GRAND STRAND WATER & SEWER AUTHORITY

SURFACE WATER TREATMENT PROJECT

SURFACE WATER TREATMENT PLANT

BUCKSPORT, SOUTH CAROLINA





33-01-01/95 W

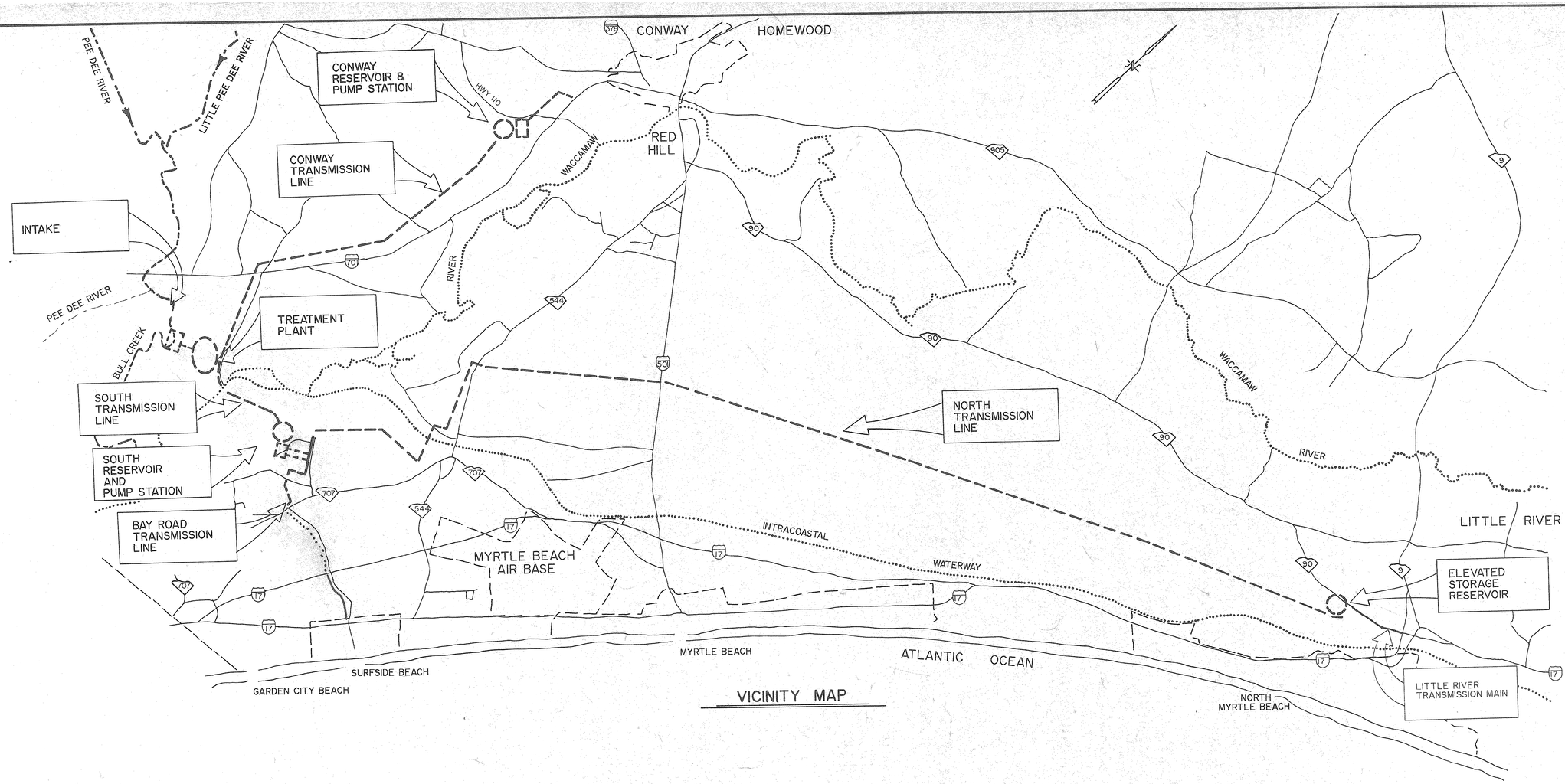
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CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

RECORD DRAWING / 1-11-92 / RAC

NA

REVISED 2-5-90

AS BUILT
MAIN PLANT FACILITIES
6/10/92



VICINITY MAP

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33-01-02 W

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	REVISE VICINITY MAP	2-5-90	JWM
	RECORD DRAWING	1-11-92	RAC

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SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12035 DAVID T. UPCHURCH 1-5-90

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12835 ROBERT W. McCOUGH 1-5-90

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

VICINITY MAP AND INDEX SHEET

DATE:	NOV. 1989
DESIGNED:	JWM
DRAWN:	TFW
CHECKED:	DTU
SCALE:	AS SHOWN
SHEET NO.	G-2
OF:	

GS8502

E 0+00 | E 5+00 | E 10+00

N 5+00

N 0+00

℄ I.P.

P.O.B.

T.B.M.
RR SPIKE IN POWER POLE
ELEV. = 17.91'

BENCHMARK:
S.C.G.S. MONUMENT
"BUCKSPORT" #7
ELEV. = 14.12'

390.70' TO BUILDING CORNER

340.0' TO BUILDING CORNER

15' EASEMENT

BACKWASH EQUALIZATION LAGOON

EFFLUENT BOX

SLUDGE DRYING BEDS

SLUDGE PUMP STATION

NOTE:
SEE SHEET EN-20
FOR LAYOUT OF
SLUDGE FACILITIES

SLUDGE BLOW DOWN PUMP STATION

POLYMER BLDG.

GRAVEL ROAD

CHEM. SPILL LAGOON PUMP STATION

CHEMICAL SPILL LAGOON

MAINTENANCE BUILDING

CONCRETE

TO SLUDGE APPLICATION AREA

20' WIDE GATE
2-10' LEAVES

15' WIDE GRAVEL SERVICE ROAD

20' WIDE GRAVEL SERVICE ROAD

BOARDWALK

POINT OF REFERENCE
BUILDING CORNER

CLARIFIERS 1 & 2

CLARIFIERS 3 & 4

FACILITIES ℄

LIME

PAC

FILTERS 1-4

FILTERS 5-8

CONC. PAD

BULK CHEM. STORAGE

4.0' SIDEWALK

OPERATIONS BLD.
1ST FLOOR CHEMICAL FEED
2ND FLOOR OPERATIONS

WING WALL

FLAGPOLE

CURB & GUTTER

SERVICE TRANF.

HYDRO TANK

EMERGENCY GENERATOR

CONC. PAD

FINISHED WATER PUMP STATION

METER VAULT

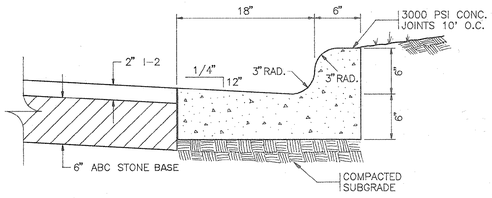
500,000 GALLON CLEARWELL

GATE

SIGN

20' WIDE GATE
2-10' LEAVES

22' ROADWAY CENTERED
ON EXISTING SOIL ROAD



PAVEMENT, CURB AND GUTTER DETAIL
NTS

PLANT LAYOUT
SCALE: 1" = 40'

33-01-04W
REVISED 6-2-92 RECORD DRAWING
REVISED 2-6-90

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	REVISED	8/1/90	JWP
	REVISED	8/21/90	JWM
	RECORD DWGS.	1/10/92	RAC

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SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

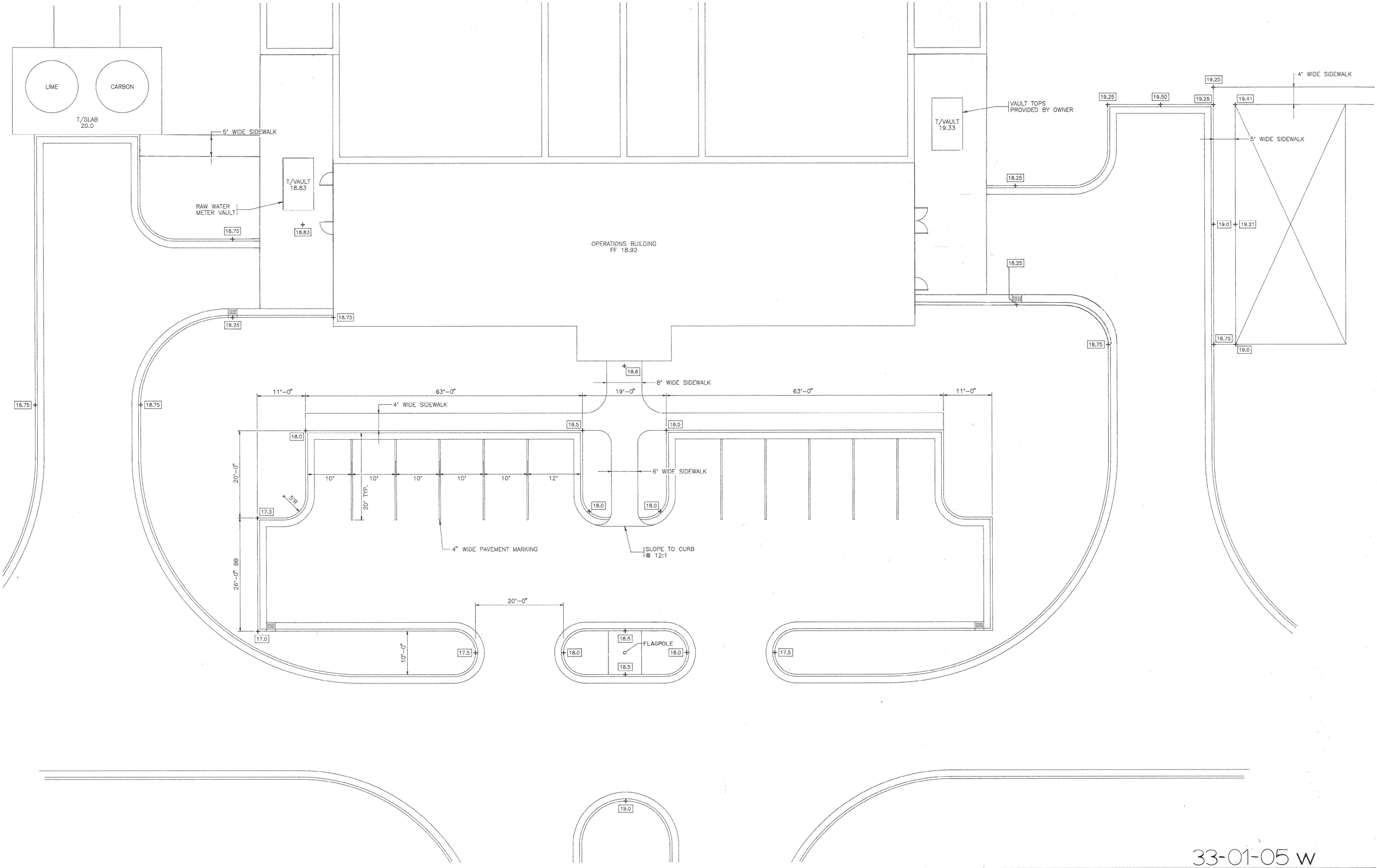
PLANT LAYOUT

DATE: NOV. 1989
DESIGNED: JWM
DRAWN: DC
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. G-4
OF:

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12335 DANIEL T. UPCHURCH 12-1-89

SOUTH CAROLINA REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT No. 12335 JOSEPH W. McGOGAN 12-1-89

GSB802



ENTRANCE AND PARKING DETAIL

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

33-01-05 W

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-11-92	RAC

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SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No.12335 JOSEPH W. McGOUGHAN

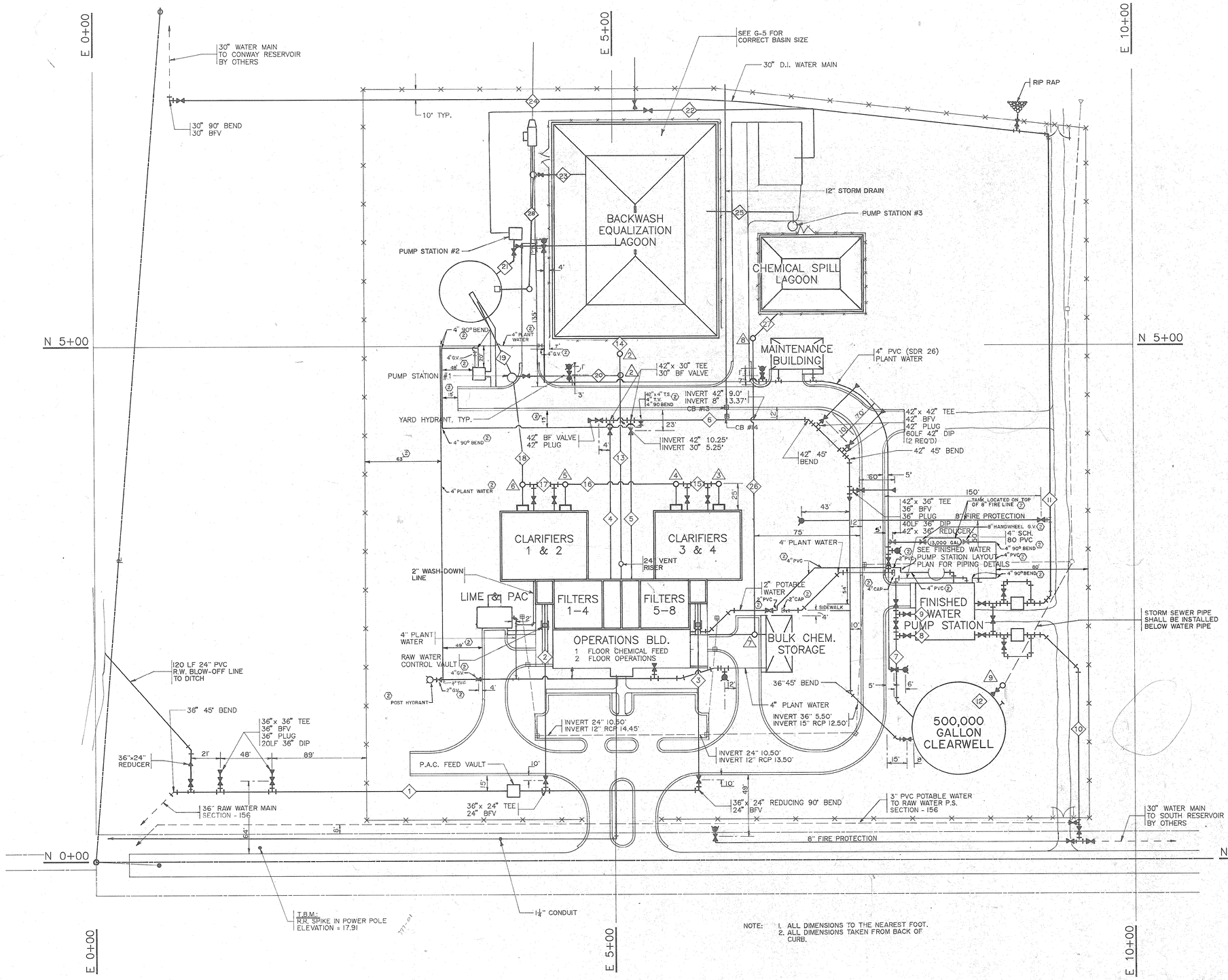
SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No.12227 DAVID T. UPCHURCH

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

ENTRANCE AND PARKING DETAIL

DATE: NOV. 1989
DESIGNED: JWM
DRAWN: DC
CHECKED: DTU
SCALE: 1/8" = 1'-0"
SHEET NO. G-4A
OF:

PROJECT #: GSB802 FILE NAME: GS-G-4A.DWG DATE: 1-2-91 SCALE: 1/8"=1'-0"



NOTE: 1. ALL DIMENSIONS TO THE NEAREST FOOT.
2. ALL DIMENSIONS TAKEN FROM BACK OF CURB.

PLANT PIPING
SCALE: 1" = 40'

PIPING SCHEDULE

LINE NOS	FROM	TO	SIZE AND MATERIAL
1	RAW WATER MAIN	LINES NO. 2 & 3	36" DIP (CLASS 50)
2	LINE NO. 1	FLASH MIX NO. 1	24" DIP (CLASS 50)
3	LINE NO. 2	FLASH MIX NO. 2	24" DIP (CLASS 50)
4	EFFLUENT CHAMBER	LINE NO. 6	30" DIP (CLASS 50)
5	EFFLUENT CHAMBER	LINE NO. 6	30" DIP (CLASS 50)
6	LINES NO. 4 & 5	CLEARWELL	42" DIP (CLASS 50)
7	CLEARWELL	LINES NO. 8 & 9	36" DIP (CLASS 50)
8	LINE NO. 7	PUMP STATION	30" DIP (CLASS 50)
9	LINE NO. 7	PUMP STATION	30" DIP (CLASS 50)
10	PUMP STATION	SOUTH RESERVOIR	30" DIP (CLASS 50)
11	PUMP STATION	CONWAY RESERVOIR	30" DIP (CLASS 50)
12	CLEARWELL DRAIN	STORM DRAIN	12" DIP (CLASS 50)
13	FILTER BACKWASH	MH #2	30" DIP (CLASS 50)
14	MH #2	B. W. EQUAL. LAGOON	30" DIP (CLASS 50)
15	MH #3	MH #4	12" DIP (CLASS 50)
16	MH #4	MH #5	12" DIP (CLASS 50)
17	MH #5	MH #6	12" DIP (CLASS 50)
18	MH #6	PUMP STATION #1	12" DIP (CLASS 50)
19	PUMP STATION #1	SLUDGE THICKENER	6" DIP (CLASS 50)
20	PUMP STATION #1	MH #2	12" DIP (CLASS 50)
21	SLUDGE THICKENER	PUMP STATION #2	4" DIP (CLASS 50)
22	PUMP STATION #2	SLUDGE FIELDS	4" DIP (CLASS 50)
23	B. W. EQUAL. LAGOON	METER PIT	15" PVC (SDR 35)
24	METER PIT	DISCHARGE POINT	18" PVC (SDR 35)
25	PUMP STATION #3	B. W. EQUAL LAGOON	2" PVC (SDR 21)
26	MH #7	MH #8	8" PVC (SDR 35)
27	MH #8	CHEM. SPILL LAGOON	8" PVC (SDR 35)
28	SLUDGE THICKNER	METER PIT	18" DIP (CL 50)

MANHOLE SCHEDULE

MH NOS	INVERT IN FROM	INVERT OUT TO	RIM ELEVATION	MH SIZE
2	SOUTH 5.00'	NORTH 10.0'	ELEV. 16.5'	5' DIA MH
	WEST 10.0'			
3	SOUTH 16.5'	WEST 16.0'	ELEV. 34.0'	4' DIA MH
4	EAST 15.6'	WEST 15.5'	ELEV. 34.0'	4' DIA MH
	SOUTH 16.5'			
5	EAST 14.43'	WEST 14.33'	ELEV. 34.0'	4' DIA MH
	SOUTH 16.5'			
6	EAST 13.93'	NORTH 13.83'	ELEV. 34.0'	4' DIA MH
	SOUTH 16.5'			
7	EAST 14.4'	NORTH 14.3'	ELEV. 18.3'	4' DIA MH
	WEST 14.4'			
8	SOUTH 13.14'	NORTH 13.04'	ELEV. 16.25'	4' DIA MH
9	WEST 9.86	NORTH 9.86	ELEV. 15.50'	5' DIA MH
	SOUTH 9.86			

REVISED 6-2-92 RECORD DRAWING

33-01-06.W

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWINGS	1-13-92	RAC
2	ADDED 13,000 GAL TANK AND 4" PLANT WATERLINES	11-11-93	DAT

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SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 14661 DAVID T. UPCHURCH 12-1-89

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12835 JAMES W. McDOUGAL 12-1-89

SURFACE WATER TREATMENT PROJECT
GRAND STRAND WATER AND SEWER AUTHORITY

PLANT PIPING

DATE: NOV. 1989
DESIGNED: JWM
DRAWN: DC
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. G-5
OF: _____

SOUTHERN PHOTO - REPRODUCTION

18' GRAVEL ROAD

EQUALIZATION LAGOON

SLUDGE DRYING BEDS

18' STONE ROADWAY

SLUDGE THICKENER

CHEMICAL SPILL LAGOON

ASPHALT DRIVE

MAINTENANCE BUILDING

CONC. PAD

12' GRAVEL ROAD

#13 CI

#14 CB

CLARIFIERS 1 & 2

CLARIFIERS 3 & 4

BOARDWALK

DECK

LIME & PAC

FILTERS 1-4

FILTERS 5-8

OPERATIONS BLD.
1st FLOOR CHEMICAL FEED
2nd FLOOR OPERATIONS

BULK CHEM. STORAGE

FINISHED WATER PUMP STATION

SEE G-4A FOR LAYOUT ANDS SPOT ELEVATION THIS AREA

500,000 GALLON CLEARWELL

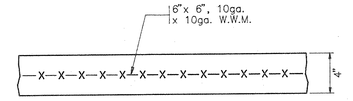
C.I. #4
RIM ELEV. 14.10
INV. ELEV. 11.84

20LF 15" RCP W/F.E.S. (20' N OF C ROAD)
INV. WEST 15.25
INV. EAST 15.0

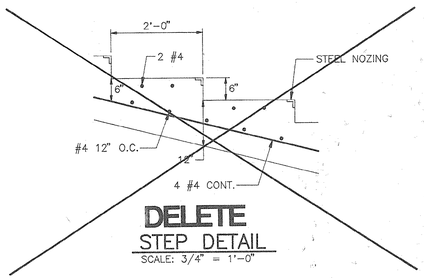
I.P.

HIGH POINT

NOTE:
ALL FILL MATERIAL UNDER PAVED AREAS SHALL BE CL OR BETTER.



TYPICAL SIDEWALK SECTION
N.T.S.



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

GRADING PLAN
SCALE: 1" = 30'

33-01-07w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-11-92	RAC

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SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12335 JOSEPH W. McGOUGIN

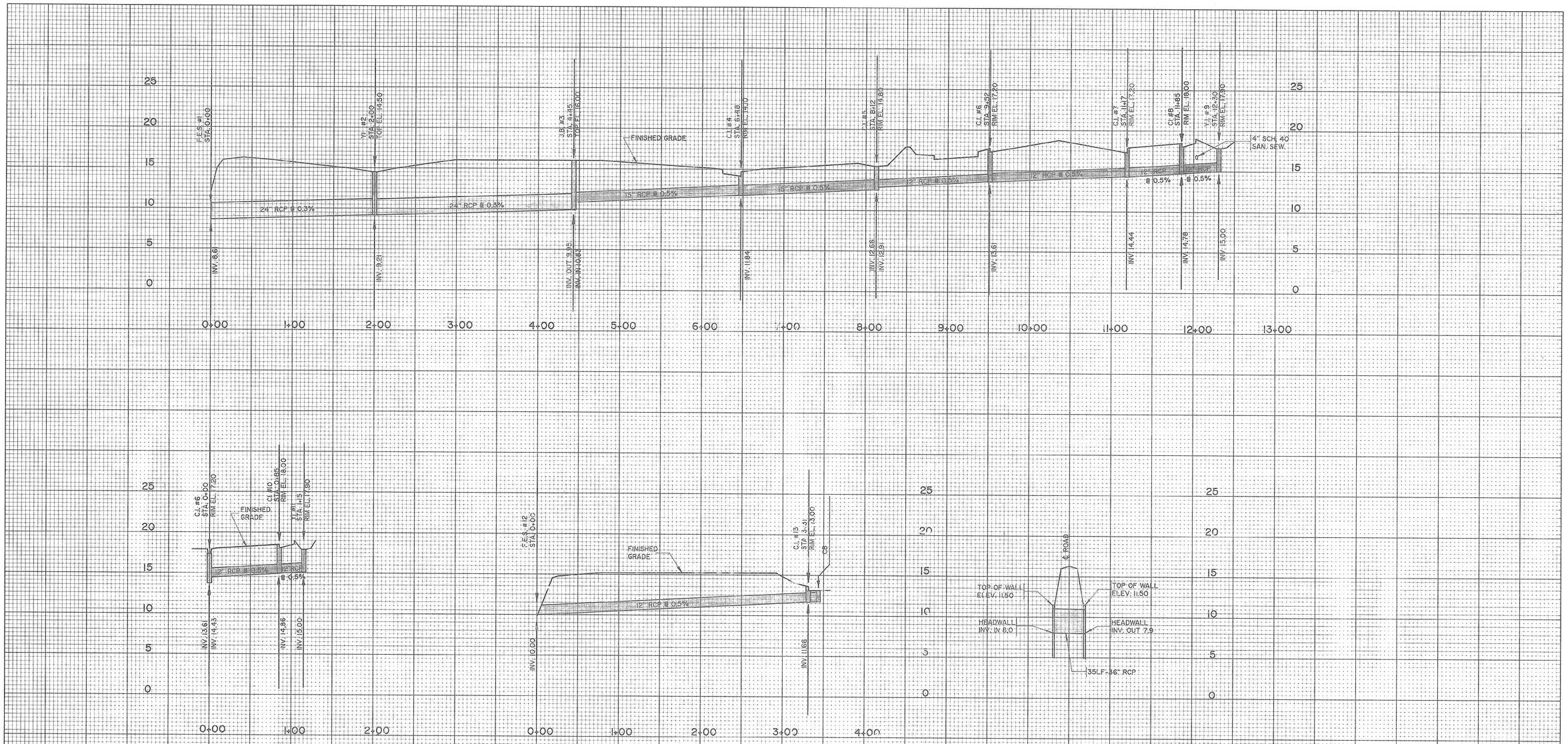
SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12227 DAVID T. UPCHURCH

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

GRADING PLAN

DATE: NOV. 1989
DESIGNED: JWM
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SCALE: AS SHOWN
SHEET NO. G-6
OF:

PROJECT #: 0338102 FILE NAME: 92-G-6ALONG DATE: 1-6-91 SCALE: 1"=30'



33-01-08w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-11-92	RAC

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SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12335 JOSEPH W. McGOLDRICK 12-1-89

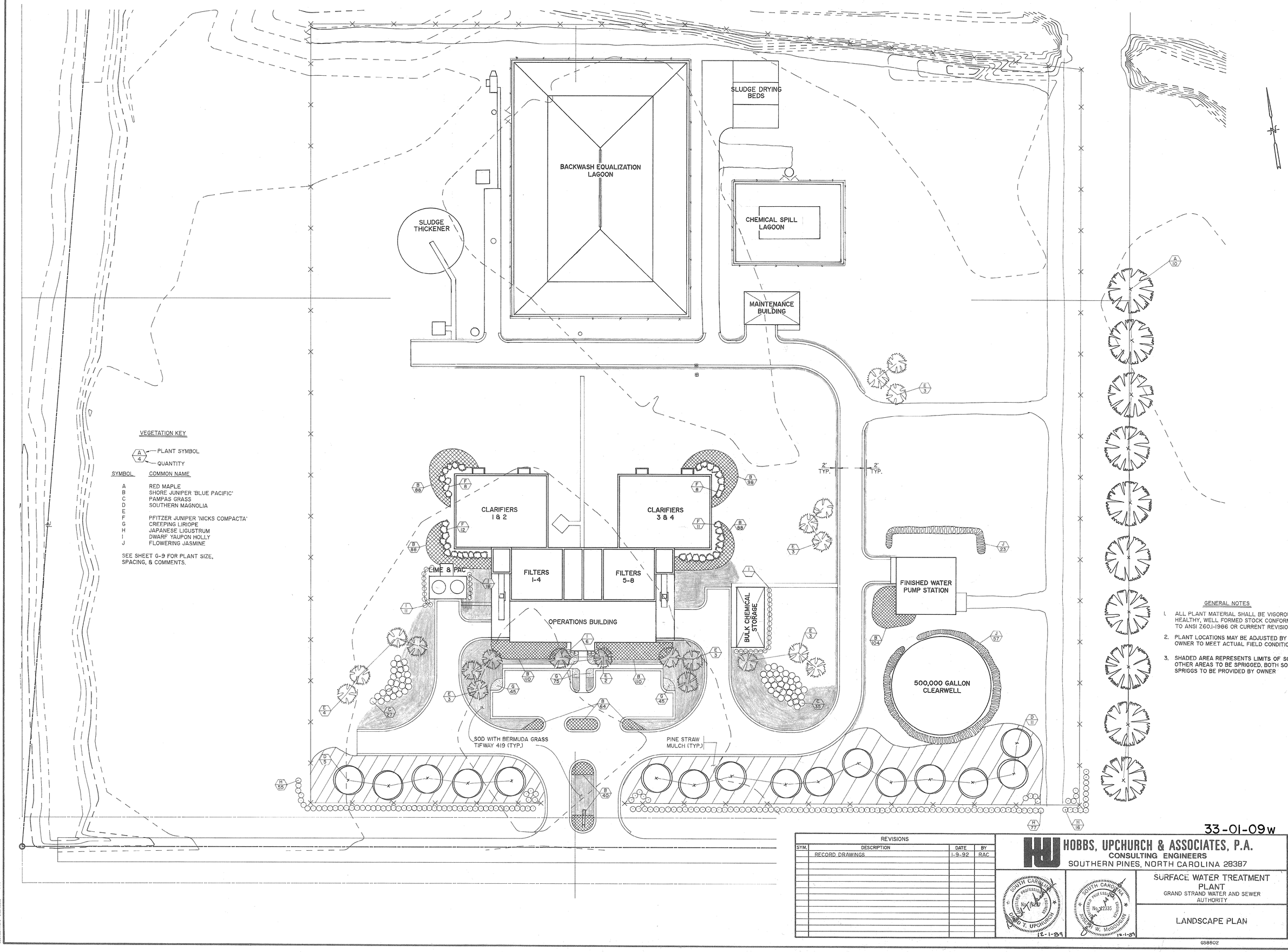
SURFACE WATER TREATMENT PLANT

GRAND STRAND WATER AND SEWER AUTHORITY

DRAINAGE PROFILES

DATE:	NOV. 1989
DESIGNED:	MPA
DRAWN:	AWH
CHECKED:	DTU
SCALE:	1"=50', HORIZ. 1"=5', VERT.
SHEET NO.	G-7
OF:	

GS8802



VEGETATION KEY

A/4 — PLANT SYMBOL
QUANTITY

SYMBOL	COMMON NAME
A	RED MAPLE
B	SHORE JUNIPER 'BLUE PACIFIC'
C	PAMPAS GRASS
D	SOUTHERN MAGNOLIA
E	
F	PFITZER JUNIPER 'NICKS COMPACTA'
G	CREEPING LIRIOPE
H	JAPANESE LIGUSTRUM
I	DWARF YAUPON HOLLY
J	FLOWERING JASMINE

SEE SHEET G-9 FOR PLANT SIZE, SPACING, & COMMENTS.

GENERAL NOTES

1. ALL PLANT MATERIAL SHALL BE VIGOROUS, HEALTHY, WELL FORMED STOCK CONFORMING TO ANSI Z60.1-1966 OR CURRENT REVISION.
2. PLANT LOCATIONS MAY BE ADJUSTED BY OWNER TO MEET ACTUAL FIELD CONDITIONS.
3. SHADED AREA REPRESENTS LIMITS OF SODDING. OTHER AREAS TO BE SPRIGGED. BOTH SOD AND SPRIGGS TO BE PROVIDED BY OWNER

33-01-09w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWINGS	1-9-92	RAC

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SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 11267 DAVID T. UPCHURCH 12-1-89

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 22335 JOSEPH W. McGOUGHN 12-1-89

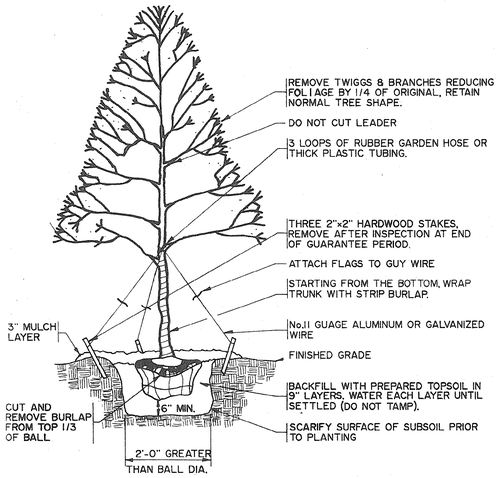
SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

LANDSCAPE PLAN

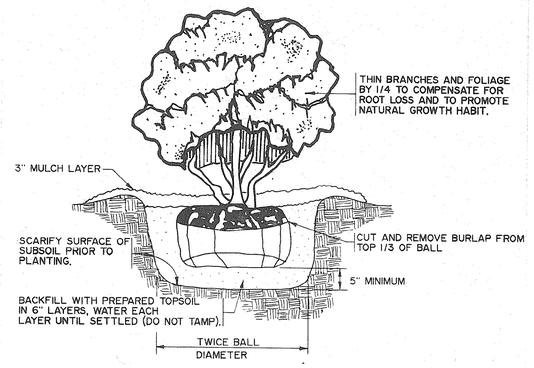
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DESIGNED: MPA
DRAWN: AWH
CHECKED: DTU
SCALE: 1" = 30'
SHEET NO. G-8
OF:

GS8802

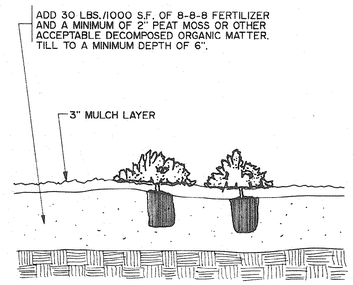
SOUTHERN PHOTO-REPRODUCTIONS 10/1/89



TREE PLANTING AND STAKING DETAIL
SCALE : NONE



SHRUB PLANTING DETAIL
SCALE : NONE



NOTE : SEE PLANT LIST FOR SPACING DISTANCE.

GROUNDCOVER PLANTING DETAIL
SCALE : NONE

PLANTING SCHEDULE

SYMBOL	BOTANICAL NAME	COMMON NAME	QUANTITY	SIZE	COMMENTS
A	Acer rubrum	RED MAPLE	13	4" CALIPER	BALLED AND BURLAPPED
B	Juniperus conferta 'Blue Pacific'	SHORE JUNIPER 'BLUE PACIFIC'	790	3 GAL.	CONT., 3 FT. O.C., PLANTING BED
C	Cortaderia selloana	PAMPAS GRASS	62	3 GAL.	CONT., 5 FT. O.C., PLANTING BED
D	Magnolia grandiflora	SOUTHERN MAGNOLIA	16	8'-10' HEIGHT	BALLED AND BURLAPPED
E	Sabal palmetto	PALMETTO	24	8'-10' HEIGHT	BALLED AND BURLAPPED
F	Juniporus chinensis pfitzerana 'Nicks Compacta'	PFITZER JUNIPER 'NICKS COMPACTA'	40	3 GAL.	CONT., 5 FT. O.C., PLANTING BED
G	Liriope spicata	CREEPING LIRIOPE	165	1 GAL.	CONT., 18" O.C., PLANTING BED
H	Ligustrum japonicam	JAPANESE LIGUSTRUM	132	3 GAL.	CONT., 5 FT. O.C.
I	Ilex vanitoria 'Nana'	DWARF YAUPON HOLLY	103	3 GAL.	CONT., 3 FT. O.C., PLANTING BED
J	Jasminum floridom	FLOWERING JASMINE	80	5 GAL.	CONT., 5 FT. O.C.

33-01-10 w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-11-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12227 DAVID T. UPCHURCH 12-1-89

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12255 JEREMY W. McGUIGAN 12-1-89

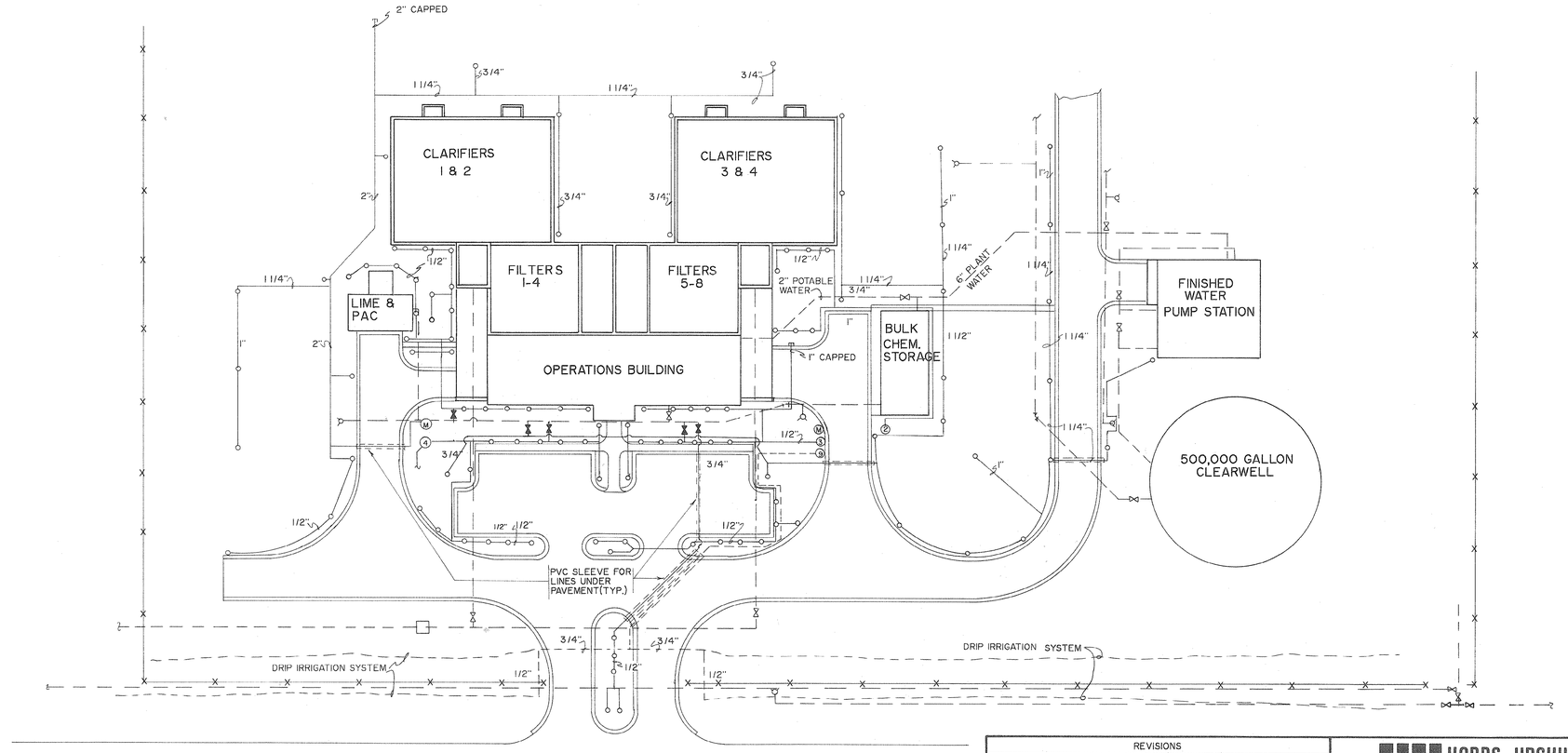
SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

LANDSCAPE DETAILS & QUANTITIES

DATE: NOV. 1989
DESIGNED: MPA
DRAWN: AWH
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. G-9
OF: ____

GS8802

DRAWING PHOTO - GERMICIDE 1/7/68



LEGEND

- ROTOR POP UP SPRINKLER ADJUSTABLE ARC 20° TO 360° 25 TO 60 PSI PRESSURE RANGE WILL DELIVER 3.7 GP @ 45 PSI. FULL CIRCLE.
- SPRY SPRINKLER (6" PLASTIC POP UP) ADJUSTABLE ARC AND RADIUS 35 TO 70 PSI PRESSURE RANGE WILL DELIVER 1.5 GPM @ 40 PSI., FULL CIRCLE.
- 1/2" — PIPE DIMENSION PVC SCHEDULE 40 IPS PLATIC PIPE (SEE SHEET FOR SPECIFIC PIPE SIZE)
- GATE VALVE
- WATER LINE BY OTHERS
- HYDRANT BY OTHERS
- GATE VALVE BY OTHERS
- (M) — 2" IRRIGATION MAIN
- (3) — ZONE
- DRIP IRRIGATION LINE

33-01-11w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	REVISED	6-11-9	JWM
	RECORD DRAWINGS	1-10-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 11990 DAVID T. UPCHURCH 12-1-89

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12335 JOSEPH W. McGOUGAN 12-1-89

SURFACE WATER TREATMENT PLANT

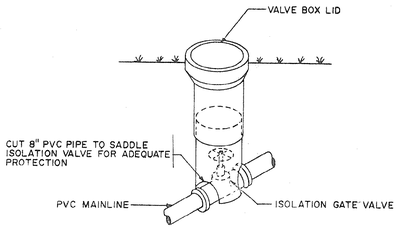
GRAND STRAND WATER AND SEWER AUTHORITY

SITE IRRIGATION PLAN

DATE: JAN. 90
DESIGNED: MPA
DRAWN: RKK
CHECKED: DTU
SCALE: 1"=30'
SHEET NO. G-10
OF: _____

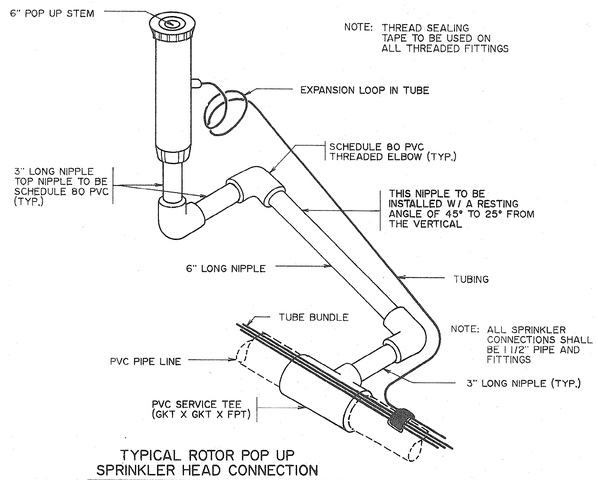
GS 8802

SOUTHERN PHOTO-LITHOGRAPHY — CHARLESTON — 577145



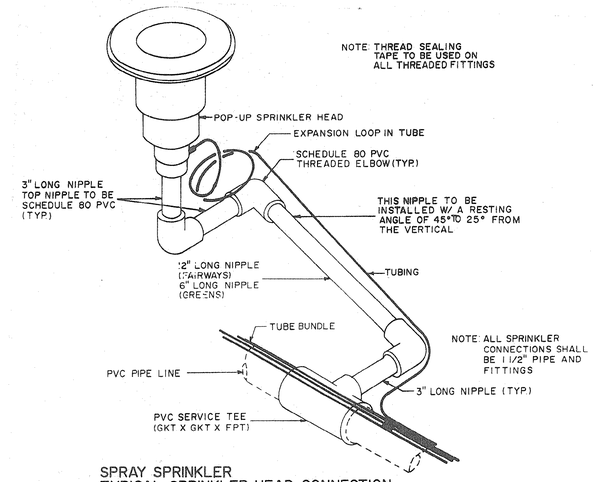
TYPICAL VALVE INSTALLATION

N.T.S.



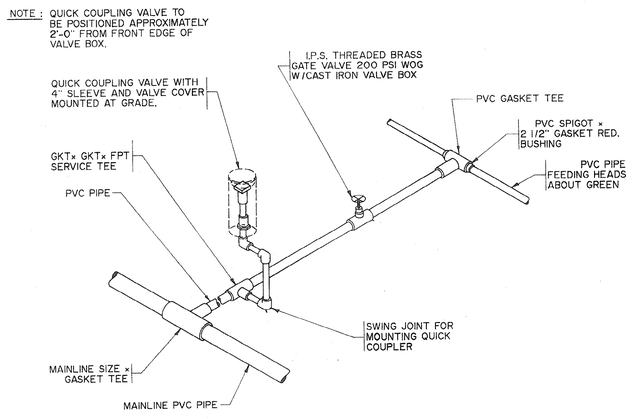
TYPICAL ROTOR POP UP
SPRINKLER HEAD CONNECTION

N.T.S.



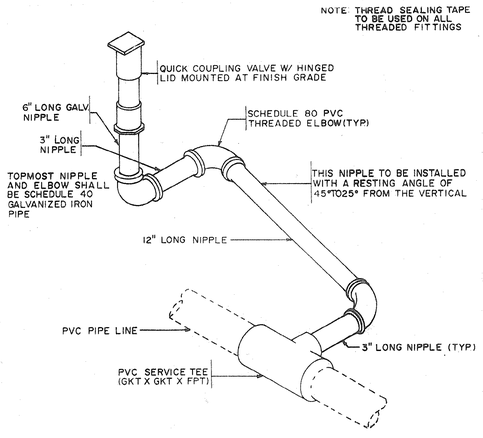
SPRAY SPRINKLER
TYPICAL SPRINKLER HEAD CONNECTION

N.T.S.



TYPICAL BRANCH CONNECTION

N.T.S.



QUICK COUPLING VALVE

N.T.S.

33-01-12w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-11-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12024 DENNIS T. UPCHURCH 1-3-90

SOUTH CAROLINA REGISTERED LAND SURVEYOR No. 12335 JOSEPH W. McGOUGAN 1-5-90

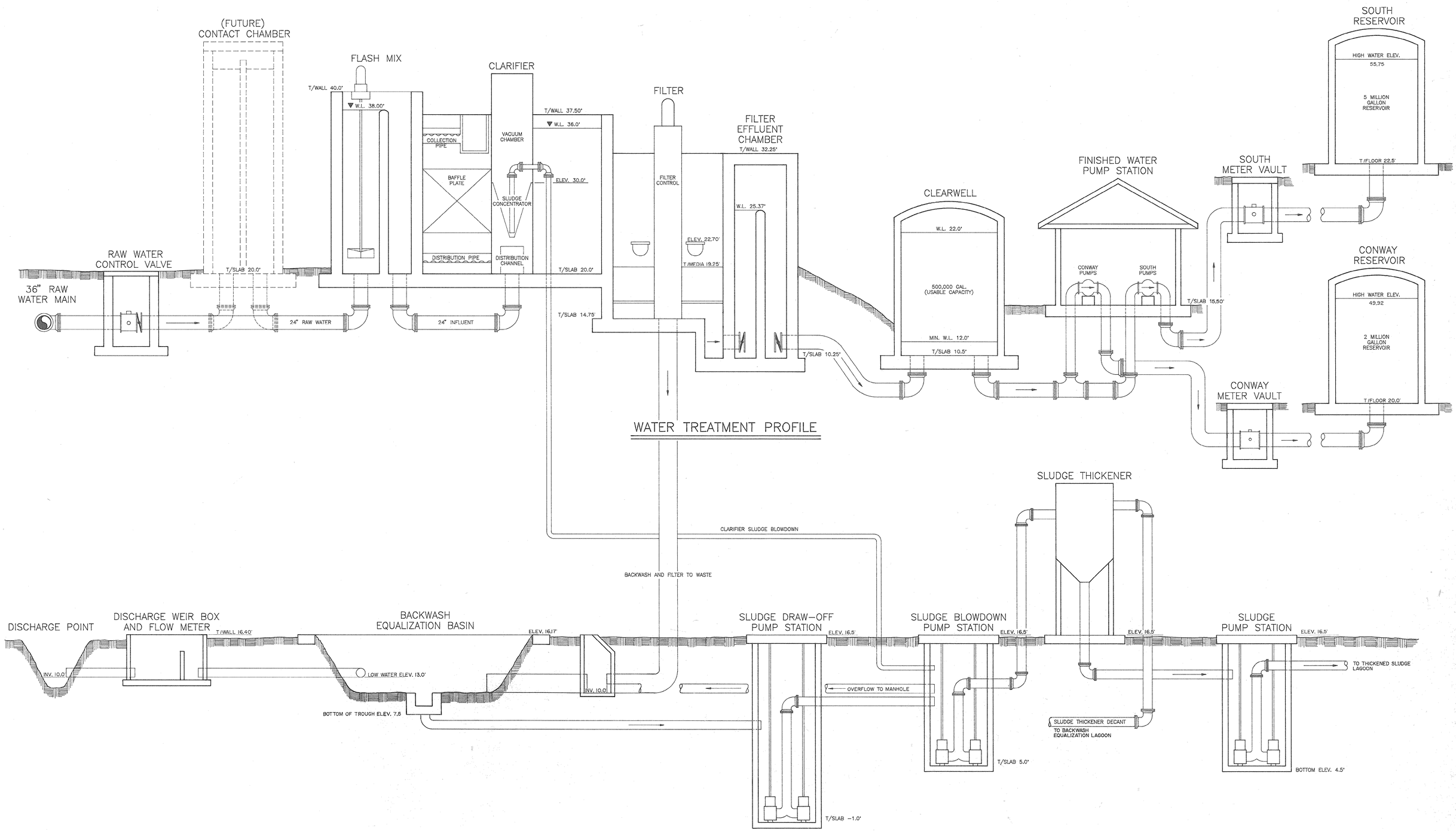
SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

SITE IRRIGATION PLAN DETAILS

DATE: JAN. 90
DESIGNED: MPA
DRAWN:
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. G-11
OF:

GS 8802

SOUTHERN PHOTO - DISTRIBUTORS 1-276-44



SLUDGE TREATMENT PROFILE

33-01-13w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	REVISE SLUDGE DISPOSAL	2-4-90	JWM
	RECORD DRAWING	1-11-92	RAC

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CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12227 DAVID T. UPCHURCH 12-1-89

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12335 JOSEPH W. McGOUGAN 12-1-89

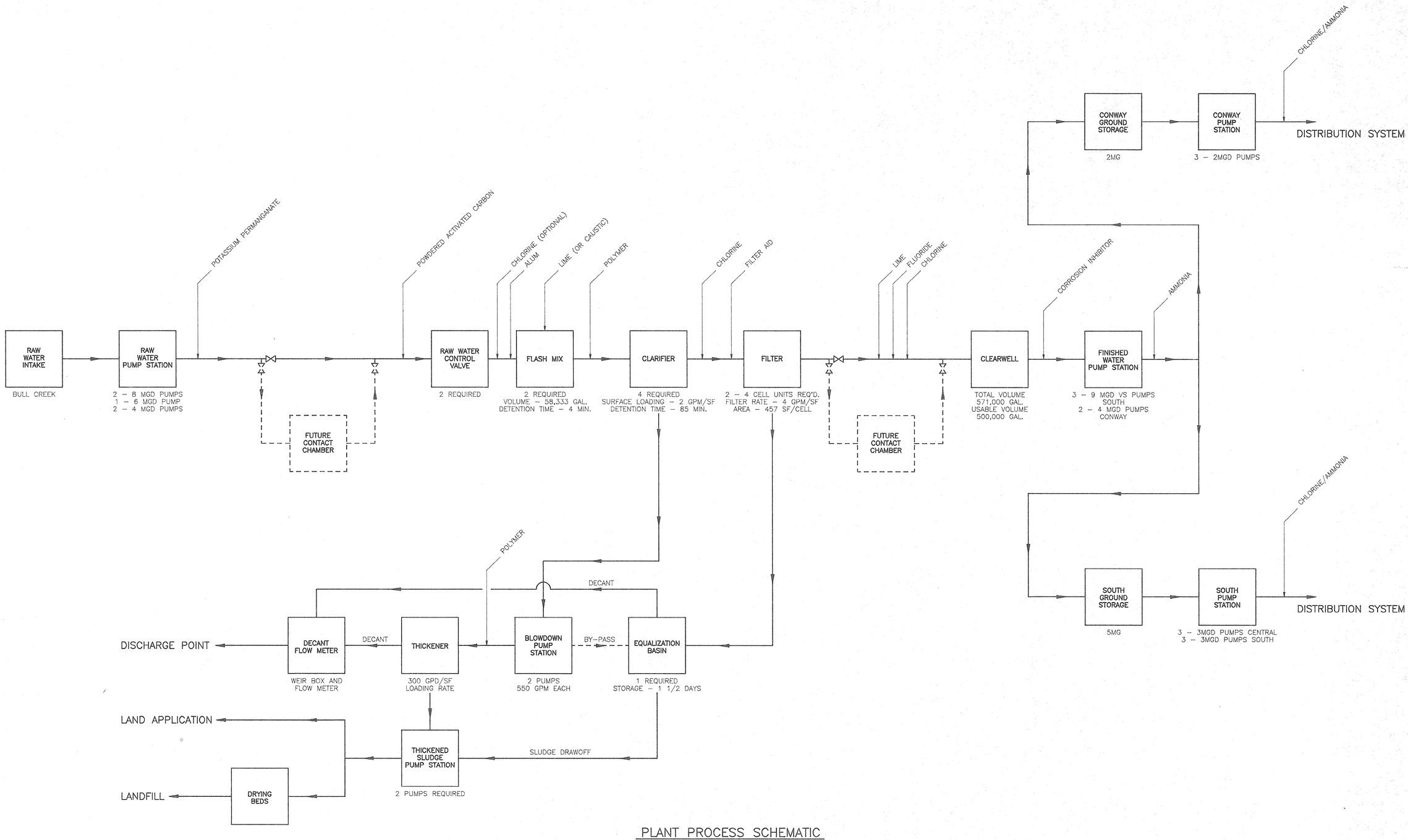
SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

HYDRAULIC PROFILE

DATE: NOV., 1989
DESIGNED: JWM
DRAWN: DC
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. G-12
OF: ____

GS8802

SOUTHERN PHOTO - BLUEPRINTING 727-1148



PLANT PROCESS SCHEMATIC

33-01-14 w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	DELETE PARSHALL FLUME, ADD WEIR BOX	2-5-90	JWM
	REVISE SLUDGE DISPOSAL	2-5-90	JWM
	REVISED	8-27-90	AGC
	RECORD DRAWING	1-11-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No.12335 JOSEPH W. McGOVERN

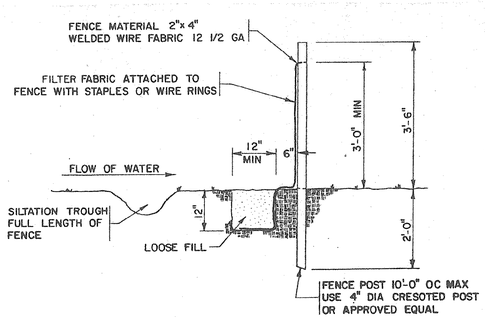
SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No.12227 DAVID T. UPCHURCH

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

PLANT PROCESS SCHEMATIC

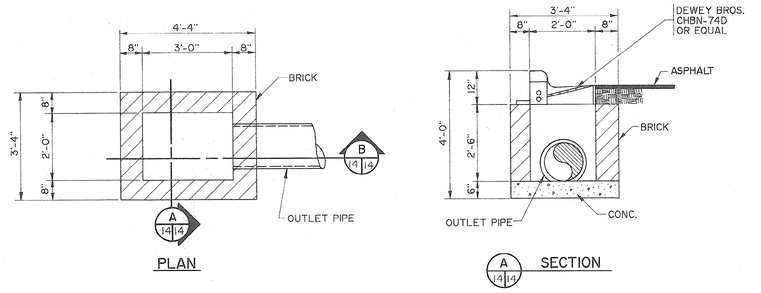
DATE: NOV. 1989
DESIGNED: JWM
DRAWN: DC
CHECKED: DTU
SCALE: NTS
SHEET NO. G–13
OF:

PROJECT #: 0588.02 FILE NAME: 1-8.DWG DATE: 9-4-90 SCALE: NTS



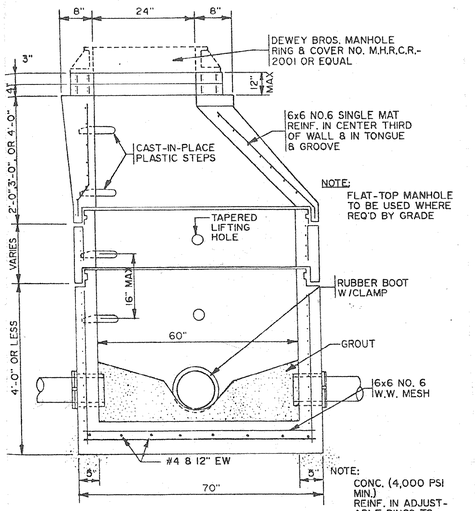
SILT FENCE DETAIL

NTS



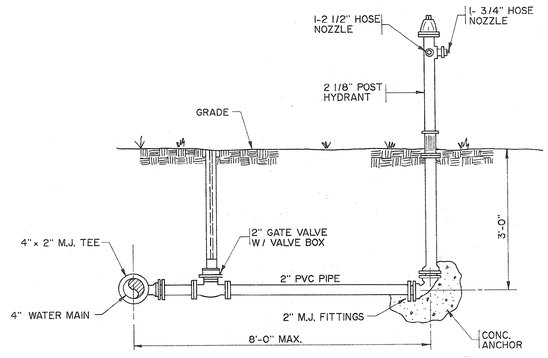
CURB INLET DETAIL

NTS



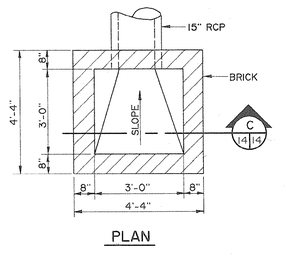
PRECAST MANHOLE DETAIL

NTS



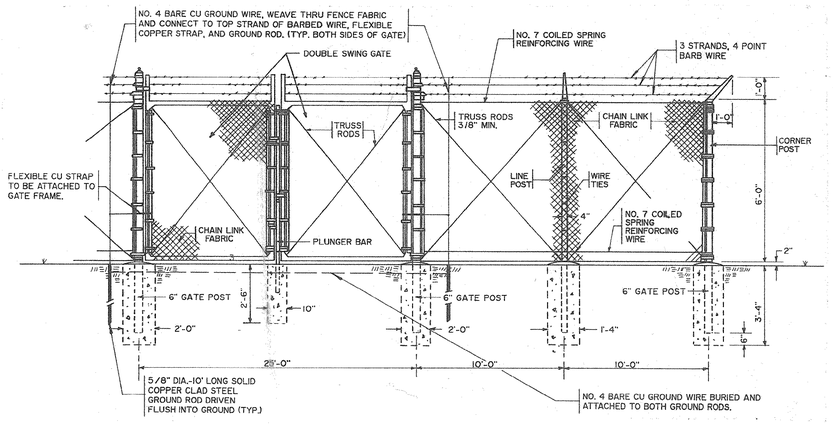
YARD HYDRANT DETAIL

NTS



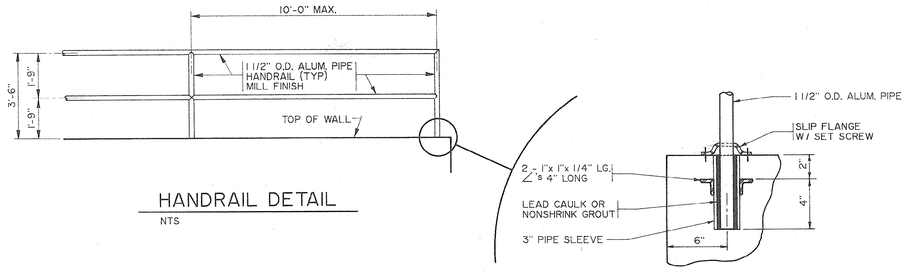
YARD INLET DETAIL

NTS



6' CHAIN LINK FENCE DETAIL

NTS



HANDRAIL DETAIL

NTS

33-01-15w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-11-92	RAC

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SOUTHERN PINES, NORTH CAROLINA 28387

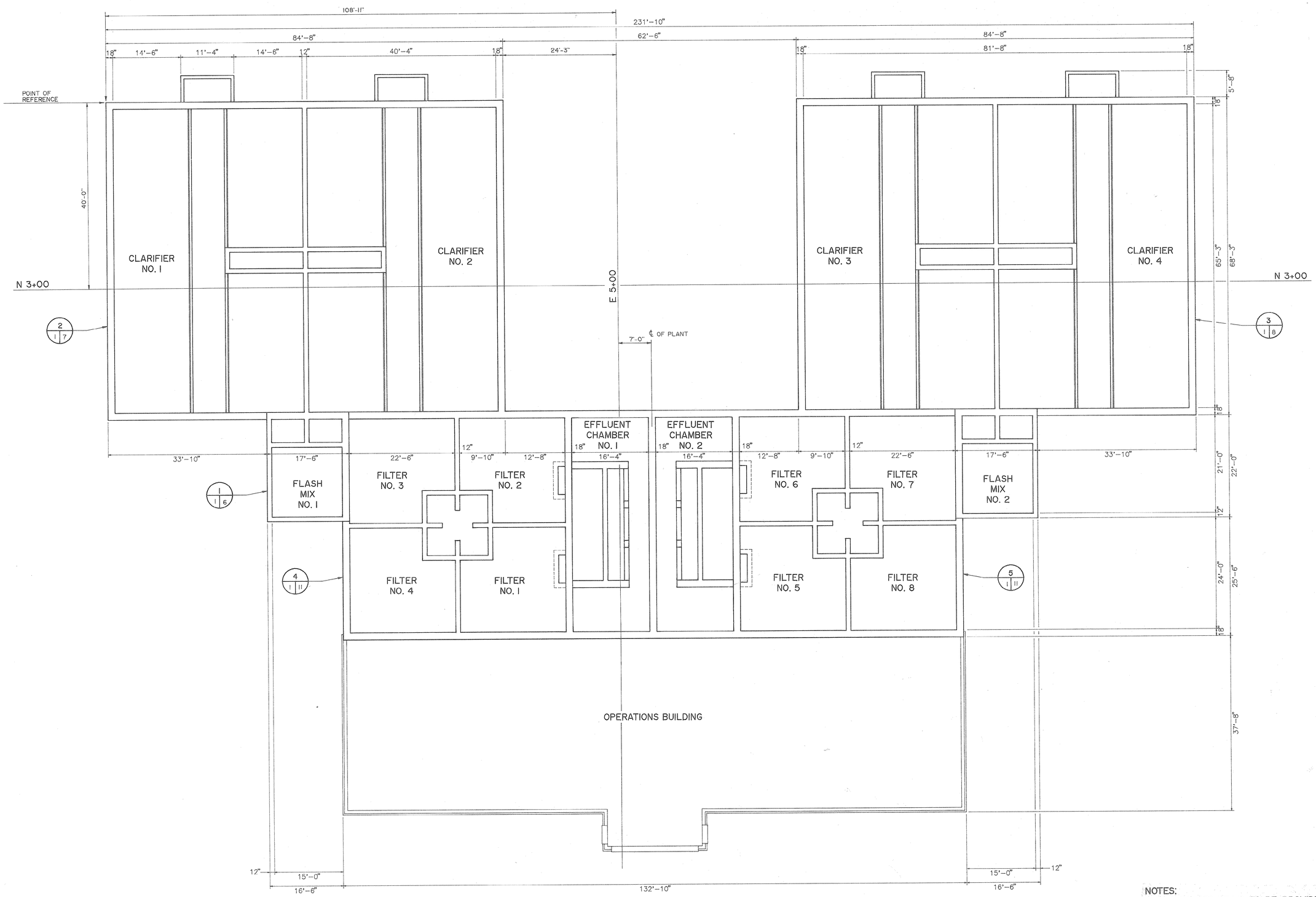
SURFACE WATER TREATMENT PLANT

MISCELLANEOUS DETAILS

DATE: NOV., 1989
DESIGNED: MPA
DRAWN: TFW
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. G-14
OF:

GS8802

SOUTHERN PHOTO - GREENSBORO 1127140



PLANT UNIT LAYOUT

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

NOTES:
1. * INDICATES ITEMS TO BE PROVIDED BY THE OWNER AND INSTALLED BY THE CONTRACTOR.
2. NIC INDICATES ITEMS NOT IN THIS CONTRACT.

33-01-16w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 10127 DAVID T. UPCHURCH 12-1-89

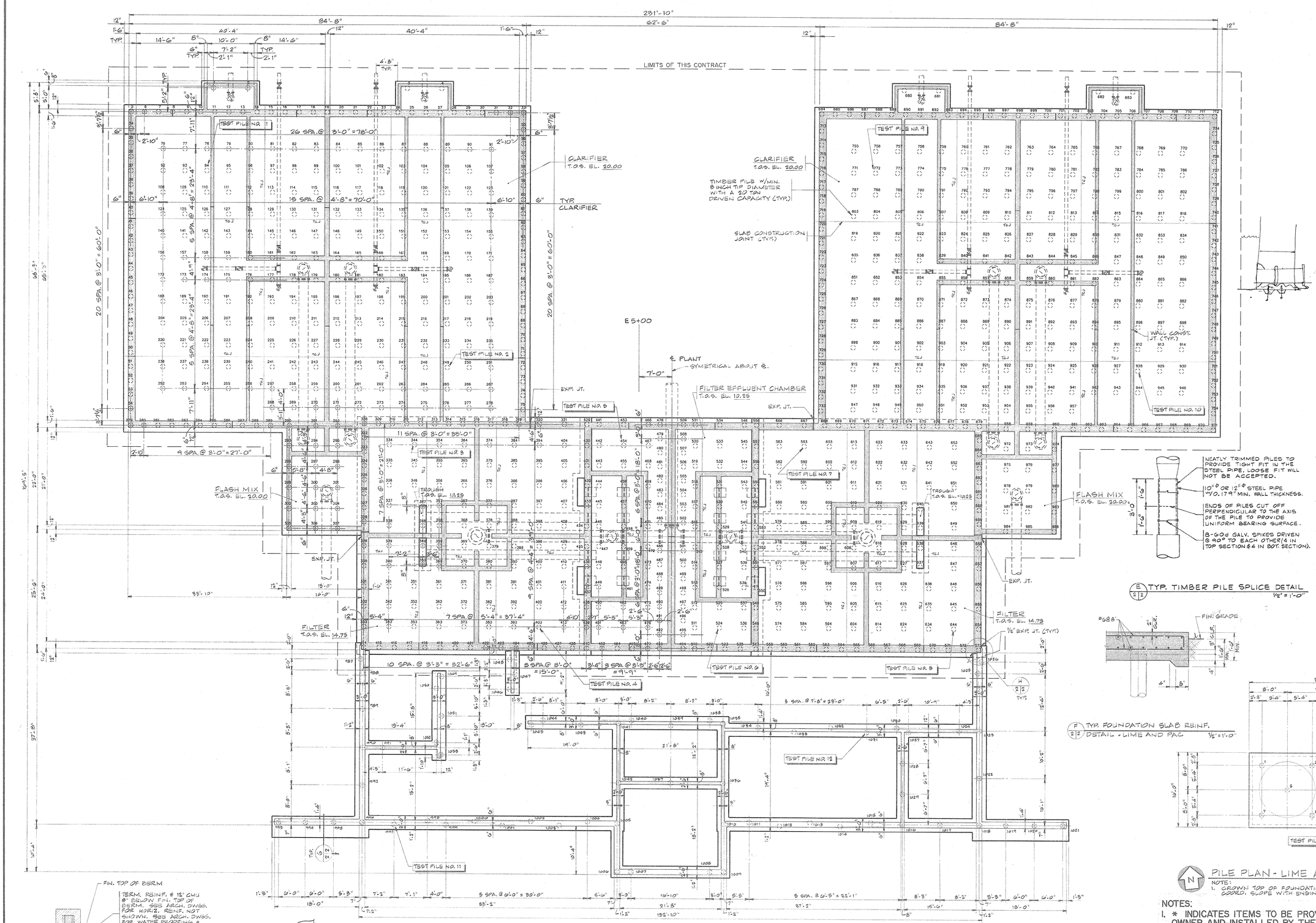
SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 13835 JOSEPH W. McGUIGAN 12-1-89

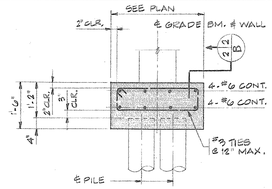
SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

PLANT UNIT LAYOUT

DATE:	NOV. 1989
DESIGNED:	JWM
DRAWN:	DC
CHECKED:	DTU
SCALE:	1/8" = 1'-0"
SHEET NO.	S-1
OF:	

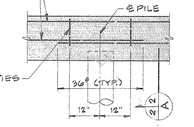
SOUTHERN PHOTO - REPRODUCTIONS 112784



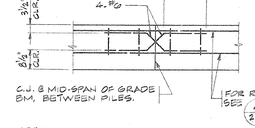


A 2/2 TYP. GRADE BEAM REINFORCING DETAIL — 1/2"=1'-0"

CONT. GRADE BM. REINF. NEED NOT BE SPLICED AT EA. PILE. FABRICATE BARS TO LONGEST PRACTICAL LENGTHS. SPLICE TOP BARS AT MID-SPAN BETWEEN PILES AND BOT. BARS AT ℄ PILE.



B 2/2 TYP. GRADE BEAM REINFORCING DETAIL — 1/2"=1'-0"

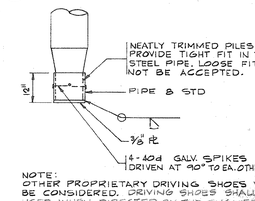


C.J. @ MID-SPAN OF GRADE BM. BETWEEN PILES.

FOR REINF. SEE A 2/2 B 2/2

NOTE:
VERIFY LOCATION OF CONSTRUCTION JOINT (C.J.) W/ARCHITECT BEFORE CONSTRUCTION.

C 2/2 TYP. ELEVATION OF GRADE BEAM CONSTRUCTION JOINT (C.J.) — 1/2"=1'-0"

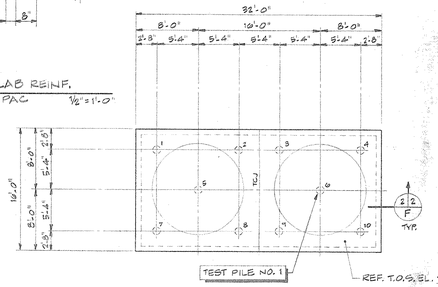


NOTE:
OTHER PROPRIETARY DRIVING SHOES WILL BE CONSIDERED. DRIVING SHOES SHALL BE USED WHEN DIRECTED BY THE ENGINEER.

E 2/2 TYP. TIMBER PILE SPLICE DETAIL — 1/2"=1'-0"

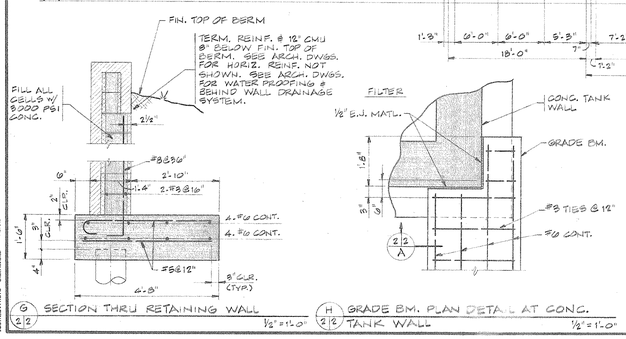
D 2/2 TYP. TIMBER PILE DRIVING SHOE — NO SCALE

F 2/2 TYP. FOUNDATION SLAB REINF. DETAIL - LIME AND PAC — 1/2"=1'-0"



N PILE PLAN - LIME AND PAC — 1/16"=1'-0"

NOTE:
1. CROWN TOP OF FOUNDATION SLAB FOR DRAINAGE. COORD. SLOPE WITH ENGINEER.



G 2/2 SECTION THRU RETAINING WALL — 1/2"=1'-0"

H 2/2 GRADE BM. PLAN DETAIL AT CONC. TANK WALL — 1/2"=1'-0"

N PILE FOUNDATION PLAN — 1/8"=1'-0"

OPERATIONS BLDG., FILTERS AND CLARIFIERS

NOTE:
1. TOP OF GRADE BM. ELEV. = 16.92 , U.O.N. THUS: XX.XX.
2. SEE ARCH. DWGS. FOR UNDER FLR. DRAINAGE SYSTEM.
3. SEE ARCH. DWGS. FOR LOCATION OF FLR. FINISHES REQUIRING DEPRESSED FLR. SLABS AND FOR LOCATION OF MAS. PARAPITIONS ON THICKENED SLABS.
4. ALL SLABS SHALL BE 6" THICKNESS, U.O.N.
5. ALL SLABS SHALL BE PLACED OVER VAPOR BARRIER AND 4" COMPACTED STONE AND REINFORCED W/6"x6"-W29xW29 WWF, U.O.N.
6. FIN. BUILDING FLR. ELEV. = 18.92 , U.O.N.
7. SEE ARCH. DWGS. FOR STAIR DETAILS AND DIMENSIONS NOT SHOWN.

NOTES:
1. * INDICATES ITEMS TO BE PROVIDED BY THE OWNER AND INSTALLED BY THE CONTRACTOR.
2. NIC INDICATES ITEMS NOT IN THIS CONTRACT.

33-01-17w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	REVISED SLAB REINFORCING	2-5-90	JWM
	RECORD DRAWING	11-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

Greiner
GREINER, INC.
Raleigh, North Carolina
R0075.00

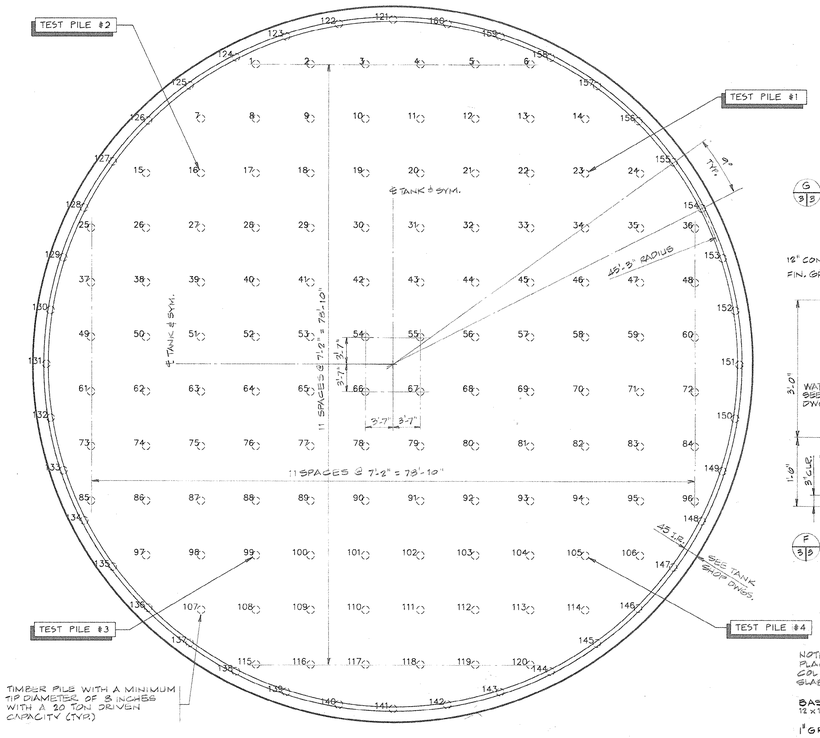
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 10082 WILLIAM L. BIGGER 12/11/89

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

PILE FOUNDATION PLAN
OPERATIONS BLDG., FILTERS AND CLARIFIERS LIME AND PAC

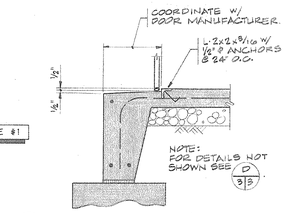
DATE: 12-13-89
DESIGNED: WPD
DRAWN: LAW
CHECKED: WPD
SCALE: AS NOTED
SHEET NO. S-2
OF: _____

SOUTHERN PHOTO - REPRODUCTION

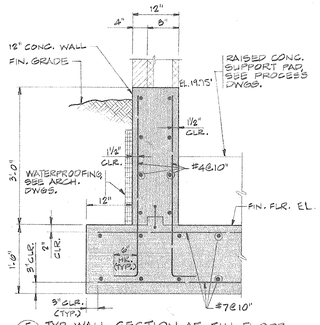


PILE PLAN - 500,000 GALLON CLEARWELL 1/8"=1'-0"

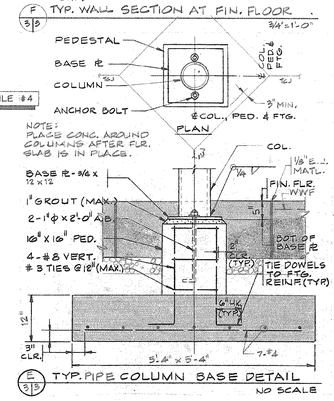
NOTE:
1. PILE LOCATIONS AND NUMBERS ARE FOR BIDDING PURPOSES ONLY. PILE LOCATIONS MAY VARY SLIGHTLY AS REQUIRED BY TANK MANUFACTURER TO ACCOMMODATE PIPING.
2. VERIFY TANK AND PILE PLAN ORIENTATION WITH SITE PLAN AND TANK SHOP DRAWINGS.
3. TIMBER PILES SHALL CONFORM TO ASTM D25.
4. TIMBER PILES SHALL HAVE A NET CREOSOTE RETENTION OF NOT LESS THAN 12 POUNDS PER CUBIC FOOT BY ASSAY.
5. EXCAVATE TO PLAN DEPTH OF TANK SLAB PRIOR TO COMMENCING PILE DRIVING. CONFIRM W/TANK SHOP DRAWING.



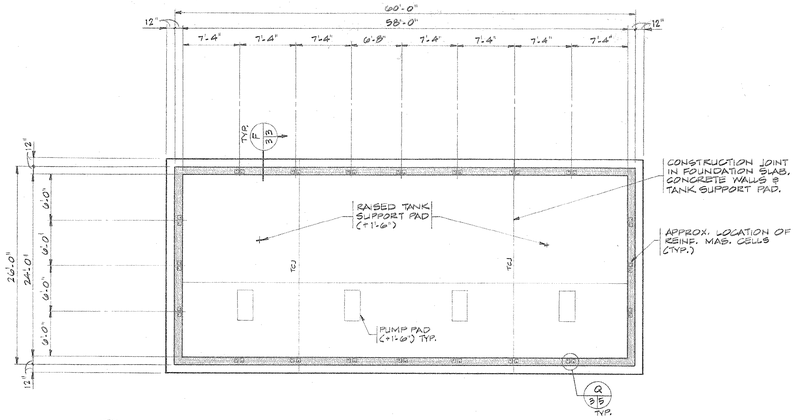
G 3/5 SECTION THRU SLAB AT ROLL-UP DOOR 3/4"=1'-0"



F 3/5 TYP. WALL SECTION AT FIN. FLOOR 3/4"=1'-0"

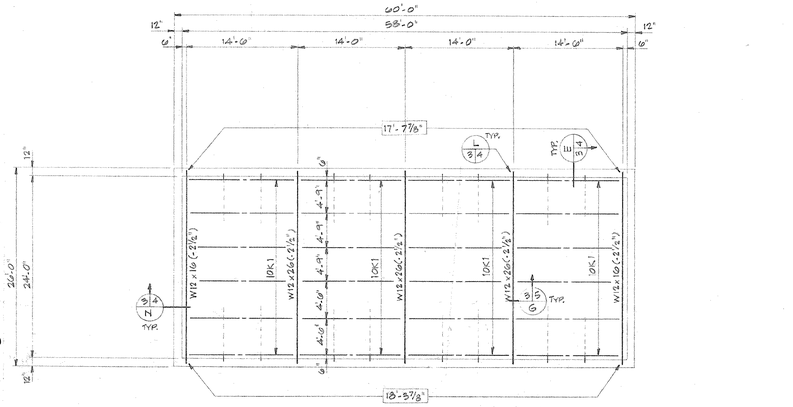


E 3/5 TYP. PIPE COLUMN BASE DETAIL NO SCALE



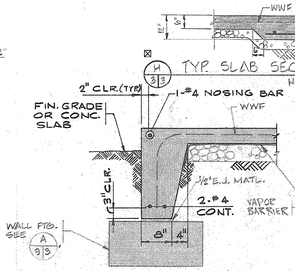
FOUNDATION PLAN - BULK CHEMICAL STORAGE 1/8"=1'-0"

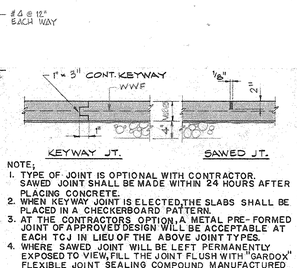
NOTE:
1. FIN. FLOOR ELEV. = 15.50 , U.O.N.
2. SEE ARCH. DWGS. FOR STAIR DETAILS AND DIMENSIONS NOT SHOWN.
3. LOCATIONS OF REINF. MAS. CELLS ARE APPROX. COORD. EXACT LOCATION WITH MAS. OPENINGS. REINF. MAS. CELLS AT 7'-4" &C. MAX.



ROOF FRAMING PLAN - BULK CHEMICAL STORAGE 1/8"=1'-0"

NOTE:
1. SEE "ROOF FRAMING PLAN - OPERATIONS BUILDING", SHEET S-4, FOR NOTES.

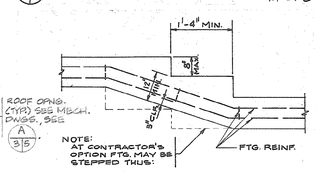




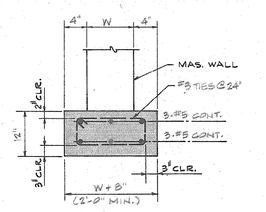
NOTE;
1. TYPE OF JOINT IS OPTIONAL WITH CONTRACTOR. SAWED JOINT SHALL BE MADE WITHIN 24 HOURS AFTER PLACING CONCRETE.
2. WHEN KEYWAY JOINT IS ELECTED, THE SLABS SHALL BE PLACED IN A CHECKERBOARD PATTERN.
3. AT THE CONTRACTORS OPTION, A METAL PRE-FORMED JOINT OF APPROVED DESIGN WILL BE ACCEPTABLE AT EACH TCJ IN LIEU OF THE ABOVE JOINT TYPES.
4. WHERE SAWED JOINT WILL BE LEFT PERMANENTLY EXPOSED TO VIEW, FILL THE JOINT FLUSH WITH "GARDOX" FLEXIBLE JOINT SEALING COMPOUND MANUFACTURED BY W. R. MEADOWS, INC., OR EQUIVALENT.

D 3/3 TYP. SLAB EDGE REINFORCING 3/4"=1'-0"

C 3/3 TYP. CONTROL JOINT (TCJ) AT SLAB-ON-GRADE NO SCALE



P 3/3 TYP. STEPPED FOOTING DETAIL NO SCALE



A 3/3 TYP. WALL FOOTING REINF. NO SCALE

GENERAL NOTES

A. FOUNDATIONS.
1. MAXIMUM ALLOWABLE SOIL PRESSURE = 2000 PSF.
2. FOOTING EXCAVATIONS AND FORMS SHALL BE REVIEWED BY THE ENGINEER PRIOR TO PLACING CONCRETE.
3. FOOTINGS SHALL BE LOWERED WHEN DIRECTED BY THE ENGINEER TO REACH FIRM, UNDISTURBED SOIL.
4. CONSTRUCTION JOINTS IN WALL FOOTINGS SHALL BE MADE AT LEAST TWO FEET FROM THE INTERSECTION WITH ANOTHER WALL FOOTING.
5. PLACE CONCRETE FOR FOUNDATION WALLS, RETAINING WALLS AND TANK WALLS IN ALTERNATE SECTIONS AND PROVIDE CONSTRUCTION JOINTS AT LOCATIONS SHOWN ON THE DRAWINGS, OR AT 30 FEET MAXIMUM ON CENTER. CONSTRUCTION JOINTS IN TANK WALLS SHALL BE AT LEAST 10 FEET FROM THE INTERSECTION WITH ANOTHER WALL.
6. PROVIDE BRACING AGAINST WALLS AS REQUIRED TO PREVENT DAMAGE DURING COMPACTION OF FILL.
7. ALL FILL BENEATH STRUCTURES SHALL BE SELECT MATERIAL FREE FROM ROOTS, TRASH, WOOD SCRAPS, AND OTHER EXTRANEOUS MATERIALS. PLACE FILL IN LIFTS NOT EXCEEDING 8 INCHES AND COMPACT EACH LIFT TO 95% DENSITY, 98% UPPER 12 INCHES, AT OPTIMUM MOISTURE CONTENT AS MEASURED BY ASTM D698. FILL PLACEMENT SHALL BE UNDER THE CONTROL OF AN INDEPENDENT TESTING LABORATORY.
8. TIMBER PILES SHALL BE CREOSOTE TREATED AND SHALL CONFORM TO ASTM D25 WITH A MINIMUM TIP DIAMETER OF 8 INCHES AND SHALL BE DRIVEN TO 20 TONS CAPACITY. SEE SPECIFICATIONS.
9. TIMBER PILES SHALL HAVE A NET CREOSOTE RETENTION OF NOT LESS THAN 12 POUNDS PER CUBIC FOOT BY ASSAY.
10. EXCAVATE TO PLAN DEPTH OF TANK SLAB OR GRADE BEAMS PRIOR TO COMMENCING PILE DRIVING.
11. ALL GRADE BEAMS, SLABS AND FOOTINGS SHALL BE FORMED WITH WOOD OR METAL FORMING MATERIALS TO THE DIMENSIONS AS SHOWN ON THE DRAWINGS.

B. CONCRETE.
1. CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS AS FOLLOWS:
   CONCRETE FOR TANKS AND GRADE BEAMS 4000 PSI
   ALL OTHER CONCRETE 3000 PSI
2. CONCRETE WORK SHALL CONFORM TO "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE," ACI 318-83, INCLUDING SUPPLEMENTS.
3. SLABS-ON-GRADE 6 INCHES THICK, UNLESS OTHERWISE NOTED.
4. PLACE 1/2 INCH EXPANSION JOINT MATERIAL BETWEEN EDGES OF SLABS AND VERTICAL SURFACES UNLESS OTHERWISE NOTED.
5. PROVIDE CONSTRUCTION OR CONTROL JOINTS IN SLABS AT LOCATIONS SHOWN ON DRAWINGS, AT OFFSETS AND CHANGES IN DIRECTION, AND AT 30 FEET MAXIMUM.
6. CHAMFER EXPOSED EDGES OF CONCRETE (AND ALL CORNERS OF ALL COLUMNS) 3/4 INCH, UNLESS OTHERWISE NOTED.
7. SEE ARCHITECTURAL FINISH SCHEDULE FOR REQUIRED FLOOR FINISHES.
8. CONCRETE SHALL BE CURED A MINIMUM OF 7 DAYS BY ONE OR MORE METHODS SPECIFIED IN CHAPTER 12 OF THE "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS," ACI 301-84 (REVISED 1988), EXCEPT POLYETHYLENE FILMS SHALL NOT BE USED FOR THE CURING OF CONCRETE WORK.
9. IN ADDITION, CONCRETE WORK SHALL CONFORM TO THE "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS," ACI 301-84 (REVISED 1988), EXCEPT AS OTHERWISE NOTED.
10. CONCRETE FORMWORK SHALL CONFORM TO "RECOMMENDED PRACTICE FOR CONCRETE FORMWORK," ACI 347-78(84) AND "FORMWORK FOR CONCRETE," ACI MANUAL SP-4.

C. REINFORCING STEEL.
1. BARS SHALL BE ROLLED FROM NEW BILLET-STEEL OF DOMESTIC MANUFACTURE CONFORMING TO "STANDARD SPECIFICATION FOR DEFORMED AND PLAIN BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT," ASTM A615, GRADE 60 AND SUPPLEMENTARY REQUIREMENT S1.
2. WELDED WIRE FABRIC SHALL CONFORM TO "STANDARD SPECIFICATION FOR WELDED STEEL WIRE FABRIC FOR CONCRETE REINFORCEMENT," ASTM A185.
3. DETAIL AND FABRICATE REINFORCING STEEL IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE "ACI DETAILING MANUAL - 1980," PUBLICATION SP-66.
4. REINFORCING STEEL IN PLACE SHALL BE REVIEWED BY THE ENGINEER PRIOR TO PLACING CONCRETE.
5. PROVIDE BARS AT CORNERS AND INTERSECTIONS OF THE SAME NUMBER AND SIZE AS LONGITUDINAL BARS IN FOOTINGS, GRADE BEAMS AND WALLS.
6. PROVIDE 4-#5 BARS (2 EACH FACE) AT EACH SIDE OF OPENINGS IN SLABS AND WALLS AND EXTEND 2'-0" PAST OPENING. IF SUCH AN EXTENSION IS NOT OBTAINABLE, TERMINATE THE BAR WITH A STANDARD HOOK.

D. WATERSTOPS.
1. PROVIDE CONTINUOUS PVC WATERSTOPS WHERE SHOWN ON DRAWINGS, AT EXTERIOR WALL CONSTRUCTION JOINTS AND WHERE DIFFERENTIAL HEIGHTS OF FLUIDS EXIST ON EITHER SIDE OF WALL.
2. WATERSTOPS SHALL BE MANUFACTURED OF VIRGIN MATERIAL COMPOSED OF AN ELASTOMERIC POLYVINYL CHLORIDE COMPOUND MEETING THE REQUIREMENTS OF CORPS OF ENGINEERS CRD-C572. SUBMIT MANUFACTURER'S LITERATURE SHOWING COMPLIANCE WITH THE ABOVE SPECIFICATION AND SHOWING WATERSTOP SHAPES FOR USE.
3. WATERSTOPS AT CONSTRUCTION JOINTS SHALL BE 6-INCH MIN. LENGTH "DUMBELL" TYPE UNLESS OTHERWISE INDICATED ON DRAWINGS. WATERSTOPS AT EXPANSION JOINTS SHALL BE 9 INCH MIN. LENGTH "DUMBELL" TYPE WITH 3/4 INCH MIN. INSIDE DIAMETER CENTER BULB, UNLESS OTHERWISE INDICATED ON DRAWINGS.
4. ALL SPLICING OF WATERSTOPS SHALL BE SHOP FABRICATED EXCEPT THAT BUTT SPLICES MAY BE FIELD FABRICATED.

E. STRUCTURAL STEEL.
1. STEEL SHALL CONFORM TO "STANDARD SPECIFICATION FOR STRUCTURAL STEEL," ASTM A36.
2. STRUCTURAL TUBING SHALL CONFORM TO "STANDARD SPECIFICATION FOR HOT-FORMED WELDED AND SEAMLESS CARBON STEEL STRUCTURAL TUBING," ASTM A501.
3. STEEL WORK SHALL CONFORM TO "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS," OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION, INC., EFFECTIVE NOVEMBER 1, 1978, INCLUDING ALL SUPPLEMENTS, AND THE "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES," EFFECTIVE SEPTEMBER 1, 1976.
4. CONNECTION BOLTS SHALL BE 3/4 INCH DIAMETER CONFORMING TO "STANDARD SPECIFICATION FOR HIGH-STRENGTH BOLTS FOR STRUCTURAL STEEL JOINTS," ASTM A325, UNLESS OTHERWISE NOTED. CONNECTIONS ARE BEARING TYPE WITH THREADS EXCLUDED FROM SHEAR PLANES. INSTALL EACH BOLT WITH A HARDENED WASHER UNDER THE NUT OR HEAD, WHICHEVER IS TURNED FOR TIGHTENING TO THE REQUIRED TENSION.
5. OVERSIZE HOLES AND SLOTTED HOLES SHALL NOT BE USED FOR BOLTED CONNECTIONS ON THIS PROJECT EXCEPT AT LOCATIONS NOTED ON THE DRAWINGS.
6. WELDING SHALL BE BY WELDERS AND WELDING OPERATORS WHO HAVE BEEN PREVIOUSLY QUALIFIED BY TESTS AS PRESCRIBED IN THE "STRUCTURAL WELDING CODE," AWS D1.1-89 OF THE AMERICAN WELDING SOCIETY TO PERFORM THE TYPES OF WELDS REQUIRED ON THIS PROJECT.
7. BEAMS AND LINTELS SHALL BEAR 8 INCHES MINIMUM ON MASONRY UNLESS OTHERWISE NOTED.
8. THE CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY BRACING, SHORING AND GUYING OF FRAMING AGAINST WIND, CONSTRUCTION LOADS AND OTHER TEMPORARY FORCES UNTIL SUCH PROTECTION IS NO LONGER REQUIRED FOR THE SAFE SUPPORT OF THE FRAMING.
9. ANCHOR BOLT LENGTHS SHOWN ON THE DRAWINGS SHALL INCLUDE HOOKS OF NOT LESS THAN 3 INCHES IN LENGTH. PROVIDE ONE NUT AND ONE WASHER WITH EACH ANCHOR BOLT UNLESS OTHERWISE NOTED.
10. ALL STRUCTURAL STEEL, BOLTS AND ACCESSORIES NOTED ON THE DRAWINGS AS H.D.G. SHALL RECEIVE, AFTER FABRICATION AND BEFORE ASSEMBLY, A PROTECTIVE COATING OF ZINC IN CONFORMANCE WITH "STANDARD SPECIFICATION FOR ZINC (HOT-GALVANIZED) COATINGS ON PRODUCTS FABRICATED FROM ROLLED, PRESSED AND FORGED STEEL SHAPES, PLATES, BARS, AND STRIP," ASTM A123 AND "STANDARD SPECIFICATION FOR ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE," ASTM A153.
11. ALL OTHER STRUCTURAL STEEL SHALL BE GIVEN ONE SHOP COAT OF PAINT OF NOT LESS THAN 3 MILS DRY FILM THICKNESS CONFORMING TO STEEL STRUCTURES PAINTING COUNCIL SSPC PAINT 2, SSPC PAINT 13 OR SSPC PAINT 14.

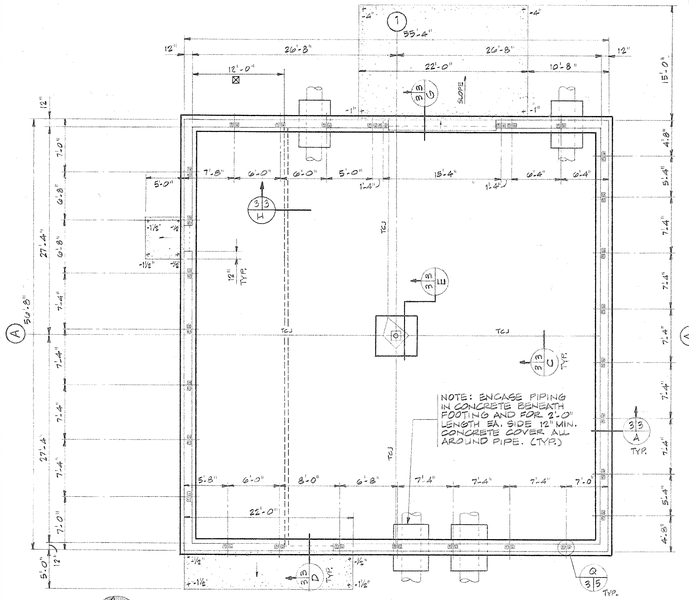
F. OPEN WEB STEEL JOISTS.
1. FABRICATE AND ERECT JOISTS IN ACCORDANCE WITH "STANDARD SPECIFICATIONS, LOAD TABLES AND WEIGHT TABLES FOR STEEL JOISTS AND JOIST GIRDERS," OF THE STEEL JOIST INSTITUTE, 1986 EDITION.
2. PROVIDE CEILING EXTENSIONS FOR JOISTS SUPPORTING CONTACT CEILINGS AND WHERE SHOWN ON DRAWINGS.
3. JOISTS SHALL HAVE MINIMUM BEARING ON SUPPORTS IN ACCORDANCE WITH THE SJI SPECIFICATIONS UNLESS OTHERWISE NOTED.
4. BRIDGING SHALL BE IN PLACE, ANCHORED AND REVIEWED BY THE ENGINEER PRIOR TO PLACING CORRUGATED STEEL FORMS OR DECKING.
5. ANCHOR BOLT LENGTHS SHOWN ON DRAWINGS SHALL INCLUDE A STANDARD HOOK. PROVIDE ONE NUT AND ONE WASHER WITH EACH ANCHOR BOLT UNLESS OTHERWISE NOTED.
6. JOISTS SHALL RECEIVE ONE SHOP COAT OF PAINT OF NOT LESS THAN 3 MILS DRY FILM THICKNESS CONFORMING TO STEEL STRUCTURES PAINTING COUNCIL SSPC PAINT 15, TYPE I (RED OXIDE) OR TYPE II (ASPHALT).

G. CORRUGATED STEEL FORMS.
1. USE 28 GAGE MINIMUM, GALVANIZED, CORRUGATED STEEL FORMS WITH NOMINAL 9/16" CORRUGATION DEPTH FOR STAY-IN-PLACE LEGO FLOOR FORMS.
2. FURNISH A MINIMUM OF 25 WELDING WASHERS PER 100 SQ. FT. OF FORMS AND ATTACH SHEETS BY PLUG WELDING THE SHEETS AS FOLLOWS:
   a. END LAPS - WELD IN VALLEY OF SIDE LAPS AND MIDDLE OF SHEET (MINIMUM OF THREE WELDS AT EACH END OF SHEET).
   b. INTERMEDIATE SUPPORTS - WELD THE VALLEY OF SIDE LAPS ON EVERY OTHER JOIST AND IN THE VALLEY OF THE CENTER CORRUGATION ON THE REMAINING JOISTS (X-PATTERN).
3. TO PREVENT THE LEAKAGE OF CONCRETE AT SIDE LAPS, PLACE CONCRETE IN THE OPPOSITE DIRECTION TO WHICH THE SHEETS WERE ERECTED SO THAT TOP SHEET RECEIVES WEIGHT OF CONCRETE FIRST.

H. STEEL ROOF DECK.
1. STEEL ROOF DECK SHALL BE DESIGNED AND MANUFACTURED IN ACCORDANCE WITH THE "SDI STEEL ROOF DECK SPECIFICATIONS" AND THE "SDI CODE OF RECOMMENDED STANDARD PRACTICE, ROOF DECK CONSTRUCTION," 1981-82, OF THE STEEL DECK INSTITUTE.
2. THE STEEL DECK SHALL BE 1 1/2 INCHES IN DEPTH, 22 GAGE, INTERMEDIATE RIB, AND SHALL BE ZINC COATED.
3. PROVIDE ALL RIDGE AND VALLEY PLATES, CANT STRIPS, SUMPS AND OTHER ACCESSORIES TO BE ATTACHED TO THE DECK FOR THE INSTALLATION OF INSULATION, ROOFING AND DRAINAGE.
4. SPOT PAINT ALL FIELD WELDS, FIELD CUT EDGES AND SERIOUS ABRASIONS TO THE SHOP COAT WITH ZINC CHROMATE PRIMER CONFORMING TO STEEL STRUCTURES PAINTING COUNCIL SSPC PAINT 11.
5. ANCHOR DECK TO STRUCTURAL SUPPORTS AT 12 INCHES O.C. MAXIMUM WITH 1/2 INCH DIAMETER PUDDLE WELDS OR 3/16" DIAMETER SELF-TAPPING SCREWS.

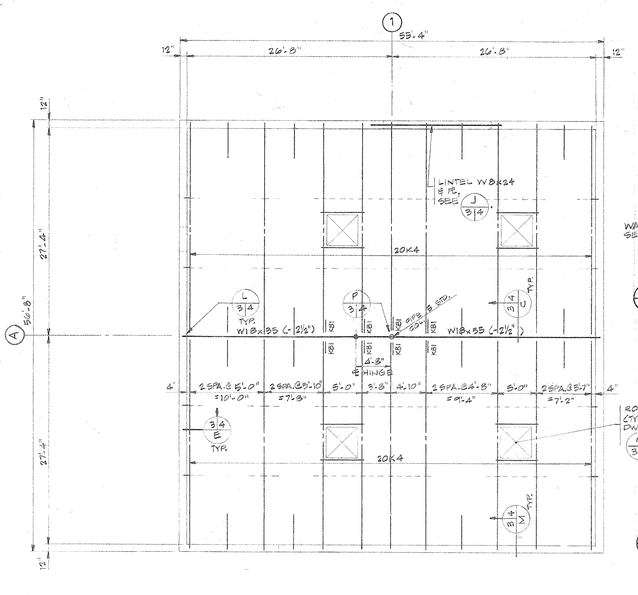
I. GROUT.
1. PROVIDE NON-SHRINK, NON-METALLIC, NON-STAINING, HIGH-STRENGTH GROUT UNDER ALL COLUMN BASE PLATES AND BEAM BEARING PLATES AND WHERE SHOWN ON DRAWINGS. USE "SONOGROUT" MANUFACTURED BY SONNEBORN BUILDING PRODUCTS DIVISION, "SUPREME GROUT" MANUFACTURED BY GIFFORD-HILL & CO., INC., "CONSTRUCTION GROUT" MANUFACTURED BY THE W.R. BONSAL COMPANY OR "FIVE STAR GROUT" MANUFACTURED BY U.S. GROUT CORPORATION, OR EQUIVALENT.

FOR CONTUATION SEE SHEET S-4.



N FOUNDATION PLAN - FINISHED PUMPING STATION 1/8"=1'-0"

NOTE:
1. TOP OF WALL FTG. ELEV. = 13.50 U.O.N. THUS: XX.XX .
2. TOP OF CONC. FTG. ELEV. = 8.88 U.O.N. THUS: (XX.XX).
3. SEE MECH. DWGS. FOR LOCATION OF MAS. WALLS NOT DIMENSIONED.
4. ALL SLABS SHALL BE 6" THICKNESS AND SHALL BE PLACED OVER VAPOR BARRIER AND 4" COMPACTED STONE AND REINFORCED W1.6XX6-W2.9 x W2.9 WWF U.O.N.
5. FIN. FLR. ELEV. = 15.50 U.O.N.
6. SEE ARCH. DWGS. FOR LOCATION AND DETAILS OF CONC. STEPS.
7. ALL WALL DIMENSIONS SHOWN ARE NOMIAL DIMENSIONS.



N ROOF FRAMING PLAN - FINISHED PUMPING STATION 1/8"=1'-0"

NOTE:
1. SEE "ROOF FRAMING PLAN - OPERATIONS BUILDING", SHEET S-4, FOR NOTES.
2. "REF. STEEL ELEV." = 14'-10⅞" A.F.F. U.O.N.
3. PROVIDE JOISTS ON COLUMN CENTERLINE w/ 2-½"ø ERECTION BOLTS EA.

NOTES:
1. * INDICATES ITEMS TO BE PROVIDED BY THE OWNER AND INSTALLED BY THE CONTRACTOR.
2. NIC INDICATES ITEMS NOT IN THIS CONTRACT.

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	REVISED SLAB REINFORCEMENT	2-5-90	JWM
☒	FLOOR SLAB THICKNESS	5-7-90	JWM
	RECORD DRAWING	1-11-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

Greiner
GREINER, INC.
Raleigh, North Carolina

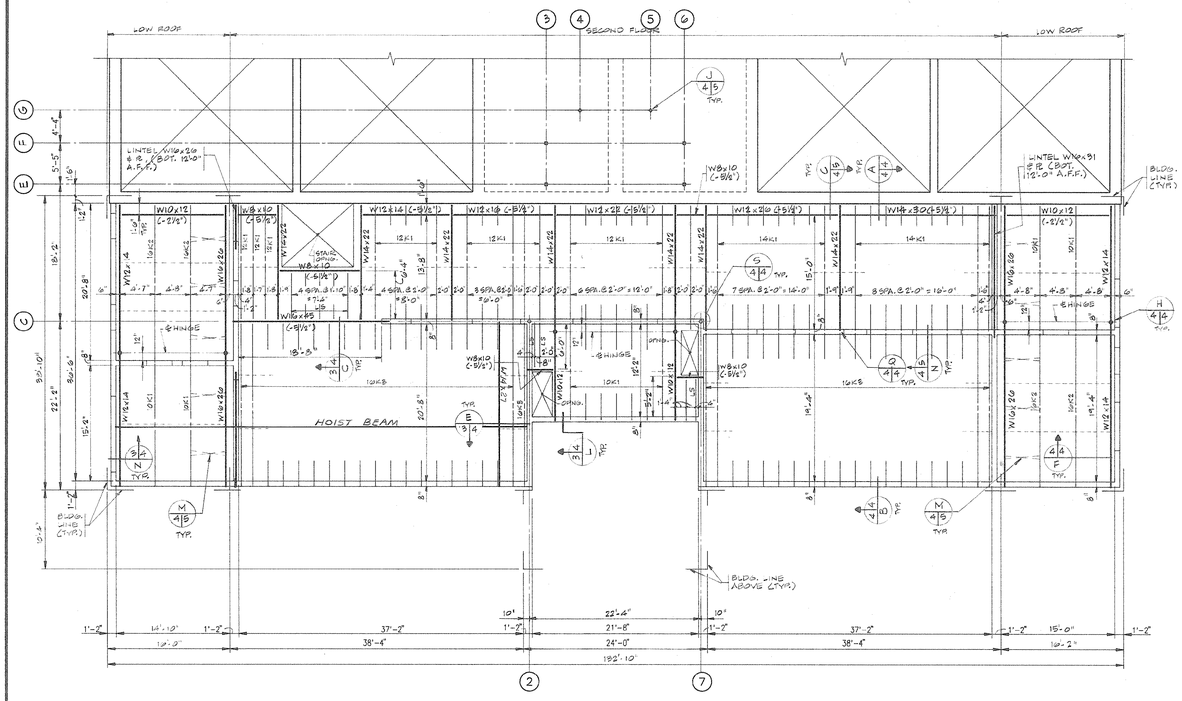
R0075.00

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

PILE PLAN — CLEARWELL
BULK CHEMICAL STORAGE
FINISHED PUMPING STATION

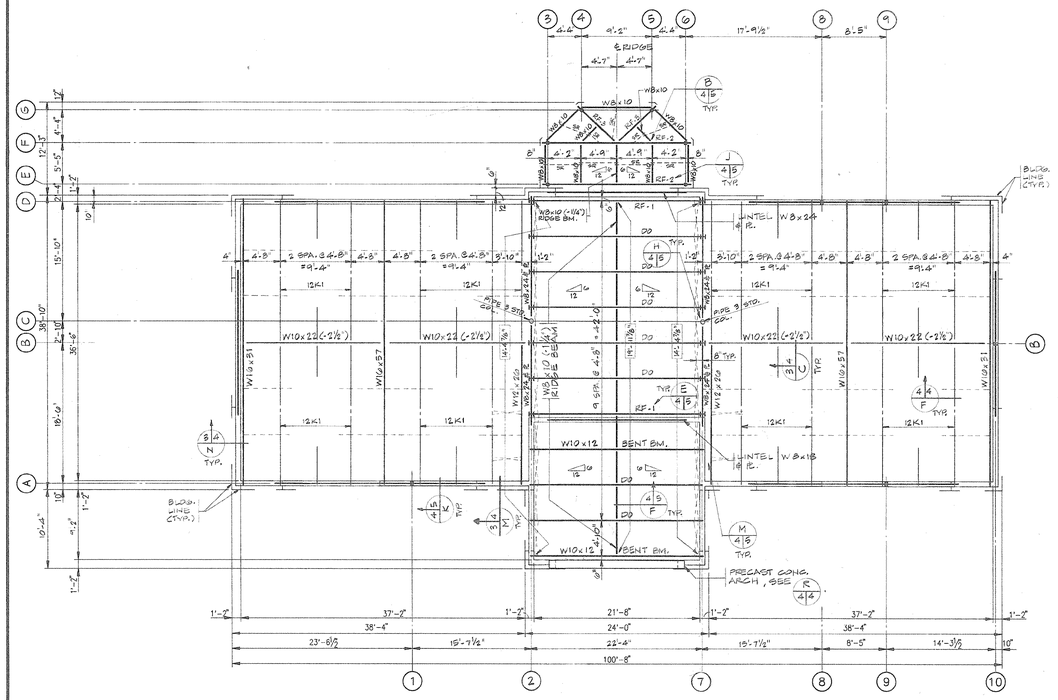
DATE: 12/27/89
DESIGNED: WPD
DRAWN: LAW
CHECKED: WPD
SCALE: AS NOTED
SHEET NO. S-3
OF:

33-01-18W



N SECOND FLOOR AND LOW ROOF FRAMING PLAN - OPERATIONS BLDG. 1/8"=1'-0"

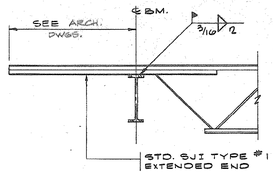
NOTES:
1. TOP OF STEEL = 8" BELOW FIN. FLR. U.O.N. THUS: (2'-X").
2. ----DENOTES LOCATION OF ROWS OF CONT. HORIZ. BRIDGING.
3. SEE MECH. DWGS. FOR LOCATION AND ELEVATION OF LINTELS.
4. (D) DENOTES BUILT-UP ANGLE SUPPORT AT FLOOR, SEE D 4/4
5. SEE MECH. DWGS. FOR EXTENT OF FLOOR FINISHES REQUIRING DEPRESSED FLOOR SLABS NOT SHOWN ON PLAN.
6. SHT'G AND BEARING WALLS ARE SHOWN. SEE MECH. DWGS. FOR LOCATION OF MAS. PARTITIONS NOT SHOWN.
7. SEE STL. ELEV'T AT LOW ROOF = 12'-0⅝" A.F.F. U.O.N. THUS: (2'-X").
8. — — DENOTES LOCATION OF ROWS OF CONT. CROSS BRIDGING.



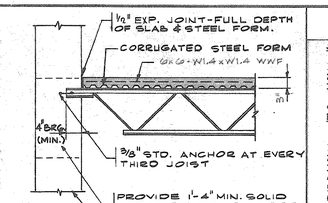
N ROOF FRAMING PLAN - OPERATIONS BLDG. 1/8"=1'-0"

NOTE:
1. (XX'-X") DENOTES TOP OF STEEL ELEV. ABOVE FIN. FLR. OR FIN. FLR. AT RESPECTIVE LOCATIONS BETWEEN ARROWS U.O.N. THUS: (2'-X").
2. ----DENOTES LOCATION OF ROWS OF CONT. HORIZ. BRIDGING.
3. — — — DENOTES LOCATION OF ROWS OF CONT. CROSS BRIDGING.
4. SEE MECH. DWGS. FOR LOCATION AND ELEVATION OF LINTELS.
5. SEE ARCH. AND MECH. DWGS. FOR LOCATION OF ROOF OPNGS.
6. 'REF. STL. ELEV.' = 12'-10⅜" ABOVE FIN. 2ND FLR., U.O.N. THUS: (2'-X").
7. 'RD' DENOTES RAG ROOD, SEE D 4/5.

NOTES:
1. * INDICATES ITEMS TO BE PROVIDED BY THE OWNER AND INSTALLED BY THE CONTRACTOR.
2. NIC INDICATES ITEMS NOT IN THIS CONTRACT.



A 4/4 TYP. JOIST EXTENDED END DETAIL — NO SCALE



B 4/4 TYP. FLOOR JOIST BEARING DETAIL — NO SCALE

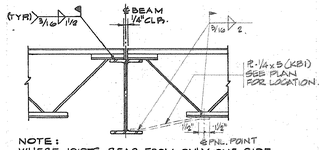
GENERAL NOTES CONTINUED

J. DESIGN LIVE LOADS.
STRUCTURAL MEMBERS ARE DESIGNED FOR FULL DEAD LOADS AND THE FOLLOWING LIVE LOADS:

1. ROOF	20 PSF
2. WIND	25 PSF
3. CORRIDORS, STAIRS, LOBBIES, ASSEMBLY AREAS AND PUBLIC SPACES	100 PSF
4. ALL OTHER FLOORS	100 PSF

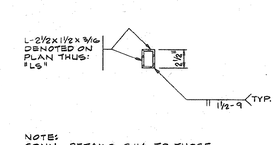
K. ABBREVIATIONS.
THE FOLLOWING LIST OF ABBREVIATIONS IS NOT INTENDED TO REPRESENT ALL THOSE USED ON THESE DRAWINGS, BUT TO SUPPLEMENT THE MORE COMMON ABBREVIATIONS USED:
1. TYP. - TYPICAL
2. SIM. - SIMILAR
3. UON - UNLESS OTHERWISE NOTED
4. CLR - CLEAR, CLEARANCE
5. TCJ - TYPICAL CONTROL JOINT, TYPICAL CONSTRUCTION JOINT
6. EJ - EXPANSION JOINT

L. CONSTRUCTION SAFETY.
THESE DRAWINGS DO NOT CONTAIN NECESSARY COMPONENTS FOR SAFETY DURING CONSTRUCTION.



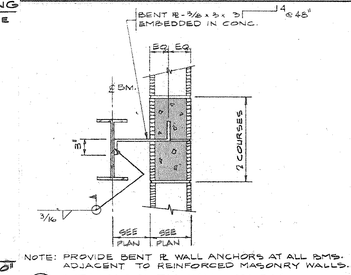
NOTE:
WHERE JOISTS BEAR FROM ONLY ONE SIDE OR ARE NOT OPPOSITE ONE ANOTHER, EXTEND FULL BEARING TO FULL WIDTH OF BEAM FLANGE, U.O.N.

C 3/4 TYP. JOIST TO BEAM CONN. @ KB1 — NO SCALE



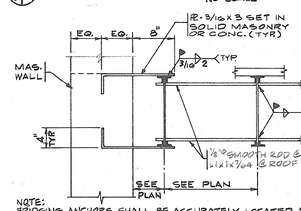
NOTE:
CONN. DETAILS SIM. TO THOSE FOR JOIST BEARINGS.

D 4/4 TYP. BUILT-UP ANGLE SUPPORT DETAIL — 1½"=1'-0"



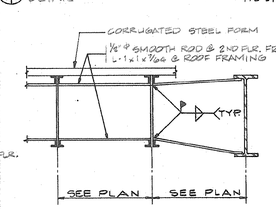
NOTE: PROVIDE BENT R. WALL ANCHORS AT ALL BMS. ADJACENT TO REINFORCED MASONRY WALLS.

N 3/4 TYP. MASONRY WALL TO BM. ANCHORAGE DETAIL — NO SCALE

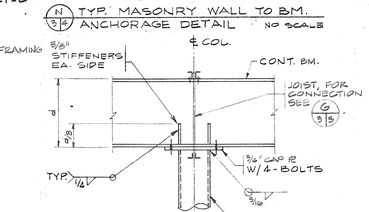


NOTE:
BRIDGING ANCHORS SHALL BE ACCURATELY LOCATED AND EMBEDDED IN WALLS DURING CONST. OF MAS. WORK.

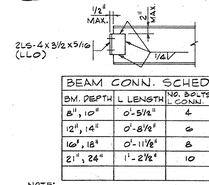
E 3/4 TYP. JOIST BRIDGING DETAIL — NO SCALE



F 4/4 TYP. HORIZONTAL BRIDGING DETAIL — NO SCALE

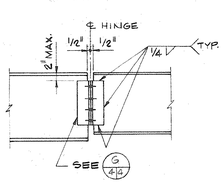


P 3/4 TYP. CONT. BEAM TO COL. CONN. — NO SCALE

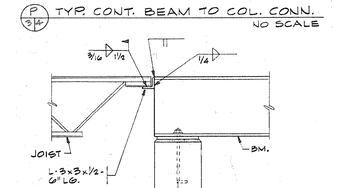


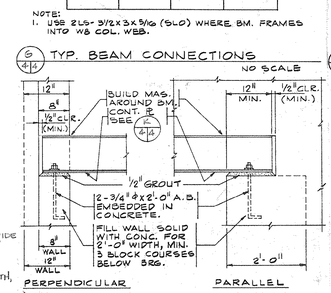
BEAM CONN. SCHEDULE			
BM. DEPTH	L LENGTH	NO. BOLTS L CONN.	NO. BOLTS R CONN.
8", 10"	0'-5½"	4	2
12", 14"	0'-8½"	6	3
16", 18"	0'-11½"	8	4
21", 24"	1'-2½"	10	5

NOTE:
1. USE 2LS-3½ x 3 x 5/16 (SLO) WHERE BM. FRAMES INTO W8 COL. WEB.



H 4/4 TYP. HINGE DETAIL AT BEAMS — NO SCALE

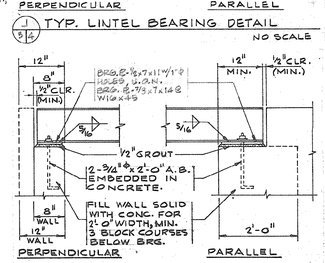




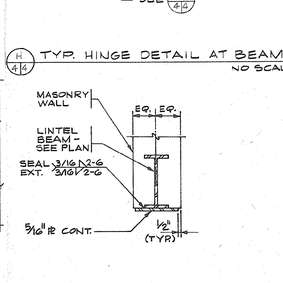
NOTE:
AT CONTINUOUS LINTELS, PROVIDE 2 ¾" DIA BY 2'-0" A.B. AT 0" MAXIMUM FROM EACH END OF WALL BEARING AND AT 6'-0" MAX O.C., FILL WALL SOLID WITH CONCRETE FOR 2'-0" WIDTH, MINIMUM 3 BLOCK COURSES BELOW BEARING.

G 4/4 TYP. BEAM CONNECTIONS — NO SCALE

J 2/4 TYP. LINTEL BEARING DETAIL — NO SCALE

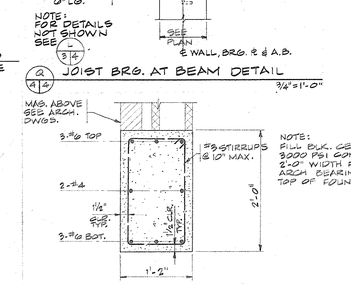


L 3/4 TYP. BEAM BEARING DETAILS AT WALLS — NO SCALE

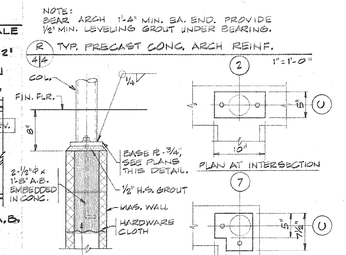


K 4/4 TYP. LINTEL DETAIL — NO SCALE

M 3/16 TYP. JOIST BRG. DETAIL — 3/4"=1'-0"



Q 4/4 JOIST BRG. AT BEAM DETAIL — 3/4"=1'-0"



NOTE:
BEAR. ARCH 1'-6" MIN. BA. END. PROVIDE ½" MIN. LEVELING GROUT UNDER BEARING.

R 4/4 TYP. PRECAST CONC. ARCH REINF. — 1"=1'-0"

S 4/4 COLUMN BRG. ON MASONRY WALL — 1"=1'-0"

LINTEL SCHEDULE						
OPENING	LINTEL	BEARING	OPENING	6" OR 8" WALL	10" OR 12" WALL	BEARING
0'-0" to 1'-6"	L2 - ⅜ x 3½	8"	2'-0" to 4'-0"	2-#5 / 2-#5	2-#5 / 2-#5	8"
1'-6" to 4'-0"	L1 - ⅜ x 3½ x 5/16	8"				
4'-0" to 6'-8"	L1 - 4 x 3½ x 5/16	8"	4'-0" to 5'-4"	2-#5 / 2-#5	2-#8 / 3-#4	8"
6'-8" to 8'-0"	L1 - 5 x 3½ x 5/16	8"				
			5'-4" to 8'-0"	2-#5 / 2-#6	2-#8 / 3-#5	16"

* PER 4" OF WALL THICKNESS.
NOTE:
ALL UNSCHEDULED OPENINGS INCLUDING OPENINGS FOR MECHANICAL WORK SHALL BE PROVIDED WITH LINTELS IN ACCORDANCE WITH THIS SCHEDULE.

REQUIRED LINTELS NOT OTHERWISE INDICATED ON THE DRAWINGS SHALL BE AS SHOWN IN THE ABOVE SCHEDULE.
CONCRETE MASONRY LINTELS SHALL BE FILLED WITH 3000 PSI CONCRETE.

REVISIONS		
DESCRIPTION	DATE	BY
RECORD DRAWINGS	1-10-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

Greiner
GREINER, INC.
Raleigh, North Carolina

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 10682 WILLIAM L. BIGGS 1/28/93

R0075.00

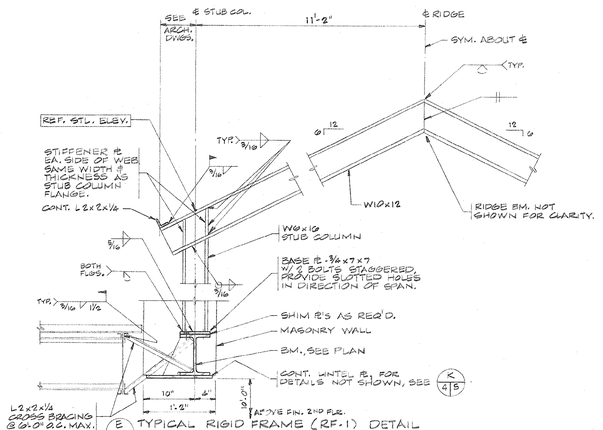
SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

OPERATIONS BUILDING STRUCTURAL PLANS

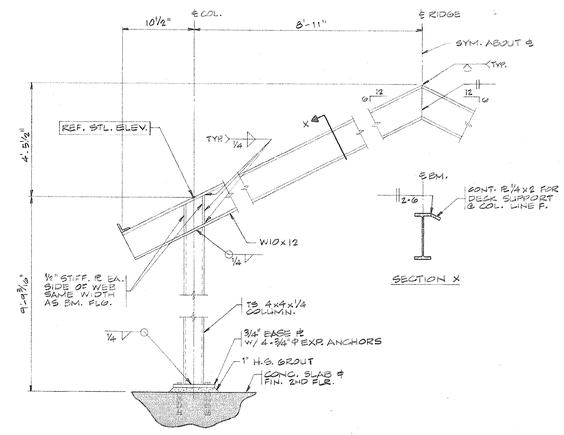
DATE: 12/27/89
DESIGNED: WPD
DRAWN: LMN
CHECKED: WPD
SCALE: AS NOTED
SHEET NO. S-4
OF: ____

33-01-19W

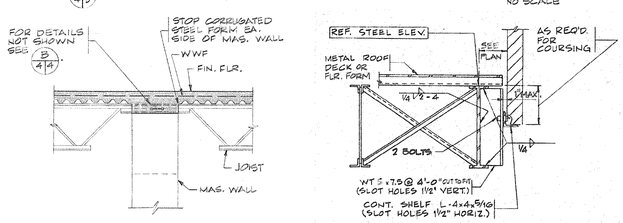
SOUTHERN PHOTO - GEORGWOOD 1121B



E 4/S TYPICAL RIGID FRAME (RF.1) DETAIL — NO SCALE

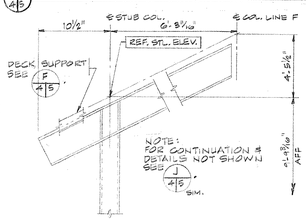


J 4/S TYPICAL RIGID FRAME (RF.2) DETAIL — NO SCALE

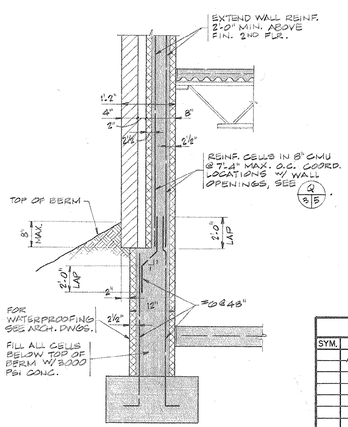


N 4/S TYP. DETAIL AT FLOOR OVER LOAD BRG. MAS. WALL — NO SCALE

M 4/S TYP. BRICK SUPPORT — NO SCALE

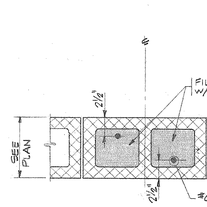


L 4/S TYP. RIGID FRAME (RF.3) DETAIL — NO SCALE



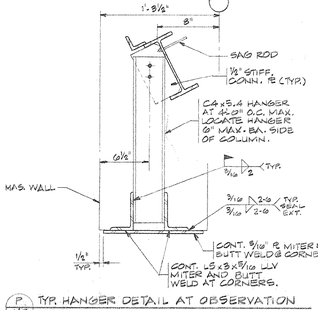
NOTE: FOR HORIZ. REINF. SEE ARCH. DWGS.

R 5/S TYP. MAS. WALL REINF. DETAIL AT EXT. WALL OPERATION BLDG. — NO SCALE

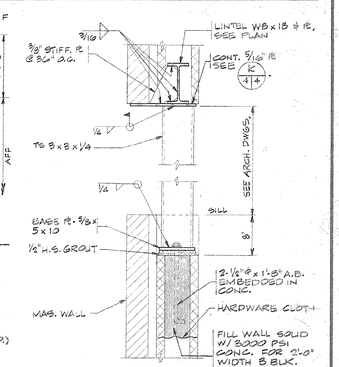


NOTE: DOWEL REINF. INTO CONC. WALL OR FTG. AT BASE, EXTEND REINF. TO BOND BM. AT TOP OF WALL AND TERMINATE WITH HOOK.

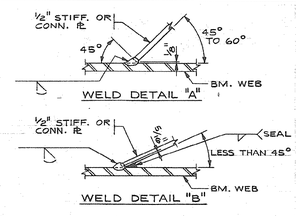
Q 3/S TYP. REINFORCED MAS. CELL — 1½"=1'-0"



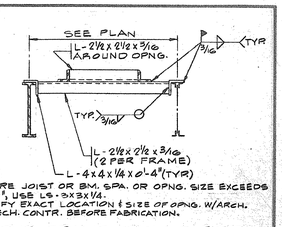
P 4/S TYP. HANGER DETAIL AT OBSERVATION ROOM — 1½"=1'-0"



K 4/S TYP. TUBE COLUMN DETAIL AT WINDOW — 1"=1'-0"

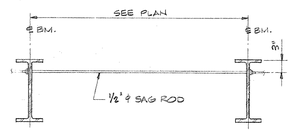


B 4/S TYP. SKEWED PLATE WELD DETAILS — NO SCALE

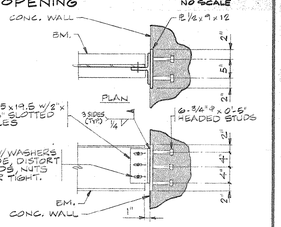


NOTE:
1. WHERE JOIST OR BM. SPA. OR OPNG. SIZE EXCEEDS 4'-0", USE L6 - 3½"x 3½"x ¼".
2. VERIFY EXACT LOCATION & SIZE OF OPNG. W/ ARCH. & MECH. CONTR. BEFORE FABRICATION.

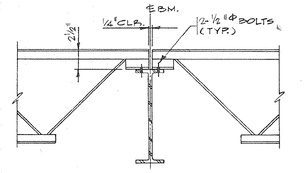
A 3/S TYP. FRAME AROUND ROOF OPENING — NO SCALE



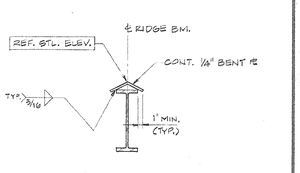
D 4/S TYP. SAG ROD DETAIL — NO SCALE



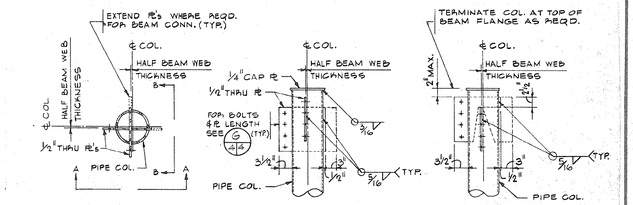
C 4/S TYP. BEAM TO CONCRETE WALL CONNECTION DETAIL — ¾"=1'-0"



G 3/S TYP. JOIST TO BEAM CONNECTION — NO SCALE



F 4/S TYP. DECK SUPPORT DETAIL AT RIDGE OR HIP BEAM — 1"=1'-0"



H 4/S TYPICAL BEAM TO PIPE COLUMN CONNECTION — ¾"=1'-0"

NOTES:
1. * INDICATES ITEMS TO BE PROVIDED BY THE OWNER AND INSTALLED BY THE CONTRACTOR.
2. NIC INDICATES ITEMS NOT IN THIS CONTRACT.

33-01-20w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-11-02	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

Greiner
GREINER, INC.
Raleigh, North Carolina

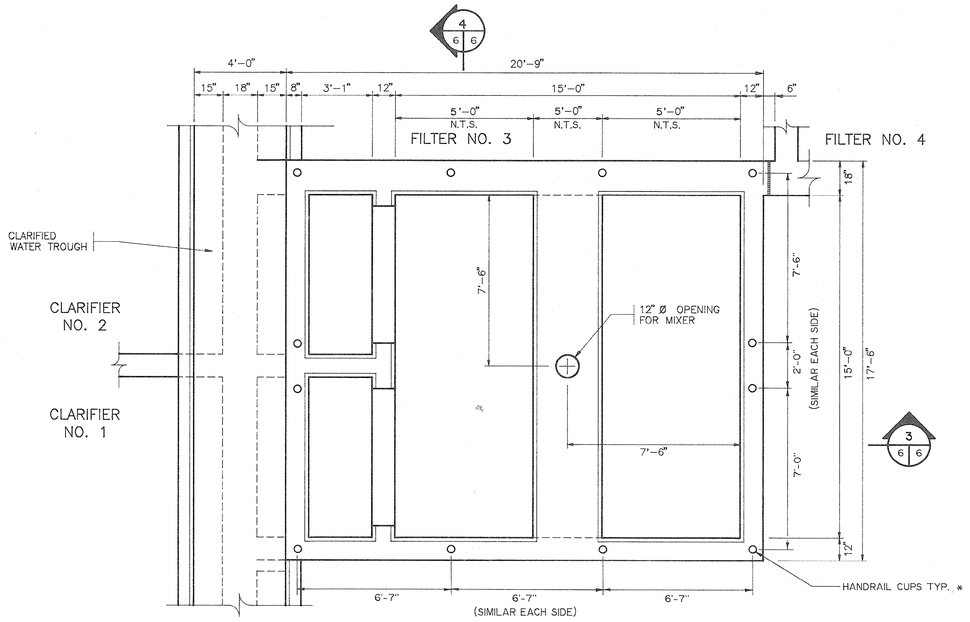
R0075.00

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

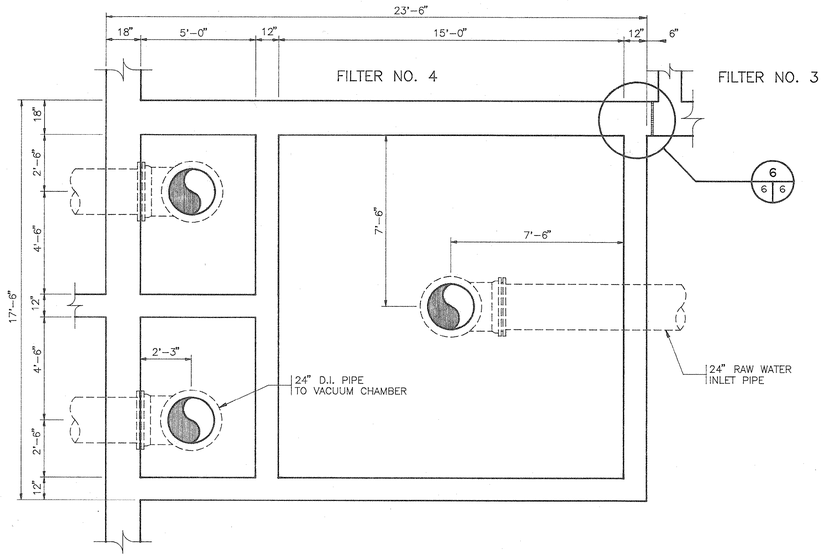
OPERATIONS BUILDING STRUCTURAL DETAILS

DATE:	12.27.01
DESIGNED:	WPD
DRAWN:	LAW
CHECKED:	WPD
SCALE:	AS SHOWN
SHEET NO.	S-5
OF:	

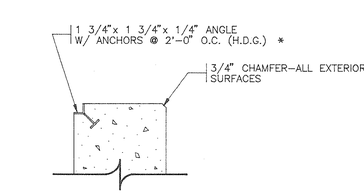
SOUTHERN PHOTO - GREENSBORO 767383



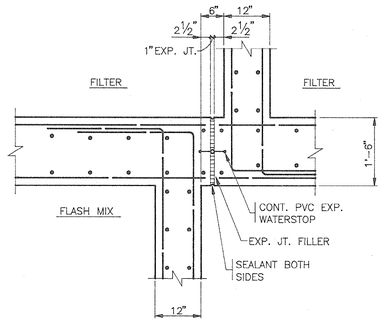
1 / 1 6 FLASH MIX NO. 1 UPPER PLAN VIEW
SCALE: 3/8" = 1'-0"



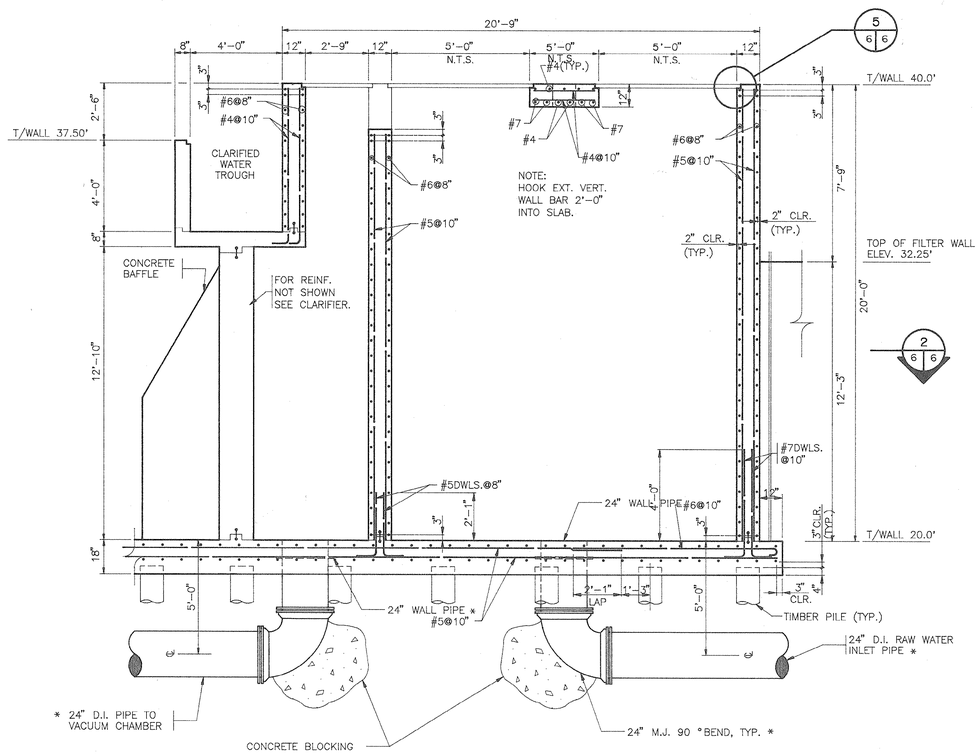
2 / 6 6 FLASH MIX NO. 1 LOWER PLAN VIEW
SCALE: 3/8" = 1'-0"



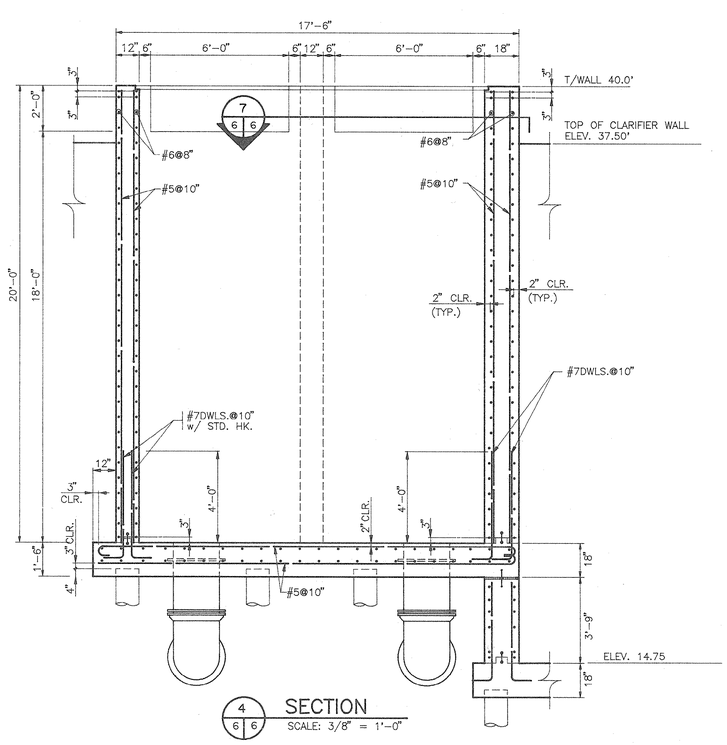
5 / 6 6 GRATE WALL CHANNEL
SCALE: 1" = 1'-0"



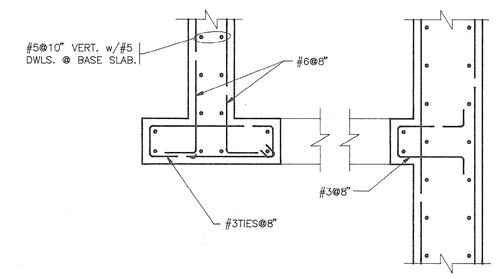
6 / 6 6 SECTION
SCALE: 1" = 1'-0"



3 / 6 6 SECTION
SCALE: 3/8" = 1'-0"



4 / 6 6 SECTION
SCALE: 3/8" = 1'-0"



7 / 6 6 SECTION
SCALE: 1" = 1'-0"

NOTES:
1. * INDICATES ITEMS TO BE PROVIDED BY THE OWNER AND INSTALLED BY THE CONTRACTOR.
2. NIC INDICATES ITEMS NOT IN THIS CONTRACT.

33-01-21w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWINGS	1/10/92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12427 DAVID T. UPCHURCH 12-1-89

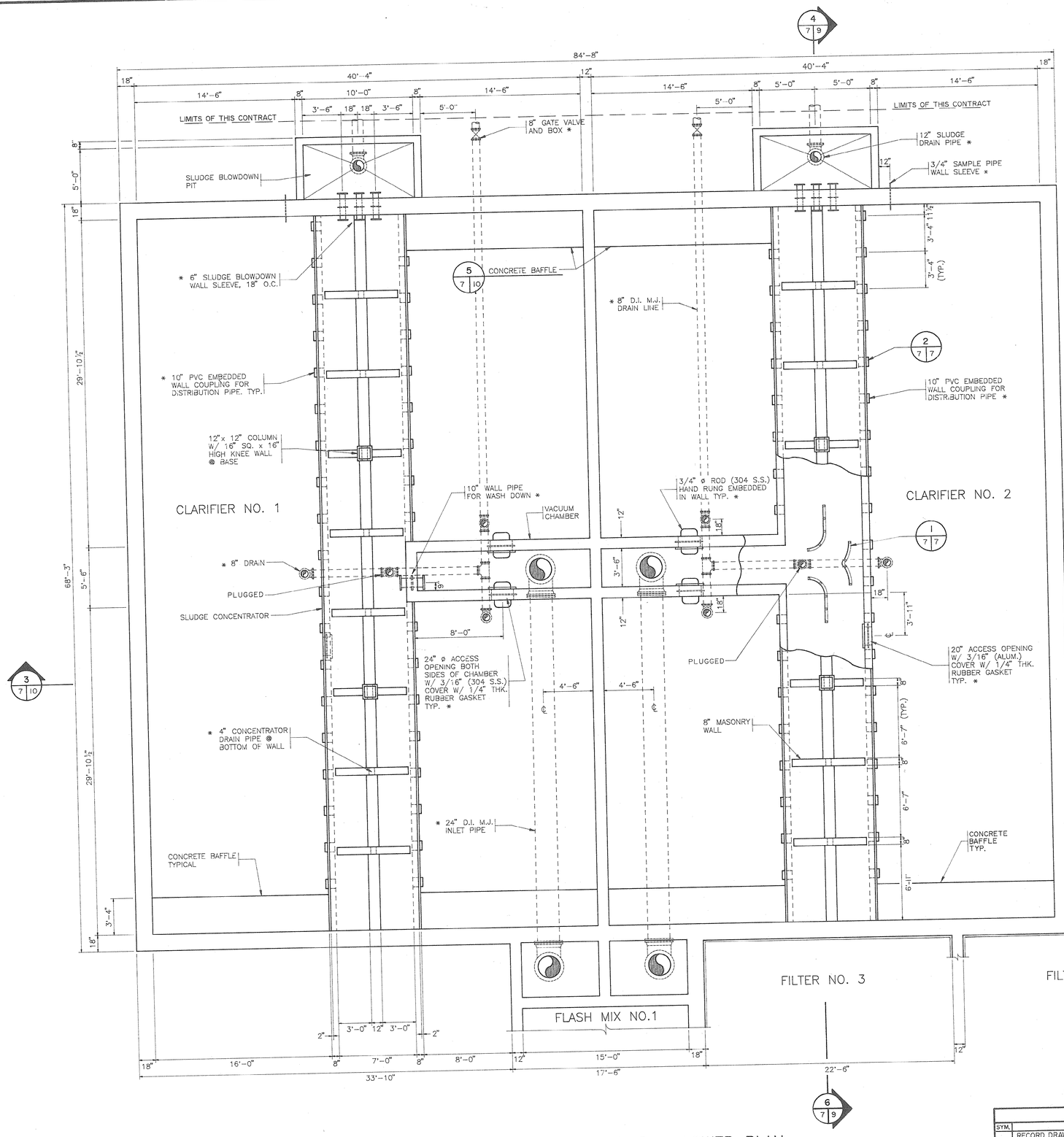
SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12535 JOSEPH W. McGUIGAN 12-1-89

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

FLASH MIX PLAN AND SECTIONS

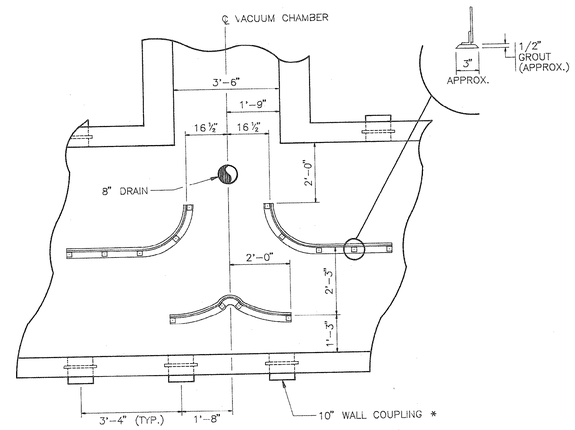
DATE: NOV., 1989
DESIGNED: JWM
DRAWN: EEW
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. S-6
OF: _____

COLEMAN PHOTO - GREENSBORO N.C.

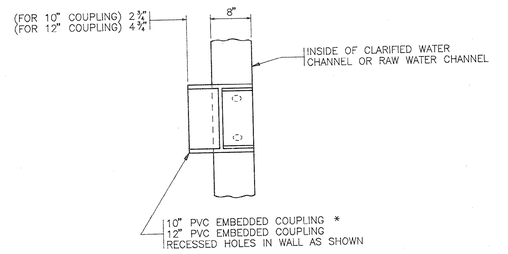


2 1 7 CLARIFIERS NO. 1 & 2 – LOWER PLAN
SCALE: 1/4" = 1'-0"

NOTE: BOLT BAFFLES TO TOP OF CHANNEL FIRST. GROUT UNDER BAFFLES ON BOTTOM ALONG FULL LENGTH OF EACH BAFFLE.



1 7 7 DISTRIBUTION CHANNEL BAFFLE *
NTS



2 7 7 COLLECTOR & DISTRIBUTOR WALL COUPLING
NTS

NOTES:
1. * INDICATES ITEMS TO BE PROVIDED BY THE OWNER AND INSTALLED BY THE CONTRACTOR.
2. NIC INDICATES ITEMS NOT IN THIS CONTRACT.

33-01-22w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-11-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

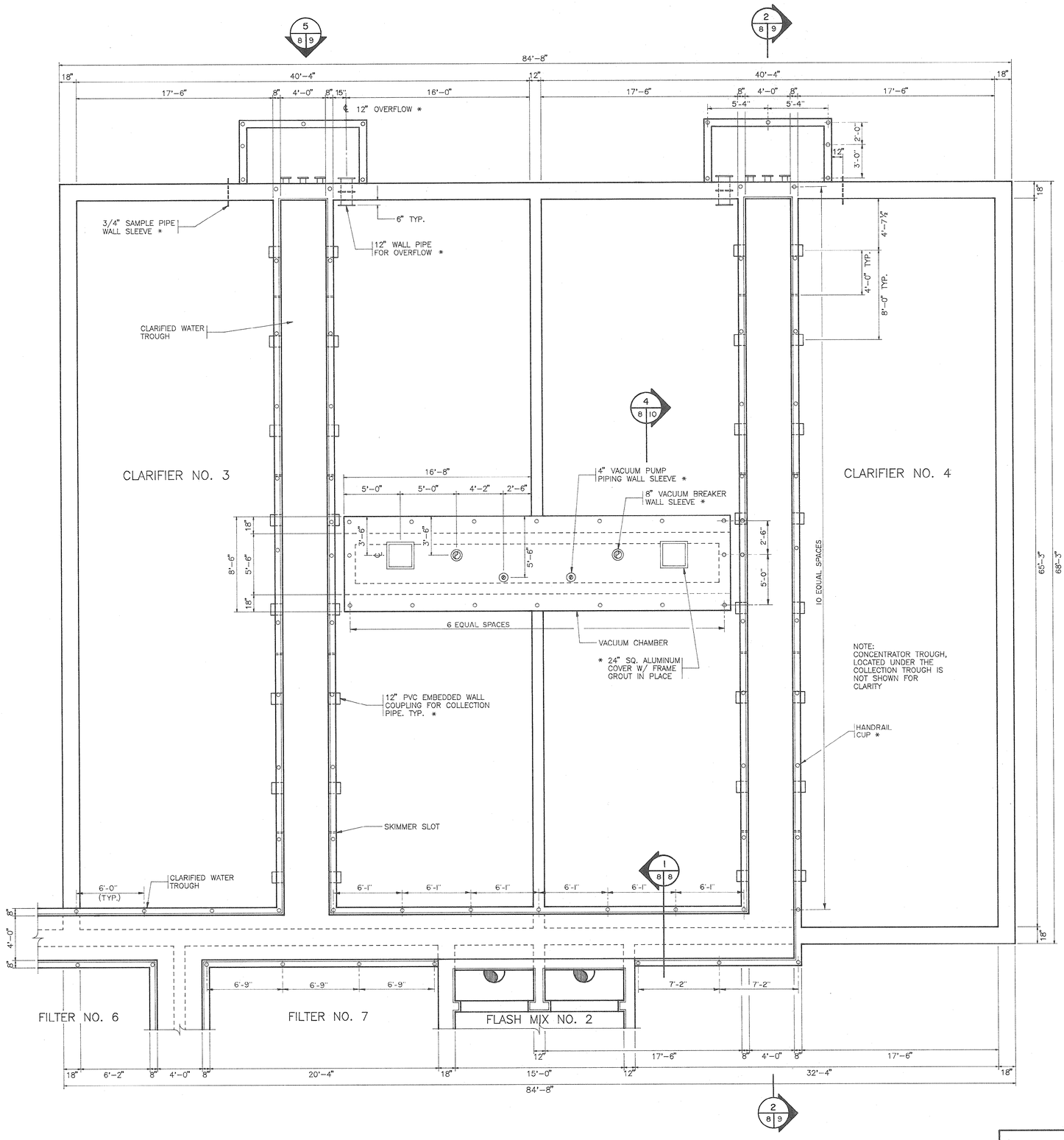
SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12227 DAVID T. UPCHURCH 12-1-89

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12335 JOSEPH W. McDOUGAL 12-1-89

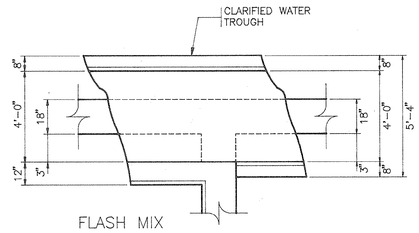
SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

CLARIFIERS NO. 1 & 2 LOWER PLAN

DATE:	NOV. 1989
DESIGNED:	JWM
DRAWN:	EEW
CHECKED:	DTU
SCALE:	AS SHOWN
SHEET NO.	S-7
OF:	

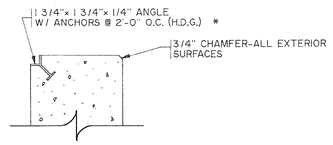


3/8/8 CLARIFIERS NO. 3 & 4 – UPPER PLAN
SCALE: 1/4" = 1'-0"

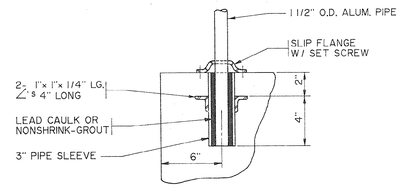


FLASH MIX NO. 2

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



GRATE WALL CHANNEL DETAIL
SCALE : 1"= 1'-0".



HANDRAIL CUP DETAIL *
N.T.S.

NOTES:
1. * INDICATES ITEMS TO BE PROVIDED BY THE OWNER AND INSTALLED BY THE CONTRACTOR.
2. NIC INDICATES ITEMS NOT IN THIS CONTRACT.

33-01-23w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-11-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 11254 JOHN T. UPCHURCH 12-1-89

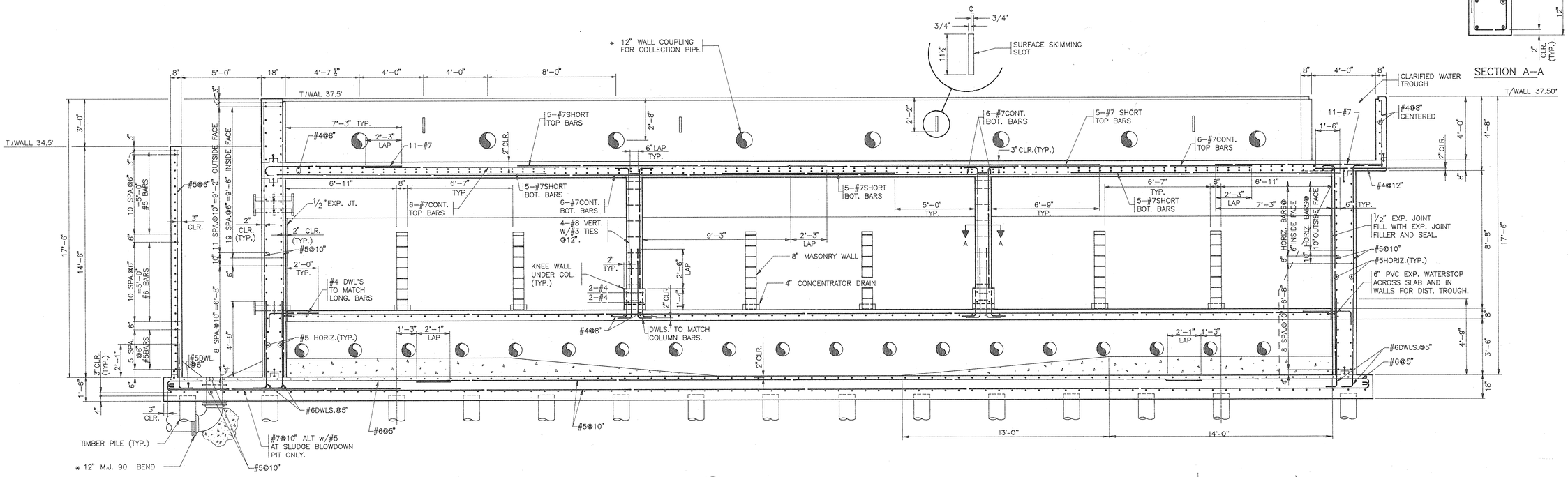
SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 22435 JOHN W. McGOUGAN 12-1-89

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

CLARIFIERS NO. 3 & 4 UPPER PLAN

DATE: NOV.,1989
DESIGNED: JWM
DRAWN: EEW
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. S-8
OF: _____

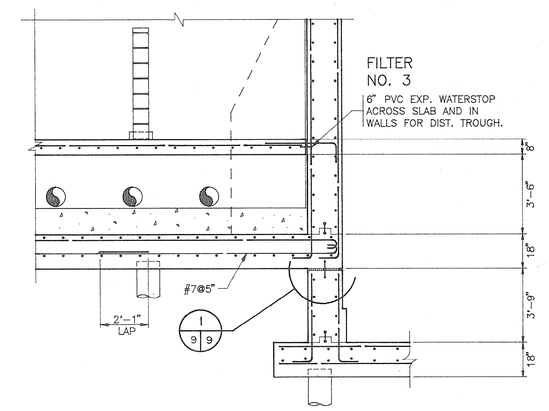
SOUTHERN PHOTO - GEORGETOWN 757-1748



2/8|9 SECTION
SCALE: 3/8" = 1'-0"

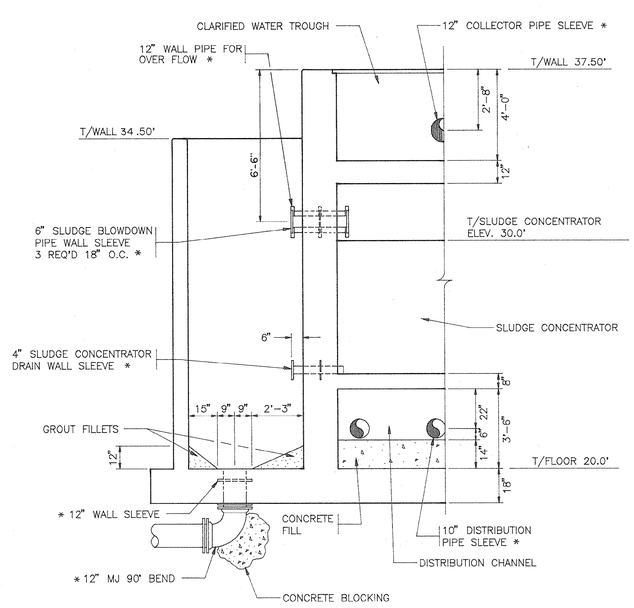


SECTION A-A

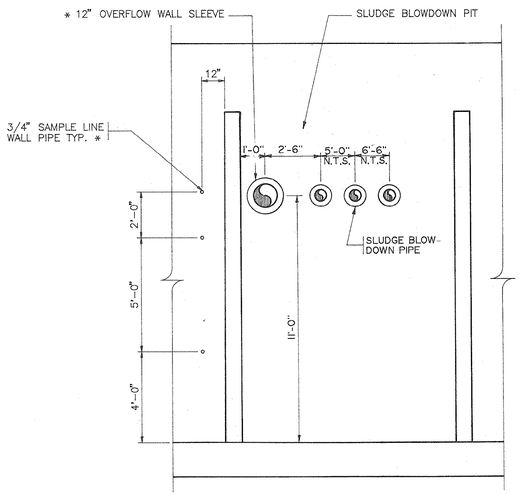


1|9|9 TYP. HORIZ. EXP. JT. AT FILTER WALL
NO SCALE

6|7|9 SECTION
SCALE: 3/8" = 1'-0"



4|7|9 SECTION
SCALE: 3/8" = 1'-0"



5|8|9 SAMPLE LINE LOCATION
3/8" = 1'-0"

NOTES:
1. * INDICATES ITEMS TO BE PROVIDED BY THE OWNER AND INSTALLED BY THE CONTRACTOR.
2. NIC INDICATES ITEMS NOT IN THIS CONTRACT.

33-01-24w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWINGS	1/10/92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12227 DAVID T. UPCHURCH 12-1-89

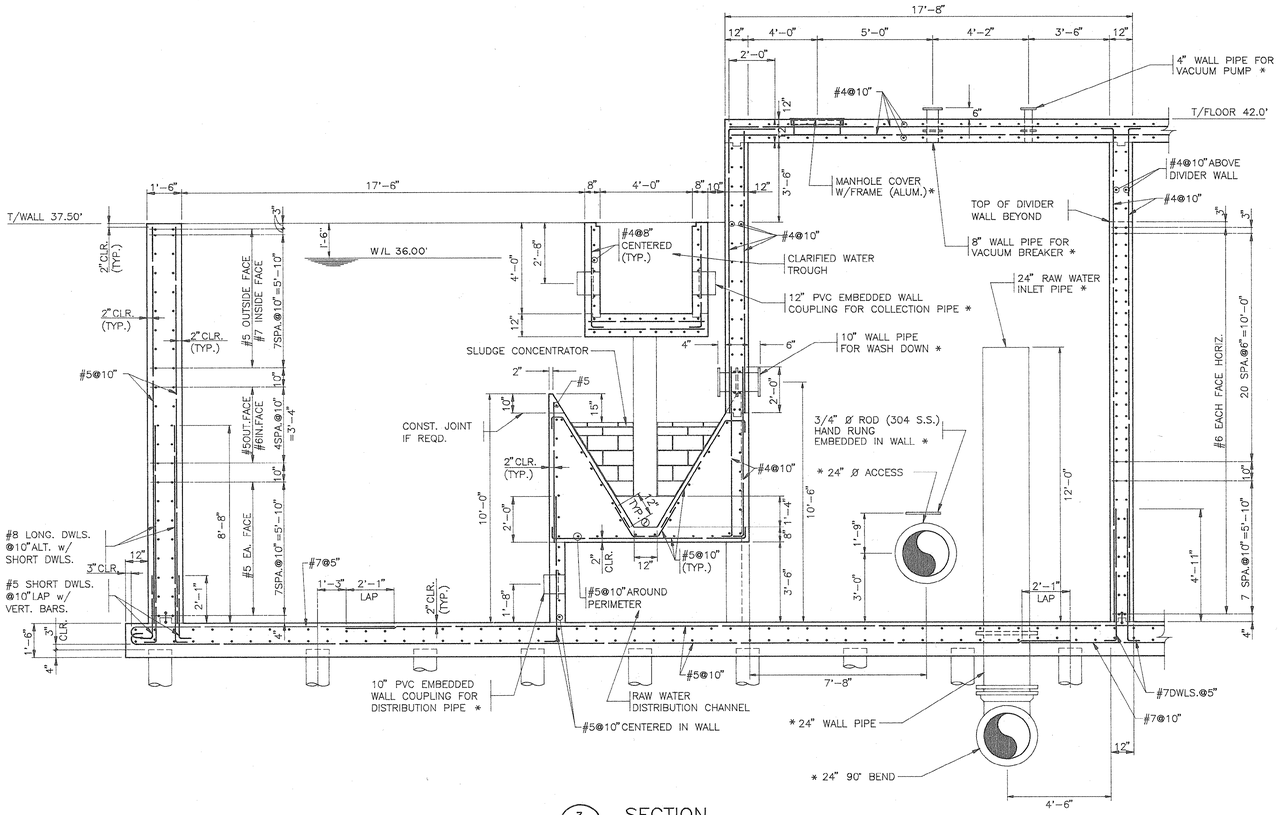
SOUTH CAROLINA REGISTERED LANDSCAPE ARCHITECT No. 1033 JAMES W. McGOUGHN 12-1-89

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

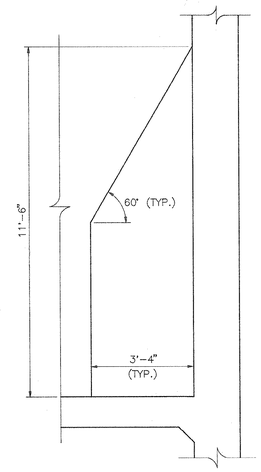
CLARIFIER SECTIONS

DATE: NOV., 1989
DESIGNED: JWM
DRAWN: DC
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. S-9
OF: _____

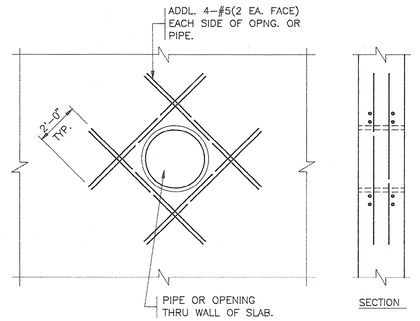
SOUTHERN PHOTO - DIESTADIO 162144



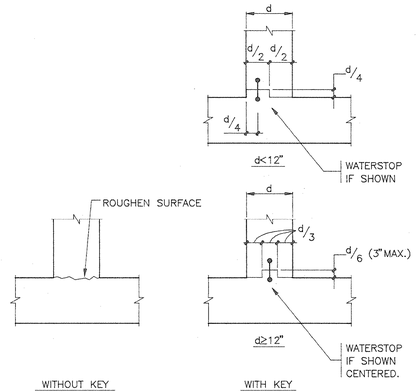
3 / 7 | 10 SECTION
SCALE: 3/8" = 1'-0"



5 / 7 | 10 CONCRETE BAFFLE
SCALE: 1/2" = 1'-0"

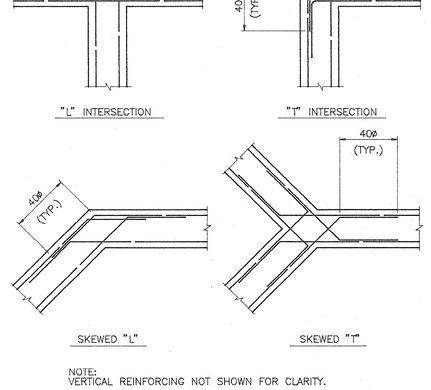


TYP. REINF. AT PIPE & OPENING
NO SCALE



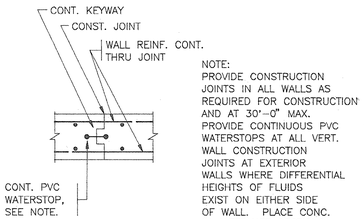
NOTE: ALL WATERSTOPS 6" PVC "DUMBBELL" TYPE UNLESS OTHERWISE NOTED.

STANDARD KEYWAY DETAILS
NO SCALE



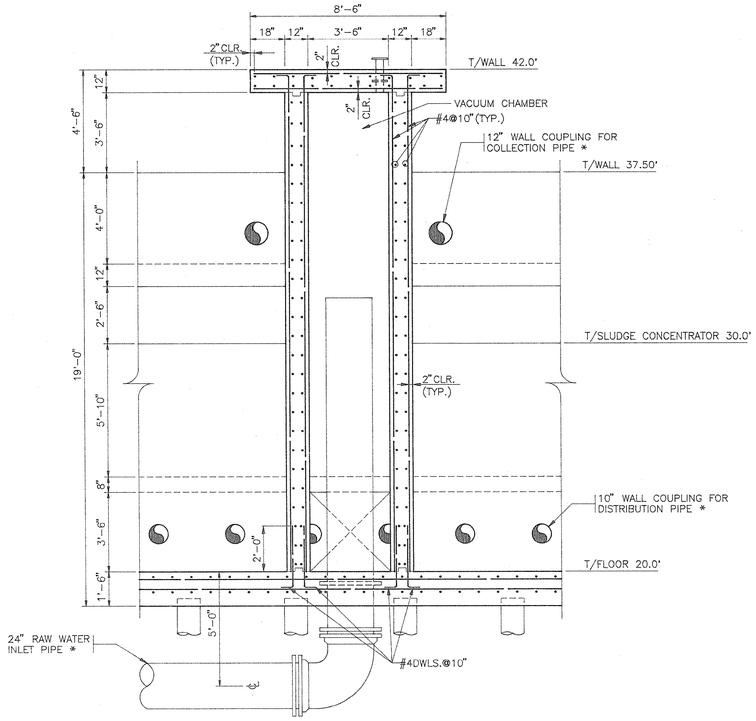
NOTE:
VERTICAL REINFORCING NOT SHOWN FOR CLARITY.

TYP. WALL INTERSECTION REINF. DETAIL
NO SCALE



NOTE:
PROVIDE CONSTRUCTION JOINTS IN ALL WALLS AS REQUIRED FOR CONSTRUCTION AND AT 30'-0" MAX. PROVIDE CONTINUOUS PVC WATERSTOPS AT ALL VERT. WALL CONSTRUCTION JOINTS AT EXTERIOR WALLS WHERE DIFFERENTIAL HEIGHTS OF FLUIDS EXIST ON EITHER SIDE OF WALL. PLACE CONC. IN ALTERNATE SECTIONS.

TYP. WALL OR SLAB CONSTR. JT. DETAIL
NO SCALE



4 / 8 | 10 SECTION
SCALE: 3/8" = 1'-0"

NOTES:
1. * INDICATES ITEMS TO BE PROVIDED BY THE OWNER AND INSTALLED BY THE CONTRACTOR.
2. NIC INDICATES ITEMS NOT IN THIS CONTRACT.

33-01-25w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-11-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

REGISTERED PROFESSIONAL ENGINEER SOUTH CAROLINA No. 10027 DAVID T. UPCHURCH 12-1-89

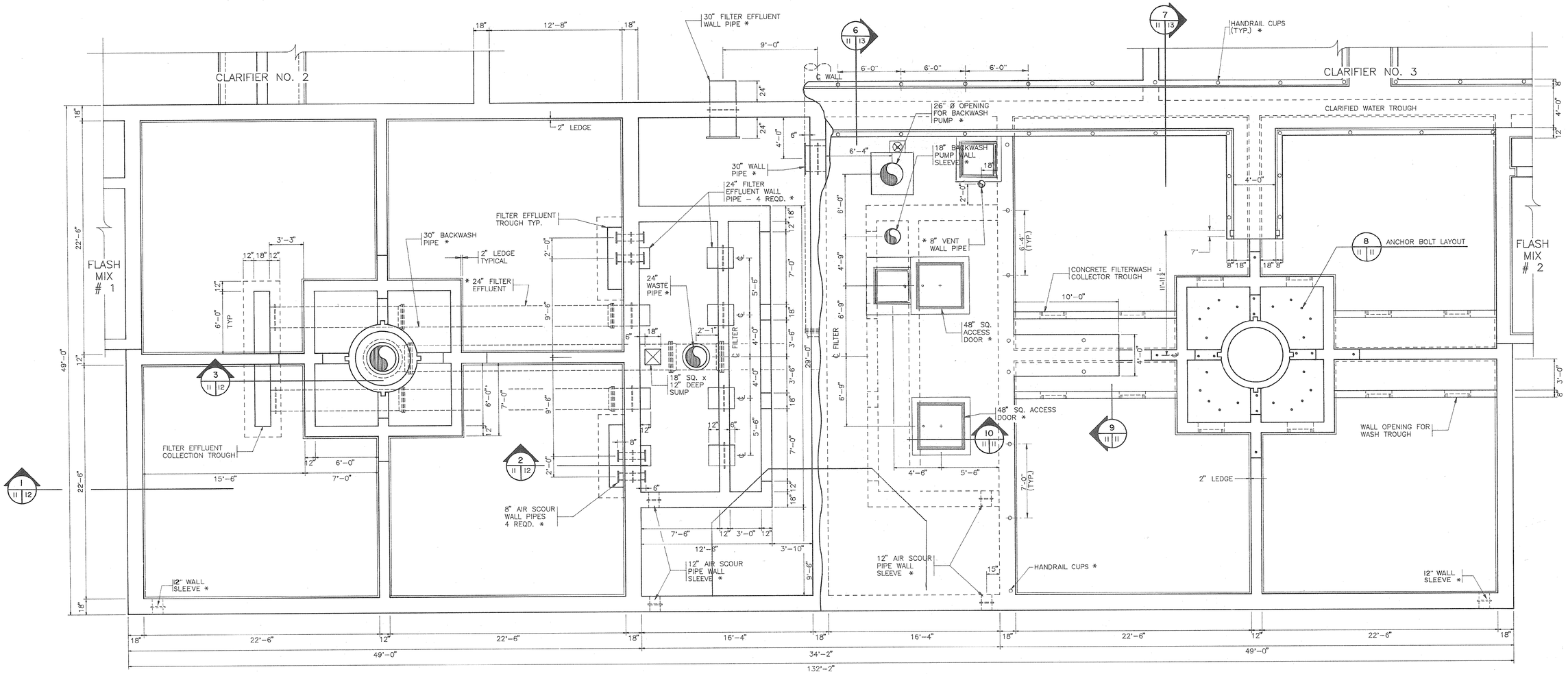
REGISTERED PROFESSIONAL ENGINEER SOUTH CAROLINA No. 12335 JOSEPH W. McDOUGALD III 12-1-89

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

CLARIFIER SECTIONS

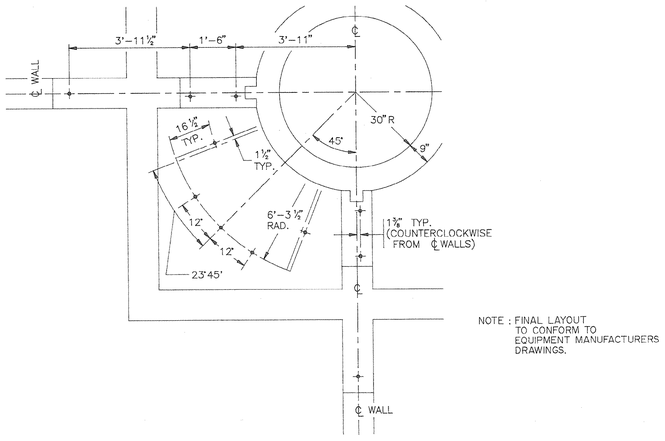
DATE: NOV., 1989
DESIGNED: JWM
DRAWN: DC
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. S-10
OF: _____

SOUTHERN PHOTO - CEDRONDO 10/1749



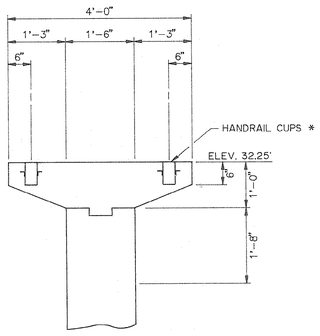
4 II II FILTERS NO. 1–4 LOWER PLAN
SCALE: 1/4" = 1'-0"

5 I II FILTERS NO. 5–8 UPPER PLAN
SCALE: 1/4" = 1'-0"

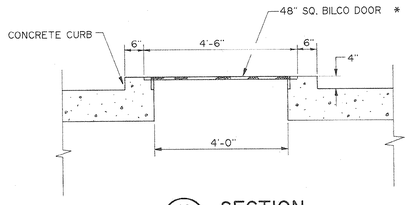


NOTE : FINAL LAYOUT TO CONFORM TO EQUIPMENT MANUFACTURERS DRAWINGS.

8 II II ANCHOR BOLT LAYOUT *
SCALE: 1/2" = 1'-0"



9 II II WALKWAY SECTION
NTS



10 II II SECTION
N.T.S.

NOTES:
1. * INDICATES ITEMS TO BE PROVIDED BY THE OWNER AND INSTALLED BY THE CONTRACTOR.
2. NIC INDICATES ITEMS NOT IN THIS CONTRACT.

33-01-26-w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-11-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12427 DAVID T. UPCHURCH 12-1-89

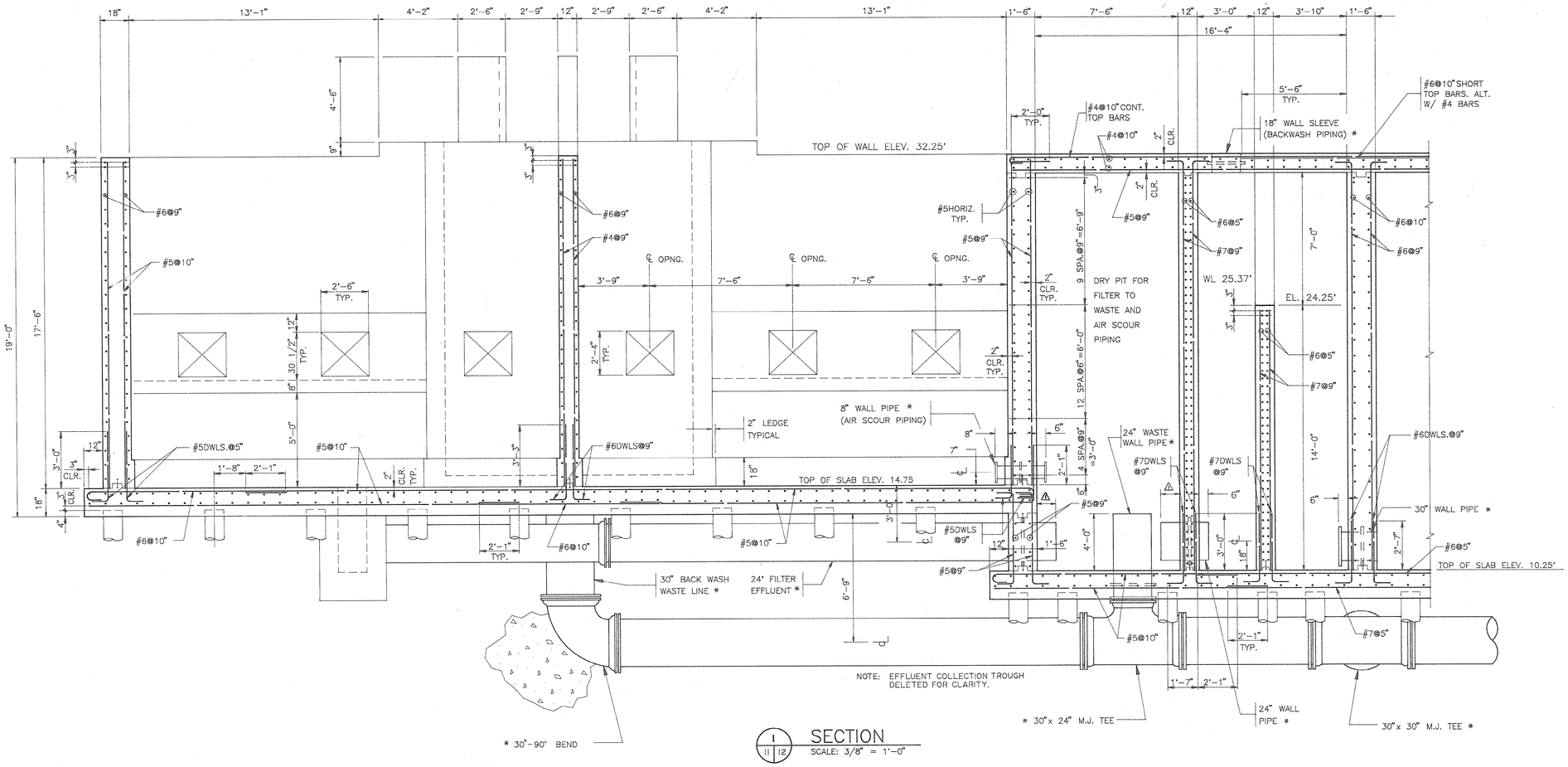
SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 15336 JAMES W. McGOUGIN 12-1-89

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

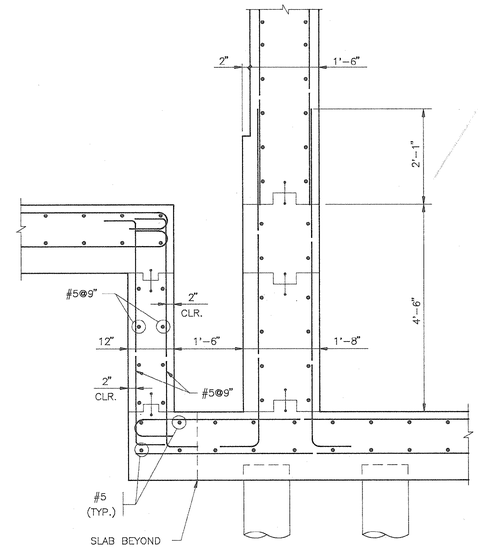
FILTER PLAN

DATE: NOV.1989
DESIGNED: JWM
DRAWN: DC
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. S-11
OF: ____

SOUTHERN PHOTO - GREENSBORO 747141

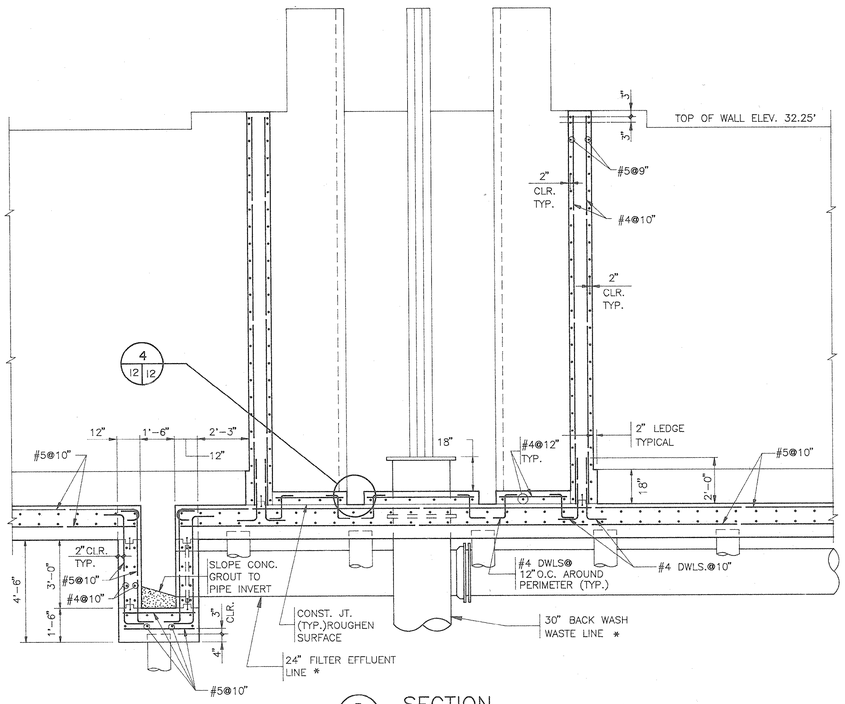


1 | 11 | 12 SECTION
SCALE: 3/8" = 1'-0"

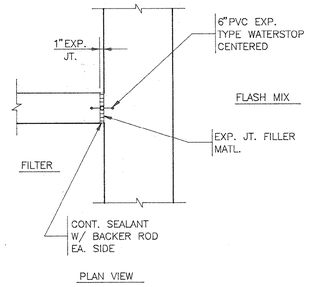


2 | 11 | 12 TYP. SECTION AT FILTER EFFLUENT COLLECTION TROUGH
SCALE: 3/4" = 1'-0"

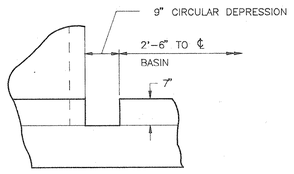
⚠ SEE SHOP DRAWINGS FOR DETAILED DIMENSIONS



3 | 11 | 12 SECTION
SCALE: 3/8" = 1'-0"



EXP. JT. DETAIL AT FILTER WASH TROUGH TO FLASH MIX
SCALE: 3/4" = 1'-0"



4 | 12 | 12 DETAIL
SCALE: 3/4" = 1'-0"

NOTES:
1. * INDICATES ITEMS TO BE PROVIDED BY THE OWNER AND INSTALLED BY THE CONTRACTOR.
2. NIC INDICATES ITEMS NOT IN THIS CONTRACT.

33-01-27w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
1 ⚠	RECORD DRAWINGS	1/10/92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

REGISTERED PROFESSIONAL ENGINEER SOUTH CAROLINA No. 12227 DAVID T. UPCHURCH 12-1-89

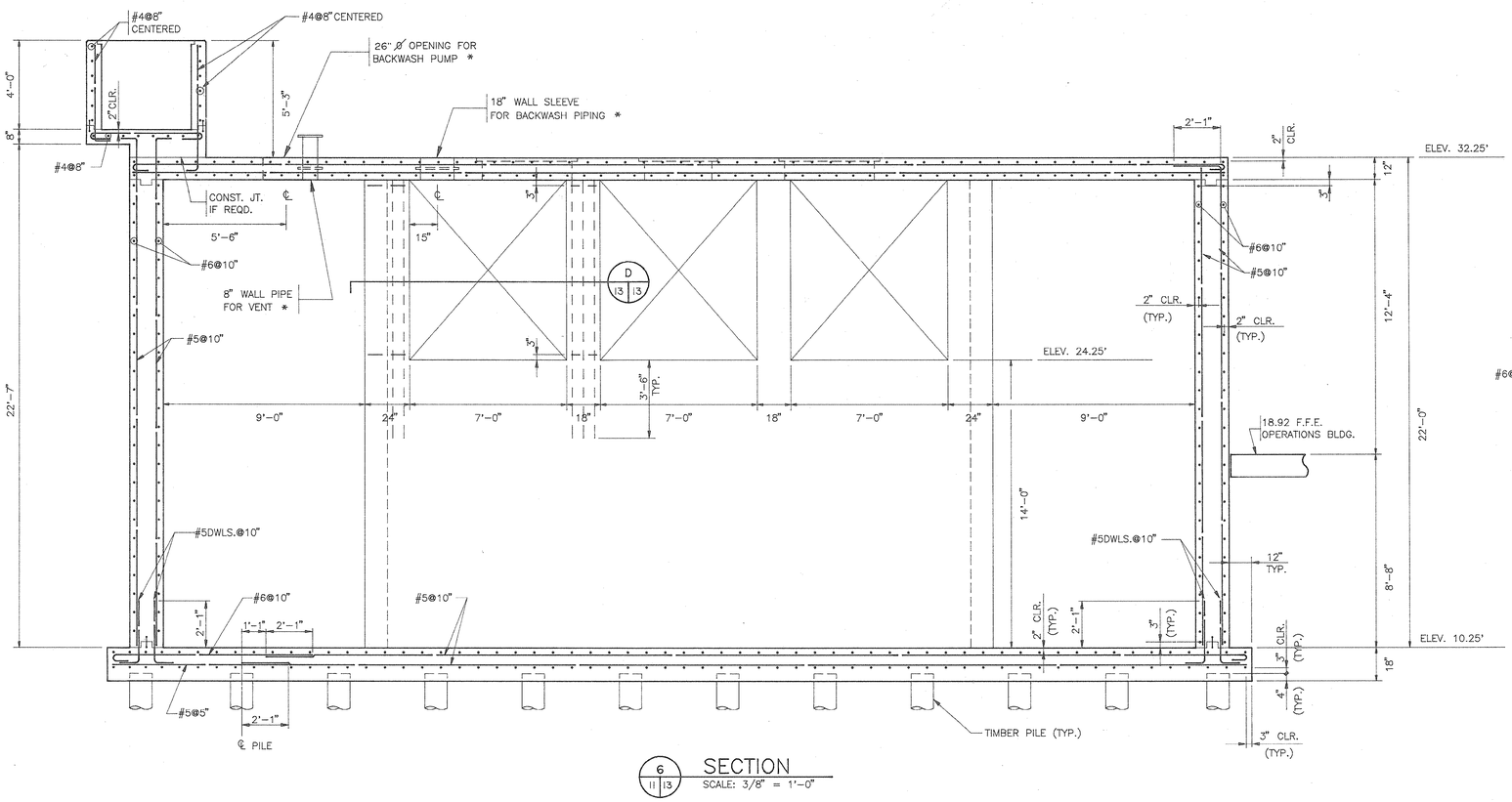
REGISTERED PROFESSIONAL ENGINEER SOUTH CAROLINA No. 12339 JOSEPH W. McGOUGAN 12-1-89

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

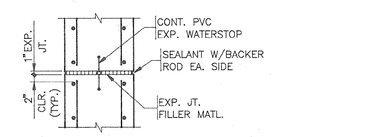
FILTER SECTIONS

DATE: NOV., 1989
DESIGNED: JWM
DRAWN: DC
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. S-12
OF: _____

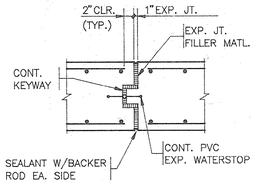
SOUTHERN PHOTO - GREENSBORO N27849



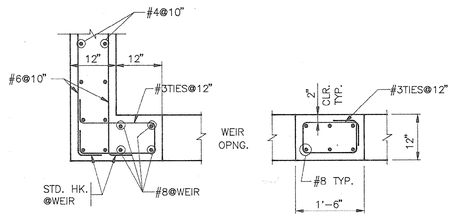
6 / 11 13 SECTION
SCALE: 3/8" = 1'-0"



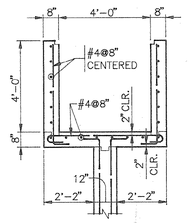
A / 13 13 HORIZ. EXP. JT. FILTER WALL
SCALE: 3/4" = 1'-0"



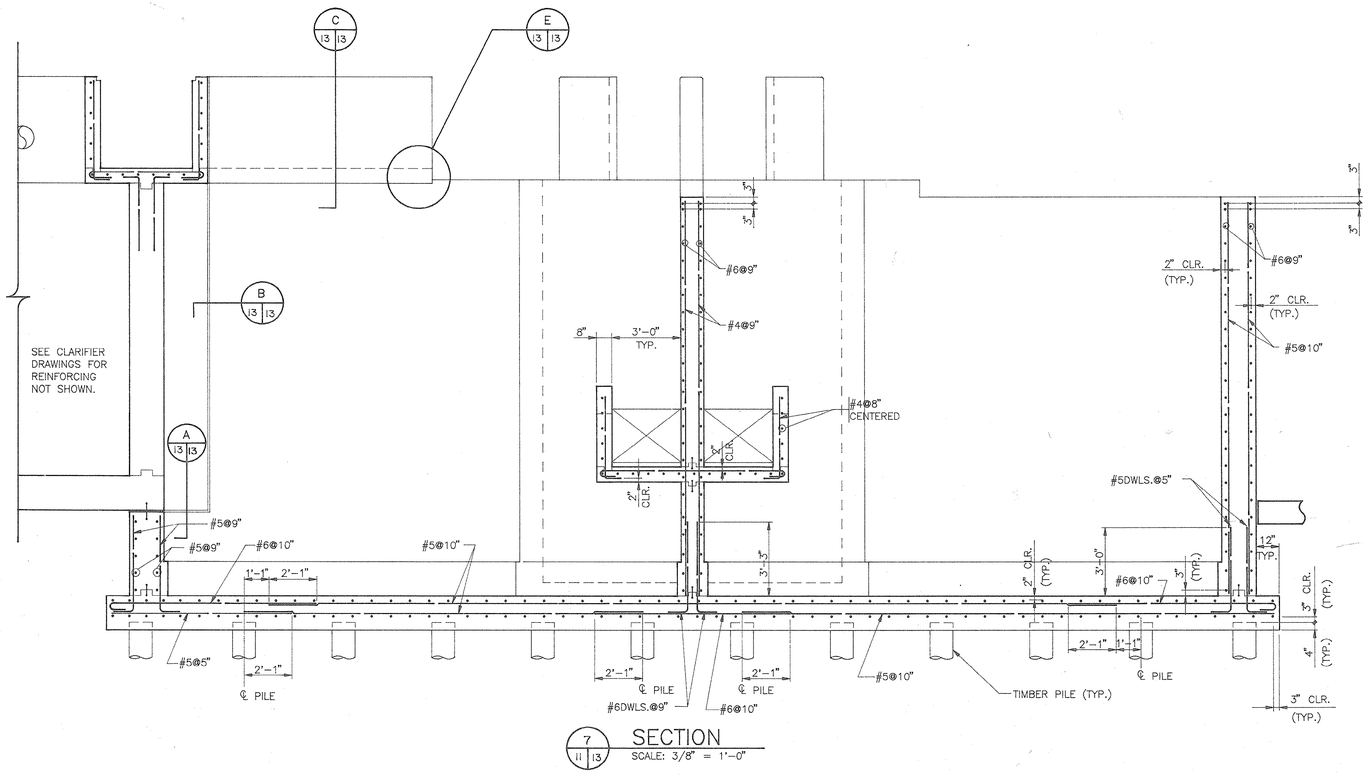
B / 13 13 VERT. EXP. JT. FILTER WALL
SCALE: 3/4" = 1'-0"



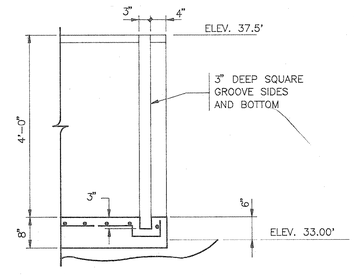
D / 13 13 TYP. REINF. DETAIL ABOVE TOP OF WEIR OPNG.
SCALE: 3/4" = 1'-0"



C / 13 13 SECTION THRU CLARIFIED WATER TROUGH AT FILTER WALL
SCALE: 3/8" = 1'-0"



7 / 11 13 SECTION
SCALE: 3/8" = 1'-0"



E / 13 13 DETAIL
SCALE: 3/4" = 1'-0"

NOTES:
1. * INDICATES ITEMS TO BE PROVIDED BY THE OWNER AND INSTALLED BY THE CONTRACTOR.
2. NIC INDICATES ITEMS NOT IN THIS CONTRACT.

33-01-28w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12227 DAVID F. UPCHURCH 12-1-89

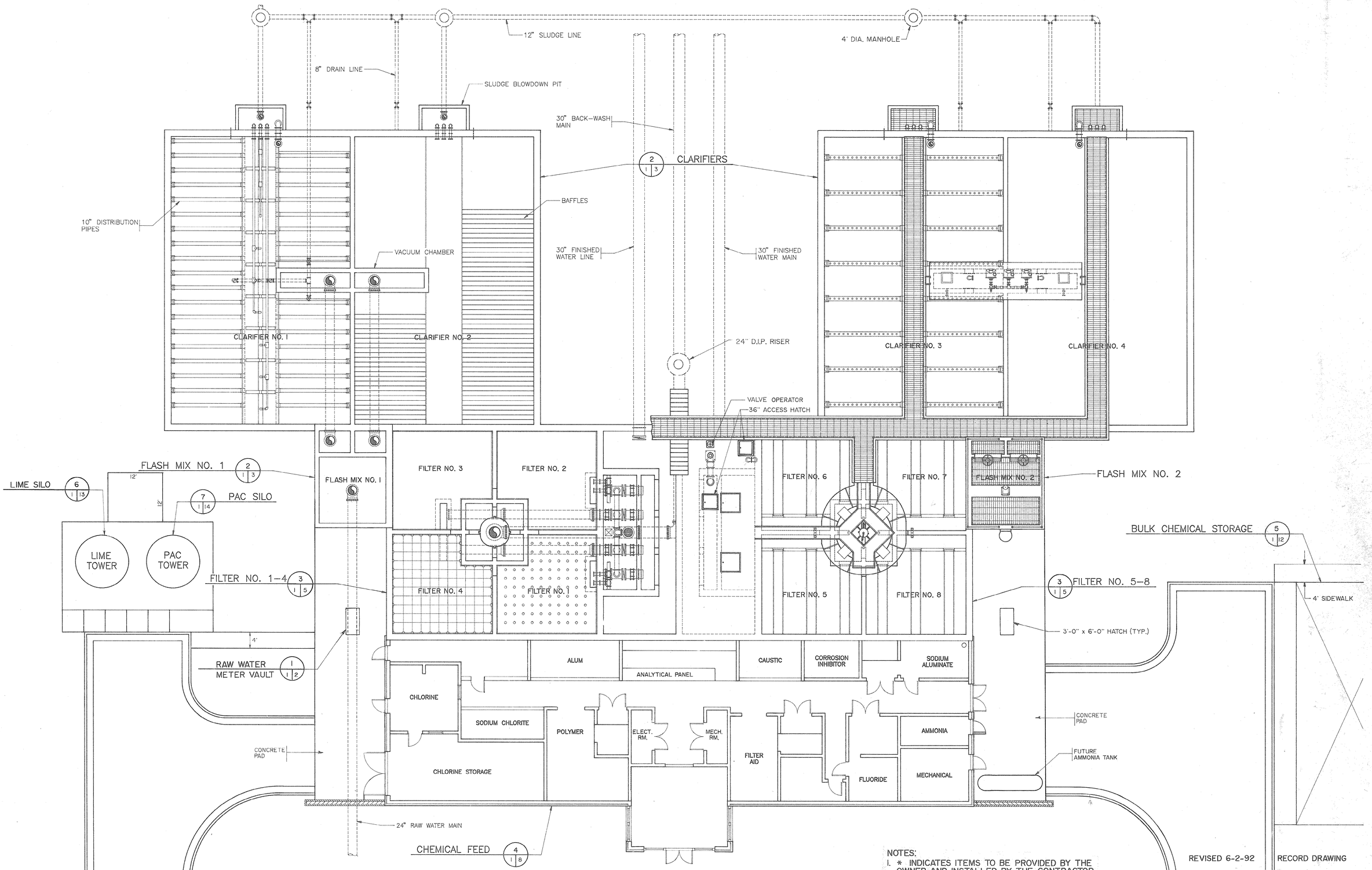
SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12345 JOSEPH W. McGUIGAN 12-1-89

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

FILTER SECTIONS

DATE: NOV., 1989
DESIGNED: JWM
DRAWN: DC
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. S-13
OF:

SOUTHERN PHOTO - DENMARK NC7188



PLANT UNIT LAYOUT
SCALE: 1/8" = 1'-0"

NOTES:
1. * INDICATES ITEMS TO BE PROVIDED BY THE OWNER AND INSTALLED BY THE CONTRACTOR.
2. NIC INDICATES ITEMS NOT IN THIS CONTRACT.

REVISED 6-2-92
RECORD DRAWING

33-01-29w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWINGS	1-11-92	LSD

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 7047 DAVID T. UPCHURCH 12-1-89

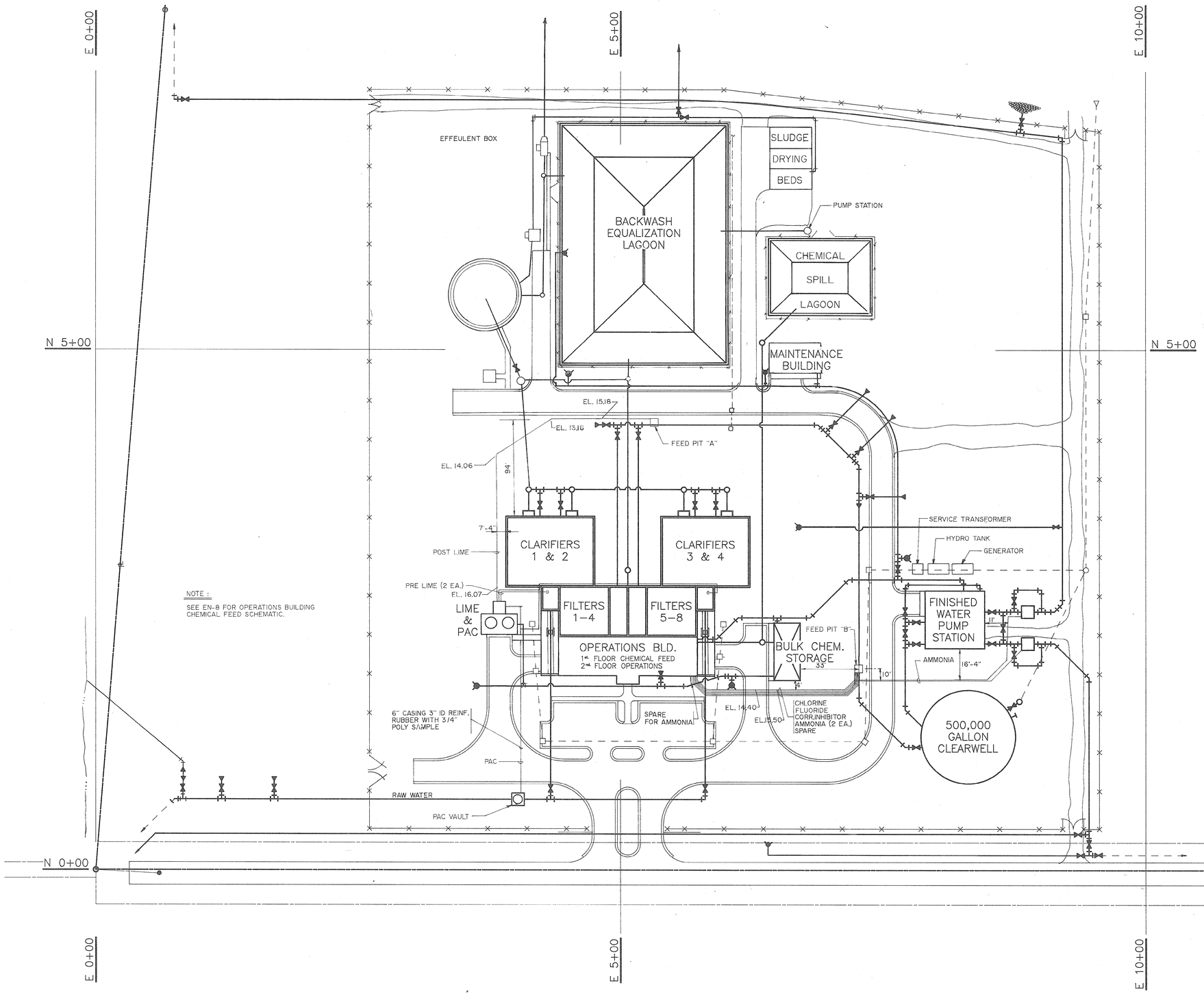
SOUTH CAROLINA REGISTERED LAND SURVEYOR No. 13515 JOSEPH W. McGUGIN 12-1-89

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

PLANT UNIT LAYOUT

DATE: NOV. 1989
DESIGNED: JWM
DRAWN: DC
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO.: EN-1
OF:

SOUNDEX PHOTO - DESIGNED

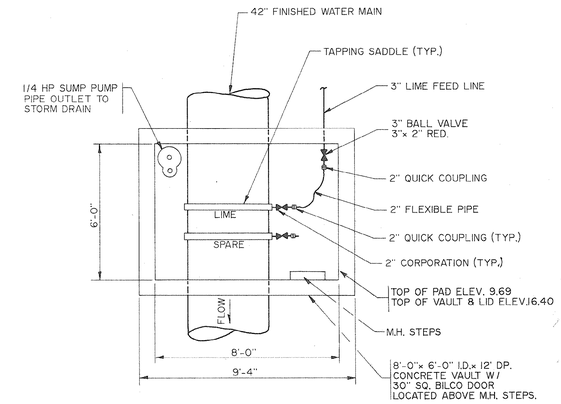


NOTE :

SEE EN-8 FOR OPERATIONS BUILDING CHEMICAL FEED SCHEMATIC.

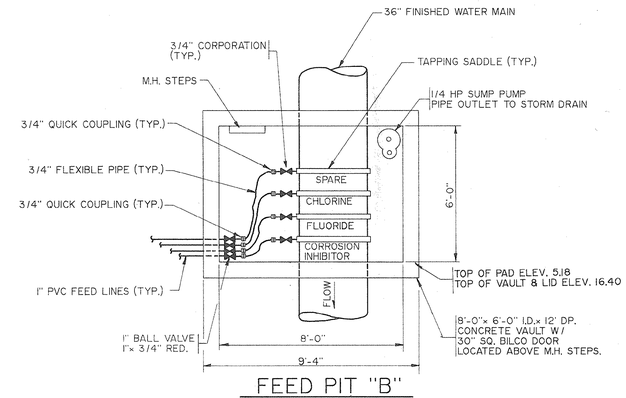
PLANT PIPING

SCALE: 1" = 40'



FEED PIT "A"

SCALE : 3/8"= 1'-0"
(POSTLINE PRIOR TO PIT "B")



FEED PIT "B"

SCALE : 3/8"= 1'-0"
(PRIOR TO CLEARWELL)

REVISED 6-2-92 RECORD DRAWING

33-01-30w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	REVISED	6-22-90	JWM
	RECORD DRAWING	1-13-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No.12335 JOSEPH W. McGOUGAN

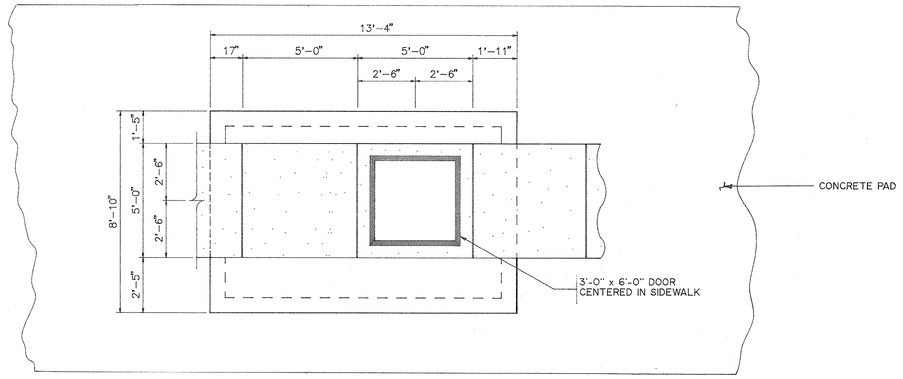
SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No.12227 DAVID T. UPCHURCH

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

CHEMICAL FEED PIPING LAYOUT

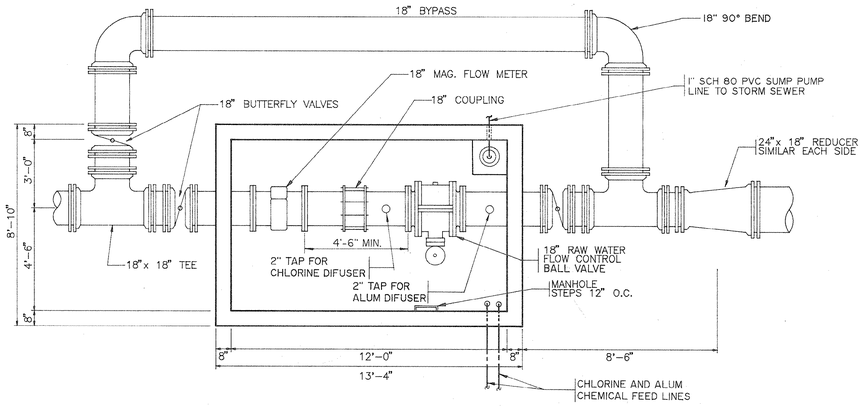
DATE: 6-19-90
DESIGNED: JWM
DRAWN: DC
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. EN-1A
OF:

PROJECT #: 0588.02 FILE NAME: EN-1A.DWG DATE: 6-19-90 SCALE: 1"=40'



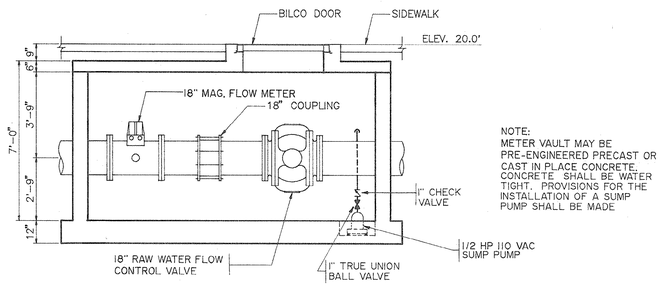
1 RAW WATER CONTROL VAULT
TOP VIEW
SCALE: 3/8" = 1'-0"

NIC



RAW WATER CONTROL VAULT
LOWER PLAN VIEW
SCALE: 3/8" = 1'-0"

NIC



NOTE:
METER VAULT MAY BE PRE-ENGINEERED PRECAST OR CAST IN PLACE CONCRETE. CONCRETE SHALL BE WATER TIGHT. PROVISIONS FOR THE INSTALLATION OF A SUMP PUMP SHALL BE MADE

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

NIC

NOTES:
1. * INDICATES ITEMS TO BE PROVIDED BY THE OWNER AND INSTALLED BY THE CONTRACTOR.
2. NIC INDICATES ITEMS NOT IN THIS CONTRACT.

33-01-31w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-13-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12207 DAVID T. UPCHURCH 12-1-89

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12085 JOSEPH W. McGOUGIN 12-1-89

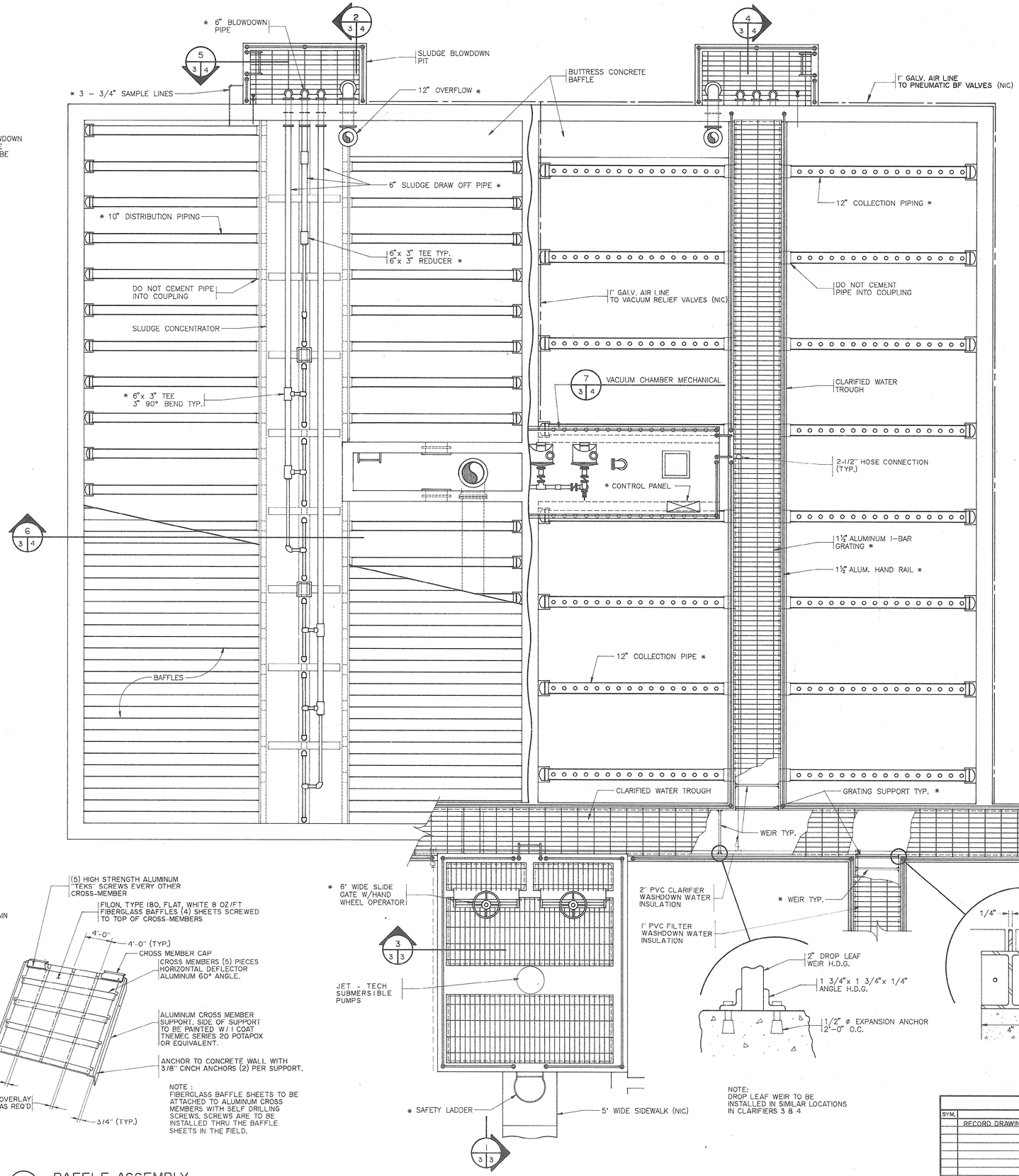
SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

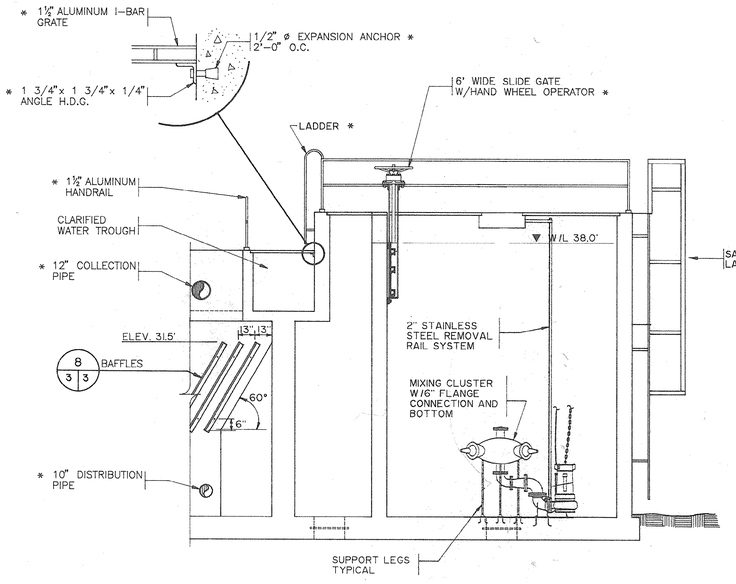
RAW WATER CONTROL VAULT
MISC. DETAILS

DATE: NOV. 1989
DESIGNED: JWM
DRAWN: DC
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. EN-2
OF:

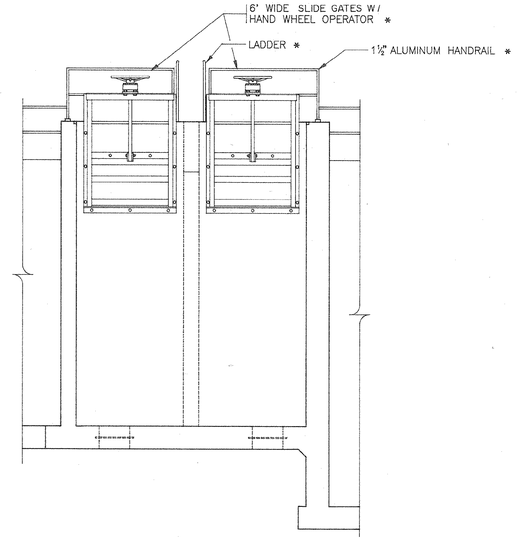
SOUTHERN PHOTO - REPRODUCTION

NOTE:
ALL SLUDGE BLOWDOWN PIPING WITHIN THE CLARIFIER SHALL BE SCH 80 PVC





1 3 3 SECTION
SCALE: 1/4" = 1'-0"



3 3 3 SECTION
SCALE: 1/4" = 1'-0"

NOTE:
FIELD TRIM LAST BAFFLE TO MAINTAIN 8" CLEARANCE

NOTE:
SHEETS EVEN WITH TOP OF CROSS-MEMBER

NOTE :
FIBERGLASS BAFFLE SHEETS TO BE ATTACHED TO ALUMINUM CROSS MEMBERS WITH SELF DRILLING SCREWS. SCREWS ARE TO BE INSTALLED THRU THE BAFFLE SHEETS IN THE FIELD.

8 3 3 BAFFLE ASSEMBLY *
NTS

NOTE:
DROP LEAF WEIR TO BE INSTALLED IN SIMILAR LOCATIONS IN CLARIFIERS 3 & 4

2 1 3 FLASH MIX AND CLARIFIER
SCALE: 1/4" = 1'-0"

NOTES:
1. * INDICATES ITEMS TO BE PROVIDED BY THE OWNER AND INSTALLED BY THE CONTRACTOR.
2. NIC INDICATES ITEMS NOT IN THIS CONTRACT.

33-01-32w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-13-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12237 DANIEL T. UPCHURCH 12-1-89

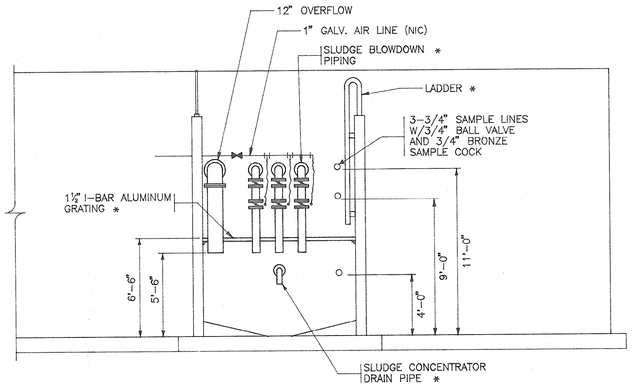
SOUTH CAROLINA REGISTERED LAND SURVEYOR No. 12335 JAMES W. McCLOUDEN 12-1-89

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

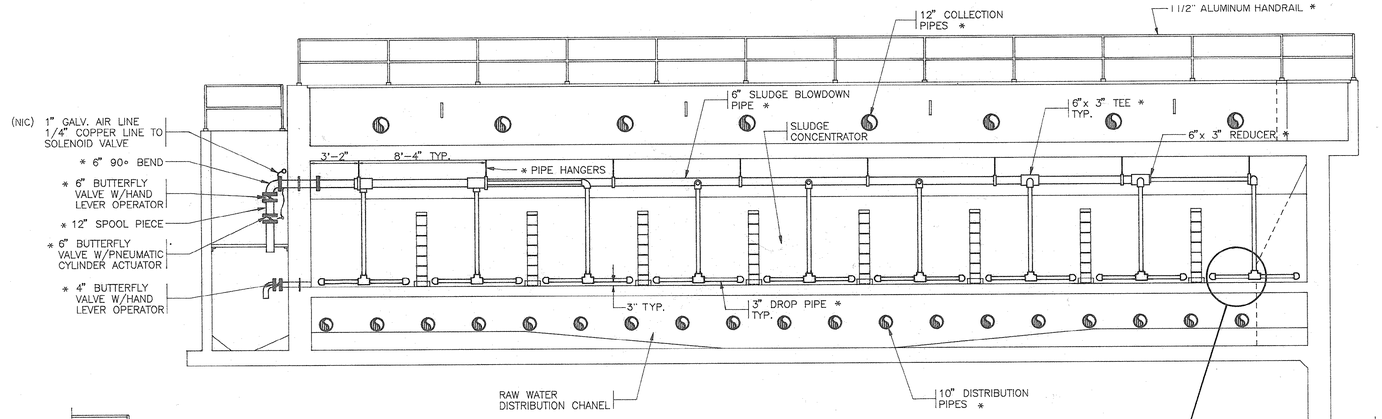
FLASH MIX AND CLARIFIER PLAN AND SECTIONS

DATE:	NOV. 1989
DESIGNED:	JWM
DRAWN:	DC
CHECKED:	DTU
SCALE:	AS SHOWN
SHEET NO.	EN-3
OF:	

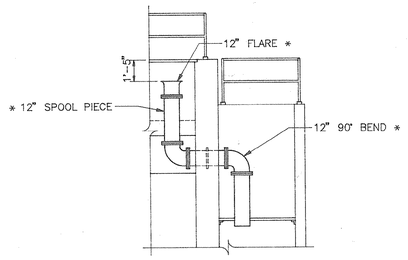
SOUTHERN PHOTO - GREENSBORO 721198



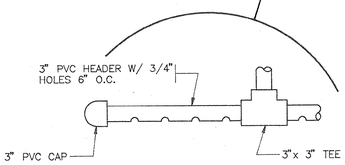
5/3 4 SECTION
SCALE: 1/4" = 1'-0"

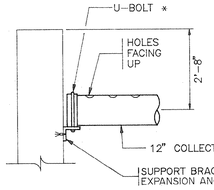


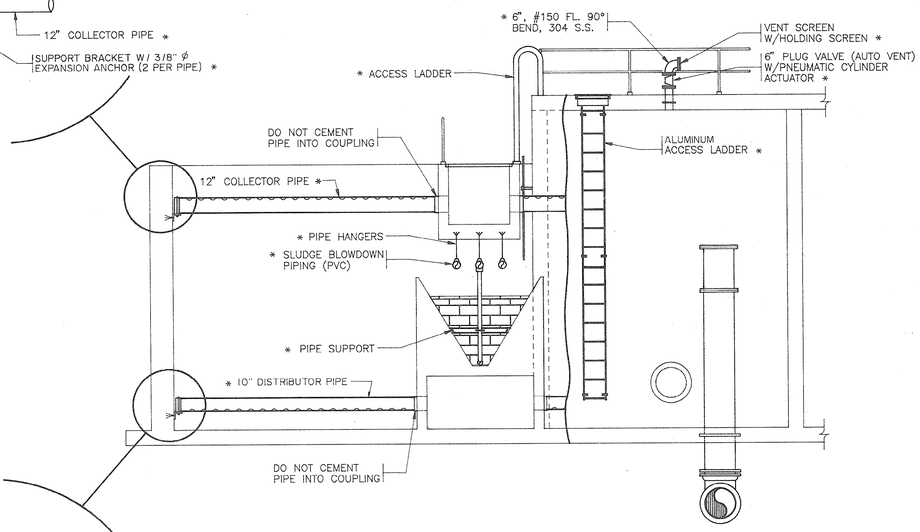
4/3 4 SECTION
SCALE: 1/4" = 1'-0"



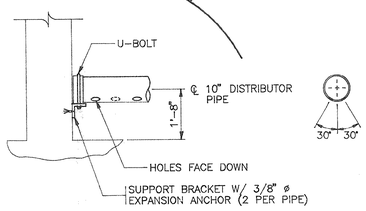
2/3 4 SECTION
SCALE: 1/4" = 1'-0"

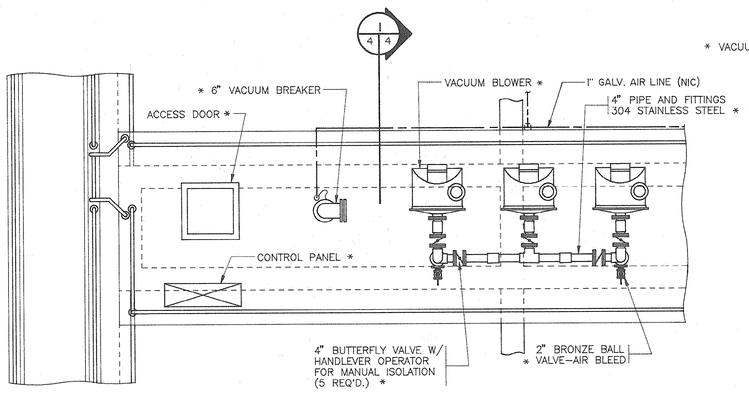




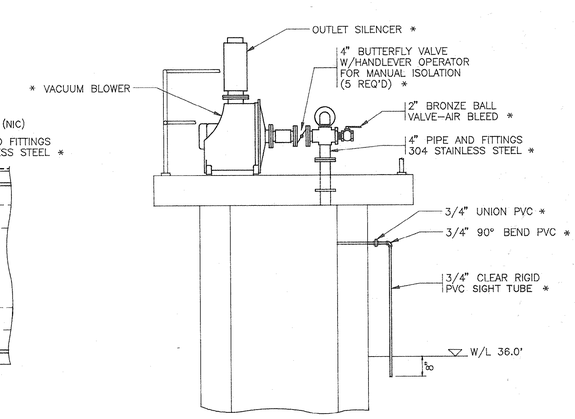


6/3 4 SECTION
SCALE: 1/4" = 1'-0"



1/4 4


7/3 4 SECTION
SCALE: 3/8" = 1'-0"



1/4 4 SECTION
SCALE: 1/2" = 1'-0"

NOTES:
1. * INDICATES ITEMS TO BE PROVIDED BY THE OWNER AND INSTALLED BY THE CONTRACTOR.
2. NIC INDICATES ITEMS NOT IN THIS CONTRACT.

33-01-33w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-13-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 11269 DAVID T. UPCHURCH 12-1-89

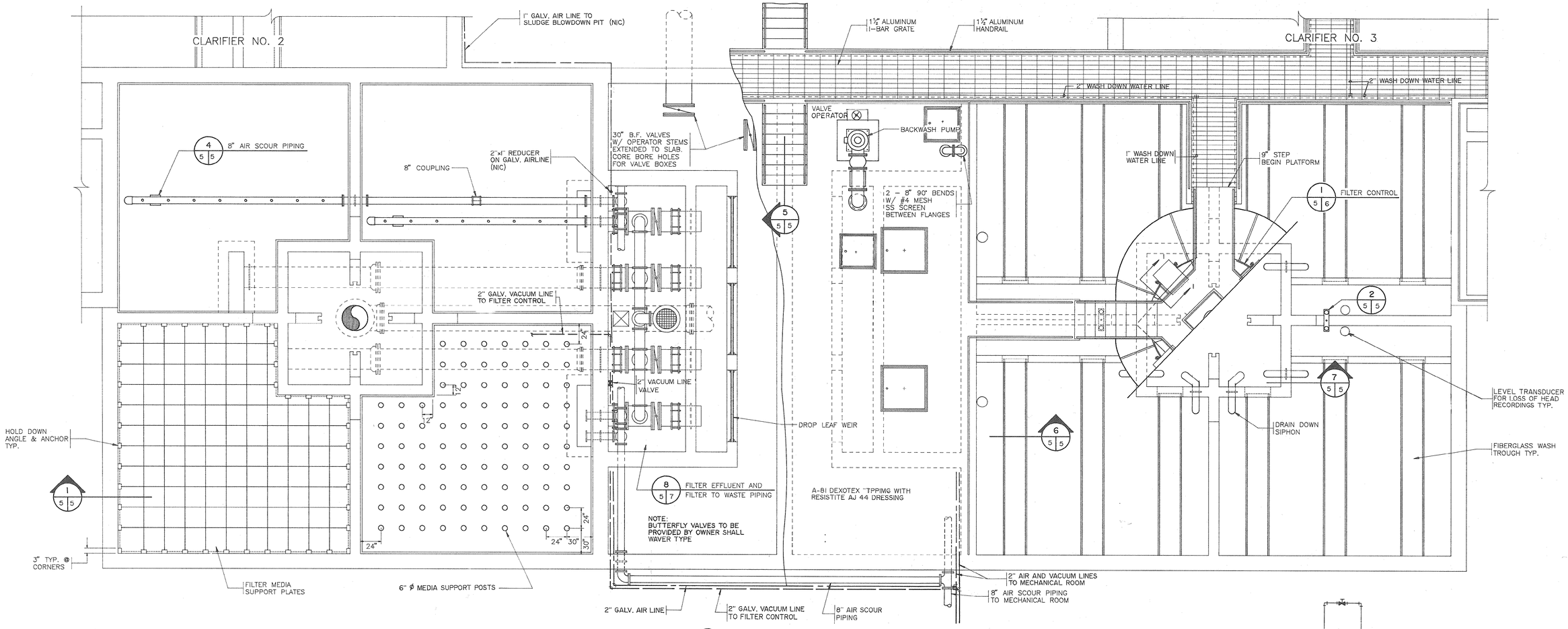
SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12335 JOHN W. McGOUGHEY 12-1-89

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

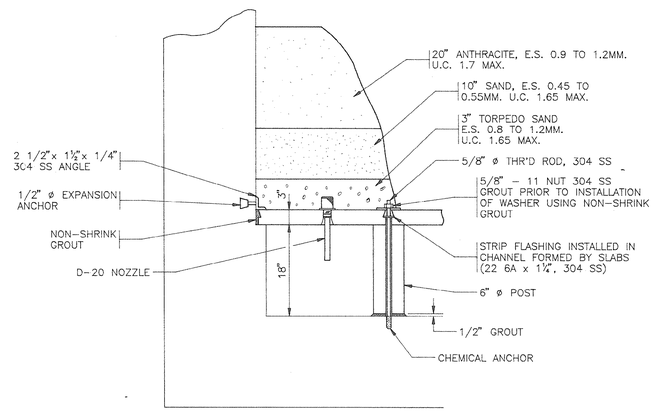
CLARIFIER SECTIONS

DATE: NOV., 1989
DESIGNED: JWM
DRAWN: DC
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. EN-4
OF:

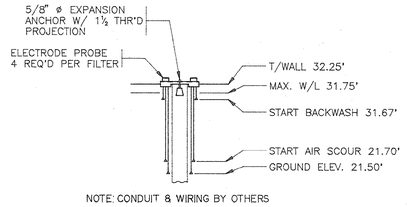
SOUTHERN PHOTO - GEENSBORO 703-748



3 / 1 5 FILTER NO. I-B
SCALE: 1/4" = 1'-0"

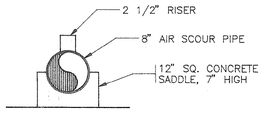


1 / 5 5 FILTER MEDIA SECTION
SCALE: 1" = 1'-0"

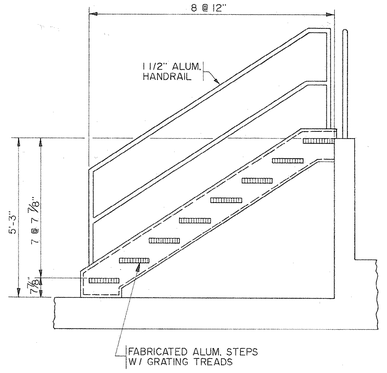


NOTE: CONDUIT & WIRING BY OTHERS

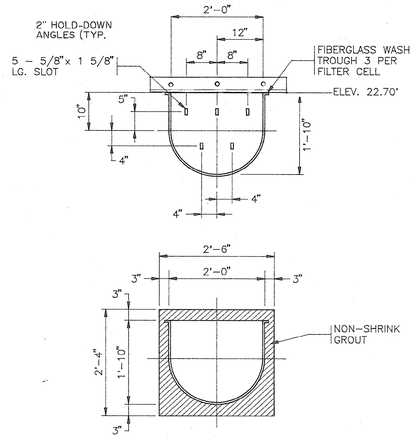
2 / 5 5 FILTER BACKWASH PROBE
NTS



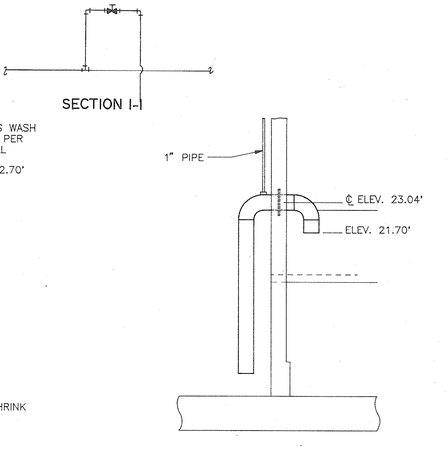
4 / 5 5 8" AIR SCOUR PIPE
NTS



5 / 5 5 STEP SECTION
SCALE: 1/2" = 1'-0"



6 / 5 5 FILTER WASH TROUGH
NTS



7 / 5 5 DRAIN DOWN SIPHON DETAIL
NTS

PEVISED 6-2-92 RECORD DRAWING

33-01-34w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-13-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12251 DAVID T. UPCHURCH 12-1-89

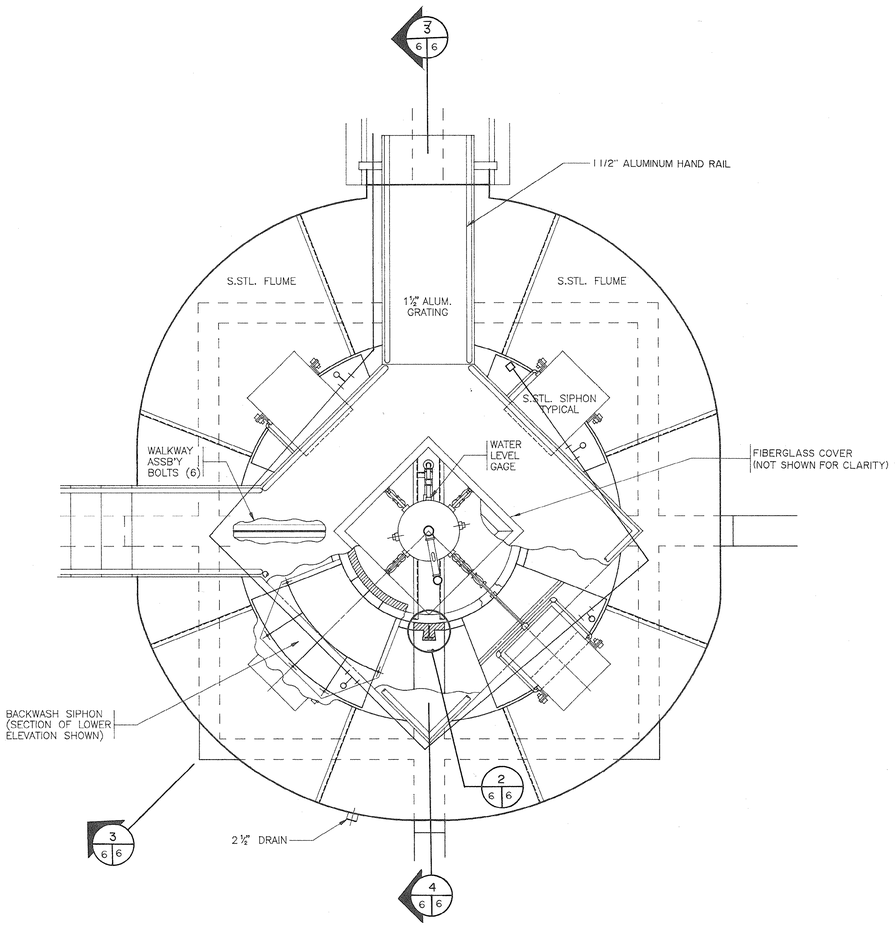
SOUTH CAROLINA REGISTERED LAND SURVEYOR No. 12385 JAMES W. McCOLLUM 12-1-89

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

FILTER PLAN AND DETAILS

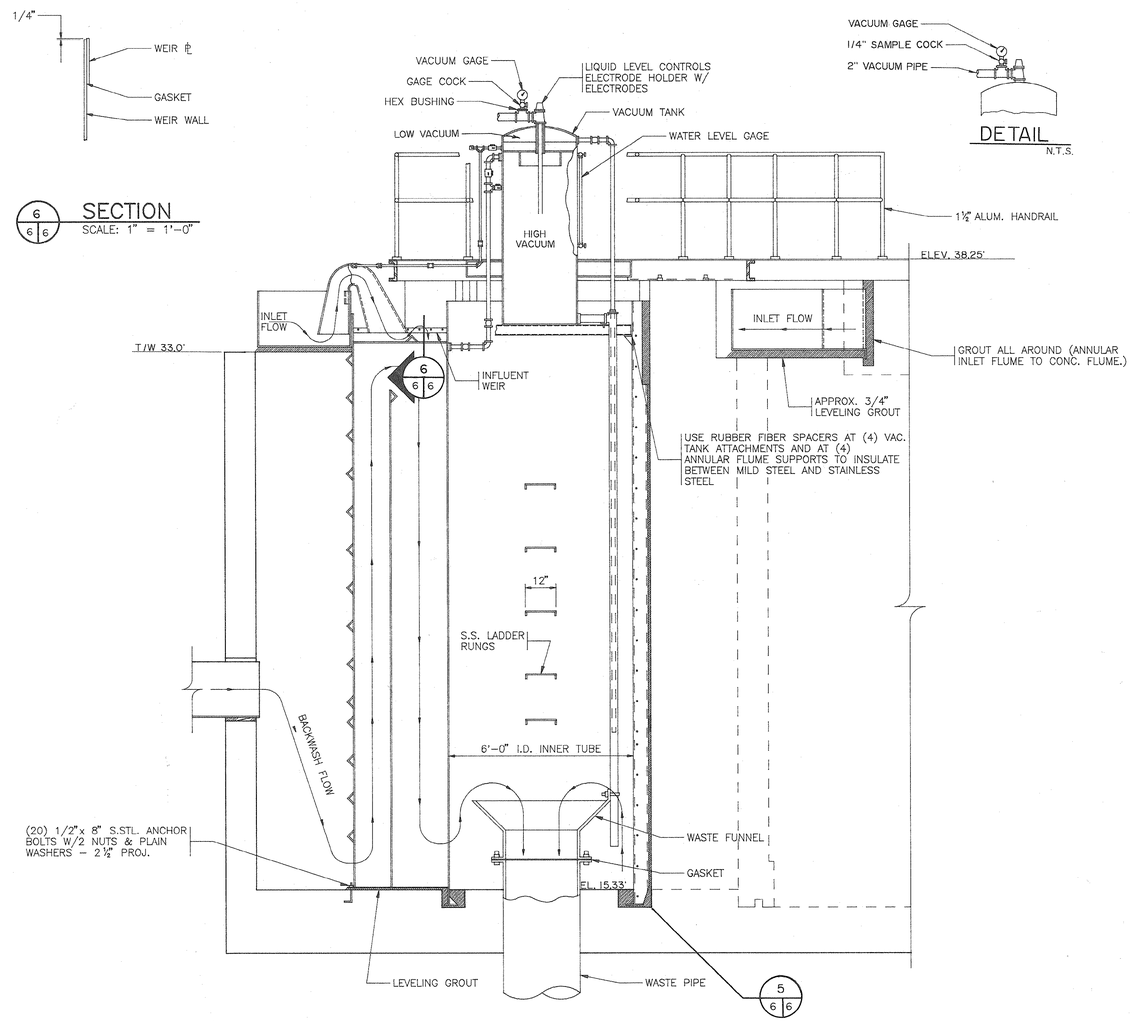
DATE: NOV. 1989
DESIGNED: JWM
DRAWN: BC
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. EN-5
OF:

SOUTHERN PHOTO - GEORGETOWN 843/546-8810

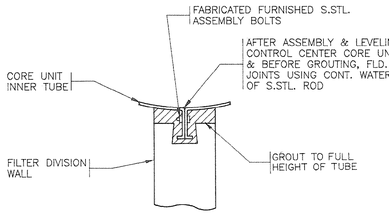


1 / 5 6 OPERATIONS PLATFORM — PLAN *
SCALE: 1/2" = 1'-0"

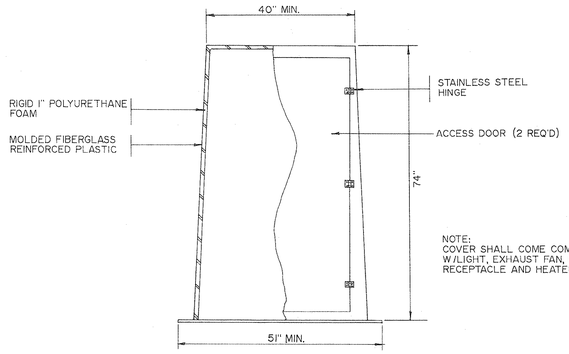
6 / 6 6 SECTION
SCALE: 1" = 1'-0"



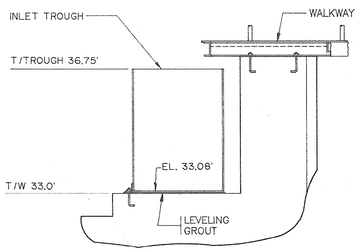
DETAIL
N.T.S.



2 / 6 6 SECTION
SCALE: 1" = 1'-0"

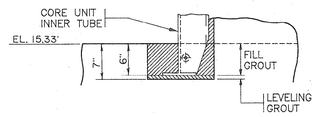


FIBERGLASS COVER DETAIL *
N.T.S.



4 / 6 6 SECTION
SCALE: 1" = 1'-0"

3 / 6 6 SECTION *
SCALE: 1/2" = 1'-0"



5 / 6 6 SECTION
SCALE: 1" = 1'-0"

NOTES:
1. * INDICATES ITEMS TO BE PROVIDED BY THE OWNER AND INSTALLED BY THE CONTRACTOR.
2. NIC INDICATES ITEMS NOT IN THIS CONTRACT.

33-01-35 w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-13-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12227 DAVID T. UPCHURCH 12-1-89

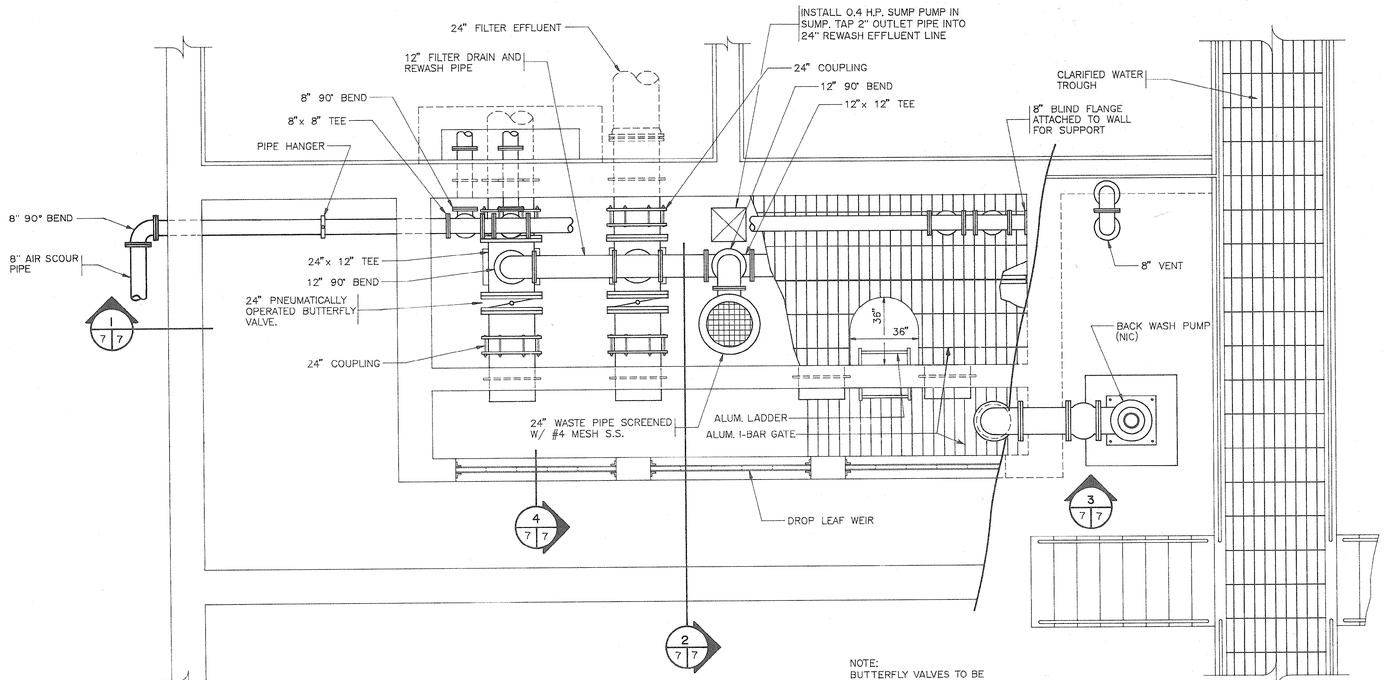
SOUTH CAROLINA REGISTERED LAND SURVEYOR No. 12355 JOSEPH W. McDOUGALD, III 12-1-89

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

FILTER CONTROL PLAN AND SECTIONS

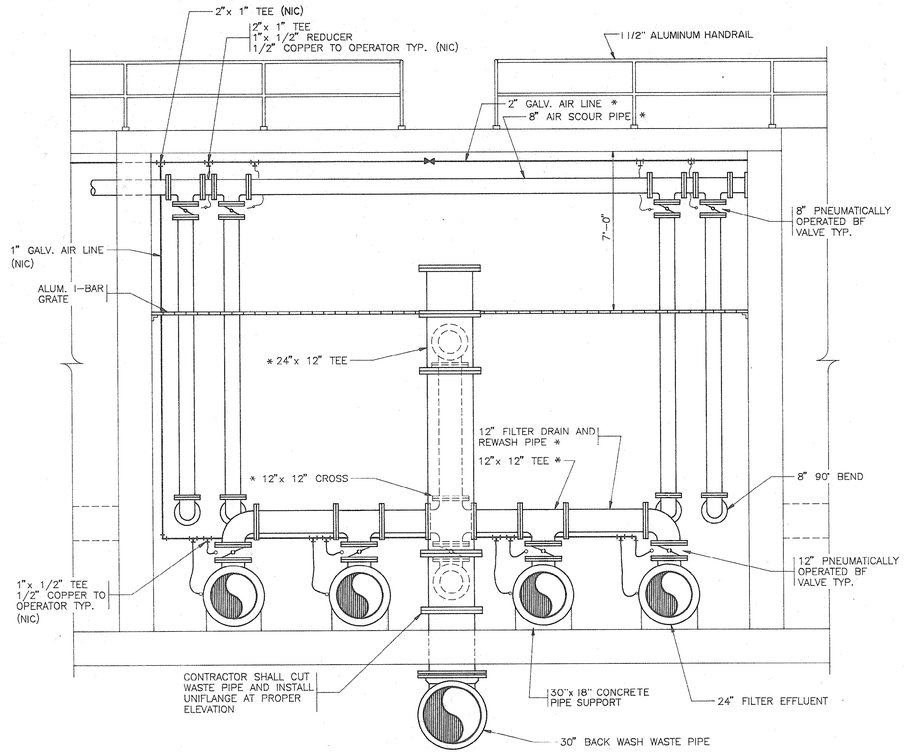
DATE: NOV. 1989
DESIGNED: JWM
DRAWN: DC
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. EN-6
OF:

SOUTHERN PHOTO - GREENSBORO 11758

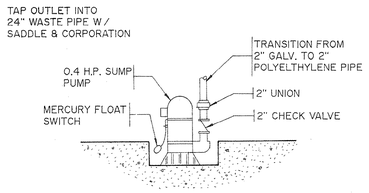


NOTE:
BUTTERFLY VALVES TO BE PROVIDED BY OWNER SHALL BE WAFER TYPE.

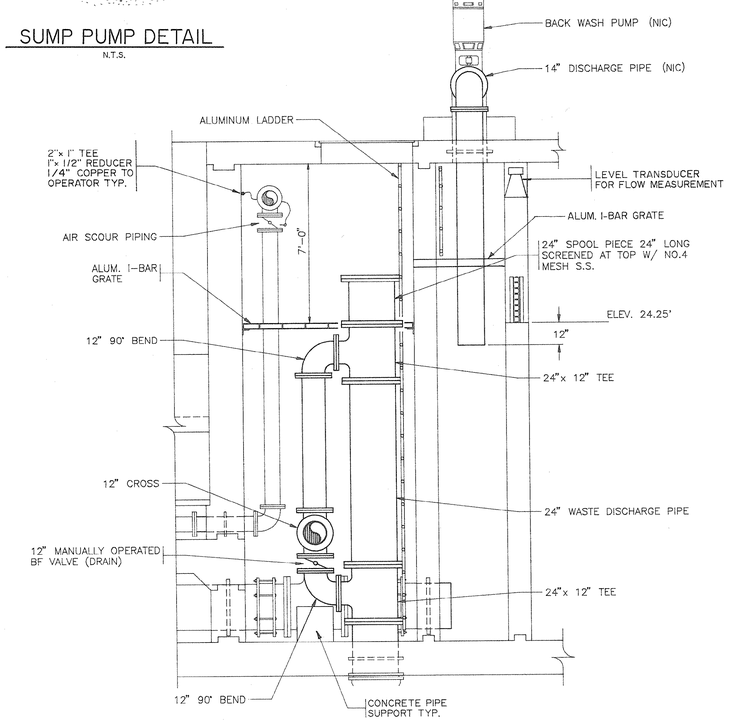
8 / 5 7 EFFLUENT CHAMBER LAYOUT
SCALE: 3/8" = 1'-0"



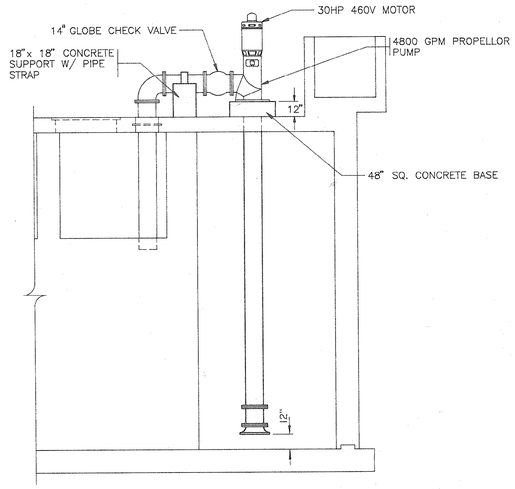
1 / 7 7 SECTION
SCALE: 3/8" = 1'-0"



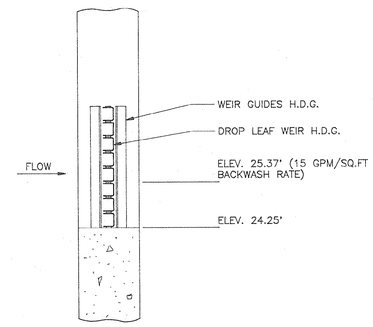
SUMP PUMP DETAIL
N.T.S.



2 / 7 7 SECTION
NTS



3 / 7 7 BACKWASH PUMP DETAIL (NIC)
SCALE: 1/4" = 1'-0"



4 / 7 7 DROP LEAF WEIR DETAIL
NTS

33-01-36 w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-13-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REG. PROFESSIONAL ENGINEER No. 12027 DAVID T. UPCHURCH 12-1-89

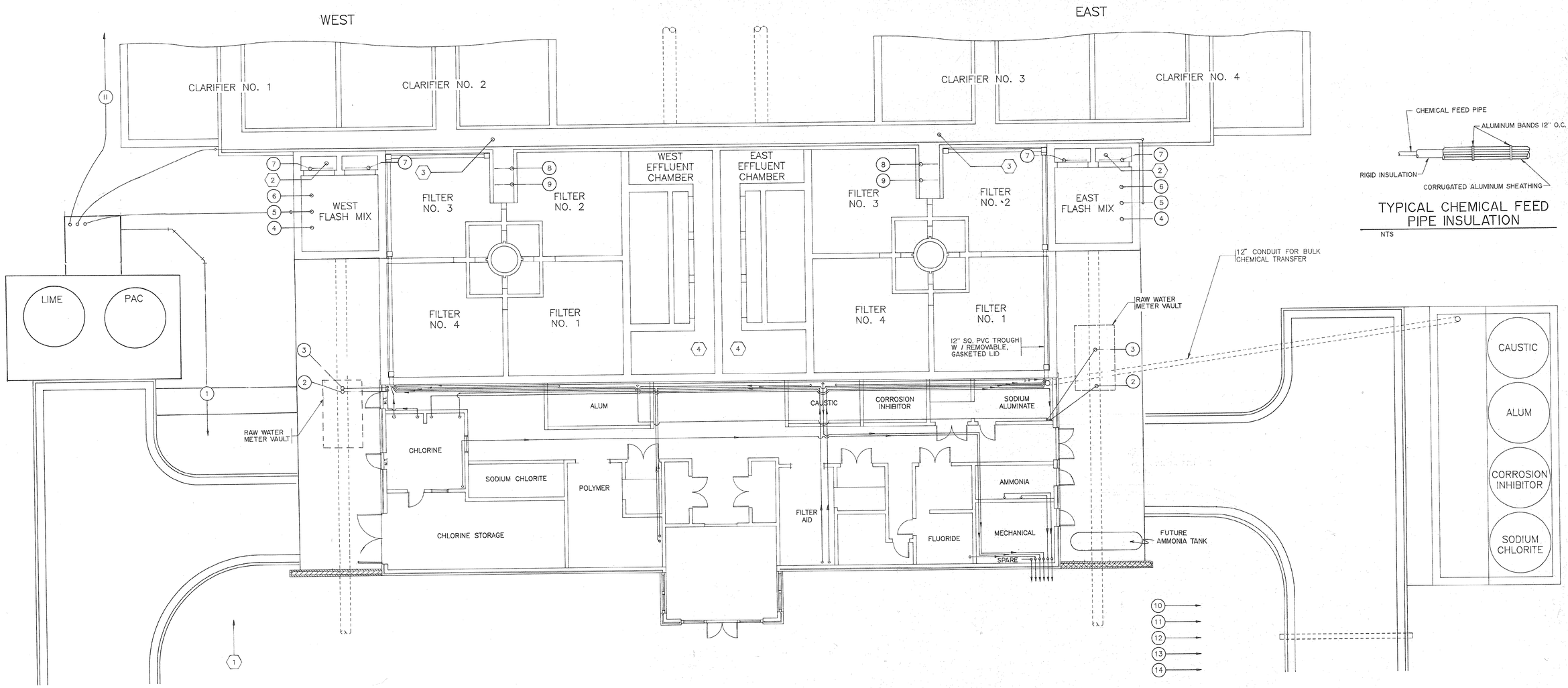
SOUTH CAROLINA REG. PROFESSIONAL ENGINEER No. 12135 JAMES W. McGOUGIN 12-1-89

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

FILTER EFFLUENT AND FILTER TO WASTE PIPE

DATE: NOV., 1989
DESIGNED: JWM
DRAWN: EEW
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. EN-7
OF: ____

COUNTEN PHOTO - GREENSBORO N.C.



TYPICAL CHEMICAL FEED PIPE INSULATION

NTS

CHEMICAL APPLICATION AND SAMPLE POINTS

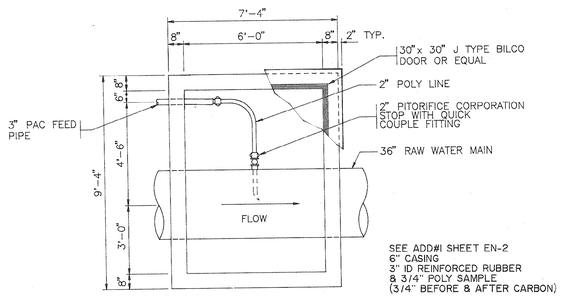
NTS

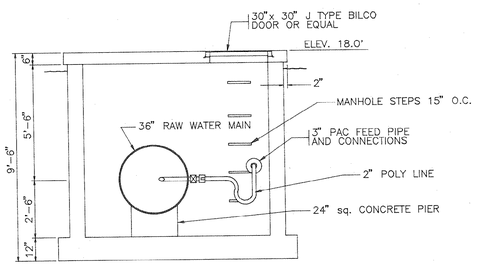
SAMPLE PUMP LOCATION		
TYPE		LOCATION
1	RAW WATER	TAP IN RAW WATER PRIOR TO PAC
2	TREATED WATER	SUCTION IN FLASH MIX EFFLUENT CHAMBER
3	SETTLED WATER	SUCTION IN CLARIFIED WATER TROUGH
4	FILTERED WATER	SUCTION IN FILTER EFFLUENT CHAMBER

CHEMICAL APPLICATION POINTS		
	CHEMICAL	LOCATION
1	PAC	TAP IN RAW WATER MAIN LINE NO. 1
2	CHLORINE	TAP IN RAW WATER MAIN LINE NO. 2 & 3
3	ALUM	TAP IN WATER MAIN LINE NO. 2 & 3
4	SODIUM ALUMINATE	OPEN DISCHARGE IN FLASH MIX
5	LIME	OPEN DISCHARGE IN FLASH MIX
6	CAUSTIC	OPEN DISCHARGE IN FLASH MIX
7	POLYMER	DIFUSER UNDER FLASH MIX WEIR
8	FILTER AID	DIFUSER IN CLARIFIED WATER TROUGH
9	CHLORINE	DIFUSER IN CLARIFIED WATER TROUGH
10	FLUORIDE	TAP IN FILTER EFFLUENT LINE LINE NO. 6
11	LIME (OR CAUSTIC)	TAP IN FILTER EFFLUENT LINE LINE NO. 6
12	CHLORINE	TAP IN FILTER EFFLUENT LINE LINE NO. 6
13	CORROSION INHIBITOR	TAP IN CLEARWELL LINE LINE NO. 7
14	AMMONIA	TAP IN PUMP DISCHARGE LINES NO. 10 & 11

NOTE:
SEE PLANT PIPING SHEET FOR LINE NUMBERS AND LOCATIONS.

NOTE:
SEE LAYOUT PLAN G-4 FOR LOCATION OF VAULT

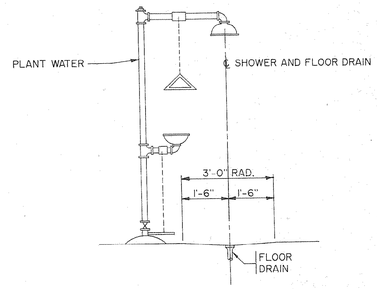




SEE ADD#1 SHEET EN-2
6" CASING
3" ID REINFORCED RUBBER & 3/4" POLY SAMPLE
(3/4" BEFORE & AFTER CARBON)

CARBON PAC FEED VAULT

SCALE: 3/8" = 1'-0"



SAFETY SHOWER AND EYEWASH

N.T.S.

33-01-37w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	REVISED	2-6-90	JWM
	REVISED	6-22-90	JWM
	RECORD DRAWINGS	1-11-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12120 DAVID T. UPCHURCH 12-1-89

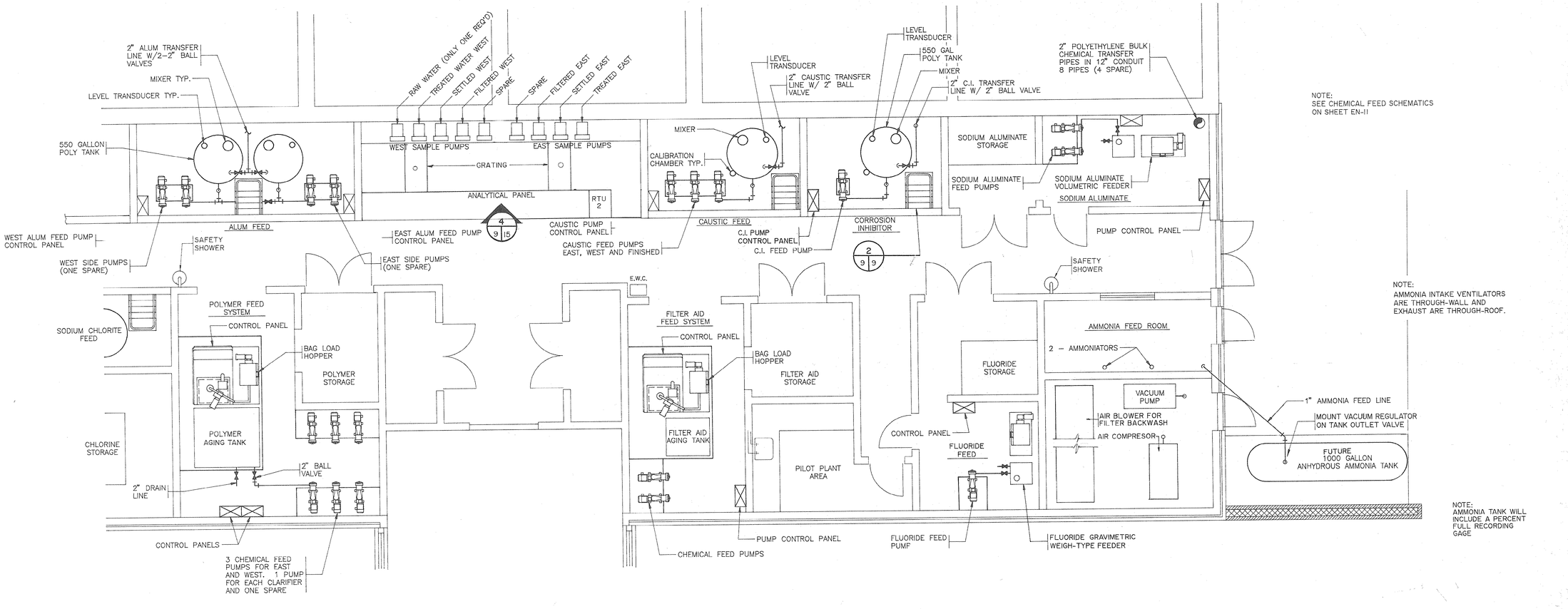
SOUTH CAROLINA REGISTERED PROF ESSIONAL ENGINEER No. 12335 JOSEPH W. McCOLLUM 12-1-89

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

CHEMICAL APPLICATION AND SAMPLE POINTS

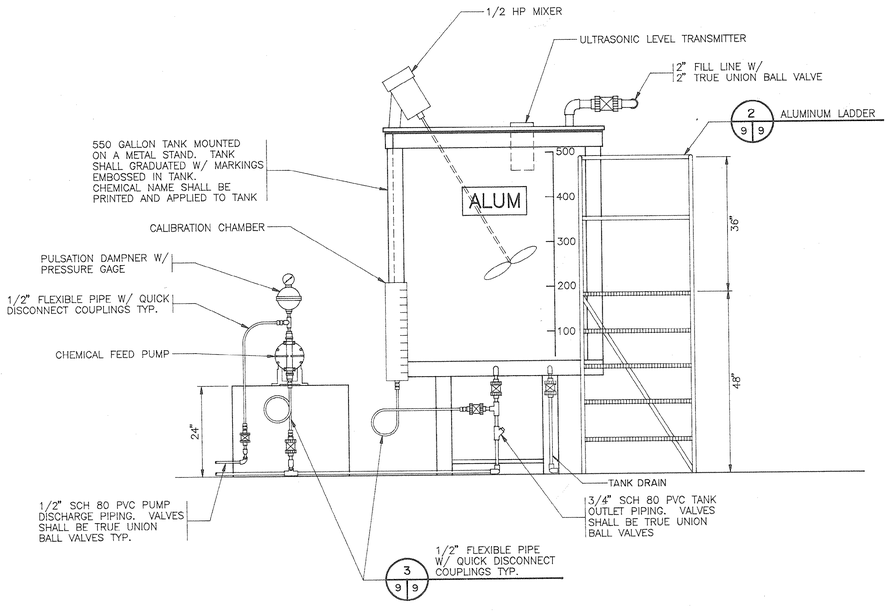
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DESIGNED: JWM
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CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. EN-8
OF: ____

SOUTHERN PHOTO - GEENSBORO 107888



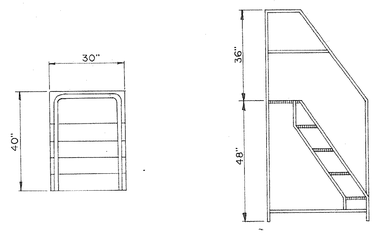
1/8|9 CHEMICAL FEED LAYOUT – PLAN

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



TYPICAL LIQUID CHEMICAL FEED SYSTEM

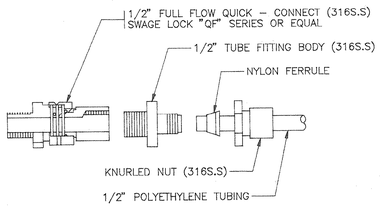
NTS



2/9|9 ALUMINUM LADDER DETAIL

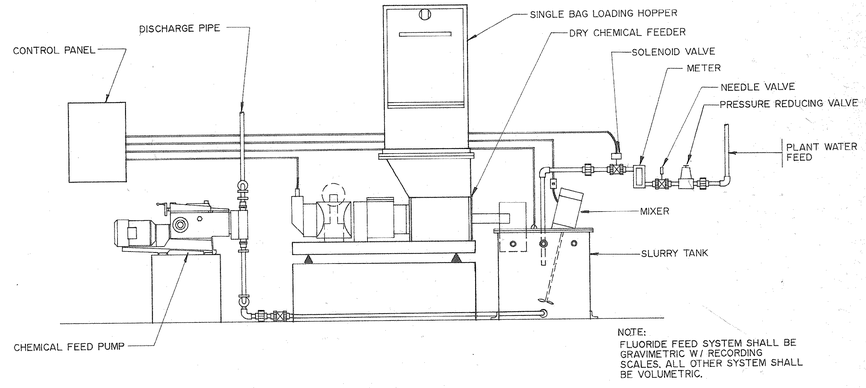
NTS

NOTE: LADDER FOR CAUSTIC DAY TANKS SHALL BE SIMILAR DIMENSIONS BUILT FROM PRESSURE TREATED LUMBER



3/9|9 QUICK COUPLING DETAIL

NTS



TYPICAL DRY CHEMICAL FEEDER

NTS

33-01-38 W

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-13-92	RAC

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SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12427 DAVID T. UPCHURCH 12-1-89

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 17385 JOSEPH W. McDOUGALD 12-1-89

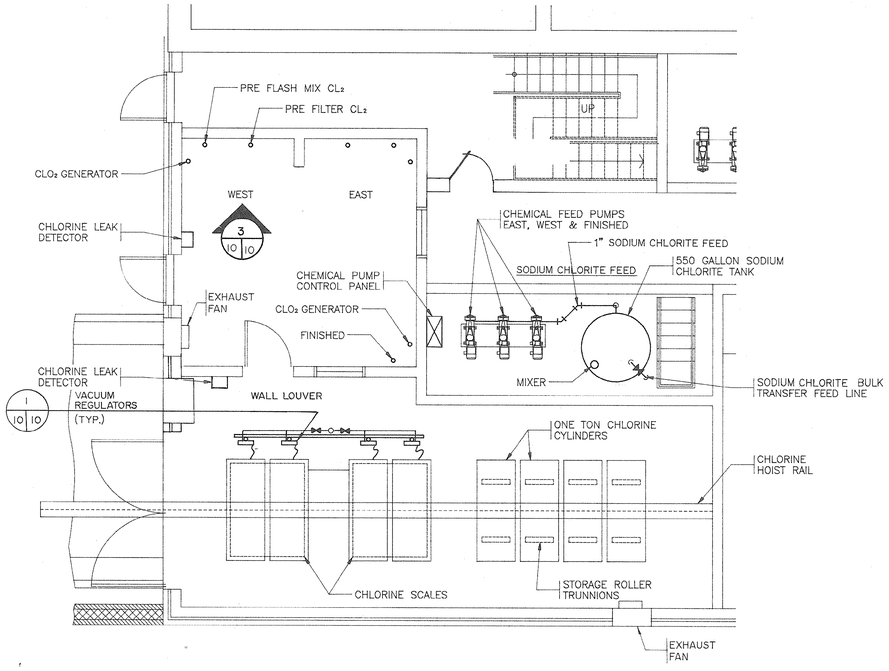
SURFACE WATER TREATMENT PLANT

GRAND STRAND WATER AND SEWER AUTHORITY

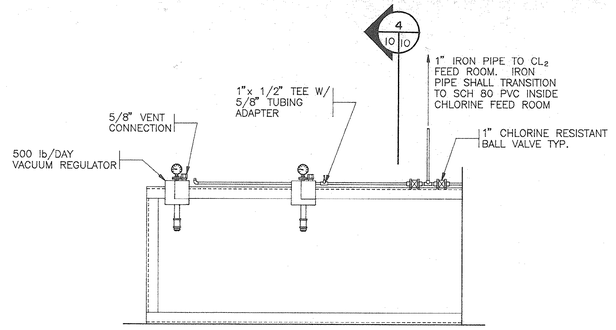
CHEMICAL FEED LAYOUT AND DETAILS

DATE: NOV., 1989
DESIGNED: JWM
DRAWN: DC
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. EN-9
OF: ____

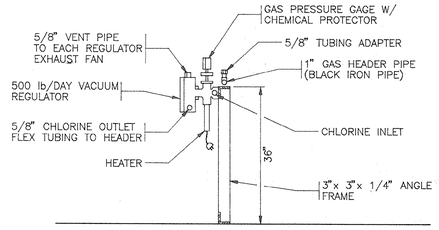
SOUTHERN PHOTO - GREENSBORO 727380



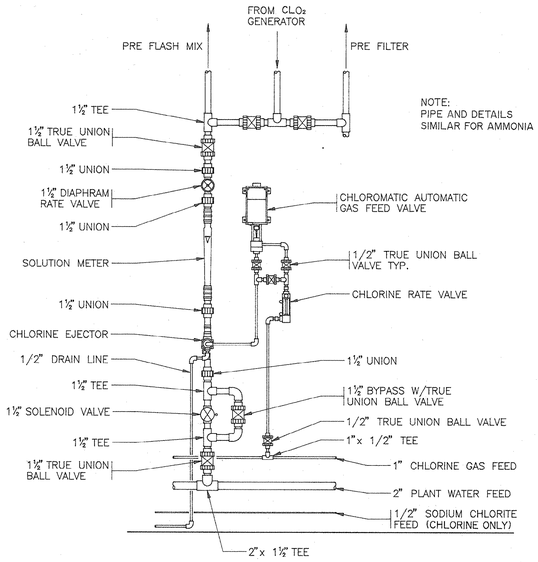
2 / 8 10 CHLORINE AND CHLORINE DIOXIDE FEED — LAYOUT
SCALE: 1/4" = 1'-0"



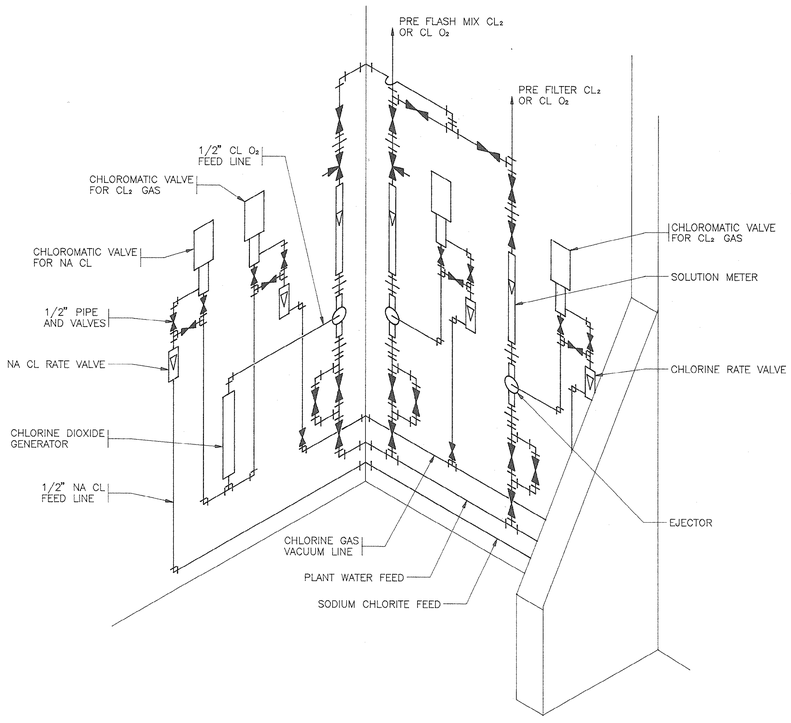
1 / 10 10 VACUUM REGULATORS — DETAIL
NTS



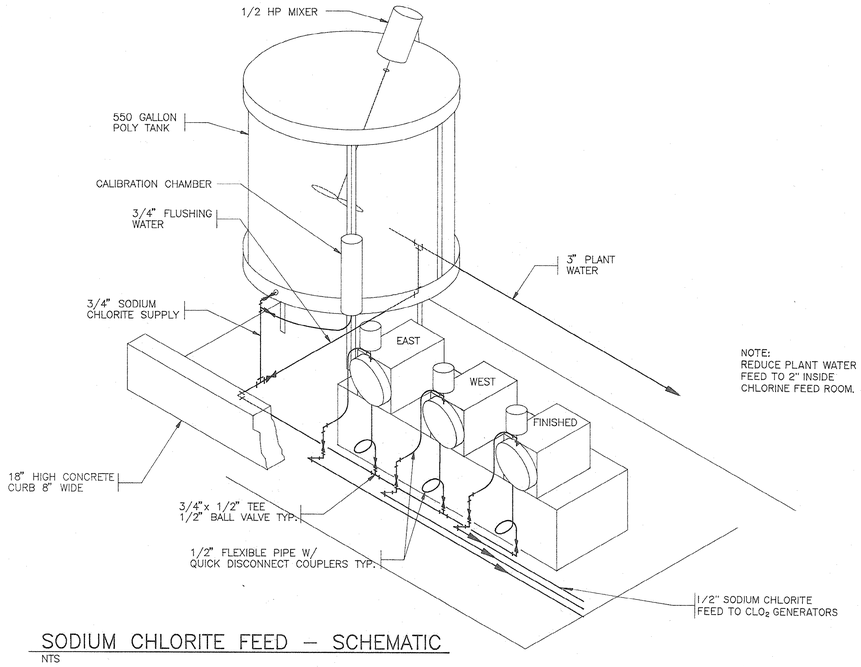
4 / 10 10 VACUUM REGULATORS — SECTION
NTS



CHLORINE AND AMMONIA FEED PIPING — DETAIL
NTS



3 / 10 10 WEST CHLORINE FEED SCHEMATIC
NTS



SODIUM CHLORITE FEED — SCHEMATIC
NTS

33-01-39w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-13-92	RAC

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CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12227 DAVID T. UPCHURCH 12-1-89

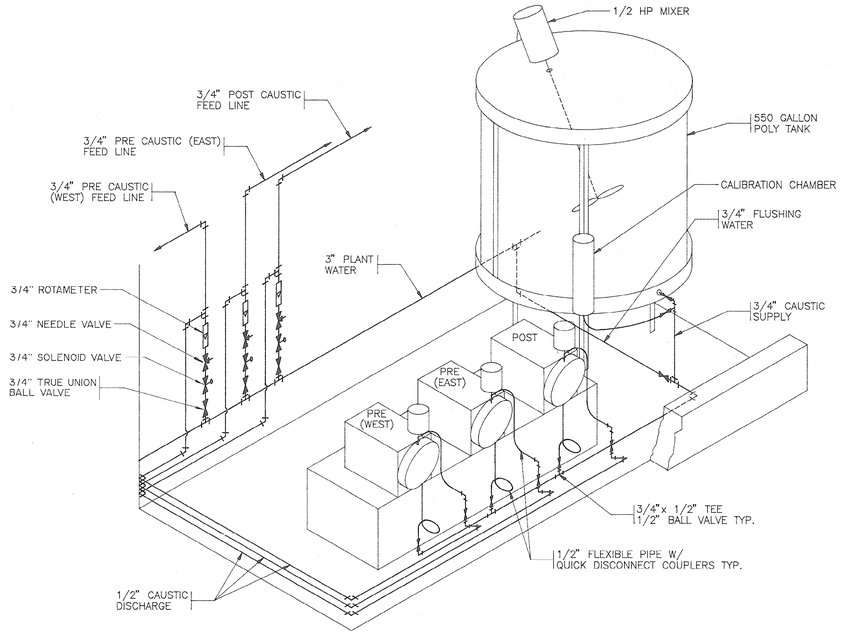
NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT No. 1335 JOSEPH W. McDOUGLE 12-1-89

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

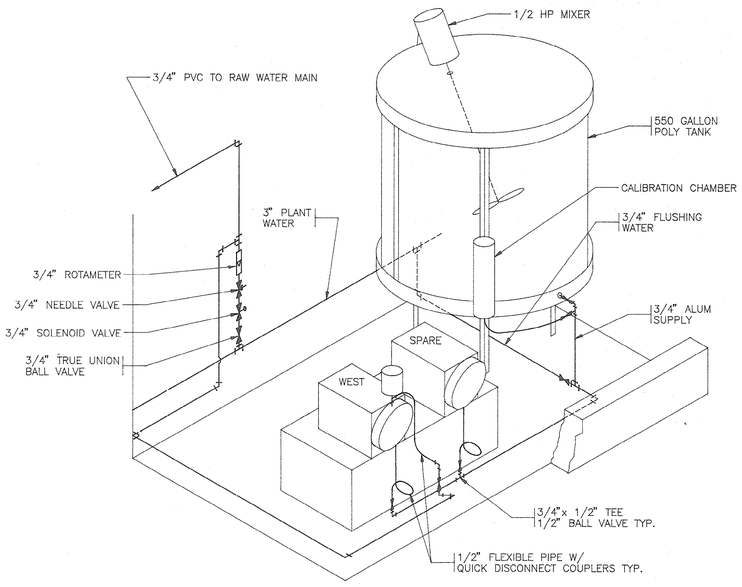
CHLORINE, CHLORINE DIOXIDE AND AMMONIA PLAN AND DETAILS

DATE:	NOV. 1989
DESIGNED:	JWM
DRAWN:	DC
CHECKED:	DTU
SCALE:	AS SHOWN
SHEET NO.	EN-10
OF:	

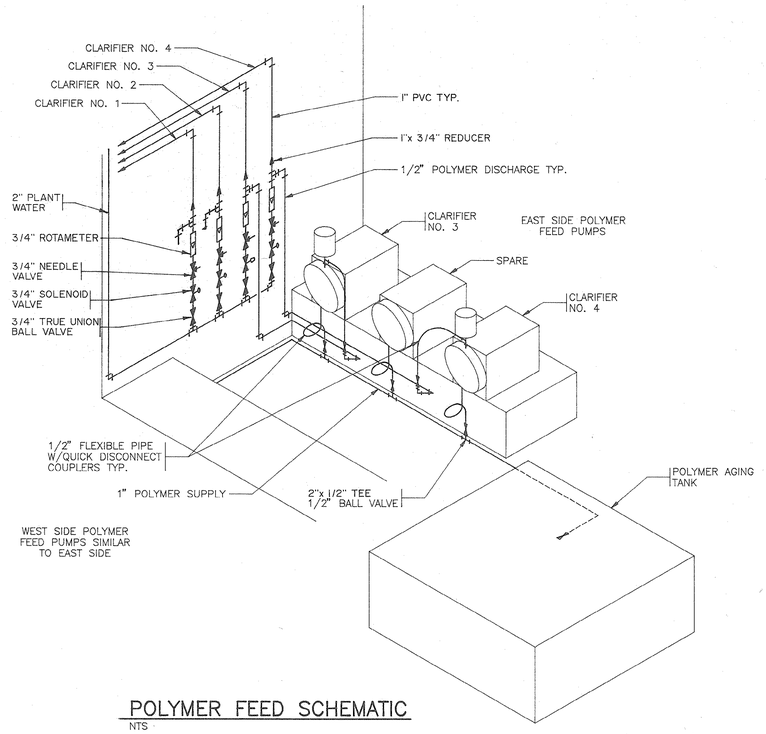
SOUTHERN PHOTO - GREENSBORO 332940



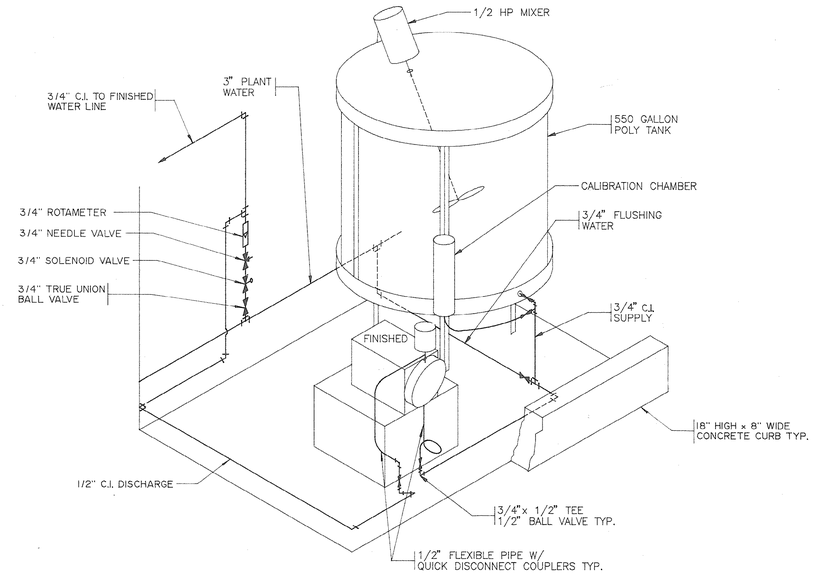
CAUSTIC FEED SCHEMATIC
NTS



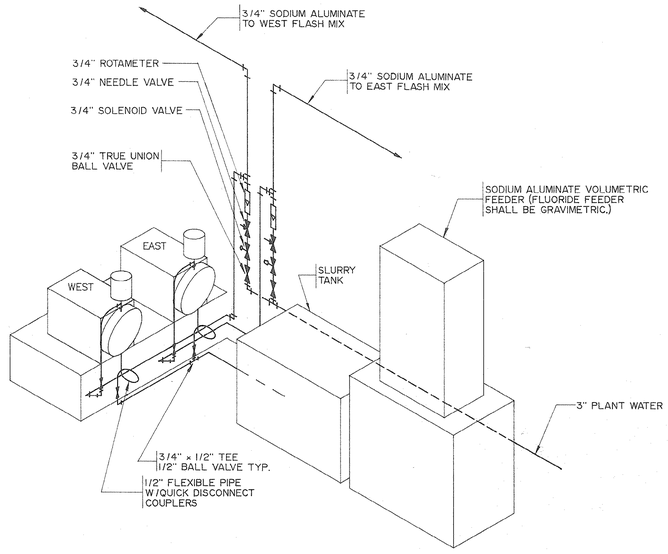
ALUM FEED SCHEMATIC
NTS



POLYMER FEED SCHEMATIC
NTS

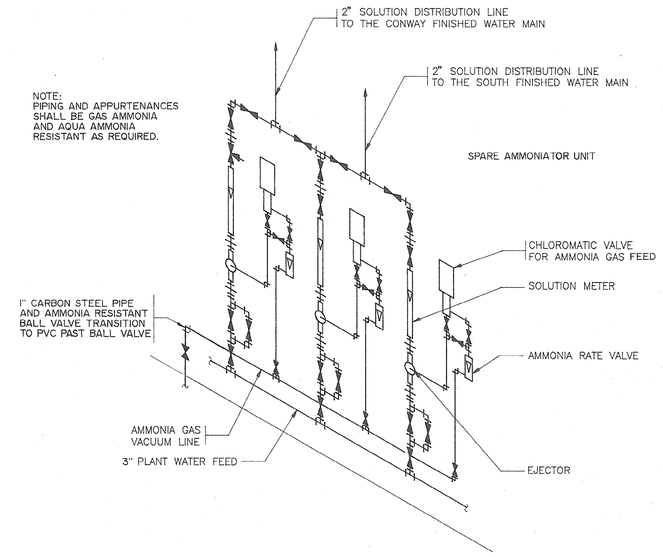


CORROSION INHIBITOR FEED SCHEMATIC
NTS



SODIUM ALUMINATE FEED SCHEMATIC
NTS

NOTE:
FLUORIDE SCHEMATIC MIRROR IMAGE WITH EXCEPTION OF ONLY ONE CHEMICAL FEED PUMP REQUIRED.



AMMONIA FEED SCHEMATIC
NTS

33-01-40w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-13-92	RAC

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SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 18247 DAVID T. UPCHURCH 12-1-89

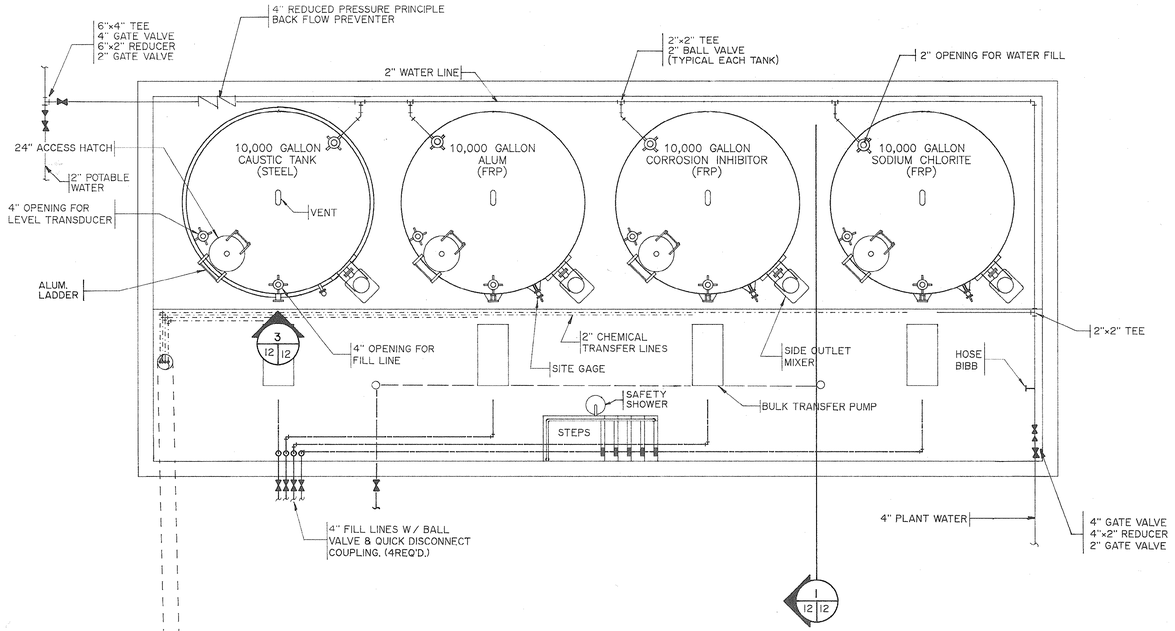
SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 10215 JOSEPH W. McGOUGAN 12-1-89

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

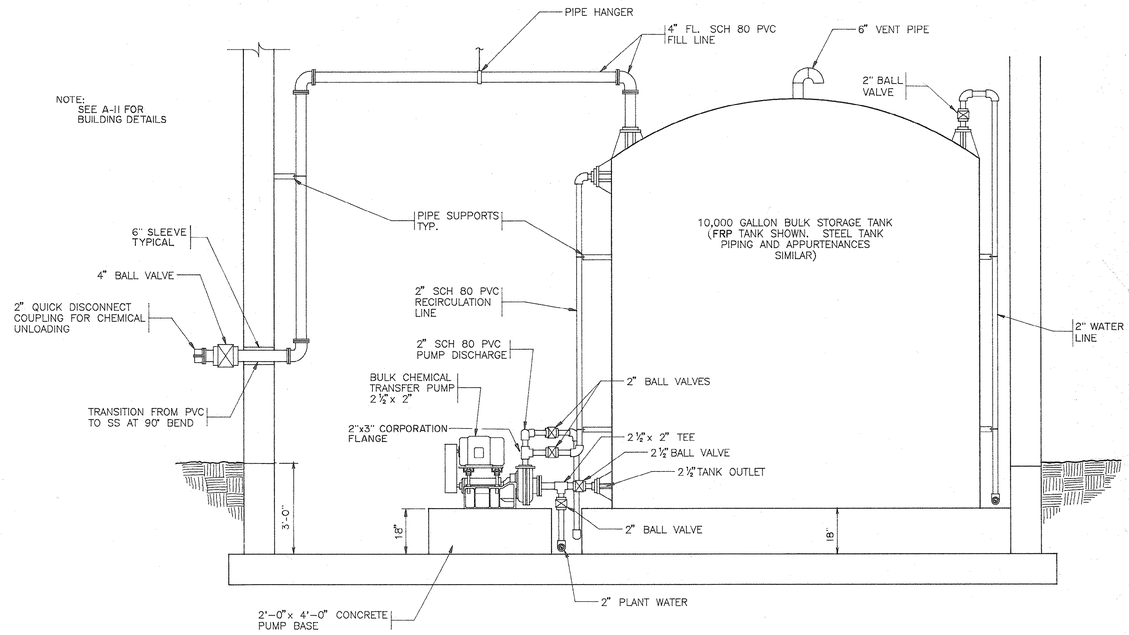
CHEMICAL FEED SCHEMATIC

DATE: NOV. 1989
DESIGNED: JWM
DRAWN: DC
CHECKED: DTU
SCALE: NONE
SHEET NO. EN-11
OF: _____

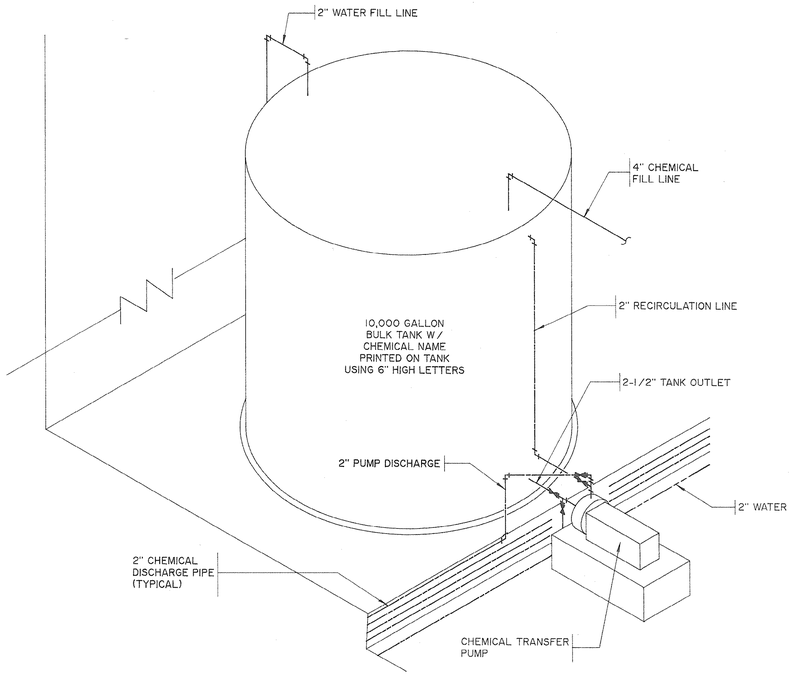
SOUTHERN PHOTO-DUPLICATING NOTAB



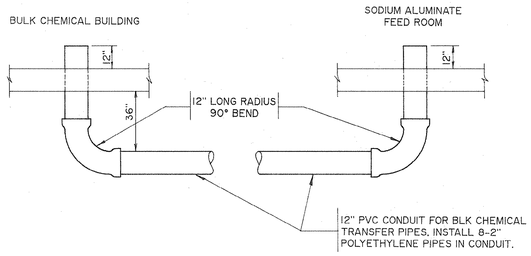
5 / 1 12 — PIPING LAYOUT
SCALE: 1/4" = 1'-0"



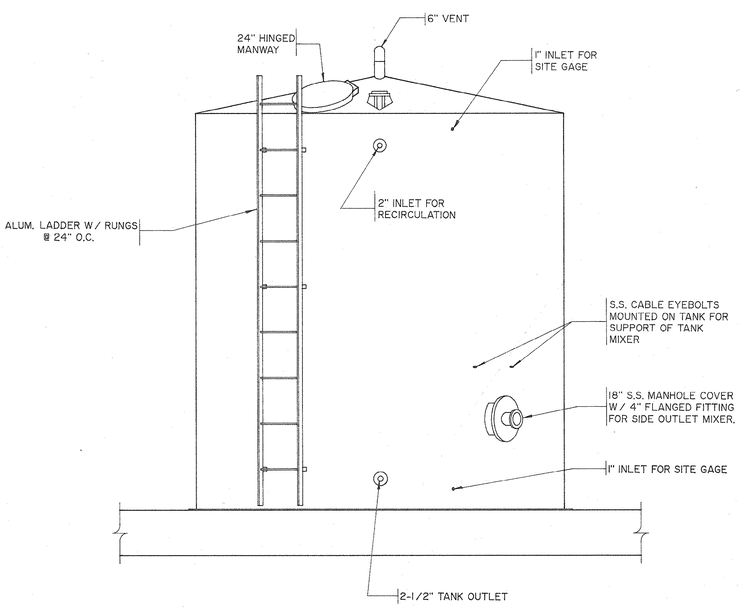
1 / 12 12 — DETAIL
SCALE: 1/2" = 1'-0"



PIPING SCHEMATIC
NTS



2 / 12 12 — 12" CONDUIT
NTS



3 / 12 12 — TANK OPENING AND APPURTENANCES DETAIL
SCALE: 1\2" = 1'-0"

33-01-41w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-13-92	RAC

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SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12... DAVID T. UPCHURCH 12-1-89

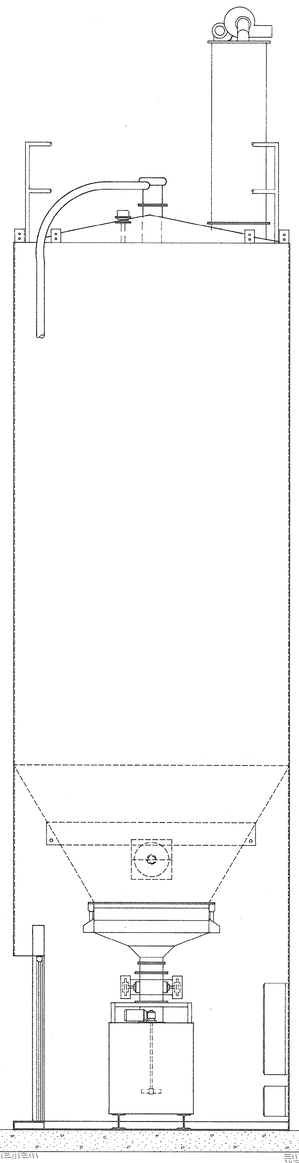
SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12... JOSEPH W. McGUIGAN 12-1-89

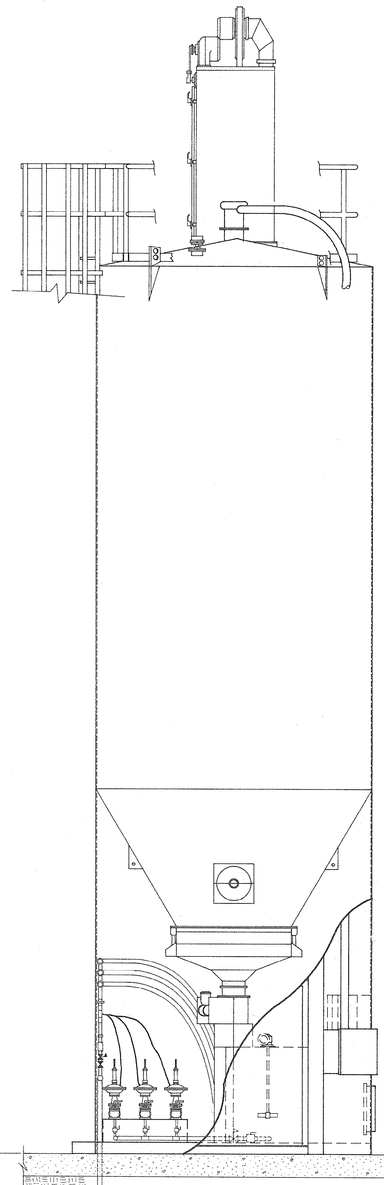
SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

BULK CHEMICAL STORAGE

DATE: NOV. 1989
DESIGNED: JWM
DRAWN: DC
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. EN-12
OF:

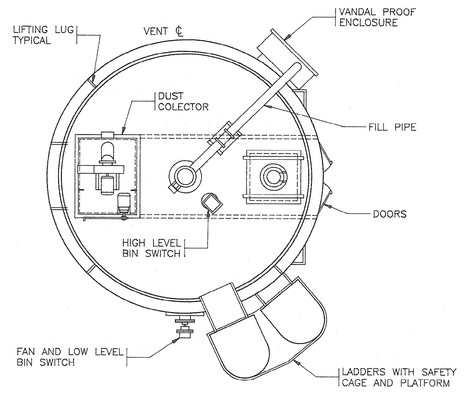
SOUTHERN PHOTO - GREENSBORO 727114



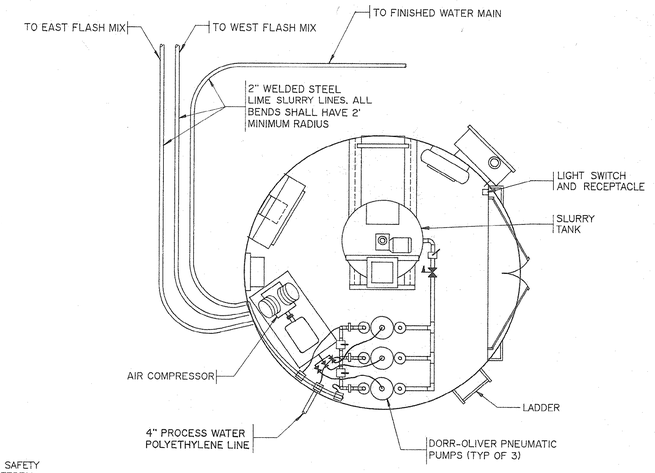


6 / 1 / 13 LIME TOWER - ELEVATION VIEW
SCALE: 3/8" = 1'-0"

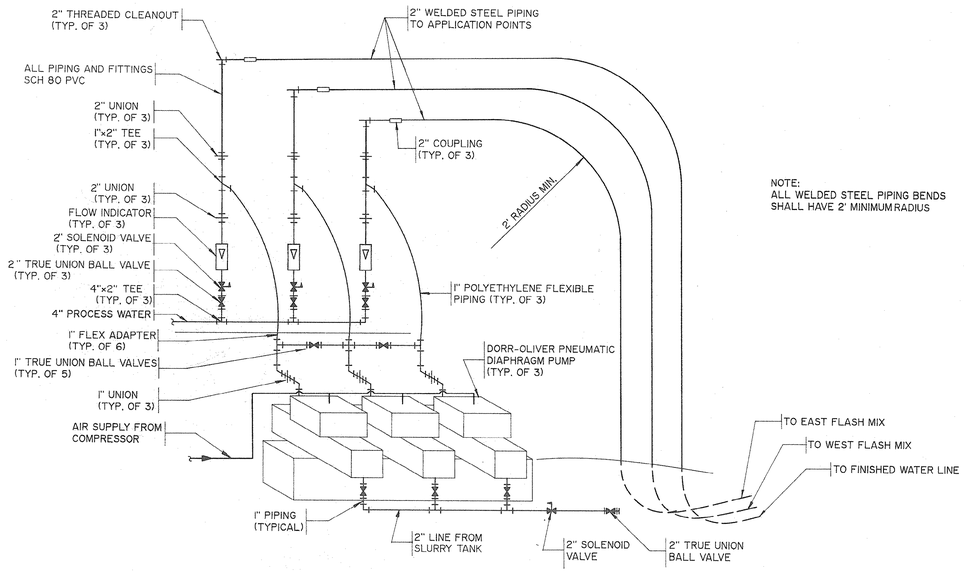
LIME TOWER - CUTAWAY ELEVATION
SCALE: 3/8" = 1'-0"



TOP VIEW
SCALE: 3/8" = 1'-0"



BOTTOM FLOOR PLAN
SCALE: 3/8" = 1'-0"



LIME FEED SCHEMATIC
N.T.S

33-01-42 W

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-13-92	RAC

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SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 7227 RICHARD T. UPCHURCH 12-1-89

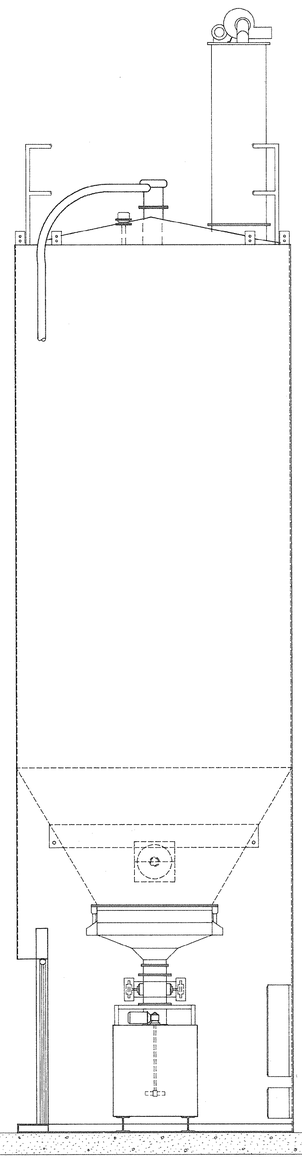
SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 14035 JOSEPH W. McGOUGAN 12-1-89

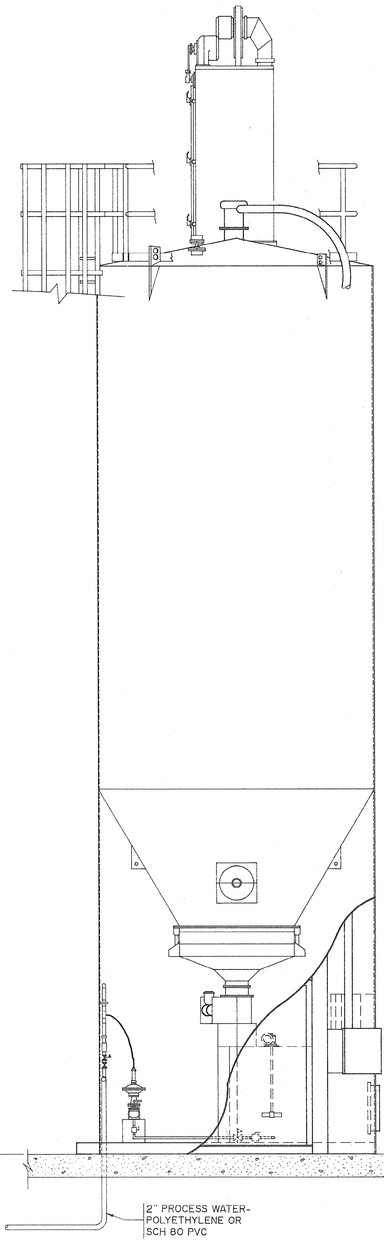
SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

LIME TOWER PLANS AND DETAILS

DATE: NOV. 1989
DESIGNED: JWM
DRAWN: AWH
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. EN-13
OF: _____

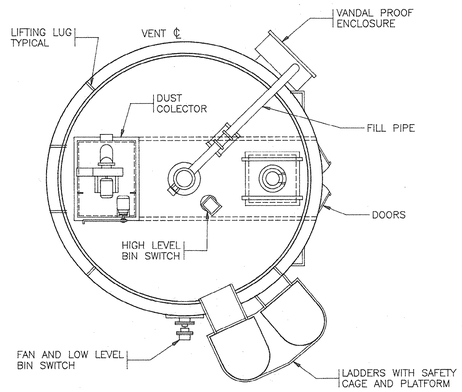
SOUTHERN PHOTO - GREENSBORO 337/88



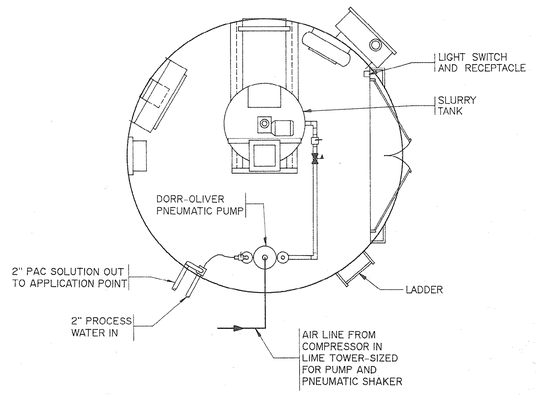


7/14 CARBON TOWER ELEVATION VIEW
SCALE: 3/8" = 1'-0"

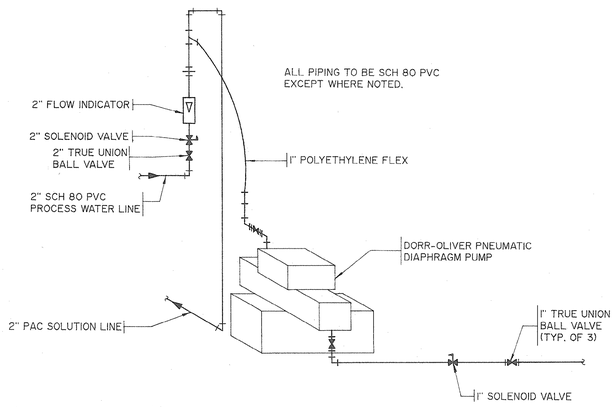
ELEVATION BREAK-OUT VIEW
SCALE: 3/8" = 1'-0"



TOP VIEW
SCALE: 3/8" = 1'-0"



BOTTOM FLOOR PLAN
SCALE: 3/8" = 1'-0"



POWDERED ACTIVATED CARBON
FEED SCHEMATIC
N.T.S.

33-01-43W

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-13-92	RAC

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SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12821 DONALD F. UPCHURCH 12-1-89

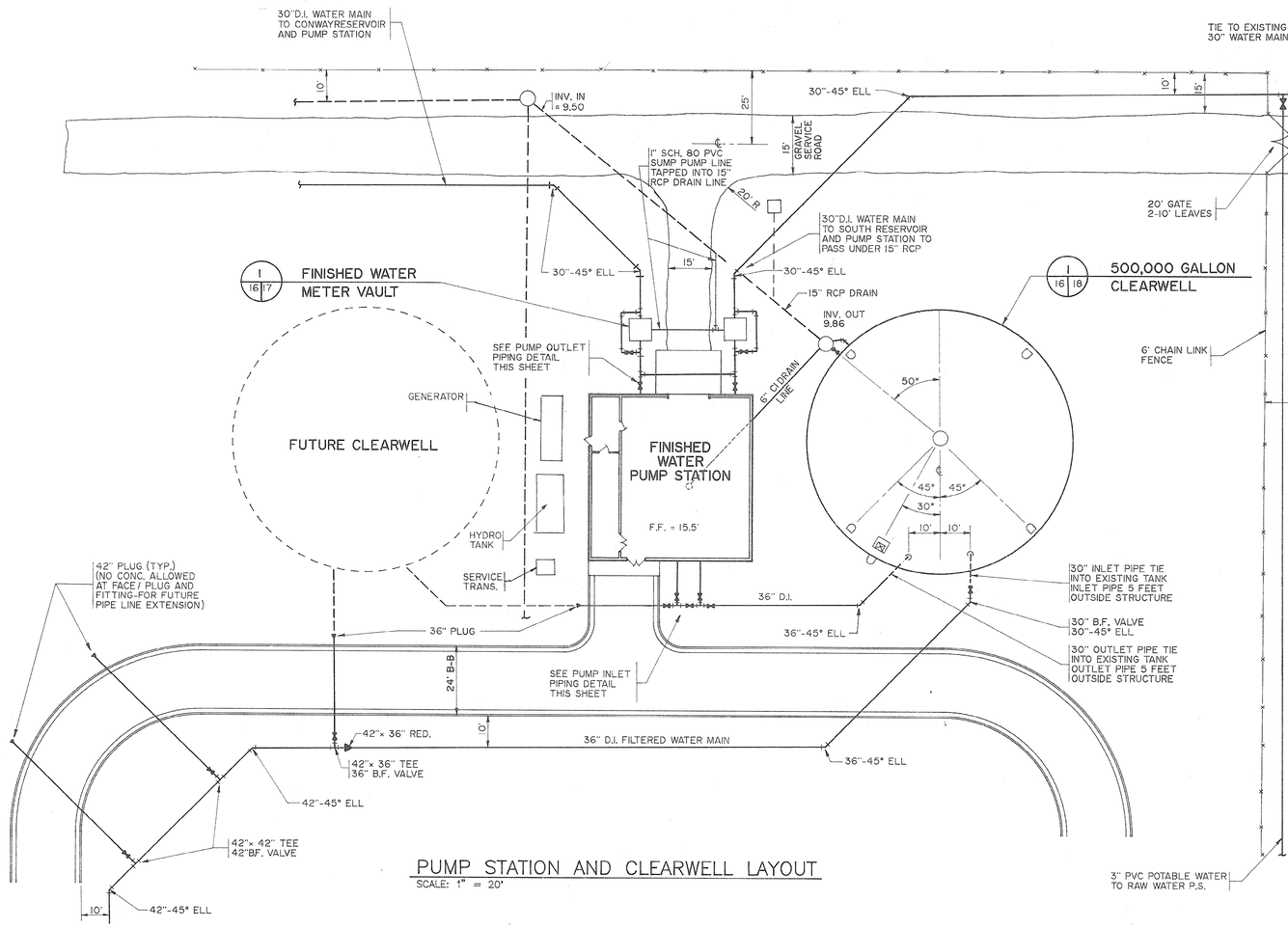
SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 20255 JAMES W. McGOUGAN 12-1-89

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

POWDERED ACTIVATED CARBON TOWER AND DETAILS

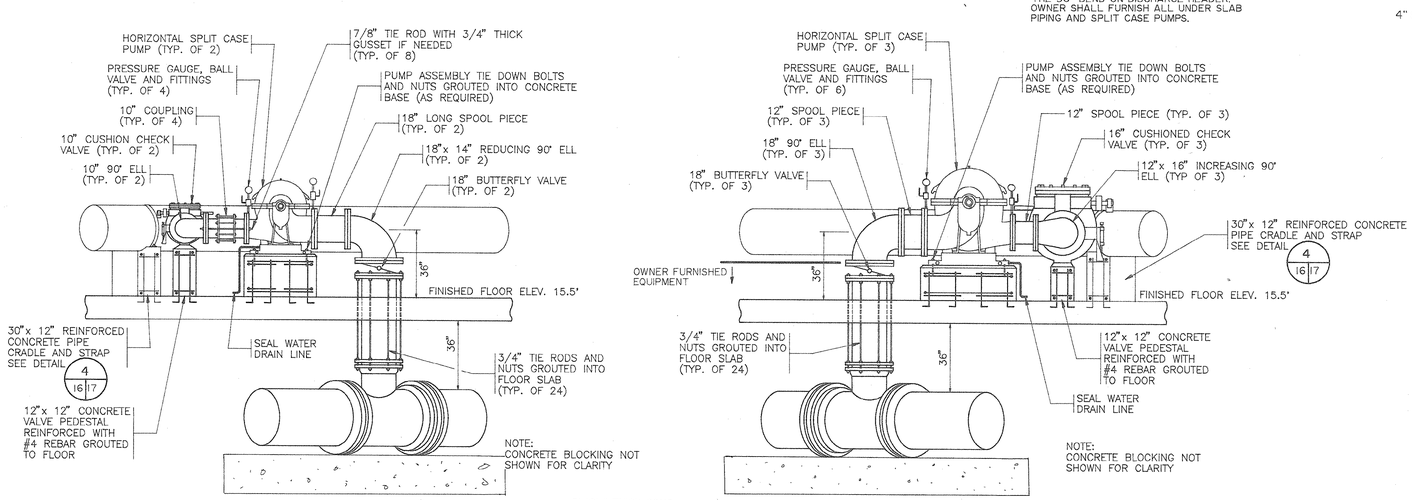
DATE: NOV. 1989
DESIGNED: JWM
DRAWN: AWH
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. EN-14
OF:

DARKEN PHOTO - DESIRED N.T.S.



PUMP STATION AND CLEARWELL LAYOUT
SCALE: 1" = 20'

FINISHED WATER PUMP STATION
SCALE: 3/16" = 1'-0"



1/16/17 CONWAY PUMPS — ELEVATION VIEW
SCALE: 3/8" = 1'-0"

2/16/16 SOUTH PUMPS — ELEVATION VIEW
SCALE: 3/8" = 1'-0"

33-01-44w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	REVISED	2-6-90	JWM
	RECORD DRAWING	1-13-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12127 DAVID T. UPCHURCH 12-1-89

SOUTH CAROLINA REGISTERED LAND SURVEYOR No. 12335 JOSEPH W. McGOUGAN 12-1-89

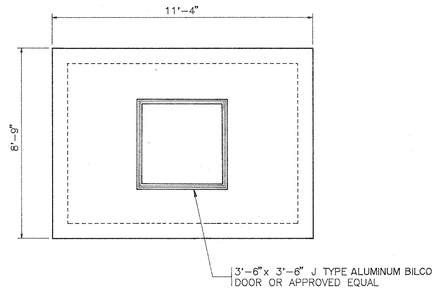
SURFACE WATER TREATMENT PROJECT
GRAND STRAND WATER AND SEWER AUTHORITY

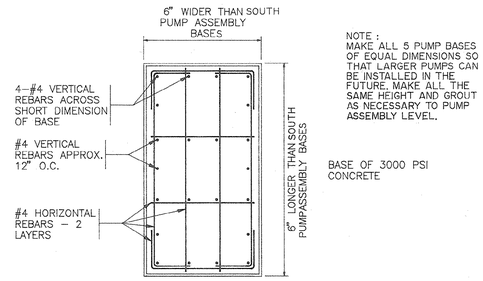
FINISHED PUMPING STATION

DATE: NOV.1989
DESIGNED: JWM
DRAWN: DC
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. EN-16
OF: _____

SOUTHERN PHOTO - DISTRIBUTION 727-1102

NOTE:
1. ALL PIPING TO BE 24" DI MJ EXCEPT DI FLANGED IN METER VAULTS AND PVC MAINS TO CONWAY AND SOUTH PUMP STATIONS
2. METER VAULT AND PIPING SHOWN FOR CONWAY SIDE, SOUTH SIDE WILL BE A MIRROR IMAGE OF CONWAY

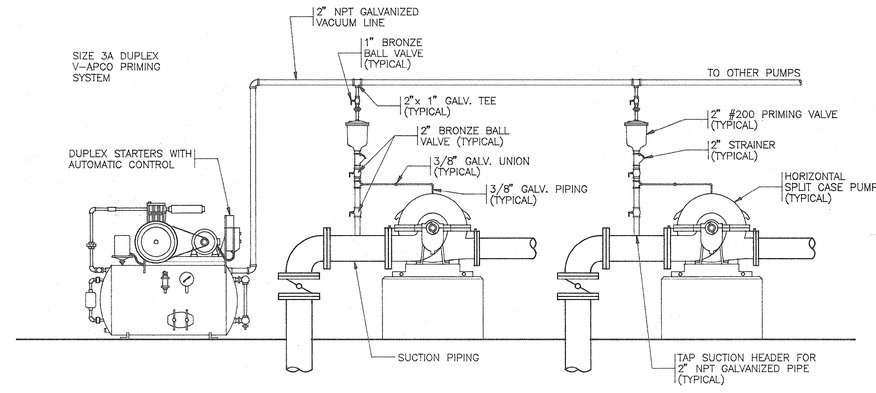




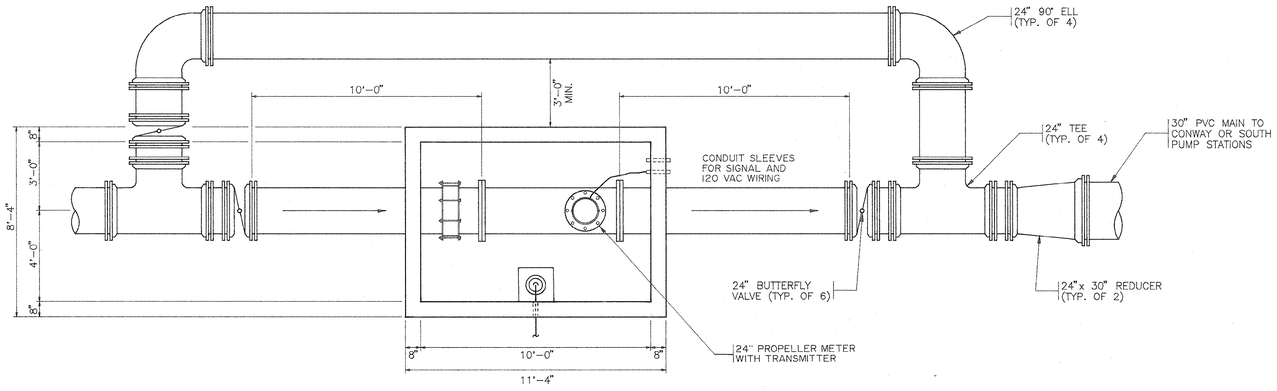
NOTE :
MAKE ALL 5 PUMP BASES OF EQUAL DIMENSIONS SO THAT LARGER PUMPS CAN BE INSTALLED IN THE FUTURE. MAKE ALL THE SAME HEIGHT AND GROUT AS NECESSARY TO PUMP ASSEMBLY LEVEL.

BASE OF 3000 PSI CONCRETE

3 / 16 | 17 CONCRETE PUMP BASE DETAIL
SCALE: 1/2" = 1'-0"

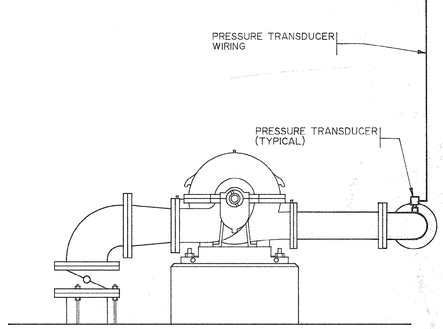


2 / 16 | 17 PUMP PRIMING SYSTEM
SCALE: 1/2" = 1'-0"

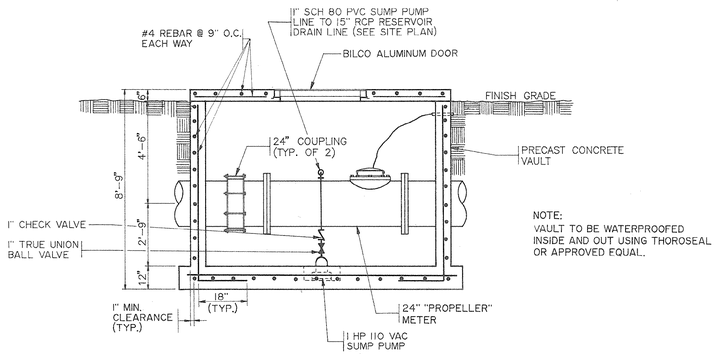


PLAN VIEWS

SUPPLY 2 - 1" NPT FEMALE TAPS- ONE FOR PRESSURE TRANSDUCER-ONE PLUGGED SPARE

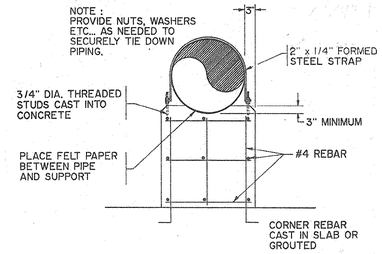


PUMP CONTROL SCHEMATIC
NTS



NOTE:
VAULT TO BE WATERPROOFED INSIDE AND OUT USING THOROSEAL OR APPROVED EQUAL.

1 / 16 | 17 METER VAULT DETAILS
SCALE: 3/8" = 1'-0"



4 / 16 | 17 CONC. PIPE CRADLE AND STRAP DETAIL
N.T.S.

33-01-45w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-13-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12927 DONALD T. UPCHURCH 12-1-89

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12905 JOSEPH W. McGOUGAN 12-1-89

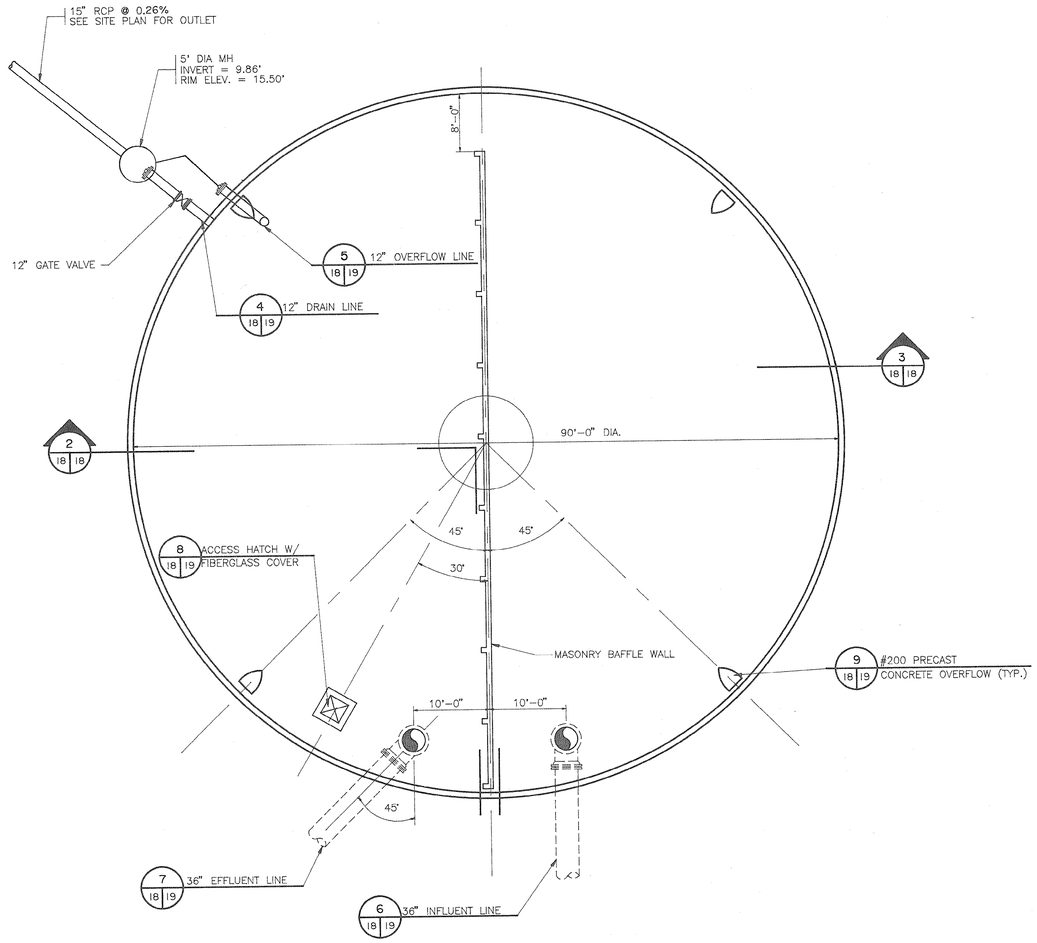
SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

FINISHED PUMP STATION DETAILS

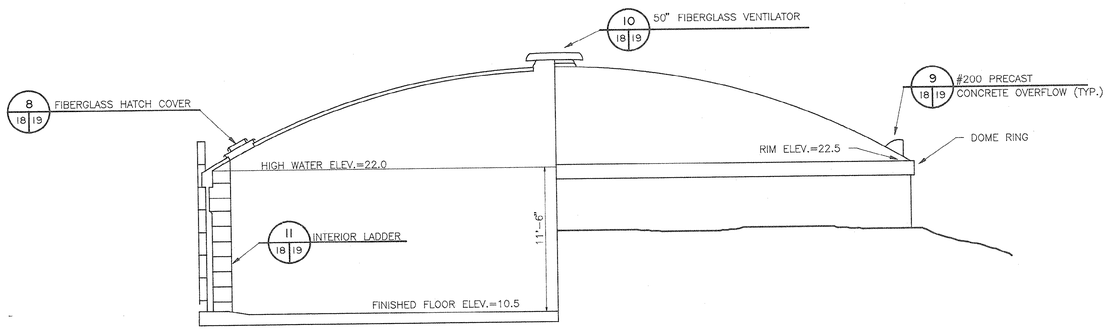
DATE: NOV., 1989
DESIGNED: RSH
DRAWN: DC
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. EN-17
OF: _____

GS8805

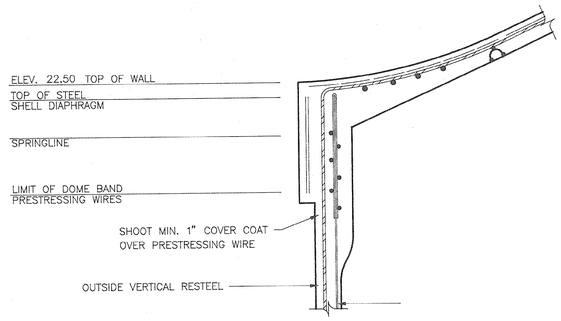
SOUTHERN PHOTO - GREENSBORO 112788



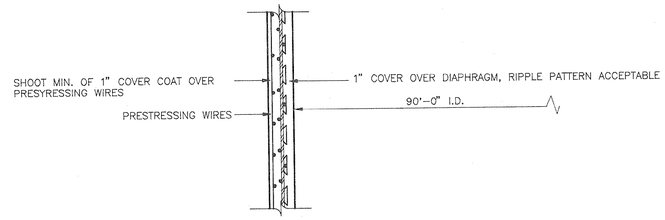
1 16|18 500,000 GALLON CLEARWELL – PLAN
NTS



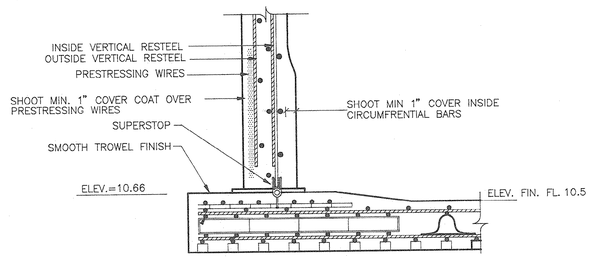
2 18|18 500,000 GALLON CLEARWELL – SECTION
NTS



3 18|18 DOME RING DETAIL
NTS



3 18|18 HORIZONTAL WALL SECTION
NTS



3 18|18 FLOOR–WALL DETAIL
NTS

33-01-46w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	REVISED	2-6-90	JWM
	REVISED	2-13-90	JWM
	RECORD DRAWING	1-13-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
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SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12227 DAVID T. UPCHURCH 12-1-89

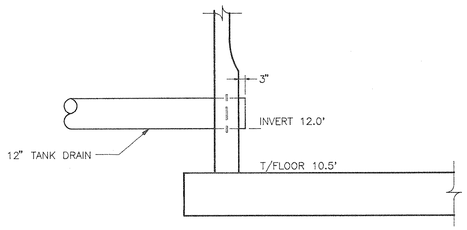
SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 13355 JOSEPH W. McGOUGAN 12-1-89

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

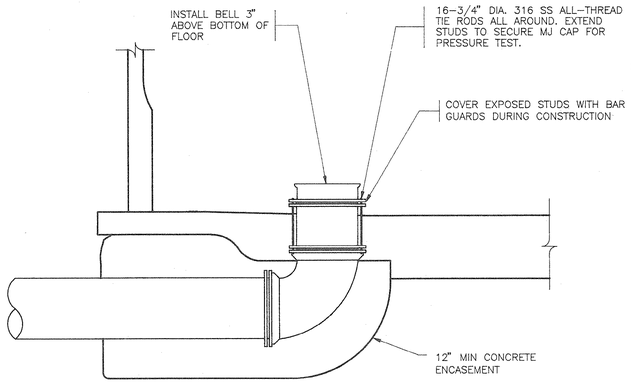
500,000 GALLON CLEARWELL PLAN AND SECTIONS

DATE: NOV. 1989
DESIGNED: JWM
DRAWN: DC
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. EN-18
OF: ____

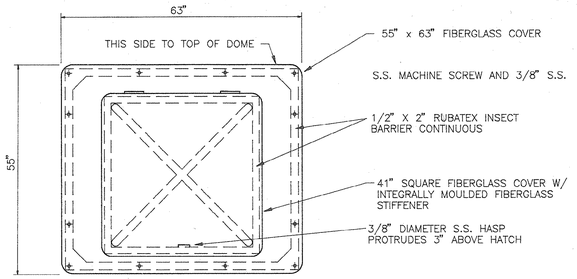
SOUTHERN PHOTO - GREENSBORO



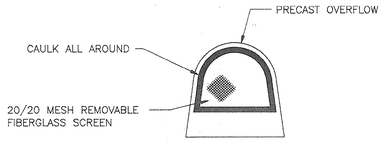
4 / 18 19 — 12" DIP DRAIN
NTS



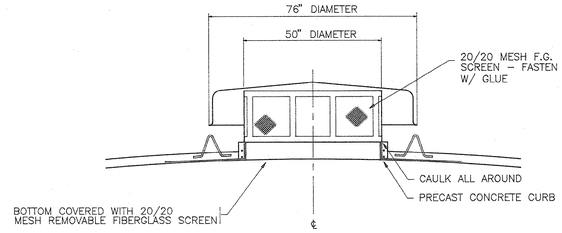
6 / 18 19 — 36" INFLUENT
NTS



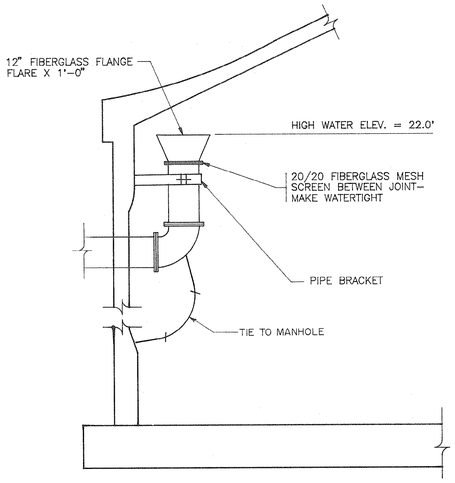
8 / 18 19 — FIBERGLASS HATCH COVER
NTS



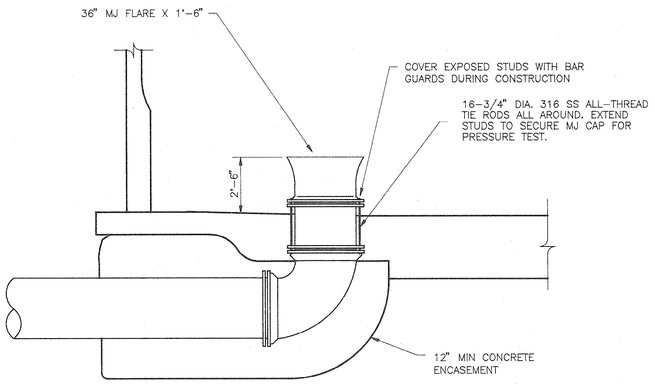
9 / 18 19 — OVERFLOW DETAIL
NTS



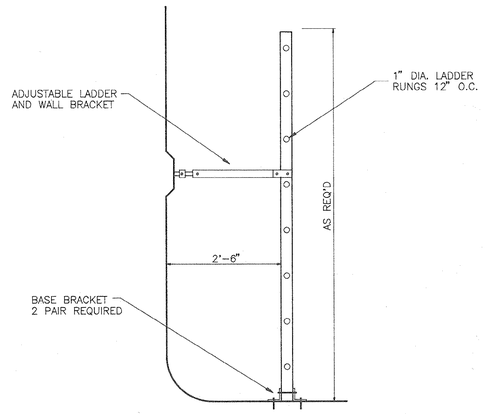
10 / 18 19 — 50" FIBERGLASS VENTILATOR
NTS



5 / 18 19 — 12" DIP OVERFLOW
NTS



7 / 18 19 — 36" EFFLUENT
NTS



11 / 18 19 — INTERIOR FIBERGLASS LADDER
NTS

33-01-47w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	REVISED	2-6-90	JWM
	REVISED	2-13-90	JWM
	RECORD DRAWING	1-13-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12247 DAVID T. UPCHURCH 12-1-89

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12335 JOSEPH W. McGOUGAN 12-1-89

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

500,000 GALLON CLEARWELL DETAILS

DATE: NOV. 1989
DESIGNED: JWM
DRAWN: DC
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. EN-19
OF:

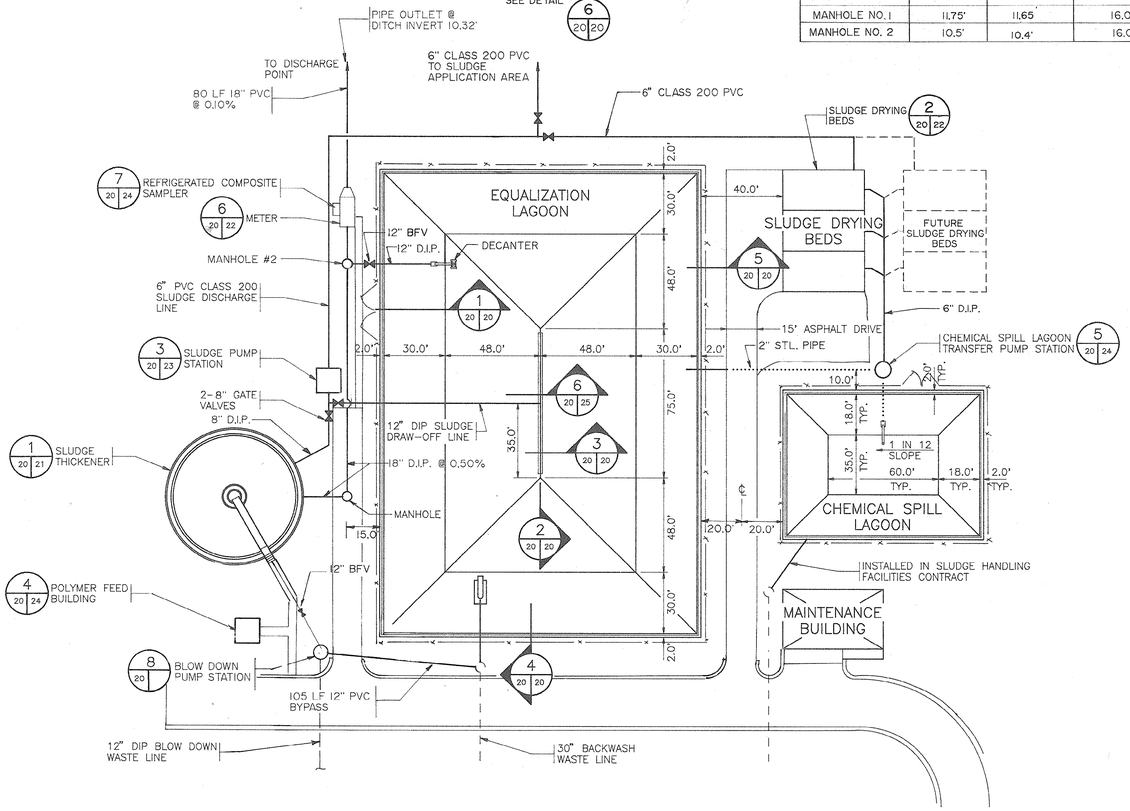
SOUTHERN PHOTO - GREENSBORO 1127845

NOTE :

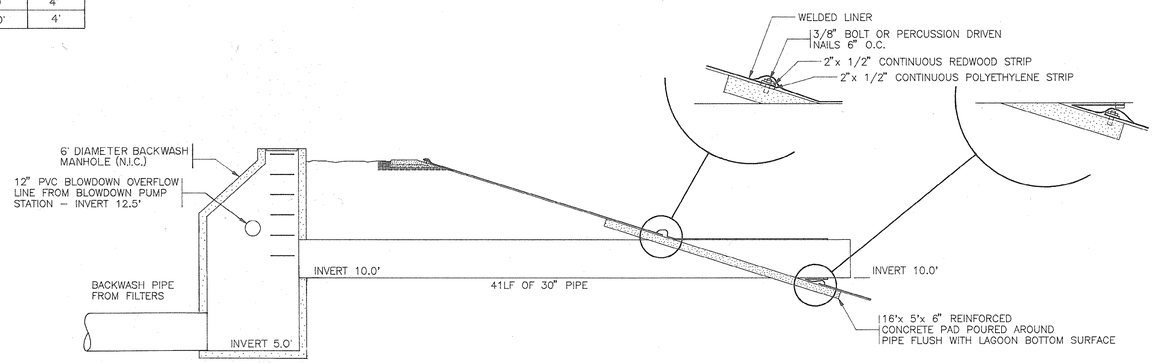
CONSTRUCT CONCRETE HEADWALL AT OUTLET OF PIPE. SEE DETAIL 6/20|20

MANHOLE SCHEDULE

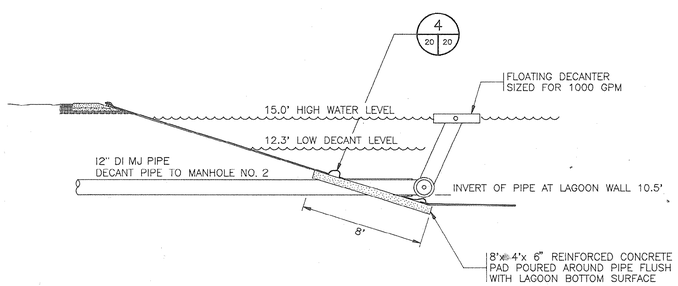
MANHOLE NO.	INVERT IN	INVERT OUT	RIM ELEV.	DIA.
MANHOLE NO. 1	11.75'	11.65'	16.0'	4'
MANHOLE NO. 2	10.5'	10.4'	16.0'	4'



ALUM SLUDGE FACILITIES – REVISED LAYOUT PLAN
SCALE: 1" = 30'

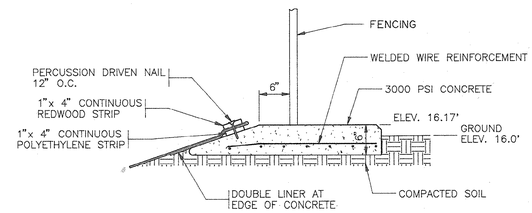


4/20|20 BACKWASH PIPING TO LAGOON DETAIL
NTS

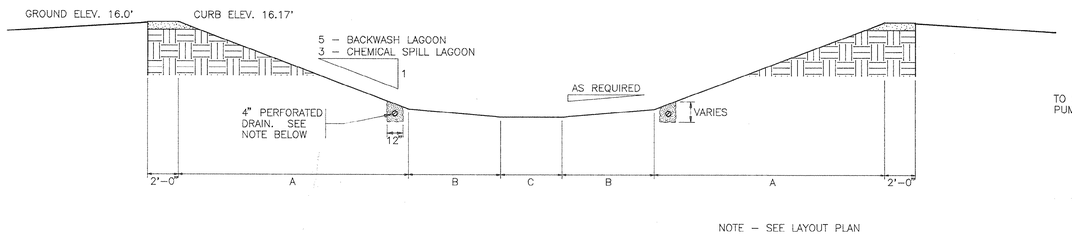


1/20|20 LAGOON DECANT AND THICKENER EFFLUENT PIPING DETAIL
SCALE: 1/4" = 1'-0"

NOTE:
FENCING WILL BE INSTALLED AROUND THE LAGOONS UNDER THE SLUDGE HANDLING FACILITY CONTRACT.



5/20|20 LAGOON PERIMETER AND LINER ATTACHMENT DETAIL (TYPICAL)
SCALE: 1" = 1'-0"



NOTE:
LINE THE EQUALIZATION AND CHEMICAL SPILL LAGOON WITH 8" OF GRANULAR FILL PRIOR TO PLACEMENT OF FABRIC.

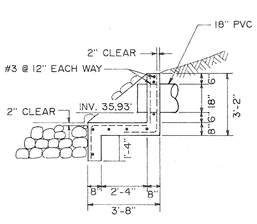
NOTE – SEE LAYOUT PLAN

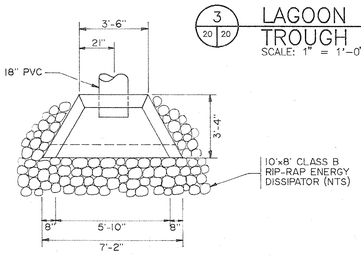
TYPICAL LAGOON CROSS SECTION
SCALE: 1/4" = 1'-0"

NOTE:
A 4" PERFORATED DRAIN SYSTEM WILL BE INSTALLED AROUND THE BOTTOM PERIMETER OF THE BACKWASH LAGOON AND THE CHEMICAL SPILL LAGOON, PIPED TOGETHER AND DISCHARGED INTO DITCH AT THE STORM DRAINAGE HEAD WALL. THE PERFORATED PIPE WILL BE INCASED IN WASHED STONE AND WRAPPED WITH A FILTER FABRIC. THE OUTLET WILL BE COVERED WITH A FIBERGLASS RODENT SCREEN SECURED TO THE PIPE WITH STAINLESS STEEL BAND CLAMPS.

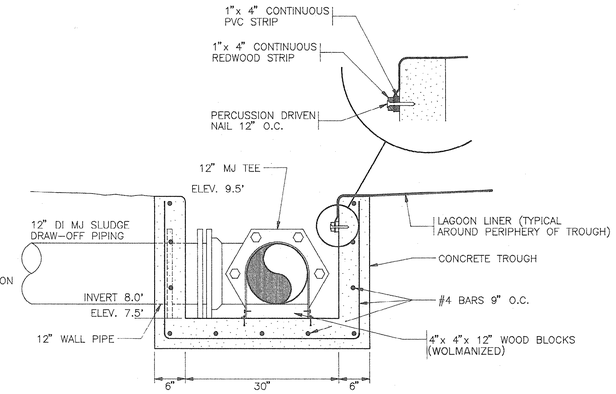
LAGOON DIMENSION TABLE

	A	B	C	BOTTOM ELEVATION
MAIN SLUDGE LAGOON				
LONG AXIS	30'	48'	75'	9.5'
SHORT AXIS	30'	48'	N/A	9.5'
CHEMICAL SPILL LAGOON				
LONG AXIS	18'	N/A	60'	10.17'
SHORT AXIS	18'	N/A	35'	10.17'

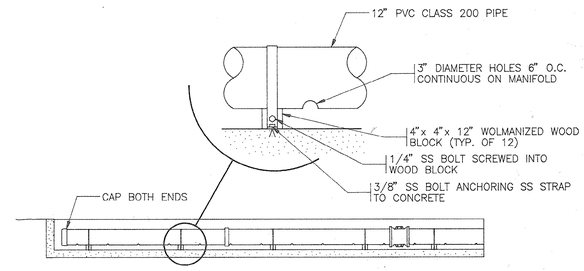




6/20|20 HEADWALL DETAIL
N.T.S.



3/20|20 LAGOON SLUDGE DRAW-OFF TROUGH AND PIPING DETAIL
SCALE: 1" = 1'-0"



2/20|20 SLUDGE DRAW-OFF MANIFOLD
SCALE: 1/4" = 1'-0"

33-01-48w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	REVISED	2-6-90	JWM
	REVISED	8-1-90	JWM
	REVISED	8-21-90	RKK
	REVISED	9-6-90	JWM
	RECORD DRAWING	1-13-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12335 JOSEPH W. McGOUGAN 12-1-89

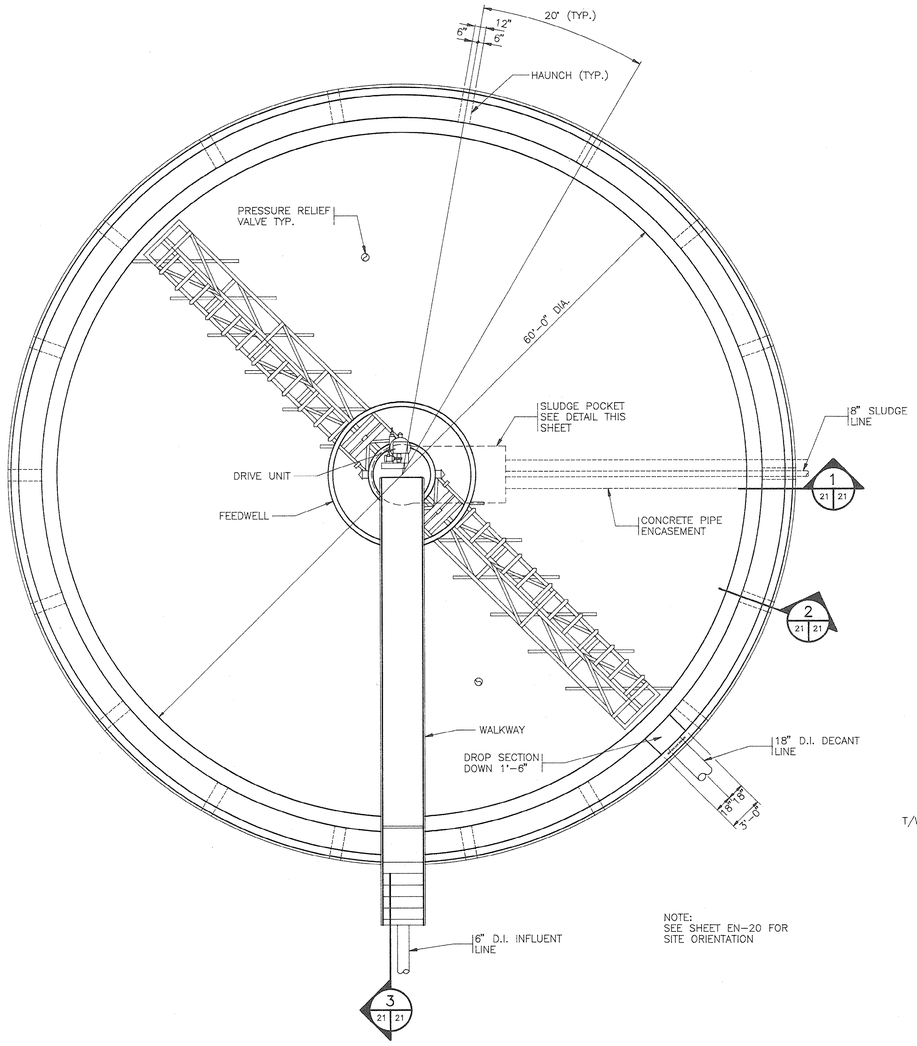
SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 14022 DAVID T. UPCHURCH 12-1-90

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

ALUM SLUDGE FACILITIES PLAN AND DETAILS

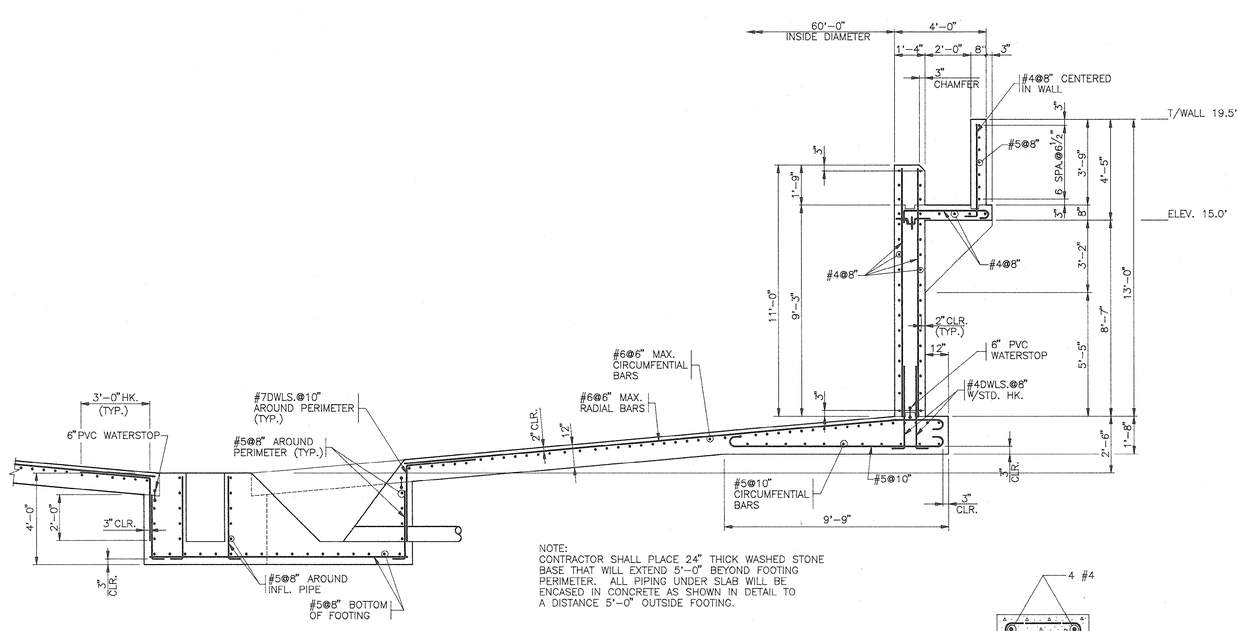
DATE: NOV. 1989
DESIGNED: JWM
DRAWN: DC
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. EN-20
OF: 26

PROJECT # 0588.03 FILE NAME: 803.DWG DATE: 8-1-90 SCALE: 1/4"=1'-0"



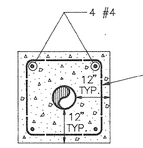
NOTE:
SEE SHEET EN-20 FOR SITE ORIENTATION

1 20 21 PLAN — SLUDGE THICKENER
SCALE: 3/16" = 1'-0"

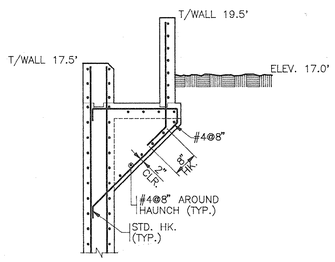


NOTE:
CONTRACTOR SHALL PLACE 24" THICK WASHED STONE BASE THAT WILL EXTEND 5'-0" BEYOND FOOTING PERIMETER. ALL PIPING UNDER SLAB WILL BE ENCASED IN CONCRETE AS SHOWN IN DETAIL TO A DISTANCE 5'-0" OUTSIDE FOOTING.

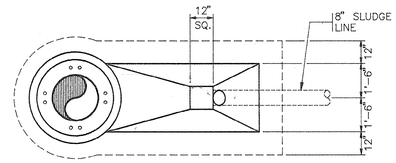
1 21 21 SECTION
SCALE: 3/8" = 1'-0"



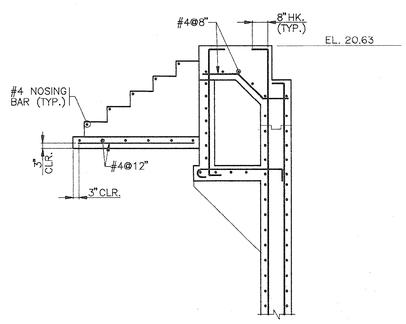
PIPE ENCASEMENT DETAIL
N.T.S.



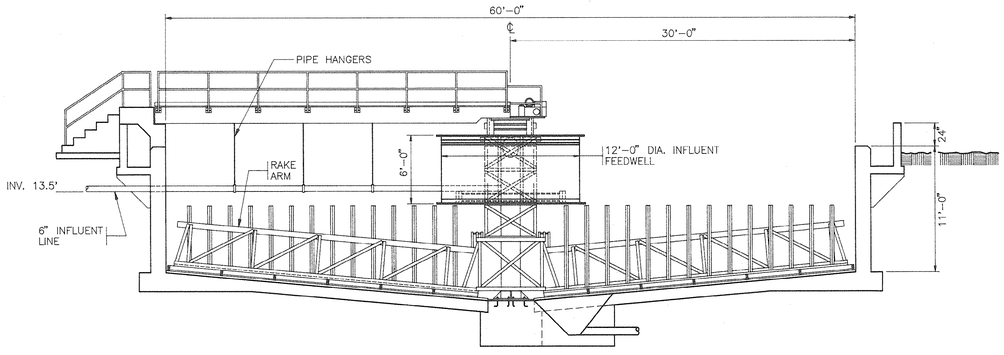
2 21 21 SECTION THRU HAUNCH
SCALE: 3/8" = 1'-0"



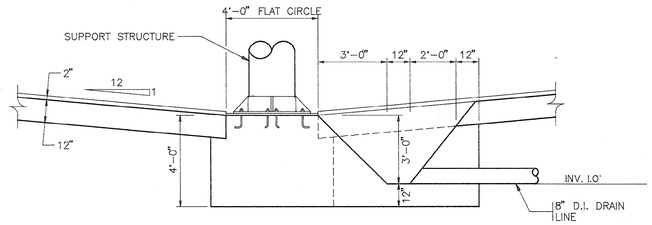
PLAN—SLUDGE POCKET
SCALE: 3/8" = 1'-0"



3 21 21 SECTION THRU STAIR
SCALE: 3/8" = 1'-0"



ILLUSTRATIVE SECTION
SCALE: 3/16" = 1'-0"



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

33-01-49w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-13-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12936 JOSEPH W. McDOUGAN 8-1-90

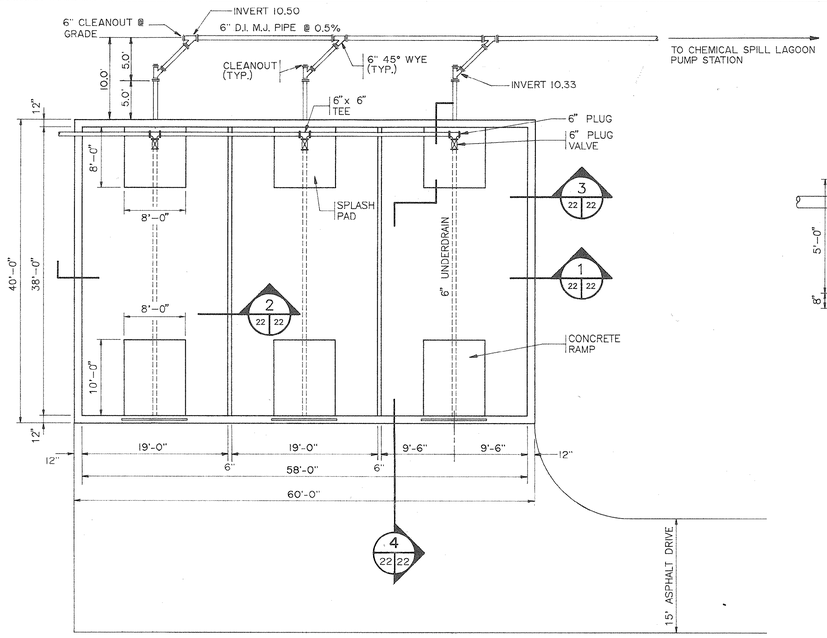
SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12107 DAVID T. UPCHURCH 8-1-90

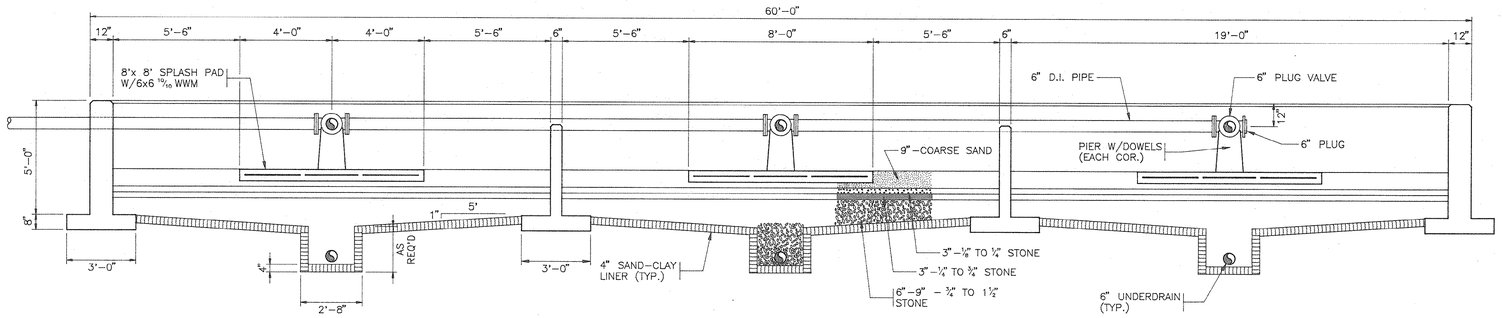
SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

SLUDGE THICKENER PLAN AND SECTIONS

DATE: 8-1-90
DESIGNED: JWM
DRAWN: DC
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. EN-21
OF 26

PROJECT #: 638802 FILE NAME: EN21.DWG DATE: 8-1-90 SCALE: 3/16"=1'-0"

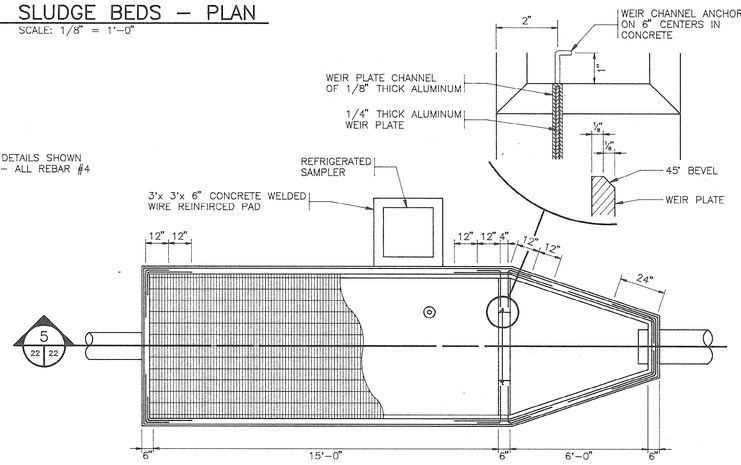




1 / 22 22 **SECTION**
SCALE: 3/8" = 1'-0"

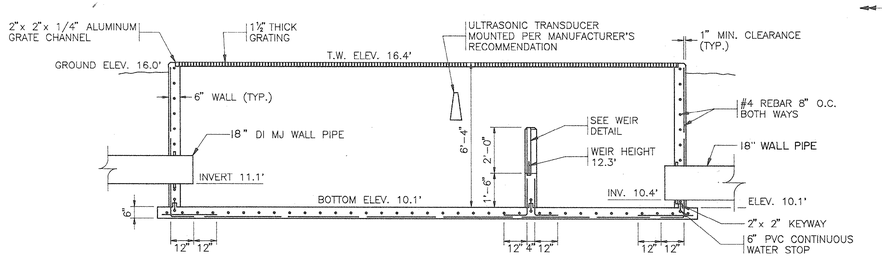
2 / 20 22 **SLUDGE BEDS — PLAN**
SCALE: 1/8" = 1'-0"

REINFORCING DETAILS SHOWN ARE TYPICAL — ALL REBAR #4



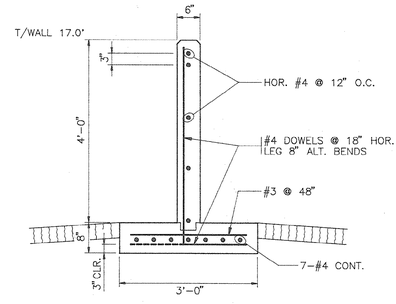
5 / 22 22

6 / 20 22 **WEIR BOX FOR FLOW MEASUREMENT PLAN VIEW**
SCALE: 3/8" = 1'-0"

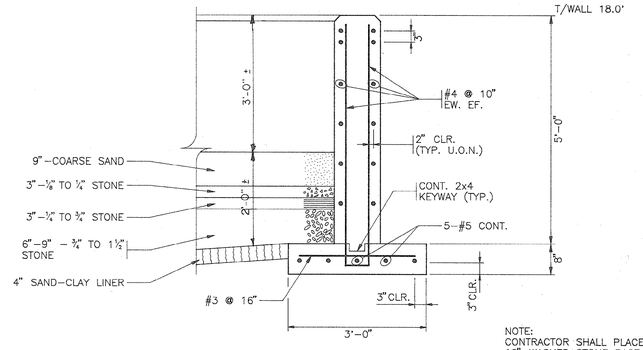


5 / 22 22 **WEIR BOX FOR FLOW MEASUREMENT SECTION VIEW**
SCALE: 3/8" = 1'-0"

NOTE:
CONTRACTOR SHALL PLACE 12" WASHED STONE BASE UNDER STRUCTURE, EXTENDING 12" BEYOND FOOTING PERIMETER.



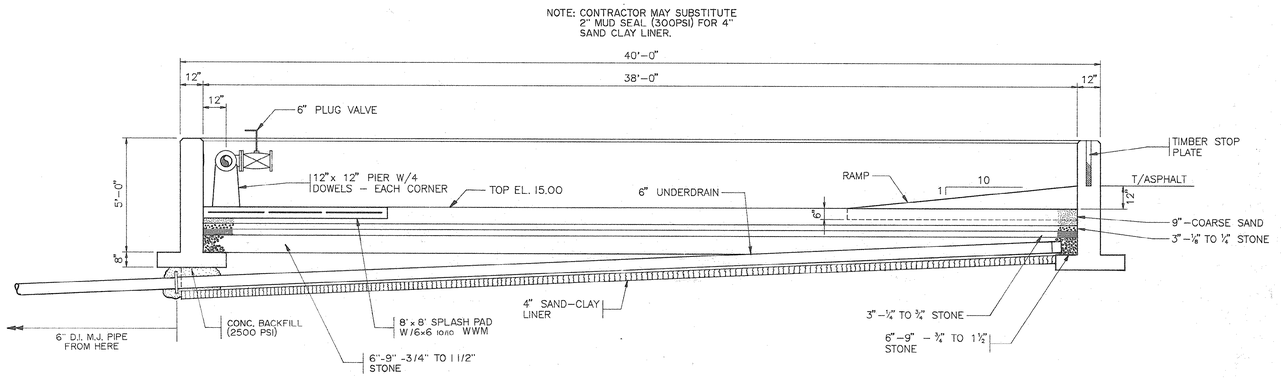
2 / 22 22 **SECTION**
SCALE: 3/4" = 1'-0"



3 / 22 22 **SECTION**
SCALE: 3/4" = 1'-0"

NOTE:
CONTRACTOR SHALL PLACE 12" WASHED STONE BASE UNDER FOOTINGS, EXTENDING 12" OUTSIDE FOOTING PERIMETER.

NOTE: CONTRACTOR MAY SUBSTITUTE 2" MUD SEAL (300PSI) FOR 4" SAND CLAY LINER.



4 / 22 22 **SECTION**
SCALE: 3/8" = 1'-0"

33-01-50w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	REVISED	8/21/90	JWM
	RECORD DRAWING	1-13-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12335 KENNETH W. McGUGAN 8-1-90

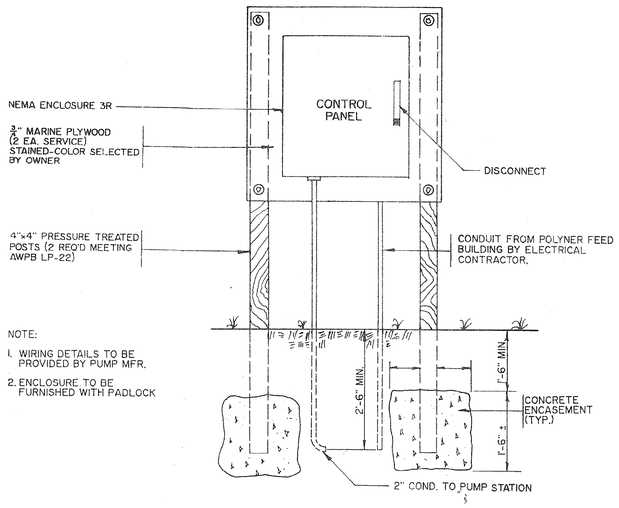
SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12224 DANIEL T. UPCHURCH 8-1-90

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

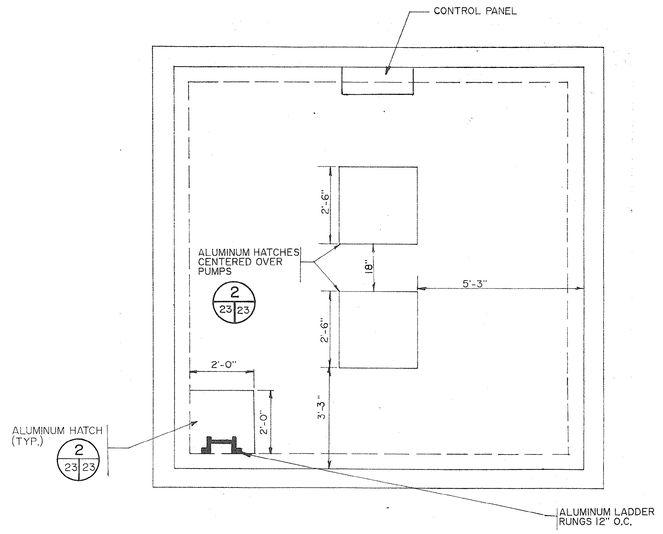
SLUDGE DRYING BEDS SECTIONS AND DETAILS

DATE: 8-1-90
DESIGNED: JWM
DRAWN: DC
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. EN-22
OF: 26

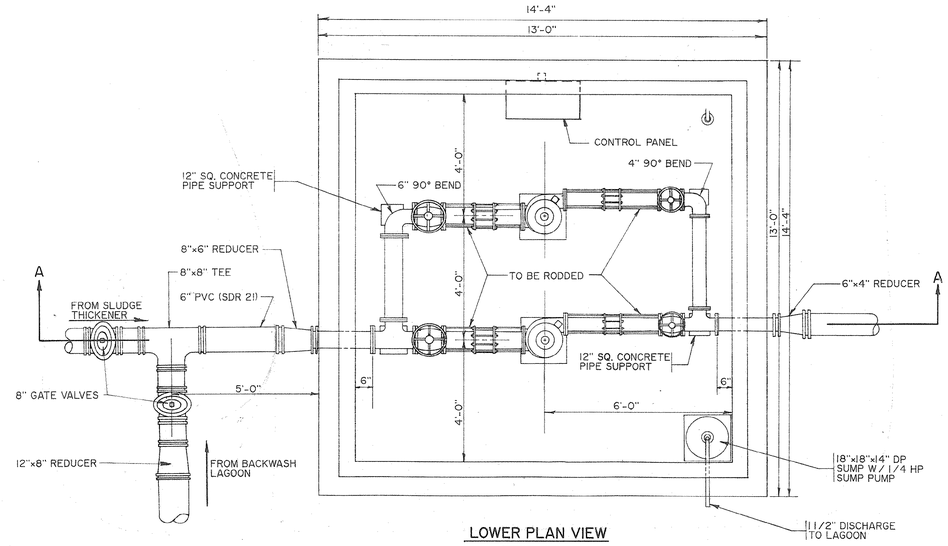
PROJECT #: 9389.02 FILE NAME: EN26.DWG DATE: 8-1-90 SCALE: 1/8"=1'-0"



1/23|23 ELECTRICAL SERVICE DETAIL
(PAD MOUNTED) SEE SECTION A-A

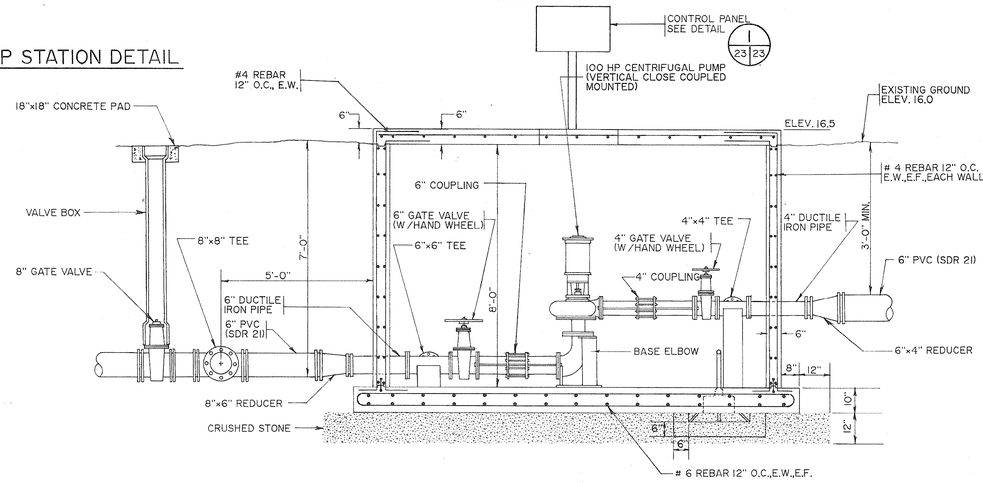


UPPER PLAN VIEW

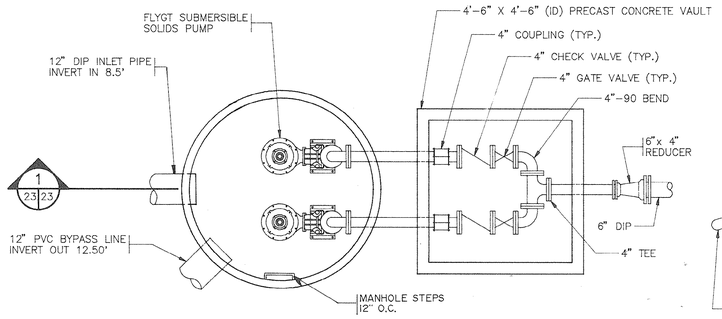


LOWER PLAN VIEW

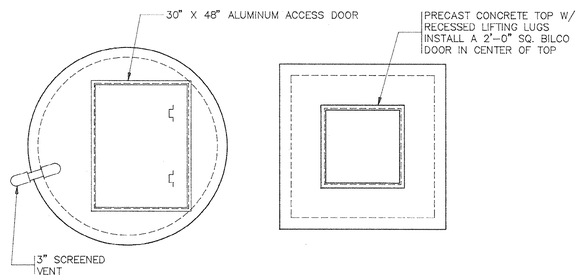
3/20|23 SLUDGE PUMP STATION DETAIL



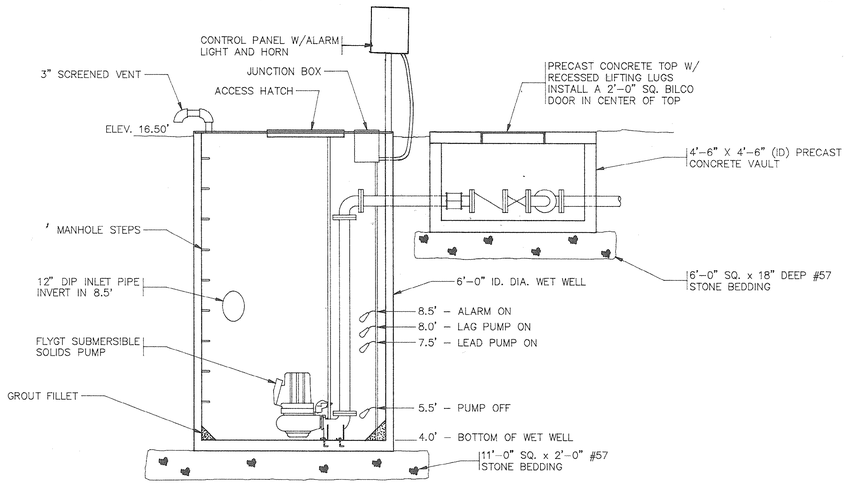
SECTION A-A



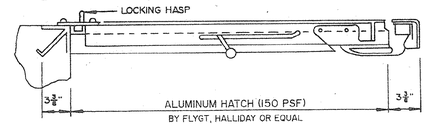
SLUDGE BLOW-DOWN PUMP STATION
NTS



PUMP STATION TOP – PLAN VIEW
NTS



1/23|23 SECTION
NTS



2/23|23 HATCH DETAIL

33-01-51w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	CHANGED PUMP STATION ONE PUMP TO TWO	8-27-90	CKT
	RECORD DRAWING	1-13-92	RAC

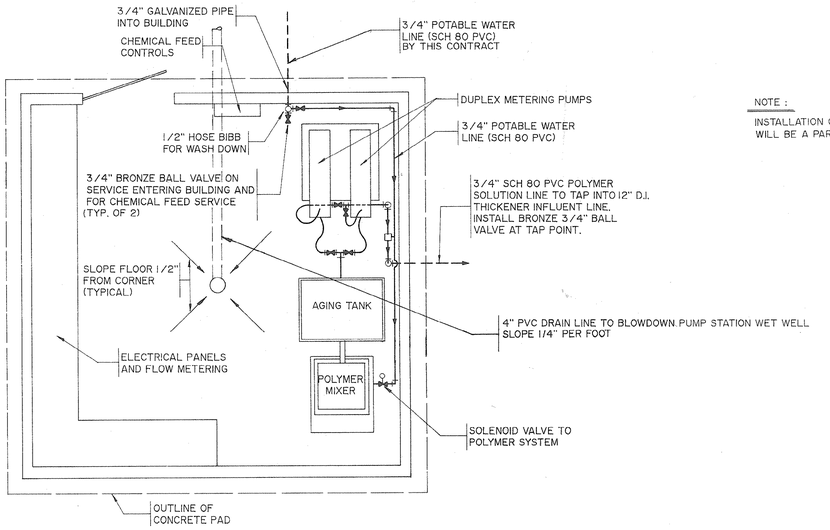
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

THICKENED SLUDGE PUMP STATION

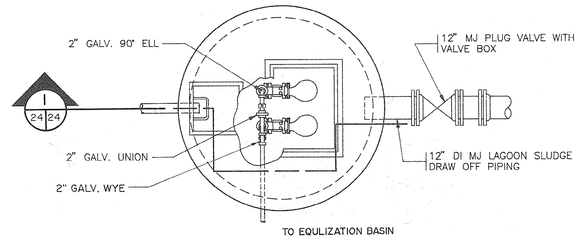
DATE: AUG. 1990
DESIGNED: ETW
DRAWN: CKT
CHECKED: JWM
SCALE: AS SHOWN
SHEET NO. EN-23
OF: 26

SOUTHERN PHOTO - GREENSBORO N.C.



NOTE :
INSTALLATION OF CHEMICAL FEED SYSTEM WILL BE A PART OF THIS CONTRACT.

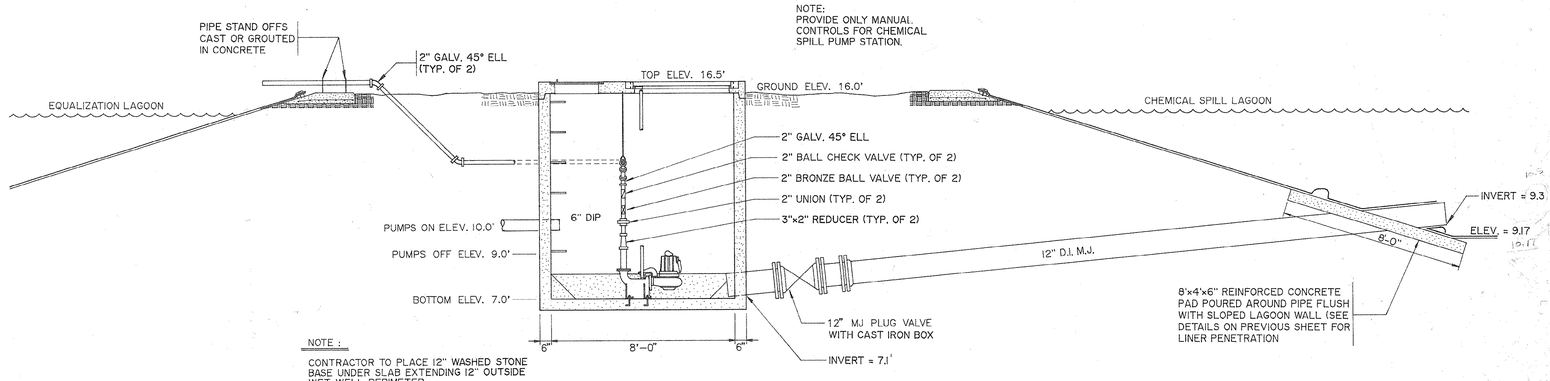
4/20|24 POLYMER BUILDING - PLAN VIEW
SCALE: 1/2" = 1'-0"



5/20|24 CHEMICAL SPILL LAGOON DRAW-OFF PUMP STATION - PLAN VIEW
SCALE: 3/8" = 1'-0"

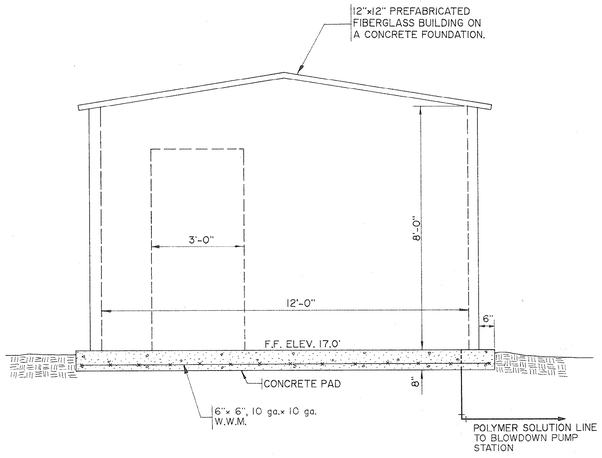
NOTE:
INSTALLATION OF INLET PIPE (8" D.I.) INTO CHEMICAL SPILL LAGOON SHALL BE SIMILAR TO DETAIL 4/20|20
INVERT IN SHALL BE 12.75'

NOTE:
PROVIDE ONLY MANUAL CONTROLS FOR CHEMICAL SPILL PUMP STATION.



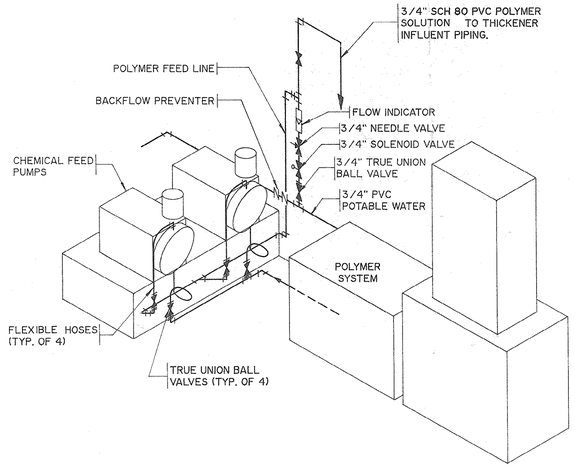
NOTE :
CONTRACTOR TO PLACE 12" WASHED STONE BASE UNDER SLAB EXTENDING 12" OUTSIDE WET WELL PERIMETER.

1/24|24 CHEMICAL SPILL LAGOON DRAW-OFF PUMP STATION - SECTION VIEW
SCALE: 3/8" = 1'-0"



POLYMER BUILDING - SOUTH ELEVATION
SCALE: 1/2" = 1'-0"

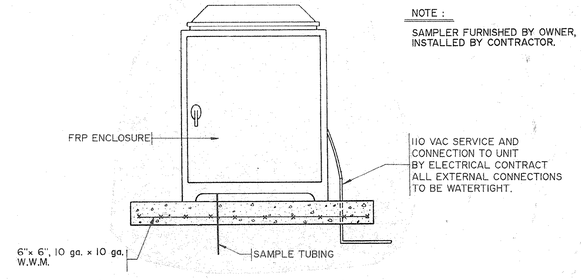
NOTE :
CONTRACTOR SHALL PLACE 12" WASHED STONE BASE UNDER SLAB EXTENDING 12" OUTSIDE SLAB PERIMETER.



SLUDGE THICKENER POLYMER FEED SCHEMATIC
N.T.S.

NOTE :
EQUIPMENT AND INSTALLATION NOT IN THIS CONTRACT. THIS CONTRACT DOES INCLUDE 3/4" SCH. 80 PVC LINE FROM BUILDING TO BLOWDOWN PUMP STATION.

NOTE :
SAMPLER FURNISHED BY OWNER, INSTALLED BY CONTRACTOR.



7/20|24 REFRIGERATED SAMPLER
N.T.S.

33-01-52w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	REVISED	2-6-90	JWM
	CHANGED LOCATION OF 4" PVC DRAIN LINE	7-30-90	CKT
	RECORD DRAWINGS	1-13-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

REGISTERED PROFESSIONAL ENGINEER SOUTH CAROLINA No. 12135 DAVID F. UPCHURCH 12-1-89
REGISTERED PROFESSIONAL ENGINEER SOUTH CAROLINA No. 12135 JAMES W. McDOUGALD 12-1-89

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

SLUDGE POLYMER SYSTEM AND CHEMICAL SPILL LAGOON PUMP STATION

DATE: NOV. 1989
DESIGNED: RSH
DRAWN: AWH
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. EN-24
OF 26

SOUTHERN PHOTO - DUPLIMAID NO.1168

11.00'
1015'
N 09°55'11" E 1124.90'
PROPERTY LINE
915'
N 18°41'38" E 363.98'
EDGE OF DITCH BOUNDARY
N 12°29'35" E 670.70'
S 79°56'27" E 336.17'
S 80°22'50" E 663.14'
REMOVE EXISTING CULVERT
60'
MW # 4
50'
MW # 3
MW # 2
MW #5
MW # 1
REGRADE THIS AREA TO SLOPE TO DITCH
EFFLUENT BOX
REGRADE DITCH BANKS TO PROVIDE SURFACE DRAINAGE
10.0'
2-6" GATE VALVES
EQUALIZATION LAGOON
6" SDR 21 PVC PIPE (TYPICAL)
9.0'
EDGE OF DITCH BOUNDARY
SLUDGE DRYING BEDS
0.35 % SLOPE
INVERT 8.00'
EXISTING 36" CULVERT
SEE SHEET G-6
6" PLUG
6"x6" TEE WITH 6"x6" RISER CONNECTION (TYP.) PROVIDE VALVE OPENING ELBOW WITH CLAMP-LOC-RING
35'
GUN CART (TYPICAL)
PROVIDE 4' OF COVER OVER THIS MAIN
1130LF 6" SDR 21 PVC WATER MAIN
260LF 6" SDR 21 PVC WATER MAIN
90°
6"x6" TEE
3-6" GATE VALVES
230'
PLANT GRID AZIMUTH 184°20'00"
#286 N. 1926.6472 E. 606.5146 PLANT GRID COORDINATE
290'
270LF 6" SDR 21 PVC WATER MAIN
6" PLUG
35'
EXISTING SOIL ROAD
EXISTING SOIL ROAD
SPRAY FIELD BOUNDARY ADJACENT PROPERTY OWNER-GSW&SA
155'
160' (TYPICAL)
S 12°16'50" W 2951.39'
SPRAY FIELD BOUNDARY ADJACENT PROPERTY OWNER-GSW&SA

PHASE ONE IRRIGATION LAYOUT

SCALE 1" = 60'

DRAINAGE DITCH REGRADING

1. REGRADE DITCH TO SPOT SHOTS SHOWN ABOVE
2. TYPICAL CROSS SECTION OF DITCH SHOWN IN SPECIAL PROVISIONS
3. REGRADE DITCH BANKS TO ALLOW SURFACE RUN-OFF TO ENTER DITCH
4. REMOVE AND DISPOSE OF ALL DEBRIS AND SPOIL MATERIAL FROM DITCH AND DITCH BANKS. SUITABLE SOIL WILL BE STOCKPILED ON SITE. UNSUITABLE SOIL SHALL BE DISPOSED OF AS DIRECTED BY ENGINEER
5. DITCH SECTION SHALL BE SEEDED, MULCHED AND TACKED.
6. THE OWNER MAY FLAG TREES THAT ARE TO REMAIN.

NOTES :

1. THE FIELD SHALL BE GRADED IN SUCH A MANNER AS TO PROVIDE SMOOTH SLOPES AND REMOVE ANY PONDING AND GENERALLY TO THE FINISH GRADES SHOWN ON THE PLAN. THE CONTRACTOR SHALL USE ONLY THE MATERIAL AVAILABLE ON SITE FOR THE GRADING OPERATION. THE CONTRACTOR SHALL STRIP THE SITE OF ALL VEGETATION AND THEN GRADE THE SITE USING A MOTOGRADER, "RAYNE-PLANE" OR SIMILAR EQUIPMENT.
2. REEL AND GUN CART NOT INCLUDED IN THIS CONTRACT.
3. DITCH GRADES PROVIDED FOR REGRADING PORTION OF THIS PROJECT (SECTION C IN SCHEDULE OF BID ITEMS). SEE NOTES THIS SHEET.
4. GRAVEL ROAD SHALL BE 20 FEET WIDE, COMPACTED WITH A SLIGHT CROWN IN ROAD. THE SURFACE SHALL BE 8" OF COMPACTED ABC.

33-01-53 W

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	REMOVED LAGOONS & PUMP STATION	5-23-90	CKT
	REROUTED IRRIGATION INLET PIPE	5-23-90	CKT
	EXTENDED GUNCART PATTERN	5-23-90	CKT
	REROUTED PROPOSED 20' ACCESS ROAD	5-23-90	CKT
	REVISED GUNCART PATTERN & BUFFER ZONES	7-30-90	CKT
	REVISED ROAD AND SPRAY FIELD	8-17-90	TFW
	REVISED GUN CARTS	10-26-90	LSD
	ADDED MONITORING WELLS	12-11-90	JHR
	REVISED LOCATION OF MONITORING WELL # 1	1-16-91	CKT
	REVISED LOCATION OF MONITORING WELL #1 & #5	3-21-91	JWP
	RECORD DRAWING	1-13-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12217 GRADY T. UPCHURCH 12-1-92

SOUTH CAROLINA REGISTERED PROFESSIONAL LAND SURVEYOR No. 12748 ERIC T. WEATHERLY 12/1/92

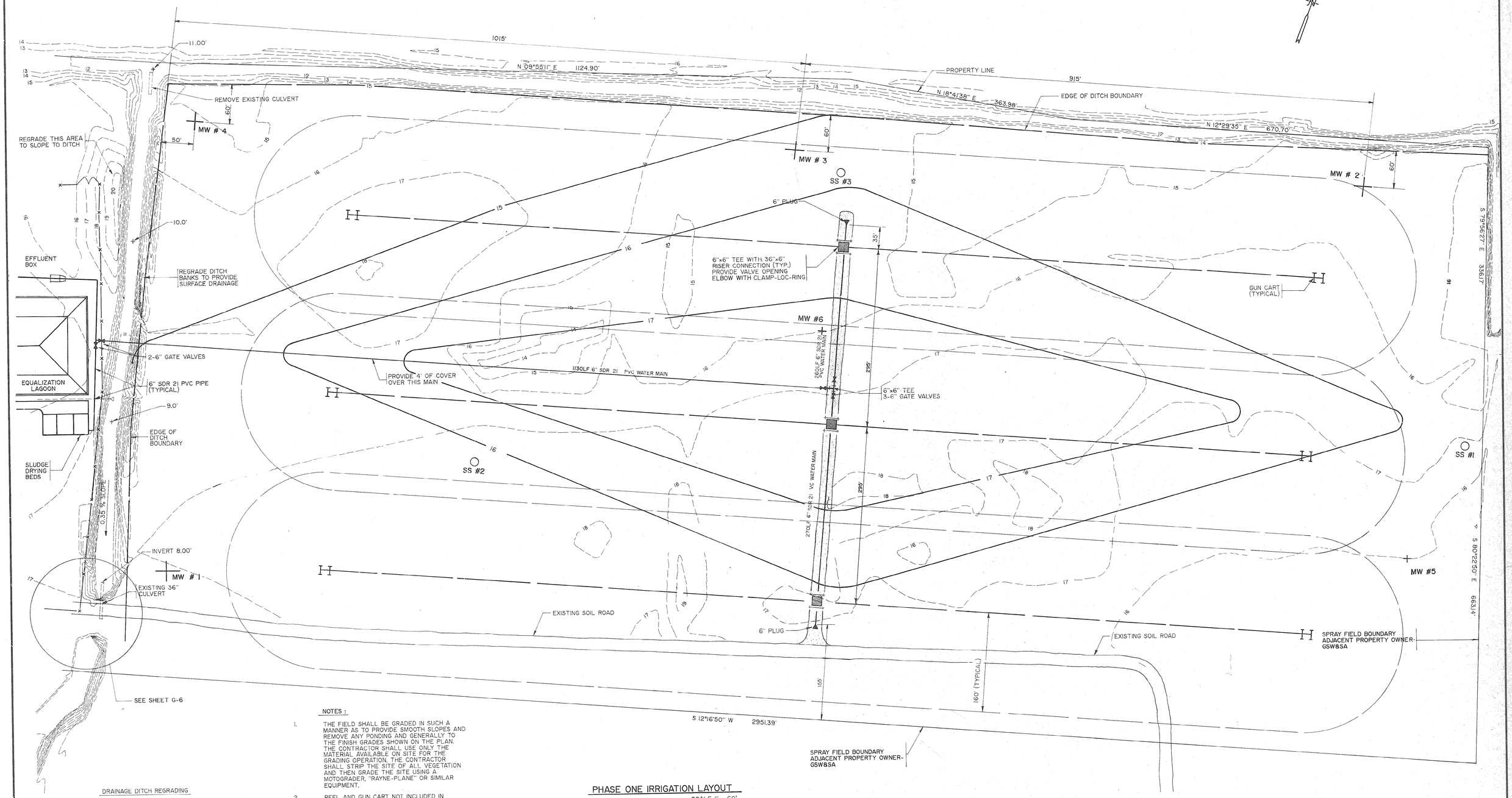
SURFACE WATER TREATMENT PLANT

GRAND STRAND WATER AND SEWER AUTHORITY

SLUDGE LAND APPLICATION SITE PLAN

DATE:	NOV. 1989
DESIGNED:	ETW
DRAWN:	CKT
CHECKED:	DTU
SCALE:	AS SHOWN
SHEET NO.	EN-25
OF:	26

DRAWING PHOTO-GRAPHED



PHASE ONE IRRIGATION LAYOUT

SCALE 1" = 60'

DRAINAGE DITCH REGRADING

1. REGRADE DITCH TO SPOT SHOTS SHOWN ABOVE
2. TYPICAL CROSS SECTION OF DITCH SHOWN IN SPECIAL PROVISIONS
3. REGRADE DITCH BANKS TO ALLOW SURFACE RUN-OFF TO ENTER DITCH
4. REMOVE AND DISPOSE OF ALL DEBRIS AND SPOIL MATERIAL FROM DITCH AND DITCH BANKS. SUITABLE SOIL WILL BE STOCKPILED ON SITE. UNSUITABLE SOIL SHALL BE DISPOSED OF AS DIRECTED BY ENGINEER
5. DITCH SECTION SHALL BE SEEDED, MULCHED AND TACKED
6. THE OWNER MAY FLAG TREES THAT ARE TO REMAIN.

NOTES :

1. THE FIELD SHALL BE GRADED IN SUCH A MANNER AS TO PROVIDE SMOOTH SLOPES AND REMOVE ANY PONDING AND GENERALLY TO THE FINISH GRADES SHOWN ON THE PLAN. THE CONTRACTOR SHALL USE ONLY THE MATERIAL AVAILABLE ON SITE FOR THE GRADING OPERATION. THE CONTRACTOR SHALL STRIP THE SITE OF ALL VEGETATION AND THEN GRADE THE SITE USING A MOTOGRADER, "RAYNE-PLANE" OR SIMILAR EQUIPMENT.
2. REEL AND GUN CART NOT INCLUDED IN THIS CONTRACT.
3. DITCH GRADES PROVIDED FOR REGRADING PORTION OF THIS PROJECT (SECTION C IN SCHEDULE OF BID ITEMS). SEE NOTES THIS SHEET.
4. GRAVEL ROAD SHALL BE 20 FEET WIDE, COMPACTED WITH A SLIGHT CROWN IN ROAD. THE SURFACE SHALL BE 8" OF COMPACTED ABC.

33-01-54w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	REMOVED LAGOONS & PUMP STATION	5-23-90	CKT
	REROUTED IRRIGATION INLET PIPE	5-23-90	CKT
	EXTENDED GUNCART PATTERN	5-23-90	CKT
	REROUTED PROPOSED 20' ACCESS ROAD	5-23-90	CKT
	REVISED GUNCART PATTERN & BUFFER ZONES	7-30-90	CKT
	REVISED ROAD AND SPRAY FIELD	8-17-90	TFW
	REVISED GUN CARTS	10-26-90	LSD
	ADDED MONITORING WELLS	12-11-90	JHR
	REVISED LOCATION OF MONITORING WELL # 1	1-16-91	CKT
	REVISED LOCATION OF MONITORING WELL #1 & #5	3-21-91	JWP
	ADDED AGRONOMY RESEARCH PLOTS & LOCATED 3 SOIL TEST SITES	9-12-91	JGH
	RECORD DRAWING	1-13-92	RAC
	REMOVED AGRONOMY RESEARCH PLOTS	5-18-92	JGH

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12220 — DENNIS T. UPCHURCH — 12-1-89

SOUTH CAROLINA REGISTERED LAND SURVEYOR No. 12748 — ERIC T. WEATHERLY — 12/1/89

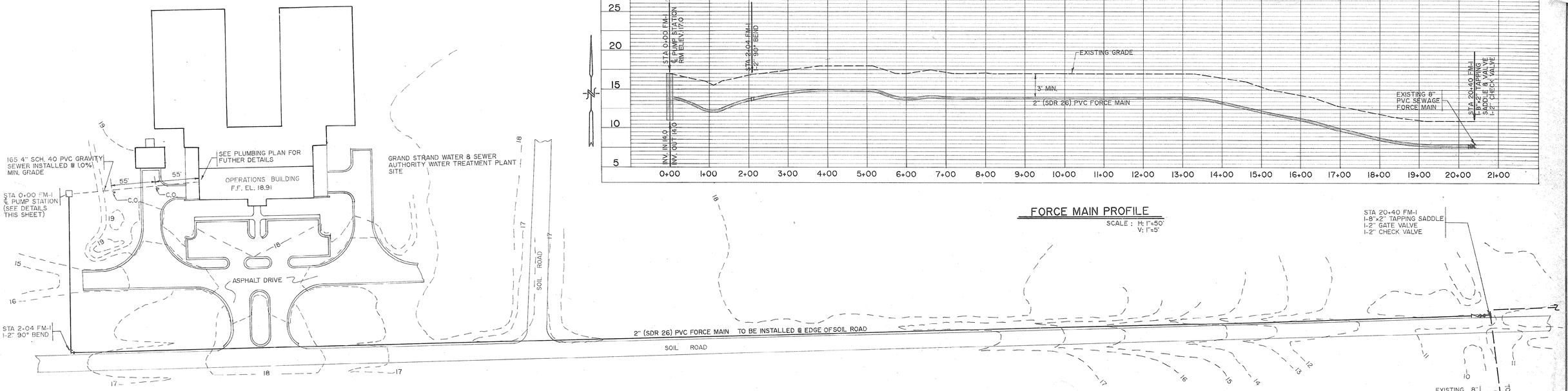
SURFACE WATER TREATMENT PLANT

GRAND STRAND WATER AND SEWER AUTHORITY

SLUDGE LAND APPLICATION SITE PLAN

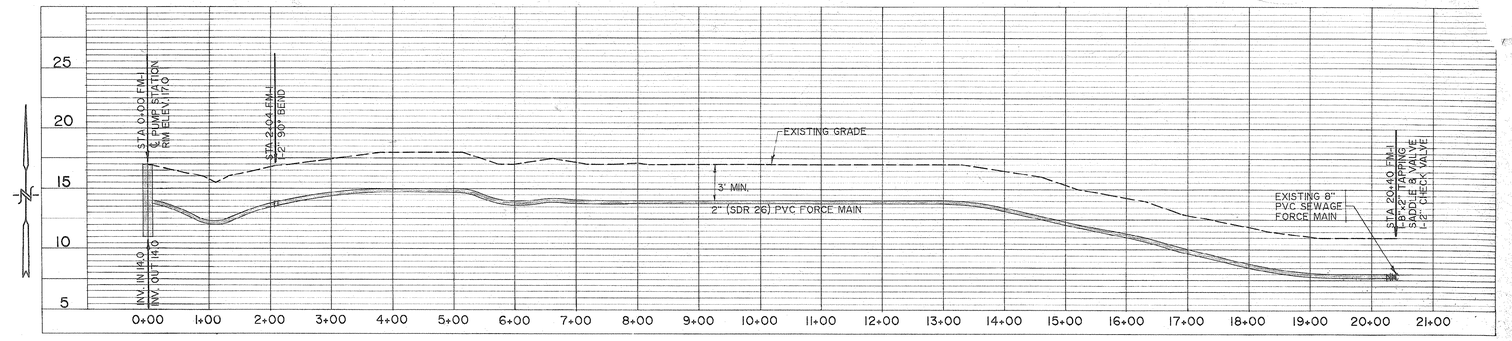
DATE:	NOV. 1989
DESIGNED:	ETW
DRAWN:	CKT
CHECKED:	DTU
SCALE:	AS SHOWN
SHEET NO.	EN-25a
OF:	26

SOUTHERN PHOTO - GEORGETOWN



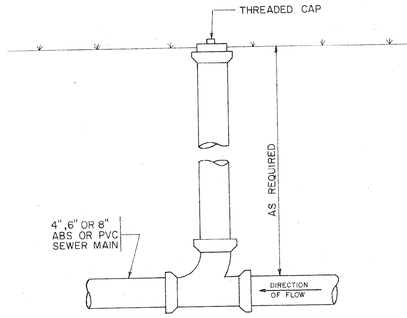
SITE PLAN

SCALE 1"=50'



FORCE MAIN PROFILE

SCALE : H: 1"=50'
V: 1"=5'



CLEAN OUT DETAIL

NTS

NOTES

1.) THE CONTRACTOR SHALL CONTACT THE POWER CO., GAS CO., AND TELEPHONE CO. FOR THE EXACT LOCATION OF ALL UNDERGROUND MAINS, CABLES, OR LINES BEFORE CONSTRUCTION BEGINS.

2.) PIPE SEPARATION: THE FOLLOWING MINIMUM PIPE SEPARATION WILL BE MAINTAINED: 12 INCHES VERTICAL SEPARATION BETWEEN CROSSING OF SANITARY SEWER AND STORM SEWERS, 18 INCHES VERTICAL SEPARATION BETWEEN CROSSING OF SEWER (INCLUDING FORCE MAINS) AND WATER MAINS, AND 10 FEET HORIZONTAL SEPARATION BETWEEN SANITARY SEWER (INCLUDING FORCE MAIN) AND WATER MAINS. IF THESE SEPARATIONS CANNOT BE MAINTAINED, DUCTILE IRON PIPE WILL BE USED 10 FEET EITHER SIDE OF CROSSING AND ALONG ENTIRE LENGTH OF LINE LESS THAN 10 HORIZONTAL FEET FROM WATER MAINS. THE CONTRACTOR SHALL RECEIVE APPROVAL FROM THE ENGINEER IN THE FIELD BEFORE PAYMENT WILL BE MADE AT DUCTILE IRON PRICES.

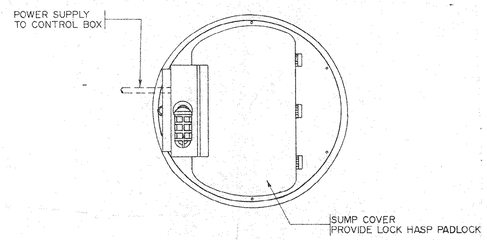
3.) SEWER FORCE MAIN SHALL BE INSTALLED WITH A MINIMUM OF 3'-0" COVER.

FLOW DATA

1. DAILY FLOW PER EMPLOYEE = 25 GALLON/EMPLOYEE/SHIFT
2. AVERAGE DAILY FLOW RATE (10 EMPLOYEE MAX.)= 250 GPD
3. PEAK DAILY FLOW RATE (2.5 PEAK FACTOR) = 625 GPD

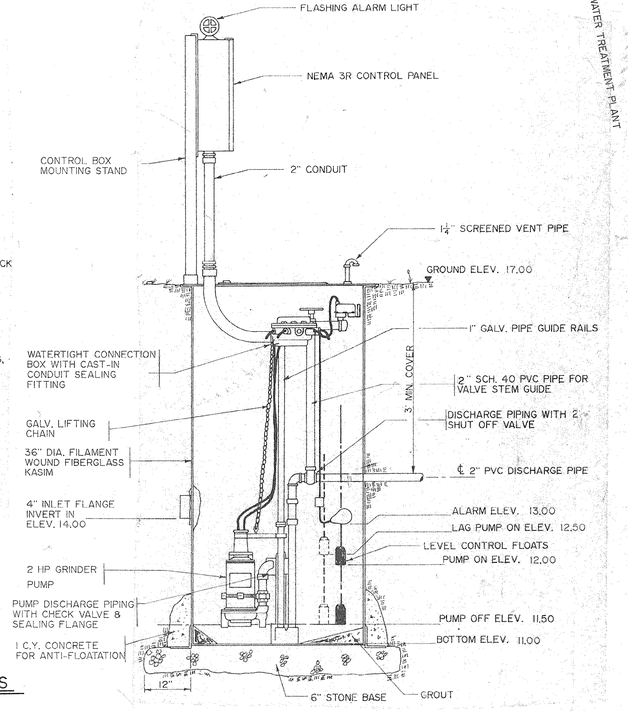
DESIGN DATA

1. USE 2 HP DUPLEX PUMP SYSTEM WITH 2" SDR 26, PVC FORCE MAIN
2. PUMP CAPACITY = 24 GPM @ 90 FT. HEAD
3. WET WELL DETENTION TIME FOR FILLING OPERATIONAL VOLUME = 52 MIN (20 MIN. @ PEAK FLOW)
4. PUMP RUN TIME = 1.1 MIN.
5. PUMP CYCLES PER HOUR = 1 (3 FOR PEAK FLOW)
6. LIQUID VELOCITY AT 24 GPM = 2.5 FPS
7. EMERGENCY STORAGE AVAILABLE = 0.85 DAYS



NOTES

1. PUMP SPECIFIED SHALL BE A SUBMERSIBLE GRINDER SEWAGE PUMP. THE PUMP SHALL BE CAPABLE OF DELIVERING 24 GPM AGAINST A TOTAL DYNAMIC HEAD OF 90 FT. PUMP SHALL BE RATED AT 2 HP, 3500 RPM, 60 HZ. THE MOTOR SHALL OPERATE AT 230 VOLTS, 1 PHASE.
2. THE CONTROL PANEL SHALL CONTAIN FUSED BREAKERS FOR EACH OF THE PUMP MOTORS, HOA SWITCHES, AND RUN LIGHTS. A HIGH WATER ALARM SYSTEM (LIGHT AND AUDIBLE ALARM), PUMP ALTERNATOR TO ROTATE BOTH PUMPS AND NECESSARY EQUIPMENT TO CONTROL THE PUMPS USING 3 MERCURY FLOAT SWITCHES MOUNTED IN THE PUMP CHAMBER. THE PANEL SHALL BE A NEMA 3R ENCLOSURE AND SHALL BE PROTECTED AGAINST DAMAGE FROM LIGHTNING AND INTENSE SOLAR HEATING. WIRING FROM THE CONTROL PANEL TO THE PUMPS SHALL BE CONTAINED GASPROOF, CONDUITS WITH NO SPLICES INSIDE THE PUMP CHAMBER.
3. A PUMP REMOVAL SYSTEM SHALL BE PROVIDED FOR EFFICIENT REMOVAL OF THE PUMPS WITHOUT ENTERING THE PUMP CHAMBER.



DUPLEX PUMP STATION DETAILS

NTS

33-01-55w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-13-92	RAC

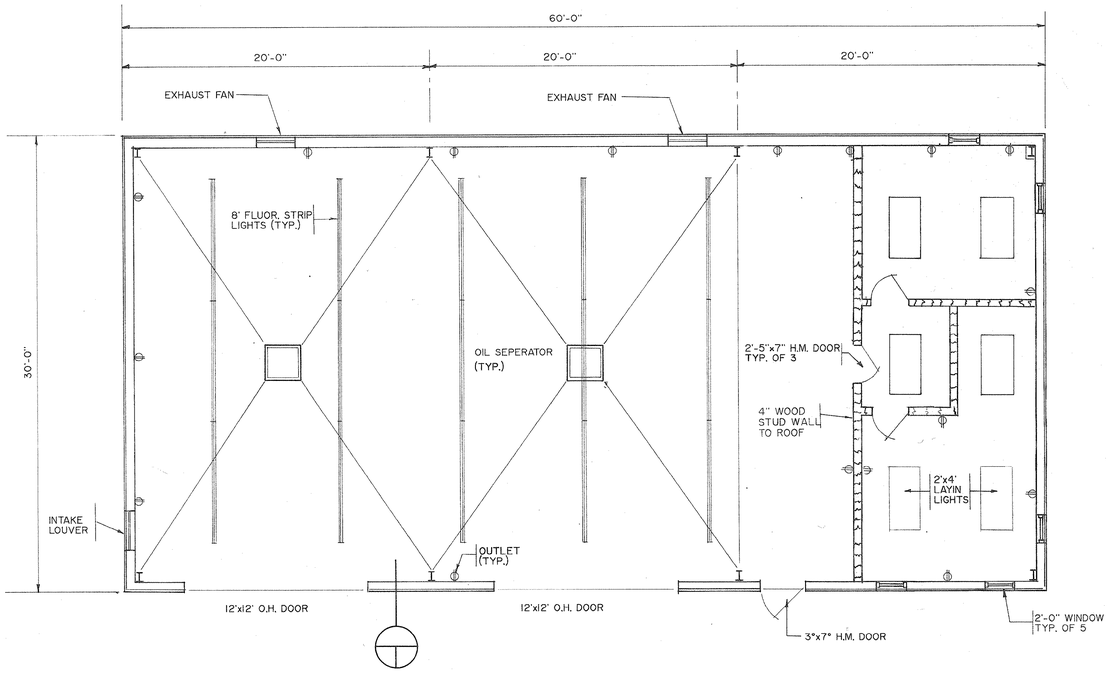
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

DOMESTIC WASTE
PUMP STATION & FORCE MAIN

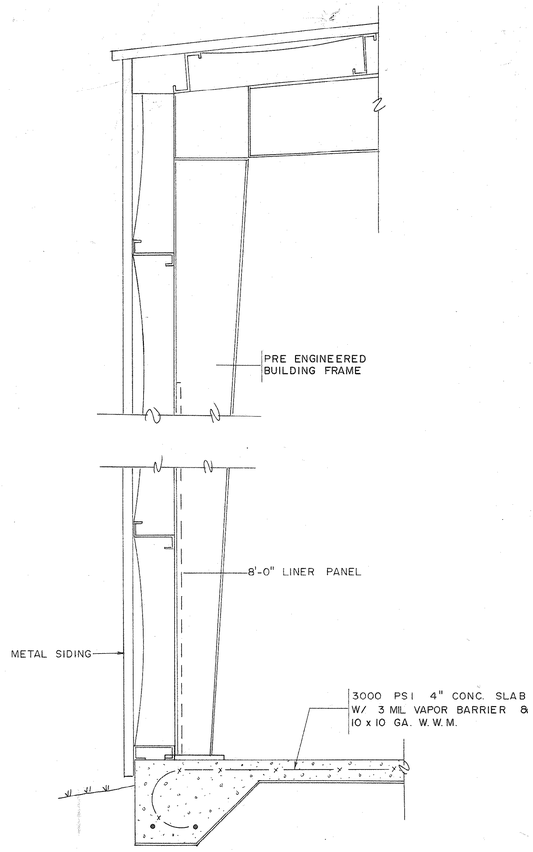
DATE: NOV. 1989
DESIGNED: ETW
DRAWN: PSW
CHECKED: JWM
SCALE: AS SHOWN
SHEET NO. EN-26
OF:

SOUTHERN PHOTO - DIETZGEN 30 2148



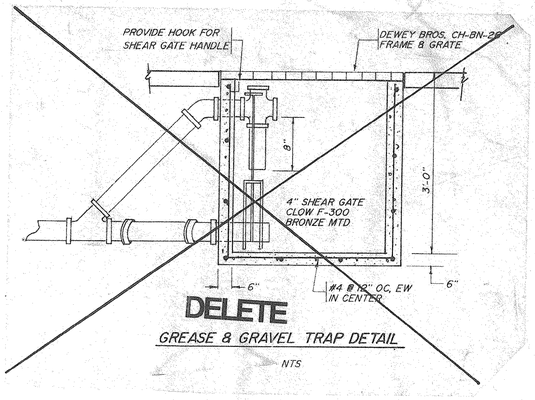
FLOOR PLAN

1/4" = 1'-0"



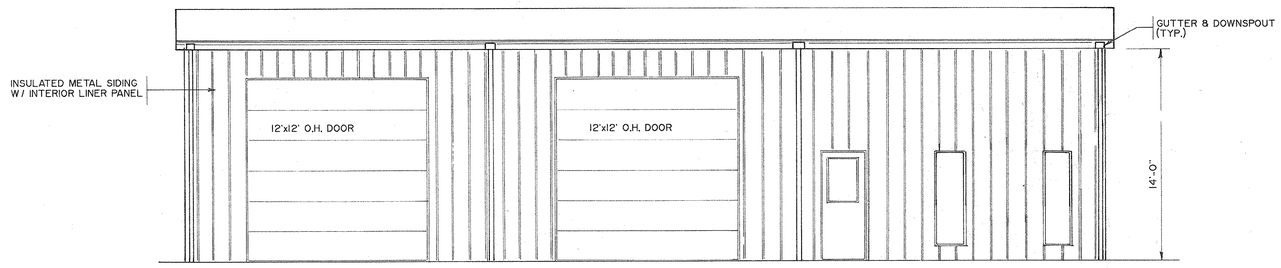
WALL SECTION

1" = 1'-0"



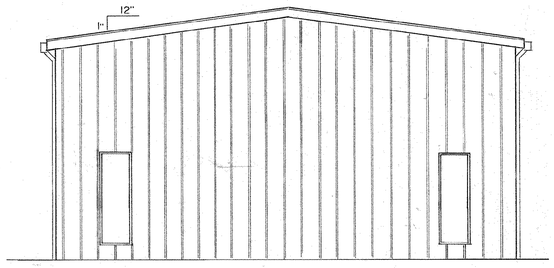
GREASE & GRAVEL TRAP DETAIL

NTS



FRONT ELEVATION

1/4" = 1'-0"



RIGHT SIDE ELEVATION

1/4" = 1'-0"

REVISED 6-2-92 RECORD DRAWING

33-01-56w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-13-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 12021 HAROLD T. UPHURCH 12-1-89

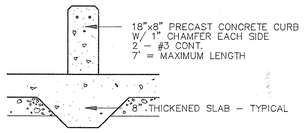
SOUTH CAROLINA PROFESSIONAL ENGINEER No. 12335 JOSEPH W. McDOUGALD 12-1-89

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

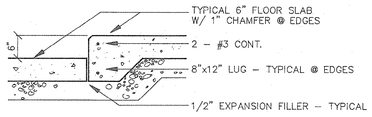
MAINTENANCE BUILDING PLAN AND SECTIONS

DATE: NOV.,1989
DESIGNED: PSW
DRAWN: PSW
CHECKED: DTU
SCALE: AS SHOWN
SHEET NO. EN-27
OF:

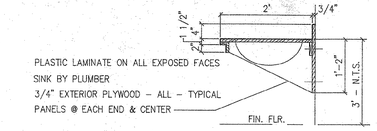
SOUTHERN PHOTO - BLUEPRINTERS 767-1145



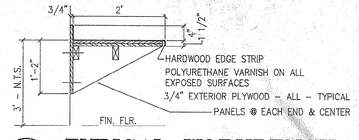
2 / A1 / A1 **CONCRETE CURB**
SCALE: 3/4" = 1'-0"



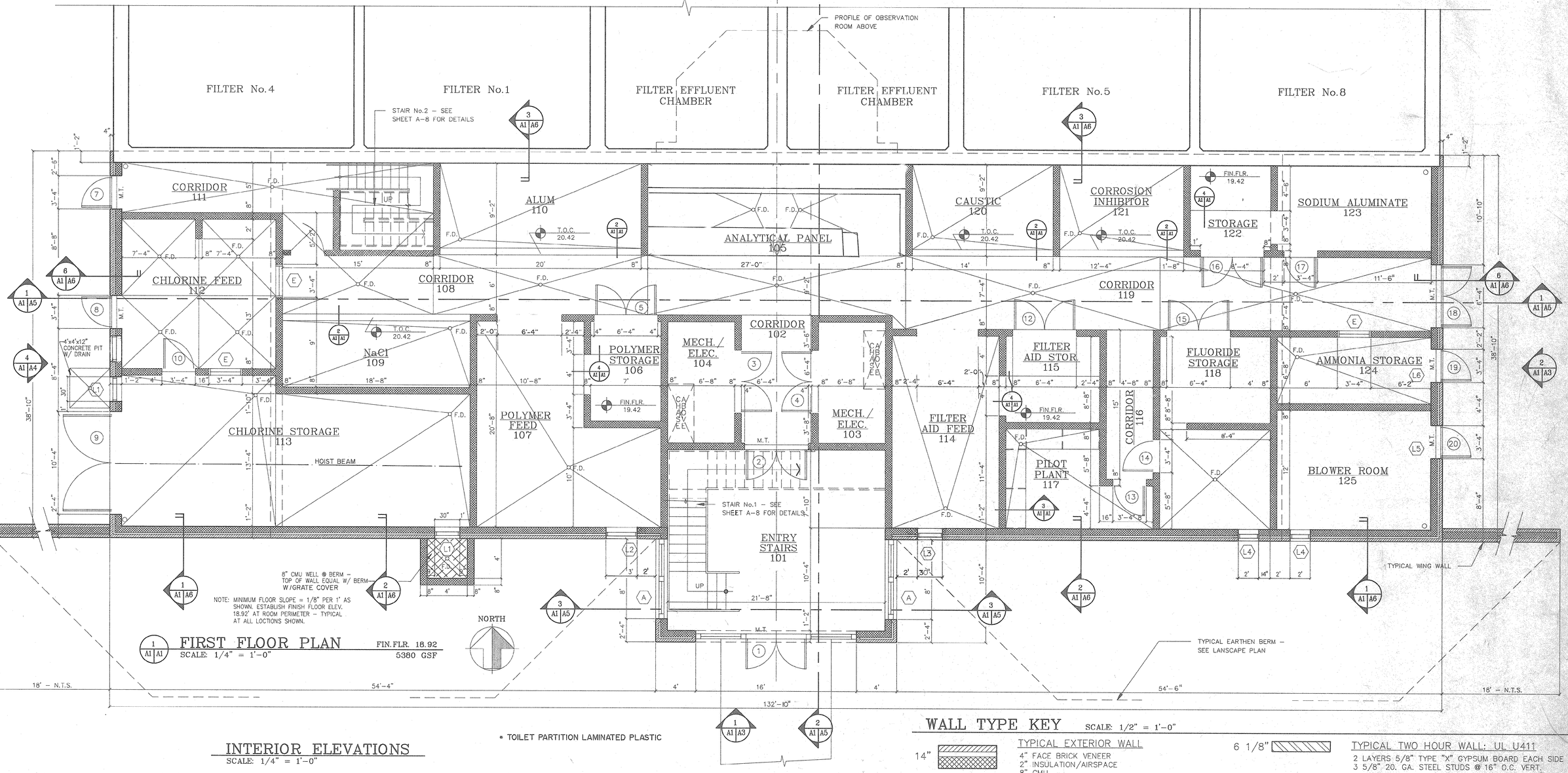
4 / A1 / A1 **RAISED FLOOR SLAB**
SCALE: 3/4" = 1'-0"



1 / A2 / A1 **TYPICAL VANITY**
SCALE: 3/4" = 1'-0"



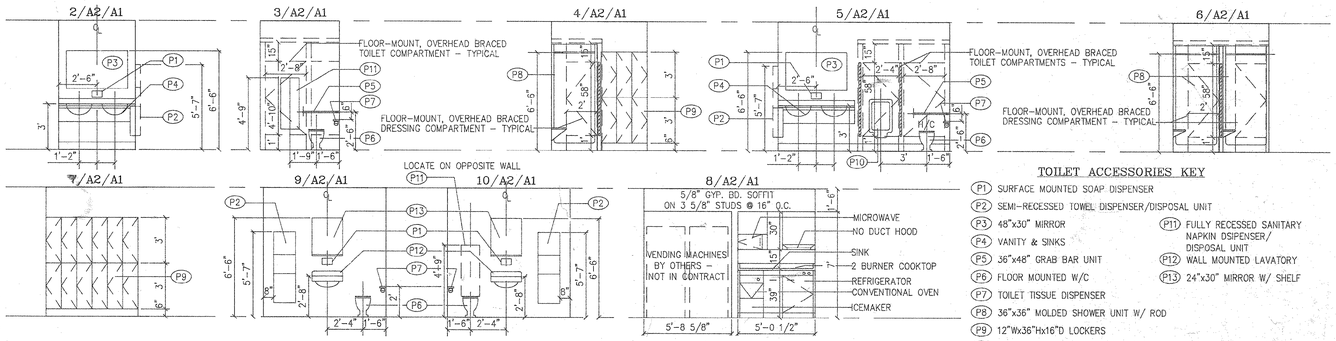
3 / A1 / A1 **TYPICAL WORKBENCH**
SCALE: 3/4" = 1'-0"



1 / A1 / A1 **FIRST FLOOR PLAN** FIN.FLR. 18.92
SCALE: 1/4" = 1'-0" 5380 GSF

* TOILET PARTITION LAMINATED PLASTIC

INTERIOR ELEVATIONS
SCALE: 1/4" = 1'-0"



TOILET ACCESSORIES KEY

- P1 SURFACE MOUNTED SOAP DISPENSER
- P2 SEMI-RECESSED TOWEL DISPENSER/DISPOSAL UNIT
- P3 48"x30" MIRROR
- P4 VANITY & SINKS
- P5 36"x48" GRAB BAR UNIT
- P6 FLOOR MOUNTED W/C
- P7 TOILET TISSUE DISPENSER
- P8 36"x36" MOLDED SHOWER UNIT W/ ROD
- P9 12"Wx36"Hx16"D LOCKERS
- P10 WALL MOUNTED UNINAL
- P11 FULLY RECESSED SANITARY NAPKIN DSIPENSER/ DISPOSAL UNIT
- P12 WALL MOUNTED LAVATORY
- P13 24"x30" MIRROR W/ SHELF

WALL TYPE KEY
SCALE: 1/2" = 1'-0"

14" — TYPICAL EXTERIOR WALL
4" FACE BRICK VENEER
2" INSULATION/AIRSPACE
8" CMU

8" — TYPICAL CMU WALL

5 1/2" — TYPICAL ONE HOUR WALL: T-3362-OSU
2 LAYERS 5/8" TYPE "X" GYPSUM BOARD @ CORRIDOR
3 5/8" 20 GA. STEEL STUDS @ 16" O.C. VERT.
2" MINERAL FIBER INSULATION
1 LAYER 5/8" TYPE "X" GYPSUM BOARD @ ROOM

6 1/8" — TYPICAL TWO HOUR WALL: UL U411
2 LAYERS 5/8" TYPE "X" GYPSUM BOARD EACH SIDE
3 5/8" 20. GA. STEEL STUDS @ 16" O.C. VERT.

4 7/8" — TYPICAL UNRATED WALL
1 LAYER 5/8" GYPSUM BOARD EACH SIDE
3 5/8" 20 GA. STEEL STUDS @ 16" O.C. VERT.

33-01-57w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-11-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

Snowdon and Associates, P.A. Architecture
600 South Main Street, Suite F
Louisburg, North Carolina 27549
Fax: 919 - 277 - 0525
Tel: 919 - 279 - 8018

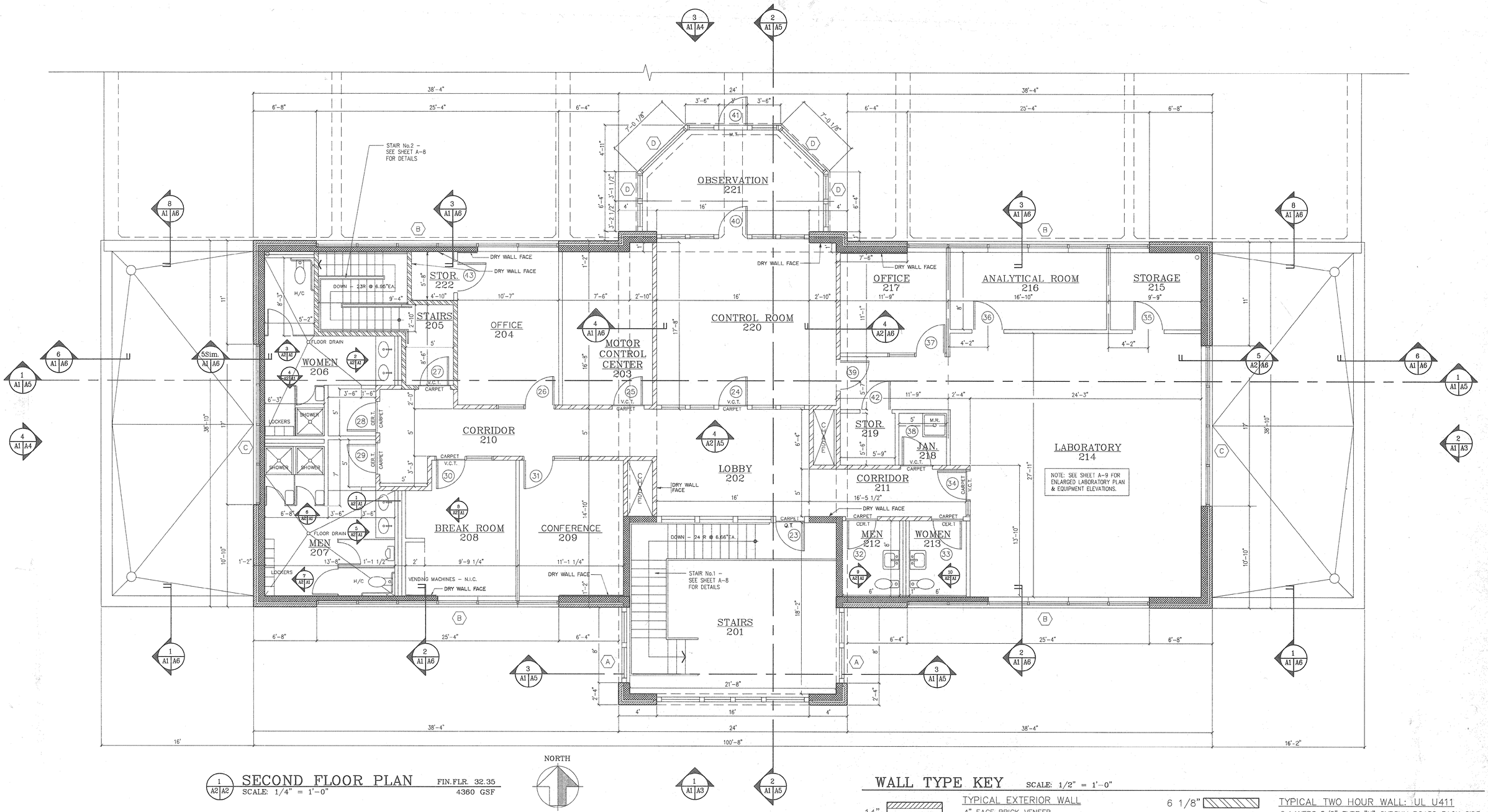
STATE OF SOUTH CAROLINA — GEORGE M. DOSTMANN LAURINBURG, NC 28352 — REGISTERED ARCHITECT

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

OPERATIONS BUILDING FIRST FLOOR PLAN,

DATE:
DESIGNED: RRP
DRAWN: RRP
CHECKED: STS
SCALE: NOTED
SHEET NO.: A1
OF:

SOUTHERN PHOTO - GREENSBORO NUTAN



SECOND FLOOR PLAN

FIN.FLR. 32.35

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

4360 GSF

WALL TYPE KEY

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

14" — TYPICAL EXTERIOR WALL
4" FACE BRICK VENEER
2" INSULATION/AIRSPACE
8" CMU

8" — TYPICAL CMU WALL

5 1/2" — TYPICAL ONE HOUR WALL: T-3362-OSU
2 LAYERS 5/8" TYPE "X" GYPSUM BOARD @ CORRIDOR
3 5/8" 20 GA. STEEL STUDS @ 16" O.C. VERT.
2" MINERAL FIBER INSULATION
1 LAYER 5/8" TYPE "X" GYPSUM BOARD @ ROOM

6 1/8" — TYPICAL TWO HOUR WALL: UL U411
2 LAYERS 5/8" TYPE "X" GYPSUM BOARD EACH SIDE
3 5/8" 20 GA. STEEL STUDS @ 16" O.C. VERT.

4 7/8" — TYPICAL UNRATED WALL
1 LAYER 5/8" GYPSUM BOARD EACH SIDE
3 5/8" 20 GA. STEEL STUDS @ 16" O.C. VERT.

33-01-58w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWINGS	1-11-92	RAC

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CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

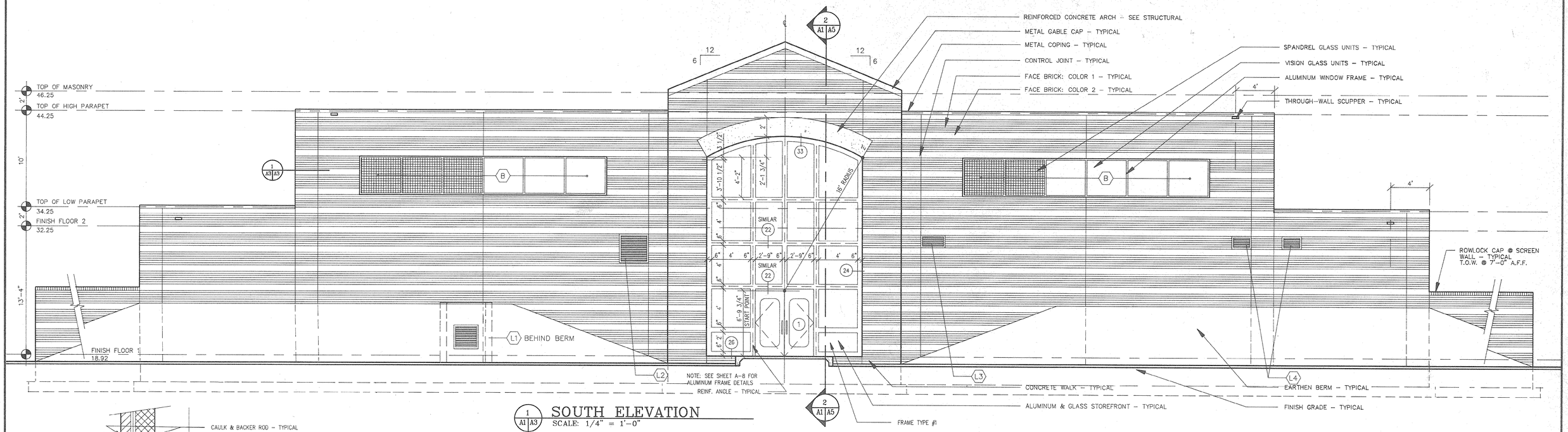
Snowdon and Associates, P.A.
Architecture
600 South Main Street, Suite F
Laurinburg, North Carolina 28352
Fax: 919 - 277 - 0121
Tel: 919 - 276 - 3988

STATE OF SOUTH CAROLINA
GEORGE H. DOERMAN
LAURINBURG, NC
REGISTERED ARCHITECT

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

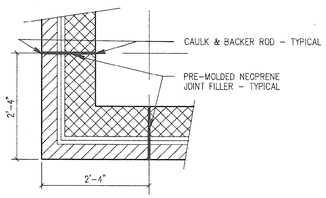
OPERATIONS BUILDING
SECOND FLOOR PLAN

DATE:
DESIGNED: RRP
DRAWN: RRP
CHECKED: STS
SCALE: NOTED
SHEET NO. A2
OF:



SOUTH ELEVATION
SCALE: 1/4" = 1'-0"

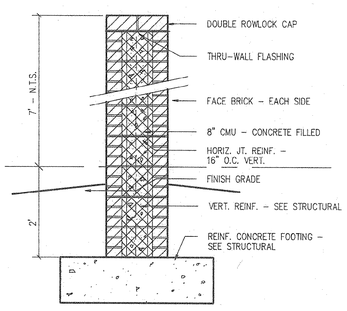
ALL ALUM. WINDOWS & STOREFRONT
MATERIAL DARK BRONZE PAINT ALL LOUVERS
DARK BRONZE TO MATCH



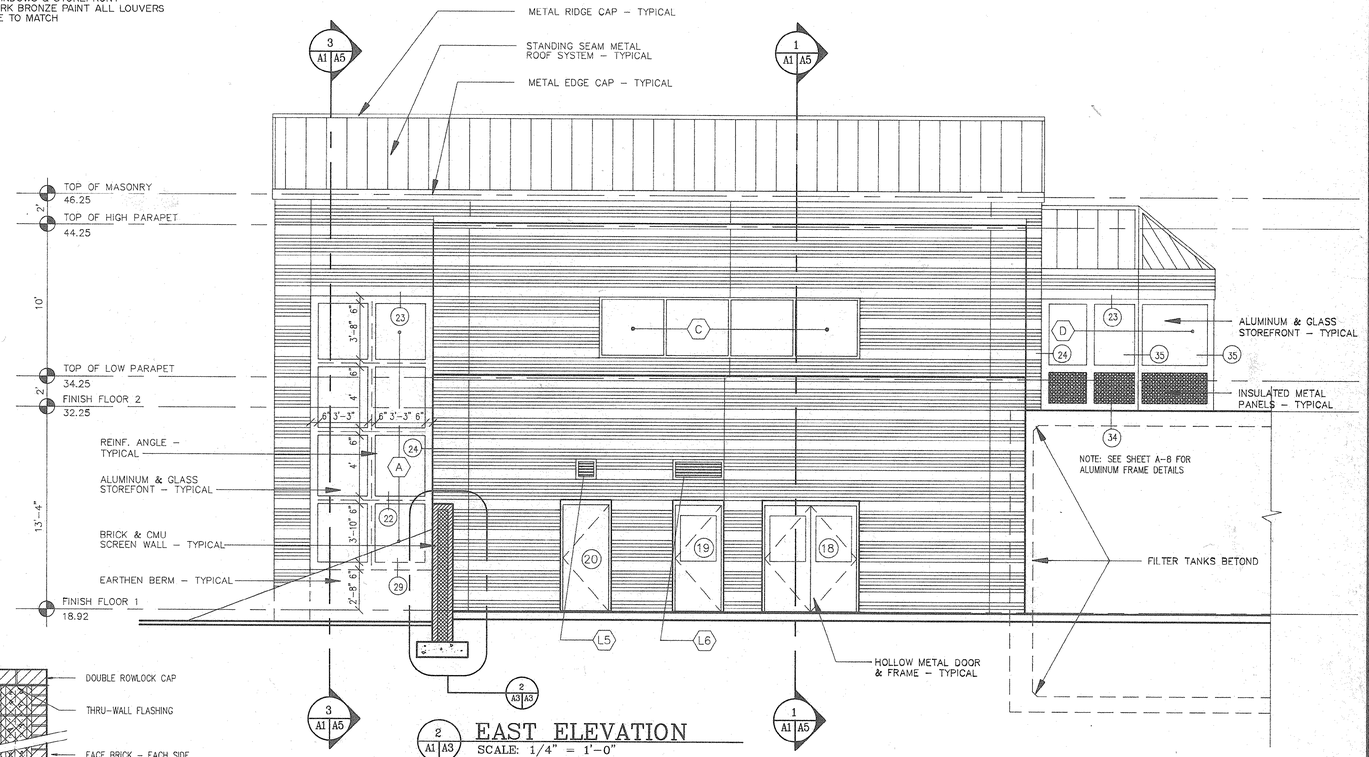
CONTROL JOINT
SCALE: 3/4" = 1'-0"

ROOM FINISH SCHEDULE

No. / ROOM	FLOOR	BASE	WALLS	CEILING	REMARKS
101 / ENTRY STAIRS	QUARRY TILE	4" VINYL	PAINTED CMU	2'x2' A.T.C. - SLOPING	QUARRY TILE @ STAIR TREADS, FLOOR
102 / CORRIDOR	SEALED CONCRETE	NONE	PAINTED CMU	EXPOSED DECK	NONE
103 / MECH/ELEC	SEALED CONCRETE	NONE	PAINTED CMU	EXPOSED DECK	NONE
104 / MECH/ELEC	SEALED CONCRETE	NONE	PAINTED CMU	EXPOSED DECK	NONE
105 / ANALYTICAL PAN.	SEALED CONCRETE	NONE	PAINTED CMU	EXPOSED DECK	C.I.P. CONCRETE WALL - UNPAINTED
106 / POLYMER STOR.	SEALED CONCRETE	NONE	PAINTED CMU	EXPOSED DECK	6" HIGH RAISED FLOOR AS SHOWN
107 / POLYMER FEED	SEALED CONCRETE	NONE	PAINTED CMU	EXPOSED DECK	NONE
108 / CORRIDOR	1/4" DEX-O-TEX	NONE	PAINTED CMU	EXPOSED DECK	NONE
109 / NaCl	SEALED CONCRETE	NONE	PAINTED CMU	EXPOSED DECK	C.I.P. CONCRETE CURB - UNPAINTED
110 / ALUM	SEALED CONCRETE	NONE	PAINTED CMU	EXPOSED DECK	C.I.P. CONCRETE WALL, CURB - UNPAINTED
111 / CORRIDOR	1/4" DEX-O-TEX	NONE	PAINTED CMU	EXPOSED DECK	C.I.P. CONCRETE WALL - UNPAINTED
112 / CHLORINE FEED	SEALED CONCRETE	NONE	PAINTED CMU	EXPOSED DECK	NONE
113 / CHLORINE STOR.	SEALED CONCRETE	NONE	PAINTED CMU	EXPOSED DECK	NONE
114 / FILTER AID FEED	SEALED CONCRETE	NONE	PAINTED CMU	EXPOSED DECK	NONE
115 / FILTER AID STOR.	SEALED CONCRETE	NONE	PAINTED CMU	EXPOSED DECK	6" HIGH RAISED FLOOR AS SHOWN
116 / CORRIDOR	SEALED CONCRETE	NONE	PAINTED CMU	EXPOSED DECK	NONE
117 / PILOT PLANT	SEALED CONCRETE	NONE	PAINTED CMU	EXPOSED DECK	NONE
118 / FLUORIDE STOR.	SEALED CONCRETE	NONE	PAINTED CMU	EXPOSED DECK	NONE
119 / CORRIDOR	1/4" DEX-O-TEX	NONE	PAINTED CMU	EXPOSED DECK	NONE
120 / CAUSTIC	SEALED CONCRETE	NONE	PAINTED CMU	EXPOSED DECK	C.I.P. CONCRETE WALL, CURB - UNPAINTED
121 / CORROSION INHIB.	SEALED CONCRETE	NONE	PAINTED CMU	EXPOSED DECK	C.I.P. CONCRETE WALL, CURB - UNPAINTED
122 / STORAGE	SEALED CONCRETE	NONE	PAINTED CMU	EXPOSED DECK	6" HIGH RAISED FLOOR AS SHOWN
123 / Na ALUMINATE	SEALED CONCRETE	NONE	PAINTED CMU	EXPOSED DECK	C.I.P. CONCRETE WALL - UNPAINTED
124 / AMMONIA FEED	SEALED CONCRETE	NONE	PAINTED CMU	EXPOSED DECK	NONE
125 / BLOWER ROOM	SEALED CONCRETE	NONE	PAINTED CMU	EXPOSED DECK	NONE
201 / STAIRS	RAISED DISC RUBBER	4" VINYL	PAINTED CMU	2'x2' A.T.C. - SLOPING	RAISED DISC RUBBER @ STAIR TREADS, FLOOR
202 / LOBBY	CARPET	4" VINYL	PAINTED GYP. BD.	2'x2' A.T.C. - SLOPING	ONE HOUR RATED CEILING & WALLS
203 / MOTOR C.C.	VINYL COMPOSITION TILE	4" VINYL	PAINTED CMU, GYP. BD.	2'x2' A.T.C.	NONE
204 / OFFICE	CARPET	4" VINYL	PAINTED GYP. BD.	2'x2' A.T.C.	NONE
205 / STAIRS	VINYL COMPOSITION TILE	4" VINYL	PAINTED CMU, GYP. BD.	5/8" GYP. BD.	TWO HOUR RATED WALLS & CEILING
206 / WOMEN	CERAMIC TILE	CERAMIC TILE	PAINTED CMU, GYP. BD.	2'x2' GYP. BD.	VINYL FACING @ CEILING PANELS
207 / MEN	CERAMIC TILE	CERAMIC TILE	PAINTED CMU, GYP. BD.	2'x2' GYP. BD.	VINYL FACING @ CEILING PANELS
208 / BREAK ROOM	VINYL COMPOSITION TILE	4" VINYL	PAINTED GYP. BD.	2'x2' A.T.C.	NONE
209 / CONFERENCE	CARPET	4" VINYL	PAINTED GYP. BD.	2'x2' A.T.C.	NONE
210 / CORRIDOR	CARPET	4" VINYL	PAINTED CMU, GYP. BD.	2'x2' A.T.C.	ONE HOUR RATED WALLS & CEILING
211 / CORRIDOR	CARPET	4" VINYL	PAINTED CMU, GYP. BD.	2'x2' A.T.C.	ONE HOUR RATED WALLS & CEILING
212 / MEN	CERAMIC TILE	CERAMIC TILE	PAINTED CMU, GYP. BD.	2'x2' GYP. BD.	VINYL FACING @ CEILING PANELS
213 / WOMEN	CERAMIC TILE	CERAMIC TILE	PAINTED CMU, GYP. BD.	2'x2' GYP. BD.	VINYL FACING @ CEILING PANELS
214 / LABORATORY	VINYL COMPOSITION TILE	4" VINYL	PAINTED CMU, GYP. BD.	2'x2' A.T.C.	NONE
215 / STORAGE	VINYL COMPOSITION TILE	4" VINYL	PAINTED CMU, GYP. BD.	2'x2' A.T.C.	NONE
216 / ANALYTICAL	VINYL COMPOSITION TILE	4" VINYL	PAINTED CMU, GYP. BD.	2'x2' A.T.C.	NONE
217 / OFFICE	CARPET	4" VINYL	PAINTED GYP. BD.	2'x2' A.T.C.	NONE
218 / JANITOR	VINYL COMPOSITION TILE	4" VINYL	PAINTED GYP. BD.	2'x2' GYP. BD.	VINYL FACING @ CEILING PANELS
219 / STORAGE	VINYL COMPOSITION TILE	4" VINYL	PAINTED GYP. BD.	2'x2' A.T.C.	NONE
220 / CONTROL ROOM	VINYL COMPOSITION TILE	4" VINYL	PAINTED GYP. BD.	2'x2' A.T.C.	ONE HOUR RATED WALLS & CEILING
221 / OBSERVATION	VINYL COMPOSITION TILE	4" VINYL	BRICK & GLASS	2'x2' A.T.C.	NONE
222 / STORAGE	CARPET	4" VINYL	PAINTED GYP. BD.	2'x2' A.T.C.	NONE



WING WALL SECTION
SCALE: 3/4" = 1'-0"



EAST ELEVATION
SCALE: 1/4" = 1'-0"

33-01-59w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWINGS	1-11-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
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SOUTHERN PINES, NORTH CAROLINA 28387

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Tel 919 - 276 - 2333

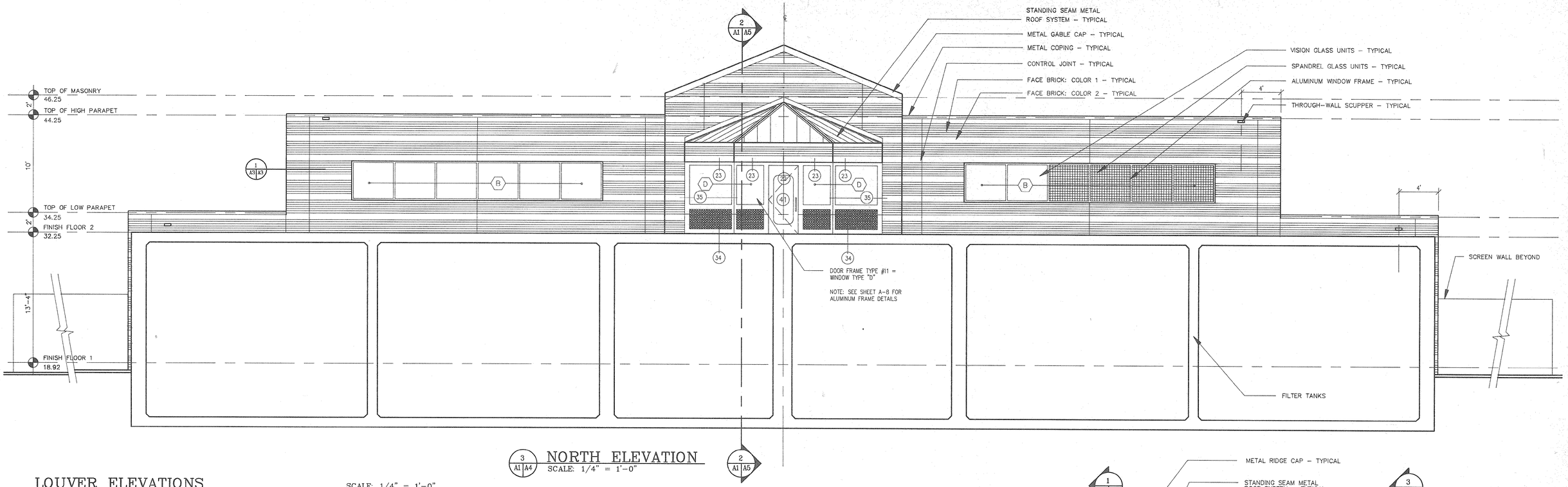
STATE OF SOUTH CAROLINA
GEORGE H. DOTEMAN
LAURINBURG, NC
REGISTERED ARCHITECT

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

OPERATIONS BUILDING
ELEVATIONS, FINISH SCHEDULE

DATE:
DESIGNED: RRP
DRAWN: RRP
CHECKED: STS
SCALE: NOTED
SHEET NO. A3
OF: -

SOUTHERN PHOTO - DARLINGTON 1-27-92

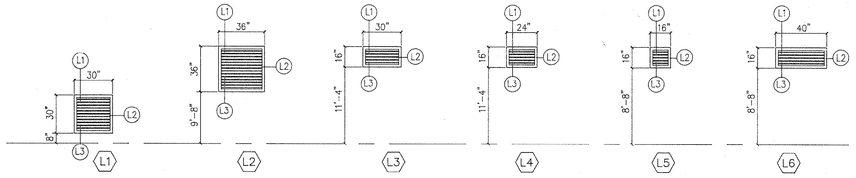


3 A1 A4 NORTH ELEVATION
SCALE: 1/4" = 1'–0"

LOUVER ELEVATIONS

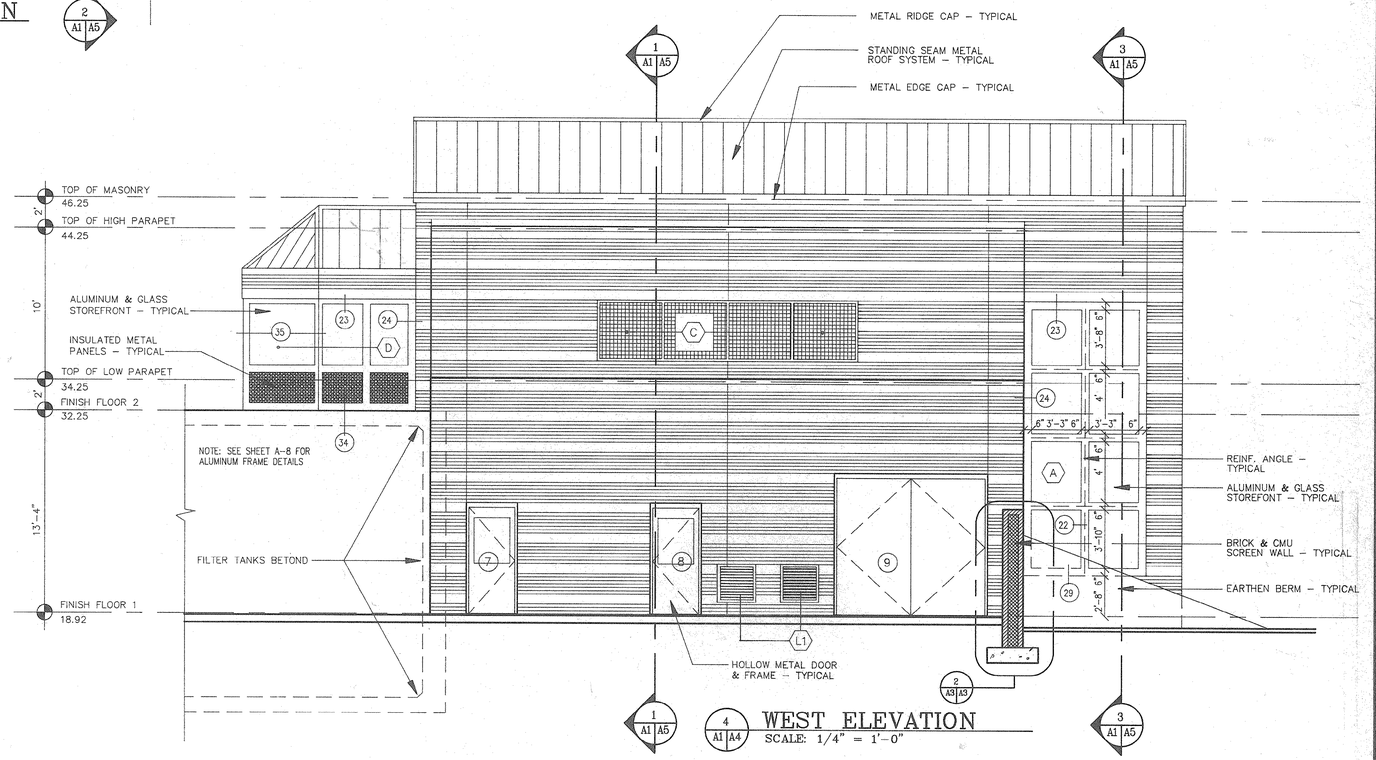
SCALE: 1/4" = 1'–0"

NOTE: SEE SHEET A8 FOR LOUVER DETAILS



DOOR SCHEDULE

No.	DOOR SIZE	TYPE	MTL.	GLASS	LOUVER	LABEL	FRAME TYPE	FRAME MTL.	FRAME GLASS	HARDWARE SET No.	REMARKS
1	Pr.3'x7'x1.75"	A	ALUMINUM	1/4" TEMP.	NONE	NONE	1	ALUMINUM	5/8" INSUL.		ANODIZED FINISH – DOOR & FRAME
2	Pr.3'x7'x1.75"	B	INSUL. H.M.	1/4" WIRE	NONE	20 MIN.	2	H.M.	NONE		PAINT DOOR & FRAME
3	Pr.3'x7'x1.75"	C	INSUL. H.M.	NONE	NONE	20 MIN.	2	H.M.	NONE		PAINT DOOR & FRAME
4	Pr.3'x7'x1.75"	C	INSUL. H.M.	NONE	NONE	20 MIN.	2	H.M.	NONE		PAINT DOOR & FRAME
5	Pr.3'x7'x1.75"	D	INSUL. H.M.	NONE	24"x24"	U.L.	2	H.M.	NONE		PAINT DOOR, FRAME & LOUVER
6	NOT USED										
7	3'x7'x1.75"	F	INSUL. H.M.	1/4" TEMP.	NONE	U.L.	3	H.M.	NONE		PAINT DOOR & FRAME
8	3'x7'x1.75"	F	INSUL. H.M.	1/4" TEMP.	NONE	U.L.	3	H.M.	NONE		PAINT DOOR & FRAME
9	Pr.5'x9'x1.75"	G	INSUL. H.M.	NONE	NONE	U.L.	4	H.M.	NONE		PAINT DOOR & FRAME
10	3'x7'x1.75"	C	INSUL. H.M.	NONE	NONE	U.L.	3	H.M.	NONE		PAINT DOOR & FRAME
11	NOT USED										
12	Pr.3'x7'x1.75"	D	INSUL. H.M.	NONE	24"x24"	U.L.	2	H.M.	NONE		PAINT DOOR, FRAME & LOUVER
13	3'x7'x1.75"	D	INSUL. H.M.	NONE	24"x24"	U.L.	3	H.M.	NONE		PAINT DOOR, FRAME & LOUVER
14	3'x7'x1.75"	F	INSUL. H.M.	1/4" WIRE	NONE	U.L.	3	H.M.	NONE		PAINT DOOR & FRAME
15	Pr.3'x7'x1.75"	C	INSUL. H.M.	NONE	NONE	U.L.	2	H.M.	NONE		PAINT DOOR, FRAME & LOUVER
16	Pr.3'x7'x1.75"	D	INSUL. H.M.	NONE	24"x24"	U.L.	2	H.M.	NONE		PAINT DOOR, FRAME & LOUVER
17	3'x7'x1.75"	D	INSUL. H.M.	NONE	24"x24"	U.L.	3	H.M.	NONE		PAINT DOOR, FRAME & LOUVER
18	Pr.3'x7'x1.75"	F	INSUL. H.M.	1/4" TEMP.	NONE	U.L.	2	H.M.	NONE		PAINT DOOR & FRAME
19	3'x7'x1.75"	F	INSUL. H.M.	1/4" TEMP.	NONE	U.L.	3	H.M.	NONE		PAINT DOOR & FRAME
20	3'x7'x1.75"	C	INSUL. H.M.	NONE	NONE	U.L.	3	H.M.	NONE		PAINT DOOR & FRAME
21	NOT USED										
22	NOT USED										
23	3'x7'x1.75"	C	S.C.WOOD	NONE	NONE	20 MIN.	5	H.M.	1/4" WIRE		STAIN DOOR, PAINT FRAME
24	3'x7'x1.75"	C	S.C.WOOD	NONE	NONE	20 MIN.	6	H.M.	1/4" WIRE		STAIN DOOR, PAINT FRAME
25	3'x7'x1.75"	C	S.C.WOOD	NONE	NONE	20 MIN.	7	H.M.	NONE		STAIN DOOR, PAINT FRAME
26	3'x7'x1.75"	C	S.C.WOOD	NONE	NONE	20 MIN.	8	H.M.	1/4" WIRE		STAIN DOOR, PAINT FRAME
27	3'x7'x1.75"	C	S.C.WOOD	NONE	NONE	B LABEL	7	H.M.	NONE		STAIN DOOR, PAINT FRAME
28	3'x7'x1.75"	C	S.C.WOOD	NONE	NONE	20 MIN.	7	H.M.	NONE		STAIN DOOR, PAINT FRAME
29	3'x7'x1.75"	C	S.C.WOOD	NONE	NONE	20 MIN.	7	H.M.	NONE		STAIN DOOR, PAINT FRAME
30	3'x7'x1.75"	C	S.C.WOOD	NONE	NONE	20 MIN.	8	H.M.	1/4" WIRE		STAIN DOOR, PAINT FRAME
31	3'x7'x1.75"	C	S.C.WOOD	NONE	NONE	20 MIN.	8	H.M.	1/4" WIRE		STAIN DOOR, PAINT FRAME
32	3'x7'x1.75"	C	S.C.WOOD	NONE	NONE	20 MIN.	7	H.M.	NONE		STAIN DOOR, PAINT FRAME
33	3'x7'x1.75"	C	S.C.WOOD	NONE	NONE	20 MIN.	7	H.M.	NONE		STAIN DOOR, PAINT FRAME
34	3'x7'x1.75"	C	S.C.WOOD	NONE	NONE	20 MIN.	9	H.M.	1/4" WIRE		STAIN DOOR, PAINT FRAME
35	3'x7'x1.75"	C	S.C.WOOD	NONE	NONE	NONE	7	H.M.	NONE		STAIN DOOR, PAINT FRAME
36	3'x7'x1.75"	C	S.C.WOOD	NONE	NONE	NONE	7	H.M.	NONE		STAIN DOOR, PAINT FRAME
37	3'x7'x1.75"	C	S.C.WOOD	NONE	NONE	NONE	8	H.M.	1/4" WIRE		STAIN DOOR, PAINT FRAME
38	3'x7'x1.75"	C	S.C.WOOD	NONE	NONE	20 MIN.	7	H.M.	NONE		STAIN DOOR, PAINT FRAME
39	3'x7'x1.75"	C	S.C.WOOD	NONE	NONE	20 MIN.	7	H.M.	NONE		STAIN DOOR, PAINT FRAME
40	3'x7'x1.75"	A	ALUMINUM	1/4" TEMP.	NONE	NONE	10	ALUMINUM	5/8" INSUL.		ANODIZED FINISH – DOOR & FRAME
41	3'x7'x1.75"	A	ALUMINUM	1/4" TEMP.	NONE	NONE	11	ALUMINUM	5/8" INSUL.		ANODIZED FINISH – DOOR & FRAME
42	3'x7'x1.75"	C	S.C.WOOD	NONE	NONE	NONE	7	H.M.	NONE		STAIN DOOR, PAINT FRAME
43	3'x7'x1.75"	C	S.C.WOOD	NONE	NONE	NONE	7	H.M.	NONE		STAIN DOOR, PAINT FRAME



4 A1 A4 WEST ELEVATION
SCALE: 1/4" = 1'–0"

33-01-60w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWINGS	1-11-92	RAC

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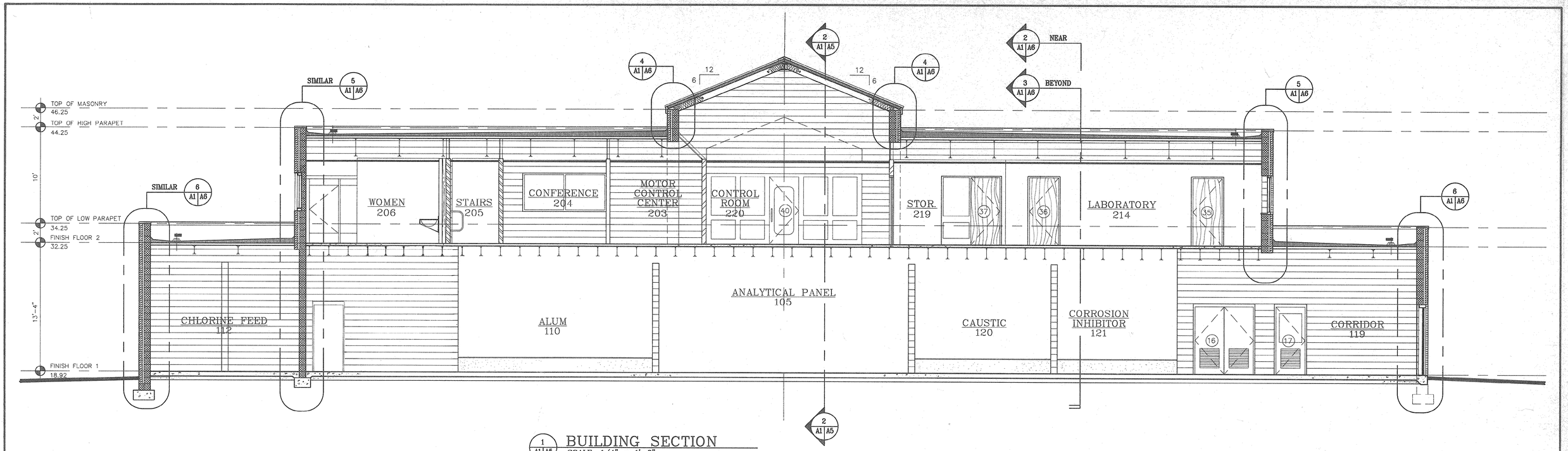
STATE OF SOUTH CAROLINA
GEORGE H. DOERMAN
LAURINBURG, NC
REGISTERED ARCHITECT

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

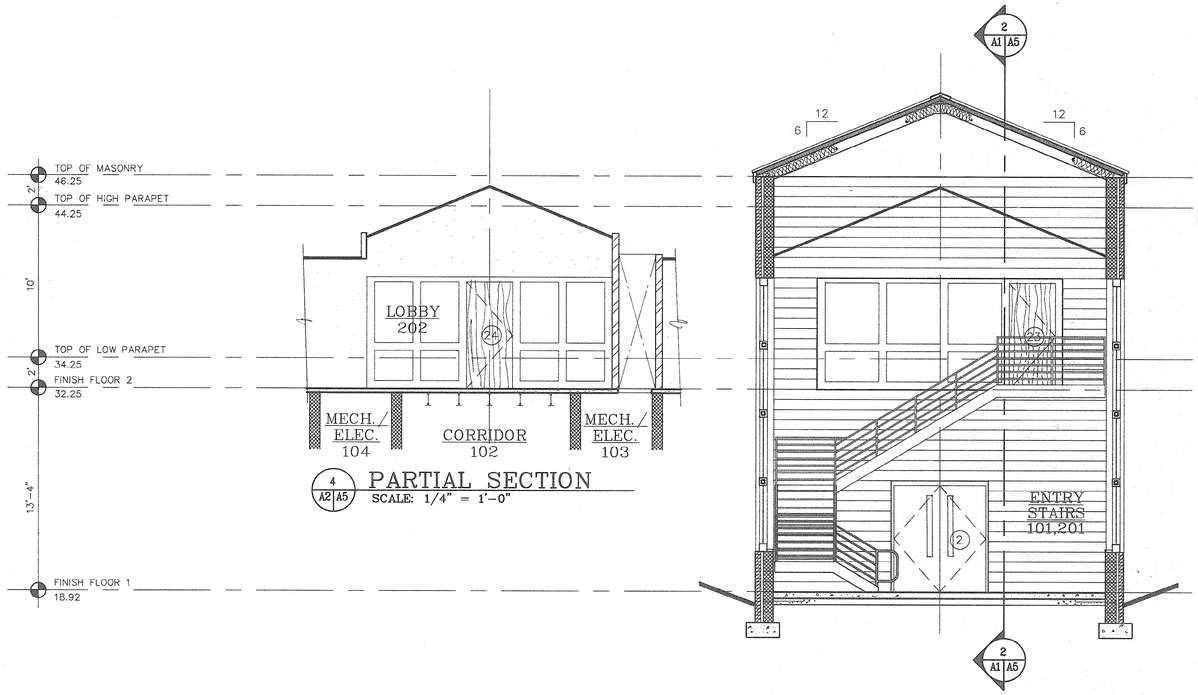
OPERATIONS BUILDING ELEVATIONS, DOOR SCHEDULE

DATE:
DESIGNED: RRP
DRAWN: RRP
CHECKED: STS
SCALE: NOTED
SHEET NO. A4
OF:

SOUTHERN PHOTO-DESIGNS 4/27/94

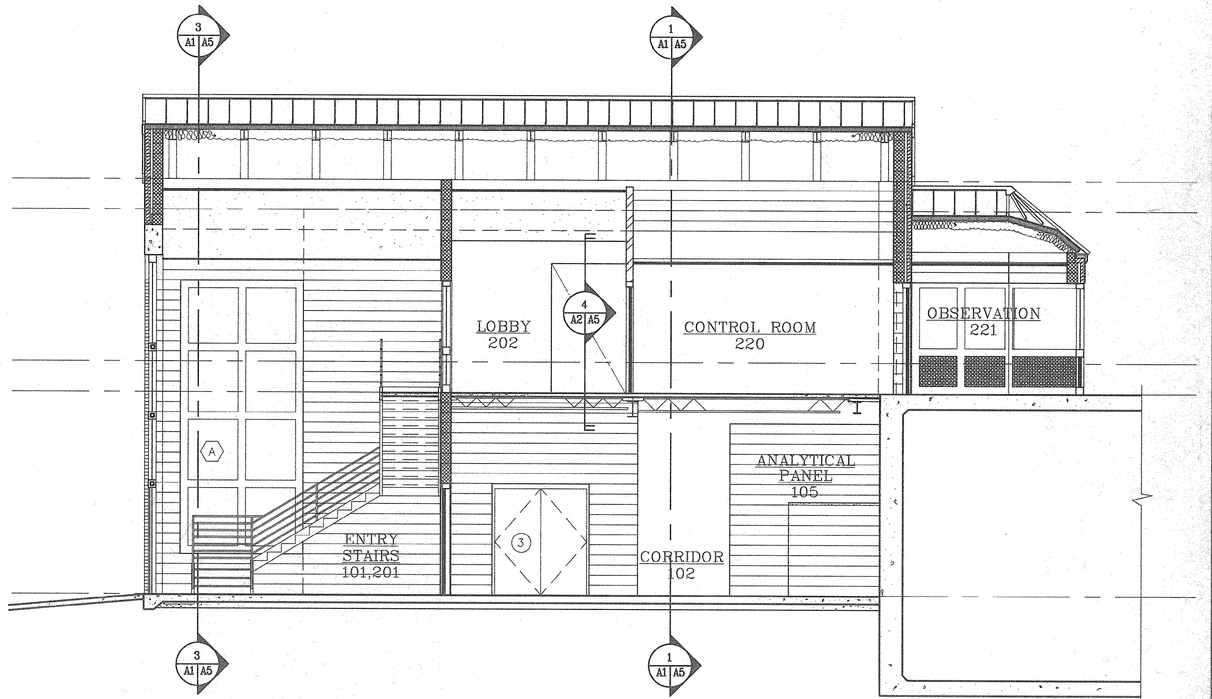


1 A1 A5 **BUILDING SECTION**
SCALE: 1/4" = 1'-0"



4 A2 A5 **PARTIAL SECTION**
SCALE: 1/4" = 1'-0"

2 A1 A5 **BUILDING SECTION**
SCALE: 1/4" = 1'-0"



2 A1 A5 **BUILDING SECTION**
SCALE: 1/4" = 1'-0"

WALL TYPE KEY
SCALE: 1/2" = 1'-0"

14" — TYPICAL EXTERIOR WALL
4" FACE BRICK VENEER
2" INSULATION/AIRSPACE
8" CMU

8" — TYPICAL CMU WALL

5 1/2" — TYPICAL ONE HOUR WALL: T-3362-OSU
2 LAYERS 5/8" TYPE "X" GYPSUM BOARD @ CORRIDOR
3 5/8" 20 GA. STEEL STUDS @ 16" O.C. VERT.
2" MINERAL FIBER INSULATION
1 LAYER 5/8" TYPE "X" GYPSUM BOARD @ ROOM

6 1/8" — TYPICAL TWO HOUR WALL: UL U411
2 LAYERS 5/8" TYPE "X" GYPSUM BOARD EACH SIDE
3 5/8" 20. GA. STEEL STUDS @ 16" O.C. VERT.

4 7/8" — TYPICAL UNRATED WALL
1 LAYER 5/8" GYPSUM BOARD EACH SIDE
3 5/8" 20 GA. STEEL STUDS @ 16" O.C. VERT.

33-01-61w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWINGS	1-11-92	RAC

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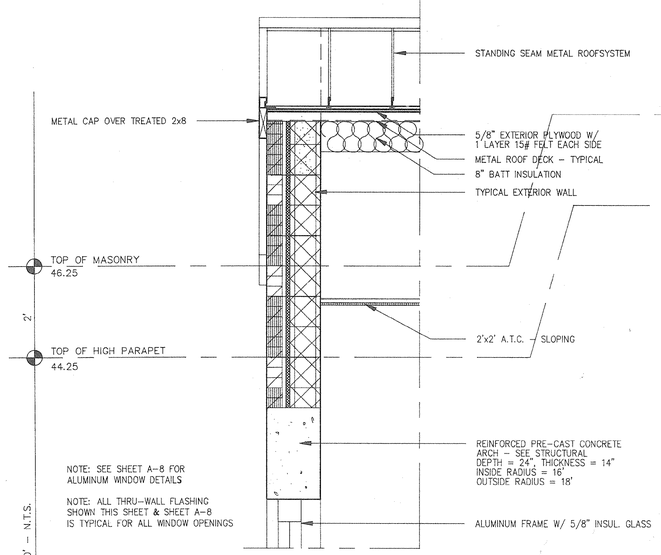
STATE OF SOUTH CAROLINA
GEORGE H. DOERMAN LAURINBURG, NC 2351
REGISTERED ARCHITECT

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

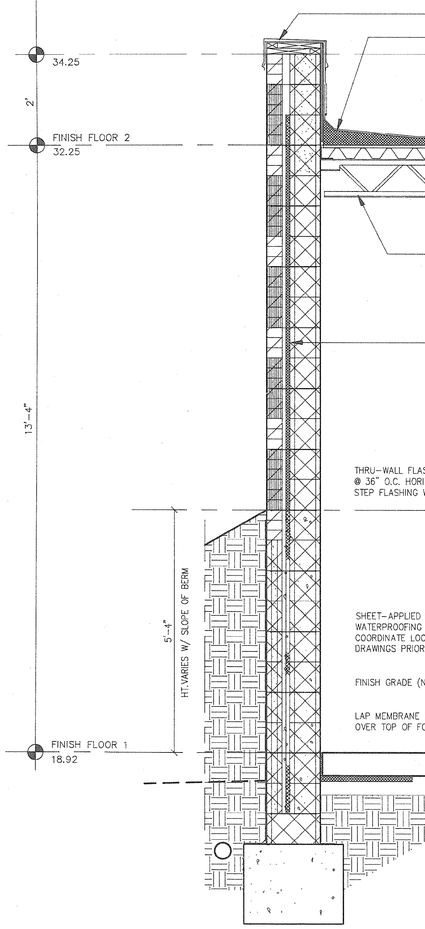
OPERATIONS BUILDING
BUILDING SECTIONS

DATE:
DESIGNED: RRP
DRAWN: RRP
CHECKED: STS
SCALE: NOTED
SHEET NO. A5
OF:

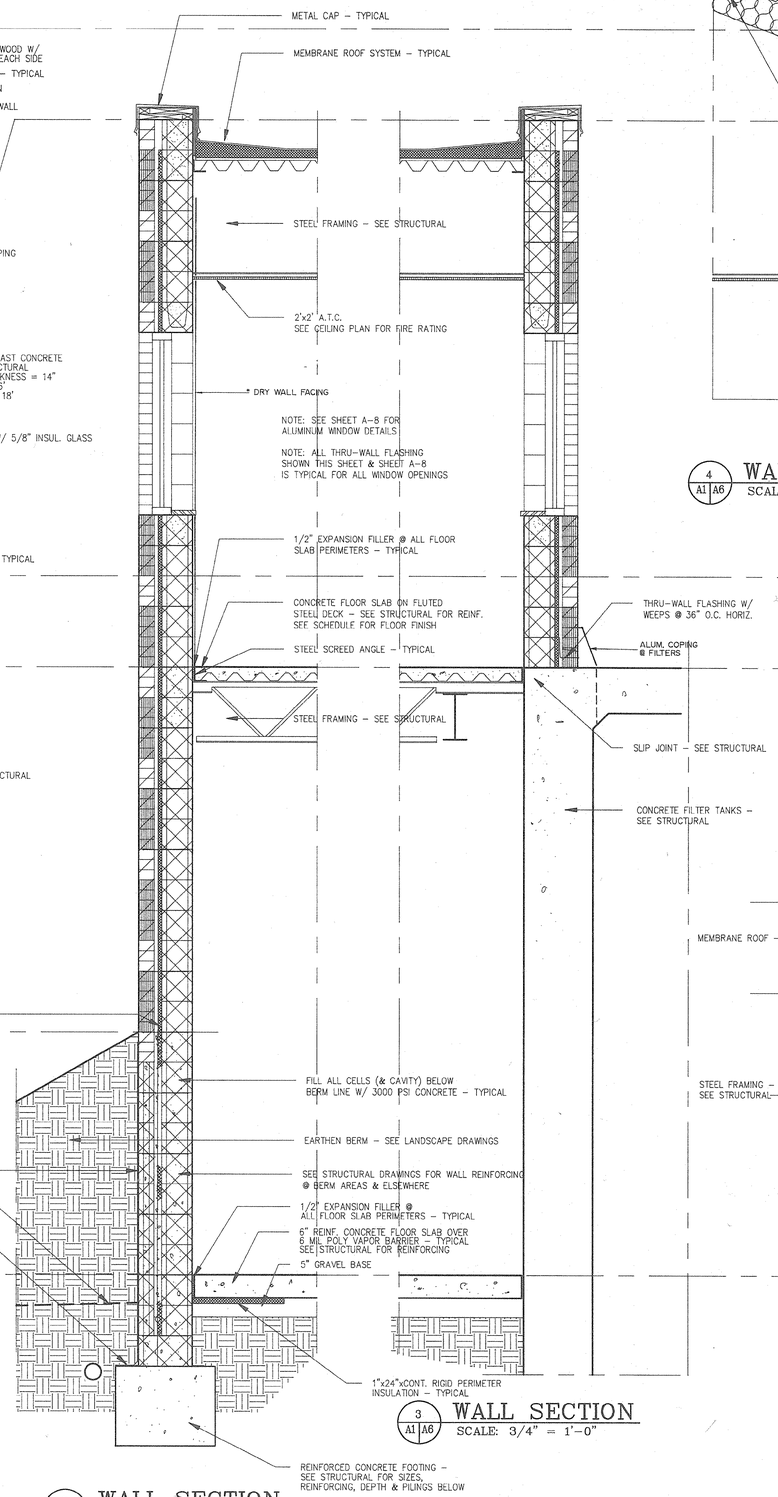
SOUTHERN PHOTO - DENVERTON 1127B4



7 A2 A6 WALL SECTION
SCALE: 3/4" = 1'-0"



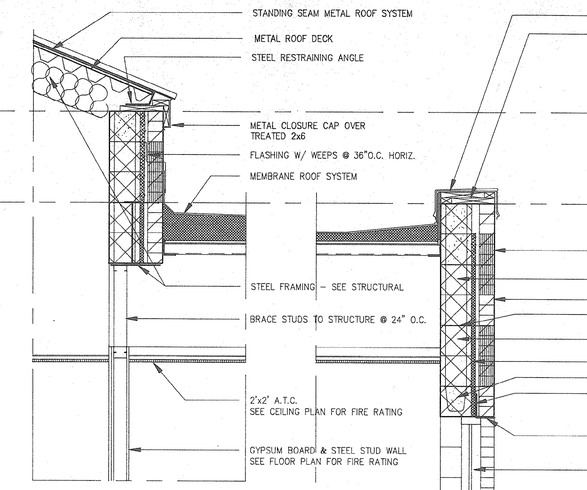
1 A1 A6 WALL SECTION
SCALE: 3/4" = 1'-0"



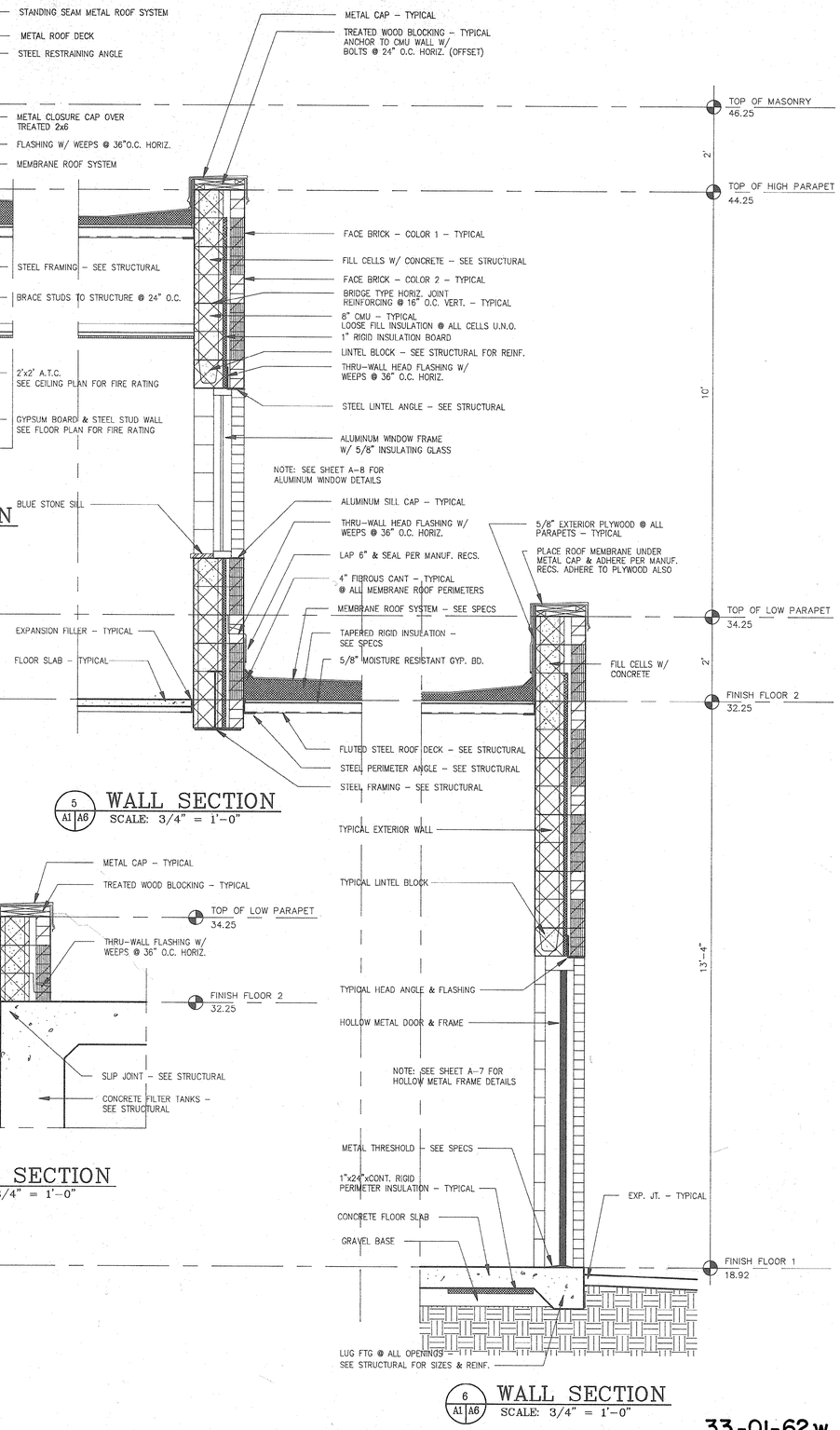
3 A1 A6 WALL SECTION
SCALE: 3/4" = 1'-0"

2 A1 A6 WALL SECTION
SCALE: 3/4" = 1'-0"

* SEE SHEET A-2 FOR AREAS WITH DRY WALL

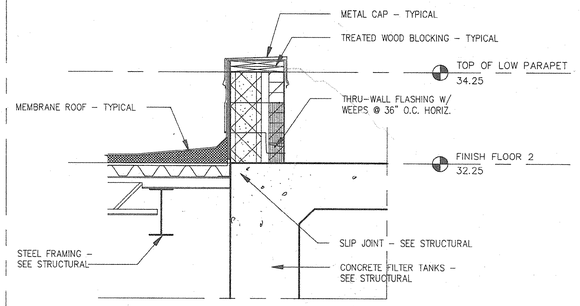


4 A1 A6 WALL SECTION
SCALE: 3/4" = 1'-0"



5 A1 A6 WALL SECTION
SCALE: 3/4" = 1'-0"

6 A1 A6 WALL SECTION
SCALE: 3/4" = 1'-0"



8 A2 A6 WALL SECTION
SCALE: 3/4" = 1'-0"

33-01-62 w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWINGS	1-11-92	RAC

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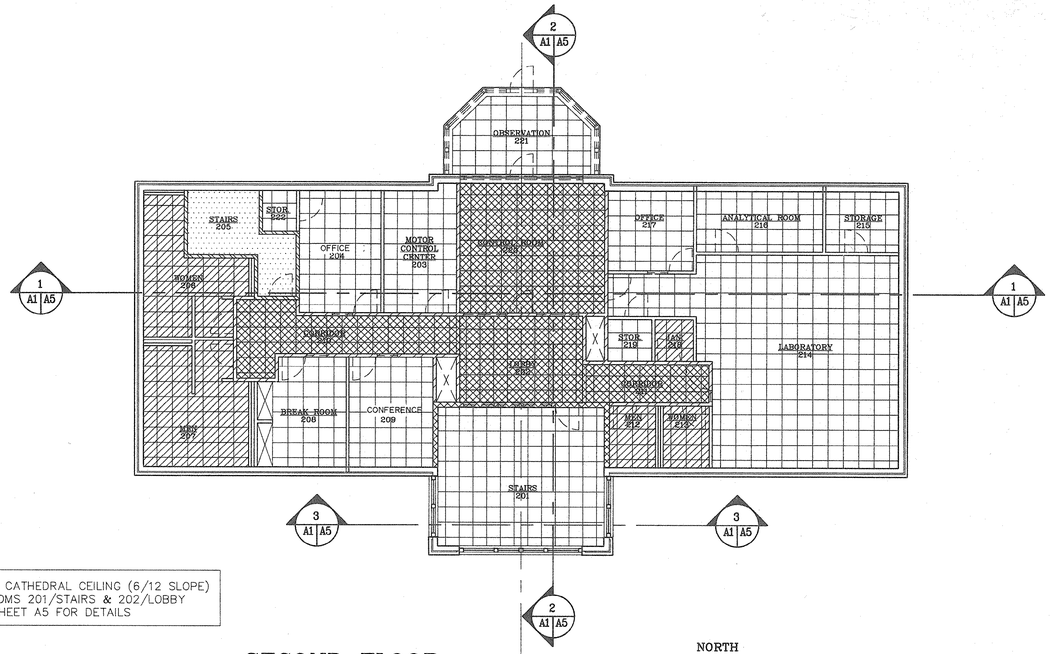
STATE OF SOUTH CAROLINA GEORGE H. SNOWDON LAURINBURG, NC 10911 REGISTERED ARCHITECT

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

OPERATIONS BUILDING WALL SECTIONS

DATE:
DESIGNED: RRP
DRAWN: RRP
CHECKED: STS
SCALE: NOTED
SHEET NO. A6
OF:

SOUTHERN PHOTO - GREENSBORO 727-5115

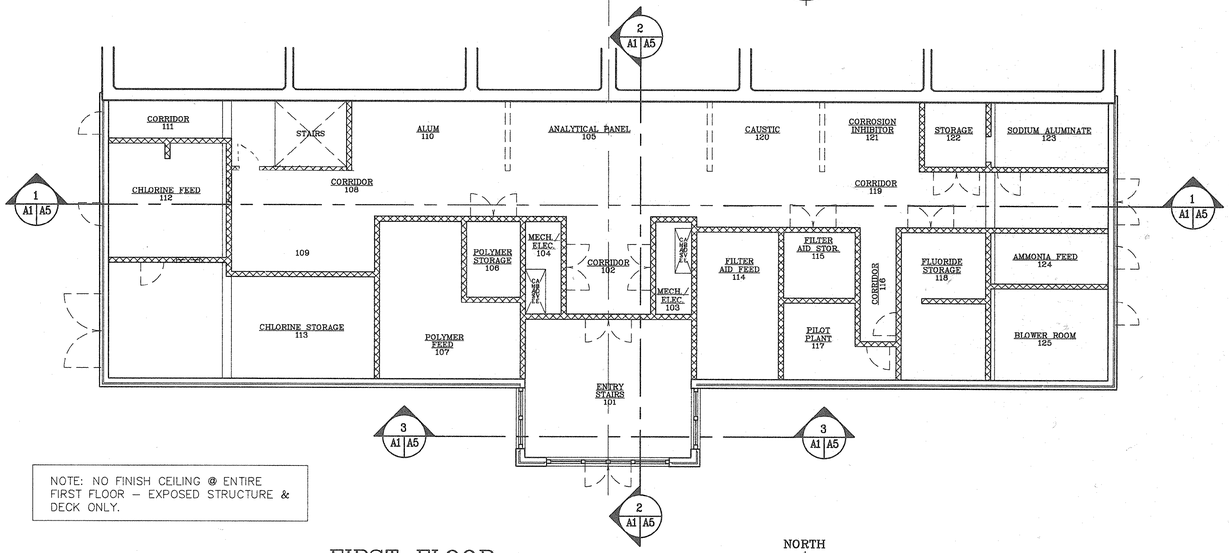


NOTE: CATHEDRAL CEILING (6/12 SLOPE) IN ROOMS 201/STAIRS & 202/LOBBY SEE SHEET A5 FOR DETAILS

SECOND FLOOR REFLECTED CEILING PLAN

2 A7 A7 — SCALE: 1/8" = 1'-0'

NORTH



NOTE: NO FINISH CEILING @ ENTIRE FIRST FLOOR – EXPOSED STRUCTURE & DECK ONLY.

FIRST FLOOR REFLECTED CEILING PLAN

1 A7 A7 — SCALE: 1/8" = 1'-0'

NORTH

CEILING TYPE KEY

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

- 2'x2' A.T.C. – NONRATED — FISSURE FINISH, 8'-6" A.F.F.(U.N.O.)
- 5/8" GYPSUM BOARD – 2 HR. RATED — SPRAY FINISH, 8'6" A.F.F. COMPLY WITH U.L. ASSEMBLY # D501
- NO CEILING — CHASE, STAIRS
- 2'x2' A.T.C. – 1 HR. RATED — FISSURE FINISH, 8'-6" A.F.F.(U.N.O.)
- 2'x2' GYPSUM BOARD – NONRATED — 1/2" VINYL FACED PANEL, 8'-0" A.F.F. ACOUSTICAL BATT INSULATION ABOVE, SEE SPECS
- 5/8" GYPSUM BOARD SOFFIT — SPRAY FINISH, 7'-0" A.F.F.(U.N.O.)

WALL TYPE KEY

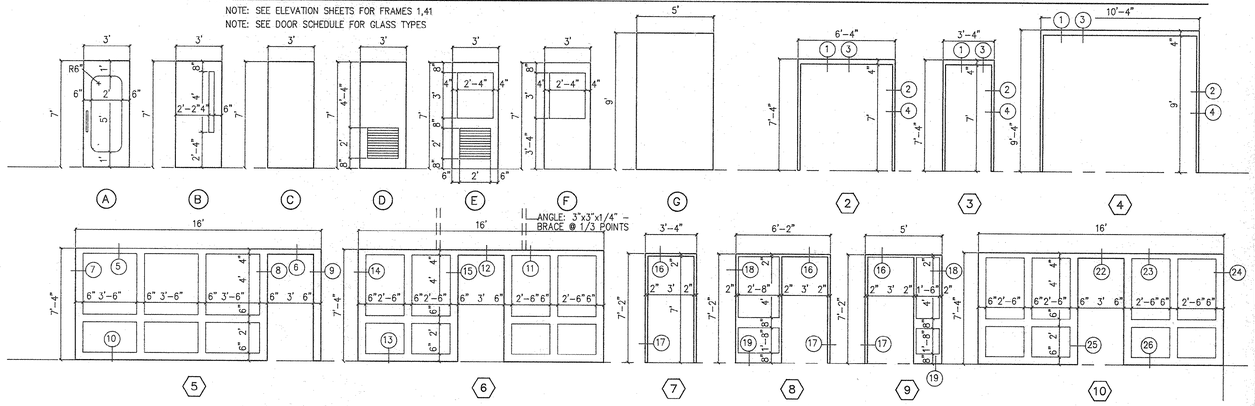
SCALE: 1/2" = 1'-0"

- TYPICAL EXTERIOR WALL
- TYPICAL CMU WALL — CARRY WALL TO DECK U.N.O.
- TYPICAL ONE HOUR WALL: T-3362-OSU — STOP WALL 4" ABOVE FIN. CLG.
- TYPICAL TWO HOUR WALL: UL U411 — STOP WALL 4" ABOVE FIN. CLG.
- TYPICAL UNRATED WALL — STOP WALL 4" ABOVE FIN. CLG.

DOOR, FRAME ELEVATIONS

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

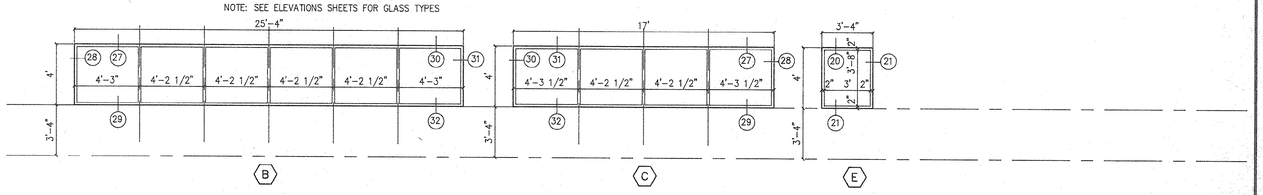
NOTE: SEE ELEVATION SHEETS FOR FRAMES 1,41
NOTE: SEE DOOR SCHEDULE FOR GLASS TYPES



WINDOW ELEVATIONS

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

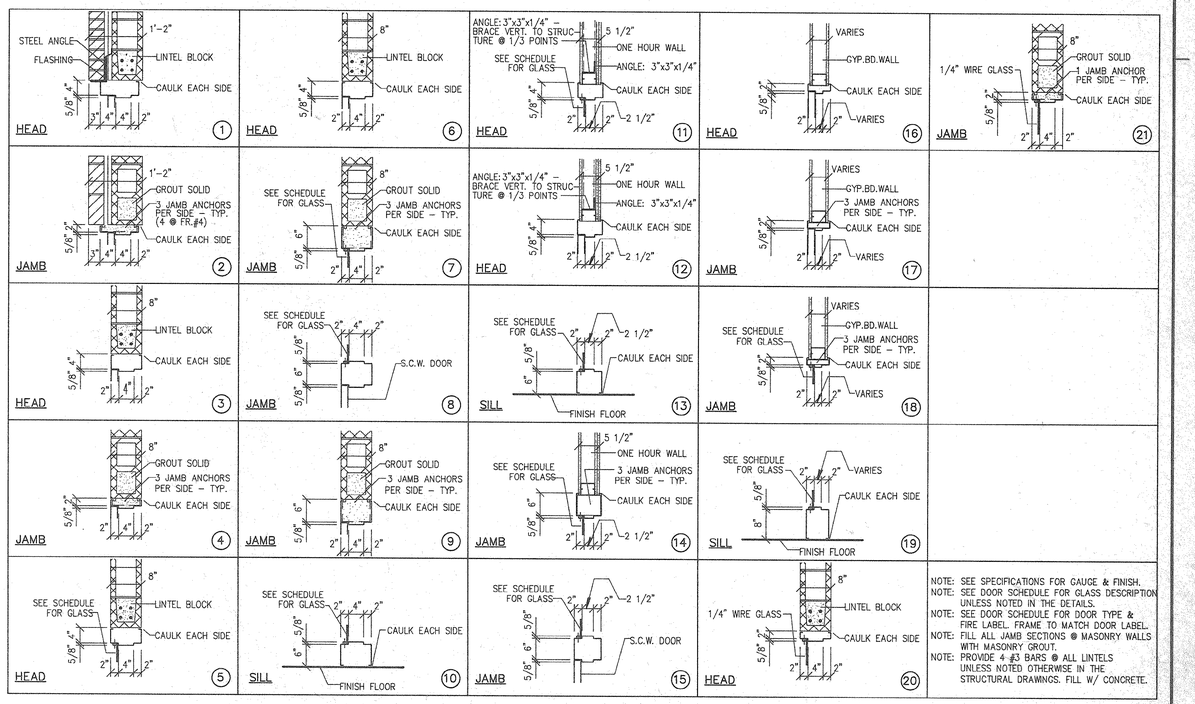
NOTE: SEE ELEVATION SHEETS FOR WINDOWS A,D
NOTE: SEE ELEVATIONS SHEETS FOR GLASS TYPES



HOLLOW METAL DETAILS

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

NOTE: SEE SHEET A-8 FOR ALUMINUM FRAME & STOREFRONT DETAILS



NOTE: SEE SPECIFICATIONS FOR GAUGE & FINISH.
NOTE: SEE DOOR SCHEDULE FOR GLASS DESCRIPTION UNLESS NOTED IN THE DETAILS.
NOTE: SEE DOOR SCHEDULE FOR DOOR TYPE & FIRE LABEL. FRAME TO MATCH DOOR LABEL.
NOTE: FILL ALL JAMB SECTIONS @ MASONRY WALLS WITH MASONRY GROUT.
NOTE: PROVIDE 4 #3 BARS @ ALL LINTELS UNLESS NOTED OTHERWISE IN THE STRUCTURAL DRAWINGS. FILL W/ CONCRETE.

33-01-63w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWINGS	1-11-92	RAC

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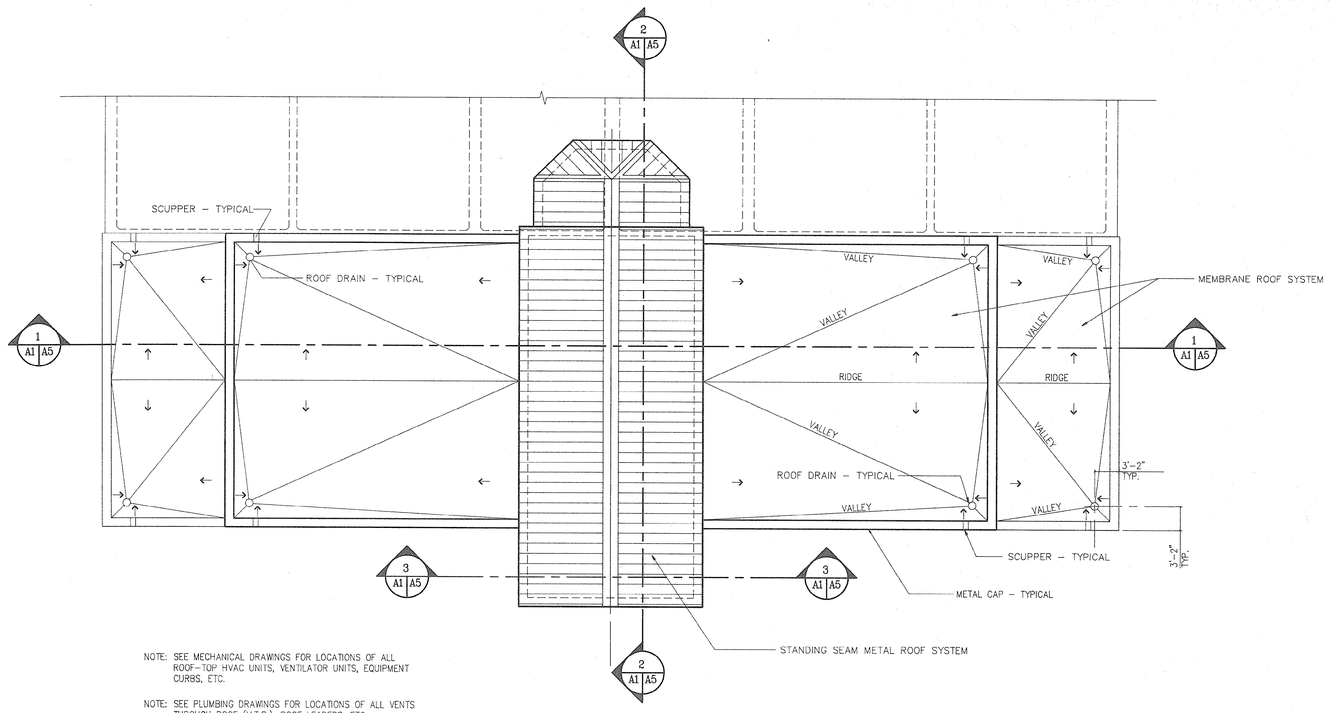
STATE OF SOUTH CAROLINA — GEORGE H. DOSSMAN LAURINBURG, NC 5967 — REGISTERED ARCHITECT

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

OPERATIONS BUILDING
CEILING PLANS, DOOR DETAILS

DATE:
DESIGNED: RRP
DRAWN: RRP
CHECKED: STS
SCALE: NOTED
SHEET NO. A7
OF:

SOUTHERN PHOTO - GEORGETOWN 10/7/91



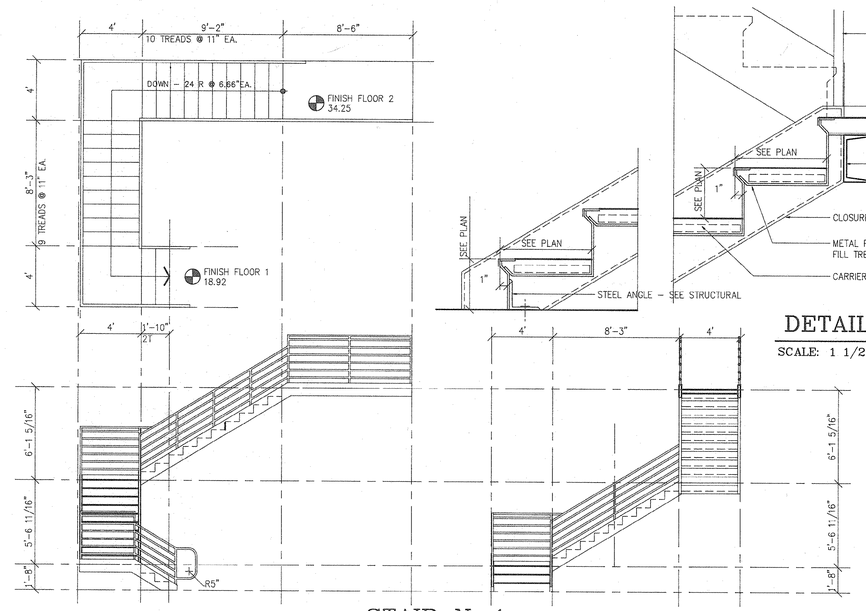
NOTE: SEE MECHANICAL DRAWINGS FOR LOCATIONS OF ALL ROOF-TOP HVAC UNITS, VENTILATOR UNITS, EQUIPMENT CURBS, ETC.

NOTE: SEE PLUMBING DRAWINGS FOR LOCATIONS OF ALL VENTS THROUGH ROOF (V.T.R.), ROOF LEADERS, ETC.

NORTH

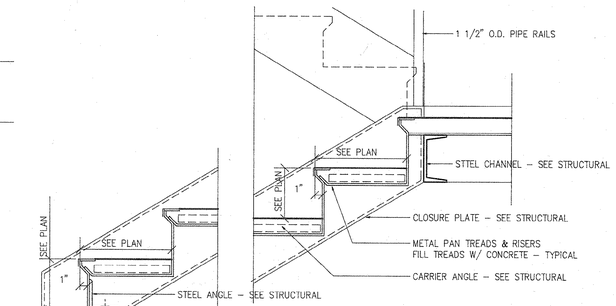
1 A8 A8 ROOF PLAN
SCALE: 1/8" = 1'-0'

STEEL STAIRS
SCALE: 1/4" = 1'-0"

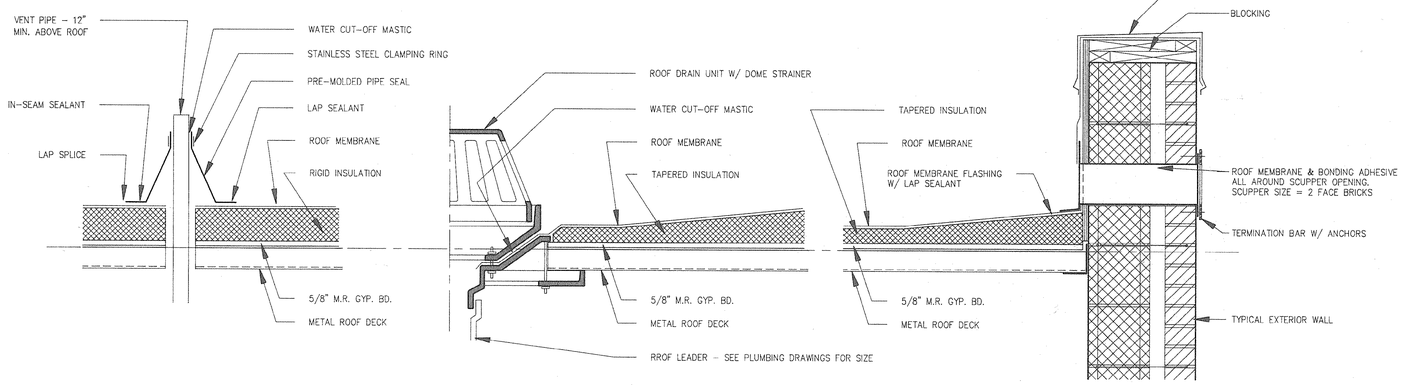


STAIR No.1

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

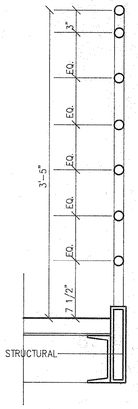


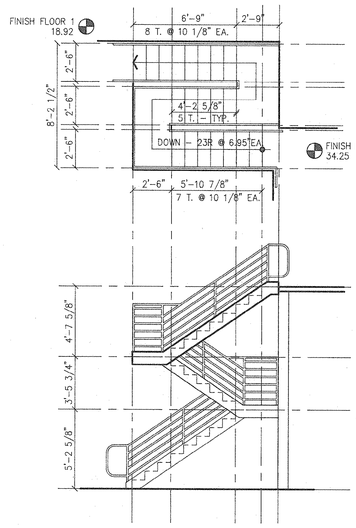
ROOF DETAILS
SCALE: 1 1/2" = 1'-0"



STAIR NOTES

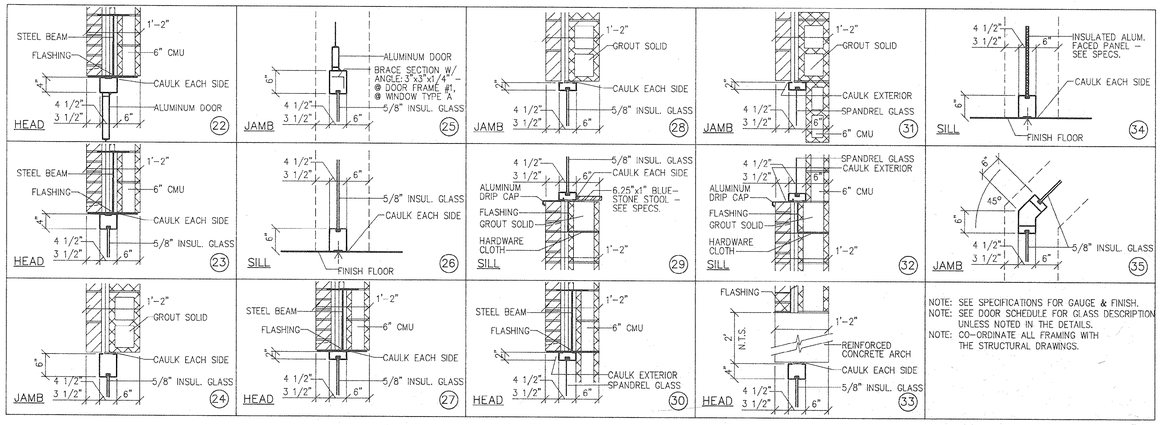
1. ANCHOR STEEL STRINGERS TO CMU WALLS PER STRUCTURAL DRAWINGS & SPECIFICATIONS.
2. ALL STAIRS TO CARRY DESIGN LIVE LOAD OF 100 PSF.
3. ALL STAIR LANDING RAILS ARE 3'-5" (PLUMB & VERTICAL) FROM TREAD SURFACE TO CL TOP RAIL.
4. ALL STAIR STRINGER RAILS ARE 2'-8" (PLUMB & VERTICAL) FROM TREAD SURFACE TO CL TOP RAIL.
5. PROVIDE SAFETY NOSINGS ON ALL STAIR TREADS.
6. STAIR No.1 TO HAVE THIN-SET EPOXY GROUTED QUARRY TILE ON ALL TREADS & LANDINGS. QUARRY TILE IS TO MATCH LOBBY FLOOR.
7. STAIR No.2 TO HAVE V.C.T. ON TREADS & LANDINGS.
8. ALL VISIBLE & EXPOSED STAIR COMPONENTS ARE TO BE PAINTED PER THE SPECIFICATIONS.
9. VERTICAL RAILS ALONG STRINGERS & LANDINGS ARE SET AT MIDPOINTS OR QUARTER POINTS (AS SHOWN).
10. ALL HANDRAIL EXTENSIONS ARE 16" – TYPICAL, RADIUS AS SHOWN.





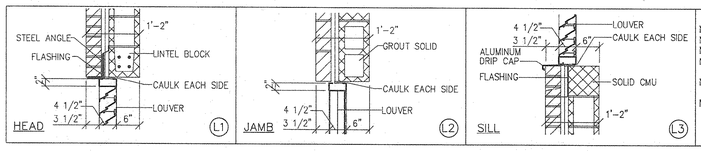
STAIR No.2

ALUMINUM FRAME DETAILS
SCALE: 3/4" = 1'-0"



NOTE: SEE SPECIFICATIONS FOR GAUGE & FINISH.
NOTE: SEE DOOR SCHEDULE FOR GLASS DESCRIPTION UNLESS NOTED IN THE DETAILS.
NOTE: CO-ORDINATE ALL FRAMING WITH THE STRUCTURAL DRAWINGS.

ALUMINUM LOUVER DETAILS
SCALE: 3/4" = 1'-0"



NOTE: SEE SPECIFICATIONS FOR GAUGE & FINISH.
NOTE: PROVIDE 48%-49% FREE AREA PROFILE.
NOTE: PROVIDE STORM-PROOF LOUVER PROFILE.
NOTE: PROVIDE BRACING PER MANUFACTURER'S RECOMMENDATIONS.
NOTE: PROVIDE BIRD/INSECT SCREEN PER SPECIFICATIONS.
NOTE: PROVIDE 4 #3 BARS @ ALL LINTELS UNLESS NOTED OTHERWISE IN THE STRUCTURAL DRAWINGS. FILL W/ CONCRETE.

33-01-64W

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWINGS	1-11-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
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Tel: 919 - 279 - 2818

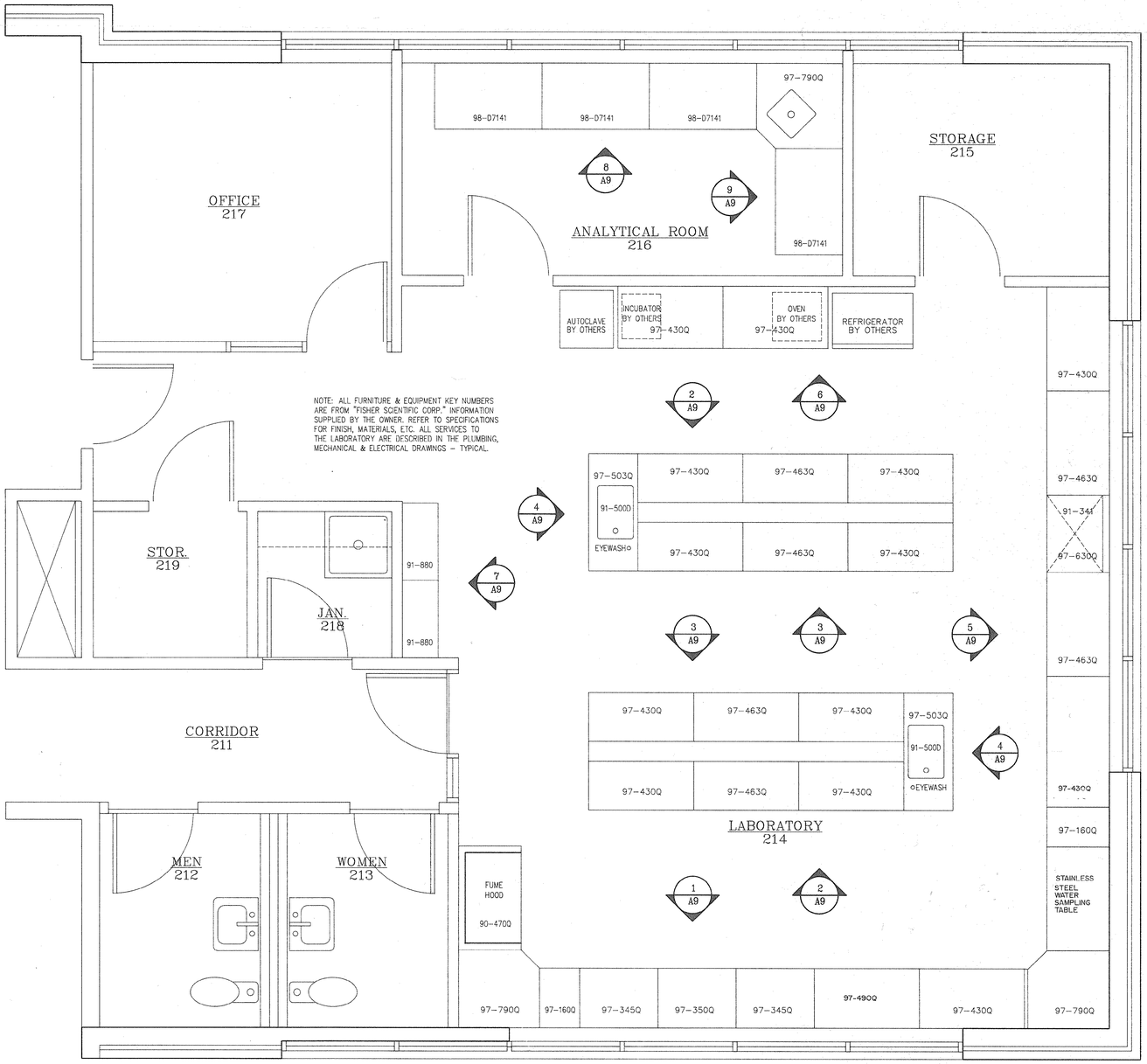
STATE OF SOUTH CAROLINA
GEORGE M. DOERMAN
LAURENS, NC
3097
REGISTERED ARCHITECT

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

OPERATIONS BUILDING
ROOF PLAN, VARIOUS DETAILS

DATE:
DESIGNED: RRP
DRAWN: RRP
CHECKED: STS
SCALE: NOTED
SHEET NO. A8
OF:

SOUTHERN PHOTO - DESIGNS/DWG 10/2/92



1 A9 A9 ENLARGED LABORATORY PLAN — FIN. FLR. 32.35

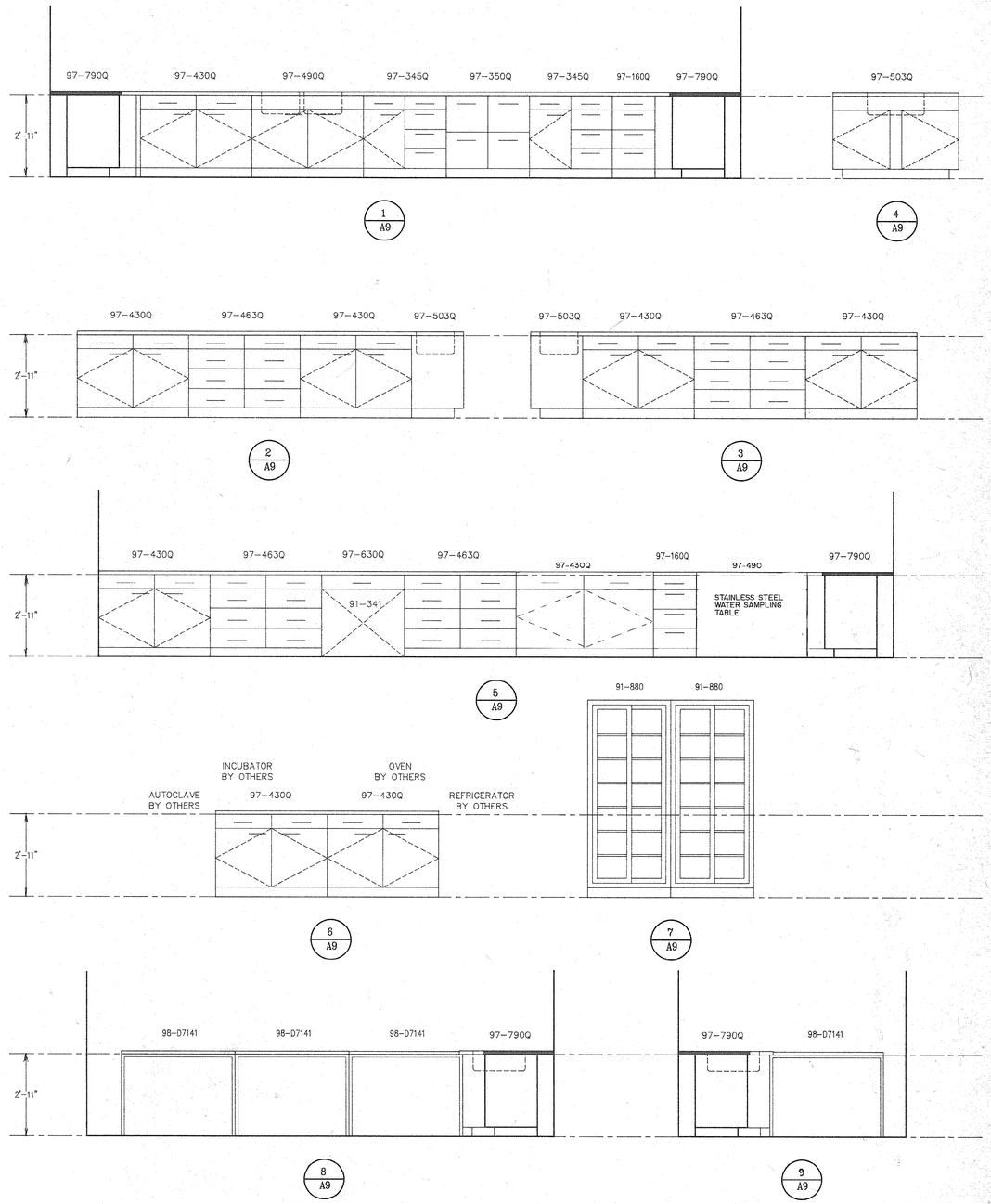
SCALE: 1/2" = 1'-0"

NORTH

NOTE: OWNER TO FURNISH AND INSTALL ALL LABORATORY FURNITURE, COUNTERTOPS, ETC. CONTRACTOR TO CO-ORDINATE DELIVERY SCHEDULE AND MAKE ALL HOOK-UPS – TYPICAL.

LAB EQUIPMENT ELEVATIONS

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



33-01-65w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWINGS	1-11-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
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Snowdon and Associates, P.A. Architecture
660 South Main Street, Suite F
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Tel: 919 - 276 - 2855

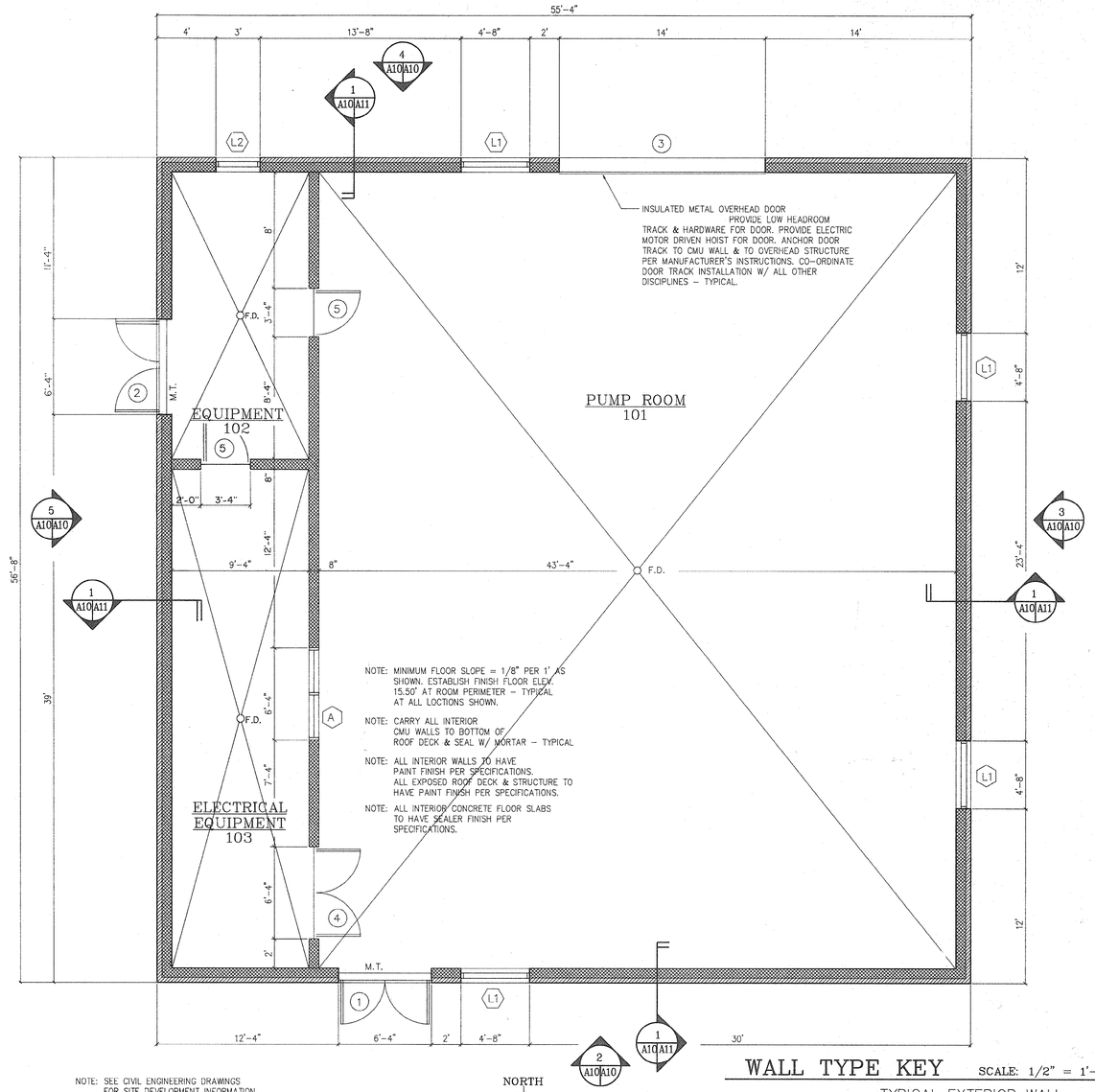
STATE OF SOUTH CAROLINA — GEORGE H. DORDNAR — LAURINBURG, NC — REGISTERED ARCHITECT

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

OPERATIONS BUILDING
LABORATORY PLAN, ELEVATIONS

DATE:
DESIGNED: RRP
DRAWN: RRP
CHECKED: STS
SCALE: NOTED
SHEET NO. A9
OF:

SOLOMON PHOTO - GREENSBORO 137068



NOTE: SEE CIVIL ENGINEERING DRAWINGS FOR SITE DEVELOPMENT INFORMATION.

NORTH

1 A10|A10 FLOOR PLAN
SCALE: 1/4" = 1'-0" — FIN.FLR. 15.50 — 3136 GSF

WALL TYPE KEY
SCALE: 1/2" = 1'-0"

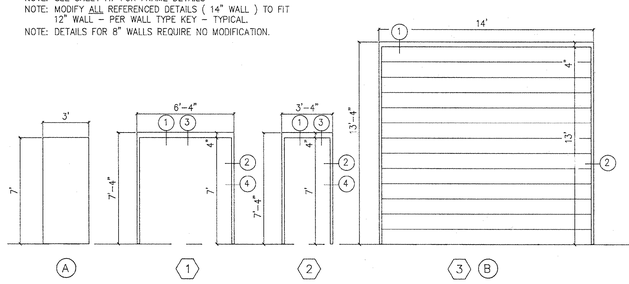
TYPICAL EXTERIOR WALL

12" — 4" FACE BRICK VENEER, 8" CMU

8" — TYPICAL CMU WALL

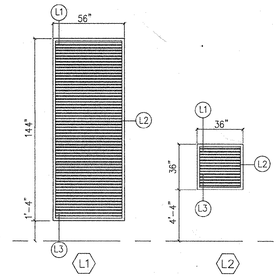
DOOR, FRAME ELEVATIONS
SCALE: 1/4" = 1'-0"

NOTE: SEE SHEET A7 FOR FRAME DETAILS
NOTE: MODIFY ALL REFERENCED DETAILS (14" WALL) TO FIT 12" WALL – PER WALL TYPE KEY – TYPICAL.
NOTE: DETAILS FOR 8" WALLS REQUIRE NO MODIFICATION.



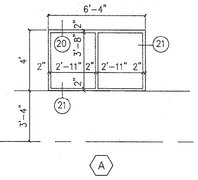
LOUVER ELEVATIONS
SCALE: 1/4" = 1'-0"

NOTE: SEE SHEET A8 FOR LOUVER DETAILS



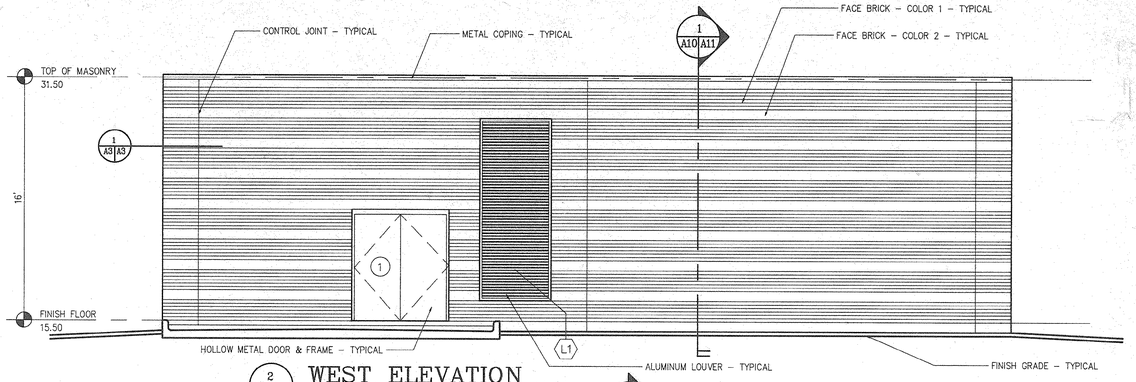
WINDOW ELEVATIONS
SCALE: 1/4" = 1'-0"

NOTE: SEE SHEET A7 FOR FRAME DETAILS

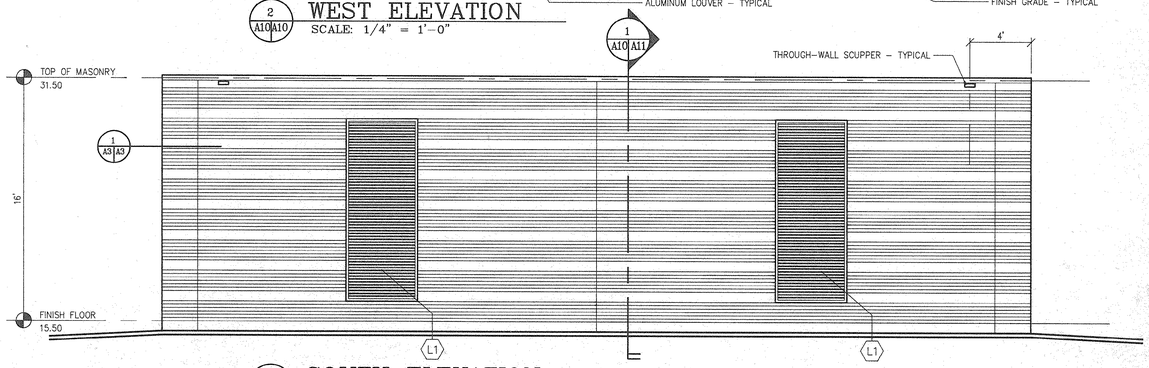


DOOR SCHEDULE

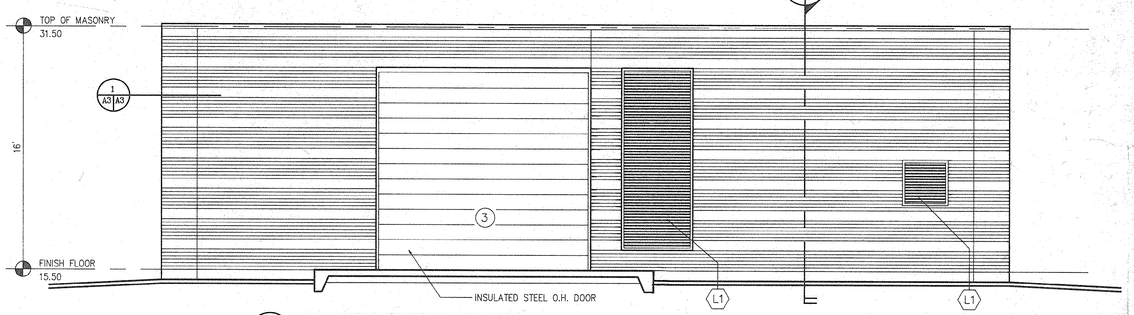
No.	DOOR SIZE	TYPE	MTL.	GLASS	LOUVER	LABEL	FRAME TYPE	FRAME MTL.	FRAME GLASS	HARDWARE SET No.	REMARKS
1	Pr.3'x7'x1.75"	A	INSUL. H.M.	NONE	NONE	NONE	1	H.M.	NONE		PAINT DOOR & FRAME
2	3'x7'x1.75"	A	INSUL. H.M.	NONE	NONE	NONE	2	H.M.	NONE		PAINT DOOR & FRAME
3	13'x14'	B	INSUL. H.M.		NONE	NONE	3	H.M.			PAINT DOOR & FRAME
4	Pr.3'x7'x1.75"	A	INSUL. H.M.	NONE	NONE	20 MIN.	1	H.M.	NONE		PAINT DOOR & FRAME
5	3'x7'x1.75"	A	INSUL. H.M.	NONE	NONE	20 MIN.	2	H.M.	NONE		PAINT DOOR & FRAME



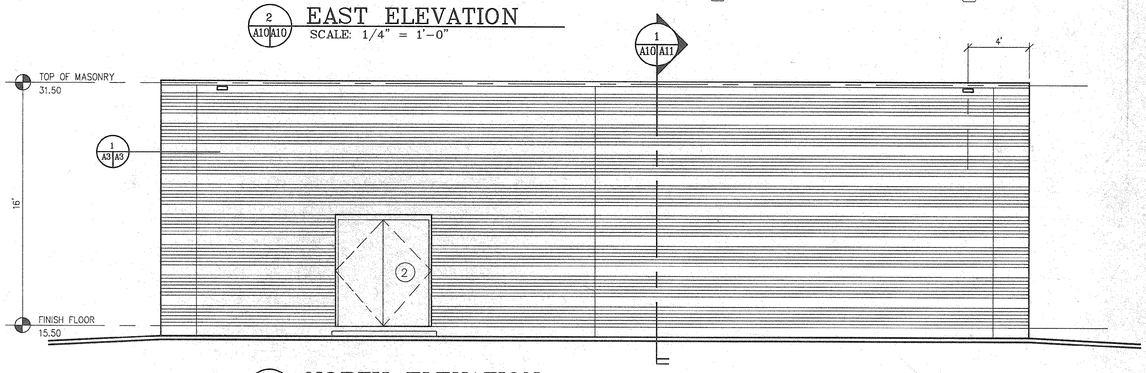
2 A10|A10 WEST ELEVATION
SCALE: 1/4" = 1'-0"



2 A10|A10 SOUTH ELEVATION
SCALE: 1/4" = 1'-0"



2 A10|A10 EAST ELEVATION
SCALE: 1/4" = 1'-0"



2 A10|A10 NORTH ELEVATION
SCALE: 1/4" = 1'-0"

33-01-66w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWINGS	1-11-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

Snowdon and Associates, P.A. Architecture
600 South Main Street, Suite F
Laurinburg, North Carolina 28352
Fax: 910 - 277 - 4221
Tel: 910 - 276 - 2818

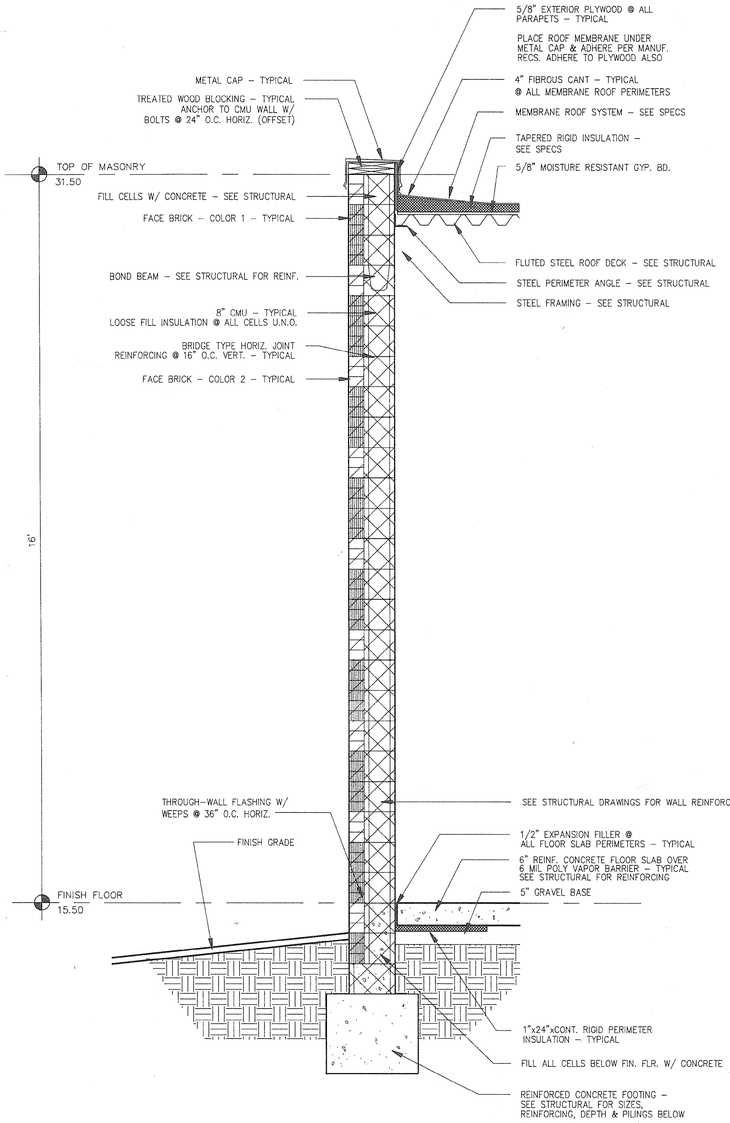
STATE OF SOUTH CAROLINA — GEORGE H. BOEHMAN — LAURINBURG, NC — REGISTERED ARCHITECT

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

FINISH WATER PUMP STATION
FLOOR PLAN, ELEVATIONS

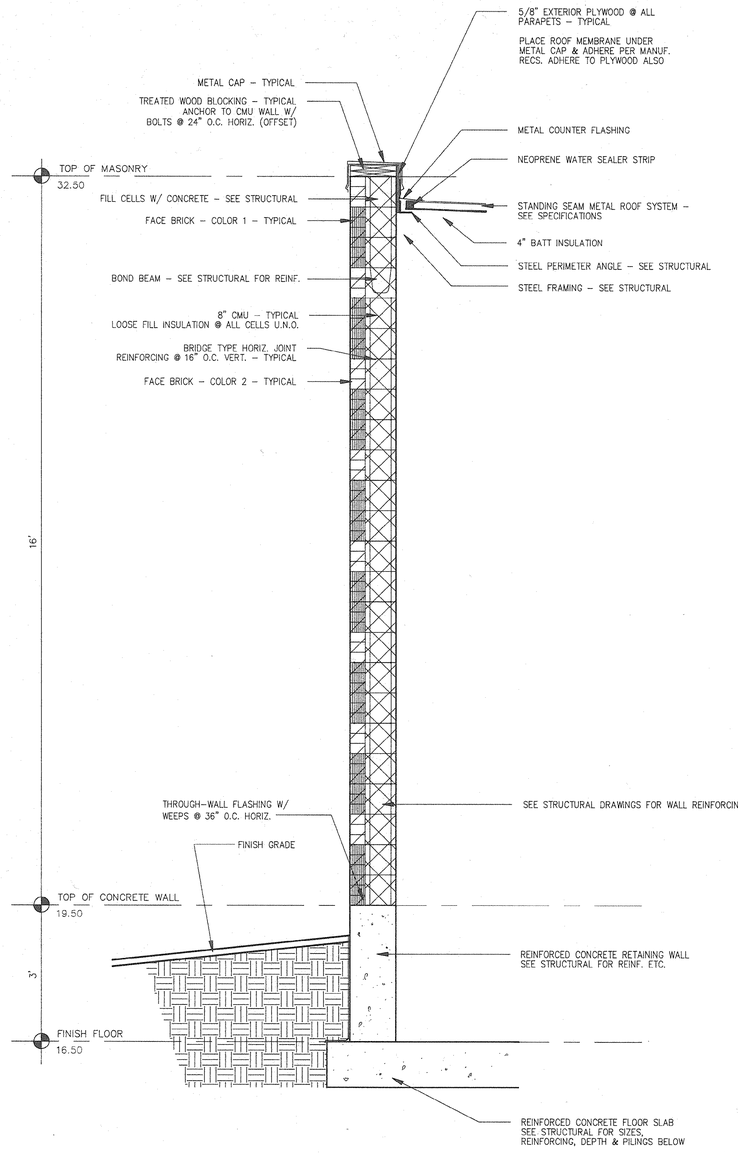
DATE:
DESIGNED: RRP
DRAWN: RRP
CHECKED: STS
SCALE: NOTED
SHEET NO. A10
OF:

SOUTHERN PHOTO - GREENSBORO 117744



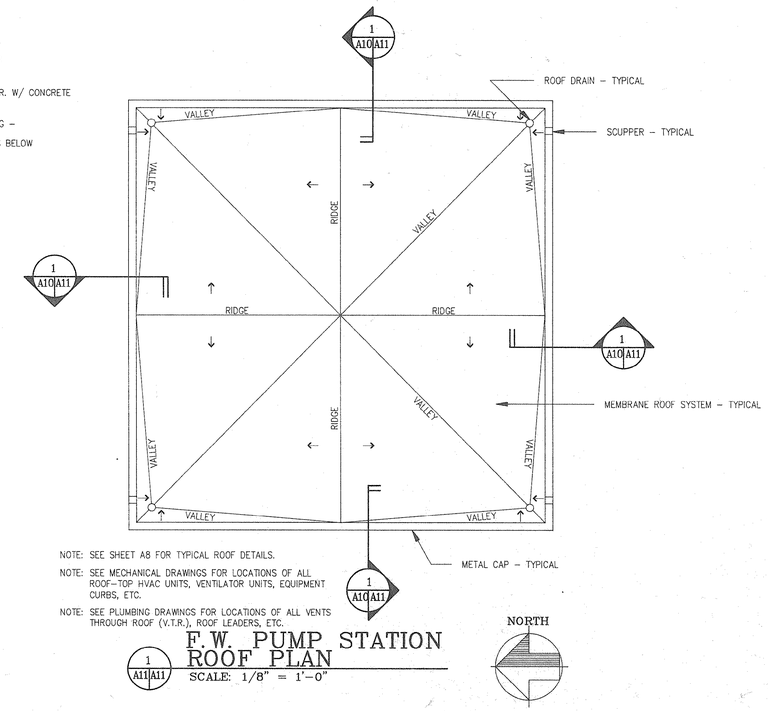
FINISH WATER PUMP STATION WALL SECTION

1 / A10|A11 SCALE: 3/4" = 1'-0"



BULK CHEMICAL STORAGE BUILDING WALL SECTION

2 / A12|A11 SCALE: 3/4" = 1'-0"



NOTE: SEE SHEET A8 FOR TYPICAL ROOF DETAILS.

NOTE: SEE MECHANICAL DRAWINGS FOR LOCATIONS OF ALL ROOF-TOP HVAC UNITS, VENTILATOR UNITS, EQUIPMENT CURBS, ETC.

NOTE: SEE PLUMBING DRAWINGS FOR LOCATIONS OF ALL VENTS THROUGH ROOF (V.T.R.), ROOF LEADERS, ETC.

F.W. PUMP STATION ROOF PLAN

1 / A11|A11 SCALE: 1/8" = 1'-0"

33-01-67w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWINGS	1-11-92	RAC

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Architecture
600 South Main Street, Suite F
Laurinburg, North Carolina 28352
Fax: 919 - 277 - 0121
Tel: 919 - 276 - 2919

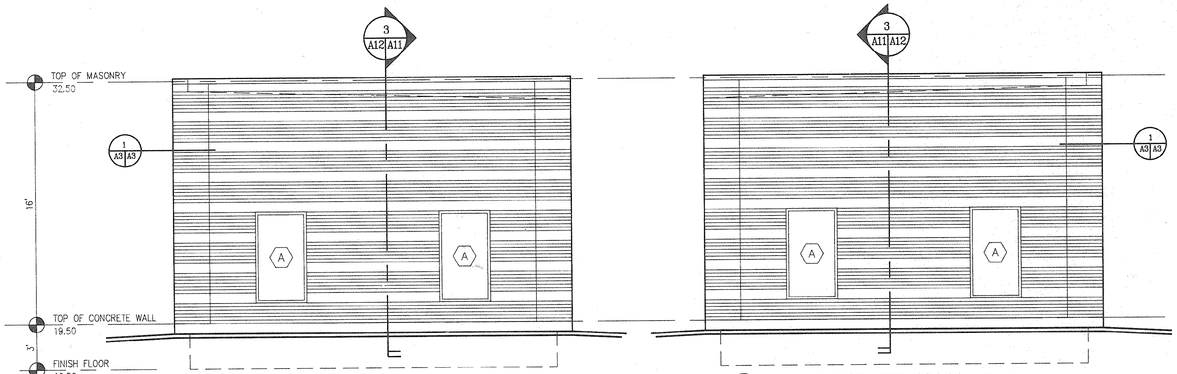
STATE OF SOUTH CAROLINA REGISTERED ARCHITECT
GEORGE H. DOERMAN LAURINBURG, NC 3028

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

FINISH WATER, CHEMICAL STOR. ROOF PLAN, WALL SECTIONS

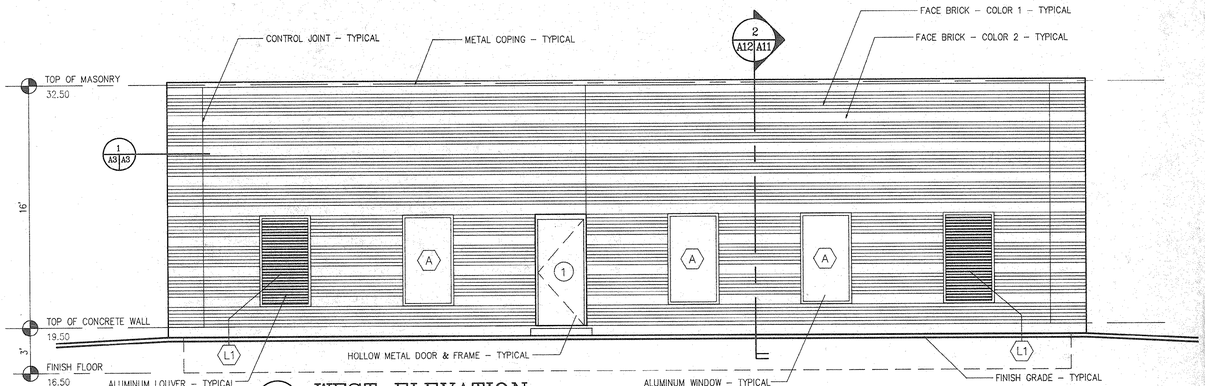
DATE:
DESIGNED: RRP
DRAWN: RRP
CHECKED: STS
SCALE: NOTED
SHEET NO. A11
OF:

SOUTHERN PACIFIC - GREENSBORO

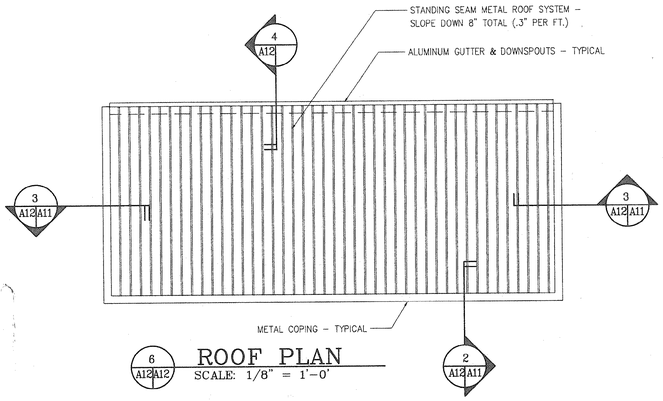


3 A12 A12 SOUTH ELEVATION
SCALE: 1/4" = 1'-0"

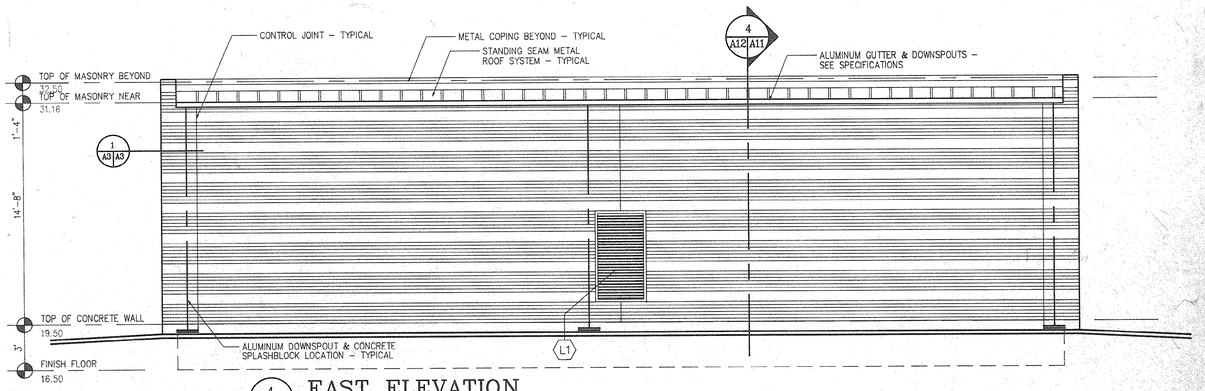
5 A12 A12 NORTH ELEVATION
SCALE: 1/4" = 1'-0"



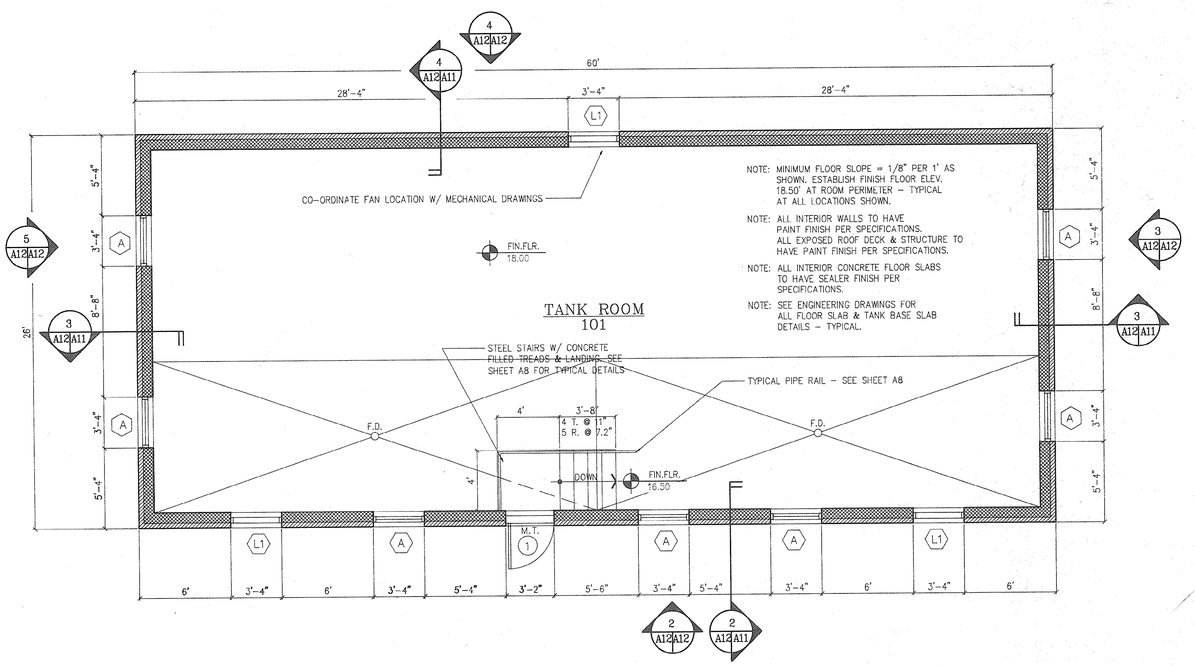
2 A12 A12 WEST ELEVATION
SCALE: 1/4" = 1'-0"



6 A12 A12 ROOF PLAN
SCALE: 1/8" = 1'-0"



4 A12 A12 EAST ELEVATION
SCALE: 1/4" = 1'-0"



1 A12 A12 FLOOR PLAN
SCALE: 1/4" = 1'-0"
FIN.FLR. 18.50
1560 GSF

NOTE: SEE CIVIL ENGINEERING DRAWINGS FOR SITE DEVELOPMENT INFORMATION.

NORTH

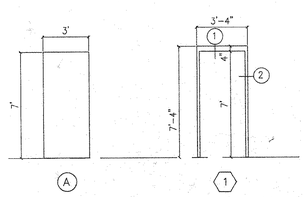
WALL TYPE KEY
SCALE: 1/2" = 1'-0"

TYPICAL EXTERIOR WALL

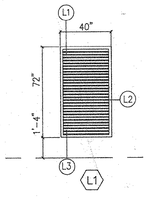
12" — 4" FACE BRICK VENEER
8" CMU

DOOR, FRAME ELEVATIONS
SCALE: 1/4" = 1'-0"

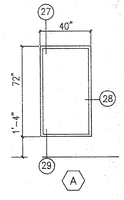
NOTE: SEE SHEET A7 FOR FRAME DETAILS
NOTE: MODIFY ALL REFERENCED DETAILS (14" WALL) TO FIT 12" WALL – PER WALL TYPE KEY – TYPICAL.



LOUVER ELEVATION
SCALE: 1/4" = 1'-0"
NOTE: SEE SHEET A8 FOR LOUVER DETAILS



WINDOW ELEVATION
SCALE: 1/4" = 1'-0"
NOTE: SEE SHEET A8 FOR FRAME DETAILS



DOOR SCHEDULE
33-01-68w

No.	DOOR SIZE	DOOR TYPE	DOOR MTL.	DOOR GLASS	LOUVER	LABEL	FRAME TYPE	FRAME MTL.	FRAME GLASS	HARDWARE SET No.	REMARKS
1	3'x7'x1.75"	A	INSUL H.M.	NONE	NONE	NONE	1	H.M.	NONE		PAINT DOOR & FRAME

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWINGS	1-11-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
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STATE OF SOUTH CAROLINA
REGISTERED ARCHITECT
GEORGE H. SNOWDON
LAURINBURG, NC
3967

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

BULK CHEMICAL STORAGE BLDG. FLOOR PLAN, ELEVATIONS

DATE:
DESIGNED: RRP
DRAWN: RRP
CHECKED: STS
SCALE: NOTED
SHEET NO. A12
OF:

SOUTHERN PHOTO - GREENSBORO N.C.27408

CIRCUITING LEGEND

HOMERUNS TO PANELBOARDS ARE SHOWN AS POLES RATHER THAN CIR CUITS. SIMILARLY, PANEL SCHEDULES LIST POLES RATHER THAN CIR CUITS, BUT INDICATE WHICH POLES ARE COMMON TRIP FORMING TWO AND THREE POLE CIRCUITS. HOMERUN DESIGNATIONS INDICATE PANELBOARD AND POLES TO WHICH PHASE WIRES ARE TO BE CONNECTED. NUMBER OF ARROWS INDICATE NUMBER OF CIRCUITS INVOLVED. CROSS HATCHES, SHOWN ONLY WHEN THE NUMBER OF POLES EXCEEDS THE NUMBER OF CIR CUITS, INDICATE THE NUMBER OF WIRES. FOR EXAMPLE:

SYMBOL	NO. OF POLES	CIRCUITS	PHASE WIRES	NEUTRAL
LP-1	1	1	1	1
LP-1, 3	2	1	2	0
LP-1, 3	2	1	2	1
LP-1, 3, 5	3	1	3	0
LP-1, 3, 5	3	1	3	1
LP-5, 7	2	2	2	1
LP-5, 7, 9	3	3	3	1

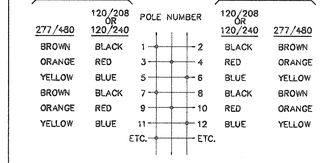
FEEDERS:

NO. ( ) INDICATES QUANTITY OF CONDUITS AND CONDUCTORS IN PARALLEL. SEE NEC 250-79C, 250-95, 300-20 AND 310-4 FOR SPECIAL REQUIREMENTS. EXAMPLE: 3(3 #3/0, 1 #1/0 N, 1 1G, 2 1/2"C) REQUIRES THREE 2 1/2" CONDUIT EACH HAVING THREE NO. 3/0 PHASE CONDUCTORS, ONE NO. 1/0 NEUTRAL CONDUCTOR AND ONE NO. 1 GROUNDING CONDUCTOR.

EQUIPMENT GROUNDING CONDUCTORS:

EQUIPMENT GROUNDING CONDUCTORS ARE GENERALLY NOT SHOWN ON CIRCUITING PLANS BUT SHALL BE PROVIDED IN THE SIZES AS SCHEDULED ON N.E.C. TABLE 250-95 ON ALL CIRCUITS, EXCEPT LIGHTING CIRCUITS.

TYPICAL PANEL DIAGRAM

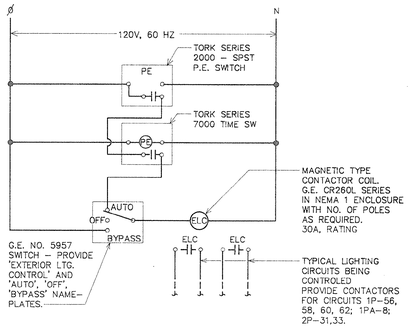


NEUTRAL

120/240 OR 120/208 VOLTS – WHITE

277/480 VOLTS – WHITE WITH IDENTIFIABLE COLOR STRIPE (NOT GREEN). IF NOT AVAILABLE AT TIME OF INSTALLATION, CLEAR USE OF GRAY WITH ELECTRICAL INSPECTOR.

GROUND WIRE, WHEN USED OR CALLED FOR, SHALL BE GREEN FOR ALL VOLTAGES.



WIRING DIAGRAM 'ELC' (EXTERIOR LIGHTING CONTROL)

1 / E-1 NOT TO SCALE

NOTE:
SET TIME CLOCK TO COME 'ON' AT 2:00 PM, TO TURN LIGHTS 'OFF' AT NIGHT AT TIME AS DIRECTED BY OWNER.

CONTROL WIRING DIAGRAM SYSTEM SYMBOLS

- (M) MAGNETIC STARTER
- OVERLOAD PROTECTION
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- H ON-OFF SWITCH
- (R) RED PILOT LIGHT
- H O A HAND OFF- AUTOMATIC SWITCH

LIST OF ELECTRICAL DRAWINGS

SHEET NO.	SHEET TITLE
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LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION
A	2' X 4' FLUORESCENT TROFFER WITH STEEL BODY, HINGED ALUMINUM DOOR FRAME, ACRYLIC PRISMATIC LENS AND FOUR (4) F40CW LAMPS. LITHONIA NO. 2SP-G-440-RW-A12.125-ES
B	2' X 4' FLUORESCENT TROFFER MATCHING TYPE 'A' EXCEPT WITH TWO (2) F40CW LAMPS. LITHONIA NO. 2SP-G-240-RW-A12.125-ES
C	1' X 4' FLUORESCENT TROFFER MATCHING TYPE 'A' WITH TWO (2) F40CW LAMPS. LITHONIA NO. SP-G-240-RW-A12.125-ES
D	INDUSTRIAL FLUORESCENT FIXTURE WITH STEEL BODY FINISHED WHITE BAKED ON ENAMEL, 20 GA. PORCELAIN ENAMELING STEEL REFLECTORS WITH 10% UPLIGHT COMPONENT AND TWO (2) F40CW LAMPS. LITHONIA NO. AF-240-PO-ES
E	FLUORESCENT FIXTURE 8' LONG WITH ABS PLASTIC HOUSING, HIGH IMPACT ACRYLIC DIFFUSER AND TWO (2) F40CW LAMPS IN TANDEM. UNIT SHALL BE CORROSIVE RESISTANT AND SHALL HAVE PLASTIC CAPTIVE DIFFUSER LATCHES. WILLIAMS NO. 8625A
F	SURFACE MOUNTED INCANDESCENT DRUM LIGHTING FIXTURE WITH ONE 13 WATT PL LAMP. PRESCOLITE #9224-13
H	WALL MOUNTED HID LUMINAIRE WITH P.E. CELL CONTROL, PRISMATIC GLASS, DIE-CAST ALUMINUM HOUSING, CAST ALUMINUM GRID GUARD AND ONE 70 WATT HPS LAMP. MOUNT 12" ABOVE DOOR OR AS INDICATED. LITHONIA NO. TWH-70S-PE-WG
K	4' FLUORESCENT WALL BRACKETED FIXTURE WITH TWO F40CW LAMPS. LITHONIA WC240
L	OUTLET BOX MOUNTED INDANDESCENT FIXTURE WITH GASKET, GLASS GLOBE, GUARD AND 150 WATT A-21 LAMP. APPLETON VPX10500
M	WALL MOUNTED INCANDESCENT FIXTURE WITH PRISMATIC GLASS REFLECTOR & 300 WATT LAMP. BENJAMIN # OWW-300-120
N	1' X 4' SURFACE MOUNTED FLUORESCENT FIXTURE WITH SOLID METAL SIDES, ACRYLIC LENS AND TWO 40 WATT R.S. LAMPS. LITHONIA M240AR
P	WALL MOUNTED FIXTURE. CRYSTAL GLASS LENS WITH DIE CAST ALUMINUM GUARD AND TWO 26 WATT PLC LAMPS. (BLACK) BEGA #2990P (PHONE # 919-682-1709)
Q	SAME AS TYPE 'P' EXCEPT PROVIDE WITH ONE 50 WATT E-17 HPS LAMP.
R	QUARTER SPHERE WALL MOUNTED FIXTURE WITH OPAL GLASS DIFFUSER AND ONE 26 WATT PLC LAMP.(BLACK) BEGA # 3177P
S	2'X 4' SURFACE MOUNTED FLUORESCENT FIXTURE WITH SOLID METAL SIDES, ACRYLIC LENS AND FOUR 40 WATT R.S. LAMPS. LITHONIA 2M440
T	SAME AS TYPE 'S' EXCEPT FURNISH WITH TWO 40 WATT R.S. LAMPS. LITHONIA #2M240AR
WP	EXIT SIGN, BACK MOUNTED, NEMA 4X. EMERGI-LITE – EXPK – 120-RW
WP	SAME AS ABOVE, EXCEPT DOUBLE FACE TYPE, CEILING MOUNTED WITH ARROWS. EMERGI-LITE EXPK2C-120-RW
	EXIT SIGN, BACK MOUNTED. LITHONIA SIGNATURE ES SERIES
	EXIT SIGN, CEILING MOUNTED WITH ARROWS. LITHONIA ES SERIES
B WP	EMERGENCY BATTERY LIGHT – NEMA 4X. MOUNT 6' BELOW CEILING, OR 9'-0" AFF, WHICHEVER IS LOWER. LITHONIA ELM4XN/ ELM10XN WITH TWO 12-W SEAL BEAM LAMPS. (10 YEAR BATTERY)
B	EMERGENCY BATTERY LIGHT (10 YEAR BATTERY). LITHONIA ELU-4N-V. WITH TWO H1212 LAMP HEADS, SHELF (ELAMS 4/8) AND VOLTMETER.

ELECTRICAL SYMBOL SCHEDULE

SYMBOL	DESCRIPTION
	CONDUIT CONCEALED IN OR ABOVE CEILING: IN OVERHEAD SLAB: OR IN WALL
	CONDUIT CONCEALED IN OR BELOW FLOOR: BELOW GRADE: OR IN WALL
	CONDUIT RUN EXPOSED
	IF SHOWN, CROSS LINES INDICATE NUMBER OF CURRENT CARRYING CONDUCTORS. EQUIPMENT GROUNDING CONDUCTORS ARE GENERALLY NOT INCLUDED IN THE QUANTITY INDICATED.
	HOME RUN TO PANEL – WITH PANEL AND CIRCUIT DESIGNATION.
	CONDUIT TURNING UP.
	CONDUIT TURNING DOWN.
	CONDUIT STUB-IN WITH CONNECTION TO EQUIPMENT
	CONDUIT EXPLOSION PROOF SEAL-OFF.
J OR J	JUNCTION BOX SIZED PER N.E.C.
J	JUNCTION BOX AND CONNECTION TO EQUIPMENT.
J	JUNCTION BOX SIZED PER N.E.C. WITH FLEXIBLE CONDUIT CONNECTIONS TO FIXTURES AS SHOWN, 6 FOOT LENGTH MAXIMUM.
	LIGHTING, POWER OR DISTRIBUTION PANELBOARD.
	CONTROL PANEL
	FLUORESCENT FIXTURE – DRAWN APPROXIMATELY TO SCALE.
OR	CEILING OUTLET – INCANDESCENT OR HID FIXTURE AS SCHEDULED.
	WALL OUTLET – INCANDESCENT OR HID FIXTURES AS SCHEDULED.
NL NL	INDICATES UNSWITCHED 'NIGHT LIGHT' FIXTURE.
SA	STREET LIGHTING FIXTURE – SEE DETAIL ON SHEET E-17. (ONE LUMINAIRE)
SB	AREA LIGHTING FIXTURE – POST-TOP TYPE SEE DETAIL ON SHEET E-17.
SAA SA	SAME AS EXCEPT WITH TWO LUMINAIRES SEE DETAIL ON SHEET E-17
	DOOR ACCESS SYSTEM KEY PAD. PROVIDED BY GENERAL CONTRACTOR. SEE DETAILS ON E-13.
MS	DOOR MAGNETIC SWITCH. SENTROL 1078 SERIES WITH CONTACTS CLOSED WHEN DOOR IS CLOSED.
RS	ROLL UP DOOR MONITOR SWITCH. MICRO SWITCH 8ZLN SERIES ENCLOSED SWITCH WITH STRAIGHT PLUNGER OR ROLLER ARM ACTUATOR AS REQUIRED. MOUNT AT FLOOR ON INSIDE OF FRAME. SWITCH TO BE CLOSED WHEN DOOR IS CLOSED.
	CLOCK OUTLET
	CLOCK AND CLOCK OUTLET
TS	TIME CLOCK SWITCH
	STANDARD CONVENIENCE RECEPTACLE – MOUNT 18" UP. NEMA 5-20R DUPLEX. HUBBELL 5362 SERIES.
	STANDARD CONVENIENCE OUTLET – MOUNT 48" FROM FLOOR OR ABOVE BACKSPLASH. NEMA 5-20R, DUPLEX.
ewc	STANDARD CONVENIENCE OUTLET – FOR ELECTRIC WATER COOLER (ELECTRIC DRINKING FOUNTAIN). COORDINATE LOCATION CAREFULLY WITH PLUMBING CONTRACTOR. NEMA 5-20R. DUPLEX.
	SPECIAL CONFIGURATION OUTLET – CONFIGURATION AND TYPE AS SCHEDULED.
GF	INDICATES RECEPTACLE TO HAVE GROUND FAULT PROTECTION.
IG	INDICATES RECEPTACLE TO BE ISOLATED GROUND TYPE.
WP	INDICATES DEVICE TO HAVE WEATHERPROOF COVER.
XR	CORROSION RESISTANT
EX	EXPLOSION PROOF
SA	SURGE ARRESTER
PE	PHOTOELECTRIC SWITCH – MOUNT ON ROOF UNLESS OTHERWISE NOTED. 2000 WATTS, 120 OR 277 VOLTS RATING AS APPLICABLE.
S	SINGLE POLE SWITCH – G.E. 5431, BRYANT 4801, HUBBELL 1201, A-H 1891, P & S 15AC1. MOUNT 48" UP FROM TOP OF DEVICE TO FLOOR.
S_2	DOUBLE POLE SWITCH – G.E. 5432-1, BRYANT 4802, HUBBELL 1202, A-H 1894, P & S 15AC2. MOUNT 48" UP FROM TOP OF DEVICE TO FLOOR.
S_3	THREE WAY SWITCH – G.E. 5433-1, BRYANT 4803, HUBBELL 1203, A-H 1893, P & S 15AC3. MOUNT 48" UP FROM TOP OF DEVICE TO FLOOR.
S_p	SWITCH WITH PILOT LIGHT.
S_o	SWITCH – LOWER CASE SUBSCRIPTS DESIGNATE OUTLETS CONTROLLED.
	NONFUSIBLE DISCONNECT SWITCH. NEMA 12, UNLESS OTHERWISE NOTED.
	FUSIBLE DISCONNECT SWITCH. NEMA 12, UNLESS OTHERWISE NOTED.
	CIRCUIT BREAKER.
S_{wp}	SWITCH WITH CAST WEATHERPROOF COVER. COVER: BRYANT 7420, HUBBELL 7420, CROUSE-HINDS DS1020G. SWITCH BOX ADAPTER: HUBBELL 7349, CROUSE-HINDS ARB3.
DS	DOOR JAMB SWITCH – MOUNT APPROXIMATELY 12" BELOW TOP OF DOOR JAMB. SWITCH TO BE "OFF" WHEN DOOR IS FULLY CLOSED. EDWARDS #502
	TELEPHONE OUTLET – 18" UP. PROVIDE 3/4"C TO TELEPHONE BACKBOARD
	TELEPHONE OUTLET – COUNTER HEIGHT, CLEAR BACKSPLASH AND WALL CABINETS. IF NO CABINET, MOUNT WITHIN 52" OF FLOOR. PROVIDE 3/4"C TO TELEPHONE BACKBOARD.
Δ–Y	DRY TYPE TRANSFORMER – THREE PHASE, 480-120/208 VOLTS.
Δ–Y	480-120/ 208V, 3-PHASE ISOLATION TYPE TRANSFORMER WITH ELECTROSTATIC SHIELD.
CLA	CHLORINE DETECTOR ALARM LIGHT – EDWARDS #52R-N5 ROTATING BEACON, U.L. LISTED, 120 VOLT WITH 25 WATT LAMP. SUITABLE FOR OUTDOOR INSTALLATION AND FOR MOUNTING IN A 4" OCTAGON BOX. MOUNT 8'-0" UP.
(H)	RATE OF RISE/ FIXTED TEMPERATURE FIRE DETECTOR.
	CEILING MOUNTED SMOKE DETECTOR.
FAC	FIRE DETECTOR CONTROL PANEL.
DD	DUCT SMOKE DETECTOR.
FD	FIRE DETECTOR ALARM BELL. MOUNT 9'-0" UP.
FL	REMOTE DETECTOR LIGHT – MOUNT ABOVE DOOR
EOL	END OF LINE DEVICE.

SYMBOL	DESCRIPTION
M	115 OR 230 VOLT, 1 PHASE MOTOR.
5	208 OR 230 VOLT, 3 PHASE MOTOR – NUMERAL INDICATES HORSEPOWER.
5	460 VOLT, 3 PHASE MOTOR – NUMERAL INDICATES HORSEPOWER.
M DC	90V DC CHEMICAL FEED PUMP MOTOR.
CJ	COMBINATION MAGNETIC STARTER WITH NONFUSIBLE DISCONNECT.
S_{FD}	COMBINATION MAGNETIC STARTER WITH FUSIBLE DISCONNECT. NUMERAL INDICATES AMPACITY OF FUSETRONS TO BE INSTALLED. PROVIDE H-O-A AND BUILT-IN CONTROL TRANSFORMER. NEMA 12 ENCLOSURE, UNLESS OTHERWISE NOTED.
S_m	MANUAL MOTOR STARTER.
T	THERMOSTAT, LINE VOLTAGE
WH	ELECTRIC WATER HEATER
EUH	ELECTRIC UNIT HEATER
BH	ELECTRIC BASEBOARD HEATER
H-O-A	HAND-OFF-AUTOMATIC SWITCH
F	FUSE
C	CONDUIT
A	AMPERE
P	POLE
G	GROUND
FPN	FUSE PER EQUIPMENT NAMEPLATE REQUIREMENTS.
REC	RECEPTACLE
LTG	LIGHTING
S.O.	SPACE WITH BUS PROVISION FOR FUTURE BREAKER.
AFF	ABOVE FINISHED FLOOR
	NORMALLY OPEN AUXILIARY CONTACT
	NORMALLY CLOSED AUXILIARY CONTACT.
GF	GROUND FAULT CIRCUIT INTERRUPTER DEVICE
MORU	MOTOR OPERATED ROLL-UP DOOR CONNECTION – SEE DETAIL.
	MOTOR OPERATED ROLL-UP DOOR CONTROL STATION – MOUNT FLUSH IN WALL UNLESS OTHERWISE NOTED, MOUNT 54" UP.
FVNR	FULL VOLTAGE NON-REVERSIBLE MAGNETIC STARTER.
RVNR	REDUCED VOLTAGE NO-REVERSIBLE MAGNETIC STARTER. AUTOTRANSFORMER TYPE – CLOSED TRANSITION.
B	BELDEN NO. 8760, 18 AWG SHIELDED TWO-CONDUCTOR CABLE.
WL	60A, 208V, 3-P, 4-W WELDING OUTLET – NEMA OUTLET WITH MATCHING PLUG, MOUNT 48" UP, FLUSH IN WALL IF FEASIBLE. HUBBELL CAT. NO. 8460 WITH "WET LOCATION" COVER PLATE.
XR	CORROSION RESISTANT RECEPTACLE, NEMA 5-20R. MOUNT 18" AFF. HUBBELL NO. 53CM62 IN NON-METALLIC BOX WITH 93101 COVER PLATE OR EQUIVALENT FROM CROUSE-HINDS (5739CR).
S_{XR}	CORROSION RESISTANT SWITCH AND PLATE. HUBBELL 17CM51 IN NON-METALLIC BOX. MOUNT 48" AFF.
F	60 MINUTE SPST NORMALLY 'OFF' TIME SWITCH. MARKTIE 90024, OR EQUIVALENT.
GR	GROUND ROD, 15'-0" LONG, 3/4" DIAMETER COPPER CLAD STEEL. BURY VERTICALLY IN GROUND 24" BELOW GRADE. CADWELD CONNECT TO GROUND WIRE CONDUCTOR.
G	#1/0 THW COPPER CONDUCTOR. INSTALL 24" BELOW GRADE AND CONNECT TO GROUND RODS.
	INDICATES CONNECTION TO GROUNDING LOOP. ALL CONNECTIONS TO BE CADWELD TYPE. INSULATE CONNECTION WITH RUBBER TAPE.
EPO	ON-OFF MAINTAINED CONTACT WEATHERPROOF PUSHBUTTON FOR EMERGENCY POWER, CUTOFF TO PUMP MOTOR.
P	INDICATES TWO NEMA 5-20R DUPLEX RECEPTACLES AND TABLE-TOP STAINLESS PEDESTAL TYPE OUTLET HOUSING. PROVIDE BOX UNDER TABLE.
P	TABLE-TOP OUTLET CONSISTING OF STAINLESS STEEL PEDESTAL HOUSING AND DUPLEX NEMA 5-20R RECEPTACLE. HUBBELL #5462.
A	WALL MOUNTED NEMA 5-20R DUPLEX RECEPTACLE. HUBBELL #5462.
B	RECEPTACLE FOR AUTOCLAVE, FIGURE 50A,3-Ø-NEMA 15-15R (HUBBEL #8450). COORDINATE W/OWNER PRIOR TO PURCHASE. PROVIDE MATCHING PLUG.
C	NEMA L15-20R, 208V, 3-PH RECEPTACLE, HUBBELL #2420 WITH NO. 2421 MATCHING PLUG.
D	NEMA L16-20R, 480V, 3-PH RECEPTACLE, HUBBELL #2430 WITH NO. 2431 MATCHING PLUG.
W	MULTI-OUTLET ASSEMBLY – WIREMOLD G3000 OR EQUIVALENT, WITH OUTLETS AS SHOWN. MOUNT ABOVE BACKSPLASH. 'X' INDICATES CONNECTION FROM RECESSED WALL BOX.
27,29	INDICATES 208 VOLT RECEPTACLE CIRCUIT.
	SINGLE POLE CIRCUIT BREAKER
	TWO-POLE COMMON TRIP CIRCUIT BREAKER
	THREE-POLE COMMON TRIP CIRCUIT BREAKER
FJ	WATERTIGHT JUNCTION BOX WITH 1-AMP 'J' TYPE FUSE AND FUSEHOLDER FOR PROTECTION OF INSTRUMENTATION. ONE FUSE PER INSTRUMENT.
WT	WATER-TIGHT BOX.
	ON-OFF SWITCH – WIRE WITH 2 #14,1 #14 G, 1/2"C BACK TO MOTOR STARTER. PROVIDE PHENOLIC NAMEPLATE IDENTIFYING MOTOR.
EQ	EQUAL
NTS	NOT TO SCALE
MOD	MOTOR OPERATED DAMPER – PROVIDED BY HVAC CONTRACTOR
ELC	EXTERIOR LIGHTING CONTROL – SEE DETAIL 1/ E-1.
NO	NORMALLY OPEN CONTACT
NC	NORMALLY CLOSED CONTACT
ES	EYE SHOWER. CONNECT BUILT-IN FLOW SWITCH WITH 2 #12-1/2"C TO DESIGNATED RTU FOR ALARM.

INSTRUMENT AND CONTROL SYMBOLS

NOTE: ALL ITEMS PROVIDED BY GENERAL CONTRACTOR, WIRED BY ELECTRICAL CONTRACTOR.

SYMBOL	DESCRIPTION
SV	SOLENOID VALVE
SV 4	4-WAY SOLENOID VALVE
PVB	PNEUMATIC BALL VALVE WITH MODULATING SIGNAL CONTROL.
LLS	LOW LEVEL SWITCH
LI	LEVEL INDICATOR
LM	LEVEL TRANSMITTER
LOWRI	CHLORINE LOSS OF WEIGHT RECORDER – INDICATOR WITH TRANSMITTER
CLD	CHLORINE DETECTOR
CRA	CHLORINE RESIDUAL ANALIZER PROVIDE BY OTHERS.
SVO	NORMALLY OPEN SOLENOID VALVE
SVX	NORMALLY CLOSED SOLENOID VALVE
LP	LEVEL PROBE
V	CLARIFIER SOLENOID VALVE
VT	VACUUM TANK LEVEL ELECTRODE
FMT	FLOW METER TRANSMITTER
AFM	AIR FLOW METER – TRANSMITTER
RTU	PROGRAMMABLE CONTROLLER REMOTE TERMINAL UNIT
CPU	PROGRAMMABLE CONTROLLER
LS	LIMIT SWITCH
SP	PADDLE TYPE SWITCH
USL	ULTRASONIC LEVEL TRANSMITTER
LOHUS	LOSS OF HEAD ULTRASONIC TRANSMITTER
PS	PRESSURE SWITCH
DPC	DIFFERENTIAL PRESSURE CELL
VSD	VARIABLE SPEED PUMP MOTOR DRIVE
MAG	MAGNETIC FLOW METER.

CONTROL PANEL DESIGNATION SCHEDULE

SYMBOL	DESCRIPTION
MCP	MAIN CONTROL PANEL
FCP-W	FILTER CONTROL PANEL – WEST
FCP-E	FILTER CONTROL PANEL – EAST
CPCP	CAUSTIC PUMPS
CIPCP	CORROSION INHIBITOR PUMP
SAPCP	SODIUM ALUMINATE PUMP
SAVCP	SODIUM ALUMINATE VOLUMETRIC
FPCP	FLUORIDE FEED PUMPS
FVCP	FLUORIDE VOLUMETRIC FEED
FAPCP	FILTER AID PUMPS
FAVCP	FILTER AID VOLUMETRIC
PFCP	POLYMER FEED SYSTEM
PPCPA	POLYMER PUMPS CONTROL PANEL A
PPCPB	POLYMER PUMPS CONTROL PANEL B
EAFPCP	EAST ALUM FEED PUMPS
WAFPCP	WEST ALUM FEED PUMPS
SCPCP	SODIUM CHLORINATE PUMPS
SCVCP	SODIUM CHLORINATE VOLUMETRICS
CVCPP	CLARIFIER VACUUM CHAMBER PUMPS

GENERAL NOTES

1. ELECTRICAL CONTRACTOR SHALL COORDINATE THE LOCATION, EXACT CONFIGURATION AND REQUIREMENTS OF INSTRUMENTS AND EQUIPMENT BEING FURNISHED BY GENERAL CONTRACTOR AND THE OTHER CONTRACTOR, PRIOR TO RUNNING ANY WIRING.
2. ALL CIRCUITS RATED 115 VOLTS OR HIGHER SHALL BE PROVIDED WITH SEPARATE EQUIPMENT GROUNDING CONDUCTORS BONDED TO ALL ENCLOSURES AND BOXES ASSOCIATED WITH THE CIRCUIT.
3. MINIMUM SIZE METALIC CONDUIT SHALL BE 1/2 INCH. MINIMUM SIZE PLASTIC CONDUIT SHALL BE 3/4 INCH, MINIMUM SIZE CONDUCTOR, OTHER THAN INSTRUMENTATION OR CONTROL CONDUCTORS, SHALL BE #12.
4. PVC CONDUIT IS NOT PERMITTED FOR SIGNAL (INSTRUMENTATION) CIRCUITS RUN OUTSIDE OF BUILDINGS.

RECORD DRAWING
DATE 5-20-92

REVISIONS			
SYM.	DESCRIPTION	DATE	BY

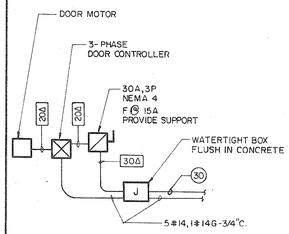
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

89079

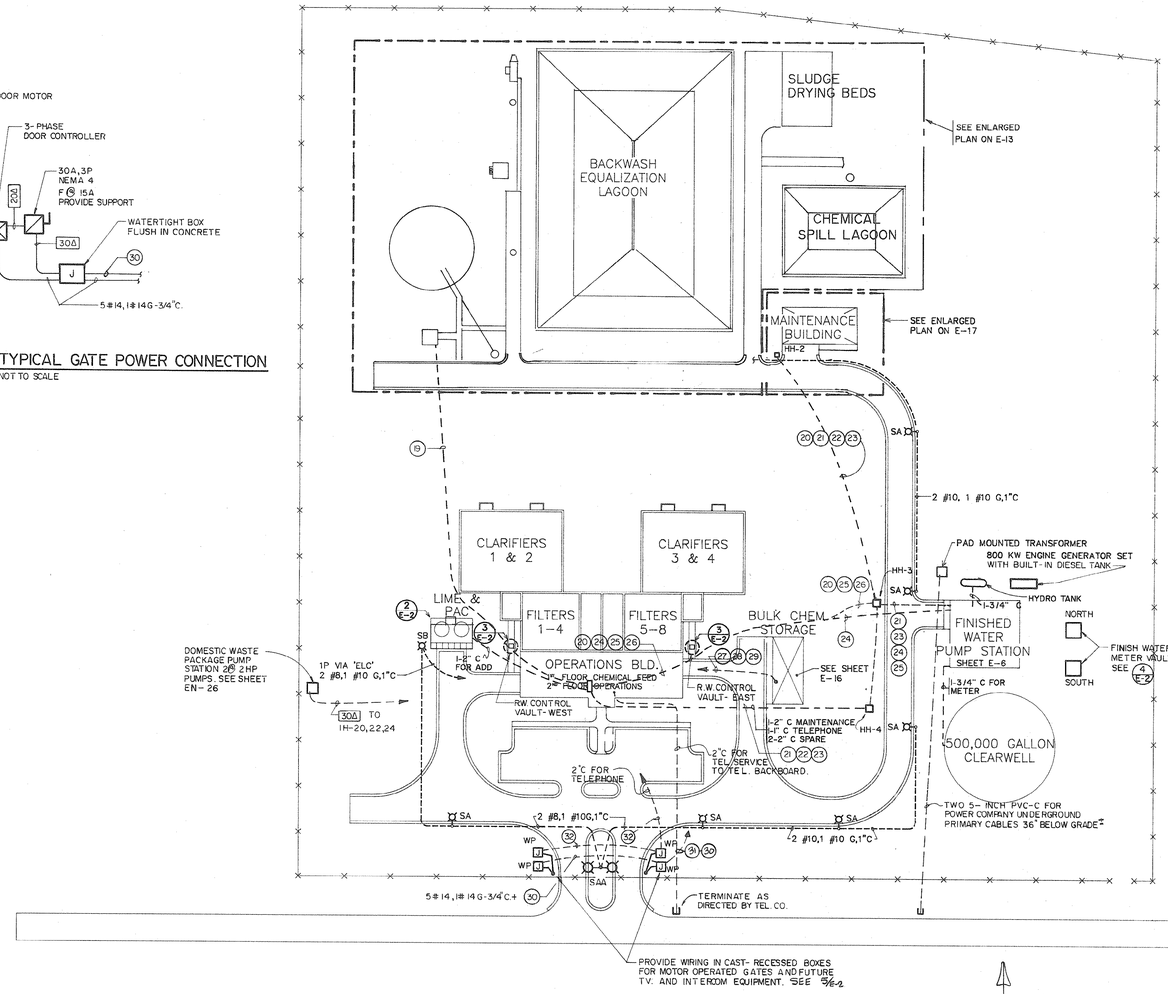
SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

ELECTRICAL SYMBOLS AND SCHEDULES
33-01-69W

DATE: MAR. 5-1990
DESIGNED: D.L.
DRAWN: D.M.
CHECKED: D.L.
SCALE: AS NOTED
SHEET NO. E-1
OF: 18

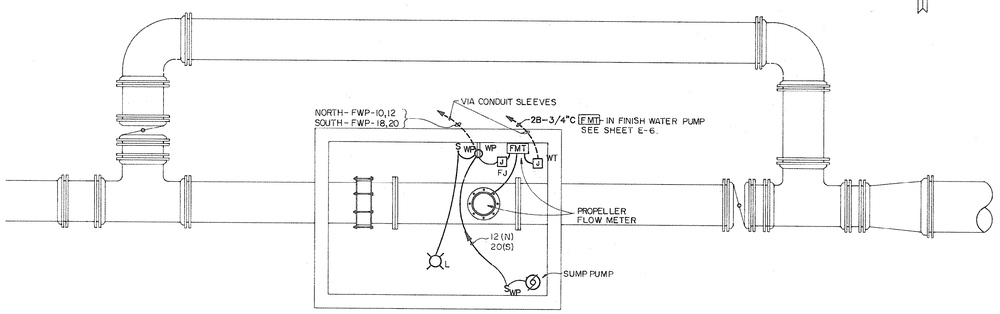


5 / E-2 **TYPICAL GATE POWER CONNECTION**
NOT TO SCALE



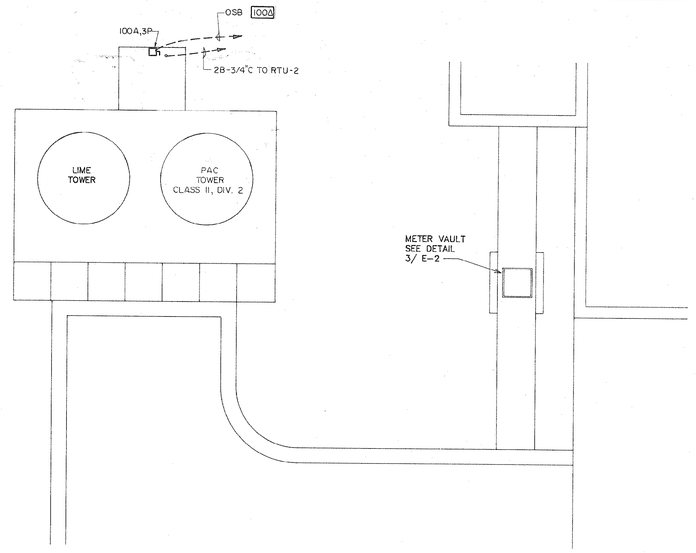
1 / E-2 **SITE PLAN – ELECTRICAL**
SCALE: 1" = 50'-0"

NOTE: REFER TO SHEET E-13 FOR WIRING CIRCUIT SCHEDULE ITEMS (1) THRU (23)

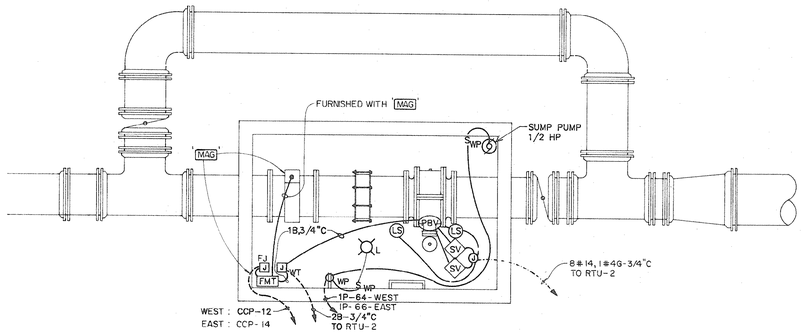


4 / E-2 **PARTIAL PLAN FINISH WATER METER VAULT – TYPICAL (TWO REQUIRED)**
SCALE: 1/8" = 1'-0"

NOTES: 1 MOUNT REC, BOXES AND SWITCHES 12" BELOW TOP.



2 / E-2 **PARTIAL PLAN**
SCALE: 1/8" = 1'-0"



3 / E-2 **RAW WATER CONTROL VAULT PLAN – ELECTRICAL - TYPICAL (TWO REQUIRED)**
SCALE: 3/8" = 1'-0"

NOTES: 1. MOUNT REC., BOXES & SWITCHES 12" BELOW TOP

SITE WIRING CIRCUIT SCHEDULE (SEE SHEET E-13 FOR ITEMS '(1)' THRU '(23)')

DESIGNATION	WIRE & CONDUIT	CIRCUIT	VOLTS/PHASE	ORIGIN	DESTINATION	REMARKS
(24)	SEE PWR. RISER ON E-3	OPA-1	480/3	ATS-2	1200A C.B. OPER. BLDG.	FOUR 3 1/2"C
(25)	4-8-3/4"C	——	——	RTU-6	RTU-2	
(26)	TWO 2"C	——	——	OPER. BLDG.	HH-3	SPARE CONDUITS
(27)	3/4"C	——	——	BULK STOR.	BULK CHEM. STOR.	TEL. CONDUIT
(28)	13 #14,1"C	——	CONTROLS	BULK STOR.	RTU-2	CONTROLS
(29)	200 Δ	OSB-1	480/3	OPER. BLDG.	BULK CHEM. STOR.	POWER TO 200/3 SW.
(30)	30 Δ	1H-25,27,29	480/3	OPER. BLDG.	FUTURE GATE	FOR FUT. GATES
(31)	10 #14,1 #14 G,1"C		120/1	OPER. BLDG. 'MCP'	FUT. GATD CONTROLLER	FUT. GATE CONTROLS
(32)	TWO 1"C	FROM TEL. BOARD	SIGNAL	OPER. BLDG.	PLANT ENTRANCE	FUT. INTERCOM (TEL)

RECORD DRAWING
DATE 5-20-92

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWINGS	1-11-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA — 19078 — REGISTERED PROFESSIONAL ENGINEER — 12-03-92 — DAMASO LOPEZ

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

ELECTRICAL SITE PLAN
33-01-70w

DATE: MAR. 5 - 1990
DESIGNED: D.L.
DRAWN: D.M.
CHECKED: D.L.
SCALE: AS NOTED
SHEET NO. E-2
OF 18

BRANCH CIRCUIT AND FEEDER SCHEDULE

3-PHASE CIRCUITS (NO NEUTRAL) + GROUNDING

SYMBOL	CONDUCTORS & CONDUIT
20 Δ	3 #12,1 #12 G, 1/2"C (3/4"C IF PVC-C)
30 Δ	3 #10,1 #10 G, 3/4"C
50 Δ	3 #8,1 #10 G, 3/4"C
60 Δ	3 #6,1 #10 G, 1"C
80 Δ	3 #4,1 #8 G, 1 1/4"C
100 Δ	3 #2,1 #8 G,1 1/2"C
125 Δ	3 #1,1 #6 G, 1 1/2"C
150 Δ	3 #1/0,1 #6 G,2"C
175 Δ	3 #2/0,1 #6 G, 2"C
200 Δ	3 #3/0,1 #6 G, 2"C
225 Δ	3 #4/0,1 #3 G, 2 1/2"C
250 Δ	3-250 MCM,1 #4 G, 2 1/2"C
300 Δ	3-350 MCM,1 #4 G, 3"C
350 Δ	3-500 MCM, 1 #3 G, 3"C
400 Δ	3-500 MCM, 1 #3 G, 3"C
500 Δ	2(3-250 MCM, 1 #1 G, 2 1/2"C)
600 Δ	2(3-350 MCM, 1 #1 G, 3"C)
800 Δ	2(3-500 MCM, 1 1/0 G, 3"C)
1000 Δ	3(3-400 MCM, 1 #2/0 G, 3"C)
1200 Δ	4(350MCM,1#3/0G-3"C.)
2000 Δ	6(3-400MCM,1#250MCM G,3½"C)

NOTE:
ALL CONDUCTORS ARE COPPER.
CONDUCTOR THROUGH #8 ARE THWN/ THHN.
CONDUCTORS #8 THROUGH 600 MCM ARE THW UNLESS OTHERWISE NOTED.

BRANCH CIRCUIT AND FEEDER SCHEDULE

3-PHASE + NEUTRAL + GROUND

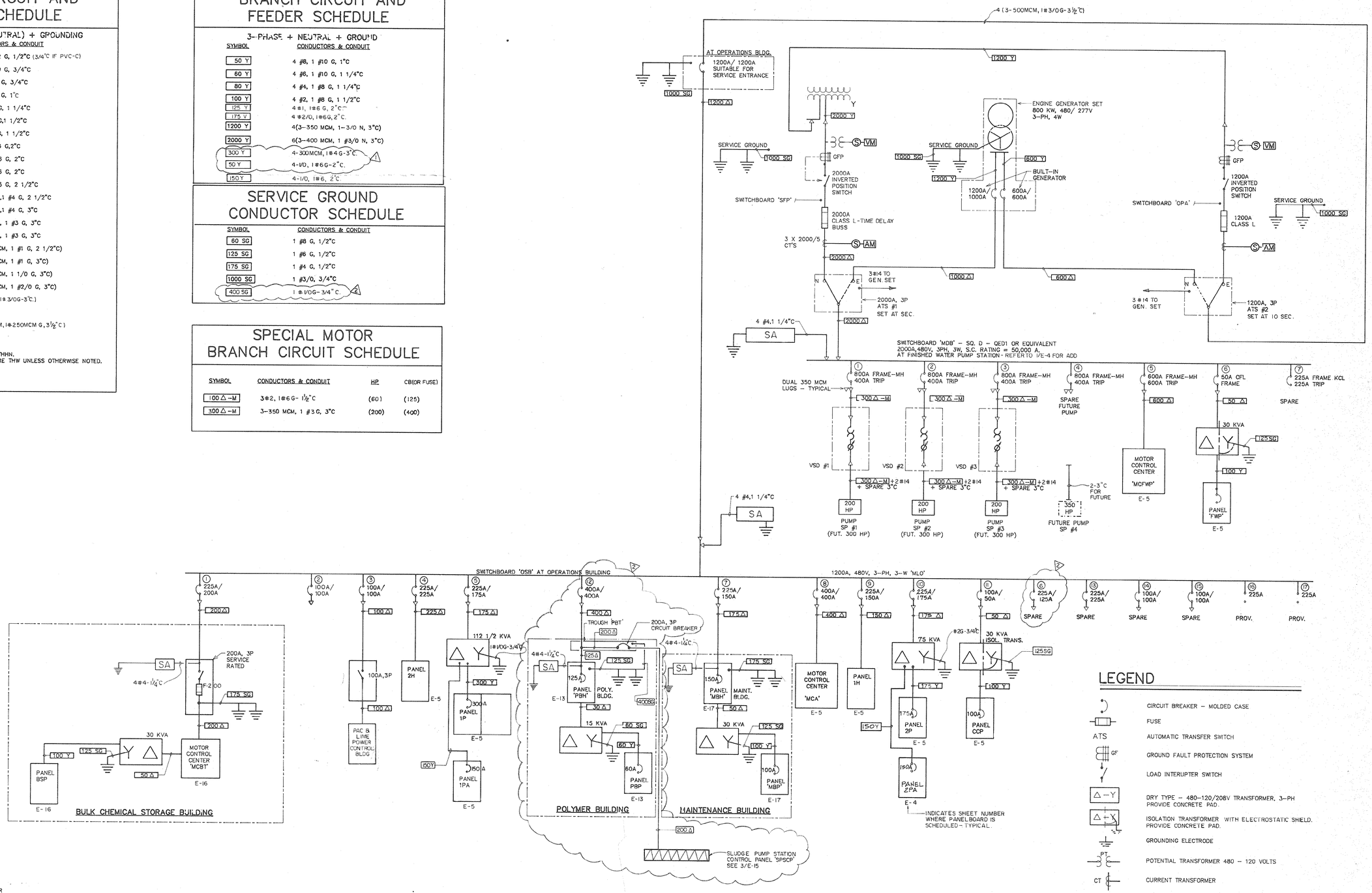
SYMBOL	CONDUCTORS & CONDUIT
50 Y	4 #8, 1 #10 G, 1"C
60 Y	4 #6, 1 #10 G, 1 1/4"C
80 Y	4 #4, 1 #8 G, 1 1/4"C
100 Y	4 #2, 1 #8 G, 1 1/2"C
125 Y	4 #1, 1 #6 G, 2"C
175 Y	4 #2/0, 1 #6G, 2"C.
1200 Y	4(3-350 MCM, 1-3/0 N, 3"C)
2000 Y	6(3-400 MCM, 1 #3/0 N, 3"C)
300 Y	4-300MCM, 1#4 G-3"C.
50 Y	4-1/0, 1#6G-2"C.
150 Y	4-1/0, 1#6, 2"C.

SERVICE GROUND CONDUCTOR SCHEDULE

SYMBOL	CONDUCTORS & CONDUIT
60 SG	1 #8 G, 1/2"C
125 SG	1 #6 G, 1/2"C
175 SG	1 #4 G, 1/2"C
1000 SG	1 #3/0, 3/4"C
400 SG	1 #1/0G-3/4"C.

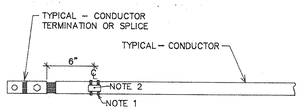
SPECIAL MOTOR BRANCH CIRCUIT SCHEDULE

SYMBOL	CONDUCTORS & CONDUIT	HP	CB(OR FUSE)
100 Δ -M	3#2, 1#6G- 1½"C	(60)	(125)
300 Δ -M	3-350 MCM, 1 #3 G, 3"C	(200)	(400)



LEGEND

- CIRCUIT BREAKER - MOLDED CASE
- FUSE
- ATS — AUTOMATIC TRANSFER SWITCH
- GF — GROUND FAULT PROTECTION SYSTEM
- LOAD INTERUPTER SWITCH
- Δ-Y — DRY TYPE - 480-120/208V TRANSFORMER, 3-PH PROVIDE CONCRETE PAD.
- Δ-X — ISOLATION TRANSFORMER WITH ELECTROSTATIC SHIELD. PROVIDE CONCRETE PAD.
- GROUNDING ELECTRODE
- PT — POTENTIAL TRANSFORMER 480 - 120 VOLTS
- CT — CURRENT TRANSFORMER
- VM — VOLTMETER
- AM — AMMETER
- S — VOLTMETER OR AMMETER SWITCH
- SA — SURGE ARRESTER : JOSLYN-1456-05



1/E-3 DETAIL OF IDENTIFICATION OF CONDUCTORS

NOT TO SCALE

NOTES:
1. SELF LOCKING T & B NYLON TY-RAP TIE PLACED ON CONDUCTOR AT A LOCATION LEGIBLE FROM THE OPENING OF THE ENCLOSURE.
2. MARK IDENTIFICATION USING T & B #WT163M-3 RED PERMANENT MARKING PEN.

ONE LINE POWER DIAGRAM

NOT TO SCALE

RECORD DRAWING
DATE 5-20-92

33-01-71w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
1	CLARIFICATION	9-11-90	DL
2	CHANGED FEEDER-TO POLY. BLDG/SLUDGE PUMP	9-11-90	DL
	RECORD DRAWINGS	1-11-92	RAC

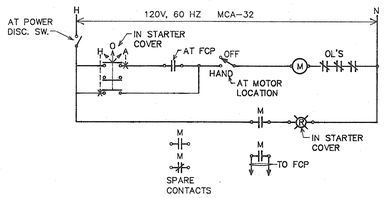
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

89079 — NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER SEAL 15763 — DONALD LOFTIS

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

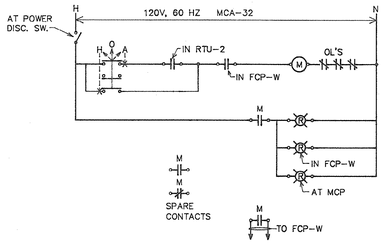
ONE-LINE POWER DIAGRAM

DATE: MAR. 5 - 1990
DESIGNED: D.L.
DRAWN: D.M.
CHECKED: D.L.
SCALE: AS NOTED
SHEET NO. E-3
OF: 18



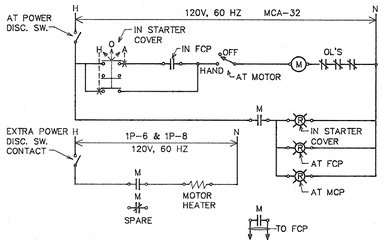
4 E-4 OPEN TANK MIXER – TWO REQUIRED

NOT TO SCALE



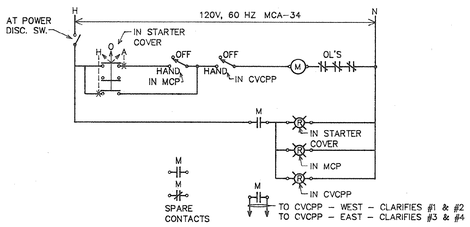
5 E-4 FILTER AIR BLOWER

NOT TO SCALE



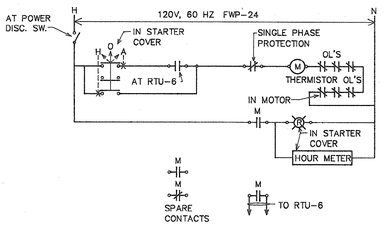
6 E-4 FILTER BACKWASH PUMP – TWO REQUIRED

NOT TO SCALE



7 E-4 CLARIFIER VACUUM PUMP – SIX REQUIRED

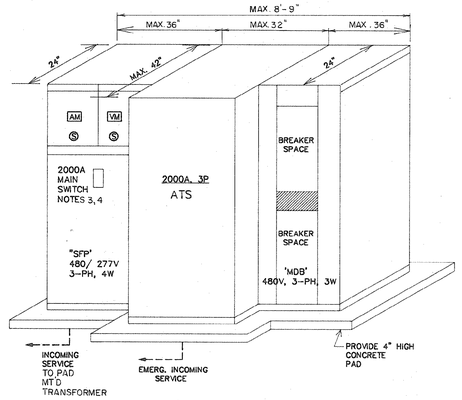
NOT TO SCALE



8 E-4 FINISH WATER PUMPS CP-1 & CP-2

NOT TO SCALE

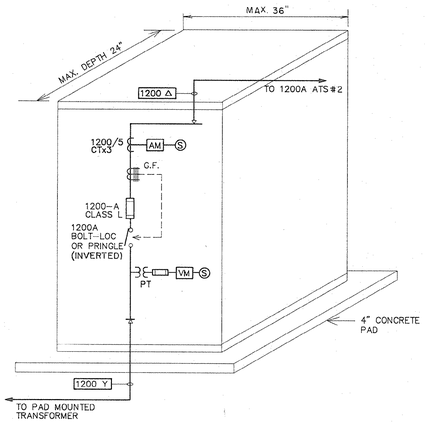
TYPICAL CONTROL WIRING DIAGRAMS



1 E-4 ELEVATION – SWITCHBOARDS 'SFP' – 'ATS' – 'MDB'

NOT TO SCALE

NOTES:
1. SEE ONE LINE DIAGRAM FOR REQUIRED FEEDER DEVICES IN 'MDB'.
2. SUITABLE FOR SERVICE ENTRANCE ('SFP' ONLY).
3. S.C. RATING = 100,000 RMS SYMM A.
4. SWITCH SHALL HAVE ELECTRIC SINGLE PHASE PROTECTION, GROUND FAULT PROTECTION AND FUSE BLOWN PROTECTION.
5. OMITTED.
6. BUSES: ALL COPPER.
7. PROVIDE EQUIP GRD BUS IN EACH CUBICLE.



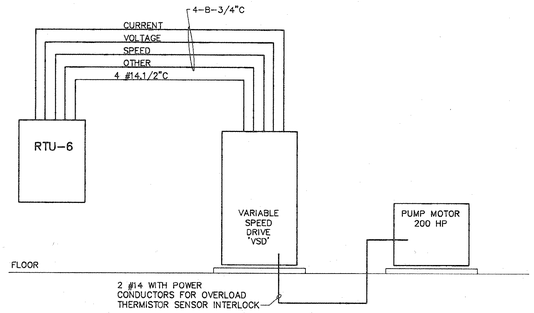
2 E-4 ELEVATION – SWITCHBOARD 'OPA' – 480/ 277V, 3-PH, 4W

NOT TO SCALE

NOTES:
1. FRONT ACCESSIBLE ONLY.
2. SUITABLE FOR SERVICE ENTRANCE.
3. S.C. RATING = 100,000 .
4. BUSES: ALL COPPER.
5. SWITCH SHALL HAVE SINGLE PHASE PROTECTION, BLOWN FUSE PROTECTION AND GROUND FAULT PROTECTION.
6. EQUIPMENT GROUNDING BUS.

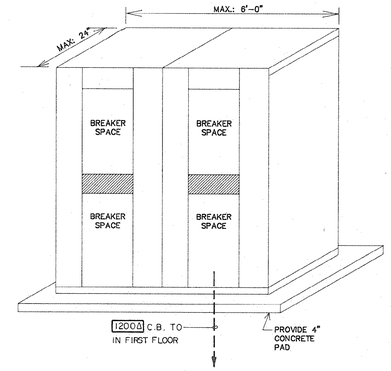
LEGEND

- FUSE
- CT — CURRENT TRANSFORMER
- PT — POTENTIAL TRANSFORMER 480 – 120 VOLTS
- VM — VOLTMETER
- AM — AMMETER
- S — VOLTMETER OR AMMETER SWITCH
- GF — GROUND FAULT PROTECTION SYSTEM
- LOAD INTERRUPTER SWITCH



TYPICAL CONTROL WIRING RISER DIAGRAM FOR FINISH WATER PUMPS SP-1, SP-2 & SP-3

9 E-4 NOT TO SCALE



3 E-4 ELEVATION SWITCHBOARD 'OSB' – 480V, 3ø, 3W

NOT TO SCALE

NOTES:
1. FRONT ACCESSIBLE ONLY.
2. GROUP MOUNTED DEVICES.
3. S.C. RATING = 50,000 A.
4. BUSES: ALL COPPER.
5. FEEDER BREAKERS: BOLT-ON, GROUP MOUNTED.
6. FULL LENGTH EQUIPMENT GROUNDING BUS.

PANEL 2PA

SERVICE: 208/ 120V, 3-PH, 4W
MAINS: 150A MAIN BREAKER
MOUNTING: SURFACE
TYPE: BRANCH CIRCUIT

NOTES:
1. WITH EQUIPMENT GROUNDING BUS.
2. S.C. RATING = 10,000 SYMM RMS A.

TYPED CIRCUIT DIRECTORY	WIRE SIZE AWG	BRKR SIZE AMPS	CKT NO.	ABC	CKT NO.	BRKR SIZE AMPS	WIRE SIZE AWG	TYPED CIRCUIT DIRECTORY
	12		1		2	20	10	WIREMOLD RECEPT.
HOOD POWER	12	20	3		4	20	10	WIREMOLD RECEPT.
	12		5		6	20	10	WIREMOLD RECEPT.
208V, 1ø RECEPT.	10	20	7		8	20	10	WIREMOLD RECEPT.
	10		9		10	20	10	WIREMOLD RECEPT.
208V, 1ø RECEPT.	10	20	11		12	20	10	WIREMOLD RECEPT.
	10		13		14	20	10	WIREMOLD RECEPT.
208V, 1ø RECEPT.	10	20	15		16	20	10	WIREMOLD RECEPT.
	10		17		18	20	10	WIREMOLD RECEPT.
208V, 1ø RECEPT.	10	20	19		20	20	12	TABLE RECEPT.
	10		21		22	20	12	TABLE RECEPT.
208V, 1ø RECEPT.	10	20	23		24	20	10	INC. RECEPT.
	10		25		26		10	
208V, 1ø RECEPT.	12	20	27		28	30	8	OVEN RECEPT.
	12		29		30		8	
208V, 1ø RECEPT.	12	20	31		32		8	
	12		33		34	50	8	AUTOCLAVE
	10		35		36		8	
208V, 3ø RECEPT.	10	20	37		38	20		SPARE
	10		39		40	20		SPARE
SPARE		20	41		42	20		SPARE

RECORD DRAWING
DATE 5-20-92
33-01-72w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWINGS	1-11-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

89079

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

SCHEDULES AND DIAGRAMS

DATE: MAR. 5-90
DESIGNED: D.L.
DRAWN: D.M.
CHECKED: D.L.
SCALE: AS NOTED
SHEET NO. E-4
OF: 18

MOTOR CONTROL CENTER 'MCFWP' SCHEDULE

SERVICE: 460V, 3-PHASE, 3-WIRE
MAIN BUS RATING: 600A
TYPE: NEMA 1, CLASS 1, TYPE B - RATED: 42,000 RMS SYMM A.

UNIT	SERVING	H.P.	AMP	STARTER	FUSE	WIRE & CONDUIT	REMARKS
A1	——	——	——	——	——	——	INCOMING LINE
A2	PUMP CP-1	60	77	C-FVNR	125	[100 △-M] +2 #14	4,5,6,7,8
A3	PUMP CP-2	60	77	C-FVNR	125	[100 △-M] +2 #14	4,5,6,7,8
B1	SPARE UNIT	10	14	C-FVNR	25	——	
B2	FUT. PUMP CP-3	60	77	C-FVNR	125	1 1/2" C	4,5,6,7,8
B3	FUT. PUMP CP-4	60	77	C-FVNR	125	1 1/2" C	4,5,6,7,8
C1	FAN F-17	1.0	1.8	C-FVNR	3	20 △	30A, 3P, F3A SWITCH
C2	UH-12, 7 1/2 KW	——	10.	——	15	20 △	30A, 3P, F15A SWITCH
C3	UH-11, 7 1/2 KW	——	10.	——	15	20 △	30A, 3P, F15A SWITCH
C4	AHU-5	——	——	——	45	50 △	60A, 3P, F45A SWITCH
C5	PRIM. SET	——	6.8	——	15	20 △	30A, 3P, F15A SWITCH
C6	FUTURE FAN	10	——	C-FVNR		——	
C7	FAN	7.5	11.0	C-FVNR	20	20 △	
C8	WATER BOOSTER PUMP SET	——	27		70	60 △	100A,3P,F70A SWITCH
D1	PROVISION			C-FVNR			
D2	SPARE 30A, SW.	——	——	——		——	30A, 3P, F A SWITCH
D3	30A, SW.	——	——	——		——	PROVISION
D4	FAN F-16A (FUTURE)	5	7.6	C-FVNR	15	——	5
D5	FAN F-14	5	7.6	C-FVNR	15	20 △	5
D6	FAN F-15	5	7.6	C-FVNR	15	20 △	5
D7	FAN F-16B (FUTURE)	5	7.6	C-FVNR	15	——	5

MOTOR CONTROL CENTER 'MCA' SCHEDULE

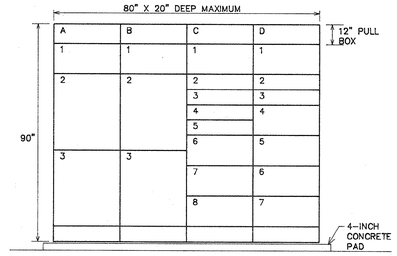
SERVICE: 460V, 3-PHASE, 3-WIRE
MAIN BUS RATING: 600A
TYPE: NEMA 1, CLASS 1, TYPE B - RATED: 42,000 RMS SYMM A.

UNIT	SERVING	H.P.	AMP	STARTER	FUSE	WIRE & CONDUIT	REMARKS
A1	——	——	——	——	——	——	INCOMING LINE
A2	BACKWASH PUMP-EAST	30	40	C-FVNR	60	60 △	5,7,9
A3	BACKWASH PUMP-WEST	30	40	C-FVNR	60	60 △	5,7,9
B1	PROVISION	10	——	C-FVNR	——	——	
B2	AIR COMPRESSOR		3.6		15	20 △	30A, 3P, F15A SWITCH
B3	VACUUM PUMP		3.6		15	20 △	30A, 3P, F15A SWITCH
B4	PROVISION	10	——	C-FVNR	——	——	
B5	WEST VAC. CHAM. P@1	7.5	11	C-FVNR	20	30 △	5
B6	WEST VAC. CHAM. P@2	7.5	11	C-FVNR	20	30 △	5
B7	WEST VAC. CHAM. P@3	7.5	11	C-FVNR	20	30 △	5
C1	EAST VAC. CHAM. P@1	7.5	11	C-FVNR	20	30 △	5
C2	EAST VAC. CHAM. P@2	7.5	11	C-FVNR	20	30 △	5
C3	EAST VAC. CHAM. P@3	7.5	11	C-FVNR	20	30 △	5
C4	WEST TANK MIXER	15	21	C-FVNR	40	50 △	5
C5	EAST TANK MIXER	15	21	C-FVNR	40	50 △	5
C6	——	10	——	C-FVNR	——	——	PROVISION
D1	PROVISION	10	——	C-FVNR	——	——	
D2	PROVISION	10	——	C-FVNR	——	——	
D3	PROVISION	10	——	C-FVNR	——	——	
D4	PROVISION		——		——	——	FOR FUT. 30A, 3P SW.
D5	FILTER AIR BLOWER	50	65	C-FVNR	100	80 △	4,5,7

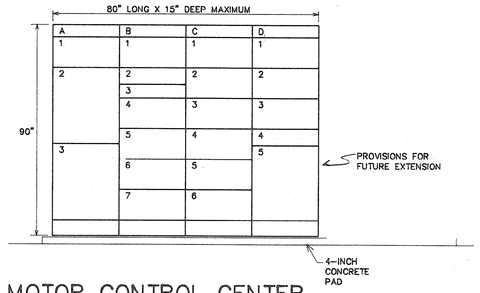
MOTOR CONTROL CENTER LEGEND & REMARKS

C-FVNR COMBINATION FULL VOLTAGE NON-REVERSIBLE MAGNETIC STARTER WITH FUSED SWITCH, WITH AUXILIARY CONTACTS FOR CONTROL POWER CUT-OFF.

1. REFER TO SHEET E-3 FOR WIRING LEGEND. REFER TO CONTROL WIRING DIAGRAMS FOR REMOTE CONTROL DEVICES.
2. UNLESS OTHERWISE NOTED EACH C-FVNR UNIT SHALL BE PROVIDED WITH HAND-OFF-AUTOMATIC (H-O-A) SWITCH, TWO N.O. AND ONE N.C. EXTRA AUXILIARY CONTACTS. STARTER COILS SHALL BE 120V, 60 HZ. FROM EXTERNAL SOURCE.
3. SWITCHES SHALL HAVE 'R' TYPE FUSEHOLDERS AND TIME DELAY RK-5 FUSES.
4. CIRCUIT BREAKERS ARE ACCEPTABLE INSTEAD OF FUSED SWITCHES FOR UNITS RATED 50 HP OR LARGER. C.B. SHORT CIRCUIT RATING SHALL BE 42,000 A OR HIGHER.
5. WITH 'RED' 'MOTOR ON' PILOT LIGHT ON COVER. PROVIDE ADDITIONAL N.C. CONTACT.
6. WITH RUNNING HOUR METER.
7. WITH ANTI-SINGLE PHASE PROTECTIVE RELAY ON UNITS FOR MOTORS RATED LARGER THAN 25 HP
8. MOTOR MOUNTED THERMISTOR - O.L. PROTECTION.
9. WITH EXTRA N.O. POWER DISCONNECT SWITCH AUXILIARY CONTACT.



MOTOR CONTROL CENTER 'MCFWP' ELEVATION
1 / E-5 NOT TO SCALE



MOTOR CONTROL CENTER 'MCA' ELEVATION
2 / E-5 NOT TO SCALE

PANEL 1P

SERVICE: 120/ 208V, 3ø, 4W
MAINS: 300A CIRCUIT BREAKER
MOUNTING: SURFACE
TYPE: BRANCH CIRCUIT

NOTES:
1. TWO CAN PANEL WITH 42 POLES PER CAN.
2. WITH EQUIPMENT GROUNDING BUS.
3. S.C. RATING = 10,000 A.
4. ONLY 1 PHASE OF CIRCUIT USED.

TYPED CIRCUIT DIRECTORY	WIRE SIZE AWG	BRKR SIZE AMPS	CKT NO.	ABC	CKT NO.	BRKR SIZE AMPS	WIRE SIZE AWG	TYPED CIRCUIT DIRECTORY
FILT. EFF. CHAM. EAST	12	15	1		2	15	12	FILT. EFF. CHAM. EAST
FILT. EFF. CHAM. EAST	12	15	3		4	20	12	FILT. EFF. CHAM. WEST
SPARE	——	20	5		6	20	12	B.W. PUMP - EAST-HTR.
SPARE	——	20	7		8	20	12	B.W. PUMP - WEST-HTR.
RECEPT.-SAMPLE PUMPS	12	20	9		10		10	
	10		11		12	30	10	FLUOR. VOL. FEED C.P.
CAUSTIC PUMP C.P.	10	30	13		14		10	NOTE 4
NOTE 4	10		15		16		10	
	10		17		18	30	10	FLOUR. FEED PUMPS C.P.
CORR. INH. C.P.	10	30	19		20		10	NOTE 4
NOTE 4	10		21		22		10	
	10		23		24	30	10	FILTER AID PUMPS C.P.
SODIUM ALUM. P.C.P.	10	30	25		26		10	NOTE 4
NOTE 4	10		27		28		10	
	10		29		30	30	10	POLYMER PUMPS C.P.-A
SODIUM ALUM. VOL. C.P.	10	30	31		32		10	NOTE 4
NOTE 4	10		33		34		10	
SPARE	——	20	35		36	30	10	POLYMER PUMPS C.P.-B
SPARE	——	20	37		38		10	NOTE 4
SPARE	——	20	39		40	20	——	SPARE
SPARE	——	20	41		42	20	——	SPARE

TYPED CIRCUIT DIRECTORY	WIRE SIZE AWG	BRKR SIZE AMPS	CKT NO.	ABC	CKT NO.	BRKR SIZE AMPS	WIRE SIZE AWG	TYPED CIRCUIT DIRECTORY
	10		43		44	20	12	SAMP. PUMP-RW-1/2 HP
EAST ALUM. PUMPS C.P.	10	30	45		46	20	12	SAMP. PUMP-TWW-1/2 HP
	10		47		48	20	12	SAMP. PUMP-SWW-1/2 HP
	10		49		50	20	12	SAMP. PUMP-FW-1/2 HP
WEST ALUM. PUMPS C.P.	10	30	51		52	20	12	SAMP. PUMP-RW-1/2 HP
	10		53		54	20	12	
	10		55		56	30	8	STREET LTG. VIA 'ELC'
SODIUM CL2 PUMPS C.P.	10	30	57		58		8	
	10		59		60	30	8	STREET LTG. VIA 'ELC'
CL2 ROOM	12	20	61		62		8	
CL2 ROOM	12	20	63		64	20	10	FAW WATER METER VAULT
RECEPT.	12	20	65		66	20	10	FINISH WATER METER V.
WEST CLAR. RECEPT.	10	20	67		68	20	12	UH-3, 1.5 KW
EAST CLAR. RECEPT.	10	20	69		70	20	12	UH-1, 3 KW
UH-4, 1.5 KW	12	20	71		72		12	
UH-5, 1.5 KW	12	20	73		74	15	12	FAN F-1, 1/4 HP
FAN F-7, 1/3 HP	12	20	75		76	20	12	UH-7, 6 KW
REC.	12	20	77		78		12	
SPARE		20	79		80	20	12	SAMP. PUMP-FWE-1/2 HP
SPARE		20	81		82	20	12	SAMP. PUMP-SWE-1/2 HP
SPARE		20	83		84	20	12	SAMP. PUMP-TWE-1/2 HP

PANEL 1PA

SERVICE: 120/ 208V, 3ø, 4W
MAINS: 150A MAIN BREAKER
MOUNTING: SURFACE
TYPE: BRANCH CIRCUIT

NOTES:
1. WITH EQUIPMENT GROUND BUS.
* PROVIDE LOCK-ON DEVICE FOR CIRCUIT BREAKER.
2. S.C. RATING = 10,000 A.

TYPED CIRCUIT DIRECTORY	WIRE SIZE AWG	BRKR SIZE AMPS	CKT NO.	ABC	CKT NO.	BRKR SIZE AMPS	WIRE SIZE AWG	TYPED CIRCUIT DIRECTORY
NIGHT LTG. *	12	20	1		2	20	12	LIGHTING
ENTRANCE LITE	12	20	3		4	20	12	LIGHTING
LIGHTS - CORRIDOR	12	20	5		6	20	12	LIGHTING
LIGHTING	12	20	7		8	20	10	EXTERIOR LTG.
LIGHTING	12	20	9		10	20	12	UH-9, 2.0 KW
LIGHTING	12	20	11		12		12	
FAN F-11, 1/4HP	12	20	13		14	20	12	UH-10, 1.5 KW
UH-2, 2.0 KW	12	20	15		16	20	12	UH-8, 3.0 KW
	12		17		18		12	
UH-6, 1.5 KW	12	20	19		20	20	——	SPARE
SPARE	——	20	21		22	20	——	SPARE
SPARE	——	20	23		24	20	——	SPARE
SPARE	——	20	25		26	——	——	S.O.
SPARE	——	20	27		28	——	——	S.O.
SPARE	——	20	29		30	——	——	S.O.
SPARE	——	20	31		32	——	——	S.O.
SPARE	——	20	33		34	——	——	S.O.
SPARE	——	20	35		36	——	——	S.O.
SPARE	——	20	37		38	——	——	S.O.
SPARE	——	20	39		40	——	——	S.O.
SPARE	——	20	41		42	——	——	S.O.

PANEL 2P

SERVICE: 120/ 208V, 3ø, 4W
MAINS: 175A CIRCUIT BREAKER
MOUNTING: SURFACE
TYPE: BRANCH CIRCUIT

NOTES:
1. WITH EQUIPMENT GROUND BUS.
* PROVIDE LOCK-ON DEVICE FOR CIRCUIT BREAKER.
2. S.C. RATING = 10,000 A.

TYPED CIRCUIT DIRECTORY	WIRE SIZE AWG	BRKR SIZE AMPS	CKT NO.	ABC	CKT NO.	BRKR SIZE AMPS	WIRE SIZE AWG	TYPED CIRCUIT DIRECTORY
NIGHT LTG. *	12	20	1		2	20	12	LIGHTS CORR./ LOBBY
SPARE	——	20	3		4	20	12	LIGHTING
SPARE	——	20	5		6	20	12	LIGHTING
LIGHTING	12	20	7		8	20	12	LIGHTING
LIGHTING	12	20	9		10	20	12	LIGHTING
LIGHTING	12	20	11		12	20	12	LIGHTING
RANGE	8	50	13		14	20	12	RECEPT - VENDING
	8		15		16	20	12	RECEPT - VENDING
RECEPT	12	20	17		18	20	12	RECEPT - VENDING
RECEPT	12	20	19		20	20	12	RECEPT - VENDING
RECEPT	12	20	21		22	20	12	FANS F-3 & F-4
RECEPT	12	20	23		24	20	12	FANS F-5 & F-6
RECEPT	12	20	25		26	20	12	ROOFTOP RECEPT.
RECEPT	12	20	27		28	20	12	FANS F-8 & F-9
RECEPT	12	20	29		30	20	12	FAN
PLATFORM LIGHTS	10	20	31		32	20	12	'MCA' CONTROLS
	10		33		34	20	12	'MCA' CONTROLS
PATFORM LIGHTS	10	20	35		36			SPARE
	10		37		38			SPARE
RECEPT. CONTROL RM.	12	20	39		40			SPARE
RECEPT. CONTROL RM.	12	20	41		42			SPARE

PANEL CPP

SERVICE: 120/ 208V, 3ø, 4W
MAINS: 100A MAIN BREAKER
MOUNTING: SURFACE
TYPE: BRANCH CIRCUIT

NOTES:
1. WITH EQUIPMENT GROUND BUS.
2. S.C. RATING = 10,000 A.

TYPED CIRCUIT DIRECTORY	WIRE SIZE AWG	BRKR SIZE AMPS	CKT NO.	ABC	CKT NO.	BRKR SIZE AMPS	WIRE SIZE AWG	TYPED CIRCUIT DIRECTORY
EFF. FILT. LT. EAST	12	15	1		2	15	12	EFF. FILT. LT. WEST
RTU-	12	15	3		4	15	12	CHLORINE ALARM
ANALYTICAL PNL./RTU-2	12	15	5		6	15	12	SPARE
ANALYTICAL PNL./RTU-2	12	15	7		8	15	12	CVCPP-WEST
ANALYTICAL PNL./RTU-2	12	15	9		10	15	12	CVCPP-EAST
SPARE	——	15	11		12	15	12	RAW WTR. METER VAULT
SPARE	——	15	13		14	15	12	FINISH WTR. METER VAULT
SPARE	——	15	15		16	15	12	EAST FILTER 'LOHT'
RTU- CHLORINE	12	15	17		18	15	12	WEST FILTER 'LOHT'
CHLORINE FEED	12	15	19		20	15	12	AMMONIA ROOM
CHLORINE FEED	12	15	21		22	15	12	TELEPH. BACKBOARD
CL2 RECORDER	12	15	23		24	15	12	MCP
SPARE		15	25		26	15	12	MCP
SPARE		15	27		28	15	12	MCP
SPARE		15	29		30	15	12	MCP
SPARE		15	31		32	20	12	FCP-W/ RTU-3
SPARE		15	33		34	20	12	FCP-W
SPARE		15	35		36	20	12	FCP-E/ RTU-4
SPARE		15	37		38	20	12	FCP-E
SPARE		15	39		40	20	12	FAC-1
SPARE		15	41		42	15	——	SPARE

PANEL 'FWP'

SERVICE: 120/ 208V, 3ø, 4W
MAINS: 100A CIRCUIT BREAKER
MOUNTING: SURFACE
TYPE: BRANCH CIRCUIT

NOTES:
1. WITH EQUIPMENT GROUND BUS.
2. S.C. RATING = 10,000 A.

TYPED CIRCUIT DIRECTORY	WIRE SIZE AWG	BRKR SIZE AMPS	CKT NO.	ABC	CKT NO.	BRKR SIZE AMPS	WIRE SIZE AWG	TYPED CIRCUIT DIRECTORY
PREM. TRANSMITTERS	12	15	1		2	15	12	1/8 HP COMPRESSOR
PREM. TRANSMITTERS	12	15	3		4	20	12	RECEPT.
LTG - INTERIOR	12	20	5		6	20	12	RECEPT.
LTG - INTERIOR	12	20	7		8	15	12	RTU - PANEL
LTG - EXTERIOR	12	20	9		10	15	12	N-METER MANHOLE-INST.
LTG - EXTERIOR	12	20	11		12	20	12	N-METER MANHOLE-SUMP
BATT - CHARGER	12	20	13		14	20	12	UH-13, 2.0 KW
SEC. SYSTEM	12	15	15		16		12	
SPARE	——	15	17		18	15	12	S-METER MANHOLE-INST
SPARE	——	15	19		20	15	12	S-METER MANHOLE-SUMP
SPARE	——	20	21		22	20	12	FAC-1
SPARE	——	20	23		24	20	12	MCFWP CONTROLS
SPARE	——	20	25		26	20	12	MCFWP CONTROLS
SPARE	——	20	27		28	20	——	SPARE
SPARE	——	20	29		30	20	——	SPARE
SPARE	——	20	31		32	20	——	SPARE
SPARE	——	20	33		34	20	——	SPARE
SPARE	——	20	35		36	20	——	SPARE

PANEL 1H

SERVICE: 480V, 3-PH, 3-W
MAINS: 225A MLO
MOUNTING: SURFACE
TYPE: BRANCH CIRCUIT

NOTES:
1. WITH EQUIPMENT GROUND BUS.
2. S.C. RATING = 14,000 A.

TYPED CIRCUIT DIRECTORY	WIRE SIZE AWG	BRKR SIZE AMPS	CKT NO.	ABC	CKT NO.	BRKR SIZE AMPS	WIRE SIZE AWG	TYPED CIRCUIT DIRECTORY
	10		1		2		10	
FILTER & FEEDER SYST.	10	30	3		4	30	10	POLYMER FEED SYSTEM
	10		5		6		10	
	12		7		8		12	
MISC. AGITATORS	12	20	9		10	20	12	CHL2 - HOIST RAIL
	12		11		12		12	
	12		13		14			
FAN F-2, 1/2 HP	12	15	15		16	30		SPARE
	12		17		18			
			19		20			
SPARE		20	21		22			S.O.
			23		24			
	8		25		26			S.O.
FOR FUTURE GATE	8	30	27		28			S.O.
	8		29		30			S.O.
S.O.			31		32			S.O.
S.O.			33		34			S.O.
S.O.			35		36			S.O.
S.O.			37		38			S.O.
S.O.			39		40			S.O.
S.O.			41		42			S.O.

PANEL 2H

SERVICE: 480V, 3-PH, 3-W
MAINS: 225A MLO
MOUNTING: SURFACE
TYPE: BRANCH CIRCUIT

NOTES:
1. WITH EQUIPMENT GROUND BUS.
2. S.C. RATING = 14,000 A.

TYPED CIRCUIT DIRECTORY	WIRE SIZE AWG	BRKR SIZE AMPS	CKT NO.	ABC	CKT NO.	BRKR SIZE AMPS	WIRE SIZE AWG	TYPED CIRCUIT DIRECTORY
	10		1		2		12	
EH-1, 15 KW	10	25	3		4	15	12	EH-2 & EH-3
	10		5		6		12	
	12		7		8		12	
EH-8 & EH-9	12	15	9		10	15	12	EH-4 & EH-5
	12		11		12		12	
	12		13		14		12	
EH-10 & EH-7	12	15	15		16	15	12	EH-6 & EH-11
	12		17		18		12	
	8		19		20		8	
AHU-1	8	50	21		22	50	8	AHU-2
	8		23		24		8	
	8		25		26		8	
AHU-3	8	50	27		28	50	8	AHU-4
	8		29		30		8	
S.O.			31		32			S.O.
S.O.			33		34			S.O.
S.O.			35		36			S.O.
S.O.			37		38			S.O.
S.O.			39		40			S.O.
S.O.			41		42			S.O.

RECORD DRAWING
DATE 5-20-92

REVISIONS		
DESCRIPTION		
RECORD DRAWINGS	1-11-92	RAC

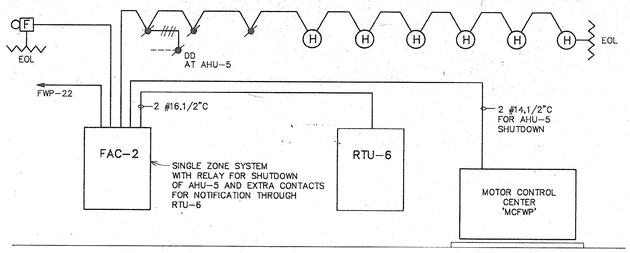
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

89079

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

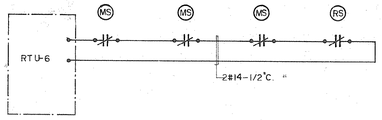
SCHEDULES
33-01-73W

DATE: MAR. 5-1990
DESIGNED: D.L.
DRAWN: D.M.
CHECKED: D.L.
SCALE: AS NOTED
SHEET NO. E-5
OF: 18



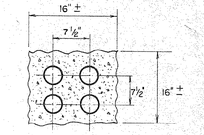
4 E-6 FINISHED WATER PUMP STATION FIRE DETECTION SYSTEM RISER DIAGRAM

NOT TO SCALE

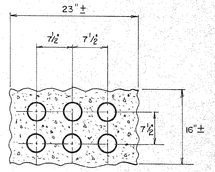


3 E-6 DOOR MONITORING DIAGRAM

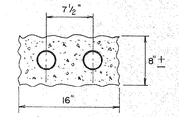
NOT TO SCALE



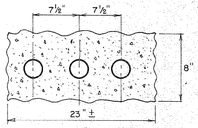
A - A



B - B



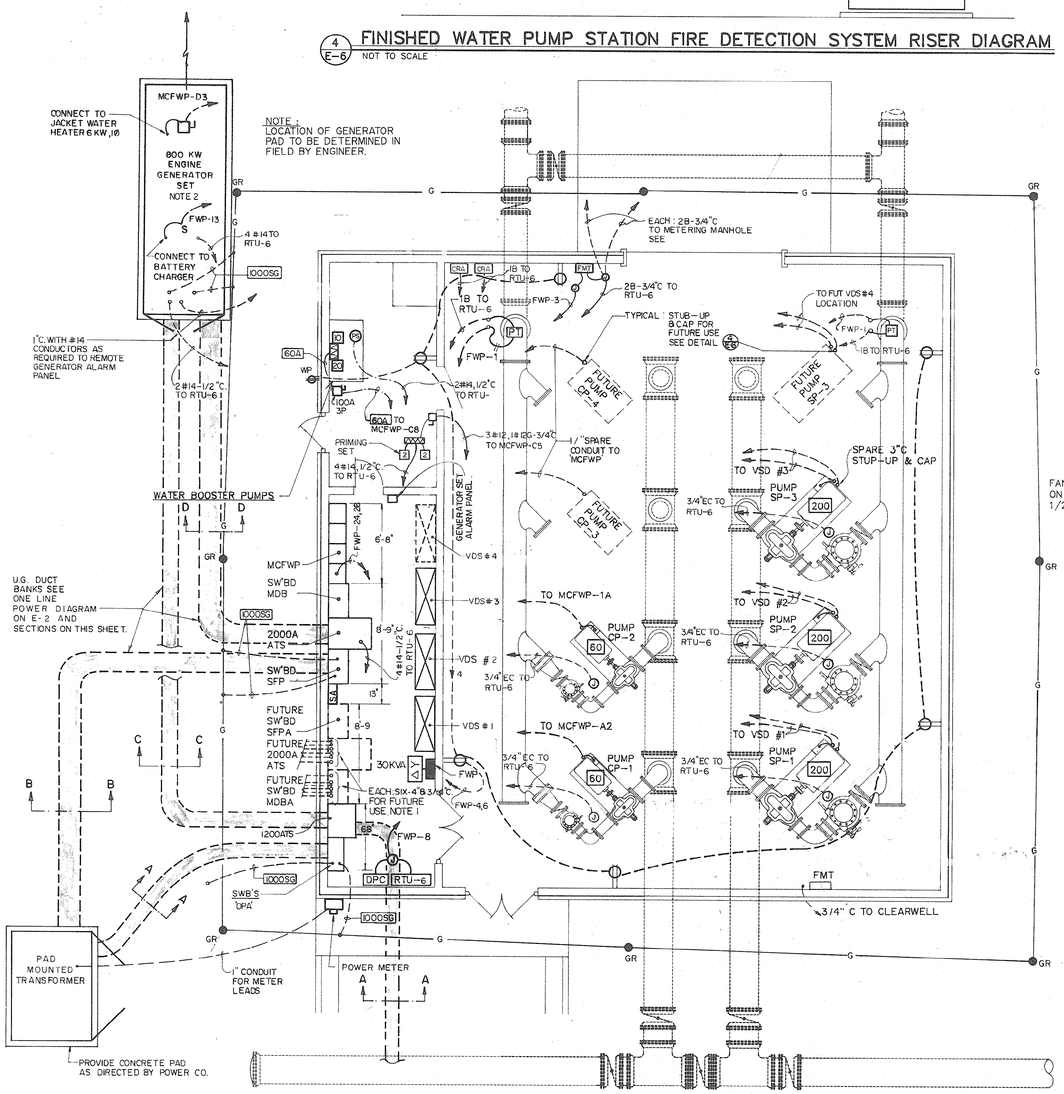
C - C

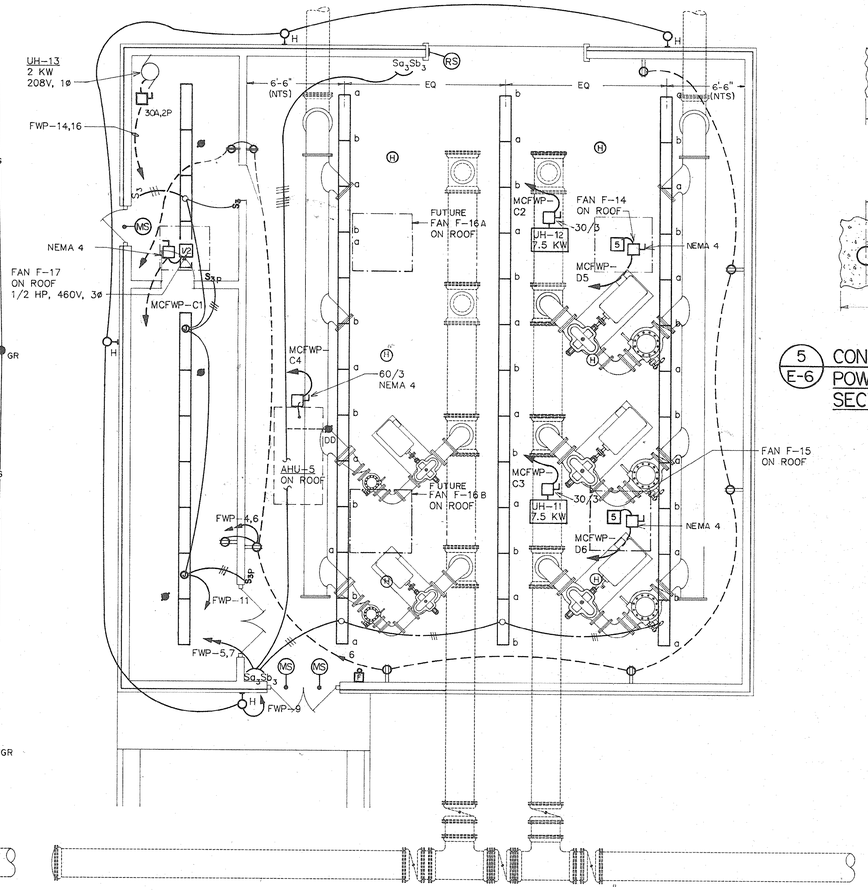


D - D

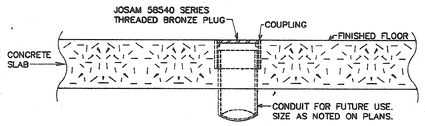
5 E-6 CONCRETE ENCASED POWER DUCT BANK SECTIONS

NOT TO SCALE





NOTE: ALL FLUORESCENT FIXTURES ARE TYPE 'D'.



5 E-6 TYPICAL STUB-UP CONDUIT PROVISION

NOT TO SCALE

NOTES:
1. EXACT LOCATION AS COORDINATED WITH GENERAL CONTRACTOR.
2. SET COUPLING FLUSH WITH FINISHED FLOOR AND PROVIDE PLUG AS NOTED ABOVE.

1 E-6 FINISHED WATER PUMP STATION PLAN — PUMP & PROCESS LOADS — ELECTRICAL

SCALE: 3/16" = 1'-0"

NOTES:
1. PROVIDE CONDUITS FOR FUTURE SERVICE. STUB-OUT 5'-0" BEYOND BUILDING & CAP AT BOTH ENDS.
2. ENGINE GENERATOR SET FOOT PRINT IS ONLY APPROXIMATE REFER TO ACTUAL EQUIPMENT PURCHASED FOR FINAL DIMENSIONS. REFER TO DETAIL 1/E-13 FOR PAD REQUIREMENTS.

2 E-6 FINISHED WATER PUMP STATION PLAN — ELECTRICAL HOUSE LOADS

SCALE: 3/16" = 1'-0"

NORTH

RECORD DRAWING
DATE 5-20-92

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWINGS	1-11-92	RAC

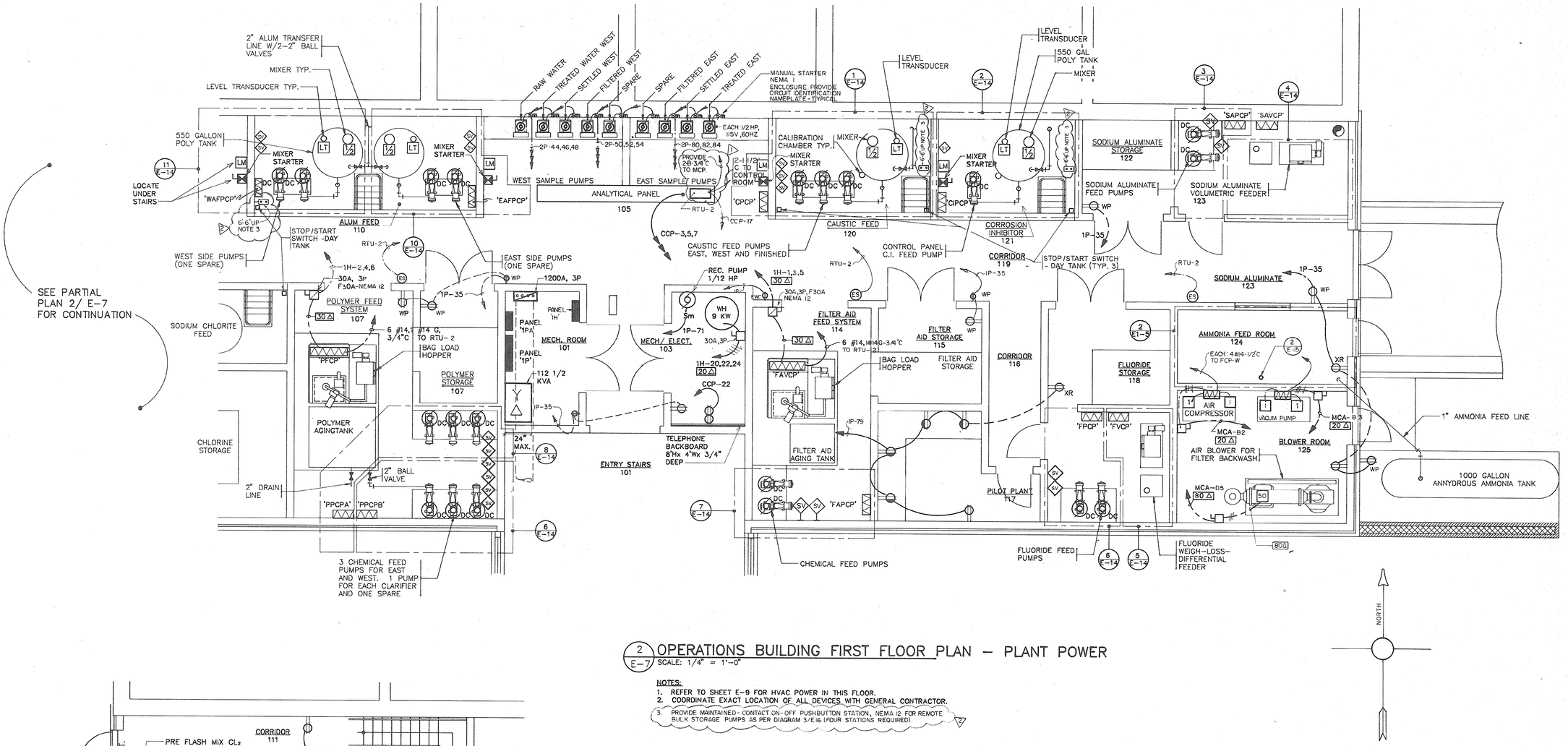
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CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA PROFESSIONAL ENGINEER 8906 RAMIRO LOPEZ

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

FINISH WATER PUMP STATION PLANS
POWER AND LIGHTING
33-01-74W

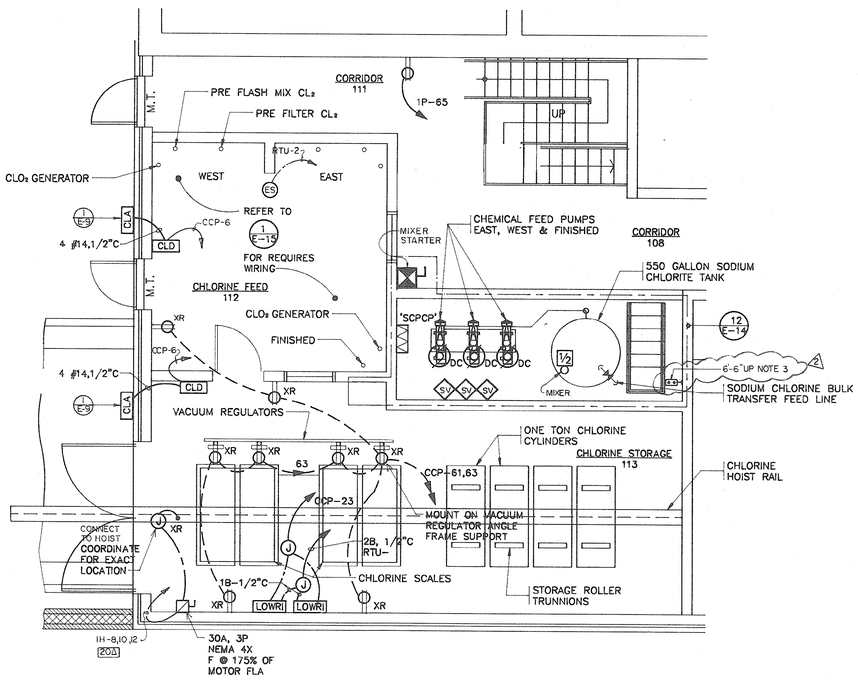
DATE:	MAR. 5-1990
DESIGNED:	D.L.
DRAWN:	D.M.
CHECKED:	D.L.
SCALE:	AS NOTED
SHEET NO.	E-6
OF:	18



2/E-7 OPERATIONS BUILDING FIRST FLOOR PLAN – PLANT POWER

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

NOTES:
1. REFER TO SHEET E-9 FOR HVAC POWER IN THIS FLOOR.
2. COORDINATE EXACT LOCATION OF ALL DEVICES WITH GENERAL CONTRACTOR.
3. PROVIDE MAINTAINED - CONTACT ON-OFF PUSHBUTTON STATION, NEMA 12 FOR REMOTE BULK STORAGE PUMPS AS PER DIAGRAM 3/E16. (FOUR STATIONS REQUIRED)



2/E-7 OPERATIONS BUILDING – FIRST FLOOR PARTIAL PLAN

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

RECORD DRAWING
DATE 5-20-92

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
1	ADDED CONDUIT & B WIRES TO MCP	9-11-90	DL
2	ADDED 4 REMOTE SWITCHES FOR BULK STOR. TANKS.	9-11-90	DL
	RECORD DRAWINGS	1-11-92	RAC

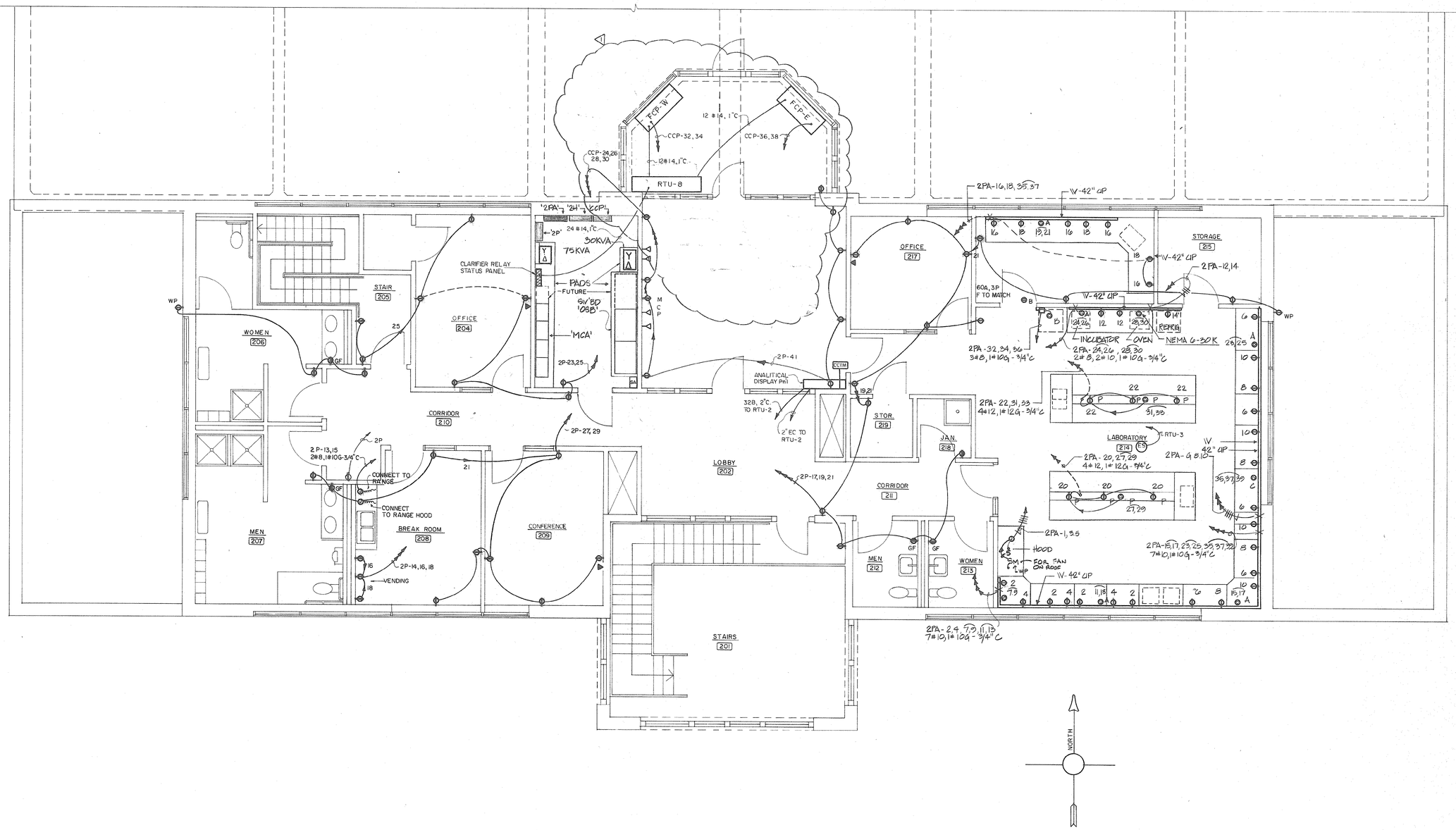
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CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

89079

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

OPERATIONS BUILDING
FIRST FLOOR POWER PLAN
33-01-75W

DATE: MAR. 5- 1990
DESIGNED: D.L.
DRAWN: D.M.
CHECKED: D.L.
SCALE: AS NOTED
SHEET NO. E-7
OF 18



RECORD DRAWING
DATE 5-20-92

33-01-76W

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
1	CONTROL AREA	9-11-90	DL
	RECORD DRAWINGS	1-11-92	RAC

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CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 12793 DAMARO LOPEZ

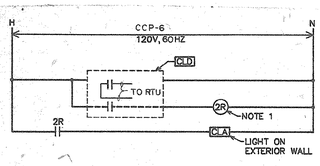
89079

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

OPERATIONS BUILDING
2nd FLOOR — POWER PLAN

DATE: MAR. 5-90
DESIGNED: DL
DRAWN: R.V.T
CHECKED: DL
SCALE: 1/4" = 1'-0"
SHEET NO. E-8
OF 18

SOUTHERN PHOTO - DISTRIBUTION 1-1/79

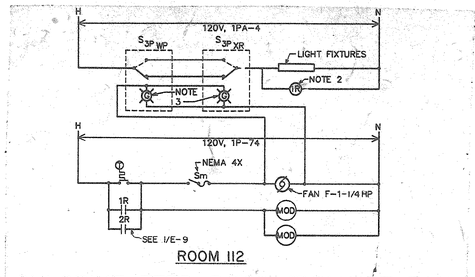


1 / E-9 TYPICAL CHLORINE FEED AND STORAGE ROOMS ALARM CONTROL WIRING DIAGRAM

NOT TO SCALE (TWO REQUIRED)

NOTES:

1. RELAY (2R) SHALL BE INDUSTRIAL TYPE, HORSEPOWER RATED FOR THE APPLICABLE FAN BEING CONTROLLED AND MOUNTED IN NEMA 4X ENCLOSURE.



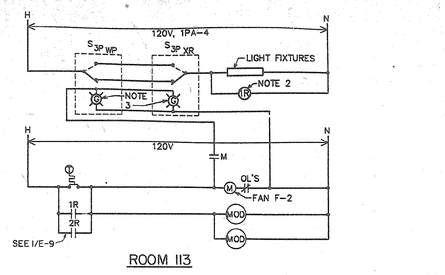
ROOM 112

2 / E-9 CHLORINE FEED ROOM EXHAUST FAN AND LIGHT CONTROL WIRING DIAGRAM

NOT TO SCALE

NOTES:

2. RELAY (2R) SHALL BE INDUSTRIAL TYPE, HORSEPOWER RATED FOR THE APPLICABLE FAN BEING CONTROLLED AND MOUNTED IN NEMA 4X ENCLOSURE.



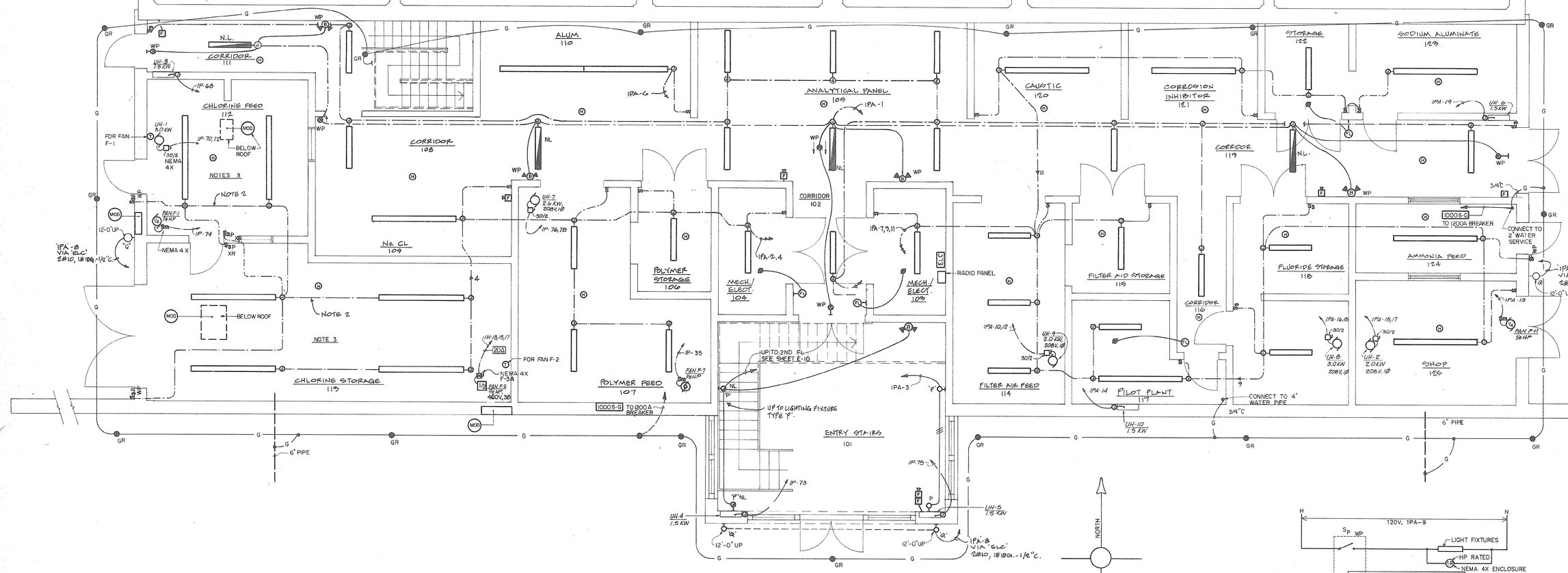
ROOM 113

3 / E-9 CHLORINE STORAGE ROOM EXHAUST FAN AND LIGHT CONTROL WIRING DIAGRAM

NOT TO SCALE

NOTES:

3. PROVIDE NAMEPLATE ENGRAVED: 'EXHAUST FAN ON'

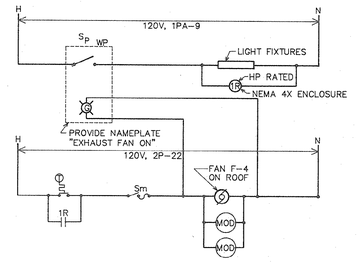


FIRST FLOOR PLAN - LIGHTING

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

NOTES:

1. ALL LIGHTING FIXTURES ARE TYPE 'E' UNLESS OTHERWISE NOTED.
2. PROVIDE PVC CONDUIT FOR THE WIRING INSTALLATION IN ROOMS 112, 113 & 124. BOXES IN THESE ROOMS SHALL BE PVC TYPE.
3. PROVIDE FAN CONTROL WIRING IN ROOMS 112 AS PER DETAILS 2/E-9, 3/E-9 AND 4/E-9.



AMMONIA FEED ROOM EXHAUST FAN & LIGHT CONTROL WIRING DIAGRAM - ROOM 124

4 / E-9 NOT TO SCALE

RECORD DRAWING
DATE 5-20-92

33-01-77w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWINGS	1-11-92	RAC

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SOUTHERN PINES, NORTH CAROLINA 28387

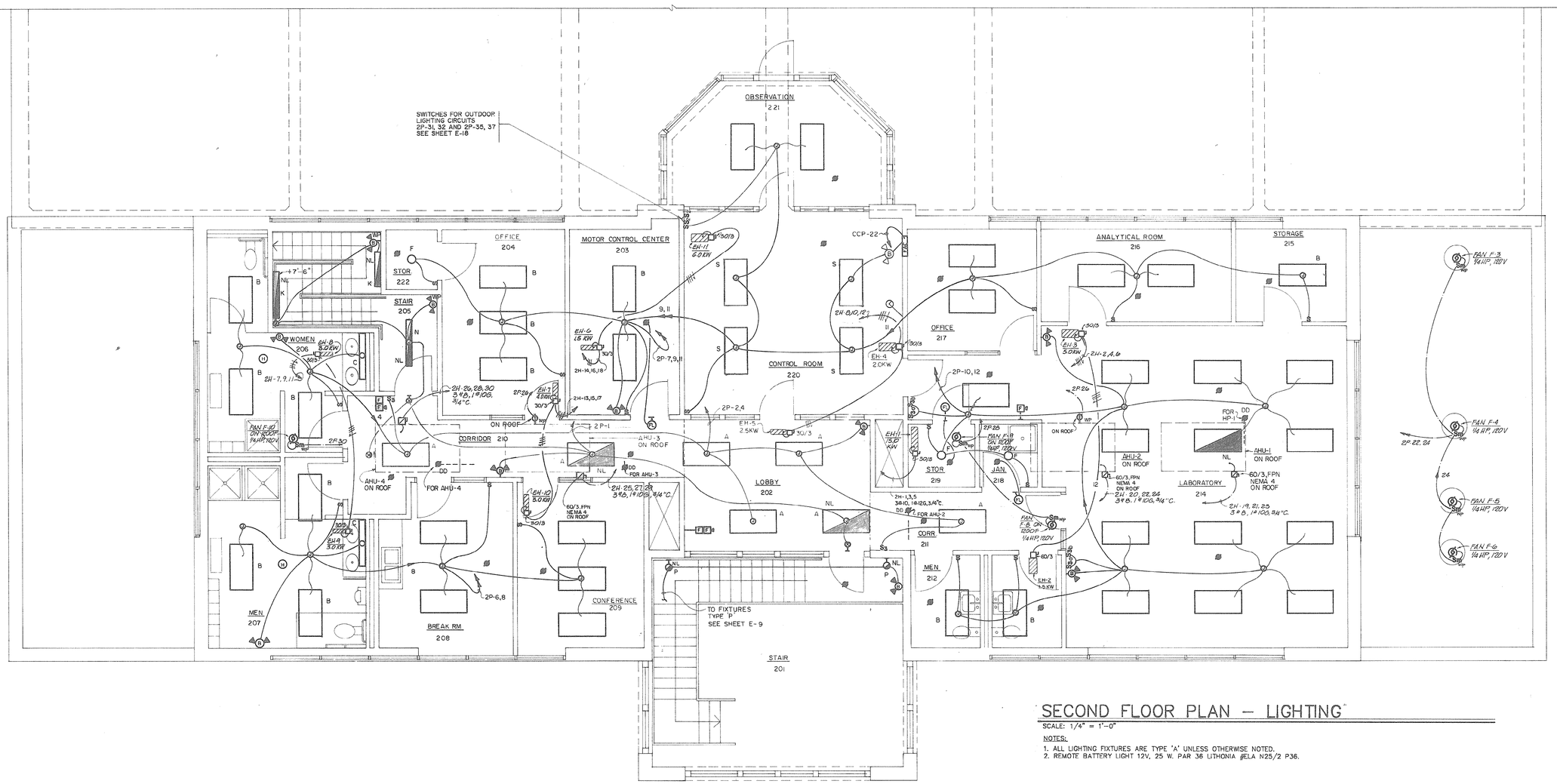
SOUTH CAROLINA PROFESSIONAL ENGINEER 12763 DAMIAN LOPEZ
6/30/93

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

OPERATIONS BUILDING
FIRST FLOOR LIGHTING PLAN

DATE: MAR. 5 - 90
DESIGNED: DL
DRAWN: R.V.T.
CHECKED: DL
SCALE: AS SHOWN
SHEET NO. E-9
OF. 18

SOUTHERN PHOTO - GREENSBORO 3-1776

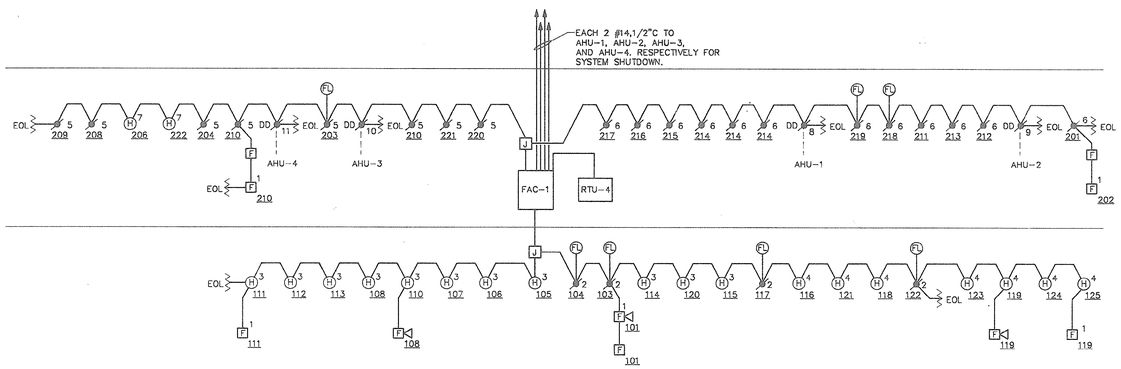


SECOND FLOOR PLAN — LIGHTING

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

NOTES:

1. ALL LIGHTING FIXTURES ARE TYPE 'A' UNLESS OTHERWISE NOTED.
2. REMOTE BATTERY LIGHT 12V, 25 W. PAR 36 LITHONIA #ELA N25/2 P36.



OPERATIONS BUILDING FIRE DETECTION AND ALARM SYSTEM RISER DIAGRAM

NOT TO SCALE

OPERATIONS BUILDING FIRE ALARM SYSTEM ZONE SCHEDULE

ZONE	DEVICE	LEVEL	AREA	REMARKS
1	PULL STATIONS	1 & 2	AT EXITS	B
2	SMOKE DETECTORS	1	ELECTRICAL & STORAGE CLOSETS	A
3	HEAT DETECTORS	1	WEST SIDE	A
4	HEAT DETECTORS	1	EAST SIDE	A
5	SMOKE DETECTORS	2	WEST SIDE	A
6	SMOKE DETECTORS	2	EAST SIDE	A
7	HEAT DETECTORS	2	TOILETS/ SHOWERS	A
8	DUCT SMOKE DETECTORS	2	AHU-1	C
9	DUCT SMOKE DETECTORS	2	AHU-2	C
10	DUCT SMOKE DETECTORS	2	AHU-3	C
11	DUCT SMOKE DETECTORS	2	AHU-4	C
12	———	———	———	D

FIRE ALARM ZONE NOTES

A. UPON DETECTION OF SMOKE OR FIRE , THE FOLLOWING SHALL OCCUR: ENERGIZE AUDIO-VISUAL ALARM, LIGHT PROPER ZONE IN CONTROL PANEL, SEND ALARM AUTOMATICALLY TO RTU-4.

B. UPON ACTUATION OF PULL STATION, PROVIDE SANE ACTION AS PER 'A' ABOVE.

C. UPON DETECTION OF SMOKE BY DUCT DETECTOR, PROVIDE SAME ACTION AS PER 'A' ABOVE PLUS SHUTDOWN OF AIR HANDLING UNIT.

D. SPARE ZONE, PROVIDE ALL NECESSARY HARDWARE.

RECORD DRAWING
DATE 5-20-92

33-01-78w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

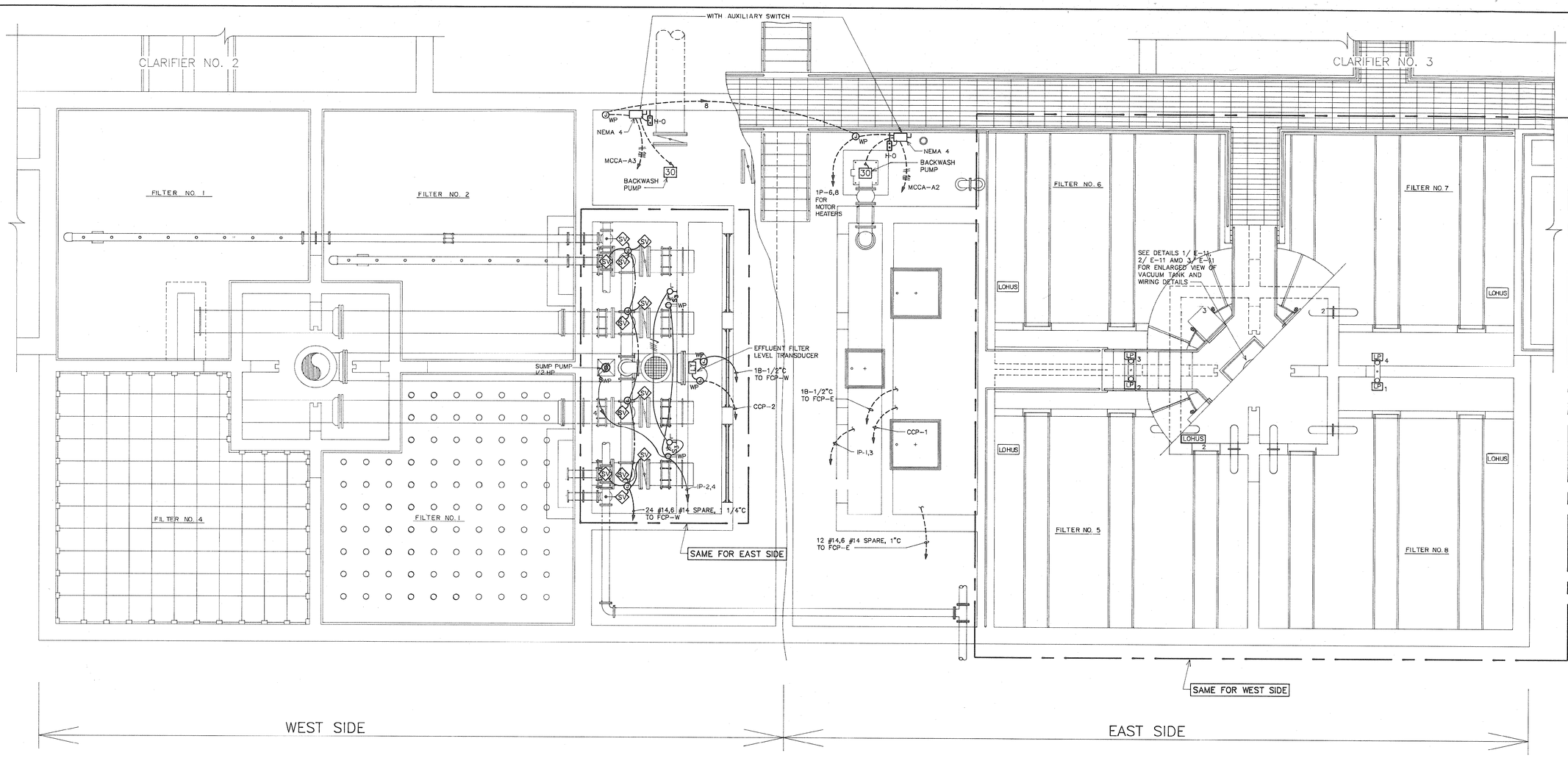
89079

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

OPERATIONS BUILDING
2nd FLOOR PLAN — LIGHTING

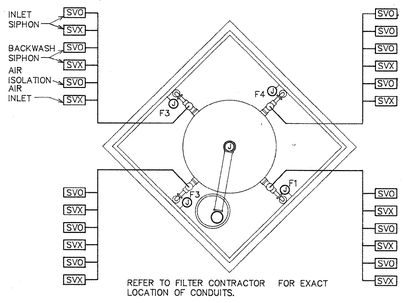
DATE: MAR. 5-90
DESIGNED: DL
DRAWN: RVT
CHECKED: DL
SCALE: 1/4" = 1'-0"
SHEET NO. E-10
OF: 18

SOUTHERN PRODUCTS - GREENSBORO NC1776



FILTER ELECTRICAL PLAN

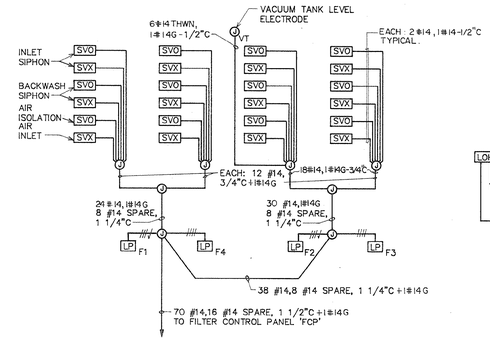
SCALE: 1/4" = 1'-0"



ENLARGED PARTIAL PLAN – VACUUM TANK (TWO REQUIRED)

1 / E-11 NOT TO SCALE

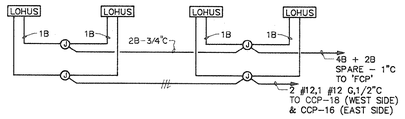
NOTES:
1. ALL CONDUIT AND BOX INSTALLATION SHALL BE WATER TIGHT
2. SIZE ALL BOXES BY NEC REQUIREMENTS.



TYPICAL FILTER CONTROL RISER DIAGRAM (TWO REQUIRED)

2 / E-11 NOT TO SCALE

NOTES:
1. ALL CONDUIT AND BOX INSTALLATION SHALL BE WATER TIGHT
2. SIZE ALL BOXES BY NEC REQUIREMENTS.
3. CONNECT AS DIRECTED BY FILTER INSTALLER.



TYPICAL RISER DIAGRAM – TRANSMITTERS AT FILTERS (TWO REQUIRED)

3 / E-11 NOT TO SCALE

NOTES:
1. ALL CONDUIT AND BOX INSTALLATION SHALL BE WATER TIGHT
2. SIZE ALL BOXES BY NEC REQUIREMENTS.

RECORD DRAWING
DATE 5-20-92

33-01-79w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY

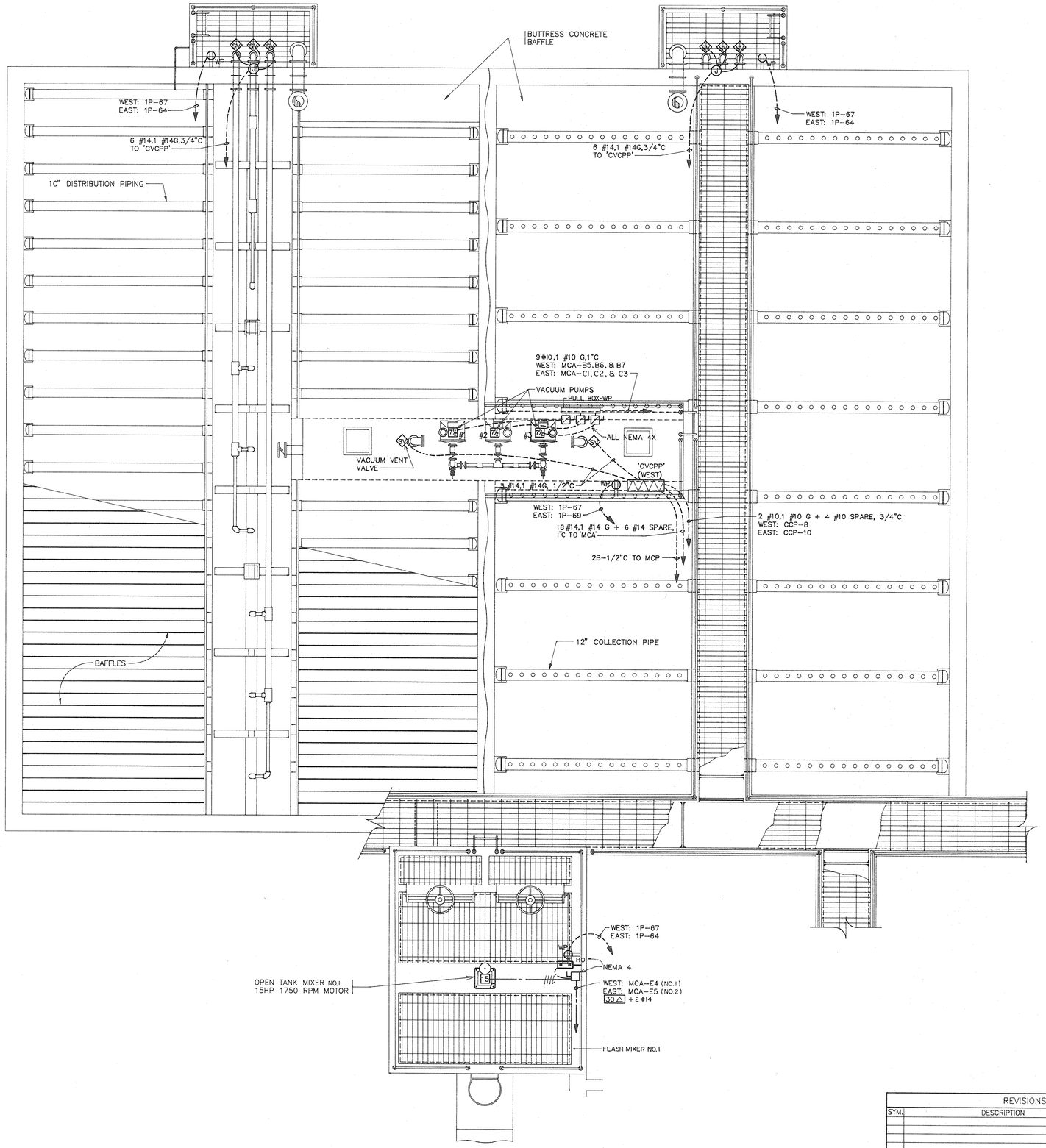
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

89079 — SOUTH CAROLINA PROFESSIONAL ENGINEER — 12703 — DAMASO LOPEZ

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

FILTER PLAN – POWER AND CONTROLS

DATE:	MAR 5-90
DESIGNED:	D.L.
DRAWN:	D.M.
CHECKED:	D.L.
SCALE:	AS NOTED
SHEET NO.	E-11
OF	18



1 / E-12 CLARIFIER NO. 1 & 2 WEST – POWER PLAN

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

NOTES:
1. TYPICAL FOR CLARIFIERS NO. 3 & 4, & FLASH MIXER NO.2.

RECORD DRAWING
DATE 5-20-92

33-01-80w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY

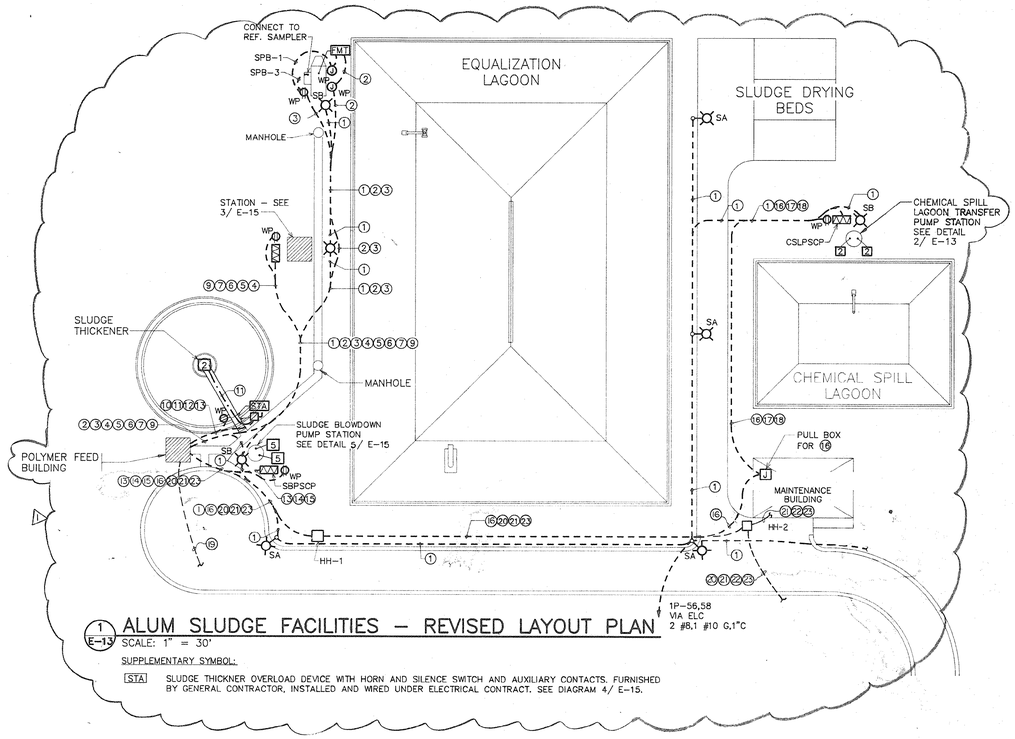
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

89079

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHOP

CLARIFIER PLAN

DATE:	MAR. 5 - 1990
DESIGNED:	D.L.
DRAWN:	D.M.
CHECKED:	D.L.
SCALE:	AS NOTED
SHEET NO.	E-12
OF:	18

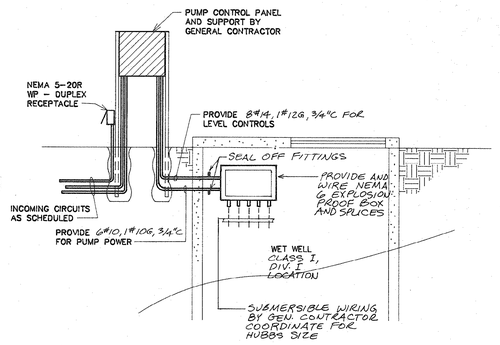


1 E-13 ALUM SLUDGE FACILITIES – REVISED LAYOUT PLAN

SCALE: 1" = 30'

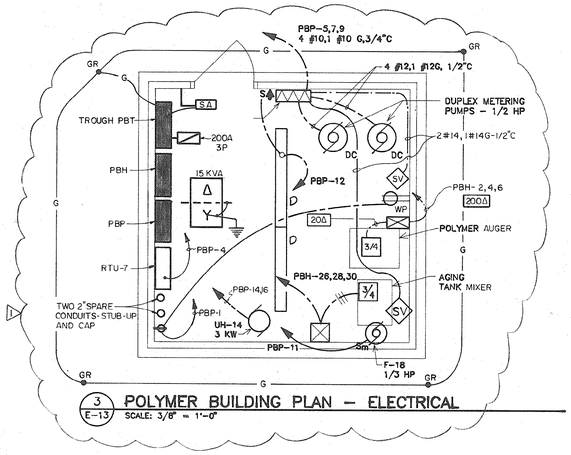
SUPPLEMENTARY SYMBOL:

STA — SLUDGE THICKNER OVERLOAD DEVICE WITH HORN AND SILENCE SWITCH AND AUXILIARY CONTACTS. FURNISHED BY GENERAL CONTRACTOR, INSTALLED AND WIRED UNDER ELECTRICAL CONTRACT. SEE DIAGRAM 4/ E-15.



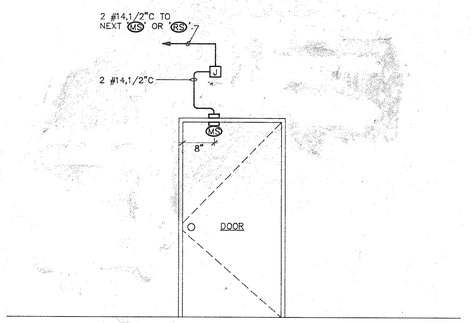
2 E-13 TYPICAL PUMP STATION REQUIREMENTS

NOT TO SCALE



3 E-13 POLYMER BUILDING PLAN – ELECTRICAL

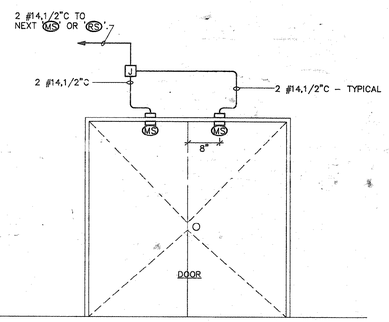
SCALE: 3/8" = 1'-0"



5 E-13 TYPICAL DOOR ACCESS CONTROL/ MONITOR SYSTEM

NOT TO SCALE

NOTES:



6 E-13 TYPICAL DOUBLE DOOR ACCESS CONTROL/ MONITOR SYSTEM

NOT TO SCALE

NOTES:

1. PROVIDE ALL WIRING AND BACK BOXES.

PANEL 'PBH'

NOTES:
1. WITH EQUIPMENT GROUNDING BUS.
2. NEMA 12 ENCLOSURE.
2. SUITABLE FOR SERVICE ENTRANCE.

SERVICE: 480V, 3-PH, 3W
MAINS: 125A MAIN BREAKER
MOUNTING: SURFACE
TYPE: BRANCH CIRCUIT

TYPED CIRCUIT DIRECTORY	WIRE SIZE AWG	BRKR SIZE AMPS	CKT NO.	ABC	CKT NO.	BRKR SIZE AMPS	WIRE SIZE AWG	TYPED CIRCUIT DIRECTORY
			1		2		12	
S.O.			3		4	15	12	POLYMER AUGER
			5		6		12	
			7		8			
SPARE		30	9		10	30		SPARE
			11		12			
	10		13		14		10	
PANEL 'PBP' VIA	10	25	15		16	30	10	'SDPSCP'
15 KVA TRANS.	10		17		18		10	
			19		20		12	
SPARE		30	21		22	15	12	SLUDGE THICKENER
			23		24		12	
	10		25		26		12	
'SBPSCP'	10	30	27		28	15	12	AGING TANK MIXER
	10		29		30		12	

PANEL PBP

NOTES:
1. WITH EQUIPMENT GROUNDING BUS.
2. NEMA 12 ENCLOSURE.

SERVICE: 120/ 208V, 3-PH, 4W
MAINS: 60A MAIN BREAKER
MOUNTING: SURFACE
TYPE: BRANCH CIRCUIT

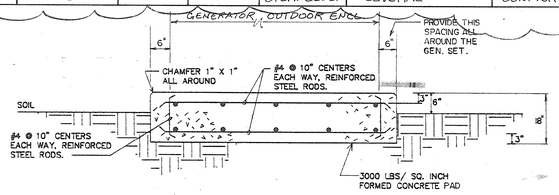
TYPED CIRCUIT DIRECTORY	WIRE SIZE AWG	BRKR SIZE AMPS	CKT NO.	ABC	CKT NO.	BRKR SIZE AMPS	WIRE SIZE AWG	TYPED CIRCUIT DIRECTORY
WEIR FLOW METER REC.	10	20	1		2	20	12	RECEPT.
REF. SAMPLER	10	20	3		4	15	12	RTU-7
RECEPT. – SPSCP	10	20	5		6		10	
SUMP PUMP-SLUDGE P.S.	12	20	7		8	30	10	METERING PUMP CONTROL
RECEPT. – 'SBPSCP'	12	20	9		10		10	
FAN F-18, 1/3 HP	12	20	11		12	20	12	LIGHTING
SPARE		20	13		14	20	12	UH-14, 3.0 KW
SPARE		20	15		16		12	
SPARE		20	17		18	20		SPARE
SLUDGE THICKENER	12	20	19		20			S.O.
S.O.			21		22			S.O.
S.O.			23		24			S.O.

CONTROL PANEL SCHEDULE

DESIGNATION	FUNCTION	PROVIDED BY	MOTORS @460V
STA	THICKENER O.L. DEVICE	GENERAL CONTRACTOR	SEE 4/E-15
SPSCP	SLUGE PUMP STATION	GENERAL CONTRACTOR	2@ 100 HP
CSLPSCP	CHEMICAL SPILL LAGOON PUMP STATION	GENERAL CONTRACTOR	2@ 2 HP
NOTE : ONE OF EACH PAIR OF MOTORS IS STANDBY			

SITE WIRING CIRCUIT SCHEDULE

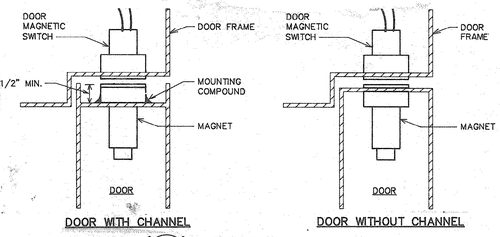
DESIGNATION	WIRE & CONDUIT	CIRCUIT	VOLTS/ PHASE	ORIGIN	DESTINATION	REMARKS
(1)	2 #8,1 #10 G, 3/4"C	1P-56,58	208/ 1	OPER. BLDG.	SITE LTG.	SEE SHEET E-2
(2)	2#,3/4"C		SIGNAL	RTU-7 POLY. BLDG.	WEIR FLOWMETER	
(3)	3 #10,1 # 10 G,3/4"C	PBP-1&FEP-3	120/ 1	POLY. BLDG.	WIER FLOW METER & RECEPT.	USE CCT # PBP-3 FOR CONN. TO REF. SAMPLER
(4)	2#-3/4"C		SIGNAL	RTU-7 POLY. BLDG.	'SPSCP'	
(5)	200 A	PBH-14,16,18	460/ 3	POLY. BLDG.	'SDPSCP'	PUMP STATION POWER
(6)	3 #10,1 #10 G,3/4"C	PBP-5	120/ 1	POLY. BLDG.	RECEPT. & LTG. AT SLUDGE P.S.	
(7)		PBP-7	120/ 1	POLY. BLDG.	SUMP PUMP AT SLUDGE P.S.	
(8)						NOT USED
(9)	8 #14,1 #14 G,3/4"C	CONTROL	120/ 1	RTU-7 POLY. BLDG.	'STCP'	REMOTE CONTROL & NOTIFICATION WIRING
(10)	4 #14,1 #14 G,3/4"C		120/ 1	RTU-7 POLY. BLDG.	SLUDGE THICKENER STARTER	THICKENER REMOTE CONTROL AND NOTIFICATION
(11)	3 #12,1 #12 G,3/4"C	PBH-20,22,24	460/ 3	POLY. BLDG.	SLUDGE THICKENER VIA STARTER	
(12)	2 #12,1 #12 G,1/2"C	PBP-9	120/ 1	POLY. BLDG.	RECEPT & STA AT SLUDGE THICKENER	
(13)	2 #14,1 #14 G,1/2"C	CONTROL	120/ 1	RTU-7 POLY. BLDG.	STA	REMOTE ALARM NOTIFICATION
(14)	3 #10,1 #10 G,3/4"C	PBH-25,27,29	460/ 3	POLY. BLDG.	'SBPSCP'	
(15)	2 #12,1 #12 G,1/2"C	PBP-9	120/ 1	POLY. BLDG.	RECEPT. AT 'SBPSCP'	
(16)	8 #14,1 #14 G,3/4"C	CONTROL	120/1	RTU-7 POLY. BLDG.	'CSLPSCP'	PUMP CONTROL WIRING
(17)	3 #10,1 #10 G,3/4"C	MBH-1,3,5	460/ 3	MAINT. BLDG.	'CSLPSCP'	
(18)	2 #10,1 #10 G,3/4"C	MBP-1	120/ 1	MAINT. BLDG.	RECEPT. AT 'CSLPSCP'	
(19)	400 A	OSB-12	460/3	OPER. BLDG.	TROUGH 'PBT'	
(20)	4B-2"C	——	SIGNAL	RTU-2	RTU-7	
(21)	TWO 2"C	——	——	OPER. BLDG.	SEVERAL	SPARE CONDUITS
(22)	175 A	OSB-7	460/3	OPER. BLDG.	MAINT. BLDG.	
(23)	ONE 1"C	——	——	OPER. BLDG.	SEVERAL	CON. FOR TELE.



4 E-13 SECTION THRU OUTDOOR GENERATOR SET CONCRETE PAD

NOT TO SCALE

1. PROVIDE ALL NECESSARY GRADING TO INSTALL PAD.
2. PROVIDE OPENINGS IN PAD TO ACCOMMODATE INCOMING CONDUITS.



7 E-13 TYPICAL 'MS' MOUNTING

NOT TO SCALE

RECORD DRAWING
DATE 5-20-92

33-01-81w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
1	SLUDGE TREAT CHANGES	9-11-90	DL

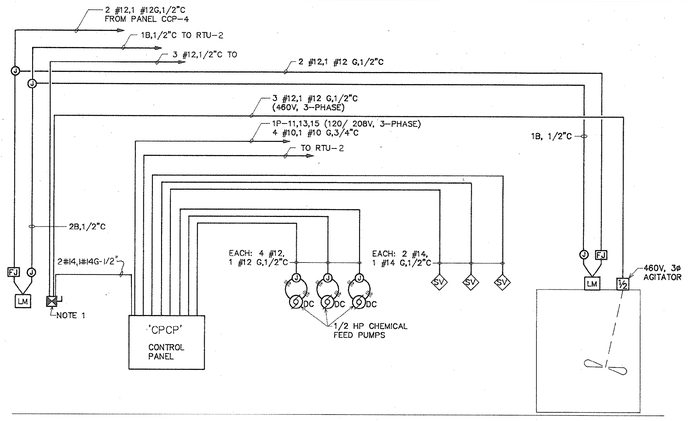
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

89079 — SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER — DAMARO LOPEZ

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

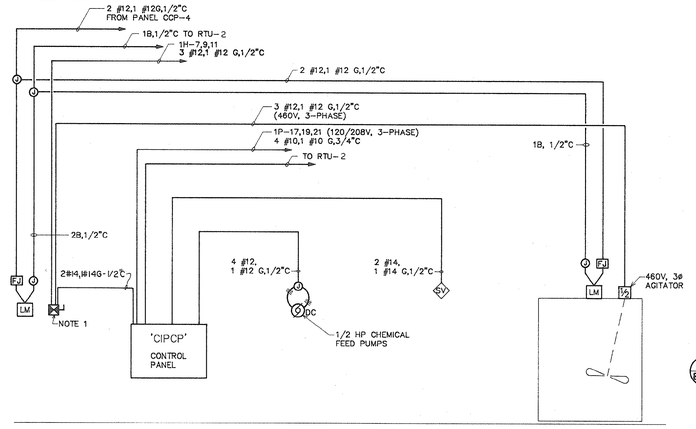
POLYMER BUILDING & DETAILS

DATE: MAR. 5-1990
DESIGNED: D.L.
DRAWN: D.M.
CHECKED: D.L.
SCALE: AS NOTED
SHEET NO. E-13
OF: 18



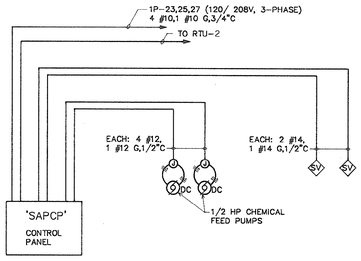
1 CAUSTIC FEED CONTROL RISER DIAGRAM
E-14 NOT TO SCALE

NOTE:
1. FVNR STARTER SHALL HAVE 480V-120V BUILT-IN CONTROL TRANSFORMER 2-NO,1-NC CONTACTS, 'RUN' PILOT LIGHT - NEMA 12 ENCLOSURE. FUSE AT 3A.

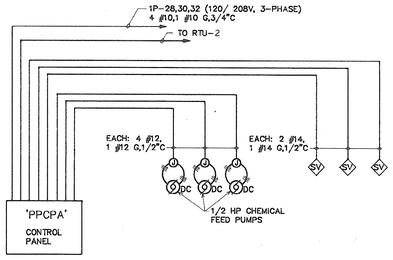


2 CORROSION INHIBITOR FEED CONTROL RISER DIAGRAM
E-14 NOT TO SCALE

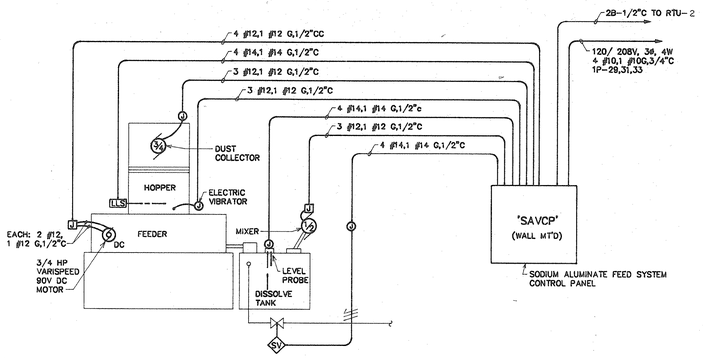
NOTE:
1. FVNR STARTER SHALL HAVE 480V-120V BUILT-IN CONTROL TRANSFORMER 2-NO,1-NC CONTACTS, 'RUN' PILOT LIGHT - NEMA 12 ENCLOSURE. FUSE AT 3A.



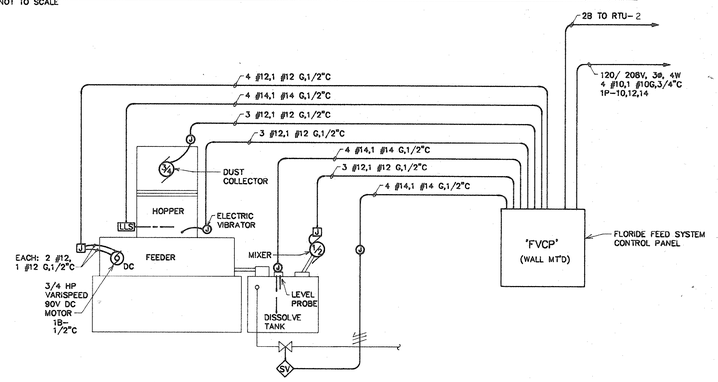
3 SODIUM ALUMINATE CONTROL RISER DIAGRAM
E-14 NOT TO SCALE



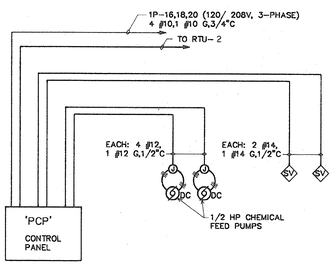
8 POLYMER PUMPS CC.P.-A CONTROL RISER DIAGRAM
E-14 NOT TO SCALE



4 ELECTRICAL RISER DIAGRAM - SODIUM ALUMINATE VOLUMETRIC FEEDER SYSTEM
E-14 NOT TO SCALE

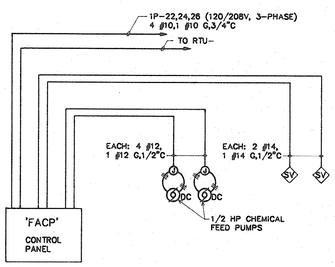


5 ELECTRICAL RISER DIAGRAM - FLUORIDE FEEDER SYSTEM
E-14 NOT TO SCALE



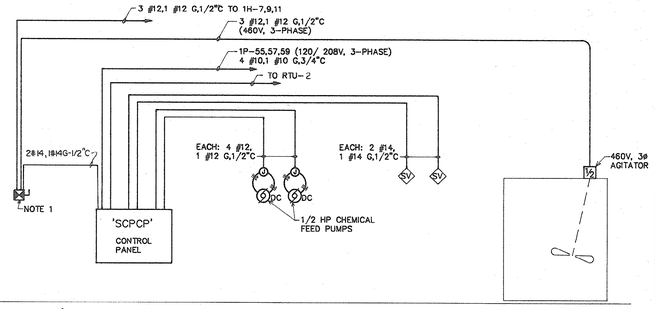
FLUOR. PUMPS CONTROL RISER DIAGRAM
6 E-14 NOT TO SCALE

NOTE:
1. FVNR STARTER SHALL HAVE 480V-120V BUILT-IN CONTROL TRANSFORMER START-STOP PUSHBUTTON, 'RUN' PILOT LIGHT - NEMA 12 ENCLOSURE.



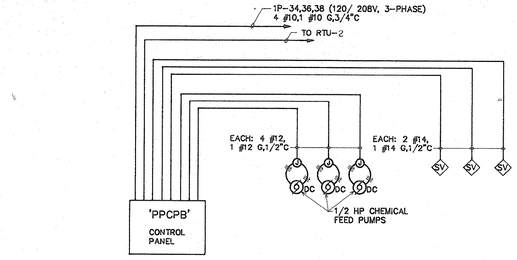
FILTER AID PUMPS CONTROL RISER DIAGRAM
7 E-14 NOT TO SCALE

NOTE:
1. FVNR STARTER SHALL HAVE 480V-120V BUILT-IN CONTROL TRANSFORMER START-STOP PUSHBUTTON, 'RUN' PILOT LIGHT - NEMA 12 ENCLOSURE.

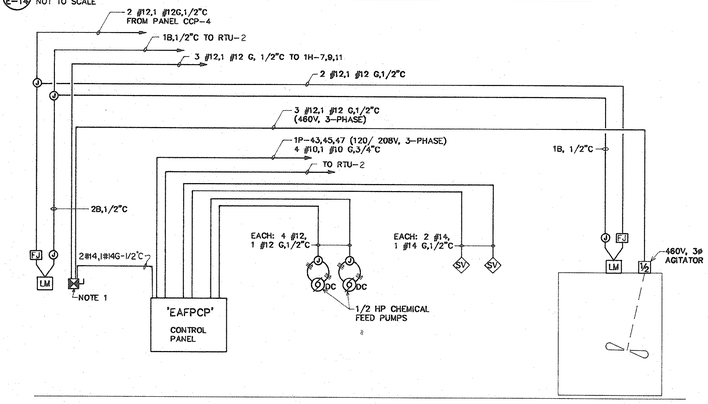


12 'SCPCP' CONTROL RISER DIAGRAM
E-14 NOT TO SCALE

NOTE:
1. FVNR STARTER SHALL HAVE 480V-120V BUILT-IN CONTROL TRANSFORMER 2-NO,1- NC CONTACTS, 'RUN' PILOT LIGHT - NEMA 12 ENCLOSURE. FUSE AT 3A.

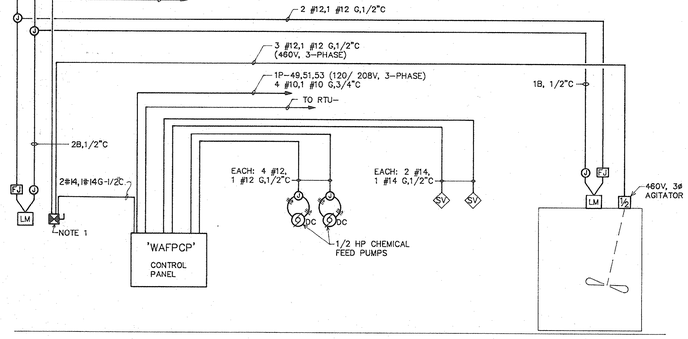


9 POLYMER PUMPS C.P.B CONTROL RISER DIAGRAM
E-14 NOT TO SCALE



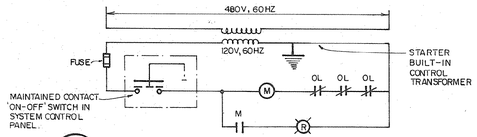
10 EAST ALUM FEED PUMPS CONTROL RISER DIAGRAM
E-14 NOT TO SCALE

NOTE:
1. FVNR STARTER SHALL HAVE 480V-120V BUILT-IN CONTROL TRANSFORMER 2-NO,1-NC CONTACTS, 'RUN' PILOT LIGHT - NEMA 12 ENCLOSURE. FUSE AT 3A.



11 WEST ALUM FEED PUMPS CONTROL RISER DIAGRAM
E-14 NOT TO SCALE

NOTE:
1. FVNR STARTER SHALL HAVE 480V-120V BUILT-IN CONTROL TRANSFORMER 2-NO,1-NC CONTACTS, 'RUN' PILOT LIGHT - NEMA 12 ENCLOSURE. FUSE AT 3A.



13 E-14 TYPICAL LIQUID FEED SYSTEM AGITATOR CONTROL DIAGRAM
NOT TO SCALE

RECORD DRAWING
DATE 5-20-92

33-01-82w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

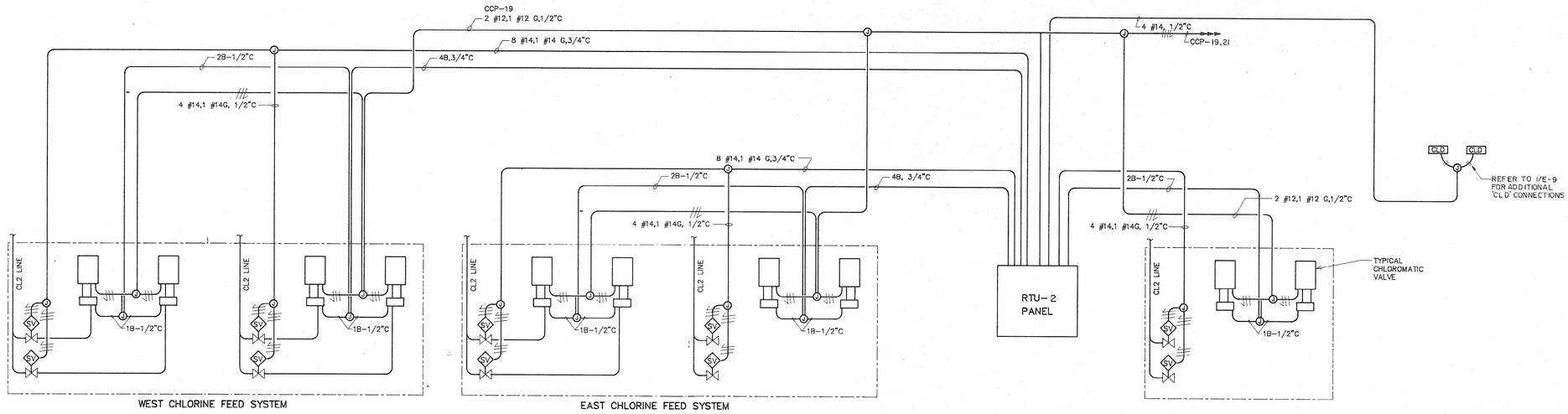
SOUTH CAROLINA PROFESSIONAL ENGINEER 12783 DAMASO LOPEZ

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

CHEMICAL FEED CONTROL RISER DIAGRAM

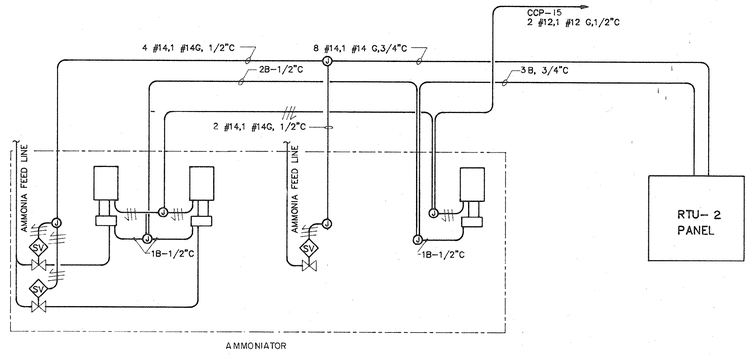
DATE:	MAR 5-90
DESIGNED:	D.L.
DRAWN:	D.M.
CHECKED:	D.L.
SCALE:	AS NOTED
SHEET NO.	E-14
OF:	18

68075



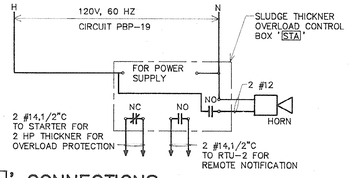
1 E-15 ELECTRICAL RISER DIAGRAM — CL_2 FEEDER SYSTEM

NOT TO SCALE



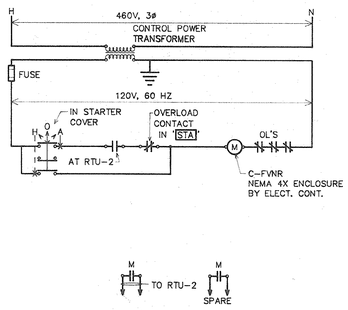
2 E-15 ELECTRIC RISER DIAGRAM — AMMONIA FEEDER SYSTEM

NOT TO SCALE



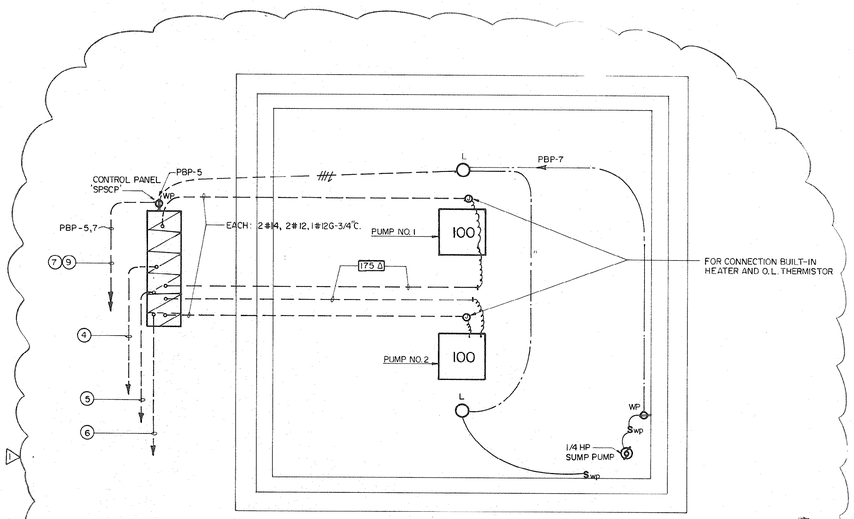
3 E-15 'STA' CONNECTIONS

NOT TO SCALE



4 E-15 SLUDGE THICKNER CONTROL WIRING DIAGRAM

NOT TO SCALE



5 E-15 SLUDGE PUMP STATION

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

NOTES:
1. ALL WIRING SHOWN BY ELECTRICAL CONTRACTOR.
2. COORDINATE EXACT CONNECTION REQUIREMENTS WITH GENERAL CONTRACTOR PRIOR TO RUNNING ANY CONDUIT
3. SEE I/E-13 AND SCHEDULE ON SHEET E-13 FOR HOME RUN CIRCUIT LEGEND.

33-01-83W

RECORD DRAWING
DATE 5-20-92

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
1	ADDED SLUDGE PUMPS STATION	9-11-90	DL

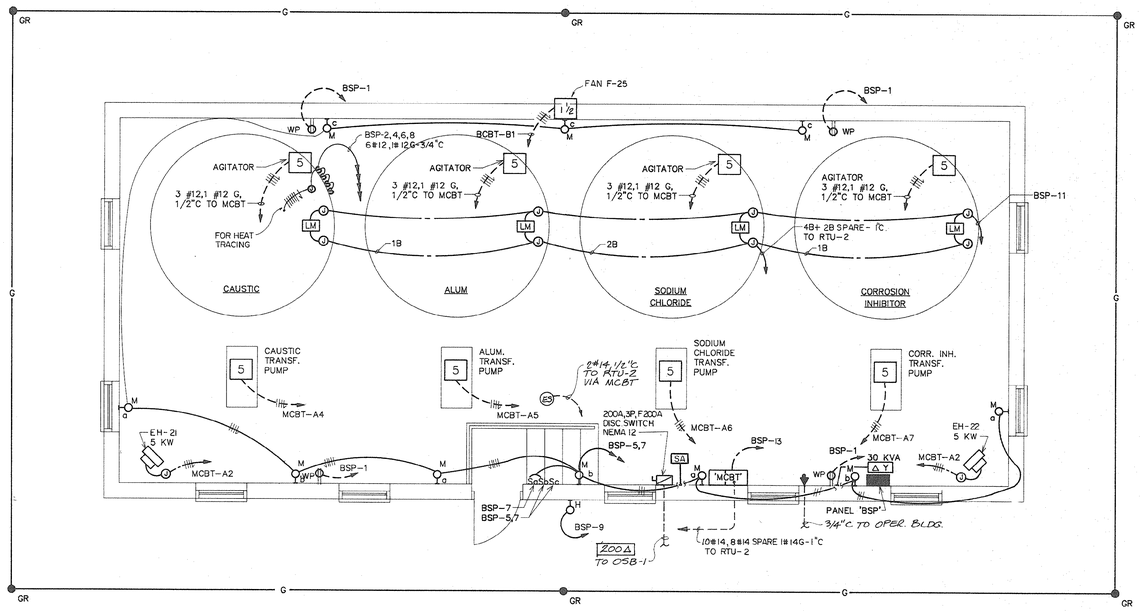
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

89079

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

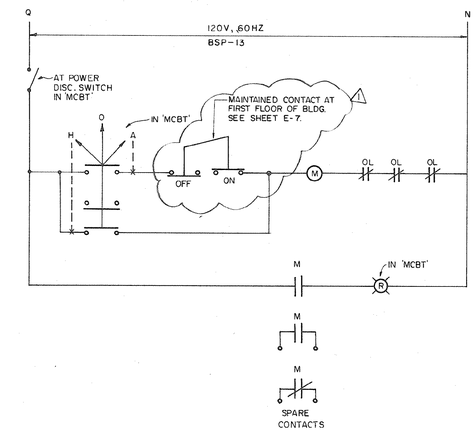
SLUDGE LAND PUMP STATION
CL2 FEEDER CONTROLS
RISER DIAGRAM

DATE:	MAR. 5-1990
DESIGNED:	D.L.
DRAWN:	D.M.
CHECKED:	D.L.
SCALE:	AS NOTED
SHEET NO.	E-15
OF	18

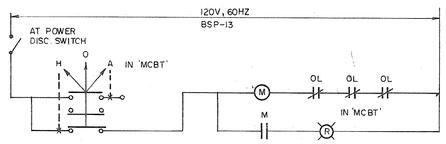


1 E-16 **FLOOR PLAN – BULK STORAGE BUILDING – POWER & LIGHTING**
SCALE: 1/4" = 1'-0"

NOTES:
1. RUN ALL CONDUIT UNDER OR IN SLAB, IN WALL OF ON WALLS. DO NOT RUN CONCUIT OVERHEAD ON ROOF STRUCTURE.



3 E-16 **TYPICAL CONTROL WIRING DIAGRAM – TRANSFER PUMP**
(4 - REQUIRED)



4 E-6 **TYPICAL CONTROL WIRING DIAGRAM – AGITATOR**
(4 - REQUIRED)

MOTOR CONTROL CENTER LEGEND & REMARKS

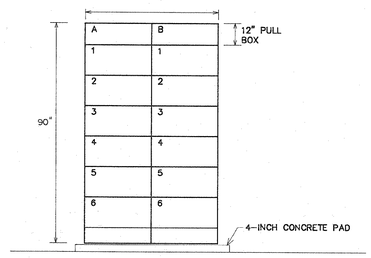
C-FVNR COMBINATION FULL VOLTAGE NON-REVERSIBLE MAGNETIC STARTER WITH FUSED SWITCH, WITH AUXILIARY CONTACTS FOR CONTROL POWER CUT-OFF.

1. REFER TO SPECS FOR REQUIREMENTS ... REFER TO CONTROL WIRING DIAGRAMS FOR REMOTE CONTROL DEVICES.
2. UNLESS OTHERWISE NOTED EACH C-FVNR UNIT SHALL BE PROVIDED WITH HAND-OFF-AUTOMATIC (H-O-A) SWITCH, TWO N.O. AND ONE N.C. EXTRA AUXILIARY CONTACTS. STARTER COILS SHALL BE 120V, 60 HZ. FROM EXTERNAL SOURCE.
3. SWITCHES SHALL HAVE 'R' TYPE FUSEHOLDERS AND TIME DELAY RK-5 FUSES.
4. CIRCUIT BREAKERS ARE ACCEPTABLE INSTEAD OF FUSED SWITCHES FOR UNITS RATED 50 HP OR LARGER. C.B. SHORT CIRCUIT RATING SHALL BE 30,000 A OR HIGHER.
5. WITH 'RED' 'MOTOR ON' PILOT LIGHT ON COVER. PROVIDE ADDITIONAL N.C. CONTACT.

MOTOR CONTROL CENTER 'MCBT' SCHEDULE

SERVICE: 460V, 3-PHASE, 3-WIRE
MAIN BUS RATING: 600A
TYPE: NEMA 12, CLASS 1, TYPE B – RATED: 30,000 RMS SYMM A.

UNIT	SERVING	AMP	H.P.	STARTER	WIRE & CONDUIT	REMARKS
A1	——	——	——	——	——	INCOMING LINE
A2	2 EUH @5 KW EACH	——	12.5	——	3 #12,1 #12G,1/2"C	30A, 3P, F20A SWITCH
A3	PNL. 'BSP' VIA 30 KVA	——	38.0	——	3 #8,1 #10 G,3/4"C	60A, 3P, F50A SWITCH
A4	CAUSTIC TRANSF. PUMP	5	7.6	C-FVNR	3 #12,1 #12G,1/2"C	F-15A,1,2,3,5
A5	ALUM. TRANSF. PUMP	5	7.6	C-FVNR	3 #12,1 #12G,1/2"C	
A6	SODIUM CHL. TRANSF. PUMP	5	7.6	C-FVNR	3 #12,1 #12G,1/2"C	
A7	RUST INH. TRANSF. PUMP	5	7.6	C-FVNR	3 #12,1 #12G,1/2"C	
B1	FAN F-25	1½	2.4	C-FVNR	3 #12,1 #12G,1/2"C	F-6A
B2	AGITATOR – CAUST.	5	7.6	C-FVNR	3 #12,1 #12G,1/2"C	F-15A,1,2,3,5
B3	AGITATOR – ALUM.	5	7.6	C-FVNR	3 #12,1 #12G,1/2"C	
B4	AGITATOR – SOD. CHL.	5	7.6	C-FVNR	3 #12,1 #12G,1/2"C	
B5	AGITATOR – RUST INH.	5	7.6	C-FVNR	3 #12,1 #12G,1/2"C	
B6	SPARE	5	7.6	C-FVNR		



MOTOR CONTROL CENTER 'MCBT' ELEVATION
2 E-16 NOT TO SCALE

PANEL 'BSP'

SERVICE: 120/ 208V, 3ø, 4W
MAINS: 100A CIRCUIT BREAKER
MOUNTING: SURFACE
TYPE: BRANCH CIRCUIT

NOTES:
1. WITH EQUIPMENT GROUND BUS.

TYPED CIRCUIT DIRECTORY	WIRE SIZE AWG	BRKR SIZE AMPS	CKT NO.	ABC	CKT NO.	BRKR SIZE AMPS	WIRE SIZE AWG	TYPED CIRCUIT DIRECTORY
RECEPT.	12	20	1		2	20	12	HEAT TRACING – CAUST
LTG. – INTERIOR	12	20	3		4	20	12	HEAT TRACING – CAUST
LTG – INTERIOR	12	20	5		6	20	12	HEAT TRACING – CAUST
LTG – INTERIOR	12	20	7		8	20	12	HEAT TRACING – SPARE
LTG – EXTERIOR	12	20	9		10	20		SPARE
LEVEL TRANSMITTERS	12	15	11		12	20		"
MCBT CONTROLS	12	15	13		14	20		"
SPARE		20	15		16	20		"
SPARE		20	17		18	20		"
SPARE		20	19		20	20		"
SPARE		20	21		22	20		"
SPARE		20	23		24	20		"

RECORD DRAWING
DATE 5-20-92

33-01-84w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
1	REVISED TRANSFER PUMP WIRING DIAGRAM	9-11-90	DL

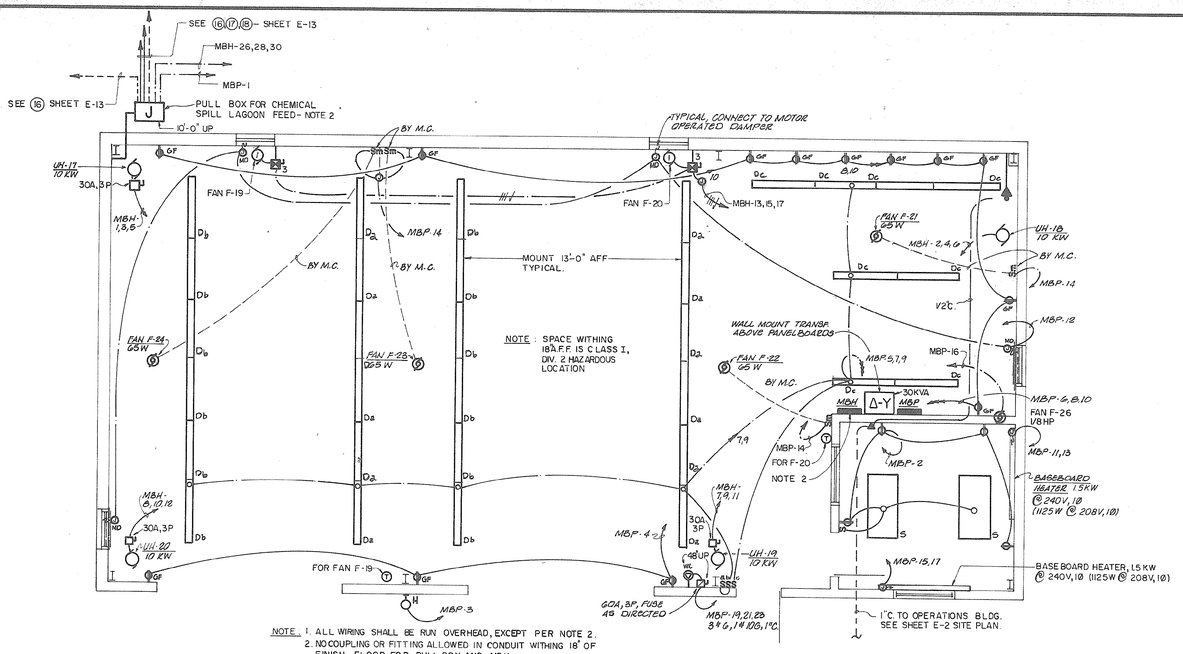
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA PROFESSIONAL ENGINEER 18783 NORTH MYRTLE BARASO LOPEZ 89079

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

CHEMICAL BULK STORAGE BUILDING

DATE: MAR. 5-90
DESIGNED: D.L.
DRAWN: D.M.
CHECKED: D.L.
SCALE: AS NOTED
SHEET NO. E-16
OF: 18



NOTE 1. ALL WIRING SHALL BE RUN OVERHEAD, EXCEPT PER NOTE 2.
2. NO COUPLING OR FITTING ALLOWED IN CONDUIT WITHING 18" OF FINISH FLOOR FOR PULL BOX AND MBH.

1 / E-17 MAINTENANCE BUILDING PLAN - POWER & LIGHTING

1/4" = 1'-0"

PANEL 'MBH'

SERVICE: 480V, 3ø
MAINS: 150A MCB
MOUNTING: SURFACE
TYPE: HCN

NOTES:
1. WITH EQUIPMENT GROUNDING BUS.
2. U.L. LABEL "SUITABLE FOR SERVICE ENTRANCE USE"
3. MOUNT BOTTOM OF PANEL NOT LESS THAN 30 AFF
4. NEMA 12 ENCLOSURE

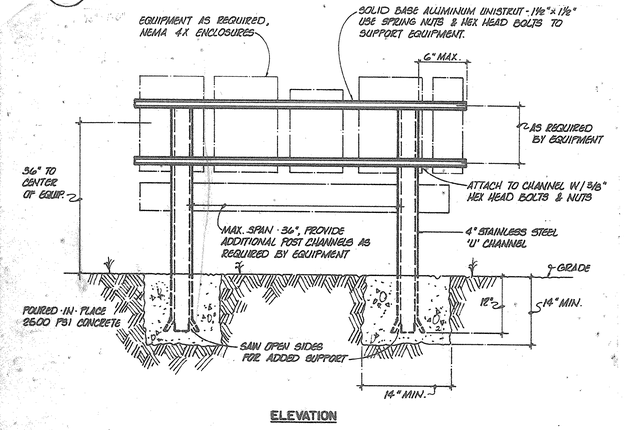
TYPED CIRCUIT DIRECTORY	WIRE SIZE AWG	BRKR SIZE AMPS	CKT NO.	ABC	CKT NO.	BRKR SIZE AMPS	WIRE SIZE AWG	TYPED CIRCUIT DIRECTORY
	12		1		2		12	
UH-17, 10.0 KW	12	15	3		4	15	12	UH-18, 10.0 KW
	12		5		6		12	
	12		7		8		12	
UH-19, 10.0 KW	12	15	9		10	15	12	UH-20, 10.0 KW
	12		11		12		12	
	12		13		14			
F-19 & F-20	12	15	15		16	20		SPARE
(1 HP EACH)	12		17		18			
BLANK			19		20			
BLANK			21		22	30		SPARE
BLANK			23		24			
	8		25		26		10	
PANEL MBP VIA 30 KVA	8	50	27		28	30	10	CSLPSCP
	8		29		30		10	
S.O.			31		32			S.O.
S.O.			33		34			S.O.
S.O.			35		36			S.O.
S.O.			37		38			S.O.
S.O.			39		40			S.O.
S.O.			41		42			S.O.

PANEL 'MBP'

SERVICE: 120/ 208V, 3ø, 4W
MAINS: 100A MAIN BREAKER
MOUNTING: SURFACE
TYPE: NQOD

NOTES:
1. WITH EQUIPMENT GROUNDING BUS.
2. MOUNT BOTTOM OF PANEL NOT LESS THAN 30 AFF.
3. NEMA 12 ENCLOSURE.

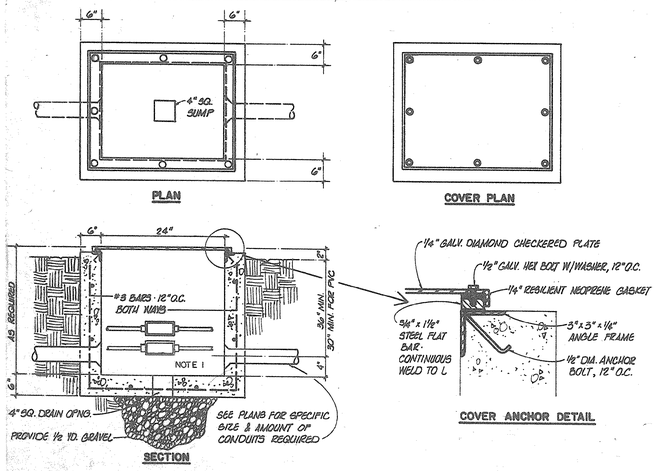
TYPED CIRCUIT DIRECTORY	WIRE SIZE AWG	BRKR SIZE AMPS	CKT NO.	ABC	CKT NO.	BRKR SIZE AMPS	WIRE SIZE AWG	TYPED CIRCUIT DIRECTORY
RECEPT. AT 'CSLPSCP'	10	20	1		2	20	12	OFFICE LTG. & RECEPT.
EXTERIOR LTG.	12	20	3		4	20	12	RECEPT.
LIGHTING	12	20	5		6	20	12	RECEPT.
LIGHTING	12	20	7		8	20	12	RECEPT.
LIGHTING	12	20	9		10	20	12	RECEPT.
BASEBOARD HEATER	12	20	11		12	20	12	MOTOR OPER. DAMPERS
	12		13		14	20	12	F-21, F-22, F-23 & F-24
BASEBOARD HEATER	12	20	15		16	20	12	F-25
	12		17		18	20		SPARE
	6		19		20	20		SPARE
WELDING OUTLET	6	60	21		22	20		SPARE
	6		23		24	20		SPARE
S.O.			25		26			S.O.
S.O.			27		28			S.O.
S.O.			29		30			S.O.
S.O.			31		32			S.O.
S.O.			33		34			S.O.
S.O.			35		36			S.O.
S.O.			37		38			S.O.
S.O.			39		40			S.O.
S.O.			41		42			S.O.



2 / E-17 TYPICAL OUTDOOR ELECTRICAL EQUIPMENT RACK

NO SCALE

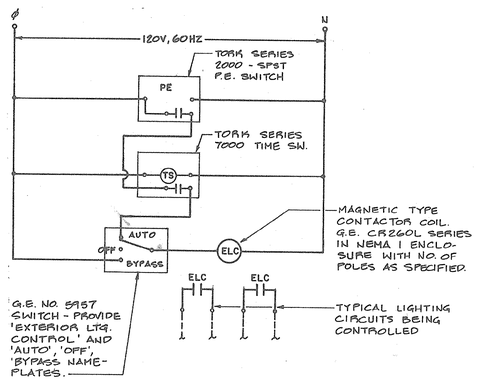
NOTES : 1. ALL WORK UNDER CONTRACT NO. II.
2. USE SINGLE CHANNEL FOR SINGLE PIECE OF EQUIPMENT.



3 / E-17 HANDHOLE DETAILS

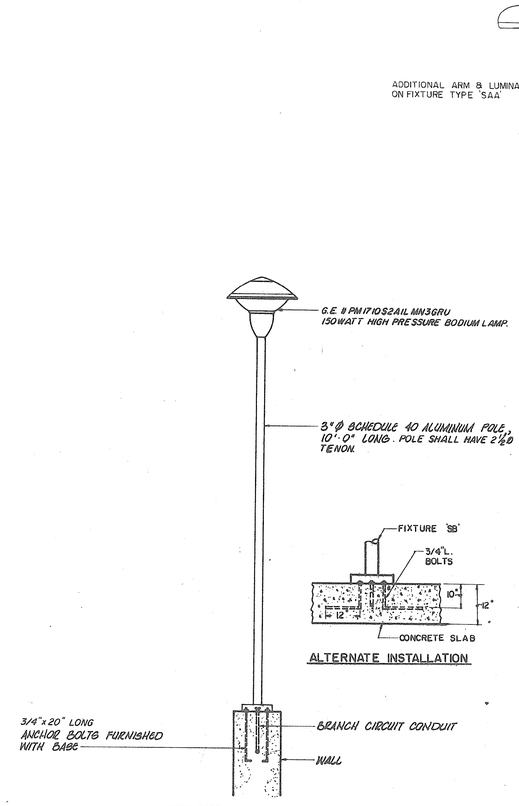
NO SCALE

NOTES 1. PROVIDE WATERTIGHT BOXES INSIDE HANDHOLES FOR SIGNAL AND COMMUNICATION WIRES. SIZE BY NEC.



TYPICAL PHOTOCONTROL 'ON' — TIME CLOCK SWITCH 'OFF' EXTERIOR LIGHTING CONTROL WIRING DIAGRAM 'ELC'

NOTE: SET TIME CLOCK TO COME 'ON' AT 2:00 PM, TO TURN LIGHTS 'OFF' AT NIGHT AT TIME AS DIRECTED BY OWNER.



NOTE: PROVIDE SPECIAL BOLTS WHEN INSTALLED ON 12" THICK CONCRETE SLAB AS SHOWN ABOVE.

5 / E-17 INSTALLATION DETAIL - FIXTURE TYPE 'SB'

6 / E-17 INSTALLATION DETAIL - FIXTURE TYPE 'SA' AND 'SAA'

RECORD DRAWING
DATE 5-20-92

33-01-85w

REVISIONS

SYM.	DESCRIPTION	DATE	BY

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

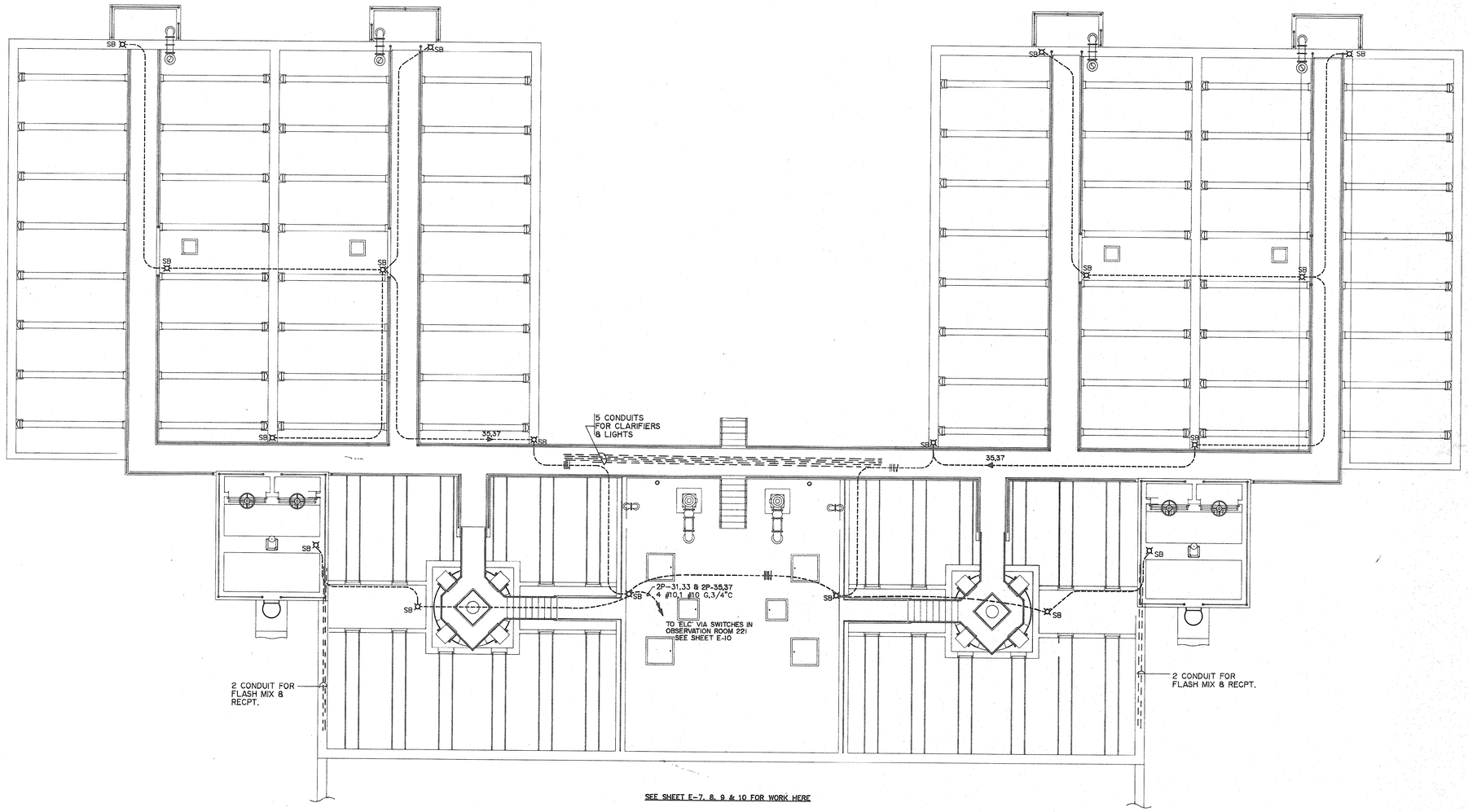
89079 — SOUTH CAROLINA PROFESSIONAL ENGINEER — No. 12783 — DAMASO LOPEZ

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

MAINTENANCE BUILDING AND DETAILS

DATE: MAR. 5-90
DESIGNED: DL.
DRAWN: RVT
CHECKED: DL
SCALE: AS NOTED
SHEET NO. E-17
OF. 18

DO NOT REMOVE - DISTRIBUTED 11/1/96



FILTER CLARIFIER FLOOR PLAN – LIGHTING

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

N

RECORD DRAWING
DATE 5-20-92

33-01-86 W

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWINGS	1-11-92	RAC

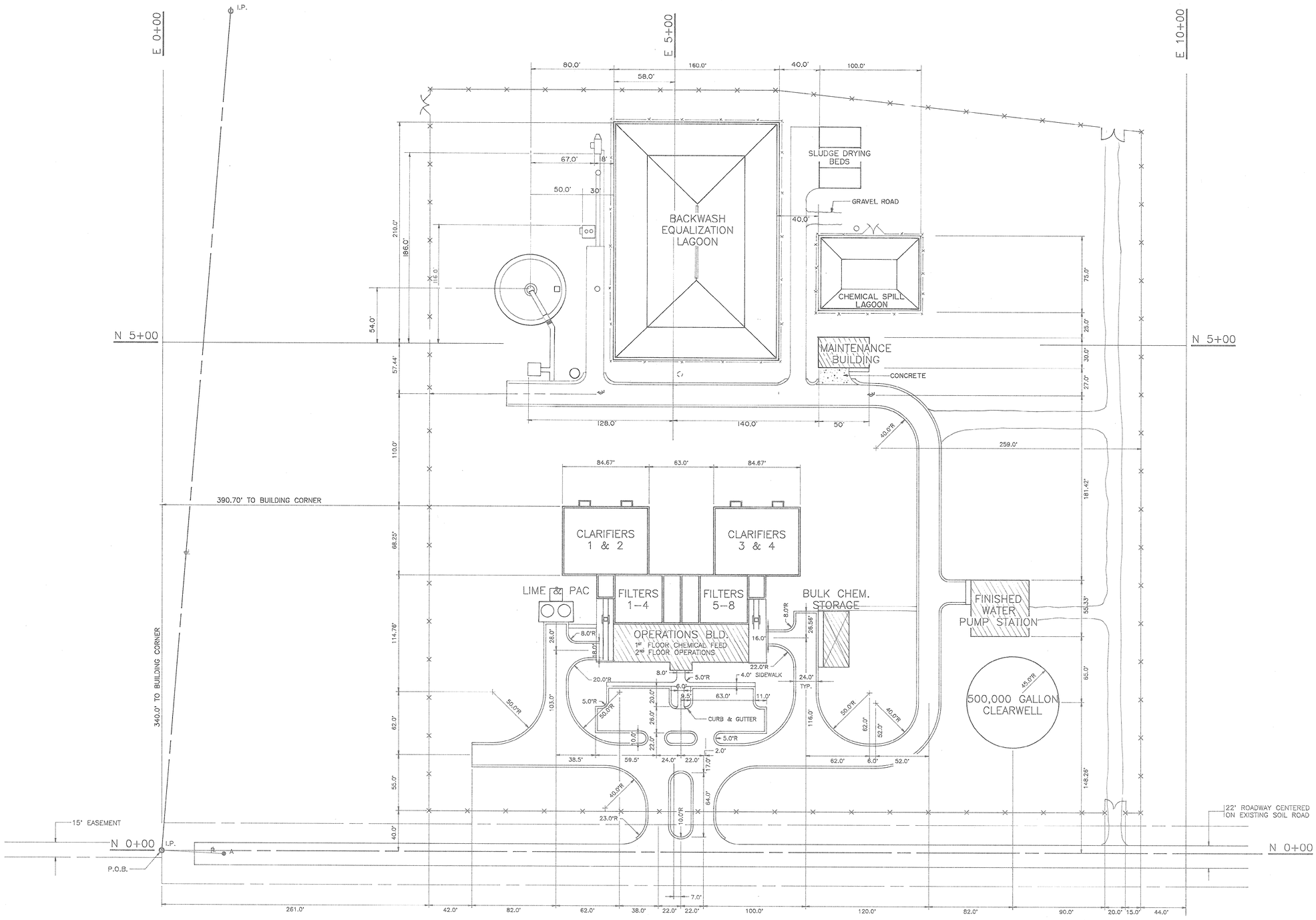
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

FILTER CLARIFIER LIGHTING PLAN

89079

DATE: MAR. 5 – 1990
DESIGNED: D.L.
DRAWN: D.M.
CHECKED: D.L.
SCALE: AS NOTED
SHEET NO. E-18
OF 18



PLANT LAYOUT
SCALE: 1" = 40'

NORTH

33-01-87w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWINGS	1-11-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER 9335 RICHARD A. McCRACKEN

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

PLANT LAYOUT

DATE: 3-5-90
DESIGNED: GW
DRAWN: GW
CHECKED: WW
SCALE: 1" = 40'-0"
SHEET NO. M-1
OF: 6

CONTRACT NO. - CATEGORY NO.

STAIR 111

ALUM 110

CORRIDOR 108

CHLORINE FEED 112

ANALYTICAL PANELS 105

CAUSTIC 120

CORROSION INHIBITOR 121

STORAGE 122

SODIUM ALUM 123

CORRIDOR 119

STORAGE 106

STORAGE 115

FLORIDE STORAGE 118

STORAGE 124

FILTER AIP FEED 114

POLYMER FEED 107

CHLORINE STORAGE 113

PILOT PLANT 117

BLOWER ROOM 125

BELOW LANDING

12x24 UP TO IH-1 ON ROOF MOD BELOW ROOF

16x24 UP TO IH-2 ON ROOF MOD BELOW ROOF

24x16

24x36 UP TO IH-3 ON ROOF MOD BELOW ROOF

24x36 UP

FAN SWITCH

24x30 LVR & MOD

FAN F-1

23x36 WALL LOUVER

FAN SWITCH

FAN F-2

FAN F-7

FAN F-3 & F-9 VENT. GIV (H-O-A)

24x16 UP

TO IH-2

TO F-6

TO F-9

10x6

10x8

10x4

10x10 UP TO FAN F-3 ON ROOF

18x10

O.E.D. 6'A.F.F.

14x10

14x11 UP TO FAN F-9 ON ROOF

FAN SWITCH

40x8 LVR & MOD

UP TO FAN F-5 ON ROOF

UP TO FAN F-6 ON ROOF

16x16 LVR.

FAN F-11

20x12

D.I. 2000 CFM

UH-1

UH-2

UH-3

UH-4

UH-5

UH-6

UH-7

UH-8

UH-9

UH-10

UH-11

30x30 LVR & MOD

30x16 LVR & MOD

24x16 LVR & MOD

NORTH

NOTE:

ALL CONTROL WIRING FOR FANS F-1, F-2 & F-4 INCLUDING INTAKE HOODS IH-2 & IH-3 I/O DAMPERS SHALL BE BY DIV. 16 ELECTRICAL.

FIRST FLOOR PLAN

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

33-01-88w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWINGS	1-11-92	RAC

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

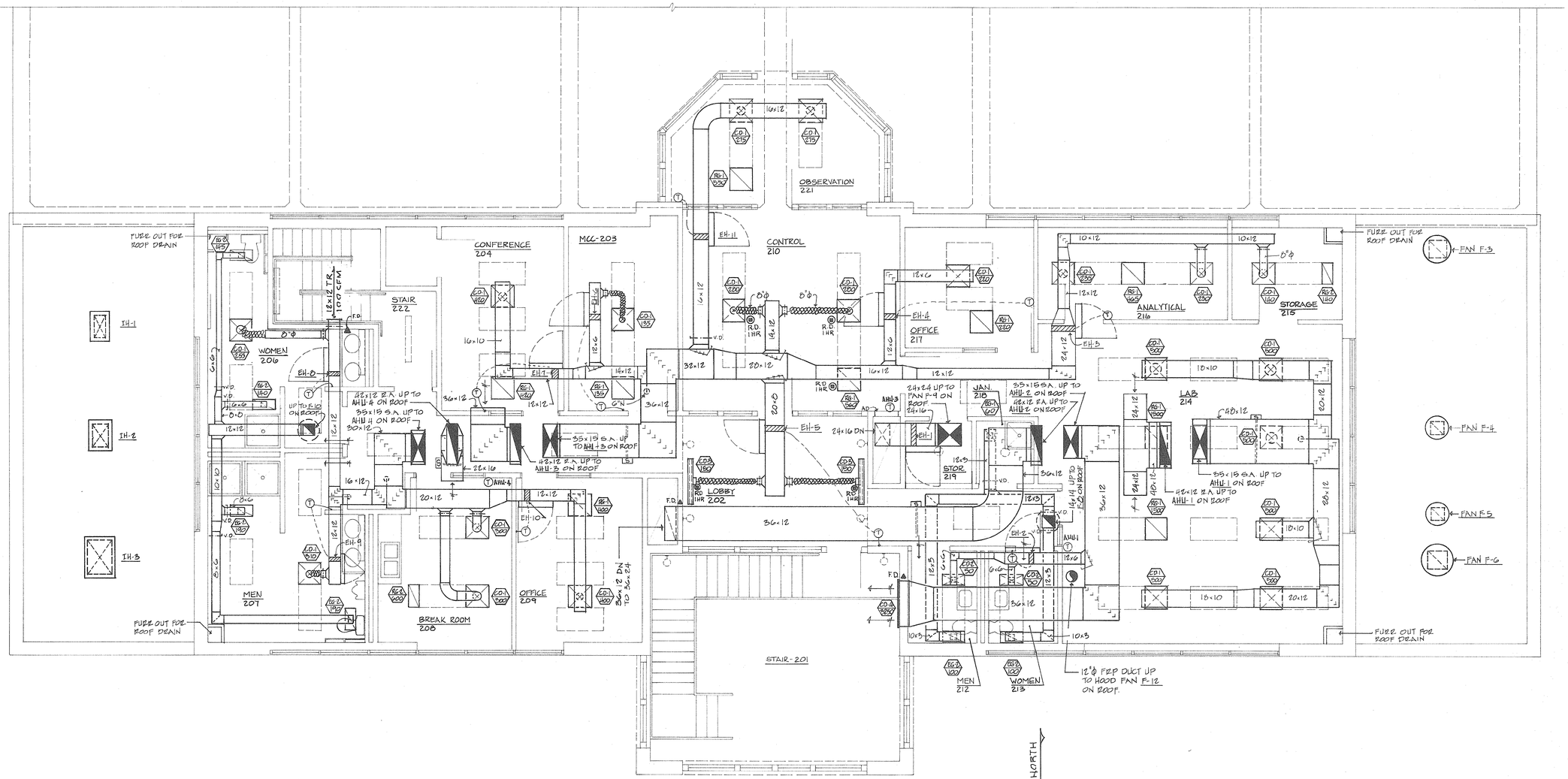
SOUTH CAROLINA PROFESSIONAL ENGINEER 9336 RICHARD A. MACPHERSON

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

OPERATIONS BUILDING FIRST FLOOR PLAN

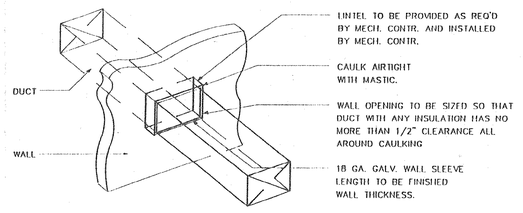
DATE: 3-5-90
DESIGNED: GW
DRAWN: GW
CHECKED: WW
SCALE: 1/4" = 1'-0"
SHEET NO. M-2
OF: 6

LOUREN PHOTO - GEORGIA NOTHE



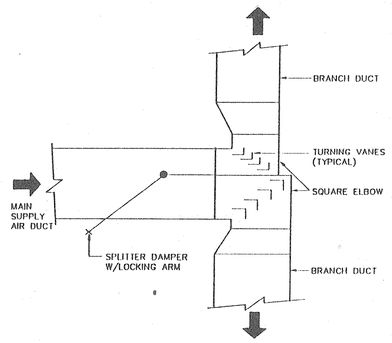
SECOND FLOOR PLAN

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



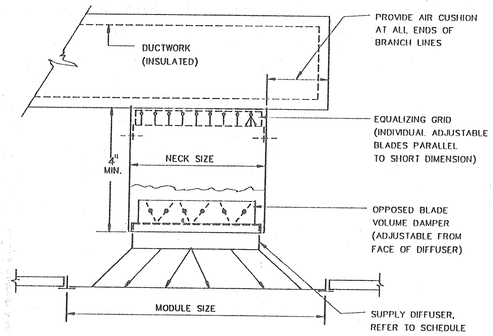
WALL SLEEVE FOR DUCTS

NTS



HORIZONTAL SUPPLY AIR SPLITTER DAMPER DETAIL

NTS



CEILING DIFFUSER DETAIL

NO SCALE

33-01-89w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY

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CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

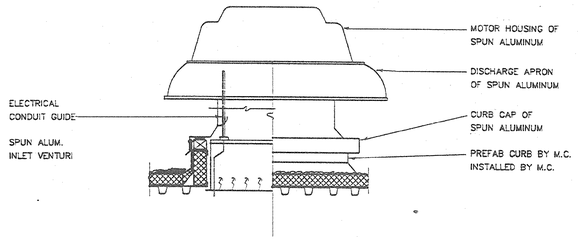
SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER 9335 RICHARD A. McCRACKEN

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

OPERATIONS BUILDING
SECOND FLOOR PLAN

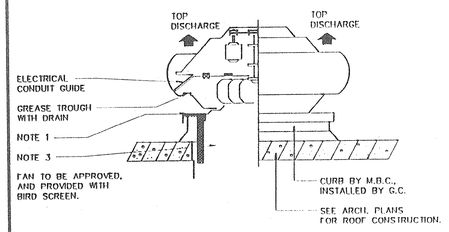
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DESIGNED: GW
DRAWN: GW
CHECKED: WW
SCALE: AS NOTED
SHEET NO. M-3
OF: 6

SOUTHERN PHOTO - BLUEPRINTERS 767-1144



ROOF TOP EXHAUST FAN DETAIL

NOT TO SCALE

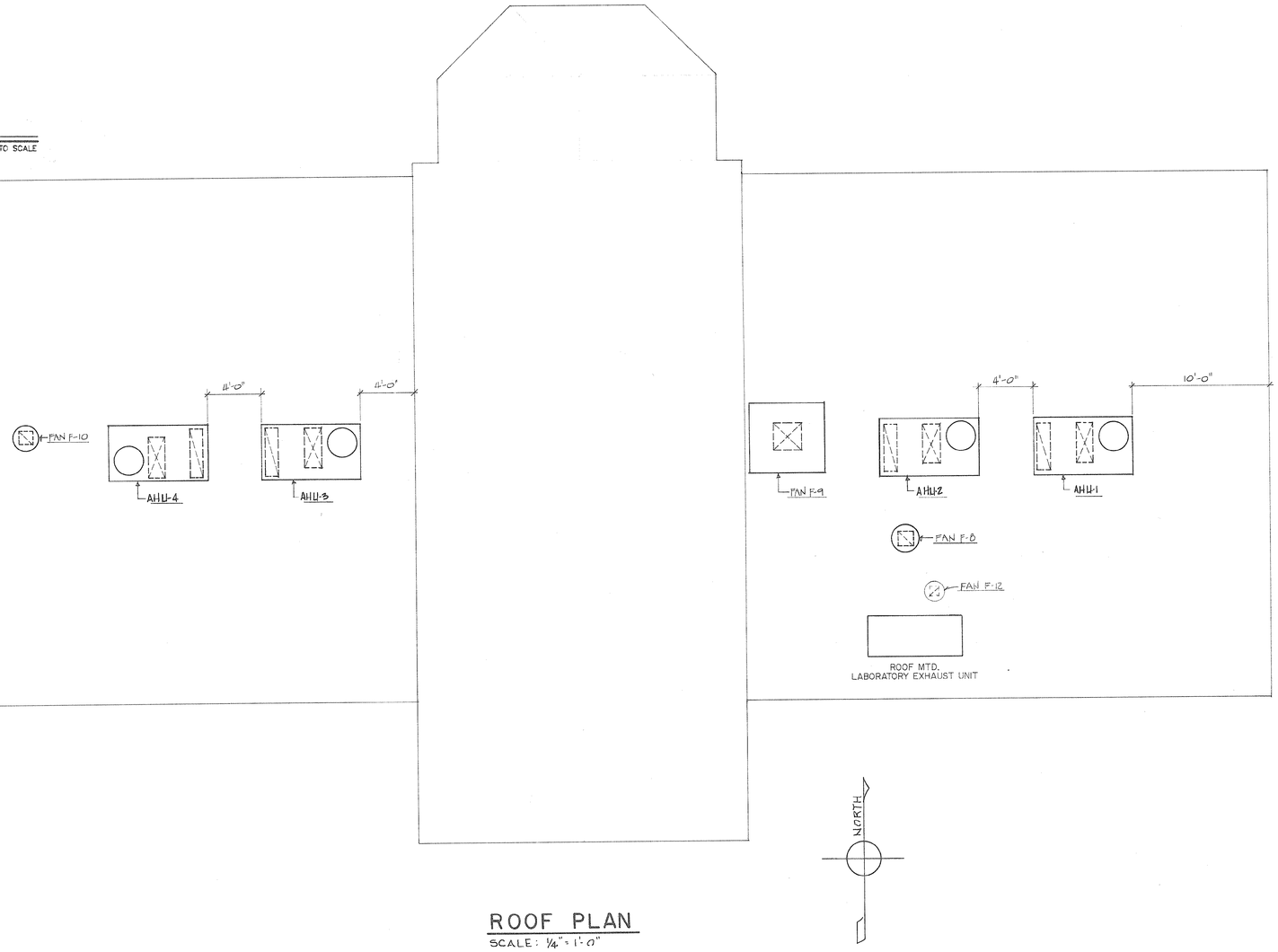


NOTES:

1. SECURE FAN TO CURB WITH SHEET METAL SCREWS 1'-0" ON CENTER, ALL AROUND.
2. NON-FERROUS FASTNERS TO PERMIT DOME REMOVAL FOR ACCESS TO MOTOR.
3. M.B.C. AND G.C. SHALL VERIFY AND COORDINATE ROOF OPENINGS WITH SUBMITTED ITEMS PRIOR TO INSTALLATION.

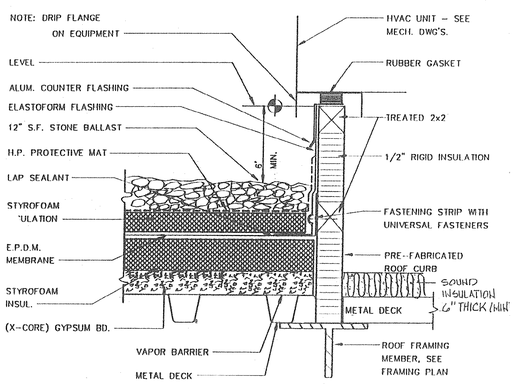
ROOF EXHAUSTER

NTS



ROOF PLAN

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



ROOF CURB DETAIL for ROOFTOP HVAC

NO SCALE

33-01-90w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-20-92	RAC

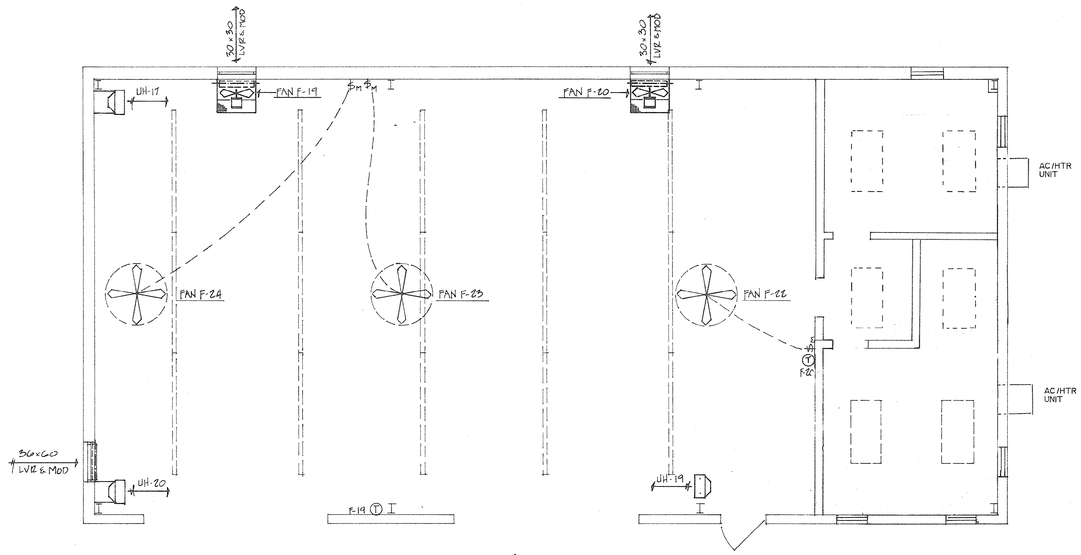
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SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER 9335 RICHARD A. McCRACKEN

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

OPERATIONS BUILDING ROOF PLAN

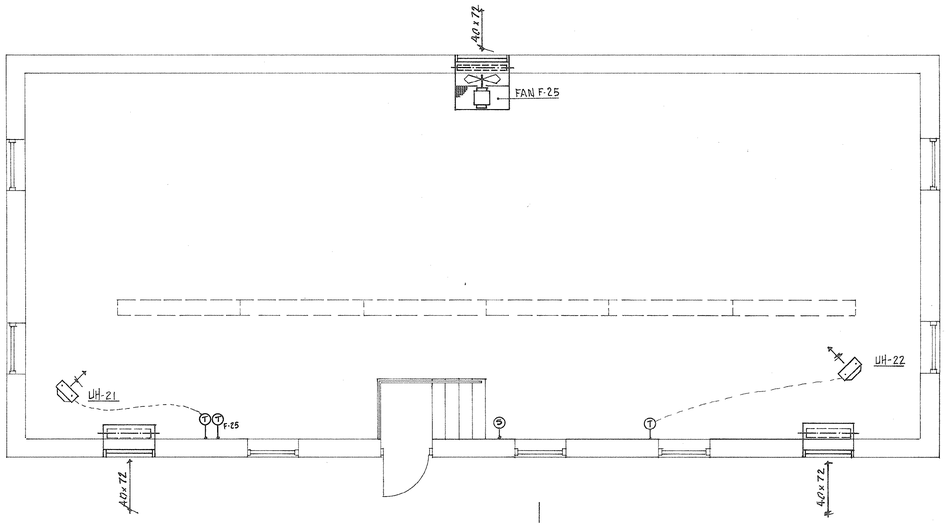
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CHECKED: WW
SCALE: AS NOTED
SHEET NO. M-4
OF: 6



MAINTENANCE BUILDING

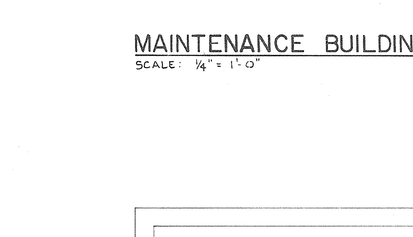
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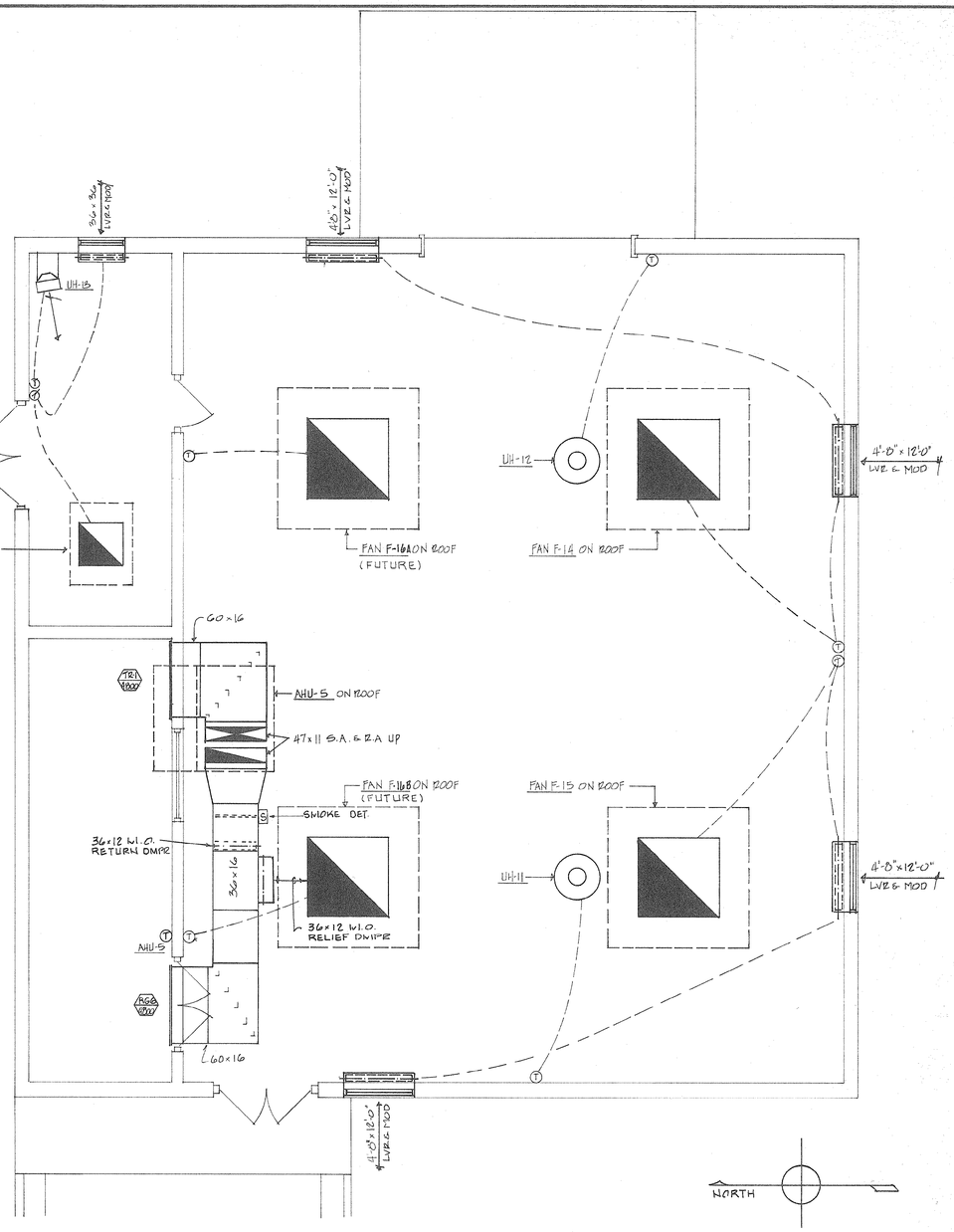
BULK STORAGE BUILDING

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



POLYMER BUILDING

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



FINISHED WATER PUMP STATION

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

33-01-91w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
	RECORD DRAWING	1-16-92	RAC

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SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER 9339 RICHARD A. McCRACKEN

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

FINISHED WATER PUMP STAT. MAINTENANCE, BULK STORAGE AND POLYMER BUILDINGS

DATE: 3-5-90
DESIGNED: GW
DRAWN: GW
CHECKED: WW
SCALE: AS NOTED
SHEET NO.: M-5
OF: 6

SOUTHERN PHOTO - REPRODUCTION 107918

ROOFTOP AIR CONDITIONERS

LOCATION	DESIGNATION	TRANE MODEL NO.	COMPRESSOR DATA NO	SIZE HP	STEPS	RPM	EVAPORATOR FAN NO	SIZE	TYPE	CFM	SP EXTERNAL	HP	RPM	ELECTRICAL DATA VOLTS	PHASE	STARTER	CONDENSER FAN DATA NO	SIZE	TYPE	DRIVE	HP	ELECTRICAL DATA VOLTS	PHASE	STARTER	EVAPORATOR COIL DATA TYPE	SIZE SQ. FT	ROWS	FINS	CONDENSER COIL DATA TYPE	SIZE SQ. FT	ROWS	FINS	HEATING SECTION TYPE	KW	VOLTS	PHASE	FILTER DATA TYPE	NO	SIZE	EFF.	REMARKS
OPERATIONS BUILDING	AHU-1	WCD090	1	7.5	—	3,450	1	—	CENT.	3,000	1.0"	2	1136	460	3	UNIT MT'D	1	24"	PROP.	DIRECT	1/2	460	1	UNIT MT'D	PLATE FIN.	7.88	2	15	PLATE FIN.	12.9	2	16	ELECT.	9	460	3	THROW A WAY	3	2x 16x 25	30%	NOTE 1,2,5,6
	AHU-2	WCD090	1	7.5	—	3,450	1	—	CENT.	3,000	1.0"	2	1136	460	3	UNIT MT'D	1	24"	PROP.	DIRECT	1/2	460	1	UNIT MT'D	PLATE FIN	7.88	2	15	PLATE FIN	12.9	2	16	ELECT.	9	460	3	THROW A WAY	3	2x 16x 25	30%	NOTE 1,2,5,6
	AHU-3	WCD075	1	6.5	—	3,450	1	—	CENT.	2,500	1.0"	1.5	1015	460	3	UNIT MT'D	1	24"	PROP.	DIRECT	1/2	460	1	UNIT MT'D	PLATE FIN	7	2	15	PLATE FIN	11.5	2	16	ELECT.	9	460	3	THROW A WAY	3	2x 16x 25	30%	NOTE 1,2,5,6
	AHU-4	WCD075	1	6.5	—	3,450	1	—	CENT.	2,500	1.0"	1.5	1015	460	3	UNIT MT'D	1	24"	PROP.	DIRECT	1/2	460	1	UNIT MT'D	PLATE FIN	7	2	15	PLATE FIN	11.5	2	16	ELECT.	9	460	3	THROW A WAY	3	2x 16x 25	30%	NOTE 1,2,5,6
FINISHED WATER PUMP STATION	AHU-5	BTC130G	2	5	100/50/OFF	3,450	1	—	CENT.	4,800	1.25"	7.5	1274	460	3	UNIT MT'D	3	20"	PROP.	DIRECT	1/2	460	1	UNIT MT'D	TWO CIRCUIT	11.46	4	12	TWO CIRCUIT	23.91	2	15	——	——	——	——	THROW A WAY	6 2	2x 16x 25 2x 20x 20	30%	NOTE 1,3,4,6

ELECTRIC HEATER SCHEDULE

UNIT NO.	TYPE	MANUFACTURER & MODEL NO.	KW HEAT	VOLTS	PHASE	LOCATION	REMARKS
EH-1	DUCT	INDEECO FINNED TUB.	15	480	3	STORAGE 219	3 STAGE (24 X 16)
EH-2	DUCT	INDEECO FINNED TUB.	1.5	480	3	TOILET 213	1 STAGE (12 X 6)
EH-3	DUCT	INDEECO FINNED TUB.	5	480	3	LAB 214	2 STAGE (24 X 12)
EH-4	DUCT	INDEECO FINNED TUB.	2	480	3	CONTROL 210	1 STAGE (12 C 6)
EH-5	DUCT	INDEECO FINNED TUB.	2.5	480	3	LOBBY 202	1 STAGE (20 X 8)
EH-6	DUCT	INDEECO FINNED TUB.	1.5	480	3	MCC 203	1 STAGE (12 X 6)
EH-7	DUCT	INDEECO FINNED TUB.	4	480	3	CONF. 204	2 STAGE (12 X 12)
EH-8	DUCT	INDEECO FINNED TUB.	3	480	3	TOILET 206	2 STAGE (12 X 12)
EH-9	DUCT	INDEECO FINNED TUB.	3	480	3	TOILET 207	2 STAGE (12 X 12)
EH-10	DUCT	INDEECO FINNED TUB.	3	480	3	OFFICE 210	2 STAGE (12 X 12)\
EH-11	DUCT	INDEECO FINNED TUB.	6	480	3	CONTROL 210	2 STAGE (16 X 12)
UH-1	CORROS. RESIST.	CHROMALOX - HDH	3	208	1	CL2 FEED 112	WITH WCRT-100 T'STAT
UH-2	HORIZ.	CHROMALOX - LUH	2	208	1	BLOWER 125	WITH WALL MT'D T'STAT
UH-3	WALL	ELECTROMODE EWA	1.5	120	1	ENTRY STAIR 101	RECESSED
UH-4	WALL	ELECTROMODE EWA	1.5	120	1	ENTRY STAIR 101	RECESSED
UH-5	WALL	ELECTROMODE EWA	1.5	120	1	ENTRY STAIR 111	RECESSED
UH-6	WALL	ELECTROMODE EWA	1.5	120	1	ENTRY CORR. 119	RECESSED
UH-7	HORIZ.	CHROMALOX - LUH	2.6	208	1	POLYMER FEED 107	SALL MT'D T'STAT
UH-8	CORROS. RESIST.	CHROMALOX - HDH	3	208	1	FLORIDE STOR. 118	WITH WCRT-100 T'STAT
UH-9	HORIZ.	CHROMALOX - LUH	2	208	1	FILTER AIR 114	WALL MT'D T'STAT
UH-10	WALL	ELECTROMODE - EWA	1.5	480	3	PILOT PLANT 117	RECESSED
UH-11	VERT.	CHROMALOX - VUH	7.5	480	3	FINISH PUMP STAT.	WITH LVR DIFFUSER & WALL T'STAT
UH-12	VERT.	CHROMALOX - VUH	7.5	208	1	FINISH PUMP STAT.	WITH LVR DIFFUSER & WALL T'STAT
UH-13	HORIZ.	CHOMOALOX - LUH	2	208	1	FINISH PUMP STAT.	WITH WALL MT'D T'STAT
UH-14	HORIZ.	CHROMALOX-LUH	3	208	1	POLYMER BLDG.	UNIT MT'D T'STAT
UH-15	BASE BOARD	AMERICAN STABICIS DBTS	250 WT/FT	240 *	1	MAINT. BLDG.	W/ CONTROL SECTION T'STAT DISCONNECT SWITCH
UH-16	BASE BOARD	AMERICAN STABICIS DBTS	250 WT/PT	240 *	1	MAINT. BLDG.	W/ CONTROL SECTION T'STAT DISCONNECT SWITCH
UH-17	HORIZ.	CHROMALOX-LUH	10	480	3	MAINT. BLDG.	UNIT MT'D T'STAT
UH-18	HORIZ.	CHROMALOX-LUH	10	480	3	MAINT. BLDG.	UNIT MT'D T'STAT
UH-19	HORIZ.	CHROMALOX-LUH	10	480	3	MAINT. BLDG.	UNIT MT'D T'STAT
UH-20	HORIZ.	CHROMALOX-LUH	10	480	3	MAINT. BLDG.	UNIT MT'D T'STAT
UH-21	CORROS. RESIST	CHROMALOX- HDH	5	480	3	BULK CHEM. STOR.	WITH WCRT-100 T'STAT
UH-22	CORROS. RESIST	CHROMALOX- HDH	5	480	3	BULK CHEM. STOR.	WITH WCRT-100 T'STAT

NOTES:
1 - PROVIDE ROOF CURB.
2 - UNIT TO BE HEAT PUMP.
3 - LOW AMBIENT CONTROL TO 0°F.
4 - ECONOMIZER CONTROL
5 - EXTEND UNIT DRAIN TO ROOF DRAIN.
6 - SINGLE POWER CONNECTION.
* - UH-15 & UH-16 SHALL BE RATE FOR 240V, BUT CONNECTE TO 208 SERVICE

HOOD SCHEDULE

UNIT NO.	SERVICE	OVERALL SIZE	ROOF OPENING	PD W/ DDMPR.	CFM	REMARKS
IH-1	INTAKE F-1	20"x 32"x 15"	12"x 24"	0.25"	1560	M.O. DAMPER & FILTER
IH-2	INTAKE F-7	24"x 32"x 15"	16"x 24"	0.25"	1975	M.O. DAMPER & FILTER
IH-3	INTAKE F-2	32"x 44"x 18"	24"x 36"	0.25"	3185	M.O. DAMPER & FILTER

FAN SCHEDULE

LOCATION	DESIGNATION	GREENHECK MODEL	CFM	E.S.P.	TYPE	DRIVE	FEATURES	ELECTRICAL CHARACTERISTICS
OPERATIONS BUILDING	F-1	SDE-14	1600	0.375	EXH. PROP.	DIRECT	EXPOY COATED FAN GUARD, M.O. DAMPER	1/4 HP, 115 V, 1ø,
	F-2	SDE-20	3200	0.375	EXH. SIDEWALL	DIRECT	EXPOY COATED, M.O. DAMPER	1/2 HP, 460V, 3ø,
	F-3	CUBE-14	1035	0.50	EXH. CENT.	V-BELT	EXPOY CAOTED, M.O. DAMPER EXTENDED CURB	1/4 HP, 115 V, 1ø,
	F-4	CUBE-10	680	0.375	EXH. CENT.	V-BELT	EXPOY COATED, EXTENDED CURB	1/4 HP, 115V, 1ø,
	F-5	CUBE-10	650	0.50	EXH. CENT.	V-BELT	EXPOY COATED, M.O. DAMPER, EXTENDED CURB	1/4 HP, 115V, 1ø,
	F-6	CUBE-18	1600	0.50	EXH. CENT.	V-BELT	M.O. DAMPER, EXTENDED CURB	1/4 HP, 115 V, 1ø,
	F-7	CUBE-18	1975	0.50	EXH. CENT.	V-BELT	M.O. DAMPER, EXTENDED CURB	1/3 HP, 115 V, 1ø,
	F-8	GB-8	260	0.50	EXH. CENT.	V-BELT	AUTO (GRAV) DAMPER EXTENDED CURB	1/4 HP, 115 V, 1ø,
	F-9	RPS-24L-TB	1672	1.00	FLT. SUPPLY	V-BELT	2" FILTERS-30% EFF. M.O. DAMPER, EXTENDED CURB	1/4 HP, 115 V, 1ø,
	F-10	CUBE-10	665	0.50	EXH. CENT.	V-BELT	AUTO (GRAV) DAMPER EXTENDED CURB	1/4 HP, 115 V, 1ø,
	F-11	SDE-14	1420	0.25	EXH. CENT.	V-BELT	AUTO (GRAV) DAMPER MOTOR SIDE GUARD	1/4 HP, 115 V, 1ø,
	F-12	LAB HOOD EXHAUST FANS TO BE FURNISHED BY OTHERS INSTALLED BY MECHANICAL						
	F-13 (FUTURE)	SDE-14	1600	0.375	EXH. PROP.	DIRECT	EPOXY COATED FAN GUARD, M.O. DAMPER	1/4 HP, 115V, 1ø,
FINISH WATER PUMP STATION	F-14	GB-48	20,500	0.375	EXH. CENT.	V-BELT	M.O. DAMPER,	5 HP, 460V, 3ø,
	F-15	GB-48	20,500	0.375	EXH. CENT.	V-BELT	M.O. DAMPER,	5 HP, 460V, 3ø,
	F-16A (FUTURE)	GB-48	20,500	0.375	EXH. CENT.	V-BELT	M.O. DAMPER,	5 HP, 460V, 3ø,
	F-16B (FUTURE)	GB-48	20,500	0.375	EXH. CENT.	V-BELT	M.O. DAMPER,	5 HP, 460V, 3ø,
	F-17	RPE-24H	3,000	0.375	EXH. PROP.	V-BELT	M.O. DAMPER,	1/2 HP, 460V, 3ø,
POLYMER BUILDING	F-18	SDE-16	2,100	0.375	EXH. PROP.	DIRECT	M.O. DAMPER MOTOR SIDE GUARD	1.3 HP, 115 V, 1ø,
MAINTENANCE BUILDING	F-19	SPN-24	5,300	0.375	EXH. PROP.	V-BELT	M.O. DAMPER MOTOR SIDE GUARD	1 HP, 460V, 3ø,
	F-20	SPN-24	5,300	0.375	EXH. PROP.	V-BELT	M.O. DAMPER MOTOR SIDE GUARD	1 HP, 460V, 3ø,
	F-21	DAYTON-3 SPEED 3C690	HI: 18,600	——	CEILING FAN 48" DIA.	DIRECT	T'STAT W/ 3-SPEED SWITCH	65 W, 0.6 AMP, 115 V, 1ø
	F-22	DAYTON-3 SPEED 3C690	MD: 11,200 LO:	——	CEILING FAN 48" DIA.	DIRECT	T'STAT W/ 3-SPEED SWITCH	65 W, 0.6 AMP, 115 V, 1ø
	F-23 & 24	DAYTON-3 SPEED 3C690	6,200	——	CEILING FAN 48" DIA.	DIRECT	T'STAT W/ 3-SPEED SWITCH	65 W, 0.6 AMP, 115V, 1ø
BULK STORAGE	F-25	SPN-24	9,000	0.375	EXH. PROP.	V-BELT	M.O. DAMPER MOTOR SIDE GUARD	1 1/2 HP, 460V, 3ø,
MAINT. BLDG.	F-26	SDE-16	1600	0.25	EXH. PROP.	DIRECT	M.O. DAMPER DISCH. GUARD	1/4 HP, 115 V, 1ø,

AIR DISTRIBUTION DEVICE SCHEDULE

DESIGNATION	TITUS MODEL NO.	MAXIMUM CFM	PANEL SIZE	NECK SIZE	FINISH	ACCESSORIES
TR-1	121R	4,800	60x 16	60x 16	#25W	
TR-2	121R	1,975	24x 16	24x 16	#25W	
CD-1	PAS	SEE PLAN	24x 24	AS REQ'D	#25W	
CD-2	PAS	SEE PLAN	12x 24	AS REQ'D	#25W	
CD-3	CT-481	37CFM/FT	48x 2	——		
CD-4	33RS	SEE PLAN	48x 16	48x 16	#25W	
CD-5	33RL	SEE PLAN	24x 20	24x 20	#25W	
RG-1	PAR	SEE PLAN	24x 24	22x 22	#25W	
RG-2	PAR	SEE PLAN	12x 24	11x 22	#25W	
RG-3	13RS	SEE PLAN	24x 36	24x 36	#25W	
RG-4	13RL	SEE PLAN	12x 12	12x 12	#25W	
RG-5	13RL	SEE PLAN	10x 12	18x 12	#25W	
RG-6	13RL	4,800	60x 24	60x 24	#25W	
EG-1	PAR	SEE PLAN	12x 12	11x 11	#25W	
EG-2	PAR	SEE PLAN	12x 24	11x 22	#25W	

33-01-92 W

REVISIONS SYM.	DESCRIPTION	DATE	BY

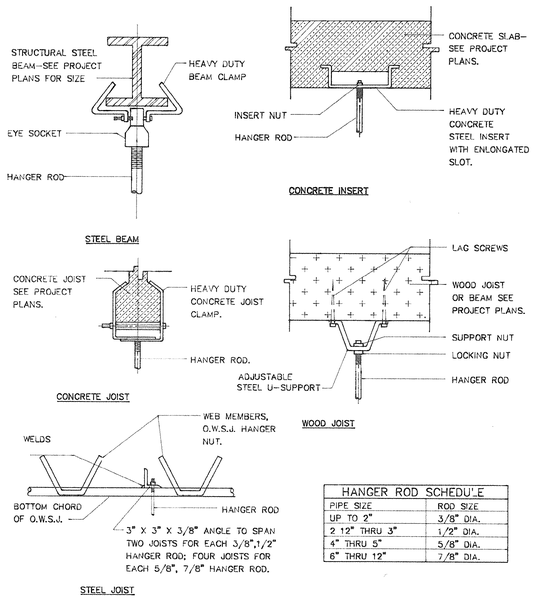
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER 9335 RICHARD A. McCRACKEN

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

EQUIPMENT SCHEDULE

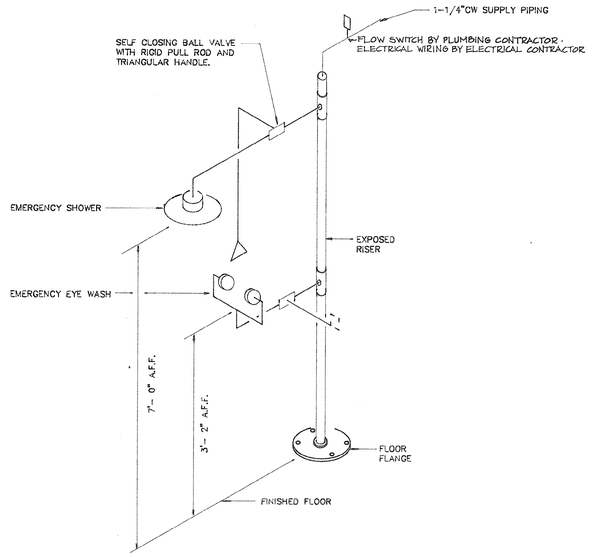
DATE: 3-5-90
DESIGNED: G.W.
DRAWN: D.M.
CHECKED: R.A.M.
SCALE: NONE
SHEET NO.: M-6
OF: 6



HANGER ROD SCHEDULE	
PIPE SIZE	ROD SIZE
UP TO 2"	3/8" DIA.
2 1/2" THRU 3"	1/2" DIA.
4" THRU 5"	5/8" DIA.
6" THRU 12"	7/8" DIA.

PIPE HANGER ATTACHMENT—VARIOUS STRUCTURES

N.T.S.



COMBINATION EMERGENCY SHOWER/EYEWASH STATION

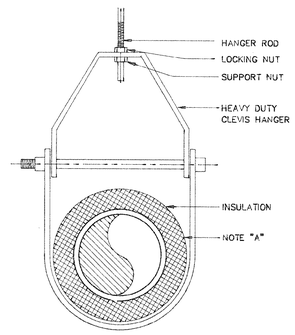
N.T.S.

PLUMBING FIXTURE ROUGH—IN SCHEDULE

DESIGNATION	DESCRIPTION	PIPE SERVICE CONNECTIONS					REMARKS
		C.W.	H.W.	TRAP	WASTE	VENT	
WC-1	WATER CLOSET	1 1/4"	—	INTEGRAL	4"	2"	
UR-1	URINAL	3/4"	—	INTEGRAL	2"	1 1/2"	MOUNT 24" FROM FLOOR TO RIM
L-1	LAVATORY	1/2"	1/2"	1 1/4 X 1 1/2" P-TRAP	1 1/2"	1 1/2"	PROVIDE 30" FROM FLOOR TO RIM
SH-1	SHOWER	1/2"	1/2"	2" P-TRAP	2"	2"	
ES-1	EMERGENCY SHOWER AND EYE WASH	1 1/4"	—	—	—	—	
ES-2	EMERGENCY SHOWER	1 1/4"	—	—	—	—	
CL-1	COUNTERTOP SINK	1/2"	1/2"	1 1/4 X 1 1/2" P-TRAP	1 1/2"	1 1/2"	
CS-1	COUNTERTOP SINK	1/2"	1/2"	1 1/4 X 1 1/2" P-TRAP	1 1/2"	1 1/2"	
EWC-1	ELECTRIC WATER COOLER	1/2"		1 1/4 X 1 1/2" P-TRAP	1 1/2"	1 1/2"	RIM SHALL BE 36" A.F.F.
EWH-1	ELECTRIC WATER HEATER	1"	1"	—	—	—	9 KW., 480 V. 3 ϕ
FD-1	FLOOR DRAIN	—	—	3"	3"	2"	
FD-2	FLOOR DRAIN	—	—	3"	3"	2"	
FD-3	FLOOR DRAIN	—	—	3"	3"	2"	
WH-1	WALL HYDRANT	3/4"	—	—	—	—	CENTERLINE 18" ABOVE FINISHED GRADE
HB-1	HOSE BIBB	3/4"	—	—	—	—	CENTERLINE 18" ABOVE FINISHED FLOOR
MB-1	MOP BASIN	1/2"	1/2"	3" P-TRAP	3"	2"	
SS-1	SERVICE SINK	1/2"	1/2"	2"	2"	2"	
WB-1	WASH BOX	1/2"	1/2"	—	—	—	PROVIDE HINGED COVER/ MOUNT BOX 48" ABOVE FINISHED FLOOR.

SYMBOLS & ABBREVIATIONS

- SOIL OR WASTE PIPING (BELOW GRADE)
- SOIL OR WASTE PIPING (ABOVE GRAD)
- —AW— ACID WASTE PIPING (BELOW GRADE)
- —AW— ACID WASTED PIPING (ABOVE GRADE)
- —S— STORM DRAINAGE PIPING (BELOW GRADE)
- —S— STORM DRAINAGE PIPING (ABOVE GRADE)
- —V— VENT PIPING
- COLD WATER PIPING
- HOT WATER PIPING
- HOT WATER RECIRCULATING PIPING
- —P— PROCESS WATER PIPING
- —RL— ROOF LEADER PIPING
- ELL TURNS UP; DOWN
- ELL TURNING UP; DOWN
- GATE VALVE
- GLOBE VALVE
- CHECK VALVE
- LOCATION OF NON—POTABLE WATER SIGN
- R.D. ROOF DRAIN
- C.I. CAST IRON
- CO. CLEANOUT AT FINISHED FLOOR
- F.D. FLOOR DRAIN
- H.B. HOSE BIBB
- BALANCING COCK
- DIRECTION OF FLOW
- ECCENTRIC REDUCER

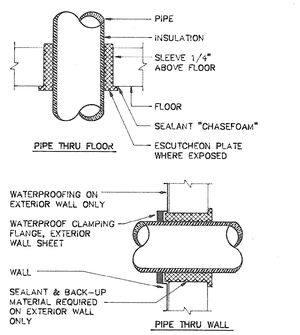


NOTE "A" PROVIDE INSULATION PROTECTION—SEE SPECIFICATIONS

HANGER ROD SPACING											
PIPE SIZE	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"
MAX. ALLOWABLE SPACING	8 FT	8 FT	10 FT	10 FT	12 FT	12 FT	12 FT	12 FT	12 FT	12 FT	12 FT
NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST PIPE ON TRAPEZE.											

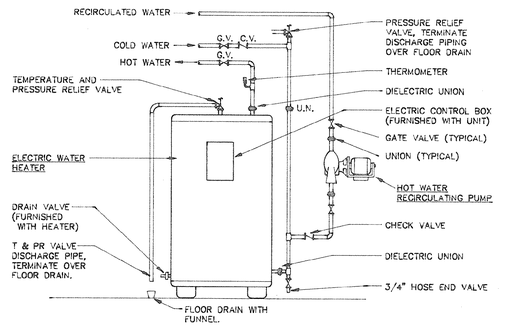
CLEVIS HANGER DETAIL

N.T.S.



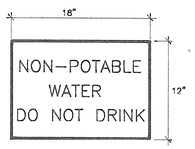
PIPE SLEEVE DETAILS

NTS



ELECTRIC BOILER (HOT WATER) DETAIL

N.T.S.



NOTES:

1. LOCATE THIS SIGN (RED WITH WHITE LETTERS) ON ALL HOSE BIBBS OR FAUCETS SERVED BY PROCESS WATER LINES.
2. THIS SYMBOL (⊞) DENOTES SIGN LOCATIONS.
3. SIGNS SHALL BE 1/8" THICK OF PHENOLIC MATERIAL WITH ALL FOUR FACE EDGES BEVELED 45 DEGREES. LETTERING SHALL BE MACHINE ENGRAVED TO EXPOSED INNER CORE COLOR. LETTERS SHALL BE SECURELY FASTENED WITH SCREWS AND EXPANSION SHIELDS IN APPLICABLE LOCATIONS, ADHESIVE BACKING SHALL NOT BE ACCEPTABLE.

NON—POTABLE WATER SIGN DETAIL

NOT TO SCALE

33-01-93w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER 9335 RICHARD A. McCRACKEN

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

SYMBOL SCHEDULE, FIXTURE SCHEDULE

DATE: 5-5-93
DESIGNED: R.S.
DRAWN: D.M.
CHECKED: R.A.M.
SCALE: AS NOTED
SHEET NO. P-1
OF: 3

6" ROOF DRAIN LEADER FROM (2) 4" PIPES FROM ABOVE

4" ROOF DRAIN LEADER FROM ABOVE

CONNECT TO RAW WATER PIPING - REFER TO SHEET

CONNECT TO SETTLED WATER PIPING - REFER TO SHEET

6" ROOF DRAIN LEADER FROM (2) 4" PIPES FROM ABOVE

4" ROOF DRAIN LEADER FROM ABOVE.

STAIR 111

ALUM 110

ANALYTICAL PANELS 105

CAUSTIC 120

CORROSION INHIBITOR 121

STORAGE 122

SODIUM ALUM 123

CHLORINE FEED 112

CORRIDOR 108

CORRIDOR 119

STORAGE 124

CHLORINE STORAGE 113

POLYMER FEED 107

STORAGE 106

FILTER AIR FEED 114

STORAGE 115

CHLORIDE STORAGE 116

PILOT PLANT 117

BLOWER ROOM 125

PIPING BELOW SLAB

(PIPING BELOW SLAB)

ROUTE RELIEF VALVE PIPING TO FLOOR DRAIN

(RAW WATER) HB-1
(SETTLED WATER) HB-1
(FINISHED WATER) HB-1

FOR CONTINUATION REFER TO SHEET EN-26

FOR CONTINUATION REFER TO SHEET

4" ROOF DRAIN LEADER FROM ABOVE

FOOTING (TYPICAL)

1/2" H/C WATER SUPPLY TO 16"X16" SS SINK BELOW

1/2" TRTD. / FILT. / SETTLD WATER SAMPLE LINES (CAPPED)

PROVIDE GATE VALVE IN VERTICAL

FOR CONTINUATION, REFER TO SHEET G-5

1/2" SCH 40 STEEL GAS PIPING TO LAB.

TERMINATE 6" LINE 5 FEET FROM JUNCTION

FIRST FLOOR PLAN

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

N

NOTES:

1. PROVIDE A 4" THICK HOUSEKEEPING PAD FOR THE DOMESTIC WATER HEATER.
2. TYPICALLY, THE WALLS EXTEND UP TO THE SECOND FLOOR SLAB. PROVIDE PIPE SLEEVES THROUGH ALL MASONRY WALLS.
3. DROP PIPING THROUGH MASONRY WALLS TO HOSE BIBBS AS INDICATED ON THE PLANS.
4. THE PLUMBING CONTRACTOR SHALL RUN PROCESS WATER, POTABLE WATER, ACID WASTE, STORM WASTE AND SANITARY WASTE 5'-0" OUTSIDE BUILDING. CONNECTION AND EXTENSION OF PIPING SHALL BE PROVIDED BY THE GENERAL CONTRACTOR.
5. INSULATE UNDERBODIES OF ALL ROOF DRAINS.

33-01-94w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

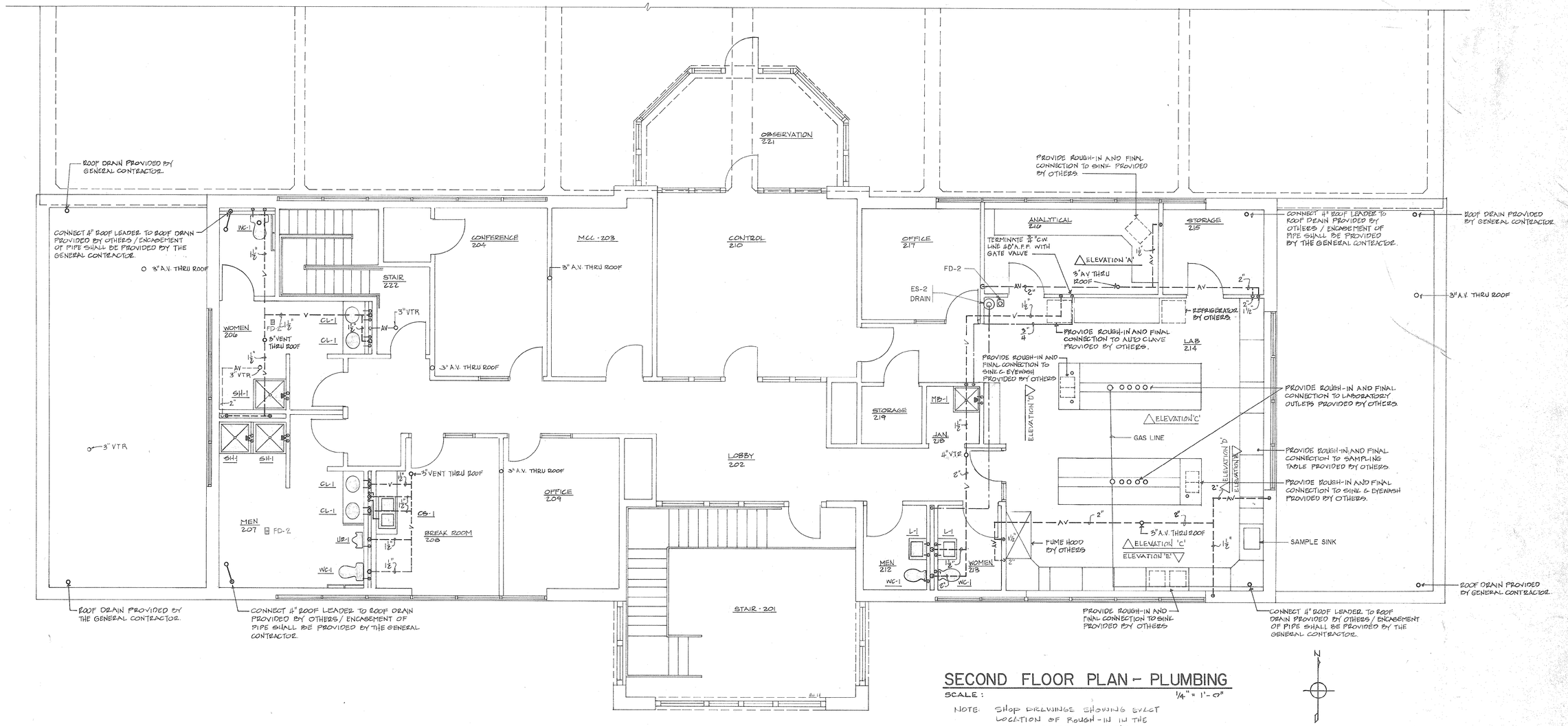
SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER 9335 RICHARD A. McCRACKEN

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

OPERATIONS BUILDING
FIRST FLOOR PLAN — PLUMBING

DATE: 3-5-90
DESIGNED: R.S.
DRAWN: J.K.
CHECKED: R.A.M.
SCALE: AS NOTED
SHEET NO. P-2
OF: 3

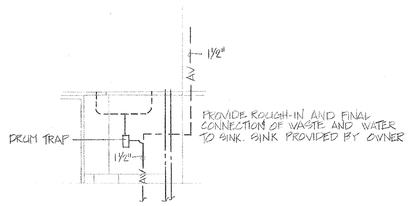
SOUTHERN PHOTO-DUPLICATING 1/27/94



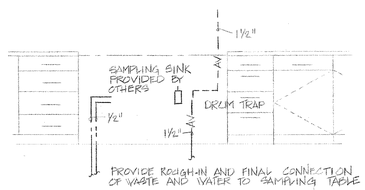
SECOND FLOOR PLAN – PLUMBING

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

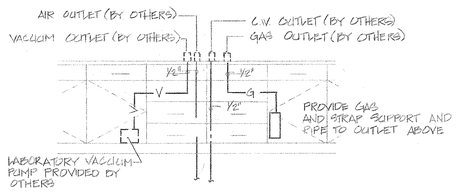
NOTE: SHOP DRAWINGS SHOWING EXACT LOCATION OF ROUGH-IN IN THE LAB WILL BE PROVIDED TO THE CONTRACTOR.



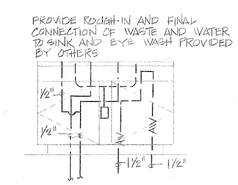
ELEVATION 'A'



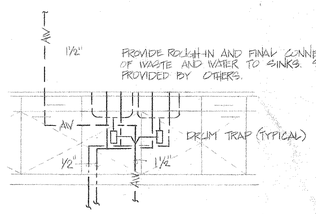
ELEVATION 'B'



ELEVATION 'C'



ELEVATION 'D'



ELEVATION 'E'

33-01-95w

REVISIONS			
SYM.	DESCRIPTION	DATE	BY

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
SOUTHERN PINES, NORTH CAROLINA 28387

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER 9335 RICHARD A. McCRACKEN

SURFACE WATER TREATMENT PLANT
GRAND STRAND WATER AND SEWER AUTHORITY

OPERATIONS BUILDING
SECOND FLOOR PLAN – PLUMBING

DATE:	3-5-96
DESIGNED:	R.S.
DRAWN:	J.K.
CHECKED:	R.A.M.
SCALE:	AS NOTED
SHEET NO.	P-3
OF:	3

SOUTHERN PHOTO - DESIGNS NO. 7313