6-11-10 LETTING ITEM 312

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	1
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLANS FOR PROPOSED FEDERAL AID HIGHWAY

FAI RTE. 94 (BISHOP FORD EXPRESSWAY)
PUMP STATION REHABILITATION
PUMP STATION NO. 27
110th STREET & DOTY AVENUE
SECTION: 1213.4 A–T

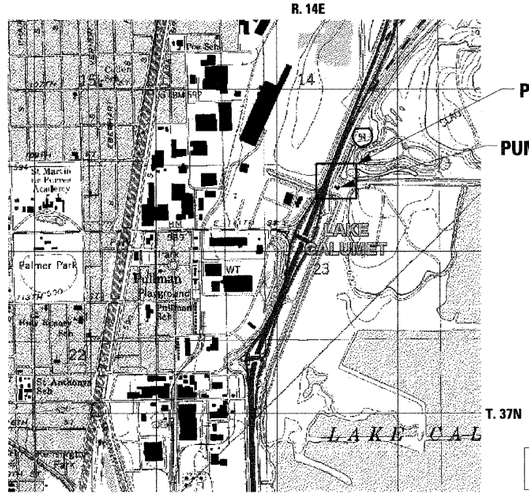
C–91–322–99
COOK COUNTY

C–91–322–99

LOCATION OF SECTION INDICATED THUS: –■–

IDOT STANDARDS

664001-02 CHAIN LINK FENCE
701901-01 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES



PROJECT LOCATED IN CITY OF CHICAGO

LOCATION MAP
SCALE: 0 500 1,000 2,000 FT.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED MARCH 24, 20 10
Diane M. O'Keefe
DISTRICT ENGINEER

May 7 20 10
Scott E. Stitt, P.E. /bc
acting ENGINEER OF PROJECT DEVELOPMENT AND IMPLEMENTATION

May 7 20 10
Christine M. Reed /bc
ENGINEER OF DESIGN AND ENVIRONMENT

20

KOU H. CHANG
28805
REGISTERED PROFESSIONAL ENGINEER
OF
ILLINOIS

SIGNED: Kou H. Chang
KOU H. CHANG P.E.
LIC. NO.: 062-028805
EXPIRES: 11-30-2011
DATE: 3/23/10

SEAL

DONOHUE & ASSOCIATES

CONTRACT NO. 60799

FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES, REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES, IN MAKING MEASUREMENTS ON REDUCED PLANS, THE SCALES SHOWN MAY BE USED.

ALL UTILITY LOCATION INFORMATION FOR EXCAVATION CALL DIGGER (312)744–7000

PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

XXXX – IDOT ELECTRICAL OPERATIONS SECTION CHIEF (847)705–4390
XXXX – IDOT ELECTRICAL OPERATIONS CONTRACT PLANS UNIT CHIEF (847)705–4390

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	2
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

INDEX OF SHEETS /DRAWINGS

SHEET NO.	DRAWING NO.	TITLE
1.		TITLE SHEET
2.	G1	INDEX SHEET
3.	G2	GENERAL NOTES AND SUMMARY OF QUANTITIES
4.	G3	SITE PLAN
5.	G4	BUILDING RESTORATION
6.	G5	GENERAL DETAILS
7.	DM1	DEMOLITION PLANS
8.	DM2	DEMOLITION PLANS
9.	DM3	DEMOLITION SECTIONS
10.	DM4	DEMOLITION PLAN & ELEVATIONS
11.	DM5	ELECTRICAL DEMOLITION PLAN – SH. 1
12.	DM6	ELECTRICAL DEMOLITION PLAN – SH. 2
13.	S1	STRUCTURAL PLANS
14.	S2	STRUCTURAL PLANS & SECTIONS
15.	S3	STRUCTURAL SECTIONS
16.	S4	STRUCTURAL DETAILS
17.	S5	STRUCTURAL DETAILS
18.	S6	STRUCTURAL DETAILS
19.	A1	ARCHITECTURAL ELEVATIONS
20.	A2	ARCHITECTURAL FLOOR & ROOF PLANS
21.	A3	ARCHITECTURAL DETAILS
22.	A4	ARCHITECTURAL DETAILS
23.	A5	ARCHITECTURAL SCHEDULES & DETAILS
24.	M1	MECHANICAL PLANS
25.	M2	MECHANICAL PLANS
26.	M3	MECHANICAL SECTIONS
27.	M4	MECHANICAL SECTIONS
28.	M5	MECHANICAL DETAILS
29.	M6	MECHANICAL DETAILS
30.	M7	EQUIPMENT SCHEDULE & PUMPING OPERATING ELEVATIONS
31.	M8	HVAC SCHEDULE AND OPERATING SEQUENCE
32.	E1	ELECTRICAL SYMBOL LIST
33.	E2	ELECTRICAL SITE PLAN
34.	E3	ELECTRICAL SYSTEM ONE LINE DIAGRAM
35.	E4	SWITCHGEAR ELEVATIONS
36.	E5	4KV STARTER LINEUP
37.	E6	MCC ELEVATION
38.	E7	MAIN PUMP CONTROL SCHEMATIC
39.	E8	LOW FLOW PUMP CONTROL SCHEMATIC
40.	E9	CONTROL PANEL SCHEMATIC – SH. 1
41.	E10	CONTROL PANEL SCHEMATIC – SH. 2
42.	E11	CONTROL PANEL SCHEMATIC – SH. 3
43.	E12	ELECTRIC VALVE ACTUATORS CONTROL SCHEMATIC
44.	E13	MISCELLANEOUS CONTROL SCHEMATICS
45.	E14	LIGHTING PLANS – SH. 1
46.	E15	LIGHTING PLANS – SH. 2
47.	E16	POWER PLANS – SH. 1
48.	E17	POWER PLANS – SH. 2
49.	E18	POWER PLANS – SH. 3
50.	E19	PUMP MOTOR STARTER TERMINAL SCHEDULE – SH. 1
51.	E20	PUMP MOTOR STARTER TERMINAL SCHEDULE – SH. 2
52.	E21	PUMP MOTOR STARTER TERMINAL SCHEDULE – SH. 3
53.	E22	CONTROL PANEL EQUIPMENT LAYOUT – SH. 1
54.	E23	CONTROL PANEL EQUIPMENT LAYOUT – SH. 2
55.	E24	CONTROL PANEL DETAILS
56.	E25	CONTROL PANEL TERMINAL SCHEDULE – SH. 1
57.	E26	CONTROL PANEL TERMINAL SCHEDULE – SH. 2
58.	E27	CONTROL PANEL TERMINAL SCHEDULE – SH. 3
59.	E28	SCADA PANEL LAYOUT AND DETAILS
60.	E29	SCADA PANEL TERMINAL SCHEDULE
61.	E30	SCADA SYSTEM DIAGRAMS
62.	E31	I & C DETAILS
63.	E32	ELECTRICAL DETAILS

FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES, REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES, IN MAKING MEASUREMENTS ON REDUCED PLANS, THE SCALES SHOWN MAY BE USED.

ALL UTILITY LOCATION INFORMATION FOR EXCAVATION CALL DIGGER (312)744-7000

DONOHUE & ASSOCIATES

G1

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27
REHABILITATION

INDEX SHEET

SCALE: N/A
DATE: 04-23-10

DRAWN BY: HFF
CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	3
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

SUMMARY OF QUANTITIES

URBAN
100% STATE

	CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTRUCTION TYPE CODE	
					Y007	
	20200100	EARTH EXCAVATION	CU YD	765	765	
	35100500	AGGREGATE BASE COURSE, TYPE B 6"	SQ YD	170	170	
	35102400	AGGREGATE BASE COURSE, TYPE B 12"	SQ YD	1,830	1,830	
	X402 0500	AGGREGATE SURFACE COURSE, TYPE B 6"	SQ YD	170	170	
	40600100	BITUMINOUS MATERIAL (PRIME COAT)	GALLON	920	920	
	50102400	CONCRETE REMOVAL	CU YD	20	20	
	50500405	FURNISHING AND ERECTING STRUCTURAL STEEL	POUND	108,000	108,000	
	50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	6,600	6,600	
	66400570	CHAIN LINK FENCE, 8' (SPECIAL)	FOOT	650	650	
	66404600	CHAIN LINK GATES, 8'X3' SINGLE	EACH	1	1	
	66409800	CHAIN LINK GATES, 8'X20' DOUBLE	EACH	2	2	
	67000400	ENGINEER'S FIELD OFFICE, TYPE A	CAL MO	24	24	
	67100100	MOBILIZATION	L SUM	1	1	
	70101700	TRAFFIC CONTROL AND PROTECTION	L SUM	1	1	
	X0301028	PUMP STATION SCADA EQUIPMENT	L SUM	1	1	
	X0335700	PUMP STATION GENERAL WORK	L SUM	1	1	
	X0783300	PUMP STATION ELECTRICAL WORK	L SUM	1	1	
*	X0783500	PUMP STATION MECHANICAL WORK	L SUM	1	1	
	40603310	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N50	TON	160	160	
	40603080	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50	TON	160	160	
	X8040305	ELECTRIC SERVICE CONNECTION	L SUM	1	1	
	XX007787	CLASS SI CONCRETE	CU YD	40	40	
	X0325156	REMOVAL AND DISPOSAL OF LEAD BASED PAINT	SQ FT	1,740	1,740	
	~~Z0076600~~	~~TRAINEES~~	~~HOUR~~	~~500~~	~~500~~	
*	X0323880	COMPLETE SPARE MAIN PUMP ASSEMBLY	L SUM	1	1	
*	X0323881	COMPLETE SPARE LOW FLOW PUMP ASSEMBLY	L SUM	1	1	

* SPECIALTY ITEMS

GENERAL NOTES

1. THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS, SITE ACCESS, POWER SUPPLY AND OTHER ITEMS THAT AFFECT THE CONTRACT AND THE CONSTRUCTION OF THE IMPROVEMENT.

2. PLAN DIMENSIONS AND DETAILS RELATIVE TO EXISTING STRUCTURE HAVE BEEN TAKEN FROM EXISTING PLANS AND ARE SUBJECT TO NOMINAL CONSTRUCTION VARIATIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY SUCH DIMENSIONS AND DETAILS IN THE FIELD AND MAKE NECESSARY APPROVED ADJUSTMENTS PRIOR TO CONSTRUCTION OR ORDERING OF MATERIALS. SUCH VARIATIONS SHALL NOT BE CAUSE FOR ADDITIONAL COMPENSATION OR A CHANGE IN THE SCOPE OF THE WORK.

3. THE LOCATIONS OF UNDERGROUND UTILITIES AS SHOWN ON THESE PLANS HAVE BEEN OBTAINED BY FIELD SURVEYS AND SEARCHES OF AVAILABLE RECORDS. IT IS BELIEVED THAT THIS DATA IS ESSENTIALLY CORRECT, BUT THE DEPARTMENT AND OTHERS ASSOCIATED WITH THESE PLANS DO NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS. THE CONTRACTOR WILL BE REQUIRED TO VERIFY THE EXACT LOCATION OF EACH FACILITY WITH THE UTILITY COMPANY WHEN THE POTENTIAL EXISTS FOR INVOLVEMENT AND SHALL TAKE DUE CARE IN ALL PHASES OF THE CONSTRUCTION TO PROTECT ANY SUCH FACILITIES WHICH MAY BE AFFECTED BY THE WORK. ANY DAMAGES TO THE UTILITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

4. ALL MECHANICAL AND ELECTRICAL EQUIPMENT REMOVED FROM THE PUMP STATION SHALL BECOME THE PROPERTY OF THE ILLINOIS DEPARTMENT OF TRANSPORTATION, BUREAU OF ELECTRICAL OPERATIONS. IF AT THE TIME OF REMOVAL, THE ENGINEER DECIDES THAT THE EQUIPMENT IS NOT USEABLE, IT SHALL BE THE CONTRACTOR'S RESPONSIBLITY TO REMOVE AND DISPOSE OF SAME, AS APPROVED BY THE ENGINEER.

5. IN GENERAL, PRIOR TO CUTTING OPENINGS IN THE EXISTING REINFORCED CONCRETE SLABS AND WALLS, THE CONTRACTOR SHALL IDENTIFY EXACT LOCATIONS OF MAIN REINFORCING BARS (REBAR DETECTOR OR OTHER APPROVED PROCEDURE). THE CONTRACTOR SHALL RECEIVE APPROVAL FROM THE ENGINEER PRIOR TO CUTTING REINFORCED CONCRETE.

6. THE CONTRACTOR SHALL COMPLY WITH APPLICABLE OSHA. REGULATIONS WHILE AT THE CONSTRUCTION SITE.

7. ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED ¾" EXCEPT AT SIDEWALKS AND CURBS WHERE ROUNDED CORNERS ARE REQUIRED.

8. CLASS SI, CONCRETE SHALL BE USED THROUGHOUT.

10. REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-31, M-42 OR M-53 GRADE 60. EPOXY COATED REINFORCEMENT BARS ARE USED IN THIS WORK.

11. FOR BACKFILLING AND COMPACTION SEE STANDARD SPECIFICATIONS.

12. STRUCTURAL DESIGN DATA:

    REINFORCING STEEL fy = 60,000 psi
    CONCRETE f'c = 3,500psi 14 DAYS
    STRUCTURAL STEEL fy = 36.0 ksi

    MINIMUM SLAB AND STAIR LIVE LOADING = 100 psf
    MINIMUM ROOF LIVE LOADING = 25 psf

13. UNLESS OTHERWISE INDICATED ALL ITEMS AND WORK SHOWN ON THESE SHEETS ARE PROPOSED NEW ITEMS AND WORK.

14. THESE SHEETS DEPICT BASIC REMOVAL AND PROPOSED CONSTRUCTION REQUIREMENTS. TO MAINTAIN THE FACILITY IN CONTINUOUS OPERATION DURING THE CONSTRUCTION PERIOD, TEMPORARY EQUIPMENT AND WIRING CONNECTIONS MAY BE REQUIRED. SUCH WORK SHALL BE STAGED BY THE CONTRACTOR TO FACILITATE THE PROJECT WITHOUT JEOPARDIZING THE OPERATING INTEGRITY OF THE STATION. THE CONTRACTOR SHALL SUBMIT A DETAILED WRITTEN AND DIAGRAMED SEQUENCE OF WORK, WELL IN ADVANCE OF CONSTRUCTION ACTIVITY, FOR REVIEW AND APPROVAL BY THE ENGINEER. THE PUMPING CAPACITY OF THE EXISTING STATION MUST BE MAINTAINED AT ALL TIMES (SPECIFIED STATION PUMPING CAPACITY 210,000 gpm. THE CONTRACTOR SHALL OBTAIN APPROVAL OF THE ENGINEER FOR ALL TEMPORARY WORK. REFER TO DIVISION 1 OF THE SPECIFICATIONS.

15. NOTE THAT DURING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE PUMPING STATION ACCORDING TO THE REQUIREMENTS OF THE STATE'S ELECTRICAL MAINTENANCE CONTRACT. SHORT-TERM SHUTDOWN WILL BE PERMMITED WITH SPECIFIC WRITTEN PERMISSION (SEE SPECIFICATIONS).

16. COORDINATE EXACT LOCATION OF ALL MAJOR COMPONENTS. WITH THE ENGINEER, BEFORE INSTALLATION.

17. ANY SITE AREA DISTURBED BY CONSTRUCTION SHALL BE RESTORED TO ITS ORIGINAL CONDITION BY THE CONTRACTOR, TO THE SATISFACTION OF THE ENGINEER, AT NO ADDITIONAL COST TO THE STATE.

18. ALL SHOP DRAWINGS, MATERIAL SAMPLES ETC. MUST BE SUBMITTED AND APPROVED BY THE ENGINEER BEFORE INSTALLATION.

19. ALL CONCRETE CONSTRUCTION JOINTS BETWEEN NEW AND EXISTING CONCRETE SHOWN ON THE PLANS OR ADDED BY THE CONTRACTOR SHALL BE BONDED CONSTRUCTION JOINTS. (SEE SPECIAL PROVISIONS)

20. CRUSHED SLAG SHALL NOT BE USED AS AN AGGREGATE MATERIAL.

21. BEFORE STARTING EXCAVATION THE CONTRACTOR SHALL CALL DIGGER AT (312) 744-7000 FOR FIELD LOCATION OF BURIED UNDERGROUND UTILITIES (48 HOURS NOTIFICATION REQUIRED)

DONOHUE & ASSOCIATES

G2

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

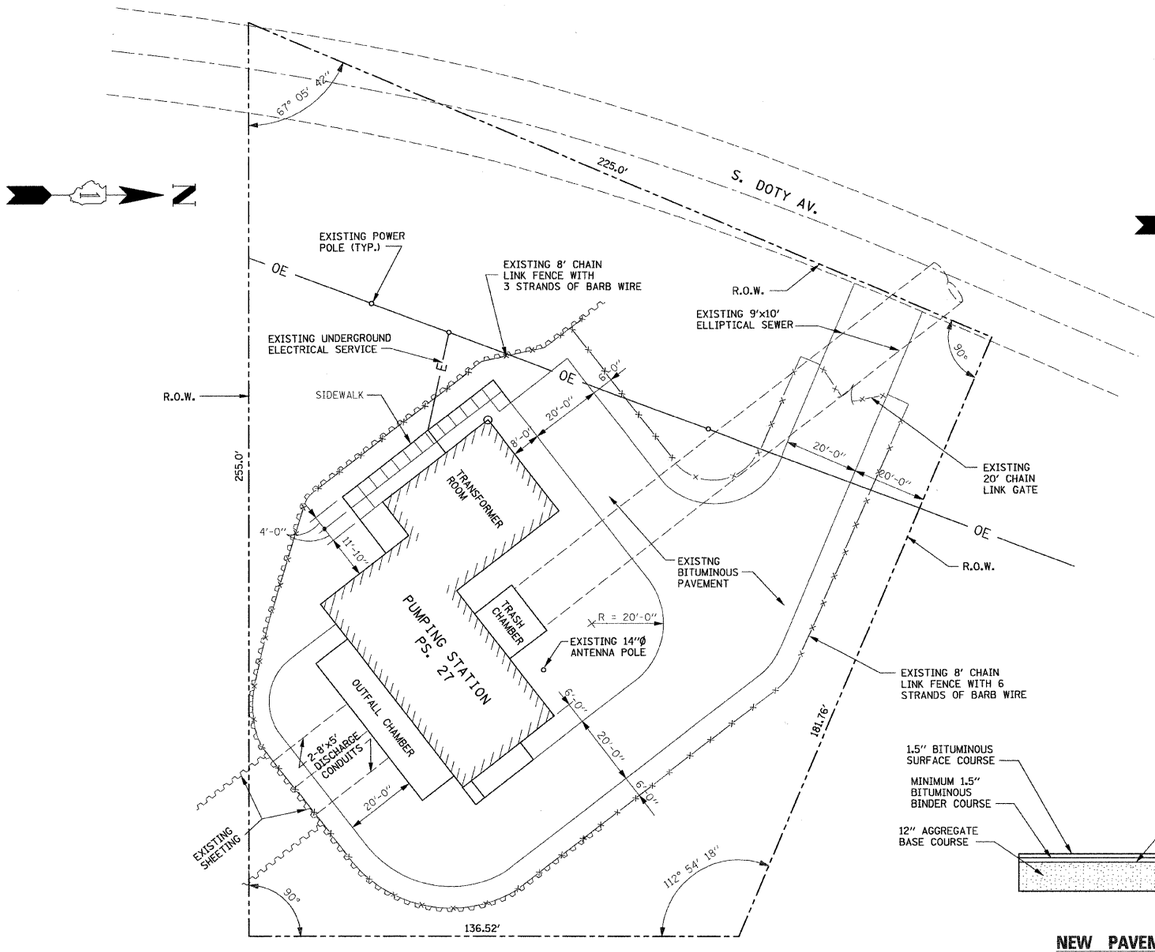
PUMP STATION NO. 27
REHABILITATION

GENERAL NOTES AND
SUMMARY OF QUANTITIES

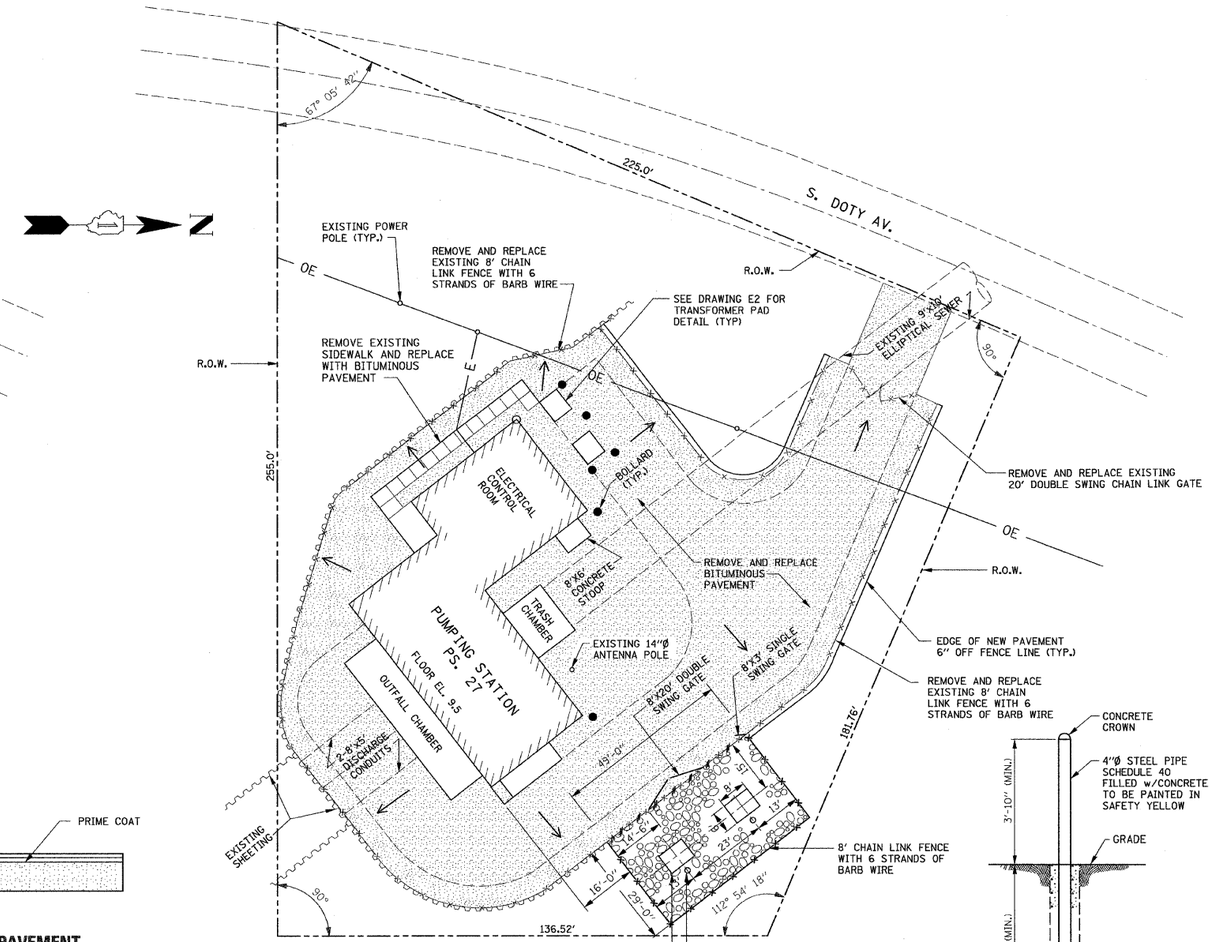
SCALE: N/A DRAWN BY: HFF

DATE: 04-23-10 CHECKED BY: KHC

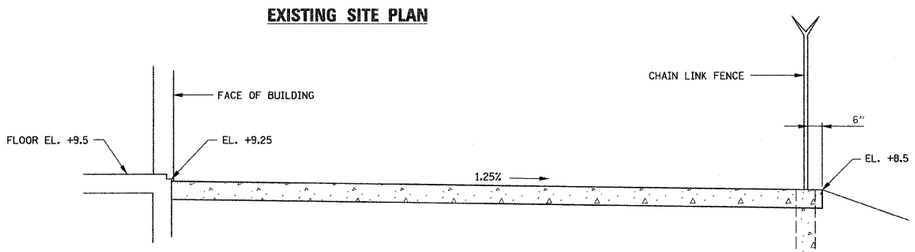
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	4
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



EXISTING SITE PLAN



PROPOSED SITE PLAN



TYPICAL PAVING AND GRADING DETAIL AROUND BUILDING

NOT TO SCALE

NEW PAVEMENT

NOT TO SCALE

BOLLARD DETAIL

NOT TO SCALE

LEGEND

- RIGHT-OF WAY
- EXISTING CHAIN LINK FENCE TO BE REMOVED
- EXISTING CHAIN LINK FENCE
- NEW CHAIN LINK FENCE
- NEW BITUMINOUS CONCRETE PAVEMENT
- NEW GRAVEL SURFACE
- DIRECTION OF SURFACE DRAINAGE
- EXISTING SUPERSTRUCTURE
- E — EXISTING UNDERGROUND ELECTRICAL SERVICE
- OE — OVERHEAD ELECTRIC LINE

SCALE: 0 5 10 20 40

BENCH MARK:

CITY STANDARD BENCH MARK NO. 142 LOCATED 10.5' EAST OF THE WEST LINE OF S. LANGLEY AVENUE AND 17.4' SOUTH OF THE SOUTH LINE OF E. 110th PLACE. THE DATUM ELEVATION IS +9.831'.

DONOHUE & ASSOCIATES

G3

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27 REHABILITATION

SITE PLAN

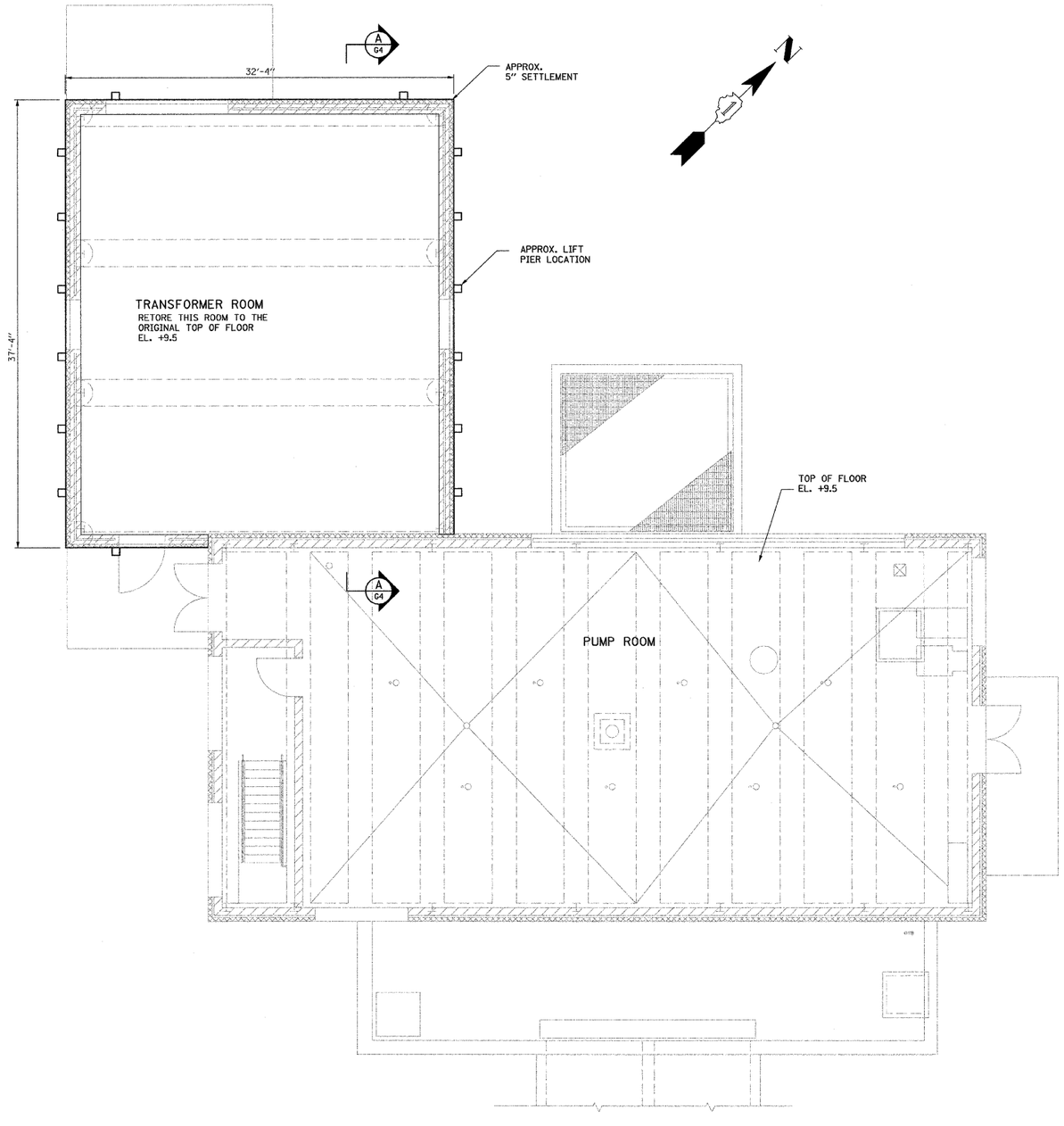
SCALE: AS SHOWN

DRAWN BY: HFF

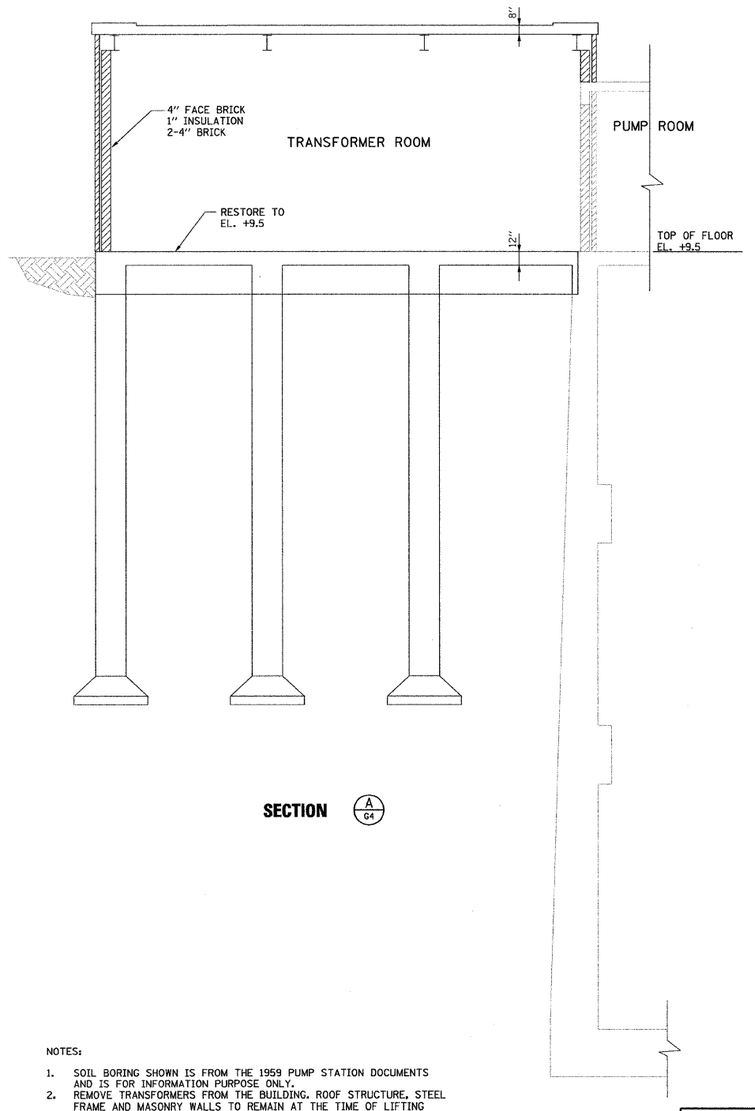
DATE: 04-23-10

CHECKED BY: KHC

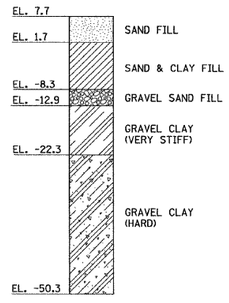
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	5
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



FLOOR PLAN @ EL. +9.5'



SECTION A/G4



SOIL BORING

AT 1908' S ℄ 107th ST. & 196' E ℄ DOTY AVE.

NOTES:

1. SOIL BORING SHOWN IS FROM THE 1959 PUMP STATION DOCUMENTS AND IS FOR INFORMATION PURPOSE ONLY.
2. REMOVE TRANSFORMERS FROM THE BUILDING. ROOF STRUCTURE, STEEL FRAME AND MASONRY WALLS TO REMAIN AT THE TIME OF LIFTING OPERATION.
3. EXCAVATE AROUND THE STRUCTURE AND INSTALL PIERS.
4. SAW CUT DRILLED SHAFT AT UNDERSIDE OF GRADE BEAMS TO COMPLETELY SEPARATE FROM FOUNDATION.
5. LIFT THE BUILDING TO SPECIFIED ELEVATION.
6. AFTER THE TRANSFORMER ROOM HAS REACHED THE SPECIFIED ELEVATION, FILL THE VOID AREAS UNDER THE FLOOR SLAB AND GRADE BEAMS WITH FLOWABLE GROUT, FILL GAPS BETWEEN GRADE BEAMS AND DRILLED SHAFT CONCRETE FOUNDATION WITH PRESSURE BEARING GROUT.

SCALE: 0 4 8 12

G4

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27 REHABILITATION

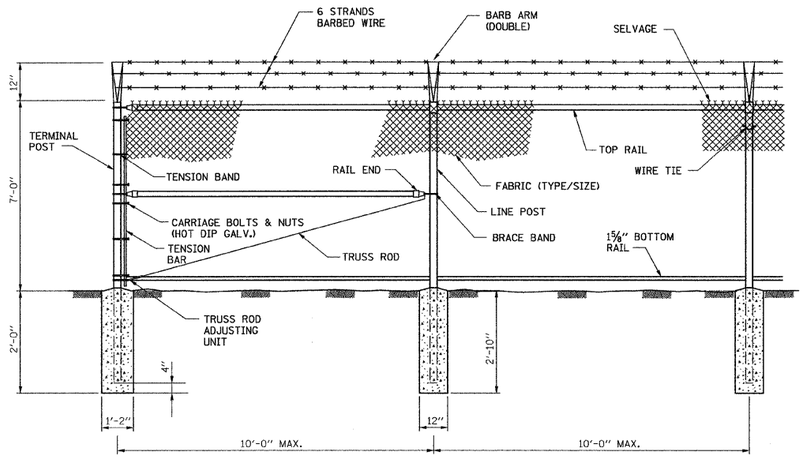
BUILDING RESTORATION

SCALE: AS SHOWN DRAWN BY: HFF

DATE: 04-23-10 CHECKED BY: PJE

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	6
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



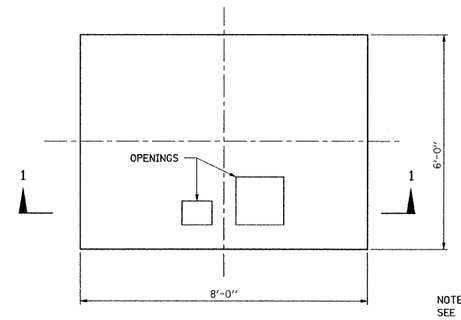
FENCE DETAIL

NOT TO SCALE

SPECIFICATIONS			
FABRIC	MESH	GAUGE	SELVAGE
ALUM.	2"	9	K+B
BARBED WIRE	TYPE 4 PT.	3 STR. ☒	6 STR.. ☐
FRMWRK.	O.D.	WALL	LBS/LF
TOP & BOT. RAIL	1⅝"	.140	2.27
LINE POSTS	2⅜"	.154	3.65
BRACE RAIL	1⅝"	.140	2.27
CORNER POSTS	2⅞"	.203	5.79
END POSTS	2⅞"	.203	5.79

NOTES:

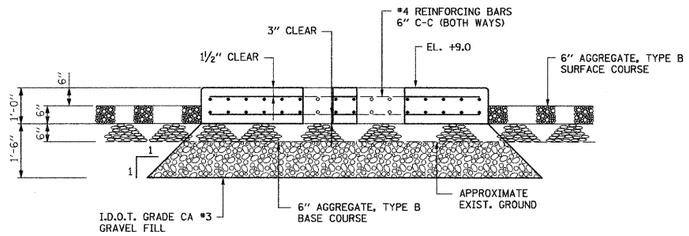
1. ALL MATERIALS SHALL BE HOT DIP GALVANIZED
2. ALL FITTINGS SHALL BE PRESSED STEEL.



PLAN

NOTE:
SEE DWG E2 FOR ADDITIONAL DETAIL

SUPERPAVE – Mix Selection SURFACE TREATMENTS							
ADT	CODE NO	ITEM	UNIT	AC TYPE	VOIDS	MAX RAP %	MIN THICKNESS
700-5000	4066424	BITUMINOUS SURFACE COURSE, SUPERPAVE MIX "C", N50	TON	PG 58-22	3% @ 30 Gyr.	30	1-½"
700-5000	4066614	BITUMINOUS BINDER COURSE, SUPERPAVE IL-19.0, N50	TON	PG 58-22	3% @ 30 Gyr.	30	1-½"



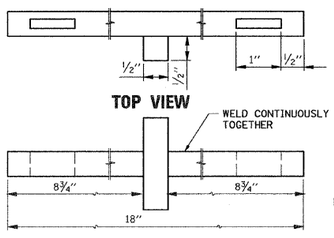
SECTION 1–1

COMED TRANSFORMER FOUNDATION

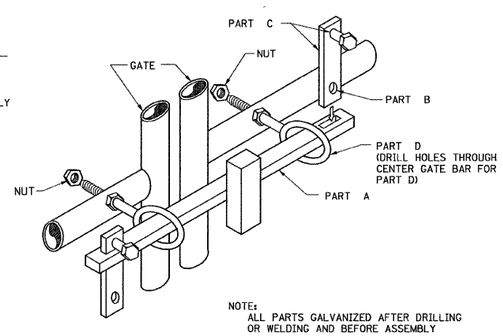
SCALE: ½" = 1'-0"

NOTES:

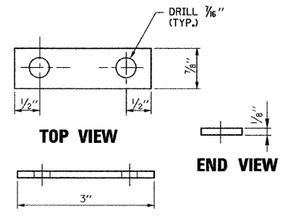
1. COORDINATE WITH COMED FOR THE OFFSETS/SETBACKS /OPENINGS/CONDUITS/ETC.



PART A



NOTE:
ALL PARTS GALVANIZED AFTER DRILLING OR WELDING AND BEFORE ASSEMBLY



PART B

PART C IS FABRICATED THE SAME WITH A BOLT INTO EACH HOLE

PART C

SWING GATE LOCKING DEVICE

NOT TO SCALE

DONOHUE & ASSOCIATES

G5

REVISIONS	
NAME	DATE

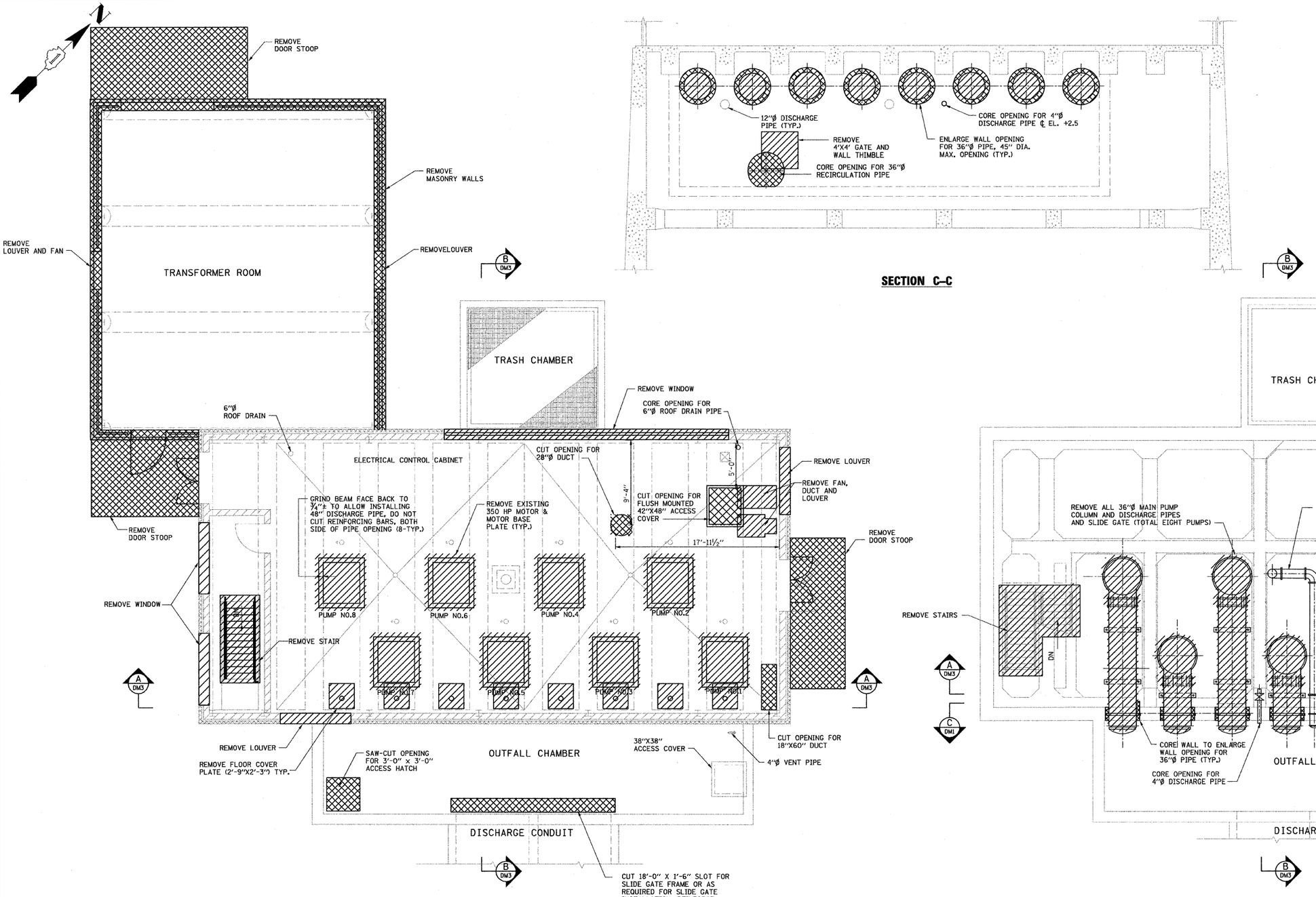
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27 REHABILITATION

GENERAL DETAILS

SCALE: AS SHOWN
DRAWN BY: HFF
DATE: 04-23-10
CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	7
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



FLOOR PLAN @ EL. +9.5'

SECTION C-C

FLOOR PLAN @ EL. +6.5'

NOTE:

1. FOR ARCHITECTURAL DEMOLITION SEE DM4.
2. DO NOT OVER CUT AT CORNERS OF CONCRETE CUT-OUTS.
3. DM1, DM2 AND DM3 INDICATE STRUCTURAL, MECHANICAL AND ELECTRICAL DEMOLITION AND REMOVAL OF MAJOR ITEMS.
4. FOR ELECTRICAL DEMOLITION, SEE DM5 AND DM6.
5. FOR REMOVAL AND DISPOSAL OF LEAD BASED PAINT LOCATION, SEE SPECIAL PROVISIONS SECTION 9B.
6. WHERE MECHANICAL EQUIPMENT IS INDICATED TO BE REMOVED, REMOVED ALL ASSOCIATED ELECTRICAL AND I&C WIRING CONDUIT BACK TO SOURCE AND MCC.

LEGEND:

EQUIPMENT AND OTHER REMOVAL

CONCRETE REMOVAL

SCALE: 0 4 8 12

DONOHUE & ASSOCIATES

DM1

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

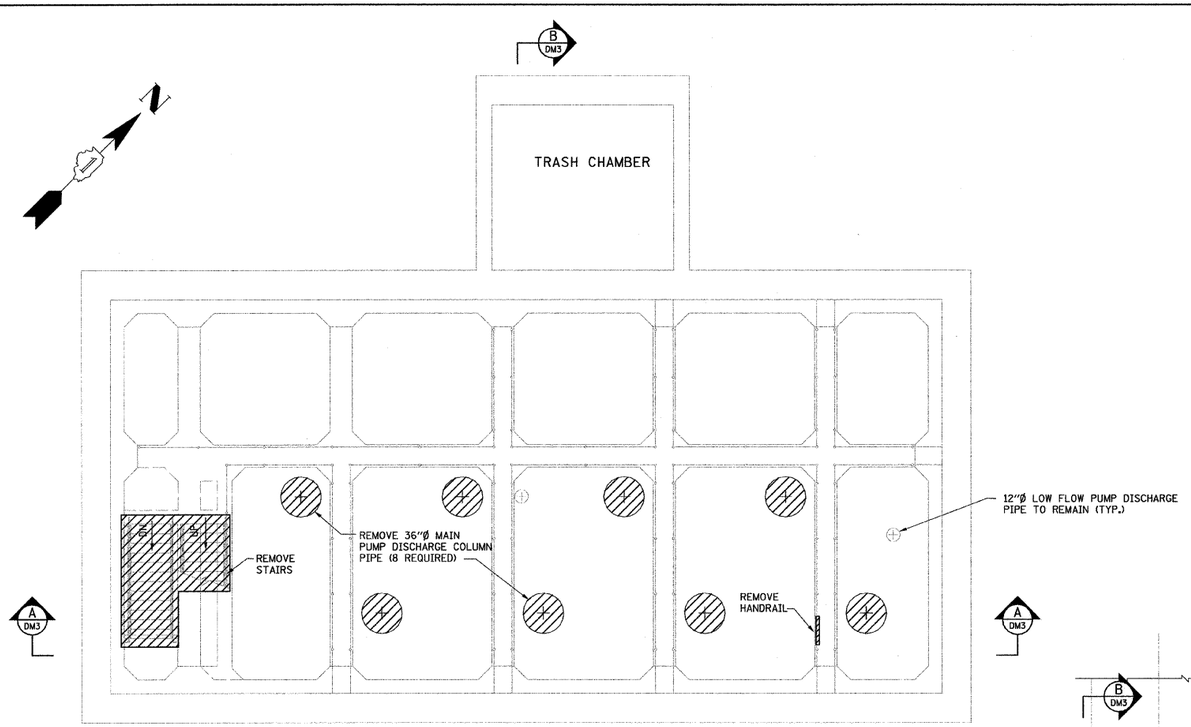
PUMP STATION NO. 27 REHABILITATION

DEMOLITION PLANS AND SECTION

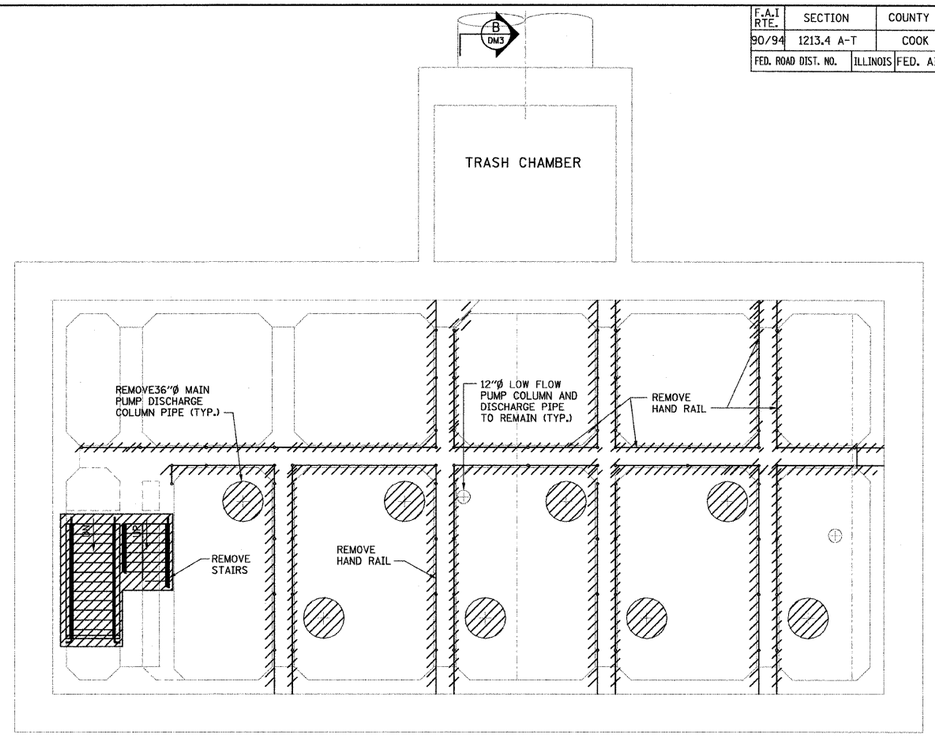
SCALE: AS SHOWN DRAWN BY: HFF

DATE: 04-23-10 CHECKED BY: KC

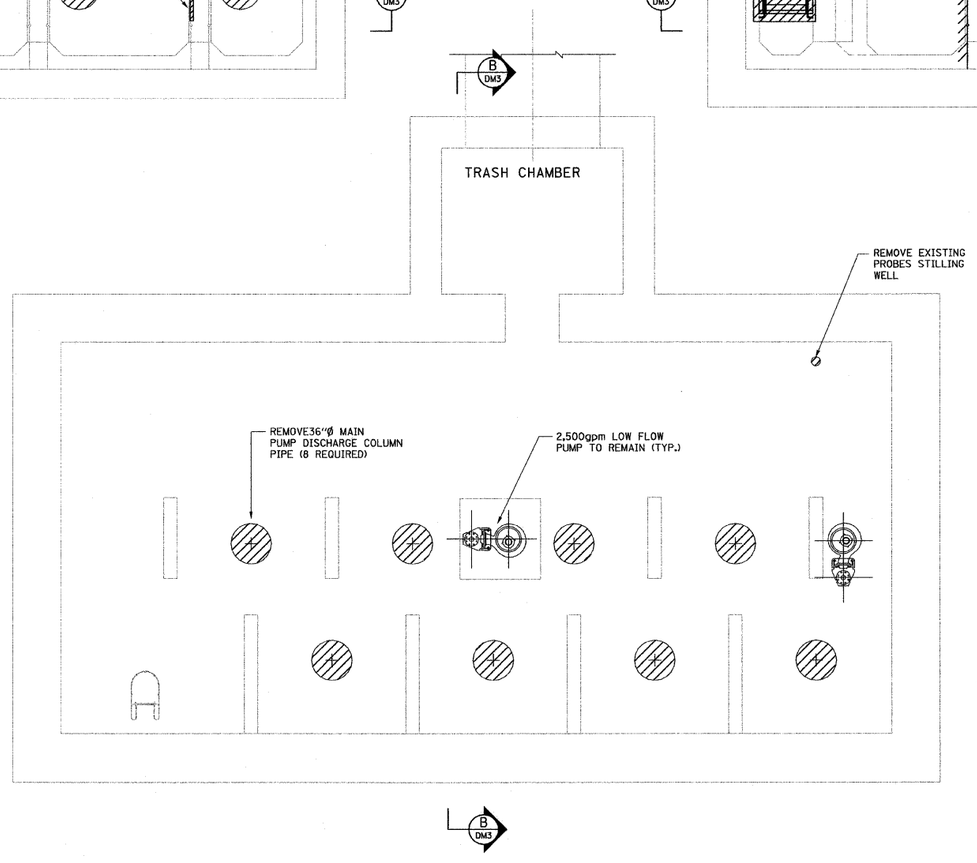
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	8
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



PLAN @ EL. -8.5'



PLAN @ EL. -26.5'



PLAN @ EL. -48.0'

LEGEND:

- EQUIPMENT AND OTHER REMOVAL
- CONCRETE REMOVAL

SCALE: 0 4 8 12

DONOHUE & ASSOCIATES

DM2

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

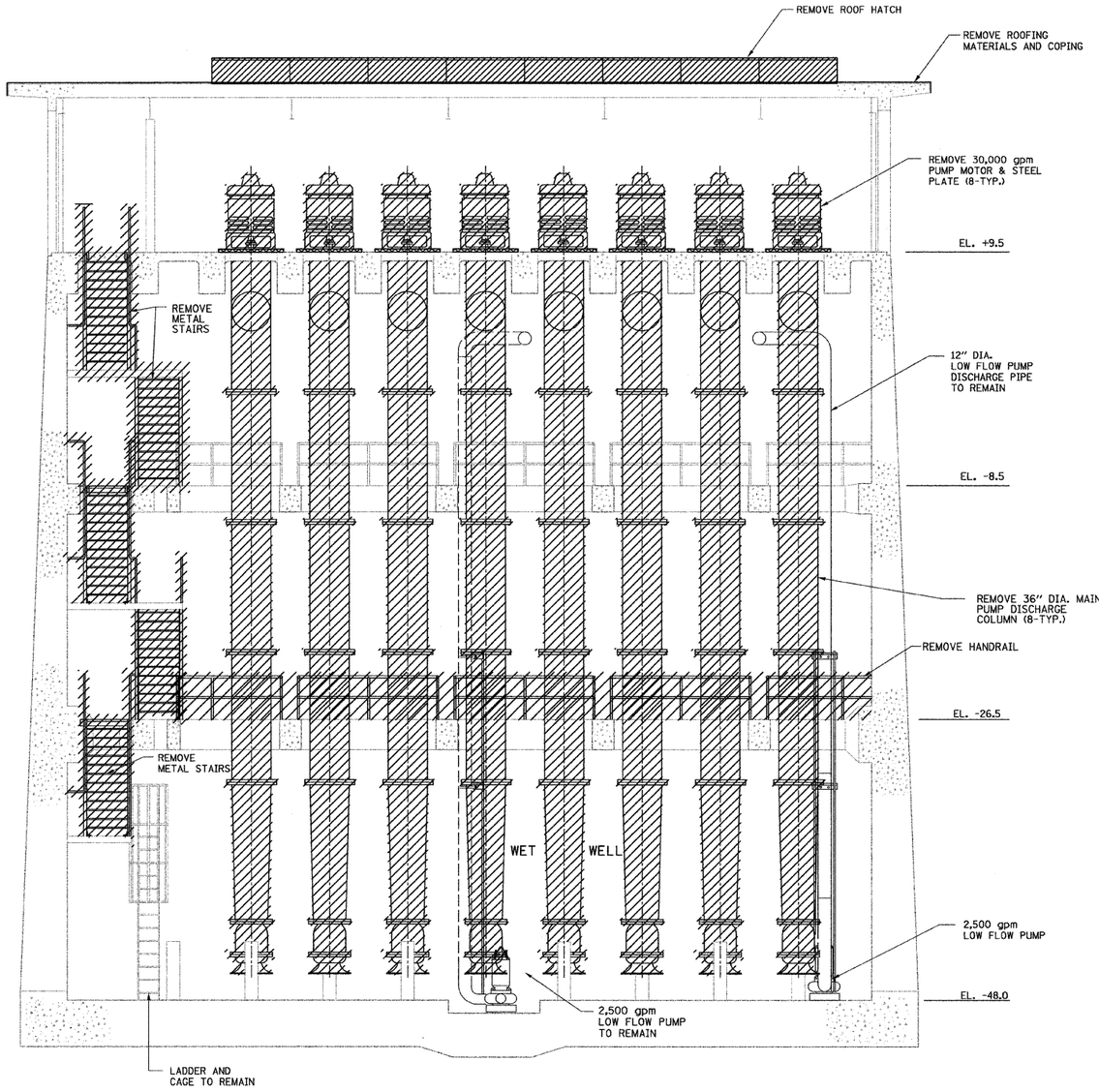
PUMP STATION NO. 27 REHABILITATION

DEMOLITION PLANS

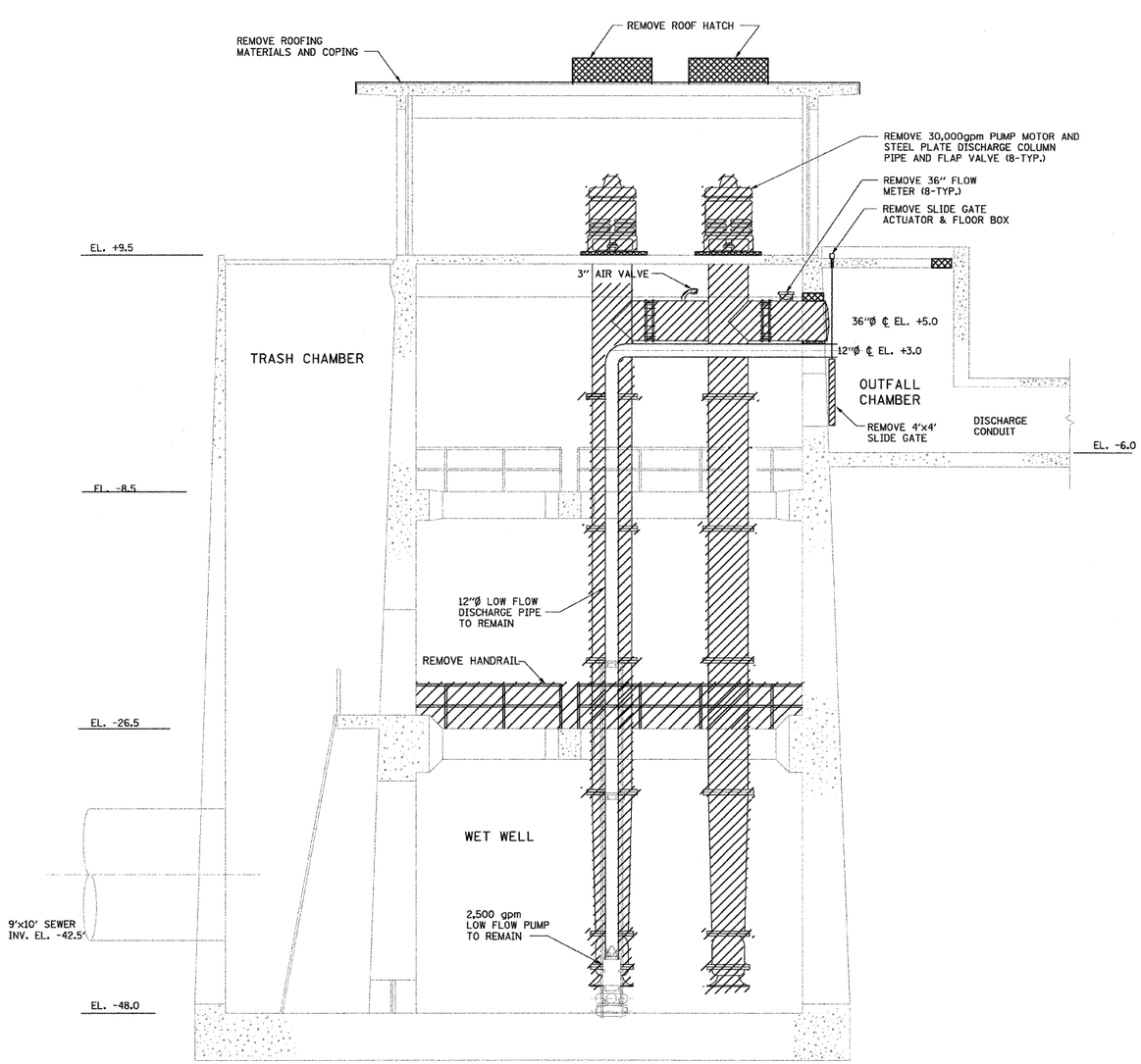
SCALE: AS SHOWN DRAWN BY: HFF

DATE: 04-23-10 CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	9
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



SECTION A-A



SECTION B-B

LEGEND:

- EQUIPMENT AND OTHER REMOVAL
- CONCRETE REMOVAL

SCALE: 0 4 8 12

DONOHUE & ASSOCIATES

DM3

REVISIONS	
NAME	DATE

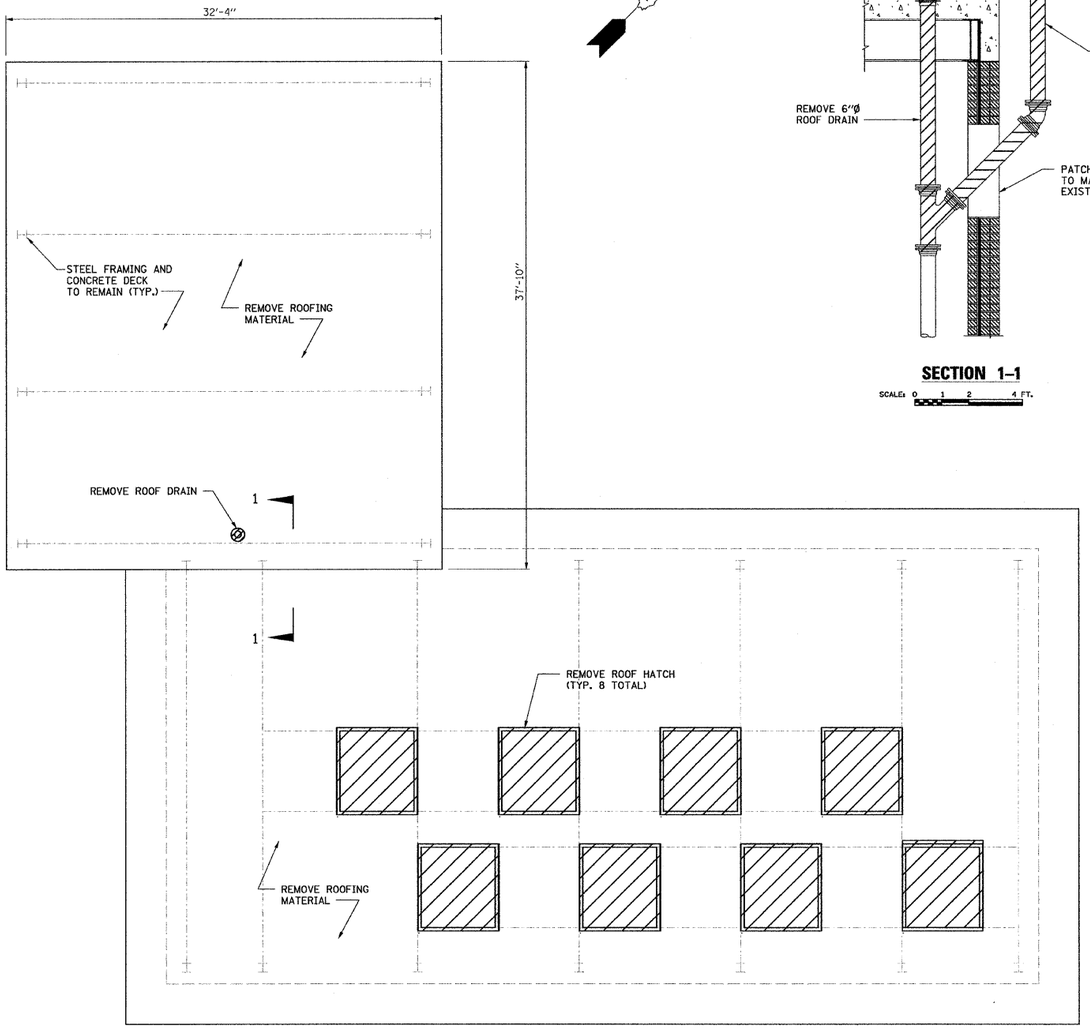
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27 REHABILITATION

DEMOLITION SECTIONS

SCALE: AS SHOWN
DRAWN BY: HFF
DATE: 04-23-10
CHECKED BY: KHC

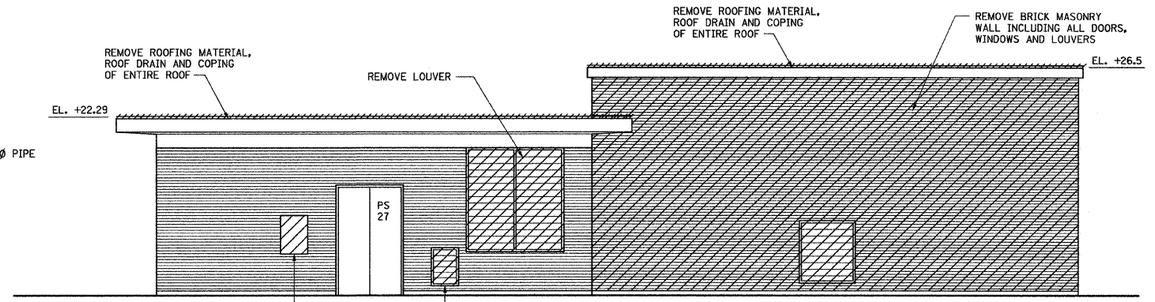
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	10
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



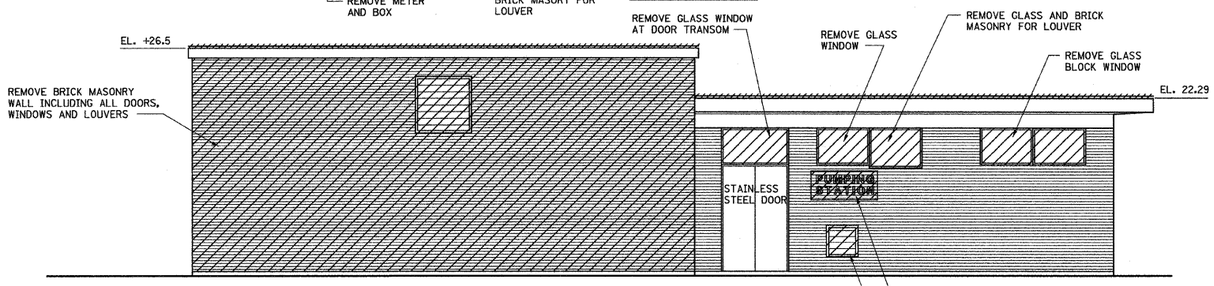
ROOF PLAN

SECTION 1-1

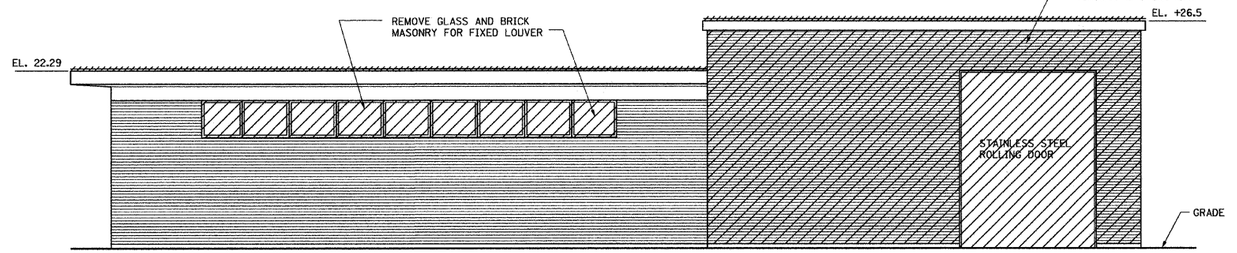
SCALE: 0 1 2 4 FT.



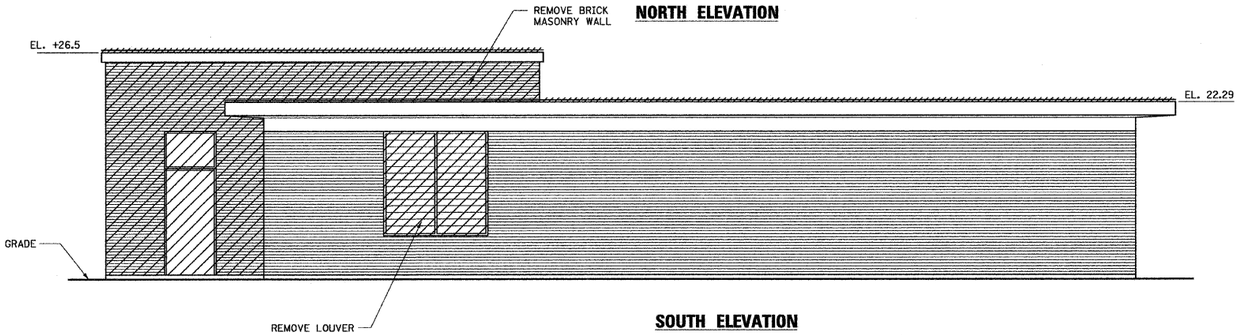
EAST ELEVATION



WEST ELEVATION REMOVE LOUVER



NORTH ELEVATION



SOUTH ELEVATION

NOTE:

1. FOR STRUCTURAL, MECHANICAL AND ELECTRICAL DEMOLITION, SEE DWGS. DM1, DM2, DM3, DM5 AND DM6.
2. DM4 INDICATES ARCHITECTURAL DEMOLITION AND REMOVAL OF MAJOR ITEMS.
3. FOR NEW LOUVER AND GLASS BLOCK SIZE AND LOCATION SEE DWG. A1.

LEGEND:

REMOVAL

SCALE: 0 4 8 12

DONOHUE & ASSOCIATES

DM4

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27 REHABILITATION

DEMOLITION PLAN AND ELEVATIONS

SCALE: AS SHOWN DRAWN BY: CTM

DATE: 04-23-10 CHECKED BY: MW

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	11
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

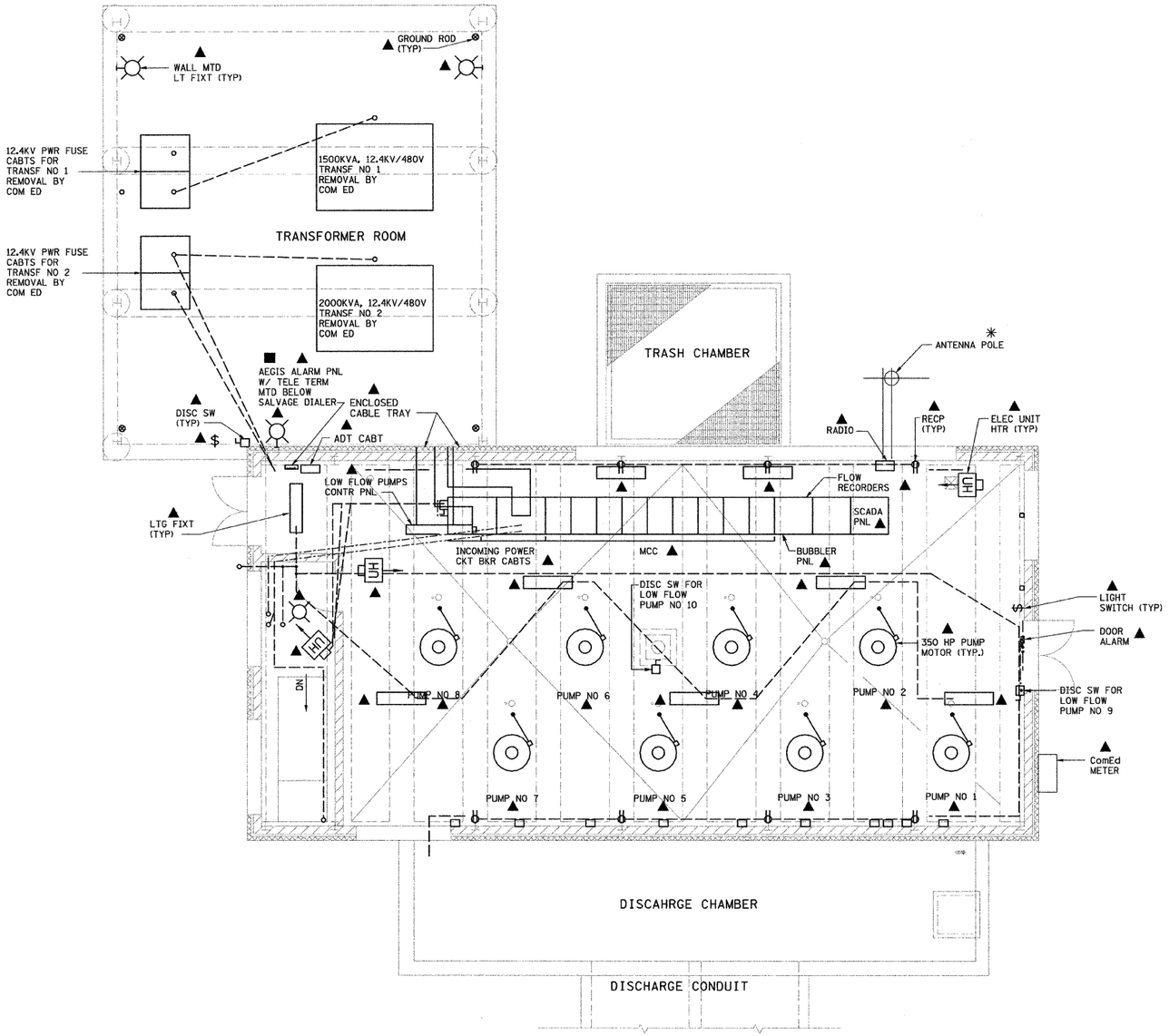
GENERAL NOTES:

1. THE CONTRACTOR SHALL VISIT THE SITE IN ORDER TO FAMILIARIZE THEMSELVES WITH THE CONDITIONS UNDER WHICH THEY WILL PERFORM THE WORK.
2. THE CONTRACTOR SHALL INCLUDE DISCONNECTION AND REMOVAL OF ALL RELATED ELECTRICAL EQUIUPMENT, CABLE, CONDUIT AND APPURTENENANCES AS PART OF THEIR DEMOLITION WORK.
3. ALL MATERIALS, EQUIPMENT & APPURTENANCES NOT SPECIFICALLY IDENTIFIED BUT WHICH REQUIRE REMOVAL FOR COMPLETION OF THE REQUIRED WORK SHALL BE REMOVED AT NO ADDITIONAL COST TO THE OWNER.
4. EXISTING ELECTRICAL SERVICE FEEDERS SHALL BE REMOVED BY THE CONTRACTOR, ALL OTHER ELECTRIC SERVICE EQUIPMENT SHALL BE REMOVED BY ComEd.
5. ALL CONDUIT OPENINGS SHALL BE SEALED, FOR PATCHING REQUIREMENTS SEE NOTES ON DRAWING E16.
6. CORE DRILL FLOOR FOR NEW SERVICE ENTRANCE CONDUITS, FUTURE GENERATOR CONDUITS, AND CONDUITS FOR GROUND GRID CONNECTION. SEE DRAWING E16 FOR LOCATIONS AND SIZES.

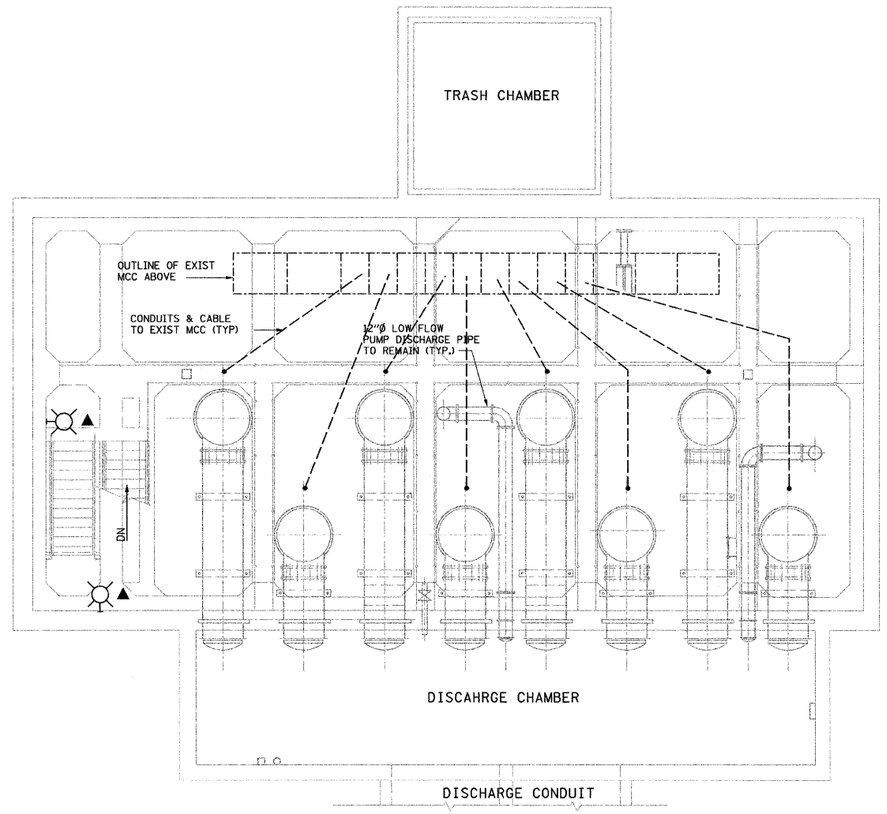
✳ DENOTES EXISTING ELECTRICAL TO REMAIN.

■ DENOTES EXISTING ELECTRICAL TO BE RELOCATED.

▲ DENOTES EXISTING ELECTRICAL TO BE REMOVED.



FLOOR PLAN ABOVE EL. +9.5'



PLAN ABOVE EL. +6.5'

SCALE: 0 4 8 12

DM5

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27 REHABILITATION

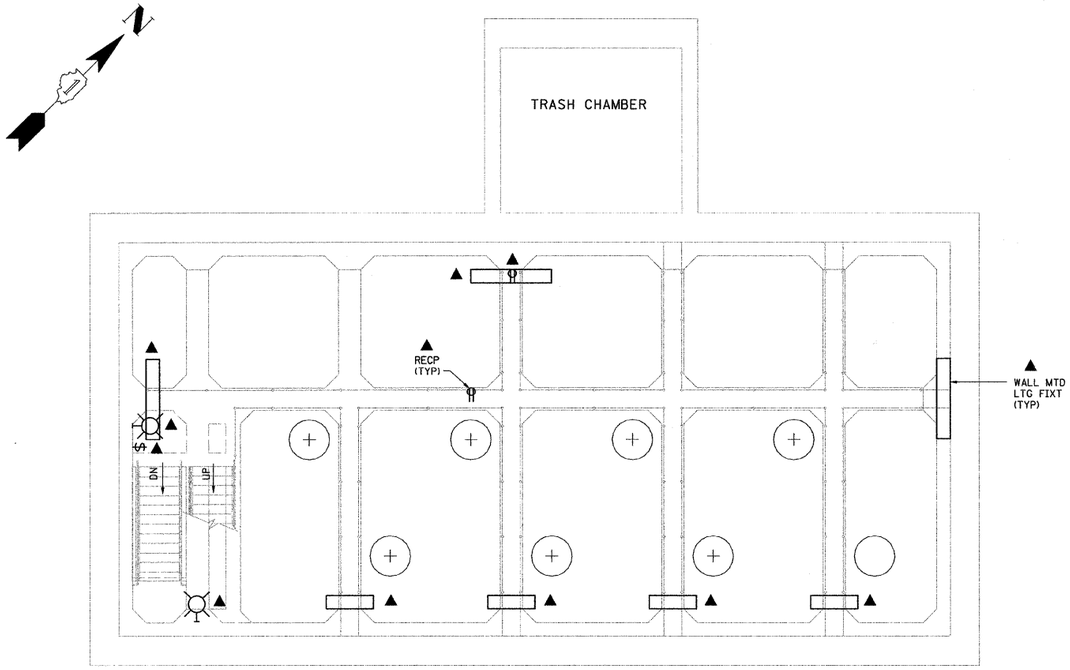
ELECTRICAL DEMOLITION PLAN SH. 1

SCALE: AS SHOWN DRAWN BY: HFF

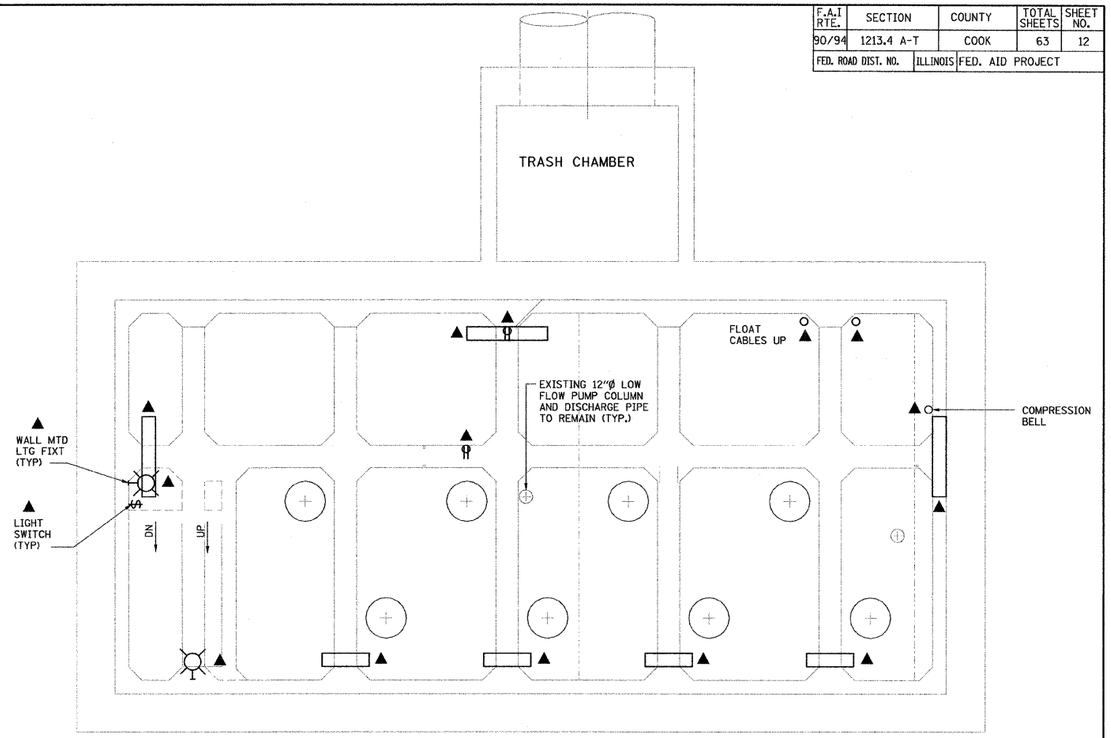
DATE: 04-23-10 CHECKED BY: KHC

DONOHUE & ASSOCIATES

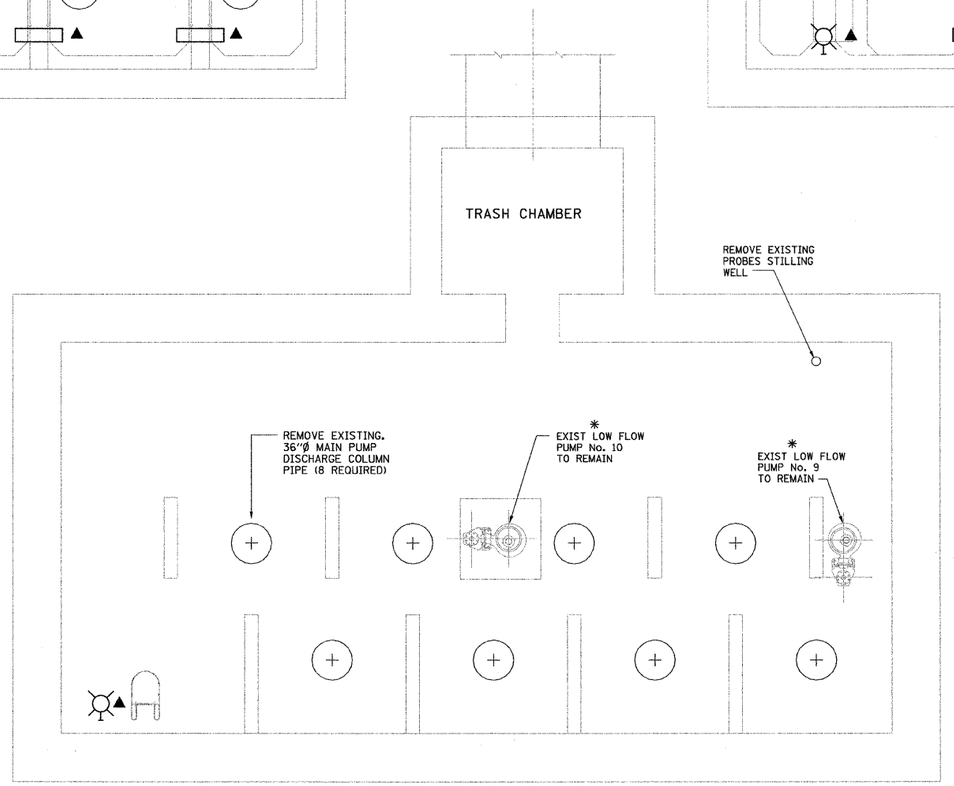
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	12
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



PLAN ABOVE EL. -8.5'



PLAN ABOVE EL. -26.5'



PLAN ABOVE EL. -48.0'

NOTES:

1. SEE GENERAL NOTES ON SHEET NO. DM5

SCALE: 0 4 8 12

DONOHUE & ASSOCIATES

DM6

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

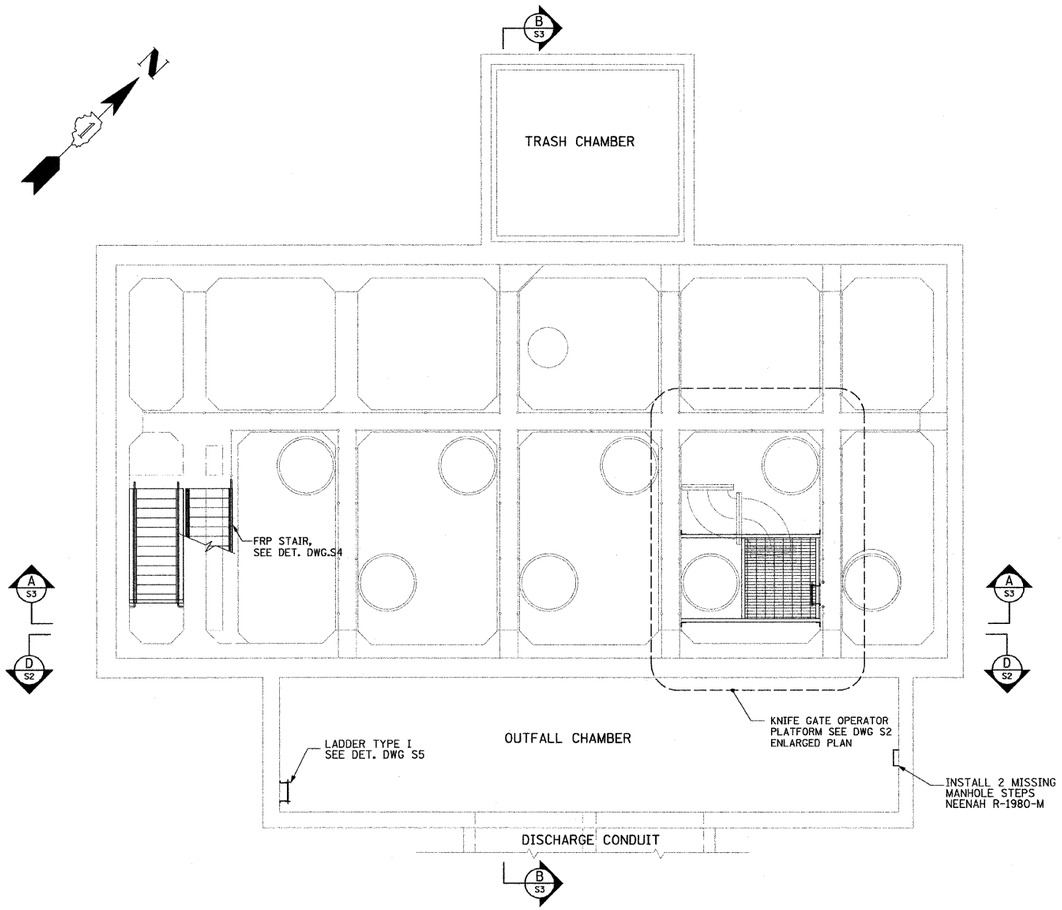
PUMP STATION NO. 27
REHABILITATION

ELECTRICAL
DEMOLITION PLANS SH. 2

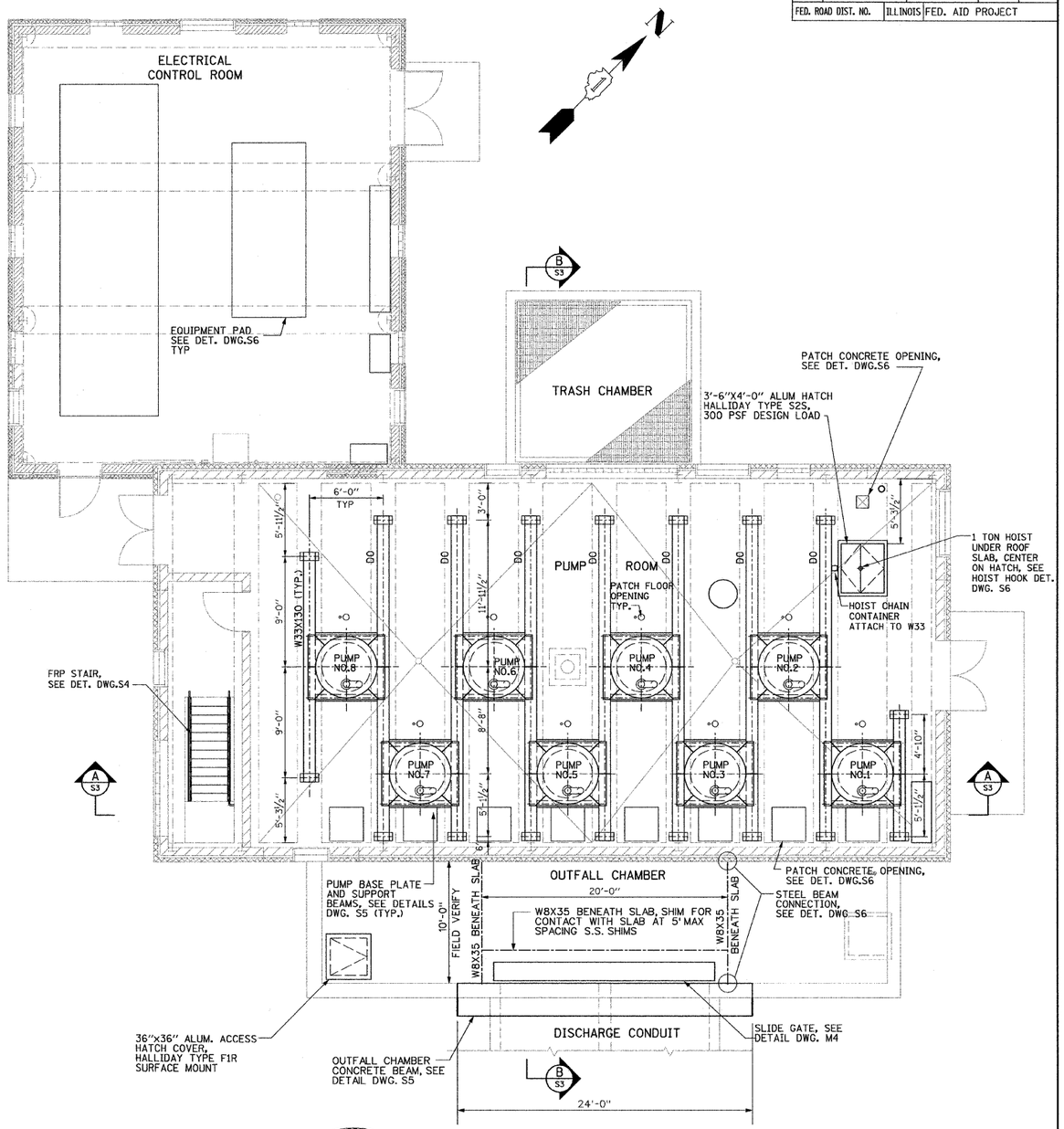
SCALE: AS SHOWN DRAWN BY: CTM

DATE: 04-23-10 CHECKED BY: KC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	13
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



PLAN @ EL.-8.5



PLAN @ EL.+9.5

STATE OF ILLINOIS
PHILIP J. ENGLEBERT 81-4066
LICENSED STRUCTURAL ENGINEER
4/15/10

SCALE: 0 4 8 12

DONOHUE & ASSOCIATES

S1

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

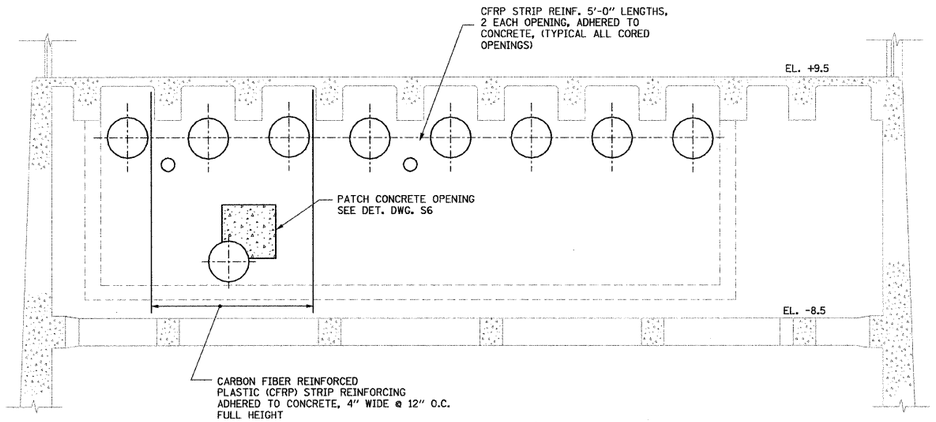
PUMP STATION NO. 27 REHABILITATION

STRUCTURAL PLANS

SCALE: AS SHOWN DRAWN BY: CM

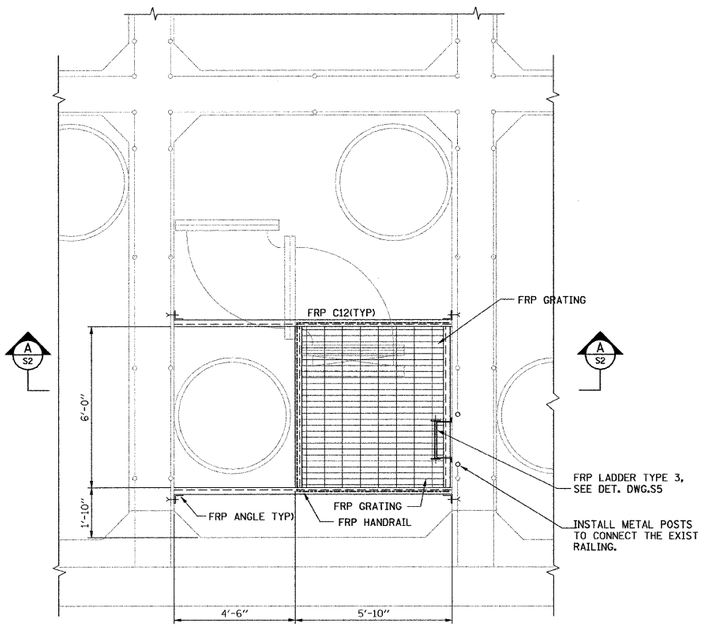
DATE: 04-23-10 CHECKED BY: PJE

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	14
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



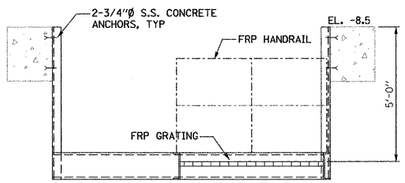
SECTION (D / S1)

SCALE: 0 4 8 12



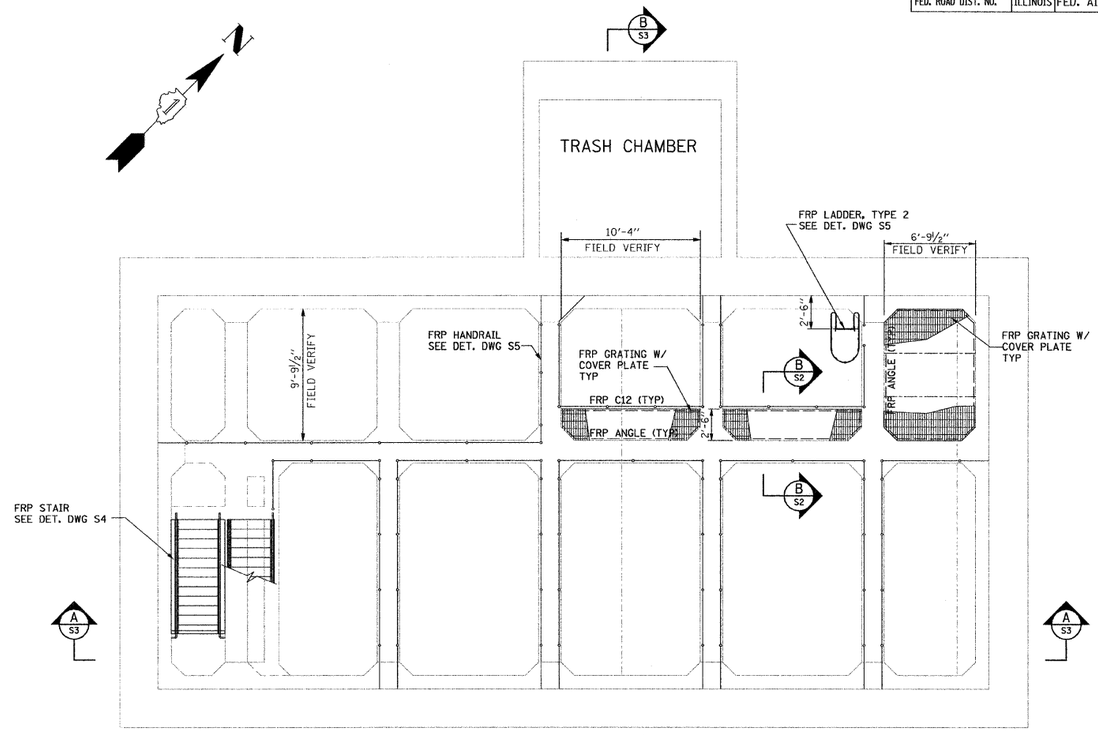
KNIFE GATE OPERATOR PLATFORM ENLARGED PLAN

SCALE: 0 2 4 6



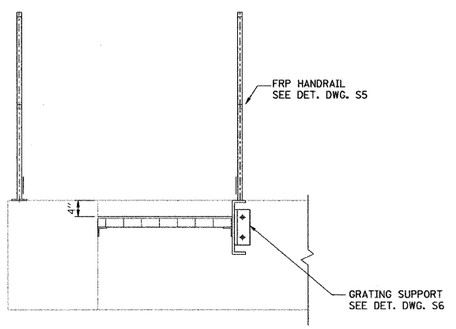
SECTION (A / S2)

SCALE: 0 2 4 6



PLAN @ EL.-26.5

SCALE: 0 4 8 12



SECTION (A / S2)

SCALE: 0 1 2 3

STATE OF ILLINOIS
PHILIP J. ENGLEBERT 81-4066
LICENSED STRUCTURAL ENGINEER
4/15/10

S2

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27 REHABILITATION

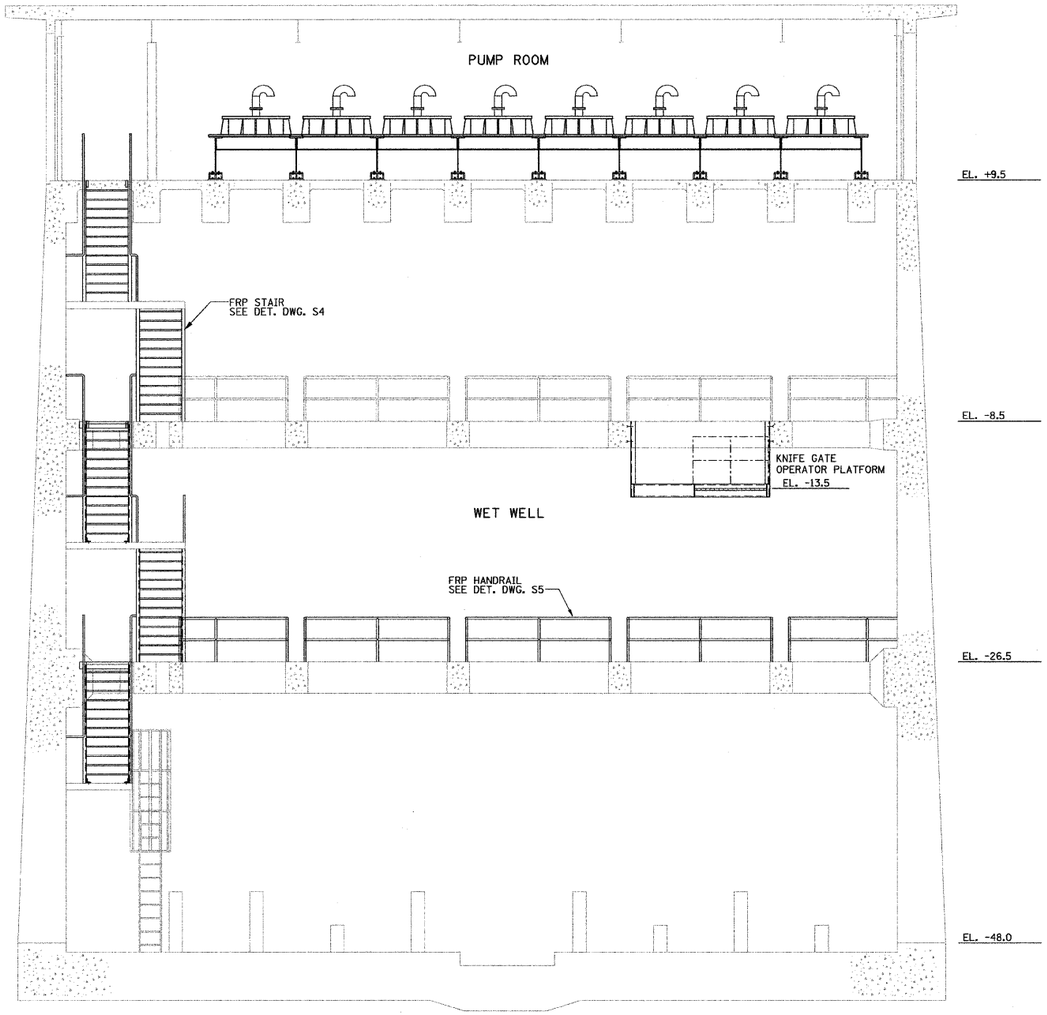
STRUCTURAL PLANS & SECTIONS

SCALE: AS SHOWN DRAWN BY: CM

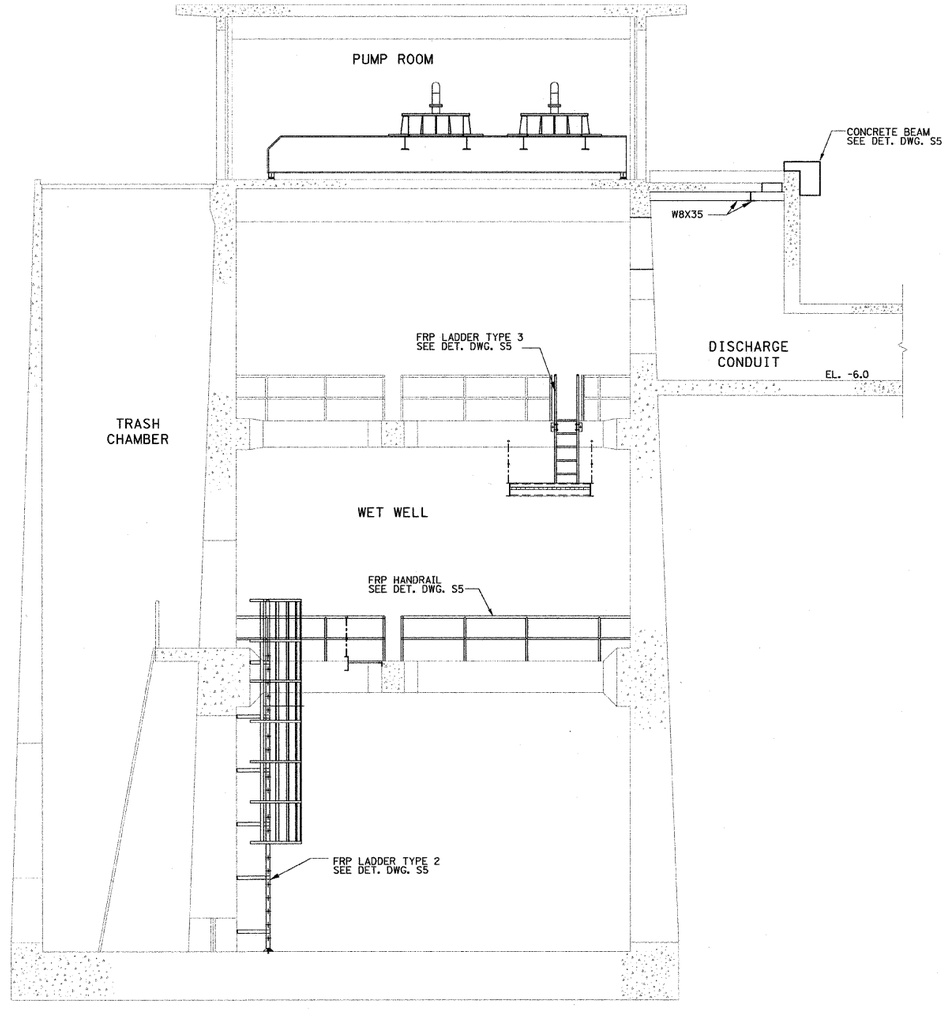
DATE: 04-23-10 CHECKED BY: PJE

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	15
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



SECTION (A / S1)



SECTION (B / S1)

DONOHUE & ASSOCIATES

STATE OF ILLINOIS
PHILIP J. ENGLEBERT
81-4066
LICENSED STRUCTURAL ENGINEER
4/15/10

SCALE: 0 4 8 12

S3

REVISIONS	
NAME	DATE

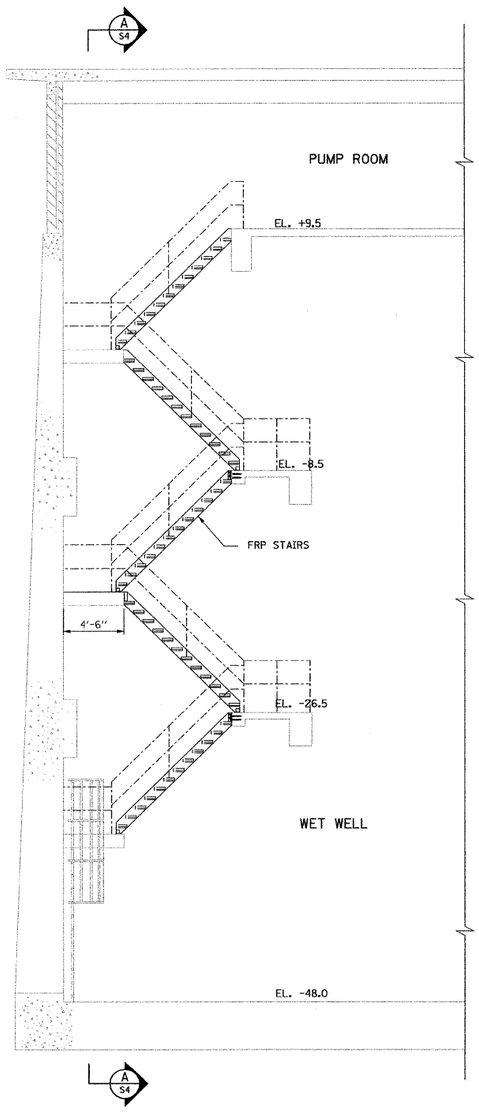
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27
REHABILITATION

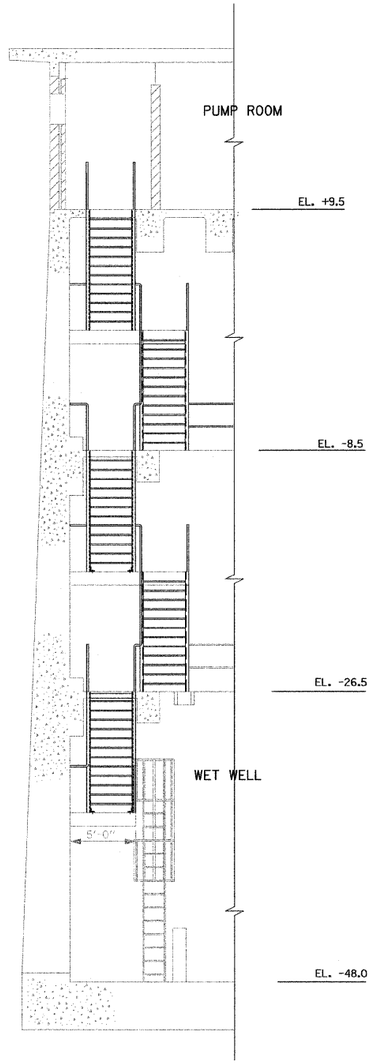
STRUCTURAL SECTIONS

SCALE: AS SHOWN
DATE: 04-23-10
DRAWN BY: CM
CHECKED BY: PJE

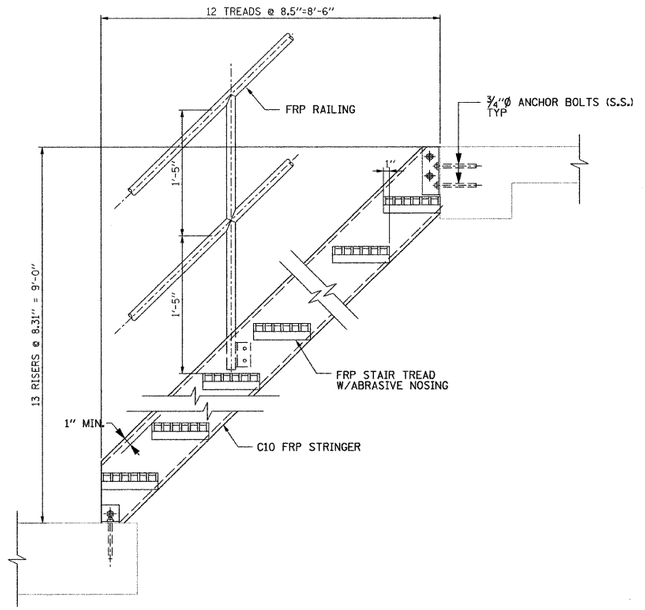
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	16
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



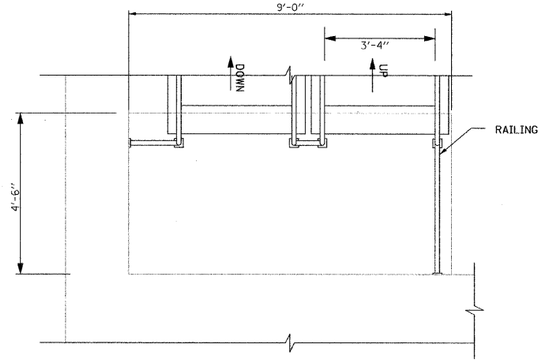
STAIR ELEVATION



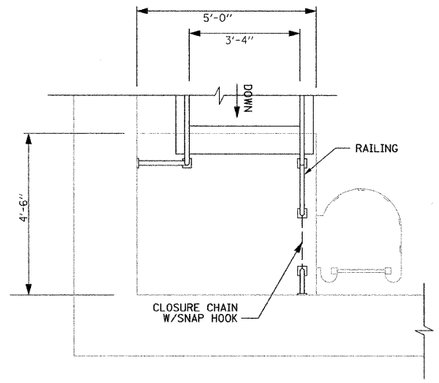
SECTION A S4



TYPICAL STAIR DETAIL



INTERMEDIATE LANDIND DETAIL



BOTTOM LANDIND DETAIL

STATE OF ILLINOIS
PHILIP J. ENGLEBERT
81-4066
LICENSED STRUCTURAL ENGINEER
4/15/10

SCALE: 0 4 8 12

DONOHUE & ASSOCIATES

S4

REVISIONS	
NAME	DATE

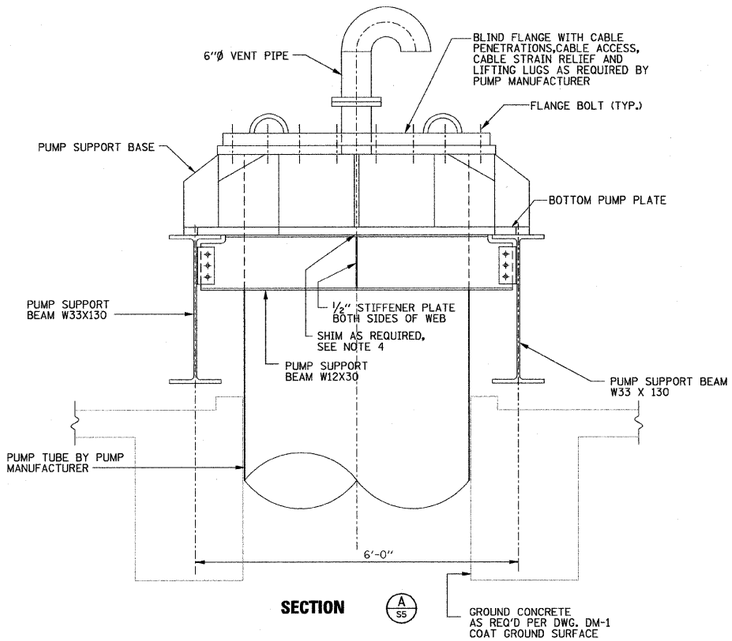
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27
REHABILITATION

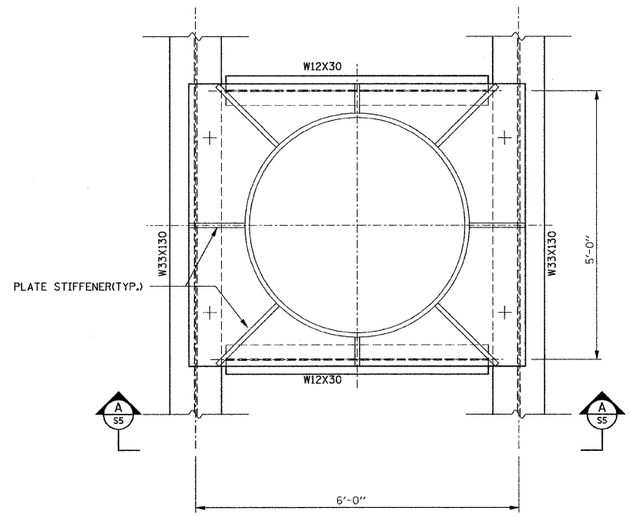
STRUCTURAL DETAILS

SCALE: AS SHOWN
DRAWN BY: CM
DATE: 04-23-10
CHECKED BY: FL

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	17
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



SECTION (A S5)

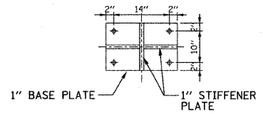


PUMP PLATE DETAIL NOTES:

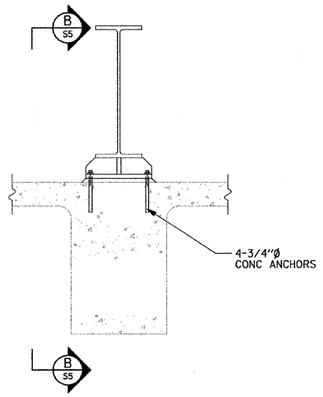
1. PUMP SUPPORT BEAMS SHALL BE PAINTED WHITE. THE PUMP SUPPORT BASE SHALL BE PAINTED BLUE.
2. PUMP BASE INCLUDING PUMP PLATES, BLIND FLANGES AND STIFFENERS ABOVE PUMP SUPPORT BEAMS ARE TO BE DESIGNED AND PROVIDED BY PUMP MANUFACTURER. DETAILS SHOWN ARE FOR BID PURPOSES ONLY.
3. PROVIDE ELECTRICAL PENETRATIONS AND ATTACHMENTS AS RECOMMENDED BY PUMP MANUFACTURER.
4. PUMP SUPPORT BASE SHALL BE DESIGNED TO FIT THROUGH THE ROOF HATCH OPENING FOR PUMP INSTALLATION AND FUTURE PUMP REMOVABLE.

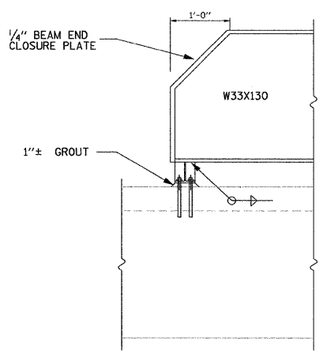
PLAN
PUMP SUPPORT DETAIL

SCALE: 0 1 2 3 FT.



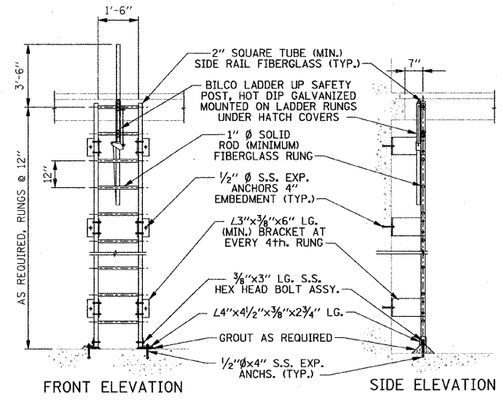
PLAN
BEARING PLATE DETAIL





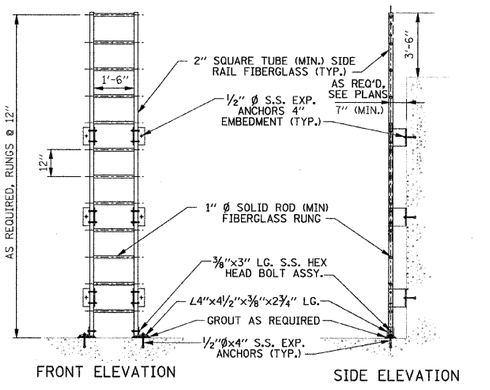
SECTION (B S5)

PUMP SUPPORT BEAM ANCHOR DETAIL
NOT TO SCALE



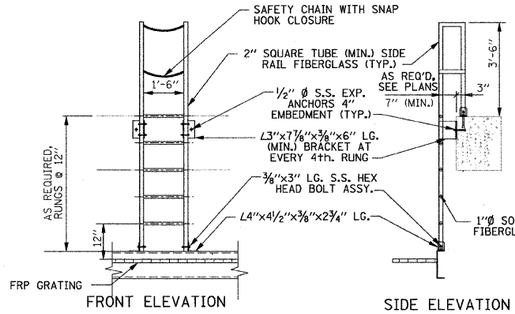
PROVIDE SAF-T-CLIMB

FIBERGLASS LADDER TYPE 1 DETAIL
NOT TO SCALE

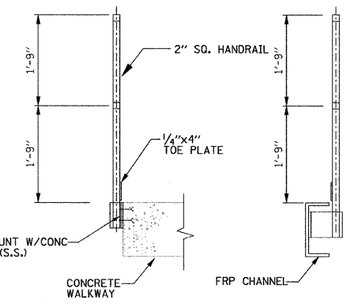


PROVIDE FIBERGLASS CAGE WITH SAF-T-CLIMB MEETING OSHA REQUIREMENTS.

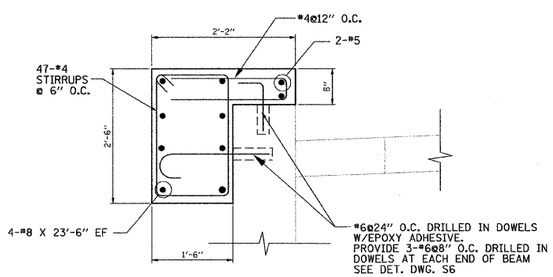
FIBERGLASS LADDER TYPE 2 DETAIL
NOT TO SCALE



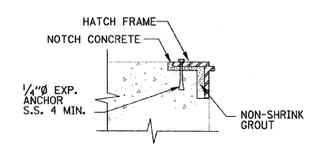
FIBERGLASS LADDER TYPE 3 DETAIL
NOT TO SCALE



FRP HANDRAIL DETAIL
NOT TO SCALE



OUTFALL CHAMBER CONCRETE BEAM DETAIL



RETROFIT ALUM. HATCH DETAIL
NOT TO SCALE

DONOHUE & ASSOCIATES

S5

REVISIONS	
NAME	DATE

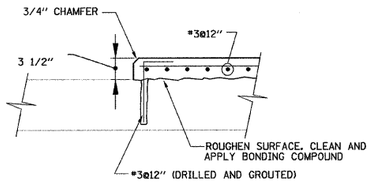
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27
REHABILITATION

STRUCTURAL DETAILS

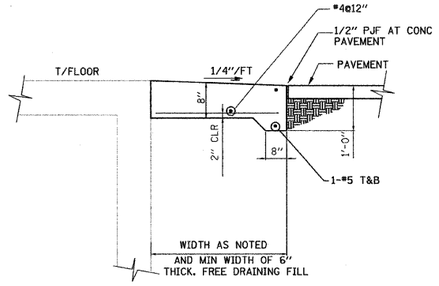
SCALE: AS SHOWN
DRAWN BY: CM
DATE: 04-23-10
CHECKED BY: PJE

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	18
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



EQUIPMENT PAD DETAIL

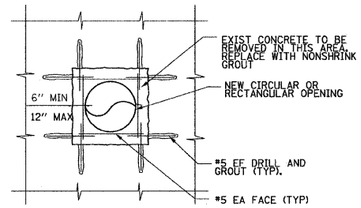
NOT TO SCALE



NOTES:

1. FREE DRAINING FILL MUST BE KEPT CLEAN UNTIL SLAB IS POURED.

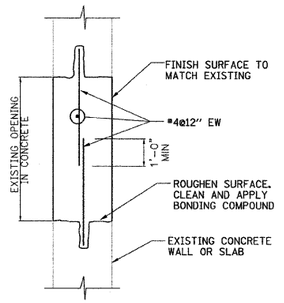
DOOR STOOP DETAIL



NOTES:

1. PRESERVE EXISTING REINFORCING OUTSIDE OF NEW OPENING

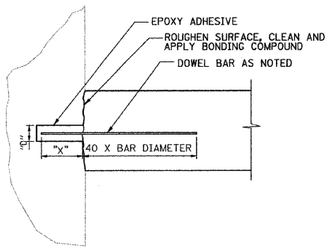
NEW OPENING THRU EXISTING WALL OR SLAB DETAIL



NOTES:

1. USE FOR OPENINGS 4'-0" SQ AND SMALLER WITH DRY FACES BOTH SIDES OR WHERE NOTED.
2. REINFORCEMENT NOT REQUIRED FOR OPENINGS <16".

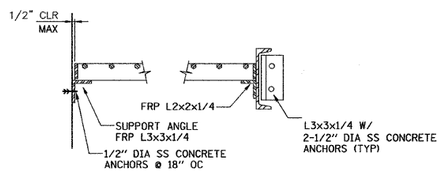
CONCRETE OPENING PATCHING DETAIL



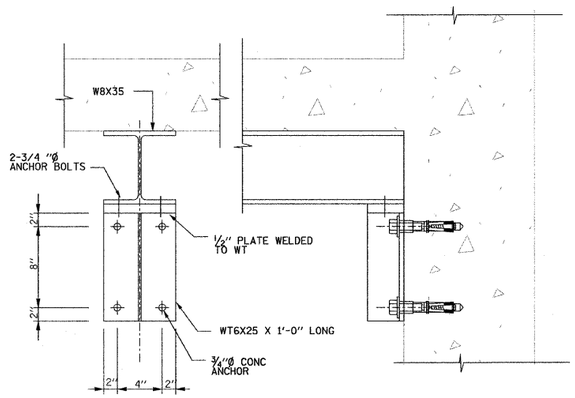
NOTES:

1. EMBEDMENT "X"=16 BAR DIAMETERS MIN.
2. HOLE DIAMETER "D"=2 BAR DIAMETERS MAX.

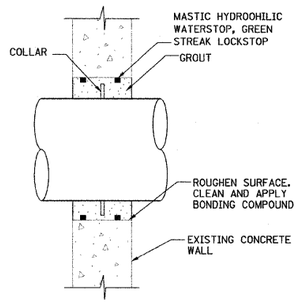
DRILLED IN DOWEL DETAIL



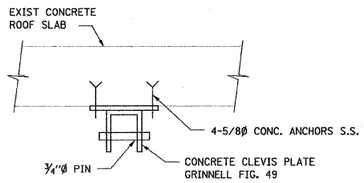
GRATING SUPPORT DETAIL



OUTFALL CHAMBER STEEL BEAM TO WALL CONNECTION



PIPE PENETRATION DETAIL



NOTES:

1. LOCATION OF HOIST HOOK TO BE CENTERED ON FLOOR HATCH @ EL. +9.5.
2. VERIFY CLEVIS CLERANCE REQUIREMENTS WITH HOIST MANUFACTURER.

HOIST HOOK DETAIL

STATE OF ILLINOIS
PHILIP J. ENGLEBERT 81-4066
LICENSED STRUCTURAL ENGINEER
4/15/10

GENERAL NOTES:

1. ALL STEEL SHAPES, PLATES AND MEMBERS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION

DONOHUE & ASSOCIATES

S6

REVISIONS	
NAME	DATE

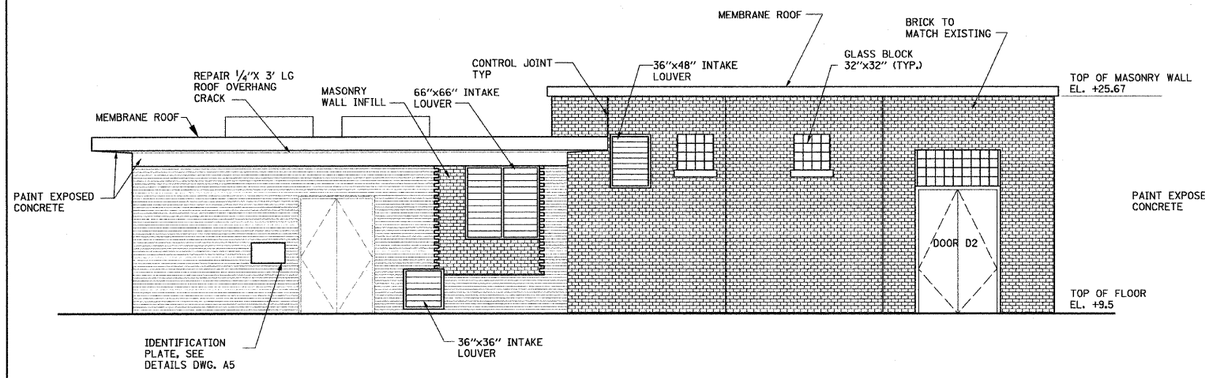
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27 REHABILITATION

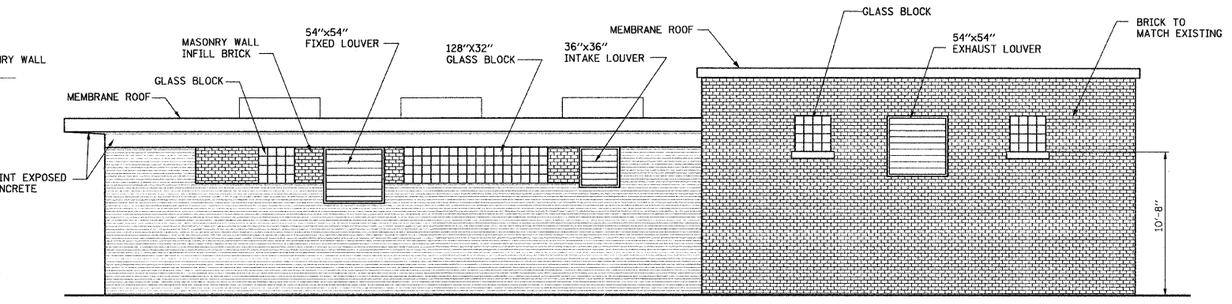
STRUCTURAL DETAILS

SCALE: AS SHOWN
DRAWN BY: CM
DATE: 04-23-10
CHECKED BY: PJE

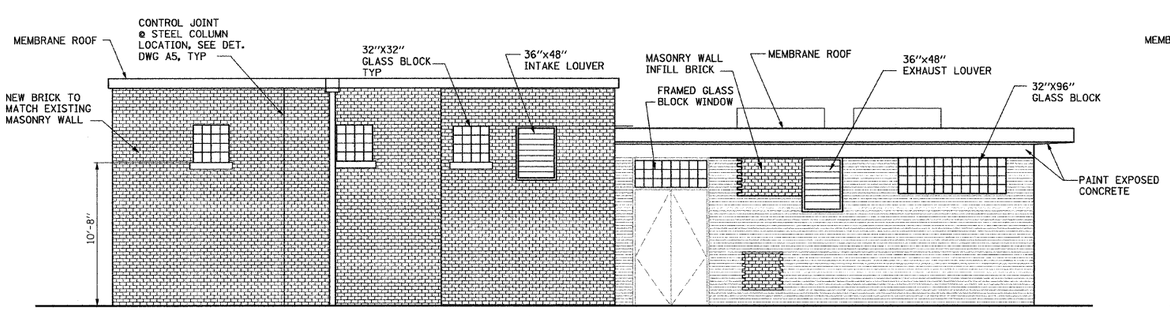
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	19
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



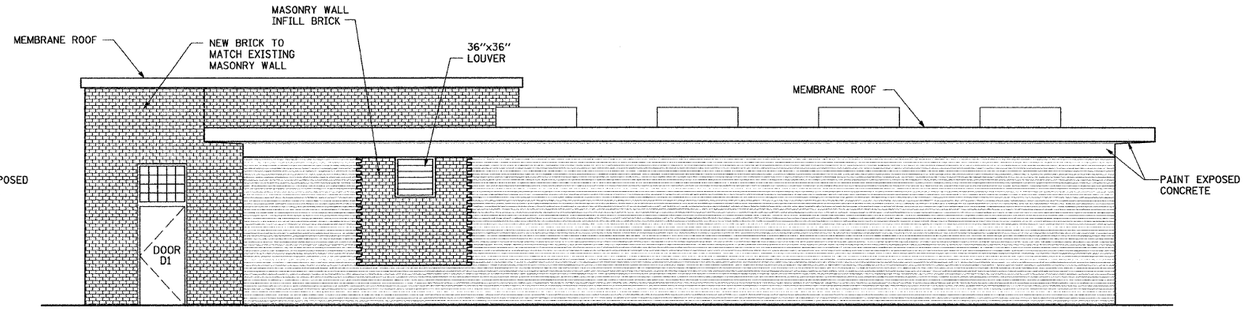
EAST ELEVATION



NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION

NOTE:
USE BRICKS AND GLAZED TILES REMOVED FROM TRANSFORMER ROOM FOR PUMP ROOM WALL INFILL.

DONOHUE & ASSOCIATES

SCALE: 0 4 8 12

A1

REVISIONS	
NAME	DATE

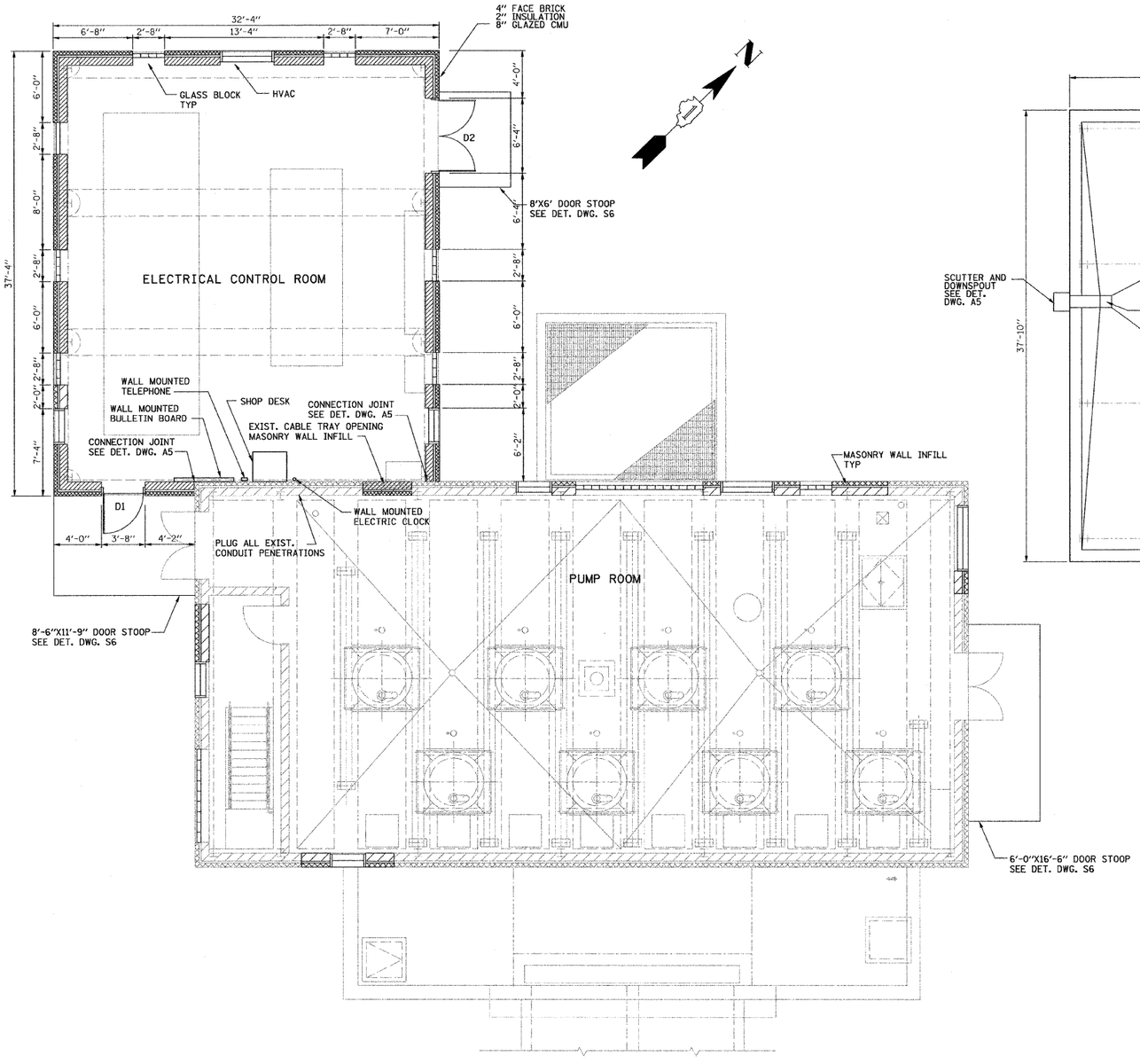
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27
REHABILITATION

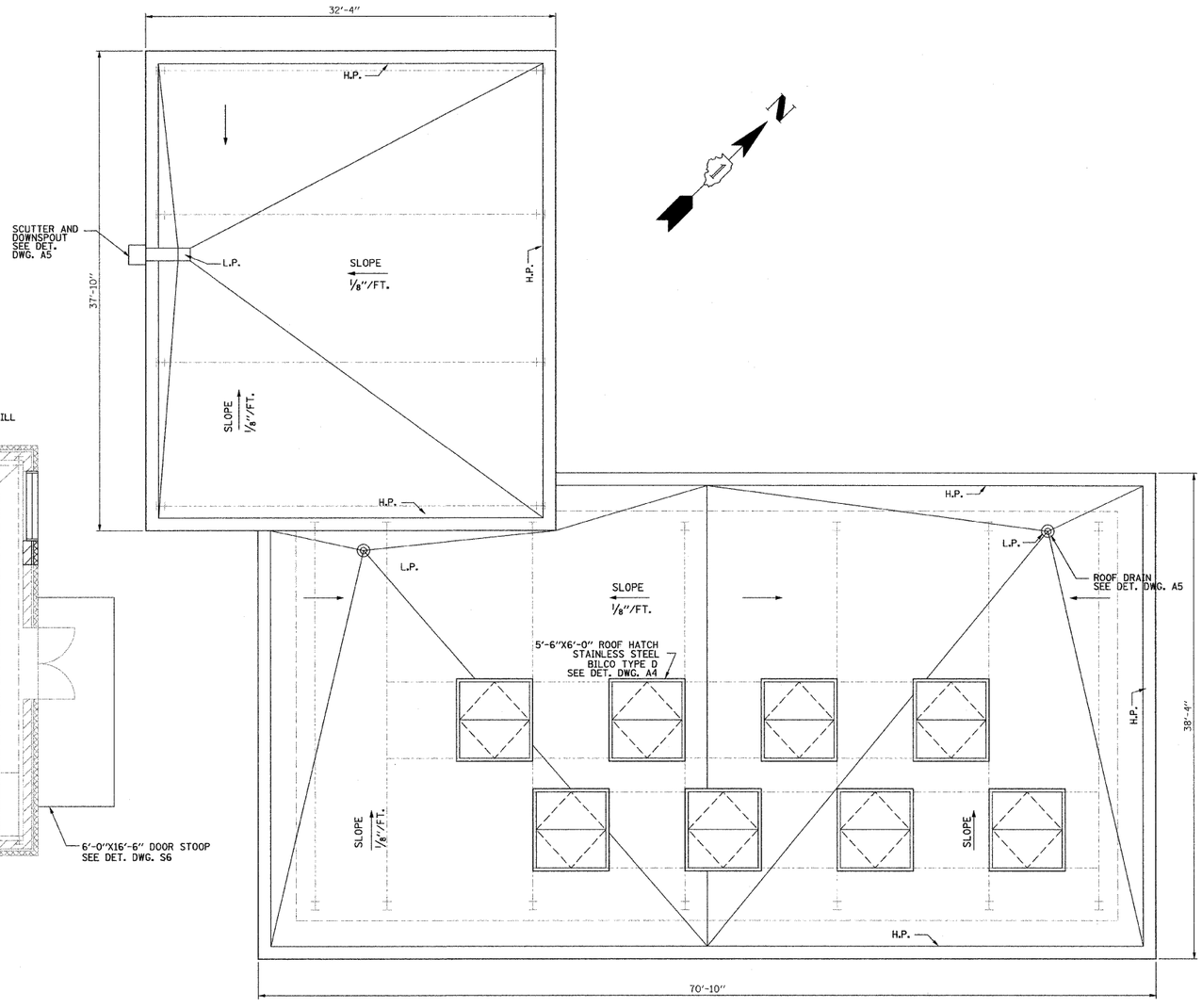
ARCHITECTURAL ELEVATIONS

SCALE: AS SHOWN
DRAWN BY: CM
DATE: 04-23-10
CHECKED BY: PJE

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	20
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



PLAN @ EL.+9.5



ROOF PLAN

SCALE: 0 4 8 12

A2

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27
REHABILITATION

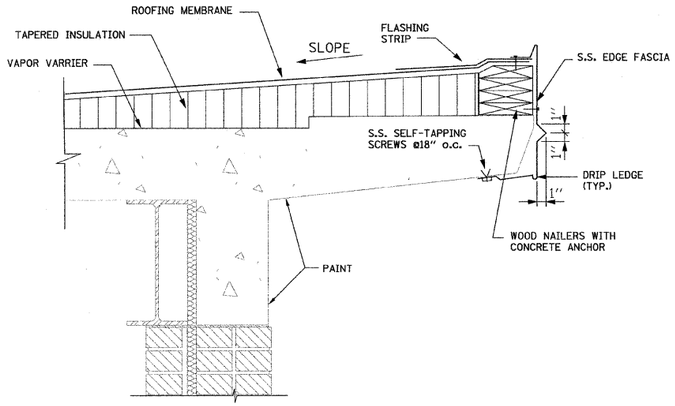
ARCHITECTURAL PLANS

SCALE: AS SHOWN DRAWN BY: CM

DATE: 04-23-10 CHECKED BY: PJE

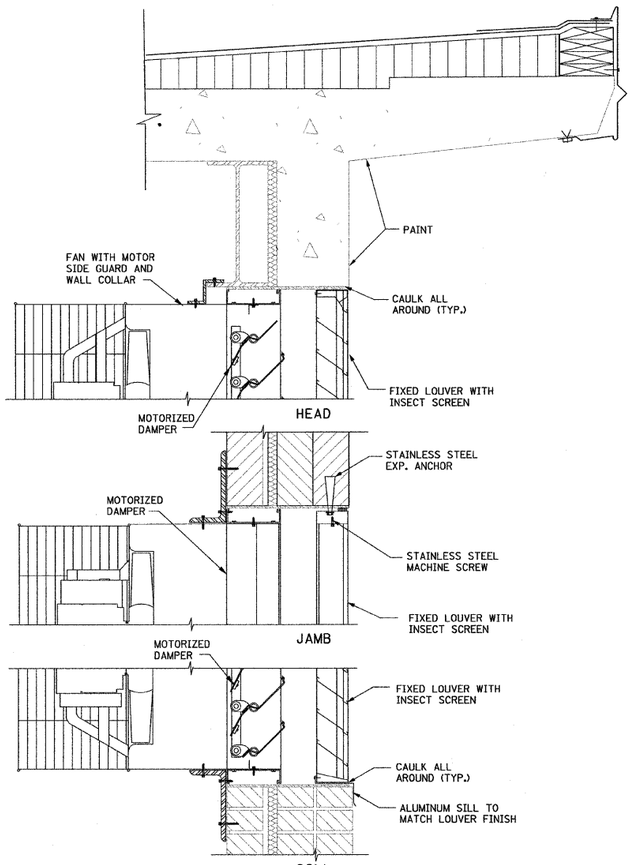
DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	21
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



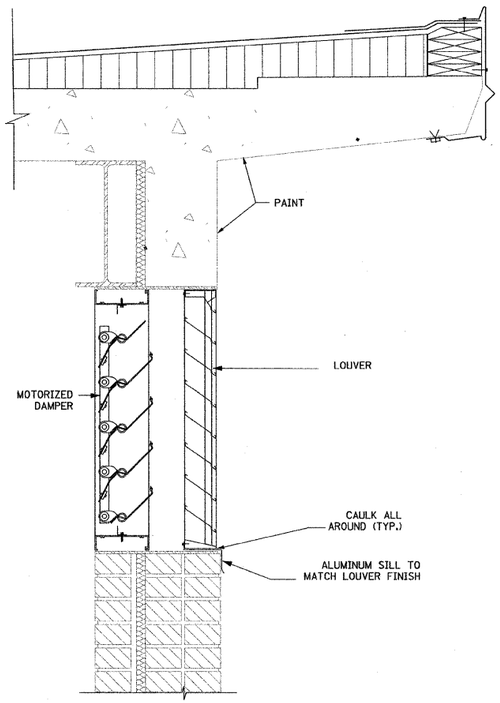
TYPICAL ROOF EDGE DETAIL

NOT TO SCALE



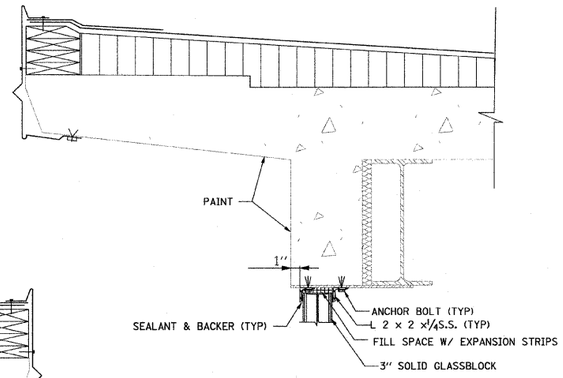
EXHAUST FAN DETAILS

NOT TO SCALE



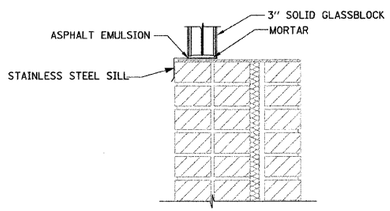
LOUVER DETAILS

NOT TO SCALE



HEAD

JAMB



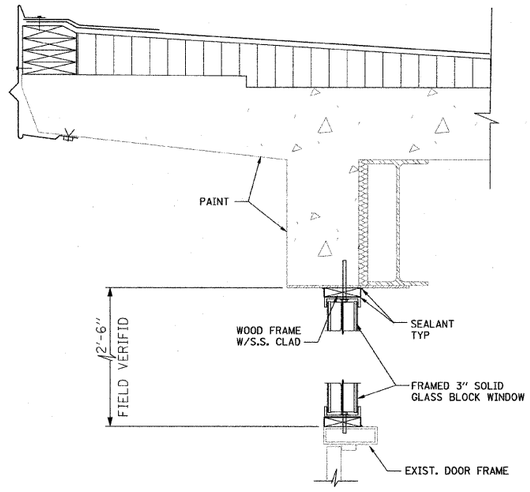
SILL

GLASS BLOCK WINDOW DETAILS

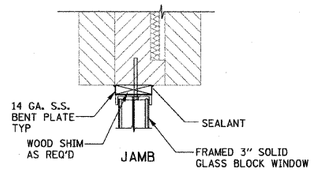
NOT TO SCALE

NOTES:

1. ALL STRUCTURAL AND MISCELLANEOUS STEEL TO BE HOT DIPPED GALVANIZED.
2. S.S. GRAVEL STOP FASCIA CAN BE ONE OR TWO PIECE CONFIGURATION. SUBMIT SHOP DRAWINGS FOR REVIEW.



HEAD



JAMB

DOOR W/GLASS BLOCK WINDOW DETAILS

NOT TO SCALE

DONOHUE & ASSOCIATES

A3

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27 REHABILITATION

ARCHITECTURAL DETAILS

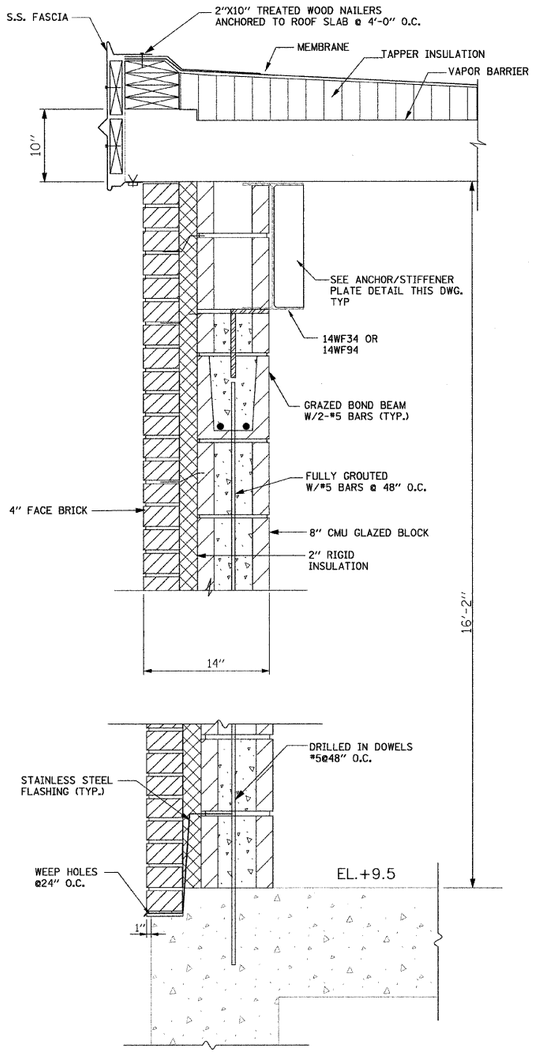
SCALE: AS SHOWN

DRAWN BY: LMJ

DATE: 04-23-10

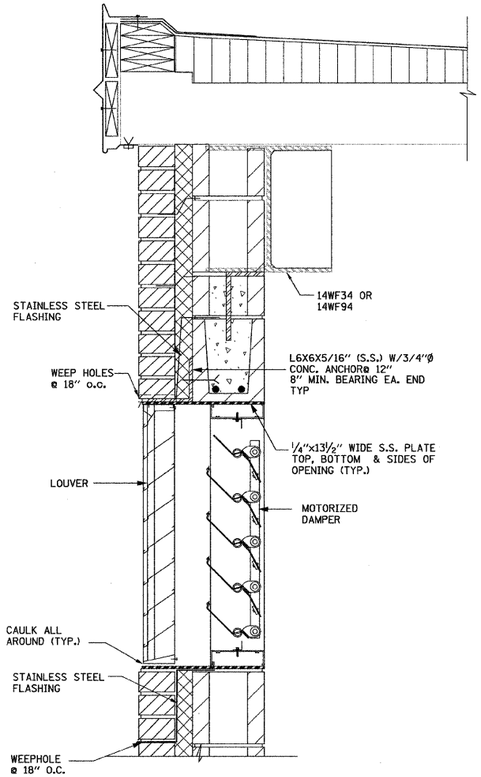
CHECKED BY: PJE

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	22
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



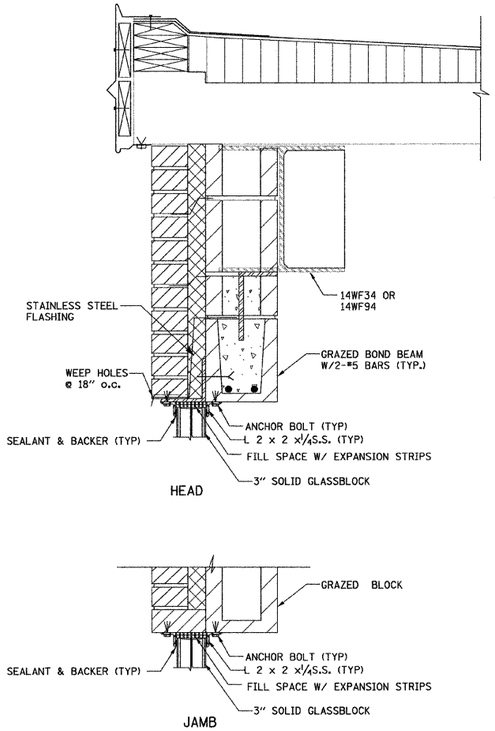
TYPICAL WALL SECTION

N.T.S



LOUVER DETAILS

N.T.S



HEAD

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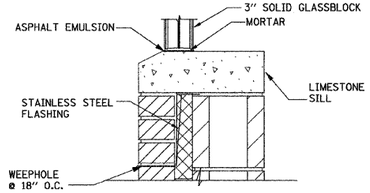
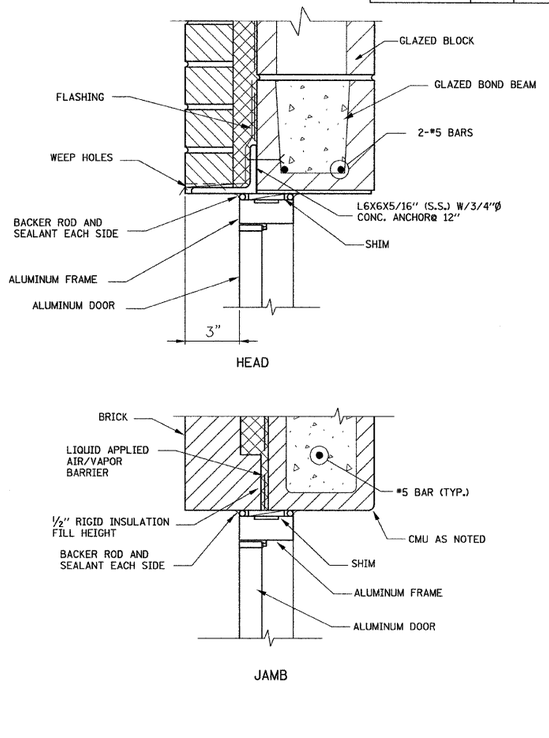


SILL

GLASS BLOCK WINDOW DETAILS

N.T.S



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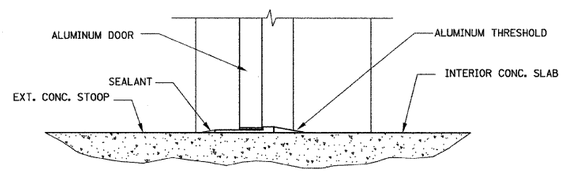
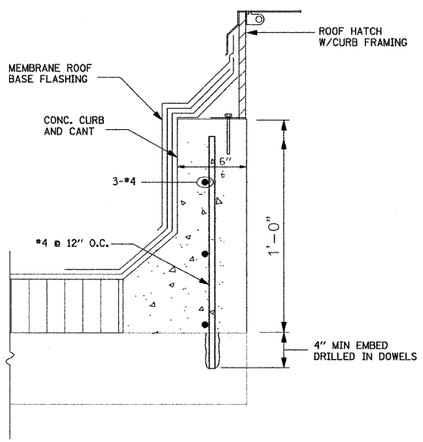
JAMB



SILL

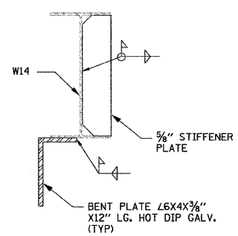
DOOR DETAILS

N.T.S



ROOF HATCH DETAILS

N.T.S



TYPICAL ALONG PERIMETER BEAMS @ 4'-0" O.C.

ANCHOR /STIFFENER PLATE DETAIL

N.T.S

DONOHUE & ASSOCIATES

A4

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27 REHABILITATION

ARCHITECTURAL DETAILS

SCALE: AS SHOWN
DRAWN BY: LMJ
DATE: 04-23-10
CHECKED BY: PJE

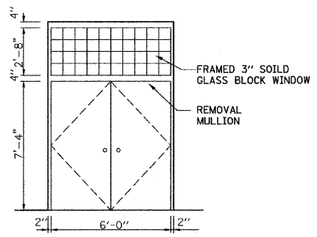
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	23
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

ROOM REFINISH SCHEDULE

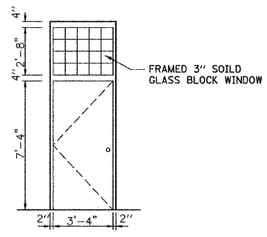
ROOM NAME	FLOOR			WALLS		CEILING			REMARKS
	MAT'L	FINISH	COLOR	MAT'L	COLOR	MAT'L	FINISH	COLOR	
ELECTRICAL CONTROL ROOM	CONC	NON-SLIP EPOXY COATING	GRAY	GLAZED BLOCK	MATCH WITH EXIT. PUMP STA. WALL	CONC	COAT	WHITE	COAT EXIST. STEEL FRAMING W/WHITE FINISH
PUMP ROOM	CONC	NON-SLIP EPOXY COATING	GRAY	GLAZED BLOCK	—	CONC	—	—	COAT PUMP SUPPORT STRUCTURAL STEEL W/WHITE FINISH
PUMP ROOM STAIR LANDINGS	CONC	NON-SLIP EPOXY COATING	GRAY	CONC	—	CONC	—	—	

DOOR SCHEDULE

DOOR NO.	LOCATION	DOOR			FRAME		HARDWARE
		SIZE WIDTH X HEIGHT X THK	MATERIAL	FINISH	MATERIAL	FINISH	
D1	ELEC CONTROL RM	3'-4" x 7'-4" x 1-3/4"	ALUMIMUM	ANODIZED DARK BRONZE	ALUMIMUM	ANODIZED DARK BRONZE	SEE SPECIFICATION
D2	ELEC CONTROL RM	(2) 3'-0" x 7'-4" x 1-3/4"	ALUMIMUM	ANODIZED DARK BRONZE	ALUMIMUM	ANODIZED DARK BRONZE	SEE SPECIFICATION

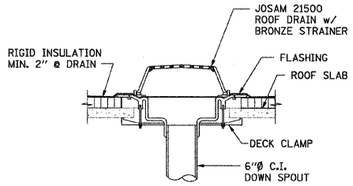


D2

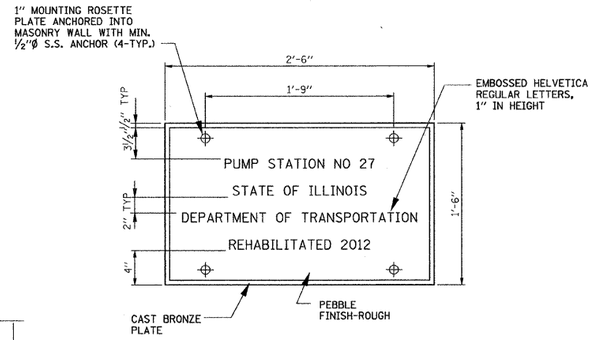


D1

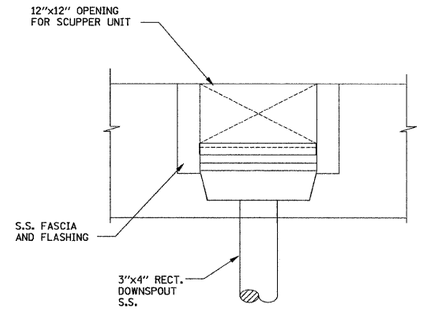
DOOR TYPE

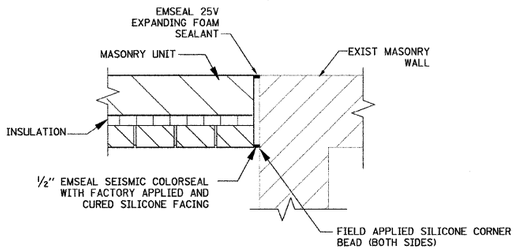


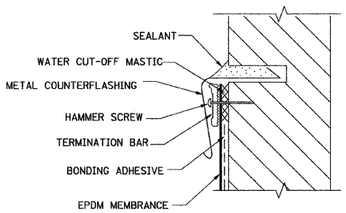
ROOF DRAIN DETAIL
NOT TO SCALE



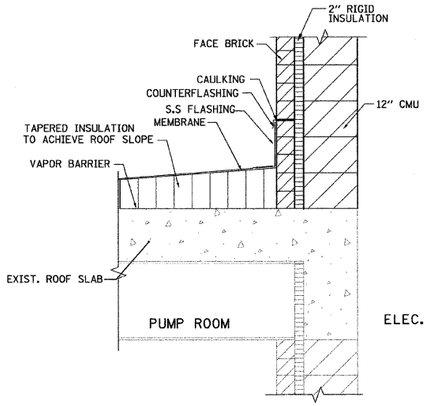
IDENTIFICATION PLATE
NO SCALE



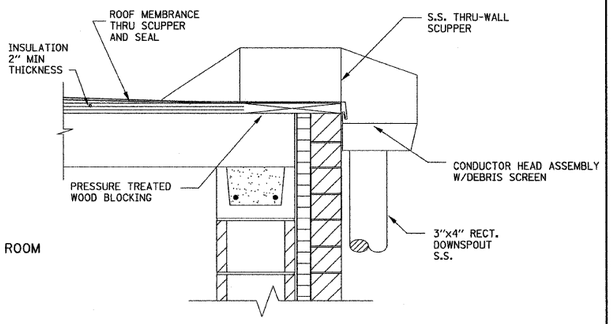




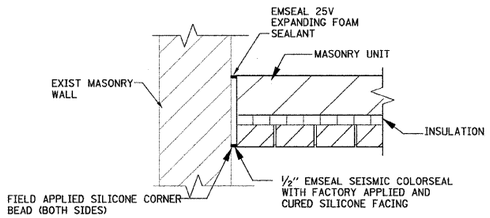
COUNTERFLASHING DETAIL



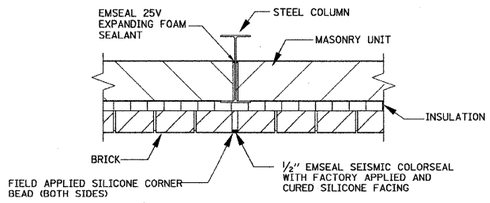
LOW ROOF TO WALL INTERSECTION DETAIL



SCUPPER DETAILS
N.T.S



EXIST /NEW MASONRY WALL CONNECTION JOINT DETAIL



MASONRY WALL CONTROL JOINT DETAIL

NOTE:

1. ALL LOUVERS AND DAMPERS TO BE CLEAR ANODIZED ALUMINUM FINISH TO MATCH COLOR OF ALUMINUM DOORS & FRAMES.
2. WALL EXHAUST FAN TO BE CLEAR ANODIZED ALUMINUM FINISH.

DONOHUE & ASSOCIATES

A5

REVISIONS	
NAME	DATE

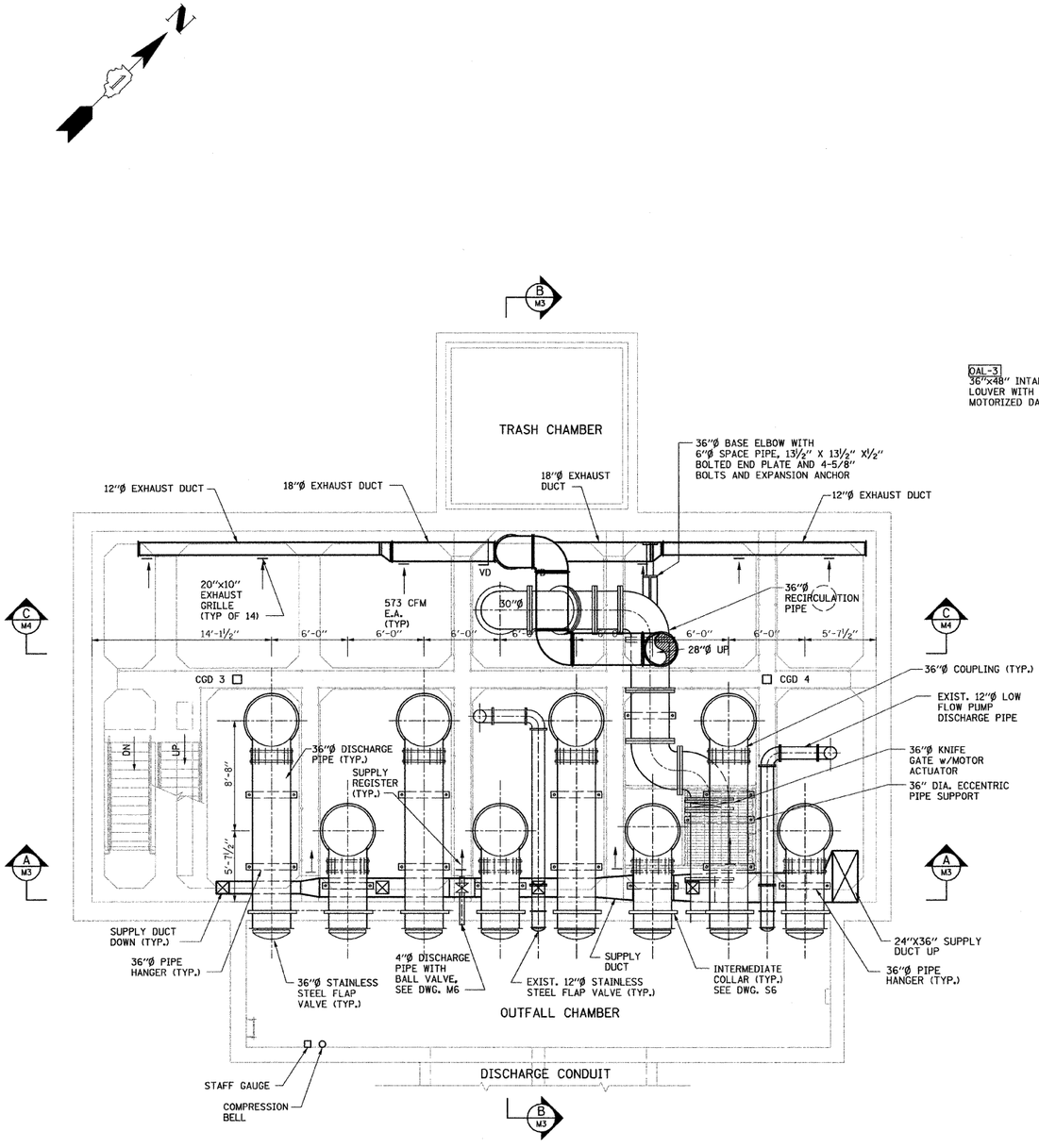
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27 REHABILITATION

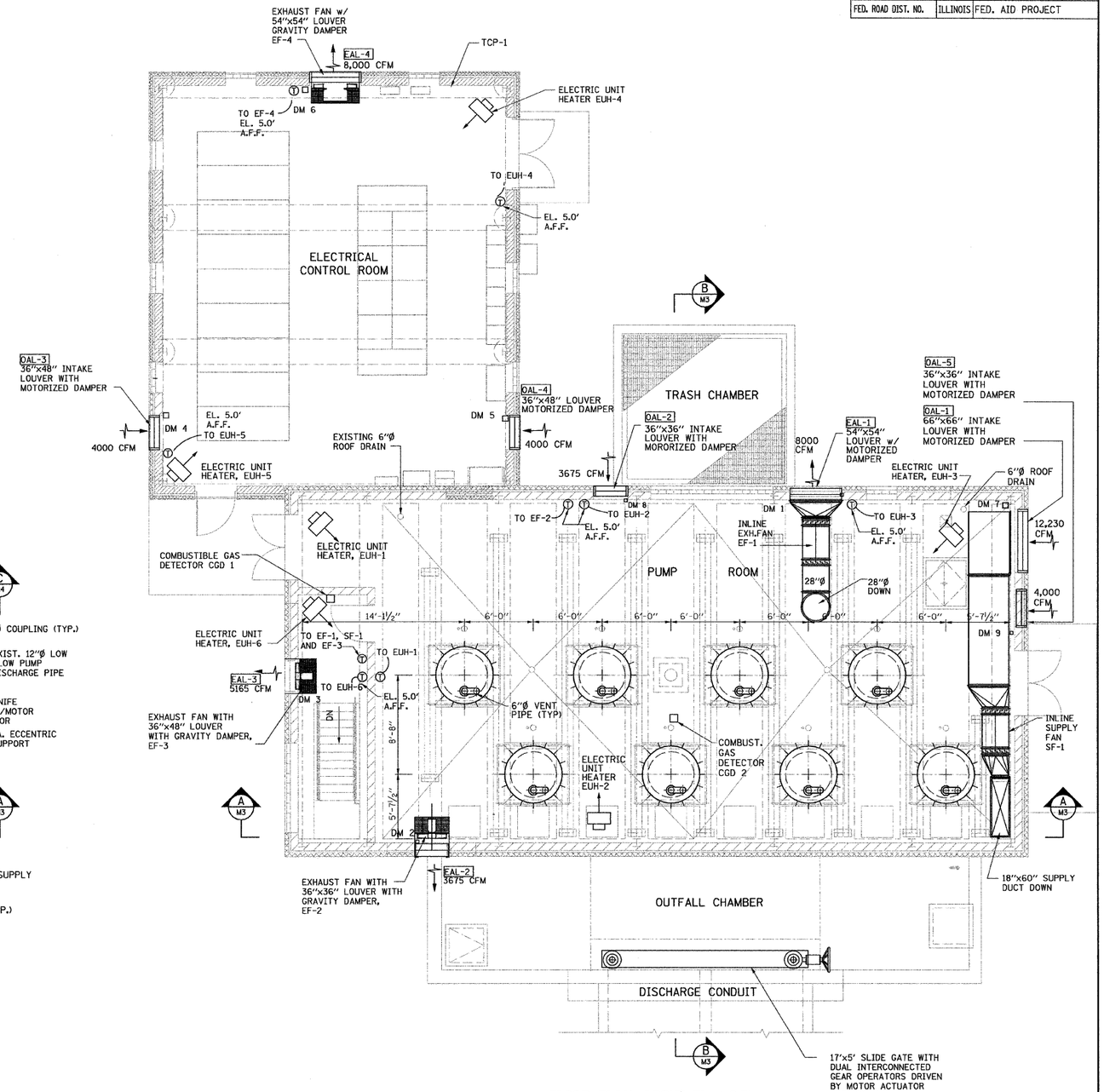
ARCHITECTURAL SCHEDULES AND DETAILS

SCALE: AS SHOWN
DRAWN BY: CTM
DATE: 04-23-10
CHECKED BY: PJE

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	24
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



PLAN ABOVE EL. -8.5'



FLOOR PLAN ABOVE EL. +9.5'

NOTES:

1. ALL ROOM EXCEPT ELECTRICAL CONTROL ROOM SHALL BE CLASS I, DIVISION 1, GROUP D EXPLOSION PROOF.
2. PROTECT EXISTING FLOOR DRAIN DURING CONSTRUCTION.
3. PUMP DOLLY WITH SPARE LOW FLOW PUMP SHALL BE STORED AT THE NORTHEAST CORNER OF PUMP ROOM.
4. LOUVERS OPENING AND ELEVATIONS SEE DRAWING A1

SCALE: 0 4 8 12

M1

REVISIONS	
NAME	DATE

DONOHUE & ASSOCIATES

ILLINOIS DEPARTMENT OF TRANSPORTATION

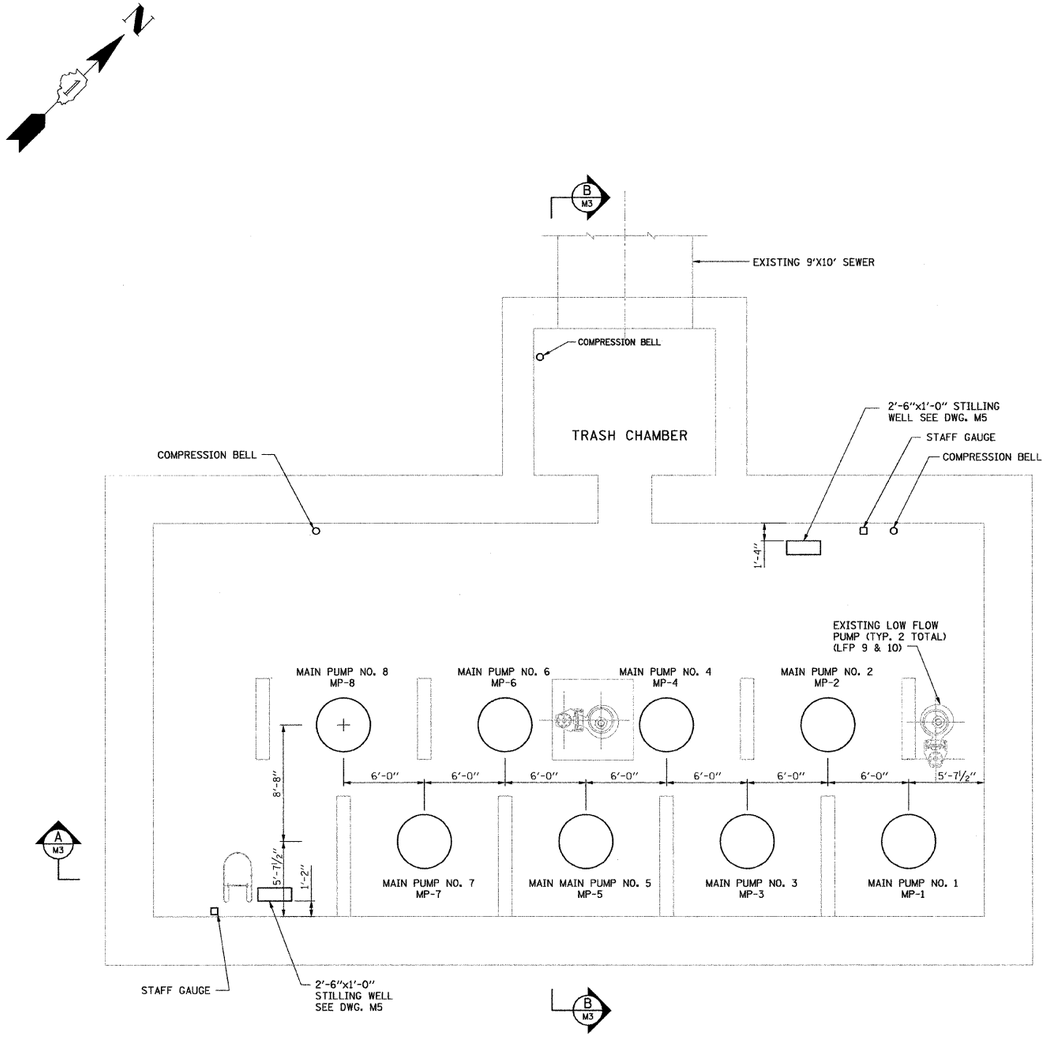
PUMP STATION NO. 27 REHABILITATION

MECHANICAL PLANS

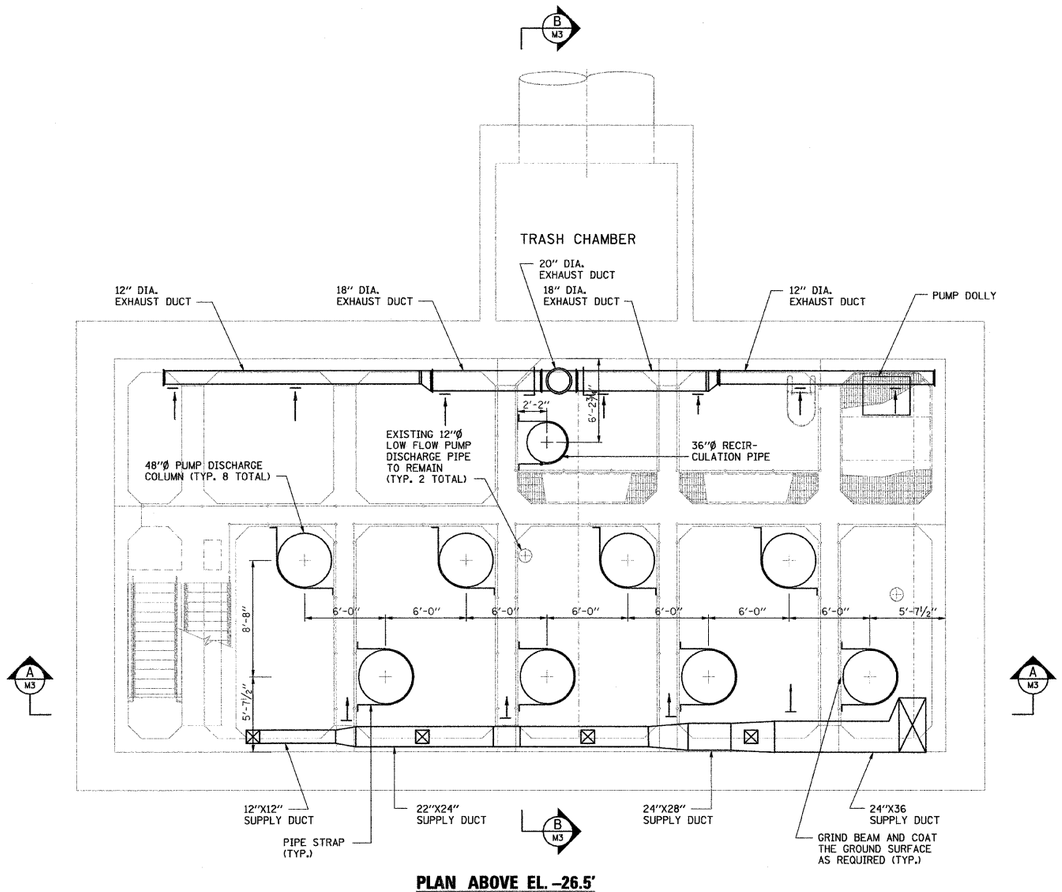
SCALE: AS SHOWN DRAWN BY: HFF

DATE: 04-23-10 CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	25
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



PLAN ABOVE EL. -48.0'



PLAN ABOVE EL. -26.5'

NOTE:

1. ALL ROOM EXCEPT ELECTRICAL CONTROL ROOM SHALL BE CLASS I, DIVISION 1, GROUP D EXPLOSION PROOF.

SCALE: 0 4 8 12

M2

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27 REHABILITATION

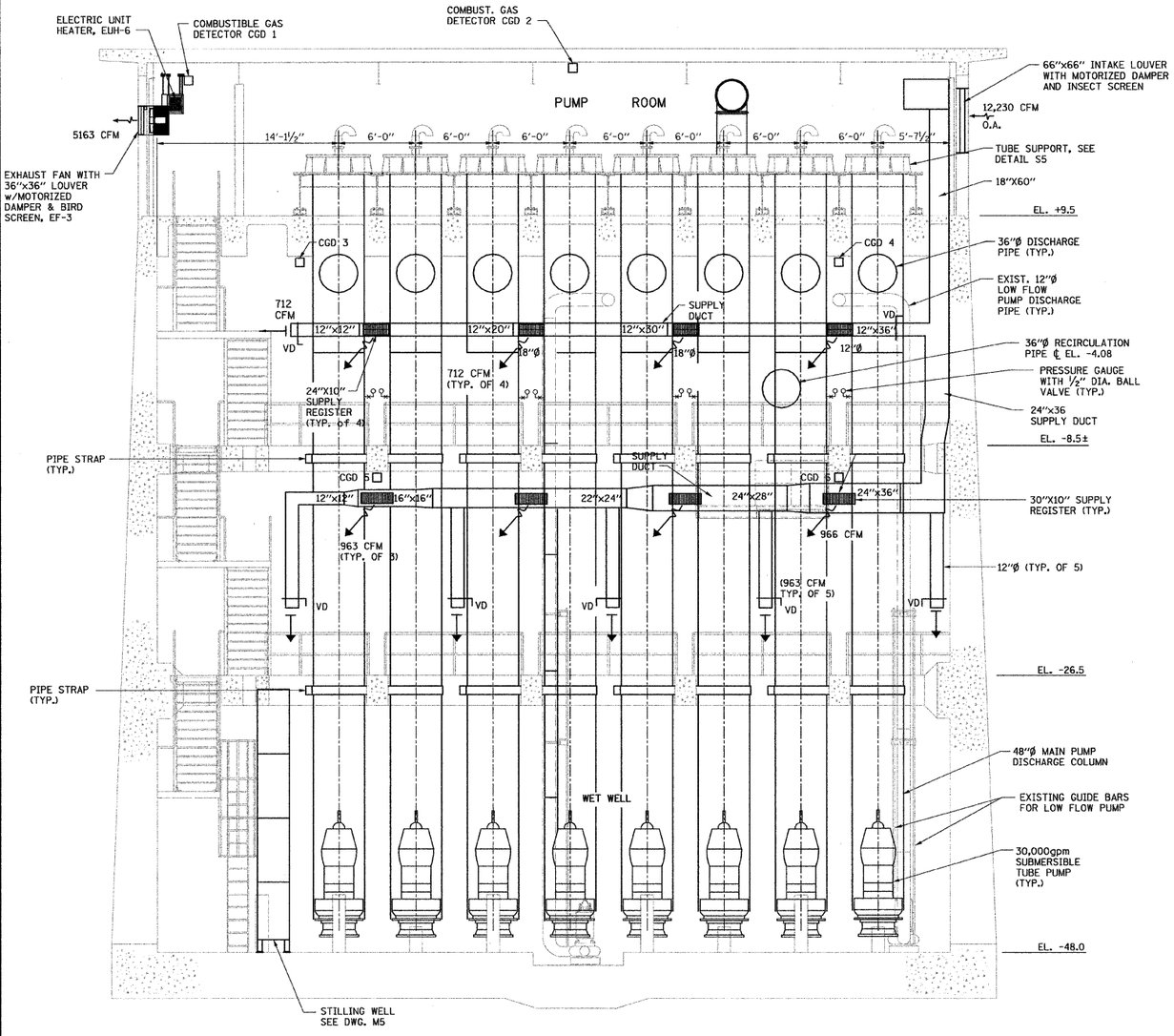
MECHANICAL PLANS

SCALE: AS SHOWN DRAWN BY: HFF

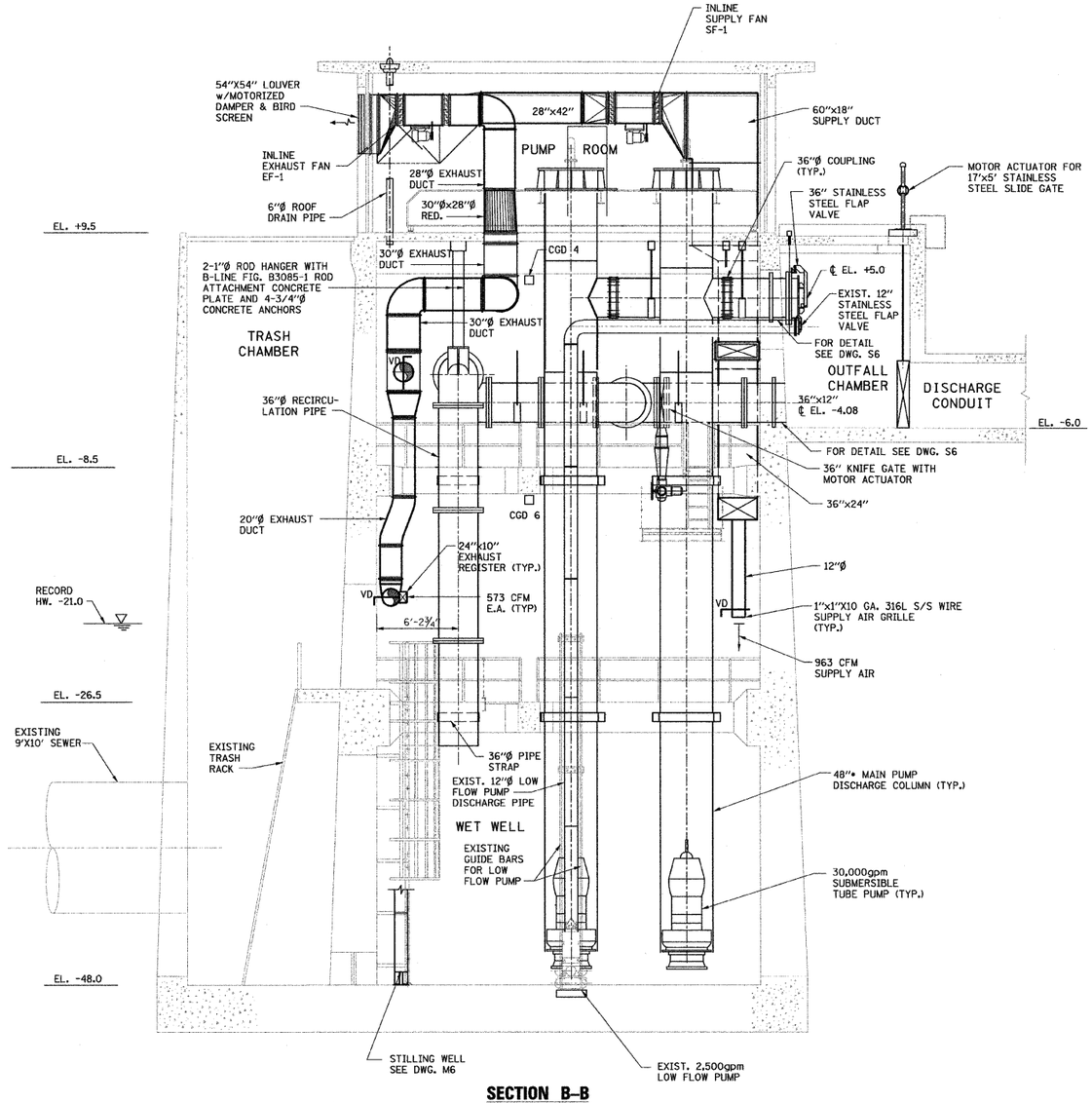
DATE: 04-23-10 CHECKED BY: KHC

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	26
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



SECTION A–A



SECTION B–B

NOTES:

1. ALL ROOM EXCEPT ELECTRICAL CONTROL ROOM SHALL BE CLASS I, DIVISION 1, GROUP D EXPLOSION PROOF.
2. EXISTING 12"ø LOW FLOW PUMP DISCHARGE STEEL PIPE SHALL BE CLEANED AND PAINTED PER SECTION 9A.

SCALE: 0 4 8 12

DONOHUE & ASSOCIATES

M3

REVISIONS	
NAME	DATE

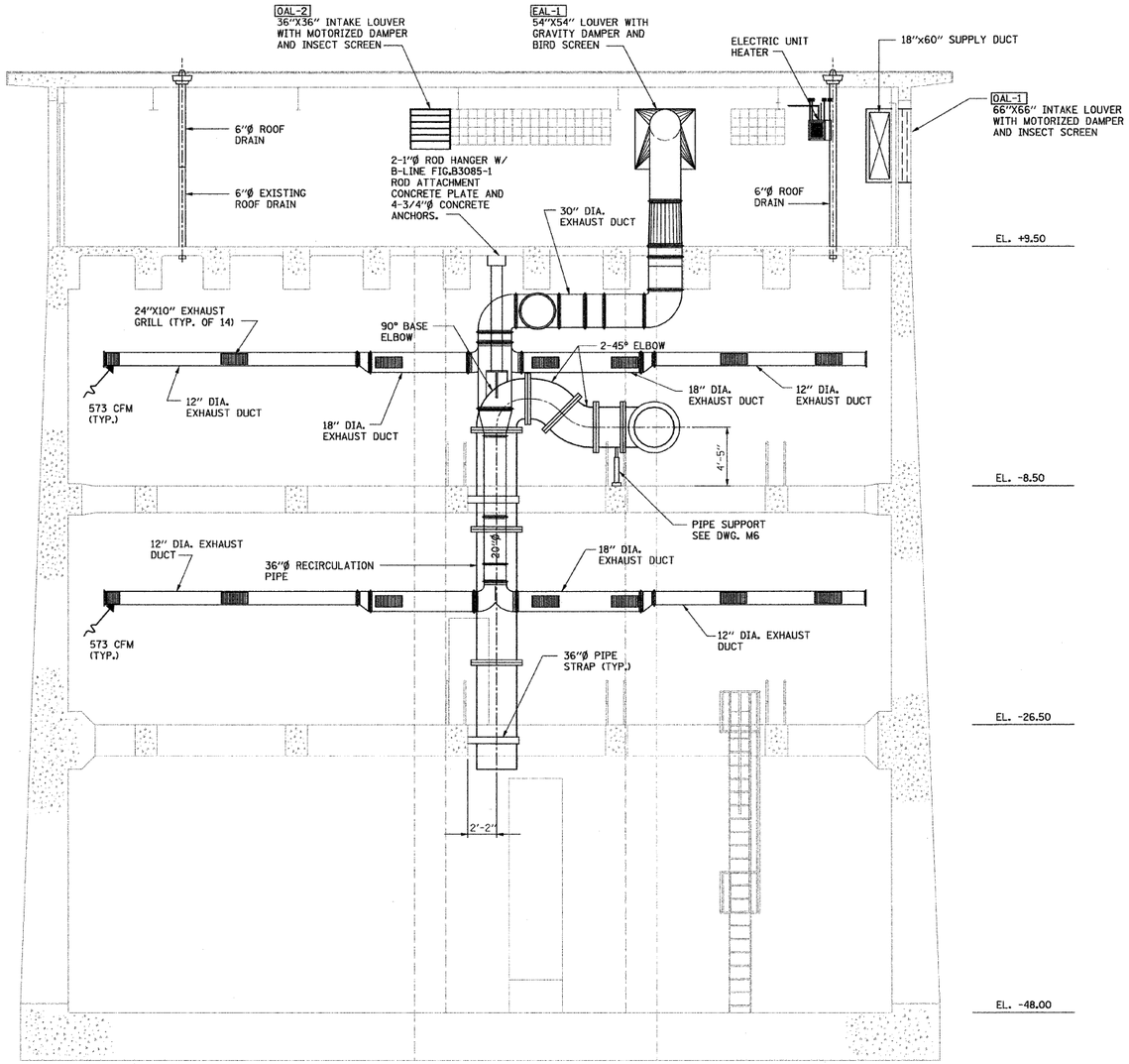
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27 REHABILITATION

MECHANICAL PLANS

SCALE: AS SHOWN
DATE: 04-23-10
DRAWN BY: HFF
CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	27
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



SECTION C–C

NOTE:

1. ALL ROOM EXCEPT ELECTRICAL CONTROL ROOM SHALL BE CLASS I, DIVISION 1, GROUP D EXPLOSION PROOF.

SCALE: 0 4 8 12

M4

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27 REHABILITATION

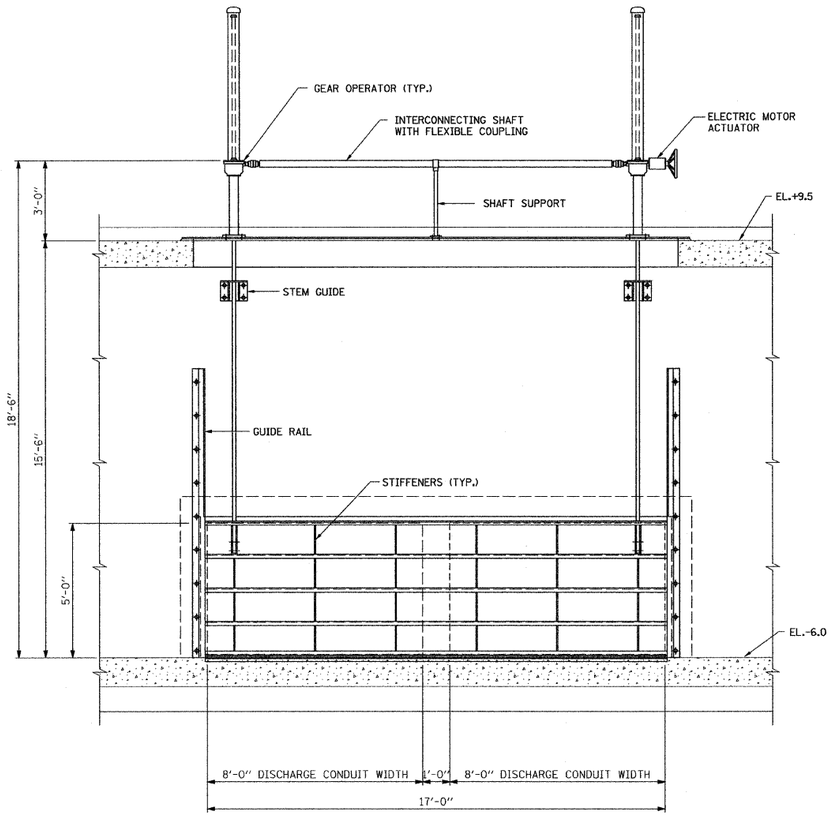
MECHANICAL SECTION

SCALE: AS SHOWN DRAWN BY: HFF

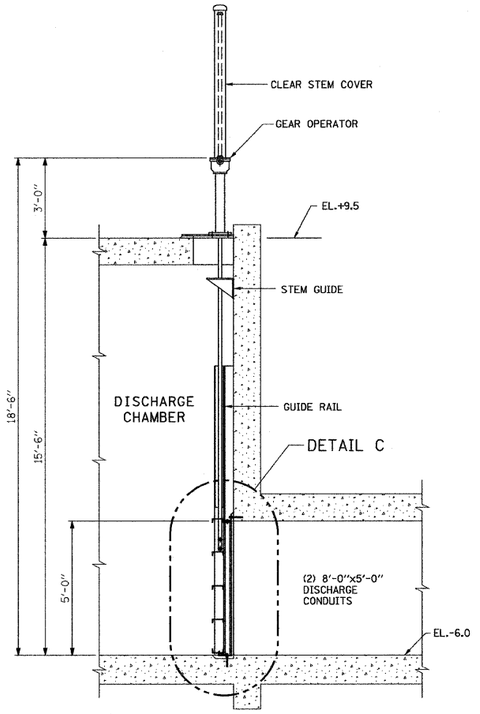
DATE: 04-23-10 CHECKED BY: KHC

DONOHUE & ASSOCIATES

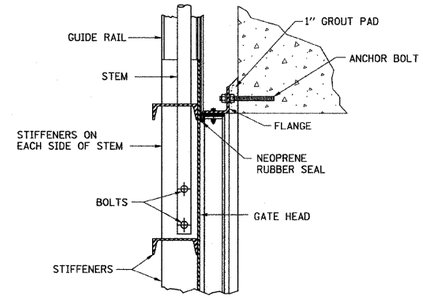
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	28
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

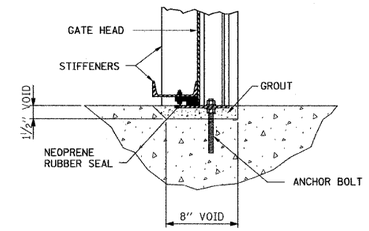


SECTION C–C



SECTION A–A

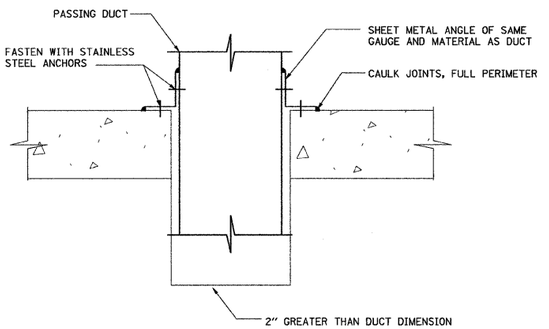




DETAIL C

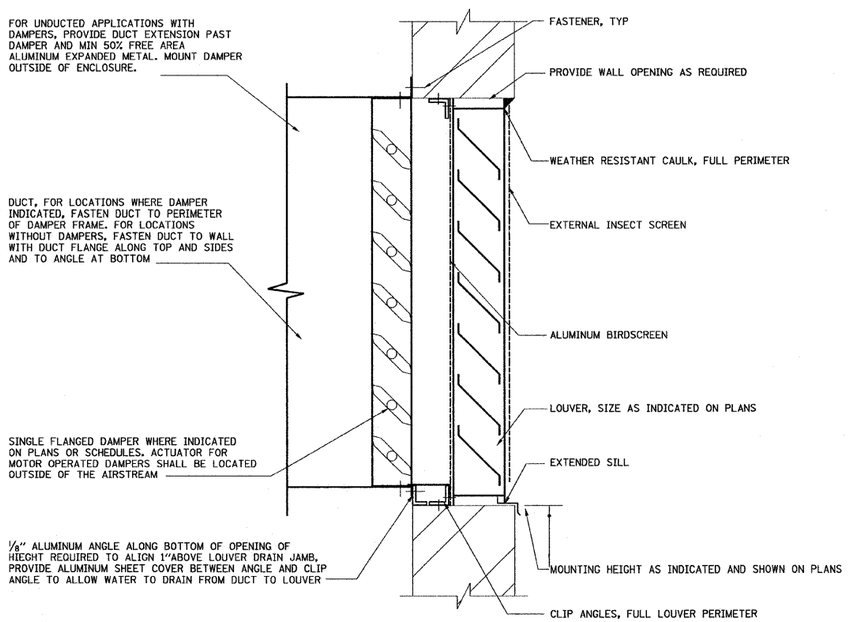
0' 6" 1' 2'

SCALE: 1" = 8"



TYPICAL DUCT FLOOR PENETRATION DETAIL

NTS



NOTE: ALL FASTENERS SHALL BE OF STAINLESS STEEL CONSTRUCTION

TYPICAL LOUVER DETAIL

NTS

0 1 2 4 6

DONOHUE & ASSOCIATES

M5

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

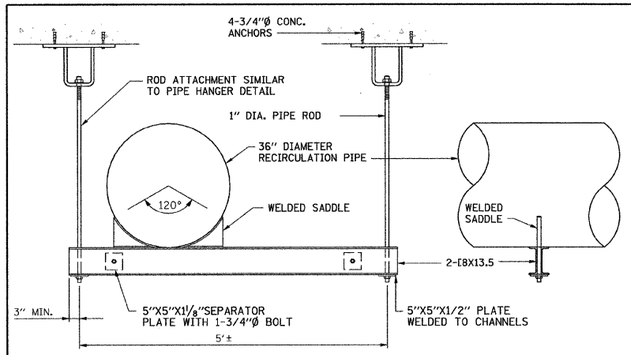
PUMP STATION NO. 27 REHABILITATION

MECHANICAL DETAILS

SCALE: AS SHOWN DRAWN BY: HFF

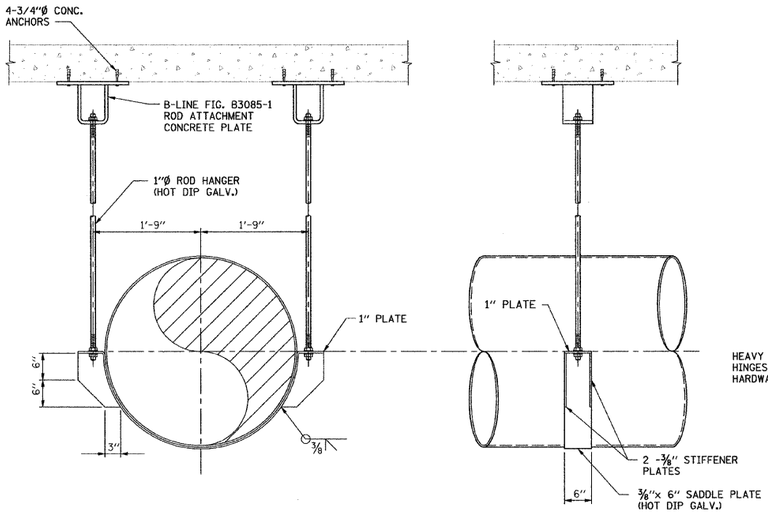
DATE: 04-23-10 CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	29
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



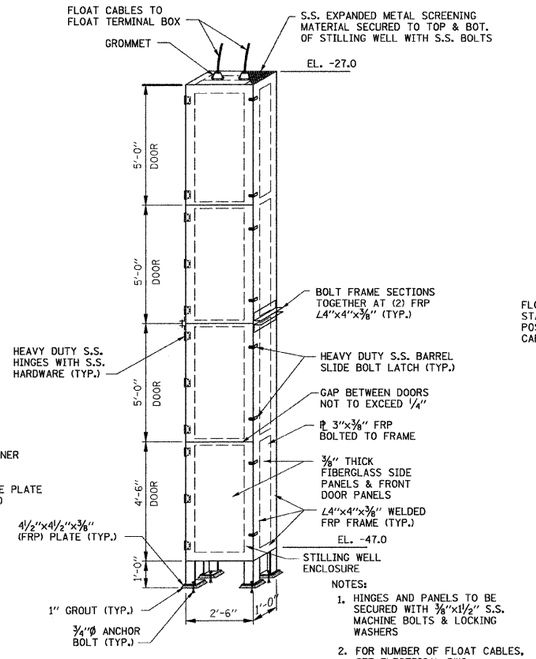
36" DIA. PIPE ECCENTRIC SUPPORT

NOT TO SCALE



36" DIA. PIPE HANGER DETAIL

NOT TO SCALE



NOTES:

1. HINGES AND PANELS TO BE SECURED WITH ⅜"x1½" S.S. MACHINE BOLTS & LOCKING WASHERS
2. FOR NUMBER OF FLOAT CABLES, SEE ELECTRICAL DWG.

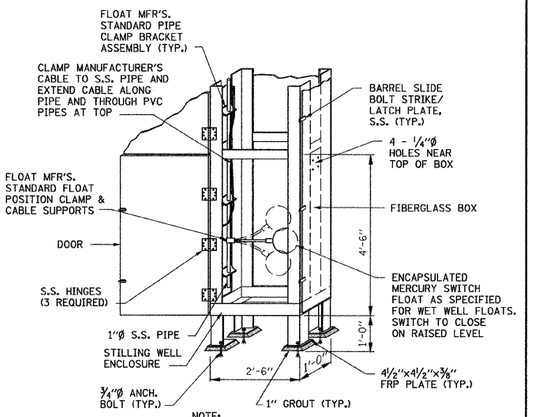
FLOAT STILLING WELL DETAIL FOR PUMP FLOAT CONTROL

(2 REQUIRED)

0' 1' 2' 5'

SCALE: ⅜"= 1'

NOTE: SEE DWG. M2 FOR LOCATION



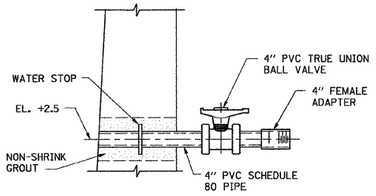
NOTE:

CONTRACTOR SHALL SUBMIT DETAILED SHOP DRAWING FOR ENGINEER APPROVAL. FRP FRAME SHALL BE FULLY BOLTED AND GLUED TO FORM A RIGID SELF SUPPORTED BOX.

FLOAT DETAIL IN STILLING WELL ENCLOSURES

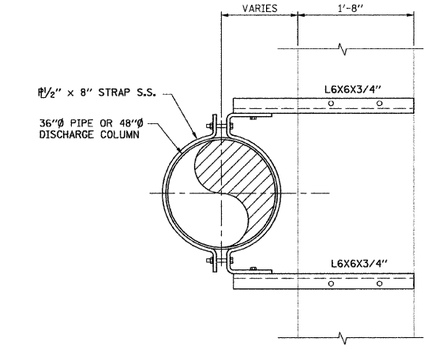
0' 1' 2' 5'

SCALE: ⅜"= 1'

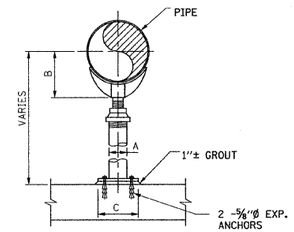


MAINTENANCE PUMP DISCHARGE PIPE DETAIL

NOT TO SCALE



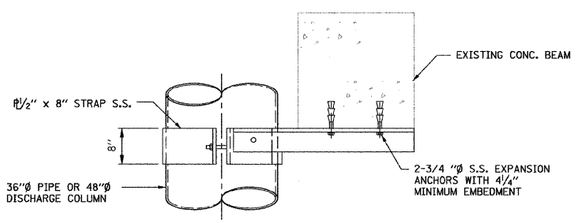
PLAN



TYPICAL PIPE SUPPORT

NOT TO SCALE

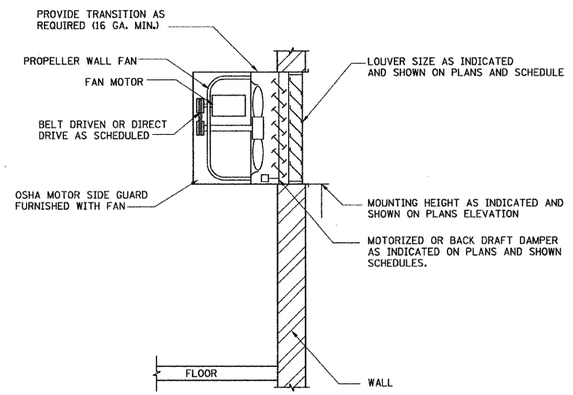
PIPE SIZE	SUPPORT DIMENSION		
	A	B	C
36"	6"	24½"	13½"



ELEVATION

36"/48" DIA. PIPE STRAP DETAIL

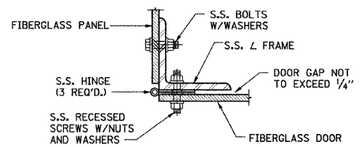
NOT TO SCALE



NOTE: SUPPORT FAN FROM TRANSITION DUCTWORK WHERE POSSIBLE, SOTHERWISE, SUPPORT FROM ABOVE WITH CONTRACTOR DESIGNED SUPPORTS. DUCTWORK MATERIAL SHALL BE AS SPECIFIED FOR SERVICE.

WALL PROPELLER FAN DETAIL

NTS



STAINLESS STEEL DOOR HINGE DETAIL

SCALE: 0 3" 6" 1 FT.

GENERAL NOTES:

1. ALL STEEL PLATES, SHAPES AND RODS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
2. ALL BOLTS AND ANCHOR BOLTS SHALL BE STAINLESS STEEL.

DONOHUE & ASSOCIATES

M6

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27 REHABILITATION

MECHANICAL DETAILS

SCALE: AS SHOWN DRAWN BY: HFF

DATE: 04-23-10 CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	30
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

EQUIPMENT SCHEDULE

ITEM	DESCRIPTION	LOCATION	ELECTRICAL MOTOR CHARACTERISTICS						PUMP		FAN				MOUNTING	REMARKS
			KW	HP	RPM	VOLTS	PHASE	HZ	CAPACITY (GPM)	HEAD (FT)	TYPE	CAPACITY (CFM)	SP (IN)	DRIVE		
MP 1	MAIN PUMP #1	WET WELL	410**	550**	890**	4160	3	60	30,000	49						SEE NOTES 1 AND 2
MP 2	MAIN PUMP #2	WET WELL	410**	550**	890**	4160	3	60	30,000	49						SEE NOTES 1 AND 2
MP 3	MAIN PUMP #3	WET WELL	410**	550**	890**	4160	3	60	30,000	49						SEE NOTES 1 AND 2
MP 4	MAIN PUMP #4	WET WELL	410**	550**	890**	4160	3	60	30,000	49						SEE NOTES 1 AND 2
MP 5	MAIN PUMP #5	WET WELL	410**	550**	890**	4160	3	60	30,000	49						SEE NOTES 1 AND 2
MP 6	MAIN PUMP #6	WET WELL	410**	550**	890**	4160	3	60	30,000	49						SEE NOTES 1 AND 2
MP 7	MAIN PUMP #7	WET WELL	410**	550**	890**	4160	3	60	30,000	49						SEE NOTES 1 AND 2
MP 8	MAIN PUMP #8	WET WELL	410**	550**	890**	4160	3	60	30,000	49						
LFP 9	EXIST. LOW FLOW PUMP #9	WET WELL	45	60	1160	460	3	60	2,500	59						
LFP 10	EXIST. LOW FLOW PUMP #10	WET WELL	45	60	1160	460	3	60	2,500	59						
G 1	SLIDE GATE ACTUATOR	OUTSIDE ABOVE GRADE	3.7	5		460	3	60								
G 2	KNIFE GATE ACTUATOR	ABOVE EL. -8.5	1.5	2		460	3	60								SEE NOTE 2

* MINIMUM
** MAXIMUM

PUMPING OPERATION RANGES WITH RISING WATER

FUNCTION	SCADA (BUBBLER)		FLOAT	
	ELEVATION	LEVEL ABOVE WET PIT FLOOR	ELEVATION	LEVEL ABOVE WET PIT FLOOR
	(FT)	(FT)	(FT)	(FT)
LOW FLOW LEAD START	-42.5	5.5	-41.5	6.5
LOW FLOW LAG START	-41.5	6.5	-40.5	7.5
LEAD MAIN START & ALL LOW FLOW STOP	-39.5	8.5	-39.0	9.0
LAG 1 MAIN START	-38.5	9.5	-38.0	18.0
LAG 2 MAIN START	-37.5	10.5	-37.0	11.0
LAG 3 MAIN START	-36.5	11.5	-36.0	12.0
LAG 4 MAIN START	-35.5	12.5	-35.0	13.0
LAG 5 MAIN START	-34.5	13.5	-34.0	14.0
LAG 6 MAIN START	-33.5	14.5	-33.0	15.0
LAG 7 MAIN START	-32.5	15.5	-32.0	16.0
HIGH WATER ALARM	-28.5	19.5	-28.5	19.5

PUMPING OPERATION RANGES WITH FALLING WATER

FUNCTION	SCADA (BUBBLER)		FLOAT	
	ELEVATION	LEVEL ABOVE WET PIT FLOOR	ELEVATION	LEVEL ABOVE WET PIT FLOOR
	(FT)	(FT)	(FT)	(FT)
LAG 4, LAG 5, LAG 6, AND LAG 7 STOP	-40.0	8.0	-39.5	8.5
LEAD, LAG 1, LAG 2, LAG 3, STOP AND ALL LOW FLOW START	-41.0	7.0	-40.5	7.5
ALL LOW FLOW STOP	-43.5	4.5	-43.0	5.0
LOW WATER ALARM	-44.0	4.0	-44.0	4.0

NOTES:

1. THE DESIGN OF THE PUMP STATION HAS BEEN BASED ON A SPECIFIC PUMP. OTHER PUMPS PRODUCING THE SAME HYDRAULIC CHARACTERISTIC ARE ACCEPTABLE. IT SHALL BE THE CONTRACTOR'S RESPONSIBLITY TO MAKE ALL ADJUSTMENTS TO THE STATION DESIGN REQUIRED TO ADOPT HIS FINAL SELECTED PUMPS AT NO ADDITIONAL COST.
2. EQUIPMENT SHALL BE CLASS 1, DIV. 1 GROUP D EXPLOSION PROOF.
3. STAND-BY PUMP STARTS ONLY WHEN MOTOR OVERLOADS OR STARTING SEQUENCE FAILS FOR ANY MAIN PUMP.
4. LAG 7 MAIN PUMP SHALL BE STOP WHEN THE WATER LEVEL AT THE OUTFALL CHAMBER REACHES EL. 6.8'

DONOHUE & ASSOCIATES

M7

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27 REHABILITATION

EQUIPMENT SCHEDULE AND PUMPING OPERATING ELEV.

SCALE: N/A DRAWN BY: HFF

DATE: 04-23-10 CHECKED BY: KHC

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	31
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

FAN SCHEDULE

SECTION 15E

TAG	MANUF.	MODEL	TYPE	SERVICE	AIR FLOW DATA			FAN RPM	DRIVE	SONES	ELECTRICAL DATA				REMARKS
					CFM	ESP (IN WC)	BHP				HP/ WATTS	VOLT	PH.	RPM	
SF-1	GREENHECK	VAB-30F17	VANE AXIAL	SUPPLY	12,230	2.0	6.37	1432	BELT	--	10.0	460	3	1725	2,3,4,5,9,11,13,14,15,16,17,18,19
EF-1	GREENHECK	BSQ-300	INLINE CENTRI	EXHAUST	8000	1.15	2.78	699	BELT	18.3	5.0	460	3	1725	2,3,4,5,9,11,12,13,14,15,19
EF-2	GREENHECK	SCE3-20	AXIAL FAN SIDEWALL	EXHAUST	3675	0.50	1.20	1750	DIRECT	33	1½	460	3	1750	1,2,3,4,5,8,9,20
EF-3	GREENHECK	SCE3-24	AXIAL FAN SIDEWALL	EXHAUST	5165	0.50	1.12	1750	DIRECT	37	1½	460	3	1750	1,2,3,4,5,8,9,20
EF-4	GREENHECK	SBCE-3H30	AXIAL FAN SIDEWALL	EXHAUST	8000	0.50	1.27	1151	BELT	28	2.0	460	3	1725	1,2,6,8,9,20

1. = ALUMINUM CONSTRUCTION.
2. = STAINLESS STEEL FAN SHAFT AND FASTENERS.
3. = EXPLOSION PROOF MOTOR
4. = AMCA TYPE B SPARK RESISTANT CONSTRUCTION.
5. = EXPLOSION PROOF INTEGRAL DISCONNECT SWITCH AND INSTALLED IN ACCORDANCE WITH DIVISION 16.
6. = NEMA 4X INTEGRAL DISCONNECT SWITCH AND INSTALLED IN ACCORDANCE WITH DIVISION 16.
7. = ALUMINUM BIRDSCREEN.
8. = GRAVITY OPERATED DAMPER. SEE DAMPER SCHEDULE.
9. = HI-PRO POLYESTER (HERESITE) COATING ON FAN AND DAMPER.
10. = ALUMINUM WALL GRILLE.
11. = MOTOR COVER AND BELT GUARD.
12. = SPRING BASE. HANGING VIBRATION AND NEOPRENE ISOLATORS .
13. = EASY ACCESS DOOR.
14. = FLEX DUCT CONNECTIONS.
15. = INLET AND OUTLET FLANGES WITH MOUNTING HOLES.
16. = MOUNTING RAILS
17. = INSPECTION SECTION
18. = GALVANIZED STEEL CONSTRUCTION
19. = MOUNTING BRACKETS FOR CEILING SUSPENDED.
20. = OSHA GAURD WITH WALL COLLAR

ELECTRIC HEATER SCHEDULE

SECTION 15E

TAG	MANUF.	MODEL	TYPE	OUTPUT (MBH)	MOUNT. HEIGHT (FT)	AIR DATA			ELECTRICAL DATA			MOTOR DATA			REMARKS
						CFM	THROW (FT)	ΔT (F)	KW	VOLT	AMP	HP	VOLT	RPM	
EUH-1	QMARK	GUX1500	EXP PROOF	51.18	8'-6"	1450	47	31	15.0	460/3	18.7	--	--	--	1,2,3,4,6,9
EUH-2	QMARK	GUX1500	EXP PROOF	51.18	8'-6"	1450	47	31	15.0	460/3	18.7	--	--	--	1,2,3,4,6,9
EUH-3	QMARK	GUX1500	EXP PROOF	51.18	8'-6"	1450	47	31	15.0	460/3	18.7	--	--	--	1,2,3,4,6,9
EUH-4	QMARK	JUW750	CORR UNIT	25.59	8'-6"	485	--	46	7.5	460/3	9.0	1/14	--	--	3,4,5,10,11
EUH-5	QMARK	JUW750	CORR UNIT	25.59	8'-6"	485	--	46	7.5	460/3	9.0	1/14	--	--	3,4,5,10,11
EUH-6	QMARK	GUX750	EXP PROOF	25.59	8'-6"	840	28	27	7.5	460/3	9.7	--	--	--	1,2,3,4,6,9

1. = EXPLOSION PROOF UNIT
2. = NEMA 7 DISCONNECT SWITCH AND INSTALLED IN ACCORDANCE WITH DIV. 16.
3. = CONTROLS AS SPECIFIED.
4. = MANUFACTURES MOUNTING ACCESSORIES.
5. = STAINLESS STEEL CONSTRUCTION.
6. = WALL MOUNTED EXPLOSION PROOF THERMOSTAT.
7. = NEMA 4X DISCCONECT SWITCH AND INSTALLED IN ACCORDANCE WITH DIV. 16.
8. = WALL MOUNTED NEMA 4X WITH INSULATED BASE THERMOSTAT.
9. = EPOXY COATED.
10. = NEMA 3R DISCONNECT SWITCH AND INSTALLED IN ACCORDANCE WITH DIV. 16.
11. = WALL MOUNTED NEMA 3R WITH INSULATED BASE THEMOSTAT.

WALL LOUVER SCHEDULE

SECTION 15E

TAG	MANUF.	MODEL	SERVICE	CFM	WIDTH (IN)	HEIGHT (IN)	DEPTH (IN)	MAX. APD (IN WC)	MAX. FREE AREA VEL. (FPM)	REMARKS
OAL-1	GREENHECK	ESD-403	INTAKE	12230	66	66	4	0.103	770	1,2,4,5,6
OAL-2	GREENHECK	ESD-403	INTAKE	3675	36	36	4	0.132	873	1,2,4,5,6
OAL-3	GREENHECK	ESD-403	INTAKE	4000	36	48	4	0.084	697	1,2,3,5,6
OAL-4	GREENHECK	ESD-403	INTAKE	4000	36	48	4	0.084	697	1,2,3,5,6
OAL-5	GREENHECK	ESD-403	INTAKE	4000	36	36	4	0.156	949	1,2,4,5,6
EAL-1	GREENHECK	ESD-403	EXHAUST	8000	54	54	4	0.088	780	1,2,6
EAL-2	GREENHECK	ESD-403	EXHAUST	3675	36	36	4	0.110	872	1,2,6
EAL-3	GREENHECK	ESD-403	EXHAUST	5165	48	36	4	0.117	901	1,2,6
EAL-4	GREENHECK	ESD-403	EXHAUST	8000	54	54	4	0.088	780	1,2,6

1. = ALUMINUM BIRDSCREEN.
2. = EXTENDED SILL.
3. = INSULATED BLADE MOTOR OPERATED DAMPER TO BE FURNISHED BY TEMPERATURE CONTROLS CONTRACTOR. SEE DAMPER SCHEDULE
4. = INSULATED EXPLOSION PROOF MOTOR OPERATED DAMPER TO BE FURNISHED BY TEMPERATURE CONTROLS CONTRACTOR. SEE DAMPER SCHEDULE.
5. = EXTERNALLY MOUNTED STAINLESS STEEL REMOVABLE INSECT SCREEN.
6. = KYNAR FINISH.

DONOHUE & ASSOCIATES

ACCESS STAIRWAY AND PUMP LEVELS BELOW GRADE

SUPPLY FAN SF-1, EXHAUST FAN EF-1 AND EF-3 WILL BE CONTROLLED BY M-O-A SWITCH WITH THE COMBUSTIBLE GAS SENSORS IN PUMP LEVELS.

AUTO MODE:
FAN SF-1, EF-1 AND EF-3 SHALL ENERGIZED AND DM 7 SHALL OPEN AND FANS RUN CONTINUOUSLY WHEN:

1. THE THERMOSTAT SENSES A ROOM TEMPERATURE ABOVE THE THERMOSTAT SETPOINT.
2. COMBUSTIBLE GAS SENSORS DETECT GAS LEVEL ABOVE SETPOINT IN ANY LEVELS OF THE PUMP STATION OR THE STAIRWAY.
3. THE STAIRWAY LIGHTS ARE TURNED ON.

OFF MODE:
FANS STOP AND MOTOR OPERATED DAMPER (DM 7) CLOSED

MANUAL MODE:
SF-1, EF-1 AND EF-3 SHALL ENERGIZED AND DM 7 SHALL OPEN AND FANS RUN CONTINUOUSLY.

ELECTRIC UNIT HEATERS

EUH-1, EUH-2, EUH-3, EUH-4, EUH-5 AND EUH-6 UNIT HEATERS WILL RUN IN RESPONSE TO SPACE TEMPERATURE, WHEN UNIT THEMOSTAT DETECTS A TEMPERATURE BELOW THE SETPOINT TEMPERATURE ADJUSTABLE.
UPON SATISFACTION OF SPACE TEMPERATURE UNIT HEATER SHALL STOPPED.

DAMPERS SCHEDULE

SECTION 15E

ITEM	SIZE	ACTUATOR			CONFIG.	REMARKS
		TYPE	VOLT	PH		
DM 1	54"X54"	GRAVITY	---	---	EXHAUST	GRAVITY OPERATED DAMPER ASSOCIATED WITH EF-1
DM 2	36"X36"	GRAVITY	---	---	EXHAUST	GRAVITY OPERATED DAMPER ASSOCIATED WITH EF-2
DM 3	36"X48"	GRAVITY	---	---	EXHAUST	GRAVITY OPERATED DAMPER ASSOCIATED WITH EF-3
DM 4	36"X48"	ELECTRIC MOTOR	115	1	SUPPLY	MOTOR OPERATED DAMPER OAL-3 ASSOCIATED WITH OUTSIDE AIR LOUVER
DM 5	36"X48"	ELECTRIC MOTOR	115	1	SUPPLY	MOTOR OPERATED DAMPER OAL-4 ASSOCIATED WITH OUTSIDE AIR LOUVER
DM 6	54"X54"	GRAVITY	---	---	EXHAUST	GRAVITY OPERATED DAMPER ASSOCIATED WITH EF-4
DM 7	66"X66"	ELECTRIC MOTOR	115	1	SUPPLY	EXP. PROOF MOTOR OPERATED DAMPER ASSOCIATED WITH OAL-1
DM 8	36"X36"	ELECTRIC MOTOR	115	1	SUPPLY	EXP. PROOF MOTOR OPERATED DAMPER ASSOCIATED WITH OAL-2
DM 9	36"X36"	ELECTRIC MOTOR	115	1	SUPPLY	EXP. PROOF MOTOR OPERATED DAMPER ASSOCIATED WITH OAL-5

ELECTRICAL ROOM VENTILATION CONTROL

EXHAUST FAN EF-4 WILL BE CONTROLLED BY THE M-O-A SWITCH WITH THE THERMOSTAT SET AT (90° F, ADJUSTABLE).

AUTO MODE:
THE STARTER WILL RUN THE FAN, EF-4 AND MOTOR OPERATED DAMPER (DM 4 AND DM 5) ASSOCIATED WITH OAL-3 AND OAL-4 WILL OPEN.

OFF MODE:
EF-1 STOP AND DM 4 AND DM 5 CLOSED.

MANUAL MODE:
EF-1 RUN CONTINUOUSLY AND DM 4 AND DM 5 OPEN.

PUMP ROOM VENTILATION

EXHAUST FAN EF-2 WILL BE CONTROLLED BY THE M-O-A SWITCH WITH THE THERMOSTAT SET AT (90° F, ADJUSTABLE).

AUTO MODE:
THE STARTER WILL ENERGIZE EF-2, FAN WILL RUN CONTINUOUSLY AND MOTOR OPERATED DAMPER (DM 8) ASSOCIATED WITH OAL-2 WILL OPEN. IN THREE CASES:

1. WHEN THE THERMOSTAT SENSES A ROOM TEMPERATURE ABOVE THE THERMOSTAT SET POINT.
2. WHEN THE GAS SENSOR DETECTS COMBUSTIBLE GAS ABOVE THE SETPOINT.
3. WHEN THE PUMP ROOM LIGHTS ARE TURNED ON.

OFF MODE:
EF-2 STOP AND DM 8 CLOSED.

MANUAL MODE:
EF-2 RUN CONTINUOUSLY AND DM 8 OPENED

DM 9

OUTSIDE AIR LOUVER (OAL-5) AND MOTOR OPERATED DAMPER DM 9 WILL BE CONSTROLED BY M-O-A SWITCH WITH DPS1 (DIFFERENTIAL PRESSURE SWITCH) SET AT (ADJUSTABLE).

AUTO MODE:
WHEN DPS1 SENSE PRESSURE IN ROOM NEGATIVE PRESSURE THE MOTOR OPERATED DAMPER (DM 9) WILL OPEN (TIME DELAY TO CLOSE).

OFF MODE:
OAL-5 AND DM 9 CLOSED.

MANUAL MODE:
OAL-5 AND DM 9 OPENED.

M8

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27 REHABILITATION

HVAC SCHEDULE AND OPERATING SEQUENCE

SCALE: N/A DRAWN BY: HFF

DATE: 04-23-10 CHECKED BY: KHC

BUILDING PLANS

SYMBOL	DESCRIPTION
	SPECIAL PURPOSE RECEPTACLE
	TELEPHONE OUTLET
	DATA OUTLET
LP-1	FLUSH MOUNTED PANELBOARD ~~LP-1~~ PANEL TYPE (LIGHTING PANEL) UNIT NUMBER
	SURFACE MOUNTED PANELBOARD
	MANUAL DISCONNECT SWITCH NONFUSED (RATING AS INDICATED)
	MANUAL DISCONNECT SWITCH FUSED (RATING AS INDICATED)
	MAGNETIC MOTOR STARTER (RATING AS INDICATED)
	COMBINATION MAGNETIC MOTOR & FUSED DISCONNECT SWITCH (RATING AS INDICATED)
	PUSHBUTTON STATION (1, 2 & 3 BUTTONS SHOWN)
50HP M	SINGLE SPEED ELECTRIC MOTOR (KW OR HP RATING AS INDICATED)
20HP/50HP M	DOUBLE SPEED ELECTRIC MOTOR (KW OR HP RATING AS INDICATED)
250 KW G	ELECTRIC GENERATOR SET (KW RATING AS INDICATED)
L	LIMIT SWITCH
F	FLOAT SWITCH
P	PRESSURE SWITCH
FW	FLOW SWITCH
EP	ELECTRIC - PNEUMATIC SWITCH
PE	PNEUMATIC - ELECTRIC SWITCH
TQ	TORQUE SWITCH
T	TRANSFORMER
F	FIRE ALARM PULL STATION
AV	AUDIO VISUAL ALARM
S	SMOKE DETECTOR
H	HEAT DETECTOR
G	COMBUSTIBLE GAS DETECTOR
T	THERMOSTAT
	UNIT HEATER - HORIZONTAL TYPE
UH	UNIT HEATER - DOWNBLAST TYPE OR CENTRIFUGAL FAN TYPE
CUH	CABINET UNIT HEATER
	ALARM HORN

BUILDING PLANS

SYMBOL	DESCRIPTION
F1-2a	FLUORESCENT FIXTURE (F1 INDICATES FIXTURE TYPE-REFER TO FIXTURE SCHEDULE - 2a INDICATES CIRCUIT No.2 ON SWITCH a.)(TYP).
	FLUORESCENT FIXTURE, WALL MOUNTED
	INCANDESCENT, COMPACT FLUORESCENT OR HID FIXTURE
	WALL MOUNTED INCANDESCENT, COMPACT FLUORESCENT OR HID FIXTURE
	FLUORESCENT FIXTURE ON EMERGENCY CIRCUIT
	INCANDESCENT, COMPACT FLUORESCENT OR HID FIXTURE ON EMERGENCY CIRCUIT
	EXIT SIGN SINGLE SIDED (ABOVE DOOR)
	DIRECTIONAL EXIT SIGN - DOUBLE SIDED (DIRECTION AS INDICATED - TYP.)
	DIRECTIONAL EXIT SIGN - SINGLE SIDED
	BATTERY UNIT FOR EMERGENCY LIGHT
	BATTERY OPERATED EMERGENCY LIGHT
	EMERGENCY LIGHT, REMOTE HEAD
P	ELECTRIC PULLBOX
J ■	ELECTRIC JUNCTION BOX
	BARE GROUND CABLE
	EXPOSED CONDUIT
	CONCEALED CONDUIT IN FLOOR OR UNDERGROUND
	CONCEALED CONDUIT IN CEILING OR WALLS
LP-1-6	CONDUIT HOME-RUN TO PANEL AS INDICATED (LP-1-6 DENOTES PANEL DESIGNATION, SLASH LINES INDICATE QUANTITY OF WIRE. GROUND WIRE INDICATED AS LONG LINE WITH DOT, NEUTRAL WIRE INDICATED AS LONG LINE, PHASE WIRE AND SWITCH LEGS INDICATED AS SHORT LINES.)
	CABLE TRAY
	CONDUIT TURNED UP OR DOWN
	CONDUIT TERMINATED OR CAPPED
$	SINGLE POLE TOGGLE SWITCH
$2	DOUBLE POLE TOGGLE SWITCH
$3	THREE-WAY TOGGLE SWITCH
$4	FOUR-WAY TOGGLE SWITCH
$K	KEY OPERATED SWITCH
$T	MANUAL MOTOR STARTER SWITCH WITH THERMAL OVERLOAD PROTECTION
$P	TOGGLE SWITCH WITH PILOT LIGHT
$D	DIMMER SWITCH
	SINGLE RECEPTACLE
	DUPLEX RECEPTACLE
	QUADRUPLEX RECEPTACLE
GFCI	DUPLEX RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTER
IG	DUPLEX RECEPTACLE WITH ISOLATED GROUND

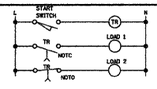
SCHEMATIC SYMBOLS

SYMBOL	DESCRIPTION
	CONDUCTOR CONNECTION
	NO CONNECTION
	TERMINAL ON A DEVICE
	NORMALLY OPEN CONTACT
	NORMALLY CLOSED CONTACT
	SINGLE POLE, SINGLE THROW SWITCH
	SINGLE POLE, DOUBLE THROW SWITCH
	DOUBLE POLE, SINGLE THROW SWITCH
	DOUBLE POLE, DOUBLE THROW SWITCH
	THREE WAY ROTARY SWITCH
	NORMALLY CLOSED MOMENTARY PUSH BUTTON SWITCH
	NORMALLY OPEN MOMENTARY PUSH BUTTON SWITCH
1 2	2 POSITION PUSH BUTTON (EXTRA CONTACT BLOCK)
1 2	NORMALLY OPEN DOUBLE BREAK SINGLE THROW CONTACT BLOCK
1 2	NORMALLY CLOSE DOUBLE BREAK SINGLE THROW CONTACT BLOCK
1 2	DOUBLE BREAK DOUBLE THROW CONTACT BLOCK
	MUSHROOM HEAD PUSH BUTTON
	MAINTAINED CONTACT PUSHBUTTON
1 2	2 OR 3 POSITIONS SELECTOR SWITCH (CLOSED CONTACTS INDICATED BY " X")
	MULTI-POSITION, MULTI-CONTACT SELECTOR SWITCH (CLOSED CONTACTS INDICATED BY " X")
	TEMPERATURE SWITCH - CLOSES ON RISING TEMPERATURE
	TEMPERATURE SWITCH - OPENS ON RISING TEMPERATURE
	PRESSURE SWITCH - CLOSES ON RISING PRESSURE
	PRESSURE SWITCH - OPENS ON RISING PRESSURE
	DIFFERENTIAL PRESSURE SWITCH - CLOSES WHEN THE DIFFERENTIAL IN PRESSURE BETWEEN TWO DIAPHRAGMS EXCEEDS A SET POINT
	DIFFERENTIAL PRESSURE SWITCH - OPENS WHEN THE DIFFERENTIAL IN PRESSURE BETWEEN TWO DIAPHRAGMS EXCEEDS A SET POINT
	TIME DELAY RELAY SWITCH - CLOSES ON TIME DELAY AFTER ENERGIZATION OF RELAY COIL.
	TIME DELAY RELAY SWITCH - OPENS ON TIME DELAY AFTER ENERGIZATION OF RELAY COIL.
	TIME DELAY RELAY SWITCH - CLOSES ON TIME DELAY AFTER DE-ENERGIZATION OF RELAY COIL.
	TIME DELAY RELAY SWITCH - OPENS ON TIME DELAY AFTER DE-ENERGIZATION OF RELAY COIL.
	LIMIT SWITCH - NORMALLY OPEN
	LIMIT SWITCH - NORMALLY CLOSED
	LIMIT SWITCH - NORMALLY OPEN HELD CLOSED

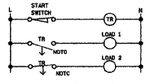
SCHEMATIC SYMBOLS

SYMBOL	DESCRIPTION
	LIMIT SWITCH - NORMALLY CLOSED HELD OPEN
	LEVEL SWITCH - CLOSES ON RISING LEVEL
	LEVEL SWITCH - OPENS ON RISING LEVEL
	FLOW SWITCH - CLOSES ON FLOW
	FLOW SWITCH - OPENS ON FLOW
	TRANSFORMER - (TYPE AND RATING AS INDICATED)
	CONNECTION TO GROUND
	LIGHTNING OR SURGE ARRESTER
	THERMAL OVERLOAD ELEMENT
	FUSE
	CIRCUIT BREAKER
	HEATING ELEMENT
SV	SOLENOID VALVE
M	~~COIL~> C - CLOSE CR - CONTROL RELAY F - FAST OR FORWARD M - MOTOR STARTER MX - MOTOR STARTER AUXILIARY RELAY N - NORMAL O - OPEN OL - OVERLOAD RELAY R - REVERSE S - SLOW TD - TIME DELAY RELAY TDAE - TIME DELAY AFTER ENERGIZATION TDAD - TIME DELAY AFTER DE-ENERGIZATION
R	INDICATOR LIGHT (SEE SCHEMATIC DIAGRAM DEVICE TABLE FOR COLOR SYMBOLS)
R	INDICATOR LIGHT (PUSH TO TEST TYPE)
	DEVICE ENCLOSURE
ANN	ANNUNCIATOR
COUNT	COUNTER
ETM	ELAPSED TIME METER
TMR	ELECTRONIC TIMER
TOT	TOTALIZER

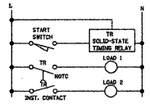
TIMING RELAY SAMPLE DIAGRAMS



ON-DELAY TIMING RELAY



OFF-DELAY TIMING RELAY



SOLID STATE, ON-DELAY TIMING RELAY

ONE-LINE DIAGRAMS

SYMBOL	DESCRIPTION
	POWER CIRCUIT
	EQUIPMENT ENCLOSURE
	CONTROL OR INTERLOCK CIRCUIT
	BUS (RATING AS INDICATED)
	CONDUCTOR CONNECTION
	DRAWOUT DEVICE
500AT 600AF	DRAWOUT MOLDED CASE CIRCUIT BREAKER (600V, THERMAL-MAGNETIC TYPE, UNLESS NOTED OTHERWISE) TRIP SETTING (TYP.) FRAME SIZE (TYP.)
M	MOLDED CASE CIRCUIT BREAKER (600V, THERMAL-MAGNETIC TYPE, UNLESS NOTED OTHERWISE)
AIR TRIP FUNCTION	AIR CIRCUIT BREAKER
IC TRIP FUNCTION	INSULATED CASE CIRCUIT BREAKER
	FUSE (RATING AS INDICATED)
	DRAWOUT FUSE (RATING AS INDICATED)
	FUSE - SWITCH (RATING AS INDICATED)
	NON-FUSIBLE DISCONNECT SWITCH
	THERMAL OVERLOAD ELEMENT
	INSTANTANEOUS CONTACT
	CONNECTION TO GROUND
	LIGHTNING OR SURGE ARRESTER
	CURRENT TRANSFORMER-DOUGHNUT TYPE (QUANTITY, RATIO AND RATING AS INDICATED)
	CURRENT TRANSFORMER-WINDOW TYPE (RATIO AND RATING AS INDICATED)
	POTENTIAL TRANSFORMER (QUANTITY, RATIO AND RATING AS INDICATED)
	CAPACITOR
	BATTERY
AS	AMMETER SWITCH
VS	VOLTMETER SWITCH
SS	SELECTOR SWITCH
A	AMMETER (RANGE AS INDICATED)
V	VOLTMETER (RANGE AS INDICATED)
KWH	KILOWATTHOUR METER
K K	KIRK-KEY INTERLOCK
GFR	GROUND FAULT RELAY

ONE-LINE DIAGRAMS

SYMBOL	DESCRIPTION
50HP M	SINGLE SPEED ELECTRIC MOTOR (KW OR HP RATING AS INDICATED)
20HP/50HP M	DOUBLE SPEED ELECTRIC MOTOR (KW OR HP RATING AS INDICATED)
250 KW G	ELECTRIC GENERATOR SET (TYPE & KW RATING AS INDICATED)
	TRANSFER SWITCH (TYPE AND RATING AS INDICATED)
	SINGLE SPEED NON-REVERSING MANUAL STARTER (NEMA OR IEC DESIGNATION AS SPECIFIED OR SHOWN)
	SINGLE SPEED NON-REVERSING MAGNETIC STARTER (NEMA OR IEC DESIGNATION AS SPECIFIED OR SHOWN)
	COMBINATION CIRCUIT BREAKER & SINGLE SPEED NON-REVERSING MAGNETIC STARTER (NEMA OR IEC DESIGNATION AS SPECIFIED OR SHOWN)
	COMBINATION DISCONNECT SWITCH & SINGLE SPEED NON-REVERSING STARTER (NEMA OR IEC DESIGNATION AS SPECIFIED OR SHOWN)
	COMBINATION CIRCUIT BREAKER & SINGLE SPEED REVERSING MAGNETIC STARTER (NEMA OR IEC DESIGNATION AS SPECIFIED OR SHOWN)
	COMBINATION CIRCUIT BREAKER & TWO SPEED NON-REVERSING MAGNETIC STARTER (NEMA OR IEC DESIGNATION AS SPECIFIED OR SHOWN)
	REDUCED VOLTAGE STARTER, AUTO TRANSFORMER TYPE (NEMA OR IEC DESIGNATIONS AS SPECIFIED OR SHOWN)
	REDUCED VOLTAGE STARTER, WYE-DELTA TYPE (NEMA OR IEC DESIGNATIONS AS SPECIFIED OR SHOWN)
	REDUCED VOLTAGE STARTER, PRIMARY-RESISTOR TYPE (NEMA OR IEC DESIGNATIONS AS SPECIFIED OR SHOWN)
S.S.	SOLID STATE REDUCED VOLTAGE STARTER

SCHEMATIC DIAGRAM DEVICE DESIGNATIONS

SYMBOL	DESCRIPTION
	DESIGNATION DESCRIBING DEVICE OPERATION OR FUNCTION
A AUTO	AUTOMATIC
ACK	ACKNOWLEDGE
CL	CLOSE
F	FAST
FWD	FORWARD
HI	HIGH
H	HAND
INST	INSTANTANEOUS
L	LOW
LOS	LOCKOUT-STOP
LOC	LOCAL
HR	HAND RESET
HS	HIGH SPEED
LSP	LOW SPEED
N	NORMAL
NC	NORMALLY CLOSED
NCTC	NORMALLY CLOSED TIMED CLOSED
NCTO	NORMALLY CLOSED TIMED OPEN
NO	NORMALLY OPEN
NOTC	NORMALLY OPEN TIMED CLOSED
NOTO	NORMALLY OPEN TIMED OPEN
O	OFF
OP	OPEN
REM	REMOTE
REV	REVERSE
S	SLOW
A	AMBER
BL	BLUE
C	CLEAR
G	GREEN
R	RED
W	WHITE
Y	YELLOW

E1

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	32
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

ABBREVIATIONS

SYMBOL	DESCRIPTION
AC	ALTERNATING CURRENT
ACK	ACKNOWLEDGE
A/C	AERIAL CABLE
AFG	ABOVE FINISHED GRADE
AFF	ABOVE FINISHED FLOOR
ANN	ANNUNCIATOR
ATS	AUTOMATIC TRANSFER SWITCH
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CM	CENTIMETER
CT	CURRENT TRANSFORMER
CP	CONTROL PANEL
DC	DIRECT CURRENT
DIA	DIAMETER
DP	DISTRIBUTION PANEL
EF	EXHAUST FAN
EMER	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
FT	FEET OR FOOT
FND CON	FOUNDATION CONCRETE
FU	FUSE
FVNR	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFR	GROUND FAULT RELAY
GND	GROUND
HID	HIGH INTENSITY DISCHARGE
HP	HORSEPOWER
IG	ISOLATED GROUND
JB	JUNCTION BOX
KVA	KILOVOLT AMPERE
KW	KILOWATTS
LP	LIGHTING PANEL
M	METER
MCC	MOTOR CONTROL CENTER
MM	MILLIMETER
MTG HT	MOUNTING HEIGHT
MTS	MANUAL TRANSFER SWITCH
NL NO, #	NIGHT LIGHT NUMBER
PB	PUSH BUTTON
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
PT	POTENTIAL TRANSFORMER
RECP	RECEPTACLE
RGC	RIGID GALVANIZED CONDUIT
RVS	REDUCED VOLTAGE STARTER
SCADA	SUPERVISORY CONTROL AND DATA AQUISITION
SEL SW	SELECTOR SWITCH
SF	SUPPLY FAN
SPARE	SPARE
SPACE	SPACE
SS	STAINLESS STEEL
STA	STATION
SWGR	SWITCHGEAR
TMP	TEMPORARY
TEMP	TEMPERATURE
T' STAT	THERMOSTAT
TEFC	FULLY ENCLOSED FAN COOLED
UH	UNIT HEATER
VFD	VARIABLE FREQUENCY DRIVE
WP	WEATHERPROOF
XFER	TRANSFER
XFMR	TRANSFORMER
XP	EXPLOSION-PROOF (CLASS 1, DIV 1, GROUP C & D UNLESS NOTED OTHERWISE)

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

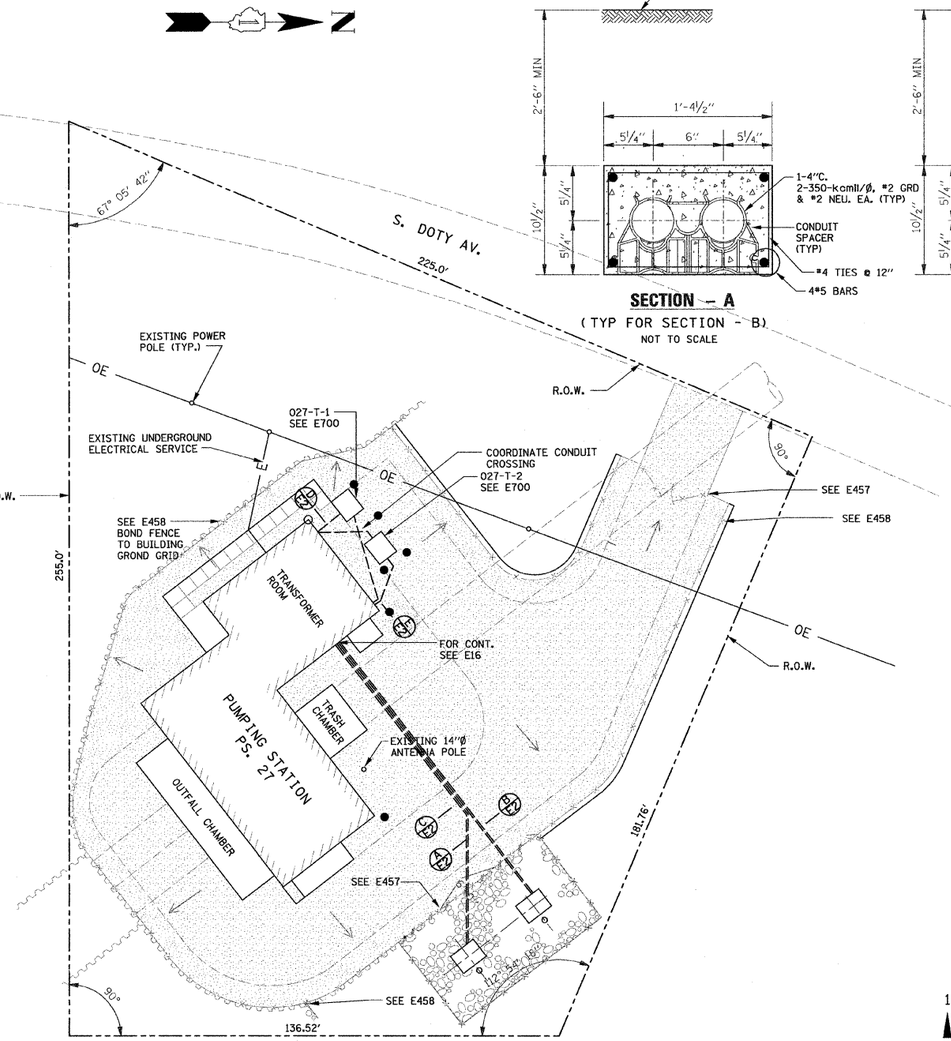
PUMP STATION NO. 27
REHABILITATION

ELECTRICAL SYMBOL LIST

SCALE: N/A
DRAWN BY: HFF
DATE: 04-23-10
CHECKED BY: KHC

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	33
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



PROPOSED SITE PLAN

SCALE: 0 5 10 20 40 FT.

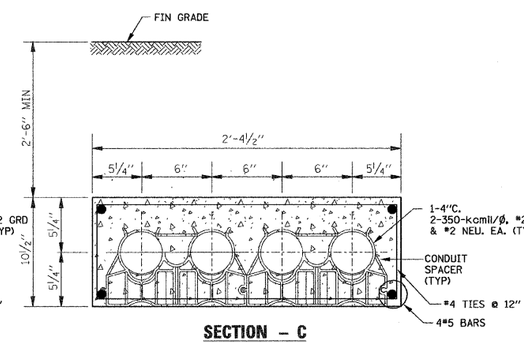
NOTE:

1. FOR ADDITIONAL INFORMATION SEE DWGS G1, G2 & G3.
2. FOR LOCATION OF COMPRESSION BELLS AND ROUTING OF BUBBLER AIR TUBING SEE DWG. M2.
3. ALL STEEL SUPPORT FRAMING MEMBERS AND PLATES SHALL BE HOT DIP GALVANIZED AFTER FABRCATION. FIELD CUT EDGES SHALL BE COLD GALVANIZED. ALL CONNECTING BOLTS AND HARDWARES SHALL BE STAINLESS STEEL.
4. THE LOCATION OF ALL SCADA COMPRESSION BELLS MUST BE SUBMITTED TO THE ENGINEER PRIOR TO INSTALLATION FOR REVIEW AND COMMENT. THE COMPRESSION BELL SHALL NOT BE INSTALLED WITHOUT THE APPROVAL OF THE ENGINEER.

SECTION – A

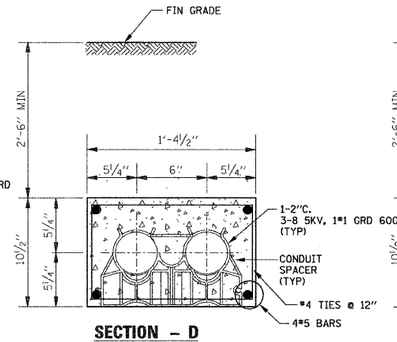
(TYP FOR SECTION - B)

NOT TO SCALE



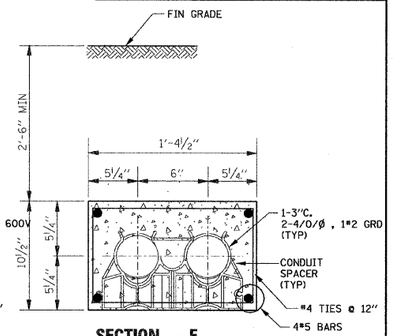
SECTION – C

NOT TO SCALE



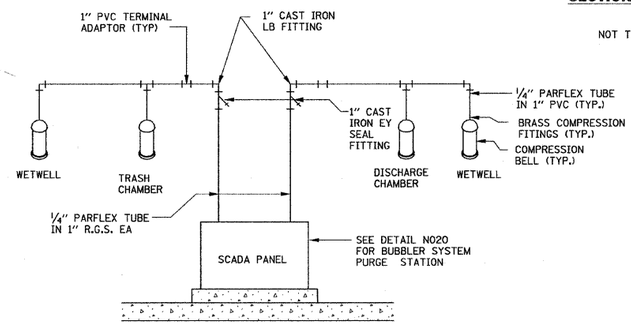
SECTION – D

NOT TO SCALE



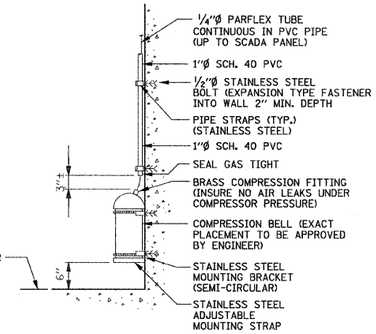
SECTION – E

NOT TO SCALE



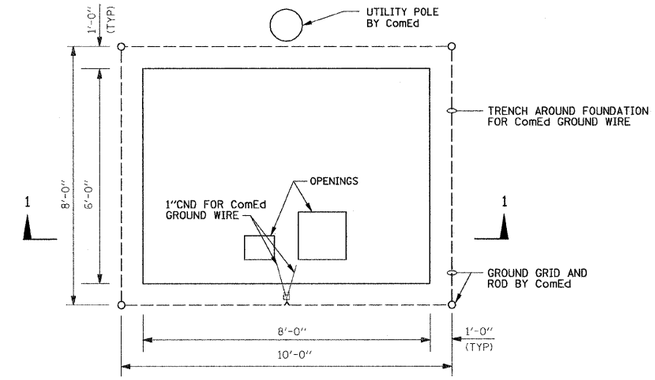
COMPRESSION BELL PIPING SCHEMATIC

NOT TO SCALE

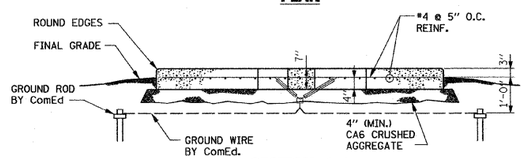


COMPRESSION BELL MOUNTING DETAIL

NOT TO SCALE



PLAN



SECTION 1–1

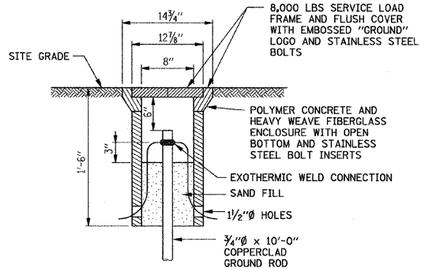
ComEd TRANSFORMER PAD

NOTE: PROVIDE PADS SIMILAR TO DETAIL ABOVE FOR 027-T-1 AND 027-T-2

NOT TO SCALE

NOTES:

1. INSTALL TRANSFORMER FOUNDATION PER ComEd SYSTEM STANDARD C5286.
2. ALL CONDUITS SHALL BE RGS ENCASED IN CONCRETE UNLESS OTHERWISE NOTED



GROUND ROD & GROUND WELL DETAIL

NOT TO SCALE

DONOHUE & ASSOCIATES

E2

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27 REHABILITATION

ELECTRICAL SITE PLAN

SCALE: AS SHOWN DRAWN BY: HFF

DATE: 04-23-10 CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	34
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

COMED TRANSF.
12KV-4.16/2.4KV

COMED SERVICE
LINE NO. 1

UTILITY
METERING
COMPT

5KV SWITCHGEAR

CPT

GR R

2-PT'S

DIGITAL METERING
WITH DIGITAL READOUT
FOR 3 PHASE V,
3 PHASE A, FREQ.,
KW, KWH, w/ 50/51,
27/59, 46, 47 & 81 TRIP

TO SCADA

3-CT'S

SURGE
SUPRESSOR

52-1

1200AF
250MVA

INTLK

AUTOMATIC
THROWOVER
PLC

TO SCADA

52-T

1200A
250 MVA

5KV 3 PHASE, 3W, 1200A BUS

52-2

1200AF
250MVA

INTLK

TO SCADA

DIGITAL METERING

52-2

1200A
250 MVA

GENERATOR
BREAKER

COMED TRANSF.
12KV-4.16/2.4KV

COMED SERVICE
LINE NO. 2

300KVA, 3 PHASE
4160V-480/277V
027-T-1

300KVA, 3 PHASE
4160V-480/277V
027-T-2

MOTOR CONTROL CENTER 480V, 3 PHASE, 600A MAIN BUS

400A
400A
400A ATS

TVSS

80A CB
150A MCP
150A MCP
20A CB
70A CB
15A MCP
15A MCP
7A MCP
7A MCP
7A MCP
20A CB
20A CB
20A CB
20A CB
5A MCP
30A CB
30A CB
30A CB
30A CB
20A CB
20A CB
20A CB

SSRV-1
SSRV-2
SSRV-3
SSRV-4
SSRV-5
SSRV-6
SSRV-7
SSRV-8

PURGED JB

VENDOR FURNISHED
CABLE (TYP OF
8 PUMPS)

VENDOR FURNISHED
CABLE (TYP OF
2 PUMPS)

25KVA,
1∅

XP

T

550 HP
74 FLA

60 HP
1.5 HP
10 HP
5 HP
1.5 HP
2 HP
5 HP
2 HP

MAIN PUMP NO. 1 MP-1
MAIN PUMP NO. 2 MP-2
MAIN PUMP NO. 3 MP-3
MAIN PUMP NO. 4 MP-4
MAIN PUMP NO. 5 MP-5
EXISTING LOW FLOW PUMP NO. 9 LFP-9
EXISTING LOW FLOW PUMP NO. 10 LFP-10
TANK MOUNY DUPLEX AIR COMPRESSOR
CONTROL ROOM LTG. PNL.
PUMP ROOM SUPPLY FAN NO. 1 SF-1
PUMP ROOM EXH. FAN NO. 1 EF-1
PUMP ROOM EXH. FAN NO. 2 EF-2
STAIRWAY EXH. FAN NO. 3 EF-3
CONTROL ROOM EXH. FAN NO. 4 EF-4
(4) 3P-20A SPARES
SLIDE GATE MOTOR OPR. G-1
RECIRC. VALVE MOTOR OPR. G-2
SPARE
POWER RECEPTACLE
PUMP ROOM EUH NO. 1 15 KW
PUMP ROOM EUH NO. 2 15 KW
PUMP ROOM EUH NO. 3 15 KW
CONTROL ROOM EUH NO. 4 7.5 KW
CONTROL ROOM EUH NO. 5 7.5 KW
STAIRWAY EUH NO. 6 7.5 KW
MAIN PUMP NO. 6 MP-6
MAIN PUMP NO. 7 MP-7
MAIN PUMP NO. 8 MP-8

NOTES:

1. SEE DRAWING E4 FOR 5KV SWITCHGEAR AND ONE-LINE.
2. SEE DRAWING E5 FOR 5KV SOLID STATE MOTOR CONTROLLER ONE-LINE AND ELEVATION.
3. SEE DRAWING E6 FOR MOTOR CONTROL CENTER ELEVATION.

DONOHUE & ASSOCIATES

E3

REVISIONS	
NAME	DATE

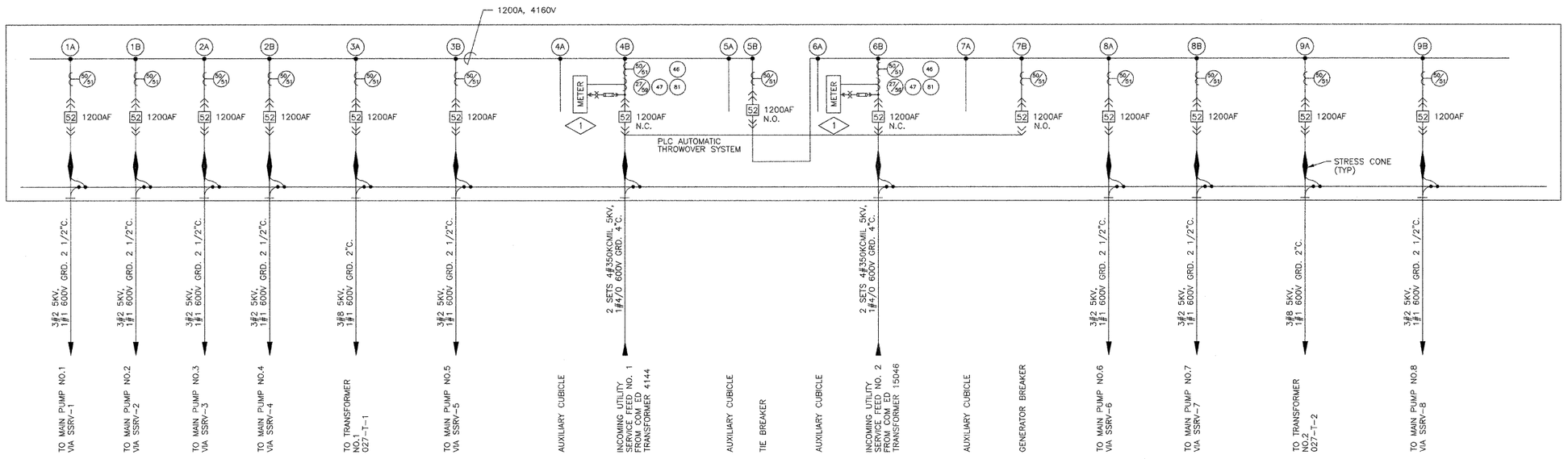
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27
REHABILITATION

ELECTRICAL SYSTEM ONE LINE DIAGRAM

SCALE: N/A
DRAWN BY: MS
DATE: 04-23-10
CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	35
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		



5KV SWGR ONE-LINE DIAGRAM CONTROL ROOM

NTS

PLAN NOTES:

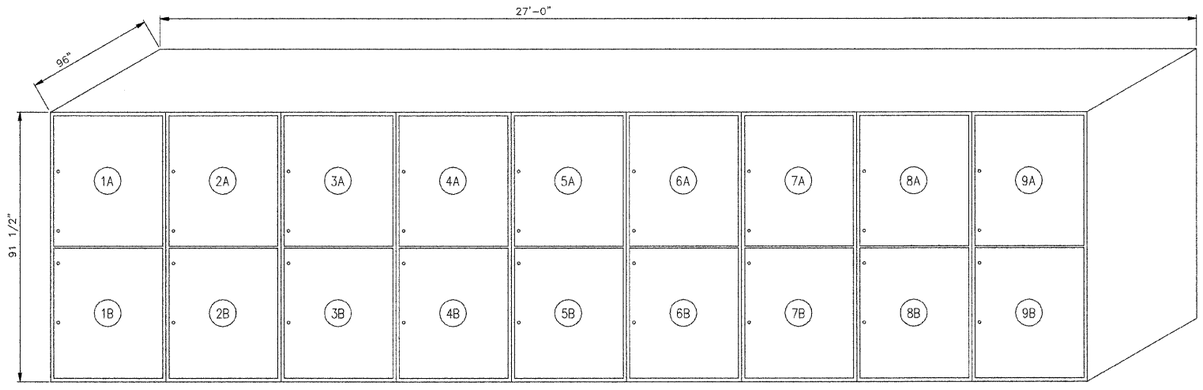
.1. MULTI-FUNCTION DIGITAL METERING PACKAGE.

GENERAL NOTES:

.1. FOR PROJECT CONSTRAINTS SEE SECTION 1A.

2. DO NOT SHUT DOWN OR DE-ENERGIZE ANY EQUIPMENT WITHOUT PRIOR APPROVAL FROM OWNER AND ENGINEER. EQUIPMENT SHUT DOWNS SHALL BE MADE BY OWNER OR IN THE PRESENCE OF OWNER. SEE SECTION 1A FOR PROJECT CONSTRAINTS.

DEVICE NAME	FUNCTION
50	INSTANTANEOUS OVERCURRENT
51	AC TIME OVERCURRENT
27	THREE PHASE UNDERVOLTAGE
49	THREE PHASE OVERVOLTAGE
46	CURRENT UNBALANCE
47	VOLTAGE UNBALANCE
81	FREQUENCY



5KV SWGR ELEVATION CONTROL ROOM

NTS

DONOHUE & ASSOCIATES

E4

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

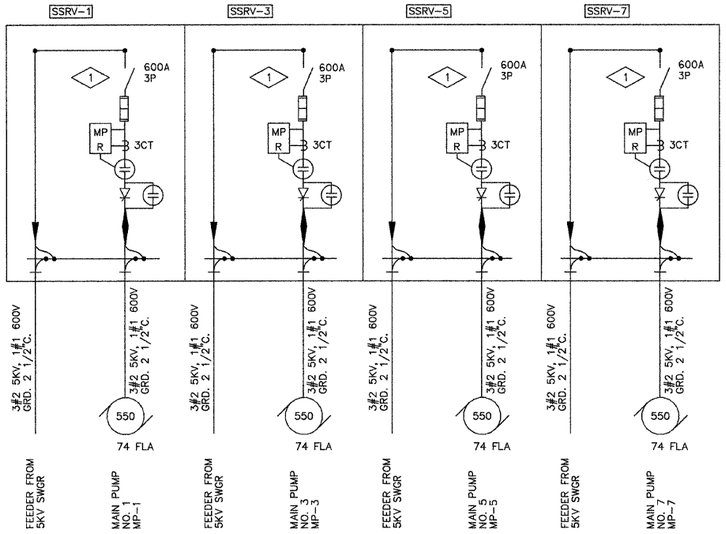
PUMP STATION NO. 27 REHABILITATION

SWITCHGEAR ELEVATION

SCALE: N/A DRAWN BY: MS

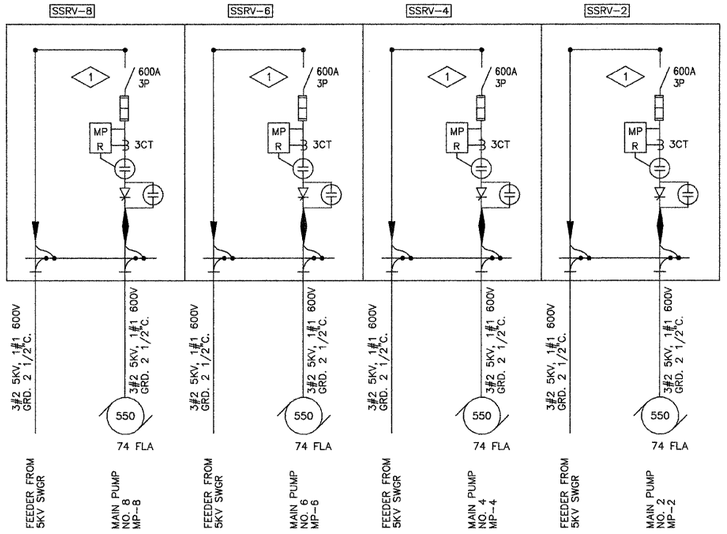
DATE: 04-23-10 CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	36
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		



MEDIUM VOLTAGE SOLID STATE STARTERS
ELECTRICAL ROOM

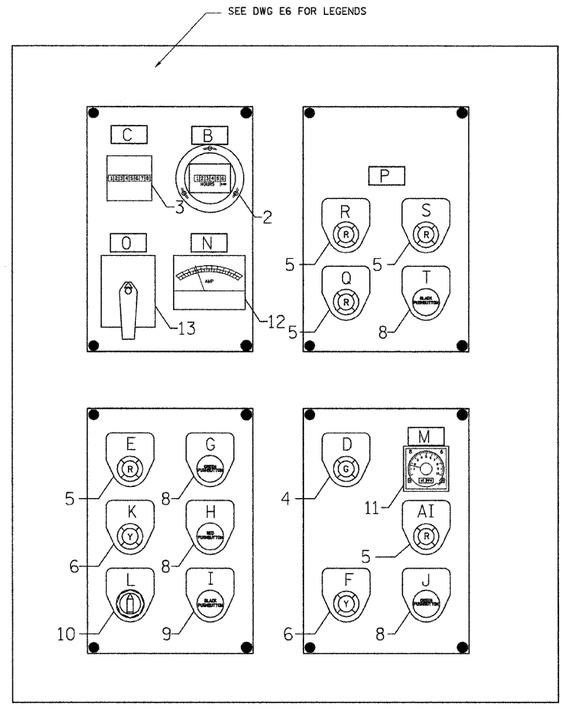
NTS



MEDIUM VOLTAGE SOLID STATE STARTERS
ELECTRICAL ROOM

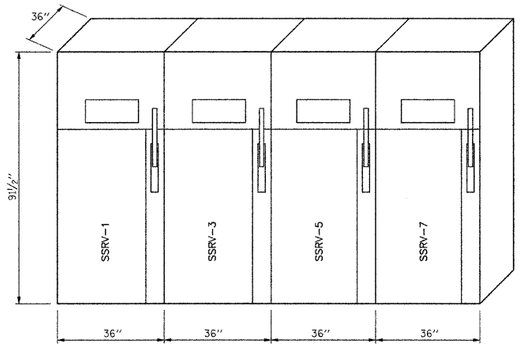
NTS

NAMEPLATE SCHEDULE 1" x 3"	
ITEM	ENGRAVING
1	4.16KV STARTER LINE-UP NO. 1 (WEST)
2	4.16KV STARTER LINE-UP NO. 2 (EAST)
AUX 1	AUX. COMPT. 1
AUX 2	AUX. COMPT. 2
T 1	480V TRANSFORMER NO. 1
T 2	480V TRANSFORMER NO. 2
P 1	MAIN PUMP NO. 1
P 2	MAIN PUMP NO. 2
P 3	MAIN PUMP NO. 3
P 4	MAIN PUMP NO. 4
P 5	MAIN PUMP NO. 5
P 6	MAIN PUMP NO. 6
P 7	MAIN PUMP NO. 7
P 8	MAIN PUMP NO. 8



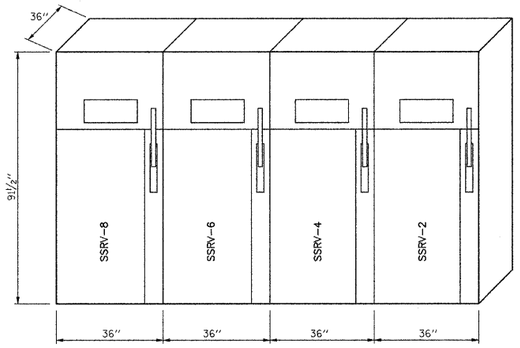
DOOR MOUNTED DEVICE LAYOUT

(TYPICAL FOR MAIN PUMP NO. 1 - 8)



MEDIUM VOLTAGE SOLID STATE STARTERS
EAST ELEVATION ELECTRICAL ROOM

NTS



MEDIUM VOLTAGE SOLID STATE STARTERS
WEST ELEVATION ELECTRICAL ROOM

NTS

PLAN NOTES:

1. SOLID STATE REDUCED VOLTAGE MOTOR STARTER WITH BUILT IN BYPASS ACROSS THE LINE CONTRACTOR.

GENERAL NOTES:

1. FOR PROJECT CONSTRAINTS SEE SECTION 1A.
2. DO NOT SHUT DOWN OR DE-ENERGIZE ANY EQUIPMENT WITHOUT PRIOR APPROVAL FROM OWNER AND ENGINEER. EQUIPMENT SHUT DOWNS SHALL BE MADE BY OWNER OR IN THE PRESENCE OF OWNER. SEE SECTION 01110 FOR PROJECT CONSTRAINTS.

DONOHUE & ASSOCIATES

E5

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

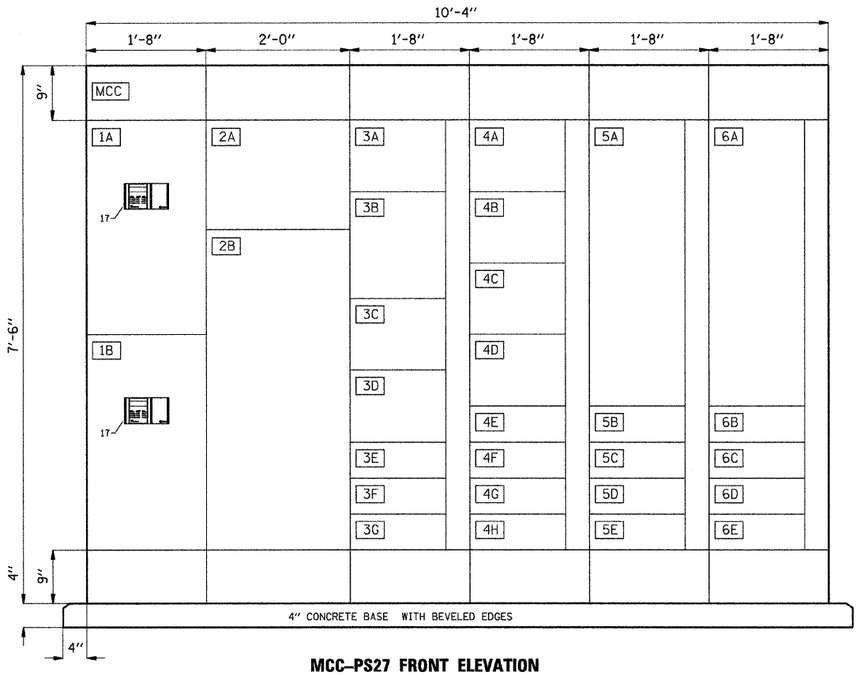
PUMP STATION NO. 27
REHABILITATION

4KV STARTER LINEUP

SCALE: N/A DRAWN BY: MS

DATE: 04-23-10 CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	37
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

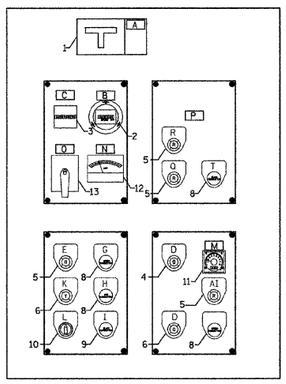


MCC–PS27 FRONT ELEVATION

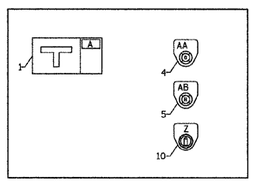
NAMEPLATE SCHEDULE 1" x 3"	
ITEM	ENGRAVING
MCC	MOTOR CONTROL CENTER - PS27
1A	1A-MAIN BREAKER NO. 1(400A)
1B	1B-MAIN BREAKER NO. 2(400A)
2A	2A-TVSS
2B	2B-AUTOMATIC TRANSFER SWITCH(3P-400A)
3A	3A-PUMP ROOM SUPPLY FAN SF1
3B	3B-PUMP ROOM LOWER LEVEL EXHAUST FAN EF1
3C	3C-PUMP ROOM EXHAUST FAN EF2
3D	3D-STAIRWAY EXHAUST FAN EF3
3E	3E-PUMP ROOM UNIT HEATER EUH-1
3F	3F-PUMP ROOM UNIT HEATER EUH-2
3G	3G-PUMP ROOM UNIT HEATER EUH-3
4A	4A-CONTROL ROOM EXHAUST FAN EF4
4B	4B-SPARE SIZE 1 FVNR
4C	4C-SPACE
4D	4D-SPACE
4E	4E-CONTROL ROOM UNIT HEATER EUH-4
4F	4F-CONTROL ROOM UNIT HEATER EUH-5
4G	4G-PUMP ROOM UNIT HEATER EUH-6
4H	4H-SPARE BREAKER 3P-20A
5A	5A-LOW FLOW PUMP NO. 9
5B	5B-DISCHARGE SLIDE GATE ACTUATOR G1
5C	5C-RECIRCULATION SLIDE GATE ACTUATOR G2
5D	5D-LIGHTING TRANSFORMER PRIMARY BREAKER
5E	5E-SPARE BREAKER 3P-20A
6A	6A-LOW FLOW PUMP NO. 10
6B	6B-AIR COMPRESSOR
6C	6C-POWER RECEPTACLE 3P-30A
6D	6D-SPARE BREAKER 3P-20A
6E	6E-SPARE BREAKER 3P-20A

ITEM	NAMEPLATE SCHEDULE
A	POWER DISCONNECT
B	ELAPSED RUN TIME
C	PUMP STARTS
D	PUMP RUNNING
E	PUMP OFF
F	PUMP CALL
G	MANUAL START
H	MOTOR BUMP
I	MANUAL STOP
J	TIMED START
K	MANUAL OPERATION
L	MANUAL OPERATION - OFF - AUTO OPERATION
M	TIMED RUN TIMER
N	AMMETER
O	AMMETER SWITCH (OFF-ØA-ØB-ØC)
P	MOTOR MOISTURE/TEMPERATURE DETECTOR
Q	HIGH MOISTURE
R	MOTOR WINDING HIGH TEMPERATURE
S	BEARING HIGH TEMPERATURE (FOR MAIN PUMP ONLY)
T	RESET
U	OPEN
V	GATE OPERATING
W	CLOSE
X	STOP
Y	LOCAL-OFF-REMOTE
Z	ON-OFF-AUTO
AA	ON
AB	OFF
AC	OPEN (DISCHARGE POSITION)
AD	CLOSED (RECIRCULATION POSITION)
AE	OPEN (RECIRCULATION POSITION)
AF	CLOSED (DISCHARGE POSITION)
AG	MOIST. DETECTOR TEST
AH	ON-AUTO
AI	PURGE ALARM

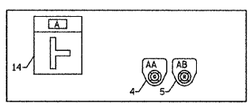
DEVICE LEGEND		
ITEM	DEVICE DESCRIPTION	DEVICE COLOR
1	MOTOR CIRCUIT PROTECTOR	
2	ELAPSED TIME METER	BLACK
3	ELECTROMECHANICAL COUNTER	BLACK
4	INDICATING LIGHT	GREEN
5	INDICATING LIGHT	RED
6	INDICATING LIGHT	YELLOW
7	PUSHBUTTON	GREEN
8	PUSHBUTTON	BLACK
9	PUSHBUTTON	RED
10	3 - POSITION SELECTOR SWITCH	BLACK
11	0 - 30 MINUTE TIMER, RESETABLE	BLACK
12	AMMETER	BLACK
13	AMMETER SWITCH (4-POSITION)	BLACK
14	CIRCUIT BREAKER	BLACK
15	LIGHTED PUSHBUTTON	RED
16	2-POSITION SELECTOR SWITCH	BLACK
17	DIGITAL METERING	BLACK



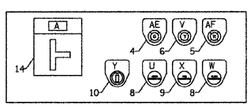
DOOR MOUNTED DEVICE LAYOUT
(TYPICAL FOR LOW FLOW PUMP NO. 9 - 10)



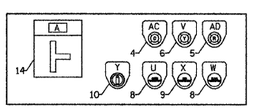
SUPPLY FAN SF1
(TYPICAL FOR EXHAUST FANS EF2, EF3 & EF4)



EXHAUST FAN EF1



RECIRCULATION SLIDE GATE
ACTUATOR G2



DISCHARGE SLIDE GATE
ACTUATOR G1

DONOHUE & ASSOCIATES

E6

REVISIONS	
NAME	DATE

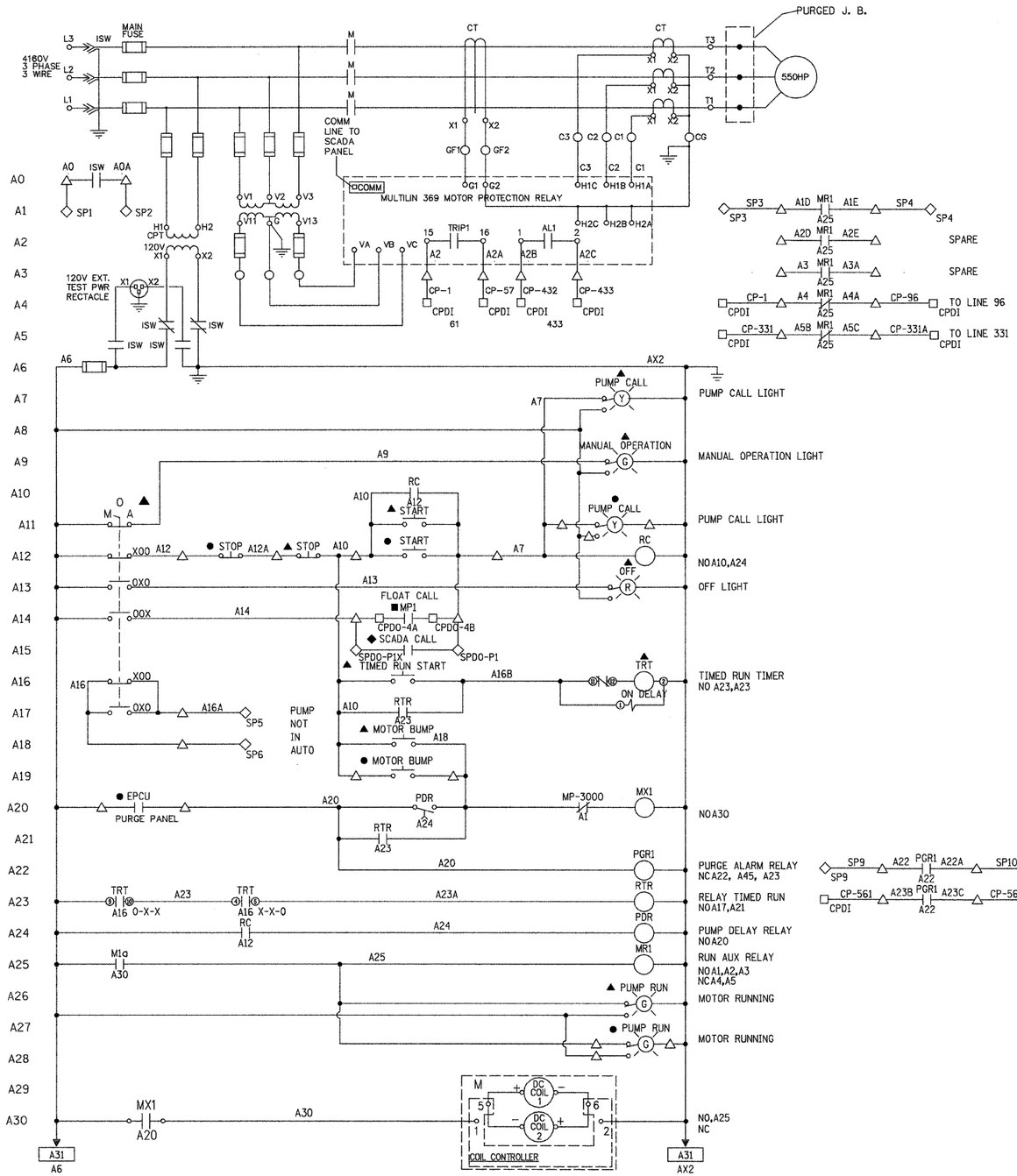
ILLINOIS DEPARTMENT OF TRANSPORTATION

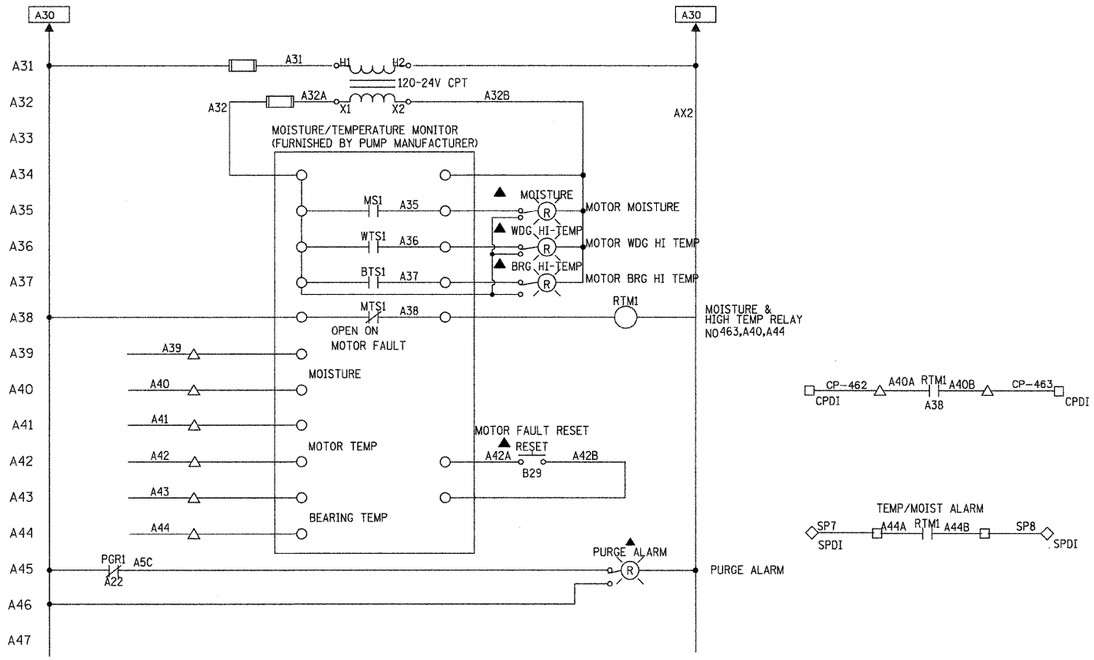
PUMP STATION NO. 27
REHABILITATION

MCC ELEVATION

SCALE: N/A
DATE: 04-23-10
DRAWN BY: MS
CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	38
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		





MAIN PUMP 1 CONTROL SCHEMATIC

(TYPICAL FOR PUMPS 2, 3, 4, 5, 6, 7, & 8)

LINE NUMBER & WIRE NUMBER PREFIX		
EQUIPMENT	PREFIX SHOWN ON DRAWING	PREFIX TO BE ASSIGNED
MAIN PUMP 1	A	MP1
MAIN PUMP 2	A	MP2
MAIN PUMP 3	A	MP3
MAIN PUMP 4	A	MP4
MAIN PUMP 5	A	MP5
MAIN PUMP 6	A	MP6
MAIN PUMP 7	A	MP7
MAIN PUMP 8	A	MP8

LEGEND

- △ TERMINAL IN MOTOR STARTER
- □ TERMINAL IN CONTROL PANEL
- ◇ TERMINAL IN SCADA PANEL
- ▲ DEVICE LOCATED ON STARTER DOOR
- ● DEVICE LOCALLY MTD
- ■ DEVICE IN CONTROL PANEL
- ◆ DEVICE IN SCADA PANEL

NOTE:

ALL DEVICES MOUNTED IN MOTOR STARTER UNLESS OTHERWISE NOTED.

CONTRACTOR IS RESPONSIBLE FOR INSTALLING MOISTURE/TEMPERATURE MONITOR IN STARTERS

DONOHUE & ASSOCIATES

E7

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

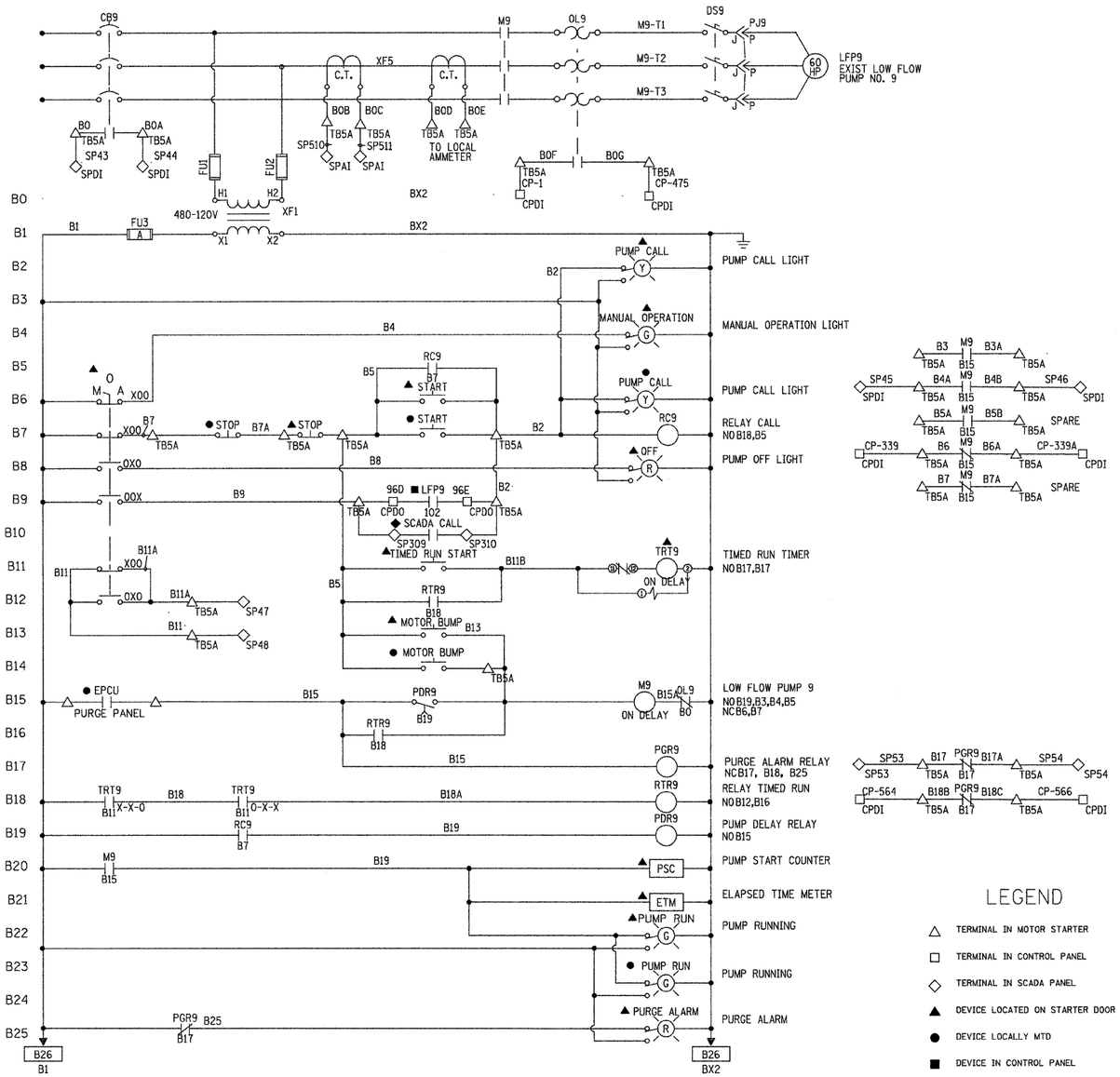
PUMP STATION NO. 27 REHABILITATION

MAIN PUMP CONTROL SCHEMATIC

SCALE: N/A DRAWN BY: MS

DATE: 04-23-10 CHECKED BY: MS

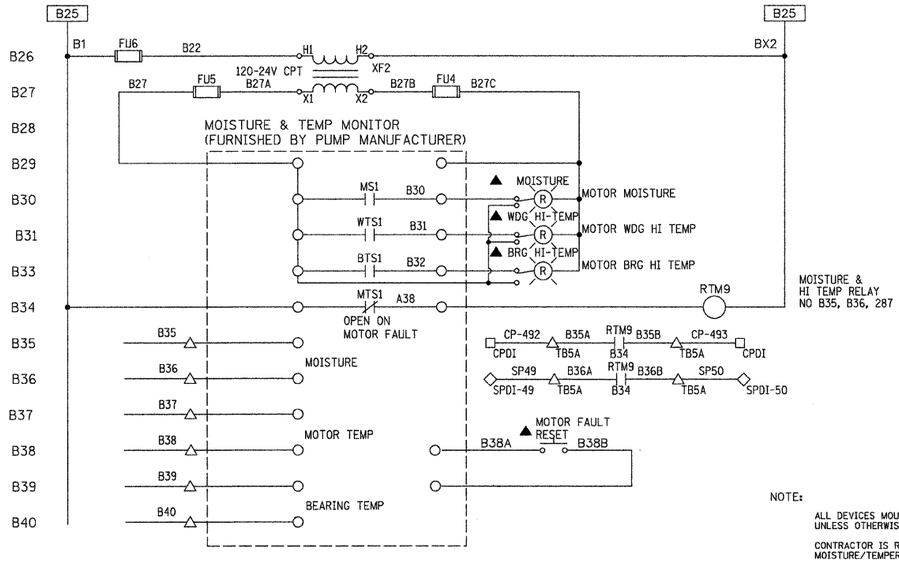
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	39
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		



LEGEND

- △ TERMINAL IN MOTOR STARTER
- □ TERMINAL IN CONTROL PANEL
- ◇ TERMINAL IN SCADA PANEL
- ▲ DEVICE LOCATED ON STARTER DOOR
- ● DEVICE LOCALLY MTD
- ■ DEVICE IN CONTROL PANEL
- ◆ DEVICE IN SCADA PANEL

NOTE: ALL DEVICES MOUNTED IN MOTOR STARTER UNLESS OTHERWISE NOTED



NOTE:

ALL DEVICES MOUNTED IN MOTOR STARTER UNLESS OTHERWISE NOTED

CONTRACTOR IS RESPONSIBLE FOR INSTALLING MOISTURE/TEMPERATURE MONITOR IN STARTERS

EXIST LOW FLOW PUMP NO. 9
(TYP FOR LOW FLOW PUMP NO. 10)

LINE NUMBER & WIRE NUMBER PREFIX		
EQUIPMENT	PREFIX SHOWN ON DRAWING	PREFIX TO BE ASSIGNED
LOW FLOW PUMP 9	B	M5A
LOW FLOW PUMP 10	B	M6A

DONOHUE & ASSOCIATES

E8

REVISIONS	
NAME	DATE

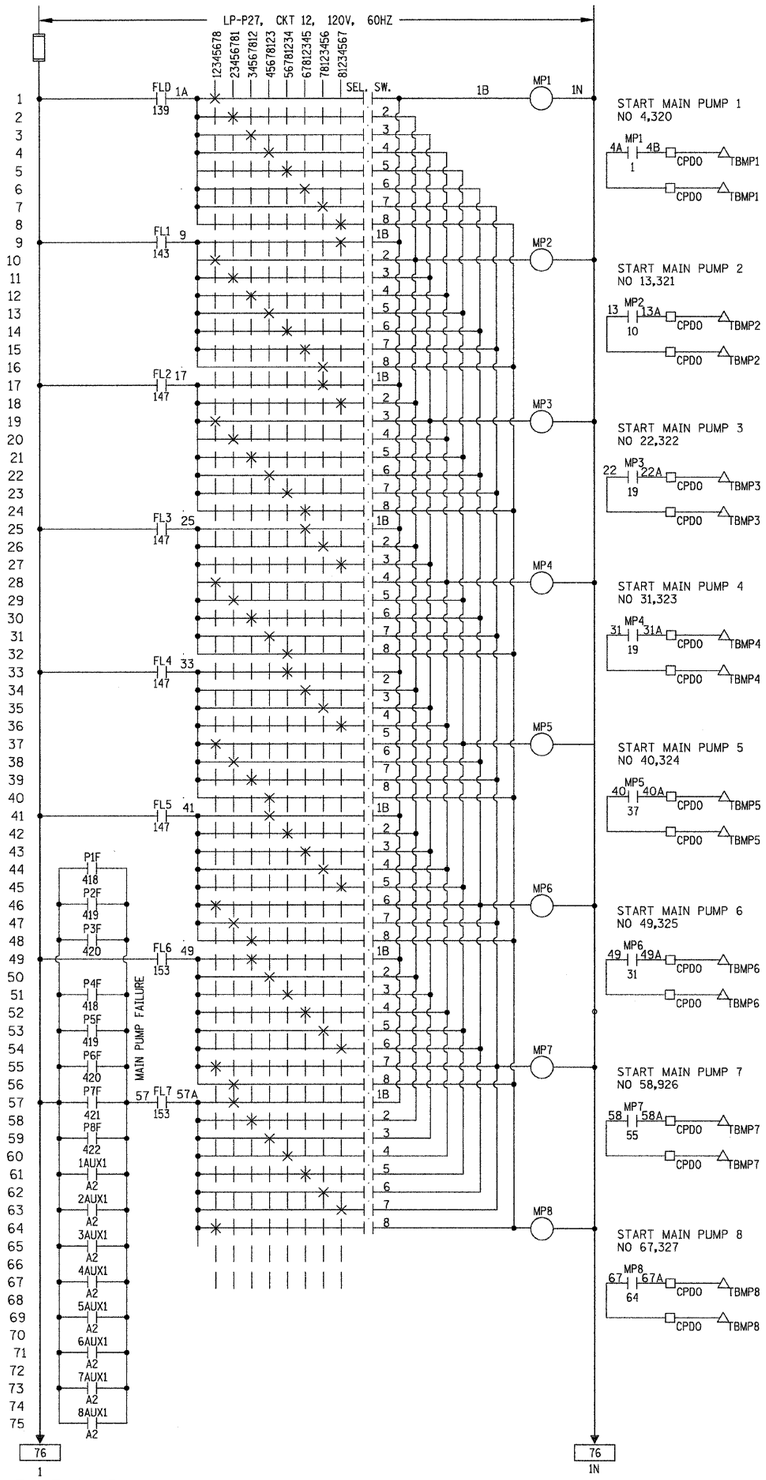
ILLINOIS DEPARTMENT OF TRANSPORTATION

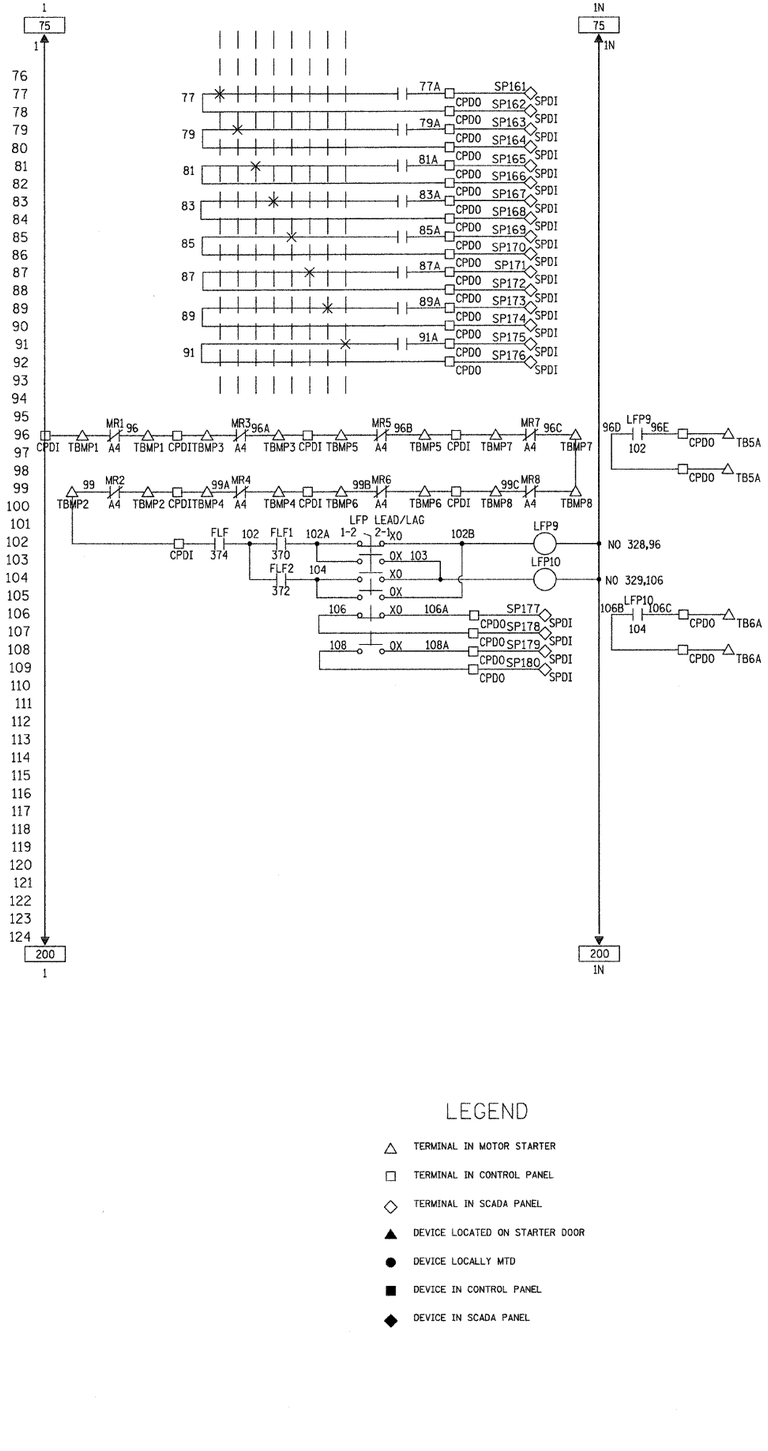
PUMP STATION NO. 27
REHABILITATION

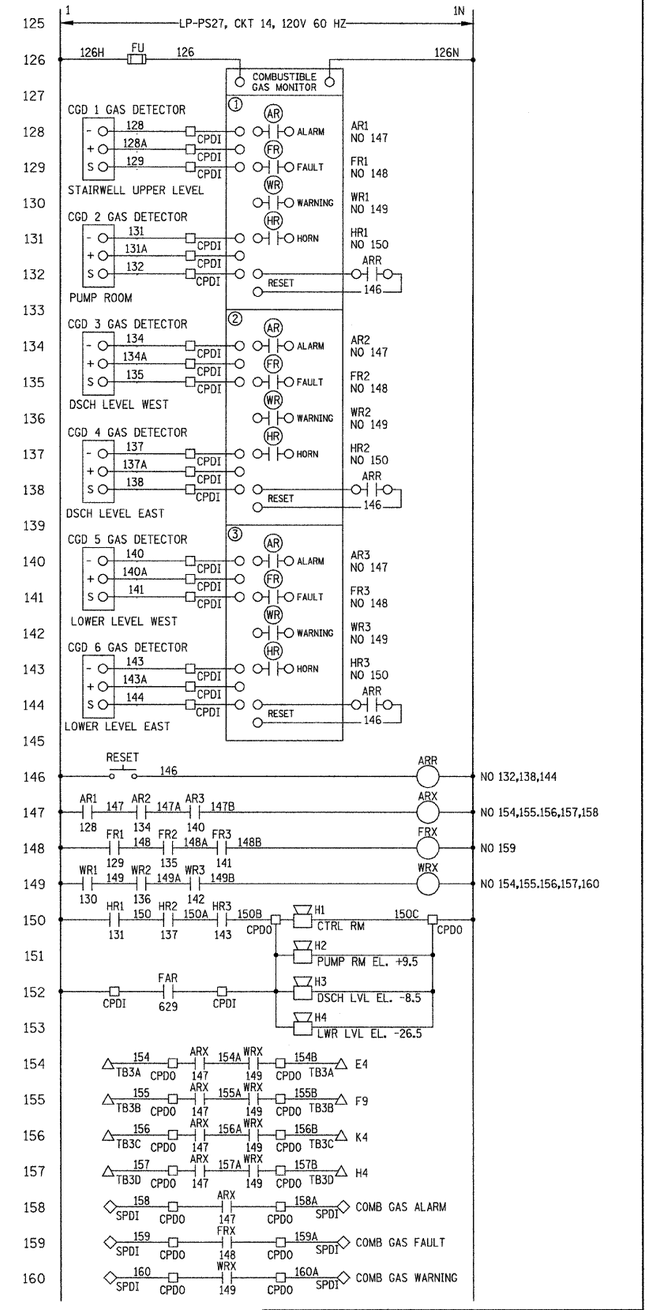
LOW FLOW PUMP
CONTROL SCHEMATIC

SCALE: N/A
DRAWN BY: MS
DATE: 04-23-10
CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	40
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		







LEGEND

- △ TERMINAL IN MOTOR STARTER
- □ TERMINAL IN CONTROL PANEL
- ◇ TERMINAL IN SCADA PANEL
- ▲ DEVICE LOCATED ON STARTER DOOR
- ● DEVICE LOCALLY MTD
- ■ DEVICE IN CONTROL PANEL
- ◆ DEVICE IN SCADA PANEL

E9

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27 REHABILITATION

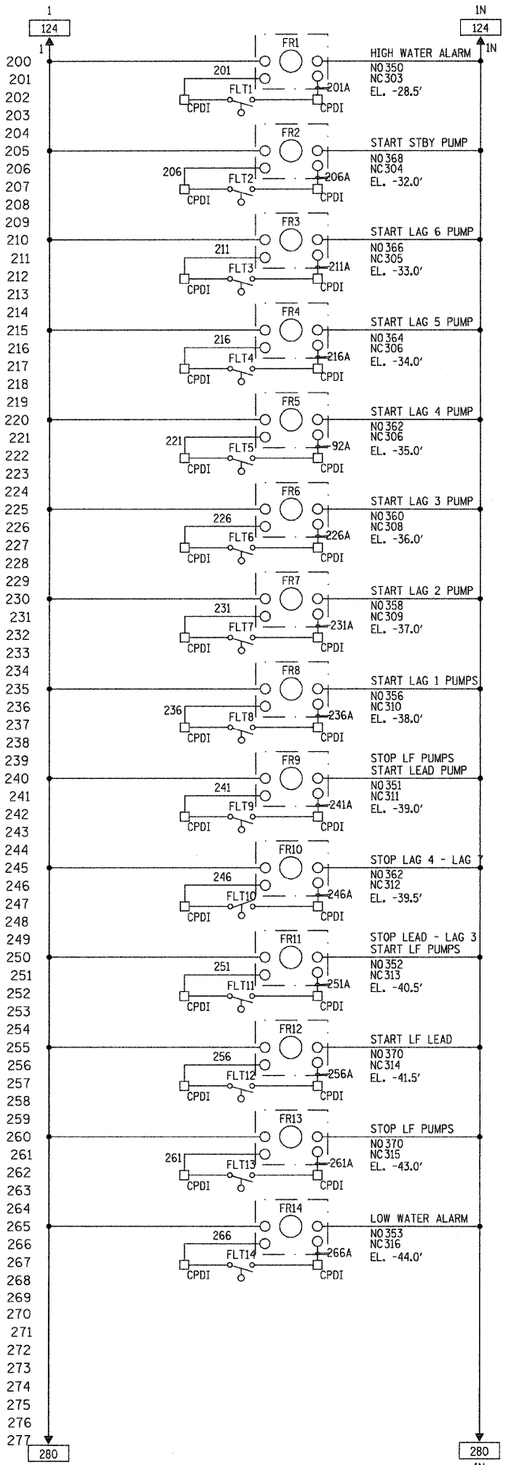
CONTROL PANEL SCHEMATIC SH. 1

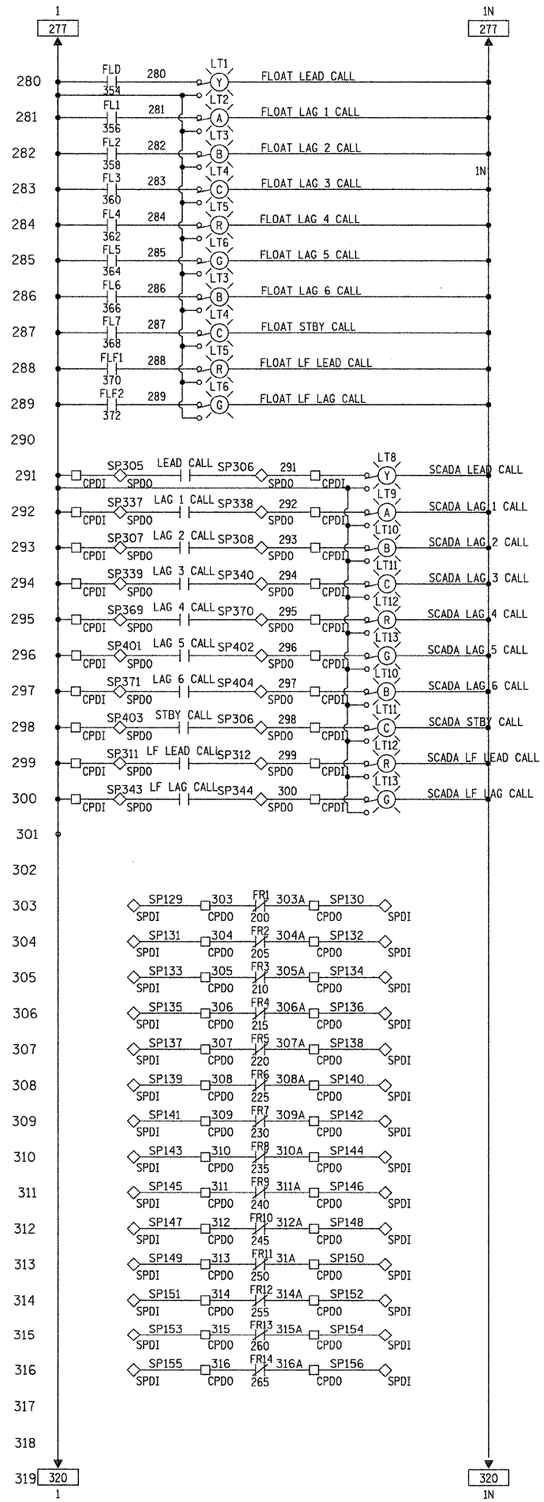
SCALE: N/A DRAWN BY: MS

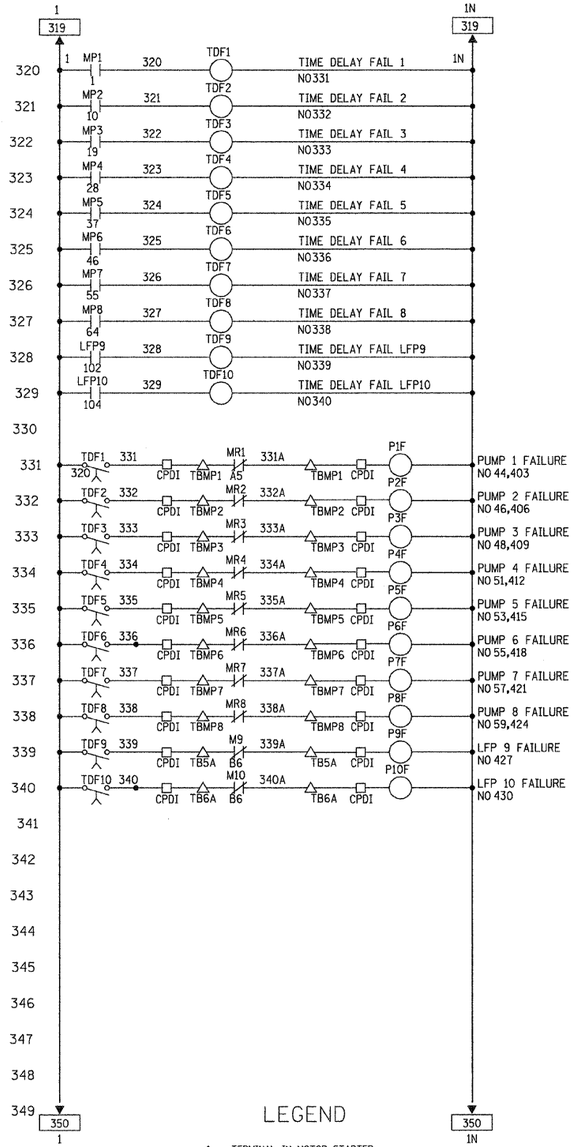
DATE: 04-23-10 CHECKED BY: MS

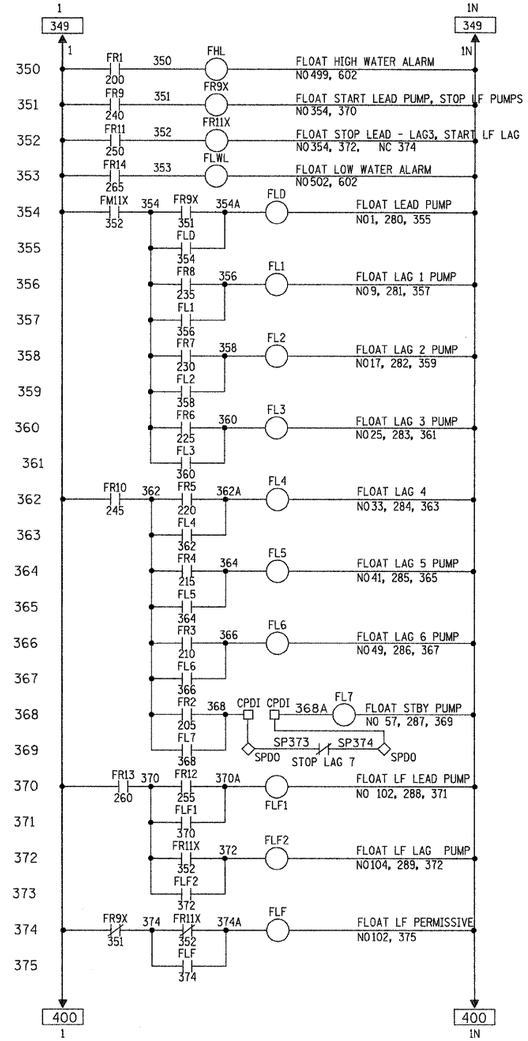
DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	41
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		









LEGEND

- △ TERMINAL IN MOTOR STARTER
- □ TERMINAL IN CONTROL PANEL
- ◇ TERMINAL IN SCADA PANEL
- ▲ DEVICE LOCATED ON STARTER DOOR
- ● DEVICE LOCALLY MTD
- ■ DEVICE IN CONTROL PANEL
- ◆ DEVICE IN SCADA PANEL

DONOHUE & ASSOCIATES

E10

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

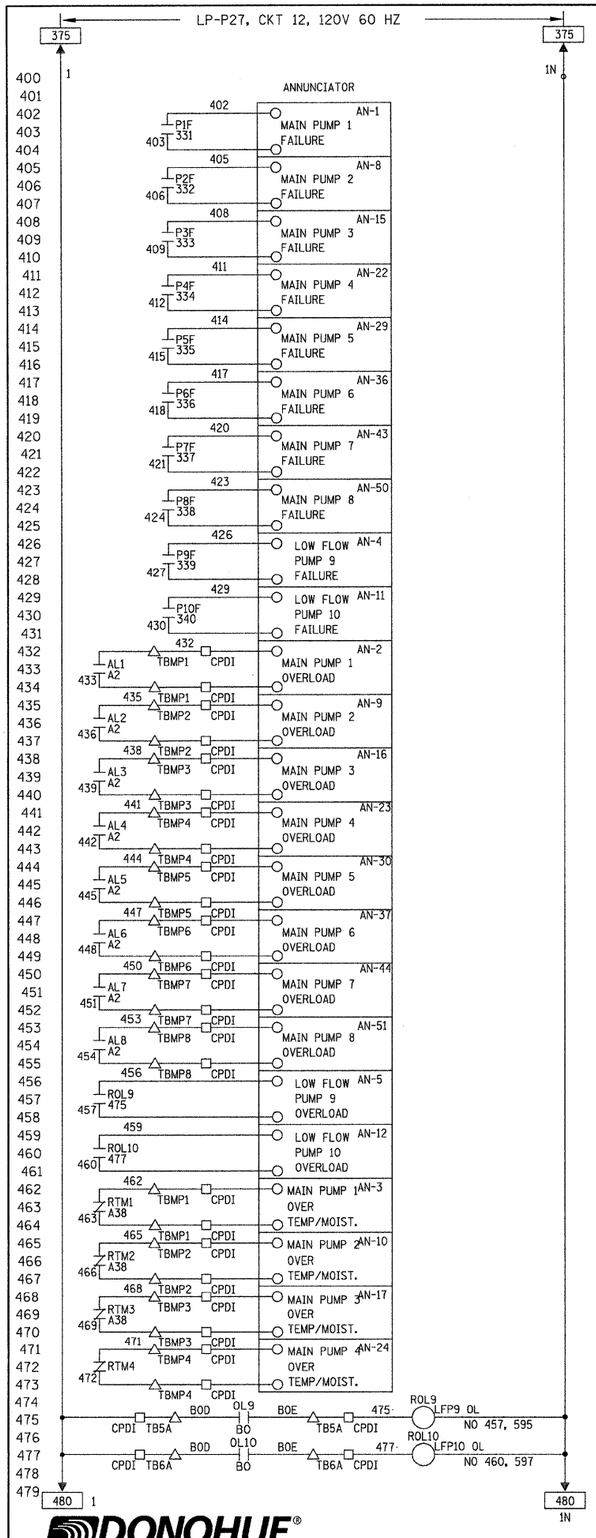
PUMP STATION NO. 27 REHABILITATION

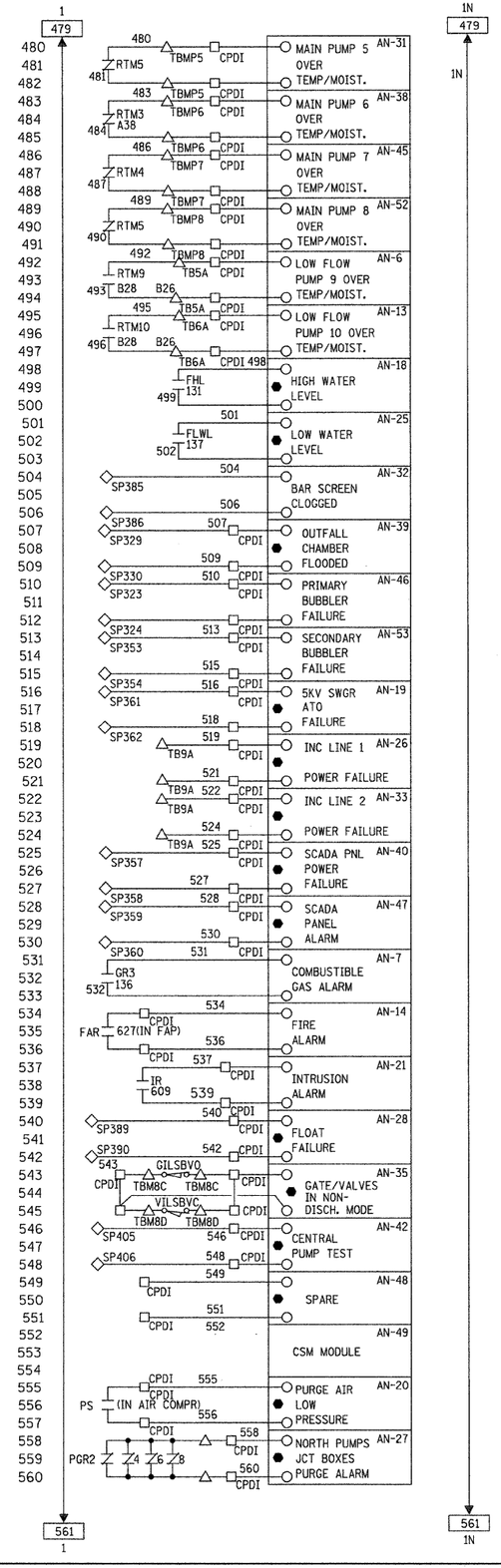
CONTROL PANEL SCHEMATIC SH. 2

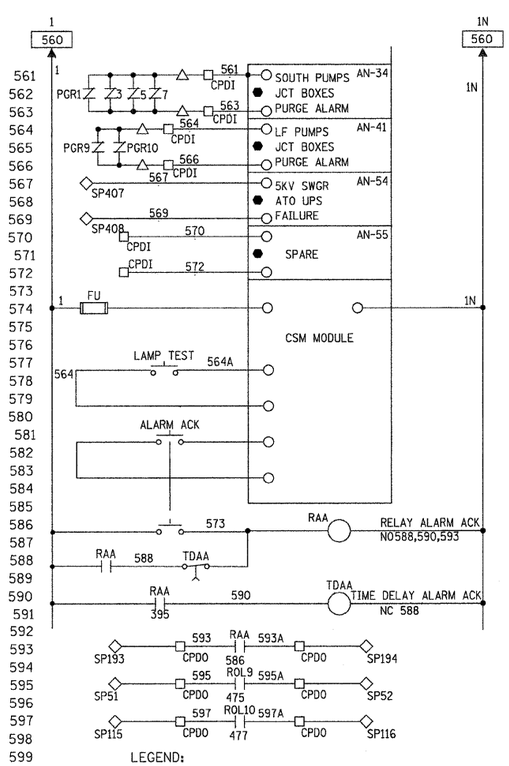
SCALE: N/A DRAWN BY: MS

DATE: 04-23-10 CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	42
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

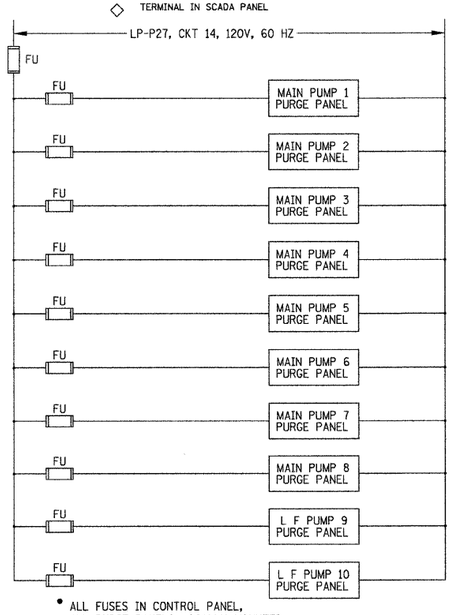






LEGEND:

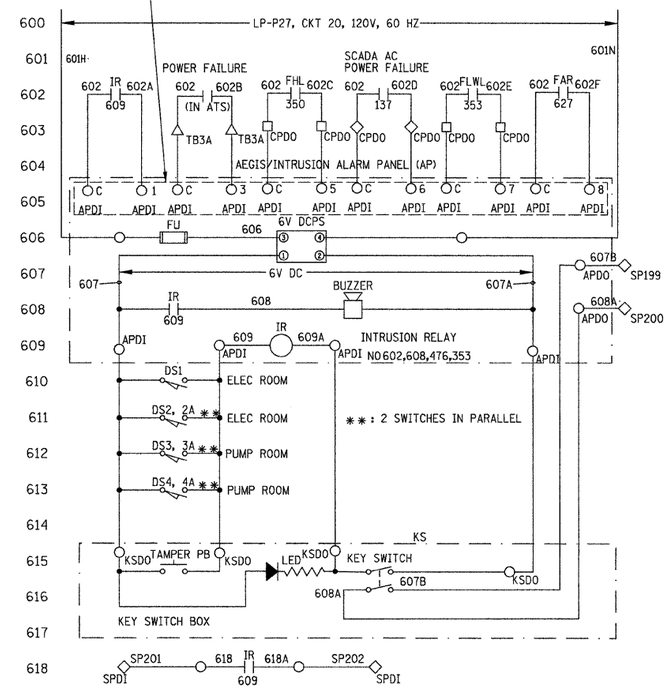
- ● NON LOCK-IN TYPE ANNUNCIATOR POINT. ALL ANNUNCIATOR POINTS SHALL BE SET AS LOCK-IN TYPE UNLESS OTHERWISE INDICATED AS NON LOCK-IN TYPE.
- △ TERMINAL IN MOTOR STARTER
- □ TERMINAL IN CONTROL PANEL
- ◇ TERMINAL IN SCADA PANEL



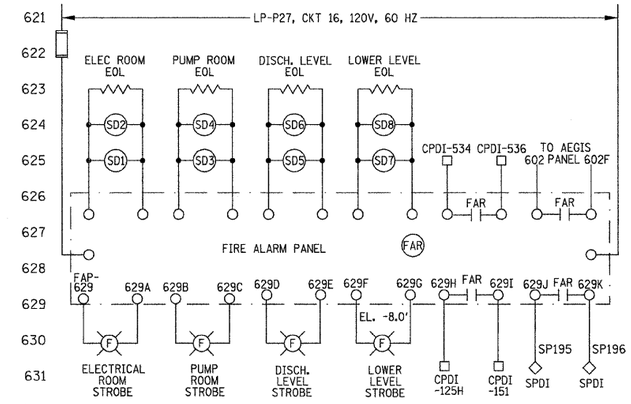
● ALL FUSES IN CONTROL PANEL, ALL PURGE PANELS LOCALLY MOUNTED.

PURGE PANELS

RELOCATE EXISTING ALARM DIALER AND RELAY BOARD FROM EXISTING AEGIS UNIT



AEGIS/INTRUSION ALARM CIRCUIT



FIRE ALARM CIRCUIT

E11

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27 REHABILITATION

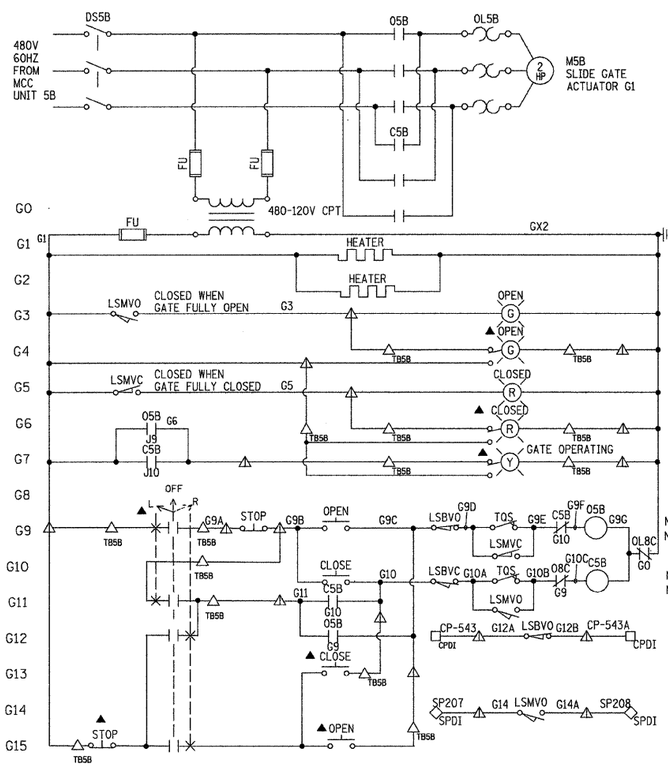
CONTROL PANEL SCHEMATIC SH, 3

SCALE: N/A DRAWN BY: MS

DATE: 04-23-10 CHECKED BY: MS

DONOHUE & ASSOCIATES

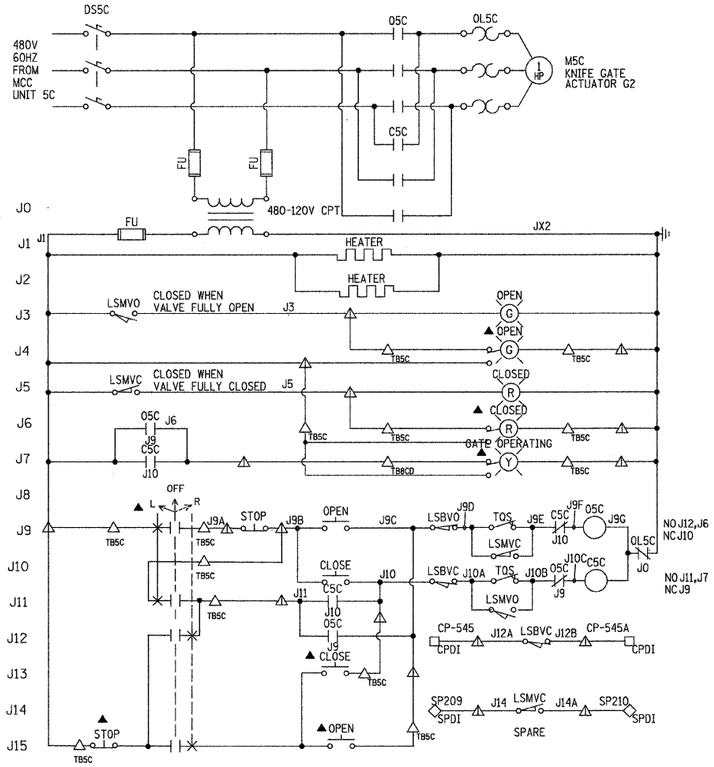
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	43
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		



VALVE FULLY OPEN = DISCHARGE MODE
VALVE NOT FULLY OPEN = NON-DISCHARGE MODE

▲ : DEVICE LOCATED IN MCC FEEDER UNIT DOOR
ALL DEVICES LOCATED IN THE VALVE ACTUATOR
UNLESS OTHERWISE NOTED

SLIDE GATE ACTUATOR G1



VALVE FULLY CLOSED = DISCHARGE MODE
VALVE NOT FULLY CLOSED = NON-DISCHARGE MODE

KNIFE GATE ACTUATOR G2

NOTE: ALL DEVICES MOUNTED IN MOTOR STARTER
UNLESS OTHERWISE NOTED

LEGEND:

- LSBVC : LIMIT SWITCH CONTACT BREAKS WHEN GATE IS FULLY CLOSED.
- LSBVO : LIMIT SWITCH CONTACT BREAKS WHEN GATE IS FULLY OPEN.
- LSMVO : LIMIT SWITCH CONTACT MAKES WHEN GATE IS FULLY OPEN.
- LSMVC : LIMIT SWITCH CONTACT MAKES WHEN GATE IS FULLY CLOSED.
- △ : TERMINAL LOCATED IN MCC STARTER OR FEEDER UNIT
- ⚠ : TERMINAL LOCATED IN LOCAL MOTOR STARTER
- □ : TERMINAL LOCATED IN CONTROL PANEL
- ◇ : TERMINAL LOCATED IN SCADA PANEL
- ✳ : DEVICE LOCALLY MOUNTED
- ▲ : DEVICE LOCATED IN MCC FEEDER UNIT DOOR

ALL DEVICES LOCATED IN THE VALVE ACTUATOR
UNLESS OTHERWISE NOTED

LINE NUMBER & WIRE NUMBER PREFIX		
EQUIPMENT	PREFIX SHOWN ON DRAWING	PREFIX TO BE ASSIGNED
DISCHARGE SLIDE GATE G1	G	M5B
RECIRCULATION SLIDE GATE G2	J	M5C

E12

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

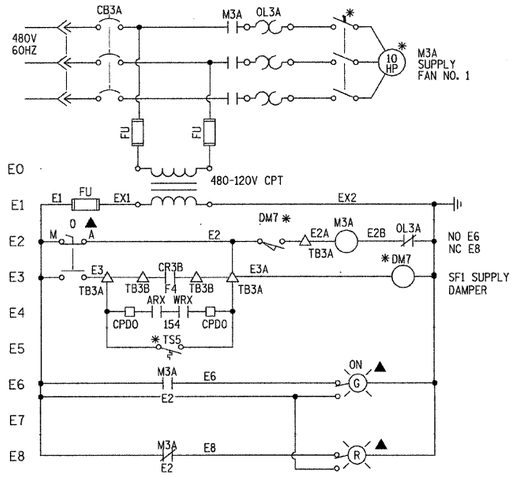
PUMP STATION NO. 27
REHABILITATION

ELECTRIC VALVE ACTUATORS
CONTROL SCHEMATIC

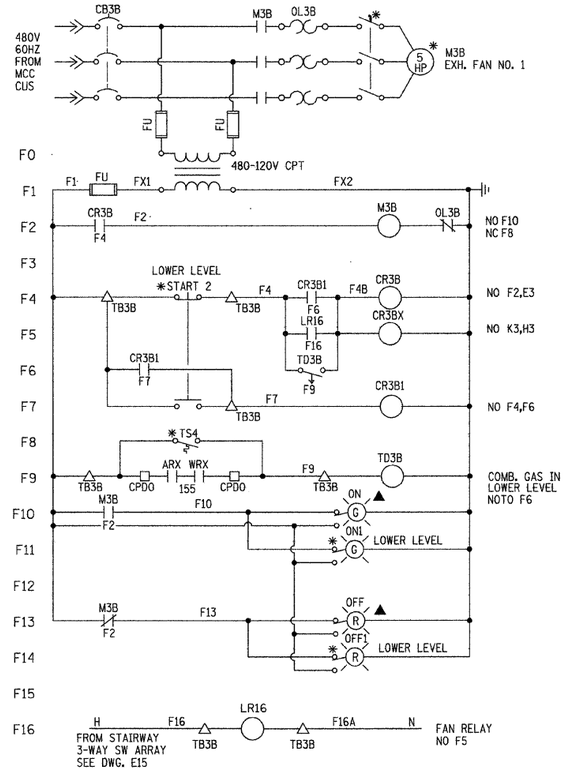
SCALE: AS SHOWN - N/A(Y) DRAWN BY: MS
DATE: 04-23-10 CHECKED BY: MS

DONOHUE & ASSOCIATES

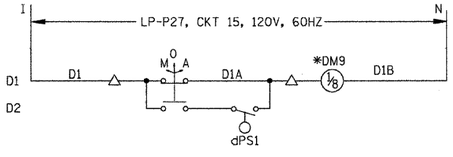
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	44
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		



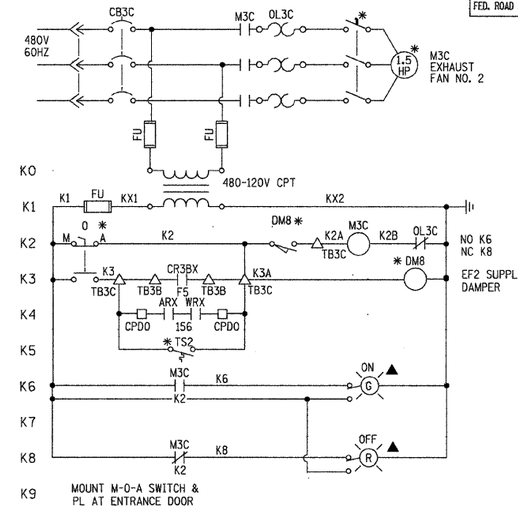
LOWER LEVEL SUPPLY FAN SF1



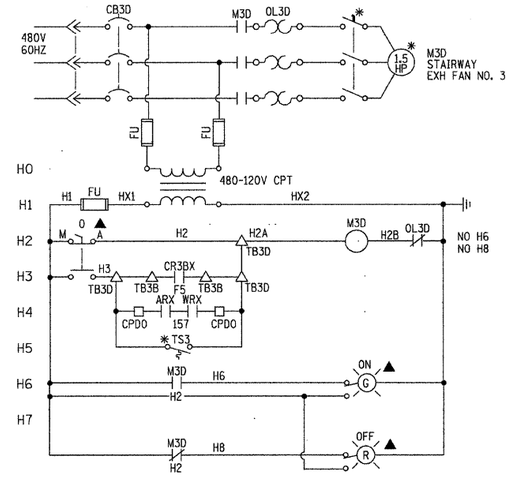
LOWER LEVEL EXHAUST FAN EF1



PUMP ROOM SUPPLY DAMPER DM9



PUMP ROOM EXH FAN EF2



STAIRWAY EXHAUST FAN EF3

LINE NUMBER & WIRE NUMBER PREFIX		
EQUIPMENT	PREFIX SHOWN ON DRAWING	PREFIX TO BE ASSIGNED
SUPPLY FAN SF1	E	M3A
EXHAUST FAN EF1	F	M3C
EXHAUST FAN EF2	E	M3C
EXHAUST FAN EF3	H	M3D
EXHAUST FAN EF4	L	M4A

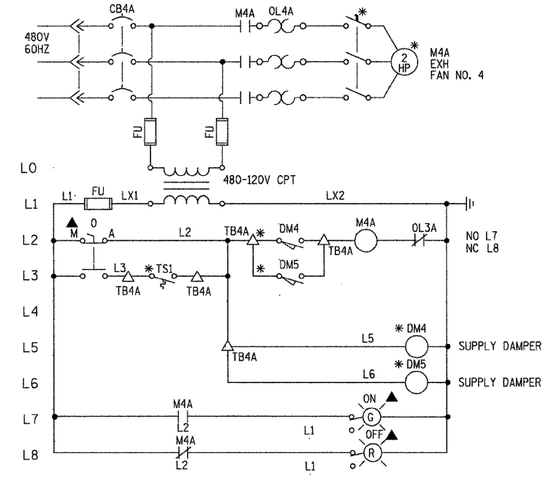
LEGEND:

△ : TERMINAL LOCATED IN MOTOR STARTER
□ : TERMINAL LOCATED IN CONTROL PANEL
◇ : TERMINAL LOCATED IN SCADA PANEL
▲ : DEVICE LOCATED ON MOTOR STARTER DOOR

* : LOCALLY MOUNTED
ALL DEVICES MOUNTED AT MOTOR STARTER UNLESS OTHERWISE NOTED

GENERAL NOTE:

SEE DRAWING M8 FOR HVAC SCHEDULES AND OPERATING SEQUENCES.



ELECTRICAL ROOM EXH FAN EF4

DONOHUE & ASSOCIATES

E13

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27
REHABILITATION

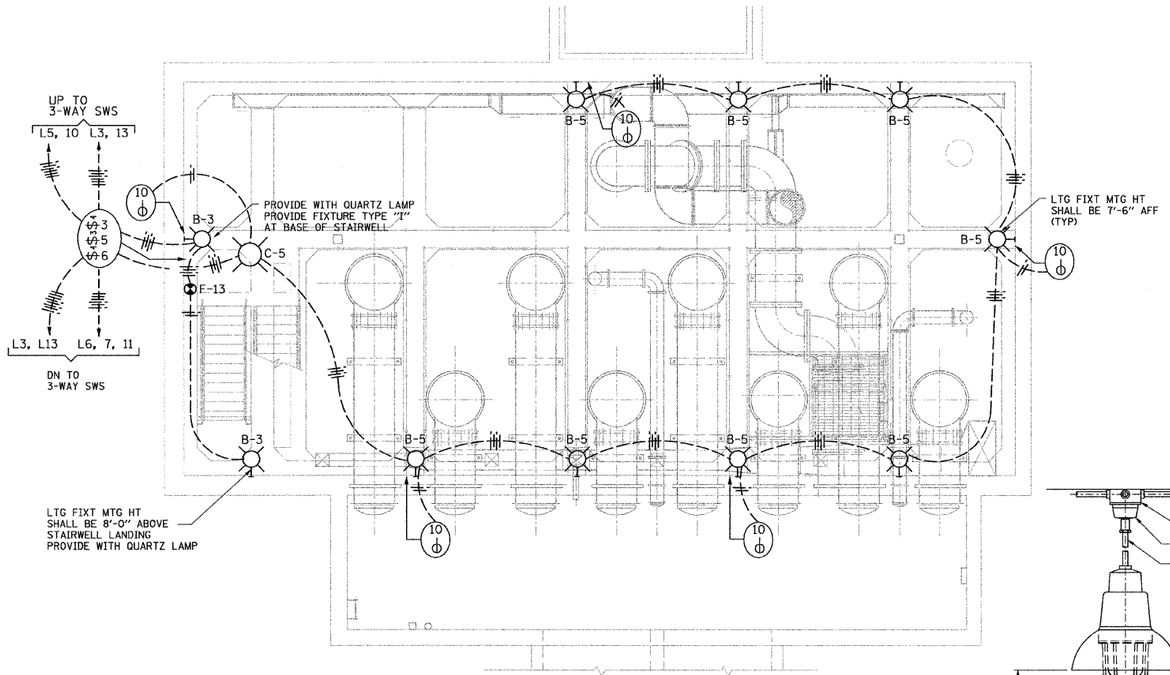
MISCELLANEOUS
CONTROL SCHEMATICS

SCALE: N/A
DRAWN BY: LMJ
DATE: 04-23-10
CHECKED BY: KCC

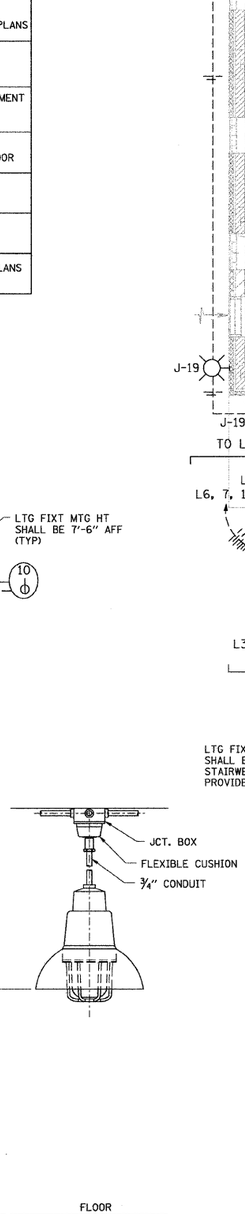
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	45
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

LIGHTING FIXTURE SCHEDULE

TYPE	LAMPS	MOUNTING	DESCRIPTION
A	2 F32T8	PENDANT	LITHONIA LTG. FIXT. MOUNT AS INDICATED ON PLANS CAT. NO. DMW-2-32-120-GEB10IS OR APPROVED EQUAL
B	1 175W/MH	WALL	APPLETON PULSE START EXPLOSION-PROOF CLASS 1 DIV 1 LTG. FIXT. CAT. NO. CPB7715-MT-CMR-4AN OR APPROVED EQUAL MOUNT AS INDICATED ON PLANS PROVIDE WITH QUARTZ LAMP WHERE INDICATED
C	1 175W/MH	PENDANT	APPLETON PULSE START EXPLOSION-PROOF CLASS 1 DIV 1 LTG. FIXT. CAT. NO. CPP1715OMT-CMR-4ST W/ QUARTZ LAMP OR APPROVED EQUAL MOUNT AS INDICATED ON PLANS
D	1 175W/MH	PENDANT	APPLETON PULSE START EXPLOSION-PROOF CLASS 1 DIV 1 LTG. FIXT. CAT NO. CPP17150MT-CMR-4ST OR APPROVED EQUAL MOUNT AS INDICATED ON PLANS
E	1 400W/MH/M59	WALL	APPLETON CODEMASTER 2 SERIES PULSE START EXPLOSION-PROOF AND MARINE TYPE FLOODLIGHT W/30" FLEXIBLE CONNECTION CAT. NO. CFP400CA-MT OR APPROVED EQUAL MOUNT AS INDICATED ON PLANS
F	1 WITH UNIT	WALL	LITHONIA EXIT LIGHT WITH LED LAMPS SUITABLE FOR CLASS 1 DIV 1 ENVIRONMENT CAT. NO. D-S-W-1-R-20 OR APPROVED EQUAL MOUNTED ABOVE DOOR UNLESS OTHERWISE NOTED
G	1 WITH UNIT	WALL	LITHONIA EXIT LIGHT WITH LED LAMPS AND RED LETTERS/WHITE HOUSING CAT. NO. LQM-S-W-3-R-120/277-EL N OR APPROVED EQUAL MOUNTED ABOVE DOOR
H	2 WITH UNIT	WALL	LITHONIA EMERGENCY BATTERY LIGHT WITH TWO UNIT MOUNTED LAMPS HEADS CAT. NO.ETL125 OR APPROVED EQUAL MOUNTED 8'-0" AFF
I	2 WITH UNIT	WALL	LITHONIA EMERGENCY BATTERY LIGHT WITH TWO UNIT MOUNTED LAMP HEADS SUITABLE FOR CLASS 1 DIV ENVIRONMENT CAT. NO. ZX685-ELA-ZX-HI212-WM OR APPROVED EQUAL MOUNTED 8'-0" AFF
J	1 175W/MH	WALL	LITHONIA PULSE START METAL HALIDE WALL PACK MOUNT AS INDICATED ON PLANS CAT. NO. TWP-175M-120-SCWA-LP1 OR APPROVED EQUAL

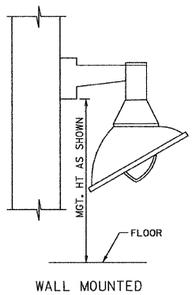


PLAN @ EL. -8.5'



TYPICAL PENDANT FIXTURE MOUNTING

(NOT TO SCALE)



WALL MOUNTED

TYPICAL WALL FIXTURE MOUNTING

(NOT TO SCALE)

PLAN @ EL. 9.5'

GENERAL NOTES:

1. ALL ELECTRICAL INSTALLATION IN THE PUMP STATION INCLUDING SUPERSTRUCTURE, TRASH CHAMBER, LOWER LEVELS AND STAIRWAYS EXPOSED TO THE WET PIT ATMOSPHERE, SHALL MEET THE REQUIREMENTS OF NEC HAZARDOUS LOCATION - CLASS 1, DIVISION 1, GROUP D: THOSE IN THE ELECTRICAL CONTROL ROOM SHALL BE NON-HAZARDOUS.
2. CONDUIT SHOWN ON BUILDING EXTERIOR SHALL BE ROUTED AS CONCEALED TYPE. THE WALL MOUNTED FIXTURES SHALL HAVE RECESSED TYPE JUNCTION BOXES.
3. FIXTURE TYPE "A" IN ELECTRICAL CONTROL ROOM SHALL BE MOUNTED 10'-0" AFF (TYP)
4. FIXTURE TYPES "C" AND "D" IN PUMP ROOM SHALL BE MOUNTED 10'-0" AFF (TYP)
5. CONTRACTOR IS RESPONSIBLE FOR COORDINATING CONDUIT LOCATIONS WITH OTHER DISCIPLINES.
6. CONTRACTOR IS RESPONSIBLE FOR VERIFYING CONDUIT AND CONDUCTOR SIZES AND QUANTITY PRIOR TO INSTALLATION.
7. ALL FLOOR & WALL PENETRATIONS SHALL BE CORE DRILLED & SEALED WITH NON-SHRINK GROUT.
8. ALL CONDUIT AND PIPE PENETRATIONS, THROUGH WALL AND/OR FLOOR SLAB, BETWEEN HAZARDOUS AND/OR NON-HAZARDOUS AREAS SHALL BE GROUTED GAS TIGHT.

DONOHUE & ASSOCIATES

E14

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27
REHABILITATION

LIGHTING PLANS SH. 1

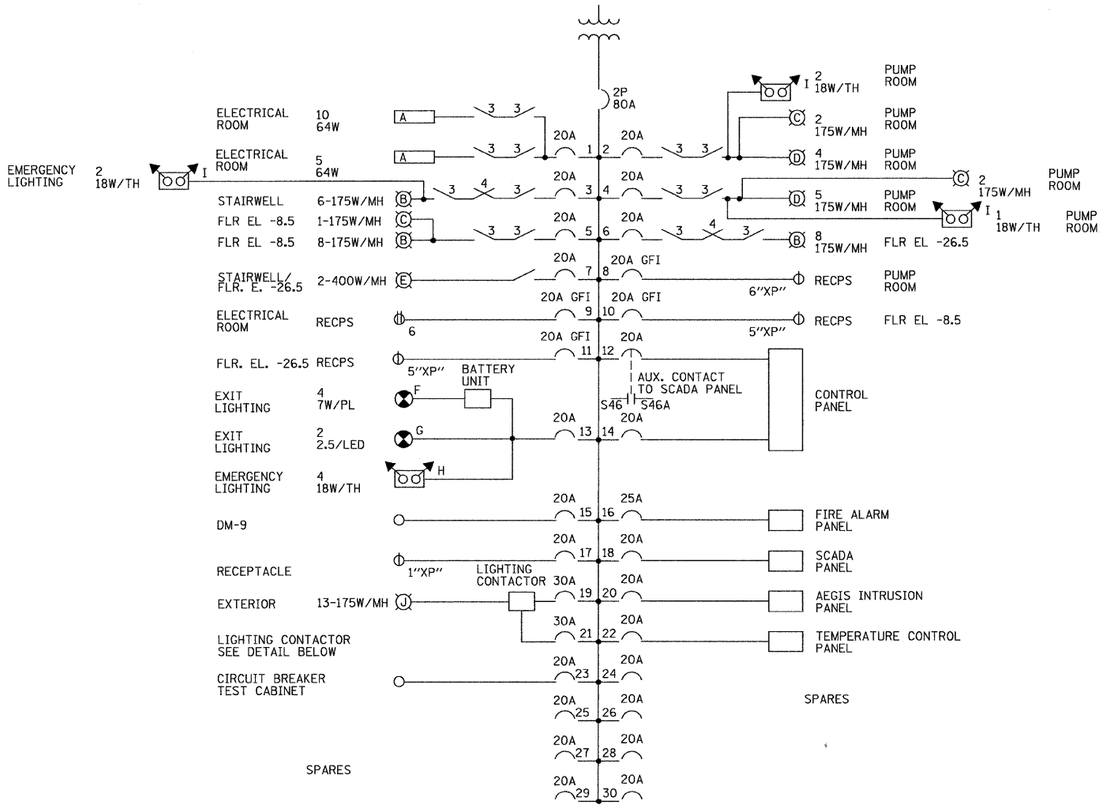
SCALE: AS SHOWN DRAWN BY: MS

DATE: 04-23-10 CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	46
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

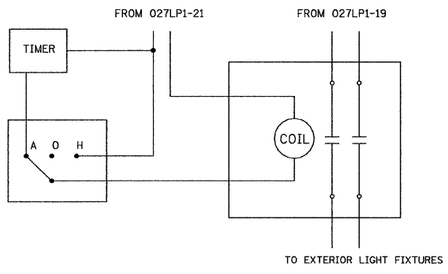
GENERAL NOTES:

1. ALL ELECTRICAL INSTALLATION IN THE PUMP STATION INCLUDING SUPERSTRUCTURE, TRASH CHAMBER, LOWER LEVELS AND STAIRWAYS, SHALL MEET THE REQUIREMENTS OF NEC HAZARDOUS LOCATION CLASS 1, DIVISION 1, GROUP D: THOSE IN THE ELECTRICAL CONTROL ROOM SHALL BE NON-HAZARDOUS.
2. ALL CONDUIT AND PIPE PENETRATIONS, THROUGH WALL AND/OR FLOOR SLAB, BETWEEN HAZARDOUS AND/OR NON-HAZARDOUS AREAS SHALL BE GROUTED GAS TIGHT.
3. ALL FLOOR & WALL PENETRATIONS SHALL BE CORE DRILLED & SEALED WITH NON-SHRINK GROUT.
4. CONTRACTOR IS RESPONSIBLE FOR COORDINATING CONDUIT LOCATIONS WITH OTHER DISCIPLINES.
5. CONTRACTOR IS RESPONSIBLE FOR VERIFYING CONDUIT AND CONDUCTOR SIZES AND QUANTITY PRIOR TO INSTALLATION.



LIGHTING PANEL 27 (LP-27)

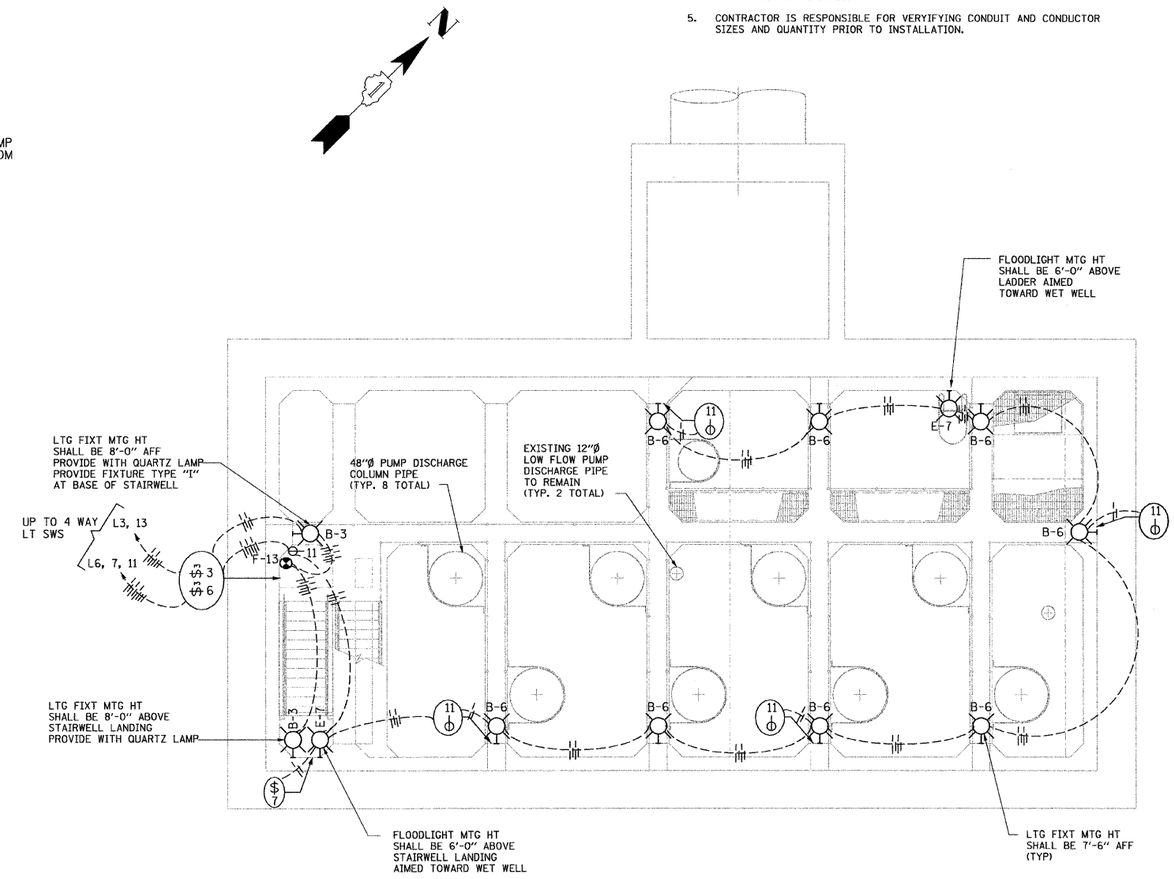
120/240V, 1ø, 3W, 80A MB, S/N
ALL BRKRS 1P, UNLESS OTHERWISE NOTED



NOTE: NEMA 1 CONTACTOR WITH H-O-A SWITCH ON OUTER ENCLOSURE

LIGHTING CONTACTOR AND TIMER WIRING DIAGRAM

NOT TO SCALE



PLAN @ EL. -26.5'

SCALE: 0 4 8 12

E15

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

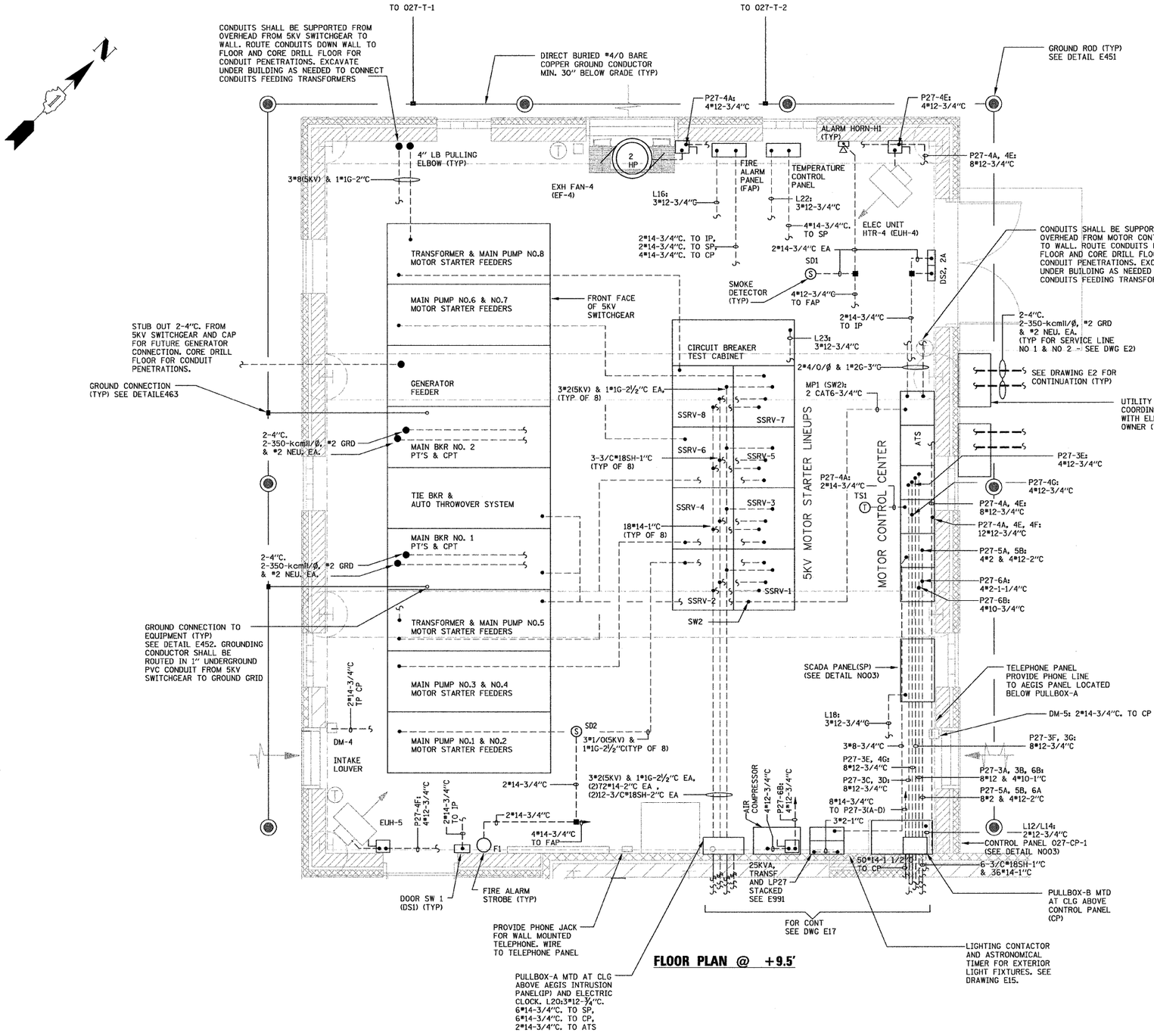
PUMP STATION NO. 27 REHABILITATION

LIGHTING PLANS SH. 2

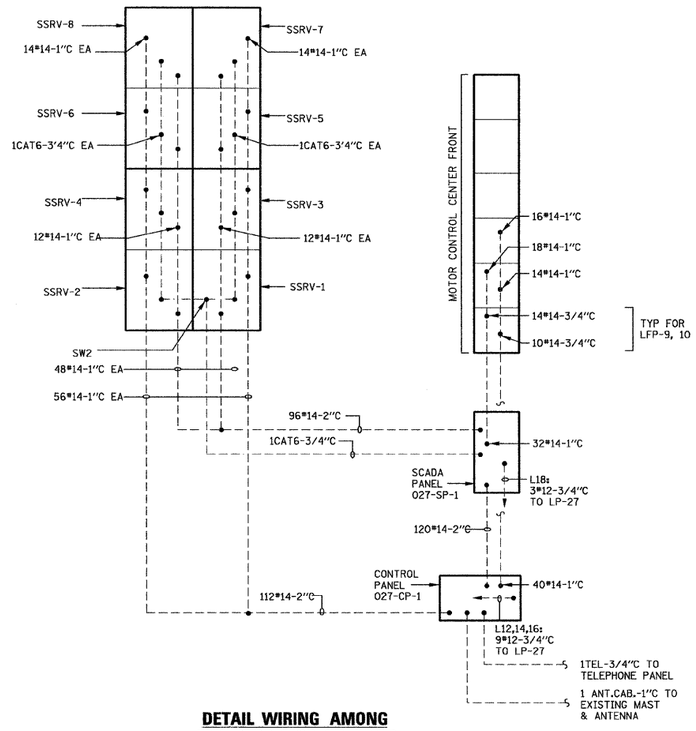
SCALE: AS SHOWN
DATE: 04-23-10
DRAWN BY: MS
CHECKED BY: MS

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	47
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



FLOOR PLAN @ +9.5'



DETAIL WIRING AMONG 5KV STRS, MCC, CP & SP

NOT TO SCALE

GENERAL NOTES:

1. ALL ELECTRICAL INSTALLATION IN THE PUMP STATION INCLUDING SUPERSTRUCTURE, TRASH CHAMBER, LOWER EVELS AND STAIRWAYS, SHALL MEET THE REQUIREMENTS OF NEC HAZARDOUS LOCATION CLASS 1, DIVISION 1, GROUP D; THOSE IN THE ELECTRICAL CONTROL ROOM SHALL BE NON-HAZARDOUS.
2. ALL CONTROL CABLES SHALL BE AWG NO. 14 STRANDED, UNLESS OTHERWISE NOTED.
3. ALL CONDUIT AND PIPE PENETRATIONS, THROUGH WALL AND/OR FLOOR SLAB, BETWEEN HAZARDOUS AND/OR NON-HAZARDOUS AREAS SHALL BE GROUTED GAS TIGHT.
4. ALL FLOOR & WALL PENETRATIONS SHALL BE CORE DRILLED & SEALED WITH NON-SHRINK GROUT. DO NOT CUT REBARS AT ALL CONCRETE CORING LOCATIONS.
5. "2/C#18SH" REPRESENTS "2 CONDUCTOR #18 SHIELDED CABLE".
6. STUB OUT 1 ½" CONDUIT 5'-0" FROM BUILDING FOR TELEPHONE SERVICE ENTRANCE. EXTEND EXISTING TELEPHONE SERVICE TO NEW PANEL.
7. CORE DRILL BUILDING WALL FOR EXTERIOR CONDUITS, PATCH TO MATCH EXISTING. PROVIDE SEALANT AROUND CONDUITS.
8. CONTRACTOR IS RESPONSIBLE FOR COORDINATING CONDUIT LOCATIONS WITH OTHER DISCIPLINES.
9. CONTRACTOR IS RESPONSIBLE FOR VERYIFYING CONDUIT AND CONDUCTOR SIZES AND QUANTITY PRIOR TO INSTALLATION.
10. LIGHT SWITCHES AND RECEPTACLES IN ELECTRICAL ROOM SHALL BE FLUSH MOUNTED.
11. CONDUIT SHALL BE ROUTED TO UTILITY METERING CABINET AND CONTINUE BELOW EXISTING BUILDING FLOOR TO 5KV SWITCHGEAR LOCATION. CONDUITS SHALL ENTER BUILDING BELOW 5KV SWITCHGEAR. COORDINATE CONDUIT ENTRY WITH EQUIPMENT. CORE DRILL EXISTING FLOOR FOR CONDUIT PENETRATIONS AND EXCAVATE FROM THE SOUTH SIDE OF THE BUILDING TO UNDERNEATH THE 5KV SWITCHGEAR AS NEEDED TO CONNECT CONDUITS ROM METERING CABINETS TO CONDUITS FROM 5KV SWITCHGEAR. METERING CABINETS PROVIDED BY CONTRACTOR IN ACCORDANCE WITH ELECTRIC UTILITY.

SCALE: 0 4 8 12

E16

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27 REHABILITATION

ELECTRICAL POWER PLANS SH. 1

SCALE: AS SHOWN DRAWN BY: MS

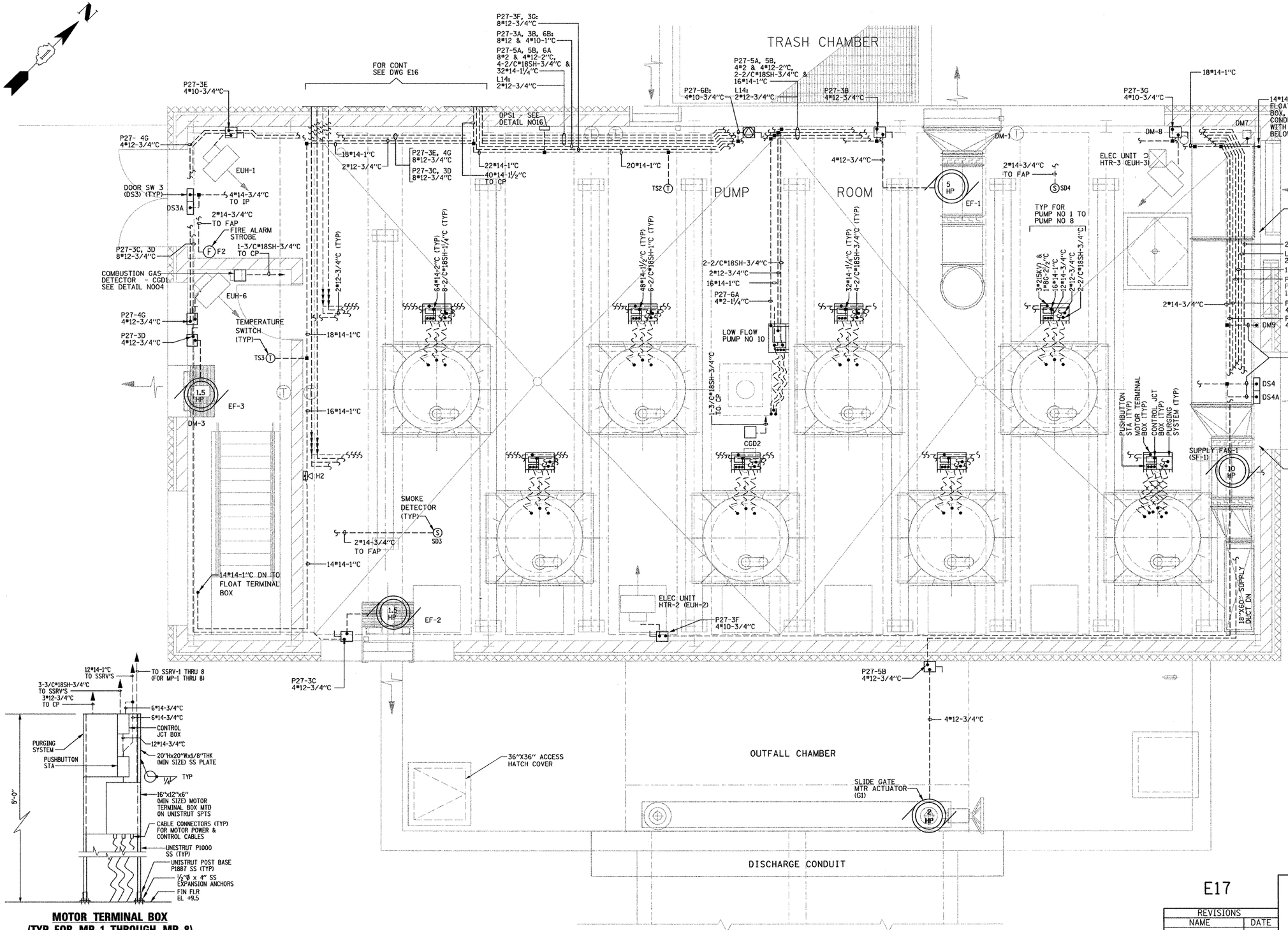
DATE: 04-23-10 CHECKED BY: MS

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	48
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

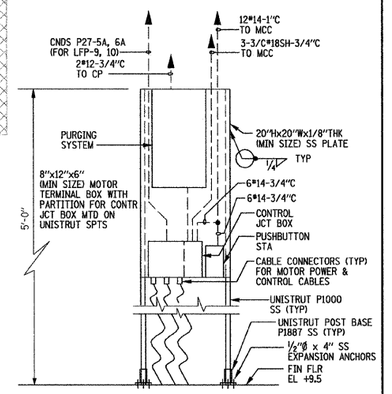
GENERAL NOTES:

1. ALL ELECTRICAL INSTALLATION IN THE PUMP STATION INCLUDING SUPERSTRUCTURE, TRASH CHAMBER, LOWER LEVELS AND STAIRWAYS,SHALL MEET THE REQUIREMENTS OF NEC HAZARDOUS LOCATION CLASS 1, DIVISION 1, GROUP D: THOSE IN THE ELECTRICAL CONTROL ROOM SHALLBE NON-HAZARDOUS.
2. ALL CONTROL CABLES SHALL BE AWG NO. 14 STRANDED, UNLESS OTHERWISE NOTED.
3. ALL CONDUIT AND PIPE PENETRATIONS, THROUGH WALL AND/OR FLOOR SLAB, BETWEEN HAZARDOUS AND/OR NON-HAZARDOUS AREAS SHALL BE GROUTED GAS TIGHT.
4. ALL FLOOR & WALL PENETRATIONS SHALL BE CORE DRILLED & SEALED WITH NON-SHRINK GROUT.
5. "2/C*18SH" REPRESENTS "2 CONDUCTOR *18 SHIELDED CABLE".
6. CORE DRILL BUILDING WALL FOR EXTERIOR CONDUITS, PATCH TO MATCH EXISTING. PROVIDE SEALANT AROUND CONDUITS.
7. CONTRACTOR IS RESPONSIBLE FOR COORDINATING CONDUIT LOCATIONS WITH OTHER DISCIPLINES.
8. CONTRACTOR IS RESPONSIBLE FOR VERIFYING CONDUIT AND CONDUCTOR SIZES AND QUANTITY PRIOR TO INSTALLATION.



MOTOR TERMINAL BOX (TYP. FOR MP-1, THROUGH MP-8)

NOT TO SCALE



MOTOR TERMINAL BOX (TYP. FOR LFP-9, LFP-10)

NOT TO SCALE

SCALE: 0 4 8 12

E17

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27 REHABILITATION

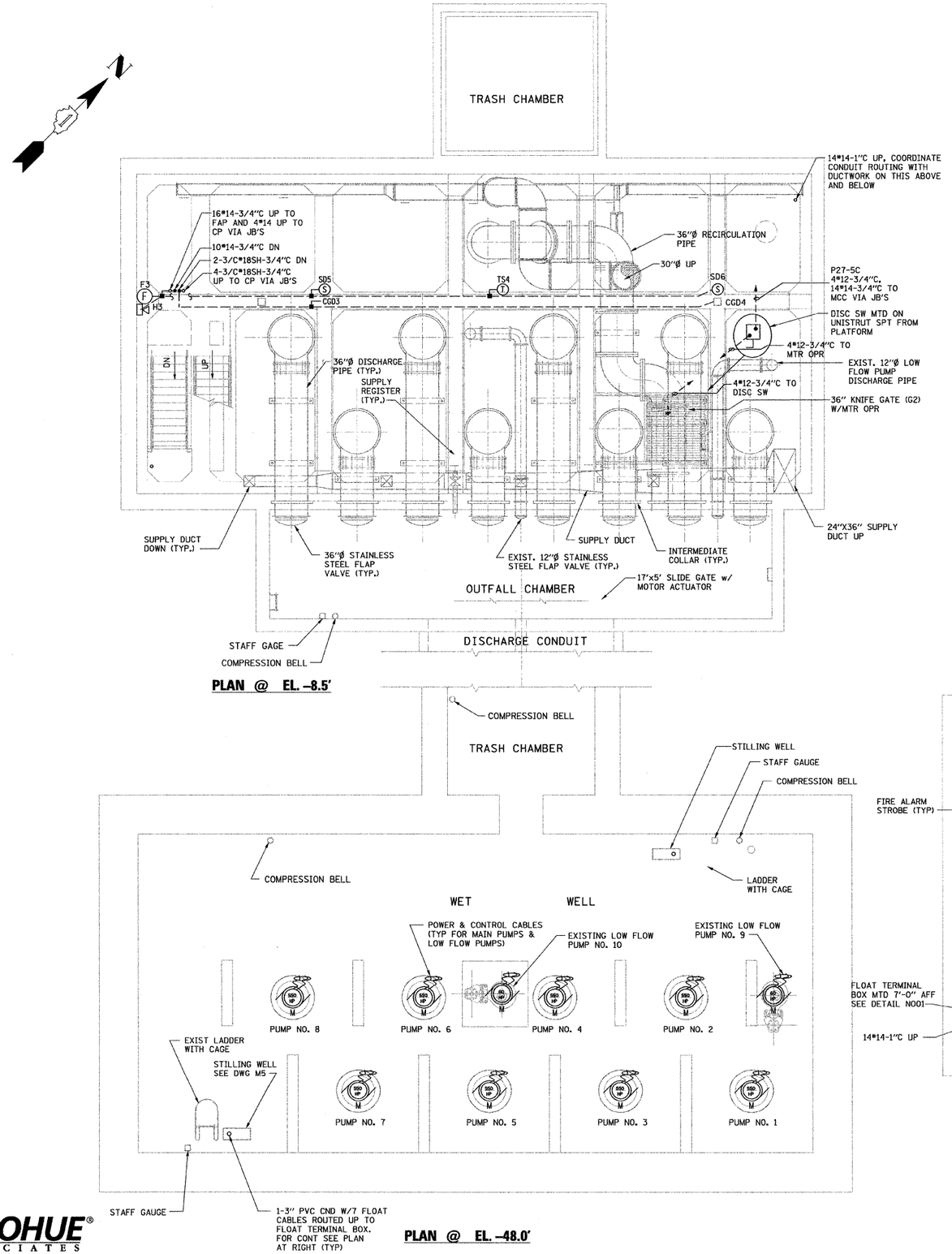
POWER PLANS SH. 2

SCALE: AS SHOWN DRAWN BY: MS

DATE: 04-23-10 CHECKED BY: MS

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	49
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

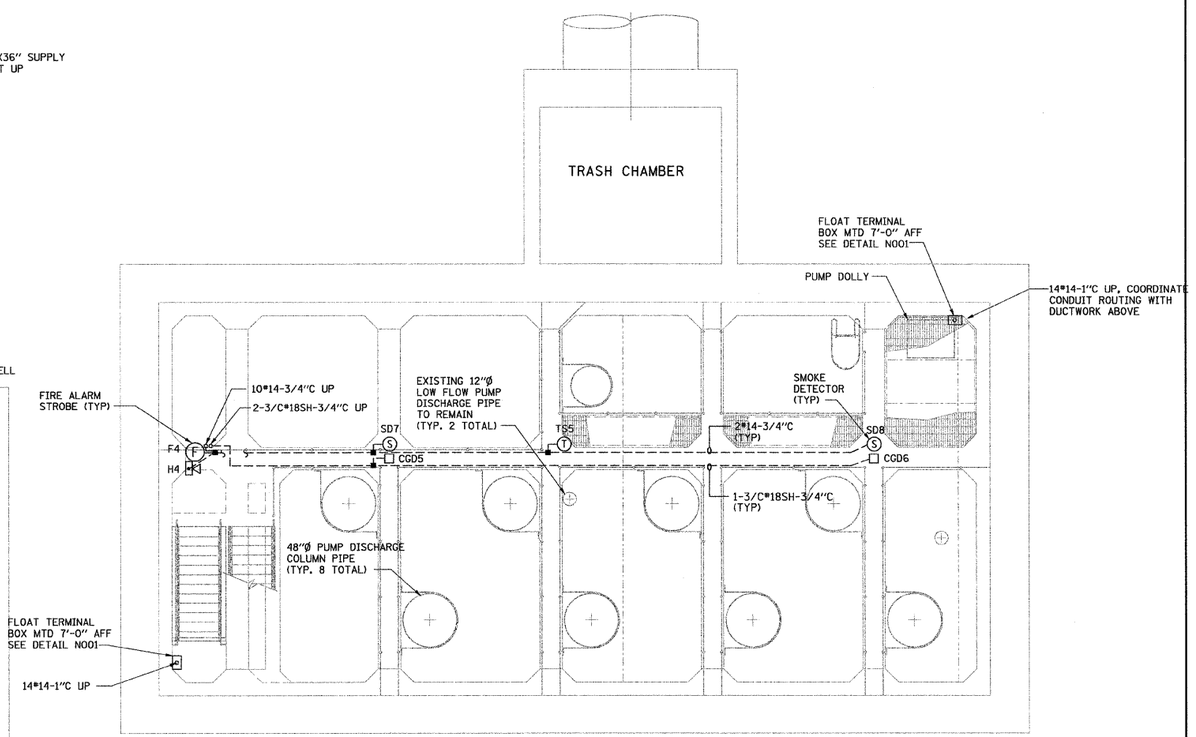


PLAN @ EL. -8.5'

PLAN @ EL. -48.0'

GENERAL NOTES:

1. ALL ELECTRICAL INSTALLATION IN THE PUMP STATION INCLUDING SUPERSTRUCTURE, TRASH CHAMBER, LOWER LEVELS AND STAIRWAYS, SHALL MEET THE REQUIREMENTS OF NEC HAZARDOUS LOCATION CLASS 1, DIVISION 1, GROUP D: THOSE IN THE ELECTRICAL CONTROL ROOM SHALL BE NON-HAZARDOUS.
2. ALL CONTROL CABLES SHALL BE AWG NO. 14 STRANDED, UNLESS OTHERWISE NOTED.
3. ALL CONDUIT AND PIPE PENETRATIONS, THROUGH WALL AND/OR FLOOR SLAB, BETWEEN HAZARDOUS AND/OR NON-HAZARDOUS AREAS SHALL BE GROUTED GAS TIGHT.
4. ALL FLOOR & WALL PENETRATIONS SHALL BE CORE DRILLED & SEALED WITH NON-SHRINK GROUT.
5. "2/C#18SH" REPRESENTS "2 CONDUCTOR #18 SHIELDED CABLE".
6. CONTRACTOR IS RESPONSIBLE FOR COORDINATING CONDUIT LOCATIONS WITH OTHER DISCIPLINES.
7. CONTRACTOR IS RESPONSIBLE FOR VERYIFYING CONDUIT AND CONDUCTOR SIZES AND QUANTITY PRIOR TO INSTALLATION.



PLAN @ EL. -26.5'

SCALE: 0 4 8 12

E18

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27
REHABILITATION

POWER PLANS SH. 3

SCALE: AS SHOWN
DATE: 04-23-10
DRAWN BY: MS
CHECKED BY: MS

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	50
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

MAIN PUMP 1 STARTER TERMINAL CONNECTIONS

TERMINAL NO.	WIRE NO.	INPUT ORIGINATION	DESCRIPTION OF INPUT
MP1-39	MP1-39	MP1 CONTROL JB	MOTOR MOISTURE SENSOR
MP1-40	MP1-40	MP1 CONTROL JB	MOTOR MOISTURE SENSOR
MP1-41	MP1-41	MP1 CONTROL JB	MOTOR TEMP SENSOR
MP1-42	MP1-42	MP1 CONTROL JB	MOTOR TEMP SENSOR
MP1-43	M4A-43	MP1 CONTROL JB	BEARING TEMP SENSOR
MP1-44	MP1-44	MP1 CONTROL JB	BEARING TEMP SENSOR
MP1-6	MP1-6	MP1 PURGE PANEL	SAFETY INTERLOCK
MP1-20	MP1-20	MP1 PURGE PANEL	SAFETY INTERLOCK
MP1-7	MP1-7	MP1 LOCAL PB STATION	START PUSH BUTTON
MP1-10	MP1-10	MP1 LOCAL PB STATION	START PUSH BUTTON
MP1-12	MP1-12	MP1 LOCAL PB STATION	STOP PUSH BUTTON
MP1-12A	MP1-12A	MP1 LOCAL PB STATION	STOP PUSH BUTTON
MP1-18	MP1-18	MP1 LOCAL PB STATION	MOTOR BUMP BUTTON
MP1-10	MP1-10	MP1 LOCAL PB STATION	MOTOR BUMP BUTTON
MP1-7	MP1-7	CP-DO-4A	FLOAT PUMP CALL
MP1-14	MP1-14	CP-DO-4B	FLOAT PUMP CALL
MP1-7	MP1-7	SP301	SCADA PUMP CALL
MP1-14	MP1-14	SP302	SCADA PUMP CALL

TERMINAL NO.	WIRE NO.	OUTPUT DESTINATION	DESCRIPTION OF OUTPUT
MP1-7	MP1-7	MP1 LOCAL PB STATION	PUMP CALL LIGHT
MP1-X2	MP1-X2	MP1 LOCAL PB STATION	PUMP CALL LIGHT
MP1-6	MP1-6	MP1 LOCAL PB STATION	PUMP CALL LIGHT
MP1-24	MP1-24	MP1 LOCAL PB STATION	PUMP RUN LIGHT
MP1-X2	MP1-X2	MP1 LOCAL PB STATION	PUMP RUN LIGHT
MP1-6	MP1-6	MP1 LOCAL PB STATION	PUMP RUN LIGHT
MP1-4	CP-1	CP-DI-1	PUMP NOT RUNNING
MP1-4A	CP-96	CP-DI-96	PUMP NOT RUNNING
MP1-5B	CP-331	CP-DI-331	PUMP NOT RUNNING
MP1-5C	CP-331A	CP-DI-331A	PUMP NOT RUNNING
MP1-2	CP-1	CP-DI-1	MOTOR OVERLOAD TRIP
MP1-2A	CP-57	CP-DI-57	MOTOR OVERLOAD TRIP
MP1-2B	CP-432	CP-DI-432	MOTOR OVERLOAD ALARM
MP1-2C	CP-433	CP-DI-433	MOTOR OVERLOAD ALARM
MP1-40A	CP-462	CP-DI-462	OVER TEMP/MOIST ALARM
MP1-40B	CP-463	CP-DI-463	OVER TEMP/MOIST ALARM
MP1-23B	CP-561	CP-DI-561	MOTOR JB PURGE ALARM
MP1-23C	CP-563	CP-DI-563	MOTOR JB PURGE ALARM
MP1-0	SP1	SP1	ISOLATION SW. OPEN
MP1-0A	SP2	SP2	ISOLATION SW. OPEN
MP1-1D	SP3	SP3	MOTOR RUNNING
MP1-1E	SP4	SP4	MOTOR RUNNING
MP1-16	SP5	SP5	PUMP CONTROL NOT IN AUTO
MP1-16A	SP6	SP6	PUMP CONTROL NOT IN AUTO
MP1-44A	SP7	SP7	OVER TEMP/MOIST ALARM
MP1-44B	SP8	SP8	OVER TEMP/MOIST ALARM
MP1-22	SP9	SP9	MOTOR JB PURGE ALARM
MP1-22A	SP10	SP10	MOTOR JB PURGE ALARM

MAIN PUMP 2 STARTER TERMINAL CONNECTIONS

TERMINAL NO.	WIRE NO.	INPUT ORIGINATION	DESCRIPTION OF INPUT
MP2-39	MP2-39	MP2 CONTROL JB	MOTOR MOISTURE SENSOR
MP2-40	MP2-40	MP2 CONTROL JB	MOTOR MOISTURE SENSOR
MP2-41	MP2-41	MP2 CONTROL JB	MOTOR TEMP SENSOR
MP2-42	MP2-42	MP2 CONTROL JB	MOTOR TEMP SENSOR
MP2-43	M4A-43	MP2 CONTROL JB	BEARING TEMP SENSOR
MP2-44	MP2-44	MP2 CONTROL JB	BEARING TEMP SENSOR
MP2-6	MP2-6	MP2 PURGE PANEL	SAFETY INTERLOCK
MP2-20	MP2-20	MP2 PURGE PANEL	SAFETY INTERLOCK
MP2-7	MP2-7	MP2 LOCAL PB STATION	START PUSH BUTTON
MP2-10	MP2-10	MP2 LOCAL PB STATION	START PUSH BUTTON
MP2-12	MP2-12	MP2 LOCAL PB STATION	STOP PUSH BUTTON
MP2-12A	MP2-12A	MP2 LOCAL PB STATION	STOP PUSH BUTTON
MP2-18	MP2-18	MP2 LOCAL PB STATION	MOTOR BUMP BUTTON
MP2-10	MP2-10	MP2 LOCAL PB STATION	MOTOR BUMP BUTTON
MP2-7	MP2-7	CP-DO-13	FLOAT PUMP CALL
MP2-14	MP2-14	CP-DO-13A	FLOAT PUMP CALL
MP2-7	MP2-7	SP333	SCADA PUMP CALL
MP2-14	MP2-14	SP334	SCADA PUMP CALL

TERMINAL NO.	WIRE NO.	OUTPUT DESTINATION	DESCRIPTION OF OUTPUT
MP2-7	MP2-7	MP2 LOCAL PB STATION	PUMP CALL LIGHT
MP2-X2	MP2-X2	MP2 LOCAL PB STATION	PUMP CALL LIGHT
MP2-6	MP2-6	MP2 LOCAL PB STATION	PUMP CALL LIGHT
MP2-24	MP2-24	MP2 LOCAL PB STATION	PUMP RUN LIGHT
MP2-X2	MP2-X2	MP2 LOCAL PB STATION	PUMP RUN LIGHT
MP2-6	MP2-6	MP2 LOCAL PB STATION	PUMP RUN LIGHT
MP2-4	CP-1	CP-DI-99	PUMP NOT RUNNING
MP2-4A	CP-49	CP-DI-99A	PUMP NOT RUNNING
MP2-5B	CP-331	CP-DI-332	PUMP NOT RUNNING
MP2-5C	CP-331A	CP-DI-332A	PUMP NOT RUNNING
MP2-2	CP-1	CP-DI-1	MOTOR OVERLOAD TRIP
MP2-2A	CP-57	CP-DI-57	MOTOR OVERLOAD TRIP
MP2-2B	CP-435	CP-DI-435	MOTOR OVERLOAD ALARM
MP2-2C	CP-436	CP-DI-436	MOTOR OVERLOAD ALARM
MP2-40A	CP-465	CP-DI-465	OVER TEMP/MOIST ALARM
MP2-40B	CP-466	CP-DI-466	OVER TEMP/MOIST ALARM
MP2-23B	CP-558	CP-DI-558	MOTOR JB PURGE ALARM
MP2-23C	CP-560	CP-DI-560	MOTOR JB PURGE ALARM
MP2-0	SP65	SP65	ISOLATION SW. OPEN
MP2-0A	SP66	SP66	ISOLATION SW. OPEN
MP2-1D	SP67	SP67	MOTOR RUNNING
MP2-1E	SP68	SP68	MOTOR RUNNING
MP2-16	SP69	SP69	PUMP CONTROL NOT IN AUTO
MP2-16A	SP70	SP70	PUMP CONTROL NOT IN AUTO
MP2-44A	SP71	SP71	OVER TEMP/MOIST ALARM
MP2-44B	SP72	SP72	OVER TEMP/MOIST ALARM
MP2-22	SP73	SP73	MOTOR JB PURGE ALARM
MP2-22A	SP106	SP106	MOTOR JB PURGE ALARM

MAIN PUMP 3 STARTER TERMINAL CONNECTIONS

TERMINAL NO.	WIRE NO.	INPUT ORIGINATION	DESCRIPTION OF INPUT
MP3-39	MP3-39	MP3 CONTROL JB	MOTOR MOISTURE SENSOR
MP3-40	MP3-40	MP3 CONTROL JB	MOTOR MOISTURE SENSOR
MP3-41	MP3-41	MP3 CONTROL JB	MOTOR TEMP SENSOR
MP3-42	MP3-42	MP3 CONTROL JB	MOTOR TEMP SENSOR
MP3-43	M4A-43	MP3 CONTROL JB	BEARING TEMP SENSOR
MP3-44	MP3-44	MP3 CONTROL JB	BEARING TEMP SENSOR
MP3-6	MP3-6	MP3 PURGE PANEL	SAFETY INTERLOCK
MP3-20	MP3-20	MP3 PURGE PANEL	SAFETY INTERLOCK
MP3-7	MP3-7	MP3 LOCAL PB STATION	START PUSH BUTTON
MP3-10	MP3-10	MP3 LOCAL PB STATION	START PUSH BUTTON
MP3-12	MP3-12	MP3 LOCAL PB STATION	STOP PUSH BUTTON
MP3-12A	MP3-12A	MP3 LOCAL PB STATION	STOP PUSH BUTTON
MP3-18	MP3-18	MP3 LOCAL PB STATION	MOTOR BUMP BUTTON
MP3-10	MP3-10	MP3 LOCAL PB STATION	MOTOR BUMP BUTTON
MP3-7	MP3-7	CP-DO-22	FLOAT PUMP CALL
MP3-14	MP3-14	CP-DO-22A	FLOAT PUMP CALL
MP3-7	MP3-7	SP303	SCADA PUMP CALL
MP3-14	MP3-14	SP304	SCADA PUMP CALL

TERMINAL NO.	WIRE NO.	OUTPUT DESTINATION	DESCRIPTION OF OUTPUT
MP3-7	MP3-7	MP3 LOCAL PB STATION	PUMP CALL LIGHT
MP3-X2	MP3-X2	MP3 LOCAL PB STATION	PUMP CALL LIGHT
MP3-6	MP3-6	MP3 LOCAL PB STATION	PUMP CALL LIGHT
MP3-24	MP3-24	MP3 LOCAL PB STATION	PUMP RUN LIGHT
MP3-X2	MP3-X2	MP3 LOCAL PB STATION	PUMP RUN LIGHT
MP3-6	MP3-6	MP3 LOCAL PB STATION	PUMP RUN LIGHT
MP3-4	CP-96	CP-DI-96	PUMP NOT RUNNING
MP3-4A	CP-96A	CP-DI-96A	PUMP NOT RUNNING
MP3-5B	CP-333	CP-DI-333	PUMP NOT RUNNING
MP3-5C	CP-333A	CP-DI-333A	PUMP NOT RUNNING
MP3-2	CP-1	CP-DI-1	MOTOR OVERLOAD TRIP
MP3-2A	CP-57	CP-DI-57	MOTOR OVERLOAD TRIP
MP3-2B	CP-438	CP-DI-438	MOTOR OVERLOAD ALARM
MP3-2C	CP-439	CP-DI-439	MOTOR OVERLOAD ALARM
MP3-40A	CP-468	CP-DI-468	OVER TEMP/MOIST ALARM
MP3-40B	CP-469	CP-DI-469	OVER TEMP/MOIST ALARM
MP3-23B	CP-561	CP-DI-561	MOTOR JB PURGE ALARM
MP3-23C	CP-563	CP-DI-563	MOTOR JB PURGE ALARM
MP3-0	SP11	SP11	ISOLATION SW. OPEN
MP3-0A	SP12	SP12	ISOLATION SW. OPEN
MP3-1D	SP13	SP13	MOTOR RUNNING
MP3-1E	SP14	SP14	MOTOR RUNNING
MP3-16	SP15	SP15	PUMP CONTROL NOT IN AUTO
MP3-16A	SP16	SP16	PUMP CONTROL NOT IN AUTO
MP3-44A	SP17	SP17	OVER TEMP/MOIST ALARM
MP3-44B	SP18	SP18	OVER TEMP/MOIST ALARM
MP3-22	SP19	SP19	MOTOR JB PURGE ALARM
MP3-22A	SP20	SP20	MOTOR JB PURGE ALARM

MAIN PUMP 4 STARTER TERMINAL CONNECTIONS

TERMINAL NO.	WIRE NO.	INPUT ORIGINATION	DESCRIPTION OF INPUT
MP4-39	MP4-39	MP4 CONTROL JB	MOTOR MOISTURE SENSOR
MP4-40	MP4-40	MP4 CONTROL JB	MOTOR MOISTURE SENSOR
MP4-41	MP4-41	MP4 CONTROL JB	MOTOR TEMP SENSOR
MP4-42	MP4-42	MP4 CONTROL JB	MOTOR TEMP SENSOR
MP4-43	M4A-43	MP4 CONTROL JB	BEARING TEMP SENSOR
MP4-44	MP4-44	MP4 CONTROL JB	BEARING TEMP SENSOR
MP4-6	MP4-6	MP4 PURGE PANEL	SAFETY INTERLOCK
MP4-20	MP4-20	MP4 PURGE PANEL	SAFETY INTERLOCK
MP4-7	MP4-7	MP4 LOCAL PB STATION	START PUSH BUTTON
MP4-10	MP4-10	MP4 LOCAL PB STATION	START PUSH BUTTON
MP4-12	MP4-12	MP4 LOCAL PB STATION	STOP PUSH BUTTON
MP4-12A	MP4-12A	MP4 LOCAL PB STATION	STOP PUSH BUTTON
MP4-18	MP4-18	MP4 LOCAL PB STATION	MOTOR BUMP BUTTON
MP4-10	MP4-10	MP4 LOCAL PB STATION	MOTOR BUMP BUTTON
MP4-7	MP4-7	CP-DO-31	FLOAT PUMP CALL
MP4-14	MP4-14	CP-DO-31A	FLOAT PUMP CALL
MP4-7	MP4-7	SP335	SCADA PUMP CALL
MP4-14	MP4-14	SP336	SCADA PUMP CALL

TERMINAL NO.	WIRE NO.	OUTPUT DESTINATION	DESCRIPTION OF OUTPUT
MP4-7	MP4-7	MP4 LOCAL PB STATION	PUMP CALL LIGHT
MP4-X2	MP4-X2	MP4 LOCAL PB STATION	PUMP CALL LIGHT
MP4-6	MP4-6	MP4 LOCAL PB STATION	PUMP CALL LIGHT
MP4-24	MP4-24	MP4 LOCAL PB STATION	PUMP RUN LIGHT
MP4-X2	MP4-X2	MP4 LOCAL PB STATION	PUMP RUN LIGHT
MP4-6	MP4-6	MP4 LOCAL PB STATION	PUMP RUN LIGHT
MP4-4	CP-1	CP-DI-99A	PUMP NOT RUNNING
MP4-4A	CP-49	CP-DI-99B	PUMP NOT RUNNING
MP4-5B	CP-331	CP-DI-334	PUMP NOT RUNNING
MP4-5C	CP-331A	CP-DI-334A	PUMP NOT RUNNING
MP4-2	CP-1	CP-DI-1	MOTOR OVERLOAD TRIP
MP4-2A	CP-57	CP-DI-57	MOTOR OVERLOAD TRIP
MP4-2B	CP-435	CP-DI-441	MOTOR OVERLOAD ALARM
MP4-2C	CP-436	CP-DI-442	MOTOR OVERLOAD ALARM
MP4-40A	CP-465	CP-DI-471	OVER TEMP/MOIST ALARM
MP4-40B	CP-466	CP-DI-472	OVER TEMP/MOIST ALARM
MP4-23B	CP-558	CP-DI-558	MOTOR JB PURGE ALARM
MP4-23C	CP-560	CP-DI-560	MOTOR JB PURGE ALARM
MP4-0	SP75	SP75	ISOLATION SW. OPEN
MP4-0A	SP76	SP76	ISOLATION SW. OPEN
MP4-1D	SP77	SP77	MOTOR RUNNING
MP4-1E	SP78	SP78	MOTOR RUNNING
MP4-16	SP79	SP79	PUMP CONTROL NOT IN AUTO
MP4-16A	SP80	SP80	PUMP CONTROL NOT IN AUTO
MP4-44A	SP81	SP81	OVER TEMP/MOIST ALARM
MP4-44B	SP82	SP82	OVER TEMP/MOIST ALARM
MP4-22	SP83	SP83	MOTOR JB PURGE ALARM
MP4-22A	SP84	SP84	MOTOR JB PURGE ALARM

DONOHUE & ASSOCIATES

E19

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27
REHABILITATION

PUMP MOTOR STARTER TERMINAL SCHEDULE SH. 1

SCALE: N/A DRAWN BY: MS

DATE: 04-23-10 CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	51
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

MAIN PUMP 5 STARTER TERMINAL CONNECTIONS

TERMINAL NO.	WIRE NO.	INPUT ORIGINATION	DESCRIPTION OF INPUT
MP5-39	MP5-39	MP5 CONTROL JB	MOTOR MOISTURE SENSOR
MP5-40	MP5-40	MP5 CONTROL JB	MOTOR MOISTURE SENSOR
MP5-41	MP5-41	MP5 CONTROL JB	MOTOR TEMP SENSOR
MP5-42	MP5-42	MP5 CONTROL JB	MOTOR TEMP SENSOR
MP5-43	M4A-43	MP5 CONTROL JB	BEARING TEMP SENSOR
MP5-44	MP5-44	MP5 CONTROL JB	BEARING TEMP SENSOR
MP5-6	MP5-6	MP5 PURGE PANEL	SAFETY INTERLOCK
MP5-20	MP5-20	MP5 PURGE PANEL	SAFETY INTERLOCK
MP5-7	MP5-7	MP5 LOCAL PB STATION	START PUSH BUTTON
MP5-10	MP5-10	MP5 LOCAL PB STATION	START PUSH BUTTON
MP5-12	MP5-12	MP5 LOCAL PB STATION	STOP PUSH BUTTON
MP5-12A	MP5-12A	MP5 LOCAL PB STATION	STOP PUSH BUTTON
MP5-18	MP5-18	MP5 LOCAL PB STATION	MOTOR BUMP BUTTON
MP5-10	MP5-10	MP5 LOCAL PB STATION	MOTOR BUMP BUTTON
MP5-7	MP5-7	CP-DO-40	FLOAT PUMP CALL
MP5-14	MP5-14	CP-DO-40A	FLOAT PUMP CALL
MP5-7	MP5-7	SP365	SCADA PUMP CALL
MP5-14	MP5-14	SP366	SCADA PUMP CALL

TERMINAL NO.	WIRE NO.	OUTPUT DESTINATION	DESCRIPTION OF OUTPUT
MP5-7	MP5-7	MP5 LOCAL PB STATION	PUMP CALL LIGHT
MP5-X2	MP5-X2	MP5 LOCAL PB STATION	PUMP CALL LIGHT
MP5-6	MP5-6	MP5 LOCAL PB STATION	PUMP CALL LIGHT
MP5-24	MP5-24	MP5 LOCAL PB STATION	PUMP RUN LIGHT
MP5-X2	MP5-X2	MP5 LOCAL PB STATION	PUMP RUN LIGHT
MP5-6	MP5-6	MP5 LOCAL PB STATION	PUMP RUN LIGHT
MP5-4	CP-96A	CP-DI-96A	PUMP NOT RUNNING
MP5-4A	CP-96B	CP-DI-96B	PUMP NOT RUNNING
MP5-5B	CP-335	CP-DI-335	PUMP NOT RUNNING
MP5-5C	CP-335A	CP-DI-335A	PUMP NOT RUNNING
MP5-2	CP-1	CP-DI-1	MOTOR OVERLOAD TRIP
MP5-2A	CP-57	CP-DI-57	MOTOR OVERLOAD TRIP
MP5-2B	CP-444	CP-DI-444	MOTOR OVERLOAD ALARM
MP5-2C	CP-445	CP-DI-445	MOTOR OVERLOAD ALARM
MP5-40A	CP-480	CP-DI-480	OVER TEMP/MOIST ALARM
MP5-40B	CP-481	CP-DI-481	OVER TEMP/MOIST ALARM
MP5-23B	CP-561	CP-DI-561	MOTOR JB PURGE ALARM
MP5-23C	CP-563	CP-DI-563	MOTOR JB PURGE ALARM
MP5-0	SP21	SP21	ISOLATION SW. OPEN
MP5-0A	SP22	SP22	ISOLATION SW. OPEN
MP5-1D	SP23	SP23	MOTOR RUNNING
MP5-1E	SP24	SP24	MOTOR RUNNING
MP5-16	SP25	SP25	PUMP CONTROL NOT IN AUTO
MP5-16A	SP26	SP26	PUMP CONTROL NOT IN AUTO
MP5-44A	SP27	SP27	OVER TEMP/MOIST ALARM
MP5-44B	SP28	SP28	OVER TEMP/MOIST ALARM
MP5-22	SP29	SP29	MOTOR JB PURGE ALARM
MP5-22A	SP30	SP30	MOTOR JB PURGE ALARM

MAIN PUMP 6 STARTER TERMINAL CONNECTIONS

TERMINAL NO.	WIRE NO.	INPUT ORIGINATION	DESCRIPTION OF INPUT
MP6-39	MP6-39	MP6 CONTROL JB	MOTOR MOISTURE SENSOR
MP6-40	MP6-40	MP6 CONTROL JB	MOTOR MOISTURE SENSOR
MP6-41	MP6-41	MP6 CONTROL JB	MOTOR TEMP SENSOR
MP6-42	MP6-42	MP6 CONTROL JB	MOTOR TEMP SENSOR
MP6-43	M4A-43	MP6 CONTROL JB	BEARING TEMP SENSOR
MP6-44	MP6-44	MP6 CONTROL JB	BEARING TEMP SENSOR
MP6-6	MP6-6	MP6 PURGE PANEL	SAFETY INTERLOCK
MP6-20	MP6-20	MP6 PURGE PANEL	SAFETY INTERLOCK
MP6-7	MP6-7	MP6 LOCAL PB STATION	START PUSH BUTTON
MP6-10	MP6-10	MP6 LOCAL PB STATION	START PUSH BUTTON
MP6-12	MP6-12	MP6 LOCAL PB STATION	STOP PUSH BUTTON
MP6-12A	MP6-12A	MP6 LOCAL PB STATION	STOP PUSH BUTTON
MP6-18	MP6-18	MP6 LOCAL PB STATION	MOTOR BUMP BUTTON
MP6-10	MP6-10	MP6 LOCAL PB STATION	MOTOR BUMP BUTTON
MP6-7	MP6-7	CP-DO-49	FLOAT PUMP CALL
MP6-14	MP6-14	CP-DO-49A	FLOAT PUMP CALL
MP6-7	MP6-7	SP397	SCADA PUMP CALL
MP6-14	MP6-14	SP398	SCADA PUMP CALL

TERMINAL NO.	WIRE NO.	OUTPUT DESTINATION	DESCRIPTION OF OUTPUT
MP6-7	MP6-7	MP6 LOCAL PB STATION	PUMP CALL LIGHT
MP6-X2	MP6-X2	MP6 LOCAL PB STATION	PUMP CALL LIGHT
MP6-6	MP6-6	MP6 LOCAL PB STATION	PUMP CALL LIGHT
MP6-24	MP6-24	MP6 LOCAL PB STATION	PUMP RUN LIGHT
MP6-X2	MP6-X2	MP6 LOCAL PB STATION	PUMP RUN LIGHT
MP6-6	MP6-6	MP6 LOCAL PB STATION	PUMP RUN LIGHT
MP6-4	CP-99B	CP-DI-99B	PUMP NOT RUNNING
MP6-4A	CP-99C	CP-DI-99C	PUMP NOT RUNNING
MP6-5B	CP-331	CP-DI-336	PUMP NOT RUNNING
MP6-5C	CP-331A	CP-DI-336A	PUMP NOT RUNNING
MP6-2	CP-1	CP-DI-1	MOTOR OVERLOAD TRIP
MP6-2A	CP-57	CP-DI-57	MOTOR OVERLOAD TRIP
MP6-2B	CP-447	CP-DI-447	MOTOR OVERLOAD ALARM
MP6-2C	CP-448	CP-DI-448	MOTOR OVERLOAD ALARM
MP6-40A	CP-483	CP-DI-483	OVER TEMP/MOIST ALARM
MP6-40B	CP-484	CP-DI-484	OVER TEMP/MOIST ALARM
MP6-23B	CP-558	CP-DI-558	MOTOR JB PURGE ALARM
MP6-23C	CP-560	CP-DI-560	MOTOR JB PURGE ALARM
MP6-0	SP85	SP85	ISOLATION SW. OPEN
MP6-0A	SP86	SP86	ISOLATION SW. OPEN
MP6-1D	SP87	SP87	MOTOR RUNNING
MP6-1E	SP88	SP88	MOTOR RUNNING
MP6-16	SP89	SP89	PUMP CONTROL NOT IN AUTO
MP6-16A	SP90	SP90	PUMP CONTROL NOT IN AUTO
MP6-44A	SP91	SP91	OVER TEMP/MOIST ALARM
MP6-44B	SP92	SP92	OVER TEMP/MOIST ALARM
MP6-22	SP93	SP93	MOTOR JB PURGE ALARM
MP6-22A	SP94	SP94	MOTOR JB PURGE ALARM

MAIN PUMP 7 STARTER TERMINAL CONNECTIONS

TERMINAL NO.	WIRE NO.	INPUT ORIGINATION	DESCRIPTION OF INPUT
MP7-39	MP7-39	MP7 CONTROL JB	MOTOR MOISTURE SENSOR
MP7-40	MP7-40	MP7 CONTROL JB	MOTOR MOISTURE SENSOR
MP7-41	MP7-41	MP7 CONTROL JB	MOTOR TEMP SENSOR
MP7-42	MP7-42	MP7 CONTROL JB	MOTOR TEMP SENSOR
MP7-43	M4A-43	MP7 CONTROL JB	BEARING TEMP SENSOR
MP7-44	MP7-44	MP7 CONTROL JB	BEARING TEMP SENSOR
MP7-6	MP7-6	MP7 PURGE PANEL	SAFETY INTERLOCK
MP7-20	MP7-20	MP7 PURGE PANEL	SAFETY INTERLOCK
MP7-7	MP7-7	MP7 LOCAL PB STATION	START PUSH BUTTON
MP7-10	MP7-10	MP7 LOCAL PB STATION	START PUSH BUTTON
MP7-12	MP7-12	MP7 LOCAL PB STATION	STOP PUSH BUTTON
MP7-12A	MP7-12A	MP7 LOCAL PB STATION	STOP PUSH BUTTON
MP7-18	MP7-18	MP7 LOCAL PB STATION	MOTOR BUMP BUTTON
MP7-10	MP7-10	MP7 LOCAL PB STATION	MOTOR BUMP BUTTON
MP7-7	MP7-7	CP-DO-58	FLOAT PUMP CALL
MP7-14	MP7-14	CP-DO-58A	FLOAT PUMP CALL
MP7-7	MP7-7	SP367	SCADA PUMP CALL
MP7-14	MP7-14	SP368	SCADA PUMP CALL

TERMINAL NO.	WIRE NO.	OUTPUT DESTINATION	DESCRIPTION OF OUTPUT
MP7-7	MP7-7	MP7 LOCAL PB STATION	PUMP CALL LIGHT
MP7-X2	MP7-X2	MP7 LOCAL PB STATION	PUMP CALL LIGHT
MP7-6	MP7-6	MP7 LOCAL PB STATION	PUMP CALL LIGHT
MP7-24	MP7-24	MP7 LOCAL PB STATION	PUMP RUN LIGHT
MP7-X2	MP7-X2	MP7 LOCAL PB STATION	PUMP RUN LIGHT
MP7-6	MP7-6	MP7 LOCAL PB STATION	PUMP RUN LIGHT
MP7-4	CP-96	CP-DI-96	PUMP NOT RUNNING
MP7-4A	CP-96A	CP-DI-96A	PUMP NOT RUNNING
MP7-5B	CP-333	CP-DI-333	PUMP NOT RUNNING
MP7-5C	CP-333A	CP-DI-333A	PUMP NOT RUNNING
MP7-2	CP-1	CP-DI-1	MOTOR OVERLOAD TRIP
MP7-2A	CP-57	CP-DI-57	MOTOR OVERLOAD TRIP
MP7-2B	CP-450	CP-DI-450	MOTOR OVERLOAD ALARM
MP7-2C	CP-451	CP-DI-451	MOTOR OVERLOAD ALARM
MP7-40A	CP-486	CP-DI-486	OVER TEMP/MOIST ALARM
MP7-40B	CP-487	CP-DI-487	OVER TEMP/MOIST ALARM
MP7-23B	CP-561	CP-DI-561	MOTOR JB PURGE ALARM
MP7-23C	CP-563	CP-DI-563	MOTOR JB PURGE ALARM
MP7-0	SP33	SP33	ISOLATION SW. OPEN
MP7-0A	SP34	SP34	ISOLATION SW. OPEN
MP7-1D	SP35	SP35	MOTOR RUNNING
MP7-1E	SP36	SP36	MOTOR RUNNING
MP7-16	SP37	SP37	PUMP CONTROL NOT IN AUTO
MP7-16A	SP38	SP38	PUMP CONTROL NOT IN AUTO
MP7-44A	SP39	SP39	OVER TEMP/MOIST ALARM
MP7-44B	SP40	SP40	OVER TEMP/MOIST ALARM
MP7-22	SP41	SP41	MOTOR JB PURGE ALARM
MP7-22A	SP42	SP42	MOTOR JB PURGE ALARM

MAIN PUMP 8 STARTER TERMINAL CONNECTIONS

TERMINAL NO.	WIRE NO.	INPUT ORIGINATION	DESCRIPTION OF INPUT
MP8-39	MP8-39	MP8 CONTROL JB	MOTOR MOISTURE SENSOR
MP8-40	MP8-40	MP8 CONTROL JB	MOTOR MOISTURE SENSOR
MP8-41	MP8-41	MP8 CONTROL JB	MOTOR TEMP SENSOR
MP8-42	MP8-42	MP8 CONTROL JB	MOTOR TEMP SENSOR
MP8-43	M4A-43	MP8 CONTROL JB	BEARING TEMP SENSOR
MP8-44	MP8-44	MP8 CONTROL JB	BEARING TEMP SENSOR
MP8-6	MP8-6	MP8 PURGE PANEL	SAFETY INTERLOCK
MP8-20	MP8-20	MP8 PURGE PANEL	SAFETY INTERLOCK
MP8-7	MP8-7	MP8 LOCAL PB STATION	START PUSH BUTTON
MP8-10	MP8-10	MP8 LOCAL PB STATION	START PUSH BUTTON
MP8-12	MP8-12	MP8 LOCAL PB STATION	STOP PUSH BUTTON
MP8-12A	MP8-12A	MP8 LOCAL PB STATION	STOP PUSH BUTTON
MP8-18	MP8-18	MP8 LOCAL PB STATION	MOTOR BUMP BUTTON
MP8-10	MP8-10	MP8 LOCAL PB STATION	MOTOR BUMP BUTTON
MP8-7	MP8-7	CP-DO-67	FLOAT PUMP CALL
MP8-14	MP8-14	CP-DO-67A	FLOAT PUMP CALL
MP8-7	MP8-7	SP399	SCADA PUMP CALL
MP8-14	MP8-14	SP400	SCADA PUMP CALL

TERMINAL NO.	WIRE NO.	OUTPUT DESTINATION	DESCRIPTION OF OUTPUT
MP8-7	MP8-7	MP8 LOCAL PB STATION	PUMP CALL LIGHT
MP8-X2	MP8-X2	MP8 LOCAL PB STATION	PUMP CALL LIGHT
MP8-6	MP8-6	MP8 LOCAL PB STATION	PUMP CALL LIGHT
MP8-24	MP8-24	MP8 LOCAL PB STATION	PUMP RUN LIGHT
MP8-X2	MP8-X2	MP8 LOCAL PB STATION	PUMP RUN LIGHT
MP8-6	MP8-6	MP8 LOCAL PB STATION	PUMP RUN LIGHT
MP8-4	CP-99C	CP-DI-99C	PUMP NOT RUNNING
MP8-4A	CP-96C	CP-DI-96C	PUMP NOT RUNNING
MP8-5B	CP-331	CP-DI-338	PUMP NOT RUNNING
MP8-5C	CP-331A	CP-DI-338A	PUMP NOT RUNNING
MP8-2	CP-1	CP-DI-1	MOTOR OVERLOAD TRIP
MP8-2A	CP-57	CP-DI-57	MOTOR OVERLOAD TRIP
MP8-2B	CP-448	CP-DI-448	MOTOR OVERLOAD ALARM
MP8-2C	CP-449	CP-DI-449	MOTOR OVERLOAD ALARM
MP8-40A	CP-489	CP-DI-489	OVER TEMP/MOIST ALARM
MP8-40B	CP-490	CP-DI-490	OVER TEMP/MOIST ALARM
MP8-23B	CP-558	CP-DI-558	MOTOR JB PURGE ALARM
MP8-23C	CP-560	CP-DI-560	MOTOR JB PURGE ALARM
MP8-0	SP97	SP97	ISOLATION SW. OPEN
MP8-0A	SP98	SP98	ISOLATION SW. OPEN
MP8-1D	SP99	SP99	MOTOR RUNNING
MP8-1E	SP100	SP100	MOTOR RUNNING
MP8-16	SP101	SP101	PUMP CONTROL NOT IN AUTO
MP8-16A	SP102	SP102	PUMP CONTROL NOT IN AUTO
MP8-44A	SP103	SP103	OVER TEMP/MOIST ALARM
MP8-44B	SP104	SP104	OVER TEMP/MOIST ALARM
MP8-22	SP105	SP105	MOTOR JB PURGE ALARM
MP8-22A	SP106	SP106	MOTOR JB PURGE ALARM

DONOHUE & ASSOCIATES

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REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27
REHABILITATION

PUMP MOTOR STARTER
TERMINAL SCHEDULE SH. 2

SCALE: N/A DRAWN BY: MS

DATE: 04-23-10 CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	52
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

MCC UNIT 5A LOW FLOW PUMP 9 TERMINAL CONNECTIONS

TERMINAL NO.	WIRE NO.	DESTINATION/ORIGINATION	DESCRIPTION OF INPUT
M5A-35	M5A-35	LFP9 CONTROL JCT. BOX	MOTOR MOISTURE SENSOR
M5A-36	M5A-36	LFP9 CONTROL JCT. BOX	MOTOR MOISTURE SENSOR
M5A-37	M5A-37	LFP9 CONTROL JCT. BOX	MOTOR TEMP SENSOR
M5A-38	M5A-38	LFP9 CONTROL JCT. BOX	MOTOR TEMP SENSOR
M5A-39	M5A-39	LFP9 CONTROL JCT. BOX	BEARING TEMP SENSOR
M5A-40	M5A-40	LFP9 CONTROL JCT. BOX	BEARING TEMP SENSOR
M5A-1	M5A-1	LFP9 PURGE PANEL	SAFETY INTERLOCK
M5A-15	M5A-15	LFP9 PURGE PANEL	SAFETY INTERLOCK
M5A-2	M5A-2	LFP9 LOCAL PB STATION	START PUSH BUTTON
M5A-5	M5A-5	LFP9 LOCAL PB STATION	START PUSH BUTTON
M5A-7	M5A-7	LFP9 LOCAL PB STATION	STOP PUSH BUTTON
M5A-7A	M5A-7A	LFP9 LOCAL PB STATION	STOP PUSH BUTTON
M5A-5	M5A-5	LFP9 LOCAL PB STATION	MOTOR BUMP BUTTON
M5A-13	M5A-13	LFP9 LOCAL PB STATION	MOTOR BUMP BUTTON
M5A-9	M5A-9	CP-DO-96D	FLOAT PUMP CALL
M5A-2	M5A-2	CP-DO-96E	FLOAT PUMP CALL
M5A-9	M5A-9	SP309	SCADA PUMP CALL
M5A-2	M5A-2	SP310	SCADA PUMP CALL

TERMINAL NO.	WIRE NO.	DESTINATION/ORIGINATION	DESCRIPTION OF OUTPUT
M5A-2	M5A-2	LFP9 LOCAL PB STATION	PUMP CALL LIGHT
M5A-X2	M5A-X2	LFP9 LOCAL PB STATION	PUMP CALL LIGHT
M5A-1	M5A-1	LFP9 LOCAL PB STATION	PUMP CALL LIGHT
M5A-19	M5A-19	LFP9 LOCAL PB STATION	PUMP RUN LIGHT
M5A-X2	M5A-X2	LFP9 LOCAL PB STATION	PUMP RUN LIGHT
M5A-1	M5A-1	LFP9 LOCAL PB STATION	PUMP RUN LIGHT
M5A-6	CP-339	CP-DI-339	STARTER CONTACT NC
M5A-4A	CP-339A	CP-DI-339A	STARTER CONTACT NC
M5A-0D	M5A-0D	LFP9 LOCAL AMMETER	MOTOR CURRENT
M5A-0E	M5A-0E	LFP9 LOCAL AMMETER	MOTOR CURRENT
M5A-0F	CP-1	CP-DI-1	MOTOR OVERLOAD
M5A-0G	CP-475	CP-DI-475	MOTOR OVERLOAD
M5A-35A	CP-492	CP-DI-492	LFP9 OVER TEMP/MOIST
M5A-35B	CP-493	CP-DI-493	LFP9 OVER TEMP/MOIST
M5A-18B	CP-564	CP-DI-564	LFP9 MOTOR JB PURGE ALARM
M5A-18C	CP-566	CP-DI-566	LFP9 MOTOR JB PURGE ALARM
M5A-0	SP43	SP43	LFP9 BREAKER OPEN
M5A-0A	SP44	SP44	LFP9 BREAKER OPEN
M5A-4A	SP45	SP45	LFP9 STARTER CONTACT NO
M5A-4B	SP46	SP46	LFP9 STARTER CONTACT NO
M5A-11A	SP47	SP47	LFP9 NOT IN AUTO
M5A-11	SP48	SP48	LFP9 NOT IN AUTO
M5A-36A	SP49	SP49	LFP9 OVER TEMP/MOIST
M5A-36B	SP50	SP50	LFP9 OVER TEMP/MOIST
M5A-17	SP53	SP53	LFP9 MOTOR JB PURGE ALARM
M5A-17A	SP54	SP54	LFP9 MOTOR JB PURGE ALARM

MCC UNIT 6A LOW FLOW PUMP 10 TERMINAL CONNECTIONS

TERMINAL NO.	WIRE NO.	DESTINATION/ORIGINATION	DESCRIPTION OF INPUT
M6A-35	M6A-35	LFP10 CONTROL JCT. BOX	MOTOR MOISTURE SENSOR
M6A-36	M6A-36	LFP10 CONTROL JCT. BOX	MOTOR MOISTURE SENSOR
M6A-37	M6A-37	LFP10 CONTROL JCT. BOX	MOTOR TEMP SENSOR
M6A-38	M6A-38	LFP10 CONTROL JCT. BOX	MOTOR TEMP SENSOR
M6A-39	M6A-39	LFP10 CONTROL JCT. BOX	BEARING TEMP SENSOR
M6A-40	M6A-40	LFP10 CONTROL JCT. BOX	BEARING TEMP SENSOR
M6A-1	M6A-1	LFP10 PURGE PANEL	SAFETY INTERLOCK
M6A-15	M6A-15	LFP10 PURGE PANEL	SAFETY INTERLOCK
M6A-2	M6A-2	LFP10 LOCAL PB STATION	START PUSH BUTTON
M6A-5	M6A-5	LFP10 LOCAL PB STATION	START PUSH BUTTON
M6A-7	M6A-7	LFP10 LOCAL PB STATION	STOP PUSH BUTTON
M6A-7A	M6A-7A	LFP10 LOCAL PB STATION	STOP PUSH BUTTON
M6A-5	M6A-5	LFP10 LOCAL PB STATION	MOTOR BUMP BUTTON
M6A-13	M6A-13	LFP10 LOCAL PB STATION	MOTOR BUMP BUTTON
M6A-9	M6A-9	CP-DO-106B	FLOAT PUMP CALL
M6A-2	M6A-2	CP-DO-106C	FLOAT PUMP CALL
M6A-9	M6A-9	SP341	SCADA PUMP CALL
M6A-2	M6A-2	SP342	SCADA PUMP CALL

TERMINAL NO.	WIRE NO.	DESTINATION/ORIGINATION	DESCRIPTION OF OUTPUT
M6A-2	M6A-2	LFP10 LOCAL PB STATION	PUMP CALL LIGHT
M6A-X2	M6A-X2	LFP10 LOCAL PB STATION	PUMP CALL LIGHT
M6A-1	M6A-1	LFP10 LOCAL PB STATION	PUMP CALL LIGHT
M6A-19	M6A-19	LFP10 LOCAL PB STATION	PUMP RUN LIGHT
M6A-X2	M6A-X2	LFP10 LOCAL PB STATION	PUMP RUN LIGHT
M6A-1	M6A-1	LFP10 LOCAL PB STATION	PUMP RUN LIGHT
M6A-6	CP-340	CP-DI-340	STARTER CONTACT NC
M6A-4A	CP-340A	CP-DI-340A	STARTER CONTACT NC
M6A-0D	M6A-0D	LFP10 LOCAL AMMETER	MOTOR CURRENT
M6A-0E	M6A-0E	LFP10 LOCAL AMMETER	MOTOR CURRENT
M6A-0F	CP-1	CP-DI-1	MOTOR OVERLOAD
M6A-0G	CP-477	CP-DI-477	MOTOR OVERLOAD
M6A-36A	CP-495	CP-DI-495	LFP10 OVER TEMP/MOIST
M6A-35B	CP-496	CP-DI-496	LFP10 OVER TEMP/MOIST
M6A-18B	CP-564	CP-DI-564	LFP10 MOTOR JB PURGE ALARM
M6A-18C	CP-566	CP-DI-566	LFP10 MOTOR JB PURGE ALARM
M6A-0	SP107	SP107	LFP10 BREAKER OPEN
M6A-0A	SP108	SP108	LFP10 BREAKER OPEN
M6A-4A	SP109	SP109	LFP10 STARTER CONTACT NO
M6A-4B	SP110	SP110	LFP10 STARTER CONTACT NO
M6A-11A	SP111	SP111	LFP10 NOT IN AUTO
M6A-11	SP112	SP112	LFP10 NOT IN AUTO
M6A-36A	SP113	SP113	LFP10 OVER TEMP/MOIST
M6A-36B	SP114	SP114	LFP10 OVER TEMP/MOIST
M6A-17	SP117	SP117	LFP10 MOTOR JB PURGE ALARM
M6A-17A	SP118	SP118	LFP10 MOTOR JB PURGE ALARM

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REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27
REHABILITATION

PUMP MOTOR STARTER
TERMINAL SCHEDULE SH. 3

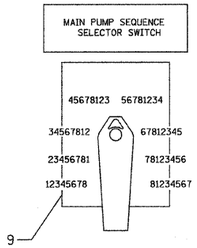
SCALE: N/A DRAWN BY: MS

DATE: 04-23-10 CHECKED BY: MS

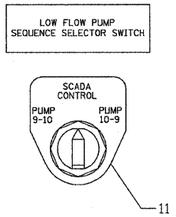
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	53
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

MAIN PUMP 1 FAILURE [1]	MAIN PUMP 1 OVERLOAD [2]	MAIN PUMP 1 OVERTEMP/ MOISTURE [3]	LOW FLOW PUMP 9 FAILURE [4]	LOW FLOW PUMP 9 OVERLOAD [5]	LOW FLOW PUMP 9 OVERTEMP/ MOISTURE [6]	COMBUSTIBLE GAS ALARM [7]
MAIN PUMP 2 FAILURE [8]	MAIN PUMP 2 OVERLOAD [9]	MAIN PUMP 2 OVERTEMP/ MOISTURE [10]	LOW FLOW PUMP 10 FAILURE [11]	LOW FLOW PUMP 10 OVERLOAD [12]	LOW FLOW PUMP 10 OVERTEMP/ MOISTURE [13]	FIRE ALARM [14]
MAIN PUMP 3 FAILURE [15]	MAIN PUMP 3 OVERLOAD [16]	MAIN PUMP 3 OVERTEMP/ MOISTURE [17]	HIGH WATER LEVEL 19.5' ABOVE WET PIT FLR [18]	5KV SWGR ATO FAILURE [19]	PURGE AIR LOW PRESSURE [20]	INTRUSION ALARM [21]
MAIN PUMP 4 FAILURE [22]	MAIN PUMP 4 OVERLOAD [23]	MAIN PUMP 4 OVERTEMP/ MOISTURE [24]	LOW WATER LEVEL 4' BELOW WET PIT FLR [25]	INC LINE 1 NORM SOURCE PWR FAILURE [26]	NORTH PUMPS JCT BOXES PURGE ALARM [27]	FLOAT FAILURE [28]
MAIN PUMP 5 FAILURE [29]	MAIN PUMP 5 OVERLOAD [30]	MAIN PUMP 5 OVERTEMP/ MOISTURE [31]	BAR SCREEN CLOGGED [32]	INC LINE 2 EMER SOURCE PWR FAILURE [33]	SOUTH PUMPS JCT BOXES PURGE ALARM [34]	VALVE/GATE IN NON-DISCHARGE MODE [35]
MAIN PUMP 6 FAILURE [36]	MAIN PUMP 6 OVERLOAD [37]	MAIN PUMP 6 OVERTEMP/ MOISTURE [38]	DISCHARGE CHAMBER FLOODED [39]	SCADA PANEL POWER FAILURE [40]	LF PUMPS JCT BOXES PURGE ALARM [41]	CENTRAL PUMP TEST [42]
MAIN PUMP 7 FAILURE [43]	MAIN PUMP 7 OVERLOAD [44]	MAIN PUMP 7 OVERTEMP/ MOISTURE [45]	PRIMARY BUBBLER FAILURE [46]	SCADA PANEL ALARM [47]	SPARE [48]	SPARE [49]
MAIN PUMP 8 FAILURE [50]	MAIN PUMP 8 OVERLOAD [51]	MAIN PUMP 8 OVERTEMP/ MOISTURE [52]	SECONDARY BUBBLER FAILURE [53]	5KV SWGR ATO UPS FAILURE [54]	SPARE [55]	CSM MODULE [56]

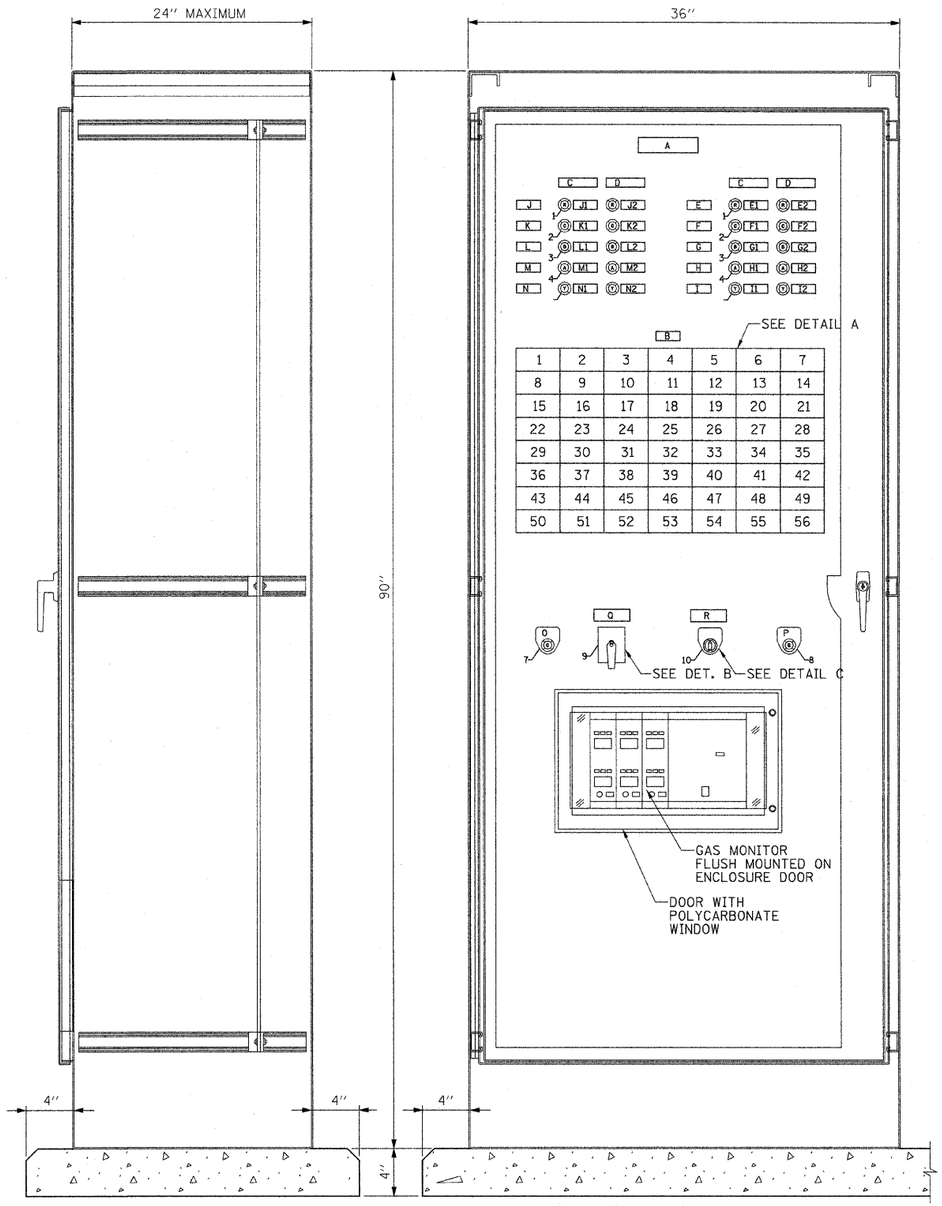
DETAIL A



DETAIL B



DETAIL C



SIDE VIEW – PANEL REMOVED

CONTROL PANEL – FRONT VIEW

ITEM	NAMEPLATE SCHEDULE
A	CONTROL PANEL
B	ALARM PANEL
C	SCADA PUMP CALL, FEET ABOVE WET PIT FLOOR
D	FLOAT PUMP CALL, FEET ABOVE WET PIT FLOOR
E	STANDBY PUMP CALL
F	LAG6 PUMP CALL
G	LAG 5 PUMP CALL
H	LAG 4 PUMP CALL
I	LAG 3 PUMP CALL
J	LAG 2 PUMP CALL
K	LAG 1 PUMP CALL
L	LEAD PUMP CALL
M	LEAD LOW FLOW PUMP CALL
N	LAG LOW FLOW PUMP CALL
O	ALARM ACKNOWLEDGE
P	LAMP TEST
Q	MAIN PUMP SEQUENCE SELECTOR SWITCH (SEE DETAIL B)
R	LOW FLOW PUMPSEQUENCE SELECTOR SWITCH (SEE DETAIL C)

ITEM	NAMEPLATE SCHEDULE
E1	15.5 FEET
E2	16.0 FEET
F1	14.5 FEET
F2	15.0 FEET
G1	13.5 FEET
G2	14.0 FEET
H1	12.5 FEET
H2	13.0 FEET
I1	11.5 FEET
I2	12.0 FEET
J1	10.5 FEET
J2	11.0 FEET
K1	9.5 FEET
K2	10.0 FEET
L1	8.5 FEET
L2	9.0 FEET
M1	6.5 FEET
M2	7.5 FEET
N1	5.5 FEET
N2	6.5 FEET

DEVICE LEGEND		
ITEM	DEVICE DESCRIPTION	DEVICE COLOR
1	INDICATING LIGHT	RED
2	INDICATING LIGHT	CLEAR
3	INDICATING LIGHT	BLUE
4	INDICATING LIGHT	AMBER
5	INDICATING LIGHT	YELLOW
6	INDICATING LIGHT	WHITE
7	PUSH BUTTON	YELLOW
8	PUSH BUTTON	GREEN
9	8 POSITION SELECTOR SWITCH	BLACK
10	3 POSITION SELECTOR SWITCH	BLACK

NOTE:
THE CONTROL PANEL SHALL BE OF SUFFICIENT DEPTH TO ACCOMODATE THE GAS MONITOR, ANNUNCIATOR AND OTHER DEVICES. PROPER CLEARANCE SHALL BE PROVIDED BETWEEN DOOR MOUNTED DEVICES AND PANEL MOUNTED DEVICES.
DOOR PANEL SHALL BE STIFFENED AROUND CUTOUTS AS REQUIRED

DONOHUE & ASSOCIATES

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REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

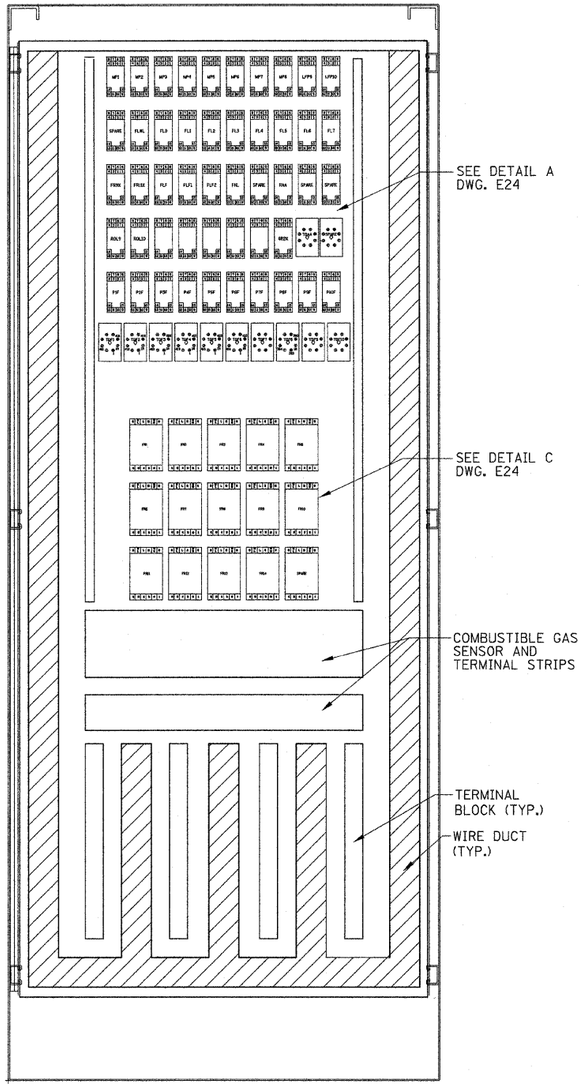
PUMP STATION NO. 27 REHABILITATION

CONTROL PANEL EQUIPMENT LAYOUT SH. 1

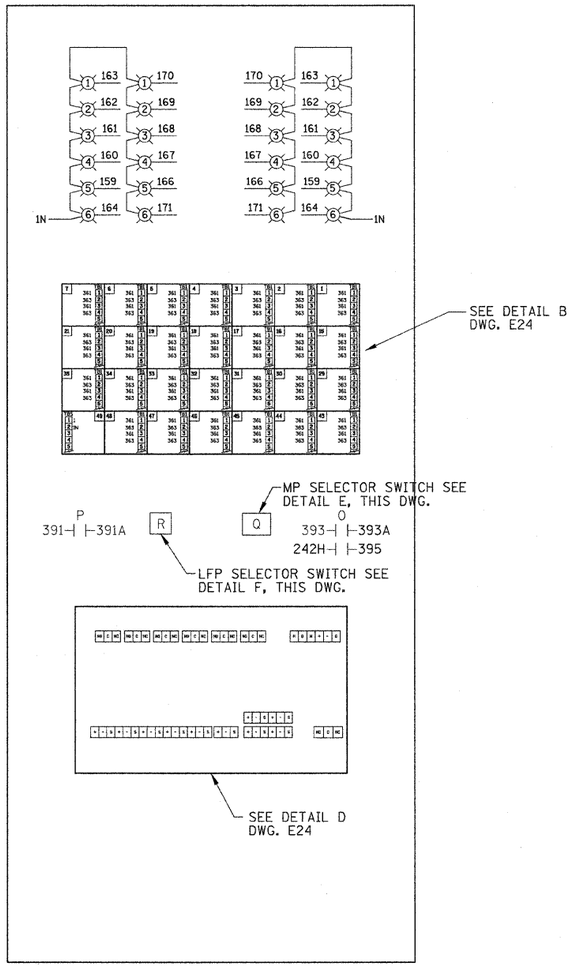
SCALE: N/A DRAWN BY: MS

DATE: 04-23-10 CHECKED BY: MS

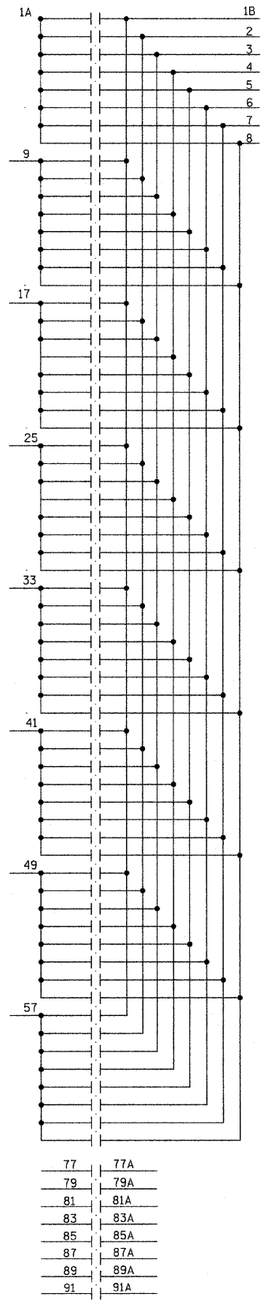
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	54
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		



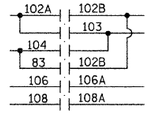
INSIDE ENCLOSURE PANEL



INSIDE ENCLOSURE DOOR



DETAIL E



DETAIL F

DONOHUE & ASSOCIATES

E23

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

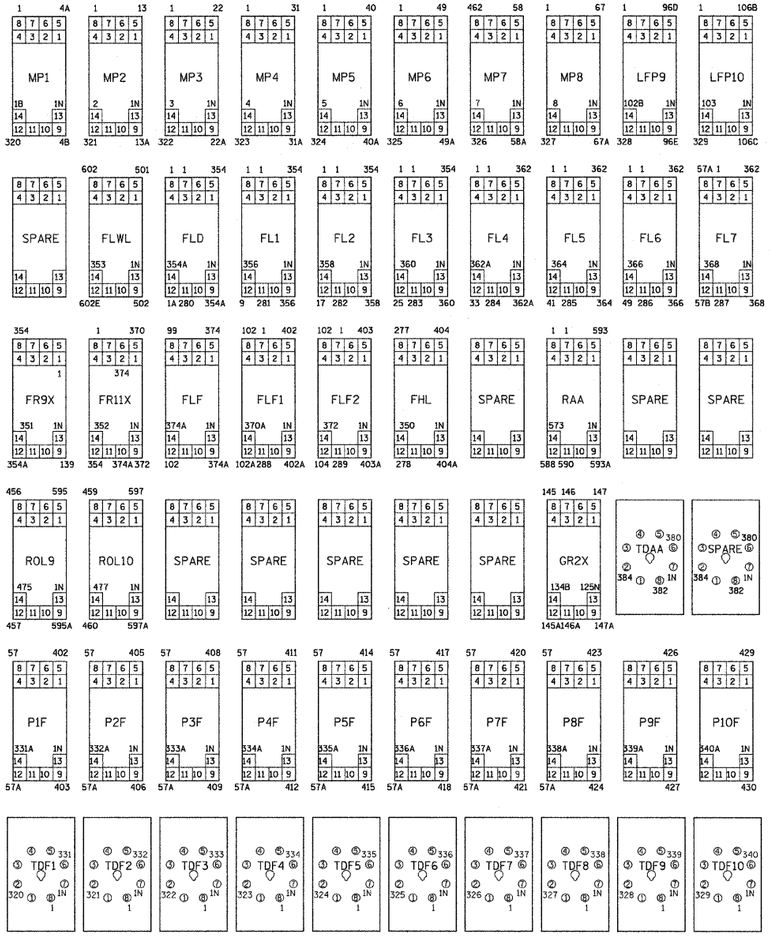
PUMP STATION NO. 27
REHABILITATION

CONTROL PANEL
EQUIPMENT LAYOUT SH. 2

SCALE: N/A DRAWN BY: MS

DATE: 04-23-10 CHECKED BY: MS

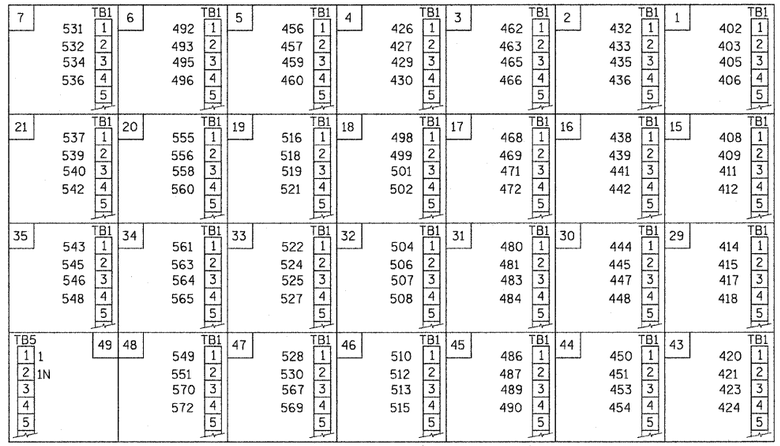
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	55
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		



DETAIL A CONTROL RELAYS

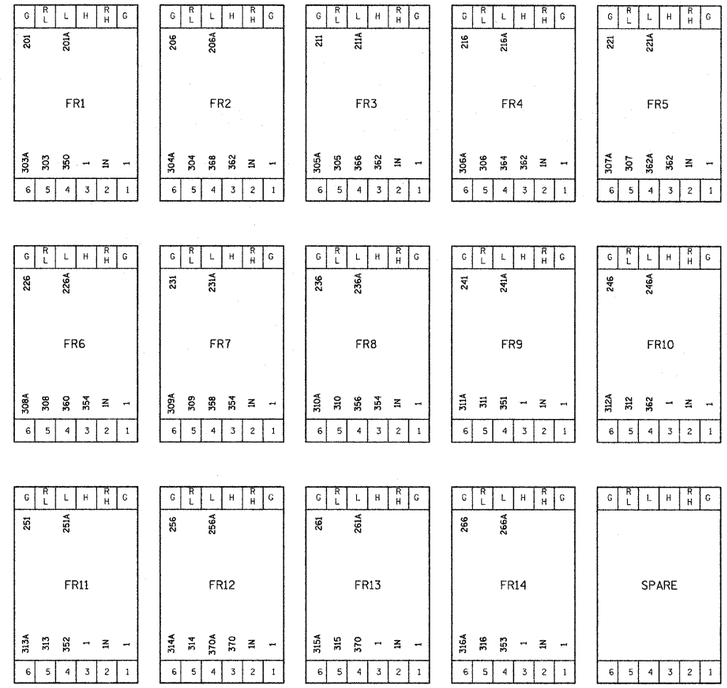
DWG. E23

EACH RELAY SHALL HAVE AN ENGRAVED NAMEPLATE



DETAIL B ANNUNCIATOR

DWG. E23

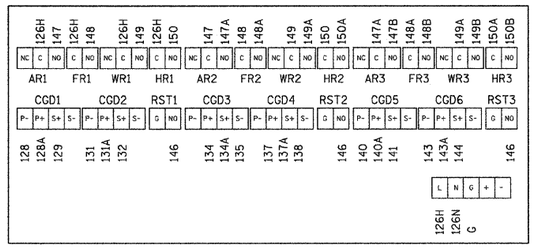


DETAIL C WARRICK RELAYS

DWG. E23

ALL RELAYS IN DETAIL C ARE INTRINSICALLY SAFE.

EACH RELAY SHALL HAVE AN ENGRAVED NAMEPLATE



DETAIL D COMBUSTIBLE GAS MONITOR

DWG. E23

E24

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27
REHABILITATION

CONTROL PANEL DETAILS

SCALE: N/A DRAWN BY: MS

DATE: 04-23-10 CHECKED BY: MS

DONOHUE & ASSOCIATES

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	56
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

CONTROL PANEL DIGITAL INPUTS(TBDI)					
INTO CONTROL PANEL		OUT OF CONTROL PANEL			DESCRIPTION OF INPUTS
DESTINATION	WIRE #	TERM #	WIRE #	ORIGINATIION	
PUMP1 CALL RELAYS	1	1	CP-1	MP1-4	PUMP 1 STARTER CONTACT NC
PUMP1 CALL RELAYS	96	96	CP-96	MP1-4A	PUMP 1 STARTER CONTACT NC
PUMP2 CALL RELAYS	99	99	CP-99	MP2-4	PUMP 2 STARTER CONTACT NC
PUMP2 CALL RELAYS	99A	99A	CP-99A	MP2-4A	PUMP 2 STARTER CONTACT NC
PUMP3 CALL RELAYS	96	96	CP-96	MP3-4	PUMP 3 STARTER CONTACT NC
PUMP3 CALL RELAYS	96A	96A	CP-96A	MP3-4A	PUMP 3 STARTER CONTACT NC
PUMP4 CALL RELAYS	99A	99A	CP-99A	MP4-4	PUMP 4 STARTER CONTACT NC
PUMP4 CALL RELAYS	99B	99B	CP-99B	MP4-4A	PUMP 4 STARTER CONTACT NC
PUMP5 CALL RELAYS	96A	96A	CP-96A	MP5-4	PUMP 5 STARTER CONTACT NC
PUMP5 CALL RELAYS	96B	96B	CP-96B	MP5-4A	PUMP 5 STARTER CONTACT NC
PUMP6 CALL RELAYS	99B	99B	CP-99B	MP6-4	PUMP 6 STARTER CONTACT NC
PUMP6 CALL RELAYS	99C	99C	CP-99C	MP6-4A	PUMP 6 STARTER CONTACT NC
PUMP7 CALL RELAYS	96B	96B	CP-96B	MP7-4	PUMP 7 STARTER CONTACT NC
PUMP7 CALL RELAYS	96C	96C	CP-96C	MP7-4A	PUMP 7 STARTER CONTACT NC
PUMP8 CALL RELAYS	96C	96C	CP-96C	MP8-4	PUMP 8 STARTER CONTACT NC
PUMP8 CALL RELAYS	96C	96C	CP-96C	MP8-4A	PUMP 8 STARTER CONTACT NC
FLOAT 1 RELAY	201	201	CP-201	FLOAT 1	HIGH WATER ALARM
FLOAT 1 RELAY	201A	201A	CP-201A	FLOAT 1	HIGH WATER ALARM
FLOAT 2 RELAY	206	206	CP-206	FLOAT 2	START STBY PUMP
FLOAT 2 RELAY	206A	206A	CP-206A	FLOAT 2	START STBY PUMP
FLOAT 3 RELAY	211	211	CP-211	FLOAT 3	START LAG 6 PUMP
FLOAT 3 RELAY	211A	211A	CP-211A	FLOAT 3	START LAG 6 PUMP
FLOAT 4 RELAY	216	216	CP-216	FLOAT 4	START LAG 5 PUMP
FLOAT 4 RELAY	216A	216A	CP-216A	FLOAT 4	START LAG 5 PUMP
FLOAT 5 RELAY	221	221	CP-221	FLOAT 5	START LAG 4 PUMP
FLOAT 5 RELAY	221A	221A	CP-221A	FLOAT 5	START LAG 4 PUMP
FLOAT 6 RELAY	226	226	CP-226	FLOAT 6	START LAG 3 PUMP
FLOAT 6 RELAY	226A	226A	CP-226A	FLOAT 6	START LAG 3 PUMP
FLOAT 7 RELAY	231	231	CP-231	FLOAT 7	START LAG 2 PUMP
FLOAT 7 RELAY	231A	231A	CP-231A	FLOAT 7	START LAG 2 PUMP
FLOAT 8 RELAY	236	236	CP-236	FLOAT 8	START LAG 1 PUMP
FLOAT 8 RELAY	236A	236A	CP-236A	FLOAT 8	START LAG 1 PUMP
FLOAT 9 RELAY	241	241	CP-241	FLOAT 9	START LEAD PUMP
FLOAT 9 RELAY	241A	241A	CP-241A	FLOAT 9	START LEAD PUMP
FLOAT 10 RELAY	246	246	CP-246	FLOAT 10	STOP LAG4-STBY
FLOAT 10 RELAY	246A	246A	CP-246A	FLOAT 10	STOP LAG4-STBY
FLOAT 11 RELAY	251	251	CP-251	FLOAT 11	STOP LEAD-LAG3 START LF PUMPS
FLOAT 11 RELAY	251A	251A	CP-251A	FLOAT 11	STOP LEAD-LAG3 START LF PUMPS
FLOAT 12 RELAY	256	256	CP-256	FLOAT 12	START LF LEAD PUMP
FLOAT 12 RELAY	256A	256A	CP-256A	FLOAT 12	START LF LEAD PUMP
FLOAT 13 RELAY	261	261	CP-261	FLOAT 13	STOP LF PUMPS
FLOAT 13 RELAY	261A	261A	CP-261A	FLOAT 13	STOP LF PUMPS
FLOAT 14 RELAY	266	266	CP-266	FLOAT 14	LOW WATER ALARM
FLOAT 14 RELAY	266A	266A	CP-266A	FLOAT 14	LOW WATER ALARM
SCADA CALL LEAD LIGHT	1	1	CP-1	SP305	SCADA LEAD CALL
SCADA CALL LEAD LIGHT	291	291	CP-291	SP306	SCADA LEAD CALL
SCADA CALL LAG 1 LIGHT	1	1	CP-1	SP337	SCADA LAG 1 CALL
SCADA CALL LAG 1 LIGHT	292	292	CP-292	SP338	SCADA LAG 1 CALL
SCADA CALL LAG 2 LIGHT	1	1	CP-1	SP307	SCADA LAG 2 CALL
SCADA CALL LAG 2 LIGHT	293	293	CP-293	SP308	SCADA LAG 2 CALL
SCADA CALL LAG 3 LIGHT	1	1	CP-1	SP339	SCADA LAG 3 CALL
SCADA CALL LAG 3 LIGHT	294	294	CP-294	SP340	SCADA LAG 3 CALL
SCADA CALL LAG 4 LIGHT	1	1	CP-1	SP369	SCADA LAG 4 CALL
SCADA CALL LAG 4 LIGHT	295	295	CP-295	SP370	SCADA LAG 4 CALL
SCADA CALL LAG 5 LIGHT	1	1	CP-1	SP401	SCADA LAG 5 CALL
SCADA CALL LAG 5 LIGHT	296	296	CP-296	SP402	SCADA LAG 5 CALL
SCADA CALL LAG 6 LIGHT	1	1	CP-1	SP371	SCADA LAG 6 CALL
SCADA CALL LAG 6 LIGHT	297	297	CP-297	SP372	SCADA LAG 6 CALL
SCADA CALL STBY LIGHT	1	1	CP-1	SP403	SCADA STBY CALL
SCADA CALL STBY LIGHT	298	298	CP-298	SP404	SCADA STBY CALL
SCADA CALL LF LEAD LIGHT	1	1	CP-1	SP311	SCADA LF LEAD CALL
SCADA CALL LF LEAD LIGHT	299	299	CP-299	SP312	SCADA LF LEAD CALL
SCADA CALL LF LAG LIGHT	1	1	CP-1	SP343	SCADA LF LAG CALL
SCADA CALL LF LAG LIGHT	300	300	CP-300	SP344	SCADA LF LAG CALL
ALARM AN2 IN	432	432	CP-432	MP1-2B	MAIN PUMP 1 OVERLOAD
ALARM AN2 IN	433	433	CP-433	MP1-2C	MAIN PUMP 1 OVERLOAD
ALARM AN9 IN	435	435	CP-435	MP2-2B	MAIN PUMP 2 OVERLOAD
ALARM AN9 IN	436	436	CP-436	MP2-2C	MAIN PUMP 2 OVERLOAD
ALARM AN16 IN	438	438	CP-438	MP3-2B	MAIN PUMP 3 OVERLOAD
ALARM AN16 IN	439	439	CP-439	MP3-2C	MAIN PUMP 3 OVERLOAD
ALARM AN23 IN	441	441	CP-441	MP4-2B	MAIN PUMP 4 OVERLOAD
ALARM AN23 IN	442	442	CP-442	MP4-2C	MAIN PUMP 4 OVERLOAD
ALARM AN30 IN	444	444	CP-444	MP5-2B	MAIN PUMP 5 OVERLOAD
ALARM AN30 IN	445	445	CP-445	MP5-2C	MAIN PUMP 5 OVERLOAD
ALARM AN37 IN	447	447	CP-447	MP6-2B	MAIN PUMP 6 OVERLOAD
ALARM AN37 IN	448	448	CP-448	MP6-2C	MAIN PUMP 6 OVERLOAD
ALARM AN44 IN	450	450	CP-450	MP7-2B	MAIN PUMP 7 OVERLOAD
ALARM AN44 IN	451	451	CP-451	MP7-2C	MAIN PUMP 7 OVERLOAD
ALARM AN51 IN	453	453	CP-453	MP8-2B	MAIN PUMP 8 OVERLOAD
ALARM AN51 IN	454	454	CP-454	MP8-2C	MAIN PUMP 8 OVERLOAD
RELAY ROL9	1	1	CP-1	MA5-0F	LF PUMP 9 OVERLOAD
RELAY ROL9	475	475	CP-475	MA5-0G	LF PUMP 9 OVERLOAD
RELAY ROL10	1	1	CP-1	MA6-0F	LF PUMP 10 OVERLOAD
RELAY ROL10	477	477	CP-477	MA6-0G	LF PUMP 10 OVERLOAD

CONTROL PANEL DIGITAL INPUTS(TBDI)					
INTO CONTROL PANEL		OUT OF CONTROL PANEL			DESCRIPTION OF INPUTS
DESTINATION	WIRE #	TERM #	WIRE #	ORIGINATION	
ALARM AN27 IN	558	558	CP-558	MP(EVEN)-23B	NORTH PUMPS JCT BOXES PURGE ALARM
ALARM AN27 IN	560	560	CP-560	MP(EVEN)-23B	NORTH PUMPS JCT BOXES PURGE ALARM
ALARM AN34 IN	561	561	CP-561	MP(ODD)-23B	SOUTH PUMPS JCT BOXES PURGE ALARM
ALARM AN34 IN	563	563	CP-563	MP(ODD)-23B	SOUTH PUMPS JCT BOXES PURGE ALARM
ALARM AN41 IN	564	564	CP-564	M5(M6)-17	LF PUMPS JCT BOXES PURGE ALARM
ALARM AN41 IN	566	566	CP-566	M5(M6)-17A	LF PUMPS JCT BOXES PURGE ALARM
ALARM AN3 IN	462	462	CP-462	MP1-40A	PUMP 1 MOIST/HIGH TEMP
ALARM AN3 IN	463	463	CP-463	MP1-40B	PUMP 1 MOIST/HIGH TEMP
ALARM AN10 IN	465	465	CP-465	MP2-40A	PUMP 2 MOIST/HIGH TEMP
ALARM AN10 IN	466	466	CP-466	MP2-40B	PUMP 2 MOIST/HIGH TEMP
ALARM AN17 IN	468	468	CP-468	MP3-40A	PUMP 3 MOIST/HIGH TEMP
ALARM AN17 IN	469	469	CP-469	MP3-40B	PUMP 3 MOIST/HIGH TEMP
ALARM AN24 IN	471	471	CP-471	MP4-40A	PUMP 4 MOIST/HIGH TEMP
ALARM AN24 IN	472	472	CP-472	MP4-40B	PUMP 4 MOIST/HIGH TEMP
ALARM AN31 IN	480	480	CP-480	MP5-40A	PUMP 5 MOIST/HIGH TEMP
ALARM AN31 IN	481	481	CP-481	MP5-40B	PUMP 5 MOIST/HIGH TEMP
ALARM AN38 IN	483	483	CP-483	MP6-40A	PUMP 6 MOIST/HIGH TEMP
ALARM AN38 IN	351	351	CP-351	MP6-40B	PUMP 6 MOIST/HIGH TEMP
ALARM AN45 IN	486	486	CP-486	MP7-40A	PUMP 7 MOIST/HIGH TEMP
ALARM AN45 IN	486	486	CP-486	MP7-40B	PUMP 7 MOIST/HIGH TEMP
ALARM AN52 IN	489	489	CP-489	MP8-40A	PUMP 8 MOIST/HIGH TEMP
ALARM AN52 IN	490	490	CP-490	MP8-40B	PUMP 8 MOIST/HIGH TEMP
ALARM AN6 IN	492	492	CP-492	M5A-35A	LF PUMP 9 MOIST/HIGH TEMP
ALARM AN6 IN	493	493	CP-493	M5A-35B	LF PUMP 9 MOIST/HIGH TEMP
ALARM AN13 IN	495	495	CP-495	M6A-35A	LF PUMP 10 MOIST/HIGH TEMP
ALARM AN13 IN	496	496	CP-496	M6A-35B	LF PUMP 10 MOIST/HIGH TEMP
ALARM AN32 IN	504	504	CP-504	SP385	BAR SCREEN CLOGGED
ALARM AN32 IN	506	506	CP-506	SP386	BAR SCREEN CLOGGED
ALARM AN39 IN	507	507	CP-507	SP329	DISCHARGE CHAMBER FLOODED
ALARM AN39 IN	509	509	CP-509	SP330	DISCHARGE CHAMBER FLOODED
ALARM AN46 IN	510	510	CP-510	SP323	PRIMARY BUBBLER FAILURE
ALARM AN46 IN	512	512	CP-512	SP324	PRIMARY BUBBLER FAILURE
ALARM AN53 IN	513	513	CP-513	SP353	SECONDARY BUBBLER FAILURE
ALARM AN53 IN	515	515	CP-515	SP354	SECONDARY BUBBLER FAILURE
ALARM AN19 IN	516	516	CP-516	SP361	5KV SWGR ATO FAILURE
ALARM AN19 IN	518	518	CP-518	SP362	5KV SWGR ATO FAILURE
ALARM AN26 IN	519	519	CP-519	5KV SWGR	COMED LINE 1 POWER FAILURE
ALARM AN26 IN	521	521	CP-521	5KV SWGR	COMED LINE 1 POWER FAILURE
ALARM AN33 IN	522	522	CP-522	5KV SWGR	COMED LINE 2 POWER FAILURE
ALARM AN33 IN	524	524	CP-524	5KV SWGR	COMED LINE 2 POWER FAILURE
ALARM AN40 IN	525	525	CP-525	SP357	SCADA PANEL AC POWER FAILURE
ALARM AN40 IN	527	527	CP-527	SP358	SCADA PANEL AC POWER FAILURE
ALARM AN47 IN	528	528	CP-528	SP359	SCADA PANEL ALARM
ALARM AN47 IN	530	530	CP-530	SP360	SCADA PANEL ALARM
ALARM AN54 IN	567	567	CP-567	5KV SWGR	5KV SWGR ATO UPS FAILURE
ALARM AN54 IN	569	569	CP-569	5KV SWGR	5KV SWGR ATO UPS FAILURE
ALARM AN14 IN	534	534	CP-534	SP629I	FIRE ALARM
ALARM AN14 IN	536	536	CP-536	SP629J	FIRE ALARM
ALARM AN21 IN	537	537	CP-537	609B	INTRUSION ALARM
ALARM AN21 IN	539	539	CP-539	609C	INTRUSION ALARM
ALARM AN28 IN	540	540	CP-540	SP389	FLOAT FAILURE
ALARM AN28 IN	542	542	CP-542	SP390	FLOAT FAILURE
ALARM AN35 IN	543	543	CP-543	M5B(M5C)-12A	VALVE/GATE IN NON-DISCHARGE MODE
ALARM AN35 IN	545	545	CP-545	M5B(M5C)-12B	VALVE/GATE IN NON-DISCHARGE MODE
ALARM AN42 IN	546	546	CP-546	SP405	CENTRAL PUMP TEST
ALARM AN42 IN	548	548	CP-548	SP406	CENTRAL PUMP TEST
ALARM AN20 IN	555	555	CP-555	AIR COMPR	PURGE AIR LOW PRESSURE
ALARM AN20 IN	555	555	CP-555	AIR COMPR	PURGE AIR LOW PRESSURE
ALARM HORN CIRCUIT	125H	125H	CP-125H	FAP-629H	FIRE ALARM
ALARM HORN CIRCUIT	149	149	CP-149	FAP-629I	FIRE ALARM
SCADA PUMP CUTOUT	368	368	CP-368	SP409	STOP LAG PUMP 7 ON OUTFALL DISCHARGE LEVEL
SCADA PUMP CUTOUT	368A	368A	CP-368A	SP410	DROP TO ELEV. 6.80

DONOHUE & ASSOCIATES

E25

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27
REHABILITATION

CONTROL PANEL TERMINAL SCHEDULE SH. 1

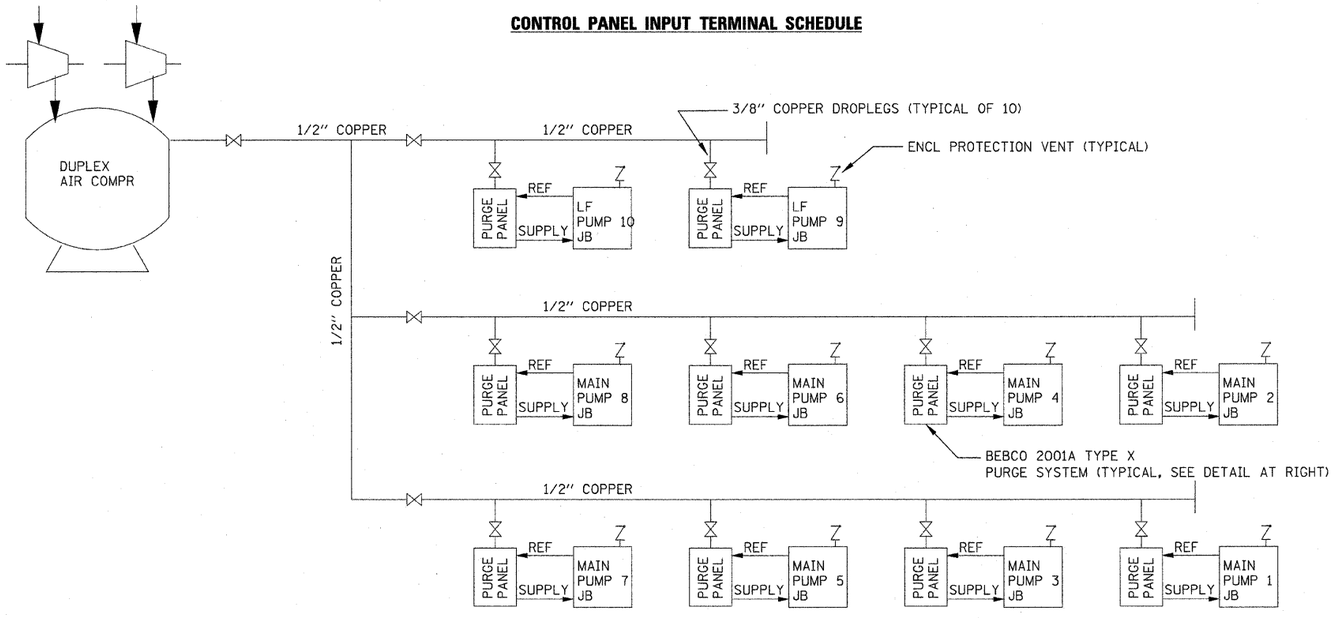
SCALE: N/A DRAWN BY: MS

DATE: 04-23-10 CHECKED BY: MS

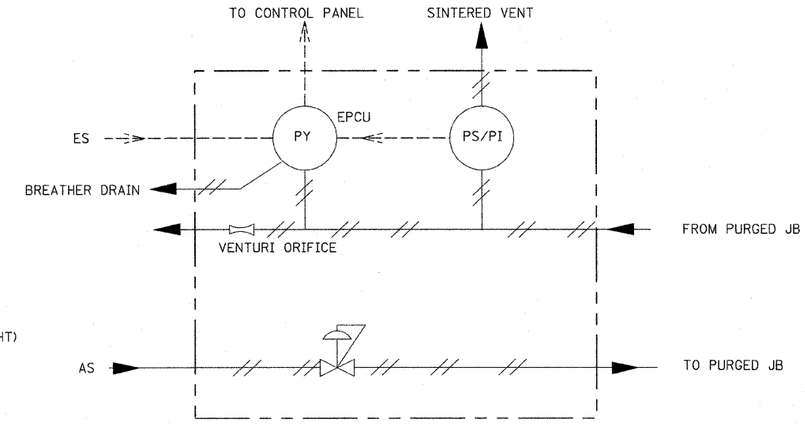
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	57
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

CONTROL PANEL DIGITAL INPUTS(TBD)					
INTO CONTROL PANEL		OUT OF CONTROL PANEL			DESCRIPTION OF INPUTS
DESTINATION	WIRE #	TERM #	WIRE #	ORIGINATION	
PUMP 1 FAILURE RELAY	331	331	CP-331	MP1-DO-5B	PUMP 1 STARTER CONTACT NC
PUMP 1 FAILURE RELAY	331A	331A	CP-331A	MP1-DO-5C	PUMP 1 STARTER CONTACT NC
PUMP 2 FAILURE RELAY	332	332	CP-332	MP2-DO-5B	PUMP 2 STARTER CONTACT NC
PUMP 2 FAILURE RELAY	332A	332A	CP-332A	MP2-DO-5C	PUMP 2 STARTER CONTACT NC
PUMP 3 FAILURE RELAY	333	333	CP-333	MP3-DO-5B	PUMP 3 STARTER CONTACT NC
PUMP 3 FAILURE RELAY	333A	333A	CP-333A	MP3-DO-5C	PUMP 3 STARTER CONTACT NC
PUMP 4 FAILURE RELAY	334	334	CP-334	MP4-DO-5B	PUMP 4 STARTER CONTACT NC
PUMP 4 FAILURE RELAY	334A	334A	CP-334A	MP4-DO-5C	PUMP 4 STARTER CONTACT NC
PUMP 5 FAILURE RELAY	335	335	CP-335	MP5-DO-5B	PUMP 5 STARTER CONTACT NC
PUMP 5 FAILURE RELAY	335A	335A	CP-335A	MP5-DO-5C	PUMP 5 STARTER CONTACT NC
PUMP 6 FAILURE RELAY	336	336	CP-336	MP6-DO-5B	PUMP 6 STARTER CONTACT NC
PUMP 6 FAILURE RELAY	336A	336A	CP-336A	MP6-DO-5C	PUMP 6 STARTER CONTACT NC
PUMP 7 FAILURE RELAY	337	337	CP-337	MP7-DO-5B	PUMP 7 STARTER CONTACT NC
PUMP 7 FAILURE RELAY	337A	337A	CP-337A	MP7-DO-5C	PUMP 7 STARTER CONTACT NC
PUMP 8 FAILURE RELAY	338	338	CP-338	MP8-DO-5B	PUMP 8 STARTER CONTACT NC
PUMP 8 FAILURE RELAY	338A	338A	CP-338A	MP8-DO-5C	PUMP 8 STARTER CONTACT NC
LF PUMP 9 FAILURE RELAY	339	339	CP-339	M5A-DO-6	LF PUMP 9 STARTER CONTACT NC
LF PUMP 9 FAILURE RELAY	339A	339A	CP-339A	M5A-DO-6A	LF PUMP 9 STARTER CONTACT NC
LF PUMP 10 FAILURE RELAY	340	340	CP-340	M6A-DO-6	LF PUMP 10 STARTER CONTACT NC
LF PUMP 10 FAILURE RELAY	340A	340A	CP-340A	M6A-DO-6A	LF PUMP 10 STARTER CONTACT NC
GAS MONITOR 1A +	128	128	CP-128	GAS SENSOR 1 +	STAIRWAY UPPER LEVEL GAS SENSOR
GAS MONITOR 1A -	128A	128A	CP-128A	GAS SENSOR 1 -	STAIRWAY UPPER LEVEL GAS SENSOR
GAS MONITOR 1A s	129	129	CP-129	GAS SENSOR 1 s	STAIRWAY UPPER LEVEL GAS SENSOR
GAS MONITOR 1B +	131	131	CP-131	GAS SENSOR 2 +	PUMP ROOM GAS SENSOR
GAS MONITOR 1B -	131A	131A	CP-131A	GAS SENSOR 2 -	PUMP ROOM GAS SENSOR
GAS MONITOR 1B s	132	132	CP-132	GAS SENSOR 2 s	PUMP ROOM GAS SENSOR
GAS MONITOR 2A +	134	134	CP-134	GAS SENSOR 3 +	DISCHARGE LEVEL WEST GAS SENSOR
GAS MONITOR 2A -	134A	134A	CP-134A	GAS SENSOR 3 -	DISCHARGE LEVEL WEST GAS SENSOR
GAS MONITOR 2A s	135	135	CP-135	GAS SENSOR 3 s	DISCHARGE LEVEL WEST GAS SENSOR
GAS MONITOR 2B +	137	137	CP-137	GAS SENSOR 4 +	DISCHARGE LEVEL EAST GAS SENSOR
GAS MONITOR 2B -	137A	137A	CP-137A	GAS SENSOR 4 -	DISCHARGE LEVEL EAST GAS SENSOR
GAS MONITOR 2B s	138	138	CP-138	GAS SENSOR 4 s	DISCHARGE LEVEL EAST GAS SENSOR
GAS MONITOR 3A +	140	140	CP-140	GAS SENSOR 5 +	LOWER LEVEL WEST GAS SENSOR
GAS MONITOR 3A -	140A	140A	CP-140A	GAS SENSOR 5 -	LOWER LEVEL WEST GAS SENSOR
GAS MONITOR 3A s	141	141	CP-141	GAS SENSOR 5 s	LOWER LEVEL WEST GAS SENSOR
GAS MONITOR 3B +	143	143	CP-143	GAS SENSOR 6 +	LOWER LEVEL EAST GAS SENSOR
GAS MONITOR 3B -	143A	143A	CP-143A	GAS SENSOR 6 -	LOWER LEVEL EAST GAS SENSOR
GAS MONITOR 3B s	144	144	CP-144	GAS SENSOR 6 s	LOWER LEVEL EAST GAS SENSOR

CONTROL PANEL INPUT TERMINAL SCHEDULE



PUMP MOTOR CABLE JUCTION BOX PURGE SYSTEM



DETAIL – PURGE PANEL

NOTE: PURGE SYSTEM PIPING TO BE FURNISHED UNDER DIVISION 16 AND INSTALLED UNDER DIVISION 15.

DONOHUE & ASSOCIATES

E26

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27
REHABILITATION

CONTROL PANEL TERMINAL SCHEDULE SH. 2

SCALE: N/A DRAWN BY: MS

DATE: 04-23-10 CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	58
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

CONTROL PANEL DIGITAL OUTPUTS - TBDO

INTO CONTROL PANEL	OUT OF CONTROL PANEL				
ORIGINATION	WIRE #	TERM #	WIRE #	DESTINATION	DESCRIPTION OF INPUTS
RELAY MP1	4A	4A	MP1-14	MP1-DI-14	PUMP 1 AUTO CALL
RELAY MP1	4B	4B	MP1-7	MP1-DI-7	PUMP 1 AUTO CALL
RELAY MP2	13	13	MP2-14	MP2-DI-14	PUMP 2 AUTO CALL
RELAY MP2	13A	13A	MP2-7	MP2-DI-7	PUMP 2 AUTO CALL
RELAY MP3	22	22	MP3-14	MP3-DI-14	PUMP 3 AUTO CALL
RELAY MP3	22A	22A	MP3-7	MP3-DI-7	PUMP 3 AUTO CALL
RELAY MP4	31	31	MP5-14	MP5-DI-14	PUMP 4 AUTO CALL
RELAY MP4	31A	31A	MP5-7	MP5-DI-7	PUMP 4 AUTO CALL
RELAY MP5	40	40	MP5-14	MP5-DI-14	PUMP 5 AUTO CALL
RELAY MP5	40A	40A	MP5-7	MP5-DI-7	PUMP 5 AUTO CALL
RELAY MP6	49A	49A	MP6-14	MP6-DI-14	PUMP 6 AUTO CALL
RELAY MP6	49B	49B	MP6-7	MP6-DI-7	PUMP 6 AUTO CALL
RELAY MP7	55	55	MP7-14	MP7-DI-14	PUMP 7 AUTO CALL
RELAY MP7	55A	55A	MP7-7	MP7-DI-7	PUMP 7 AUTO CALL
RELAY MP8	67	67	MP8-14	MP8-DI-14	PUMP 8 AUTO CALL
RELAY MP8	67A	67A	MP8-7	MP8-DI-7	PUMP 8 AUTO CALL
RELAY PLF9	96D	96D	M5A-9	M5A-DI-9	LF PUMP 9 AUTO CALL
RELAY PLF9	96E	96E	M5A-2	M5A-DI-2	LF PUMP 9 AUTO CALL
RELAY PLF10	106B	106B	M6A-9	M6A-DI-9	LF PUMP 10 AUTO CALL
RELAY PLF10	106C	106C	M6A-2	M6A-DI-2	LF PUMP 10 AUTO CALL
MP SEQ. SEL. SWITCH	77	77	SP161	SP161	MP MANUAL SEQ. SW. 12345678
MP SEQ. SEL. SWITCH	77A	77A	SP162	SP162	MP MANUAL SEQ. SW. 12345678
MP SEQ. SEL. SWITCH	79	79	SP163	SP163	MP MANUAL SEQ. SW. 23456781
MP SEQ. SEL. SWITCH	79A	79A	SP164	SP164	MP MANUAL SEQ. SW. 23456781
MP SEQ. SEL. SWITCH	81	81	SP165	SP165	MP MANUAL SEQ. SW. 34567812
MP SEQ. SEL. SWITCH	81A	81A	SP166	SP166	MP MANUAL SEQ. SW. 34567812
MP SEQ. SEL. SWITCH	83	83	SP167	SP167	MP MANUAL SEQ. SW. 45678123
MP SEQ. SEL. SWITCH	83A	83A	SP168	SP168	MP MANUAL SEQ. SW. 45678123
MP SEQ. SEL. SWITCH	85	85	SP169	SP169	MP MANUAL SEQ. SW. 56781234
MP SEQ. SEL. SWITCH	85A	85A	SP170	SP170	MP MANUAL SEQ. SW. 56781234
MP SEQ. SEL. SWITCH	87	87	SP171	SP171	MP MANUAL SEQ. SW. 67812345
MP SEQ. SEL. SWITCH	87A	87A	SP172	SP172	MP MANUAL SEQ. SW. 67812345
MP SEQ. SEL. SWITCH	89	89	SP173	SP173	MP MANUAL SEQ. SW. 78123456
MP SEQ. SEL. SWITCH	89A	89A	SP174	SP174	MP MANUAL SEQ. SW. 78123456
MP SEQ. SEL. SWITCH	91	91	SP175	SP175	MP MANUAL SEQ. SW. 81234567
MP SEQ. SEL. SWITCH	91A	91A	SP176	SP176	MP MANUAL SEQ. SW. 81234567
LFP SEQ. SEL. SWITCH	106	106	SP177	SP177	LFP MANUAL SEQ. SW. 1-2
LFP SEQ. SEL. SWITCH	106A	106A	SP178	SP178	LFP MANUAL SEQ. SW. 1-2
LFP SEQ. SEL. SWITCH	108	108	SP179	SP179	LFP MANUAL SEQ. SW. 2-1
LFP SEQ. SEL. SWITCH	108A	108A	SP180	SP180	LFP MANUAL SEQ. SW. 2-1
RELAY FR1	303	303	SP129	SP129	HIGH WATER ALARM-FLOAT
RELAY FR1	303A	303A	SP130	SP130	HIGH WATER ALARM-FLOAT
RELAY FR2	304	304	SP131	SP131	START STANDBY LEVEL-FLOAT
RELAY FR2	304A	304A	SP132	SP132	START STANDBY LEVEL-FLOAT
RELAY FR3	305	305	SP133	SP133	START LAG 6 LEVEL-FLOAT
RELAY FR3	305A	305A	SP134	SP134	START LAG 6 LEVEL-FLOAT
RELAY FR4	306	306	SP135	SP135	START LAG 5 LEVEL-FLOAT
RELAY FR4	306A	306A	SP136	SP136	START LAG 5 LEVEL-FLOAT
RELAY FR5	307	307	SP137	SP137	START LAG 4 LEVEL-FLOAT
RELAY FR5	307A	307A	SP138	SP138	START LAG 4 LEVEL-FLOAT
RELAY FR6	309	309	SP139	SP139	START LAG 3 LEVEL-FLOAT
RELAY FR6	309A	309A	SP140	SP140	START LAG 3 LEVEL-FLOAT
RELAY FR7	308	308	SP141	SP141	START LAG 2 LEVEL-FLOAT
RELAY FR7	308A	308A	SP142	SP142	START LAG 2 LEVEL-FLOAT
RELAY FR8	310	310	SP143	SP143	START LAG 1 LEVEL-FLOAT
RELAY FR8	310A	310A	SP144	SP144	START LAG 1 LEVEL-FLOAT
RELAY FR9	311	311	SP145	SP145	START LEAD PUMP LEVEL-FLOAT
RELAY FR9	311A	311A	SP146	SP146	START LEAD PUMP LEVEL-FLOAT
RELAY FR10	312	312	SP147	SP147	STOP LAG4 - LAG7 LEVEL - FLOAT
RELAY FR10	312A	312A	SP148	SP148	STOP LAG4 - LAG7 LEVEL - FLOAT
RELAY FR11	313	313	SP149	SP149	STOP LAG PUMPS, START LF LEVEL-FLOAT
RELAY FR11	313A	313A	SP150	SP150	STOP LAG PUMPS, START LF LEVEL-FLOAT
RELAY FR12	314	314	SP151	SP151	STOP LF LAG PUMP LEVEL-FLOAT
RELAY FR12	314A	314A	SP152	SP152	STOP LF LAG PUMP LEVEL-FLOAT
RELAY FR13	315	315	SP153	SP153	STOP LF LEAD PUMP LEVEL-FLOAT
RELAY FR13	315A	315A	SP154	SP154	STOP LF LEAD PUMP LEVEL-FLOAT
RELAY FR14	316	316	SP155	SP155	LOW WATER LEVEL ALARM - FLOAT
RELAY FR14	316A	316A	SP156	SP156	LOW WATER LEVEL ALARM - FLOAT

CONTROL PANEL DIGITAL OUTPUTS - TBDO

INTO CONTROL PANEL	OUT OF CONTROL PANEL				
ORIGINATION	WIRE #	TERM #	WIRE #	DESTINATION	DESCRIPTION OF INPUTS
RELAY ROL9	595	595	SP51	SP51	LF PUMP 9 OVERLOAD TRIP
RELAY ROL9	595A	595A	SP52	SP52	LF PUMP 9 OVERLOAD TRIP
RELAY ROL10	597	597	SP115	SP115	LF PUMP 10 OVERLOAD TRIP
RELAY ROL10	597A	597A	SP116	SP116	LF PUMP 10 OVERLOAD TRIP
RELAY RAA	593	593	SP193	SP193	ALARM ACKNOWLEDGED
RELAY RAA	593A	593A	SP194	SP194	ALARM ACKNOWLEDGED
RELAY FHL	602D	602D	AIAP-5	AEGIS-DI-5	HIGH WATER ALARM-FLOAT
RELAY FHL	602	602	AIAP-C	AEGIS-DI-C	HIGH WATER ALARM-FLOAT
RELAY FLWL	602E	602E	AIAP-7	AEGIS-DI-7	LOW WATER ALARM-FLOAT
RELAY FLWL	602	602	AIAP-C	AEGIS-DI-C	LOW WATER ALARM-FLOAT
GAS MONITOR RELAY ARX/WRX	154	154	M3A-3	M3A-DI-3	START SUPPLY FAN SF-1
GAS MONITOR RELAY ARX/WRX	154B	154B	M3A-2	M3A-DI-2	START SUPPLY FAN SF-1
GAS MONITOR RELAY ARX/WRX	155	155	M3B-1	M3B-DI-1	START EXHAUST FAN EF-1
GAS MONITOR RELAY ARX/WRX	155B	155B	M3B-9	M3B-DI-9	START EXHAUST FAN EF-1
GAS MONITOR RELAY ARX/WRX	156	156	M3C-3	M3C-DI-3	START EXHAUST FAN EF-2
GAS MONITOR RELAY ARX/WRX	156B	156B	M3C-2	M3C-DI-2	START EXHAUST FAN EF-2
GAS MONITOR RELAY ARX/WRX	157	157	M3D-3	M3D-DI-3	START EXHAUST FAN EF-3
GAS MONITOR RELAY ARX/WRX	157B	157B	M3D-2	M3D-DI-2	START EXHAUST FAN EF-3
GAS MONITOR RELAY HR 1/2/3	150B	150B	150B	H1	ALARM HORN H1
GAS MONITOR RELAY HR 1/2/3	150C	150C	150C	H1	ALARM HORN H1
GAS MONITOR RELAY HR 1/2/3	150B	150B	150B	H2	ALARM HORN H2
GAS MONITOR RELAY HR 1/2/3	150C	150C	150C	H2	ALARM HORN H2
GAS MONITOR RELAY HR 1/2/3	150B	150B	150B	H3	ALARM HORN H3
GAS MONITOR RELAY HR 1/2/3	150C	150C	150C	H3	ALARM HORN H3
GAS MONITOR RELAY HR 1/2/3	150B	150B	150B	H4	ALARM HORN H4
GAS MONITOR RELAY HR 1/2/3	150C	150C	150C	H4	ALARM HORN H4
GAS MONITOR RELAY ARX	158	158	SP197	SP197	COMBUSTIBLE GAS ALARM
GAS MONITOR RELAY ARX	158A	158A	SP198	SP198	COMBUSTIBLE GAS ALARM
GAS MONITOR RELAY FRX	159	159	SP211	SP211	COMBUSTIBLE GAS FAULT
GAS MONITOR RELAY FRX	159A	159A	SP212	SP212	COMBUSTIBLE GAS FAULT
GAS MONITOR RELAY WRX	160	160	SP213	SP213	COMBUSTIBLE GAS WARNING
GAS MONITOR RELAY WRX	160A	160A	SP214	SP214	COMBUSTIBLE GAS WARNING

DONOHUE & ASSOCIATES

E27

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

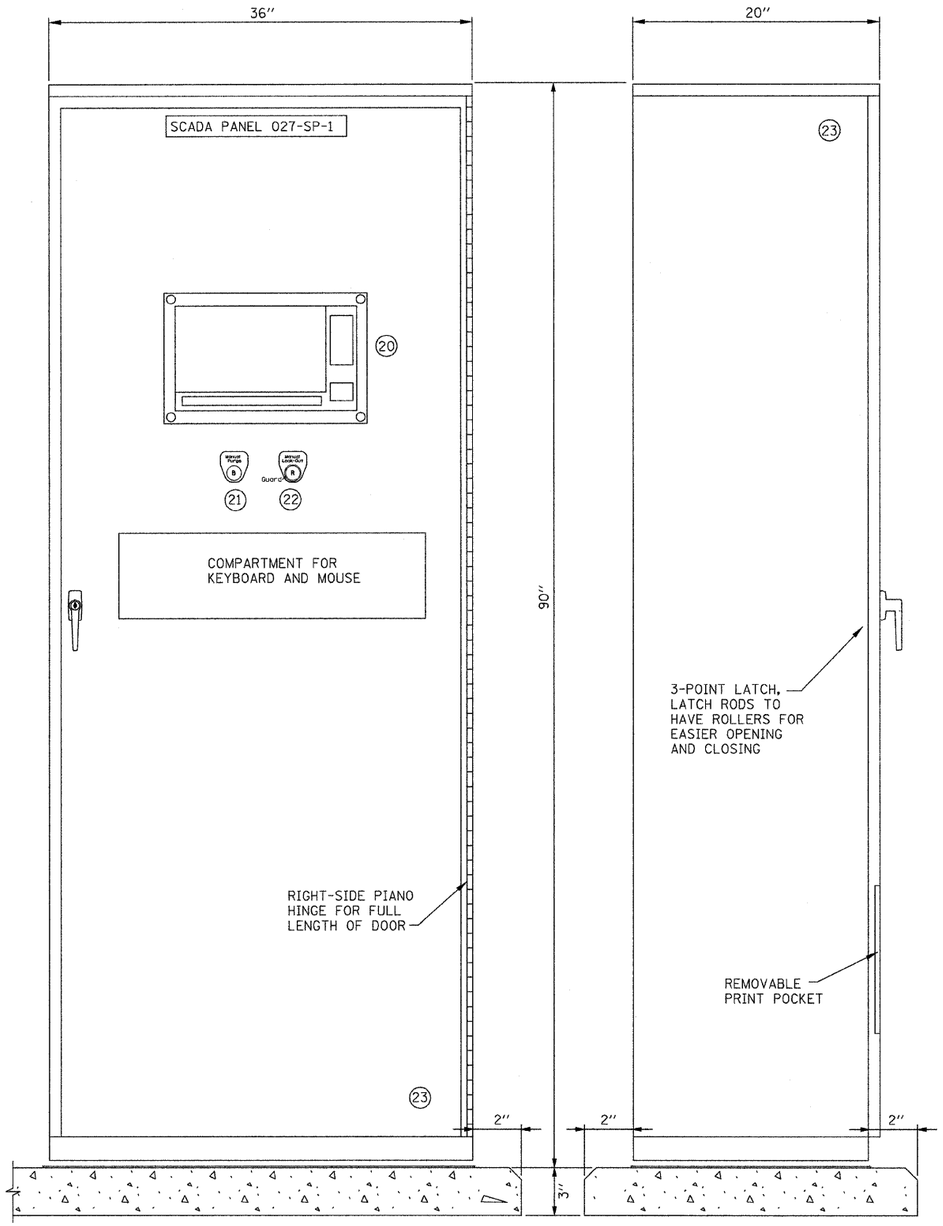
PUMP STATION NO. 27
REHABILITATION

CONTROL PANEL TERMINAL SCHEDULE SH. 3

SCALE: N/A DRAWN BY: MS

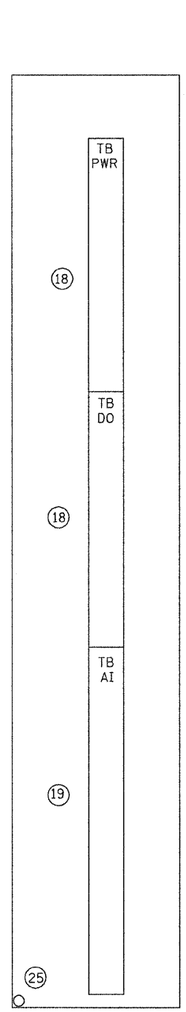
DATE: 04-23-10 CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	59
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

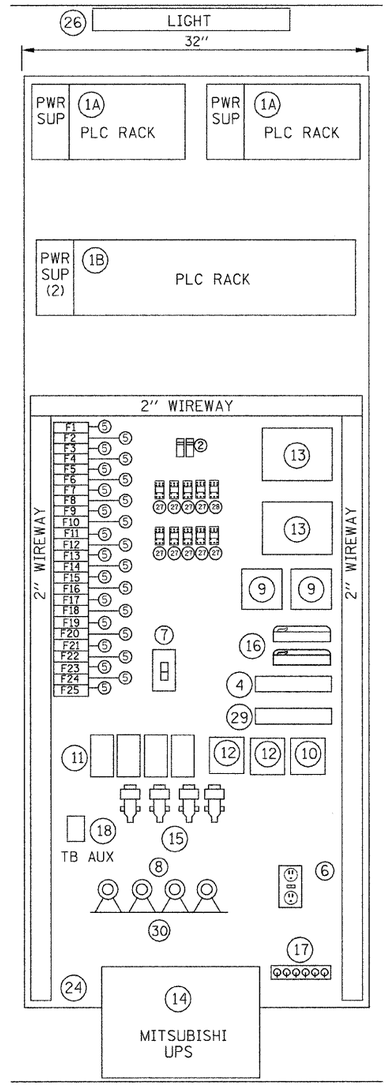


SCADA PANEL – FRONT VIEW

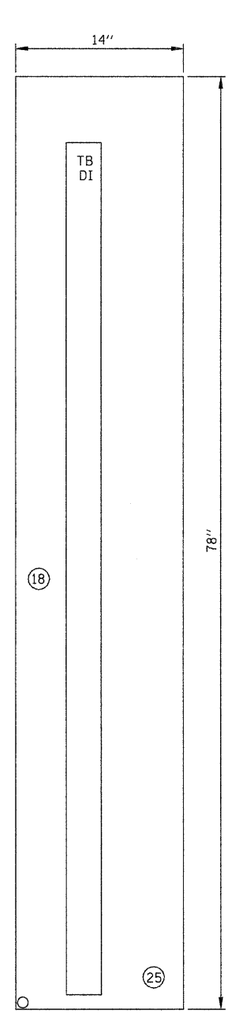
SIDE VIEW



LEFT SIDE



INSIDE PANEL ENCLOSURE



RIGHT SIDE

BILL OF MATERIALS

* DESCRIPTION

1A. PROCESSOR RACKS

- A. 1756-A4 4-SLOT PLC RACK
- B. 1756-PA75 POWER SUPPLY
- C. 1756-ENBT ETHERNET CARD
- D. 1756-L63 CONTROLLER
- E. 1756-RM REDUNDANCY MODULE
- F. 1756-CN2R CONTROLNET MODULE

1B. INPUT/OUTPUT RACK

- A. 1756-A17 17-SLOT PLC RACK
- B. 1756-PA75R REDUNDANT POWER SUPPLIES (2)
- C. 1756-PSCA POWER SUPPLY ADAPTER
- D. 1756-CNBR CONTROL NET MODULE
- E. 1756- IA16 DIGITAL INPUT
- F. MVI56E-MNET MODBUS TCP/IP MODULE
- G. 1756-OW16I DIGITAL OUTPUT
- H. 1756-IF8 ANALOG INPUT

2. BREAKER
3. NOT USED
4. N-TRON 516TX-A ETHERNET SWITCH, QUANTITY 2. INSTALL ONE UNIT IN 027-SP-1. FURNISH SECOND UNIT LOOSE FOR INSTALLATION IN 5KV MOTOR STARTER LINEUP
5. FUSE
6. GFCI OUTLET, 125V, 20A, IN HANDY BOX
7. LIGHT SWITCH, 125V, 20A, IN HANDY BOX
8. GAST COMPRESSOR, MOA-P101-CA
9. CROMPTON CURRENT TRANSDUCER, 256-TALU-LSHG-C5-AM
10. DITEK MRJ11SCP-RUV PHONE LINE SUPPRESSOR
11. MOORE INDUSTRIES PRESSURE TRANSDUCER PIT 3-27PSIG 4-20MA 12-28VDC ISB-DIN
12. POWER INTEGRITY SURGE SUPPRESSOR, ZTAS-03-15-0
13. SOLA 12 VOLT DC POWER SUPPLY, SFL6-12-100
14. MITSUBISHI UPS, 120 VAC, 1 KV A, DOUBLE CONVERSION TYPE, 7011A
15. ASCO SOLENOID VALVE, 8360G77
16. US ROBOTICS 56K MODEM, 5686
17. GROUND BUS
18. TERMINAL BLOCKS, 300 V, SCREW TYPE
19. TERMINAL BLOCKS, 300 V, FUSE HOLDER, SCREW TYPE
20. PLC DISPLAY, AB PANEL VIEW PLUS 1250
21. OILTIGHT PUSH BUTTON WITH NAMEPLATE, AB 800T-A2A
22. OILTIGHT LOCKING PUSH BUTTON WITH SHROUD & NAMEPLATE AB 800T-FX6AL
23. ENCLOSURE, NEMA 12, FREE STANDING WITH HINGED DOOR AND THREE-POINT LATCH
24. BACK PANEL
25. SIDE PANEL
26. FLOURESCENT LIGHT 120 V, 20 W
27. AUXILIARY RELAY, DPDT, 120 V AC COIL
28. AUXILIARY RELAY, DPTP, 12 VDC COIL
29. MDS 5310 RADIO WITH ANTENNA CABLE AND SURGE SUPPRESSORS
30. SEE DETAIL NO20 FOR PURGE STATION PIPING AND COMPONENTS

DONOHUE & ASSOCIATES

E28

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27
REHABILITATION

SCADA PANEL LAYOUT AND DETAILS

SCALE: AS SHOWN DRAWN BY: MS

DATE: 04-23-10 CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	60
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

SCADA PANEL DIGITAL INPUTS
TERMINAL BLOCK TBDI

TERM #	I/O LOC	ORIGINATIION	DESCRIPTION OF INPUTS
SP1	I:03/00	MP1-O	MAIN PUMP 1 ISOLATION SW. OPEN
SP2	DC+	MP1-OA	MAIN PUMP 1 ISOLATION SW. OPEN
SP3	I:03/01	MP1-1	MAIN PUMP 1 RUNNING
SP4	DC+	MP1-1A	MAIN PUMP 1 RUNNING
SP5	I:03/02	MP1-16	MAIN PUMP 1 NOT IN AUTO
SP6	DC+	MP1-16A	MAIN PUMP 1 NOT IN AUTO
SP7	I:03/03	MP1-44A	MAIN PUMP 1 TEMP/MOISTURE ALARM
SP8	DC+	MP1-44B	MAIN PUMP 1 TEMP/MOISTURE ALARM
SP9	I:03/04	MP1-22	MOTOR JB PURGE ALARM
SP10	DC+	MP1-22A	MOTOR JB PURGE ALARM
SP11	I:03/05	MP3-O	MAIN PUMP 3 ISOLATION SW. OPEN
SP12	DC+	MP3-OA	MAIN PUMP 3 ISOLATION SW. OPEN
SP13	I:03/06	MP3-1	MAIN PUMP 3 RUNNING
SP14	DC+	MP3-1A	MAIN PUMP 3 RUNNING
SP15	I:03/07	MP3-16	MAIN PUMP 3 NOT IN AUTO
SP16	DC+	MP3-16A	MAIN PUMP 3 NOT IN AUTO
SP17	I:03/08	MP3-44A	MAIN PUMP 3 TEMP/MOISTURE ALARM
SP18	DC+	MP3-44B	MAIN PUMP 3 TEMP/MOISTURE ALARM
SP19	I:03/09	MP3-22	MOTOR JB PURGE ALARM
SP20	DC+	MP3-22A	MOTOR JB PURGE ALARM
SP21	I:03/10	MP5-O	MAIN PUMP 5 ISOLATION SW. OPEN
SP22	DC+	MP5-OA	MAIN PUMP 5 ISOLATION SW. OPEN
SP23	I:03/11	MP5-1	MAIN PUMP 5 RUNNING
SP24	DC+	MP5-1A	MAIN PUMP 5 RUNNING
SP25	I:03/12	MP5-16	MAIN PUMP 5 NOT IN AUTO
SP26	DC+	MP5-16A	MAIN PUMP 5 NOT IN AUTO
SP27	I:03/13	MP5-44A	MAIN PUMP 5 TEMP/MOISTURE ALARM
SP28	DC+	MP5-44B	MAIN PUMP 5 TEMP/MOISTURE ALARM
SP29	I:03/14	MP5-22	MOTOR JB PURGE ALARM
SP30	DC+	MP5-22A	MOTOR JB PURGE ALARM
SP31	I:03/15		SPARE
SP32	DC+		SPARE
SP33	I:04/00	MP7-O	MAIN PUMP 7 ISOLATION SW. OPEN
SP34	DC+	MP7-OA	MAIN PUMP 7 ISOLATION SW. OPEN
SP35	I:04/01	MP7-1	MAIN PUMP 7 RUNNING
SP36	DC+	MP7-1A	MAIN PUMP 7 RUNNING
SP37	I:04/02	MP7-16	MAIN PUMP 7 NOT IN AUTO
SP38	DC+	MP7-16A	MAIN PUMP 7 NOT IN AUTO
SP39	I:04/03	MP7-44A	MAIN PUMP 7 TEMP/MOISTURE ALARM
SP40	DC+	MP7-44B	MAIN PUMP 7 TEMP/MOISTURE ALARM
SP41	I:04/04	MP7-22	MOTOR JB PURGE ALARM
SP42	DC+	MP7-22A	MOTOR JB PURGE ALARM
SP43	I:04/05	LFP9-O	LF PUMP 9 BREAKER OPEN
SP44	DC+	LFP9-OA	LF PUMP 9 BREAKER OPEN
SP45	I:04/06	LFP9-1	LF PUMP 9 RUNNING
SP46	DC+	LFP9-1A	LF PUMP 9 RUNNING
SP47	I:04/07	LFP9-16	LF PUMP 9 NOT IN AUTO
SP48	DC+	LFP9-16A	LF PUMP 9 NOT IN AUTO
SP49	I:04/08	LFP9-36A	LF PUMP 9 TEMP/MOISTURE ALARM
SP50	DC+	LFP9-36B	LF PUMP 9 TEMP/MOISTURE ALARM
SP51	I:04/09	CP-DO-595	LF PUMP 9 OVERLOAD
SP52	DC+	CP-DO-595A	LF PUMP 9 OVERLOAD
SP53	I:04/10	LFP9-17	MOTOR JB PURGE ALARM
SP54	DC+	LFP9-17A	MOTOR JB PURGE ALARM
SP55	I:04/11		SPARE
SP56	DC+		SPARE
SP57	I:04/12		SPARE
SP58	DC+		SPARE
SP59	I:04/13		SPARE
SP60	DC+		SPARE
SP61	I:04/14		SPARE
SP62	DC+		SPARE
SP63	I:04/15		SPARE
SP64	DC+		SPARE
SP65	I:05/00	MP2-O	MAIN PUMP 2 ISOLATION SW. OPEN
SP66	DC+	MP2-OA	MAIN PUMP 2 ISOLATION SW. OPEN
SP67	I:05/01	MP2-1	MAIN PUMP 2 RUNNING
SP68	DC+	MP2-1A	MAIN PUMP 2 RUNNING
SP69	I:05/02	MP2-16	MAIN PUMP 2 NOT IN AUTO
SP70	DC+	MP2-16A	MAIN PUMP 2 NOT IN AUTO
SP71	I:05/03	MP2-44A	MAIN PUMP 2 TEMP/MOISTURE ALARM
SP72	DC+	MP2-44B	MAIN PUMP 2 TEMP/MOISTURE ALARM
SP73	I:05/04	MP2-22	MOTOR JB PURGE ALARM
SP74	DC+	MP2-22A	MOTOR JB PURGE ALARM
SP75	I:05/05	MP4-O	MAIN PUMP 4 ISOLATION SW. OPEN
SP76	DC+	MP4-OA	MAIN PUMP 4 ISOLATION SW. OPEN
SP77	I:05/06	MP4-1	MAIN PUMP 4 RUNNING
SP78	DC+	MP4-1A	MAIN PUMP 4 RUNNING
SP79	I:05/07	MP4-16	MAIN PUMP 4 NOT IN AUTO
SP80	DC+	MP4-16A	MAIN PUMP 4 NOT IN AUTO
SP81	I:05/08	MP4-44A	MAIN PUMP 4 TEMP/MOISTURE ALARM
SP82	DC+	MP4-44B	MAIN PUMP 4 TEMP/MOISTURE ALARM
SP83	I:05/09	MP4-22	MOTOR JB PURGE ALARM
SP84	DC+	MP4-22A	MOTOR JB PURGE ALARM
SP85	I:05/10	MP6-O	MAIN PUMP 6 ISOLATION SW. OPEN
SP86	DC+	MP6-OA	MAIN PUMP 6 ISOLATION SW. OPEN
SP87	I:05/11	MP6-1	MAIN PUMP 6 RUNNING
SP88	DC+	MP6-1A	MAIN PUMP 6 RUNNING
SP89	I:05/12	MP6-16	MAIN PUMP 6 NOT IN AUTO
SP90	DC+	MP6-16A	MAIN PUMP 6 NOT IN AUTO
SP91	I:05/13	MP6-44A	MAIN PUMP 6 TEMP/MOISTURE ALARM
SP92	DC+	MP6-44B	MAIN PUMP 6 TEMP/MOISTURE ALARM
SP93	I:05/14	MP6-22	MOTOR JB PURGE ALARM
SP94	DC+	MP6-22A	MOTOR JB PURGE ALARM
SP95	I:05/15		SPARE
SP96	DC+		SPARE

SCADA PANEL DIGITAL INPUTS
TERMINAL BLOCK TBDI

TERM #	I/O LOC	ORIGINATIION	DESCRIPTION OF INPUTS
SP97	I:06/00	MP8-O	MAIN PUMP 8 ISOLATION SW. OPEN
SP98	DC+	MP8-OA	MAIN PUMP 8 ISOLATION SW. OPEN
SP99	I:06/01	MP8-1	MAIN PUMP 8 RUNNING
SP100	DC+	MP8-1A	MAIN PUMP 8 RUNNING
SP101	I:06/02	MP8-16	MAIN PUMP 8 NOT IN AUTO
SP102	DC+	MP8-16A	MAIN PUMP 8 NOT IN AUTO
SP103	I:06/03	MP8-44A	MAIN PUMP 8 TEMP/MOISTURE ALARM
SP104	DC+	MP8-44B	MAIN PUMP 8 TEMP/MOISTURE ALARM
SP105	I:06/04	MP8-22	MOTOR JB PURGE ALARM
SP106	DC+	MP8-22A	MOTOR JB PURGE ALARM
SP107	I:06/05	LFP10-O	LF PUMP 10 BREAKER OPEN
SP108	DC+	LFP10-OA	LF PUMP 10 BREAKER OPEN
SP109	I:06/06	LFP10-1	LF PUMP 10 RUNNING
SP110	DC+	LFP10-1A	LF PUMP 10 RUNNING
SP111	I:06/07	LFP10-16	LF PUMP 10 NOT IN AUTO
SP112	DC+	LFP10-16A	LF PUMP 10 NOT IN AUTO
SP113	I:06/08	LFP10-36A	LF PUMP 10 TEMP/MOISTURE ALARM
SP114	DC+	LFP10-36B	LF PUMP 10 TEMP/MOISTURE ALARM
SP115	I:06/09	CP-DO-597	LF PUMP 10 OVERLOAD
SP116	DC+	CP-DO-597A	LF PUMP 10 OVERLOAD
SP117	I:06/10	LFP10-17	MOTOR JB PURGE ALARM
SP118	DC+	LFP10-17A	MOTOR JB PURGE ALARM
SP119	I:06/11		SPARE
SP120	DC+		SPARE
SP121	I:06/12		SPARE
SP122	DC+		SPARE
SP123	I:06/13		SPARE
SP124	DC+		SPARE
SP125	I:06/14		SPARE
SP126	DC+		SPARE
SP127	I:06/15		SPARE
SP128	DC+		SPARE
SP129	I:07/00	CP-DO-303	HIGH WATER ALARM-FLOAT
SP130	DC+	CP-DO-303A	HIGH WATER ALARM-FLOAT
SP131	I:07/01	CP-DO-304	START STANDBY LEVEL-FLOAT
SP132	DC+	CP-DO-304A	START STANDBY LEVEL-FLOAT
SP133	I:07/02	CP-DO-305	START LAG 6 LEVEL-FLOAT
SP134	DC+	CP-DO-305A	START LAG 6 LEVEL-FLOAT
SP135	I:07/03	CP-DO-306	START LAG 5 LEVEL-FLOAT
SP136	DC+	CP-DO-306A	START LAG 5 LEVEL-FLOAT
SP137	I:07/04	CP-DO-307	START LAG 4 LEVEL-FLOAT
SP138	DC+	CP-DO-307A	START LAG 4 LEVEL-FLOAT
SP139	I:07/05	CP-DO-308	START LAG 3 LEVEL-FLOAT
SP140	DC+	CP-DO-308A	START LAG 3 LEVEL-FLOAT
SP141	I:07/06	CP-DO-309	START LAG 2 LEVEL-FLOAT
SP142	DC+	CP-DO-309A	START LAG 2 LEVEL-FLOAT
SP143	I:07/07	CP-DO-310	START LAG 1 LEVEL-FLOAT
SP144	DC+	CP-DO-310A	START LAG 1 LEVEL-FLOAT
SP145	I:07/08	CP-DO-311	START LEAD PUMP LEVEL-FLOAT
SP146	DC+	CP-DO-311A	START LEAD PUMP LEVEL-FLOAT
SP147	I:07/09	CP-DO-312	STOP LAG 4 - 7 LEVEL-FLOAT
SP148	DC+	CP-DO-312A	STOP LAG 4 - 7 LEVEL-FLOAT
SP149	I:07/10	CP-DO-313	STOP MAIN, START LF LEVEL-FLOAT
SP150	DC+	CP-DO-313A	STOP MAIN, START LF LEVEL-FLOAT
SP151	I:07/11	CP-DO-314	START LEAD LF PUMP LEVEL
SP152	DC+	CP-DO-314A	START LEAD LF PUMP LEVEL
SP153	I:07/12	CP-DO-315	STOP LF PUMP LEVEL-FLOAT
SP154	DC+	CP-DO-315A	STOP LF PUMP LEVEL-FLOAT
SP155	I:07/13	CP-DO-316	LOW WATER LEVEL ALARM
SP156	DC+	CP-DO-316A	LOW WATER LEVEL ALARM
SP157	I:07/14		SPARE
SP158	DC+		SPARE
SP159	I:07/15		SPARE
SP160	DC+		SPARE
SP161	I:08/00	CP-DO-77	MP MAN. SEQ. SW. 1-2-3-4-5-6-7-8
SP162	DC+	CP-DO-77A	MP MAN. SEQ. SW. 1-2-3-4-5-6-7-8
SP163	I:08/01	CP-DO-79	MP MAN. SEQ. SW. 2-3-4-5-6-7-8-1
SP164	DC+	CP-DO-79A	MP MAN. SEQ. SW. 2-3-4-5-6-7-8-1
SP165	I:08/02	CP-DO-81	MP MAN. SEQ. SW. 3-4-5-6-7-8-1-2
SP166	DC+	CP-DO-81A	MP MAN. SEQ. SW. 3-4-5-6-7-8-1-2
SP167	I:08/03	CP-DO-88	MP MAN. SEQ. SW. 4-5-6-7-8-1-2-3
SP168	DC+	CP-DO-88A	MP MAN. SEQ. SW. 4-5-6-7-8-1-2-3
SP169	I:08/04	CP-DO-85	MP MAN. SEQ. SW. 5-6-7-8-1-2-3-4
SP170	DC+	CP-DO-85A	MP MAN. SEQ. SW. 5-6-7-8-1-2-3-4
SP171	I:08/05	CP-DO-87	MP MAN. SEQ. SW. 6-7-8-1-2-3-4-5
SP172	DC+	CP-DO-87A	MP MAN. SEQ. SW. 6-7-8-1-2-3-4-5
SP173	I:08/06	CP-DO-89	MP MAN. SEQ. SW. 7-8-1-2-3-4-5-6
SP174	DC+	CP-DO-89A	MP MAN. SEQ. SW. 7-8-1-2-3-4-5-6
SP175	I:08/07	CP-DO-91	MP MAN. SEQ. SW. 8-1-2-3-4-5-6-7
SP176	DC+	CP-DO-91A	MP MAN. SEQ. SW. 8-1-2-3-4-5-6-7
SP177	I:08/08	CP-DO-106	LFP MAN. SEQ. SW. 9-10
SP178	DC+	CP-DO-106A	LFP MAN. SEQ. SW. 9-10
SP179	I:08/09	CP-DO-108	LFP MAN. SEQ. SW. 10-9
SP180	DC+	CP-DO-108A	LFP MAN. SEQ. SW. 10-9
SP181	I:08/10		SPARE
SP182	DC+		SPARE
SP183	I:08/11	SCADA PANEL	MANUAL LOCKOUT
SP184	DC+	SCADA PANEL	MANUAL LOCKOUT
SP185	I:08/12	SCADA PANEL	MANUAL PURGE
SP186	DC+	SCADA PANEL	MANUAL PURGE
SP187	I:08/13	SCADA PANEL	120V AC POWER FAILURE
SP188	DC+	SCADA PANEL	120V AC POWER FAILURE
SP189	I:08/14	SCADA PANEL	12V DC POWER FAILURE
SP190	DC+	SCADA PANEL	12V DC POWER FAILURE
SP191	I:08/15		SPARE
SP192	DC+		SPARE

SCADA PANEL DIGITAL INPUTS
TERMINAL BLOCK TBDI

TERM #	I/O LOC	ORIGINATIION	DESCRIPTION OF INPUTS
SP193	I:09/00	CP-DO-593	ALARM ACKNOWLEDGED
SP194	DC+	CP-DO-593A	ALARM ACKNOWLEDGED
SP195	I:09/01	FAP-DO-629J	FIRE ALARM
SP196	DC+	FAP-DO-629K	FIRE ALARM
SP197	I:09/02	CP-DO-158	COMBUSTIBLE GAS ALARM
SP198	DC+	CP-DO-158A	COMBUSTIBLE GAS ALARM
SP199	I:09/03	AP-DO-607B	ENTRY KEY SW. NOT ARMED
SP200	DC+	AP-DO-608A	ENTRY KEY SW. NOT ARMED
SP201	I:09/04	AP-DO-618	INTRUSION ALARM
SP202	DC+	AP-DO-618A	INTRUSION ALARM
SP203	I:09/05	LTG PANEL	CONTROL PANEL POWER FAIL
SP204	DC+	LTG PANEL	CONTROL PANEL POWER FAIL
SP205	I:09/06	XFER SWITCH	MCC ON FEEDER 1
SP206	DC+	XFER SWITCH	MCC ON FEEDER 1
SP207	I:09/07	XFER SWITCH	MCC ON FEEDER 2
SP208	DC+	XFER SWITCH	MCC ON FEEDER 2
SP209	I:09/08	MCC	MCC TVSS FAILURE
SP200	DC+	MCC	MCC TVSS FAILURE
SP201	I:09/09	SKV SWGR	SURGE SUPRESSOR FAILURE
SP202	DC+	SKV SWGR	SURGE SUPRESSOR FAILURE
SP203	I:09/10	SKV SWGR	ATO UPS FAILURE
SP204	DC+	SKV SWGR	ATO UPS FAILURE
SP205	I:09/11	AIR COMPR	PURGE AIR TANK LOW PRESSURE
SP206	DC+	AIR COMPR	PURGE AIR TANK LOW PRESSURE
SP207	I:09/12	GATE OPR G1	SLIDE GATE G1 OPEN
SP208	DC+	GATE OPR G1	SLIDE GATE G1 OPEN
SP209	I:09/13	GATE OPR G2	KNIFE GATE G2 CLOSED
SP200	DC+	GATE OPR G2	KNIFE GATE G2 CLOSED
SP211	I:09/14	CP-DO-159	COMBUSTIBLE GAS FAULT
SP212	DC+	CP-DO-159A	COMBUSTIBLE GAS FAULT
SP213	I:09/15	CP-DO-160	COMBUSTIBLE GAS WARNING
SP214	DC+	CP-DO-160A	COMBUSTIBLE GAS WARNING

SCADA PANEL DIGITAL OUTPUTS
TERMINAL BLOCK TBDO

TERM #	I/O LOC	WIRE #	DESTINATION	DESCRIPTION OF OUTPUTS
SP301	O:11/00	MP1-7	MP1-DI-7	MAIN PUMP 1 CALL
SP302	DC+	MP1-14	MP1-DI-14	MAIN PUMP 1 CALL
SP303	O:11/01	MP3-7	MP3-DI-7	MAIN PUMP 3 CALL
SP304	DC+	MP3-14	MP3-DI-14	MAIN PUMP 3 CALL
SP305	O:11/02	CP-291	CP-DI-166	CALL MAIN LEAD PUMP
SP306	DC+	CP-1	CP-DI-1	CALL MAIN LEAD PUMP
SP307	O:11/03	CP-293	CP-DI-168	CALL MAIN LAG 2 PUMP
SP308	DC+	CP-1	CP-DI-1	CALL MAIN LAG 2 PUMP
SP309	O:11/04	M5A-2	M5A-DI-2	LF PUMP 9 CALL
SP310	DC+	M5A-9	M5A-DI-9	LF PUMP 9 CALL
SP311	O:11/05	CP-299	CP-DI-299	CALL LF LEAD PUMP
SP312	DC+	CP-1	CP-DI-1	CALL LF LEAD PUMP
SP313	O:11/06			SPARE
SP314	DC+			SPARE
SP315	O:11/07			SPARE
SP316	DC+			SPARE
SP317	O:11/08			SPARE
SP318	DC+			SPARE
SP319	O:11/09			COMPRESSOR 1 CALL
SP320	DC+			COMPRESSOR 1 CALL
SP321	O:11/10			SOL. VALVE 1 CALL
SP322	DC+			SOL. VALVE 1 CALL
SP323	O:11/11	CP-510	CP-DI-510	PRIMARY BUBBLER FAILURE
SP324	DC+	CP-512	CP-DI-512	PRIMARY BUBBLER FAILURE
SP325	O:11/12			COMPRESSOR 3 CALL
SP326	DC+			COMPRESSOR 3 CALL
SP327	O:11/13			SOL. VALVE 3 CALL
SP328	DC+			SOL. VALVE 3 CALL
SP329	O:11/14	CP-507	CP-DI-507	OUTFALL CHAMBER FLOODED
SP330	DC+	CP-509	CP-DI-509	OUTFALL CHAMBER FLOODED
SP331	O:11/15			SPARE
SP332	DC+			SPARE
SP333	O:12/00	MP2-7	MP2-DI-7	MAIN PUMP 2 CALL
SP334	DC+	MP2-14	MP2-DI-14	MAIN PUMP 2 CALL
SP335	O:12/01	MP4-7	MP4-DI-7	MAIN PUMP 4 CALL
SP336	DC+	MP4-14	MP4-DI-14	MAIN PUMP 4 CALL
SP337	O:12/02	CP-292	CP-DI-292	CALL MAIN LAG 1 PUMP
SP338	DC+	CP-1	CP-DI-1	CALL MAIN LAG 1 PUMP
SP339	O:12/03	CP-294	CP-DI-294	CALL MAIN LAG 3 PUMP
SP340	DC+	CP-1	CP-DI-1	CALL MAIN LAG 3 PUMP
SP341	O:12/04	M6A-2	M6A-DI-2	LF PUMP 10 CALL
SP342	DC+	M6A-9	M6A-DI-9	LF PUMP 10 CALL
SP343	O:12/05	CP-300	CP-DI-300	CALL LF LAG PUMP
SP344	DC+	CP-1	CP-DI-1	CALL LF LAG PUMP
SP345	O:12/06			SPARE
SP346	DC+			SPARE
SP347	O:12/07			SPARE
SP348	DC+			SPARE
SP349	O:12/08			COMPRESSOR 2 CALL
SP350	DC+			COMPRESSOR 2 CALL
SP351	O:12/09			SOL. VALVE 2 CALL
SP352	DC+			SOL. VALVE 2 CALL
SP353	O:12/10	CP-513	CP-DI-513	SECONDARY BUBBLER FAIL
SP354	DC+	CP-515	CP-DI-515	SECONDARY BUBBLER FAIL
SP355	O:12/11			SPARE
SP356	DC+			SPARE
SP357	O:12/12	CP-525	CP-DI-525	SCADA PANEL POWER FAIL
SP358	DC+	CP-527	CP-DI-527	SCADA PANEL POWER FAIL
SP359	O:12/13	CP-528	CP-DI-528	SCADA PANEL ALARM
SP360	DC+	CP-530	CP-DI-530	SCADA PANEL ALARM
SP361	O:12/14	CP-516	CP-DI-516	ATO FAILURE
SP362	DC+	CP-518	CP-DI-518	ATO FAILURE
SP363	O:12/15			SPARE
SP364	DC+			SPARE

SCADA PANEL DIGITAL OUTPUTS
TERMINAL BLOCK TBDO

TERM #	I/O LOC	WIRE #	DESTINATION	DESCRIPTION OF OUTPUTS
SP365	O:13/00	MP5-7	MP5-DI-7	MAIN PUMP 5 CALL
SP366	DC+	MP5-14	MP5-DI-14	MAIN PUMP 5 CALL
SP367	O:13/01	MP7-7	MP7-DI-7	MAIN PUMP 7 CALL
SP368	DC+	MP7-14	MP7-DI-14	MAIN PUMP 7 CALL
SP369	O:13/02	CP-295	CP-DI-295	CALL MAIN LAG 4 PUMP
SP370	DC+	CP-1	CP-DI-1	CALL MAIN LAG 4 PUMP
SP371	O:13/03	CP-297	CP-DI-297	CALL MAIN LAG 6 PUMP
SP372	DC+	CP-1	CP-DI-1	CALL MAIN LAG 6 PUMP
SP373	O:13/04	CP-368	CP-DI-368	STOP LAG PUMP 7 ON OUTFALL
SP374	DC+	CP-368A	CP-DI-368A	DSCH LEV DROP TO ELEV. 6.80
SP375	O:13/05			SPARE
SP376	DC+			SPARE
SP377	O:13/06			SPARE
SP378	DC+			SPARE
SP379	O:13/07			SPARE
SP380	DC+			SPARE
SP381	O:13/08			COMPRESSOR 4 CALL
SP382	DC+			COMPRESSOR 4 CALL
SP383	O:13/09			SOL. VALVE 4 CALL
SP384	DC+			SOL. VALVE 4 CALL
SP385	O:13/10	CP-504	CP-DI-504	BAR SCREEN CLOGGED
SP386	DC+	CP-505	CP-DI-506	BAR SCREEN CLOGGED
SP387	O:13/11			SPARE
SP388	DC+			SPARE
SP389	O:13/12	CP-540	CP-DI-540	FLOAT FAILURE
SP390	DC+	CP-542	CP-DI-542	FLOAT FAILURE
SP391	O:13/13			SPARE
SP392	DC+			SPARE
SP393	O:13/14			SPARE
SP394	DC+			SPARE
SP395	O:13/15			SPARE
SP396	DC+			SPARE
SP397	O:14/00	MP6-7	MP6-DI-7	MAIN PUMP 6 CALL
SP398	DC+	MP6-14	MP6-DI-14	MAIN PUMP 6 CALL
SP399	O:14/01	MP8-7	MP8-DI-7	MAIN PUMP 8 CALL
SP400	DC+	MP8-14	MP8-DI-14	MAIN PUMP 8 CALL
SP401	O:14/02	CP-166	CP-DI-166	CALL MAIN LAG 5 PUMP
SP402	DC+	CP-1	CP-DI-1	CALL MAIN LAG 5 PUMP
SP403	O:14/03	CP-168	CP-DI-168	CALL MAIN STBYPUMP
SP404	DC+	CP-1	CP-DI-1	CALL MAIN STBYPUMP
SP405	O:14/04	CP-546	CP-DI-546	CENTRAL PUMP TEST
SP406	DC+	CP-548	CP-DI-548	CENTRAL PUMP TEST
SP407	O:14/05	CP-567	CP-DI-567	ATO UPS FAILURE
SP408	DC+	CP-569	CP-DI-569	ATO UPS FAILURE
SP409	O:14/06			SPARE
SP410	DC+			SPARE
SP411	O:14/07			SPARE
SP412	DC+			SPARE
SP413	O:14/08			SPARE
SP414	DC+			SPARE

SCADA PANEL ANALOG INPUTS
TERMINAL BLOCK TBAI

TERM #	I/O LOC	ORIGINATIION	DESCRIPTION OF INPUTS
	SLOT 15		
SP501	AI:15/0	SCADA EQUIPMENT	PRIMARY BUBBLER LEVEL
SP502	DC+	SCADA EQUIPMENT	PRIMARY BUBBLER LEVEL
SP503	SHIELD		
SP504	AI:15/1	SCADA EQUIPMENT	SCREEN CHAMBER BUBBLER LVL
SP505	DC+	SCADA EQUIPMENT	SCREEN CHAMBER BUBBLER LVL
SP506	SHIELD		
SP507	AI:15/2	SPARE	
SP508	DC+		
SP509	SHIELD		
SP510	AI:15/3	SCADA EQUIPMENT	LFP9 MOTOR CURRENT VIA TRANSDUCER
SP511	DC+	SCADA EQUIPMENT	LFP9 MOTOR CURRENT VIA TRANSDUCER
SP512	SHIELD		
	SLOT 16		
SP513	AI:16/0	SCADA EQUIPMENT	SECONDARY BUBBLER LEVEL
SP514	DC+	SCADA EQUIPMENT	SECONDARY BUBBLER LEVEL
SP515	SHIELD		
SP516	AI:16/1	SCADA EQUIPMENT	OUTFALL CHAMBER BUBBLER LVL
SP517	DC+	SCADA EQUIPMENT	OUTFALL CHAMBER BUBBLER LVL
SP518	SHIELD		
SP519	AI:16/2	SCADA EQUIPMENT	LFP10 MOTOR CURRENT VIA TRANSDUCER
SP520	DC+	SCADA EQUIPMENT	LFP10 MOTOR CURRENT VIA TRANSDUCER
SP521	SHIELD		
SP522	AI:16/3	SPARE	
SP523	DC+		
SP524	SHIELD		

DONOHUE & ASSOCIATES

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REVISIONS	
NAME	DATE

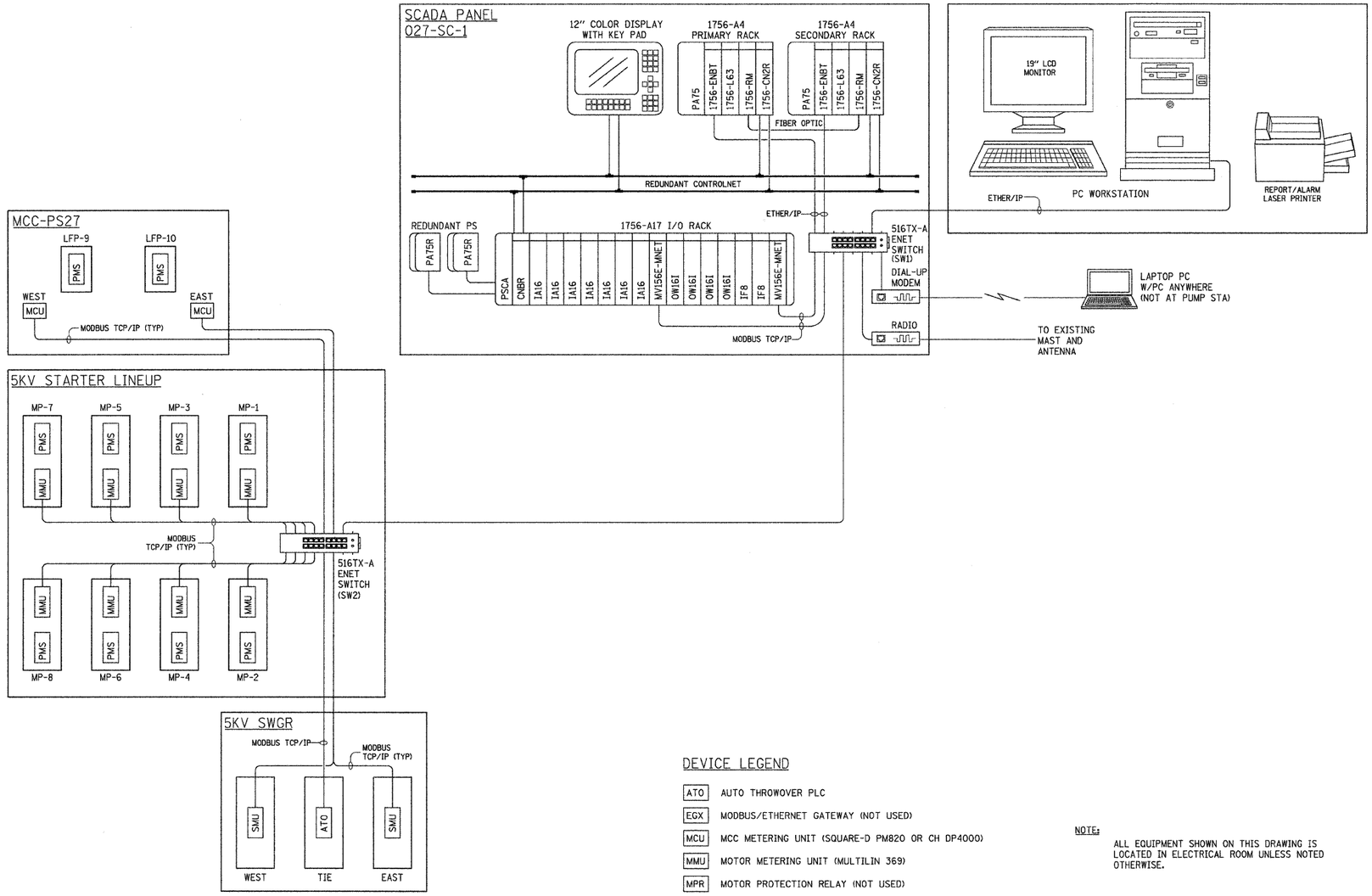
ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27
REHABILITATION

SCADA PANEL
TERMINAL SCHEDULE

SCALE: N/A
DRAWN BY: MS
DATE: 04-23-10
CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	61
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



DEVICE LEGEND

ATO	AUTO THROWOVER PLC
EGX	MODBUS/ETHERNET GATEWAY (NOT USED)
MCU	MCC METERING UNIT (SQUARE-D PM820 OR CH DP4000)
MMU	MOTOR METERING UNIT (MULTILIN 369)
MPR	MOTOR PROTECTION RELAY (NOT USED)
PMS	PUMP MONITORING SYSTEM (FLYGT MAS OR EQUIV)
SMU	SWGR METERING UNIT (SQUARE-D CM4250 OR CH POWER EXPERT 4000)
URM	UNIVERSAL RTD MODULE (NOT USED)

NOTE:
ALL EQUIPMENT SHOWN ON THIS DRAWING IS LOCATED IN ELECTRICAL ROOM UNLESS NOTED OTHERWISE.

SCADA SYSTEM DATA NETWORK

DONOHUE & ASSOCIATES

E30

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27
REHABILITATION

SCADA SYSTEM DIAGRAMS

SCALE: N/A
DRAWN BY: KP
DATE: 04-23-10
CHECKED BY: KP

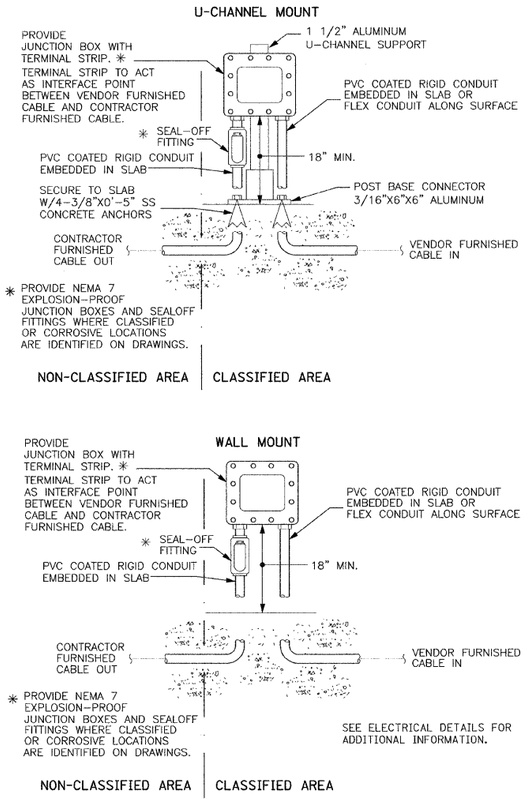
F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	62
FED. ROAD DIST. NO. _	ILLINOIS	FED. AID PROJECT		

INSTRUMENT PLAN GENERAL NOTES

1. DRAWING SHOWS CONTROL, SIGNAL AND ASSOCIATED SINGLE PHASE POWER WIRING REQUIREMENTS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WIRING, WHETHER SHOWN OR NOT, NECESSARY FOR A COMPLETE AND OPERABLE SYSTEM.
3. THIS DRAWING SHOWS APPROXIMATE LOCATIONS OF DEVICES AND PANELS AND IS DRAWN TO SCALE.
4. SHIELDED AND UNSHIELDED CONDUCTORS SHALL BE RUN IN CONDUIT. SHIELDED CONDUCTORS SHALL NOT BE COMBINED WITH UNSHIELDED CONDUCTORS IN ANY CONDUIT. NEITHER SHIELDED NOR UNSHIELDED CONDUCTORS SHALL BE INCLUDED IN THE SAME CONDUIT AS POWER WIRING.
5. SHIELDED AND UNSHIELDED CONDUCTORS SHALL HAVE A MINIMUM OF 6" SEPARATION BETWEEN CONDUIT ON PARALLEL RUNS.
6. SHIELDED AND UNSHIELDED CONDUCTORS SHALL BE SEPARATED BY STEEL BARRIERS IN ALL COMBINED SIGNAL JUNCTION BOXES AND INSTRUMENT TERMINATION CABINETS.
7. CONDUCTORS SHALL NOT BE SPLICED EXCEPT AT TERMINALS OR AS DESIGNATED BY ENGINEER.
8. ONLY REQUIRED CONDUCTORS ARE SHOWN ON PLAN. SPARE CONDUCTORS NOT SHOWN.
9. FOR EACH CONDUIT CONTAINING MORE THAN TWO CONDUCTORS, PROVIDE A MINIMUM OF TWO CONDUCTORS OR 10% OF TOTAL CONDUCTORS IN CONDUIT, WHICHEVER IS GREATER AS SPARES. TAG BOTH ENDS OF EACH SPARE. TERMINATE EACH END OF SPARE CONDUCTOR AT TERMINALS WHENEVER POSSIBLE.
10. CONDUIT SHALL BE SIZED TO ACCOMODATE REQUIRED CONDUCTORS AND ANTICIPATED SPARES.
11. THIS DRAWING DOES NOT SHOW CONDUIT SYSTEMS. PROVIDE, AS A MINIMUM, PULL BOXES AS RECOMMENDED BY CONDUCTOR MANUFACTURER. CONDULETS SHALL NOT BE USED AS PULL BOXES.
12. PROVIDE EXPLOSION-PROOF SEAL-OFF FITTINGS ON ALL CONDUIT EXITING CLASSIFIED OR RATED LOCATIONS. FITTINGS SHALL BE INSTALLED IN THE CLASSIFIED OR RATED LOCATION.

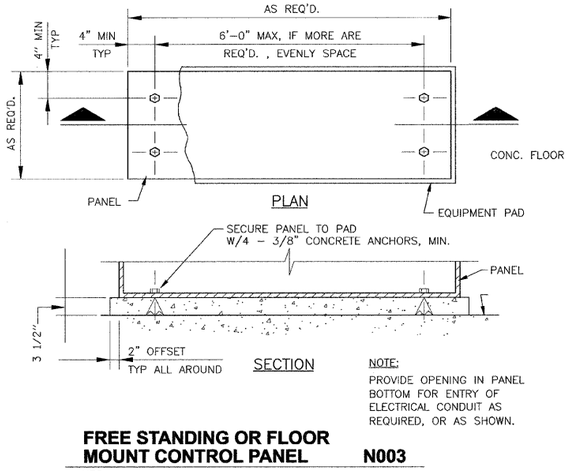
INSTRUMENT PLAN LEGEND

( ) #14	(QUANTITY)	#14 THWN CONDUCTORS
( ) SH.PR.	(QUANTITY)	#16 SHIELDED PAIR
( ) TEL	(QUANTITY)	#18 TELEPHONE CABLE 4 - CONDUCTOR
( ) CAT6	(QUANTITY)	DATA HIGHWAY CABLE
( ) RG62	(QUANTITY)	RG62 A/U COAXIAL CABLE
( ) VFC	(QUANTITY)	VENDOR FURNISHED CABLE



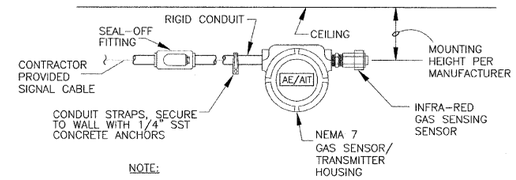
I&C JUNCTION BOX (xxx-JBOX-x) INSTALLATION **N001**

NTS



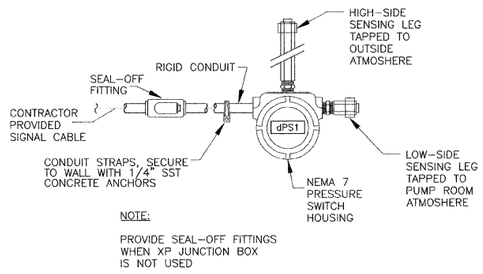
FREE STANDING OR FLOOR MOUNT CONTROL PANEL **N003**

NTS



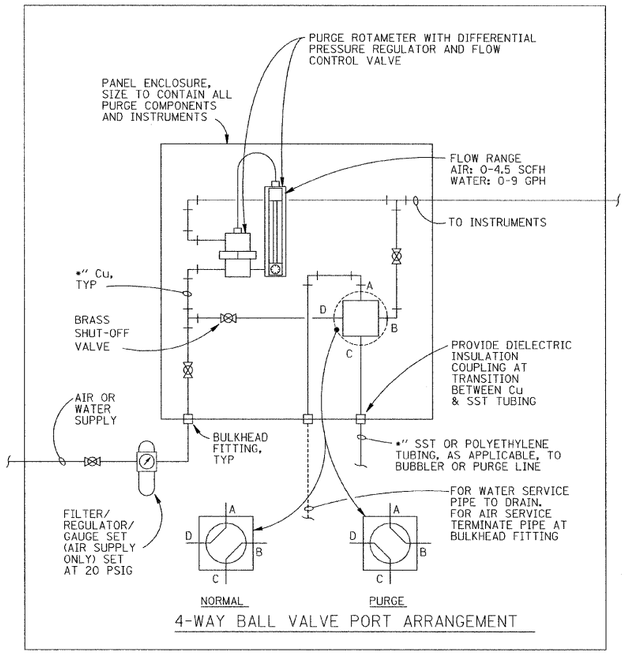
COMBUSTIBLE GAS SENSOR/ TRANSMITTER - INFRA-RED **N004**

NTS



PRESSURE SWITCH - DIFFERENTIAL **N016**

NTS



BUBBLER LEVEL SYSTEM PURGE STATION **N020**

NTS

DONOHUE & ASSOCIATES

E31

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

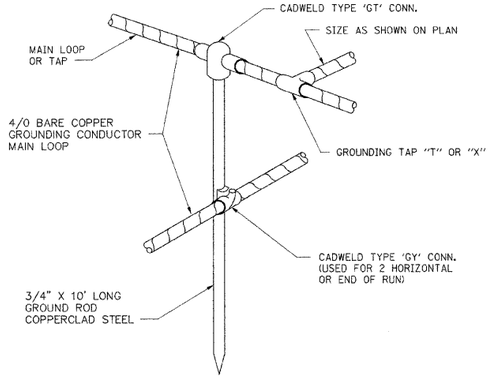
PUMP STATION NO. 27 REHABILITATION

I&C DETAILS

SCALE: N/A DRAWN BY: MS

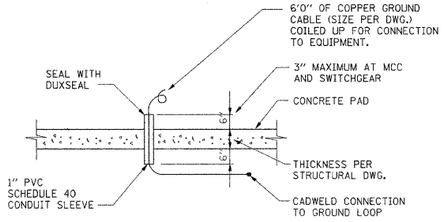
DATE: 04-23-10 CHECKED BY: MS

F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94	1213.4 A-T	COOK	63	63
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



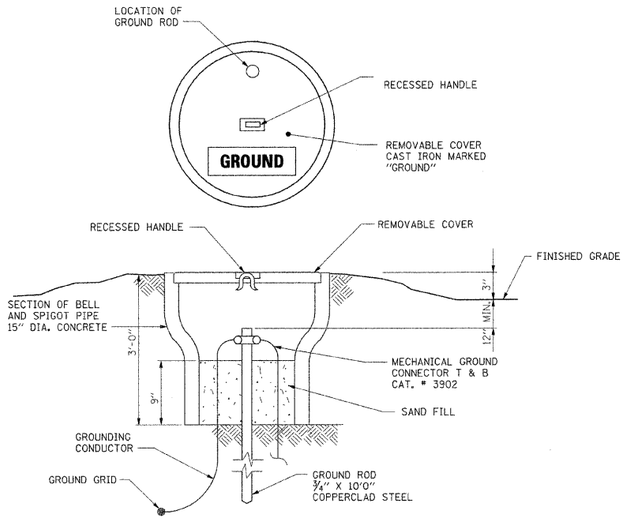
CONDUCTOR TO GROUND ROD CONNECTION DETAIL E451

NTS



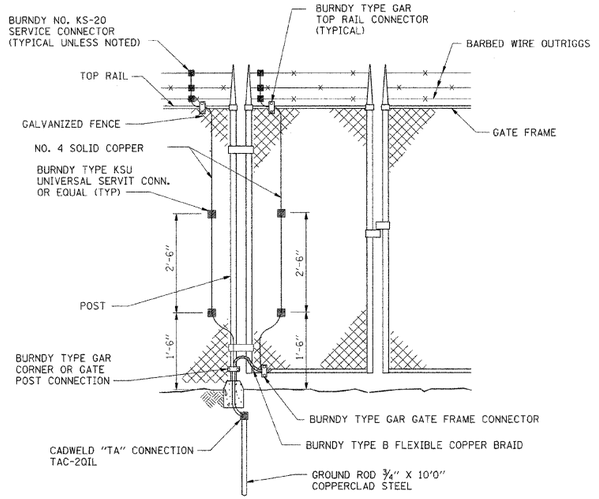
EQUIPMENT GROUND CABLE STUB-UP E452

NTS



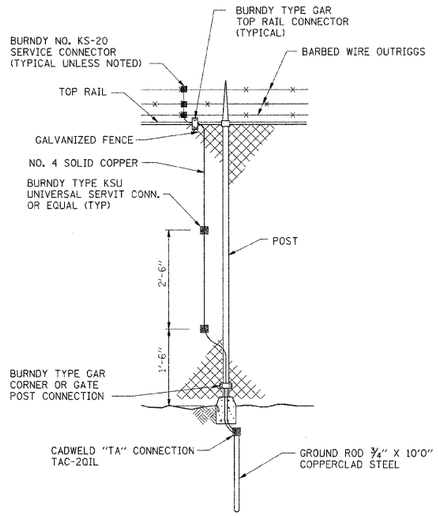
GROUNDING TEST STATION DETAIL E455

NTS



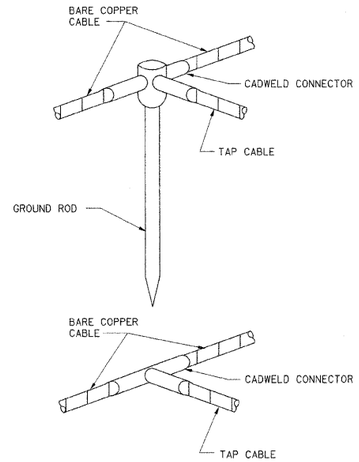
GATE AND HINGE POST GROUNDING E457

NTS



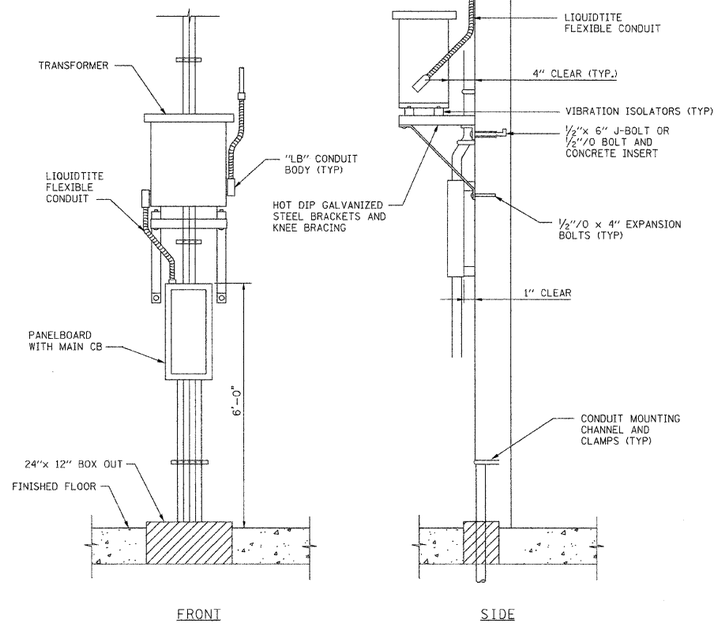
LINE POST GROUNDING E458

NTS



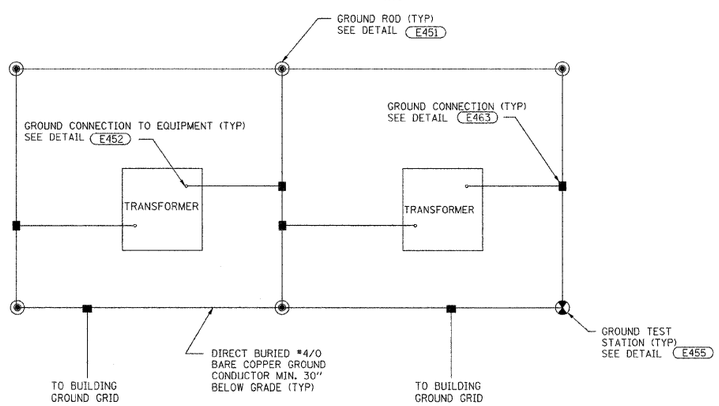
GROUNDING CONNECTION DETAIL E463

NTS



WALL MOUNTED TRANSFORMER AND PANEL BOARD E991

NTS



TRANSFORMER GROUNDING DETAIL E700

NTS

DONOHUE & ASSOCIATES

E32

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PUMP STATION NO. 27 REHABILITATION

ELECTRICAL DETAILS

SCALE: AS SHOWN DRAWN BY: MS

DATE: 04-23-10 CHECKED BY: MS