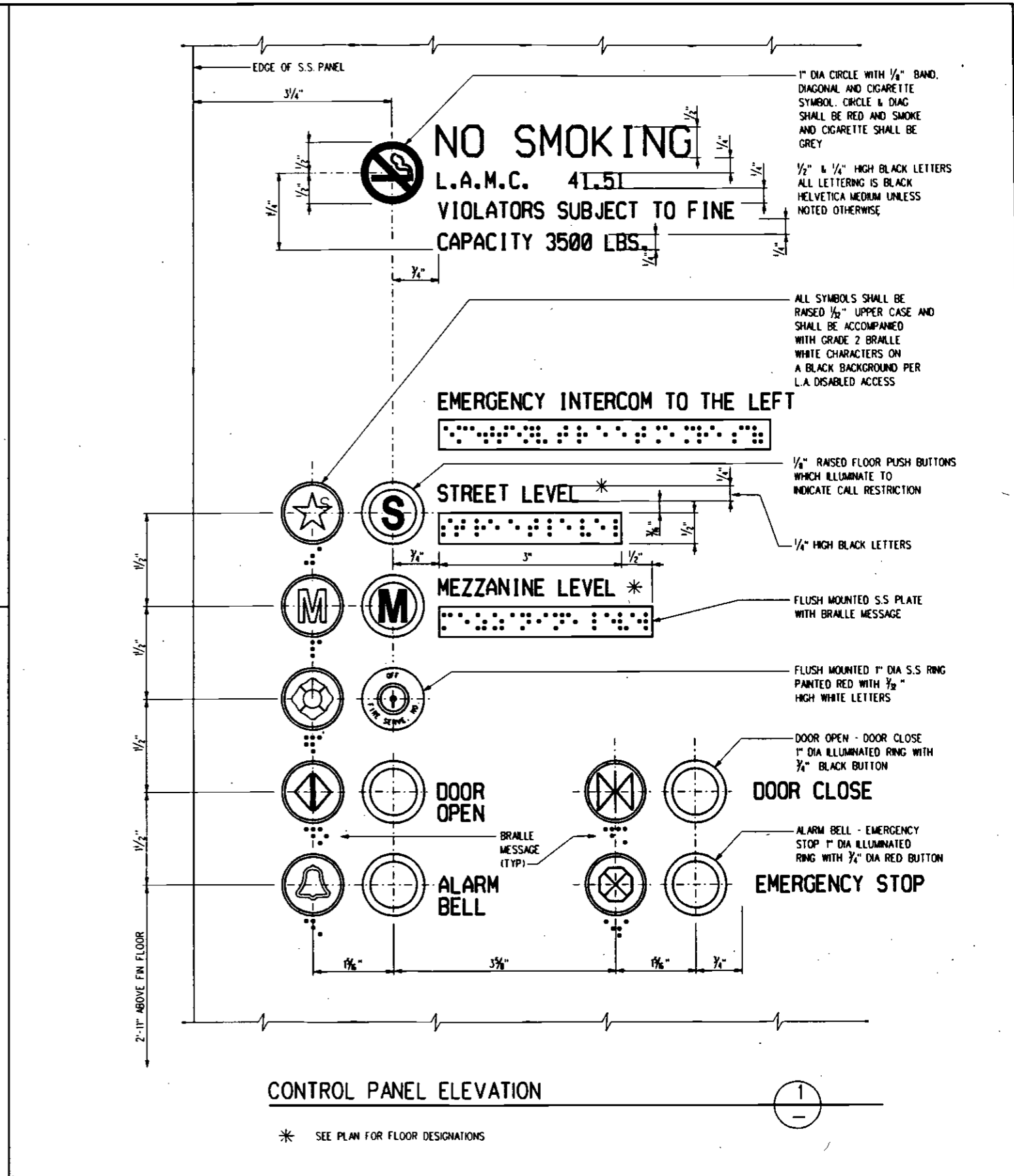
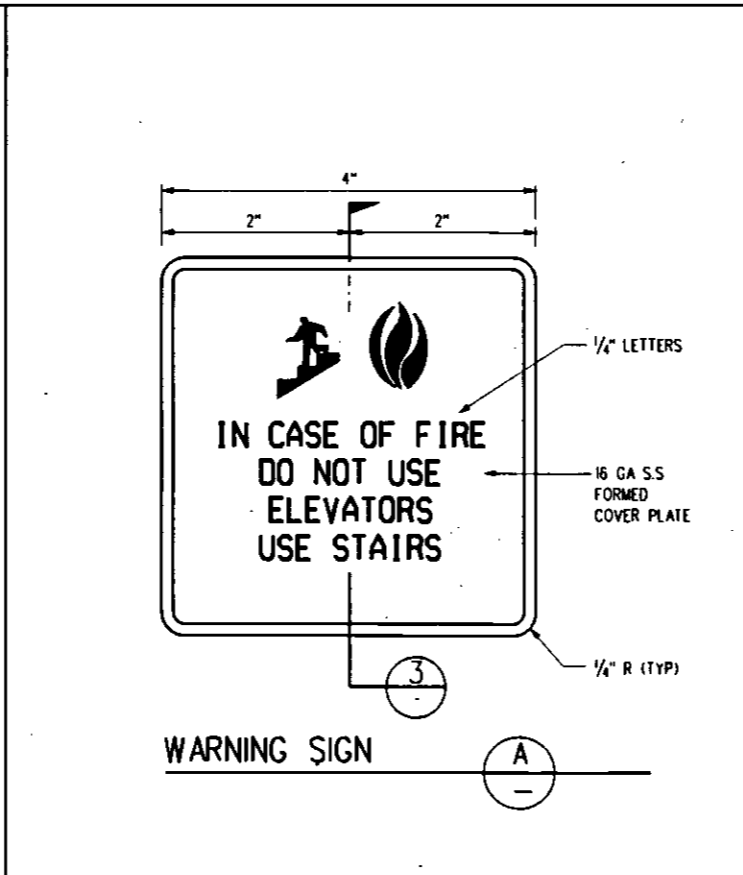
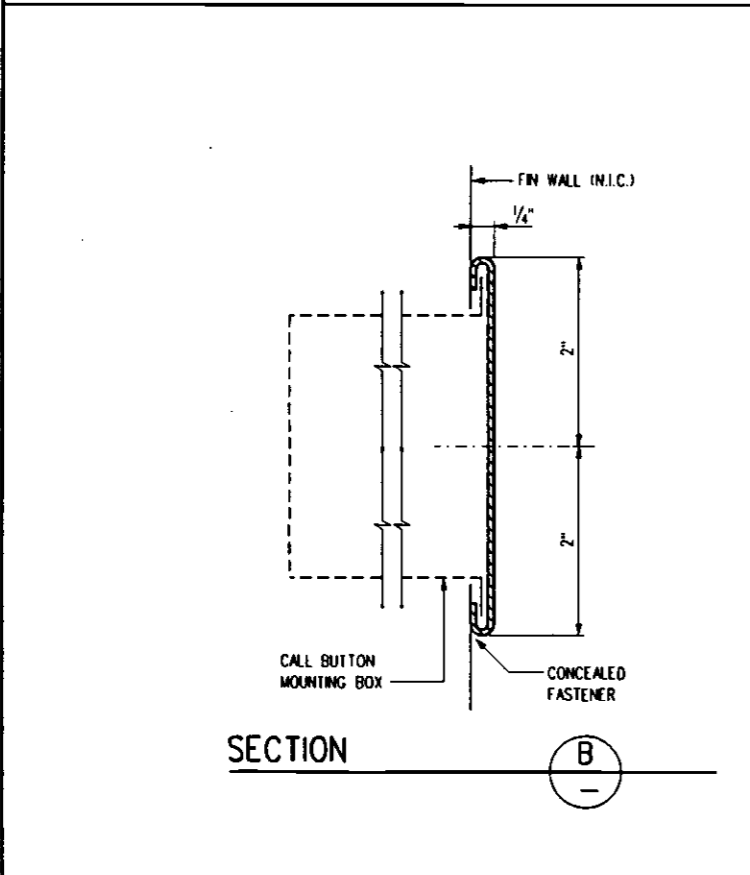
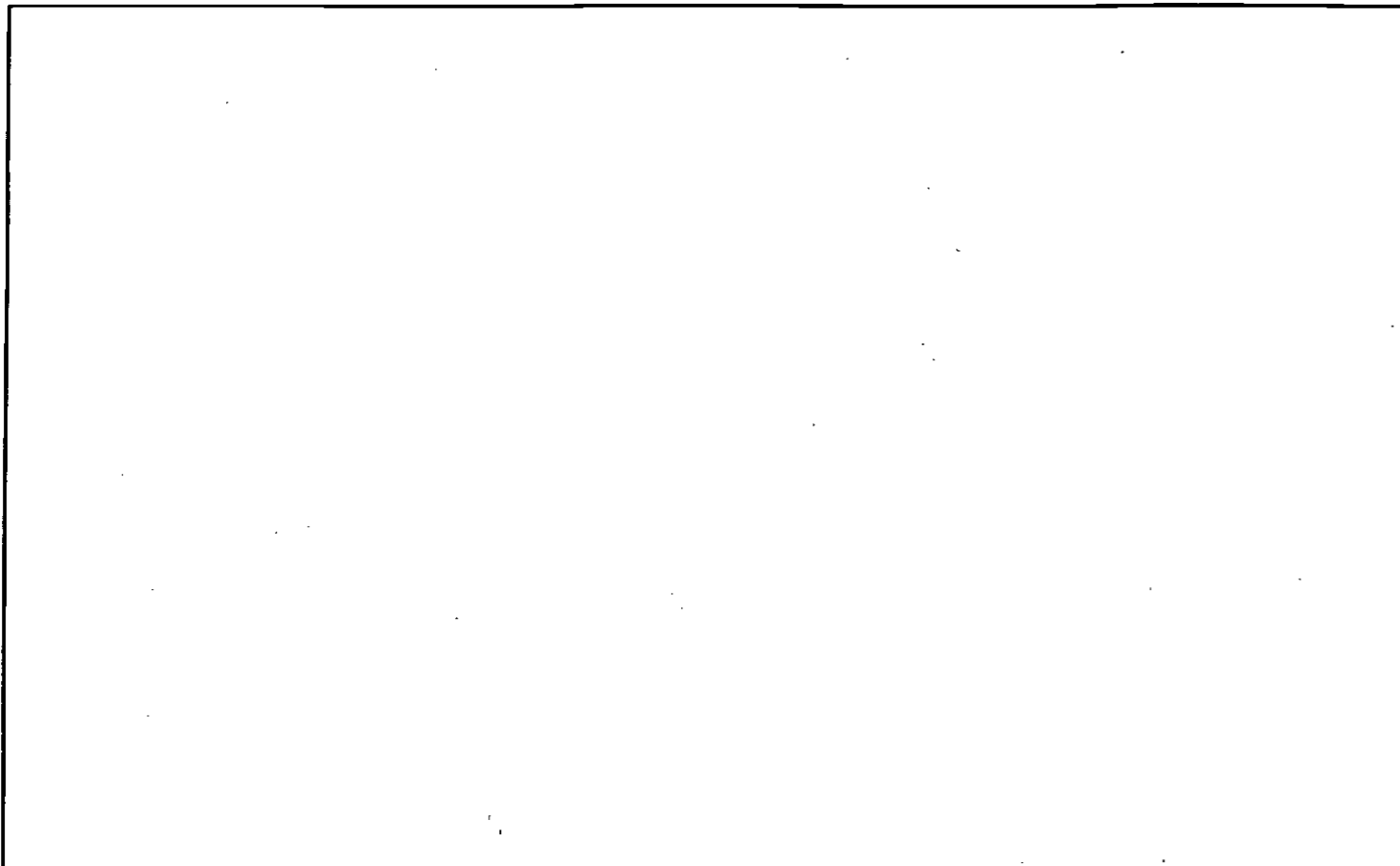


REV	DATE	BY	SUB	APP	DESCRIPTION
0	6 20 94				BASELINE ISSUE

DESIGNED BY
J. HEGEDE
DRAWN BY
F. PANLILIO
CHECKED BY
I. ROQUE
IN CHARGE
R. DELAHOUSIE
DATE
20 JUN 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY
ENGINEERING MANAGEMENT CONSULTANT
SUBMITTED: *[Signature]*
APPROVED: *[Signature]*

ARCHITECTURAL DIRECTIVE
ELEVATOR DETAIL GRAPHICS
SHEET 1 OF 2
CONTRACT NO.
DRAWING NO. AD-014
REV. 0
SCALE AS NOTED
SHEET NO. 15



REV	DATE	BY	SUB	APP	DESCRIPTION
0	6.20.94				BASELINE ISSUE

DESIGNED BY
J. HEGEDE
DRAWN BY
F. PANLILIO
CHECKED BY
I. ROQUE
IN CHARGE
R. DELAHOUSIE
DATE
20 JUN 94

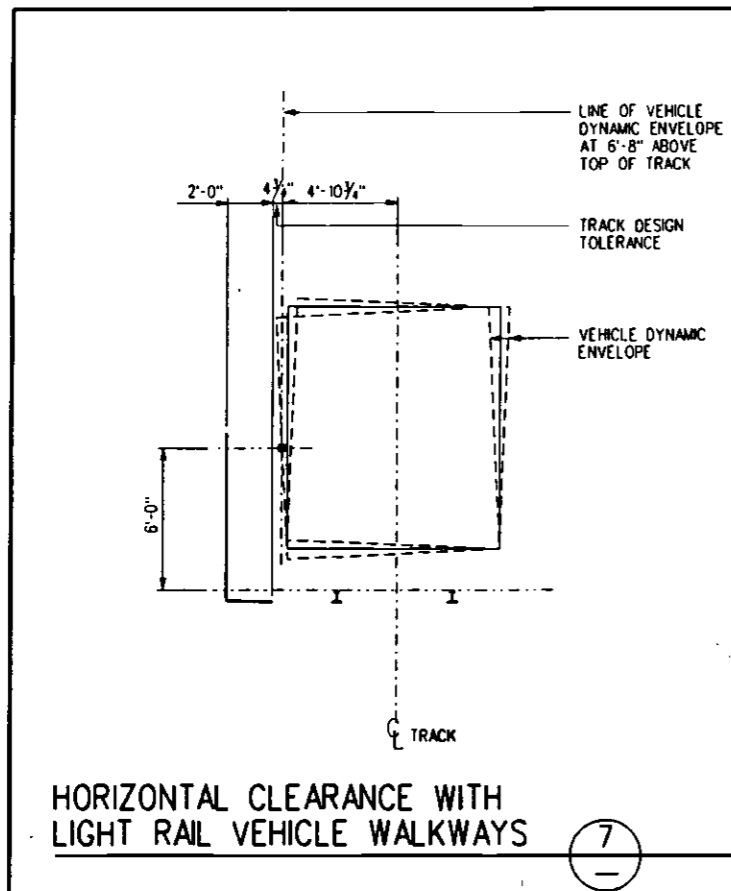
M LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT
an affiliate of
Parsons Brinckerhoff Quate & Daniels, Inc.
Daniel Mann Johnson & Mendenhall
OF Walter E. Moore's Kohn + Looy
(Successors of Fleming, Architects
James S. Gale, III and J. M.
The Bartlett Group, Inc.)

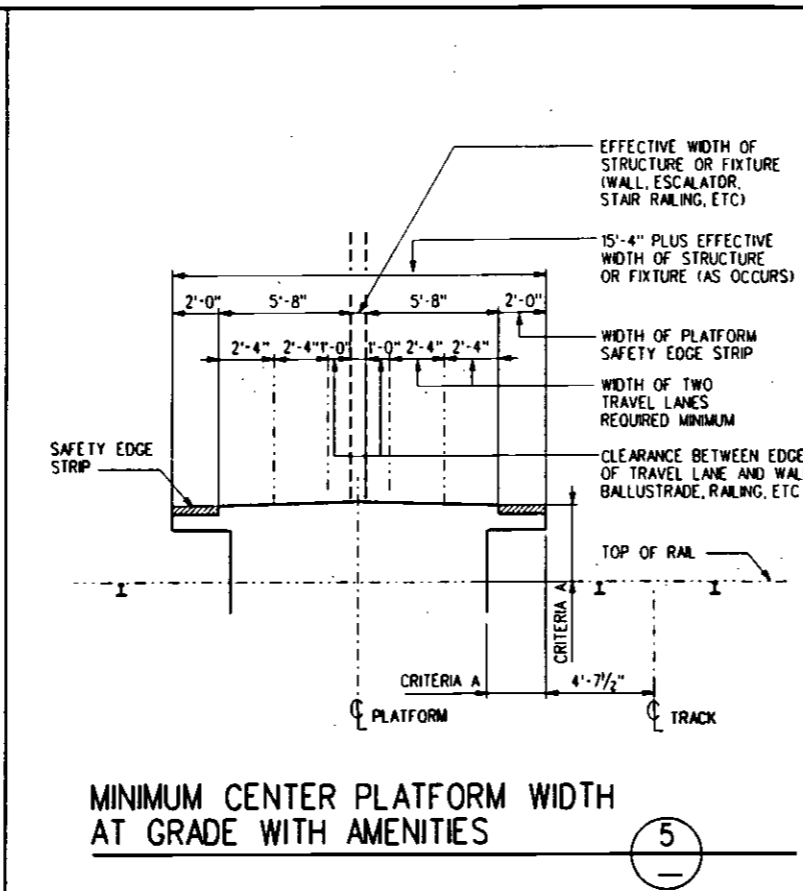
SUBMITTED: *[Signature]*
APPROVED: *[Signature]*

ARCHITECTURAL DIRECTIVE
ELEVATOR DETAIL GRAPHICS
SHEET 2 OF 2

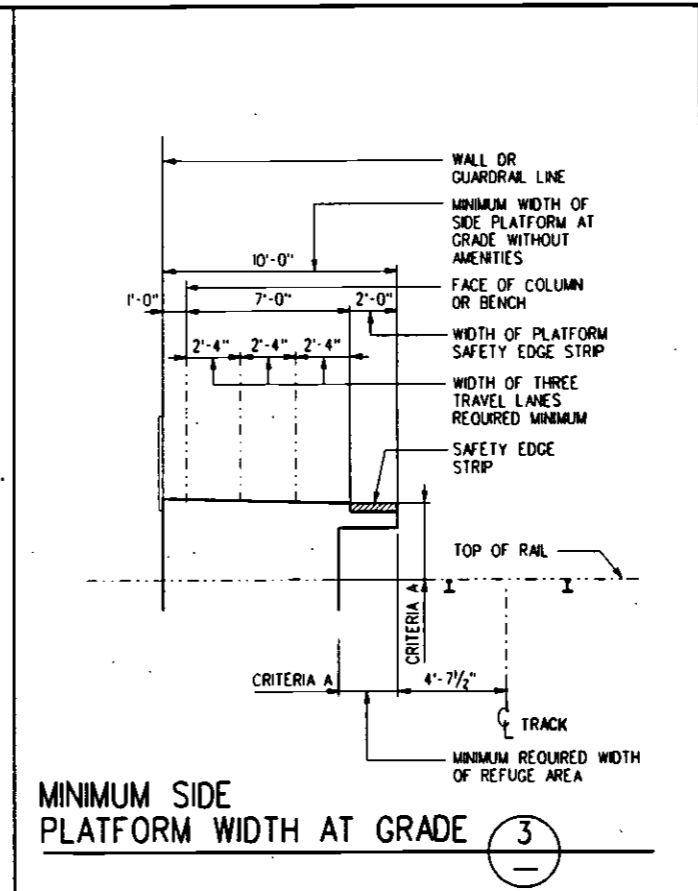
CONTRACT NO.	
DRAWING NO.	REV
AD-015	0
SCALE	
HALF SIZE	
SHEET NO.	
16	



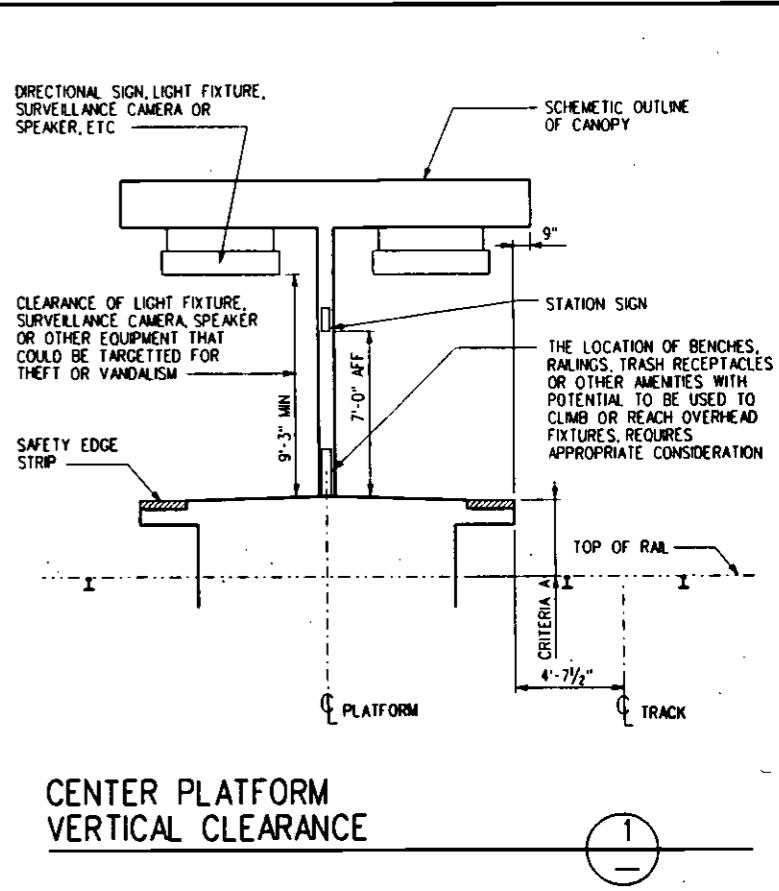
HORIZONTAL CLEARANCE WITH LIGHT RAIL VEHICLE WALKWAYS (7)



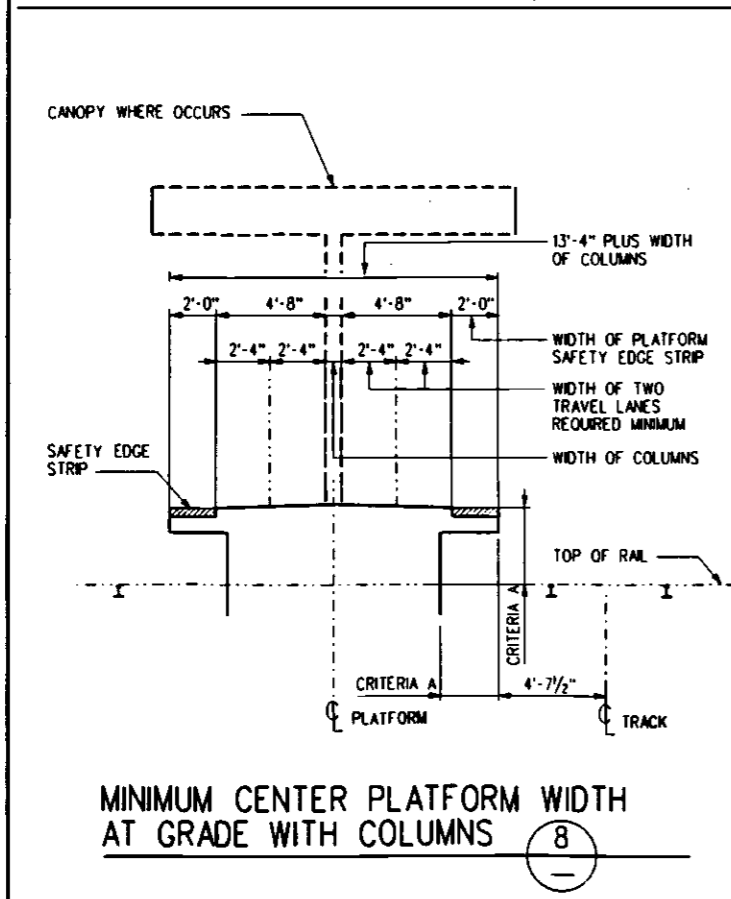
MINIMUM CENTER PLATFORM WIDTH AT GRADE WITH AMENITIES (5)



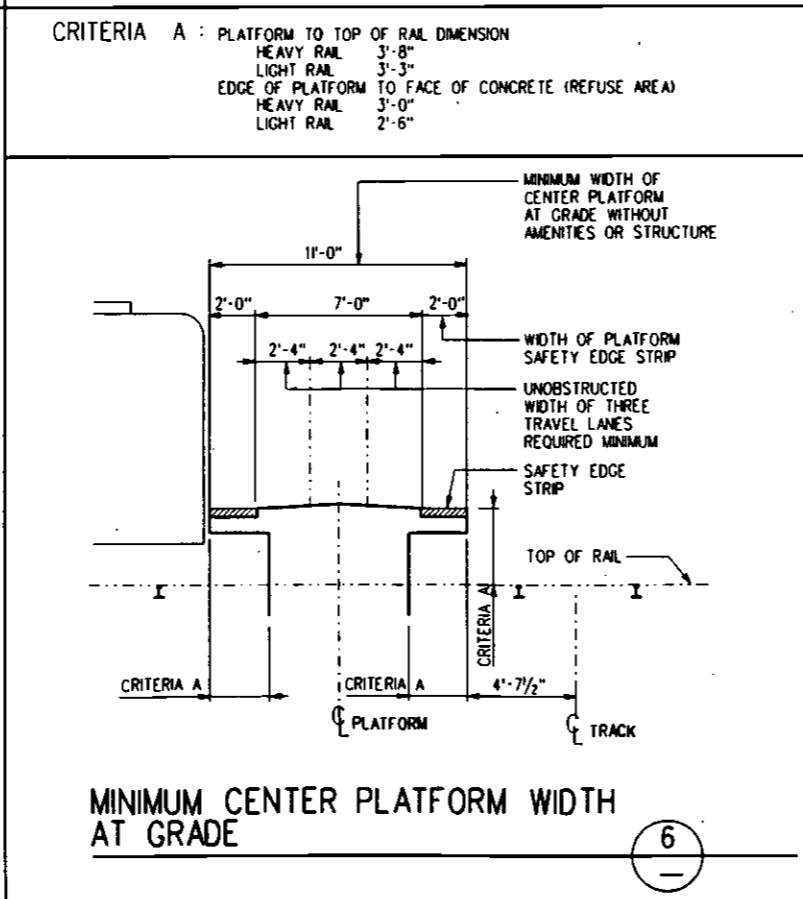
MINIMUM SIDE PLATFORM WIDTH AT GRADE (3)



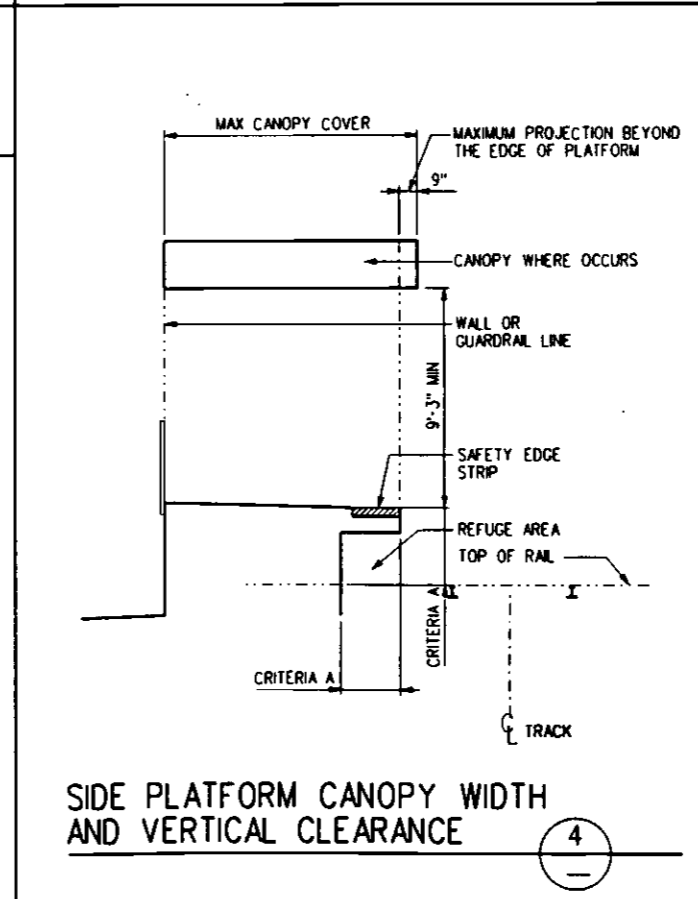
CENTER PLATFORM VERTICAL CLEARANCE (1)



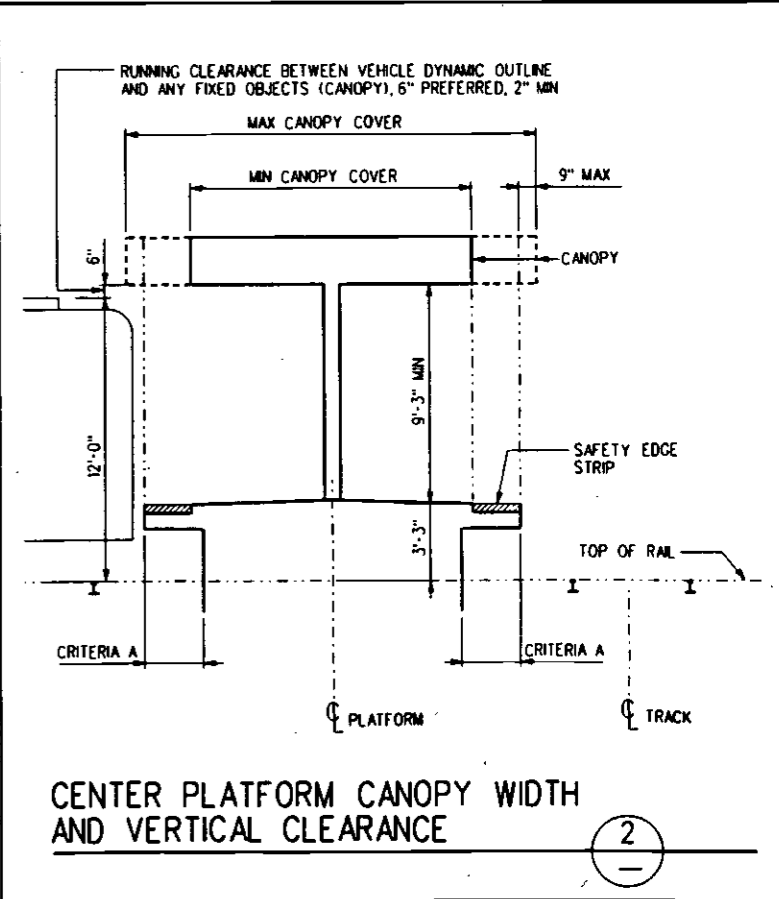
MINIMUM CENTER PLATFORM WIDTH AT GRADE WITH COLUMNS (8)



MINIMUM CENTER PLATFORM WIDTH AT GRADE (6)



SIDE PLATFORM CANOPY WIDTH AND VERTICAL CLEARANCE (4)



CENTER PLATFORM CANOPY WIDTH AND VERTICAL CLEARANCE (2)

CRITERIA A : PLATFORM TO TOP OF RAIL DIMENSION
 HEAVY RAIL 3'-8"
 LIGHT RAIL 3'-3"
 EDGE OF PLATFORM TO FACE OF CONCRETE (REFUGE AREA)
 HEAVY RAIL 3'-0"
 LIGHT RAIL 2'-6"

REV	DATE	BY	SUB	APP	DESCRIPTION
0	6/20/94				BASELINE ISSUE

DESIGNED BY
J. HEGEDE
 DRAWN BY
C. YU
 CHECKED BY
I. ROQUE
 IN CHARGE
R. DELAHOUSIE
 DATE
20 JUN 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

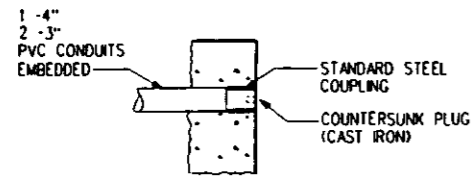
ENGINEERING MANAGEMENT CONSULTANT

Submitted: *[Signature]*
 Approved: *[Signature]*

ARCHITECTURAL DIRECTIVE
 PLATFORM CONFIGURATIONS

CONTRACT NO. _____
 DRAWING NO. AD-016 REV 0
 SCALE 1/4" = 1'-0"
 SHEET NO. 17

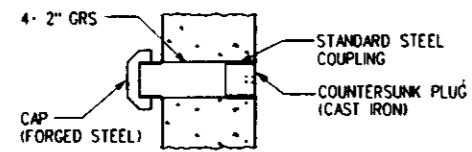
PAID AREA FREE AREA



A POWER AND CONTROL
1/4"=1'-0"

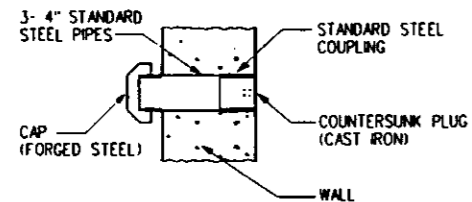
PAID AREA FREE AREA

NOTE : AT SIMILAR CONDITION PROVIDE 1-2" GRS



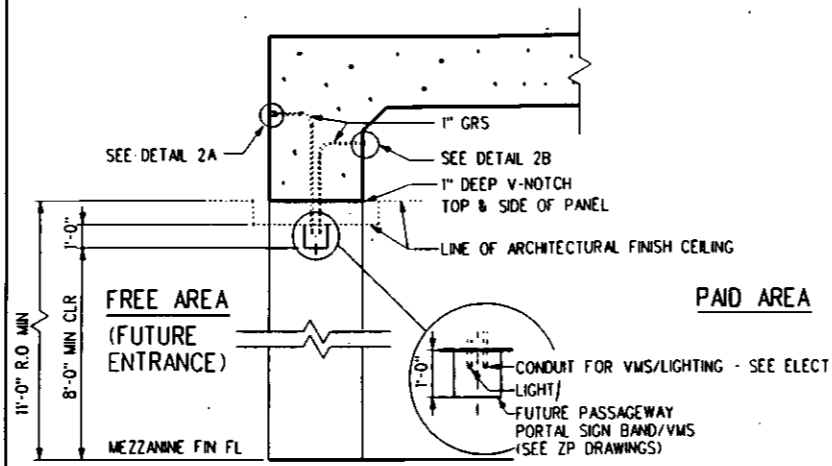
B COMMUNICATIONS
1/4"=1'-0"

PAID AREA FREE AREA

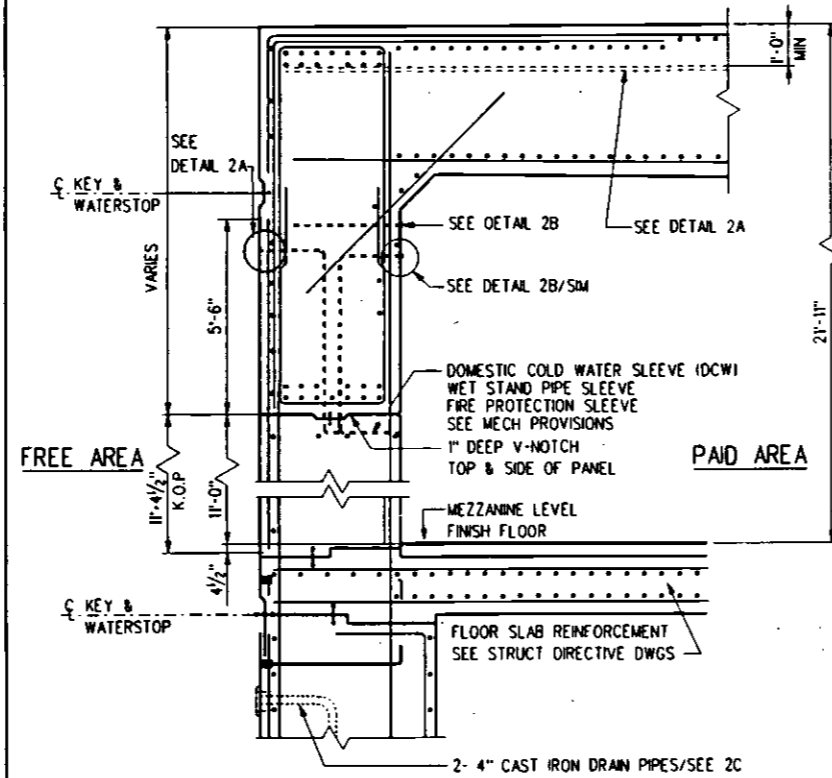


C FIRE PROTECTION SPRINKLERS
(ALSO FOR WET STAND PIPE, DOMESTIC COLD WATER AND STORM DRAIN. SEE MECHANICAL PROVISIONS)
1/4"=1'-0"

CONDUITS EMBEDDED DETAILS **2**
1/4"=1'-0"

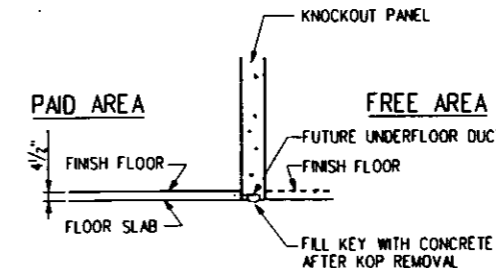


SECTION THRU PORTAL **B**
1/4"=1'-0"

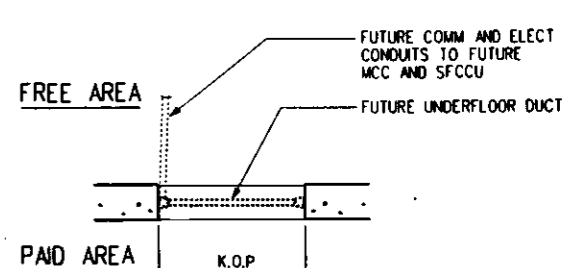


SECTION **C**
1/4"=1'-0"

CRITERIA : UNDERFLOOR DUCT AND CONDUITS INSTALLED AS PART OF FUTURE CONSTRUCTION OUTSIDE OF STATION BOX, AND ARE SHOWN HERE FOR INFORMATION ONLY



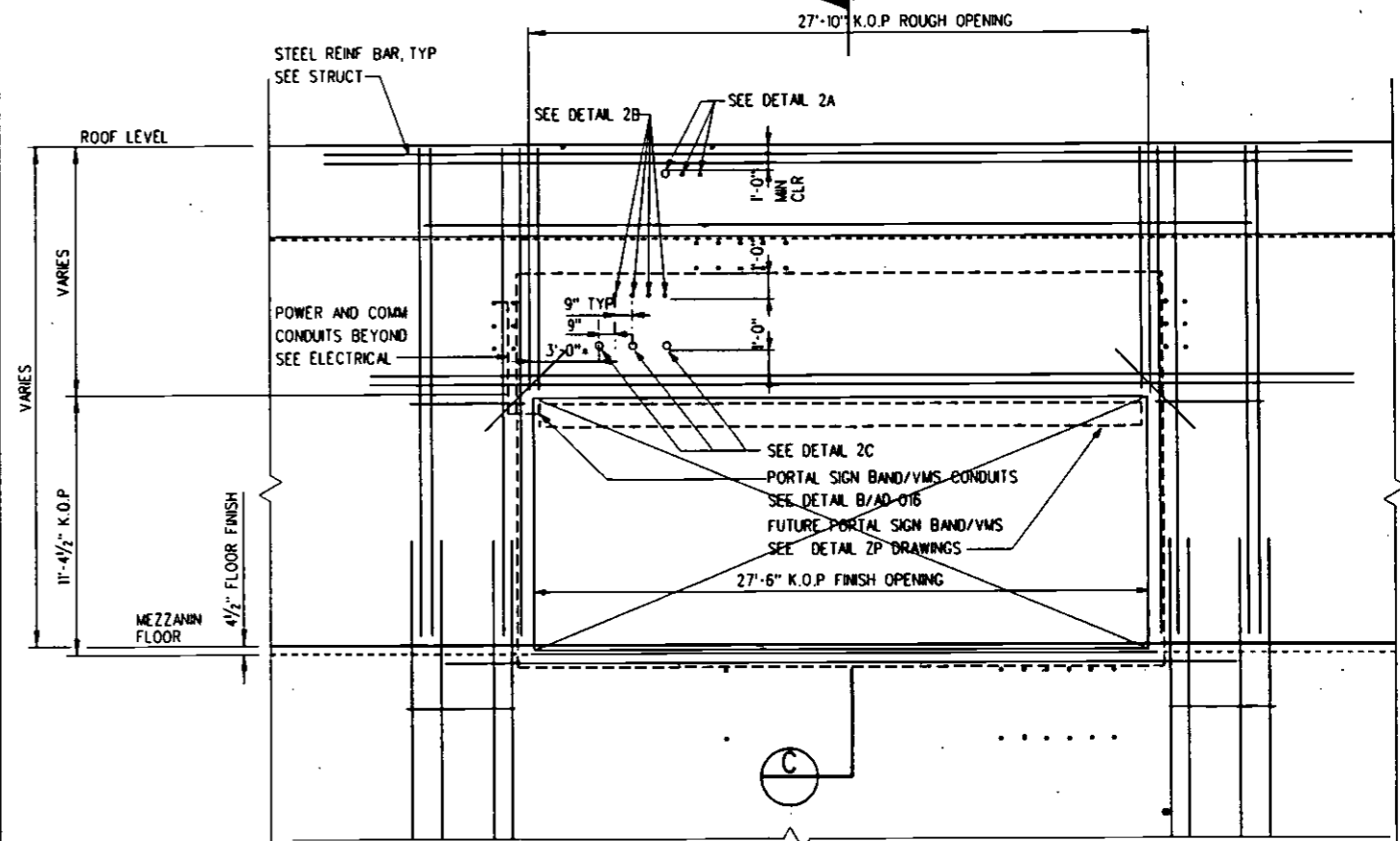
B SECTION
1/4"=1'-0"



A PLAN - FUTURE INSTALLATION
1/4"=1'-0"

PROVISIONS FOR FUTURE FARE GATES **1**
1/4"=1'-0"

CRITERIA : EMBEDDED CONDUITS MAY BE LOCATED OPPOSIT HAND TO KNOCKOUT PANEL CENTER LINE - SEE ELECT/MECH DRAWINGS



ELEVATION **A**
1/4"=1'-0"

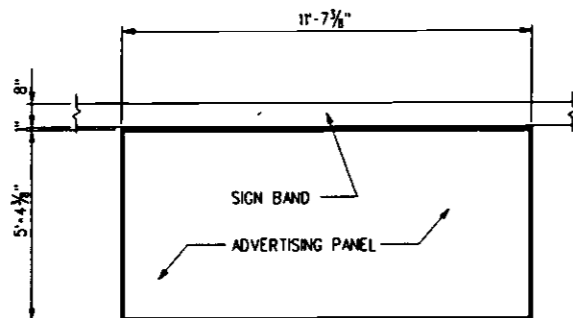
REV	DATE	BY	SUB	APP	DESCRIPTION
0	6 20 94				BASELINE ISSUE

DESIGNED BY: J. HEGEDE
 DRAWN BY: C. YU
 CHECKED BY: I. ROOUE
 IN CHARGE: R. DELAHOUSIE
 DATE: 20 JUN 94

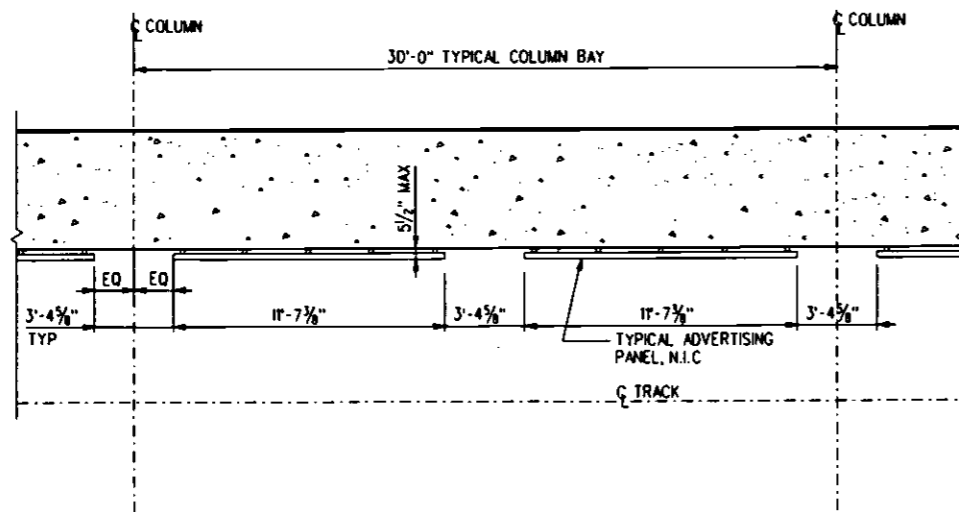
M LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY
 ENGINEERING MANAGEMENT CONSULTANT
 SUBMITTED: *[Signature]*
 APPROVED: *[Signature]*

ARCHITECTURAL DIRECTIVE
 KNOCKOUT PANEL DETAILS

CONTRACT NO	
DRAWING NO	AD-017
REV	0
SCALE	AS NOTED
SHEET NO	18

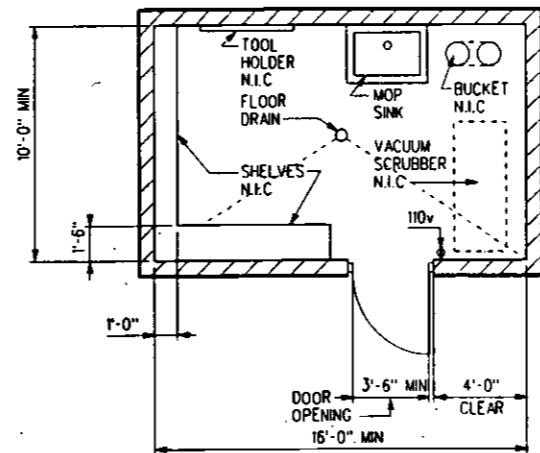


ELEVATION
1/4" = 1'-0"



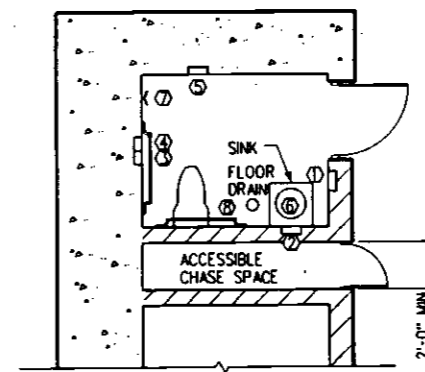
PARTIAL PLAN AT TRAINWAY
1/4" = 1'-0"

ADVERTISING PANEL, N.I.C
AS NOTED



CUSTODIAL ROOM LAYOUT

1/4" = 1'-0"



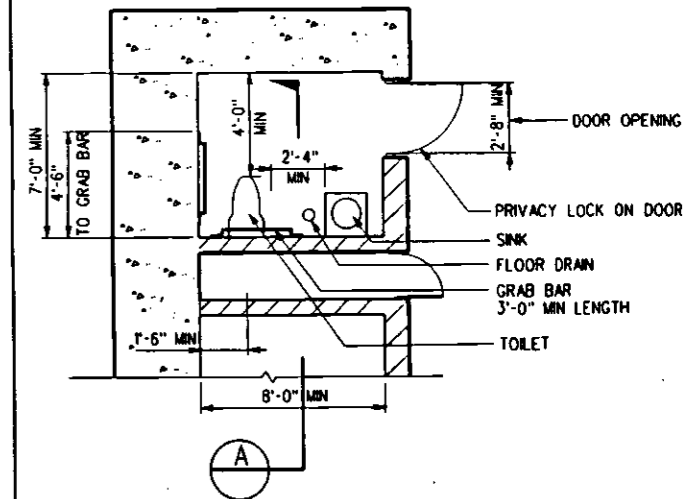
SEE 1/AD-018 FOR CLEARANCE DIMENSIONS.

ACCESSORY LEGEND:

- ① PAPER TOWEL DISPENSER AND WASTE RECEPTACLE
- ② SOAP DISPENSER
- ③ TOILET TISSUE DISPENSER
- ④ TOILET SEAT COVER DISPENSER
- ⑤ SANITARY NAPKIN/TAMPON DISPENSER
- ⑥ MIRROR AND SHELF
- ⑦ COAT HOOK
- ⑧ GRAB BAR

STAFF TOILET ROOM
ACCESSORY LAYOUT

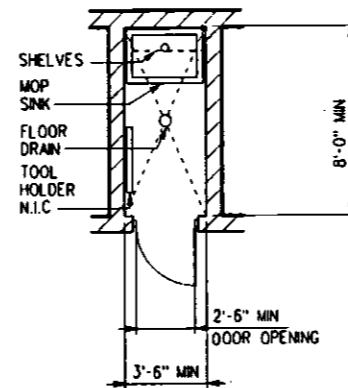
1/4" = 1'-0"



SEE 2/AD-018 FOR ACCESSORY LAYOUT

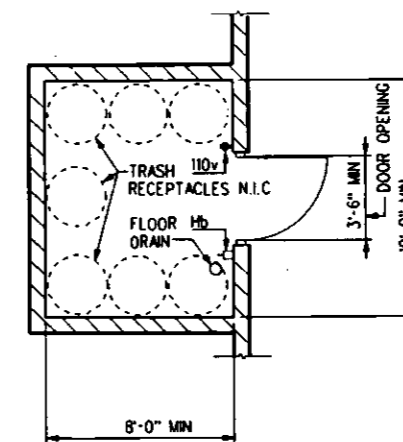
STAFF TOILET ROOM PLAN

1/4" = 1'-0"



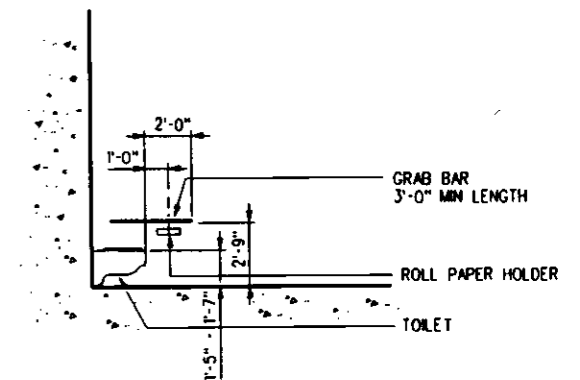
CUSTODIAL CLOSET LAYOUT

1/4" = 1'-0"



TRASH ROOM LAYOUT

1/4" = 1'-0"



SECTION - PRIVACY TOILET

1/4" = 1'-0"

REV	DATE	BY	SUB	APP	DESCRIPTION
0	6.20.94				BASELINE ISSUE

DESIGNED BY
J. HEGEDE
DRAWN BY
C. YU
CHECKED BY
I. ROQUE
IN CHARGE
R. DELAHOUSIE
DATE
20 JUN 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

Submitted: *R. Delahousie*

Approved: *[Signature]*

ARCHITECTURAL DIRECTIVE
ANCILLARY ROOM LAYOUTS AND
ADVERTISING PANEL

CONTRACT NO.	
DRAWING NO.	AD-018
REV	0
SCALE	AS NOTED
SHEET NO.	19



BASELINE STATUS REPORT: DIRECTIVE/STANDARD DRAWINGS

DRAWING NO.	REV.	DATE MODIFIED	DRAWING TITLE / Change Title	REMARKS
R92-DE305-06 DIRECTIVE DRAWINGS: ELECTRICAL				
ED-001	0	04/19/94	INDEX DF DRAWINGS Baseline issue	
ED-151	0 1	04/19/94 08/30/95	DIAGRAM SYMBDLS AND ABBREVIATION Baseline issue Revised and resealed per DE305-SBCN-9.00	
ED-152	0	04/19/94	PLAN SYMBDLS AND ABBREVIATION Baseline issue	
ED-153	0	04/19/94	COMMUNICATIONS SYMBOLS AND ABBREVIATION Baseline issue	
ED-154	0 1	03/04/94 08/30/95	ELECTRICAL DIRECTIVE, GENERAL CONSTRUCTION NOTES Rev and redrawn per dcn 91-19 and 93-53 Revised and resealed per DE305-SBCN-9.00	CAD Received
ED-201	0 1	02/24/94 08/30/95	ELECTRICAL DIRECTIVE, ONE LINE DIAGRAM - EAST END Revised & redrawn per dcn 93-68 Revised and resealed per DE305-SBCN-9.00	
ED-202	0 1	02/24/94 08/30/95	ELECTRICAL DIRECTIVE, ONE LINE DIAGRAM - WEST END Revised & redrawn per dcn 93-68 Revised and resealed per DE305-SBCN-9.00	
ED-203	0 1	02/24/94 08/30/95	ELECTRICAL DIRECTIVE, ONE LINE DIAGRAM AND MISCELLANEOUS Revised & redrawn per dcn 93-68 Revised and resealed per DE305-SBCN-9.00	
ED-206	0	04/19/94	MCC ELEVATION Baseline issue	
ED-207	0 1	02/24/94 08/30/95	ELECTRICAL DIRECTIVE, MCC 1E, 2E, & 3E SWITCHBOARD 1E, 2E SCHEDULES Revised, redrawn per dcn-15 Revised and resealed per DE305-SBCN-9.00	
ED-208	0 1	02/24/94 08/30/95	ELECTRICAL DIRECTIVE, MCC 1W, 2W, 3W & 3E SWITCHBOARD 1E, 2E SCHEDULES Revised, redrawn per dcn 93-15 Revised and resealed per DE305-SBCN-9.00	
ED-211	0 1	04/19/94 08/30/95	RISER DIAGRAMS AND DETAILS Baseline issue Revised and resealed per DE305-SBCN-9.00	
ED-213	0	04/19/94	PANEL SCHEDULES Baseline issue	
ED-214	0	04/19/94	RACEWAY & CABLE SCHEDULE Baseline issue	
ED-215	0 1	02/24/94 08/17/95	ELECTRICAL DIRECTIVE, ELEVATOR INTERFACE DETAILS Revised, redrawn per dcn- 93-43 Revised per de305-sbcn-8.00	
ED-216	0 1	02/24/94 08/17/95	ELECTRICAL DIRECTIVE, ESCALATOR INTERFACE DETAILS Revised, redrawn per dcn-93-43 Revised per de305-sbcn-8.00	
ED-217	0	04/19/94	ENLARGED PLAN & DETAILS Baseline issue	
ED-219	0	04/19/94	ELECTRICAL DIRECTIVE, ENLARGED PLAN & DETAILS - SHEET 1 OF 2 Revised and redrawn per dcn 93-96	
ED-220	0	04/19/94	ELECTRICAL DIRECTIVE, ENLARGED PLAN & DETAILS - SHEET 2 OF 2 Revised & redrawn per dcn 93-96	
ED-231	0 1	03/03/94 08/30/95	ELECTRICAL DIRECTIVE, TYPICAL INSTALLATION DETAILS SHEET 1 OF 8 Rev'd, redrawn per dcn-45.01 Revised and resealed per DE305-SBCN-9.00	
ED-232	0	03/04/94	ELECTRICAL DIRECTIVE, TYPICAL INSTALLATION DETAILS SHEET 2 OF 8 Rev. and redrawn per dcn 91-19 and 93-6	CAD Received

BASELINE STATUS REPORT: DIRECTIVE/STANDARD DRAWINGS

DRAWING NO.	REV.	DATE MODIFIED	DRAWING TITLE / Change Title	REMARKS
R92-DE305-06 DIRECTIVE DRAWINGS: ELECTRICAL				
ED-232	1	08/30/95	Revised and resealed per DE305-SBCN-9.00	
ED-233	0 1	03/04/94 08/17/95	ELECTRICAL DIRECTIVE, TYPICAL INSTALLATION DETAILS SHEET 3 OF 8 Revised and redrawn per dcn 91-19 Revised per de305-sbcn-8.00	CAD Received
ED-234	0 1	04/19/94 08/30/95	TYPICAL INSTALLATION DETAILS - SHEET 4 OF 8 Baseline issue Revised and resealed per DE305-SBCN-9.00	
ED-235	0 1	03/04/94 08/30/95	ELECTRICAL DIRECTIVE, TYPICAL INSTALLATION DETAILS SHEET 5 OF 8 Revised and redrawn per dcn 92-23 Revised and resealed per DE305-SBCN-9.00	CAD Received
ED-236	0 1	03/04/94 08/30/95	ELECTRICAL DIRECTIVE, TYPICAL INSTALLATION DETAILS SHEET 6 OF 8 Revised and redrawn per dcn 91-19 Revised and resealed per DE305-SBCN-9.00	CAD Received
ED-237	0 1	03/22/94 08/30/95	ELECTRICAL DIRECTIVE TYPICAL INSTALLATION DETAILS SHEET 7 OF 8 Rev and redrawn per dcn 91-19 and 93-53 Revised and resealed per DE305-SBCN-9.00	CAD Received
ED-238	0	04/19/94	TYPICAL INSTALLATION DETAILS - SHEET 8 OF 8 Baseline issue	
ED-240	0	04/19/94	ELECTRICAL EDGE LIGHT DETAILS Baseline issue	
ED-241	0	03/04/94	ELECTRICAL DIRECTIVE, ELEMENTARY WIRING DIAGRAMS SHEET 1 OF 18 Revised and redrawn per dcn 91-19	CAD Received
ED-242	0 1	04/07/94 08/30/95	ELEMENTARY WIRING DIAGRAMS - SHEET 2 OF 18 Revised and redrawn per dcn 91-19 AND 92-48 Revised and resealed per DE305-SBCN-9.00	
ED-243	0	04/19/94	ELEMENTARY WIRING DIAGRAMS - SHEET 3 OF 18 Baseline issue	
ED-244	0	03/04/94	ELECTRICAL DIRECTIVE, ELEMENTARY WIRING DIAGRAMS SHEET 4 OF 18 Revised and redrawn per dcn 91-19	
ED-245	0	03/04/94	ELECTRICAL DIRECTIVE, ELEMENTARY WIRING DIAGRAMS SHEET 5 OF 18 Revised and redrawn per dcn 91-19	CAD Received
ED-246	0	03/04/94	ELECTRICAL DIRECTIVE, ELEMENTARY WIRING DIAGRAMS SHEET 6 OF 18 Revised and redrawn per dcn 91-19	CAD Received
ED-247	0	03/04/94	ELECTRICAL DIRECTIVE, ELEMENTARY WIRING DIAGRAMS SHEET 7 OF 18 Revised and redrawn per dcn 91-19	CAD Received
ED-248	0	03/04/94	ELECTRICAL DIRECTIVE, ELEMENTARY WIRING DIAGRAMS SHEET 8 OF 18 Revised and redrawn per dcn 91-19	CAD Received
ED-249	0	03/04/94	ELECTRICAL DIRECTIVE, ELEMENTARY WIRING DIAGRAMS SHEET 9 OF 18 Revised and redrawn per dcn 91-19	CAD Received
ED-250	0	02/24/94	ELECTRICAL DIRECTIVE, ELEMENTARY WIRING DIAGRAM SHEET 10 OF 18 Rev'd, redrawn per dcn-93-67 & 93-43	
ED-251	0	02/24/94	ELECTRICAL DIRECTIVE, ELEMENTARY WIRING DIAGRAMS SHEET 11 OF 18 Revised, redrawn per dcn 93-5	
ED-252	0	04/19/94	ELEMENTARY WIRING DIAGRAMS - SHEET 12 OF 18 Baseline issue	
ED-253			ELECTRICAL DIRECTIVE ELEMENTARY WIRING DIAGRAMS SHEET 13 OF 18	CAD Received

BASELINE STATUS REPORT: DIRECTIVE/STANDARD DRAWINGS

DRAWING NO.	REV.	DATE MODIFIED	DRAWING TITLE / Change Title	REMARKS
R92-DE305-06 DIRECTIVE DRAWINGS: ELECTRICAL				
ED-253	0	03/22/94	Revised and redrawn per dcn 91-19	
ED-254	0	03/22/94	ELECTRICAL DIRECTIVE ELEMENTARY WIRING DIAGRAMS SHEET 14 OF 18 Revised and redrawn per dcn 91-19	CAD Received
ED-255	0	04/19/94	ELEMENTARY WIRING DIAGRAMS - SHEET 15 OF 18 Baseline issue	
ED-256	0	04/19/94	ELEMENTARY WIRING DIAGRAMS - SHEET 16 OF 18 Baseline issue	
ED-257	0	04/07/94	ELEMENTARY WIRING DIAGRAMS - SHEET 17 OF 18 Revised and redrawn per dcn 93-33	
ED-258	0	03/22/94	ELECTRICAL DIRECTIVE ELEMENTARY WIRING DIAGRAMS SHEET 18 OF 18 Revised and redrawn per dcn 93-43	CAD Received
ED-261	0	03/22/94	ELECTRICAL DIRECTIVE CONTRDL BLOCK DIAGRAM SHEET 1 OF 4 Revised and redrawn per dcn 91-19	CAD Received
ED-262	0	03/22/94	ELECTRICAL DIRECTIVE CONTRDL BLOCK DIAGRAM SHEET 2 OF 4 Rev and redrawn per dcn 91-19 and 93-33	CAD Received
ED-263	0	03/22/94	ELECTRICAL DIRECTIVE CONTRDL BLOCK DIAGRAM SHEET 3 OF 4 Revised and redrawn per dcn 91-19	CAD Received
ED-264	0	04/19/94	CONTRDL BLOCK DIAGRAM - SHEET 4 OF 4 Baseline issue	
ED-271	0	04/19/94	CIC CABINET CONSTRUCTION DETAILS Baseline issue	
ED-272	0	04/19/94	CONNECTION DIAGRAM TYPICAL ARRANGEMENT AND WIRE MARKING Baseline issue	
ED-273	0	03/22/94	ELECTRICAL DIRECTIVE CONNECTION DIAGRAM SHEET 1 OF 12 Revised and redrawn per dcn 91-19	CAD Received
ED-274	0	03/22/94	ELECTRICAL DIRECTIVE CONNECTION DIAGRAM SHEET 2 OF 12 Revised and redrawn per dcn 91-19	CAD Received
ED-275	0	03/22/94	ELECTRICAL DIRECTIVE CONNECTION DIAGRAM SHEET 3 OF 12 Rev and redrawn per dcn 91-19 and 93-33	CAD Received
ED-276	0	03/22/94	ELECTRICAL DIRECTIVE CONNECTION DIAGRAM SHEET 4 OF 12 Revised and redrawn per dcn 91-19	CAD Received
ED-277	0	03/22/94	ELECTRICAL DIRECTIVE CONNECTION DIAGRAM SHEET 5 OF 12 Revised and redrawn per dcn 91-19	CAD Received
ED-278	0	03/22/94	ELECTRICAL DIRECTIVE CONNECTION DIAGRAM SHEET 6 OF 12 Rev and redrawn per dcn 91-19 and 93-33	CAD Received
ED-279	0	03/22/94	ELECTRICAL DIRECTIVE CONNECTION DIAGRAM SHEET 7 OF 12 Revised and redrawn per dcn 91-19	CAD Received
ED-280	0	03/22/94	ELECTRICAL DIRECTIVE CONNECTION DIAGRAM SHEET 8 OF 12 Revised and redrawn per dcn 91-19	CAD Received
ED-281	0	03/22/94	ELECTRICAL DIRECTIVE CONNECTION DIAGRAM SHEET 9 OF 12 Revised and redrawn per dcn 91-19	CAD Received
ED-282	0	03/22/94	ELECTRICAL DIRECTIVE CONNECTION DIAGRAM SHEET 10 OF 12 Revised and redrawn per dcn 91-19	CAD Received
ED-283	0	04/19/94	CONNECTION DIAGRAM - SHEET 11 OF 12 Baseline issue	
ED-284	0	04/19/94	CONNECTION DIAGRAM - SHEET 12 OF 12 Baseline issue	



VOLUME V

DIRECTIVE DRAWINGS

ELECTRICAL

**MTA BASELINE DOCUMENT
NO. R92-DE305.06**

DRAWING NUMBER	DRAWING TITLE	DRAWING NUMBER	DRAWING TITLE	DRAWING NUMBER	DRAWING TITLE
	COVER SHEET				
ED-001	INDEX OF DRAWINGS			ED-280	CONNECTION DIAGRAM - SHEET 8 OF 12
ED-151	DIAGRAM SYMBOLS AND ABBREVIATIONS	ED-243	ELEMENTARY WIRING DIAGRAMS - SHEET 3 OF 18	ED-281	CONNECTION DIAGRAM - SHEET 9 OF 12
ED-152	PLAN SYMBOLS AND ABBREVIATIONS	ED-244	ELEMENTARY WIRING DIAGRAMS - SHEET 4 OF 18	ED-282	CONNECTION DIAGRAM - SHEET 10 OF 12
ED-153	COMMUNICATIONS SYMBOLS AND ABBREVIATIONS	ED-245	ELEMENTARY WIRING DIAGRAMS - SHEET 5 OF 18	ED-283	CONNECTION DIAGRAM - SHEET 11 OF 12
ED-154	GENERAL CONSTRUCTION NOTES	ED-246	ELEMENTARY WIRING DIAGRAMS - SHEET 6 OF 18	ED-284	CONNECTION DIAGRAM - SHEET 12 OF 12
ED-201	ONE LINE DIAGRAM-EAST END	ED-247	ELEMENTARY WIRING DIAGRAMS - SHEET 7 OF 18		
ED-202	ONE LINE DIAGRAM-WEST END	ED-248	ELEMENTARY WIRING DIAGRAMS - SHEET 8 OF 18		
ED-203	ONE LINE DIAGRAM AND MISCELLANEOUS	ED-249	ELEMENTARY WIRING DIAGRAMS - SHEET 9 OF 18		
ED-206	MCC ELEVATION	ED-250	ELEMENTARY WIRING DIAGRAMS - SHEET 10 OF 18		
ED-207	MCC 1E, 2E, & 3E SWITCHBOARD 1E, 2E SCHEDULES	ED-251	ELEMENTARY WIRING DIAGRAMS - SHEET 11 OF 18		
ED-208	MCC 1W, 2W, & 3W SWITCHBOARD 1W, 2W SCHEDULES	ED-252	ELEMENTARY WIRING DIAGRAMS - SHEET 12 OF 18		
ED-211	RISER DIAGRAMS AND DETAILS	ED-253	ELEMENTARY WIRING DIAGRAMS - SHEET 13 OF 18		
ED-213	PANEL SCHEDULES	ED-254	ELEMENTARY WIRING DIAGRAMS - SHEET 14 OF 18		
ED-214	RACEWAY & CABLE SCHEDULE	ED-255	ELEMENTARY WIRING DIAGRAMS - SHEET 15 OF 18		
ED-215	ELEVATOR INTERFACE DETAILS	ED-256	ELEMENTARY WIRING DIAGRAMS - SHEET 16 OF 18		
ED-216	ESCALATOR INTERFACE DETAILS	ED-257	ELEMENTARY WIRING DIAGRAMS - SHEET 17 OF 18		
ED-217	ENLARGED PLAN & DETAILS	ED-258	ELEMENTARY WIRING DIAGRAMS - SHEET 18 OF 18		
ED-219	ENLARGED PLAN & DETAILS - SHEET 1 OF 2	ED-261	CONTROL BLOCK DIAGRAM - SHEET 1 OF 4		
ED-220	ENLARGED PLAN & DETAILS - SHEET 2 OF 2	ED-262	CONTROL BLOCK DIAGRAM - SHEET 2 OF 4		
ED-231	TYPICAL INSTALLATION DETAILS - SHEET 1 OF 8	ED-263	CONTROL BLOCK DIAGRAM - SHEET 3 OF 4		
ED-232	TYPICAL INSTALLATION DETAILS - SHEET 2 OF 8	ED-264	CONTROL BLOCK DIAGRAM - SHEET 4 OF 4		
ED-233	TYPICAL INSTALLATION DETAILS - SHEET 3 OF 8	ED-271	CIC CABINET CONSTRUCTION DETAILS		
ED-234	TYPICAL INSTALLATION DETAILS - SHEET 4 OF 8	ED-272	CONNECTION DIAGRAM TYPICAL ARRANGEMENT AND WIRE MARKING		
ED-235	TYPICAL INSTALLATION DETAILS - SHEET 5 OF 8	ED-273	CONNECTION DIAGRAM - SHEET 1 OF 12		
ED-236	TYPICAL INSTALLATION DETAILS - SHEET 6 OF 8	ED-274	CONNECTION DIAGRAM - SHEET 2 OF 12		
ED-237	TYPICAL INSTALLATION DETAILS - SHEET 7 OF 8	ED-275	CONNECTION DIAGRAM - SHEET 3 OF 12		
ED-238	TYPICAL INSTALLATION DETAILS - SHEET 8 OF 8	ED-276	CONNECTION DIAGRAM - SHEET 4 OF 12		
ED-240	ELECTRICAL EDGE LIGHT DETAILS	ED-277	CONNECTION DIAGRAM - SHEET 5 OF 12		
ED-241	ELEMENTARY WIRING DIAGRAMS - SHEET 1 OF 18	ED-278	CONNECTION DIAGRAM - SHEET 6 OF 12		
ED-242	ELEMENTARY WIRING DIAGRAMS - SHEET 2 OF 18	ED-279	CONNECTION DIAGRAM - SHEET 7 OF 12		

										DESIGNED BY C. YU	 LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY  ENGINEERING MANAGEMENT CONSULTANT <small>Param Brackhoff Suite 8, Dayton, OH Daniel, Mann, Johnson & Mendenhall 325 West Englewood, Suite 1000 Englewood, Colorado 80155 (303) 751-1100 www.dmj.com</small>	ELECTRICAL DIRECTIVE INDEX OF DRAWINGS		CONTRACT NO.
										DRAWN BY B.H. CHAMBERS		DRAWING NO. ED-001	REV 0	
										CHECKED BY PHILLIP YU		SCALE NO SCALE		SHEET NO.
										BY CHARGE A.H. LAWSON		SUBMITTED <i>A.H. Lawson</i>		
										DATE 19 APRIL 94	APPROVED <i>A.H. Lawson</i>			

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 19-42 ED 01

DRAWING NUMBER	DRAWING TITLE	DRAWING NUMBER	DRAWING TITLE	DRAWING NUMBER	DRAWING TITLE
	COVER SHEET				
ED-001	INDEX OF DRAWINGS	ED-243	ELEMENTARY WIRING DIAGRAMS - SHEET 3 OF 18	ED-280	CONNECTION DIAGRAM - SHEET 8 OF 12
ED-151	DIAGRAM SYMBOLS AND ABBREVIATIONS	ED-244	ELEMENTARY WIRING DIAGRAMS - SHEET 4 OF 18	ED-281	CONNECTION DIAGRAM - SHEET 9 OF 12
ED-152	PLAN SYMBOLS AND ABBREVIATIONS	ED-245	ELEMENTARY WIRING DIAGRAMS - SHEET 5 OF 18	ED-282	CONNECTION DIAGRAM - SHEET 10 OF 12
ED-153	COMMUNICATIONS SYMBOLS AND ABBREVIATIONS	ED-246	ELEMENTARY WIRING DIAGRAMS - SHEET 6 OF 18	ED-283	CONNECTION DIAGRAM - SHEET 11 OF 12
ED-154	GENERAL CONSTRUCTION NOTES	ED-247	ELEMENTARY WIRING DIAGRAMS - SHEET 7 OF 18	ED-284	CONNECTION DIAGRAM - SHEET 12 OF 12
ED-201	ONE LINE DIAGRAM-EAST END	ED-248	ELEMENTARY WIRING DIAGRAMS - SHEET 8 OF 18		
ED-202	ONE LINE DIAGRAM-WEST END	ED-249	ELEMENTARY WIRING DIAGRAMS - SHEET 9 OF 18		
ED-203	ONE LINE DIAGRAM AND MISCELLANEOUS	ED-250	ELEMENTARY WIRING DIAGRAMS - SHEET 10 OF 18		
ED-206	MCC ELEVATION	ED-251	ELEMENTARY WIRING DIAGRAMS - SHEET 11 OF 18		
ED-207	MCC 1E, 2E, & 3E SWITCHBOARD 1E, 2E SCHEDULES	ED-252	ELEMENTARY WIRING DIAGRAMS - SHEET 12 OF 18		
ED-208	MCC 1W, 2W, & 3W SWITCHBOARD 1W, 2W SCHEDULES	ED-253	ELEMENTARY WIRING DIAGRAMS - SHEET 13 OF 18		
ED-211	RISER DIAGRAMS AND DETAILS	ED-254	ELEMENTARY WIRING DIAGRAMS - SHEET 14 OF 18		
ED-213	PANEL SCHEDULES	ED-255	ELEMENTARY WIRING DIAGRAMS - SHEET 15 OF 18		
ED-214	RACEWAY & CABLE SCHEDULE	ED-256	ELEMENTARY WIRING DIAGRAMS - SHEET 16 OF 18		
ED-215	ELEVATOR INTERFACE DETAILS	ED-257	ELEMENTARY WIRING DIAGRAMS - SHEET 17 OF 18		
ED-216	ESCALATOR INTERFACE DETAILS	ED-258	ELEMENTARY WIRING DIAGRAMS - SHEET 18 OF 18		
ED-217	ENLARGED PLAN & DETAILS	ED-261	CONTROL BLOCK DIAGRAM - SHEET 1 OF 4		
ED-219	ENLARGED PLAN & DETAILS - SHEET 1 OF 2	ED-262	CONTROL BLOCK DIAGRAM - SHEET 2 OF 4		
ED-220	ENLARGED PLAN & DETAILS - SHEET 2 OF 2	ED-263	CONTROL BLOCK DIAGRAM - SHEET 3 OF 4		
ED-231	TYPICAL INSTALLATION DETAILS - SHEET 1 OF 8	ED-264	CONTROL BLOCK DIAGRAM - SHEET 4 OF 4		
ED-232	TYPICAL INSTALLATION DETAILS - SHEET 2 OF 8	ED-271	CIC CABINET CONSTRUCTION DETAILS		
ED-233	TYPICAL INSTALLATION DETAILS - SHEET 3 OF 8	ED-272	CONNECTION DIAGRAM TYPICAL ARRANGEMENT AND WIRE MARKING		
ED-234	TYPICAL INSTALLATION DETAILS - SHEET 4 OF 8	ED-273	CONNECTION DIAGRAM - SHEET 1 OF 12		
ED-235	TYPICAL INSTALLATION DETAILS - SHEET 5 OF 8	ED-274	CONNECTION DIAGRAM - SHEET 2 OF 12		
ED-236	TYPICAL INSTALLATION DETAILS - SHEET 6 OF 8	ED-275	CONNECTION DIAGRAM - SHEET 3 OF 12		
ED-237	TYPICAL INSTALLATION DETAILS - SHEET 7 OF 8	ED-276	CONNECTION DIAGRAM - SHEET 4 OF 12		
ED-238	TYPICAL INSTALLATION DETAILS - SHEET 8 OF 8	ED-277	CONNECTION DIAGRAM - SHEET 5 OF 12		
ED-240	ELECTRICAL EDGE LIGHT DETAILS	ED-278	CONNECTION DIAGRAM - SHEET 6 OF 12		
ED-241	ELEMENTARY WIRING DIAGRAMS - SHEET 1 OF 18	ED-279	CONNECTION DIAGRAM - SHEET 7 OF 12		
ED-242	ELEMENTARY WIRING DIAGRAMS - SHEET 2 OF 18				

REV	DATE	BY	CHKD	APP	DESCRIPTION
0	19 94	CY	AHL	GMC	BASELINE ISSUE

DESIGNED BY
C. YU
DRAWN BY
B.H. CHAMBERS
CHECKED BY
PHILLIP YU
IN CHARGE
A.H. LAWSON
DATE
19 APRIL 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

FOR INFORMATION OF
 Raymond, Berkebile, Smith & Shuman, Inc.
 Daniel Mann, Johnson & Mendenhall
 221 North Figueroa Street, Suite 1100
 Los Angeles, California 90012
 Andrew Chan, Director, Inc.
 The Metropolitan Group, Inc.

SUBMITTED *A.H. Lawson*
 APPROVED *A.H. Lawson*

ELECTRICAL DIRECTIVE
INDEX OF DRAWINGS

CONTRACT NO.	
DRAWING NO.	REV
ED-001	0
SCALE	
NO SCALE	
SHEET NO.	

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 03/11/94 11:42 AM
 1712

ELECTRICAL SCHEMATIC DIAGRAM SYMBOLS

	TRANSFORMER (2 - WINDINGS)
	PUSHBUTTON SWITCH, MOMENTARY CONTACT, N.C. LO INDICATES LOCK-OUT
	PUSHBUTTON SWITCH, MOMENTARY CONTACT, N.O.
	MECHANICAL CONNECTION
	SINGLE POLE CIRCUIT BREAKER, SIZE AS NOTED
	NORMALLY OPEN CONTACT, AUX. OR RELAY. TDE - TIME DELAY AFTER ENERGIZED TDD - TIME DELAY AFTER DE-ENERGIZED
	NORMALLY CLOSED CONTACT, AUX. OR RELAY TDE - TIME DELAY AFTER ENERGIZED TDD - TIME DELAY AFTER DE-ENERGIZED
	C.O.A. OPERATING 42 - STARTER OR CONTACTOR OTHER NO. - RELAY PER IEEE DEVICE NO.
	OVERLOAD RELAY CONTACTS
	OVERLOAD RELAY WITH HEATER
	FUSE WITH RATING
	GROUND CONNECTION
	PILOT LIGHT: R-RED, G-GREEN, A-AMBER, W-WHITE, C-CLEAR, B-BLUE
	SOLENOID COIL
	LIMIT SWITCH, NORMALLY OPEN.
	LIMIT SWITCH, NORMALLY CLOSED.
	LIMIT SWITCH, N.O. HELD CLOSED BY ACTUATOR.
	LIMIT SWITCH, N.C. HELD OPEN BY ACTUATOR.
	PRESSURE SWITCH, NORMALLY OPEN, CLOSES ON RISING PRESSURE.
	PRESSURE SWITCH, NORMALLY CLOSED, OPENS ON RISING PRESSURE.
	FLOW SWITCH, NORMALLY OPEN, CLOSES WITH FLOW.
	FLOW SWITCH, NORMALLY CLOSED, OPENS WITH FLOW.
	TEMPERATURE SWITCH, NORMALLY OPEN, CLOSES ON RISING TEMPERATURE (COOLING THERMOSTAT)
	TEMPERATURE SWITCH, NORMALLY CLOSED, OPENS ON RISING TEMPERATURE (HEATING THERMOSTAT)
	LEVEL CONTROLLER (SWITCH), NORMALLY OPEN AT LOW POSITION, CLOSES ON RISE.
	LEVEL CONTROLLER (SWITCH), NORMALLY CLOSED AT LOW POSITION, OPENS ON RISE.
	SELECTOR SWITCH, 2 OR 3 POSITION, CONTACT CLOSE AT MARKED POSITION.

	MANUAL MOTOR STARTER
	MULTICONDUCTOR CABLE
	SHIELEDED 2 CONDUCTOR CABLE WITH SHIELD GROUNDDED.
	COAXIAL CABLE
	DISCONNECTING DEVICE
	CONDUCTORS, CONNECTED
	CONDUCTORS, NOT CONNECTED
	CURRENT TRANSFORMER WITH POLARITY MARKINGS
	POTENTIAL TRANSFORMER WITH POLARITY MARKINGS
	OUTLINE OF EQUIPMENT
	DASHED LINES INDICATE FUTURE OR N.I.C.
	TERMINAL STRIP
	TERMINAL BLOCK WITH TERMINAL NUMBER
	BATTERY
	AUDIBLE SIGNALING DEVICE
	INSTRUMENT GROUNDING
	WIRE DESIGNATION SUFFIX COMPLETE DESIGNATION TO BE PRECEDED BY EQUIPMENT PREFIX VIZ: EF-5
	RECTIFIER, DRY TYPE, FULL WAVE.
	TRANSDUCER, E/I - VOLTAGE TO CURRENT I/E - CURRENT TO VOLTAGE
	POWER BREAKER SOLID STATE TRIP DEVICE W/5IG(GROUND) TRIP UNITS (X-BREAKER NUMBER) ST-SHORT TIME, LT-LONG TIME.

NOTE: NOT ALL SYMBOLS ARE USED

ONE-LINE AND LOGIC DIAGRAM SYMBOLS

	SHORTING TYPE TERMINAL BLOCK
	SELECTOR SWITCH, VS - VOLTMETER, AS - AMMETER
	INDICATING TYPE METER, AM - AMMETER, VM - VOLTMETER
	27 UNDERVOLTAGE RELAY
	49 THERMAL OVERLOAD DEVICE
	50 AC INSTANTANEOUS OVERCURRENT RELAY
	51 AC TIME OVERCURRENT RELAY
	51H AC GROUND OVERCURRENT RELAY (RESIDUAL)
	51G AC GROUND OVERCURRENT RELAY
	52 AC CIRCUIT BREAKER
	59 OVERVOLTAGE RELAY
	62 TIME DELAYED RELAY
	69 PERMISSIVE CONTROL DEVICE
	74 ALARM RELAY
	86 LOCK-OUT RELAY
	CONTROL SWITCH
	ANNUNCIATION DEVICE-INDICATING TYPE
	AUDIBLE ALARM
	MOLDED CASE CIRCUIT BREAKER
	SERIES TRIP DEVICE
	CURRENT TRANSFORMER OR CURRENT SENSOR OR SOLID STATE TRIP DEVICE
	2-WINDING TRANSFORMER
	FUSE
	DELTA CONNECTION
	WYE CONNECTION
	CABLE TERMINATION
	FEEDER NUMBER DESIGNATION (SEE FEEDER SCHEDULE DRAWINGS)
	CONTACTOR
	DOUBLE THROW SWITCH
	CIRCUIT BREAKER WITH SOLID STATE TRIP DEVICE
	CIRCUIT BREAKER, MEDIUM VOLTAGE, DRAW-OUT TYPE
	POWER BREAKER, 480 VAC, DRAW-OUT TYPE, 800 AMPERE FRAME, 600 AMPERE TRIP
	COMBINATION MAGNETIC MOTOR STARTER, WITH OVERLOAD RELAY SUBSCRIPT INDICATES NEMA SIZE.
	FUSED DISCONNECT SWITCH SUBSCRIPTS INDICATES SWITCH SIZE, FUSE SIZE AND NO. OF POLES.
	LOGIC DIAGRAM
	AND GATE
	OR GATE
	NOT GATE
	ON-DELAY
	OFF-DELAY
	COINCIDENCE MATRIX (TWO-THRD)
	TEST DEVICE
	BISTABLE FOR ANALOG INPUT/DIGITAL OUTPUT L-WHEN INPUT IS LOWER H-WHEN INPUT IS HIGHER
	LIGHTNING ARRESTER
	INDICATING LIGHT: R - RED - OPERATING, FLOWING, INCREASING CONDITION G - GREEN - NOT OPERATING, NOT FLOWING, DECREASING CONDITION A - AMBER - AUTOMATIC STANDBY W - WHITE - TROUBLE AT THE SYSTEM B - BLUE - SPECIAL CONDITION C - CLEAR - POWER AVAILABLE

ABBREVIATIONS

ACCP	AIR CONDITIONING CONTROL PANEL
ACP	AUXILIARY CONTROL PANEL
AF	ABOVE FINISHED FLOOR OR WALKWAY
AHJ	AIR HANDLING UNIT
AC	AMPERES INTERRUPTING CAPACITY
ATS	AUTOMATIC TRANSFER SWITCH
AUX	AUXILIARY
BCW	BARE COPPER WIRE
BKR	BREAKER
BLS	BLUE LIGHT STATION
C.C.	CENTRAL CONTROL
CO	CONDUIT ONLY
CI	COMMUNICATION INTERFACE CABINET
CKT	CIRCUIT
CL	CENTERLINE
COMPT	COMPARTMENT
CONT	CONTROL
CONT'D	CONTROL CONTINUED
CT	CURRENT TRANSFORMER
DMPR	DAMPEN
DWG	DRAWING
ELEV	ELEVATION, ELEVATOR
EMERG	EMERGENCY
EMM	EMERGENCY MANAGEMENT STATION
EQUIPT	EQUIPMENT
ETS	EMERGENCY TRIP STATION
EXH	EXHAUST
FACP	FIRE ALARM CONTROL PANEL
FF	FINISHED FLOOR
FSCP	FIRE/SECURITY CONTROL PANEL
FLR, FL	FLOOR
FS	FLOW SWITCH
FLUOR	FLUORESCENT
FVNR	FULL VOLTAGE NON-REVERSIBLE
FVR	FULL VOLTAGE REVERSIBLE
FUT	FUTURE
GFI	GROUND FAULT INTERRUPTER
GRD	GROUNDING
GRS	GALVANIZED RIGID STEEL CONDUIT
HH, MH	HANDHOLE, MANHOLE
HP	HORSE POWER
HPS	HIGH PRESSURE SODIUM
HTR	HEATER
IES	INCOMING ELECTRICAL SERVICE
IMC	INTERMEDIATE METAL CONDUIT
JB	JUNCTION BOX
LA	LIGHTNING ARRESTER
LCS	LOCAL CONTROL STATION
LP	LIGHTING PANEL
LTG	LIGHTING
M.B.	MAIN BREAKER
M.L.O.	MAIN LUGS ONLY
M.D.	MOTOR OPERATED
MANT	MAINTENANCE
MCC	MOTOR CONTROL CENTER
MDF	MAIN DISTRIBUTION FRAME
MFR	MANUFACTURER
MTD	MOUNTED
MTC	MOUNTING
MTR	MOTOR
MTS	MANUAL TRANSFER SWITCH
NEC	NATIONAL ELECTRIC CODE
NIC	NOT IN CONTRACT
NM	NON-METALLIC
N.O., N.C.	NORMALLY OPEN, NORMALLY CLOSED
NTS	NOT TO SCALE
PB	PULL BOX
PH	PHASE
PP	POWER PANEL
PVC	POLYVINYL CHLORIDE CONDUIT
PWR	POWER
RM	ROOM
SPDT	SINGLE POLE DOUBLE THROW
SPST	SINGLE POLE SINGLE THROW
SUP	SUPPLY
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
T	TEMPERATURE SWITCH (THERMOSTAT)
T/R	TOP OF RAIL
TBD	TO BE DETERMINED
TC	TIME CLOCK
TEL	TELEPHONE
TMV	TICKET VENDING MACHINE
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
UC	UNDERGROUND
WD-P	WIRING DIAGRAM NO. P
WP	WEATHER-PROOF
XFMR	TRANSFORMER

REV	DATE	BY	APP	DESCRIPTION
0	19 94	CR	AL	GMC
1	30 94	JX	AL	REVISED AND RESEALED PER THE 3025 SIGNATURE
2	19 94	CR	AL	BASELINE ISSUE

DESIGNED BY
C. ROBINOL
DRAWN BY
V. HOANG
CHECKED BY
C. YU
IN CHARGE
E. DER-AVAKIAN
DATE
19 APR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

Submitted: *Edmund P. ...*
Approved: *[Signature]*

ELECTRICAL DIRECTIVE

DIAGRAM SYMBOLS AND ABBREVIATIONS

CONTRACT NO. _____

DRAWING NO. **ED-151** REV **1**

SCALE **NO SCALE**

SHEET NO. _____

RECEPTACLE OUTLETS	
	SINGLE RECEPTACLE OUTLET
	DUPLEX RECEPTACLE OUTLET
	SINGLE SPECIAL-PURPOSE RECEPTACLE OUTLET 480 VOLT, 4 POLE, 4 WIRE, 30 AMP.
	DUPLEX SPECIAL-PURPOSE RECEPTACLE OUTLET • USE SUBSCRIPT LETTERS TO INDICATE FUNCTION (FC - FARE COLLECTION ETC.)
	FLOOR BOX WITH SINGLE RECEPTACLE
	FLOOR BOX WITH DUPLEX RECEPTACLE
	FLOOR BOX WITH SERVICE FITTING AS NOTED
	FLOOR BOX-PUBLIC TELEPHONE
	FLOOR BOX-PRIVATE TELEPHONE
	UNDERFLOOR DUCT WITH ASSOCIATED OUTLETS AS INDICATED
	TRENCH DUCT
	MOUNTING HEIGHT TO AFF

SWITCH OUTLETS	
S1	SINGLE-POLE SWITCH
S2	DOUBLE-POLE SWITCH
S3	THREE-WAY SWITCH
S4	FOUR-WAY SWITCH
SK	KEY-OPERATED SWITCH
SP	SWITCH WITH PILOT LAMP
SD	DOOR SWITCH
ST	TIME SWITCH
SM	MANUAL MOTOR STARTER WITH OVERLOAD DEVICE
SMC	MOMENTARY CONTACT SWITCH OR PUSHBUTTON FOR OTHER THAN SIGNALING SYSTEM
So	SUBSCRIPT A DENOTES SWITCH CIRCUIT CONTROLLED OUTLET

LIGHTING OUTLETS	
	OUTLET FOR INCANDESCENT OR HIGH INTENSITY DISCHARGE FIXTURE
	FLUORESCENT FIXTURE OUTLET
	EXIT LIGHT OUTLET
	BLANKED OUTLET
	JUNCTION BOX
	LETTER SUBSCRIPT ADJACENT TO FIXTURE OUTLET DESIGNATES SWITCH CONTROL
	FLOODLIGHT, ARROWS INDICATE DIRECTION OF BEAM
	EMERGENCY FLUORESCENT LIGHT
	EMERGENCY INCANDESCENT LIGHT

CONDUCTORS AND CONDUITS	
	RACEWAY EMBEDDED IN FLOOR
	RACEWAY EMBEDDED IN CEILING OR WALL
	RACEWAY EXPOSED OR CONCEALED IN DROP CEILING
	BRANCH CIRCUIT HOME RUN TO PANELBOARD. LL2 DENOTES PANEL LL2 AND 1, 2, 3 IDENTIFY CIRCUIT NUMBERS.
	INDICATES NUMBER OF WIRES, NO CROSS LINES. INDICATES 2*12 WIRES AND 1*12 GROUND WIRE UNLESS NOTED.
	INDICATES SINGLE CONDUCTOR CABLE *12 AWG (OR OF SIZE AS INDICATED ON CABLE & CONDUIT SCHEDULE)
	INDICATES MULTICONDUCTOR (TYPE TC) TRAY CABLE.
	FEEDER OR HOME RUN RACEWAY IDENTIFICATION AS FOLLOWS: A - AUXILIARY, T - TRACTION POWER, TC - TRAM CONTROL, PH-34.5 KV POWER, DF-34.5KV DEDICATED POWER SUPPLY. MORE CONDUIT IDENTIFICATION FOR COMMUNICATIONS SUB SYSTEM ON DRAWING ED-153.
	GROUND WIRE
	RACEWAY TURNED UP OR TOWARDS VIEWER
	RACEWAY TURNED DOWN OR AWAY FROM VIEWER
	UNDERGROUND CONDUIT BANK INDICATE TYPE, SIZE AND NUMBER OF CONDUITS BY CROSS SECTION IDENTIFICATION OF EACH RUN, OR BY NOTATION
	GROUND ROD
	RACEWAY CAPPED
	CONDUIT SLEEVE

EQUIPMENT IDENTIFICATION	
EM -	EMERGENCY FAN
ACU -	AIR COOLING UNIT
SE -	SMOKE EXHAUST FAN
FD -	FAN DAMPER
TD -	TRACK DAMPER
BD -	BY-PASS DAMPER
DH -	DUCT HEATER
PP -	POWER PANEL
LP -	LIGHTING PANEL
TLP -	TUNNEL LIGHTING PANEL
ES - E	ESCALATOR NO.1 EAST END
MCC -	MOTOR CONTROL CENTER
EL - E	ELEVATOR NO.1 EAST END
LCS -	LOCAL CONTROL STATION
SWBD -	SWITCHBOARD
ATS -	AUTOMATIC TRANSFER SWITCH
BKR -	BREAKER
STR -	STARTER
HTR -	HEATER
MCP -	MOTOR CIRCUIT PROTECTOR
ETS -	EMERGENCY TRIP STATION (BLUE LIGHT STATION)
CIC -	COMMUNICATION INTERFACE CABINET
SWGR -	SWITCHGEAR
EF -	EXHAUST FAN
SF -	SUPPLY FAN
FS -	FLDW SWITCH
LS -	LAMP SWITCH

PANELBOARDS, SWITCHBOARDS, ETC.	
	PANELBOARD
	TERMINAL CABINET, TYPES AS FOLLOWS: CIC-COMMUNICATION INTERFACE CABINET TTC-TELEPHONE TERMINAL CABINET
	ELECTRIC HEATER
	PULL BOX
	MOTOR CONTROLLER, SUBSCRIPT INDICATES NEMA SIZE
	FUSED DISCONNECT SWITCH SUBSCRIPT INDICATES FUSE SIZE AND NO. OF POLES
	NON-FUSED DISCONNECT SWITCH SUBSCRIPT INDICATES SIZE AND NO. OF POLES
	ELECTRICAL MANHOLE
	ELECTRICAL HANDHOLE
	COMBINATION MAGNETIC MOTOR STARTER, FUSIBLE SUBSCRIPT INDICATES NEMA SIZE
	COMBINATION MAGNETIC MOTOR STARTER NON-FUSIBLE, SUBSCRIPT INDICATES NEMA SIZE
	COMBINATION MAGNETIC MOTOR STARTER, WITH CIRCUIT BREAKER, SUBSCRIPT INDICATES NEMA SIZE
	MOTOR
	POWER PANEL
	TRANSFORMER
	SWITCHBOARD (SWBD) OR MOTOR CONTROL CENTER (MCC)
	CONTROL PANEL, TYPES AS FOLLOWS: FCP - FAN CONTROL PANEL EMP - EMERGENCY MANAGEMENT PANEL ACP - AUXILIARY CONTROL PANEL AHCP - AIR HANDLING UNIT CONTROL PANEL ACCP - AIR CONDITIONING CONTROL PANEL

FIXTURE TYPE SYMBOL	
	MOUNTING HEIGHT AFF
	FIXTURE OPTION
	ACCESSORIES OPTION
	MOUNTING OPTION
	PHOTOMETRY OPTION
	VOLTAGE OTHER THAN 277V
	0 WHEN OPTION IS NOT APPLICABLE

SPECIAL IDENTIFICATION (USED NEXT TO SYMBOL)		
WP - WEATHER PROOF	RT - RAIN TIGHT	G - GROUND
WT - WATER TIGHT	DT - DUST TIGHT	C - RECESSED
VT - VAPOR TIGHT	EP - EXPLOSION PROOF	F - FLUSH

NOTE: NOT ALL SYMBOLS ARE USED

MISCELLANEOUS	
	TRAM DESTINATION SIGN
	BUZZER
	PUSHBUTTON
	DOOR OPENER
	ALARM TRIP
	SELECTOR SWITCH, H.A.O. UNLESS OTHERWISE NOTED
	ELECTRICALLY OPERATED DEVICE. TYPE PER LETTERS AS FOLLOWS: S - SOLENOID, D - DAMPER OPERATOR, R - RELAY, DO - DOOR OPERATOR, EP - ELECTRO-PNEUMATIC RELAY
	DOOR POSITION INDICATOR
	DISABLE SWITCH
	DISABLE SWITCH WITH AUDIBLE ALARM
	ELECTRIC DEAD BOLT
	ELECTRO-MECHANICAL BOLT
	LIGHTING PROTECTION AIR TERMINAL

ABBREVIATIONS	
AFF	ABOVE FINISHED FLOOR OR WALKWAY
C	CONDUIT
CLG	CEILING
DS1	DUAL SMART TERMINAL
ELEV	ELEVATION
FL	FLOOR
GND	GROUND
GRS	GALVANIZED RIGID STEEL CONDUIT
MTD	MOUNTED
MTG	MOUNTING
NMC	NON-METALLIC CONDUIT
PVC	POLYVINYL CHLORIDE CONDUIT
RTU	REMOTE TERMINAL UNIT
ZC	ZONE CONTROL

REV	DATE	BY	SUB	APP	DESCRIPTION
1	1994	CY	M	GMC	BASELINE ISSUE
2	2000	CY	M	GMC	REVISED PER DE-305-SBCN-11.00

DESIGNED BY C. YU
DRAWN BY V. HOANG
CHECKED BY C. ROBINOL
IN CHARGE E. DER-AVAKIAN
DATE 19 APR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

SUBMITTED: *Edward P. Chalkin*

APPROVED: *[Signature]*

ELECTRICAL DIRECTIVE

PLAN SYMBOLS AND ABBREVIATIONS

CONTRACT NO. _____

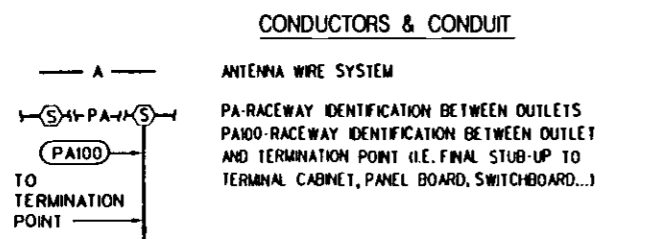
DRAWING NO. **ED-152** REV. **1**

SCALE: **NO SCALE**

SHEET NO. _____

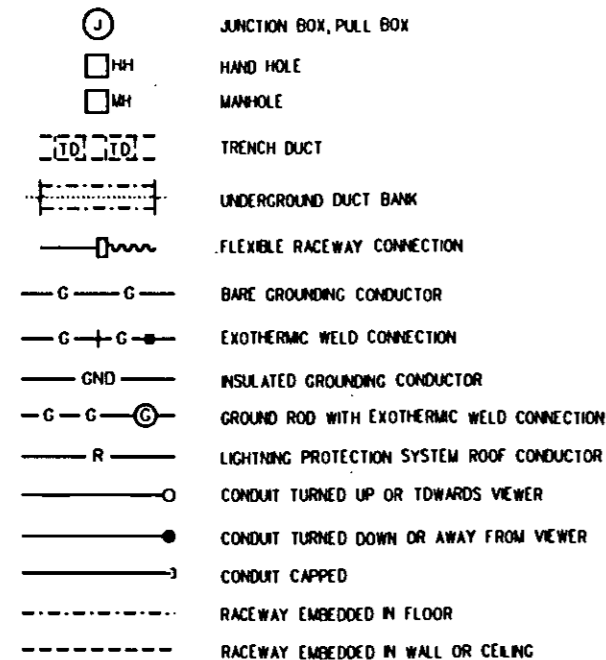
SYMBOLS

ABBREVIATIONS



SYSTEMS IDENTIFICATION ABBREVIATIONS SHALL BE:

- C - MISCELLANEOUS COMMUNICATIONS
- CE - EMERGENCY TELEPHONE (ETEL)
- CF - FIRE TELEPHONE (FTEL)
- CM - MAINTENANCE TELEPHONE (MTEL)
- CR - RADIO ANTENNA
- CT - CABLE TRANSMISSION SYSTEM
- CX - TELEPHONE COMPANY
- FA - FIRE DETECTOR OR ALARM
- FC - FARE COLLECTION
- HC - COMMUNICATIONS TIE CABLE (ICIC TO TC & C ROOM)
- IA - INTRUSION DETECTOR OR ALARM
- PA - PUBLIC ADDRESS
- SC - SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA)
- TC - TRAIN CONTROL
- TV - CLOSED CIRCUIT TELEVISION



MISCELLANEOUS

- SC - SUPERVISORY CONTROL
- GP - GAS DETECTOR PROBE
- TV - CCTV MONITOR
- TV - CCTV CAMERA OUTLET
- PC - PHOTO CELL
- CLOCK - CLOCK OUTLET
- TRAP - TRACTION POWER EMERGENCY TRIP STATION (BLUE LIGHT STATION)
- /// - CABLEWAY
- TTC - TERMINAL CABINET, TYPE AS FOLLOWS:
TTC - TELEPHONE TERMINAL CABINET
- CIC - COMMUNICATIONS INTERFACE CABINET
- MDF - MAIN DISTRIBUTION FRAME

TELEPHONE

- MAINTENANCE TELEPHONE JACK (MTEL) 4"x2"x2 1/8"D
- FIRE TELEPHONE JACK (FTEL)
- EMERGENCY TELEPHONE OUTLET (ETEL) 4"x2"x2 1/8"D
- CUSTOMER ASSISTANCE TELEPHONE 4"x2"x2 1/8"D
- ADMINISTRATIVE TELEPHONE OUTLET 4"x2"x2 1/8"D
- PUBLIC PAY TELEPHONE OUTLET 4"x2"x2 1/8"D
- SPARE BOX (FOR FUTURE USE)
- WP - WEATHERPROOF TELEPHONE

UNLESS NOTED MOUNTING-HEIGHT IN PUBLIC AREA 48" AFF. IN NON-PUBLIC AREA 54" AFF.

PUBLIC ADDRESS

- M - MICROPHONE PROVIDE 4"x4"x2 1/4" OUTLET BOX ONLY
- A - AMPLIFIER
- S - INTERIOR SPEAKER BACKBOX PER LETTER AS F.S, SC.R FOLLOWS: F-FLUSH MTD, S-SURFACE MTD, SC-SUSPENDED CEILING, R-RECESS MTD
- E - EXTERIOR SPEAKER BACKBOX
- H - HORN TYPE SPEAKER OUTLET
- M - NOISE MONITOR
- MS - MONITOR SPEAKER

FIRE AND INTRUSION

- F - PULL STATION FIRE ALARM
- Fp - PUSH BUTTON FIRE ALARM
- O - BELL
- H - HORN
- FL - STANDPIPE FLOW MONITOR
- FS - FLOW SWITCH
- SS - SHUT-OFF VALVE WITH SUPERVISORY SWITCH
- A - HIGH/LOW ALARM SWITCH
- S - SOLENOID SWITCH
- PS - WATERFLOW ALARM PRESSURE SWITCH
- S (diamond) - DETECTOR, TYPE PER LETTER AS FOLLOWS:
J - SPARE BOX (FOR FUTURE USE)
S - SMOKE-IONIZATION
R - THERMAL RATE OF RISE AND FIXED TEMPERATURE
P - SMOKE PHOTO-ELECTRIC
D - DUCT TYPE SMOKE DETECTOR

ADD "F" FOR FIRE ALARM SYSTEM I.E. Fp FOR FIRE HORN

- Detector, type per letter as follows:
H - HINGE DETECTOR
E - ELECTRIC DOOR LOCK
M - MAGNETIC SWITCH DETECTOR
P - PLUNGER SWITCH (FLUSH IN DOOR JAM) DETECTOR
L - DOOR LATCH DETECTOR
K - KEY BY-PASS SWITCH
C - CARD OR BADGE READER
J - SPARE BOX (FOR FUTURE USE)
A - AUDIBLE ALARM (AT EMERGENCY EXIT)
IA - INTRUSION DETECTOR WITH AUDIBLE ALARM

RADIO

- V - VALVE POSITION MONITOR
- R - RADIO SYSTEM NON-METALIC SLEEVE, 1/2" DIA.

UNLESS SPECIFICALLY IDENTIFIED, ALL JUNCTION BOXES OR BACK BOXES PROVIDED BY THIS CONTRACT SHALL BE 4"x4"x2 1/4" MINIMUM SIZE.

NOTE: NOT ALL SYMBOLS ARE USED

- A/D - ANALOG TO DIGITAL
- ACD - AUTOMATIC CALL DISTRIBUTOR
- AEMP - AUXILIARY EMERGENCY MANAGEMENT PANEL
- ATEL - ADMINISTRATIVE TELEPHONE
- APSS - AUXILIARY POWER SUBSTATION
- AF - ABOVE FINISHED FLOOR OR WALKWAY
- BLS - BLUE LIGHT STATION
- CATEL - CUSTOMER ASSISTANCE TELEPHONE
- CCU - COMMUNICATIONS CONTROL UNIT
- CCTV - CLOSED CIRCUIT TELEVISION
- COMM - COMMUNICATION
- CP - FIRE COMMAND POST
- CPU - CENTRAL PROCESSING UNIT
- CRT - CATHOD RAY TUBE
- CIS - CABLE TRANSMISSION SUBSYSTEM
- DET - DETECTOR
- DIA - DIAMETER
- EMP - EMERGENCY MANAGEMENT PANEL
- ETS - EMERGENCY TRIP STATION
- ETEL - EMERGENCY TELEPHONE
- FACP - FIRE ALARM CONTROL PANEL
- FMP - FIRE MANAGEMENT PANEL
- FTEL - FIRE TELEPHONE
- INT - INTRUSION
- HH - HANDHOLE
- I/O - INPUT / OUTPUT
- MDF - MAIN DISTRIBUTION FRAME
- MH - MANHOLE
- MTEL - MAINTENANCE TELEPHONE
- PA - PUBLIC ADDRESS
- PABX - PRIVATE AUTOMATIC BRANCH EXCHANGE
- PCM - PULSE CODED MODULATION
- PR - PAR
- PROT - PROTECTOR TERMINAL
- REA - RURAL ELECTRIFICATION ADMINISTRATION
- SCADA - SUPERVISORY CONTROL AND DATA ACQUISITION
- SCRTO - SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT
- SFCU - STATION FARE COLLECTION CONTROL UNIT
- SPL - SOUND PRESSURE LEVEL
- SST - SPECIAL SERVICES TELEPHONE
- TB - TERMINAL BOARD
- TBK - TERMINAL BLOCK
- TC & C - TRAIN CONTROL AND COMMUNICATIONS
- TELE - TELEPHONE
- TERM - TERMINAL
- TPSS - TRACTION POWER SUBSTATION
- TTC - TELEPHONE TERMINAL CABINET
- VTR - VIDEO TAPE RECORDER

DESIGNED BY	C. ROBENIOL
DRAWN BY	V. HOANG
CHECKED BY	C. YU
IN CHARGE	A.H. LAWSON
DATE	19 APR 94

REV	DATE	BY	APP	DESCRIPTION
0	4-19-94	CR	AL	GMC BASELINE ISSUE

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

FOR MORE INFORMATION CONTACT: Pasadena Director/Staff/Office & Design, Inc. Pasadena, California 91106-1400

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FOR MORE INFORMATION CONTACT: Pasadena Director/Staff/Office & Design, Inc. Pasadena, California 91106-1400

SUBMITTED: *A.H. Lawson*

APPROVED: *[Signature]*

ELECTRICAL DIRECTIVE

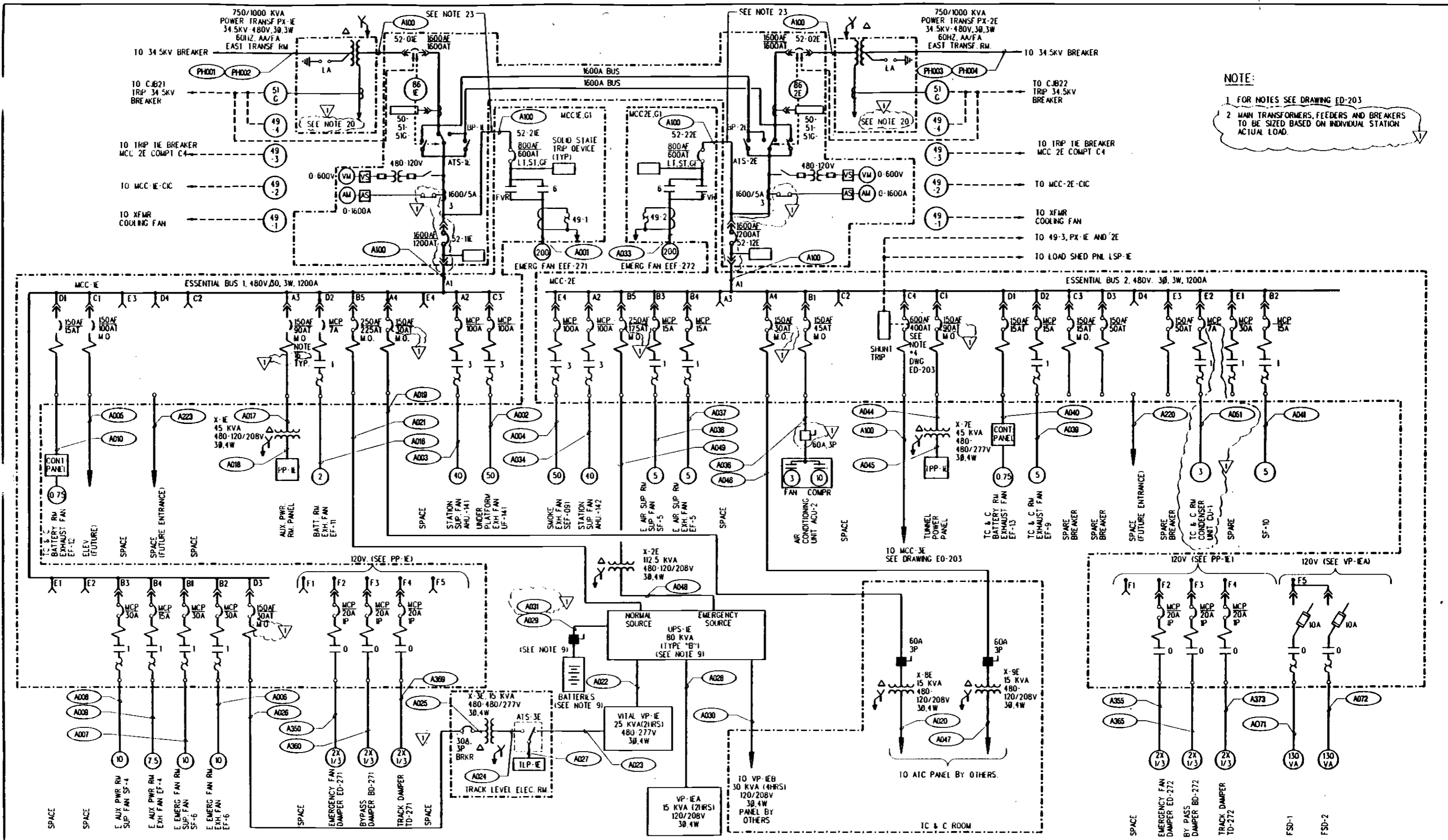
COMMUNICATIONS SYMBOLS AND ABBREVIATIONS

CONTRACT NO.	
DRAWING NO.	ED-153
REV.	0
SCALE	NO SCALE
SHEET NO.	

GENERAL CONSTRUCTION NOTES

1. WORK UNDER THIS CONTRACT SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
 - A. FURNISHING, INSTALLING AND TERMINATING OF ELECTRICAL EQUIPMENT AND TESTING OF ALL SYSTEMS AND SUBSYSTEMS WITHIN THE SCOPE OF THIS CONTRACT AS INDICATED ON THE CONTRACT DRAWINGS.
 - B. FURNISHING AND INSTALLING OF ALL SCHEDULED AND UNSCHEDULED RACEWAYS: EMBEDDED, CONCEALED, OR EXPOSED.
 - C. FURNISHING, INSTALLING AND PULLING OF ALL CABLES THROUGH RACEWAYS AND TERMINATING AS REQUIRED FOR THE SATISFACTORY OPERATION OF ALL SYSTEMS AND SUBSYSTEMS, EXCEPT THAT FOR COMMUNICATION SYSTEM.
 - D. UNSCHEDULED RACEWAYS AND CABLES FOR LIGHTING, RECEPTACLES, AND 120/208V POWER (SOME OF WHICH MAY BE SCHEDULED) SHALL BE TAGGED AT EACH END WITH POWER SOURCE AND CIRCUIT NUMBER.
 - F. STUB-OUTS OF EMBEDDED CONDUITS SHOWN ARE BASED ON APPROXIMATE LOCATIONS OF EQUIPMENT. THIS CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE STUB-OUT LOCATION WITH THE EQUIPMENT FURNISHED AND ALSO FOR EXTENDING THE CONDUITS TO THE FINAL EQUIPMENT LOCATION.
2. INTERFACE WITH ADJACENT CONTRACTS:
 - A. FOR LATER CONTRACTS:
CONDUITS CAPPED AND TAGGED AT INTERFACE. CONDUCTORS (IF ANY) COILED, TAGGED, AND PROTECTIVELY WRAPPED AT NEAREST PULL BOX AND/OR JUNCTION BOX. COILED CONDUCTORS TO BE OF SUFFICIENT LENGTH FOR FUTURE SPLICING CONDUCTORS FOR INTERFACE CONTRACTS SHALL BE ENERGIZED ONLY AFTER CONNECTION TO EQUIPMENT.
 - B. FOR EARLIER CONTRACTS:
UNPLUG EXISTING CONDUITS AT INTERFACE AND EXTEND PER DESIGN. SPLICE AND EXTEND ANY CONDUCTORS PER DESIGN.
 - C. THE EARLIER CONTRACTOR SHALL BE RESPONSIBLE FOR THE TESTING HIS PORTIONS OF THE SYSTEMS TO THE EXTENT POSSIBLE. THE LATER CONSTRUCTION CONTRACTOR SHALL BE RESPONSIBLE FOR TESTING OF HIS PORTIONS OF THE SYSTEMS AS WELL AS FOR THE OVERALL SYSTEM TESTING.
3. ALL ELECTRICAL WORK SHALL BE COORDINATED WITH THE STRUCTURE AND EQUIPMENT TO AVOID INTERFERENCES.
4. CONNECTIONS TO ELECTRICAL EQUIPMENT SUBJECT TO VIBRATION SHALL BE MADE WITH LIQUID TIGHT FLEXIBLE STEEL CONDUIT EXTENDING FROM AN OUTLET BOX OR RIGID CONDUIT STUB-UP.
5. EQUIPMENT MOUNTING HEIGHT ABOVE FINISHED FLOOR, UNLESS OTHERWISE NOTED:
 - A. 6'-6" TOP OF WALL-MOUNTED PANEL BOARDS. MAXIMUM HEIGHT OF TOPMOST SWITCH HANDLE IS 5'-6"
 - B. 8'-0" BOTTOM OF WALL-MOUNTED TRANSFORMERS.
 - C. 4'-6" SWITCH HANDLE OF LOCAL MOTOR STARTERS.
 - D. 4'-0" CENTER LINE OF LOCAL LIGHT SWITCHES.
6. LIGHTING FIXTURES SHALL BE PROVIDED WITH ALL NECESSARY STRUCTURAL SUPPORTS, CANOPIES, ALIGNERS, OUTLET BOXES, AND SUSPENSION OR MOUNTING ACCESSORIES.
7. ELEVATOR EMERGENCY LIGHTING WILL BE OBTAINED FROM AN INTEGRAL BATTERY UNIT SUPPLIED AND INSTALLED BY THE ELEVATOR CONTRACTOR.
8. CERTAIN MANUFACTURER'S EQUIPMENT TYPES OR CATALOG NUMBERS ARE SHOWN FOR CLARITY AND TO ESTABLISH MINIMUM QUALITY LEVEL. EQUAL CONSIDERATION WILL BE GIVEN TO OTHER MANUFACTURERS OF SIMILAR EQUIPMENT.
9. PROVIDE CORROSION CONTROL AND CATHODIC PROTECTION FOR PIPING SYSTEM IN ACCORDANCE WITH THE REQUIREMENTS INDICATED IN DRAWINGS ES-101, ES-102, ES-104, AND ES-105.
10. ELECTRICAL EQUIPMENT AND MOUNTINGS SHALL BE DESIGNED TO WITHSTAND AIR PRESSURE WAVES IN TRACK AREAS OF PLUS/MINUS 80 PSF.
11. CONDUIT REQUIREMENTS:
 - A. CONDUIT LAYOUTS ARE DIAGRAMMATIC. EXACT ROUTINGS SHALL BE GOVERNED BY THE BUILDING STRUCTURE AND THE EQUIPMENT SERVED.
 - B. ALL CONDUITS SHALL BE IDENTIFIED WITH NUMBERS AND TAGGED. IF NO SCHEDULE NUMBER HAS BEEN ASSIGNED, USE CIRCUIT NUMBER (SEE NOTE 1D).
 - C. SPARE EMBEDDED CONDUITS SHALL TERMINATE WITH AN EMBEDDED COUPLING FLUSH WITH THE FINISHED SURFACE AND PLUGGED, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
 - D. ALL EMBEDDED CONDUITS SHALL BE 1" MINIMUM PVC. ALL EXPOSED CONDUITS SHALL BE 3/4" MINIMUM GRS, EXCEPT THAT SYSTEMWIDE COMMUNICATION CONDUITS SHALL BE 1" MINIMUM GRS, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
 - E. MAINTAIN A MINIMUM CLEARANCE OF 6" BETWEEN COMMUNICATION RACEWAYS AND POWER/CONTROL RACEWAYS.
 - F. FOR CONDUIT NOT EXCEEDING 4" IN DIAMETER, THE MINIMUM BENDING RADIUS SHALL BE 36". FOR CONDUIT EXCEEDING 4" IN DIAMETER, THE MINIMUM BENDING RADIUS SHALL BE 48".
12. BOX REQUIREMENTS:
 - A. FIXTURE OUTLET BOXES SHALL NOT BE SMALLER THAN 4" OCTAGONAL BY 1-1/2" DEEP, AND OF PRESSED STEEL CONSTRUCTION. MASONRY BOXES SHALL BE USED WHEN EMBEDDED IN CONCRETE.
 - B. WALL OUTLET BOXES SHALL NOT BE SMALLER THAN 4"x2"x2 1/8" AND OF PRESSED STEEL. BOXES LOCATED IN OUTDOOR OR WET LOCATIONS SHALL BE OF THE FD CAST METAL TYPE. BOXES EMBEDDED IN CONCRETE UNFINISHED WALLS SHALL BE MASONRY BOXES.
 - C. CONTRACTOR SHALL INSTALL JUNCTION AND/OR PULL BOXES AS REQUIRED BY THE NEC.
13. CABLE/CONDUCTOR REQUIREMENTS:
 - A. ALL CONDUCTORS SHALL BE COPPER.
 - B. MINIMUM CONDUCTOR SIZES SHALL BE NO. 12 AWG. FOR POWER AND LIGHTING AND NO. 14 AWG. FOR CONTROL.
14. GROUNDING REQUIREMENTS:
 - A. A WIRE GROUNDING CONDUCTOR SHALL BE CARRIED WITH ALL POWER AND LIGHTING CIRCUITS AND AS NOTED IN CABLE SCHEDULES. MINIMUM GROUND CONDUCTOR SIZE SHALL BE PER THE NEC.
 - B. ALL EXPOSED, NONCURRENT CARRYING METAL PARTS SUCH AS ELECTRICAL ENCLOSURE, METAL DOOR, EXIT HATCH METAL HANDRAIL ETC. SHALL BE GROUNDED. THE GROUNDING CONDUCTOR SHALL BE NO. 6 AWG MINIMUM BARE COPPER CONDUCTOR.
15. OWNER HAS ESTABLISHED SEISMOLOGICAL DESIGN CRITERIA SPECIFICALLY FOR THIS PROJECT (REFER TO CONTRACT 2427 REPORT BY CONVERSE CONSULTANTS). A COPY OF THIS DESIGN CRITERIA IS AVAILABLE AT THE OWNER'S LIBRARY. THE FOLLOWING SEISMIC CLASSIFICATIONS ARE PART OF THIS DESIGN CRITERIA:
 - A. THE COMPLETE EMERGENCY LIGHTING SYSTEM SHALL BE SEISMIC CLASS "SCA-2".
 - B. OTHER SYSTEMS AND MATERIAL NOT DESIGNATED FOR EMERGENCY OPERATION SHALL BE SEISMIC CLASS "SCB".
16. COMMUNICATION CABLES AND DEVICES TO BE INSTALLED BY THE COMMUNICATIONS CONTRACTOR UNLESS OTHERWISE NOTED ON THE DRAWINGS.
17. COMMUNICATION RACEWAY REQUIREMENTS:
 - A. MINIMUM CONDUIT BENDING RADIUS FOR GAS MONITORING SYSTEM (FG) SHALL BE 22 INCHES AND NOT MORE THAN 180° BENDS AT EACH RUN. WHEN BENDING REQUIREMENTS CAN NOT BE MET, 15"x15"x4" PULL BOXES SHALL BE USED. GAS TUBE LINER WILL BE SUPPLIED AND INSTALLED INSIDE EMPTY CONDUIT (BY OTHERS).
 - B. UNLESS NOTED, MAINTENANCE AND FIRE TELEPHONE JACKS (INC.) WILL BE MOUNTED 4'-0" ABOVE FINISHED FLOOR IN PUBLIC AREA AND 4'-6" ABOVE FINISHED FLOOR IN NON-PUBLIC AREA. TELEPHONE CONDUITS SHALL BE 1" GRS.
18. THE APPLICABLE INSTALLATION DETAILS SHALL BE USED IN THE CONSTRUCTION SEE DRAWINGS ED-231 THROUGH ED-238.
19. PUBLIC TELEPHONE CONDUITS (CX---) REQUIREMENTS (FOR INSIDE AND OUTSIDE INSTALLATIONS):
 - A. FOR CONDUIT NOT EXCEEDING 4" IN DIAMETER, THE MINIMUM BENDING RADIUS SHALL BE 36". FOR CONDUIT EXCEEDING 4" IN DIAMETER, THE MINIMUM BENDING RADIUS SHALL BE 48".
 - B. CONDUIT RUN SHALL NOT HAVE MORE THAN A TOTAL OF 180 DEGREE BENDS.
 - C. FOR CONDUIT RUNS WITH MORE THAN 180 DEGREE BENDS, A 6"x6"x48" GUTTER BOX SHALL BE INSTALLED. PULL BOX SHALL BE USED FOR STRAIGHT RUNS ONLY. NO LOOPING SHALL BE ALLOWED.
 - D. USE PULL BOXES THAT ARE ACCEPTABLE TO PACIFIC BELL.
 - E. A TELEPHONE CABINET WITH PLYWOOD BACKBOARD SHALL BE INSTALLED WHERE SHOWN ON DRAWINGS.
 - F. A NO. 6 AWG BARE COPPER GROUND WIRE FROM STATION'S GROUND GRID SHALL BE INSTALLED AT THE BACKBOARD LOCATION.
 - G. TELEPHONE CONDUITS TERMINAL LOCATION SHALL HAVE ADEQUATE LIGHTING.
 - H. A PULL ROPE SHALL BE INSTALLED IN ALL EMPTY CONDUITS FROM PACIFIC BELL'S SERVICE MANHOLE TO THE STATION'S TELEPHONE TERMINAL ROOM. INDICATE LENGTHS OF RUNS.
20. CONTRACTOR SHALL PAINT A CONTINUOUS 4" WIDE YELLOW LINE ON THE WALL/FLOOR/CEILING WHERE THE 34.5KV CONDUITS ARE INSTALLED. A WARNING SIGN THAT READS "DANGER HIGH VOLTAGE: DO NOT DRILL", SHALL BE PAINTED IN BLACK LETTERS 3" HIGH.
21. CONTRACTOR SHALL PREPARE AND SUBMIT ELECTRICAL LIFT DRAWINGS SHOWING AS-BUILT DIMENSION, SPACING, AND ELEVATION OF ALL EMBEDDED CONDUITS. THE SPACING BETWEEN EMBEDDED CONDUITS SHALL BE AT LEAST THREE TIMES THE DIAMETER OF THE LARGER OR EQUAL SIZED CONDUITS. CONDUITS SHALL BE EMBEDDED AT OR NEAR THE CENTER OF THE SLAB OR WALL. PRIOR TO SUBMITTING TO THE RESIDENT ENGINEER FOR APPROVAL, ELECTRICAL LIFT DRAWINGS SHALL BE SUBMITTED IN CONCURRENCE WITH AND AFTER THE SIGNATURE FROM THE STRUCTURAL (CONCRETE) CONTRACTOR.
22. SPEAKERS SHALL BE INSTALLED IN THE LOWERED METAL CEILING IN ALL AREAS OCCUPIED BY THE GENERAL PUBLIC EXCEPT ON THE PLATFORM AREAS SERVED BY THE LINEAR LIGHT ELEMENTS. THE SPEAKER LOCATIONS SHALL BE AS SHOWN ON THE COMMUNICATIONS ELECTRICAL DRAWINGS. THE CONTRACTOR SHALL INSTALL THE PA CABLES AS SHOWN ON THE CONTRACT DRAWINGS TO THE J-BOXES MOUNTED ON THE CONCRETE CEILING PROVIDING SUFFICIENT LENGTH TO EXTEND, VIA FLEXIBLE CONDUIT, TO THE SPEAKERS MOUNTED IN BACK-BOXES INSTALLED IN THE METAL CEILING. MOUNTING DETAILS ARE SHOWN IN STANDARD DRAWINGS NS-108 AND NS-109.
23. SPEAKERS TYPES SHALL BE EQUIVALENT TO LOWELL ULS-1015-C170 MOUNTED IN LOWELL TYPE UL-875R-S ENCLOSURE OR ATLAS MODEL URT MOUNTED IN ATLAS U98-B SERIES ENCLOSURE WITH ATLAS U-61-B Baffle. ALL SPEAKERS SHALL BE WIRED IN PARALLEL WITH THE BLACK WIRE OF THE INTERCONNECTING CABLE CONNECTED TO THE SPEAKER BLACK LEAD AND THE CABLE WHITE WIRE CONNECTED TO THE BLUE (2 WATT) LEAD OF THE SPEAKER, UNLESS OTHERWISE STATED. ALL OTHER SPEAKER LEADS SHALL BE INSULATED FROM EACH OTHER AND TIED BACK.
24. BATTERY ROOMS (EXCEPT DWP BATTERY ROOM) AND BALAST RELIEF SHAFT (BRSS) SHALL BE TYPE "X" FIXTURE.
25. ALL INSTALLATION IN THIS CONTRACT SHALL BE AS PER NEC REQUIREMENTS AND ALL APPLICABLE CODES AND STANDARDS.
26. CONTRACTOR SHALL USE ALL INFORMATION FROM ONE LINE DIAGRAMS, SCHEMATIC DRAWINGS, CABLE BLOCK DIAGRAMS, RACEWAY SCHEDULES AND LAYOUT DIAGRAMS TO ENSURE THAT WIRES AND CABLES DO MAKE A COMPLETE CIRCUIT FROM THE SOURCE TO DESTINATION.
27. CONDUITS AND WIRES BETWEEN LIGHTING FIXTURES ARE NOT SHOWN ON THE LIGHTING DRAWINGS FOR CLARITY, EXCEPT WHERE INDICATED. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE CONDUITS AND WIRES IN ACCORDANCE TO THE LIGHTING CIRCUIT NUMBERS (WHICH ARE SHOWN NEXT TO THE LIGHTING FIXTURES ON THE LIGHTING PLANS) AND SHALL COMPLY WITH ALL APPLICABLE CODES, INCLUDING THE NATIONAL ELECTRICAL CODE.
28. NORMAL AND EMERGENCY CIRCUITS SHALL BE RUN IN SEPARATE RACEWAYS, AND IT SHALL BE THE ELECTRICAL CONTRACTOR RESPONSIBILITY TO RUN THE RACEWAYS THE SAFEST AND MOST ECONOMICAL WAY. NOTES NUMBERS 27 AND 28 SHALL BE TYPICAL FOR ALL THE LIGHTING DRAWINGS IN THIS CONTRACT.
29. SINGLE POLES AND 3-WAY SWITCHES ARE SHOWN ON PLANS CONNECTED TO ONE LIGHTING FIXTURE ONLY FOR THE PURPOSE OF CLARITY, BUT THEY SHALL CONTROL ALL THE LIGHTING FIXTURES IN THAT PARTICULAR ROOM, WITH EXCEPTION OF THE EMERGENCY LIGHTING, WHICH IS NOT SWITCHABLE.

DESIGNED BY: C. ROBINSON DRAWN BY: V. HOANG CHECKED BY: C. YU IN CHARGE: E. DER-AVAKIAN DATE: 4 MAR 94										LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY ENGINEERING MANAGEMENT CONSULTANT 15000 Wilshire Blvd., Suite 2000, Beverly Hills, CA 90210 (310) 207-1234										SUBMITTED: <i>[Signature]</i> APPROVED: <i>[Signature]</i>										CONTRACT NO.: _____ DRAWING NO.: ED-154 SCALE: NO SCALE SHEET NO.: _____									
REVISIONS: 1. REVISED AND RESEALED PER THE 30% SUBMITTAL 2. REVISED AND RESEALED PER THE 30% SUBMITTAL 3. REVISED AND RESEALED PER THE 30% SUBMITTAL										REVISIONS: 1. REVISED AND RESEALED PER THE 30% SUBMITTAL 2. REVISED AND RESEALED PER THE 30% SUBMITTAL 3. REVISED AND RESEALED PER THE 30% SUBMITTAL										REVISIONS: 1. REVISED AND RESEALED PER THE 30% SUBMITTAL 2. REVISED AND RESEALED PER THE 30% SUBMITTAL 3. REVISED AND RESEALED PER THE 30% SUBMITTAL																			



NOTE:
 1 FOR NOTES SEE DRAWING ED-203
 2 MAIN TRANSFORMERS, FEEDERS AND BREAKERS TO BE SIZED BASED ON INDIVIDUAL STATION ACTUAL LOAD.

DATE	BY	SUB	APP	DESCRIPTION
8/30/94	RE	AHR	GMC	REVISED AND RESEALED PER DC 305-581N-9-DD
0/2/94	RE	AHR	GMC	REVISED AND REDRAWN PER OCN 93-68

DESIGNED BY: R. ESTRADA
 DRAWN BY: V. HOANG
 CHECKED BY: C. YU
 IN CHARGE: E. DER-AVAKIAN
 DATE: 24 FEB 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

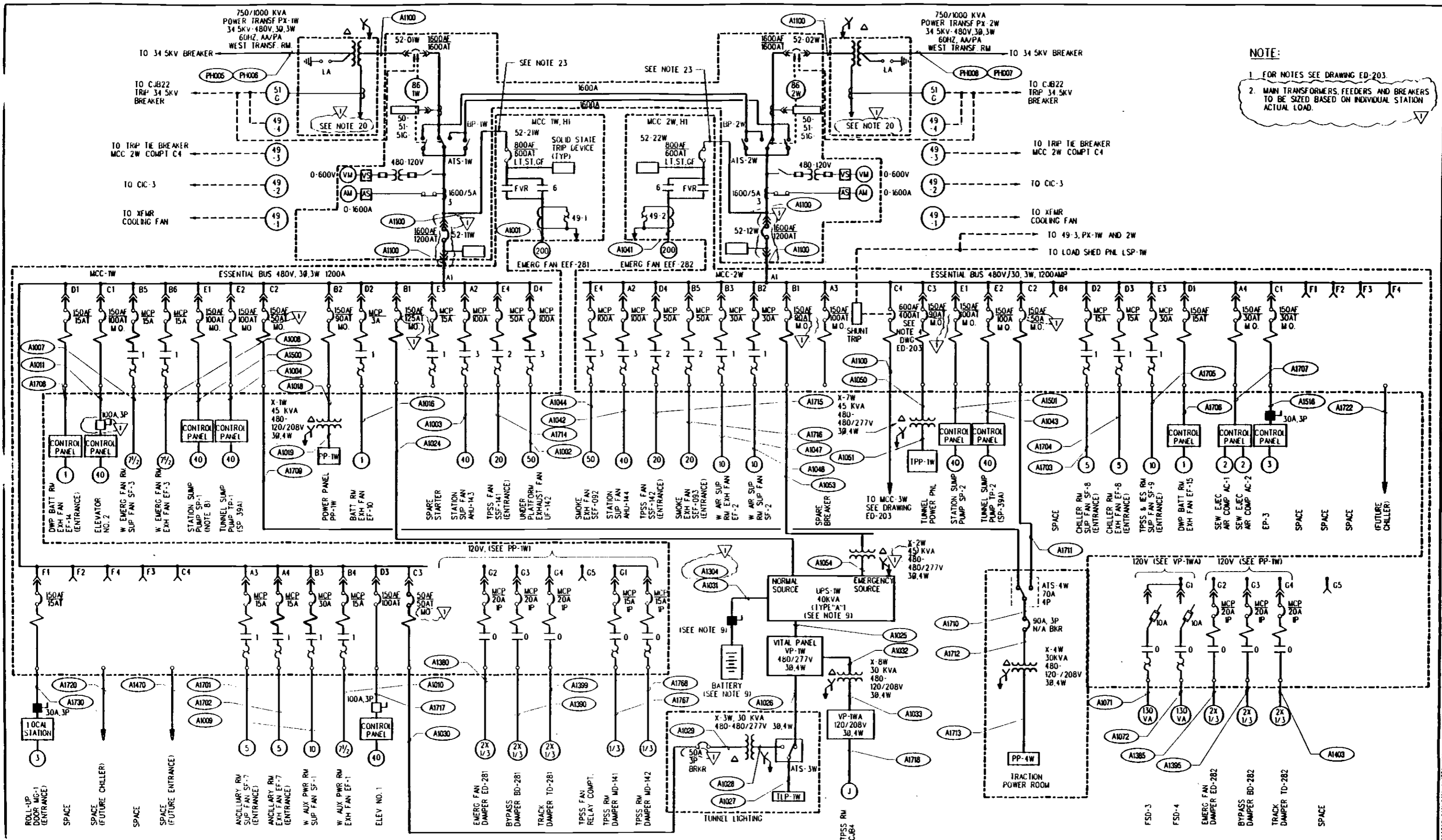
ENGINEERING MANAGEMENT CONSULTANT
 PERSONNEL SERVICES GROUP & DESIGN, INC.
 22101 Vanowen Street, Vanowen & Sherman
 Vanowen & Sherman Engineers, Inc. and I Corp.
 10000 Vanowen Street, Vanowen & Sherman
 The Westinghouse Group, Inc.

SUBMITTED: *[Signature]*
 APPROVED: *[Signature]*

ELECTRICAL DIRECTIVE
ONE LINE DIAGRAM - EAST END

CONTRACT NO. _____
 DRAWING NO. **ED-201** REV. **1**
 SCALE: **NO SCALE**
 SHEET NO. _____

PLOTTED BY: [unreadable]



NOTE:

1. FOR NOTES SEE DRAWING ED-203
2. MAIN TRANSFORMERS, FEEDERS AND BREAKERS TO BE SIZED BASED ON INDIVIDUAL STATION ACTUAL LOAD.

REV	DATE	BY	CHK	APP	DESCRIPTION
0	2/24/94	RE	AHR	GMC	REVISED AND REDRAWN PER DCN 93-68
1	8/30/94	RE	AHR	GMC	REVISED AND REDRAWN PER DCN 93-68

DESIGNED BY
R. ESTRADA

DRAWN BY
V. HOANG

CHECKED BY
C. YU

IN CHARGE
E. DER-AVAKIAN

DATE
24 FEB 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

2255 W. 10th St., Los Angeles, CA 90057
 (213) 473-1000
 FAX (213) 473-1001

SUBMITTED *Edward P. ...*

APPROVED *[Signature]*

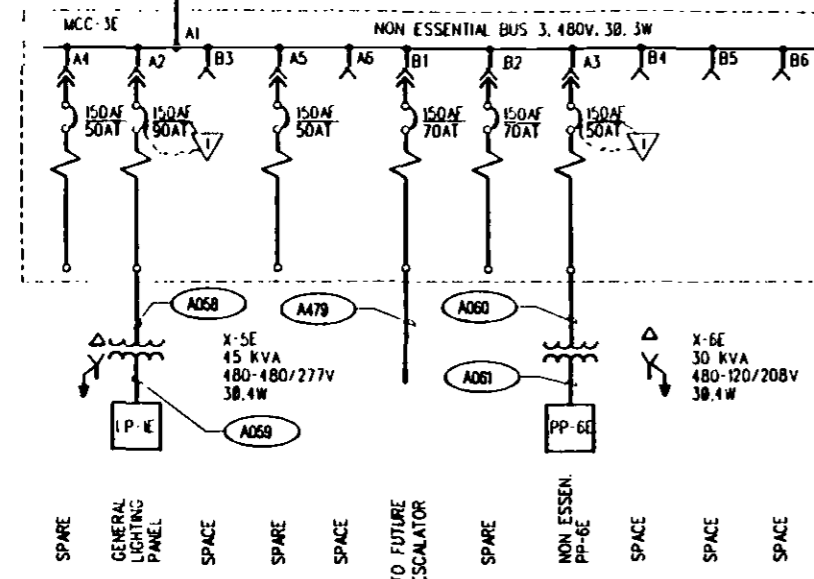
ELECTRICAL DIRECTIVE

ONE LINE DIAGRAM - WEST END

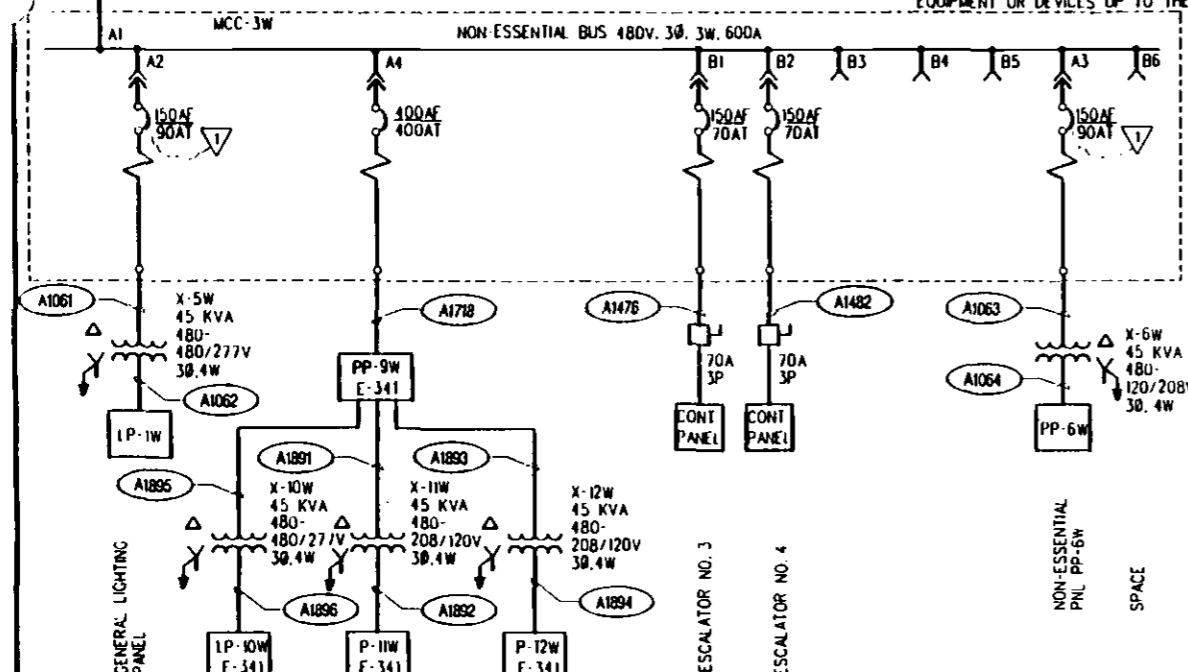
CONTRACT NO.	
DRAWING NO.	ED-202
REV	1
SCALE	NO SCALE
SHEET NO.	

2255 W. 10th St., Los Angeles, CA 90057 (213) 473-1000

TO MLC 2E, COMP 1 C4
SLE DRAWING ED-201



TO MCC-2W, COMP 1 C4
SLE DRAWING ED-202

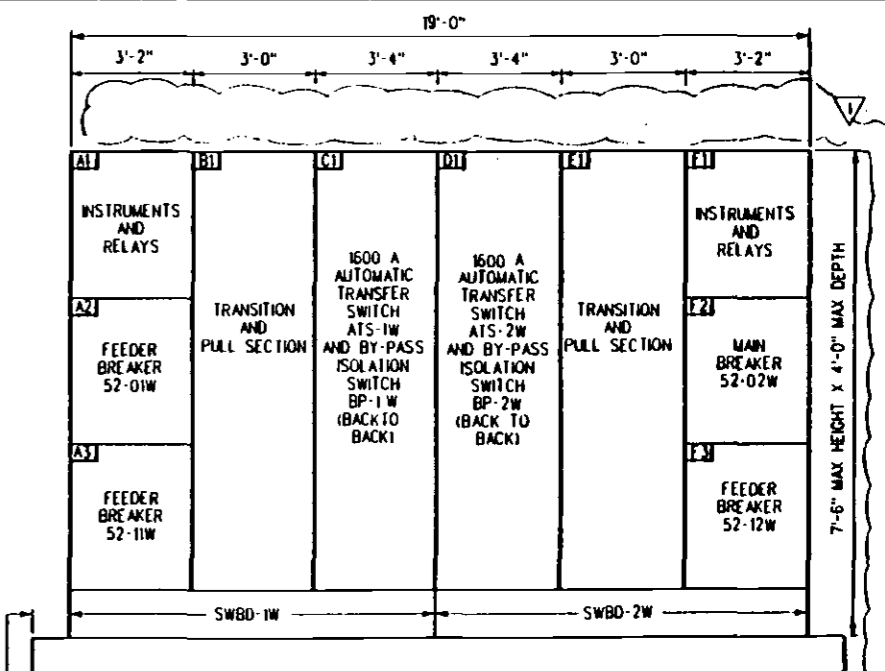
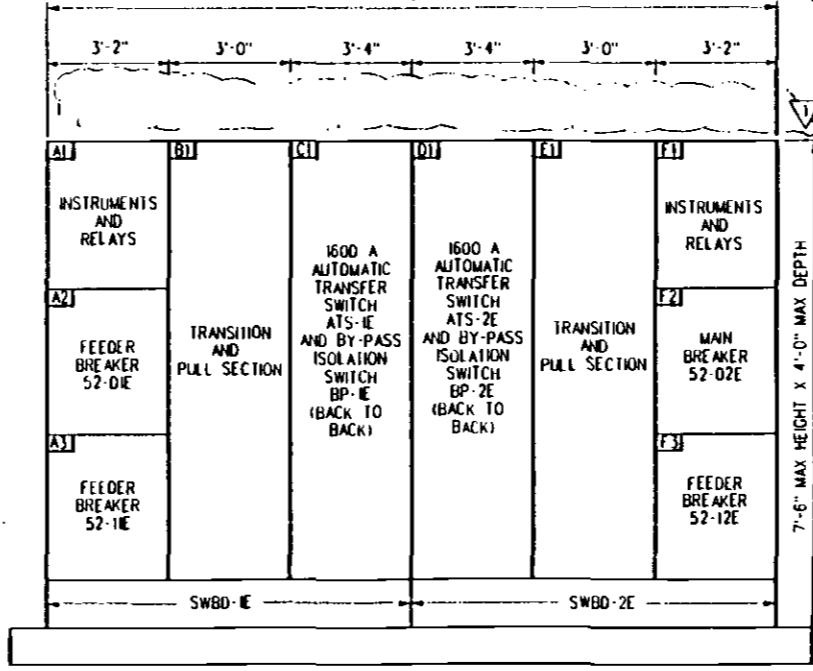


NOTES:

- ALL BREAKERS SHALL BE ADJUSTABLE TRIP TYPE.
- FOR SWITCHBOARDS SCHEDULES SEE DRAWINGS ED-207 AND ED-208.
- ESSENTIAL BUS MAIN BREAKERS 52-E, 2E, 1W AND 2W SHALL BE SET TO TRIP ON OVERLOAD, SHORT CIRCUIT AND GROUND OVER CURRENT.
- FEEDER BREAKER TO NON-ESSENTIAL BUS SHALL BE EQUIPPED WITH SHUNT TRIP ATTACHMENT WHICH WILL TRIP THE BREAKER WHEN THE HOT SPOT WINDING TEMPERATURE OF ITS CORRESPONDING POWER TRANSFORMER REACHES THIRD STAGE. THE FDR BREAKER MAY ALSO BE TRIPPED FROM THE LOAD SHED PANEL LSP-1W OR LSP-1E.
- AUTOMATIC TRANSFER AND BY-PASS SWITCH ENCLOSURES SHALL BE COMPATIBLE FOR TIEING UP WITH AND CONNECTING DIRECTLY TO THE CIRCUIT BREAKERS ADJACENT TO THEM.
- FOR BREAKERS 52-E, 2E, 1W AND 2W CONTROLS, SEE ELEMENTARY DIAGRAM WO-1, DRAWING ED-249.
- DRAW-OUT UNIT WITHOUT STAB, 120V AC POWER FROM EXTERNAL SOURCE MOUNTED IN INDIVIDUAL SECTION WITHOUT HORIZONTAL AND VERTICAL BUSES.
- PUMP STARTER AND CONTROL PACKAGES ARE FURNISHED ON MECHANICAL DRAWINGS.
- BATTERIES, EXTERNAL BATTERY DISCONNECT SWITCH AND UPS FURNISHED BY THE AUTHORITY, INSTALLATION, WIRING AND TESTING BY THIS CONTRACT.
- SIZE OF FUSED DISCONNECT SWITCHES AND LOCATION OF ELECTRICAL EQUIPMENT IN ELEVATOR AND ESCALATOR PITS AND SERVICE ROOMS SHALL BE VERIFIED TO COMPLY WITH THE ELEVATOR AND ESCALATOR CONTRACTOR'S REQUIREMENTS.
- FOR PANEL SCHEDULES, SEE DRAWING ED-213.
- FOR ADDITIONAL INFORMATION AND DETAILS OF CIRCUIT BREAKERS, STARTERS, ENCLOSURES, SWITCHES, INSTRUMENTATION, ETC. IN MOTOR CONTROL CENTERS AND SWITCHBOARDS REFER TO MCC AND SWITCHBOARD SCHEDULES, DRAWINGS ED-207 AND ED-208.
- SHIPPING SECTIONS FOR MOTOR CONTROL CENTERS SHALL NOT EXCEED 3-UNIT WIDTH. COORDINATE ALL EQUIPMENT PHYSICAL SIZES AND INSTALLATION LOCATIONS TO INSURE CLEAR PATH FOR EQUIPMENT INSTALLATION CONNECTION AND/OR REMOVAL DURING AND AFTER INSTALLATION.
- SEE DRAWINGS ED-207 AND ED-208 FOR FEEDER SCHEDULES.
- PROVIDE TWO 1600A, 480V, 3 PHASE TIE BUSES TO RUN ABOVE SWITCHBOARD AND WITHOUT INTERFERENCE TO CONDUITS AND CABLES; ROUTING TO AND FROM CABLE TRAYS.
- M.O. INDICATES CIRCUIT BREAKER WITH MOTOR OPERATED SHUNT CLOSE/TRIP MECHANISM FOR WIDE SPECIAL MCC COVER WITH CLOSE/TRIP CONTROL SWITCH SEE DRAWINGS ED-253 AND ED-254. ALL STARTERS ARE 480V, 3Ø, FVNR EXCEPT AS NOTED. MINIMUM RATING FOR STARTER CONTROL TRANSFORMERS SHALL BE 300VA.
- PROVIDE 4" HIGH HOUSEKEEPING PAD OF CONCRETE UNDER ALL FLOOR-MOUNTED SWITCHBOARDS, MOTOR CONTROL CENTER, TRANSFORMERS AND UPS CABINETS COORDINATE WITH EQUIPMENT MANUFACTURER CONCERNING SIZE OF PAD, LOCATION AND SIZE OF BOLTS. INSERT ANCHOR BOLTS INTO BASE SLAB AS REQUIRED FOR EQUIPMENT STABILITY AGAINST OPERATING CONDITIONS AND SEISMIC EFFECTS POUR CEMENT GROUT POUR AFTER EQUIPMENT HAS BEEN LEVELLED. ALL HOUSEKEEPING PADS SHALL BE REINFORCED WITH NO. 4 BARS AT 1'-0" ON CENTER EACH WAY AT MID-HEIGHT OF PAD.
- BUSES 1E, 2E, 1W, 2W SHALL BE COMPARTMENTIZED AND SHALL BE COMPLETELY SEPARATED FROM EACH OTHER AND FROM ANY OTHER EQUIPMENT OR DEVICES UP TO THE POINT OF CONTACT AT THE TRANSFER SWITCH (ALSO SEE NOTE 19).

- PROVIDE NAMEPLATE WITH WHITE BACKGROUND AND RED HALF-INCH LETTERING TO READ: "DANGER-480 VOLT POWER FROM SEPARATE SOURCE"
24. 5IG RELAY C1'S SHALL HAVE A RATIO SO THAT THE PICK-UP AMPS SHALL BE IN THE MID RANGE SCALE OF THE RELAY.
- THE "Y" GROUND WIRE SHALL BE MINIMUM OF 500 KCMIL.
- TRANSFORMER SECONDARIES SHALL BE GROUNDED PER NEC REQUIREMENTS.
- DEVICE 49 FOR THE EMERGENCY FANS (200HP) SHALL BE SIEMENS TYPE 3UB CLASS 5-30 RELAY OR APPROVED EQUAL. (LONG ACCELERATION STARTING)
- WHEN ROUTING AND SIZING THESE CABLES, CONTRACTOR TO COMPLY WITH NEC REQUIREMENTS ON TAP RULE.

TRANSFORMER SCHEDULE							
XFMR DESIGNATION	KVA	PRIMARY VOLTAGE (VOLTS)	SECONDARY VOLTAGE (VOLTS)	SERVICE	LOCATION	ROOM NO	LOAD
X-1E	45	480V, 3Ø, 3W	208Y/120V, 3Ø, 4W	ESSENTIAL	EAST AUXILIARY POWER ROOM	G206	PP-1E
X-2E	112.5	480V, 3Ø, 3W	208Y/120V, 3Ø, 4W	ESSENTIAL	EAST AUXILIARY POWER ROOM	G206	UPS-1E
X-3E	15	480V, 3Ø, 3W	480Y/277V, 3Ø, 4W	ESSENTIAL	TRACK LEVEL	G114	TLP-1E
X-5E	45	480V, 3Ø, 3W	480Y/277, 3Ø, 4W	NON-ESSENTIAL	EAST AUXILIARY POWER ROOM	G206	LP-1E
X-6E	30	480V, 3Ø, 3W	208Y/120V, 3Ø, 4W	NON-ESSENTIAL	EAST AUXILIARY POWER ROOM	G206	PP-6E
X-7E	45	480V, 3Ø, 3W	480Y/277, 3Ø, 4W	ESSENTIAL	TRACK LEVEL	G114	TPP-1E
X-8E	15	480V, 3Ø, 3W	208Y/120V, 3Ø, 4W	ESSENTIAL	TRAIN CONTROL AND COMMUNICATION RM	G109	ATC BY OTHERS
X-9E	15	480V, 3Ø, 3W	208Y/120V, 3Ø, 4W	ESSENTIAL	TRAIN CONTROL AND COMMUNICATION RM	G109	ATC BY OTHERS
X-1W	45	480V, 3Ø, 3W	208Y/120V, 3Ø, 4W	ESSENTIAL	WEST AUXILIARY POWER ROOM	A206	PP-1W
X-2W	45	480V, 3Ø, 3W	480Y/277, 3Ø, 4W	ESSENTIAL	WEST AUXILIARY POWER ROOM	A206	UPS-1W
X-3W	30	480V, 3Ø, 3W	480Y/277, 3Ø, 4W	ESSENTIAL	TRACK LEVEL	A114	TLP-1W
X-4W	30	480V, 3Ø, 3W	208Y/120V, 3Ø, 4W	ESSENTIAL	TRACTION POWER ROOM	S304	PP-4W
X-5W	45	480V, 3Ø, 3W	480Y/277, 3Ø, 4W	NON-ESSENTIAL	WEST AUXILIARY POWER ROOM	A206	LP-1W
X-6W	45	480V, 3Ø, 3W	208Y/120V, 3Ø, 4W	NON-ESSENTIAL	WEST AUXILIARY POWER ROOM	A206	PP-6W
X-7W	45	480V, 3Ø, 3W	480Y/277, 3Ø, 4W	ESSENTIAL	TRACK LEVEL	A114	TPP-1W
X-8W	30	480V, 3Ø, 3W	208Y/120V, 3Ø, 4W	VITAL	WEST AUXILIARY POWER ROOM	A206	VP-1WA
X-10W	45	480V, 3Ø, 3W	480Y/277, 3Ø, 4W	NON-ESSENTIAL	ENTRANCE	S215	LP-10W
X-11W	45	480V, 3Ø, 3W	208Y/120V, 3Ø, 4W	NON-ESSENTIAL	ENTRANCE	S215	PP-11W
X-12W	45	480V, 3Ø, 3W	208Y/120V, 3Ø, 4W	NON-ESSENTIAL	ENTRANCE	S215	PP-12W



NO.	DATE	BY	CHKD	APP	DESCRIPTION
1	02/24/94	RE	AVH	GMC	REVISION AND REDRAWN PER DCN 93-68
2	02/24/94	RE	AVH	GMC	REVISION AND REDRAWN PER DCN 93-68

DESIGNED BY
R. ESTRADA
DRAWN BY
V. HOANG
CHECKED BY
C. ROBINOL
IN CHARGE
E. DER-AVAKIAN
DATE
24 FEB 94

M LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY
ENGINEERING MANAGEMENT CONSULTANT
SUBMITTED: *[Signature]*
APPROVED: *[Signature]*

ELECTRICAL DIRECTIVE
ONE LINE DIAGRAM AND MISCELLANEOUS
CONTRACT NO.
DRAWING NO. ED-203
SCALE: NO SCALE
SHEET NO. 1

UNIT	HP KW	AMP	BREAKER			STARTER			AUX DEVICE (NOTE 1)	DESCRIPTION (ENGRAVING)	WIRING DIAGRAM WD-	REMARKS
			FRAME	TRIP	TYPE (REF)	TYPE	NEMA SIZE	HVA SIZE				
LOCATION E AUX POWER ROOM G206 FOR ELEVATION DETAIL SEE DRAWING ED-206												
MCC-1E												
VOLTAGE 480.3Ø 3W. BREAKER INTERRUPTING CAPACITY 42,000 AC MM BUS BRACING 42,000 AMPS SYMMETRICAL GROUND BUS 1/4" X 2" COPPER ENCLOSURE (NEMA 12) NEMA CLASS II, TYPE B												
A1	50	65	100	MCP	FVNR	3			INCOMING LINE			
A2	45	54	150	HFB					AIR HANDLING UNIT AHU-141	MED-246	VIA X-1E	
A3	15	18	150	HFB					120/208V POWER PANEL PP-1E		VIA X-1E	
A4	15	18	150	HFB					120/208V POWER PANEL IC & C RM		VIA X-1E	
B1	10	14	30	MCP	FVNR	1			E EMERG FAN RM SUPPLY FAN SF-6	D3(ED-252)		
B2	10	14	30	MCP	FVNR	1			E EMERG FAN RM EXH FAN EF-6	D2(ED-252)		
B3	10	14	30	MCP	FVNR	1			E AUX PWR RM SUPPLY FAN SF-4	D3(ED-252)		
B4	7.5	11	15	MCP	FVNR	1			E AUX PWR RM EXH FAN EF-4	D2(ED-252)		
B5	80	96	250	HKB					UNINTERRUPTIBLE POWER SUPPLY UPS-1E		NORMAL SOURCE	
C1			150	HFB					FUTURE ELEVATOR			
C2									SPACE			
C3	50	65	100	MCP	FVNR	3			UNDER PLATFORM EXH FAN UF-141	MED-245		
D1	0.75	1.4	15	HFB					TC & C BATTERY RM EXH FAN EF-12	D7(ED-250)		
D2	2	3.4	7	MCP	FVNR	1			BATTERY RM EXH FAN EF-11	D4(ED-252)		
D3	15	18	150	HFB					TLP-1E		VIA X-3E	
D4									SPACE		FUTURE ENTRANCE	
E1									SPACE			
E2									SPACE			
E3									SPACE			
E4									SPACE			

UNIT	HP KW	AMP	BREAKER			STARTER			AUX DEVICE (NOTE 1)	DESCRIPTION (ENGRAVING)	WIRING DIAGRAM WD-	REMARKS
			FRAME	TRIP	TYPE (REF)	TYPE	NEMA SIZE	HVA SIZE				
LOCATION E AUX POWER ROOM G206 FOR ELEVATION DETAIL SEE DRAWING ED-206												
MCC-3E												
VOLTAGE 480.3Ø 3W. BREAKER INTERRUPTING CAPACITY 42,000 AC MM BUS BRACING 42,000 AMPS SYMMETRICAL GROUND BUS 1/4" X 2" COPPER ENCLOSURE (NEMA 12) NEMA CLASS II, TYPE B												
A1									INCOMING LINE			
A2	45	54	150	HFB					LIGHTING PANEL LP-1E		VIA X-5E	
A3	30	36	150	HFB					120/208V POWER PANEL PP-6E		VIA X-6E	
A4			150	HFB					SPARE BREAKER			
A5			150	HFB					SPARE BREAKER			
A6									SPACE			
B1			150	HFB					SPARE BREAKER			
B2			150	HFB					SPARE BREAKER			
B3									SPACE			
B4									SPACE			
B5									SPACE			
B6									SPACE			
C1C												
MCC-1E (CONT.)												
F1									SPACE			
F2	(2) 1/3		20A	MCP	IP	0			EMERGENCY FAN DAMPER EED-271	OK(ED-248)	SEPARATE 120V POWER	
F3	(2) 1/3		20A	MCP	IP	0			EMERGENCY FAN BY-PASS DAMPER BD-271	SI(ED-248)	SEPARATE 120V POWER	
F4	(2) 1/3		20A	MCP	IP	0			EMERGENCY FAN TRACK DAMPER TD-271	UK(ED-248)	SEPARATE 120V POWER	
F5									SPACE			
G1	200	240			FVR	6			EMERGENCY FAN EED-271	RI(ED-247)	SEPARATE 120V CONTROL	
C1C									REMOTE I/O BY OTHERS		(3) 100 PT TB	

UNIT	HP KW	AMP	BREAKER			STARTER			AUX DEVICE (NOTE 1)	DESCRIPTION (ENGRAVING)	WIRING DIAGRAM WD-	REMARKS
			FRAME	TRIP	TYPE (REF)	TYPE	NEMA SIZE	HVA SIZE				
LOCATION E AUX POWER ROOM G206 FOR ELEVATION DETAIL SEE DRAWING ED-206												
MCC-2E												
VOLTAGE 480.3Ø 3W. BREAKER INTERRUPTING CAPACITY 42,000 AC MM BUS BRACING 42,000 AMPS SYMMETRICAL GROUND BUS 1/4" X 2" COPPER ENCLOSURE (NEMA 12) NEMA CLASS II, TYPE B												
A1	50	65	100	MCP	FVNR	3			INCOMING LINE			
A2	45	54	150	HFB					AIR HANDLING UNIT AHU-142	MED-246	VIA X-9E	
A3	15	18	150	HFB					120/208V POWER PANEL IC & C RM		VIA X-9E	
B1	3.0		150	HFB					TC & C RM AIRCOND UNIT ACU-2	OK(ED-251)		
B2	5	7.6	15	MCP	FVNR	1			SUPPLY FAN SF-10	D3(ED-252)		
B3	5	7.6	15	MCP	FVNR	1			E AIR SUPPLY RM SUPPLY FAN SF-5	D3(ED-252)		
B4	5	7.6	15	MCP	FVNR	1			E AIR SUPPLY RM EXH FAN EF-5	D2(ED-252)		
B5	112.5	135	250	HKB					UNINTERRUPTIBLE POWER SUPPLY UPS-1E		STANDBY SOURCE	
C1	45	54	150	HFB					TUNNEL POWER PANEL TPP-1E		VIA X-7E	
C2									SPACE			
C3			150	HFB					SPARE BREAKER			
C4			600	HFA					120V SHUNT TRIP MAIN BREAKER	MCC-3E		
D1	0.75	1.4	15	HFB					TC & C BATTERY RM EXH FAN EF-13	D7(ED-250)		
D2	5	7.6	15	MCP	FVNR	1			TC & C ROOM EXH FAN EF-9	D5(ED-250)		
D3			150	HFB					SPARE BREAKER			
D4									SPACE		FUTURE ENTRANCE	
E1			30	MCP	FVNR	1			SPARE STARTER			
E2	3		7	MCP	FVNR	1			TC & C RM CONDENSER UNIT CU-1	OK(ED-251)		
E3			150	HFB					SPARE BREAKER			
E4	50	65	100	MCP	FVNR	3			SMOKE EXH FAN SEF-091	(ED-245)		

UNIT	HP KW	AMP	BREAKER			STARTER			AUX DEVICE (NOTE 1)	DESCRIPTION (ENGRAVING)	WIRING DIAGRAM WD-	REMARKS
			FRAME	TRIP	TYPE (REF)	TYPE	NEMA SIZE	HVA SIZE				
MCC-2E (CONT.)												
F1									SPACE			
F2	(2) 1/3		20A	MCP	IP	0			EMERGENCY FAN DAMPER EED-272	OK(ED-248)	SEPARATE 120V POWER	
F3	(2) 1/3		20A	MCP	IP	0			EMERGENCY FAN BY-PASS DAMPER BD-272	SI(ED-248)	SEPARATE 120V POWER	
F4	(2) 1/3		20A	MCP	IP	0			EMERGENCY FAN TRACK DAMPER TD-272	UK(ED-248)	SEPARATE 120V POWER	
F5	(2) 130VA		10A	FUS	IP	0			FIRE SMOKE DAMPER FSD-1 AND FSD-2	D6(ED-244)	SEPARATE 120V POWER	
G1	200	240			FVR	6			EMERGENCY FAN EED-272	RI(ED-247)	SEPARATE 120V CONTROL	
C1C									REMOTE I/O BY OTHERS		(3) 100 PT TB	

LOCATION E AUX POWER ROOM A206 FOR ELEVATION DETAIL SEE DRAWING ED-203												
SWITCHBOARD 1E, 2E SCHEDULE												
VOLTAGE 480.3Ø 3W WITH GROUND ENCLOSURE (NEMA 12) WITH DRIP SHIELD AC 50,000 BUS BRACING AC 42,000 BREAKER												
COMPT	POLES	TRIP	CONNEC. LOAD			EQUIPMENT DESCRIPTION	REMARKS	ELECTRICALLY OPERATED	SHUNT TRIP	GROUND TRIP	HANDLE LOCKABLE	REF BKR TYP
			HP	KW	AMPS							
A1						INSTRUMENTS AND RELAYS						
A2	3	1600				MAIN BREAKER 52-01E	DRAW-OUT	X		X		
A3	3	1200				FEEDER BREAKER 52-11E	DRAW-OUT	X		X		
B1						TRANSITION AND PULL SECTION						
C1	3	1600				AUTOMATIC TRANSFER SW ATS-1E & BY PASS SW BP-1E		X				
D1	3	1600				AUTOMATIC TRANSFER SW ATS-2E & BY PASS SW BP-2E		X				
E1												
F1						INSTRUMENTS AND RELAYS						
F2	3	1600				MAIN BREAKER 52-02E	DRAW-OUT	X		X		
F3	3	1200				FEEDER BREAKER 52-12E	DRAW-OUT	X		X		

DESIGNED BY R. ESTRADA	DATE 24 FEB 94
DRAWN BY V. HOANG	REVISED AND RESEALED PER DE 305-58099 RD
CHECKED BY C. ROBINOL	REVISED AND REDRAWN PER DCN 15
BY (CLIENT) E. DER AVAKIAN	DATE 24 FEB 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

Submitted: *[Signature]*

Approved: *[Signature]*

ELECTRICAL DIRECTIVE

**MCC 1E, 2E, & 3E
SWITCHBOARD 1E, 2E SCHEDULES**

CONTRACT NO. _____

DRAWING NO. **ED-207** REV 1

SCALE: **NO SCALE**

SHEET NO. _____

PLOTTED BY: [unreadable]

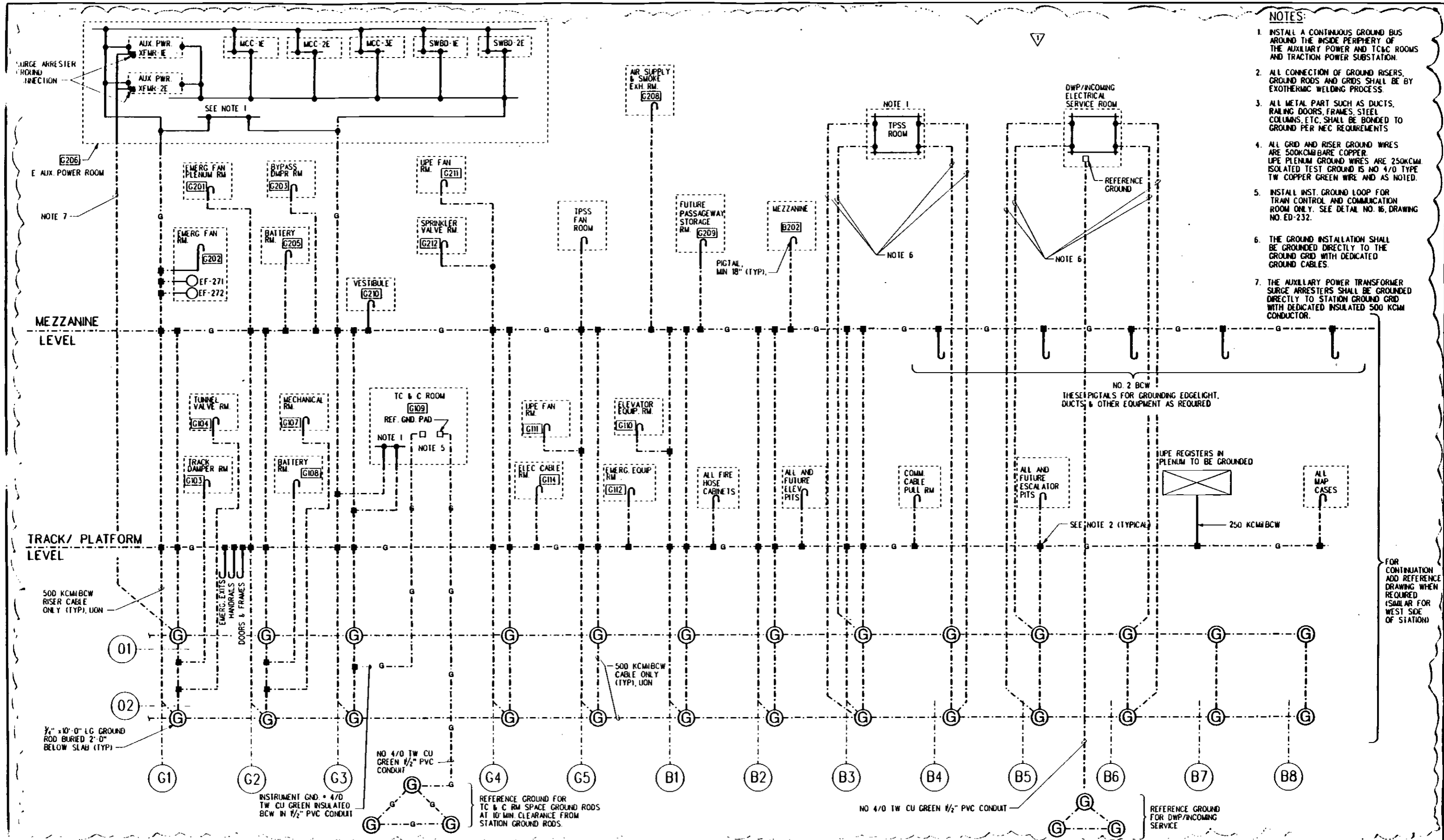
UNIT	HP KW	AMP	BREAKER			STARTER			AUX DEVICE (NOTE 1)	DESCRIPTION (ENGRAVING)	WIRING DIAGRAM WD-	REMARKS
			FRAME	TRIP	TYPE (REF)	TYPE	NEMA SIZE	HP SIZE				
LOCATION W AUX POWER ROOM A206 FOR ELEVATION DETAIL SEE DRAWING ED-206												
MCC-1W VOLTAGE 480.3Ø.3W. BREAKER INTERRUPTING CAPACITY 42,000 AC MN BUS BRACING 42,000 AMPS SYMMETRICAL GROUND BUS 1/4"x 2" COPPER ENCLOSURE NEMA 12 WITH DRIP SHIELD NEMA CLASS II, TYPE B												
A2	50	65	100		MCP	FVNR	3		INCOMING LINE			
A3	5	7.6	15		MCP	FVNR	1		AIR HANDLING UNIT	AHU-143	(MED-246)	
A4	5	7.6	15		MCP	FVNR	1		AUXILIARY RM SUPPLY FAN	SF-7	D3(ED-252)	
									AUXILIARY RM EXH FAN	EF-7	D2(ED-252)	
B1	40	48	150	100	HFB				UNINTERRUPTIBLE POWER SUPPLY	UPS-1W	NORMAL SOURCE	
B2	45	54	150	90	HFB				120/208V POWER PANEL	PP-1W	VIA X-1W	
B3	40	48	150	30	MCP	FVNR	1		W. AUX POWER RM SUPPLY FAN	SF-1	D3(ED-252)	
B4	7.5	11	15		MCP	FVNR	1		W. AUX POWER RM EXH FAN	EF-1	D2(ED-252)	
B5	7.5	11	15		MCP	FVNR	1		W. EMERG FAN RM SUPPLY FAN	SF-3	D3(ED-252)	
B6	7.5	11	15		MCP	FVNR	1		W. EMERG FAN RM EXH FAN	EF-3	D2(ED-252)	
C1	40	52	150	100	HFB				ELEVATOR NO. 2			
C2	30	36	150	50	HFB				120/208V POWER PANEL	PP-4W	TRACTION PWR. VIA ATS-4W, X-4W	
C3	30	36	150	50	HFB				TUNNEL LIGHTING PANEL	TLP-1W	VIA X-3W & ATS	
C4									SPACE		FUTURE ENTRANCE	
D1	1	1.8	150	15	HFB				DWP BATTERY ROOM EXH FAN	EF-14	D7(ED-250)	
D2	1	1.8	150	15	MCP	FVNR	1		BATTERY ROOM EXH FAN	EF-10	D4(ED-252)	
D3	40	52	150	100	HFB				ELEVATOR NO. 1		(MED-245)	
D4	50	65	100		MCP	FVNR	3		UNDER PLATFORM EXH FAN	UF-142		
E1	40	52	150	100	HFB				STATION SUMP PUMP	SP-1	G(ED-242)	
E2	40	52	150	100	HFB				TUNNEL SUMP PUMP	TP-1		
E3									SPARE STARTER			
E4	30	40	70		MCP	FVNR	2		TPSS FAN	SSF-141	(AT ENTRANCE)	
F1	3	4.8	150	15	HFB				RDCT-UP DOOR	MC-1	(AT ENTRANCE)	
F2									SPACE			
F3									SPACE			
F4									SPACE		FUTURE CHILLER	

UNIT	HP KW	AMP	BREAKER			STARTER			AUX DEVICE (NOTE 1)	DESCRIPTION (ENGRAVING)	WIRING DIAGRAM WD-	REMARKS
			FRAME	TRIP	TYPE (REF)	TYPE	NEMA SIZE	HP SIZE				
LOCATION W AUX POWER ROOM A206 FOR ELEVATION DETAIL SEE DRAWING ED-206												
MCC-3W VOLTAGE 480.3Ø.3W. BREAKER INTERRUPTING CAPACITY 42,000 AC MN BUS BRACING 42,000 AMPS SYMMETRICAL GROUND BUS 1/4"x 2" COPPER ENCLOSURE NEMA 12 WITH DRIP SHIELD NEMA CLASS II, TYPE B												
A1									INCOMING LINE			
A2	45	54	150	90	HFB				LIGHTING PANEL LP-1W		VIA X-5W	
A3	45	54	150	90	HFB				120/208V PANEL PP-6W		VIA X-6W	
A4				400	HFB				POWER PANEL PP-9W		(AT ENTRANCE)	
B1				150	70	HFB			ESCALATOR NO. 3			
B2				150	70	HFB			ESCALATOR NO. 4			
B3									SPACE			
B4									SPACE			
B5									SPACE			
B6									SPACE			
CIC									REMOTE I/O BY OTHERS			
MCC-1W (CONT)												
G1	(2) 1/3			15A	MCP	P	0		MD-141, MD-142		SEPARATE 120V POWER	
G2	(2) 1/3			20A	MCP	P	0		EMERGENCY FAN DAMPER	EED-281	(MED-248) SEPARATE 120V POWER	
G3	(2) 1/3			20A	MCP	P	0		EMERGENCY FAN BY-PASS DAMPER	BD-281	(MED-248) SEPARATE 120V POWER	
G4	(2) 1/3			20A	MCP	P	0		EMERGENCY FAN TRACK DAMPER	TD-281	(MED-248) SEPARATE 120V POWER	
G5									TPSS FAN RELAY COMPARTMENT			
H1	200	240				FVR	6		EMERGENCY FAN	EEF-281	(MED-247) SEPARATE 120V CONT	
CIC									REMOTE I/O BY OTHERS			
MCC-2W (CONT)												
G1	(2) 1/3			10A	FUSE	P	0		FIRE SMOKE DAMPER	FSD-3.4	(MED-244) SEPARATE 120V SUPPLY	
G2	(2) 1/3			20A	MCP	P	0		EMERGENCY FAN DAMPER	EED-282	(MED-248) SEPARATE 120V SUPPLY	
G3	(2) 1/3			20A	MCP	P	0		EMERGENCY FAN BY-PASS DAMPER	BD-282	(MED-248) SEPARATE 120V SUPPLY	
G4	(2) 1/3			20A	MCP	P	0		EMERGENCY FAN TRACK DAMPER	TD-282	(MED-248) SEPARATE 120V SUPPLY	
G5												
H1	200	240				FVR	6		EMERGENCY FAN	EEF-282	(MED-247) SEPARATE 120V CONT	
CIC									REMOTE I/O BY OTHERS			

UNIT	HP KW	AMP	BREAKER			STARTER			AUX DEVICE (NOTE 1)	DESCRIPTION (ENGRAVING)	WIRING DIAGRAM WD-	REMARKS
			FRAME	TRIP	TYPE (REF)	TYPE	NEMA SIZE	HP SIZE				
LOCATION W AUX POWER ROOM A206 FOR ELEVATION DETAIL SEE DRAWING ED-206												
MCC-2W VOLTAGE 480.3Ø.3W. BREAKER INTERRUPTING CAPACITY 42,000 AC MN BUS BRACING 42,000 AMPS SYMMETRICAL GROUND BUS 1/4"x 2" COPPER ENCLOSURE NEMA 12 WITH DRIP SHIELD NEMA CLASS II, TYPE B												
A1	50	65	100		MCP	FVNR	3		INCOMING LINE			
A3			150	100	HFB				AIR HANDLING UNIT	AHU-144	(MED-246)	
A4	(2) 2	(2) 3.4	150	30	HFB				SPARE BREAKER			
									SEWAGE EJECTOR AIR COMPRESSOR AC-1, AC-2			
B1	45	54	150	90	HFB				UNINTERRUPTIBLE POWER SUPPLY	UPS-1W	STANDBY SOURCE	
B2	40	48	150	30	MCP	FVNR	1		W. AIR SUPPLY RM SUPPLY FAN	SF-2	D3(ED-252)	
B3	40	48	150	30	MCP	FVNR	1		W. AIR SUPPLY RM EXHAUST FAN	EF-2	D2(ED-252)	
B4									SPACE			
B5	20	27	50		MCP	FVNR	2		SMOKE EXHAUST FAN	SEF-093	(MED-245)	
C1	3	4.8	150	30	HFB				SEWAGE SIMPLEX PUMP	EP-3		
C2	30	36	150	50	HFB				120/208V POWER PANEL	PP-4W	TRACTION PWR. VIA X-4W, ATS-4W	
C3	45	54	150	90	HFB				TUNNEL POWER PANEL	TPP-1W	VIA X-1W	
C4			600	400	HFA				MAIN BREAKER	MCC-3W		
D1	1	1.8	150	15	HFB				DWP BATTERY ROOM EXH FAN	EF-15	D7(ED-250)	
D2	5	7.6	15		MCP	FVNR	1		CHILLER ROOM SUPPLY FAN	SF-8	D3(ED-252) (AT ENTRANCE)	
D3	5	7.6	15		MCP	FVNR	1		CHILLER ROOM EXH FAN	EF-8	D2(ED-252) (AT ENTRANCE)	
D4	30	40	70		MCP	FVNR	3		TPSS FAN	SSF-142	(MED-243)	
E1	40	52	150	100	HFB				STATION SUMP PUMP	SP-2	G(ED-242)	
E2	40	52	150	100	HFB				TUNNEL SUMP PUMP	TP-2		
E3	40	48	30		MCP	FVNR	1		TPSS & INC ELEC SERV RM	SF-9	D3(ED-252) (AT ENTRANCE)	
E4	50	65	100		MCP	FVNR	3		SMOKE EXHAUST FAN	SEF-092	(MED-245)	
F1									SPACE			
F2									SPACE			
F3									SPACE			
F4									SPACE		FUTURE CHILLER	

UNIT	HP KW	AMP	BREAKER			STARTER			AUX DEVICE (NOTE 1)	DESCRIPTION (ENGRAVING)	WIRING DIAGRAM WD-	REMARKS		
			FRAME	TRIP	TYPE (REF)	TYPE	NEMA SIZE	HP SIZE					CONT XFMR	
LOCATION W AUX POWER ROOM A206 FOR ELEVATION DETAIL SEE DRAWING ED-203														
SWITCHBOARD 1W, 2W VOLTAGE 480.3Ø.3W. WITH GROUND ENCLOSURE NEMA 12 WITH DRIP SHIELD AC 50,000 BUS BRACING AC 42,000 BREAKER														
COMPT	POLES	TRIP	HP	KW	AMPS	EQUIPMENT DESCRIPTION			REMARKS	ELECTRICALLY OPERATED	SHUNT TRIP	GROUND TRIP	HANDLE LOCKABLE	REF BKR TYP
A1	3	1600				INSTRUMENTS AND RELAYS				X		X		
A2	3	1200				MAIN BREAKER 52-01W			DRAW-OUT	X		X		
A3	3	1200				FEEDER BREAKER 52-11W			DRAW-OUT	X		X		
B1						TRANSITION AND PULL SECTION								
C1	3	1600				AUTOMATIC TRANSFER SW/ATS-1W AND BY-PASS SW/BP-1W				X				
D1	3	1600				AUTOMATIC TRANSFER SW/ATS-2W AND BY-PASS SW/BP-2W				X				
E1						TRANSITION AND PULL SECTION								
F1						INSTRUMENTS AND RELAYS								
F2	3	1600				MAIN BREAKER 52-02W			DRAW-OUT	X		X		
F3	3	1200				FEEDER BREAKER 52-12W			DRAW-OUT	X		X		

DESIGNED BY R. ESTRADA	LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY	ELECTRICAL DIRECTIVE	CONTRACT NO.
DRAWN BY V. HOANG	ENGINEERING MANAGEMENT CONSULTANT	MCC 1W, 2W, 3W, & 3E SWITCHBOARD 1E, 2E SCHEDULES	DRAWING NO. ED-208
CHECKED BY C. YU	REVISIONS AND RESEARCH FOR THIS PROJECT REVISIONS AND RESEARCH FOR THIS PROJECT	SCALE NO SCALE	REV 1
DATE 19 APR 94	SUBMITTED <i>[Signature]</i>	SHEET NO.	



REV	DATE	BY	CHKD	APP	DESCRIPTION
0	1994	CY	AHL	GMC	REVISED AND RESEALED PER DE 308-580N-9/00 BASELINE ISSUE

DESIGNED BY
C. YU
DRAWN BY
M. UDRESCU
CHECKED BY
C. ROSENIO
IN CHARGE
E. DER AVAKIAN
DATE
19 APR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

FOR THE METRO

SUBMITTED: *Edward P. ...*

APPROVED: *J. ...*

ELECTRICAL DIRECTIVE

RISER DIAGRAMS AND DETAILS

CONTRACT NO. _____

DRAWING NO. **ED-211** REV. **1**

SCALE: **NO SCALE**

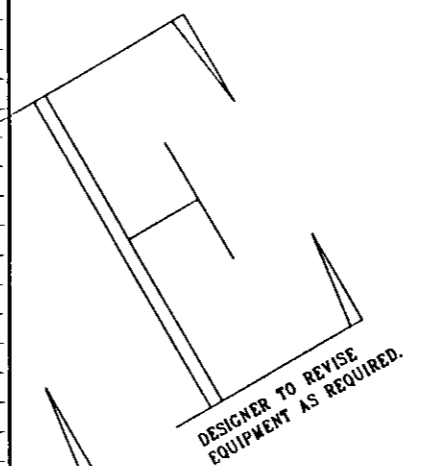
SHEET NO. _____

PLOT BY: ...

LOCATION E. AUX PWR RM - G206 PANEL VP-IE (VITAL)													VOLTAGE 480/277 3Ø, 4W TYPE OF MAINS 40A, 3P FEEDER A UPS-IE (25KVA)												
MOUNTING SURFACE													FED FROM UPS-IE												
DESCRIPTION	WATTAGE			BKR AMP	POLE	CIR	A B C			CIR	POLE	BKR AMP	WATTAGE			DESCRIPTION									
	ØA	ØB	ØC				ØA	ØB	ØC																
SPARE				20	1	1				2	1	20	580		G202, G201, STAR *7, *11 AND *14 EMERG. EXITS *7, *11 AND *14										
SPARE				20	1	3				4	1	20		825	STAR *7, B200, G209										
G103, G104, G107 G109, G113, G114			1375	20	1	5				6	1	20		990	STAR & EMERG EXIT *7, *11 AND *14, G208, STAR *7										
G103, G109	950			20	1	7				8	1	20	1400		B200, B102, B202 STAR & EMERG EXIT *7, *11 AND *14										
SPARE				20	1	9				10	1	20		685	G103, G210, STAR *7 EMERG. EXITS *7 AND *14										
WALKWAY SOUTH G105, G106, G112 & B100			1060	20	1	11				12	1	20		560											
WALKWAY NORTH G201, G202, G203 G205, G206	635			20	1	13				14	1	20	950		G202, G201 NORTH EDGE LIGHT EAST & WEST										
SPARE				20	1	15				16	1	20		1445											
SPARE				20	1	17				18	1	20			SPARE										
B100 PLATFORM LEVEL	800			20	1	19				20	1	20			SPACE										
SPARE				20	1	21				22	1	20			SPACE										
SPARE				20	1	23				24	1	20			SPACE										
				20	1	25				26	1	20			SPACE										
A15-3E (ILP-IE)	2534			30	3	27				28	1	20			SPACE										
		2534				29				30	1	20			SPACE										
			2534			31				32	1	20			SPACE										
SPACE						33				34	1	20			SPACE										
SPACE						35				36	1	20			SPACE										
SPACE						37				38	1	20			SPACE										
SPACE						39				40	1	20			SPACE										
SPACE						41				42	1	20			SPACE										
SUB-TOTAL	4919	3599	4969										2930	2955	1550	SUB-TOTAL									
WATTS PER PHASE	A 7,849			B 6,554			C 6,519																		
TOTAL WATTS	20,922																								
AVERAGE AMPS	25.22																								

LOCATION E. AUX PWR RM - G206 PANEL VP-IEA (VITAL)													VOLTAGE 208Y/120 3Ø, 4W TYPE OF MAINS 50A, 3P FEEDER UPS-IE (15KVA)												
MOUNTING SURFACE													FED FROM UPS-IE												
DESCRIPTION	WATTAGE			BKR AMP	POLE	CIR	A B C			CIR	POLE	BKR AMP	WATTAGE			DESCRIPTION									
	ØA	ØB	ØC				ØA	ØB	ØC																
LOAD SHED PANEL LSP-IE	100			20	1	1				2	1	20	200		CARD READER TRACK LVL										
LOAD SHED PANEL LSP-IE	100			20	1	3				4	1	20	150		CARD READER MEZZ LVL										
LOAD SHED PANEL LSP-IE	100	100		20	1	5				6	1	20	300		DMPR AHD 141, 142										
BKR 52-01E CONT	100			20	1	7				8	1	20	150		EMERG FAN EEF-271										
BKR 52-02E CONT	100			20	1	9				10	1	20	150		EMERG FAN EEF-272										
CURGR. RECEPT. G206			180	20	1	11				12	1	20	150		EF-12/13 LCS										
SPARE				20	1	13				14	1	20	150		CJB21										
SPARE				20	1	15				16	1	20	150		XFMR PX-IE FAN										
PRE ACT SYS COMPR			300	20	1	17				18	1	20	150		XFMR PX-IE CONT										
ACCP CONTROL	300			20	1	19				20	1	20	150		XFMR PX-2E FAN										
SPARE				20	1	21				22	1	20	150		XFMR PX-2E CONT										
SPARE				20	1	23				24	1	20			SPACE										
FSD-1, 2	100			20	1	25				26	1	20			SPACE										
SPARE				20	1	27				28	1	20			SPACE										
SPARE				20	1	29				30	1	20			SPACE										
MCC-IE, CIC	200			20	1	31				32	1	20	200		MCC-2E, CIC										
MCC-IE, CIC	200			20	1	33				34	1	20	200		MCC-2E, CIC										
MCC-IE, CIC	200	200		20	1	35				36	1	20	200		MCC-2E, CIC										
MCC-3E, CIC	200			20	1	37				38	1	20			SPACE										
SPACE						39				40	1	20			SPACE										
SPACE						41				42	1	20	50		TIME CLOCK										
SUB-TOTAL	1000	400	780										850	800	850	SUB-TOTAL									
WATTS PER PHASE	1,850			B 1,200			C 1,630																		
TOTAL WATTS	4,680																								
AVERAGE AMPS	13.0																								

- NOTES :
1. ALL PANELS SHALL HAVE A MAIN BREAKER WITH THE INDICATED RATING.
 2. ALL PANELS SHALL HAVE A MINIMUM AC RATING OF 14,000 AMPERES RMS SYMMETRICAL
 3. ALL PANELS SHOWN ON THIS SHEET SHALL BE IN A NEMA 12 ENCLOSURE
 4. 3 PHASE CIRCUITS 26, 28 AND 30 OF PANEL VP-1WA SHALL BE 3ØA, AND 4 NO. 8 AND 1 NO. 10 GROUND WIRES.



LOCATION WEST AUX PWR ROOM-A206 PANEL VP-1W (VITAL)													VOLTAGE 480/277 3Ø, 4W TYPE OF MAINS 20A, 3P FEEDER UPS-1W 40(KVA)												
MOUNTING SURFACE													FED FROM UPS-1W												
DESCRIPTION	WATTAGE			BKR AMP	POLE	CIR	A B C			CIR	POLE	BKR AMP	WATTAGE			DESCRIPTION									
	ØA	ØB	ØC				ØA	ØB	ØC																
SPARE				20	1	1				2	1	20	580		A206, A208, A209										
SPARE				20	1	3				4	1	20	730		A202, A205, A211, A213										
A106, A107 A108, A110			380	20	1	5				6	1	20			SPACE										
SPARE				20	1	7				8	1	20			SPACE										
B100 PLATFORM LEVEL	1260			20	1	9				10	1	20			SPACE										
WALKWAY SOUTH PLATFORM		400		20	1	11				12	1	20			SPACE										
WALKWAY SOUTH PLATFORM	740			20	1	13				14	1	20			SPACE										
B100 PLATFORM LEVEL	840			20	1	15				16	1	20	1445		NORTH EDGE LIGHT WEST & EAST										
TPSS/STAIR *B L15			1225	20	1	17				18	1	20	500		ENTRY PLAZA LTG										
AUXILIARY AREAS LTG	2675			30	1	19				20	1	20	580		VMS SIGN @ MEZZ WEST										
SPARE				20	1	21				22	1	20	1270		A200 (MEZZ) M.H.										
SPARE				20	1	23				24	1	20	1680		A200 (MEZZ) M.H.										
				20	1	25				26	1	20	2477		VP-1WA										
A15-3W (ILP-1W)	5066			45	3	27				28	3	90	2477		VIA X-8W										
		5066				29				30	1	20	2477		SPACE										
SPACE						31				32	1	20			SPACE										
SPACE						33				34	1	20			SPACE										
SPACE						35				36	1	20			SPACE										
SPACE						37				38	1	20			SPACE										
SPACE						39				40	1	20			SPACE										
SPACE						41				42	1	20			SPACE										
SUB-TOTAL	8481	7166	7071										3357	5922	4657	SUB-TOTAL									
WATTS PER PHASE	A 11,838			B 13,088			C 11,728																		
TOTAL WATTS	36,654																								
AVERAGE AMPS	44.2																								

LOCATION W. AUX PWR ROOM-A206 PANEL VP-1WA (VITAL)													VOLTAGE 208Y/120 3Ø, 4W TYPE OF MAINS 50A, 3P FEEDER VIA X-8W (15KVA)												
MOUNTING SURFACE													FED FROM VP-1W												
DESCRIPTION	WATTAGE			BKR AMP	POLE	CIR	A B C			CIR	POLE	BKR AMP	WATTAGE			DESCRIPTION									
	ØA	ØB	ØC				ØA	ØB	ØC																
LOAD SHED PNL LSP-1W	100			20	1	1				2	1	20			SPARE										
LOAD SHED PNL LSP-1W	100			20	1	3				4	1	20	300		DMPR MD-141, 142										
LOAD SHED PNL LSP-1W	100	100		20	1	5				6	1	20	300		DMPR AHF-143, 144										
BKR 52-01W CONT	100			20	1	7				8	1	20	150		EMERG FAN EEF-281										
BKR 52-02W CONT	100			20	1	9				10	1	20	150		EMERG FAN EEF-282										
CURGR. RECEPT. G206			180	20	1	11				12	1	20	150		EF-14/15 LCS										
CARD READER TRACK LVL	150			20	1	13				14	1	20	150		CJB22										
CARD READER MEZZ LVL	100			20	1	15				16	1	20	150		XFMR PX-1W FAN										
SPARE				20	1	17				18	1	20	150		XFMR PX-1W CONT										
DUPLEX S PUMP	100			20	1	19				20	1	20	150		XFMR PX-2W FAN										
MG-1 GRILL CONT	100			20	1	21				22	1	20	150		XFMR PX-2W CONT										
SPARE				20	1	23				24	1	20	900		DWP VAULT L15										
FSD-3,4	100			20	1	25				26	1	20	500												
FSD-5,6,7	150			20	1	27				28	3	30	500		TPSS RM CJB4										
SPARE				20	1	29				30	1	20	500		SEE NOTE 4										
MCC-1W, CIC	200			20	1	31				32	1	20	200		MCC-2W, CIC										
MCC-1W, CIC	200			20	1	33				34	1	20	200		MCC-2W, CIC										
MCC-1W, CIC	200	200		20	1	35				36	1	20	200		MCC-2W, CIC										
MCC-3W, CIC	200			20	1	37				38	1	20	200		CIC-4										
SPARE						39				40	1	20	200		FSD-8,9,10,11										
SPARE						41				42	1	20	50		TIME CLOCK										
SUB-TOTAL	950	750	480										1350	1850	2250	SUB-TOTAL									
WATTS PER PHASE	A 2,300			B 2,400			C 2,730																		
TOTAL WATTS	7,430																								
AVERAGE AMPS	20.63																								

REV	DATE	BY	SHD	APP	DESCRIPTION
0	4/19/94	CY	AL	GMC	BASELINE ISSUE

DESIGNED BY: C. YU
 DRAWN BY: V. HOANG
 CHECKED BY: C. ROENIOL
 IN CHARGE: A. LAWSON
 DATE: 19 APR 94



LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY
 ENGINEERING MANAGEMENT CONSULTANT
 Submitted by: [Signature]
 Approved by: [Signature]

ELECTRICAL DIRECTIVE
 PANEL SCHEDULES

CONTRACT NO	
DRAWING NO	ED-213
REV	0
SCALE	NO SCALE
SHEET NO	

11

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ELECTRICAL RACEWAY AND CABLE SCHEDULE

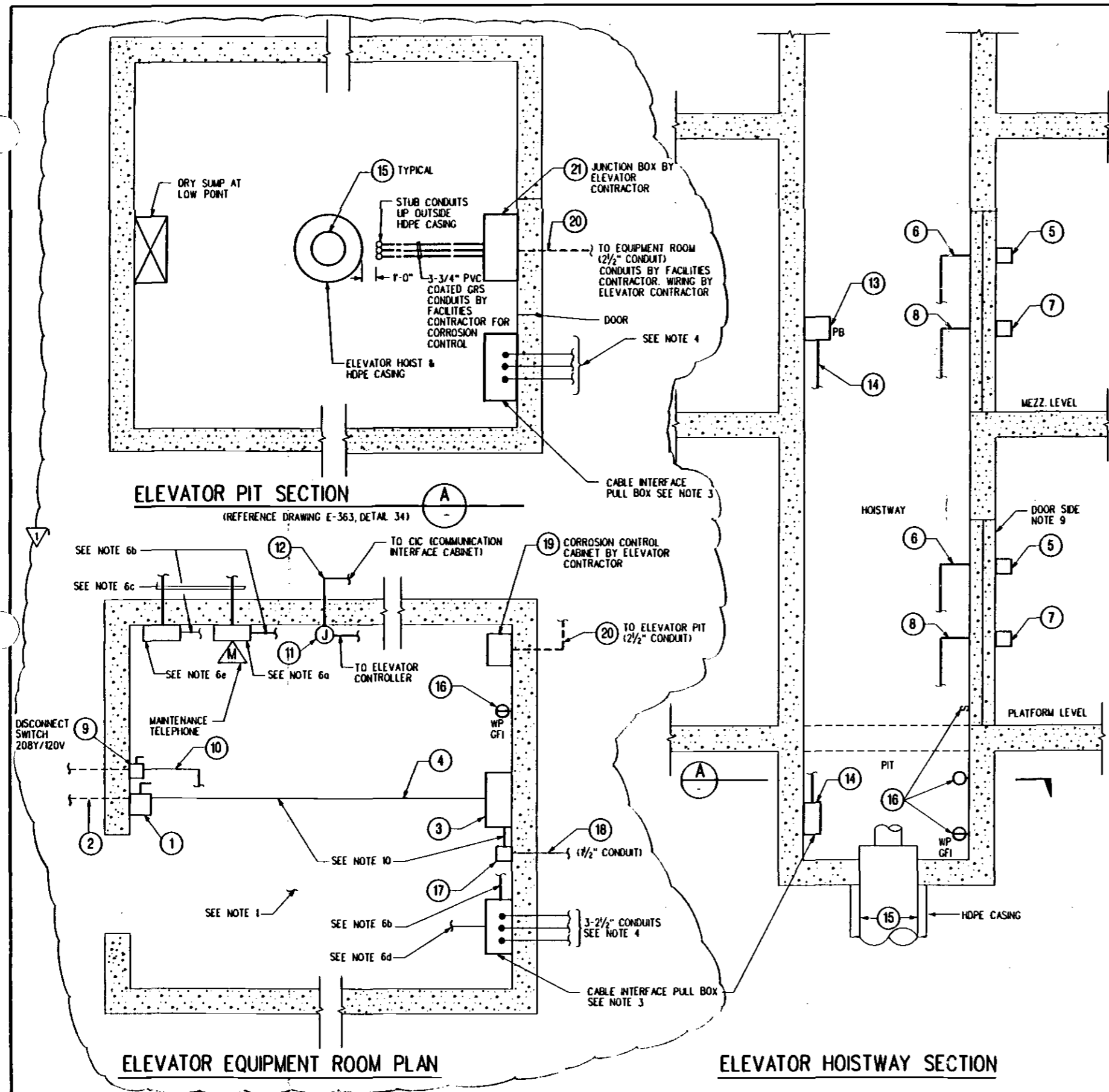
ELECTRICAL RACEWAY AND CABLE SCHEDULE

Table with columns: NO., FROM, TO, CKTS, RACEWAY (METHOD, SIZE, TYPE), CONDUCTOR (NO. & SIZE, TYPE, GND / B/C), DWG. NO., SHT. NO., REMARKS. Contains two main sections of data, one on the left and one on the right, with various annotations and drawings.

Project information block including: DESIGNED BY (P. YU), DRAWN BY (V. HOANG), CHECKED BY (C. ROBENIOL), IN CHARGE (A.H. LAWSON), DATE (19 APR 94), LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY, ENGINEERING MANAGEMENT CONSULTANT, ELECTRICAL DIRECTIVE, RACEWAY & CABLE SCHEDULE, CONTRACT NO., DRAWING NO. (ED-214), SCALE (NO SCALE), SHEET NO.

15

Vertical text on the far right edge of the page.



NUMBER	EQUIPMENT	LOCATION	PURPOSE	RESPONSIBILITIES	REFERENCE
1	DISCONNECT SWITCH FUSED 480V, 3 Ø	ELEV. EQUIP. ROOM	MAN POWER	FACILITIES CONTRACTOR	SEE NOTE 8
2	FEEDER	ELEV. EQUIP. ROOM	MAN FEED	CONDUIT AND WIRE FROM ESSENTIAL PANEL BY FACILITIES CONTRACTOR	SEE NOTES 4 AND 7
2	CONTROLLER	ELEV. EQUIP. ROOM	ELEVATOR CONTROL	BY ELEVATOR CONTRACTOR	
4	FEEDER	ELEV. EQUIP. ROOM	FEED FROM DISCONNECT SWITCH TO CONTROLLER	CONDUIT AND WIRE (BY ELEVATOR CONTRACTOR)	
5	INDICATOR LIGHTS AND CONDUITS	HOISTWAY EXTERIOR	DIRECTION INDICATION	JUNCTION BOX WIRE AND CONDUIT TO BE PROVIDED BY ELEVATOR CONTRACTOR.	
7	CALL BUTTONS AND CONDUITS	HOISTWAY EXTERIOR	CALL INDICATION	JUNCTION BOX WIRE AND CONDUIT TO BE PROVIDED BY ELEVATOR CONTRACTOR.	
9	DISCONNECT SWITCH, CONDUIT AND WIRE	ELEV. EQUIP. ROOM	INTERIOR AND EXTERIOR CAR LIGHTING POWER	FACILITIES CONTRACTOR TO PROVIDE DISC. SW. CONDUIT AND WIRE TO 20 AMP 120V 1 Ø LIGHTING PANEL. (ELEVATOR CONTR. TO INSTALL FEED FROM DISCONNECT SWITCH TO CAR.)	
11	JUNCTION BOX AND CONDUIT	ELEV. EQUIP. ROOM	FACILITIES SUPERVISION AND CONTROL	FACILITIES CONTRACTOR TO PROVIDE 1/2" CONDUIT FROM JUNCTION BOX TO CIC. ELEVATOR CONTRACTOR PROVIDE CABLES AND CONNECT WIRES FROM J-BOX CONTROLLER)	
13	PULLBOX, CONDUIT AND CABLES	HOISTWAY	INTERFACE FOR TRAVELING CABLES TO CAR	BOX AND EMBEDDED CONDUIT BY FACILITY CONTRACTOR. ALL CABLES TO CAR AND ALL CABLES TO INTERFACE LOCATION BY ELEVATOR CONTRACTOR	
15	CATHODIC PROTECTION ANODE	ELEVATOR PIT	PROTECT HYDRAULIC CYLINDER	FOR HYDRAULIC ELEVATORS, ELEVATOR CONTRACTOR TO SUPPLY AND INSTALL ALL NECESSARY EQUIPMENT AS REQUIRED	
16	LIGHT FIXTURE, SWITCHES AND CONVENIENCE OUTLETS (GFI)	ELEVATOR PIT ADJACENT TO ACCESS	MAINTENANCE	FACILITIES CONTRACTOR TO PROVIDE EQUIPMENT & WIRING FROM NEAREST PANEL. COORDINATE WITH GLASS ENCLOSURE FRAMING CONTRACTOR.	SEE NOTE 13
17	JUNCTION BOX, CONDUIT AND WIRE	MACHINE ROOM ADJACENT TO CONTROLLER	EMERGENCY STOP INDICATOR	FACILITIES CONTRACTOR TO PROVIDE CONDUIT FROM JUNCTION BOX TO CIC. ELEVATOR CONTRACTOR TO PROVIDE CABLE AND TERMINATE WIRES FROM JUNCTION BOX TO CIC.	SEE NOTE 10
19	CORROSION CONTROL CABINET, JUNCTION BOX AND CONDUITS	ELEVATOR PIT AND EQUIP. ROOM	CORROSION CONTROL	CABINET AND JUNCTION BOX BY ELEVATOR CONTRACTOR. CONDUIT BY FACILITIES CONTRACTOR	

- NOTES:**
- DISCONNECT SWITCH, LIGHT RECEPTACLES AND JUNCTION BOXES TO BE LOCATED BY FACILITY CONTRACTOR TO ELEVATOR REQUIREMENTS.
 - ELEVATOR MAY NOT BE PROVIDED WITH EMERGENCY FEEDS BY THE FACILITIES CONTRACTOR. EMERGENCY LIGHTING WILL BE OBTAINED FROM AN INTEGRAL BATTERY UNIT MOUNTED ON THE ELEVATOR AND SUPPLIED BY THE ELEVATOR CONTRACTOR.
 - FACILITY CONTRACTOR SHALL PROVIDE 12"x12"x6" PULLBOX AS CABLE INTERFACE LOCATION IN ELEVATOR PIT AND IN ELEVATOR EQUIPMENT ROOM.
 - FOR ELEVATOR EQUIPMENT ROOMS NOT ADJACENT TO ELEVATOR HOISTWAY, FACILITY CONTRACTOR TO PROVIDE 3-2 1/2" CONDUITS FROM CABLE INTERFACE PULLBOX IN ELEVATOR PIT TO CABLE INTERFACE PULLBOX IN ELEVATOR EQUIPMENT ROOM FOR USE BY ELEV. CONTRACTOR.
 - COMMUNICATION CABLES, INCLUDED IN ITEM 14, FOR MAINTENANCE TELEPHONE, SECURITY TELEPHONE AND PUBLIC ADDRESS. SPEAKER SHALL BE SEPARATELY SHIELDED CABLES.
 - FACILITY CONTRACTOR TO PROVIDE THE FOLLOWING:
 - 4"x4"x2 1/2" JUNCTION BOX AT MAINTENANCE TELEPHONE JACK OUTLET.
 - 1" CONDUIT TO CABLE INTERFACE PULLBOX.
 - 1" CONDUIT TO NEAREST CIC.
 - 2" CONDUIT TO NEAREST ACCESS TO THE PUBLIC ADDRESS SYSTEM OR TO COMMUNICATION ROOM.
 - 4" x 4" x 2 1/8" JUNCTION BOX FOR EMERGENCY TELEPHONE SYSTEM.
 - DO NOT RUN MAIN FEED IN ELEVATOR HOISTWAY.
 - ITEM 1 TO BE HORSE POWER RATED
 - EXPOSED METAL WORK SHALL BE CONNECTED TO AUXILIARY POWER GROUNDING SYSTEM WITH MINIMUM NO. 4 BARE COPPER.
 - ELEVATOR CONTRACTOR TO PROVIDE CONDUIT AND WIRE FROM DISCONNECT SWITCH TO CONTROLLER AND CONNECT CIRCUIT FOR EMERGENCY STOP INDICATION.
 - FOR SPECIFIC COMMUNICATION REQUIREMENT, SEE COMMUNICATION DIRECTIVES.
 - THIS DRAWING DOES NOT REPRESENT STRUCTURAL DETAIL. SEE STRUCTURAL DRAWINGS. THIS DRAWING IS TO ESTABLISH SCOPE AND INTERFACE OF WORK. SEE ELEVATOR SUPPLIER'S SHOP DRAWINGS FOR DETAILS.
 - LIGHT FIXTURE SHALL BE 120V, 100 WATT INCANDESCENT LAMP, WITH MOUNTING HOOD, ADAPTOR/SOCKET, CLEAR GLASS GLOBES AND STEEL WIRE GUARD, AND SHALL BE SUITABLE FOR USE IN WET LOCATION.
 - ALL EQUIPMENT SUCH AS PANELS, DISCONNECT SWITCHES, INCLUDING METALLIC PARTS IN THE ELEVATOR PIT AND ELEVATOR EQUIPMENT ROOM SHALL BE GROUNDED USING #4 AWG BARE COPPER WIRE MINIMUM.
 - FACILITIES CONTRACTOR SHALL COORDINATE ALL INTERFACE WORK WITH THE ELEVATOR CONTRACTOR.

DESIGNED BY C. YU	REVISIONS
DRAWN BY I. HOSTALEK	1/ 8.17.95
CHECKED BY C. ROBENIOL	D 2.24.94
IN CHARGE E. DER-AVAKIAN	REVISED PER DE 305-SBCN-8 00
DATE 24 FEB 94	REVISED & REDRAWN PER DCN 93-43

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

Submitted: *Edward M. ...*

Approved: K. N. MURPHY

ELECTRICAL DIRECTIVE		CONTRACT NO.
ELEVATOR INTERFACE DETAILS		DRAWING NO.
		ED-215
		REV 1
		SCALE
		NO SCALE
		SHEET NO.

PLOTTED BY: [unreadable]

SECTION D

ESCALATOR LONGITUDINAL ELEVATION B

ENTRANCE ESCALATOR (PLAZA TO MEZZANINE) C

ESCALATOR MACHINE COMPARTMENT PLAN 1

ENTRANCE ESCALATOR PLAN 2

ESCALATOR REQUIREMENTS

ITEM NO.	EQUIPMENT	PURPOSE	REMARKS	REFERENCE
1	DRIVE MACHINE	MAIN POWER	SUPPLY AND WIRE BY ESCALATOR CONTRACTOR	
2	CONTROLLER	ESCALATOR CONTROL	BY ESCALATOR CONTRACTOR	SEE NOTE 1
3	FEEDER	FEED FROM DISCONNECT SWITCH TO CONTROLLER	CONDUIT AND WIRE BY ESCALATOR CONTRACTOR	
4	DISCONNECT SWITCH FUSED 480V, 3Ø, 60HZ	MAIN POWER	THE MAXIMUM SIZE OF NEMA 4 FUSED DISCONNECT SWITCH PANEL IS 20" H x 11" W 7" D	SEE NOTE 5
5	FEEDER-480V	MAIN FEED	CONDUIT AND WIRE TO REQUIREMENTS OF ESCALATOR CONTRACTOR	
6	4-WIRE SERVICE 5KVA, 3Ø, 120V/208V	RECESSED STEPS AND BALLUSTRADE LIGHTS, MAINTENANCE LIGHTS AND CONVENIENCE OUTLETS (GFI)	MAINT. LIGHTS AND OUTLETS (GFI) IN MACHINE COMPARTMENT BY ESCALATOR CONTRACTOR PER REQUIREMENTS OF ESCALATOR CONTRACTOR. BALLUSTRADE AND STEPLIGHTS BY ESCALATOR CONTRACTOR SHALL PROVIDE REQUIREMENTS. PRIOR TO CONSTRUCTION OF MACHINE COMPARTMENT.	SEE NOTE 11
7				
8	CONDUIT AND CONDUCTORS	FACILITIES SUPERVISION AND CONTROL	SEE NOTE 3	
9	NOT USED			
10	INTERFACE TERMINAL CABINET	ESCALATOR SUPERVISORY AND CONTROL INTERFACE	FACILITIES CONTRACTOR TO PROVIDE 1/2" CONDUIT FROM JUNCTION BOX TO CIC (ESCALATOR CONTRACTOR PROVIDE CABLES AND CONNECT WIRES FROM CIC TO VENDOR EQUIPMENT)	
11	MAINTENANCE TELEPHONE JACK	COMMUNICATION	RACEWAY BY STATION CONTRACTOR	
12	SPRINKLER SYSTEM	FIRE PROTECTION		
13	SMOKE DETECTOR	FIRE PROTECTION		

NOTES:

- EACH ESCALATOR DRIVE MACHINE WILL HAVE ITS OWN COMBINATION MOTOR STARTER WITH CIRCUIT BREAKER PROVIDED BY ESCALATOR CONTRACTOR. FUSED DISCONNECT SWITCH PROVIDED BY FACILITY CONTRACTOR.
- LIGHTS AND RECEPTACLES TO BE LOCATED BY FACILITIES CONTRACTOR TO ESCALATOR CONTRACTOR'S REQUIREMENT. DISCONNECT SWITCH SHALL BE 3ØA, 3-P, 208Y/120V, NEMA ENCLOSURE PROVIDED BY FACILITY CONTRACTOR.
- THE ESCALATOR CONTRACTOR WILL MAKE ALL CONNECTIONS IN THE ESCALATOR CONTROLLER, AT CIC.
- BALLUSTRADE, STEP, MAINTENANCE LIGHTS AND OUTLETS TO BE FURNISHED BY ESCALATOR CONTRACTOR.
- ITEM 4 SHALL BE HORSE POWER RATED.
- ALL METAL WORK SHALL BE CONNECTED TO THE AUXILIARY POWER GROUNDING SYSTEM, WITH NO. 4 AWG BARE COPPER MINIMUM.
- EMBEDDED CONDUITS SHALL BE RUN IN THE MIDDLE OF THE MEZZANINE SLAB.
- CONDUIT SPACING SHALL BE THREE TIMES OF CONDUIT DIAMETER.
- ESCALATOR CONTRACTOR TO INSTALL 1" CONDUIT FROM THE BOTTOM PIT TO TOP PIT FOR LIGHT AND RECEPTACLES.
- THIS DWG. DOES NOT REPRESENT STRUCTURAL DETAIL. SEE STRUCT. DWGS. THIS DWG IS TO ESTABLISH SCOPE & INTERFACE OF WDRK. SEE ESCALATOR SUPPLIER'S SHOP DRAWINGS FOR DETAILS.
- LIGHT FIXTURE SHALL BE 120V, 100 WATT INCANDESCENT LAMP, WITH MOUNTING HOOD, ADAPTOR/SOCKET, CLEAR GLASS GLOBES AND STEEL WIRE GUARD, AND SHALL BE SUITABLE FOR USE IN WET LOCATION.
- FACILITIES CONTRACTOR SHALL COORDINATE ALL INTERFACE WORK WITH THE ESCALATOR CONTRACTOR.

CONTRACT RESPONSIBILITY DEFINITIONS

CONTRACTOR	EQUIPMENT AND CABLE	RACEWAY OR CONDUIT
FACILITIES	A	A
ESCALATORS	ES	ES

REV	DATE	BY	SLB	APP	DESCRIPTION
1	8.17.95	AW			REVISED PER DE 305-SBCN-8.00
0	2.24.96	PY	AHL	GMC	REVISED & REDRAWN PER DCN 93-43

DESIGNED BY
P. YU
DRAWN BY
B.H. CHAMBERS
CHECKED BY
C. ROBINOL
IN CHARGE
E. DER-AVAKIAN
DATE
24 FEB 94

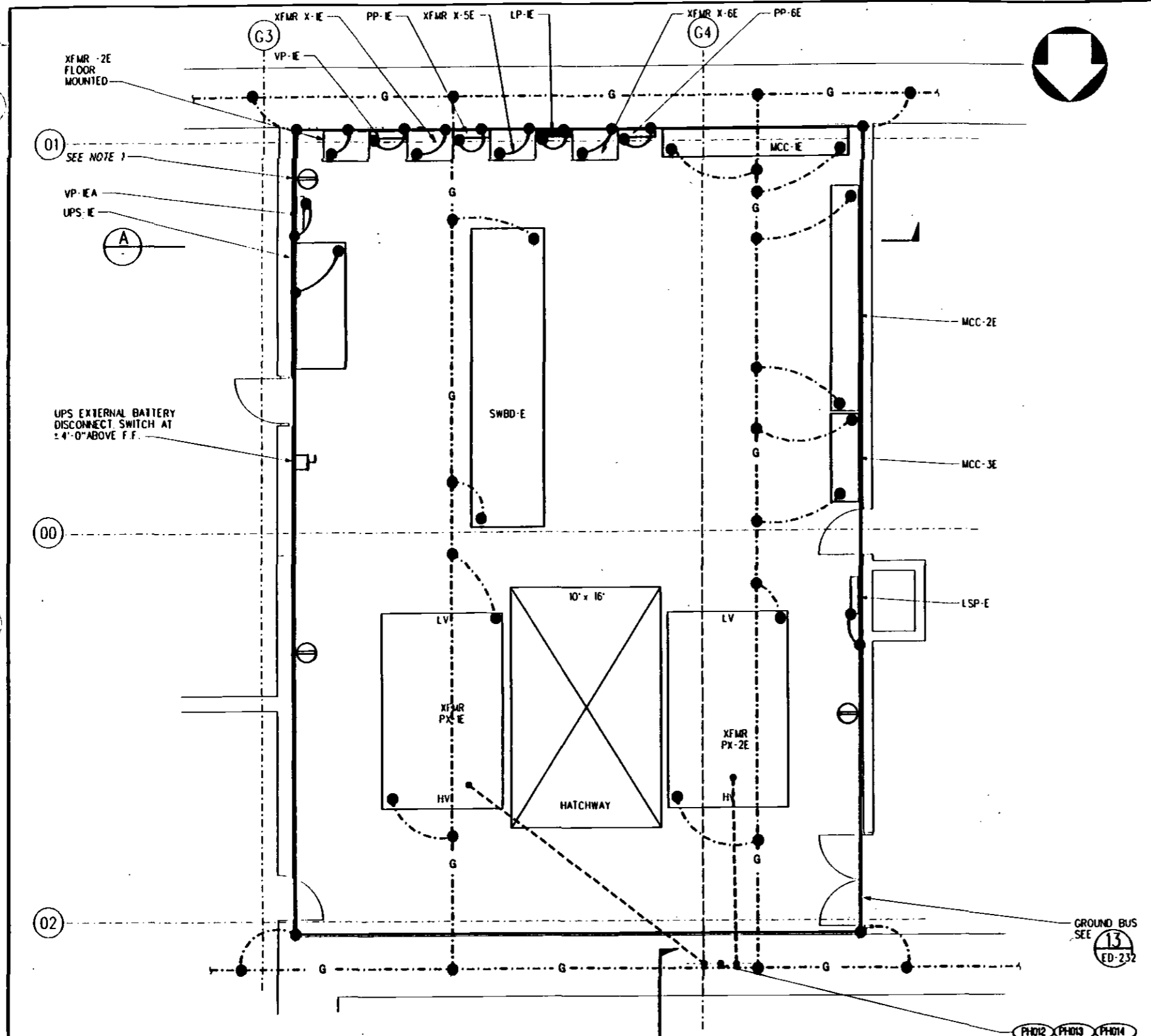
M LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT
an affiliate of
Parsons Brinckerhoff Quade & Douglas, Inc.
Daniel Mann, Johnson & Mendenhall
Clavin Engineering, Inc. dba Clavin
Eckman/Fishberg Architects
James Gray Marston, Inc.
The Hillier Group, Inc.

SUBMITTED *Edward O. ...*
APPROVED K. N. MURPHY

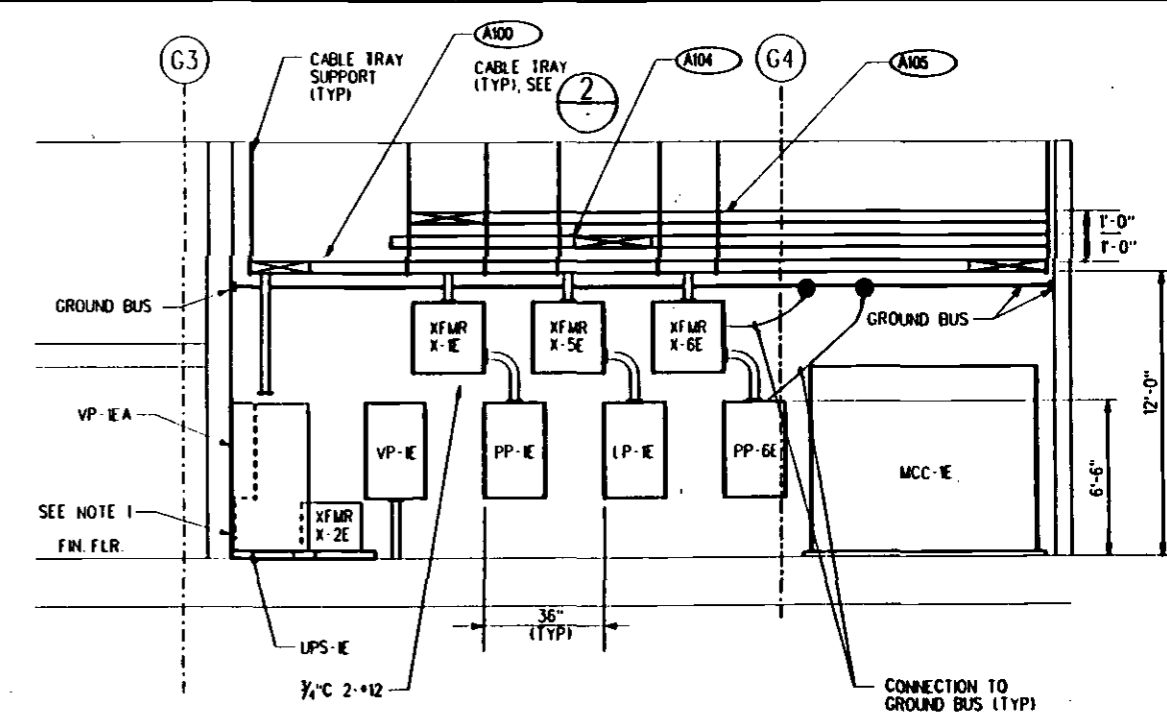
ELECTRICAL DIRECTIVE
ESCALATOR INTERFACE DETAILS

CONTRACT NO.	
DRAWING NO.	ED-216
REV	1
SCALE	NO SCALE
SHEET NO.	

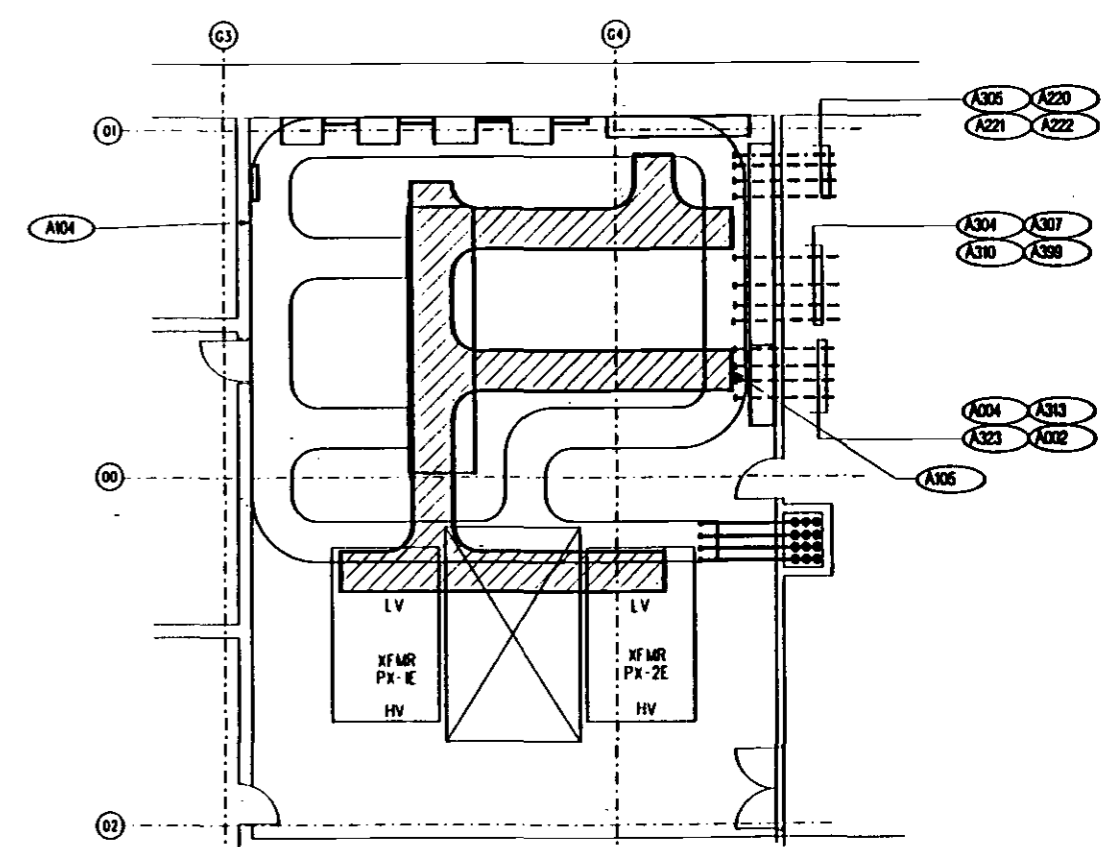


NOTE:
1 PROVIDE LABEL TO READ "EMERGENCY POWER".

ENLARGED AUXILIARY POWER ROOM - EAST
1/4" = 1'-0"



SECTION A-A
NTS



CABLE TRAY LAYOUT
NTS

REV	DATE	BY	SUB	APP	DESCRIPTION

DESIGNED BY
P. YU
DRAWN BY
V. HOANG
CHECKED BY
C. ROBINOL
IN CHARGE
E. DER-AVAKIAN
DATE
19 APR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

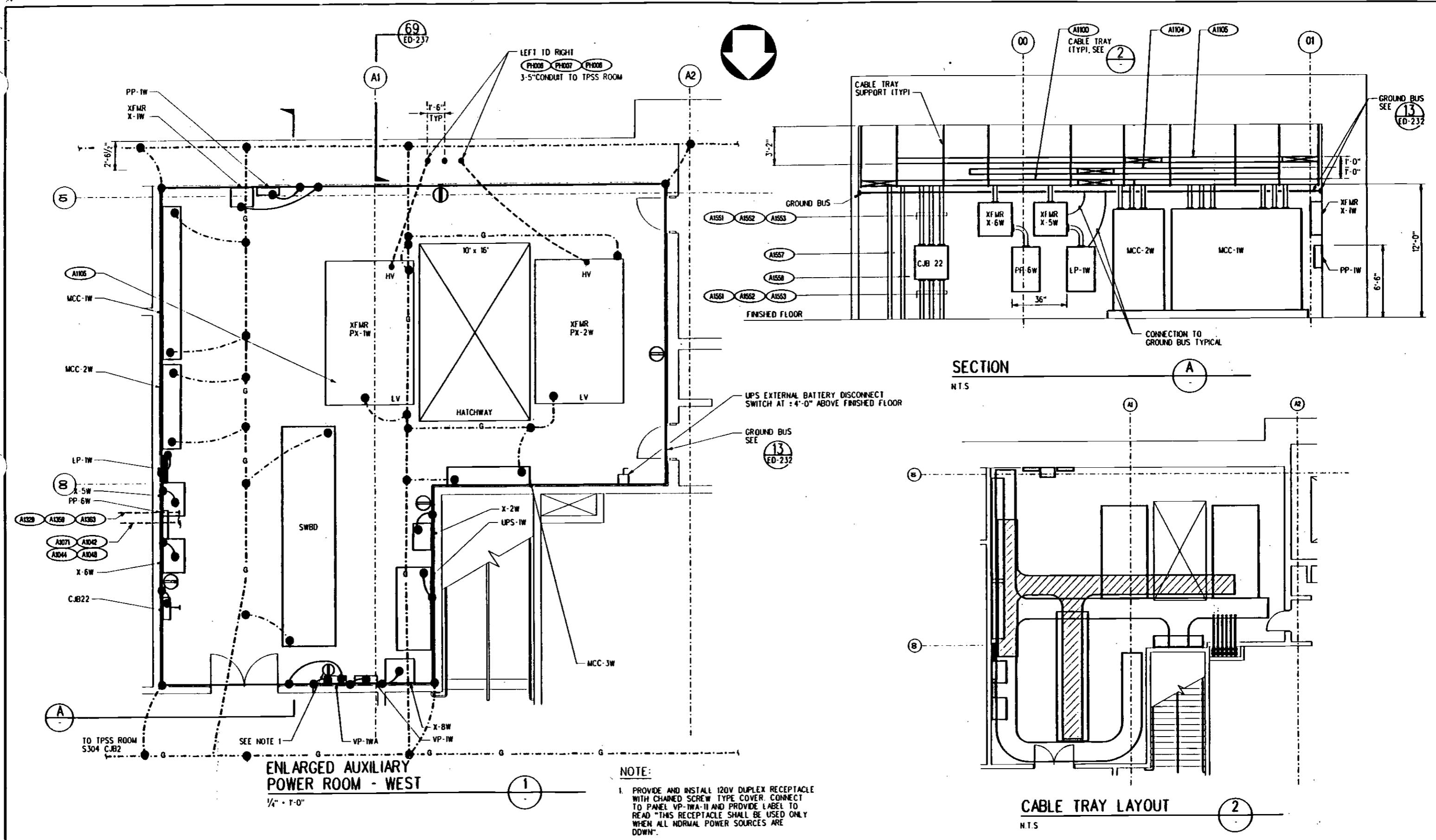
Parsons Brinckerhoff Quade & Douglas, Inc.
Special Services Department
2750 Wilshire Boulevard
Los Angeles, California 90010
James G. Harter, Inc.
The Harter Group, Inc.

SUBMITTED *Edward M. ...*
APPROVED *[Signature]*

ELECTRICAL DIRECTIVE

ENLARGED PLAN AND DETAILS
SHEET 1 OF 2

CONTRACT NO.
DRAWING NO. **ED-219** REV **1**
SCALE **AS NOTED**
SHEET NO.



REV	DATE	BY	SUB	APP	DESCRIPTION
0	1994	PY	AHL	GMC	REVISED AND REDRAWN PER ELECTRICAL DIRECTIVE

DESIGNED BY
P. YU

DRAWN BY
A. JOSE

CHECKED BY
C. ROBINOL

IN CHARGE
E. DER-AVAKIAN

DATE
19 APR 94

M LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

Submitted: *Edward P. Avakian*

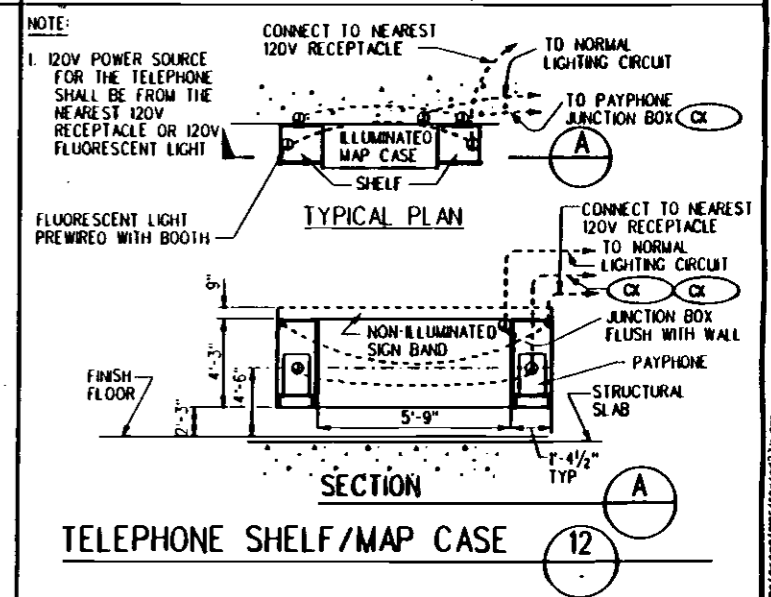
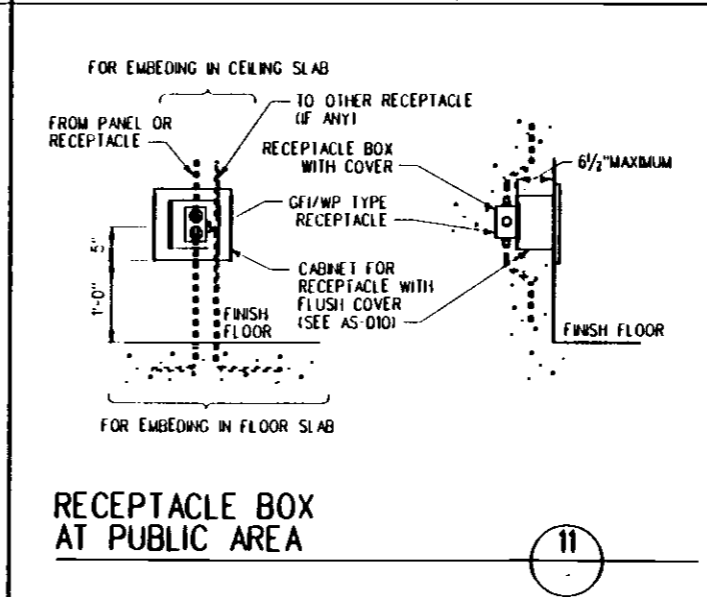
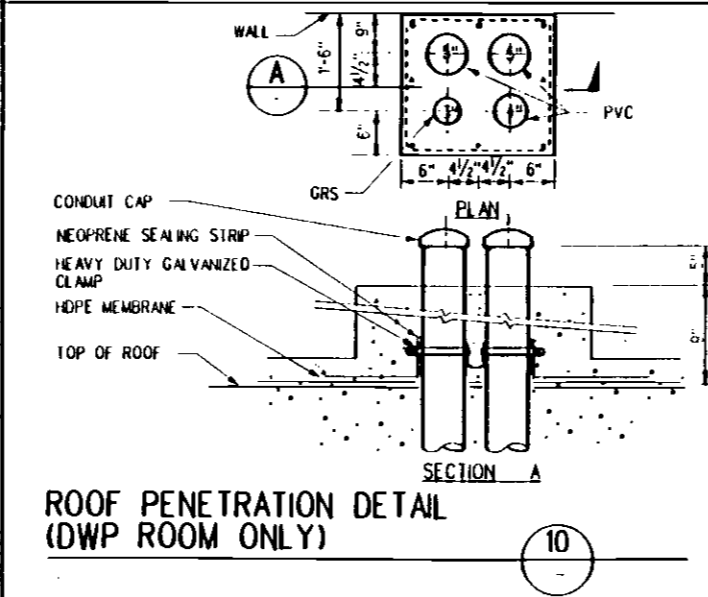
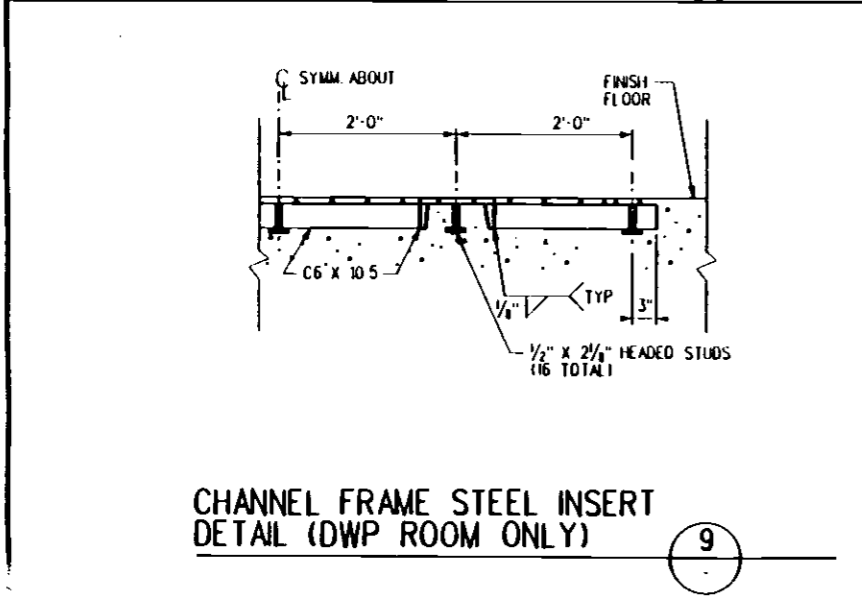
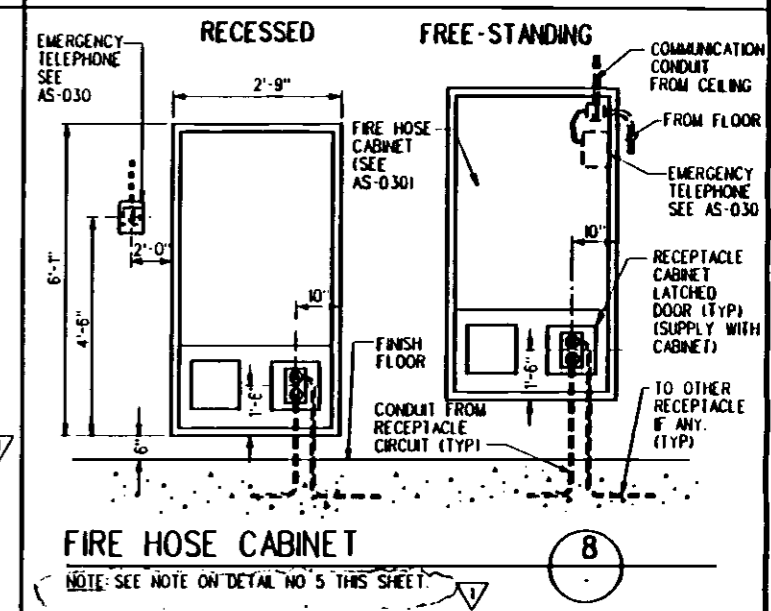
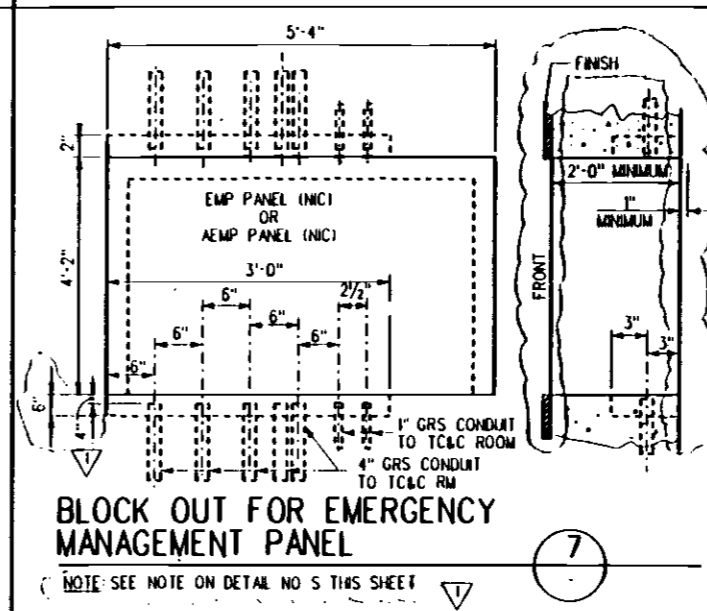
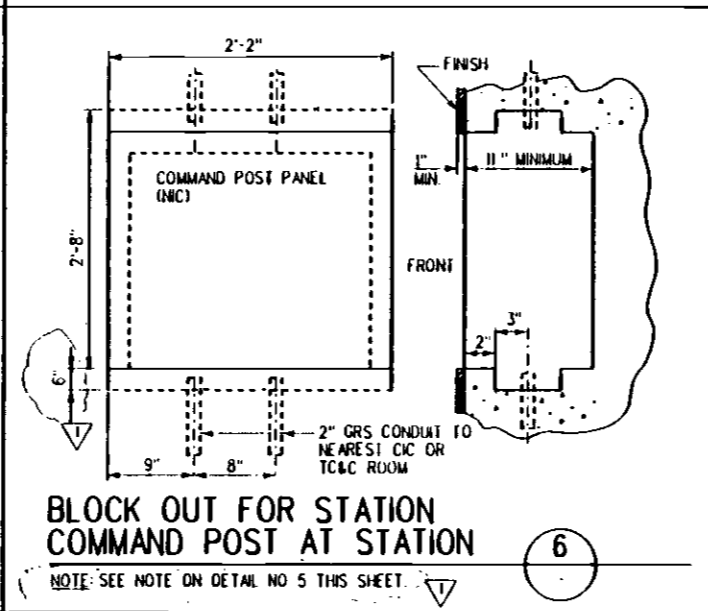
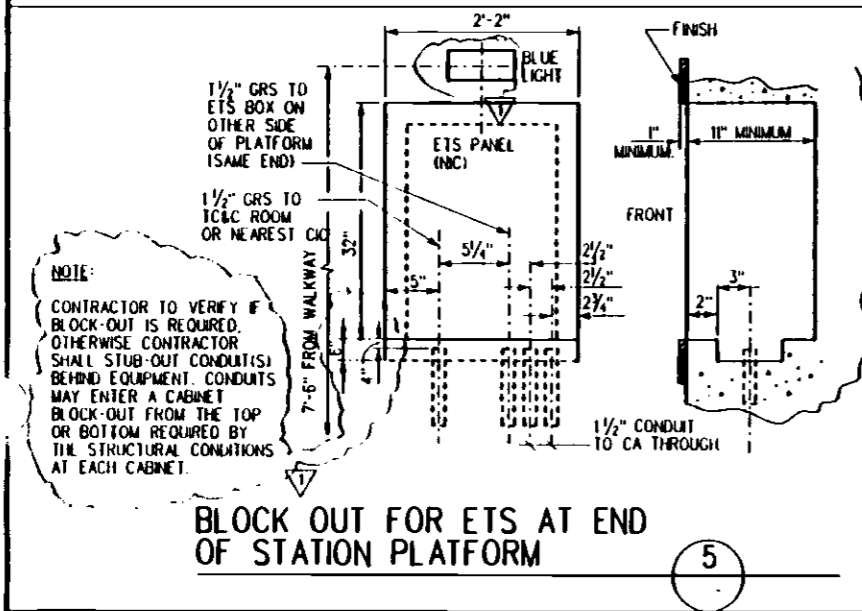
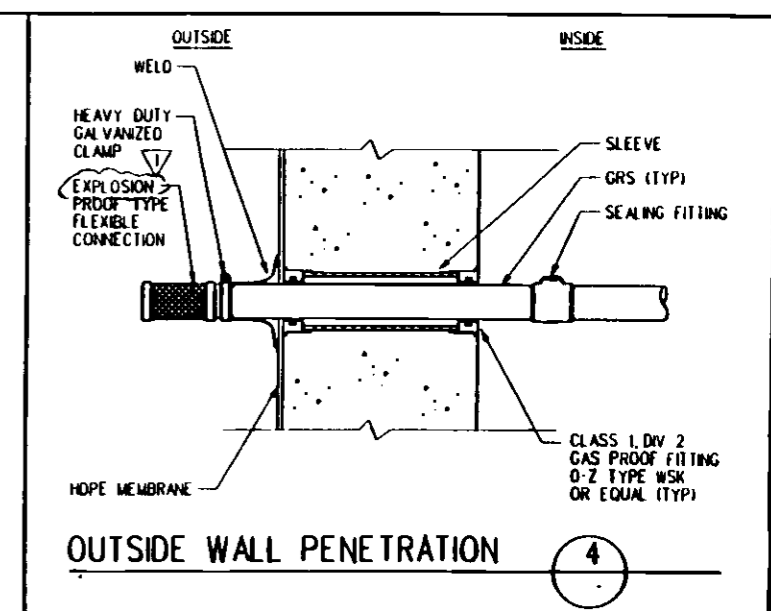
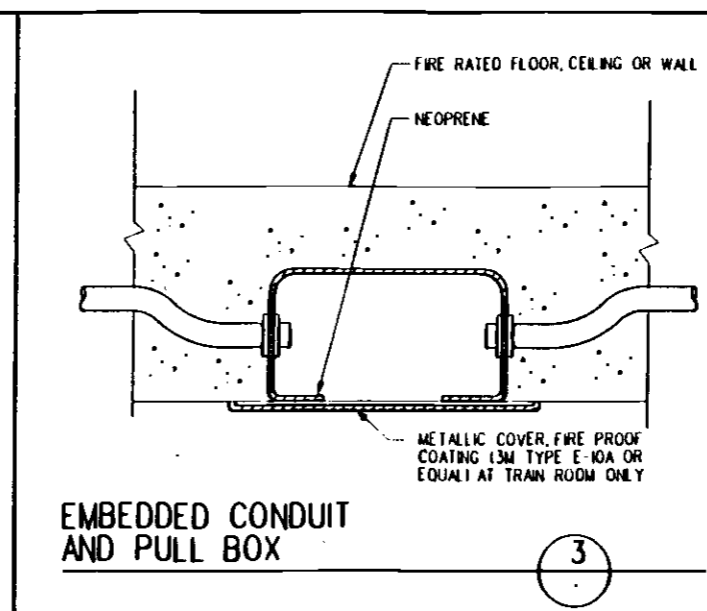
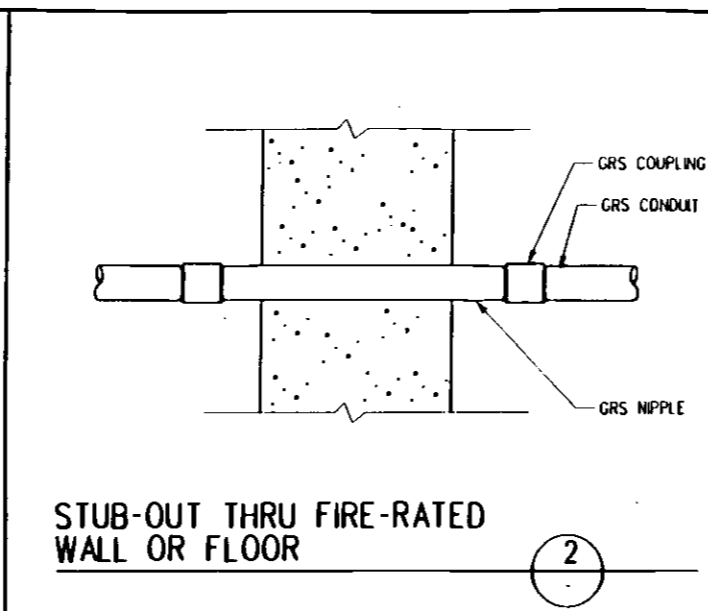
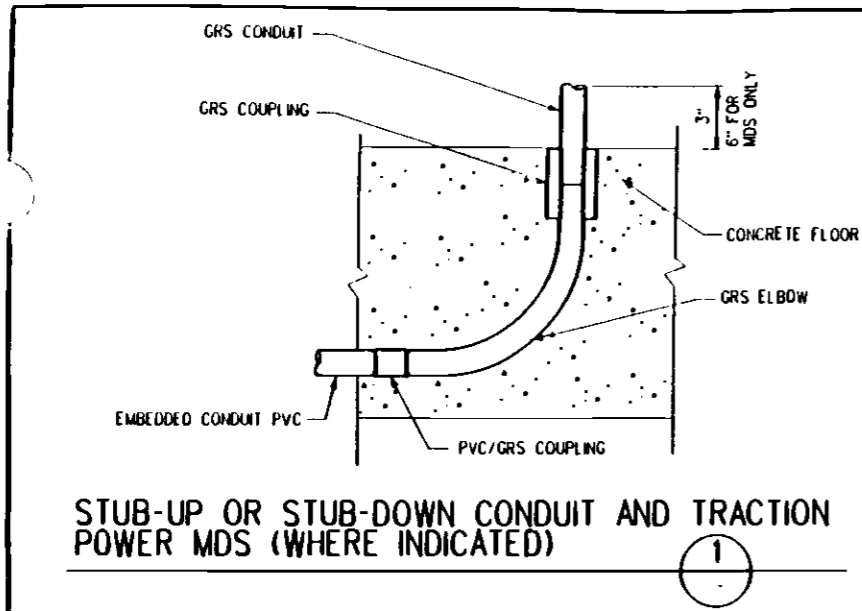
Approved: *[Signature]*

ELECTRICAL DIRECTIVE

ENLARGED PLAN AND DETAILS

SHEET 2 OF 2

CONTRACT NO	ED-220
DRAWING NO	REV 1
SCALE	AS NOTED
SHEET NO	



NO.	DATE	BY	CHKD	APP	DESCRIPTION
0	8 30 95	RE	AR	GMC	REVISED AND RESEALD PER DE 105-SHEET 5-D
1	2 24 94	RE	AR	GMC	REVISED AND REDRAWN PER DE 105-SHEET 5-D

DESIGNED BY
R. ESTRADA
DRAWN BY
V. HOANG
CHECKED BY
C. ROBENIOL
IN CHARGE
E. DER-AVAKIAN
DATE
24 FEB 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

Submitted: *Edward A. Avakian*

Approved: *[Signature]*

ELECTRICAL DIRECTIVE

TYPICAL INSTALLATION DETAILS

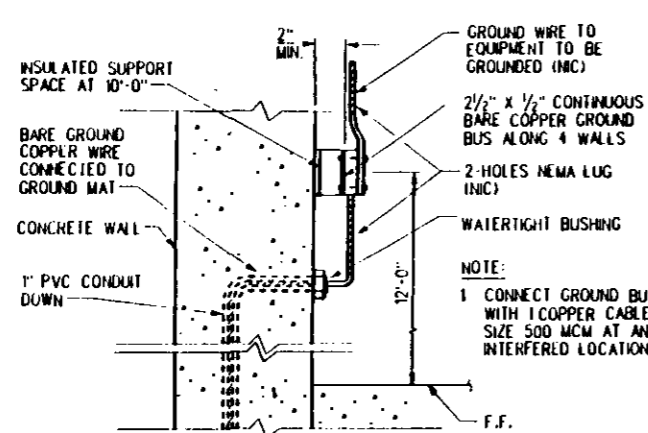
SHEET 1 OF 8

CONTRACT NO.

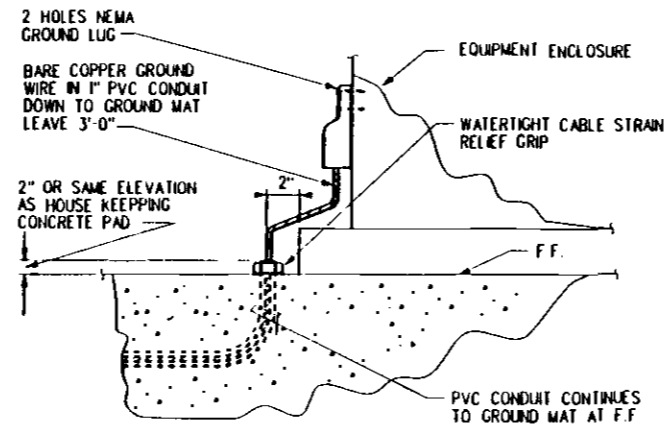
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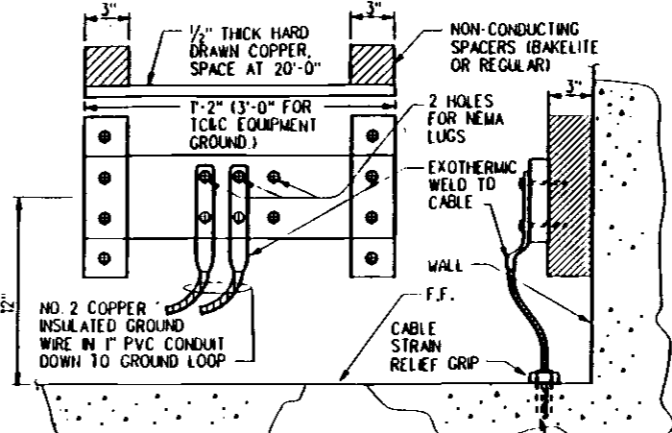
SHEET NO.



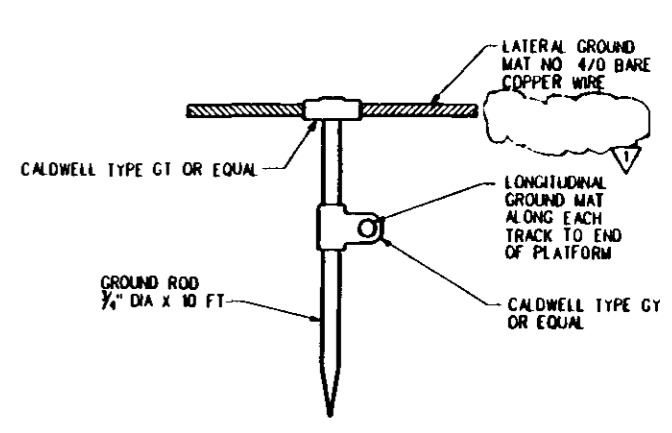
CONTINUOUS GROUND BUS AT TRACTION POWER, TC&C AND AUX POWER ROOMS 13



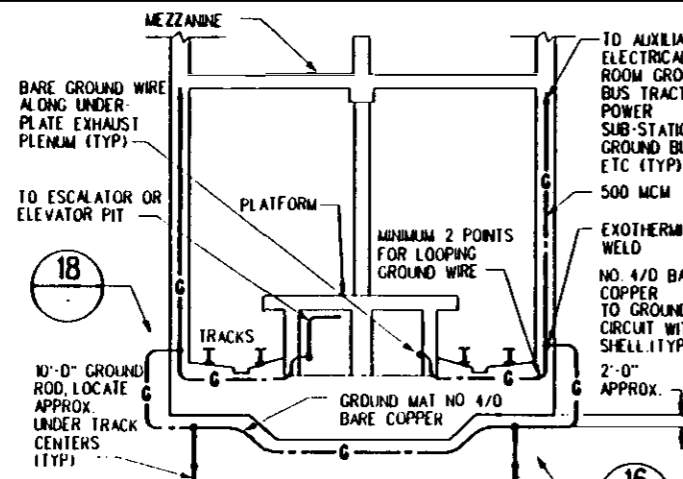
EQUIPMENT GROUNDING 14



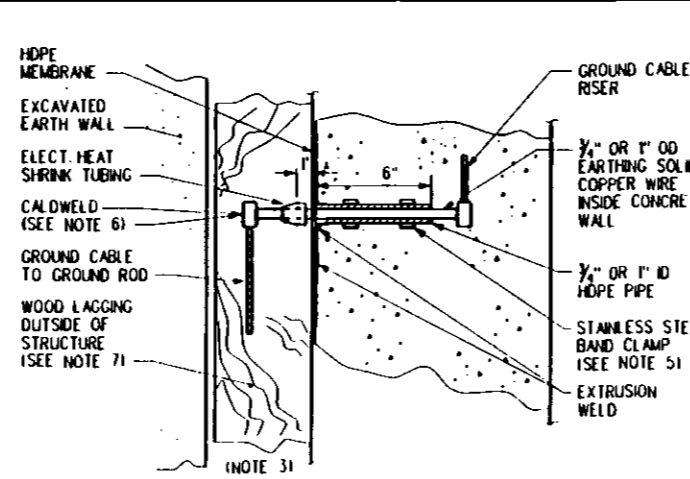
INSTRUMENT GROUND LOOP TC & C ROOM ONLY 15



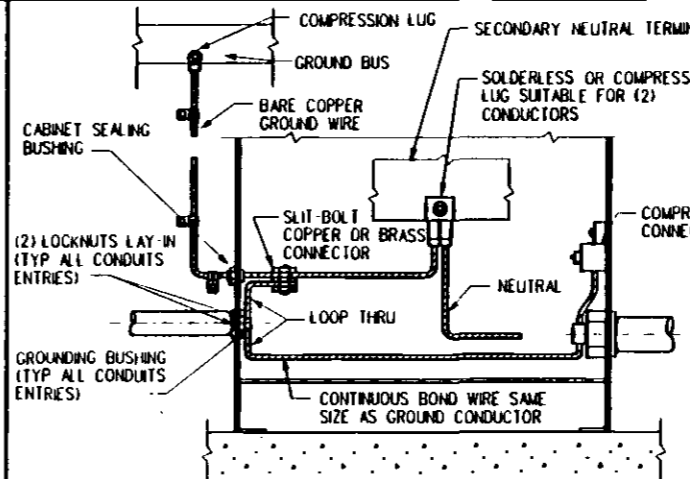
GROUND MAT CONNECTION TO ROD 16



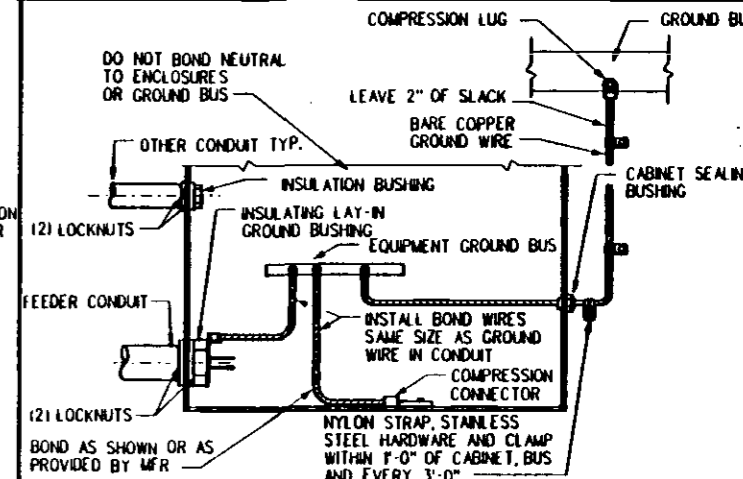
STATION GROUND ARRANGEMENT TYPICAL CROSS SECTION 17



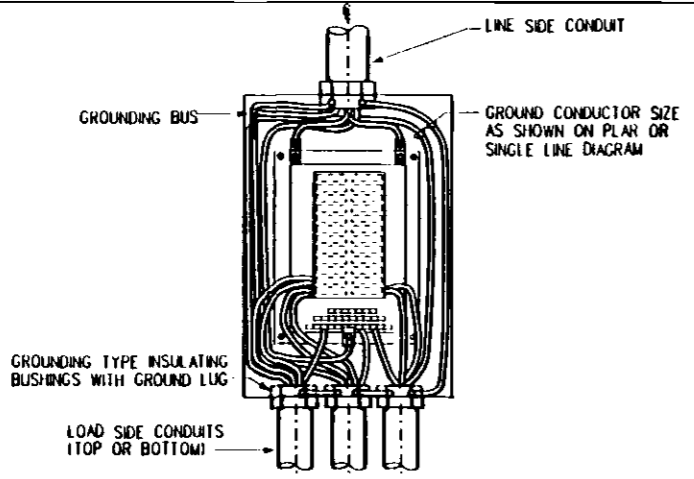
GROUND WIRE PENETRATION HDPE MEMBRANE 18



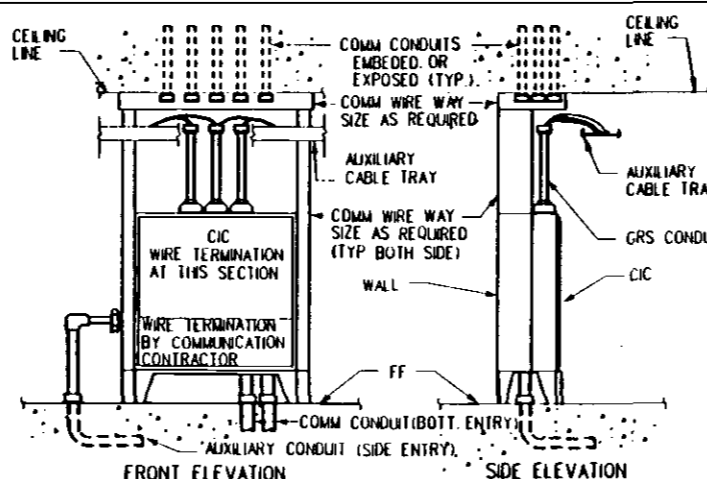
TRANSFORMER GROUNDING (TYP) 19



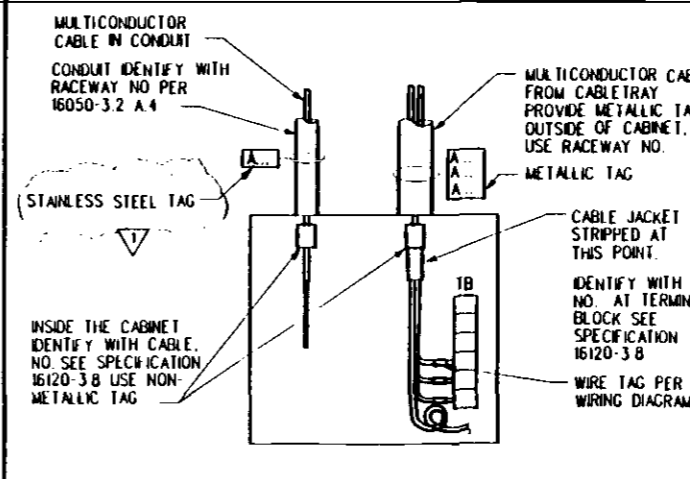
GROUNDING AT PANELBOARDS, SWITCHBOARD AND MOTOR CONTROL CENTER 20



GROUND CONNECTION AT PANELBOARD 21



RACEWAY ENTRANCE TO SEPARATE CIC CABINET AS REQUIRED 22



WIRE AND CABLE TAGGING DETAIL 23

- NOTES:
(FOR DETAIL 18)
- PIPE IS WELDED TO 1'-0" HIGH DENSITY POLYETHYLENE SKIRT.
 - PIPE IS INSERTED OVER ROD.
 - STAINLESS STEEL CLAMP IS PLACED IN THE AREA AROUND CLAMP AND HEATED WITH HOT AIR BEFORE TIGHTENING. HEATING SHOULD SOFTEN PIPE SO HOT CLAMP CAN SQUEEZE PIPE DOWN.
 - WELD SKIRT TO LINER.
 - IF VOID IS GREATER THAN 1/8" BETWEEN PIPE AND ROD USE TWO CLAMPS 2" APART WITH APPROVED SEALANT IN BETWEEN.
 - INSULATE WITH PVC TAPE COPPER ROD AND CALDWELD CONNECTION ON INSULATED GROUND CABLE RISER.
 - CHIP OR CUT WOOD LAGGING, AS REQUIRED TO INSTALL GROUND CABLE RISER. (FOR DETAIL 22 ONLY)
 - ALTERNATE LOCATION OF COMMUNICATION WIREWAY IF BOTTOM ENTRY.

REV	DATE	BY	SUB	APP	DESCRIPTION
0	3 4 94	RE	AUL	CMC	REVISED AND RESEALED PER THE 2003 EDITION OF THE 91-19 AND 93-6

DESIGNED BY
R. ESTRADA
DRAWN BY
V. HOANG
CHECKED BY
C. ROBINOL
IN CHARGE
E. DER-AVAKIAN
DATE
4 MAR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

FOR MORE INFORMATION CONTACT:
12101 Wilshire Blvd., Suite 1000
Beverly Hills, CA 90210
Tel: 310-206-1000
Fax: 310-206-1001
www.emc.com

APPROVED: *[Signature]*

ELECTRICAL DIRECTIVE

TYPICAL INSTALLATION DETAILS

SHEET 2 OF 8

CONTRACT NO.

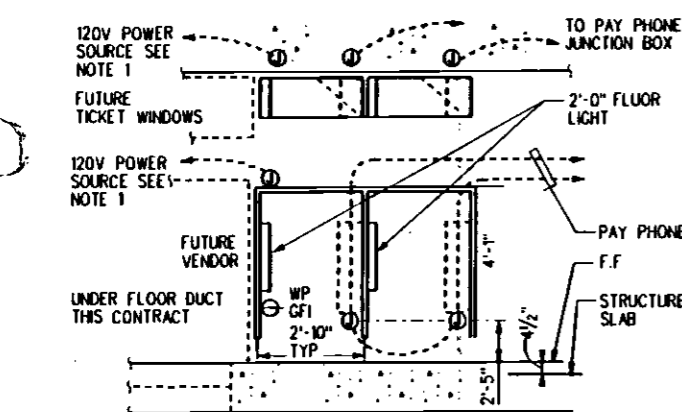
DRAWING NO. ED-232

REV 1

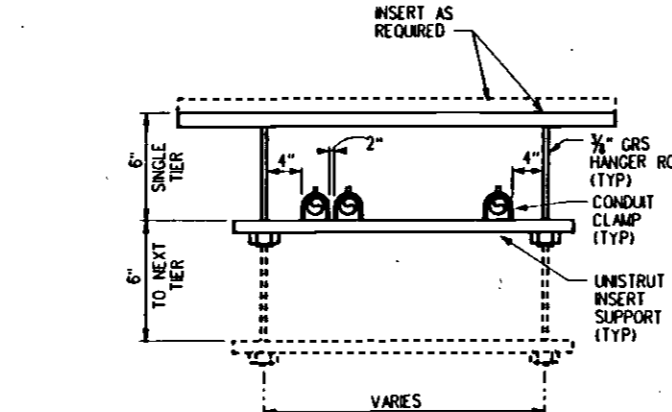
SCALE NO SCALE

SHEET NO.

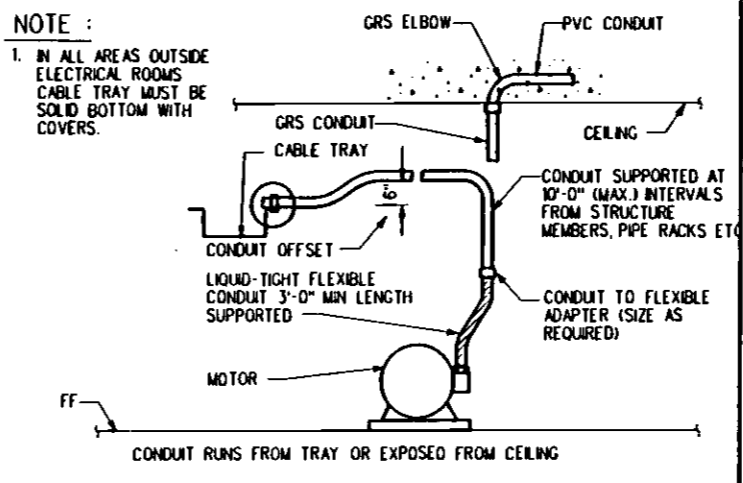
NOTE:
1. 120V POWER SOURCE SHALL BE FROM THE NEAREST 120V RECEPTACLE OR 120V FLUORESCENT LIGHT.



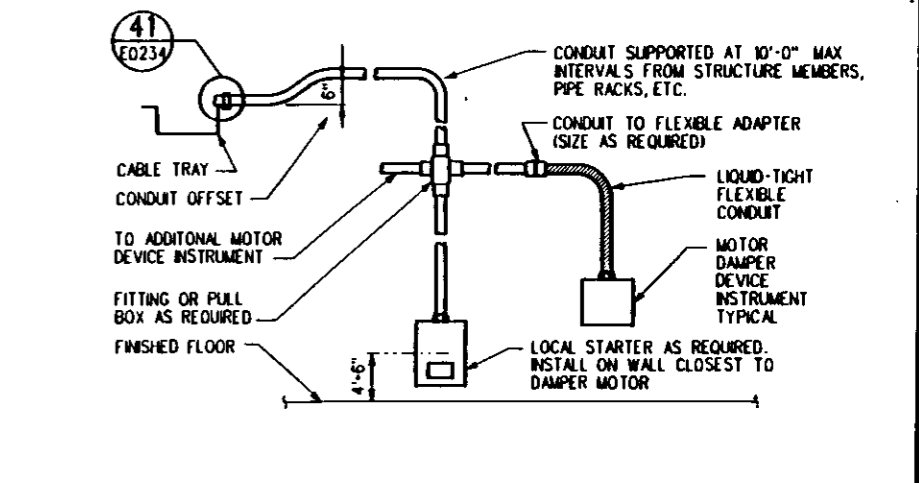
TELEPHONE SHELF AT TICKET VENDING MACHINE (25)



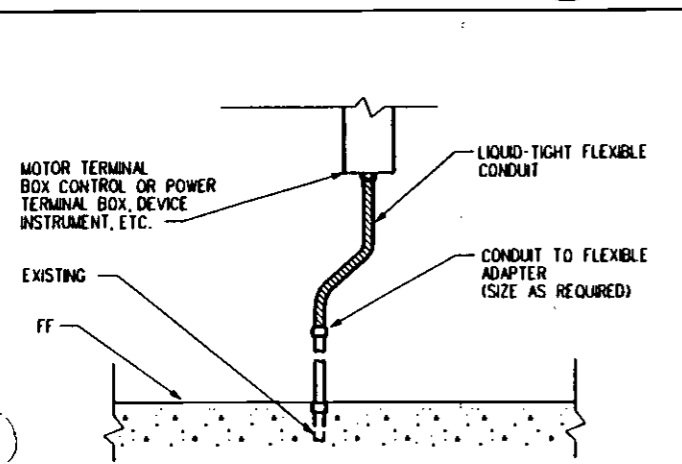
CONDUIT HANGER (TYP) (26)



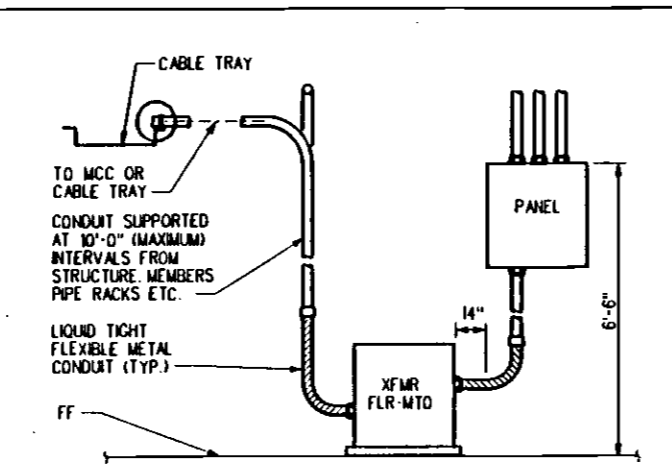
MOTOR CONNECTION FROM CEILING OR CABLE TRAY (27)



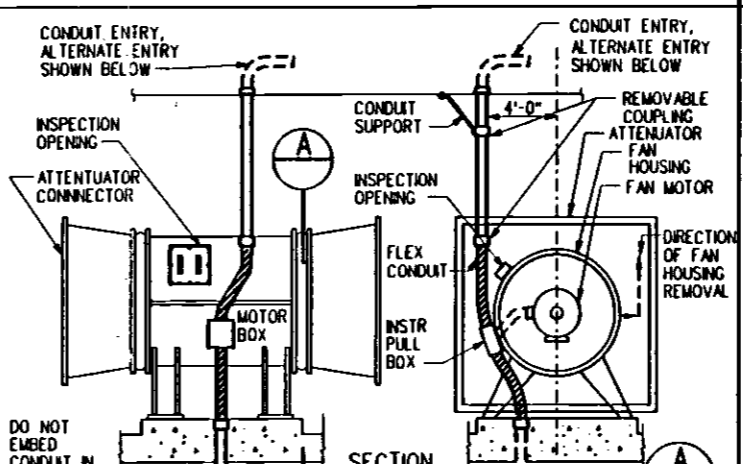
MOTORIZED DAMPER OR OTHER 1 PHASE MOTOR LOAD (28)



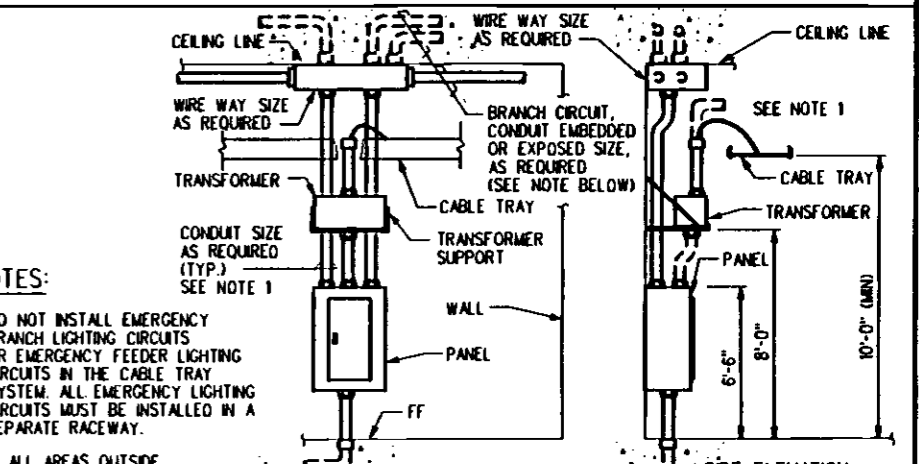
MOTOR CONNECTION FROM FLOOR (29)



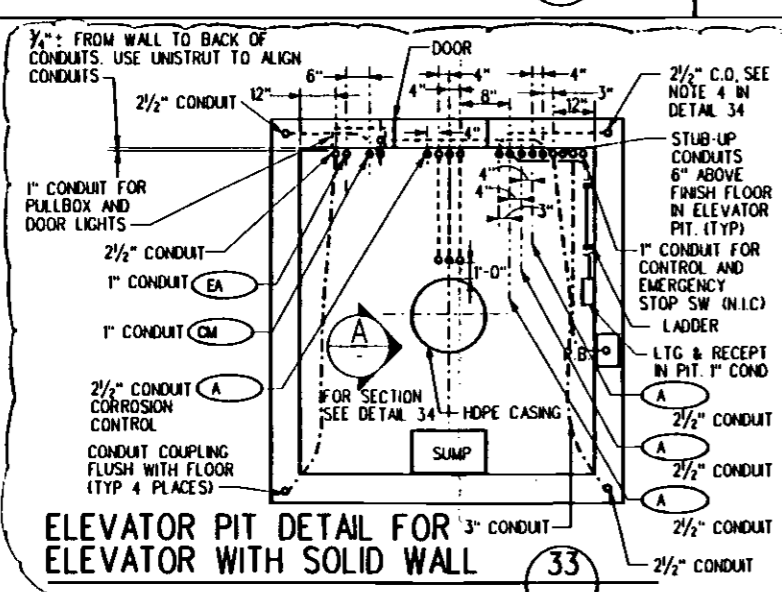
FLOOR-MOUNTED TRANSFORMER CONNECTION (TYP) (30)



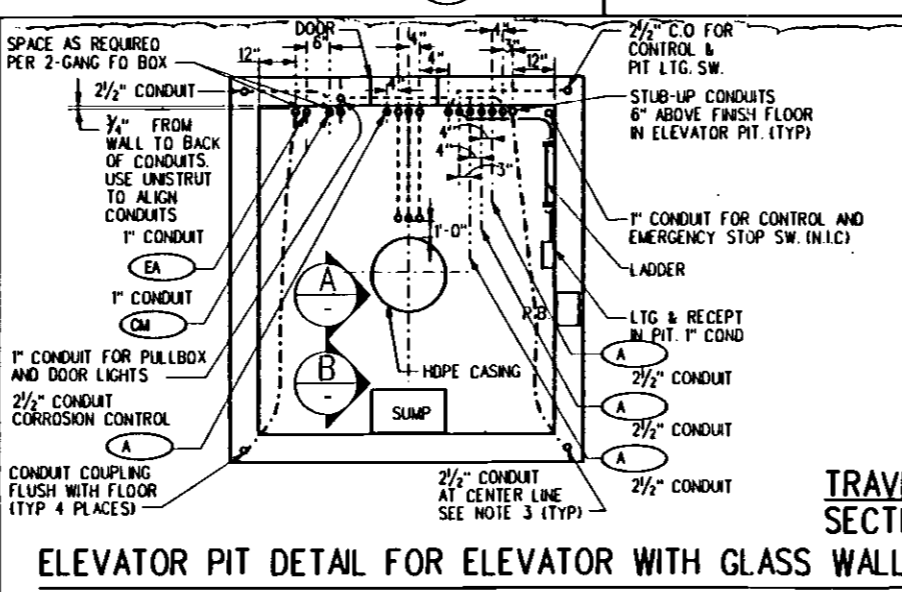
CONDUIT ENTRY TO HORIZONTAL TYPE EMERGENCY FAN (31)



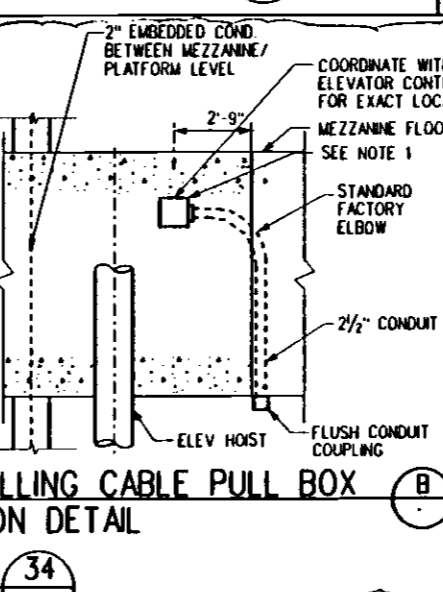
WALL-MOUNTED TRANSFORMER CONNECTION (TYP) (32)



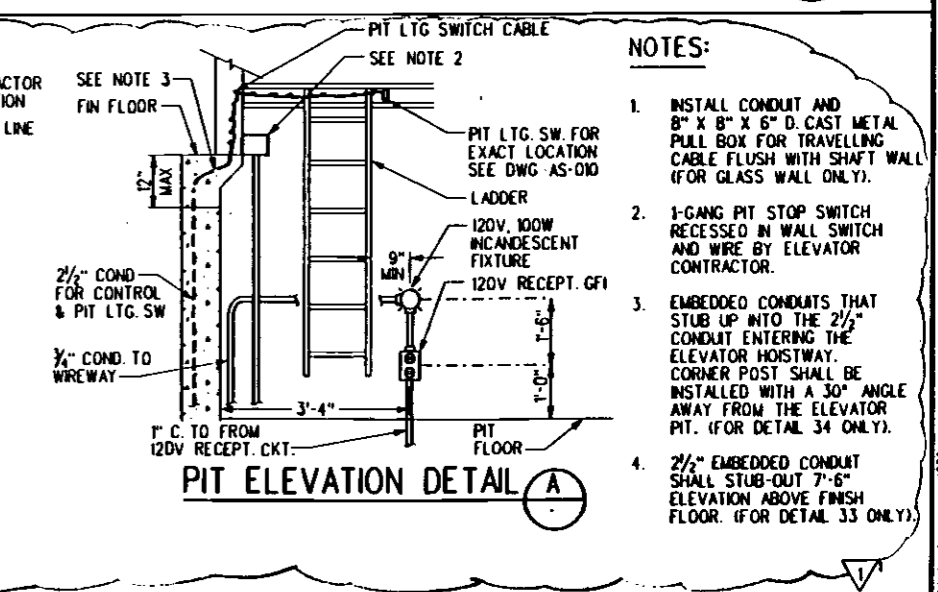
ELEVATOR PIT DETAIL FOR ELEVATOR WITH SOLID WALL (33)



ELEVATOR PIT DETAIL FOR ELEVATOR WITH GLASS WALL (34)



TRAVELLING CABLE PULL BOX SECTION DETAIL (35)



PIT ELEVATION DETAIL (36)

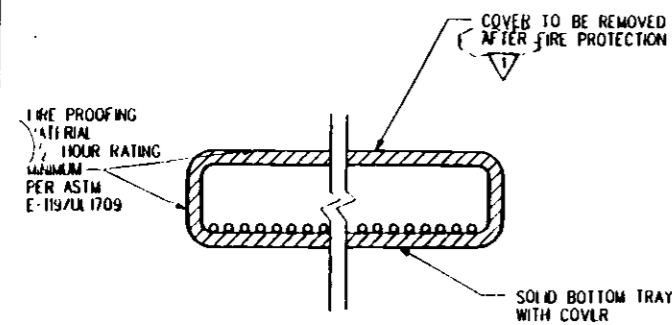
REV	DATE	BY	SUB	APP	DESCRIPTION
1	8.17.95	AV	ECB	DBB	REVISED PER DE305-SBCN-8.00
0	3.4.94	CY	AHL	GMC	REVISED AND REDRAWN PER DCN 91-15

DESIGNED BY: C. YU
 DRAWN BY: V. HOANG
 CHECKED BY: C. ROBINOL
 IN CHARGE: E. DER-AVAKIAN
 DATE: 24 FEB 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY
 ENGINEERING MANAGEMENT CONSULTANT

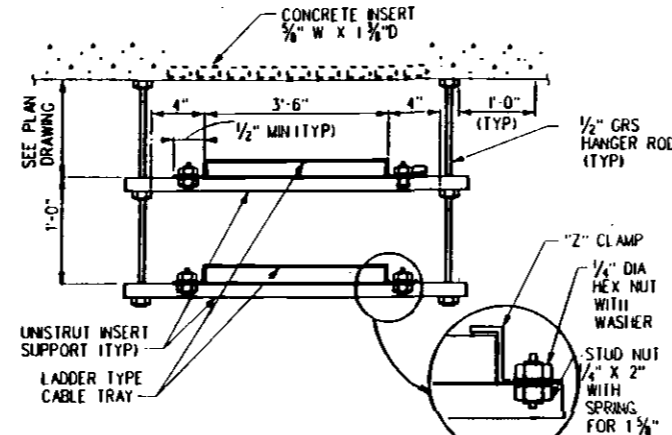
ELECTRICAL DIRECTIVE
 TYPICAL INSTALLATION DETAILS
 SHEET 3 OF 8

CONTRACT NO.
 DRAWING NO: ED-233
 REV: 1
 SCALE: NO SCALE
 SHEET NO.

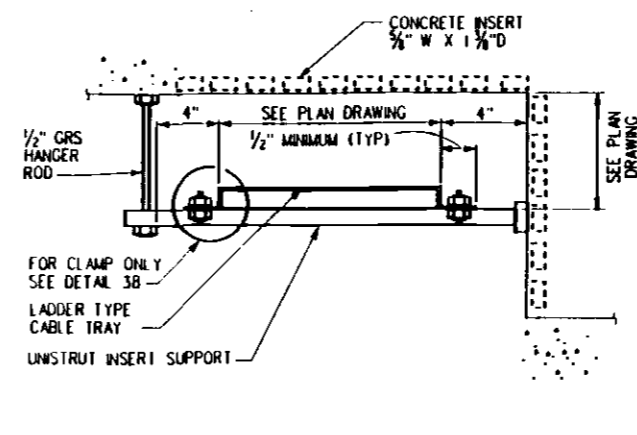


THIS IS FOR CABLE TRAYS OUTSIDE TRACTION POWER ROOM, AUXILIARY POWER ROOM OR TRAIN CONTROL/COMMUNICATIONS ROOM ONLY

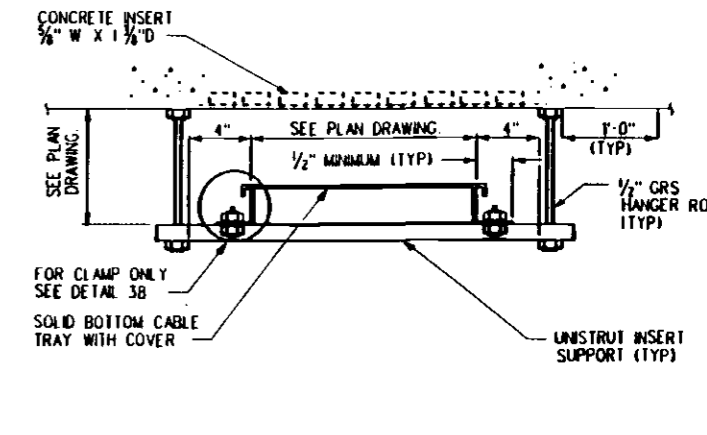
FIRE PROOFING OF CABLE TRAY (37)



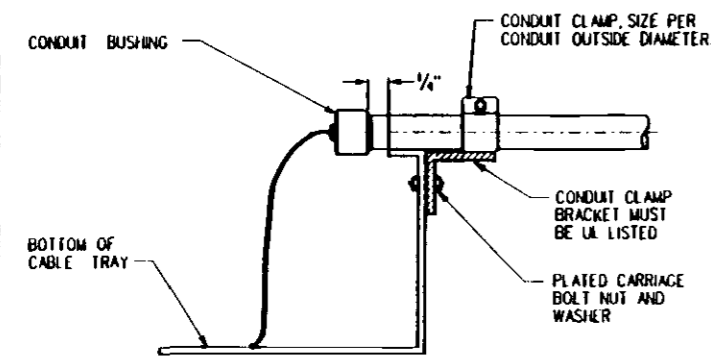
CABLE TRAY INSTALLATION SUSPENDED FROM CONCRETE CEILING (38)



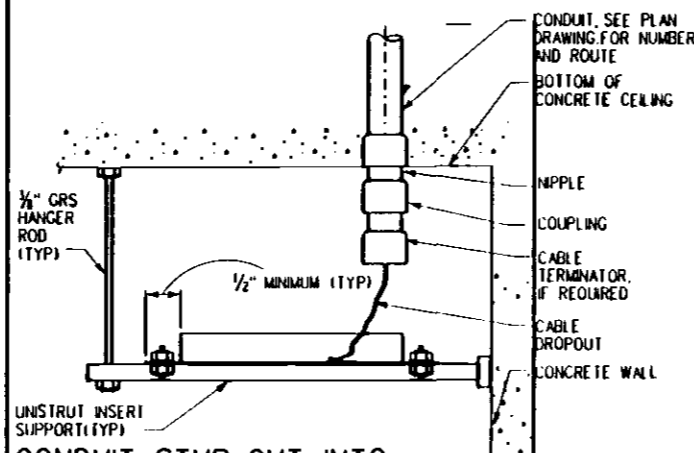
CABLE TRAY INSTALLATION ALONG WALL (39)



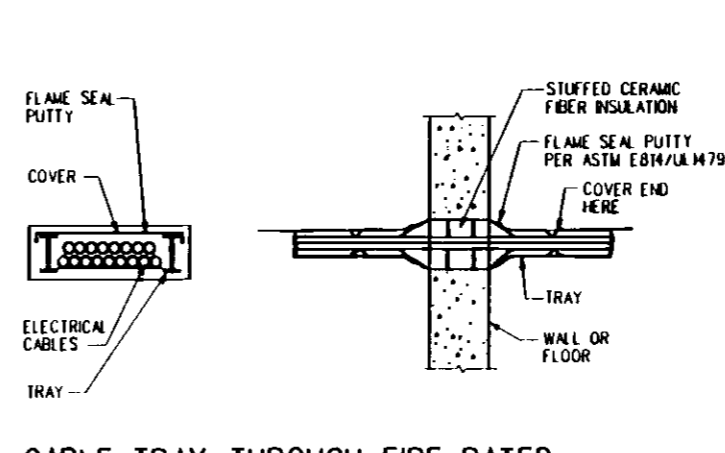
CABLE TRAY ALONG CORRIDOR OR INSIDE MECHANICAL ROOMS (40)



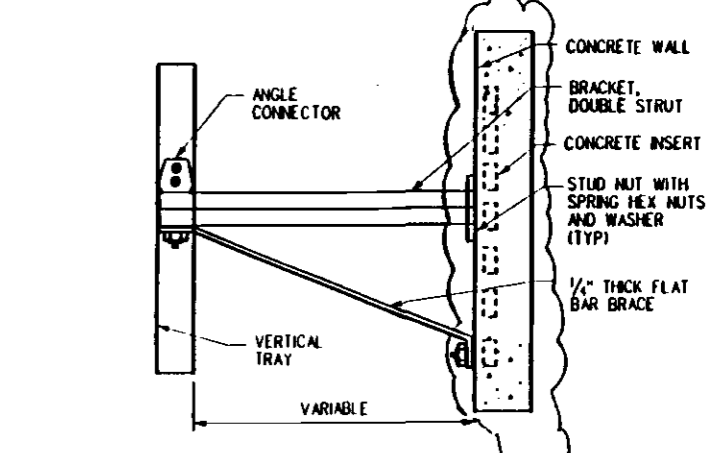
CONDUIT ATTACHMENT TO CABLE TRAY (41)



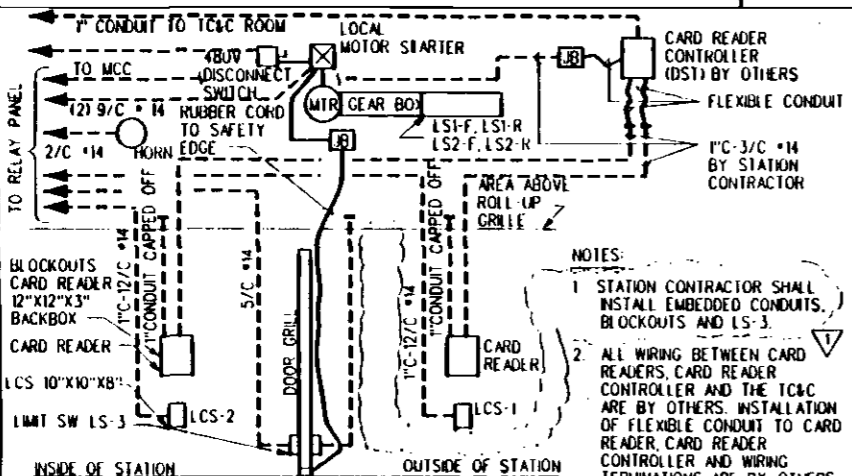
CONDUIT STUB-OUT INTO CABLE TRAY (42)



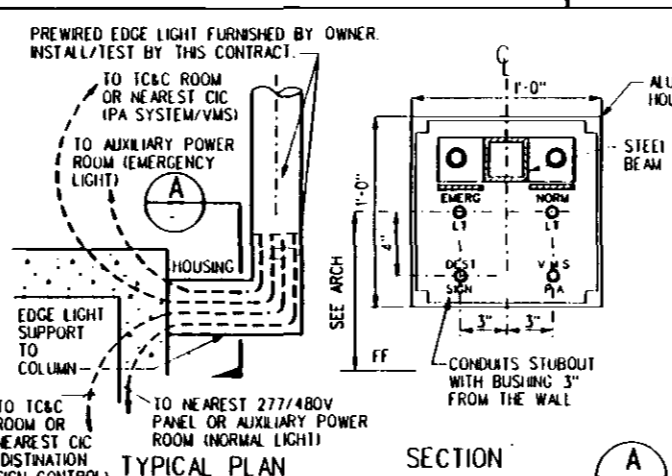
CABLE TRAY THROUGH FIRE RATED WALL OR FLOOR (43)



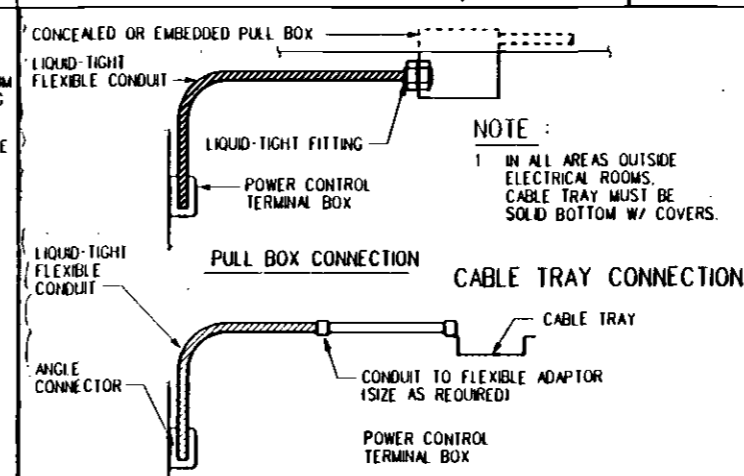
VERTICAL TRAY SUPPORT (44)



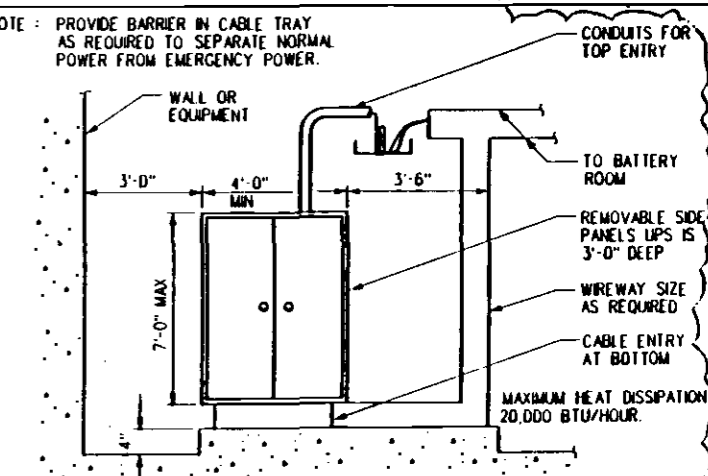
MOTORIZED GRILLE AT STATION ENTRANCE (45)



JUNCTION BOXES FOR EDGE LIGHT ADVERTISING LIGHTS AND PUBLIC ADDRESS (46)



MISC. CONDUIT CONNECTIONS (47)



CONNECTIONS AT UPS (48)

REV	DATE	BY	SIB	APP	DESCRIPTION

REV	DATE	BY	SIB	APP	DESCRIPTION
1	8 30 95				REVISED AND RESEALED PER THE 2005-2006-9-00 BASELINE ISSUE
2	4 19 94	RE	AI	GMC	

DESIGNED BY: R. ESTRADA
 DRAWN BY: V. HOANG
 CHECKED BY: C. ROBINONI
 IN CHARGE: E. DER-AVAKIAN
 DATE: 19 APR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

SUBMITTED: *Edward G. Clark*
 APPROVED: *JW*

ELECTRICAL DIRECTIVE

TYPICAL INSTALLATION DETAILS

SHEET 4 OF 8

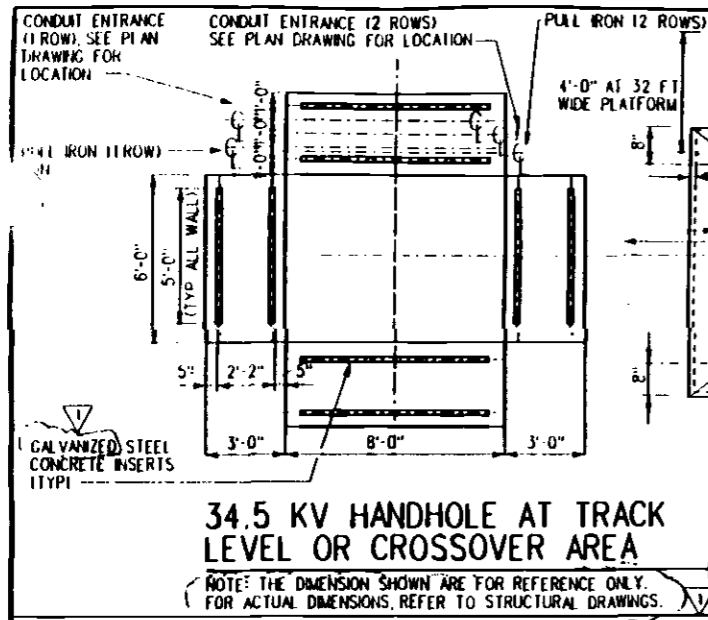
CONTRACT NO: _____

DRAWING NO: ED-234

REV: 1

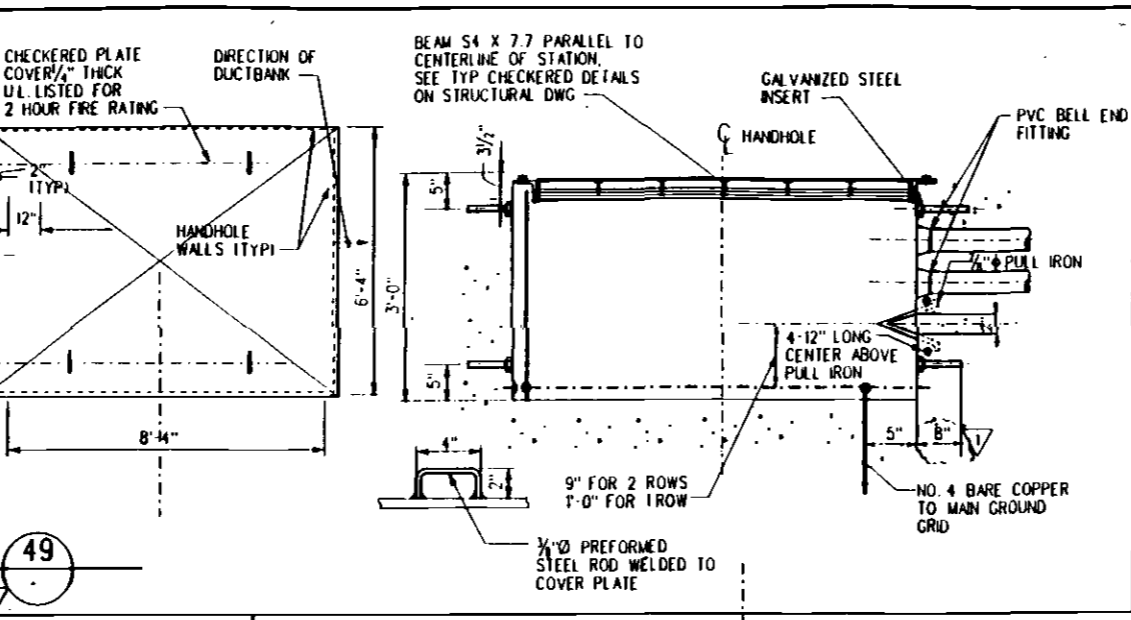
SCALE: NO SCALE

SHEET NO: _____

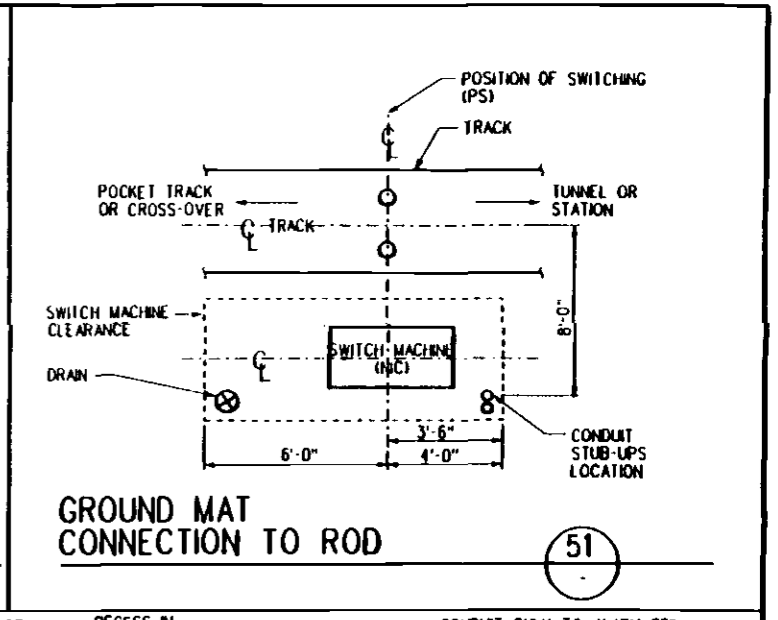


34.5 KV HANDHOLE AT TRACK LEVEL OR CROSSOVER AREA

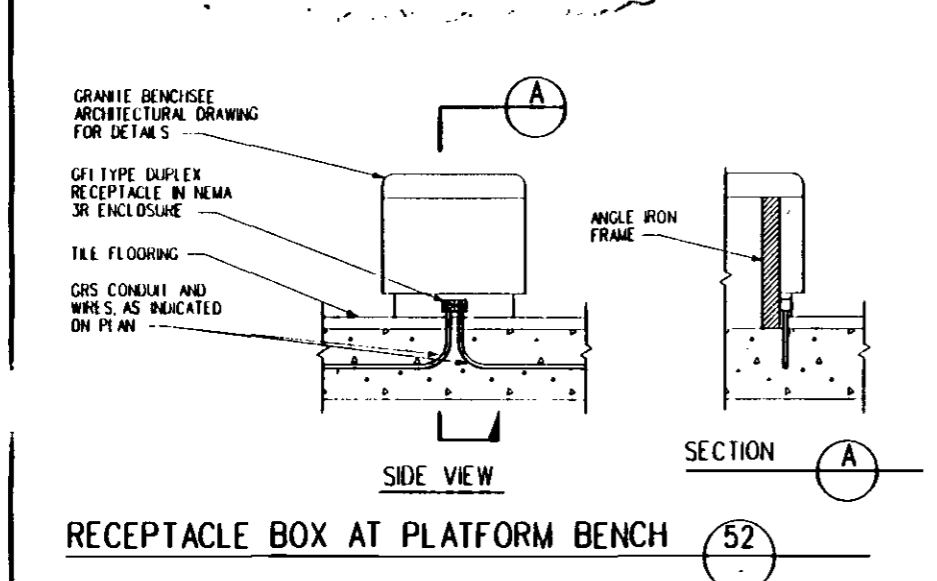
NOTE: THE DIMENSION SHOWN ARE FOR REFERENCE ONLY. FOR ACTUAL DIMENSIONS, REFER TO STRUCTURAL DRAWINGS.



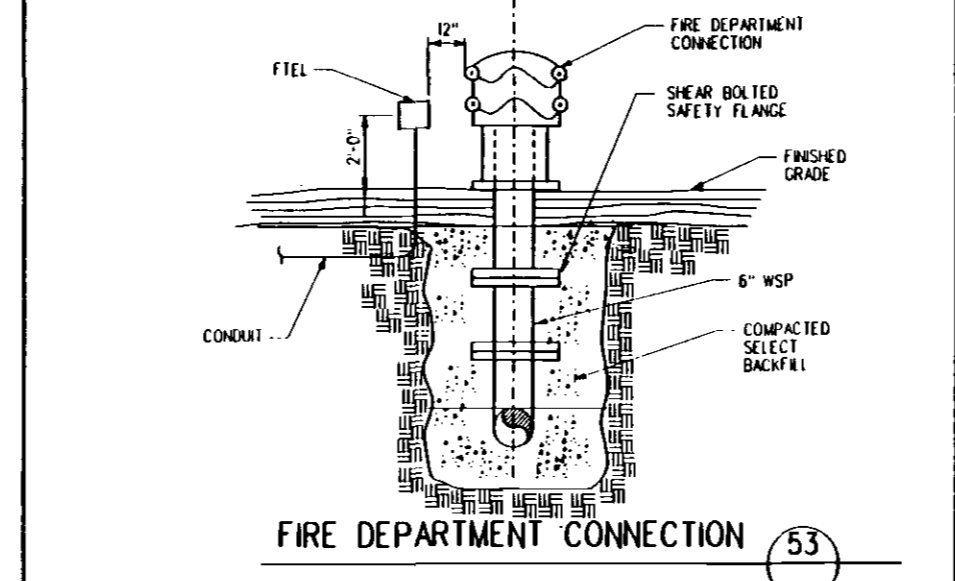
TYP TRAIN CONTROL UNDER PLATFORM



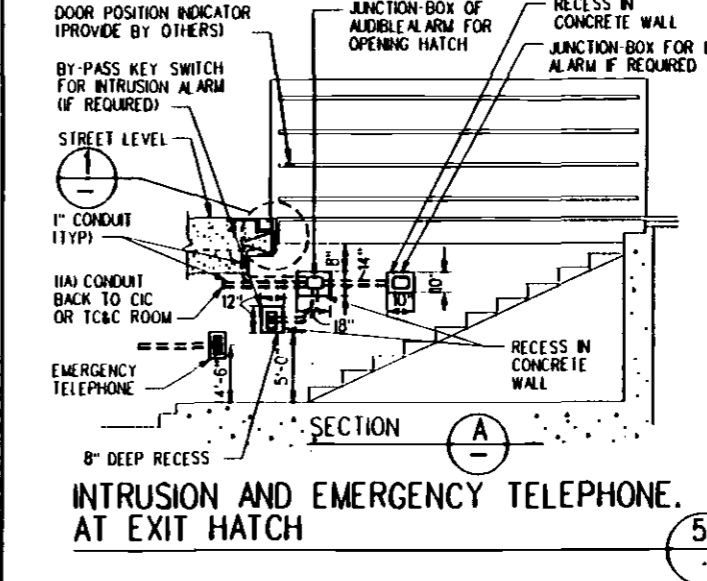
GROUND MAT CONNECTION TO ROD



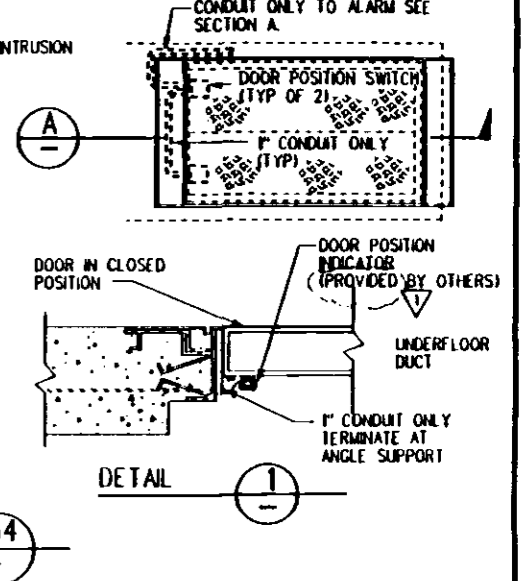
RECEPTACLE BOX AT PLATFORM BENCH



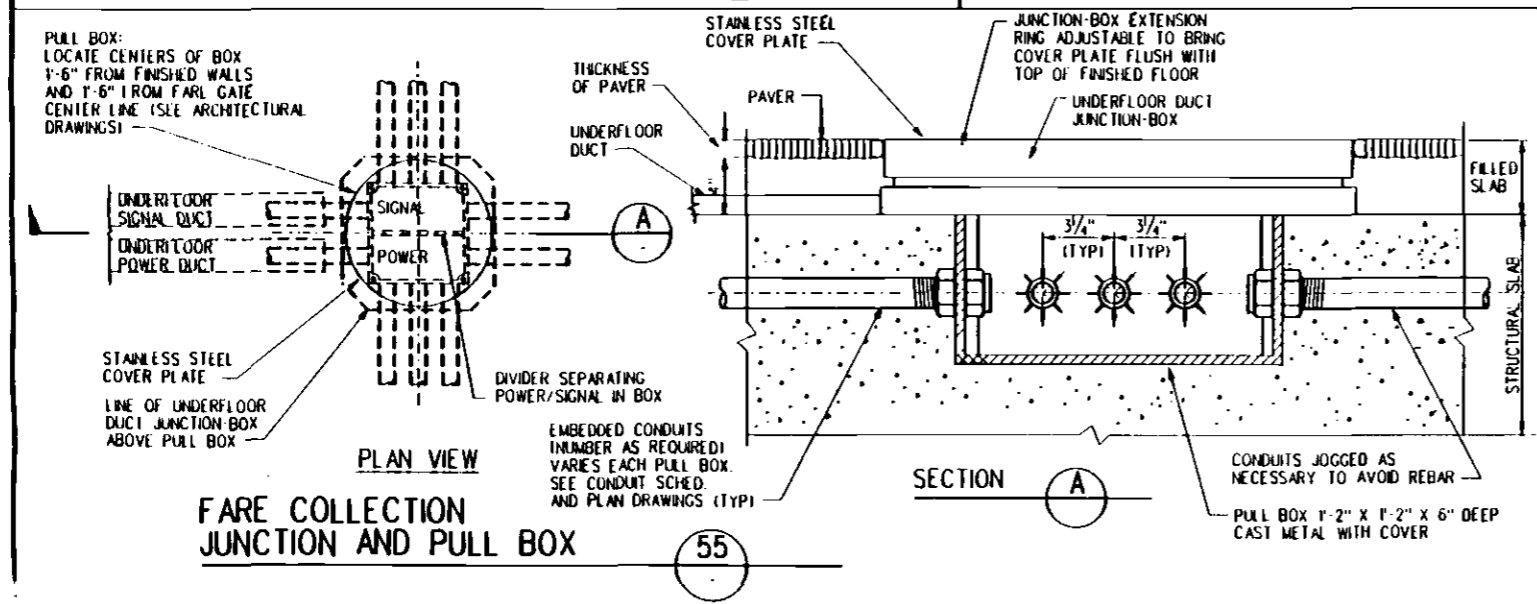
FIRE DEPARTMENT CONNECTION



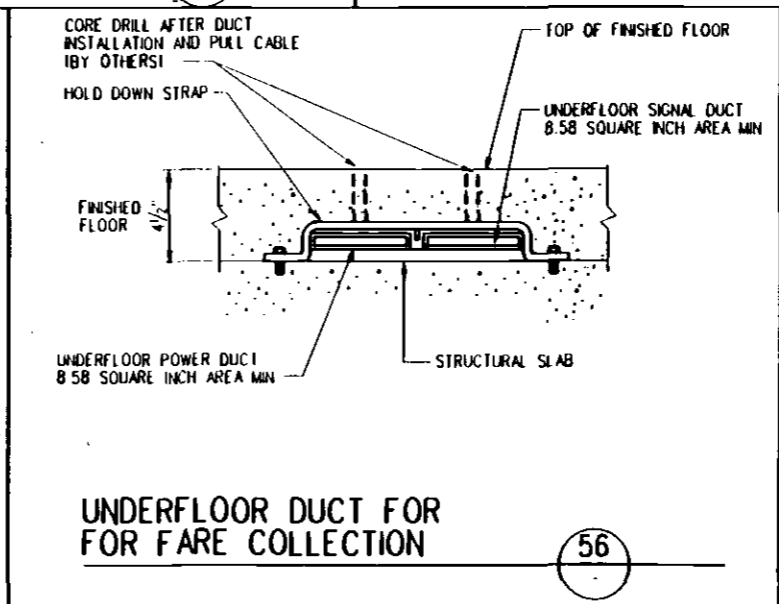
INTRUSION AND EMERGENCY TELEPHONE AT EXIT HATCH



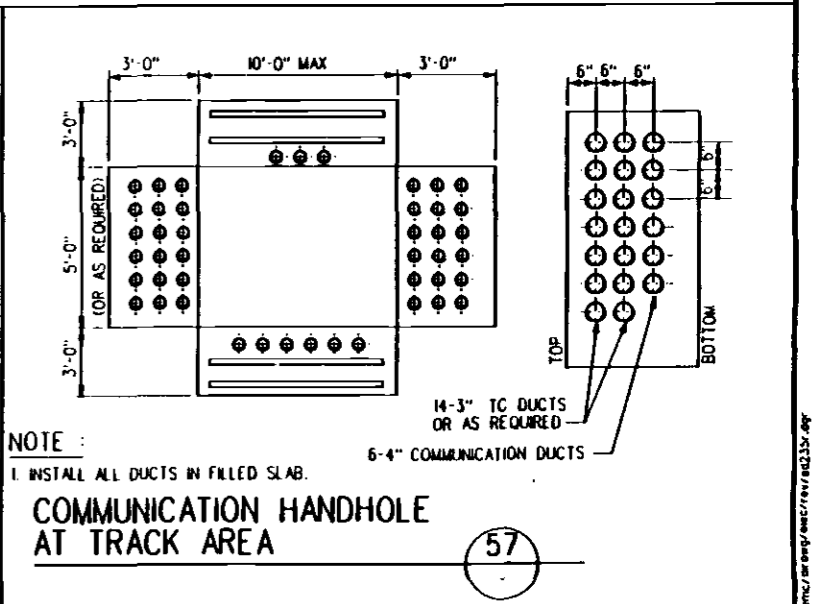
DETAIL



FARE COLLECTION JUNCTION AND PULL BOX



UNDERFLOOR DUCT FOR FARE COLLECTION



COMMUNICATION HANDHOLE AT TRACK AREA

NOTE: 1. INSTALL ALL DUCTS IN FILLED SLAB.

REV	DATE	BY	APP	DESCRIPTION
0	3 4 94	RE	AVL	GMC
1	3 22 94	RE	AVL	GMC

DESIGNED BY
R. ESTRADA
DRAWN BY
V. HOANG
CHECKED BY
C. ROBINOI
IN CHARGE
E. DER-AVAKIAN
DATE
4 MAR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

FOR THE

CONTRACT NO.

DRAWING NO. ED-235

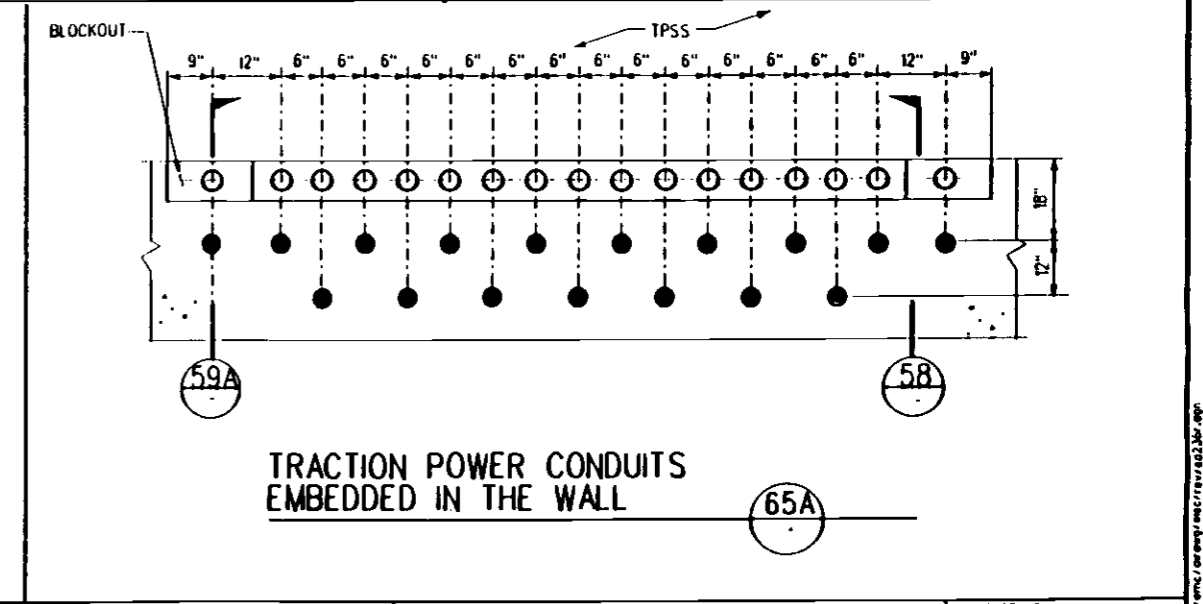
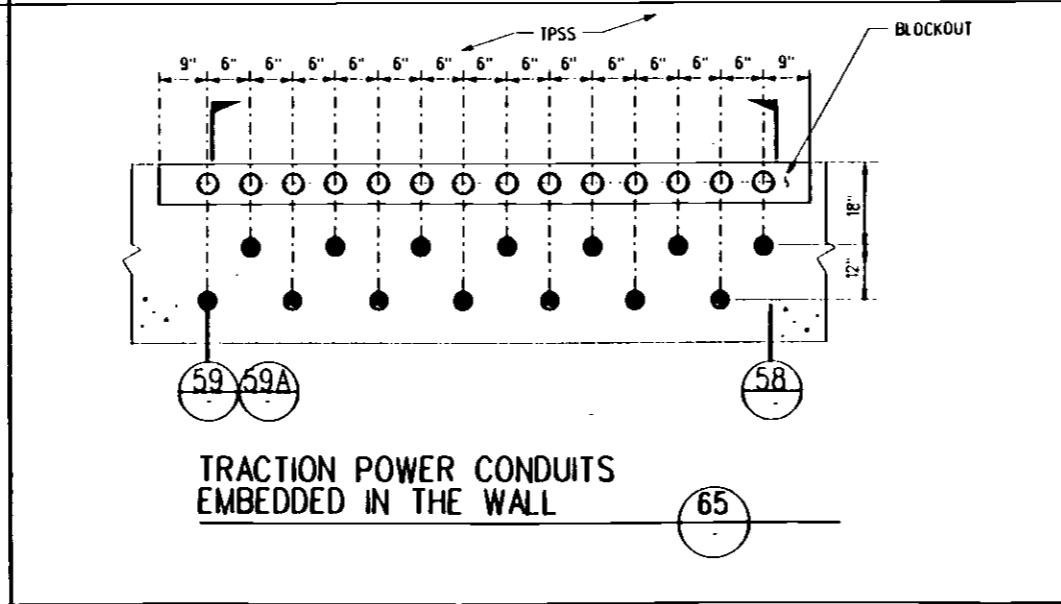
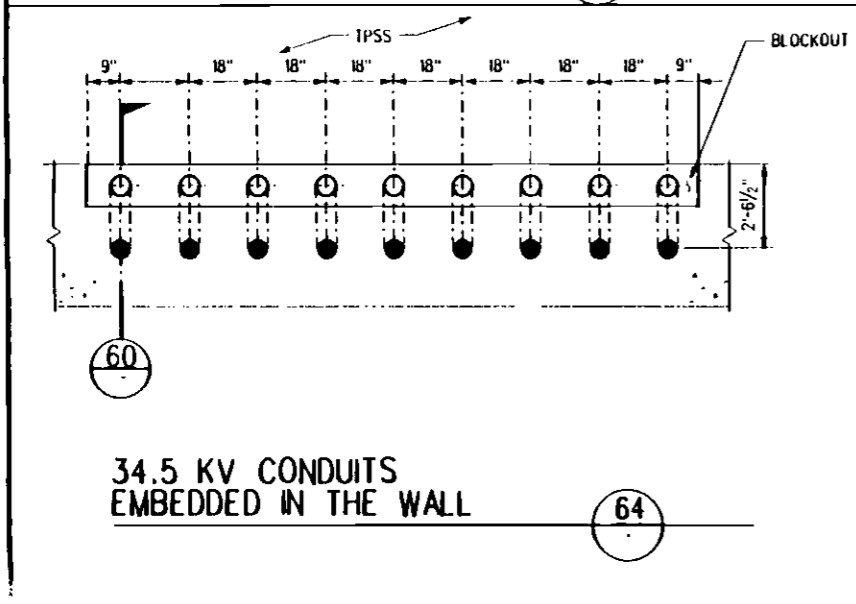
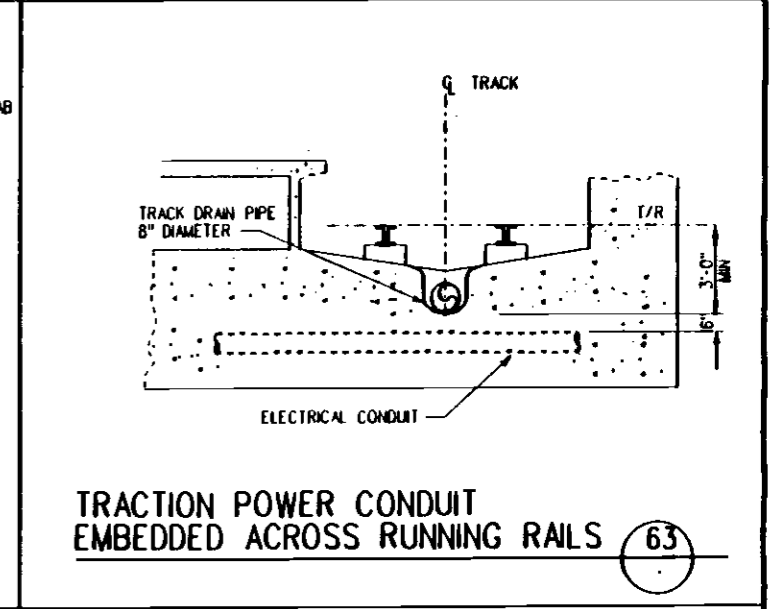
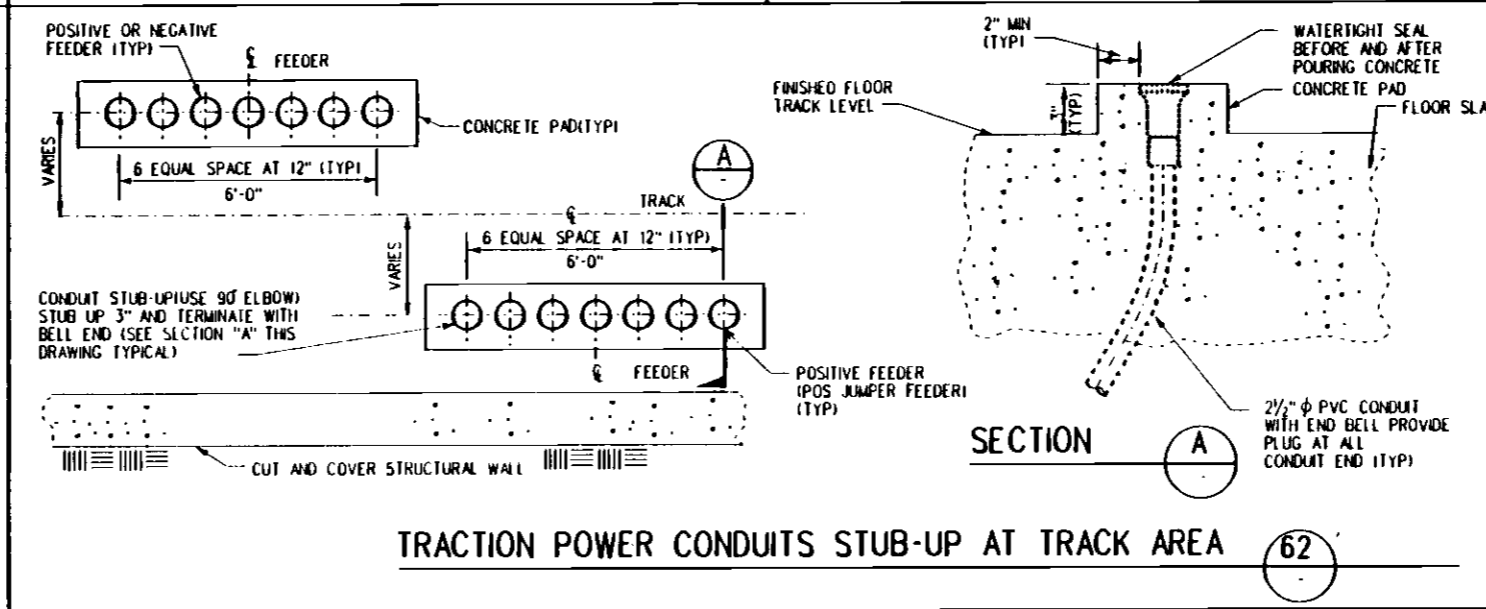
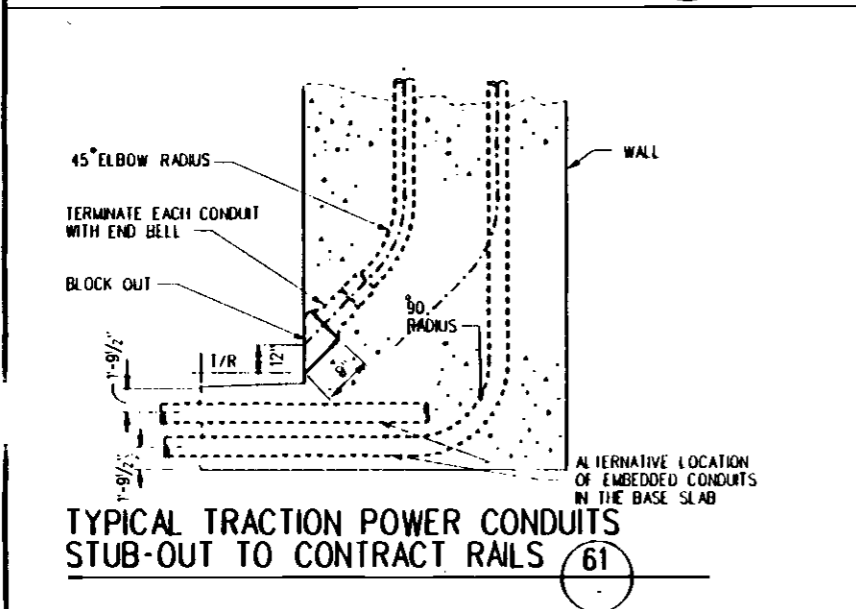
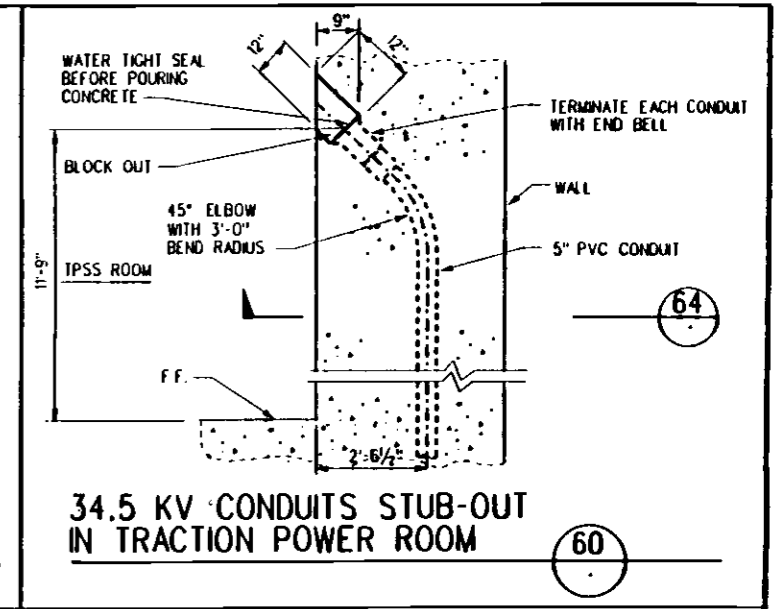
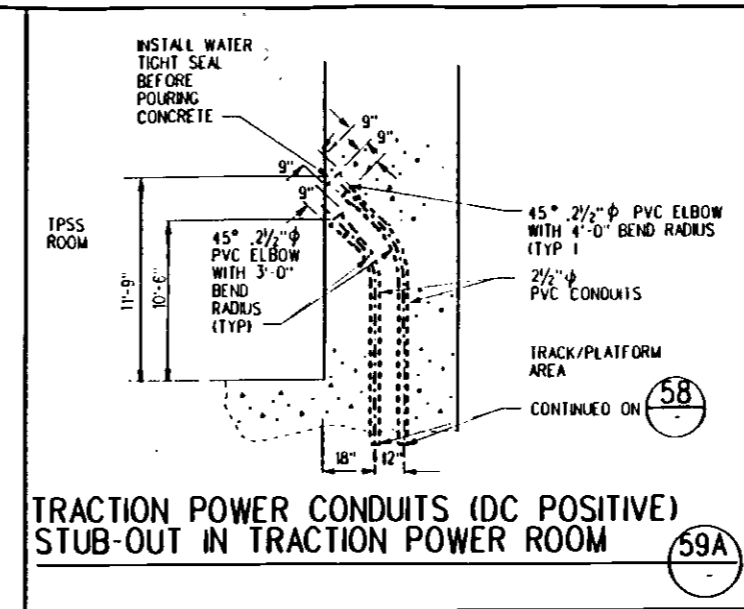
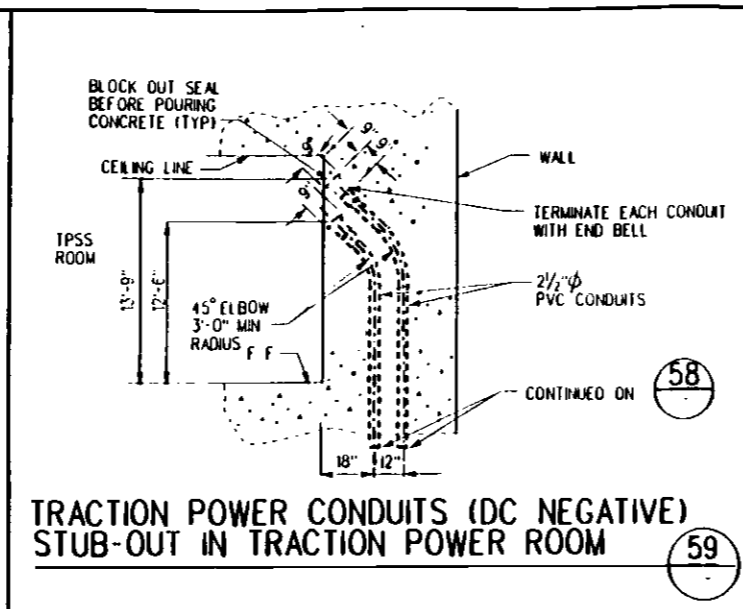
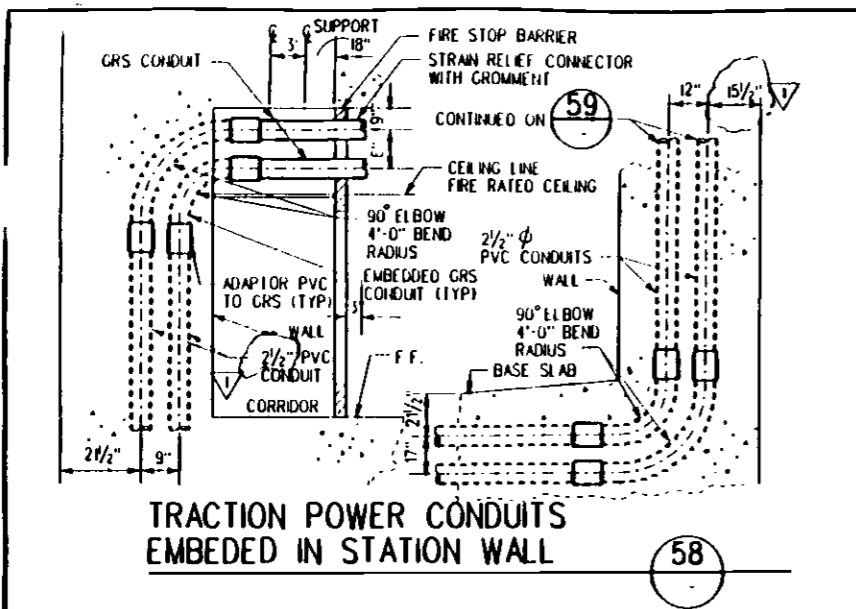
SCALE NO SCALE

SHEET NO.

ELECTRICAL DIRECTIVE

TYPICAL INSTALLATION DETAILS

SHEET 5 OF 8



REV	DATE	BY	SIG	APP	DESCRIPTION
0	3 4 94	RE	AH	CMC	

DESIGNED BY: R. ESTRADA
 DRAWN BY: V. HOANG
 CHECKED BY: C. ROBENIOL
 IN CHARGE: E. DER AVAKIAN
 DATE: 4 MAR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT
 an association of:
 Parsons Brinckerhoff Quade & Douglas, Inc.
 David Evans & Hughes International
 HOK - Humphreys & Partners, Inc.
 Jacobs Engineering Group, Inc.
 Parsons Corporation
 Parsons Technology, Inc.
 Parsons Systems, Inc.
 Parsons Technical Services, Inc.

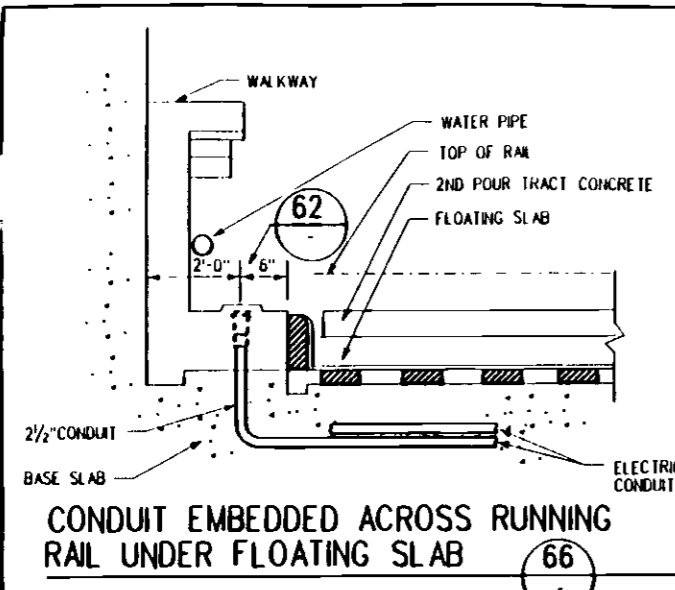
SUBMITTED: *Edmund C. Robeniol*
 APPROVED: *[Signature]*

ELECTRICAL DIRECTIVE

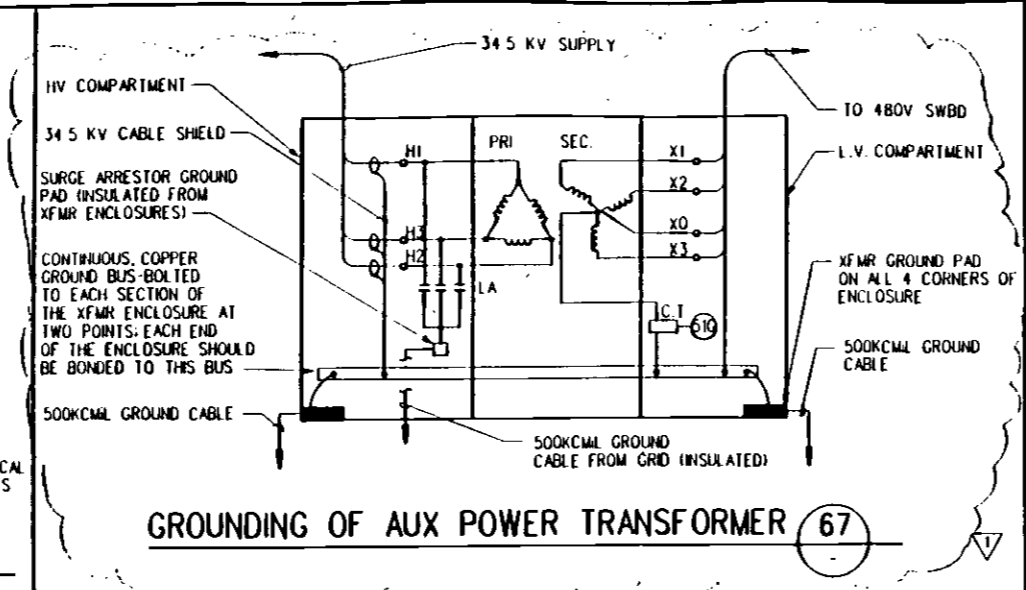
TYPICAL INSTALLATION DETAILS
 SHEET 6 OF 8

CONTRACT NO:
 DRAWING NO: ED-236
 REV: 1
 SCALE: NO SCALE
 SHEET NO:

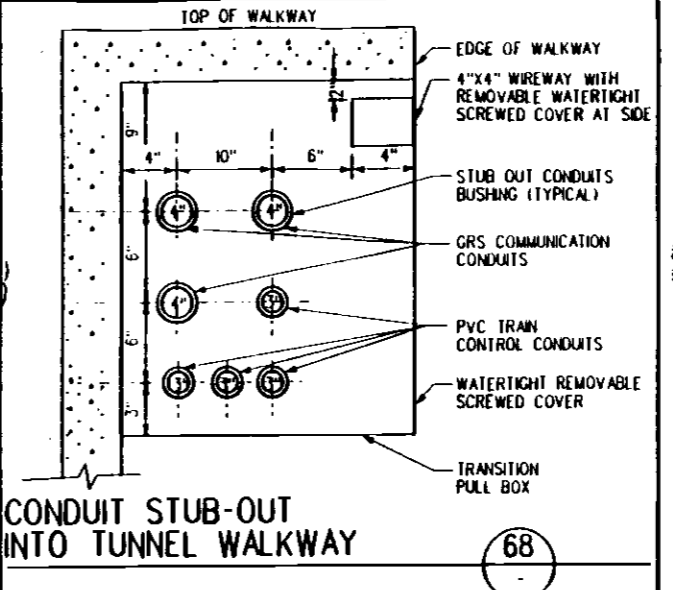
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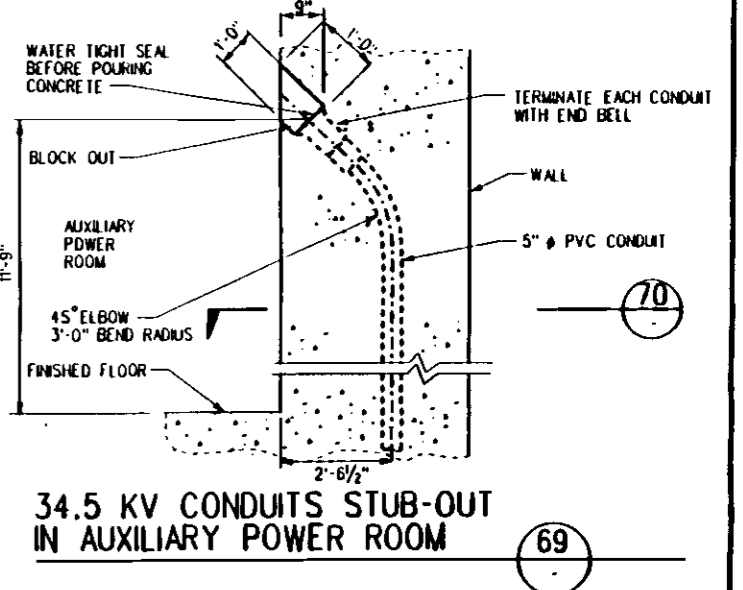
CONDUIT EMBEDDED ACROSS RUNNING RAIL UNDER FLOATING SLAB (66)



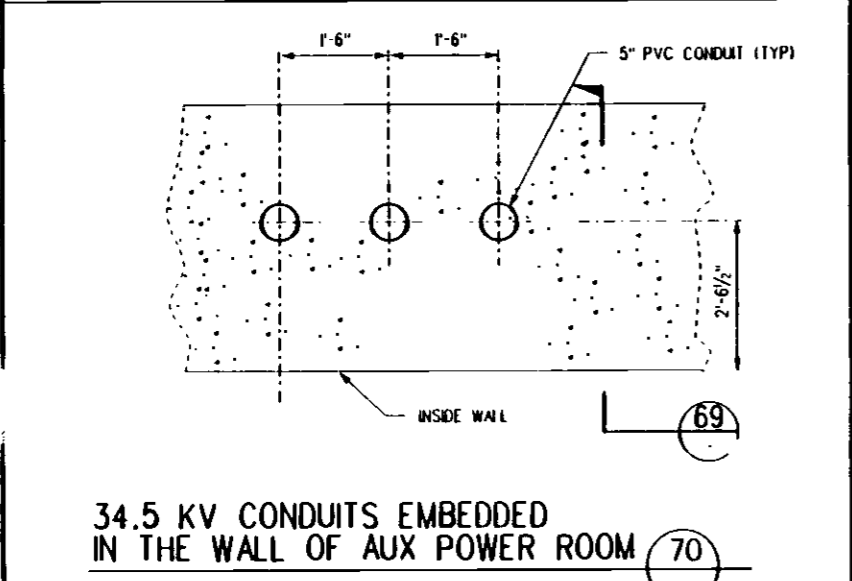
GROUNDING OF AUX POWER TRANSFORMER (67)



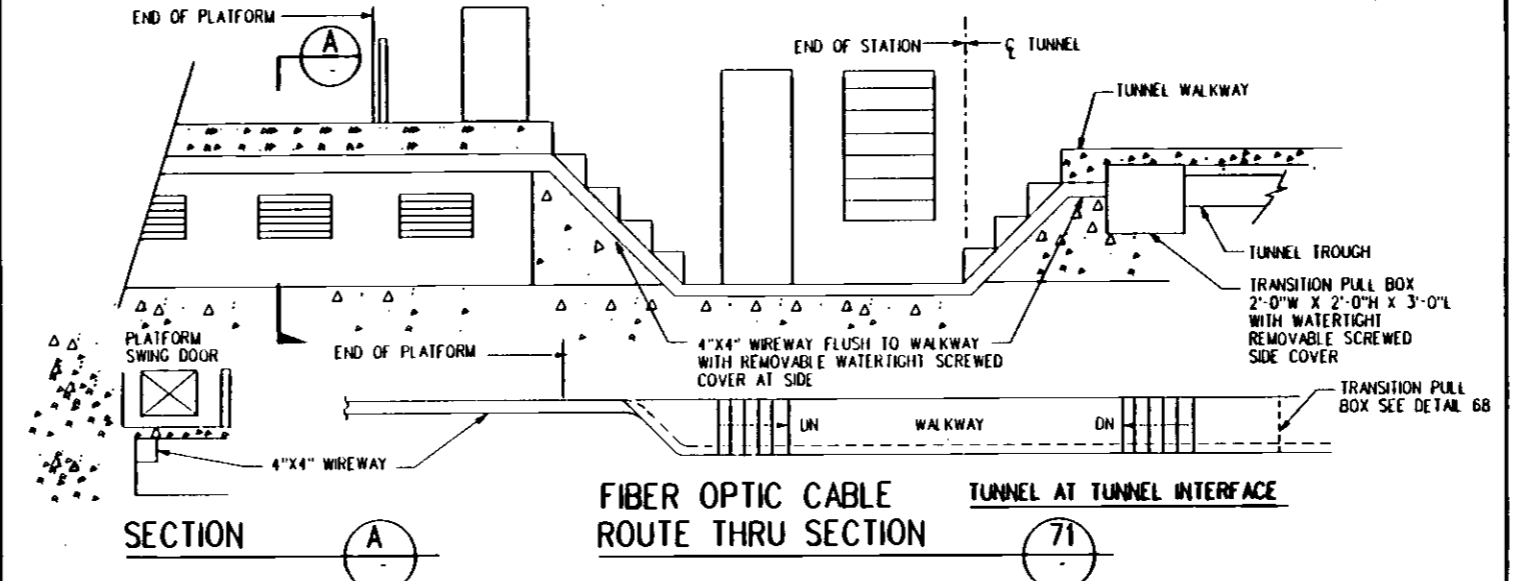
CONDUIT STUB-OUT INTO TUNNEL WALKWAY (68)



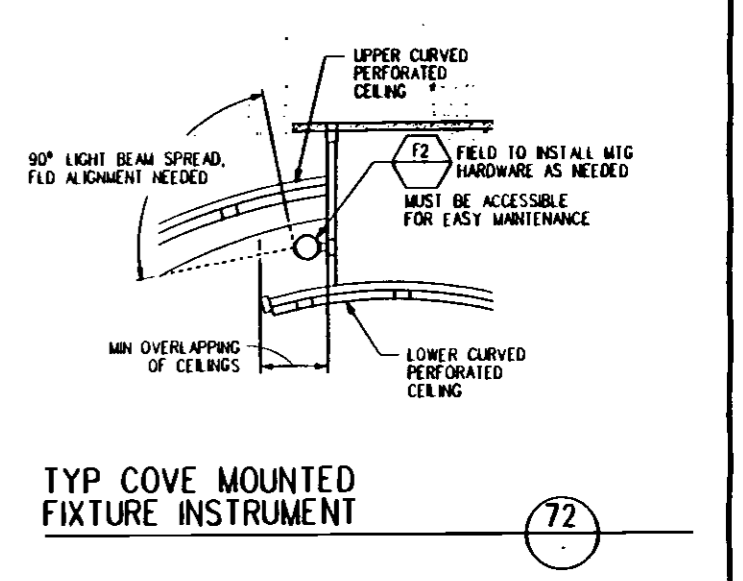
34.5 KV CONDUITS STUB-OUT IN AUXILIARY POWER ROOM (69)



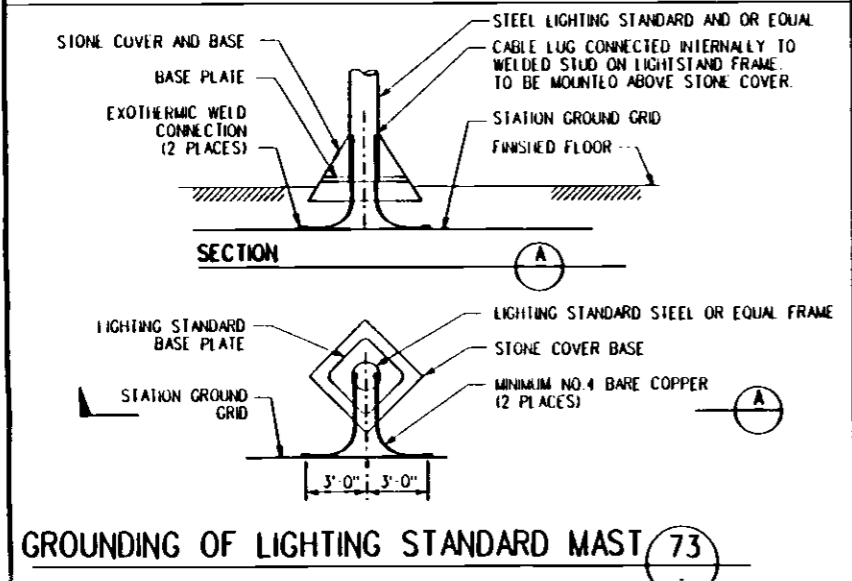
34.5 KV CONDUITS EMBEDDED IN THE WALL OF AUX POWER ROOM (70)



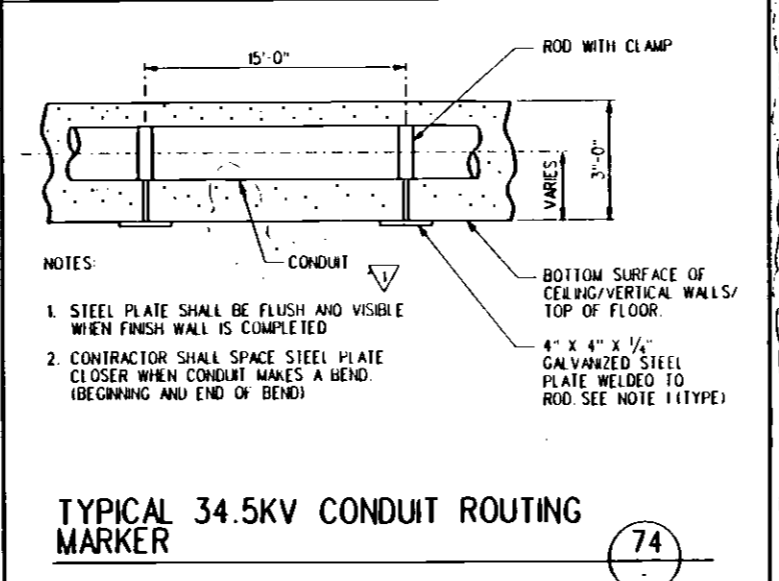
FIBER OPTIC CABLE ROUTE THRU SECTION (71)



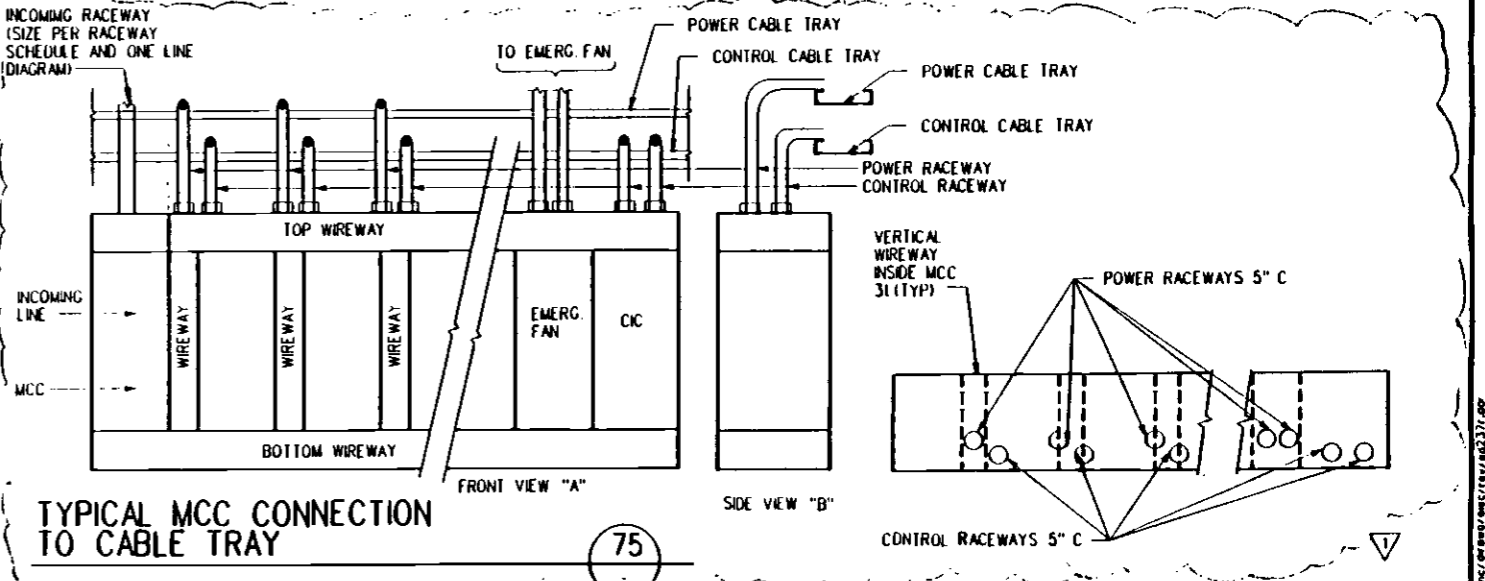
TYP COVE MOUNTED FIXTURE INSTRUMENT (72)



GROUNDING OF LIGHTING STANDARD MAST (73)



TYPICAL 34.5KV CONDUIT ROUTING MARKER (74)



TYPICAL MCC CONNECTION TO CABLE TRAY (75)

NO.	DATE	BY	CHKD.	APP.	DESCRIPTION
1	8/30/95	CY	AH	GMC	REVISED AND RESEALED PER DESIGN CHANGES
2	3/22/94	CY	AH	GMC	REVISED AND RE-DRAWN PER DEN 91-19 AND 93-53

DESIGNED BY
C. YU
DRAWN BY
F. DE CASTRO
CHECKED BY
C. ROBENIOL
BY CHARLE
E. DER AVAKIAN
DATE
22 MAR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

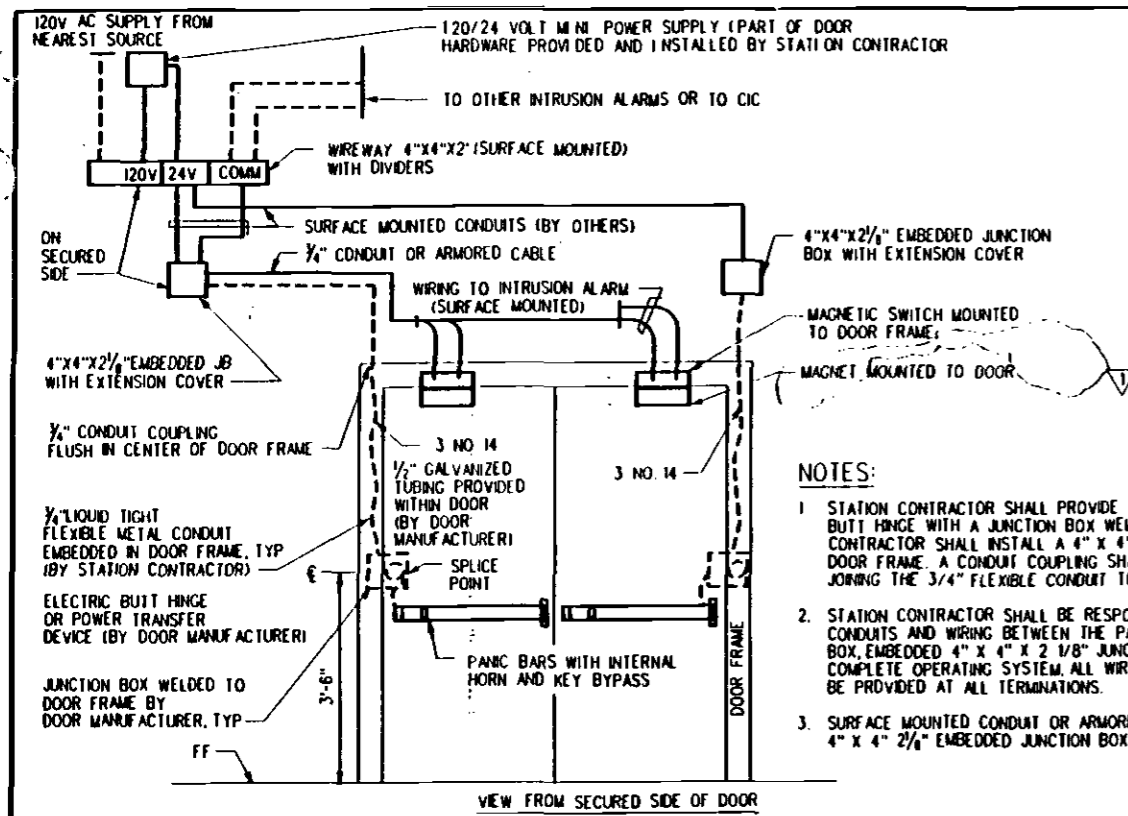
Submitted: *Edward...*
Approved: *J.W.*

ELECTRICAL DIRECTIVE

TYPICAL INSTALLATION DETAILS

SHEET 7 OF 8

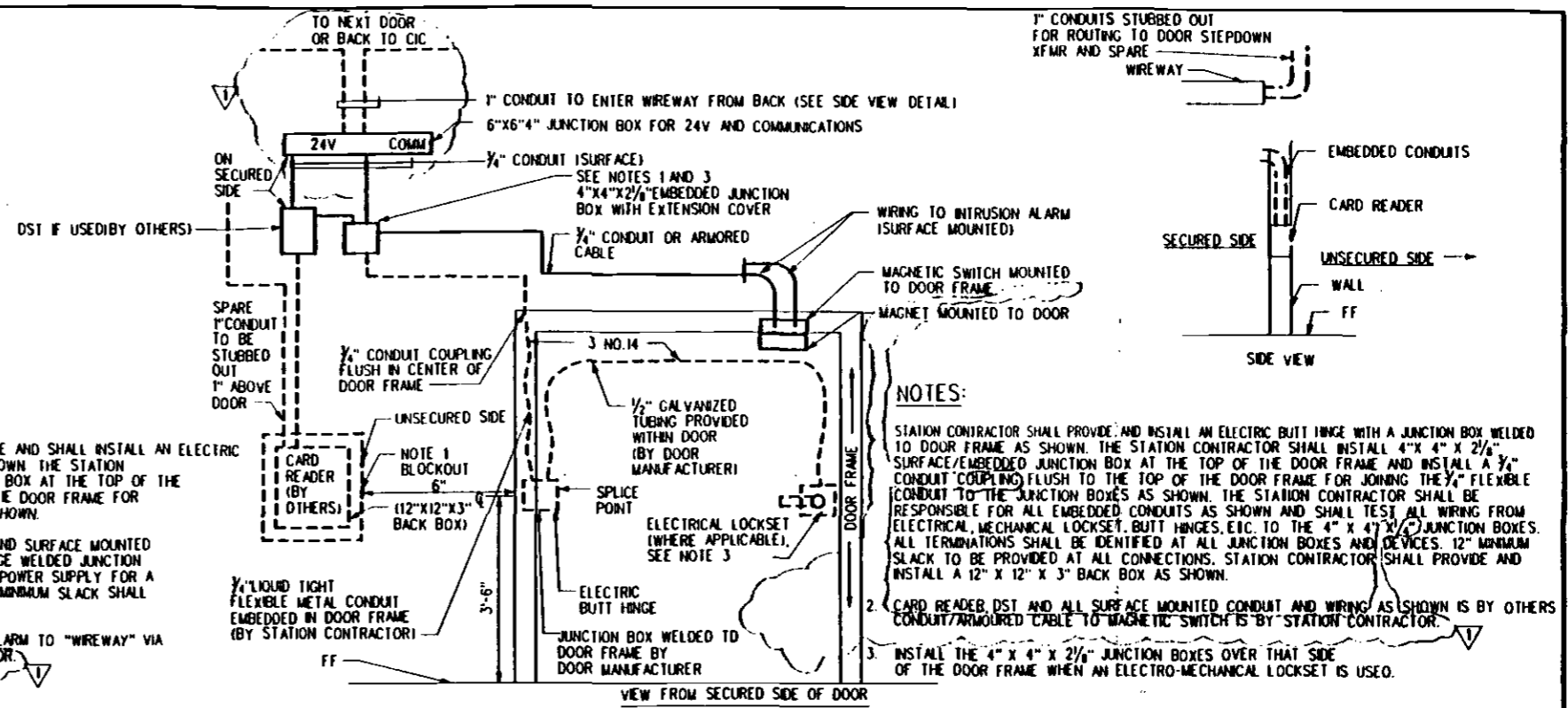
CONTRACT NO.
DRAWING NO. ED-237
SCALE NO SCALE
SHEET NO.



NOTES:

1. STATION CONTRACTOR SHALL PROVIDE AND INSTALL DOOR AND FRAME AND SHALL INSTALL AN ELECTRIC BUTT HINGE WITH A JUNCTION BOX WELDED TO DOOR FRAME AS SHOWN. THE STATION CONTRACTOR SHALL INSTALL A 4" X 4" X 2 1/8" EMBEDDED JUNCTION BOX AT THE TOP OF THE DOOR FRAME. A CONDUIT COUPLING SHALL BE MOUNTED FLUSH IN THE DOOR FRAME FOR JOINING THE 3/4" FLEXIBLE CONDUIT TO THE JUNCTION BOXES AS SHOWN.
2. STATION CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EMBEDDED AND SURFACE MOUNTED CONDUITS AND WIRING BETWEEN THE PANIC BAR, ELECTRIC BUTT HINGE WELDED JUNCTION BOX, EMBEDDED 4" X 4" X 2 1/8" JUNCTION BOX, WIREWAY AND MINIPOWER SUPPLY FOR A COMPLETE OPERATING SYSTEM. ALL WIRES SHALL BE IDENTIFIED. 12" MINIMUM SLACK SHALL BE PROVIDED AT ALL TERMINATIONS.
3. SURFACE MOUNTED CONDUIT OR ARMORED CABLE FROM INTRUSION ALARM TO "WIREWAY" VIA 4" X 4" X 2 1/8" EMBEDDED JUNCTION BOX ARE BY STATION CONTRACTOR.

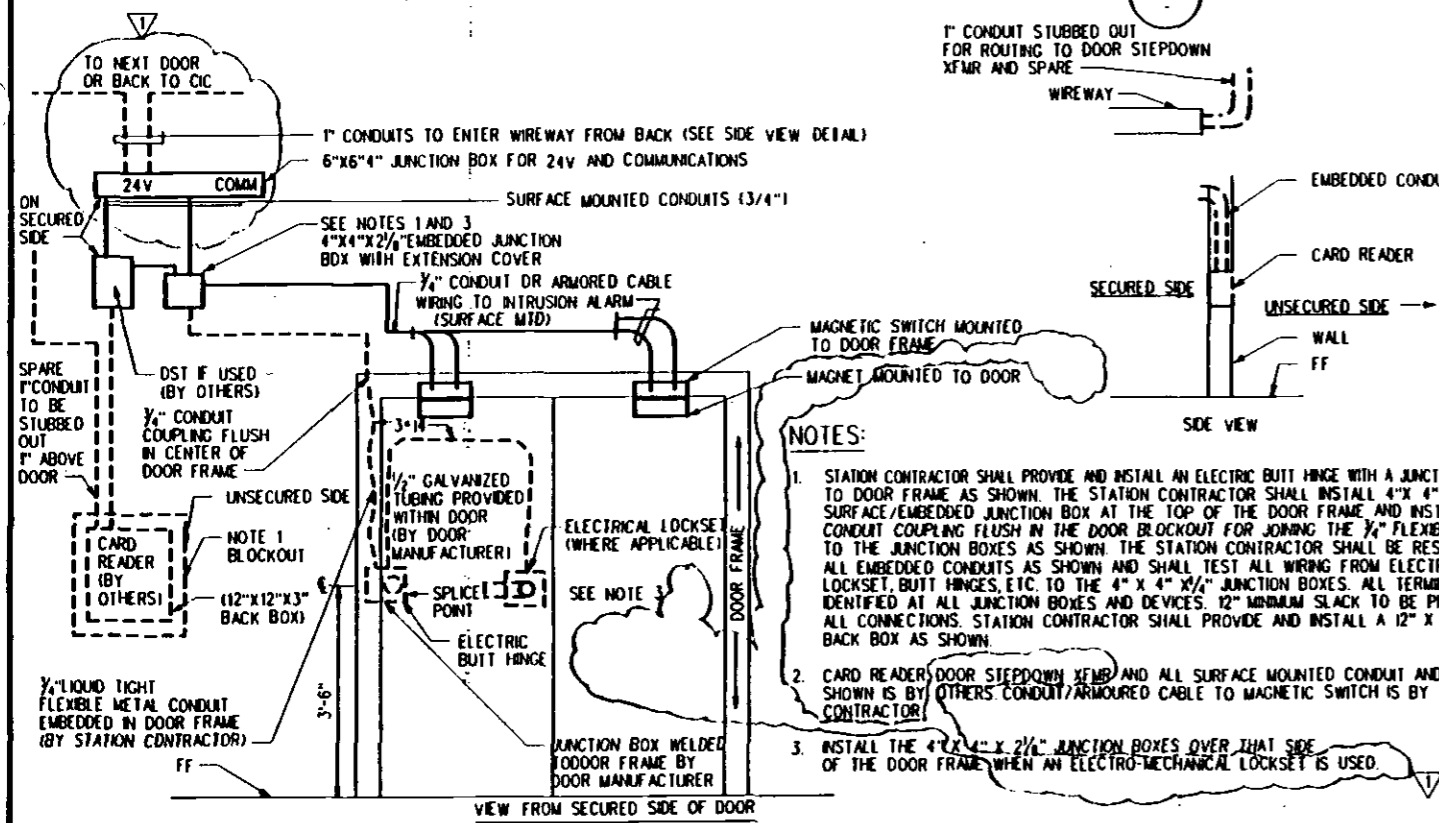
DOUBLE DOOR WITH PANIC BAR DETAIL (TYP) 78



NOTES:

1. STATION CONTRACTOR SHALL PROVIDE AND INSTALL AN ELECTRIC BUTT HINGE WITH A JUNCTION BOX WELDED TO DOOR FRAME AS SHOWN. THE STATION CONTRACTOR SHALL INSTALL A 4" X 4" X 2 1/8" SURFACE/EMBEDDED JUNCTION BOX AT THE TOP OF THE DOOR FRAME AND INSTALL A 3/4" CONDUIT COUPLING FLUSH TO THE TOP OF THE DOOR FRAME FOR JOINING THE 3/4" FLEXIBLE CONDUIT TO THE JUNCTION BOXES AS SHOWN. THE STATION CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EMBEDDED CONDUITS AS SHOWN AND SHALL TEST ALL WIRING FROM ELECTRICAL, MECHANICAL LOCKSET, BUTT HINGES, ETC. TO THE 4" X 4" X 2 1/8" JUNCTION BOXES. ALL TERMINATIONS SHALL BE IDENTIFIED AT ALL JUNCTION BOXES AND DEVICES. 12" MINIMUM SLACK TO BE PROVIDED AT ALL CONNECTIONS. STATION CONTRACTOR SHALL PROVIDE AND INSTALL A 12" X 12" X 3" BACK BOX AS SHOWN.
2. CARD READER, DST AND ALL SURFACE MOUNTED CONDUIT AND WIRING AS SHOWN IS BY OTHERS. CONDUIT/ARMORED CABLE TO MAGNETIC SWITCH IS BY STATION CONTRACTOR.
3. INSTALL THE 4" X 4" X 2 1/8" JUNCTION BOXES OVER THAT SIDE OF THE DOOR FRAME WHEN AN ELECTRO-MECHANICAL LOCKSET IS USED.

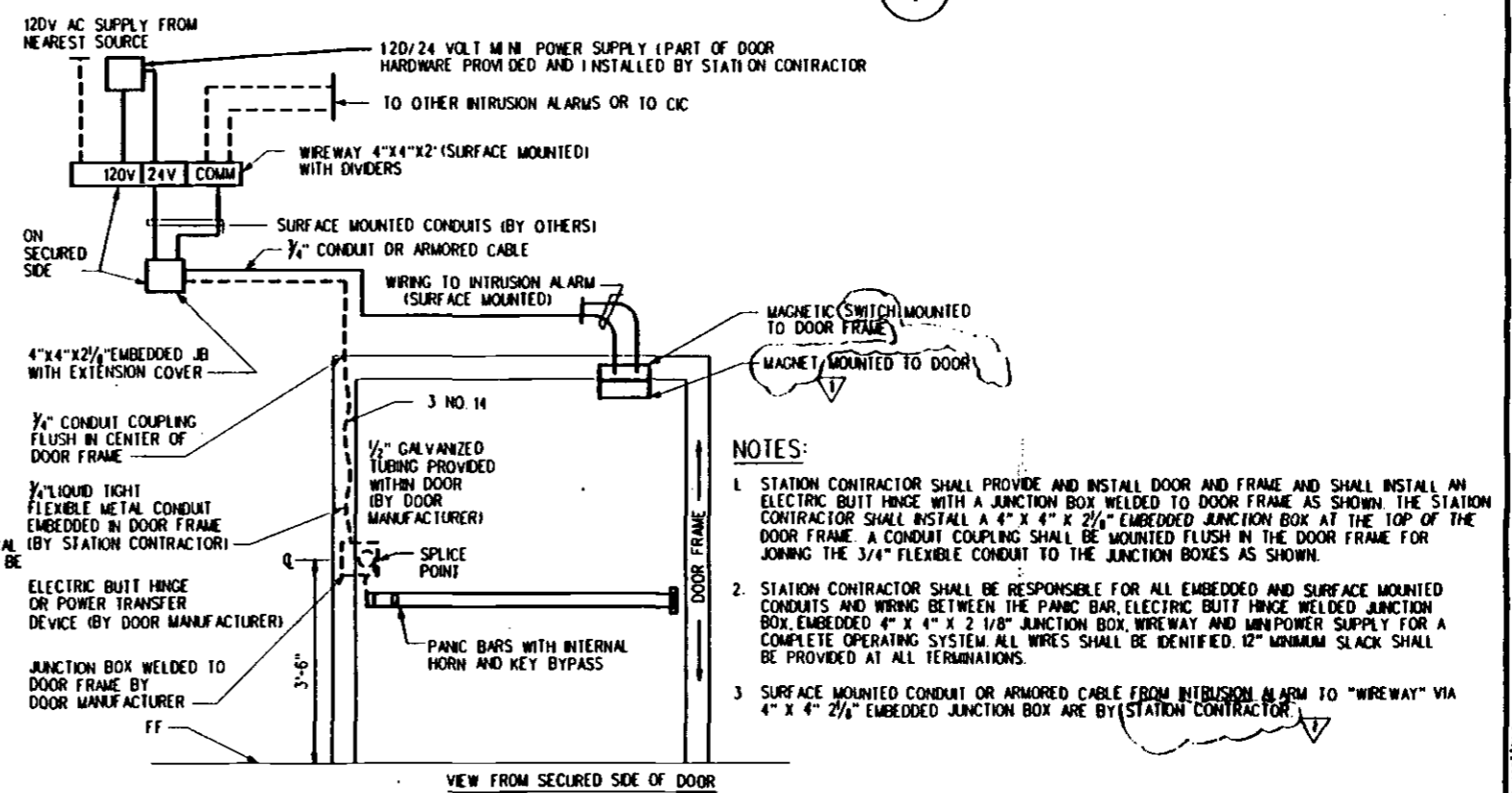
SINGLE DOOR DETAIL (TYP) 79



NOTES:

1. STATION CONTRACTOR SHALL PROVIDE AND INSTALL AN ELECTRIC BUTT HINGE WITH A JUNCTION BOX WELDED TO DOOR FRAME AS SHOWN. THE STATION CONTRACTOR SHALL INSTALL A 4" X 4" X 2 1/8" SURFACE/EMBEDDED JUNCTION BOX AT THE TOP OF THE DOOR FRAME AND INSTALL A 3/4" CONDUIT COUPLING FLUSH IN THE DOOR BLOCKOUT FOR JOINING THE 3/4" FLEXIBLE CONDUIT TO THE JUNCTION BOXES AS SHOWN. THE STATION CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EMBEDDED CONDUITS AS SHOWN AND SHALL TEST ALL WIRING FROM ELECTRICAL, MECHANICAL LOCKSET, BUTT HINGES, ETC. TO THE 4" X 4" X 2 1/8" JUNCTION BOXES. ALL TERMINATIONS SHALL BE IDENTIFIED AT ALL JUNCTION BOXES AND DEVICES. 12" MINIMUM SLACK TO BE PROVIDED AT ALL CONNECTIONS. STATION CONTRACTOR SHALL PROVIDE AND INSTALL A 12" X 12" X 3" BACK BOX AS SHOWN.
2. CARD READER, DOOR STEPDOWN XFRM AND ALL SURFACE MOUNTED CONDUIT AND WIRING AS SHOWN IS BY OTHERS. CONDUIT/ARMORED CABLE TO MAGNETIC SWITCH IS BY STATION CONTRACTOR.
3. INSTALL THE 4" X 4" X 2 1/8" JUNCTION BOXES OVER THAT SIDE OF THE DOOR FRAME WHEN AN ELECTRO-MECHANICAL LOCKSET IS USED.

DOUBLE DOOR DETAIL (TYP) 80



NOTES:

1. STATION CONTRACTOR SHALL PROVIDE AND INSTALL DOOR AND FRAME AND SHALL INSTALL AN ELECTRIC BUTT HINGE WITH A JUNCTION BOX WELDED TO DOOR FRAME AS SHOWN. THE STATION CONTRACTOR SHALL INSTALL A 4" X 4" X 2 1/8" EMBEDDED JUNCTION BOX AT THE TOP OF THE DOOR FRAME. A CONDUIT COUPLING SHALL BE MOUNTED FLUSH IN THE DOOR FRAME FOR JOINING THE 3/4" FLEXIBLE CONDUIT TO THE JUNCTION BOXES AS SHOWN.
2. STATION CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EMBEDDED AND SURFACE MOUNTED CONDUITS AND WIRING BETWEEN THE PANIC BAR, ELECTRIC BUTT HINGE WELDED JUNCTION BOX, EMBEDDED 4" X 4" X 2 1/8" JUNCTION BOX, WIREWAY AND MINIPOWER SUPPLY FOR A COMPLETE OPERATING SYSTEM. ALL WIRES SHALL BE IDENTIFIED. 12" MINIMUM SLACK SHALL BE PROVIDED AT ALL TERMINATIONS.
3. SURFACE MOUNTED CONDUIT OR ARMORED CABLE FROM INTRUSION ALARM TO "WIREWAY" VIA 4" X 4" X 2 1/8" EMBEDDED JUNCTION BOX ARE BY STATION CONTRACTOR.

SINGLE DOOR WITH PANIC BAR DETAIL (TYP) 81

REV	DATE	BY	SUB	APP	DESCRIPTION
2696					
D	4/9/94	AJ	AL	CMC	REVISED PER DE 305-SBCN-11-00
					BASELINE ISSUE

DESIGNED BY A. JIMENEZ
DRAWN BY V. HOANG
CHECKED BY C. ROSENOL
IN CHARGE E. DER-AVAKIAN
DATE 19 APR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

FOR MORE INFORMATION CONTACT: 213-251-1000

12500 WILSON BLVD., SUITE 100, VAN NUYS, CA 91411

CONTRACT NO. _____

SUBMITTED *[Signature]*

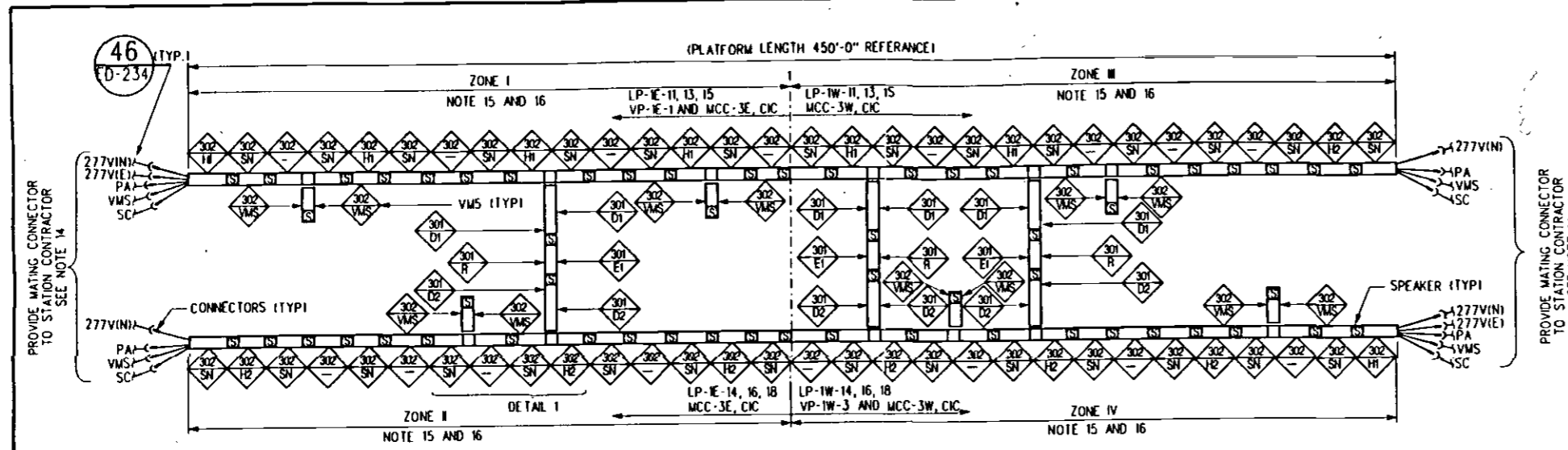
APPROVED *[Signature]*

ELECTRICAL DIRECTIVE

TYPICAL INSTALLATION DETAILS

SHEET 8 OF 8

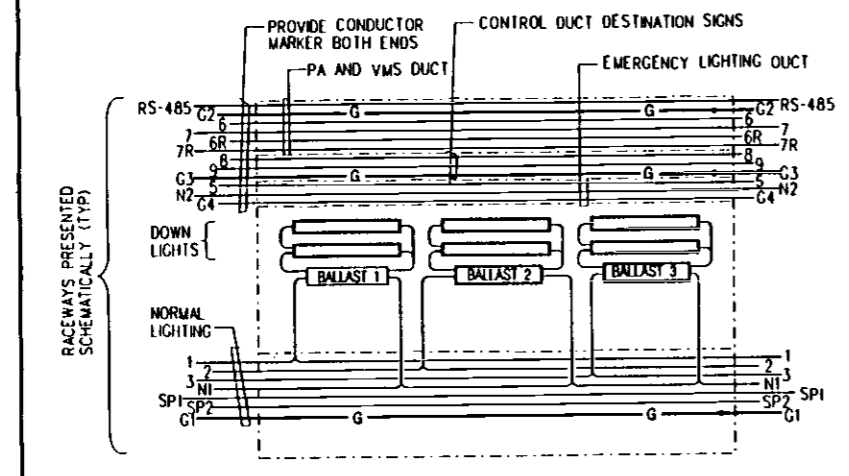
CONTRACT NO.	
DRAWING NO.	ED-238
REV.	1
SCALE	NO SCALE
SHEET NO.	



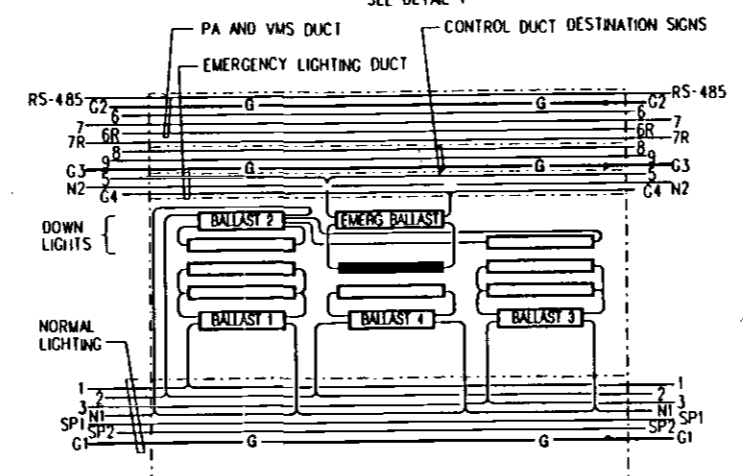
PLATFORM LIGHTING LOADS, WATTS *

ZONE	EDGE LIGHT			EMERG. CIR 5	TOTAL GENERAL
	CIR #1	CIR #2	CIR #3		
I	1845	1710	1350	4905	5695
II	1425	1755	1350	4530	5185
III	1425	1755	1350	4530	5185
IV	2240	1710	1350	5300	6090
GRAND TOTAL					22155

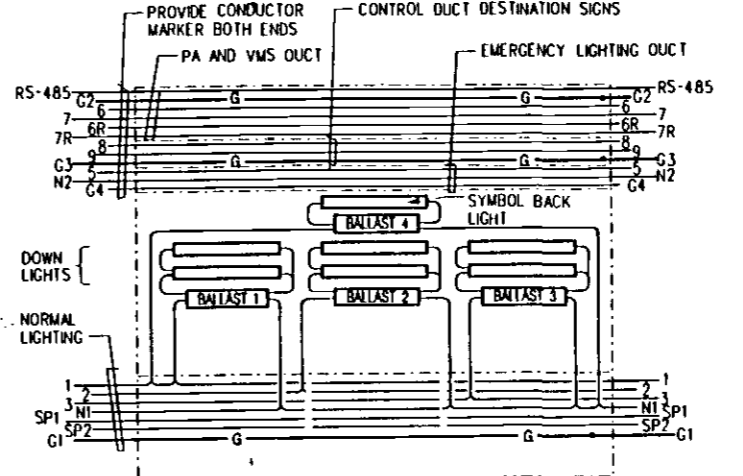
- NOTES:**
- DESTINATION SIGN CONTROL RELAY (CONTACTOR) IS FOR FUTURE CONNECTION TO C/C VIA ADJACENT EDGE-LIGHT CIRCUITRY.
 - ADD TEMPORARY JUMPER TO CONTACTORS.
 - CENTER DOWN-LIGHT TUBE IN CENTER GROUP OF 302-SN FIXTURE TO BE CONNECTED TO SINGLE-TUBE BALLAST CONNECTED TO EMERGENCY LIGHTING CIRCUIT. OTHER BALLAST ARE CONNECTED TO CONDUCTORS 1, 2 AND 3 EQUALIZE LOAD NORMALLY.
 - 2-TUBE BALLASTS (TOTAL 4) TO BE USED IN EACH 301 TRANSVERSE LIGHTING UNIT. 1 BALLAST (FOR INDICATED DOWN LIGHT LAMPS) TO BE CONNECTED TO EMERGENCY LIGHTING CIRCUITS "5". OTHER BALLAST TO BE CONNECTED TO CIRCUIT "1".
 - ALL LAMPS ARE FOR 4 FT FLUORESCENT LAMPS UNLESS INDICATED OTHERWISE.
 - FOR PA WIRING, SEE RELATED COMMUNICATION RISER DIAGRAMS AND SPECIFICATION SECTION 13020.



PRE-WIRED EDGE-LIGHT UNIT

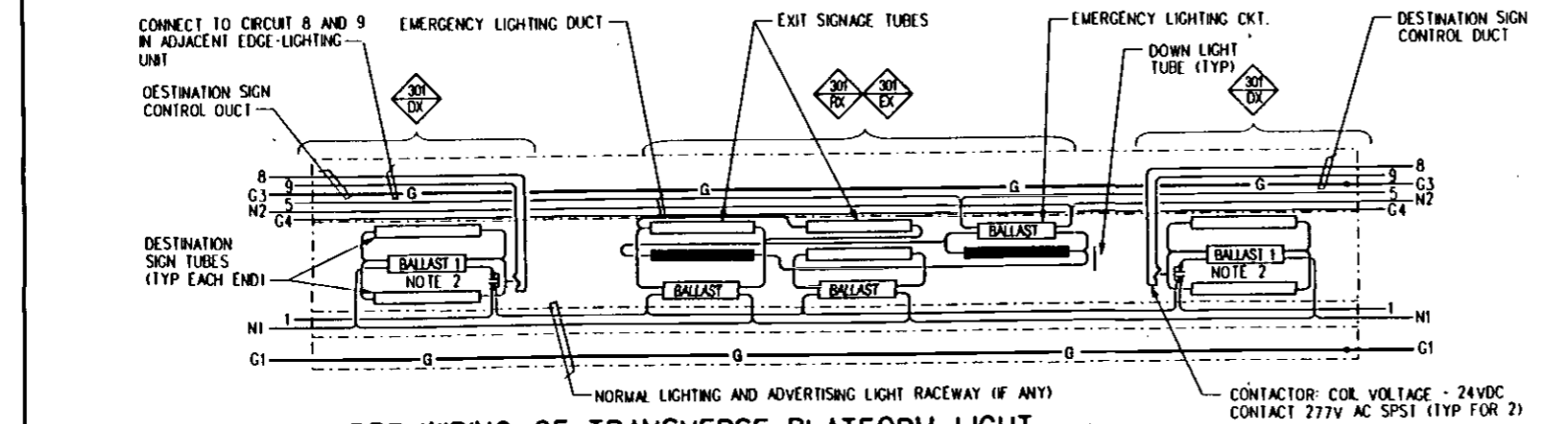


PRE-WIRED EDGE-LIGHT UNIT



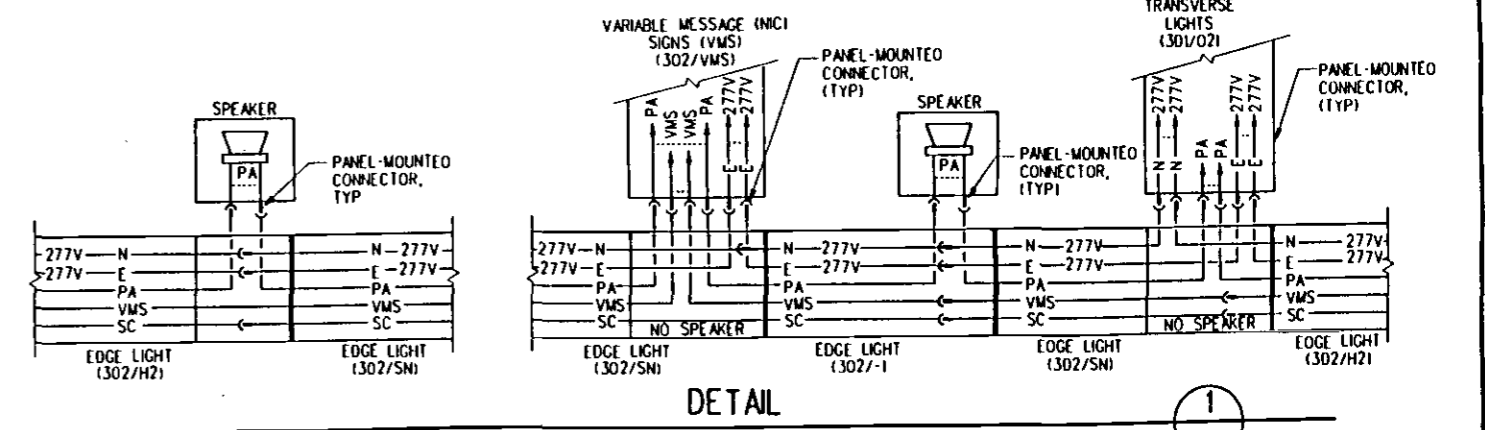
PRE-WIRED EDGE-LIGHT UNIT

- 3 - 2x32W DOWN LIGHTS
- 2 - 2x32W DOWN LIGHTS, 1x32W DOWN LIGHT, 1x32W (TANDEM) STATION SIGN LIGHT
- 3 - 2x32W DOWN LIGHT AND 1-20W SYMBOL SIGN LIGHT, X-REPRESENT ARCH ASSIGNED NUMBER
- 2x32W DESTINATION SIGN LIGHTS
- 2x32W (TANDEM) STATION EXIT SIGN
- 2x32W (TANDEM) NO SMOKING SIGN
- SIGN BAND 201 AND 221 TO BE FED FROM EMERGENCY SOURCE. SIGN BANDS ARE LOCATED IN MEZZANINE LEVEL FOR EXACT LOCATION SEE B761 PLAN DRAWING (NO NORMAL POWER REQUIRED)
- EDGE AND TRANSVERSE PLATFORM LIGHTS ARE FURNISHED BY B761 CONTRACT. INSTALLING, CONNECTION AND TESTING BY STATION CONTRACTOR.
- ALL BALLASTS SHOULD BE ELECTRONIC TYPE. THERE ARE NO RADIO INTERFERENCE TO OTHER DEVICE.
- STATION CONTRACTOR SHALL CAP UNUSED END CONNECTORS. B761 CONTRACTOR TO PROVIDE FEMALE CONNECTORS.
- FOR THE DESIGN TYPE AND MESSAGE CODE IN THE SIGN SYMBOLS, SEE RELATED DRAWING IN CONTRACT B-761. ILLUMINATED SIGNS AND EDGE LIGHTS.
- FOR DETAIL LOCATION OF EDGE LIGHTS, SPEAKER, TRANSVERSE LIGHTS, VARIABLE MESSAGE SIGNS, SEE CONTRACT B761 PLAN DRAWINGS.



PRE-WIRING OF TRANSVERSE PLATFORM LIGHT

- LOCATIONS PER SITE SPECIFIC
- CONDUCTORS:**
- | | | | | |
|-------------------|-------------------|---------------------------|-------------|----------------------------------|
| G1 - GROUND POWER | G4 - GROUND POWER | G2 - GROUND COMMUNICATION | G3 - GROUND | DESTINATION SIGN CONTROL RACEWAY |
| 1 - 277V | 5 - 277V | 6 - 277V | 8 - 277V | |
| 2 - 277V | N2 - NEUTRAL | 7 - 277V | 9 - 277V | |
| 3 - 277V | | 6R - PA AND VMS RACEWAY | | |
| N1 - NEUTRAL | | 7R - PA AND VMS RACEWAY | | |
| SP1 - 277V | | RS 485 | | |
| SP2 - NEUTRAL | | | | |



TYPICAL INTERCONNECTION DIAGRAMS FOR EDGE LIGHTS, TRANSVERSE LIGHTS, SPEAKERS (PA), VARIABLE MESSAGE SIGNS (VMS) AND EMERGENCY STROBE LIGHT

- LEGEND**
- MALE CONNECTOR
 - FEMALE CONNECTOR
 - N - NORMAL LIGHTING
 - E - EMERGENCY LIGHTING
 - SC - SIGN CONTROL
 - INDICATES SIGNAL AND POWER ARE ROUTED THROUGH THE UNIT. UNIT IS OPERATING IN A PARALLEL CIRCUIT.

REV	DATE	BY	SUB	APP	DESCRIPTION

DESIGNED BY: P. YU
 DRAWN BY: B. H. CHAMBERS
 CHECKED BY: C. ROBINIOL
 IN CHARGE: A. H. LAWSON
 DATE: 19 APR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

SUBMITTED: [Signature]

APPROVED: [Signature]

ELECTRICAL DIRECTIVE

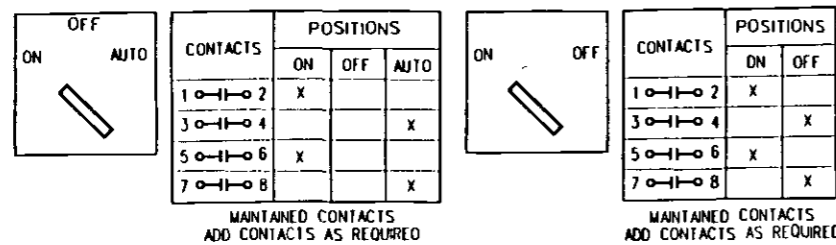
ELECTRICAL EDGE LIGHT DETAILS

CONTRACT NO. []

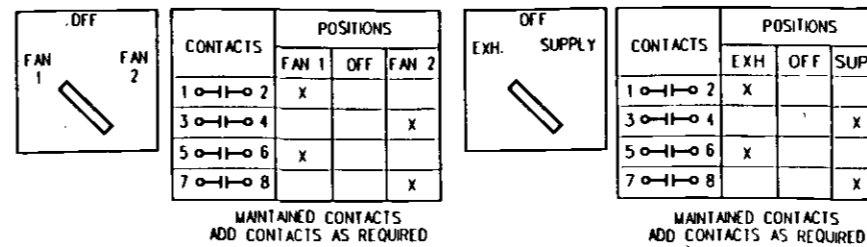
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SCALE: NO SCALE

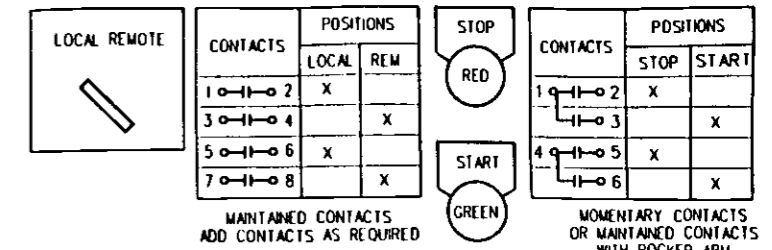
SHEET NO. []



A. CONTROL SWITCH - CS, CS/TEST

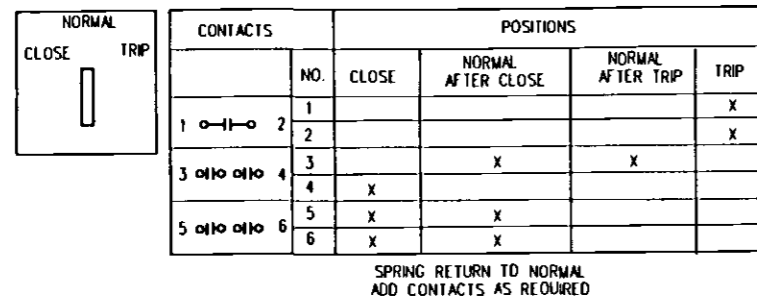


B. SELECTOR SWITCH - SS

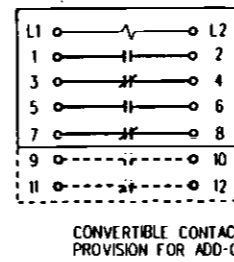


C. PERMISSIVE SWITCH-69

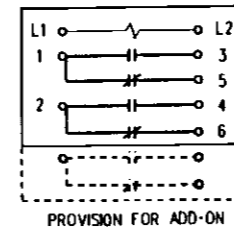
D. PUSH BUTTON STATION (NIC)



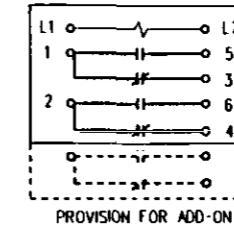
E. SWBD CIRCUIT BREAKER CONTROL SWITCH - CS



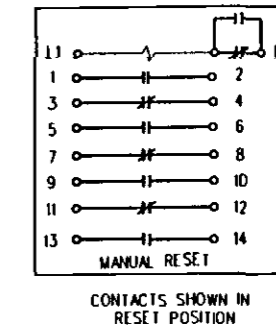
F. AUX RELAY 3X, 74, 27



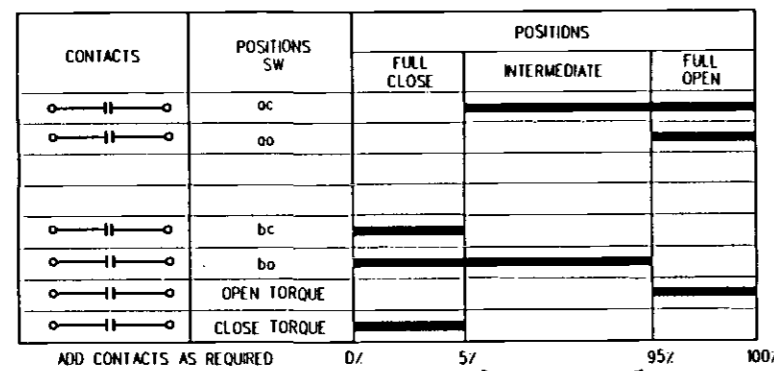
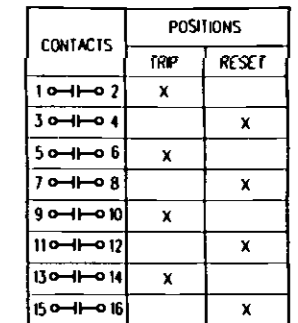
G. TIME DELAY RELAY-62 /TDD



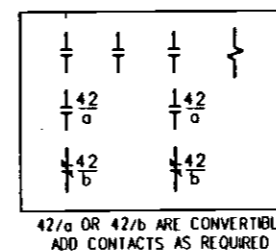
H. TIME DELAY RELAY-62 / TDE



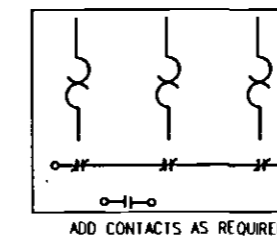
J. LOCKOUT RELAY-86



K. TORQUE SWITCH - TS



MAGNETIC MOTOR STARTER-42



THERMAL OVERLOAD RELAY-49

TERM. NO.	FOR
Y	277V POWER SUPPLY
X1	120V FROM CONTROL TRANSFORMER
X, X1, X2, ...	120V FROM OUTSIDE POWER SUPPLIES
U	GROUNDING NEUTRAL
1	MANUAL SIGNAL
2	AUTO SIGNAL
3	INTERLOCK OR AUXILIARY SIGNAL
4	STARTER COIL
5	RED LIGHT
6	GREEN LIGHT
7	WHITE LIGHT
8	BLUE LIGHT
9	HEATER
10	ALARM RELAY COIL

MCC TERMINAL NO. DESIGNATION

- R - RED - OPERATING, FLOWING, INCREASING CONDITION, DAMPER OPEN, ROLL-UP DOOR CLOSE
- G - GREEN - HOT OPERATING, NOT FLOWING, DECREASING CONDITION, DAMPER CLOSE, ROLL-UP DOOR OPEN
- A - AMBER - AUTOMATIC STANDBY
- W - WHITE - SYSTEM TROUBLE
- B - BLUE - SPECIAL CONDITION
- C - CLEAR - CONTROL POWER AVAILABLE

PILOT LIGHT DESIGNATION

NOTES:

- FOR SCHEMATIC DIAGRAM SYMBOLS, SEE DWG ED-151.
- ALL DEVICES AND TERMINAL BLOCKS SHOWN ON ELEMENTARY DIAGRAMS ARE LOCATED IN MCC, UNLESS OTHERWISE NOTED.
- PARALLEL SWITCH CONTACTS AND INDICATING LIGHT CIRCUITS AT MCC TO LOCAL CONTROL STATION, WHEN REQUIRED, TYPICAL TO ALL DIAGRAMS.

REV	DATE	BY	SUB	APP	DESCRIPTION
0	3 4 94	CY	AHL	GMC	REVISED AND REDRAWN PER DCN 91-15

DESIGNED BY
C. YU
DRAWN BY
V. HOANG
CHECKED BY
C. ROSENOL
IN CHARGE
A. LAWSON
DATE
4 MAR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

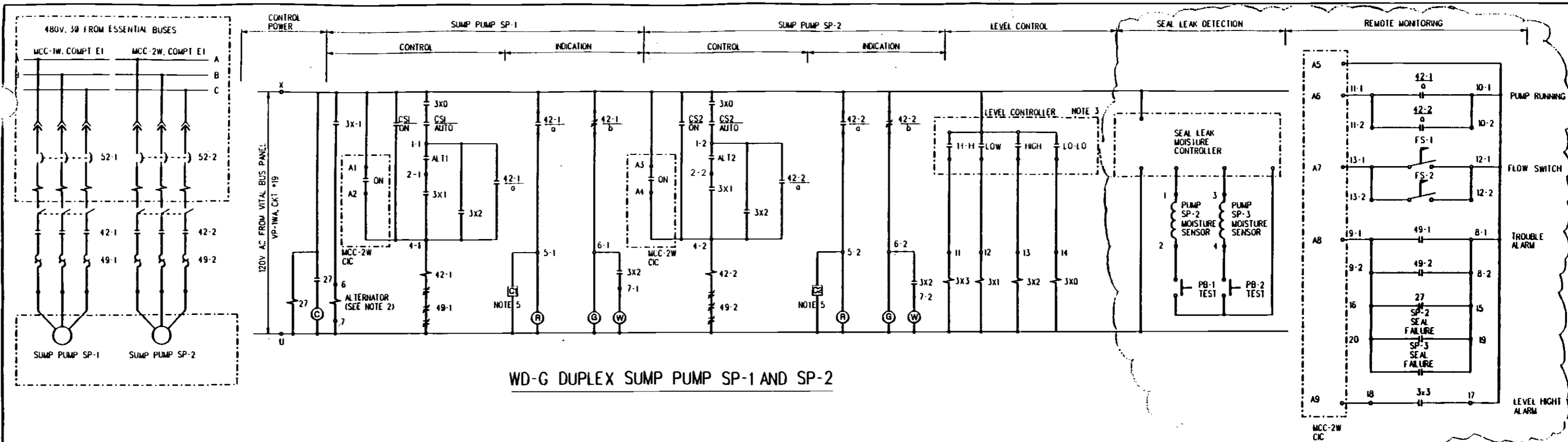
ENGINEERING MANAGEMENT CONSULTANT

FOR MORE INFORMATION, CONTACT: *A. Lawson*

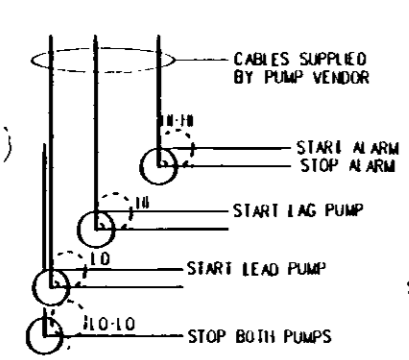
APPROVED: *A. Lawson*

ELECTRICAL DIRECTIVE
ELEMENTARY WIRING DIAGRAMS
SHEET 1 OF 18

CONTRACT NO.	
DRAWING NO.	ED-241
REV	0
SCALE	NO SCALE
SHEET NO.	

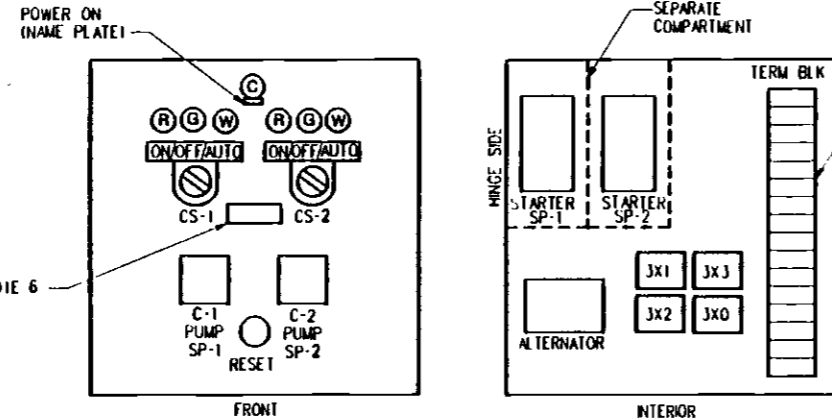


WD-G DUPLEX SUMP PUMP SP-1 AND SP-2



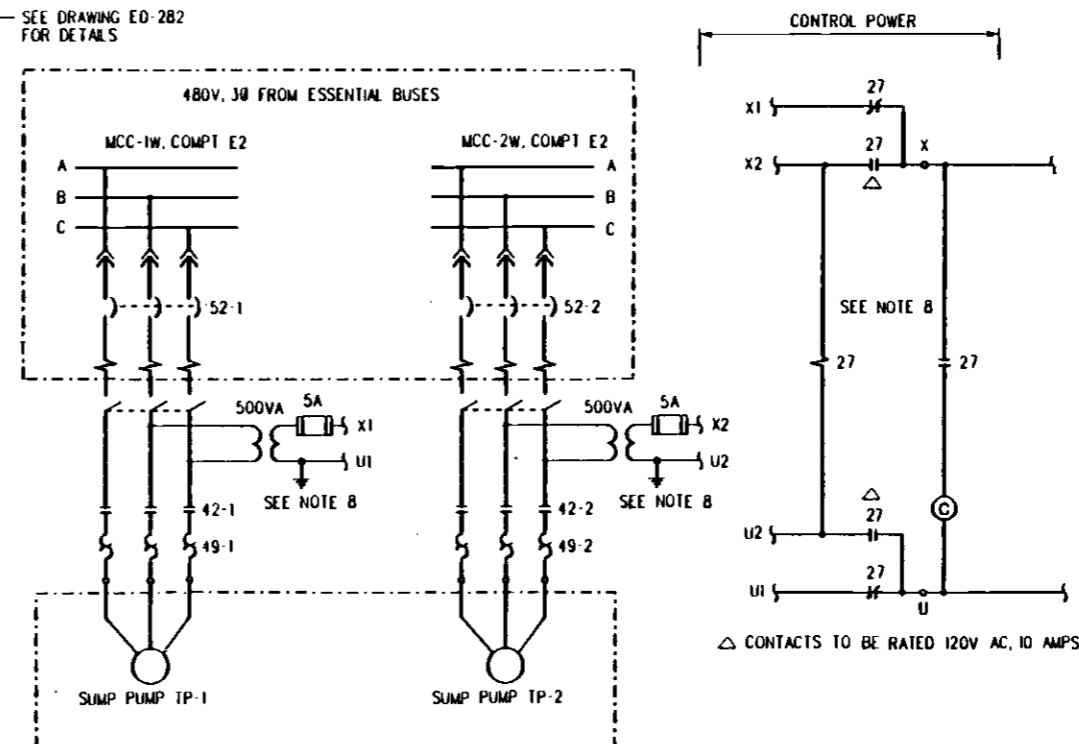
LEVEL CONTROL

NOTE:
MOUNT LEVEL SENSOR AWAY FROM PUMP SUCTION TO AVOID FALSE ACTUATION DUE TO WATER SURGES.



DUPLEX SUMP PUMP CONTROL PANEL

ALTERNATOR CONTACT ARRANGEMENT			
WATER LEVEL AT	RELAY	ALT 1 CONTACTS 1-1, 2-1	ALT 2 CONTACTS 1-2, 2-2
LO-LO	DE-ENERGIZED		
LO	ENERGIZED	X	
LO-H	DE-ENERGIZED		
H	ENERGIZED		X



WD-G1 TUNNEL DUPLEX SUMP PUMP TP-1 AND TP-2 CONTROL POWER

NOTES:

- ALL DEVICES ARE LOCATED IN THE PUMP CONTROL PANEL EXCEPT FLOW AND LEVEL SENSORS. ALL STARTER COMPONENTS INCLUDING RELAYS, AUXILIARY CONTACTS, FUSED DISCONNECT SWITCHES, ETC., ALSO LOCATED IN THE CONTROL PANEL. STARTERS LOCATED IN THE CONTROL PANEL SHALL BE COMPARTMENTIZED IN SUCH A WAY THAT THE CONTROL PANEL CAN BE SAFELY OPENED WHILE ONE PUMP IS ON STAND-BY OR CAN BE STARTED AT ANY TIME.
- CONTACTS ALT-1 AND ALT-2 CLOSE ALTERNATELY ON SUCCESSIVE ENERGIZATION OF ELECTRIC-ALTERNATOR. CONTRACTOR IS RESPONSIBLE FOR MODIFICATION OF ANY SUBSTITUTED ALTERNATOR TO FUNCTION PROPERLY.
- A SOLIDSTATE TYPE LEVEL CONTROLLER SHALL BE FURNISHED.
- ALL VOLTAGE LEVELS IN THE CABINET SHALL BE CLEARLY IDENTIFIED WITH PERMANENT COLORED TAGS. NO TWO VOLTAGE TAGS SHALL HAVE THE SAME COLOR.
- C1 AND C2 ARE COUNTERS OR ELAPSE TIMERS.
- ADD WARNING NAMEPLATE AT FRONT COVER TO READ "CAUTION - THIS PANEL CONTAINS MORE THAN ONE POWER SOURCE."
- PROVIDE NAME PLATE STATION SUMP PUMPS SP-1 AND SP-2
- FOR TUNNEL DUPLEX SUMP PUMPS AND WHEN 120V AC CONTROL POWER IS NOT AVAILABLE FROM THE UPS, TWO SEPARATE 500VA CONTROL TRANSFORMERS ARE REQUIRED TO BE MOUNTED IN DUPLEX SUMP PUMP CONTROL PANEL AND WIRED AS SHOWN IN WD-G1.

REV	DATE	BY	CHKD	APP	DESCRIPTION
1	8/30/95	AN	CYC		REVISED AND RESEALED PER DE VOS SHEET 500
2	4/7/94	CY	AN	CYC	REVISED AND REDRAWN PER DCN 91-19 8007 92 48

DESIGNED BY
C. YU
DRAWN BY
V. HOANG
CHECKED BY
C. ROBINOL
IN CHARGE
E. DER AVAKIAN
DATE
7 APR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

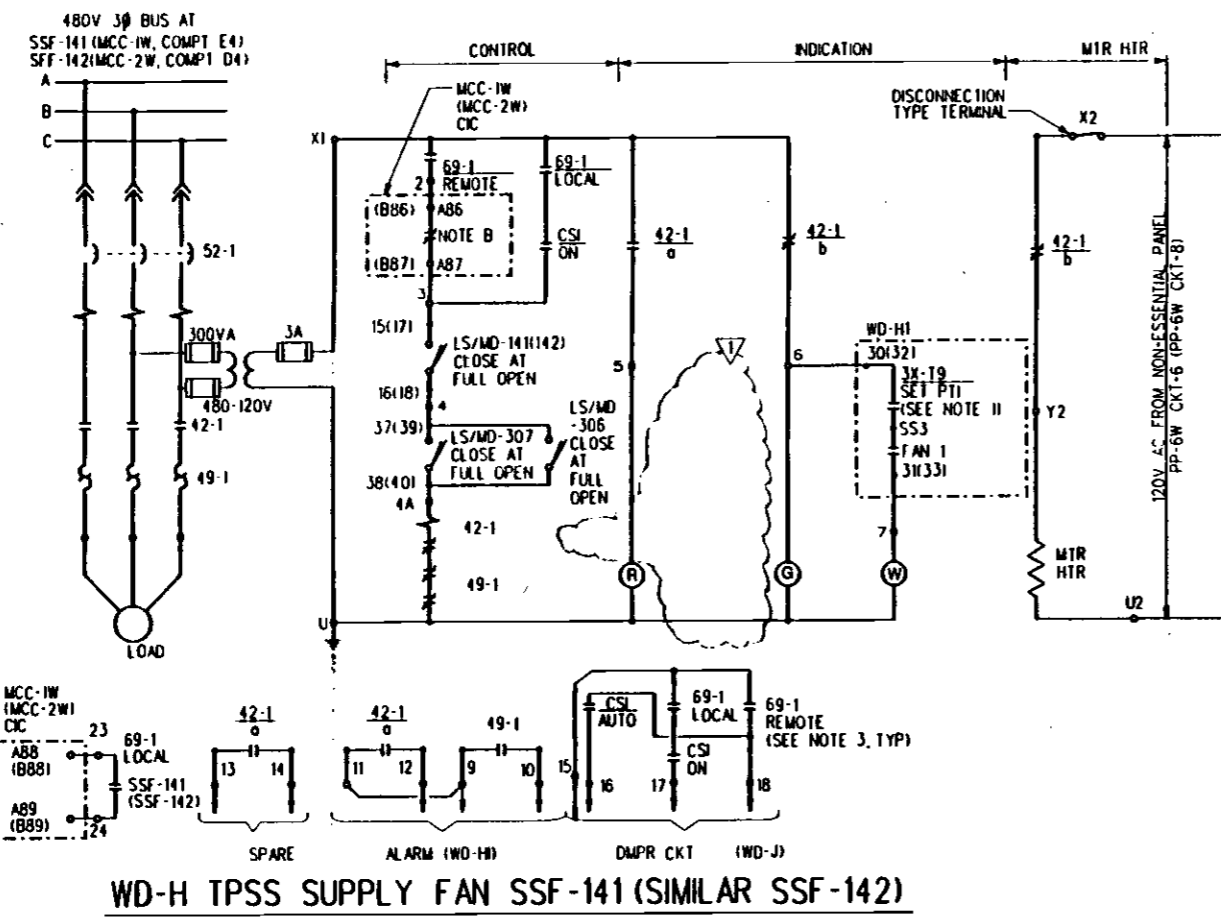
ENGINEERING MANAGEMENT CONSULTANT

Submitted: *Edward M. ...*

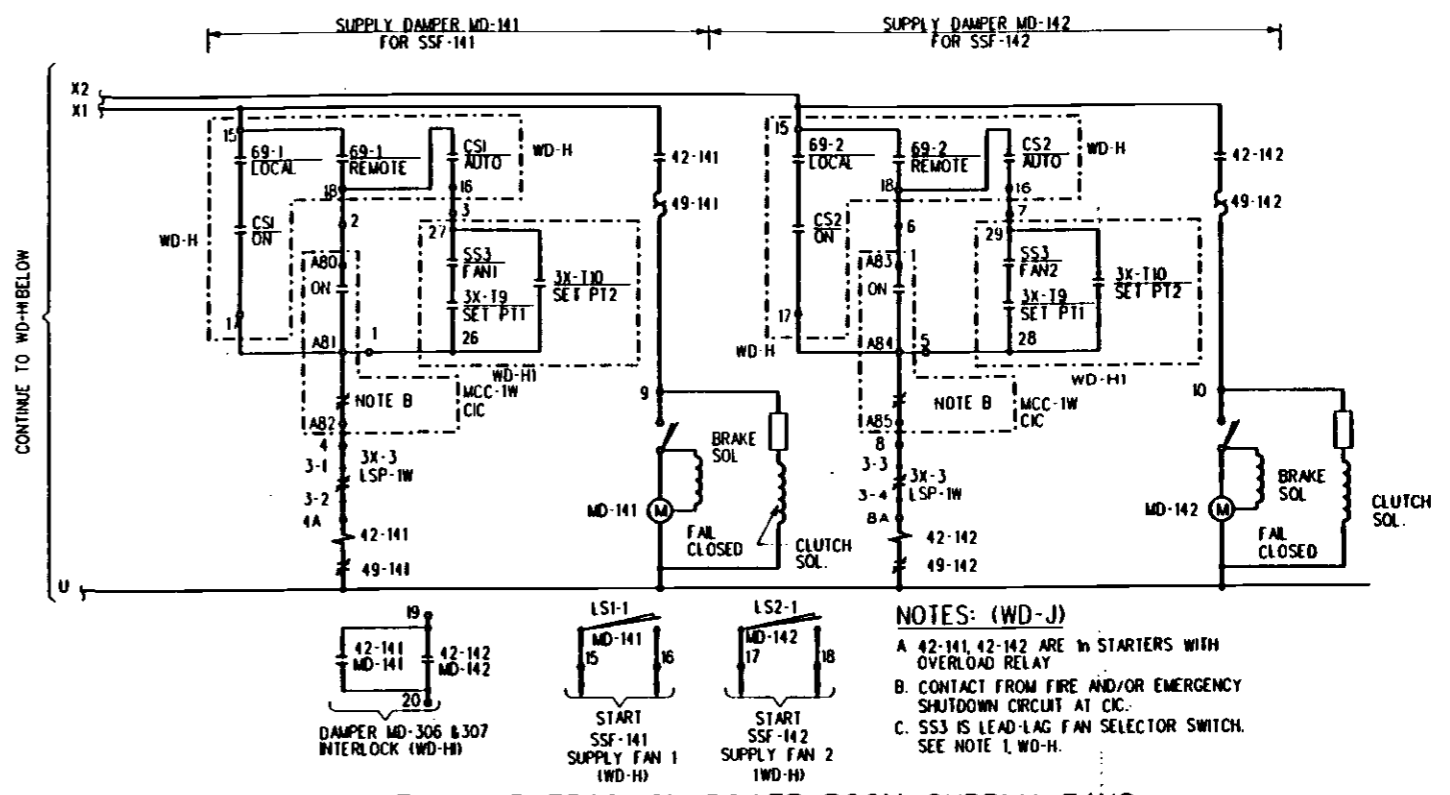
Approved: *[Signature]*

ELECTRICAL DIRECTIVE
ELEMENTARY WIRING DIAGRAMS
SHEET 2 OF 18

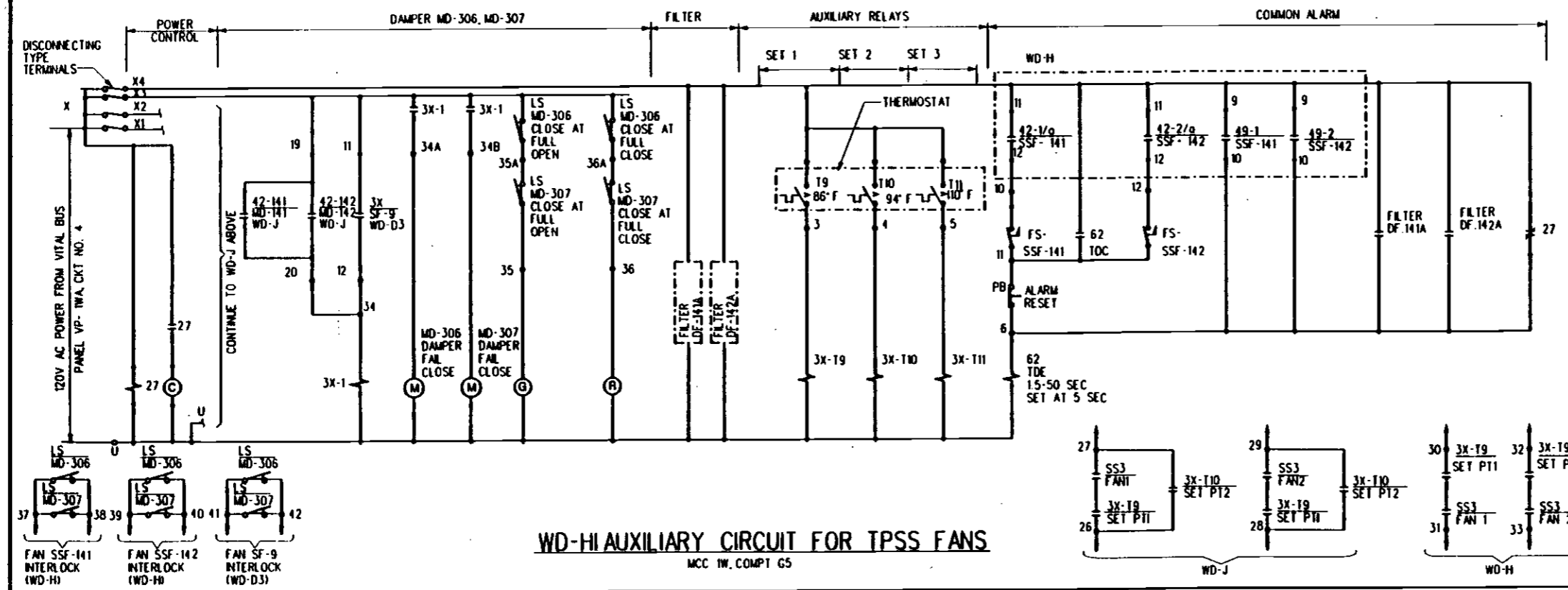
CONTRACT NO	
DRAWING NO	ED-242
REV	1
SCALE	NO SCALE
SHEET NO	



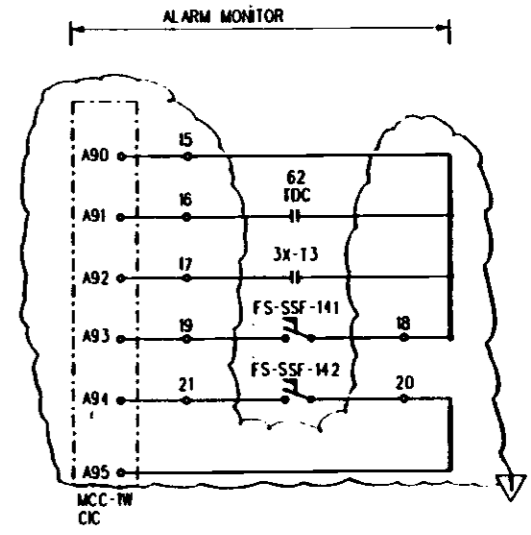
WD-H TPSS SUPPLY FAN SSF-141 (SIMILAR SSF-142)



WD-J SUPPLY DAMPERS FOR TRACTION POWER ROOM SUPPLY FANS TWO-1 PHASE STARTERS IN THE SAME COMPARTMENT (MCC-1W COMPT. G1)



WD-HI AUXILIARY CIRCUIT FOR TPSS FANS



- NOTES:
- 3X-19, 3X-110, 3X-111, 27, 62, PB AND SS3 ARE LOCATED IN AUXILIARY RELAY COMPARTMENT G5 AT MCC-1W, SS3 IS THE LEAD-LAG SELECTOR SWITCH FAN 1 (SSF-141) FAN 2 (SSF-142)
 - FS (SSF-141) AND FS (SSF-142) ARE FLOW SWITCHES AT SUPPLY DUCTS.
 - CS1, 69-1 & CS-2, 69-2 SWITCHES ARE LOCATED IN SSF-141 AND SSF-142 COMPARTMENTS RESPECTIVELY.

REV	DATE	BY	SUB	APP	DESCRIPTION
0	18 JUN 94	CY	AL	GMC	BASELINE ISSUE
1	26 JUN 94	LY	AL	GMC	REVISED PER DE 305-SBCN-1100

DESIGNED BY
C. YU
DRAWN BY
V. HOANG
CHECKED BY
C. ROBINOL
IN CHARGE
E. DER-AVAKIAN
DATE
19 APR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

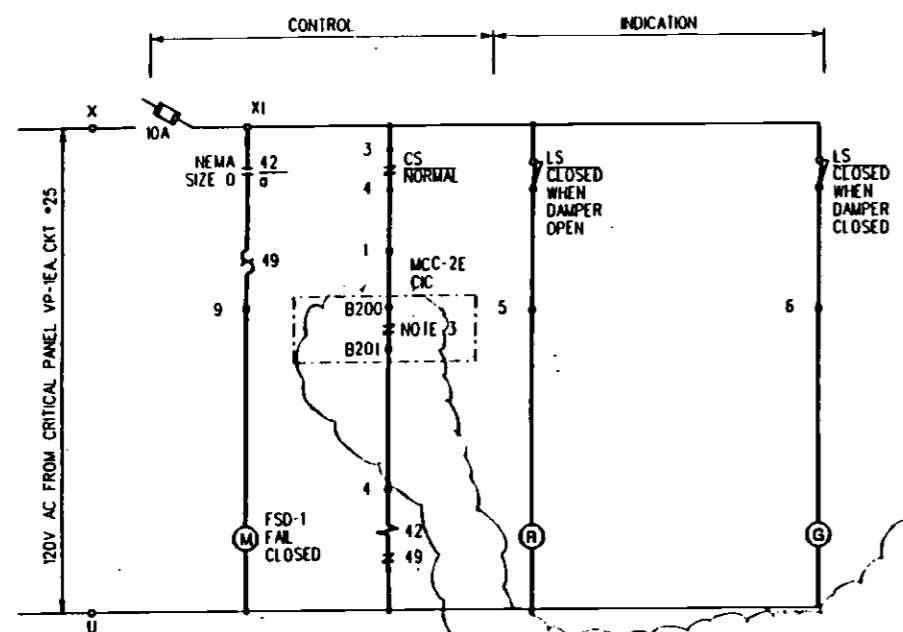
Submitted: *Edward J. ...*
Approved: *[Signature]*

ELECTRICAL DIRECTIVE

ELEMENTARY WIRING DIAGRAMS

SHEET 3 OF 18

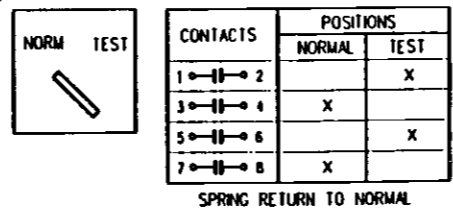
CONTRACT NO.	
DRAWING NO.	ED-243
REV.	1
SCALE	NO SCALE
SHEET NO.	



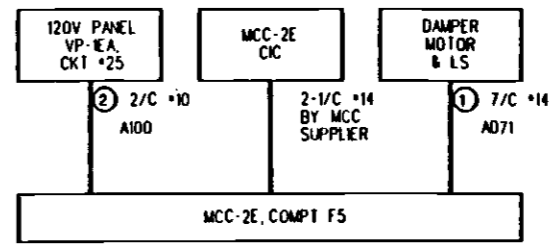
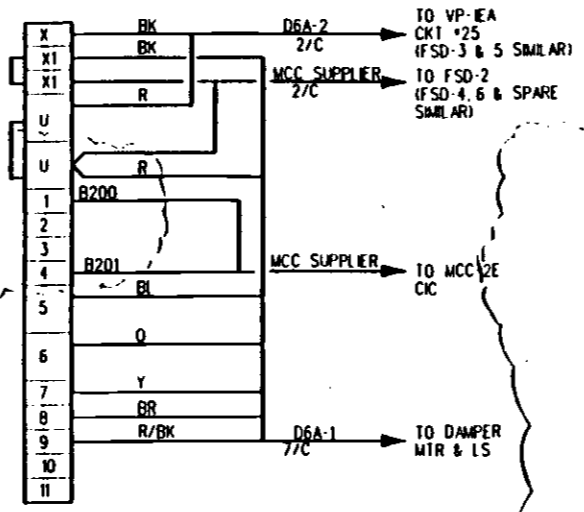
WD-D6
FIRE SMOKE DAMPER FSD-1
 (SEE ADAPTER TABLE FOR OTHERS)

TYPICAL CONNECTION DIAGRAM
FIRE SMOKE DAMPER FSD-1
 (SEE ADAPTER TABLE FOR OTHERS)

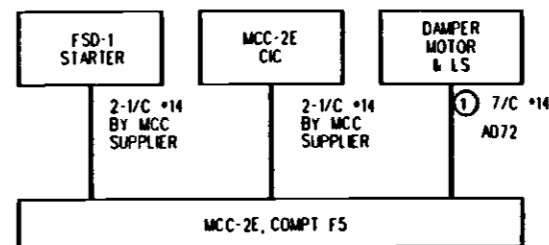
ADAPTER TABLE					
DAMPER NO	120V PANEL	CKT. NO.	CIC (REMOTE)		MCC COMPT
			NUMBER	CONTROL	
FSD-1	VP-IEA	25	MCC-2E, CIC	B200 B201	MCC-2E, F5
FSD-2	VP-IEA	25	MCC-2E, CIC	B202 B203	MCC-2E, F5
FSD-3	VP-1WA	25	MCC-2W, CIC	B204 B205	MCC-2W, G1
FSD-4	VP-1WA	25	MCC-2W, CIC	B206 B207	MCC-2W, G1
WIRE NO.			1	4	



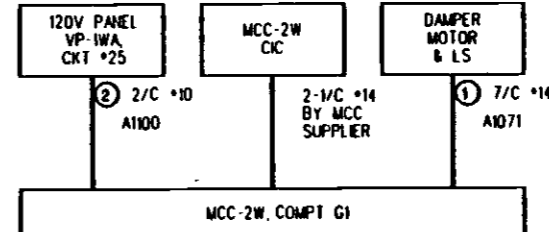
CONTROL SWITCH - CS
 TYPICAL FOR FIRE/SMOKE DAMPER CONTROL



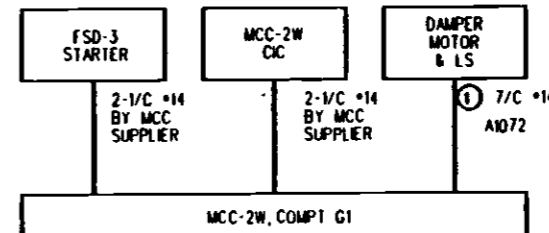
WD-D6A
FIRE SMOKE DAMPER FSD-1



WD-D6B
FIRE SMOKE DAMPER FSD-2



WD-D6C
FIRE SMOKE DAMPER FSD-3



WD-D6D
FIRE SMOKE DAMPER FSD-4

- NOTES:**
- 1 FIRE SMOKE DAMPERS ARE FOR THE SEGREGATION OF AIR FROM DIFFERENT FIRE ZONES ONLY, SEE MECHANICAL CONTROL DIAGRAMS.
 - 2 ALL DEVICES ARE LOCATED AT MCC UNLESS OTHERWISE NOTED.
 - 3 CONTACT FROM FIRE AND/OR EMERGENCY SHUTDOWN CIRCUIT AT CIC.

REV	DATE	BY	SUB	APP	DESCRIPTION
0	3/4/94	CY	AHL	GMC	REVISED AND REDRAWN PER DCN 91-19
1	3/4/94	CY	AHL	GMC	REVISED PER DE 305-SBCN-11 00

DESIGNED BY
C. YU
 DRAWN BY
V. HOANG
 CHECKED BY
C. ROBINIOL
 IN CHARGE
E. DER-AVAKIAN
 DATE
4 MAR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

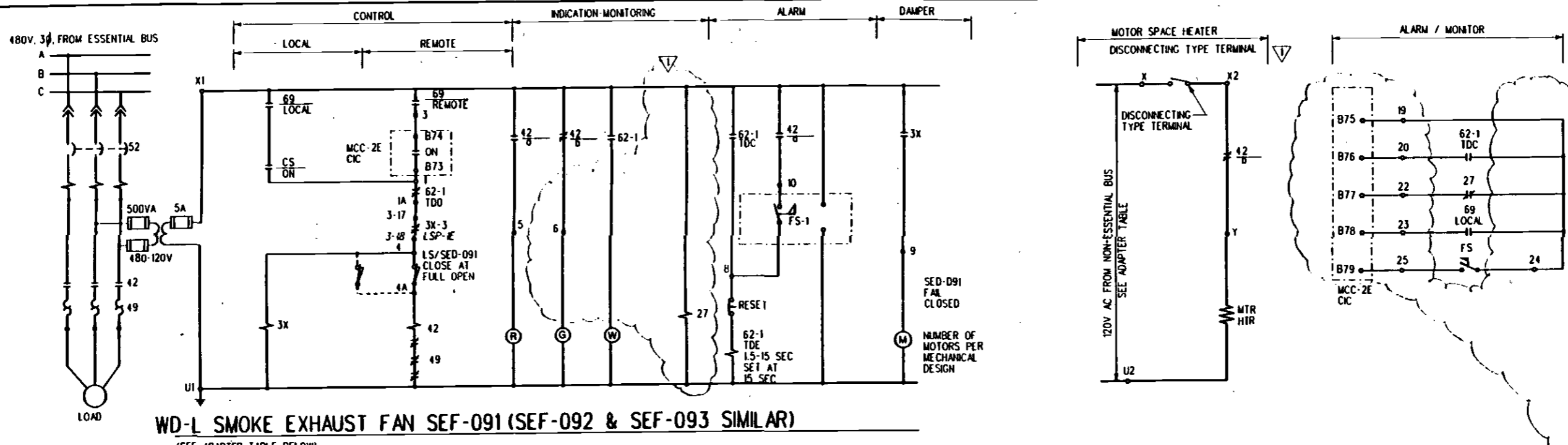
ENGINEERING MANAGEMENT CONSULTANT

FOR MORE INFORMATION CONTACT: 800-451-7272
 2700 Wilshire Blvd., Suite 1000, Los Angeles, CA 90010
 (213) 473-1000

SUBMITTED: *Edward A. ...*
 APPROVED: *[Signature]*

ELECTRICAL DIRECTIVE
ELEMENTARY WIRING DIAGRAMS
SHEET 4 OF 18

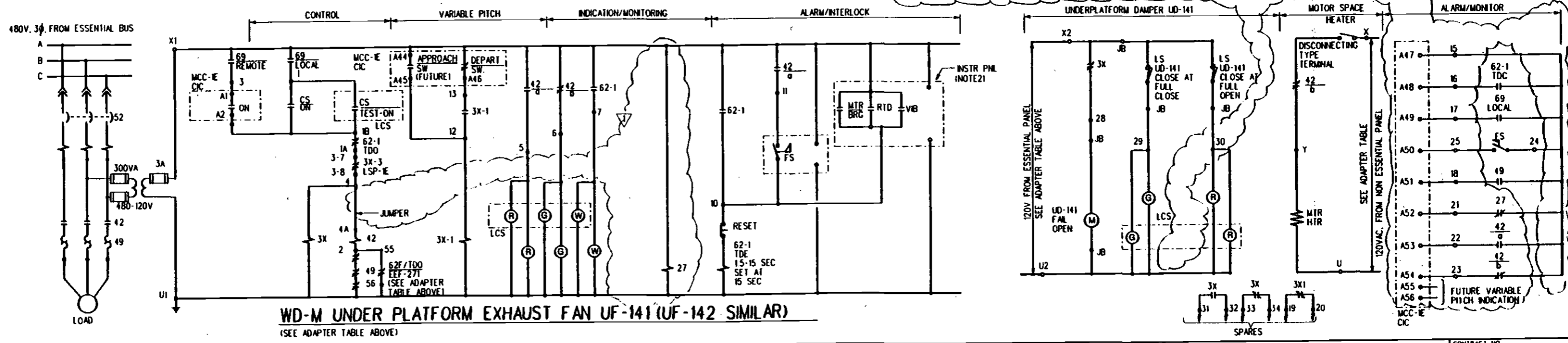
CONTRACT NO.	
DRAWING NO.	ED-244
SCALE	NO SCALE
SHEET NO.	1



WD-L SMOKE EXHAUST FAN SEF-091 (SEF-092 & SEF-093 SIMILAR)
(SEE ADAPTER TABLE BELOW)

- NOTES:**
1. ALL DEVICES ARE LOCATED IN MCC UNLESS OTHERWISE INDICATED.
 2. INSTRUMENT PANEL SUPPLIED AND INSTALLED BY FAN VENDOR.

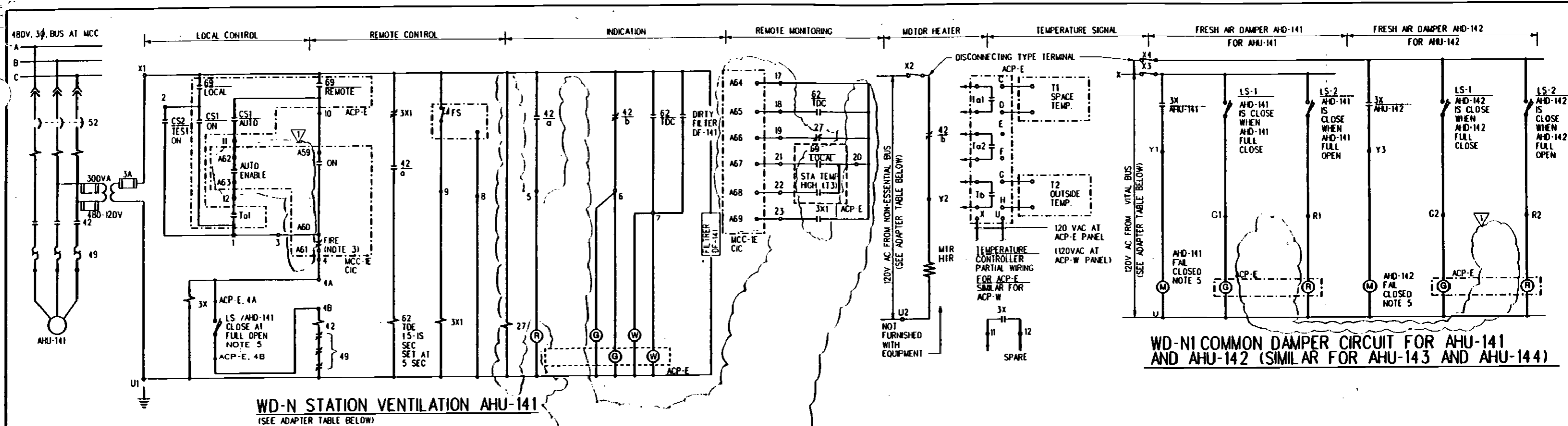
TYPE	FAN	AREA	W/D	480V PWR		120V HTR CKT		INTERLOCK DAMPER		120V DMPR CKT		EMERG OVRDR	LOAD SHED INTERLOCK FOR EBPS		LOAD SHED PANEL TERMINAL		VARIABLE PITCH		CIC		CONNECTION AT CIC																	
				MCC	COMPT	PANEL	CKT	PANEL	CKT	LSP-E	3-17		3-18	PROVIDED	DIAG	MCC	COMPT	CONTROL			INDICATION		ALARM / MONITOR															
				B73	B74	B75	B76	B77	B78	B79																												
SMOKE EXHAUST	SEF-091	EAST	WD-L	2E	E4	PP-6E	7	SED-091	-	-	-	LSP-E	3-17	3-18	NO	-	2E	CIC	B73	B74	B75	B76	B77	B78	B79													
	SEF-092	WEST	WD-L	2W	E4	PP-6W	7	SED-092	-	-	-	LSP-TW	3-17	3-18	NO	-	2W	CIC	B73	B74	B75	B76	B77	B78	B79													
	SEF-093	ENTR	WD-L	2W	B5	PP-6W	11	SED-093	-	-	-	LSP-TW	3-21	3-22	NO	-	2W	CIC	A161	A162	A163	A164	A165	A166	A167													
UNDER PLATFORM	UF-141	EAST	WD-M	E	C3	PP-6E	5	UD-141	PP-E	2	EEF-271	LSP-E	3-7	3-8	YES	FUTURE	E	CIC	A44	A42	A43	A45	A46	A47	A48	A49	A51	A52	A53	A54	A50							
	UF-142	WEST	WD-M	W	D4	PP-6W	5	UD-142	PP-TW	2	EEF-281	LSP-TW	3-7	3-8	YES	FUTURE	W	CIC	A44	A42	A43	A45	A46	A47	A48	A49	A51	A52	A53	A54	A50							
WIRE NO.																				X1	1	18	3	12	13	15	16	17	18	19	20	21	22	23	24	25		



WD-M UNDER PLATFORM EXHAUST FAN UF-141 (UF-142 SIMILAR)
(SEE ADAPTER TABLE ABOVE)

DESIGNED BY C. YU												LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY												CONTRACT NO.											
DRAWN BY V. HOANG												ENGINEERING MANAGEMENT CONSULTANT												DRAWING NO ED-245											
CHECKED BY C. ROBINOL												REVISOR E. DER-AVAKIAN												REV 1											
IN CHARGE E. DER-AVAKIAN												DATE 4 MAR 94												SCALE NO SCALE											
REVISED PER DE 305-SBON-11 00												REVISIONS												SHEET NO											
REVISED AND REDRAWN PER DCN 91-19												DESCRIPTION																							

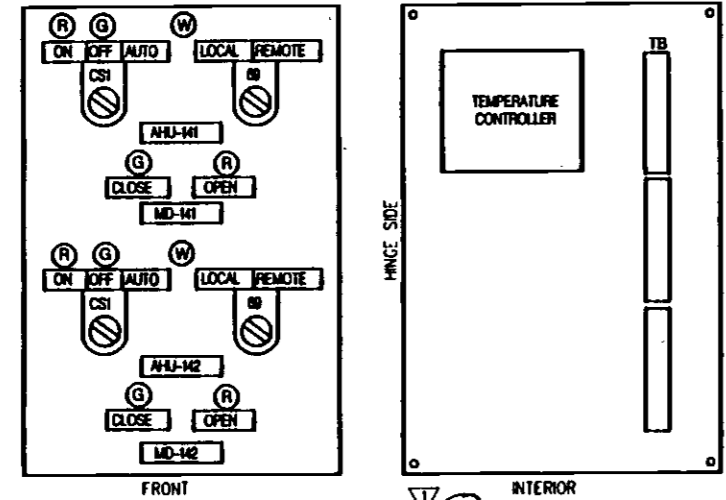
ELECTRICAL DIRECTIVE
ELEMENTARY WIRING DIAGRAMS
SHEET 5 OF 18



WD-N STATION VENTILATION AHU-141
(SEE ADAPTER TABLE BELOW)

WD-N1 COMMON DAMPER CIRCUIT FOR AHU-141 AND AHU-142 (SIMILAR FOR AHU-143 AND AHU-144)

AREA SERVED	EQUIP NO	480V PWR		120V HTR CKT		FRESH AIR DAMPER	TEMP CONT AT ACP CONTACT	THERMOSTAT	DIRTY FILTER SW	LOCAL CONTROL PANEL	CONNECTIONS AT CIC										DMPR CONTROL					
		MCC	COMP	PANEL	CIC						MCC	COMP	CONTROL						MONITOR				PNL	CKT		
		A59	A60	A61	A62						A63	A64	A65	A66	A67	A68	A69	B67	B68	B69	VP-EA	6				
EAST	AHU-141	E	A2	PP-6E	2	AHD-141	Ta1	T1	T2	DF-141	ACP-E	E	CIC	A59	A60	A61	A62	A63	A64	A65	A66	A67	A68	A69	VP-EA	6
	AHU-142	2E	A2	PP-6E	4	AHD-142	Ta2	T1	T2	DE-142	ACP-E	2E	CIC	B59	B60	B61	B62	B63	B64	B65	B66	B67	B68	B69	VP-EA	6
WEST	AHU-143	1W	A2	PP-6W	2	AHD-143	Ta1	T1	T2	DF-143	ACP-W	1W	CIC	A59	A60	A61	A62	A63	A64	A65	A66	A67	A68	A69	VP-EA	6
	AHU-144	2W	A2	PP-6W	4	AHD-144	Ta2	T1	T2	DF-144	ACP-W	2W	CIC	B59	B60	B61	B62	B63	B64	B65	B66	B67	B68	B69	VP-EA	6
WIRE NO.		10	3	4				11	12	17	18	19	20	21	22	23										



WD-N ACP-E DETAIL (FOR AHU-141 AND AHU-142)
ACP-W SIMILAR (FOR AHU-143 AND AHU-144)

- NOTES:
1. ALL DEVICES ARE LOCATED IN MCC FOR WD-N AND IN ACP FOR WD-N1, UNLESS INDICATED OTHERWISE.
 2. FILTER SWITCH DAMPER ACTUATORS, LIMIT SWITCHES ARE SUPPLIED WITH AIR HANDLING UNIT.
 3. CONTACT FROM FIRE AND/OR EMERGENCY SHUT DOWN CIRCUIT, VIA CIC.
 4. Ta1 IS INTERLOCKED WITH AHU-141. Ta2 IS INTERLOCKED WITH AHU-142.
 5. NUMBER OF MOTORS AND LIMIT SWITCH AT EACH DAMPER PER MECHANICAL DESIGN.
 6. ADJUST MOTOR ACTUATOR TO FULLY CLOSED AFTER 15 SECONDS.

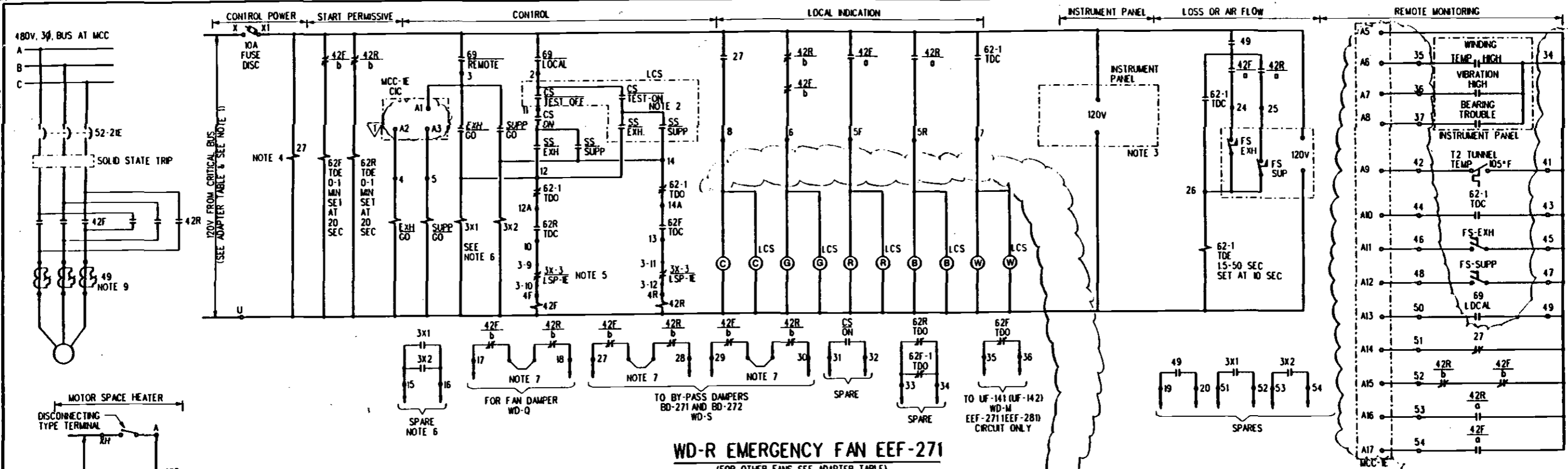
REV	DATE	BY	SUB	APP	DESCRIPTION
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1					REVISED AND REORAWN PER DCN 91-19

DESIGNED BY: C. YU
 DRAWN BY: V. HOANG
 CHECKED BY: C. ROBINOL
 IN CHARGE: E. DER-AVAKIAN
 DATE: 4 MAR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY
 ENGINEERING MANAGEMENT CONSULTANT
 SUBMITTED: [Signature]
 APPROVED: [Signature]

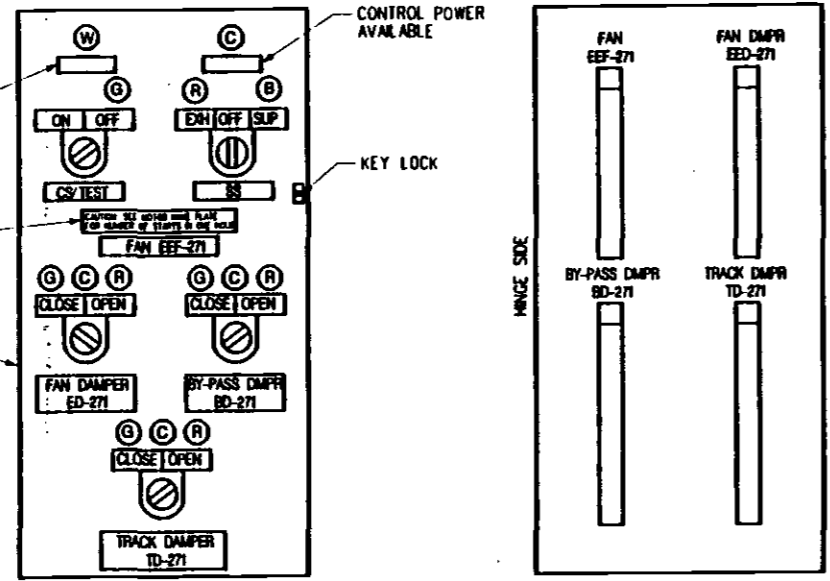
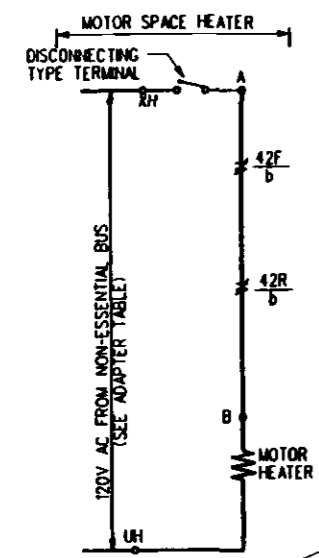
ELECTRICAL DIRECTIVE
 ELEMENTARY WIRING DIAGRAMS
 SHEET 6 OF 18

CONTRACT NO:
 DRAWING NO: ED-246
 SCALE: NO SCALE
 SHEET NO:



WD-R EMERGENCY FAN EEF-271
(FOR OTHER FANS SEE ADAPTER TABLE)

EQUIPMENT NO	HP	480V BREAKER	480V STARTER		480V CONT. PH. AT STARTER	120VAC MTR SP HEAT	INTERLOCK W/FAN	LOAD SHED				CIC		TERMINAL AT CIC																		
			MCC	COMPT				ROOM	PANEL	CKT	PANEL	CKT NO	MCC	COMPT	MONITORING / ALARM AT OCC																	
																	CONTROL															
EEF-271	200	52-2IE	IE	G1	EAST AUX PWR RM	VP-EA	8	PP-GE	1	UF-141	3-9	3-10	3-11	3-12	IE	CIC	A1	A2	A3	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17
EEF-272	200	52-2ZE	ZE	G1	EAST AUX PWR RM	VP-EA	10	PP-GE	3	-	3-13	3-14	3-15	3-16	ZE	CIC	B1	B2	B3	B5	B6	B7	B8	-	B10	B11	B12	B13	B14	B15	B16	B17
EEF-281	200	52-2IW	IW	H1	WEST AUX POWER RM	VP-IWA	8	PP-6W	1	UF-142	3-9	3-10	3-11	3-12	IW	CIC	A1	A2	A3	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17
EEF-282	200	52-2ZW	ZW	H1	WEST AUX POWER RM	VP-IWA	10	PP-6W	3	-	3-13	3-14	3-15	3-16	ZW	CIC	B1	B2	B3	B5	B6	B7	B8	-	B10	B11	B12	B13	B14	B15	B16	B17
											WIRE NO.	10	4F	13	4R																	



LOCAL CONTROL STATION FOR FAN EEF-271
(SIMILAR FOR OTHER EMERGENCY FANS)

NOTES:

- ADD WARNING PLATE AT MCC COVER "CAUTION - THIS COMPARTMENT HAS 120 VAC EXTERNAL POWER SUPPLY."
- CS/TEST IS A 2-POSITION, MAINTAINED CONTACT SWITCH. INSTALLED ON COVER OF LOCAL CONTROL STATION.
- INSTRUMENT PANEL INCLUDING VIBRATION, MOTOR BEARING TEMPERATURE AND RTD ARE SUPPLIED AND INSTALLED BY FAN VENDOR.
- UNDER VOLTAGE RELAY 27 SHALL BE ADJUSTED FOR MINIMUM PICK-UP VOLTAGE OF 60%.
- CONTACTS 3X-3/LSP-E ARE FROM PANEL LSP-E. FOR FANS EEF-271 AND 272. SEE DRAWING ED-253 AND FOR FANS EEF-281 AND 282, SEE DRAWING ED-254.
- RELAYS 3X-1 AND 3X-2 ARE FOR FANS EEF-271 AND 281 ONLY.
- CONTACTS 42 FOR INTERLOCK WITH FAN DAMPERS SHALL BE PROVIDED DIRECTLY FROM THE FAN MOTOR STARTERS. CONTACTS 42 PROVIDED THROUGH AUXILIARY RELAY SHALL NOT BE USED.
- MULTIPLY AUX. CONTACTS 42F, 42R, AND 49 AT EMERGENCY FAN STARTERS WITH AUX. RELAYS, IF IT IS NOT POSSIBLE TO SUPPLY DIRECTLY FROM FAN STARTERS. ITEMS LISTED IN NOTE 7 EXCEPTED.
- OVERLOAD RELAY SHALL BE ADJUSTABLE SOLID STATE RELAY FOR NORMAL, AND LONG ACCELERATION STARTING WITH 6 ADJUSTMENT SETTINGS.

REV	DATE	BY	SUB	APP	DESCRIPTION
0	4 94	CY	AHL	R.JH	REVISED PER DE 305-SBCN-11 00
					REVISED AND REDRAWN PER DCN 91-19

DESIGNED BY
C. YU
DRAWN BY
V. HOANG
CHECKED BY
C. ROBINSON
IN CHARGE
E. DER-AYAKIAN
DATE
4 MAR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

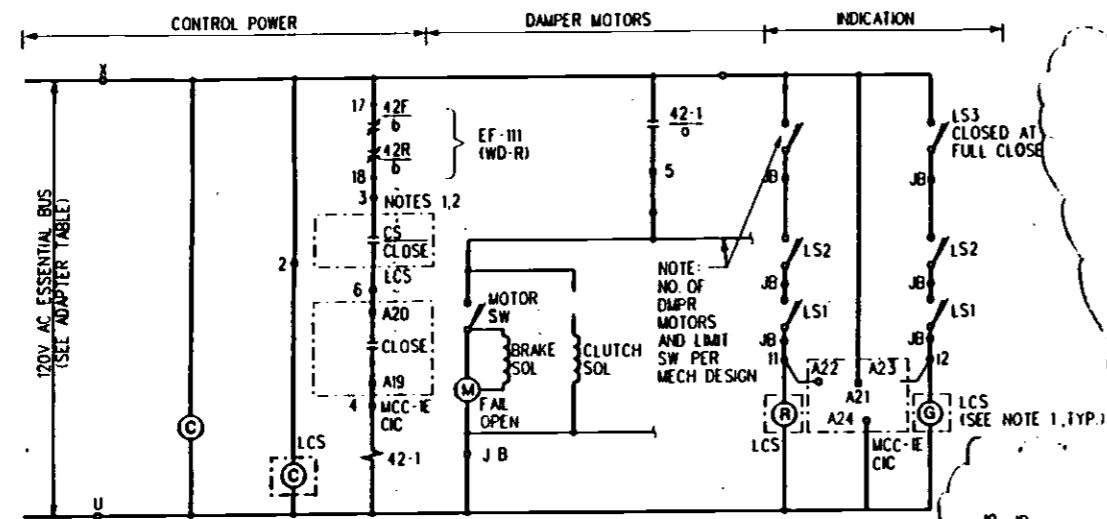
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ELECTRICAL DIRECTIVE

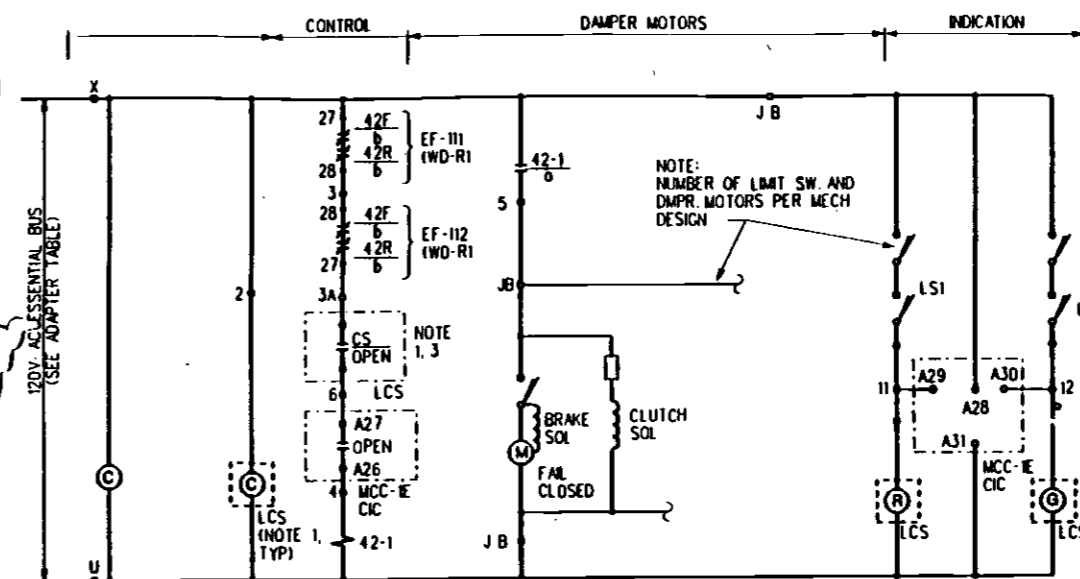
ELEMENTARY WIRING DIAGRAMS

SHEET 7 OF 18

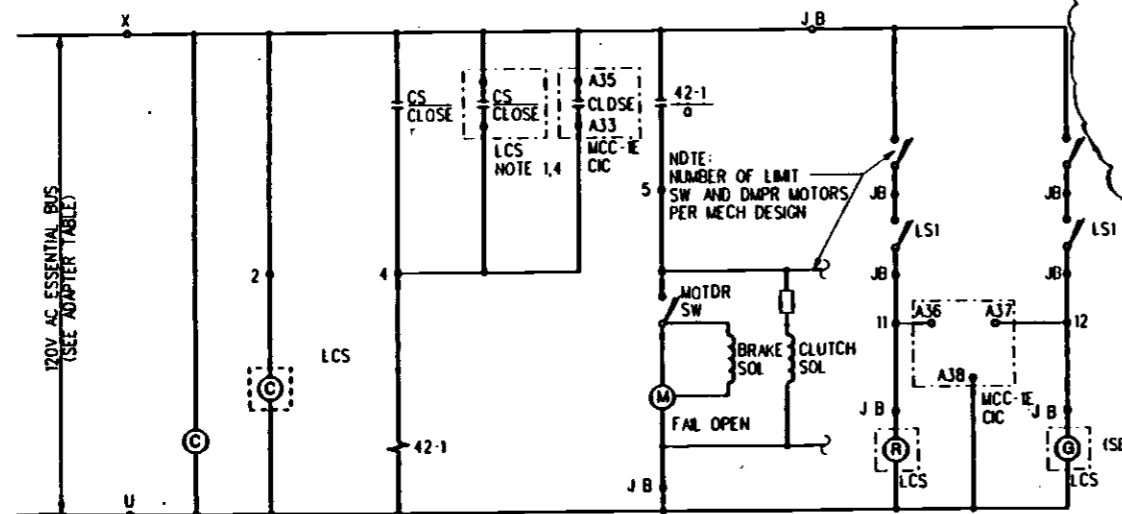
CONTRACT NO	
DRAWING NO	ED-247
SCALE	NO SCALE
SHEET NO	1



WD-Q EMERGENCY FAN DAMPER ED-271
(FOR OTHER FAN DAMPERS SEE ADAPTER TABLE)



WD-S EMERGENCY FAN BY-PASS DAMPER BD-271
(FOR OTHER BYPASS DAMPERS SEE ADAPTER TABLE)



WD-U EMERGENCY FAN TRACK DAMPER TD-271
(FOR OTHER TRACK DAMPERS SEE ADAPTER TABLE)

BY PASS DAMPERS	EMERGENCY FANS				TERMINAL NO.
	42F	42R	42F	42R	
BD-271	X 27	28	28	27	3A
BD-272	EEF-271	EEF-272			29,30
BD-281	EEF-281	EEF-282			27, 28
BD-282	EEF-281	EEF-282			29,30

FOR FANS	DAMPER	DIAGRAM	120V PWR/CONTROL				INTERLOCK		CIC		TERMINAL AT CIC					
			PANEL	CKT	CONT AT MCC	COMPT	EF-111	COMPT	MCC	COMPT	REMOTE CONTROL			INDICATION		
EEF-271	FAN DAMPER ED-271	WD-Q	PP-E	1	E	F2	E	G1	E	CIC	A19	A20	A21	A22	A23	A24
	BY PASS DM BD-271	WD-S	PP-E	3	E	F3	-	-	E	CIC	A26	A27	A28	A29	A30	A31
	TRACK DMTR TD-271	WD-U	PP-E	5	E	F4	-	-	E	CIC	A33	-	A35	A36	A37	A38
EEF-272	FAN DAMPER ED-272	WD-O	PP-E	7	2E	F2	2E	G1	2E	CIC	B19	B20	B21	B22	B23	B24
	BY PASS DM BD-272	WD-S	PP-E	9	2E	F3	-	-	2E	CIC	B26	B27	B28	B29	B30	B31
	TRACK DMTR TD-272	WD-U	PP-E	11	2E	F4	-	-	2E	CIC	B33	-	B35	B36	B37	B38
EEF-281	FAN DAMPER ED-281	WD-Q	PP-IW	1	IW	G2	IW	HI	IW	CIC	A19	A20	A21	A22	A23	A24
	BY PASS DM BD-281	WD-S	PP-IW	3	IW	G3	-	-	IW	CIC	A26	A27	A28	A29	A30	A31
	TRACK DMTR TD-281	WD-U	PP-IW	5	IW	G4	-	-	IW	CIC	A33	-	A35	A36	A37	A38
EEF-282	FAN DAMPER ED-282	WD-Q	PP-IW	7	2W	G2	2W	HI	2W	CIC	B19	B20	B21	B22	B23	B24
	BY PASS DM BD-282	WD-S	PP-IW	9	2W	G3	-	-	2W	CIC	B26	B27	B28	B29	B30	B31
	TRACK DMTR TD-282	WD-U	PP-IW	11	2W	G4	-	-	2W	CIC	B33	-	B35	B36	B37	B38

WIRE NO. 4 6 X 11 12 U

NOTES:

- FOR LOCAL CONTROL STATION, SEE DRAWING ED-247.
- UNDER NORMAL OPERATING CONDITIONS, EMERGENCY FAN DAMPERS ARE CLOSED, THEREFORE CONTACTS "CS/CLOSE" IN LCS AND CONTACT "CLOSE" IN CIC ARE IN CLOSED POSITION.
- UNDER NORMAL OPERATING CONDITIONS, BY-PASS DAMPERS ARE OPEN, THEREFORE CONTACTS "CS/OPEN" IN LCS AND CONTACT "OPEN" IN CIC ARE IN CLOSED POSITION.
- UNDER NORMAL OPERATING CONDITIONS, TRACK DAMPERS ARE OPEN, THEREFORE CONTACTS "CS/CLOSE" IN LCS AND CONTACT "CLOSE" IN CIC ARE IN OPEN POSITION.

REV	DATE	BY	CHK	APP	DESCRIPTION
0	3/19/94	CY	RHL	RJH	REVISED PER DE 305-SBCN-1100
					REVISED AND REDRAWN PER DCN 91-19

DESIGNED BY
C. YU
DRAWN BY
V. HOANG
CHECKED BY
C. ROBINOL
IN CHARGE
E. DER-AVAKIAN
DATE
4 MAR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

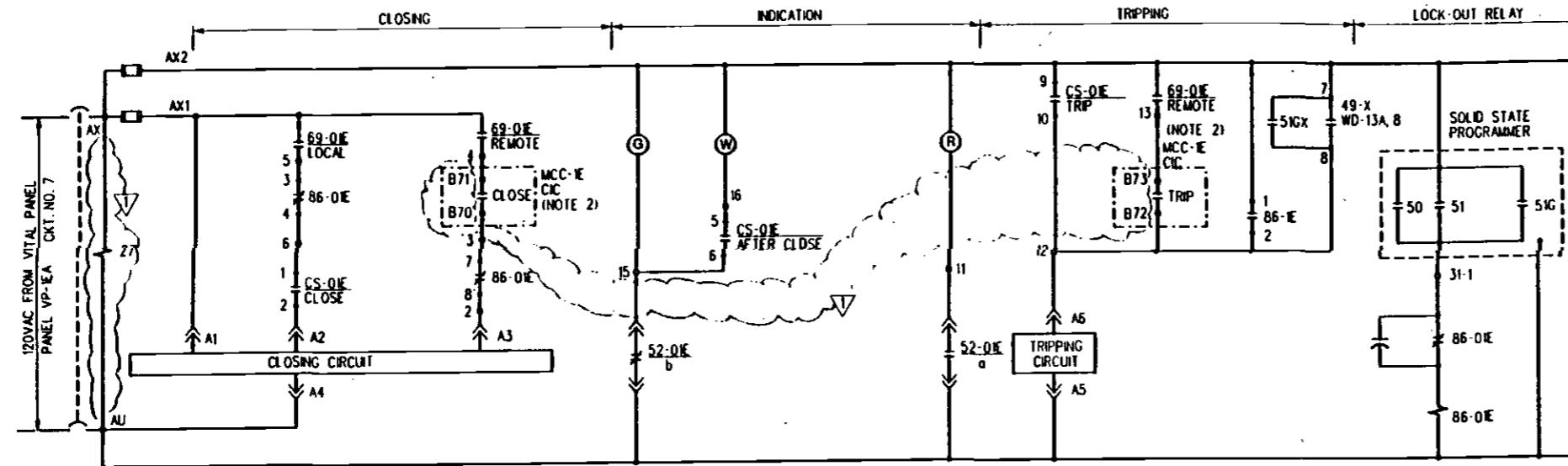
ENGINEERING MANAGEMENT CONSULTANT

FOR MORE INFORMATION, CONTACT:
James C. Roberts, Inc.
10000 Wilshire Blvd., Suite 1000
Beverly Hills, CA 90210
Tel: (310) 206-1000
Fax: (310) 206-1001

SUBMITTED: *[Signature]*
APPROVED: *[Signature]*

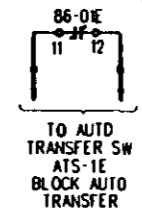
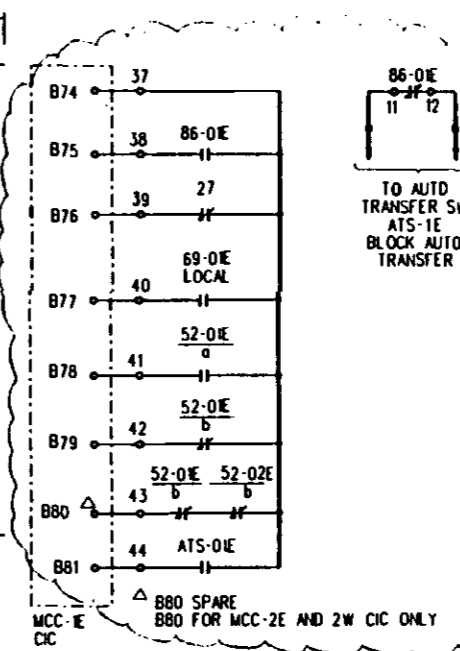
ELECTRICAL DIRECTIVE
ELEMENTARY WIRING DIAGRAM
SHEET 8 OF 18

CONTRACT NO.	
DRAWING NO.	ED-248
REV.	1
SCALE	NO SCALE
SHEET NO.	



WD-T 480V MAIN FEEDER BREAKER 52-01E AT MAIN SWBD-1E IN AUX POWER ROOM

(SEE ADAPTER TABLE BELOW FOR OTHER MAIN FEEDER BREAKERS)



NOTES:

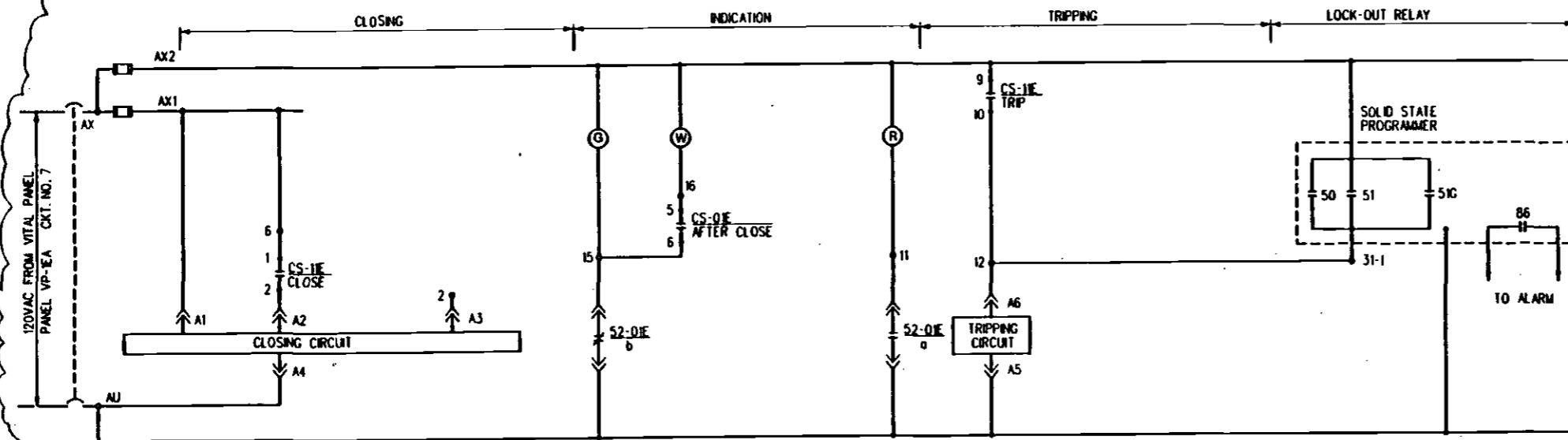
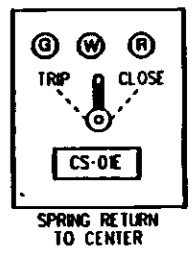
- ALL DEVICES ARE LOCATED AT BREAKER CUBICLE EXCEPT CIC CABINET IS REMOTE.
- CABLES FROM BREAKER COMPARTMENT TO CIC AND POWER PANEL SHALL BE ROUTED VIA CABLE TRAY. CIC TERMINALS ARE SHOWN 480V MAIN FEEDER BREAKER 52 DIS FOR OTHER MAIN FEEDER BREAKERS. SEE ADAPTER TABLE THIS DRAWING.

TERM NO.	TYPE	INTERLOCK	WIRING DIAGRAM
1-2	a	BKR 1 TRIPPING	WD-T
3-4	b	BKR 1 CLOSING	WD-T
5-6	a	ALARM	WD-T
7-8	b	BKR 1 CLOSING	WD-T
9-10	a		
11-12	b	BLOCK AUTO TRANSFER	WD-T

TERM NO.	TYPE	INTERLOCK	WIRING DIAGRAM
1-2	a	BKR 2 TRIPPING	WD-T
3-4	b	BKR 2 CLOSING	WD-T
5-6	a	ALARM	WD-T
7-8	b	BKR 2 CLOSING	WD-T
9-10	a		
11-12	b	BLOCK AUTO TRANSFER	WD-T

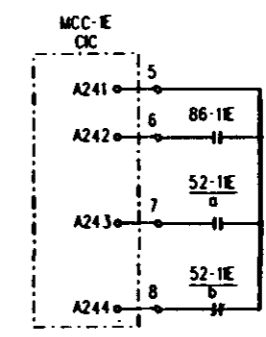
480V SWBD	WIRING DIAGRAM NO.	BREAKER NO.	LOADS	CONTROL SWITCH	PERMISSIVE SWITCH	AUTO TRANSFER SWITCH	120VAC BKR CONTROL		LOCKOUT RELAY	TERMINAL AT CIC																		
							PIN	CKT		MCC	COMPT	CONTROL				MONITOR /ALARM												
EAST MAIN SWBD	WD-T	52-01E	SWBD-1E	CS-01E	69-01E	ATS-01E	VP-1EA	7	86-01E	1E	CIC	B70	B71	B72	B73					B74	B75	B76	B77	B78	B79		B81	
		52-02E	SWBD-2E	CS-02E	69-02E	ATS-02E	VP-1EA	9	86-02E	2E	CIC	B70	B71	B72	B73					B74	B75	B76	B77	B78	B79	B80	B81	
WEST MAIN SWBD	WD-T	52-01W	SWBD-1W	CS-01W	69-01W	ATS-01W	VP-1WA	7	86-01W	1W	CIC	B70	B71	B72	B73					B74	B75	B76	B77	B78	B79		B81	
		52-02W	SWBD-2W	CS-02W	69-02W	ATS-02W	VP-1WA	9	86-02W	2W	CIC	B70	B71	B72	B73					B74	B75	B76	B77	B78	B79	B80	B81	
EAST MAIN SWBD	WD-14A	52-11E	MCC-1E	CS-11E			VP-1EA	7	86	1E	CIC					A241	A242	A243	A244									
		52-12E	MCC-2E	MCC-3E	CS-12E			VP-1EA	9	86	2E	CIC					B241	B242	B243	B244								
WEST MAIN SWBD	WD-14B	52-11W	MCC-1W	CS-11W			VP-1WA	7	86	1W	CIC					A241	A242	A243	A244									
		52-12W	MCC-2W	MCC-3W	CS-12W			VP-1WA	9	86	2W	CIC					B241	B242	B243	B244								
										WIRE NO.	3	4	12	13	5	6	7	8	37	38	39	40	41	42	43	44		

CONTACTS	TRIP	NORMAL		CLOSE
		AFTER TRIP	AFTER CLOSE	
1-0-11-02				X
3-0-11-04				X
5-0-11-06			X	
7-0-11-08		X		
9-0-11-10	X			
11-0-11-12	X			



WD-14A 480V MCC 1E MAIN BREAKER 52-11E AT MAIN SWBD-1E IN AUX POWER ROOM

(SEE ADAPTER TABLE ABOVE FOR OTHER MAIN FEEDER BREAKERS)



REV	DATE	BY	SUB	APP	DESCRIPTION
0	3/19/94	CT	AHL	GMC	REVISED PER DE 305-SBCN-11.00
					REVISED AND REDRAWN PER DCN 91-19

DESIGNED BY: C. YU
 DRAWN BY: V. HOANG
 CHECKED BY: C. ROSENIOLO
 IN CHARGE: E. DER-AVAKIAN
 DATE: 4 MAR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

SUBMITTED: [Signature]
 APPROVED: [Signature]

ELECTRICAL DIRECTIVE

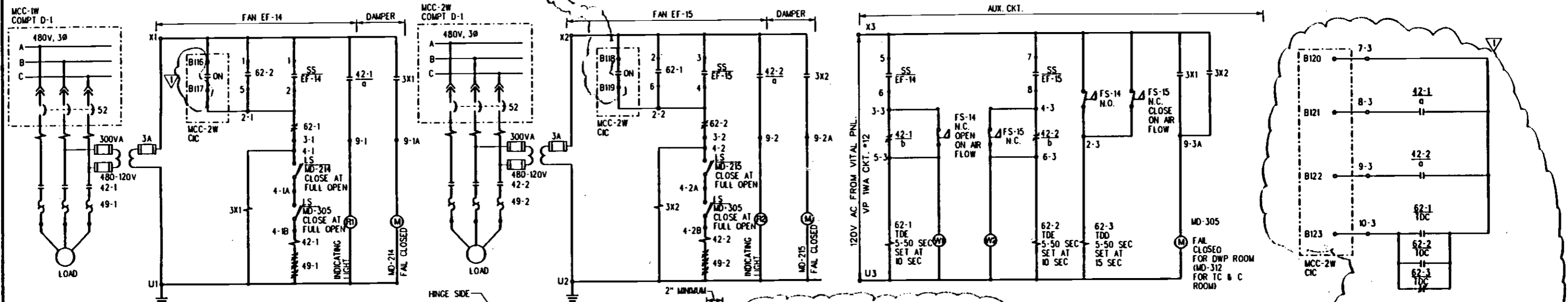
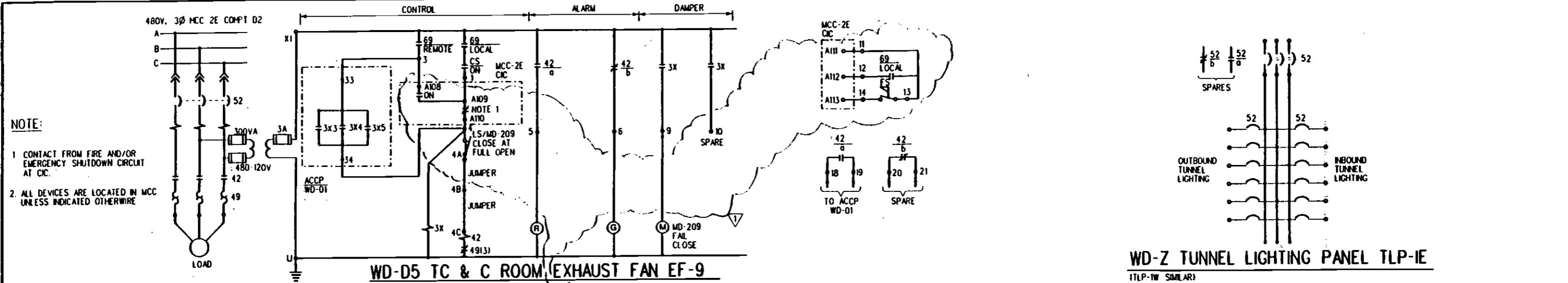
ELEMENTARY WIRING DIAGRAMS

SHEET 9 OF 18

CONTRACT NO: [Blank]
 DRAWING NO: ED-249
 SCALE: NO SCALE
 SHEET NO: [Blank]

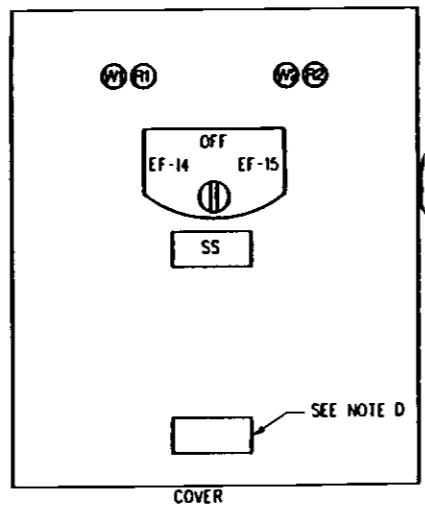
NOTE:

- CONTACT FROM FIRE AND/OR EMERGENCY SHUTDOWN CIRCUIT AT CIC.
- ALL DEVICES ARE LOCATED IN MCC UNLESS INDICATED OTHERWISE.

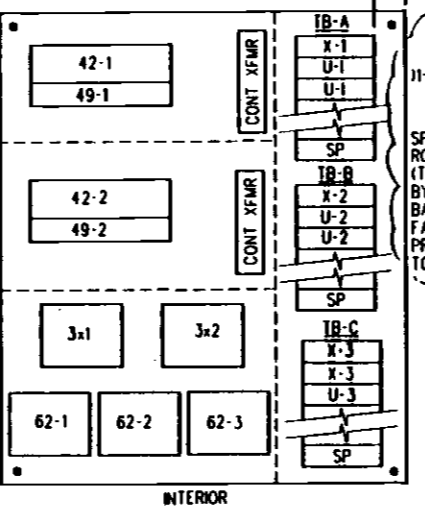


SS CONTACT	POSITION			REF
	FAN 14	OFF	FAN 15	
1	X			WD-D7
2			X	WD-D7
3	X			WD-D7
4			X	WD-D7
5	X			WD-D7
6			X	WD-D7
7	X			SPARE
8			X	SPARE
9	X			SPARE
10			X	SPARE
11	X			SPARE
12			X	SPARE

MAINTAINED CONTACT



SEE NOTE D



SPARE FOR DWP BATT ROOM EXHAUST FANS. (TRIP BATTERY CHARGER (UPS) FOR BREAKERS WD-LSW)

TRIP BATTERY CHARGER (UPS) FOR BREAKERS WD-LSW

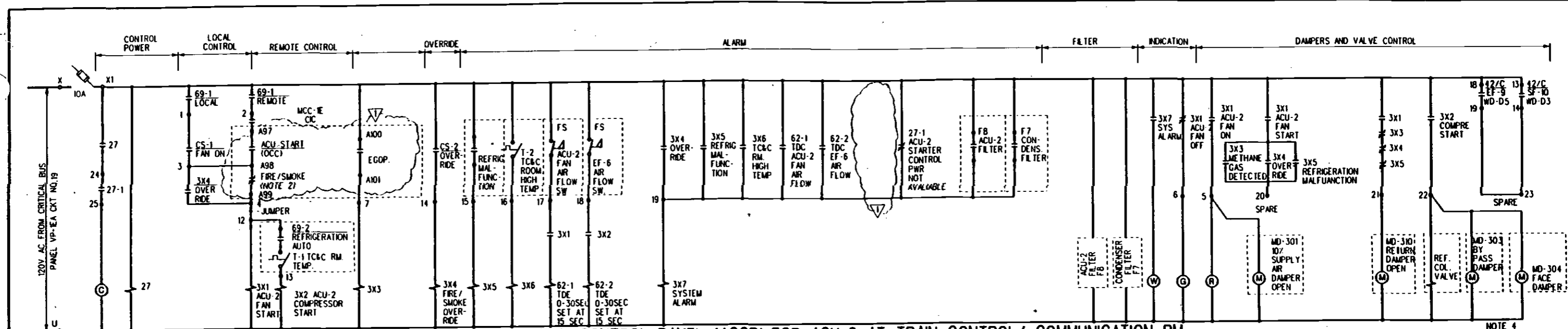
ADAPTER TABLE																	
BATT. ROOM	FAN	480V. POWER		120V. POWER		DWP DAMPER	SHAFT DAMPER	CIC NO.	TERM AT CIC								
		MCC	COMPT.	PHL	CKT.				MD-214	MD-215	MD-212	MD-213	B116	B117	B118	B119	
DWP	EF-14	1W	D1	VP-TWA	12	MD-214	MD-305	MCC-2W CIC	B116	B117	-	-	B120	B121	B122	B123	
DWP	EF-15	2W	D1	VP-TWA	12	MD-215	MD-305	MCC-2W CIC	B116	B117	-	-	B120	B121	B122	B123	
TC&C	EF-12	E	D1	VP-EA	12	MD-212	MD-312	MCC-2E CIC	-	-	-	-	B120	B121	B122	B123	
TC&C	EF-13	2E	D1	VP-EA	12	MD-213	MD-312	MCC-2E CIC	-	-	-	-	B120	B121	B122	B123	
									WIRE NO.	X1	2-1	X2	2-2	7-3	8-3	9-3	10-3

NOTES:

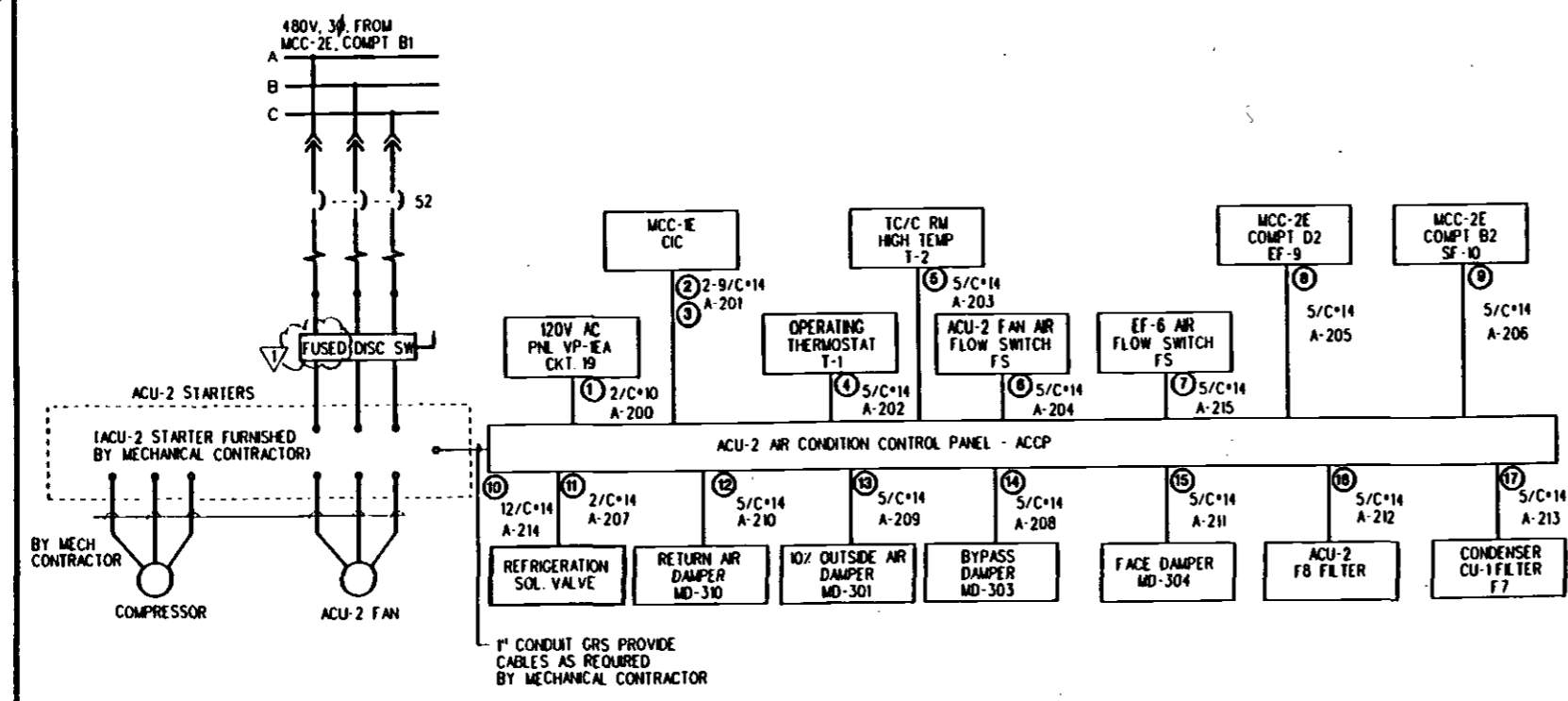
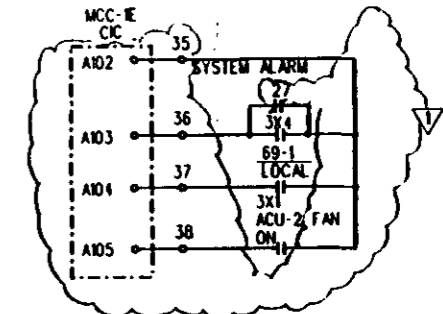
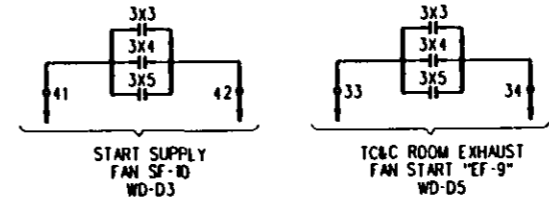
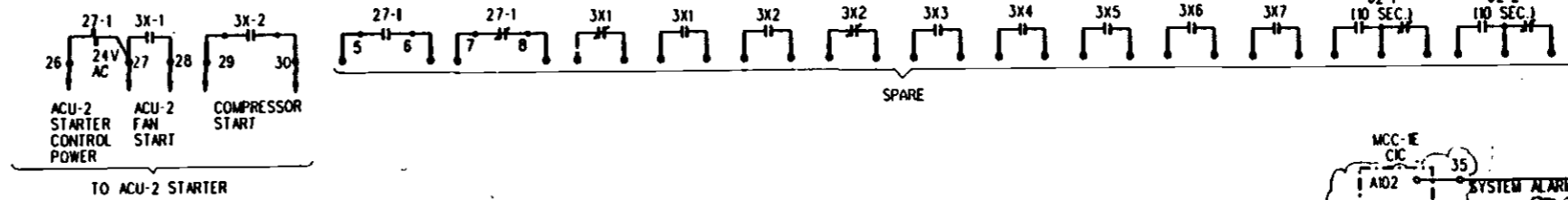
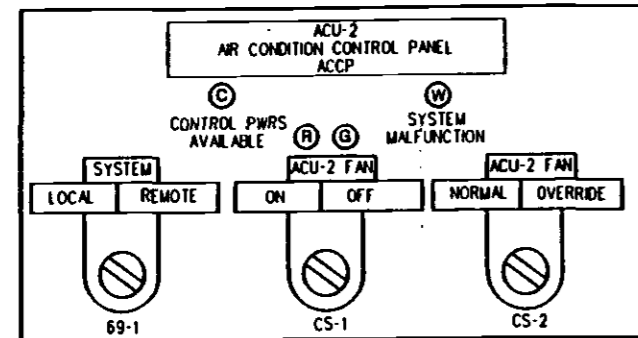
- ALL DEVICES ARE LOCATED IN LOCAL CONTROL STATION (LCS) INSTALLED NEAR FANS, UNLESS INDICATED OTHERWISE.
- 62-1 AND 62-2 ARE TIME DELAY AFTER ENERGIZATION. 62-3 IS TIME DELAY AFTER DE-ENERGIZATION.
- WHEN TESTING BATTERY CHARGER DISCONNECT 62-3 IF THE EXHAUST FANS ARE NOT OPERATING.
- ADD WARNING SIGN AT LOCAL CONTROL STATION "CAUTION-THESE PANELS CONTAIN MORE THAN ONE POWER SOURCE."
- ALL VOLTAGE LEVELS IN THE CABINET SHALL BE CLEARLY IDENTIFIED WITH PERMANENT COLORED TAGS. NO TWO VOLTAGE TAGS SHALL HAVE THE SAME COLOR.

WD-D7 DWP'S BATTERY RM EXHAUST FANS EF-14 AND EF-15 WITH DAMPERS
(EXHAUST FANS EF-12 AND EF-13 (SEE ADAPTER TABLE IN THIS DRAWING.)

DESIGNED BY: C. YU DRAWN BY: E. HOSTALEK CHECKED BY: C. ROBINOL IN CHARGE: E. DER-AVAKIAN DATE: 24 FEB 94										LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY ENGINEERING MANAGEMENT CONSULTANT SUBMITTED: [Signature] APPROVED: [Signature]										CONTRACT NO: DRAWING NO: ED-250 REV: 1 SCALE: NO SCALE SHEET NO:									
REVISED PER DE 305-SBCN-11 00 REVISED AND REDRAWN PER DCN 93-67 AND 93-83										REVISIONS: 2696 2894 REV. DATE BY SUB APP DESCRIPTION										REVISIONS: 2696 2894 REV. DATE BY SUB APP DESCRIPTION									



WD-01 AIR CONDITION CONTROL PANEL (ACCP) FOR ACU-2 AT TRAIN CONTROL/ COMMUNICATION RM.



- NOTES:**
1. ALL DEVICES ARE LOCATED IN ACCP EXCEPT AS INDICATED.
 2. CONTACT FROM FIRE/SMOKE AND/OR EMERGENCY SHUT DOWN CIRCUIT AT CIC.
 3. FUSED DISCONNECT SWITCH SHALL BE INSTALLED ON THE WALL NEAR ACU-2 STARTER, IN ACCORDANCE WITH NEC.
 4. BYPASS AND FACE DAMPERS CAN BE ONE UNIT.

REV	DATE	BY	SUB	APP	DESCRIPTION
1	24 FEB 94	CY	AHL	CMC	REVISED PER DE 305-SBCN-11 00 REVISION 3.5

DESIGNED BY: C. YU
 DRAWN BY: V. HOANG
 CHECKED BY: C. ROBENIOL
 IN CHARGE: E. DER-AVAKIAN
 DATE: 24 FEB 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

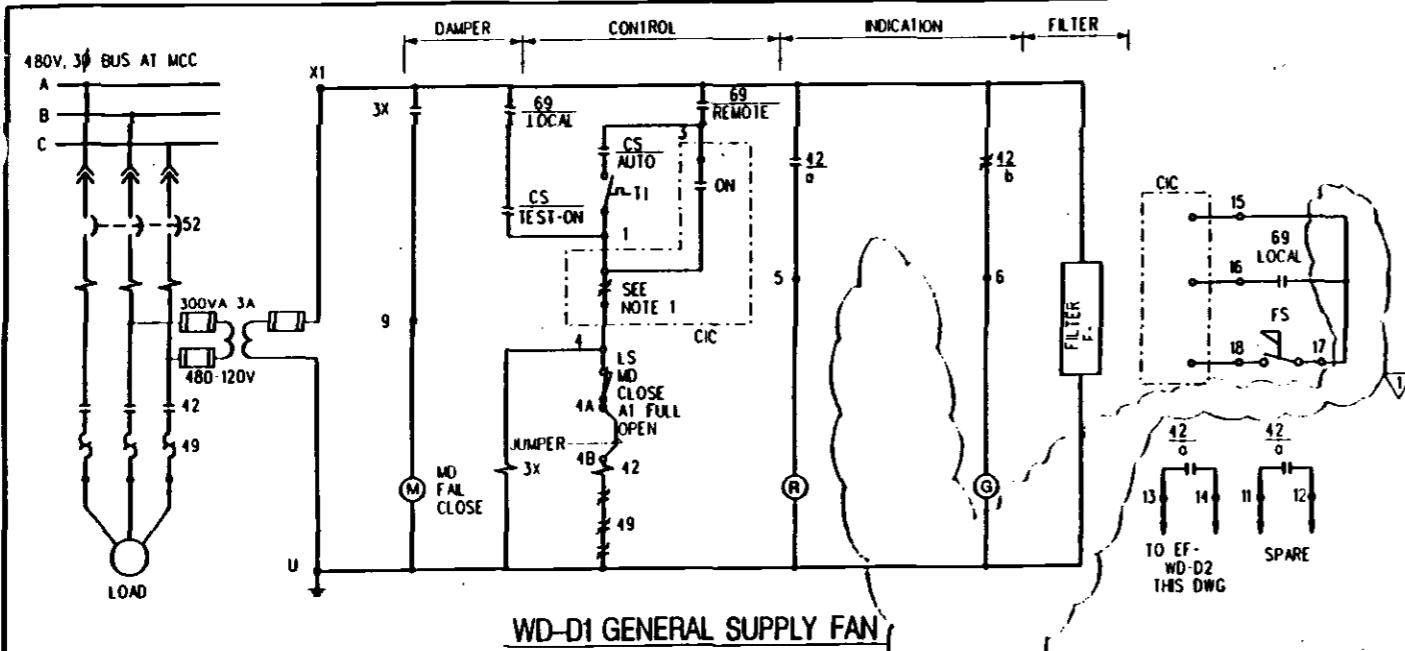
SUBMITTED: *[Signature]*
 APPROVED: *[Signature]*

ELECTRICAL DIRECTIVE

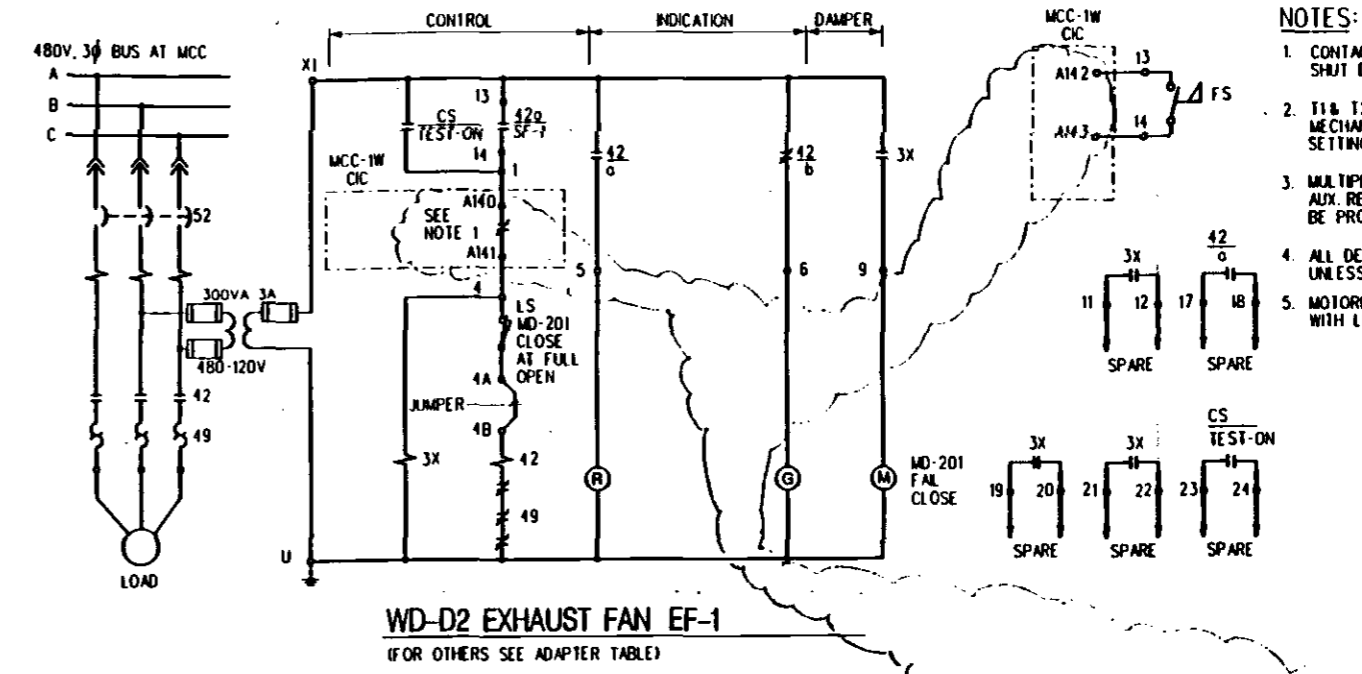
ELEMENTARY WIRING DIAGRAMS

SHEET 11 OF 18

CONTRACT NO: ED-251
 DRAWING NO: ED-251
 SCALE: NO SCALE
 SHEET NO: 1



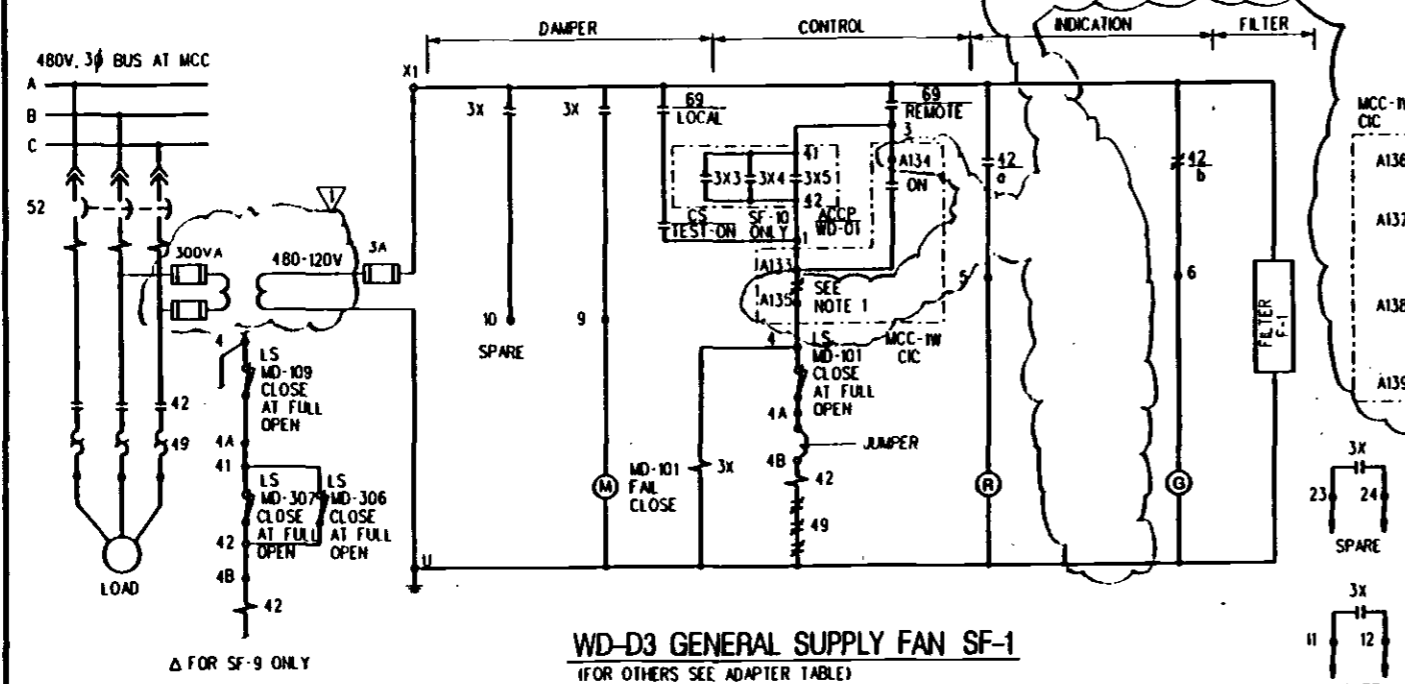
WD-D1 GENERAL SUPPLY FAN



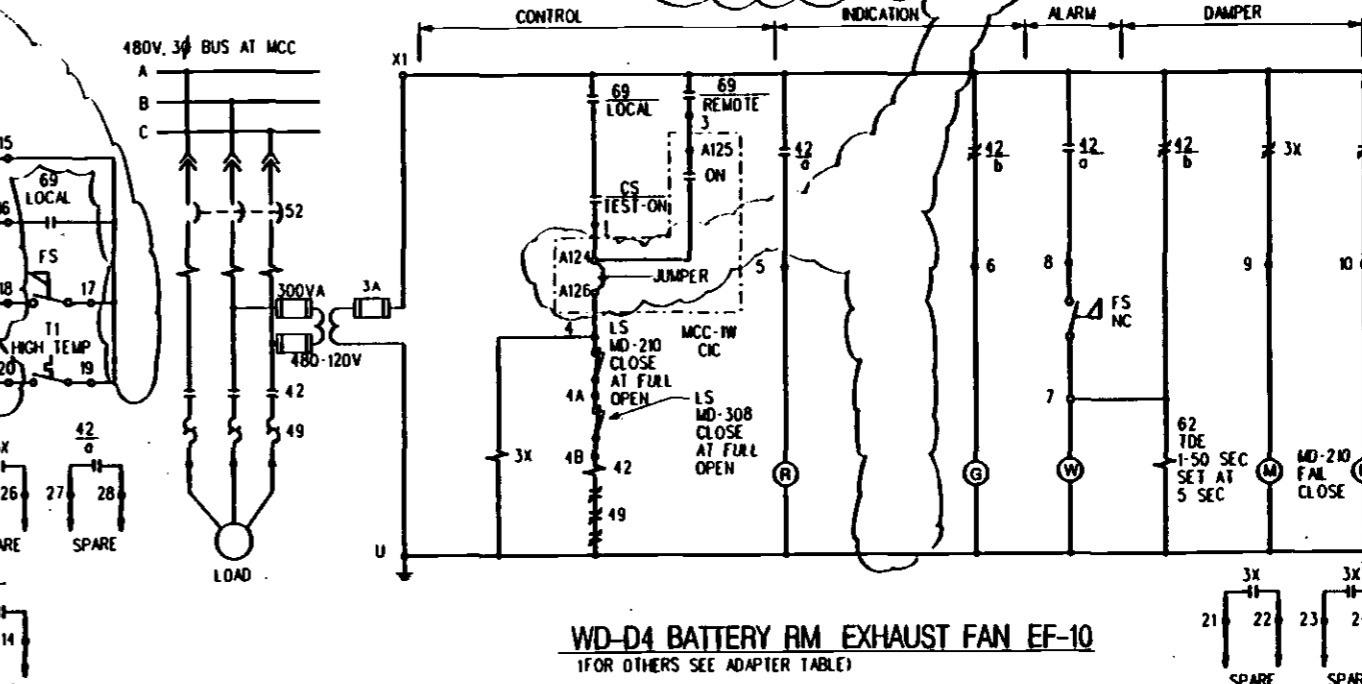
WD-D2 EXHAUST FAN EF-1
(FOR OTHERS SEE ADAPTER TABLE)

GENERAL FAN															
AREA SERVED	NO.	MCC	COMPT	ELEM	WD	INTERLOCK		CONNECTION AT CIC						FILTER	
						FAN	DAMPER	CONTROL			MONITOR/ALARM				
W. AUX PWR RM	SF-1	1W	B3	D3	EF-1	MD-101		A133	A134	A135	A136	A137	A138	A139	F-1
W. AIR SUPPLY RM	SF-2	2W	B2	D3	EF-2	MD-102		B133	B134	B135	B136	B137	B138		F-2
W. EMERG FAN RM	SF-3	1W	B5	D3	EF-3	MD-103		A146	A147	A148	A149	A150	A151		F-3
E. AUX PWR RM	SF-4	1E	B3	D3	EF-4	MD-104		A133	A134	A135	A136	A137	A138	A139	F-4
E. AIR SUPPLY RM	SF-5	2E	B3	D3	EF-5	MD-105		B133	B134	B135	B136	B137	B138		F-5
E. EMERG FAN RM	SF-6	1E	B1	D3	EF-6	MD-106		A146	A147	A148	A149	A150	A151		F-6
MISC ANCL RM	SF-7	1W	A3	D3	EF-7	MD-107		A159	A160	A161	A162	A163	A164		
CHILLER RM	SF-8	2W	D2	D3	EF-8	MD-108		B146	B147	B148	B149	B150	B151		
DWP AUX RM	SF-9	2W	F3	D3		MD-109A		B159	B160	B161	B162	B163	B164	B165	
TC&C RM	SF-10	2E	B2	D3	ACCP	MD-302		B146	B147	B148	B149	B150	B151		
						WFE NO.		1	3	4	15	16	18	20	

EXHAUST FAN															
AREA SERVED	NO.	MCC	COMPT	ELEM	WD	INTERLOCK		CONNECTION AT CIC							
						FAN	DAMPER	CONTROL			MONITOR/ALARM				
W. AUX PWR RM	EF-1	1W	B4	D2	SF-1	MD-201		A140	A141	A142	A143				
W. AIR SUPPLY RM	EF-2	2W	B3	D2	SF-2	MD-202		B140	B141	B142	B143				
W. EMERG FAN RM	EF-3	1W	B6	D2	SF-3	MD-203		A153	A154	A155	A156				
E. AUX PWR RM	EF-4	1E	B4	D2	SF-4	MD-204		A140	A141	A142	A143				
E. AIR SUPPLY RM	EF-5	2E	B4	D2	SF-5	MD-205		B140	B141	B142	B143				
E. EMERG FAN RM	EF-6	1E	B2	D2	SF-6	MD-206		A153	A154	A155	A156				
MISC ANCL RM	EF-7	1W	A4	D2	SF-7	MD-207		A166	A167	A168	A169				
CHILLER RM	EF-8	2W	D3	D2	SF-8	MD-208		B153	B154	B155	B156				
W. BATTERY RM	EF-10	1W	D2	D4		MD-209		A124	A125	A126	A127	A128	A129	A130	
E. BATTERY RM	EF-11	1E	D2	D4		MD-309		A124	A125	A126	A127	A128	A129	A130	
						WFE NO.		1	3	4	13	14	15	16	

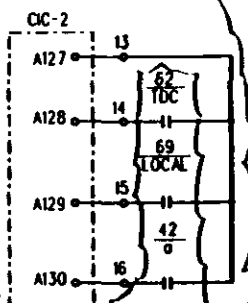


WD-D3 GENERAL SUPPLY FAN SF-1
(FOR OTHERS SEE ADAPTER TABLE)



WD-D4 BATTERY RM EXHAUST FAN EF-10
(FOR OTHERS SEE ADAPTER TABLE)

- NOTES:**
- CONTACT FROM FIRE AND/OR EMERGENCY SHUT DOWN CIRCUIT AT CIC.
 - T1 & T2 ARE THERMOSTATS. SEE MECHANICAL DWG FOR TEMPERATURE SETTINGS.
 - MULTIPLY AUX CONTACTS (42) USING AUX RELAY IF ALL CONTACTS CANNOT BE PROVIDED.
 - ALL DEVICES ARE LOCATED IN MCC, UNLESS INDICATED OTHERWISE.
 - MOTORIZED DAMPERS SHALL BE EQUIPPED WITH LIMIT SWITCHES.



REV	DATE	BY	SUB	APP	DESCRIPTION
1	1.19.94	CY	AL	CMC	BASELINE ISSUE
2	2.16.96	cy	AL	305	REVISED PER DE 305-SBCN-11.00

DESIGNED BY
C. YU
DRAWN BY
V. HOANG
CHECKED BY
C. ROSENOL
IN CHARGE
E. DER-AVAKIAN
DATE
19 APR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

PERSONNEL: Director/Staff/Design/In-Charge/Engineer/Inspector/Tester/Operator/Technician/Assistant/Operator/Technician/Operator/Technician/Operator/Technician

SUBMITTED: *[Signature]*

APPROVED: *[Signature]*

ELECTRICAL DIRECTIVE

ELEMENTARY WIRING DIAGRAM

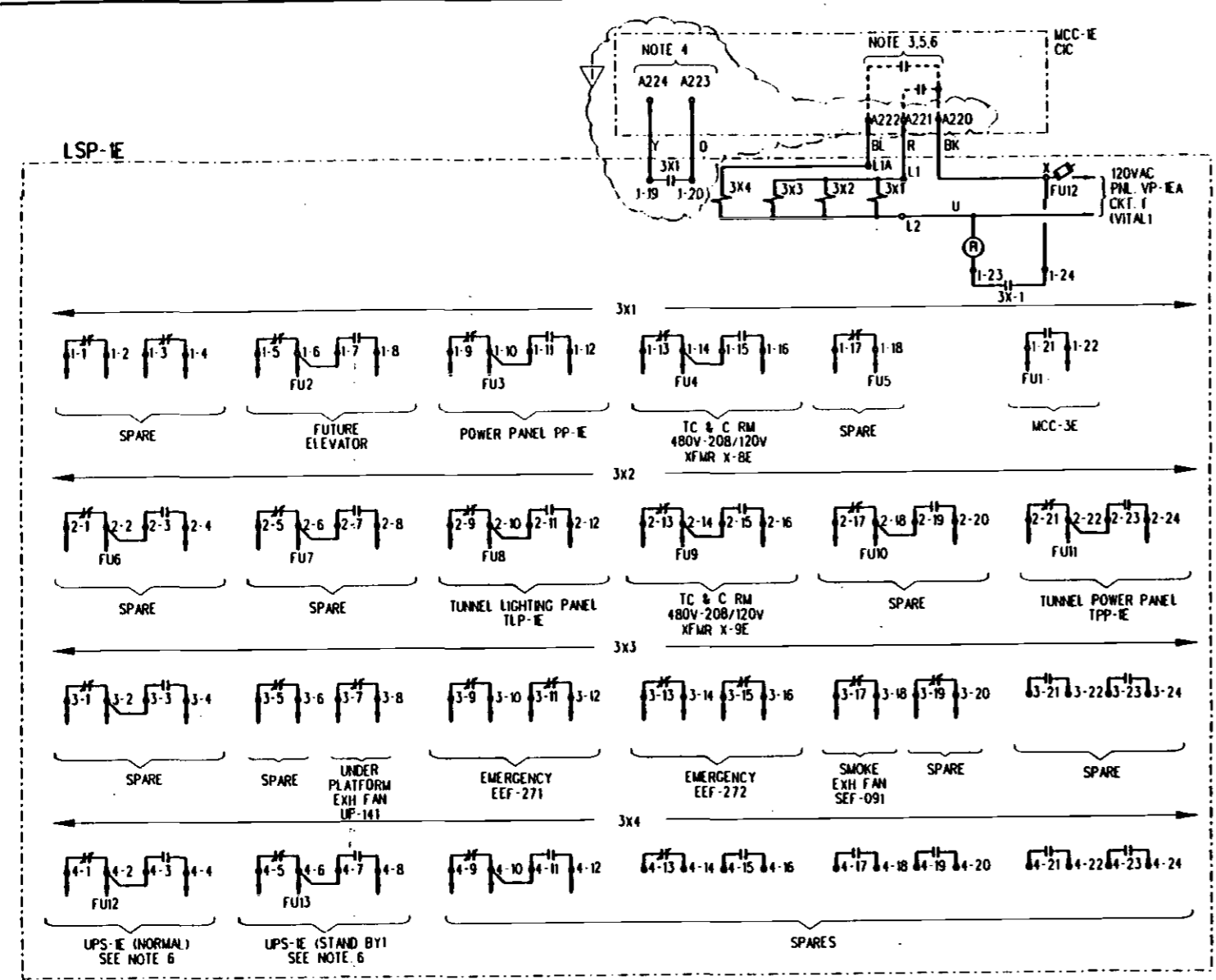
SHEET 12 OF 18

CONTRACT NO. _____

DRAWING NO. **ED-252** REV. **1**

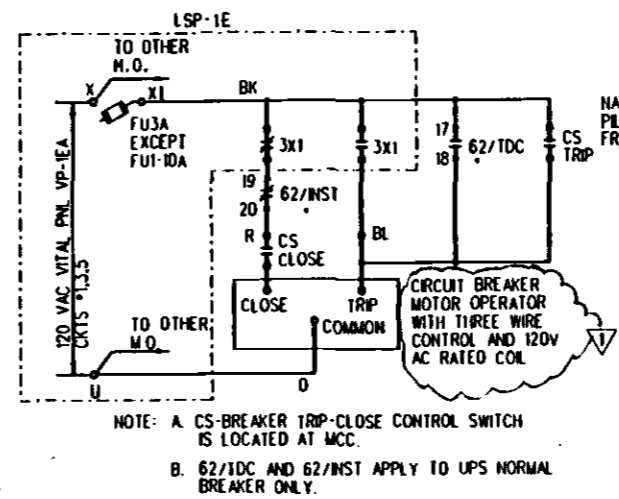
SCALE: **NO SCALE**

SHEET NO. _____

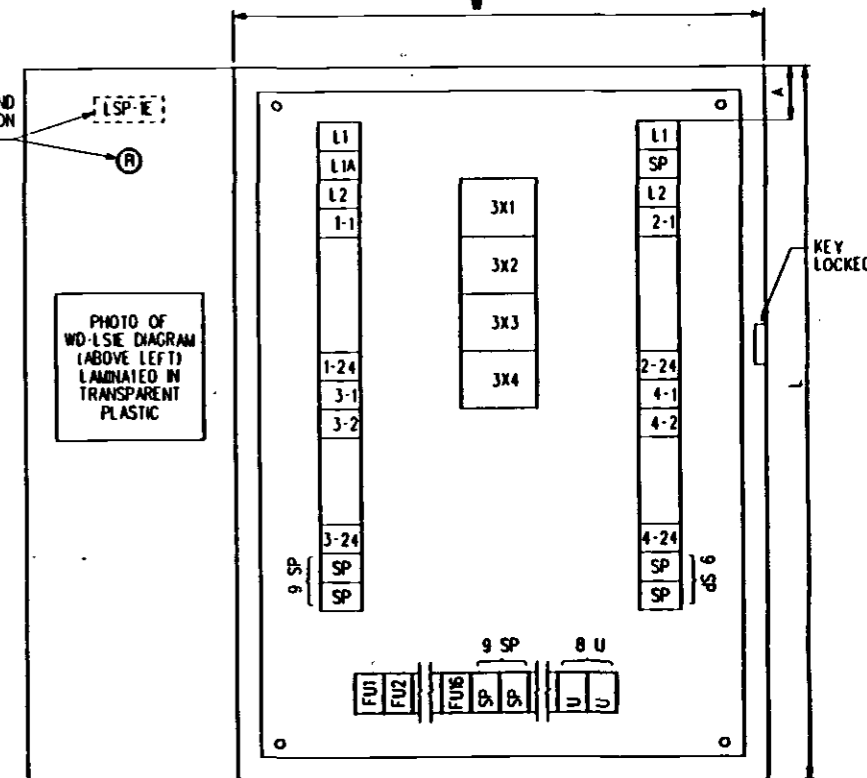


ITEM	EQUIPMENT NO	KVA HP	SERVICE
1	AHU-141	40	STATION SUPPLY FAN
2	AHU-142	40	STATION SUPPLY FAN
3	SF-4	10	E AUX PWR RM SUP FAN
4	EF-4	7.5	E AUX PWR RM EXH FAN
5	SF-5	5	E AIR SUP RM SUP FAN
6	EF-5	5	E AIR SUP RM EXH FAN
7	SF-6	10	E EMERG FAN RM SUP FAN
8	SF-10	5	TC & C RM SUP FAN
9	EF-6	10	E EMERG FAN RM EXH FAN
10	EF-9	5	TC&C RM EXH FAN
11	EF-11	2	BATTERY RM EXH FAN
12	EF-12	.75	TC&C BATTERY RM EXH FAN
13	EF-13	.75	TC&C BATTERY RM EXH FAN
14	ACU-2	13	TC&C ROOM AIR COND UNIT
TOTAL LOAD		154	

- NOTES:**
- LOAD SHED PANEL WILL ACTIVATE ONLY WHEN ALL FEEDERS OF THE CITY POWER FAN (TOTAL BLACKOUT).
 - LOAD SHED PANEL WILL TRIP ALL ELECTRICAL LOADS, EXCEPT DESIGNATED FANS USED FOR GAS MITIGATION AT ALL UNDERGROUND STATIONS TO PREVENT EMERGENCY GENERATOR FROM OVERLOADING.
 - WITH THE BLACKOUT SIGNAL AND GENERATOR START SIGNAL FROM MCC-1E, CIC RELAYS 3X1 THRU 3X4 WILL BE ENERGIZED AND:
 - TRIP ALL STARTERS OF LOADS AS INDICATED.
 - ACTIVATE MOTOR OPERATED MECHANISM AND TRIP FEEDER BREAKERS.
 - AFTER OCC RECEIVES A CONFIRMED SIGNAL FROM ALL UNDERGROUND STATIONS AND MD TUNNEL VENT STRUCTURES, THE COMPUTER WILL PROCESS AND SEND A PERMISSIVE SIGNAL TO TRANSFER POWER FROM CITY FEEDERS TO EMERGENCY GENERATOR AND DISTRIBUTE BACK UP POWER TO ALL STATIONS VIA A 34.5KV DISTRIBUTION CABLE.
 - AFTER THE RESTORATION OF THE CITY POWER FOR 5 MINUTES, THE LOAD SHED PANEL WILL BE DE-ENERGIZED AND RETURN TO NORMAL CONDITION.
 - AFTER 2 HOURS OF THE CITY BLACKOUT, BATTERIES OF UPS WILL BE FULLY DISCHARGED. THE OCC MAY TURN-OFF THE SIGNAL AND DE-ENERGIZED RELAY 3X4 AT ANY TROUBLED STATION, THIS ALLOWING THE UPS TO BE TEMPORARILY FED FROM THE EMERGENCY GENERATOR.



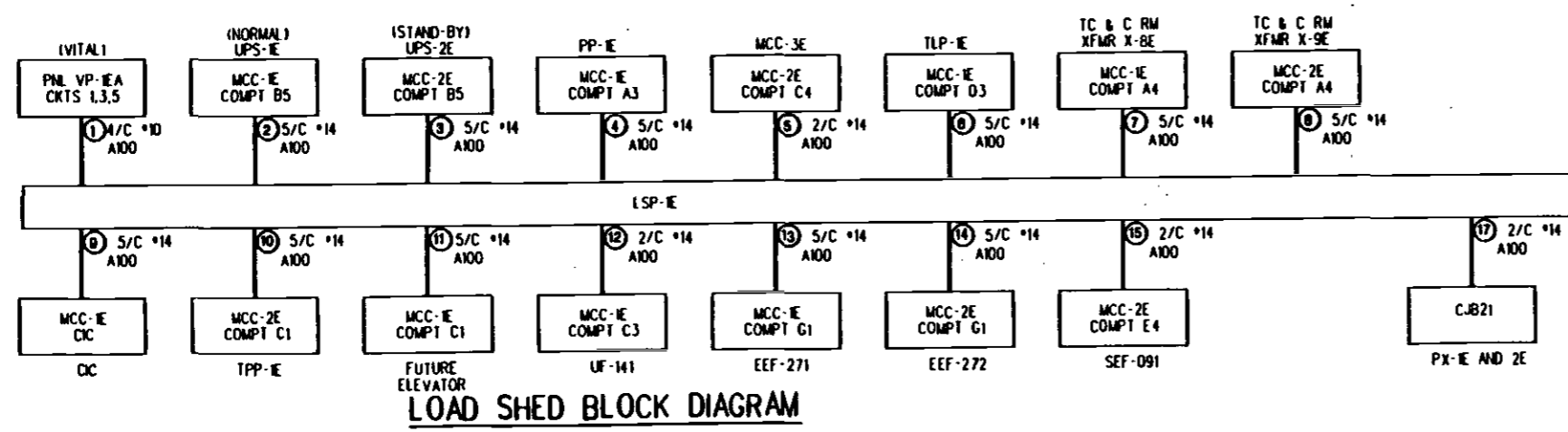
TYPICAL CONTROL WIRING FOR M.O. CIRCUIT BREAKER



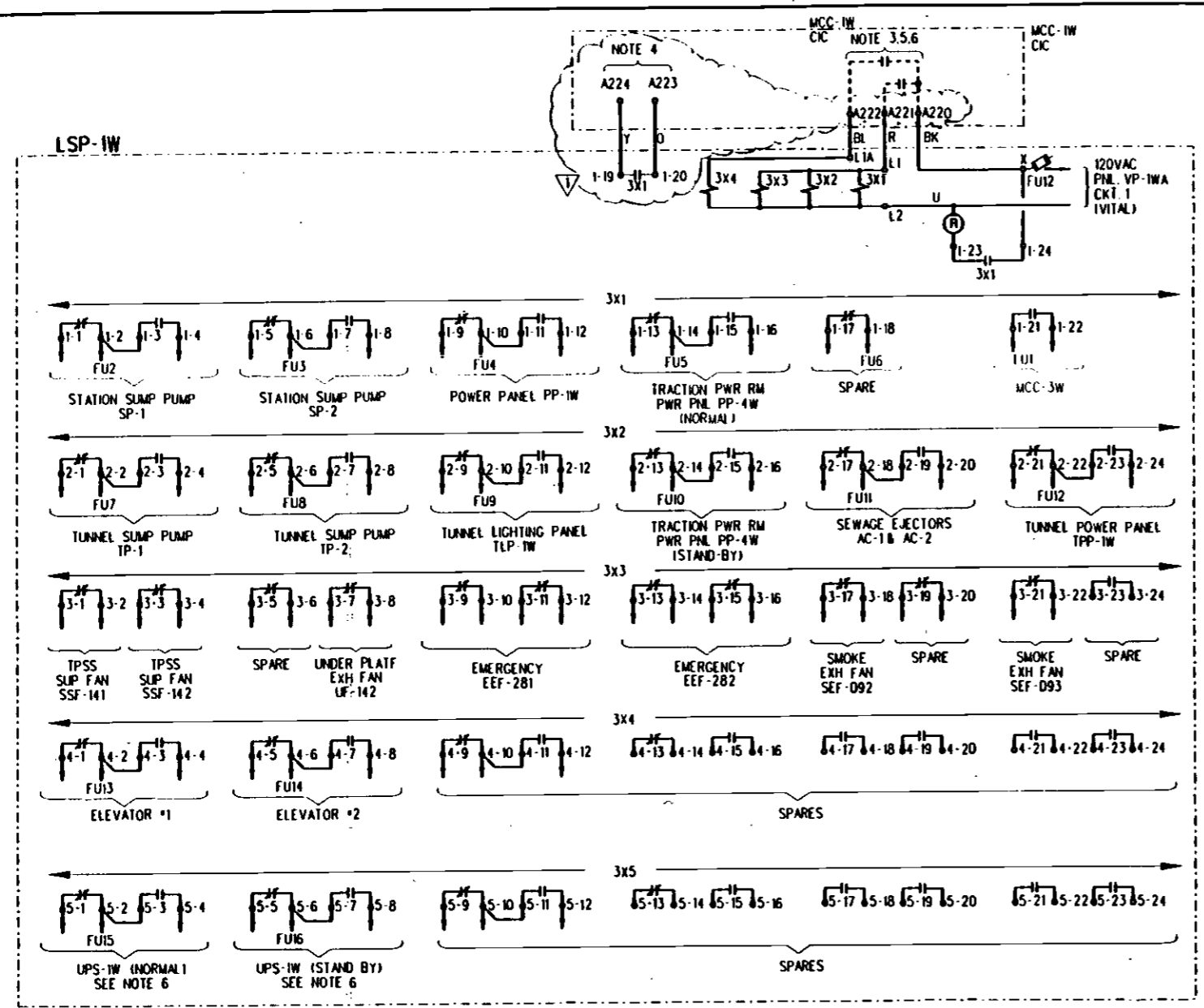
3X-1, 3X-2, 3X-3 & 3X-4 ARE EQUIVALENT TO ALLEN-BRADLEY CAT. NO 700-P1200-A1 (8-NC AND 4-NO CONTACTS) CONTACT ARRANGEMENT AS SHOWN.
TERMINAL STRIP EQUIVALENT TO BUCHANAN CAT. NO P725 OR P0725
NEMA 12 ENCLOSURE DIMENSION 30"W X 42"L X 12"D
A-6" MINIMUM FOR TOP ENTRY, 3" FOR BOTTOM ENTRY
TERMINAL X IS DISCONNECTING TYPE TERMINAL.

LOAD SHED PANEL LSP-IE

WD-LSIE LOAD SHED FOR PANEL LSP-IE

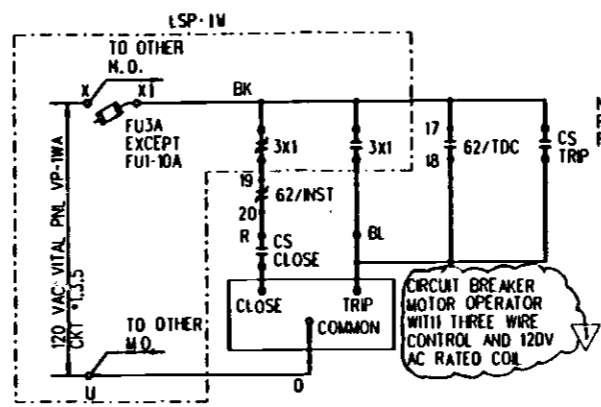


DESIGNED BY: C. YU DRAWN BY: A. JOSE CHECKED BY: S. KARUNJANTADI IN CHARGE: E. DER-AVAKIAN DATE: 22 MAR 94				LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY ENGINEERING MANAGEMENT CONSULTANT SUBMITTED: <i>Edward Der-Avakian</i> APPROVED: <i>[Signature]</i>				ELECTRICAL DIRECTIVE ELEMENTARY WIRING DIAGRAMS SHEET 13 OF 18				CONTRACT NO: DRAWING NO: ED-253 SCALE: NO SCALE SHEET NO: 1					
REV	DATE	BY	SLB	APP	DESCRIPTION	REV	DATE	BY	SLB	APP	DESCRIPTION	REV	DATE	BY	SLB	APP	DESCRIPTION
						26	94	CY	AJR	GMC	REVISED PER DE JOS-SBCN-1100						
						0	22 94	CY	AJR	GMC	REVISED AND REDRAWN PER DCN 91-19						

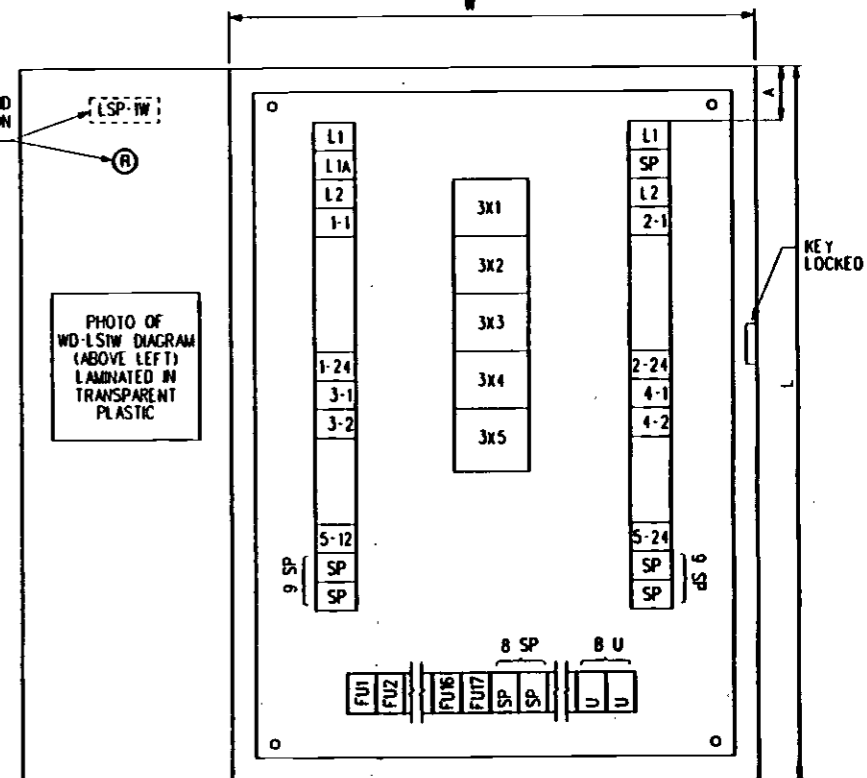


LIST OF FANS USED FOR GAS MITIGATION DURING POWER BLACKOUT			
ITEM	EQUIPMENT NO.	KVA HP	SERVICE
1	AHU-143	40	STATION SUPPLY FAN
2	AHU-144	40	STATION SUPPLY FAN
3	SF-1	10	W AUX PWR RM SUP FAN
4	EF-1	7.5	W AUX PWR RM EXH FAN
5	SF-2	10	W AIR SUP RM SUP FAN
6	EF-2	10	W AIR SUP RM EXH FAN
7	SF-3	7.5	W EMERG FAN RM SUP FAN
8	EF-3	7.5	W EMERG FAN RM EXH FAN
9	SF-7	5	ANCLLARY RM SUP FAN
10	EF-7	5	ANCLLARY RM EXH FAN
11	SF-8	5	CHILLER RM SUP FAN
12	EF-8	5	CHILLER RM EXH FAN
13	SF-9	10	TPSS & IES RM SUP FAN
14	EF-10	1	BATTERY RM EXH FAN
15	EF-14	1	DWP BATT RM EXH FAN
16	EF-15	1	DWP BATT RM EXH FAN
17			
TOTAL LOAD		165.5	

- NOTES:**
- LOAD SHED PANEL WILL ACTIVATE ONLY WHEN ALL FEEDERS OF THE CITY POWER FAIL (TOTAL BLACKOUT).
 - LOAD SHED PANEL WILL TRIP ALL ELECTRICAL LOADS, EXCEPT DESIGNATED FANS USED FOR GAS MITIGATION AT ALL UNDERGROUND STATIONS TO PREVENT EMERGENCY GENERATOR FROM OVERLOADING.
 - WITH THE BLACKOUT SIGNAL AND GENERATOR START SIGNAL FROM MCC-1W, CIC RELAYS 3X1 THRU 3X5 WILL BE ENERGIZED AND:
 - a. TRIP ALL STARTERS OF LOADS AS INDICATED.
 - b. ACTIVATE MOTOR OPERATED MECHANISM AND TRIP FEEDER BREAKERS.
 - AFTER OCC RECEIVES A CONFIRMED SIGNAL FROM ALL UNDERGROUND STATIONS AND MD TUNNEL VENT STRUCTURES, THE COMPUTER WILL PROCESS AND SEND A PERMISSIVE SIGNAL TO TRANSFER POWER FROM CITY FEEDERS TO EMERGENCY GENERATOR AND DISTRIBUTE BACK UP POWER TO ALL STATIONS VIA A 34 SKV DISTRIBUTION CABLE.
 - AFTER THE RESTORATION OF THE CITY POWER FOR 5 MINUTES, THE LOAD SHED PANEL WILL BE DE-ENERGIZED AND RETURN TO NORMAL CONDITION.
 - AFTER 2 HOURS OF THE CITY BLACKOUT, BATTERIES OF UPS WILL BE FULLY DISCHARGED, THE OCC MAY TURN-OFF THE SIGNAL AND DE-ENERGIZED RELAY 3X5 AT ANY TROUBLED STATION, THUS ALLOWING THE UPS TO BE TEMPORARILY FED FROM THE EMERGENCY GENERATOR.



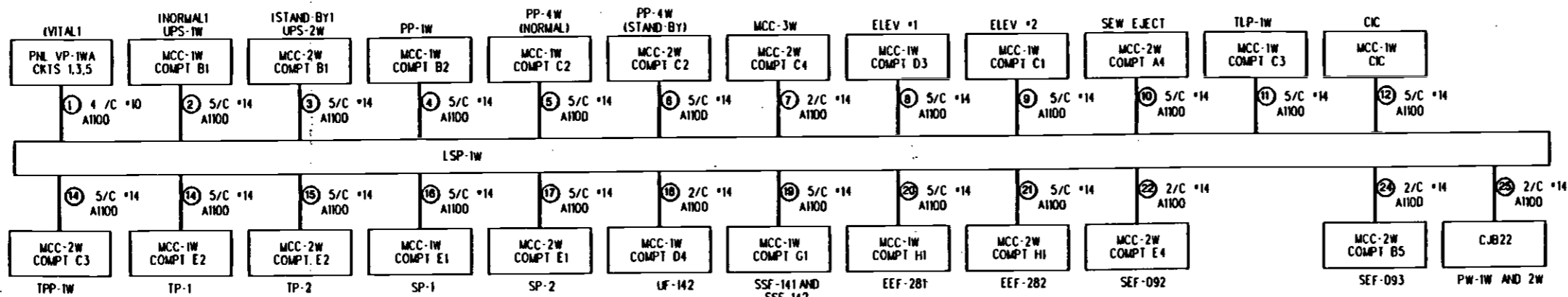
TYPICAL CONTROL WIRING FOR M.O. CIRCUIT BREAKER



3X-1, 3X-2, 3X-3 & 3X-4 ARE EQUIVALENT TO ALLEN-BRADLEY CAT. NO. 700-P1200-A1 (8-NC AND 4-NO CONTACTS) CONTACT ARRANGEMENT AS SHOWN
 TERMINAL STRIP EQUIVALENT TO BUCHANAN CAT. NO. P725 OR P0725.
 NEMA 12 ENCLOSURE DIMENSION 30"W X 42"L X 12"D.
 A-6" MINIMUM FOR TOP ENTRY, 3" FOR BOTTOM ENTRY.
 TERMINAL X IS DISCONNECTING TYPE TERMINAL.

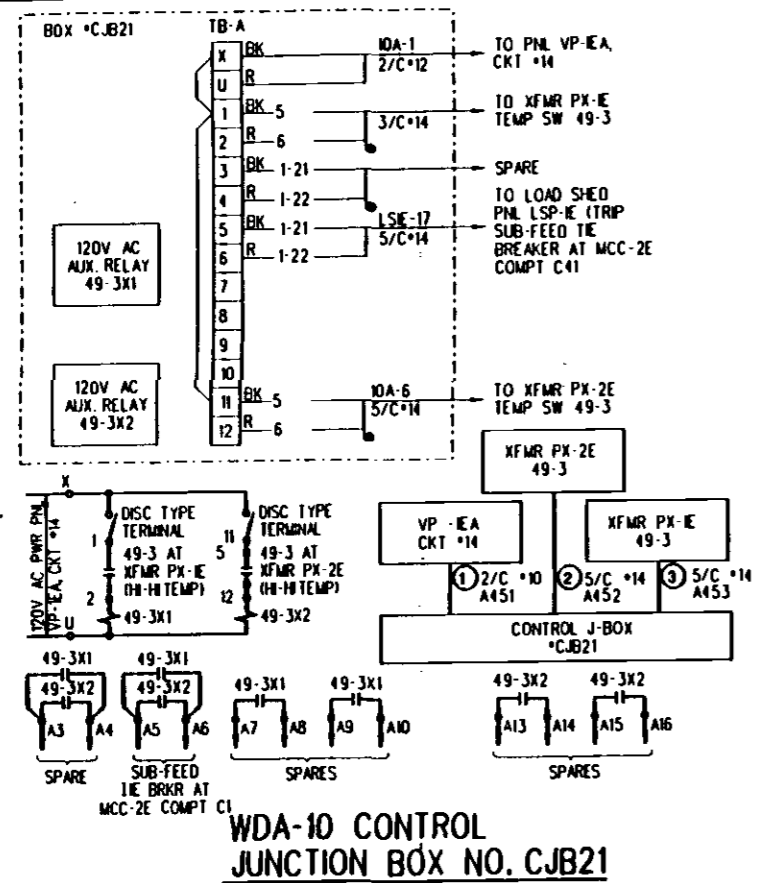
LOAD SHED PANEL LSP-1W

WD-LSIW LOAD SHED FOR PANEL LSP-1W

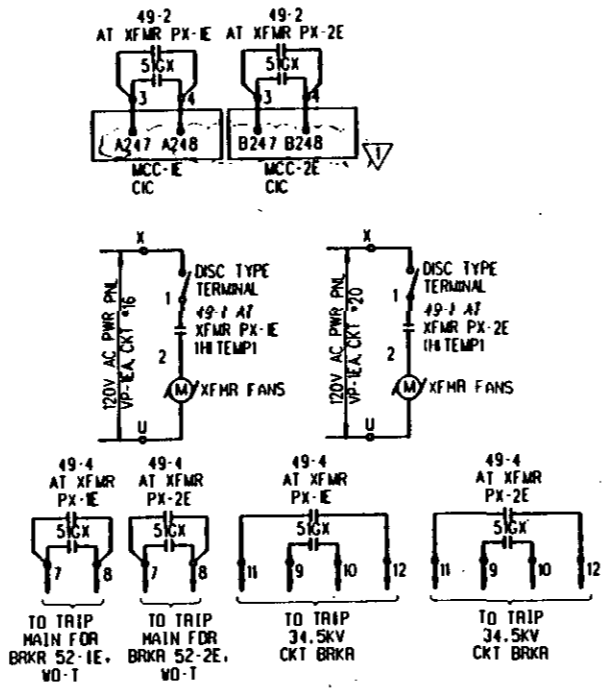


LOAD SHED BLOCK DIAGRAM

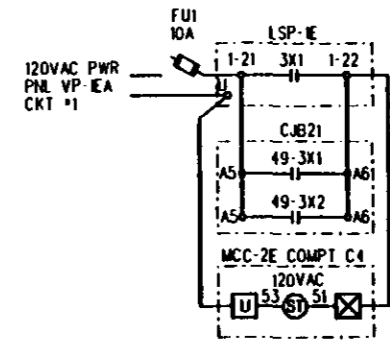
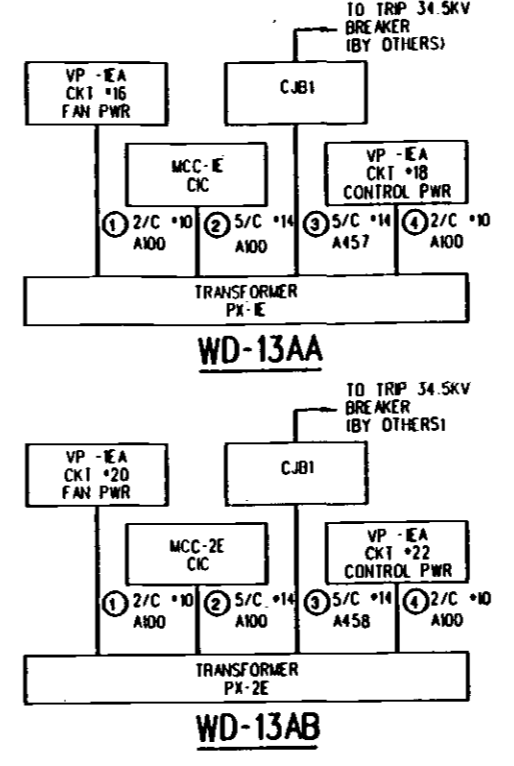
DESIGNED BY C.YU				LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY				ELECTRICAL DIRECTIVE				CONTRACT NO.			
DRAWN BY A.JOSE				ENGINEERING MANAGEMENT CONSULTANT				ELEMENTARY WIRING DIAGRAMS				DRAWING NO. ED-254			
CHECKED BY C.ROBENIOL				Submitted				SHEET 14 OF 18				REV 1			
IN CHARGE E.DER-AVAKIAN				APPROVED				NO SCALE				SHEET NO.			
DATE 22 MAR 94				REVISED PER DE 305-SBCN-11 GO											
REVISED AND REDRAWN PER DCN 91-19															
REV	DATE	BY	SHD	APP	DESCRIPTION	REV	DATE	BY	SHD	APP	DESCRIPTION				



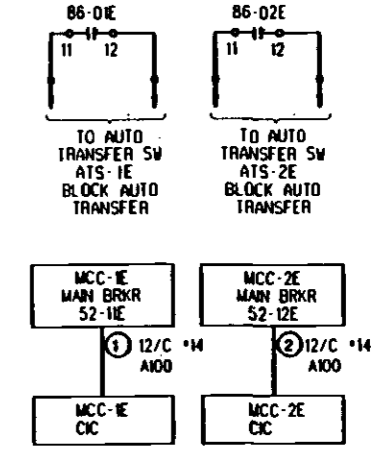
WDA-10 CONTROL JUNCTION BOX NO. CJB21



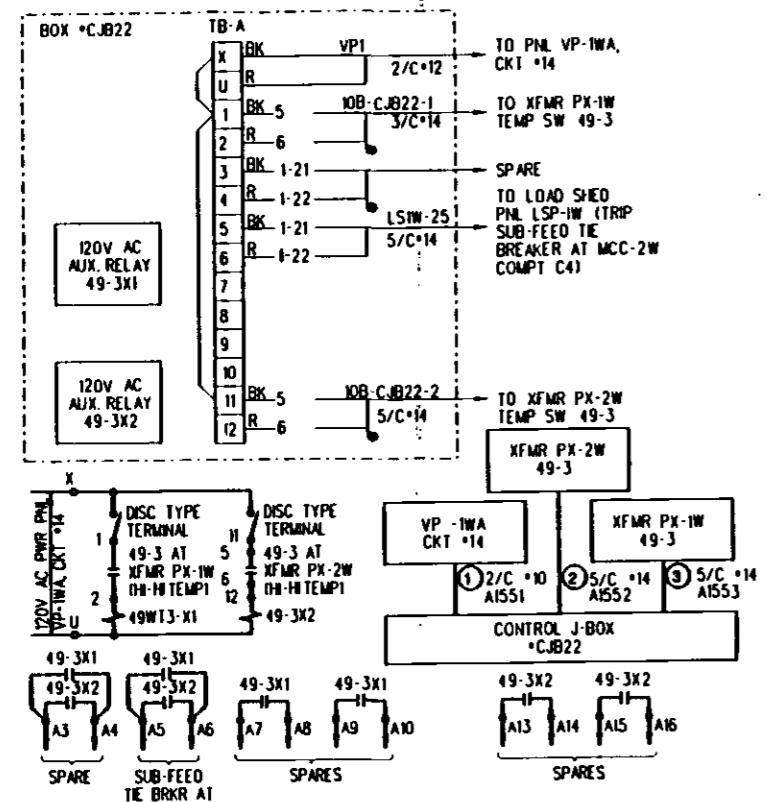
WD-13A 34.5KV XFMR COOLING FANS AND TEMP CTRL INTERLOCKS



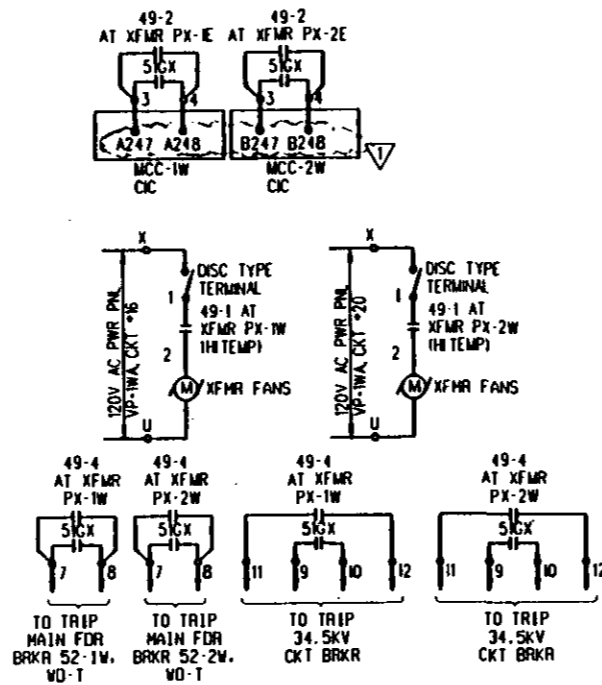
WD-11A MCC-2E TIE BREAKER SHUNT TRIP FOR BLOCK DIAGRAM SEE DRAWING E-123



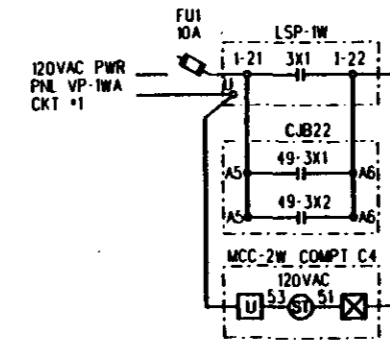
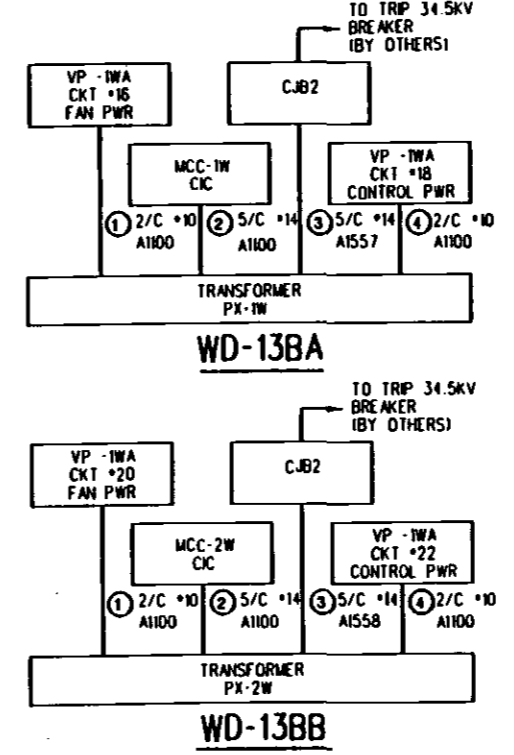
WD-14A 480V MCC-1E AND 2E MAIN BREAKERS



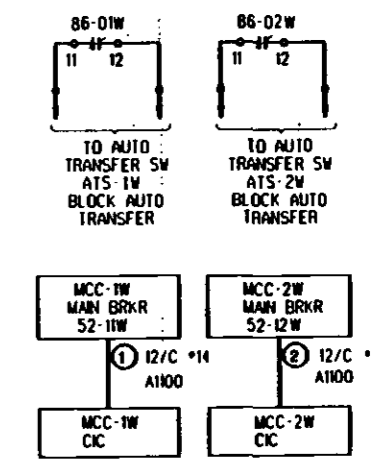
WD-10B CONTROL JUNCTION BOX NO. CJB22



WD-13B 34.5KV XFMR COOLING FANS AND TEMP CTRL INTERLOCKS



WD-11B MCC-2W TIE BREAKER SHUNT TRIP FOR BLOCK DIAGRAM SEE DRAWING E-424



WD-14B 480V MCC-1W AND 2W MAIN BREAKERS

REV	DATE	BY	SUB	APP	DESCRIPTION
0	4/8/94	CY	AL	GMC	BASELINE ISSUE
1	4/8/94	CY	AL	GMC	REVISED PER DE 305-SBCN-1100

DESIGNED BY
C. YU
DRAWN BY
V. HOANG
CHECKED BY
S. KARUNJANTADIT
IN CHARGE
E. DER-AVAKIAN
DATE
19 APR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

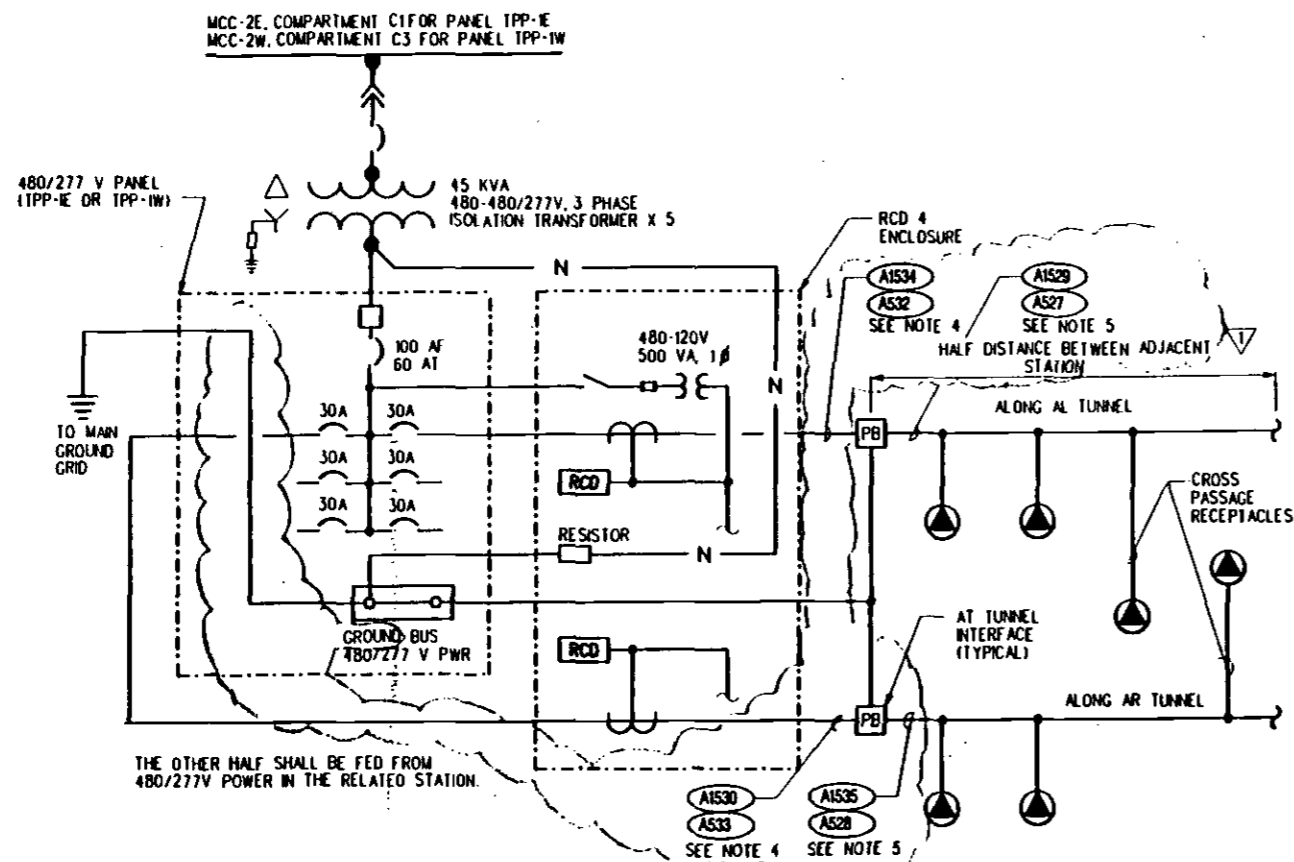
SUBMITTED: *[Signature]*
APPROVED: *[Signature]*

ELECTRICAL DIRECTIVE

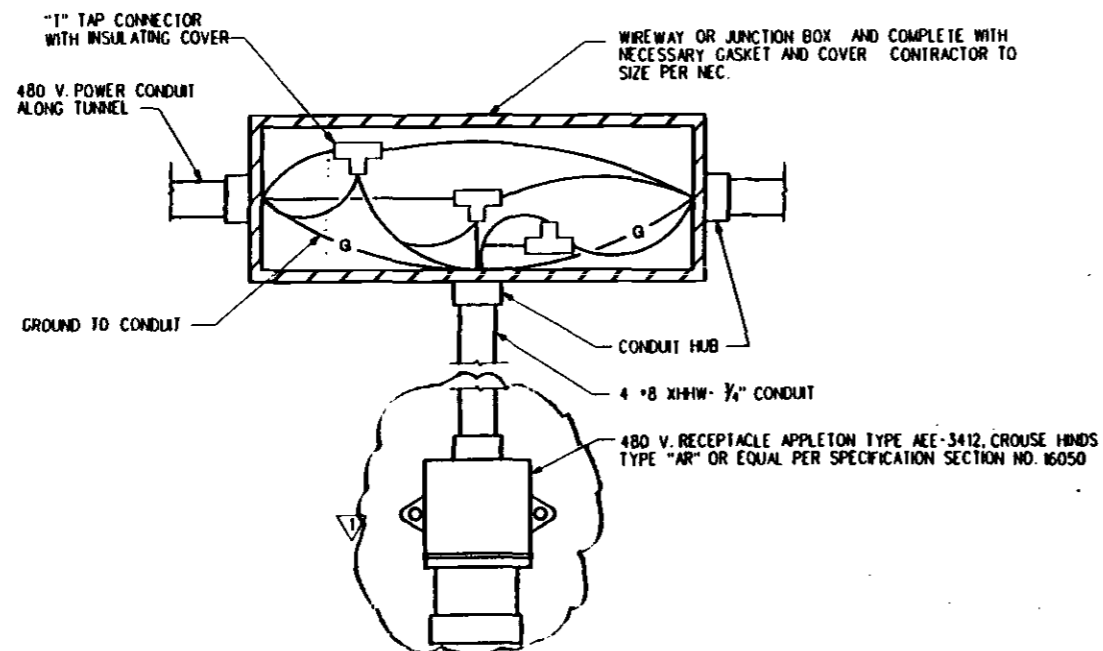
ELEMENTARY WIRING DIAGRAMS

SHEET 15 OF 18

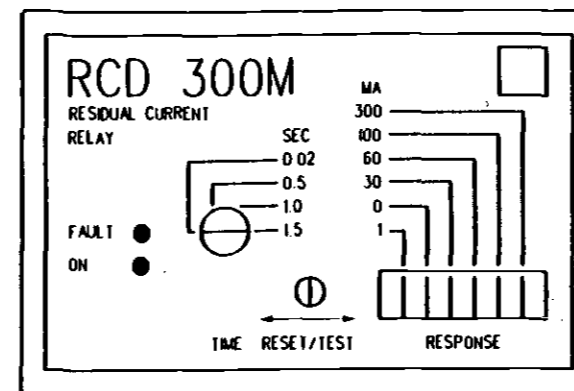
CONTRACT NO.	
DRAWING NO.	ED-255
SCALE	NO SCALE
SHEET NO.	1



TYPICAL ONE-LINE DIAGRAM-
480V RECEPTACLE SYSTEM



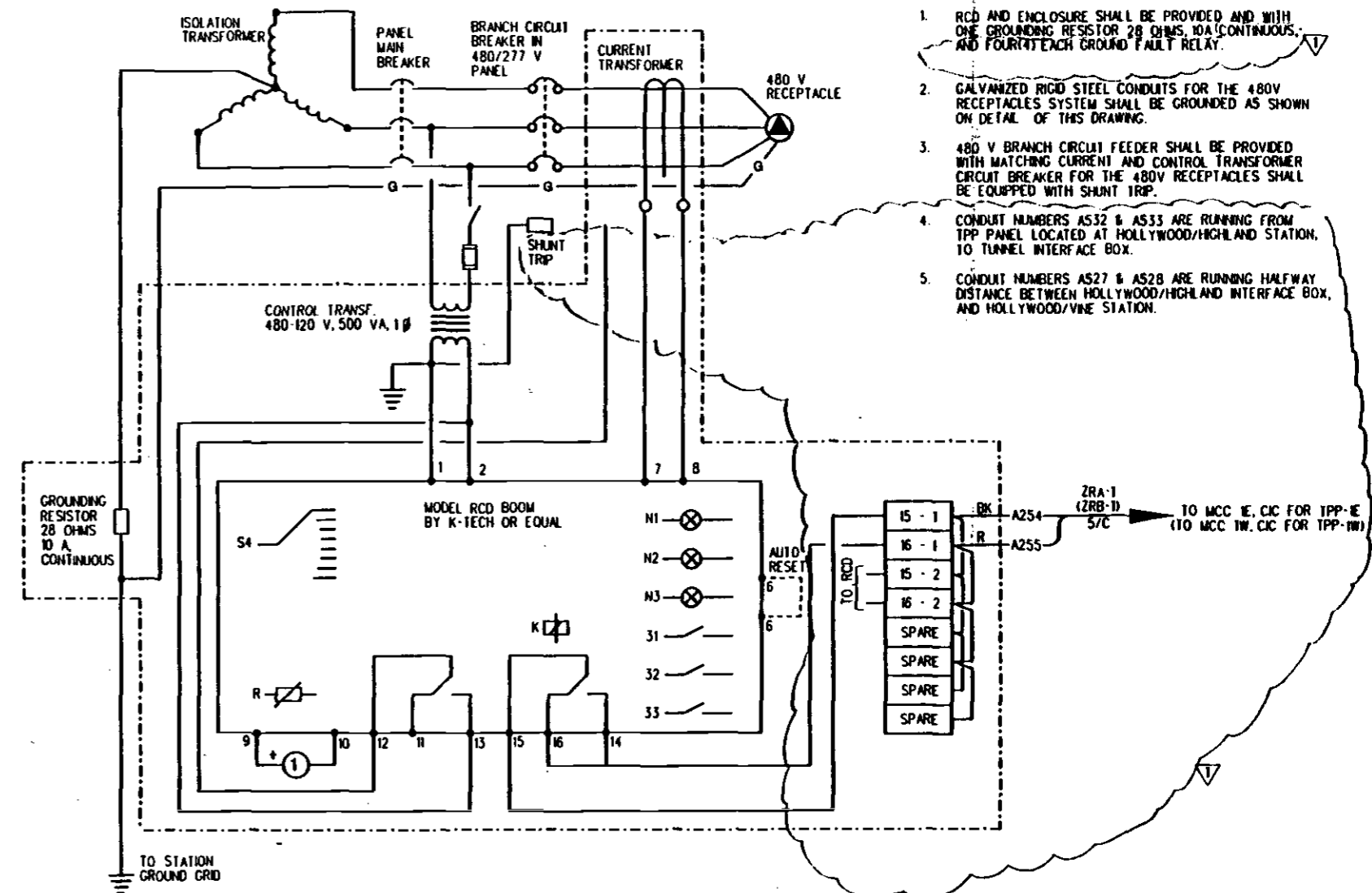
TYPICAL INSTALLATION DETAIL



- FEATURES
- 30 MA-3.0 A ADJUSTABLE SENSITIVITY
 - TIME DELAY-15 SECS
 - HARMONIC FILTERING
 - NO/NC FORM "C" OUTPUT ALARM RELAY CONTACTS
 - TEST/RESET BUTTONS
 - C.T. LOOP MONITORING

NOTES:

1. RCD AND ENCLOSURE SHALL BE PROVIDED AND WITH ONE GROUNDING RESISTOR 28 OHMS, 10A CONTINUOUS, AND FOURTEACH GROUND FAULT RELAY.
2. GALVANIZED RIGID STEEL CONDUITS FOR THE 480V RECEPTABLES SYSTEM SHALL BE GROUNDED AS SHOWN ON DETAIL OF THIS DRAWING.
3. 480 V BRANCH CIRCUIT FEEDER SHALL BE PROVIDED WITH MATCHING CURRENT AND CONTROL TRANSFORMER CIRCUIT BREAKER FOR THE 480V RECEPTABLES SHALL BE EQUIPPED WITH SHUNT TRIP.
4. CONDUIT NUMBERS A532 & A533 ARE RUNNING FROM TPP PANEL LOCATED AT HOLLYWOOD/HIGHLAND STATION, TO TUNNEL INTERFACE BOX.
5. CONDUIT NUMBERS A527 & A528 ARE RUNNING HALF WAY DISTANCE BETWEEN HOLLYWOOD/HIGHLAND INTERFACE BOX, AND HOLLYWOOD/VNE STATION.



WD-ZR WIRING DIAGRAM-
480V RECEPTACLE

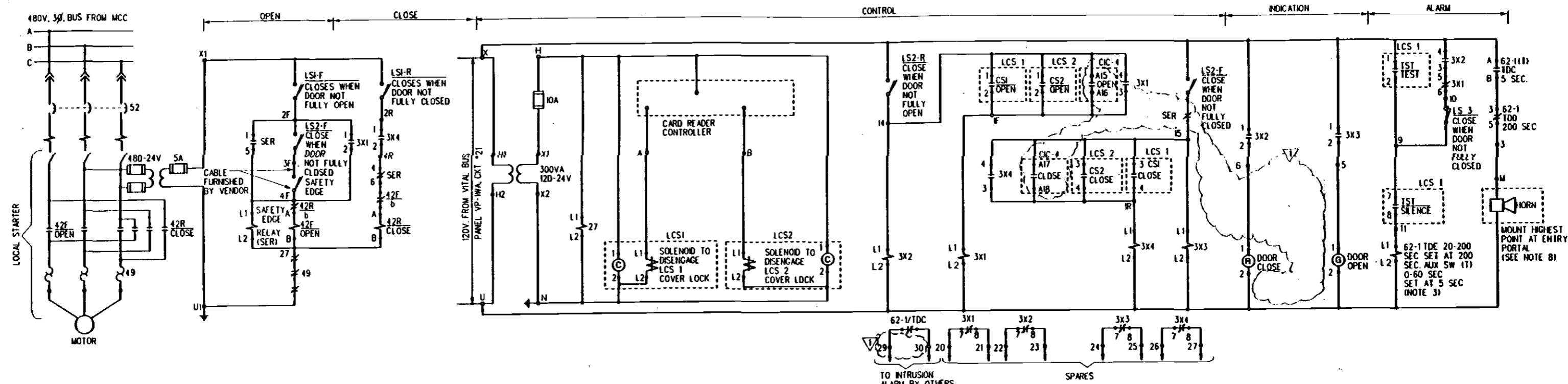
REV	DATE	BY	SUB	APP	DESCRIPTION
1	11/94	CY	AL	GMC	REVISED PER DE 305-SBCN-11.00
2	11/94	CY	AL	GMC	BASELINE ISSUE

DESIGNED BY
C. YU
DRAWN BY
V. HOANG
CHECKED BY
C. ROBINOL
IN CHARGE
E. DER-AVAKIAN
DATE
19 APR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY
ENGINEERING MANAGEMENT CONSULTANT
SUBMITTED
APPROVED

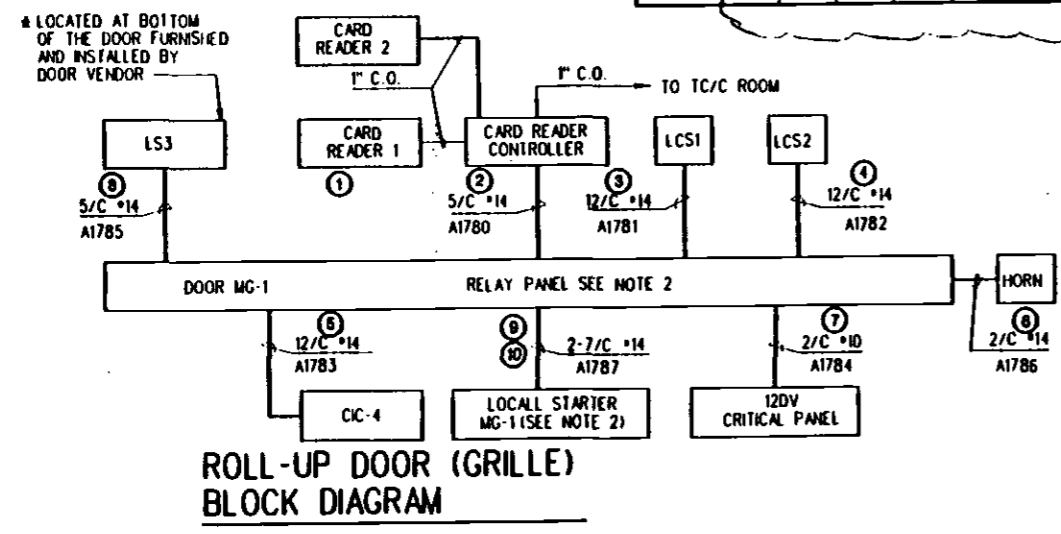
ELECTRICAL DIRECTIVE
ELEMENTARY WIRING DIAGRAMS
SHEET 16 OF 18

CONTRACT NO	
DRAWING NO	ED-256
SCALE	NO SCALE
SHEET NO	1



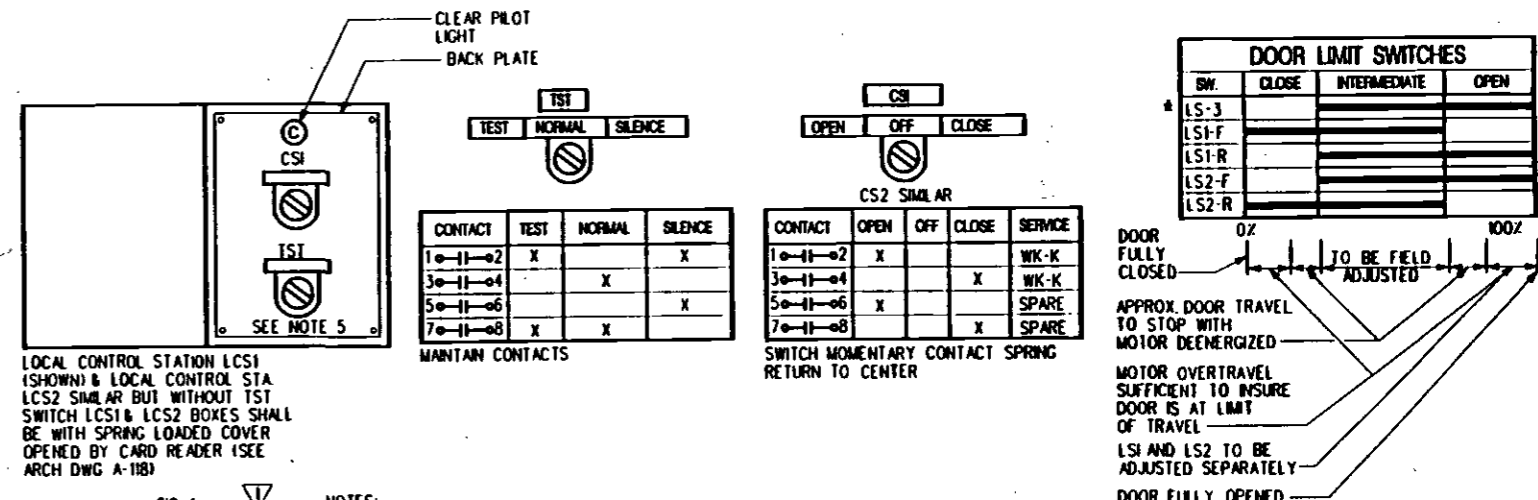
(SEE ADAPTER TABLE BELOW)
**WD-K ROLL-UP DOOR (GRILLE)
 MG-1 AT STATION ENTRANCE**

EQUIPMENT		480V PWR		120V CONTROL		CIC		CONNECTIONS AT CIC																		
GRILLE NO.	LOCATION	MCC	COMP.	PANEL	CKT.	NO.	ROOM	CONTROL					INDICATION													
MG-1	ENTRANCE	2W	B6	VP-TWA	21	4	STAFF RM S206	A15	A16	A17	A18	A19	A20	A21	A22	A23										
MG-FUT 2	FUT. ROLL-UP GRILLE 2					4	STAFF RM S206	A27	A28	A29	A30	A31	A32	A33	A34	A35										
MG-FUT 3	FUT. ROLL-UP GRILLE 3					4	STAFF RM S206	A39	A40	A41	A42	A43	A44	A45	A46	A47										
MG-FUT 4	FUT. ROLL-UP GRILLE 4					4	STAFF RM S206	A51	A52	A53	A54	A55	A56	A57	A58	A59										
							WIRE NO.	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32



**ROLL-UP DOOR (GRILLE)
 BLOCK DIAGRAM**

AUXILIARY CIRCUIT IN RELAY PANEL



LOCAL CONTROL STATION LCS1 (SHOWN) & LOCAL CONTROL STA LCS2 SIMILAR BUT WITHOUT TST SWITCH LCS1 & LCS2 BOXES SHALL BE WITH SPRING LOADED COVER OPENED BY CARD READER (SEE ARCH DWG A-188)

- NOTES:
- CS1 & CS2 ARE CONTROLS SWITCHES LOCATED IN LOCAL CONTROL STATIONS. LCS 1 LOCATED OUTSIDE OF ROLL-UP GRILLE & LCS 2 LOCATED INSIDE OF ROLL-UP GRILLE.
 - ALL DEVICES ARE INSTALLED IN RELAY PANEL SEE DETAIL 45 ON DWG. NO. ED-234.
 - 62-115 TIME DELAYED ON ENERGIZATION, EQUIPPED WITH ONE "I" AUX. SWITCH, ADJUSTABLE TO 5 SECONDS.
 - DOOR MOTOR SHALL BE EQUIPPED WITH LIMIT SW. AS INDICATED.
 - LCS 1 & LCS2 SHALL HAVE TWO BACK PLATES-ONE INSIDE FOR MOUNTING A 12 POINT TERMINAL BLOCK FOR FIELD WIRING, THE OTHER BACK PLATE AS SHOWN ON THIS DWG FOR MOUNTING OF SWITCH AND LIGHTS LCS1 & LCS2 BOXES TO BE INSTALLED IN 10" X 10" X 8" BLOCKOUT.
 - REMOTE OPERATION FROM OPERATIONS CONTROL CENTER SHALL BE FOR EMERGENCY REQUIREMENTS ONLY.
 - BOTH RED & GREEN LIGHTS ARE ON FOR AN INTERMEDIATE POSITION OF DOOR.

REV	DATE	BY	SUB	APP	DESCRIPTION
0	4/29/94	CY	AHL	GMC	REVISED PER DE 305-SBCN-11.00 REVISED AND REDRAWN PER DCN 81-11

DESIGNED BY
C. YU
 DRAWN BY
F. DE CASTRO
 CHECKED BY
C. ROBINOL
 IN CHARGE
E. OER-AVAKIAN
 DATE
7 APR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

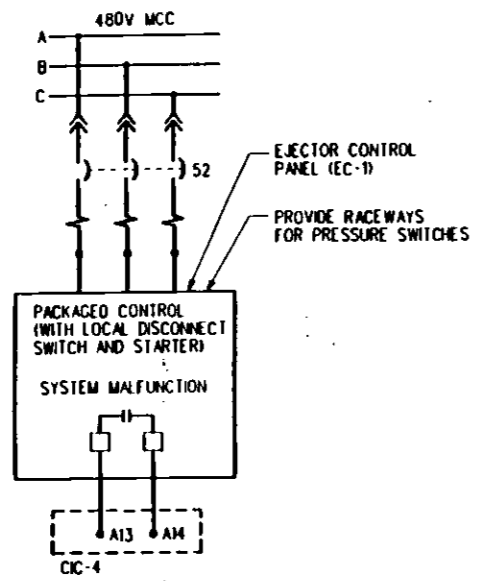
ENGINEERING MANAGEMENT CONSULTANT

Submitted: *Edmond A. Chalk*

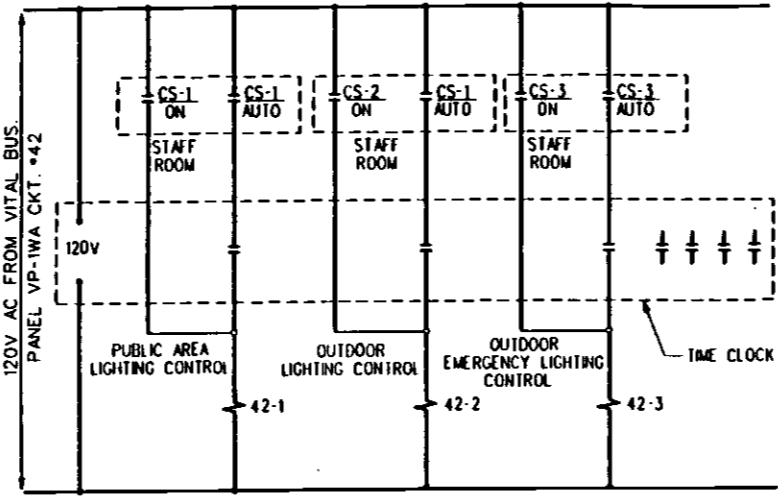
Approved: *[Signature]*

ELECTRICAL DIRECTIVE
ELEMENTARY WIRING DIAGRAMS
 SHEET 17 OF 18

CONTRACT NO.	
DRAWING NO.	ED-257
REV.	1
SCALE	NO SCALE
SHEET NO.	

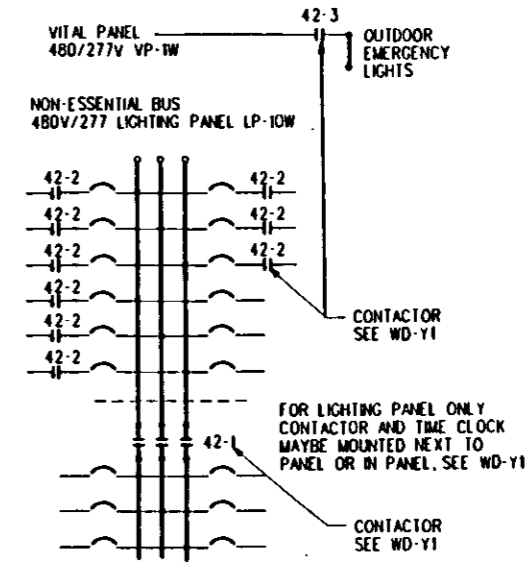


WD-G2 DUPLEX PNEUMATIC SEWAGE EJECTOR



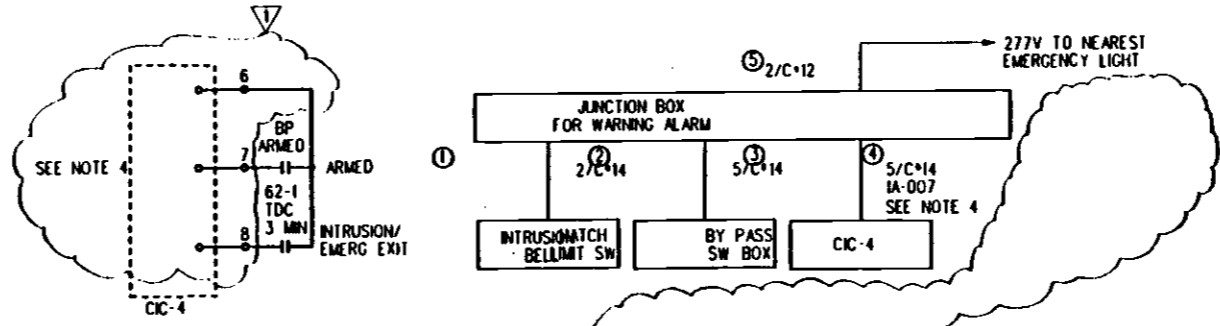
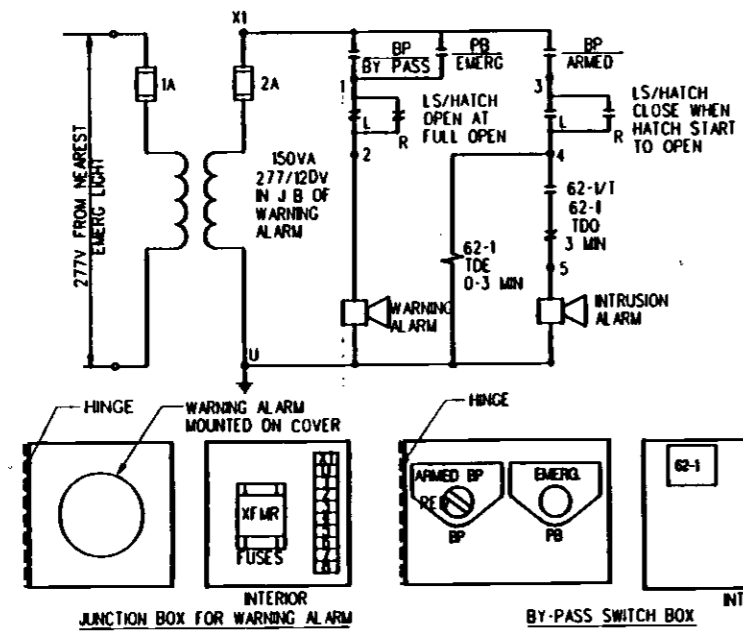
WD-Y1 STATION PUBLIC AREA AND OUTDOOR LIGHTING CONTROL

- NOTES:**
- STATION PUBLIC AREA AND OUTDOOR LIGHTING CONTROL PANEL TO BE MOUNTED NEXT TO LIGHTING LP-10W.
 - TIME CLOCK SHALL BE SOLIDSTATE TYPE.



WD-Y2 STATION PUBLIC AREA LIGHTING

- NOTE:**
- SEE PANEL SCHEDULE LP-10W FOR BRANCH CIRCUITS.



ADAPTER TABLE (SEE NOTE 4)

LOCATION OF EXIT	EXIT NO	CIC NO.	TERMINAL AT CIC	COND. TO CIC
STAR #13	1	4		IA-006
STAR #8	2	4		IA-006
			WIRE NO. 6 7 8	

- NOTES:**
- RELAY 62-1 SHALL BE EQUIPPED WITH ONE INSTANTANEOUS CONTACT AND TWO FORM C CONTACTS, TIME DELAYED AFTER ENERGIZATION.
 - EMERGENCY PUSH BUTTON IS LIGHTED SWITCH (RED) WITH MAINTAINED CONTACT.
 - WARNING ALARM SHALL BE AN INTERMITTANT, INTRUSION BELL SHALL BE CONTINUOUS HIGH PITCH SOUND, EXCEEDING 100 DECIBELS. SUBMIT SHOP DRAWING FOR APPROVAL.
 - FACILITY CONTRACTOR FURNISHED CONDUITS FROM JUNCTION BOX TO CIC CABINETS. WIRING FROM JUNCTION BOX TO CIC CABINETS BY OTHERS.

WD-F EMERGENCY EXIT HATCH NO 1 MONITORING

REV	DATE	BY	SUB	APP	DESCRIPTION
0	26 96	CY	AVL	CMC	REVISED PER DE 305-SBCN-11 00
1	322 94	CY	AVL	CMC	REVISED AND REDRAWN PER DCN 83-43

DESIGNED BY
C. YU
DRAWN BY
V. HOANG
CHECKED BY
C. ROSENOL
IN CHARGE
E. DER-AVAKIAN
DATE
22 MAR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

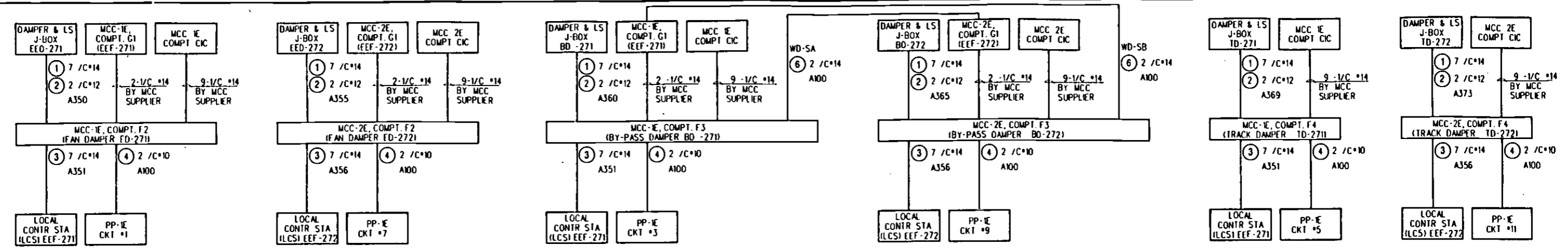
Submitted by: *Edward De... [Signature]*
Approved by: *[Signature]*

ELECTRICAL DIRECTIVE

ELEMENTARY WIRING DIAGRAMS

SHEET 18 OF 18

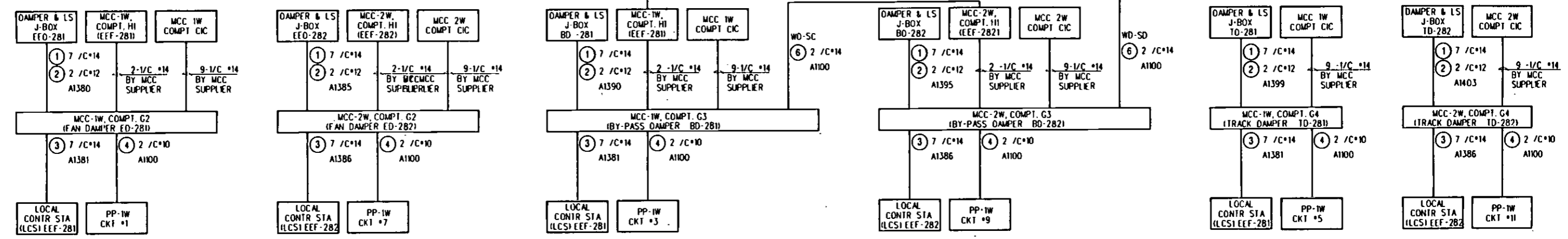
CONTRACT NO.	REV
DRAWING NO.	1
SCALE	
NO SCALE	
SHEET NO.	



EMERGENCY FAN DAMPERS

EMERGENCY FAN BY-PASS DAMPERS

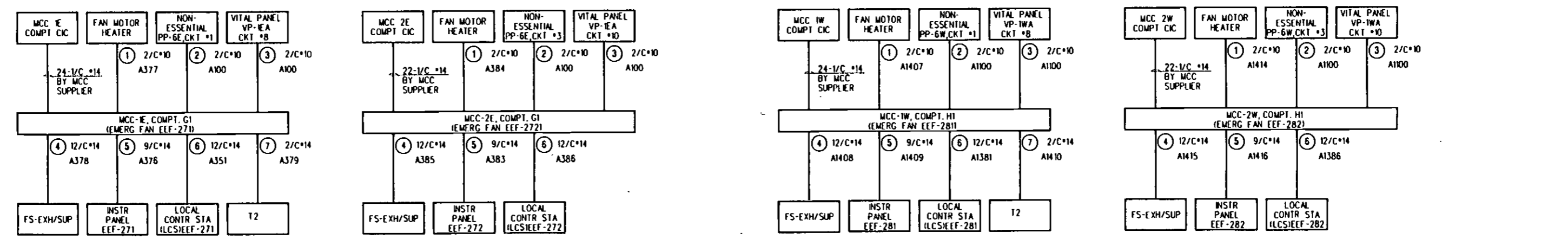
EMERGENCY FAN TRACK DAMPERS



EMERGENCY FAN DAMPERS

EMERGENCY FAN BY-PASS DAMPERS

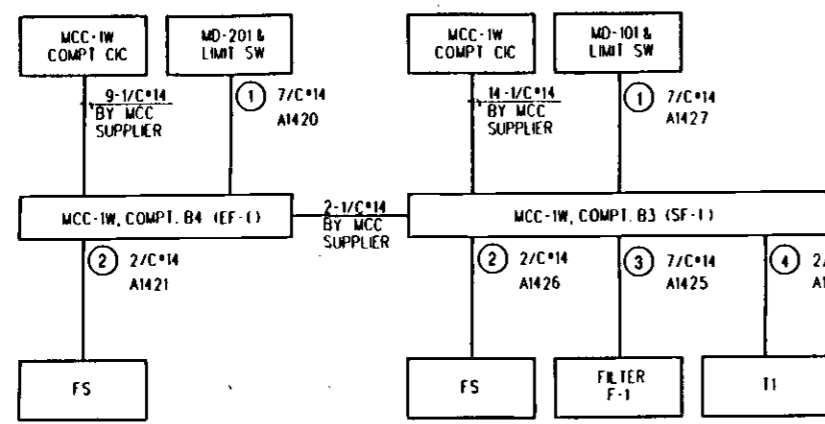
EMERGENCY FAN TRACK DAMPERS



EMERGENCY FANS

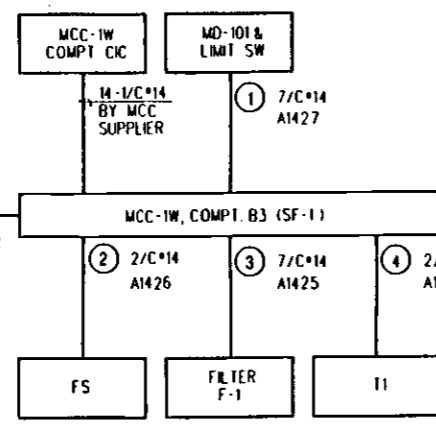
EMERGENCY FANS

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DESIGNED BY	C. YU																																																																																								
DRAWN BY	V. HOANG																																																																																								
CHECKED BY	C. ROBINOL																																																																																								
IN CHARGE	A. LAWSON																																																																																								
DATE	22 MAR 94																																																																																								
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REV	DATE	BY	CHKD	APP'D	DESCRIPTION																																																																																				
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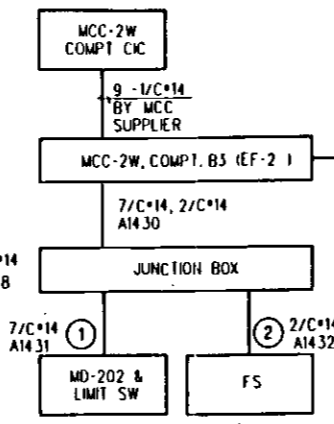


WD-D2A

W. AUX PWR RM EXH FAN EF-1 AND SUP FAN SF-1

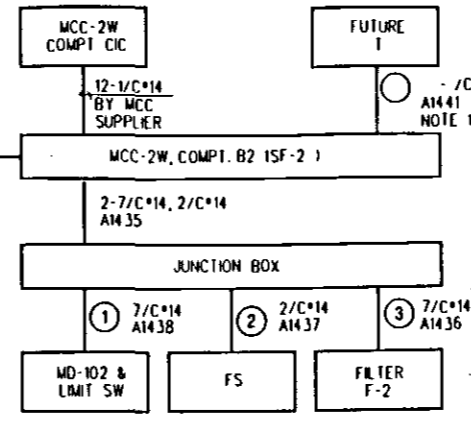


WD-D3A

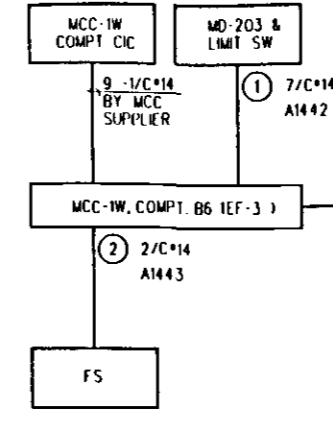


WD-D2B

W. AIR SUP RM EXH FAN EF-2 AND SUP FAN SF-2

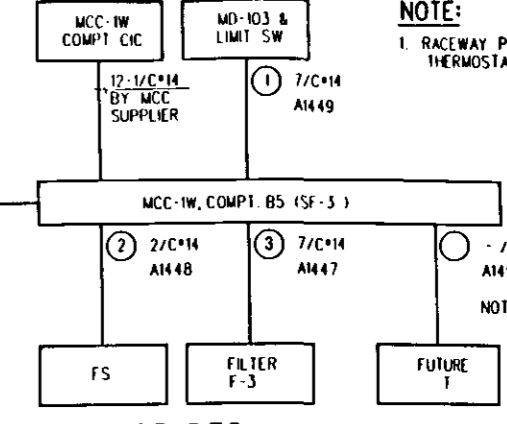


WD-D3B



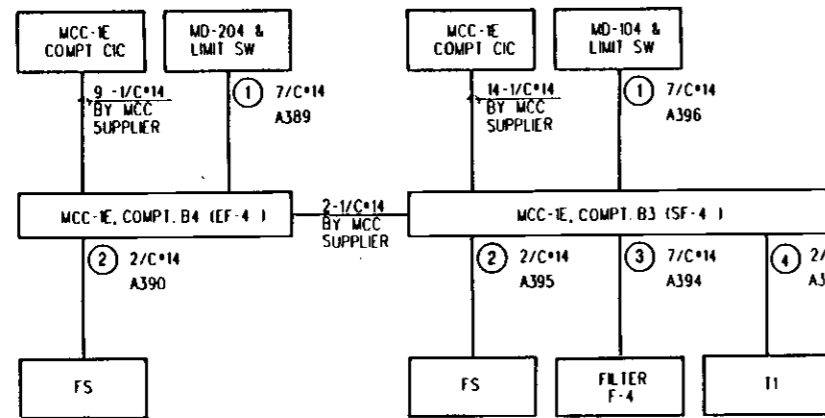
WD-D2C

W. EMERG FAN RM EXH FAN EF-3 AND SUP FAN SF-3



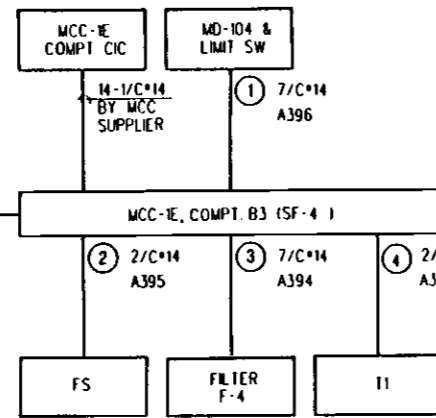
WD-D3C

NOTE:
1. RACEWAY PROVIDED FOR FUTURE THERMOSTAT CONTROL.

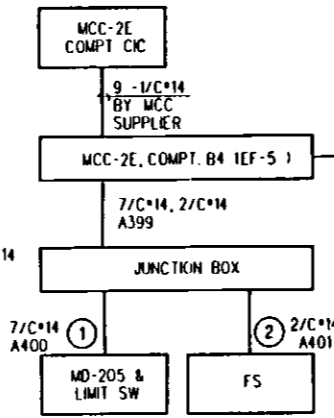


WD-D2D

E. AUX PWR RM EXH FAN EF-4 AND SUP FAN SF-4

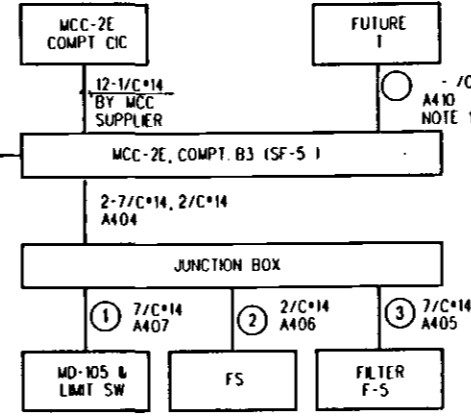


WD-D3D

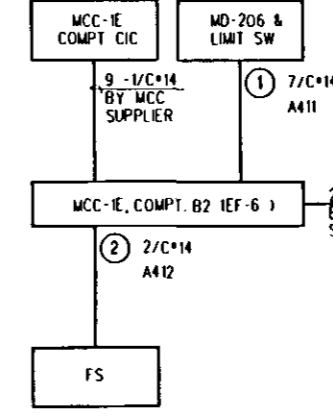


WD-D2E

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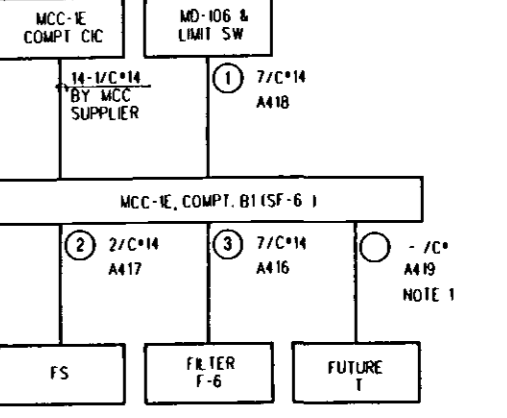


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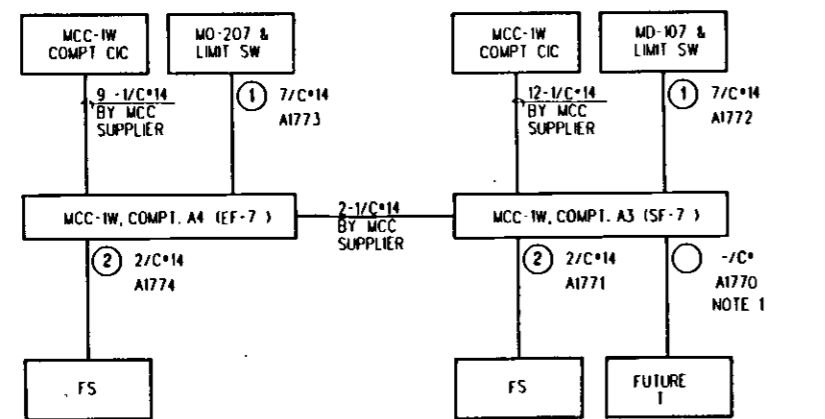


WD-D2F

E. EMERG FAN RM EXH FAN EF-6 AND SUP FAN SF-6

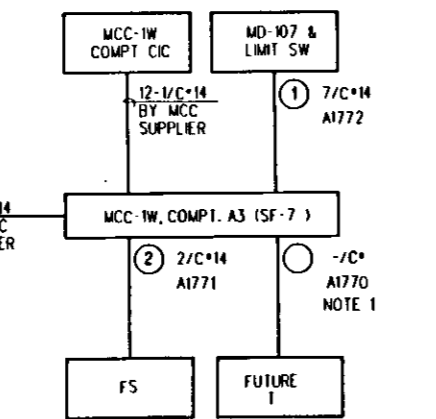


WD-D3F

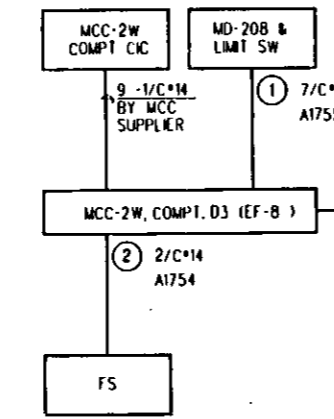


WD-D2G

ANCILLARY RM EXH FAN EF-7 AND SUP FAN SF-7

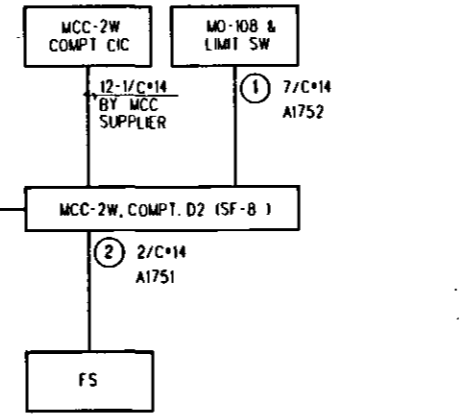


WD-D3G

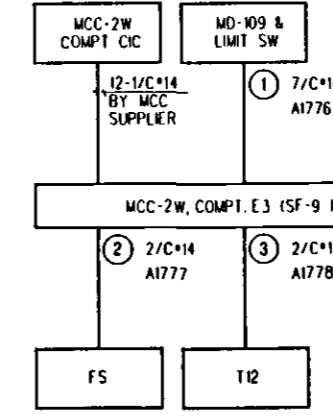


WD-D2H

CHILLER RM EXH FAN EF-8 AND SUP FAN SF-8

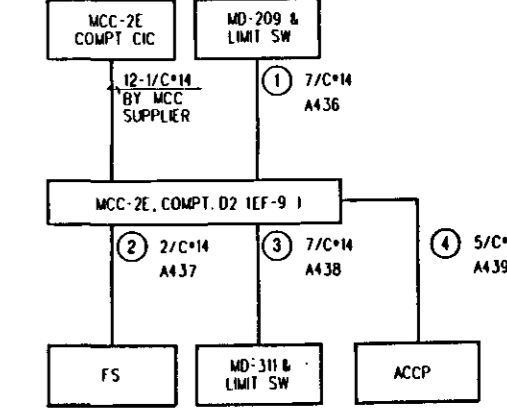


WD-D3H



WD-D3J

DWP AUX RM SUP FAN SF-9



WD-D5

TC AND C RM EXH FAN EF-9

REV	DATE	BY	SUB	APP	DESCRIPTION
0	3 22 94	CY	AHL	GMC	REVISED AND REDRAWN PER DCN 91-10

DESIGNED BY
C. YU
DRAWN BY
V. HOANG
CHECKED BY
C. ROBINIOL
IN CHARGE
A. LAWSON
DATE
22 MAR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

FOR: Los Angeles County Metropolitan Transportation Authority
 Daniel Mann, Johnson & Mendenhall
 12750 Wilshire Boulevard, Suite 1000
 Culver City, California 90230
 Telephone: (310) 551-1000

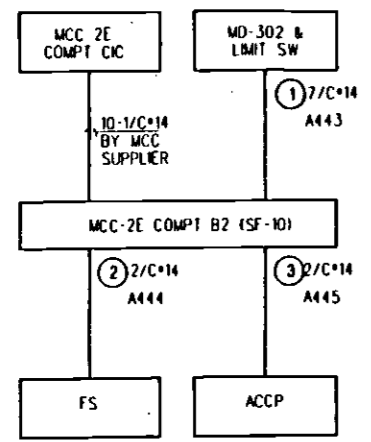
SUBMITTED: *[Signature]*
 APPROVED: *[Signature]*

ELECTRICAL DIRECTIVE

CABLE BLOCK DIAGRAM

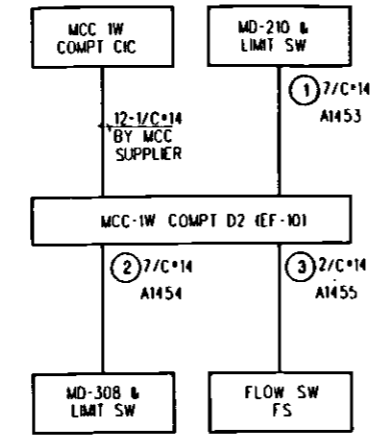
SHEET 3 OF 4

CONTRACT NO.	
DRAWING NO.	REV
ED-263	0
SCALE	
NO SCALE	
SHEET NO.	



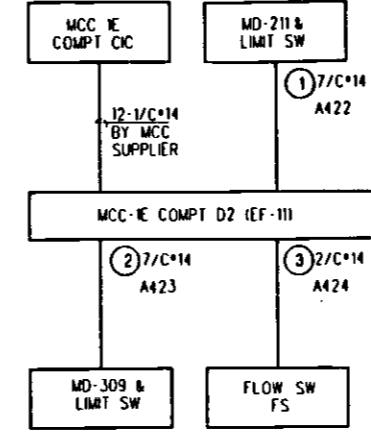
WD-D3K

TC&C ROOM SUP FAN SF-10



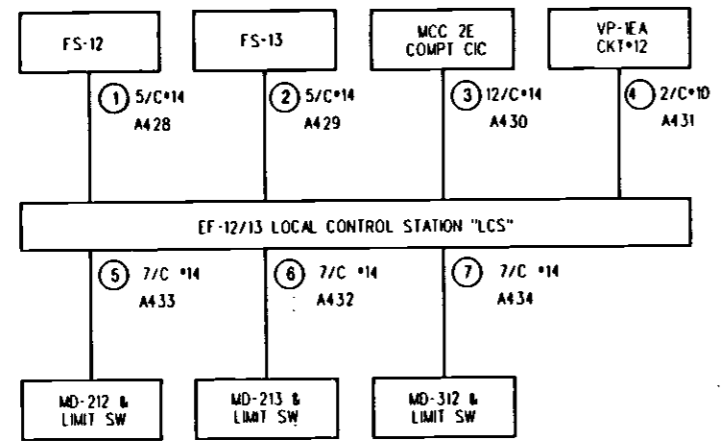
WD-D4A

W. BATTERY ROOM EXH FAN EF-10



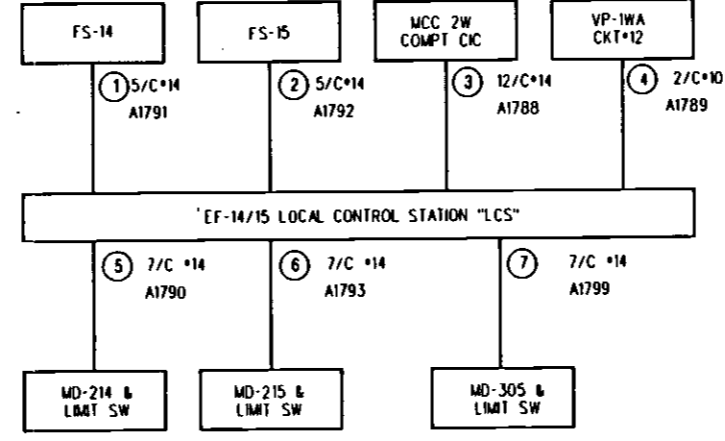
WD-D4B

E. BATTERY ROOM EXH FAN EF-11



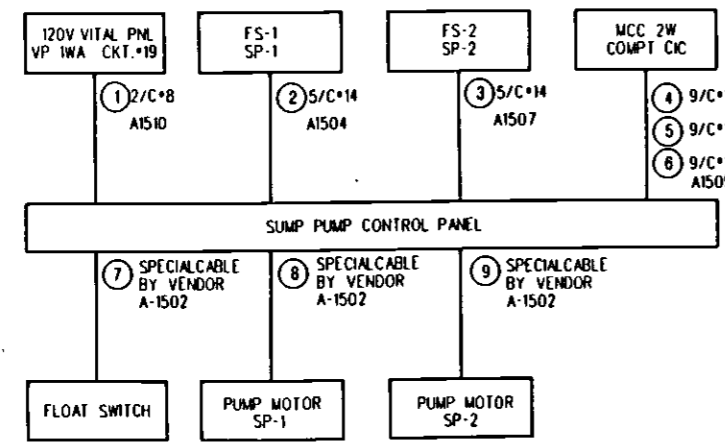
WD-D7A

TC & C BATT RM EXH FANS EF-12 AND EF-13



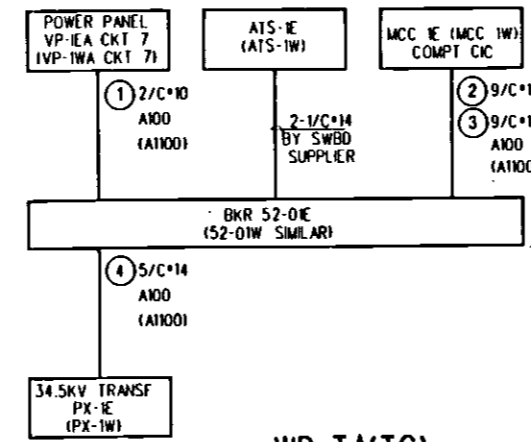
WD-D7B

DWP'S BATT RM EXH FANS EF-14 AND EF-15



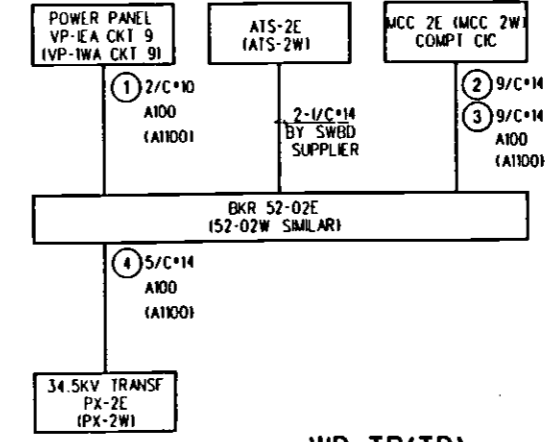
WD-G

DUPLEX SUMP PUMPS SP-1 AND SP-2



WD-TA(TC)

BREAKERS-52-01E, 52-02E, 52-01W AND 52-02W
(INFORMATION IN PARENTHESIS IS FOR 52-01W AND 52-02W)



WD-TB(TD)

REV	DATE	BY	CHK	APP	DESCRIPTION
0	4-19-94	CY	AL	GMC	BASELINE ISSUE

DESIGNED BY
C. YU
DRAWN BY
A. JOSE
CHECKED BY
C. ROSENBLUM
IN CHARGE
A. LAWSON
DATE
19 APR 94



LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

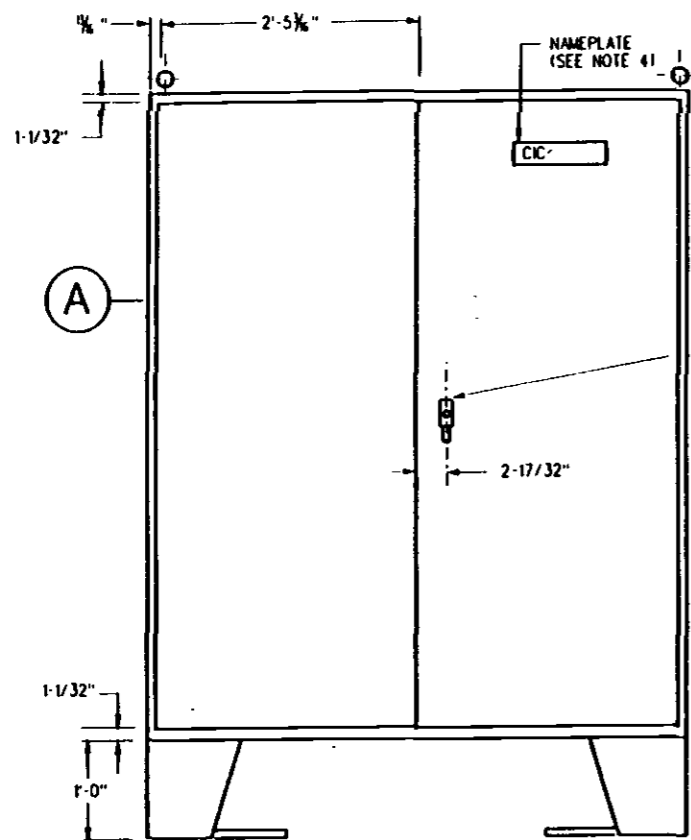
ENGINEERING MANAGEMENT CONSULTANT
an association of
Professional Engineers, Architects, Surveyors, Planners, and Environmental Engineers
California Professional Engineers (CPE) Corp.
California Professional Architects (CPA) Corp.
California Professional Surveyors (CPS) Corp.
California Professional Planners (CPP) Corp.
California Professional Environmental Engineers (CPEE) Corp.

SUBMITTED
[Signature]
APPROVED
[Signature]

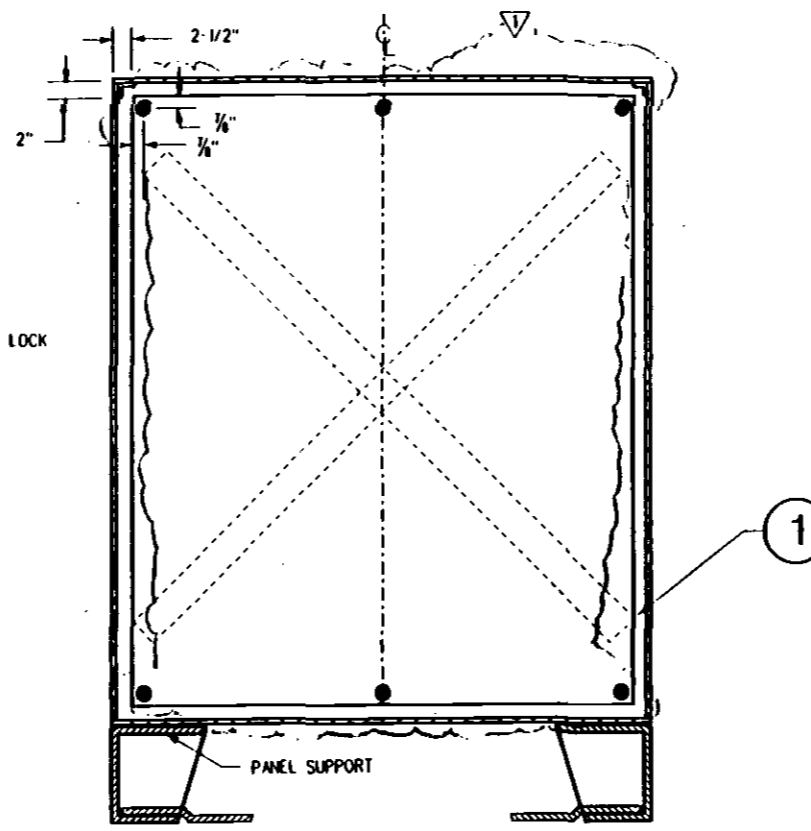
ELECTRICAL DIRECTIVE
CABLE BLOCK DIAGRAM
SHEET 4 OF 4

CONTRACT NO.	
DRAWING NO.	ED-264
REV	0
SCALE	NO SCALE
SHEET NO.	

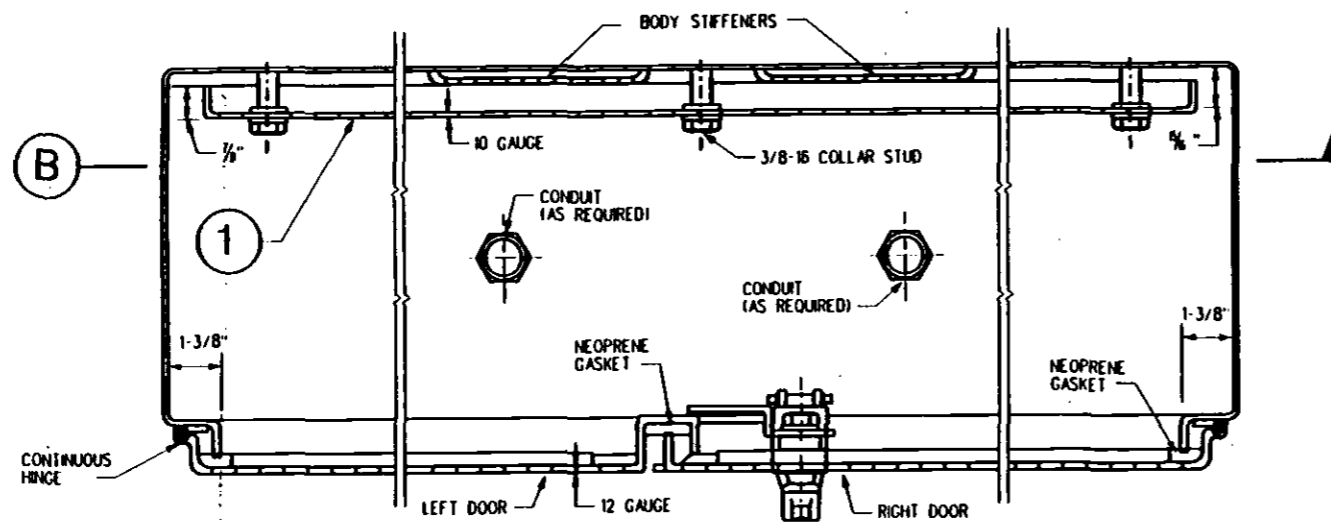
02-11-1994 14:38
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 PLOTTED BY: [Name]



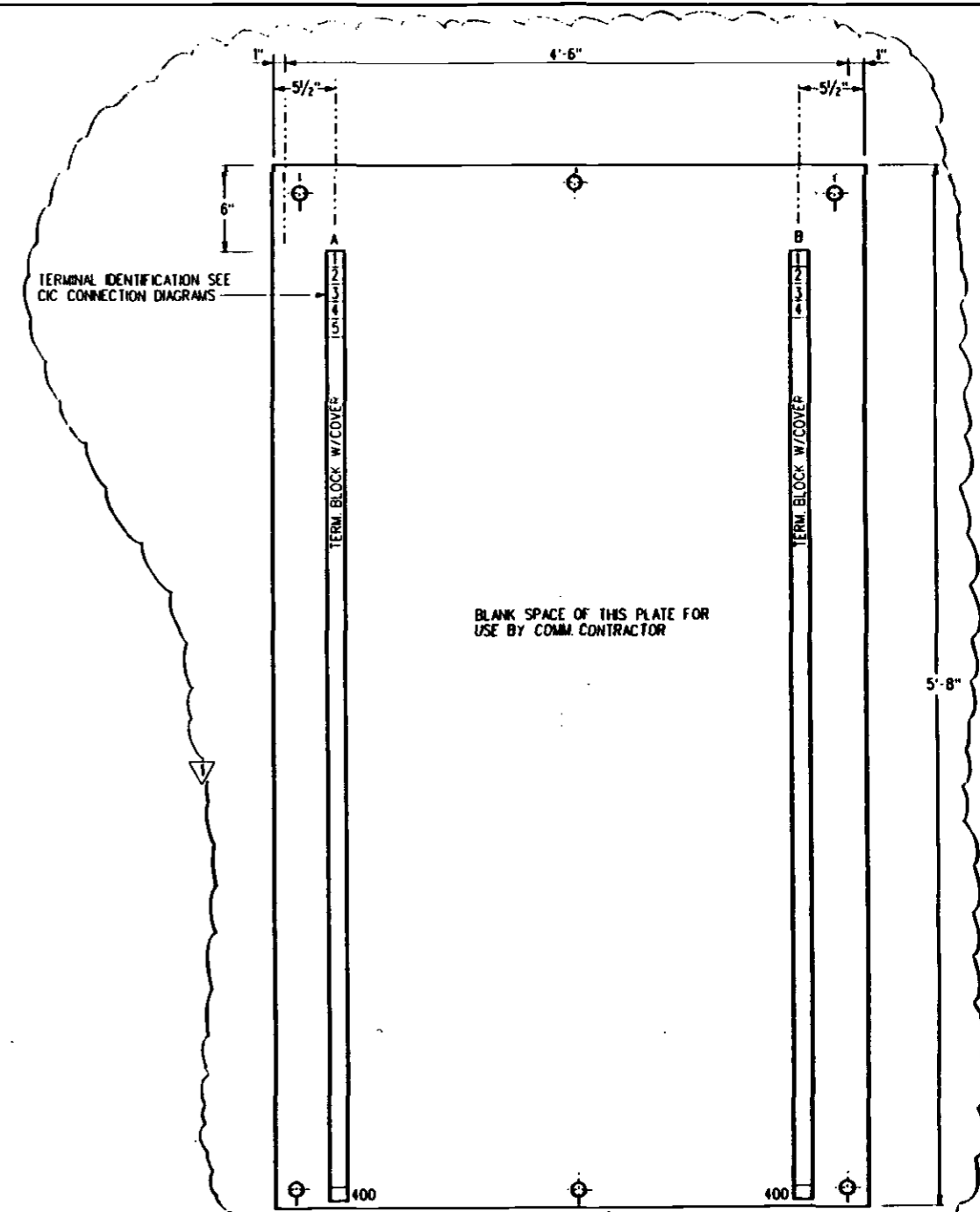
ELEVATION



SECTION



SECTION



TERMINAL BLOCK ARRANGEMENT 1

BACK PLATE (PANEL)

LIST OF FINISHED UNDER THIS CONTRACT	
NO.	LOCATION
CIC - 1	TRACTION POWER ROOM
CIC - 4	STAFF SECURITY ROOM

NOTE FOR COMMUNICATION CONTRACTOR ONLY
 CONTRACTOR MAY ADD EXTRA CABINET TO BE INSTALLED NEXT TO THE OWNER FURNISHED CABINET IF THE SPACE PROVIDED FOR IS NOT ADEQUATE.

NOTES:

1. TERMINAL BLOCK SHALL BE RATED 600V AND EQUIPPED WITH COVERS.
2. CABINET SHALL BE NEMA 12, 6'H X 5'W X 1'-4"D (APPROXIMATE) WITH BODY STIFFENERS AND TWO BACK PLATES AS SHOWN.
3. WIREWAY SHALL BE WITH SIDE SLOTS FOR WIRING.
4. PROVIDE NAME PLATE WITH APPROPRIATE CIC NUMBER. AFFIX NAME PLATE WITH RUST PROOF MACHINE SCREWS.
5. RAISE TERMINAL STRIP TO 1/2" HIGHER THAN THE WIREWAYS.

REV	DATE	BY	SUB	APP	DESCRIPTION
0	1-18-94	CY	AL	CMC	REVISED PER DEJDS-SBCN-11.00 BASELINE ISSUE

DESIGNED BY
C. YU
 DRAWN BY
V. HOANG
 CHECKED BY
C. ROBENIOL
 IN CHARGE
E. DER-AVAKIAN
 DATE
19 APR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

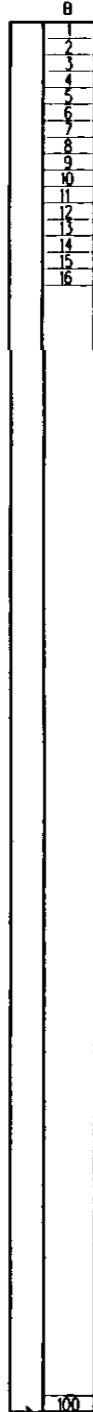
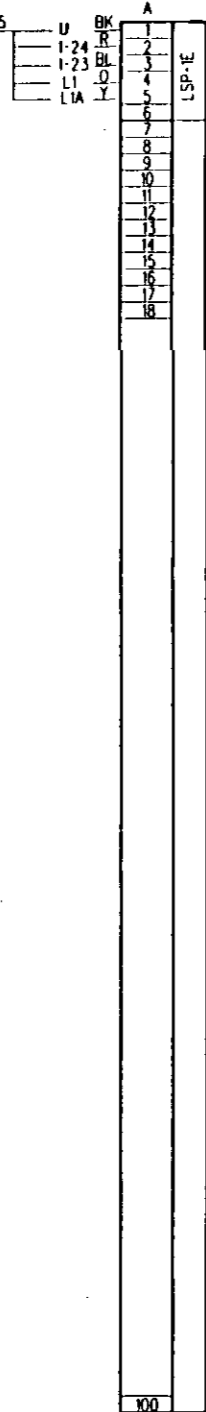
FORWARD: Ernest & Young, Inc.
 Ernest & Young, Inc.
 2700 Wilshire Blvd., Suite 1000
 Los Angeles, CA 90010
 Telephone: (213) 487-1000
 Telex: 980000 EY

SUBMITTED: *Ernest & Young*
 APPROVED: *[Signature]*

ELECTRICAL DIRECTIVE
 CIC CABINET CONSTRUCTION DETAIL

CONTRACT NO.	
DRAWING NO.	ED-271
REV	1
SCALE	NO SCALE
SHEET NO.	

NOTE 3
 TO LOAD SHED PANEL LSP-IE
 LSE-5
 5/C

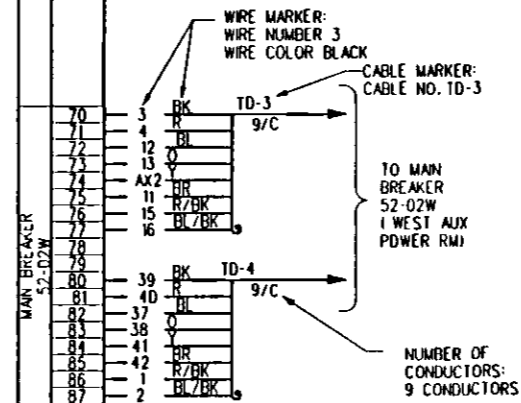


NOTE:

1. CIRCUIT IDENTIFICATION MARKED ON TERMINAL BLOCK COVERS. CUT COVER AS INDICATED.
2. ALL CONTROL CONDUCTORS ARE #14 AWG.
3. TERMINATED CONDUCTORS TO BE INDIVIDUALLY TAGGED WITH WIRE NUMBER AND CABLE NUMBER.
4. CONNECTIONS SHOWN ARE SAMPLE ONLY, SEE ED-273 THRU ED-284 FOR STANDARD CONNECTION DIAGRAMS.
5. CONTROL WIRE COLOR CODING PER NEMA WC-50CEA 55-61-402)

CABLE COLOR CODE AND ABBREVIATIONS:

CONDUCTOR	COLOR	ABBREVIATION
1	BLACK	BK
2	RED	R
3	BLUE	BL
4	ORANGE	O
5	YELLOW	Y
6	BROWN	BR
7	RED/BLACK	R/BK
8	BLUE/BLACK	BL/BK
9	ORANGE/BLACK	O/BK
10	YELLOW/BLACK	Y/BK
11	BRDN/BLACK	BR/BK
12	BLACK/RED	BK/R



NOTE 1

REV	DATE	BY	SUB	APP	DESCRIPTION
0	4/19/94	CY	AL	GMC	BASELINE ISSUE

DESIGNED BY
C. YU
 DRAWN BY
S. EVANS
 CHECKED BY
C. ROBINOL
 IN CHARGE
A. LAWSON
 DATE
19 APR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

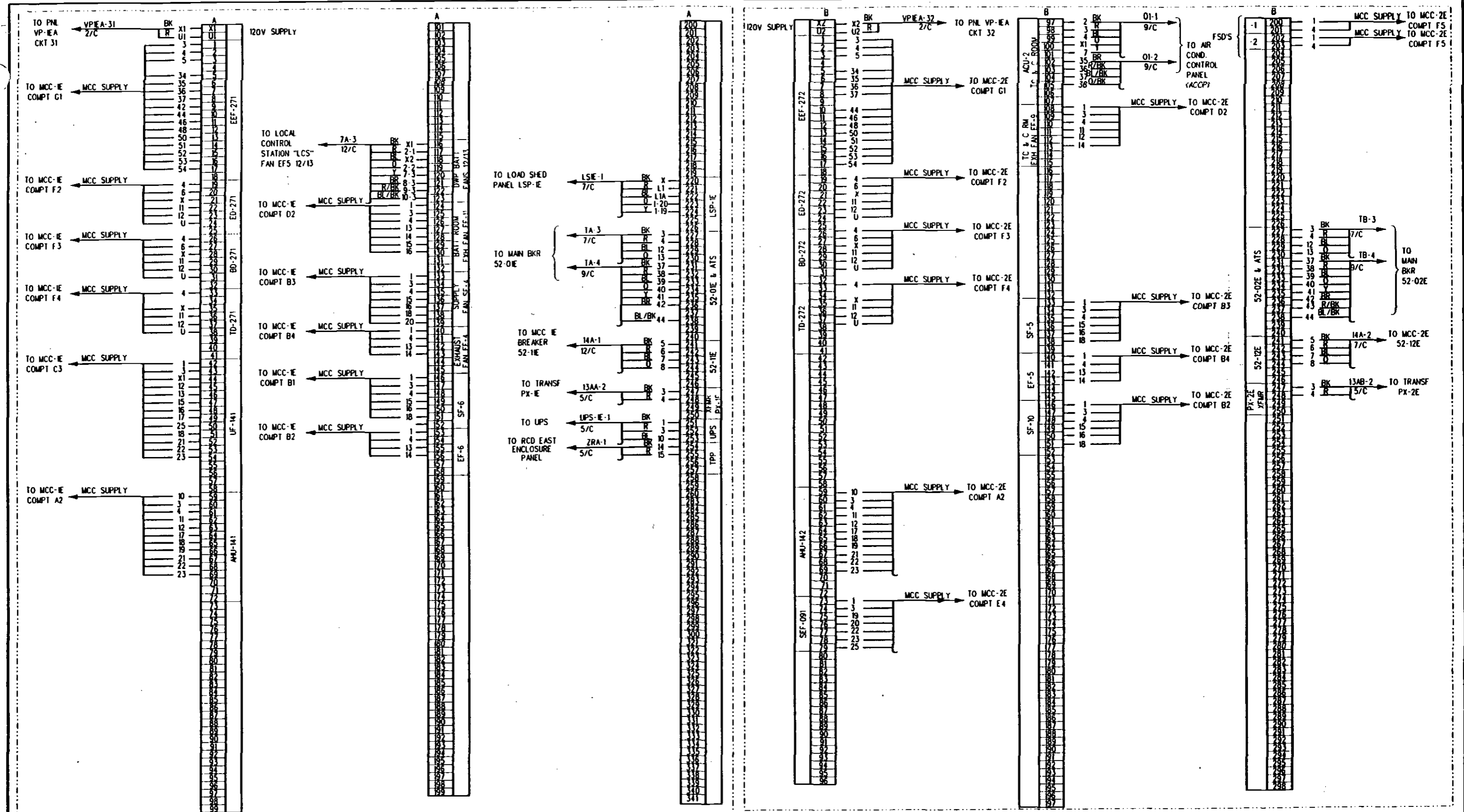
Submitted: *A. Lawson*
 Approved: *[Signature]*

ELECTRICAL DIRECTIVE
 CONNECTION DIAGRAM
 TYPICAL ARRANGEMENT
 AND WIRE MARKING

CONTRACT NO.	
DRAWING NO.	REV
ED-272	0
SCALE	
NO SCALE	
SHEET NO.	

22:44:59 14.33 11/10/2012 10:30:00 AM C:\Users\jgarcia\Documents\Projects\ED-272.dwg

53



MCC 1E COMPARTMENT CIC

NOTE:
FOR NOTES AND GENERAL INFORMATION, SEE DRAWING EO-282.

MCC 2E COMPARTMENT CIC

REV	DATE	BY	SUB	APP	DESCRIPTION
1	26 96	CY	AKL	CMC	REVISED AND REDRAWN PER DE 105-SB-CN-1100
2	3 22 94	CY	AKL	CMC	REVISED AND REDRAWN PER DCN-91-19

DESIGNED BY
C. YU
DRAWN BY
V. HOANG
CHECKED BY
C. ROSENLOH
IN CHARGE
E. DER-AVAKIAN
DATE
22 MAR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

EDWARD M. ROSENLOH & ASSOCIATES, INC.

SUBMITTED: *Edward M. Rosenloh*
APPROVED: *Jim*

ELECTRICAL DIRECTIVE

CONNECTION DIAGRAM

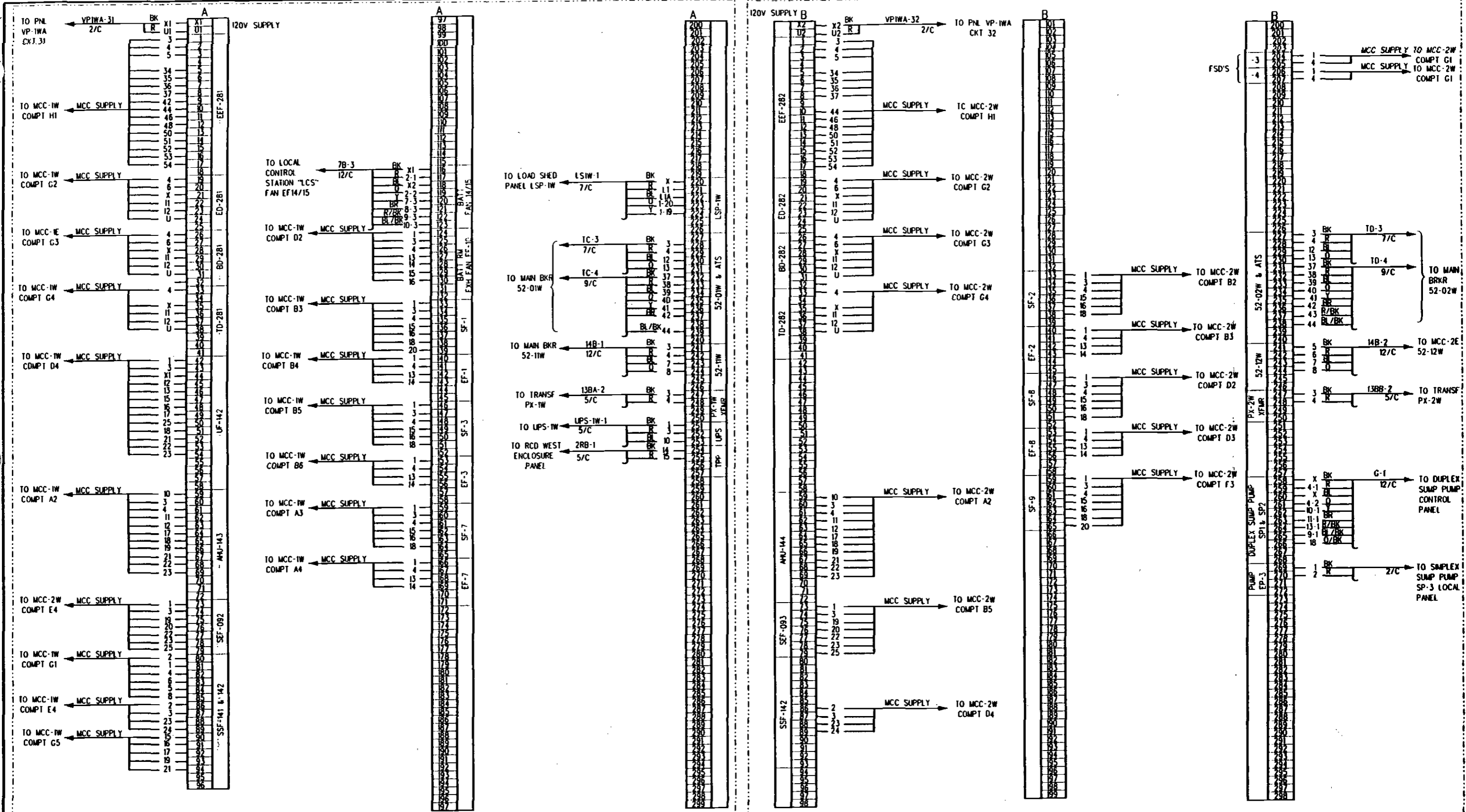
SHEET 1 OF 12

CONTRACT NO.

DRAWING NO. ED-273

SCALE: NO SCALE

SHEET NO.



MCC 1W COMPARTMENT CIC

NOTE:
FOR NOTES AND GENERAL INFORMATION, SEE DRAWING ED-282.

MCC 2W COMPARTMENT CIC

REV	DATE	BY	SUB	APP	DESCRIPTION
1	26 96	CY	AHL	GMC	REVISED AND REDRAWN PER
2	3-22-99	CY	AHL	GMC	REVISED AND REDRAWN PER DCN 91-19

DESIGNED BY
C. YU
DRAWN BY
V. HOANG
CHECKED BY
C. ROBINOL
IN CHARGE
E. DER-AVAKIAN
DATE
22 MAR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

SUBMITTED: *Edward Der-Avakian*

APPROVED: *J.W.*

ELECTRICAL DIRECTIVE

CONNECTION DIAGRAM

SHEET 2 OF 12

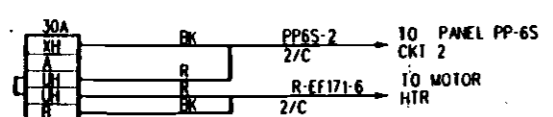
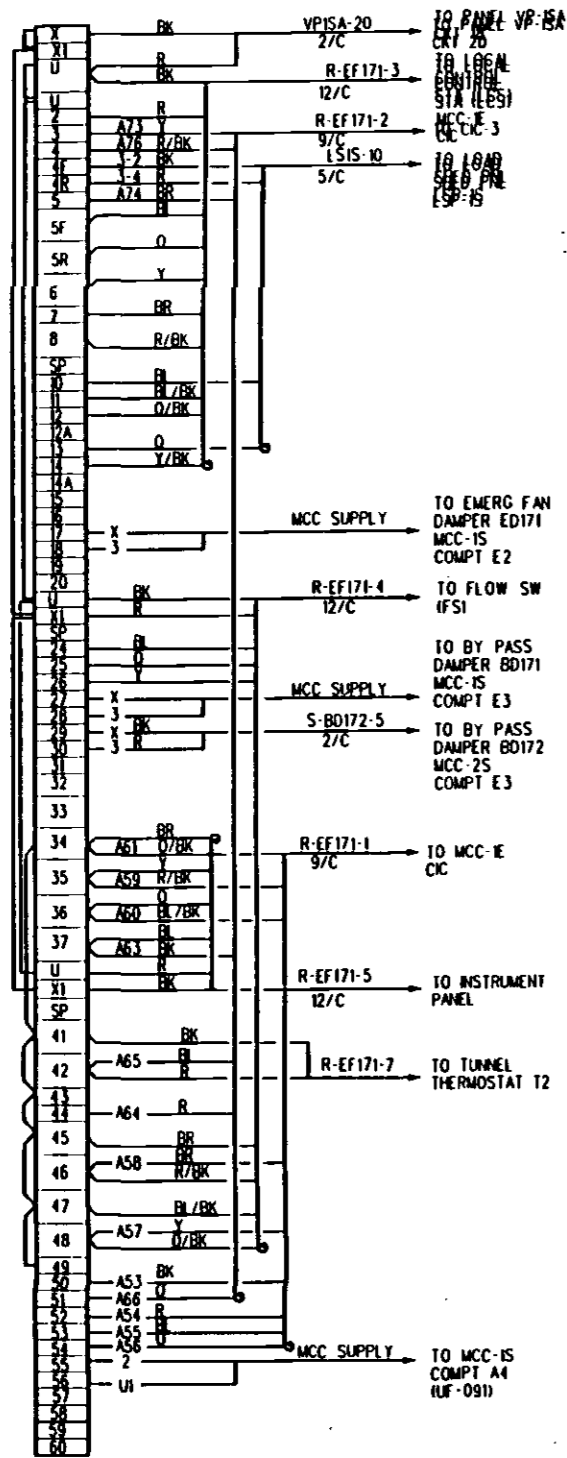
CONTRACT NO.

DRAWING NO. ED-274

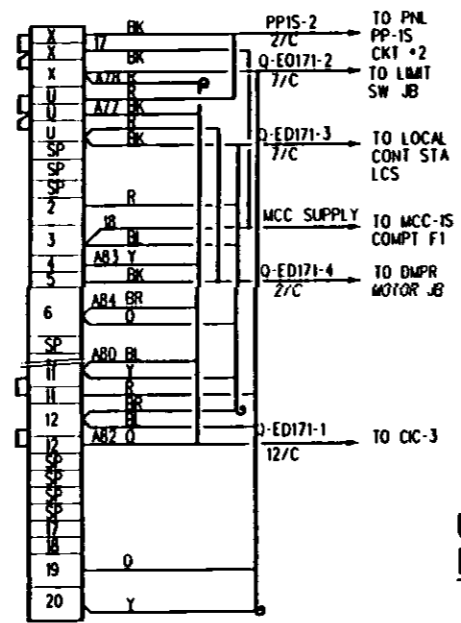
SCALE: NO SCALE

SHEET NO.

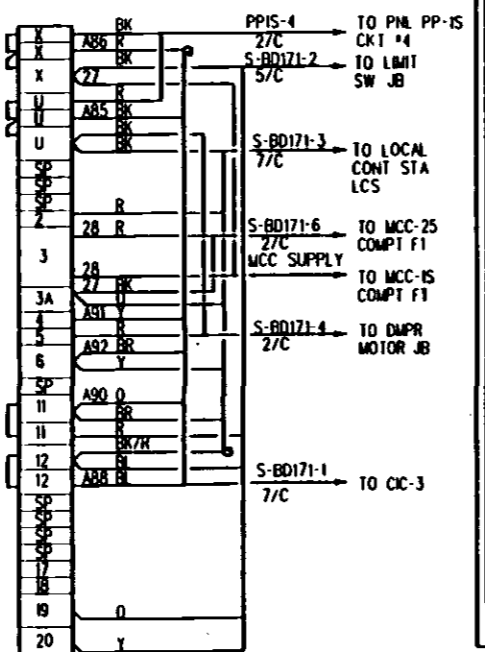
**EMERGENCY FAN EF-171
MCC-1S, COMPT. F1**



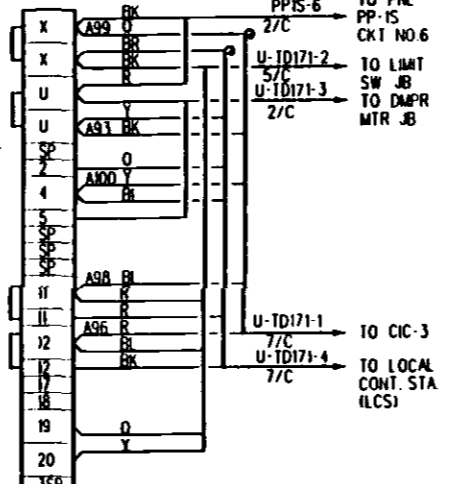
**EMERGENCY FAN DMPR ED-171
MCC-1S, COMPT. E2**



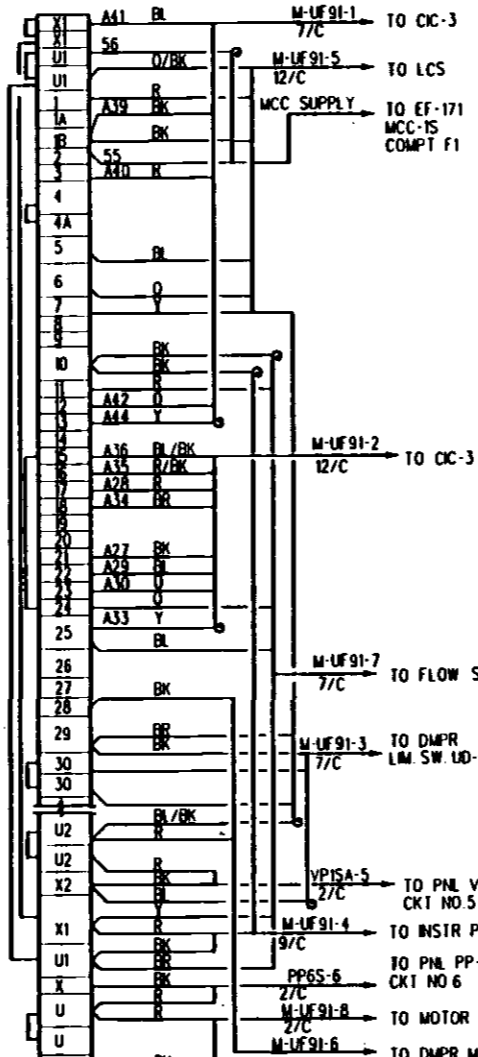
**BY-PASS DAMPER BD-171
MCC-1S, COMPT. E3**



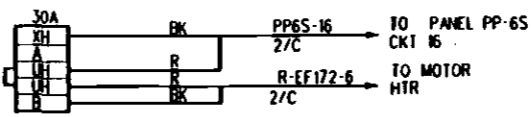
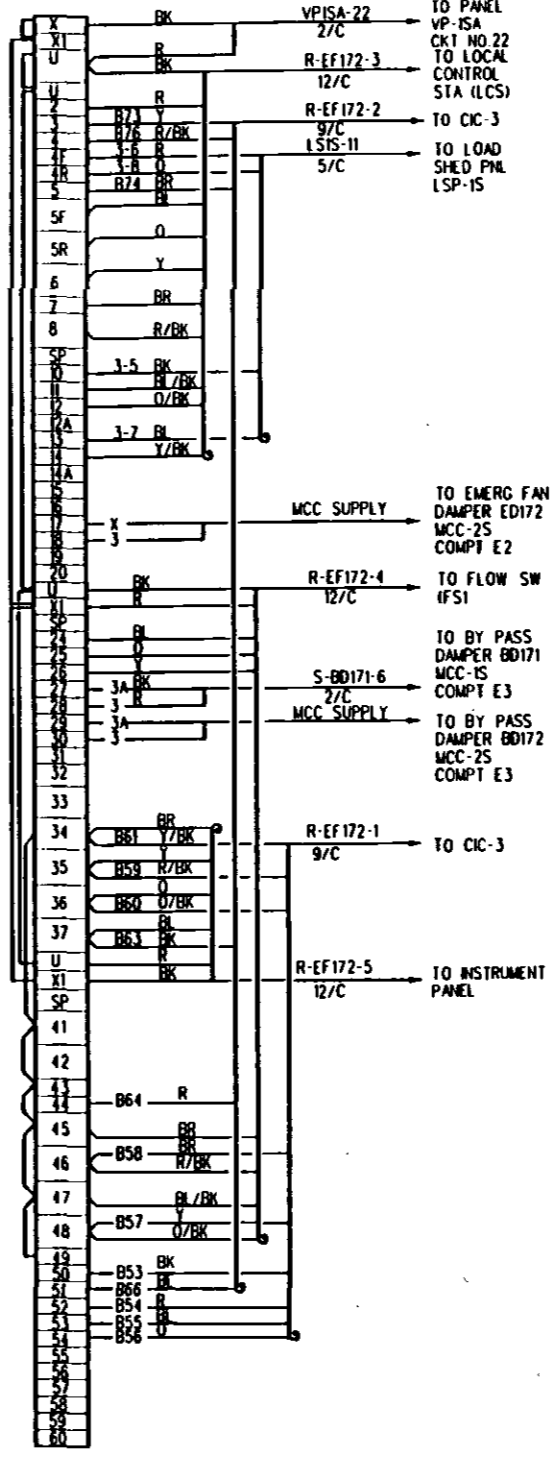
**TRACK DAMPER TD-171
MCC-1S, COMPT. E4**



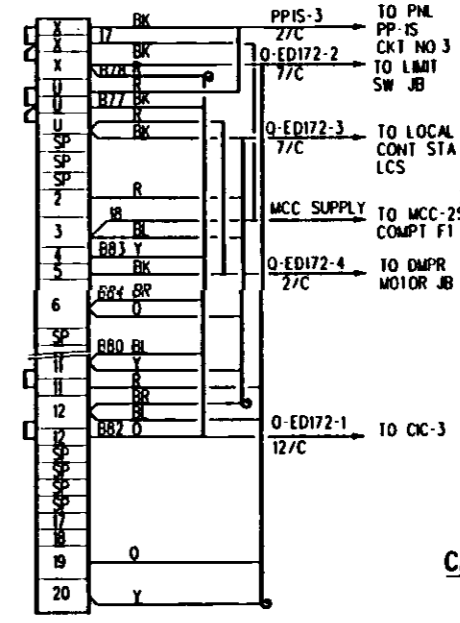
**UNDERPLATFORM FAN UF-091
MCC-1S, COMPT. A4**



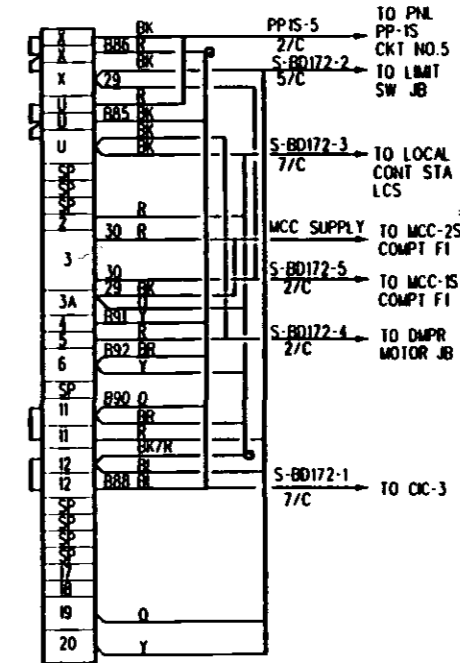
**EMERGENCY FAN EF-172
MCC-2S, COMPT. F1**



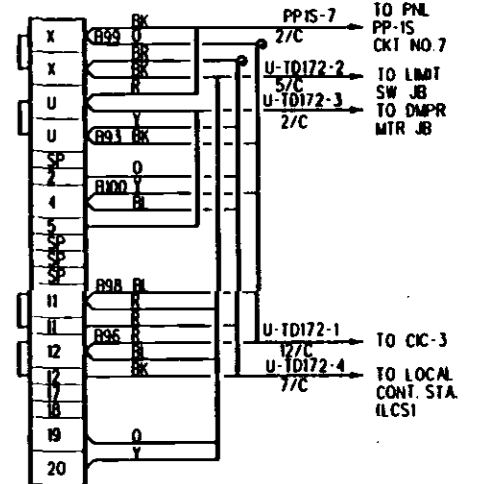
**EMERGENCY FAN DMPR ED-172
MCC-2S, COMPT. E2**



**BY-PASS DAMPER BD-172
MCC-2S, COMPT. E3**



**TRACK DAMPER TD-172
MCC-2S, COMPT. E4**



CABLE COLOR CODE AND ABBREVIATIONS:

CONDUCTOR	COLOR	ABBREVIATION
1	BLACK	BK
2	RED	R
3	BLUE	BL
4	ORANGE	O
5	YELLOW	Y
6	BROWN	BR
7	RED/BLACK	R/BK
8	BLUE/BLACK	BL/BK
9	ORANGE/BLACK	O/BK
10	YELLOW/BLACK	Y/BK
11	BROWN/BLACK	BR/BK
12	BLACK/RED	BK/R

NOTES:

1. CIRCUIT SHOWN ARE FROM MCC UNIT TO LOCATIONS EXTERNAL TO THE MCC.
2. ALL CONTROL CONDUCTORS ARE AWG # 14
3. CONDUCTOR COLOR CODE PER ICSA S-61-402 NEMA WC-5 OF JAN. 79 (COLORS WHITE & GREEN NOT USED).
4. MCC WIRING IS CLASS 2 (ALL INTERCONNECTIONS WITHIN MCC SHALL BE PROVIDED BY MCC SUPPLIER PER ELEM. DIAG. FEW PLACES WIRING BETWEEN COMPTS. WITHIN MCC ARE SHOWN FOR CLARITY).
5. CONTRACTOR TO INSTALL WIRE MARKER OF THE TERMINAL NO. FOR ALL CONNECTIONS EXCEPT AT C.C.'S WHICH WILL BE MARKED AS INDICATED. TYPICAL FOR ALL DRAWINGS.

REV	DATE	BY	CHK	APP	DESCRIPTION
0	3/22/94	CY	AHL	GMC	REVISED AND REDRAWN PER REVISED SPEC. 11/10 AND REDRAWN PER DCN 91-19 AND 93-33

DESIGNED BY
C. YU
DRAWN BY
V. HOANG
CHECKED BY
C. ROSENOL
IN CHARGE
E. DER-AVAKIAN
DATE
22 MAR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

Submitted: *[Signature]*
Approved: *[Signature]*

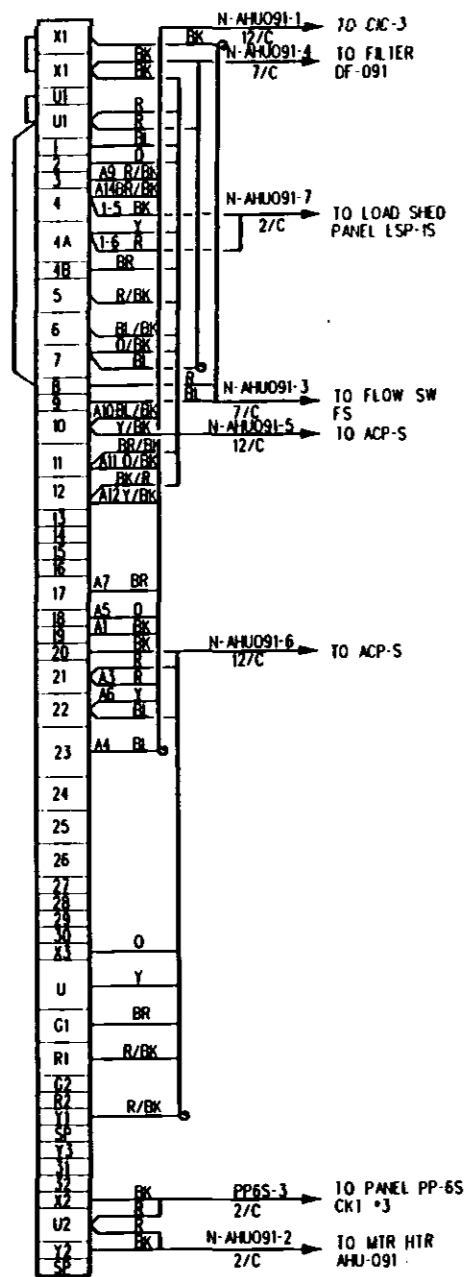
ELECTRICAL DIRECTIVE

CONNECTION DIAGRAMS

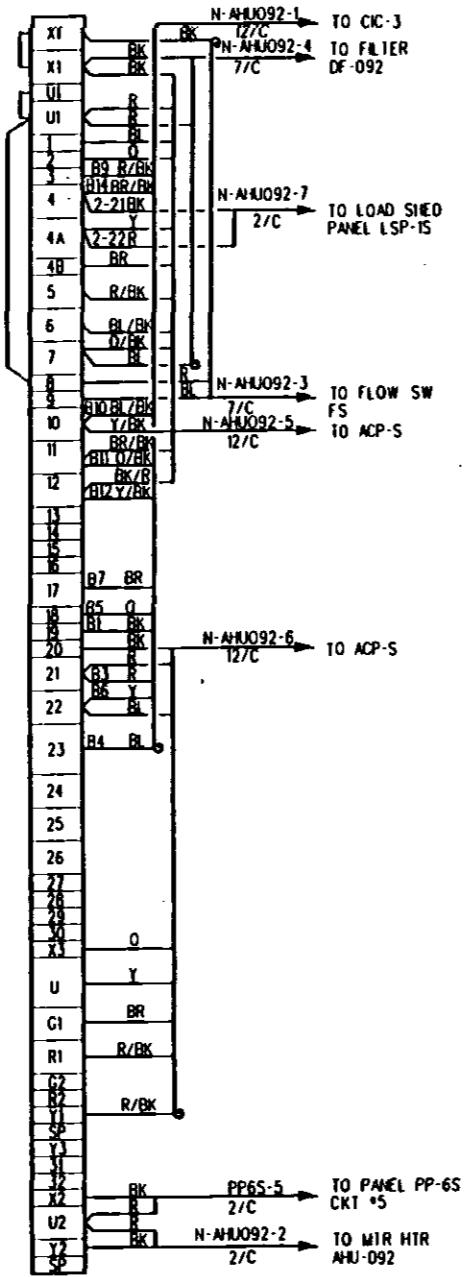
SHEET 3 OF 12

CONTRACT NO. _____
DRAWING NO. **ED-275** REV. **1**
SCALE: **NO SCALE**
SHEET NO. _____

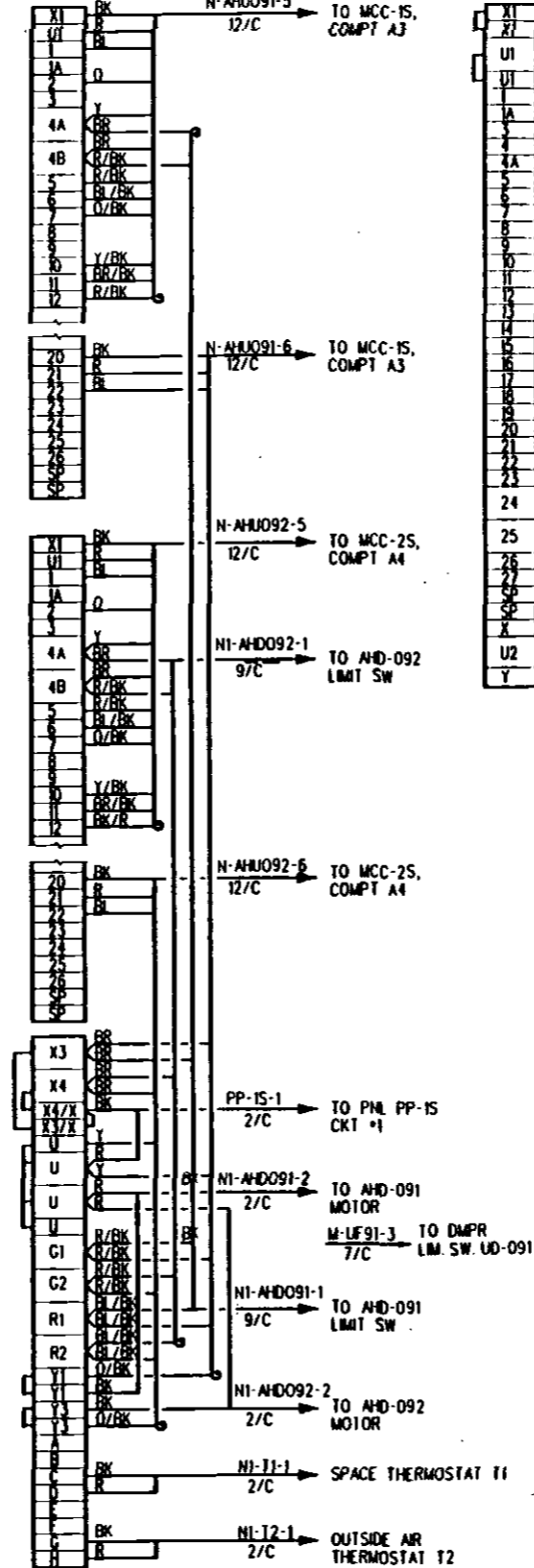
STATION VENTILATION SYSTEM
AHU-091 MCC-1S, COMPT.A3



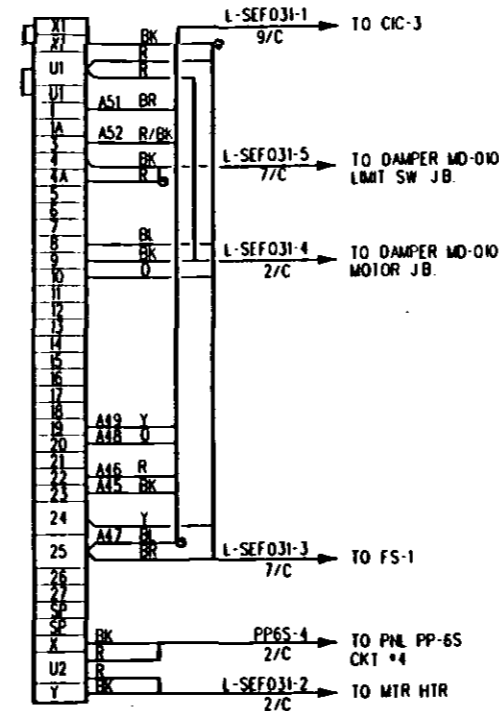
STATION VENTILATION SYSTEM
AHU-092 MCC-2S, COMPT.A4



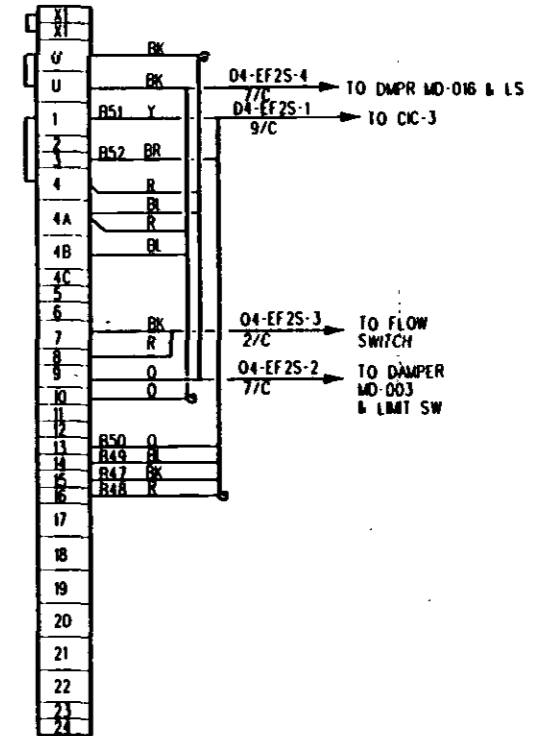
ACP-S, AHU-091/092



SMOKE EXHAUST FAN SEF-031
MCC-2S, COMPT.A3



BATTERY RM. S35 EXHAUST
FAN EF-2S MCC-1S, COMPT. B2



NOTE:
FOR NOTES AND GENERAL INFORMATION SEE DRAWING EO-282.

REV	DATE	BY	SIB	APP	DESCRIPTION
0	3/22/94	CY	AHL	GMC	REVISED AND REDRAWN PER DCM 91-15

DESIGNED BY C. YU
DRAWN BY G. LONG
CHECKED BY C. ROBINOL
IN CHARGE E. DER-AVAKIAN
DATE 22 MAR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

Submitted: *[Signature]*

Approved: *[Signature]*

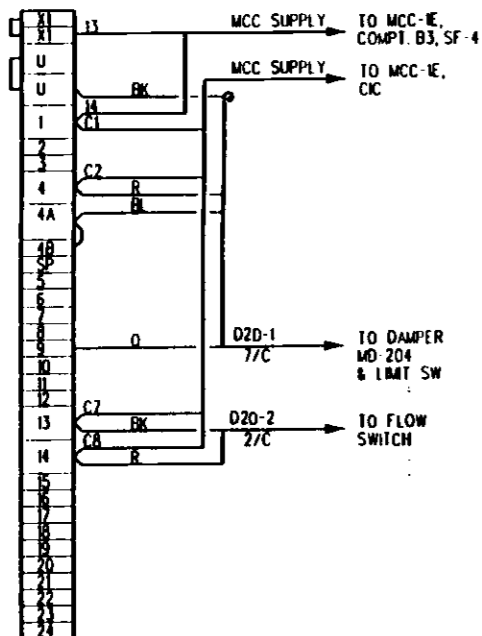
ELECTRICAL DIRECTIVE

CONNECTION DIAGRAM

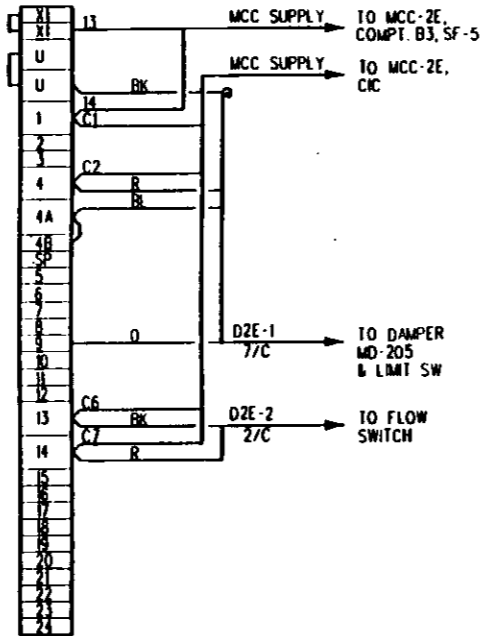
SHEET 4 OF 12

CONTRACT NO.	
DRAWING NO.	ED-276
REV	1
SCALE	NO SCALE
SHEET NO.	

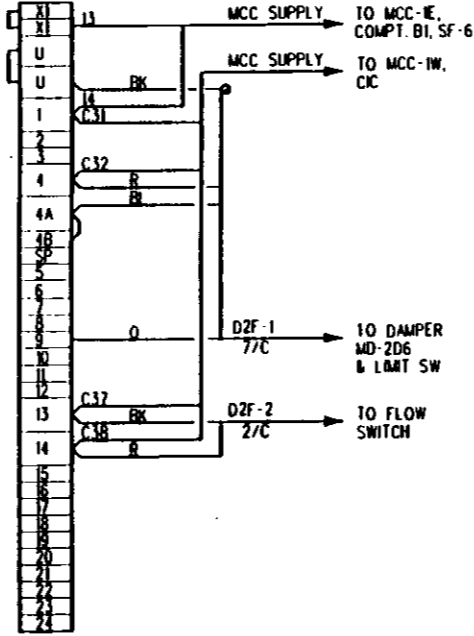
E AUX PWR RM. EXHAUST FAN EF-4 MCC-1E, COMPT.B4



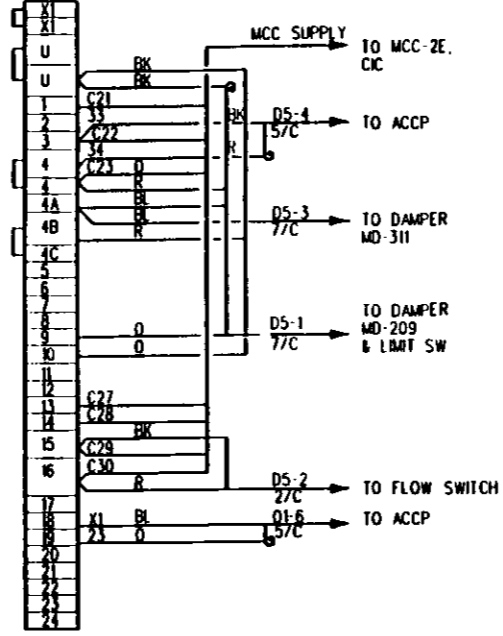
E AIR SUP RM. EXHAUST FAN EF-5 MCC-2E, COMPT.B4



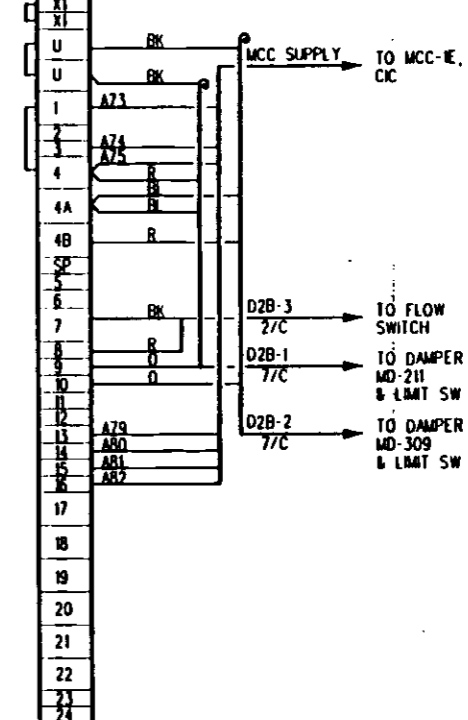
E EMERG FAN RM. EXHAUST EF -6 MCC-1E, COMPT.B2



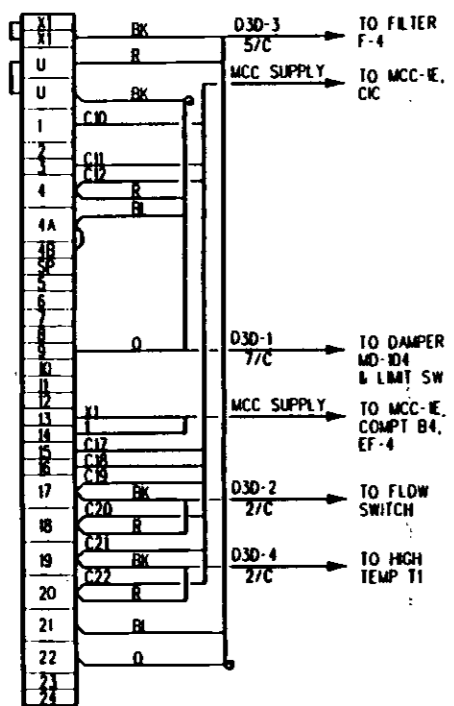
TC & C RM. EXHAUST FAN EF-9 MCC-2E, COMPT.D2



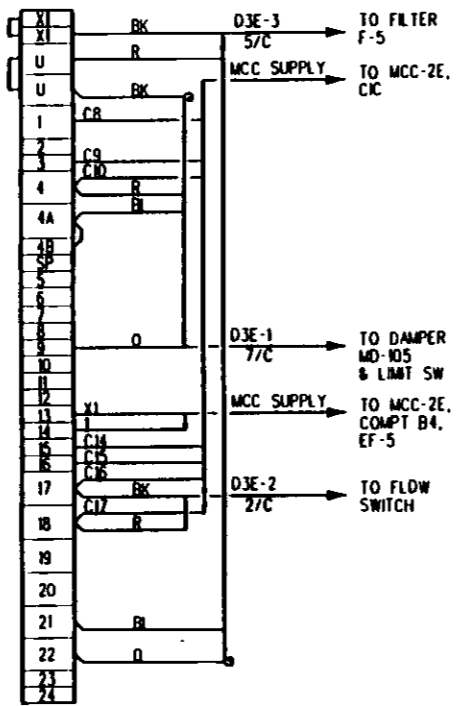
E BATTERY RM. SUPPLY FAN EF-11 MCC-1E, COMPT.D2



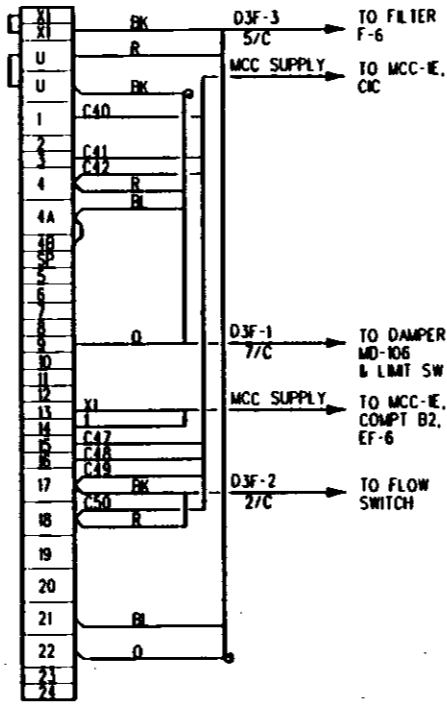
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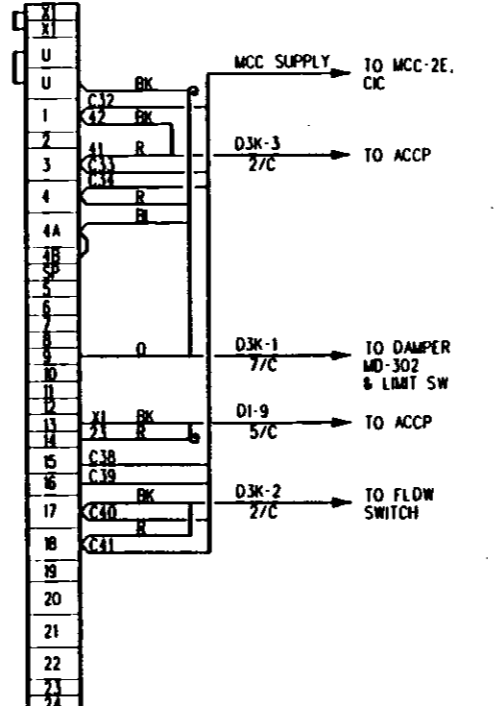
E AIR SUP RM. SUPPLY FAN SF-5 MCC-2E, COMPT.B3



E EMERG FAN RM. SUPPLY FAN SF-6 MCC-1E, COMPT.B1



TC & C RM. SUPPLY FAN SF-10 MCC-2E, COMPT.B2



NOTES:
1. FOR NOTES AND GENERAL INFORMATION SEE DRAWING ED-282.

REV	DATE	BY	SUB	APP	DESCRIPTION
2	2/26/94	CY	AHL	GMC	REVISED AND REDRAWN PER DCH 91-15
1					

DESIGNED BY
C. YU
DRAWN BY
V. HOANG
CHECKED BY
C. ROBINOL
IN CHARGE
E. DER-AVAKIAN
DATE
22 MAR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

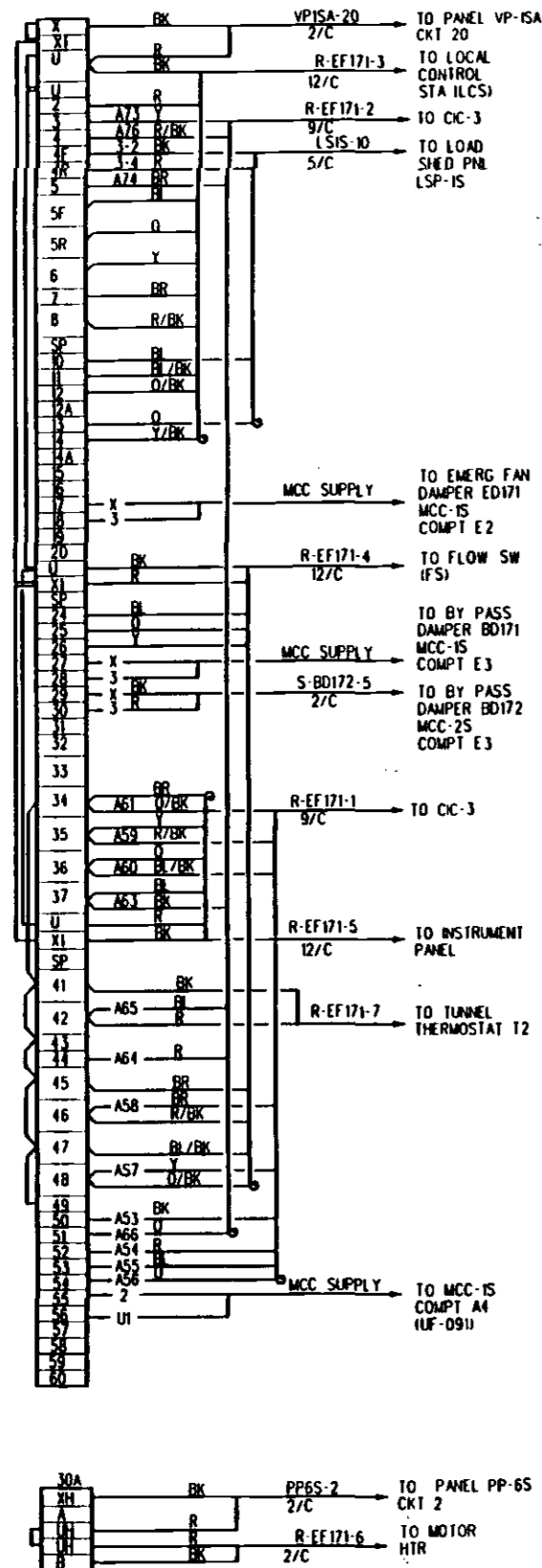
ENGINEERING MANAGEMENT CONSULTANT

SUBMITTED: *[Signature]*
APPROVED: *[Signature]*

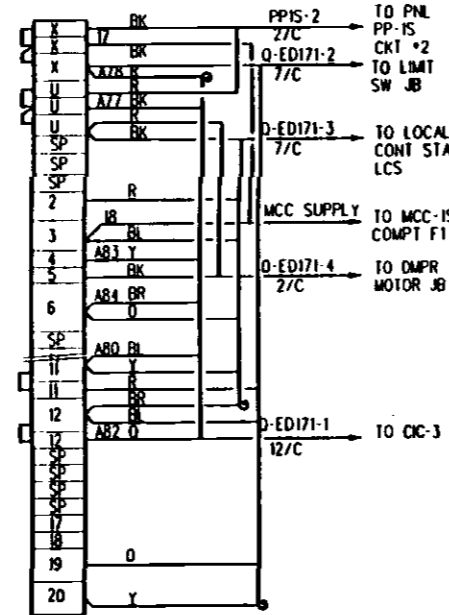
ELECTRICAL DIRECTIVE
CONNECTION DIAGRAM
SHEET 5 OF 12

CONTRACT NO.	REV
DRAWING NO. ED-277	1
SCALE NO SCALE	
SHEET NO.	

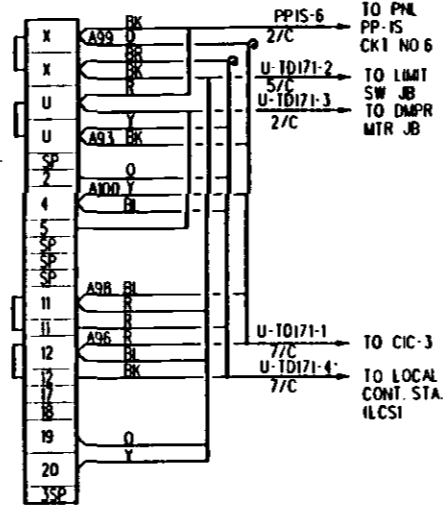
**EMERGENCY FAN EF-171
MCC-1S, COMPT. F1**



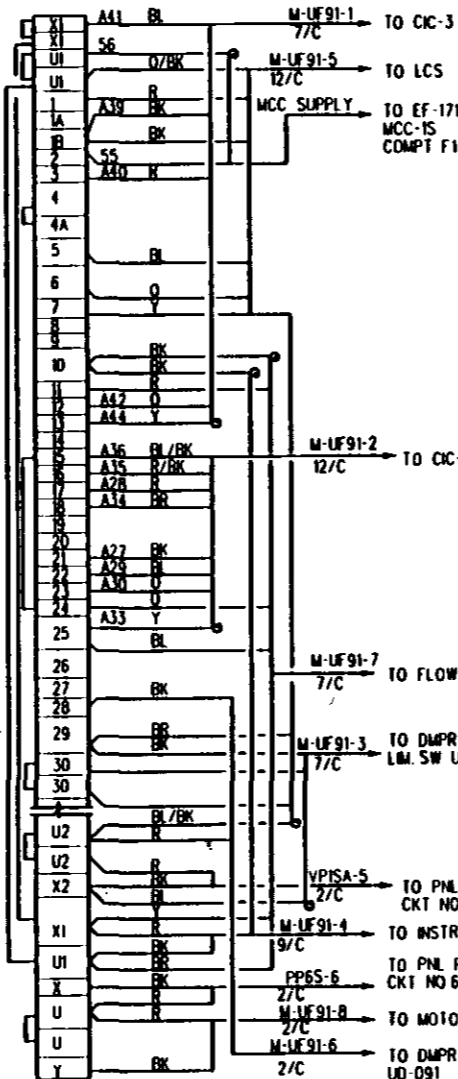
**EMERGENCY FAN DMPR ED-171
MCC-1S, COMPT. E2**



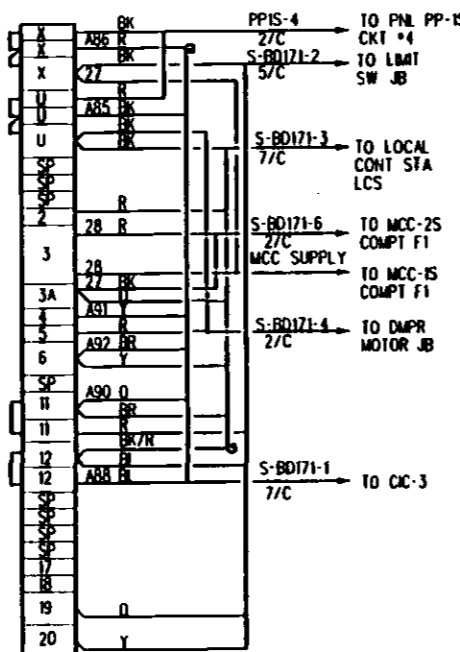
**TRACK DAMPER TD-171
MCC-1S, COMPT. E4**



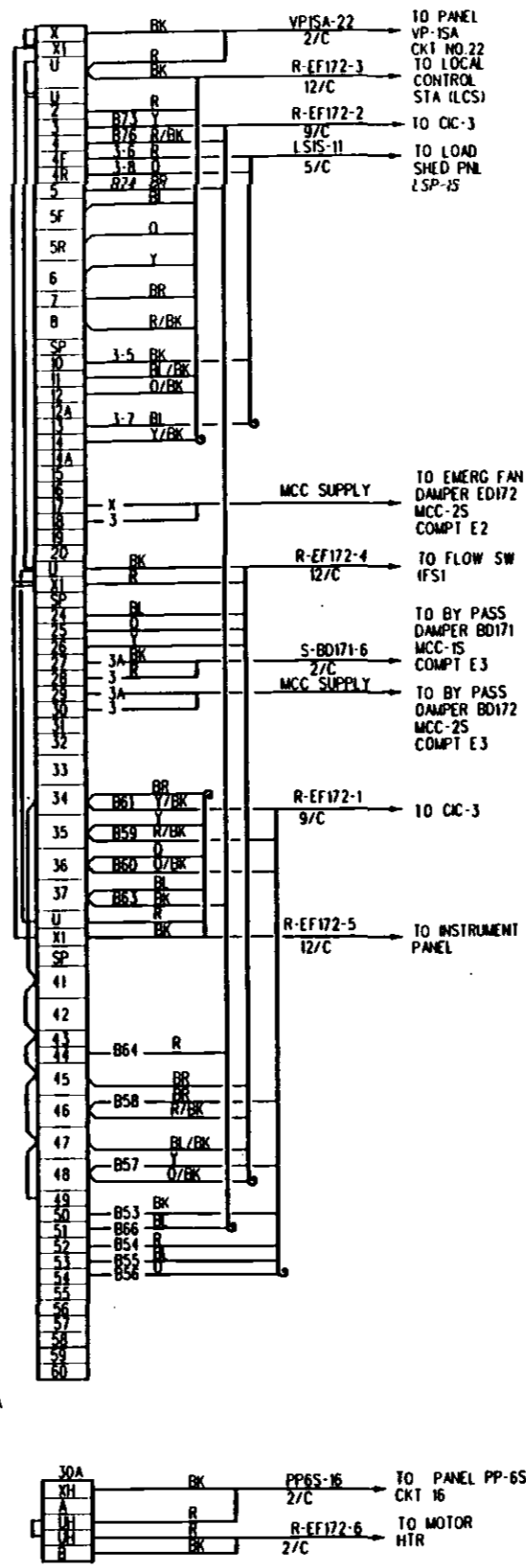
**UNDERPLATFORM FAN UF-091
MCC-1S, COMPT. A4**



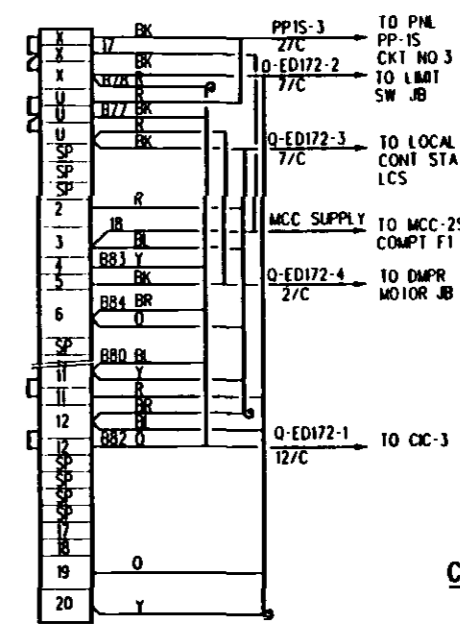
**BY-PASS DAMPER BD-171
MCC-1S, COMPT. E3**



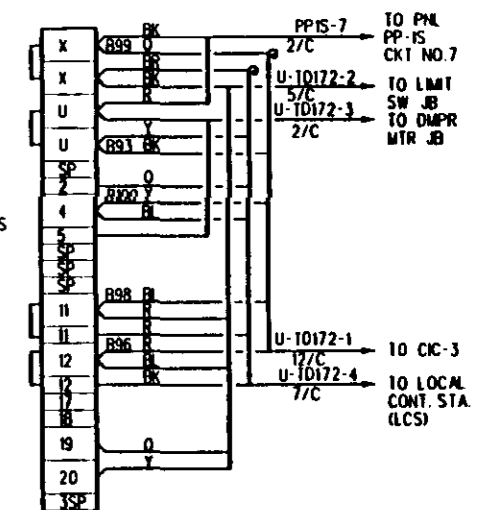
**EMERGENCY FAN EF-172
MCC-2S, COMPT. F1**



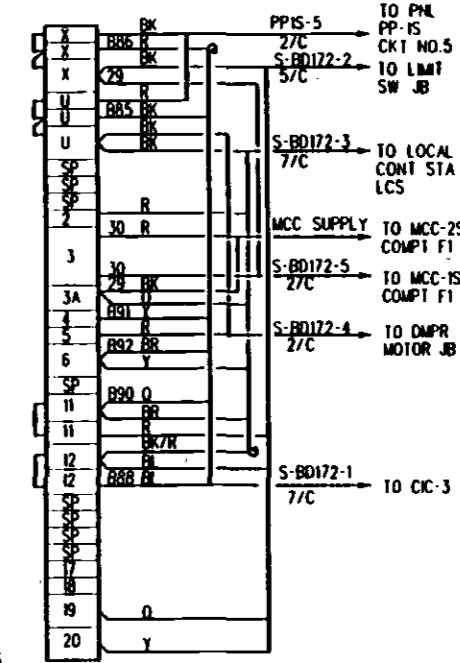
**EMERGENCY FAN DMPR ED-172
MCC-2S, COMPT. E2**



**TRACK DAMPER TD-172
MCC-2S, COMPT. E4**



**BY-PASS DAMPER BD-172
MCC-2S, COMPT. E3**



CABLE COLOR CODE AND ABBREVIATIONS:

CONDUCTOR	COLOR	ABBREVIATION
1	BLACK	BK
2	RED	R
3	BLUE	BL
4	ORANGE	O
5	YELLOW	Y
6	BROWN	BR
7	RE/D/BLACK	R/BK
8	BL/BLACK	BL/BK
9	OR/BLACK	O/BK
10	Y/BLACK	Y/BK
11	BR/BLACK	BR/BK
12	BLACK/RED	BK/R

NOTES:

- CIRCUIT SHOWN ARE FROM MCC UNIT TO LOCATIONS EXTERNAL TO THE MCC.
- ALL CONTROL CONDUCTORS ARE AWG # 14
- CONDUCTOR COLOR CODE PER ICSA 5-61-402 NEMA WC-5 OF JAN 79 (COLORS WHITE & GREEN NOT USED).
- MCC WIRING IS CLASS 2 (ALL INTERCONNECTIONS WITHIN MCC SHALL BE PROVIDED BY MCC SUPPLIER PER ELEM DIAG FEW PLACES WIRING BETWEEN COMPT'S WITHIN MCC ARE SHOWN FOR CLARITY).
- CONTRACTOR TO INSTALL WIRE MARKER OF THE TERMINAL NO. FOR ALL CONNECTIONS EXCEPT AT CIC'S WHICH WILL BE MARKED AS INDICATED. TYPICAL FOR ALL DRAWINGS.

REV	DATE	BY	SUB	APP	DESCRIPTION
0	3/22/94	CY	AHL	GMC	REVISED AND REDRAWN PER DCN 91-19

DESIGNED BY: C. YU
 DRAWN BY: A. JOSE
 CHECKED BY: C. ROBINOL
 IN CHARGE: E. DER-ATAKIAN
 DATE: 22 MAR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

Submitted: *Edward Der-Atakian*

Approved: *J. Yu*

ELECTRICAL DIRECTIVE

CONNECTION DIAGRAM

SHEET 6 OF 12

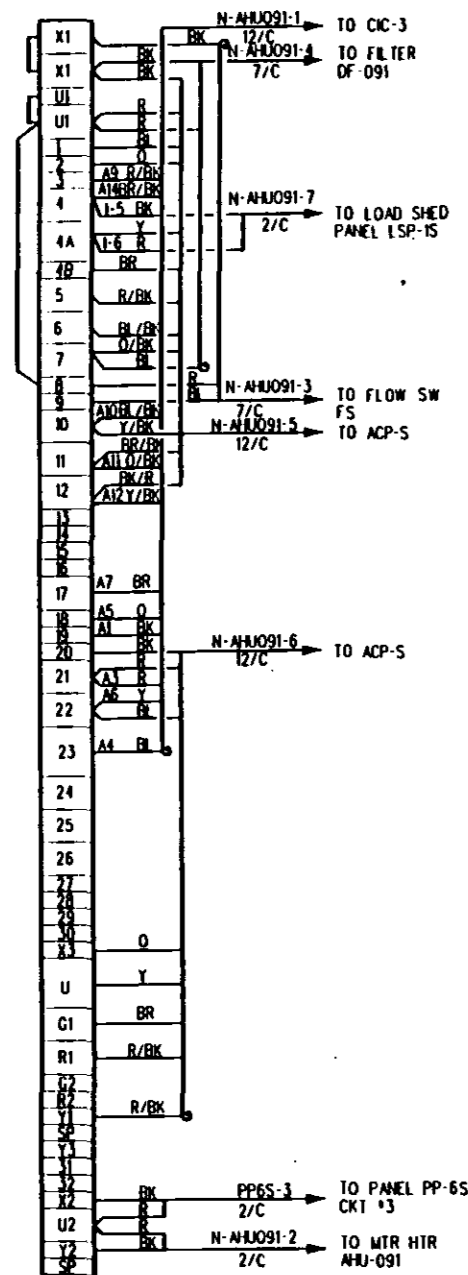
CONTRACT NO: ED-278

DRAWING NO: ED-278

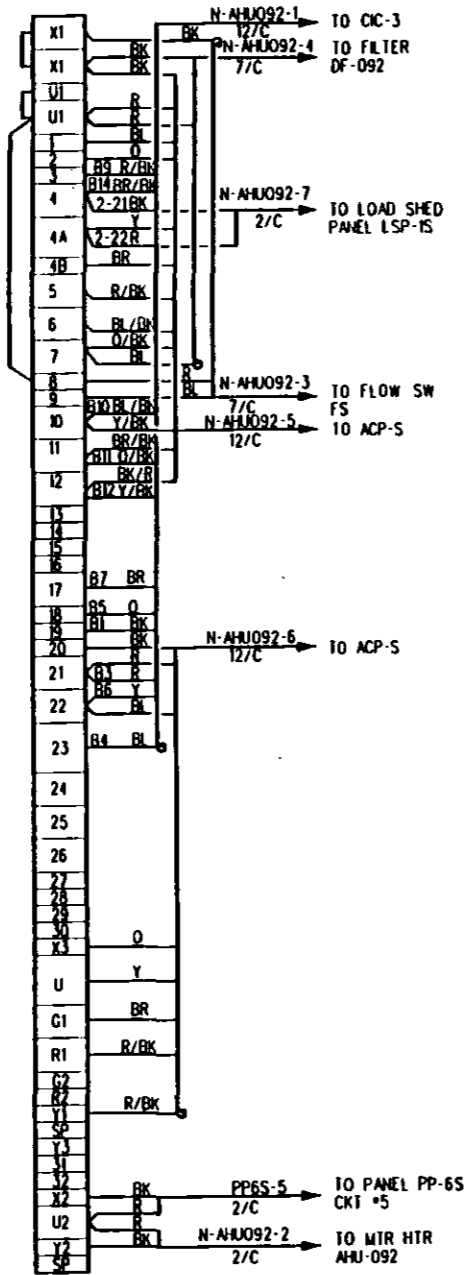
SCALE: NO SCALE

SHEET NO: 6

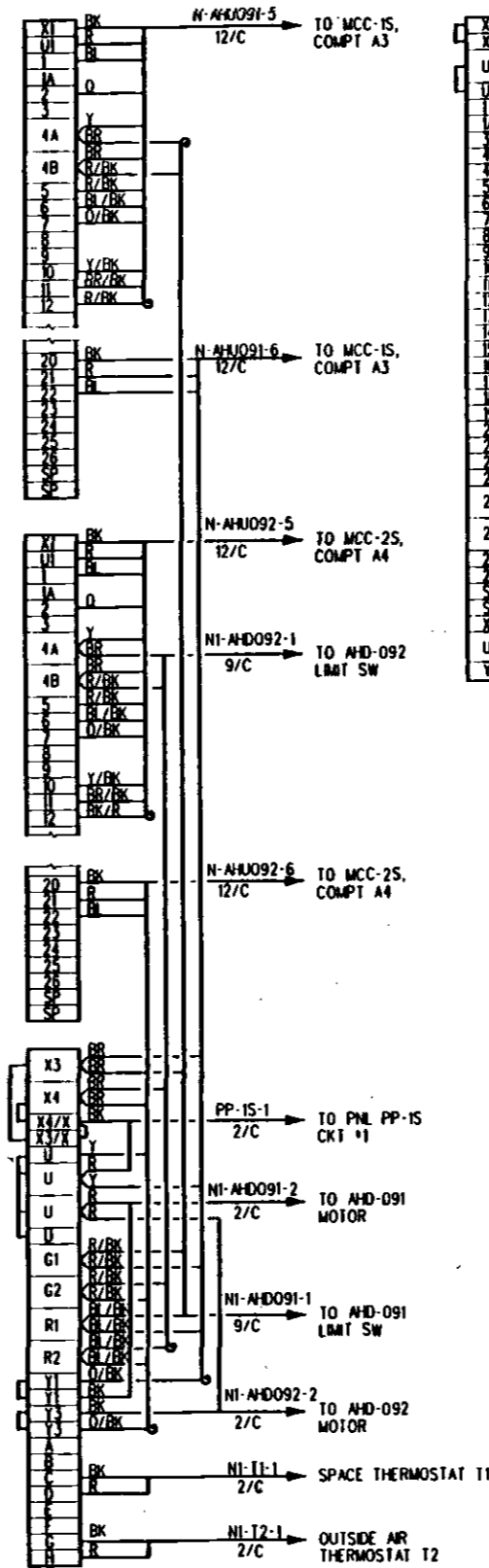
**STATION VENTILATION SYSTEM
AHU-091 MCC-1S, COMPT.A3**



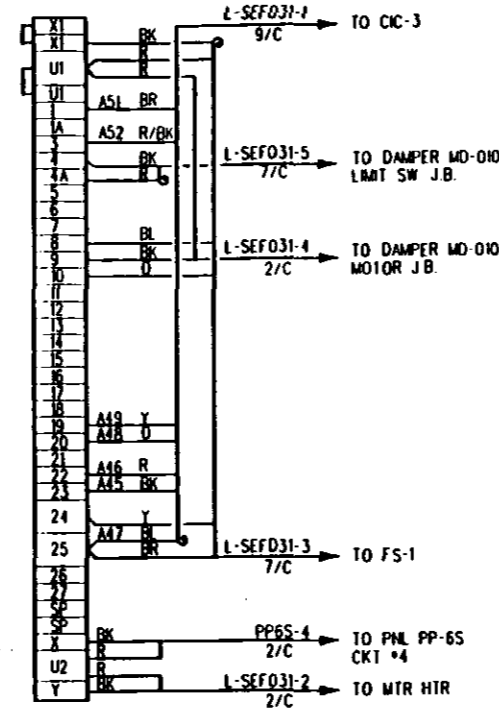
**STATION VENTILATION SYSTEM
AHU-092 MCC-2S, COMPT.A4**



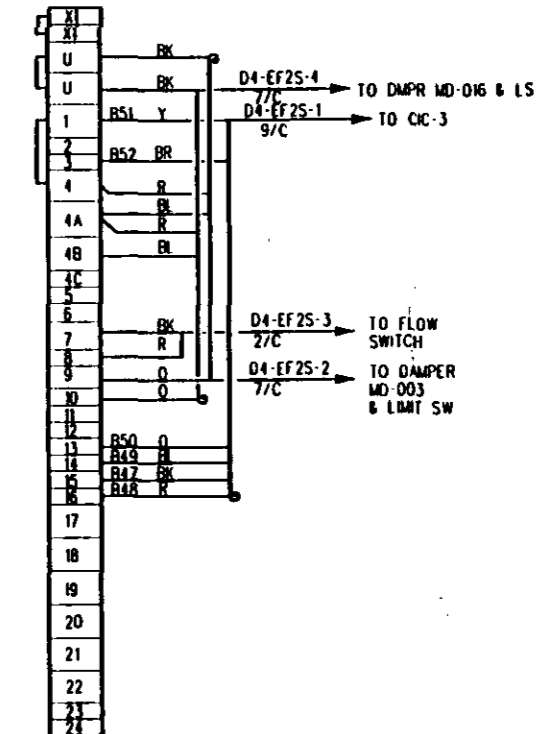
ACP-S, AHU-091/092



**SMOKE EXHAUST FAN SEF-031
MCC-2S, COMPT.A3**



**BATTERY RM. S35 EXHAUST
FAN EF-2S MCC-1S, COMPT. B2**



NOTE:
FOR NOTES AND GENERAL INFORMATION SEE DRAWING ED-282.

REV	DATE	BY	APP	DESCRIPTION
0	3/22/94	CY		REVISED AND REDRAWN PER DCH 91-19

DESIGNED BY C. YU
DRAWN BY V. HOANG
CHECKED BY C. ROBINOL
IN CHARGE E. DER-AVAKIAN
DATE 22 MAR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANTS
 10000 Wilshire Blvd., Suite 1000, Beverly Hills, CA 90210
 (310) 206-1000

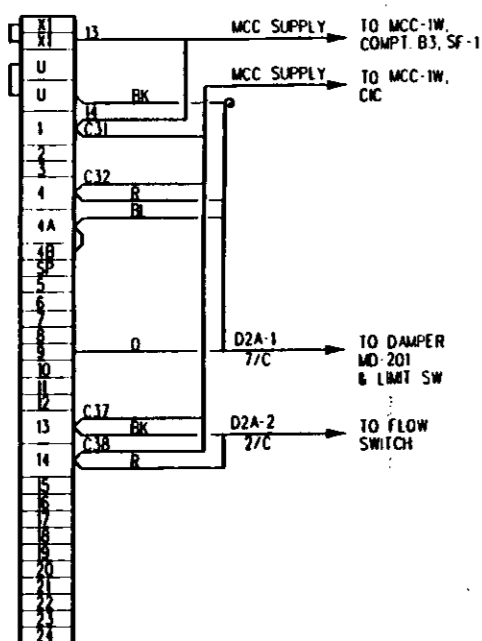
SUBMITTED: *[Signature]*
 APPROVED: *[Signature]*

ELECTRICAL DIRECTIVE

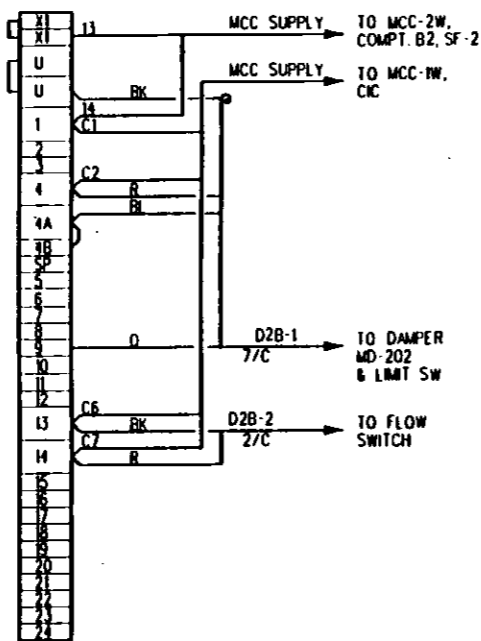
CONNECTION DIAGRAM
SHEET 7 OF 12

CONTRACT NO.
DRAWING NO. **ED-279** REV **1**
SCALE: **NO SCALE**
SHEET NO.

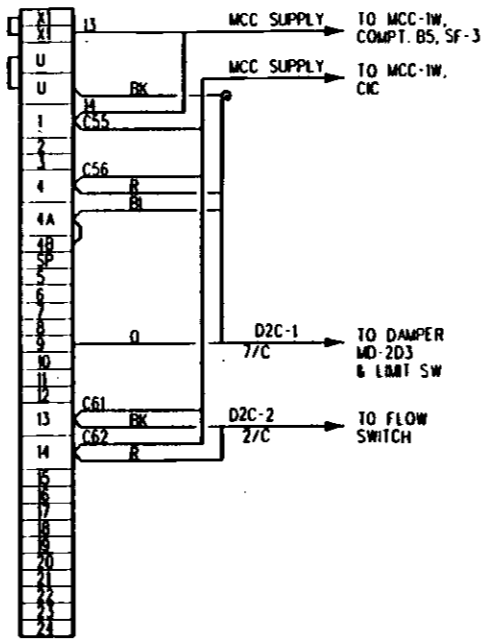
W AUX PWR RM. EXHAUST
FAN EF-1 MCC-1W, COMPT. B4



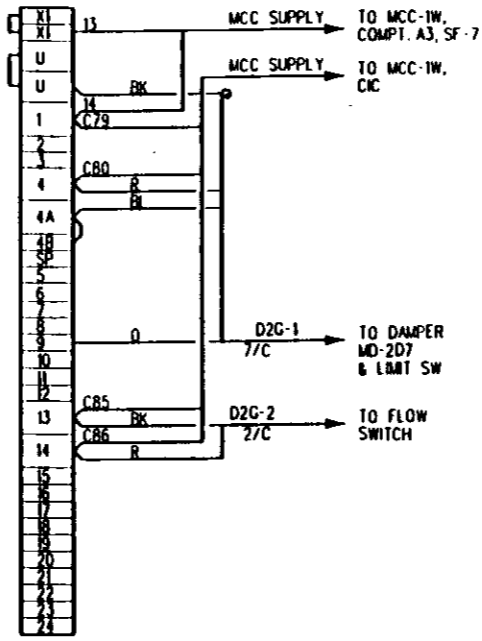
W AIR SUP RM. EXHAUST
FAN EF-2 MCC-2W, COMPT. B3



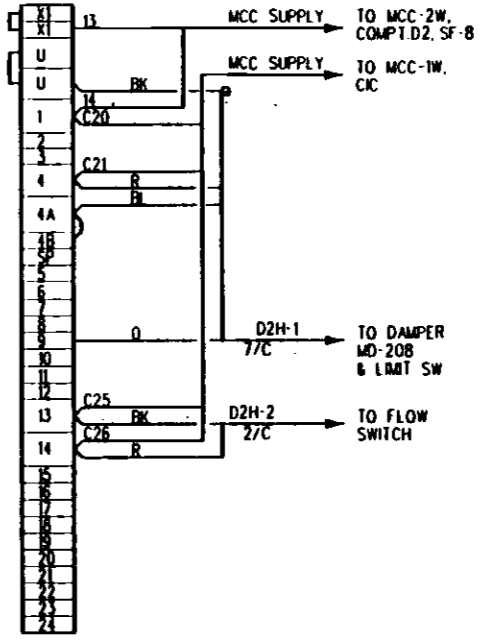
W EMRG FAN RM. EXHAUST
FAN EF-3, MCC-1W, COMPT. B6



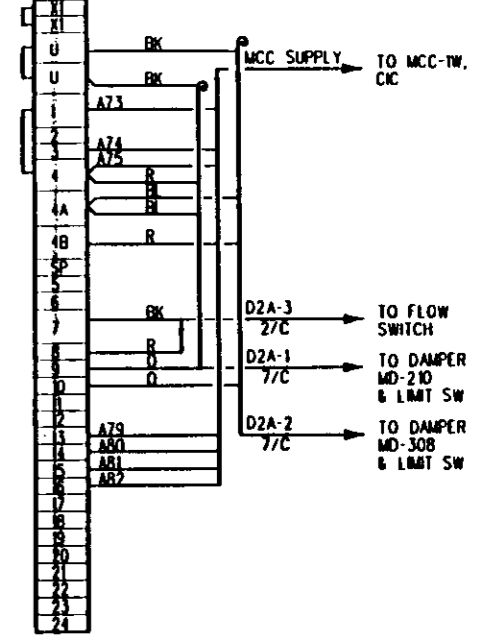
ANCILLARY RM. EXHAUST
FAN EF-7, MCC-1W, COMPT. A4



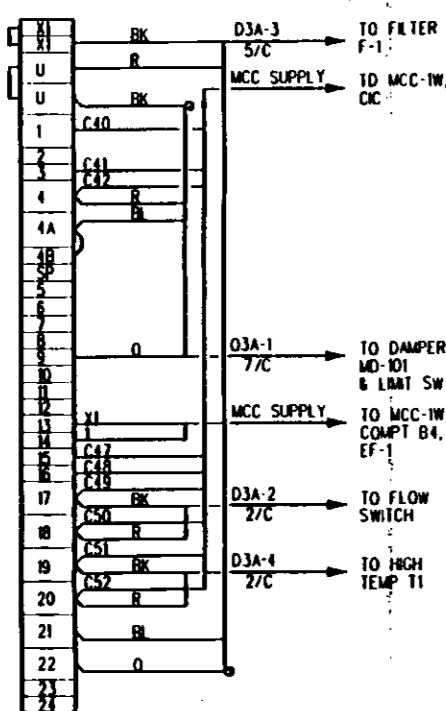
CHILLER RM. EXHAUST
FAN EF-8, MCC-2W, COMPT. D3



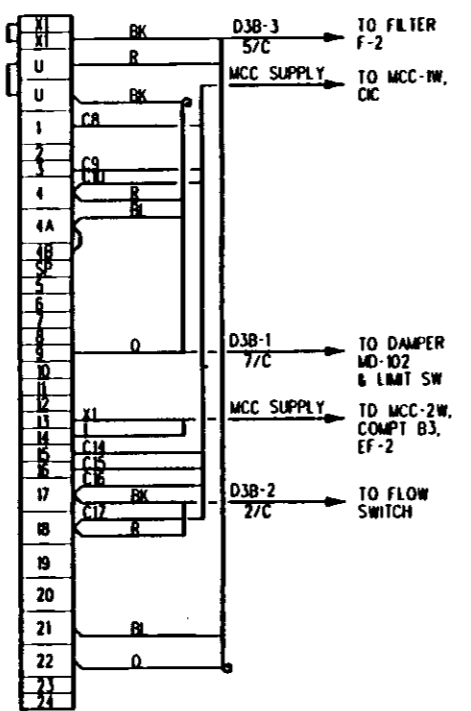
W BATTERY RM. SUPPLY
FAN EF-10, MCC-1W, COMPT. D2



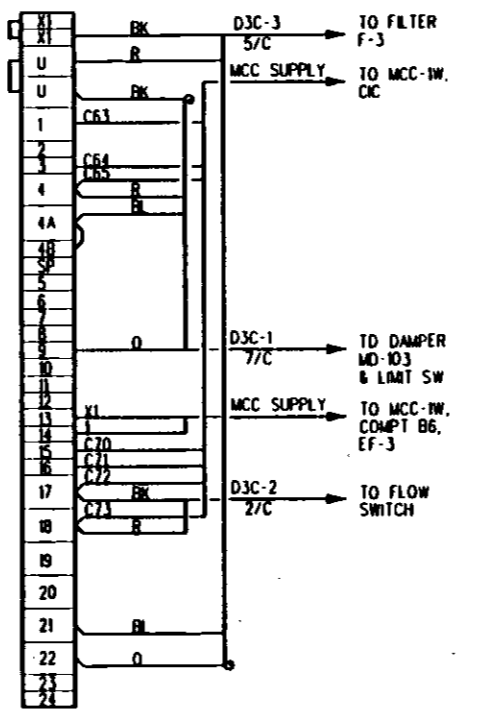
W AUX PWR RM. SUPPLY
FAN SF-1 MCC-1W, COMPT. B3



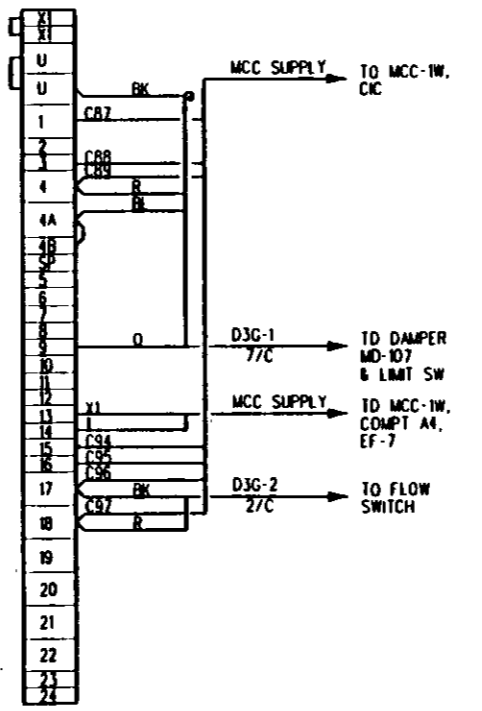
W AIR SUP RM. SUPPLY
FAN SF-2 MCC-2W, COMPT. B2



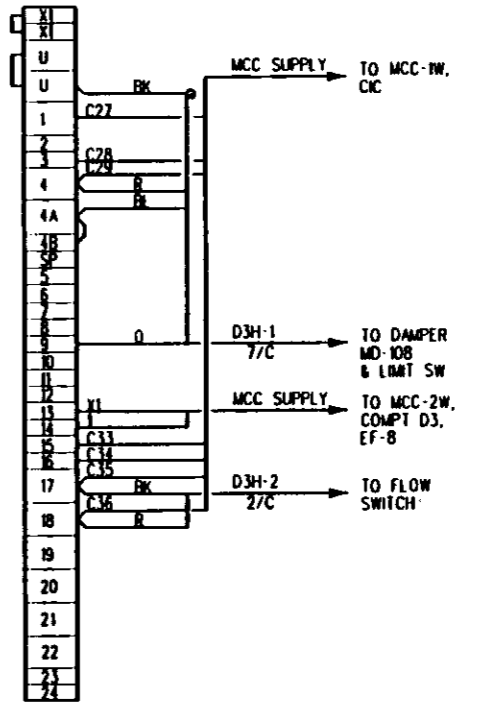
W EMRG FAN RM. SUPPLY
FAN SF-3 MCC-1W, COMPT. B5



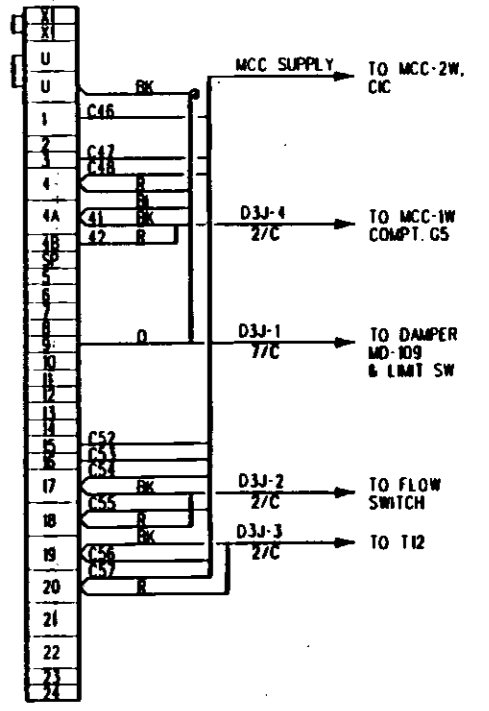
ANCILLARY RM. SUPPLY
FAN SF-7 MCC-1W, COMPT. A3



CHILLER RM. SUPPLY
FAN SF-8, MCC-2W, COMPT. D2



DWP AUX ROOM SUPPLY
FAN SF-9, MCC-2W, COMPT. E3



NOTES:

1. FOR NOTES AND GENERAL INFORMATION SEE DWG ED-282.

DESIGNED BY C. YU	DATE 22 MAR 94
DRAWN BY V. HOANG	
CHECKED BY C. ROBINOL	
IN CHARGE E. DER-AVAKIAN	
REVISIONS	
0 32294 CY AHL GMC REVISOR AND REDRAWN PER DCH 91-18	

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT

FOR MORE INFORMATION CONTACT: 213-251-1111

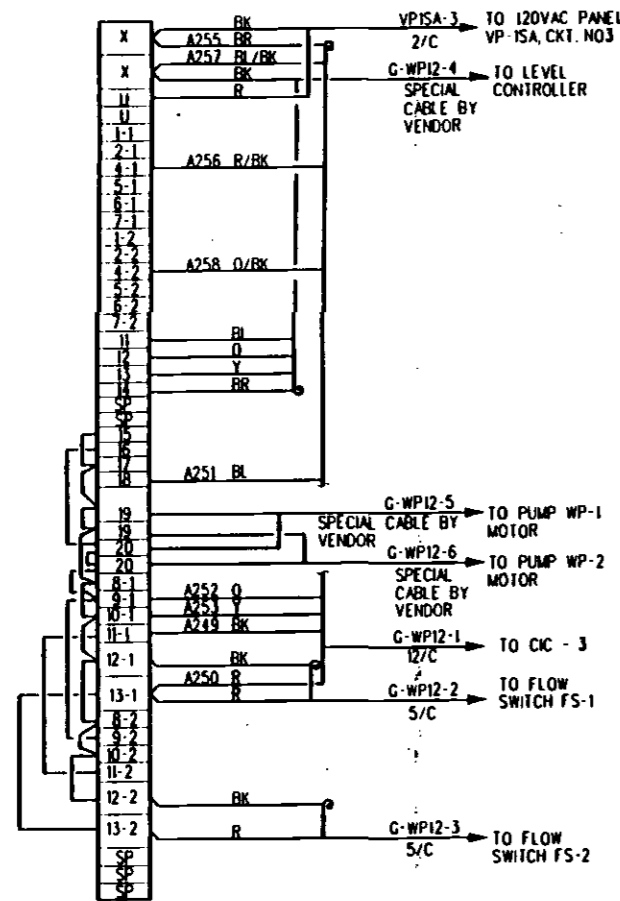
SUBMITTED: *[Signature]*

APPROVED: *[Signature]*

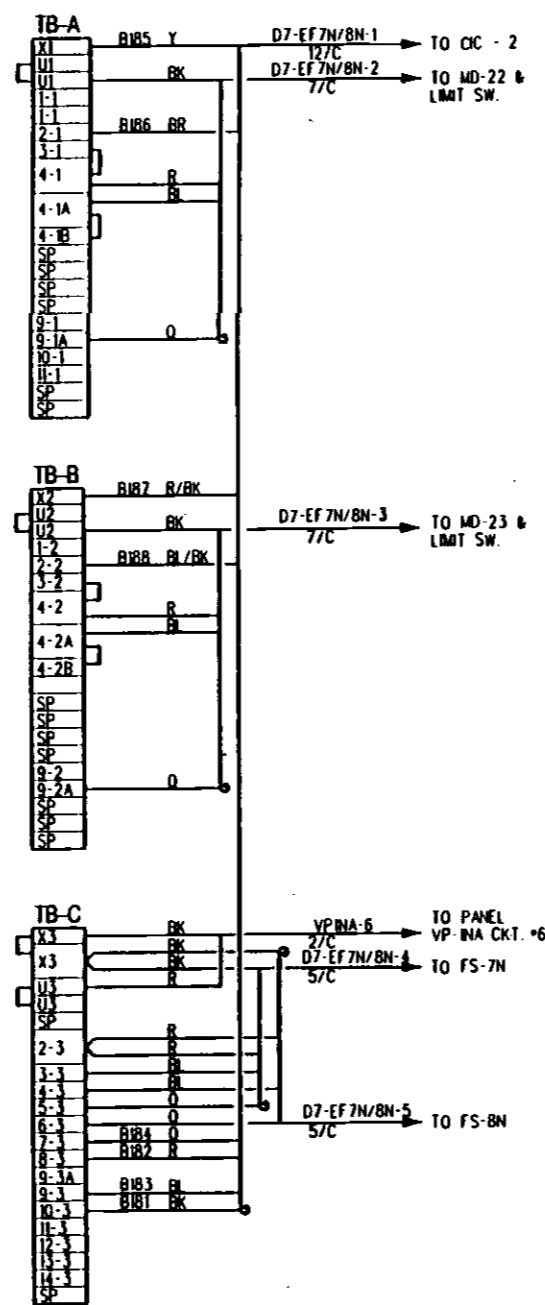
ELECTRICAL DIRECTIVE
CONNECTION DIAGRAM
SHEET 9 OF 12

CONTRACT NO.	
DRAWING NO.	ED-281
REV.	1
SCALE	NO SCALE
SHEET NO.	

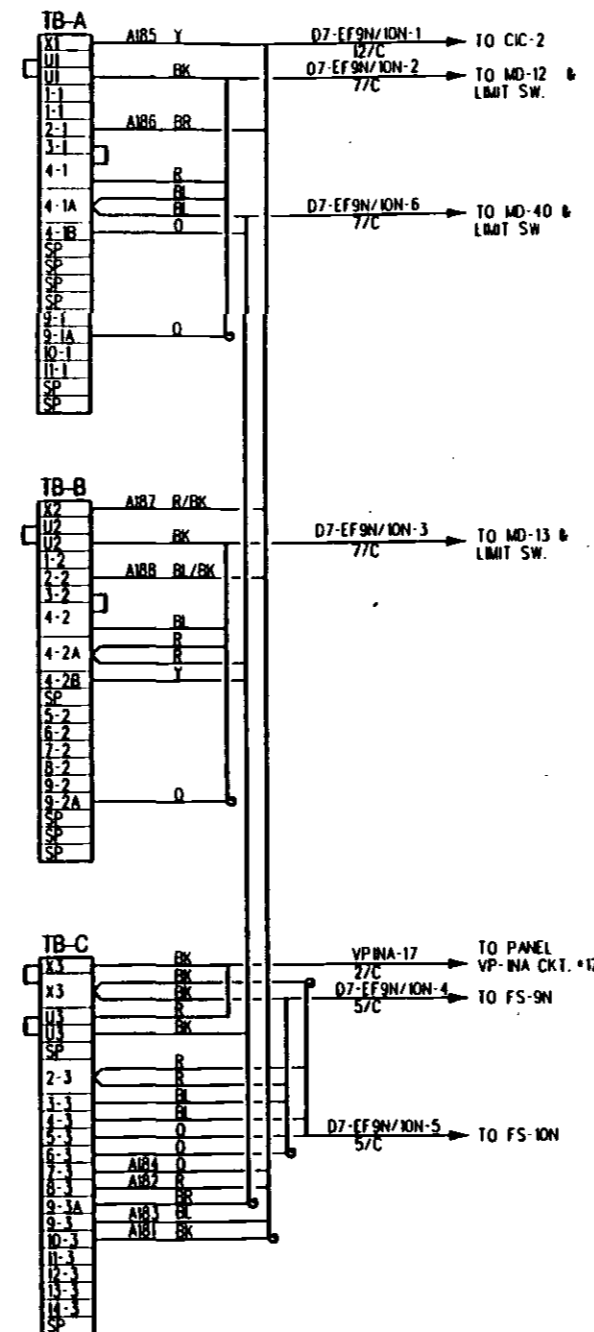
DUPLEX SUMP PUMP WP-1 AND WP-2 CONTROL PANEL



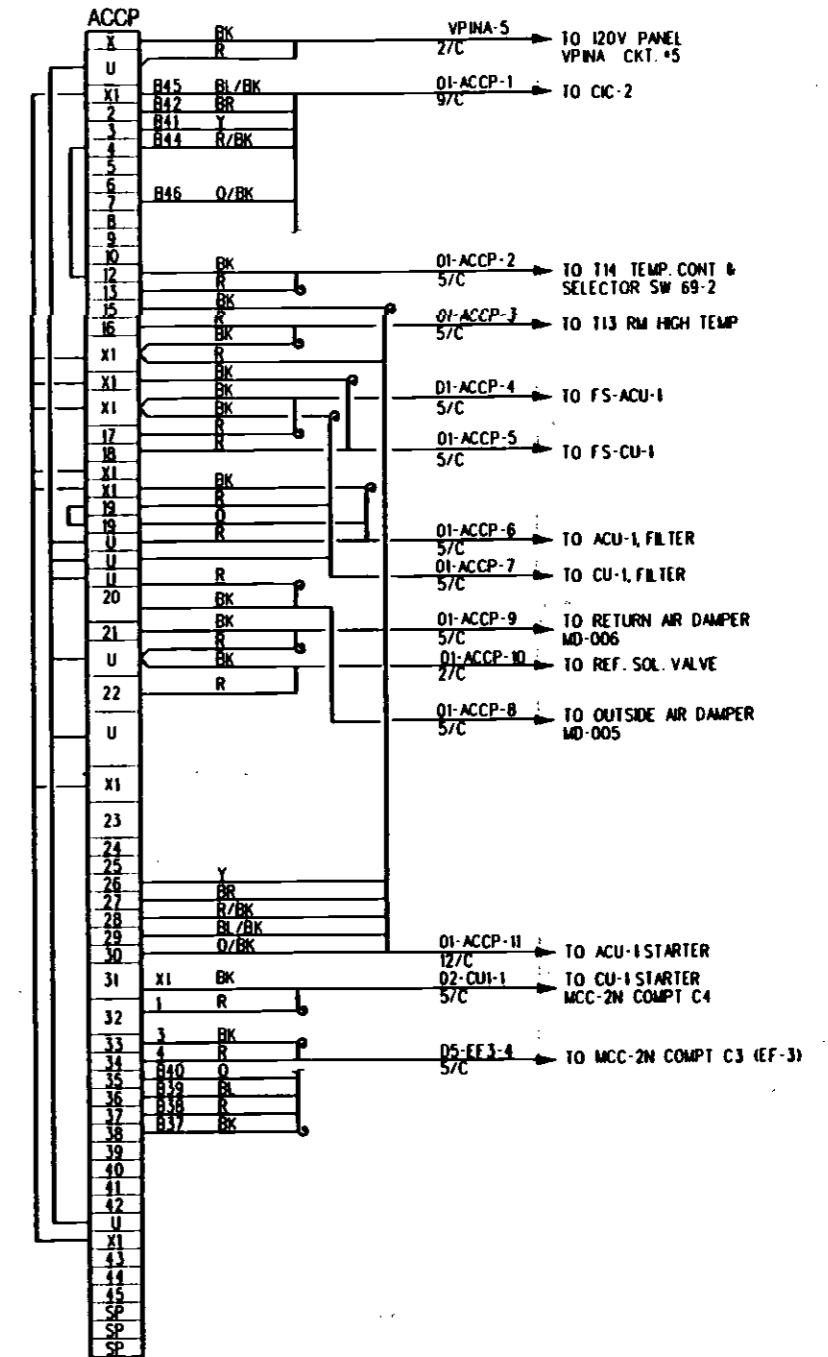
LOCAL CONTROL STATION "LCS" DWP'S BATT EXH FANS EF-7N/8N



LOCAL CONTROL STATION "LCS" TC & C EXH FANS EF-9N/10N



TC&C ROOM ACU-1 AIR CONDITION PANEL "ACCP"



GENERAL NOTES:

1. CIRCUITS SHOWN ARE FROM CIC (OR MCC UNITS) TO LOCATIONS EXTERNAL TO CIC (OR MCC).
2. ALL CONTROL CONDUCTORS ARE #14 AWG.
3. TERMINATED CONDUCTORS TO BE INDIVIDUALLY TAGGED WITH CABLE NUMBER AND MCC (STARTER) TERMINAL NUMBER.
4. MCC WIRING IS CLASS 2 (ALL INTERCONNECTIONS WITHIN MCC ARE BY MANUFACTURER).
5. CONTRACTOR TO INSTALL WIRE MARKER OF THE TERMINAL NUMBER FOR ALL CONNECTIONS EXCEPT AT CIC'S WHICH WILL BE MARKED AS INDICATED. (TYPICAL FOR ALL DWGS.)

REV	DATE	BY	SUB	APP	DESCRIPTION
0	3/22/94	CY	AHL	CMC	REVISED AND REDRAWN PER DE 305-SBGN-11/01
					REVISED AND REDRAWN PER DCN 91-19

DESIGNED BY
C YU
DRAWN BY
A JOSE
CHECKED BY
C ROBINOL
IN CHARGE
E DER-AVAKIAN
DATE
22 MAR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

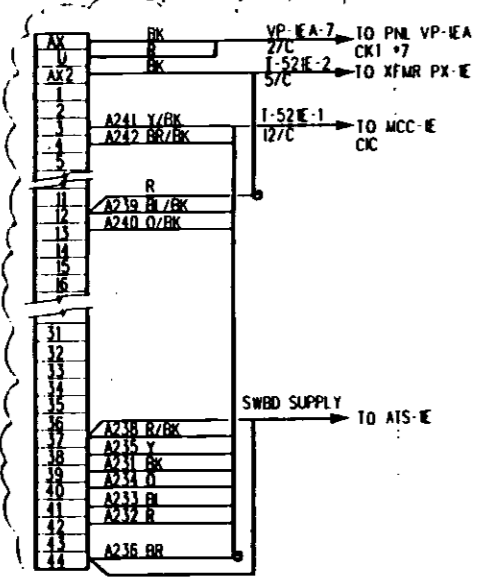
ENGINEERING MANAGEMENT CONSULTANT

Submitted: *Edward A. ...*
Approved: *[Signature]*

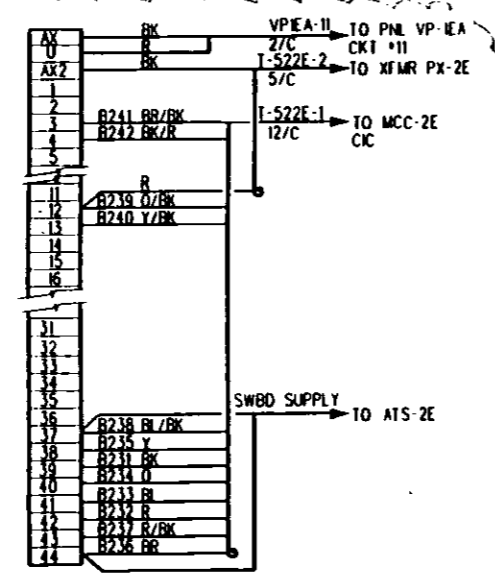
ELECTRICAL DIRECTIVE
CONNECTION DIAGRAM
SHEET 10 OF 12

CONTRACT NO	
DRAWING NO	ED-282
REV	1
SCALE	NO SCALE
SHEET NO	

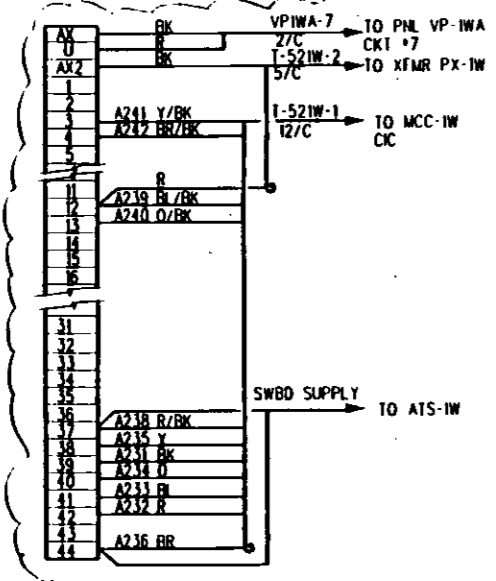
BREAKER 52-01E



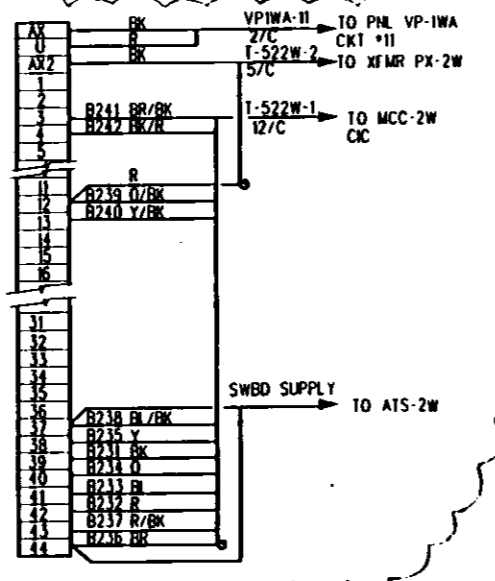
BREAKER 52-02E



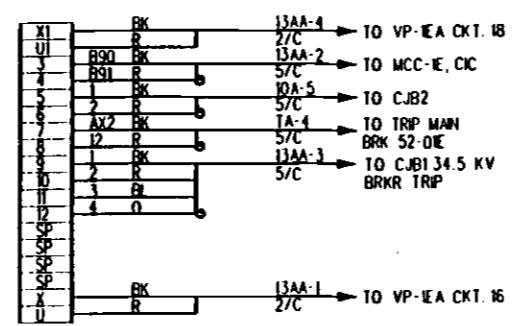
BREAKER 52-01W



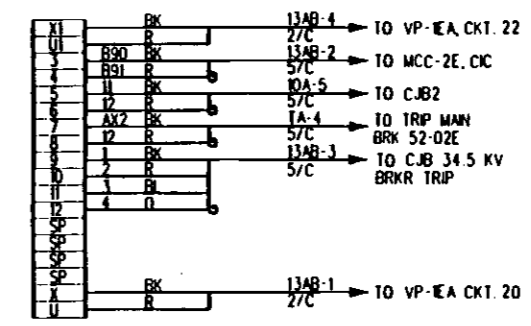
BREAKER 52-02W



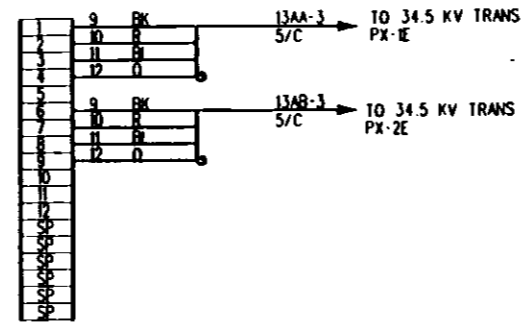
34.5 KV TRANSFORMER PX-1E



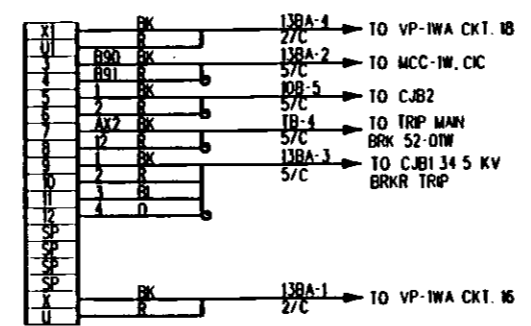
34.5 KV TRANSFORMER PX-2E



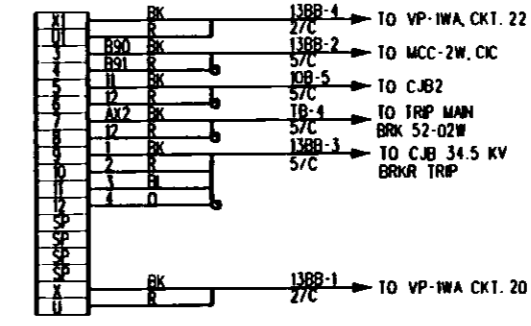
CONTROL J-BOX CJB1 TRANSF. PX-1E & PX-2E



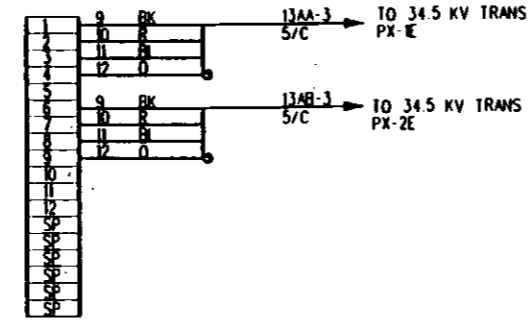
34.5 KV TRANSFORMER PX-1W



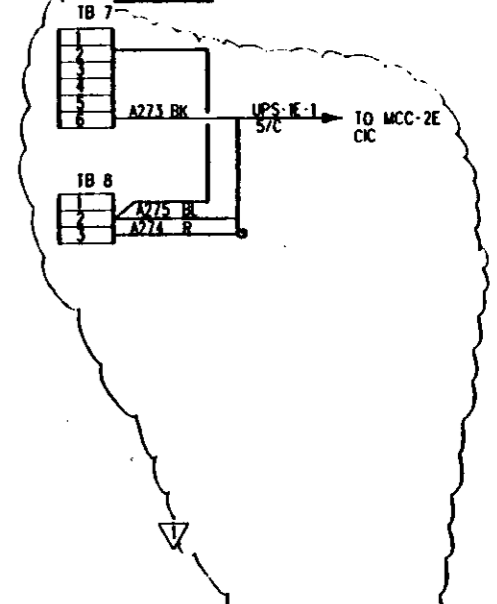
34.5 KV TRANSFORMER PX-1W



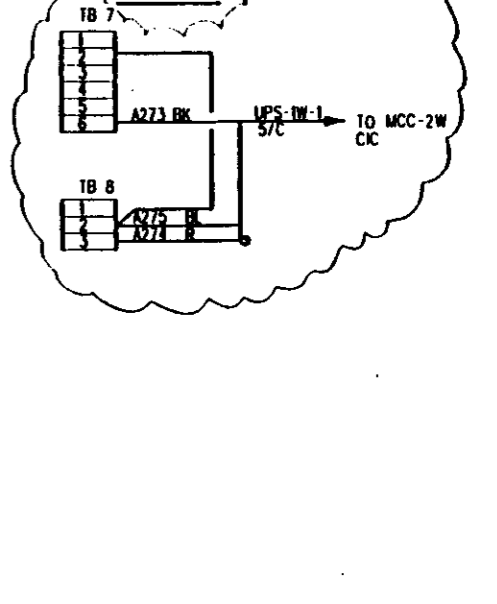
CONTROL J-BOX CJB2 TRANSF. PX-1W & PX-2W



UPS-1E



UPS-1W



NOTE:
FOR NOTES AND GENERAL INFORMATION, SEE DRAWING EO-282

REV	DATE	BY	SUB	APP	DESCRIPTION
0	18 94	CY	AL	GMC	BASELINE ISSUE
1	19 94	AL	AL	GMC	REVISED PER DE 305-SBCN-11 00

DESIGNED BY
C. YU
DRAWN BY
G. LONG
CHECKED BY
C. ROBINOL
IN CHARGE
E. DER-AVAKIAN
DATE
19 APR 94

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

ENGINEERING MANAGEMENT CONSULTANT
in association with
Parsons Brinckerhoff Dodge & Design, Inc.
James R. Brinckerhoff, President & Managing Director
1700 West Imperial Avenue, Suite 1000
Escondido, California 92026
James R. Brinckerhoff, Inc.
The Metropolitan Group Inc.

SUBMITTED *Edward Der-Avakian*
APPROVED *[Signature]*

ELECTRICAL DIRECTIVE

CONNECTION DIAGRAM
SHEET 11 OF 12

CONTRACT NO. _____
DRAWING NO. **ED-283** REV. **1**
SCALE: **NO SCALE**
SHEET NO. _____

