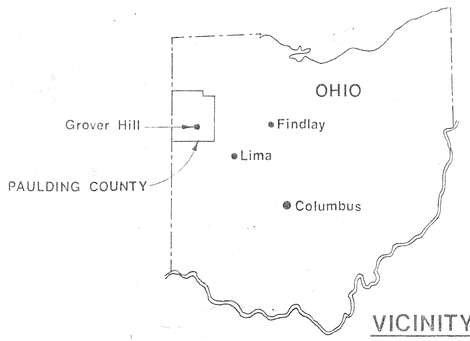
1989

GROVER HILL

WASTE WATER TREATMENT PLANT

PAULDING COUNTY, OHIO

DIVISION II
CONTRACT "GC"
&
CONTRACT "EC"



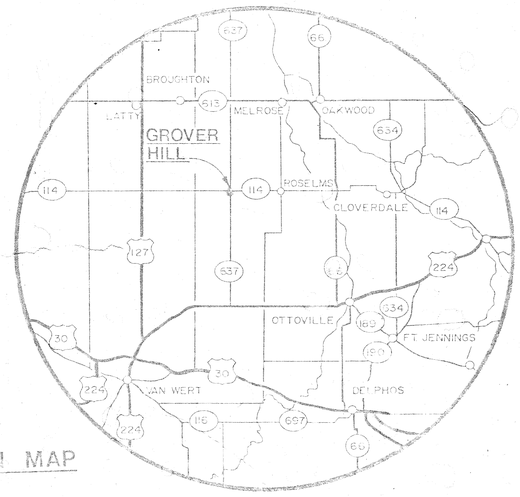
VICINITY MAP

VILLAGE COUNCIL

Dan Bidlack, President
Reg Hinchcliff
Lonnie Lytle
Phil Kink
Ralph Meyer
Gary Golliver
John Moon, Mayor

CLERK

Susan Moon _____ Date _____



LOCATION MAP

1. GENERAL NOTE, LEGEND/PUBLIC UTILITIES
2. PROCESS/HYDRAULIC PROFILE
3. ROAD & FORCE MAIN PLAN
3A. MAIN LIFT STATION
4. ROAD & EFFLUENT PROFILE
5. GRADING PLAN
6. CROSS SECTION
7. CROSS SECTION
8. CROSS SECTION
8A. LINER CONSTRUCTION DETAILS
9. PROCESS PIPING PLAN
9A. EFFLUENT PIPING PLAN AND DETAILS
10. PROCESS PIPING DETAILS
11. LAGOON CELLS, SLUDGE POND & DETAILS
12. MISCELLANEOUS DETAILS
13. CLARIFIER DETAILS
14. CLARIFIER/AIR LIFT DETAILS
15. ARCHITECTURAL PLANS
16. ARCHITECTURAL ELEVATIONS
17. ARCHITECTURAL CROSS SECTIONS & DETAILS
18. HVAC FLOOR PLAN/TOILET RM.
19. PLUMBING FLOOR PLAN
20. ELECTRICAL SITE PLAN
21. ELECTRICAL PLAN
22. WIRING DIAGRAMS
23. FENCE DETAILS

MAYOR

John Moon

LEGEND

ABBREVIATIONS

MILLION GALLONS PER DAY	MGD
5 DAY BIOLOGICAL OXYGEN DEMAND	BOD_5
SUSPENDED SOLIDS	SS
TOTAL KJELDAHL NITROGEN	TKN
HYDROGEN SULFIDE	H_2S
AMMONIA	NH_3
COUNT PER 100 MILLILITER	CT/100 ML
POUNDS PER DAY	#/DAY
MILLIGRAM PER LITER	MG/L
GALLON PER MINUTE	GPM
CUBIC FEET PER MINUTE	CFM
GALLON PER DAY	GPD
FOOD TO MASS RATIO	F/M
MIXED LIQUOR VOLATILE SUSPENDED SOLIDS	MLVSS

PROPOSED

GRAVITY SEWER

FORCE MAIN

STORM SEWER — ST

WATER LINE — W

MAN HOLE

LIFT STATION

CLEAN OUT

BALL VALVE

GATE VALVE

CHECK VALVE

YARD HYDRANT

PLUG VALVE

ITEM TO BE SUPPLIED BY PARKSON TO THE CONTRACTOR (SEE SUMMARY OF WORK IN SPEC'S) — P

ITEM SUPPLIED & INSTALLED BY G.C. — G.C.

NOTE: THIS SYMBOL IS USED ONLY TO DESIGNATE RESPOSIBILITY IN AREAS WHERE CONFUSION IS POSSIBLE BETWEEN PARKSON & G.C. SUPPLIED ITEMS.

BUTTERFLY VALVE

WIRE OR CHAIN-LINK FENCE

STREAM / LAKE

RELIEF VALVE

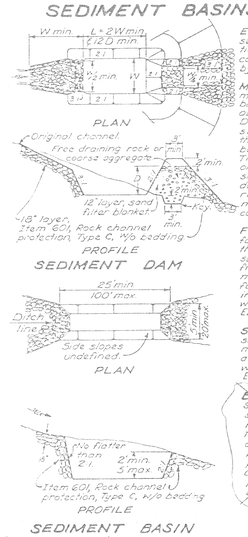
SOIL BORING

UTILITIES

CONTINENTAL TELEPHONE CO.
P.O. BOX 367
CONTINENTAL, OHIO 45831
ATTN: JOE KIRK
(419) 596-3331

OHIO POWER COMPANY
111 N. WASHINGTON
VAN WERT, OHIO 45891
ATTN: GEORGE W. DUMM
(419) 238-6985

SEDIMENT BASINS & DAMS



EMBANKMENT for sediment basin construction shall be as per 203 compacted as directed by the Engineer.

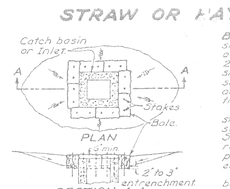
MAINTENANCE: Sediment pits, dams, and basins shall be accepted by maintained. Deposited sediment shall be removed when the initial volume has been reduced one-half. The sand filter blanket on sediment basins shall be replaced when deposited sediment is removed. The cost of maintenance shall be covered by Item 207.

FILTERS: Plastic filter fabric, as approved by the engineer, may be substituted for the sand filter blanket on sediment dams. Such fabrics may be cleaned in lieu of replacement, when approved by the Engineer.

SIZE: A series of smaller basins or dams may be substituted for a larger basin or dam when approved by the Engineer.

BASIS OF PAYMENT: Sediment dams and basins shall be paid for under Item 207, Cubic Yard, Temporary berthes, dikes, dams and sediment basins. Rock required shall be paid for under Item 601, Cubic Yard, Rock channel protection, Type C, w/o bedding.

STRAW OR HAY BALES



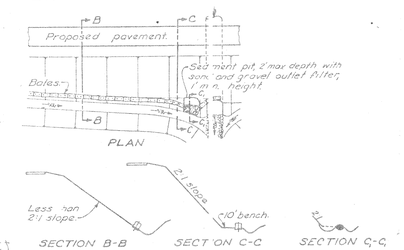
BALE PLACEMENT: Bales shall be tightly placed, end to end, and entrenched 2" to 3" before staking, and a small amount of loose soil shall be tightly compacted along the upstream edge of the bales.

Each bale shall be firmly staked with a minimum of 2 stakes of at least 3' in length. Stakes shall be wooden 2"x2", reinforcing bars or fence posts, as approved by the engineer.

Loose straw or hay shall be scattered for a distance of 10' on the upstream side of each ditch check and shall be wedged between and under staked bales.

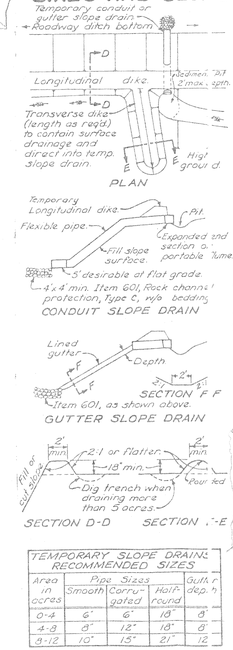
SEDIMENT PITS shall be provided where directed by the Engineer and their cost included in the price bid for adjacent 207 items.

BASIS OF PAYMENT: Straw or hay bale installation shall be paid for under Item 207, Each, Straw or hay bales. Cost will include placing, staking, maintaining and removing.



Not to scale.

DIKES AND SLOPE PROTECTION



TEMPORARY SLOPE DRAINS RECOMMENDED SIZES				
Area in acres	Pipe Sizes Smooth	Corrugated	Half-round	Gutter depth
0-4	6"	8"	10"	8"
4-8	8"	12"	18"	8"
8-12	10"	15"	21"	12"

Not to scale.

GENERAL: Dikes & drains shown shall be used when earthwork operations on slopes higher than 3' are suspended for three weeks or more and/or as directed by the Engineer. Smaller dikes used at the end of a day's operation shall be considered as part of the earthwork.

Temporary slope drains shall be suitably positioned and anchored to prevent movement or undermining, as directed by the Engineer.

LONGITUDINAL DIKES shall be constructed of suitable 203 material and compacted to 85% maximum density.

CONDUITS for slope drains shall be corrugated steel pipe, corrugated or smooth plastic pipe, rubber conduit, or an approved equal.

GUTTERS for slope drains shall be lined with Type C rock channel protection, crushed aggregate slope protection, portland cement concrete, bituminous concrete, plastic sheeting (on slopes 4:1 max.), partial pipe section or approved equal.

SEDIMENT PITS shall be provided where directed by the Engineer and their cost included in the price bid for adjacent 207 items.

BASIS OF PAYMENT: Temporary dikes shall be paid for under Item 207, Cubic Yard. Temporary ditches, dikes, dams and sediment basins, temporary slope drains shall be paid for under Item 207, Linear Foot. Temporary slope drains, Rock required shall be paid for under Item 601, Rock channel protection, Type C, w/o bedding.

GENERAL NOTES

1. TYPES OF PAVEMENT SURFACES AS INDICATED ON THE PLANS REFER ONLY TO THE APPARENT SURFACE MATERIALS. THE CONTRACTOR SHALL VERIFY TO HIS OWN SATISFACTION THE TYPE OF SURFACE AND BASE OF EACH STREET PRIOR TO THE SUBMISSION OF BIDS. PAVEMENT REPLACEMENT SHALL CONSIST OF THE SAME TYPES OF SURFACE AND BASE MATERIALS AS REMOVED. THE ALLOWABLE WIDTHS OF TRENCH FOR PAYMENT ARE SHOWN IN SPECIFICATIONS.
2. EXACT LOCATION OF EACH END MANHOLE (M.H.) OR CLEANOUT (C.O.) SHALL BE VERIFIED IN THE FIELD DURING CONSTRUCTION BY THE ENGINEER.
3. CONTRACTOR SHALL STATE IN HIS BID PROPOSAL, THE TYPE OF GRAVITY SEWER PIPE, FROM THOSE LISTED IN THE SPECIFICATIONS, UPON WHICH HIS BID IS BASED.
4. ALL FORCE MAIN SHALL BE P.V.C. SDR 21, OR DUCTILE IRON. FITTINGS TO BE DUCTILE IRON.
5. CONTRACT PRICE PER LINEAL FOOT OF SEWER IS PAID THROUGH ALL HOUSE LATERAL WYES; THE CONTRACT UNIT PRICE PER WYE CONNECTION, THEREFORE, SHALL ONLY REFLECT THE DIFFERENCE BETWEEN THE WYE AND THE L.F. OF MAIN LINE.
6. ALL FORCE MAIN SHALL BE CONSTRUCTED WITH A MINIMUM COVER OF 4.0 FEET ABOVE THE TOP OF THE PIPE. WHERE NECESSARY TO CROSS OTHER UTILITIES OR CULVERTS AND THE MINIMUM COVER CANNOT BE MAINTAINED WITH A 6-INCH CUSHION BETWEEN, THE FORCE MAIN SHALL BE CONSTRUCTED BELOW THE OTHER UTILITY AT NO ADDITIONAL COST TO THE OWNER.
7. DELETED
8. AT NIGHT AND AT ALL TIME WHEN WORK IS NOT IN PROGRESS, THE CONTRACTOR SHALL PROTECT ANY OPEN TRENCH AND/OR EXCAVATION BY PLACEMENT OF A PROPERLY SECURED "SNOW FENCE" AROUND THE EXCAVATION, IN ADDITION TO NECESSARY BARRICADES, LIGHTS AND OTHER PROTECTIVE MEASURES DEEMED NECESSARY BY OWNER'S REPRESENTATIVE.
9. CONTRACTOR SHALL LOCATE AND PROTECT ANY EXISTING PROPERTY CORNER MONUMENTS ALONG THE ROUTE OF THE PROPOSED WORK. ANY MONUMENTS REMOVED OR DISPLACED BY THE CONTRACTOR SHALL BE REPLACED BY A REGISTERED SURVEYOR, AT THE CONTRACTOR'S EXPENSE.
10. EXISTING UTILITIES SHALL CONTINUE WITH UNINTERRUPTED SERVICE DURING CONSTRUCTION PERIOD.
11. ALL SEWERS OR LATERALS WHICH PASS WITHIN 10 FEET OF A WATER MAIN OR WATER SERVICE LINE MUST BE A MINIMUM OF 18-INCHES BELOW THE WATER LINE REGARDLESS OF THE TYPE OF MATERIAL USED IN SEWER CONSTRUCTION.
12. SERVICE TO ALL INDIVIDUAL USERS SHALL NOT BE INTERRUPTED.
13. CONTRACTOR'S OPERATIONS IN THE TEMPORARY EASEMENTS SHALL NOT REMOVE OR DISTURB LANDSCAPING ITEMS AND FIXED STRUCTURES UNLESS ABSOLUTELY NECESSARY. PRESERVATION SHALL TAKE PRECEDENCE OVER REMOVAL.
14. ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.
15. THE EXISTING UTILITIES ARE SHOWN BASED ON AVAILABLE INFORMATION. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION. THERE SHALL BE NO CLAIMS FOR EXTRA PAYMENT BASED UPON THE ACTUAL LOCATION OF ANY EXISTING UTILITIES.
16. ALL DEWATERING FLOWS ARE TO BE SETTLED IN SILTATION BASINS OR DIRECTED THROUGH STRAW FILTERS, BEFORE DISCHARGE TO STABILIZED SITES, SUCH AS STREAMS, OR STORM SEWERS; NOT ONTO EXPOSED SOILS, STREAM BANKS OR ANY OTHER SITE WHERE THE FLOWS COULD CAUSE EROSION.
17. ALL DISTURBED AREAS ARE TO BE RESTORED BY MULCHING AND RESEEDING. IF FINAL GRADING CANNOT BE ACCOMPLISHED IMMEDIATELY, STRAW SPRAYED WITH ASPHALT COATING OR SOME OTHER TYPE OF MULCH IS TO BE APPLIED IMMEDIATELY, AND TEMPORARY SEEDING (WITHIN 30 DAYS) IS TO BE USED UNTIL LONG-TERM RESTORATION CAN OCCUR. TOPSOIL IS TO BE RE-PLACED AS PART OF FINAL GRADING. SEE SECTION 02222 PAR. 3.03 OF SPECIFICATIONS.
18. STOCKPILED TOPSOIL AND FILL MATERIALS ARE TO BE PROTECTED FROM SOIL EROSION BY TEMPORARY SEEDING, AND ARE NOT TO BE STORED WITHIN 200 FEET OF ANY STREAM BANK.
19. EXCAVATED FILL MATERIAL IS TO BE STOCKPILED ON THE UPHILL SIDE OF THE TRENCH.
20. ALL DISTURBED AREAS (EXCEPT FOR THE WWTP ITSELF) ARE TO BE REGRADED TO ORIGINAL CONTOURS.
21. TEMPORARY DIVERSION CHANNELS ARE TO BE CONSTRUCTED AROUND THE WWTP AND PUMP STATIONS, TO COLLECT RUNOFF AND PREVENT SILT AND OTHER ERODIBLE MATERIALS FROM ENTERING LOCAL DRAINAGE COURSES BY DIVERTING IT TO STRAW BALE SEDIMENT TRAPS.
22. EXPOSED SOIL AREAS ARE TO BE KEPT TO A MINIMUM BY APPLICATION OF EROSION CONTROL MATERIALS SUCH AS STRAW SPRAYED WITH ASPHALT COATING.
23. TOPSOIL IS TO BE REPLACED AS PART OF FINAL GRADING. SEE SECTIONS 02222 PAR. 3.03 AND SECTION 02221 PAR. 3.08.
24. ALL REFERENCES ON THE DRAWINGS AND SPECIFICATIONS TO "OR APPROVED EQUAL" SHALL MEAN "OR EQUAL" AND SHALL CONFORM TO 40 CFR 33.255.
25. ALL MATERIALS TO BE DISPOSED OF OFF-SITE MUST BE DISPOSED OF IN AN ENVIRONMENTALLY SOUND FASHION AND IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS. DUMPING OF CONSTRUCTION DEBRIS WITH PERMISSION BY AND ON A PRIVATE LANDOWNERS PROPERTY IS NOT ENVIRONMENTALLY ACCEPTABLE.
26. FOR PROTECTION OF PROPERTY, RESTORATION AND CLEAN UP THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE SPECIFICATIONS: SECTION 02222 PAR. 3.01 (ITEMS A, B, F AND G), PAR. 3.06C, PAR. 3.09C, PAR. 3.12 AND PAR. 3.16; SECTION 02221 PAR. 3.08; SECTION 02980 AND SECTION 11352, PAR. 3.03., 02745, PAR 3.04.
27. TREES ARE TO BE DISTURBED OR REMOVED UNLESS FIELD CHANGES CANNOT PREVENT SUCH DISTURBANCE, EXCEPT IN RESIDENTIAL AREAS, THE HOMEOWNER OR CONTRACTOR WRITTEN PERMISSION TO REMOVE
28. EQUIPMENT, TOPSOIL, AND/OR FILL MATERIALS ARE NOT TO BE STOCKPILED UNDER (WITHIN THE DRIP LINE) OR NEAR EXISTING TREES IN RESIDENTIAL AREAS, WOODLANDS, OR ANY OTHER ENVIRONMENTALLY SENSITIVE AREA.
29. IF TREE REMOVAL BECOMES NECESSARY, TREES ARE TO BE FELLED IN A DIRECTION THAT MINIMIZES DAMAGE TO TREES WHICH ARE TO REMAIN STANDING. ANY DAMAGED SHRUBBERY OR TREES ARE TO BE REPLACED OR REPAIRED BY AN AUTHORIZED TREE EXPERT AS APPROPRIATE. LIMBS ARE TO RECEIVE COMPENSATORY PRUNING IF ROOT DAMAGE OCCURS. REPAIR TO EXISTING AND/OR REPLACEMENT OF NEW OR RELOCATED TREES SHALL OCCUR WITHIN SIX (6) MONTHS. SEE SECTION 02980 PAR. 3.04 OF THE SPECIFI-CATIONS.
30. IN RESIDENTIAL AREAS, ONE LANE ACCESS IS TO BE PROVIDED AT ALL TIMES. ALL DRIVEWAY CROSSINGS ARE TO BE COMPLETED IN ONE DAY.
31. ALL TRENCHES ARE TO BE BACKFILLED IMMEDIATELY AFTER SEWER INSTALLATION. NO TRENCH IS TO BE LEFT OPEN AT THE CLOSE OF THE WORKDAY.
32. ACCESS FOR EMERGENCY VEHICLES IS TO BE MAINTAINED AT ALL TIMES.
33. NOISE CONTROL: SEE SECTION 02060, PAR. 3.05 OF THE SPECIFICATIONS. ALL MOTORIZED EQUIPMENT MUST BE EQUIPPED WITH MUFFLERS AND INTAKE SILENCERS.
34. IF DURING THE COURSE OF CONSTRUCTION, EVIDENCE OF DEPOSITS OF HISTORICAL OR ARCHAEOLOGICAL INTEREST IS FOUND, CEASE OPERATIONS AFFECTING THE FIND AND NOTIFY THE OWNER, WHO SHALL NOTIFY THE STATE HISTORICAL DEPARTMENT. NO FURTHER DISTURBANCE OF THE DEPOSITS SHALL ENSUE UNTIL THE CONTRACTOR HAS BEEN NOTIFIED BY THE OWNER THAT HE MAY PROCEED. THE OWNER WILL ISSUE A NOTICE TO PROCEED ONLY AFTER THE STATE OFFICIAL HAS SURVEYED THE FIND AND MADE A DETERMINATION OF VALUE AND EFFECT AND SUBMITTED SUCH DETERMINATION TO THE OWNER. CONTACT MR. RAY LUCE, (614)297-3470.
35. WATER, NOT OIL, WILL BE USED FOR DUST CONTROL DURING CONSTRUCTION OF ALL FACILITIES.
36. SILT FROM CONSTRUCTION OPERATIONS SHALL NOT BE PERMITTED TO ENTER THE STORM SEWER SYSTEM. WHEN CONSTRUCTION OCCURS NEAR STORM SEWER INLETS, EROSION CONTROL MEASURES SUCH AS INLET FILTERS AND HAY BALES, SHALL BE USED TO PREVENT SILT FROM ENTERING THE STORM SEWERS.
37. PERMANENT AND TEMPORARY EASEMENTS ARE 14' AND 40' RESPECTIVELY EXCEPT AS OTHERWISE NOTED. THIS IS FOR MAIN LINE SEWERS
38. MANHOLE TOP ELEVATIONS SHALL MEET AND BE FLUSH WITH THE SURROUNDING FINISHED GRADE ELEVATION AT EACH MANHOLE. LINE PROFILES SHOW APPROXIMATE MANHOLE TOP ELEVATION.
39. THE SYNTHETIC LINERS INSTALLATION SHALL COMMENCE WITHIN 48 HRS. AFTER THE INSIDE SLOPES OF THE LAGOONS ARE FORMED.
40. CONTRACTOR SHALL INCLUDE COST OF SUPPLYING ALL REQ'D WATER FOR SEWER TESTING, DUST CONTROL AND OTHER NEEDS. WATER SHALL BE SUPPLIED BY THE CONTRACTOR IN TANK TRUCKS. THE WATER SHALL BE POTABLE FOR FORCE MAIN TESTING.

Revisions

Designed by: Date:
Drawn by: Thomsen Date:
Checked by: Date:
Approved by: Date:

PAULDING COUNTY, OHIO

GENERAL NOTES / LEGEND / PUBLIC UTILITIES

GROVER HILL SEWAGE WORKS IMPROVEMENTS

Design Enterprise Ltd

Scale NONE

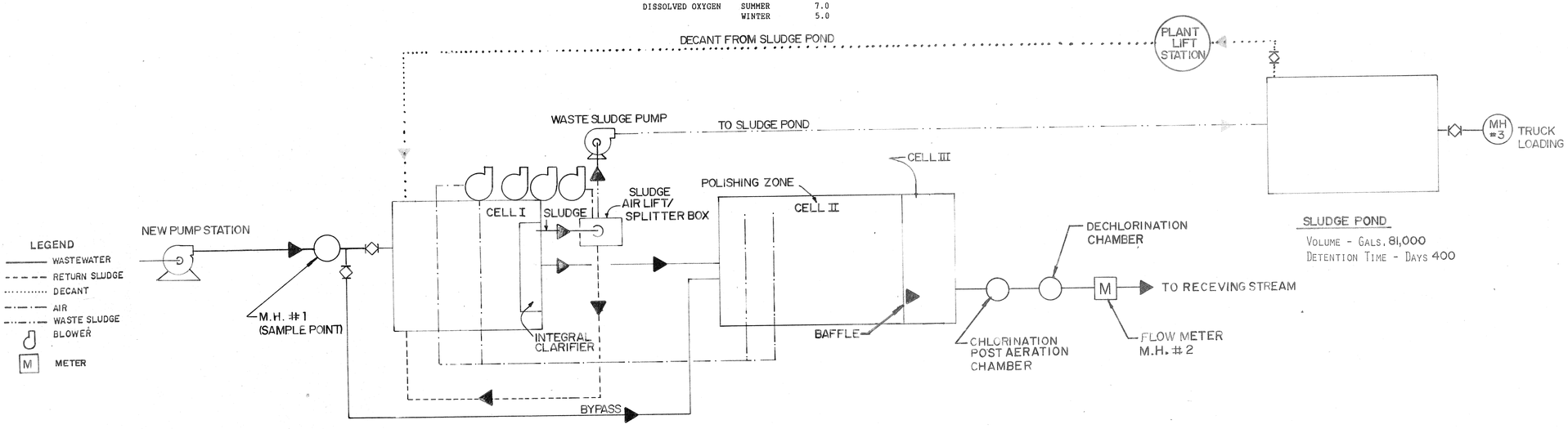
Sheet 1 of 23

INFLUENT

PROPERTIES		GROVER HILL
FLOW, MGD		0.06
BOD_5	(#/DAY)	80
	(MG/L)	160
SS	(#/DAY)	67
	(MG/L)	100
TKN	(#/DAY)	27
	(MG/L)	40
PEAK RATE (GPM)		150
H_2S	(#/DAY)	7 TO 35
	(MG/L)	10 TO 50

EFFLUENT

PROPERTIES			LIMITS 30-DAY	LIMITS 7-DAY MAX.
MGD			0.06	0.09
$CBOD_5$	(#/DAY)		6.6	9.0
	(MG/L)	SUMMER	10	15
		WINTER	25.0	37
SS	(#/DAY)		8	12
	(MG/L)	SUMMER	12	18
		WINTER	30	45
NH_3	(#/DAY)	SUMMER		1.5
	(MG/L)	SUMMER	1.5	2.25
		WINTER	MONITOR ONLY	
FECAL COLIFORM CT/100 ML			2500	5000
RESIDUAL CHLORINE (MG/L)			0.070	0.070
DISSOLVED OXYGEN		SUMMER	7.0	
		WINTER	5.0	



CELLS

	I	II	III
VOLUME - MG	0.096	--	0.06
DETENTION TIME - HRS.	25	--	--
MLVSS - MG/L	2500	--	--
F/M RATIO	0.04	--	--
SLUDGE RETENTION TIME - DAYS	50-70	--	--

BLOWERS

NUMBER - 3 AERATION
CAPACITY - 104 CFM EA.
HP - 5
AIRLIFT - 1
H.P - 2

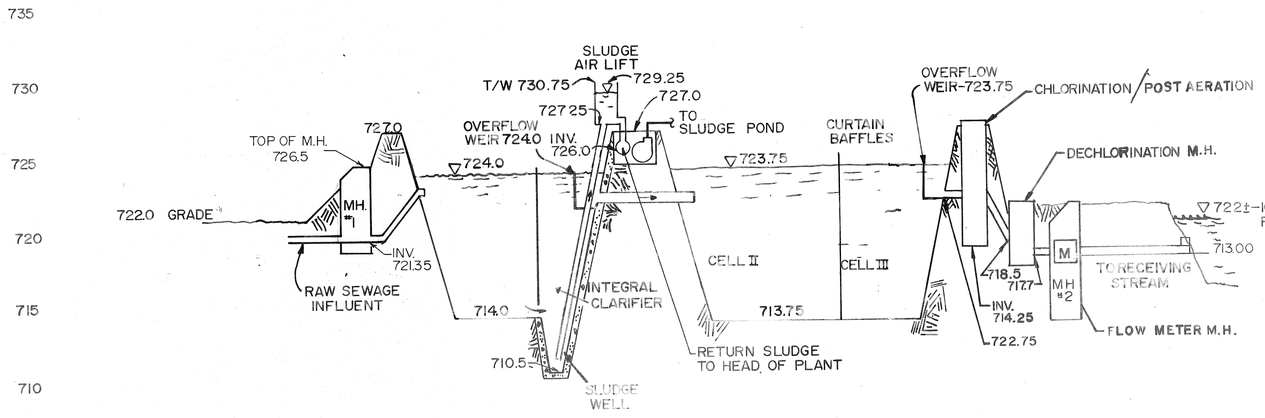
INTEGRAL CLARIFIER

AREA - SQ. FT. 380
AVG. O.FLOW RATE - GPD/SQ.FT. 158
PEAK O.FLOW RATE - GPD/SQ.FT. 368
AVG. HYDR. DETENT. - HRS. 6.6
AVG. WEIR LOADING - GPD/FT. 2000
RETURN SLUDGE RATE - 50-100%
SLUDGE WASTE RATE - 200 GPD

CHLORINATION

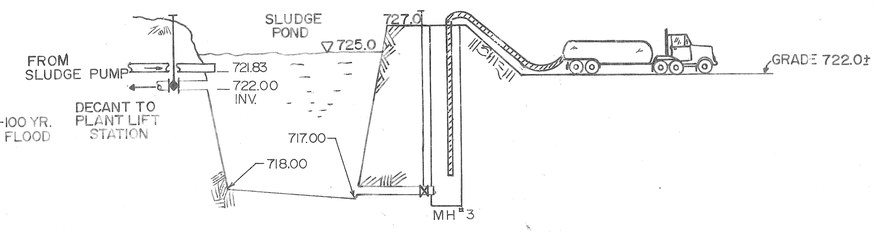
DOSAGE RATE - MG/L: 8
DOSAGE RATE - #/DAY: 6
DETENTION TIME - HR.: 0.25

WASTEWATER PROCESS



WASTEWATER PROFILE

SLUDGE PROCESS



SLUDGE PROFILE

Revisions

Designed by: Date: Checked by: Date:
Drawn by: Thomsen Date: Approved by: Date: 3-87

PAULDING COUNTY OHIO

PROCESS/HYDRAULIC PROFILE

GROVER HILL WASTEWATER TREATMENT PLANT

Design Enterprise Inc.

Scale: NO SCALE

Sheet: 2 of 23

NOTES:
1. FOR COLLECTION SYSTEM DRAWINGS SEE DIVISION I.
2. PUMP STATION IS PART OF DIVISION II
3. NEW GRAVEL ROAD IS TO FOLLOW EXISTING FARM ACCESS ROAD.
4. FORCE MAIN DEPTH TO TOP OF PIPE TO BE 4'-0" MIN.
5. FORCE MAIN ALONG ACCESS ROAD TO BE LOCATED 10'-0" FROM ROAD CENTERLINE TO MATCHLINE. (START AT 50+20 ON BASE LINE)
6. SEE 4 OF 23 FOR PROFILE AND TYPICAL SECTION OF ROAD.

Revisions

Designed by: DLB Date: 4/87
Drawn by: DLB Date: 4/87
Checked by: SCM Date: 4/87
Approved by: SCM Date: 4/87

AULDING COUNTY, OHIO

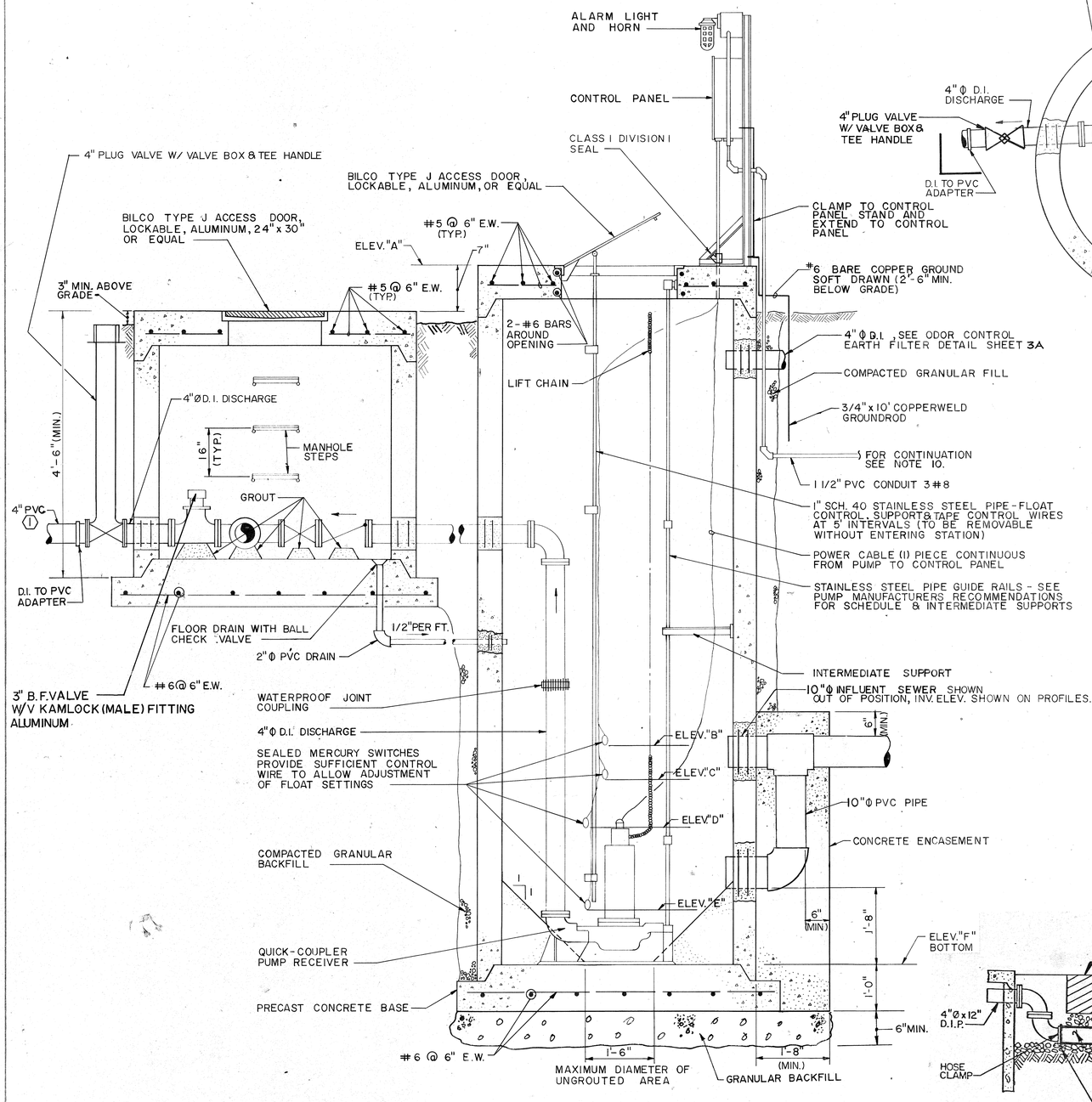
ROAD & FORCE MAIN PLAN

GROVER HILL
SEWAGE WORKS IMPROVEMENTS

Design Enterprise Ltd.

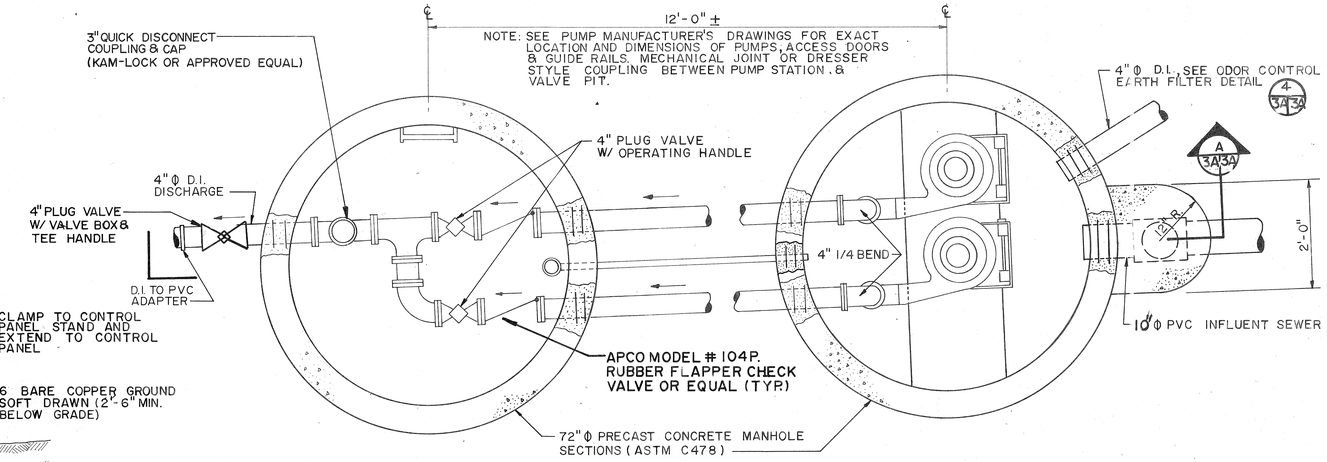
Scale
1"- 100'

Sheet
3 of 23



SECTION A 3A|3A

PLAN NOTE: (1) SEE SHEET 3 FOR FORCE MAIN ROUTING



VALVE PIT MANHOLE

PUMP STATION MANHOLE

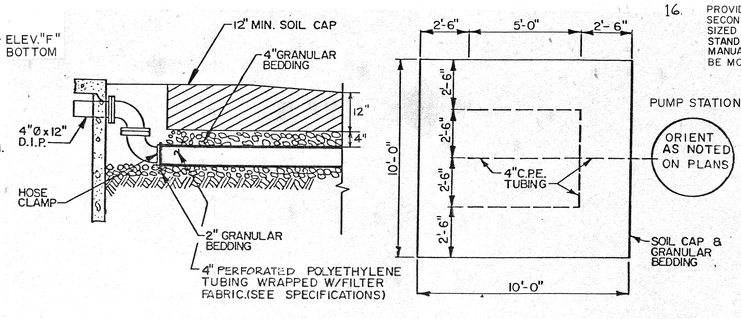
PLAN VIEW

PUMP STATION SCHEDULE		
STATION / ELEVATION		
A	724.8	
B	710.33	
C	710.33	
D	709.16	
E	706.66	
F	703.16	

ELEV. "A" = TOP OF LIFT STATION CASTING
ELEV. "B" = ALARM
ELEV. "C" = TWO PUMPS ON
ELEV. "D" = ONE PUMP ON
ELEV. "E" = PUMPS OFF
ELEV. "F" = BOTTOM OF WET WELL

NOTES:

1. PROVIDE RUBBER GASKETS ON PIPE WHERE THEY GO THROUGH MANHOLE WALL, GROUT IN PLACE WITH NON-SHRINK GROUT.
2. ALL ELECTRICAL WORK TO BE DONE IN ACCORDANCE WITH STATE, LOCAL & NATIONAL ELECTRIC CODES.
3. ALL COSTS FOR THE ELECTRICAL SERVICE BY THE UTILITY CO. ARE TO BE INCLUDED IN THE CONTRACTOR'S BID PRICE FOR EACH LIFT OR PUMP STATION.
4. ALL LIFT STATION PUMPS TO BE OF THE SUBMERSIBLE TYPE WITH A 4" Ø DISCHARGE, CAPABLE OF PASSING 3" SOLIDS.
5. INLET SEWERS, FORCE MAIN DISCHARGES, AND ELECTRICAL CONDUITS TO BE ORIENTED AS REQUIRED PER PLAN SHEET LOCATION.
6. ALL POWER AND CONTROL CABLES TO BE CONTINUOUS (ONE PIECE) FROM CONTROL PANEL TO PUMP MOTOR OR FLOATS.
7. PROVIDE RUNNING TIME METER FOR EACH PUMP (IN CONTROL PANELS).
8. ~~PROVIDE BALLAST AS NEEDED TO PREVENT FLOATATION OF PUMP STATION.~~ NOT USED
9. BIDDER TO SUBMIT PUMP DATA AT PRE-CONSTRUCTION MEETING
10. CONTRACTOR SHALL SUPPLY METER SOCKET AND NEW SERVICE POLE 18' OF CLASS 6 SOUTHERN YELLOW PINE.
11. METER SHALL BE 6' ABOVE GROUND, TO CENTER LINE OF METER.
12. SERVICE POLE SHALL EXTEND A MINIMUM OF 5' BELOW GROUND.
13. OVERHEAD SERVICE BY UTILITY COMPANY SHALL BE 3 PHASE 4 WIRE 120/240 VOLT AND SHALL BE A MINIMUM OF 12' ABOVE GROUND.
14. PROVIDE MANUAL TRANSFER SWITCH AND STANDBY GENERATOR RECEPTACLE, COMPATIBLE W/ VILLAGE EQUIPMENT (SEE SPECIFICATION SECTION 16212)
15. PUMPS SHALL BE MINIMUM 7.5 HP CAPABLE OF 67 FT. HEAD AT A FLOW OF 150 GPM FOR EACH PUMP.
16. PROVIDE 25KW DRY TYPE TRANSFORMER 480V/277V 3Ø PRIMARY 240V/120V 3Ø SECONDARY (G.E. QMS TYPE OR EQUAL). CONTRACTOR SHALL ALSO PROVIDE BREAKER SIZED FOR TRANSFORMER PRIMARY SIDE OF TRANSFORMER SHALL BE CONNECTED TO STAND BY GENERATOR RECEPTACLE. SECONDARY SIDE OF TRANSFORMER SHALL CONNECT MANUAL TRANSFER SWITCH. TRANSFORMER SHALL HAVE NEMA 3R ENCLOSURE AND SHALL BE MOUNTED 12' ABOVE GRADE.
17. CONTRACTOR SHALL PROVIDE 230V/1Ø OUTLET FOR PORTABLE PUMP. OUTLET-ENCLOSURE SHALL BE NEMA 3R AND MOUNTED ON CONTROL PANEL.



SECTION PLAN

ODOR CONTROL EARTH FILTER DETAIL 4 3A|3A

Revisions

Designed by: SCM
Drawn by: DLB
Date: Checked by:
Date: Approved by:
Date: 11-26-86

PAULDING COUNTY, OHIO

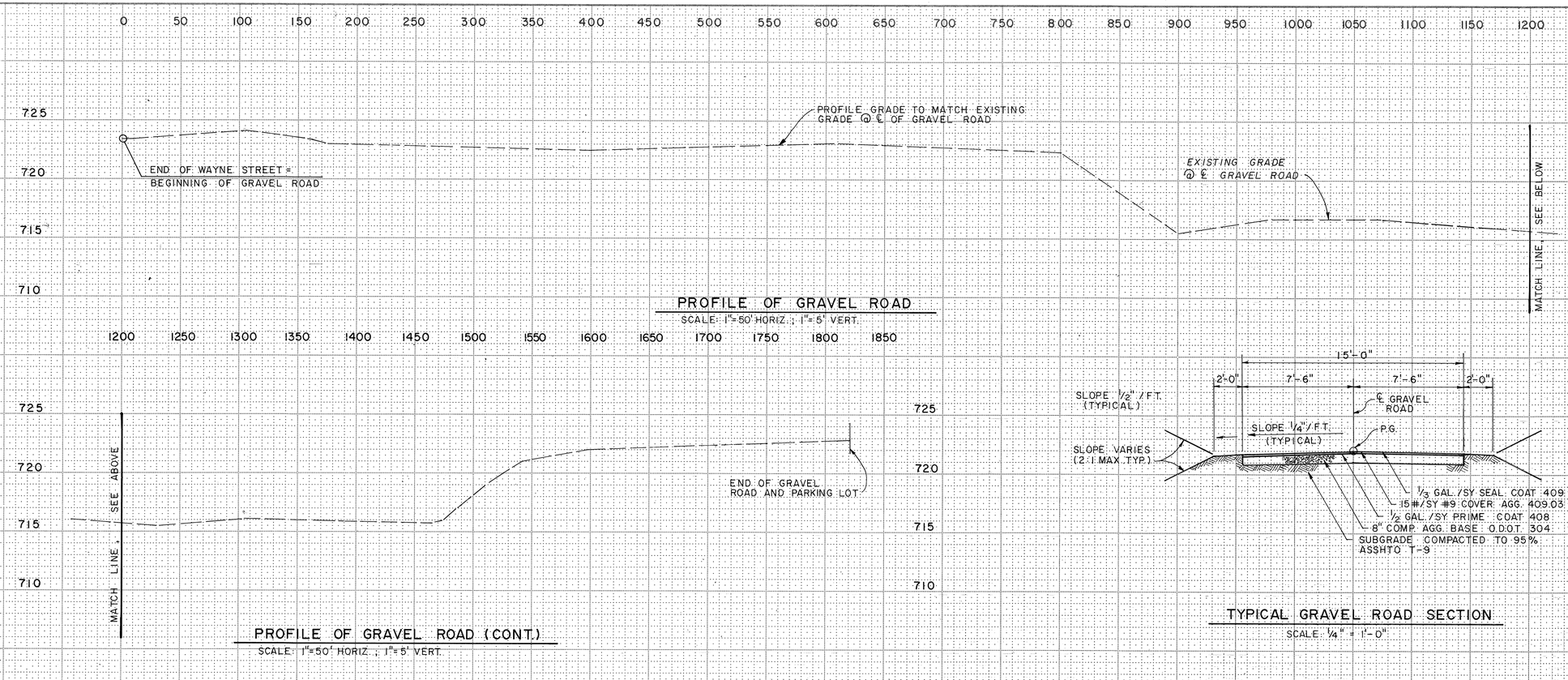
PUMP STATION PLAN & SECTION

GROVER HILL SEWAGE WORKS IMPROVEMENTS

Design Enterprise Ltd.

Scale NONE

Sheet 3A of 23



PROFILE OF GRAVEL ROAD

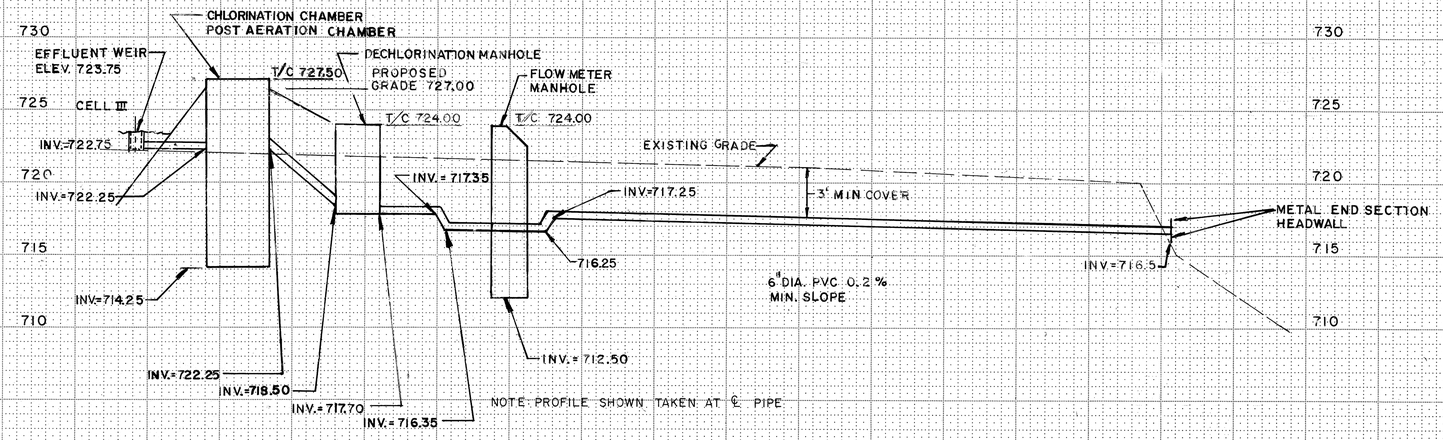
SCALE: 1"=50' HORIZ.; 1"=5' VERT.

PROFILE OF GRAVEL ROAD (CONT.)

SCALE: 1"=50' HORIZ.; 1"=5' VERT.

TYPICAL GRAVEL ROAD SECTION

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



PROFILE OF EFFLUENT TO CREEK

SCALE: 1"=10' HORIZ.; 1"=5' VERT.

Revisions

Designed by: DLB Date: 4/87
Drawn by: DLB Date: 4/87
Checked by: SCM Date: 4/87
Approved by: SCM Date: 4/87

PAULDING COUNTY, OHIO

ROAD & EFFLUENT PROFILE

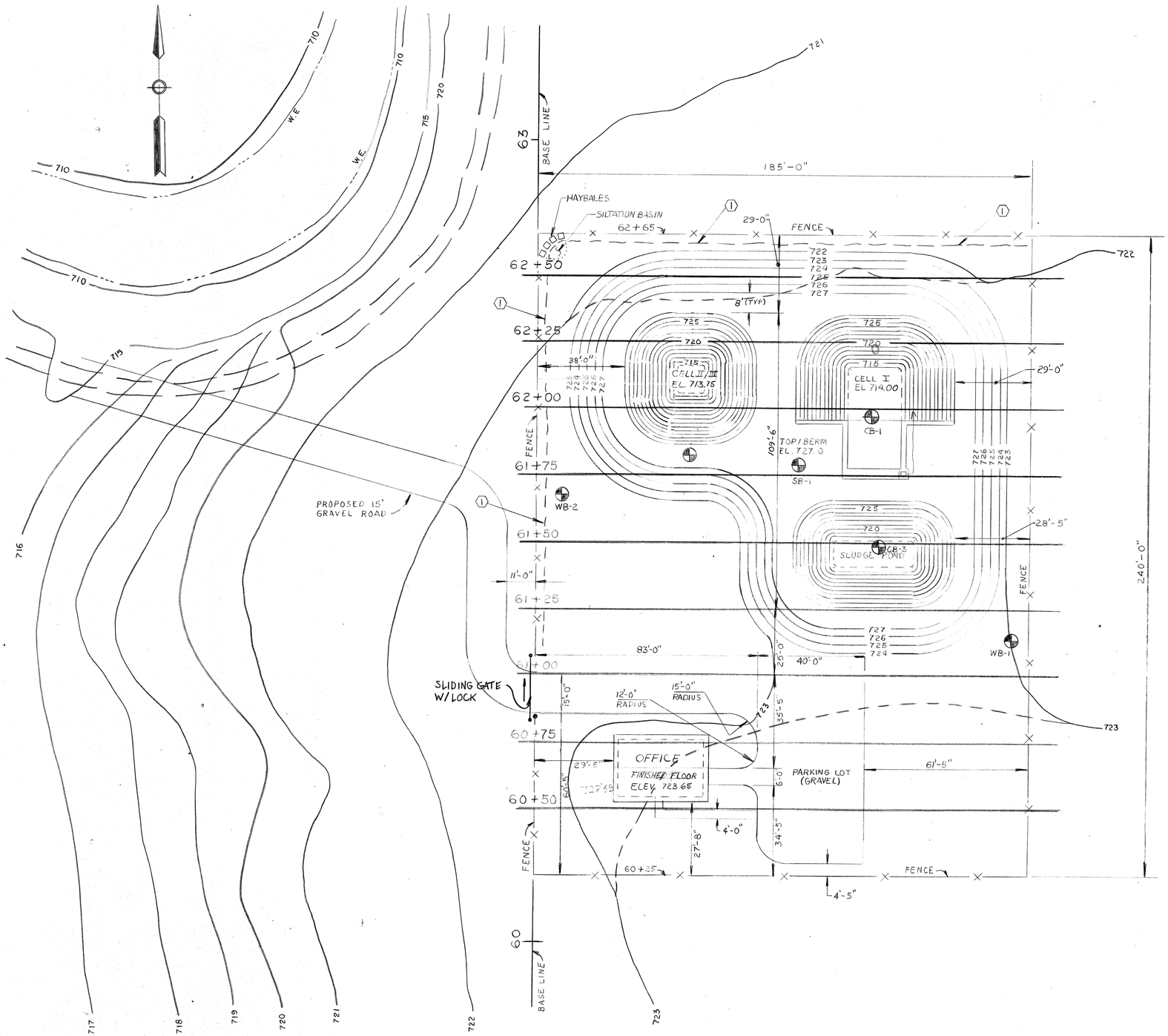
GROVER HILL
SEWAGE WORKS IMPROVEMENTS

Design Enterprise Ltd

Scale
AS NOTED

Sheet
4 of 23

BRUNING 44-131 55293



(1) PLAN NOTE:
TEMPORARY SWALE, SLOPE @ 1% GRADE

GENERAL NOTES:

1. BASE LINE IS FENCE LINE FROM STA. 60+25 TO STA. 62+65.
2. ALL DISTURBED AREAS TO BE RESTORED IN ACCORDANCE WITH SPECIFICATION SECTION 02980 "LANDSCAPING FOR UTILITIES"
3. ⊕ INDICATES SOIL BORING SEE SPECIFICATION APPENDIX FOR SOIL BORING LOGS.
4. SEE SHEET # 1 FOR TEMPORARY SLOPE STABILIZING DETAILS.
5. WORK LIMITS SHALL BE THE FENCE EXCEPT AS NOTED BY THE ROAD & THE OUTFALL PIPE. FOR WORK LIMITS ON THE OUTFALL PIPE SEE SHEET # 9.
6. FOR EROSION CONTROL SEE SHEET # 1.

MAPPING WAS PREPARED BY LOBO AERIAL SURVEY, INC. USING PHOTOGRAMMETRIC METHODS. REFER TO SPECIFICATIONS SIB-1 ITEM 3 AND SGC-5 PARAGRAPH 4A FOR SITE EXAMINATION REQUIREMENTS.

Revisions

Designed by: Date: Checked by: Date:
Drawn by: Date: Approved by: Date:

PAULDING COUNTY, OHIO

GRADING PLAN

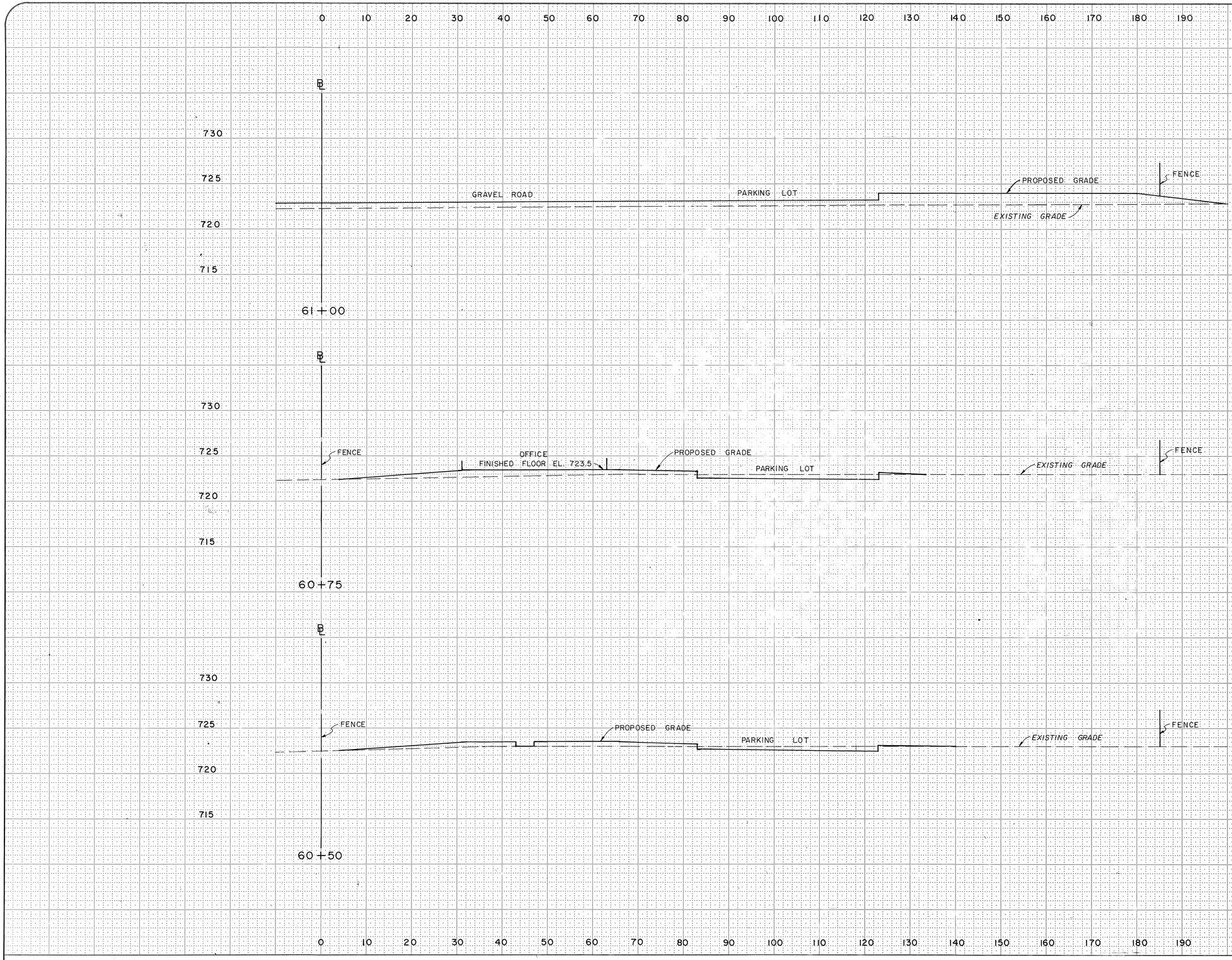
GROVER HILL
SEWAGE WORKS IMPROVEMENTS

Design Enterprise Ltd.

Scale
1"=20'-0"

Sheet
5 of 23

BRUNING 44-232 74371



Revisions

Designed by: DLB Date: 4/87
Drawn by: DLB Date: 4/87
Checked by: SCM Date: 4/87
Approved by: SCM Date: 4/87

PAULDING COUNTY, OHIO

CROSS SECTIONS

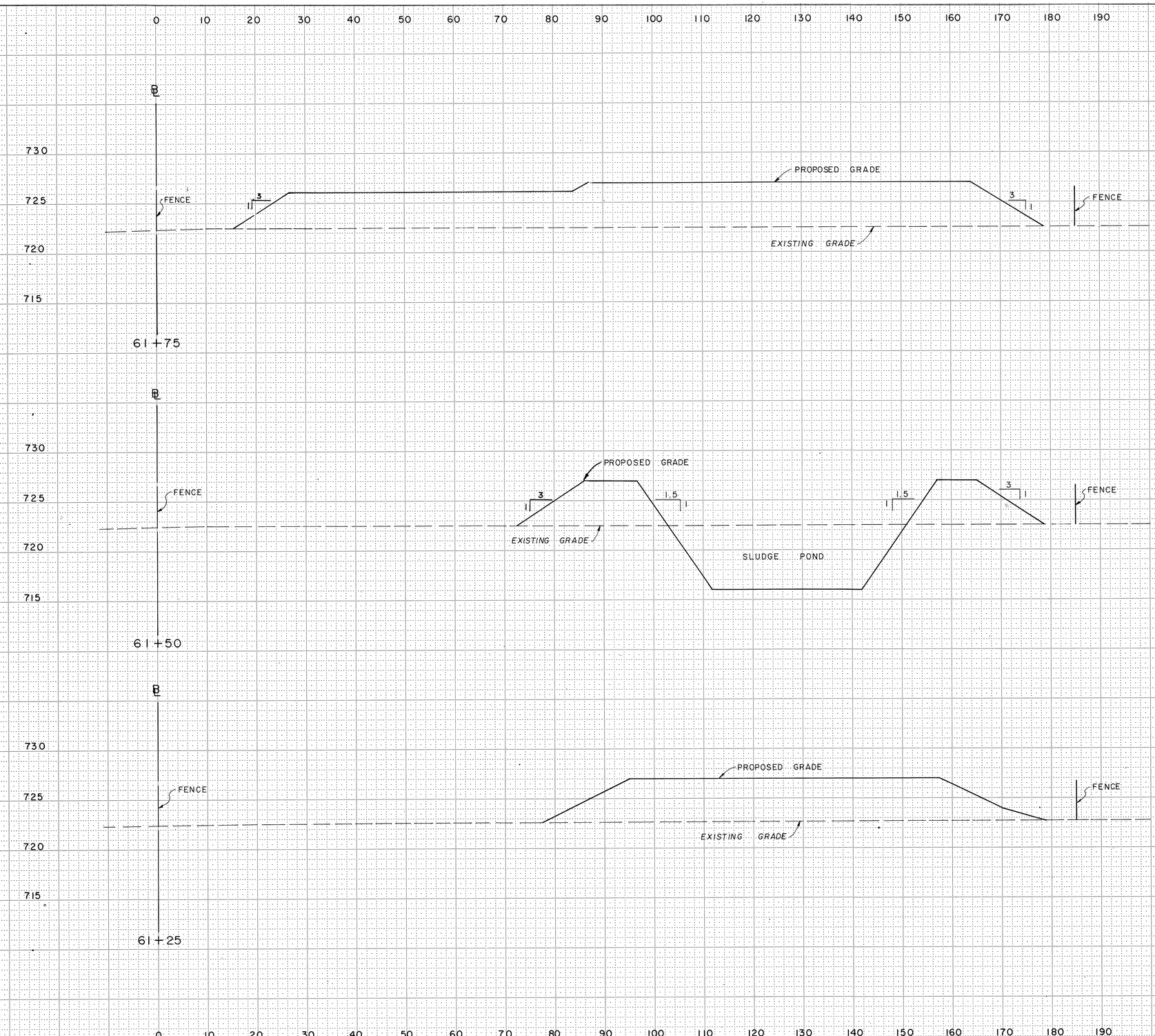
GROVER HILL
SEWAGE WORKS IMPROVEMENTS

Design Enterprise Ltd.

Scale
1"= 10' HORIZ.
1"= 5' VERT.

Sheet
6 of 23

BRUNING 44-131 55293



NOTE: 1. CROSS-SECTIONS SHOW FINISHED GRADE ELEVATIONS. THE INTERIORS OF CELLS 1 & 2 AND SLUDGE POND SHALL BE EXCAVATED TO PROVIDE FOR THE 8" RECOMPACTED CLAY AND SYNTHETIC LINERS. SEE SPEC. SECTION 02776 AND SHEET 8A FOR DETAILS.

Revisions

Designed by: DLB
Drawn by: DLB
Date: 4/87
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Date: 4/87
Approved by: SCM
Date: 4/87

PAULDING COUNTY, OHIO

CROSS SECTIONS

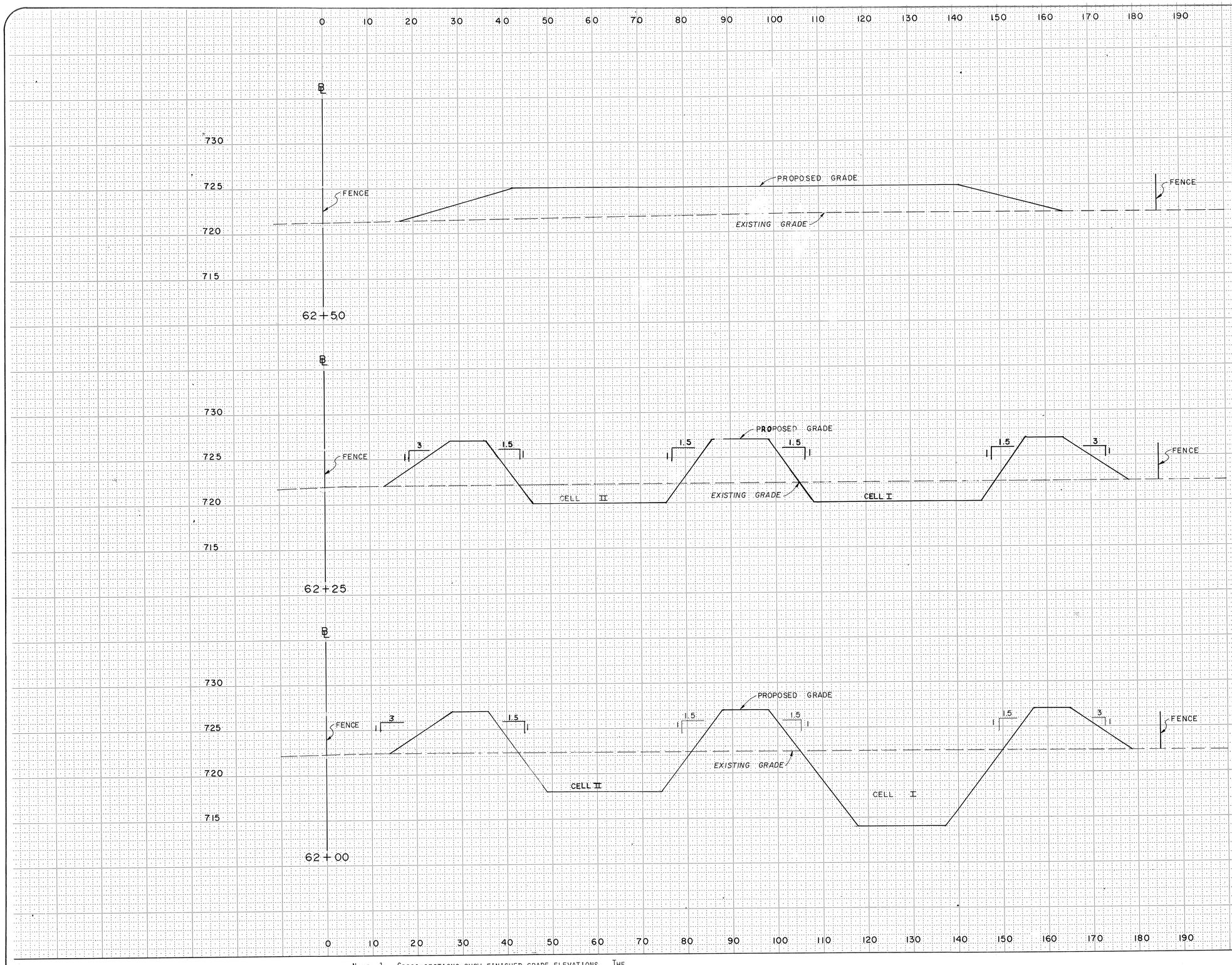
GROVER HILL
SEWAGE WORKS IMPROVEMENTS

Design Enterprise Ltd.

Scale
1"= 10' HORIZ.
1"= 5' VERT.

Sheet
7 of 23

BRUNING 44-131



NOTE: 1. CROSS-SECTIONS SHOW FINISHED GRADE ELEVATIONS. THE INTERIORS OF CELLS 1 & 2 AND SLUDGE POND SHALL BE EXCAVATED TO PROVIDE FOR THE 8" RECOMPACTED CLAY AND SYNTHETIC LINERS. SEE SPEC. SECTION 02775 AND SHEET 8A FOR DETAILS.

Revisions

Designed by: DLB Date: 4/87
Drawn by: DLB Date: 4/87
Checked by: SCM Date: 4/87
Approved by: SCM Date: 4/87

PAULDING COUNTY, OHIO

CROSS SECTIONS

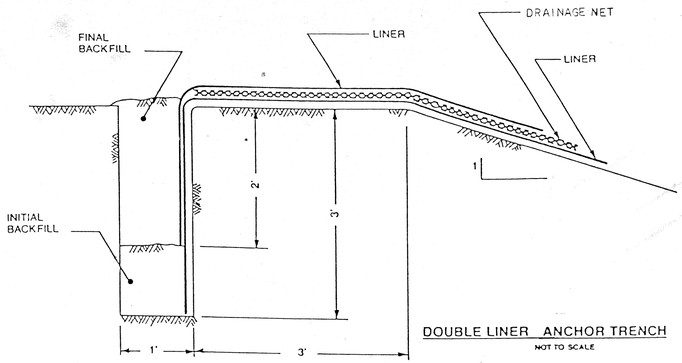
GROVER HILL
SEWAGE WORKS IMPROVEMENTS

Design Enterprise Ltd.

Scale
1"= 10' HORIZ.
1"= 5' VERT.

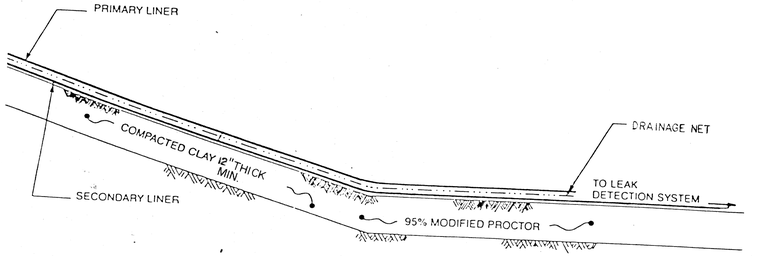
Sheet
8 of 23

BRUNING 44-131

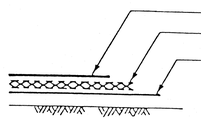


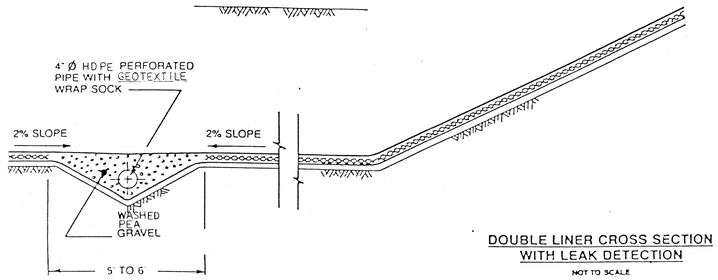
DOUBLE LINER ANCHOR TRENCH

NOT TO SCALE



NOTE: RECOMPACTED SUBBASE SHALL BE INSTALLED TO A PERMABILITY OF 10-7 CM/SEC.





DOUBLE LINER CROSS SECTION WITH LEAK DETECTION

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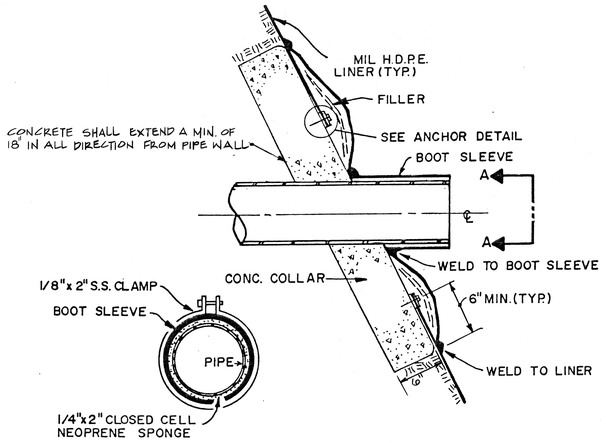
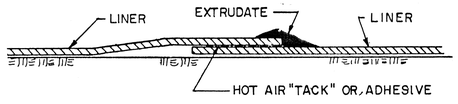


PIPE SECTION A-A

PIPE PENETRATION DETAIL



FUSION EXTRUSION WELD DETAIL

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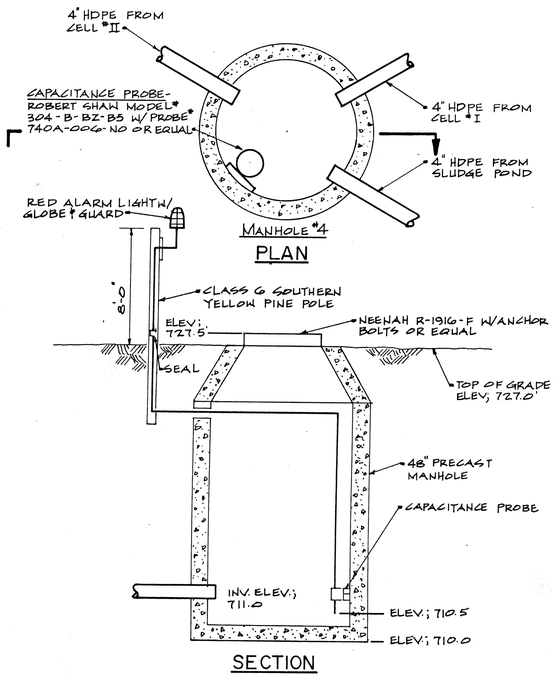
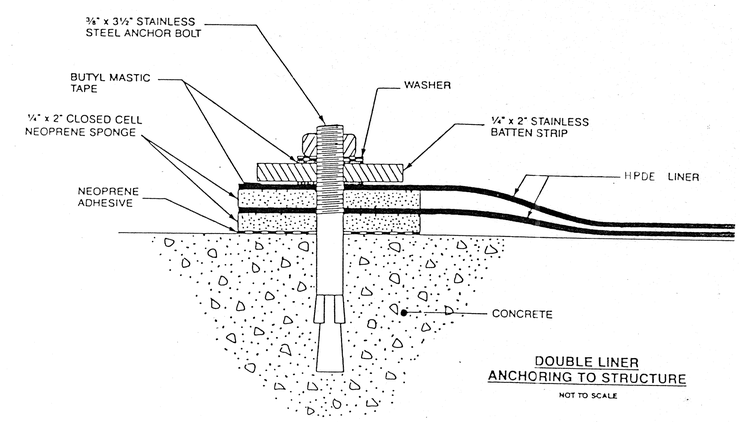


SECTION

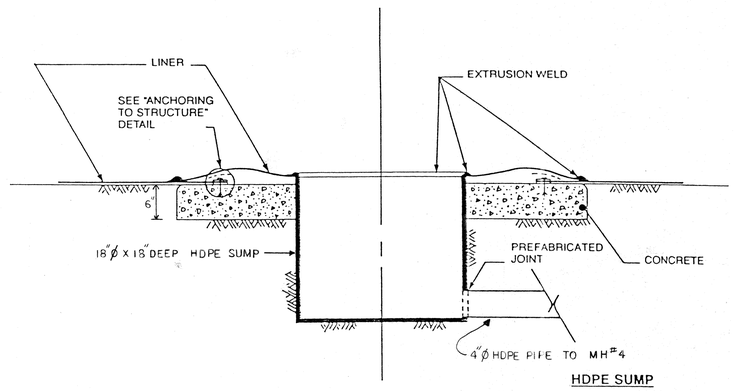
Leak Detection Manhole

NO SCALE



DOUBLE LINER ANCHORING TO STRUCTURE

NOT TO SCALE



HDPE SUMP

NOT TO SCALE

NOTE:
1) BOTH WASTE WATER CELLS AND SLUDGE POND SHALL HAVE DOUBLE LINER WITH LEAK DETECTION SYSTEM.
2) HDPE SUMP SHALL BE COMPLETELY LINED WITH GEOTEXTILE MATERIAL AND THE MATERIAL SHALL EXTEND A MINIMUM OF (2) TWO FEET HORIZONTALLY FROM THE SUMP.
3) HDPE SUMP SHALL BE FILLED WITH WASHED PEA GRAVEL.
4) PERFORATED HDPE PIPE SHALL TERMINATE OVER SUMP WITH TEE OR 90 DEGREE EL AS REQUIRED.
5) LEAK DETECTION PROBE SHALL BE MOUNTED 5" ABOVE BOTTOM OF M.H. #4. SENSOR SHALL BE ROBERTSHAW MODEL 304 B-B2-B5 WITH PROBE 740A-006-NO OR EQUAL.
6) N.O. CONTACT OF LEAK DETECTION PROBE SHALL BE WIRED TO RED 120V ALARM LIGHT WITH GLOBE AND GUARD MOUNTED ON EIGHT (8) FOOT HIGH X 8" POLE WHICH SHALL BE ADJACENT TO M.H #4.
7) M. H. #4 T.C.C. 727.5
INVERT 'O' 711.0
INVERT 'R' 711.0
INVERT 'S' 711.0
B.O.C. 710.0
8) CONTRACTOR SHALL TEST LEAK DETECTION LIGHT BY FILLING MANHOLE #4 W/ 1" OF WATER. IF LIGHT IS ACTIVATED, LEAK DETECTION SYSTEM IS APPROVED. CONTRACTOR SHALL THEN REMOVE ALL WATER FROM MANHOLE #4.

PUMP SCHEDULE

QUANTITY	DESCRIPTION	TYPE	FLOW (GPM)	TDH (FT)	MIN. HP
1	PLANT LIFT STATION	SUBMERSIBLE	100	25	2
2	MAIN LIFT STATION	SUBMERSIBLE	150	67	7-1/2
1	PORTABLE	SUCTION LIFT	150	67	7-1/2
1	NON-POTABLE	CENTRIFUGAL	35	120	3
1	WELL	SUBMERSIBLE	12	220	3/4
1	METERING	POSITIVE DISPLACEMENT	20	230	1/4
1	WASTE SLUDGE	SUBMERSIBLE	50	20	1/2

VALVE SCHEDULE

QUANTITY	TYPE	SIZE
1	PLUG	8"
3	PLUG	6"
7	PLUG	4"
10	BUTTERFLY	4"
3	SWING CHECK - AIR	4"
3	RUBBER FLAPPER-SEWAGE	4"

NOTE: VALVES SMALLER THAN 4" ARE NOT DESCRIBED IN VALVE SCHEDULE.

Revisions

Designed by: Date: Checked by: Date:
Drawn by: Date: Approved by: Date:

PAULDING COUNTY, OHIO

LINER CONSTRUCTION DETAILS

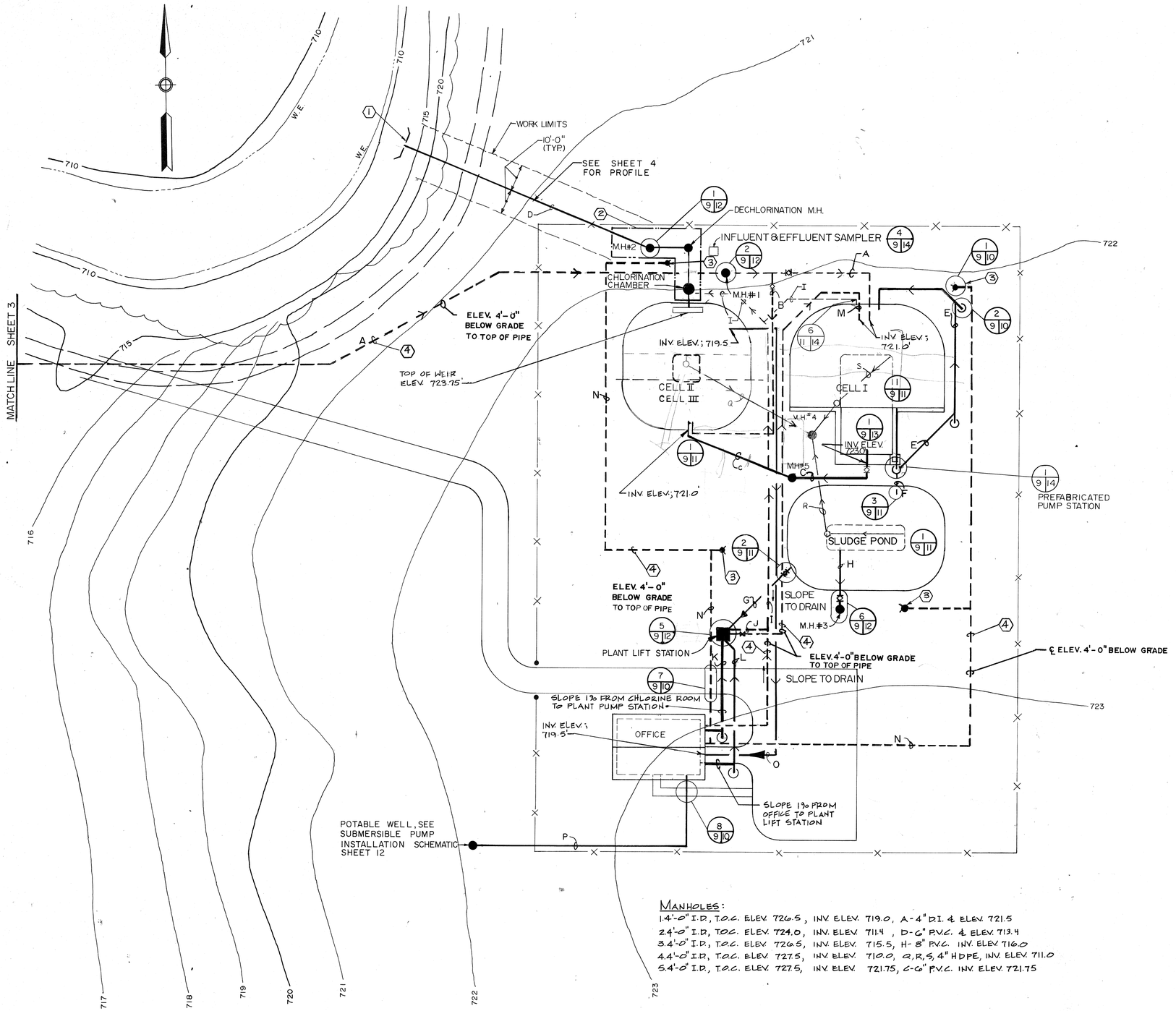
GROVER HILL SEWAGE WORKS IMPROVEMENTS

Design Enterprise Ltd.

Scale
NONE

Sheet
8a of 23

BRUNING 44-232-74371



MANHOLES:

1. 4'-0" I.D., T.O.C. ELEV. 726.5, INV. ELEV. 719.0, A-4" D.I. & ELEV. 721.5
2. 4'-0" I.D., T.O.C. ELEV. 724.0, INV. ELEV. 711.4, D-6" P.V.C. & ELEV. 713.4
3. 4'-0" I.D., T.O.C. ELEV. 726.5, INV. ELEV. 715.5, H-8" P.V.C. INV. ELEV 716.0
4. 4'-0" I.D., T.O.C. ELEV. 727.5, INV. ELEV. 710.0, Q,R,S, 4" HDPE, INV. ELEV. 711.0
5. 4'-0" I.D., T.O.C. ELEV. 727.5, INV. ELEV. 721.75, C-6" P.V.C. INV. ELEV. 721.75

PLAN NOTES:

1. PREFABRICATED METAL END SECTION W/ 8'x8'x9" THICK RIP-RAP. SEE SPEC. SEC. 2060 PAR. 3.06. METAL END SECTION TO BE ARM-CO 10 GUAGE ALUMINIZED STEEL OR EQUAL. PLACE RIP-RAP IN ACCORDANCE W/ODOT SECTION 601.04.
2. SEE DETAIL ON SHEET 21 OF 23
3. YARD HYDRANT
4. ELEV. 4'-0" BELOW GRADE TO TOP OF PIPE

GENERAL NOTE:

1. SOLID LINES INDICATE GRAVITY LINES. DOTTED LINES INDICATE PRESSURE LINES.

A. 4" DI. FORCE MAIN FROM MAIN PUMP STATION
B. 4" D.I. CELL I BYPASS
C. 6" PVC EFFLUENT FROM CELL I
D. 6" PVC PLANT EFFLUENT
E. 4" PVC SLUDGE RETURN
F. 2" PVC WASTE SLUDGE
G. 6" PVC DECANT FROM SLUDGE POND
H. 8" PVC SLUDGE DRAW-OFF
I. 1" PVC CHLORINE SOLUTION
J. 1" PVC CHLORINE SOLUTION DRAIN W/CORP. STOP
K. 4" PVC CHLORINE ROOM DRAIN
L. 4" PVC LAB BLDG. DRAIN
M. 4" DI PLANT LIFT STATION FORCE MAIN
N. 2" PVC PLANT WATER SYSTEM
O. 2½" PVC SERVICE WATER SUCTION
P. 1" PVC POTABLE WATER
Q. 4" HDPE DRAINAGE
R. 4" HDPE DRAINAGE
S. 4" HDPE DRAINAGE

MAPPING WAS PREPARED BY LOBO AERIAL SURVEY, INC. USING PHOTOGRAMMETRIC METHODS. REFER TO SPECIFICATIONS SIB-1 ITEM 3 AND SGC-5 PARAGRAPH 4A FOR SITE EXAMINATION REQUIREMENTS.

Revisions

Designed by: Date: Checked by: Date:
Drawn by: Thomsen Date: 4-87 Approved by: Date:

PAULDING COUNTY, OHIO

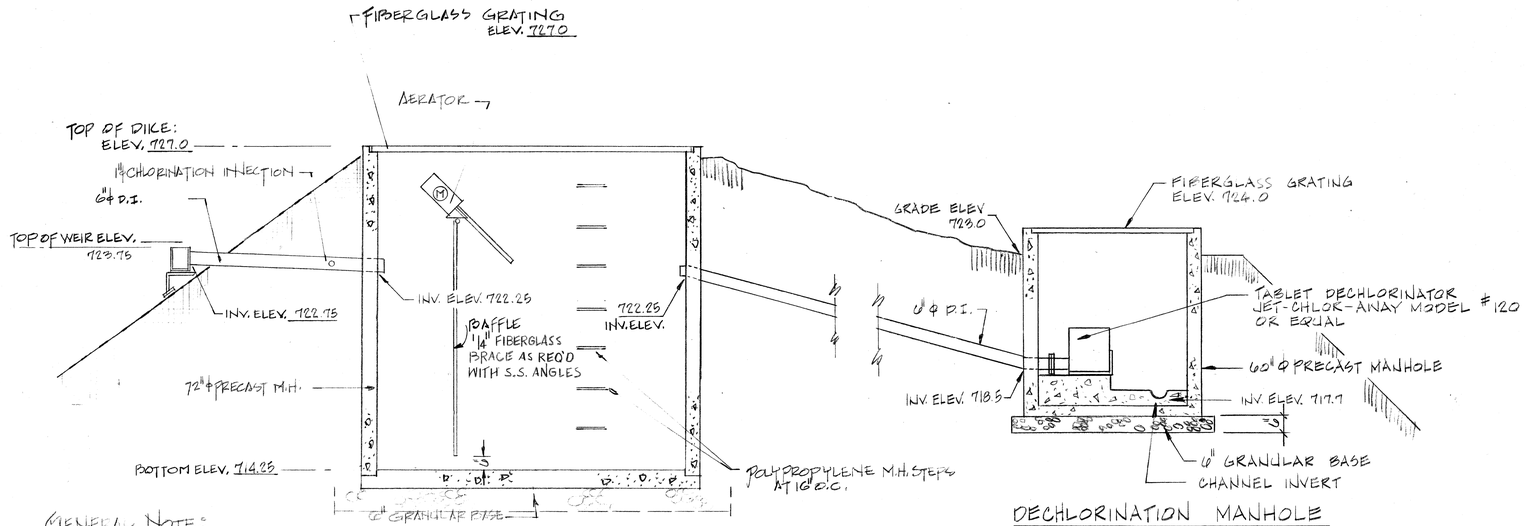
PROCESS PIPING PLAN

GROVER HILL
SEWAGE WORKS IMPROVEMENTS

Design Enterprise Ltd.

Scale 1"=20'-0"

Sheet 9 of 23



GENERAL NOTES

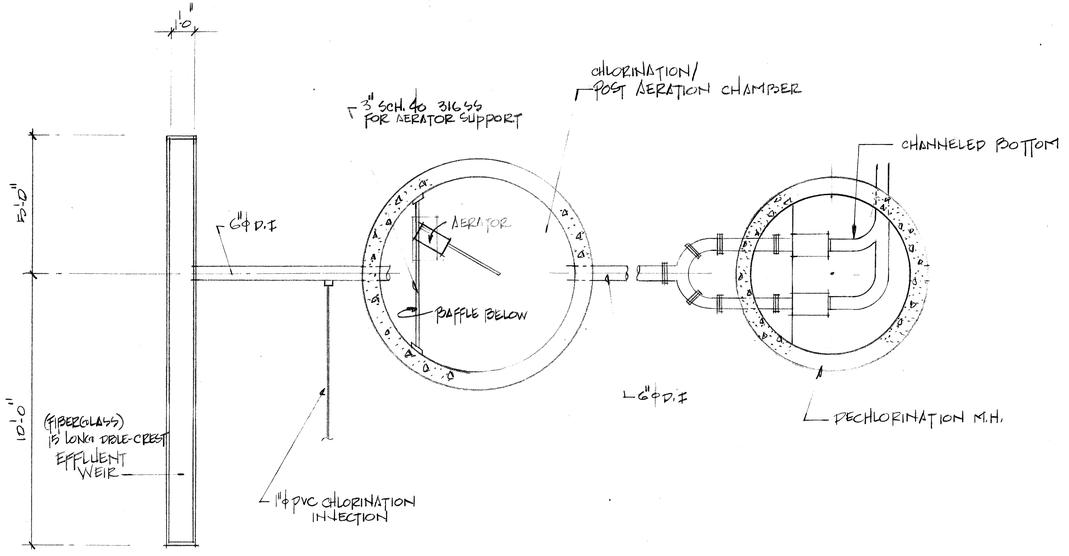
O-RING GASKETS TO BE AT ALL JOINTS.

CHLORINATION CHAMBER SECTION VIEW

NO SCALE

DECHLORINATION MANHOLE

NO SCALE



EFFLUENT PIPING PLAN

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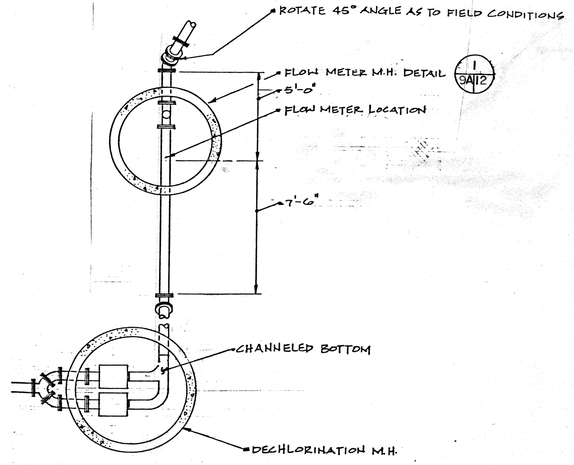


Revisions

Designed by: Date: Checked by: Date:

Drawn by: Date: Approved by: Date:

PAULDING COUNTY, OHIO

EFFLUENT PIPING PLAN & DETAILS

GROVER HILL

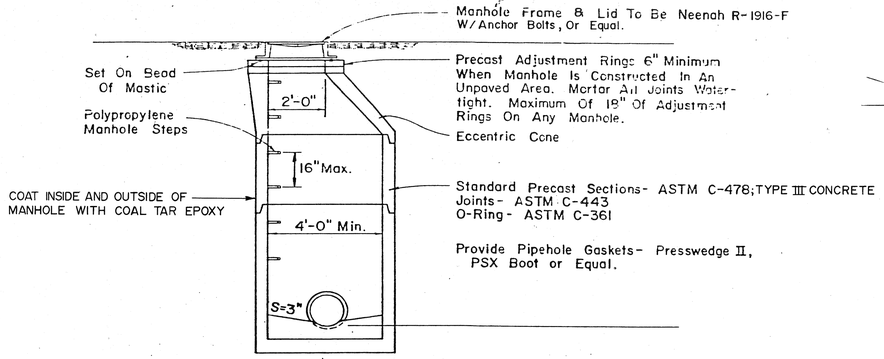
SEWAGE WORKS IMPROVEMENTS

Design Enterprise Ltd.

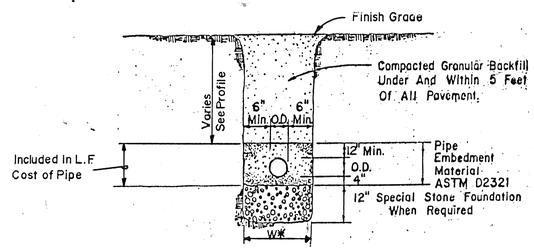
Scale
none

Sheet
9a of 23

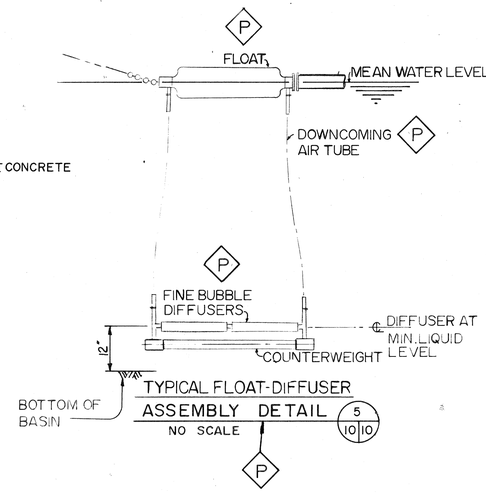
BRUNING 44-232 74371



STANDARD MANHOLE
NTS (6 | 12 | 10)



NORMAL BEDDING DETAIL (7 | 9 | 10)
*Allowable Trench Width — See Specs. NTS



TYPICAL FLOAT-DIFFUSER ASSEMBLY DETAIL (5 | 10 | 10)
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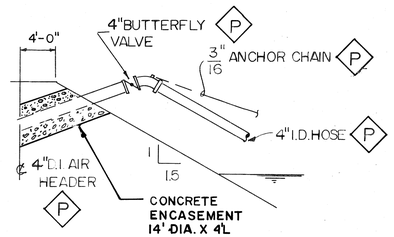

DETAIL (4 | 10 | 10)
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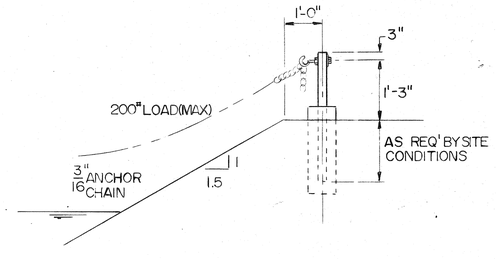
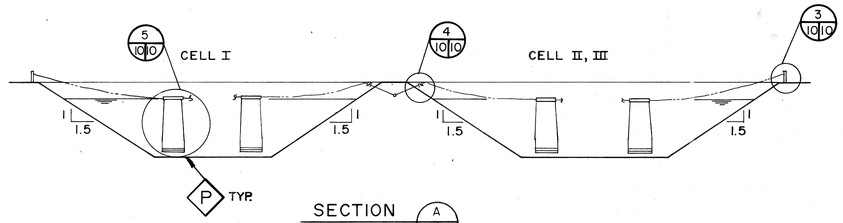
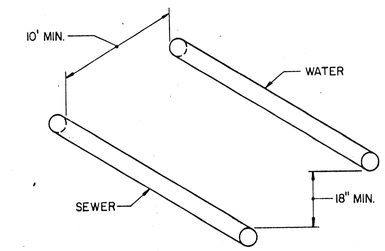


DETAIL (3 | 10 | 10)
NO SCALE

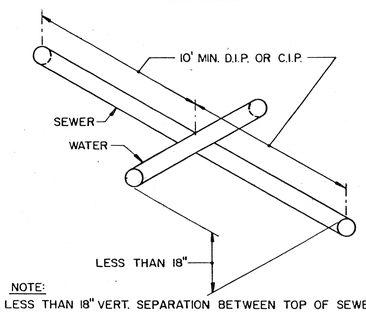
NOTE: SEAL ALL PENETRATIONS THROUGH LINER AS REQ'D BY SPEC. SECTION 02776



SECTION (A | 11 | 10)
NO SCALE



PARALLEL



NOTE:
IF LESS THAN 18" VERT. SEPARATION BETWEEN TOP OF SEWER LINE AND BOTTOM OF WATER LINE, THE SEWER PIPE SHALL BE DUCTILE IRON OR CAST IRON PIPE FOR A MIN. OF 10' IN EACH DIRECTION, W/ JOINTS AS FAR FROM WATER LINE AS POSSIBLE. THE SEWER PIPE MAY ALSO BE SDR 21 PVC WITH 150 PSI JOINTS.

CROSSING

WATER & SEWER INTERSECTION DETAIL (8 | 9 | 10)
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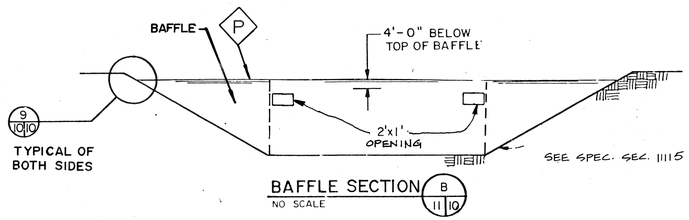

BAFFLE SECTION (B | 11 | 10)
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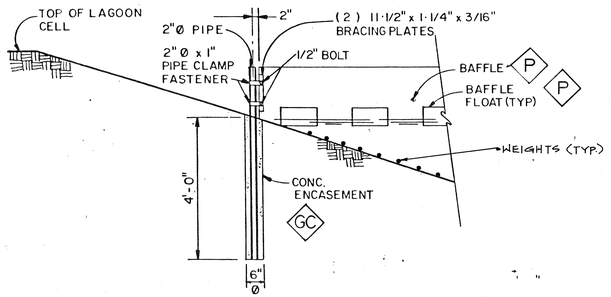
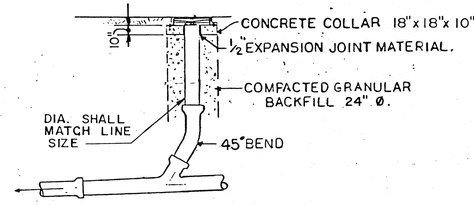
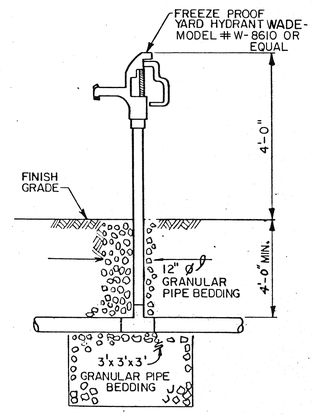


BAFFLE ANCHOR DETAIL (9 | 10 | 10)
NO SCALE

CLEANOUT COVER TO BE NEENAH R 1916-A (12"Ø) OR EQUAL W/ 4 C.I.P. ANCHOR BOLTS



DETAIL GRAVITY SEWER CLEANOUT DETAIL (2 | 9 | 10)
NTS



YARD HYDRANT DETAIL (1 | 9 | 10)
NO SCALE

Revisions

Designed by: Date:
Drawn by: Thomsen
Checked by: Date:
Approved by: Date: 4-87

PAULDING COUNTY, OHIO

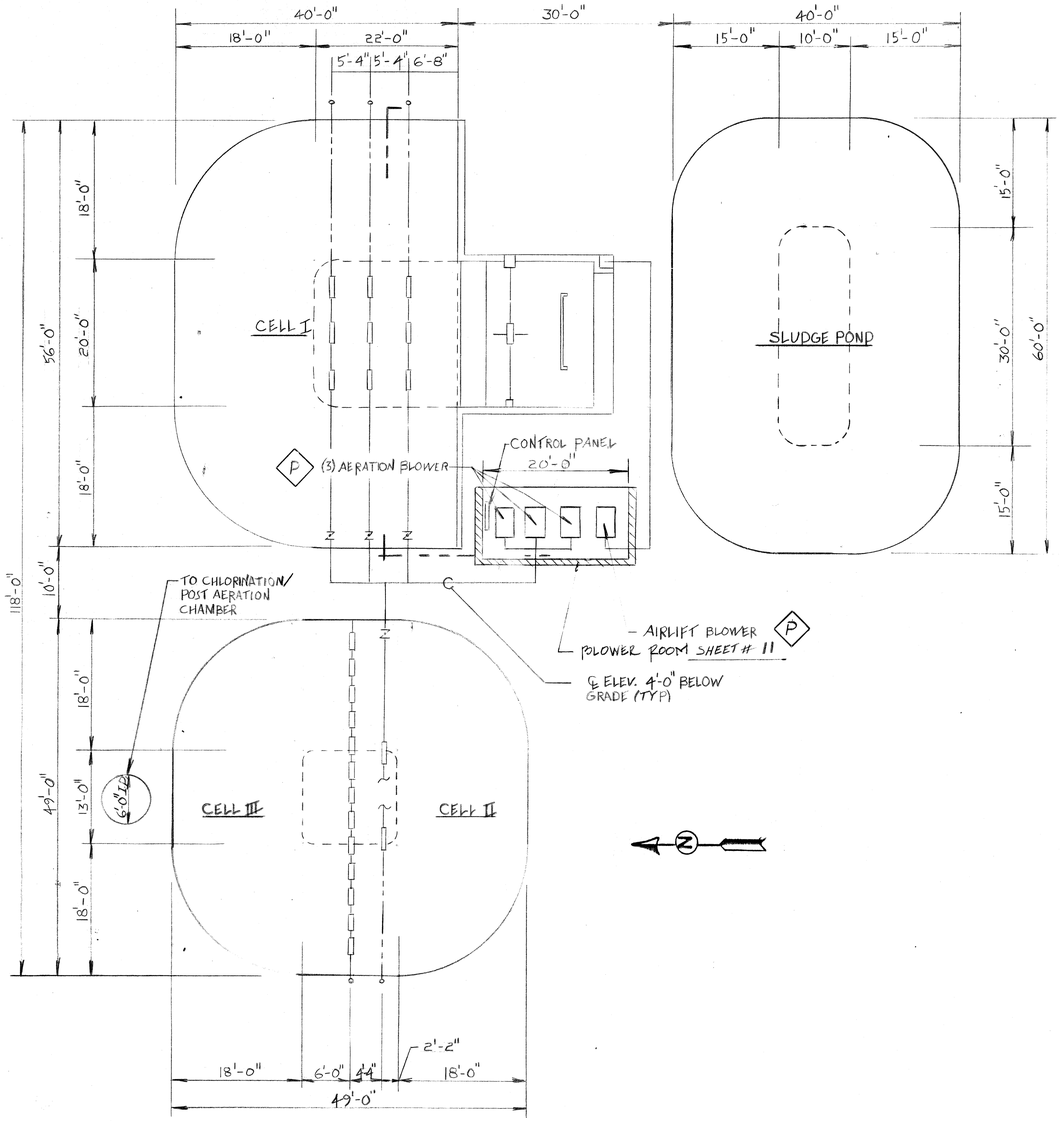
PROCESS PIPING DETAILS

GROVER HILL
SEWAGE WORKS IMPROVEMENTS

Design Enterprise Ltd.

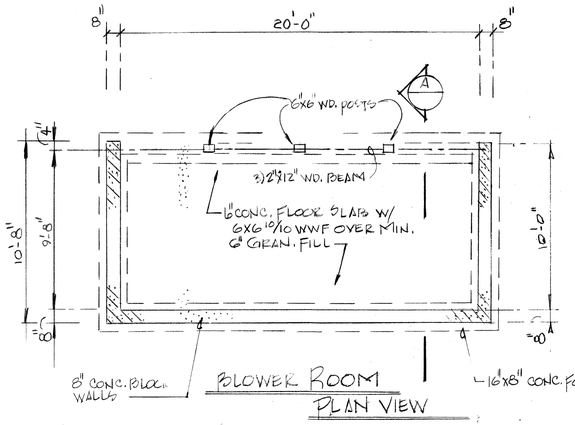
Scale
AS NOTED

Sheet
10 of 23

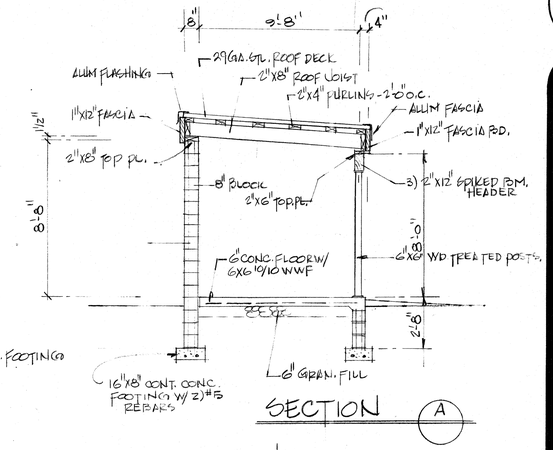


ENLARGED LAGOON CELLS & SLUDGE POND LAYOUT (1/9 II)

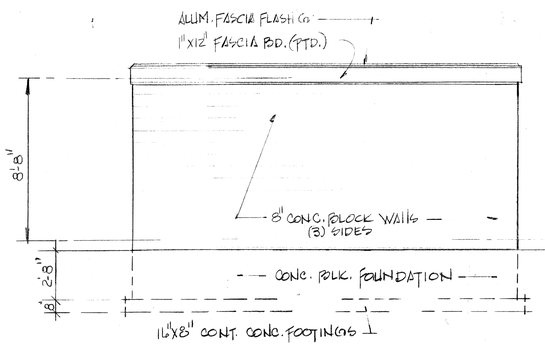
NO SCALE



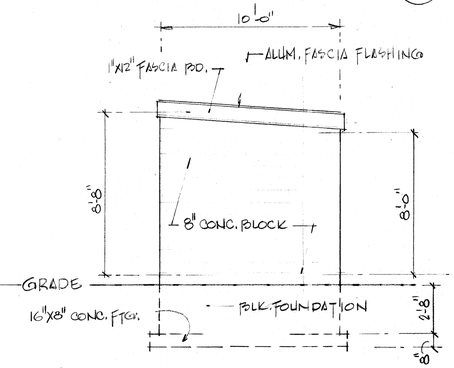
BLOWER ROOM PLAN VIEW



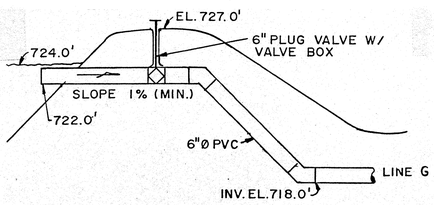
SECTION A



REAR WALL ELEVATION

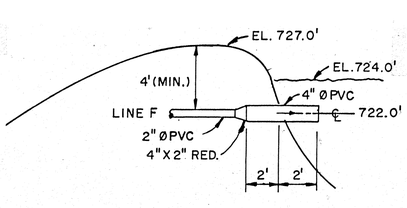


ENDWALL ELEVATION



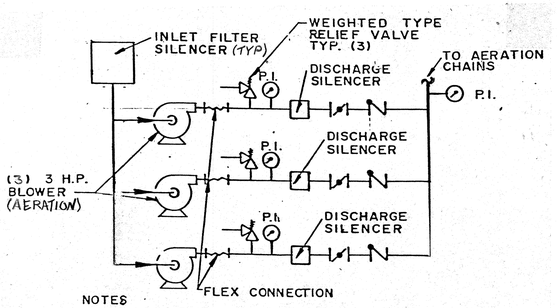
DECANT FROM SLUDGE POND (2/9 II)

NO SCALE



SLUDGE POND INFLUENT (3/9 II)

NTS



NOTES

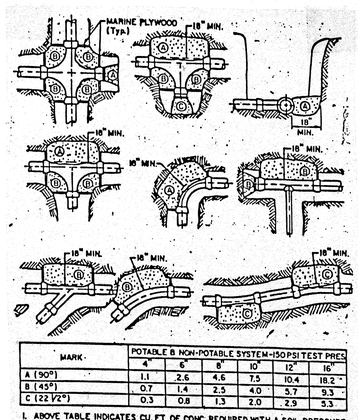
1) ALL AIR PIPING TO BE 4" Ø D.I.

2) ALL PIPING SHALL BE SECURELY SUPPORTED AS REQUIRED BY SEE SPEC. SEC. 15060

AERATION BLOWER SCHEMATIC - ALL ITEMS - (P)

NO SCALE

AIR LIFT BLOWER SCHEMATIC IS IDENTICAL EXCEPT THERE IS ONLY ONE BLOWER (P)



MARK	POTABLE & NON-POTABLE SYSTEM-150PSI TEST PRES.					
	4"	6"	8"	10"	12"	16"
A (90°)	1.1	2.6	4.6	7.5	10.4	18.2
B (45°)	0.7	1.4	2.5	4.0	5.7	9.3
C (22 1/2°)	0.3	0.8	1.3	2.0	2.9	5.3

1. ABOVE TABLE INDICATES CU. FT. OF CONC. REQUIRED WITH A SOIL PRESSURE OF 2000 P.S.F. MIN.
2. PLACE PAPER OR PLASTIC BETWEEN FITTING & CONCRETE.

THRUST BLOCKS

NTS

Revisions

Designed by: Date: Checked by: Date:

Drawn by: Date: Approved by: Date:

PAULDING COUNTY, OHIO

LAGOON CELLS, SLUDGE POND & DETAILS

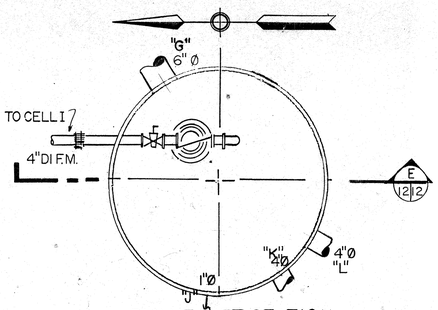
GROVER HILL SEWAGE WORKS IMPROVEMENTS

Design Enterprise Ltd.

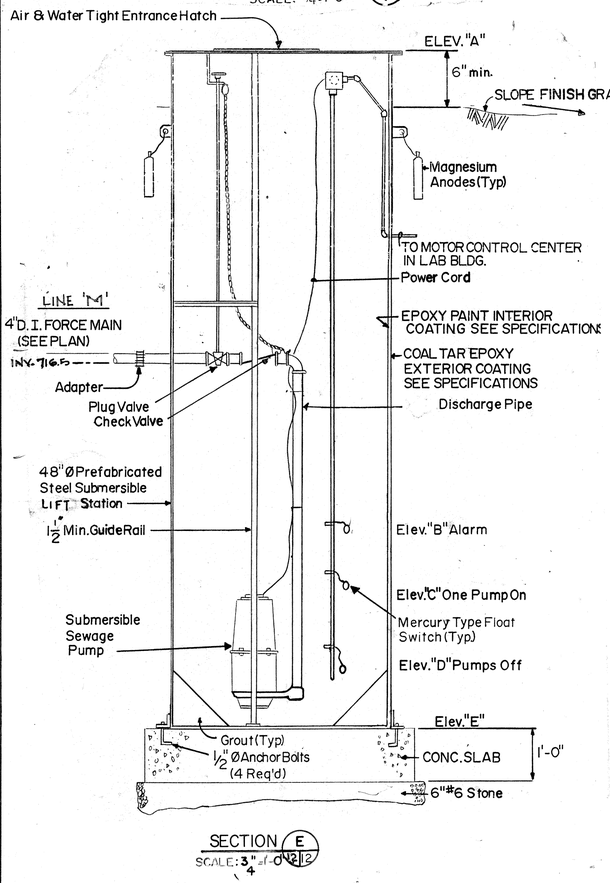
Scale: AS NOTED

Sheet: II of 23

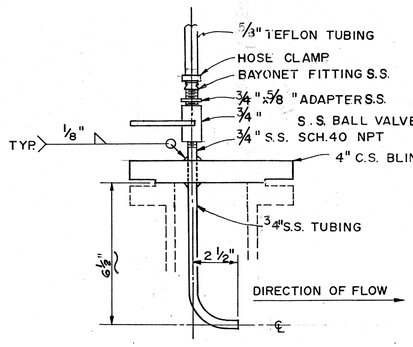
BRUNING 44-232 74371



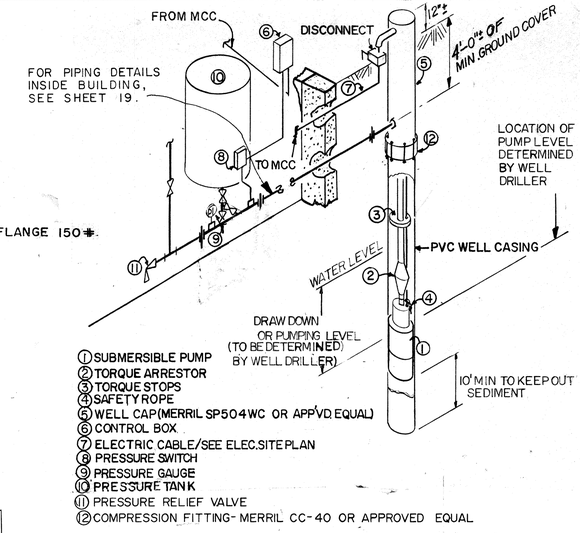
PLANT LIFT STATION
PLAN (5 | 9|12)
SCALE: 3/4"=1'-0"



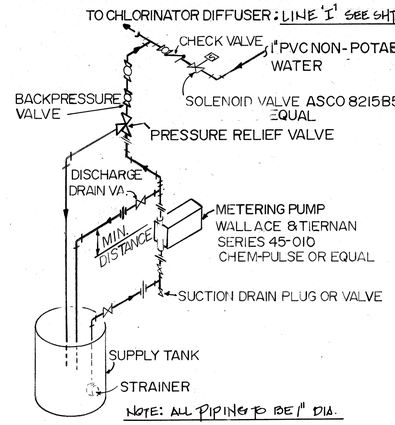
SECTION (E | 12|12)
SCALE: 3/4"=1'-0"



SAMPLE QUILL DETAIL (3 | 12|12)
SCALE: 3"=1'-0"



1. SUBMERSIBLE PUMP
2. TORQUE ARRESTOR
3. TORQUE STOPS
4. SAFETY ROPE
5. WELL CAP (MERRIL SP504WC OR APP'VD EQUAL)
6. CONTROL BOX
7. ELECTRIC CABLE/SEE ELEC. SITE PLAN
8. PRESSURE SWITCH
9. PRESSURE GAUGE
10. PRESSURE TANK
11. PRESSURE RELIEF VALVE
12. COMPRESSION FITTING- MERRIL CC-40 OR APPROVED EQUAL



HYPOCHLORINATOR SCHEMATIC (7 | 9|12)
NO SCALE

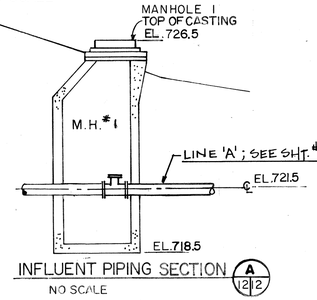
PLANT LIFT SECTION		
ELEVATION	DIMENSION	REMARKS/NOTES
A	724.0	——
B	718.5	——
C	717.5	——
D	715.5	——
E	714.5	——
LINE "G"	718.0	DECANT FROM SLUDGE POND
LINE "L"	718.0	FROM LAB BLDG
LINE "K"	718.33	FROM CHLORINE ROOM
LINE "J"	718.0	CHLORINE DRAIN

NOTES
A) PUMP CONTROL BOX - RED JACKET MODEL 100CB SHALL BE LOCATED INSIDE OFFICE BUILDING
B) PRESSURE SWITCH SHALL BE SQUARE D MODEL FSG-2 30PSI TO 50PSI

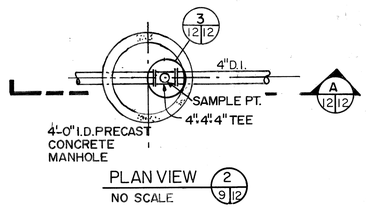
SUBMERSIBLE PUMP INSTALLATION SCHEMATIC
NO SCALE

NOTES

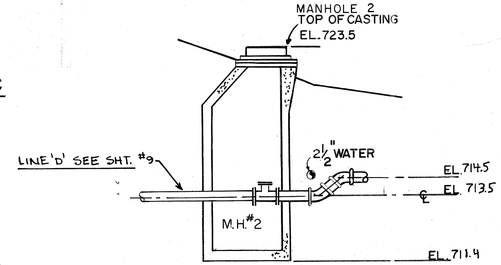
1. PROVIDE RUBBER GASKETS ON PIPE WHERE THEY GO THROUGH MANHOLE WALL, SHALL BE PRESSWEDGE II OR EQUAL.
2. ALL ELECTRICAL WORK TO BE DONE IN ACCORDANCE WITH STATE, LOCAL & NATIONAL ELECTRIC CODES.
3. ALL LIFT STATION PUMPS TO BE OF THE SUBMERSIBLE TYPE WITH A 4"Ø DISCHARGE, CAPABLE OF PASSING 3" SOLIDS
4. INLET SEWERS, FORCE MAIN DISCHARGES, AND ELECTRICAL CONDUITS TO BE ORIENTED AS REQUIRED PER PLAN SHEET LOCATION.
5. ALL POWER AND CONTROL CABLES TO BE CONTINUOUS (ONE PIECE) FROM CONTROL PANEL TO PUMP MOTOR OR FLOATS.
6. PUMP MANUFACTURER SHALL PROVIDE RUNNING TIME METER FOR PUMP. ELECTRICAL CONTRACTOR SHALL MOUNT AND CONNECT ON MCC (MOTOR CONTROL CENTER).
7. PROVIDE BALLAST AS NEEDED TO PREVENT FLOATATION OF LIFT STATION.
8. BIDDER TO SUBMIT PUMP DATA AT TIME OF BIDS.
9. SEE YARD PIPING PLAN FOR CONTINUATION.
10. PUMP SHALL BE CAPABLE OF 100 GPM @ 25 FT. OF HEAD AND A MIN. 2 HP MOTOR.



INFLUENT PIPING SECTION (A | 12|12)
NO SCALE



PLAN VIEW (2 | 9|12)
NO SCALE



EFFLUENT PIPING SECTION (B | 12|12)
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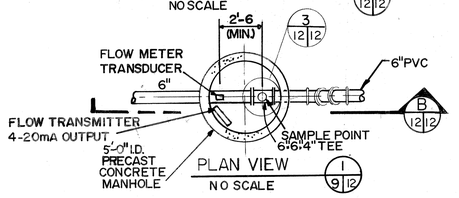
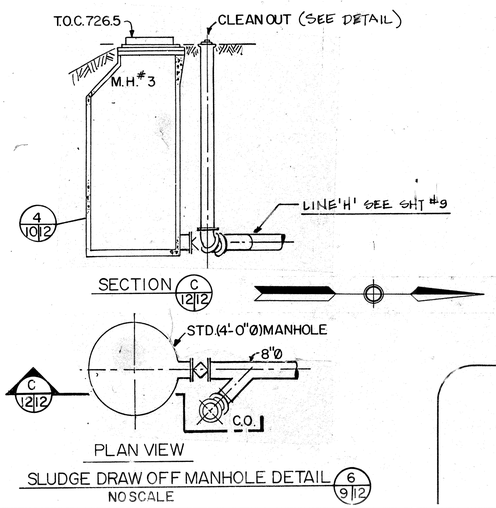


PLAN VIEW (1 | 9|12)
NO SCALE



PLAN VIEW
SLUDGE DRAW OFF MANHOLE DETAIL (6 | 9|12)
NO SCALE

Revisions

Designed by: Date:
Drawn by: Thomsen Date: 4/87
Checked by: Date:
Approved by: Date:

PAULDING COUNTY, OHIO

MISCELLANEOUS DETAILS

GROVER HILL
SEWAGE WORKS IMPROVEMENTS

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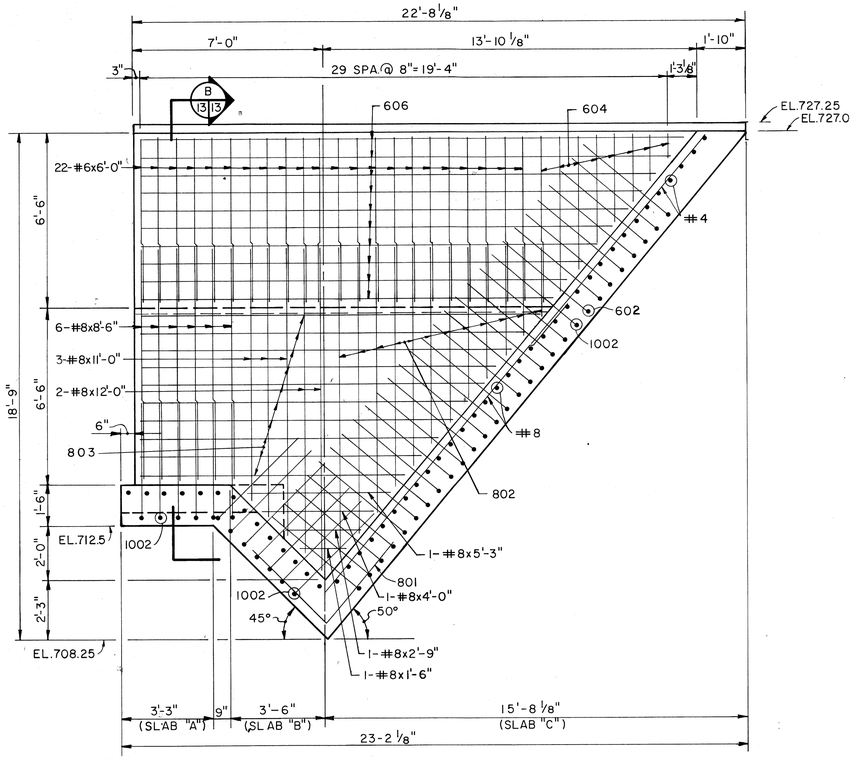
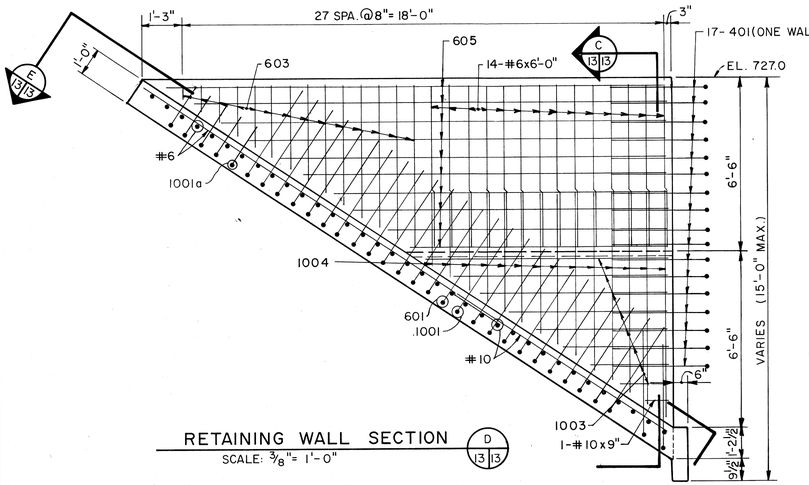
AS NOTED

Sheet
12 of 23



CLARIFIER SECTION
SCALE: 3/8"= 1'-0" (A 13 13)



RETAINING WALL SECTION
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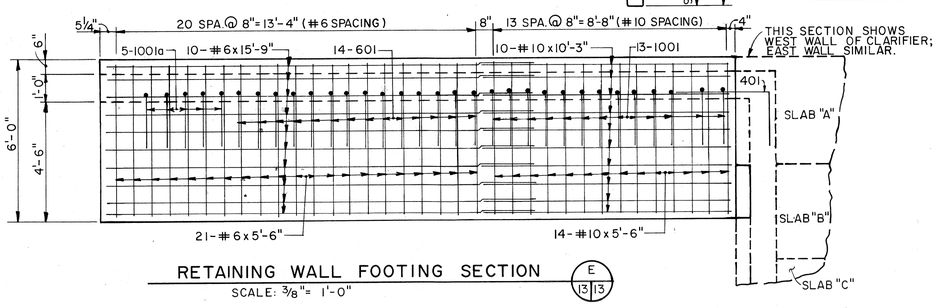

RETAINING WALL FOOTING SECTION
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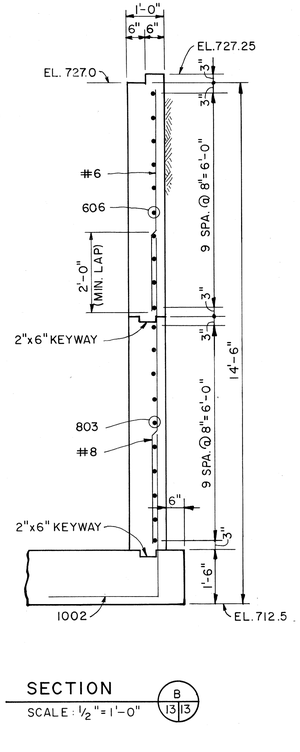

SECTION
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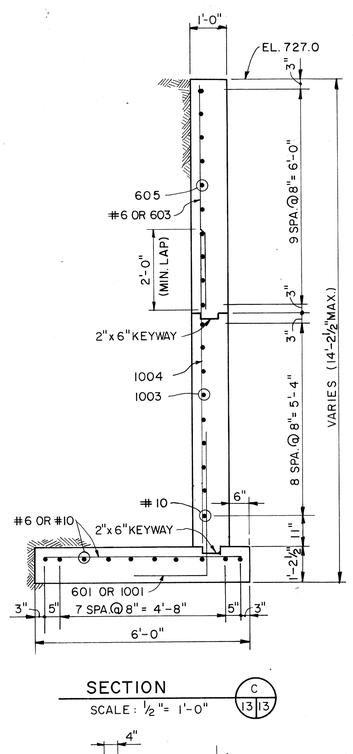

SECTION
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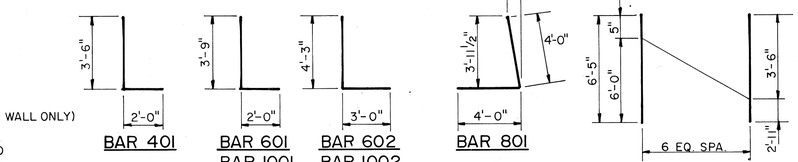
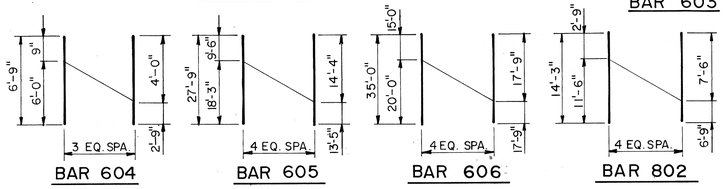
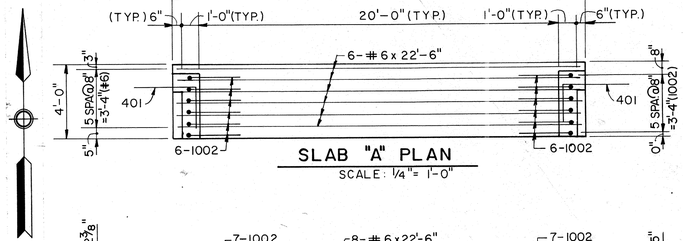
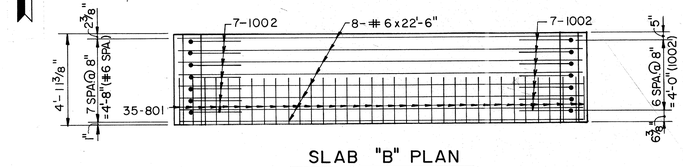






SLAB "A" PLAN
SCALE: 1/4"= 1'-0"



SLAB "B" PLAN
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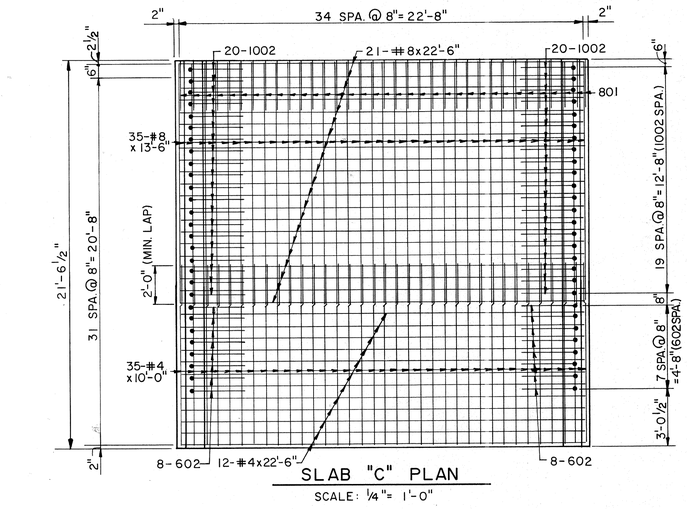

SLAB "C" PLAN
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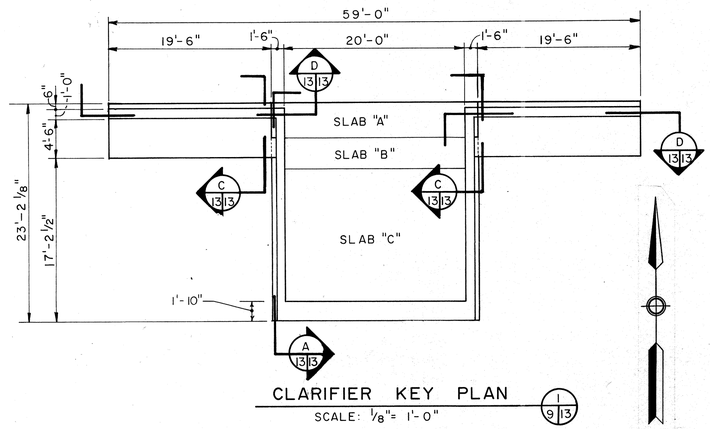

CLARIFIER KEY PLAN
SCALE: 1/8"= 1'-0" (1 9 13)

NOTE: SEE (1 9 14) FOR CLARIFIER EQUIPMENT ARRANGEMENT

Revisions

Designed by: SCM
Drawn by: DLB
Date: 4/87
Checked by: SCM
Date: 4/87
Approved by: SCM
Date: 4/87

PAULDING COUNTY, OHIO

CLARIFIER DETAILS

GROVER HILL
SEWAGE WORKS IMPROVEMENTS

Design Enterprise Ltd

Scale
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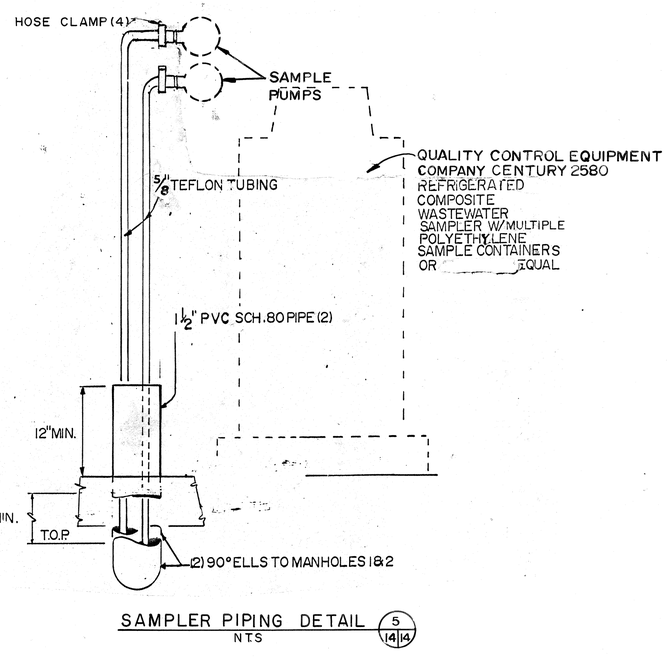
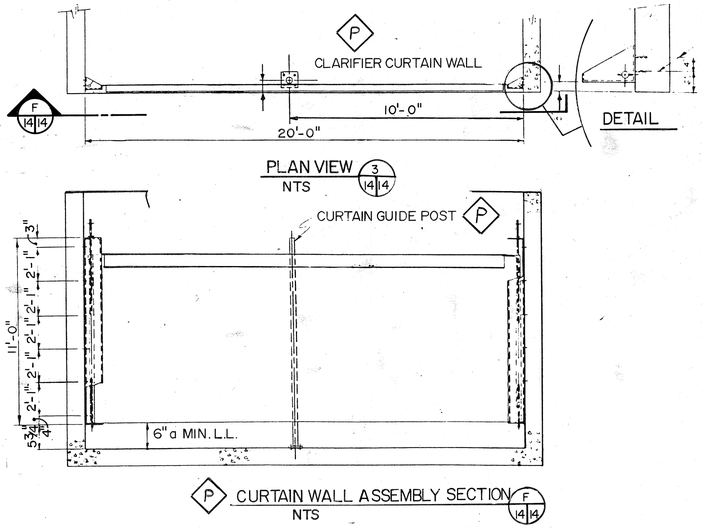
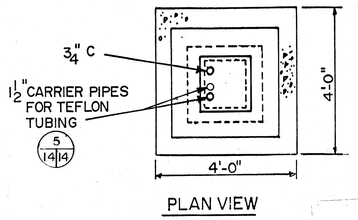
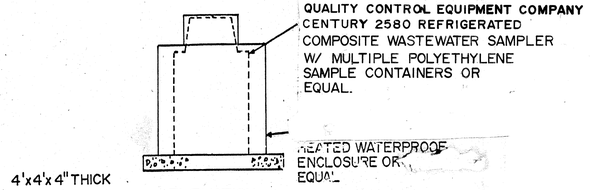
Sheet
13 of 23

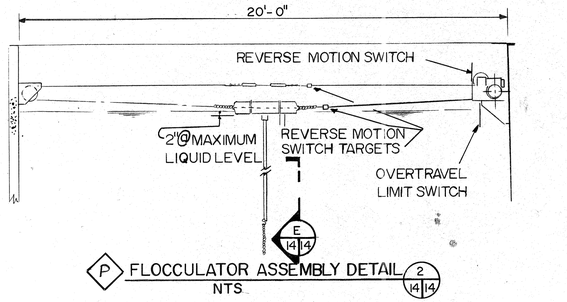


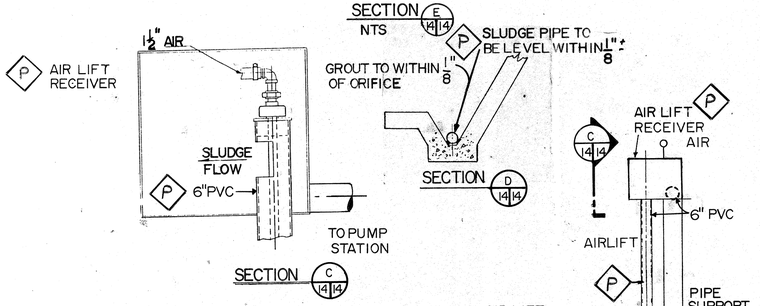
SAMPLER PIPING DETAIL (5 | 14 | 14)
NTS

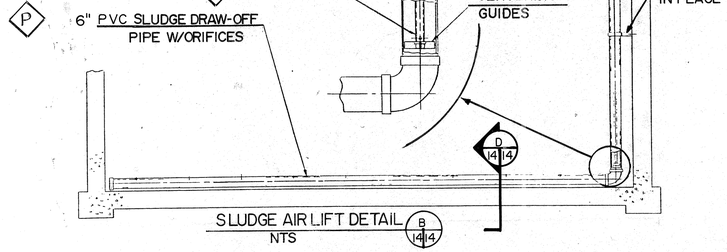


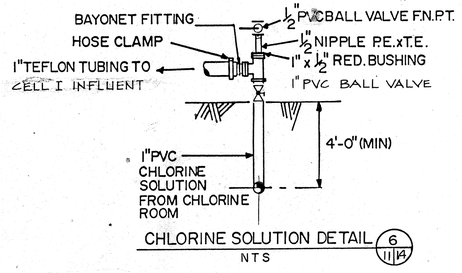


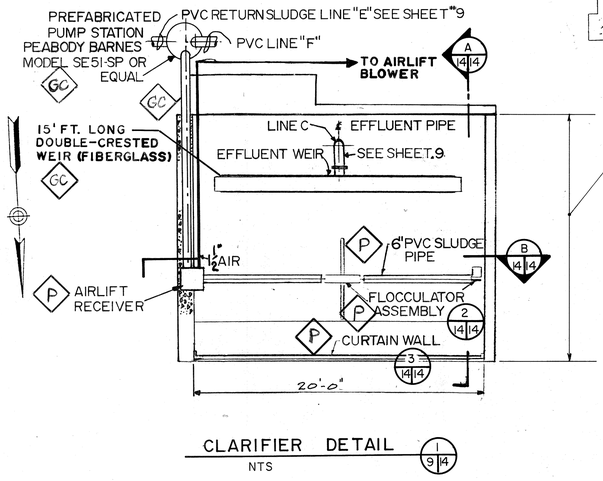


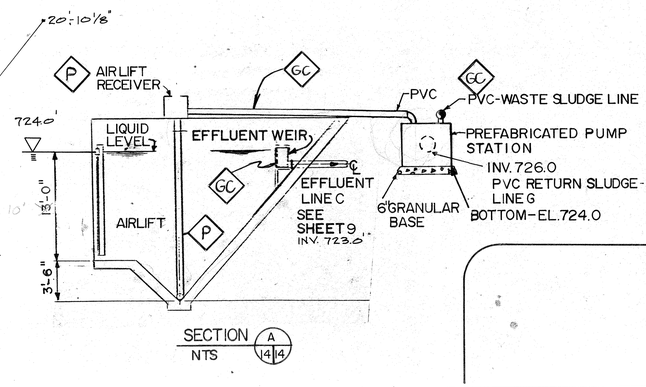












Revisions

Designed by: Date:
Drawn by: *Thomsen* Date: 4-87
Checked by: Date:
Approved by: Date:

PAULDING, COUNTY, OHIO

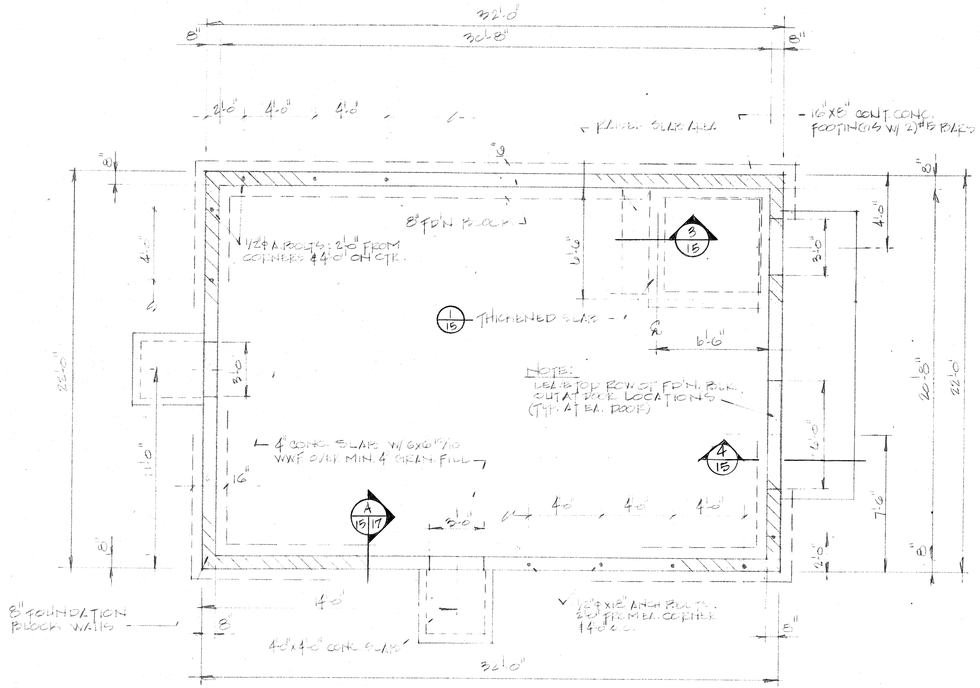
CLARIFIER/AIR LIFT DETAILS

GROVER HILL SEWAGE WORKS IMPROVEMENTS

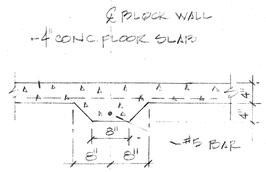
Design Enterprise Ltd.

Scale: AS NOTED

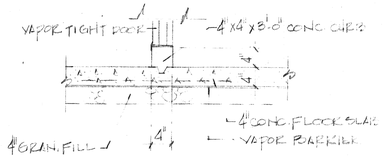
Sheet 14 of 23



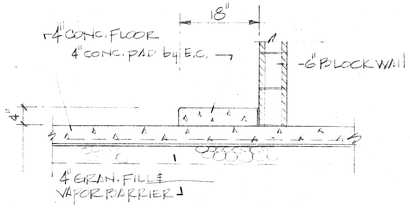
FOUNDATION PLAN
SCALE: 1/4"=1'-0"



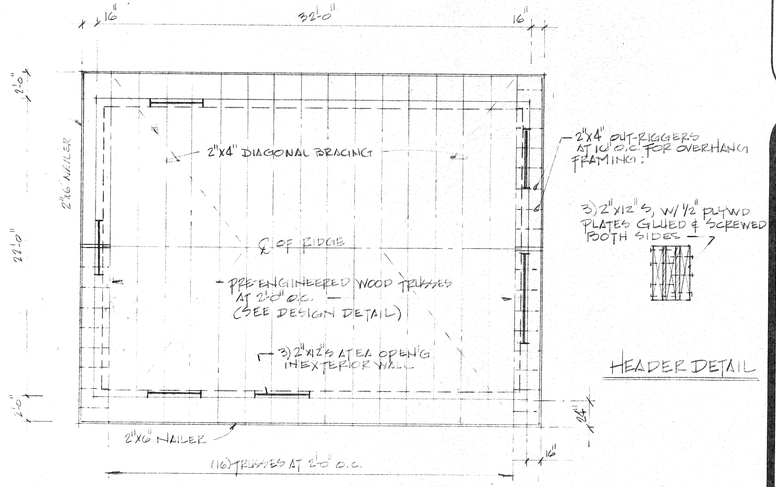
THICKENED SLAB DETAIL 1/15



EQUIPMENT ROOM DOOR DETAIL 2/15

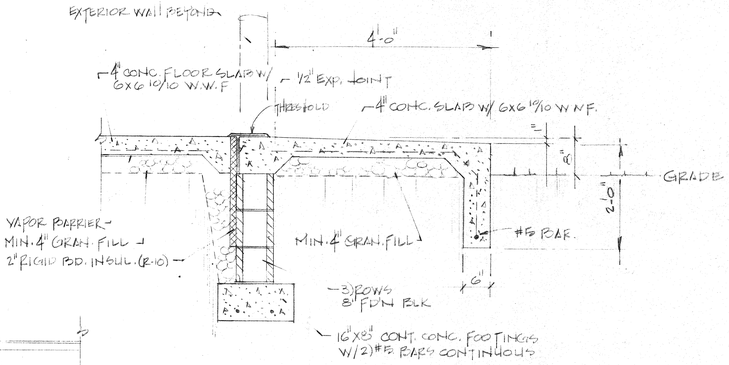


ELECTRICAL PAD DETAIL 3/15

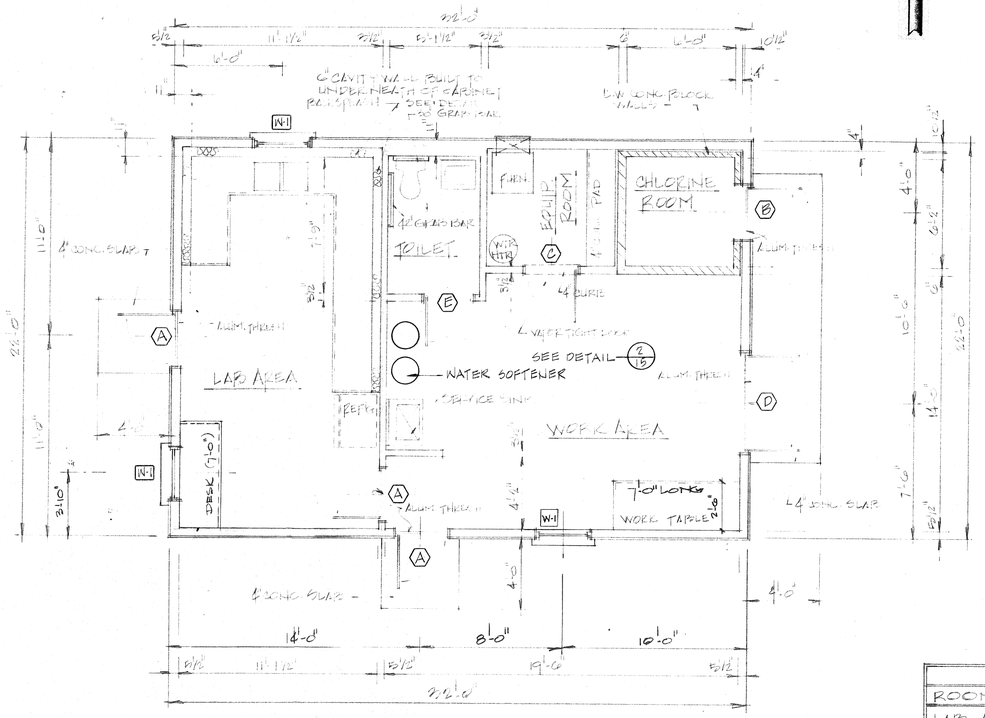


ROOF FRAMING PLAN
SCALE: 3/16"=1'-0"

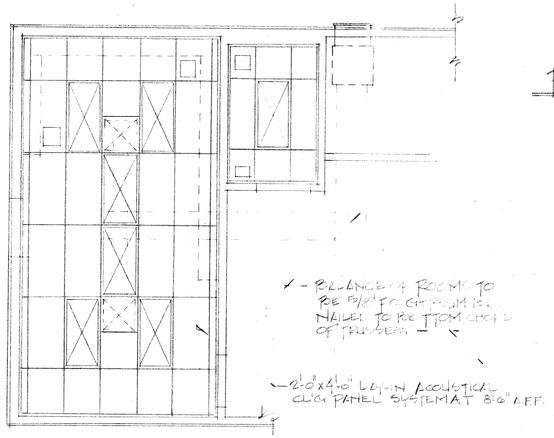
HEADER DETAIL



FOUNDATION DETAIL 4/15



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



REFLECTED CEILING PLAN
SCALE: 1/4"=1'-0"

ROOM FINISH SCHEDULE				
ROOM	FLOOR	CEILING/HIEGHT:	WALLS:	GENERAL COMMENTS:
LAB AREA	COMPOSITION TILE	2'x4' LAY-IN CLG PANELS AT 8'-6" A.F.F.	5/8" GYP. BD. PAINTED	4" VINYL BASE
TOILET	" "	" " "	" "	" " "
WORK AREA	EXPOSED CONC.	5/8" F.C. GYP. BD. (PTD) +10'-0"	" "	" " "
CHLORINE RM.	" "	" " " "	BLOCK (PTD)	
EQUIP. ROOM	" "	" " " "	5/8" GYP. BD. [illegible]	4" [illegible] BASE

Revisions

Designed by: Date: Checked by: Date:
Drawn by: P.R.C. Date: Approved by: Date:

PAULDING COUNTY, OHIO

FLOOR PLAN: FOUNDATION PLAN

GROVER HILL
SEWAGE WORKS IMPROVEMENTS

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Scale
as noted

Sheet
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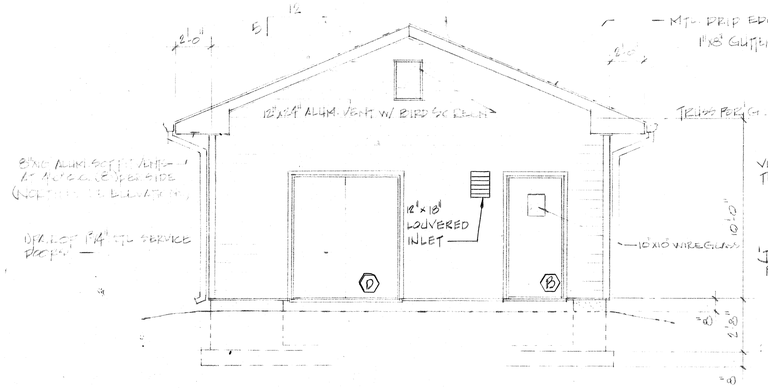
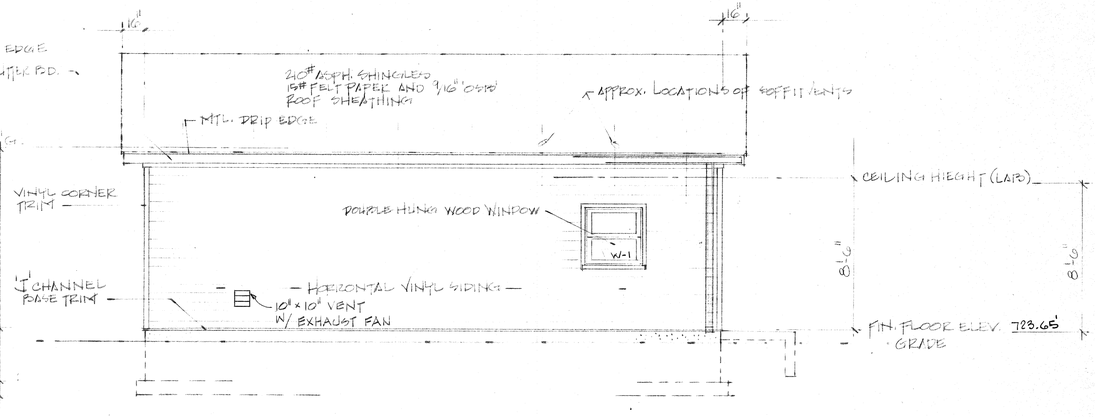
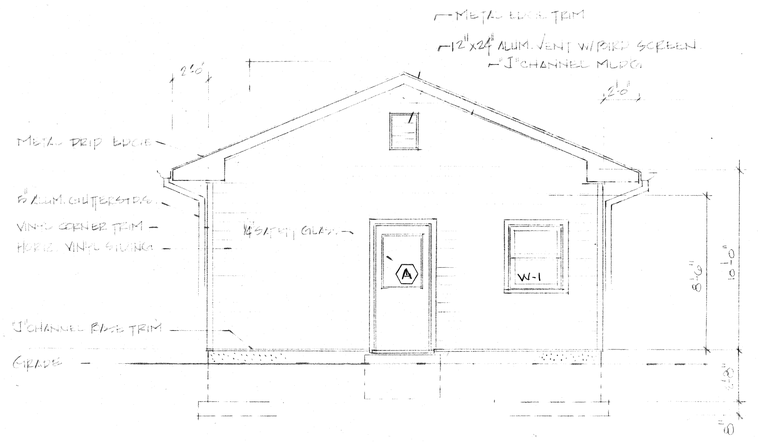


ENDWALL ELEVATION
1/4"=1'-0"



SIDEWALL ELEVATION
1/4"=1'-0"



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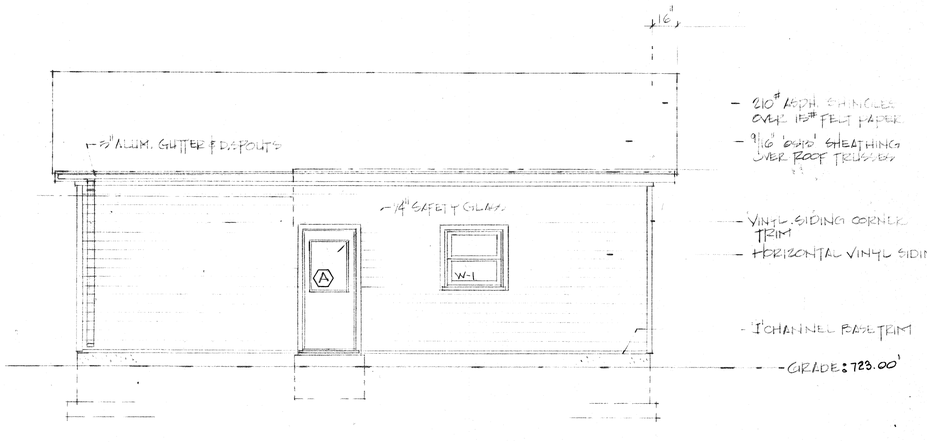
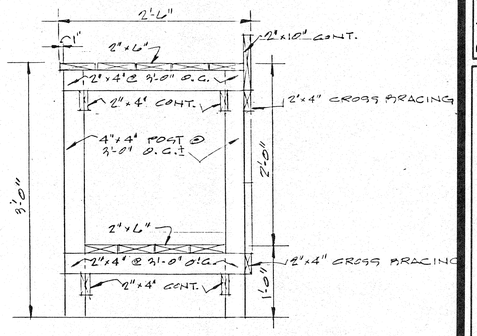
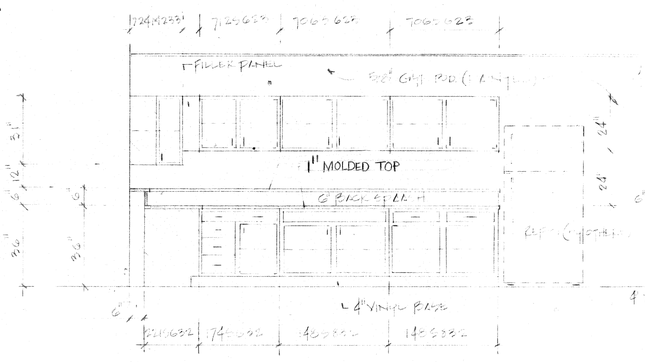
1/4"=1'-0"



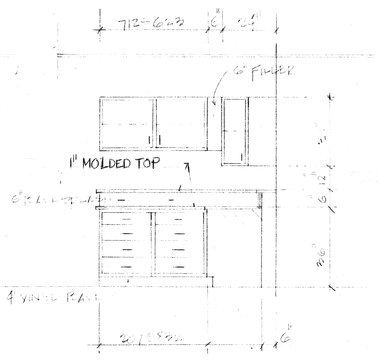
SIDEWALL ELEVATION
1/4"=1'-0"



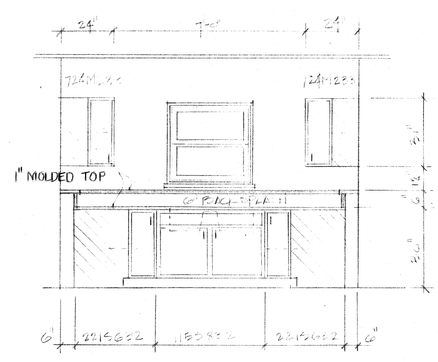
WORK BENCH DETAIL
SCALE : 1"=1'-0"



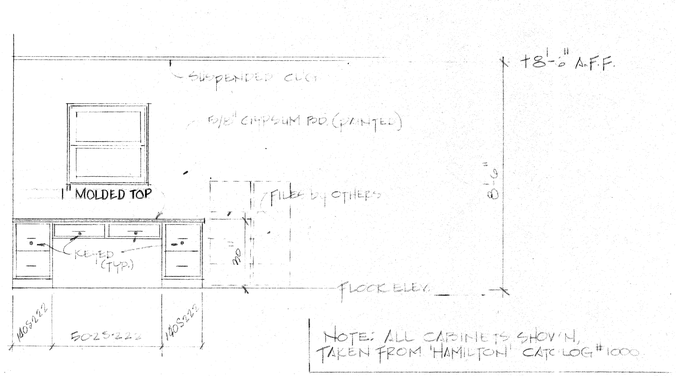
EAST ELEVATION AT LAB
3/8"=1'-0"



WEST ELEVATION
3/8"=1'-0"



NORTH ELEVATION
3/8"=1'-0"



NOTE: ALL CABINETS SHOWN, TAKEN FROM 'HAMILTON' CATALOGUE # 1000.

DESK ELEVATION
3/8"=1'-0"

Revisions

Designed by: Date: Checked by: Date:
Drawn by: P.P.L. Date: Approved by: Date:

PAULDING COUNTY, OHIO

ELEVATIONS: DETAILS:

GROVER HILL
SEWAGE WORKS IMPROVEMENTS

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Scale
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Sheet
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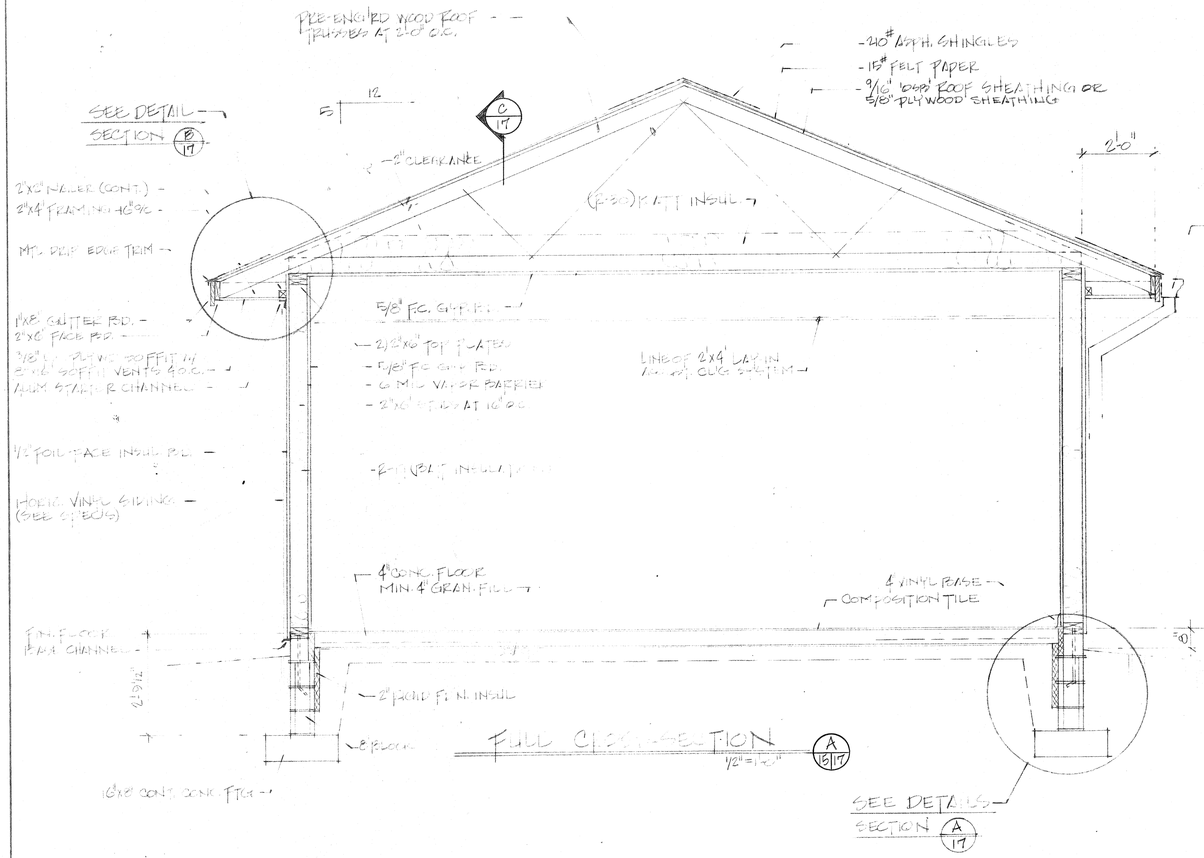
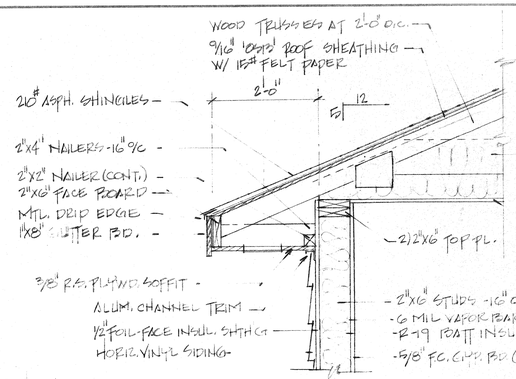
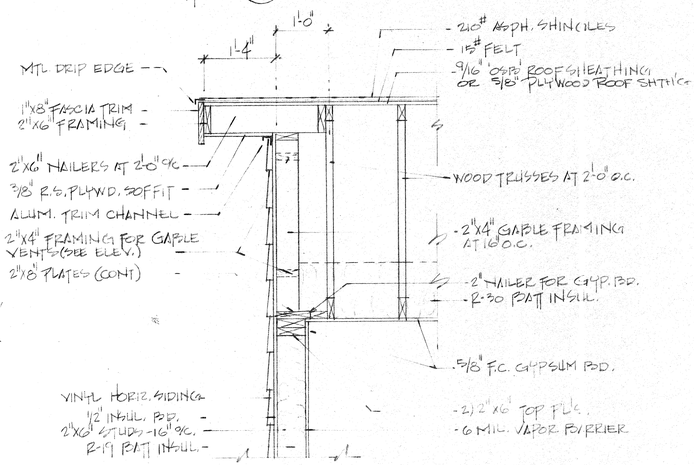
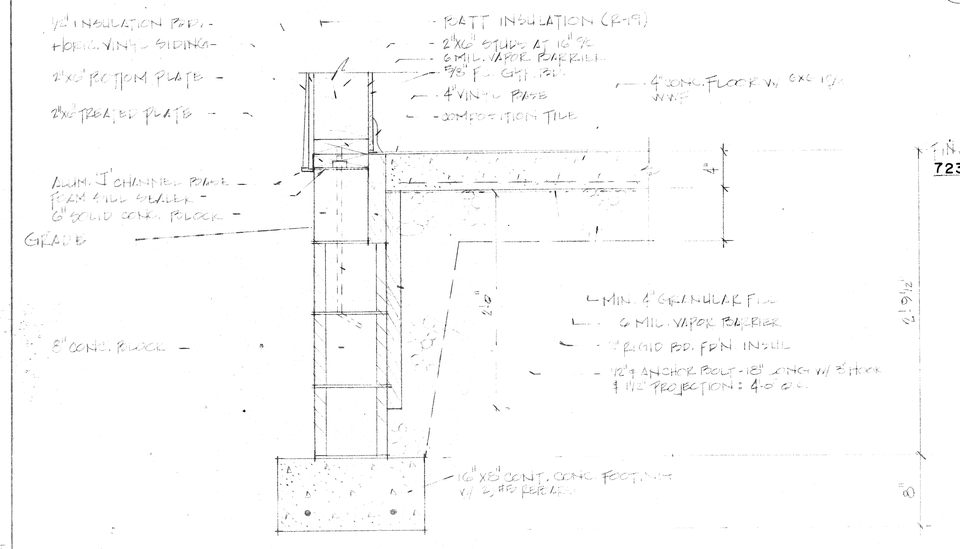




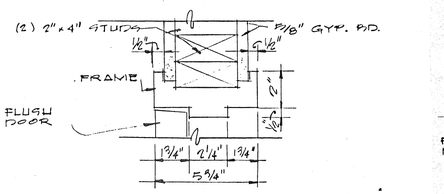
DETAIL B/17
3/4"=1'-0"



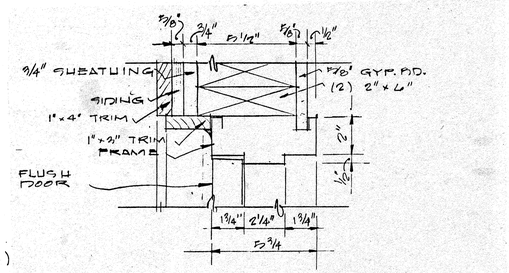
DETAIL C/17
3/4"=1'-0"



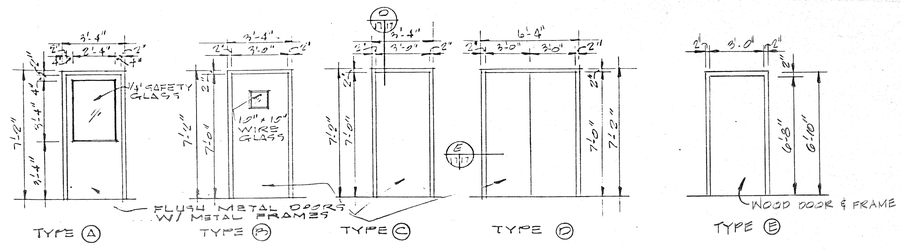
FOUNDATION SECTION
1 1/2"=1'-0"
A/17



JAMB D/17 (HEAD SIMILAR) (INTERIOR)
(TYP.) 3"=1'-0"



JAMB E/17 (HEAD SIMILAR) (EXTERIOR)
(TYP.) 3"=1'-0"



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

Revisions

Designed by: Date:
Drawn by: T.P.C. Date:
Checked by: Date:
Approved by: Date:

PAULDING COUNTY, OHIO

WALL SECTION: DETAILS:
GROVER HILL
SEWAGE WORKS IMPROVEMENTS

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Scale
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Sheet
17 of 23

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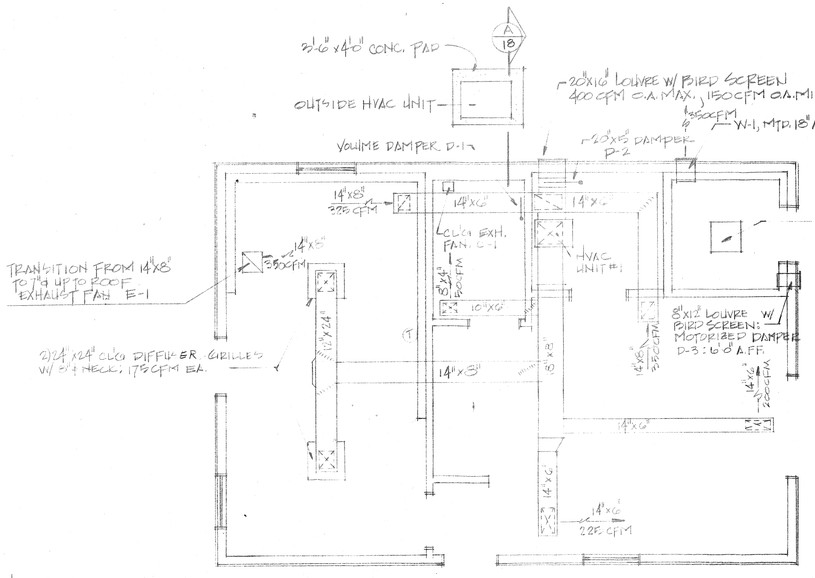
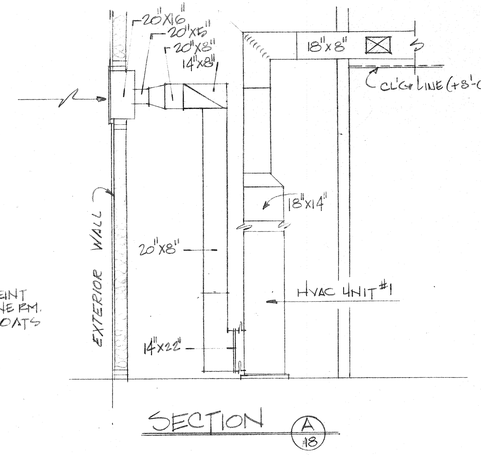
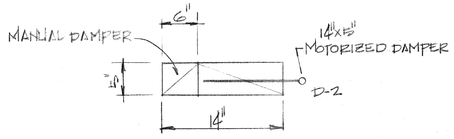


HVAC PLAN/LAYOUT

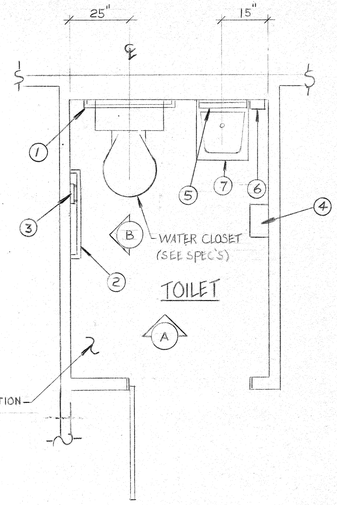
SCALE: 1/4"=1'-0"



SECTION A/18



DAMPER DETAIL



ENLARGED PLAN VIEW

SCALE 1/2"=1'-0"

HVAC LEGEND

- ⊠ SUPPLY
- ⊠ SUPPLY DOWN
- ⊠ RETURN OR EXHAUST UP
- ⊠ RETURN/EXHAUST DOWN
- O.A. OUTSIDE AIR
- R.A. RETURN AIR
- CFM CUBIC FEET PER MINUTE
- D-1 VOLUME DAMPER #1
- (T) THERMOSTAT
- ARC ACID RESISTANT COATING

NOTES:

1. CONTROL DAMPERS D-1 & D-2 INTERLOCKED WITH EXHAUST FAN E-1. 'D-1' CLOSES AND OPENS WHEN E-1 STARTS & STOPS, 'D-2' OPENS THEN CLOSES WHEN E-1 STARTS & STOPS.
2. CONTR. MAY USE OTHER MANUFACTURER'S EQUIPMENT IN LIEU OF EQUIP. SHOWN OR SPECIFIED BUT ONLY AFTER THAT SUBSTITUTED EQUIP. HAS BEEN APPROVED THRU ENGINEER.

DUCT WORK

DIFFUSERS, LOUVERS, REGISTERS & GRILLES SHALL BE CARNES OR EQUAL. ALUMINUM.

DIFFUSER - CARNES MODEL SATA; SLOT DIFFUSER - CARNES MODEL DASA

REGISTERS & GRILLES SHALL BE CARNES OR EQUAL PAINTED WHITE TO MATCH CEILING. LEFT IN NATURAL ALUMINUM COLOR FOR WALL USE. SIZE AS SHOWN ON DRAWING.

SUPPLY REGISTER SHALL BE CARNES 6811AH OR 6511AH. RETURN GRILLE SHALL BE CARNES 6835AH. RETURN REGISTER SHALL BE CARNES 6831AH.

TESTING & BALANCING

CONTRACTOR SHALL TEST AND BALANCE HVAC SYSTEM. AFTER TESTING AND BALANCING, CONTRACTOR SHALL SUBMIT TO ENGINEER/OWNER DATA SHOWING CFM AND TEMPERATURE OF AIR DELIVERED TO EACH ROOM. CONTRACTOR SHALL INCLUDE DATA OF FAN RPM AND CURRENT DRAW OF HVAC UNITS. THIS INCLUDES ALL EXHAUST FANS.

HEATING/COOLING UNIT

HVAC UNIT #1 - LENNOX SPLIT SYSTEM HEAT PUMP OR EQUAL. 208/1/60 OUTDOOR UNIT MODEL HP16-211V. INDOOR UNIT VERTICAL MODEL CP16-26V-E16Q2-10 (10 KW HEATER) 825 CFM @ 0.50" S.P. SET INSIDE BLOWER AT LOW SPEED. USE STANDARD MANUAL SEASONAL CHANGE OVER HEATING/COOLING THERMOSTAT. USE OUTDOOR THERMOSTAT. UNIT SHALL HAVE A COOLING CAPACITY OF 19,200 BTU/HR AT 95°FDB OUTSIDE AIR AND 67°FWB ENTERING AIR.

ELECTRIC UNIT HEATER

7.5 KW CEILING CHROMALOX CCR 208/1/60 27 AMPS WITH UNIVERSAL MOUNTING BRACKET, WALL MOUNTED T-STAT AND POWER DISCONNECT SWITCH. (CORROSION RESISTANT)

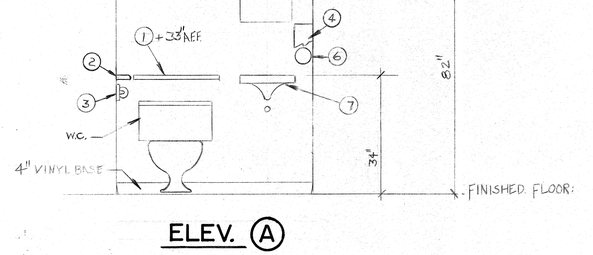
EXHAUST FANS

C-1 CEILING EXHAUST FAN - CARNES VCDB-05 1550 RPM 120/1/60 45 WATTS 0.8 AMPS 46 CFM @ 1/8" S.P. ROOF CAP MODEL VXKB-1.

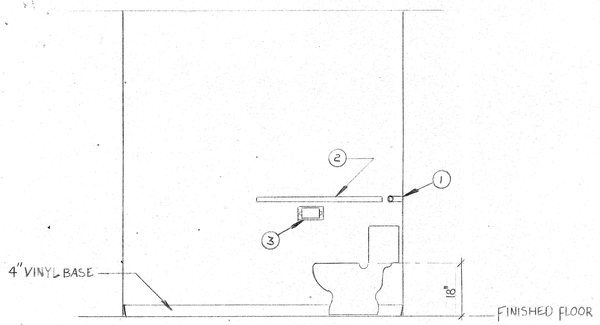
E-1 ROOF EXHAUST FAN - CARNES VEDB-08-E2 1/22 HP 1200 RPM 120/1/60 180 WATTS. INCLUDE ELECTRONIC SPEED CONTROL, BACKDRAFT DAMPER AND ROOF CURB. SET EXHAUST FAN @ 350 CFM.

W-1 WALL EXHAUST FAN - BROAN MODEL #491-10" WALL EXHAUST FAN. INCLUDE ELECTRONIC SPEED CONTROL, BACKDRAFT DAMPER AND WALL GRILLE. FAN SHALL HAVE ARC COATING. SET EXHAUST FAN @ 350 CFM. WIRE FAN TO LIGHT SWITCH (BY ELECTRICAL CONTRACTOR).

TOILET ACCESSORY LEGEND
(1) 30"x 1 1/2"ø S.S. GRAB BAR.
(2) 42"x 1 1/2"ø S.S. GRAB BAR.
(3) MODEL # 505 TOILET TISSUE DISPENSER.
(4) MODEL # 250-15 PAPER TOWEL DISPENSER.
(5) 16"x 24"x 1/4" TEMPERED GLASS MIRROR W/SHELF.
(6) #6542 SOAP DISPENSER.
(7) BRADLEY # 725 HANDI-CAP LAVATORY



ELEV. A



ELEV. B

Revisions

Designed by: Date: Checked by: Date:
Drawn by: MRC. Date: Approved by: Date:

PAULDING COUNTY, OHIO

HVAC PLAN: DETAILS:

GROVER HILL
SEWAGE WORKS IMPROVEMENTS

Design Enterprise Ltd.

Scale: as noted

Sheet: 18 of 23

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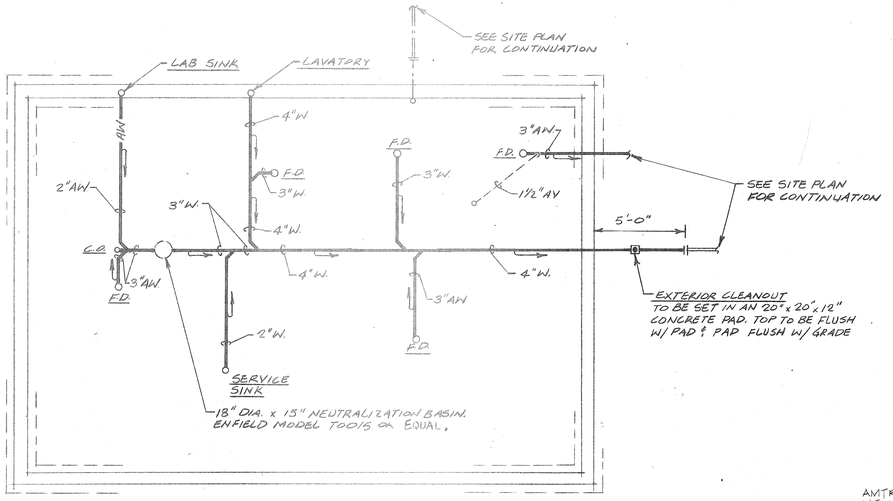
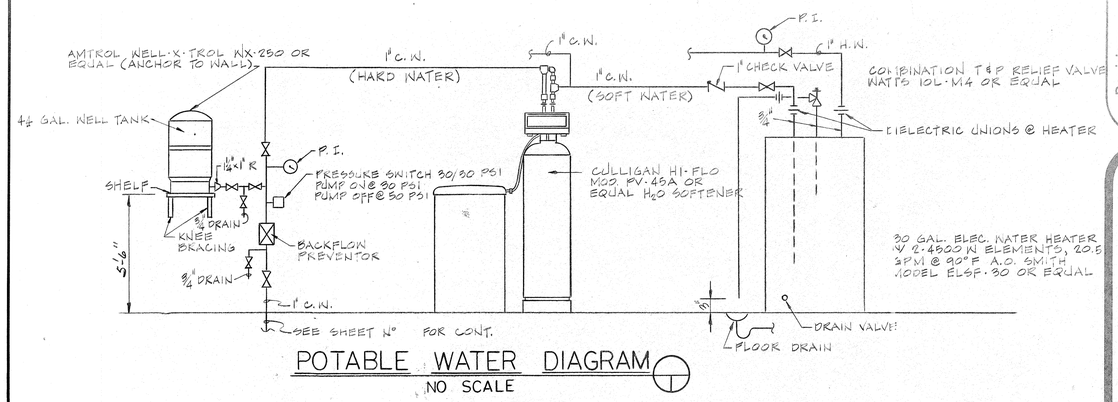


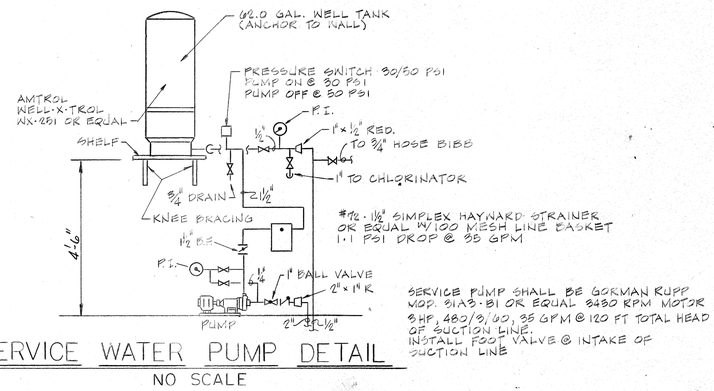
FOUNDATION PLAN — PLUMBING

1/4" = 1'-0"



POTABLE WATER DIAGRAM

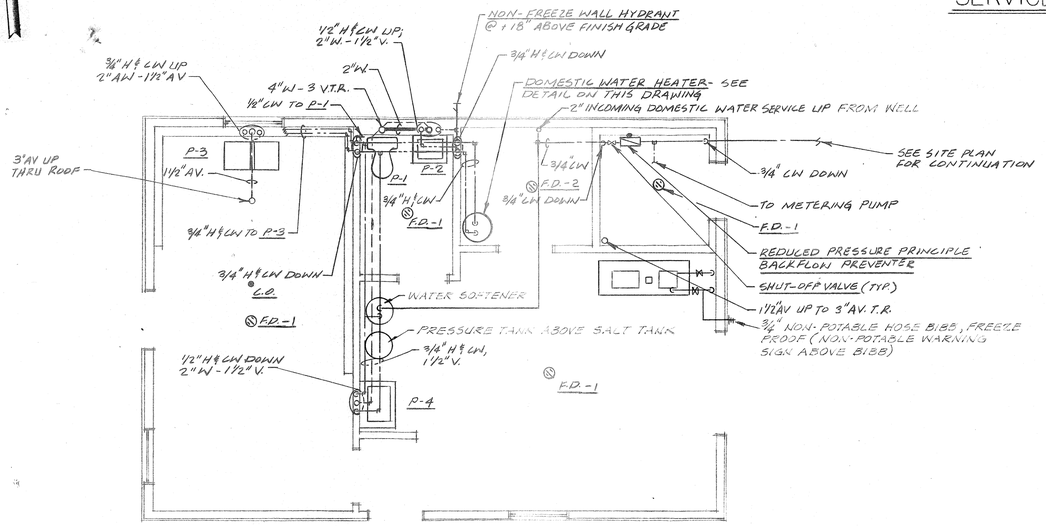
NO SCALE



SERVICE WATER PUMP DETAIL

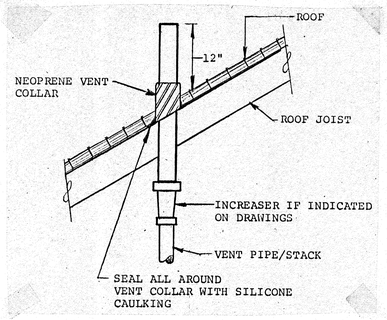
NO SCALE

SERVICE PUMP SHALL BE GORMAN RUPP MOD. 51A3-B1 OR EQUAL 3450 RPM MOTOR 3 HP, 480/3/60, 35 GPM @ 120 FT TOTAL HEAD OF SUCTION LINE. INSTALL FOOT VALVE @ INTAKE OF SUCTION LINE



FLOOR PLAN - PLUMBING

¼" = 1'-0"



ROOF PENETRATION DETAIL

NO SCALE

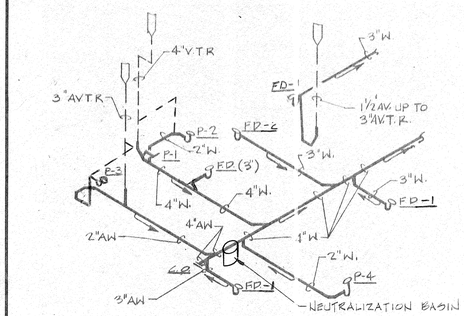
NOTES:

1. DROP 1/2" H & CW IN STUD WALL TO BELOW TOP OF CASEWORK. EXTEND 1/2" H & CW PIPING IN PIPE SPACE OF CASEWORK.
2. REDUCED PRESSURE TYPE BACKFLOW PREVENTOR WATTS STANDARD NO. 7 MPT DUAL CHECK VALVE OR EQUAL WITH MAXIMUM P.D. OF 6 PSI. (TYP. 2 PLACES)
3. WATER SOFTENER, PROVIDE FULL SIZE BY-PASS AT SOFTENER ROUGH-IN. CULLIGAN MODEL PV-45A OR EQUAL. UNIT SHALL HAVE CAPACITY OF 20,000 GRAINS PER RE-GENERATION AT 7 PSI.
4. EXTERIOR CLEANOUTS TO BE SET IN A 20" X 20" X 12" CONCRETE PAD. TOP TO BE FLUSH WITH PAD AND PAD FLUSH WITH GRADE.
5. PROVIDE ACID RESISTANT TRAP, WASTE & VENT PIPING AT P-3 SINK. PROVIDE FINAL CONNECTION AT SINK.
6. WELL AND PUMP BY GENERAL CONTRACTOR. PIPE FROM WELL TO 5' OF BUILDING BY GENERAL CONTRACTOR. FOR DETAILS OF WELL AND PUMP SEE SPECIFICATIONS.
7. 18" DIA. X 15" NEUTRALIZATION BASIN. ENFIELD MODEL T0015 OR EQUAL. CONTRACTOR SHALL CHARGE WITH LIMESTONE.

PLUMBING FIXTURE SCHEDULE

ITEM	FIXTURE	WASTE	VENT	C.W.	H.W.	REMARKS
P-1	WATER CLOSET	3"	3"	½"	–	15" TO RIM
P-2	LAVATORY	1¼"	1¼"	½"	½"	24" TO RIM
P-3	LABORATORY SINK	2"	1½"	½"	½"	
P-4	SERVICE SINK	2"	1½"	½"	½"	
	FLOOR DRAIN	2"	1½"			

NOTE: ALL FIXTURES SHALL HAVE WATER CUT-OFF VALVES AT EACH FIXTURE.



WASTE & VENT ISOMETRIC FOR LAB BUILDING- PLUMBING

NO SCALE

SYMBOL LEGEND

ITEM	NEW	EXISTING
DOMESTIC COLD WATER		
HOT WATER		
SOFT COLD WATER	SCW	
SANITARY WASTE		
ACID WASTE	AW	
VENT		
DRAINLINE	D	
RISER UP (ELBOW)		
RISER DOWN (ELBOW)		
BRANCH OFF TOP		
BRANCH OFF SIDE		
CHECK VALVE		
SHUT-OFF VALVE		
FLOW IN DIRECTION OF ARROW		
SLOPE IN DIRECTION OF ARROW		
CONNECT TO EXISTING PIPE		
FLOOR CLEANOUT	•	
CLEANOUT (SANITARY)	O	
FLOOR DRAIN	Ⓢ	
NON-FREEZE WALL HYDRANT		
VENT THRU ROOF	V.T.R.	
ACID VENT THRU ROOF	AV.T.R.	

Revisions

Designed by: M.C.J.-J.H. Date:
Drawn by: M.C.J. Date:
Checked by: Date:
Approved by: Date:

PAULDING COUNTY, OHIO

PLUMBING PLANS: DETAILS

GROVER HILL
SEWAGE WORKS IMPROVEMENTS

Design Enterprise Ltd

Scale: as noted

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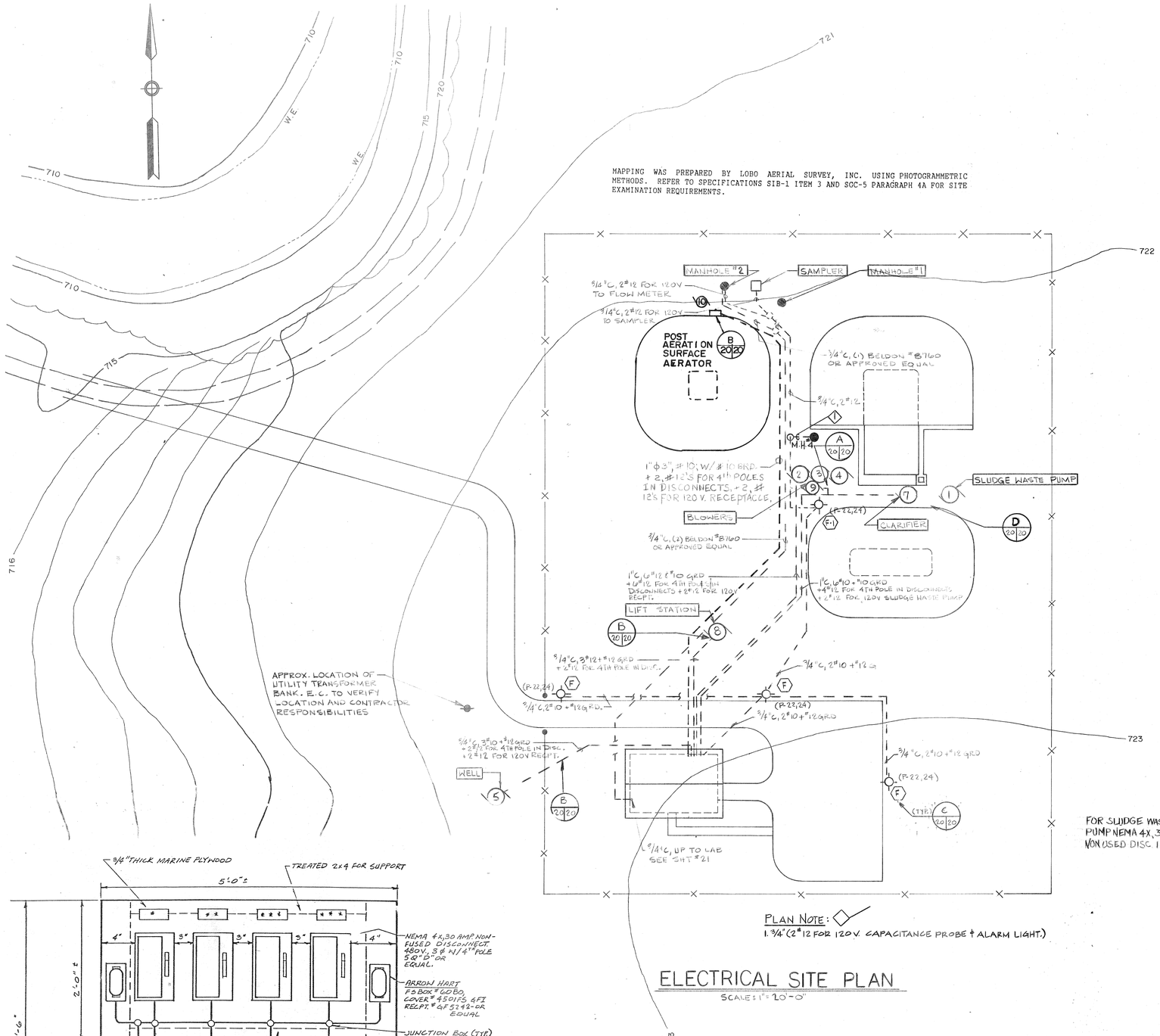
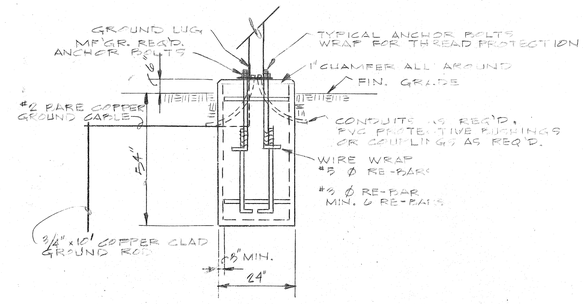
BRUNING 44 232 74371

MAPPING WAS PREPARED BY LOBO AERIAL SURVEY, INC. USING PHOTOGRAMMETRIC METHODS. REFER TO SPECIFICATIONS SIB-1 ITEM 3 AND SGC-5 PARAGRAPH 4A FOR SITE EXAMINATION REQUIREMENTS.

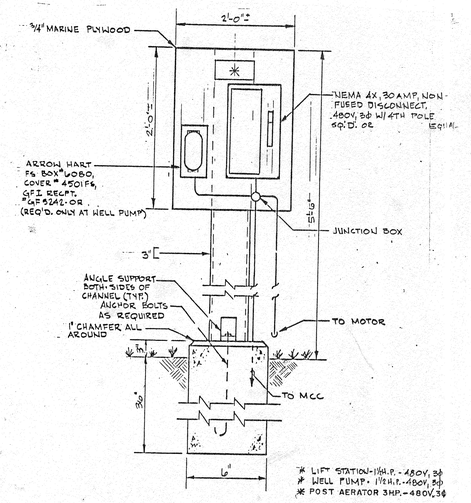


PLAN NOTE:
1. 3/4" (2#12 FOR 120 V. CAPACITANCE PROBE + ALARM LIGHT.)

ELECTRICAL SITE PLAN
SCALE: 1" = 20'-0"



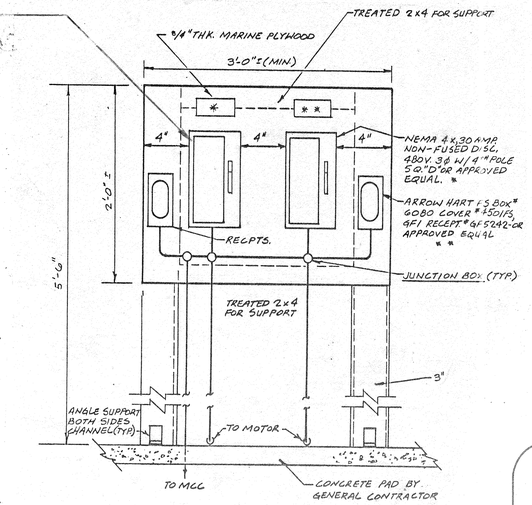
DETAIL
NO SCALE (G 20/20)



DETAIL
NO SCALE (B 20/20)

DETAIL
NO SCALE (A 1)

FOR SLUDGE WASTE PUMP NEMA 4X, 30 AMP NON USED DISC 120 V, 1Ø



DETAIL
NO SCALE (D 1)

Revisions

Designed by: Date: 4-20-87
Drawn by: Date: 4-20-87
Checked by: Date:
Approved by: Date:

PAULDING COUNTY, OHIO

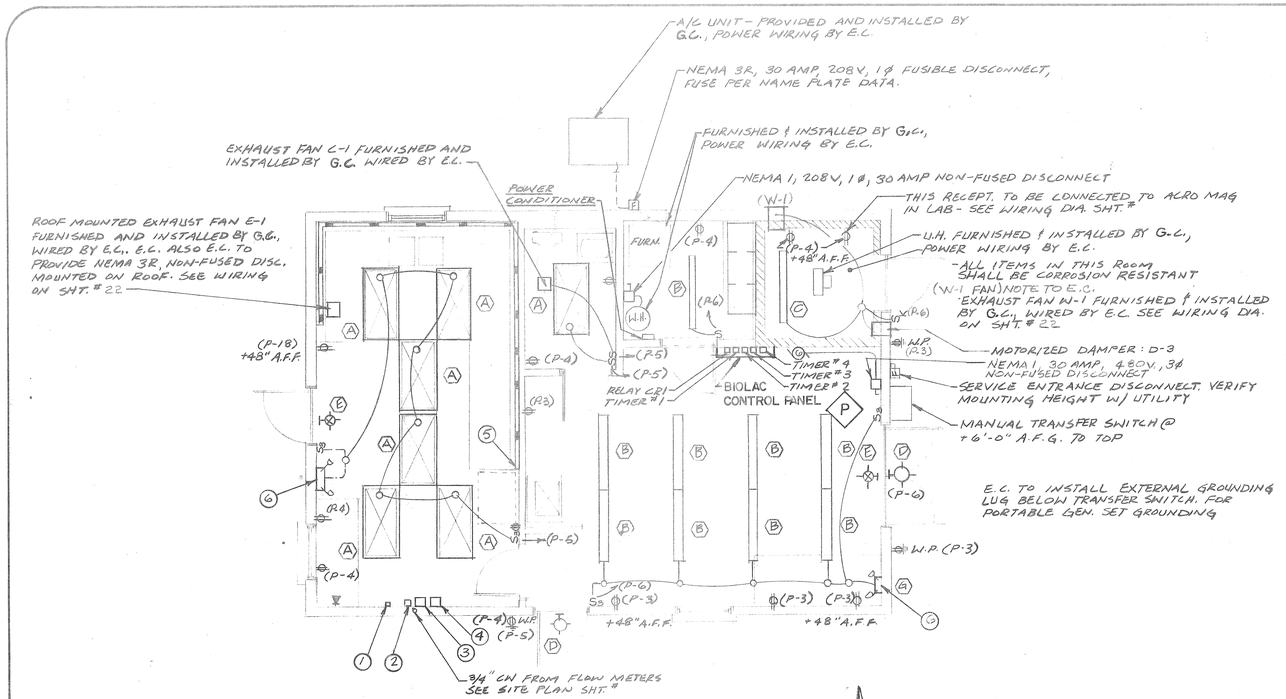
ELECTRICAL SITE PLAN

GROVER HILL
SEWAGE WORKS IMPROVEMENTS

Design Enterprise Inc.

Scale
AS NOTED

Sheet
20 of 23



ELECTRICAL FLOOR PLAN

1/4" = 1'-0"

NOTES:
1. E.C. TO INSTALL AND WIRE ALL ELECTRICAL ITEMS PER LOCAL & STATE CODES & THE LATEST APPROVED EDITION OF THE NATIONAL ELECTRIC CODE (N.E.C.)
2. E.C. TO VERIFY TELEPHONE CO. REQUIREMENTS
3. SEE MECH. DRAWING FOR MOTORIZED DAMPER LOCATIONS
4. MOUNT TIMERS @ +5'-0" A.F.F. TO TOP

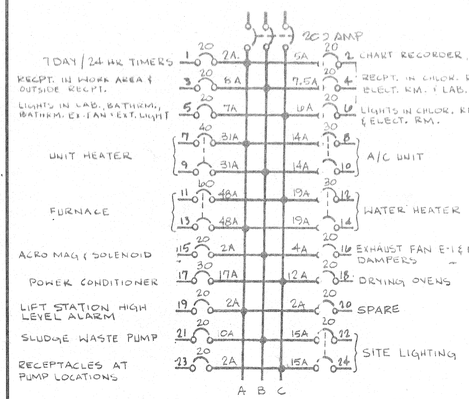
PLAN NOTES:
1. ACRO MAG - FURNISHED BY E.C., INSTALLED & WIRED BY E.C.
2. TOTALIZER - FURNISHED BY E.C., INSTALLED & WIRED BY E.C.
3. CHART RECORDER - FURNISHED BY E.C., INSTALLED & WIRED BY E.C.
4. HIGH LEVEL ALARM - HORN, RED LIGHT, RESET BUTTON & TIMING RELAY FOR PLANT LIFT STATION - SEE WIRING DIA. ON SHT. # 22.
5. CONNECT TO POWER CONDITIONER
6. EMERGENCY LIGHTS ARE NOT WIRED TO SWITCH

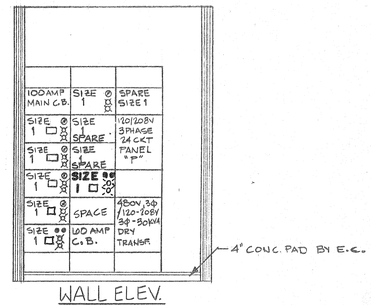
LEGEND

- EMERGENCY LIGHT FIXTURE (+8'-0" AFF)
- (P-3) CIRCUIT NUMBER
- 2'x4' RECESSED FLUORESCENT FIXTURE
- 4'-SURFACE MOUNTED FLUORESCENT STRIP
- 4'-SURFACE MOUNTED CORROSION RESISTANT FLUORESCENT FIXTURE
- WALL MOUNTED H.P.S. FIXTURE (+8'-0" A.F.G.)
- 120V, 20AMP DUPLEX RECEPTACLE (+14" A.F.F. UNLESS NOTED OTHERWISE)
- W.P. WEATHER PROOF, 120V, 20AMP GROUND FAULT RECEPTACLE (+12" A.F.G.)
- TELEPHONE OUTLET (+14" A.F.F.)
- S SINGLE POLE LIGHT SWITCH (+48" AFF)
- S_3 3-WAY LIGHT SWITCH (+48" AFF)
- S_K KEYED LIGHT SWITCH (+48" AFF)
- PLUGMOLD
- NON-FUSED DISCONNECT
- F FUSED DISCONNECT
- MOTOR LOCATION AND MOTOR NUMBER
- G.C. GENERAL CONTRACTOR
- O JUNCTION BOX
- CONDUIT CONCEALED ABOVE CEILING
- CONDUIT EXPOSED
- LIGHT FIXTURE DESIGNATION
- EMERGENCY EXIT SIGN

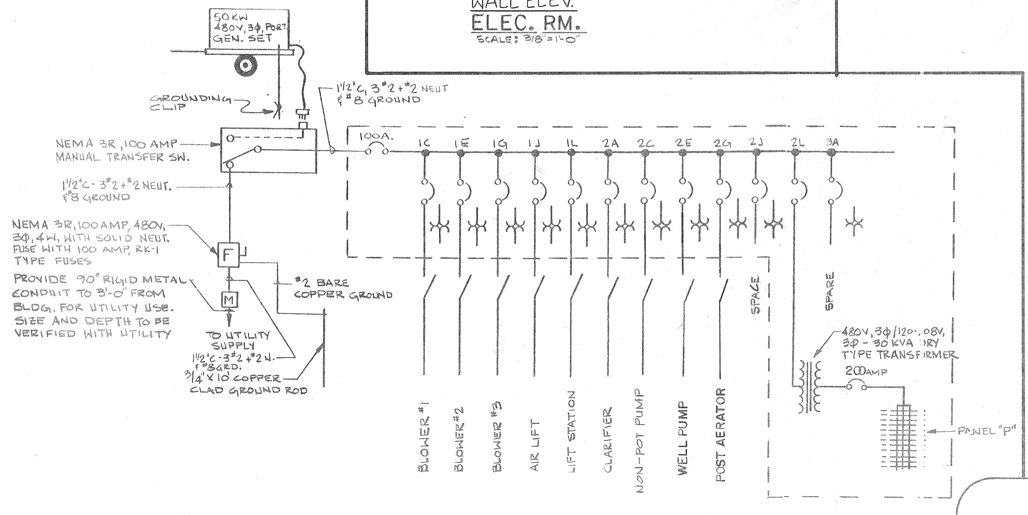
G.C. GENERAL CONTRACTOR
E.C. ELECTRICAL CONTRACTOR
AFF/AFG ABOVE FINISH FLOOR/ABOVE FINISH GRADE

PANEL "P"





WALL ELEV. ELEC. RM.
SCALE: 3/8" = 1'-0"



MCC SINGLE LINE DIAGRAM

LIGHT FIXTURE SCHEDULE

FL = Fluorescent
HPS = High Pressure Sodium
MV = Mercury Vapor
INC = Incandescent
MH = Metal Halid

TYPE	DESCRIPTION	NO OF LAMPS	WATTS EA	LAMP TYPE	VOLTS	MFR
A	2'x4' Recessed Fluorescent	3	40	FL	120	Metalux #2G-340A or EQUAL
B	4' Fluorescent Strip Surface Mounted	2	40	FL	120	Metalux #SS-240 or EQUAL
C	4' Fluorescent Vaportite, Corrosion Resistant Surface Mounted	2	40	FL	120	Metalux #VT-240-DR-DL or EQUAL
D	Wall Mounted with Photo Cell	1	70	HPS	120	Lumark #HPNW-PW-70-120V-LL or EQUAL
E	Self-Illuminating Emergency Exit	—	—	—	—	Penteco Permex #P-160 or EQUAL
F	Pole Mounted Site Light Fixture with Gardco Pole #CA4-20-BLA	1	250	HPS	208	Gardco #EH-19-1-FM-208-250HPS-BLA-F-PC or EQUAL
F-1	Pole Mounted Site Light Fixture with Gardco Pole #CA4-20-BLA	1	250	HPS	208	Gardco #EH-19-1-1-208-250HPS-BLA-F-PC or EQUAL
G	SIX VOLT EMERGENCY LIGHT	2	18	PAR 36	120	TELEDYNE BIG BEAM #2566610-120 W/NO. 198 WALL SHELF OR EQUAL

WIRING SCHEDULE

EQUIPMENT	WIRE SIZE	CONDUIT SIZE	LOAD AMPS	LOAD VOLTS	SOURCE
UNIT HEATER	2#8 + #10 GRD	1"	27	208V, 1ϕ	PANEL "P"
OUTDOOR COND	2#10 + #12 GRD	3/4"	13	208V, 1ϕ	PANEL "P"
HVAC INDOOR UNIT	2#4 + #8 GRD	1"	56	208V, 1ϕ	PANEL "P"
WATER HEATER	2#10 + #12 GRD	3/4"	19	208V, 1ϕ	PANEL "P"
SLUDGE WASTE PMP MTR #1	2#12 + #12 GRD	3/4"	10A	120V, 1ϕ	PANEL "P"
(1) 3 HP BLOWER MTR #2	3#12 + #12 GRD	1 1/4"	4.8	480V, 3ϕ	MCC
(1) 3 HP BLOWER MTR #3	3#12 + #12 GRD		4.8	480V, 3ϕ	MCC
(1) 3 HP BLOWER MTR #4	3#12 + #12 GRD		4.8	480V, 3ϕ	MCC
1 1/2 HP WELL PUMP MTR #5	3#12 + #12 GRD	3/4"	2.6	480V, 3ϕ	MCC
5 HP NON-POT PUMP MTR #6	3#10 + #12 GRD	3/4"	7.6	480V, 3ϕ	MCC
(1) 3/4 HP CLARIFIER MTR #5	3#10 + #12 GRD	3/4"	1.4	480V, 3ϕ	MCC
(2) 1-1/2 HP LIFT STATION MTR #6	3#12 + #12 GRD	3/4"	2.6	480V, 3ϕ	MCC
(1) 2 H.P. AIR LIFT MTR #7 #6	3#10 + #12 GRD	3/4"	3.4	480V, 3ϕ	MCC
(1) 3 H.P. POST AERATOR #8 (3)	3#10 + #10 GRD	1"	4.8	480V, 3ϕ	MCC

NOTES:
(1) CONDUIT WILL ALSO HAVE 2#12 FROM 4TH POLE IN DISCONNECT BACK TO STARTER IN MCC.
(2) CONDUIT WILL ALSO HAVE 4#12 FROM FLOAT CONTROL DEVICES AND 2#12 FROM 4TH POLE IN DISCONNECT BACK TO STARTER IN MCC.
(3) POST AERATOR SHALL HAVE (2) TIME RELAYS (1) RELAY TO CONTROL (0-4 HRS.) RUNNING TIME AND (2) RELAYS TO CONTROL THE (0-4 HRS.) OFF TIME

Revisions

Designed by: Date: Checked by: Date:
Drawn by: Date: Approved by: Date:

PAULDING COUNTY, OHIO

ELECTRICAL PLAN

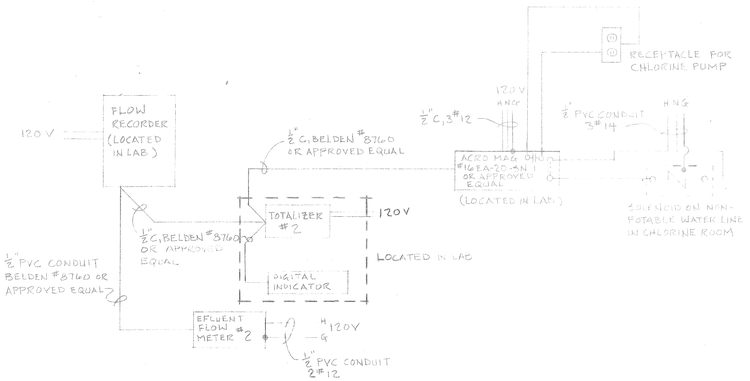
GROVER HILL SEWAGE WORKS IMPROVEMENTS

Design Enterprise Ltd.

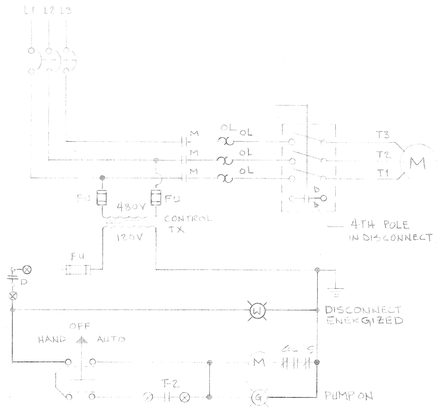
Scale: AS NOTED

Sheet: 21 of 23

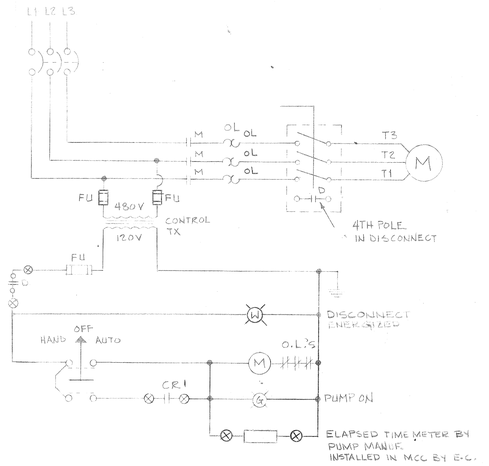
BRUNING 44-232-74371



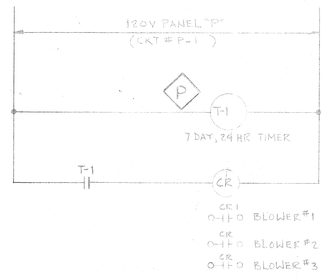
FLOW METER WIRING SCHEMATIC



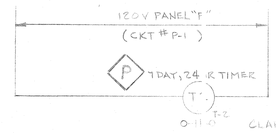
CLARIFIER WIRING DIAGRAM



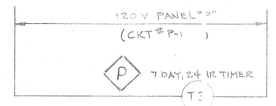
TYPICAL BLOWER WIRING DIAGRAM



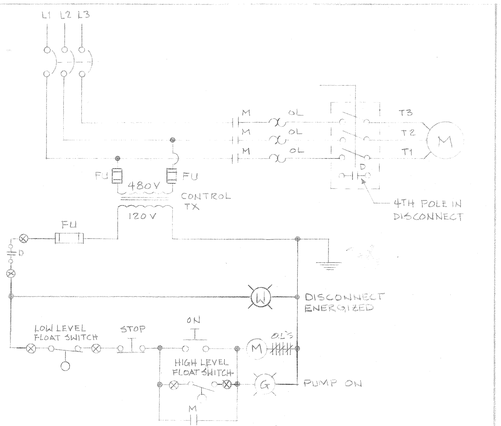
TIMER #1 WIRING DIAGRAM



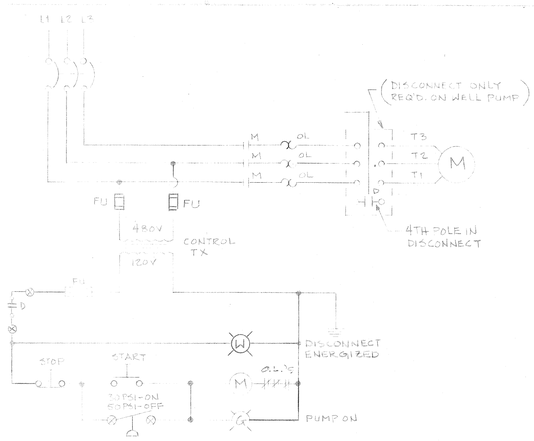
TIMER #2 WIRING DIAGRAM



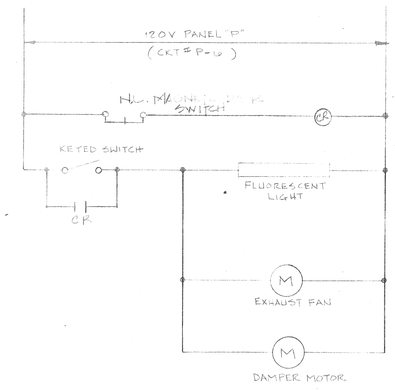
TIMER #3 WIRING DIAGRAM



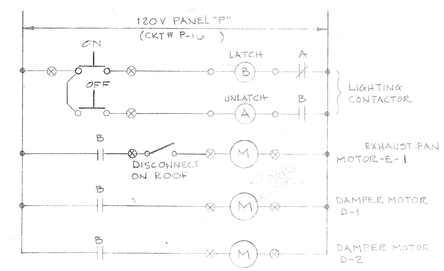
PLANT LIFT STATION WIRING DIAGRAM



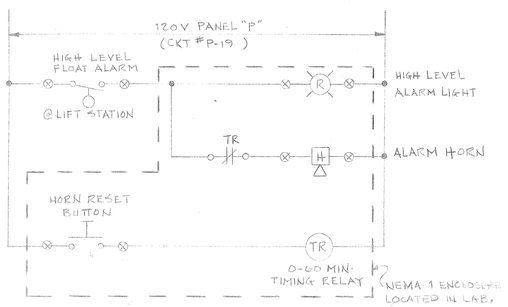
NON-POTABLE WATER PUMP AND WELL PUMP WIRING DIAGRAM



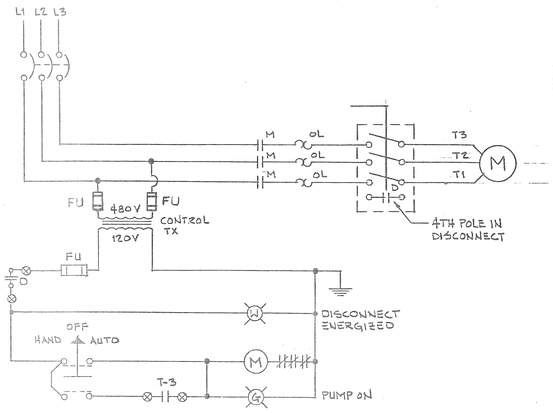
CHLORINE ROOM WIRING DIAGRAM



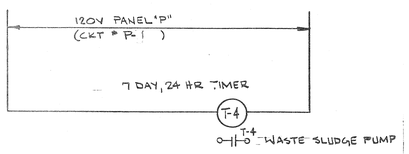
EXHAUST FAN AND DAMPER MOTOR WIRING DIAGRAM



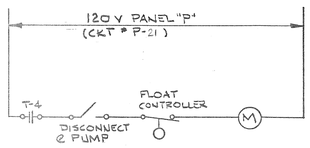
ALARM HORN WIRING DIAGRAM



AIR LIFT BLOWER WIRING DIAGRAM



TIMER #4 WIRING DIAGRAM



WASTE SLUDGE PUMP WIRING DIAGRAM

P PARKSON SHALL SUPPLY & INSTALL IN NEMA 4 ENCLOSURE, "EC" TO MOUNT ENCLOSURE & PROVIDE INTER CONNECTION WIRING

Revisions

Designed by: Date: Checked by: Date:

Drawn by: B.J. PISSONETTE Date: Approved by: Date:

PAULDING COUNTY, OHIO

WIRING DIAGRAMS

GROVER HILL SEWAGE WORKS IMPROVEMENTS

Design Enterprise Ltd.

Scale NO SCALE

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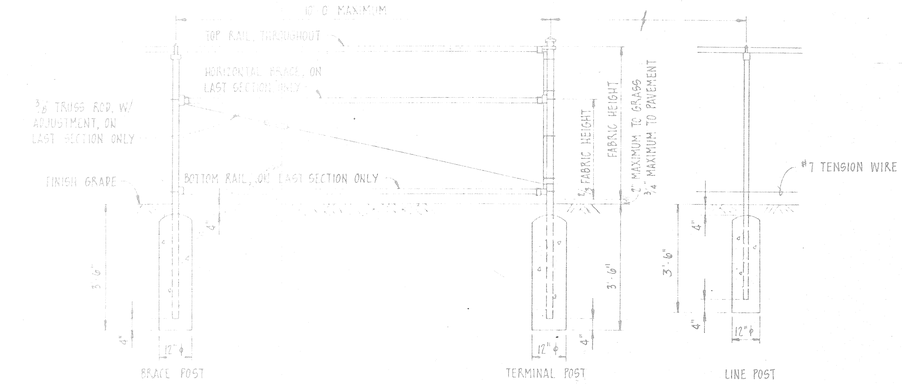
CHAIN LINK FENCE DETAILS



BRACE SECTION DETAIL

6 FT. FENCE SCHEDULE	
FENCE COMPONENT	
TOP RAIL	1 5/8"
MID RAIL	N.A.
HORIZONTAL BRACE	1 5/8"
LINE POST	2"
BRACE POST	2"
CORNER POST	2 1/2"



NOTE:
LETTER & BORDER EMBOSSED 0.10" BAKED ENAMEL FINISH, RED W/WHITE BACKGROUND. MOUNT SIGN ON FENCE W/(2) 1/2" ALUMINUM OR GALVANIZED BOLTS.

FENCE SIGN DETAIL

Designed by Date Checked by Date
Drawn by Date Approved by Date

PAULDING COUNTY, OHIO

FENCE DETAILS

GROVER HILL
SEWAGE WORKS IMPROVEMENTS

Design Enterprise

Scale
NONE

Sheet
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