RIO GRANDE ZOOLOGICAL PARK
CITY OF ALBUQUERQUE

SALTWATER FILTRATION SYSTEM

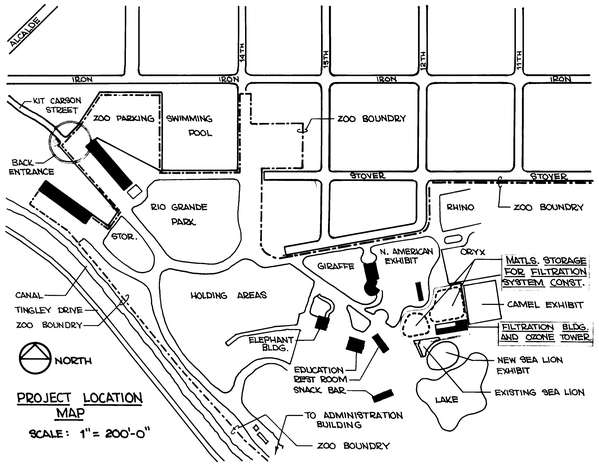
FEBRUARY 1990

MAYOR: Louis E. Saavedra

CITY COUNCILLORS

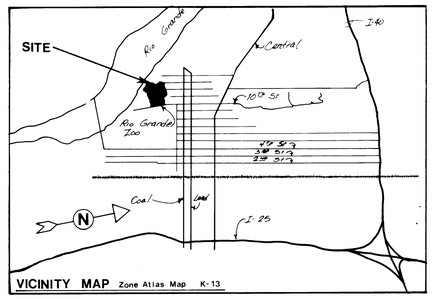
DISTRICT I: Alan B. Armijo
DISTRICT II: Vincent E. Griego
DISTRICT III: Steve D. Gallegos, President
DISTRICT IV: Herb H. Hughes
DISTRICT V: Tim Kline
DISTRICT VI: Hess Yntema
DISTRICT VII: Pauline K. Gubbels
DISTRICT VIII: Richard J. Chapman, Vice President
DISTRICT IX: Michael Brasher

Director, Rio Grande Zoo: John A. Moore



PROJECT LOCATION MAP

SCALE: 1" = 200'-0"



VICINITY MAP Zone Atlas Map K-13

INDEX OF DRAWINGS

City Project No. 3771

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
26-377|1.90 0297

APPROVAL OF AS BUILT DRAWINGS
CHIEF CONSTRUCTION ENGINEER
DATE 6-6-97

REV.	SHEETS	CITY ENGINEER	DATE	USER DEPT.	DATE	USER DEPT.	DATE

RAY DARNELL, R.A.
RIO GRANDE ZOOLOGICAL PARK
903 TENTH STREET, S.W.
ALBUQUERQUE, NEW MEXICO

APPROVED FOR CONSTRUCTION
5-2-96

PROJECT NO. 3771

SHEET G1 OF 26

Engineered Foundation Soils Note
It is recommended that the deposits of loose sand be removed to a depth of one half the footing width or two (2) feet, whichever is greater. The excavation can then be backfilled with the excavated granular soil placed in layers of not more than nine (9) inches in thickness, with each layer being compacted to a minimum density of 95 percent of the maximum dry density as determined by ASTM designation D-1557 values. The area of compacted backfill must extend outside the perimeter of the foundation for a distance at least equal to the thickness of the fill between the bottom of the foundation and the underlying undisturbed soils. If this procedure is followed, it is expected that the fill will be capable of supporting loads of up to 2,000 P.S.F., with a magnitude of any future settlements being within tolerable limits. All continuous footings placed upon the compacted backfill should be suitably reinforced to make them as rigid as possible. If it is elected to utilize a compacted backfill for the support of foundations, the excavations and the placing of the backfill should be monitored continuously by a qualified soils engineer so that the work is performed in accordance with these specifications.

LEGEND

- 8" C.M.U. WALL
- HOLLOW CORE ROOF SLABS
- CAST-IN-PLACE CONCRETE ROOF SLAB
- WALL SECTION SYMBOL

GENERAL NOTES

1. Foundations are designed for the allowable net soil bearing pressure of 1500 psf. See notes above for foundation soils preparation, etc.
2. Design live loads are as follows:

Mech'l equipt. areas	50 psf
Roof	20 psf

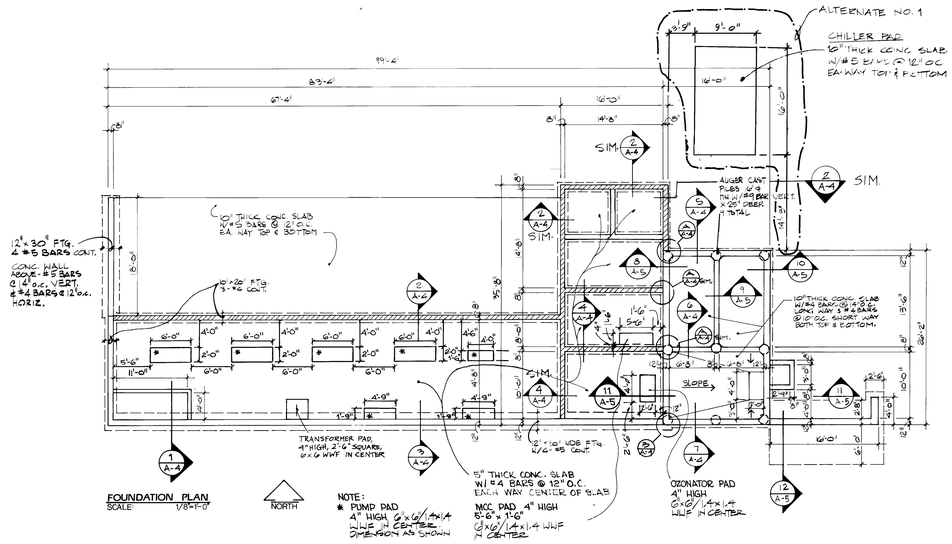
3. Design wind loads:

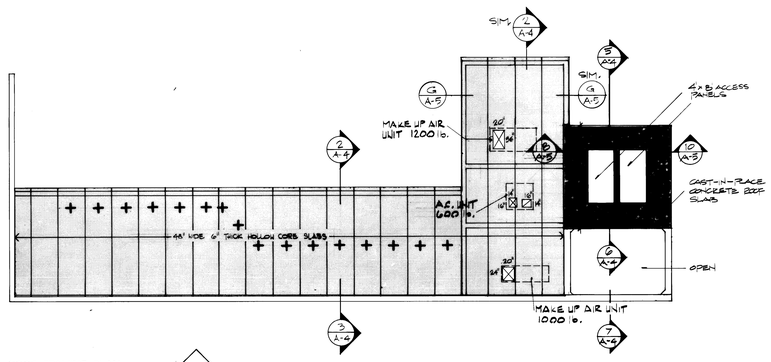
Height - 20 ft.	14 psf
Height - 40 ft.	16 psf

4. Slabs on grade shall be reinforced as noted, with chairs to proper clearances.
5. Concrete shall be mixed as specified, with a min. compressive strength of 3000 psi @ 28 days.
6. All concrete work shall be in accordance with A.C.I. requirements.
7. All reinforcing steel shall be new deformed billet conforming to ASTM A615, grade 60, size #5 and larger.
8. Provide proper supports and required clearances for all reinforcing in slabs and foundations.
12. All welding shall conform to the AWS & AISC codes, and be performed by qualified welders.
13. Concrete masonry units shall conform to ASTM C90-75, grade N, type I for hollow load-bearing units, f'm = 1350 psi, 0.03 % allowable linear shrinkage.

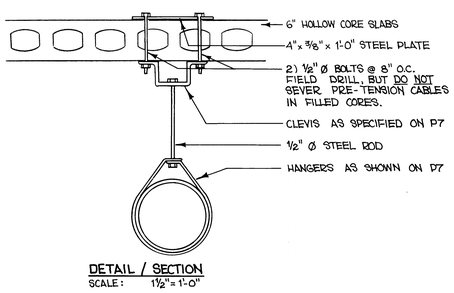
CODE INFORMATION

PUMP HOUSE SQUARE FEET	1377 S.F.
OZONE TOWER SQUARE FEET	201 S.F.
OCCUPANCY	B-4
CONSTRUCTION TYPE	V-N





+ NOTE:
LOCATE PLATES IN HOLLOW CORE SLABS AS SHOWN IN ROOF FRAMING PLAN ABOVE. SEE DETAIL AT LEFT FOR CONST. EXACT LOCATION TO BE DETERMINED BY PLUMBER.



DETAIL / SECTION
SCALE: 1 1/2" = 1'-0"

THE RIO GRANDE ZOO

AS BUILT INFORMATION
CONTRACTOR
STAKED BY — DATE
ADDITIONS BY — DATE
DELETIONS BY — DATE
VERIFICATION BY — DATE
CORRECTED BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE
NO.

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES BY — DATE
NO.

ENGINEER'S SEAL

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	DATE 10/12/89
		DESIGNED BY GLS	DATE 10/12/89
		DRAWN BY GLS	DATE 10/19/89
		CHECKED BY PJD	

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
2 6 - 3 7 7 1 . 9 0 0 5 9 7

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: RIO GRANDE ZOOLOGICAL PARK
SALTWATER FILTRATION SYSTEM
FOUNDATION PLAN and ROOF FRAMING PLAN

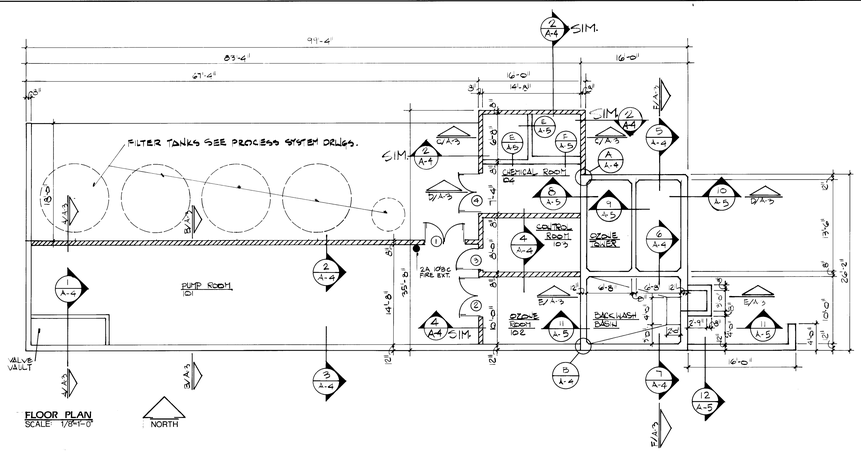
APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair	[illegible]	5/2/90			
Trans. Dev.	DJH	5/1/90			
Utility Dev.	R.W. Kane	5-1-90			

DRAWING NO. 3771 | MAP NO. | SHEET A1 OF 26

City Project No. 3771

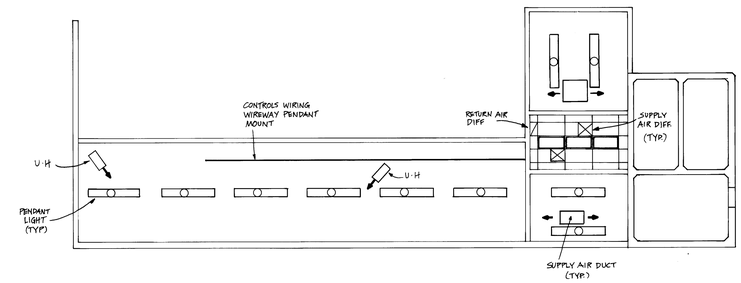
LEGEND

- CMU WALL
- CAST IN PLACE CONC. WALL
- 2×4 LAY-IN ACOUSTICAL CEILING
- DETAIL SYMBOL
- BUILDING SECTION SYMBOL
- WALL SECTION SYMBOL



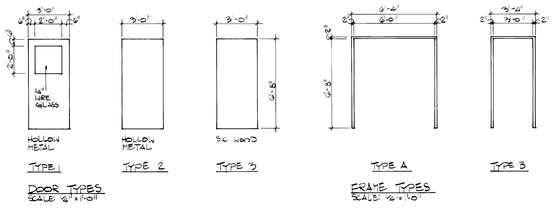
FLOOR PLAN
SCALE: 1/8"=1'-0"

NORTH



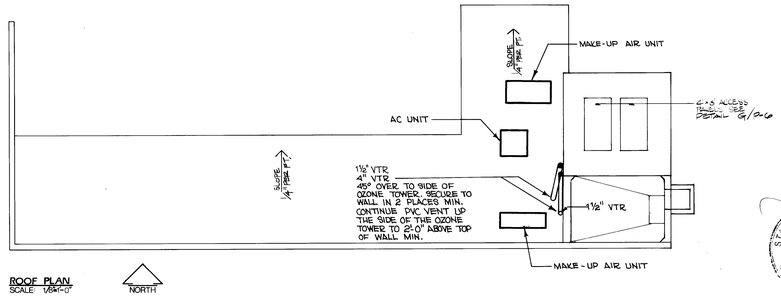
REFLECTED CEILING PLAN
SCALE: 1/8"=1'-0"

NORTH



DOOR TYPES
SCALE: 3/4"=1'-0"

FRAME TYPES
SCALE: 1/2"=1'-0"



ROOF PLAN
SCALE: 1/8"=1'-0"

NORTH

ROOM FINISH SCHEDULE

NO.	NAME	FLOOR: EXPOSED CONC.	FLOOR: V.C.T.	BASE: NONE	WALLS: EXPOSED CONC.	WALLS: EXPOSED C.M.U.	CEILING: 2×4 LAY-IN ACOUST.	CEILING: EXPOSED S.L.B.	CEILING HEIGHT	REMARKS
101	PUMP ROOM	●		●	●●			●	-	
102	OZONE ROOM	●		●	●●			●	-	
103	CONTROL ROOM		●	●	●●		●		8'-0"	
106	CHEMICAL ROOM	●		●	●●			●	-	

DOOR SCHEDULE

NO.	PAIR	DOOR SIZE	DOOR MATERIAL	DOOR TYPE	FRAME TYPE	FRAME MATERIAL	FRAME DETAILS: HEAD	FRAME DETAILS: JAMB	FRAME DETAILS: JAMB	FRAME DETAILS: THRESHOLD	FIRE RATING	HARDWARE: BUTTS	SPANC	LKSET	LTCHSET	CLS'R	PUSH	PULL	STOP	THRESH	FLUSH BOLT	SWEEP	WSTRIP	REMARKS
1	●	3'-0" × 7'-0"	HOLLOW MET.	1	A	HOL. METAL	D/A-4	D/A-4	D/A-4	——	——	101		201					301	501	401	502	503	
2	●	3'-0" × 7'-0"	S.C. WOOD	3	A	HOL. METAL	D/A-4	D/A-4	D/A-4	——	——	102			202				301		401			
3		3'-0" × 7'-0"	S.C. WOOD	3	B	HOL. METAL	D/A-4	D/A-4	D/A-4	——	——	102			202				301					
4	●	3'-0" × 7'-0"	HOLLOW MET.	2	A	HOL. METAL	D/A-4	D/A-4	D/A-4	——	——	101		201					301	501	401	502	503	

THE RIO GRANDE ZOO

AS BUILT INFORMATION
CONTRACTOR
WORK STARTED BY — DATE
WORK ACCEPTANCE BY — DATE
FINAL INSPECTION BY — DATE
AS BUILT CORRECTED BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE
NO.

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES BY — DATE
NO.

ENGINEER'S SEAL

NO. | DATE | REMARKS | BY
REVISIONS
DESIGNED BY GLS — DATE 10/14/89
DRAWN BY GLS — DATE 10/14/89
CHECKED BY RDP — DATE 10/14/89

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
2 6 - 3 7 7 1 . 9 0 0 4 9 7

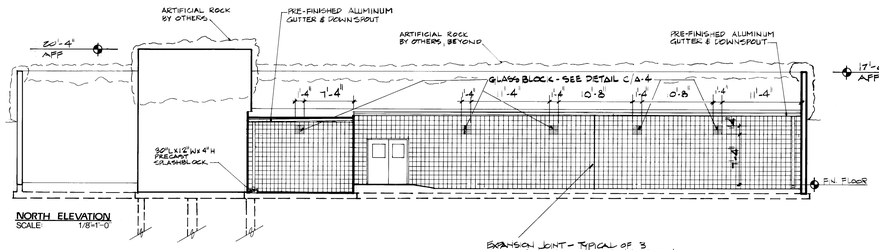
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: RIO GRANDE ZOOLOGICAL PARK
SALTWATER FILTRATION SYSTEM
FLOOR PLAN, REFLECTED CEILING PLAN and ROOF PLAN
ROOM FINISH and DOOR SCHEDULES

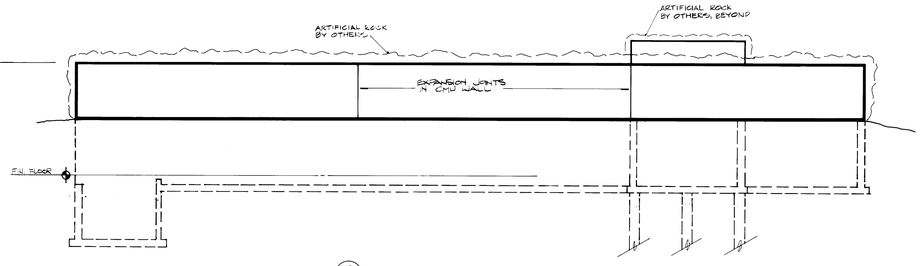
APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair					
Trans. Dev.	DWH	5/1/90			
Utility Dev.	R.W. Kane	5-1-90			

DRAWING NO. 3771 | MAP NO. | SHEET A2 OF 26

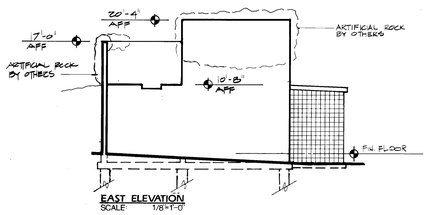
City Project No. 3771



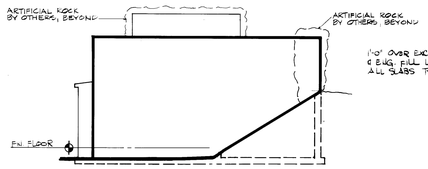
NORTH ELEVATION
SCALE: 1/8"=1'-0"



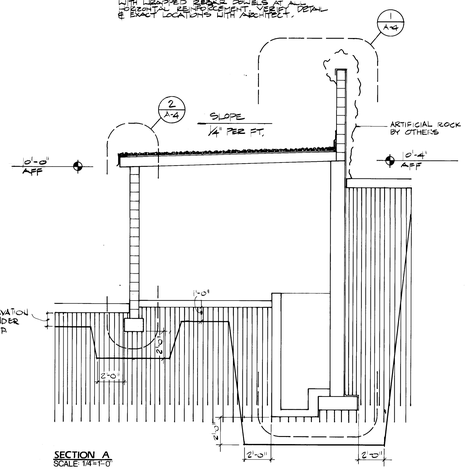
SOUTH ELEVATION
SCALE: 1/8"=1'-0"



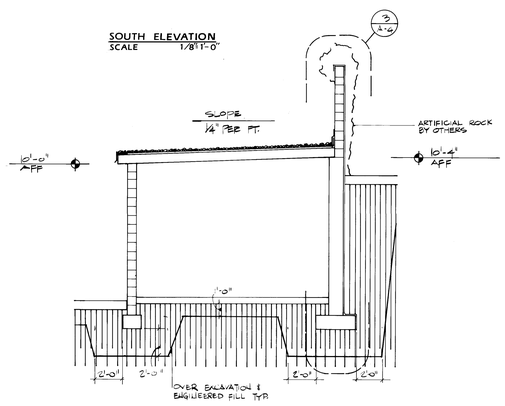
EAST ELEVATION
SCALE: 1/8"=1'-0"



WEST ELEVATION
SCALE: 1/8"=1'-0"



SECTION A
SCALE: 1/4"=1'-0"



SECTION B
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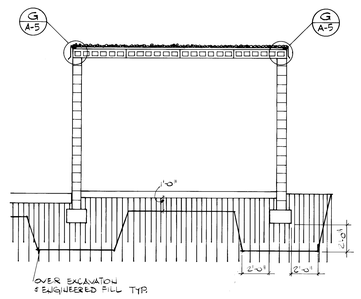

SECTION C
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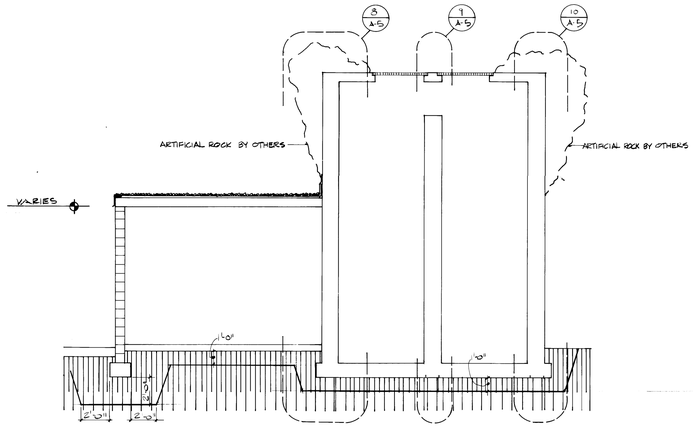
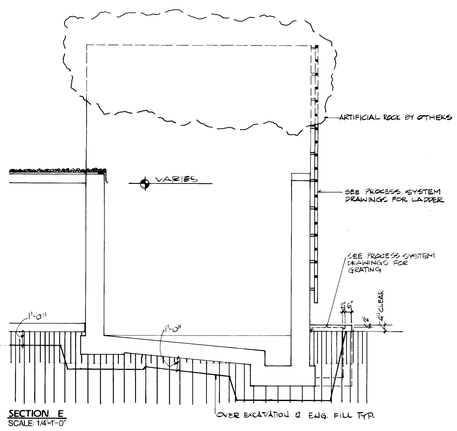
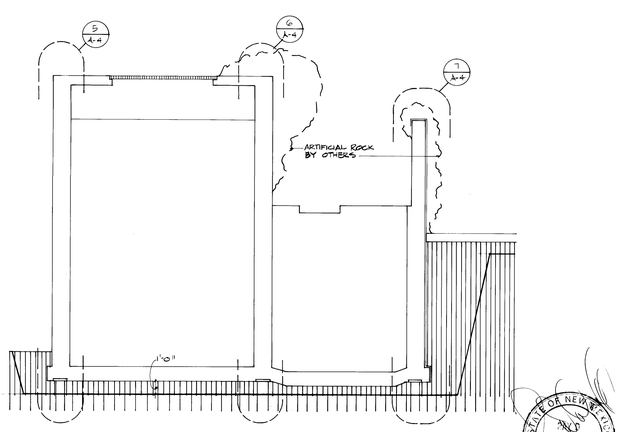


SECTION D
SCALE: 1/4"=1'-0"



SECTION E
SCALE: 1/4"=1'-0"



SECTION F
SCALE: 1/4"=1'-0"

STATE OF NEW MEXICO
REGISTERED ARCHITECT

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
2 6 - 9 7 7 1 . 9 0 0 5 9 7

THE RIO GRANDE ZOO

AS BUILT INFORMATION
CONTRACTOR
SURVEYED BY DATE
DRAWN BY DATE
ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
CHECKED BY DATE
DRAWINGS BY DATE
MICRO-FILM INFORMATION
RECORDED BY DATE
NO.

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES
BY DATE
NO.

ENGINEER'S SEAL

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY GLS	DATE 10/12/89
		DRAWN BY GLS	DATE 10/12/89
		CHECKED BY KJP	DATE 10/19/89

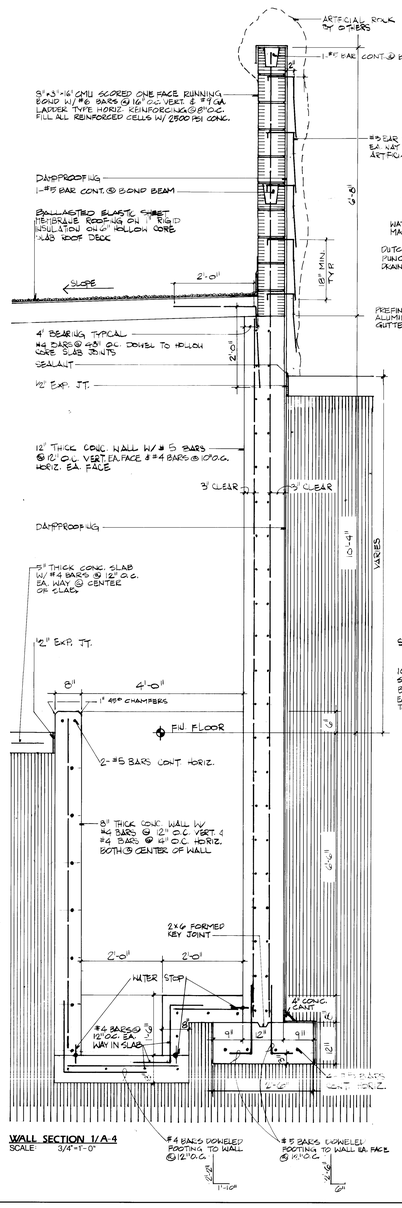
City Project No. 3771

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

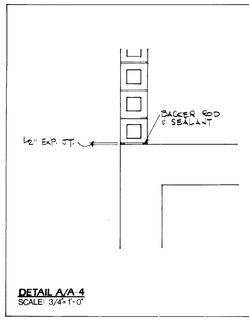
TITLE: RIO GRANDE ZOOLOGICAL PARK
SALTWATER FILTRATION SYSTEM
ELEVATIONS and SECTIONS

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair		5/2/90			
Trans. Dev.		5/1/90			
Utility Dev.	R.W. Kane	5-1-90			

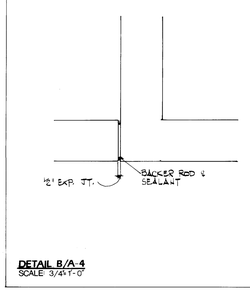
DRAWING NO. 3771 | MAP NO. | SHEET A3 OF 26



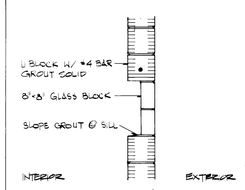
NOTE: LAP ALL BARS 40 BAR DIAM. MIN.



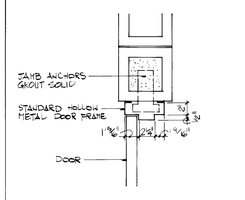
DETAIL A/A-4
SCALE: 3/4"=1'-0"



DETAIL B/A-4
SCALE: 3/4"=1'-0"



DETAIL C/A-4
SCALE: 3/4"=1'-0"



DETAIL D/A-4
SCALE: 1 1/2"=1'-0"

THE RIO GRANDE ZOO

AS BUILT INFORMATION

BENCH MARKS	CONTRACTOR	DATE
	WORK DONE BY	DATE
	INSPECTION BY	DATE
	FIELD VERIFICATION BY	DATE
	CHECKED BY	DATE
	SURVEY INFORMATION	
	FIELD NOTES	
	NO. BY DATE	

ENGINEER'S SEAL

MICRO-FILM INFORMATION
RECORDED BY DATE
NO.

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY SLS	DATE 10/12/89
		DRAWN BY SLS	DATE 10/12/89
		CHECKED BY RD	DATE 10/17/89

City Project No. 3771

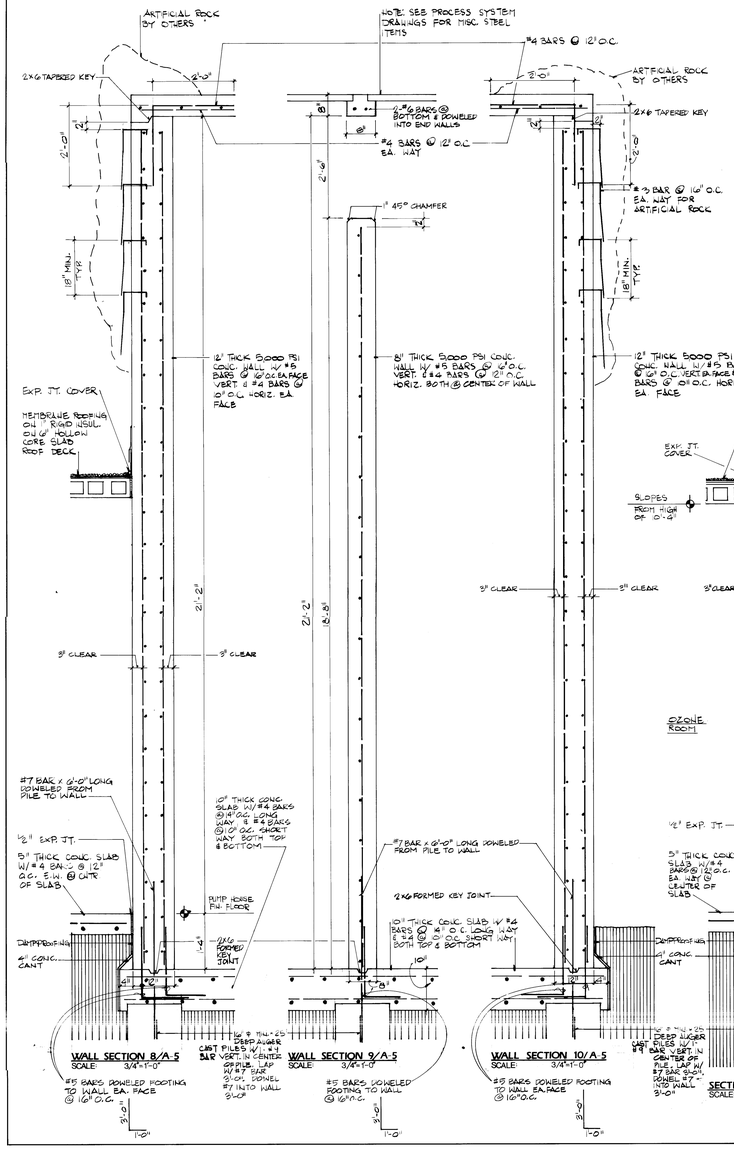
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

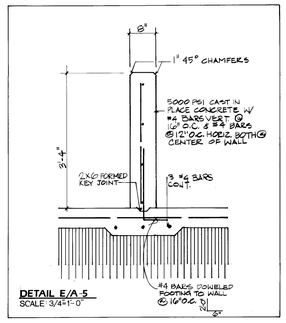
TITLE: RIO GRANDE ZOOLOGICAL PARK
SALTWATER FILTRATION SYSTEM
WALL SECTIONS and DETAILS SHEET 1

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair					
Trans. Dev.	Dutt	5/2/90			
Utility Dev.	R.W. Kane	5-1-90			

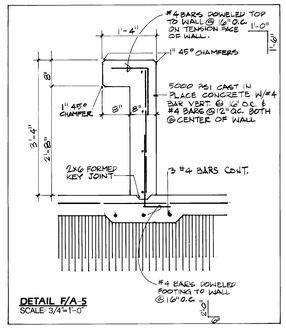
DRAWING NO. 3771 | MAP NO. | SHEET A4 OF 26

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
26-3771.90 06 97

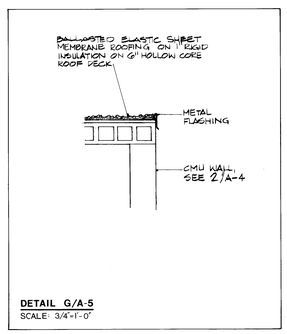




DETAIL E/A-5
SCALE: 3/4"=1'-0"



DETAIL F/A-5
SCALE: 3/4"=1'-0"



DETAIL G/A-5
SCALE: 3/4"=1'-0"

THE RIO GRANDE ZOO

AS BUILT INFORMATION

	DATE
CONTRACTOR	
STAKED BY	
INSPECTED BY	
ACCEPTANCE	
VERIFICATION BY	
CORRECTED BY	

MICRO-FILM INFORMATION

	DATE
RECORDED BY	
NO.	

BENCH MARKS

SURVEY INFORMATION

NO.	FIELD NOTES BY	DATE

ENGINEER'S SEAL

NO.	DATE	REMARKS	BY
		REVISIONS	
	DATE 10/12/89	DESIGN	DESIGNED BY RLS
	DATE 10/12/89		DRAWN BY RLS
	DATE 10/19/89		CHECKED BY RLD

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: RIO GRANDE ZOOLOGICAL PARK
SALTWATER FILTRATION SYSTEM
WALL SECTIONS and DETAILS SHEET 2

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair	[illegible]	5/2/90			
Trans. Dev.	[illegible]	5/1/90			
Utility Dev.	R.W. Kane	5-1-90			

DRAWING NO. 3771 | MAP NO. | SHEET A5 OF 26

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
26-3771.90.0797

City Project No. 3771

GRADING & DRAINAGE PLAN

DRAINAGE PLAN
RIO GRANDE ZOO
SALTWATER FILTRATION SYSTEM

LOCATION AND DESCRIPTION:

THE PROJECT IS LOCATED WITHIN THE CITY OF ALBUQUERQUE RIO GRANDE ZOO AT THE CORNER OF 10TH STREET & STOVER AVENUE IN ALBUQUERQUE, NEW MEXICO. THE PROJECT LIMITS CONTAIN APPROXIMATELY 0.21 ACRES. THE SITE IS PRESENTLY DEVELOPED AS THE HOOF STOCK AREA AND ROAD. THE SITE IS LOCATED WITHIN A FLOOD PLAIN.

EXISTING CONDITIONS:

PRESENTLY, RUNOFF FROM THE SITE DISCHARGES TO THE HOOF STOCK AREA WHERE, DUE TO EXISTING ELEVATIONS, RUNOFF PONDS RANDOMLY.

PROPOSED CONDITIONS:

PROPOSED DEVELOPMENT OF THE SITE INCLUDES A BUILDING AND A CONCRETE PAD FOR A SALTWATER FILTRATION SYSTEM. RUNOFF FROM THE PROJECT AREA WILL BE DIRECTED TO A NEW TEMPORARY PONDING AREA. DUE TO THE NEW CONSTRUCTION, FLOW FROM THIS PROJECT WILL INCREASE FROM 0.54 CFS TO 0.60 CFS.

CALCULATIONS: (BASED ON CITY OF ALBUQUERQUE DEVELOPMENT PROCESS MANUAL, VOLUME II).

CALCULATIONS:

Area = 0.21 acres
I = 2.2 in./hr. Plate 22.2 D-2
6-hour, 100-year rainfall = 2.2 in. Plate 22.2 D-1
i = (2.2)(2.2) = 4.84 in./hr.

EXISTING ON-SITE CONDITIONS:

SURFACE TYPE	"C" VALUE	A (ACRES)	"C"X A	COMPOSITE "C"="CXA/A
Streets, Drives, Walks	0.95	0.05	0.0475	
Roofs	0.90			
Lawns & Landscaping	0.25			
Undeveloped	0.40	0.16	0.0640	
TOTAL	0.25	0.21	0.1115	0.53

Q(100) = (0.53)(4.84)(0.21) = 0.54 cfs
Q(10) = (0.657)(0.54) = 0.35 cfs
C = 70 Plate 22.2 C-2
Direct Runoff = 0.5 in. Plate 22.2 C-4
V(100) = (0.5)(0.21)(43560)/12 = 381.2 cu. ft.
V(10) = (0.657)(381.2) = 250.4 cu. ft.

PROPOSED ON-SITE CONDITIONS:

SURFACE TYPE	"C" VALUE	A (ACRES)	"C"X A	COMPOSITE "C"="CXA/A
Streets, Drives, Walks	0.95	0.0312	0.0296	
Roofs	0.90	0.0440	0.0396	
Lawns & Landscaping	0.25			
Undeveloped	0.40	0.1348	0.0539	
TOTAL		0.21	0.1232	0.59

Q(100) = (0.59)(4.84)(0.21) 0.60 cfs
Q(10) = (0.657)(0.60) = 0.39 cfs
CN = 75 Plate 22.2 C-3
Direct Runoff = 0.75 in. Plate 22.2 C-4
V(100) = (0.75)(0.21)(43560)/12 = 571.7 cu. ft.
V(10) = (0.657)(571.7) = 375.6 cu. ft.

PROVIDE POND:

V(100) Developed - V(100) Existing = 571.7 - 381.2 = 190.5 cu. ft.

POND SIZE:

2(1/2(25 ft. x 25 ft. x 0.5 ft. (Deep)) = 315 CF

VICINITY MAP K-13
FLOOD BNDY. MAP PANEL #28

LEGAL DESCRIPTION:

TOWN 10 NORTH, RANGE 3 EAST, SECTION 19, TOWN OF ATRISCO GRANT. RIO GRANDE ZOO

BENCH MARK (ACS & PROJECT)

THE ACS BENCH MARK IS A STATION DESCRIBED AS A STANDARD BRASS CAP STAMPED "1-K13" LOCATED 225' SOUTH OF STOVER AVE. SW ON THE WEST CURB ON 8TH ST. SW. ELEVATION IN FEET = 4944.026.

THE PROJECT BENCH MARK IS A DROP INLET LOCATED 75' EAST AND 45' NORTH OF THE NORTHEAST CORNER OF THE CORNER OF THE EXISTING PRIMATE HOUSE. ELEVATION AT TOP OF GRATE 43.75. SEE PLAN FOR LOCATION OF PROJECT BENCH MARK.

SURVEY DATA:

SURVEY PROVIDED BY SCANLON AND ASSOCIATES ENGINEERS 1988, KOOGLE & POULS ENGINEERS 1986.

LEGEND

- 46 — EXISTING CONTOUR
- x44.2 EXISTING SPOT ELEVATION
- 46.0 PROPOSED SPOT ELEVATION MAHLMANN & MILES ARCHITECTS
- EXISTING FACILITIES
- PROPOSED FACILITIES UNDER CONSTRUCTION
- PROPOSED FACILITIES
- FUTURE FACILITIES
- ZOO LAKE BOUNDARY
- NEW BUILDING
- NEW CONCRETE
- NEW WALL
- WOODEN FENCE
- DIRECTION OF ROOF FLOW
- LIMITS OF PHASED CONSTRUCTION
- 45.00 PROPOSED SPOT ELEVATION THIS PHASE
- EXISTING BUILDING
- TW TOP OF WALL ELEVATION
- TG TOP OF GRADE ELEVATION
- TC TOP OF CONCRETE
- 6" COBBLES

NORTH

SCALE: 1" = 20'

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
26-13771.90 08917

THE RIO GRANDE ZOO

AS BUILT INFORMATION
CONTRACTOR
WORK STARTED BY DATE
WORK COMPLETED BY DATE
FIELD VERIFICATION BY DATE
CHECKED BY DATE
MICRO-FILM INFORMATION
RECORDED BY DATE
NO.

BENCH MARKS
The ACS Bench Mark is a Station Described as a Standard Brass Cap Stamped "1-K13" Located 225' South of Stover Ave. SW on the West Curb On 8th St. SW. Elevation in Feet = 4944.026.

SURVEY INFORMATION
FIELD NOTES BY DATE
NO.

ENGINEER'S SEAL
VICTOR I. CANTEZ — NEW MEXICO — REGISTERED PROFESSIONAL ENGINEER — 9/14/89

REMARKS
REVISIONS BY DATE
NO. DATE
DESIGNED BY RBS DATE 8-31-89
DRAWN BY LL DATE 8-31-89
CHECKED BY RBS DATE 8-31-89

City Project No. 3771

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: RIO GRANDE ZOOLOGICAL PARK
SALTWATER FILTRATION SYSTEM
GRADING & DRAINAGE PLAN

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair		5/2/90			
Trans. Dev.		5/1/90			
Utility Dev.		5-1-90			
Hydrology		5-2-90			

DRAWING NO. 3771 MAP NO. K-13-Z SHEET C1 OF 26

MECHANICAL EQUIPMENT SCHEDULE

ALL EQUIPMENT CAPACITIES ARE FOR 5300 FEET ELEVATION

SYMBOL	DESCRIPTION

EF1 — SYMBOL EF-1 – PROPELLER EXHAUST FAN: V-BELT DRIVEN PROPELLER FAN. FAN TO BE OWNER FURNISHED AND CONTRACTOR INSTALLED.

SYMBOL	CFM	S.P. IN.W.G.	APPROX(S.L.) TIP SPEED	MIN.WHEEL DIA., IN.,	PANEL DIMEN., IN.	ELEC POWER	MOTOR HP	GREENHECK MODEL NO.
EF-1	3160	.25	5561	24'	32 X 32	120/1/60	1/2	SPFE-24-5

1&2 — SYMBOLS 1 AND 2, ROOFTOP HEATING AND VENTILATING UNITS: FURNISH ROOFTOP GRAVITY VENTED, NATURAL GAS FIRED HEATING AND VENTILATING UNITS. UNITS SHALL PROVIDE 100% OUTSIDE AIR. PROVIDE 2-POSITION ELECTRIC OUTSIDE AIR DAMPER WITH ALL CONTROLS INTEGRAL WITH UNIT TO OPEN DAMPER WHEN FAN OPERATESIN EITHER SPEED. FURNISH AUXILIARY CONTACT ON HIGH & LOW FAN STARTERS TO INTERLOCK W/REMOTE RELIEF DAMPER.

FURNISH INTERMITTENT SPARK IGNITION PILOT WITH ELECTRONIC FLAME SUPERVISION AND A TWO-STAGE 24 VOLT GAS VALVE. PROVIDE ALL NECESSARY LIMIT AND SAFETY CONTROLS INCLUDING REVERSE AIR FLOW LIMIT SWITCH. UNIT SHALL BEAR AGA LABEL.

FURNISH DOWNTURN DISCHARGE PLENUM MOUNTED ON FULL ROOF CURB. CABINET SHALL BE FINISHED WITH BAKED ENAMEL PAINT, WEATHERPROOF AND INSULATED. PROVIDE 100% OUTSIDE HOOD WITH BIRDSCREEN. FURNISH ACCESS DOORS TO SERVICE ALL INTERNAL COMPONENTS. FAN SHALL BE CENTRIFUGAL TYPE WITH ADJUSTABLE BELT DRIVES. FURNISH 2 SPEED/2 WINDING MOTORS WITH CONTACTS AVAILABLE FOR REMOTE CONTROL OF 2 SPEED OPERATION.

HEATING CONTROLS TO PROVIDE 1ST STAGE HEATING WITH LOW SPEED FAN AND 2ND STAGE HEATING WITH HIGH SPEED FAN WHEN HEATING IS REQUIRED.

HEAT EXCHANGER, BURNERS AND DRIP PAN SHALL BE STAINLESS STEEL. FURNISH FREEZESTAT AND DISCHARGE AIR TEMPERATURE CONTROLS WITH UNIT. FURNISH MOTOR STARTER, AND ALL OPERATING CONTROLS INTEGRAL WITH UNIT TO ALLOW SINGLE POINT ELECTRICAL CONNECTION. REZNOR, STERLING, OR EQUIVALENT.

SYMBOL	CFM	ESP	HP	ELECTRICAL	HEATING (MBH) IN. @ S.L.	HEATING (MBH) OUT @ ALT.	WEIGHT
1	2600/1300	.3	.75	480/3/60	175	107.8	1000
2	3200/1600	.3	1.5	480/3/60	300	184.8	1200

SYMBOL	REZNOR MODEL	SERVICE
1	RXE-H175	OZONE ROOM
2	RXE-300	CHEMICAL ROOM

3 — SYMBOL 3 – PACKAGED ROOFTOP HEATING & COOLING UNIT: FURNISH PACKAGED ROOFTOP NATURAL GAS HEATING, ELECTRIC COOLING ROOFTOP UNIT. CABINET SHALL BE ENAMEL FINISHED, WEATHERPROOF AND INSULATED. PROVIDE ACCESS DOORS TO SERVICE ALL INTERNAL COMPONENTS. UNIT SHALL BE ARRANGED FOR DOWN DISCHARGE ON INTEGRAL ROOF CURB.

HEATING SECTION SHALL CONTAIN INTERMITTENT SPARK IGNITION PILOT WITH ELECTRONIC FLAME SUPERVISOR. PROVIDE ALL NECESSARY LIMIT AND SAFETY CONTROLS.

COOLING SECTION SHALL BE DIRECT EXPANSION WITH HERMETIC COMPRESSORS. FURNISH WITH FULL REFRIGERANT CHARGE. FURNISH ALL NECESSARY CONTROLS INTEGRAL WITH UNIT. COILS SHALL BE CONSTRUCTED OF COPPER TUBES WITH ALUMINUM FINS. FURNISH HIGH/LOW PRESSURE SAFETIES AND COMPRESSOR RECYCLE TIME CONTROLS.

FURNISH MOTOR STARTER, AND ALL CONTROLS INTEGRAL WITH UNIT SUITABLE FOR SINGLE POINT ELECTRICAL CONNECTION.

SUPPLY FAN SHALL BE DIRECT DRIVE CENTRIFUGAL TYPE. CONDENSER FAN SHALL BE UP-DISCHARGE PROPELLER TYPE.

PROVIDE WALL MOUNTED HEATING/COOLING DEADBAND THERMOSTAT WITH ON/OFF SWITCH.

SYMBOL	CFM	COOLING CAPACITY MBH @ 63' EWB & 105' AMBIENT TH	SH	KW
3	600	15.7	14.6	2.2

HEATING CAPACITY, MBH IN @ S.L.	OUT @ ALT.	POWER	ELECTRICAL COMPRESSOR RLA	LRA	EVAP HP	FAN FLA	COND HP	FAN FLA	MAX HACR C-B SIZE
40	24.8	208/1/60	8.2	49.0	1/3	2.5	1/10	.8	20A/2P

WEIGHT	CARRIER MODEL NO.	SERVICE
600	48NLT018300	CONTROL ROOM

4&5 — SYMBOL 4 AND 5 – GAS FIRED UNIT HEATER: NATURAL GAS FIRED, PROPELLER FAN TYPE, AGA APPROVED. FURNISH COMPLETE WITH ALL REQUIRED SAFETY AND OPERATING CONTROLS INCLUDING; UNIT MOUNTED THERMOSTAT, LOW VOLTAGE TRANSFORMER, RELAY, FAN TIME DELAY RELAY, HIGH LIMIT SWITCH, FAN CONTROLS, AUTOMATIC 24 VOLT GAS VALVE WITH 100% SAFETY PILOT SHUT-OFF, PRESSURE REGULATOR, MAIN AND PILOT GAS COCKS. UNIT SHALL OPERATE FROM LOW VOLTAGE THERMOSTAT PROVIDED ON UNIT. TOTALLY ENCLOSED MOTOR WITH THERMAL OVERLOAD PROTECTION, ALUMINIZED STEEL BURNERS AND HEAT EXCHANGERS, INTEGRAL DRAFT DIVERTER, SAFETY FAN GUARD,

ADJUSTABLE DISCHARGE LOUVERS, GUM FILTER TO PROTECT PILOT ORIFICE FROM CLOGGING WITH DIRT. TRANE, MODINE, REZNOR, OR EQUIVALENT.

SYMBOL	NOM. CFM	MOTOR HP	RPM	ELECTRICAL V/PH/HZ.	SEA LEVEL MBH INPUT	SEA LEVEL MBH OUTPUT	ALTITUDE MBH OUTPUT	CU.FT. GAS	REZNOR MODEL NO.	LOCATION
4 & 5	650	1/40	1550	120/1/60	50	40	32	50	FE-50	PUMP RM.

GRILLE AND DIFFUSER SCHEDULE

GENERAL NOTES: GRILLES, REGISTERS AND DIFFUSERS SHALL BE FABRICATED OF ALUMINUM. ALUMINUM GRILLES, DIFFUSERS AND REGISTERS SHALL BE FINISHED IN BAKED WHITE ENAMEL. THE TYPE OF GRILLE, DIFFUSER, OR REGISTER IS SHOWN BY SYMBOL NUMBER ON THE DRAWINGS. EQUIPMENT MANUFACTURED BY CARNES, KRUEGER, BARBER COLMAN AND TITUS IS ACCEPTABLE.

[A] A SIDEWALL SUPPLY REGISTER: FIXED HORIZONTAL DEFLECTION VANES IN A REMOVABLE, REVERSIBLE CORE TO PROVIDE 5 DEG. AND 15 DEG. UP AND DOWN DEFLECTION PATTERNS, VERTICAL ADJUSTABLE REAR DEFLECTION VANES, O.B.D., FLAT FRAME WITH 1-1/4" BORDER, BAKED WHITE ENAMEL FINISH, AND SIZED AS SHOWN ON THE DRAWINGS. KRUEGER 5815, OR EQUIVALENT.

[B] B CEILING SUPPLY DIFFUSER: PERFORATED HINGED FACE, LAY-IN TYPE FOR T-BAR CEILING, ROUND NECK, CONCEALED HINGES, ADJUSTABLE CORE ATTACHED TO DIFFUSER BODY, [VOLUME REGUALTOR], BAKED WHITE ENAMEL FINISH. KRUEGER 6500, FRAME 23, OR EQUIVALENT.

[C] C CEILING RETURN GRILLE: WHITE ALUMINUM CORE OF ½" X ½" X ½" SQUARES WITHOUT FRAME FOR USE IN EXPOSED TEE BAR CEILING. SIZED AS SHOWN ON THE DRAWINGS. KRUEGER EGC-5-TB, OR EQUIVALENT.

SYMBOL LEGEND

ABBREVIATIONS

AC	AIR CONDITIONING UNIT
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AL	ACOUSTIC LINING
BHP	BRAKE HORSEPOWER
BTU	BRITISH THERMAL UNIT
BTUH	BTU PER HOUR
CFM	CUBIC FEET PER MINUTE
DX	DIRECT EXPANSION
EXH	EXHAUST
°F	DEGREES FAHRENHEIT
FLEX	FLEXIBLE
FPM	FEET PER MINUTE
FT.	FEET
IN	INCHES
OA	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
QTY	QUANTITY
R.A.	RETURN AIR
V	VOLTS
VEL	VELOCITY
VTR	VENT THRU ROOF

CONTROL SYMBOLS

- Ⓣ ELECTRIC ROOM THERMOSTAT
- DM POWER OPERATED DAMPER MOTOR

DUCTWORK SYMBOLS

- LOUVER IN WALL
- ACOUSTICAL DUCT LINING
- SUPPLY DUCT
- EXHAUST OR RETURN DUCT
- BD BALANCING DAMPERS

PIPING SYMBOLS

— G — GAS PIPING

GENERAL NOTES

A THE FIRST FIGURE OF DUCT SIZE INDICATES DIMENSION OF FACE SHOWN OR INDICATED. ALL DUCT SIZES SHOWN ON DRAWINGS ARE NET INSIDE DIMENSIONS. PROVIDE ONE INCH, 1-1/2 POUND DENSITY ACOUSTICAL LINING IN LOW VELOCITY RECTANGULAR DUCTWORK WHERE SHOWN ON THE DRAWINGS AND SPECIFIED IN SECTION 15800.

B CONTRACTOR SHALL COORDINATE ALL DUCTWORK, PIPING, PLUMBING AND FIRE PROTECTION PIPING WITH STRUCTURAL AND ELECTRICAL SYSTEMS AND SHALL PROVIDE NECESSARY OFFSETS TO AVOID CONFLICTS AND TO MAINTAIN EQUIPMENT ACCESS AND SERVICEABILITY.

C CONTRACTOR SHALL FURNISH ALL NECESSARY STRUCTURES, INSERTS, SLEEVES, AND HANGING DEVICES FOR INSTALLATION OF MECHANICAL AND PLUMBING EQUIPMENT, DUCTWORK AND PIPING, ETC. CONTRACTOR SHALL COORDINATE ALL BUILDING TRADES TO AVOID CONFLICTS AND TO MAINTAIN EQUIPMENT ACCESS AND SERVICEABILITY.

D CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL NECESSARY MISCELLANEOUS ANGLES, CHANNELS, UNISTRUT, ETC., AS MAY BE REQUIRED TO ADEQUATELY SUPPORT THE MECHANICAL PIPING, DUCTWORK, AND EQUIPMENT IN A MANNER APPROVED BY THE ARCHITECT WHICH WILL NOT OVERLOAD THE BUILDING STRUCTURAL SYSTEM.

E CONTRACTOR SHALL PROVIDE RETURN AIR OR TRANSFER AIR OPENINGS IN FULL HEIGHT WALLS SIZED AT 750 FPM (UNLESS OTHERWISE SPECIFICALLY SHOWN ON THE DRAWINGS) TO CREATE AND MAINTAIN A RETURN AIR PATH AS REQUIRED.

F SEAL ALL TRANSVERSE JOINTS, LONGITUDINAL SEAMS, DUCT WALL PENETRATIONS AND FITTING CONNECTIONS ON ALL DUCT SYSTEMS.

GENERAL DRAWING SYMBOLS

A / M4 — 6 / M4 — SECTION LETTER OR DETAIL NUMBER — DRAWING NUMBER WHERE DETAILED

EQUIPMENT SYMBOLS

3 OR 123 — HEX SYMBOL INDICATES NEW EQUIPMENT — NUMBER REFERS TO SPECIFIC EQUIPMENT IDENTIFIED IN EQUIPMENT SCHEDULE

THE RIO GRANDE ZOO

AS BUILT INFORMATION: CONTRACTOR; WORK STAKED BY — DATE; INSPECTOR'S ACCEPTANCE BY — DATE; FIELD VERIFICATION BY — DATE; DRAWINGS CORRECTED BY — DATE

MICRO-FILM INFORMATION: RECORDED BY — DATE; NO.

BENCH MARKS

SURVEY INFORMATION — FIELD NOTES: NO. | BY | DATE

ENGINEER'S SEAL: STATE OF NEW MEXICO — BRIDGERS & PAXTON No. 1291 & 1402 ALBUQUERQUE N. M. — REGISTERED PROFESSIONAL ENGINEER

STATE OF NEW MEXICO — REGISTERED ARCHITECT

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY JBG DATE 11/16/89
DRAWN BY AFG DATE 11/25/89
CHECKED BY JBG DATE 11/25/89

City Project No. 3771

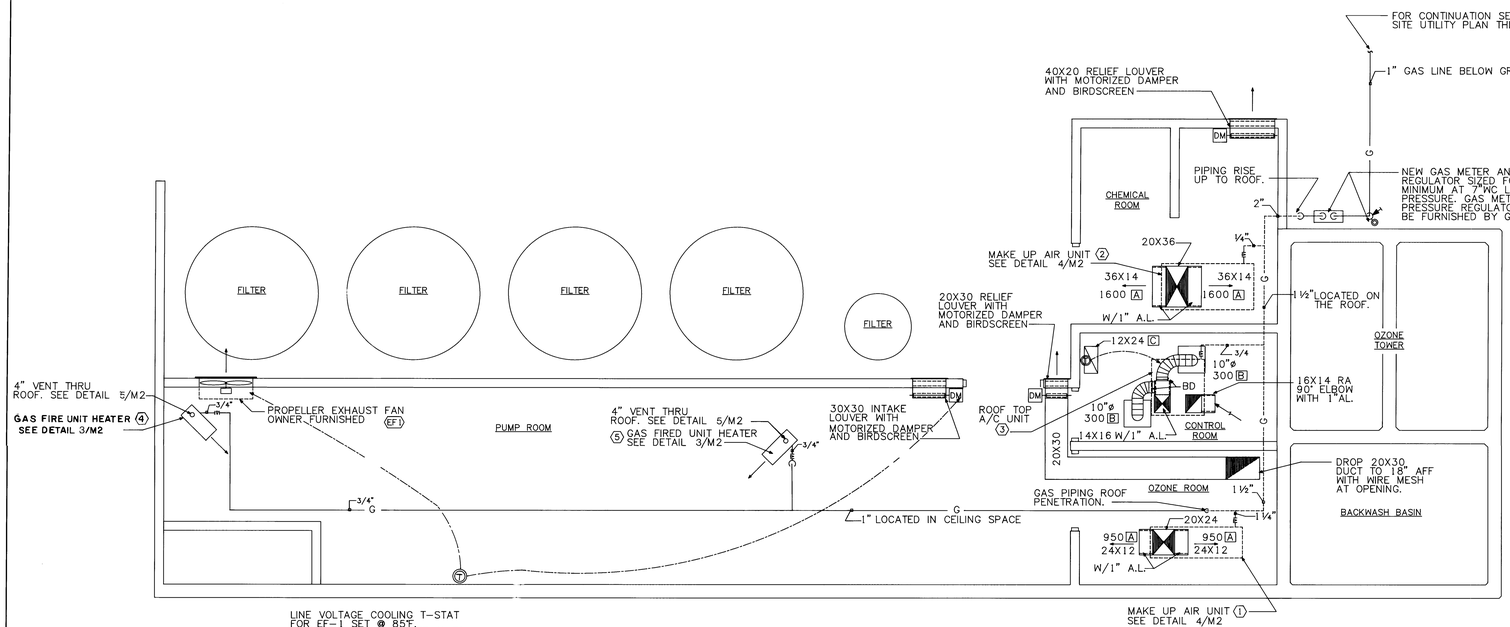
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: RIO GRANDE ZOOLOGICAL PARK
SALTWATER FILTRATION SYSTEM
MECHANICAL EQUIPMENT SCHEDULE and SYMBOL LEGEND

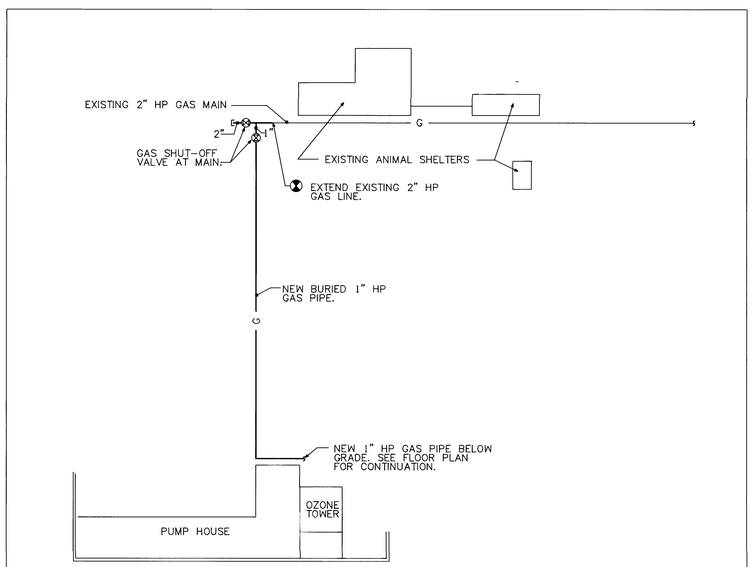
APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair	DH	5/2/90			
Trans. Dev.	DWH	5/1/90			
Utility Dev.	R.W. Kane	5-1-90			

26-3771.90 0997

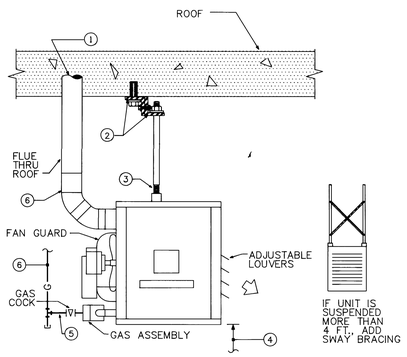
DRAWING NO. 3771 | MAP NO. | SHEET M1 OF 26



1/M2 **HVAC PLAN** SCALE: 1/4"=1'-0"



2/M2 **SITE PLAN** SCALE: 1"=20'-0"



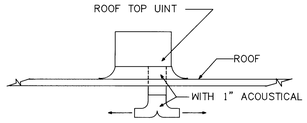
KEYED NOTES: ◯

1 FLUE THRU ROOF SEE ROOF JACK DETAIL
2 SUPPORT UNIT HEATER TO STRUCTURE AS PER ARCHITECT
3 THREADED ROD OR PIPE PER MANUFACTURER'S RECOMMENDATIONS.
4 MOUNT 7'-0" AFF. TO BOTTOM
5 PROVIDE FLEXIBLE CONNECTION ON GAS LINE IF HEATER IS SUSPENDED OVER 4 FT.
6 SEE PLAN FOR SIZES.

GENERAL NOTE:

ALL SUSPENDED EQUIPMENT SHALL BE SECURED TO THE STRUCTURE IN A MANNER APPROVED BY THE ARCHITECT.

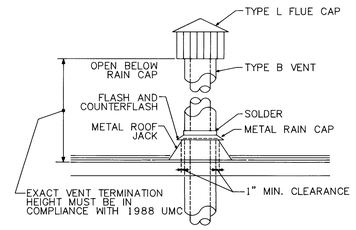
3/M2 **GAS UNIT HEATER DETAIL**



TYPICAL ROOF TOP UNIT DETAIL

MAU 1 & 2

4/M2



ROOF JACK DETAIL

5/M2

GENERAL NOTES:

- ALL GAS SUPPORTED ON ROOF AS PER THE U.P.C. 1988 EDITION. SEE SPECIFICATIONS FOR ACTUAL PIPE SUPPORT.
- INSTALL GAS METER AS PER GAS COMPANY OF NEW MEXICO.

THE RIO GRANDE ZOO

AS BUILT INFORMATION
CONTRACTOR — DATE
MECH. — DATE
PLUMBING — DATE
ELECTRICAL — DATE
FIELD VERIFICATION BY — DATE
DRAWINGS BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE
NO.

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES
NO. | BY | DATE

ENGINEER'S SEAL
STATE OF NEW MEXICO
BRIDGERS & PATTON No. 1201 & 1402 ALBUQUERQUE N. M.
REGISTERED PROFESSIONAL ENGINEERS

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY - JBG — DATE - 11/14/89
DRAWN BY - AEG — DATE - 11/25/89
CHECKED BY - JBG — DATE - 11/25/89

City Project No. 3771

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: RIO GRANDE ZOOLOGICAL PARK
SALTWATER FILTRATION SYSTEM
MECHANICAL HVAC and SITE PLANS and DETAILS

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair		5/2/90			
Trans. Dev.	D w H	5/1/90			
Utility Dev.	R.W. Kane	5-1-90			

DRAWING NO. 3771 | MAP NO. | SHEET M2 OF 26

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
26-3771.1.90 1 of 27

FILTER SCHEDULE

DESIGNATION	QUANTITY	SERVICE	TYPE	DIAMETER (FT)	MEDIA MATERIAL	REMARKS
#1 THRU #4	4	EXHIBIT	PRESSURE	10	SAND	
#5	1	RECOVERY	PRESSURE	5	SAND	

PUMP SCHEDULE

DESIGNATION	QUANT.	SERVICE	FUNCTION	FLOW RATE (G.P.M.)	T.D.H. (FT. H_2O)	MIN. EFF. (%)	MOTOR DATA H.P.	R.P.M.	VOLTS	P.H.	SELECTION	REMARKS
#1 THRU #4	4	EXHIBIT	FILTRATION	950	45	80	15	980	460	3	6 x 8 x 13	END SUCTION CENTRIFUGAL
#5	1	RECOVERY	FILTRATION	120	40	52	3	1150	460	3	3x4x10	END SUCTION CENTRIFUGAL
HEX	1	H. EXCHANGER	SALTWATER SUPPLY	180	25	55	3	1150	460	3	3 x 4 x 10	
CH.WATER	1	CHILLER	CHILLED WATER SUPPLY	180	25	55	3	1150	460	3	3 x 4 x 10	
TRANSFER	1	RECOVERY	SALTWATER TRANSFER	85	15		2	1750	460	3	2 x 2 x 5.2	VANTON SG-500
CHEM #1	1	EXHIBIT	NaOCl INJECTION	100 (GPD)	50 (PSI)				115	1	B131-755	LMI CHEMICAL METERING
CHEM #2	1	EXHIBIT	ACID/BASE INJECTION	40 (GPD)	50 (PSI)				115	1	A161-655	LMI CHEMICAL METERING

1

OZONE GENERATOR SCHEDULE

DESIGNATION	QUANT.	FUNCTION/LOCATION	CAPACITY (lbs/DAY)	COOLING (GPM)	POWER REQ. GEN. (KW)	POWER REQ. AIR PREP (KW)	ELECTRICAL VOLTS	ELECTRICAL PH.	ELECTRICAL HZ.	SELECTION	REMARKS
OZ GEN	1	EXHIBIT	10	1.2	3.1	1.9	460	3	60		

HEAT EXCHANGER SCHEDULE

DESIGNATION	QUANT.	FUNCTION/LOCATION	CAPACITY (TONS)	INLET/ OUTLET NOZZLES	PROCESS WATER GPM	POOL WATER GPM	PROCESS WATER TEMP. IN	PROCESS WATER TEMP. OUT	POOL WATER TEMP. IN	POOL WATER TEMP. OUT	SELECTION	REMARKS
HEX	1	EXHIBIT	75	2 1/2"	180	180	45	55	65	55		

CHILLER SCHEDULE

DESIGNATION	QUANT.	FUNCTION/LOCATION	CAPACITY (TONS)	FLOW RATE (G.P.M.)	PROCESS WATER TEMP. IN (°F)	PROCESS WATER TEMP. OUT (°F)	AMBIENT TEMP (°F)	MINIMUM EER (BTU/W-HR)	POWER REQ. (KW)	ELECTRICAL VOLTS	ELECTRICAL P.H.	ELECTRICAL HZ.	SELECTION	REMARKS
CHILLER	1	EXHIBIT	75	180	55	45	96	9.9	73	460	3	60		

1

ABBREVIATIONS

AC	ASPHALT
ALUM	ALUMINIUM
BC	BOLT CIRCLE
BF	BLIND FLANGE
BFP	BACKFLOW PREVENTER
BFV	BUTTERFLY VALVE
BHP	BRAKE HORSEPOWER
BLDG	BUILDING
BLV	BALL VALVE
CKV	CHECK VALVE
CLR	CLEAR
CMU	CONCRETE MASONARY UNIT
CO	CLEAN OUT
CONC	CONCRETE
CONT	CONTINUOUS
CPL'G	COUPLING
CPR	COPPER
DIA	DIAMETER
DRN	DRAIN
E	ELECTRICAL
EA	EACH
ECC	ECCENTRIC
EER	ENERGY EFFICIENCY RATIO
EFF	EFFICIENCY
EL	ELEVATION
ELL	ELBOW
ENCSD	ENCASED
EW	EACH WAY
EXIST	EXISTING
EXP	EXPANSION
FCV	FLOW CONTROL VALVE
FD	FLOOR DRAIN
FF	FINISHED FLOOR
FG	FINISHED GRADE
FLG	FLANGE
FLR	FLOOR
FRP	FIBERGLASS REINFORCED PLASTIC
FS	FLOW SWITCH
FSK	FLOOR SINK
FT	FEET
FTG	FOOTING
GAL	GALLON
GPM	GALLONS PER MINUTE
GV	GATE VALVE
HOA	HAND/OFF/AUTO
HORIZ	HORIZONTAL
HP	HORSEPOWER
HS	HAND SWITCH
HT	HEIGHT
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IF	INSIDE FACE
IN	INCH
INV	INVERT
JT	JOINT
KW	KILOWATTS
LOS	LOCKOUT STOP
MFR	MANUFACTURER
MIN	MINIMUM
NaOCl	SODIUM HYPOCHLORITE (LIQUID CHLORINE)
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OC	OPEN/CLOSE OR ON CENTER
OCA	OPEN/CLOSE/AUTO
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OO	ON/OFF
PH	PHASE
pH	HYDROGEN ION CONCENTRATION
POC	POINT OF CONNECTION
PRFV	PRESSURE RELIEF VALVE
PRGV	PRESSURE REGULATING VALVE
PS	PIPE SUPPORT
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
QL	INDICATOR LIGHT
R	RADIUS
RED	REDUCER
REQ'D	REQUIRED
RET	RETAINING
RPM	REVOLUTIONS PER MINUTE
SCH	SCHEDULE
SH'T	SHEET
SQ	SQUARE
SS	STAINLESS STEEL OR START/STOP
SWRB	SALTWATER RECOVERY BASIN
SMP	SAMPLE
TDH	TOTAL DYNAMIC HEAD
TFE	TEFLON
THK	THICK
TOC	TOP OF CURB
TOP	TOP OF PAVING
TOS	TOP OF SLAB
TOW	TOP OF WALL
TYP	TYPICAL
V	VOLTS
VAR	VARIABLE
VERT	VERTICAL
VTR	VENT THRU ROOF
W	WATTS
W/	WITH
WF	WALL FLANGE
WL	WATER LEVEL
WP	WEAKENED PLANE
WS	WATER STOP
℄	CENTERLINE
ø	DIA. OR ROUND
∠	ANGLE
&	AND

LINE LEGEND

- ALTERNATE NO.1
- PRIMARY PROCESS STREAM
- SECONDARY PROCESS STREAM
- CENTERLINE
- ANALOG SIGNAL (4 TO 20 mAdc, ETC)
- DISCRETE SIGNAL (ON/OFF, FUTURE PIPE, ETC)
- NOT IN CONTRACT

SYMBOLS

- BACKFLOW PREVENTOR
- BALL VALVE
- BUTTERFLY VALVE
- CENTRIFUGAL (DRY PIT) PUMP
- ELECTRIC MOTOR
- FLEXIBLE COUPLING
- FLOOR DRAIN
- FLOW CONTROL VALVE
- ORIFICE PLATE
- PIPE SUPPORT
- PRESSURE REGULATING VALVE
- PRESSURE RELIEF VALVE
- REDUCER/INCREASER
- SUBMERSIBLE SUMP PUMP
- SWING CHECK VALVE
- SIGHT GLASS

PROCESS FLUID ID

FLOW STREAM IDENTIFICATION

BR	BRINE
BWD	BACKWASH DRAIN
C OR CHEM	CHEMICAL
CA	COMPRESSED AIR
CL	CHLORINE
CWR	CHILLED WATER RETURN
CWS	CHILLED WATER SUPPLY
D	DRAIN
FPW	FRESH POTABLE WATER
FWBWD	FRESHWATER BACKWASH DRAIN
FWBWS	FRESHWATER BACKWASH SUPPLY
FWD	FRESHWATER DRAIN
FWR	FRESHWATER RETURN
FWS	FRESHWATER SUPPLY
HXR	HEAT EXCHANGER RETURN
HXS	HEAT EXCHANGER SUPPLY
NaOCl	SODIUM HYPOCHLORITE
OZ	OZONE
pH	ACID BASE
PDR	PUMP DOWN RETURN
RRW	RAW RIVER WATER
RRWBWS	RAW RIVER WATER BACKWASH SUPPLY
SD	STORM DRAIN
SS	SANITARY SEWAGE
SWD	SALTWATER DRAIN
SWBWD	SALTWATER BACKWASH DRAIN
SWR	SALTWATER RETURN
SWS	SALTWATER SUPPLY
TRW	TREATED RIVER WATER
TT	TELL-TALE
VAC	VACUUM
VNT	VENT
OFG	OFF GAS
RSW	RECOVERED SALT WATER

INSTRUMENT IDENTIFICATION

PROCESS VARIABLE (FIRST LETTER) — TYPE OF INSTRUMENT (SUCCEEDING LETTERS) — LOOP NUMBER

- PANEL MOUNTED INSTRUMENT
- LOCAL MOUNTED INSTRUMENT
- MOTOR CONTROL CENTER MOUNTED INSTRUMENT
- ON AND OFF EVENT LIGHT
- HOA HAND-OFF AUTO SWITCH MCC MOUNTED
- COMPUTER INTERFACE CONTROL SYSTEM

PROCESS VARIABLE		TYPE OF INSTRUMENT	
ANALYSIS	A	ALARM	A
CHEMICAL COMPOSITION	A	CONTROLLER	C
BURNER FLAME	B	CONTROL VALVE	CV
ELECTRICAL CONDUCTIVITY	C	TRAP	CV
DENSITY	D	PRIMARY ELEMENT	E
SPECIFIC GRAVITY	D	GLASS (sight glass)	G
FLOW RATE	F	INDICATOR	I
LENGTH (Thickness, etc.)	G	CONTROL STATION	K
CURRENT (Electric)	I	PILOT LIGHT	L
LEVEL	L	ORIFICE	P
HUMIDITY	M	TEST POINT	R
MOISTURE	M	RECORDER	R
PRESSURE	P	SWITCH	S
VACUUM	P	TRANSMITTER	T
RADIOACTIVITY	R	MULTIFUNCTION	U
SPEED (or Frequency)	S	VALVE	V
TEMPERATURE	T	DAMPER	V
MULTIVARIABLE	U	RUPTURE DISC	W
VISCOSITY	V	WELL	W
FORCE	W	UNCLASSIFIED	X
WEIGHT	W	RELAY	Y
UNCLASSIFIED	X	DRIVER	Z
USER'S CHOICE	Y	ACTUATOR	Z

INTERFACE SYMBOLS

- S — A
- D — A
- A = PROCESS INTERFACE
- A = SIGNAL INTERFACE
- A = INTERFACE LETTER
- D = DESTINATION DWG. No.
- S = SOURCE DWG. No.

INTERFACE TO OR FROM PROCESS EXTERNAL TO PROJECT.

PIPELINE IDENTIFICATION

XXX-XXX-XX: PROCESS FLUID / LINE MATERIAL / LINE SIZE

THE RIO GRANDE ZOO

AS BUILT INFORMATION

BENCH MARKS

NO.	DATE	CONTRACTOR
		WORK BY
		ACCEPTANCE BY
		FINAL ACCEPTANCE BY
		FIELD LOCATION BY
		DRAWING BY
		MICRO-FILM INFORMATION
		RECORDED BY
		NO.

SURVEY INFORMATION

NO.	DATE	FIELD NOTES BY

ENGINEER'S SEAL

STATE OF NEW MEXICO — PATRICK A. CASE — No. 10784 — REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REMARKS
		REVISIONS
		DESIGN BY JL — DATE - 10/16/89
		DRAWN BY JRE — DATE - 10/16/89
		CHECKED BY PC — DATE - 11/16/89

City Project No. 3771

STATE OF NEW MEXICO — DONALD L. BASWELL — REGISTERED ARCHITECT

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

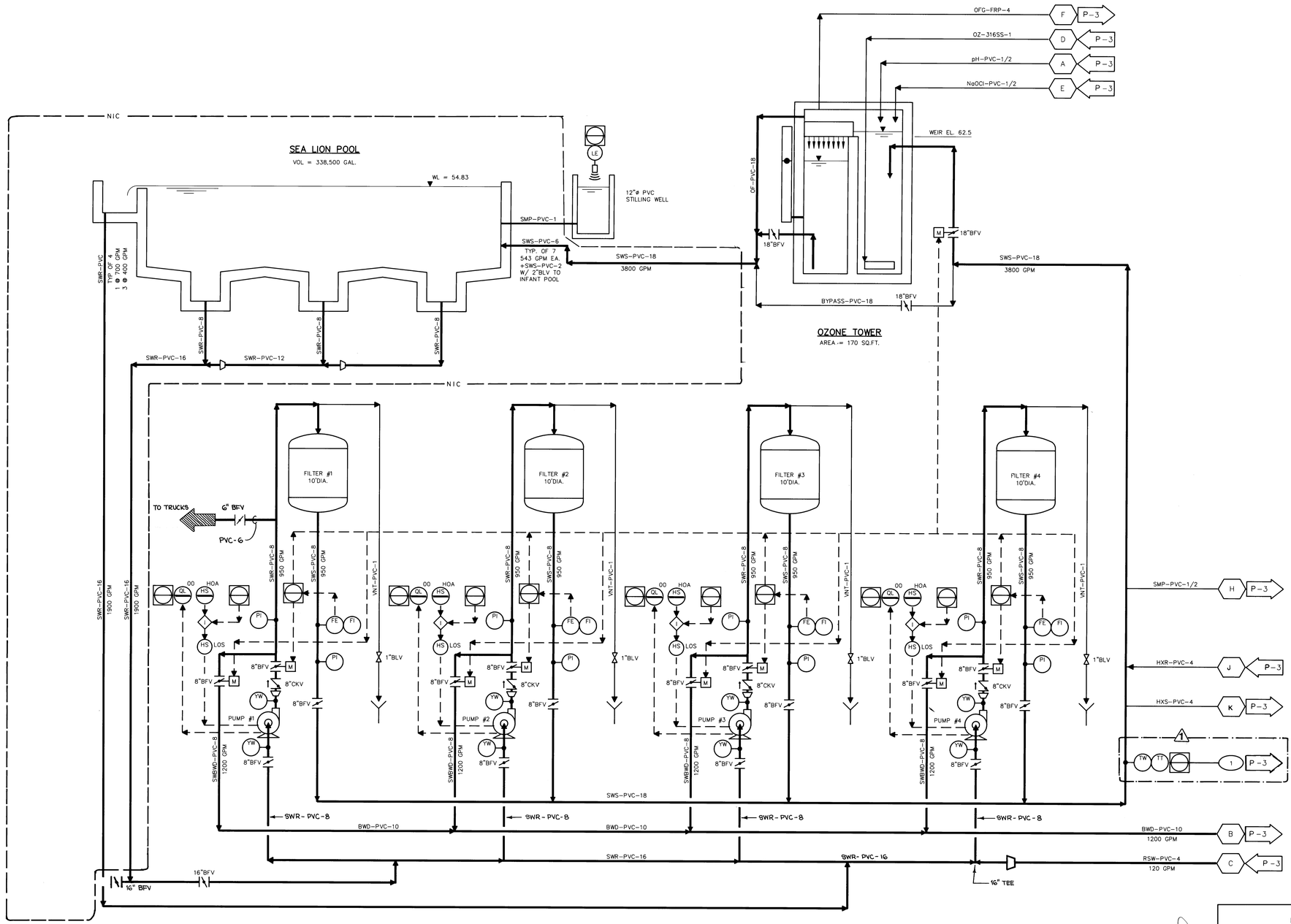
26-3771.901 11197

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: RIO GRANDE ZOOLOGICAL PARK
SALTWATER FILTRATION SYSTEM
PROCESS SYSTEM SCHEDULES, ABBREVIATIONS and SYMBOLS

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair		5/3/90			
Trans. Dev.		5/1/90			
Utility Dev.	R.W. Kane	5-1-90			

DRAWING NO. 3771 — MAP NO. — SHEET P1 OF 26



THE RIO GRANDE ZOO

AS BUILT INFORMATION
CONTRACTOR
BENCH MARKS
SURVEY INFORMATION
FIELD NOTES
ENGINEER'S SEAL
MICRO-FILM INFORMATION
RECORDED BY
DATE
NO.
BY
REMARKS
REVISIONS
DESIGN
DESIGNED BY - JL
DRAWN BY - JRF
CHECKED BY - PAC
DATE - 10/30/97
DATE - 10/30/97
DATE - 11/04/97

City Project No. 3771

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

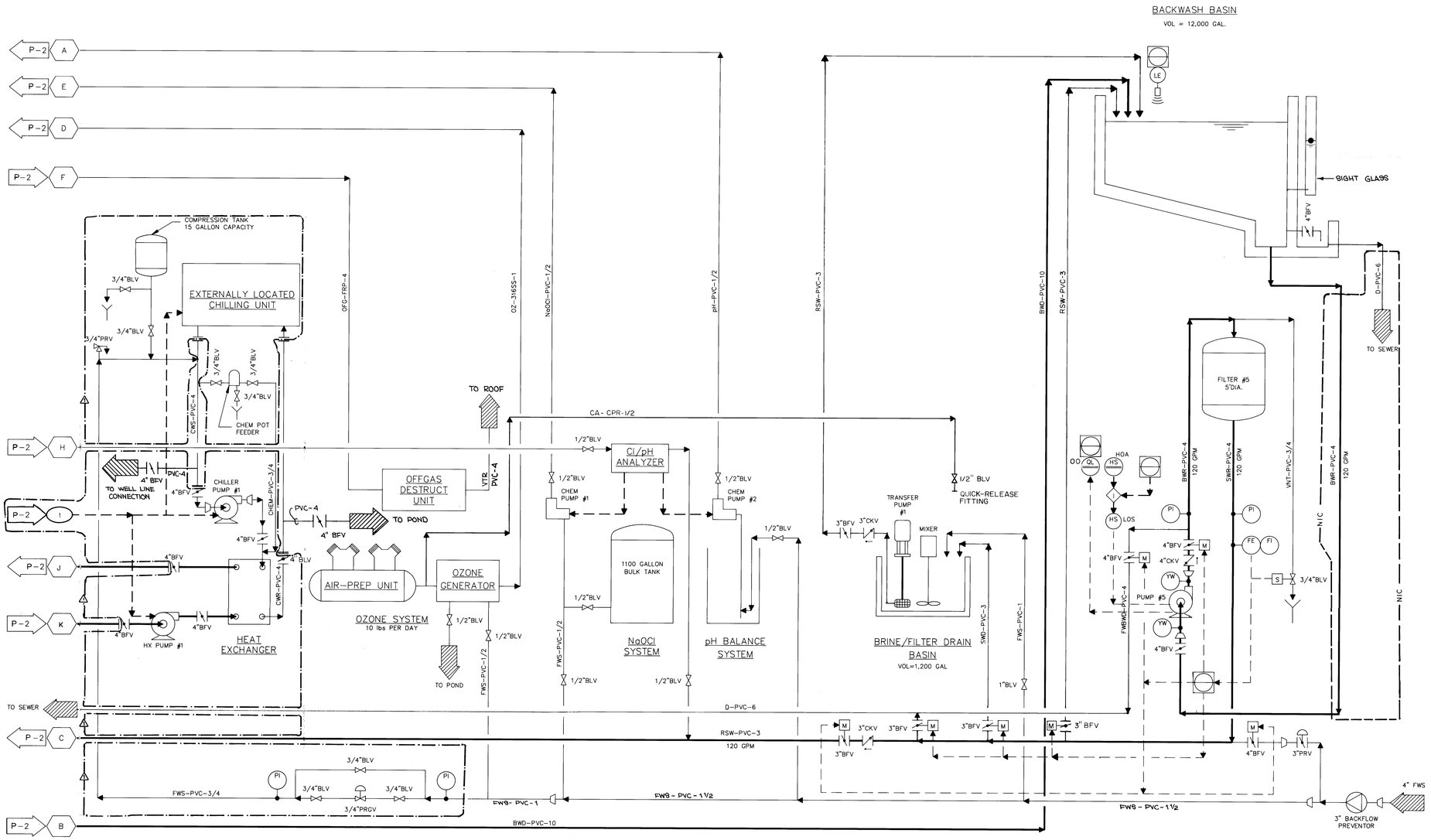
TITLE: RIO GRANDE ZOOLOGICAL PARK
SALTWATER FILTRATION SYSTEM
PIPING and INSTRUMENTATION DIAGRAM 1

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair		5/7/98			
Trans. Dev.	DWH	5/11/98			
Utility Dev.	R.W. Kane	5-1-98			

DRAWING NO. 3771 | MAP NO. | SHEET P2 OF 26

STATE OF NEW MEXICO
DAVID R. CARDWELL
10178
REGISTERED ENGINEER

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
26-3771.90 1/2/97



THE RIO GRANDE ZOO

AS BUILT INFORMATION

CONTRACTOR
WORK BY — DATE
INSPECTED BY — DATE
TESTED BY — DATE
DRAWINGS BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES BY — DATE

ENGINEER'S SEAL

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY - JL — DATE - 10/25/89
DRAWN BY - JEF — DATE - 10/26/89
CHECKED BY - PAC — DATE - 11/16/89

City Project No. 3771

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: RIO GRANDE ZOOLOGICAL PARK
SALTWATER FILTRATION SYSTEM
PIPING and INSTRUMENTATION DIAGRAM 2

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair		5/3/90			
Trans. Dev.	D.W.H	5/1/90			
Utility Dev.	R.W. Kane	5-1-90			

DRAWING NO. 3771 | MAP NO. | SHEET P3 OF 26

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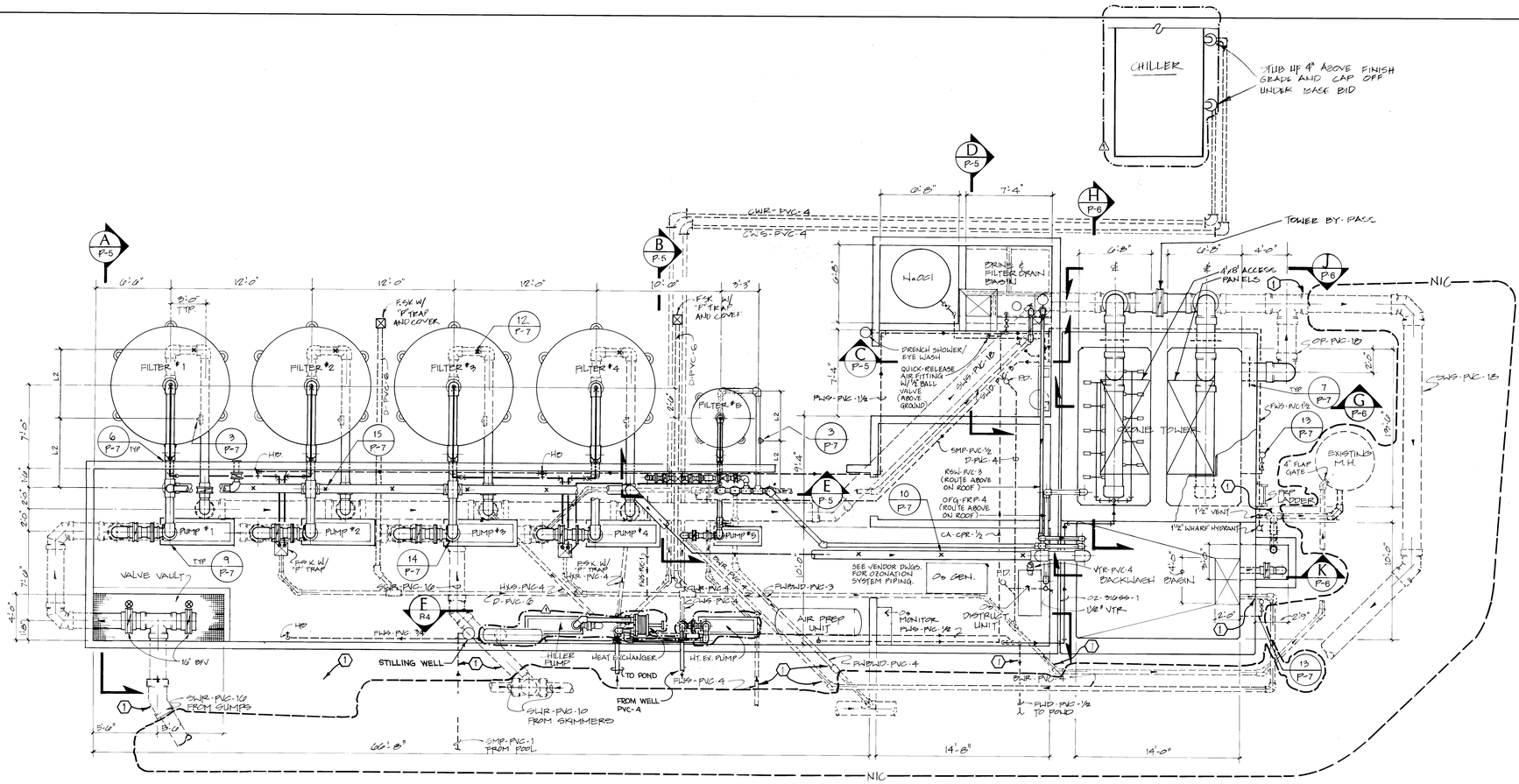
26-3771.00 1 1397



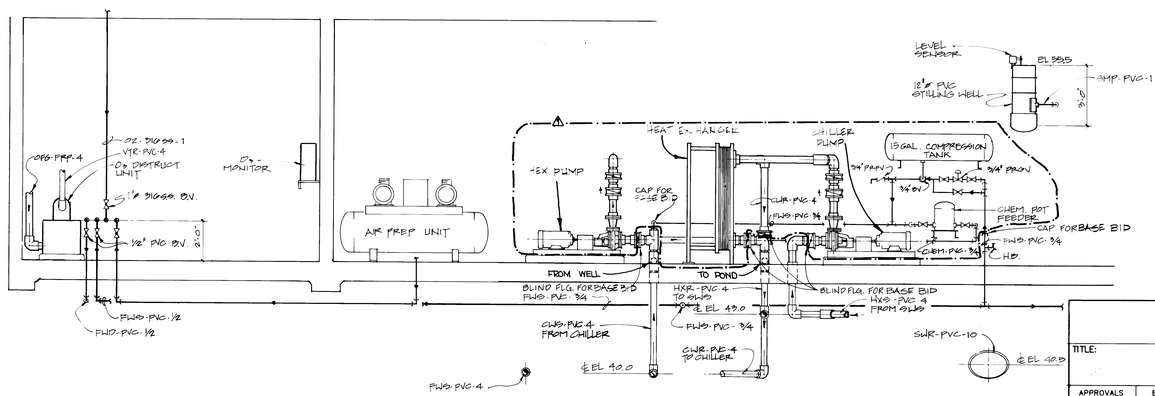
FILTRATION PLAN

N

SCALE: ¼" = 1'-0"

KEYED NOTE

1 EXTEND PIPE AND CONNECT TO EXISTING PIPE. LOCATIONS SHOWN ARE APPROXIMATE ONLY. FIELD VERIFY EXACT LOCATION AND INSTALL NEW PIPE ACCORDINGLY.



SECTION

SCALE: ⅜" = 1'-0"

F P4

THE RIO GRANDE ZOO

AS BUILT INFORMATION

CONTRACTOR
WORK BY — DATE
INSPECTION BY — DATE
FIELD REVISION BY — DATE
CHECKED BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE
NO.

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES BY — DATE
NO.

ENGINEER'S SEAL

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGNED BY - JL	DATE - 10/30/97
		DRAWN BY - JKF	DATE - 10/30/97
		CHECKED BY - PAC	DATE - 11/16/97

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

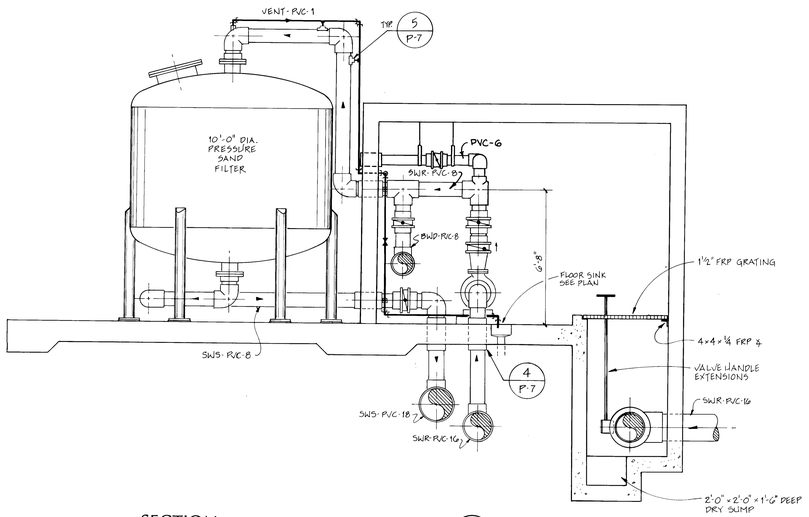
TITLE: RIO GRANDE ZOOLOGICAL PARK
SALTWATER FILTRATION SYSTEM
FILTRATION PLAN and SECTION

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair		5-7-98			
Trans. Dev.	DWH	5/1/98			
Utility Dev.	R.W. Kane	5-1-98			

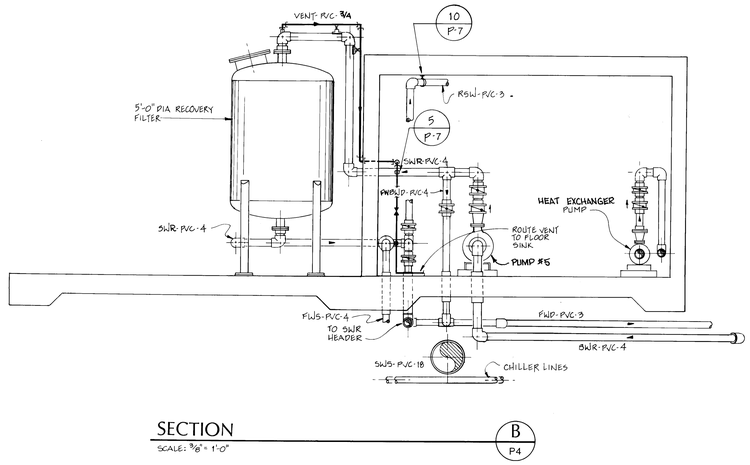
DRAWING NO. 3771 | MAP NO. | SHEET P4 OF 26

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
26-13,771.96 1497

City Project No. 3771

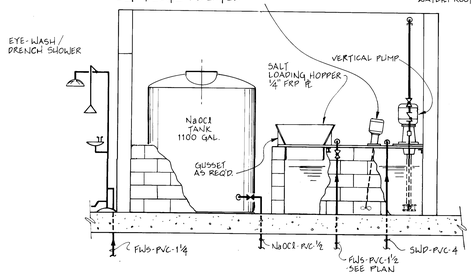


SECTION
SCALE: 3/8" = 1'-0"
A
P4



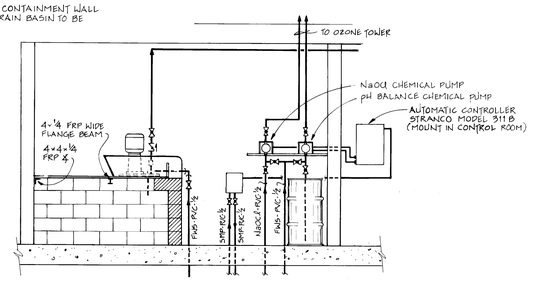
SECTION
SCALE: 3/8" = 1'-0"
B
P4

EASTERN MIXER MODEL #RG-3
460 V. 3ph. 60 Hz, 1750 RPM, 3/4 HP
"CHEMICAL DUTY" MOTOR W/ TROPICALIZED WINDINGS, 3/4" x 30" 316 S.S. SHAFT
1-12" 316 S.S. PROP, 400 RPM
CUP PLATE MOUNTED

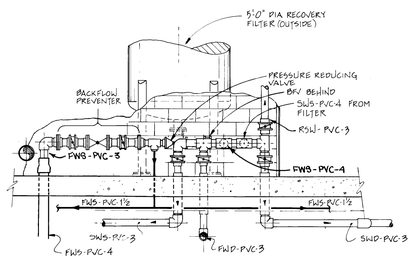


SECTION
SCALE: 3/8" = 1'-0"
C
P4

NOTE:
INSIDE OF NaOCl CONTAINMENT WALL & BRINE/FILTER DRAIN BASIN TO BE WATERPROOFED.



SECTION
SCALE: 3/8" = 1'-0"
D
P4



SECTION
SCALE: 3/8" = 1'-0"
E
P4

THE RIO GRANDE ZOO

AS BUILT INFORMATION
CONTRACTOR
WORK BY
INSPECTORS
FIELD LOCATION BY
DRAWING BY
MICRO-FILM INFORMATION
RECORDED BY
NO. DATE

BENCH MARKS
NO. DATE

SURVEY INFORMATION
FIELD NOTES
NO. BY DATE

ENGINEER'S SEAL
STATE OF NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER
REBECCA A. CASE

REMARKS
REVISIONS
DESIGN — DATE - 10/26/89
DESIGNED BY - JL
DRAWN BY - JEE — DATE - 10/30/89
CHECKED BY - PAC — DATE - 11/16/89

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

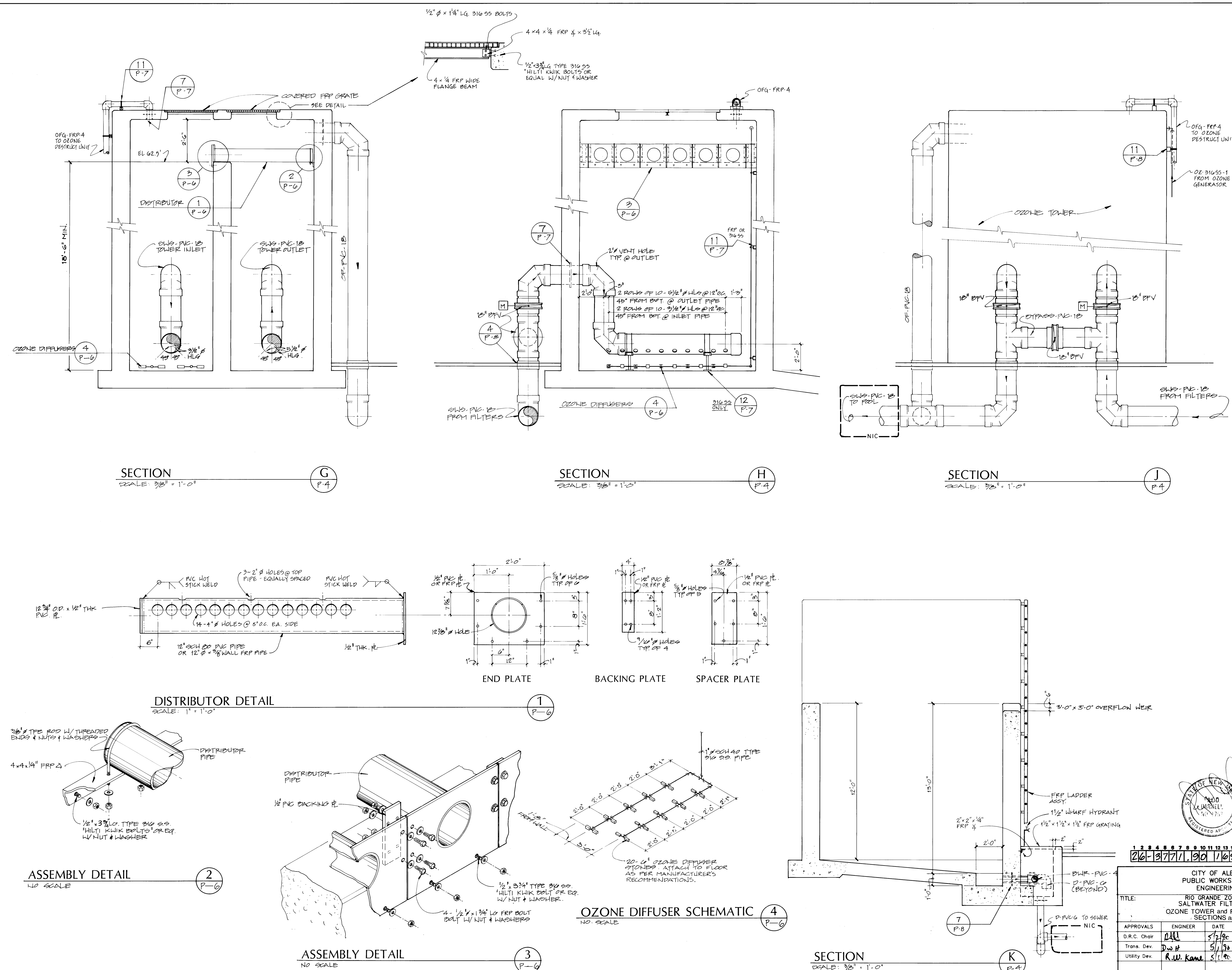
TITLE: RIO GRANDE ZOOLOGICAL PARK
SALTWATER FILTRATION SYSTEM
FILTRATION SECTIONS

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair		5/29/90			
Trans. Dev.	D.W.H	5/1/90			
Utility Dev.	R.W. Kane	5-1-90			

DRAWING NO. 3771 | MAP NO. | SHEET NO. P5 OF 26

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
26-3771.90 1/5/97

City Project No. 3771



THE RIO GRANDE ZOO

AS BUILT INFORMATION

BENCH MARKS

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY - JL DATE - 10/30/89
DRAWN BY - JRF DATE - 10/30/89
CHECKED BY - PAC DATE - 11/6/89

City Project No. 3771

26-3771.90 1697

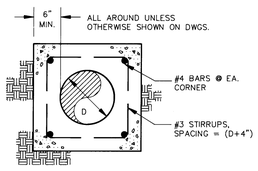
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: RIO GRANDE ZOOLOGICAL PARK
SALTWATER FILTRATION SYSTEM
OZONE TOWER and RECOVERY BASIN
SECTIONS and DETAILS

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair	[signature]	5/2/90			
Trans. Dev.	DWH	5/1/90			
Utility Dev.	R.W. Kane	5/1/90			

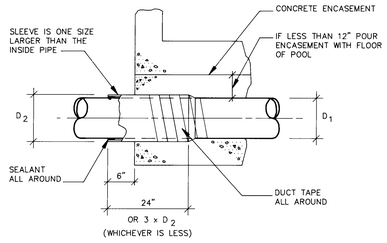
DRAWING NO. 3771 | MAP NO. | SHEET P6 OF 26

NIC



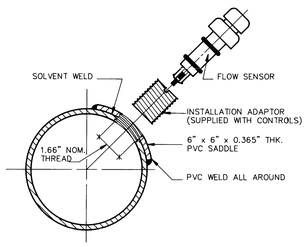
NOTE:
PIPE ENCASEMENT REQUIRED UNDER ALL WATER RETAINING STRUCTURES.

DETAIL 1

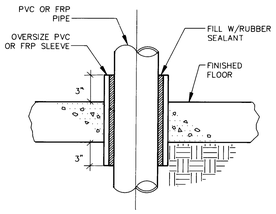


DETAIL 2

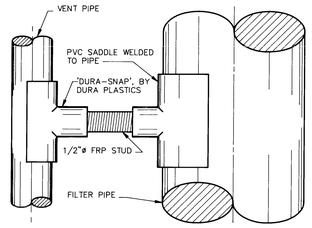
NIC



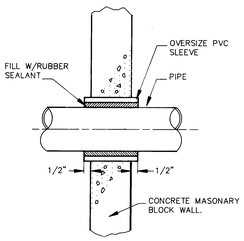
DETAIL 3



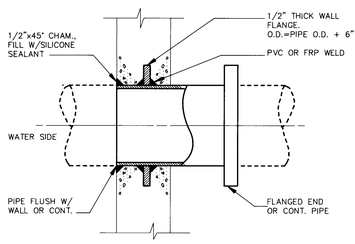
DETAIL 4



DETAIL 5

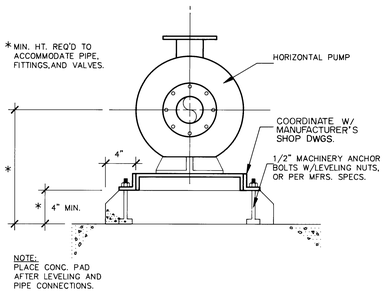


DETAIL 6



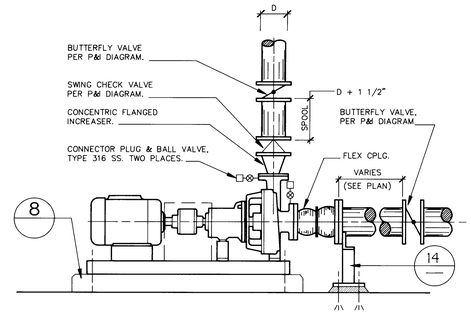
NOTE
WALL FLG. AND SEALANT REQUIRED AT ALL WATER RETAINING STRUCTURES.

DETAIL 7

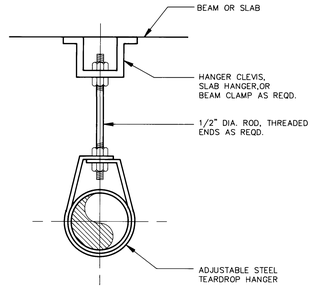


NOTE:
PLACE CONC. PAD AFTER LEVELING AND PIPE CONNECTIONS.

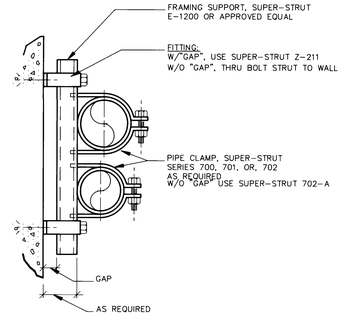
DETAIL 8



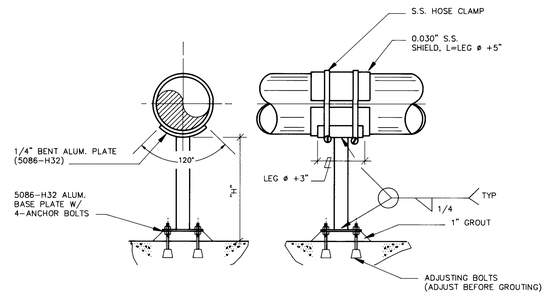
DETAIL 9



DETAIL 10

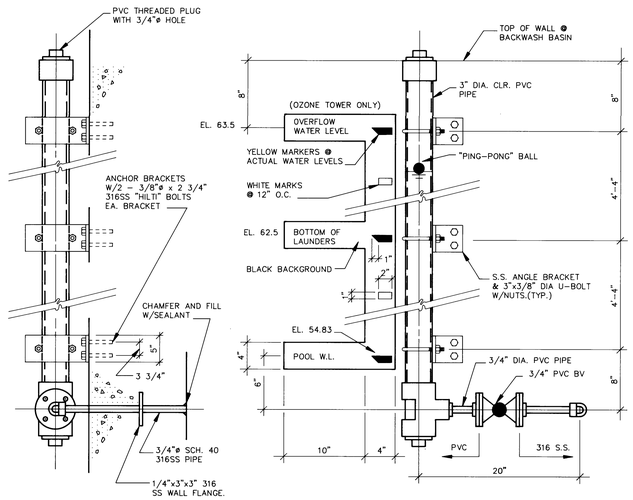


DETAIL 11

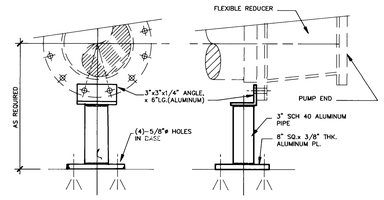


ALUM. PIPE LEGS TYPE "5086-H32/SCH.40			BASE PLATE		
LINE DIA.	LEG DIA.	MAX. "H"	PLAN	MIN.THK.	ANCHOR BOLT ø
14" TO 20"	4"	36"	12" x 12"	0.5"	0..625"
8" TO 12"	3"	36"	8" x 8"	0.375"	0.5"
3" TO 6"	2"	36"	8" x 8"	0.375"	0.438"
2" OR LESS	AS REQ'D.	36"	6" x 6"	0.25"	0.375"

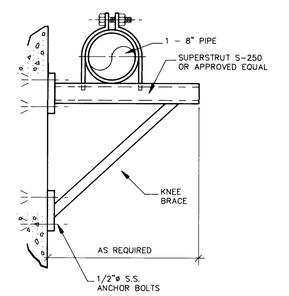
DETAIL 12



DETAIL 13



DETAIL 14



DETAIL 15

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
26-3771.90 1797

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: RIO GRANDE ZOOLOGICAL PARK
SALTWATER FILTRATION SYSTEM
PROCESS SYSTEM STANDARD DETAILS

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair	DLS	5/7/90			
Trans. Dev.	DJH	5/11/90			
Utility Dev.	R.W. Kane	5-1-90			

DRAWING NO. 3771 | MAP NO. | SHEET P7 OF 26

STATE OF NEW MEXICO
RAY D. DARNELL
NO. 1763

THE RIO GRANDE ZOO

AS BUILT INFORMATION
CONTRACTOR
STAKED BY DATE
WORK BY DATE
INSPECTED BY DATE
FIELD VERIFICATION BY DATE
DRAWING BY DATE
MICRO-FILM INFORMATION
RECORDED BY DATE
NO.

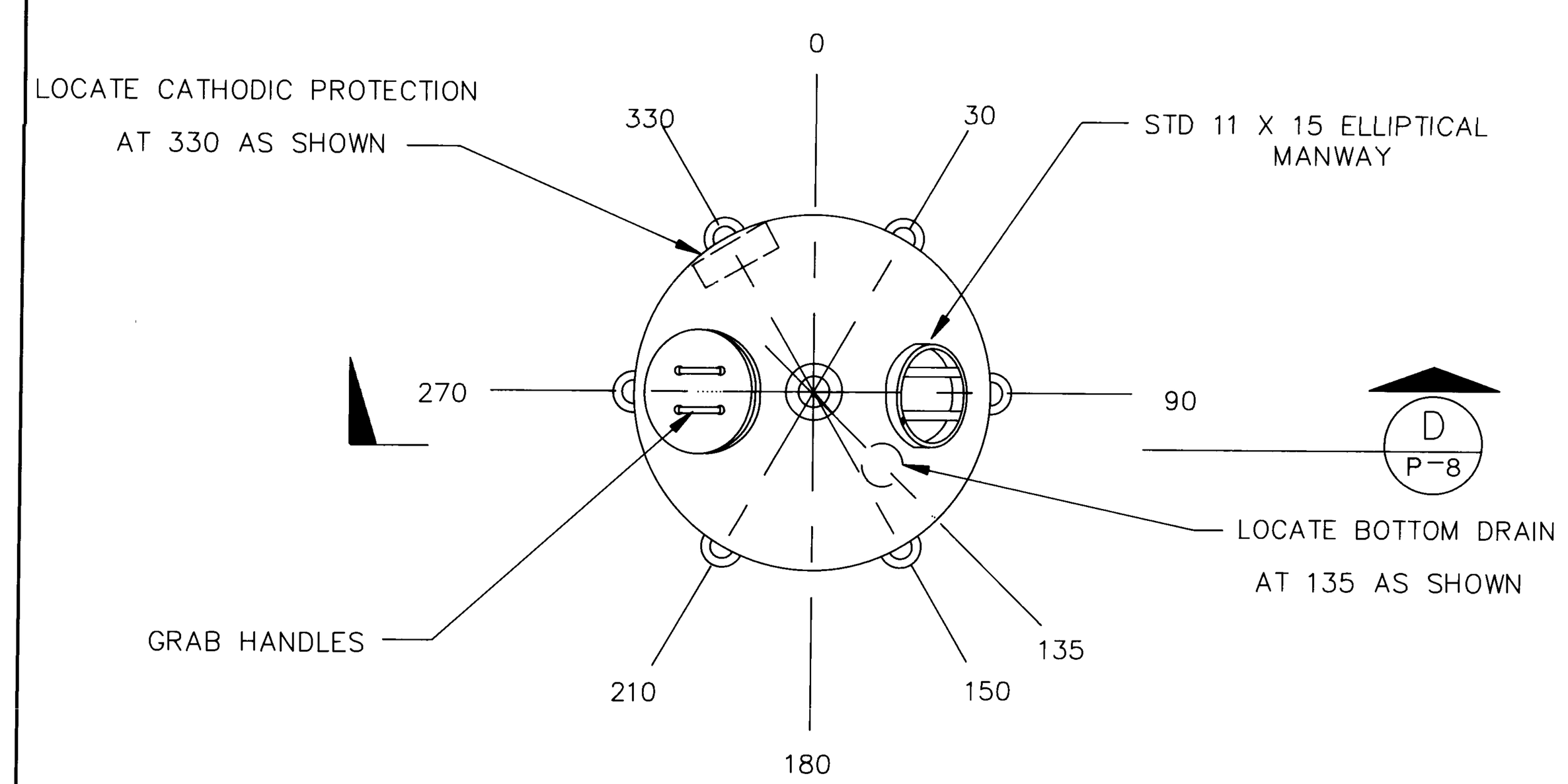
BENCH MARKS

SURVEY INFORMATION
FIELD NOTES
BY DATE
NO.

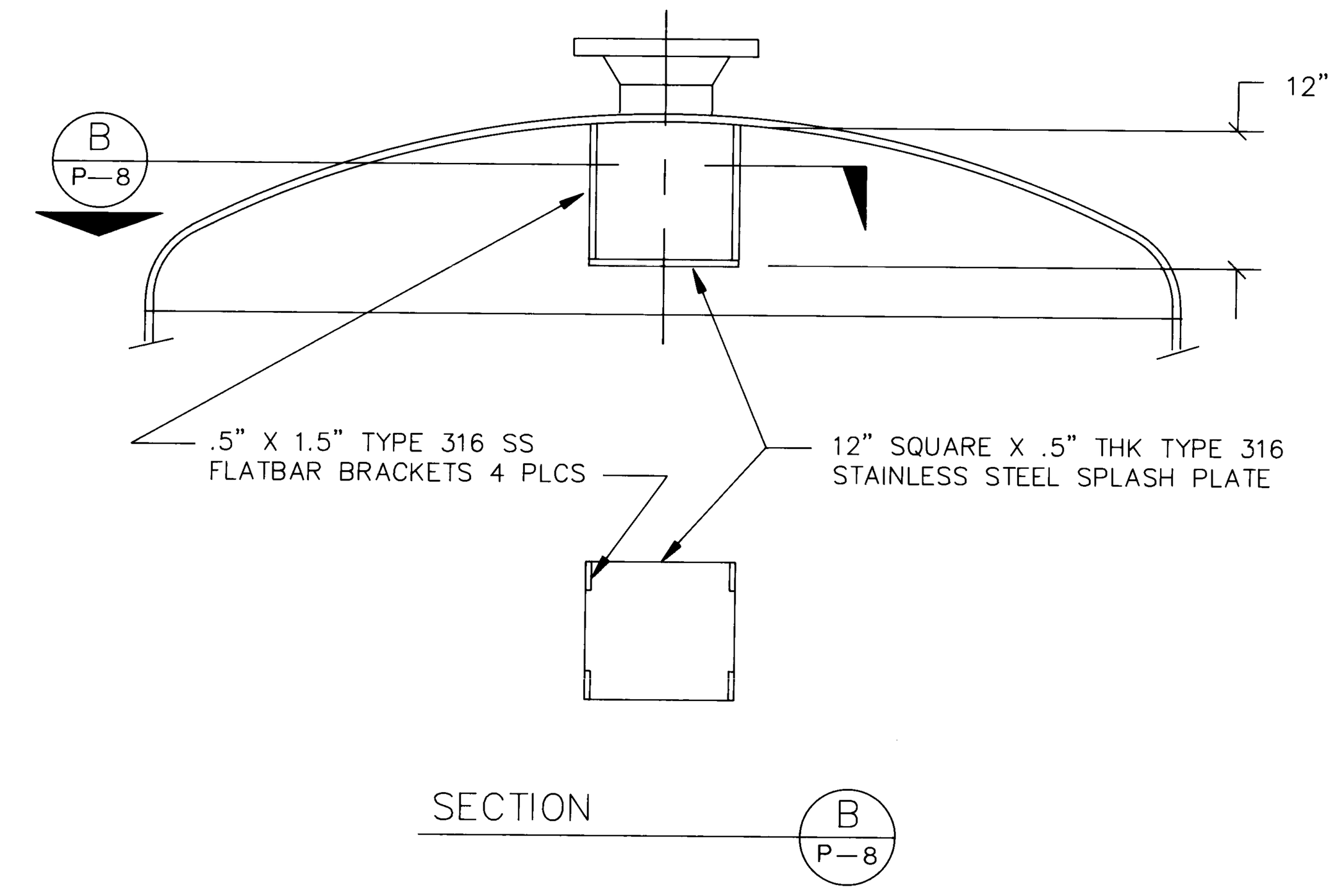
ENGINEER'S SEAL
STATE OF NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER

REMARKS
REVISIONS
DESIGN BY JL DATE - 10/31/89
DRAWN BY JRF DATE - 10/31/89
CHECKED BY PAC DATE - 11/6/89
NO. DATE BY

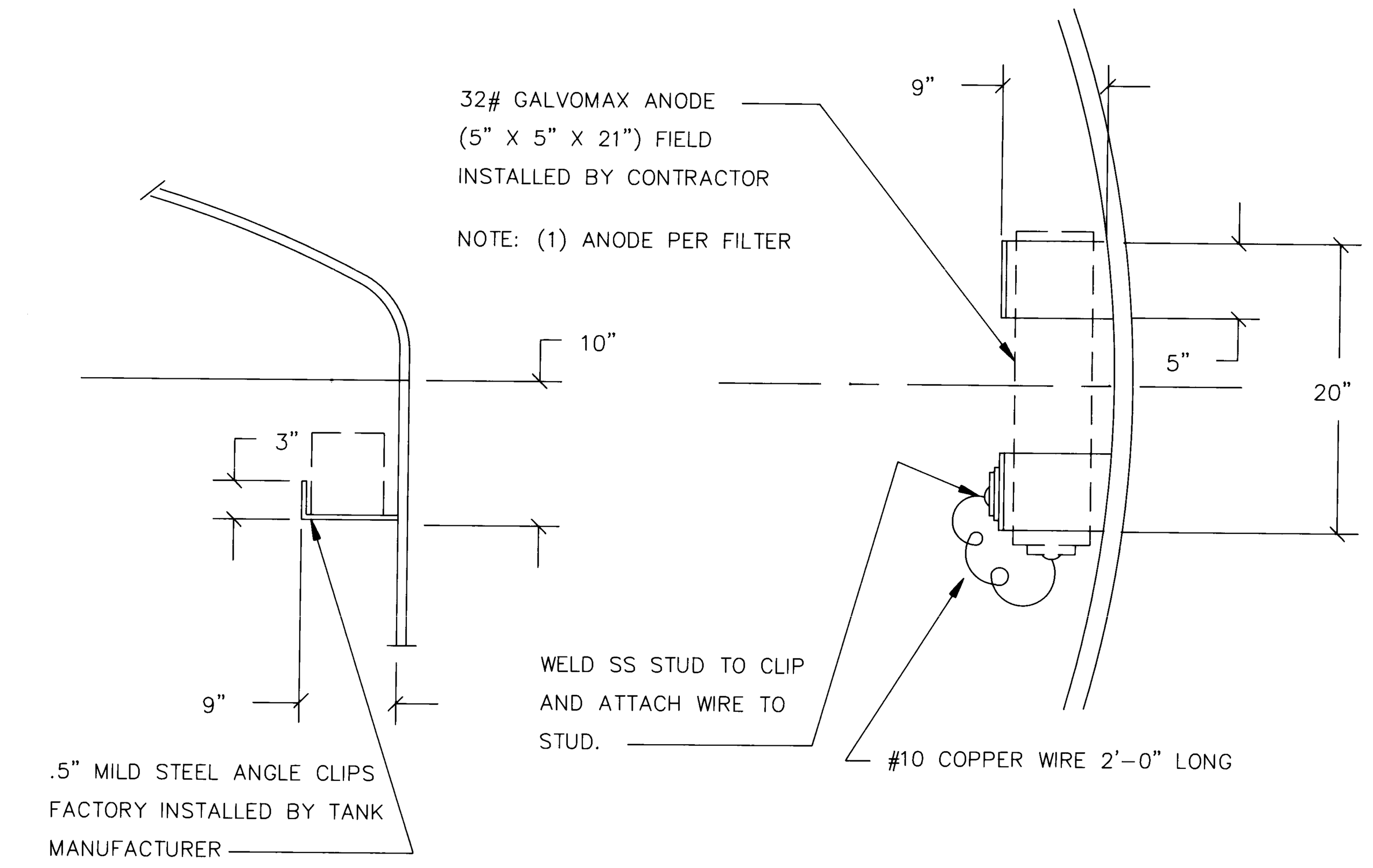
City Project No. 3771



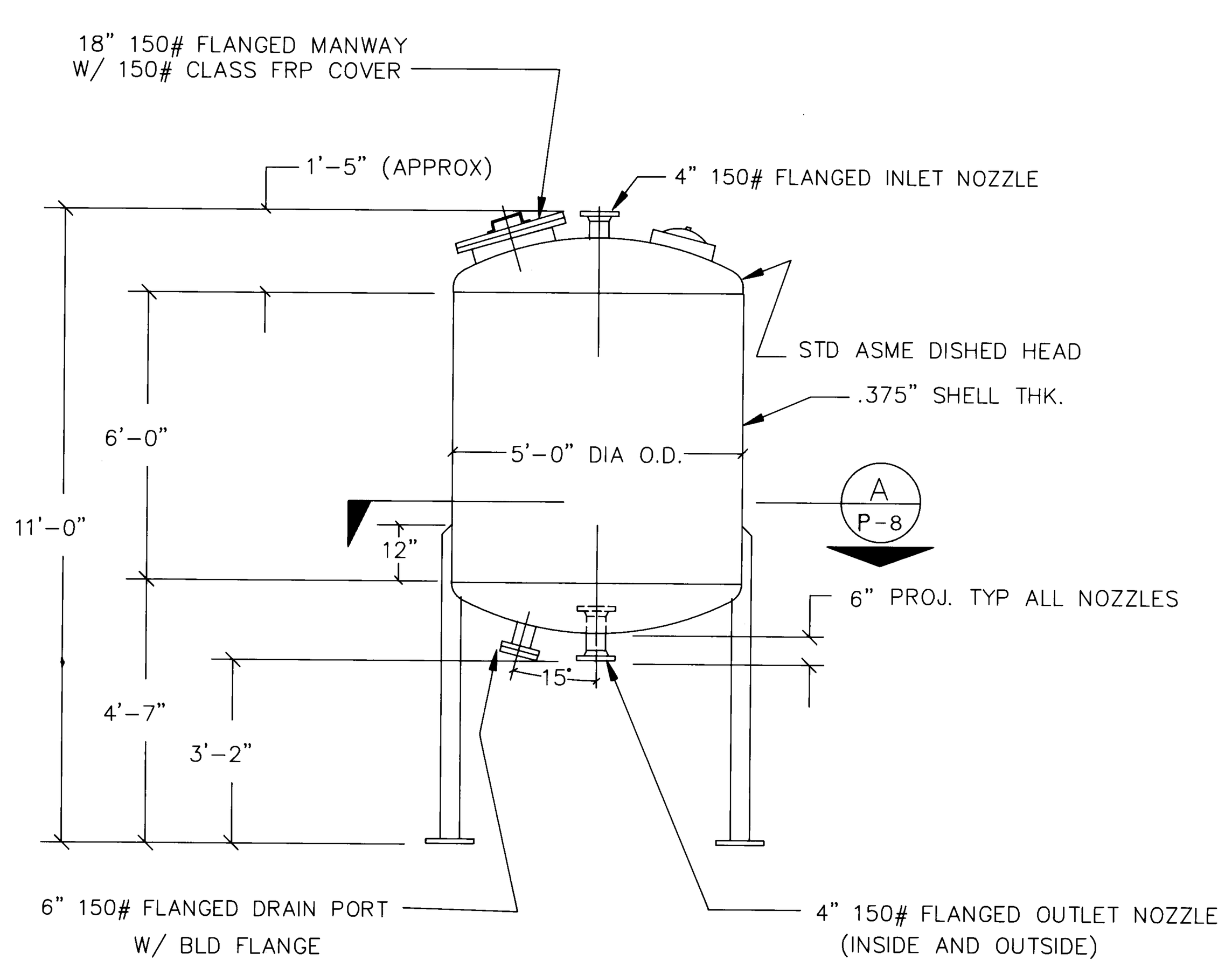
PLAN - TOP VIEW
(TRUE ORIENTATION)



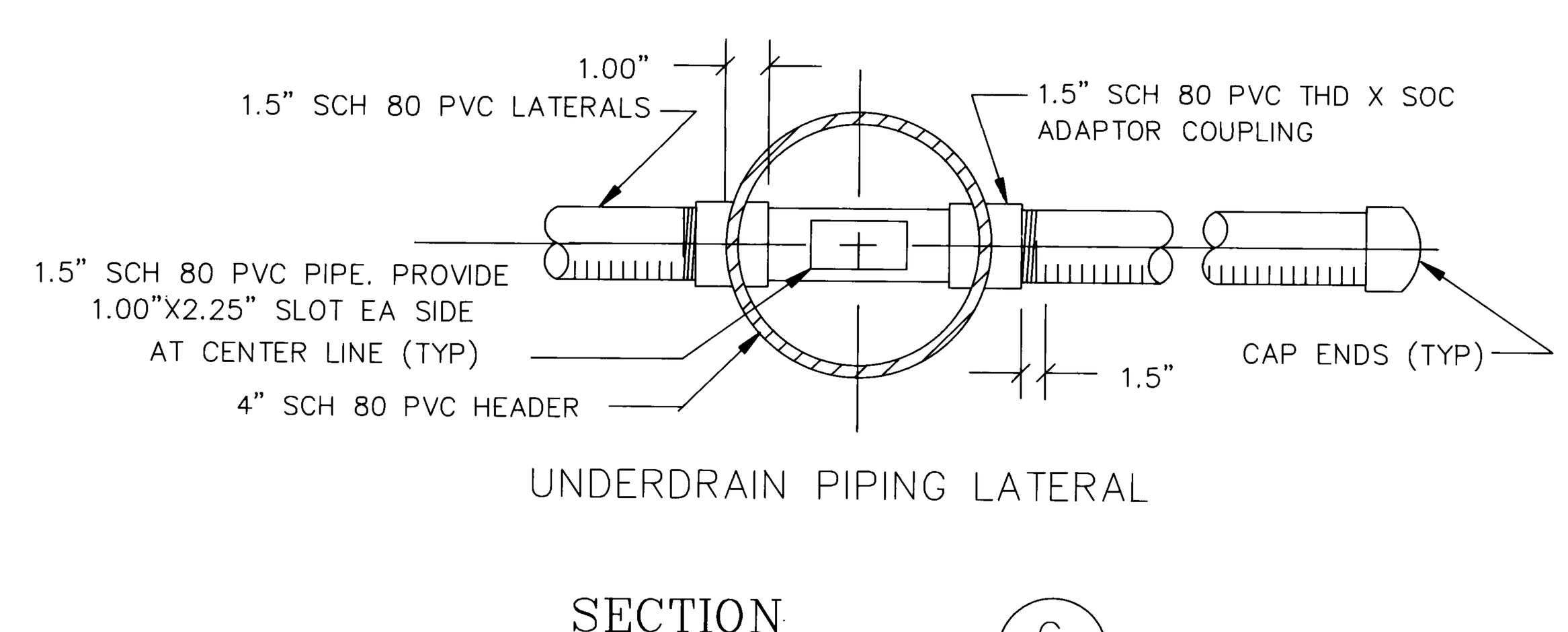
SPLASH PLATE - TYPICAL DETAIL



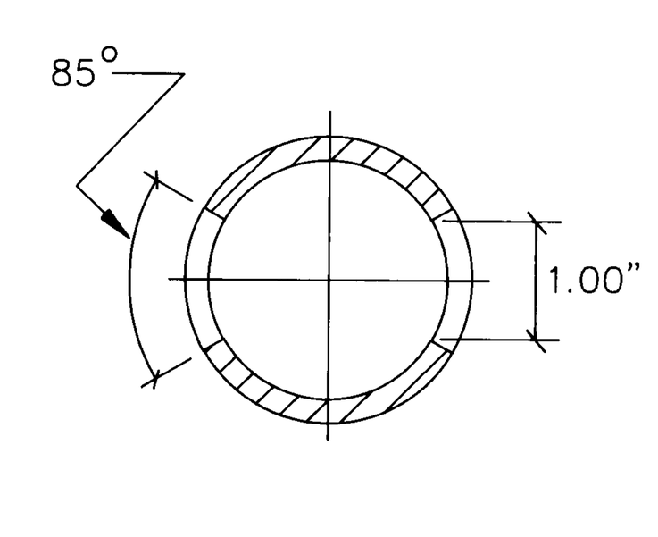
CATHODIC PROTECTION - TYPICAL DETAIL



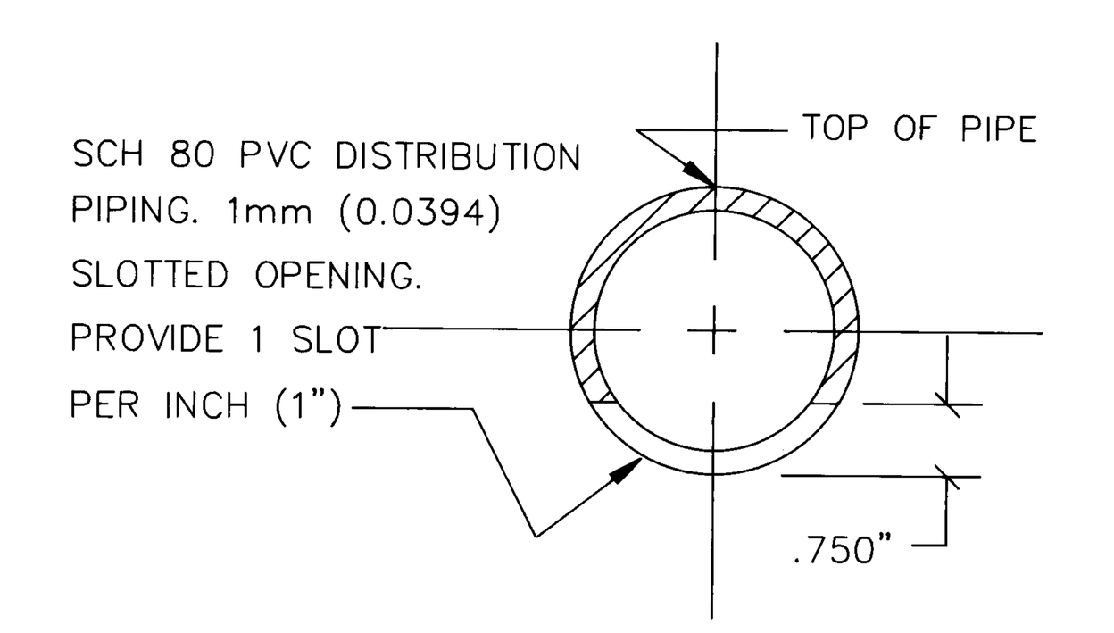
ELEVATION



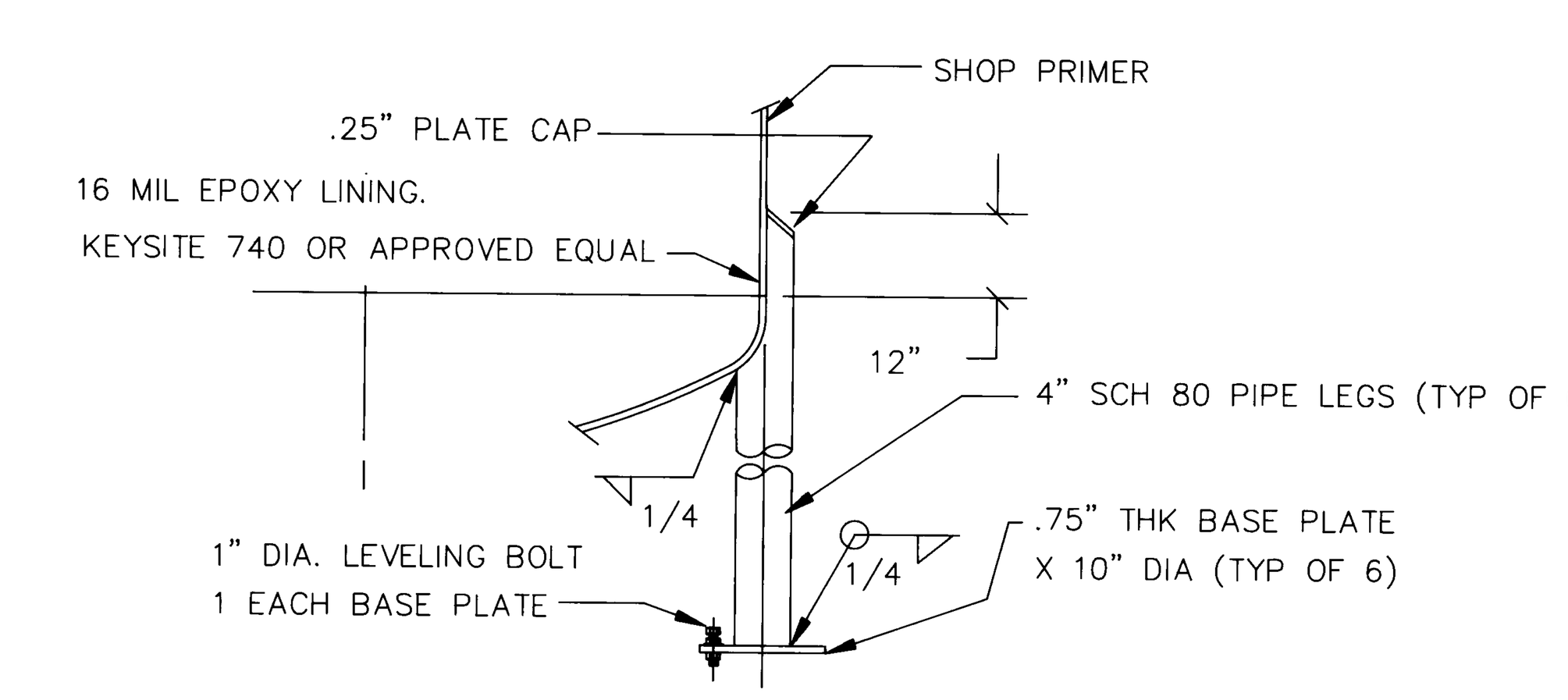
SECTION C (P-8)



LATERAL - CENTER SECTION

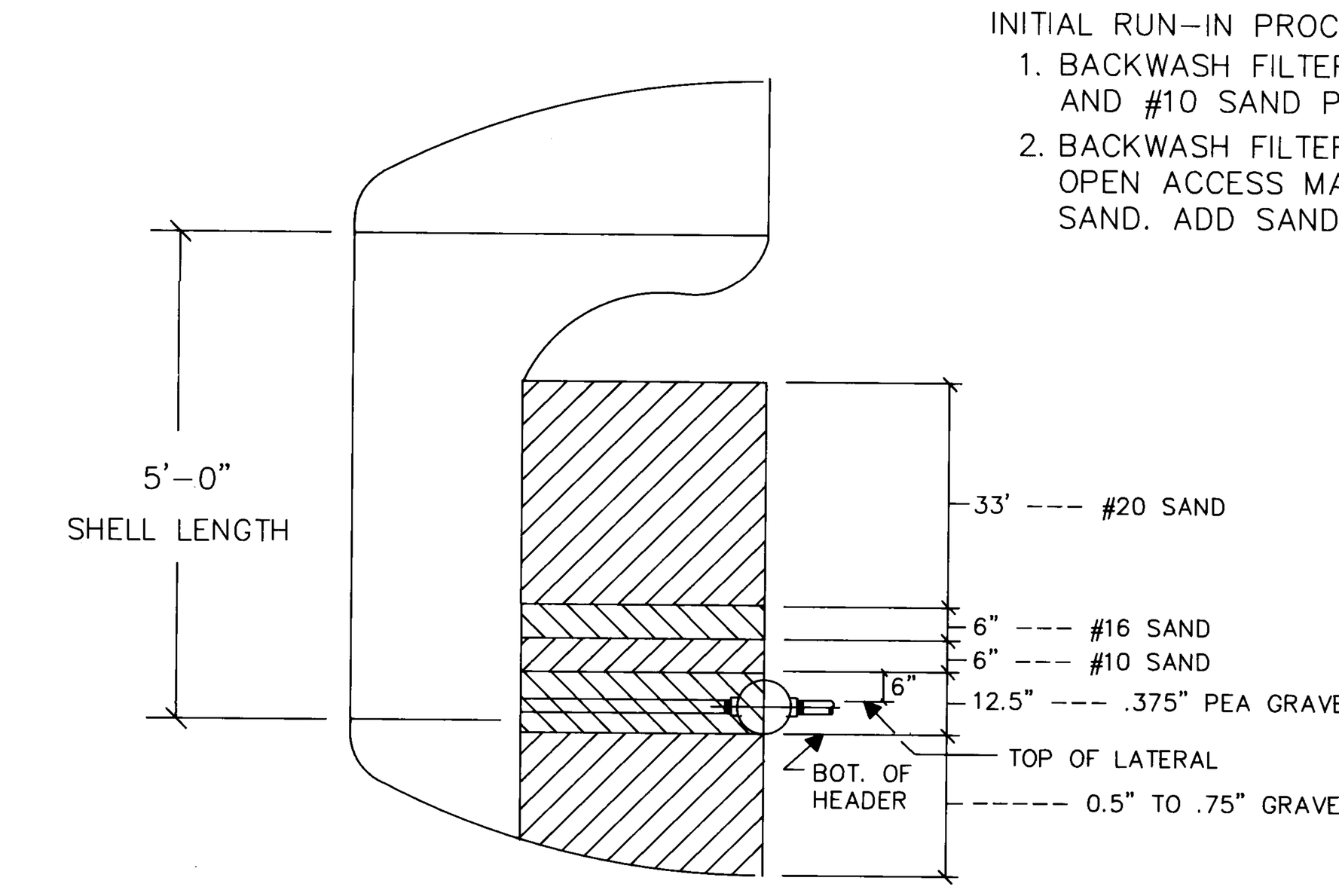


LATERAL - TYPICAL SECTION

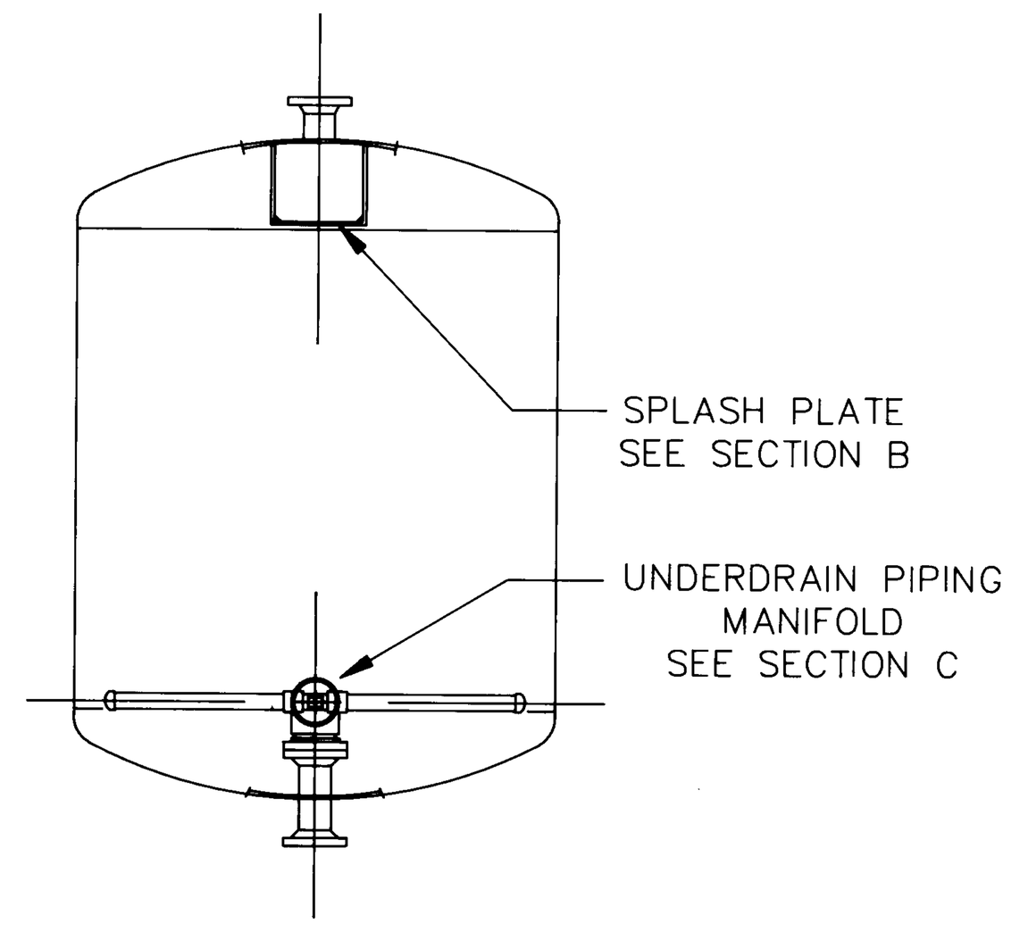


LEG ATTACHMENT - TYPICAL DETAIL

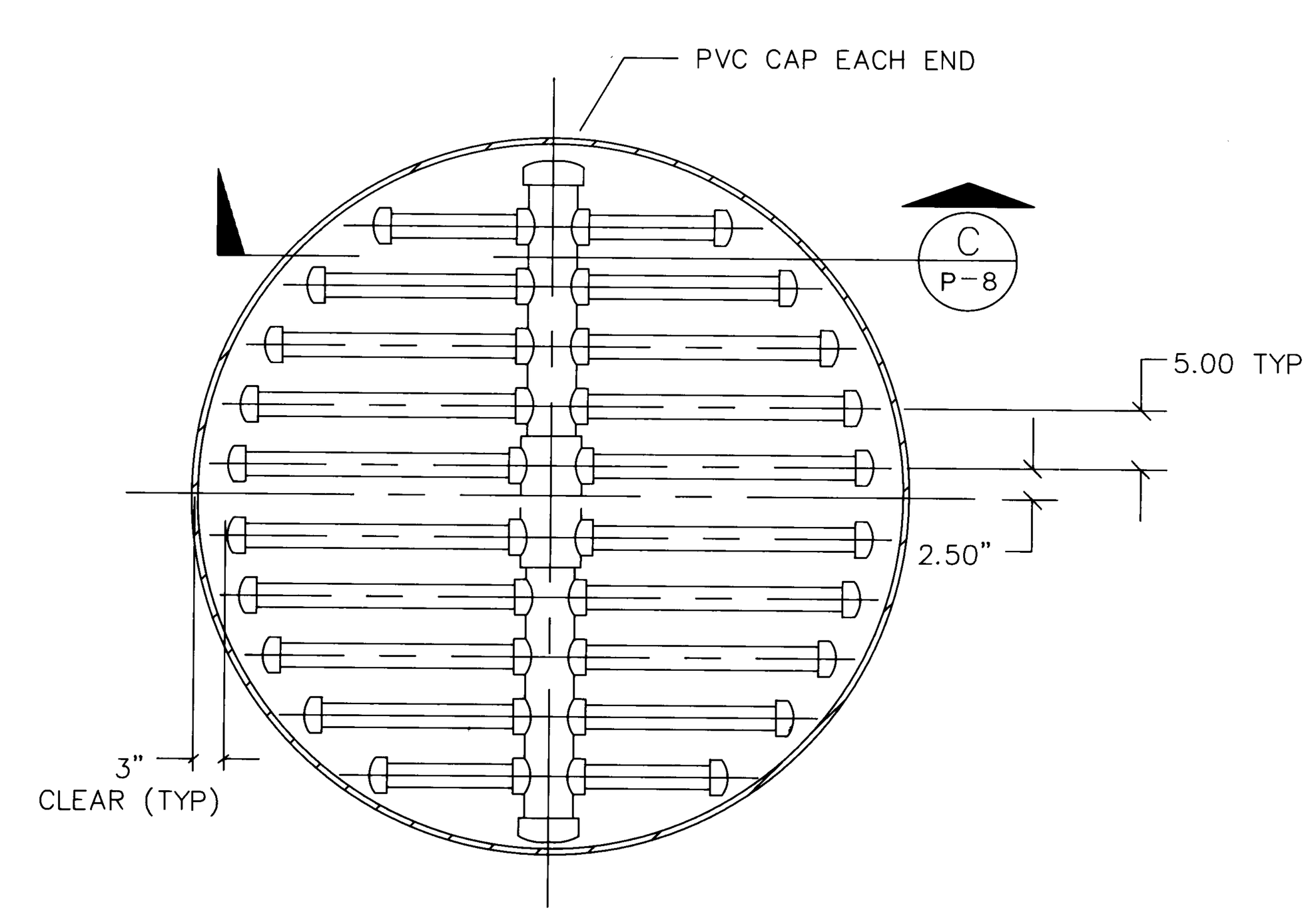
INITIAL RUN-IN PROCEDURE
1. BACKWASH FILTERS AFTER PLACING GRAVEL AND #10 SAND PRIOR TO PLACING #16 SAND
2. BACKWASH FILTER AFTER PLACING #20 SAND. OPEN ACCESS MANHOLE AND CHECK LEVEL OF SAND. ADD SAND AS NECESSARY.



FILTER MEDIA - TYPICAL SECTION



SECTION D (P-8)



SECTION A (P-8)

GENERAL NOTES

1. EXTEND EPOXY LINING TO COAT FACE OF FLANGED OUTLETS.
2. LIFTING EYES NOT SHOWN. PROVIDE MINIMUM OF FOUR (4) PER FILTER.
3. ALL BLIND FLANGES TO BE PVC OR FIBERGLASS.
4. ALL HARDWARE SHALL BE 316 SS. ALL BOLTS ARE TO BE STAMPED "316"
5. LEVEL AND DRY PACK FILTERS BEFORE PLACING MEDIA OR WET TESTING.

THE RIO GRANDE ZOO

AS BUILT INFORMATION: CONTRACTOR; WORK STARTED BY; DATE; INSPECTOR'S ACCEPTANCE BY; DATE; FIELD VERIFICATION BY; DATE; DRAWINGS CORRECTED BY; DATE

MICRO-FILM INFORMATION: RECORDED BY; DATE; NO.

BENCH MARKS

SURVEY INFORMATION: FIELD NOTES; NO.; BY; DATE

ENGINEER'S SEAL

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY - JJ; DATE - 10/30/89
DRAWN BY - JSR; DATE - 10/30/89
CHECKED BY - PAC; DATE - 11/6/89

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

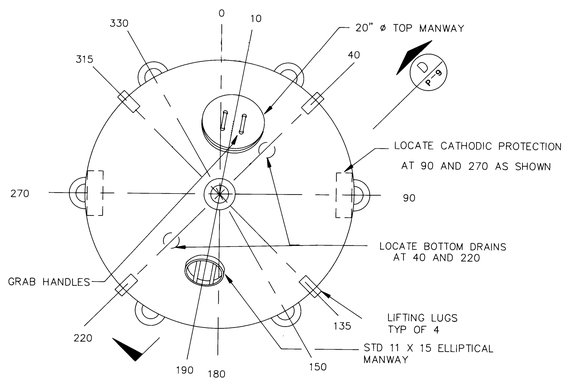
TITLE: RIO GRANDE ZOOLOGICAL PARK
SALTWATER FILTRATION SYSTEM
5 FEET DIAMETER PRESSURE SAND FILTER

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair	[signature]	5/1/90			
Trans. Dev.	RWH	5/1/90			
Utility Dev.	R.W. Kane	5-1-90			

26-3771.90 1897

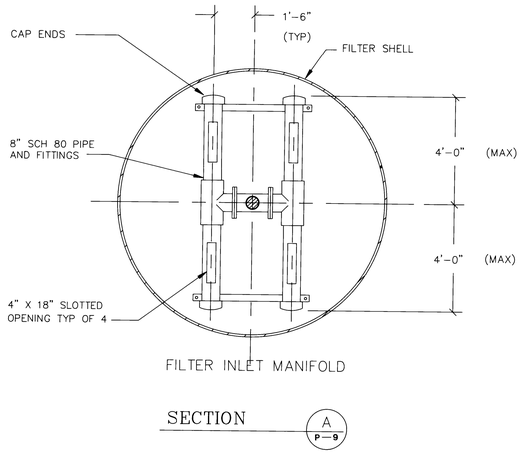
DRAWING NO. 3771 | MAP NO. | SHEET P8 OF 26

City Project No. 3771



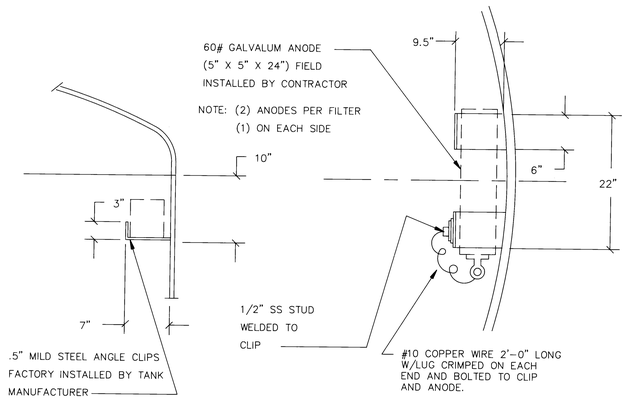
PLAN – TOP VIEW

(TRUE ORIENTATION)

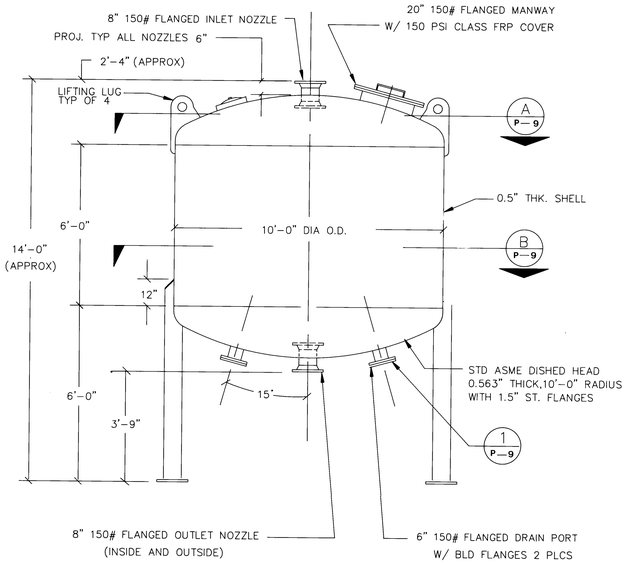


FILTER INLET MANIFOLD

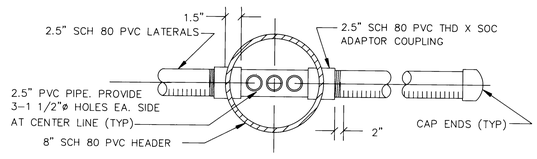
SECTION A P—9



CATHODIC PROTECTION – TYPICAL DETAIL

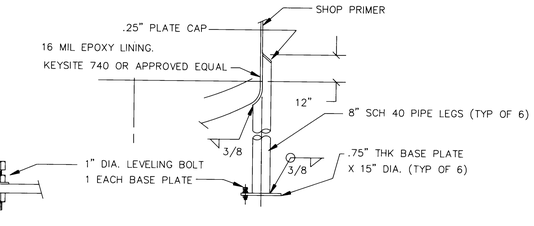


ELEVATION

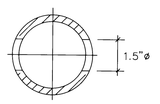


UNDERDRAIN PIPING LATERAL

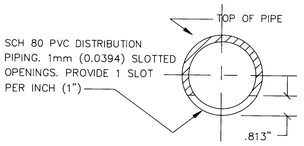
SECTION C P—9



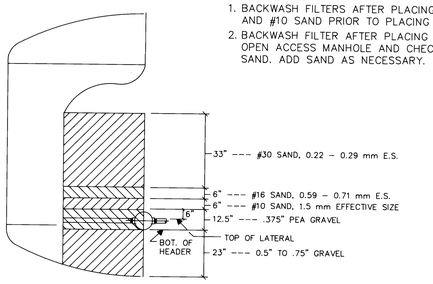
LEG ATTACHMENT – TYPICAL DETAIL



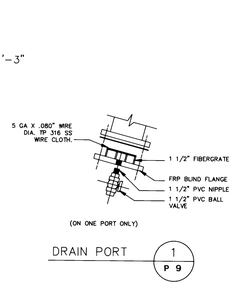
LATERAL – CENTER SECTION



LATERAL – TYPICAL SECTION

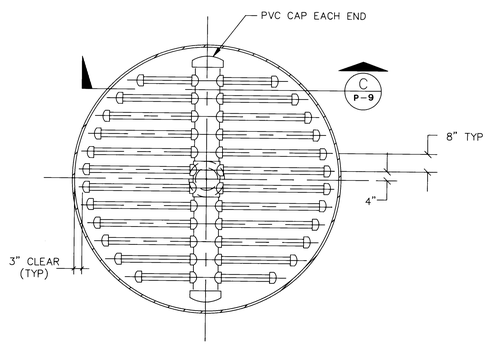


FILTER MEDIA – TYPICAL SECTION



SECTION D P—9

DRAIN PORT 1 P 9



UNDERDRAIN PIPING MANIFOLD

SECTION B P—9

GENERAL NOTES

1. EXTEND EPOXY LINING TO COAT FACE OF FLANGED OUTLETS.
2. ALL BLIND FLANGES TO BE PVC OR FIBERGLASS.
3. ALL HARDWARE SHALL BE 316 SS. ALL BOLTS ARE TO BE STAMPED "316"
4. LEVEL AND DRY PACK FILTERS BEFORE PLACING MEDIA OR WET TESTING.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
261-3771.00 1997

THE RIO GRANDE ZOO

AS BUILT INFORMATION
CONTRACTOR — DATE
WORK STAKED BY — DATE
INSPECTORS INITIALS — DATE
FIELD VERIFICATION BY — DATE
COMPUTED BY — DATE
MICRO–FILM INFORMATION — DATE
RECORDED BY
NO.

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES BY — DATE
NO.

ENGINEER'S SEAL

REMARKS / REVISIONS / DESIGN — BY — DATE
DESIGNED BY — J.L. — DATE – 10/30/89
DRAWN BY — JKF — DATE – 10/30/89
CHECKED BY — PAC — DATE 11/16/89
NO. DATE

STATE OF NEW MEXICO — REGISTERED ARCHITECT

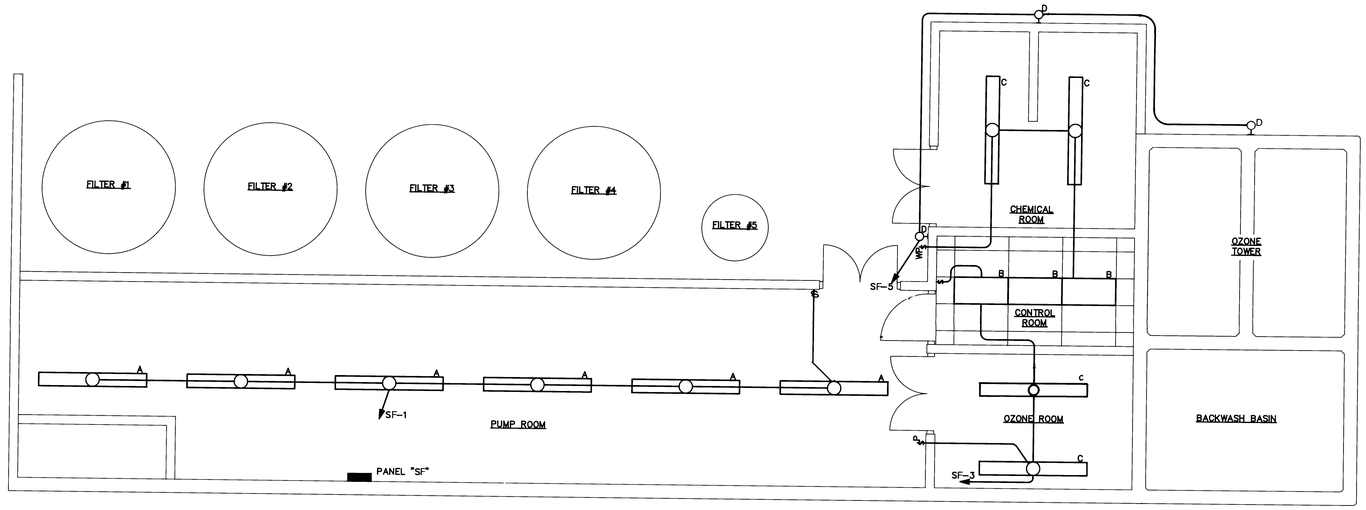
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: RIO GRANDE ZOOLOGICAL PARK
SALTWATER FILTRATION SYSTEM
10 FEET DIAMETER PRESSURE SAND FILTER

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair	[illegible]	5-7-90			
Trans. Dev.	[illegible]	5-1-90			
Utility Dev.	R.W. Kane	5-1-90			

DRAWING NO. 3771 — MAP NO. — SHEET P9 OF 26

City Project No. 3771



1 E1 E1 LIGHTING PLAN
SCALE: 1/4"=1'-0"

KEYED NOTES ⬡

1. EXISTING PAD MOUNT TRANSFORMER "T-13". 12470 VOLTS 3 PHASE DELTA PRIMARY, 480Y/277 VOLT 3 PHASE 4 WIRE SECONDARY. 300 KVA RATING.
2. EXISTING 4" CONDUIT STUBS (2). EXTEND AND WIRE PER NOTE 3.
3. NEW 4" CONDUITS (2). CONNECT TO EXISTING STUBS PER NOTE 2 AND EXTEND TO PANELBOARD "P-13". WIRE EACH CONDUIT WITH 4#350 MCM AND 1#2 (GROUND) THW CU.
4. PANELBOARD "P-13". OWNER FURNISHED, CONTRACTOR INSTALLED. 200K AMPS INTEGRATED SHORT CIRCUIT RATING.
5. 300AMP FUSES (3).
6. 500 AMP FUSES (3).
7. EXISTING UNDERGROUND 2/0 AWG CU. GROUND COUNTERPOISE AND GROUND RODS (4) SYSTEM.
8. EXTEND GROUNDING ELECTRODE TO NEUTRAL OF PANELBOARD "P-13".
9. NEW 4" CONDUIT. WIRE WITH 3#500 MCM AND 1#4 GROUND THW CU.
10. NEW 2-1/2" CONDUIT. WIRE WITH 3#3/0 AND 1#6 GROUND THW CU. UNDER ALTERNATE NO. 1.
11. POWER MOLDED CASE SWITCH DISCONNECT. FURNISH INSIDE CONTROL PANEL OF CHILLER.
12. NEW CHILLER.
13. NEW MOTOR CONTROL CENTER "MCC". 600 AMPS. 480 VOLTS. 3 PHASE 3 WIRE. 42K AMPS BRACING.
14. 100 AMPS 3 POLE SWITCH. FUSE AT 70 AMPS.
15. NEW 1-1/4" CONDUIT. WIRE WITH 3#4 AND 1#8 GROUND THW CU.
16. NEW DRY TYPE TRANSFORMER. 480 VOLTS. 3 PHASE DELTA PRIMARY, 208Y/120 VOLTS. 3 PHASE 4 WIRE SECONDARY. 45 KVA RATING.
17. GROUNDING ELECTRODE SYSTEM. #6 AWG CU. IN. 1/2" CONDUIT. RUN TO EXTERIOR GROUND RODS (2). SPACE 10 FEET APART.
18. NEW 2" CONDUIT. WIRE WITH 4#1/0 AND 1#6 GROUND THW CU.
19. NEW PANELBOARD "SF". 208Y/120 VOLTS, 3 PHASE 4 WIRE PER SCHEDULE ON SHEET E2.
20. NEW 1-1/2" CONDUIT. WIRE WITH 4#1/0 AND 1#6 GROUND THW CU.
21. EXISTING 1-1/2" CONDUIT.STUB. WIRE PER NOTE 20.
22. EXISTING PANELBOARD "SL". 480Y/277VOLTS 3 PHASE 4 WIRE IN SEA LION POOL EQUIPMENT BUILDING.

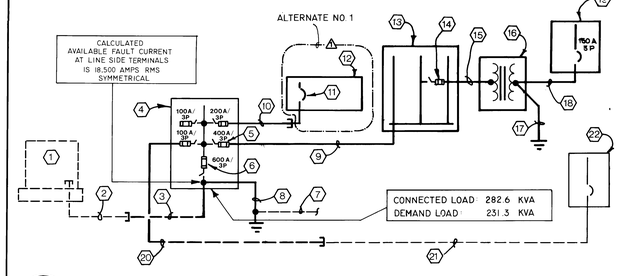
SYMBOLS LEGEND

SYMBOL	DESCRIPTION
	FLUORESCENT LIGHT FIXTURE, PENDANT MOUNT.
	FLUORESCENT LIGHT FIXTURE, RECESSED.
	HPS WALL PACK FIXTURE WITH INTEGRAL PHOTOCELL CONTROL.
$	WALL SWITCH, FLUSH MOUNT 48" AFF TO CENTER.
$P	AS ABOVE WITH RED PILOT LIGHT HANDLE.
$WP	AS FOR $P WITH WEATHERPROOF FLAP COVER.
SF-1	CIRCUIT IDENTIFICATION, TYPICAL.
	CIRCUIT BREAKER PANELBOARD.

LIGHT FIXTURE SCHEDULE

TYPE	DESCRIPTION	MNFR. & CAT	LAMPS	MOUNTING
A	INDUSTRIAL REFLECTOR FLUORESCENT FIXTURE	BENJAMIN # FLB-1125-8U-120V	2-F96HO COOL WHITE	CHAIN HUNG 8FT. AFF TO BOTTOM
B	RECESSED LENSED FLUORESCENT FIXTURE	BENJAMIN # AGS 1075 41C ES	4-F40 RS COOL WHITE ENERGY SAVING	RECESSED IN CEILING
C	FLUORESCENT VAPORPROOF FIXTURE	BENJAMIN # FAD-2425-8-120V-FA 111	2-F96 HO COOL WHITE	CHAIN HUNG 9FT. AFF TO BOTTOM
D	HPS WALL PACK FIXTURE	BENJAMIN # OLW-270-120-B-PC	1-70W MOGUL CLEAR HPS	SURFACE WALL 8FT. 6 INS TO BOTTOM

GROUNDING NOTE: INTERIOR WATER PIPING OF BUILDING IS NON-METALLIC



2 E1 E1 **POWER RISER DIAGRAM**
NO SCALE

THE RIO GRANDE ZOO

AS BUILT INFORMATION
CONTRACTOR
WORK STARTED BY / DATE
SUPERVISORS / DATE
FINAL INSPECTION BY / DATE
DRAWINGS BY / DATE
MICRO-FILM INFORMATION
RECORDED BY / DATE
NO. BENCH MARKS

SURVEY INFORMATION
FIELD NOTES
NO. BY DATE

ENGINEER'S SEAL
RAY D. DARNELL
NEW MEXICO
15 March 1990

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
			DATE - 1/15/90
			DATE - 1/22/90
			DATE - 1/22/90

DESIGNED BY J.K.
DRAWN BY M.D./T.B.
CHECKED BY R.D.M.T.

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: RIO GRANDE ZOOLOGICAL PARK
SALTWATER FILTRATION SYSTEM
LIGHTING PLAN and FIXTURE SCHEDULE and POWER RISER DIAGRAM

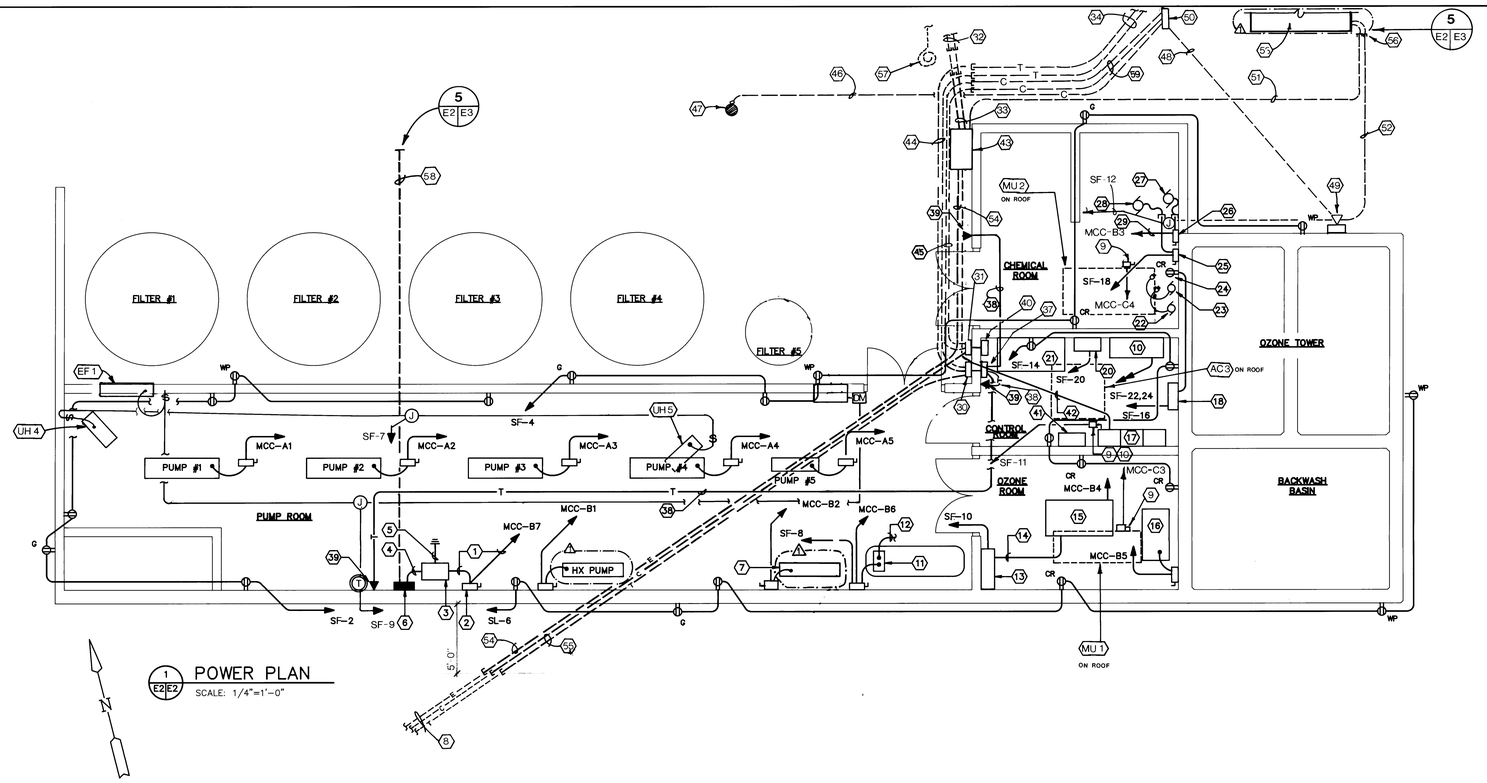
APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair	[illegible]	5/2/90			
Trans. Dev.	[illegible]	5/1/90			
Utility Dev.	R.W. Kane	5-1-90			

DRAWING NO. 3771 | MAP NO. | SHEET E1 OF 26

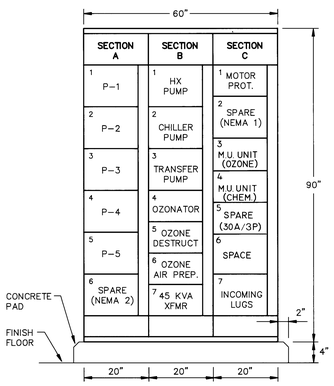
City Project No. 3771

STATE OF NEW MEXICO
RAY D. DARNELL
REGISTERED ENGINEER

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16



5 E2 E3 — POWER PLAN
SCALE: 1/4"=1'-0"



2 E2 E2 — MCC ELEVATION
N.T.S.

PANEL "SF" SCHEDULE

CIRCUIT BREAKER PANELBOARD. 208Y/120VOLTS AC. 3 PHASE, 4 WIRE, SOLID NEUTRAL WITH EQUIPMENT GROUND BUS. 150A, 3P, MAIN BREAKER. 10 KA IC RATING.

BRANCH CIRCUITS

CIRCUITS 1 THROUGH 10, 12 14, AND 15 THROUGH 30	20A	1 POLE C.B.'s
CIRCUIT 11 /13,	20A	2 POLE HACR C.B.
CIRCUITS 30 THROUGH 42	SPACES FOR FUTURE C.B.'S	

MOTOR CONTROL CENTER "MCC" SCHEDULE

480 VOLTS, 3 PHASE, 3 WIRE, 60 Hz; 42 KA IC; COPPER TIN PLATED BUSES 600 AMPS HORIZ; 300 AMPS VERT., NEMA TYPE 1 ENCLOSURE; BOTTOM FEED; 15 INCH DEEP SECTIONS.

UNIT	DESIGNATION	COMB. STARTER	NEMA SIZE	HP	FUSED SWITCH SIZE	FUSE SIZE
A1	FILTER PUMP #1	X	2	15	30A/3P	30
A2	FILTER PUMP #2	X	2	15	30A/3P	30
A3	FILTER PUMP #3	X	2	15	30A/3P	30
A4	FILTER PUMP #4	X	2	15	30A/3P	30
A5	FILTER PUMP #5	X	1	3	30A/3P	8
A6	SPARE	X	2	–	30A/3P	–
B1	HX PUMP	X	1	3	30A/3P	8
B2	CHILLER PUMP	X	1	3	30A/3P	8
B3	TRANSFER PUMP	X	1	2	30A/3P	5
B4	OZONATOR	–	–	–	30A/2P	20
B5	OZONE DESTRUCT	–	–	–	30A/3P	15
B6	OZONE AIR PREP.	–	–	–	30A/3P	15
B7	45 KVA TRANSFORMER	–	–	–	100A/3P	70
C1	MOTOR PROTECTOR *	–	–	–	30A/3P	15
C2	SPARE	X	1	–	30A/3P	–
C3	MAKE UP AIR UNIT 1 (OZONE)	–	–	–	30A/3P	25
C4	MAKE UP AIR UNIT 2 (CHEMICAL)	–	–	–	60A/3P	4
C5	SPARE	–	–	–	30A/3P	–
C6	SPACE	–	–	–	–	–
C7	INCOMING LUG COMPARTMENT	–	–	–	–	–

* MOUNT IN MCC IN FIELD.

SYMBOLS LEGEND

SYMBOLS	DESCRIPTION
	DUPLEX CONVENIENCE OUTLET. FLUSH MOUNT 48" A.F.F. TO CENTER. SUBSCRIPTS: CR = CORROSION RESISTANT WITH WEATHERPROOF FLAP COVER. G = GFI TYPE WITH WEATHERPROOF FLAP COVER. WIRE TO PROTECT DOWNSTREAM 'WP' OUTLETS. WP = WEATHERPROOF TYPE PROTECTED BY GFI TYPE UPSTREAM ON SAME CCT.
	DISCONNECT SWITCH. NON-FUSED. 30A, 3 POLE, 600 VOLT, UNLESS OTHERWISE NOTED. WALL MOUNT 66" A.F.F. TO TOP OR SUPPORT ON UNISTRUT CHANNEL AT 24" A.F.F. TO BOTTOM ADJACENT TO EQUIPMENT SERVED.
	MOTOR.
	PANELBOARD.
	WALL TELEPHONE OUTLET.
	JUNCTION BOX.
	LIQUIDTIGHT FLEX CONDUIT CONNECTION.
	CONDUIT STUB & LIQUIDTIGHT FLEX CONDUIT CONN.
	PLUG AND CORD CONNECTION.
—T—	TELEPHONE CONDUIT.
SL-4	PANELBOARD CIRCUIT IDENTIFICATION.
MCC-B1	MCC CIRCUIT IDENTIFICATION. WIRE WITH 3#12, 1#12 G. UNLESS OTHERWISE NOTED.
	EXTERIOR UNDERGROUND CONDUIT.
	KEYED NOTE, TYPICAL.
A.F.F.	ABOVE FINISH FLOOR.
C.	CONDUIT.
G.	EQUIPMENT GROUNDING CONDUCTOR.
	ALTERNATE NO. 1
T	THERMOSTAT. WALL MOUNT 5'-0" A.F.F. TO BOTTOM FURNISH UNDER DIV. 15 INSTALL & WIRE UNDER DIV. 16.
$	WALL SWITCH. MOUNT ON OR ADJACENT TO EQUIPMENT SERVED.

KEYED NOTES

1 1-1/4"C. 3#4, 1#8 G. USE LIQUIDTIGHT FLEX FOR TRANSFORMER CONNECTION.
2 DISCONNECT, NON FUSED, 100A, 3 POLE, 600 VOLT.
3 DRY TYPE TRANSFORMER. MOUNT ON 4 INCH HIGH CONCRETE PAD. 45 KVA SIZE. 480 VOLT 3 PHASE DELTA PRIMARY, 208Y/120VOLT, 3 PHASE, 4 WIRE SECONDARY.
4 2-1/2"C. 4#1/0, 1#6 G. USE LIQUIDTIGHT FLEX.
5 GROUNDING ELECTRODE SYSTEM, AS DESCRIBED IN POWER RISER DIAGRAM. SEE SHEET E1.
6 PANEL "SF". PER SCHEDULE ON THIS SHEET.
7 CHILLER PUMP.
8 EXISTING UNDERGROUND CONDUIT STUBS FROM SEA LION POOL EQUIPMENT BUILDING.
9 NEMA 3R TYPE. MOUNT ON UNIT AT ELECTRICAL CONNECTION. WIRE FROM LOAD SIDE TO UNIT TERMINALS.
10 FUSIBLE TYPE SWITCH, FUSE AT 20 AMPS.
11 AIR PREP. UNIT CONTROLLER.
12 1/2"C. 2#12, 1#12 G. (CCT. SF-8) TO OZONATOR.
13 OZONE MONITOR. FURNISH AND INSTALL UNDER DIVISION 15.
14 1/2"C. 2#12, 1#12 G. CONTROL WIRING.
15 OZONATOR. FURNISH AND INSTALL UNDER DIVISION 15.
16 OZONE CATALYTIC DESTRUCT UNIT. FURNISH AND INSTALL UNDER DIVISION 15.
17 MCC. SEE SCHEDULE THIS SHEET. MOUNT ON 4 INCH HIGH CONCRETE PAD.
18 CHLORINE/ACID BASE ANALYZER CONTROL PANEL. FURNISH AND INSTALL UNDER DIVISION 15.
19 MULTIPLEXER CABINET. FURNISH AND INSTALL UNDER DIVISION 13.
20 UPS. FURNISH AND INSTALL UNDER DIVISION 13. CONNECT ADJACENT TABLE TOP COMPUTER, CRT AND PRINTER AND MULTIPLEXER CABINET POWER SUPPLIES TO OUTPUT.
21 TABLE, CHAIR, COMPUTER, CRT AND PRINTER. FURNISH AND INSTALL UNDER DIVISION 13.
22 CHEMICAL (ACID) PUMP #2. FURNISH AND INSTALL UNDER DIVISION 15. INSTALL 12/3 TYPE SO CORD AND CORROSION RESISTANT NEMA 5-15P PLUG UNDER DIVISION 16.
23 AS PER NOTE 22, BUT CHEMICAL (CHLORINE) PUMP #1.
24 SPLIT WIRED DUPLEXRECEPTACLE. WIRE FROM PANEL. LABEL OUTLETS "ACID PUMP" AND "CHLORINE PUMP".
25 NEMA 12 ENCLOSURE. LABEL "MIXER".
26 NEMA 12 ENCLOSURE. LABEL "TRANSFER PUMP". NIPPLE CONTROL STATION BELOW SWITCH. H-O-A WITH SPRING RETURN FROM 'HAND' TO 'OFF' POSITIONS. WIRE LEVEL CONTROL IN ADJACENT BASIN IN AUTO LEG. LABEL "TRANSFER PUMP".
27 TRANSFER PUMP. FURNISH AND INSTALL UNDER DIVISION 15.
28 MIXER. FURNISH AND INSTALL UNDER DIVISION 15.
29 1/2"C. 6#12, 1#12 G.
30 SCREW COVER CAN. NEMA 3R. 12"x12"x4". LABEL "TELEPHONE". MOUNT 12" A.F.F. TO BOTTOM. PROVIDE 1" CONDUIT CONNECTION TO CAN PER NOTE 37.
31 AS PER NOTE 30 BUT "COMMUNICATIONS" AND CONNECTED TO CAN PER NOTE 40.
32 EXISTING UNDERGROUND POWER CONDUIT STUBS FROM TRANSFORMER "T-13" APPROX. 20 FT. NORTH OF NEW BUILDING. SEE POWER RISER DIAGRAM, SHEET E1.
33 NEW UNDERGROUND POWER CONDUITS. SEE POWER RISER DIAGRAM, SHEET E1.
34 EXISTING UNDERGROUND 1" TELEPHONE CONDUIT STUBS FROM PEDESTAL APPROX. 10 FT. NORTH OF NEW BUILDING.
35 1" CONDUIT AND PULL WIRE. EXTEND UNDERGROUND TO EXISTING TELEPHONE PEDESTAL STUB OUT.
36 1" CONDUIT AND PULL WIRE. EXTEND UNDERGROUND TO EXISTING COMMUNICATIONS JUNCTION BOX STUB OUT.
37 8" x 8" x 4" SCREW COVER CAN. MOUNT 12" A.F.F. TO BOTTOM. LABEL "TELEPHONE".
38 3/4" CONDUIT AND PULL WIRE.
39 FLUSH MOUNT OUTLET BOX AT 54" A.F.F. TO CENTER FOR TELEPHONE INSTRUMENT BY OWNER.
40 8" x 8" x 4" SCREW COVER CAN. MOUNT 12" A.F.F. TO BOTTOM. LABEL "COMMUNICATIONS".
41 SPARE FUSE CABINET.
42 4"C. 3#500 MCM, 1#4 G.
43 OWNER FURNISHED PANEL "P-13". SQUARE "D" TYPE QMB 90"H x 38"W x 15"D. SURFACE MOUNT 4" ABOVE GRADE TO BOTTOM.
44 NEW UNDERGROUND 1" TELEPHONE CONDUITS. INSTALL BETWEEN EXISTING STUBS AND CAN PER NOTE 30.
45 NEW UNDERGROUND 1" COMMUNICATIONS CONDUITS. INSTALL BETWEEN EXISTING STUBS AND CAN PER NOTE 31.
46 EXISTING UNDERGROUND 1/2" COMMUNICATIONS CONDUIT AND P.A. CABLE. DISCONNECT AND REMOVE.
47 EXISTING P.A. SYSTEM WOOD POLE. APPROX. 20 FT. HIGH ABOVE GRADE. REMOVE P.A. SYSTEM HORN, CONDUIT BOX AND WIRING. REMOVE POLE AND TRANSPORT TO OWNER WAREHOUSE. RELOCATE HORN PER NOTE 49.
48 NEW UNDERGROUND 1/2" COMMUNICATIONS CONDUIT AND P.A. HORN CABLE.
49 EXISTING P.A. SYSTEM HORN. RELOCATE PER NOTE 47. MOUNT 19 FT. A.F.F.
50 EXISTING COMMUNICATIONS JUNCTION BOX.
51 NEW UNDERGROUND CHILLER FEEDER. SEE POWER RISER DIAGRAM, SHEET E1.
52 NEW UNDERGROUND 1/2" CONDUIT FOR CHILLER EVAPORATOR HEAT TAPE.
53 NEW CHILLER.
54 NEW UNDERGROUND 1-1/2" POWER CONDUIT. CONNECT TO EXISTING CONDUIT STUB FROM SEA LION POOL EQUIPMENT BUILDING PANEL APPROX. 50 FT. TO SOUTHWEST. SEE POWER RISER DIAGRAM SHEET E1.
55 NEW UNDERGROUND 1" TELEPHONE AND COMMUNICATIONS CONDUITS. CONNECT TO EXISTING CONDUIT STUBS FROM SEA LION POOL EQUIPMENT BUILDING JUNCTION BOXES APPROX. 50 FT. TO SOUTHWEST. PROVIDE PULL LINES.
56 CONDUIT STUBS AND MARKER UNDER BASE BID.
57 EXISTING UNDERGROUND 2/0 AWG CU. GROUND COUNTERPOISE CABLE IN 20 FT. LONG COILED UP SECTION. EXTEND TO NEUTRAL OF PANELBOARD "P-13".
58 TWO 1" SPARE CONDUITS UNDERGROUND.
59 EXISTING UNDERGROUND 1" COMMUNICATION CONDUIT STUB/S.

STATE OF NEW MEXICO — RAY D. DARNELL — NO. 1763 — REGISTERED ARCHITECT

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
2,7-13,771,90 12,97

THE RIO GRANDE ZOO

AS BUILT INFORMATION
CONTRACTOR
SURVEYED BY DATE
INSPECTIONS BY DATE
FIELD VERIFICATION BY DATE
CERTIFICATION BY DATE
DRAWINGS BY DATE
MICRO-FILM INFORMATION
RECORDED BY DATE
NO.

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES
NO. BY DATE

ENGINEER'S SEAL
RAY D. DARNELL 1763 REGISTERED ARCHITECT 15 March 1990

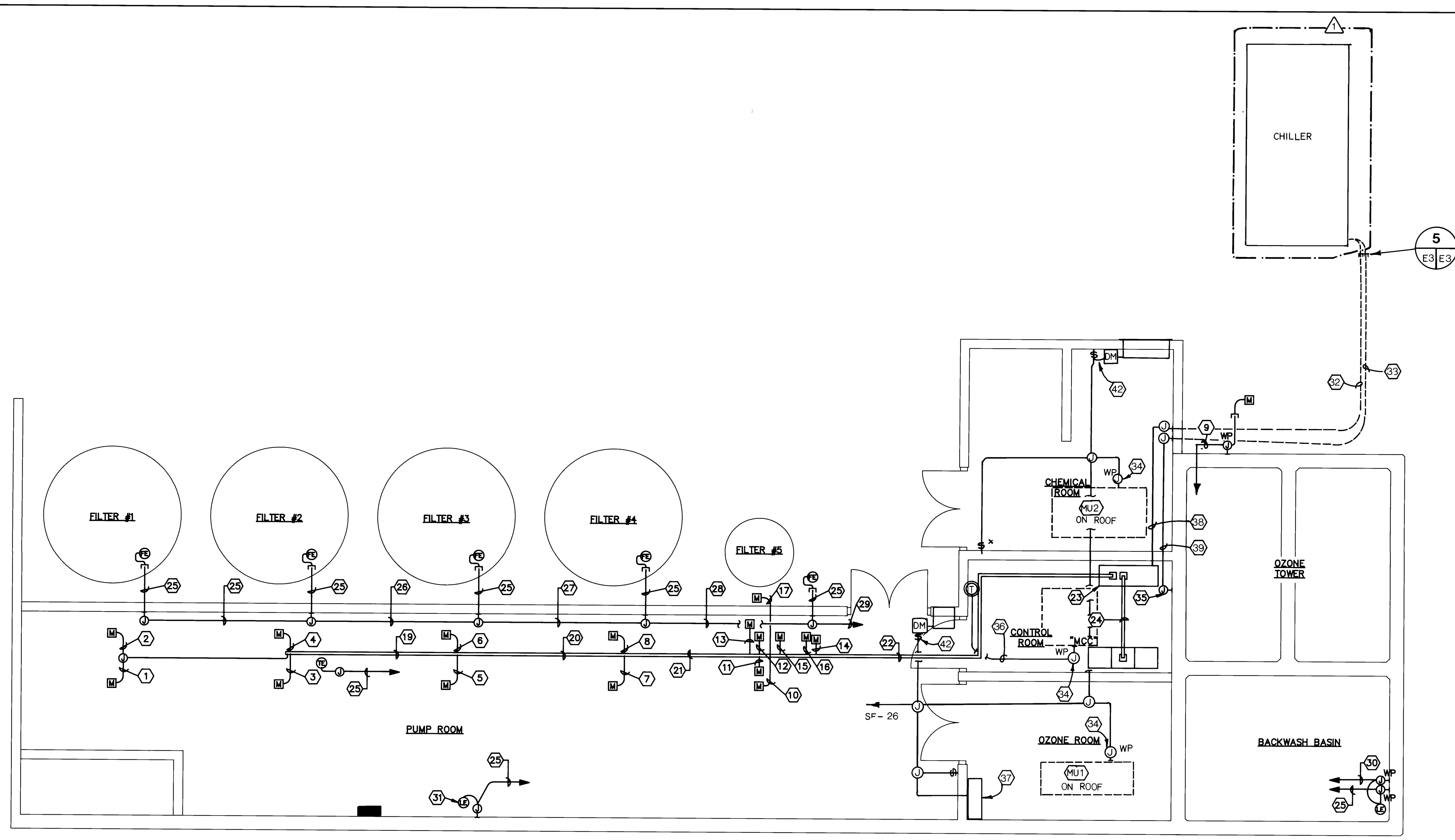
NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY J.K.	DATE - 1/15/90
		DRAWN BY M.D.T.-B	DATE - 1/22/90
		CHECKED BY - GMT	DATE - 1/29/90

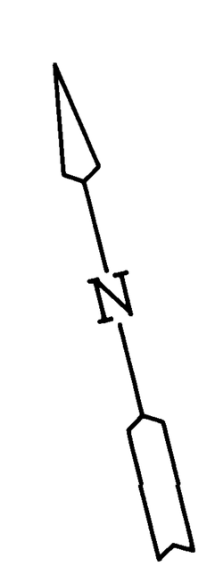
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: RIO GRANDE ZOOLOGICAL PARK
SALTWATER FILTRATION SYSTEM
POWER PLAN, PANEL SCHEDULE
MCC SCHEDULE/ELEVATION

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair	DWH	5/1/90			
Trans. Dev.	DWH	5/1/90			
Utility Dev.	R.W. Kane	5-1-90			

DRAWING NO. 3771 — MAP NO. — SHEET E2 OF 26

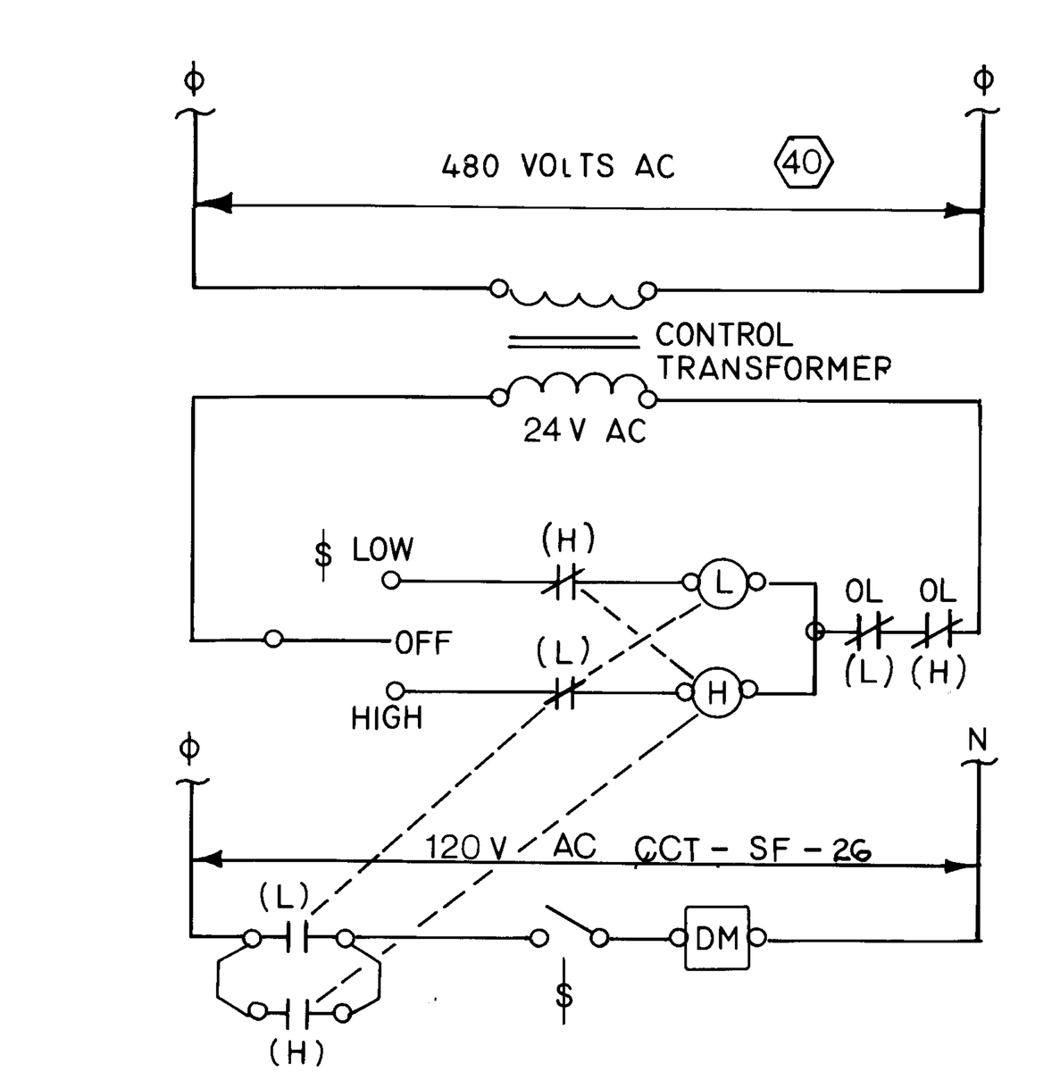




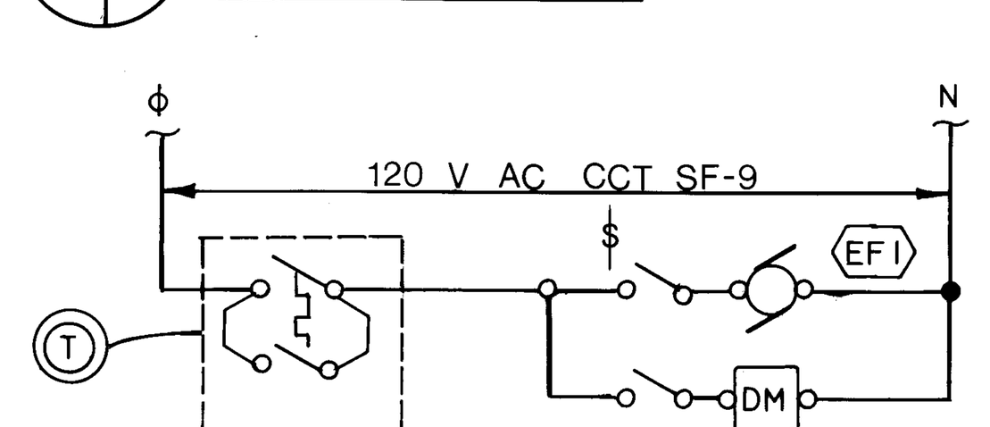
1 E3 E3 CONTROLS PLAN
SCALE: 1/4"=1'-0"

KEYED NOTES

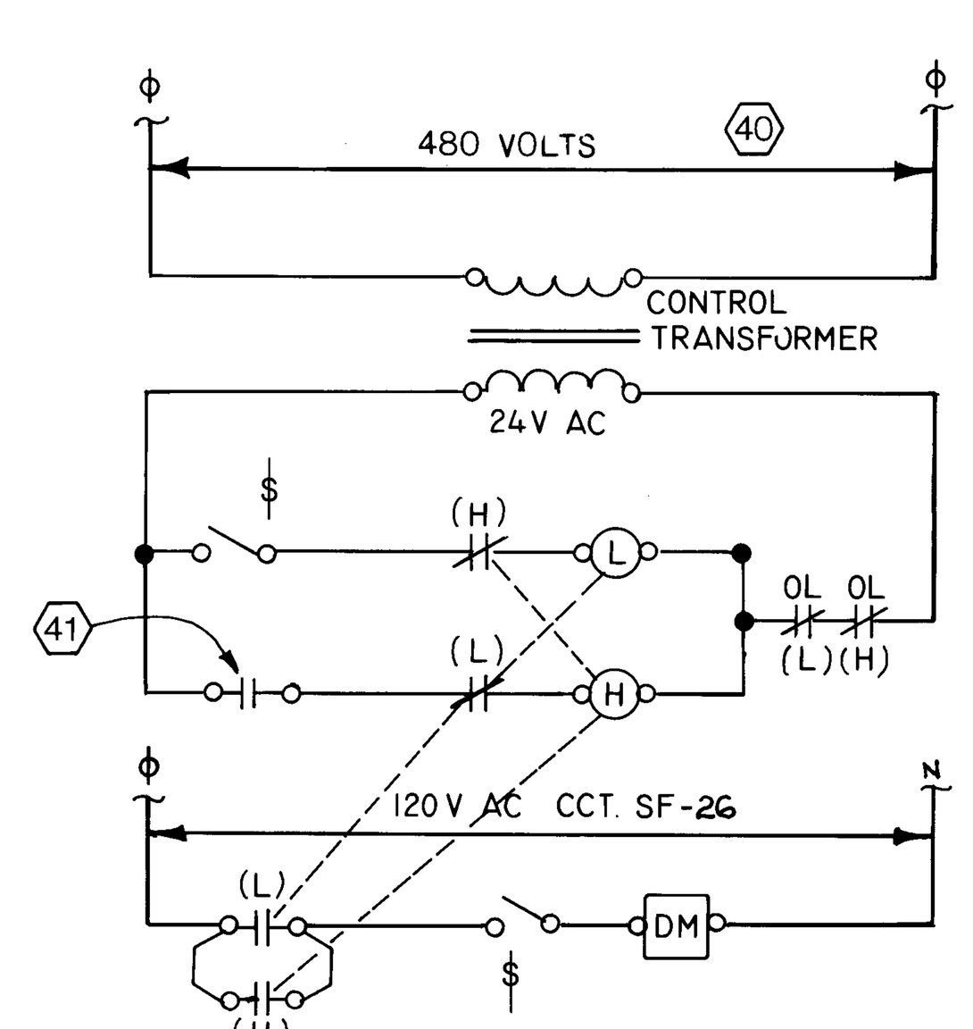
1 1/2"C. 6#14 TO MUX-1 TERMINALS 2, 4, 6, 8, N & G.
2 1/2"C. 6#14 TO MUX-1 TERMINALS 10, 12, 14, 16, N & G.
3 1/2"C. 6#14 TO MUX-1 TERMINALS 18, 20, 22, 24, N & G.
4 1/2"C. 6#14 TO MUX-1 TERMINALS 26, 28, 30, 32, N & G.
5 1/2"C. 6#14 TO MUX-2 TERMINALS 2, 4, 6, 8, N & G.
6 1/2"C. 6#14 TO MUX-2 TERMINALS 10, 12, 14, 16, N & G.
7 1/2"C. 6#14 TO MUX-2 TERMINALS 18, 20, 22, 24, N & G.
8 1/2"C. 6#14 TO MUX-2 TERMINALS 26, 28, 30, 32, N & G.
9 1/2"C. 6#14 TO MUX-3 TERMINALS 2, 4, 6, 8, N & G.
10 1/2"C. 6#14 TO MUX-4 TERMINALS 2, 4, 6, 6, N & G.
11 1/2"C. 6#14 TO MUX-4 TERMINALS 10, 12, 14, 16, N & G.
12 1/2"C. 6#14 TO MUX-4 TERMINALS 18, 20, 22, 24, N & G.
13 1/2"C. 6#14 TO MUX-4 TERMINALS 26, 28, 30, 32, N & G.
14 1/2"C. 6#14 TO MUX-5 TERMINALS 2, 4, 6, 8, N & G.
15 1/2"C. 6#14 TO MUX-5 TERMINALS 10, 12, 14, 16, N & G.
16 1/2"C. 6#14 TO MUX-5 TERMINALS 18, 20, 22, 24, N & G.
17 1/2"C. 4#14 TO MUX-5 TERMINALS 30, 32, N & G.
18 1/2"C. 9#14, 1#14G.
19 WIREWAY, 2-1/2" SQ. 17#14, 1#14G.
20 WIREWAY, 2-1/2" SQ. 25#14, 1#14G.
21 WIREWAY, 2-1/2" SQ. 33#14, 1#14G.
22 WIREWAY, 2-1/2" SQ. 64#14, 1#14G.
23 MULTIPLEXER CABINET
24 WIREWAY, 2-1/2" SQ. 30#14, 1#14G. PAIRS FOR CONTROL OF AUTO LEG OF H-O-A SWITCH AND STARTER AUXILIARY CONTACT STATUS FOR PUMPS 1 THROUGH 5, HX PUMP AND CHILLER PUMP AND PAIR FOR MOTOR PROTECTOR.
25 1/2"C. ONE-BELDEN 8762 TO MUX-6 IN MULTIPLEXER CABINET.
26 1/2"C. TWO-BELDEN 8762.
27 3/4"C. THREE-BELDEN 8762.
28 3/4"C. FOUR-BELDEN 8762.
29 1"C. FIVE-BELDEN 8762 TO MULTIPLEXER CABINET.
30 1/2"C. 2#12, 1#12G. TO 120V. UPS CIRCUIT IN MULTIPLEXER CABINET.
31 POOL LEVEL ELEMENT.
32 UNDERGROUND 3/4" CONDUIT. WIRE WITH 6#14, 1#14G. UNDER ALTERNATE NO. 1. (1)
33 UNDERGROUND 3/4" CONDUIT. WIRE PER CHILLER MANUFACTURER'S INSTRUCTIONS FOR REMOTE ALARM/STATUS PANEL. (1)
34 MOUNT BOX AT CONTROLS CONNECTION ON ROOF TOP UNIT, EXTEND CONTROL WIRING TO INTERIOR CONTROLS.
35 FLUSH OUTLET BOX AT 60" A.F.F. TO BOTTOM FOR CHILLER REMOTE ALARM PANEL. MOUNT AND CONNECT PANEL UNDER ALTERNATE NO. 1. (1)
36 1/2"C. WIRE WITH LOW VOLTAGE CONDUCTORS PER AC UNIT MANUFACTURER'S INSTRUCTIONS.
37 OZONE MONITOR
38 CONDUIT AND WIRING PER NOTE 32. RUN AT HIGH LEVEL.
39 CONDUIT AND WIRING PER NOTE 33. RUN AT HIGH LEVEL.
40 TAP CIRCUIT FROM 3 PHASE POWER CIRCUIT ON LINE SIDE OF MOTOR STARTER.
41 OZONE MONITOR ALARM CONTACT.
42 MOUNT ADJACENT TO DAMPER MOTOR. CONNECT WITH LIQUIDTIGHT FLEX CONDUIT.



2 E3 E3 MAKE UP UNIT (2) CONTROL WIRING DIAGRAM



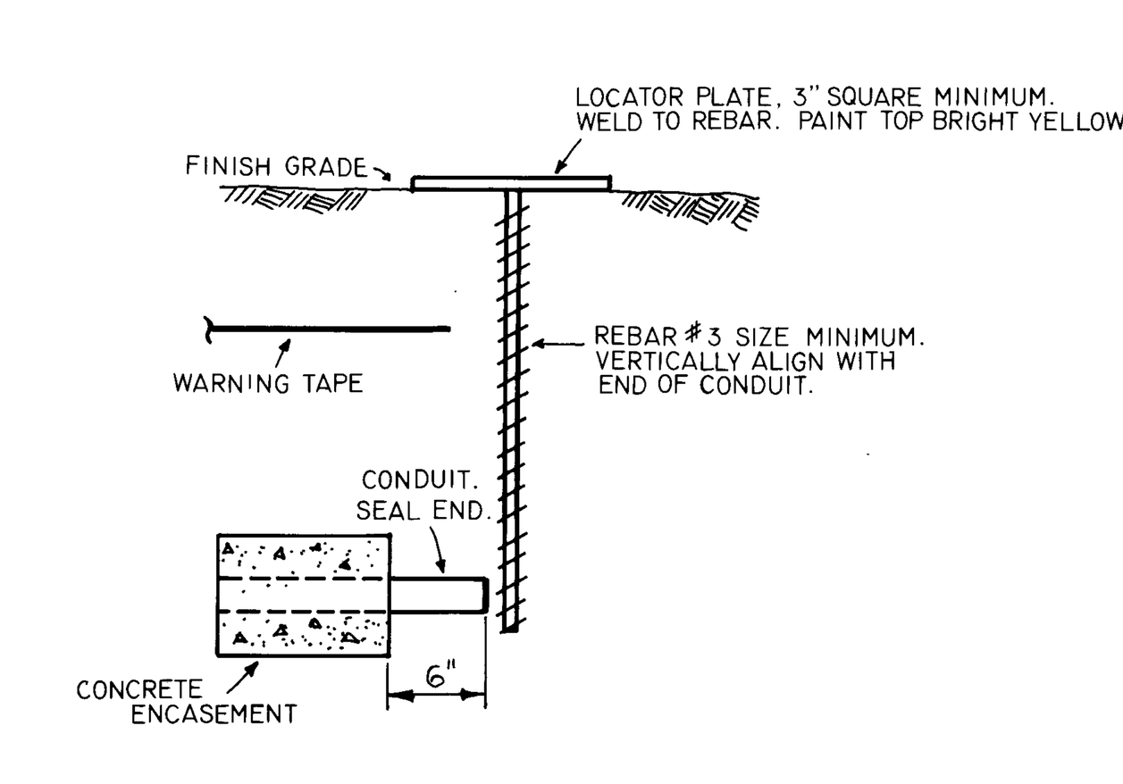
3 E3 E3 EXHAUST FAN (EF1) CONTROL WIRING DIAGRAM



4 E3 E3 MAKE UP UNIT (1) CONTROL WIRING DIAGRAM

SYMBOLS LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
M	VALVE MOTOR OPERATOR.	$	WALL SWITCH, SINGLE POLE UNLESS OTHERWISE NOTED.
FE	FLOW ELEMENT.	$x	WALL SWITCH, SINGLE POLE DOUBLE THROW AND CENTER OFF MAINTAINED SWITCH.
LE	LEVEL ELEMENT.	ϕ	PHASE.
TE	TEMPERATURE ELEMENT.		NORMALLY OPEN CONTACT.
	CONDUIT STUB AND LIQUIDTIGHT FLEX. CONDUIT CONNECTION.		NORMALLY CLOSED CONTACT.
J	JUNCTION BOX, CEILING MOUNT.		THERMOSTAT.
J	JUNCTION BOX, WALL MOUNT. WP=WEATHERPROOF, UNLESS OTHERWISE NOTED.		SINGLE POLE SWITCH.
	WIREWAY. PENDANT MOUNT 8 FT. A.F.F. TO BOTTOM.		SINGLE POLE, DOUBLE THROW & CENTER OFF MAINTAINED SWITCH.
	WIREWAY PANEL CONNECTOR.	L	STARTER COIL, LOW SPEED.
	KEYED NOTE, TYPICAL.	H	STARTER COIL, HIGH SPEED.
AFF	ABOVE FINISH FLOOR.		MOTOR.
C	CONDUIT.		PANELBOARD "SF".
N	NEUTRAL.		UNDERGROUND CONDUIT STUB & MARKER, UNDER BASE BID.
G	EQUIPMENT GROUNDING CONDUCTOR.	1	ALTERNATE NO. 1.
DM	DAMPER MOTOR. PROVIDE UNDER DIV. 15. WIRE UNDER DIV. 16.		



5 E2 E3 E3 CONDUIT STUB LOCATOR
NO SCALE

THE RIO GRANDE ZOO

AS BUILT INFORMATION

CONTRACTOR	
WORK STARTED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE

MICRO-FILM INFORMATION

RECORDED BY	DATE
NO.	

BENCH MARKS

SURVEY INFORMATION

NO.	FIELD NOTES BY	DATE

ENGINEER'S SEAL

City Project No. 3771

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY J.K.	DATE - 1/15/90
		DRAWN BY M.D./T.B	DATE - 1/22/90
		CHECKED BY - GMT	DATE - 1/24/90

STATE OF NEW MEXICO
RAY DARNELL
NO. 1763
REGISTERED ARCHITECT

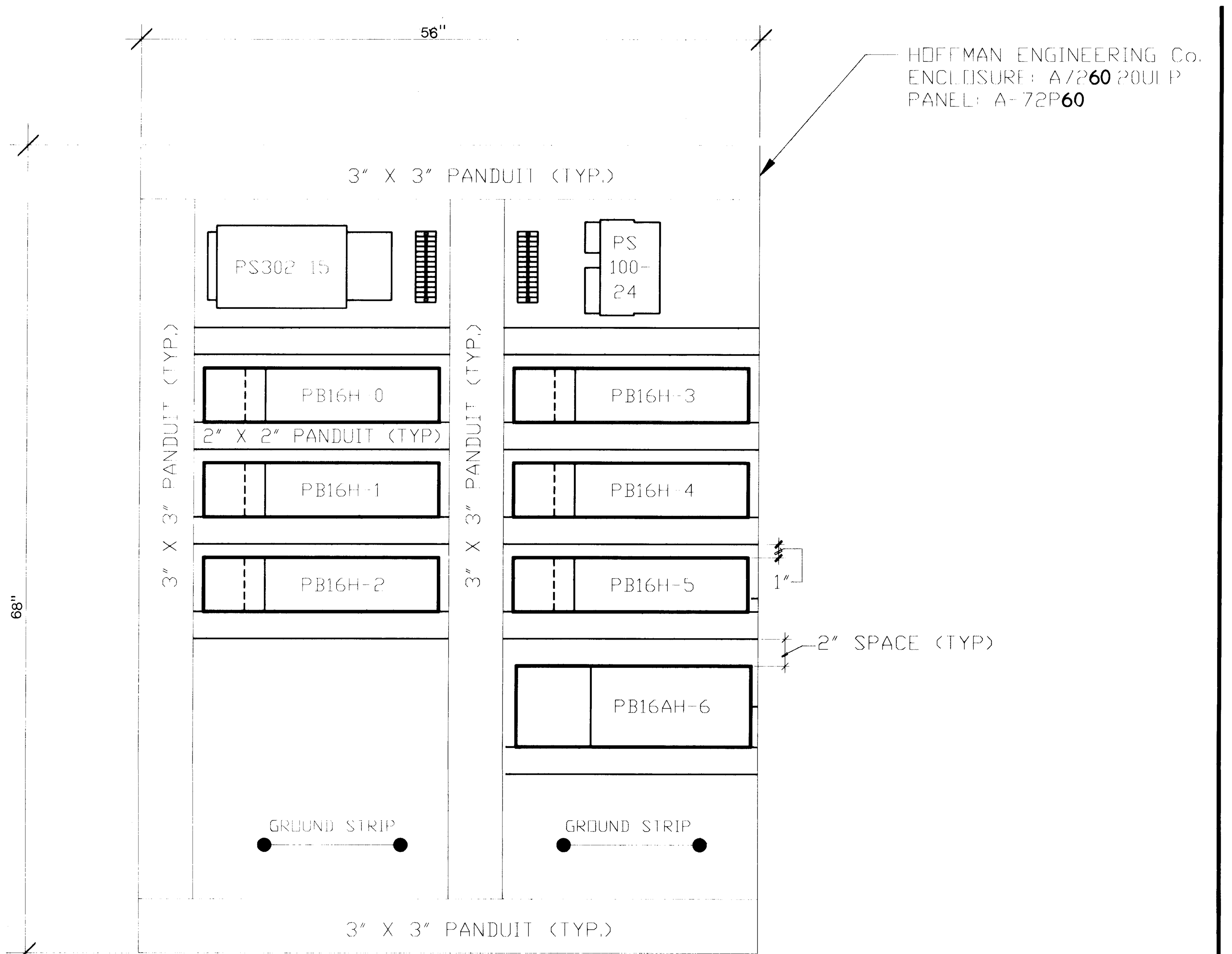
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2	6	-	3	7	7	1	.	9	0		2	2	9	7

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: RIO GRANDE ZOOLOGICAL PARK
SALTWATER FILTRATION SYSTEM
CONTROLS PLAN

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair	[illegible]	5/2/90			
Trans. Dev.	DWH	5/1/90			
Utility Dev.	R.W. Kane	5-1-90			

DRAWING NO. 3771 | MAP NO. | SHEET E3 OF 26



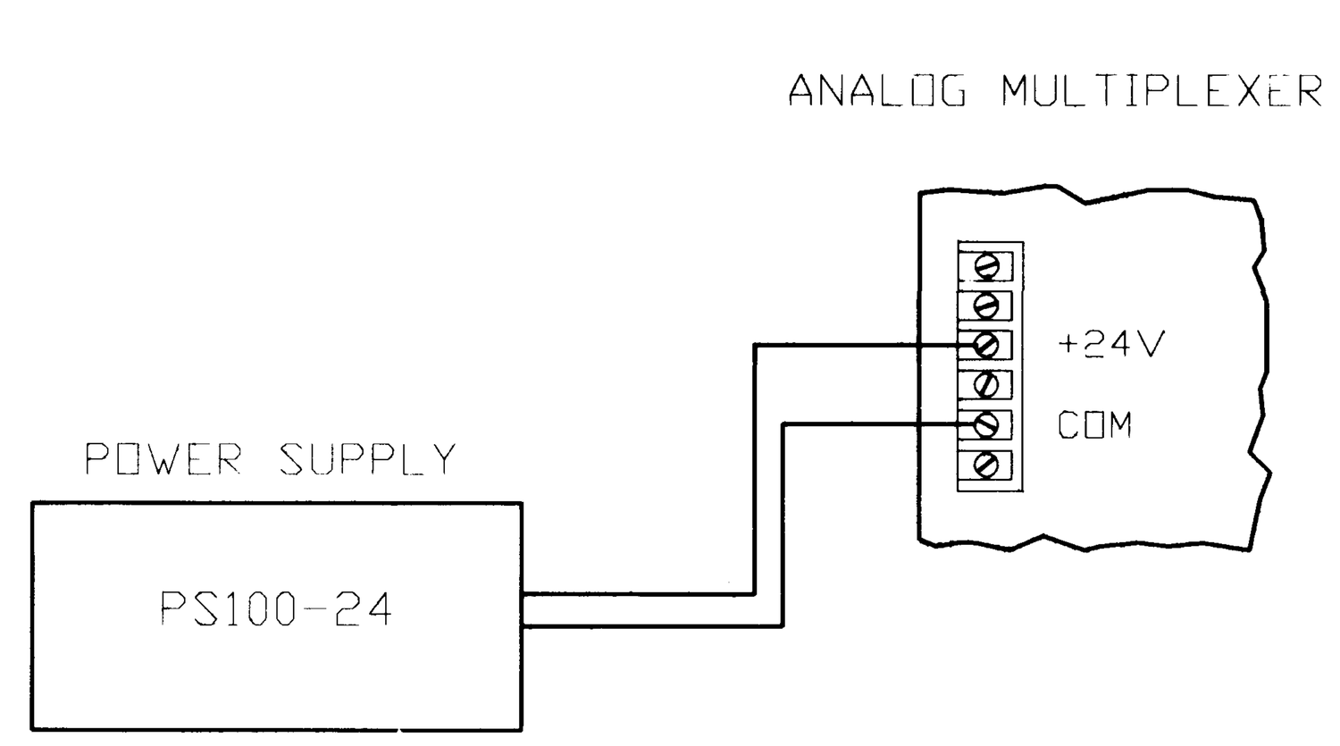
NOTE:

1) ALL POWER SUPPLY WIRING WILL BE SINGLE 14 AWG COMMUNICATION WIRING WILL BE 18 AWG TWISTED PAIR SHIELDED.

2) ALL MULTIPLEXER BOARDS WILL BE PHYSICALLY LABELED ON THE PANEL IN THE ORDER AS THEY APPEAR ON THE INSTALLATION DRAWING ABOVE.

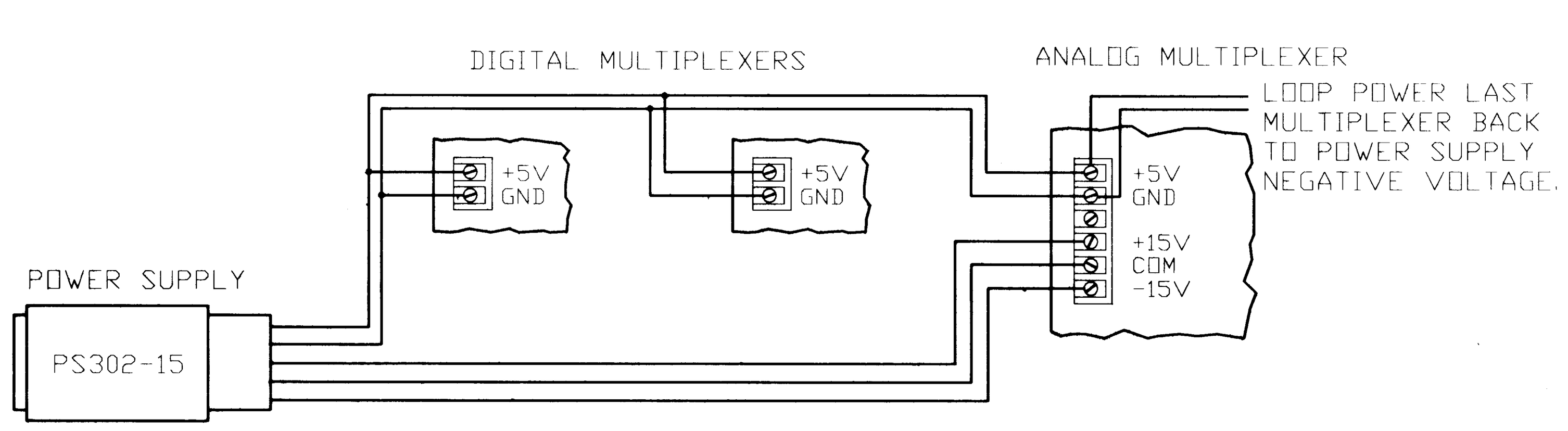
CABINET PANEL DETAIL

SCALE: 1-1/2" = 1'-0"



100-24 POWER SUPPLY CONNECTIONS TO MULTIPLEXERS

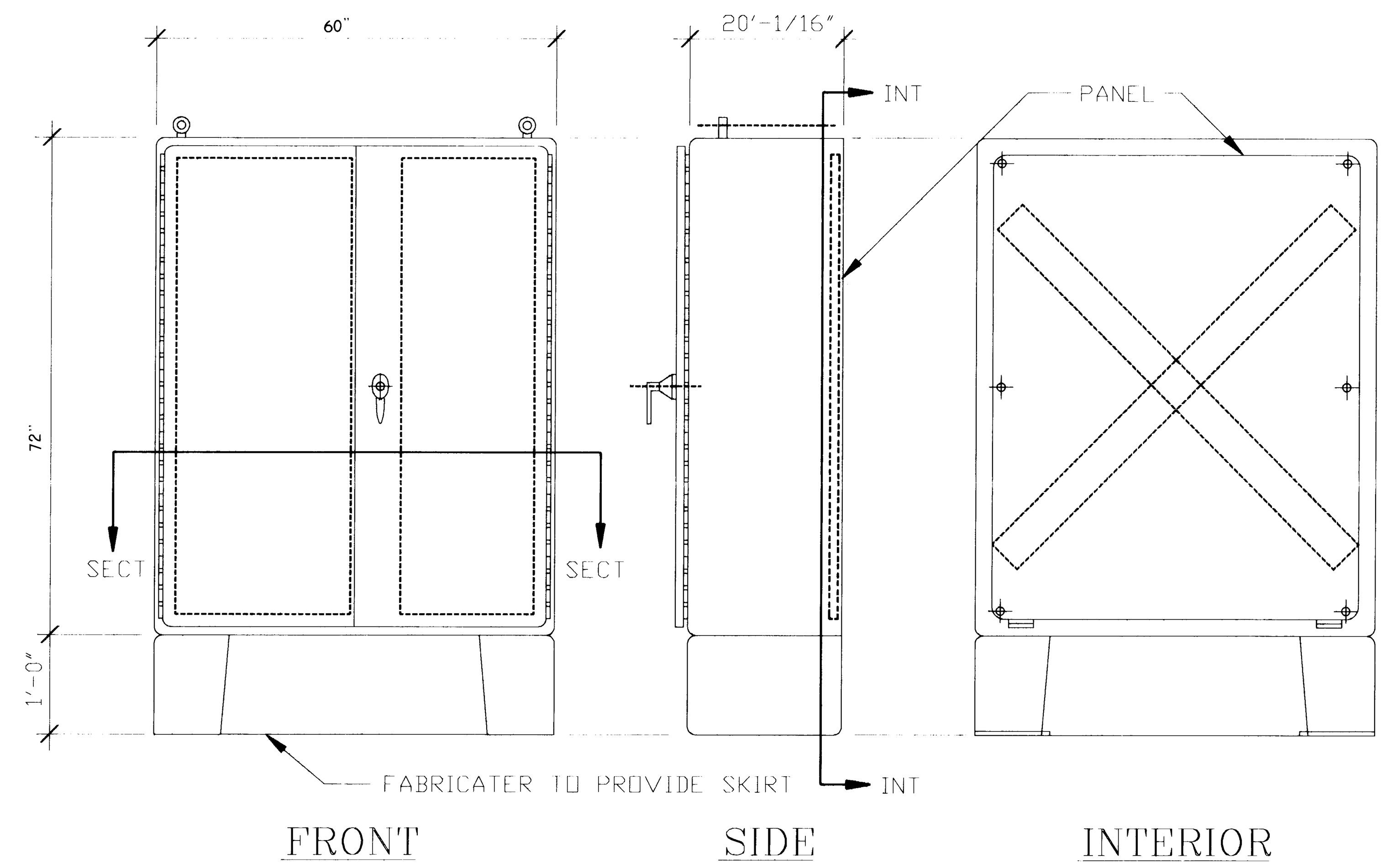
(WIRE +24V TO ALL ANALOG MULTIPLEXER BOARDS)



NOTE: DO NOT TIE THE 5V AND 15V GROUNDS TOGETHER

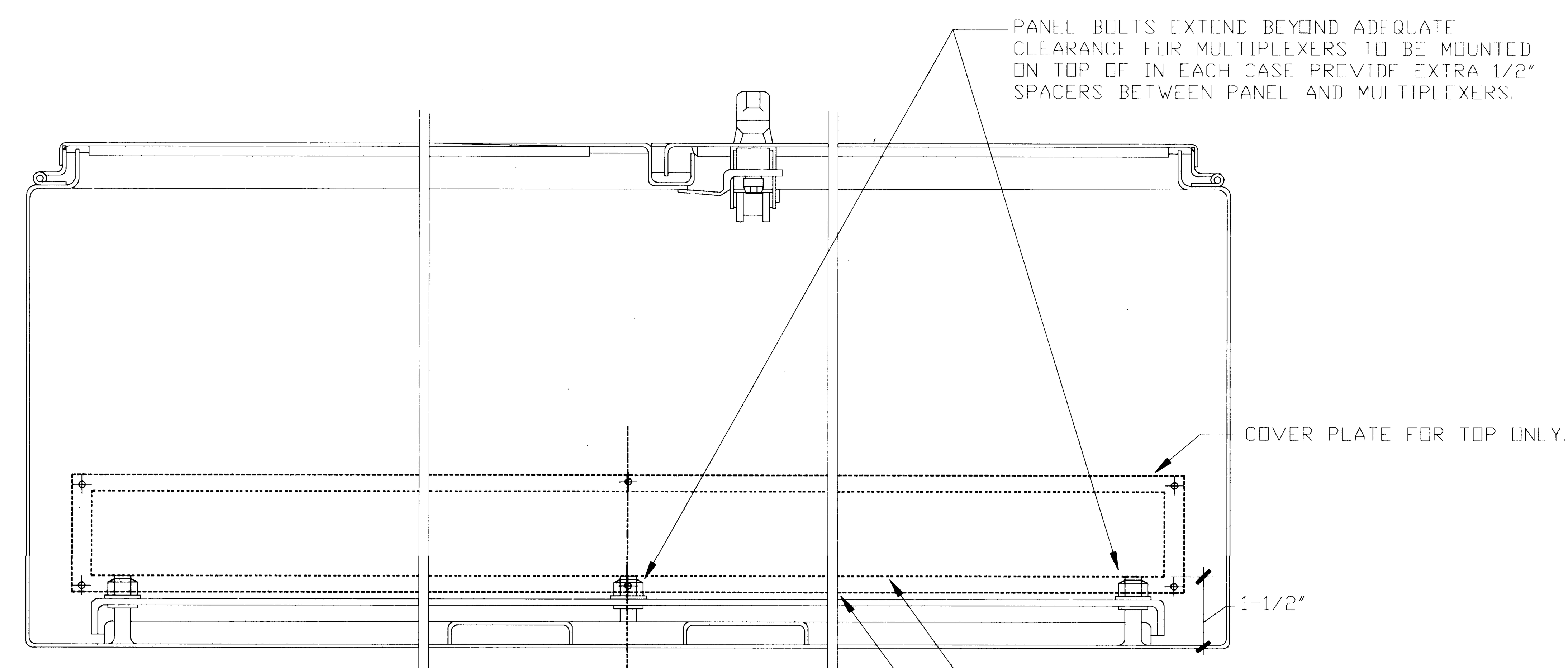
302-15 POWER SUPPLY CONNECTIONS TO MULTIPLEXERS

(WIRE +15V, -15V & +5V TO ALL MULTIPLEXERS AS SHOWN)



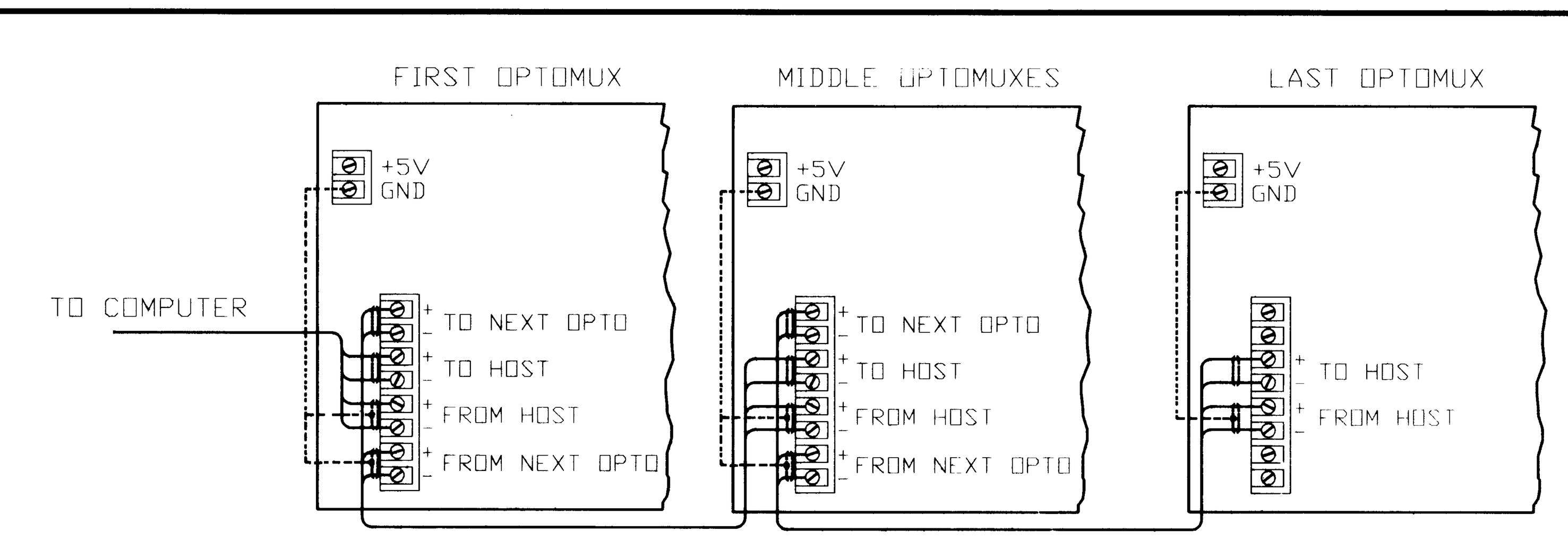
MULTIPLEXER CABINET ELEVATIONS

NOT TO SCALE



MULTIPLEXER CABINET SECTION

NOT TO SCALE



COMMUNICATION CONNECTIONS - COMPUTER TO MULTIPLEXER BOARDS

THE RIO GRANDE ZOO

AS BUILT INFORMATION
CONTRACTOR / DATE
WORK STAKED BY / DATE
INSPECTOR'S ACCEPTANCE BY / DATE
FIELD VERIFICATION BY / DATE
DRAWINGS CORRECTED BY / DATE
MICRO-FILM INFORMATION
RECORDED BY / DATE
NO.

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES
NO. | BY | DATE

ENGINEER'S SEAL

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY - AK DATE - 1/11/89
DRAWN BY - JRF DATE - 1/11/89
CHECKED BY - PAC DATE - 11/8/89

26-3771.90-2397

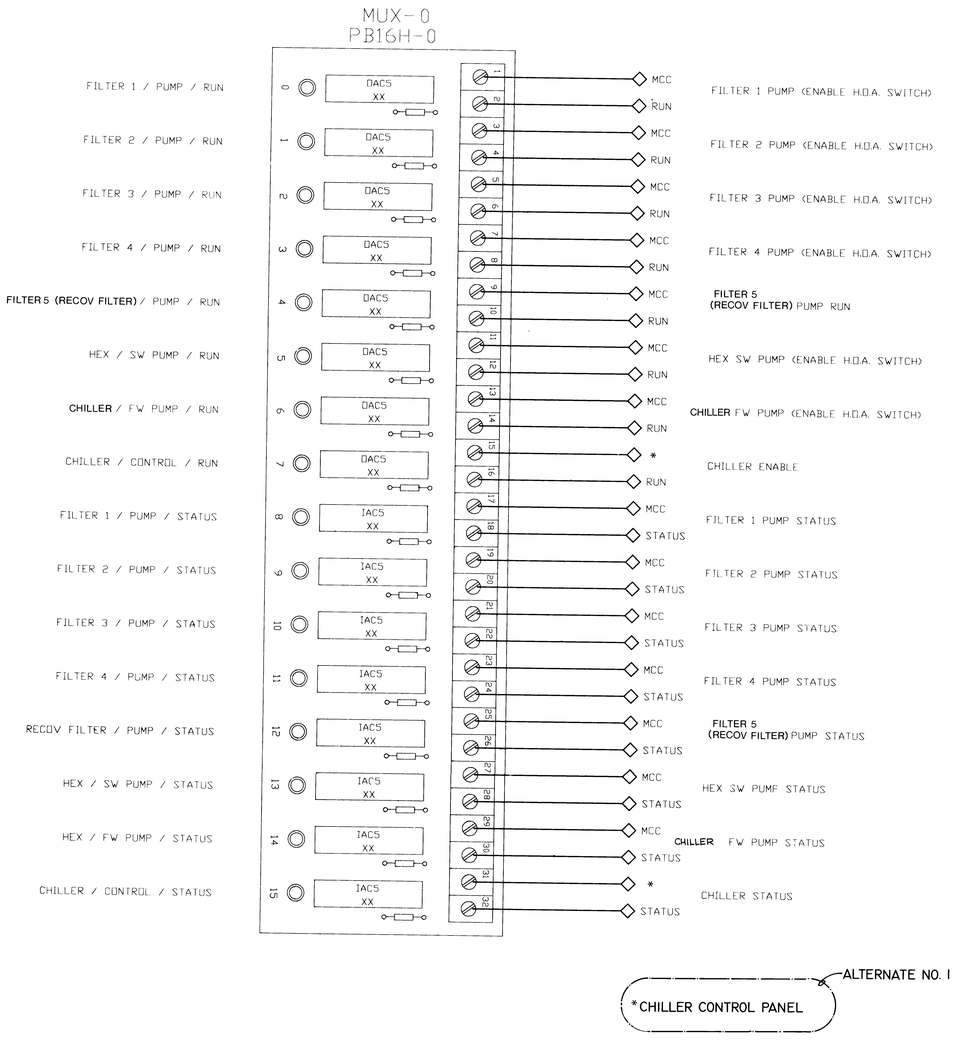
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

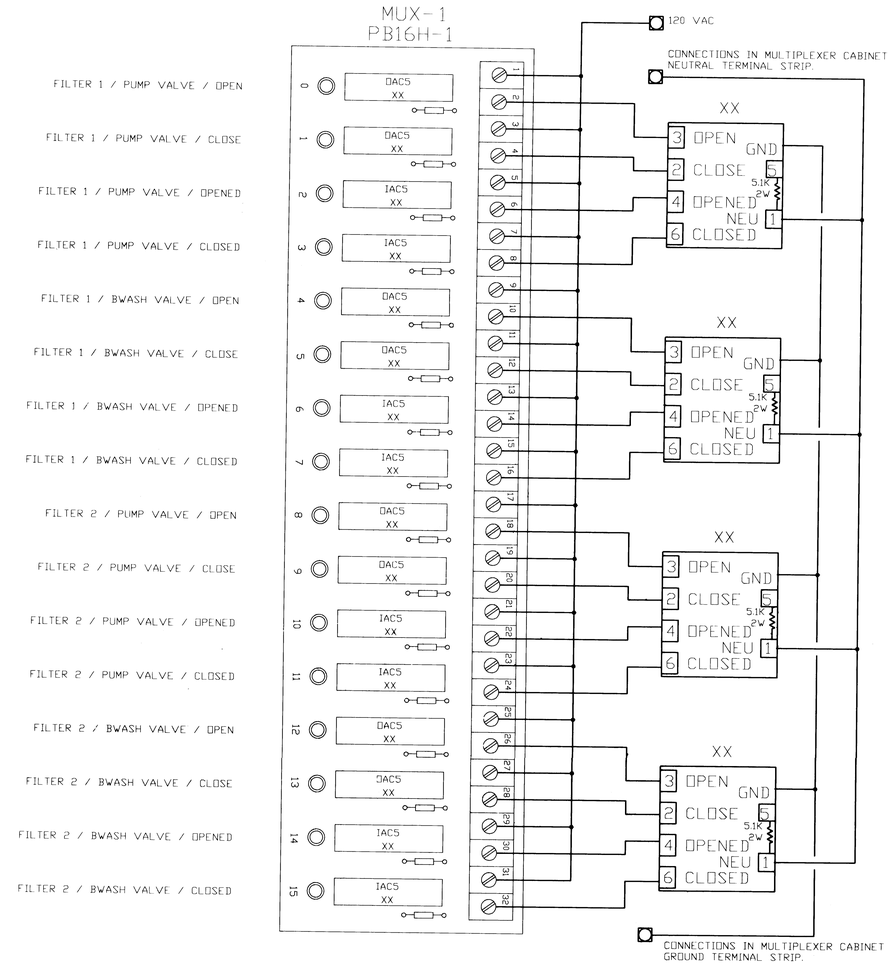
TITLE: RIO GRANDE ZOOLOGICAL PARK
SALTWATER FILTRATION SYSTEM
CONTROLS SYSTEM MULTIPLEXER CABINET and DETAILS

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair	[illegible]	3/1/90			
Trans. Dev.	D&H	5/1/90			
Utility Dev.	R.W. Kane	5-1-90			

DRAWING NO. 3771 | MAP NO. | SHEET Z1 OF 26

City Project No. 3771





THE RIO GRANDE ZOO

AS BUILT INFORMATION
CONTRACTOR
MADE BY DATE
INSPECTION BY DATE
FIELD VERIFICATION BY DATE
DRAWING BY DATE
MICRO-FILM INFORMATION
RECORDED BY DATE
NO.

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES BY DATE
NO.

ENGINEER'S SEAL
PATRICIA A. CHAE NEW MEXICO No. 9311 REGISTERED PROFESSIONAL ENGINEER

REMARKS
REVISIONS BY DATE
DESIGN
DESIGNED BY - AHC DATE - 11/11/91
DRAWN BY - JRF DATE - 11/11/91
CHECKED BY - PAC DATE - 11/12/91

NO. DATE

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
216-137711.92 12/19/97

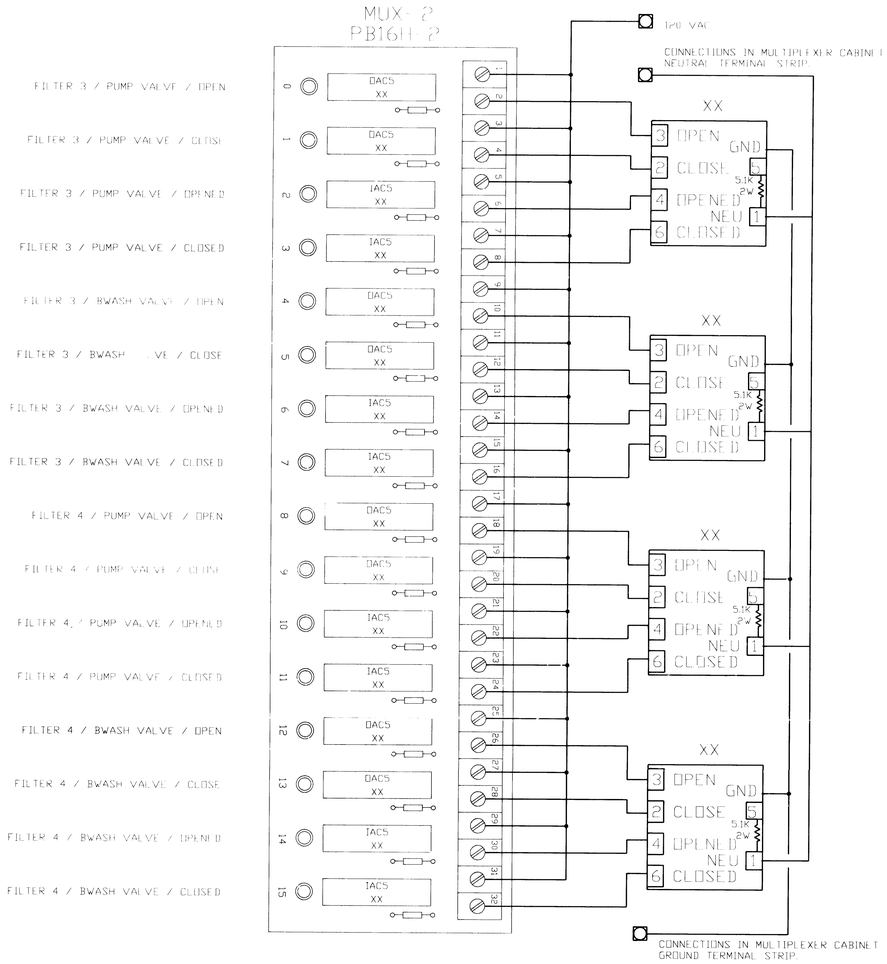
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

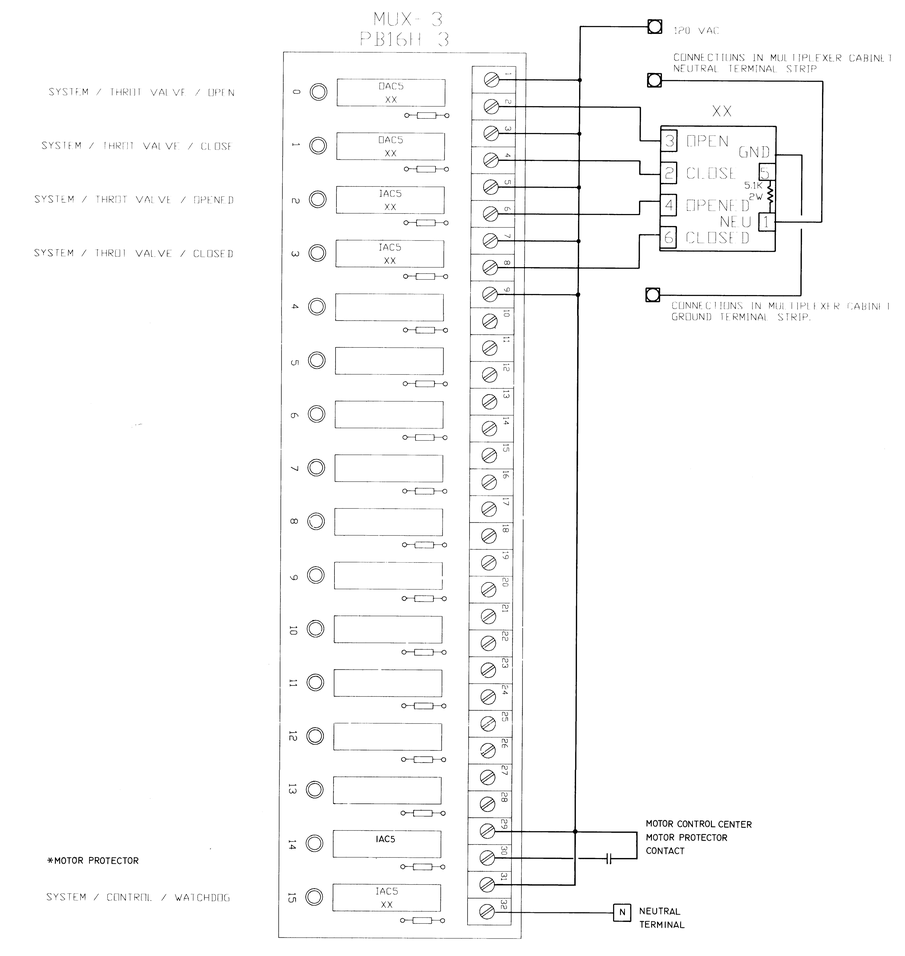
TITLE: RIO GRANDE ZOOLOGICAL PARK
SALTWATER FILTRATION SYSTEM
CONTROLS SYSTEM MULTIPLEXER BOARDS SHEET 1

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair	DLH	5/26/92			
Trans. Dev.	DWH	5/11/92			
Utility Dev.	R.W. Kane	5-1-92			

DRAWING NO. 3771 | MAP NO. | SHEET Z2 OF 26

City Project No. 3771





*MOTOR PROTECTOR OPERATION

1 WHEN POWER LINE CONDITIONS ARE NORMAL, NORMALLY OPEN OPERATING CONTACT ON MOTOR PROTECTOR IS CLOSED.

2 WHEN MOTOR PROTECTOR UNIT DETECTS POWER LINE ABNORMALITY, OPERATING CONTACT OPENS AND INITIATES IMMEDIATE SHUTDOWN OF ALL 3 PHASE MOTORS AND CHILLER.

3 WHEN POWER LINE IS RESTORED TO NORMAL, OPERATING CONTACT SHALL CLOSE AND INITIATE STAGGERED RESTART/ENABLEMENT OF EQUIPMENT WITH 3 SECONDS DELAY BETWEEN EACH ITEM. ACTUAL ORDER TO BE DETERMINED BY SYSTEM PROGRAMMER.

THE RIO GRANDE ZOO

AS BUILT INFORMATION
CONTRACTOR
WORK BY — DATE
INSPECTION BY — DATE
FIELD REVISIONS BY — DATE
DRAWING BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES BY — DATE
NO.

ENGINEER'S SEAL
PAUL A. CRAIG — NEW MEXICO — No. 13708 — REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY - AK — DATE - 11/16/89
DRAWN BY - JKF — DATE - 11/16/89
CHECKED BY - PAC — DATE - 11/16/89

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
26-3771.dgn 12507

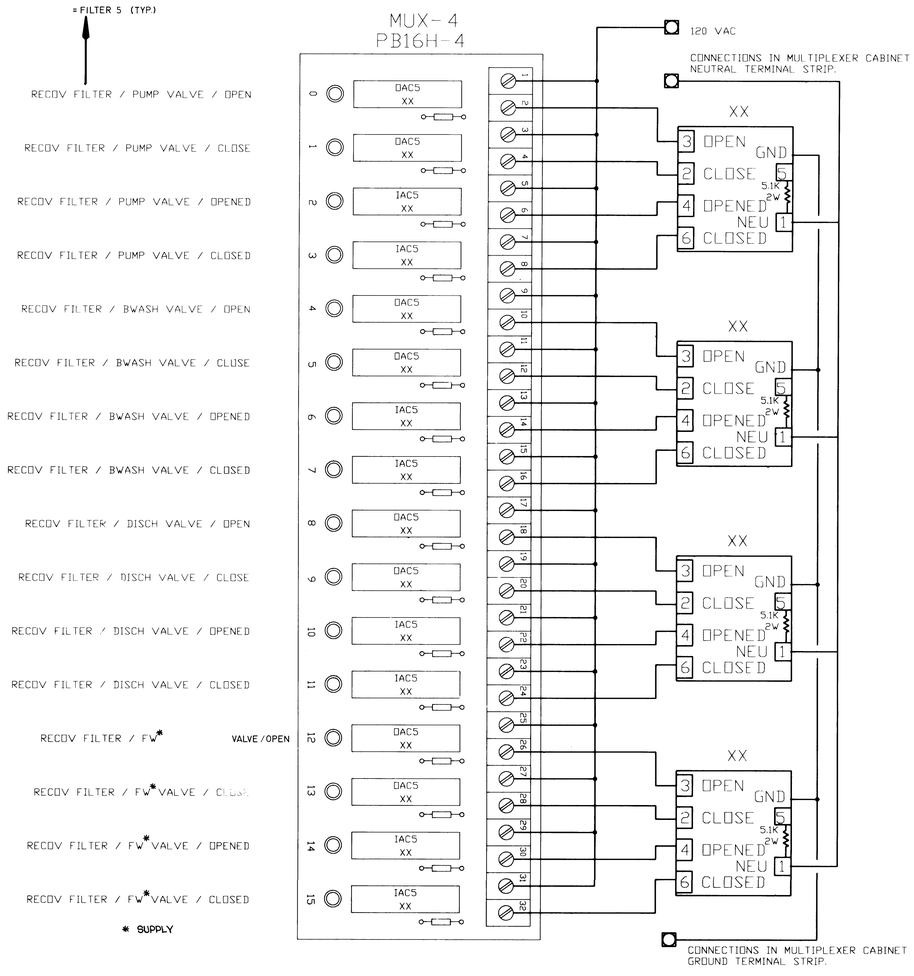
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

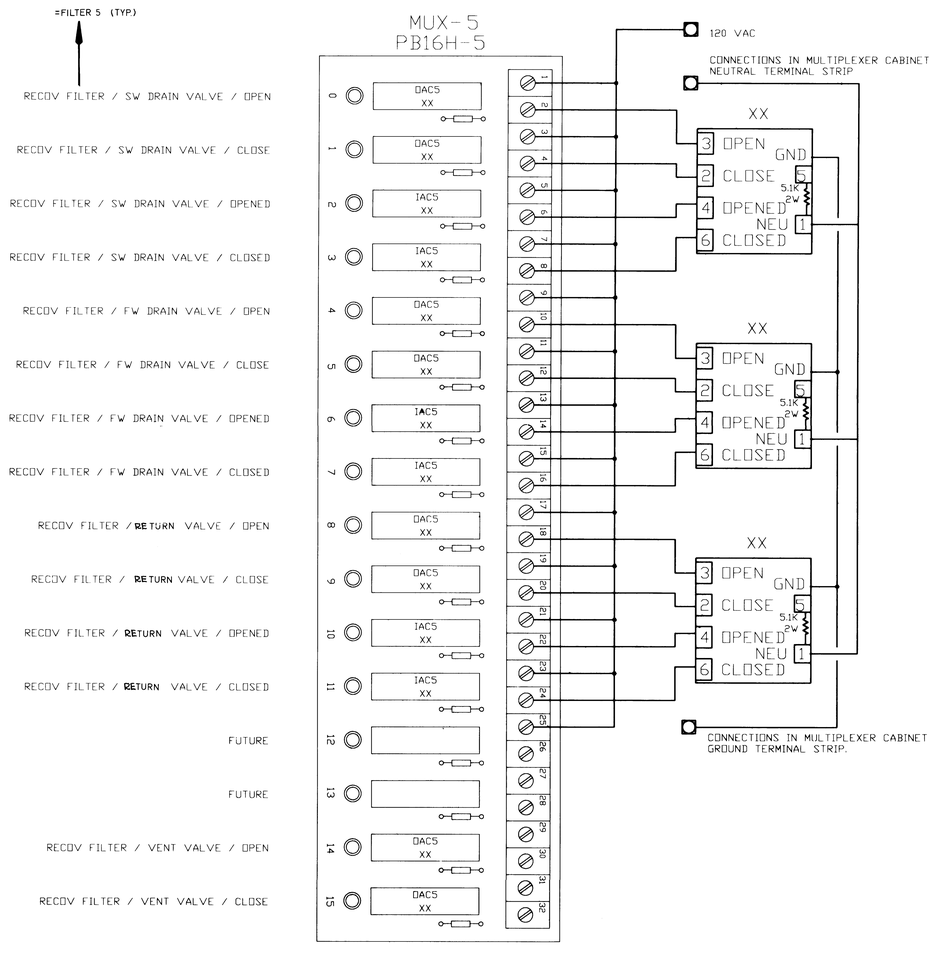
TITLE: RIO GRANDE ZOOLOGICAL PARK
SALTWATER FILTRATION SYSTEM
CONTROLS SYSTEM MULTIPLEXER BOARDS SHEET 2

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair					
Trans. Dev.	DWH	5/11/90			
Utility Dev.	R.W. Kane	5-1-90			

DRAWING NO. 3771 — MAP NO. — SHEET 23 OF 26

STATE OF NEW MEXICO — RAY D. DARNELL — NO 1763 — REGISTERED ARCHITECT





THE RIO GRANDE ZOO

AS BUILT INFORMATION
CONTRACTOR
WORKED BY DATE
INSPECTION BY DATE
FIELD REVISION BY DATE
DRAWING BY DATE
MICRO-FILM INFORMATION
RECORDED BY DATE
NO.

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES
BY DATE
NO.

ENGINEER'S SEAL
NEW MEXICO
RAY A. VARNELL
NO. 1763
REGISTERED ARCHITECT

REVISIONS
NO. DATE REMARKS BY
DESIGN
DESIGNED BY - AK DATE - 11/11/89
DRAWN BY - JKF DATE - 11/11/89
CHECKED BY - PAC DATE - 11/16/89

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
2 6 - 3 7 7 1 . 9 0 2 6 9 7

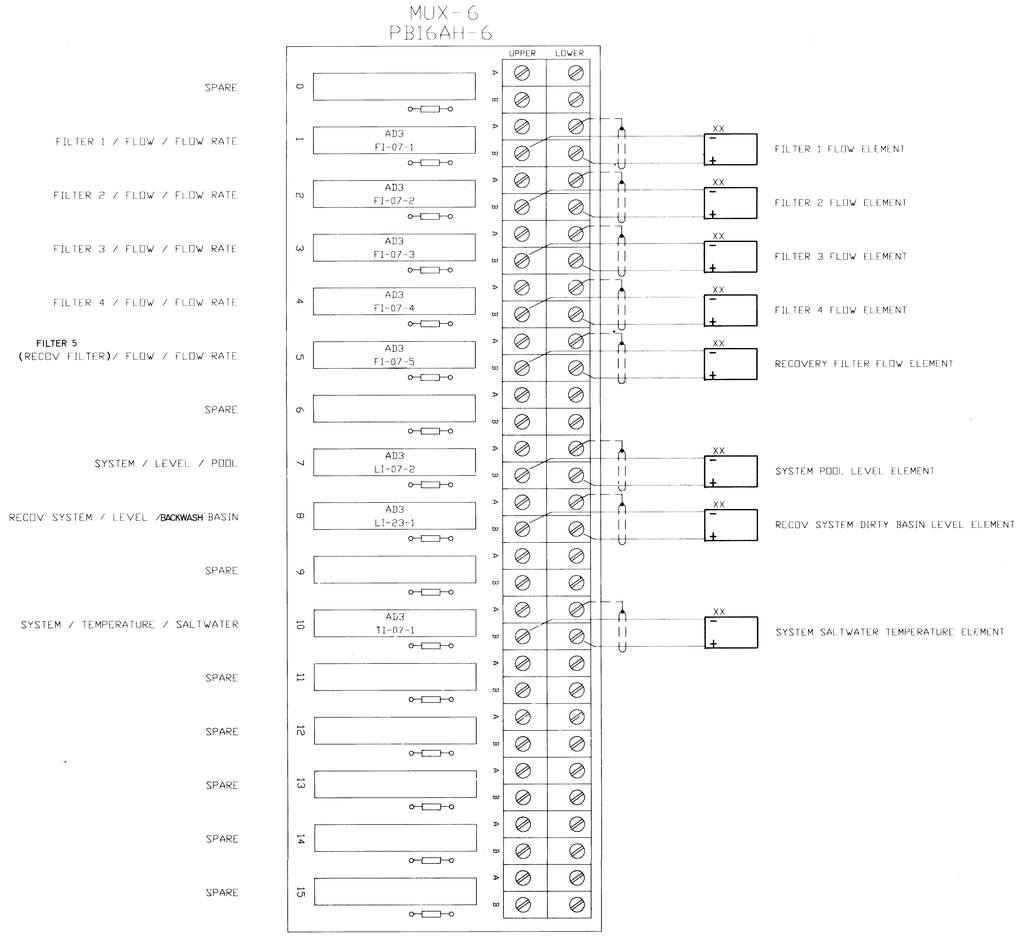
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: RIO GRANDE ZOOLOGICAL PARK
SALTWATER FILTRATION SYSTEM
CONTROLS SYSTEM MULTIPLEXER BOARDS SHEET 3

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair		5/1/90			
Trans. Dev.	DWH	5/1/90			
Utility Dev.	R.W. Kane	5-1-90			

DRAWING NO. 3771 | MAP NO. | SHEET Z4 OF 26

City Project No. 3771



THE RIO GRANDE ZOO

AS BUILT INFORMATION
CONTRACTOR
WORK ORDERED BY
DATE
INSPECTION BY
DATE
FIELD LOCATION BY
DATE
DRAWING REVISED BY
DATE
MICRO-FILM INFORMATION
RECORDED BY
DATE
NO.

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES
NO. | BY | DATE

ENGINEER'S SEAL
PATRICIA A. GALE
NEW MEXICO
NO. 10078
REGISTERED PROFESSIONAL ENGINEER

NO. | DATE | REMARKS | BY
REVISIONS

DESIGN
DESIGNED BY - AK — DATE - 11/1/89
DRAWN BY - JRF — DATE - 11/1/89
CHECKED BY - PAC — DATE - 11/16/89

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26-3771.90 2797

STATE OF NEW MEXICO
RAY D. BARNELL
NO. 1763
REGISTERED ARCHITECT

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT
ENGINEERING GROUP

TITLE: RIO GRANDE ZOOLOGICAL PARK
SALTWATER FILTRATION SYSTEM
CONTROLS SYSTEM MULTIPLEXER BOARDS SHEET 4

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. Chair	RW	5/2/90			
Trans. Dev.	DwH	5/1/90			
Utility Dev.	R.W. Kane	5-1-90			

DRAWING NO. 3771 | MAP NO. | SHEET 25 OF 26

City Project No. 3771