SET NO.

INDIANA DEPARTMENT OF NATURAL RESOURCES

SALAMONIE RESERVOIR

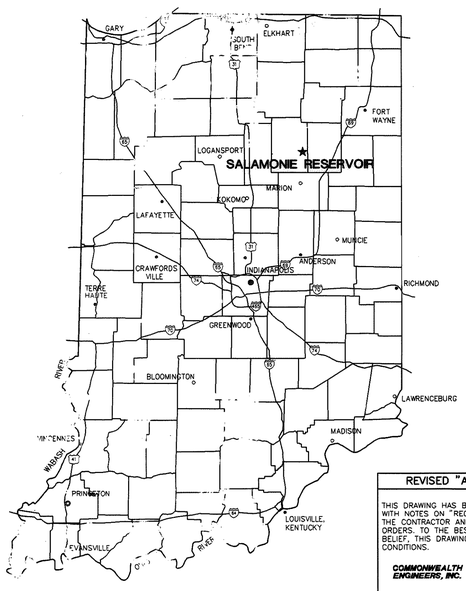
LOST BRIDGE WEST STATE RECREATION AREA

WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT

PUBLIC WORKS PROJECT NO. E031410M

MARCH, 2004

SHEET INDEX



PROJECT AREA MAP

REVISED "AS-BUILT" DRAWING

THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.

COMMONWEALTH ENGINEERS, INC.

REVISED: DATE 10/06

BY JCW, CK. BY CWW

LOST BRIDGE WEST STATE RECREATION AREA

OFFICE ADDRESS: 9214 WEST LOST BRIDGE WEST
ANDREWS, INDIANA 46702-9731
TELEPHONE NO: (260) 468-2125

DNR DIRECTOR - JOHN R. GOSS
GOVERNOR OF INDIANA - JOSEPH E. KERNAN

COMMONWEALTH ENGINEERS, INC.

APPROVED: _____ _____

MARK D. DOWNEY, P.E., L.S. **DATE:**
Indiana P.E. No. 17210

MARK D. DOWNEY REGISTERED No. 17210 STATE OF INDIANA PROFESSIONAL ENGINEER

CERTIFIED: _____ _____

CURTISS W. WHITE, P.E. **DATE:**
Indiana P.E. No. 19400134

CURTISS W. WHITE REGISTERED No. 19400134 STATE OF INDIANA PROFESSIONAL ENGINEER

CONTRACT NO: S02119-02

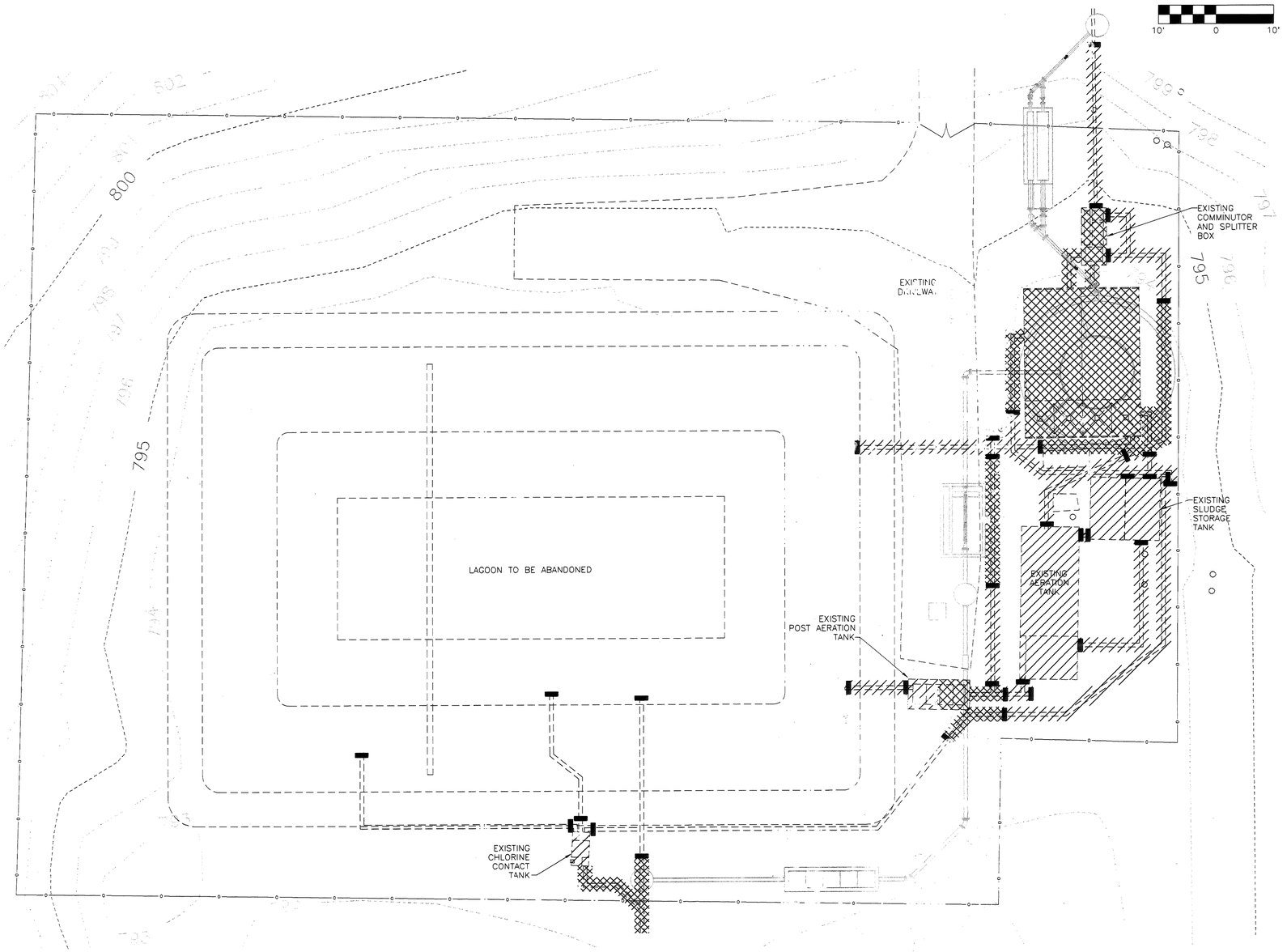
01-title.dwg 1

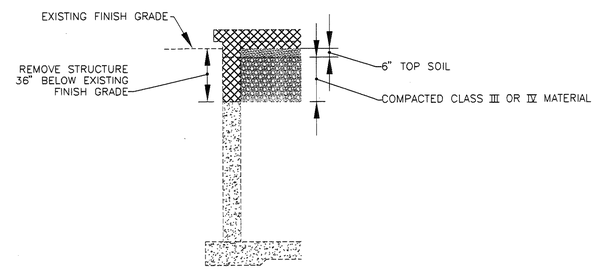
301-63

Oct 26, 2006 - 3:06pm
XREF: XREF-RECORD STAMP.dwg

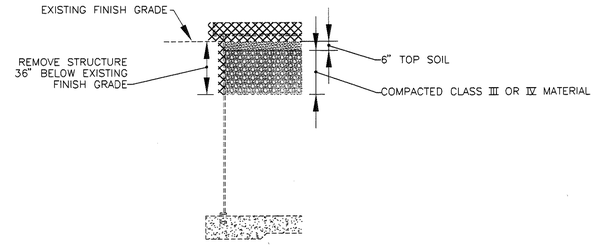
SCALE: 1"=10'

10' 0 10'





EXISTING CONCRETE STRUCTURE
TO BE PARTIALLY REMOVED
SCALE : 1/4" = 1'-0"



EXISTING STEEL STRUCTURE
TO BE PARTIALLY REMOVED
SCALE : 1/4" = 1'-0"

LEGEND :

- EXISTING PIPE TO REMAIN
- EXISTING PIPE TO BE ABANDONED
- EXISTING PIPE TO BE REMOVED
- EXISTING STRUCTURE TO BE PARTIALLY REMOVED (SEE DETAILS ABOVE)
- EXISTING STRUCTURE TO BE REMOVED
- EXISTING PIPE PLUG AND SEAL

HOLEY MOLEY SAYS
"DON'T DIG BLIND"
CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-362-5544
(IT'S THE LAW)

02-DEMO.dwg 120

REVISED "AS-BUILT" DRAWING
THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.
COMMONWEALTH ENGINEERS, INC.
REVISED: DATE 10/06
BY JCW , CK. BY CWW

CURTISS W. WHITE REGISTERED 19403134 STATE OF OHIO PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

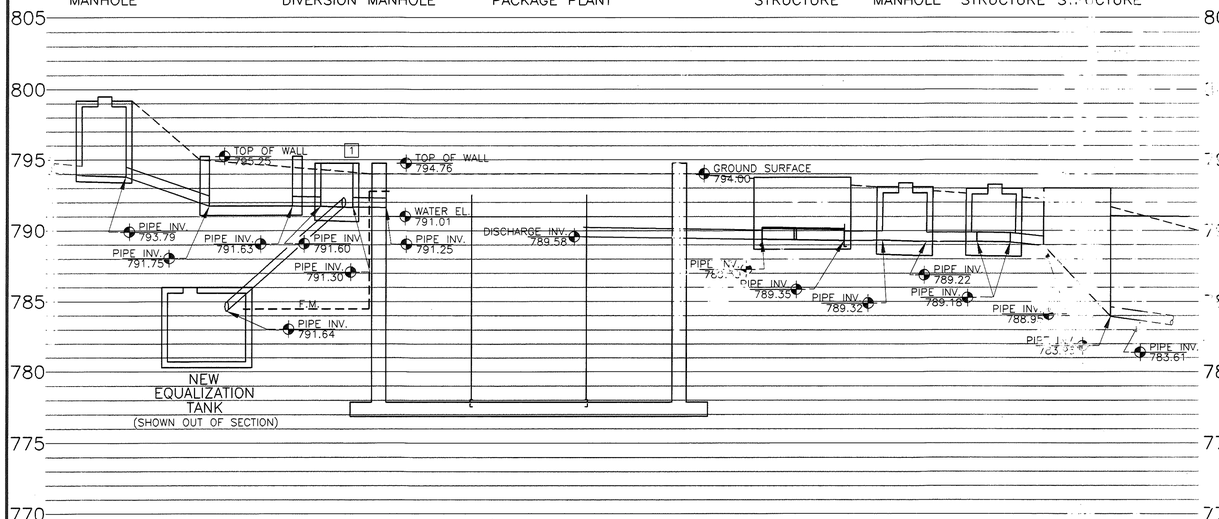
DRAWN BY:	CB
DESIGNED BY:	CWW
CHECKED BY:	CWW
DATE:	12/03
JOB NO:	S02119-02
SCALE:	AS NOTED

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
TREATMENT PLANT DEMOLITION

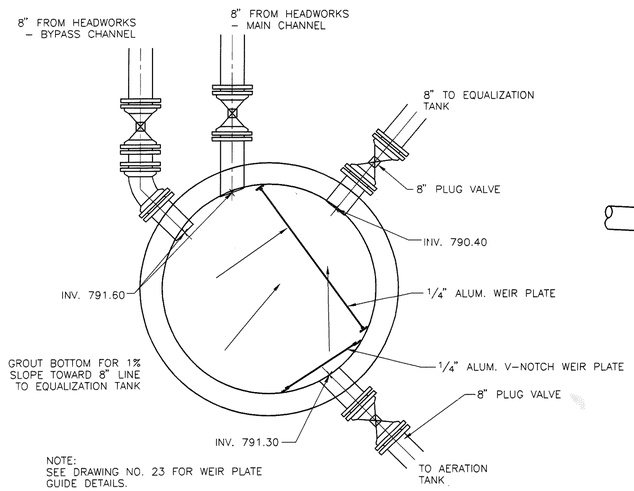
DRAWING NO. 2

2 OF 52

301-63

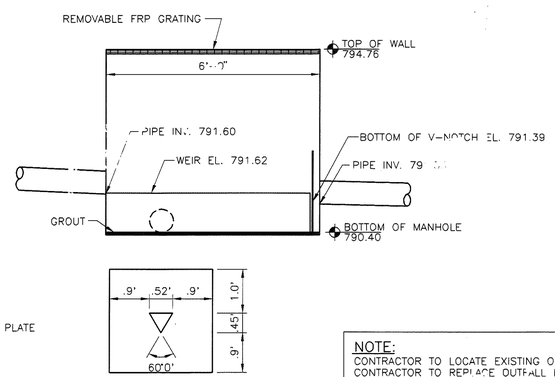


2 HYDRAULIC PROFILE
SCALE: VERT.-1"=5'-0"
HORZ.-NOT TO SCALE



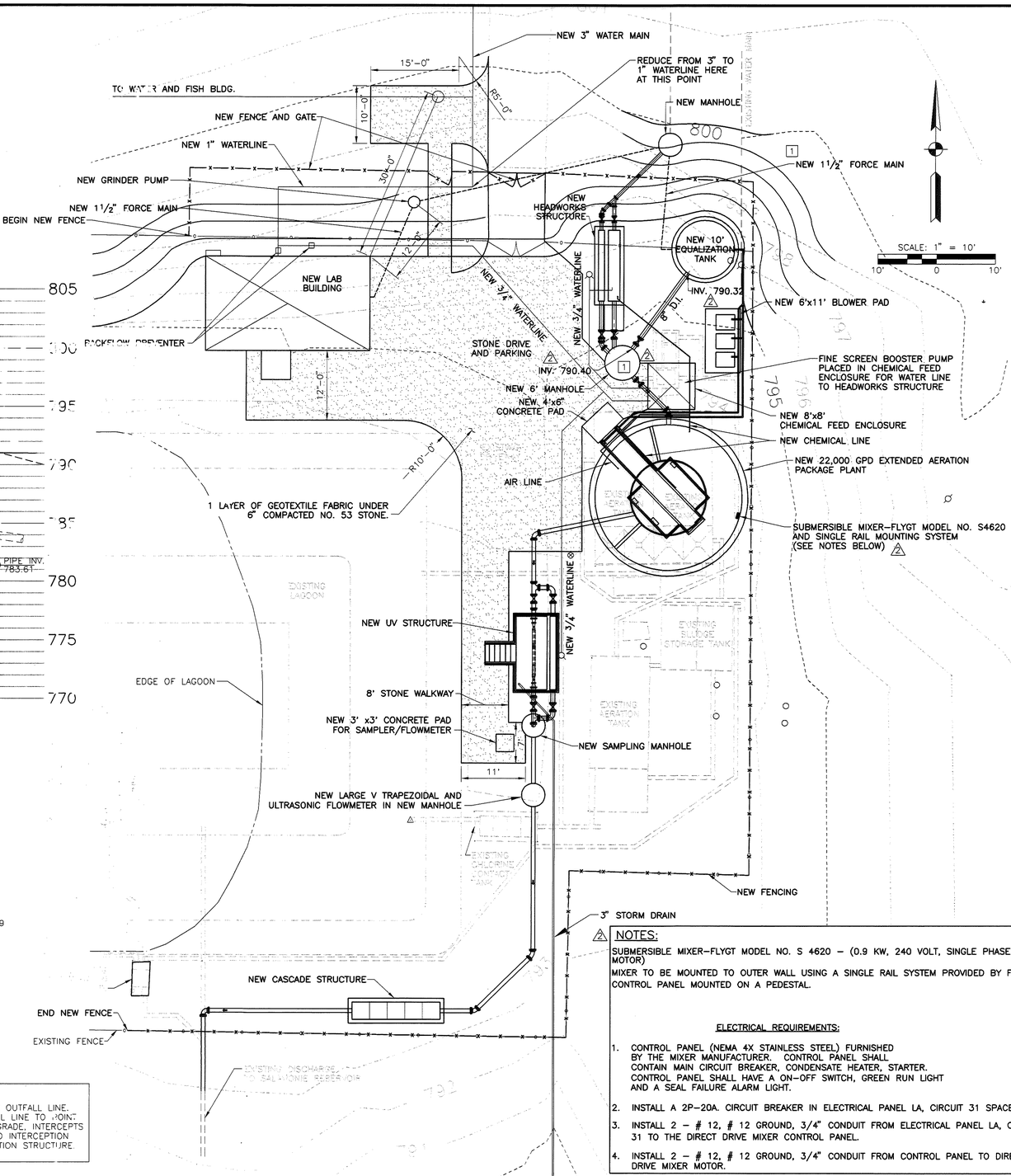
NOTE:
SEE DRAWING NO. 23 FOR WEIR PLATE GUIDE DETAILS.

2
1 EQUALIZATION DIVERSION MANHOLE



V-NOTCH WEIR PLATE

NOTE:
CONTRACTOR TO LOCATE EXISTING OUTFALL LINE. CONTRACTOR TO REPLACE OUTFALL LINE TO POINT WHERE NEW LINE LAID AT 45% GRADE, INTERCEPTS EXISTING OUTFALL LINE. EXPECTED INTERCEPTION POINT 120' FROM CASCADE AERATION STRUCTURE.



2 NOTES:

SUBMERSIBLE MIXER-FLYGT MODEL NO. S 4620 - (0.9 KW, 240 VOLT, SINGLE PHASE MOTOR)
MIXER TO BE MOUNTED TO OUTER WALL USING A SINGLE RAIL SYSTEM PROVIDED BY FLYGT.
CONTROL PANEL MOUNTED ON A PEDESTAL.

ELECTRICAL REQUIREMENTS:

1. CONTROL PANEL (NEMA 4X STAINLESS STEEL) FURNISHED BY THE MIXER MANUFACTURER. CONTROL PANEL SHALL CONTAIN MAIN CIRCUIT BREAKER, CONDENSATE HEATER, STARTER. CONTROL PANEL SHALL HAVE A ON-OFF SWITCH, GREEN RUN LIGHT AND A SEAL FAILURE ALARM LIGHT.
2. INSTALL A 2P-20A. CIRCUIT BREAKER IN ELECTRICAL PANEL LA, CIRCUIT 31 SPACE.
3. INSTALL 2 - # 12, # 12 GROUND, 3/4" CONDUIT FROM ELECTRICAL PANEL LA, CIRCUIT 31 TO THE DIRECT DRIVE MIXER CONTROL PANEL.
4. INSTALL 2 - # 12, # 12 GROUND, 3/4" CONDUIT FROM CONTROL PANEL TO DIRECT DRIVE MIXER MOTOR.

03-NEW SCHEMATIC-BUILDING MOVED.dwg 120

2 ADDENDUM NO. 1 REVISED 5/18/04
2 ADDENDUM NO. 2 REVISED 7/19/04
1 CHANGE ORDER NO. 1 REVISED 9/1/04

REVISED "AS-BUILT" DRAWING

THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.

COMMONWEALTH ENGINEERS, INC.
REVISED: DATE 10/06
BY JCW, CK. BY CWW

CURTIS W. WISE No. 19400134 STATE OF IN. REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	CB
DESIGNED BY:	CWW
CHECKED BY:	CWW
DATE:	12/03
JOB NO:	S02119-02
SCALE:	AS NOTED

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
SITE PLAN AND HYDRAULIC PROFILE

DRAWING NO. 3
3 OF 52

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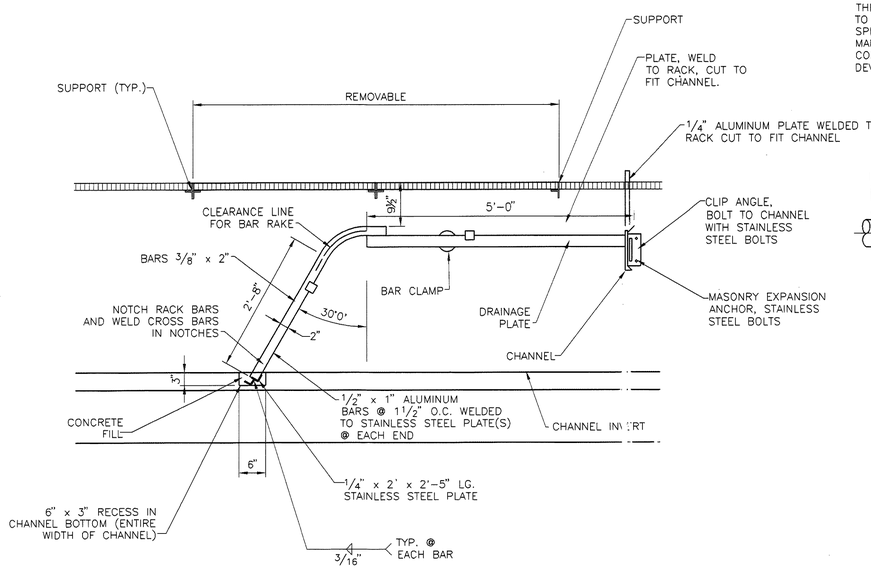
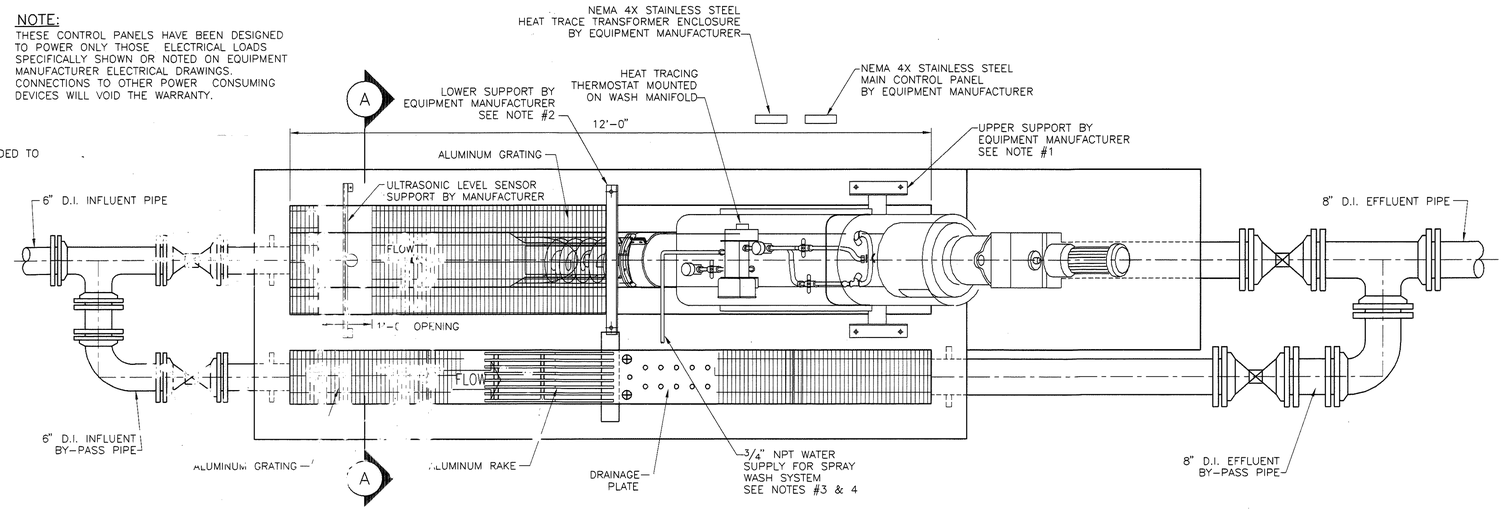


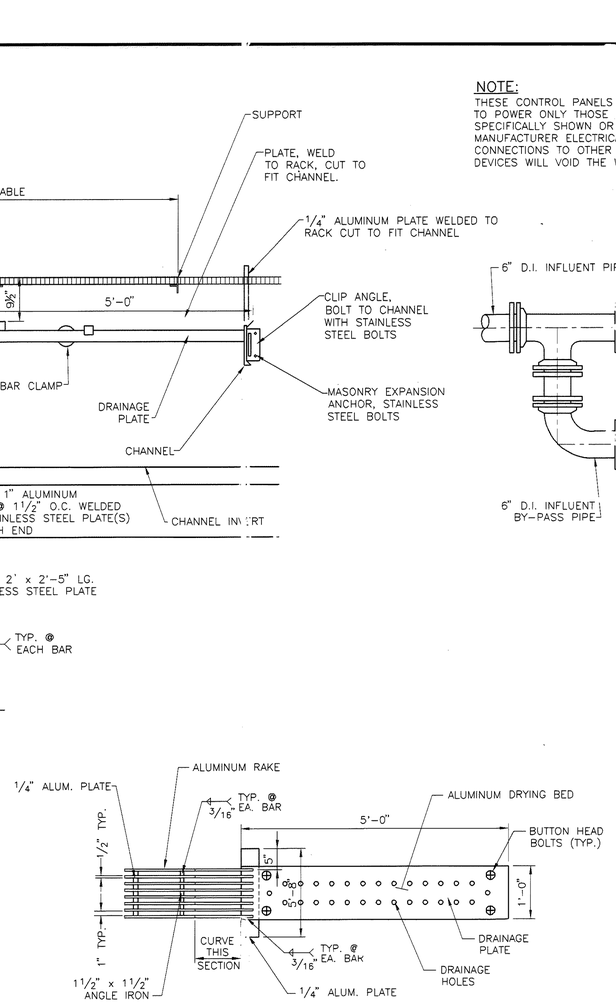
BAR RACK DETAIL
SCALE: 3/4"=1'-0"

NOTE:
THESE CONTROL PANELS HAVE BEEN DESIGNED TO POWER ONLY THOSE ELECTRICAL LOADS SPECIFICALLY SHOWN OR NOTED ON EQUIPMENT MANUFACTURER ELECTRICAL DRAWINGS. CONNECTIONS TO OTHER POWER CONSUMING DEVICES WILL VOID THE WARRANTY.



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

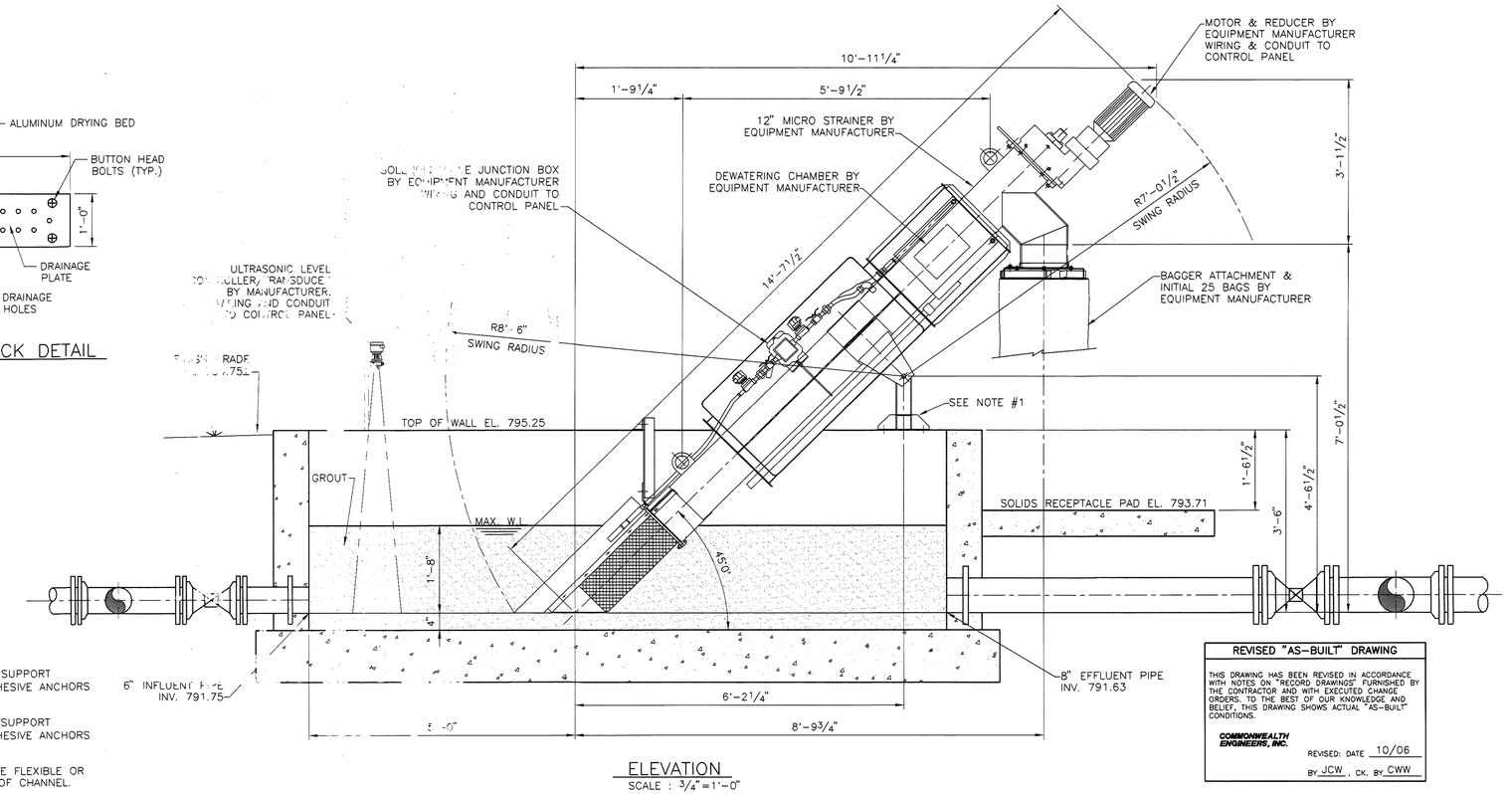
SECTION
SCALE: 3/4"=1'-0" (A)



DRAINAGE PLATE & BAR RACK DETAIL
SCALE: 3/4"=1'-0"

INSTALLATION NOTES :

1. AFTER LOWERING SCREEN INTO CHANNEL, ANCHOR UPPER SUPPORT ASSEMBLY WITH 5/8" X 7 5/8" LG. STAINLESS STEEL ADHESIVE ANCHORS PROVIDED BY EQUIPMENT MANUFACTURER.
2. AFTER LOWERING SCREEN INTO CHANNEL, ANCHOR LOWER SUPPORT ASSEMBLY WITH 5/8" X 7 5/8" LG. STAINLESS STEEL ADHESIVE ANCHORS PROVIDED BY EQUIPMENT MANUFACTURER.
3. WATER SUPPLY LINES AND ELECTRICAL CONNECTIONS TO BE FLEXIBLE OR QUICK DISCONNECT TYPE TO ALLOW UNIT TO PIVOT OUT OF CHANNEL.
4. KEEP AREA UNDER SCREENINGS TRANSPORT SCREW FREE FROM FIXED OBSTRUCTION SUCH AS ELECTRICAL CONDUIT, PIPING ETC. TO PERMIT ROTATION OF THE SCREEN OF THE CHANNEL FOR SERVICE.



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

REVISED "AS-BUILT" DRAWING

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COMMONWEALTH ENGINEERS, INC.

REVISED: DATE 10/06
BY JCW, CK. BY CWW

04-HEADWORKS.swg 16

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	CB
DESIGNED BY:	CWW
CHECKED BY:	CWW
DATE:	12/03
JOB NO:	S02119-02
SCALE:	AS NOTED

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
HEADWORKS STRUCTURE

DRAWING NO. 4

4 OF 52

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Oct 26, 2006 - 3:05pm
XREF: XREF-RECORD STAMP.dwg

MEMBRANE DISC AERATION SYSTEM MATERIAL AND MANUFACTURING SPECIFICATIONS (304L, PVC)

ITEM	MATERIAL SPECIFICATION	MANUFACTURING SPECIFICATION	NOTES
DROPLEG	304L STAINLESS STEEL ASTM A240	FITTINGS: ASTM A774 TUBULAR PRODUCTS: ASTM A778 DIMENSIONS: ASTM A554	150# DRILLING FOR TERMINATION FLANGE CONNECTION. 12 GAUGE PIPE (0.109") WALL THICKNESS ON DROPLEG. *SEE BELOW
SUPPORTS	304L STAINLESS STEEL SHEETS AND PLATES PER ASTM A240 THREADED RODS PER ASTM A276	———	"L" GRADE NOT REQUIRED FOR NON-WELDED PARTS
BOLTS, NUTS, WASHERS	18-8 STAINLESS STL	———	———
FIXED JOINT O-RING	NATURAL RUBBER/SBR	———	45 ±5 DUROMETER SHORE A COMPRESSION SET 5% MAX
EXPANSION JOINT O-RING	NATURAL RUBBER/SBR	———	40 ±5 DUROMETER SHORE A 0.45 COEFFICIENT OF FRICTION MAX.
LOWER DROPLEG	PVC, ASTM D1784 COMPOUND 12454-B	PIPE: ASTM D1785 FITTINGS: ASTM D2466	———
AIR DISTRIBUTORS AND MANIFOLD	PVC, ASTM D3915 COMPOUND 124524	PIPE: ASTM D3034 FITTINGS: ASTM D3034	MINIMUM 2% TITANIUM DIOXIDE
DIFFUSER HOLDER SUBPLATE, RETAINING RING	PVC, ASTM D3915 COMPOUND 124524	———	MINIMUM 2% TITANIUM DIOXIDE
DIFFUSER ELEMENT	EPDM	———	———
PVC SOLVENT WELDING	ASTM D2564	ASTM D2855	———

*STAINLESS STEEL DROPLEG FABRICATION
FACTORY WELD ONLY WITH MIG, TIG, OR PLASMA-ARC WELDING INERT GAS PROCESSES, FULL PENETRATION BUTT WELDS, ER 316L FILLER WIRE. AFTER FABRICATION FINISH CLEAN ALL WELDED STAINLESS STEEL ASSEMBLIES BY FULL IMMERSION CLEANING TECHNIQUES IN ACCORDANCE TO 6.2.11 OF ASTM A380-88. THE ACID FOR USE DEFINED BY TABLE A2.1 OF ANNEX A2 OF ASTM A380. FINAL RINSE AND DRY IN ACCORDANCE TO SECTION 8.3 OF ASTM A380. ALL WELDED SURFACES TO CONFORM TO AISI NO. 2D FINISH.

CERAMIC DISC AERATION SYSTEM MATERIAL AND MANUFACTURING SPECIFICATIONS (304L, PVC)

ITEM	MATERIAL SPECIFICATION	MANUFACTURING SPECIFICATION	NOTES
DROPLEG	304L STAINLESS STEEL ASTM A240	FITTINGS: ASTM A774 TUBULAR PRODUCTS: ASTM A778 DIMENSIONS: ASTM A554	150# DRILLING FOR TERMINATION FLANGE CONNECTION. 12 GAUGE PIPE (0.109") WALL THICKNESS ON DROPLEG. *SEE BELOW
SUPPORTS	304L STAINLESS STEEL SHEETS AND PLATES PER ASTM A240 THREADED ROD PER ASTM A276	———	"L" GRADE NOT REQUIRED FOR NON-WELDED PARTS
BOLTS, NUTS, WASHERS	18-8 STAINLESS STL	———	———
FIXED JOINT O-RING	NATURAL RUBBER/SBR	———	45 ±5 DUROMETER SHORE A COMPRESSION SET 5% MAX
EXPANSION JOINT O-RING	NATURAL RUBBER/SBR	———	40 ±5 DUROMETER SHORE A 0.45 COEFFICIENT OF FRICTION MAX.
DIFFUSER HOLDER O-RING	POLYSOPRENE	———	40 ±5 DUROMETER SHORE A 500% ELONGATION
LOWER DROPLEG	PVC, ASTM D1784 COMPOUND 12454-B	PIPE: ASTM D1785 FITTINGS: ASTM D2466	———
AIR DISTRIBUTORS AND MANIFOLD	PVC, ASTM D3915 COMPOUND 124524	PIPE: ASTM D3034 FITTINGS: ASTM D3034	MINIMUM 2% TITANIUM DIOXIDE
DIFFUSER HOLDER, RETAINING RING	PVC, ASTM D3915 COMPOUND 124524	———	MINIMUM 2% TITANIUM DIOXIDE
DIFFUSER ELEMENT	FUSED ALUMINA	———	———
PVC SOLVENT WELDING	ASTM D2564	ASTM D2855	———

*STAINLESS STEEL DROPLEG FABRICATION
FACTORY WELD ONLY WITH MIG, TIG, OR PLASMA-ARC WELDING INERT GAS PROCESSES, FULL PENETRATION BUTT WELDS, ER 316L FILLER WIRE. AFTER FABRICATION FINISH CLEAN ALL WELDED STAINLESS STEEL ASSEMBLIES BY FULL IMMERSION CLEANING TECHNIQUES IN ACCORDANCE TO 6.2.11 OF ANNEX A2 OF ASTM A380-88. THE ACID FOR USE DEFINED BY TABLE A2.1 OF ANNEX A2 OF ASTM A380. FINAL RINSE AND DRY IN ACCORDANCE TO SECTION 8.3 OF ASTM A380. ALL WELDED SURFACES TO CONFORM TO AISI NO. 2D FINISH.

RAILINGS- 1 1/2"ø SCH 40 ALUMINUM
MAIN BRIDGE- 6 X 4 X 1/4 RECTANGULAR TUBE A36 STEEL
AIRLIFT EDUCTOR PIPE- 304 STN STL
AIRLIFT AIR SUPPLY- 304 STN STL
STILLING WELL,SCUM TROUGH- 3/16" THICK STEEL PLATE A36
STRUCTURAL SHAPES- A36 STEEL
EFFLUENT LAUNDER- 3/16" THICK STEEL PLATE A36
EFFLUENT LAUNDER WEIR PLATES- 16 GA STN STL W/STN STL BOLTS
WALKWAY GRATING- 1 1/2 X 3/16 I-BAR ALUMINUM

SLUDGE COLLECTOR DRIVE ASSEMBLY

REV /HOUR 7.7 OVER LOAD PROTECTION MICROSWITCH
DRIVE- DBS SX-AE DBS MANUFACTURING
*RUNNING TORQUE,ALARM SETTING FT LBS- 3,000 KICK OUT FT LBS- 3,600
MOTOR-MODEL,BALDOR (MILL AND CHEMICAL DUTY) 1/2 HP 1750 RPM
*AGMA RATED TORQUE FOR 1 MILLION CYCLE LIFE 3/60/240 POWER
TORQUE TUBE- 4" SCH 40 PIPE

COLLECTOR ARMS

2 SWEEP ARMS-DOUBLE ANGLES- 3" x 3" x 1/4"
6 PLOW BLADES 3 1/2" X 3 1/2" X 1/4" ANGLES W/ 1/4" NEOPRENE SQUEEGEES

CORROSION PROTECTION

SURFACE PREPARATION- SSPC-SP-10 (SUBMERGED) SSPC-SP-6 (NON SUBMERGED)
PRIMER- TNEMEC 66-1211, 3-5 MILS DFT

REVISED "AS-BUILT" DRAWING

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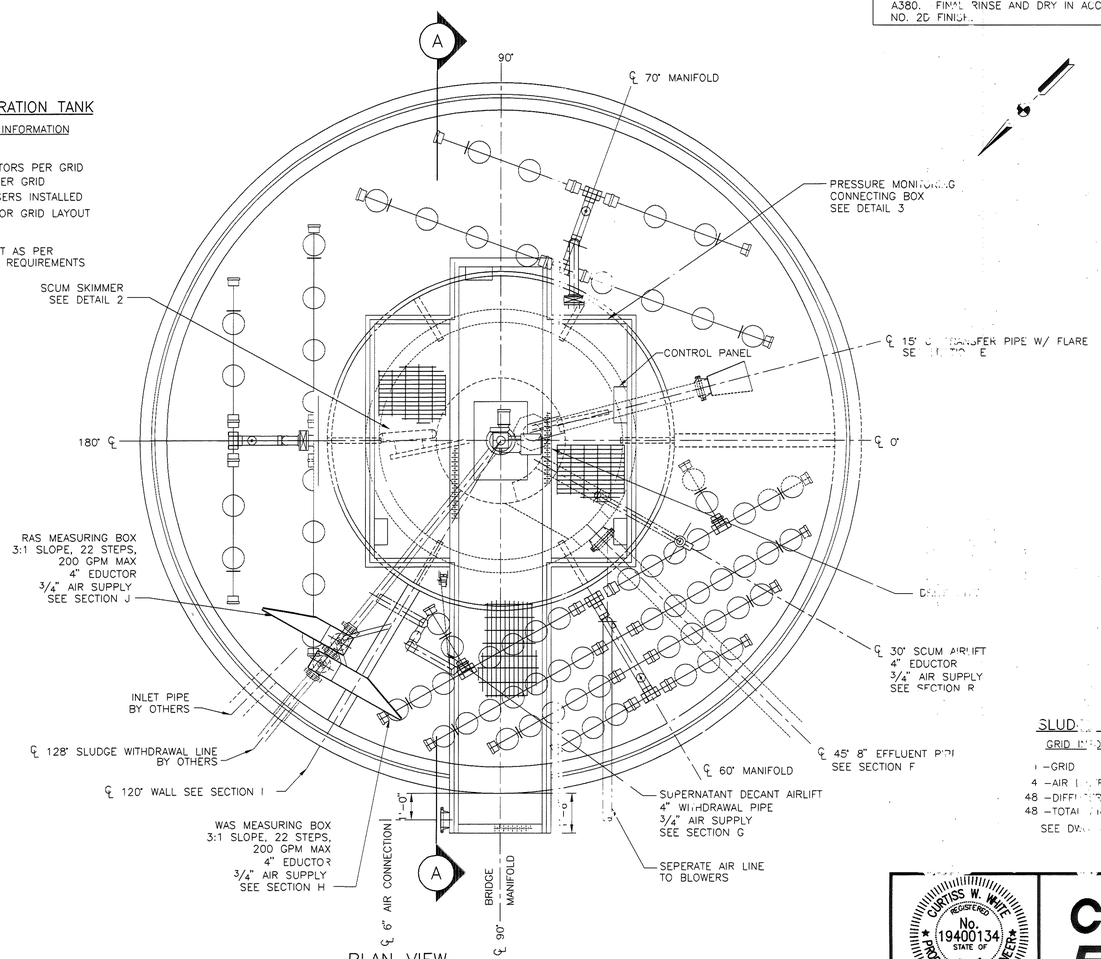
COMMONWEALTH ENGINEERS, INC.
REVISED: DATE 10/06
BY JCW , CK. BY CWW

AERATION TANK

GRID INFORMATION

2 -GRIDS
3 -AIR DISTRIBUTORS PER GRID
12 -DIFFUSERS PER GRID
24 - OTAL DIFFUSERS INSTALLED
SEE DWG. 8 FOR GRID LAYOUT

NOTE:
DIFFUSER LAYOUT AS PER MANUFACTURERS REQUIREMENTS

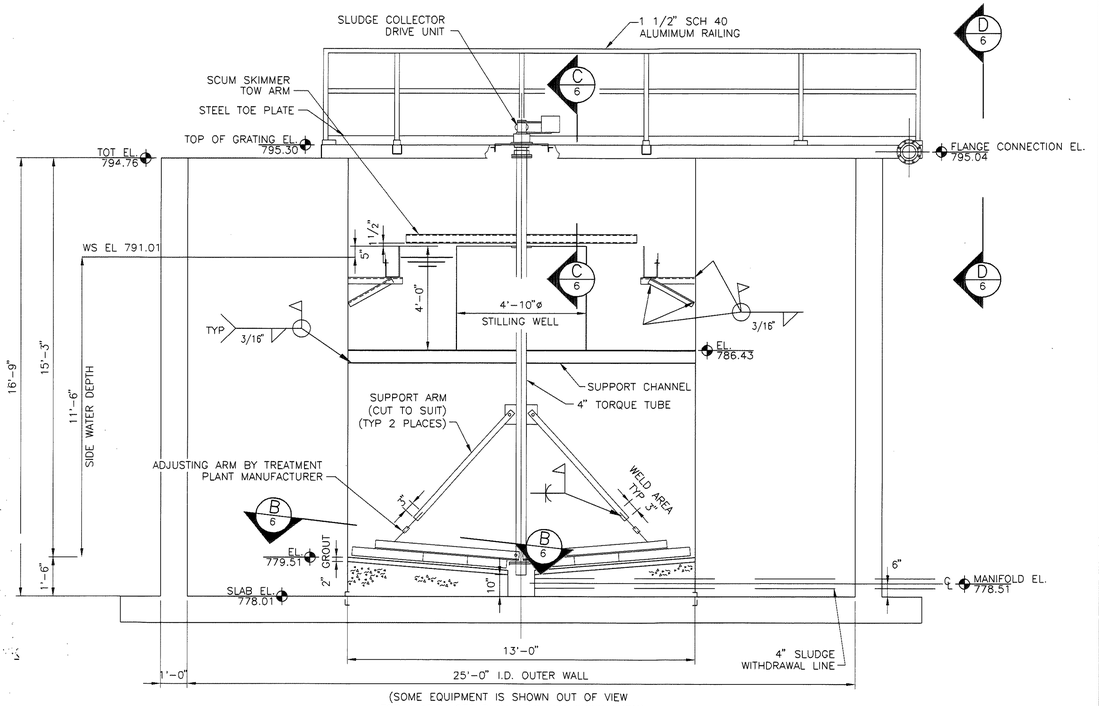


PLAN VIEW
SCALE: 3/8"=1'-0"

SLUDGE HOLDING TANK

GRID INFORMATION

1 -GRID
4 -AIR DISTRIBUTORS PER GRID
48 -DIFFUSERS PER GRID
48 -TOTAL DIFFUSERS INSTALLED
SEE DWG. 8 FOR GRID LAYOUT



(SOME EQUIPMENT IS SHOWN OUT OF VIEW FOR CLARITY SEE PLAN VIEW FOR ORIENTATION)

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

CURTISS W. WHITE REGISTERED No. 19400134 STATE OF INDIANA PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

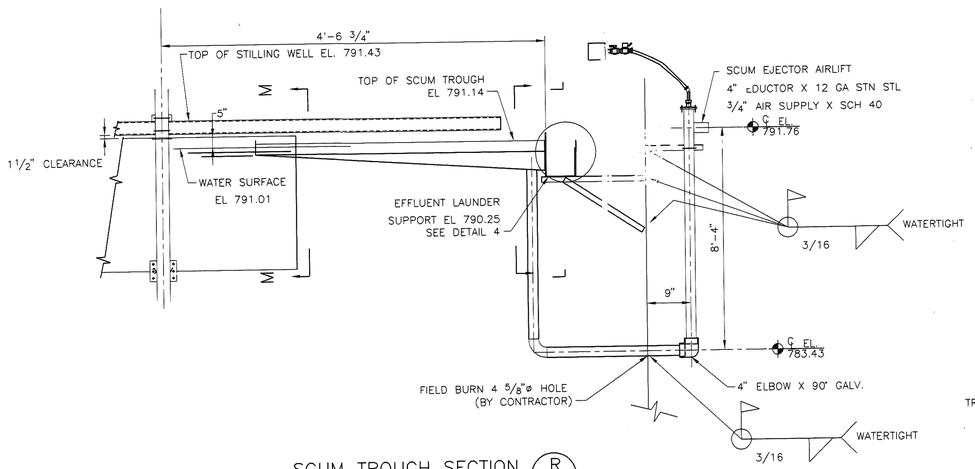
DRAWN BY:	CB
DESIGNED BY:	CWW
CHECKED BY:	CWW
DATE:	12/03
JOB NO:	S02119-02
SCALE:	AS NOTED

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
TREATMENT PLANT PLAN AND SECTIONS

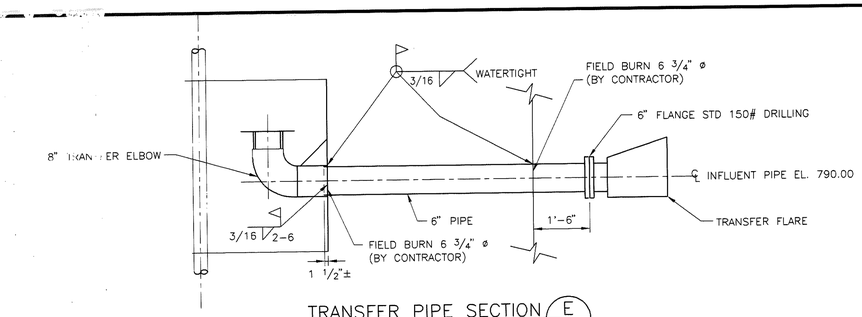
DRAWING NO. 5
5 OF 52

05-PACKAGE PLANT.dwg 32

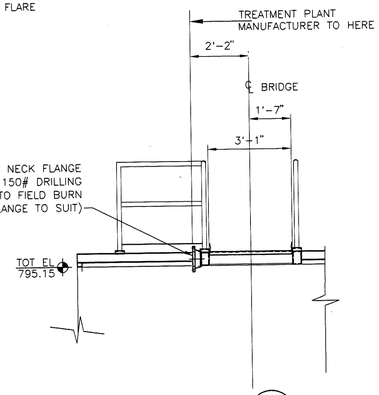
301-63



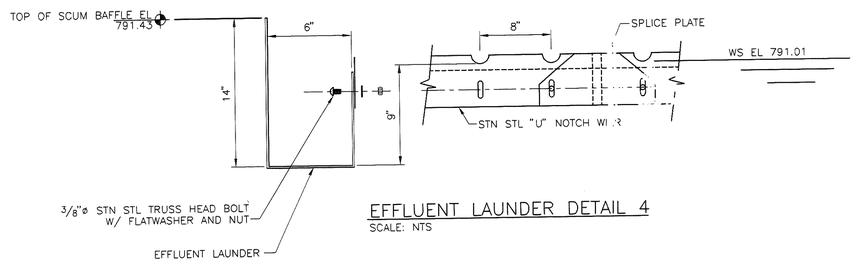
SCUM TROUGH SECTION R / 5
SCALE: NTS



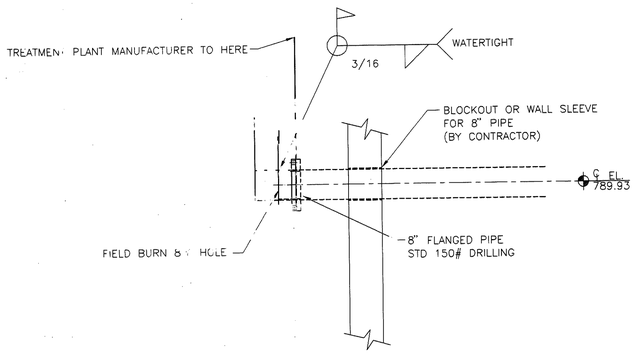
TRANSFER PIPE SECTION E / 5
SCALE: NTS



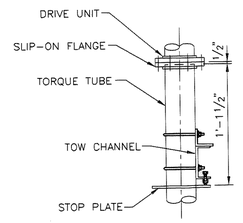
SECTION D / 5
SCALE: NTS



EFFLUENT LAUNDER DETAIL 4
SCALE: NTS



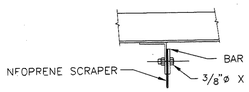
EFFLUENT SUMP/PIPE SECTION F / 5
SCALE: NTS



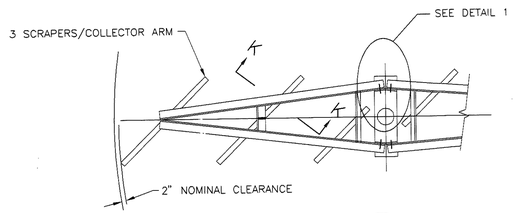
INSTALL THE COLLECTOR DRIVE UNIT, CHECK FOR LEVEL, AND CENTER WITH REFERENCE TO THE SUMP AND BRIDGE BASE LINE. WITH THE SLIP-ON FLANGE BOLTED TO THE DRIVE UNIT, POSITION THE TORQUE TUBE INTO THE FLANGE. CHECK FOR PLUMB AND WELD. 1/4" FILLET ALL AROUND) 2 PASS WELD.

REMOVE TORQUE TUBE WITH SLIP-ON FLANGE AND WELD INSIDE FLANGE. (1/4" FILLET ALL AROUND) 1 PASS WELD. ASSEMBLE TORQUE TO DRIVE UNIT.

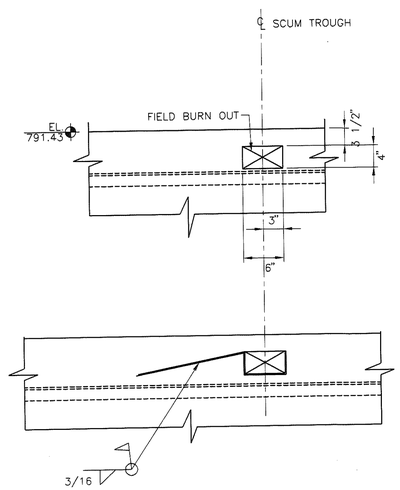
SECTION C / 5
SCALE: NTS



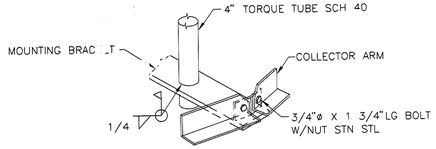
SECTION K-K
SCALE: NTS



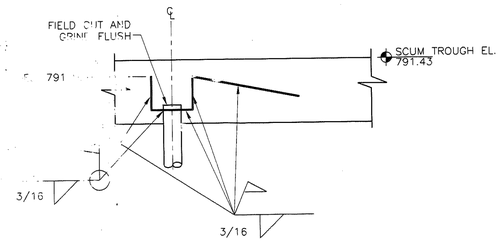
SECTION B / 5
SCALE: NTS



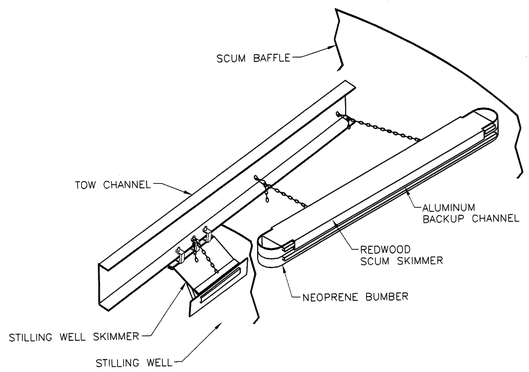
STILLING WELL SECTION M-M
SCALE: NTS



DETAIL 1
SCALE: NTS



SCUM BAFFLE SECTION L-L
SCALE: NTS



SCUM SKIMMERS DETAIL 2
SCALE: NTS

06-PACKAGE PLANT.dwg 32

REVISED "AS-BUILT" DRAWING

THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.

COMMONWEALTH ENGINEERS, INC.

REVISED: DATE 10/06
BY JCW ; CK. BY CWW

CURTISS W. WHITE
REGISTERED
No. 10400134
STATE OF IDAHO
PROFESSIONAL ENGINEER

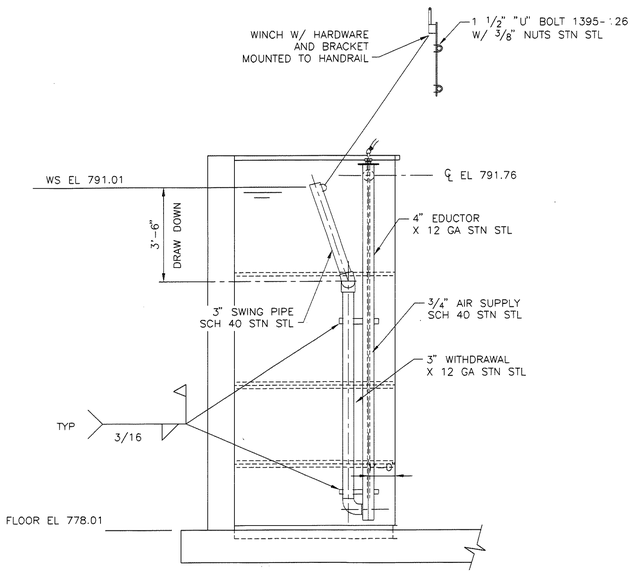
COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	CB
DESIGNED BY:	CWW
CHECKED BY:	CWW
DATE:	12/03
JOB NO:	S02119-02
SCALE:	AS NOTED

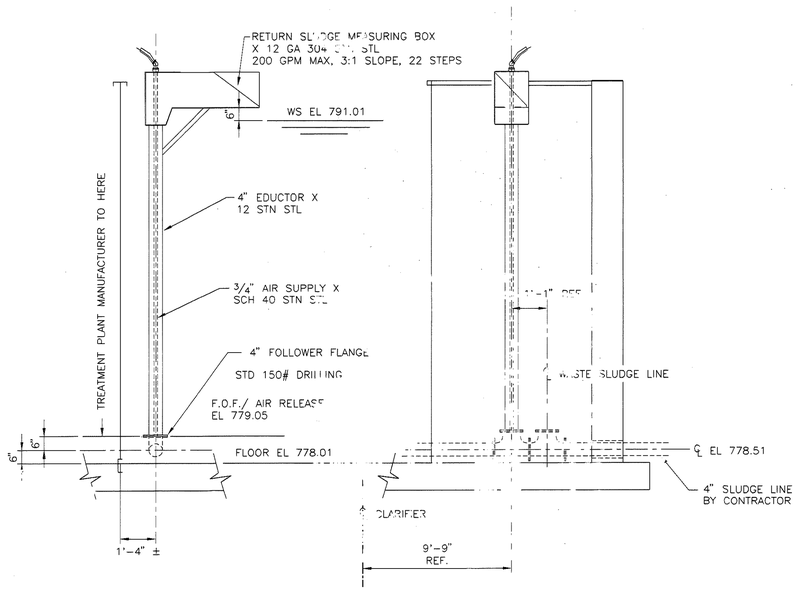
SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
TREATMENT PLANT PLAN AND SECTIONS

DRAWING NO. 6
6 OF 52

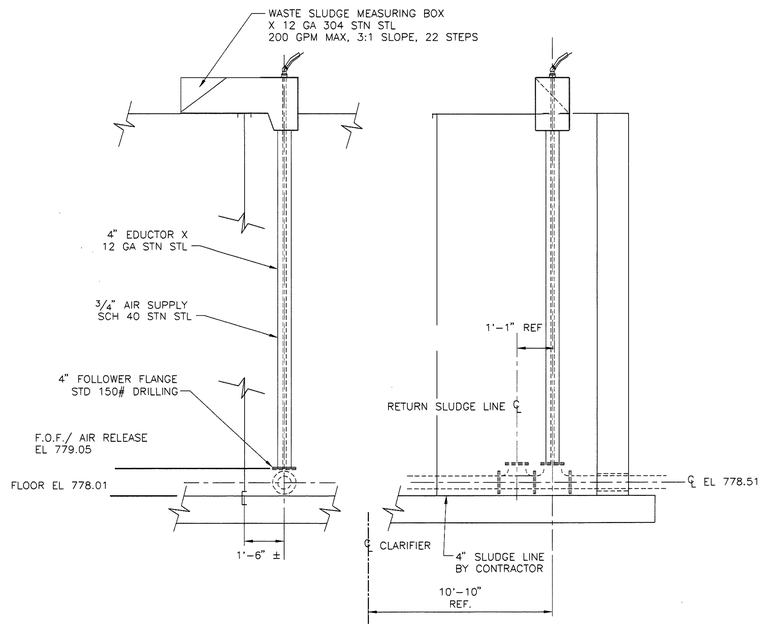
301-63



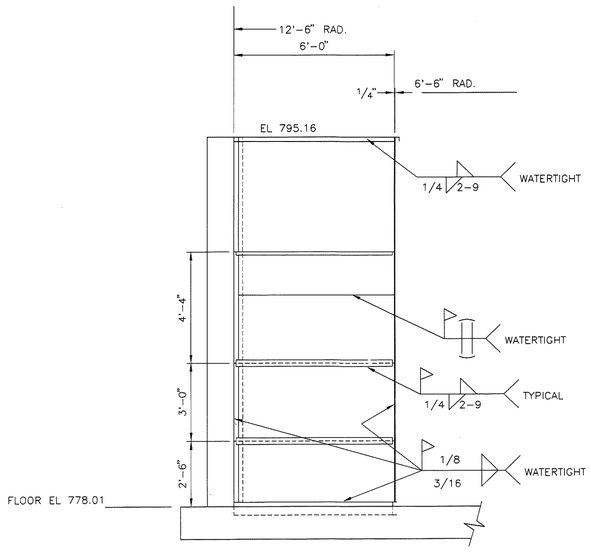
SUPERNATANT DECANT AIRLIFT SECTION G
SCALE: NTS



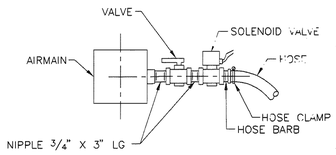
RETURN SLUDGE AIRLIFT SECTION J
SCALE: NTS



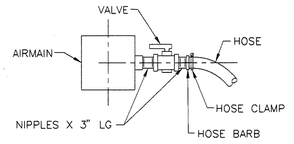
WASTE SLUDGE AIR LIFT SECTION H
SCALE: NTS



DIVIDING WALL SECTION I
SCALE: NTS



3/4" SCUM EJECTOR AIR SUPPLY SECTION N
SCALE: NTS



3/4" WASTE AIR SUPPLY
3/4" RETURN AIR SUPPLY
3/4" SUPERNATANT DECANT AIR SUPPLY SECTION O
SCALE: NTS

REINFORCED FOR FULL DEWATERING
(1) REQUIRED AS SHOWN
(1) REQUIRED MIRROR IMAGE

REVISED "AS-BUILT" DRAWING

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COMMONWEALTH ENGINEERS, INC.

REVISED: DATE 10/06

BY JCW, CK. BY CWW

CURTISS W. WHITE
REGISTERED
No. 19400134
STATE OF INDIANA
PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	CB
DESIGNED BY:	CWW
CHECKED BY:	CWW
DATE:	12/03
JOB NO:	S02119-02
SCALE:	AS NOTED

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E01410M
TREATMENT PLANT PLAN AND SECTIONS

DRAWING NO. 7

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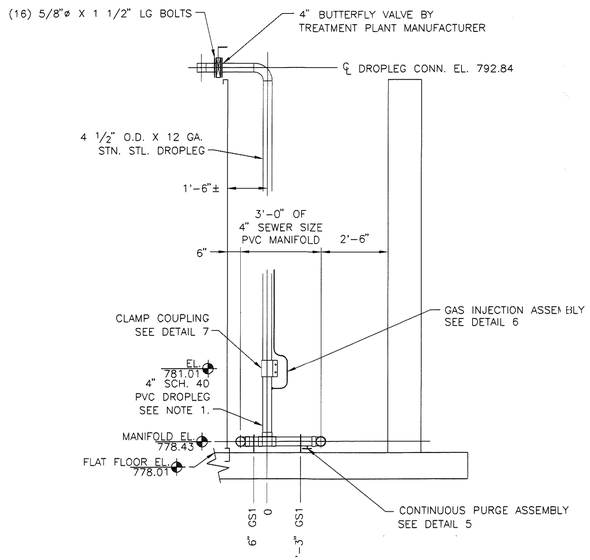
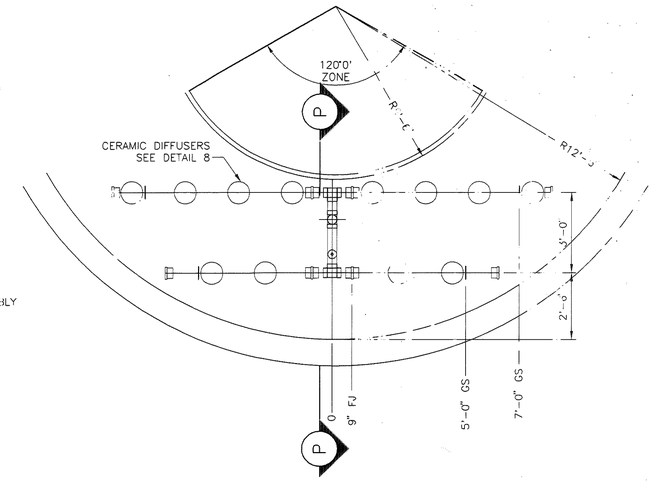


2 REQUIRED
MANIFOLD SECTION P
SCALE: NTS



2 REQUIRED
AERATION TANK PLAN VIEW
SCALE: NTS

LEGEND

GS – GUIDE SUPPORT
SEE DETAIL 16

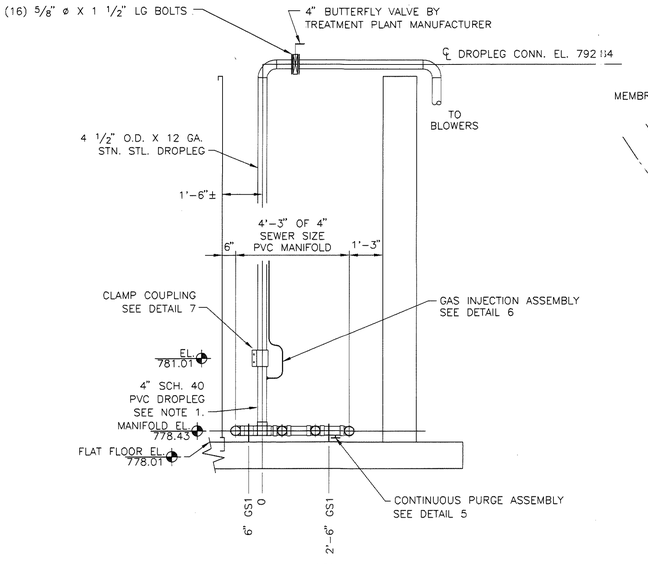
GS1 – GUIDE SUPPORT
SEE DETAIL 17

FJ – FIXED JOINT
SEE DETAIL 20

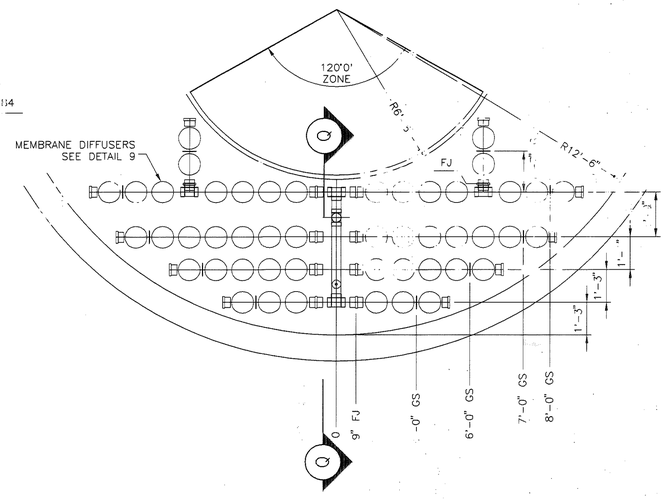
FOR TYPICAL AIR DISTRIBUTOR
SECTION SEE DETAIL 18

NOTES:

1. PVC DROPLEG WILL BE SHIPPED TO JOBSITE 6" LONGER THAN REQUIRED, TO ACCOUNT FOR TANK VARIANCES. CONTRACTOR TO CUT TO SUIT AND SOLVENT WELD INTO MANIFOLD TO MAINTAIN 1/8" MAXIMUM GAP BETWEEN STAINLESS STEEL AND PVC DROPLEGS.
2. DIFFUSER LAYOUT AS PER MANUFACTURERS REQUIREMENTS



1 REQUIRED
MANIFOLD SECTION Q
SCALE: NTS



1 REQUIRED
SLUDGE HOLDING TANK PLAN VIEW
SCALE: NTS

REVISED "AS-BUILT" DRAWING

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COMMONWEALTH ENGINEERS, INC.

REVISED: DATE 10/06
BY JCW, CK. BY CWW

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	CB
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SCALE:	AS NOTED

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
TREATMENT PLANT PLAN AND SECTIONS

08-PACKAGE PLANT.dwg 32

DRAWING NO. 8

8 OF 52

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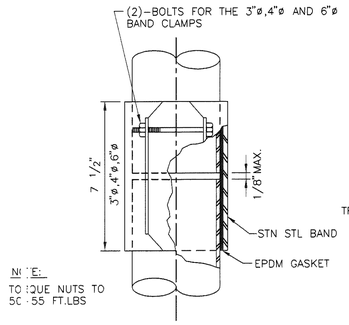
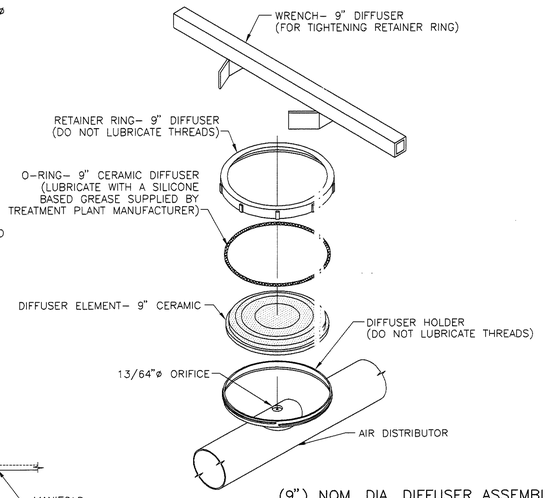
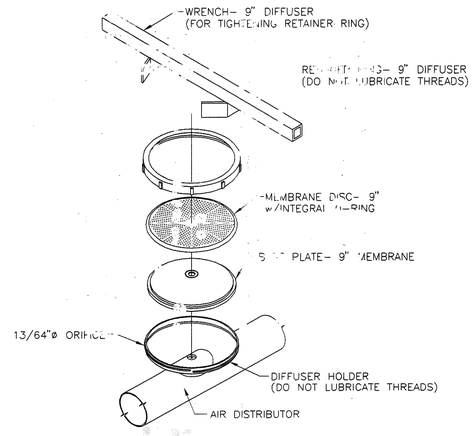


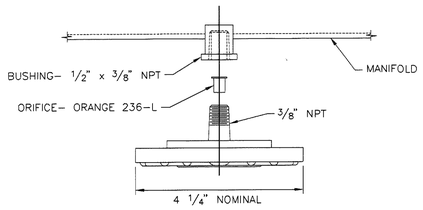
CLAMP COUPLING
DETAIL 7

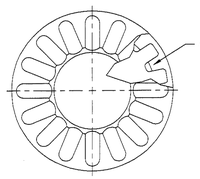


(9") NOM. DIA. DIFFUSER ASSEMBLY
DETAIL 8

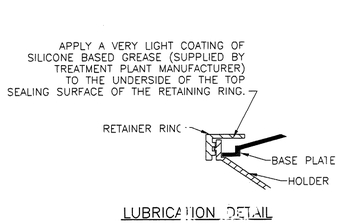


9"ø EPDM DIFFUSER ASSEMBLY
DETAIL 9

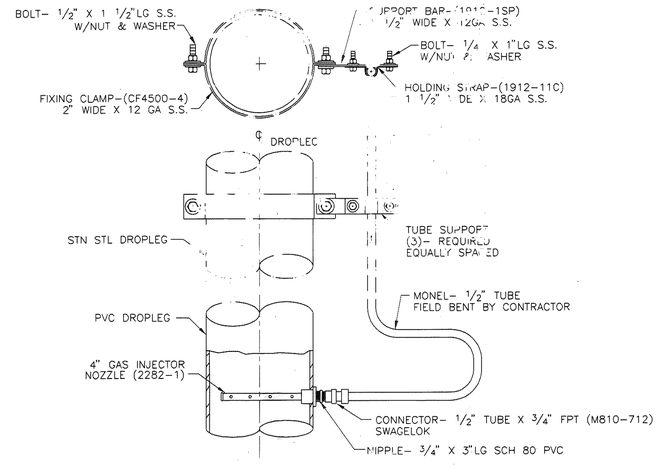




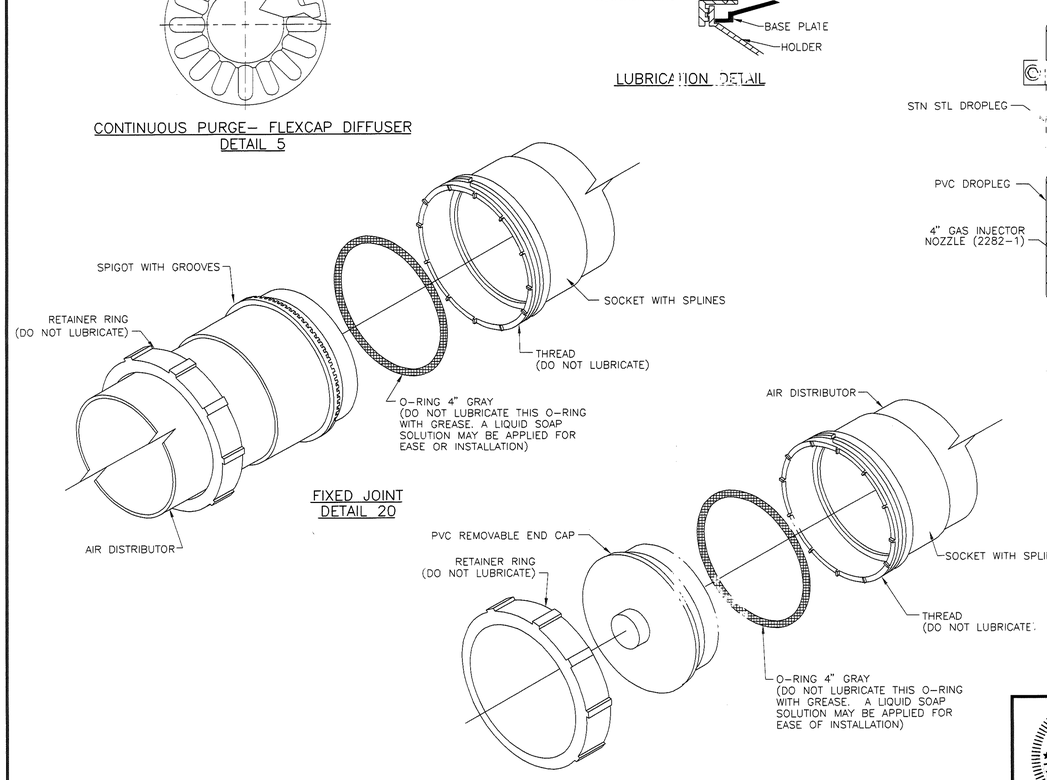
CONTINUOUS PURGE- FLEXCAP DIFFUSER
DETAIL 5



LUBRICATION DETAIL



GAS INJECTOR ASSEMBLY
DETAIL 6



FIXED JOINT
DETAIL 20

PVC REMOVABLE END CAP
DETAIL 10

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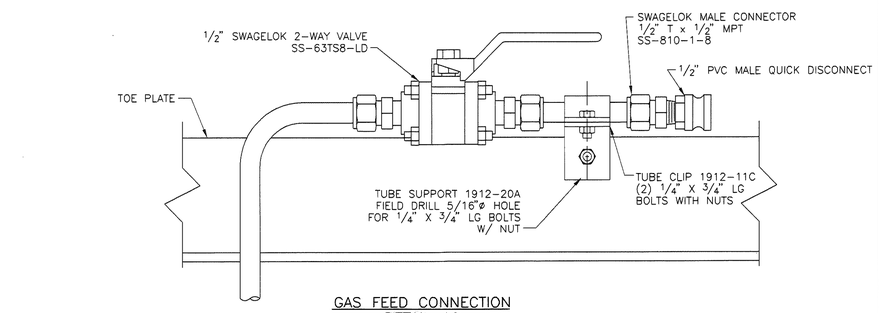
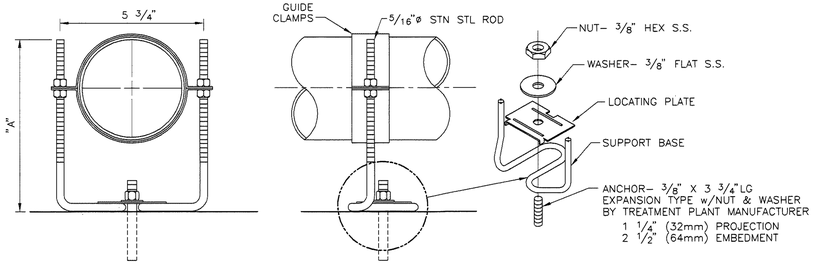
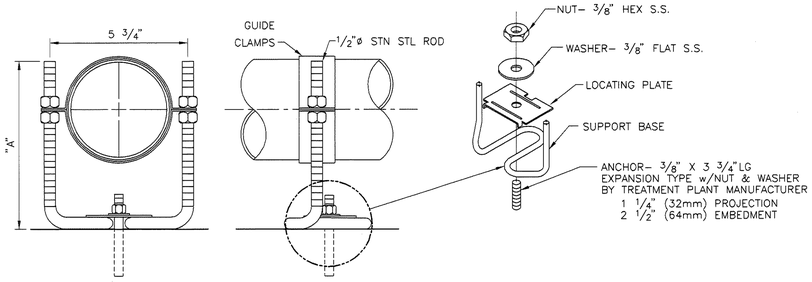
COMMONWEALTH ENGINEERS, INC
REVISED: DATE 3/06
BY JCW CK. BY CWW



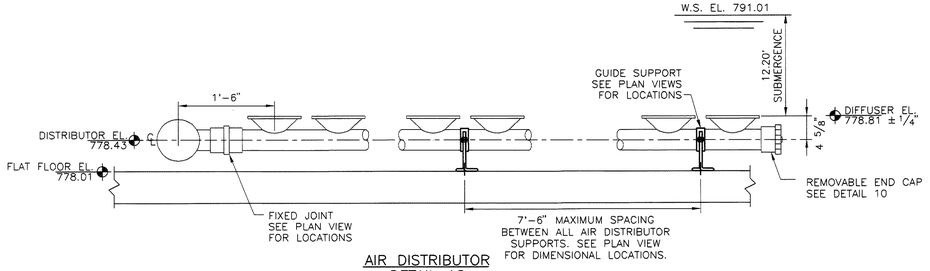
GAS FEED CONNECTION
DETAIL 19



GUIDE SUPPORT
DETAIL 16
2346-2SP



GUIDE SUPPORT
DETAIL 17
2354-2SP



AIR DISTRIBUTOR
DETAIL 18

CURTISS W. WHITE REGISTERED No. 19400134 STATE OF OHIO PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

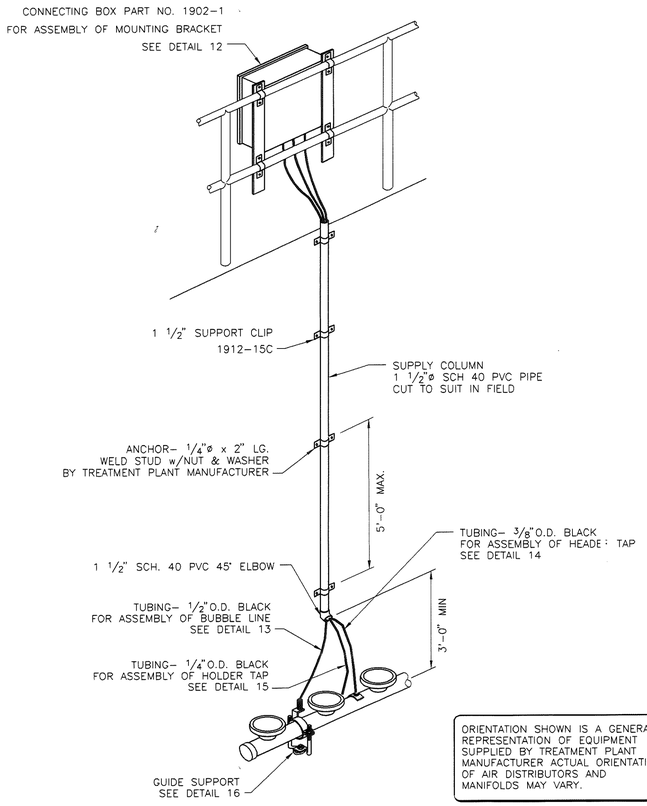
DRAWN BY:	CB
DESIGNED BY:	CWW
CHECKED BY:	CWW
DATE:	12/03
JOB NO:	S02119-02
SCALE:	AS NOTED

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
TREATMENT PLANT PLAN AND SECTIONS

DRAWING NO. 9

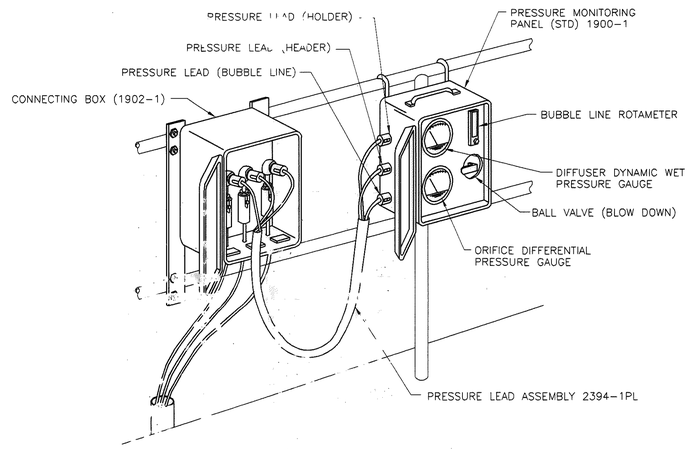
09-PACKAGE PLANT.dwg 1

301-63

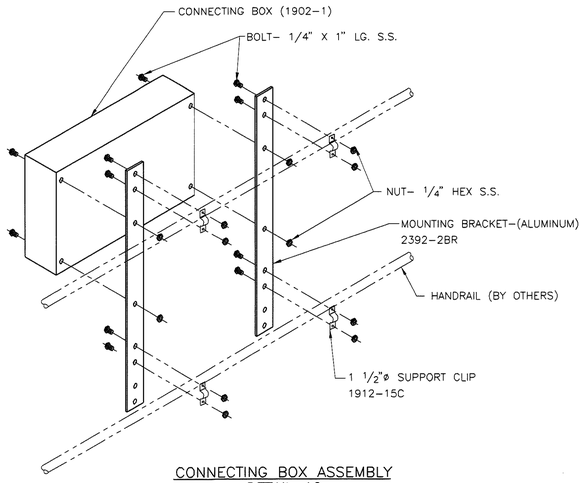


ORIENTATION SHOWN IS A GENERAL REPRESENTATION OF EQUIPMENT SUPPLIED BY TREATMENT PLANT MANUFACTURER ACTUAL ORIENTATION OF AIR DISTRIBUTORS AND MANIFOLDS MAY VARY.

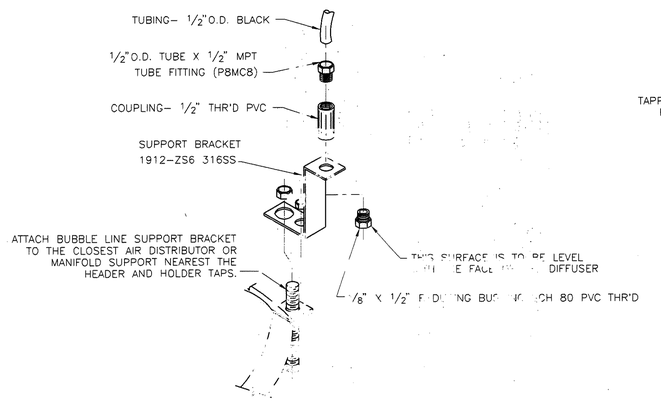
PRESSURE MONITORING ASSEMBLY
DETAIL 11



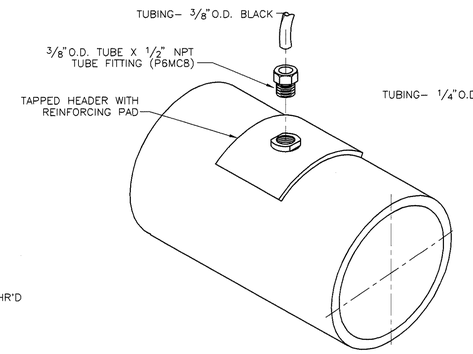
PRESSURE MONITORING PANEL (STD) CONNECTION
DETAIL 3



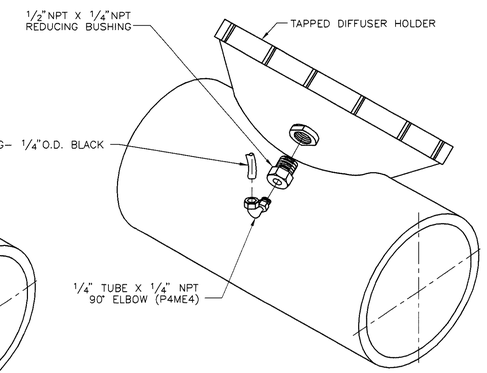
CONNECTING BOX ASSEMBLY
DETAIL 12



BUBBLE LINE ASSEMBLY
DETAIL 13



HEADER TAP ASSEMBLY
DETAIL 14



HOLDER TAP ASSEMBLY
DETAIL 15

REVISED "AS-BUILT" DRAWING
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COMMONWEALTH ENGINEERS, INC.
REVISED: DATE 10/06
BY JCW, CK. BY CWW

CURTISS W. WHITE
REGISTERED
19400134
PROFESSIONAL ENGINEER
CALIFORNIA

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	CB
DESIGNED BY:	CWW
CHECKED BY:	CWW
DATE:	12/03
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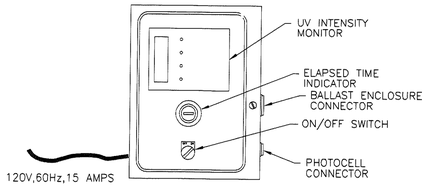
SCALE:	AS NOTED

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
TREATMENT PLANT PLAN AND SECTIONS

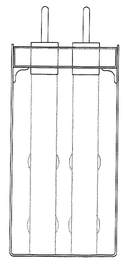
DRAWING NO. 10
10 OF 52

10-package plant.dwg 1

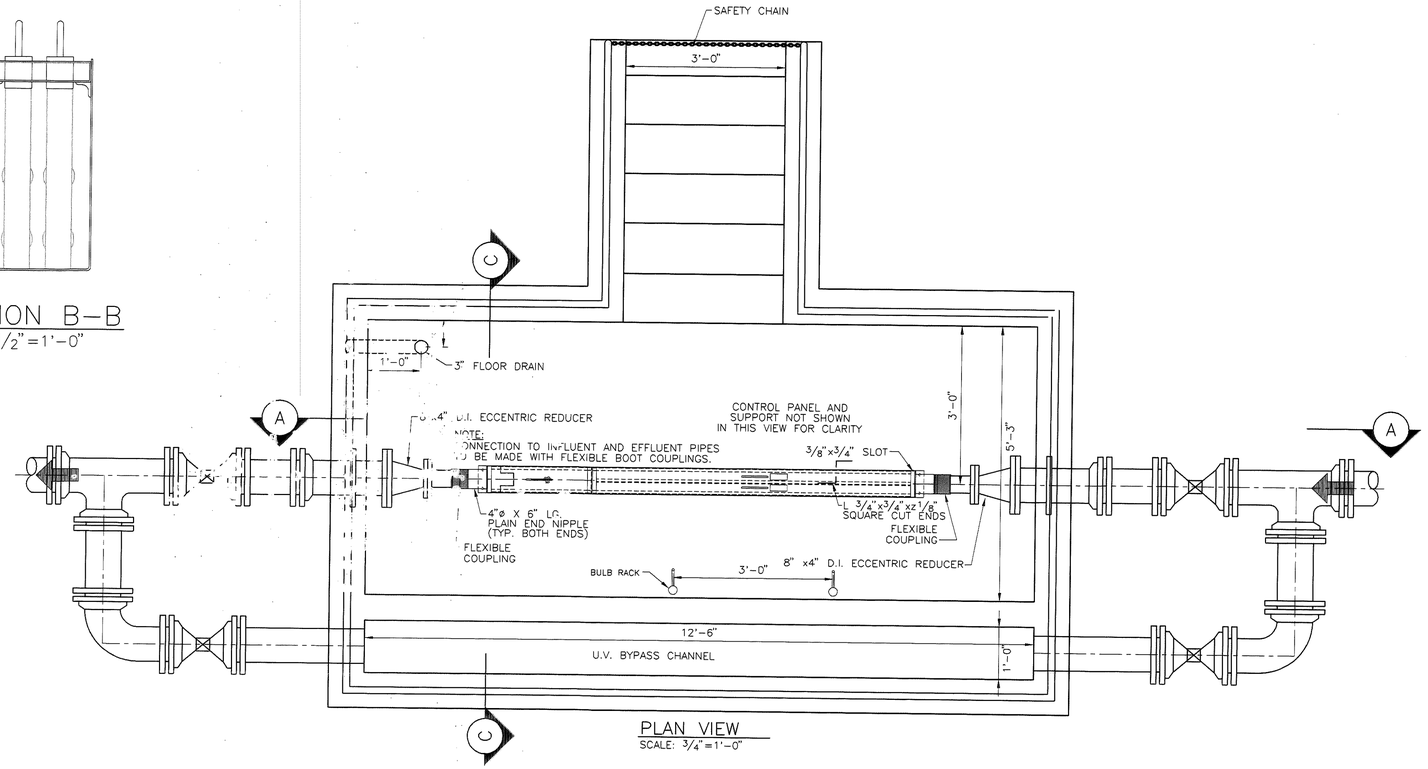
301-63



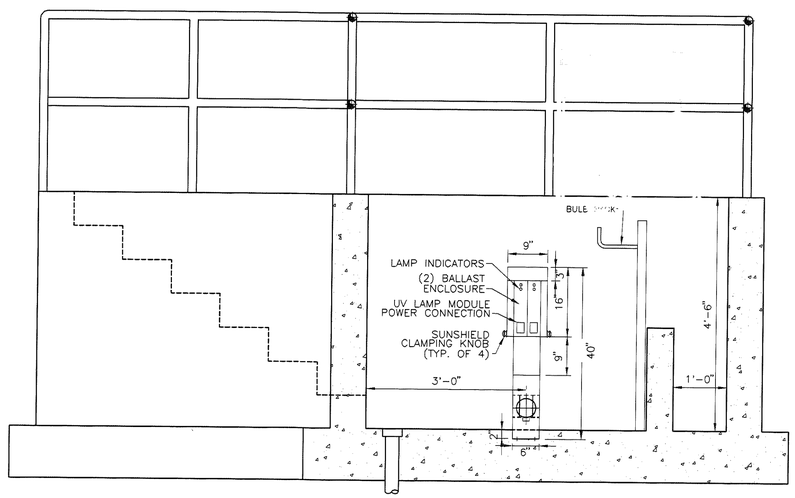
CONTROL PANEL
20" x 16" x 8"



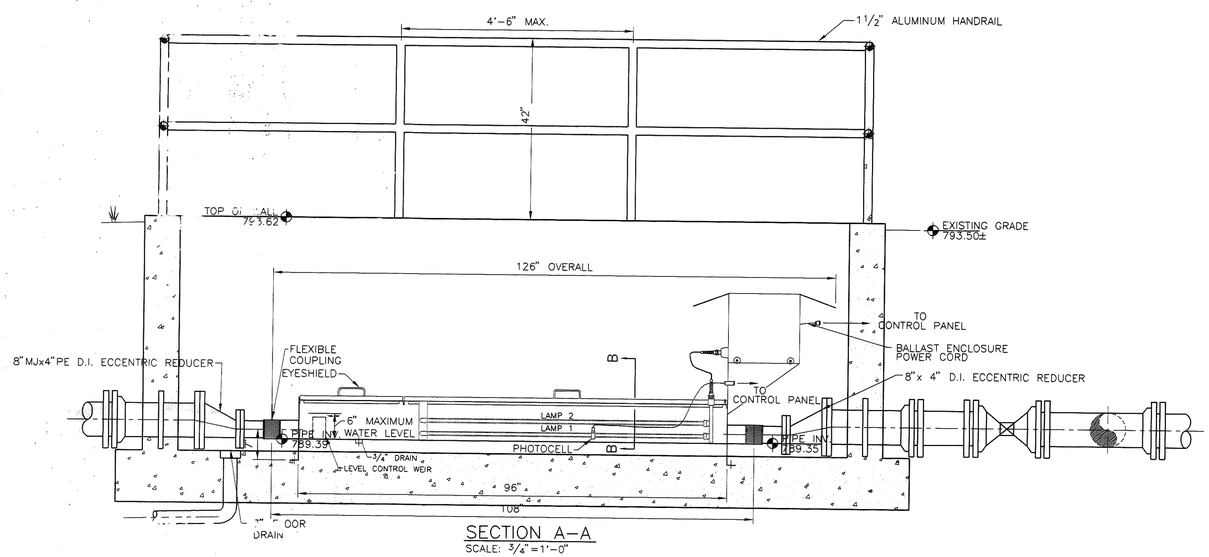
SECTION B-B
SCALE: 1/2"=1'-0"



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



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



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

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COMMONWEALTH ENGINEERS, INC.

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CURTIS W. WHITE REGISTERED No. 19400134 STATE OF INDIANA PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	CB
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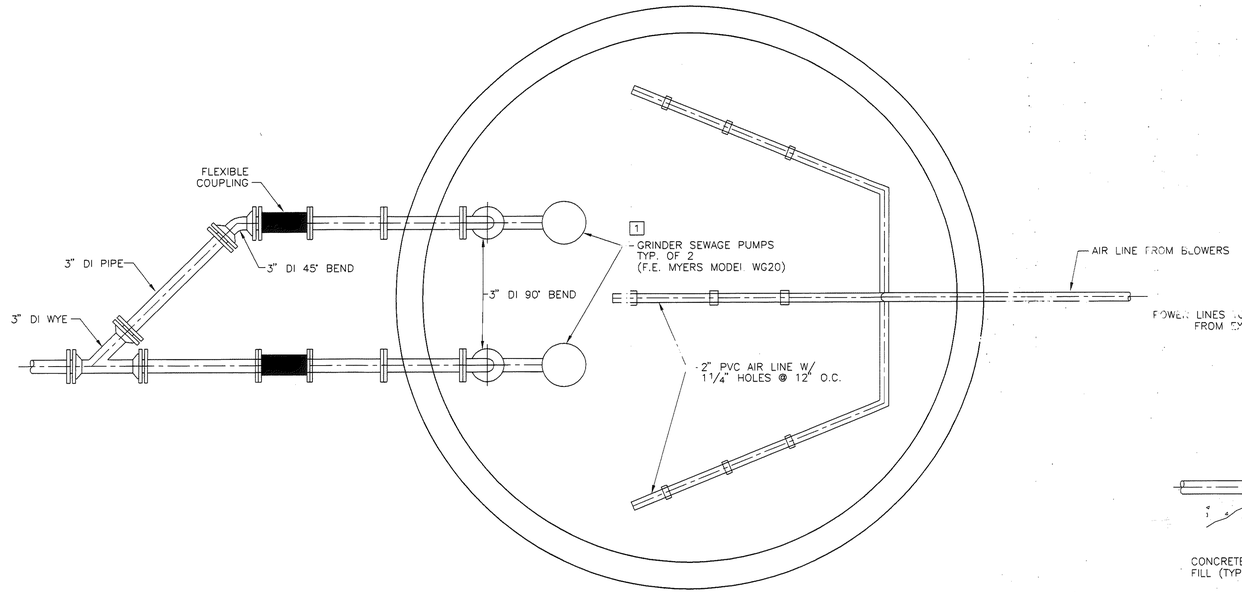
SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
ULTRAVIOLET STRUCTURE

DRAWING NO. 11

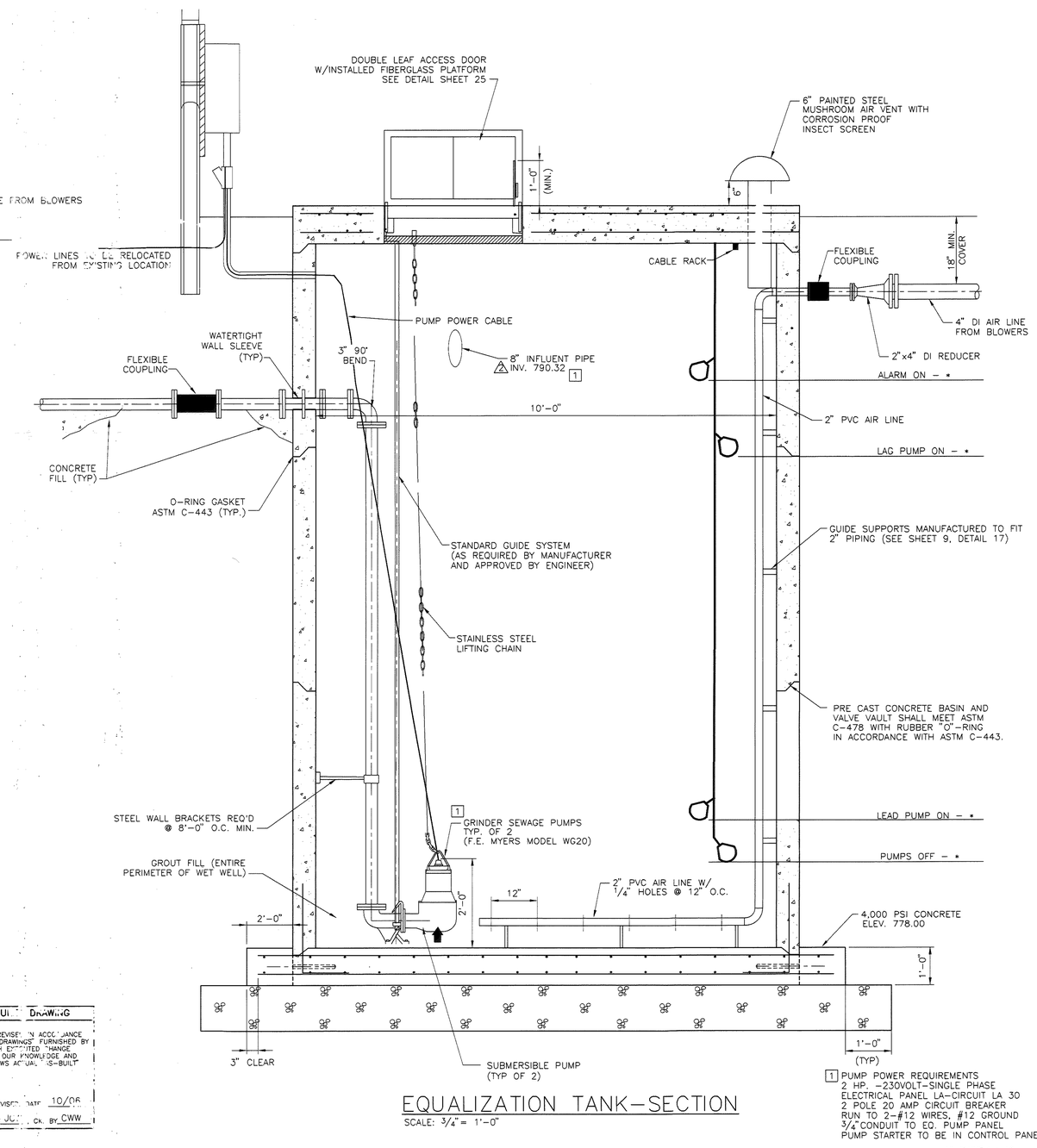
11 OF 52

11-UV STRUCTURE.DWG 16

301-63



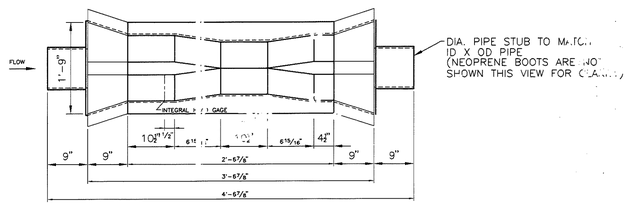
EQUALIZATION TANK–PLAN
SCALE: 3/4" = 1'–0"

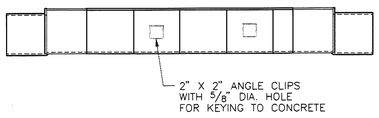


EQUALIZATION TANK–SECTION
SCALE: 3/4" = 1'–0"

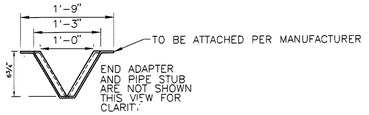
1 PUMP POWER REQUIREMENTS
2 HP, –230VOLT–SINGLE PHASE
ELECTRICAL PANEL LA–CIRCUIT LA 30
2 POLE 20 AMP CIRCUIT BREAKER
RUN TO 2–#12 WIRES, #12 GROUND
3/4" CONDUIT TO EQ. PUMP PANEL
PUMP STARTER TO BE IN CONTROL PANEL

12–FLUME.dwg 16





NOTE:
FLUME TO BE INSTALLED IN A NEW PRECAST MANHOLE.



NOTES:
4. THE HEAD GAGE IS MOLDED INTO THE SIDE OF THE FLUME.
3. THE MINIMUM GLASS CONTENT IS 30%, EXCLUSIVE OF RESIN RICH SURFACES.
2. THE INSIDE SURFACES ARE SMOOTH WHITE GEL COAT.
1. THE MINIMUM THICKNESS IS 1/4" FRP (FIBERGLASS REINFORCED POLYESTER).

2 LARGE V TRAPAZOIDAL FLUME
SCALE: 3/4" = 1'–0"

AS–BUILT DRAWING

THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXPECTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL AS–BUILT CONDITIONS.

COMMONWEALTH ENGINEERS, INC.

REVISED DATE 10/06

BY JC, Ck. BY CWW

1 ADDENDUM NO. 1 REVISED 5/18/04
2 ADDENDUM NO. 2 REVISED 7/19/04
1 CHANGE ORDER NO. 1 REVISED 9/1/04

CHRISTOPHER W. WHITE 10[illegible]3134 REGISTERED PROFESSIONAL ENGINEER STATE OF OHIO

COMMONWEALTH ENGINEERS, INC.

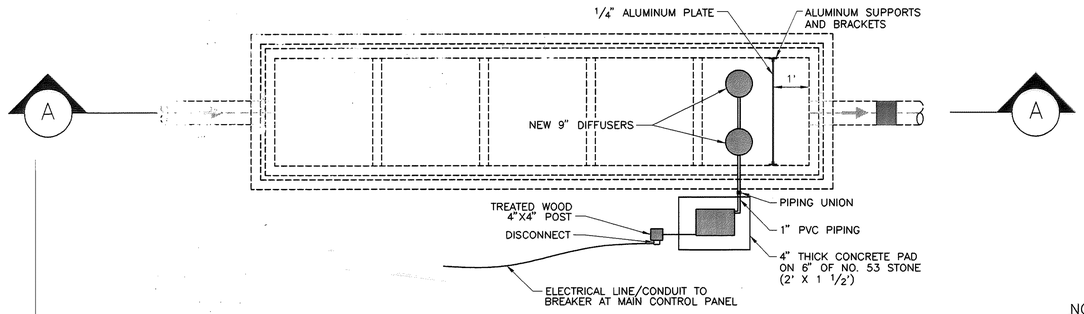
DRAWN BY:	CB
DESIGNED BY:	CWW
CHECKED BY:	CWW
DATE:	12/03
JOB NO:	S02119–02
SCALE:	AS NOTED

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
FLUME STRUCTURE/ EQUALIZATION TANK

DRAWING NO. 12

12 OF 52

30163

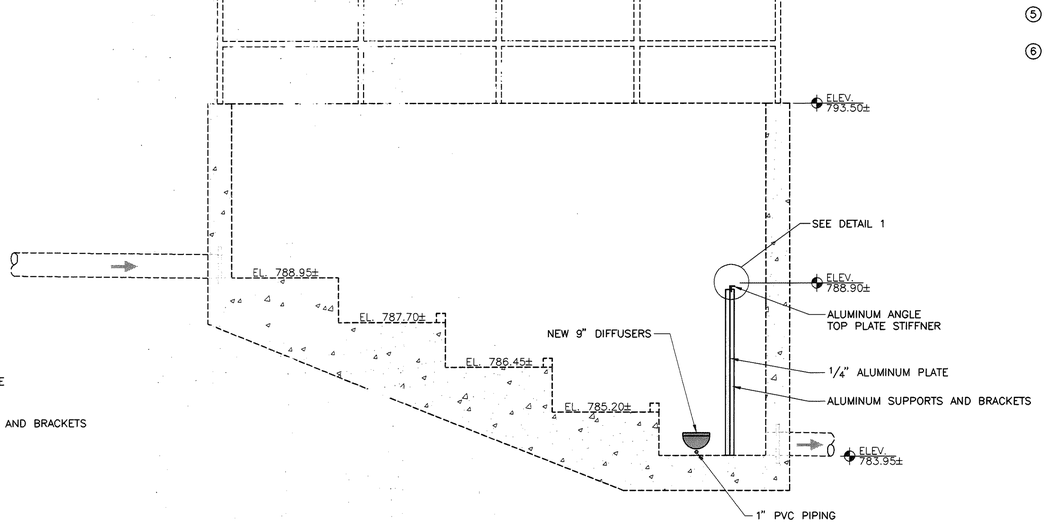


NEW CASCADE AERATION STRUCTURE

SCALE: 1/2 =1'-0'

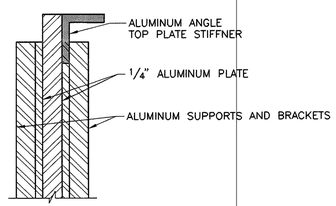
NOTES:

1. PVC PIPING TO BE SECURE FASTENED TO SIDED CASCADE STRUCTURE
2. DIFFUSER HEATER TO BE SECURELY ANCHORED TO FLOOR OF CASCADE STRUCTURE
3. ELECTRICAL LINE AND CONDUIT TO BE INSTALLED. POWER SUPPLY TO BE ACCESSED AT MAIN CONTROL PANEL IN LABORATORY BUILDING WITH DEDICATED BREAKER PER IEC.
4. ELECTRICAL DISCONNECT TO BE MOUNTED ON A TREATED WOOD 4"X4" POST.
5. ALUMINUM PLATE TO BE 1/4" AND SECURELY ANCHORED IN PLACE.
6. ALL BRACKETS AND HARDWARE SHALL BE STAINLESS STEEL. OR ALUMINUM



SECTION A

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



DETAIL 1

NOT TO SCALE

REVISED "AS-BUILT" DRAWING

THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.

COMMONWEALTH ENGINEERS, INC.

REVISED: DATE 10/06

BY JCW, CK. BY CWW

CURTISS W. WHITE REGISTERED No. 19400134 STATE OF INDIANA PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	BAK
DESIGNED BY:	CWW
CHECKED BY:	CWW
DATE:	9/05
JOB NO:	S02119-02
SCALE:	AS NOTED

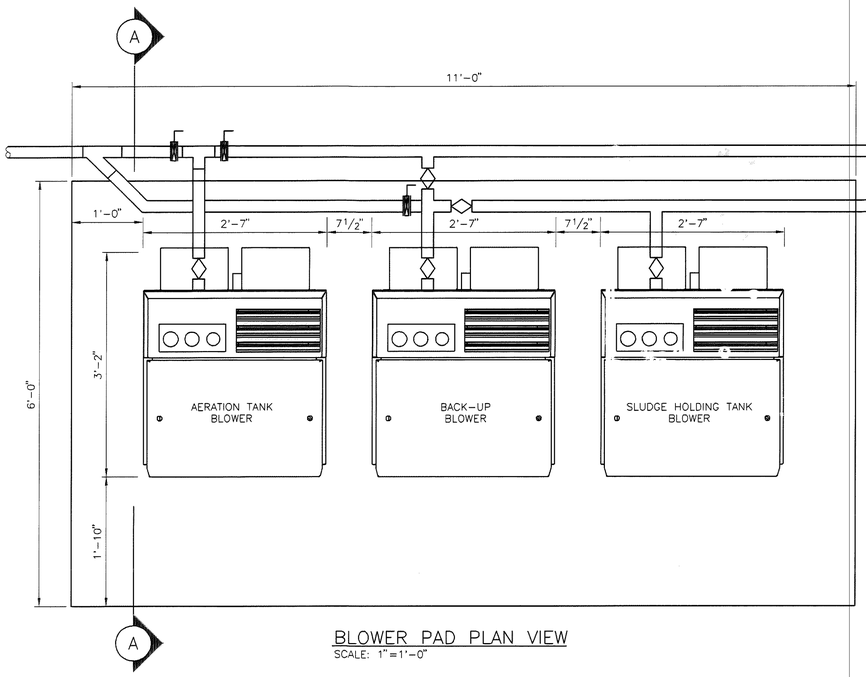
SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
POST AERATION CONVERSION

13-CASCADEUPDATE.dwg 24

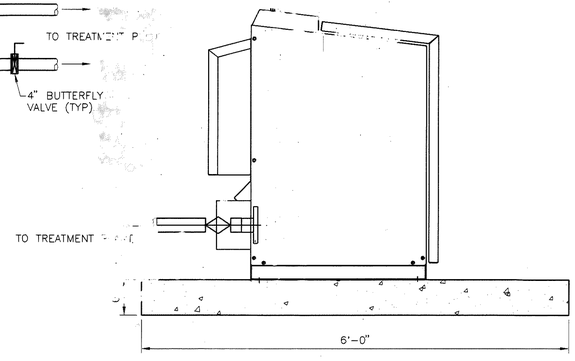
DRAWING NO. 14

14 OF 52

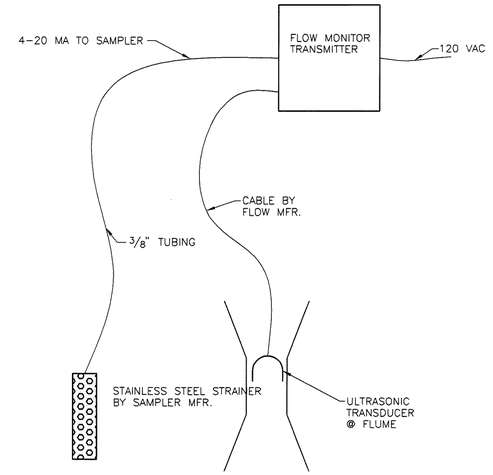
301-63



BLOWER PAD PLAN VIEW
SCALE: 1"=1'-0"



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



METERING/SAMPLING CONTROLS DIAGRAM

REVISED "AS-BUILT" DRAWING
THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.
COMMONWEALTH ENGINEERS, INC.
REVISED: DATE 10/06
BY JCW, CK. BY CWW

CURTIS W. WHITE No. 21615 STATE OF TENNESSEE REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

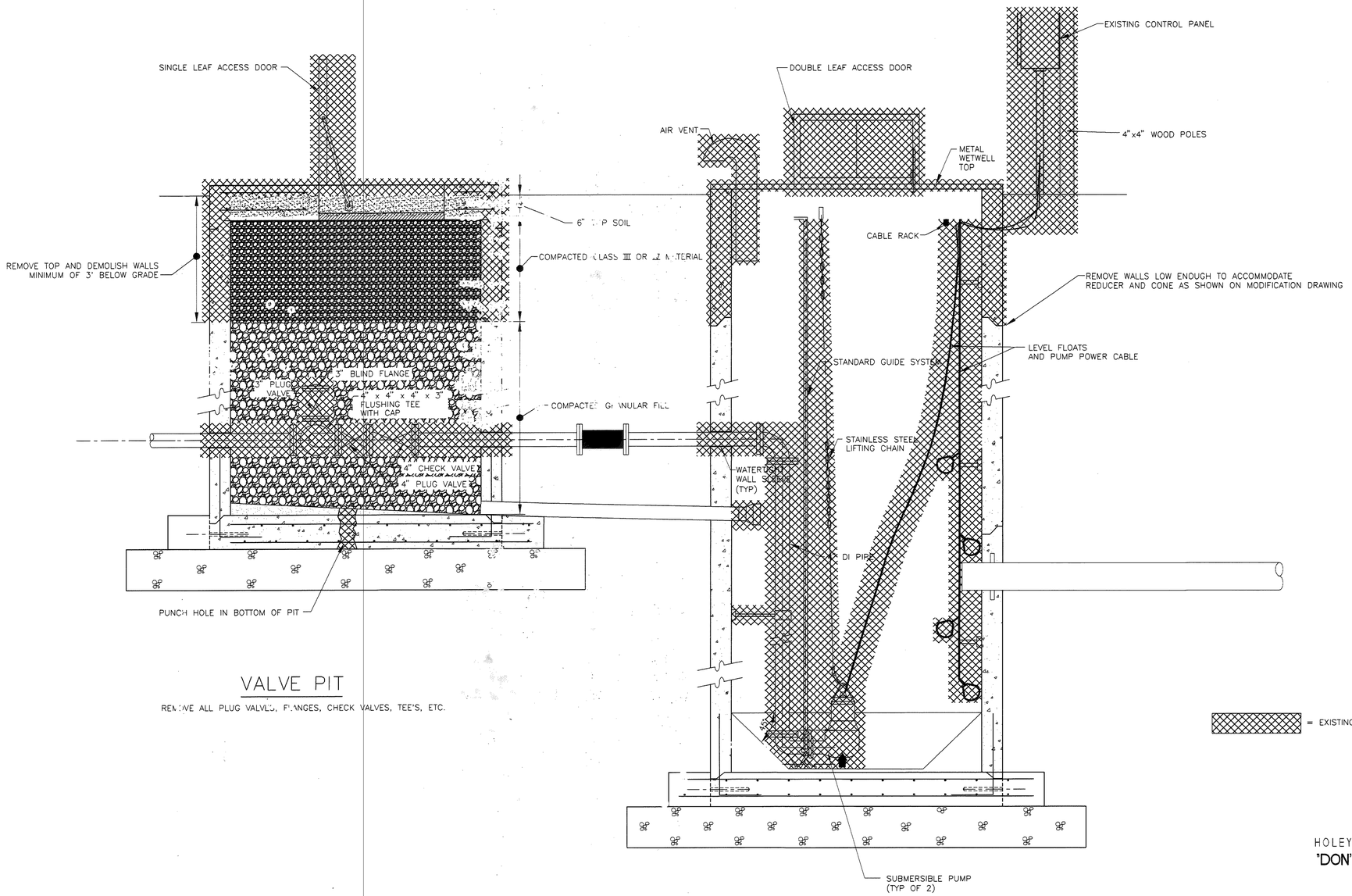
DRAWN BY:	CB
DESIGNED BY:	CWW
CHECKED BY:	CWW
DATE:	12/03
JOB NO:	S02119-02
SCALE:	AS NOTED

14-BLOWER-CONTROLS.dwg 12

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
BLOWER AND CONTROL DETAIL

DRAWING NO. 14
14 OF 52

301-63



VALVE PIT

REMOVE ALL PLUG VALVES, FLANGES, CHECK VALVES, TEE'S, ETC.

WET WELL

1. REMOVE ALL PUMPS, ELECTRICAL LINES, CHAINS, CHECK VALVE SUPPORTS, FLOATS, PIPING, GUIDE RAILS, ETC.
2. CLEAN WETWELL OF ALL DEBRIS
3. REMOVE ALL CONTROL PANELS, DISCONNECTS, JUNCTION BOXES, ETC.

= EXISTING TO BE REMOVED

SECTION

HOLEY MOLEY SAYS
"DON'T DIG BLIND"

CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-382-5544
(IT'S THE LAW)

REVISED "AS-BUILT" DRAWING
THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.
COMMONWEALTH ENGINEERS, INC.
REVISED: DATE 10/06
BY JCW, CK. BY CWW

CLIFTISS W. WHITE — REGISTERED — No. 30134 — STATE OF — PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	CB
DESIGNED BY:	CWW
CHECKED BY:	CWW
DATE:	1/04
JOB NO:	S02119-02
SCALE:	AS NOTED

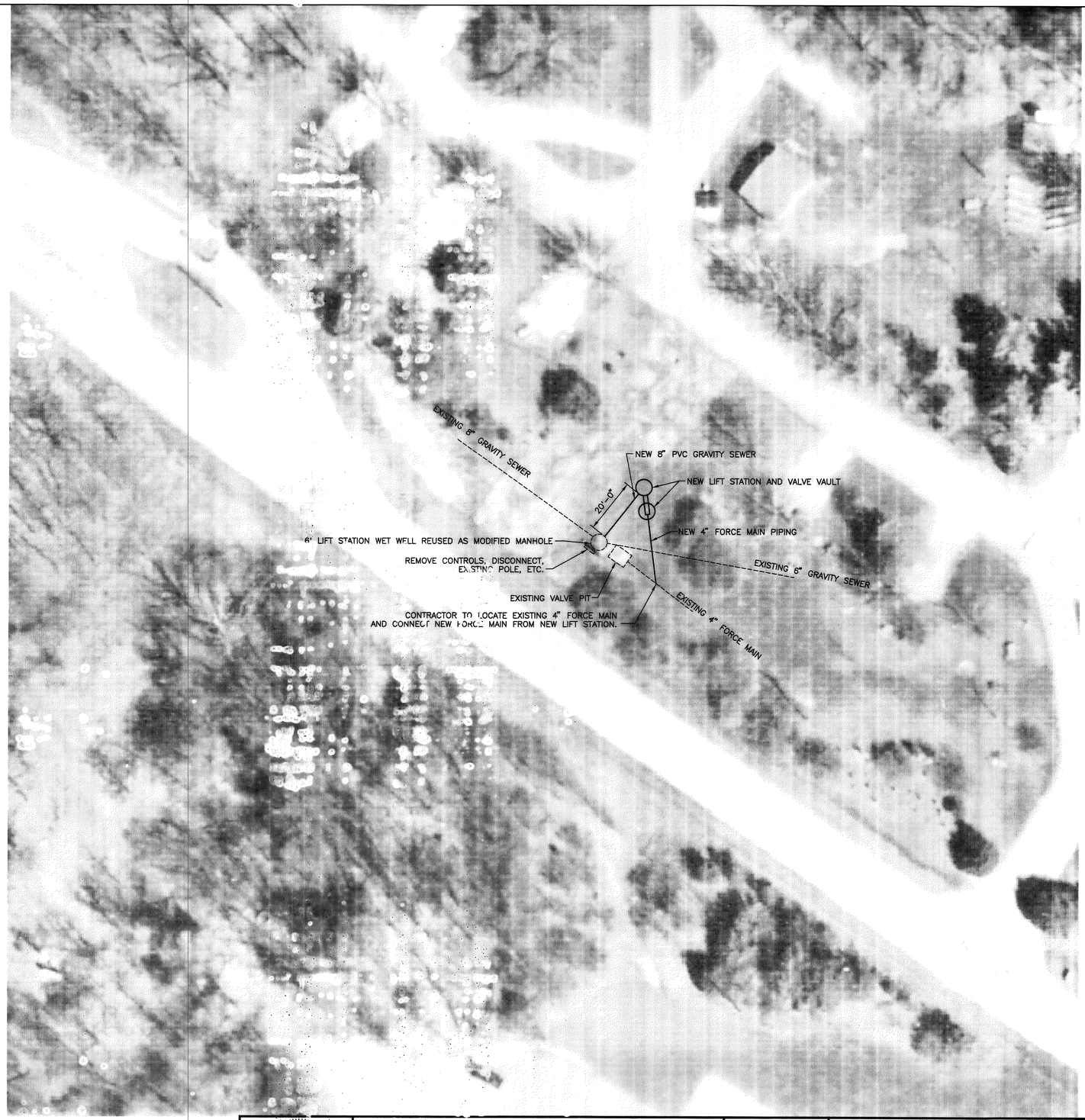
SALAMONIE RESERVOIR
LOST BRIDGE WEST SRA
PUBLIC WORKS PROJECT NO. E031410M
CAMPGROUND LIFT STATION DEMO

DRAWING NO. 15
15 OF 52

15-DEMO CAMP LIFT STA SECT.dwg 16

301-63

Oct 26, 2006 - 2:56pm
XREF: XREF-RECORD STAMP.dwg



SCALE: 1" = 20'

20' 0 20'

HOLEY MOLEY SAYS
"DON'T DIG BLIND"

CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-382-5544
(IT'S THE LAW)

16-CAMPLIFT STA PLAN.dwg 20

REVISED "AS-BUILT" DRAWING

THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.

COMMONWEALTH ENGINEERS, INC.

REVISED: DATE 10/06
BY JCW, CK. BY CWW

CURTISS W. WHITE REGISTERED No. 19400134 STATE OF VIRGINIA PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	CB
DESIGNED BY:	CWW
CHECKED BY:	CWW
DATE:	1/04
JOB NO:	S02119-02
SCALE:	AS NOTED

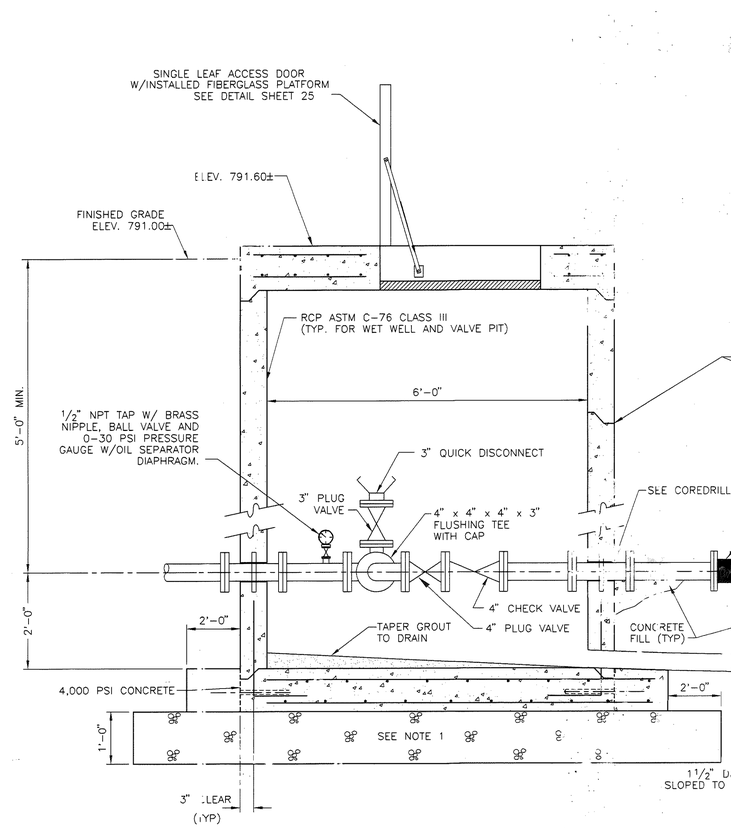
SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M

CAMPGROUND LIFT STATION

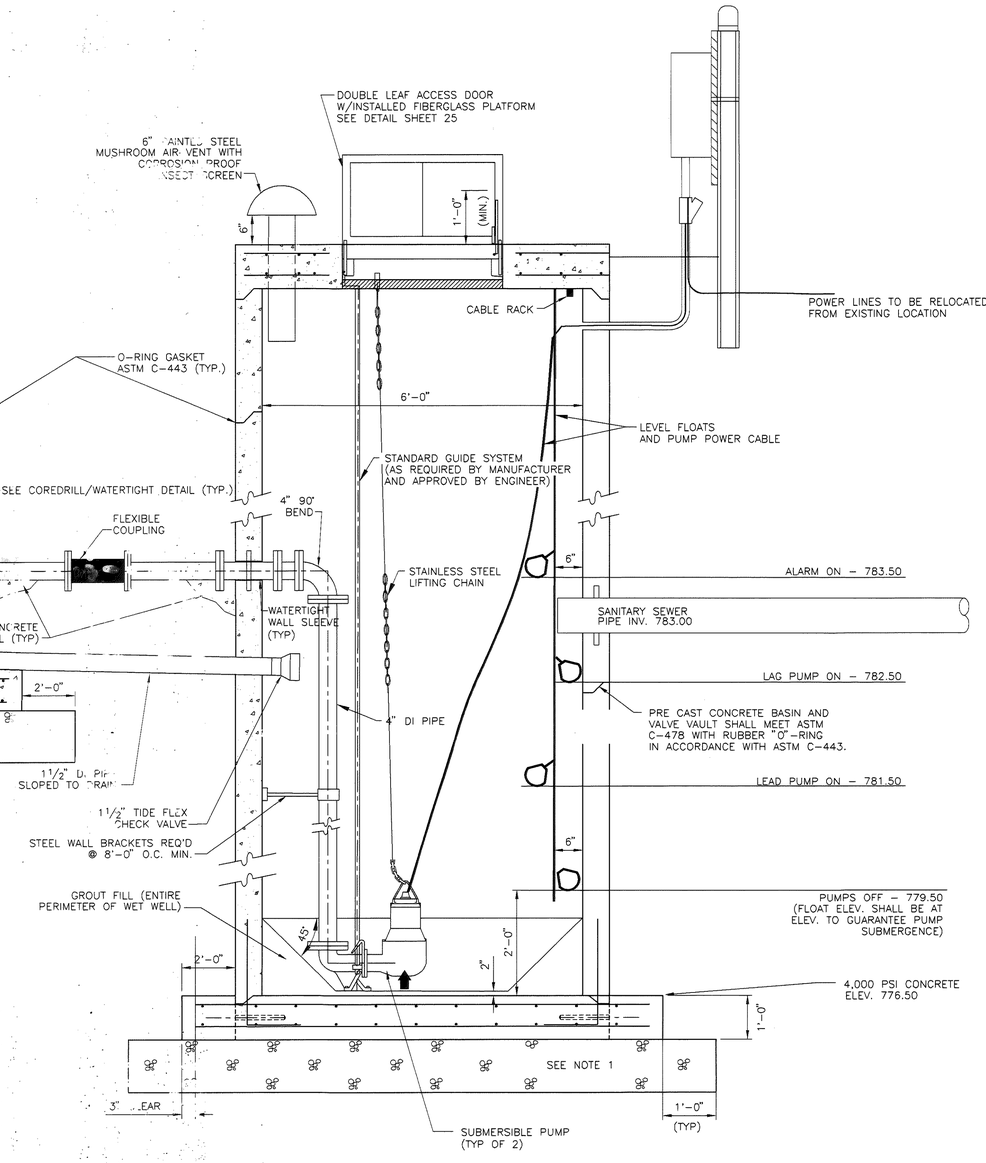
DRAWING NO. 16

16 OF 52

301-63



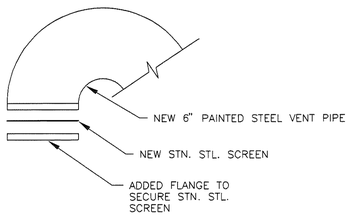
VALVE PIT



WET WELL

SECTION

3/4=1"



DETAIL "A"

SCALE: NONE

NOTES:
1. CONTRACTOR SHALL PROVIDE MIN. 12" DEEP (ENGINEER APPROVED)COMPACTED AGGREGATE BASE BELOW WET WELL AND VALVE PIT BASE SLABS.
2. SEE SPECS. FOR COMPACTED GRANULAR BACK FILL REQUIREMENTS AROUND EXTERIOR OF WET WELL AND VALVE PIT.
3. PUMP POWER CABLES AND LIFTING CHAINS TO BE PLACED AS FAR APART AS POSSIBLE TO AVOID ENTANGLEMENT.
4. CONTRACTOR TO CONFIRM ELEVATION OF FINISHED GRADE AND ELEVATIONS OF INFLUENT SANITARY SEWER LINES.

REVISED "AS-BUILT" DRAWING

THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.

COMMONWEALTH ENGINEERS, INC.

REVISED: DATE 10/06

BY JCW , CK. BY CWW

HOLEY MOLEY SAYS
"DON'T DIG BLIND"

CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-382-5544
(IT'S THE LAW)

17-CAMP LIFT STA SECT.dwg 16

CURTISS W. WHITE
REGISTERED
No. 19400134
STATE OF
INDIANA
PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

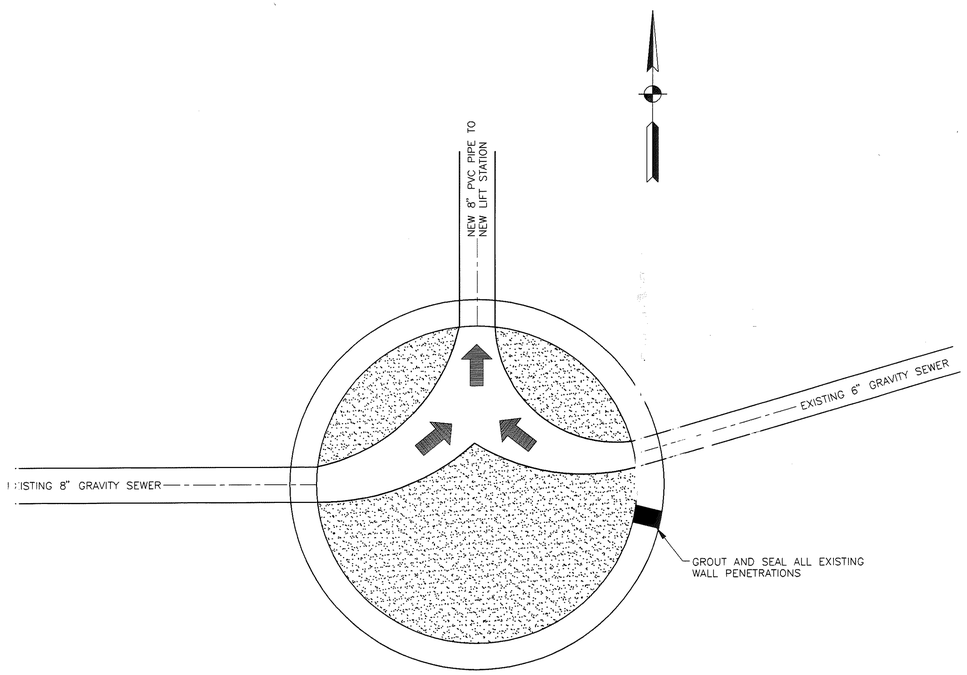
DRAWN BY:	CB
DESIGNED BY:	CWW
CHECKED BY:	CWW
DATE:	1/04
JOB NO:	S02119-02
SCALE:	AS NOTED

SALAMONIE RESERVOIR
LOST BRIDGE WEST SRA
PUBLIC WORKS PROJECT NO. E031410M
LIFT STATION SECTION AND DETAILS
CAMPGROUND LIFT STATION

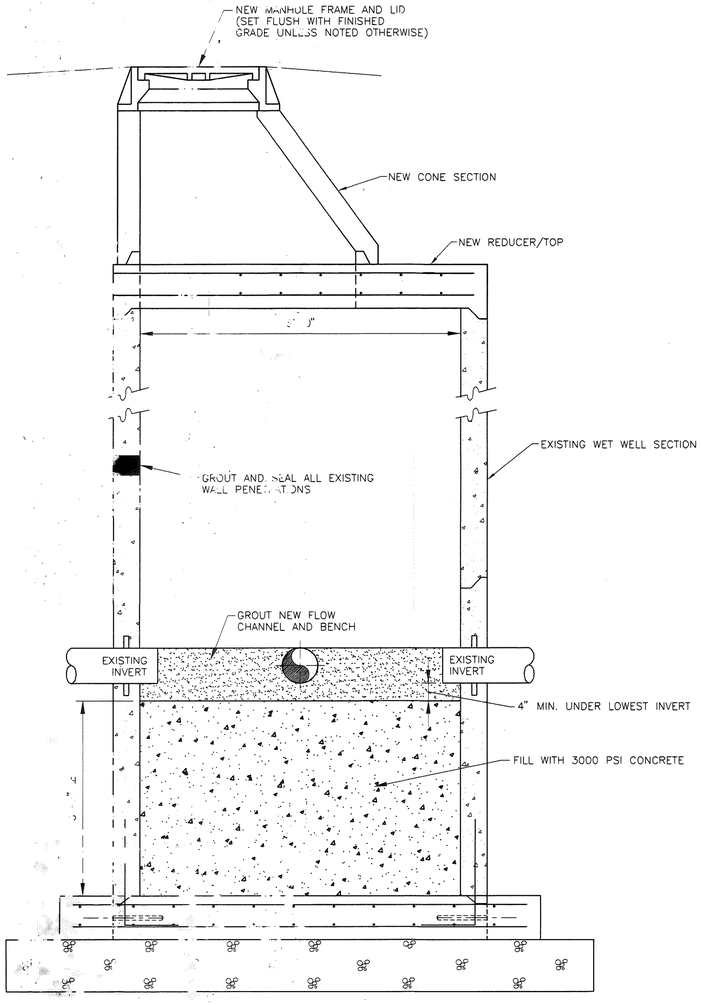
DRAWING NO. 17

17 OF 52

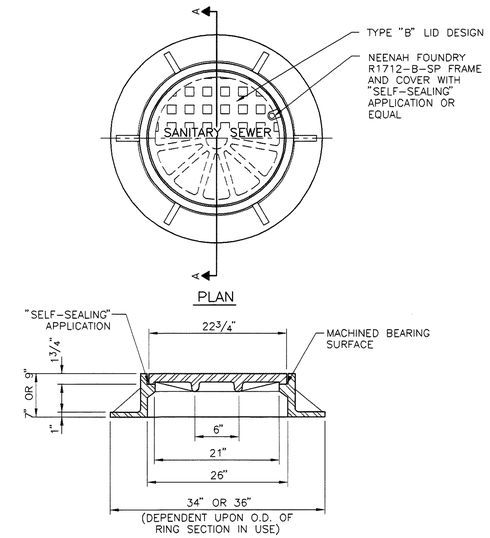
301-63



MODIFIED WETWELL BENCH LAYOUT
SCALE: 3/4"=1'-0"



MODIFICATION OF EXISTING WET WELL
3/4"=1'-0"



SANITARY SEWER MANHOLE
FRAME AND COVER - STANDARD MANHOLE
SCALE: NTS

HOLEY MOLEY SAYS
"DON'T DIG BLIND"

CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-382-5544
(IT'S THE LAW)

REVISED "AS-BUILT" DRAWING
THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS, TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.
COMMONWEALTH ENGINEERS, INC.
REVISED: DATE 10/06
BY JCW , CK. BY CWW

CURTISS W. WHITE REGISTERED 19400134 STATE OF PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	CB
DESIGNED BY:	CWW
CHECKED BY:	CWW
DATE:	1/04
JOB NO:	S02119-02
SCALE:	AS NOTED

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
MODIFICATION OF EXISTING WET WELL

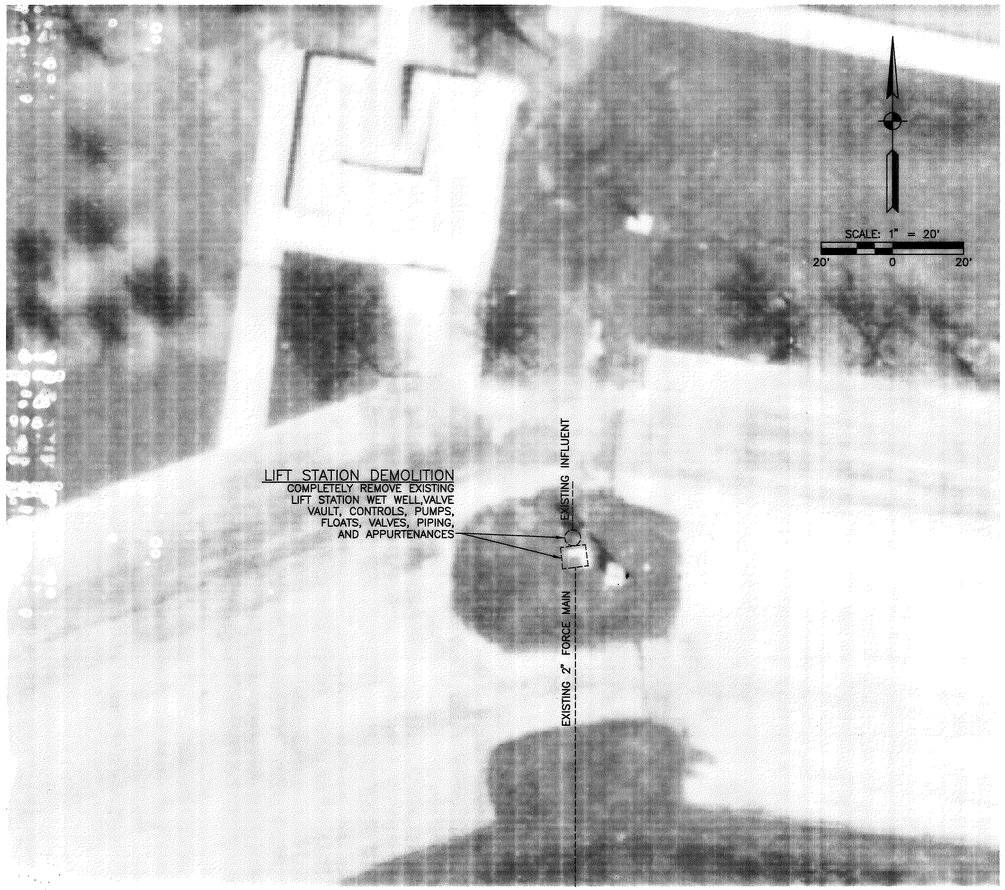
DRAWING NO. 18
18 OF 52

18-EX. WET WELL MOD.dwg 16

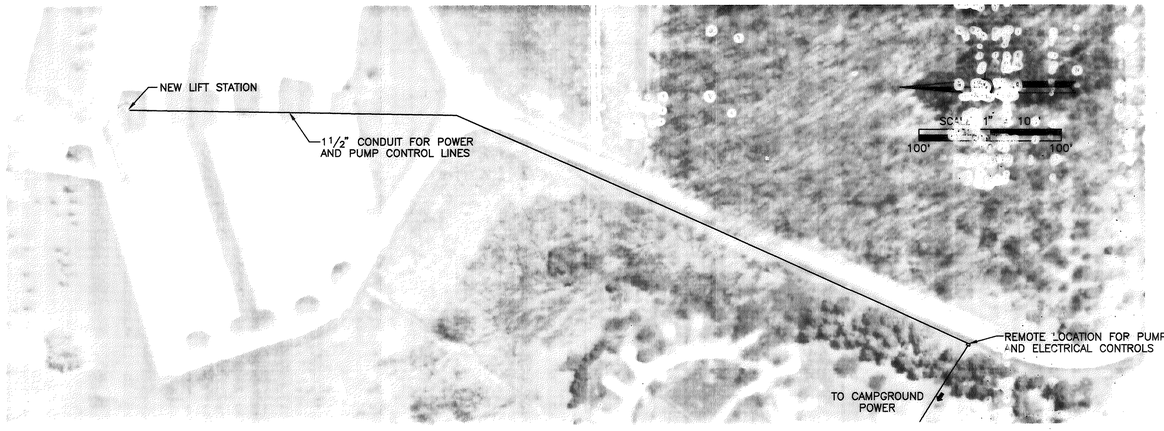
301-63

NOTE:
1. EXISTING LIFT STATION IS 13.1' DEEP. NEW LIFT STATION WILL BE 18.8' FEET DEEP.
2. COMPLETELY REMOVE EXISTING LIFT STATION AND REPLACE WITH NEW LIFT STATION, INCLUDING NEW WET WELL AND VALVE VAULT.

NEW SITE PLAN



EXISTING SITE PLAN



NEW UNDERGROUND ELECTRIC ROUTE

REVISED "AS-BUILT" DRAWING

THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.

COMMONWEALTH ENGINEERS, INC.

REVISED: DATE 10/06
BY JCW, CK. BY CWW

HOLEY MOLEY SAYS
"DON'T DIG BLIND"

CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-382-5544
(IT'S THE LAW)

19-BEACH-LIFTSTATION.dwg 20

CURTISS W. WHITE REGISTERED No. 19400134 STATE OF IOWA PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

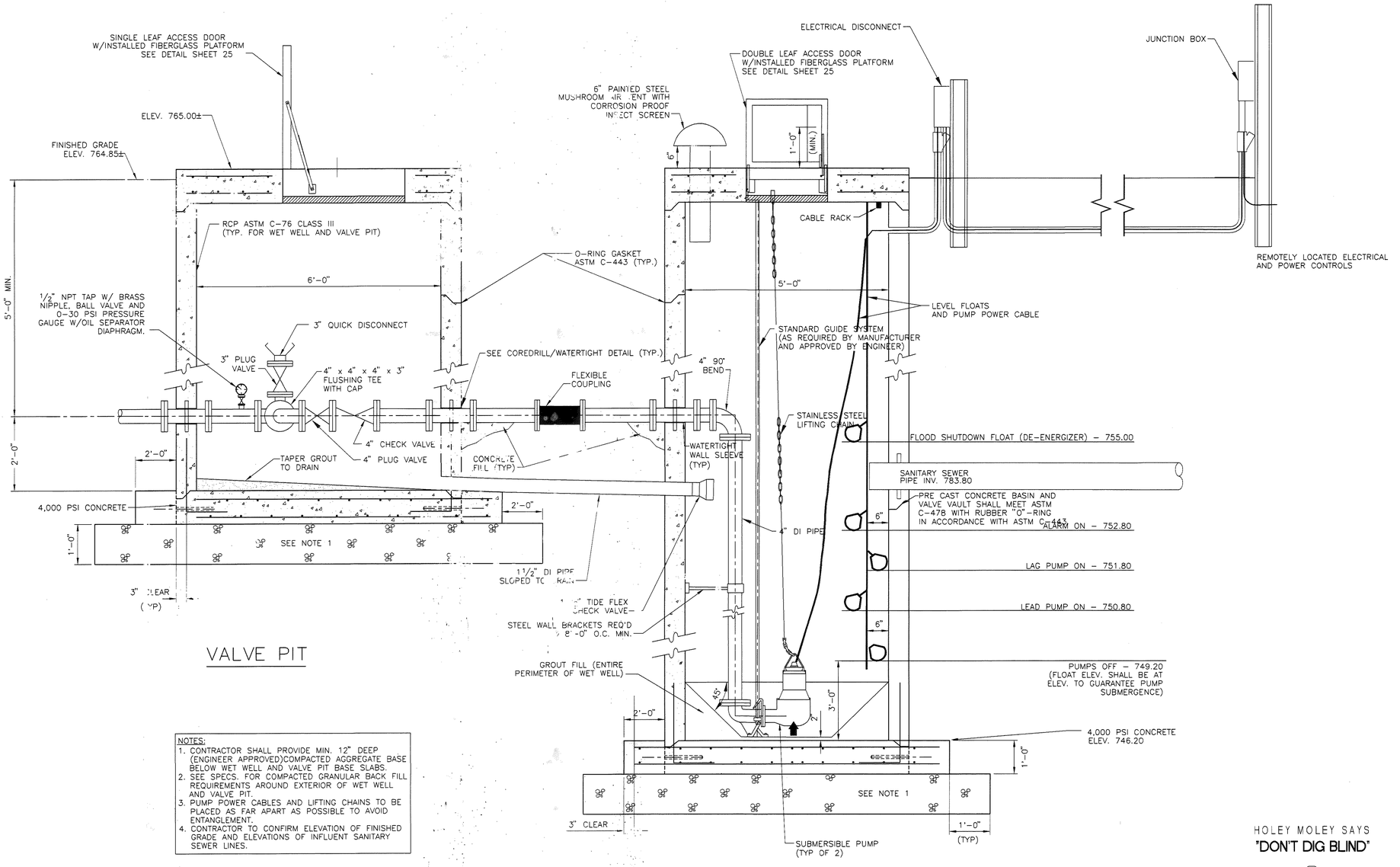
DRAWN BY:	CB
DESIGNED BY:	CWW
CHECKED BY:	CWW
DATE:	1/04
JOB NO:	S02119-02
SCALE:	AS NOTED

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
BEACH LIFT STATION

DRAWING NO. 19

19 OF 52

301-63



NOTES:
1. CONTRACTOR SHALL PROVIDE MIN. 12" DEEP (ENGINEER APPROVED)COMPACTED AGGREGATE BASE BELOW WET WELL AND VALVE PIT BASE SLABS.
2. SEE SPECS. FOR COMPACTED GRANULAR BACK FILL REQUIREMENTS AROUND EXTERIOR OF WET WELL AND VALVE PIT.
3. PUMP POWER CABLES AND LIFTING CHAINS TO BE PLACED AS FAR APART AS POSSIBLE TO AVOID ENTANGLEMENT.
4. CONTRACTOR TO CONFIRM ELEVATION OF FINISHED GRADE AND ELEVATIONS OF INFLUENT SANITARY SEWER LINES.

HOLEY MOLEY SAYS
"DON'T DIG BLIND"

CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-382-5544
(IT'S THE LAW)

REVISED "AS-BUILT" DRAWING

THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.

COMMONWEALTH ENGINEERS, INC.
REVISED: DATE 10/06
BY JCW, CK. BY CWW

CURTISS W. WHITE REGISTERED No. 19400134 STATE OF MAINE PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	CB
DESIGNED BY:	CWW
CHECKED BY:	CWW
DATE:	1/04
JOB NO:	S02119-02
SCALE:	AS NOTED

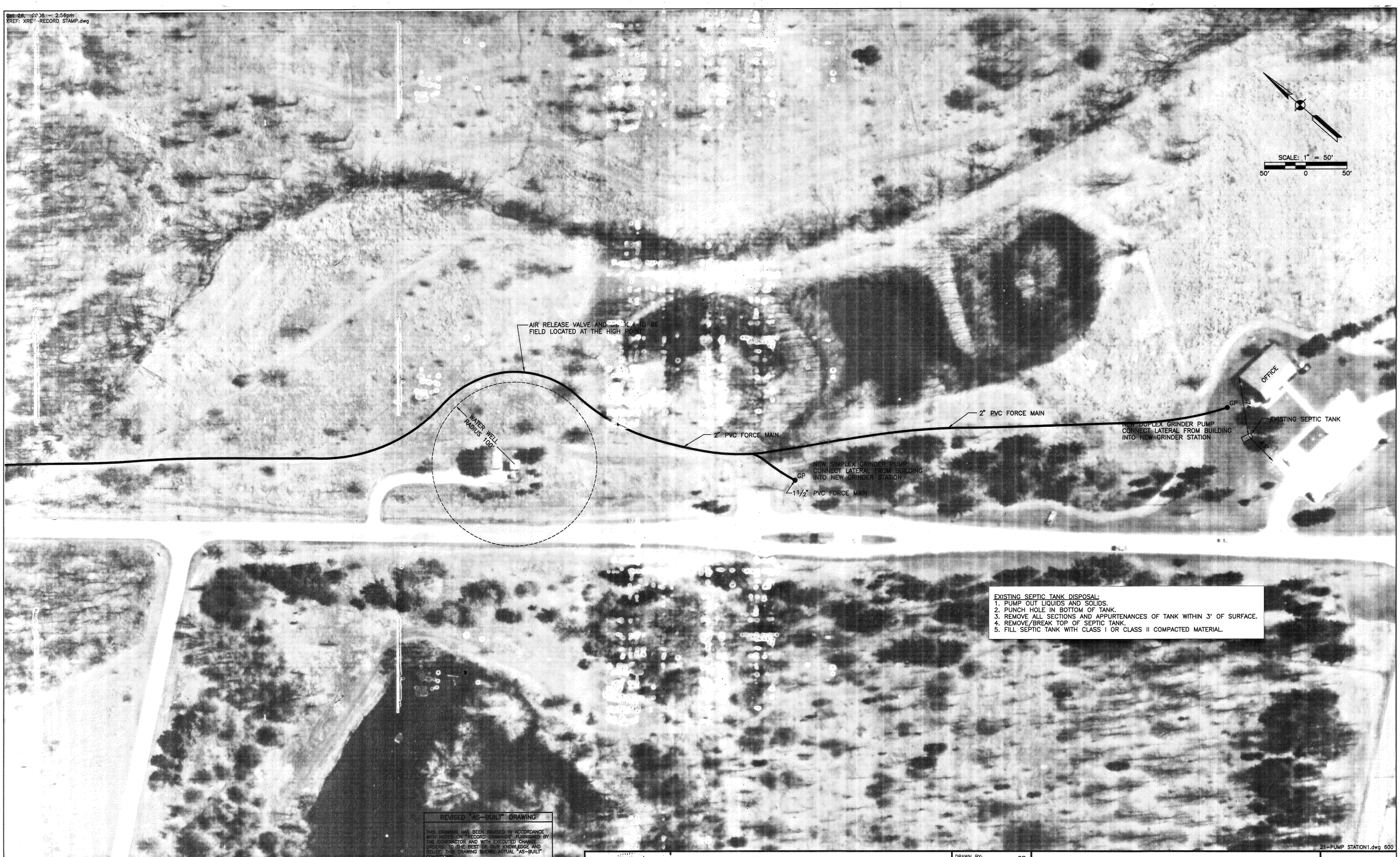
SALAMONIE RESERVOIR
LOST BRIDGE WEST SRA
PUBLIC WORKS PROJECT NO. E031410M
LIFT STATION SECTION AND DETAILS
BEACH LIFT STATION

DRAWING NO. 20
20 OF 52

20-BEACH LIFT STA SECT.dwg 16

30-63

Oct 20, 2006 - 2:56pm
XREF: XREF-RECORD STAMP.dwg



EXISTING SEPTIC TANK DISPOSAL:
1. PUMP OUT LIQUIDS AND SOLIDS.
2. PUNCH HOLE IN BOTTOM OF TANK.
3. REMOVE ALL SECTIONS AND APPURTENANCES OF TANK WITHIN 3' OF SURFACE.
4. REMOVE/BREAK TOP OF SEPTIC TANK.
5. FILL SEPTIC TANK WITH CLASS I OR CLASS II COMPACTED MATERIAL.

REVISED "AS-BUILT" DRAWING

THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON RECORD DRAWINGS FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.

COMMONWEALTH ENGINEERS, INC.

REVISED: DATE 10/06
BY JCW, CK. BY CWW

CURTISS W. WHITE
REGD. PRO.
No. 19400134
STATE OF INDIANA
PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	CB
DESIGNED BY:	CWW
CHECKED BY:	CWW
DATE:	1/04
JOB NO:	S02119-02
SCALE:	AS NOTED

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
VISITOR CENTER GRINDER STATION AND FORCEMAIN

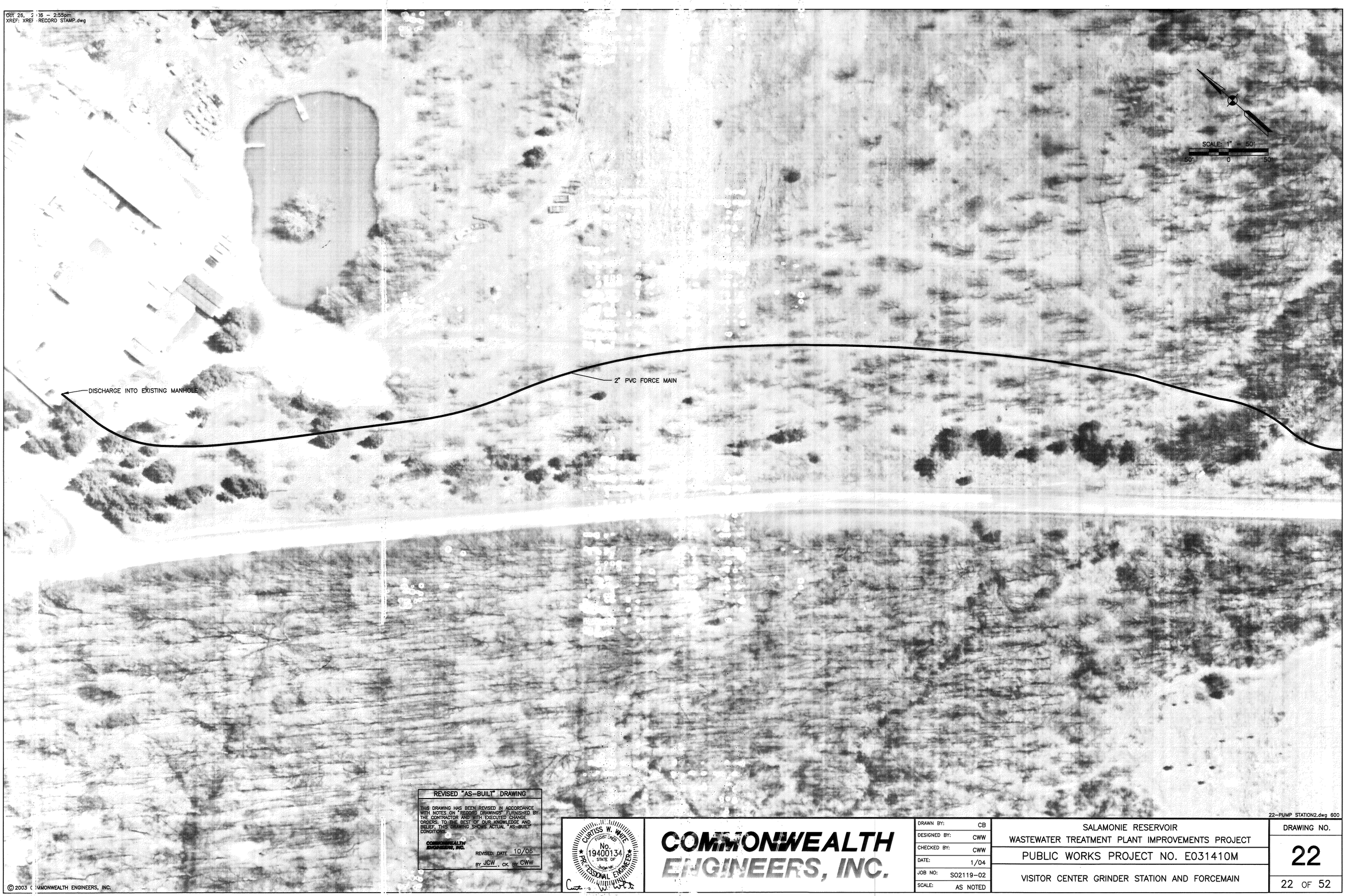
DRAWING NO. 21

21 OF 52

21-PUMP STATION1.dwg 600

301-63

Oct 26, 2006 – 2:55pm
XREF: XREF-RECORD STAMP.dwg



22-PUMP STATION2.dwg 600

REVISED "AS-BUILT" DRAWING

THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "REDLINED DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.

COMMONWEALTH ENGINEERS, INC.

REVISED: DATE 10/06

BY JCW, CK. BY CWW

CURTISS W. WHITE
REGISTERED
No. 19400134
STATE OF
PROFESSIONAL ENGINEER

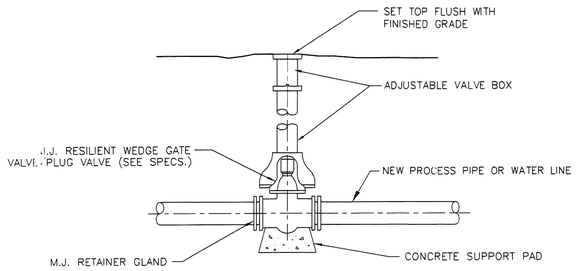
COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	CB
DESIGNED BY:	CWW
CHECKED BY:	CWW
DATE:	1/04
JOB NO:	S02119-02
SCALE:	AS NOTED

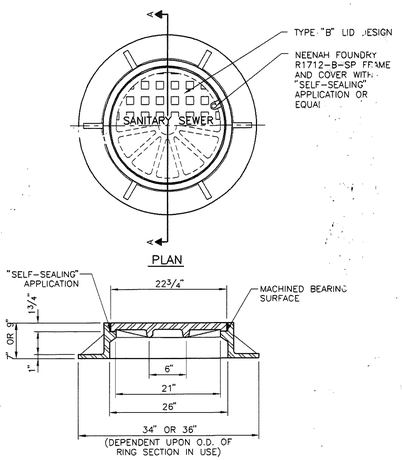
SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
VISITOR CENTER GRINDER STATION AND FORCEMAIN

DRAWING NO.
22
22 OF 52

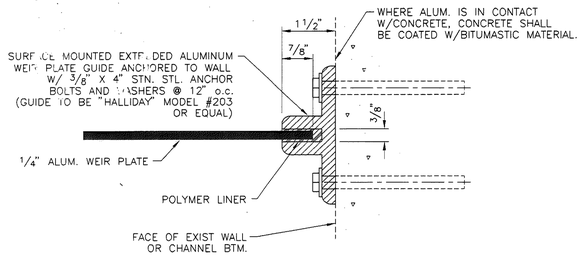
301-63



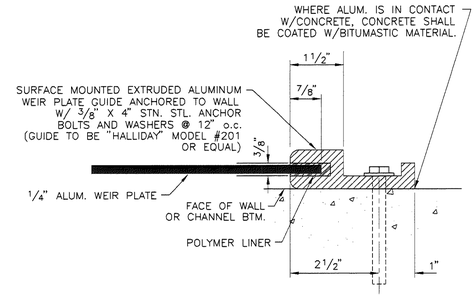
BURIED PLUG/GATE VALVE AND BOX DETAIL
NO SCALE



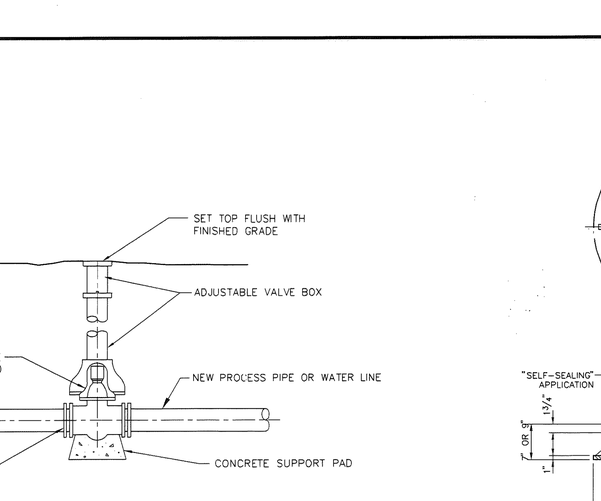
SANITARY SEWER MANHOLE
FRAME AND COVER - STANDARD MANHOLE
SCALE: 1"=1'-0"



TYPE "B" WEIR PLATE GUIDE DETAIL [1]
NO SCALE

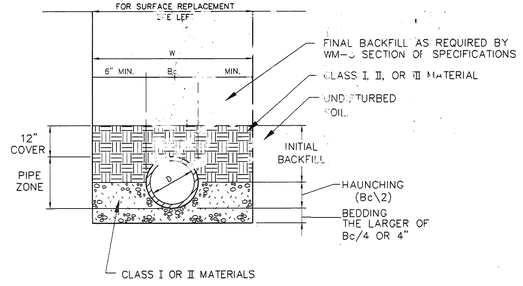


TYPE "A" WEIR PLATE GUIDE DETAIL [1]
NO SCALE



NOTE :
1. FOR ALL MANHOLES 6'-0" OR LESS IN DEPTH - PROVIDE RISER WITH FLAT TOP IN LIEU OF ECCENTRIC CONE IN ACCORDANCE WITH ASTM C-478
2. THE CROWN OF THE INFLUENT PIPE SHALL BE AT OR ABOVE THE CROWN OF THE OUTLET PIPE
3. DROP MANHOLES SHALL BE USED WHENEVER THE DISTANCE FROM THE INVERT OF THE INCOMING LINE AND BOTTOM OF MANHOLE IS GREATER THAN TWO FEET.

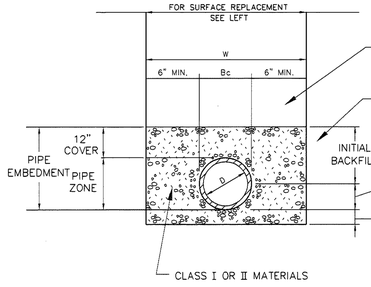
STANDARD SANITARY MANHOLE DETAIL
NO SCALE



W = MAXIMUM ALLOWABLE TRENCH WIDTH FOR PIPE AS PER ASTM NOT TO EXCEED FOUR (4) FEET FOR 6" THROUGH 24" PIPE NOR SIX (6) FEET FOR 27" THROUGH 48" PIPE
D = PIPE DIAMETER (INTERNAL)
Bc = PIPE DIAMETER (EXTERNAL)

NOTES:
1. COMPACTED BEDDING STOPS AT SPRING-LINE OF THE PIPE. BACKFILLING ABOVE THIS POINT SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AND AS REQUIRED HEREIN.
2. WHEN CLASS I MATERIAL IS USED FOR BEDDING, COMPACTION MAY BE ACCOMPLISHED BY HAND OR MECHANICAL TAMPING.
3. WHEN CLASS II MATERIAL IS USED FOR BEDDING, COMPACTION SHALL BE ACCOMPLISHED ONLY BY HAND OR MECHANICAL TAMPING TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY.
4. WORK FALLING UNDER THE JURISDICTION OF THE INDIANA DEPARTMENT OF TRANSPORTATION (INDOT) SHALL UTILIZE COMPACTED GRANULAR BACKFILL MATERIAL FOR INITIAL AND FINAL BACKFILL ANYWHERE WITHIN 12 FEET OF THE EDGE OF PAVEMENT. FOR ALL OTHER NON-INDOT PAVEMENT AREAS (INCLUDING BOTH HARD SURFACED AND COMPACTED AGGREGATE), COMPACTED GRANULAR BACKFILL MATERIAL SHALL BE USED WITHIN 5 FEET OF THE EDGE OF THE PAVEMENT.

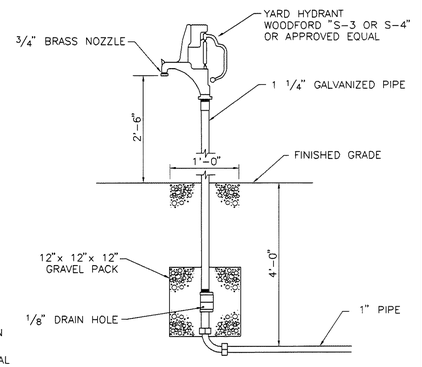
TRENCH DETAIL METHOD "A"
FOR RIGID CONDUITS (RCP AND DI) IN AREAS NOT SUBJECTED TO VEHICULAR TRAFFIC
NO SCALE



W = MAXIMUM ALLOWABLE TRENCH WIDTH FOR PIPE AS PER ASTM NOT TO EXCEED FOUR (4) FEET FOR 6" THROUGH 24" PIPE NOR SIX (6) FEET FOR 27" THROUGH 48" PIPE
D = PIPE DIAMETER (INTERNAL)
Bc = PIPE DIAMETER (EXTERNAL)

NOTES:
1. COMPACTED INITIAL BACKFILL SHALL EXTEND A MINIMUM OF 12" ABOVE THE TOP OF THE PIPE. FINAL BACKFILL ABOVE THIS POINT SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AND AS REQUIRED HEREIN.
2. WHEN CLASS I MATERIAL IS USED FOR BEDDING, HAUNCHING, AND INITIAL BACKFILL COMPACTION MAY BE ACCOMPLISHED BY HAND OR MECHANICAL TAMPING TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY.
3. WHEN CLASS II MATERIAL IS USED FOR BEDDING, HAUNCHING, AND INITIAL BACKFILL COMPACTION MAY BE ACCOMPLISHED BY HAND OR MECHANICAL TAMPING TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY.
4. WORK FALLING UNDER THE JURISDICTION OF THE INDIANA DEPARTMENT OF TRANSPORTATION (INDOT) SHALL UTILIZE COMPACTED GRANULAR BACKFILL MATERIAL FOR INITIAL AND FINAL BACKFILL ANYWHERE WITHIN 12 FEET OF THE EDGE OF PAVEMENT. FOR ALL OTHER NON-INDOT PAVEMENT AREAS (INCLUDING BOTH HARD SURFACED AND COMPACTED AGGREGATE), COMPACTED GRANULAR BACKFILL MATERIAL SHALL BE USED WITHIN 5 FEET OF THE EDGE OF THE PAVEMENT.

TRENCH DETAIL METHOD B
FOR FLEXIBLE CONDUITS (PVC, RPVC, ABS AND HDPE) AND RIGID CONDUITS (RCP AND DI) IN AREAS SUBJECT TO VEHICULAR TRAFFIC
NO SCALE



YARD HYDRANT DETAIL
NO SCALE

REVISED "AS-BUILT" DRAWING
THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.
COMMONWEALTH ENGINEERS, INC.
REVISED: DATE 10/06
BY JCW, CK. BY CWW

[1] CHANGE ORDER NO. 1 REVISED 9/1/04

CURTISS W. WHITE REGISTERED No. 19400134 STATE OF INDIANA PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	CB
DESIGNED BY:	CWW
CHECKED BY:	CWW
DATE:	12/03
JOB NO:	S02119-02
SCALE:	AS NOTED

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
MISCELLANEOUS DETAILS

23-MISCDTL1.dwg 1

DRAWING NO.
C-23
23 OF 52

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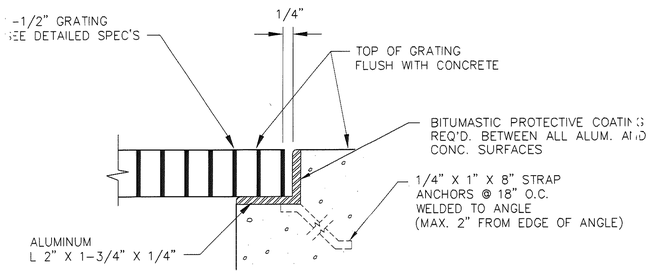
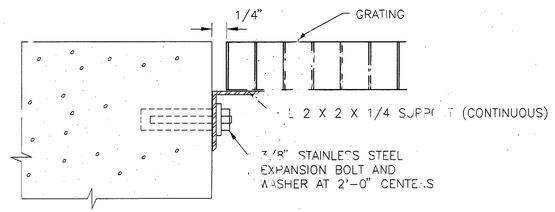


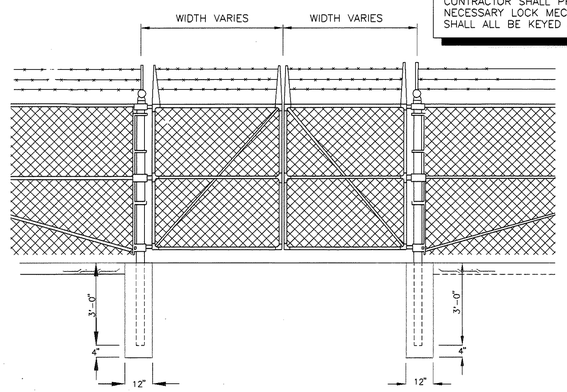
GRATING SUPPORT DETAIL – EMBEDDED GRATING



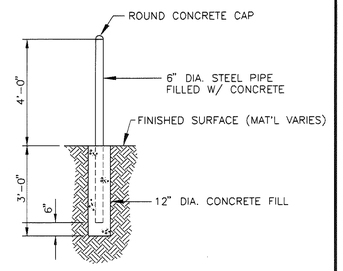
NOTES:
1. GRATING SHALL BE OF THE MATERIAL AS SHOWN ELSEWHERE ON THE DRAWINGS. IF NOT SHOWN ELSEWHERE. GRATING SHALL BE ALUMINUM.
2. GRATING SHALL SHALL CONFORM TO THE REQUIREMENTS OF THE DETAILED SPECIFICATIONS.
3. SUPPORT SHALL BE ALUMINUM UNLESS STEEL GRATING IS USED. IF STEEL GRATING IS USED THE SUPPORT SHALL BE STEEL AND SHALL BE PAINTED AS DESCRIBED IN THE DETAILED SPECIFICATIONS.

GRATING SUPPORT DETAIL – FENCE MOUNTED

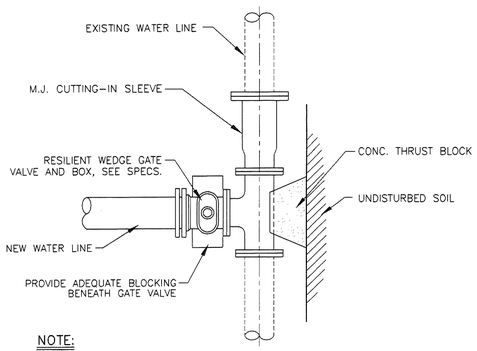
NOTE:
CONTRACTOR SHALL PROVIDE ALL NECESSARY LOCK MECHANISMS, AND SHALL ALL BE KEYED ALIKE.



CHAIN LINK SWING GATE FENCE DETAIL
NO SCALE

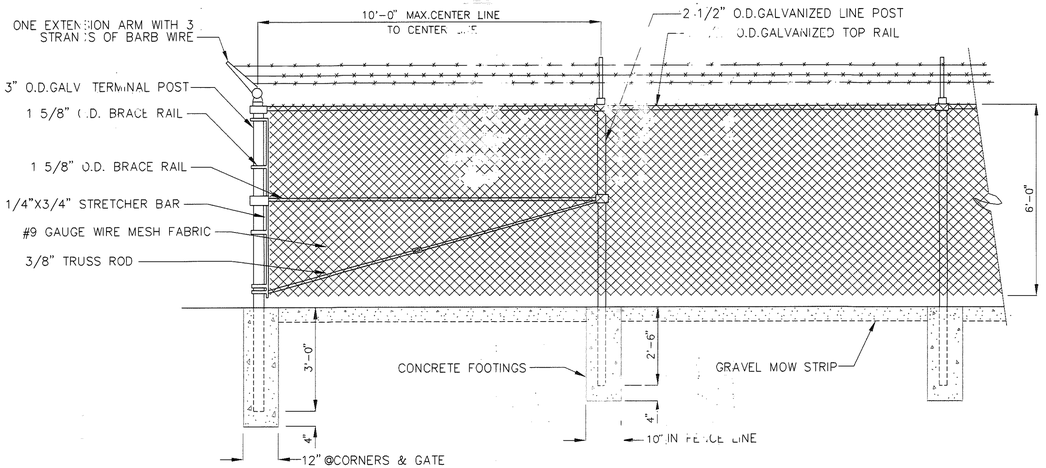


BOLLARD DETAIL
NO SCALE

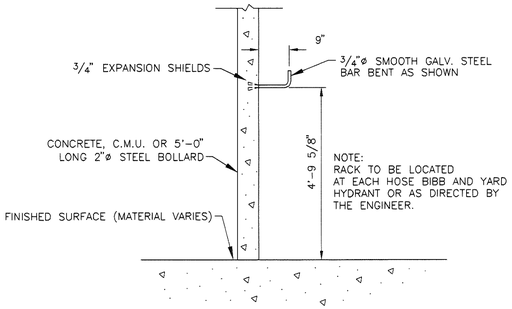


NOTE:
BENDS AND FITTINGS AS REQUIRED.

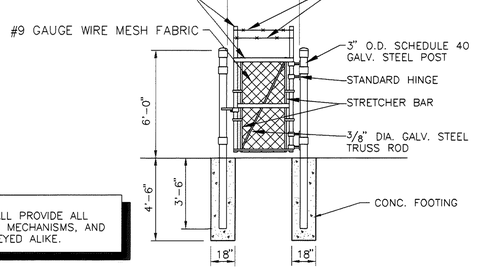
DRY CONNECTION TO EXISTING WATER MAIN
NO SCALE



CHAIN LINK FENCE DETAIL
NO SCALE

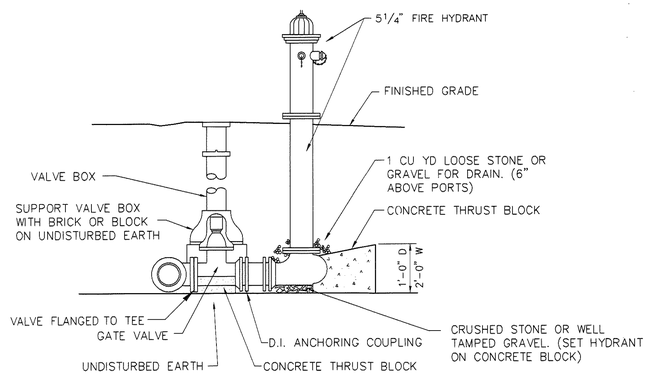


BULB RACK DETAIL
NO SCALE

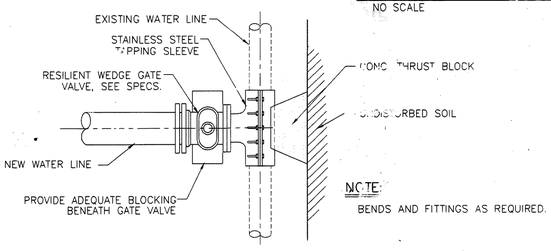


NOTE:
CONTRACTOR SHALL PROVIDE ALL NECESSARY LOCK MECHANISMS, AND SHALL ALL BE KEYED ALIKE.

WOVEN WIRE PEDESTRIAN GATE DETAIL
NO SCALE

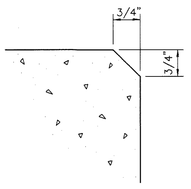


FIRE HYDRANT DETAIL
NO SCALE



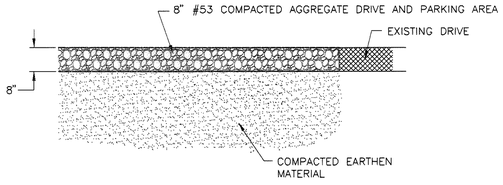
NOTE:
BENDS AND FITTINGS AS REQUIRED.

WET CONNECTION TO EXISTING WATER MAIN
NO SCALE



NOTE:
UNLESS OTHERWISE NOTED, CHAMFER SHALL BE PROVIDED ON ALL EXPOSED EDGES OF NEW CONCRETE. CHAMFER ON EXTERIOR VERTICAL EDGES SHALL EXTEND A MINIMUM OF SIX (6) INCHES BELOW FINISHED GRADE.

CONCRETE WALL CHAMFER DETAIL
NO SCALE



SECTION DETAIL FOR GRAVEL SURFACES
NO SCALE

REVISED "AS-BUILT" DRAWING
THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.
COMMONWEALTH ENGINEERS, INC.
REVISED: DATE 10/06
BY JCW, CK. BY CWW

CURTISS W. WHITE
No. 19400134
STATE OF IDAHO
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

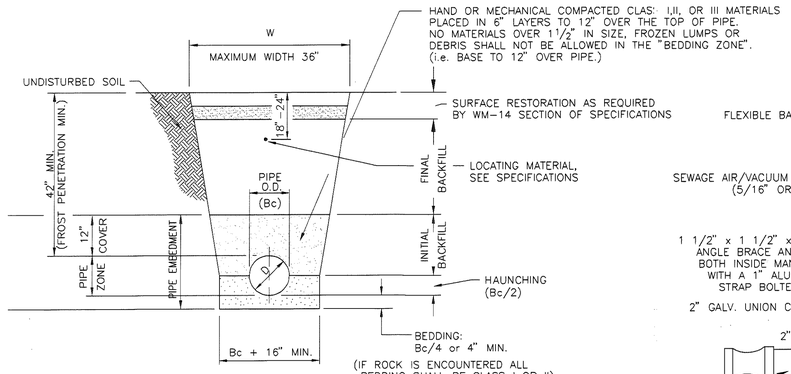
DRAWN BY:	CB
DESIGNED BY:	CWW
CHECKED BY:	CWW
DATE:	12/03
JOB NO:	S02119-02
SCALE:	AS NOTED

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
MISCELLANEOUS DETAILS

DRAWING NO. 24
24 OF 52

24-MISCDTL2.dwg 1

30163



W = MAX. ALLOWABLE TRENCH WIDTH FOR PIPE SHALL NOT TO EXCEED 30 INCHES FOR 4" THROUGH 8" PIPE, 36" FOR 8" THROUGH 12" PIPE.

D = PIPE DIAMETER (INTERNAL)

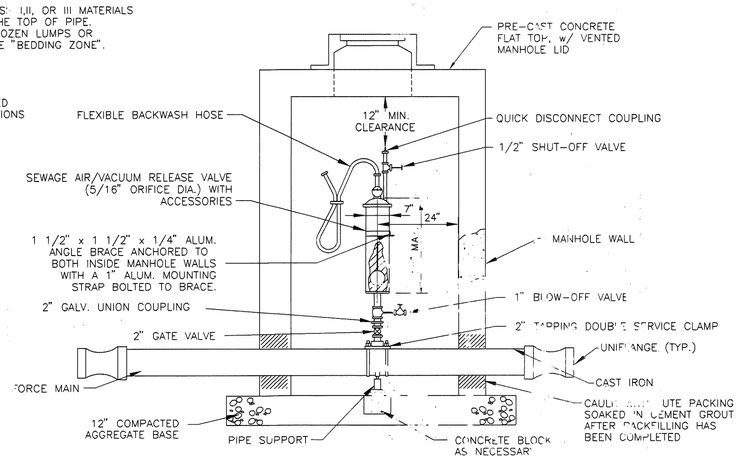
BC = PIPE DIAMETER (EXTERNAL)

APPLICATION	BEDDING & HAUNCHING INITIAL BACKFILL	FINAL BACKFILL
GRASSY AREA OR NEW PAVED AREAS	CLASS I, II, OR III MATERIAL (REFER TO WORKMANSHIP & MATERIALS SPECIFICATIONS	SELECTED EXCAVATED MATERIAL
PAVEMENT AREA OR ANY AREA SUBJECT TO VEHICULAR TRAFFIC	CLASS I OR II MATERIAL (REFER TO WORKMANSHIP & MATERIALS SPECIFICATIONS	COMPACTED GRANULAR MATERIAL

NOTES:

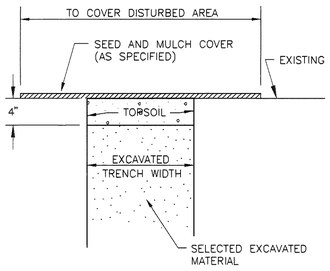
1. INITIAL BACKFILL STOPS AT A POINT 12" ABOVE THE TOP OF THE PIPE. BACKFILLING ABOVE THIS POINT SHALL BE IN ACCORDING WITH THE SPECIFICATIONS AND AS REQUIRED BY HEREIN.
2. BEDDING, HAUNCHING AND INITIAL BACKFILL SHALL BE CLASS I,II, OR III MATERIALS ACCORDING TO THE WORKMANSHIP AND MATERIALS SPECIFICATIONS.
3. WORK FALLING UNDER THE JURISDICTION OF THE INDIANA DEPARTMENT OF TRANSPORTATION (INDOT) SHALL UTILIZE COMPACTED GRANULAR BACKFILL MATERIAL FOR INITIAL AND FINAL BACKFILL ANYWHERE WITHIN 12 FEET OF THE EDGE OF PAVEMENT.
4. WORK NOT FALLING UNDER THE JURISDICTION OF IN. DEPT. OF TRANSPORTATION SHALL UTILIZE COMPACTED GRANULAR BACKFILL MATERIAL FOR INITIAL AND FINAL BACKFILL ANYWHERE WITHIN 5 FEET OF THE EDGE OF PAVEMENT.

TRENCH DETAIL METHOD C FOR WATER MAIN PIPE
NO SCALE

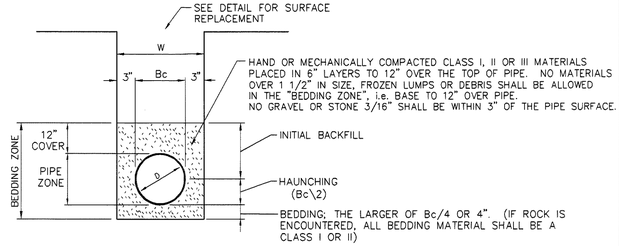


TYPICAL AIR/VACUUM RELEASE VALVE WITH CONNECTION
NO SCALE

NOTE:
VAL-MATIC MODEL 303 BW.3 OR APPROVED EQUAL.



SURFACE RESTORATION DETAIL FOR GRASS AREAS
NO SCALE



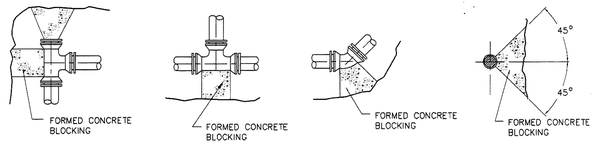
W = MINIMUM ALLOWABLE TRENCH WIDTH FOR PIPE SHALL BE NOT LESS THAN PIPE O.D. PLUS 6"
D = PIPE DIAMETER (INTERNAL)
Bc = PIPE DIAMETER (EXTERNAL)

NOTES:

1. INITIAL BACKFILL STOPS AT A POINT 12" ABOVE THE TOP OF THE PIPE. BACKFILLING ABOVE THIS POINT SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AND AS REQUIRED BY NOTES 3 & 4 BELOW.
2. BEDDING, HAUNCHING AND INITIAL BACKFILL SHALL BE CLASS I, II, OR III MATERIALS IN ACCORDANCE WITH THE WORKMANSHIP AND MATERIALS SPECIFICATIONS.
3. WORK FALLING UNDER THE JURISDICTION OF THE INDIANA STATE HIGHWAY COMMISSION SHALL UTILIZE COMPACTED GRANULAR BACKFILL MATERIAL FOR INITIAL AND FINAL BACKFILL ANYWHERE WITHIN 12 FEET OF THE EDGE OF PAVEMENT.
4. WORK FALLING UNDER THE JURISDICTION OF TOWN OR COUNTY HIGHWAY DEPARTMENTS SHALL UTILIZE COMPACTED GRANULAR BACKFILL MATERIAL FOR INITIAL AND FINAL BACKFILL ANYWHERE WITHIN 5 FEET OF THE EDGE OF PAVEMENT.

FORCE MAIN TRENCHER INSTALLATION

TRENCH AND BACKFILL DETAIL
NO SCALE



DETAIL A DETAIL B DETAIL C DETAIL D

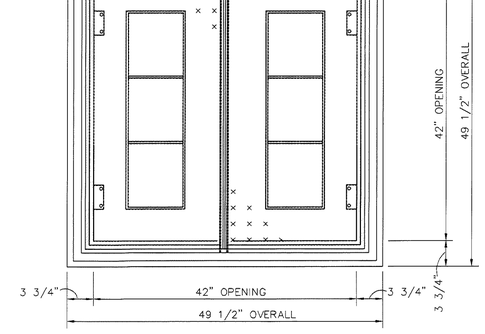
AREA IN SQUARE FEET REQUIRED FOR CONCRETE THRUST BLOCKING					
SIZE	TEE & PLUG	90° BEND	45° BEND	22-1/2° BEND	11-1/4° BEND
4"	2.0	2.5	1.5	1.0	
6"	4.0	5.5	3.0	1.5	
8"	6.5	9.0	5.0	2.5	
10"	10.0	14.0	7.5	4.0	2.0
12"	14.0	20.0	11.0	5.5	3.0
16"	20.5	28.5	15.5	8.0	
18"	31.5	44.5	24.0	12.5	
20"	38.0	54.5	29.5	15.0	
24"	55.0	78.5	42.5	22.0	

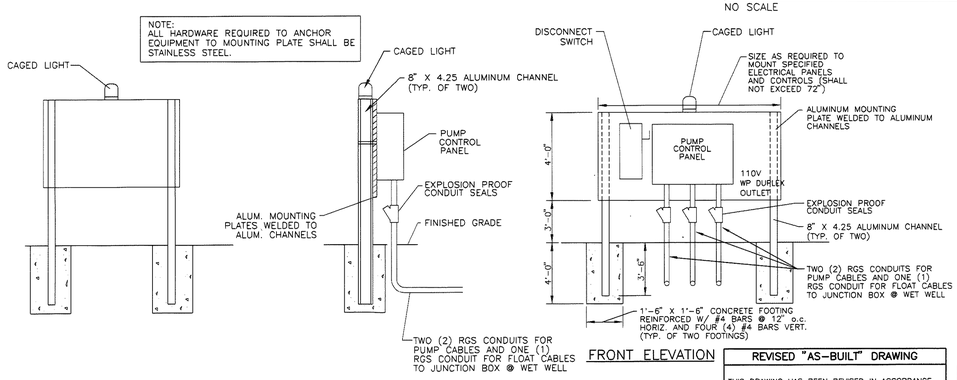
NOTES:

1. THRUST BLOCK AREAS ARE BASED ON A SOIL BEARING LOAD OF 2,000 lb./SQ. FT.
2. GREASE ALL PIPE SURFACES PRIOR TO PLACEMENT OF CONCRETE

THRUST BLOCKING DETAIL
NO SCALE

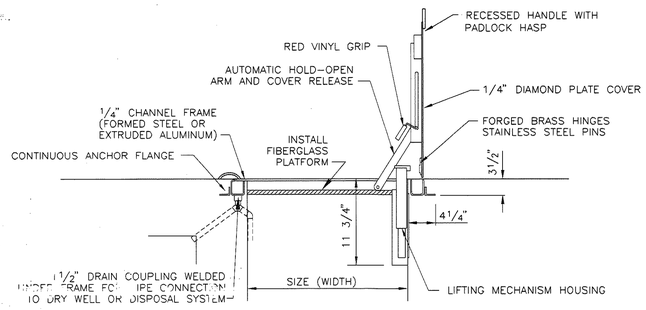
CORE DRILL/WATERTIGHT DETAIL
NO SCALE



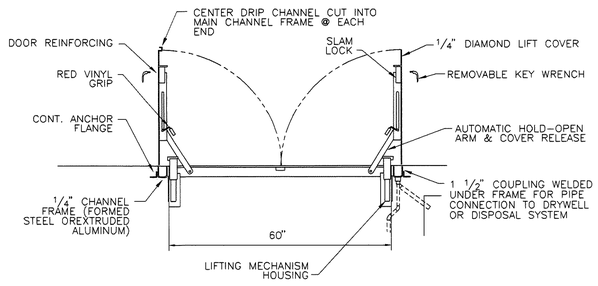


REAR ELEVATION SIDE ELEVATION FRONT ELEVATION

ELECTRICAL AND PUMP CONTROL MOUNTING DETAIL
NO SCALE



SINGLE LEAF ACCESS DOOR
NO SCALE



DROP LEAF ACCESS DOOR
NO SCALE

REVISED "AS-BUILT" DRAWING
THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.
COMMONWEALTH ENGINEERS, INC.
REVISED: DATE 10/06
BY JCW , CK. BY CWW

CURTISS W. WHITE No. 9901234 STATE OF INDIANA PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	CB
DESIGNED BY:	CWW
CHECKED BY:	CWW
DATE:	1/04
JOB NO:	S02119-02
SCALE:	AS NOTED

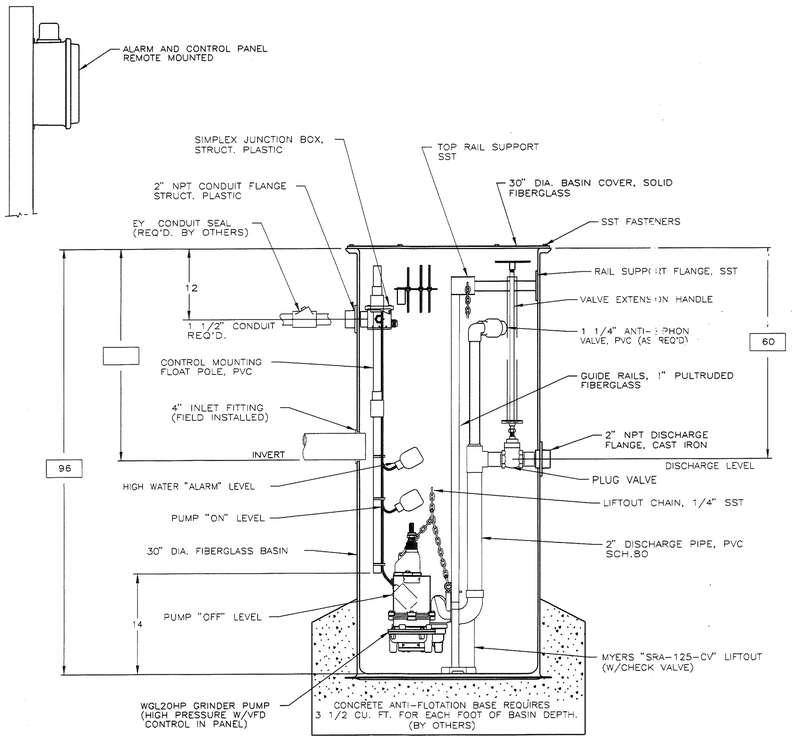
SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
MISCELLANEOUS DETAILS

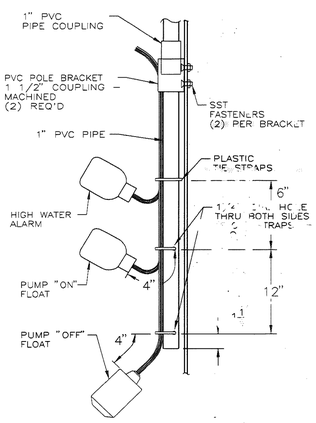
DRAWING NO. 25
25 OF 52

25-MISCDTL3.dwg 1

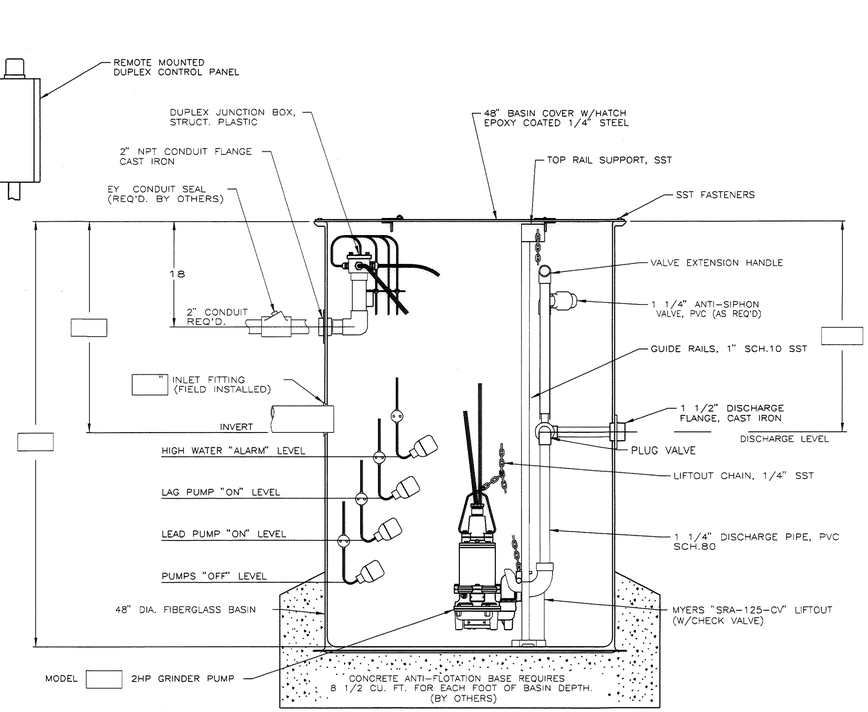
301-63

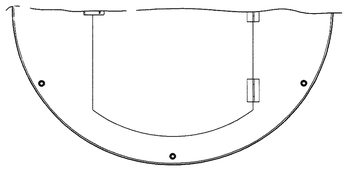
Oct 26, 2006 - 2:55pm
XREF: XREF-RECORD STAMP.dwg

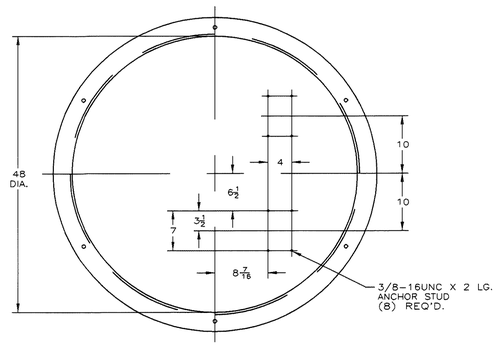




FLOAT POLE
(SCALE 2X)







NOTES:

1.) THESE STATION DETAILS SHALL BE CONSIDERED GENERIC AND SHALL IN NO WAY BE DEEMED TO REPRESENT A SPECIFIC MANUFACTURER

2.) ALL PIPE AND WIRE PENETRATIONS SHALL HAVE WATERTIGHT GASKETS

3.) ALL TANKS SHALL HAVE AN ENCAPSULATED 1/4" THICK STEEL PLATE IN THE BOTTOM OF THE BASIN.

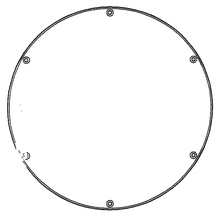
4.) EACH TANK SHALL BE CAPABLE OF INCREASING IN DEPTH BY THE ADDITION OF RISERS. THESE RISERS SHALL ONLY BE USED WHEN THE NEW STATION IS TO BE SET IN AN EXISTING SEPTIC TANK UNLESS SPECIFICALLY ORDERED BY THE ENGINEER.

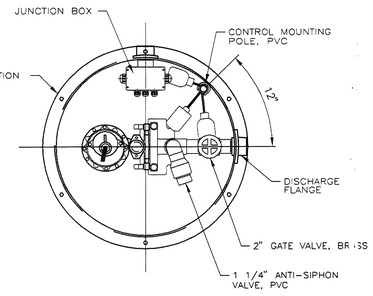
5.) ALL CONDUCTORS SHALL BE COPPER, M STRANDED #10 AWG MINIMUM.

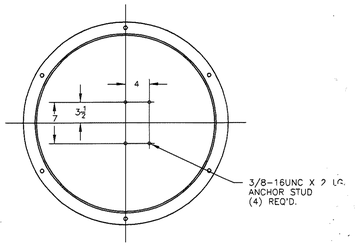
6.) UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC WITH TRACER WIRE, MINIMUM SIZE 3/4" C

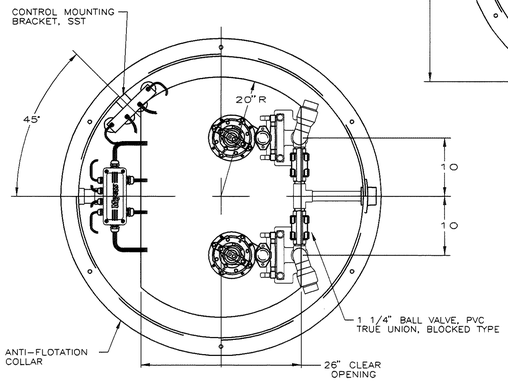
7.) ABOVE GROUND CONDUIT SHALL BE RIGID GALVANIZED STEEL OR SCH. 80 PVC, MINIMUM SIZE 3/4" C

8.) INSTALL 3/4" C, 2-#8 GROUND CONDUCTOR FROM MAIN SWITCH TO NOT LESS THAN TWO (2) GROUNDING ELECTRODES AT BASE OF SERVICE POLE.









REVISED "AS-BUILT" DRAWING
THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.
COMMONWEALTH ENGINEERS, INC.
REVISED: DATE 10/06
BY JCW , CK. BY CWW

STATE OF MAINE — REGISTERED — No. 19400134 — PROFESSIONAL ENGINEER — CHRISTOPHER W. WHITE

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	CB
DESIGNED BY:	CWW
CHECKED BY:	CWW
DATE:	1/04
JOB NO:	S02119-02
SCALE:	NO SCALE

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
GRINDER STATIONS

DRAWING NO. 26
26 OF 52

26-MISCDTL4.dwg 12

301-63

STRUCTURAL NOTES:

GENERAL -

G1. THE APPLICABLE BUILDING CODE FOR THIS PROJECT IS THE 2000 INTERNATIONAL BUILDING CODE WITH THE 2003 INDIANA BUILDING CODE AMENDMENTS.

G2. THE CONTRACTOR SHALL CHECK AND APPROVE ALL SHOP DRAWINGS PRIOR TO SUBMITTING SAME TO THE STRUCTURAL ENGINEER FOR REVIEW. FAILURE TO COMPLETELY CHECK THE SHOP DRAWINGS DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR PROBLEMS THAT MAY ARISE FROM COORDINATION, DETAILING, FABRICATION OR ERECTION ERRORS. ONE SEPIA PAPER COPY AND ONE BLUELINE COPY OF EACH SHOP DRAWING SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW. THE SEPIA PAPER COPY WILL BE RETURNED TO THE CONTRACTOR WITH THE STRUCTURAL ENGINEER's REVIEW COMMENTS. THE CONTRACTOR SHALL MAKE BLUELINE COPIES OF THE MARKED-UP" SEPIA PAPER DRAWINGS FOR DISTRIBUTION IN ACCORDANCE WITH THE SPECIFICATIONS. THE SEPIA PAPER COPY SHALL BE RETURNED TO THE DETAILER FOR CORRECTIONS.

G3. THE USE OF REPRODUCTIONS OF THESE CONTRACT DRAWINGS BY THE CONTRACTOR OR ANY SUB-CONTRACTOR, DETAILER, FABRICATOR, ERECTOR, MATERIAL SUPPLIER, etc. IN LIEU OF THE PREPARATION OF SHOP OR ERECTION DRAWINGS SHALL SIGNIFY THE ACCEPTANCE OF THE INFORMATION SHOWN HEREON AS CORRECT AND OBLIGATES THE CONTRACTOR TO ANY JOB EXPENSE ARISING DUE TO ANY ERRORS THAT MAY OCCUR HEREON.

G4. THESE DRAWINGS REPRESENT THE STRUCTURAL COMPONENTS IN THEIR FINAL AND COMPLETED STATE. CONSTRUCTION PROCEDURES AND METHODS (INCLUDING, BUT NOT LIMITED TO, TEMPORARY SHORING AND BRACING), SAFETY PRECAUTIONS AND/OR MECHANICAL REQUIREMENTS TO ERECT THE ELEMENTS OF THIS BUILDING ARE THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND/OR SUBCONTRACTORS DOING THE WORK.

G5. PROPRIETARY PRODUCTS OF INDIVIDUAL MANUFACTURERS AND/OR TRADEMARKED PRODUCTS ARE SPECIFIED HEREIN ON AN "OR APPROVED EQUAL" BASIS. AT THE CONTRACTOR's OPTION, MANUFACTURER's DATA ON ALTERNATE PRODUCTS OF EQUAL QUALITY MAY BE SUBMITTED TO THE ARCHITECT FOR APPROVAL. UPON THE APPROVAL OF THE ARCHITECT, THESE ALTERNATE PRODUCTS MAY BE USED IN LIEU OF THE SPECIFIED PRODUCTS.

GEOTECHNICAL REPORT, SLAB ON GRADE AND FOUNDATIONS -

F1. FOUNDATION AND SLAB DESIGNS ARE BASED ON THE FOLLOWING ASSUMED BEARING VALUES.

F2. THE DESIGN OF FOOTINGS BEARING ON UNDISTURBED NATIVE SOIL OR PROPERLY COMPACTED STRUCTURAL FILL IS BASED ON AN ASSUMED ALLOWABLE SOIL BEARING PRESSURE OF 2,000 psf FOR ISOLATED SPREAD COLUMN FOOTINGS AND CONTINUOUS WALL FOOTINGS.

F3. THE CONTRACTOR SHALL ENGAGE AN APPROVED GEOTECHNICAL ENGINEERING FIRM TO INSPECT FOOTING EXCAVATIONS, SLAB SUBGRADE, SLAB BASE, ENGINEERED FILL, ETC. THE CONTRACTED GEOTECHNICAL ENGINEER SHALL CERTIFY THAT THE REQUIREMENTS SET FORTH IN THE CONTRACT DOCUMENTS. THE DUTIES OF THIS GEOTECHNICAL ENGINEER SHALL INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:

- INSPECT ALL FOUNDATION EXCAVATIONS TO ENSURE THAT THE BEARING STRATA CONSIST OF SUITABLE MATERIAL AND IS CAPABLE DEVELOPING THE ALLOWABLE BEARING PRESSURES LISTED IN NOTE No. F2. DIRECT THE OVER-EXCAVATION OF ANY UNSUITABLE MATERIAL FROM FOUNDATION BEARING STRATA AS OUTLINED IN NOTE No. F6.
- OBSERVE AND APPROVE THE STRIPPING OF ALL DELETERIOUS MATERIAL FROM THE SITE AS OUTLINED IN NOTE No. F4 & F5.
- OBSERVE AND APPROVE THE PROOF-ROLLING OPERATION OUTLINED IN NOTE No. F4. & F5.
- VERIFY THE PLACEMENT, AND TEST THE COMPACTION, OF ALL ENGINEERED FILL AND BACKFILL MATERIAL.
- INSPECT AND APPROVE THE SUBGRADE MATERIAL UNDER ALL CONCRETE SLABS ON GRADE AND PAVEMENTS
- VERIFY THE PLACEMENT, AND TEST THE COMPACTION, OF THE No. 8 STONE SLAB BASE REQUIRED IN NOTE No. F4 & F5.
- PERFORM ANY AND ALL OTHER INSPECTIONS AND TESTS NECESSARY TO ENSURE THAT ALL FOUNDATION BEARING STRATA, SLAB SUBRADES, GRANULAR SLAB BASES AND ENGINEERED FILLS ARE ADEQUATE FOR THE LOADS AND SERVICE
- PROVIDE WRITTEN RECOMMENDATIONS TO THE CONTRACTOR FOR THE SHEETING, SHORING AND / OR BRACING OF ALL EXCAVATIONS TO ENSURE STABILITY. IF MATERIAL IS ENCOUNTERED AT THE SITE THAT WILL YIELD A STABLE EXCAVATION WITH SLOPED AND BENCHED SIDES, PROVIDE WRITTEN RECOMMENDATIONS TO THE CONTRACTOR IN ACCORDANCE WITH NOTE No. F8. OBSERVE AND DIRECT THE SHEETING, SHORING, BRACING, SLOPING, BENCHING ECT. OF EXCAVATIONS TO ENSURE A SAFE AND STABLE EXCAVATION.

F4. THE AREA UNDER THE BUILDING SLABS ON GRADE SHALL BE STRIPPED OF ALL TOPSOIL, VEGETATION, ORGANIC MATTER, SOFT SOILS, OLD UNCONTROLLED FILL OR ANY OTHER DELETERIOUS MATERIAL (SEE NOTE No. F5). THE STRIPPING SHALL EXTEND AT LEAST FIVE FEET BEYOND THE BUILDING PERIMETER. AFTER THE STRIPPING OPERATION IS COMPLETE, THE AREA SHALL BE PROOF-ROLLED WITH A HEAVILY LOADED, RUBBER-TIRED DUMP TRUCK UNDER THE DIRECT SUPERVISION OF THE GEOTECHNICAL ENGINEER IDENTIFIED IN NOTE No. F3. ANY SOFT OR YIELDING AREAS SHALL BE UNDERCUT TO FIRM MATERIAL, THEN RE-ROLLED. AFTER THE PROOF-ROLLING OPERATION IS COMPLETE, THE AREA SHALL BE BROUGHT TO GRADE WITH SUITABLE STRUCTURAL FILL COMPACTED TO 98% OF STANDARD PROCTOR DENSITY. THE LAST 6" OF FILL UNDER THE SLAB ON GRADE SHALL BE No. 8 STONE COMPACTED TO 98% OF STANDARD PROCTOR DENSITY. FILL SHALL BE PLACED AND COMPACTED IN 8" MAXIMUM LIFTS AND AT A MOISTURE CONTENT WITHIN 2% OF OPTIMUM.

F5. IF UNSUITABLE MATERIAL IS ENCOUNTERED AT THE FOOTING BEARING ELEVATION, THE EXCAVATION SHALL BE UNDERCUT TO SUITABLE MATERIAL. THE WIDTH OF THE FOUNDATION EXCAVATION SHALL BE INCREASED IN EACH DIRECTION BY THE DEPTH OF THE UNDERCUT. AFTER SUITABLE BEARING MATERIAL IS ENCOUNTERED, THE EXCAVATION SHALL BE BROUGHT TO PROPER BEARING ELEVATION WITH COMPACTED No. 8 STONE. THE No. 8 STONE SHALL BE PLACED AND COMPACTED IN 8" (MAX.) LIFTS TO 100% OF THE MAXIMUM RELATIVE DENSITY.

F6. FOUNDATION CONCRETE SHALL BE PLACED THE SAME DAY THAT THE EXCAVATION IS OPENED. IF THIS IS NOT PRACTICAL, THE CONTRACTOR SHALL TAKE STEPS TO ENSURE THAT THE BEARING MATERIAL IS NOT DEGRADED BY SIGNIFICANT CHANGES IN MOISTURE CONTENT.

F7. THE STABILITY OF ALL EXCAVATIONS IS THE RESPONSIBILITY OF THE CONTRACTOR. SHEET PILING, SHORING AND / OR BRACING SHALL BE INSTALLED TO MAINTAIN THE STABILITY OF EXCAVATIONS. THE DESIGN OF ALL SHEETING, SHORING AND BRACING IS THE RESPONSIBILITY OF THE CONTRACTOR.

F8. TOPSOIL SHALL BE STRIPPED AND STOCKPILED FOR USE IN LANDSCAPING. AT THE END OF THE JOB, PORTIONS OF TOPSOIL NOT USED IN LANDSCAPING SHALL BE DISPOSED OF, OFF-SITE IN A LEGAL MANNER.

DESIGN LOADS -

DL1. BUILDING CODES:

2000 INTERNATIONAL BUILDING CODES WITH THE 2003 INDIANA BUILDING CODE AMENDMENTS.

DL2. ROOF LIVE LOAD: 30 psf.

ROOF SNOW LOAD:

GROUND SNOW LOAD (P_g): 25 psf.
FLAT-ROOF SNOW LOAD (P_f): 17 psf.
SNOW EXPOSURE FACTOR (C_e): 1.0
SNOW LOAD IMPORTANCE FACTOR (I_s): 1.2.
THERMAL FACTOR (C_t): 1.0

DL3. FLOOR SYSTEM:

FLOOR LIVE LOAD: 50psf.
FLOOR DEAD LOAD: [illegible]

DL4. WIND LOADS:

BASIC WIND SPEED (V_{ult}): 90 mph.
IMPORTANCE FACTOR (I_w): 1.15.
BUILDING CATEGORY: III
EXPOSURE: C
DESIGN WIND PRESSURE (MWFRS): 27 psf.
DESING WIND PRESSURE (WALLS): 18 psf.
INTERNAL PRESSURE COEFFICIENT (GC_{pi}): ±0.18.

DL5. SEISMIC:

SEISMIC USE GROUP: III
SPECTRAL RESPONSE COEFFICIENT (S_{DS}): 0.183.
SPECTRAL RESPONSE COEFFICIENT (S_{D1}): 0.137.
SEISMIC DESIGN CATEGORY: C
SITE CLASS: D
IMPORTANCE FACTOR (I552002E): 1.50.
BASIC SEISMIC FORCE RESISTING SYSTEM: WOOD STRUCTURAL SHEARWALLS.
RESPONSE MODIFICATION COEFFICIENT (R): 6.0.
DESIGN BASE SHEAR (V): 0.046W.
ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE.

DL6. SOIL INFORMATION:

ALLOWABLE NET BEARING PRESSURE: 2000 psf (ASSUMED).

CONCRETE -

C1. CONCRETE MIX DESIGN, PLACING AND TESTING SHALL BE IN ACCORDANCE WITH THE "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301) BY THE AMERICAN CONCRETE INSTITUTE (ACI), LATEST EDITION.

C2. DETAILING, FABRICATION AND PLACING OF REINFORCING SHALL BE IN ACCORDANCE WITH ACI 315, "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT" AND WITH ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", LATEST EDITIONS.

C3. THE CONTRACTOR SHALL MAINTAIN A COPY OF THE "FIELD REFERENCE MANUAL", ACI PUBLICATION SP-15 (LATEST EDITION) AT THE JOB SITE AT ALL TIMES.

C4. ALL CONCRETE SHALL HAVE A MINIMUM 3,000 psi COMPRESSIVE STRENGTH AT 28 DAYS (f'c) (UNLESS NOTED OTHERWISE).

C5. THE MAXIMUM WATER-CEMENT RATIO FOR ALL CONCRETE ON THIS PROJECT SHALL BE 0.55.

C6. REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN SOCIETY FOR TESTING AND MATERIALS STANDARD (ASTM) A615, GRADE 60. WELDED WIRE FABRIC (WWF) SHALL CONFORM TO THE REQUIREMENTS OF ASTM A185.

C7. ALL CONCRETE REINFORCING STEEL SPLICES SHALL BE CLASS "B" TENSION LAP SPLICES (UNLESS NOTED OTHERWISE). SPLICE LENGTHS SHALL BE IN ACCORDANCE WITH CHAPTER 5 OF THE "DESIGN HANDBOOK" (LATEST EDITION) OF THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI).

C8. PROVIDE "CORNER BARS" TO MATCH ALL LONGITUDINAL REINFORCING AT ALL FOUNDATION INTERSECTIONS AND CORNERS. CORNER BAR SIZE AND SPACING TO MATCH THE SIZE AND SPACING OF LONGITUDINAL BAR BEING LAPPED.

C9. CONCRETE PROTECTION FOR REINFORCING STEEL:

Concrete Cast Against Earth	3 inches
Concrete Cast Against Forms:	
Slabs	2 inches
Walls, Beams, Joists and Columns	2 inches

C10. WHERE NEW REINFORCING STEEL IS REQUIRED OUT OF EXISTING, HARDENED CONCRETE, DEFORMED BARS OF THE SIZE INDICATED ON THE DRAWINGS SHALL BE SET INTO THE THE CONCRETE USING AN EPOXY ADHESIVE SYSTEM SUCH AS HILTI "HIT HY 150". THE DEPTH OF EMBEDMENT SHALL BE AS SPECIFIED BY THE ADHESIVE MANUFACTURER TO DEVELOP THE YIELD STRENGTH OF THE BAR. INSTALLATION SHALL BE IN ACCORDANCE WITH THE ADHESIVE MANUFACTURER's SPECIFICATIONS.

C11. WHERE "KWIK BOLTS" ARE REQUIRED, THE CONTRACTOR SHALL INSTALL EXPANSION ANCHORS OF THE SIZE AND QUANTITY SPECIFIED. THE EXPANSION ANCHORS SHALL BE THE PRODUCTS OF "HILTI CORP." P.O. BOX 21148, TULSA, OK 74121, OR "ITW RAMSET/REDHEAD" 1500 NORTH MACARTHUR, WOOD DALE, ILLINOIS 60191 (OR APPROVED EQUAL). THE EXPANSION ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER's SPECIFICATIONS. WHERE NO EMBEDMENT DEPTH IS SPECIFIED ON THE DRAWINGS, THE EXPANSION ANCHORS SHALL BE EMBEDDED INTO CONCRETE THE DEPTH SPECIFIED IN THE FOLLOWING SCHEDULE:

EXPANSION ANCHOR DIAMETER	MINIMUM EMBEDMENT DEPTH
1/2"	3-1/2"
5/8"	4"
3/4"	4-3/4"

C12. REINFORCING FOR ALL BUILDING CONCRETE FLOOR SLABS ON GRADE SHALL BE WWF6x6 - W4.0xW4.0 LOCATED 1" DOWN FROM THE SLAB TOP SURFACE (U.N.O.). WELDED WIRE FABRIC SHALL BE PROPERLY LOCATED USING CHAIRS, BOLSTERS OR BAR SUPPORTS. "HOOKING" THE FABRIC AND PULLING IT INTO POSITION AFTER THE CONCRETE IS IN PLACE IS NOT ACCEPTABLE. AT THE EDGES AND ENDS OF WELDED WIRE FABRIC SHEETS AND/OR ROLLS, THE WWF SHALL BE LAPPED A MINIMUM OF ONE (1) WIRE SPACING PLUS TWO INCHES (2").

C13. AT THE CONTRACTOR'S OPTION, THE WELDED WIRE FABRIC (WWF) REINFORCEMENT FOR BUILDING FLOOR SLABS ON GRADE MAY BE REPLACED USING SYNTHETIC FIBER REINFORCING. THE SYNTHETIC FIBERS SHALL CONSIST OF 100% VIRGIN POLYPROPYLENE FIBRILATED FIBERS MIXED IN THE CONCRETE AT THE RATE RECOMMENDED BY THE FIBER MANUFACTURER, BUT NOT LESS THAN 1.75 POUNDS OF FIBERS PER CUBIC YARD OF CONCRETE. SUBJECT TO APPROVAL, "FIBERMESH" (AVAILABLE FROM MASTER BUILDERS) IS AN ACCEPTABLE FIBEROUS SYNTHETIC FIBER REINFORCEMENT. THE BUILDING CONCRETE FLOOR SLABS.

C14. FOR ALL BUILDING CONCRETE FLOORS, "C.J." DENOTES A SLAB CONSTRUCTION JOINT OR CONTROL JOINT AT CONTRACTOR's OPTION. C.J.'s SHALL BE CONSTRUCTED PER THE DETAILS. THE SLAB CONTROL JOINT LAYOUT SHOWN ON THE PLAN IS FOR CONCEPTUAL PURPOSES ONLY. THE CONTRACTOR SHALL LAYOUT CONTROL JOINTS AT A MAXIMUM SPACING OF 15'-0". UNLESS NOTED OTHERWISE, CONSTRUCTION JOINTS SHALL BE LOCATED BY THE CONTRACTOR TO FACILITATE CONCRETE PLACEMENT. WHERE THE CONTRACTOR ELECTS TO SAW-CUT THE CONTROL JOINTS IN CONCRETE SLABS, THE JOINTS MUST BE SAW CUT WITHIN 12 HOURS OF PLACING THE CONCRETE. AT THE CONTRACTOR'S OPTION, CONTROL JOINTS MAY BE MADE USING "ZIP STRIPS".

REINFORCED CONCRETE MASONRY (CMU) -

M1. ALL MASONRY CONSTRUCTION SHALL MEET THE REQUIREMENTS OF ACI 530 / ASCE 5, LATEST EDITION.

M2. ALL CONCRETE MASONRY UNITS SHALL HAVE A MINIMUM "PRISM STRENGTH" (f'_m) OF 1,500psi BASED ON THE GROSS AREA AND SHALL CONFORM TO ASTM C90, GRADE N. ALL MORTAR FOR CMU CONSTRUCTION SHALL BE TYPE "S" AND CONFORM TO ASTM C270.

M3. GROUT USED FOR CMU CONSTRUCTION SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'_g) OF 2,500psi AND SHALL CONFORM TO ASTM C476.

M4. A HORIZONTAL CONSTRUCTION JOINT SHALL BE FORMED BETWEEN GROUT POURS FOR CMU CELLS BY STOPPING THE CMU WALL AT A CONSTANT ELEVATION THROUGHOUT AND BY HOLDING THE GROUT A MINIMUM OF 1 1/2" AND A MAXIMUM OF 4 1/2" BELOW THE MORTAR JOINT (EXCEPT AT THE TOP OF THE WALL).

M5. PROVIDE VERTICAL REINFORCEMENT FOR CMU WALLS CONSISTING OF #5 BARS IN GROUTED SOLID CMU CELLS AT 48" ctrs. UNLESS NOTED OTHERWISE ON THE DRAWINGS.

M6. PROVIDE ADDITIONAL VERTICAL REINFORCEMENT FOR CMU WALLS CONSISTING OF #5 BARS IN GROUTED SOLID CMU CELLS AT EACH SIDE OF WALL OPENINGS AS WELL AS AT THE ENDS AND CORNERS OF ALL WALLS.

M7. VERTICAL REINFORCING BARS FOR CMU WALLS SHALL BE FULLY DEVELOPED WITH MATCHING DOWELS OUT OF THE WALL FOOTING.

M8. PROVIDE HORIZONTAL REINFORCEMENT FOR CMU WALLS CONSISTING OF PREFABRICATED TRUSS TYPE REINFORCEMENT SUCH AS "DUR-O-WALL TRUSS" OR APPROVED EQUAL AT 16" ctrs., UNLESS NOTED OTHERWISE. PROVIDE PREFABRICATED "L's" AND "T's" AT ALL WALL CORNERS AND INTERSECTIONS. LAP HORIZONTAL REINFORCEMENT A MINIMUM OF 6"

M9. PROVIDE VERTICAL CONSTRUCTION JOINTS AT 30' MAX. SPACING OR AS SHOWN ON PLANS.

WOOD TRUSSES -

T1. THE DESIGN, DETAILING, FABRICATION AND ERECTION OF ALL METAL-PLATE-CONNECTED WOOD TRUSSES SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS AND REQUIREMENTS OUTLINED IN THE PUBLICATIONS OF THE "TRUSS PLATE INSTITUTE", LATEST EDITIONS.

T2. THE WOOD TRUSS TOP AND BOTTOM CHORDS SHALL BE FABRICATED FROM LUMBER OF A SPECIES, GRADE AND MOISTURE CONTENT SUCH THAT THE FOLLOWING MINIMUM DESIGN VALUES FOR A MEMBER ARE MET:

ALLOWABLE BENDING STRESS, F_b	=	1,800	psi
MODULUS OF ELESTICITY, E	=	1,600,000	psi

T3. THE LUMBER USED IN THE FABRICATION OF THE WOOD TRUSSES SHALL BE MACHINE STRESS RATED AND CERTIFIED TO MEET THE DESIGN VALUES LISTED ABOVE.

T4. THE STRUCTURAL DESIGN OF THE WOOD TRUSSES SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS OF THE "AMERICAN INSTITUTE OF TIMBER CONSTRUCTION" AS WELL AS THE N.F.P.A.'s "NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION". LATEST EDITION OF EACH.

T5. THE TRUSSES SHALL BE DESIGNED FOR THE FOLLOWING SUPERIMPOSED GRAVITY LOADS:

TOP CHORD LIVE LOAD	30	psf
TOP CHORD DEAD LOAD	15	psf
BOTTOM CHORD LIVE LOAD	10	psf
BOTTOM CHORD DEAD LOAD	10	psf

T6. THE TRUSSES SHALL BE DESIGNED FOR WIND AND/OR SEISMIC LOADS IN ACCORDANCE WITH 2000 INTERNATIONAL BUILDING CODE WITH THE 2003 INDIANA BUILDING CODE AMENDMENTS.

T7. THE TRUSS FABRICATOR SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS FOR THE WOOD TRUSSES WHICH ARE CERTIFIED, SIGNED AND STAMPED BY A PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF INDIANA AND EXPERIENCED IN STRUCTURAL ENGINEERING.

T8. THE FABRICATOR IS RESPONSIBLE FOR DELIVERY OF THE WOOD TRUSSES TO THE JOB SITE. THE GENERAL CONTRACTOR SHALL RECEIVE, UNLOAD AND PROPERLY STORE THE WOOD TRUSSES UPON DELIVERY.

REVISED "AS-BUILT" DRAWING

THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.

COMMONWEALTH ENGINEERS, INC.

REVISED: DATE 10/06

BY JCW, CK. BY CWW

CURTISS W. WHITE REGISTERED No. 19400114 STATE OF INDIANA PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

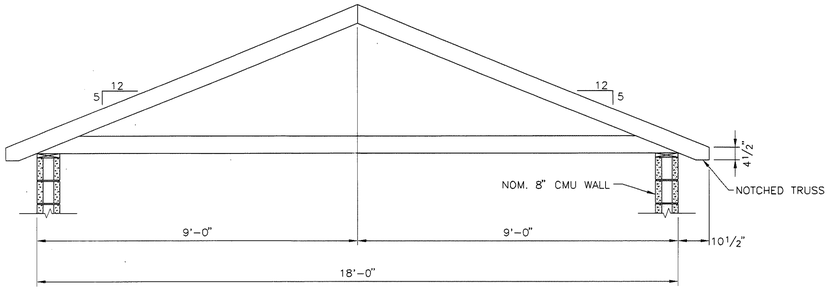
DRAWN BY:	CB
DESIGNED BY:	DAH
CHECKED BY:	DAH
DATE:	1/04
JOB NO:	S02119-02
SCALE:	AS NOTED

27-Structural Notes.dwg 12

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORK PROJECT NO. E031410M
STRUCTURAL NOTES

DRAWING NO.
A1
27 OF 52

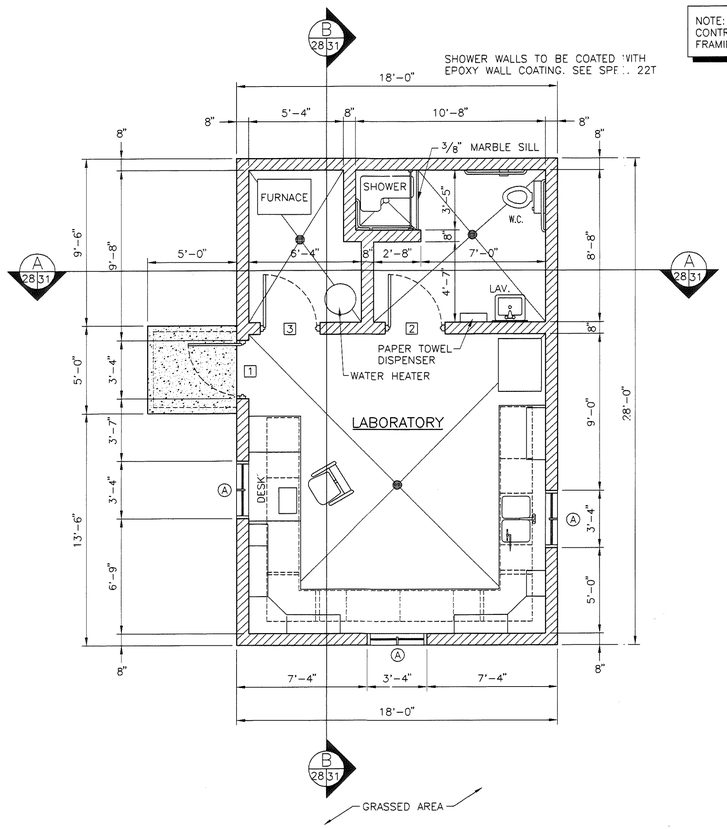
301-63



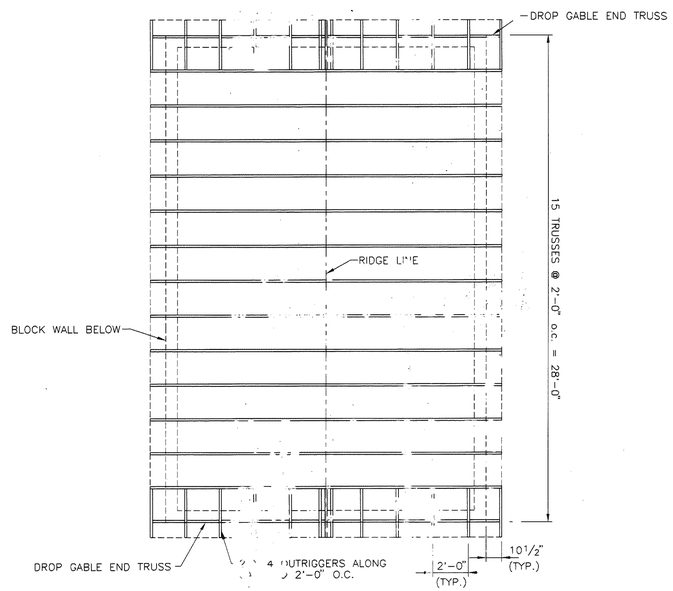
NOTE:
1. SEE GENERAL WOOD NOTES FOR TRUSS LOADING.
2. ACTUAL TRUSS WEB CONFIGURATION BY TRUSS MANUFACTURER.

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

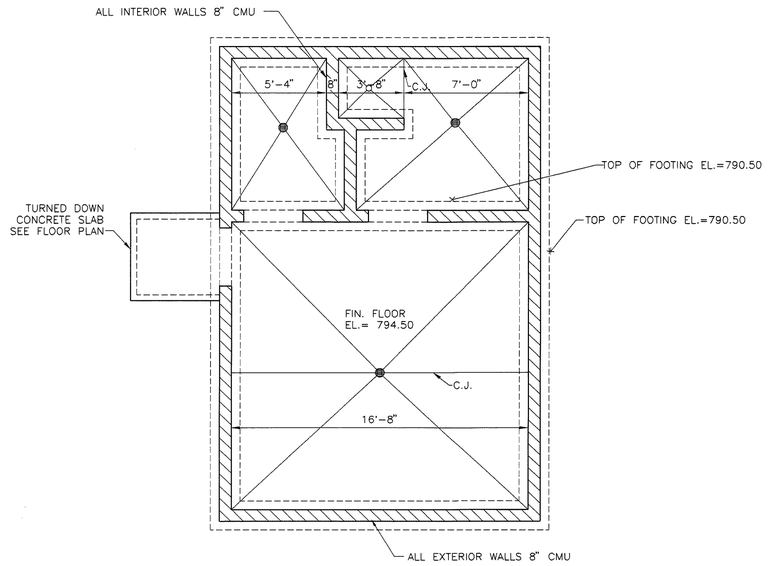
NOTE:
CONTRACTOR SHALL PROVIDE SUPPORT FRAMING AROUND ROOF PENETRATIONS



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



ROOF FRAMING PLAN
SCALE: 1/4"=1'-0"



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

REVISED "AS-BUILT" DRAWING

THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.

COMMONWEALTH ENGINEERS, INC.

REVISED: DATE 10/06

BY JCW, CK. BY CWW

CURTISS W. WHITE
REGISTERED
No. 19400134
STATE OF OHIO
PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

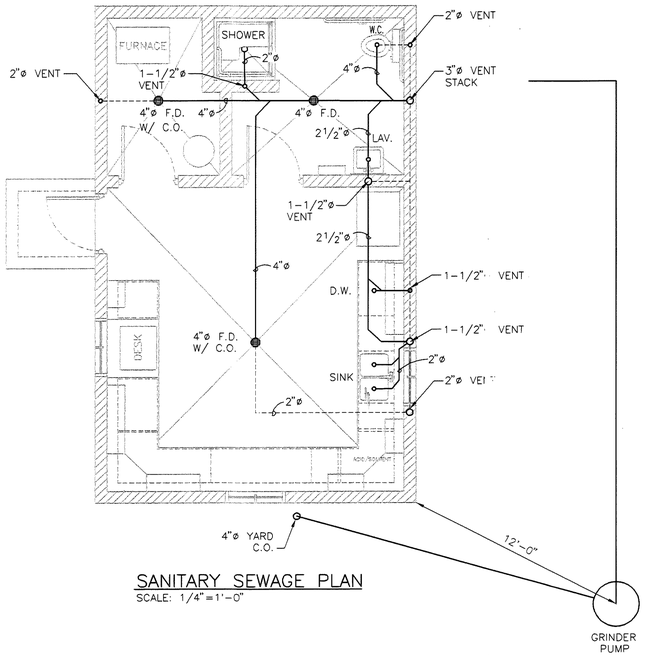
28-LAB-FLOOR.DWG 48

DRAWN BY:	CB
DESIGNED BY:	DAH
CHECKED BY:	DAH
DATE:	1/04
JOB NO:	S02119-02
SCALE:	AS NOTED

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORK PROJECT NO. E031410M
LABORATORY FOUNDATION, FLOOR PLANS, ROOF FRAMING PLAN, AND TRUSS DETAILS

DRAWING NO.
A2
28 OF 52

30163



SANITARY SEWAGE PLAN

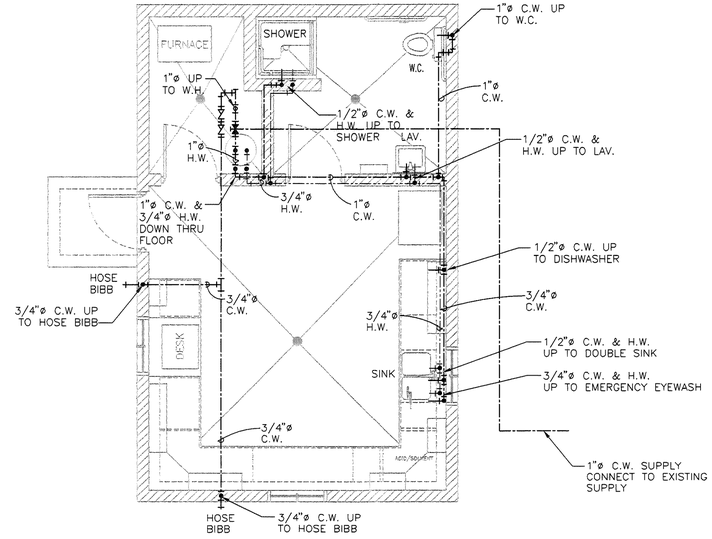
SCALE: 1/4"=1'-0"

GENERAL NOTES:

1. UNLESS OTHERWISE SPECIFIED ALL MATERIALS AND EQUIPMENT INCORPORATED IN THE WORK SHALL BE NEW. ALL WORKMANSHIP SHALL BE FIRST CLASS AND SHALL BE PERFORMED BY PERSONS QUALIFIED IN THEIR RESPECTIVE TRADES.
2. ALL WORK PERFORMED BY THIS CONTRACTOR SHALL BE IN COMPLIANCE WITH ALL GOVERNING CODES, REGULATIONS AND THE RECOMMENDED INSTALLATION DETAILS OF THE EQUIPMENT MANUFACTURERS, UNLESS NOTED OTHERWISE.
3. THE PLUMBING CONTRACTOR SHALL LOCATE AND VERIFY SIZES OF EXISTING FACILITIES AND UTILITIES PRIOR TO THE INSTALLATION OF NEW CONSTRUCTION.
4. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE NECESSARY PERMITS, LICENSES, AND INSPECTIONS GOVERNING HIS PORTION OF THE CONTRACT FROM THE AUTHORITIES HAVING JURISDICTION, AND SHALL PAY THE COST OF SUCH UNLESS SPECIFIED OTHERWISE.

START-UP

1. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR THE START UP OF ALL PLUMBING EQUIPMENT. PRIOR TO START UP OF ANY EQUIPMENT THE CONTRACTOR SHALL CHECK AND REVIEW ALL MANUFACTURERS RECOMMENDATIONS FOR PROPER PROCEDURE.



WATER DISTRIBUTION PLAN

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

SANITARY WASTE & VENT NOTES:

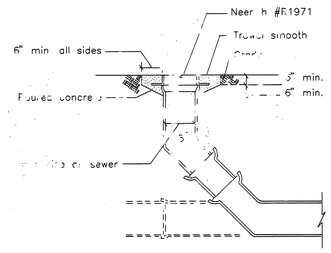
SANITARY WASTE AND VENT PIPING

1. ALL SANITARY WASTE AND VENT PIPING ABOVE AND BELOW GRADE SHALL BE PVC DWV SCH. 40, SOLVENT JOINT PIPING AND FITTINGS.
2. ALL REQUIRED EXCAVATION BY THE PLUMBING CONTRACTOR SHALL BE BACKFILLED WITH GRANULAR BACKFILL AND MECHANICALLY COMPACTED TO 95% COMPACTION. EXCESS MATERIALS SHALL BE REMOVE FROM THE SITE BY THE RESPECTIVE CONTRACTOR.
3. ALL PIPING TO BE INSTALLED ON FIRM EARTH TO SLOPE AT A MINIMUM 1/8" PER FOOT. VERIFY ALL INVERTS PRIOR TO CONSTRUCTION START. PROVIDE STANDPIPE AS PER THE BOCA PLUMBING CODE.
4. NO SANITARY WASTE PIPING SMALLER THAN 2"ø SHALL BE INSTALLED UNDER SLABS

SANITARY WASTE LEGEND

SANITARY WASTE LINE

VENT LINE



YCO CATCH BASIN DETAIL

NTS

WATER DISTRIBUTION NOTES:

WATER PIPING

1. ALL WATER PIPING SHALL BE INSTALLED & CONNECTED BY THE PLUMBING CONT. ALL WATER PIPING SHALL BE TYPE "K" COPPER UNDERGROUND & TYPE "M" ABOVE GROUND. ALL JOINTS SHALL BE MADE WITH WROUGHT COPPER FITTINGS USING LEAD FREE SOLDER.
2. ALL WATER PIPING SHALL BE SUPPORTED @ MAX. 8'-0" INTERVALS AND AT ALL CHANGES IN DIRECTION USING STANDARD CLAMPS AND HANGERS AS REQUIRED. AS PER MANUFACTURERS RECOMMENDATIONS.
3. HORIZONTAL AND VERTICAL RUNS OF PIPING SHALL BE INSTALLED PARALLEL AND PERPENDICULAR TO THE WALLS. VERTICAL PIPING SHALL BE PLUMB AND PERPENDICULAR TO THE FLOORS AND CEILINGS UNLESS NOTED OTHERWISE.

PIPE INSULATION

1. ALL HOT AND COLD WATER PIPING SHALL BE INSULATED WITH 1" THICK ELASTOMERIC INSULATION INSTALLED AS PER MANUFACTURERS RECOMMENDATIONS ALL INSULATION SHALL BE INSTALLED BY A QUALIFIED PERSONNEL TO PROVIDE A PROFESSIONAL VAPOR TIGHT SEAL ON ALL PIPING.

WATER DISTRIBUTION LEGEND

COLD WATER LINE

HOT WATER LINE

GATE VALVE (UNLESS NOTED OTHERWISE)

REVISED "AS-BUILT" DRAWING

THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.

COMMONWEALTH ENGINEERS, INC.

REVISED: DATE 10/06

BY JCW, CK. BY CWW

CURTISS W WHITE No. 34 STATE OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

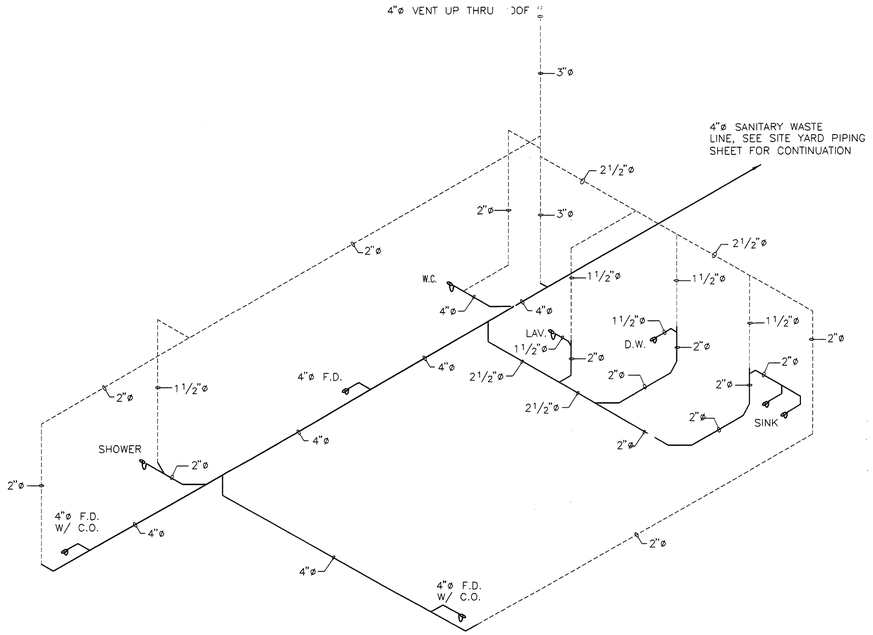
DRAWN BY:	DH
DESIGNED BY:	DAH
CHECKED BY:	DAH
DATE:	1/04
JOB NO:	S02119-02
SCALE:	AS NOTED

29-LAB SAN-WATER PLAN1.DWG 48

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORK PROJECT NO. E031410M
LABORATORY
SANITARY SEWAGE AND WATER DISTRIBUTION PLANS

DRAWING NO.
A3
29 OF 52

30163



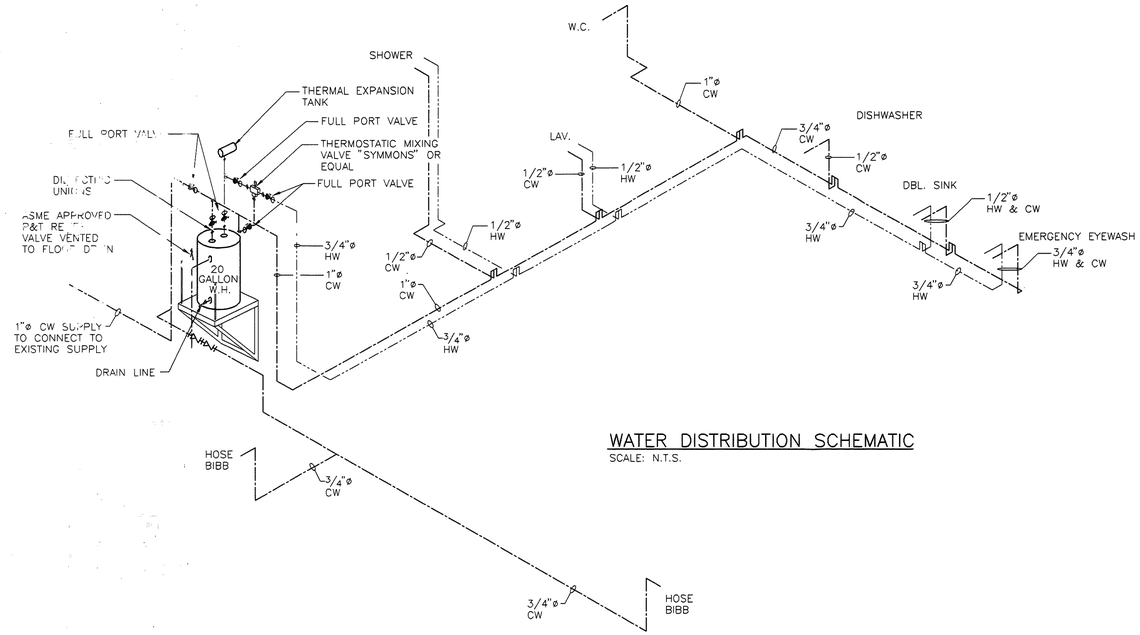
SANITARY SEWAGE SCHEMATIC

SCALE: N.T.S.

SANITARY WASTE LEGEND

SANITARY WASTE LINE

VENT LINE



WATER DISTRIBUTION SCHEMATIC

SCALE: N.T.S.

WATER DISTRIBUTION LEGEND

COLD WATER LINE

HOT WATER LINE

FULL PORT VALVE

REVISED "AS-BUILT" DRAWING

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COMMONWEALTH ENGINEERS, INC.

REVISED: DATE 10/06

BY JCW , CK. BY CWW

CONRAD W. WITT REGISTERED No. 19400134 STATE OF INDIANA PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	DH
DESIGNED BY:	DAH
CHECKED BY:	DAH
DATE:	1/04
JOB NO:	S02119-02
SCALE:	AS NOTED

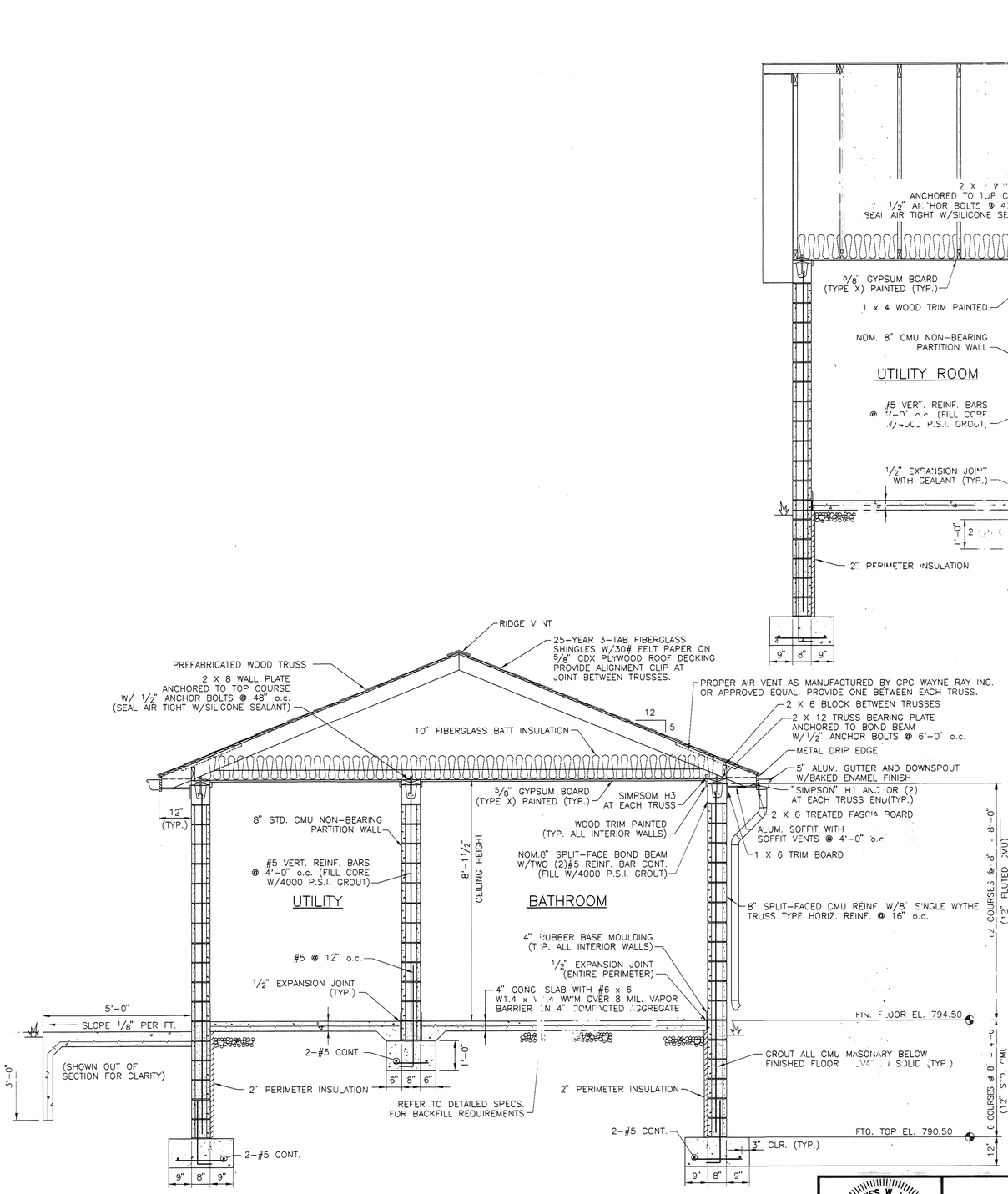
30-LAB SAN-WATER PLAN2.DWG 48

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORK PROJECT NO. E031410M
LABORATORY
SANITARY SEWAGE AND WATER DISTRIBUTION SCHEMATICS

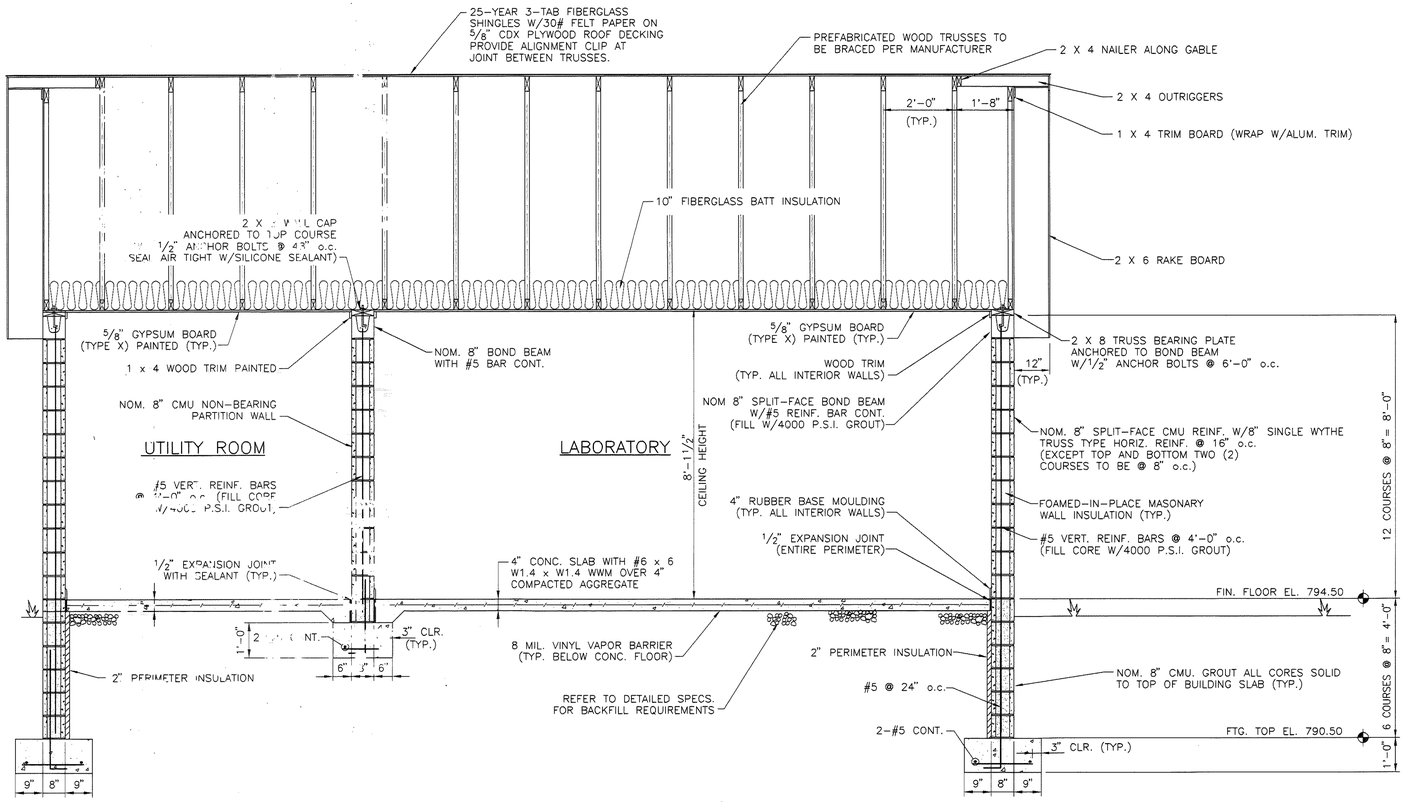
DRAWING NO. A4

30 OF 52

30/-63



SECTION A
SCALE: 1/2"=1'-0" (3|28)



SECTION B
SCALE: 1/2"=1'-0" (3|28)

REVISED "AS-BUILT" DRAWING

THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.

COMMONWEALTH ENGINEERS, INC.

REVISED: DATE 10/06

BY JCW , CK. BY CWW

31-LAB-SEC.DWG 24

CURTISS W. WHITE REGISTERED NO. 19400134 STATE OF PROFESSIONAL ENGINEER

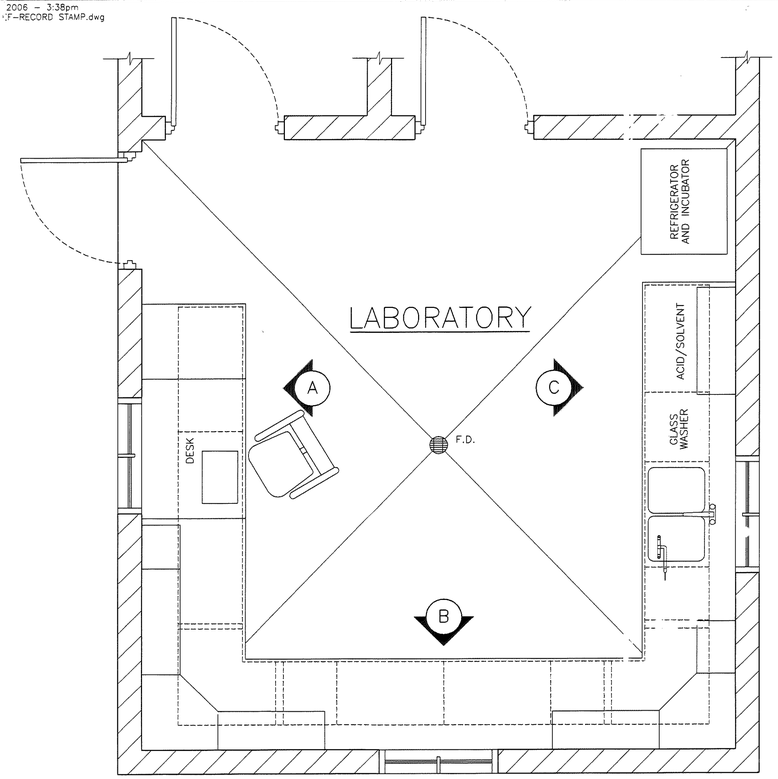
COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	CB
DESIGNED BY:	DAH
CHECKED BY:	DAH
DATE:	1/04
JOB NO:	S02119-02
SCALE:	AS NOTED

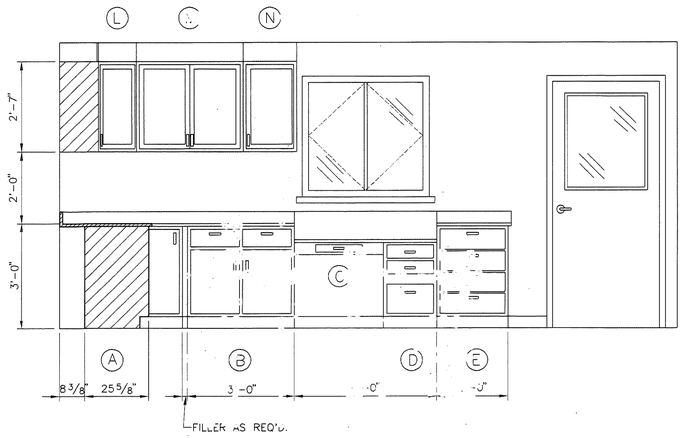
SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORK PROJECT NO. E031410M
LABORATORY BUILDING
WALL SECTION

DRAWING NO.
A5
31 OF 52

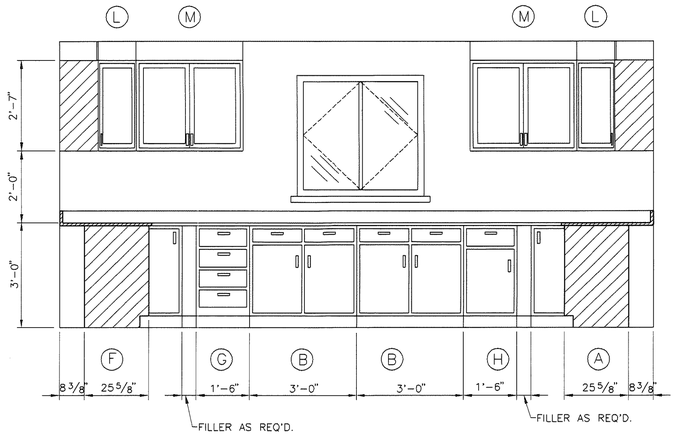
301-63



LABORATORY – PLAN
SCALE: 1/2"=1'-0"



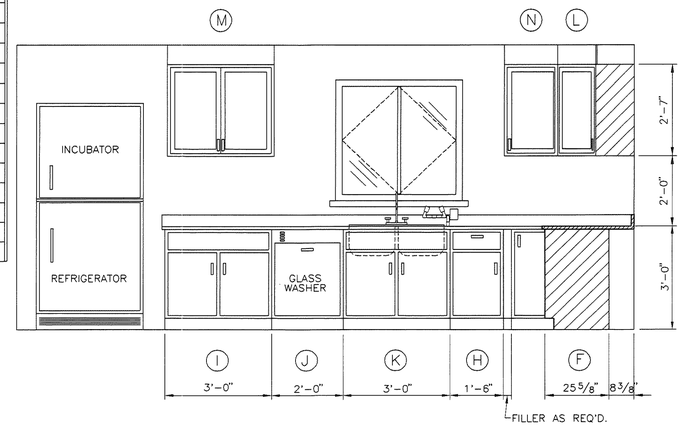
ELEVATION A



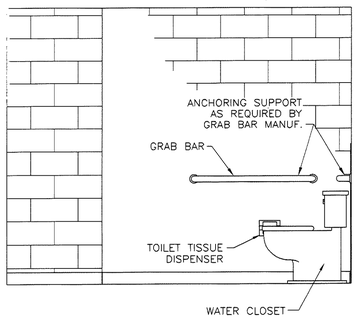
ELEVATION B

CABINET SCHEDULE

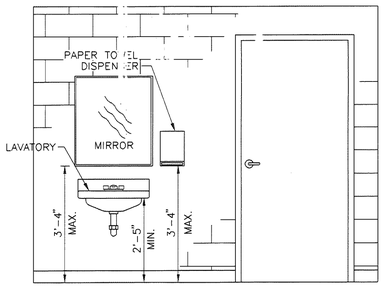
UNIT	QTY.	DESCRIPTION	MANUFACTURER OR EQUAL
A	1	CORNER CABINET RIGHT HAND HINGED	FISHER HAMILTON # 424-S-6320
B	3	COMBINATION CABINET 36" TWO 6" DRAWERS SIDE BY SIDE ABOVE CUPBOARD	FISHER HAMILTON # 457-S-6320
C	1	DRAWER FRAME	FISHER HAMILTON # 501-S-2220
D	1	DRAWER CABINET (TWO) 4 1/2" – (ONE) 10 1/2" DRAWERS	FISHER HAMILTON # 339-S-2220
E	1	DRAWER CABINET 24"(FOUR) 5" HIGH DRAWERS	FISHER HAMILTON # 373-S-4320
F	1	CORNER CABINET LEFT HAND HINGED	FISHER HAMILTON # 425-S-6320
G	1	DRAWER CABINET 18" (FOUR) 5" HIGH DRAWERS	FISHER HAMILTON # 373-S-2320
H	2	COMBINATION CABINET 18" ONE 6" DRAWER ABOVE CUPBOARD	FISHER HAMILTON # 336-S-2320
I	1	POLYETHYLENE LINED ACID STORAGE CABINET	FISHER HAMILTON # 950-S-2380 AND 90-L-16600
J	1	24" UNDERCOUNTER GLASS WASHER BY LABCONCO OR EQUAL	# 44003
K	1	SINK CABINET	FISHER HAMILTON # 115-S-6320
L	2	CORNER WALL CASE HINGED DOOR	FISHER HAMILTON # 724-M-2330
M	4	WALL CASE HINGED DOORS	FISHER HAMILTON # 712-S-6330
N	2	WALL CASE HINGED DOOR	FISHER HAMILTON # 709-S-1330



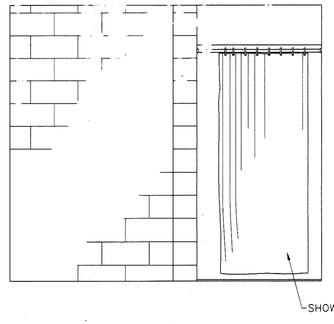
ELEVATION C



EAST ELEVATION



SOUTH ELEVATION



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

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

REVISED "AS-BUILT" DRAWING

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COMMONWEALTH ENGINEERS, INC.

REVISED: DATE 10/06

BY JCW, CK. BY CWW

CURTIS W. WHITE REGISTERED No. 19400134 STATE OF INDIANA PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	CB
DESIGNED BY:	DAH
CHECKED BY:	DAH
DATE:	1/04
JOB NO:	S02119-02
SCALE:	AS NOTED

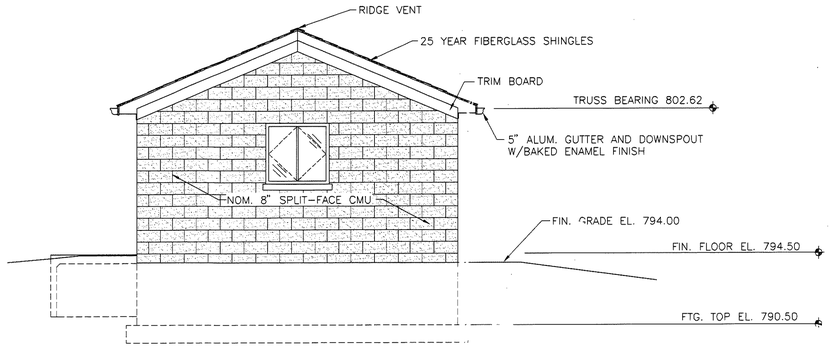
SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORK PROJECT NO. E031410M
LABORATORY AND RESTROOM ELEVATION AND DETAILS

DRAWING NO. A6

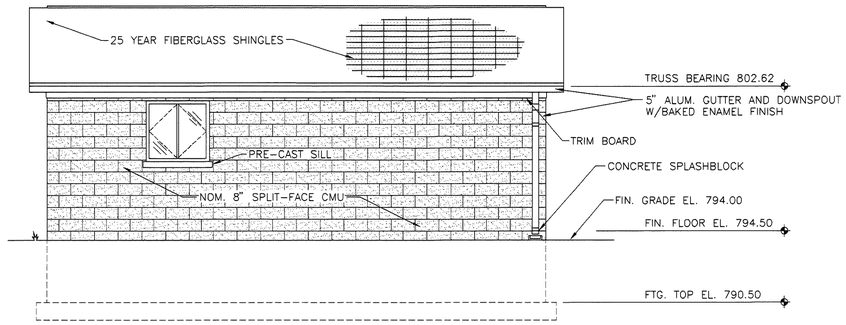
32 OF 52

32-LAB-INT.DWG 24

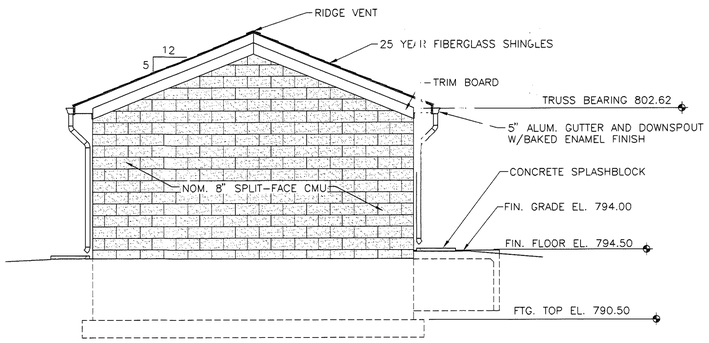
301-63



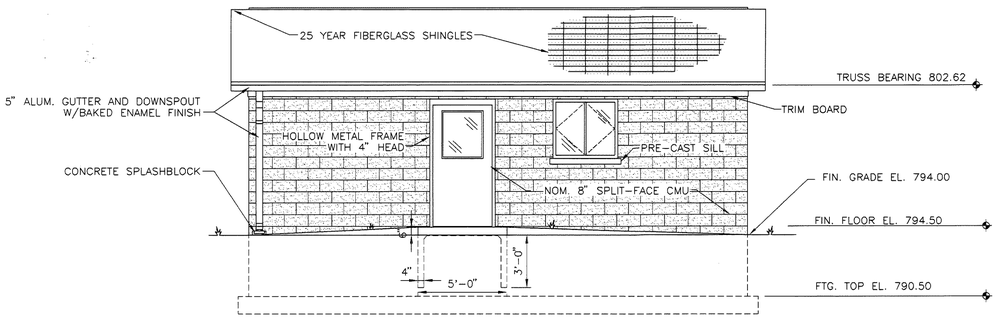
NORTH ELEVATION
SCALE: 1/4"=1'-0"



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



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



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

NOTE:
CONTRACTOR TO MAKE ALL ROOF PENETRATIONS REQUIRED AND INSTALL ALL VENTS.

REVISED "AS-BUILT" DRAWING

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COMMONWEALTH ENGINEERS, INC.

REVISED: DATE 10/06

BY JCW, CK. BY CWW

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	CB
DESIGNED BY:	DAH
CHECKED BY:	DAH
DATE:	1/04
JOB NO:	S02119-02
SCALE:	AS NOTED

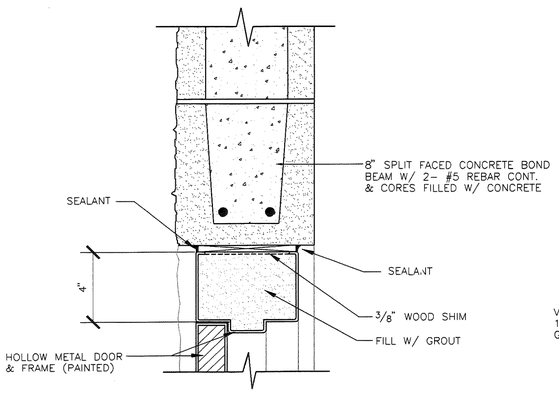
SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORK PROJECT NO. E031410M
LABORATORY BUILDING
ELEVATIONS

33-LAB-ELEV.DWG 48

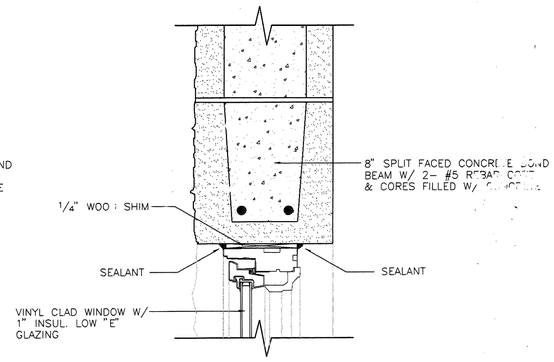
DRAWING NO.
A7
33 OF 52

301-63

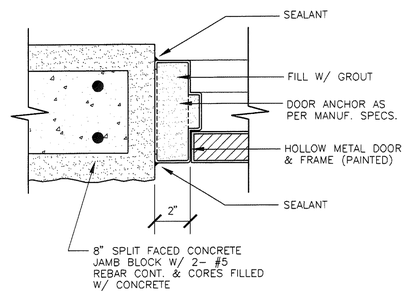
Oct 26, 2006 - 3:40pm
XREF: XREF-RECORD STAMP.dwg



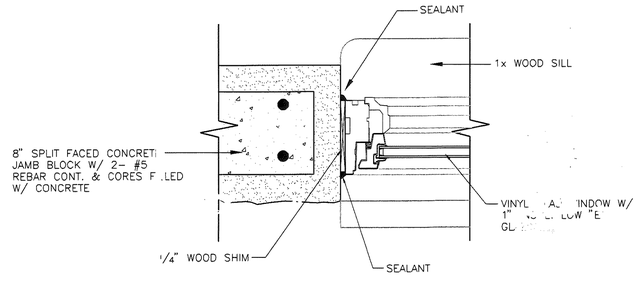
DOOR HEAD DETAIL 1
SCALE 3" = 1'-0"



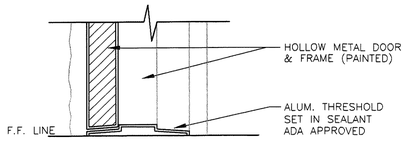
WINDOW HEAD DETAIL 4
SCALE 3" = 1'-0"



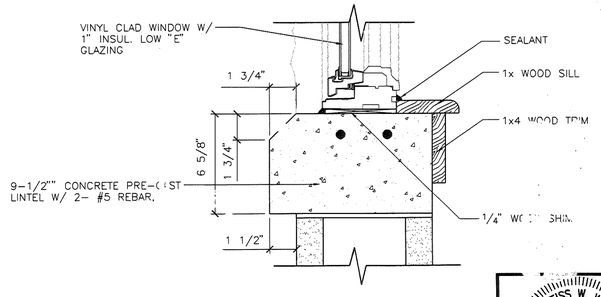
DOOR JAMB DETAIL 2
SCALE 3" = 1'-0"



WINDOW JAMB DETAIL 5
SCALE 3" = 1'-0"



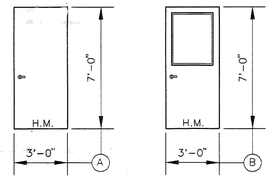
DOOR SILL DETAIL 3
SCALE 3" = 1'-0"



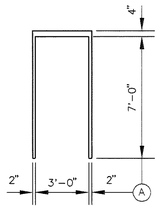
WINDOW SILL DETAIL 6
SCALE 3" = 1'-0"

DOOR SCHEDULE

LOCATION	DOOR DATA										FRAME DATA							REMARKS
	DOOR NUMBER	DOOR TYPE	M.O./R.O. WIDTH	M.O./R.O. HEIGHT	MATERIAL	DOOR WIDTH	DOOR HEIGHT	THICKNESS	LOUVER	WINDOW / SIDE LITE	FRAME NUMBER	MATERIAL	DEPTH	HEAD DETAIL	JAMB DETAIL	SILL DETAIL	HARDWARE SET	NOTES: 1. ALL DOORS & FRAMES TO BE GALVANIZED. 2. ALL EXTERIOR DOORS SHALL BE INSULATED
LABORATORY BUILDING	1	B	3'-4"	7'-4"	HOLLOW METAL	3'-0"	7'-0"	1 3/4"		Y	A	HOLLOW METAL	5 3/4"	1	2	3	1	
	2	A	3'-4"	7'-4"	HOLLOW METAL	3'-0"	7'-0"	1 3/4"			A	HOLLOW METAL	5 3/4"	1 SIM.	2 SIM.	3 SIM.	2	
	3	A	3'-4"	7'-4"	HOLLOW METAL	3'-0"	7'-0"	1 3/4"			A	HOLLOW METAL	5 3/4"	1 SIM.	2 SIM.	3 SIM.	3	



DOOR TYPE ELEVATION
1/4" = 1'-0"



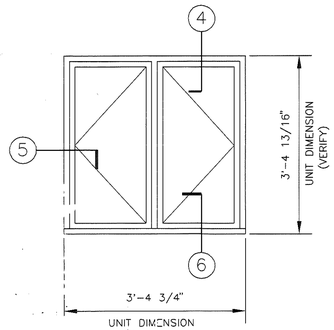
DOOR FRAME ELEVATIONS
1/4" = 1'-0"

WINDOW SCHEDULE

LOCATION	WINDOW DATA												REMARKS
	WINDOW SYMBOL	QUANTITY	WINDOW TYPE	WIDTH	HEIGHT	R.O. WIDTH	R.O. HEIGHT	MATERIAL	SCREEN	GLAZING TYPE	HEAD DETAIL	JAMB DETAIL	SILL DETAIL	
LABORATORY BUILDING	A	3	A	3'-4 3/4"	3'-4 13/16"	3'-5 1/4"	3'-5 3/8"	VINYL CLAD	Y	HIGH PERF. TEMPERED	4	5	6	PROVIDE SCREENS

WINDOW SCHEDULE REMARKS

1. TOP OF FRAME SHALL MATCH DOOR FRAME HEIGHT.



WINDOW ELEVATION
SCALE 3/4" = 1'-0"

REVISED "AS-BUILT" DRAWING

THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS, TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.

COMMONWEALTH ENGINEERS, INC.

REVISED: DATE 10/06
BY JCW, CK. BY CWW

34-LAB DOOR & WINDOW SCHED.dwg 4

CURTISS W. WHITE REGISTERED No. 19400134 STATE OF INDIANA PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	DH
DESIGNED BY:	DAH
CHECKED BY:	DAH
DATE:	3/04
JOB NO:	S02119-02
SCALE:	AS NOTED

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORK PROJECT NO. E031410M
DOOR & WINDOW SCHEDULES & DETAILS

DRAWING NO. A8
34 OF 52

301-63

GENERAL STRUCTURAL NOTES

GENERAL

The structure has been designed for the in-service loads only. The methods, procedures, and sequences of construction are the responsibility of the Contractor. Supporting formwork for the concrete construction shall not be removed before the concrete has gained sufficient strength to safely support the dead and superimposed loads which will be subsequently applied. The Contractor shall take all necessary precautions to maintain and ensure the integrity of the structure at all stages of construction.

All work shall be performed in accordance with the Indiana Building Code, 2003 Edition (2000 International Building Code, third printing, with Indiana Amendments).

Where new work is to be fitted to old work, the Contractor shall check all dimensions and conditions in the field, and report any errors or discrepancies to the Structural Engineer prior to the fabrication and erection of any new members.

Do not determine dimensions by "scaling" off the plans. The Contractor shall accept all risk associated with "scaling" and shall be responsible for all inadequate work resulting therefrom. Questions regarding missing or conflicting dimensions shall be directed, in writing, to the Structural Engineer.

Existing materials to be removed and reinstalled as part of this contract, but become damaged, shall be replaced with approved new material of equivalent quality and appearance at the Contractor's expense.

All work shall be performed without damage to adjacent retained work. Adequate protection of areas nearby work against dust, dirt and debris accumulation shall be maintained at all times.

Principal openings in the structure are indicated on the structural drawings. Refer to the architectural, mechanical, electrical, and plumbing drawings for sleeves, curbs, inserts, etc. not herein indicated. Openings in slabs with a maximum side dimension or diameter of 10 inches or less shall not require additional framing or reinforcement, unless noted otherwise. The location of sleeves or openings not shown in structural members shall be approved by the Structural Engineer.

The location of sleeves or openings not shown in structural members shall be approved by the Structural Engineer.

The Contractor shall relocate all mechanical piping, ducts, equipment, electrical conduits, wiring and plumbing that interfere with the proposed construction. Service shall be maintained to all equipment that is served by mechanical, electrical or plumbing conduit being relocated.

The Contractor shall relocate all utilities which interfere with the proposed construction. Service shall be maintained at all times during utility relocation unless otherwise noted.

The shoring and/or re-shoring design is the responsibility of the Contractor. Temporary shoring for slabs, beams, and girders shall be adequate to carry the total weight of the slab-beam-girder system and any temporary construction loads to be imposed on the structural system. Shoring for a level shall not be removed until the concrete at that level has attained the specified 28 day compressive strength (f'c). Removal of shoring and/or reshoring shall not cause overstress in any structural element.

FOUNDATIONS

Exterior footings shall bear 3'-0" minimum below finish grade and shall bear on undisturbed soil.

Foundation excavation and all other soils related work shall be performed in accordance with the geotechnical engineering report prepared by Earth Exploration, Inc. dated February 20, 2004, and all associated supplements (EEI Project Number 1-04-016).

Foundation and soils related work shall be performed under the direct supervision of a qualified Geotechnical Engineer.

Foundation excavations shall be made to plan elevations. The soil conditions beneath foundations shall then be inspected by a qualified Geotechnical Engineer. If the underlying soils are found to be unacceptable, one of the following procedures shall be followed:

1. Remove the unacceptable soil and backfill with an engineered structural fill in accordance with the geotechnical engineering report or inspecting Geotechnical Engineer.
2. Lower the footing to an acceptable soil. Contact the Structural Engineer for potential modifications to the foundation system.

Subgrade structural elements subjected to differential lateral soil pressure shall be adequately braced until the structural elements which provide lateral restraint have been placed and allowed to cure for a minimum of 7 days.

Excavations for spread footings, combined footings, continuous footings and/or mat foundations shall be cleaned and hand tamped to a uniform surface. Foundation excavations shall be adequately protected against detrimental change in condition from disturbance, rain, freezing, etc. Surface runoff shall not be allowed to enter the excavation.

Foundation conditions noted during construction, which differ from those described in the geotechnical report shall be reported to the Structural Engineer before further construction is attempted.

Center all column and wall footings under the column or wall above unless otherwise indicated.

CONCRETE

Reinforced concrete has been designed in accordance with the latest edition of the Building Code Requirements for Reinforced Concrete (ACI 318) and Environmental Engineering Concrete Structures (ACI 350R) by the American Concrete Institute (ACI).

Slabs-on-grade shall be constructed in accordance with the latest edition of the Guide for Concrete Floor and Slab Construction (ACI 302.1R).

Mixing, transporting, and placing of concrete shall conform to the latest edition of the Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete (ACI 211.1) and the Standard Specifications for Structural Concrete (ACI 301). Concrete curing shall conform to the latest editions of the Standard Practice for Concrete Curing (ACI 308) and the Standard Specification for Curing Concrete (ACI 308.1). In case of a discrepancy, the plans and specifications shall govern.

Unless noted otherwise, concrete shall have natural sand fine aggregate and normal weight coarse aggregates conforming to ASTM C33, and Type I or III Portland Cement conforming to ASTM C150. The Contractor shall submit a mix design for each proposed class of concrete. Mix designs shall indicate proportions by weight, water-cement ratio, slump, air content, synthetic fiber size and quantity, sieve analyses of fine and coarse aggregates, standard deviation analysis, and required average strength and documentation of average strength verifying compliance with ACI 318. The Contractor shall not vary from the mix design without approval from the Structural Engineer.

Unless noted otherwise, fly ash may be used as a pozzolan to replace a portion of the Portland Cement in a concrete mix. Fly ash, when used, shall conform to ASTM C618, Type C. Concrete mixes using fly ash shall be proportioned to account for the properties of the specific fly ash used and to account for the specific properties of the fly ash concrete thus resulting. The ratio of the amount of the fly ash to the total amount of fly ash plus cement in the mix shall not exceed 20 percent.

Water-reducing admixtures conforming to ASTM C494 may be used in the concrete mix design. Maximum slump shall be 5 inches for mixes containing water-reducing admixtures and 5 to 8 inches for mixes containing high range water-reducing admixtures.

Concrete mix design shall conform to the following:

Minimum cement content	5 sacks/cys *
Maximum water cement ratio by weight	0.45 *
Maximum slump prior to addition of plasticizers	3 inches
Maximum slump if plasticizers are not used	4 inches
Maximum aggregate size	1 inch

* Minimum cement content shall be 6 sacks/cys and the maximum w/c ratio shall be 0.40 for Retaining Walls, Curbs, Sidewalks and Slabs exposed to de-icers.

Concrete compressive strength tests shall be performed in accordance with ASTM C39. Copies of the test results shall be forwarded to the Structural Engineer. One set of specimens shall be taken for each day's pour of appreciable size and for each 50 cubic yards in accordance with the latest edition of ASTM C31. Each set shall include one specimen tested at 7 days, 2 specimens tested at 28 days and one specimen retained in reserve. These test cylinders shall be laboratory cured.

When the ambient temperature is expected to fall below 40 degrees during the course of a concrete pour or subsequent curing period, it shall be placed and cured in accordance with the latest edition of Cold Weather Concreting (ACI 306R) and an additional set of concrete test cylinders shall be made. These cylinders shall be stored immediately adjacent to, and cured under the same conditions as the building concrete. Special curing boxes are not permitted for these test cylinders.

Concrete mixed, transported, placed, and cured under conditions of high ambient temperature, low humidity, solar radiation, or high winds shall conform to the latest edition of Hot Weather Concreting (ACI 305R) and an additional set of concrete test cylinders shall be made. These cylinders shall be stored immediately adjacent to, and cured under the same conditions as the building concrete. Special curing boxes are not permitted for these test cylinders.

Slump tests shall be made prior to and following the addition of plasticizers. Where concrete is placed by pumping methods, concrete for test cylinders and slump tests shall be taken at the point of final placement.

Water shall not be added to the concrete at the job site. The Contractor is responsible for coordinating a pumpable and workable mix without the addition of water at the job site. The use of plasticizers, retardants and other additives shall be at the option of the Contractor subject to the approval of the Structural Engineer. Follow the recommendations of the manufacturer for the proper use of additives. Use of calcium chloride or other chloride bearing salts is prohibited.

Place concrete in a manner so as to prevent segregation of the mix. Delay floating and troweling operations until the concrete has lost surface water sheen or all free water. Do not sprinkle free cement on the slab surface. Finishing of slab surfaces shall conform to the latest editions of ACI 302.1R and ACI 304R (Guide for Measuring, Mixing, Transporting and Placing Concrete).

Where an epoxy adhesive is specified for bonding plastic concrete to hardened concrete, it shall conform to the latest edition of the Standard Specification for Bonding Plastic Concrete to Hardened Concrete with a Multi-Component Epoxy Adhesive (ACI 503.2).

Maintain concrete in a moist condition for at least 5 days at ambient temperatures above 70 degrees, and at least 7 days at ambient temperatures above 50 degrees. Curing compounds or moisture retention covers shall be used for all non-formed surfaces. Formed surfaces shall be cured by leaving forms in place. During hot, dry weather, keep forms moist by sprinkling. When forms are removed prior to the end of the curing period, apply curing compound to the exposed surfaces.

All interior slabs shall receive a hard "troweled finish". Exterior slabs, sidewalks, and stoops shall receive a "broom (or other type of slip resistant) finish". All formed surfaces not exposed to public view shall receive a "rough form finish", exposed surfaces shall receive a "smooth form finish". Concrete finishes shall be as defined in ACI 301.

Protect finished concrete surfaces from damage, rain, hail, running water, other injurious effects.

Protect the concrete surface between finishing operations on hot, dry days or any time plastic shrinkage cracks could develop by using wet burlap, plastic membranes or fogging.

Horizontal joints are not be permitted in concrete construction except where indicated. Vertical joints shall only occur at locations approved by the Structural Engineer.

Construction joints at locations other than where indicated shall be submitted to the Structural Engineer for approval.

Construction joints shall be prepared by roughening the contact surface in an approved manner to a full amplitude of approximately 1/4 inch leaving the contact surface clean and free of laitance.

Control joints shall be made in concrete slabs-on-grade at major column centerlines, at points of discontinuity at reentrant corners, and at other locations shown on the plans.

Provide 3/4 inch chamfers on all exposed corners of concrete except those abutting masonry.

The Contractor shall verify the location of sleeves, openings, embedded items, etc. and shall ensure that they are in place prior to the placement of the concrete.

Earth cuts shall not be used as forms ("bank forming") for vertical or sloping surfaces unless otherwise approved by the Structural Engineer. Where bank forming is permitted, the concrete element shall be increased at least 3 inches on all sides exposed to earth to account for possible soil contamination during concrete placement.

CONCRETE SCHEDULE

CLASS	28 DAY COMPRESSIVE STRENGTH	AIR CONTENT	CONCRETE PLACEMENT	REMARKS
A	4,500 psi	6% ± 1%	tank structural slabs, columns, beams and walls	
B	4,500 psi	6% ± 1%	non-tank exterior slabs-on-grade, stoops, curbs and sidewalks exposed to de-icers	synthetic fibers - 1.5 lbs/cys lbs/cyds (optional)

Minimum cement content shall be 611 lb/cys (6.5 sacks/cys) and maximum water-cement ratio shall be 0.40 for Class A and B concrete.

REVISED "AS-BUILT" DRAWING

THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.

COMMONWEALTH ENGINEERS, INC. REVISED: DATE 10/06

BY JEW CK. BY EWW

REINFORCING STEEL

Reinforcing bar detailing, fabricating, and placing shall conform to the latest edition of the following standards: Specifications for Structural Concrete for Buildings (ACI 301), ACI Detailing Manual (SP66). The latest editions of Concrete Reinforcing Steel Institute's Reinforcing Bar Detailing and Placing Reinforcing Bars may also be used.

Provide standard bar chairs, slab bolsters, spacers, etc. as required to maintain concrete protection specified. Reinforcing steel shall be tied to prevent displacement during concrete placement.

Reinforcement bars shall not be tack welded, welded, heated or cut unless otherwise indicated or approved by the Structural Engineer.

Welding of reinforcement bars, when approved by the Structural Engineer, shall conform to the latest edition of American Welding Society Standard D1.4. Electrodes for shop and field welding of reinforcement bars shall conform to ASTM A233, Class E90XX.

Synthetic fibers may be used in lieu of welded wire fabric] for temperature and shrinkage reinforcement in concrete slabs-on-grade. Synthetic fibers shall be virgin (non-recycled) nylon or polypropylene fibers conforming to ASTM C1116, Type III. Fibers shall be introduced into the mix at the plant in accordance with the manufacturer's recommendations. The Contractor shall submit the mix design, including the fiber size and quantity, to the Structural Engineer for approval prior to construction. The Contractor shall take adequate measures to manage any difficulties in concrete finishing associated with the use of the fibers.

Concrete cover over reinforcement, unless otherwise noted, shall be as specified in the latest edition[s] of ACI 318 [and ACI 350 with the most stringent requirements governing].

Welded wire fabric in slabs-on-grade shall be placed 2" down from the top of the slab unless otherwise noted. Welded wire fabric in slabs on metal decks shall be placed anywhere from 3/4" to 1 1/4" down from the top of the slab unless otherwise noted.

Unless noted otherwise, splicing of reinforcing bars shall conform to the latest edition of ACI 318. Where the length of lap is not indicated, provide a Class "B" lap at tension splices or 30 bar diameter compression laps at compression splices.

Horizontal bars in walls and continuous wall footings shall be bent at corners and intersections in such a way that continuity is provided through the joint. Separate corner bars of the same size and spacing as the horizontal reinforcing may be substituted for the bent portion of the continuous bars.

Unless noted otherwise, provide 2 #5 bars (one each face) around unframed openings and diagonally at reentrant corners of vertical height offsets in concrete walls. Place bars parallel to the sides of the opening and extend 24 inches beyond corners.

The Contractor shall prepare detailed working or shop drawings to enable him to fabricate, erect and construct all parts of the work in accordance with the drawings and specifications and shall submit one reproducible copy and one blue line copy to the Structural Engineer for review prior to fabrication. These shop drawings will be reviewed for design concepts only. The Contractor shall be responsible for all dimensions, accuracy, and fit of work.

STRUCTURAL STEEL

Structural steel detailing, fabrication and erection shall conform to the latest editions of the AISC Specification for Structural Steel Buildings, Allowable Stress Design and Plastic Design and the AISC Code of Standard Practice for Steel Buildings and Bridges.

Structural steel shall be shop-painted with a rust inhibiting primer. Steel which will be exposed to weather shall receive one additional finish coat. All abrasions caused by handling after shop painting shall be touched-up after erection is complete.

Design connections not shown in accordance with the latest AISC Specification and Manual of Steel Construction (allowable stress design method). Design simple span non-composite beam connections not shown to support one-half the beam uniform capacity as given in the AISC Uniform Load Constants for Beams Laterally Supported tables. Connection angles shall be double web angles, 5/16" minimum thickness.

Unless otherwise noted, bolted connections of structural steel members shall be bearing-type using 3/4" diameter ASTM A325 high strength bolts in standard 13/16" diameter holes tightened to the snug tight condition.

High strength bolted connections shall conform to the latest edition of the Specification for Structural Joints Using ASTM A325 or A490 Bolts approved by the Research Council on Structural Connections of the Engineering Foundation.

Welding procedures shall conform to the latest edition of the American Welding Society's (AWS) Structural Welding Codes for Steel ANSI/AWS D1.1 and Sheet Steel ANSI/AWS D1.3 , and Reinforcing Steel ANSI/AWS D1.4.

Welded connections using ASTM A572 and A992 steel as a base metal shall be made with E70XX Low Hydrogen electrodes. Unless otherwise noted, other welded connections shall be made with regular E70XX electrodes. Welding shall be performed only where shown and to the extent indicated.

Field drilled holes shall be reamed, ground and deburred prior to assembly of the connection.

Thermal cutting shall preferably be done by machine. Hand thermally cut edges which will be subjected to substantial stress, or which are to receive weld metal deposited on them, shall be reasonably free from notches or gouges. Notches or gorges greater than 3/16" that remain from cutting shall be removed by grinding. Re-entrant corners shall be shaped not sharper to a radius of at least 1/2".

Paint on surfaces adjacent to joints to be field welded shall be wire brushed to reduce the paint film to a minimum.

Surfaces within 2" of any field weld shall be free of materials that would prevent proper welding or produce toxic fumes while welding is being done.

Splicing of structural steel members where not detailed is prohibited without the prior approval of the Structural Engineer as to location, type of splice and connection to be made.

Continuous beam cantilevers and other beams framing over the top of a column shall have a full height 3/8" web stiffener on each side of the beam, centered above the supporting column. The beam-to-column connection shall contain no less than 4 bolts (2 each side of beam).

The Contractor shall prepare detailed working or shop drawings to enable him to fabricate, erect and construct all parts of the work in accordance with the drawings and specifications and shall submit one reproducible copy and one blue line copy to the Structural Engineer for review prior to fabrication. These shop drawings will be reviewed for design concepts only. The Contractor shall be responsible for all dimensions, accuracy, and fit of work.

EXPANSION/ADHESIVE ANCHORS

Anchors shall be Hilti type as manufactured by Hilti Fastening Systems or approved equivalent.

Anchors shall be installed in accordance with the manufacturer's recommendations, plans and specifications. Anchors shall not be installed in a masonry mortar joint.

The Contractor shall inspect the masonry or concrete surface at each proposed anchor location prior to installation. If the anchor locations align with mortar joints or the masonry or concrete is honeycombed or otherwise unsound, the anchors shall be repositioned so as to be located in sound material and be in accordance with the manufacturer's minimum spacing requirements.

Anchors shall not be installed in concrete until it has attained its specified minimum 28 day compressive strength (f'c).

NON-SHRINK GROUT

Grout shall be a non-metallic, shrinkage resistant (when tested in accordance with the latest edition of ASTM C827 or CRD-C621), premixed, non-corrosive, non-staining product containing Portland Cement, silica sands, shrinkage compensating agents and fluidity improving compounds.

Grout compressive strength tests shall be performed in accordance with the latest edition of ASTM C109, with unrestraining plate placed over the molds.

Grout shall be installed in accordance with the manufacturer's instructions.

Grout shall be placed in a non-sag flowable state and shall have forms built around it for confinement. Grout shall be cured according to manufacturer's recommendations.

COORDINATION WITH OTHER TRADES

The Contractor shall coordinate and check all dimensions relating to architectural finishes, structural framing, mechanical openings, equipment, etc. The Structural Engineer shall be notified of any discrepancies before proceeding with work in an area under question.

DESIGN

Building Code:
- Indiana Building Code, 2003 edition (2000 International Building Code, third printing, with Indiana Amendments)

Soil information:

Allowable net bearing pressure	1,500 psf (≤7'-6" below finished grade)
	4,000 psf (>7'-6" below finished grade)
Soil subgrade modulus, Ks	100 pci (assumed)
Unit weight of soil	125 pcf
Angle of Internal Friction	30 deg.
At-rest lateral earth pressure coefficient, Ko (restrained walls w/o compacted backfill)	0.50 (assumed)
Active lateral earth pressure coefficient, Ka (free-standing retaining walls)	0.33 (assumed)
Equivelant Fluid Pressure	90 pcf
Coefficient of friction between soil and concrete footing	0.30 (assumed)

Concrete:
- 28 day compressive strength (f'c) ..... see schedule

Reinforcing steel (deformed bars of new billet steel):

Stirrup and tie	ASTM A615, Grade 60
Weldable (Low-Alloy)	ASTM A706, Grade 60
Otherwise	ASTM A615, Grade 60
Welded wire fabric (smooth)	ASTM A185
Welded wire fabric (deformed)	ASTM A497

Structural steel:

Structural tubing members	ASTM A500, Grade B Fy = 46 ksi
Structural steel pipe members	ASTM A53, Type E or S, Grade B Fy = 35 ksi
Structural steel rolled wide flange W shapes	ASTM A992 Fy = 50ksi
(Grade an alternate, ASTM A572, Grade 50 may be used)	
Structural steel rolled plates & angles	ASTM A36
All other members	ASTM A36
Connection bolts	ASTM A325N
Anchor bolts	ASTM A36
Stainless steel members	ASTM A493, Fy = 60 ksi

Non-shrink grout:
- 28 day compressive strength ..... 5,000 psi

Wind loads (Indiana Building Code, 2003 Edition Section 1609):

Basic wind speed (3-second gust)	90 mph
Wind importance factor, Iw	0.87
Exposure	C

Seismic loads (Indiana Building Code, 2003 Edition Sections 1613-1617, 1620, and 1622):

Seismic use group	1.0
Seismic importance factor, Ie	1.0
Seismic spectral response coefficients, Sds	15.8% g
Seismic spectral response coefficients, Sd1	10.7% g
Site Class	D (assumed)
Seismic Design Category	B

SPECIAL NOTES TO THE OWNER

Under normal conditions and for conventional building structures such as the subject structure, reinforced concrete will develop cracks. The cracks are due to inherent shrinkage of the concrete, creep, ambient temperature variation, and restraining effects of vertical and other structural elements.

The cracks formed are normally cosmetic. The concrete maintains its serviceability and strength requirements. It is possible that a number of hairline cracks, which would normally spread over a wide area, will integrate into a single crack with a width exceeding 0.01 inch. It is emphasized that although special effort is made to reduce the potential causes and number of such cracks, it is not practical to provide total articulation and thereby achieve complete inhibition of all cracks.

The majority of these cracks develop within the first three years of service. Cracks which are wider than 0.01 inch may require sealing or epoxy injection.

The object of the joints provided in the structure is to allow movement. Movements due to creep and shrinkage may be noticeable at joints up to two years after construction, beyond which movements due to variations in temperature will persist.

CE Solutions, Inc.
Structural Engineers
10 Shoshone Drive, Suite 100
Carmel, Indiana 46032
317-818-1912

STATE OF INDIANA — JOHN D. WOLFE — PE 10702 — REGISTERED

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	KDD
DESIGNED BY:	JDT
CHECKED BY:	JDT
DATE:	04/21/04
JOB NO:	S02119-02
SCALE:	AS NOTED

SALAMONIE RESERVOIR
WASTEWATER TREATMENT FACILITIES IMPROVEMENTS PROJECT

PUBLIC WORKS PROJECT NO. E031410M

GENERAL STRUCTURAL NOTES

DRAWING NO. S1

35 OF 52

301-63

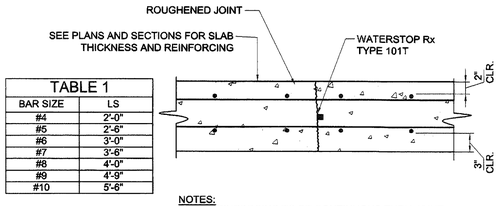
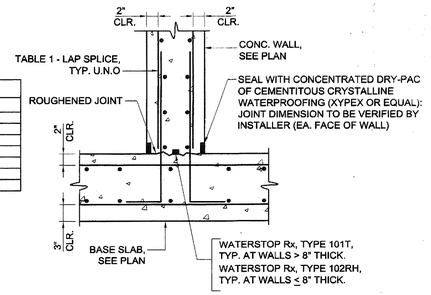


TABLE 1	
BAR SIZE	LS
#4	2'-0"
#5	2'-6"
#6	3'-0"
#7	3'-6"
#8	4'-0"
#9	4'-9"
#10	5'-6"

NOTES:
1. ALL REINFORCING TO BE CONTINUOUS THRU JOINT.
2. CONSTRUCTION JOINT SPACING NOT TO EXCEED 75'-0".
3. SEE SOIL REPORT FOR UNDERSLAB PREPARATION AND COMPACTION.
4. SEE TABLE 1 FOR LAP SPLICE (LS) REQUIREMENTS.

TYPICAL BASE SLAB CONSTRUCTION JOINT
SCALE: 1" = 1'-0"
4 / S2



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#8	4'-0"
#9	4'-9"
#10	5'-6"

TYPICAL WALL TO BASE SLAB
SCALE: 1" = 1'-0"
3 / S2

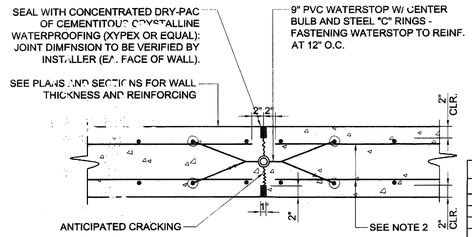


TABLE 1	
BAR SIZE	LS
#4	2'-0"
#5	2'-6"
#6	3'-0"
#7	3'-6"
#8	4'-0"
#9	4'-9"
#10	5'-6"

NOTES:
1. CONTRACTION JOINTS SHALL BE LOCATED AT JOINTS MARKED CT.
2. WATERSTOPS REQUIRED AT WATER RETAINING WALLS ONLY.
3. UNLESS NOTED OTHERWISE, CONTRACTION JOINT SPACING NOT TO EXCEED 25 FEET.
4. 50% OF THE HOIRZ. REINF. STEEL SHALL BE CONTINUOUS THRU JOINT. HORIZONTAL BARS THAT STOP SHORT OF JOINT SHALL BE FABRICATED ACCORDINLY AND SHALL NOT BE FIELD CUT. CONTINUOUS AND DISCONTINUOUS HORIZ. BARS SHALL BE ALTERNATED ALONG WALL HEIGHT.
5. SEE SPECIFIC DETAILS AT NOTED STRUCTURES WHERE 100% OF HORIZONTAL REINFORCING STEEL IS CONTINUOUS THRU JOINT.
6. CONTRACTION JOINTS SHALL NOT OCCUR WITHIN 5'-0" OR CORNER.
7. SEE TABLE 1 FOR LAP SPLICE (LS) REQUIREMENTS.

TYPICAL WALL CONTRACTION JOINT
SCALE: 1" = 1'-0"
2 / S2

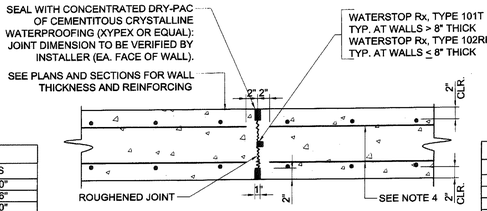
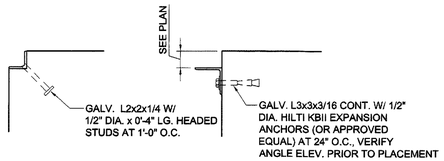


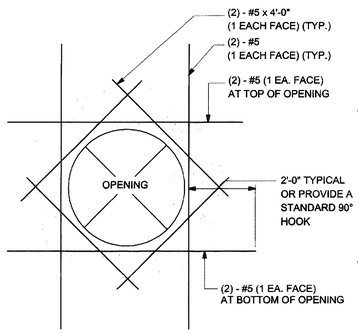
TABLE 1	
BAR SIZE	LS
#4	2'-0"
#5	2'-6"
#6	3'-0"
#7	3'-6"
#8	4'-0"
#9	4'-9"
#10	5'-6"

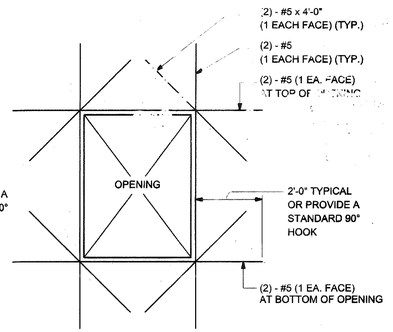
NOTES:
1. CONSTRUCTION JOINTS SHALL BE LOCATED AT JOINTS MARKED CJ.
2. WATERSTOP REQUIRED AT WATER RETAINING WALLS ONLY.
3. UNLESS NOTED OTERWISE, CONSTRUCTION JOINT SPACING NOT TO EXCEED 75 FEET.
4. 50% OF THE HOIRZ. REINF. STEEL SHALL BE CONTINUOUS THRU JOINT. HORIZONTAL BARS THAT STOP SHORT OF JOINT SHALL BE FABRICATED ACCORDINGLY AND SHALL NOT BE FIELD CUT. CONTINUOUS AND DISCONTINUOUS HORIZ. BARS SHALL BE ALTERNATED ALONG WALL HEIGHT.
5. SEE SPECIFIC DETAILS AT NOTED STRUCTURES WHERE 100% OF THE HORIZONTAL REINFORCING STEEL IS CONTINUOUS THRU JOINT.
6. CONSTRUCTION JOINTS SHALL NOT OCCUR WITHIN 5'-0" OF A CORNER.
7. SEE TABLE 1 FOR LAP SPLICE (LS) REQUIREMENTS.

TYPICAL WALL CONSTRUCTION JOINT
SCALE: 1" = 1'-0"
1 / S2



EMBEDDED ANGLE **SIDE MOUNTED ANGLE**





NOTES:
1. WHERE VERTICAL REINFORCING IS INTERRUPTED BY THE OPENING, ONE HALF THE INTERRUPTED STEEL SHALL BE ADDED EACH SIDE OF OPENING. USE FULL LENGTH BARS.
2. THIS DETAIL APPLIES TO ALL OPENINGS IN CONCRETE WALLS UNLESS DETAILED OTHERWISE ON THE PLANS.

TYPICAL OPENING IN CONCRETE WALLS
NO SCALE
7 / S2

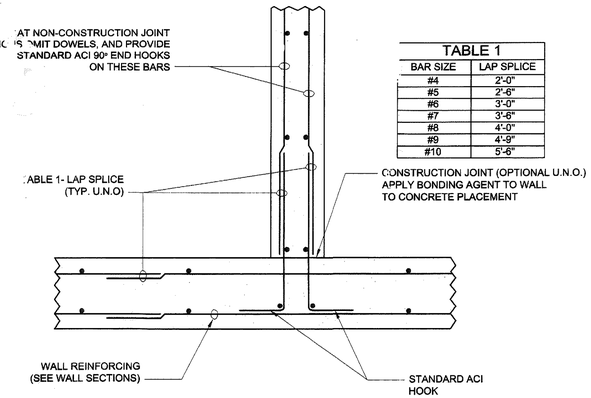


TABLE 1	
BAR SIZE	LAP SPLICE
#4	2'-0"
#5	2'-6"
#6	3'-0"
#7	3'-6"
#8	4'-0"
#9	4'-9"
#10	5'-6"

WALL REINFORCING - PLAN VIEW
(BOTH FACES)

NOTES:
1. SEE WALL SECTIONS FOR TYPICAL WALL REINFORCING (SIZE AND SPACING).
2. SEE GENERAL NOTES AND/OR WALL SECTIONS FOR REINFORCING STEEL CLEARANCES.

TYPICAL CONCRETE WALL INTERSECTION
NO SCALE
6 / S2

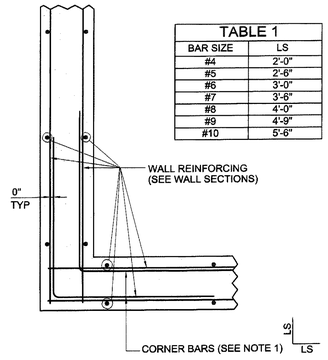
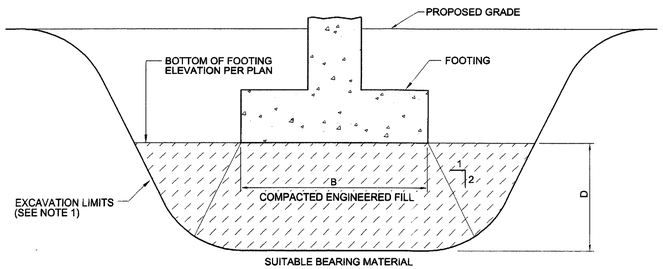


TABLE 1	
BAR SIZE	LS
#4	2'-0"
#5	2'-6"
#6	3'-0"
#7	3'-6"
#8	4'-0"
#9	4'-9"
#10	5'-6"

WALL REINFORCING
(BOTH FACES)

NOTES:
1. PROVIDE CORNER BARS AS SHOWN, MATCH HORIZONTAL WALL REINFORCING (SIZE AND SPACING). SEE TABLE 1 FOR LS DIM.
2. TERMINATE HORIZONTAL WALL REINFORCING 2" CLEAR FROM END OF WALL (TYPICAL U.O.N.).

TYPICAL CONCRETE WALL CORNER REINFORCEMENT - PLAN VIEW
NO SCALE
5 / S2



NOTES:
1. DEWATER EXCAVATION AS REQUIRED.
2. WIDTH OF EXCAVATION SHALL EQUAL WIDTH OF FOOTING PLUS DEPTH OF UNDERCUT (W=B+D)

TYPICAL FOOTING IN UNDERCUT AREA
NO SCALE
9 / S2

REVISED "AS-BUILT" DRAWING

THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.

COMMONWEALTH ENGINEERS, INC. REVISED: DATE 10/06
BY JCW, CK. BY CWW

TYPICAL GRATING SUPPORT
SCALE: 1-1/2" = 1'-0"
8 / S2

CE Solutions, Inc.
Structural Engineers
10 Shoshone Drive, Suite 100
Carmel, Indiana 46032
317-818-1912

04/22/04

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	KDD
DESIGNED BY:	DT
CHECKED BY:	JDT
DATE:	04/21/04
JOB NO:	S02119-02
SCALE:	AS NOTED

SALAMONIE RESERVOIR
WASTEWATER TREATMENT FACILITIES IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
TYPICAL DETAILS

DRAWING NO. S2
36 OF 52

301-63

PLAN NOTES:

1. SEE SHEET S1 FOR GENERAL STRUCTURAL NOTES.

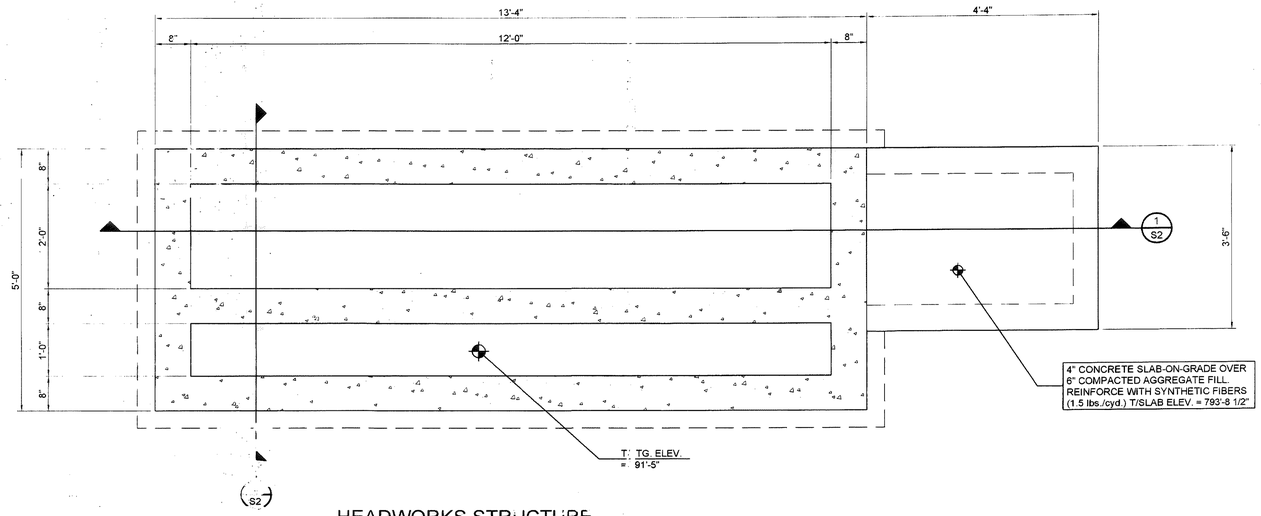
2. SEE SHEET S2 FOR TYPICAL DETAILS.

3. GENERAL CONTRACTOR TO COORDINATE ALL OPENINGS, PIPE SLEEVES, EMBED ITEMS, HANDRAILS, GRATING, ETC. WITH PROCESS DRAWINGS.

4. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED PRIOR TO FABRICATION, CONSTRUCTION OR ERECTION. THE GENERAL CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DISCREPANCIES.

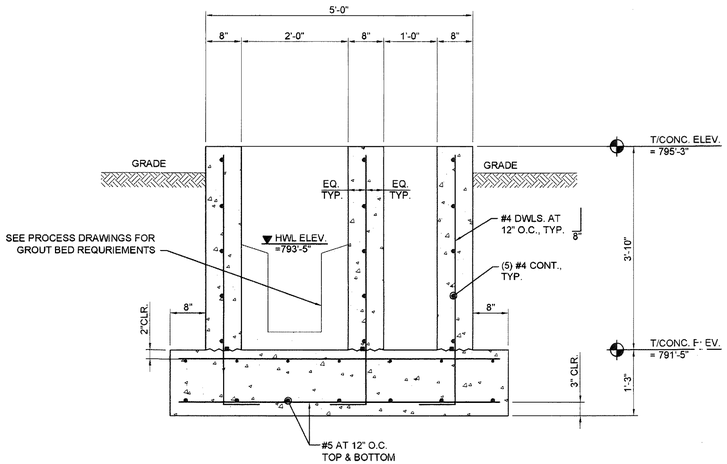
5. SEE SITE PLAN FOR ALL FINAL GRADE ELEVATIONS.

6. SEE GEOTECHNICAL REPORT FOR ALL BACKFILLING AND COMPACTION REQUIREMENTS BEHIND WALLS AND UNDER BASE SLABS.



HEADWORKS STRUCTURE FOUNDATION / SLAB PLAN

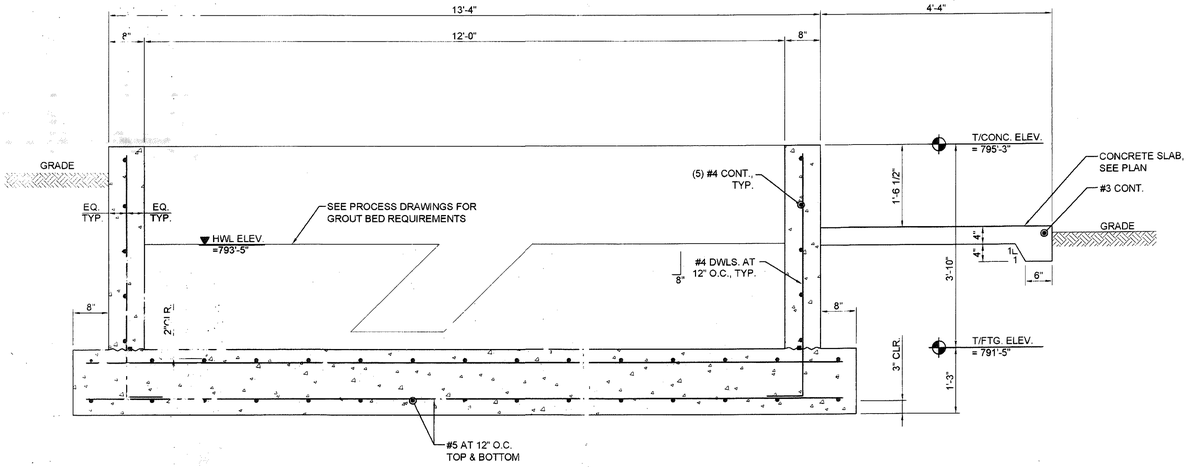
SCALE: 3/4"=1'-0"



SECTION

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

2 / S3



SECTION

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

1 / S3

REVISED "AS-BUILT" DRAWING

THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" AS FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.

COMMONWEALTH ENGINEERS, INC.

REVISED: DATE 10/06

BY KW CK. BY CKW

CE Solutions, Inc.
Structural Engineers

10 Shoshone Drive, Suite 100
Carmel, Indiana 46032
317-818-1912

STATE OF INDIANA — REGISTERED — JOHN D. TAYLOR — PROFESSIONAL ENGINEER — 9/22/04

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	KDD
DESIGNED BY:	JDT
CHECKED BY:	JDT
DATE:	04/21/04
JOB NO:	S02119-02
SCALE:	AS NOTED

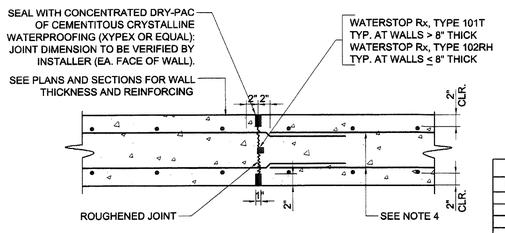
SALAMONIE RESERVOIR
WASTEWATER TREATMENT FACILITIES IMPROVEMENTS PROJECT

PUBLIC WORKS PROJECT NO. E031410M

HEADWORKS STRUCTURE
FOUNDATION PLAN AND SECTIONS

DRAWING NO.
S3
37 OF 52

301-63

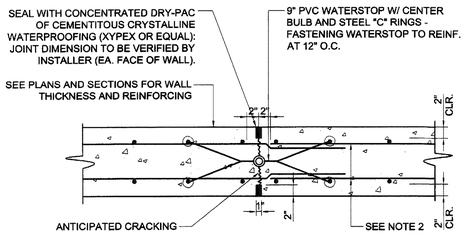


NOTES:
1. CONSTRUCTION JOINTS SHALL BE LOCATED AT JOINTS MARKED CJ.
2. WATERSTOP REQUIRED AT WATER RETAINING WALLS ONLY.
3. UNLESS NOTED OTERWISE, CONSTRUCTION JOINT SPACING NOT TO EXCEED 75 FEET.
4. 100% OF THE HOIRZ. REINF. STEEL SHALL BE CONTINUOUS THRU JOINT. HORIZONTAL BARS THAT STOP SHORT OF JOINT SHALL BE FABRICATED ACCORDINGLY AND SHALL NOT BE FIELD CUT. CONTINUOUS AND DISCONTINUOUS HORIZ. BARS SHALL BE ALTERNATED ALONG WALL HEIGHT.
5. SEE SPECIFIC DETAILS AT NOTED STRUCTURES WHERE 100% OF THE HORIZONTAL REINFORCING STEEL IS CONTINUOUS THRU JOINT.
6. CONSTRUCTION JOINTS SHALL NOT OCCUR WITHIN 5'-0" OF A CORNER.
7. SEE TABLE 1 FOR LAP SPLICE (LS) REQUIREMENTS.

WALL CONSTRUCTION JOINT

SCALE: 1" = 1'-0"

2 / S4

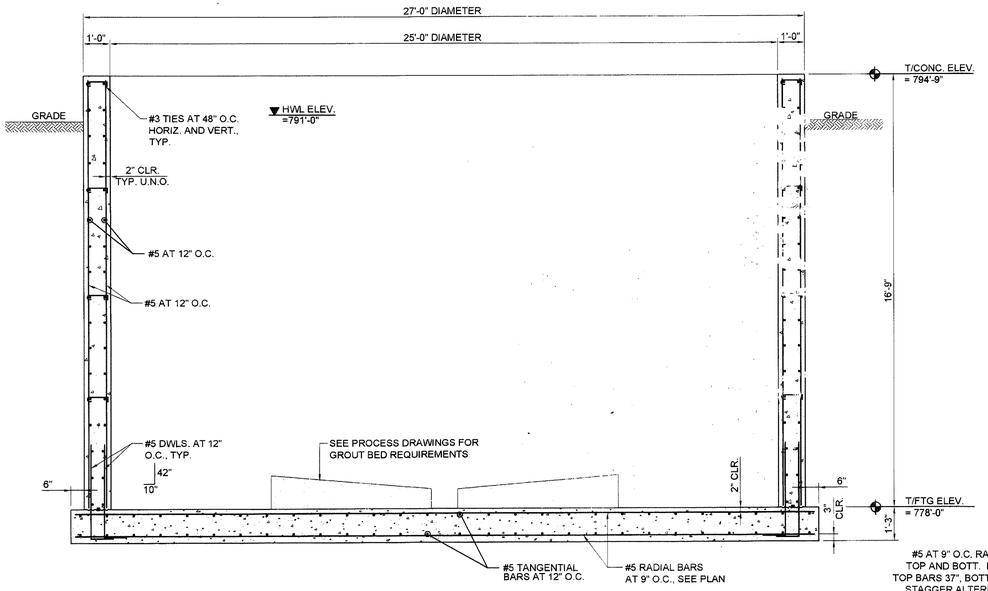


NOTES:
1. CONTRACTION JOINTS SHALL BE LOCATED AT JOINTS MARKED CT.
2. WATERSTOPS REQUIRED AT WATER RETAINING WALLS ONLY.
3. UNLESS NOTED OTHERWISE, CONTRACTION JOINT SPACING NOT TO EXCEED 25 FEET.
4. 100% OF THE HOIRZ. REINF. STEEL SHALL BE CONTINUOUS THRU JOINT. HORIZONTAL BARS THAT STOP SHORT OF JOINT SHALL BE FABRICATED ACCORDINLY AND SHALL NOT BE FIELD CUT. CONTINUOUS AND DISCONTINUOUS HORIZ. BARS SHALL BE ALTERNATED ALONG WALL HEIGHT.
5. SEE SPECIFIC DETAILS AT NOTED STRUCTURES WHERE 100% OF HORIZONTAL REINFORCING STEEL IS CONTINUOUS THRU JOINT.
6. CONTRACTION JOINTS SHALL NOT OCCUR WITHIN 5'-0" OR CORNER.
7. SEE TABLE 1 FOR LAP SPLICE (LS) REQUIREMENTS.

WALL CONTRACTION JOINT

SCALE: 1" = 1'-0"

3 / S4



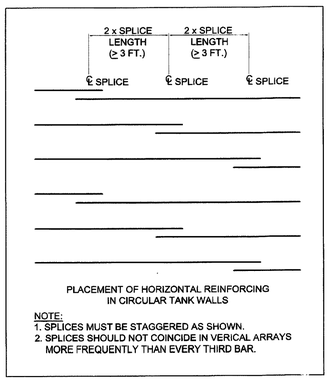
SECTION

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

1 / S4

TABLE 1	
BAR SIZE	LS
#4	2'-0"
#5	2'-6"
#6	3'-0"
#7	3'-6"
#8	4'-0"
#9	4'-9"
#10	5'-6"

TABLE 1	
BAR SIZE	LS
#4	2'-0"
#5	2'-6"
#6	3'-0"
#7	3'-6"
#8	4'-0"
#9	4'-9"
#10	5'-6"



PLACEMENT OF HORIZONTAL REINFORCING IN CIRCULAR TANK WALLS

NOTE:
1. SPLICES MUST BE STAGGERED AS SHOWN.
2. SPLICES SHOULD NOT COINCIDE IN VERICAL ARRAYS MORE FREQUENTLY THAN EVERY THIRD BAR.

HORIZONTAL BARS SPLICE DETAIL

SCALE: 3" = 1'-0"

4 / S4

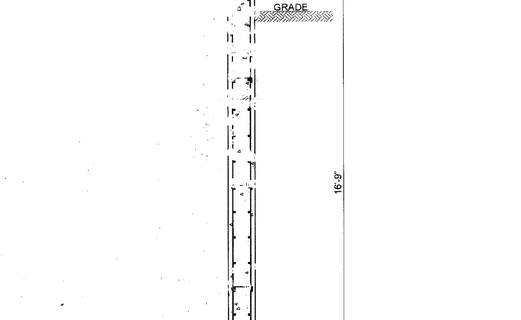
REVISED "AS-BUILT" DRAWING

THIS DRAWING HAS BEEN REVISED TO ACCORD WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH ADDITIONAL CHANGES UNDER THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.

COMMONWEALTH ENGINEERS, INC

REVISED: DATE 10/01

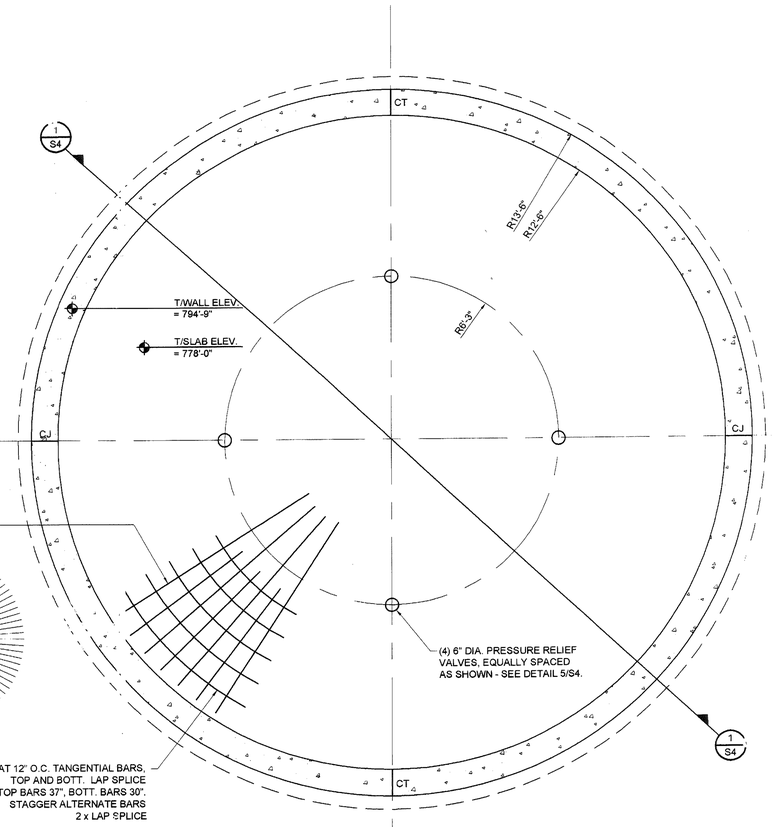
BY JCW CK. BY CMW



TYPICAL PRESSURE RELIEF VALVE

SCALE: 1" = 1'-0"

5 / S4



TREATMENT PLANT FOUNDATION / SLAB PLAN

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

PLAN NOTES:

1. SEE SHEET S1 FOR GENERAL STRUCTURAL NOTES.
2. SEE SHEET S2 FOR TYPICAL DETAILS.
3. GENERAL CONTRACTOR TO COORDINATE ALL OPENINGS, PIPE SLEEVES, EMBED ITEMS, HANDRAILS, GRATING, ETC. WITH PROCESS DRAWINGS.
4. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED PRIOR TO FABRICATION, CONSTRUCTION OR ERECTION. THE GENERAL CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DISCREPANCIES.
5. SEE SITE PLAN FOR ALL FINAL GRADE ELEVATIONS.
6. SEE GEOTECHNICAL REPORT FOR ALL BACKFILLING AND COMPACTION REQUIREMENTS BEHIND WALLS AND UNDER BASE SLABS.
7. GENERAL CONTRACTOR SHALL SUBMIT ALL CHANGES MADE TO THE CONSTRUCTION JOINT (CJ) AND/OR CONTRACTION JOINT (CT) LOCATIONS TO THE STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO CONCRETE PLACEMENT.

CE Solutions, Inc.
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317-818-1912

4/22/09

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	KDD
DESIGNED BY:	JDT
CHECKED BY:	JDT
DATE:	04/21/04
JOB NO:	S02119-02
SCALE:	AS NOTED

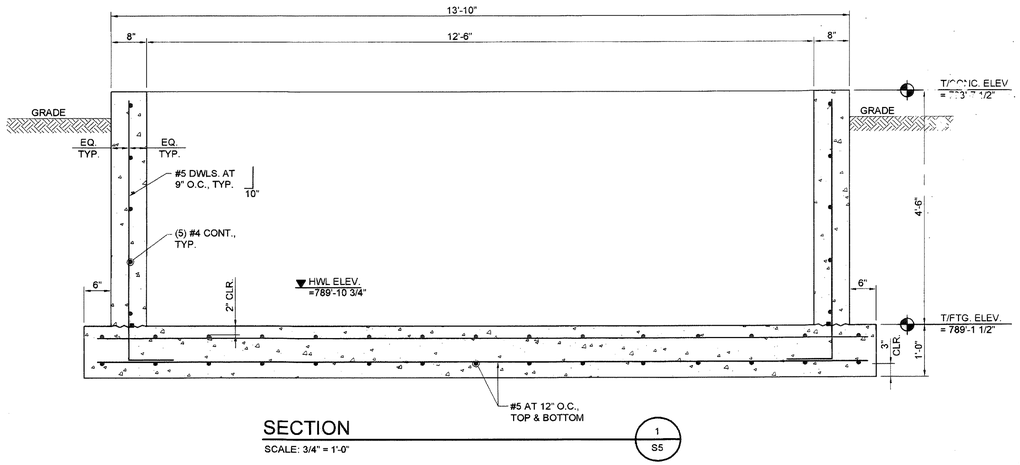
SALAMONIE RESERVOIR
WASTEWATER TREATMENT FACILITIES IMPROVEMENTS PROJECT

PUBLIC WORKS PROJECT NO. E031410M

TREATMENT PLANT TANK
FOUNDATION PLAN AND SECTIONS

DRAWING NO.
S4
38 OF 52

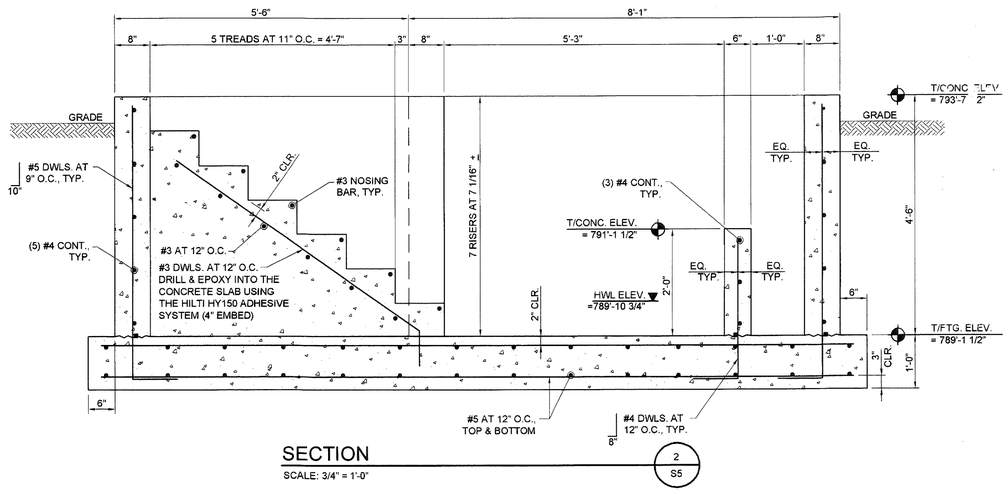
301-63



SECTION

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

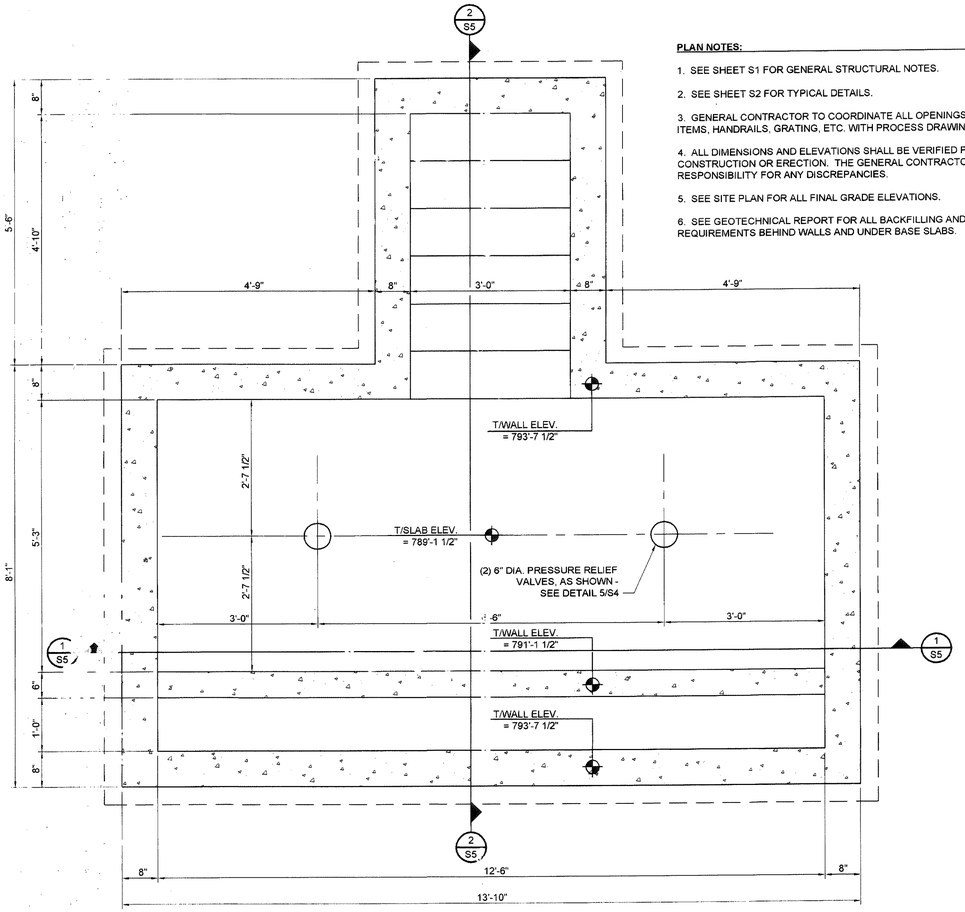
1 S5



SECTION

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

2 S5



ULTRAVIOLET STRUCTURE FOUNDATION/SLAB PLAN

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

PLAN NOTES:

1. SEE SHEET S1 FOR GENERAL STRUCTURAL NOTES.
2. SEE SHEET S2 FOR TYPICAL DETAILS.
3. GENERAL CONTRACTOR TO COORDINATE ALL OPENINGS, PIPE SLEEVES, EMBED ITEMS, HANDRAILS, GRATING, ETC. WITH PROCESS DRAWINGS.
4. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED PRIOR TO FABRICATION, CONSTRUCTION OR ERECTION. THE GENERAL CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DISCREPANCIES.
5. SEE SITE PLAN FOR ALL FINAL GRADE ELEVATIONS.
6. SEE GEOTECHNICAL REPORT FOR ALL BACKFILLING AND COMPACTION REQUIREMENTS BEHIND WALLS AND UNDER BASE SLABS.

REVISED "AS-BUILT" DRAWING

THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD" DRAWING [illegible] BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR [illegible] AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.

[illegible] CONSULTING ENGINEERS, INC. REVISED: DATE 10 [illegible]

BY JCH [illegible]

CE Solutions, Inc.
Structural Engineers
10 Shoshone Drive, Suite 100
Carmel, Indiana 46032
317-818-1912

4/22/04

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	KDD
DESIGNED BY:	JDT
CHECKED BY:	JDT
DATE:	04/21/04
JOB NO:	S02119-02
SCALE:	AS NOTED

SALAMONIE RESERVOIR
WASTEWATER TREATMENT FACILITIES IMPROVEMENTS PROJECT

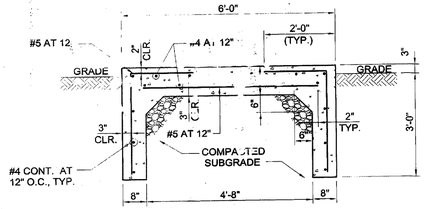
PUBLIC WORKS PROJECT NO. E031410M

ULTRAVIOLET STRUCTURE
FOUNDATION PLAN AND SECTIONS

DRAWING NO. S5

39 OF 52

301-63

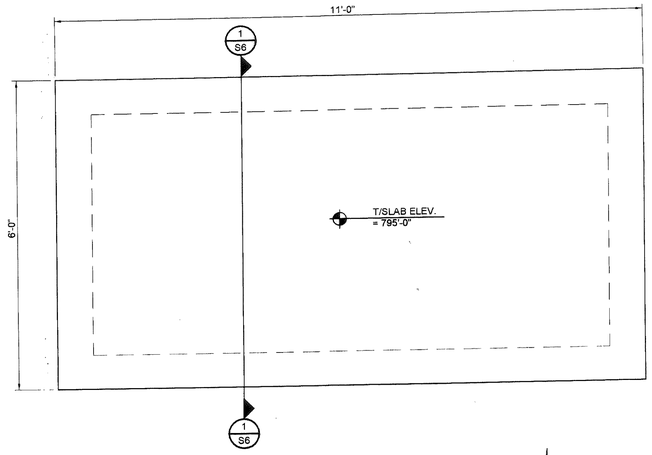


CLASS "B" CONCRETE
GRADE 60 REINFORCEMENT

EXTERIOR EQUIPMENT PAD

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

1 / S6



BLOWER SUPPORT PAD

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

N
W
E
S

PLAN NOTES:

1. SEE SHEET S1 FOR GENERAL STRUCTURAL NOTES.
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REVISED "AS-BUILT" DRAWING

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COMMONWEALTH ENGINEERS, INC. REVISED: DATE 10/06

BY JCW CK. BY CWW

CE Solutions, Inc.
Structural Engineers
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STATE OF INDIANA PE 10800 JAMES DAVIS 04/21/06

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	KDD
DESIGNED BY:	JD
CHECKED BY:	JD
DATE:	04/21/0
JOB NO:	SJ2119-0
SCALE:	AS NOTE

SALAMONIE RESERVOIR
WASTEWATER TREATMENT FACILITIES IMPROVEMENTS PROJECT

PUBLIC WORKS PROJECT NO. E031410M

FLUME STRUCTURE AND BLOWER PAD
FOUNDATION PLAN AND SECTIONS

DRAWING NO. 136

40 OF 52

301-63

PLAN NOTES:

1. SEE SHEET S1 FOR GENERAL STRUCTURAL NOTES.
2. SEE SHEET S2 FOR TYPICAL DETAILS.
3. GENERAL CONTRACTOR TO COORDINATE ALL OPENINGS, PIPE SLEEVES, EMBED ITEMS, HANDRAILS, GRATING, ETC. WITH PROCESS DRAWINGS.
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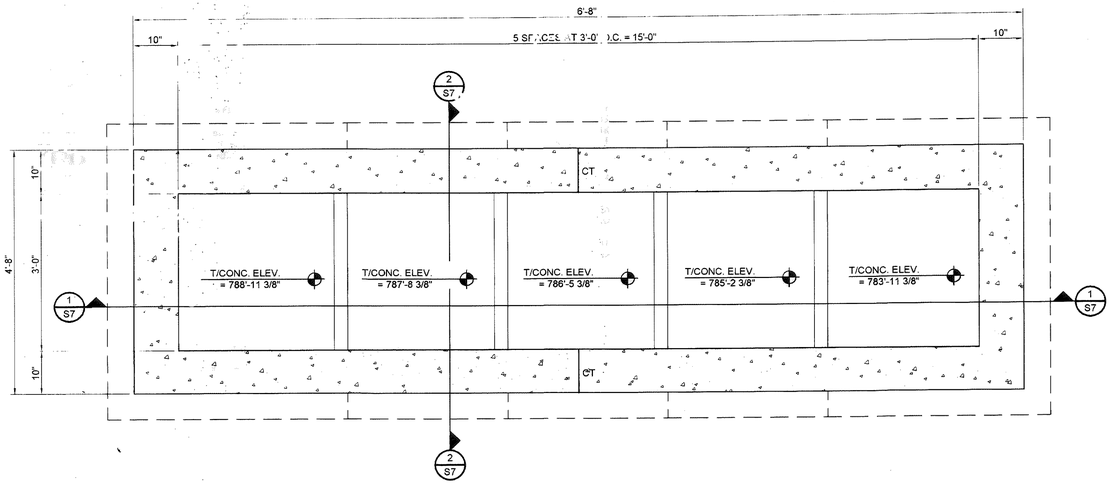
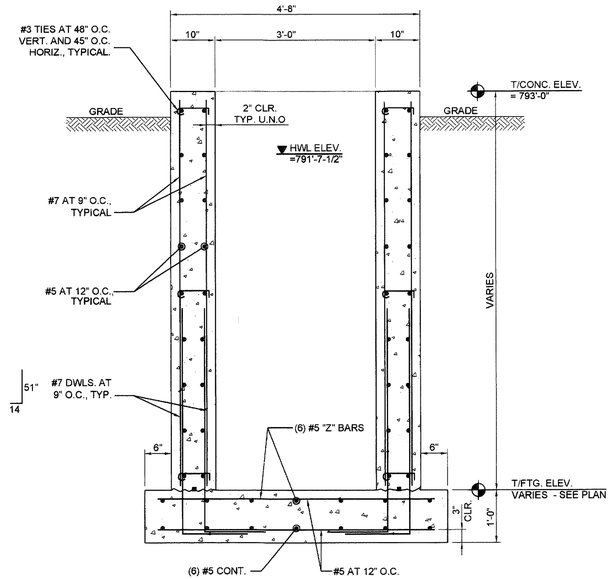


CASCADE STRUCTURE FOUNDATION / SLAB PLAN

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



SECTION

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

2 S7

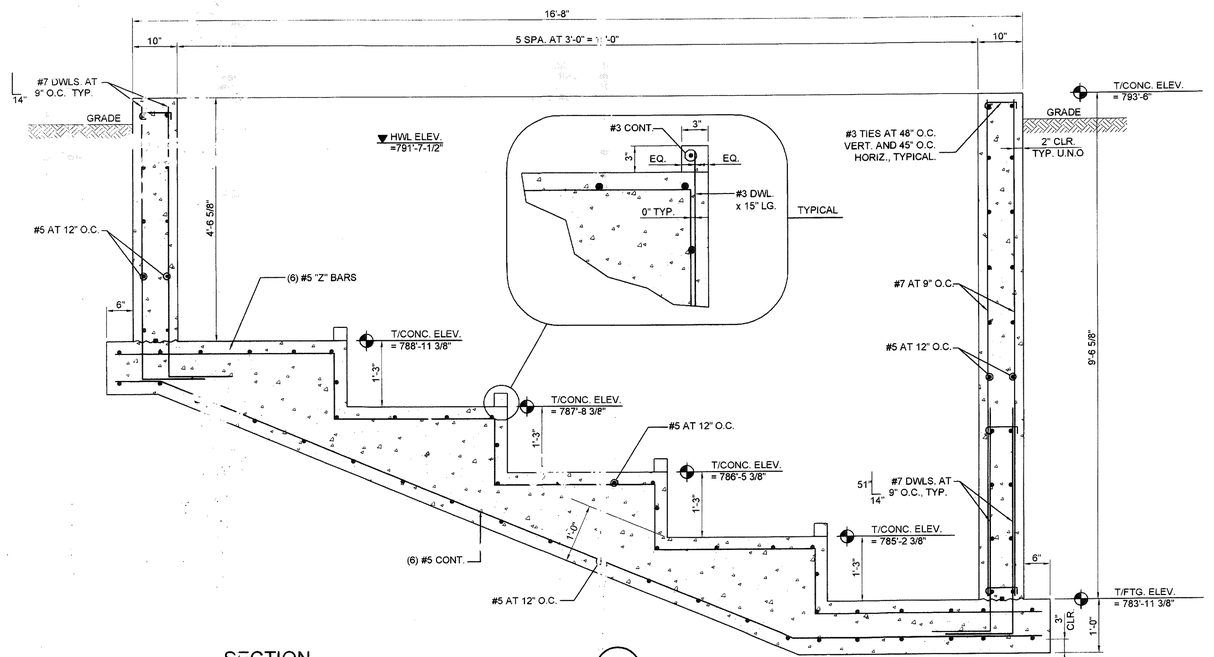
REVISED "AS-BUILT" DRAWING

THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.

COMMONWEALTH ENGINEERS, INC.

REVISED: DATE 10/06

BY JKW CK. BY CWW



SECTION

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

1 S7

CE Solutions, Inc.
Structural Engineers
10 Shoshone Drive, Suite 100
Carmel, Indiana 46032
317-818-1912

STATE OF INDIANA — REGISTERED — 04/02/04

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	KDD
DESIGNED BY:	JDT
CHECKED BY:	JDT
DATE:	04/21/04
JOB NO:	S02119-02
SCALE:	AS NOTED

SALAMONIE RESERVOIR
WASTEWATER TREATMENT FACILITIES IMPROVEMENTS PROJECT

PUBLIC WORKS PROJECT NO. E031410M

CASCADE STRUCTURE
FOUNDATION PLAN AND SECTIONS

DRAWING NO. S7

41 OF 52

301-63

MECHANICAL & ELECTRICAL ABBREVIATIONS

AC	AIR CONDITIONING
AC	ALTERNATING CURRENT
ADD	ADDITION
AFF	ABOVE FINISHED FLOOR
ALT	ALTERNATE
AMB	AMBIENT
APPROX	APPROXIMATE
ATM	ATMOSPHERE
AUTO	AUTOMATIC
AVG	AVERAGE
BDD	BACKDRAFT DAMPER
BHP	BRAKE HORSEPOWER
BLDG	BUILDING
BTM	BOTTOM
BTUH	BRITISH THERMAL UNIT/HR
C	CELSIUS
CAP	CAPACITY
CCW	COUNTERCLOCKWISE
CEIL	CEILING
CFM	CUBIC FEET PER MINUTE
CLG	COOLING
COMP	COMPRESSOR
CONC	CONCRETE
COND	CONDENSATE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
CT	CURRENT TRANSFORMER
CUH	CABINET UNIT HEATER
db	DECIBELS
DB	DRY BULB TEMPERATURE
DEG	DEGREES
DIA	DIAMETER
DIFF	DIFFUSER
DISCH	DISCHARGE
DN	DOWN
DWG	DRAWING
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EFF	EFFICIENCY
ELECT	ELECTRICAL
EL	ELEVATION
EMER	EMERGENCY
EQUIP	EQUIPMENT
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
F	FAHRENHEIT
FA	FACE AREA
FCU	FAN COIL UNIT
FIN	FINISHED
FLEX	FLEXIBLE
FLR	FLOOR

FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT	FEET
FV	FACE VELOCITY
FV	FULL VOLTAGE
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GPM	GALLONS PER MINUTE
HD	HEAD
HGT	HEIGHT
HORIZ	HORIZONTAL
HP	HORSEPOWER
HTG	HEATING
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HZ	HERTZ-FREQUENCY
IC	INTERCOMMUNICATION
ID	INSIDE DIAMETER
IEC	INDIANA ELECTRICAL CODE
INCL	INCLUDE
INSUL	INSULATION
INT	INTERIOR
INV	INVERT
JB	JUNCTION BOX
KW	KILOWATT
KWH	KILOWATT-HOUR
LAT	LEAVING AIR TEMPERATURE
LF	LINEAR FEET
LOC	LOCATION
LVG	LEAVING
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	THOUSANDS OF BTU'S PER HOUR
MC	MECHANICAL CONTRACTOR
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MTD	MOUNTED
NA	NOT APPLICABLE
NC	NOISE CRITERIA
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NFPA	NATIONAL FIRE PREVENTION ASSOC.
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NO	NUMBER
NTS	NOT TO SCALE
Ø	PHASE
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER
OPNG	OPENING
OPP	OPPOSITE
ORIG	ORIGINAL
PD	PRESSURE DROP
PREFAB	PREFABRICATED

PRESS	PRESSURE
PROP	PROPELLER
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH (ABSOLUTE)
PSIG	POUNDS PER SQUARE INCH (GAUGE)
PUH	PROPELLER UNIT HEATER
R22	REFRIGERANT TYPE
RA	RETURN AIR
REC	RECEIVER
RECIR	RECIRCULATING
RECT	RECTANGULAR
REG	REGISTER
REINF	REINFORCED
REL	RELIEF
RET	RETURN
REQ'D	REQUIRED
REV	REVERSING
RH	RELATIVE HUMIDITY
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SF	SQUARE FEET
SHT	SHEET
SP	STATIC PRESSURE
SPEC	SPECIFICATIONS
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STR	STRUCTURAL
SUP	SUPPLY
SUSP	SUSPENDED
T	TELEPHONE
TD	TEMPERATURE DIFFERENCE
TEMP	TEMPERATURE
TEMP	TEMPORARY
TOT	TOTAL
T'STAT	THERMOSTAT
TYP	TYPICAL
UC	UNDERCUT
UH	UNIT HEATER
V	VOLTS
VA	VOLT-AMPERES
VAC	VOLTS AC
VD	VOLUME DAMPER
VEL	VELOCITY
VERT	VERTICAL
VOL	VOLUME
W	WATTS
W/	WITH
WB	WET BULB TEMPERATURE
WH	WATT HOUR
W/O	WITHOUT
WP	WEATHERPROOF
WT	WEIGHT
WTR	WATER
XFMR	TRANSFORMER

MECHANICAL PIPING SYMBOLS

RL — REFRIGERANT LIQUID *	D — CONDENSATE DRAIN LINE **
RS — REFRIGERANT SUCTION *	

VALVE AND FITTING SYMBOLS

VALVE	PIPE UP (RISER)
SOLENOID VALVE	PIPE DOWN (DROP)
	UNION

* ARROWS INDICATE DIRECTION OF FLOW ONLY

** ARROWS INDICATE DIRECTION OF DOWNWARD SLOPE

SHEETMETAL SYMBOLS

24"X10"	SUPPLY DUCT (SECTION) 1ST FIGURE IS TOP DIMENSION	D or R	CHANGE IN ELEVATION OF DUCT (R) RISE OR (D) DROP ARROW INDICATES DIRECTION
24"X10"	RETURN, EXHAUST, RELIEF OR INTAKE DUCT (SECTION)	VD	BRANCH DUCT TAKE-OFF 45° SHOE TAP 6" LONG
24"X10"	RECTANGULAR DUCT 1ST FIGURE IS SIDE SHOWN 2ND FIGURE IS SIDE NOT SHOWN		TURNING VANES TRAILING EDGE PER SMACNA
12"ø	ROUND DUCT (FIGURE INDICATES DIAMETER)	VD	VOLUME DAMPER
OR	FLEXIBLE DUCT	BDD	BACKDRAFT DAMPER
	SQUARE DIFFUSER ALL DIFFUSERS ARE 4-WAY UNLESS OTHERWISE NOTED	M	MOTORIZED DAMPER
	EXHAUST AIR OR RETURN AIR INLET	A 12X12 400	REGISTER, GRILLE, DIFFUSER TYPE NECK SIZE CFM
7'-0"	SUPPLY/RETURN REGISTER/GRILLE DIMENSION INDICATES HEIGHT OF BOTTOM AFF	T	(T) THERMOSTAT
	SUPPLY AIR DIRECTION, RETURN AIR, EXHAUST AIR, OR RELIEF AIR DIRECTION		ROOF EXHAUST FAN
			ROOF VENT

NOTE: DUCT DIMENSIONS SHOWN INSIDE A BOX " 24"x10" " INDICATES DUCT SHALL BE 1" INTERNALLY INSULATED.

MECHANICAL GENERAL NOTES

1. CONTRACTOR SHALL REFER TO THE SPECIFICATIONS FOR REQUIREMENTS RELATING TO EQUIPMENT QUALITY, CONSTRUCTION AND FINISH OF MATERIALS.

2. THESE DRAWINGS INDICATE REQUIRED SIZES AND POINTS OF TERMINATION FOR PIPING, DUCTWORK, CONDUIT, ETC. THE EQUIPMENT SHOWN ILLUSTRATES SUGGESTED ROUTING, BUT ALL NECESSARY OFFSETS AND FITTINGS MAY NOT BE SHOWN. CONTRACTOR SHALL INSTALL HIS WORK IN A MANNER THAT WILL CONFORM WITH THE STRUCTURE. CONTRACTOR SHALL AVOID OBSTRUCTIONS, PRESERVE HEADROOM AND MAINTAIN MAXIMUM CLEARANCE WITHOUT FURTHER INSTRUCTION FROM THE ENGINEER OR ADDITIONAL COST TO THE OWNER. ALL DIMENSIONS SHOWN ON THESE PLANS ARE IN FEET AND/OR INCHES UNLESS NOTED OTHERWISE.

3. ALL DUCTWORK, PIPING AND VALVES SHALL BE CONCEALED ABOVE CEILINGS AND WITHIN WALLS IN FINISHED AREAS UNLESS OTHERWISE NOTED.

4. ALL VALVES, COILS, DAMPERS, ETC. SHALL BE INSTALLED ALLOWING EASY ACCESS TO THEM. AREAS ADJACENT TO THE ACCESS PANELS SHALL BE CLEAR OF ANY OBSTRUCTION.

5. EACH RESPECTIVE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE INSTALLATION OF HIS WORK WITH THE WORK OF OTHER CONTRACTORS PRIOR TO THE INSTALLATION.

6. CONTRACTOR SHALL BE GUIDED BY THE ARCHITECT'S REFLECTED CEILING PLAN FOR EXACT LOCATION OF DIFFUSERS, REGISTERS AND GRILLES UNLESS OTHERWISE NOTED.

7. ALL EXISTING EQUIPMENT, DUCTWORK AND PIPING LOCATIONS AND SIZES SHALL BE FIELD VERIFIED, PRIOR TO CONSTRUCTION, BY THE CONTRACTOR.

8. ALL EQUIPMENT SHALL BE OF, AND CONSIST OF AT LEAST THE MINIMUM SIZES SCHEDULED.

9. ARROWS ON CONDENSATE PIPING AND DRAIN LINES INDICATE THE DOWNWARD PITCH OF THE PIPING.

10. DUCTS PENETRATING FLOOR SLABS AND/OR WALLS SHALL BE SEALED AS REQUIRED BY CODE. DUCTS PENETRATING FIRE RATED WALLS AND/OR FLOORS SHALL HAVE OPENING AROUND DUCT SEALED WITH A MATERIAL HAVING THE SAME FIRE RATING AS THE WALL OR FLOOR. PROVIDE FIRE DAMPERS AT ALL DUCT PENETRATIONS THROUGH FIRE RATED WALLS OR FLOORS.

11. ALL SHEETMETAL DUCT SIZES SHOWN ARE ACTUAL SHEETMETAL DIMENSIONS; DUCTS ARE SIZED TO ALLOW FOR ONE INCH INTERNAL INSULATION WHERE INDICATED ON DRAWINGS.

12. INSTALL VOLUME DAMPER AT EACH BRANCH TAKEOFF FROM MAIN SUPPLY AIR AND RETURN AIR DUCTS.

13. ALL WALL SPACE THERMOSTATS AND SPACE TEMPERATURE SENSORS SHALL BE 4'-0" ABOVE FINISHED FLOOR TO BOTTOM. LOCATE FURTHEST FROM DOOR FRAME IF SHOWN NEAR WALL MOUNTED LIGHT SWITCHES, UNLESS OTHERWISE NOTED OR DIRECTED BY THE ARCHITECT.

14. COORDINATION OF WORK

A. EACH CONTRACTOR IS RESPONSIBLE TO COORDINATE HIS WORK WITH THE WORK OF OTHER TRADES. SUCH COORDINATION REQUIRES THAT EACH CONTRACTOR MAKE AVAILABLE SPECIFIC INFORMATION ABOUT HIS WORK IN THE FORM OF DETAILED FABRICATION DRAWINGS, CERTIFIED SHOP DRAWINGS AND ERECTION DRAWINGS, WHICH ARE TO BE KEPT ON FILE AT THE JOB SITE. SEE SPECIFICATIONS FOR DETAILED INFORMATION ABOUT SUBMITTALS.

B. DUE TO THE SMALL SCALE OF THESE DRAWINGS, IT IS NOT POSSIBLE TO SHOW ALL MINOR OFFSETS AND DEVIATIONS NECESSARY TO COORDINATE PIPING AND DUCTWORK WITH THE BUILDING STRUCTURE, ELECTRICAL CONDUIT AND LIGHTING SYSTEMS. EACH CONTRACTOR SHALL BE RESPONSIBLE TO PLAN AND COORDINATE HIS WORK AS NECESSARY TO COMPENSATE FOR MINOR DEVIATIONS.

15. ALL PIPING SHALL BE RUN TO AVOID DUCTWORK, ELECTRICAL, LIGHTS, BEAMS AND OTHER STRUCTURAL MEMBERS.

16. THIS CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AT THE JOB SITE.

17. THESE DRAWINGS ARE PREPARED FROM THE ORIGINAL CONSTRUCTION DOCUMENTS OF THE BUILDING. THE DRAWINGS ARE NOT REPRESENTED TO BE "AS-BUILT" DRAWINGS AND DISCREPANCIES BETWEEN THE DRAWINGS AND ACTUAL FIELD CONDITIONS CAN BE EXPECTED. THE BIDDER SHALL INVESTIGATE ACTUAL FIELD CONDITIONS PRIOR TO BIDDING THE WORK TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS.

18. CONTRACTOR SHALL FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING PIPING PRIOR TO INSTALLATION. NOTIFY ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.

19. CONTRACTOR TO VERIFY EXACT LOCATION OF EXISTING EQUIPMENT, DUCTWORK AND PIPING, AND COORDINATE DUCT AND PIPE TO BE INSTALLED WITH SAME.

20. ALL FLOOR, WALL AND CEILING FINISHES WHICH ARE TO BE CUT AND PATCHED BY THIS CONTRACTOR IN ACCORDANCE WITH THE SPECIFICATION REQUIREMENTS. ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE RESTORED TO MATCH EXISTING.

21. CORE DRILL ALL PIPE PENETRATIONS THROUGH EXISTING CONCRETE WALLS AND FLOORS.

ELECTRICAL SYMBOLS

	CEILING OUTLET - SURFACE OR SUSPENDED TYPE FIXTURE
	CEILING OUTLET - RECESSED TYPE FIXTURE
A B2 C	A=FIXTURE TYPE - B2=BRANCH CIRCUIT - C=SWITCH LEG
	FLUORESCENT TYPE FIXTURE - SURFACE MTD OR SUSPENDED
	FLUORESCENT TYPE FIXTURE - RECESSED
	WALL OUTLET
	DENOTES FIXTURE WITH FLUORESCENT BATTERY INVERTER UNIT
S	SWITCH - S_3 = 3-WAY S_4= 4-WAY S_M= MOMENTARY (+48")
	RECEPTACLE - 20 AMP - 125 VOLT DUPLEX (+16")
	RECEPTACLE - 20 AMP - 125 VOLT DUPLEX (+48") ABOVE COUNTER.
N R	RECEPTACLE - 250V N=NUMBER OF ACTIVE POLES R=AMPERE RATING
	RECEPTACLES MOUNTED IN SURFACE RACEWAY
	RECEPTACLE - 20 AMP - 125 VOLT DUPLEX W/ISOLATED GROUND
	RECEPTACLE - 20 AMP - 125 VOLT DOUBLE DUPLEX
	JUNCTION OR PULLBOX
	TELECOMMUNICATIONS OUTLET (+16")
F	FUSED SAFETY SWITCH
	DISCONNECT SWITCH (= BY OTHERS)
2	MOTOR STARTER 2=STARTER NUMBER
A	PANELBOARD ("A" = DESIGNATION)
A	SINGLE PHASE MOTOR
	NUMBER OF WIRES IN CONDUIT (= GROUNDING CONDUCTOR)
A E-4	INDICATES DETAIL "A" ON SHEET #E-4

ELECTRICAL GENERAL NOTES

1. NOTED HEIGHTS ARE TO THE BOTTOM OF THE DEVICE, EQUIPMENT, LIGHTING FIXTURE, ETC. HEIGHTS INDICATED ARE APPROXIMATE AND FOR ESTIMATING PURPOSES ONLY, EXCEPT AS SPECIFICALLY NOTED. ROUGH-IN HEIGHTS AND LOCATIONS SHALL BE COORDINATED WITH UNIT DIMENSIONS AND ADJACENT CASEWORK, GENERAL CONSTRUCTION, EQUIPMENT, ETC. COORDINATE WITH THE WORK OF OTHER TRADES AND THE OWNER.

REVISED "AS-BUILT" DRAWING

THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.

COMMONWEALTH ENGINEERS, INC. REVISED: DATE 10/06

BY JCW, CK. BY CWW

Rotz Engineers, inc

SCOTT C. LATTIMER REGISTERED No. PE19900470 STATE OF INDIANA PROFESSIONAL ENGINEER

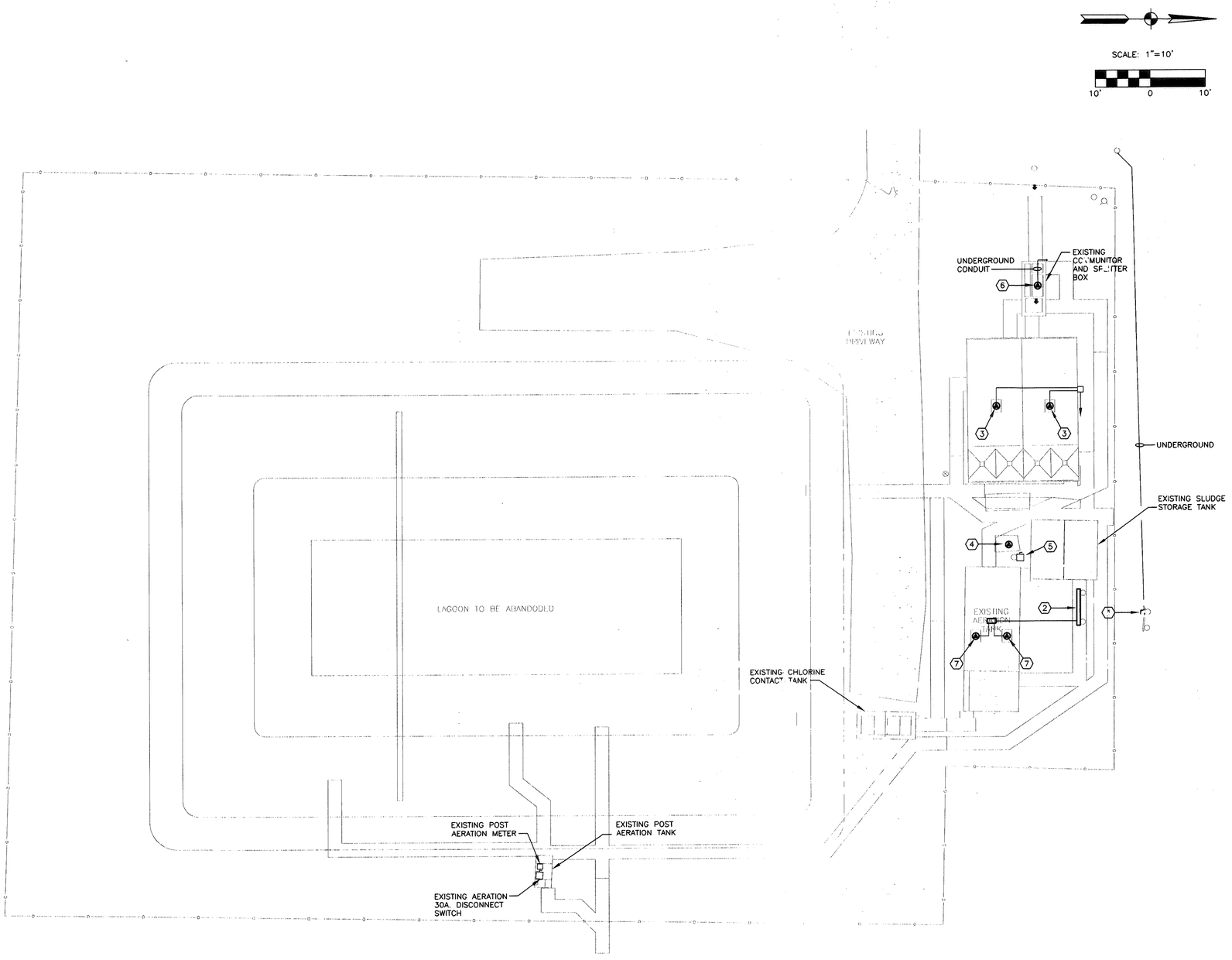
COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	LTG/RCL
DESIGNED BY:	JTH/SDL
CHECKED BY:	RMS/GAMc
DATE:	3/04
JOB NO:	6038S
SCALE:	AS NOTED

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
MECHANICAL AND ELECTRICAL
SYMBOLS, ABBERVIATIONS AND GENERAL NOTES

DRAWING NO.
ME1
42 OF 52

301-63



ELECTRICAL – DEMOLITION PLAN NOTES:

1. EXISTING SERVICE METER SHALL REMAIN IN SERVICE UNTIL THE END OF THE PROJECT.
2. EXISTING CONTROL PANEL SHALL REMAIN IN SERVICE UNTIL THE END OF THE PROJECT.
3. EXISTING BLOWER; 5HP, 240V., 1ø.
4. EXISTING POST AERATION DIGESTER; 3HP, 240V., 1ø. TO REMAIN IN SERVICE UNTIL THE END OF PROJECT.
5. EXISTING DISCONNECT SWITCH SERVING THE POST AERATION DIGESTER; 240V., 1ø, 30A.
6. EXISTING COMMINUTOR; 1/2HP, 240V., 1ø.
7. EXISTING BLOWER; 5HP, 240V., 1ø. TO REMAIN IN SERVICE UNTIL END OF PROJECT.

ELECTRICAL – DEMOLITION GENERAL NOTES:

1.) COORDINATE THE DEMOLITION WORK WITH NEW CONSTRUCTION. PORTIONS OF THE EXISTING WASTEWATER TREATMENT PLANT SHALL REMAIN IN OPERATION DURING THE NEW CONSTRUCTION.

HOLEY MOLEY SAYS
'DON'T DIG BLIND'

CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-382-5544
(IT'S THE LAW)

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COMMONWEALTH ENGINEERS, INC. REVISED: DATE 10/06
BY: JCW CK. BY CWW

MECHANICAL AND ELECTRICAL TREATMENT PLANT DEMOLITION PLAN

SCALE: 1"=10 - 0

Rotz Engineers, Inc.

SCOTT L. TIMMER REGISTERED NO. PE1..900470 STATE OF INDIANA PROFESSIONAL ENGINEER

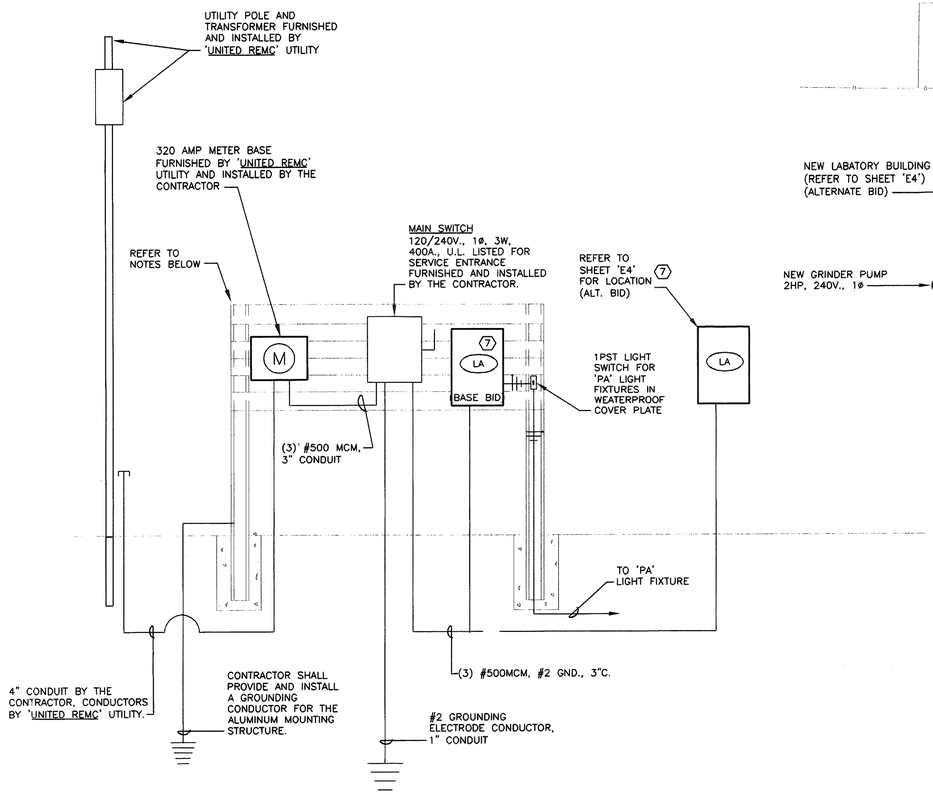
COMMONWEALTH ENGINEERS, INC.

DRAWN BY	LTG/RCL
DESIGNED BY:	JTH/SDL
CHECKED BY:	RMS/GAMc
DATE:	3/04
JOB NO:	6038S
SCALE:	AS NOTED

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
MECHANICAL AND ELECTRICAL TREATMENT PLANT DEMOLITION PLAN

DRAWING NO. ME2

301-63



SERVICE POLE AND POWER DISTRIBUTION SCHEMATIC

SCALE: NO SCALE

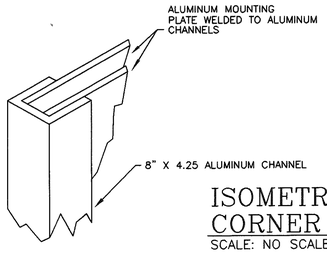
1.) ALL HARDWARE REQUIRED TO ANCHOR ELECTRICAL MAIN SWITCH AND METER TO MOUNTING PLATE SHALL BE STAINLESS STEEL.

2.) SEE ISOMETRIC CHANNEL DETAIL ON THIS SHEET BELOW.

3.) 8" X 4.25 ALUMINUM CHANNEL (TYP. OF TWO).

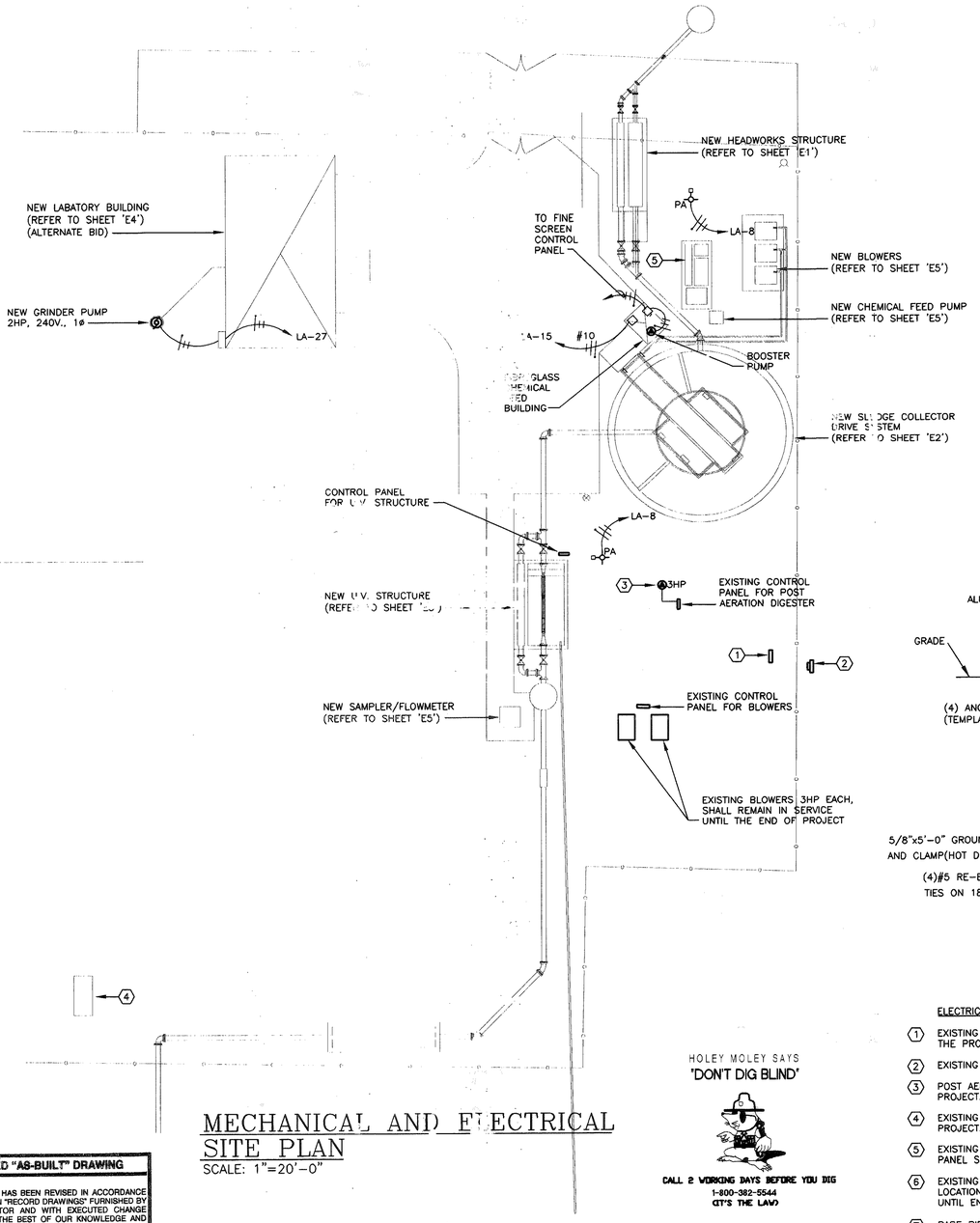
4.) 1" ALUMINUM MOUNTING PLATE WELDED TO ALUMINUM CHANNELS.

5.) 18" X 18" X 36"D CONCRETE FOOTING REINFORCED W/ #4 BARS @ 12" o.c. HORIZ. AND FOUR (4) #4 BARS VERT. (TYP. OF TWO FOOTINGS).



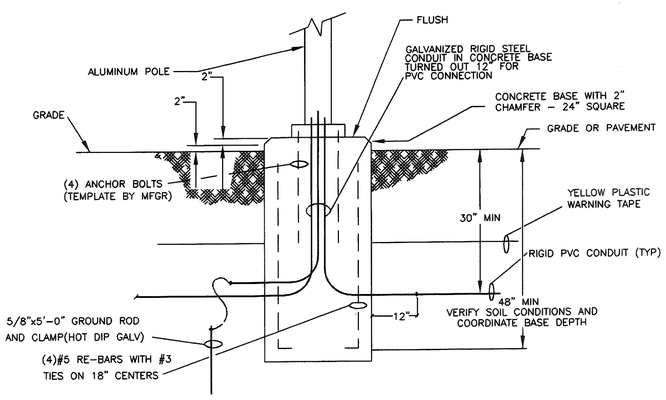
ISOMETRIC CORNER DETAIL

SCALE: NO SCALE



MECHANICAL AND ELECTRICAL SITE PLAN

SCALE: 1"=20'-0"



CONCRETE POLE BASE

NO SCALE

ELECTRICAL - PLAN NOTES:

1. EXISTING MAIN PLANT CONTROL PANEL TO REMAIN IN SERVICE UNTIL END OF THE PROJECT.
2. EXISTING SERVICE METER TO REMAIN IN SERVICE UNTIL THE END OF PROJECT.
3. POST AERATION DIGESTER SHALL REMAIN IN SERVICE UNTIL THE END OF PROJECT.
4. EXISTING POST AERATION TANK SHALL REMAIN IN SERVICE UNTIL END OF THE PROJECT.
5. EXISTING COMMUNITOR BRANCH CIRCUIT GOING BACK TO THE EXISTING CONTROL PANEL SHALL BE REROUTED TO AVOID NEW CONSTRUCTION.
6. EXISTING SERVICE POLE AND POLE MOUNTED TRANSFORMER. VERIFY EXACT LOCATION PRIOR TO BIDDING. EXISTING SERVICE SHALL REMAIN IN SERVICE UNTIL END OF PROJECT.
7. BASE BID: ELECTRICAL PANELBOARD 'LA' LOCATED ON ALUMINUM MOUNTING PLATE(S). ALTERNATE BID: ELECTRICAL PANELBOARD 'LA' LOCATED INSIDE LABORTARY BUILDING.

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COMMONWEALTH ENGINEERS, INC. REVISED: DATE 10/06

BY JGW CK. BY CNW

Rotz Engineers INC

SCOTT D. LATTIMER REGISTERED No. PE19900470 STATE OF INDIANA PROFESSIONAL ENGINEER

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DRAWN BY:	LTG/RCL
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SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
MECHANICAL AND ELECTRICAL TREATMENT PLANT IMPROVEMENT SITE PLAN

DRAWING NO. ME3

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ROOF VENT SCHEDULE

NO.	DESIGNATION	CFM	THROAT AREA SQ. FT.	ROOF OPNG " DIA.	HOOD SIZE " DIA.	NECK VELO FPM	NOTES	MANUFACTURER OR EQUAL
1	AIR INTAKE	400	.57	10.25	20.5	700	1,2	"GREENHECK" MODEL GRS-10

NOTES:
1. ALL ALUMINUM CONSTRUCTION PROVIDE BIRD SCREEN.
2. ROOF VENT SHALL BE LOCATED MIN. OF +10'-0" AWAY FROM EXH. FAN, GAS VENT OR ANY OTHER DEVICE REJECTING POLLUTED AIR.

GRILLE AND DIFFUSER SCHEDULE

TYPE	STYLE	DESCRIPTION	MAX. N.C. LEVEL	NOTES	MANUFACTURER OR EQUAL
(A)	DIFFUSER	12"x12" FACE, 6" DIA. NECK	35	1	"TITUS" MODEL TMS
(B)	DIFFUSER	12"x12" FACE, 7" DIA. NECK	35	1	"TITUS" MODEL TMS
(C)	DIFFUSER	12"x12" FACE, 8" DIA. NECK	35	1	"TITUS" MODEL TMS
(1)	GRILLE	EGGCRATE, 1/2"x1/2"x1/2"	25	1,2	"TITUS" MODEL 50F
(2)	GRILLE	1/2" SPACING, 45° DEFLECTION	25	2	"TITUS" MODEL 4FL

NOTES: 1. PROVIDE 24"x24" PANEL FOR MOUNTING IN LAY-IN CEILING WHERE REQUIRED.
2. ALL ALUMINUM CONSTRUCTION.

ELECTRIC UNIT HEATER SCHEDULE

NO.	LOCATION	STYLE UH	STYLE CUH	FAN DATA CFM	FAN DATA AMPS	FAN DATA VOLTAGE	FAN DATA ϕ	FAN DATA SPEED	HEATING DATA MBH	HEATING DATA E.A.T °F	HEATING DATA L.A.T. °F	HEATING DATA KW	MOUNTING ARRANGEMENT	NOTES	MANUFACTURER OR EQUAL
CUH-1	TOILET/SHOWER		•	65	8.4	120	1	1	3.4	50	98	1.0	WALL-RECESSED	1,2	"Q-MARK" MODEL CWH-2121

NOTES: 1. SLEEVE FOR RECESSED MOUNTING AND BUILT-IN THERMOSTAT PROVIDED BY UNIT MANUFACTURER.
2. UNIT SHALL BE MTD 6" A.F.F. TO BOTTOM.

DUCT MOUNTED ELECTRIC HEATING COIL SCHEDULE

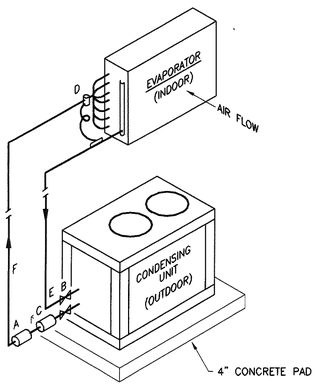
UNIT NO.	LOCATION	AREA SERVED	MBH	CFM	NO. OF STEPS	KW	VOLTS	PHASE	E.A.T. °F	L.A.T. °F	MAX. AIR P.D.	SIZE H"	SIZE W"	NOTES	MANUFACTURER OR EQUAL
1	ATTIC	LABORATORY	20.5	300	2	6.0	240	1	0	63	.05"	8	12	1	"INDEECO" MODEL TFQU FIN TUBULAR TYPE

NOTES:
1. PROVIDE ELECTRONIC CONTROLS INCLUDING THERMAL CUTOUTS, AIR PRESSURE SWITCH, PROTECTIVE FUSES, CONTROL TRANSFORMER, ROOM THERMOSTAT, ETC.

FAN SCHEDULE

HP	VOLTS	PHASE	SPEED	NO.	DESIGNATION	LOCATION	CFM	S.P. "WG	RPM	DRIVE	SONES	ROOF OPENING	NOTES	MANUFACTURER OR EQUAL
1/4	120	1	1	1	EXHAUST	TOILET	100	0.375	990	BELT	3.5	12-1/2" x 12-1/2"	1,2,3	"GREENHECK" MODEL GB-70-4
1/4	120	1	1	2	EXHAUST	LABORATORY	300	0.375	1250	BELT	6.0	12-1/2" x 12-1/2"	1,2,3,5	"GREENHECK" MODEL GB-80-4
1/4	120	1	1	3	SUPPLY	LABORATORY	300	0.5	1300	BELT	10.0	–	1,4,5	"GREENHECK" MODEL BSQ-80-4

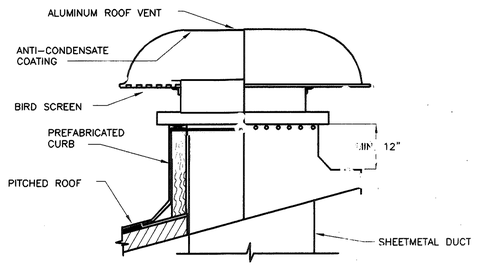
NOTES:
1. ALL ALUMINUM CONSTRUCTION WITH A HERESITE COATING.
2. PREFABRICATED ROOF CURB, BACKDRAFT DAMPER, BIRD SCREEN, AND DISCONNECT SWITCH PROVIDED BY FAN MANUFACTURER.
3. ROOF MTD. CENTRIFUGAL FAN.
4. IN-LINE CENTRIFUGAL FAN.
5. FAN #2 & #3 SHALL BE INTERLOCKED TO OPERATE TOGETHER.



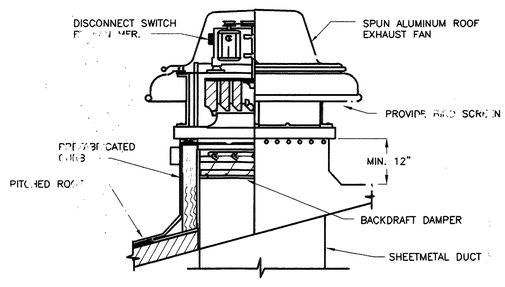
NOTES:
1. PITCH ALL HORIZONTAL LINES A MINIMUM OF 1/2" IN 10 FEET IN DIRECTION OF REFRIGERANT FLOW
2. INSULATE ALL SUCTION LINES WITH 3/4" THICK ELASTOMERIC FOAM INSULATION (25/50)
3. WRITTEN APPROVAL FROM UNIT MFR. FOR ALL LINES & VALVE SIZES AND EXACT LINE ROUTING MUST BE OBTAINED BEFORE CONSTRUCTION BEGINS.

LEGEND
- A FILTER-DRIER
- B SHUT OFF VALVE
- C SIGHTGLASS/MOISTURE INDICATOR
- D THERMAL EXP. VALVE OR METERING DEVICE
- E SUCTION LINE, PITCHED TOWARD COMPRESSOR
- F LIQUID LINE

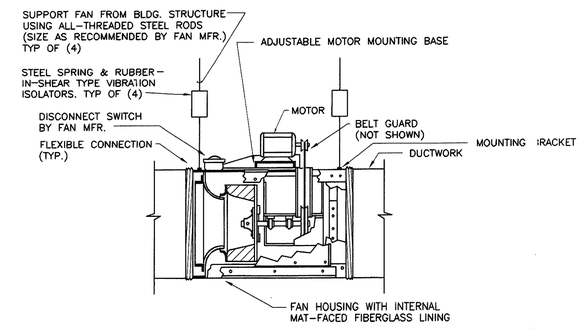
REFRIGERANT PIPING DETAIL
NO SCALE — (1 / M1)



ROOF VENT DETAIL
NO SCALE — (2 / M1)



EXHAUST FAN DETAIL
NO SCALE — (3 / M1)



CENTRIFUGAL IN-LINE FAN DETAIL
NO SCALE — (4 / M1)

(NOTE: THIS SHEET PART OF ALTERNATE BID)

REVISED "AS-BUILT" DRAWING
THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD DRAWINGS" FURNISHED BY THE CONTRACTOR AND WITH EXECUTED CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING SHOWS ACTUAL "AS-BUILT" CONDITIONS.
REVISED: DATE 10/06
BY JEW CK. BY LWW

Rotz Engineers inc

SCOTT D. LATTNER REGISTERED No. PE19900470 STATE OF IOWA PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	RCL
DESIGNED BY:	GAMc
CHECKED BY:	GAMc
DATE:	3/04
JOB NO:	6038S
SCALE:	NONE

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
MECHANICAL SCHEDULES AND DETAILS

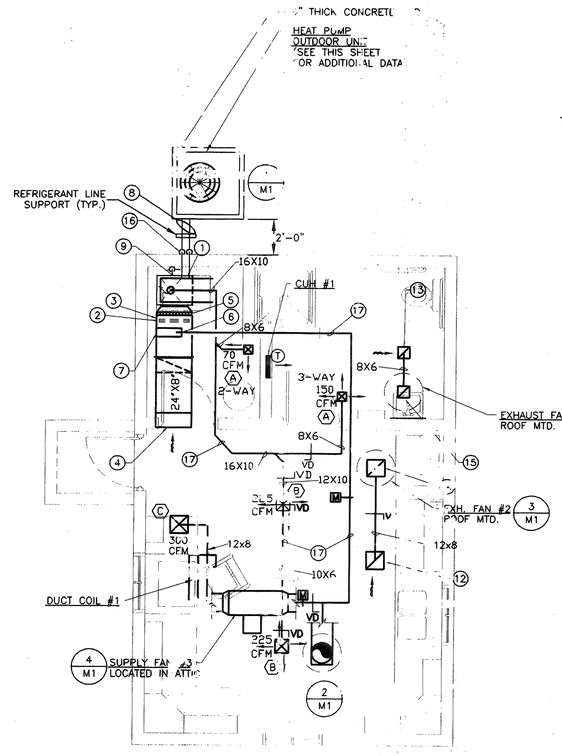
DRAWING NO. M1

301-63

EQUIPMENT NOTES:

HEAT PUMP – INDOOR UNIT – NOMINAL 2 TONS COOLING CAPACITY. 18.0 MBH HEATING CAPACITY AT 47'F OUTDOOR TEMP. 670 CFM AT 0.4" E.S.P. THE EXTERNAL STATIC PRESSURE OF 0.4" SHALL BE AVAILABLE AFTER COOLING COIL, HEATING COIL AND FILTER ARE INSTALLED. 100 CFM OF OUTSIDE AIR. 230V, SINGLE PHASE, SINGLE POINT POWER SUPPLY. 1/4 HP, 3 SPEED BLOWER MOTOR. INTEGRAL 8.0 KW, MULTI-STAGE RESISTANCE ELECTRIC SUPPLEMENTAL HEATING COIL. REFRIGERANT COIL WITH 2.23 SQ. FT. OF FACE AREA AND R-22 TYPE REFRIGERANT. FILTER RACK, REFRIGERANT COIL MULTI-STAGE SUPPLEMENTAL HEATING COIL AND RETURN AIR PLENUM SHALL BE PROVIDED BY UNIT MANUFACTURER. UNIT SHALL BE PROVIDED WITH ALL OPERATING & SAFETY CONTROLS INCLUDING LIMIT SWITCHES, CIRCUIT BREAKERS, SEQUENCER, CONTROL TRANSFORMER, OUTDOOR THERMOSTAT FOR SUPPLEMENTAL HEATING COIL CONTROL, ETC. MANUFACTURER LIKE "BRYANT" MODEL FB4ANBC024008.

HEAT PUMP – OUTDOOR UNIT – 230 VOLT, SINGLE PHASE POWER SUPPLY. COMPRESSOR RLA = 10.4, CONDENSER FAN MOTOR = 1/12 HP UNIT SHALL HAVE ALL OPERATING & SAFETY CONTROLS. INCLUDING INDOOR FAN TIME DELAY RELAY, LOW AMBIENT CONTROLLER AND MOTOR, WINTER START CONTROL, EVAPORATOR FREEZE THERMOSTAT, OUTDOOR THERMOSTAT, SNOW STAND ETC. PROVIDED BY UNIT MANUFACTURER. NOMINAL 1.5 TON COOLING CAPACITY AT 95'F AMBIENT TEMP. AND 18.0 MBH HEATING CAPACITY AT 47'F AMBIENT TEMP. MANUFACTURER LIKE "BRYANT" MODEL 693D018-C.



LAB/ADMIN. BUILDING MECHANICAL FLOOR PLAN

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

(ALTERNATE BID)

PLAN NOTES:

1. HEAT PUMP – INDOOR UNIT: MTD. ON NEOPRENE VIBRATION ISOLATORS. SEE THIS SHEET FOR ADDITIONAL UNIT DATA
2. 2" THICK PLEATED DISPOSABLE FILTER. PROVIDE DUCT ACCESS DOOR WITH LATCH FOR FILTER REMOVAL
3. 24"x8" RETURN AIR DUCT NEAR FLOOR
4. TYPE (2), 24"X12" RETURN AIR GRILLE MOUNTED ON WALL, 670 CFM
5. FLEXIBLE CONNECTION
6. 8"x6" OUTSIDE AIR DUCT DOWN TO RETURN AIR DUCT NEAR FLOOR, 100 CFM
7. 8"X6" OUTSIDE AIR DUCT IN ATTIC
8. REFRIGERANT LINES FROM OUTDOOR UNIT TO COOLING COIL OF INDOOR UNIT.
9. 3/4", PVC CONDENSATE DRAIN LINE TO NEAREST FLOOR DRAIN.
10. INTERLOCK MOTORIZED DAMPER WITH HEAT PUMP INDOOR UNIT.
11. INTERLOCK MOTORIZED DAMPER WITH SUPPLY FAN #3
12. 12"x12" TYPE (1) EXHAUST GRILLE.
13. 8"x6" TYPE (1) EXHAUST GRILLE.
14. 12"x12" EXHAUST DUCT UP TO ROOF FAN.
15. 8"x8" EXHAUST DUCT UP TO ROOF FAN.
16. REFIGERANT LINES SHALL BE INSTALLED ON WALL.
17. DUCTWORK SHALL BE INSTALLED IN THE ATTIC. DUCTWORK SHALL BE INSULATED WITH 3" THICK, 0.75pcf DENSITY FIBERGLASS BLANKET INSULATION.

REVISED "AS-BUILT" DRAWING

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COMMONWEALTH ENGINEERS, INC. REVISED: DATE 10/06

BY JEW CK. BY RWW

(NOTE: THIS SHEET PART OF ALTERNATE BID)

Rotz Engineers inc

REGISTERED PROFESSIONAL ENGINEER No. PE19900470 STATE OF INDIANA

COMMONWEALTH ENGINEERS, INC.

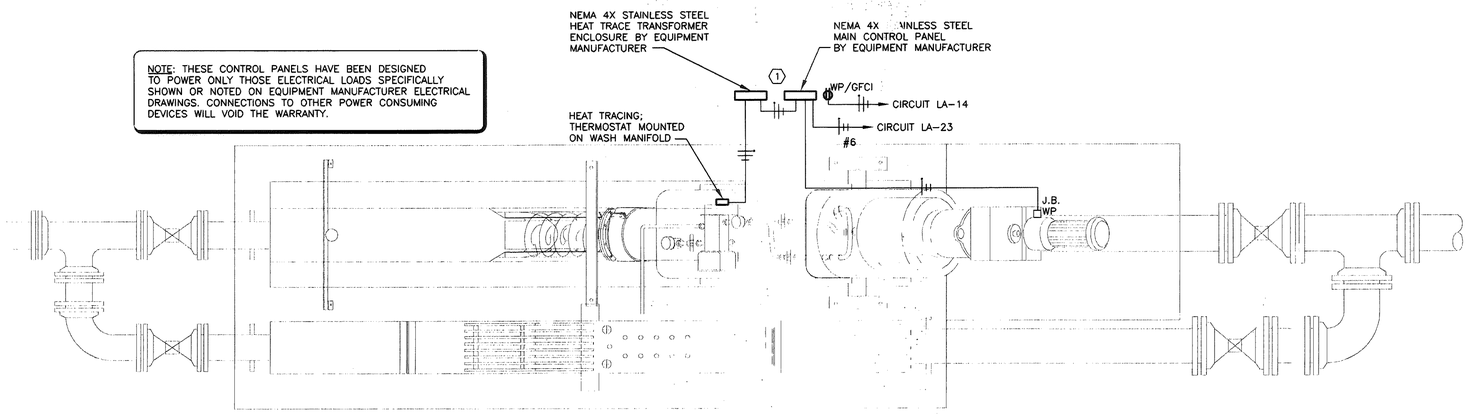
DRAWN BY:	RCL
DESIGNED BY:	GAMc
CHECKED BY:	GAMc
DATE:	3/04
JOB NO:	6038S
SCALE:	AS NOTED

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
LABORATORY/ADMINISTRATION BUILDING MECHANICAL FLOOR PLAN

DRAWING NO. M2

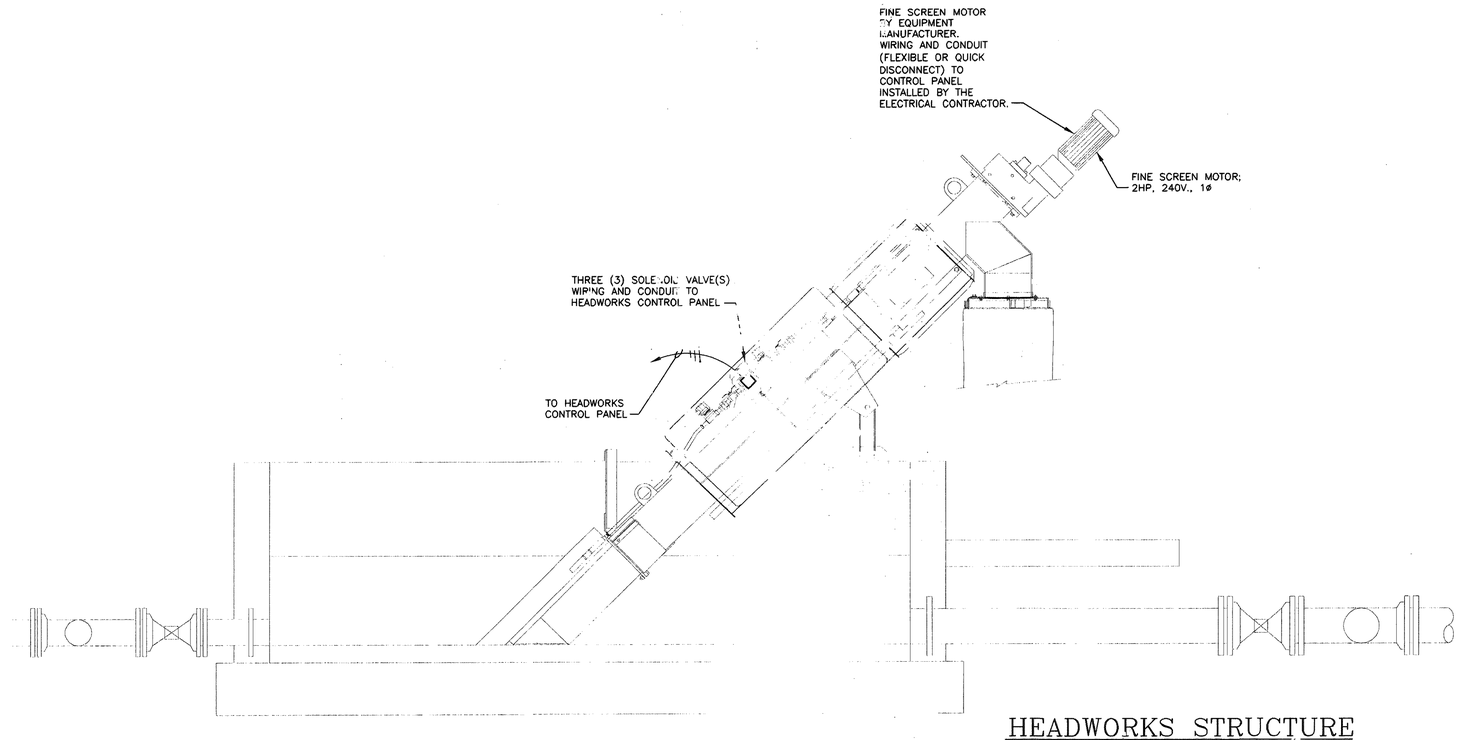
301-63

NOTE: THESE CONTROL PANELS HAVE BEEN DESIGNED TO POWER ONLY THOSE ELECTRICAL LOADS SPECIFICALLY SHOWN OR NOTED ON EQUIPMENT MANUFACTURER ELECTRICAL DRAWINGS. CONNECTIONS TO OTHER POWER CONSUMING DEVICES WILL VOID THE WARRANTY.



HEADWORKS STRUCTURE ELECTRICAL PLAN VIEW

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



HEADWORKS STRUCTURE ELECTRICAL ELEVATION VIEW

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

PLAN NOTES:

(1) STARTER AND CONTROLS FOR BOOSTER PUMP IS PART OF THE FINE SCREEN CONTROL PANEL. BOOSTER PUMP: 1HP, 240 VOLT, SINGLE PHASE. CONTRACTOR SHALL WIRE TO BOOSTER PUMP.

GENERAL NOTES:

1.) ELECTRICAL CONNECTIONS TO BE FLEXIBLE OR QUICK DISCONNECT TYPE TO ALLOW TO PIVOT OUT OF CHANNEL.

2.) KEEP AREA UNDER SCREENINGS TRANSPORT SCREW FREE FROM OBSTRUCTION SUCH AS ELECTRICAL CONDUIT TO PERMIT ROTATION OF THE SCREEN OF THE CHANNEL FOR SERVICING.

REVISED "AS-BUILT" DRAWING

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COMMONWEALTH ENGINEERS, INC. REVISED: DATE 10/06

BY KW CK. BY CWM

Rotz Engineers inc

STATE OF LATTIMER REGISTERED No. PE1[illegible]9470 STATE OF OHIO PROFESSIONAL ENGINEER

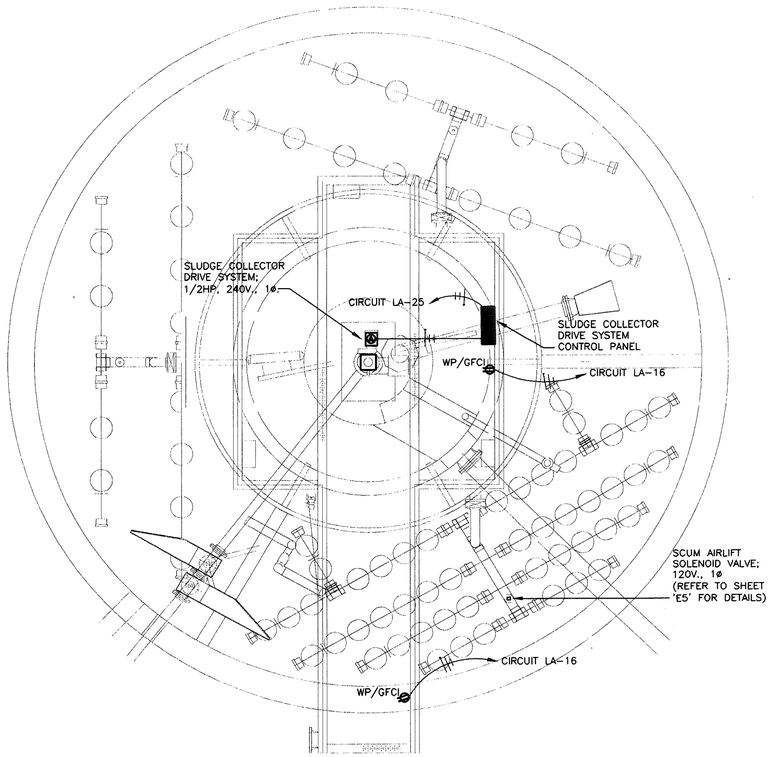
COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	LTG
DESIGNED	JTH
CHECKED	RMS
DATE:	3/04
JOB NO:	6038S
SCALE:	AS NOTED

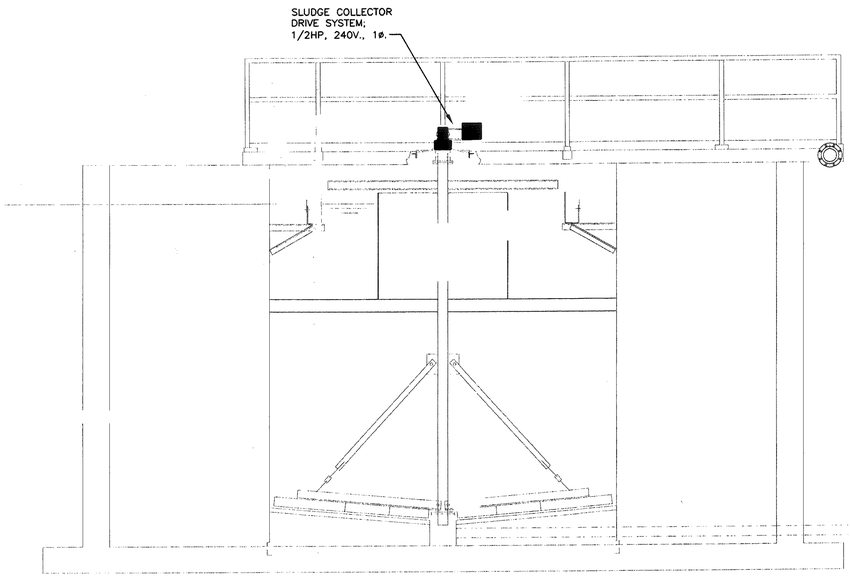
SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
HEADWORKS STRUCTURER
ELECTRICAL ELEVATION AND PLAN VIEW

DRAWING NO. E1

301-63



AERATION TANK
PLAN VIEW
SCALE: 3/8"=1'-0"



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

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COMMONWEALTH ENGINEERS, INC. REVISED: DATE 10/06

BY VCW OK. BY CWW

Rotz Engineers inc

SCOTT D. LATTMER
REGISTERED
No. PE19900470
STATE OF MARYLAND
PROFESSIONAL ENGINEER

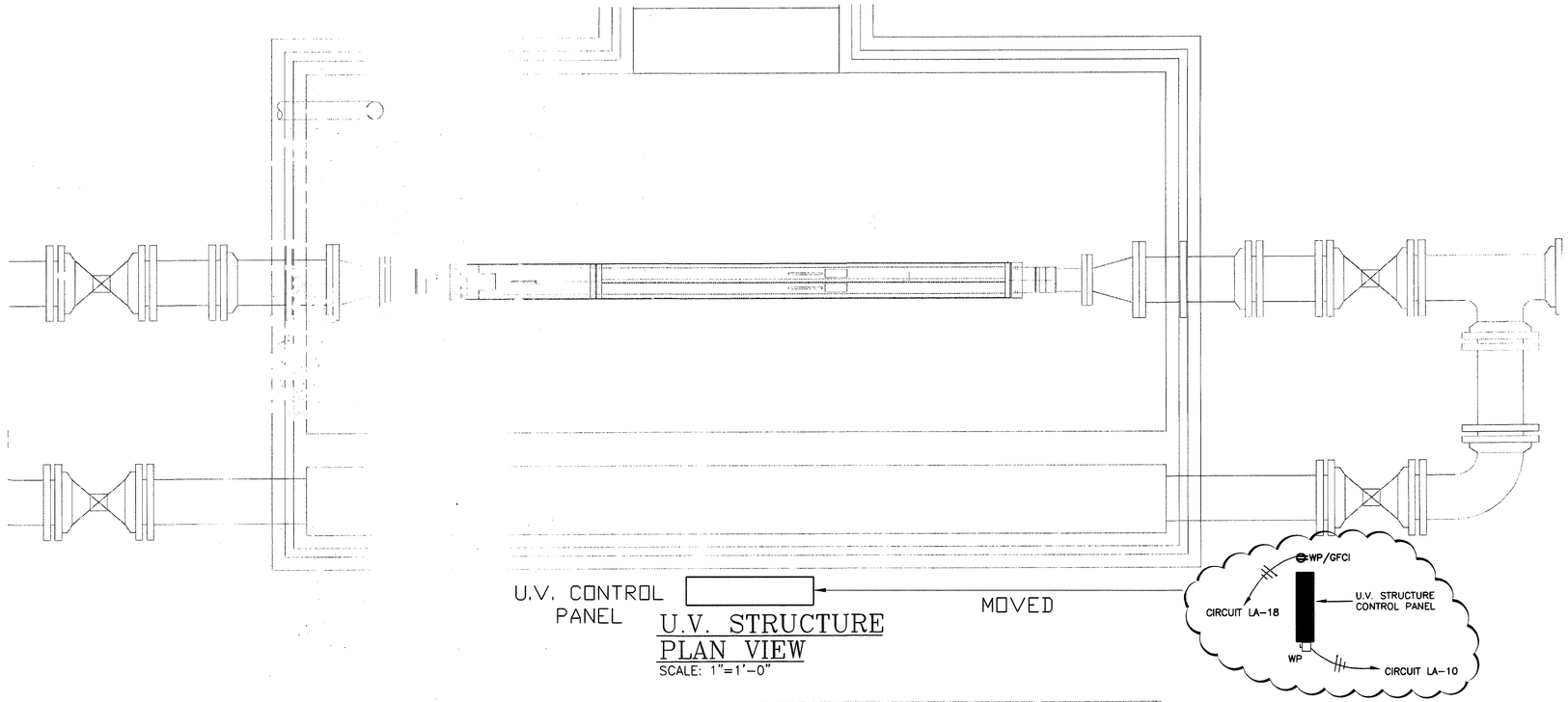
COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	LTG
DESIGNED BY:	JTH
CHECKED BY:	RMS
DATE:	3/04
JOB NO:	6038S
SCALE:	AS NOTED

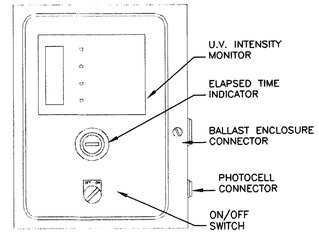
SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
TREATMENT PLANT/SLUDGE HOLDING TANK AND AERATION TANK
ELECTRICAL PLAN

DRAWING NO.
E2
48 OF 52

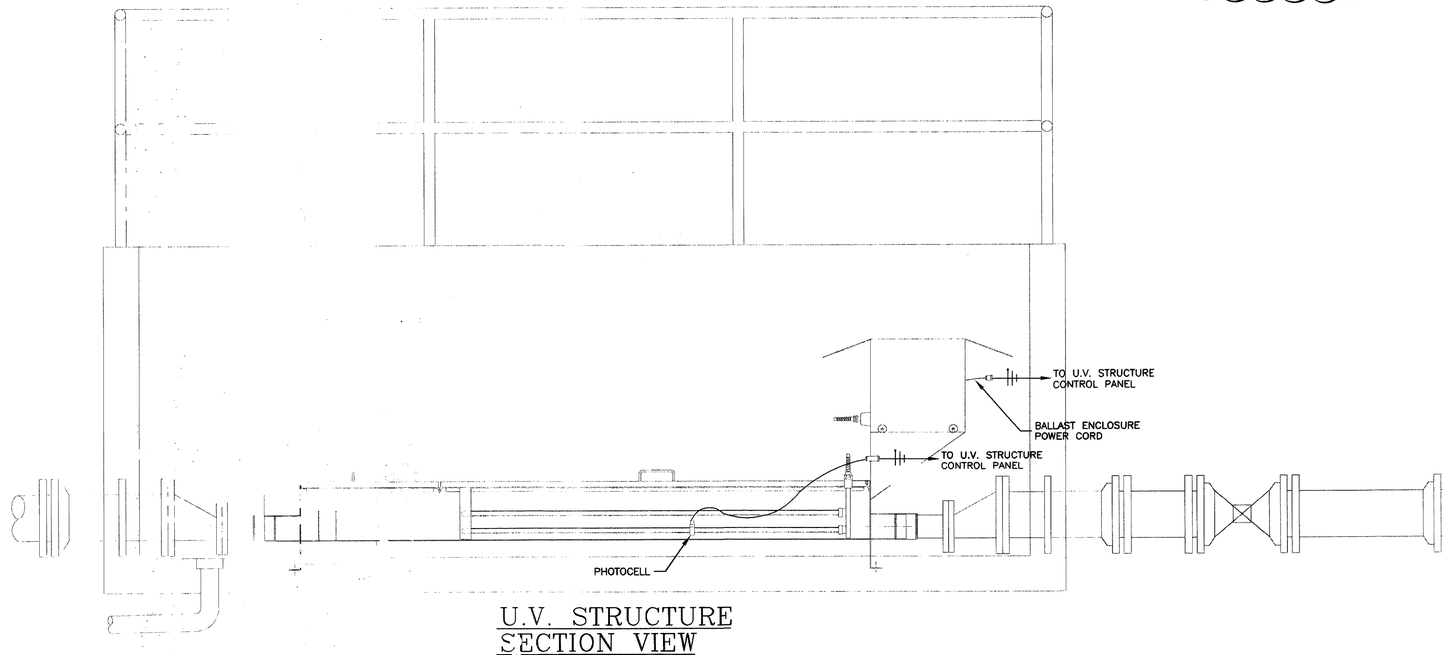
301-63



U.V. STRUCTURE
PLAN VIEW
SCALE: 1"=1'-0"



U.V. STRUCTURE
CONTROL PANEL DETAIL
SCALE: N.T.S.



U.V. STRUCTURE
SECTION VIEW
SCALE: 1"=1'-0"

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COMMONWEALTH ENGINEERS, INC.
REVISED: DATE 10/06
BY JCW, CK. BY

Rotz Engineers inc

REGISTERED No. PE19900470 STATE OF INDIANA PROFESSIONAL ENGINEER

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	LTG
DESIGNED BY:	JTH
CHECKED BY:	RMS
DATE:	3/04
JOB NO:	6038S
SCALE:	AS NOTED

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
U.V. STRUCTURE
ELECTRICAL PLAN AND SECTION VIEW

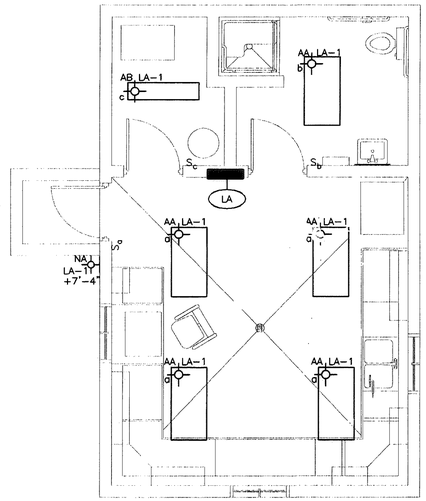
DRAWING NO.
E3
49 OF 52

301-67

PANEL: LA	LOCATION: SALAMONIE LAB BUILDING	MOUNTING: SURFACE				VOLTAGE: 120/240V., 1 PHASE,3W			MAIN: 2P-400A MCB PROVIDE GROUND BUS BAR
	LOAD DESIGNATION	CKT BKR	CKT NO.	CONNECTED LOAD (KVA) PHASE A		CONNECTED LOAD (KVA) PHASE C		CKT NO.	CKT BKR	LOAD DESIGNATION
*	LTS- LAB, RESTROOM & MECH. ROOM	1P-20	1	1.2	0.6			2	1P-20	RECPT- LAB
*	RECPT- REFRIGERATOR	1P-20	3			1.2	1.0	4	1P-20	RECPT- RESTROOM
*	RECPT- ABOVE COUNTER	1P-20	5	0.6	0.4			6	1P-20	M- ULTRASONIC LEVEL CONTROL
*	RECPT- ABOVE COUNTER	1P-20	7			0.6	0.9	8	1P-20	LT- SITE LIGHTING
*	RECPT- AT DESK	1P-20	9	0.4	1.2			10	1P-20	M- U.V. DISINFECTION EQUIPMENT
	RECPT- AT BLOWER CONTROL PANEL	1P-20	11			0.4	0.6	12	1P-20	M- AUTOMATIC SAMPLER/FLOWMETER
*	F- EXHAUST FAN #1 AND #2	1P-20	13	1.4	0.4			14	1P-20	RECPT- HEADWORKS
	M- CHEMICAL FEED BUILDING	1P-30	15			1.8	1.0	16	1P-20	RECPT- AT AERATION TANK
*	H- CHU-1	1P-20	17	1.2	0.4			18	1P-20	RECPT- AT U.V. STRUCTURE
*	F- EXHAUST FAN #3	1P-20	19			0.7		20	1P-20	M- INCUBATOR
	SPARE	1P-20	21		1.5			22	1P-20	WH- WATER HEATER
	M- FINE SCREEN CONTROL PANEL	2P-60	23			3.8	1.5	24	2P-20	H- HEAT PUMP (OUTDOOR)
	M- 2HP FINE SCREEN			3.8	1.5					H- HEAT PUMP (OUTDOOR)
	M- SLUDGE COLLECTOR DRIVE SYSTEM	2P-15	25			0.6	3.0	26		M- DUCT COIL #1 6kW
	M- CONTROL PANEL 1/2HP			0.6	3.0					M- DUCT COIL #2 6kW
	M- GRINDER PUMP 2HP	2P-20	27			1.5		28		SPACE
	M- GRINDER PUMP 2HP			1.5						SPACE
*	H- HEAT PUMP (INDOOR)	2P-45	29			3.6		30		SPACE
*	H- HEAT PUMP (INDOOR)			3.6						SPACE
	SPACE	2P-	31				10.1	32		M- BLOWER CONTROL PANEL
	SPACE				10.1					M- BLOWER CONTROL PANEL
	TOTAL CONNECTED LOAD (KVA)		65.7	33.4		32.3				

* (NOTE: IF ALTERNATE BID IS NOT ACCEPTED CIRCUIT BECOMES A SPACE)

NOTE: BASE BID: ELECTRICAL PANELBOARD 'LA'; NEMA 4X STAINLESS STEEL ENCLOSURE.
ALTERNATE BID: ELECTRICAL PANELBOARD 'LA'; NEMA 1 ENCLOSURE



LAB BUILDING LIGHTING FLOOR PLAN (ALT. BID)

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

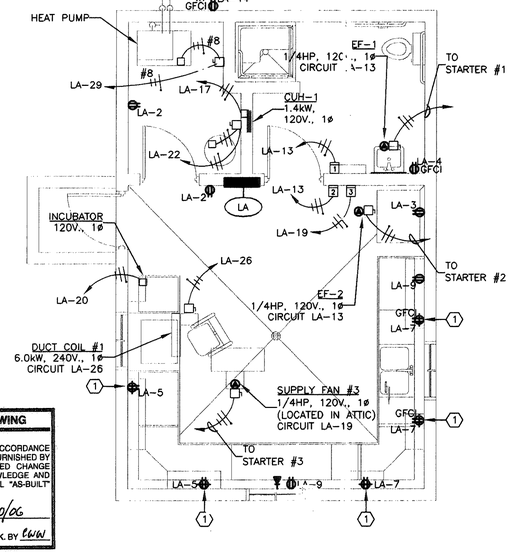
MOTOR STARTER CONTROL STYLES		
STYLE	ILLUSTRATION	FUNCTION
1	✱	ON PILOT LIGHT
2	H O A	HAND-OFF-AUTO SWITCH
3	• B	ON-OFF CONTROL
4	✱ • B	ON PILOT LIGHT ON-OFF CONTROL
5	✱ •	FAST PILOT LIGHT SLOW PILOT LIGHT FAST SLOW SELECTOR SW.
6	✱ • • •	FAST PILOT LIGHT SLOW PILOT LIGHT FAST PUSHBUTTON SLOW PUSHBUTTON STOP PUSHBUTTON

SCHEDULE OF MOTOR STARTERS

CODE NO.	MANUAL	MOTOR STARTERS: MAGNETIC COMBINATION CIR BKR	SW-FUSE	TYPE START	ENCL TYPE	LOCATION	CONTROLS: IN START. COVER	REMOTE STYLE	REMOTE LOCATION	NEMA ENCL	STARTER NOTES	HP	VOLTS	PHASE	SPEED	DESIGNATION
1	●				1(F)	LAB BUILDING	4					1/4	120	1	1	EXHAUST FAN #1
2	●				1(F)	LAB BUILDING	4					1/4	120	1	1	EXHAUST FAN #2
3	●				1(F)	LAB BUILDING	4					1/4	120	1	1	EXHAUST FAN #3

LIGHT FIXTURE SCHEDULE

TYPE	MOUNTING	LAMPS	NOMINAL DIMENSION	MFGR & CAT NO. OR ACCEPTABLE EQUIVALENT	REMARKS
AA (ALT. BID)	SURFACE	(4) 32W F32T8	2' x 4'	LITHONIA 'M SERIES' DAYBRITE, METALUX, KLP, HUBBELL, COLUMBIA	SURFACE MOUNTED, 0.125" KSH-K12 ACRYLIC PRISTMATIC LENS IN FLUSH STEEL DOOR, STEEL HOUSING, BAKED WHITE ENAMEL FINISH, 120 VOLT ELECTRONIC BALLAST(S).
AB	SURFACE	(2) 32W F32T8	6" x 4'	DAYBRITE 'VAPORLUME' METALUX 'VT SERIES' LITHONIA 'DV SERIES'	WHITE ONE PIECE, MOLDED FIBERGLASS REINFORCED POLYESTER BODY. NON-CORROSION, CONTINUOUS COMPRESSIBLE CLOSED CELL GASKETED TIGHT SEAL BETWEEN PLASTIC ENCLOSURE AND BODY. U.L. LISTED FOR DAMP LOCATION. LOW TEMPERATURE 120V. ELECTRONIC BALLAST.
NA	WALL	(1) 70W HPS		HUBBELL 'PERIMAX' HOLOPHANE KEENE	WALL MOUNTED, DIE CAST ALUMINUM HOUSING, PRISMATIC POLYCARBONATE REFRACTOR, U.L. LISTED WET LOCATION LABEL, FINISH AS SELECTED BY ENGINEER, INTEGRAL PHOTOCELL, 120V HPF, PRIMARY FUSED BALLAST RATED -20°F.
PA	POLE	(1) 100W HPS	10-5/16" x 14-1/2" x 25-1/4"	HUBBELL 'NTP-150SB-NA-1' GARDCO, LITHONIA	ONE PIECE CAST ALUMINUM HOUSING, BRONZE FINISH, WITH GLASS REFRACTOR, 120V. HPF PRIMARY FUSED BALLAST, RATED -20°F. U.L. LISTED FOR WET LOCATION. 12'-0" ROUND STRAIGHT ALUMINUM POLE, BRONZE FINISH [illegible] LUMINAIRE. PROVIDE TENON POST MOUNT. (BASE BID WORK)



PLAN NOTES:

(1) RECEPTACLE TO BE MOUNTED HORIZONTALLY ABOVE THE COUNTER BACKSPLASH.

REVISED "AS-BUILT" DRAWING

THIS DRAWING HAS BEEN REVISED IN ACCORDANCE WITH NOTES ON "RECORD [illegible] FURNISHED BY THE CONTRACTOR AND [illegible] CHANGE ORDERS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THIS DRAWING [illegible] "AS-BUILT" CONDITIONS.

COMMONWEALTH ENGINEERS, INC. REVISED: DATE 10/06 BY [illegible], CK. BY RWW

LAB BUILDING POWER AND SYSTEMS FLOOR PLAN (ALT. BID)

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

(NOTE: THIS SHEET PART OF ALTERNATE BID)

Rotz Engineers, Inc.

REGISTERED PROFESSIONAL ENGINEER — No. PE1990470 — STATE OF INDIANA — BONNIE L. LATTIMER

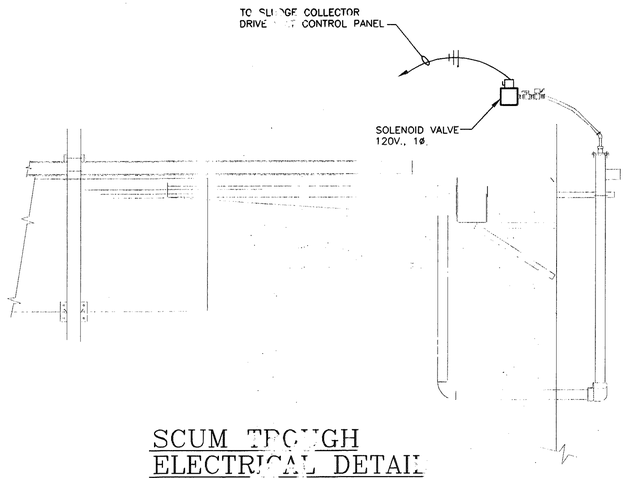
COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	LTG
DESIGNED BY:	JTH
CHECKED BY:	RMS
DATE:	3/04
JOB NO:	6038S
SCALE:	AS NOTED

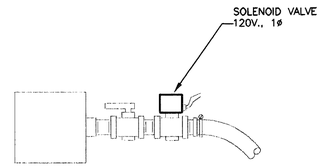
SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
LAB/ADMIN. BUILDING
ELECTRICAL PLAN

DRAWING NO. E4

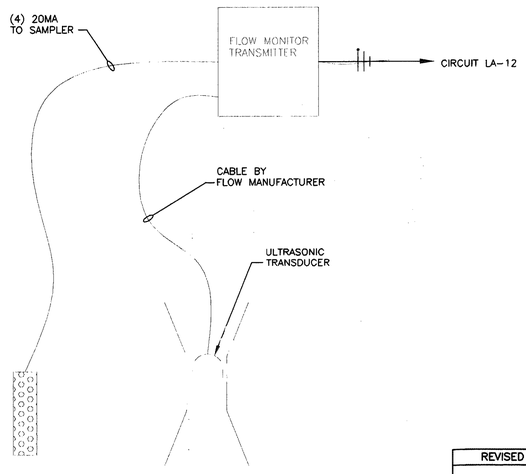
301-63



SCUM TROUGH
ELECTRICAL DETAIL
SCALE: N.T.S.



3/4" SCUM EJECTOR AIR SUPPLY
ELECTRICAL DETAIL
SCALE: N.T.S.



METERING/SAMPLING CONTROLS
ELECTRICAL DIAGRAM
SCALE: N.T.S.

REVISED "AS-BUILT" DRAWING
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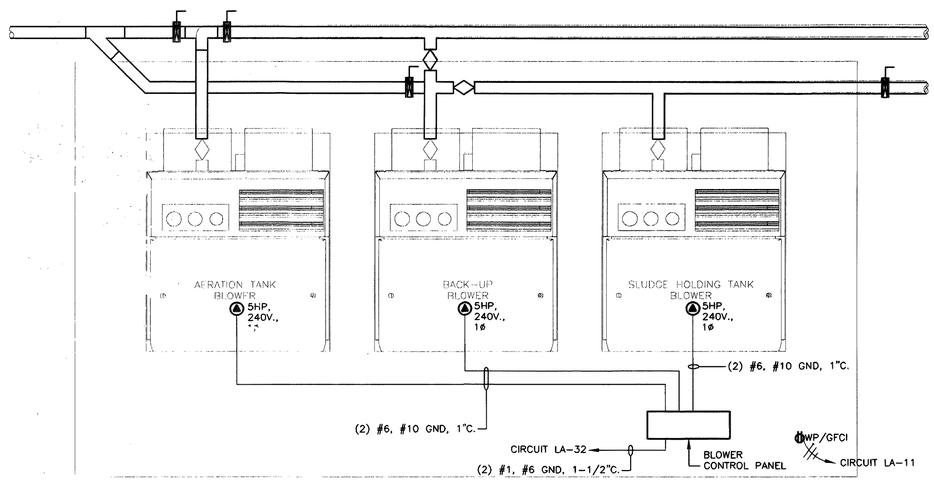
COMMONWEALTH ENGINEERS, INC.
REVISED: DATE 10/06
BY JCW, CK. BY



BLOWER PAD
ELECTRICAL PLAN VEIW
SCALE: N.T.S.

Rotz Engineers inc

SCOTT D. LATTA REGISTERED PROFESSIONAL ENGINEER PE19900470 STATE OF OHIO

COMMONWEALTH ENGINEERS, INC.

DRAWN BY:	LTG
DESIGNED BY:	JTH
CHECKED BY:	RMS
DATE:	3/04
JOB NO:	6038S
SCALE:	AS NOTED

SALAMONIE RESERVOIR
WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT
PUBLIC WORKS PROJECT NO. E031410M
MISCELLANEOUS
ELECTRICAL DETAILS

DRAWING NO.
E5
51 OF 52

301-63