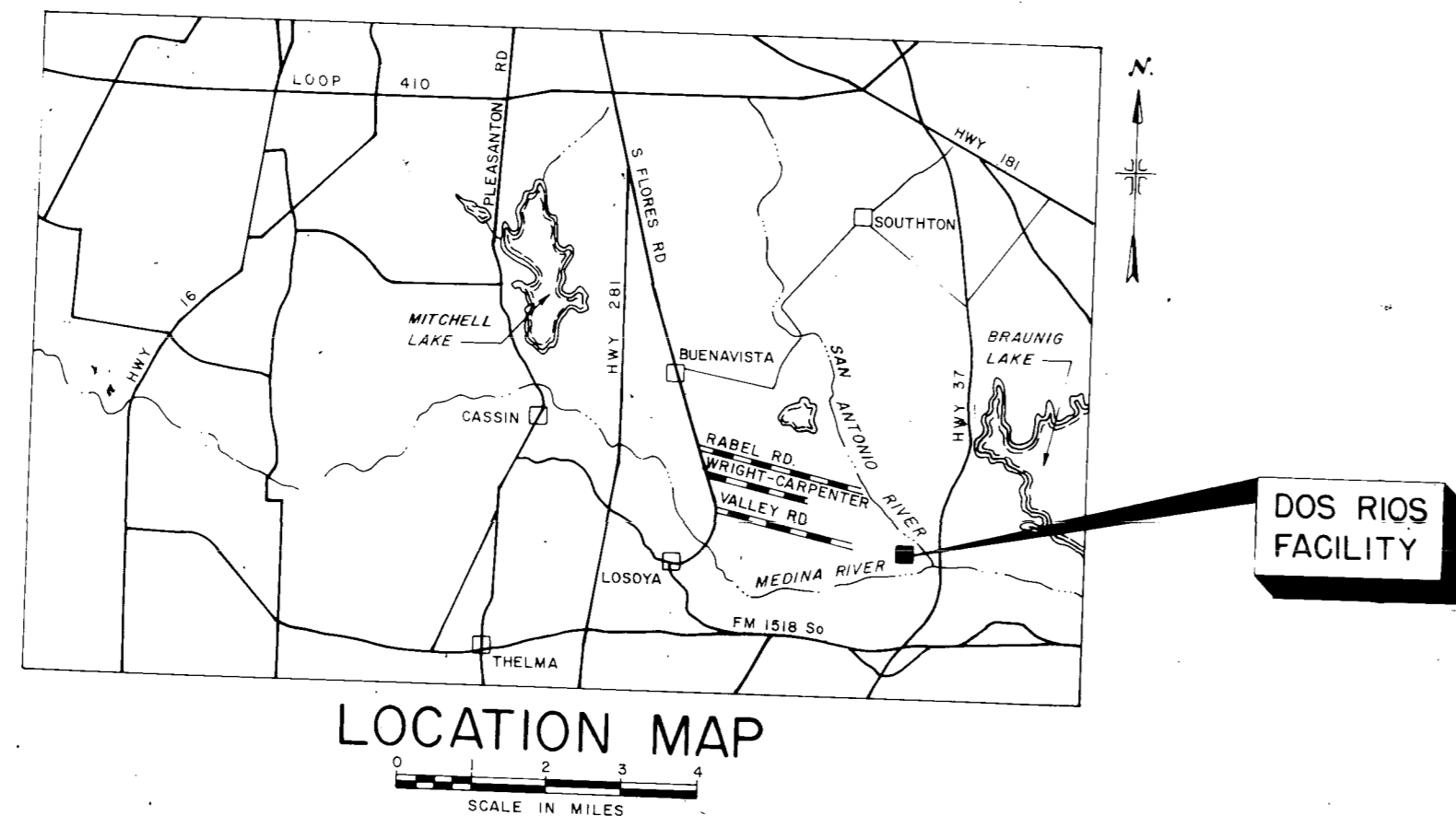


DOS RIOS FACILITY

PRIMARY FACILITIES

CONTRACT 3 - NOVEMBER 1983



STEP 3 GRANT NO. C-481211-25

STEP 2 GRANT NO. C-481211-10

CITY OF SAN ANTONIO,
DEPARTMENT OF PUBLIC WORKS

MALCOLM PIRNIE INC.
SAN ANTONIO, TEXAS

WHITE PLAINS, NEW YORK

RECORD DRAWINGS
This drawing reflects changes from the original contract drawing that were made during construction and has been prepared from information provided to the Engineer by the construction contractor(s). The Engineer does not warrant this drawing to be complete and accurate in all respects.
MALCOLM PIRNIE, INC.
Date: 6/88 MCM

WASTEWATER
FACILITIES
IMPROVEMENTS

SAN
ANTONIO

D-3

CONTRACT 3
Dos Rios

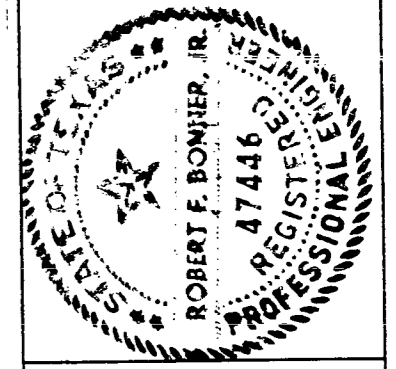


9100691

DR 83-6502

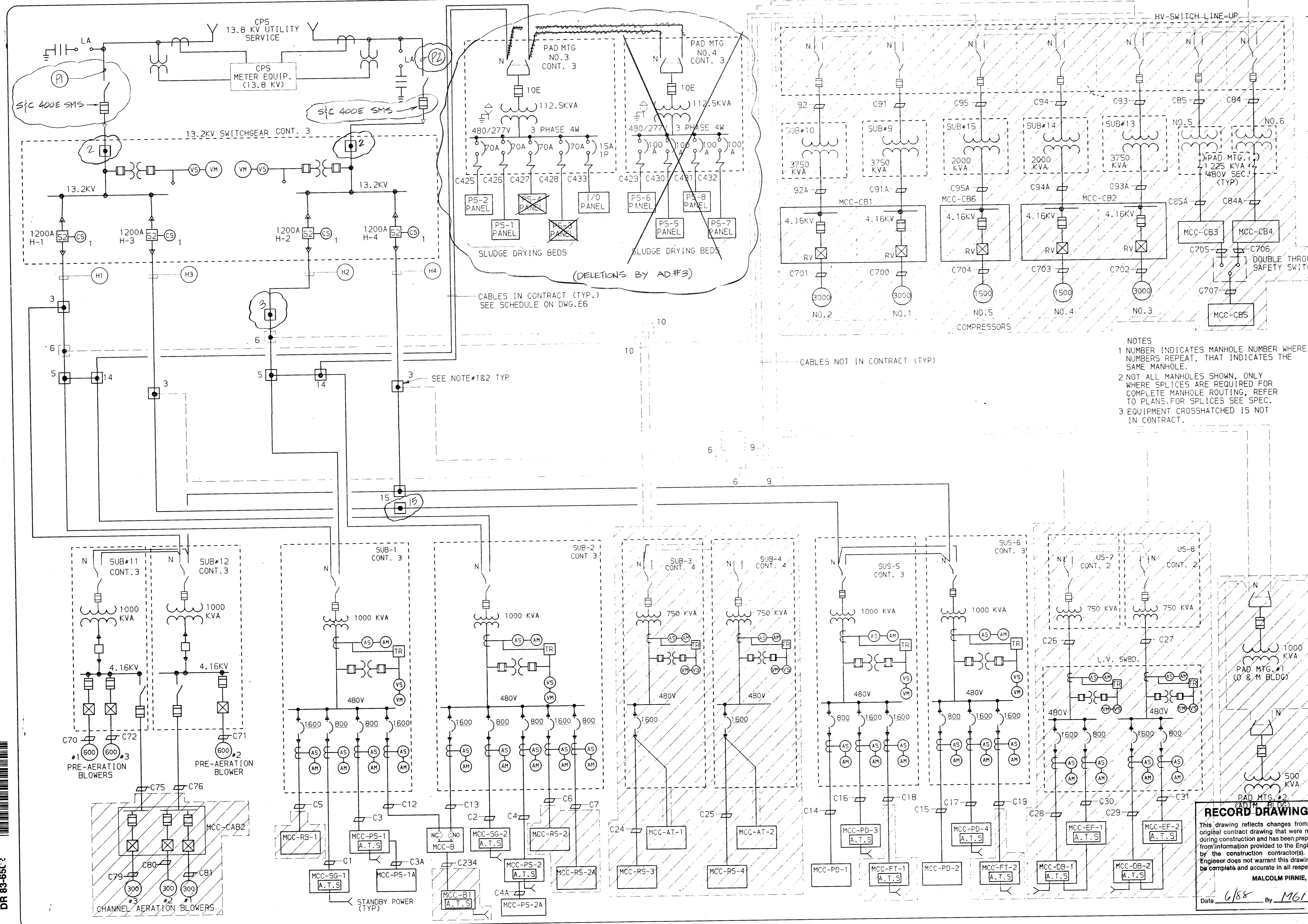
MALCOLM PIRNIE

Date: NOV 1983
 Designed by: FS
 Drawn by: FS
 Checked by: [Signature]
 Scale: NO SCALE



WATERWORKS
 & UTILITIES
 ENGINEERS

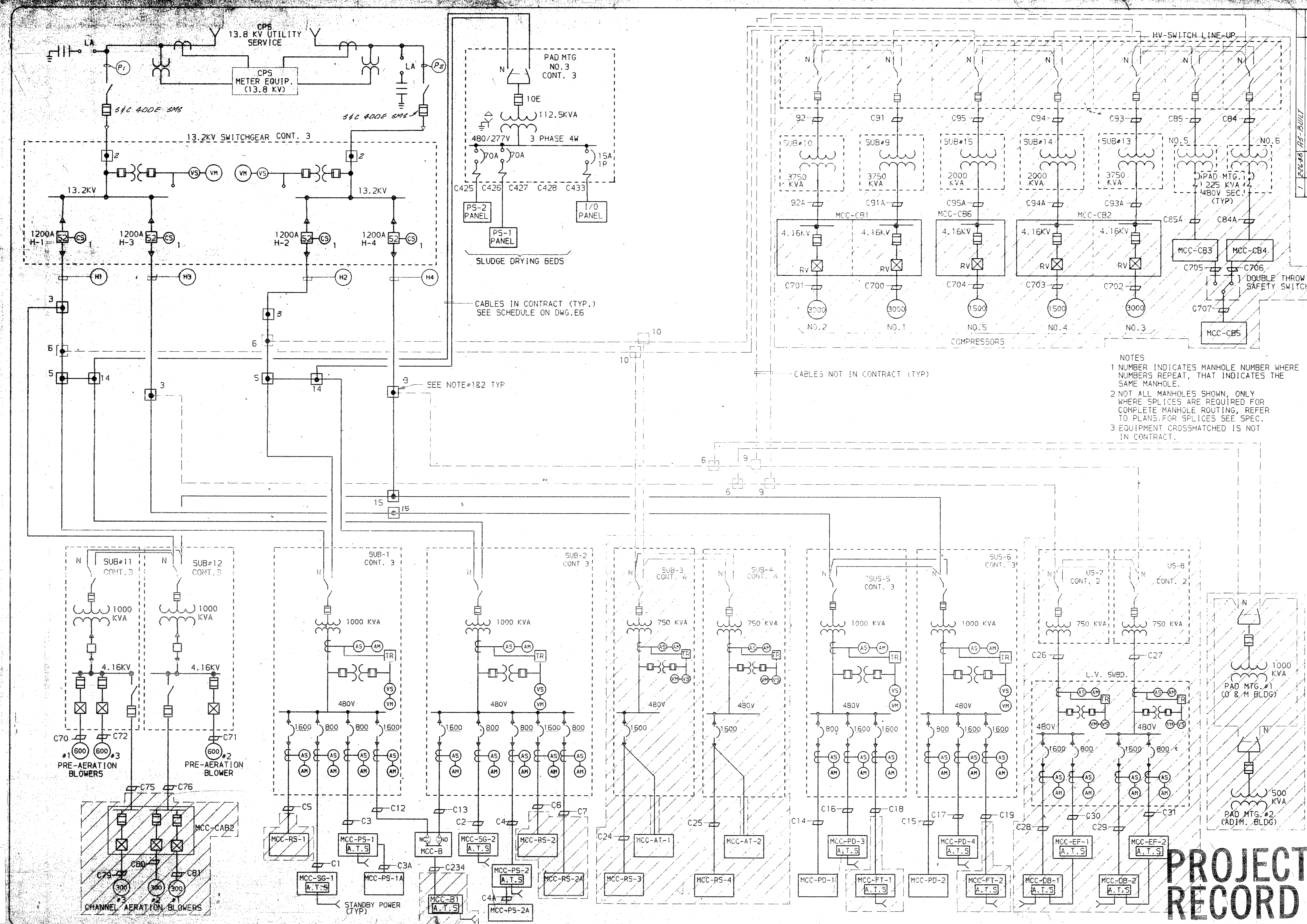
CONTRACT NO. 3
DOS RIOS FACILITY
 GENERAL
 PRIMARY POWER ONE-LINE



NOTES
 1 NUMBER INDICATES MANHOLE NUMBER WHERE NUMBERS REPEAT, THAT INDICATES THE SAME MANHOLE.
 2 NOT ALL MANHOLES SHOWN, ONLY WHERE SPLICES ARE REQUIRED FOR COMPLETE MANHOLE ROUTING. REFER TO PLANS FOR SPLICES SEE SPEC.
 3 EQUIPMENT CROSSHATCHED IS NOT IN CONTRACT.

RECORD DRAWINGS
 This drawing reflects changes from the original contract drawing that were made during construction and has been prepared from information provided to the Engineer by the construction contractor(s). The Engineer does not warrant this drawing to be complete and accurate in all respects.
 MALCOLM PIRNIE, INC.
 Date: 6/88 By: MGLL

9100930
 DR 83-65C



NOTES
 1 NUMBER [INDICATES MANHOLE NUMBER WHERE NUMBERS REPEAT, THAT INDICATES THE SAME MANHOLE.
 2 NOT ALL MANHOLES SHOWN, ONLY WHERE SPLICES ARE REQUIRED FOR COMPLETE MANHOLE ROUTING. REFER TO PLANS FOR SPLICES SEE SPEC.
 3 EQUIPMENT CROSSHATCHED IS NOT IN CONTRACT.

DR 83-6502



PROJECT RECORD

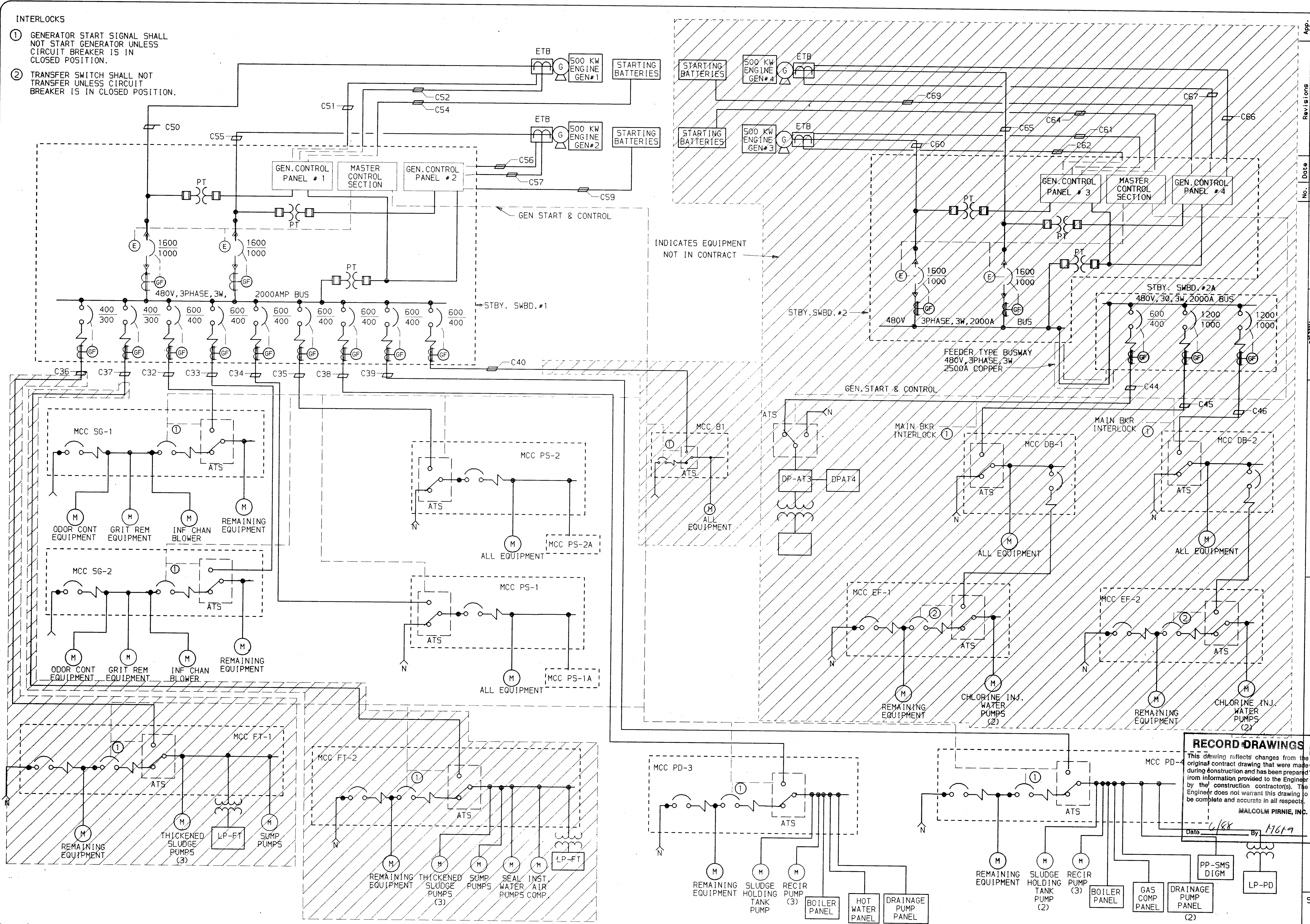
CONTRACT NO. 3
 D05 R105 FACILITY
 GENERAL
 PRIMARY POWER ONE-LINE

Sheet E-2A
 of E-58

No.	Date	Revisions

INTERLOCKS

- ① GENERATOR START SIGNAL SHALL NOT START GENERATOR UNLESS CIRCUIT BREAKER IS IN CLOSED POSITION.
- ② TRANSFER SWITCH SHALL NOT TRANSFER UNLESS CIRCUIT BREAKER IS IN CLOSED POSITION.



INDICATES EQUIPMENT NOT IN CONTRACT

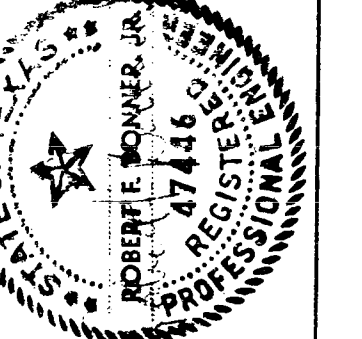
RECORD DRAWINGS

This drawing reflects changes from the original contract drawing that were made during construction and has been prepared from information provided to the Engineer by the construction contractor. The Engineer does not warrant this drawing to be complete and accurate in all respects.
 MALCOLM PIRNIE, INC.
 Date: 1/88 By: HGT

Drawing No. 410N-83.236-0

MALCOLM PIRNIE

Date: NOV 1983
 Designed by: FS
 Drawn by: FS
 Checked by: L.S.
 Scale: NO SCALE



WASTEWATER FACILITIES IMPROVEMENTS

SAN ANTONIO

CONTRACT NO. 3
 DOS RIOS FACILITY
 GENERAL
 STANDBY POWER ONE-LINE

Sheet E-3 of E-58

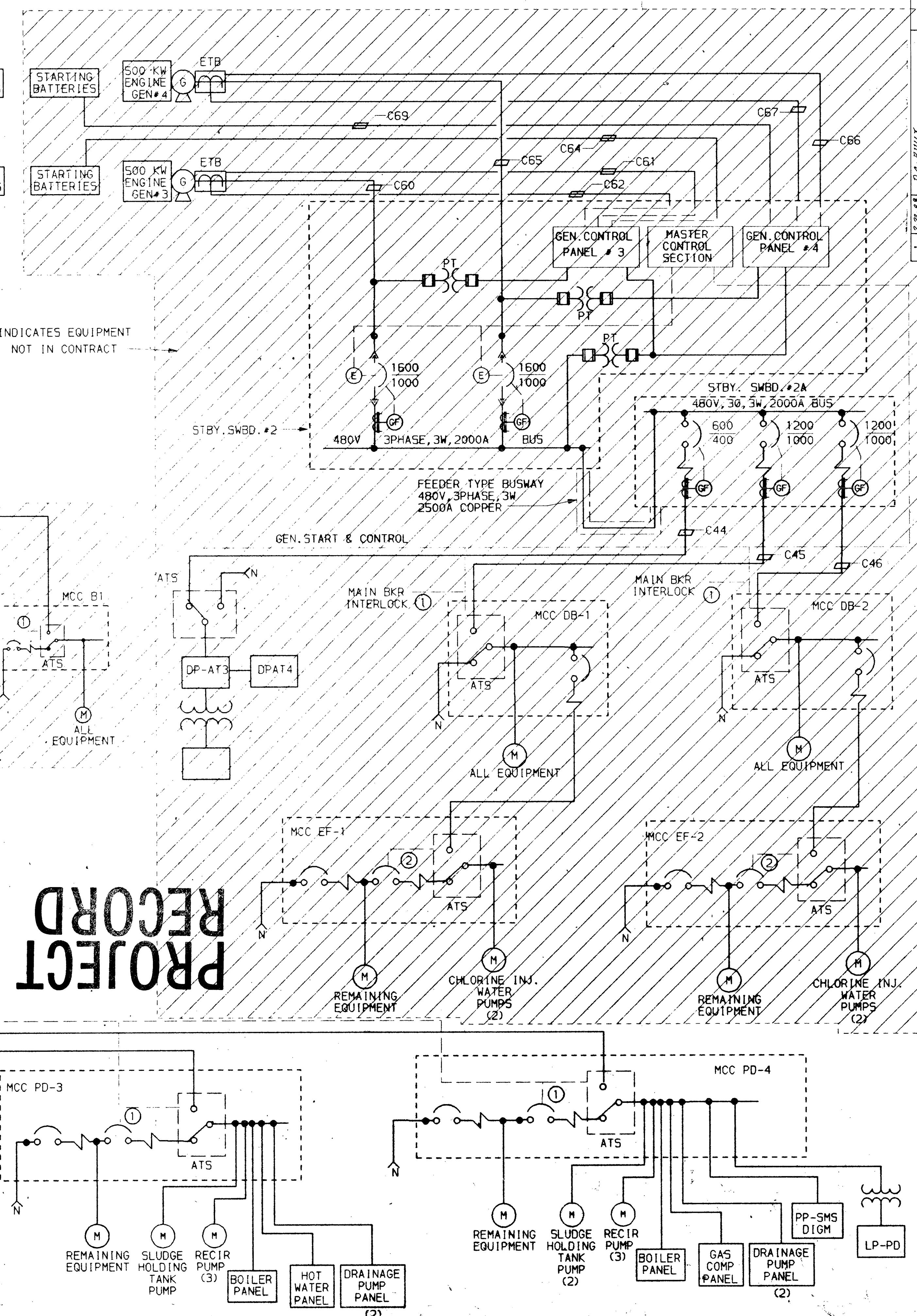
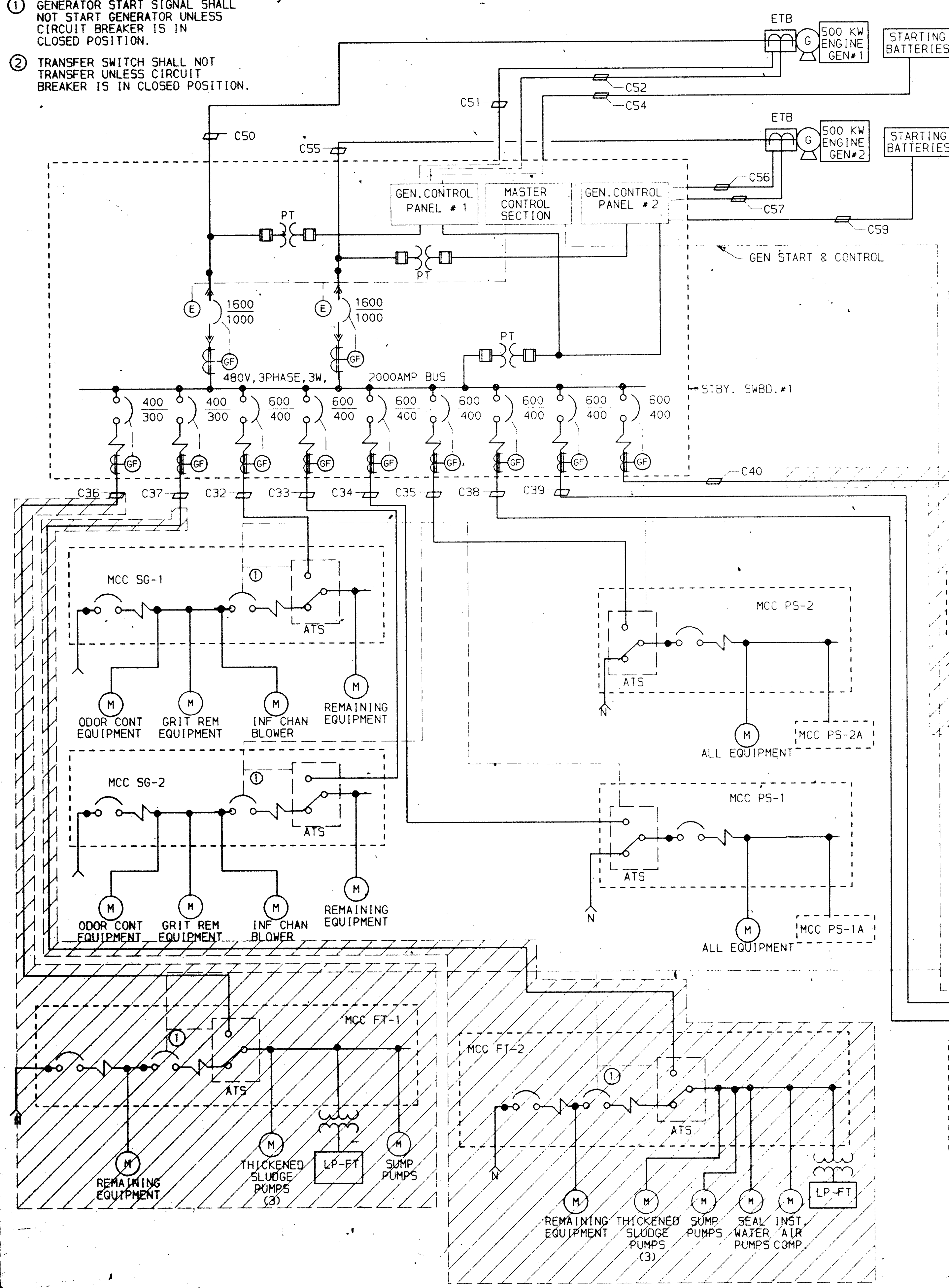
9100933
 DR 83-6502

CONTRACT 3
Dos Rios

9106932
DF 83-6502

INTERLOCKS

- ① GENERATOR START SIGNAL SHALL NOT START GENERATOR UNLESS CIRCUIT BREAKER IS IN CLOSED POSITION.
- ② TRANSFER SWITCH SHALL NOT TRANSFER UNLESS CIRCUIT BREAKER IS IN CLOSED POSITION.



PROJECT RECORD

Drawing No. 410N-83.236-0

Revisions

Date

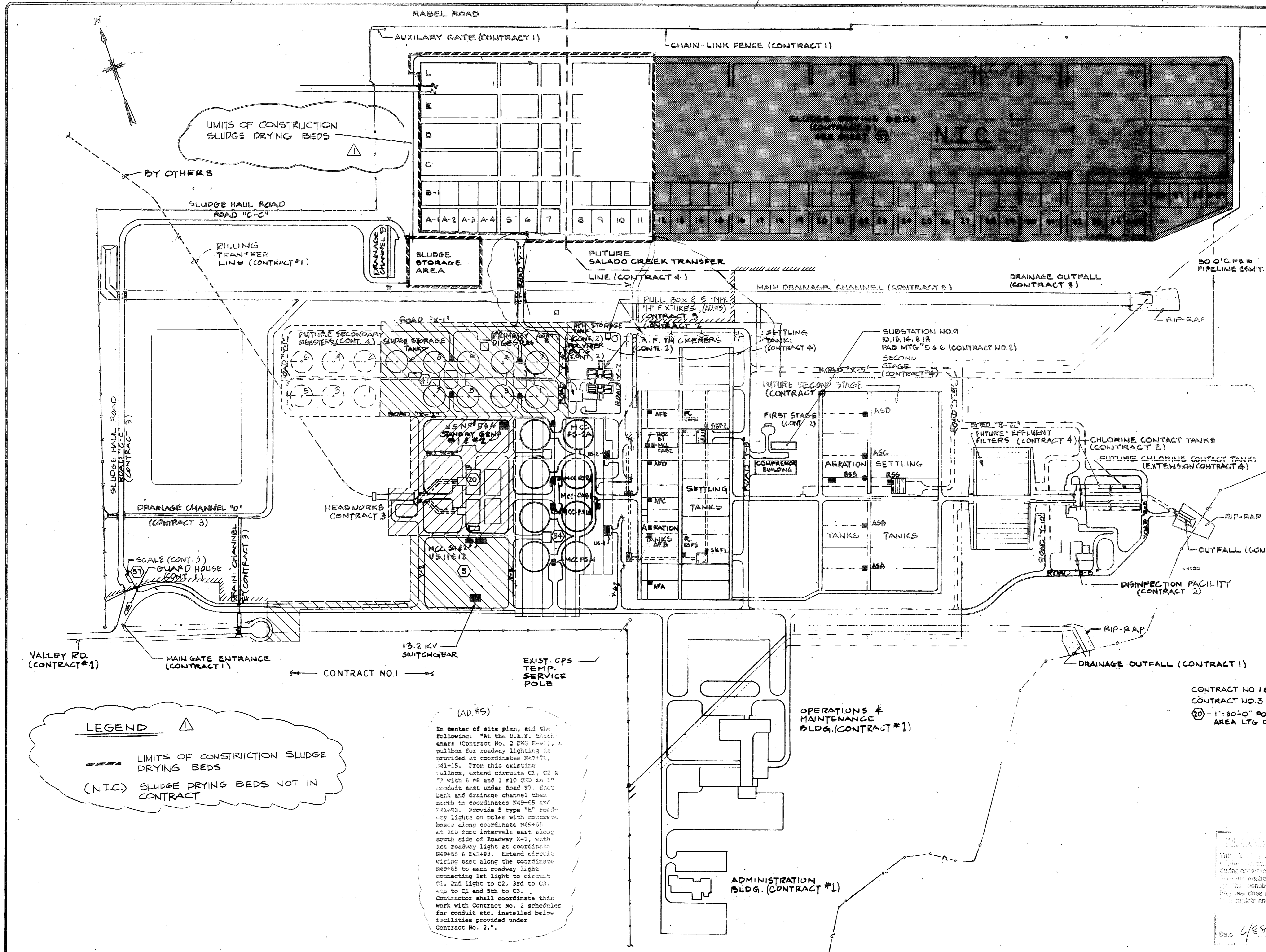
App. 1/28/83 J.P. BULL

WATERWORKS
FACILITIES
IMPROVEMENTS

San Antonio

CONTRACT NO. 3
DOS RIOS FACILITY
GENERAL
STANDBY POWER ONE-LINE

Sheet E-3
of E-58



LEGEND

▲ LIMITS OF CONSTRUCTION SLUDGE DRYING BEDS

(N.I.C.) SLUDGE DRYING BEDS NOT IN CONTRACT

(AD.#5)

In center of site plan, add the following: "At the D.A.F. Switchgear (Contract No. 2 DWG E-40), a pullbox for roadway lighting is provided at coordinates N4+70, 41+15. From this existing pullbox, extend circuits C1, C2 & C3 with 6 #8 and 1 #10 GND in 2" conduit east under Road 171. From tank and drainage channel then north to coordinates N4+65 and E41+93. Provide 5 type "H" roadway lights on poles with concrete bases along coordinate N4+65 at 200 foot intervals east along south side of Roadway R-1, with 1st roadway light at coordinate N4+65 & E41+93. Extend circuit wiring east along the coordinate N4+65 to each roadway light connecting 1st light to circuit C1, 2nd light to C2, 3rd to C3, 4th to C1 and 5th to C3. Contractor shall coordinate this work with Contract No. 2 schedule for conduit etc. installed below facilities provided under Contract No. 2."

Drawing No. 410N-83.237-1	
DELETED SLUDGE DRY BEDS ROWS A-L 12-39 ADDED LEGEND AND L.O.C.S.D.B.	Revisions
NO. 3 11-9-84	No. Date
App. MALCOLM PIRNIE	

CNA
CURTIS NEAL &
ASSOCIATES, INC.
ENGINEERS
1107 E. COMMERCE
SAN ANTONIO, TEXAS 78203

Date: 11/17/88
Designed by: FS
Drawn by: FS
Checked by: JG
Scale: 1" = 200'

San Antonio
WASTEWATER
FACILITIES
IMPROVEMENTS

**DOS RIOS FACILITY
GENERAL
SITE PLAN-ELECTRICAL FACILITIES**

CONTRACT NO. 3

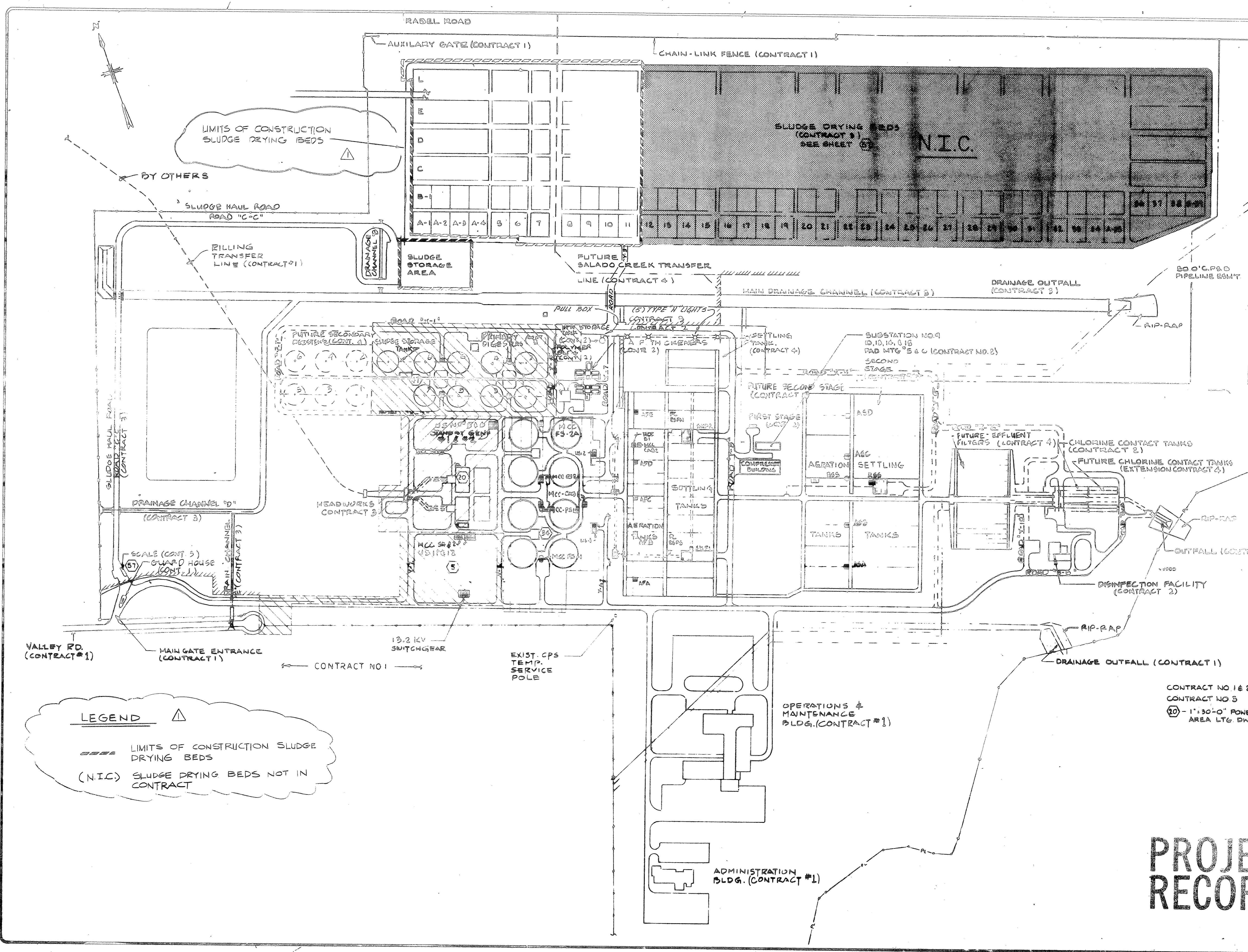
Sheet E-4
of E-58

Date: 4/88 By: MCM

DR 83-6502

Drawing No.
4103-03.237-1

1	2-22-88	AS-BUILD	REVISED SLUDGE DRY BEDS	IEFG
	AD-5-11-9-84		ADDED LEGEND AND L.O.C.S.D.B.	A



Wastewater
Resources
Improvements
San Antonio

CONTRACT NO. 3
DOS RIOS FACILITY
GENERAL
SITE PLAN - ELECTRICAL FACILITIES

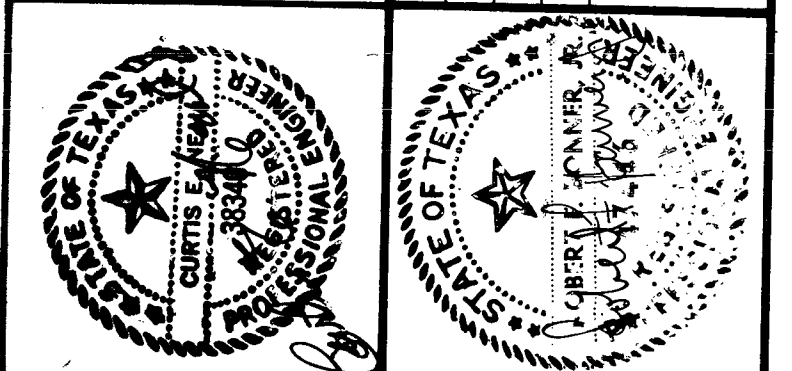
PROJECT RECORD

400#3
Sheet **E-4**
of **E-58**

DR 83-6502

MALCOLM PIRNIE

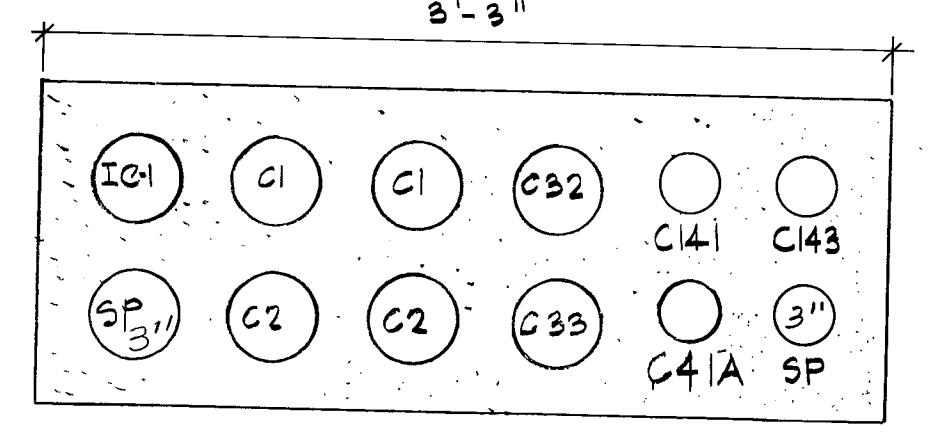
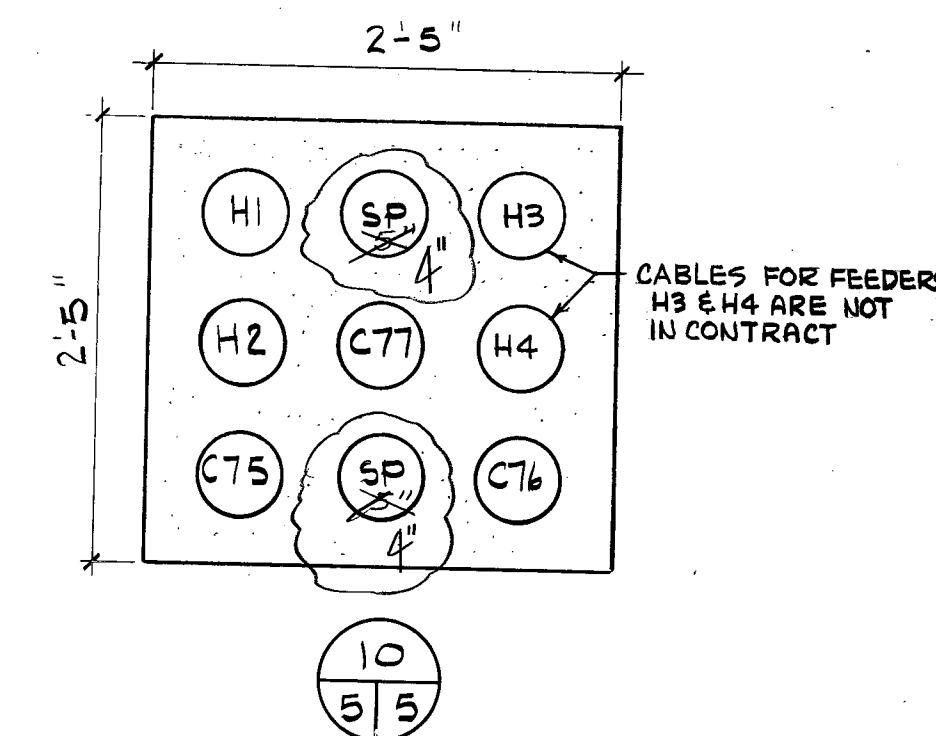
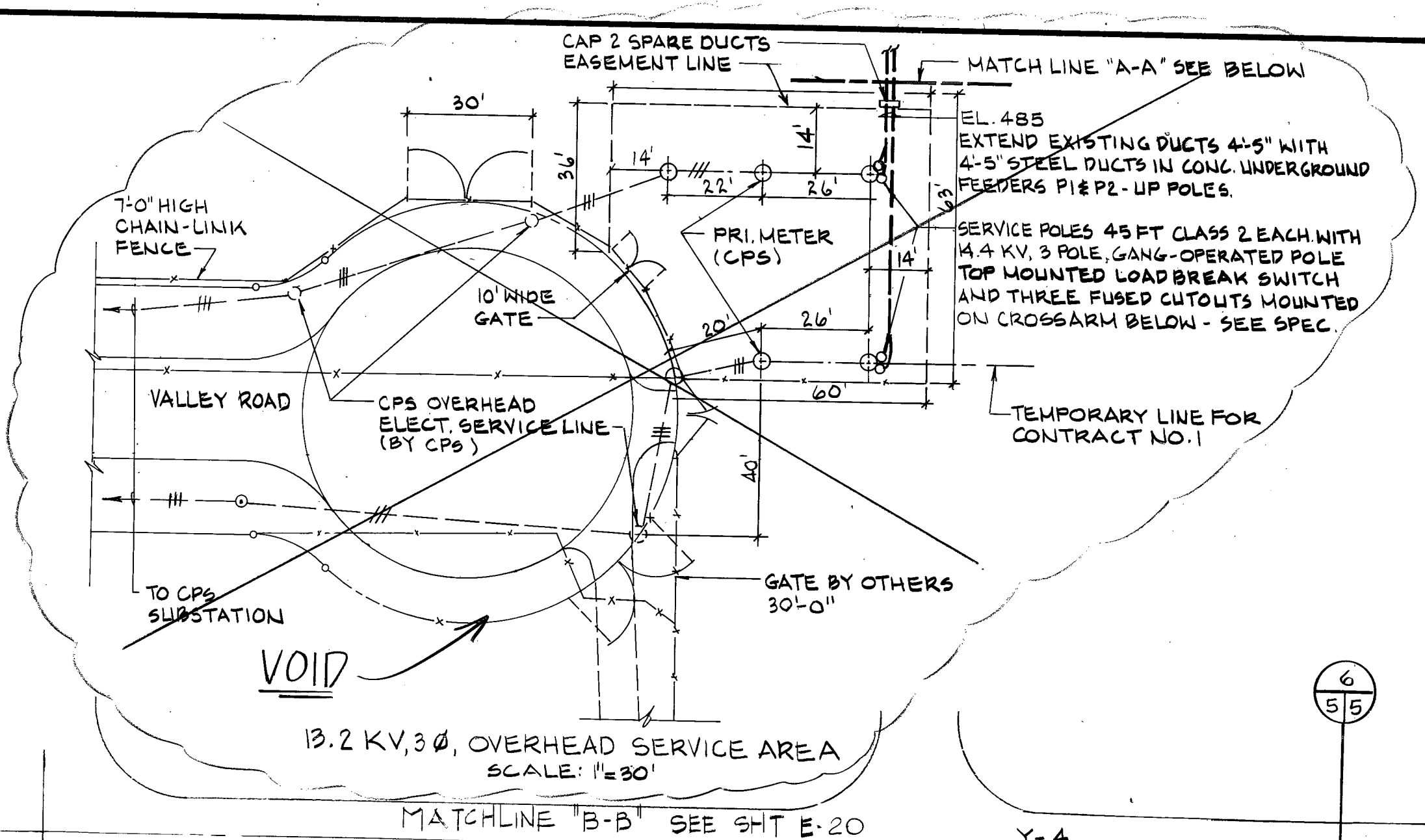
CNA
 CURTIS NEAL & ASSOCIATES, INC.
 CONSULTING ENGINEERS
 187 E. COMMERCE
 SAN ANTONIO, TEXAS 78205
 Date: 12/11/95
 Designed by: K. W. WILSON
 Drawn by: M. P. JACOBSON
 Checked by: C. E. NICHOLS
 Scale: 1" = 30'



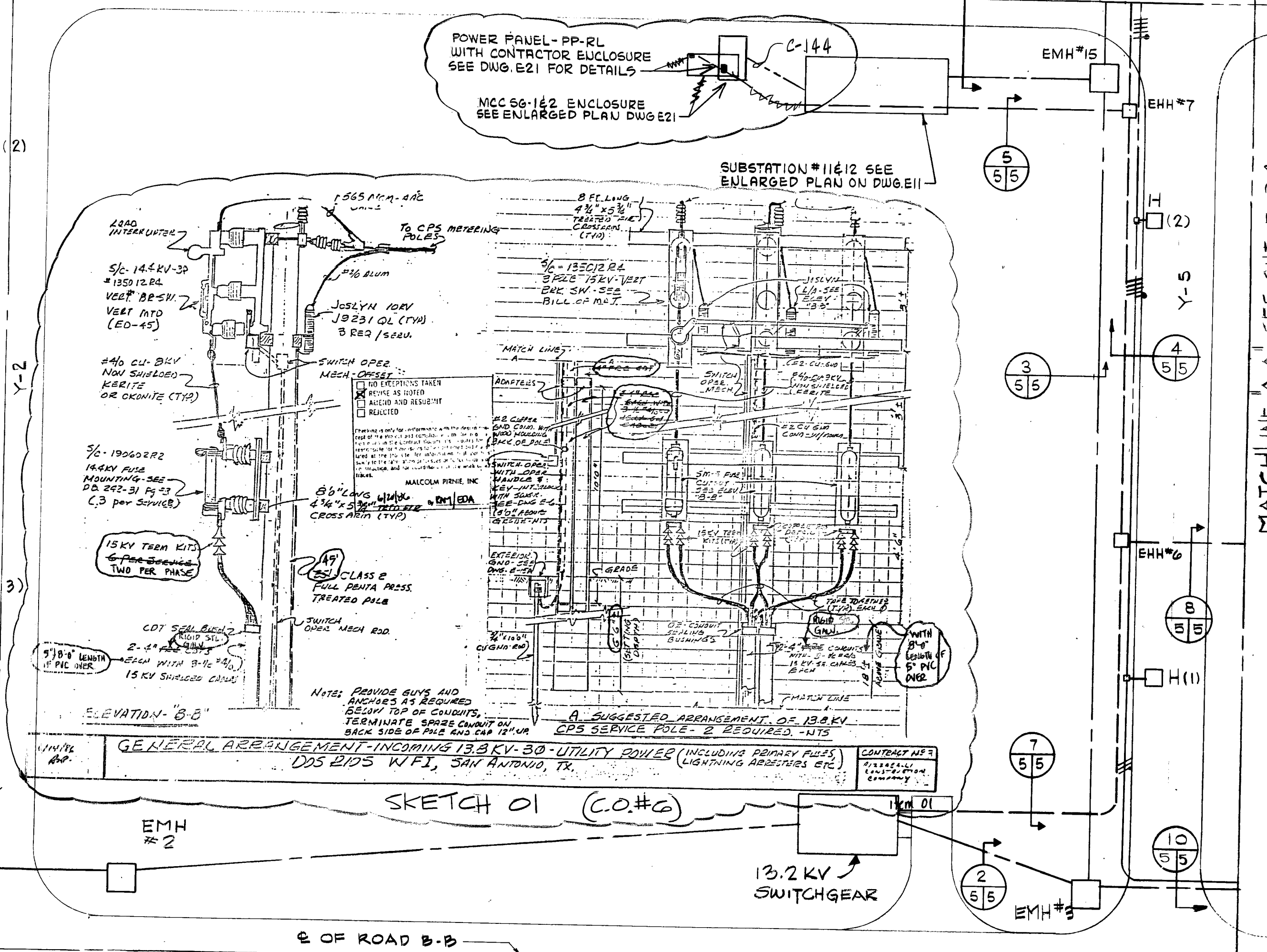
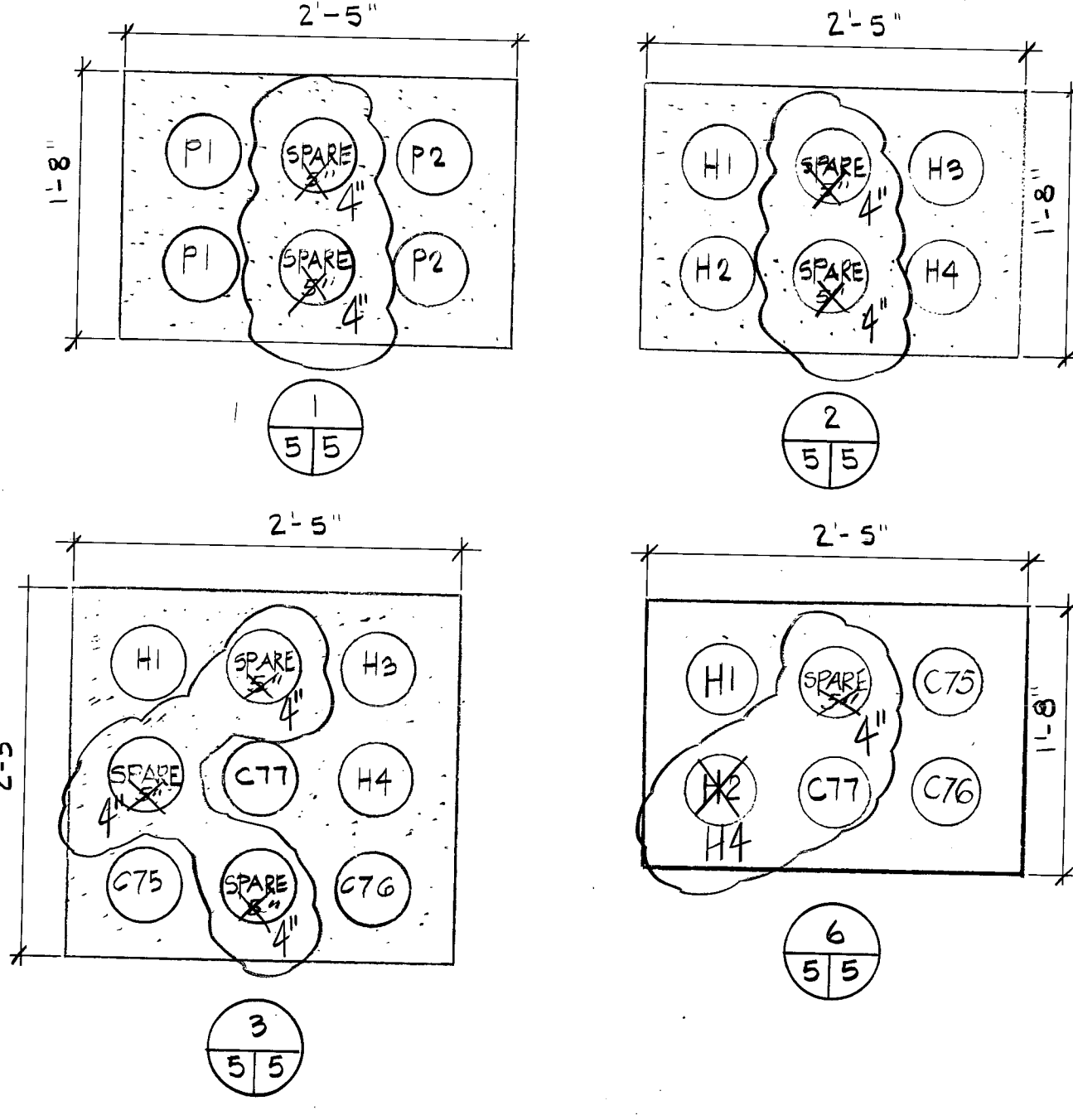
San Antonio
WATERWATER UTILITIES IMPROVEMENTS

DOS RIOS FACILITY
GENERAL IMPROVEMENTS
POWER DISTRIBUTION & AREA LIGHTING

CONTRACT NO. 3



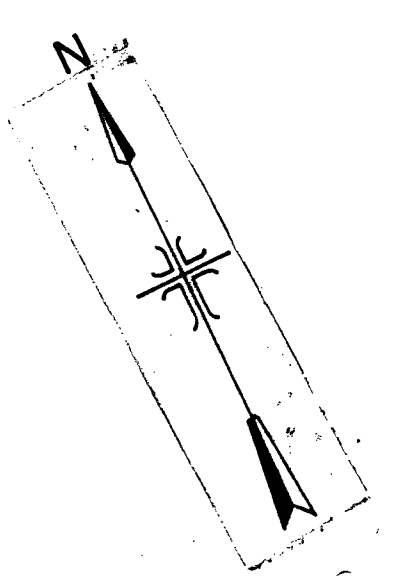
DUCT BANK CONFIGURATIONS
 NOT TO SCALE (TYP.)



NOTES:
 ALL DUCT BANK CONFIGURATIONS SHOWN ON DWG E-5, E-20, E-34, & E-47 ARE 1'-4" DEEP, INCLUDING 3" OF SAND ON ALL SIDES UNLESS NOTED OTHERWISE.
 ALL DUCT BANK CONFIGURATION DIMENSIONS ARE ROUNDED TO NEAREST 1/8" INCH FOR COMPLETE BURIED DUCT BANK INSTALLATION.

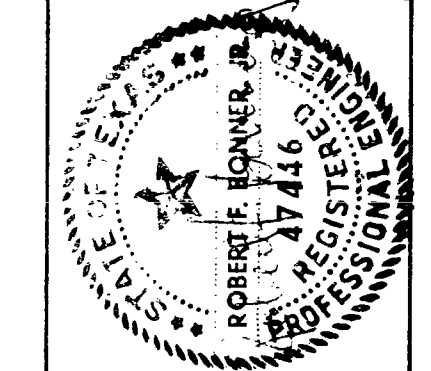
REFER TO DRAWING E-5X FOR "AS-BUILT" CONDITIONS

RECORD DRAWINGS
 This drawing reflects changes from the original contract drawing that were made during construction and has been prepared from information provided to the Engineer by the construction contractor(s). The Engineer does not warrant this drawing to be complete and accurate in all respects.
 MALCOLM PIRNIE, INC.
 Date: 6/88 By: HGM

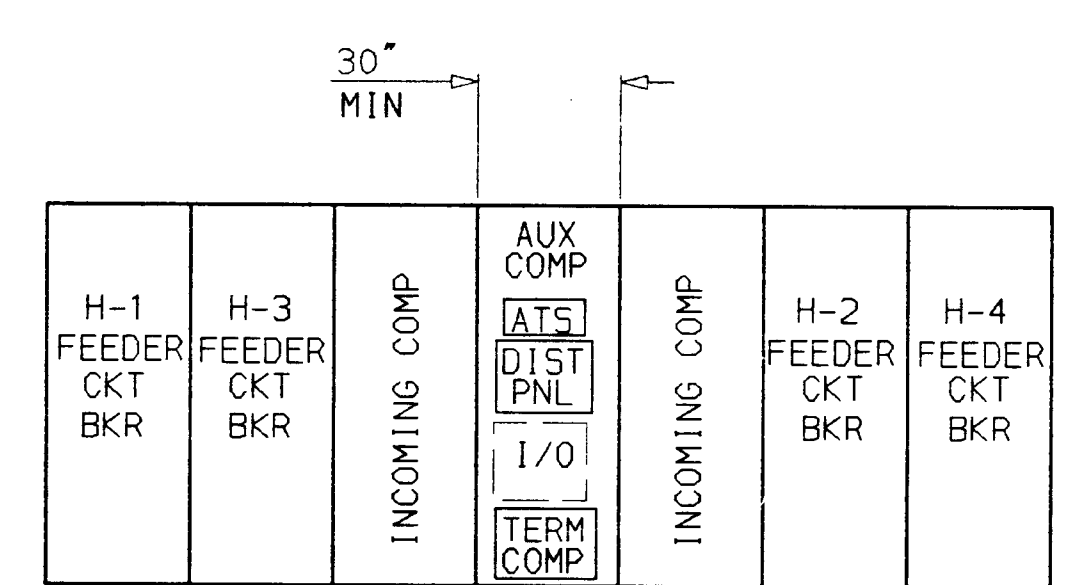
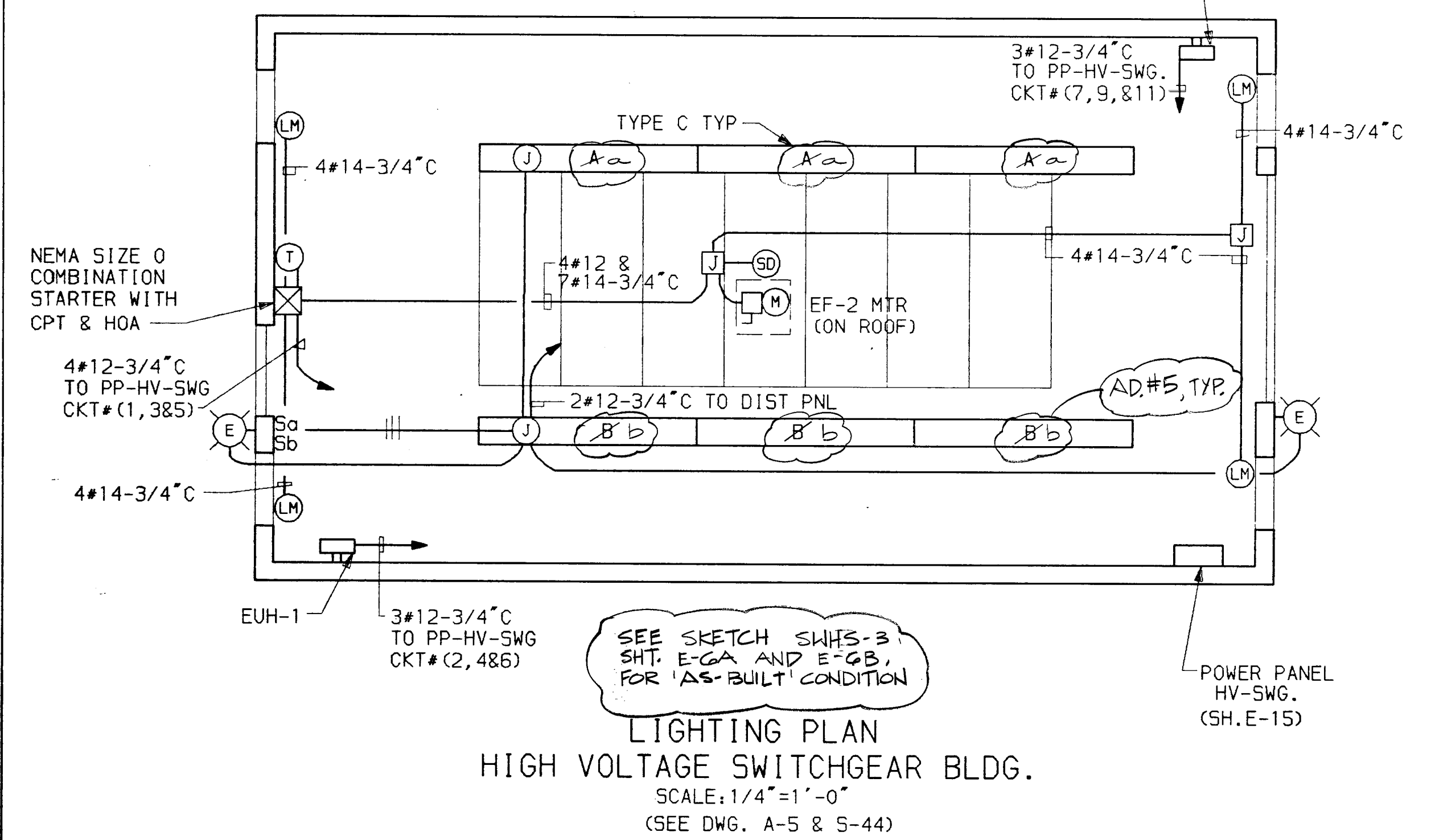
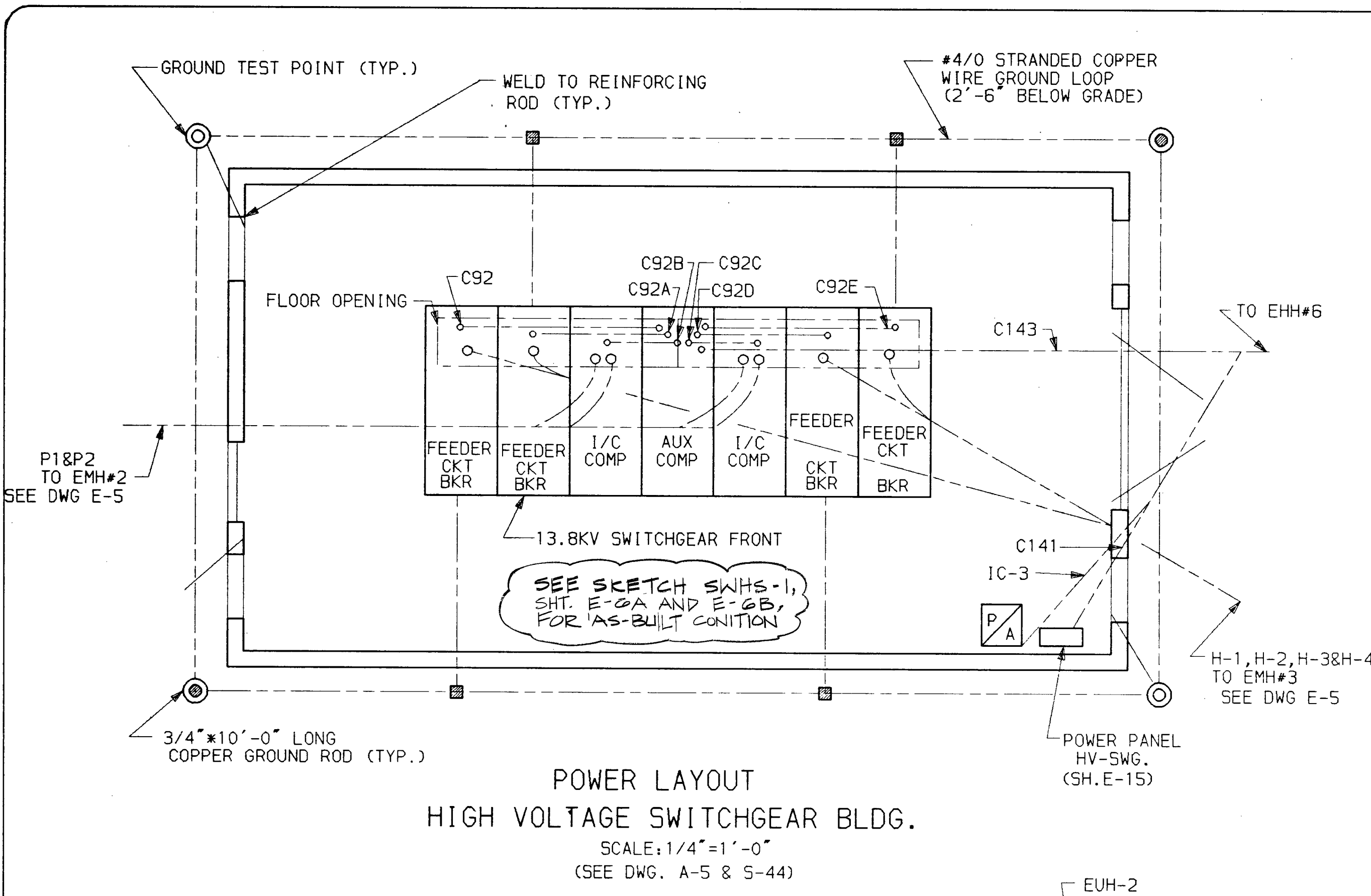


DR 83-6502

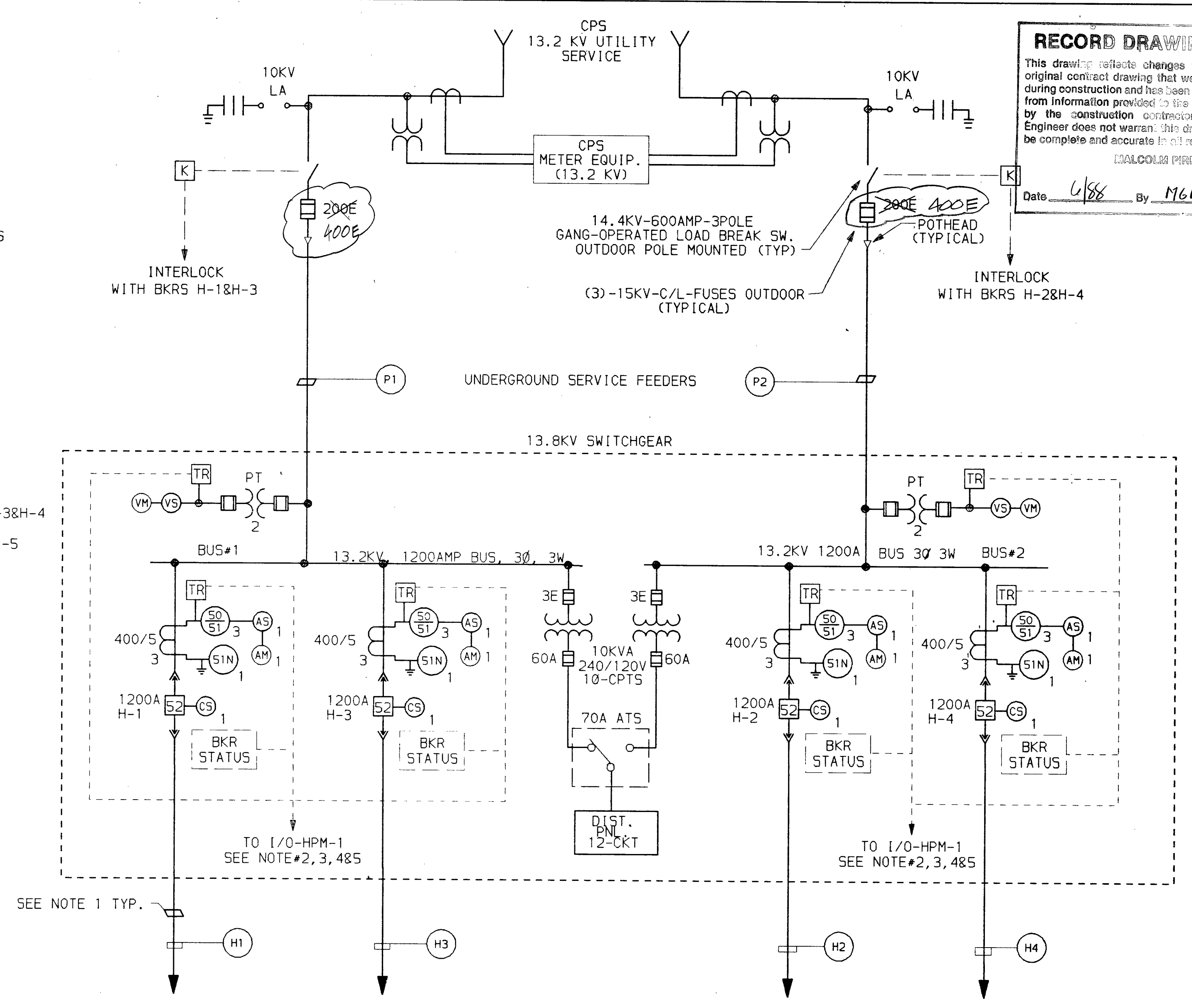




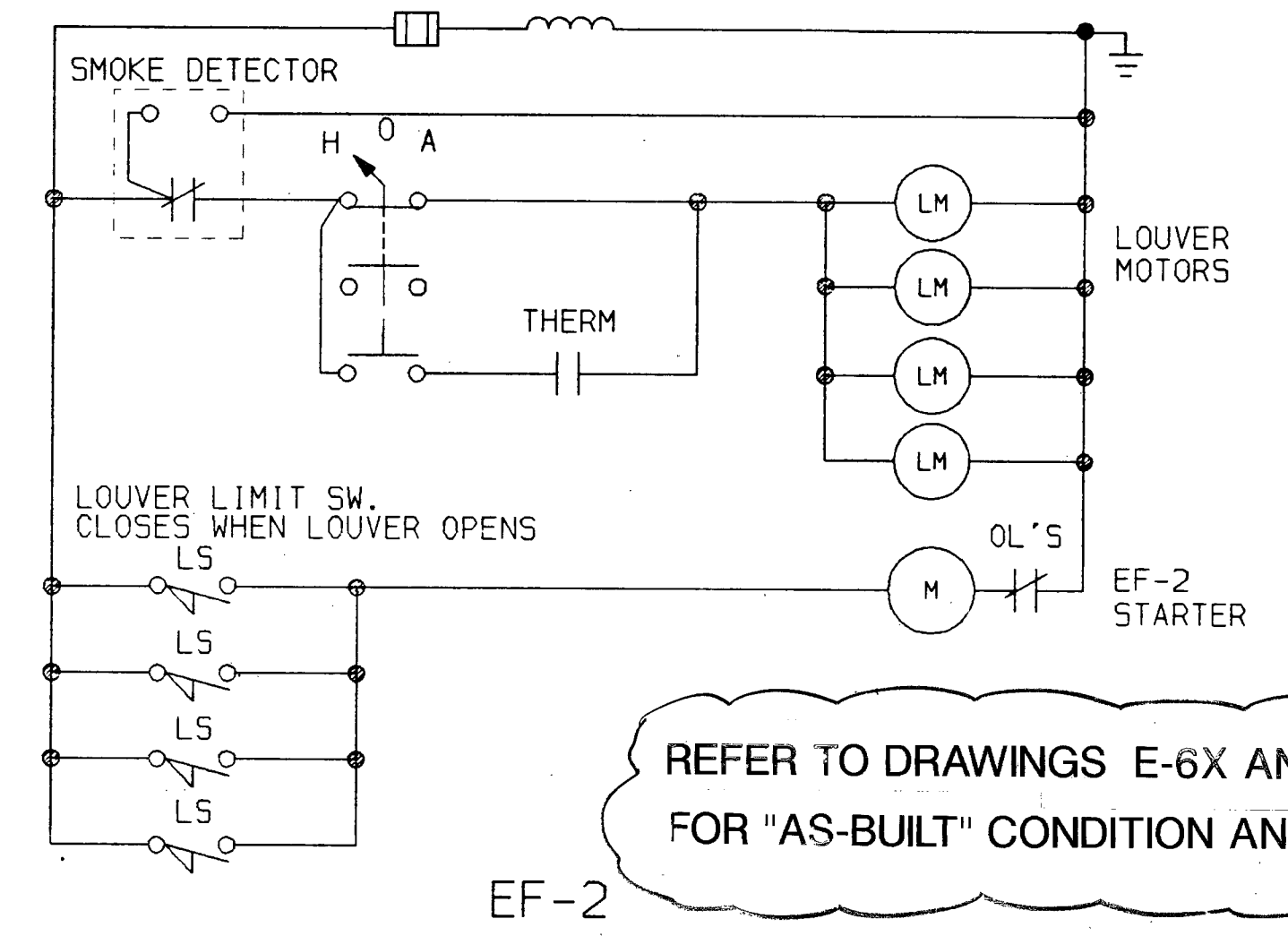
RECORD DRAWINGS
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 MALCOLM FIRNIE, INC.
 Date: 4/88 By: M6M



13.2KV SWITCHGEAR FRONT (N.T.S)



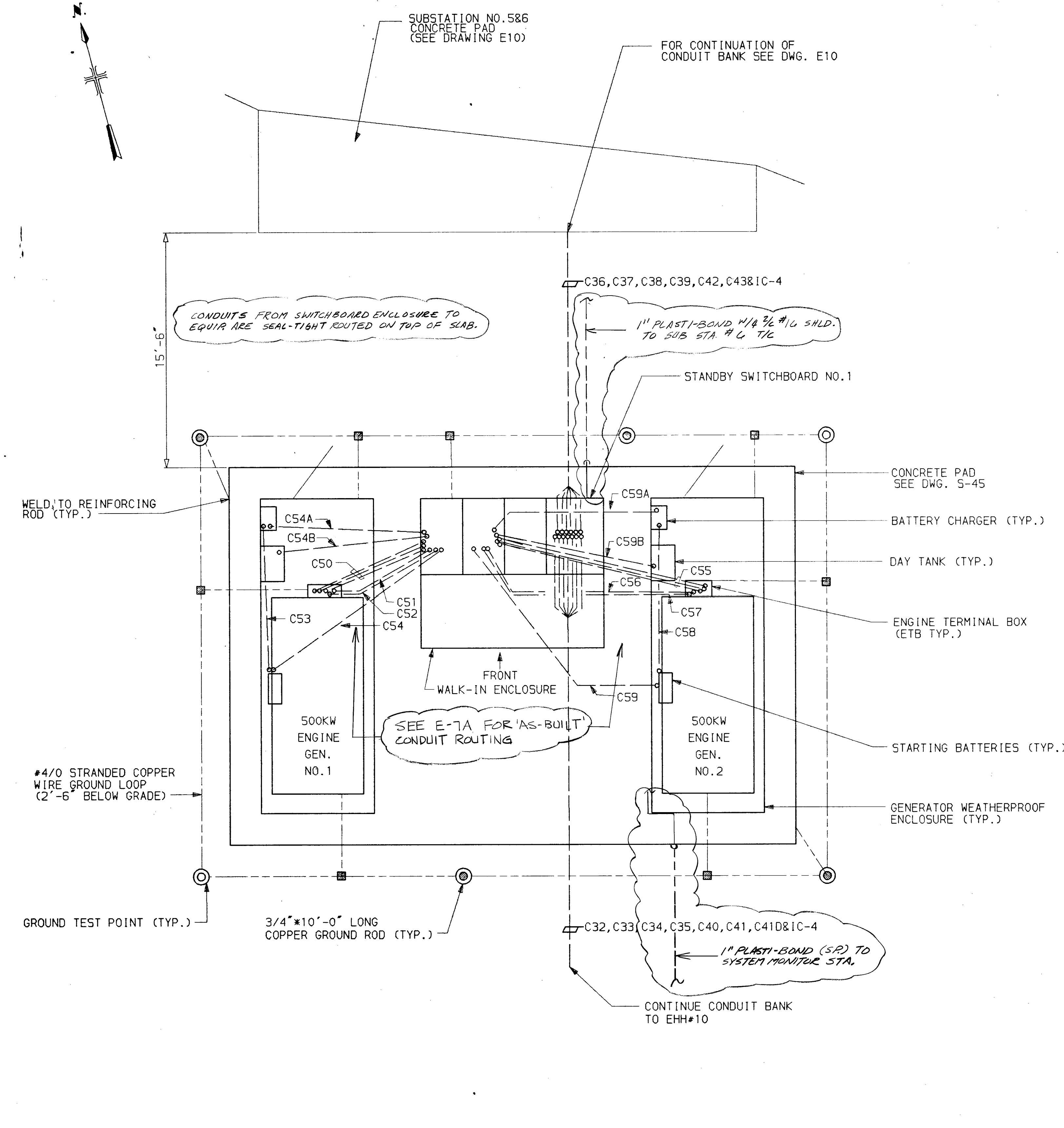
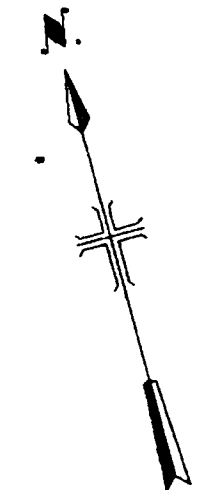
- 13KV PRIMARY SERVICE AND FEEDER SCHEDULE:**
- (P1) 2 SETS OF 3-1/2" # 4/0 15KV SHIELDED & 1 #4/0 GND -2-5/8" CONDUITS
 - (P2) 2 SETS OF 3-1/2" # 4/0 15KV SHIELDED & 1 #4/0 GND -2-5/8" CONDUITS
 - (H1) 1 SET OF 3-1/2" # 4/0 15KV SHIELDED & 1 #4/0 GND -1-5/8" CONDUIT
 - (H2) 1 SET OF 3-1/2" # 4/0 15KV SHIELDED & 1 #4/0 GND -1-5/8" CONDUIT
 - (H3) 1 SET OF 3-1/2" # 4/0 15KV SHIELDED & 1 #4/0 GND -1-5/8" CONDUIT
 - (H4) 1 SET OF 3-1/2" # 4/0 15KV SHIELDED & 1 #4/0 GND -1-5/8" CONDUIT



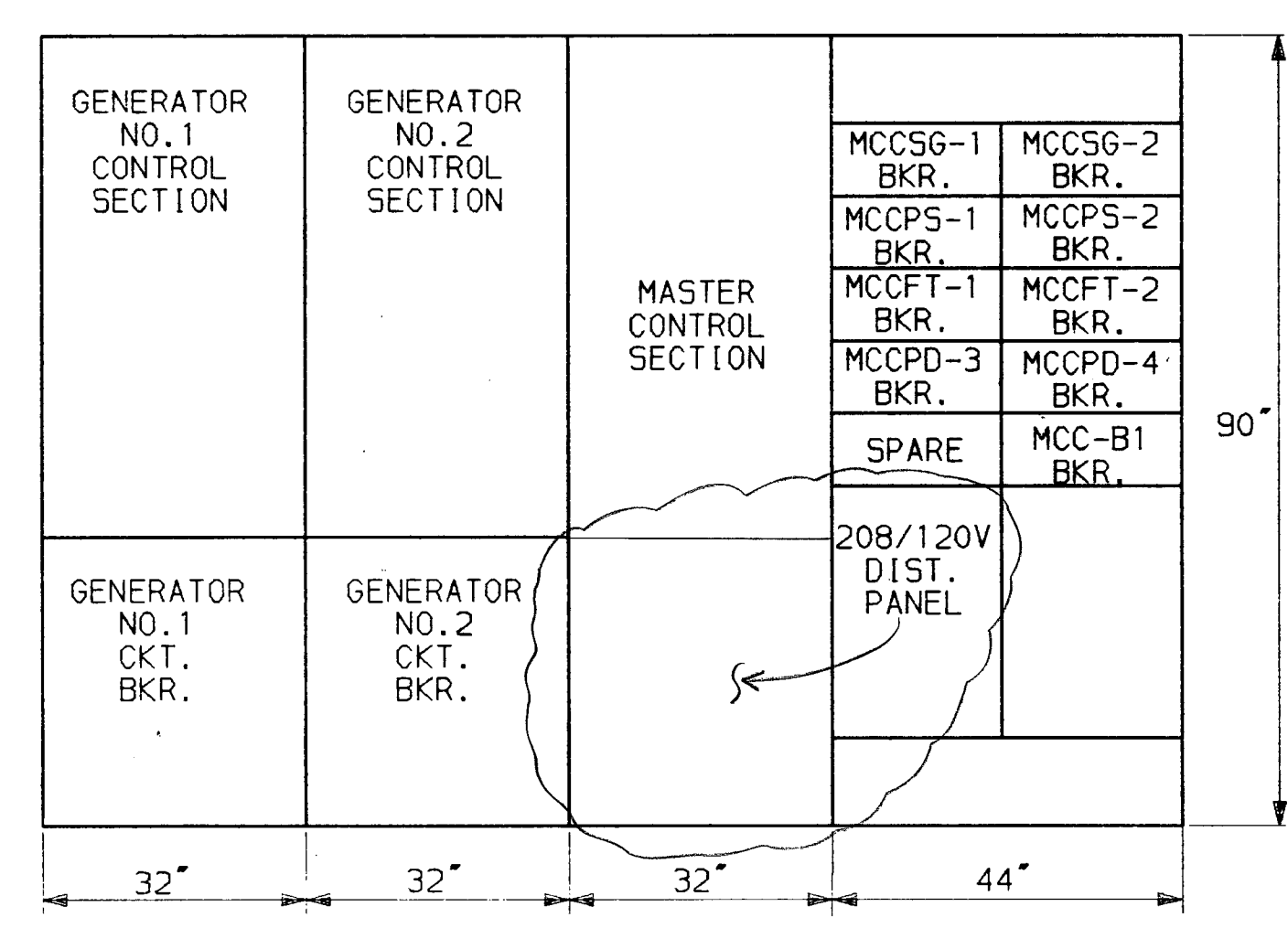
REFER TO DRAWINGS E-6X AND E-6XA FOR "AS-BUILT" CONDITION AND SKETCHES

- NOTE:**
- 1 CABLE SHALL BE ONE CONTINUOUS SIZE FROM CIRCUIT BREAKER TO EACH SUBSTATION OR PAD MOUNT XFMR. REFER TO DWG E2 FOR LOADS ASSOCIATED WITH EACH FEEDER.
 - 2 SUBSTATION VENDOR SHALL PROVIDE TERMINAL COMPARTMENT WITH 35 TERMINALS OF WHICH 15 ARE ISOLATED TERMINALS FOR SIGNALS OF TRANSFORMERS.
 - 3 SUBSTATION VENDOR SHALL PROVIDE CONTROL WIRING THROUGH EACH SWITCHGEAR COMPARTMENT FOR BREAKER STATUS WIRING.
 - 4 CONTRACTOR SHALL EXTEND CIRCUIT BREAKER STATUS WIRING VIA WIRE TROUGH AND TERMINATE ON TERMINAL STRIP OF TERMINAL COMPARTMENT.
 - 5 CONTRACTOR SHALL ARRANGE AUXILIARY COMPARTMENT OF SWITCHGEAR SUCH THAT I/O-HPM-1 PROVIDED UNDER CONTRACT#2, CAN BE INSTALLED IN SWITCHGEAR UNDER CONTRACT NO.2.

9100937
 DR 83-8502



STANDBY GENERATOR NO. 1&2 LAYOUT
SCALE = 1/4" = 1'-0"



STANDBY SWITCHBOARD NO. 1.
FRONT VIEW
(NOT TO SCALE)
NOTE: DIMENSIONS DEPEND ON EQUIPMENT SELECTED.

App. Drawing No.
410N-83.240-0

**MALCOLM
PIRNIE**

NO SCALE

Date: NOV 1983
Designed by: FS
Drawn by: FS
Checked by: [Signature]
Scale:

WATER
RESOURCES
IMPROVEMENTS

San Antonio

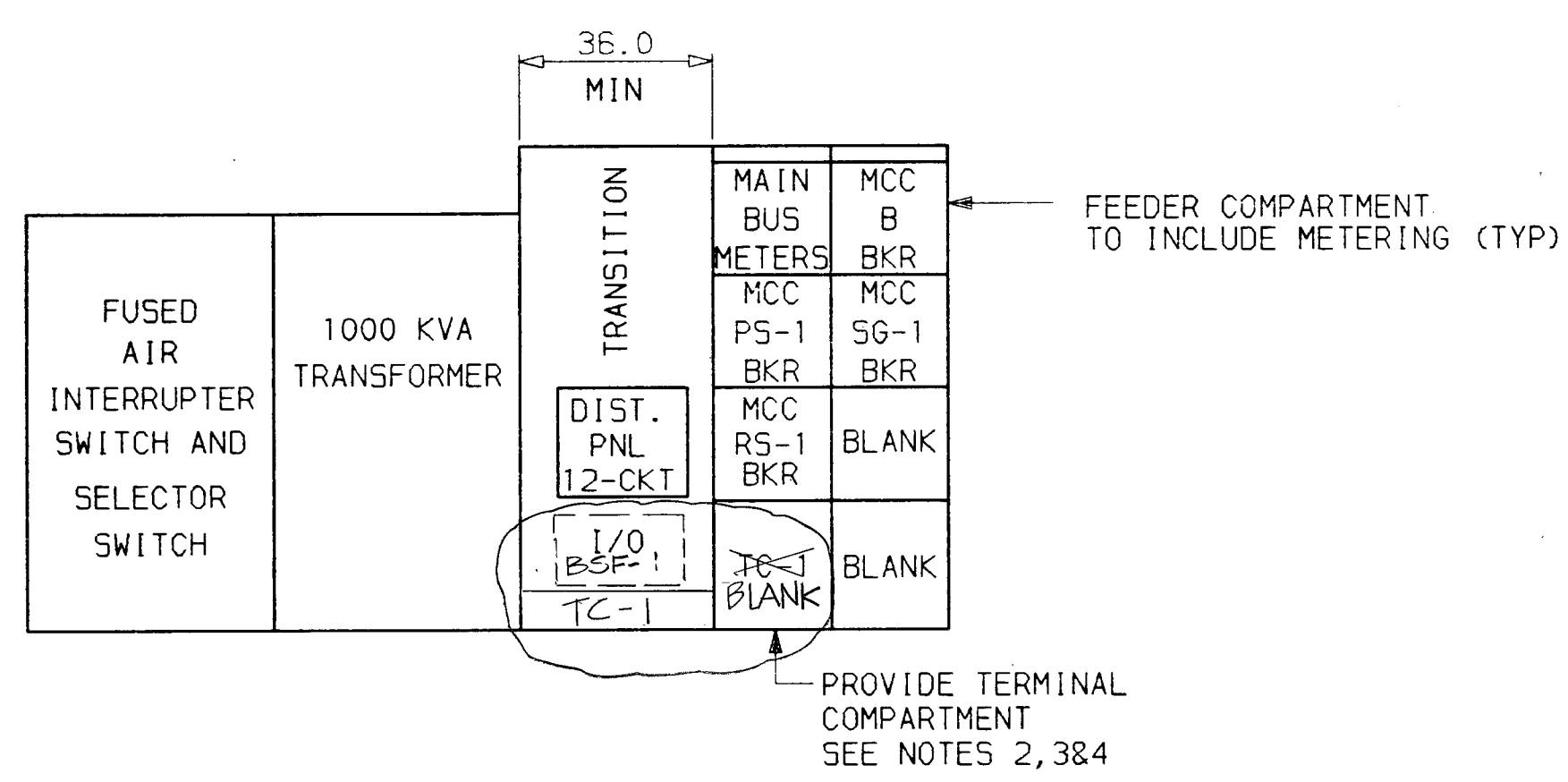
CONTRACT NO. 3
DOS RIOS FACILITY
GENERAL
STANDBY GENERATORS #1 & #2

Sheet E-7
of E-58

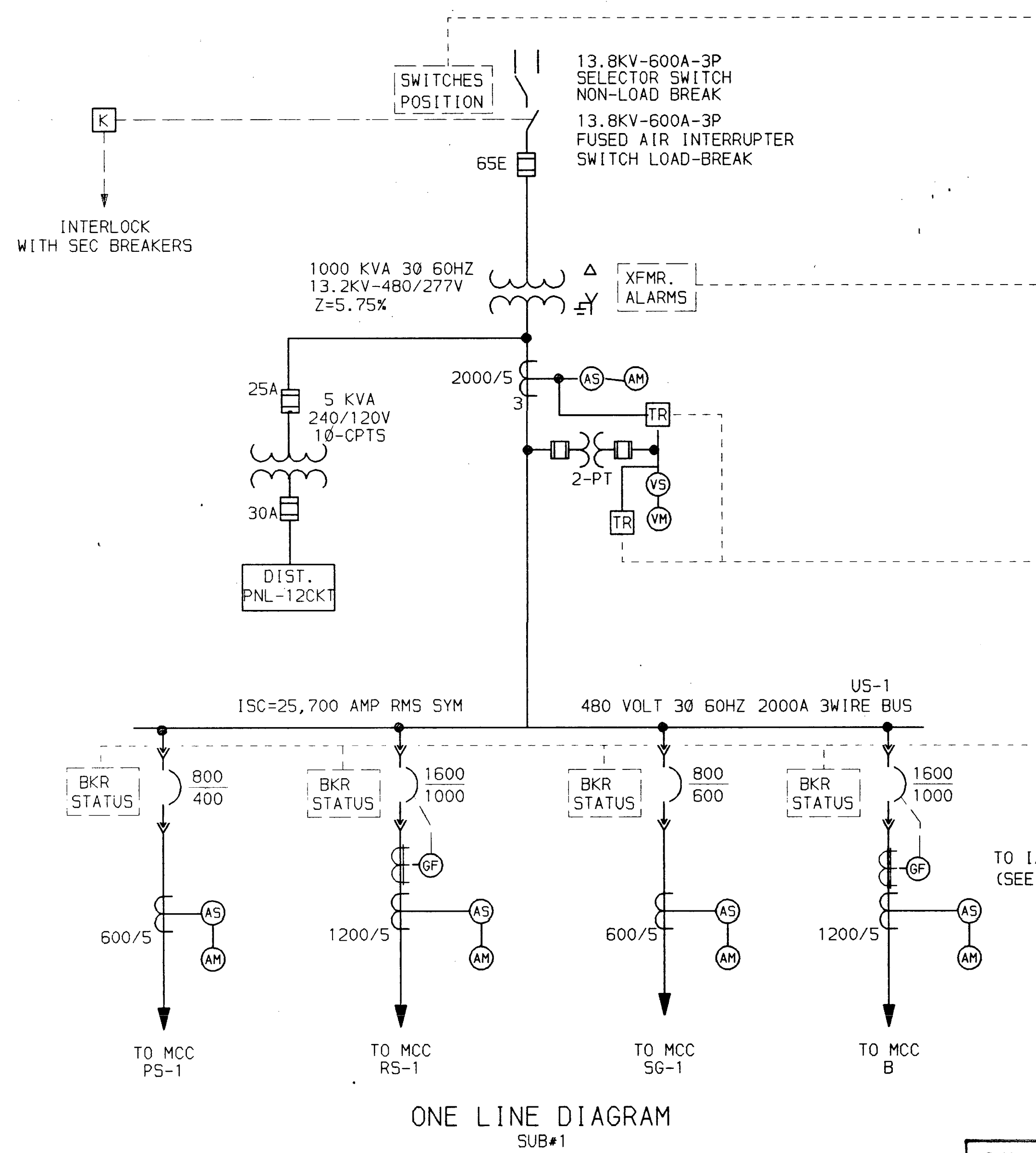
RECORD DRAWINGS
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MALCOLM PIRNIE, INC.
Date 6/88 By M6M

REFER TO DRAWING E-7X
FOR "AS-BUILT" CONDITION

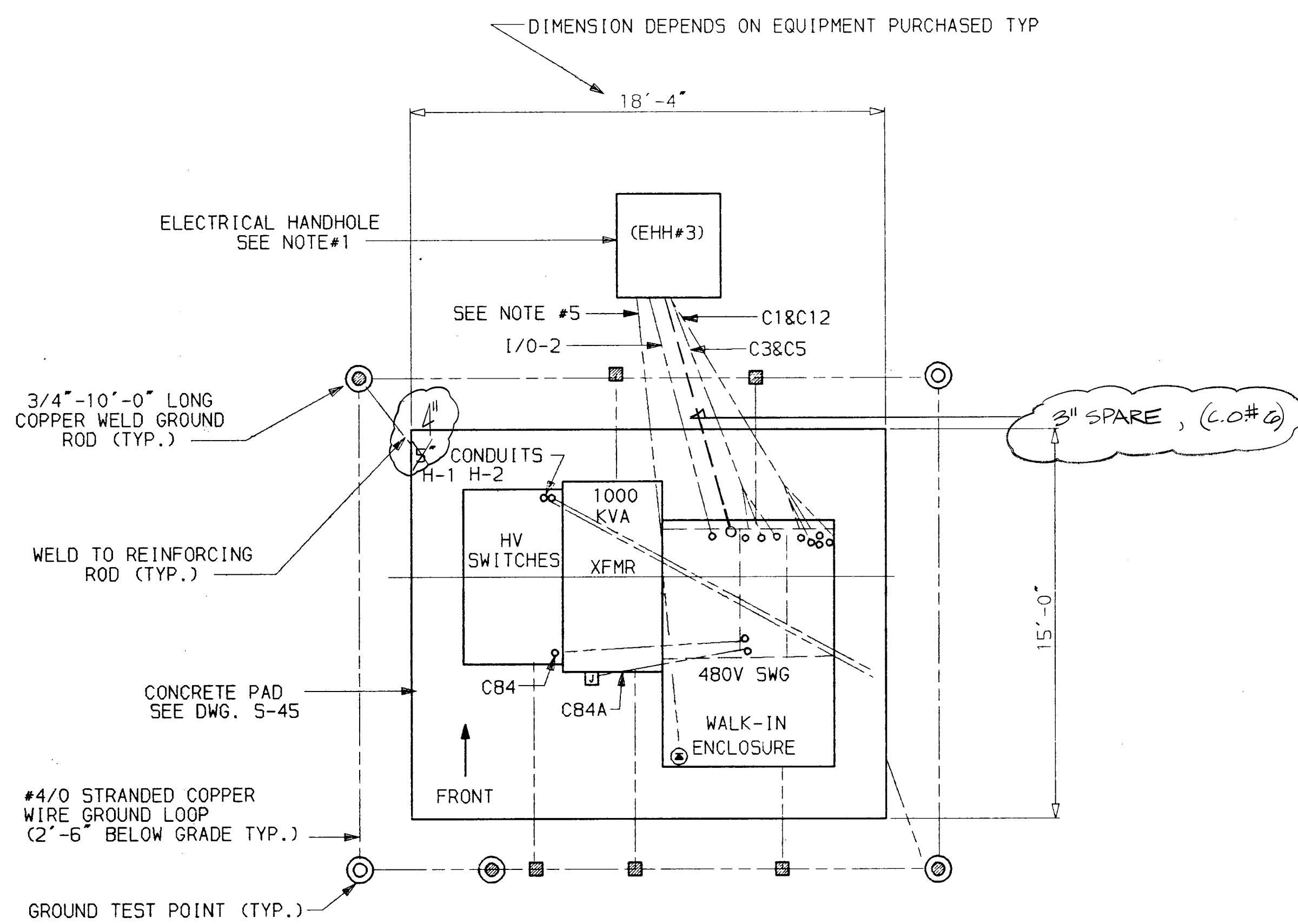
DR 83-6502



SUBSTATION NO.1 FRONT VIEW
SCALE: 3/8"=1'-0"



ONE LINE DIAGRAM
SUB#1



SUBSTATION NO.1 PLAN
SCALE: 1/4"=1'-0"

RECORD DRAWINGS
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MALCOLM PIRNIE, INC.
Date: 1/88 By: MGM

- NOTE:
- FOR ACTUAL LOCATION AND SIZE OF ELECTRICAL HANDHOLE NO. 3 REFER TO DRAWINGS E-14 & E-34.
 - SUBSTATION VENDOR SHALL TERMINATE STATUS WIRING FROM MCC CKT. BREAKERS & TRANSDUCER SIGNALS ON TERMINAL STRIPS OF TERMINAL COMPARTMENT. UTILIZE ONE COMMON SIDE FOR EACH GROUP OF SIGNALS FROM EACH CKT. BREAKER. IDENTIFY ALL WIRING AT TERMINATIONS. PROVIDE 40 TERMINALS IN TC-1.
 - TRANSDUCER SIGNALS SHALL BE ISOLATED FROM REMAINING TERMINALS. PROVIDE 6 ISOLATED TERMINALS IN TC-1.
 - SUBSTATION VENDOR SHALL PROVIDE (1)-1" & (1)-2" INSULATING BUSHINGS BETWEEN TERMINAL COMPARTMENT AND ITS RESPECTIVE TRANSITION COMPARTMENT.
 - PROVIDE 1-1/4" EMPTY CONDUIT FOR CONTRACT #2 INTERCOM INTERCONNECTIONS. CONNECT TO JUNCTION BOX IN EHH#3. REFER TO INTERCOM BLOCK DIAGRAM.
 - CONTRACTOR SHALL ARRANGE TRANSITION COMPARTMENT SUCH THAT 1/0 PROVIDED UNDER CONTRACT #2 CAN BE INSTALLED UNDER CONTRACT #2 IN COMPARTMENT.

Drawing No. 410N-83.241-0

MALCOLM PIRNIE

App. Revisions

No. Date

Date: NOV 1983
Designed by: FS
Drawn by: FS
Checked by: MGM
Scale: NO SCALE

REGISTERED PROFESSIONAL ENGINEER
STATE OF TEXAS
ROBERT BONNER, JR.
11414
11/14/83

WESTWATER FACILITIES IMPROVEMENTS

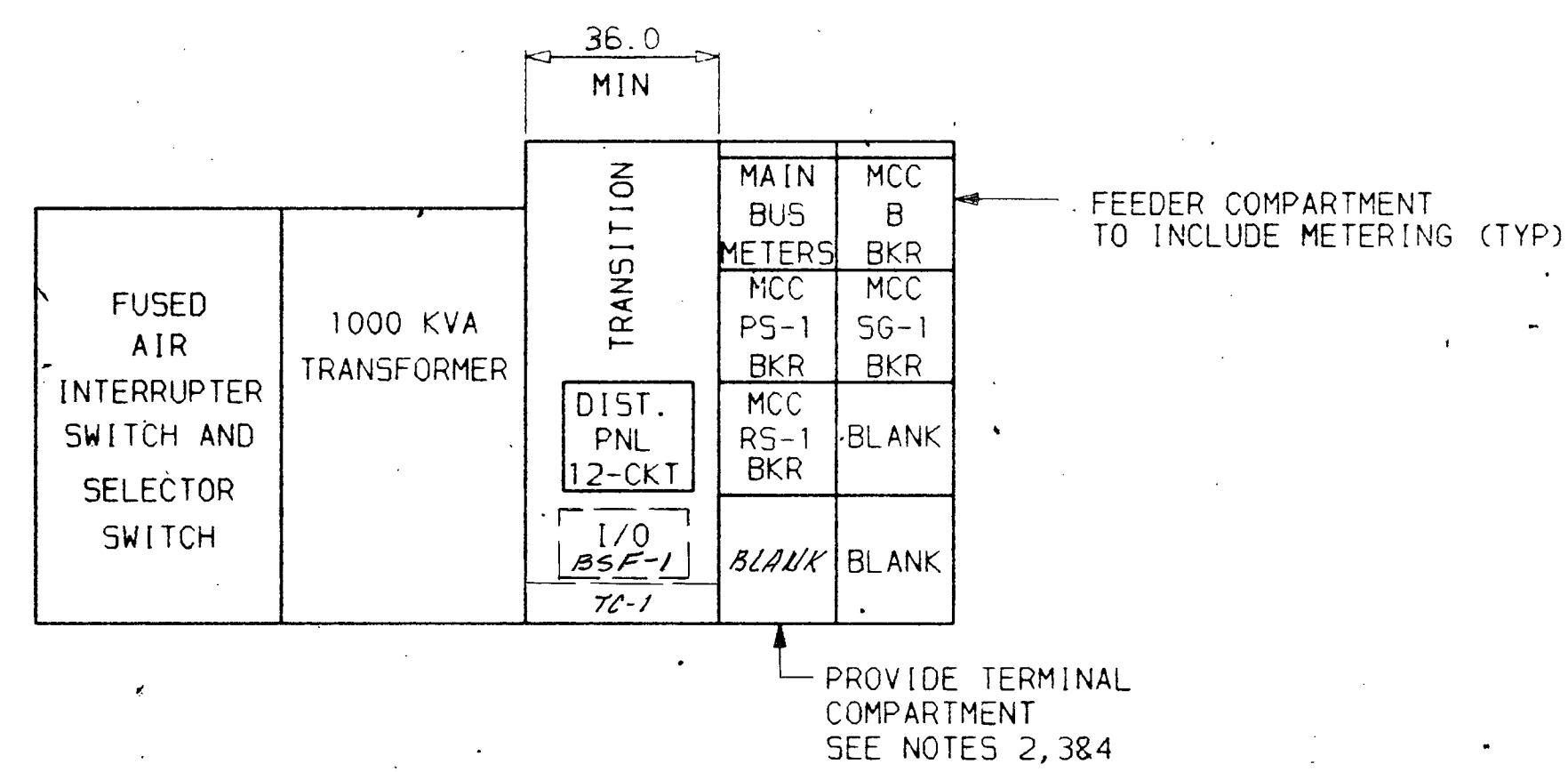
SAN ANTONIO

CONTRACT NO. 3
DOS RIOS FACILITY
GENERAL
SUBSTATION #1

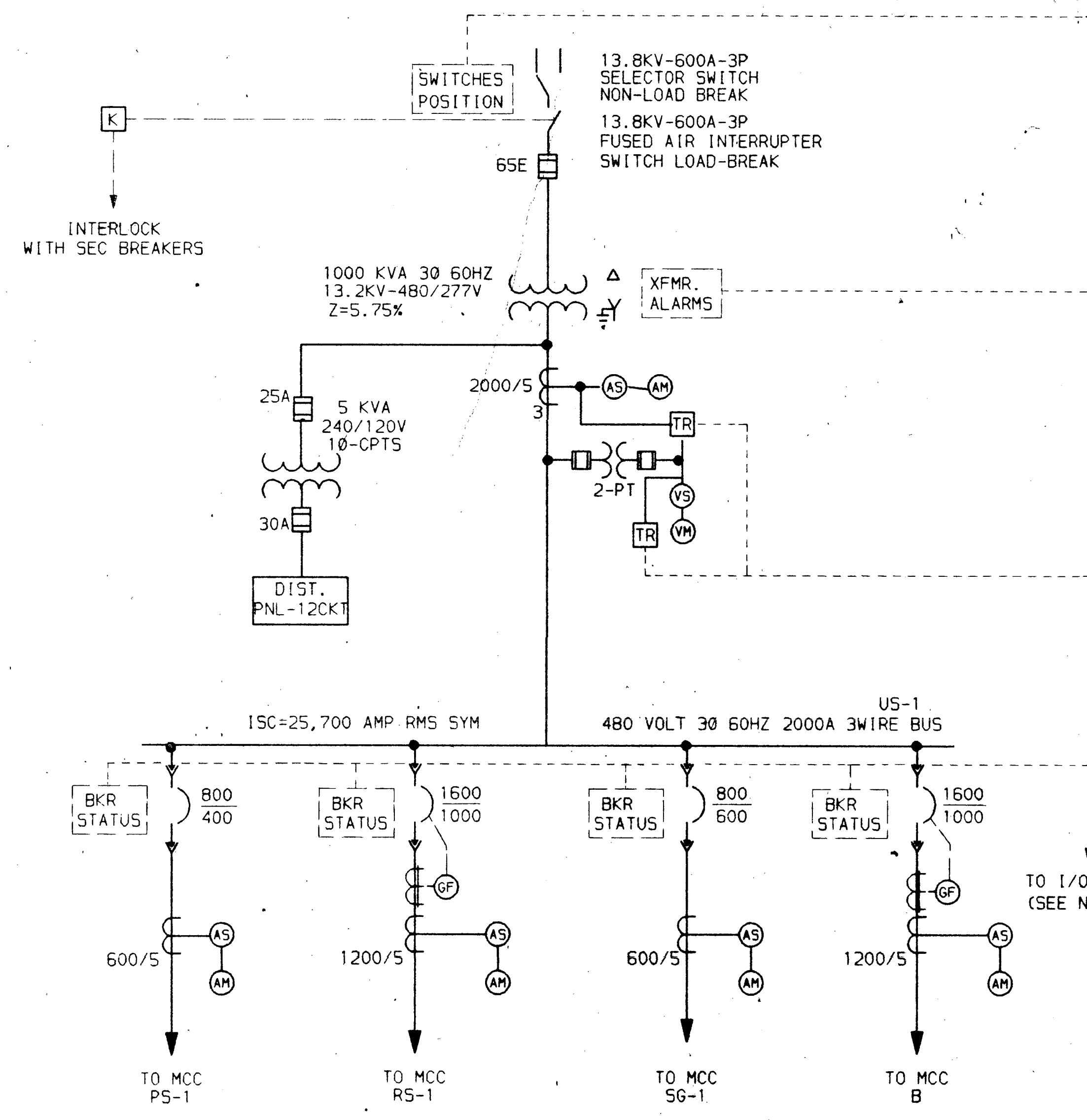
Sheet of E-8 of E-58

9106939
DR 83-6502

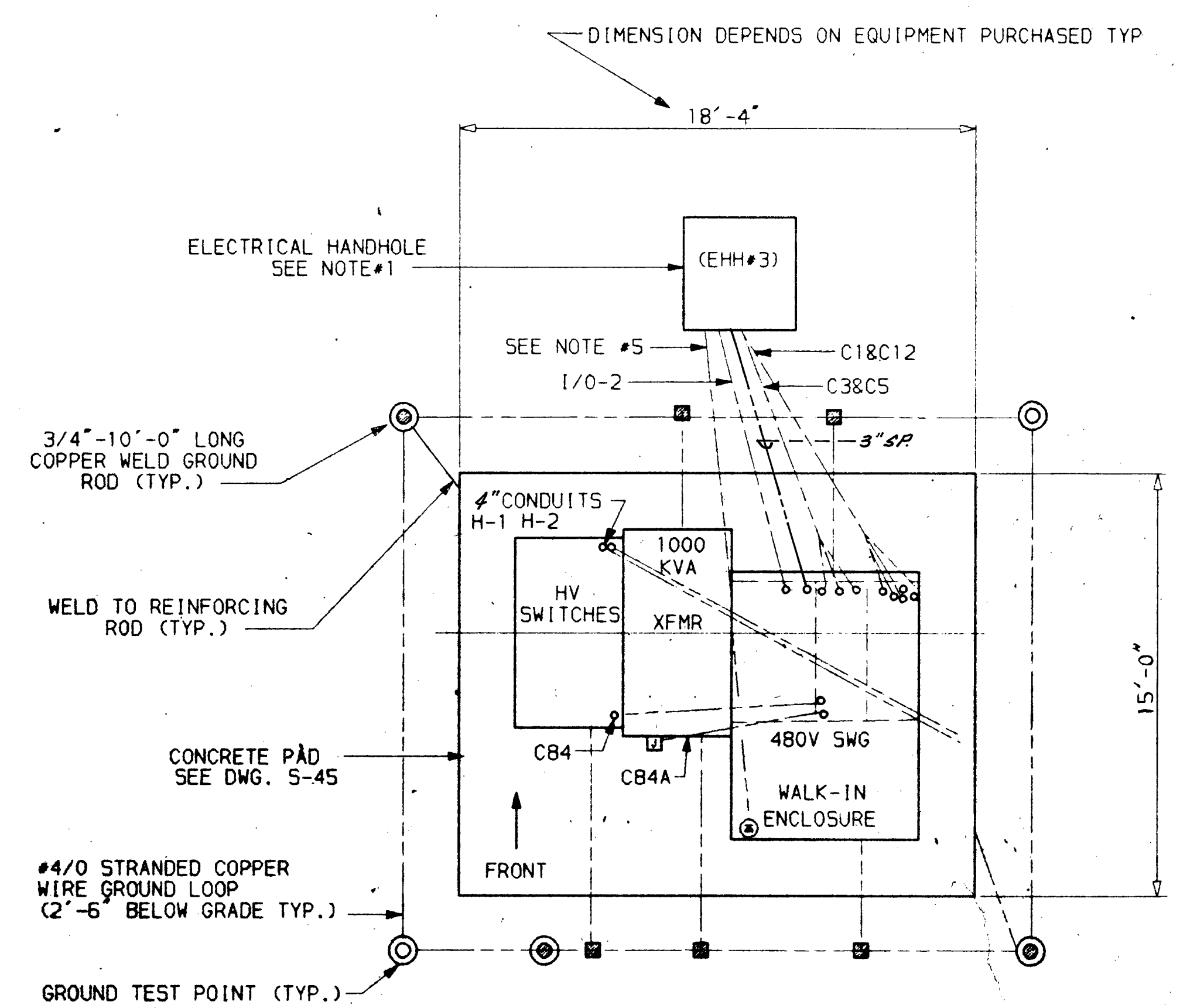
No.	Date	Revision
1	02/28/83	AS-BUILD



SUBSTATION NO.1 FRONT VIEW
SCALE: 3/8"=1'-0"



ONE LINE DIAGRAM
SUB#1



SUBSTATION NO.1 PLAN
SCALE: 1/4"=1'-0"

- NOTE:
- 1 FOR ACTUAL LOCATION AND SIZE OF ELECTRICAL HANDHOLE NO.3 REFER TO DRAWINGS E-14 & E-34.
 - 2 SUBSTATION VENDOR SHALL TERMINATE STATUS WIRING FROM MCC CKT. BREAKERS & TRANSDUCER SIGNALS ON TERMINAL STRIPS OF TERMINAL COMPARTMENT UTILIZE ONE COMMON SIDE FOR EACH GROUP OF SIGNALS FROM EACH CKT. BREAKER. IDENTIFY ALL WIRING AT TERMINATIONS. PROVIDE 40 TERMINALS IN TC-1.
 - 3 TRANSDUCER SIGNALS SHALL BE ISOLATED FROM REMAINING TERMINALS. PROVIDE 6 ISOLATED TERMINALS IN TC-1.
 - 4 SUBSTATION VENDOR SHALL PROVIDE (1)-1" & (1)-2" INSULATING BUSHINGS BETWEEN TERMINAL COMPARTMENT AND ITS RESPECTIVE TRANSITION COMPARTMENT.
 - 5 PROVIDE 1-1/4" EMPTY CONDUIT FOR CONTRACT#2 INTERCOM INTERCONNECTIONS. CONNECT TO JUNCTION BOX IN EHH#3. REFER TO INTERCOM BLOCK DIAGRAM.
 - 6 CONTRACTOR SHALL ARRANGE TRANSITION COMPARTMENT SUCH THAT I/O PROVIDED UNDER CONTRACT#2 CAN BE INSTALLED UNDER CONTRACT #2 IN COMPARTMENT.

WHETHER
FACILITIES
IMPROVED

San Antonio

CONTRACT NO. 3
DOS RIOS FACILITY
GENERAL
SUBSTATION #1

Sheet
of

PROJECT
RECORD

DR 83-6502

**MALCOLM
PIRNIE**

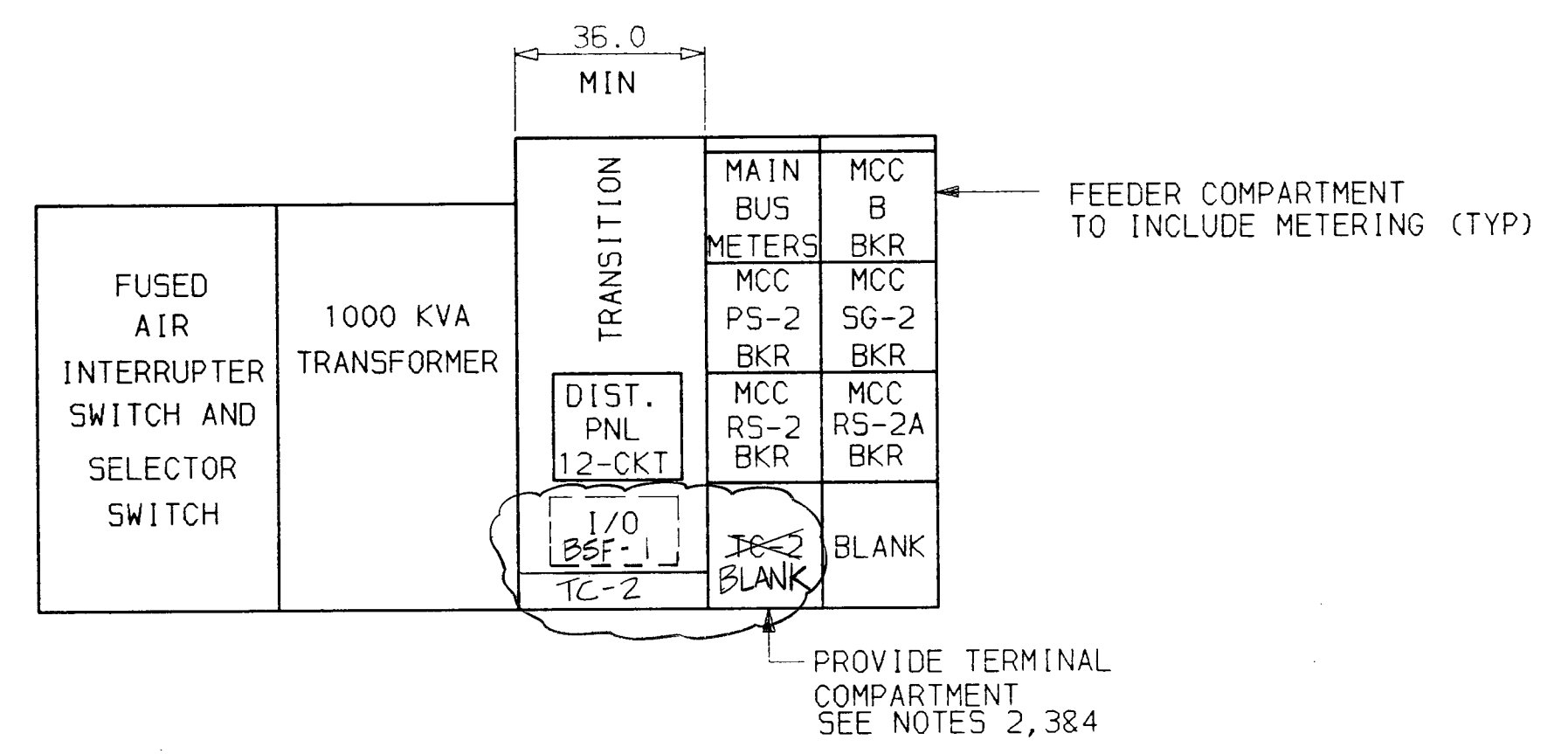
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Drawn by: FS
Checked by: [Signature]
Scale: NO SCALE



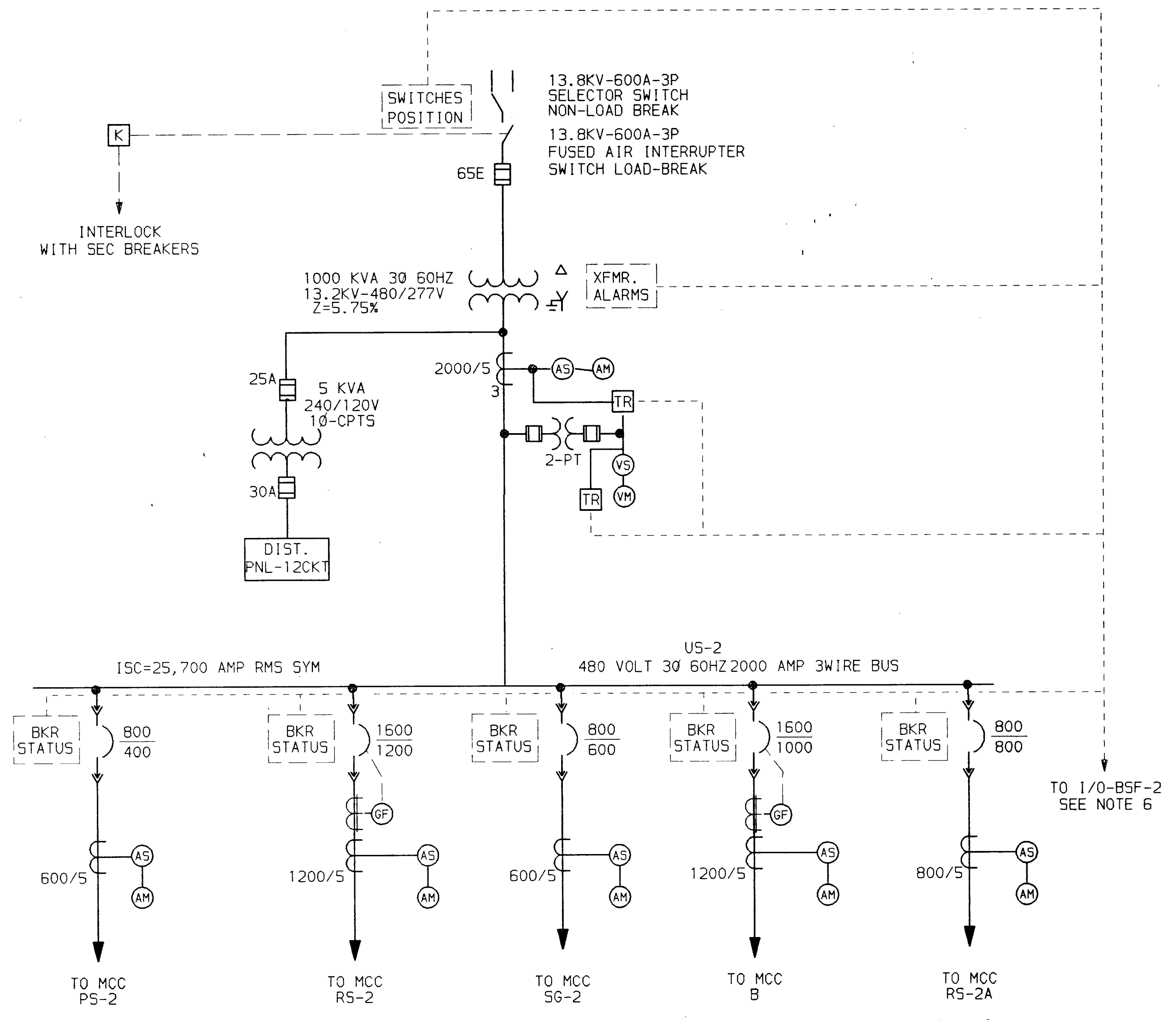
W. W. WOODRUBB
F. R. RUTHERFORD
Improvements

San Antonio

CONTRACT NO. 3
DOS RIOS FACILITY
GENERAL
SUBSTATION #2



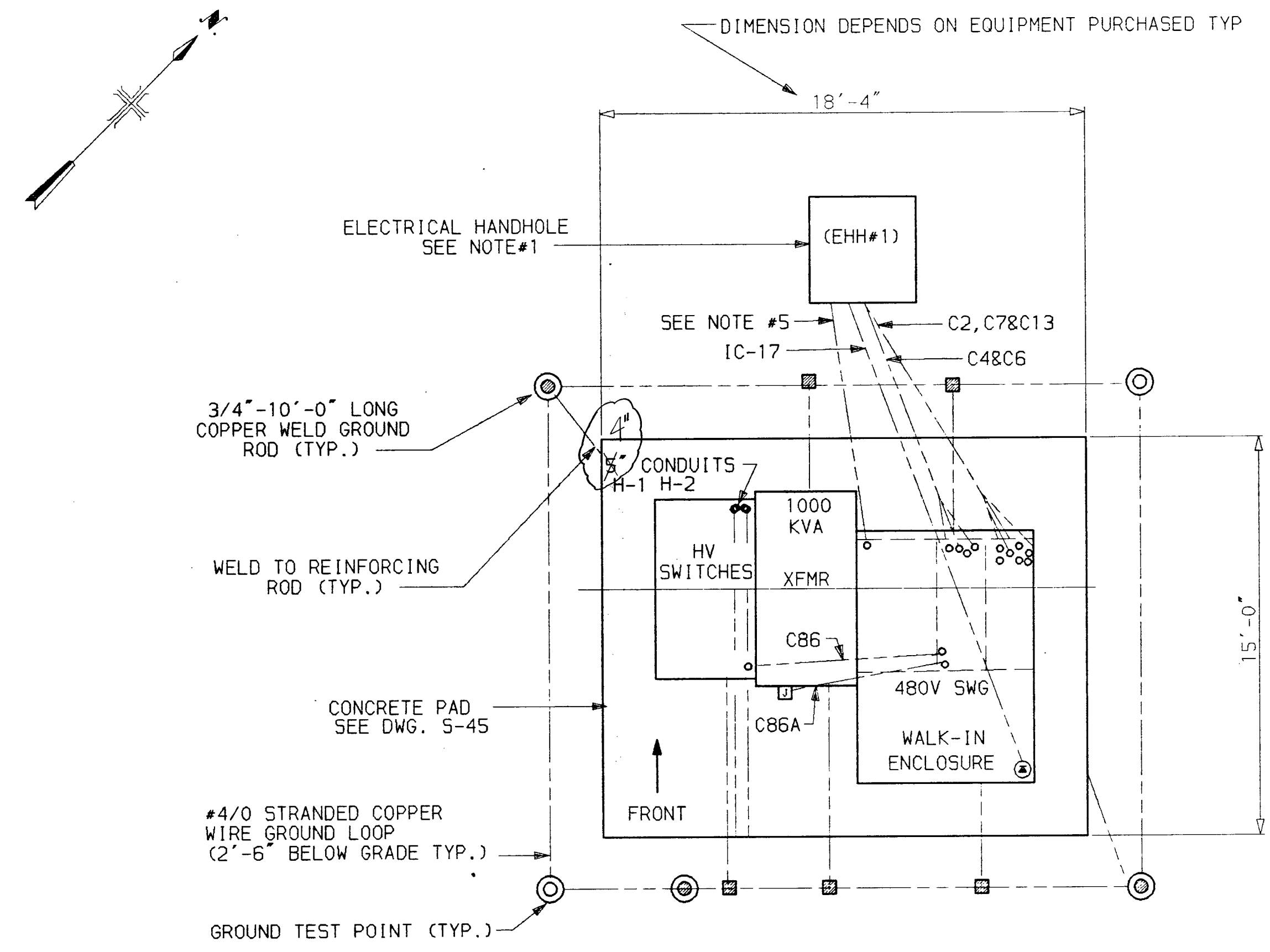
SUBSTATION NO.2 FRONT VIEW
SCALE: 3/8"=1'-0"



ONE LINE DIAGRAM
SUB#2

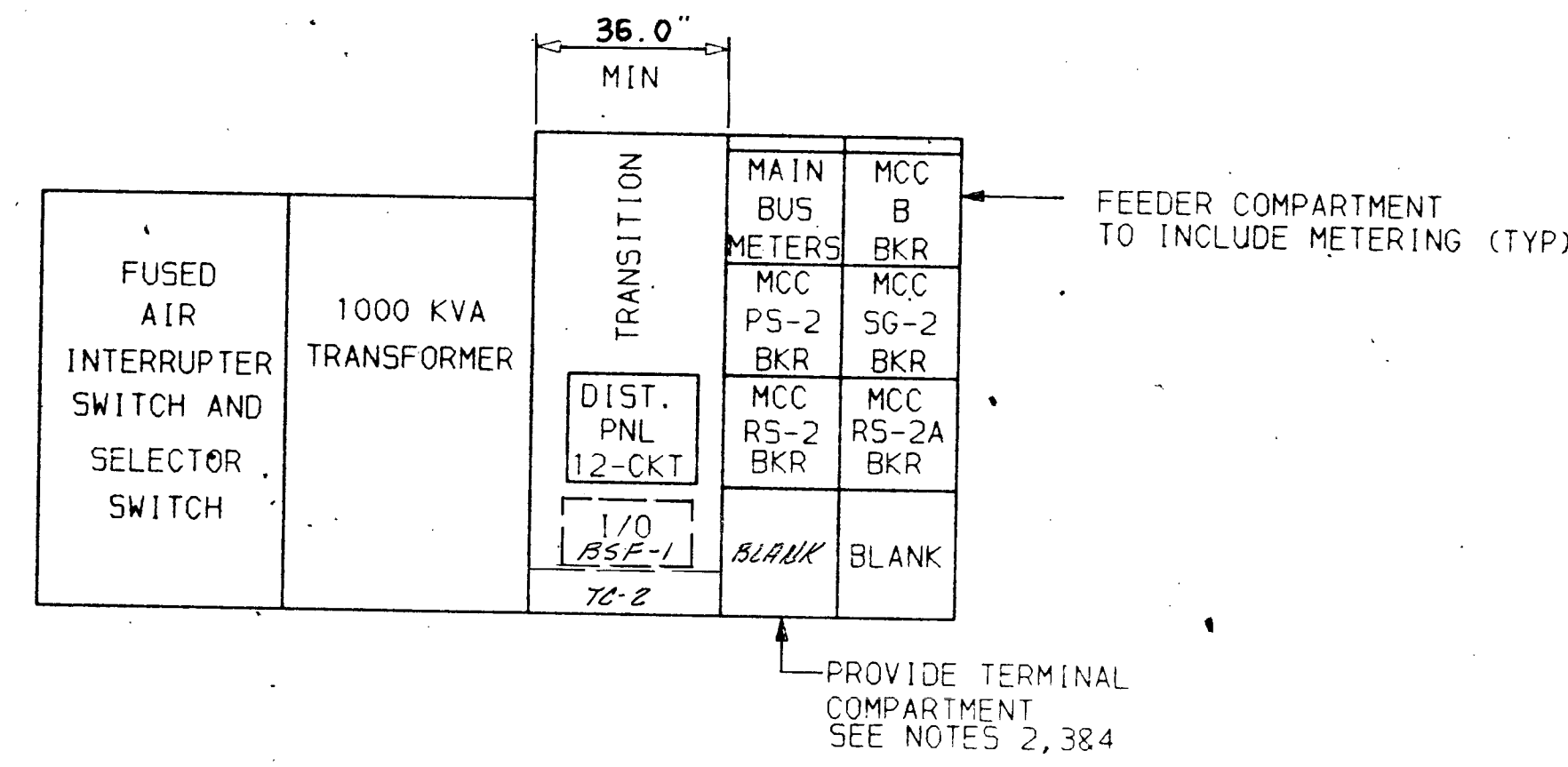
RECORD DRAWINGS
This drawing reflects changes from the original contract drawing that were made during construction and has been prepared from information provided to the Engineer by the construction contractor(s). The Engineer does not warrant this drawing to be complete and accurate in all respects.
MALCOLM PIRNIE, INC.
Date: 6/84 By: HGL

- NOTE:
- 1 FOR ACTUAL LOCATION AND SIZE OF ELECTRICAL HANDHOLE NO.1 REFER TO DRAWINGS E-14 & E-34.
 - 2 SUBSTATION VENDOR SHALL TERMINATE STATUS WIRING FROM MCC CKT. BREAKERS & TRANSDUCER SIGNALS ON TERMINAL STRIPS OF TERMINAL COMPARTMENT. UTILIZE ONE COMMON SIDE FOR EACH GROUP OF SIGNALS FROM EACH CKT. BREAKER. IDENTIFY ALL WIRING AT TERMINATIONS. PROVIDE 40 TERMINALS IN TC-2.
 - 3 TRANSDUCER SIGNALS SHALL BE ISOLATED FROM REMAINING TERMINALS. PROVIDE 6 ISOLATED TERMINALS IN TC-2.
 - 4 SUBSTATION VENDOR SHALL PROVIDE (1)-1" & (1)-2" INSULATING BUSHINGS BETWEEN TERMINAL COMPARTMENT AND ITS RESPECTIVE TRANSITION COMPARTMENT.
 - 5 PROVIDE 1" EMPTY CONDUIT FOR CONTRACT#2 I/O INTERCONNECTIONS, TERMINATE IN EHH#1.
 - 6 CONTRACTOR SHALL ARRANGE TRANSITION COMPARTMENT SUCH THAT I/O PROVIDED UNDER CONTRACT#2 CAN BE INSTALLED UNDER CONTRACT #2 IN COMPARTMENT.

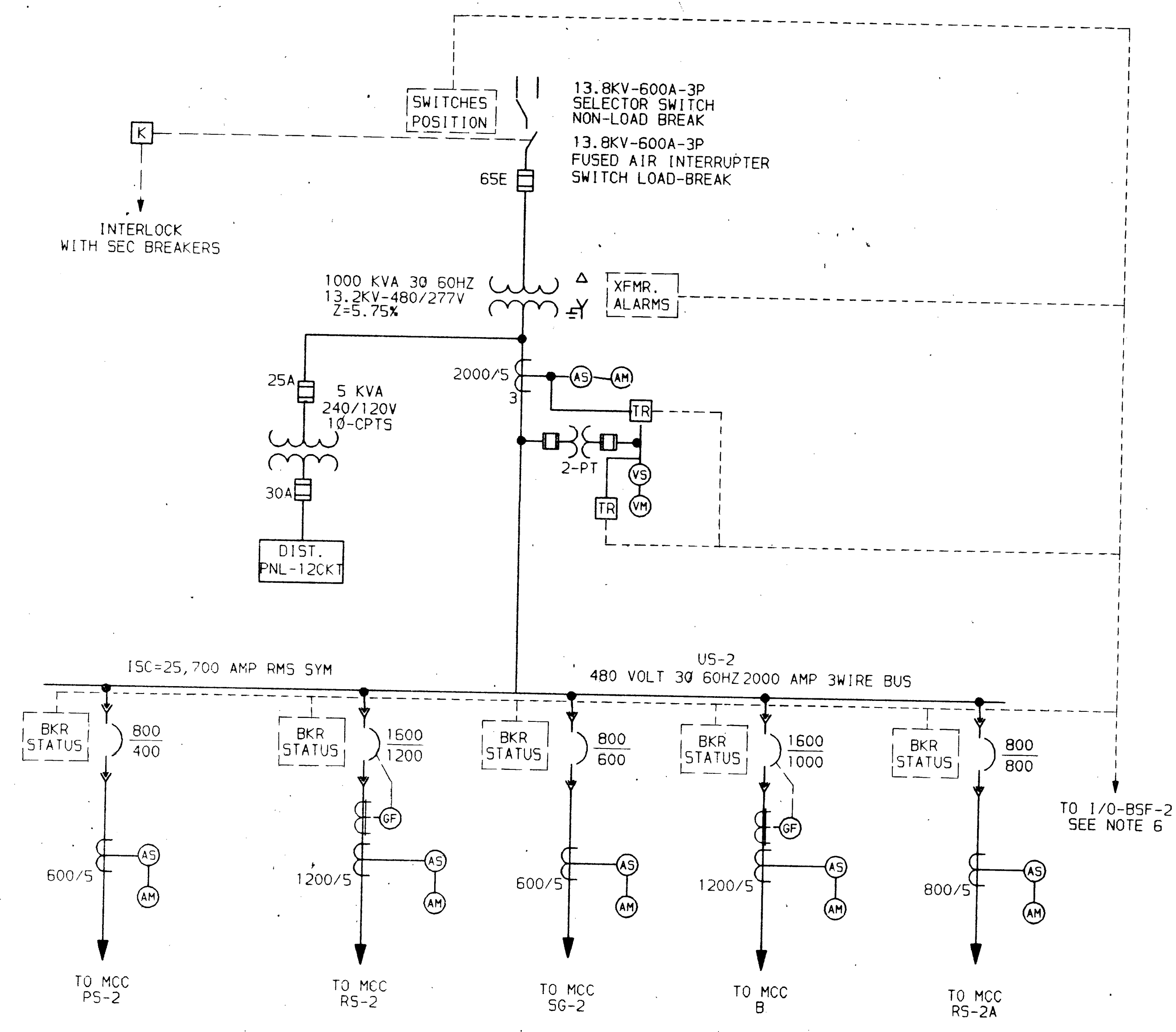


SUBSTATION NO.2 PLAN
SCALE: 1/4"=1'-0"

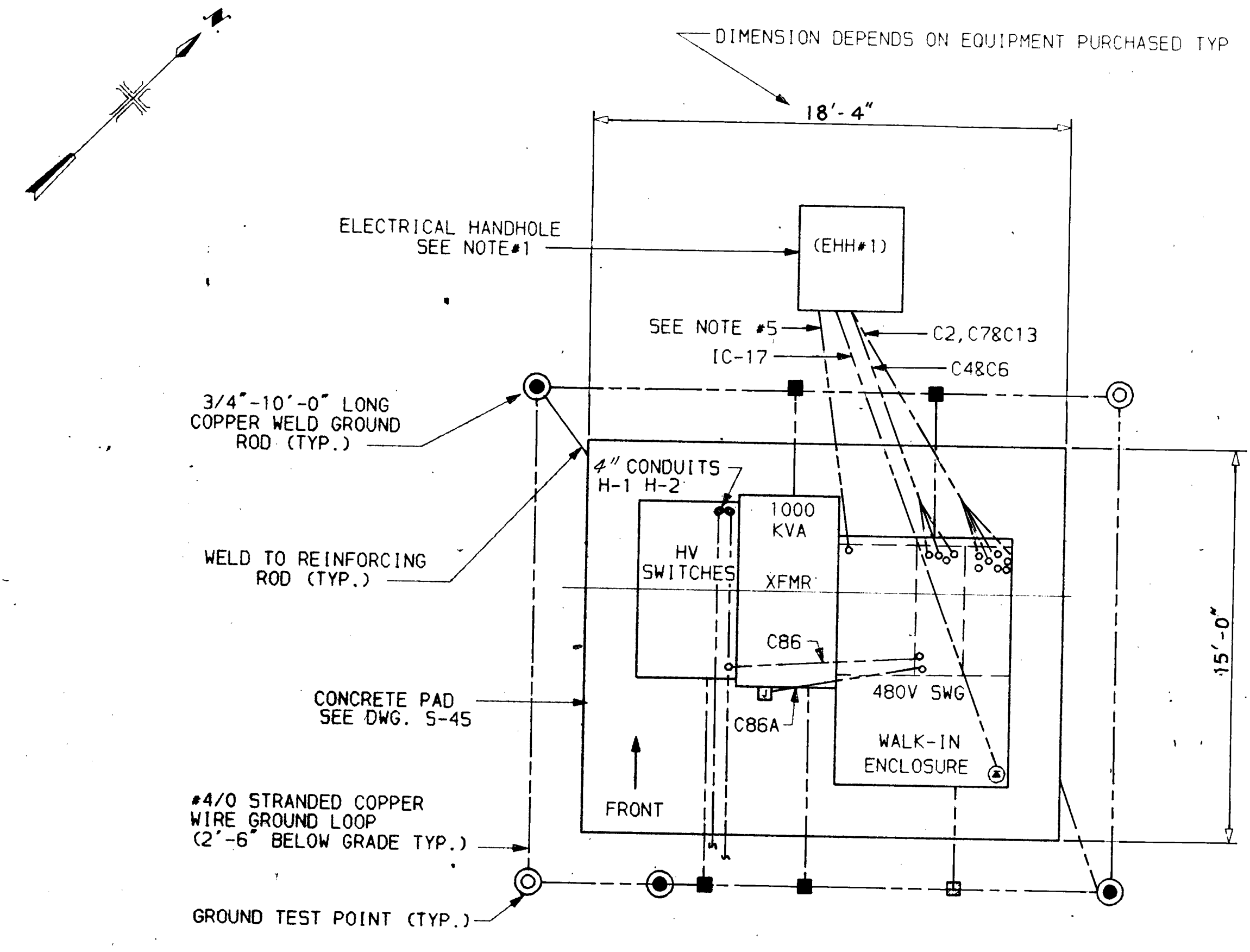
9100942
DF 83-6502



SUBSTATION NO.2 FRONT VIEW
SCALE: 3/8"=1'-0"



ONE LINE DIAGRAM
SUB#2



SUBSTATION NO.2 PLAN
SCALE: 1/4"=1'-0"

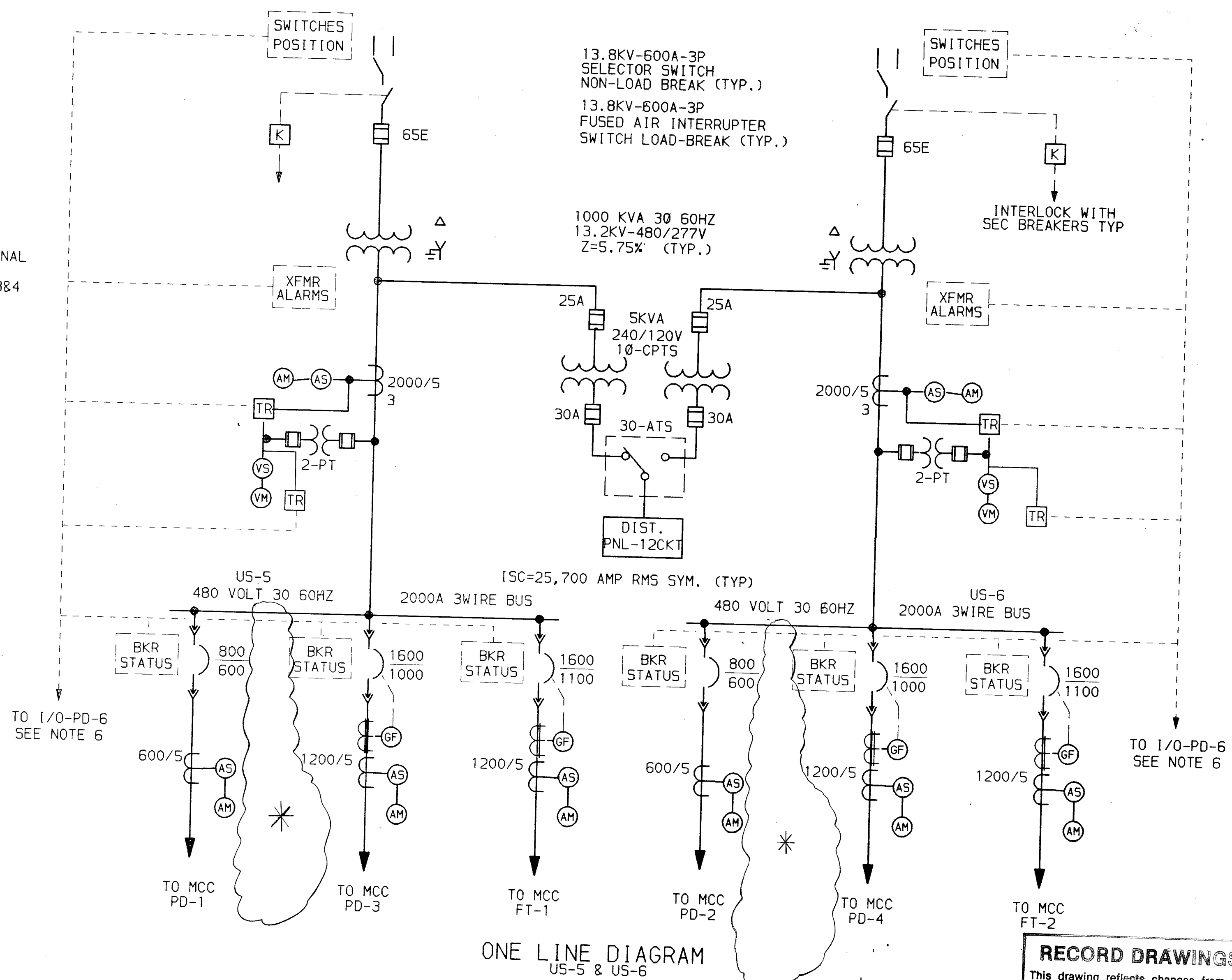
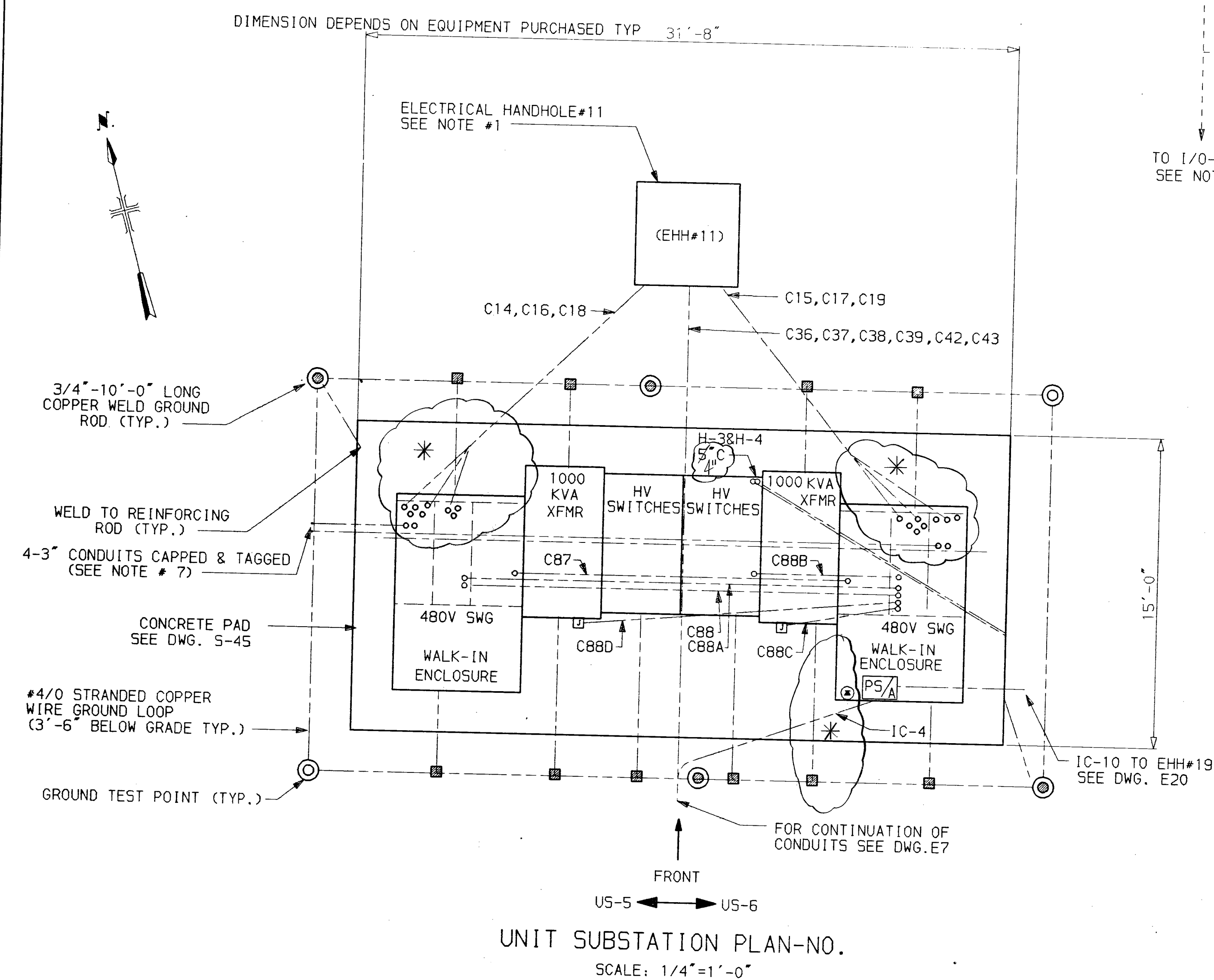
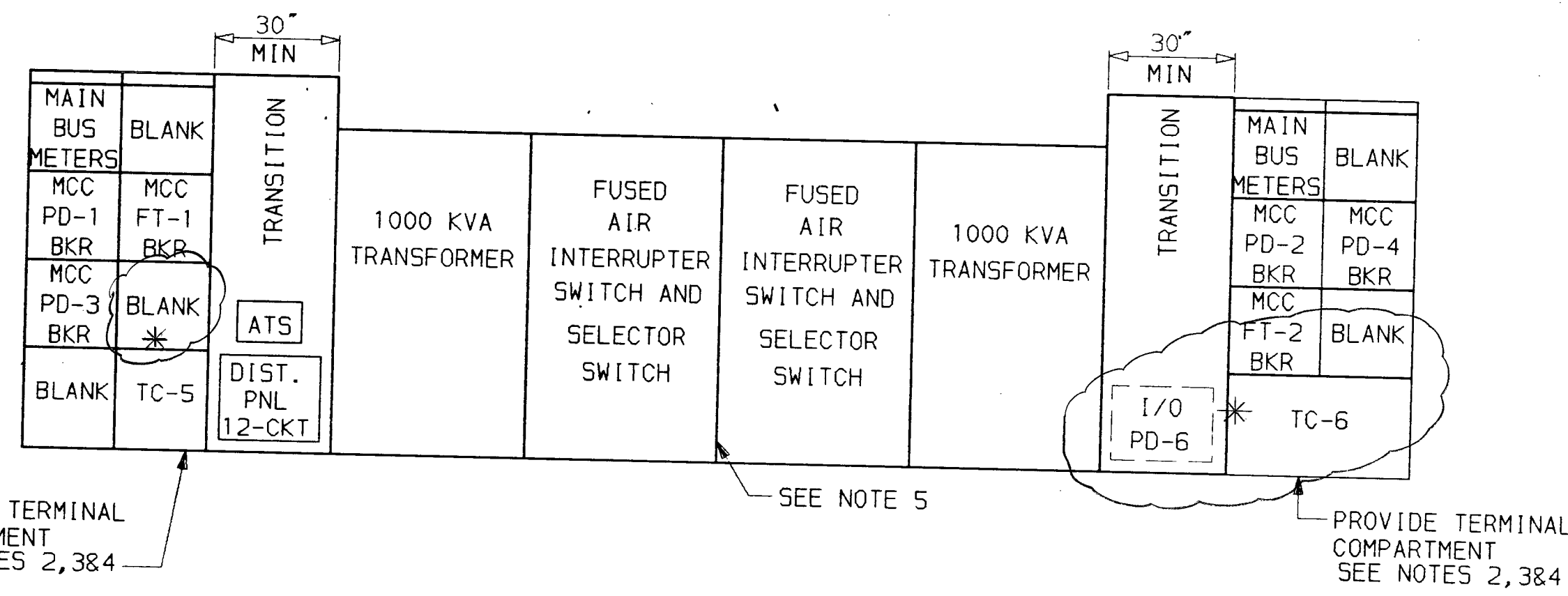
- NOTE:
- FOR ACTUAL LOCATION AND SIZE OF ELECTRICAL HANDHOLE NO.1 REFER TO DRAWINGS E-14 & E-34.
 - SUBSTATION VENDOR SHALL TERMINATE STATUS WIRING FROM MCC CKT. BREAKERS & TRANSDUCER SIGNALS ON TERMINAL STRIPS OF TERMINAL COMPARTMENT. UTILIZE ONE COMMON SIDE FOR EACH GROUP OF SIGNALS FROM EACH CKT. BREAKER. IDENTIFY ALL WIRING AT TERMINATIONS. PROVIDE 40 TERMINALS IN TC-2.
 - TRANSDUCER SIGNALS SHALL BE ISOLATED FROM REMAINING TERMINALS. PROVIDE 6 ISOLATED TERMINALS IN TC-2.
 - SUBSTATION VENDOR SHALL PROVIDE (1)-1" & (1)-2" INSULATING BUSHINGS BETWEEN TERMINAL COMPARTMENT AND ITS RESPECTIVE TRANSITION COMPARTMENT.
 - PROVIDE 1" EMPTY CONDUIT FOR CONTRACT#2 1/0 INTERCONNECTIONS, TERMINATE IN EHH#1.
 - CONTRACTOR SHALL ARRANGE TRANSITION COMPARTMENT SUCH THAT 1/0 PROVIDED UNDER CONTRACT#2 CAN BE INSTALLED UNDER CONTRACT #2 IN COMPARTMENT.

PROJECT RECORD

WESTWATER FACILITIES IMPROVEMENTS
San Antonio

CONTRACT NO. 3
D05 RIOS FACILITY
GENERAL
SUBSTATION #2

DR 83-6502



RECORD DRAWINGS
This drawing reflects changes from the original contract drawing that were made during construction and has been prepared from information provided to the Engineer by the construction contractor(s). The Engineer does not warrant this drawing to be complete and accurate in all respects.
M.A. COLM PIRNIE, INC.
Date: 4/88 By: HGM

- NOTE:
- 1 FOR ACTUAL LOCATION AND SIZE OF ELECTRICAL HANDHOLE NO.11 REFER TO DRAWINGS E-14 & E-20.
 - 2 SUBSTATION VENDOR SHALL TERMINATE STATUS WIRING FROM MCC CKT. BREAKERS & TRANSDUCER SIGNALS ON TERMINAL STRIPS OF TERMINAL COMPARTMENT. UTILIZE ONE COMMON SIDE FOR EACH GROUP OF SIGNALS FROM EACH CKT. BREAKER. IDENTIFY ALL WIRING AT TERMINATIONS. PROVIDE 50 TERMINALS IN TC-5 & 100 TERMINALS IN TC-6.
 - 3 TRANSDUCER SIGNALS SHALL BE ISOLATED FROM REMAINING TERMINALS. PROVIDE 4 ISOLATED TERMINALS IN TC-5 AND 10 ISOLATED TERMINALS IN TC-6.
 - 4 SUBSTATION VENDOR SHALL PROVIDE (1)-1" & (1)-2" INSULATING BUSHINGS BETWEEN TERMINAL COMPARTMENT AND ITS RESPECTIVE TRANSITION COMPARTMENT.
 - 5 SUBSTATION VENDOR SHALL PROVIDE THRU-WALL BARRIER CABLE CONNECTIONS BETWEEN SWITCH COMPARTMENTS FOR HIGH VOLTAGE CABLE CONNECTIONS. PROVIDE 1" INSULATING BUSHING BETWEEN SWITCH COMPARTMENTS FOR STATUS WIRING.
 - 6 CONTRACTOR SHALL ARRANGE TRANSITION COMPARTMENT SUCH THAT I/O PROVIDED UNDER CONTRACT #2 CAN BE INSTALLED UNDER CONTRACT #2 IN COMPARTMENT.
 - 7 CONTRACTOR SHALL PROVIDE 2-3" EMPTY CONDUITS FROM EACH SWITCHGEAR AS INDICATED EXTEND 2'-0" BEYOND CONCRETE PAD, CAP AND TAG WITH IDENTIFICATION MARKER.

* REFER TO DRAWINGS E-10X AND E-10XA FOR "AS-BUILT" CONDITION AND SKETCHES

App. Drawing No. 410N-83.243-0

Revisions

No. Date

Date: NOV 1983
Designed by: FS
Drawn by: FS
Checked by: JRM
Scale: NO SCALE

MAJOR REVISIONS

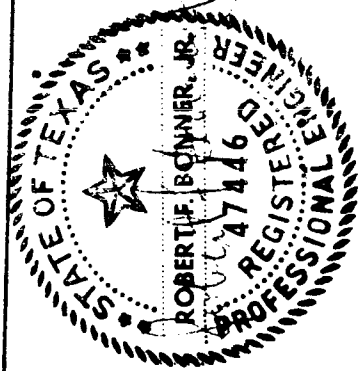
WATERMETER
IMPROVEMENTS

San Antonio

CONTRACT NO. 3
DOS RIOS FACILITY
GENERAL
SUBSTATIONS #5 & #6

Sheet E-10
of E-58

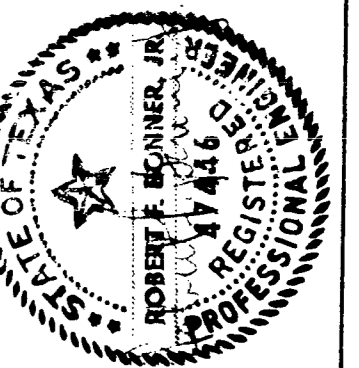
MALCOLM PIRNIE



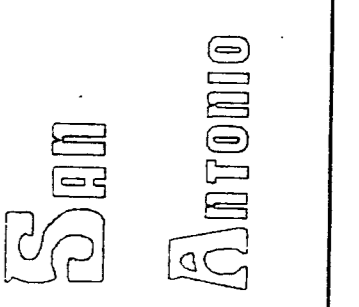
DR 83-6502

RECORD DRAWINGS
This drawing reflects changes from the original contract drawing that were made during construction and has been prepared from information provided to the Engineer by the construction contractor(s). The Engineer does not warrant this drawing to be complete and accurate in all respects.
MALCOLM PIRNIE, INC.
Date: 6/68 By: MCM

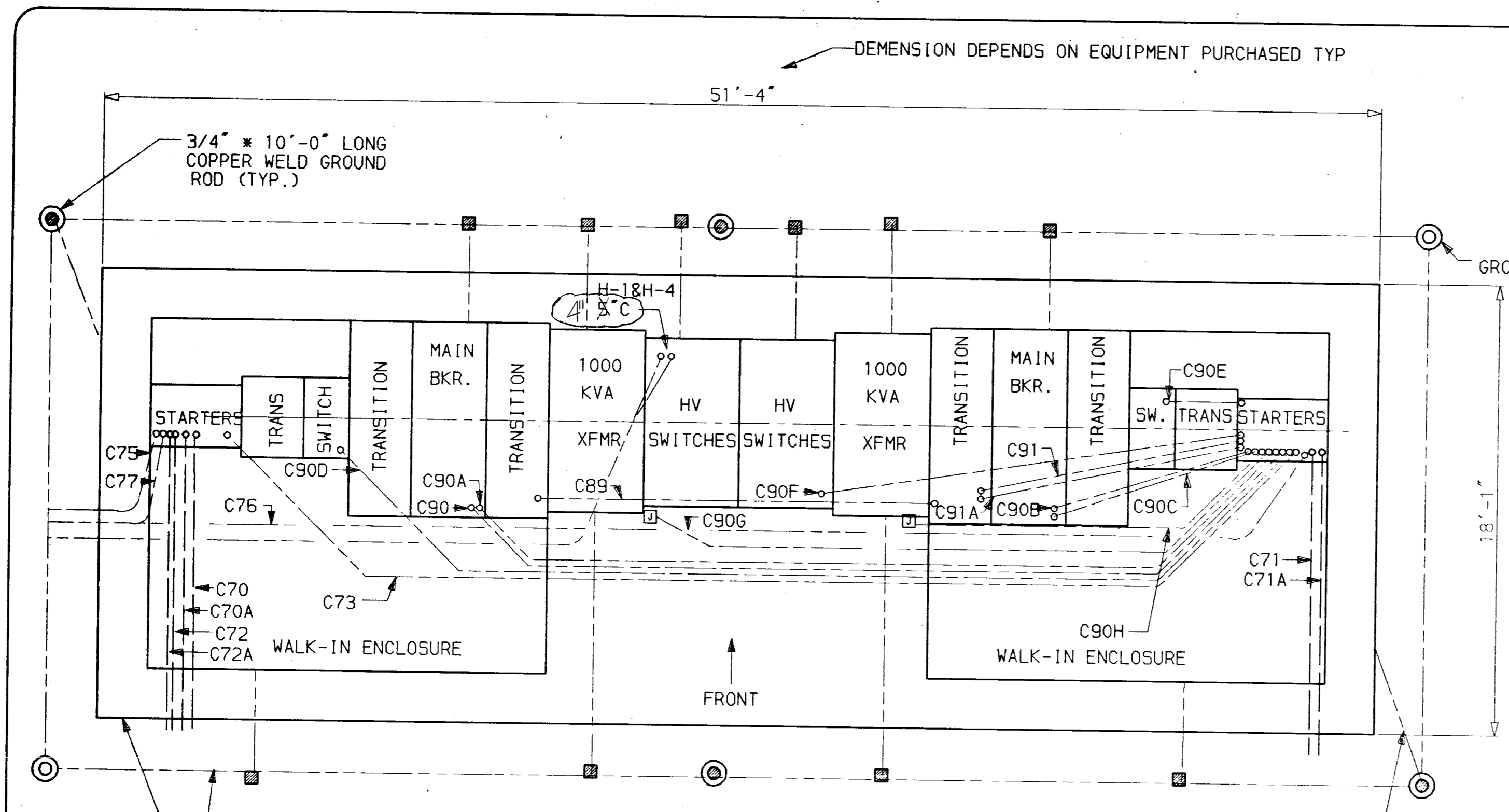
App.	Date	Revisions
NOV 1983	NOV 1983	DESIGNED BY FS
		DRAWN BY FS
		CHECKED BY [Signature]
		SCALE: NO SCALE



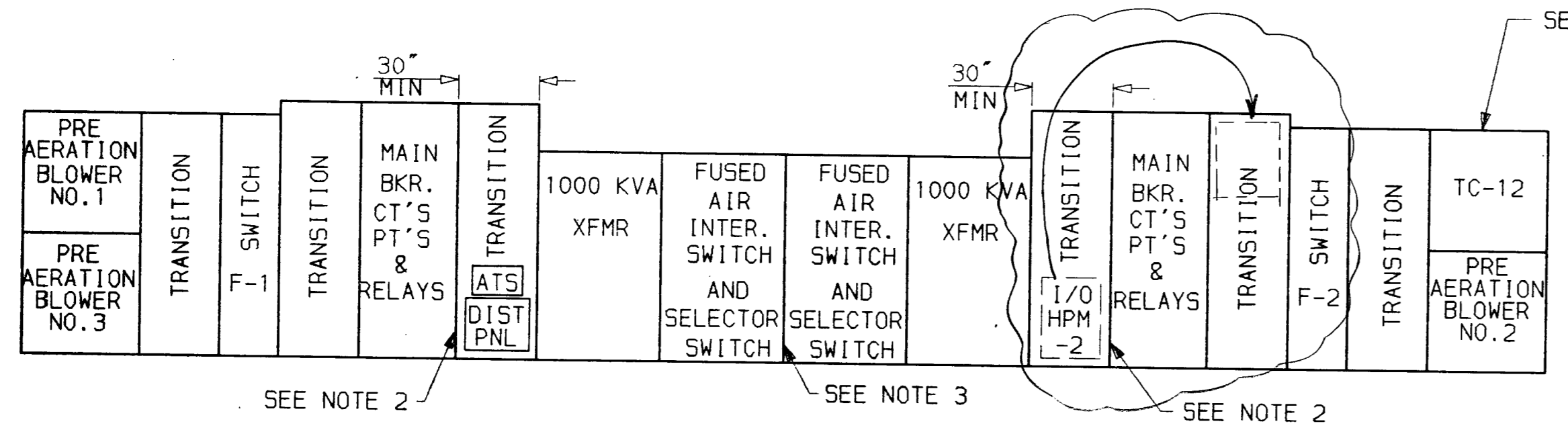
WATERWORKS
FACILITIES
IMPROVEMENTS



CONTRACT NO. 3
DOS RIOS FACILITY
GENERAL
SUBSTATION #11 & #12



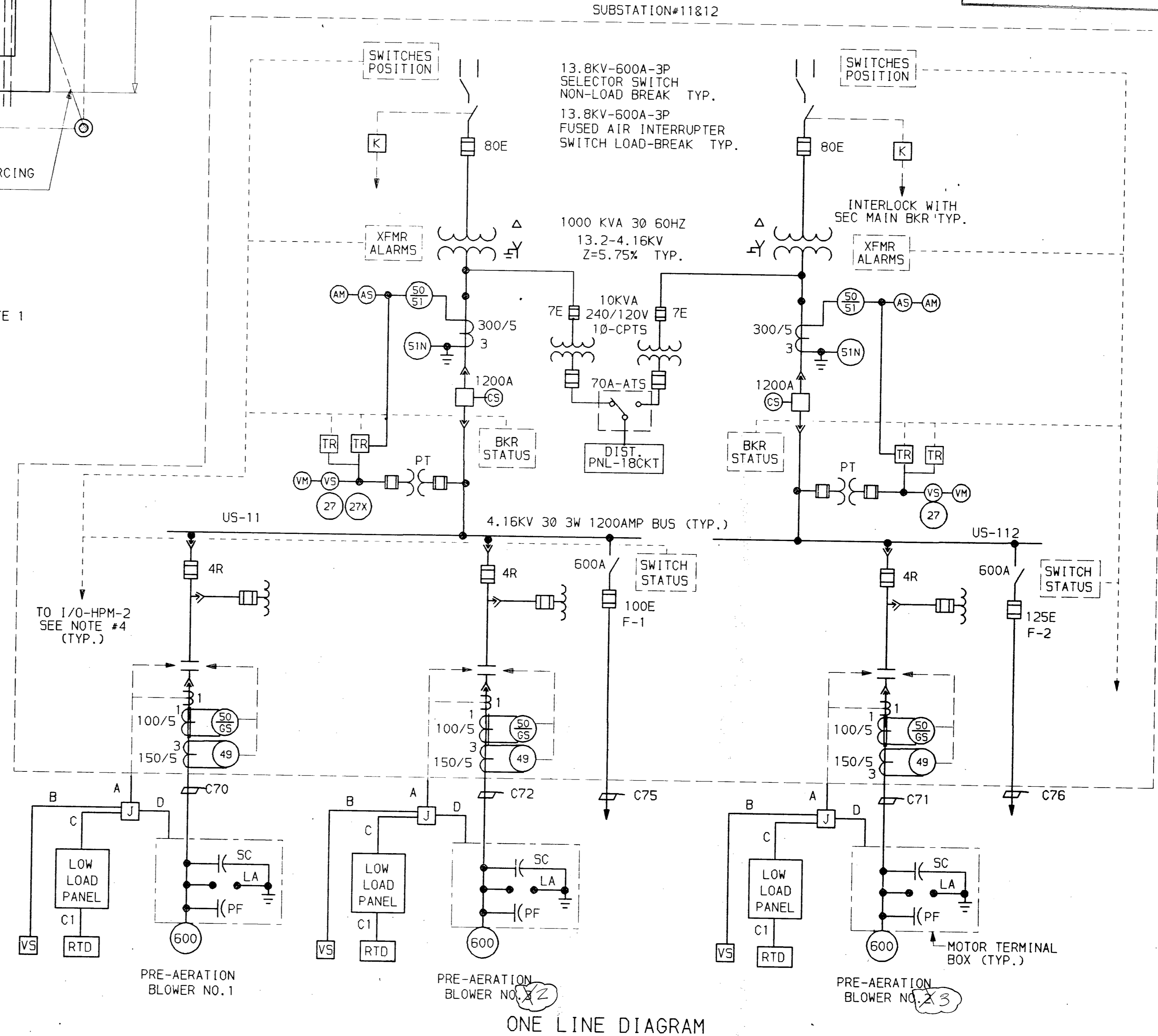
CONCRETE PAD SEE DWG. 5-46
3/4" x 10'-0" LONG COPPER WELD GROUND ROD (TYP.)
WALK-IN ENCLOSURE
FRONT
SUB#11 SUB#12
SUBSTATION PLAN NO. 11&12
SCALE 1/4"=1'-0"
NOTE: FOR CONTINUATION OF CONDUITS REFER TO DRAWING E21(TYP.).
WELD TO REINFORCING ROD (TYP.)
GROUND TEST POINT (TYP.)
DIMENSION DEPENDS ON EQUIPMENT PURCHASED TYP.



SUB#11 SUB#12
SUBSTATION FRONT NO. 11&12
SCALE 1/4"=1'-0"

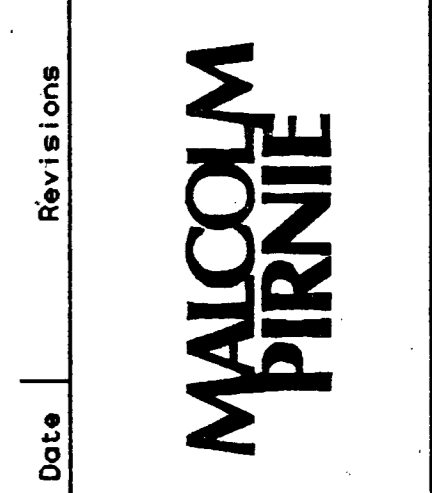
- NOTES:
- 1 PROVIDE TERMINAL COMPARTMENT WITH 80 TERMINALS INCLUDING 10 ISOLATED TERMINALS FOR TRANSDUCER SIGNALS.
 - 2 SUBSTATION VENDOR SHALL PROVIDE (1)-1" INSULATING BUSHING BETWEEN MAIN CKT BREAKER COMPARTMENT AND TRANSITION COMPARTMENT.
 - 3 SUBSTATION VENDOR SHALL PROVIDE THRU-WALL BARRIER BETWEEN PRIMARY SWITCH COMPARTMENTS FOR HIGH VOLTAGE CABLE CONNECTIONS BETWEEN SWITCHES. REFER TO DWG. E2 FOR CABLE REQUIREMENTS. PROVIDE 1" INSULATING BUSHING BETWEEN SWITCH COMPARTMENTS FOR STATUS WIRING.
 - 4 CONTRACTOR SHALL ARRANGE TRANSITION COMPARTMENT SUCH THAT 1/0 PROVIDED UNDER CONTRACT #2 CAN BE INSTALLED UNDER CONTRACT #2 IN COMPARTMENT.

REFER TO DRAWINGS E-10XA AND E-11X FOR "AS-BUILT" CONDITION AND SKETCHES



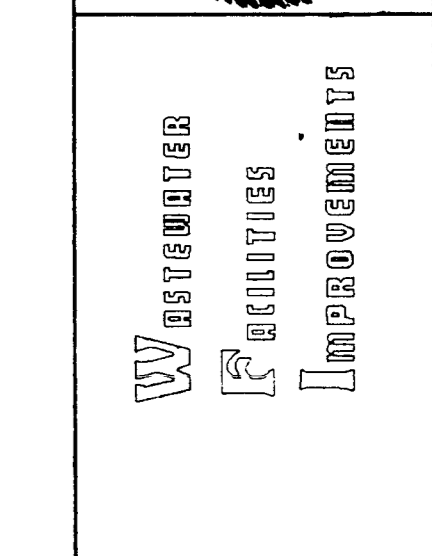
ONE LINE DIAGRAM

DR 83-6502



NO SCALE

DESIGNED BY: FS
DRAWN BY: MEH
CHECKED BY: [Signature]
DATE: NOV. 1983



WINTERS ENGINEERING
CORPORATION
IMPROVEMENTS

SAH ANTONIO

CONTRACT NO. 3
DOS RIOS FACILITY
GENERAL
CONDUIT & CABLE SCHEDULE

Sheet E-12
of E-58

CONDUIT		CABLE		FROM	VIA	TO	PURPOSE	REMARKS	CONDUIT		CABLE		FROM	VIA	TO	PURPOSE	REMARKS
NO.	SIZE IN.	QTY.	SIZE						NO.	SIZE IN.	QTY.	SIZE					
C1	[2]-3	6	350MCM	SUBSTATION #1		MCC-SG-1	POWER	PARALLEL FEED	C57	3/4	4	12	GEN #2		STBY SWBD #1	JACKET & SP HEAT	TO CONT PNL #2
C2	[2]-3	2	1/0	SUBSTATION #1		MCC-SG-1	GND	PARALLEL FEED	C58	3/4	8	14	GEN #2		STBY SWBD #1	ENGINE MTD CT'S	TO CONT PNL #2
C3	[2]-3	6	350MCM	SUBSTATION #2		MCC-SG-2	POWER		C59	3/4	2	8	BATTERY CHARGER		STARTING BATTERIES	DC POWER	TO CONT PNL #2
C3A	[2]-3	2	1/0	SUBSTATION #2		MCC-SG-2	GND		C59A	3/4	2	8	STRING BATTERIES		STBY SWBD #1	DC POWER	TO CONT PNL #2
C4	[2]-3	3	500MCM	SUBSTATION #1		MCC-PS-1	POWER						BATTERY CHARGER		STBY SWBD #1	FAIL SIGNAL	TO CONT PNL #2
C4A	[2]-3	1	2	SUBSTATION #1		MCC-PS-1A	GND						DAY TANK #2		STBY SWBD #1	120 V PWR	TO DIST PNL
C5	[2]-3	3	250MCM	MCC-PS-1		MCC-PS-1A	POWER						DAY TANK #2		STBY SWBD #1	120 V PWR	TO DIST PNL
C6	[2]-3	1	4	MCC-PS-1		MCC-PS-1A	GND						DAY TANK #2		STBY SWBD #1	LEVEL IND	TO CONT PNL #2
C7	[2]-3	3	500MCM	SUBSTATION #2		MCC-PS-2	POWER						SUBSTATION #11		PRE-AER BLWR MTR #1	POWER	5-KV
C8	[2]-3	1	2	SUBSTATION #2		MCC-PS-2	GND						SUBSTATION #11		PRE-AER BLWR MTR #1	GND	600V
C9	[2]-3	3	250MCM	MCC-PS-2		MCC-PS-2A	POWER						SUBSTATION #11		JUNCTION BOX	CONTROL	SP-HEAT&OVTEMP
C10	[2]-3	1	4	MCC-PS-2		MCC-PS-2A	GND						SUBSTATION #11		VIBRATION SWITCH	CONTROL	33 ACTIVE & 3 SP.
C11	[2]-3	3	1/0	SUBSTATION #1		MCC-RS-1	POWER	[SEE NOTE 386]					SUBSTATION #11		LOW-LOAD PANEL	CONTROL	39 ACTIVE & 3 SP.
C12	[2]-3	2	1/0	SUBSTATION #1		MCC-RS-1	GND						SUBSTATION #11		LOW-LOAD PANEL	CONTROL	
C13	[2]-3	3	500MCM	SUBSTATION #2		MCC-RS-2	POWER	[SEE NOTE 186]					SUBSTATION #12		RTD DEVICE FRONT BEARING MOTOR TERMINAL BOX	CONTROL BEARING TEMP.	
C14	[2]-3	1	2	SUBSTATION #2		MCC-RS-2	GND						SUBSTATION #12		PRE-AER BLWR MTR #2	CONTROL BEARING TEMP.	
C15	[2]-3	3	1/0	SUBSTATION #2		MCC-RS-2A	POWER	[SEE NOTE 186]					SUBSTATION #12		PRE-AER BLWR MTR #2	CONTROL BEARING TEMP.	
C16	[2]-3	9	500MCM	SUBSTATION #1		MCC-RS-2A	GND						SUBSTATION #12		PRE-AER BLWR MTR #2	CONTROL BEARING TEMP.	
C17	[2]-3	3	1/0	SUBSTATION #1		MCC-B	POWER						SUBSTATION #12		JUNCTION BOX	CONTROL	5-KV
C18	[2]-3	3	1/0	SUBSTATION #1		MCC-B	GND						SUBSTATION #12		JUNCTION BOX	GND	600V
C19	[2]-3	6	350MCM	SUBSTATION #5		MCC-PD-1	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	SP-HEAT&OVTEMP
C20	[2]-3	2	1/0	SUBSTATION #5		MCC-PD-1	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	33 ACTIVE & 3 SP.
C21	[2]-3	6	350MCM	SUBSTATION #6		MCC-PD-2	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	39 ACTIVE & 3 SP.
C22	[2]-3	2	1/0	SUBSTATION #6		MCC-PD-2	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C23	[2]-3	3	500MCM	SUBSTATION #5		MCC-PD-3	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C24	[2]-3	3	500MCM	SUBSTATION #5		MCC-PD-3	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C25	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C26	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C27	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C28	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C29	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C30	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C31	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C32	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C33	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C34	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C35	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C36	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C37	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C38	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C39	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C40	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C41	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C42	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C43	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C44	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C45	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C46	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C47	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C48	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C49	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C50	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C51	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C52	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C53	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C54	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C55	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C56	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C57	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C58	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C59	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C60	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C61	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C62	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C63	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C64	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C65	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C66	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C67	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C68	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C69	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C70	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C71	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C72	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C73	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C74	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C75	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C76	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C77	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C78	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	GND						SUBSTATION #12		JUNCTION BOX	CONTROL	
C79	[2]-3	3	500MCM	SUBSTATION #6		MCC-PD-4	POWER	PARALLEL FEED					SUBSTATION #12		JUNCTION BOX	CONTROL	
C80	[2]-3	3	500MCM	S													

CKT NO	TRIP	DESCRIPTION OF LOAD	LOAD KVA	KVA PER PHASE			LOAD KVA	DESCRIPTION OF LOAD	TRIP	CKT NO
				A	B	C				
1	20	MONITORING STATION-LTG.	1.3	1.66			0.36	MONITORING STATION-RECPT	20	2
3	15	EXHAUST FAN EF-1A	0.15		0.69		0.54	MONITORING STATION-RECPT	20	4
5	20	ELECTRIC WALL HEATER	1.0			1.25	0.25	ELECTRIC WALL HEATER	15	6
7	2P	EW-1A	1.0	1.25			0.25	EW-2A	2P	8
9	30	POWER SUPPLY AT μ P	2.88		2.88			SPARE	15	10
11	20	SPARE				1.9	1.9	SPARE	20	12
13	20	SPARE						SPARE	15	14
15	20	SPARE						SPARE	15	16
17	20	SPARE						SPARE	15	18

LIGHTING PANEL - SMS-HP LOCATED IN SYSTEM MONITORING STATION-HP			TOTAL KVA	2.91	3.57	3.15	SERVICE CHARACTERISTICS: 120/208 VOLT, 3 PHASE, 4 WIRE, 60 HZ 100/50 AMP MAIN BKR., PROVIDE GND. BUS			
GRAND CONNECTED			TOTAL KVA	9.63						

CKT NO	TRIP	DESCRIPTION OF LOAD	LOAD KVA	KVA PER PHASE			LOAD KVA	DESCRIPTION OF LOAD	TRIP	CKT NO
				A	B	C				
1	20	MONITORING STATION-LTG.	1.3	1.66			0.36	MONITORING STATION-RECPT	20	2
3	15	EXHAUST FAN EF-1B	0.15		0.69		0.54	MONITORING STATION-RECPT	20	4
5	20	ELECTRIC WALL HEATER	1.0			1.25	0.25	ELECTRIC WALL HEATER	15	6
7	2P	EW-1B	1.0	1.25			0.25	EW-2B	2P	8
9	30	POWER SUPPLY AT μ P	2.88		2.88			SPARE	15	10
11	20	SPARE				1.9	1.9	SPARE	20	12
13	20	SPARE						SPARE	15	14
15	20	SPARE						SPARE	15	16
17	20	SPARE						SPARE	15	18

LIGHTING PANEL - SMS-DIGM LOCATED IN SYSTEM MONITORING STATION-DIGM			TOTAL KVA	2.91	3.57	3.15	SERVICE CHARACTERISTICS: 120/208 VOLT, 3 PHASE, 4 WIRE, 60 HZ 100/50 AMP MAIN BKR., PROVIDE GND. BUS			
GRAND CONNECTED			TOTAL KVA	9.63						

CKT NO	TRIP	DESCRIPTION OF LOAD	LOAD KVA	KVA PER PHASE			LOAD KVA	DESCRIPTION OF LOAD	TRIP	CKT NO
				A	B	C				
1	30	AC-1A & AF-1A	5.4	10.4			5.0	15 KVA XFMR FOR 120/208V PANEL	25	2
3	3P		5.4		10.4	5.0	25		4	
5	3P		5.4			10.4	5.0		25	6
7	15	ACC-1A	0.58	1.9			1.33	SEWAGE PUMP STATION NO. 3A	20	8
9	2P		0.58		1.9		1.33	CONTROL PANEL	20	10
11		BLANK				1.33	1.33		20	12
13	15	ELECT WATER HEATER (EWH#1)	2.0	2.0					20	14
15	3P		2.0		2.0			SPARE	3P	16
17			2.0			2.0			3P	18

POWER PANEL - SMS-HP LOCATED IN SYSTEM MONITORING STATION HP			TOTAL KVA	14.3	14.3	13.7	SERVICE CHARACTERISTICS: 480 VOLT, 3 PHASE, 3 WIRE, 60 HZ 100A-MAIN LUGS-PROVIDE GND. BUS			
GRAND CONNECTED			TOTAL KVA	42.3						

CKT NO	TRIP	DESCRIPTION OF LOAD	LOAD KVA	KVA PER PHASE			LOAD KVA	DESCRIPTION OF LOAD	TRIP	CKT NO
				A	B	C				
1	30	AC-1B & AF-1B	5.4	10.4			5.0	15 KVA XFMR FOR 120/208V PANEL	25	2
3	3P		5.4		10.4	5.0	25		4	
5	3P		5.4			10.4	5.0		25	6
7	15	ACC-1B	0.58	1.9			1.33	SEWAGE PUMP STATION NO. 3B	20	8
9	2P		0.58		1.9		1.33	CONTROL PANEL	20	10
11		BLANK				1.33	1.33		3P	12
13	15	ELECT WATER HEATER (EWH#2)	2.0	2.0					20	14
15	3P		2.0		2.0			SPARE	3P	16
17			2.0			2.0			3P	18

POWER PANEL - SMS-DIGM LOCATED IN SYSTEM MONITORING STATION DIGM			TOTAL KVA	14.3	14.3	13.7	SERVICE CHARACTERISTICS: 480 VOLT, 3 PHASE, 3 WIRE, 60 HZ 100A-MAIN LUGS-PROVIDE GND. BUS			
GRAND CONNECTED			TOTAL KVA	42.3						

VOID REFER TO E-15X

VOID REFER TO E-15X

CKT NO	TRIP	DESCRIPTION OF LOAD	LOAD KVA	KVA PER PHASE			LOAD KVA	DESCRIPTION OF LOAD	TRIP	CKT NO
				A	B	C				
1	15	EXHAUST FAN EF-2	0.33	2.0			1.67	ELECTRIC UNIT HEATER EUH-1	15	2
3	3P		0.33		2.0	1.67	3P		4	
5			0.33			2.0	1.67		6	
7	15	ELECTRIC UNIT HEATER EUH-2	1.67	1.67				SPARE	20	8
9	2P		1.67		1.67		3P		10	
11			1.67			1.67	3P		12	
POWER PANEL - HV SWG LOCATED IN HIGH VOLTAGE SWITCHGEAR HOUSE			TOTAL KVA	3.67	3.67	3.67	SERVICE CHARACTERISTICS: 480 VOLT, 3 PHASE, 3 WIRE, 60 HZ 100A - MAIN LUGS - PROVIDE GND. BUS			
GRAND CONNECTED			TOTAL KVA	11						

CKT NO	TRIP	DESCRIPTION OF LOAD	LOAD KVA	KVA PER PHASE			LOAD KVA	DESCRIPTION OF LOAD	TRIP	CKT NO
				A	B	C				
1	20	GRIT TANKS NO.1 THRU 4	0.63	1.88			0.75	PREAER. & GRIT TANK	20	2
3	2P	LIGHTING	0.63		1.88		0.75	BLOWER STATION-LIGHTING	2P	4
5	20	GRIT TANKS RECEPT.	1.08			1.6	0.50	FUTURE I/O - HP	15	6
7	15	(FIT) AT PARSHALL FLUME	0.50	0.7			0.20	RECEPT. AT ODOR CONT. PAD	20	8
9	20	RECEPT. AT BLOWER PAD	0.20		1.2		1.0	LOCAL SCREEN PANEL NO.1	20	10
11	20	LOCAL SCREEN PANEL NO.2	1.0			2.0	1.0	LOCAL SCREEN PANEL NO.3	20	12
13	20	LOCAL SCREEN PANEL NO.4	1.0	1.5			0.50	INTERCOM SUPPLY	15	14
15	20	COMPOSITE SAMPLER HEADWORKS	0.75		0.75		0.25	LIGHTING CONTACTOR	15	16
17	20	SPARE						SPARE	20	18
LIGHTING PANEL - HW LOCATED IN MCC +5G-2			TOTAL KVA	4.03	4.03	3.6	SERVICE CHARACTERISTICS: 120/208 VOLT, 3 PHASE, 4 WIRE, 60 HZ 100/50 AMP MAIN BKR., PROVIDE GND. BUS			
GRAND CONNECTED			TOTAL KVA	11.66						

GRAND CONNECTED			TOTAL KVA	11.66						
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CKT NO	TRIP	DESCRIPTION OF LOAD	LOAD KVA	KVA PER PHASE			LOAD KVA	DESCRIPTION OF LOAD	TRIP	CKT NO
				A	B	C				
1	40	STANDBY SWBD. NO.1	3.33	8.62			5.29	DISTRIBUTION PANEL	70	2
3	3P	DIST. PANEL	3.33		8.42		5.09	DP-DPP	3P	4
5			3.33			9.38	6.05		6	
7	20	DIGESTER TANKS #1 THRU 8	0.76	1.48			0.72	PUMP AREA-TANKS #587 RCP	20	8
9	2P	STAIRWAY LIGHTING	0.76		2.36		1.3	PUMP AREA-TANKS #587 LIGHTING	20	10
11	2P	PUMP AREA-TANKS #688	1.3			2.6	1.3	INSTRUMENT PANEL-DIC	30	14
13	2P	LIGHTING	1.3	3.6			2.0	INSTRUMENT PANEL-DID	30	16
15	20	PUMP AREA-TANKS #688 RCP	0.72		2.72		2.0	INSTRUMENT PANEL-SST	30	18
17	20	MAGNETIC FLOWMETER-TKS#587	1.5			3.9	2.4	MAGNETIC FLOWMETER-TKS#688	20	20
19	20	MAGNETIC FLOWMETER-TKS#587	1.5	3			1.5	MAGNETIC FLOWMETER-TKS#688	20	22
21	15	COMMON CTRL CKT (MCC-PD-3)	0.20		1.7		1.5	MAGNETIC FLOWMETER-TKS#688	20	24
23	15	COMMON CTRL CKT (MCC-PD-4)	0.20			1.82	.82	SLUDGE STORAGE TANK	20	26
25	20	RECEPT. GAS COMPRESSOR FAC	.36	1.18			.82	PUMP STATION LIGHTING	2P	28
27	20	GAS COMPRESSOR FAC	.71		1.07		.36	SST STATION -RECEPT	20	30
29	2P	LIGHTING	.71			.71		SPARE	20	32
31	15	SPARE						SPARE	20	34
33	20	SPARE						SPARE	20	36
35	20	SPARE						SPARE	20	38
LIGHTING PANEL LP-PD-4 LOCATED IN MCC-PD-4 WALK THRU ENCLOSURE			TOTAL KVA	17.88	16.27	17.61	SERVICE CHARACTERISTICS: 120/208 VOLT, 3 PHASE, 4 WIRE, 60 HZ 225/150 AMP MAIN BKR., PROVIDE GND. BUS			
GRAND CONNECTED			TOTAL KVA	51.76						

GRAND CONNECTED			TOTAL KVA	51.76						
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App. Drawing No.
410N-83.247-0

Revisions
No. Date

Date: NOV 1983
Designed by: FS
Drawn by: AA
Checked by: JSM
Scale: NO SCALE



WATER
FACILITIES
IMPROVEMENT

SAN ANTONIO

CONTRACT NO. 3
DOS RIOS FACILITY
GENERAL
PANEL SCHEDULES

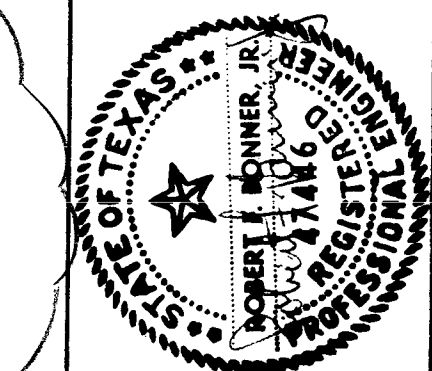
RECORD DRAWINGS
This drawing reflects changes from the original contract drawing that were made during construction and has been prepared from information provided to the Engineer by the construction contractor(s). The Engineer does not warrant this drawing to be complete and accurate in all respects.
MALCOLM PIRNIE, INC.
Date: 4/88 By: HML

Sheet E-15
of E-58

DR 83-6502

MALCOLM PIRNIE

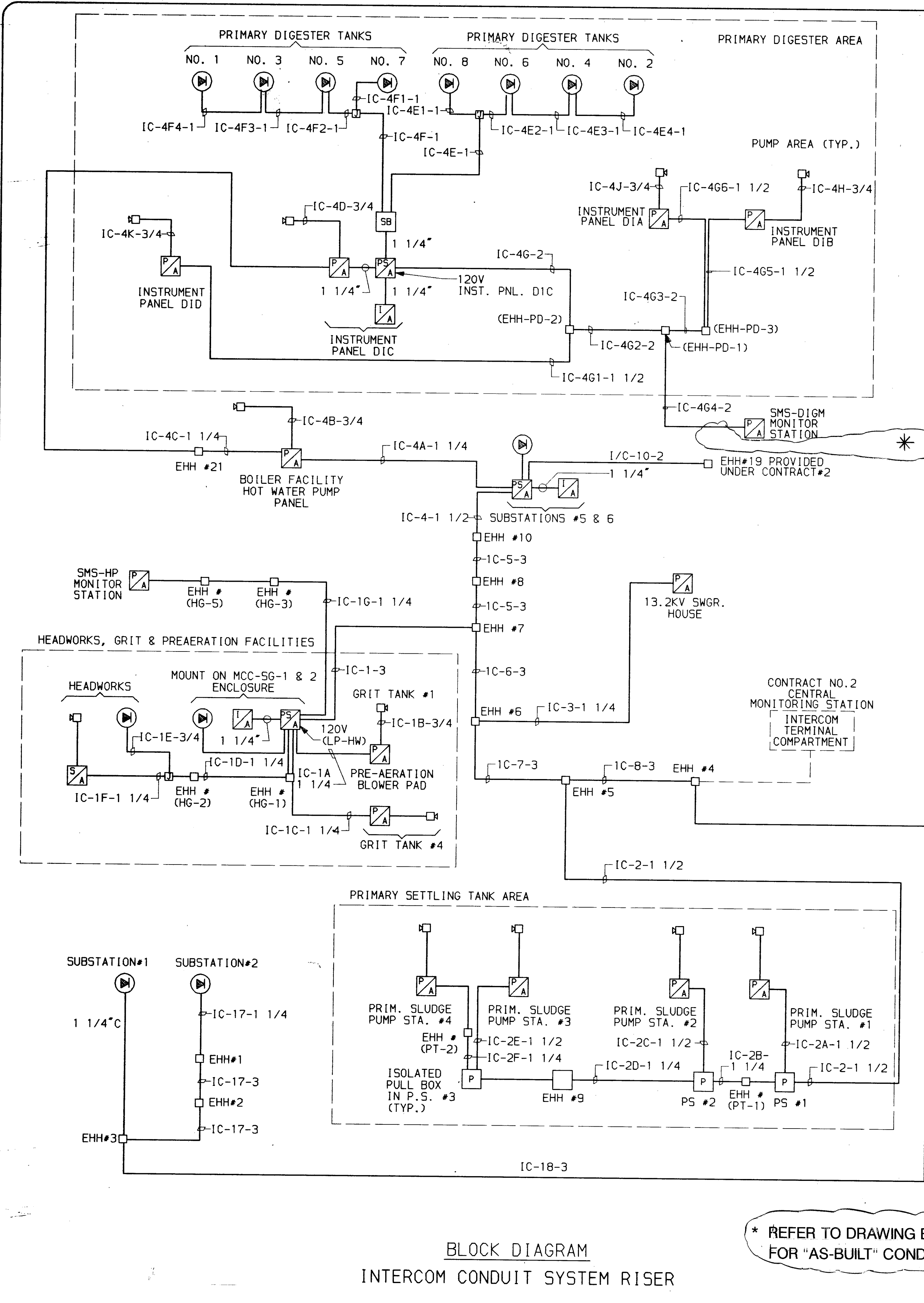
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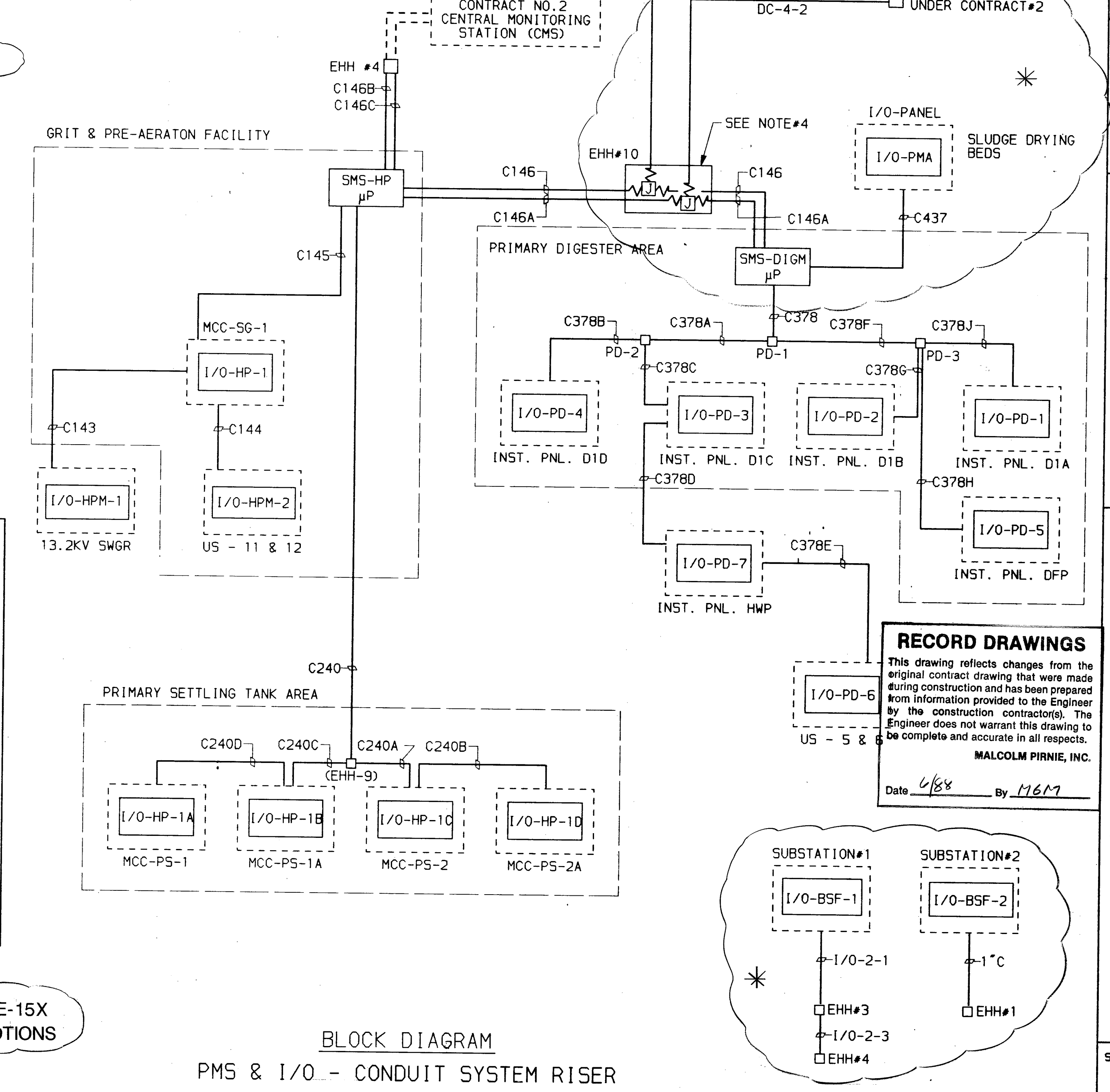
WATER
 FACILITIES
 IMPROVEMENTS

San Antonio

CONTRACT NO. 3
DOS RIOS FACILITY
 GENERAL
 BLOCK DIAGRAMS, INTERCOM, PMS& I/O



- GENERAL NOTES**
1. ALL INTERCONNECTION LINES BETWEEN EQUIPMENT REPRESENT CONDUIT ROUTING. FOR CONDUITS TAGGED IC-NUMBER-SIZE REFER TO PLAN DRAWINGS FOR ROUTING. ALL CONDUITS FOR INTERCOM SYSTEM NOT TAGGED IC-NUMBER-SIZE ARE LOCAL CONDUIT REQUIREMENTS OF 3/4" IN SIZE UNLESS NOTED OTHERWISE.
 2. ALL INTERCOM EQUIPMENT SHOWN IN PLAN DRAWINGS ARE FOR LOCATIONS ONLY. EQUIPMENT AND CABLES TO BE PROVIDED UNDER CONTRACT NO. 2.
 3. PROVIDE FLEXIBLE CONDUIT AND JUNCTION BOX IN ALL ELECTRICAL HANDHOLES FOR THE INTERCOM CONDUIT SYSTEM, 50 CABLES WILL BE ISOLATED FROM THE POWER CONDUCTORS.
 4. IN ORDER TO ISOLATE PMS&I/O CABLES FROM POWER CONDUCTORS THE FOLLOWING CONDUITS SHALL BE RUN CONTINUOUS THROUGH EACH ELECTRICAL HANDHOLE IDENTIFIED. PROVIDE FLEXIBLE CONDUIT AND JUNCTION BOX WITHIN HANDHOLES. CABLES FURNISHED AND INSTALLED UNDER CONTRACT #2.
 - A. C240 - EHH#8, [PROVIDE &CONNECT CONDUITS 240, 240A AND 240C IN EHH#9]
 - B. C378D - EHH#21
 - C. C143 - EHH#7, EHH#6
 - D. C146B & C146C - EHH#8, EHH#7, EHH#6, EHH#5 [CAP IN EHH#4]
 - E. C146 & C146A - EHH#20, EHH#10
 - F. I/O-2 - EHH#3
 - G. EHH-SB7, SB6, SB4, SB1, SB1&EHH-PD-6.



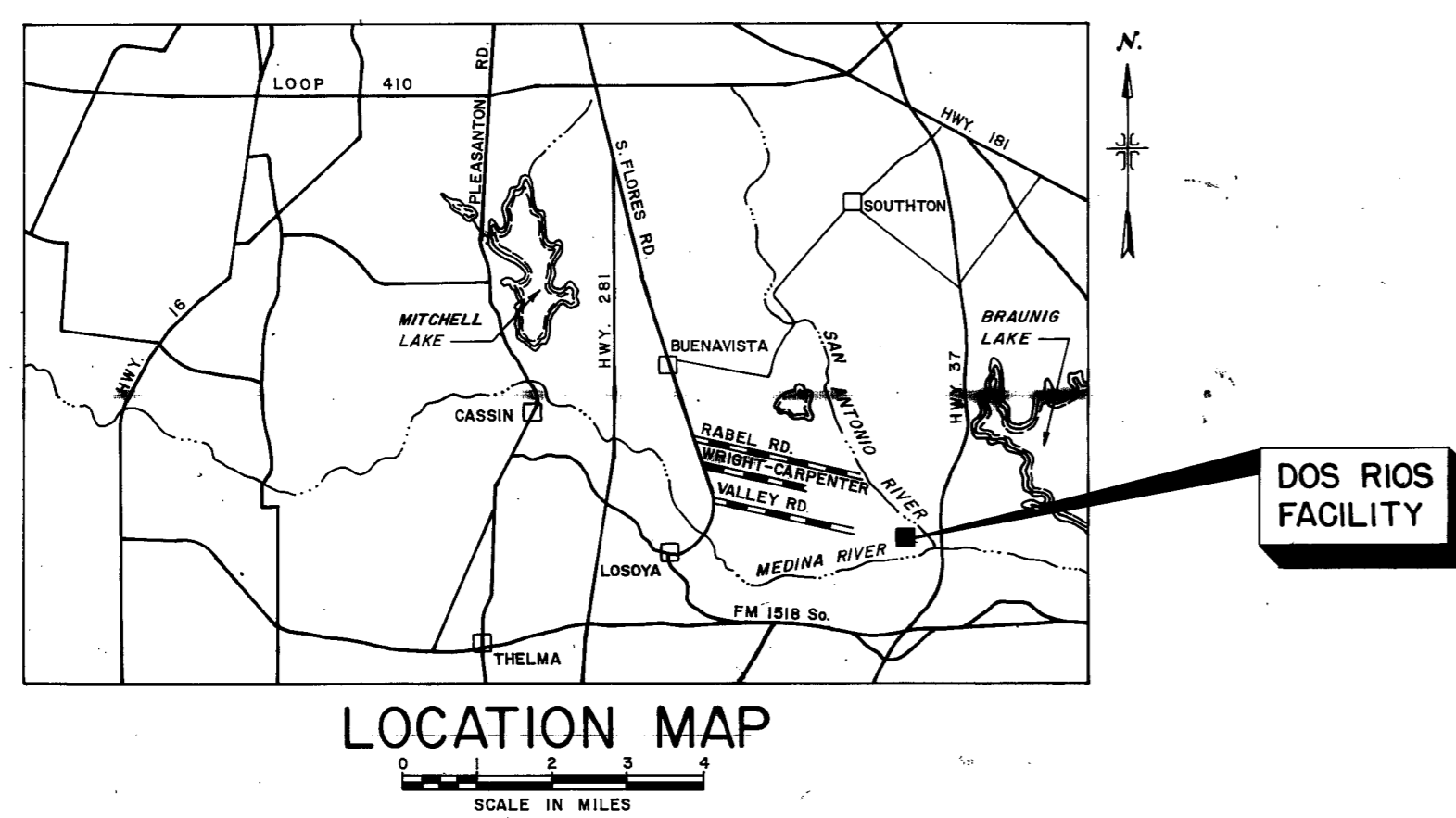
RECORD DRAWINGS
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 MALCOLM PIRNIE, INC.
 Date: 6/88 By: M6M

DF 83-6502

DOS RIOS FACILITY

FIRST STAGE FACILITIES
(CONVENTIONAL AIR)

CONTRACT 2 - APRIL 1984



STEP 2 GRANT NO. C-481211-10

CITY OF SAN ANTONIO,
DEPARTMENT OF PUBLIC WORKS

MALCOLM PIRNIE INC.
SAN ANTONIO, TEXAS

WHITE PLAINS, NEW YORK

RECORD DRAWINGS

This drawing reflects changes from the original contract drawing that were made during construction and has been prepared from information provided to the Engineer by the construction contractor. The Engineer does not warrant this drawing to be complete and accurate in all respects.

DATE 10/89 BY RAN

WASTEWATER
FACILITIES
IMPROVEMENTS

SAN
ANTONIO

D-2

D-2

-2

DR 84-6501

CONTINUED
DO NOT



DR 84-5501

	POWER & LIGHTING PANEL
	CP - CONTROL PANEL
	MCC
	DUPLEX CONVENIENCE RECEPTACLE, 2 POLE, 3 WIRE, 120 VOLTS A.C.
	DUPLEX CONVENIENCE RECEPTACLE FOR HAZARDOUS AREA, 2 POLE, 3 WIRE, 120 VOLTS A.C. (EXPLOSION PROOF)
	DUPLEX WEATHERPROOF CONVENIENCE RECEPTACLE, 22 POLE, 3 WIRE, 120 VOLTS A.C.
	POWER RECEPTACLE, 600 VOLTS A.C. POLES AND RATING AS NOTED
	POWER RECEPTACLE FOR HAZARDOUS AREA, 100A, 600 VOLTS A.C., 4 WIRE (EXPLOSION PROOF)
	TELEPHONE OUTLET
	ELECTRIC MOTOR (NO INDICATES HORSEPOWER)
	MOTOR STARTER (INDIVIDUAL - COMBINATION MAGNETIC)
	LINE SWITCH DISCONNECT - UNFUSED (SIZE AS REQUIRED OR AS NOTED)
	SINGLE POLE SWITCH
	DOUBLE POLE SWITCH (208 VOLT)
	THREE-WAY SWITCH
	DOUBLE POLE - DOUBLE THROW SWITCH (SEE SPEC.) 208 VOLTS
	2 LAMP SELF CONTAINED DC EMERGENCY LIGHTING UNIT. ARROWS SHOW LAMP POSITIONS
	THERMOSTAT
	BRANCH CIRCUIT HOME RUN TO PANEL BOARD, LETTERS AND NUMERALS INDICATE PANEL AND CIRCUIT NUMBER. CROSS LINES INDICATE MINIMUM NUMBER OF CONDUCTORS WHEN THERE ARE MORE THAN TWO. NO HASH MARKS INDICATES TWO CONDUCTORS. HALF HASH MARK INDICATES NEUTRAL
	INDICATES GROUND CONDUCTOR
	EXPOSED CONDUIT
	CONDUIT TURNS UP
	CONDUIT TURNS DOWN
	PRIMARY UNDERGROUND DUCT BANK
	UNDERGROUND SECONDARY DUCT BANK OR CONCEALED CONDUIT IN CONCRETE FLOOR, CEILING OR WALL UNLESS OTHERWISE INDICATED OR NOTED
	PULL BOX
	JUNCTION BOX
	CEILING MOUNTED LIGHTING FIXTURE. LETTER INDICATES TYPE OF FIXTURE
	WALL MOUNTED LIGHTING FIXTURE. LETTER INDICATES TYPE OF FIXTURE
	STANCHION MOUNTED LIGHTING FIXTURE. LETTER INDICATES TYPE OF FIXTURE
	POLE MOUNTED LIGHTING FIXTURE. LETTER INDICATES TYPE OF FIXTURE
	F-2

ELECTRICAL SYMBOLS

	EMH	ELECTRICAL MANHOLE
	EHH	ELECTRICAL HANDHOLE
		EXIT LIGHT FIXTURE
		GROUND TEST POINT
		GROUND ROD INSTALLATION
		GROUND GRID CABLE CONNECTION
	VS	VIBRATION SWITCH
	ES	EMERGENCY STOP SWITCH
	MS	MOTION SWITCH
	LS	LIMIT SWITCH
		SELECTOR SWITCH
		PUSHBUTTON STATION
		POWER FACTOR CORRECTION CAPACITOR
		PUSHBUTTON STATION WITH LOCK-OUT FEATURE
	SV	SOLENOID VALVE
	RTD	TEMPERATURE DETECTOR
		THERMAL-MAGNETIC MOLDED CASE CKT. BREAKER
		DRAWOUT LOW-VOLTAGE POWER BREAKER
		DRAWOUT MEDIUM VOLTAGE POWER BREAKER
	TR	TRANSDUCER
	VM VS	VOLTMETER - VOLTMETER SWITCH
	AM AS	AMMETER - AMMETER SWITCH
	K	KEY INTERLOCK
	●	DEVICE LOCATED AT MOTOR
	■	DEVICE LOCATED AT INSTRUMENT PANEL
	*	FIELD LOCATED DEVICE

INTERCOM SYSTEM

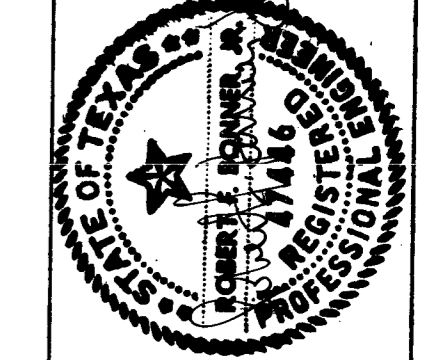
	SPEAKER
	PHONE AMPLIFIER
	SPEAKER AMPLIFIER
	INTERFACE AMPLIFIER
	POWER SOURCE AMPLIFIER
	JACK STATION
	SPEAKER WITH AMPLIFIER BELOW-PLAN DWGS.
	SPEAKER WITH PHONE AMPLIFIER BELOW-PLAN DWGS.
	SAFETY BARRIER

76 pgs 1-4-01
DR. Contract 2

App. Drawing No.
410N-84.326-0

Revisions
No. Date

Date APRIL 1984
Designed by RAM, KW
Drawn by ECM
Checked by ASD
Scale NOT TO SCALE



WASTEWATER
FACILITIES
IMPROVEMENTS

SAI
ANTONIO

CONTRACT NO. 2
DOS RIOS FACILITY
GENERAL
ELECTRICAL LEGEND (SYMBOLS)

Sheet E-1
of E-65

RECORD DRAWINGS
This drawing reflects changes from the original contract drawing that were made during construction and has been prepared from information provided to the Engineer by the construction contractor(s). The Engineer does not warrant this drawing to be complete and accurate in all respects.
MALCOLM PIRNIE, INC.
Date 10/89 By LAN

D-2

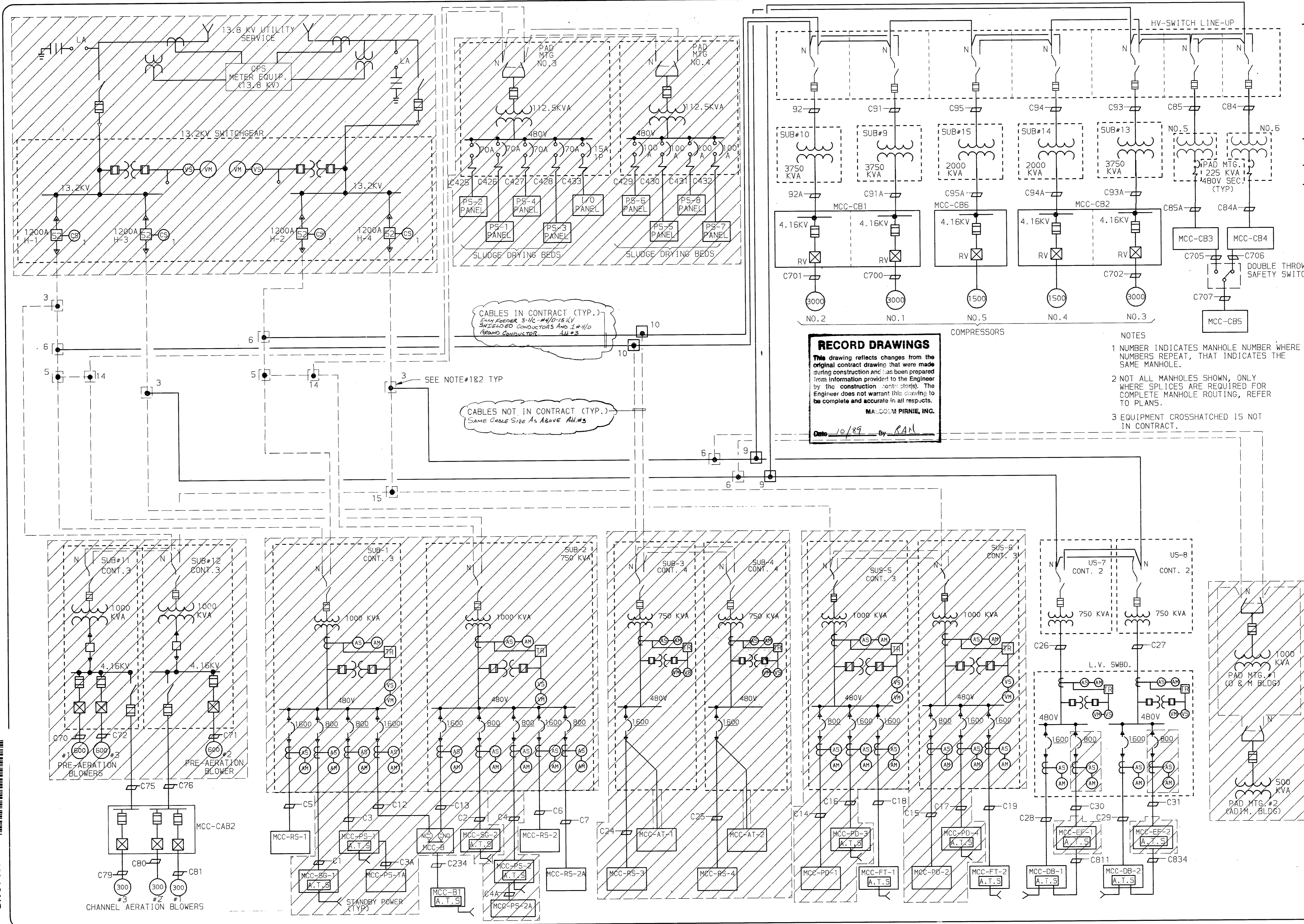
Revisions
 No. | Date

Date: APRIL 1984
 Designed by: JFS
 Drawn by: JFS
 Checked by: JFS
 Scale: NO SCALE



Wastewater
 Facilities
 Improvements
 San Antonio

CONTRACT NO. 2
 DOS RIOS FACILITY
 GENERAL
 PRIMARY POWER ONE-LINE



CABLES IN CONTRACT (TYP.)
 Same as shown 3/16 - 4/0 15 KV
 SHIELDED CONDUCTORS AND 1/2" 4/0
 BROWN CONDUCTOR

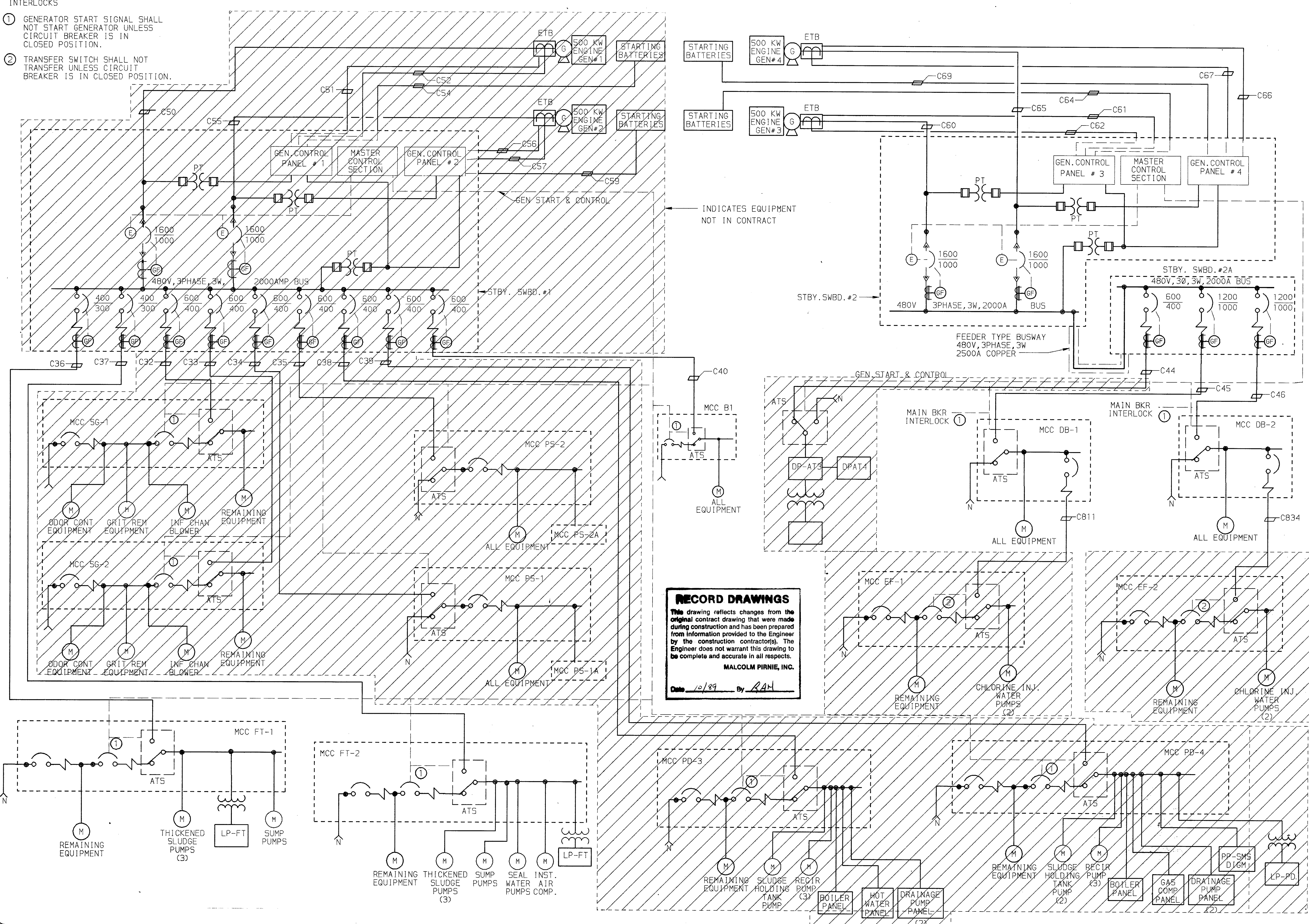
CABLES NOT IN CONTRACT (TYP.)
 Same Cable Size As Above All #s

RECORD DRAWINGS
 This drawing reflects changes from the original contract drawing that were made during construction and has been prepared from information provided to the Engineer by the construction contractor. The Engineer does not warrant this drawing to be complete and accurate in all respects.
 MALCOLM PIRNIE, INC.
 Date 10/89 By GAN

- NOTES
- 1 NUMBER INDICATES MANHOLE NUMBER WHERE NUMBERS REPEAT, THAT INDICATES THE SAME MANHOLE.
 - 2 NOT ALL MANHOLES SHOWN, ONLY WHERE SPLICES ARE REQUIRED FOR COMPLETE MANHOLE ROUTING, REFER TO PLANS.
 - 3 EQUIPMENT CROSSHATCHED IS NOT IN CONTRACT.

DR 84-6501

- INTERLOCKS
- GENERATOR START SIGNAL SHALL NOT START GENERATOR UNLESS CIRCUIT BREAKER IS IN CLOSED POSITION.
 - TRANSFER SWITCH SHALL NOT TRANSFER UNLESS CIRCUIT BREAKER IS IN CLOSED POSITION.

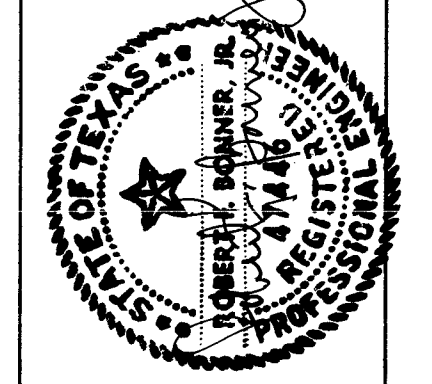


RECORD DRAWINGS
 This drawing reflects changes from the original contract drawing that were made during construction and has been prepared from information provided to the Engineer by the construction contractor(s). The Engineer does not warrant this drawing to be complete and accurate in all respects.
 MALCOLM PIRNIE, INC.
 Date 10/89 By RAN

App. Drawing No.
 410N-84.328-0

Revisions
 No. Date

Date APRIL 1984
 Designed by: FS
 Drawn by: FS
 Checked by: [Signature]
 Scale: NO SCALE



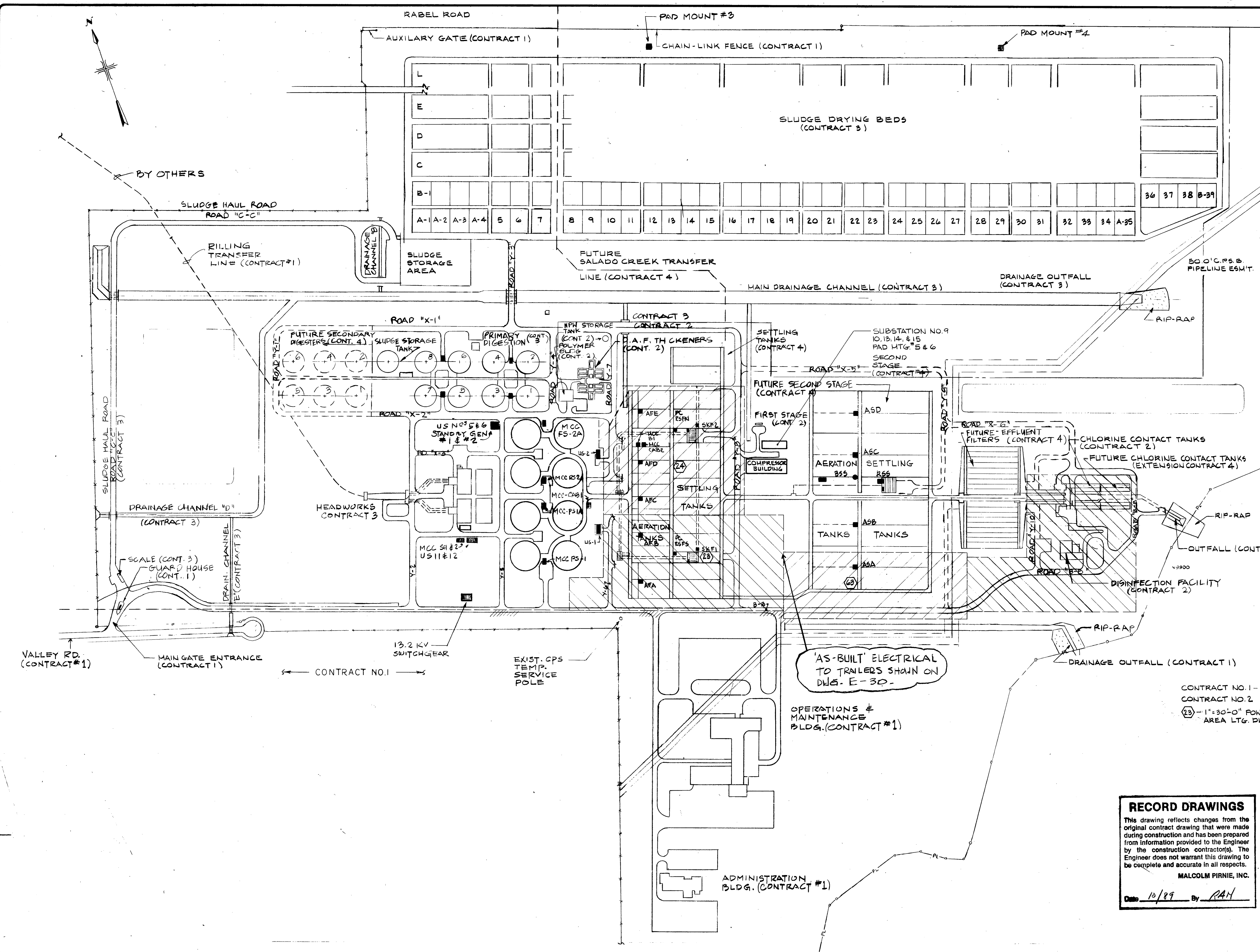
WATERWORKS
 FACILITIES
 IMPROVEMENTS

San Antonio

CONTRACT NO. 2
 DOS RIOS FACILITY
 GENERAL
 STANDBY POWER ONE-LINE

Sheet F-3
 of E-65

9100617
 DR 84-6501



App. Drawing No. 410N-84.329-0	
No. Revisions	Date
MALCOLM PIRNIE	
CNA CURTIS NEAL & ASSOCIATES, INC. CONSULTING ENGINEERS 1187 E. COMMERCE SAN ANTONIO, TEXAS 78205	
Date: APRIL, 1984	Scale: 1" = 200'
Designed by: F. R. M.	Drawn by: MC
Checked by: [Signature]	

San Antonio

WASTEWATER FACILITIES IMPROVEMENTS

DOS RIOS FACILITY
GENERAL
SITE PLAN-ELECTRICAL FACILITIES

CONTRACT NO. 2

CONTRACT NO. 1 - EXISTING
CONTRACT NO. 2

(23) - 1"=30'-0" POWER DISTRIB. & AREA LTG. DWG.

RECORD DRAWINGS

This drawing reflects changes from the original contract drawing that were made during construction and has been prepared from information provided to the Engineer by the construction contractor(s). The Engineer does not warrant this drawing to be complete and accurate in all respects.

MALCOLM PIRNIE, INC.

Date: 10/89 By: RAH

DR 84-6501

Sheet E-4
of E-65

CONDUIT, CABLE & PANEL SCHEDULE										
EXISTING CONDUIT	REQ'D CABLE	FEEDER FROM				TO				HP
NO.	SIZE	QTY	SIZE	PNL	CIR.	POLES	FR.	TRIP	EQUIPMENT	
C11	3/4"	4	#12	V	1	3	100	15	JUNCTION BOX AT DRILL PRESS	1 1/2
C12	"	"	#10	"	2	"	"	30	TILT INGARBOR SAW	7 1/2
C13	"	"	#12	"	3	"	"	15	KEY SEATER	2
C14	"	"	#10	"	4	"	"	20	HYDR. SOT PRESS	3
C15	"	"	#12	"	5	"	"	15	TOOL MAKER GRINDER	1 1/2
C16	"	"	#12	"	6	"	"	15	DUST COLLECTORS	3
C17	"	"	#12	"	7	"	"	15	DRY BLASTER	3
C18	"	"	#12	"	8	"	"	15	PIPE & BOLT MAC	5
C19	"	"	#12	"	9	"	"	15	CARBIDE GRINDER	1 1/2
				"	10	"	"	"	SPARE	
				"	11	"	"	30		
				"	12	"	"	15		
				"	13	"	"	20		
				"	14	"	"	15		

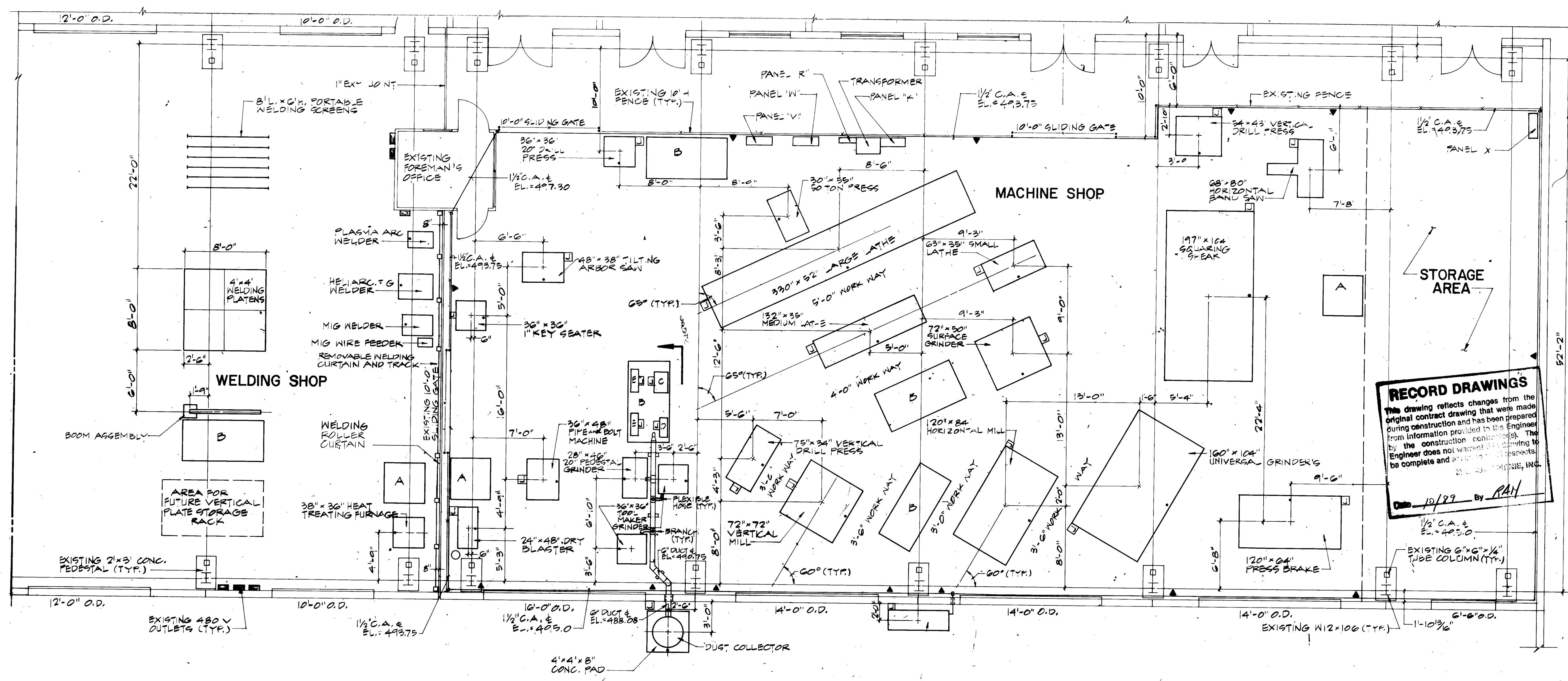
PANEL "V" SCHEDULE & WIRING TABLE
225 AMP - 480 V - 3 ϕ , 4 W MAINS
4 #4 - 1/4" C FEEDER

CONDUIT, CABLE & PANEL SCHEDULE										
EXISTING CONDUIT	REQ'D CABLE	FEEDER FROM				TO				HP
NO.	SIZE	QTY	SIZE	PNL	CIR.	POLES	FR.	TRIP	EQUIPMENT	
C21	1"	4	#12	X	1	3	100	30	JUNCTION BOX AT SMALL LATHE	7 1/2
C22	"	"	#12	"	2	"	"	15	SURFACE GRINDER	2
C23	"	"	#8	"	3	"	"	50	UNIV. GRINDER	13 1/2
C24	"	"	#8	"	4	"	"	50	PRESS BRAKE	2.5
C25	"	"	#8	"	5	"	"	20	SPARE	
C26	1-1/4"	4	#4	"	6	"	"	50	SHEAR	15
C27	3/4"	"	#12	"	7	"	"	15	HORIZONTAL BAND	2
C28	3/4"	"	#12	"	8	"	"	15	VERTICAL CUT	2
				"	9	"	"	15	SPARE	
				"	10	"	"	15	SPARE	

PANEL "X" SCHEDULE & WIRING TABLE
225 AMP - 480 V - 3 ϕ , 4 W MAINS
4 #2 1/4" C FEEDER

CONDUIT, CABLE & PANEL SCHEDULE										
EXISTING CONDUIT	REQ'D CABLE	FEEDER FROM				TO				HP
NO.	SIZE	QTY	SIZE	PNL	CIR.	POLES	FR.	TRIP	EQUIPMENT	
C10	3/4"	4	#10	W	1	3	100	30	JUNCTION BOX AT PEDESTAL GRINDER	7 1/2
C11	"	"	#12	"	2	"	"	15	TOOL MAKER GRINDER	1 1/2
C12	1-3/4"	"	#6	"	3	"	"	40	AIR COMPRESSOR	15
C13	3/4"	"	#12	"	4	"	"	15	DUST COLLECTOR	3
C14	3/4"	"	#12	"	5	"	"	15	VERTICAL MILL	9 1/2
C15	1"	"	#10	"	6	"	"	30	SPARE	
				"	7	"	"	15	SPARE	
				"	8	"	"	15	SPARE	
C16	3/4"	"	#10	"	9	"	"	30	HORIZONTAL MILL	11
C17	1"	"	#10	"	10	"	"	30	MEDIUM LATHE	7 1/2
				"	11	"	"	15	SPARE	
C18	1-1/2"	"	#8	"	12	"	"	50	LARGE LATHE	25
				"	13	"	"	15	SPARE	
				"	14	"	"	100	PANEL "V" SUBFEED	
				"	15	"	"	20	SPARE	
				"	16	"	"	30	SPARE	

PANEL "W" SCHEDULE & WIRING TABLE
225 AMP 3P - MAIN CIRCUIT BREAKER
& MAINS - 4 #1/2 - 1/2" C - FEEDER



RECORD DRAWINGS
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10/89 By RAH

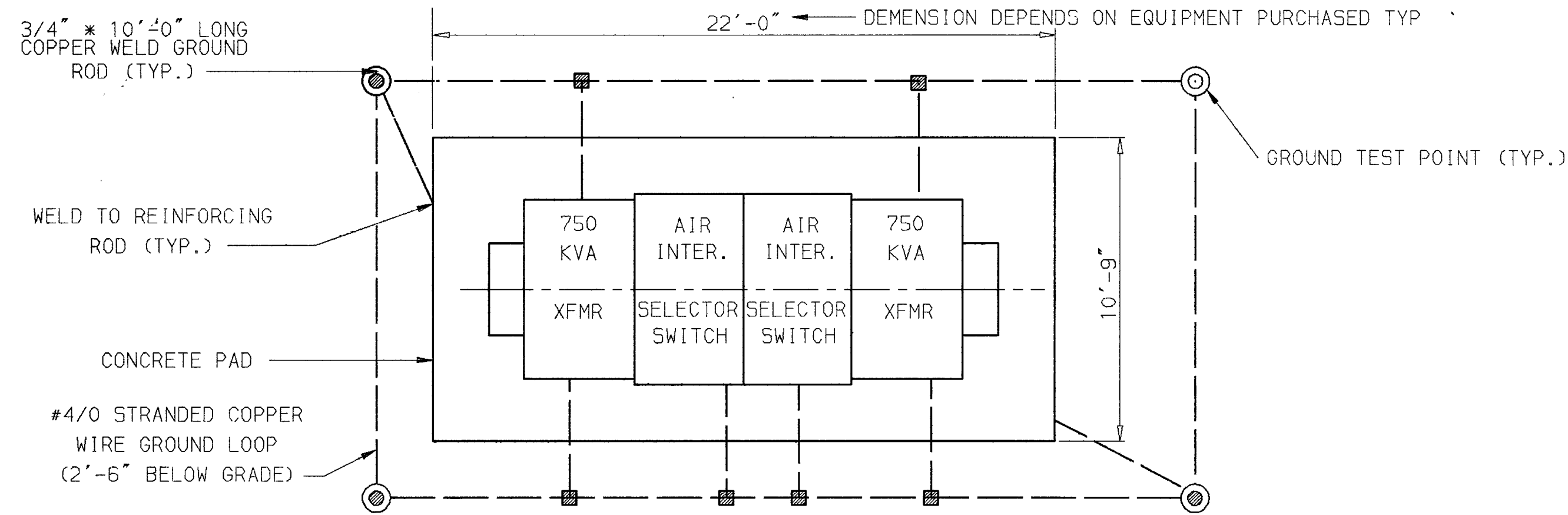
Drawing No
410N-84.330-0

MALCOLM PIRNIE

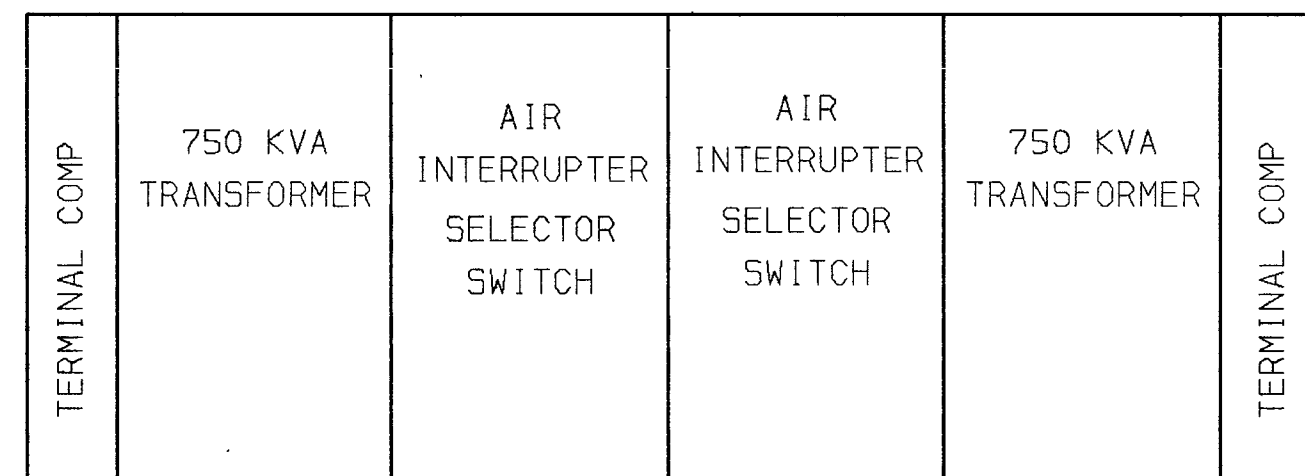
APRIL, 1984
Checked by [Signature]
Drawn by [Signature]
3/16" = 1'-0"

CONTRACT NO. 2
DOS RIOS FACILITY
OPERATION & MAINTENANCE BUILDING
MACHINE SHOP POWER

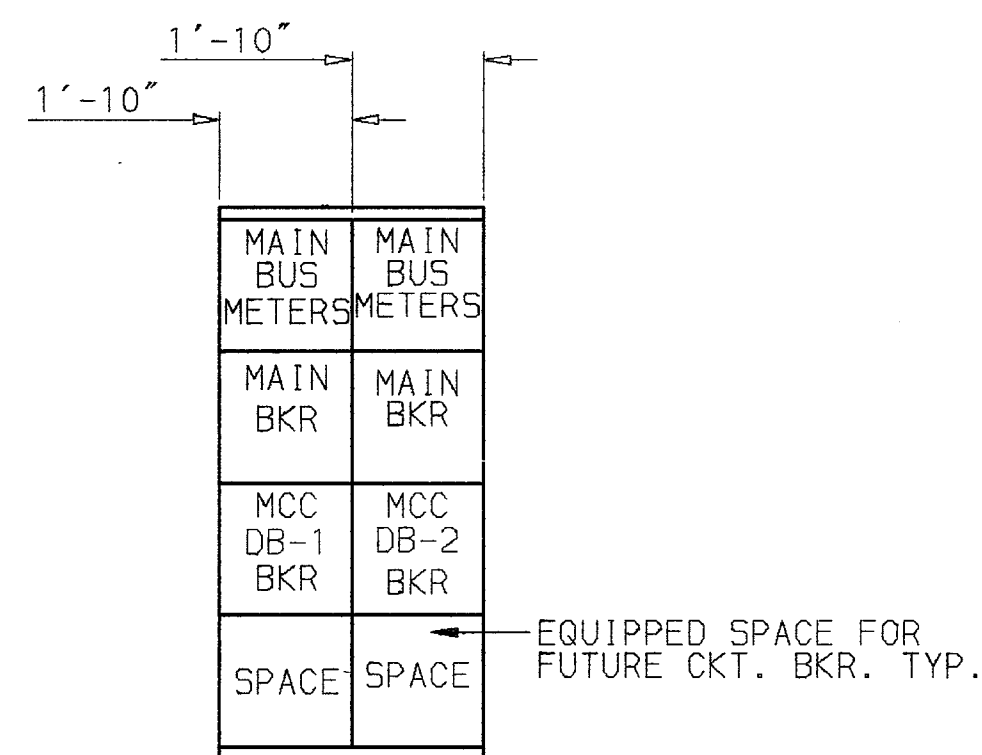
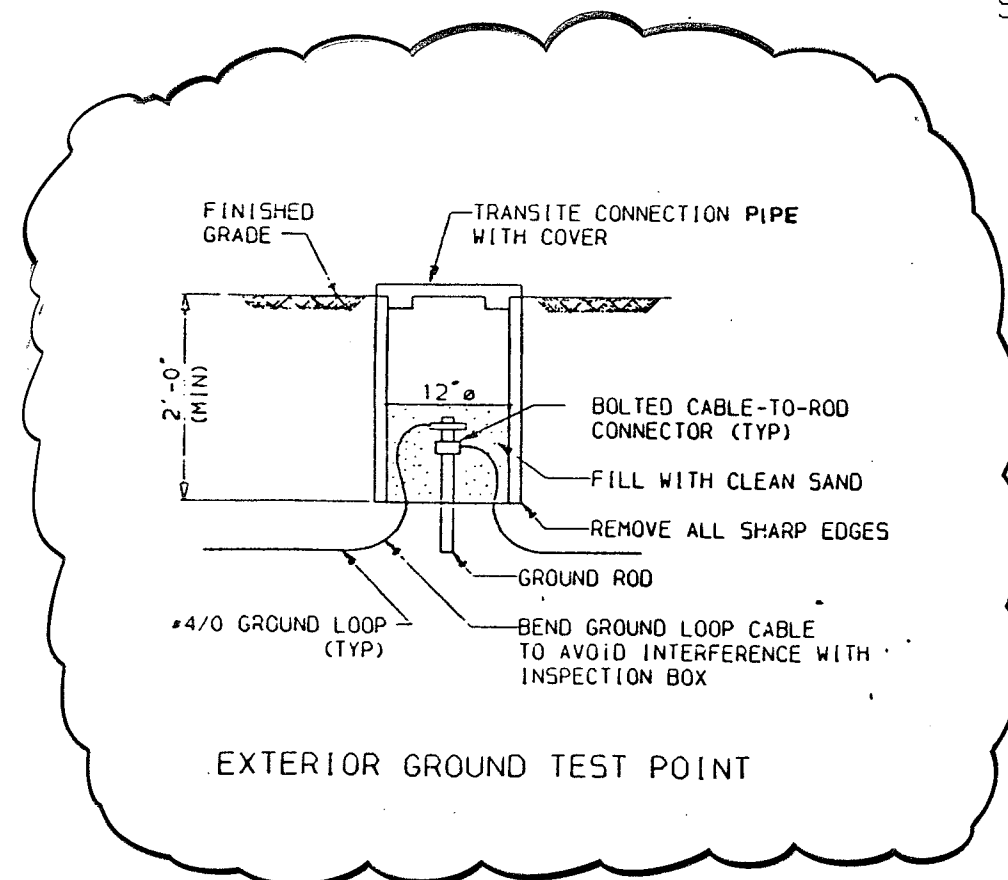
Sheet E-5
of E-65



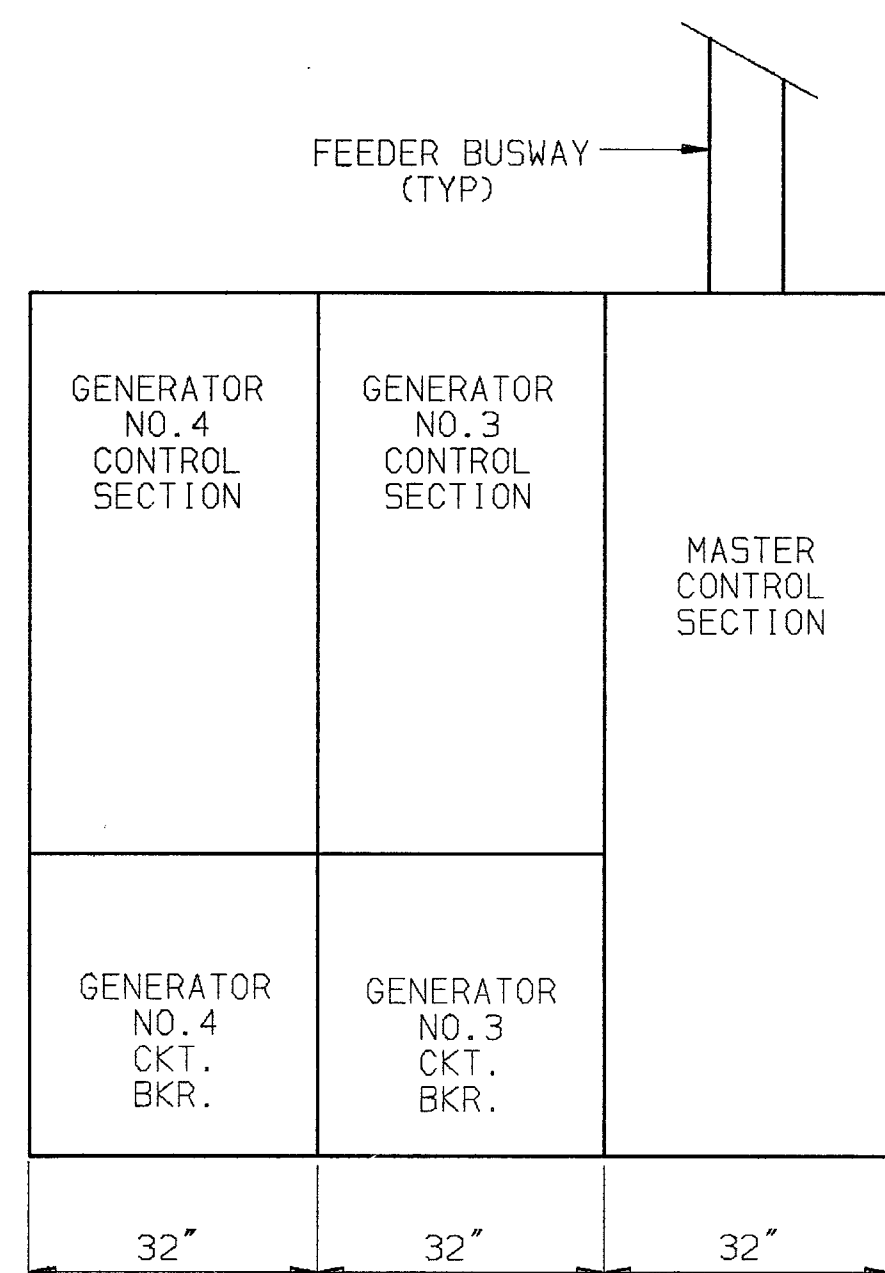
SUBSTATION PLAN NO. 7&8
SCALE 1/4=1'-0"



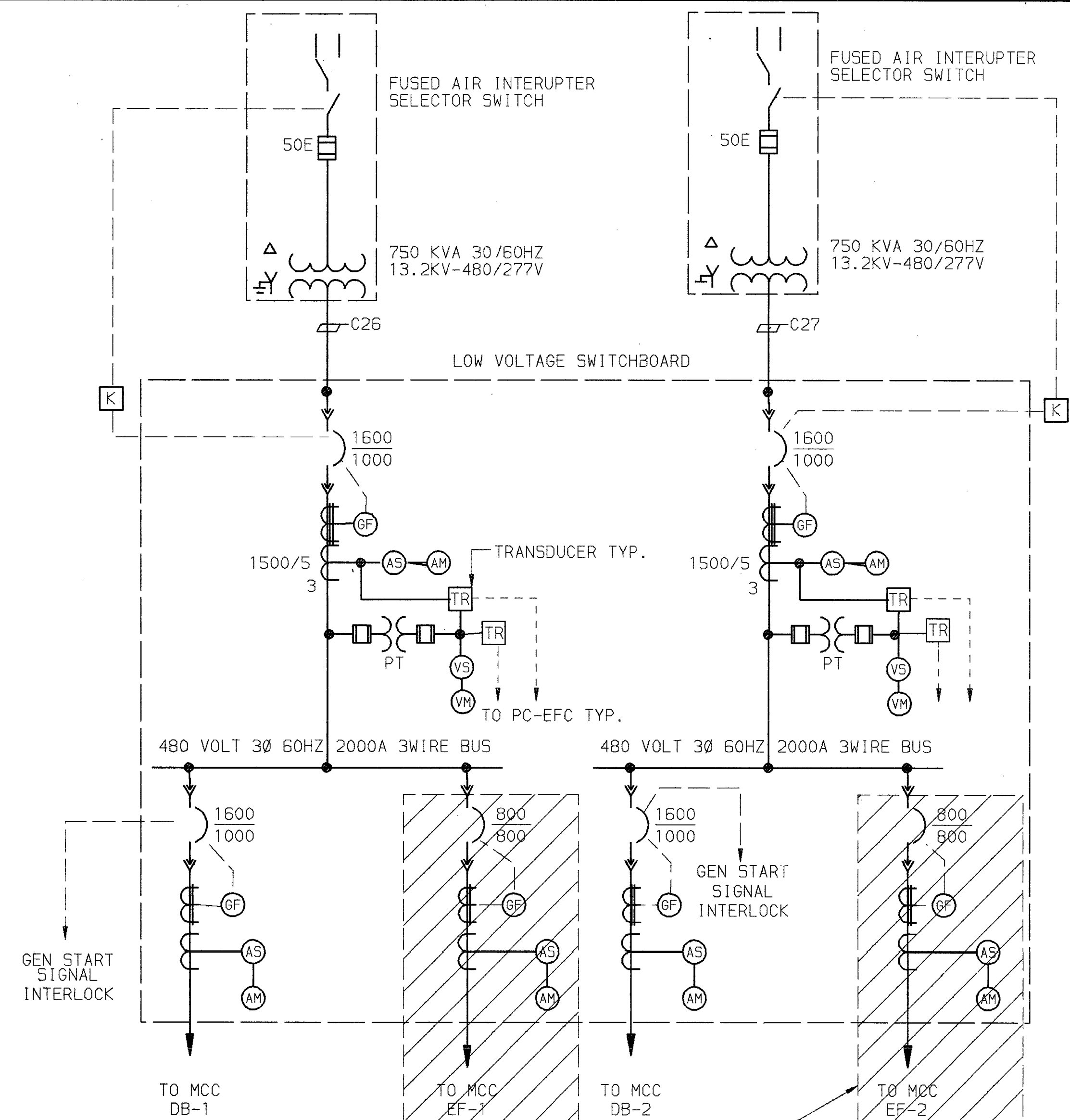
SUBSTATION FRONT NO. 7&8
SCALE 3/8=1'-0"



LOW VOLTAGE SWITCHBOARD
FRONT VIEW



STANDBY SWITCHBOARD NO. 2
FRONT VIEW

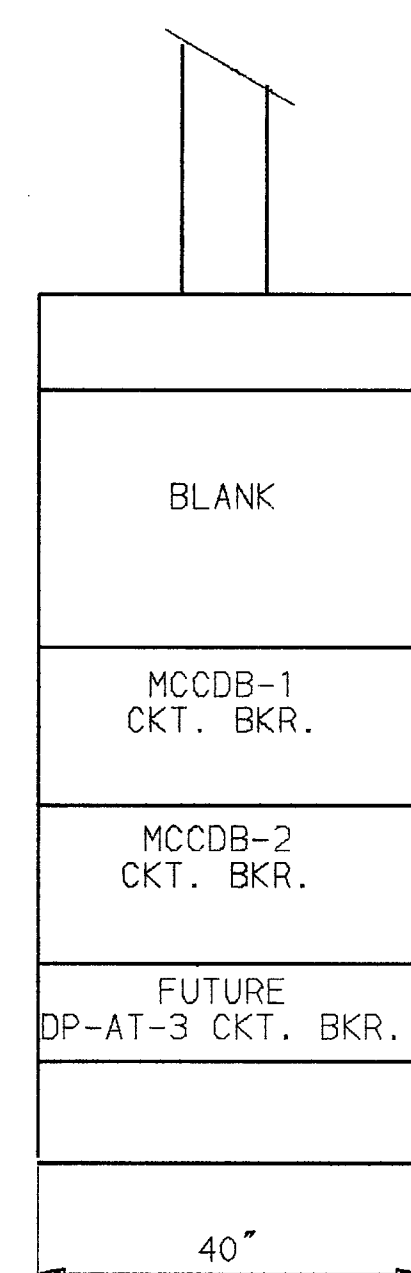


ONE LINE DIAGRAM

EQUIPMENT NOT IN CONTRACT TYP.

RECORD DRAWINGS
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MALCOLM PIRNIE, INC.
Date 10/89 By RAH

- NOTES:
1. SUBSTATION VENDOR SHALL PROVIDE THRU-WALL BARRIER BETWEEN PRIMARY SWITCH COMPARTMENTS FOR HIGH VOLTAGE CABLE CONNECTIONS BETWEEN SWITCHES. REFER TO DWG. E2 FOR CABLE REQUIREMENTS. PROVIDE 1" INSULATING BUSHING BETWEEN SWITCH COMPARTMENTS FOR STATUS WIRING.
 2. SUBSTATION VENDOR SHALL MAKE PROVISIONS TO ACCEPT REMOTE 120V SUPPLY FOR PRIMARY SWITCH COMPARTMENT SPACE HEATERS.
 3. SUBSTATION VENDOR SHALL PROVIDE NORMALLY OPEN AUXILIARY CONTACT FROM MCC CKT. BREAKERS IN ADDITION TO STATUS REQUIREMENTS, FOR GENERATOR START SIGNAL INTERLOCK.

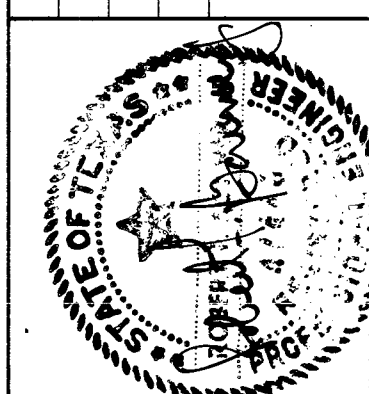


STANDBY SWITCHBOARD NO. 2A
FRONT VIEW

App. Drawing No.
410N-84.331-0

Revisions
No. Date

Date: APRIL 1984
Designed by: FS
Drawn by: FS
Checked by: CA
Scale: AS NOTED



WATER
RESOURCES
ENGINEERS
IMPROVEMENTS

SAN ANTONIO

CONTRACT NO. 2

DOS RIOS FACILITY

GENERAL

SUBSTATION # 7 & # 8

Sheet of
E-6
E-65



DR 84-6501

Revisions

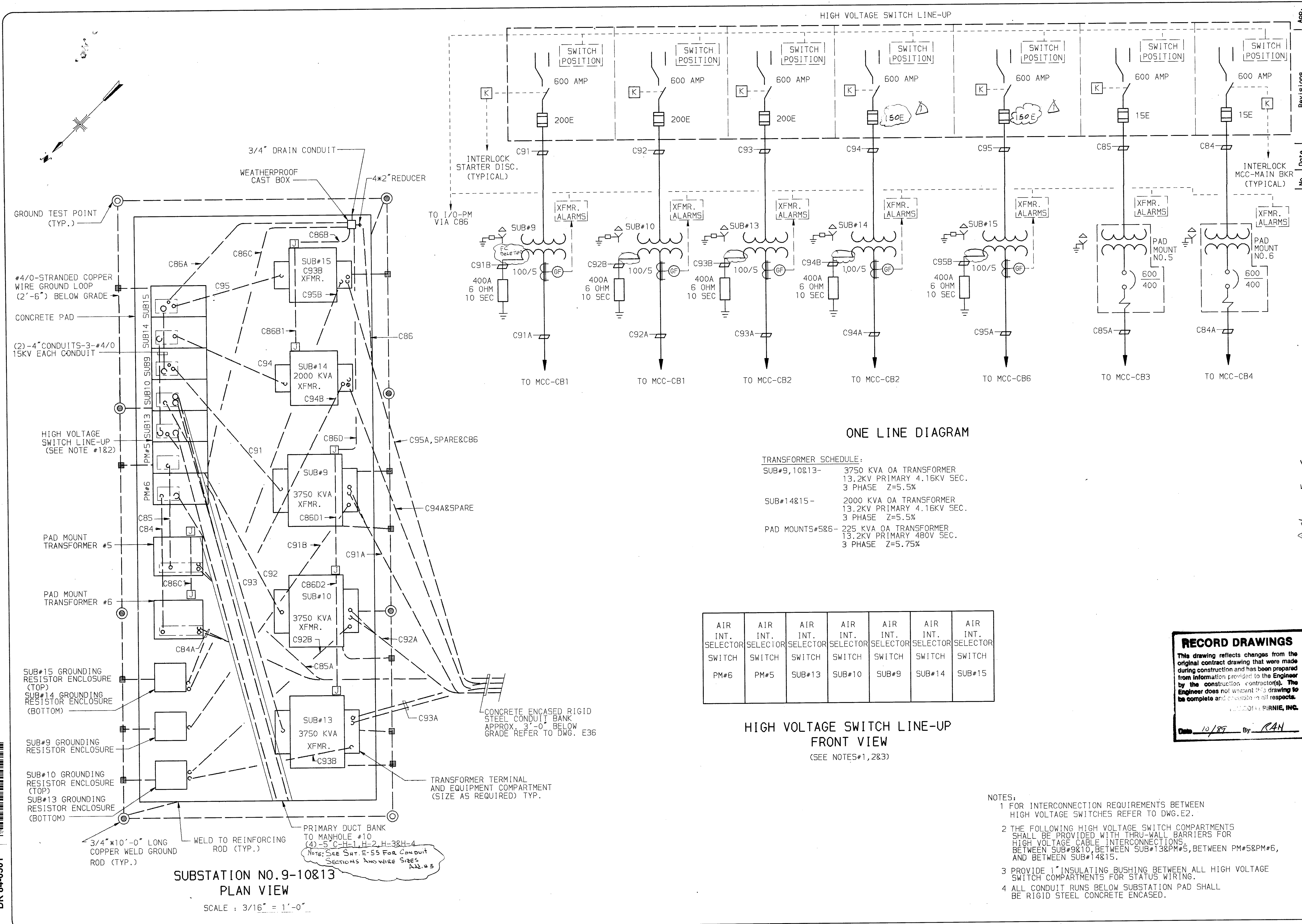
No. Date

Date APRIL 1984
 Designed by FS
 Drawn by FS
 Checked by [Signature]
 Scale AS NOTED

WARRANTED FACILITIES IMPROVEMENTS
 SAIA ANTONIO

CONTRACT NO. 2
 DOS RIOS FACILITY
 GENERAL
 SUBSTATION NO. 9, 10, 13, 14&15

Sheet E-7 of E-65



SUBSTATION NO. 9-10&13
 PLAN VIEW
 SCALE: 3/16" = 1'-0"

ONE LINE DIAGRAM

TRANSFORMER SCHEDULE:

SUB#9, 10&13-	3750 KVA OA TRANSFORMER 13.2KV PRIMARY 4.16KV SEC. 3 PHASE Z=5.5%
SUB#14&15-	2000 KVA OA TRANSFORMER 13.2KV PRIMARY 4.16KV SEC. 3 PHASE Z=5.5%
PAD MOUNTS#5&6-	225 KVA OA TRANSFORMER 13.2KV PRIMARY 480V SEC. 3 PHASE Z=5.75%

AIR INT. SELECTOR SWITCH	AIR INT. SELECTOR SWITCH	AIR INT. SELECTOR SWITCH	AIR INT. SELECTOR SWITCH	AIR INT. SELECTOR SWITCH	AIR INT. SELECTOR SWITCH	AIR INT. SELECTOR SWITCH
PM#6	PM#5	SUB#13	SUB#10	SUB#9	SUB#14	SUB#15

HIGH VOLTAGE SWITCH LINE-UP
 FRONT VIEW
 (SEE NOTES#1, 2&3)

RECORD DRAWINGS
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 Date 10/87 By RAN

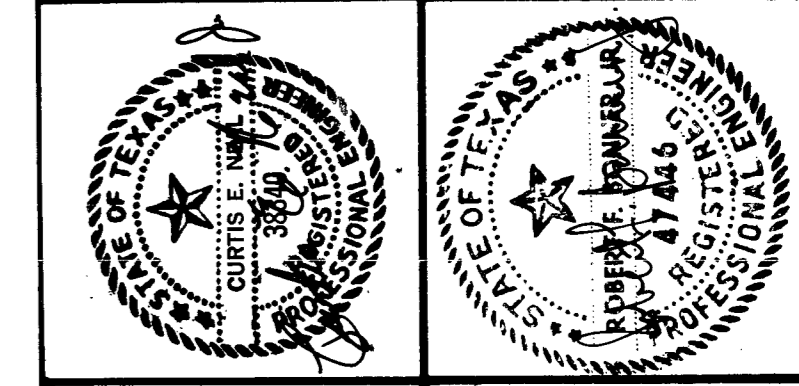
- NOTES:
- 1 FOR INTERCONNECTION REQUIREMENTS BETWEEN HIGH VOLTAGE SWITCHES REFER TO DWG.E2.
 - 2 THE FOLLOWING HIGH VOLTAGE SWITCH COMPARTMENTS SHALL BE PROVIDED WITH THRU-WALL BARRIERS FOR HIGH VOLTAGE CABLE INTERCONNECTIONS: BETWEEN SUB#9&10, BETWEEN SUB#13&PM#5, BETWEEN PM#5&PM#6, AND BETWEEN SUB#14&15.
 - 3 PROVIDE 1" INSULATING BUSHING BETWEEN ALL HIGH VOLTAGE SWITCH COMPARTMENTS FOR STATUS WIRING.
 - 4 ALL CONDUIT RUNS BELOW SUBSTATION PAD SHALL BE RIGID STEEL CONCRETE ENCASED.

DR 84-6501

No.	Date	Revisions

CNA
CURTIS NEAL & ASSOCIATES, INC.
CONSULTING ENGINEERS
SAN ANTONIO, TEXAS 78205

Date: APRIL 1984
Designed by: H.R.
Drawn by: R.M.
Checked by: J.C.E.N.
Scale: 1/4" = 1'-0"

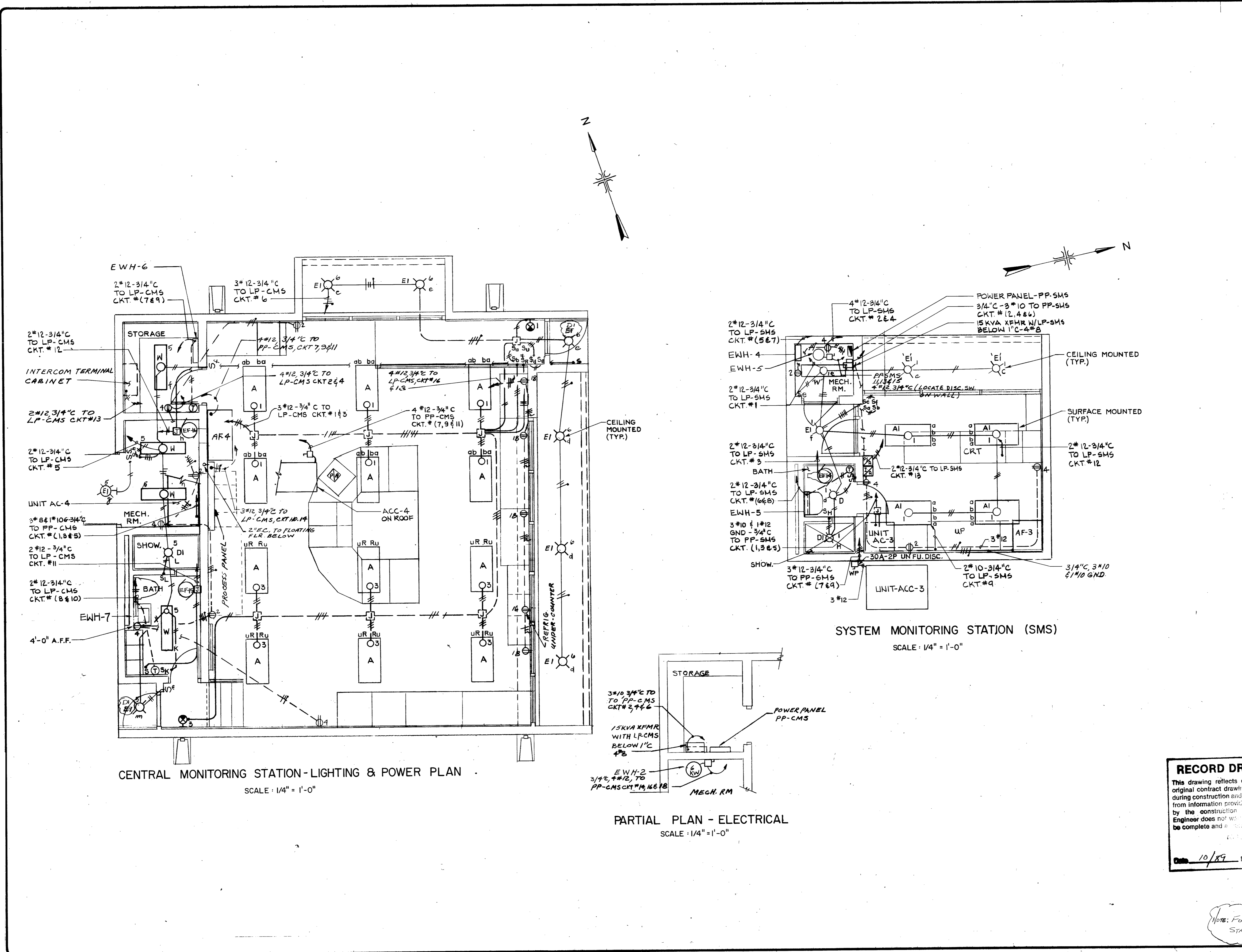


WASTEWATER
FACILITIES
IMPROVEMENTS

San Antonio

CONTRACT NO. 2
DOS RIOS FACILITY
GENERAL
CENTRAL & 1ST STAGE MONITORING BLDGS.
LIGHTING & POWER PLAN

Sheet F-8
of F-65



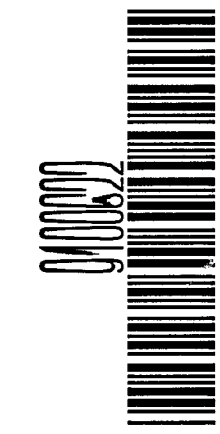
CENTRAL MONITORING STATION - LIGHTING & POWER PLAN
SCALE: 1/4" = 1'-0"

PARTIAL PLAN - ELECTRICAL
SCALE: 1/4" = 1'-0"

SYSTEM MONITORING STATION (SMS)
SCALE: 1/4" = 1'-0"

RECORD DRAWINGS
This drawing reflects changes from the original contract drawing that were made during construction and has been prepared from information provided to the Engineer by the construction superintendent. The Engineer does not warrant the accuracy to be complete and correct for all projects.
CNA CONSULTING ENGINEERS, INC.
Date: 10/89 By: RAN

NOTE: FOR LOCATION OF THE MONITORING STATIONS SEE DRAWING E-23 ALL #2



DR 84-6501

DR 84-6501



610023

CONDUIT				CABLE				FROM	VIA	TO	PURPOSE	REMARKS	CONDUIT				CABLE				FROM	VIA	TO	PURPOSE	REMARKS
NO.	SIZE IN.	QTY.	SIZE	NO.	SIZE IN.	QTY.	SIZE						NO.	SIZE IN.	QTY.	SIZE	NO.	SIZE IN.	QTY.	SIZE					
C5	(2)	- 3	6	500 MCM	SUBSTATION #1			MCC-RS-1		POWER	(SEE NOTE	C801	2	3	6	MCC-CAB2		CHANNEL BLWR. MTR. #3		POWER		5-KV			
C6	(3)	- 3	9	2/0	SUBSTATION #1			MCC-RS-1		GROUND	(SEE NOTE	C81A	1	14	14	MCC-CAB2		CHANNEL BLWR. MTR. #3		GND.		600V			
C7	(2)	- 3	6	500 MCM	SUBSTATION #2			MCC-RS-2		POWER	(SEE NOTE	C81B	3/4	3	14	MCC-CAB2		JUNCTION BOX		CONTROL		SPACE HEATER 0			
C18	(3)	- 3	9	500 MCM	SUBSTATION #2			MCC-RS-2A		POWER	(SEE NOTE	C81C	3/4	11	14	JUNCTION BOX		VIBRATION SWITCH		CONTROL					
C19	(3)	- 3	9	2/0	SUBSTATION #2			MCC-FT-1		GROUND	(SEE NOTE	C81D	3/4	4	14	JUNCTION BOX		LOW-LOAD PANEL		CONTROL					
C26	(3)	- 4	9	500 MCM	SUBSTATION #5			MCC-FT-1		POWER	(SEE NOTE	C83	3	30	14	MCC-CAB2		MOTOR TERMINAL BOX		CONTROL					
C27	(3)	- 4	9	1/0	SUBSTATION #5			MCC-FT-1		GROUND	(SEE NOTE	C84	3	3	2			RSFN PANEL		STATUS		15 KV			
C28	(3)	- 3	9	500 MCM	SUBSTATION #6			MCC-FT-2		POWER	(SEE NOTE	C84A	2-3	6	350	HV-SWITCH LINEUP		PAD MTG. XFMR #6		POWER					
C29	(3)	- 3	9	1/0	SUBSTATION #6			MCC-FT-2		GROUND	(SEE NOTE	C85	3	3	2			MCC-CB4		POWER					
C30(2)	- 3	-	-	750 MCM	SUBSTATION #7			L.V. SWBD.		POWER	PARALLEL FEED	C85A	2-3	6	350	HV-SWITCH LINEUP		PAD MTG. XFMR #5		POWER					
C31(2)	- 3	-	-	4/0	SUBSTATION #7			L.B. SWBD.		GROUND	PARALLEL FEED	C86	4	28	14			MCC-CB3		POWER					
C36	3	3	3	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C86B	3/4	14	14			MCC-CB3		GND.					
C37	3	3	3	500 MCM	SUBSTATION #8			L.V. SWBD.		GROUND	PARALLEL FEED	C86B1	3/4	6	14			MCC-CB3		STATUS					
C40	(2)	- 3	6	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C86C	3/4	8	14			MCC-CB3		GND.					
C41D	3	12	12	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C86C1	3/4	4	14			MCC-CB3		STATUS					
C43	2	24	24	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C86D	1	18	14			MCC-CB3		STATUS					
C44	3	-	-	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C86D1	3/4	12	14			MCC-CB3		STATUS					
C45	(3)	- 3	9	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C86D2	3/4	6	14			MCC-CB3		STATUS					
C46	(3)	- 3	9	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C89	3/4	10	14			MCC-CB3		STATUS					
C47	1	12	12	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C90	1	22	14			MCC-CB3		STATUS & ALARM					
C47A	3/4	2	12	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C90A	3/4	5	14			MCC-CB3		STATUS & ALARM					
C48	1	12	12	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C90A1	3/4	5	14			MCC-CB3		STATUS & ALARM					
C48A	3/4	2	12	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C90A2	3/4	4	14			MCC-CB3		STATUS & ALARM					
C49	2	-	-	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C90B	1-1/4	18	14			MCC-CB3		STATUS & ALARM					
C60	(3)	- 3	9	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C90C	1(5)-2/C	18 SH				MCC-CB3		STATUS & ALARM					
C61	1-1/4	25	25	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C91	4	3	4/0			MCC-CB3		STATUS & ALARM					
C62	3/4	8	8	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C91A	2-4	5	500			MCC-CB3		STATUS & ALARM					
C63	3/4	2	2	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C91B	2	1	500			MCC-CB3		STATUS & ALARM					
C64	3/4	2	2	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C92	4	3	4/0			MCC-CB3		STATUS & ALARM					
C64A	3/4	4	4	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C92A	2-4	6	500			MCC-CB3		STATUS & ALARM					
C64A1	3/4	2	12	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C92B	2	1	500			MCC-CB3		STATUS & ALARM					
C64A2	3/4	2	12	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C93	4	3	4/0			MCC-CB3		STATUS & ALARM					
C65	(3)	- 3	9	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C93A	2-4	6	500			MCC-CB3		STATUS & ALARM					
C66	1-1/4	25	25	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C93B	2	1	500			MCC-CB3		STATUS & ALARM					
C67	3/4	8	8	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C93C	2	1	500			MCC-CB3		STATUS & ALARM					
C68	3/4	2	2	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C94	4	3	500			MCC-CB3		STATUS & ALARM					
C69	3/4	2	2	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C94A	4	3	500			MCC-CB3		STATUS & ALARM					
C69A	3/4	4	4	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C94B	2	1	500			MCC-CB3		STATUS & ALARM					
C69A1	3/4	2	12	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C95	4	3	4/0			MCC-CB3		STATUS & ALARM					
C69A2	3/4	2	12	500 MCM	SUBSTATION #8			L.V. SWBD.		POWER	PARALLEL FEED	C95A	4	3	500			MCC-CB3		STATUS & ALARM					
C75	5	3	6	500 MCM	SUBSTATION #11			L.V. SWBD.		POWER	PARALLEL FEED	C95B	2	1	500			MCC-CB3		STATUS & ALARM					
C76	5	3	2	500 MCM	SUBSTATION #11			L.V. SWBD.		POWER	PARALLEL FEED	C234	3	3	500.			MCC-B		POWER					
C77	5	4	12	500 MCM	SUBSTATION #11			L.V. SWBD.		POWER	PARALLEL FEED							MCC-B		GND.					
C79	2	3	6	500 MCM	SUBSTATION #11			L.V. SWBD.		POWER	PARALLEL FEED							MCC-B		GND.					
C79A	1	14	14	500 MCM	SUBSTATION #11			L.V. SWBD.		POWER	PARALLEL FEED							MCC-B		GND.					
C79B	3/4	3	14	500 MCM	SUBSTATION #11			L.V. SWBD.		POWER	PARALLEL FEED							MCC-B		GND.					
C79C	3/4	11	14	500 MCM	SUBSTATION #11			L.V. SWBD.		POWER	PARALLEL FEED							MCC-B		GND.					
C79D	3/4	4	14	500 MCM	SUBSTATION #11			L.V. SWBD.		POWER	PARALLEL FEED							MCC-B		GND.					
C80	2	3	6	500 MCM	SUBSTATION #11			L.V. SWBD.		POWER	PARALLEL FEED							MCC-B		GND.					
C80A	1	1	10	500 MCM	SUBSTATION #11			L.V. SWBD.		POWER	PARALLEL FEED							MCC-B		GND.					
C80B	3/4	3	14	500 MCM	SUBSTATION #11			L.V. SWBD.		POWER	PARALLEL FEED							MCC-B		GND.					
C80C	3/4	11	14	500 MCM	SUBSTATION #11			L.V. SWBD.		POWER	PARALLEL FEED							MCC-B		GND.					
C80D	3/4	4	14	500 MCM	SUBSTATION #11			L.V. SWBD.		POWER	PARALLEL FEED							MCC-B		GND.					

REVISED - SEE E-9A.

RECORD DRAWINGS
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 Date 10/89 By RAH

App. Drawing No. 410N-84.334-0

Revisions

Date APRIL 1984

Designed by

Drawn by

Checked by

Scale NO SCALE

WATERLOO FACILITIES IMPROVEMENTS

SAI AUTON

CONTRACT NO.2

DOS RIOS FACILITY

GENERAL

CONDUIT & CABLE SCHEDULE

Sheet F-9

of F-65

CKT NO	TRIP	DESCRIPTION OF LOAD	LOAD KVA	KVA PER PHASE			LOAD KVA	DESCRIPTION OF LOAD	TRIP	CKT NO
				A	B	C				
1	3P	AC-3 & AF-3	5.42	10.4			5.0	15 KVA XFMR FOR 120/208V PANEL	25	2
			5.42		10.4		5.0			
			5.42			10.4	5.0			
7	2P	ACC-3	0.58	1.58			1.0	SEWAGE PUM STATION NO. 2B	20	8
			0.58		1.58		1.0			
11	3P	EWH-5	2.0				3.0	CONTROL PANEL	20	14
			2.0	2.0						
			2.0		2.0					
17							SPARE		3P	
POWER PNL. - SMS - BSF LOCATED IN SYSTEM MONITORING STA. -BSF			TOTAL KVA	14.0	14.0	13.4	SERVICE CHARACTERISTICS: 480V, 3Ø, 3 WIRE, 60HZ 100A - MAIN LUGS - PROVIDE GND BUS			
			GRAND CONNECTED TOTAL KVA	41.4						

CKT NO	TRIP	DESCRIPTION OF LOAD	LOAD KVA	KVA PER PHASE			LOAD KVA	DESCRIPTION OF LOAD	TRIP	CKT NO
				A	B	C				
1	20	MONITORING STA. - LIGHTING	1.3	1.66			0.36	MONITORING STA. - RECEPT.	20	2
3	15	EXHAUST FAN EF-14	0.15		0.69		0.54	MONITORING STA. - RECEPT.	20	4
5	2P	ELECTRIC WALL HEATER EWH-4	1.0			1.25	0.25	ELECTRIC WALL HEATER	15	6
			1.0	1.25			0.25			
9	30	PWR. SUPPLY AT µP	2.88			2.88		SPARE	15	10
11	20	SPARE					1.9	CRT	20	12
13	20	INTERCOM SUPPLY	0.50	0.50				SPARE	15	14
15	20	SPARE						SPARE	15	16
17	20	SPARE						SPARE	15	18
LIGHTING PNL. - SMS - BSF LOCATED IN SYSTEM MONITORING STA. - BSF			TOTAL KVA	3.4	3.57	3.15	SERVICE CHARACTERISTICS: 208/120V, 3PH, 4 WIRE, 60HZ 100/50AMP MAIN BKR., PROVIDE GND BUS			
			GRAND CONNECTED TOTAL KVA	10.1						

CKT NO	TRIP	DESCRIPTION OF LOAD	LOAD KVA	KVA PER PHASE			LOAD KVA	DESCRIPTION OF LOAD	TRIP	CKT NO
				A	B	C				
1	50 3P	AC-4	10.2	15.2			5.0	15KVA XFMR FOR 120/208V PANEL	25	2
			10.2		15.2		5.0			
			10.2			15.2	5.0			
7	3P	ACC-4 & AF-4	2.04	3.04			1.0	SEWAGE PUMP STATION NO. 2A	25	8
			2.04		3.04		1.0			
			2.04			2.2	1.0			
13	2P	15 KVA LINE CONDITIONER EQUIP.	7.5	9.5			2.0	EWH-2	15	14
			7.5		9.5		2.0			
						2.0	2.0			
17	20	4 HALON SYSTEM				2.0		3P		
POWER PANEL - CMS LOCATED IN CENTRAL MONITORING STATION			TOTAL KVA	27.7	27.7	19.4	SERVICE CHARACTERISTICS: 480V, 3Ø, 3 WIRE, 60HZ 225A - MAIN LUGS - PROVIDE GND BUS			
			GRAND CONNECTED TOTAL KVA	74.8						

CKT NO	TRIP	DESCRIPTION OF LOAD	LOAD KVA	KVA PER PHASE			LOAD KVA	DESCRIPTION OF LOAD	TRIP	CKT NO
				A	B	C				
1	20	STATION - LIGHTING	1.05	1.77			0.72	STATION RECEPTACLES	20	2
3	20	STATION - LIGHTING	1.2		2.1		0.80	STATION RECEPTACLES	20	4
5	20	PERIMETER STA. LIGHTING	0.91			1.78	0.87	PERIMETER STA. LIGHTING	20	6
7	2P	ELECTRIC WALL HEATER EWH-6	0.25	0.63			0.38	ELECTRIC WALL HEATER	15	8
			0.25		0.63		0.38			
11	15	EXHAUST FAN EF-15	0.20			1.06	EXHAUST FAN EF-16	20	12	
13	20	INTERCOM TERMINAL CABINET	0.50	1.1			.6	PROCESS PANEL	20	14
15	20	SPARE				.72	UNDER-COUNTER REFRIG.	20	16	
17	15	SPARE				.72	RECEPTACLES, EAST WALL	15	18	
LIGHTING PNL - CMS LOCATED IN CENTRAL MONITORING STATION			TOTAL KVA	3.5	3.45	3.56	SERVICE CHARACTERISTICS: 120/208V, 3Ø, 4 WIRE, 60HZ 100/50A MAIN CKT. BKR. PROVIDE GND BUS			
			GRAND CONNECTED TOTAL KVA	10.5						

CKT NO	TRIP	DESCRIPTION OF LOAD	LOAD KVA	KVA PER PHASE			LOAD KVA	DESCRIPTION OF LOAD	TRIP	CKT NO
				A	B	C				
1	30	COMPRESSOR #1 LOCAL PANEL	1.0	2.0			1.0	COMPRESSOR #5 LOCAL PANEL	30	2
3	30	COMPRESSOR #3 LOCAL PANEL	1.0		1.2		0.20	SMOKE DETN. CONTROL CKT.	15	4
5	15	EXHAUST FAN EF-1	0.16			1.16	1.0	AIR FILTER #1 CONTROL BOX	20	6
7	15	EXHAUST FAN EF-22	0.15	0.65			0.50	AIR FILTER #1 POWER PACK	20	8
9	15	EXHAUST FAN EF-23	0.16		1.16		1.0	AIR FILTER #3 CONTROL BOX	20	10
11	20	AIR FILTER #5 POWER PACK	0.50			1.0	0.50	AIR FILTER #3 POWER PACK	20	12
13	20	AIR FILTER #5 CONTROL BOX	1.0	1.0				SPARE	20	14
15	20	SPARE						SPARE	20	16
17	20	SPARE						SPARE	20	18
19	2P	LTG-CONSTANT CIRCUIT UPPER & LOWER	1.44	2.97			1.53	LTG-COMP. ROOM-AISLE	20	20
			1.44		2.97		1.53			
23	2P	GENERAL LTG. UPPER LEVEL	1.68			2.8	1.12	GENERAL LTG.	20	24
			1.68	2.8			1.12			
27	2P	GENERAL LTG. UPPER LEVEL	1.37		2.33		0.96	GENERAL LTG.	20	28
			1.37			2.33	0.96			
31	20	LTG-CONTROL ROOM	0.80	1.34			0.54	EMER. BATTY. UNITS & EX. SIGN	15	32
33	20	RECEPTS-CONTROL ROOM	0.60		1.4		0.80	LTG-TOILET, JAN & STORAGE	20	34
35	15	SPARE				0.18	0.18	EXTERIOR LTG-TYPE E	20	36
37	15	SPARE						SPARE	20	38
39	20	SPARE						SPARE	20	40
41	20	SPARE						SPARE	20	42
LIGHTING PANEL - CB1 LOCATED IN COMPRESSOR BLDG. UPPER LEVEL			TOTAL KVA	10.76	9.06	7.47	SERVICE CHARACTERISTICS: 120/208V, 3Ø, 4W, 60HZ 100/100 AMP MAIN BKR. PROVIDE GND. BUS.			
			GRAND CONNECTED TOTAL KVA	27.3						

NOTE: CKT#32 PROVIDE LOCK-ON

CKT NO	TRIP	DESCRIPTION OF LOAD	LOAD KVA	KVA PER PHASE			LOAD KVA	DESCRIPTION OF LOAD	TRIP	CKT NO
				A	B	C				
1	30	COMPRESSOR #2 LOCAL PANEL	1.0	2.0			1.0	COMPRESSOR #4 LOCAL PANEL	30	2
3	15	INTERCOM POWER SUPPLY	0.50		1.0		0.50	I/O - PM PANEL	20	4
5	2P	ELECTRIC WALL HEATER EWH#1	1.0			1.50	0.50	ELECTRIC WALL HEATER	15	6
			1.0	1.50			0.50			
9	20	AIR FILTER #2 CONTROL BOX	1.0		1.50		0.50	ELECTRIC WALL HEATER	15	10
11	20	AIR FILTER #2 POWER PACK	0.50			1.0	0.50	EWH#8	2P	14
13	20	SPARE						SPARE	20	16
15	20	SPARE			0.50		0.50	AIR FILTER #4 POWER PACK	20	18
17	20	SPARE				1.0	1.0	AIR FILTER #4 CONTROL BOX	20	20
19	2P	LTG-CONSTANT CIRCUIT UPPER & LOWER	1.44	2.97			1.53	LTG-COMP. ROOM-AISLE	20	20
			1.44		2.97		1.53			
23	20	RECEPTS-UPPER LEVEL	1.26			2.06	0.80	LTG-CONTROL ROOM	20	24
25	20	RECEPTS-UPPER LEVEL	1.08	1.68			0.60	RECEPTS-CONTROL ROOM	20	26
27	20	RECEPTS-LOWER LEVEL	0.90		0.90			SPARE	20	28
29	20	RECEPTS-LOWER LEVEL	1.08			1.08		SPARE	20	30
31	15	SPARE						SPARE	20	32
33	15	SPARE						SPARE	20	34
35	15	SPARE						SPARE	20	36
37		BLANK						BLANK		38
39		BLANK						BLANK		40
41		BLANK						BLANK		42
LIGHTING PANEL-CB2 LOCATED IN COMPRESSOR BLDG. UPPER LEVEL			TOTAL KVA	8.15	6.87	6.64	SERVICE CHARACTERISTICS: 120/208V, 3Ø, 4W, 60HZ 100/100 AMP MAIN BKR. PROVIDE GND. BUS.			
			GRAND CONNECTED TOTAL KVA	21.7						

RECORD DRAWINGS
This drawing reflects changes from the original contract drawing that were made during construction. It has been prepared from information furnished to the Engineer by the construction contractor. The Engineer does not warrant or agree to be complete and accurate in all respects.

Date: 10/89 By: RAN

DR 84-6501

App. Drawing No. 410N-84.335-0

Added HALON SYSTEM

Revisions

Malcolm Pirnie

Date APRIL 1984
Designed by
Drawn by
Checked by
Scale

WESTWOOD FACILITIES IMPROVEMENTS

San Antonio

CONTRACT NO. 2
DOS RIOS FACILITY
GENERAL
PANEL SCHEDULES

Sheet E-10
of E-65

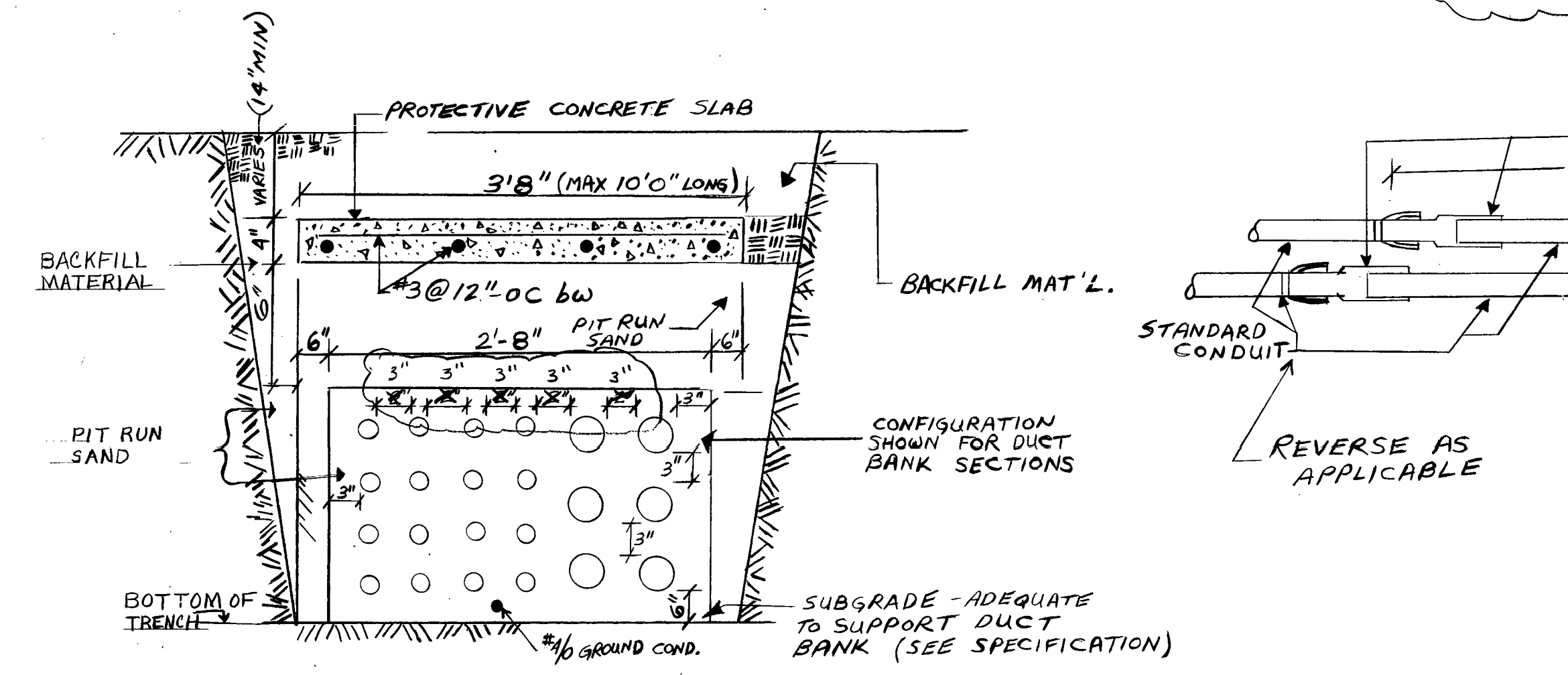
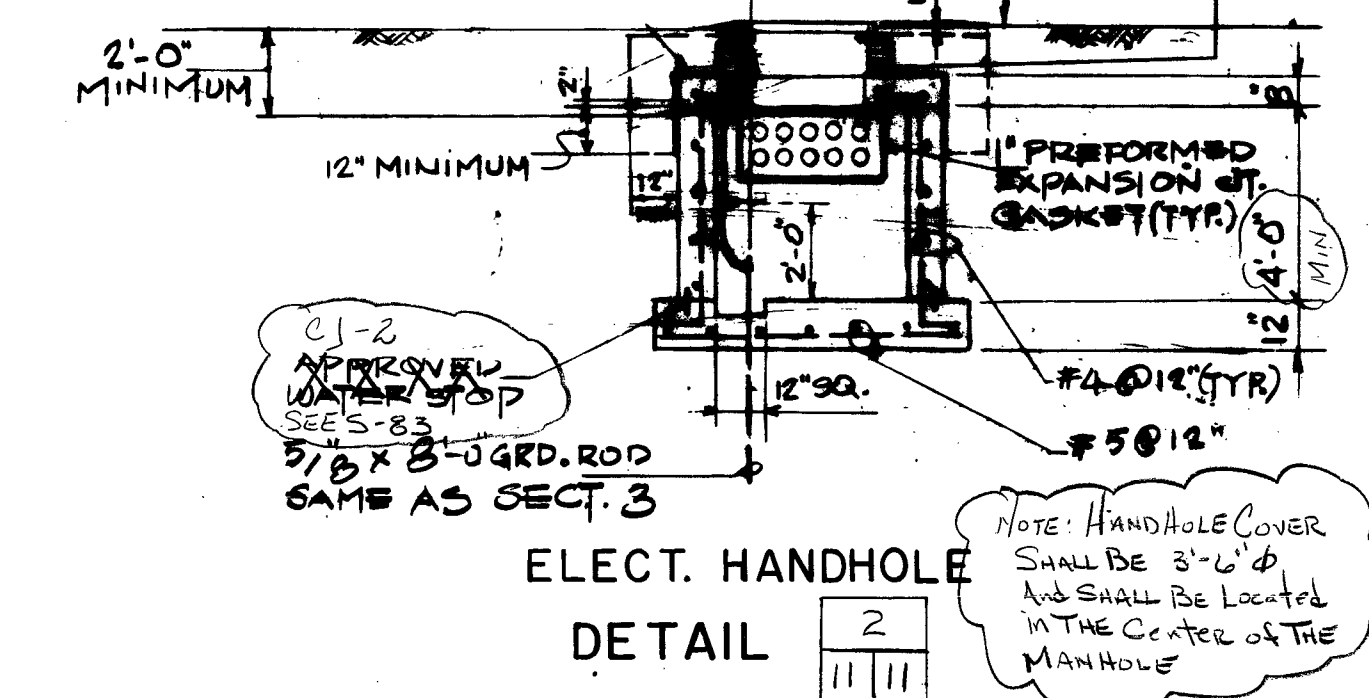
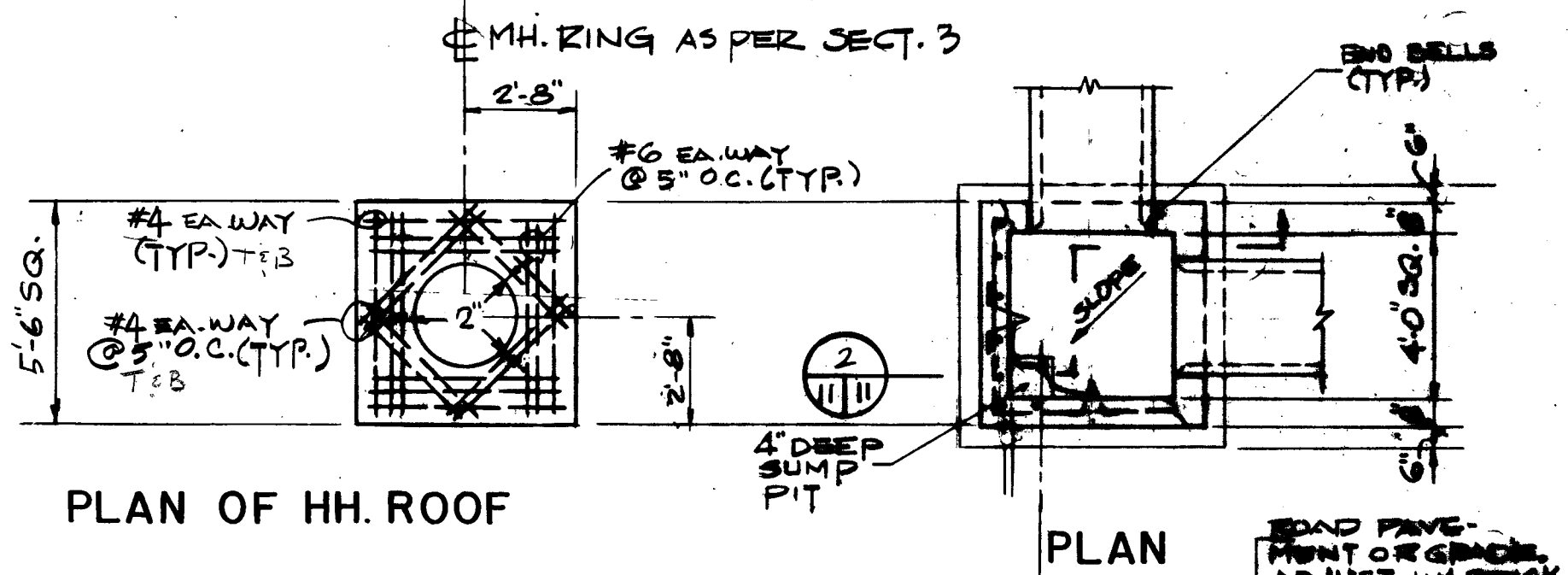
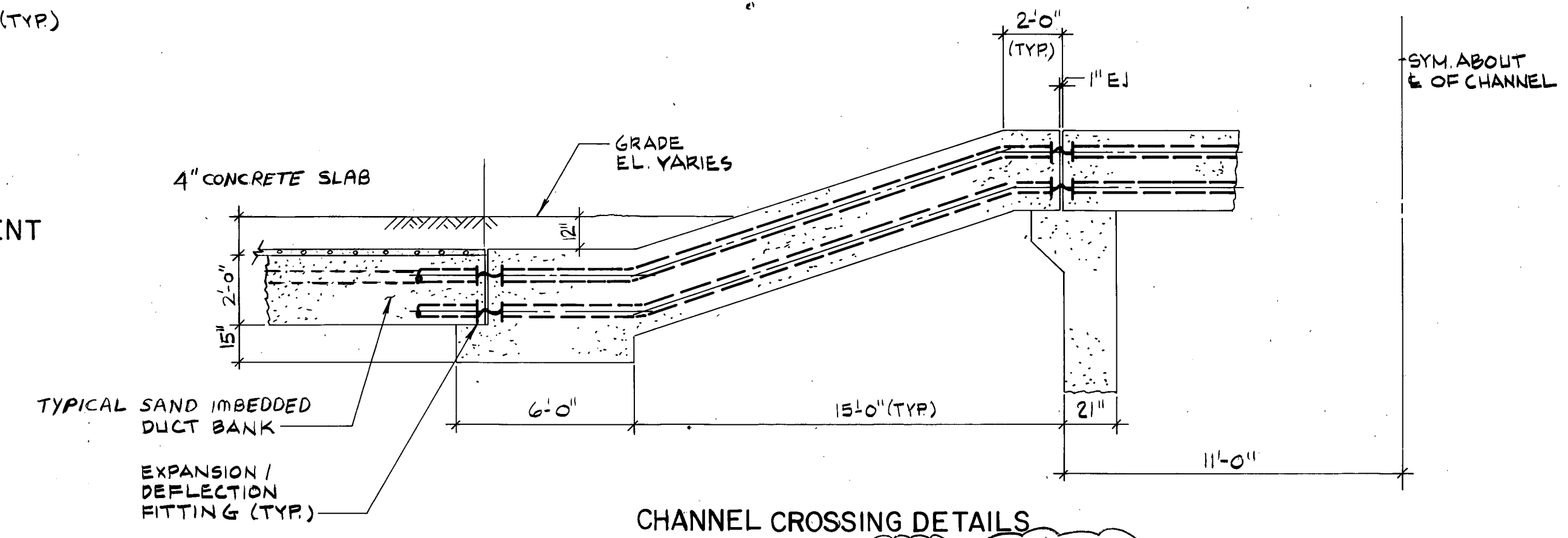
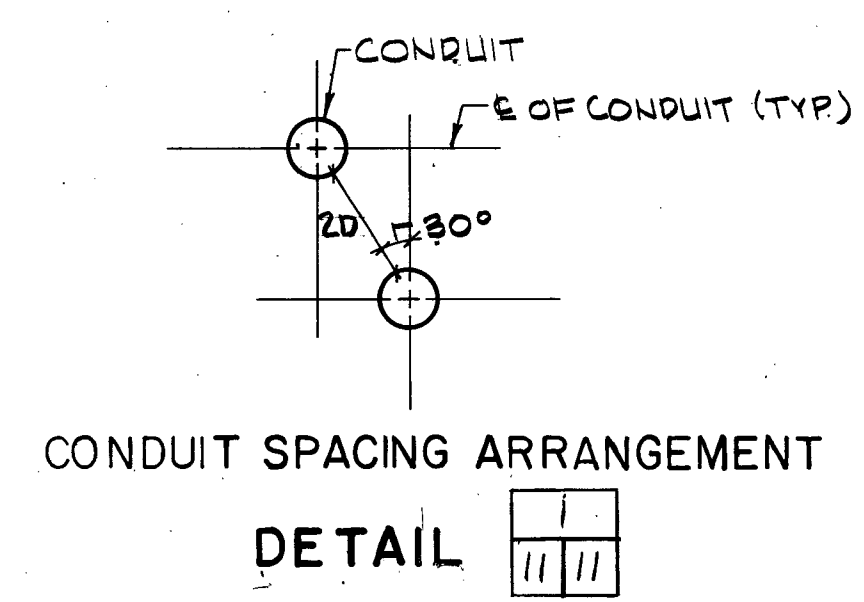
MALCOLM PIRNIE

CIA
CURTIS NEAL & ASSOCIATES, INC.
CONSULTING ENGINEERS
1167 E. COMMERCIAL
SAN ANTONIO, TEXAS 78204

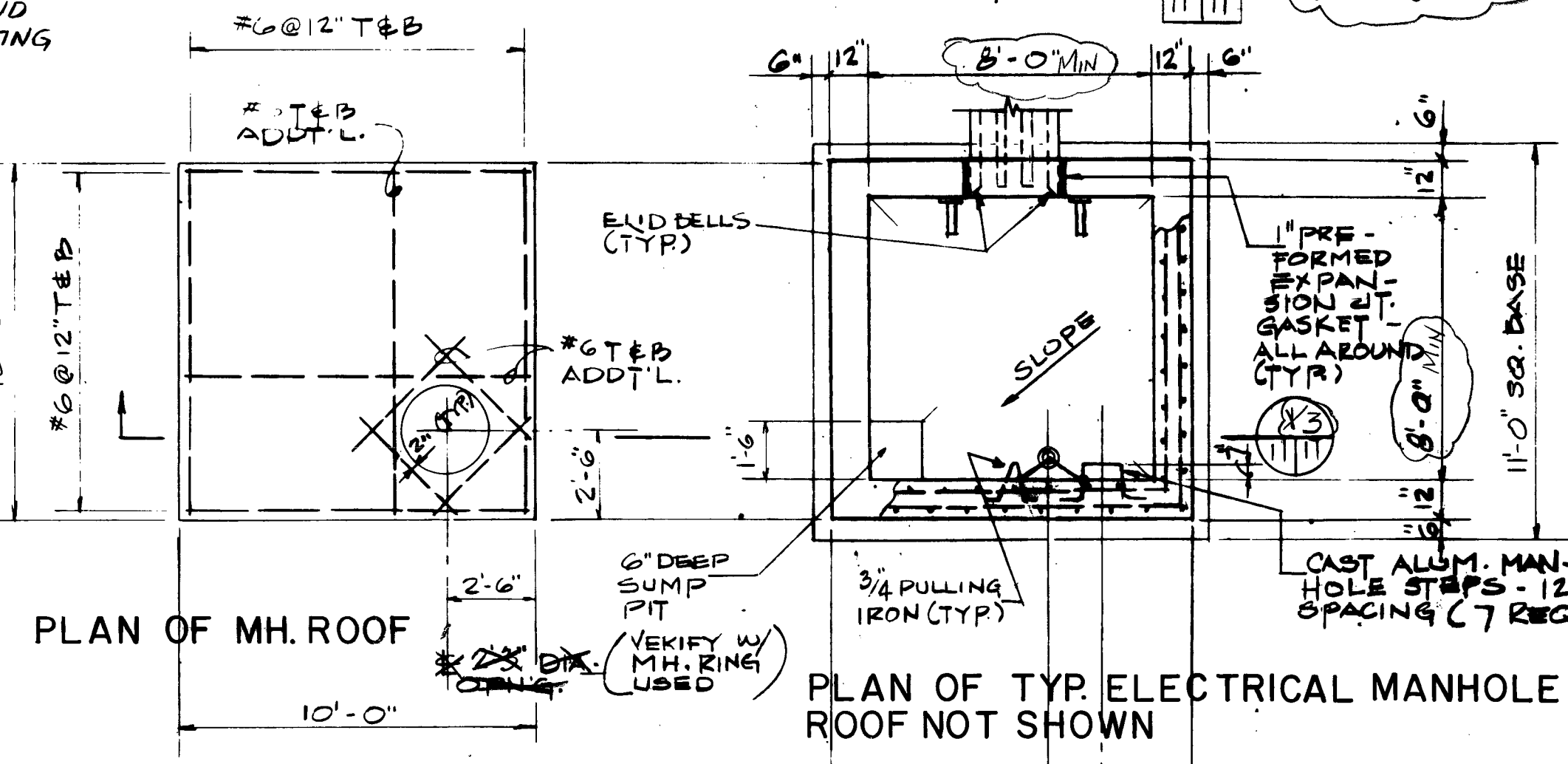


WASTERWATER
FACILITIES
IMPROVEMENTS
SAN ANTONIO

DOS RIOS FACILITY
GENERAL
DUCT BANK MANHOLE & HANDHOLE DETAILS

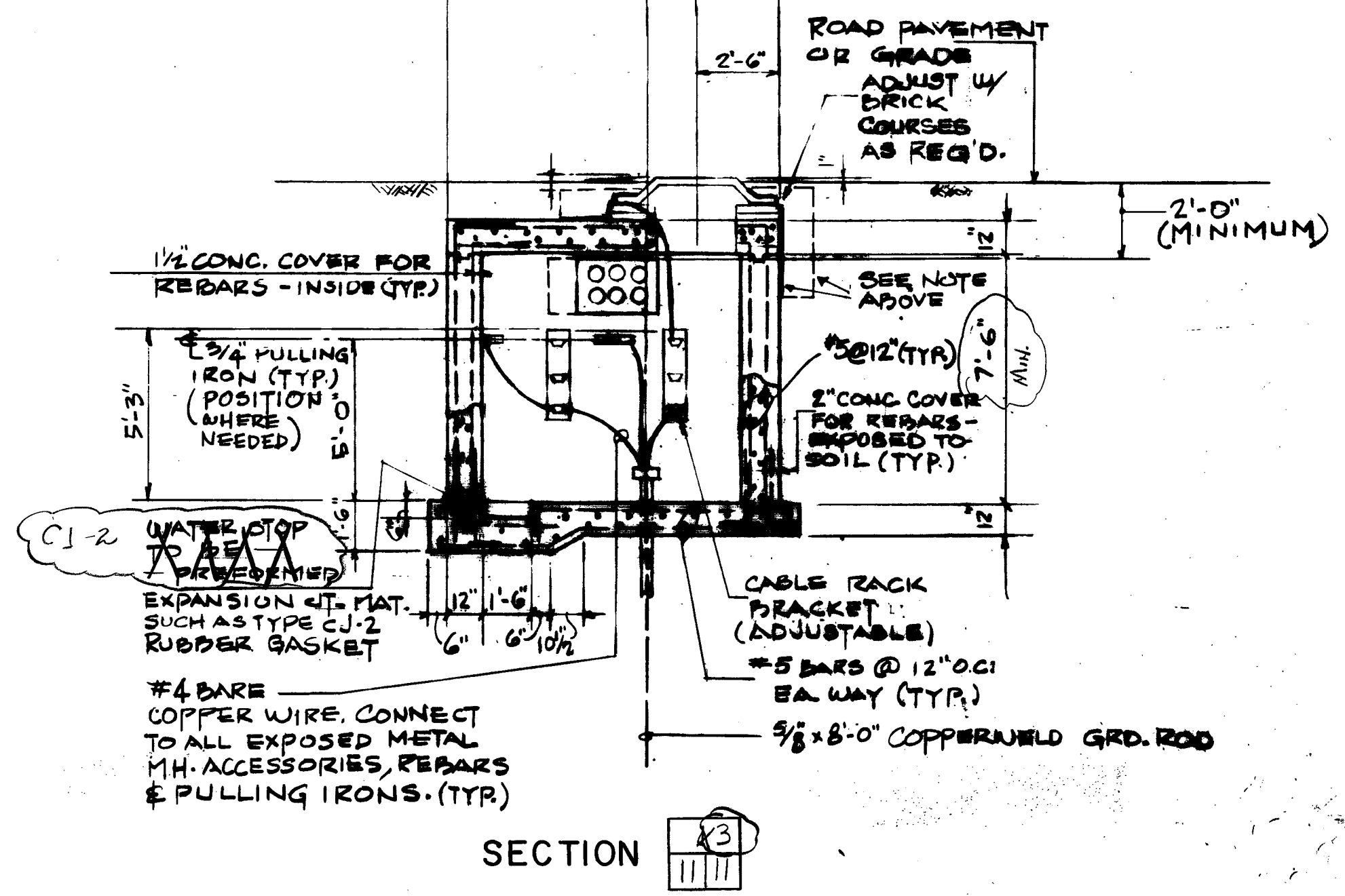
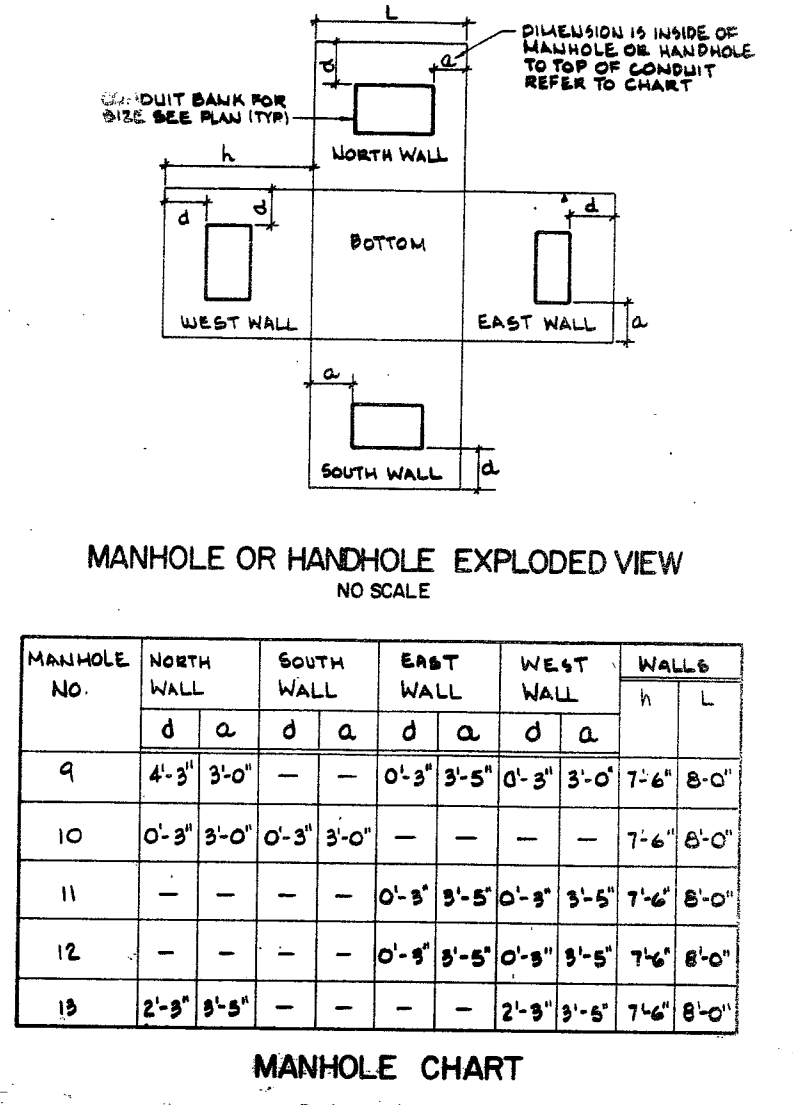


RECORD DRAWINGS
This drawing reflects changes from the original contract drawing that were made during construction and has been prepared from information provided to the Engineer by the construction contractor(s). The Engineer does not warrant this drawing to be complete and accurate in all respects.
MALCOLM PIRNIE, INC.
Date 10/89 By RAN



NOTE: SPARE CONDUITS SHOWN ON SECTIONS SHALL BE AS FOLLOWS:
PRIMARY DUCTS (15 AND 5KV FEEDERS) ARE ALL 5" DUCTS
SECONDARY DUCTS ARE ALL 3" UNLESS OTHERWISE NOTED
OR ADJACENT TO SMALLER DUCTS IN TIER OR ROW OF DUCT BANK WHERE SPARE DUCT SHALL BE THE SAME SIZE AS THE LARGEST OF THE ADJACENT DUCTS.
NOTE: PROVIDE ADDITIONAL REINFORCING AROUND DUCT BANK OPENINGS IN MANHOLE AND HANDHOLE WALLS AS SHOWN ON DRAWING S-83.

HANDHOLE NO.	NORTH WALL		SOUTH WALL		EAST WALL		WEST WALL		WALLS	
	d	a	d	a	d	a	d	a	H	L
12	-	-	0'-0"	0'-0"	2'-0"	0'-4"	-	-	4'-0"	4'-0"
14	1'-0"	3'-6"	*	-	0'-0"	1'-8"	-	-	7'-6"	8'-0"
15	0'-9"	1'-7"	0'-9"	-	0'-9"	1'-8"	0'-9"	-	4'-0"	8'-0"
17	2'-4"	1'-6"	-	-	2'-4"	0'-10"	0'-9"	0'-9"	4'-0"	4'-0"
18	0'-9"	1'-0"	0'-9"	-	-	0'-9"	1'-2"	4'-0"	4'-0"	
19	4'-6"	2'-4"	-	-	-	0'-9"	1'-5"	4'-0"	8'-0"	
22	0'-9"	1'-5"	-	-	-	0'-9"	1'-5"	4'-0"	4'-0"	
23	-	-	-	-	4'	1'-5"	0'-9"	1'-5"	4'-0"	4'-0"
24	0'-9"	1'-6"	-	-	0'-9"	1'-5"	0'-9"	1'-0"	4'-0"	4'-0"
25	-	-	-	-	0'-9"	1'-0"	0'-9"	1'-0"	4'-0"	4'-0"
25A	0'-9"	1'-2"	-	-	0'-9"	1'-0"	0'-9"	1'-0"	4'-0"	4'-0"
26	-	-	-	-	0'-9"	1'-6"	0'-9"	1'-0"	4'-0"	4'-0"
27	-	-	0'-9"	1'-4"	0'-9"	1'-6"	0'-9"	1'-0"	4'-0"	4'-0"
18	1'-8"	1'-2"	1'-8"	1'-2"	-	-	-	-	4'-0"	4'-0"
29	0'-9"	1'-8"	-	-	0'-9"	0'-8"	4'-0"	4'-0"	-	-



DR 84-6501

MALCOLM PIRNIE

Date: APRIL 1984
 Designed by: JFS
 Drawn by: LSA
 Checked by: [Signature]
 Scale: 1/8" = 1'-0"

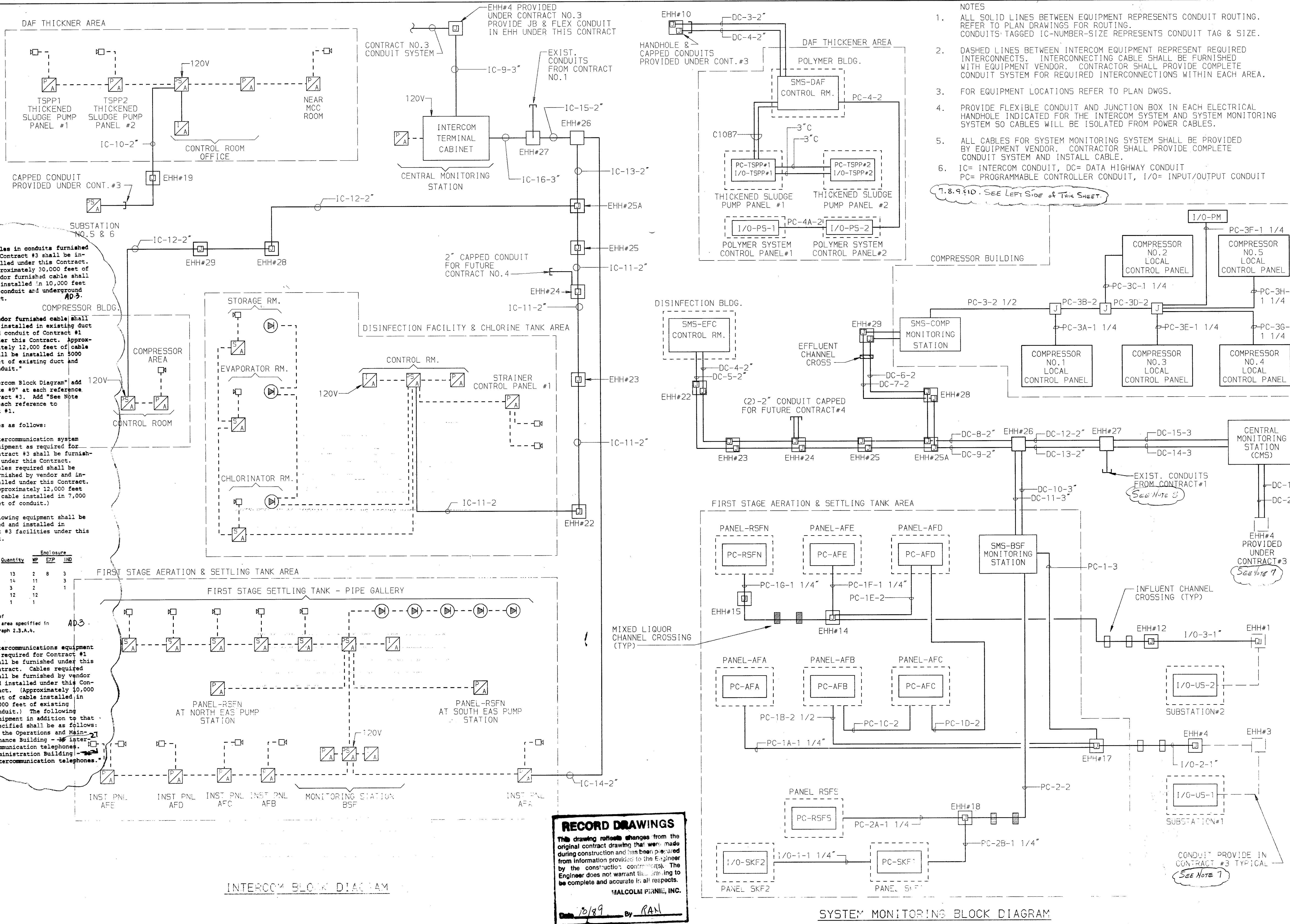


WATER FACILITIES IMPROVEMENTS

SAN ANTONIO

CONTRACT NO. 2
 DOS RIOS FACILITY
 GENERAL
 SMS & INTERCOM SYSTEM
 BLOCK DIAGRAM

- NOTES
- ALL SOLID LINES BETWEEN EQUIPMENT REPRESENTS CONDUIT ROUTING. REFER TO PLAN DRAWINGS FOR ROUTING. CONDUITS TAGGED IC-NUMBER-SIZE REPRESENTS CONDUIT TAG & SIZE.
 - DASHED LINES BETWEEN INTERCOM EQUIPMENT REPRESENT REQUIRED INTERCONNECTS. INTERCONNECTING CABLE SHALL BE FURNISHED WITH EQUIPMENT VENDOR. CONTRACTOR SHALL PROVIDE COMPLETE CONDUIT SYSTEM FOR REQUIRED INTERCONNECTIONS WITHIN EACH AREA.
 - FOR EQUIPMENT LOCATIONS REFER TO PLAN DWGS.
 - PROVIDE FLEXIBLE CONDUIT AND JUNCTION BOX IN EACH ELECTRICAL HANDHOLE INDICATED FOR THE INTERCOM SYSTEM AND SYSTEM MONITORING SYSTEM SO CABLES WILL BE ISOLATED FROM POWER CABLES.
 - ALL CABLES FOR SYSTEM MONITORING SYSTEM SHALL BE PROVIDED BY EQUIPMENT VENDOR. CONTRACTOR SHALL PROVIDE COMPLETE CONDUIT SYSTEM AND INSTALL CABLE.
 - IC= INTERCOM CONDUIT, DC= DATA HIGHWAY CONDUIT, I/O= INPUT/OUTPUT CONDUIT
- 1.8.9.10. SEE LEFT SIDE OF THIS SHEET.



- Cables in conduits furnished in Contract #3 shall be installed under this Contract. Approximately 30,000 feet of vendor furnished cable shall be installed in 10,000 feet of conduit and underground duct. AD-3.
 - Vendor furnished cable shall be installed in existing duct and conduit of Contract #1 under this Contract. Approximately 12,000 feet of cable shall be installed in 5000 feet of existing duct and conduit.
- On "Intercom Block Diagram" add "See Note #9" at each reference to Contract #3. Add "See Note #10" at each reference to Contract #1.
- Add notes as follows:
- Intercommunication system equipment as required for Contract #3 shall be furnished under this Contract. Cables required shall be furnished by vendor and installed under this Contract. (Approximately 12,000 feet of cable installed in 7,000 feet of conduit.)
- The following equipment shall be furnished and installed in Contract #3 facilities under this Contract.

Equipment	Enclosure			
	WP	EXP	IND	
Jack stations	13	2	8	3
Phone Ampl.	14	11	1	3
Power Source Amp.	3	2	1	1
Speakers	12	12		
Speaker Ampl.	1	1		

WP = Weatherproof
 EXP = Explosion proof
 IND = Enclosure for area specified in Section 16760 Paragraph 2.3.A.4.

- Intercommunications equipment as required for Contract #1 shall be furnished under this Contract. Cables required shall be furnished by vendor and installed under this Contract. (Approximately 10,000 feet of cable installed in 8,000 feet of existing conduit.) The following equipment in addition to that specified shall be as follows: In the Operations and Maintenance Building - 25 intercommunication telephones. Administration Building - intercommunication telephones.

RECORD DRAWINGS
 This drawing reflects changes from the original contract drawing that were made during construction and has been prepared from information provided to the Engineer by the contractor. The Engineer does not warrant this drawing to be complete and accurate in all respects.
 MALCOLM PIRNIE, INC.
 Date: 10/89 By: RAN

INTERCOM BLOCK DIAGRAM

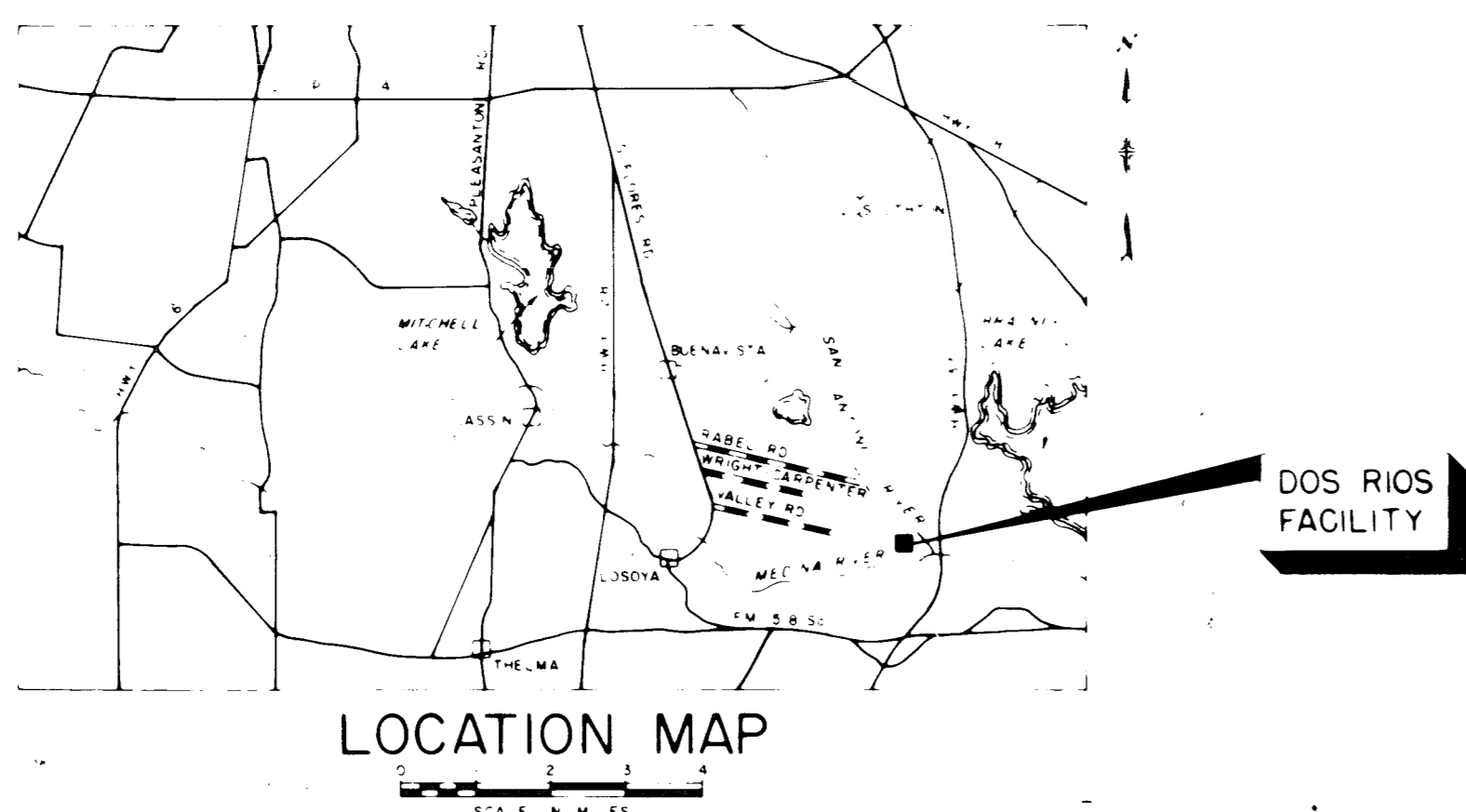
SYSTEM MONITORING BLOCK DIAGRAM

DR 84-6501

DOS RIOS FACILITY

SECOND STAGE FACILITIES

CONTRACT 4A- JUNE 1985



STEP 3 GRANT NO. C- 481211-
STEP 2 GRANT NO. C- 481211-10

CITY OF SAN ANTONIO,
DEPARTMENT OF PUBLIC WORKS

MALCOLM PIRNIE INC.
SAN ANTONIO, TEXAS WHITE PLAINS, NEW YORK

WASTEWATER
FACILITIES
IMPROVEMENTS

SAN
ANTONIO

D-4

*Dos Rios
Contract 4A*

DR 85-6501

9189 RAN



DR 85-6501

ELECTRICAL SYMBOLS

- POWER & LIGHTING PANEL
- CP - CONTROL PANEL
- MCC - MOTOR CONTROL CENTER
- DUPLEX CONVENIENCE RECEPTACLE, 2 POLE, 3 WIRE, 120 VOLTS A.C.
- DUPLEX CONVENIENCE RECEPTACLE FOR HAZARDOUS AREA, 2 POLE, 3 WIRE, 120 VOLTS A.C. (EXPLOSION PROOF)
- DUPLEX WEATHERPROOF CONVENIENCE RECEPTACLE, 2 POLE, 3 WIRE, 120 VOLTS A.C.
- POWER RECEPTACLE, 600 VOLTS A.C. POLES AND RATING AS NOTED
- POWER RECEPTACLE FOR HAZARDOUS AREA, 100A, 600 VOLTS A.C., 4 WIRE (EXPLOSION PROOF)
- TELEPHONE OUTLET
- ELECTRIC MOTOR (NO INDICATES HORSEPOWER)
- MOTOR STARTER (INDIVIDUAL - COMBINATION MAGNETIC)
- LINE SWITCH DISCONNECT - UNFUSED (SIZE AS REQUIRED OR AS NOTED)
- SINGLE POLE SWITCH
- DOUBLE POLE SWITCH (208 VOLT)
- THREE-WAY SWITCH
- DOUBLE POLE - DOUBLE THROW SWITCH (SEE SPEC.) 208 VOLTS
- 2 LAMP SELF CONTAINED DC EMERGENCY LIGHTING UNIT. ARROWS SHOW LAMP POSITIONS
- THERMOSTAT
- BRANCH CIRCUIT HOME RUN TO PANEL BOARD, LETTERS AND NUMERALS INDICATE PANEL AND CIRCUIT NUMBER. CROSS LINES INDICATE MINIMUM NUMBER OF CONDUCTORS WHEN THERE ARE MORE THAN TWO. NO HASH MARKS INDICATES TWO CONDUCTORS. HALF HASH MARK INDICATES NEUTRAL
- INDICATES GROUND CONDUCTOR
- EXPOSED CONDUIT
- CONDUIT TURNS UP
- CONDUIT TURNS DOWN
- PRIMARY UNDERGROUND DUCT BANK
- UNDERGROUND SECONDARY DUCT BANK OR CONCEALED CONDUIT IN CONCRETE FLOOR, CEILING OR WALL UNLESS OTHERWISE INDICTED OR NOTED
- PULL BOX
- JUNCTION BOX
- CEILING MOUNTED LIGHTING FIXTURE. LETTER INDICATES TYPE OF FIXTURE
- WALL MOUNTED LIGHTING FIXTURE. LETTER INDICATES TYPE OF FIXTURE
- STANCHION MOUNTED LIGHTING FIXTURE. LETTER INDICATES TYPE OF FIXTURE
- POLE MOUNTED LIGHTING FIXTURE. LETTER INDICATES TYPE OF FIXTURE
- FLUORESCENT LIGHTING FIXTURE

- EMH ELECTRICAL MANHOLE
- EHH ELECTRICAL HANDHOLE
- EXIT LIGHT FIXTURE
- GROUND TEST POINT
- GROUND ROD INSTALLATION
- GROUND GRID CABLE CONNECTION
- VIBRATION SWITCH
- EMERGENCY STOP SWITCH
- MOTION SWITCH
- LIMIT SWITCH
- SELECTOR SWITCH
- PUSHBUTTON STATION
- POWER FACTOR CORRECTION CAPACITOR
- PUSHBUTTON STATION WITH LOCK-OUT FEATURE
- SOLENOID VALVE
- TEMPERATURE DETECTOR
- THERMAL-MAGNETIC MOLDED CASE CKT. BREAKER
- DRAWOUT LOW-VOLTAGE POWER CKT. BREAKER
- DRAWOUT MEDIUM VOLTAGE POWER CKT. BREAKER
- TRANSDUCER
- VOLTMETER - VOLTMETER SWITCH
- AMMETER - AMMETER SWITCH
- KEY INTERLOCK
- DEVICE LOCATED AT MOTOR
- DEVICE LOCATED AT INSTRUMENT PANEL
- FIELD LOCATED DEVICE

- #### INTERCOM SYSTEM
- SPEAKER
 - PHONE AMPLIFIER
 - SPEAKER AMPLIFIER
 - INTERFACE AMPLIFIER
 - POWER SOURCE AMPLIFIER
 - JACK STATION
 - SPEAKER WITH AMPLIFIER BELOW-PLAN DWGS.
 - SPEAKER WITH PHONE AMPLIFIER BELOW-PLAN DWGS.
 - SAFETY BARRIER

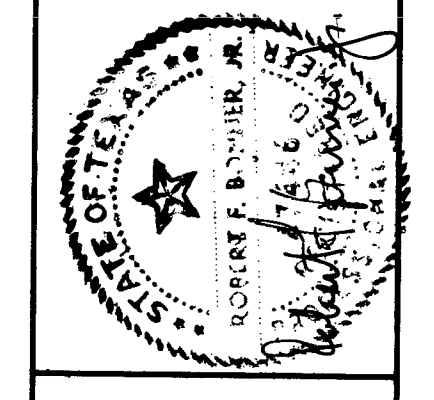
RECORD DRAWINGS
 This drawing reflects changes from the original contract drawing that were made during construction and has been prepared by the construction contractor(s). The Engineer does not warrant this drawing to be complete and accurate in all respects.
 MALCOLM PIRNIE, INC.
 Date 6/89 By RAN

NOTE:
 1) FOR CONDUIT AND CABLE SCHEDULES SEE SPECIFICATIONS.

Drawing No.		410N-85.175-0
App.		
Revisions		
No.	Date	
1	12-88	AS-BUILT

MALCOLM PIRNIE

Date: JUNE 1985
 Designed by: RAN
 Drawn by: ECH
 Checked by: [Signature]
 Scale: NOT TO SCALE



WATERMASTER
 F. RUIZ
 IMPROVEMENTS

San Antonio

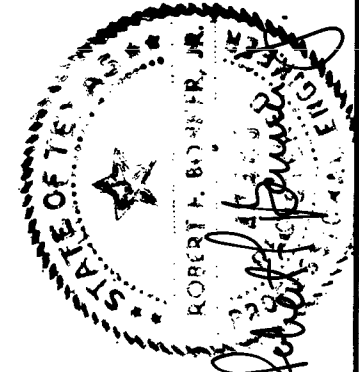
CONTRACT NO. 4A
DOS RIOS FACILITY
 GENERAL
ELECTRICAL LEGEND (SYMBOLS)

Drawing No. 410N-85.176-0

MALCOLM PIRNIE

No.	Date	Revision
1	12-88	AS - ISULT

Date: JUNE 1985
 Designed by: FS
 Drawn by: FS
 Checked by:
 Scale: NO SCALE

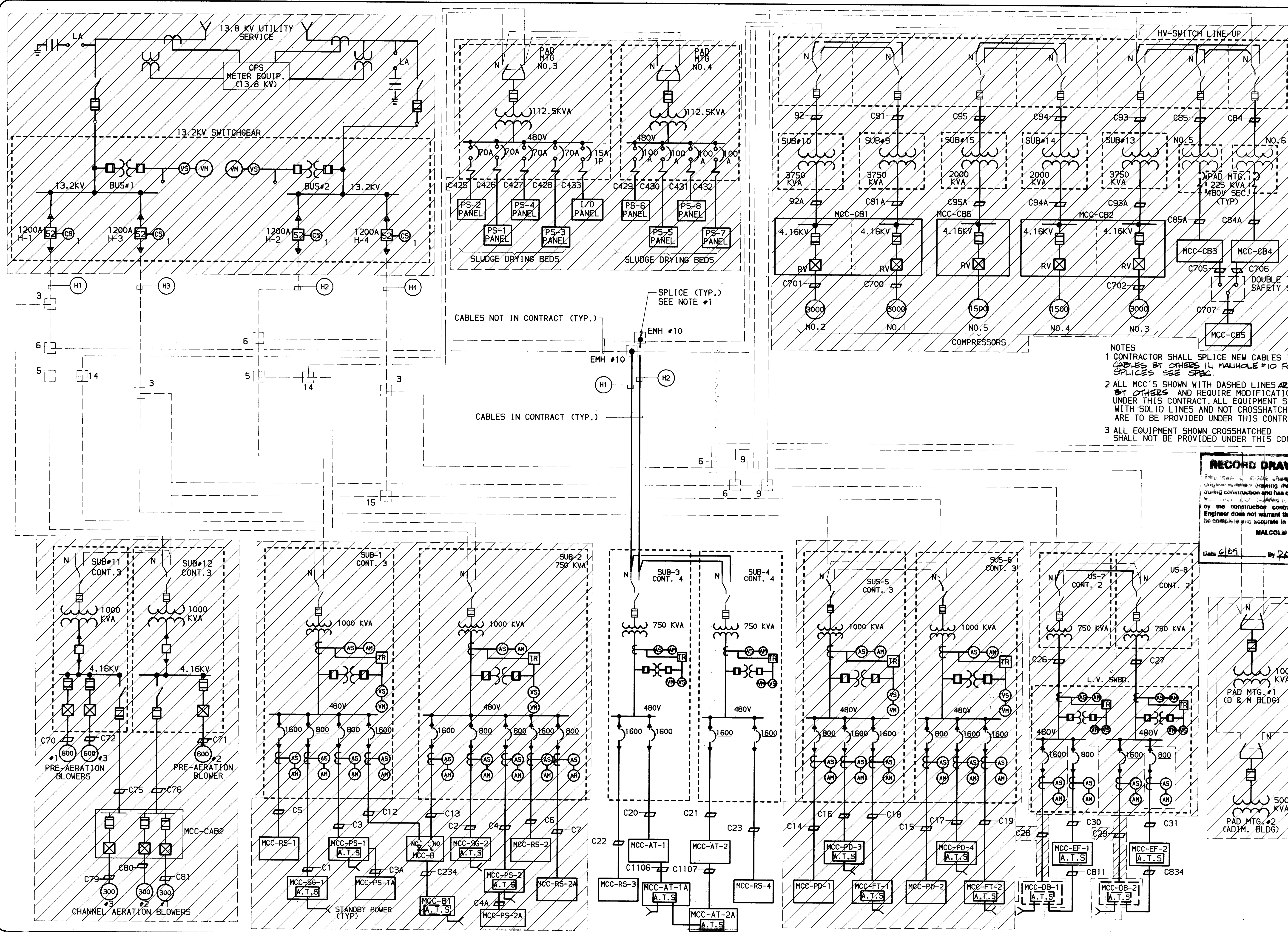


WASTEWATER FACILITIES IMPROVEMENTS

SAINT ANTONIO

CONTRACT NO. 4A
 DOS RIOS FACILITY
 GENERAL
 PRIMARY POWER ONE-LINE

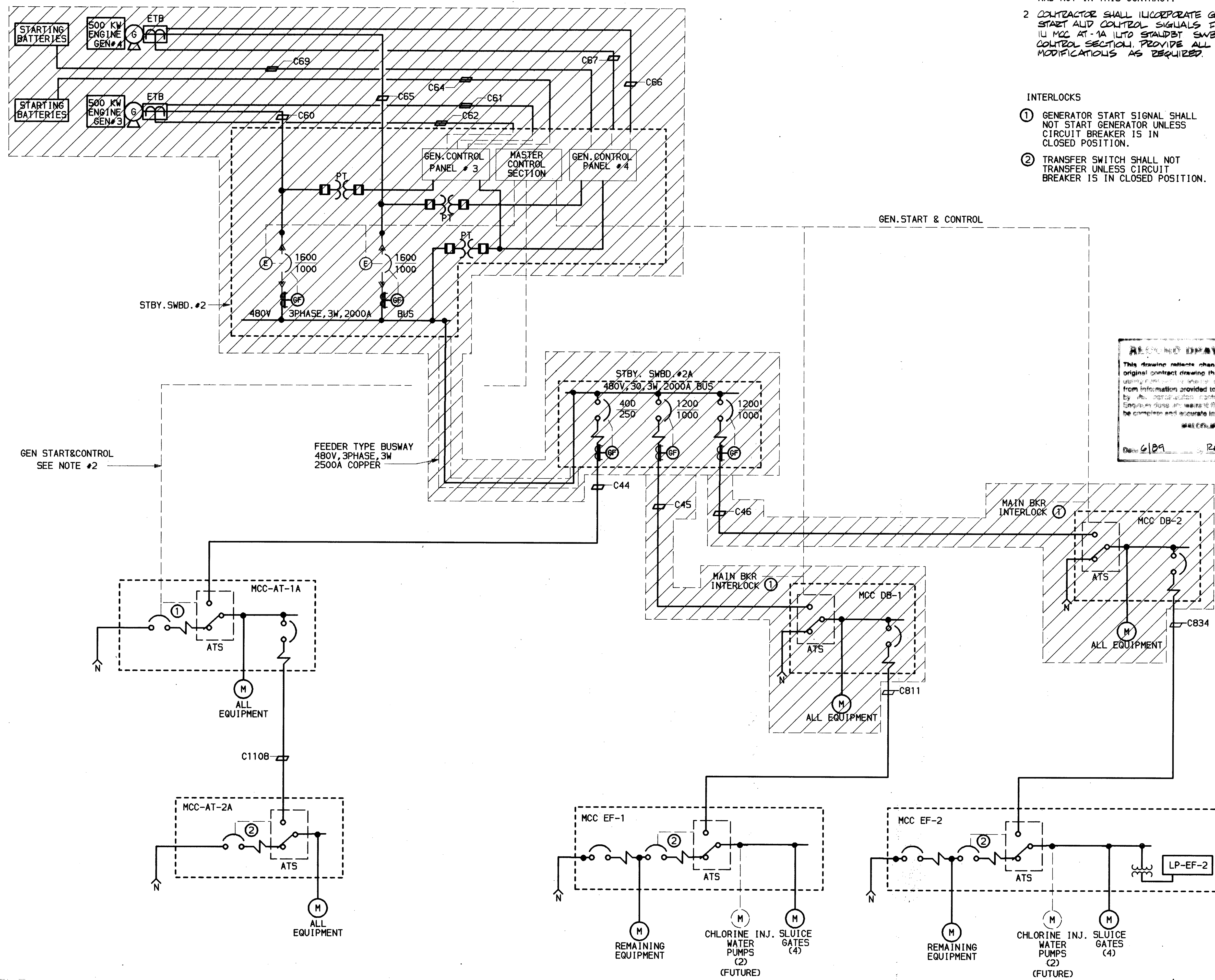
Sheet E-2 of E-36



- NOTES
- 1 CONTRACTOR SHALL SPlice NEW CABLES TO CABLES BY OTHERS IN MAINHOLE #10 FOR SPLICES. SEE SPEC.
 - 2 ALL MCC'S SHOWN WITH DASHED LINES ARE BY OTHERS AND REQUIRE MODIFICATIONS UNDER THIS CONTRACT. ALL EQUIPMENT SHOWN WITH SOLID LINES AND NOT CROSSHATCHED ARE TO BE PROVIDED UNDER THIS CONTRACT.
 - 3 ALL EQUIPMENT SHOWN CROSSHATCHED SHALL NOT BE PROVIDED UNDER THIS CONTRACT.

RECORD DRAWINGS
 This drawing is a record drawing and is not to be used for construction. It is to be used for record purposes only. The Engineer does not warrant this drawing to be complete and accurate in all respects.
 MALCOLM PIRNIE, INC.
 Date: 6/85 by: RAN

DR 85-6501

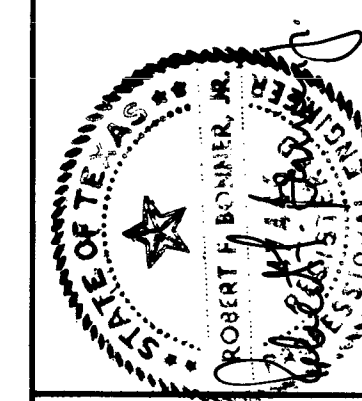


- NOTES:
- 1 ALL EQUIPMENT CROSSHATCHED IS BY OTHERS AND NOT IN THIS CONTRACT.
 - 2 CONTRACTOR SHALL INCORPORATE GENERATOR START AND CONTROL SIGNALS FROM ATS IN MCC AT-1A INTO STANDBY SWBD #2 CONTROL SECTION. PROVIDE ALL NECESSARY MODIFICATIONS AS REQUIRED.

- INTERLOCKS
- 1 GENERATOR START SIGNAL SHALL NOT START GENERATOR UNLESS CIRCUIT BREAKER IS IN CLOSED POSITION.
 - 2 TRANSFER SWITCH SHALL NOT TRANSFER UNLESS CIRCUIT BREAKER IS IN CLOSED POSITION.

App. Drawing No.	
410N-85.177-0	
MALCOLM PIRNIE	
No.	Revision
1	12-88 AS-BUILT
2	
3	
4	
5	
6	
7	
8	
9	
10	

Date: JUNE 1985
 Designed by: FS
 Drawn by: FS
 Checked by: [Signature]
 Scale: NO SCALE



AS-BUILT DRAWINGS
 This drawing reflects changes from the original contract drawing that were made during the construction process and from information provided to the Engineer by the contractor. The Engineer does not warrant the accuracy, completeness or accuracy in all respects of this drawing.
 Date: 6/89
 [Signature]

WARRANTED
 FACILITIES
 IMPROVEMENTS
SAN ANTONIO

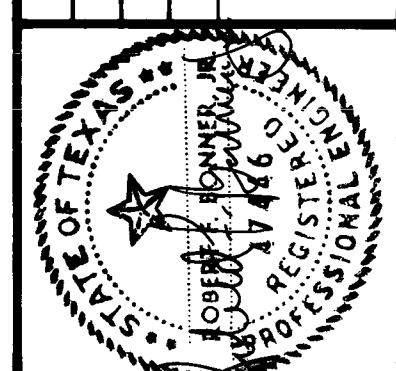
CONTRACT NO. 4A
D05 RIOS FACILITY
 GENERAL
 STANDBY POWER ONE-LINE

Drawing No. 410N-85.178-0

App. No.	Date	Revisions
1	12-88	AS-BUILT

MALCOLM PIRNIE

Date: JUNE 1985
 Designed by: FS
 Drawn by: FS
 Checked by: [Signature]
 Scale: 1" = 200'

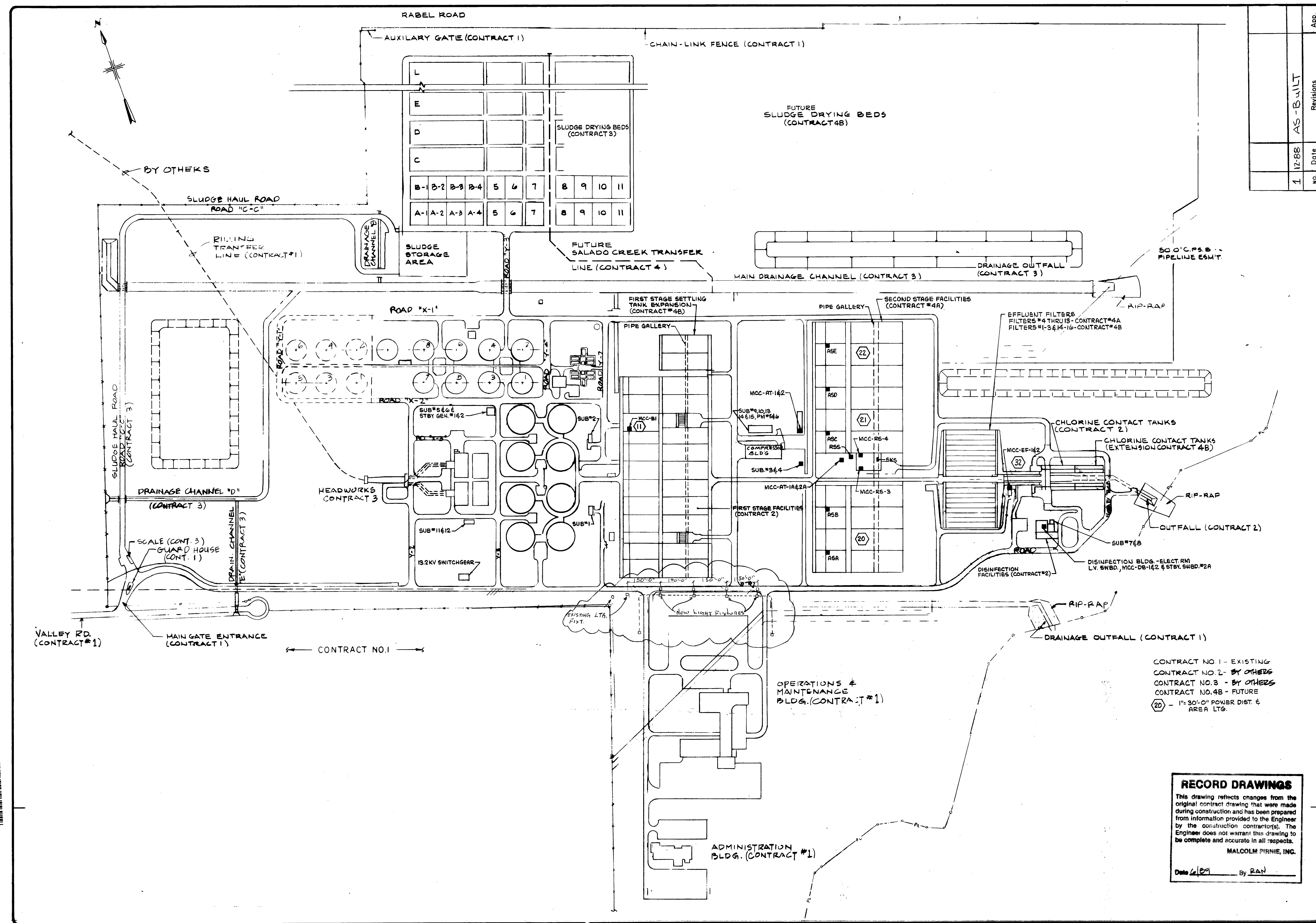


WASTEWATER FACILITIES IMPROVEMENTS

SAN ANTONIO

CONTRACT NO. 4A
DOS RIOS FACILITY GENERAL
 LOCATION PLAN-ELECTRICAL FACILITIES

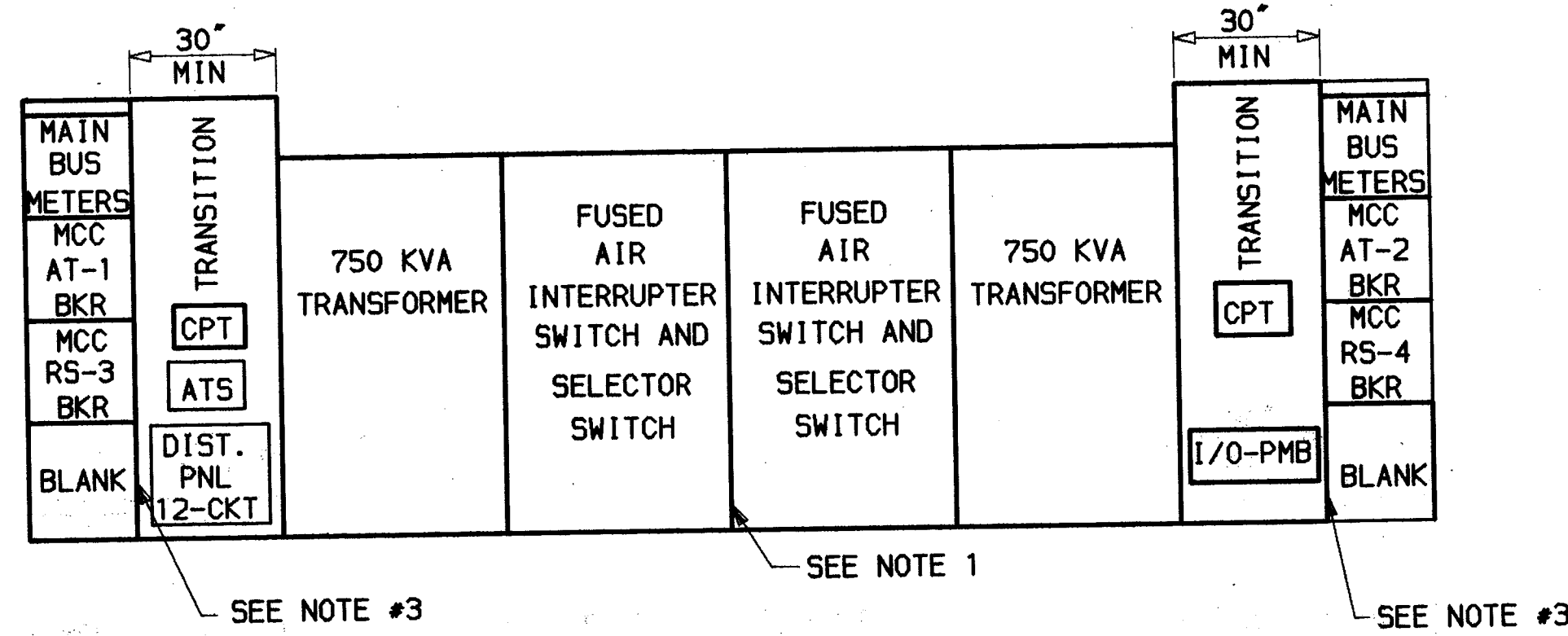
Sheet E-4 of E-36



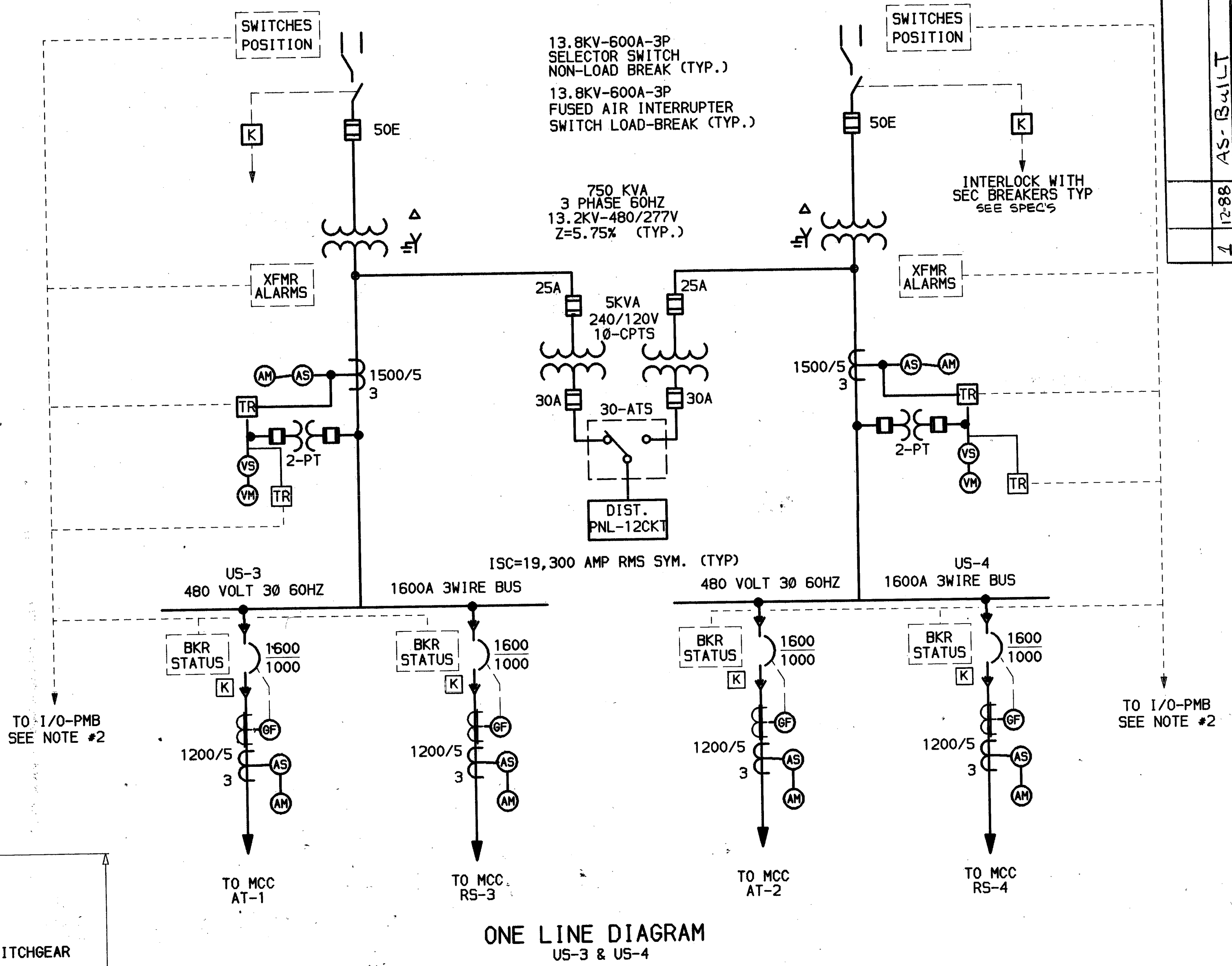
CONTRACT NO. 1 - EXISTING
 CONTRACT NO. 2 - BY OTHERS
 CONTRACT NO. 3 - BY OTHERS
 CONTRACT NO. 4B - FUTURE
 (20) - 1"=30'-0" POWER DIST. & AREA LTG.

RECORD DRAWINGS
 This drawing reflects changes from the original contract drawing that were made during construction and has been prepared from information provided to the Engineer by the construction contractor(s). The Engineer does not warrant this drawing to be complete and accurate in all respects.
 MALCOLM PIRNIE, INC.
 Date: 6/29 By: RAN

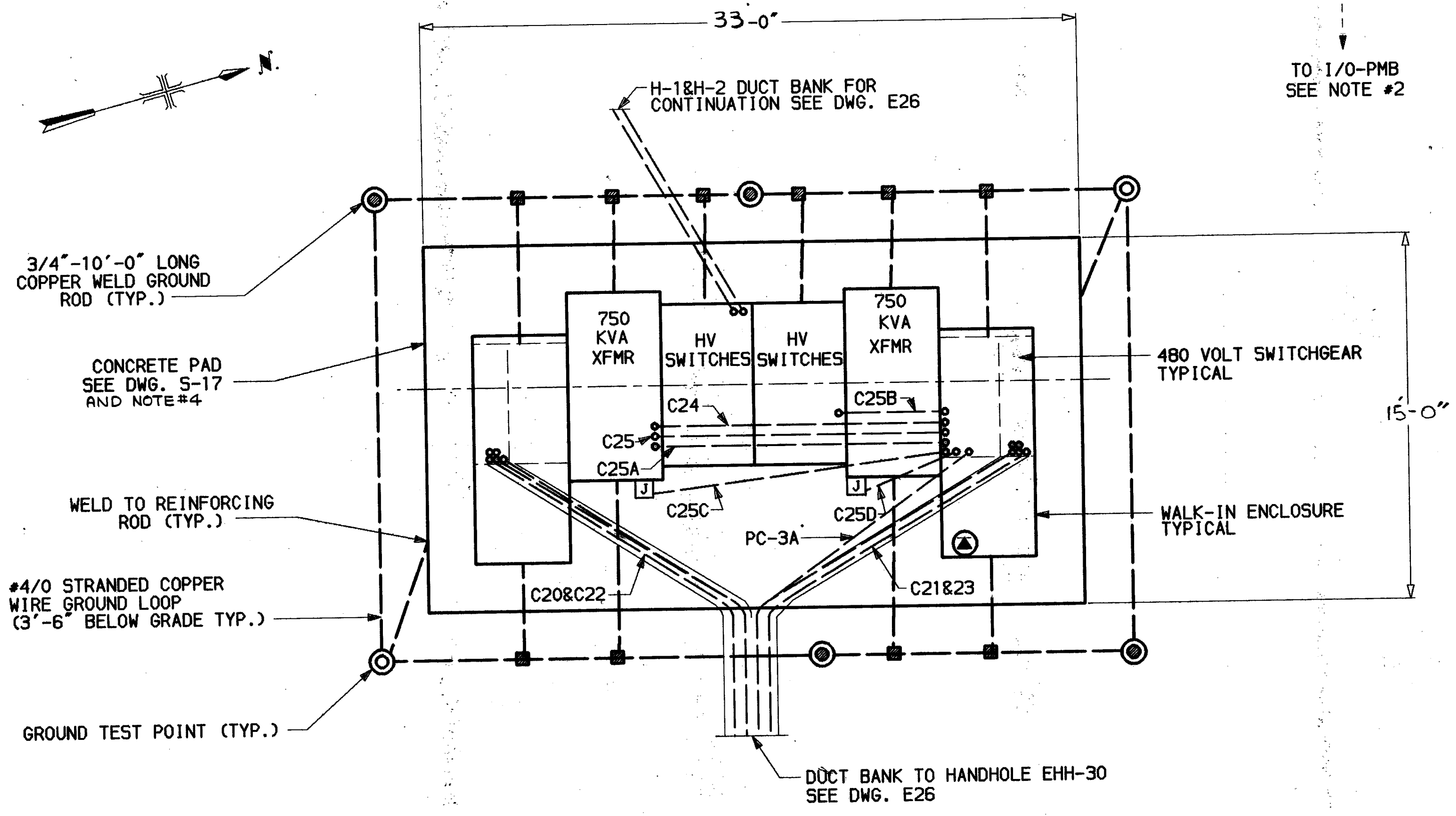
DR 85-6501



UNIT SUBSTATION FRONT VIEW
(N.T.S.)



ONE LINE DIAGRAM
US-3 & US-4



UNIT SUBSTATION PLAN
SCALE: 1/4"=1'-0"

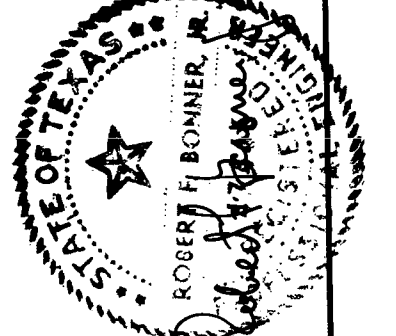
RECORD DRAWINGS
This drawing reflects changes from the original contract drawing that were made during construction and has been prepared from information provided to the Engineer by the construction contractor(s). The Engineer does not warrant this drawing to be complete and accurate in all respects.
MALCOLM PIRNIE, INC.
Date 6/18/84 By RAN

- NOTE:
1. SUBSTATION VENDOR SHALL PROVIDE THRU-WALL BARRIER BETWEEN PRIMARY SWITCH COMPARTMENTS FOR HIGH VOLTAGE CABLE CONNECTIONS BETWEEN SWITCHES. REFER TO DWG. E2 FOR CABLE REQUIREMENTS. PROVIDE 1" INSULATING BUSHING BETWEEN SWITCH COMPARTMENTS FOR STATUS WIRING.
 2. CONTRACTOR SHALL ARRANGE TRANSITION COMPARTMENT SUCH THAT I/O PROVIDED UNDER DIVISION 13 CAN BE INSTALLED WITHIN COMPARTMENT.
 3. CONTRACTOR SHALL PROVIDE 1-1" INSULATING BUSHING BETWEEN EACH TRANSITION COMPARTMENT AND BREAKER COMPARTMENT FOR BREAKER STATUS WIRING.
 4. DIMENSIONS OF SUBSTATION PAD DEPENDS ON EQUIPMENT PURCHASED.

Drawing No.		410N-85.179-0
AS-BUILT		Revisions
No.	Date	
1	12-88	

MALCOLM PIRNIE

JUNE 1984 1984
Designed by: FS
Drawn by: FS
Checked by:
Scale: NO SCALE



W. R. BENTON
ELECTRICAL ENGINEER
IMPROVEMENTS

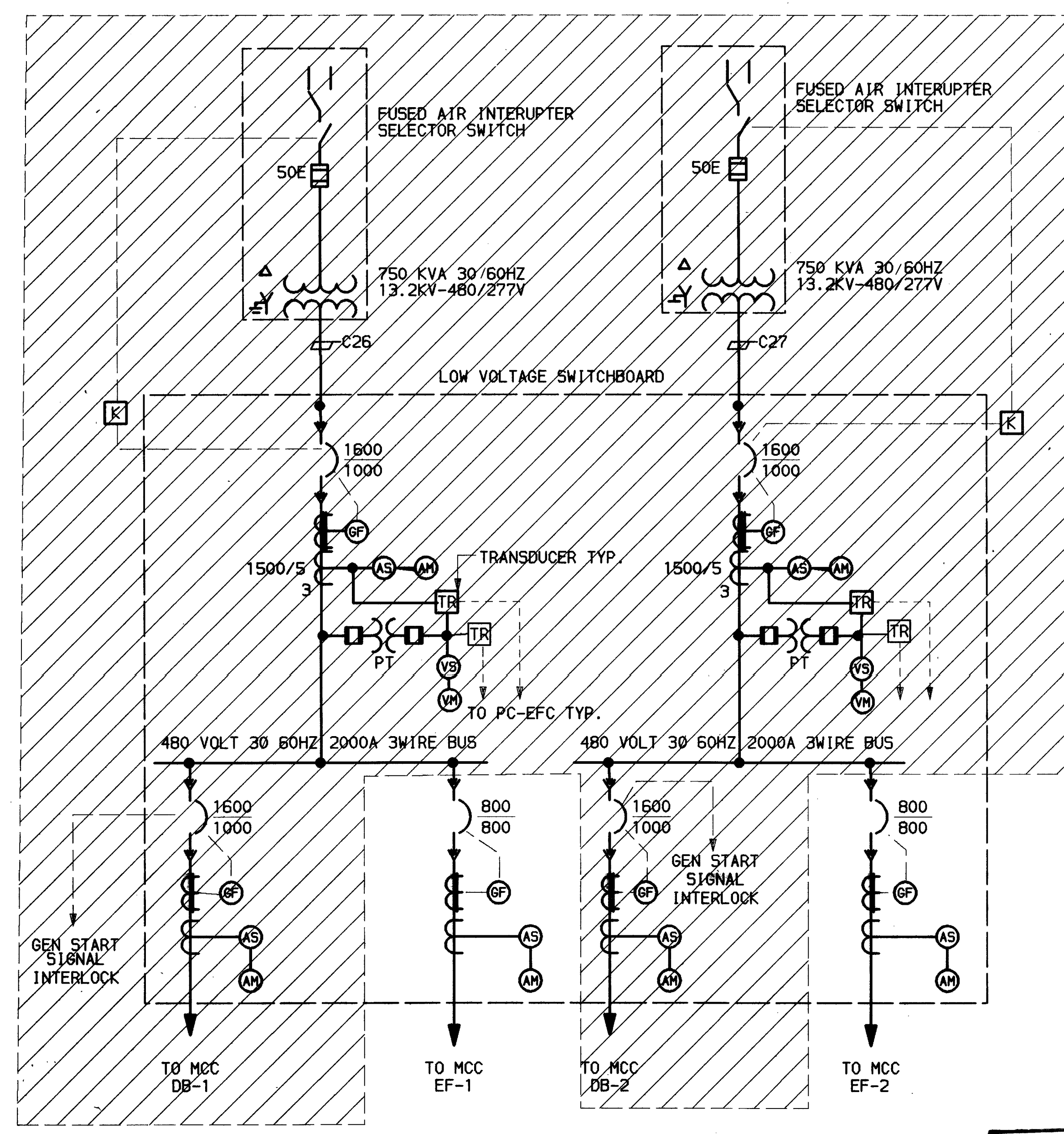
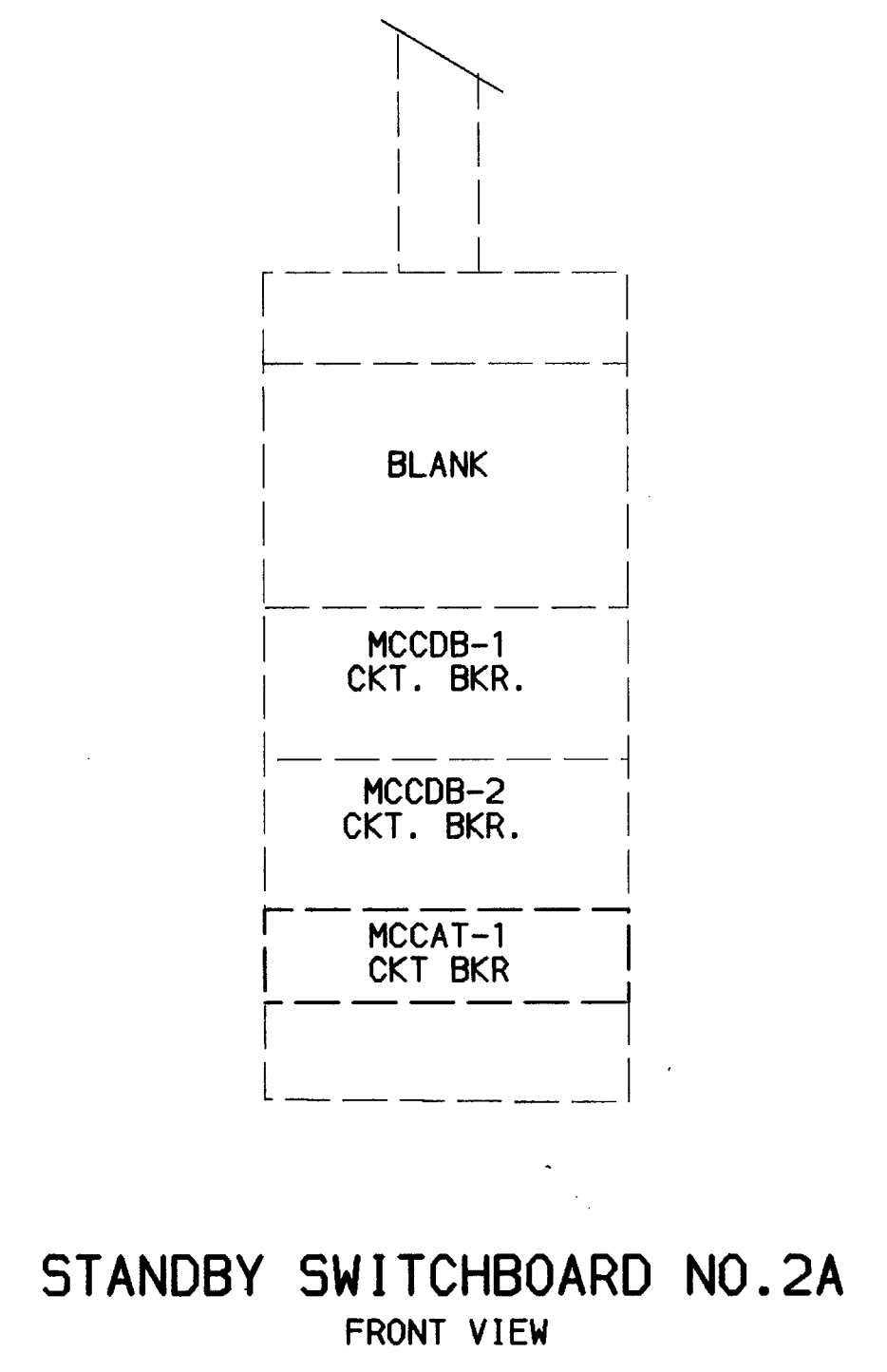
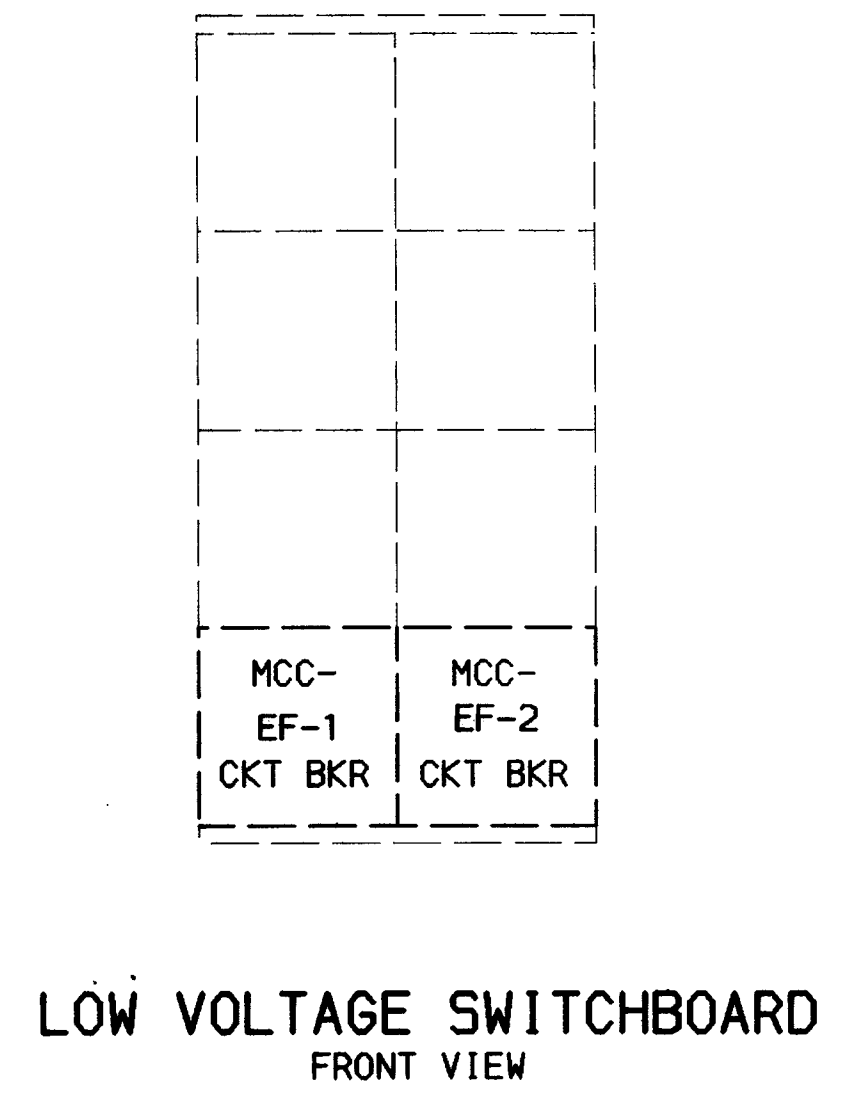
San Antonio

CONTRACT NO. 4A
DOS RIOS FACILITY
GENERAL
SUBSTATIONS #3 & #4

Sheet E-5
of E-36

DR 85-6501

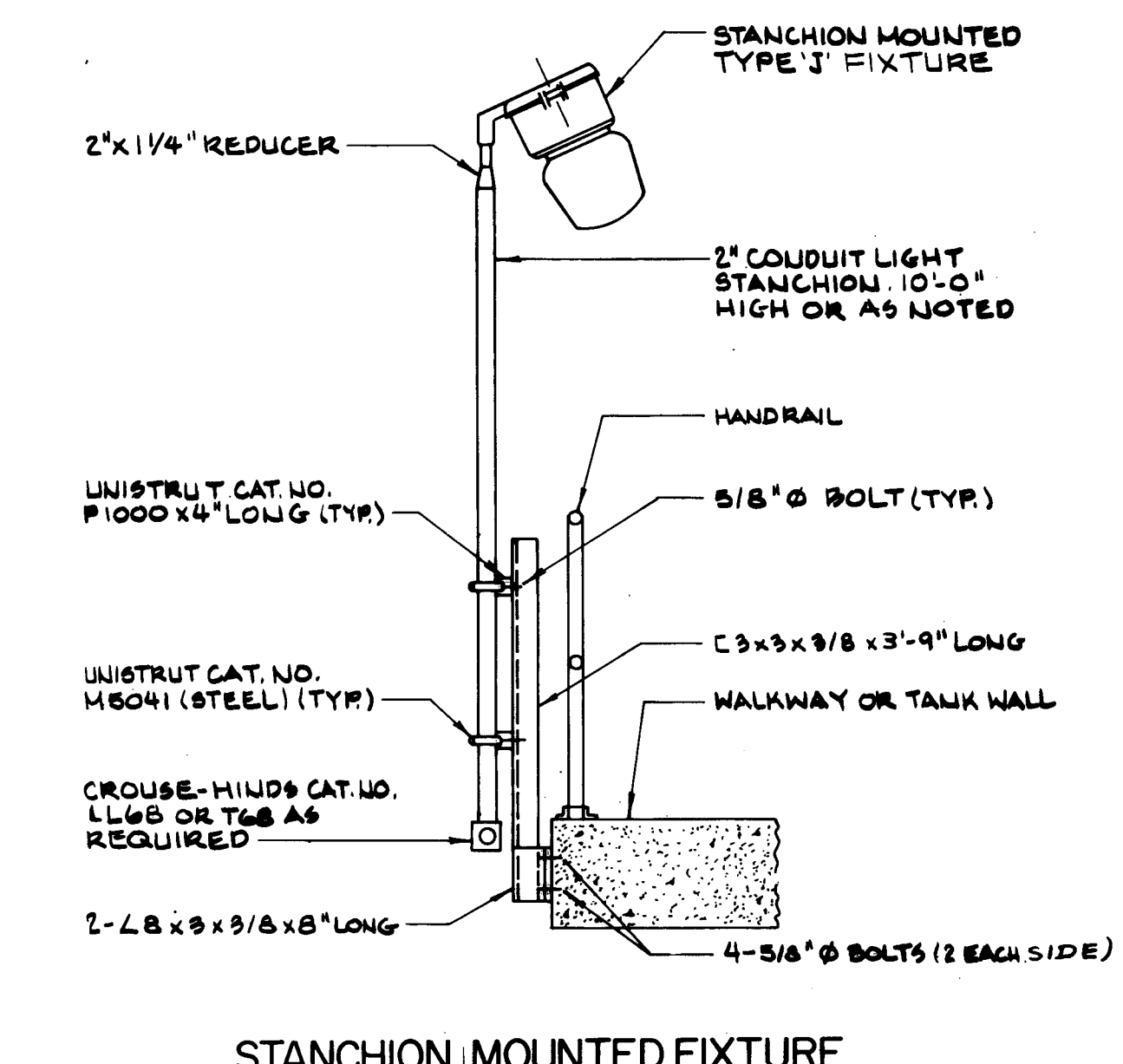
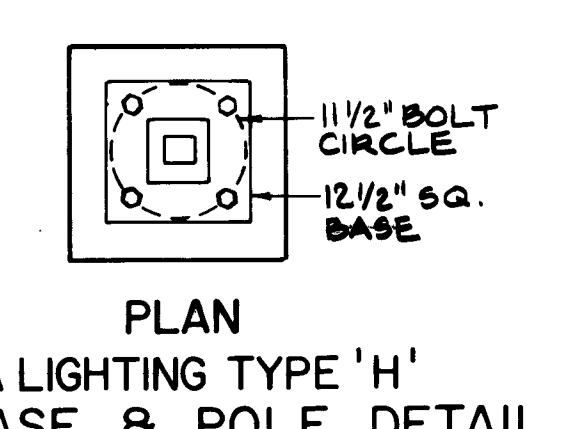
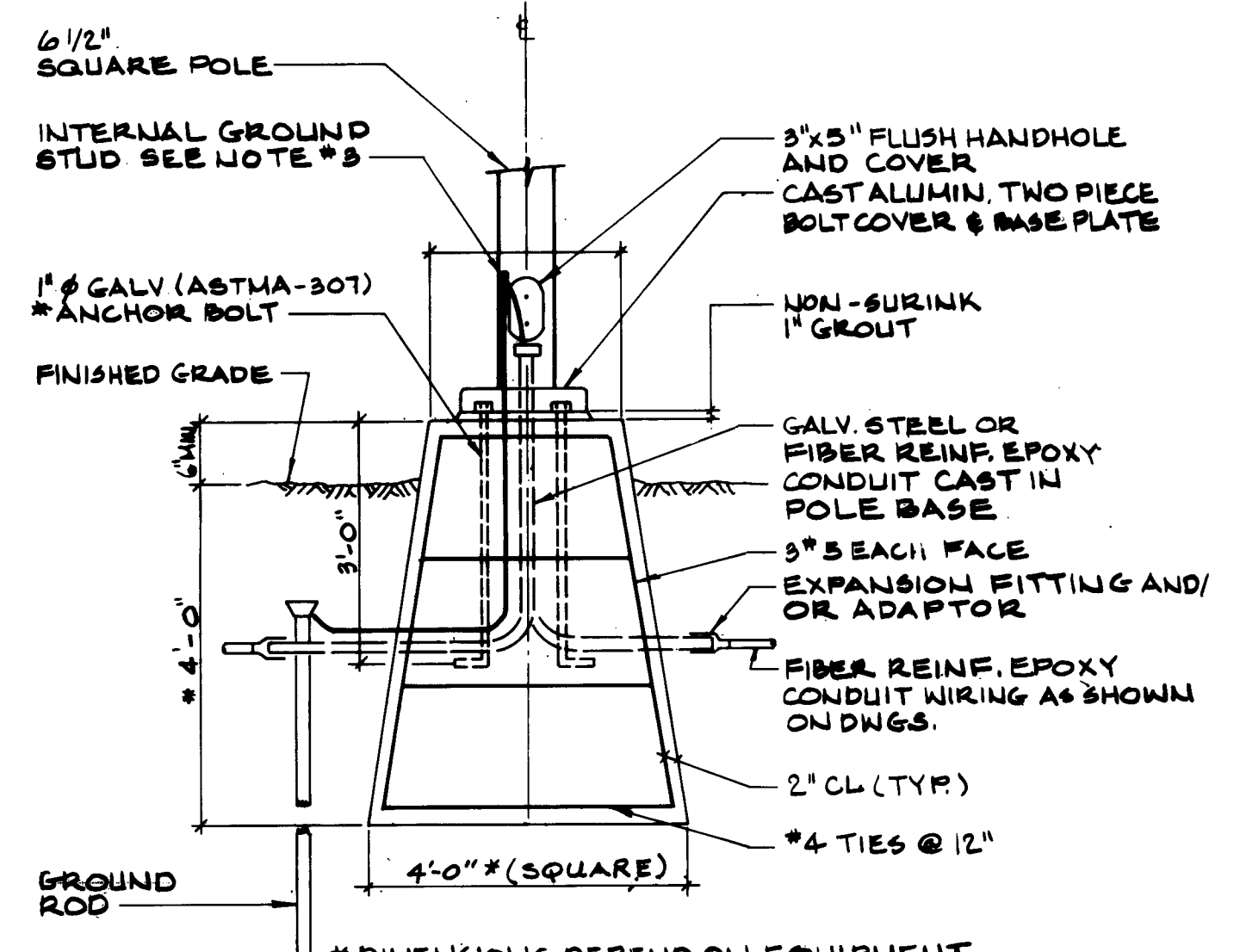
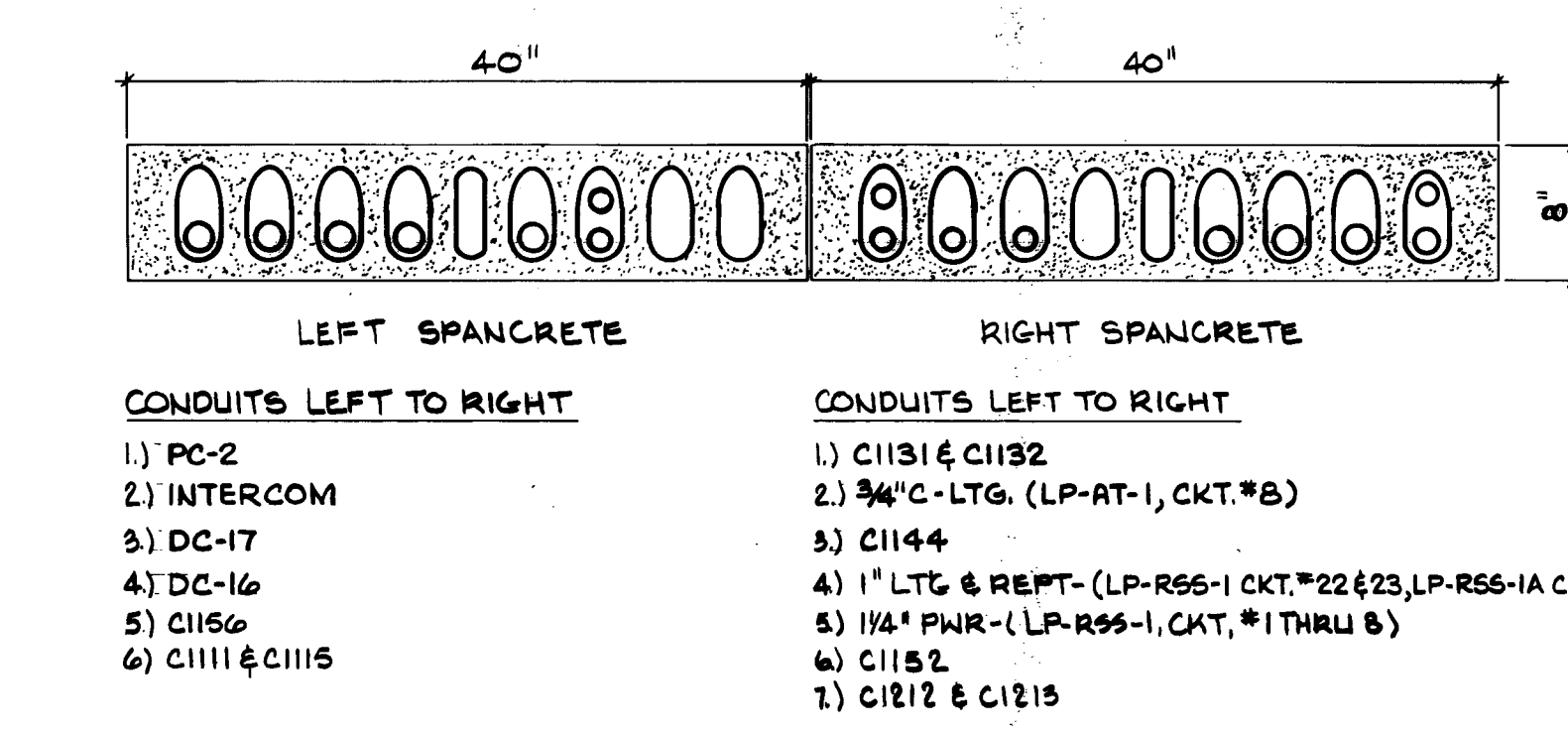
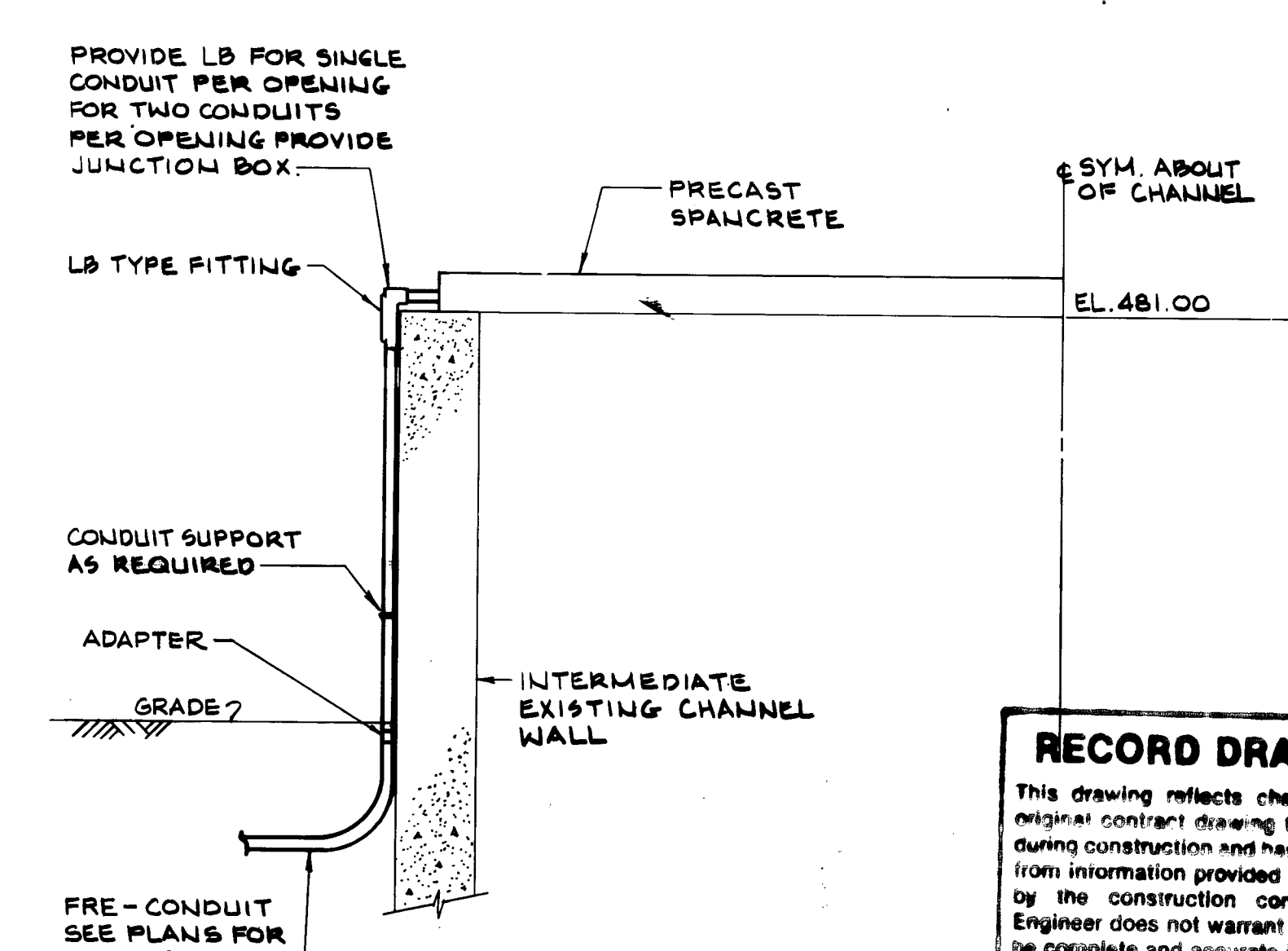
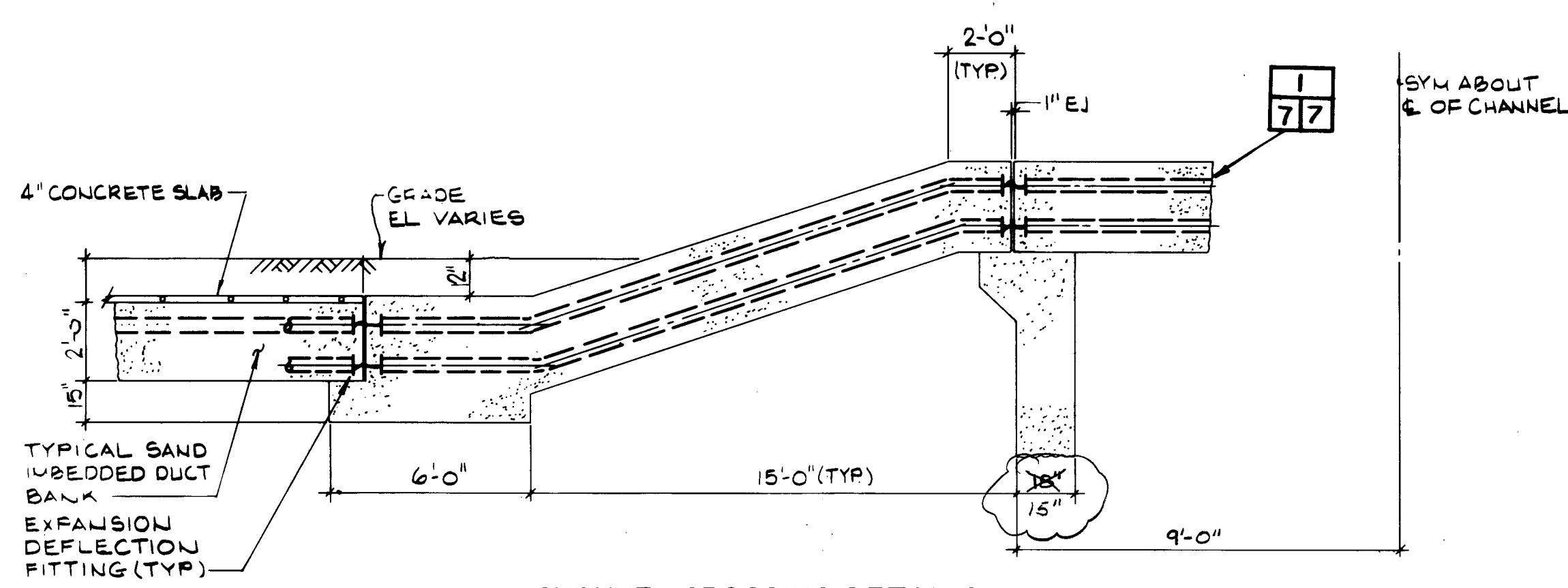
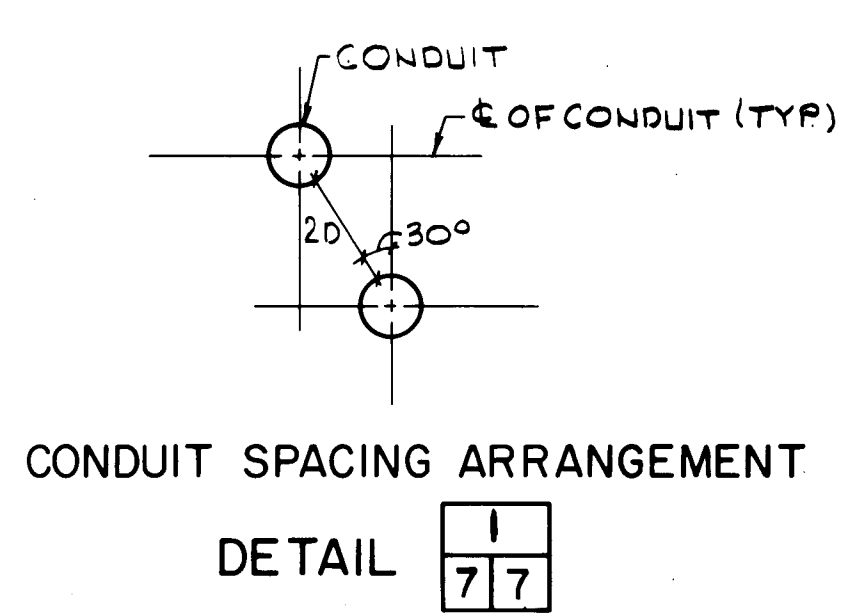
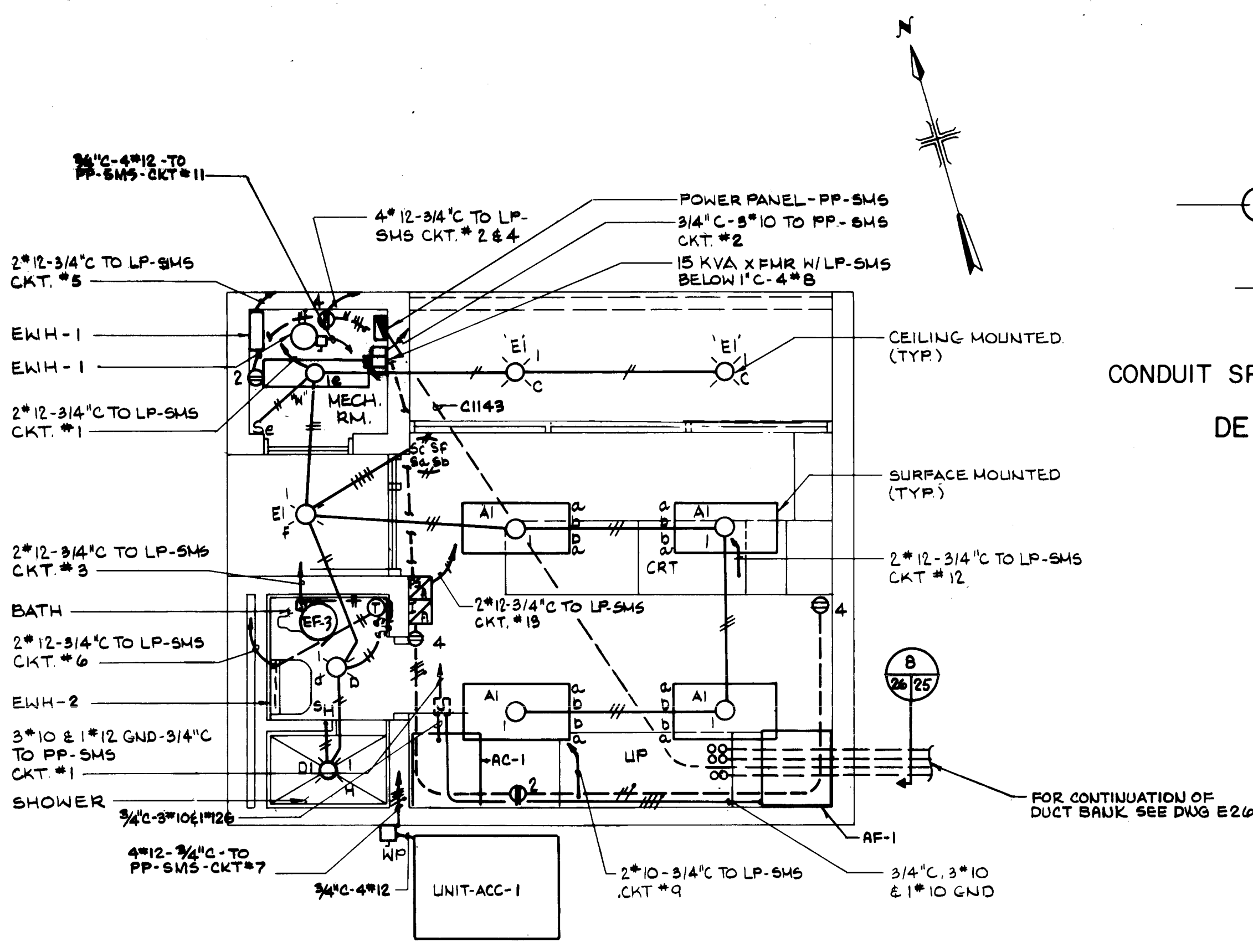
DR 85-6501



RECORD DRAWINGS
This drawing reflects changes from the original contract drawing that were made during construction and has been prepared from information provided to the Engineer by the construction contractor. The Engineer does not warrant this drawing to be complete and accurate in all respects.
MALCOLM PIRNIE, INC.
Date: 6/89 By: ESN

- NOTES:
- EQUIPMENT CROSSHATCHED IS BY OTHERS AND NOT IN CONTRACT
 - CONTRACTOR SHALL PROVIDE POWER BREAKERS IN EQUIPPED SPACES OF LOW VOLTAGE SWBR.

Drawing No. 410N-B5.180-0	
MALCOLM PIRNIE	
No. 1	Date 1/2-88
AS-BUILT	
Revisions	
Date: JUNE 1985	Designed by: FS
	Drawn by: FS
	Checked by:
	Scale: AS NOTED
WESTWATER FACILITIES IMPROVEMENTS	
San Antonio	
CONTRACT NO. 4A DOS RIOS FACILITY GENERAL EXIST SUBSTATION # 7 & 8 MODIFICATIONS	
Sheet	E-6
of	E-36



RECORD DRAWINGS

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MALCOLM PIRNIE, INC.
Date: 6/29 By: RAN

Drawing No		410N-85.181-0
App		
Revisions		
No	Date	AS-BUILT
1	12-88	

MALCOLM PIRNIE

DESIGNED BY: LF5
DRAWN BY: LF5
CHECKED BY: GEA
SCALE: AS NOTED

WASTEWATER FACILITIES IMPROVEMENTS

San Antonio

CONTRACT NO. 4A
DOS RIOS FACILITY
GENERAL
MONITORING STATION PWR & LTG. & DETAILS

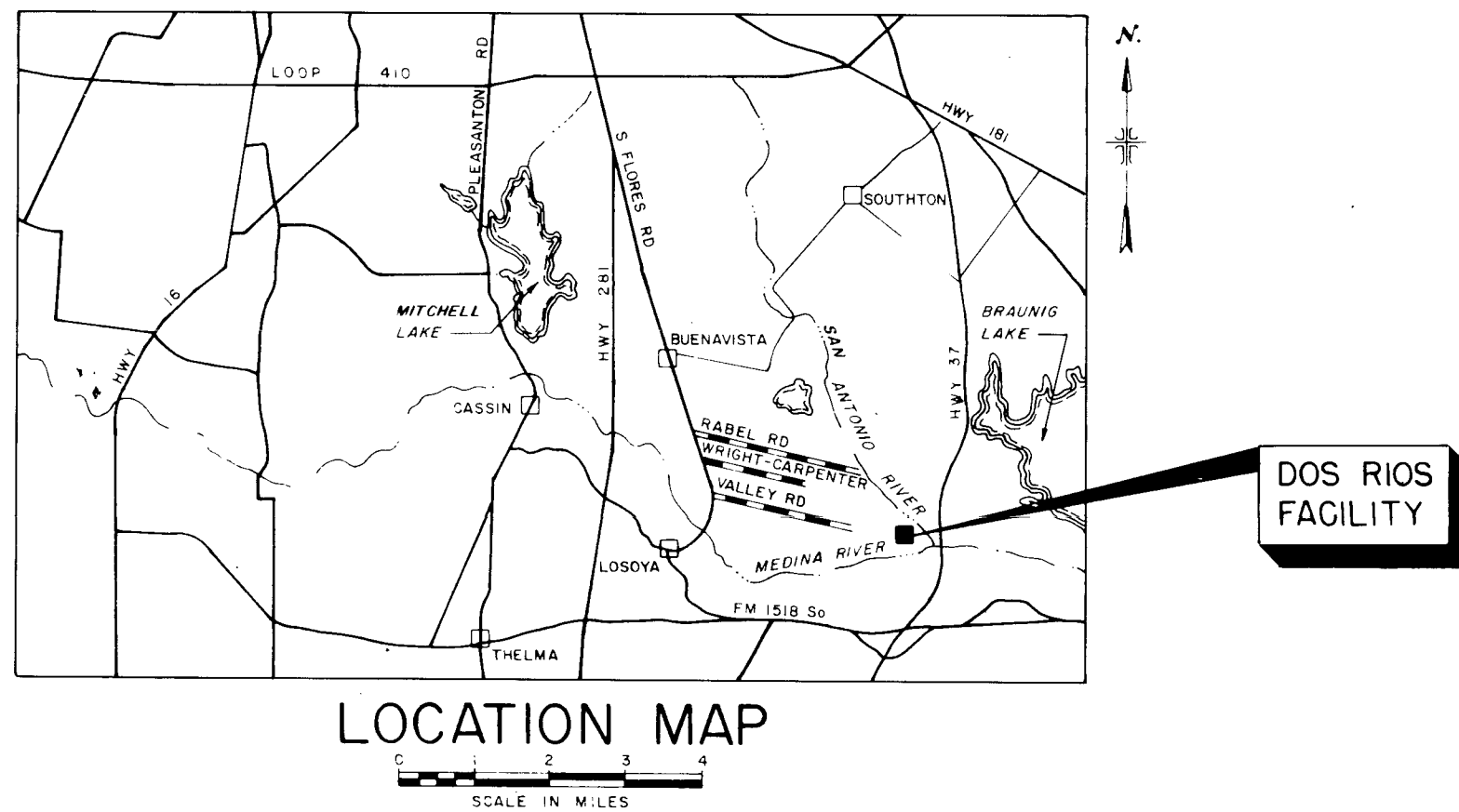
Sheet E-7 of E-36

DR 85-6501

DOS RIOS FACILITY

SOLIDS HANDLING FACILITIES

CONTRACT 4B-1 FEBRUARY 1986



STEP 3 GRANT NO. C-481211-29

CITY OF SAN ANTONIO,
DEPARTMENT OF WASTEWATER MANAGEMENT

MALCOLM PIRNIE INC.
SAN ANTONIO, TEXAS WHITE PLAINS, NEW YORK

DR-D-2

3-23-88 RAN

DOS RIOS FACILITY SOLIDS HANDLING FACILITIES (CONTRACT 4-B-1) (DRAWER D-04)

San Antonio
WASTEWATER FACILITIES IMPROVEMENTS

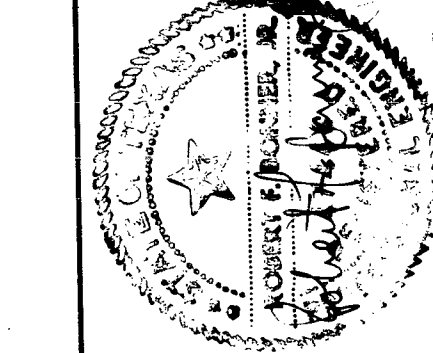
D-4

DOS RIOS FACILITY SOLIDS HANDLING FACILITIES (CONTRACT 4-B-1) (DRAWER D-04)

DR 86-6502

**MALCOLM
PIRNIE**

Date: FEBRUARY 1986
Designed by: W.T.F.
Drawn by: R.W.
Checked by: P.W.
Scale: NO SCALE



WESTVIEW
FACILITIES
IMPROVEMENTS
San Antonio

CONTRACT NO. 4B-1
DOS RIOS FACILITY
GENERAL
LEGEND & SYMBOLS

Sheet E-1
of E-8

ELECTRICAL SYMBOLS

- POWER & LIGHTING PANEL
- CP - CONTROL PANEL
- MOTER CONTROL CENTER
- DUPLEX CONVENIENCE RECEPTACLE, 2 POLE, 3 WIRE, 120 VOLTS A.C.
- DUPLEX CONVENIENCE RECEPTACLE FOR HAZARDOUS AERA, 2 POLE, 3 WIRE, 120 VOLTS A.C. (EXPLOSION PROOF)
- DUPLEX WEATHERPROOF CONVENIENCE RECEPTACLE, 2 POLE, 3 WIRE, 120 VOLTS A.C.
- POWER RECEPTACLE, 600 VOLTS A.C. POLES AND RATING AS NOTED
- POWER RECEPTACLE FOR HAZARDOUS AREA. 100A, 600 VOLTS A.C., 4 WIRE (EXPLOSION PROOF)
- TELEPHONE OUTLET
- ELECTRIC MOTOR (NO INDICATES HORSEPOWER)
- MOTOR STARTER (INDIVIDUAL - COMBINATION MAGNETIC)
- LINE SWITCH DISCONNECT - UNFUSED (SIZE AS REQUIRED OR AS NOTED)
- SINGLE POLE SWITCH
- DOUBLE POLE SWITCH (208 VOLT)
- THREE-WAY SWITCH
- DOUBLE POLE DOUBLE THROW SWITCH (SEE SPEC.) 208 VOLTS
- 2 LAMP SELF CONTAINED DC EMERGENCY LIGHTING UNIT. ARROWS SHOW LAMP POSITIONS
- THERMOSTAT
- BRANCH CIRCUIT HOME RUN TO PANEL BOARD, LETTERS AND NUMERALS INDICATE PANEL AND CIRCUIT NUMBER. CROSS LINES INDICATE MINIMUM NUMBER OF CONDUCTORS WHEN THERE ARE MORE THAN TWO. NO HASH MARKS INDICATES TWO CONDUCTORS. HALF HASH MARK INDICATES NEUTRAL
- INDICATES GROUND CONDUCTOR
- EXPOSED CONDUIT
- CONDUIT TURNS UP
- CONDUIT TURNS DOWN
- PRIMARY UNDERGROUND DUCT BANK
- UNDERGROUND SECONDARY DUCT BANK OR CONCEALED CONDUIT IN CONCRETE FLOOR, CEILING OR WALL UNLESS OTHERWISE INDICTED OR NOTED
- PULL BOX
- JUNCTION BOX
- CEILING MOUNTED LIGHTING FIXTURE. LETTER INDICATES TYPE OF FIXTURE
- WALL MOUNTED LIGHTING FIXTURE. LETTER INDICATES TYPE OF FIXTURE
- STANCHION MOUNTED LIGHTING FIXTURE. LETTER INDICATES TYPE OF FIXTURE
- POLE MOUNTED LIGHTING FIXTURE. LETTER INDICATES TYPE OF FIXTURE
- F-2 FLUORESCENT LIGHTING FIXTURE

- EMH ELECTRICAL MANHOLE
- EHH ELECTRICAL HANDHOLE
- EXIT LIGHT FIXTURE
- GROUND TEST POINT
- GROUND ROD INSTALLATION
- GROUND GRID CABLE CONNECTION
- VS VIBRATION SWITCH
- ES EMERGENCY STOP SWITCH
- MS MOTION SWITCH
- LS LIMIT SWITCH
- SELECTOR SWITCH
- PUSHBUTTON STATION
- POWER FACTOR CORRECTION CAPACITOR
- PUSHBUTTON STATION WITH LOCK-OUT FEATURE
- SV SOLENOID VALVE
- RTD TEMPERATURE DETECTOR
- THERMAL-MAGNETIC MOLDED CASE CKT. BREAKER
- DRAWOUT LOW-VOLTAGE POWER BREAKER
- DRAWOUT MEDIUM VOLTAGE POWER BREAKER
- TR TRANSDUCER
- VM VS VOLTMETER - VOLTMETER SWITCH
- AM AS AMMETER - AMMETER SWITCH
- K KEY INTERLOCK
- DEVICE LOCATED AT MOTOR
- DEVICE LOCATED AT INSTRUMENT PANEL
- * FIELD LOCATED DEVICE

- INTERCOM SYSTEM
- SPEAKER
 - PHONE AMPLIFIER
 - SPEAKER AMPLIFIER
 - INTERFACE AMPLIFIER
 - POWER SOURCE AMPLIFIER
 - JACK STATION
 - SPEAKER WITH AMPLIFIER BELOW-PLAN DWGS.
 - P SPEAKER WITH PHONE AMPLIFIER BELOW-PLAN DWGS.
 - SB SAFETY BARRIER
 - PUSHBUTTON STATION
 - CONTROLLER
 - DEVICE LOCATED AT BFP CONTROL PANEL
 - POLYMER TANK
 - TRANSFORMER

ADDENDUM NO. 3 REF: DWG
PAGE AD 3-9 E-1A

RECORD DRAWINGS

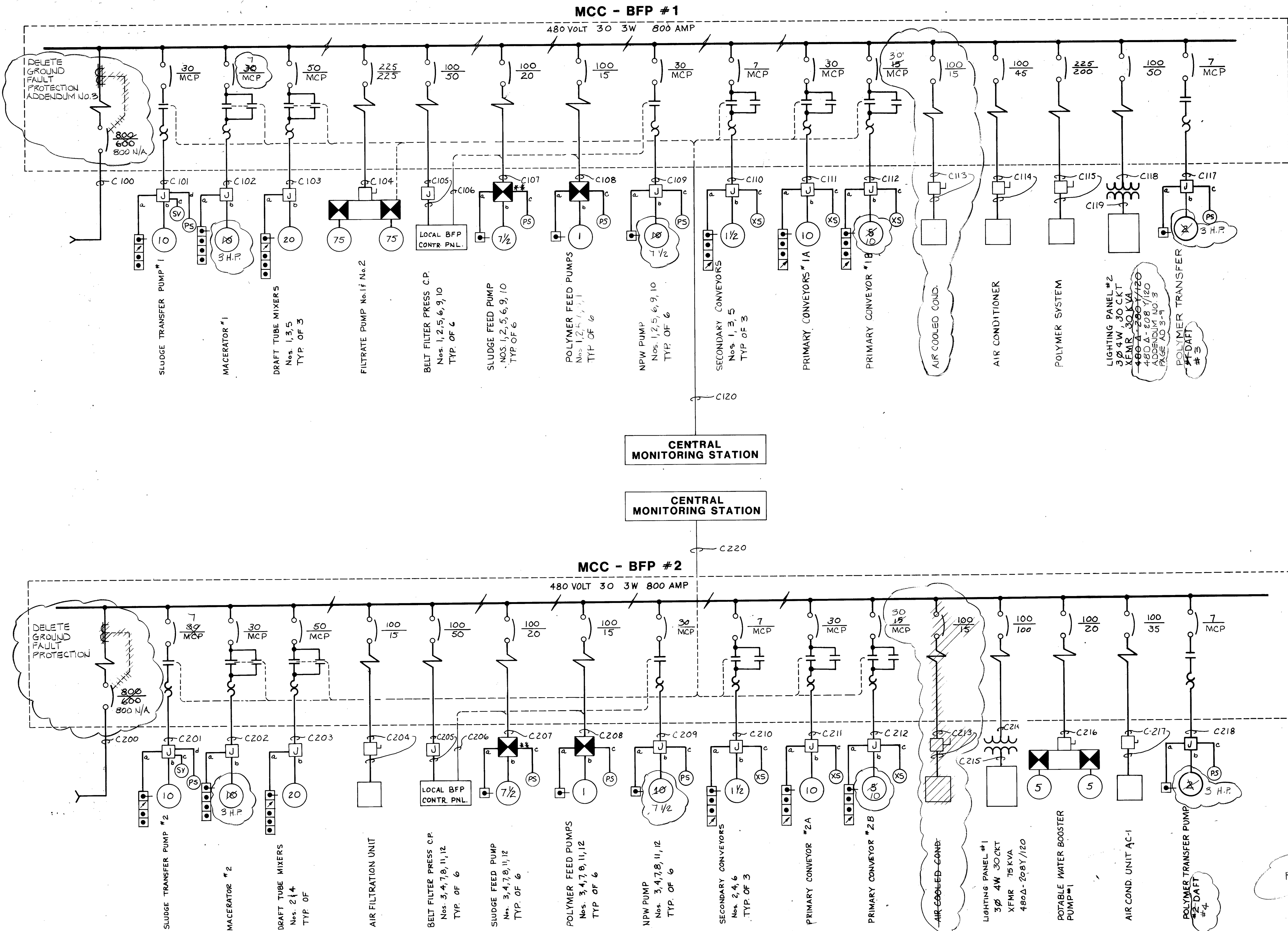
This drawing reflects changes from the original contract drawing that were made during construction and has been prepared with information provided by the engineer to the construction contractor(s). The engineer does not warrant this drawing to be complete and accurate in all respects.
MALCOLM PIRNIE, INC.

Date 3-23-88 By P.W.



9101558

DR 86-6502



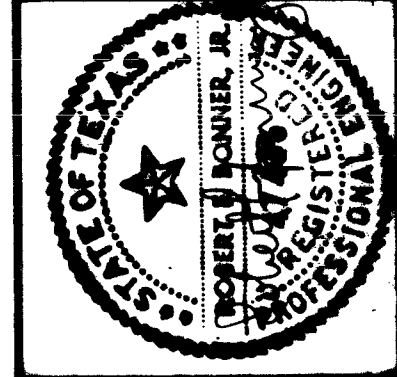
RECORD DRAWINGS
 This drawing reflects changes from the original contract drawing. It was made after construction and has been prepared from information provided to the Engineer by the construction contractor. The Engineer does not warrant this drawing to be complete and accurate in all respects.
 MALCOLM PIRNIE, INC.
 Date: 3-23-88 By: RAN

REF: DWG E-2A

** SUPPLIED BY EQUIPMENT MANUFACTURER

App. Drawing No.
408R-86.052-1

Revisions
 No. Date
 Date: FEBRUARY 1986
 Designed by: WJV
 Drawn by: RWC
 Checked by: JPB
 Scale: NOT TO SCALE



WASTEWATER
 FACILITIES
 IMPROVEMENTS

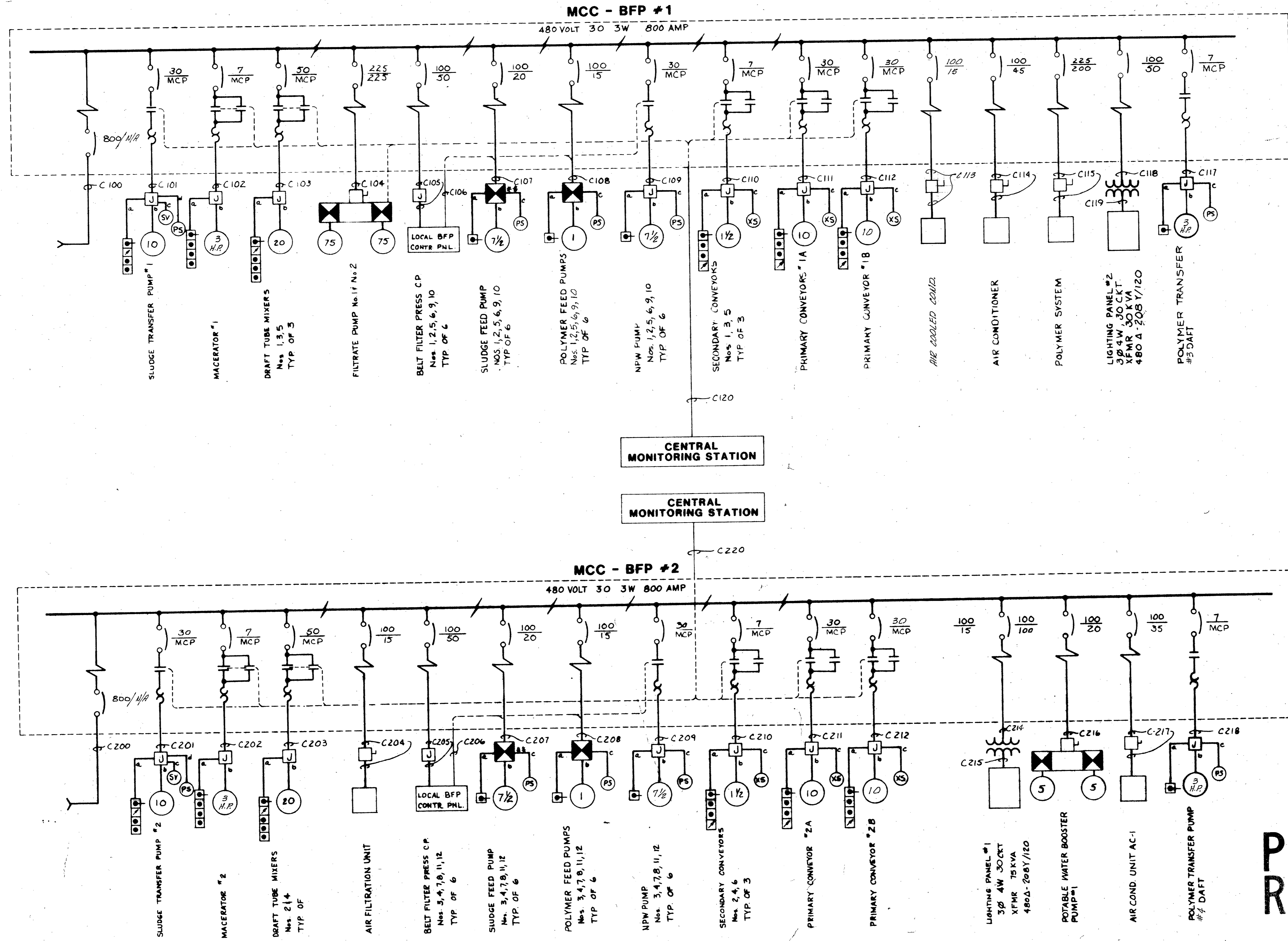
SAN ANTONIO

CONTRACT NO. 4B-1
 DOS RIOS FACILITY
 ONE LINE DIAGRAM

Sheet E-2
 of 6



DR 86-6502



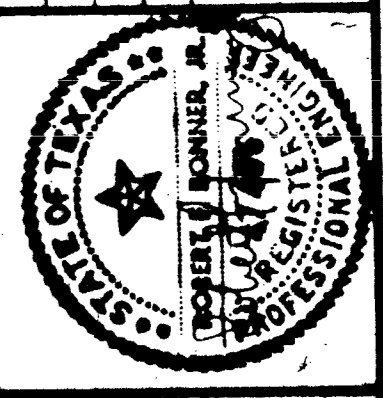
RECORD DRAWING
 This drawing reflects changes from the original contract. Changes were made during construction and were prepared by the construction engineer. The Engineer does not warrant the drawing to be complete and accurate in all respects.
 MALCOLM PIRNIE, INC.
 Date 3-23-88 By RAM

PROJECT RECORD

** SUPPLIED BY EQUIPMENT MANUFACTURER

App	409N-86.052-1
Revisions	
No	Date
1	11-20-87
	RS - BULLY

Date FEBRUARY 1986
 Designed by WJL
 Drawn by BVC
 Checked by M/B
 Scale NOT TO SCALE



WASTEWATER FACILITIES IMPROVEMENTS

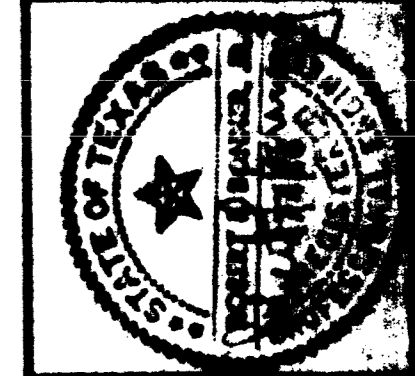
SAN ANTONIO

CONTRACT NO. 4B-1
DOS RIOS FACILITY
 ONE LINE DIAGRAM

Sheet E-2A
 of E-3

**MALCOLM
PIRNIE**

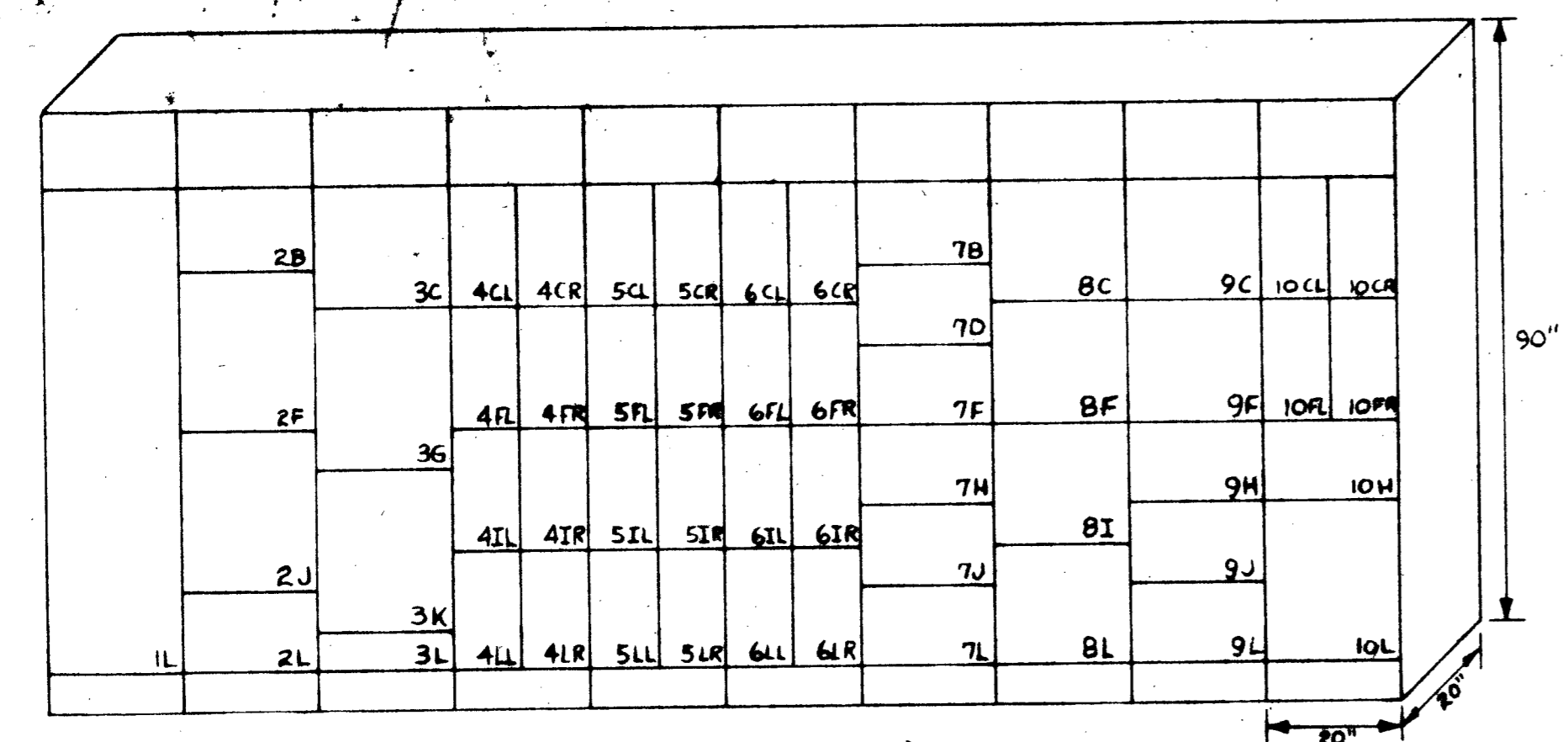
Date FEBRUARY 1986
Designed by WJK
Drawn by RWC
Checked by BS
Scale NOT TO SCALE



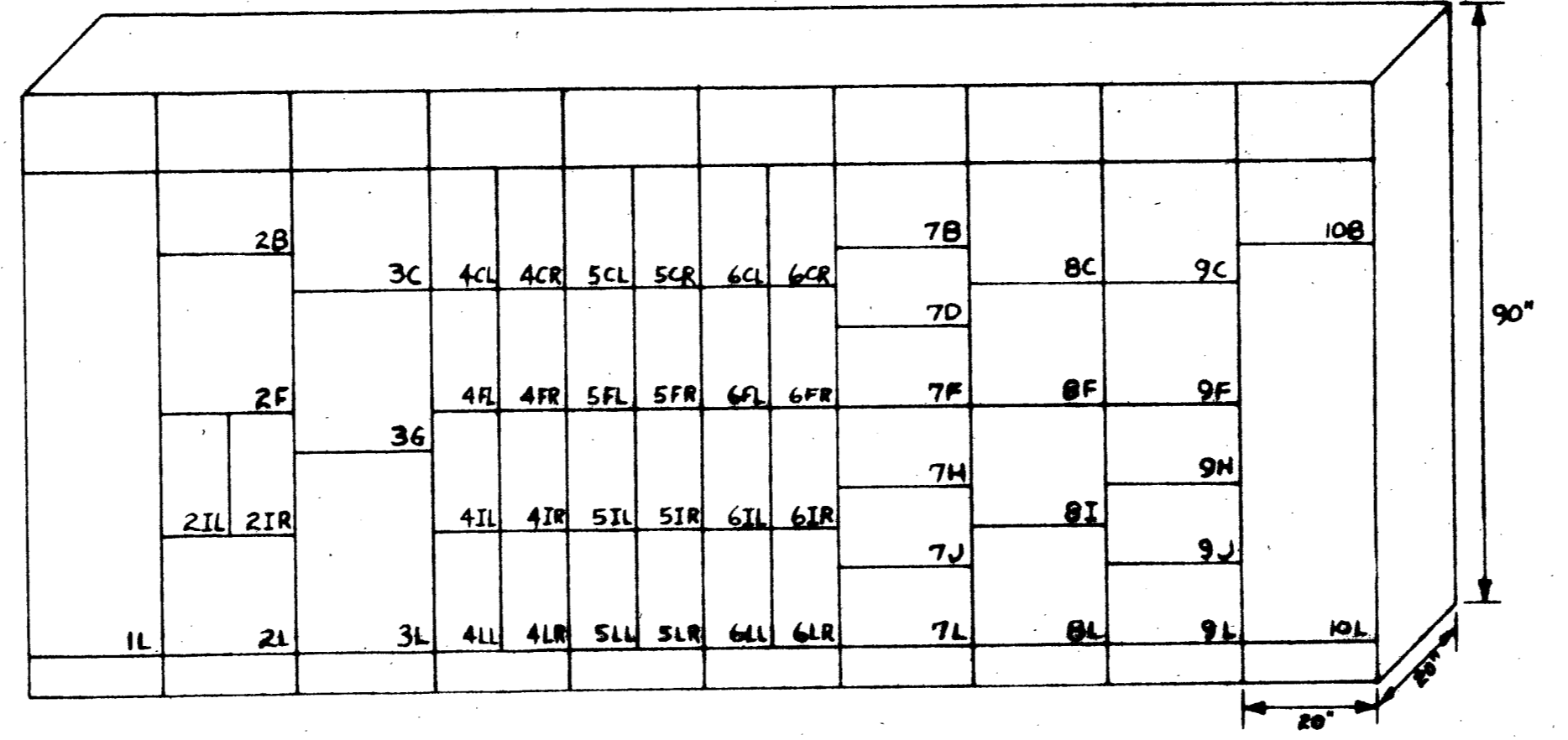
Wastewater
Facilities
Equipment

Sno
Pirnie

CONTRACT NO. 40-1
DOS RIOS FACILITY
MOTOR CONTROL CENTER
WASTEWATER TREATMENT PLANT SCHEDULE



MCC - BFP 1



MCC - BFP 2

MCC NO. BFP1 LOCATION BELT FILTER PRESS FACILITY
Nema Class II, Type B wiring
Nema Type 1 Enclosure Gasketed
Service Voltage: 480 volts, 3 phase, 3 wires, 60 Hertz
Short Circuit Capacity at MCC Terminals: 22,000 RMS Symmetrical
RMS Asymmetrical
Horizontal Bus (Copper): Rating, 800 AMP
Bracing, 22,000 RMS Symmetrical
Vertical Bus (Copper): Rating, 300 AMP
Ground Bus (Copper): Yes ; No
Neutral Bus (Copper): Yes ; No
Incoming Cable: 2 Cables per phase, Size 350 MCM
Neutral, Size -
2 Ground, Size #1/0 AWG
Entering at Top ; Bottom

MCC NO. BFP 2 LOCATION BELT FILTER PRESS FACILITY
Nema Class II, Type B wiring
Nema Type 1 Enclosure Gasketed
Service Voltage: 480 volts, 3 phase, 3 wires, 60 Hertz
Short Circuit Capacity at MCC Terminals: 22,000 RMS Symmetrical
RMS Asymmetrical
Horizontal Bus (Copper): Rating, 800 AMP
Bracing, 22,000 RMS Symmetrical
Vertical Bus (Copper): Rating, 800 AMP
Ground Bus (Copper): Yes ; No
Neutral Bus (Copper): Yes ; No
Incoming Cable: 2 Cables per phase, Size 350 MCM
Neutral, Size -
2 Ground, Size #1/0 AWG
Entering at Top ; Bottom

LINE NO.	UNIT NO.	UNIT DESCRIPTION	MCC NO.	MOTOR DATA			STARTER & CIRCUIT BREAKER				MODIFICATIONS									
				VOLT	PHASE	HP	TYPE	NEMA SIZE	TERM - MAG CB FRAME TRIP	MAG ONLY CB CONT A TRIP	FUSE	PB	CPT	AUX RELAYS	TIMER	IND LIGHT RED	LIGHT GREEN	SEL SWITCH	NOA SWITCH	ETM
1L		MAIN CIRCUIT BREAKER	1	480	3				800	600										
2B		SLUDGE TRANSFER PUMP NO. 1	1	460	3	10	FVNR	1			30	140		X	X	X			MF, CR	
2F, 3G		DRAFT TUBE MIXERS NOS. 1, 3 & 5	1	460	3	20	FVR	2			50	340			X	X			MF, CR	
2L		SPACE																		
3C		MACERATOR #1	1	460	3	3	FVR	1			7	140			X	X			MF, R-I	
3K		FILTRATE PUMPS C.B.	1	480	3				225	225										
3L		AIR COOLED COND.	1	480	3				100	15										
4CL-4LR		BELT FILTER PRESS C.B. NOS. 1, 2, 5, 6, 9, 10	1	480	3				100	50										
4LL-4LR		BELT FILTER PRESS C.B. (FUTURE) SPACE	1																	
5CL-5LR		SLUDGE FEED PUMPS NOS. 1, 2, 5, 6, 9, 10	1	480	3				100	20										
5LL-5LR		SLUDGE FEED PUMPS (FUTURE) SPACE	1																	
6CL-6LR		POLYMER FEED PUMPS NOS. 1, 2, 5, 6, 9, 10	1	480	3				100	15										
6LL-6LR		POLYMER FEED PUMPS (FUTURE) SPACE	1																	
7B-7L		NPW BOOSTER PUMPS NOS. 1, 2, 5, 6, 9, 10	1	460	3	1/2	FVNR	1			30	140		X	X	X			MF	
8C, F, I		SECONDARY CONVEYORS NOS. 1, 3, 5	1	460	3	1-1/2	FVR	1			7	30		X	X	X			MF, TD	
8L		SECONDARY CONVEYORS (FUTURE) SPACE	1																	
9C		PRIMARY CONVEYOR #1A	1	460	3	10	FVR	1			30	140		X	X	X			MF, TD	
9F		PRIMARY CONVEYOR #1B	1	460	3	10	FVR	1			30	94		X	X	X			MF, TD	
9J, L		NPW BOOSTER PUMPS (FUTURE) SPACE	1																	
10CL		SPACE	1																	
10CR		LIGHTING PANEL XFMR C.B.	1	480	3				100	50										
10FL		POLYMER SYSTEM C.B.	1	480	3				100	100										
10FR		AIR HANDLING UNIT	1	480	3				100	45										
10H		POLYMER TRANSFER PUMP (DAFT) #3	1	460	3	3	FVNR	1			7	42		X	X	X			MF	
10L		TERMINAL COMPARTMENT	1																	
			MCC NO.																	
			BFP																	
1L		MAIN CIRCUIT BREAKER	2	480	3				800	600										
2B		SLUDGE TRANSFER PUMP NO. 2	2	460	3	10	FVNR	1			30	140		X	X	X			MF, CR	
2F, 3G		DRAFT TUBE MIXERS NOS. 2 & 4	2	460	3	20	FVR	2			50	340			X	X			MF, CR	
2IL		AIR FILTRATION UNIT	2	480	3				100	15										
2IR		POTABLE WATER BOOSTER PUMPS C.B.	2	480	3				100	20										
2L		SPACE	2																	
3C		MACERATOR #2	2	460	3	3	FVR	1			7	140			X	X			MF, R-I	
3L		SPACE	2																	
4CL-4LR		BELT FILTER PRESS C.B. NOS. 3, 4, 7, 8, 11, 12	2	480	3				100	50										
4LL-4LR		BELT FILTER PRESS (FUTURE) SPACE	2																	
5CL-5LR		SLUDGE FEED PUMPS C.B. NOS. 3, 4, 7, 8, 11, 12	2	480	3				100	20										
5LL-5LR		SLUDGE FEED PUMPS (FUTURE) SPACE	2																	
6CL-6LR		POLYMER FEED PUMPS C.B. NOS. 3, 4, 7, 8, 11, 12	2	480	3				100	15										
6LL-6LR		POLYMER FEED PUMPS (FUTURE) SPACE	2																	
7B-7L		NPW BOOSTER PUMPS NOS. 3, 4, 7, 8, 11, 12	2	460	3	1/2	FVNR	1			30	140		X	X	X			MF	
8C, F, I		SECONDARY CONVEYORS NOS. 3, 4, 6	2	460	3	1-1/2	FVR	1			7	30		X	X	X			MF, TD	
8L		SECONDARY (FUTURE) SPACE	2																	
9C		PRIMARY CONVEYOR NO. 2A	2	460	3	10	FVR	1			30	140		X	X	X			MF, TD	
9F		PRIMARY CONVEYOR NO. 2B	2	460	3	10	FVR	1			30	94		X	X	X			MF, TD	
9H		POLYMER TRANSFER PUMP (DAFT) #4	2	480	3	3	FVNR	1			7	42		X	X	X			MF	
9J		SPACE	2																	
9L, 9LL		NPW BOOSTER PUMPS (FUTURE) SPACE	2																	
10R		LIGHTING PANEL XFMR C.B.	2	480	3				100	100										
10L		SPACE	2																	

ABBREVIATIONS

- PUSHBUTTONS (PB)**
 S-S Start-Stop
 SP Stop Only
 ST Start Only
 FRS Forward-Reverse-Stop
 LOS Lock-Out-Stop

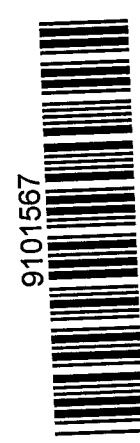
- STARTER TYPE**
 FVNR Full Voltage Non-Reversing
 FVR Full Voltage Reversing
 2S-2W 2 Speed, 2 Winding
 2S-PW 2 Speed, Part Winding
 RVNR Reduced Voltage Non-Reversing

- ATS Automatic Transfer Switch
 CB Circuit Breaker
 CLF Current Limiting Fuse
 CPT Control Power Transformer
 CT Current Transformer
 ETM Elapsed Time Meter
 GFI Ground Fault Interrupter
 HOA Hand-Off-Auto
 HP Horsepower
 LP Lighting Panel
 PP Power Panel
 X-FMR Transformer

RECORD DRAWINGS

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 MALCOLM PIRNIE, INC.
 Date 3-23-86 by RAN

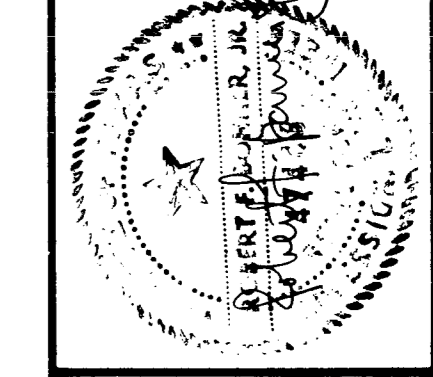
**PROJECT
RECORD**



DR 86-6502

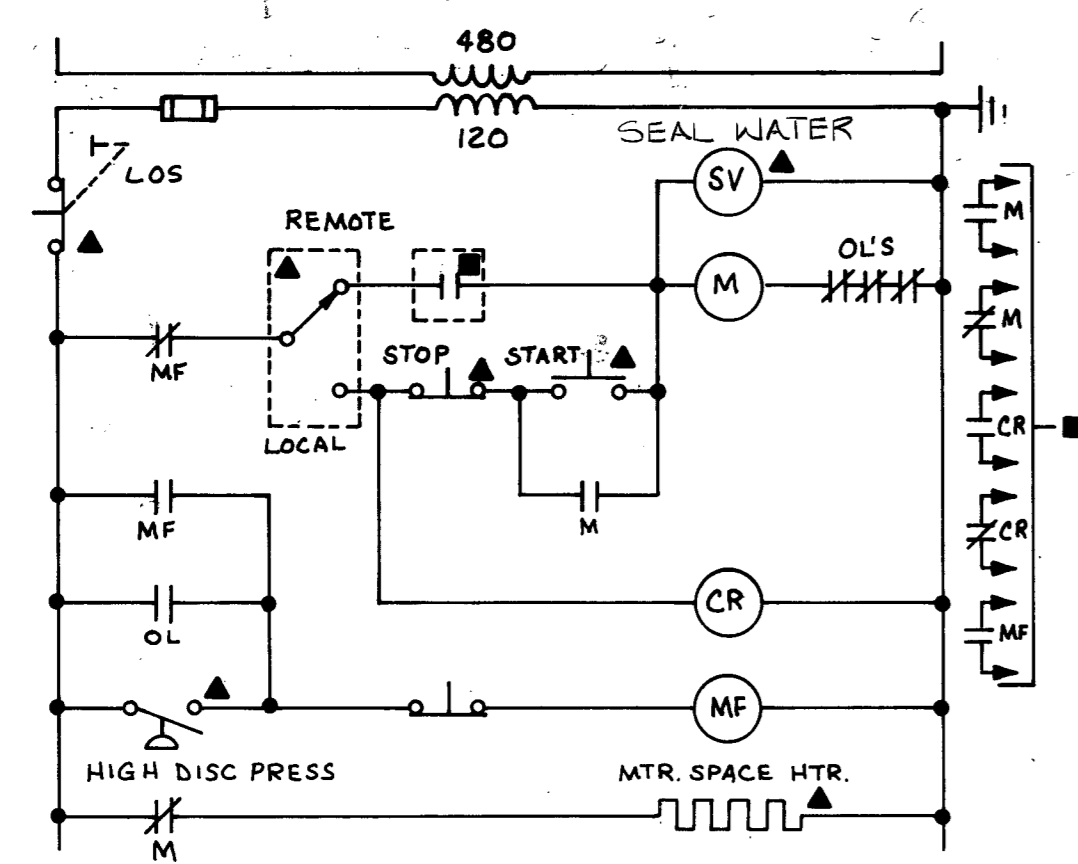
MALCOLM PIRNIE

Date FEBRUARY 1986
 Designed by JJK
 Drawn by JUC
 Checked by MB
 Scale NOT TO SCALE

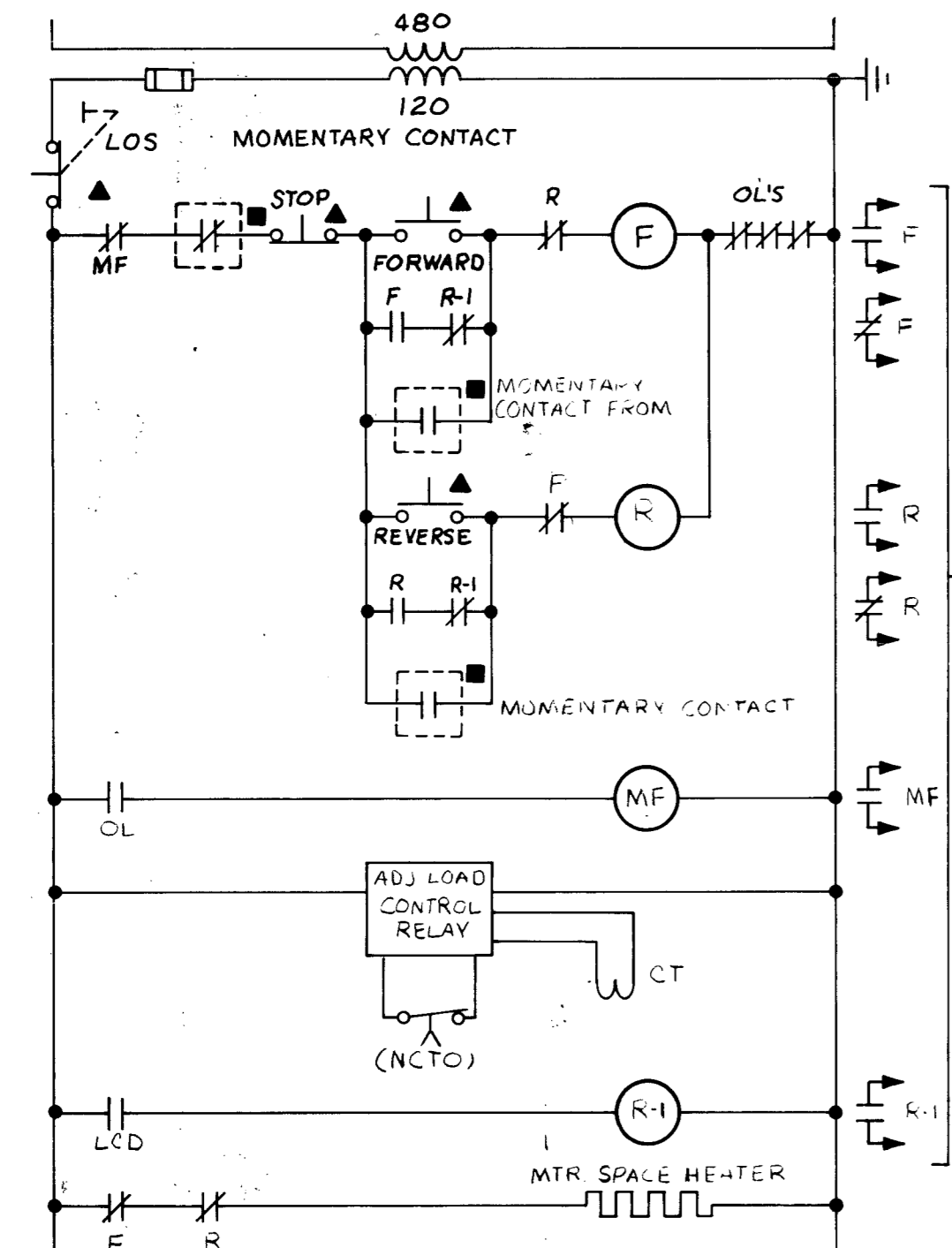


San Antonio
 WASTE WATER FACILITIES IMPROVEMENTS

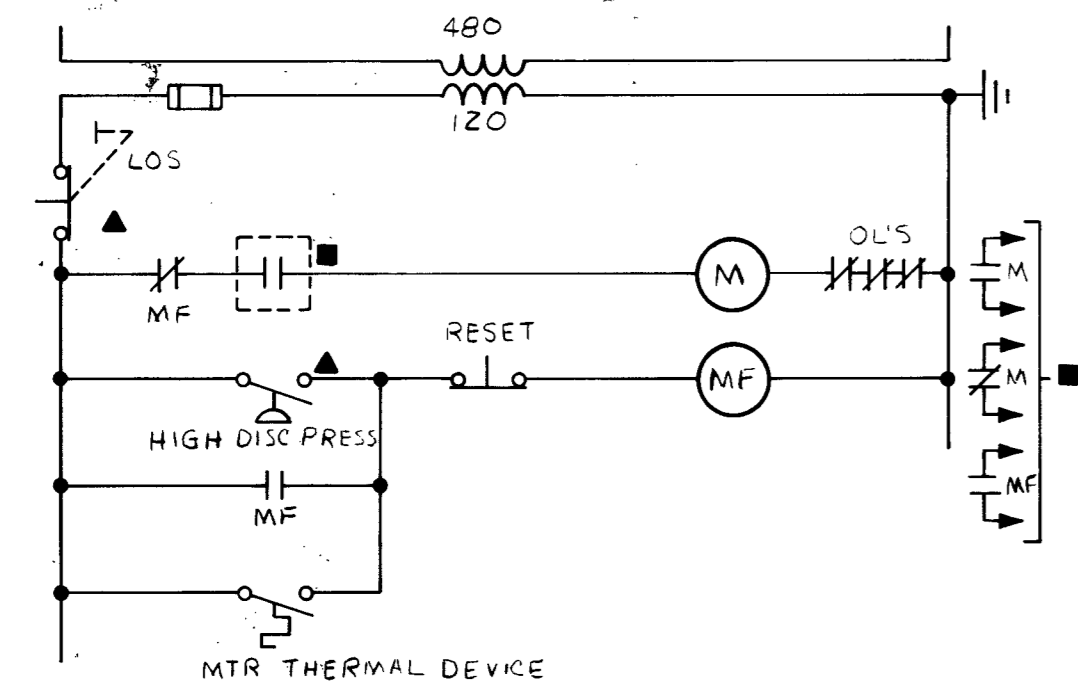
CONTRACT NO. 4B-1
DOS RIOS FACILITY
 CONTROL SCHEMATICS



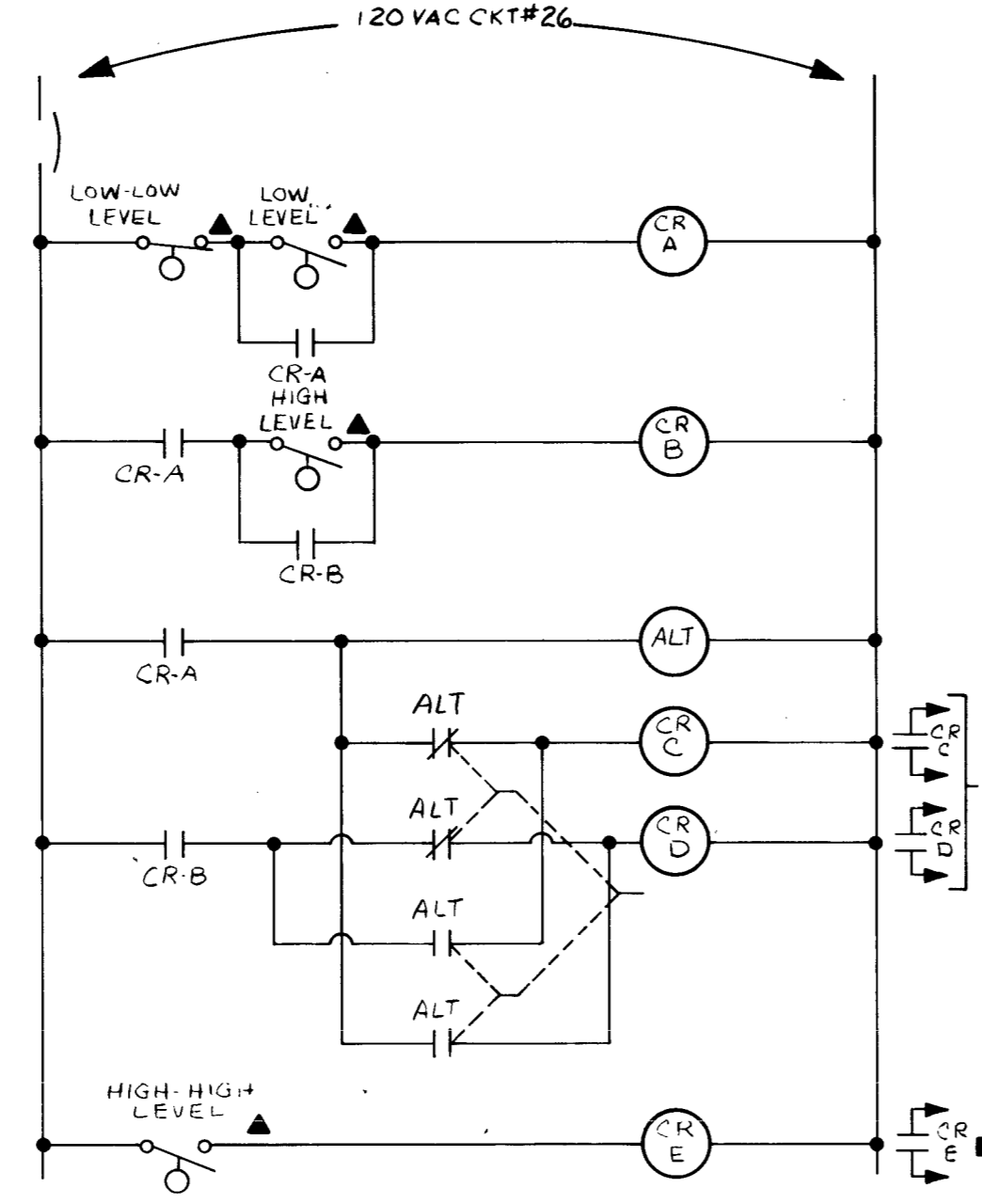
SLUDGE TRANSFER PUMP (TYP. OF 2)



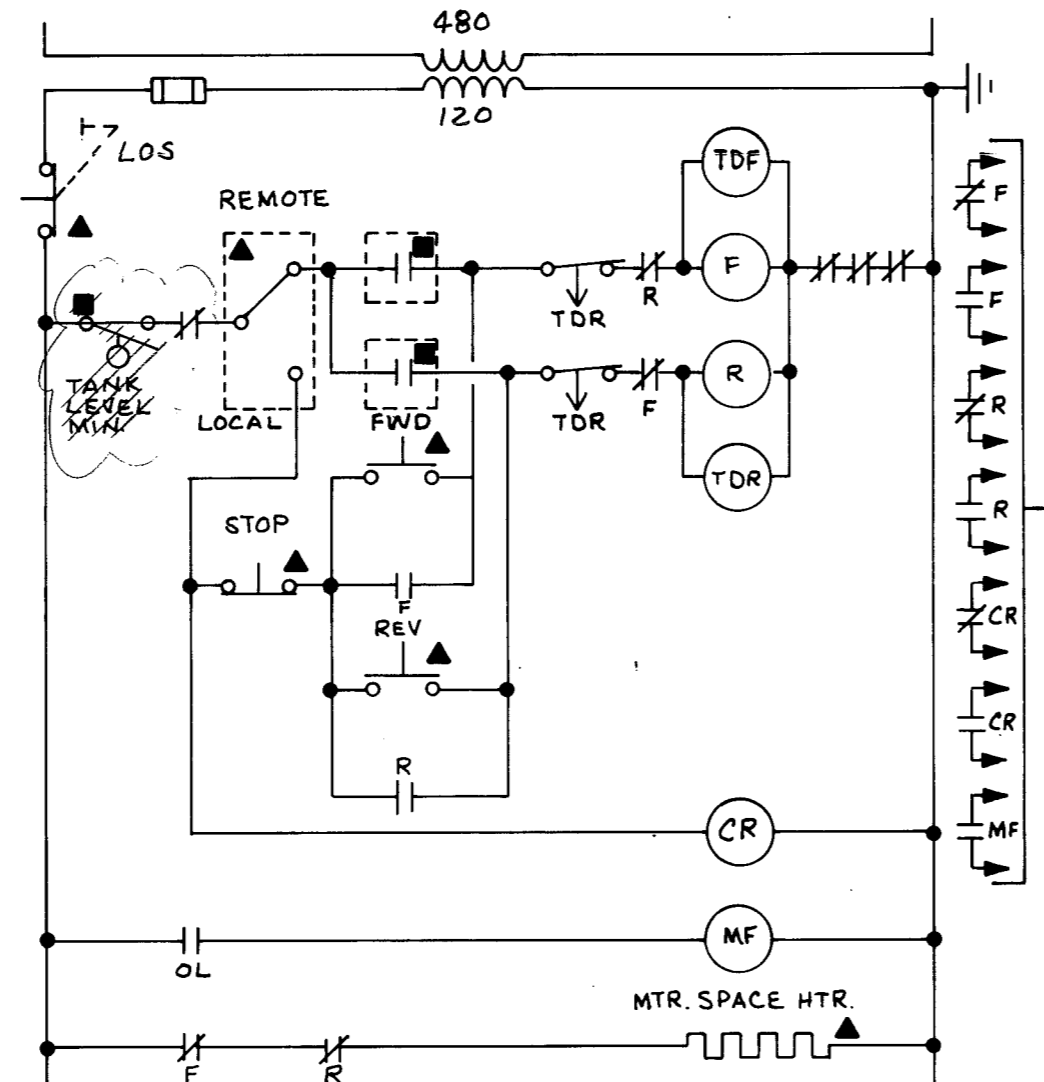
MACERATOR (TYP. OF 2)



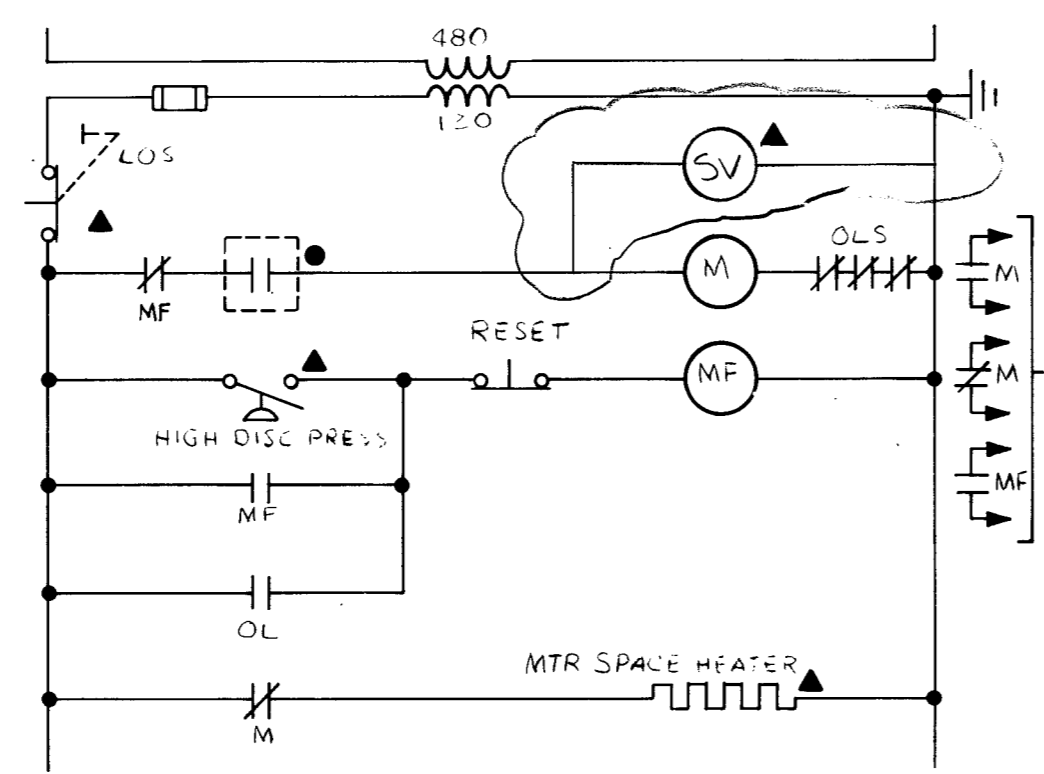
FILTRATE PUMPS (TYP. OF 2)



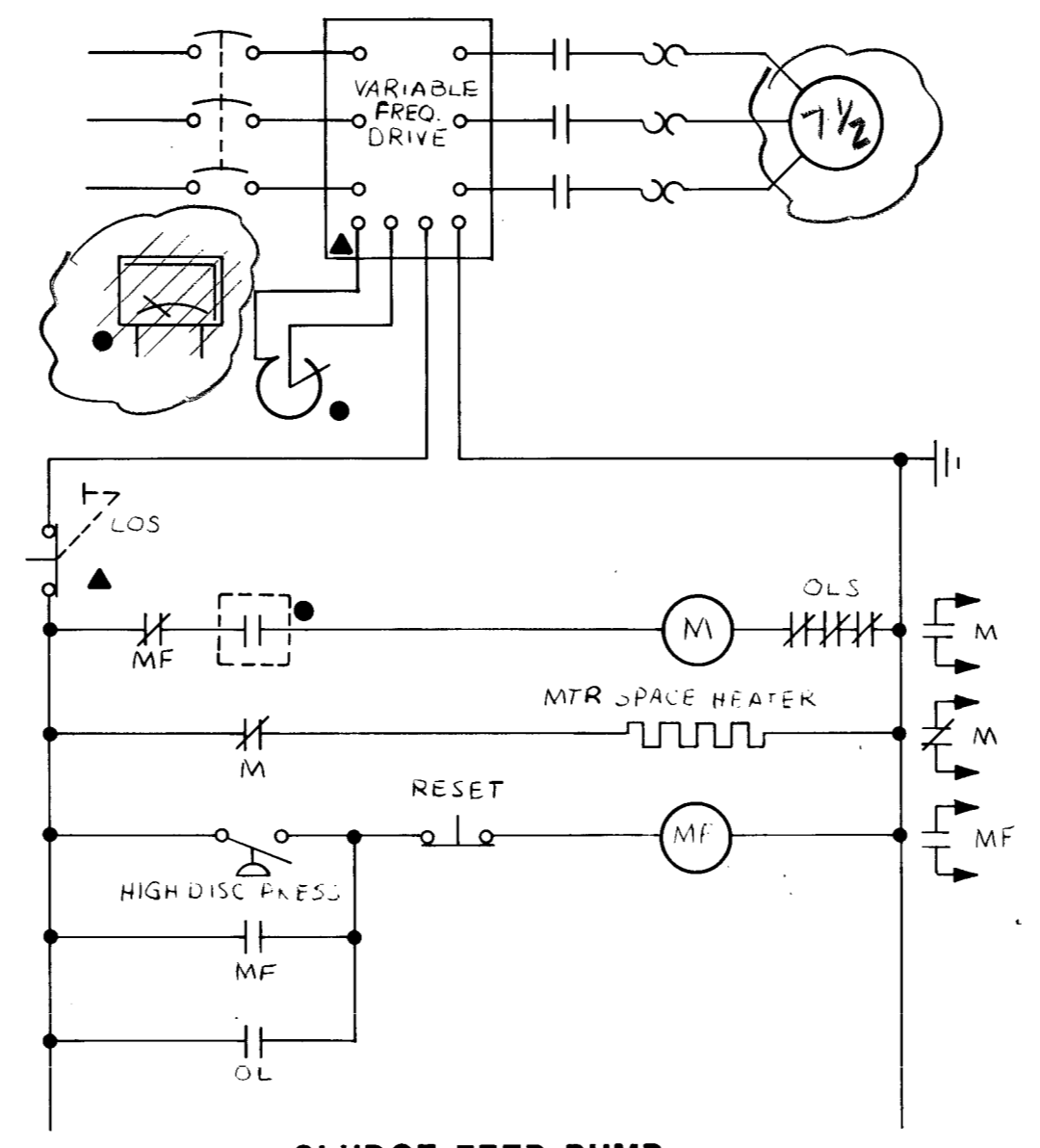
FILTRATE CONTROL CIRCUITRY



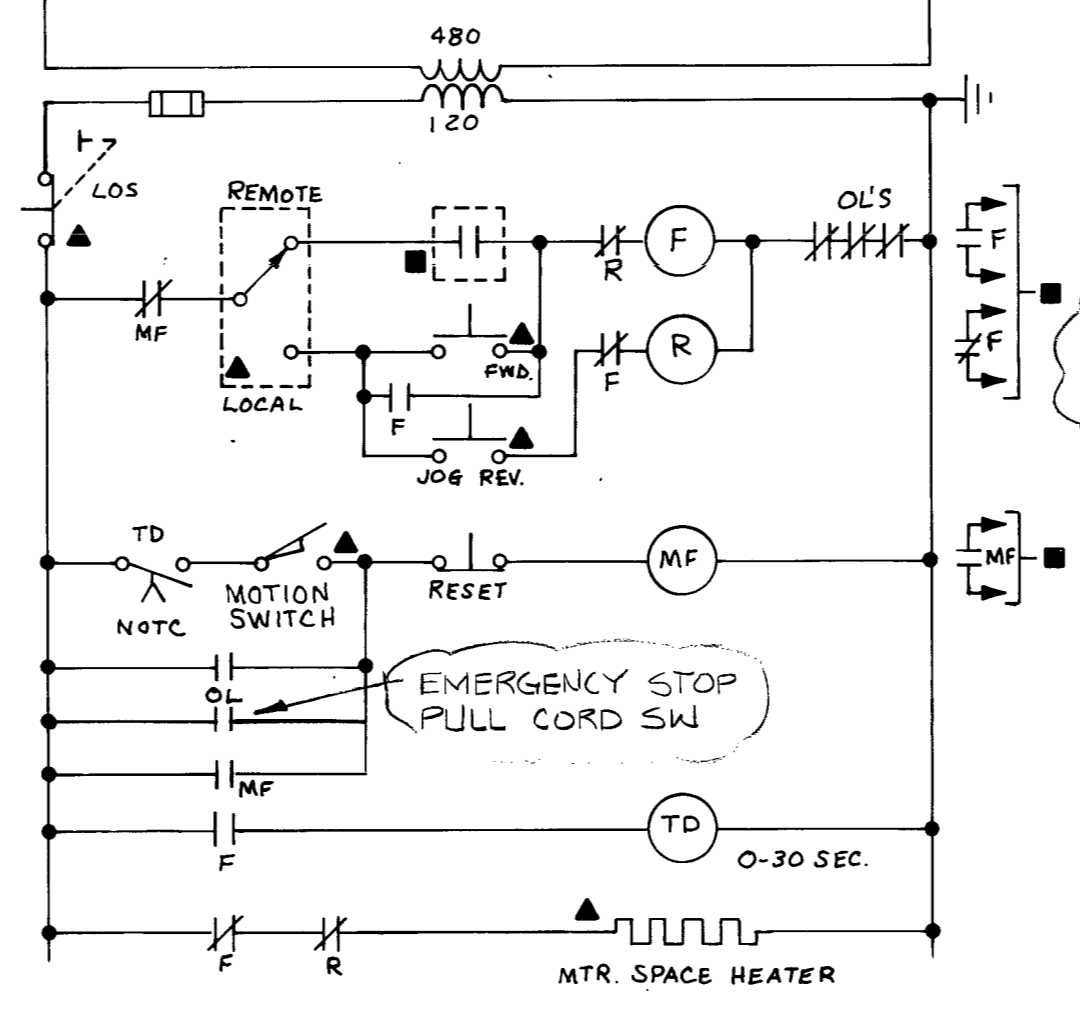
DAFT TUBE MIXER (TYP. OF 5)



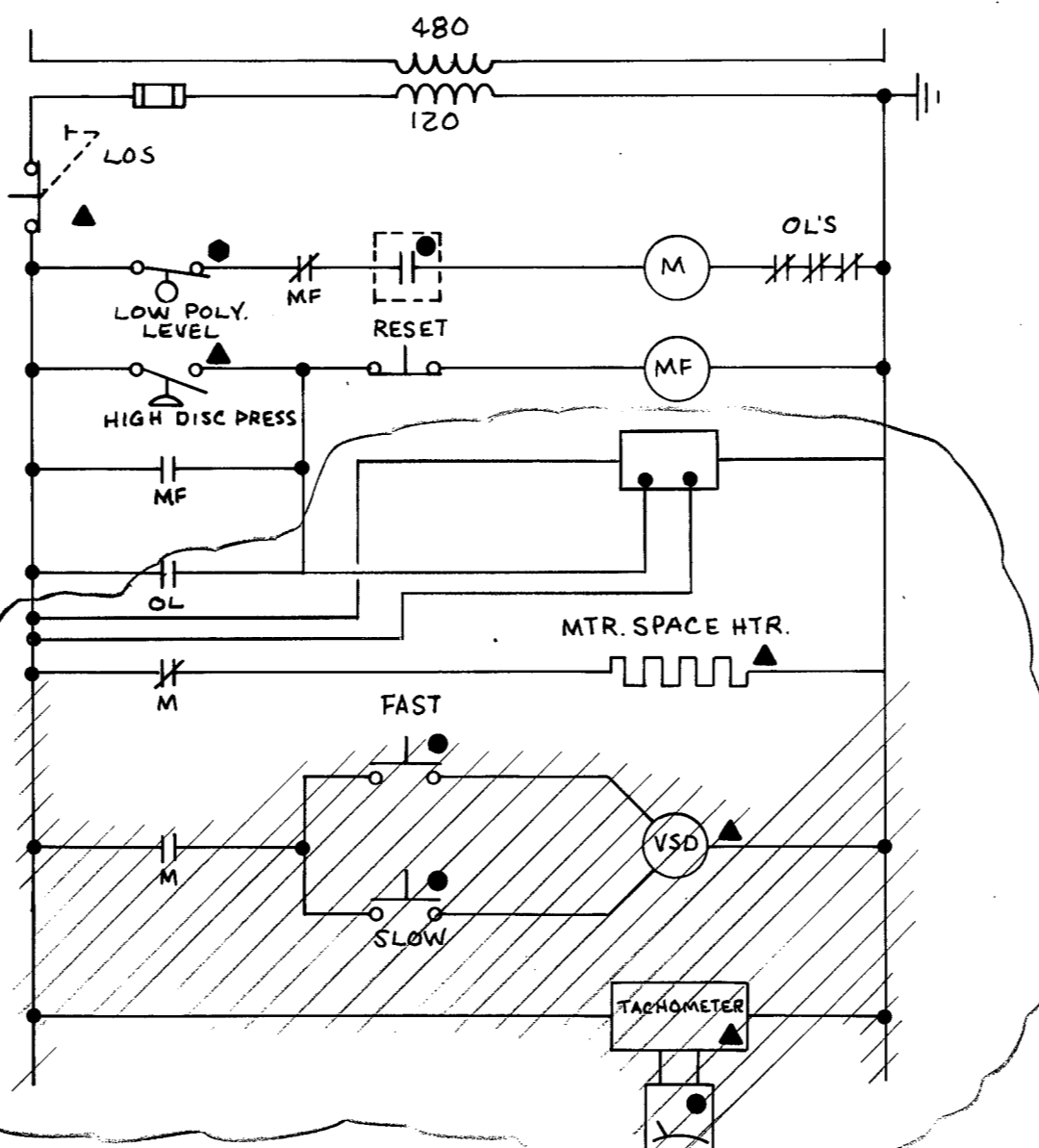
NPW PUMPS (WASH WATER) (TYP. OF 12)



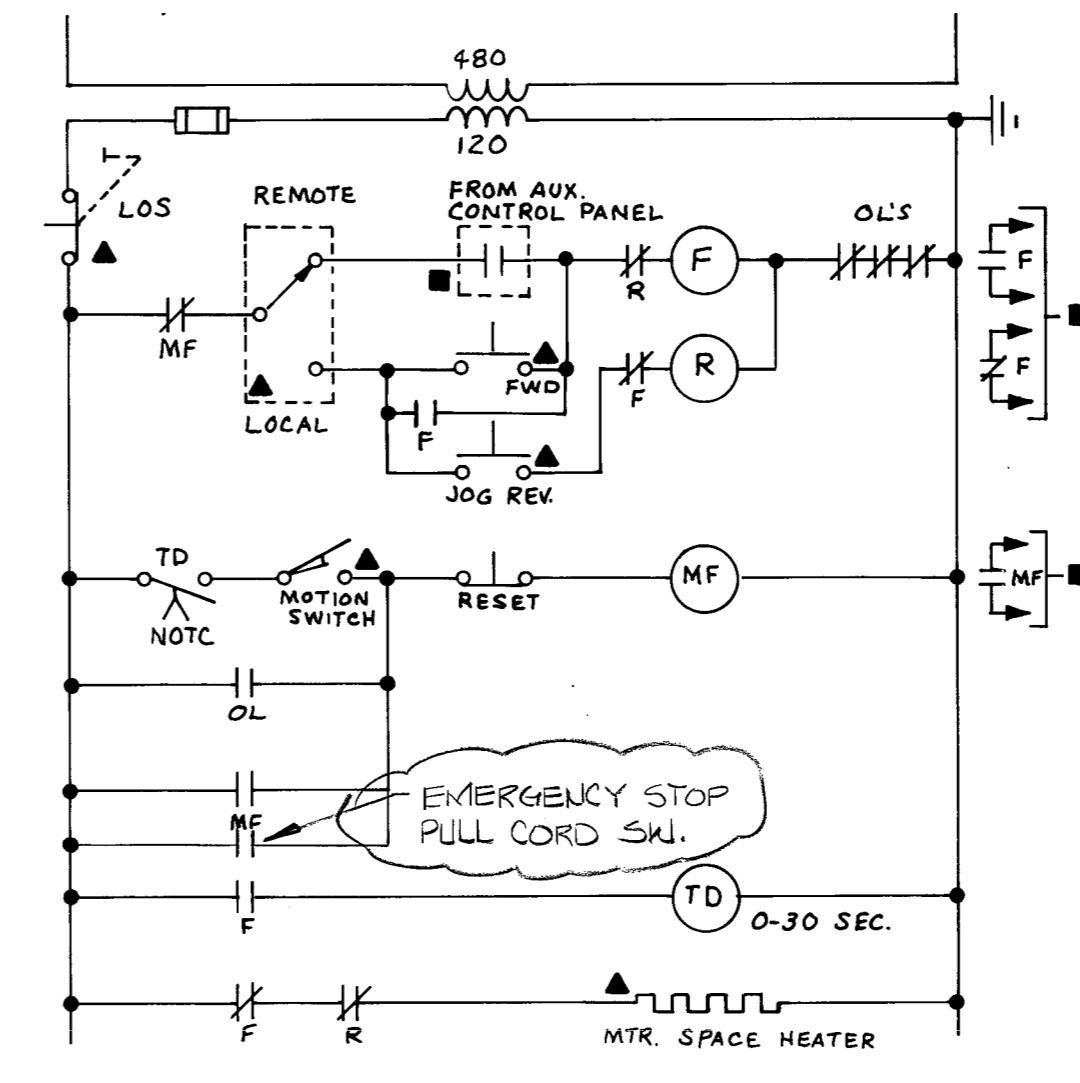
SLUDGE FEED PUMP (TYP. OF 12)



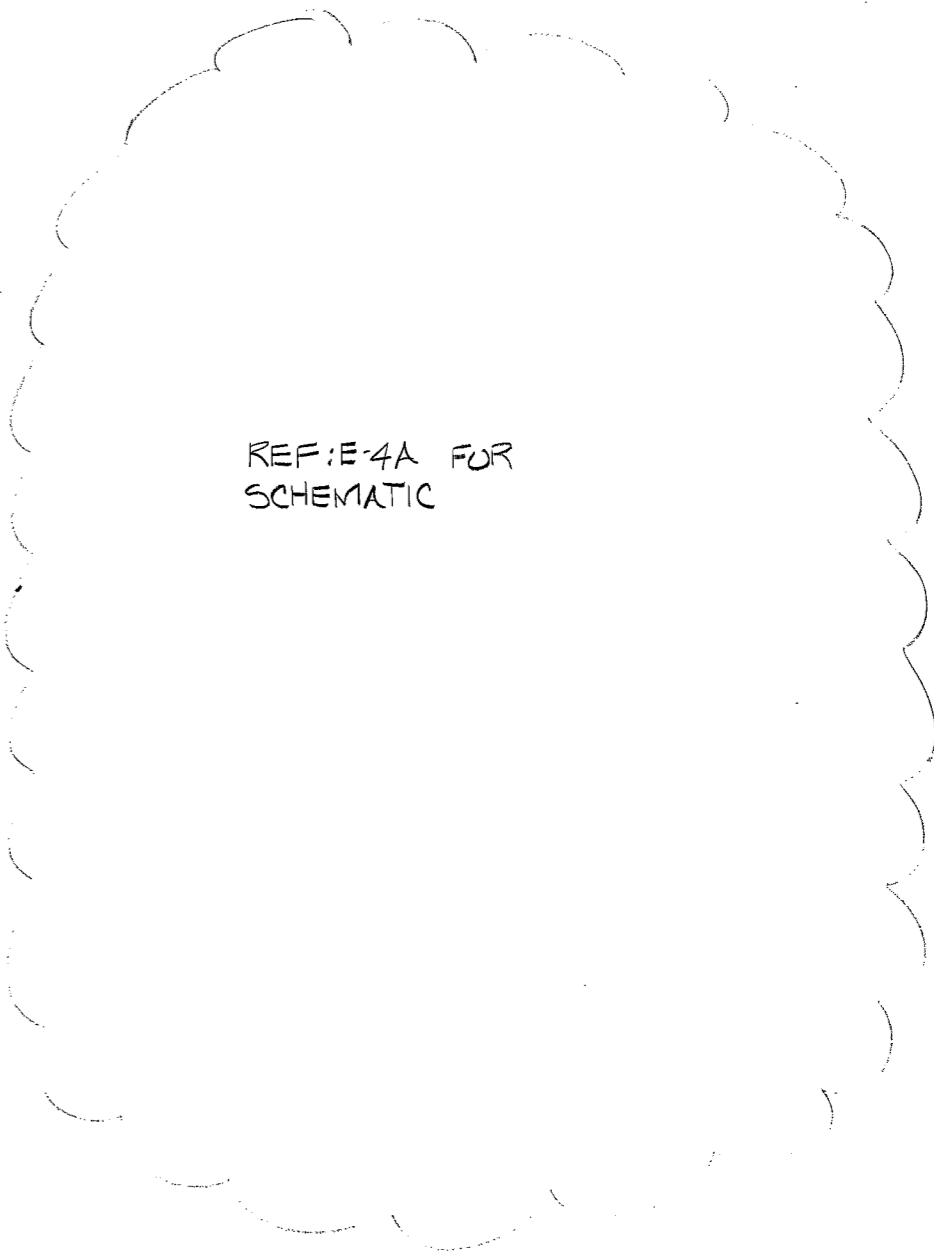
SECONDARY CONVEYOR (TYP. OF 6)



POLYMER METERING PUMP (TYP. OF 12)



PRIMARY CONVEYOR (TYP. OF 4) #1A, 2A



CKT. NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD KVA			LOAD KVA	DESCRIPTION OF LOAD	TRIP AMPS	CKT. NO.	
			A	B	C					
1	3P	LOWER LEVEL LTG.	2.25	4.50	2.25	2.25	LOWER LEVEL LTG.	2		
3	3P	LTG. CONTACTOR	2.25	4.50	2.25	2.25	LTG. CONTACTOR	4		
5	3P		2.25	4.50	2.25	2.25		6		
7	3P	UPPER LEVEL LTG.	2.70	5.40	2.70	2.70	UPPER LEVEL LTG.	8		
9	3P	LTG. CONTACTOR	2.70	5.40	2.70	2.70	LTG. CONTACTOR	10		
11	3P		2.70	5.40	2.70	2.70		12		
13	15	RECEPTACLES UPPER LVL	1.40	2.80	1.40	1.40	RECEPTACLES UPPER LVL	15		
15	15	DAY TANK MV (3)	.75	1.50	.75	.75	DAY TANK MV (3) SPARE	15		
17	15	LE Y220, LE Y221, LE Y222	.30		1.30	1.00	WATER SOFTENER	15		
19	20	SLUDGE LOADING LTG.	1.60	3.20	1.60	.75	NPW FLOW ELEMENT	15		
21	3P	LTG. CONTACTOR	1.60	3.20	1.60	2.25	SLUDGE FLOW ELEMENT (3)	25		
23	3P		1.60	3.20	1.60	2.25	SLUDGE FLOW ELEMENT (3)	25		
25	25	SLUDGE FLOW ELEMENTS (3)	2.25	4.50	2.25	.20	FILTRATE CONTROL CKT.	15		
27	25	SLUDGE FLOW ELEMENTS (3)	2.25	4.50	2.25	1.00	SPARE	15		
29	15	SPARE	1.00	2.00	1.00	1.00	SPARE	15		
LIGHTING PANEL NO. X2			KVA PER Ø			17.6	18.5	17.05	120/208 VOLT, 3 PHASE, 4 WIRE	
TOTAL						53.15			225/150 AMP MAIN BKR, W/GND BUS	

CKT. NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD KVA			LOAD KVA	DESCRIPTION OF LOAD	TRIP AMPS	CKT. NO.	
			A	B	C					
1	15	EXHAUST FANS 1A & 1B	.24	.36	.12	.12	EXHAUST FAN 1C	15	2	
3	15	EXHAUST FAN 2	.12	.12	.76	.64	CONTROL RM. LTG.	15	4	
5	15	MMC RM. LTG. & TOILET	.80		2.20	1.40	RECEPTACLES (7)	15	6	
7	20	HOT WATER HTR #1	1.67	3.34	1.67	1.67	HOT WATER HTR #2	20	8	
9	3P		1.67	3.34	1.67	1.67		3P	10	
11	3P		1.67	3.34	1.67	1.67		3P	12	
13	15	ELECT. WALL HTRS 1A & 1B	.75	1.125		.375	ELECT. WALL HTR 1C	15	14	
15	2P		.75	1.125	1.375	.375		2P	16	
17	2P	ELECT. WALL HTR 1D	1.00	1.375	1.375	.375	ELECT. WALL HTR 2	15	18	
19	2P		1.00	1.375	1.375	.375		2P	20	
21	15	TOILET #2 RECEPTACLE	.20	.36		.16	TOILET #2 LTG.	15	22	
23	15	MICROPROCESSOR SCP	2.88		3.88	1.00	SPARE BFP PANEL	15	24	
25	15	SPARE	1.00	2.00		1.00	SPARE	15	26	
27	15	SPARE	1.00	2.00		1.00	SPARE	15	28	
29	15	SPARE	1.00	2.00		1.00	SPARE	15	30	
CONTROL RM. MONITOR			KVA PER Ø			8.2	7.58	12.79	MIXER CONTROL PANEL	
TOTAL						28.57			120/208 VOLT, 3 PHASE, 4 WIRE	
LIGHTING PANEL NO. X1									225/90 AMP MAIN BKR, W/GND BUS	

RECORD DRAWINGS

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MALCOLM PIRNIE, INC.

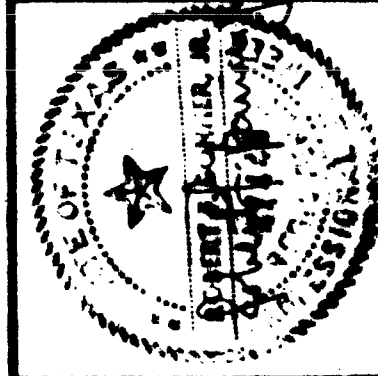
Date 3-23-88 By RAN



DR 86-6502

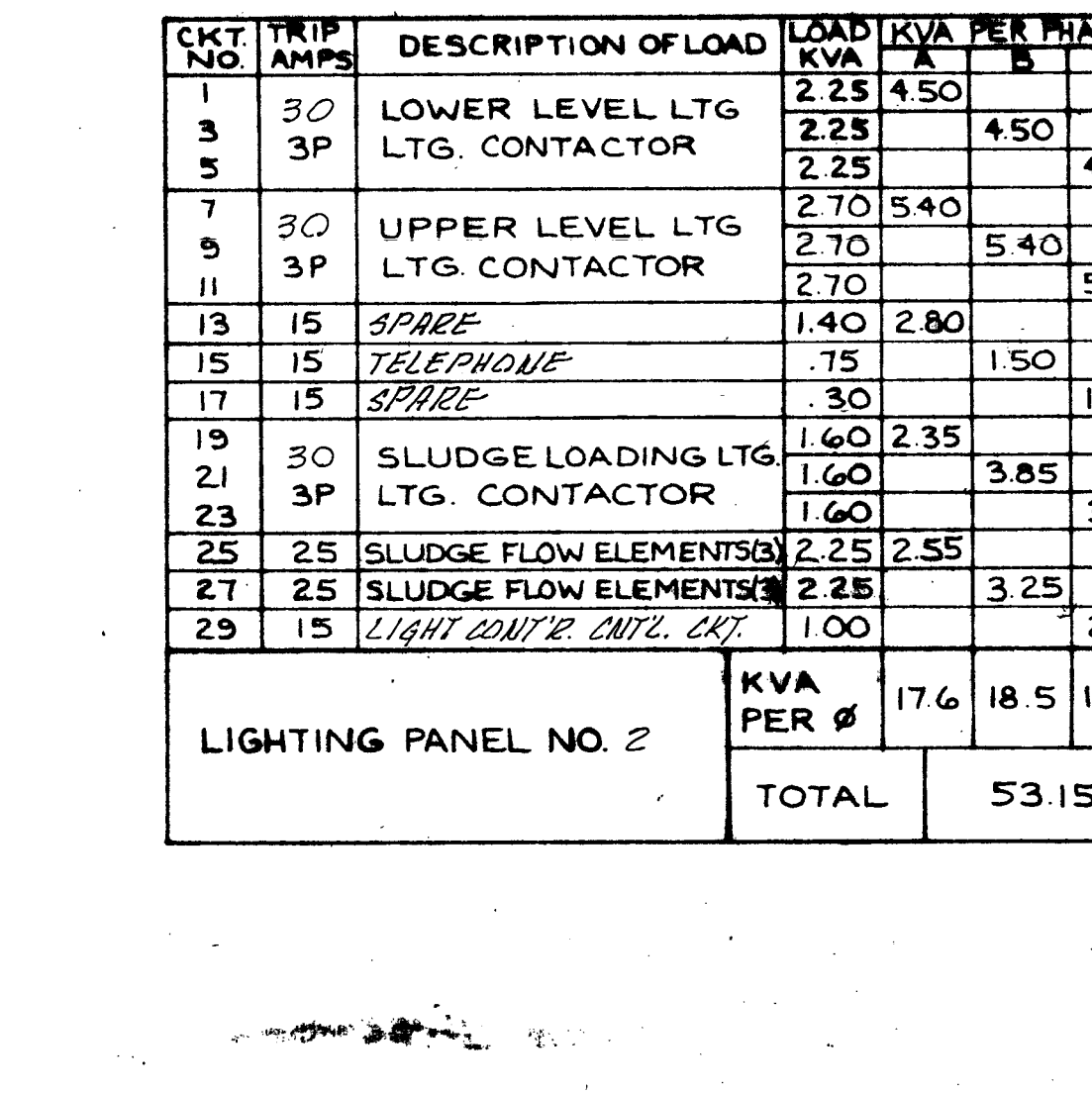
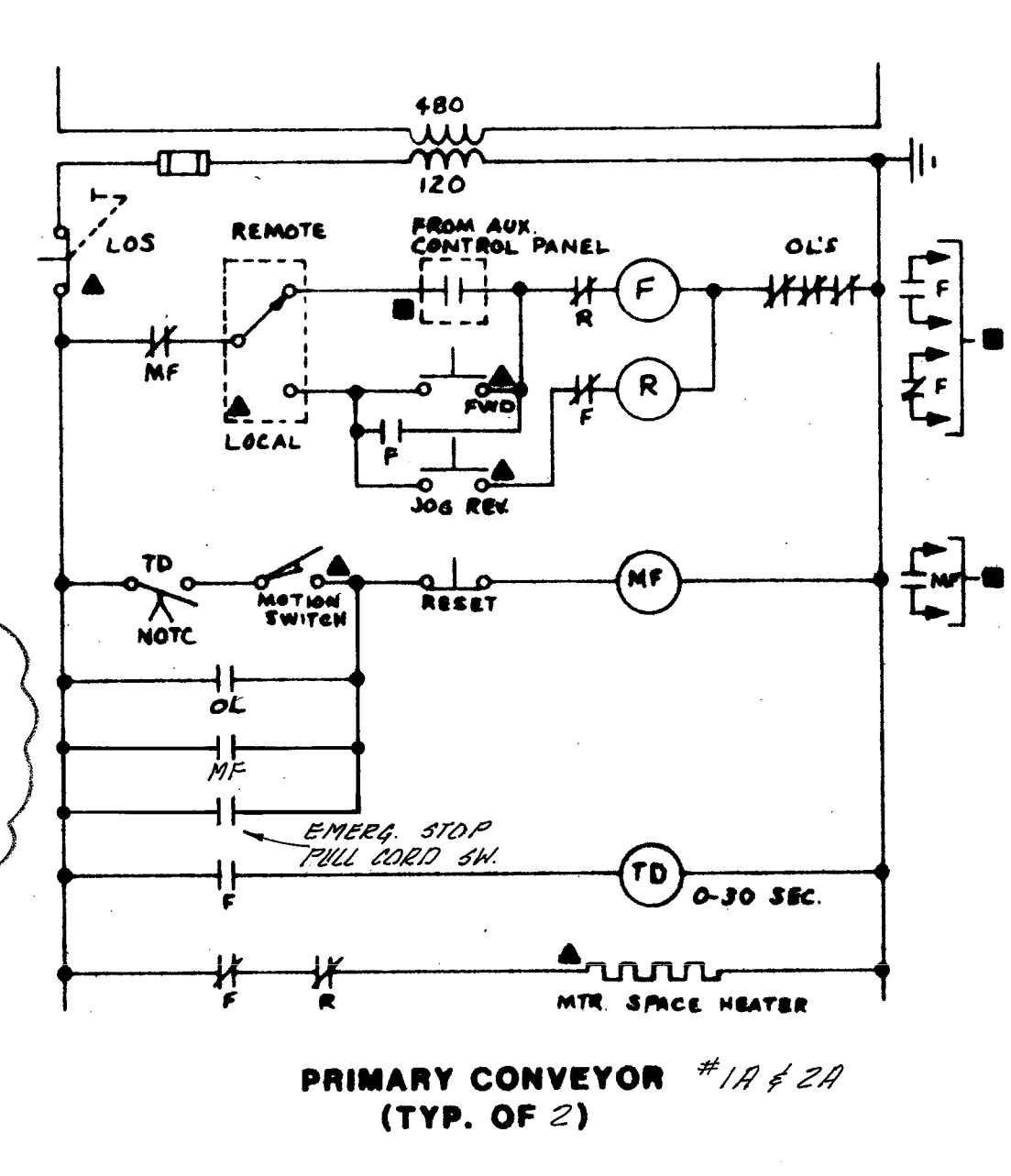
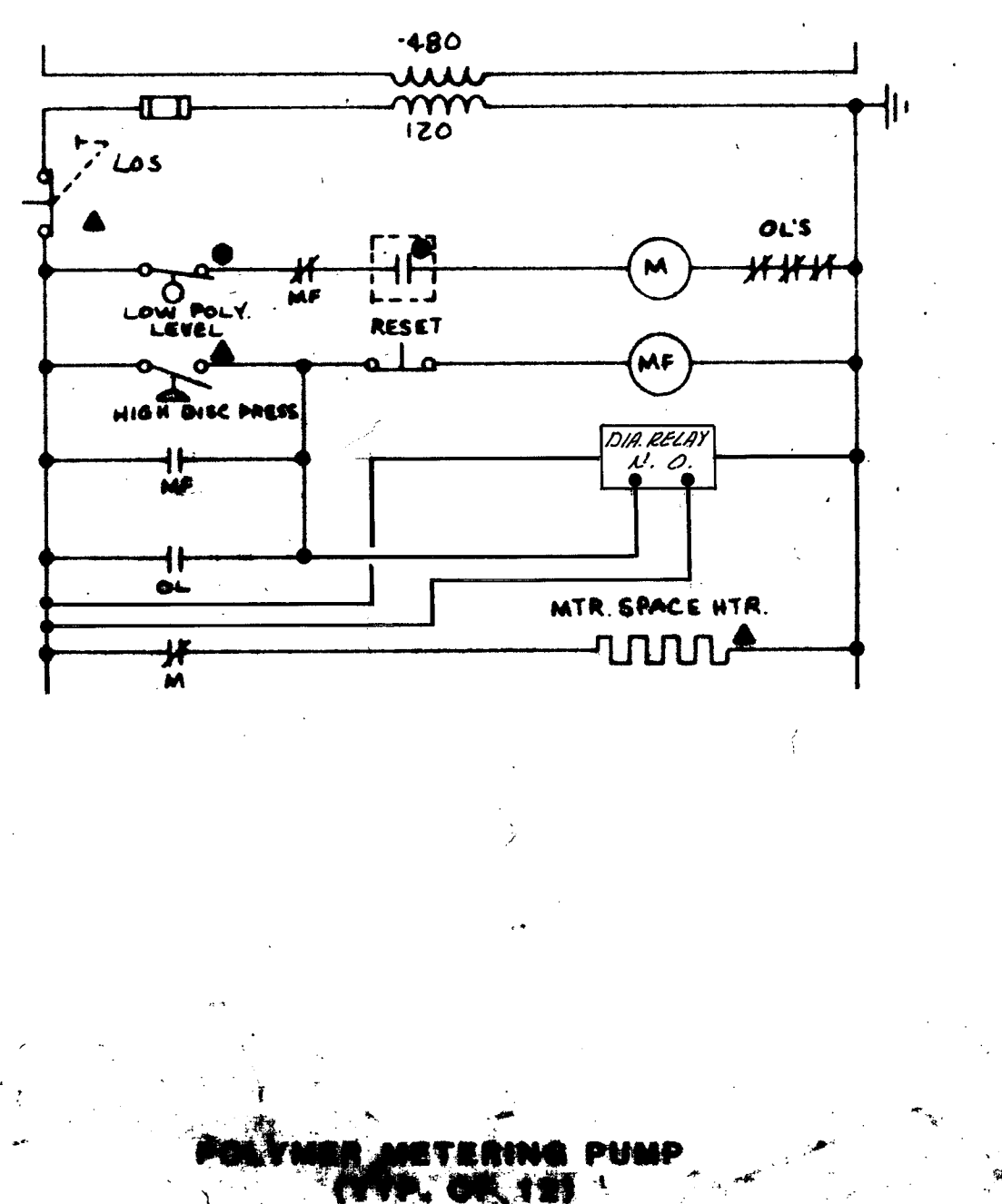
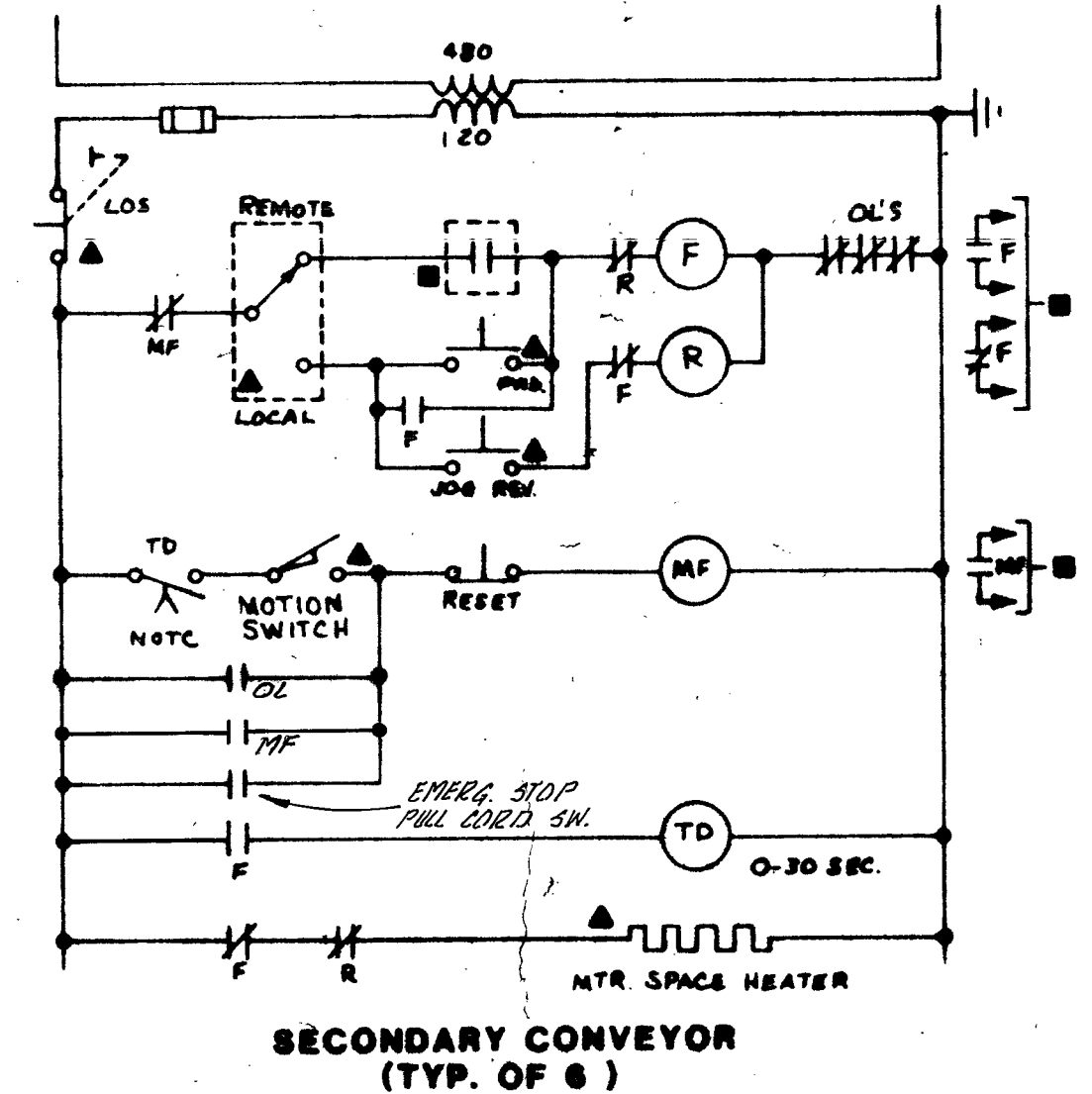
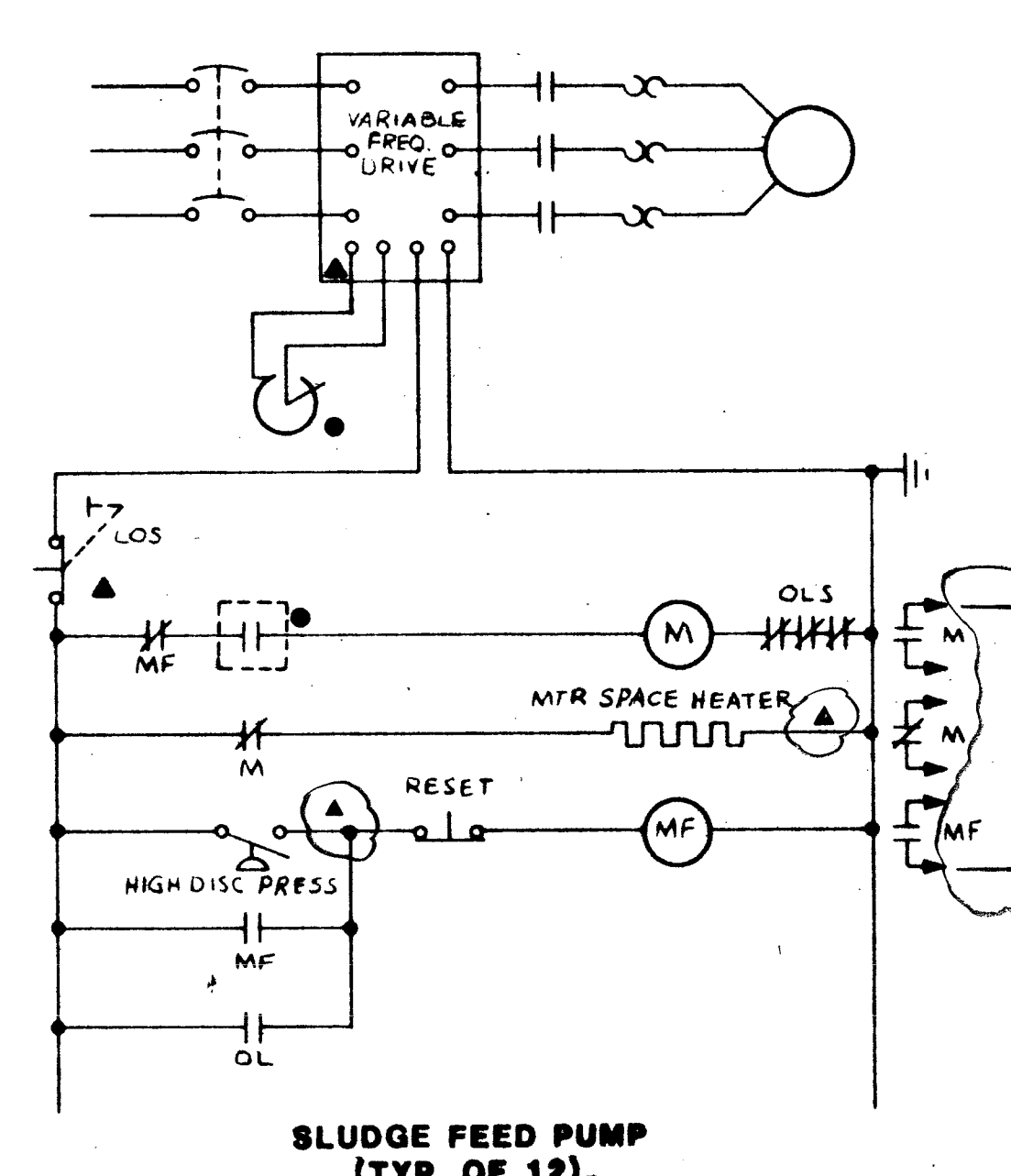
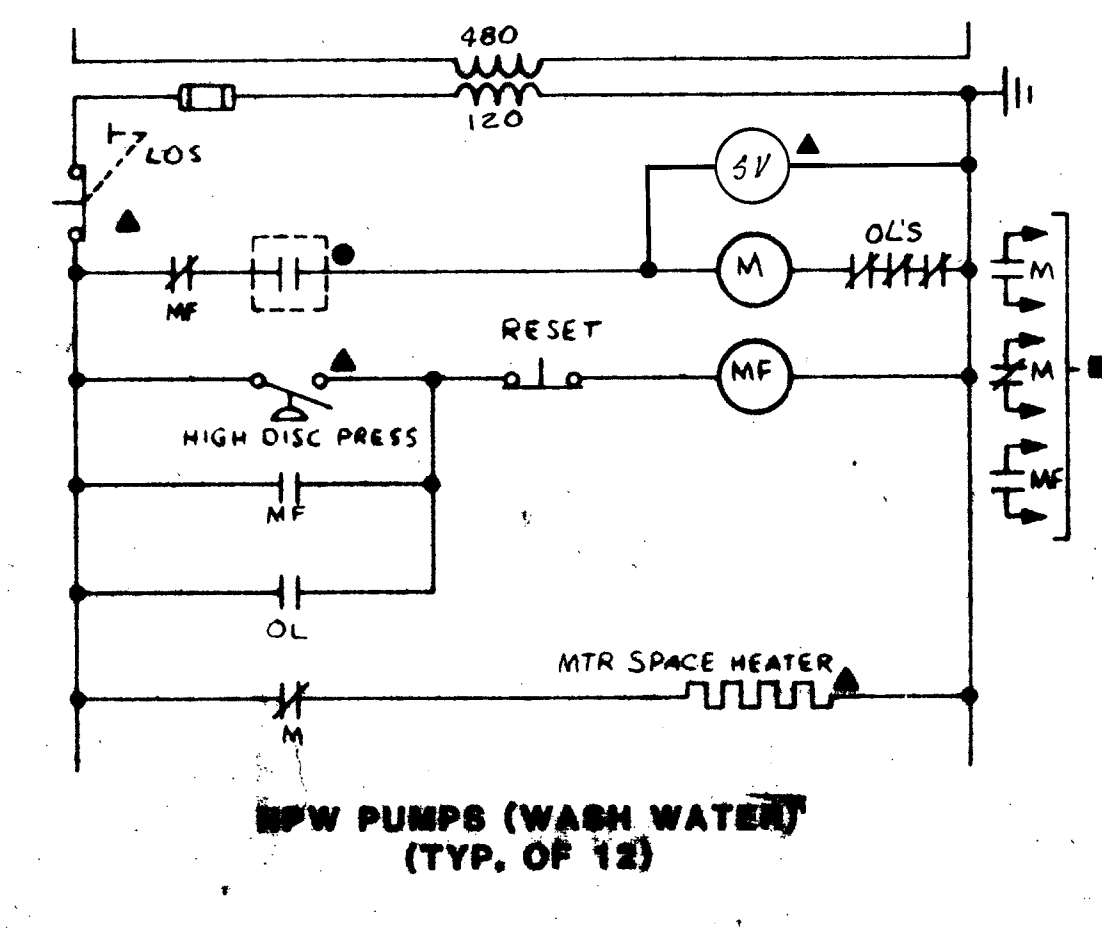
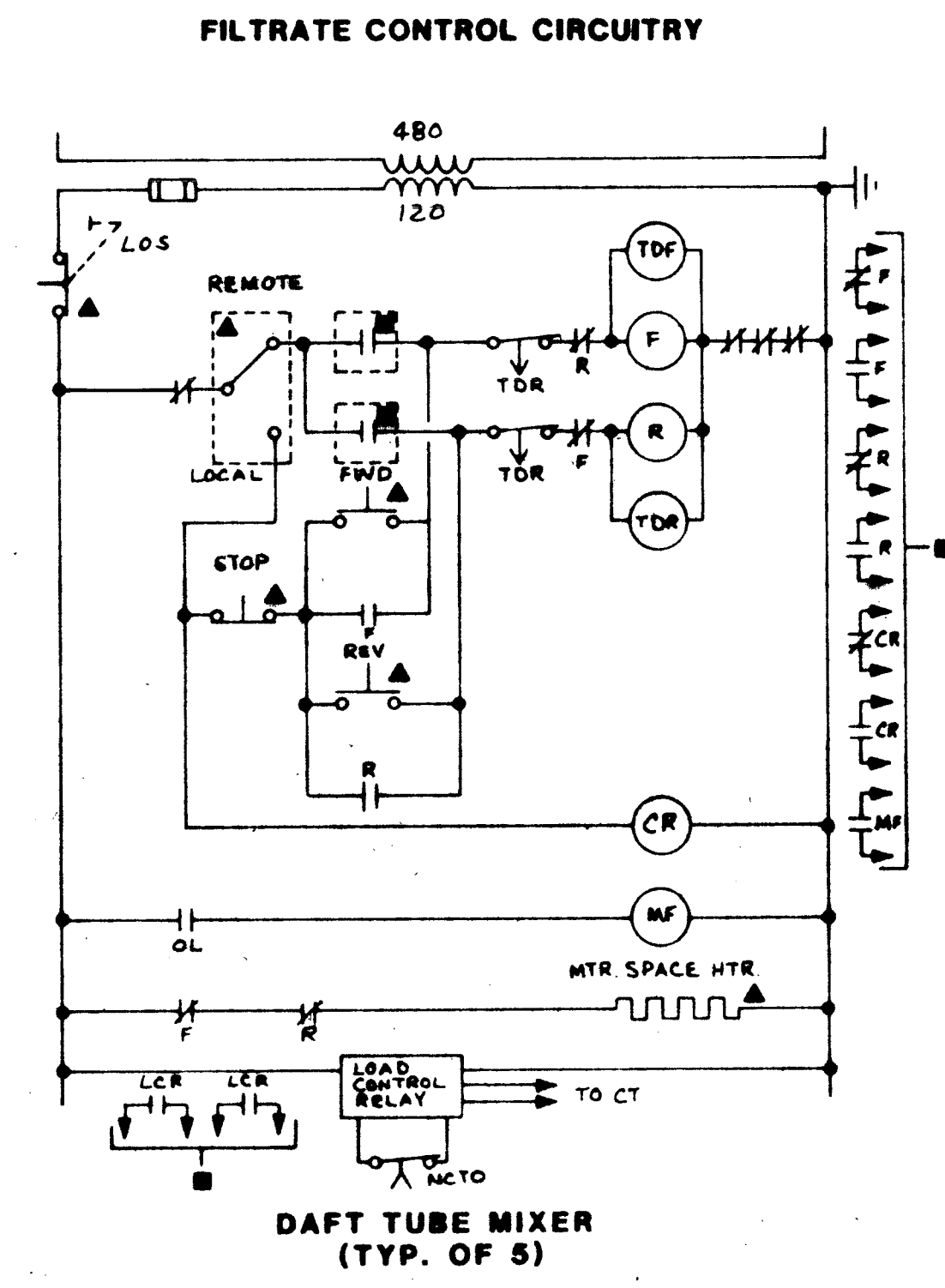
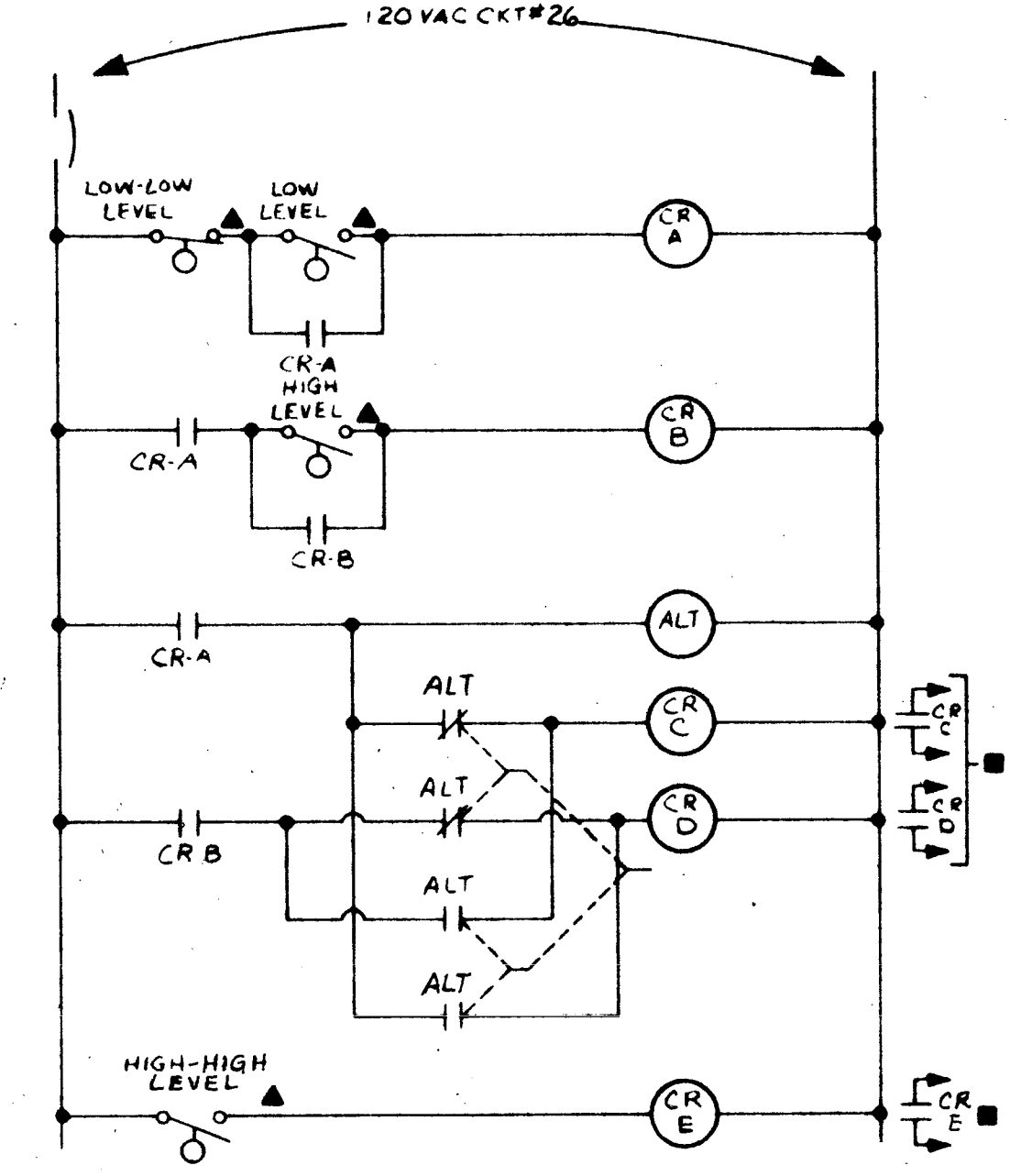
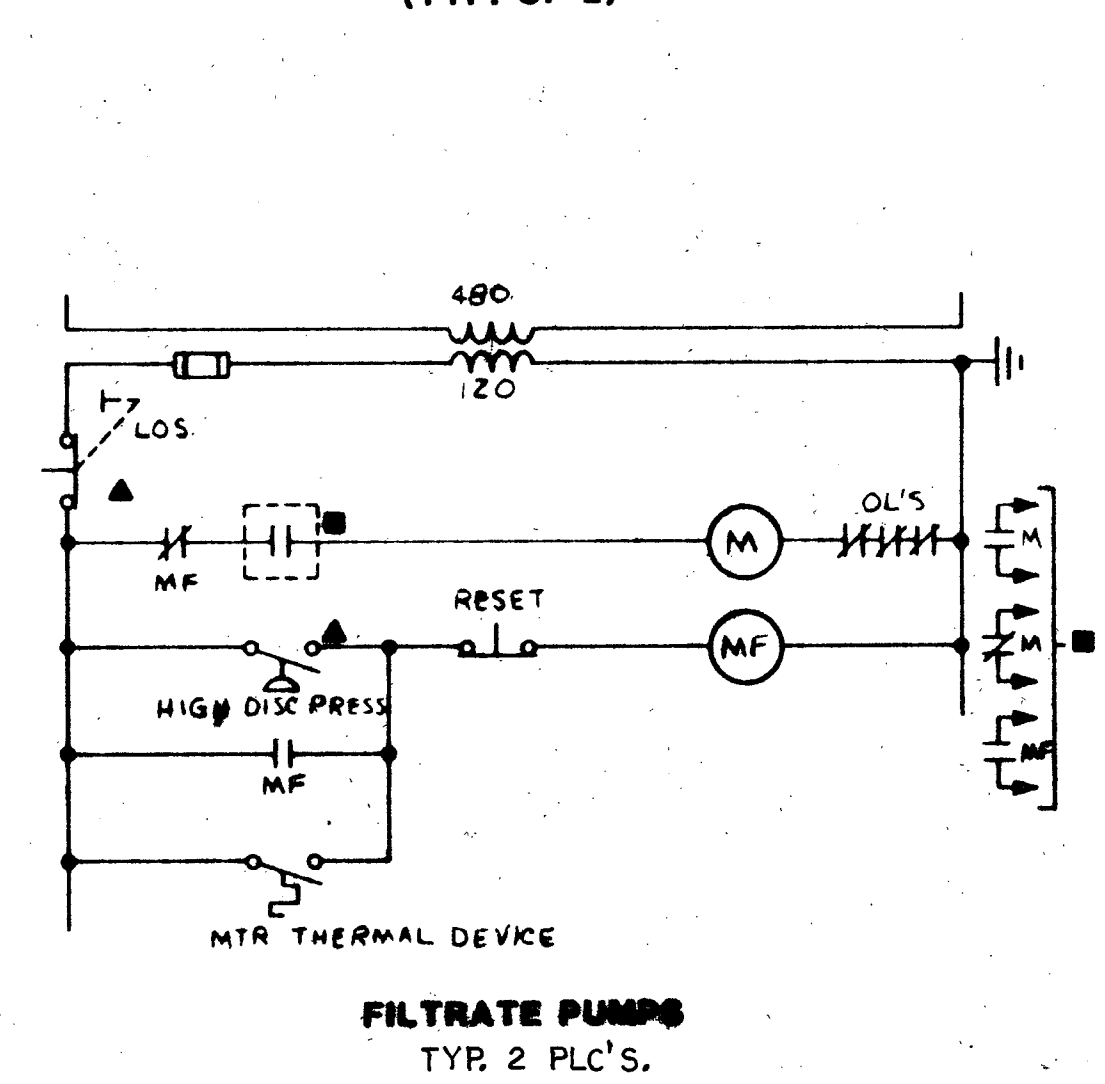
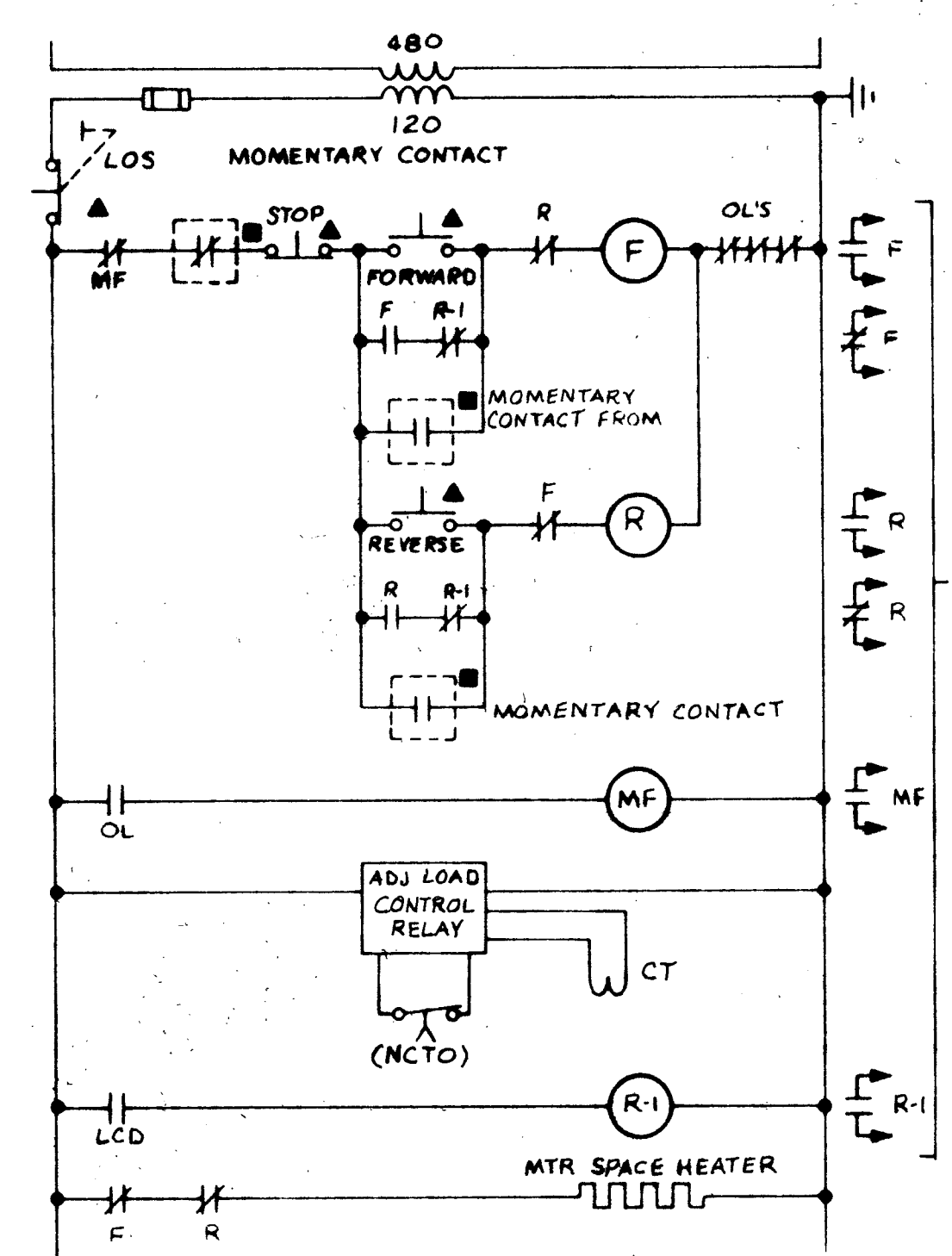
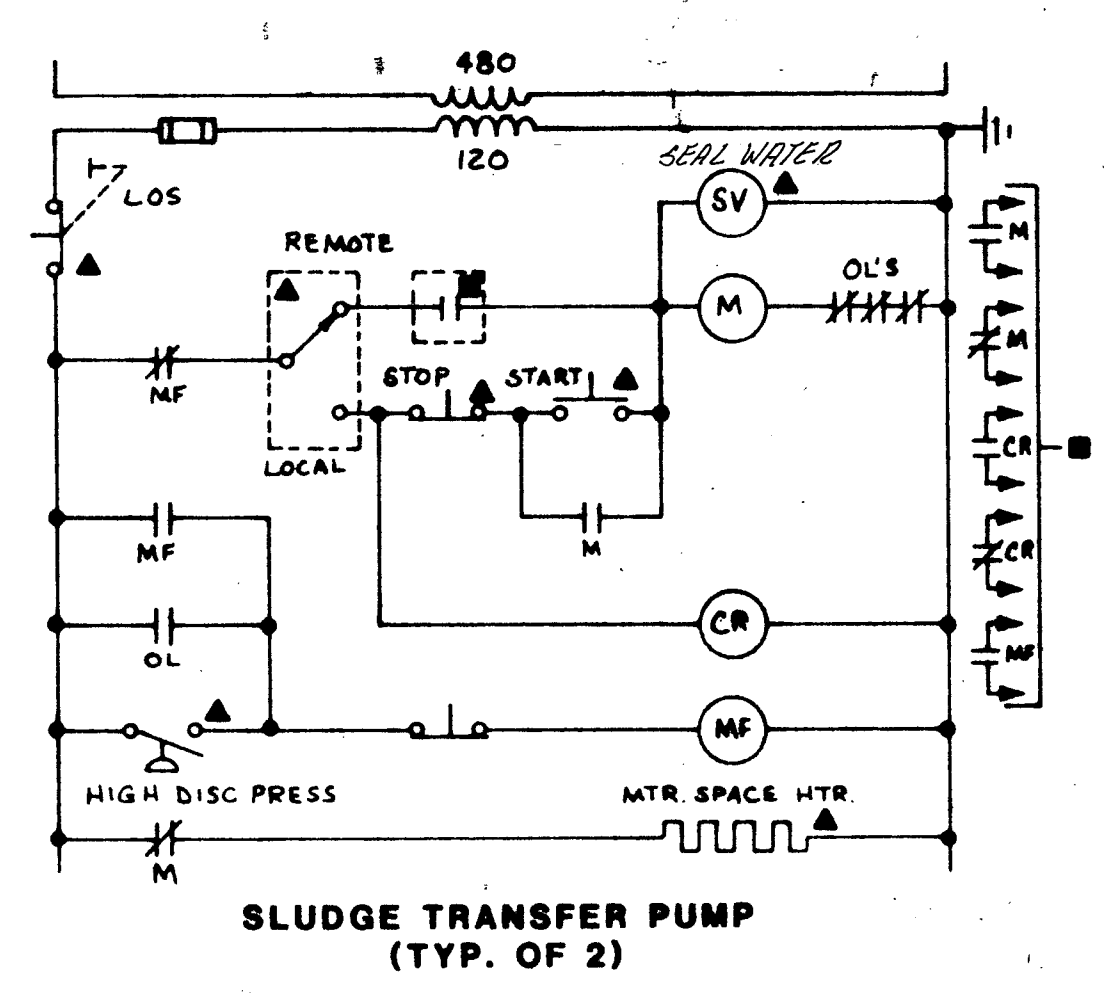
MALCOLM PIRNIE

Date FEBRUARY, 1984
 Designed by J.K.
 Drawn by J.K.
 Checked by MS
 Scale NOT TO SCALE



San Antonio
 WASTEWATER FACILITIES IMPROVEMENTS

CONTRACT NO. 4B-1
DOS RIOS FACILITY
 CONTROL SCHEMATICS



CKT NO	TRIP AMPS	DESCRIPTION OF LOAD	LOAD KVA	KVA PER PHASE	LOAD KVA	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO
1	30	LOWER LEVEL LTG	2.25		2.25	LOWER LEVEL LTG	30	2
3	30	LTG. CONTACTOR	2.25	4.50	2.25	LTG. CONTACTOR	30	4
5	30		2.25		4.50		30	6
7	30	UPPER LEVEL LTG	2.70	5.40	2.70	UPPER LEVEL LTG	30	8
9	30	LTG. CONTACTOR	2.70		5.40	LTG. CONTACTOR	30	10
11	30		2.70		5.40		30	12
13	15	SPARE	1.40	2.80	1.40	RECEPTACLES UPPER LVL	15	14
15	15	TELEPHONE	.75	1.50	.75	SPARE	15	16
17	15	SPARE	.30		1.30	WATER SOFTENER	15	18
19	15		1.60	2.35	.75	NPW FLOW ELEMENT	15	20
21	30	SLUDGE LOADING LTG	1.60	3.85	2.25	SLUDGE FLOW ELEMENTS	25	22
23	30	LTG. CONTACTOR	1.60		3.85	SLUDGE FLOW ELEMENTS	25	24
25	25	SLUDGE FLOW ELEMENTS	2.25	2.55	.20	FILTRATE CONTROL CKT.	15	26
27	25	SLUDGE FLOW ELEMENTS	2.25	3.25	1.00	SPARE	15	28
29	15	LIGHT CONTROL CKT.	1.00	2.00	1.00	MIXER CONTROL PANEL	15	30
LIGHTING PANEL NO. 2			TOTAL			120/208 VOLT, 3 PHASE, 4 WIRE 225/150 AMP MAIN BKR, W/GND BUS		

CKT NO	TRIP AMPS	DESCRIPTION OF LOAD	LOAD KVA	KVA PER PHASE	LOAD KVA	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO
1	15	EXHAUST FANS 1A & 1B	.24	.36	.12	EXHAUST FAN 1C	15	2
3	15	EXHAUST FAN 2	.12	.76	.64	CONTROL RM LTG	15	4
5	15	MMC RM LTG & TOILET	.80		2.20	RECEPTACLES (7)	15	6
7	20	HOT WATER HTR #1	1.67	3.34	1.67	HOT WATER HTR #2	20	8
9	30		1.67		3.34		30	10
11	30		1.67		3.34		30	12
13	15	ELECT WALL HTRS 1A & 1B	.75	1.125	.375	ELECT WALL HTR 1C	15	14
15	20		.75	1.125	.375		20	16
17	20	ELECT WALL HTR 1D	1.00		1.375	ELECT WALL HTR 2	15	18
19	20		1.00	1.375	.375		20	20
21	15	TOILET #2 RECEPTACLE	.20	.36	.16	TOILET #2 LTG	15	22
23	15	60P PANEL	2.88		3.88	BFP PANEL	15	24
25	15	SPARE	1.00	2.00	1.00	SPARE	15	26
27	15	CONTROL RM MONITOR	1.00	2.00	1.00	SPARE	15	28
29	15	SPARE	1.00		2.00	MIXER CONTROL PANEL	15	30
LIGHTING PANEL NO. 1			TOTAL			120/208 VOLT, 3 PHASE, 4 WIRE 225/150 AMP MAIN BKR, W/GND BUS		

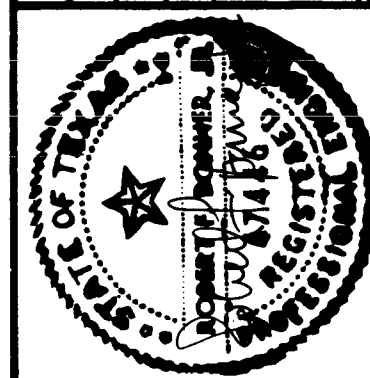
PROJECT RECORD

RECORD DRAWINGS
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 MALCOLM PIRNIE, INC.
 Date 3-23-88 By RAN

DR 86-6502

**MALCOLM
PIRNIE**

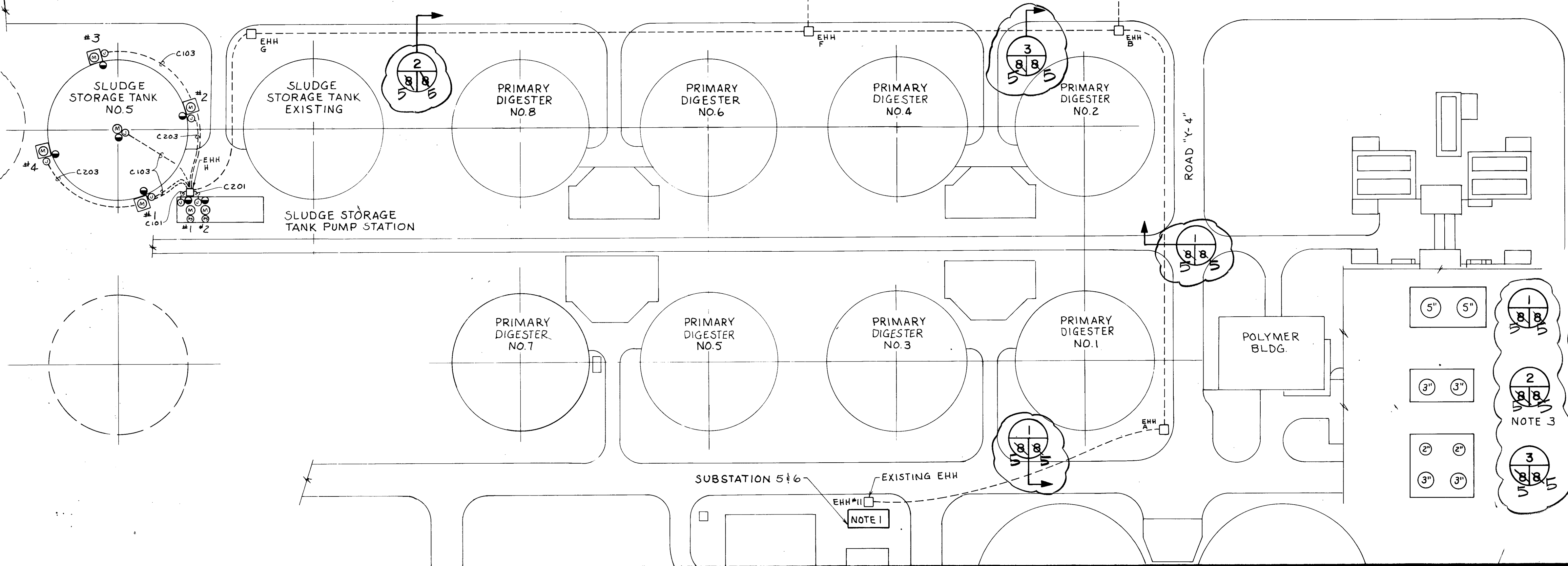
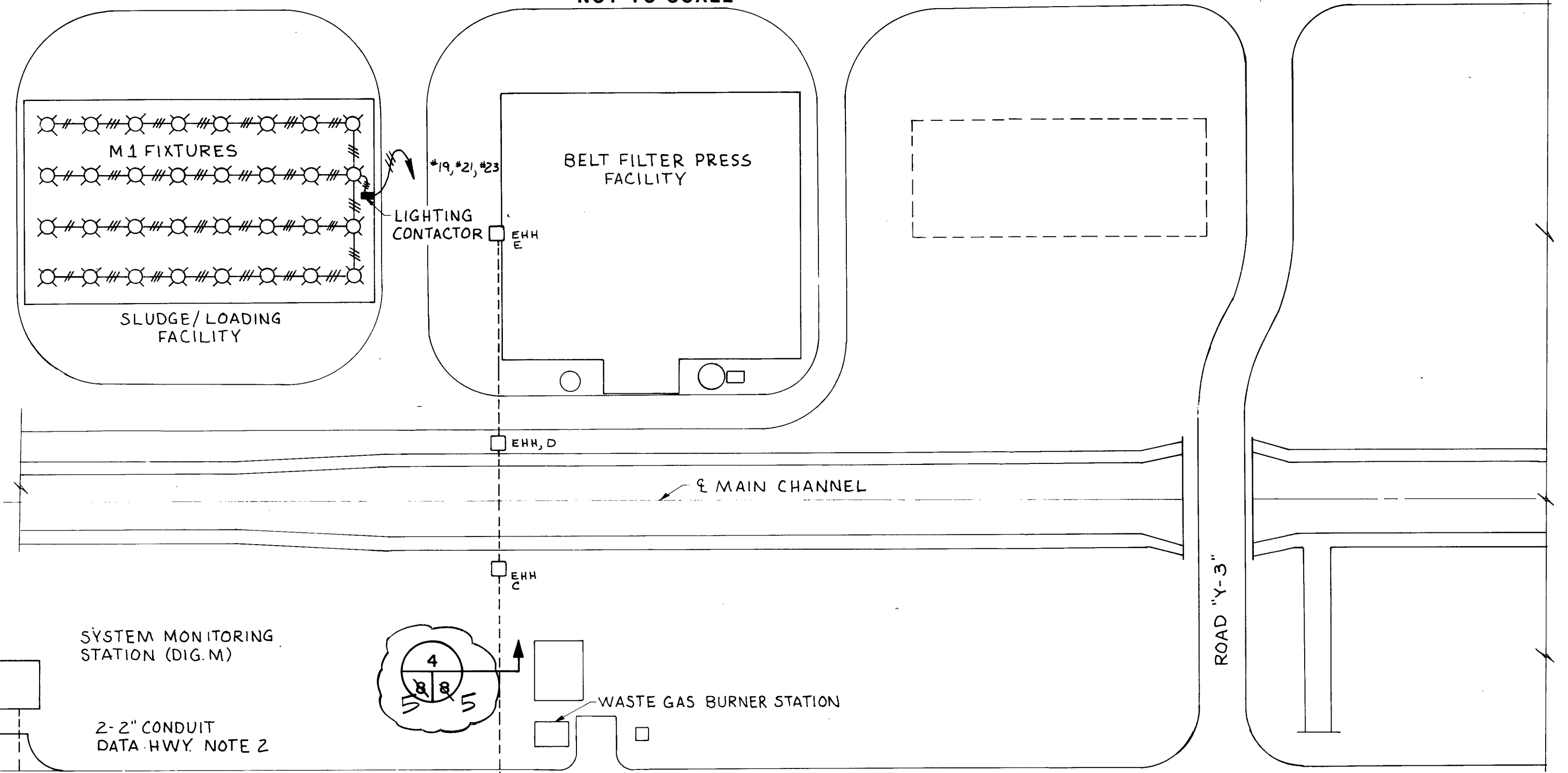
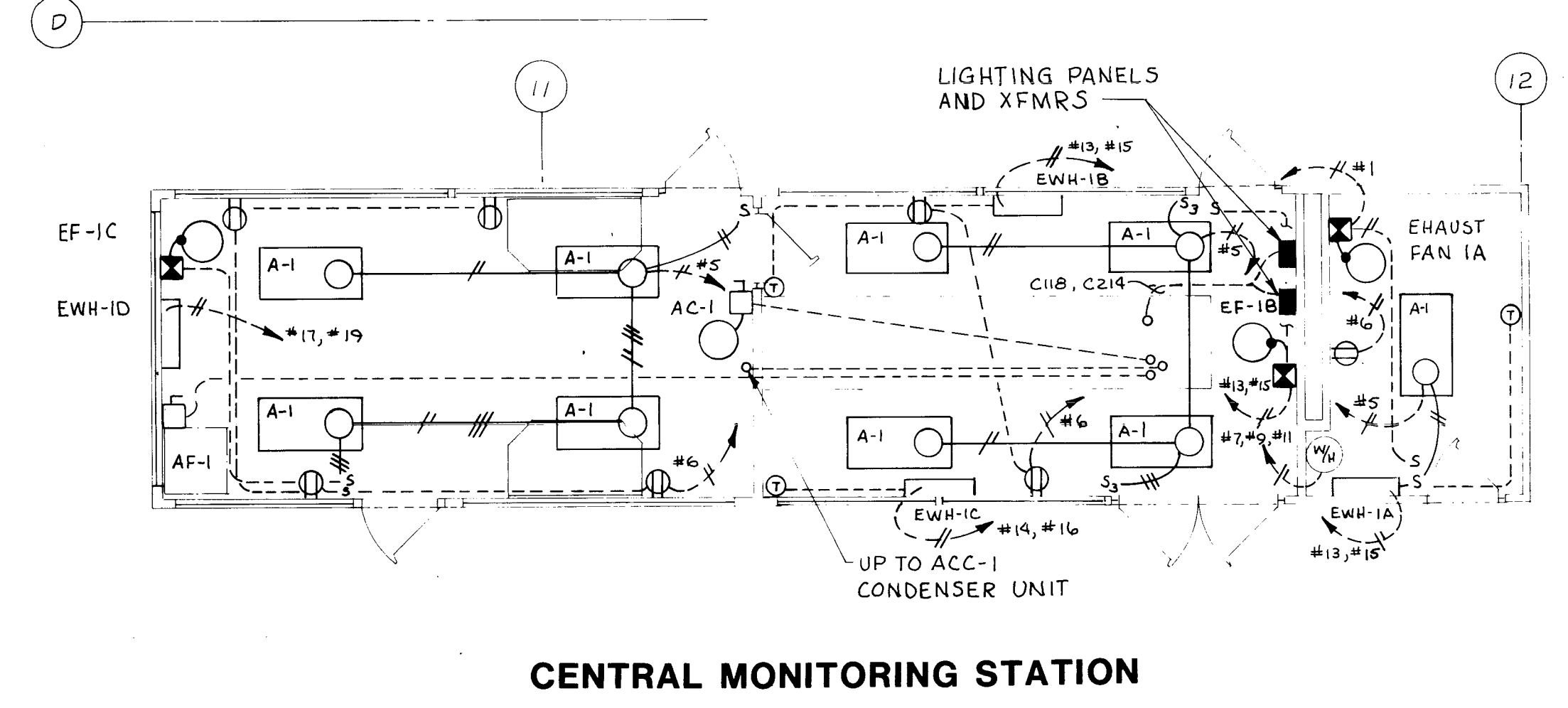
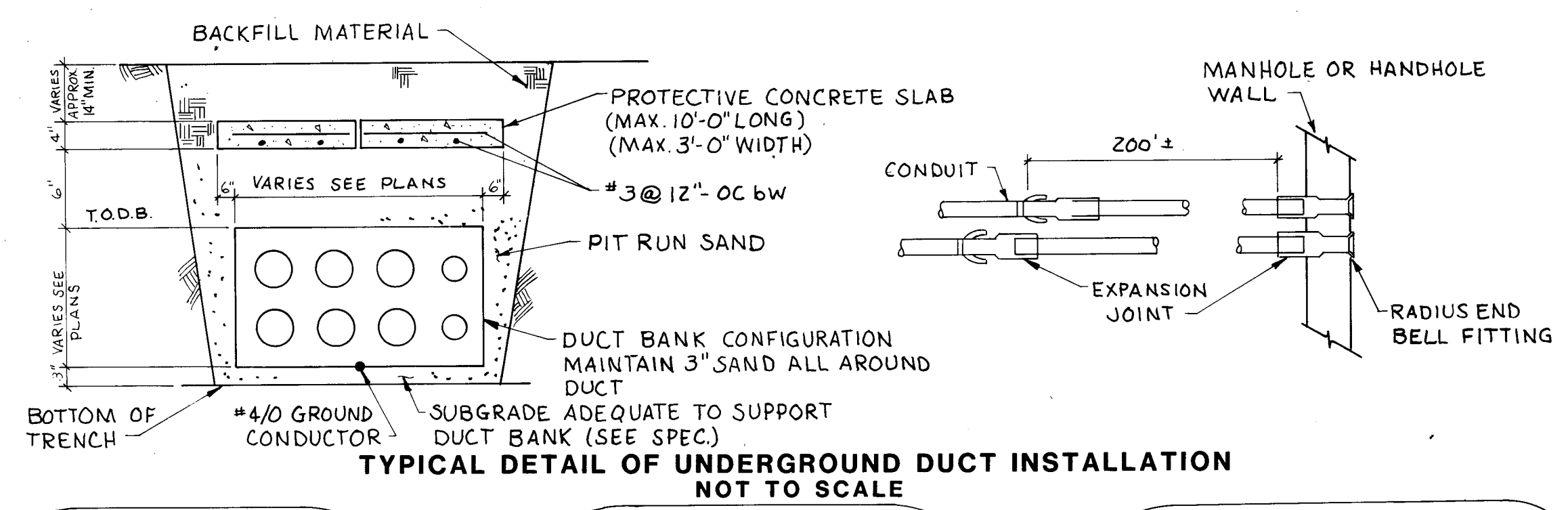
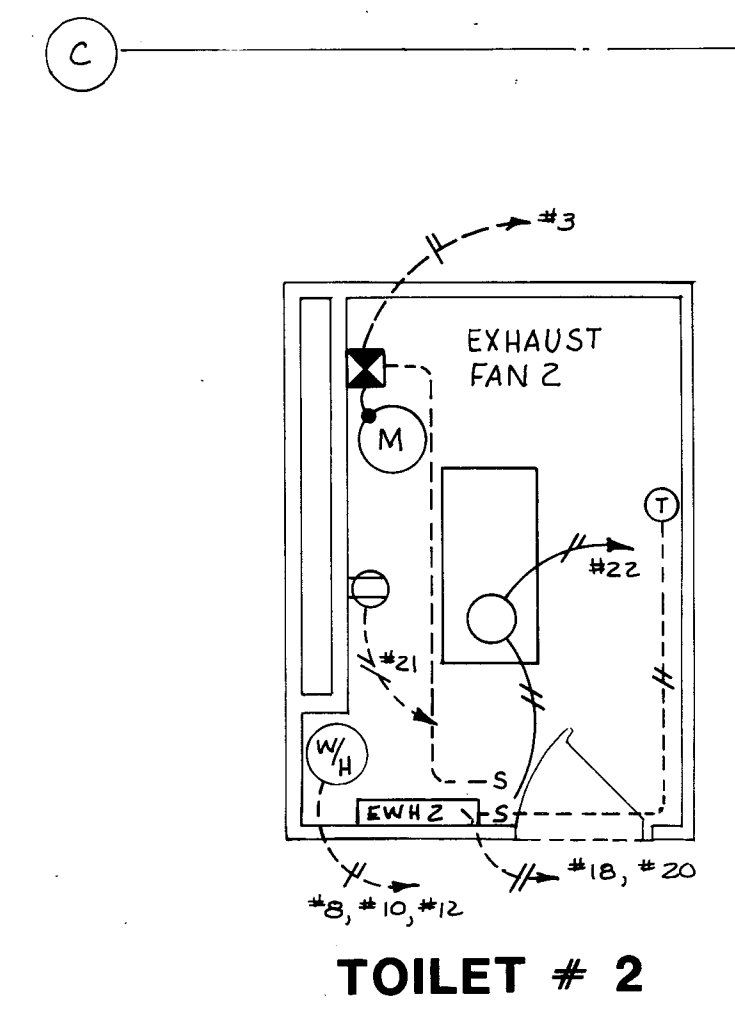
Date: FEBRUARY 1986
 Designed by: M.J.K.
 Drawn by: C.P.H.
 Checked by: J.B.
 Scale: NOT TO SCALE



**WASTEWATER
FACILITIES
IMPROVEMENTS**

**SAN
ANTONIO**

CONTRACT NO. 4B-1
**DOS RIOS FACILITY
SITE PLAN &
MONITORING STATION**

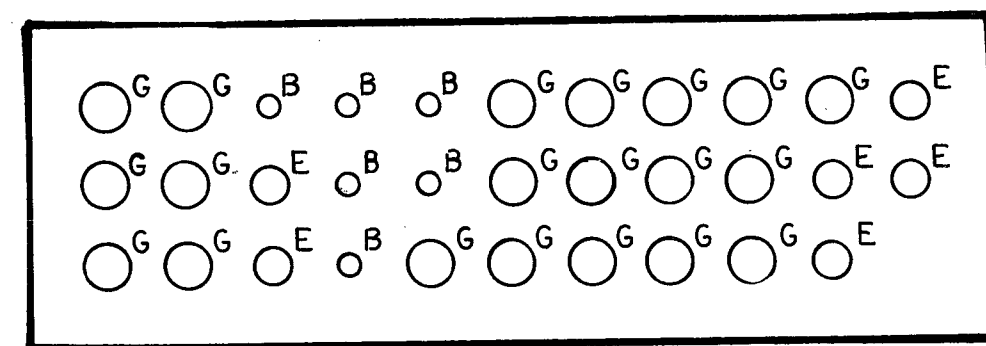


- NOTES**
1. PROVIDE 800 AMP FRAME, 600 AMP TRIP CIRCUIT BREAKERS (2) FOR SUBSTATIONS 5 & 6. INSTALL IN AVAILABLE SPACE.
 2. EXTEND CONDUITS TO MICROPROCESSOR EQUIPMENT.
 3. 5" CONDUIT - C100
 5" CONDUIT - C200
 3" CONDUIT - I-C101, 3-C103
 3" CONDUIT - I-C201, 2-C203
 2" CONDUITS - DATA HWY.

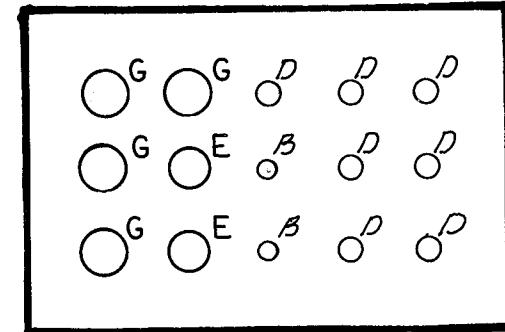
REFER TO DRAWING E-5A FOR AS-BUILT CONDITION



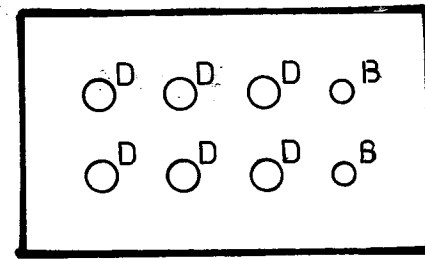
DR 86-6502



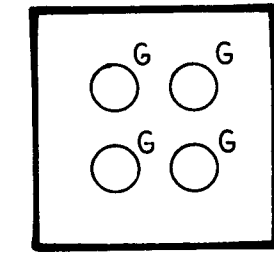
S-1



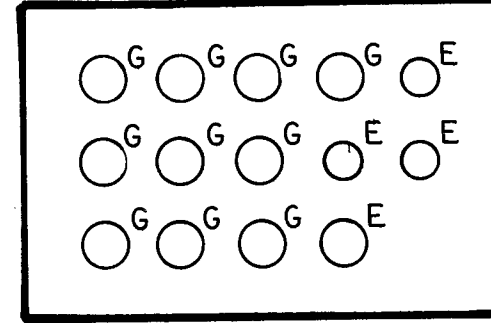
S-7



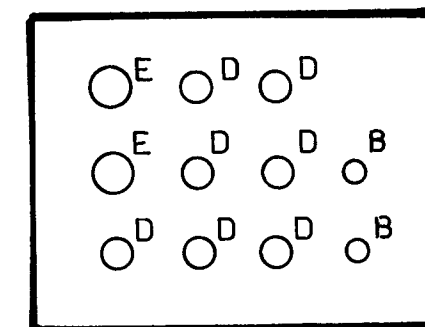
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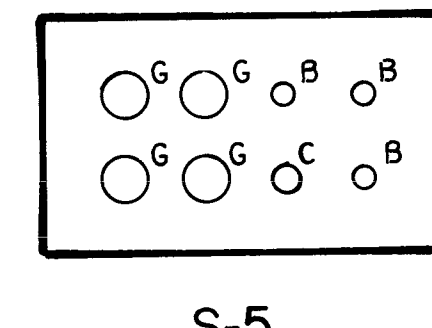
S-2 / S-4



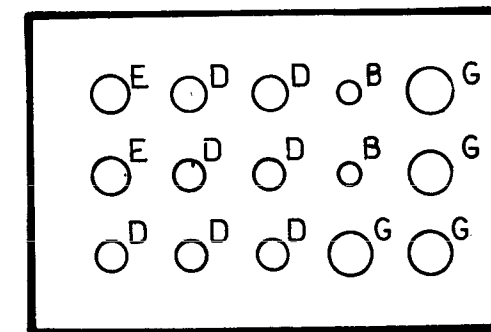
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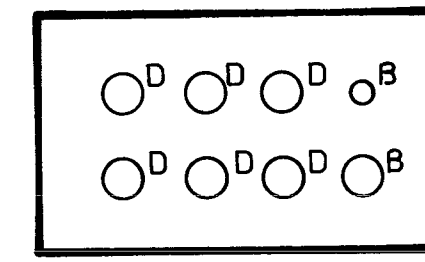
S-8



S-5



S-6

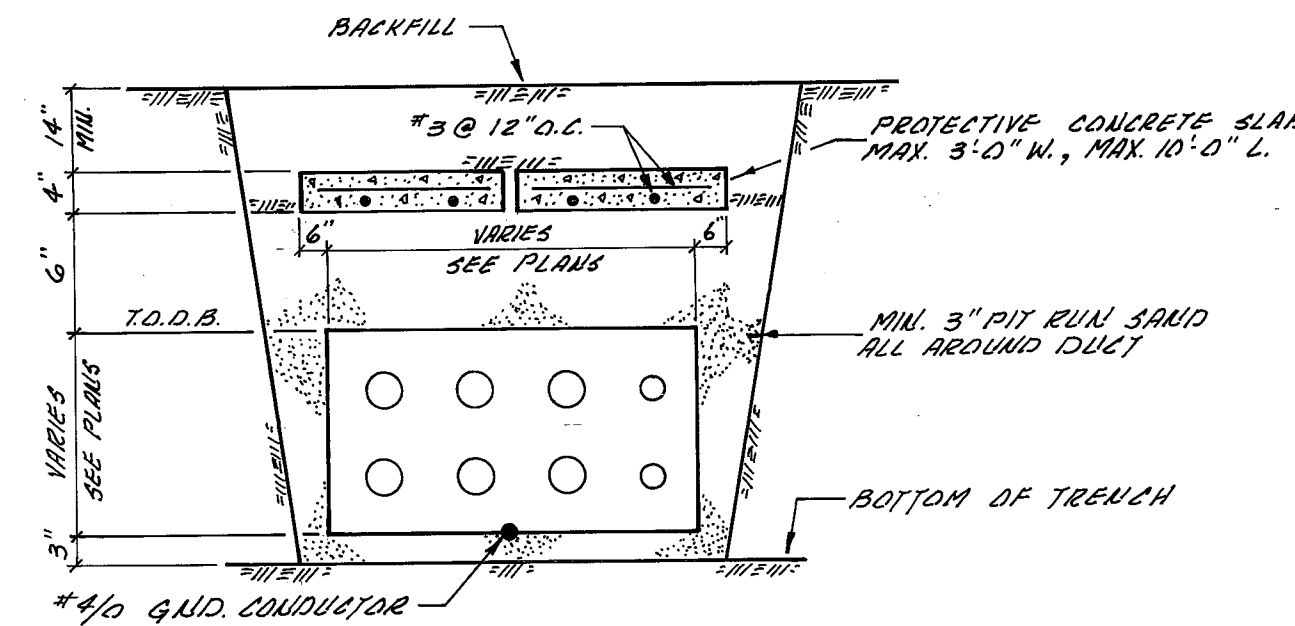


S-9

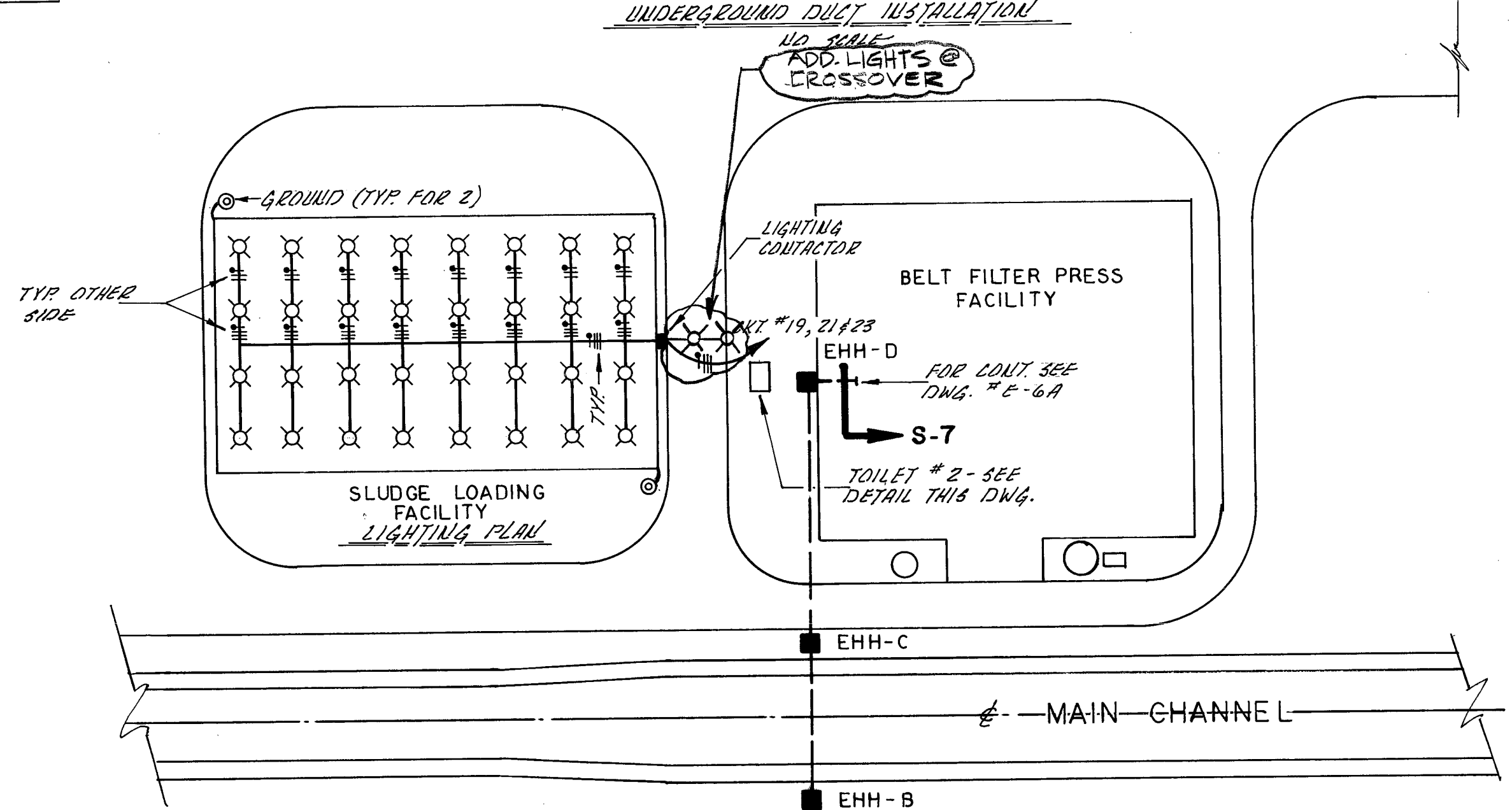
DUCT BANK SECTIONS

CONDUIT SIZE

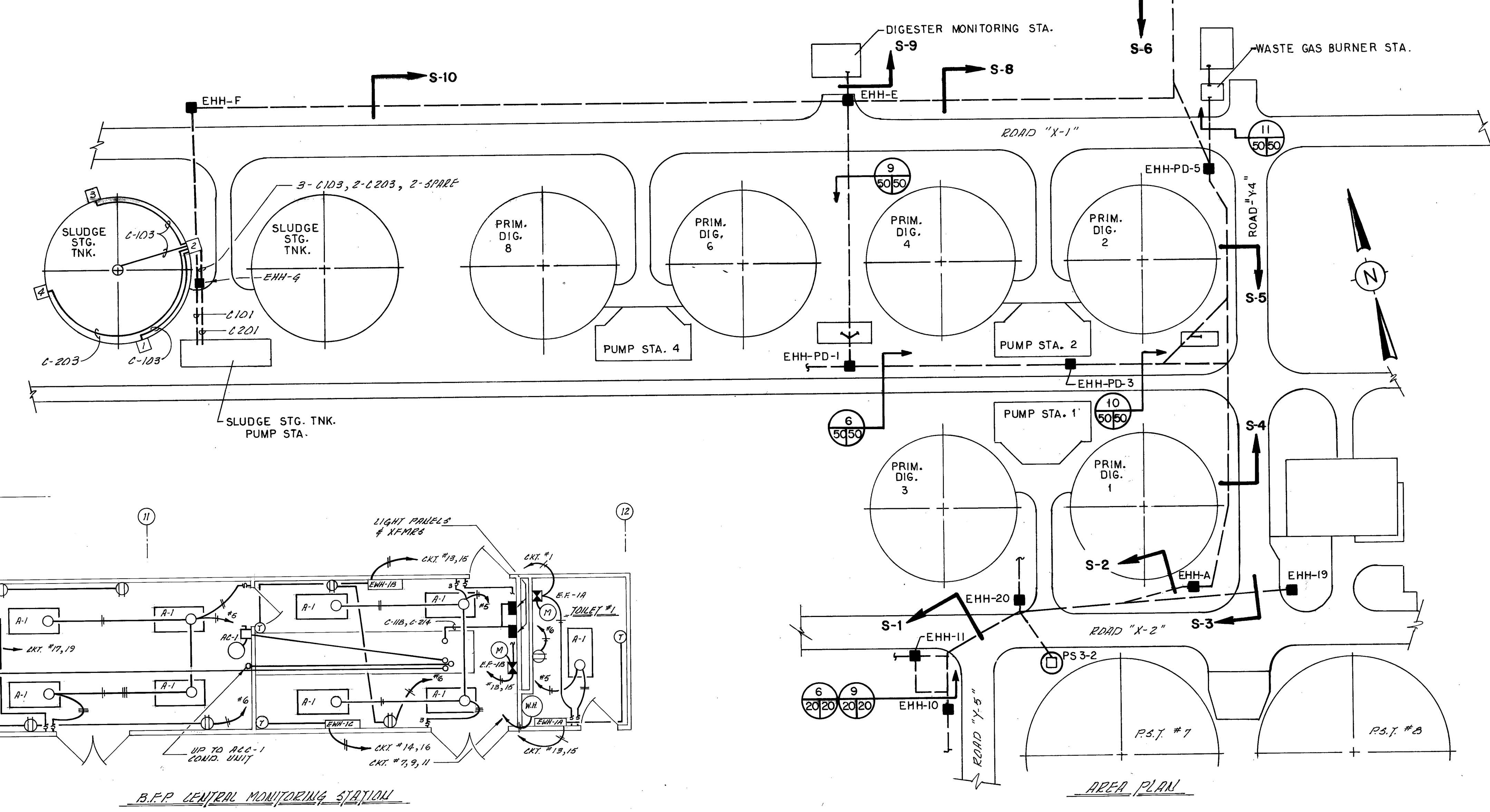
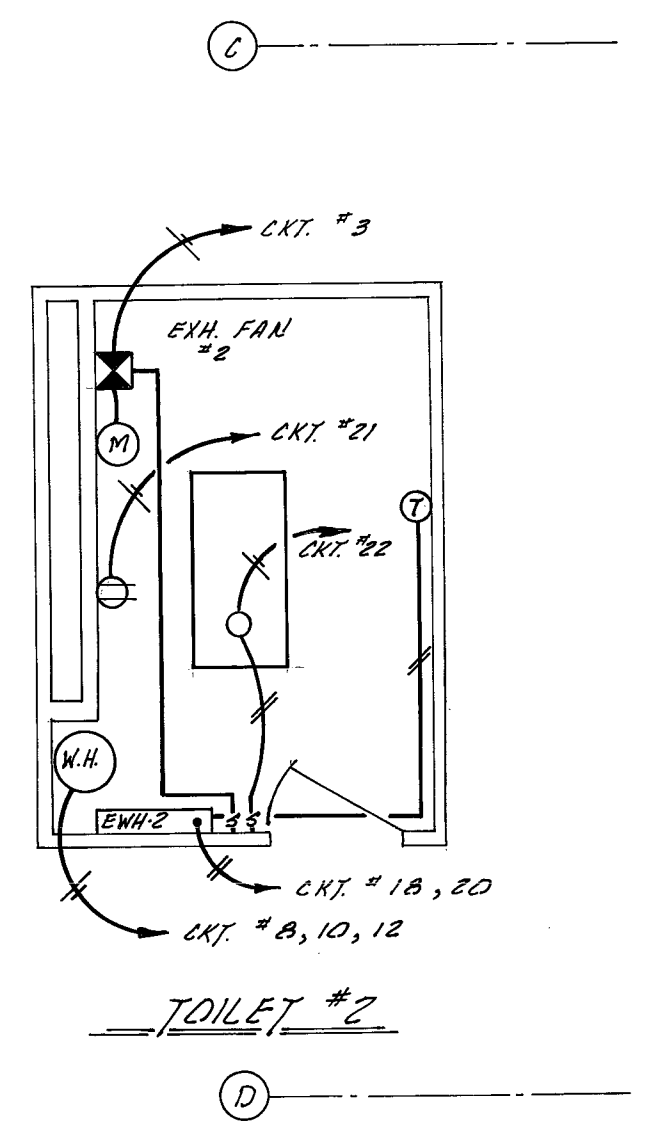
- A = 3/4"
- B = 1"
- C = 1-1/4"
- D = 1-1/2"
- E = 2"
- F = 2-1/2"
- G = 3"



TYP. DETAIL UNDERGROUND DUCT INSTALLATION



EHH COORD'S & ELEV'S.			
EHH-A	N 4615.00	E 3830.00	T.O.H.H. 479.50
EHH-B	N 5056.25	E 3746.30	T.O.H.H. 478.56
EHH-C	N 5139.50	E 3746.30	T.O.H.H. 479.50
EHH-D	N 5244.26	E 3746.30	T.O.H.H. 480.00
EHH-E	N 4993.50	E 3515.00	T.O.H.H. 478.50
EHH-F	N 4993.50	E 3035.00	T.O.H.H. 479.50
EHH-G	N 4845.31	E 3035.00	T.O.H.H. 479.00
EHH-10	N 4457.15	E 3599.70	T.O.H.H. 482.15
EHH-11	N 4556.86	E 3573.09	T.O.H.H. 483.73
EHH-19	N 4602.73	E 3844.33	T.O.H.H. 482.52
EHH-20	N 4614.60	E 3650.01	T.O.H.H. 483.38
EHH-PD-1	N 4766.57	E 3516.89	T.O.H.H. 487.30
EHH-PD-3	N 4766.22	E 3677.41	T.O.H.H. 486.69



PROJECT RECORD

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 MALCOLM PIRNIE, INC.
 Date 3-23-88 By RAN

NOTE: REF. DWGS.
 CONTRACT NO. 4B-1 E5
 CONTRACT NO. 3 E-47, E-60

A 11-30-87 DKM AS BUILT FOR PROJECT RECORD	
No	date by description
revisions	
PROJECT AND LOCATION	
DOS RIOS W.W.F. SAN ANTONIO, TEXAS	
DRAWING TITLE	
UNDERGROUND ELECT. DUCT BANKS AND MANHOLES OR HAND HOLES COMPOSITE, CONTRACT NO. X & 4B-1, PLAN # DETAILS	
project no.	date:
9099	10-21-87
scale:	checked:
NONE	DKM
drawing no.:	revision no.:
E-5A	
PIZZAGALLI CONSTRUCTION COMPANY SOUTH BURLINGTON, VERMONT 05401	

9101569
 DR 86-6502