

DELAWARE CO., OHIO GOLF VILLAGE REGIONAL PUMP STATION AND FORCE MAIN 2001

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BENCH MARKS

SOURCE BENCH MARK:

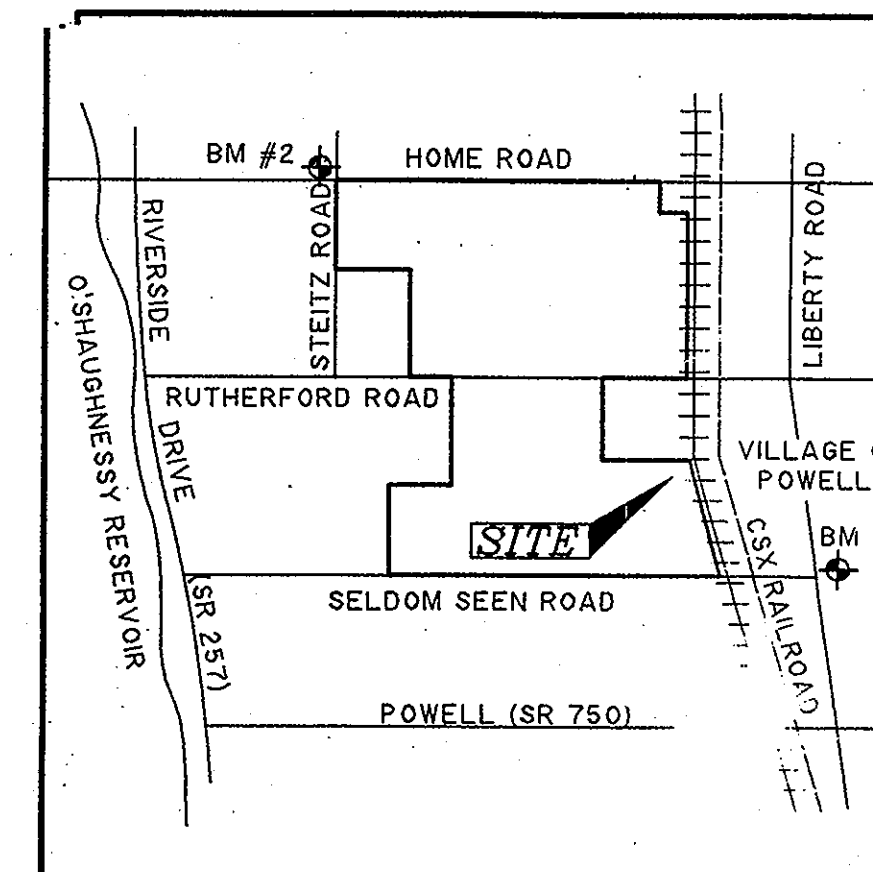
- USGS BP IN CONCRETE MONUMENT #T20TWC, 27' E. OF C/L OF LIBERTY ROAD & 9' N. OF C/L OF FIELD DRIVE E. @ C/L OF SELDOM SEEN ROAD EXTENDED E.

ELEV 929.76

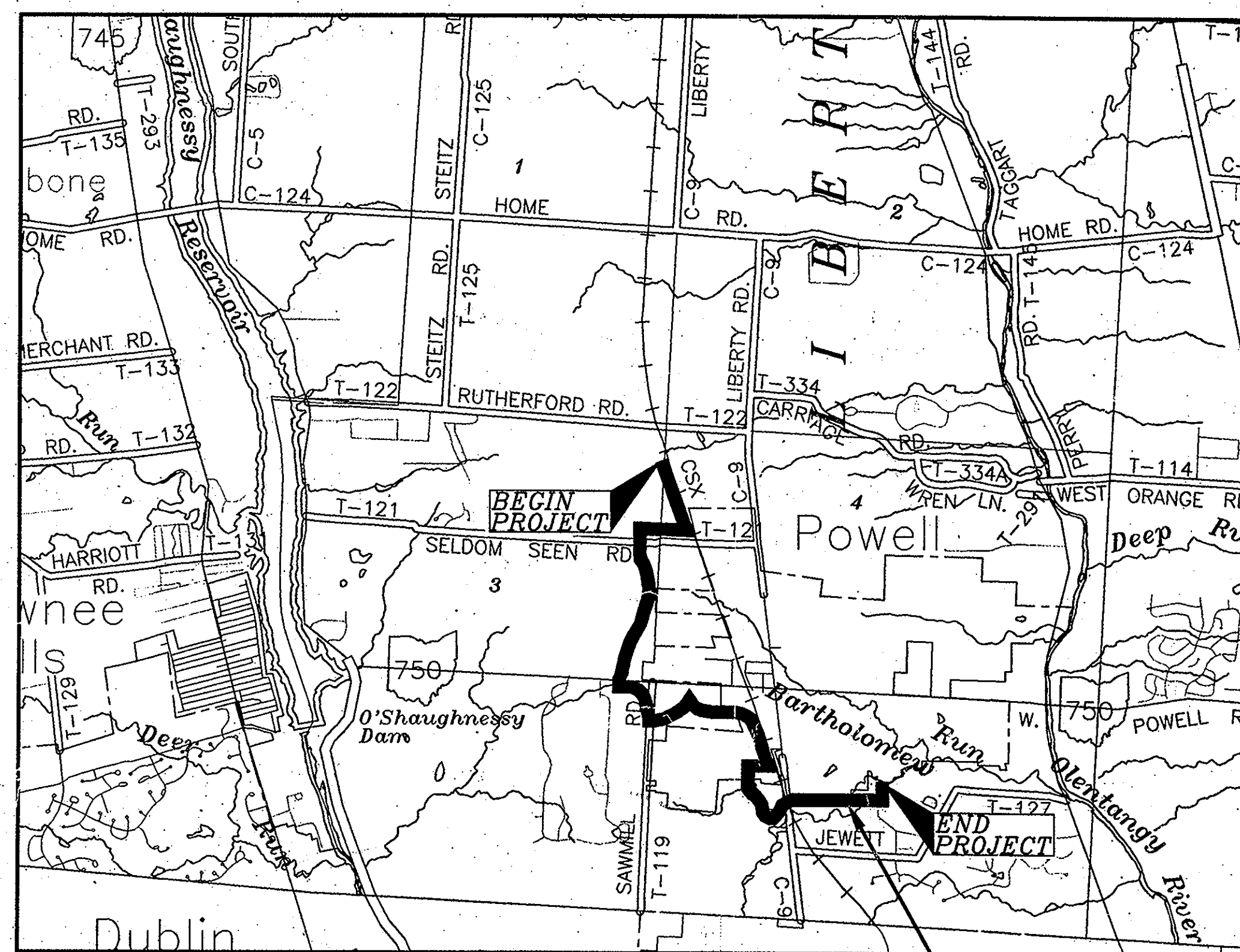
MASTER BENCH MARK:

- NORTH BOLT FIRE HYDRANT @ NW CORNER INT. OF HOME ROAD AND STEITZ ROAD.
ELEV 945.14
- N.E. BOLT AT BASE OF FIRST STEEL POWER POLE N. OF RUTHERFORD ROAD.
ELEV 941.78
- N.E. BOLT AT BASE OF FIFTH STEEL POWER POLE N. OF RUTHERFORD ROAD.
ELEV 938.20

- N.E. BOLT AT BASE OF EIGHTH STEEL POWER POLE N. OF RUTHERFORD ROAD.
ELEV 932.07



VICINITY MAP
(NOT TO SCALE)



SITE MAP

SCALE: 1" = 3500'

UNDERGROUND UTILITIES

Two Working Days
BEFORE YOU DIG

Call 800-362-2764 (Toll free)
OHIO UTILITIES PROTECTION SERVICE

NON-MEMBERS
MUST BE CALLED DIRECTLY

ISSUED

MAY 30 2001

F. D. ZANDE &
ASSOCIATES, INC.

THIS IS TO CERTIFY THAT GOOD ENGINEERING PRACTICES HAVE BEEN UTILIZED IN THE DESIGN OF THIS PROJECT AND THAT ALL MINIMUM STANDARDS AS DELINEATED IN THE DELAWARE COUNTY ENGINEERING AND SURVEYING STANDARDS FOR SUBDIVISION DEVELOPMENT HAVE BEEN MET, INCLUDING THOSE STANDARDS GREATER THAN MINIMUM WHERE, IN MY OPINION, THEY ARE NEEDED TO PROTECT THE SAFETY OF THE PUBLIC.

PREPARED BY:

R.D. Zande & Associates, Inc.
1297 Dublin Road Columbus, Ohio 43216
(614) 486-4383 1-800-340-2743
FAX (614)-486-4387



John J. Sadzewicz
REGISTERED ENGINEER

E34244
E34244

5/7/01
DATE

APPROVALS

APPROVED THIS 23rd DAY OF May, 2001
Jack Smelker
DELAWARE COUNTY SANITARY ENGINEER

APPROVED THIS 23rd DAY OF MAY, 2001
Chris E. Bannerman
DELAWARE COUNTY ENGINEER

APPROVED THIS 29th DAY OF May, 2001
Wm. Dale Wintz
DELAWARE COUNTY COMMISSIONER

APPROVED THIS 29th DAY OF May, 2001
James D. Ward
DELAWARE COUNTY COMMISSIONER

APPROVED THIS 29th DAY OF May, 2001
Robert B. Martin
DELAWARE COUNTY COMMISSIONER

VILLAGE OF POWELL APPROVALS:

THE SIGNATURES BELOW SIGNIFY ONLY CONCURRENCE WITH GENERAL PURPOSES AND GENERAL LOCATION OF THE PROJECT. ALL TECHNICAL DETAILS REMAIN THE RESPONSIBILITY OF THE ENGINEER PREPARING THE PLANS.

APPROVED THIS 22nd DAY OF MAY, 2001
Robert E. Rice, Jr.
VILLAGE OF POWELL, SERVICE DIRECTOR/ENGINEER
ROBERT E. RICE, JR., P.E.

APPROVED THIS 22nd DAY OF MAY, 2001
David M. B. Rice
VILLAGE OF POWELL, DIRECTOR OF DEVELOPMENT
DAVID M. B. RICE, AICP

APPROVED THIS 22nd DAY OF May, 2001
Mark Klein
VILLAGE OF POWELL, MAYOR
MARK KLEIN

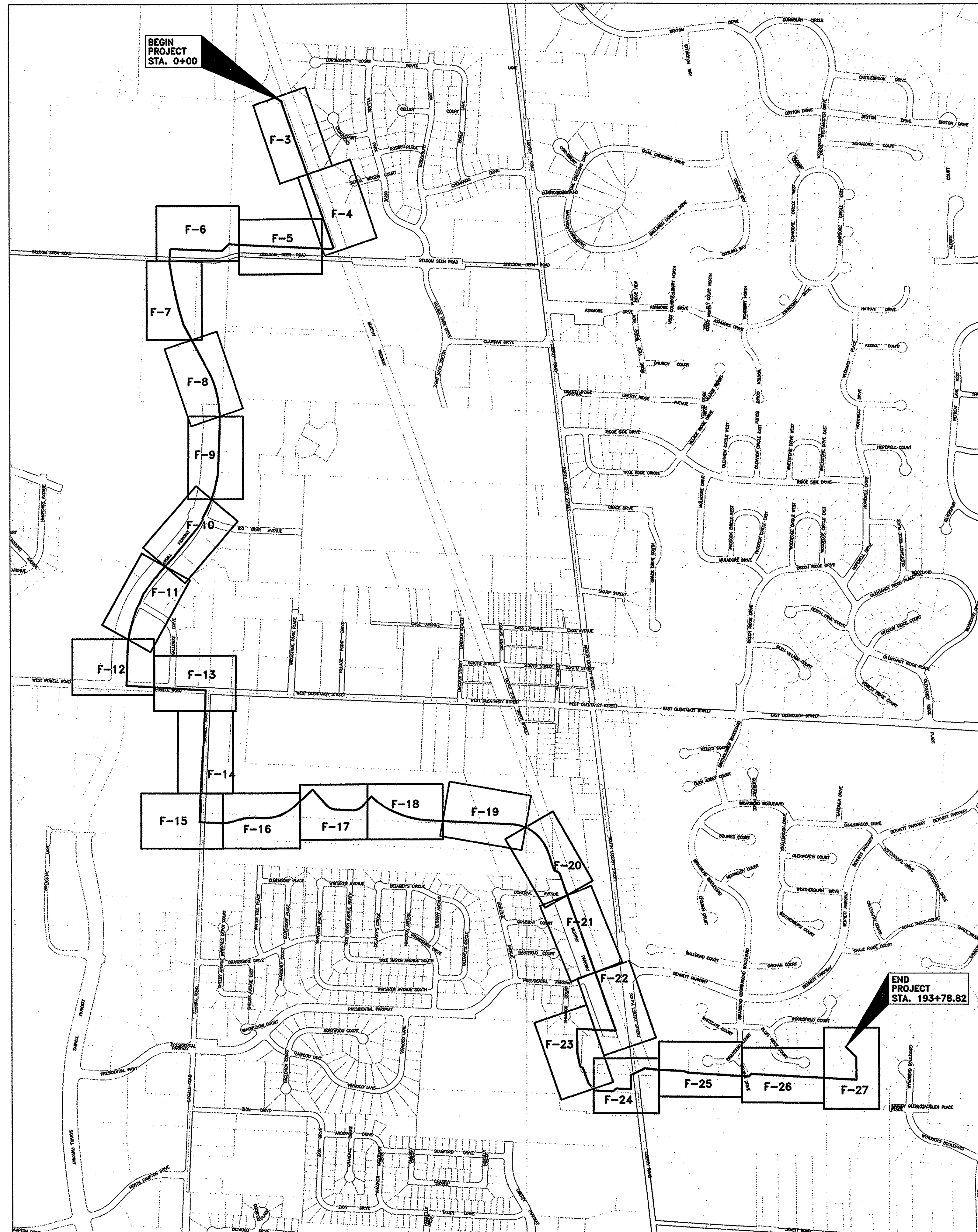
DELAWARE COUNTY
GOLF VILLAGE
REGIONAL PUMP STATION
SITE PLAN

R.D. Zande & Associates, Inc.
1297 Dublin Road Columbus, Ohio 43216
(614) 486-4383 1-800-340-2743
FAX (614)-486-4387

SCALE: AS NOTED


(T-1)

SHEET	STATION
F-3	0+00 - 8+00
F-4	8+00 - 16+00
F-5	16+00 - 24+00
F-6	24+00 - 32+00
F-7	32+00 - 40+00
F-8	40+00 - 48+00
F-9	48+00 - 56+00
F-10	56+00 - 64+00
F-11	64+00 - 72+00
F-12	72+00 - 79+00
F-13	79+00 - 86+00
F-14	86+00 - 94+00
F-15	94+00 - 99+00
F-16	99+00 - 107+00
F-17	107+00 - 115+00
F-18	115+00 - 123+00
F-19	123+00 - 131+00
F-20	131+00 - 139+00
F-21	139+00 - 147+00
F-22	147+00 - 155+00
F-23	155+00 - 163+00
F-24	163+00 - 171+00
F-25	171+00 - 179+00
F-26	179+00 - 187+00
F-27	187+00 - 193+78.82



INDEX MAP
N.T.S.

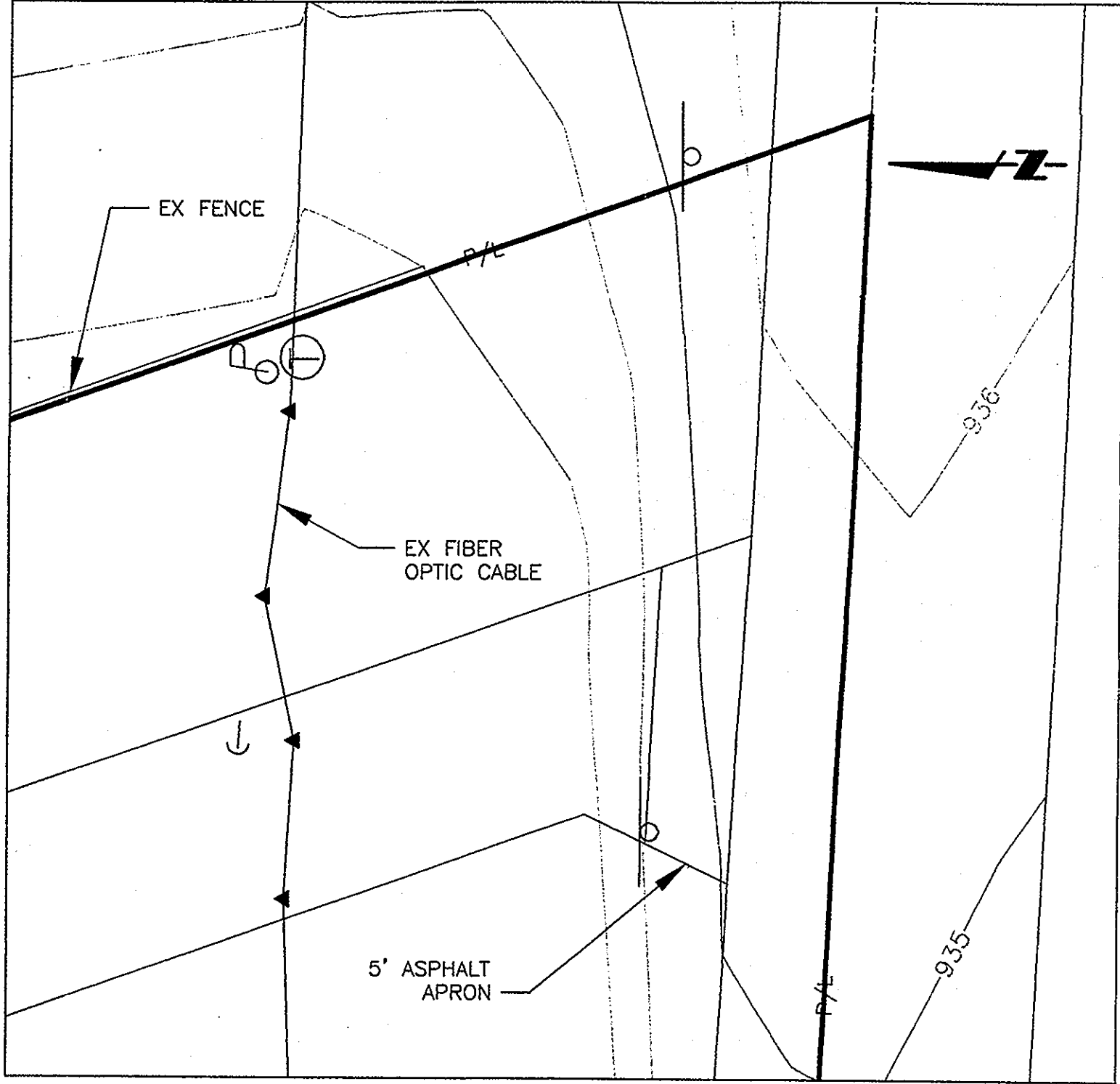
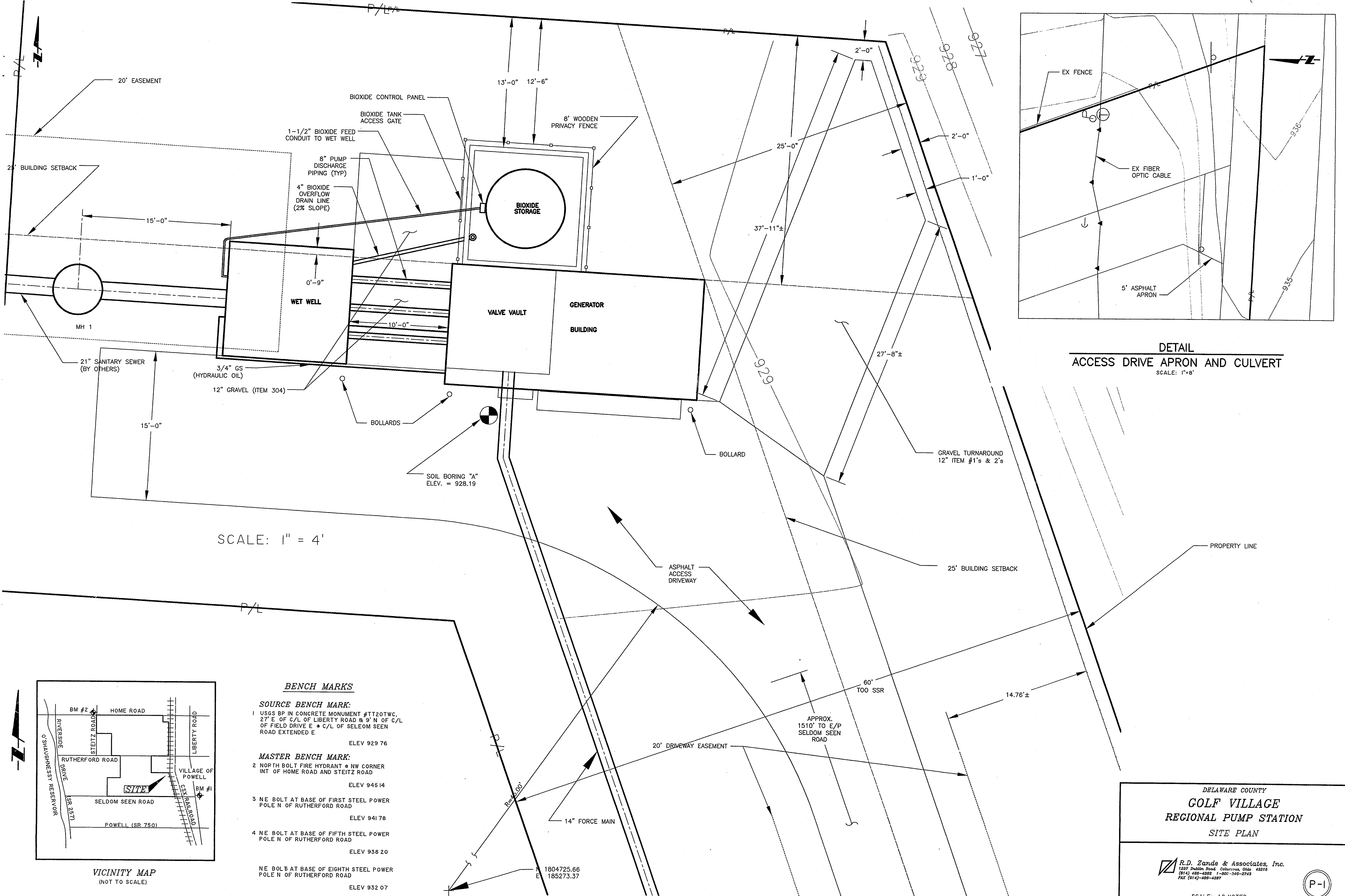
DELAWARE COUNTY
GOLF VILLAGE
REGIONAL PUMP STATION
INDEX MAP

 R.D. Zande & Associates, Inc.
1227 DuBois Road, Columbus, Ohio 43216
(614) 498-4889 1-800-340-2748
FAX (614)-488-4887

SCALE: AS NOTED

T-2

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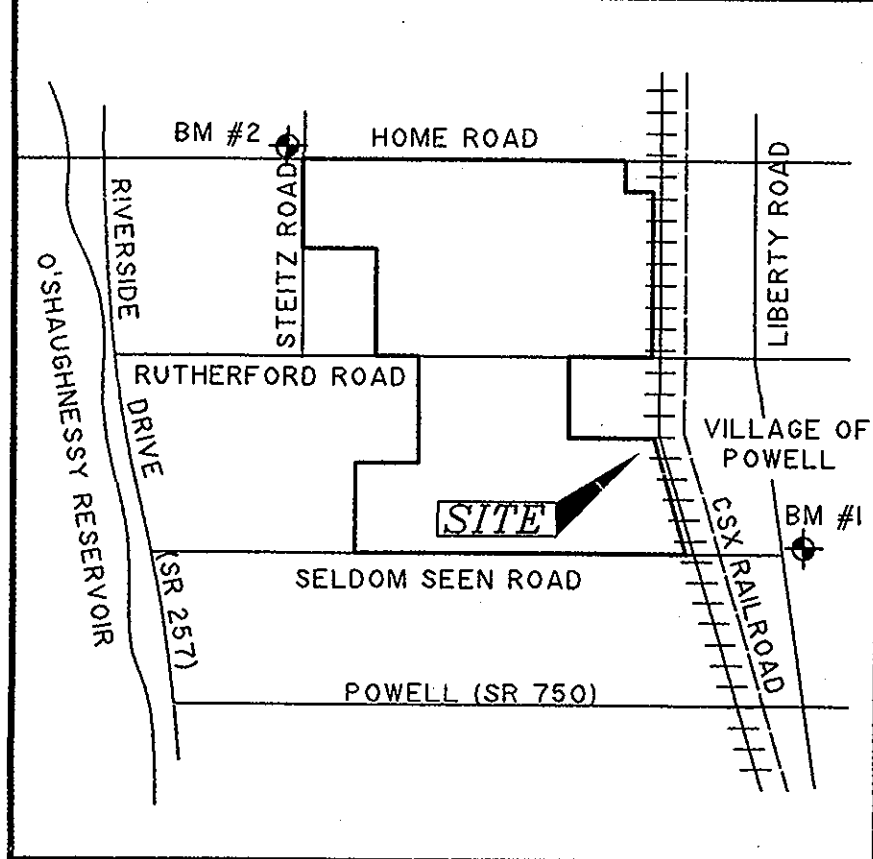


DETAIL
ACCESS DRIVE APRON AND CULVERT
 SCALE: 1" = 8'

SCALE: 1" = 4'

BENCH MARKS

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- 1 USGS BP IN CONCRETE MONUMENT #TT20TWC, 27' E OF C/L OF LIBERTY ROAD & 9' N OF C/L OF FIELD DRIVE E @ C/L OF SELEOM SEEN ROAD EXTENDED E. ELEV 929.76
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VICINITY MAP
 (NOT TO SCALE)

DELAWARE COUNTY
GOLF VILLAGE
 REGIONAL PUMP STATION
 SITE PLAN

R.D. Zande & Associates, Inc.
 1237 Dublin Road, Columbus, Ohio 43216
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P-1

SCALE: AS NOTED

THESE DRAWINGS ARE INSTRUMENTS OF PROFESSIONAL SERVICE PREPARED BY R.D. ZANDE & ASSOCIATES, INC. FOR THE DESIGNATED PROJECT. R.D. ZANDE & ASSOCIATES, INC. ASSUMES NO LIABILITY FOR ANY UNAUTHORIZED USE OF THESE DRAWINGS, SPECIFICATIONS, AND DOCUMENTS.

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LIFT STATION GENERAL NOTES

THE CONTRACTOR SHALL COMPLY WITH THE MATERIAL AND CONSTRUCTION REQUIREMENTS OF THE DELAWARE COUNTY DOCUMENT ENTITLED STANDARD PLANS AND SPECIFICATIONS FOR CONSTRUCTION OF SANITARY FACILITIES, SECTION 7.1. THE DEVELOPER/OWNER SHALL OBTAIN ANY AND ALL DEPARTMENT OF HEALTH PERMITS REQUIRED AND PAY ALL PERMIT FEES.

THE CONTRACTOR SHALL FURNISH ALL MATERIALS, LABOR, TOOLS, TRANSPORTATION, INCIDENTALS AND APPURTENANCES TO COMPLETE IN EVERY DETAIL, AND LEAVE IN WORKING ORDER, ALL ITEMS OF WORK CALLED FOR AND/OR SHOWN ON THE DRAWINGS. ANY MATERIALS OR WORK NOT SPECIFICALLY MENTIONED OR SHOWN ON THE DRAWINGS, BUT NECESSARY TO COMPLETE THE WORK, SHALL BE FURNISHED.

THE CONTRACTOR IS REQUIRED TO VISIT THE SITE INVESTIGATE ALL CONDITIONS AFFECTING THE SCOPE OF THE WORK. FAILURE TO VISIT THE SITE SHALL NOT RELIEVE THE CONTRACTOR FROM ANY RESPONSIBILITY IN THE PERFORMANCE OF THIS CONTRACT.

THE CONTRACTOR SHALL INVESTIGATE AND LOCATE ALL EXISTING UTILITIES AND NOTIFY ALL UTILITY COMPANIES A MINIMUM OF 48 HOURS PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES THAT WILL DISTURB OR ENCRoACH UPON EXISTING UTILITIES.

THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 6" COMPACTED GRANULAR FILL UNDER EACH STRUCTURE.

THE CONTRACTOR SHALL GRADE THE AREA AROUND THE LIFT STATION TO DRAIN SURFACE WATER AWAY FROM THE STRUCTURES. ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED AFTER FINAL GRADING.

ALL GENERAL NOTES SHOWN ON THESE PLANS, WHERE APPLICABLE AND NOT COVERED IN THE NOTES ON THE FORCE MAIN DRAWINGS, SHALL BE CONSIDERED AS A REQUIREMENT FOR THE CONSTRUCTION WORK OF THE LIFT STATION.

ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.

ELECTRICAL NOTES

THE CONTRACTOR SHALL PROVIDE ALL ELECTRICAL COMPONENTS AND DEVICES TO PROPERLY SERVE THE ELECTRICAL REQUIREMENTS OF THE LIFT STATION. ALL WORKMANSHIP, MATERIALS AND EQUIPMENT SHALL CONFORM TO THE OHIO BASIC BUILDING CODE, THE NATIONAL ELECTRICAL CODE, LOCAL BUILDING CODES AND ALL OTHER REGULATIONS BY AUTHORITIES HAVING JURISDICTIONAL RIGHTS FOR THE ENFORCEMENT OF CONSTRUCTION AND SAFETY STANDARDS. THE DEVELOPER/OWNER SHALL PAY THE COSTS OR FEES FOR ANY PERMITS OR AGENCY INSPECTION CHARGES ASSOCIATED WITH THE ELECTRICAL WORK.

ELECTRICAL SERVICE SHALL BE PROVIDED TO WITHIN APPROXIMATELY TEN FEET OF THE PROPOSED LIFT STATION, TERMINATING AT THE CONTRACTOR'S POLE. ALL ELECTRICAL CONNECTION WORK SHALL BE PERFORMED BY THE LIFT STATION CONTRACTOR. THE COST FOR PURCHASING AND INSTALLING THE ELECTRIC METER SHALL BE AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS AND PAY ALL FEES REQUIRED FOR MAKING THE PROPER CONNECTIONS TO THE COLUMBUS SOUTHERN POWER SERVICE WIRING.

PROVIDE AND INSTALL A LIGHTNING ARRESTOR PER DELAWARE COUNTY STANDARDS.

THE CONTRACTOR SHALL FURNISH AND INSTALL A TELEMETRY SYSTEM AS DETAILED ON SHEET P-7 OF THE DRAWINGS.

ALL TELEMETRY COMPONENTS SHALL BE MOUNTED IN A NEMA 1 ENCLOSURE WITH A FABRICATED BACK PANEL AND STRIP HEATER. THE TELEMETRY PANEL SHALL BE INSTALLED IN THE LIFT STATION ENCLOSURE AND MOUNTED NEAR THE PUMP CONTROL PANEL.

ALL PUMP MOTOR STARTERS SHALL BE SOLID STATE TYPE, SERIES SMC BY ALLEN-BRADLEY, OR APPROVED EQUAL.

EMERGENCY GENERATOR

PROVIDE ONE (1) EMERGENCY GENERATOR FOR ELECTRIC POWER OUTAGES. THE GENERATOR SYSTEM SHALL INCLUDE THE FOLLOWING:

1. ONE 150 KW GENERATOR WITH OVERSIZED ALTERNATOR.
2. ONE 200 GALLON DOUBLEWALL UL LISTED FUEL TANK.
3. ONE 225 AMP AUTOMATIC TRANSFER SWITCH.
4. ONE OWL SPIRAL SILENCER MODEL TS60.
5. TWO 72" X 60" OUTSIDE AIR LOUVERS.

PLUG VALVES

NONLUBRICATED ECCENTRIC PLUG WITH RESILIENT PLUG FACES. BODY AND PLUG OF CAST IRON, ASTM A126, CLASS B. BEARINGS SHALL BE NONCORROSIVE AND PERMANENTLY LUBRICATED. SEAT SHALL BE NICKEL OR NICKEL-COATED STAINLESS STEEL. BUSHINGS SHALL BE 316 S.S. PLUG FACING SHALL BE HYCAR OR BUNA-N. PACKAGING SHALL BE BUNA FILLED TFE U-RING. PRESSURE RATED FOR 150 PSI MINIMUM. MANUFACTURER SHALL BE DEZURIK CORP. OR EQUAL.

CHECK VALVES

STANDARD SWING CHECK VALVES W/LEVER AND WEIGHT, LEVER AND SPRING, OR SWING CHECK. BODY, COVER AND LEVERS SHALL BE CAST IRON, ASTM A126, CLASS B. SEATING SHALL BE NEOPRENE RUBBER OR EQUAL. PACKING SHALL BE COMPOSITION. VALVE SHALL BE RATED FOR 150 PSI MINIMUM. MANUFACTURER SHALL BE G.A. INDUSTRIES, VALVE AND PRIMER CORP., M AND H VALVE CO., OR EQUAL.

LIFT STATION SPECIFICATIONS

GENERAL

THE SCOPE OF WORK UNDER THIS CONTRACT INCLUDES FURNISHING AND INSTALLING THE LIFT STATION, COMPLETE AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.

WET WELL AND VALVE VAULT

THE WET WELL AND VALVE VAULT SHALL BE CONSTRUCTED OF PRE-CAST CONCRETE SECTIONS MEETING THE REQUIREMENTS OF ASTM C913.

ALL RISER SECTION JOINTS SHALL BE SEALED WITH MASTIC SEALANT AND SECONDARY URETHANE SEALANT. MANUFACTURER SHALL BE RESPONSIBLE FOR WATER TIGHT STRUCTURE.

ACCESS HATCH AND FRAME ASSEMBLY

THREE (3) FLYGT (OR EQUAL) ALUMINUM SAFE HATCHES SHALL BE CAST INTO THE TOP SLAB OF THE WET WELL. A BILCO ALUMINUM HATCH (OR EQUAL) SHALL BE CAST INTO THE TOP SLAB OF THE WET WELL FOR ACCESS TO THE GRINDER. SIZE AND PLACEMENT SHALL BE AS SHOWN ON THE DRAWINGS. EACH HATCH SHALL BE PROVIDED WITH AN AUTOMATIC HOLD OPEN ARM AND COVER RELEASE. EACH HATCH SHALL HAVE A STAINLESS STEEL HASP FOR PADLOCKING THE COVER.

PIPING

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL PIPING, FITTINGS AND VALVES REQUIRED IN THE WET WELL AND VALVE VAULT AS SHOWN ON THE DRAWINGS. FITTINGS AND VALVES SHALL BE FLANGED DUCTILE IRON CLASS 52 MINIMUM AND PIPING SHALL BE DUCTILE IRON CLASS 52 MINIMUM, CONFORMING TO AWWA C110, C150 AND C151. GASKETS SHALL BE FULL FACED RUBBER MEETING THE REQUIREMENTS OF AWWA C111.

PUMPS

FURNISH AND INSTALL THREE SUBMERSIBLE EXPLOSION-PROOF PUMPS WITH TRIPLEX CONTROLS AS MANUFACTURED BY FLYGT CORPORATION.

MOTORS AND RELATED ELECTRICAL EQUIPMENT SHALL BE EXPLOSION PROOF MEETING THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE FOR CLASS 1, DIVISION 1, GROUP D ENVIRONMENTS.

PUMP IMPELLERS SHALL BE NON-CLOG TYPE, CAPABLE OF PASSING A 4-INCH SPHERE.

PUMPS IN PARALLEL SHALL HAVE A CAPACITY OF 1366 GPM AT A TOTAL DYNAMIC HEAD OF 92 FEET. SINGLE PUMP SHALL HAVE A CAPACITY OF 1084 GPM AT A TOTAL DYNAMIC HEAD OF 70 FEET. MOTORS SHALL BE 30HP, 1750 RPM DESIGNED FOR CONTINUOUS OPERATION ON 460VAC, 3 PHASE, 60 HZ POWER. MOTOR SHALL BE NON-OVERLOADING OVER FULL RANGE OF PUMP CURVE. PUMP EFFICIENCY AT DESIGN FLOW SHALL EXCEED 60%.

THE PUMP VOLUTE CASING, IMPELLER AND MOTOR HOUSING SHALL BE CONSTRUCTED OF CAST IRON OF NO LESSER GRADE THAN CLASS C PER ASTM A48. THE MOTOR SHAFT SHALL BE 316 STAINLESS STEEL WITH DOUBLE MECHANICAL SEAL ASSEMBLY AND LEAK SENSOR.

PUMP INSTALLATION

THE INSTALLATION AND REMOVAL SYSTEM FOR EACH PUMP SHALL CONSIST OF A STATIONARY CAST IRON DISCHARGE ELBOW WITH 125 LB FLANGES AND TWO GUIDE RAILS. GUIDE RAILS SHALL BE 316 STAINLESS STEEL. THE ELBOW SHALL BE ATTACHED TO A SUPPORT BASE THAT IS ANCHORED TO THE FLOOR OF THE WET WELL. THE GUIDE RAILS SHALL BE SECURED AT THE TOP WITH A CAP THAT IS ATTACHED TO THE FRAME OF THE ACCESS HATCH.

A SLIDING BRACKET ASSEMBLY WITH A YOKE CONNECTION TO THE GUIDE RAILS SHALL BE ATTACHED TO EACH PUMP VOLUTE. THE YOKE SHALL BE CONSTRUCTED OF U.L. LISTED, NON-SPARKING BRONZE DESIGNED FOR EXPLOSION PROOF SERVICE.

THE DESIGN OF THE SLIDING BRACKET ASSEMBLY SHALL BE SUCH THAT A MINIMUM FORCE IS EXERTED BETWEEN THE BASE ELBOW AND PUMP DISCHARGE WHILE PROVIDING A POSITIVE SEAL WITHOUT BOLTING OR FASTENING AND TO PROVIDE FOR EASY BREAK AWAY WHEN LIFTING THE PUMP.

PORTABLE HOIST

THE CONTRACTOR SHALL PROVIDE ONE PORTABLE DAVIT TYPE HOIST WITH A HAND WINCH WITH ADEQUATE CAPACITY TO SET IN PLACE OR REMOVE THE SPECIFIED PUMPS OR GRINDER. LIFTING CAPACITY OF THE HOIST SHALL BE A MINIMUM OF 50% GREATER THAN THE WEIGHT OF A PUMP INCLUDING MOTOR AND SLIDING BRACKET ASSEMBLY. THE BOOM SHALL BE OF SUFFICIENT LENGTH TO REMOVE ANY PUMP OR THE GRINDER.

THE WINCH ASSEMBLY, HOOK, 30' CHAIN, DAVIT, DAVIT ADJUSTMENT CHAIN, AND MAST SHALL BE CONSTRUCTED OF 316 STAINLESS STEEL.

THREE MOUNTING SOCKETS SHALL BE PROVIDED FOR SETTING THE MAST OF THE HOIST. THE SOCKETS SHALL BE EMBEDDED IN THE TOP SLAB OF THE WET WELL AND LOCATED AS SHOWN ON THE DRAWINGS.

PUMP CONTROLS

PUMPS SHALL BE CONTROLLED BY MEANS OF FLYGT MULTITRODE MONITOR PRO AND MT3PC TRIPLEX PUMP CONTROLLER.

THE TRIPLEX PUMP CONTROLLER IN A REMOVABLE NEMA 1 STAINLESS STEEL PANEL SHALL BE MOUNTED WITHIN THE LIFT STATION ENCLOSURE. IT SHALL CONTAIN A CIRCUIT BREAKER, MAGNETIC STARTERS, HAND-OFF-AUTO SELECTOR SWITCH, ELAPSED TIME METER, AND SEAL LEAK INDICATING LIGHT FOR EACH PUMP. THE CONTROLLER SHALL CONTAIN AN ALTERNATOR RELAY TO ALTERNATE PUMPS ON EACH SUCCESSIVE PUMP CYCLE. SHALL TURN ON THE SECOND (LAG) PUMP IF THE FIRST (LEAD) PUMP FAILS OR THE INFLOW EXCEEDS THE CAPACITY OF ONE PUMP, AND SHALL TURN ON THE THIRD PUMP IF THE LAG PUMP FAILS.

EACH PUMPS POWER CABLE SHALL BE SUPPORTED FROM THE WET WELL BY BASKET WEAVE STAINLESS STEEL CABLE SUPPORT GRIPS (KELLUM GRIPS).

A 120VAC DUPLEX CONVENIENCE OUTLET WITH GROUND FAULT INTERRUPT PROTECTION SHALL BE PROVIDED.

LEVEL SENSOR POWER CABLE SHALL BE CONNECTED TO THE JUNCTION BOX AT THE TOP OF THE WET WELL. PROVIDE SEAL FITTINGS WHERE CONDUIT ENTERS THE JUNCTION BOX. POWER CABLE SHALL HAVE 10-15' OF COILED SLACK IN THE WET WELL.

EACH PUMP POWER CABLE SHALL BE TERMINATED AT A JUNCTION BOX DISCONNECT AT THE TOP OF THE WET WELL.

EROSION AND SEDIMENT CONTROL:

EROSION AND SEDIMENT CONTROL MEASURES ARE REQUIRED AS PART OF THIS PROJECT. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE FOLLOWED AS OUTLINED IN THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, CONSTRUCTION, AND MATERIAL SPECIFICATIONS, LATEST EDITION ITEM 207. LAND-DISTURBING ACTIVITIES MUST COMPLY WITH ALL PROVISIONS OF THE ODOT REGULATION. ALL LAND ACTIVITIES SHALL BE SUBJECT TO INSPECTION AND SITE INVESTIGATION BY THE OHIO EPA. FAILURE TO COMPLY WITH THESE REGULATIONS IS SUBJECT TO LEGAL ENFORCEMENT ACTION.

PUBLIC OR PRIVATE ROADWAYS SHALL BE KEPT CLEARED OF ACCUMULATED SEDIMENT. BULK CLEARING OF ACCUMULATED SEDIMENT SHALL NOT INCLUDE FLUSHING THE AREA WITH WATER. CLEARED SEDIMENT SHALL BE RETURNED TO THE POINT OF LIKELY ORIGIN OR OTHER SUITABLE LOCATION.

ODOR CONTROL

A "BIOXIDE" ODOR CONTROL SYSTEM AS MANUFACTURED BY U. S. FILTER/DAVIS PROCESS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR, AS SHOWN ON THE DRAWINGS. THIS SYSTEM SHALL INCLUDE THE FOLLOWING COMPONENTS AS A MINIMUM:

1. ONE 2,400 GALLON HIGH DENSITY CROSS LINKED POLYETHYLENE CHEMICAL STORAGE TANK (8'-0" DIA. BY 7'-11" HIGH).
2. ONE COMPLETE CONTROL UNIT TO INDEPENDENTLY CONTROL TWO CHEMICAL FEED PUMPS. CONTROL UNIT SHALL BE HOUSED IN A HEATED 316 STAINLESS STEEL NEMA 3R ENCLOSURE MOUNTED ON A 316 SS SUPPORT PEDESTAL. THE CONTROL UNIT/ENCLOSURE SHALL CONSIST OF THE FOLLOWING:
TWO TWENTY-FOUR HOUR TIME CLOCKS
115VAC, 15 AMP CIRCUIT BREAKER
THERMOSTATICALLY CONTROLLED HEATER
GFI CONVENIENCE RECEPTACLE
ON/OFF SWITCHES WITH L.E.D. INDICATOR LIGHTS
CALIBRATION CYLINDER WITH FLOW CONTROL VALVES AT TOP AND BOTTOM OF THE CYLINDER.
3. ONE M-15907-001 U.S. FILTER BELLOWS PUMP WITH AN ADJUSTABLE FEED RATE FROM 5 TO 50 ml/MIN AT A MAXIMUM DISCHARGE PRESSURE OF 40 PSI.
4. ONE M-15907-002 U.S. FILTER BELLOWS PUMP WITH AN ADJUSTABLE FEED RATE FROM 12 TO 120 ml/MIN AT A MAXIMUM DISCHARGE PRESSURE OF 40 PSI.
5. 4. ONE COMPLETE, HEAT TRACED AND INSULATED PIPING KIT CONSISTING OF THE FOLLOWING: 40 FEET OF 1/2 INCH SCHEDULE 40 PVC PIPE, 2-INCH STAINLESS STEEL MALE CAMLOCK COUPLING, 2-INCH PLASTIC FEMALE CAMLOCK CAP, 2-INCH SCHEDULE 80 PVC TANK FILL PIPING, 30 FEET OF HEAT TRACING AND INSULATION, HEAT TRACING CONTROLLER.

THE CHEMICAL STORAGE TANK SHALL BE MOUNTED ON AN 8" CONCRETE PAD WITH 2' CURB ENCLOSED BY AN 8-FOOT HIGH WOODEN FENCE WITH A 4' X 8' PADLOCKED GATE.

THE CONTRACTOR SHALL INSTALL 1-1/2" I.D. PVC BIOXIDE FEED PIPING CONDUIT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR SHALL FILL TANK AND START UP SYSTEM.

THE CONTRACTOR SHALL INSTALL 4" PVC BIOXIDE OVERFLOW DRAIN FROM BIOXIDE PAD TO WET WELL AT MINIMUM 2% SLOPE.

SEEDING

FURNISH ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY TO PLACE SEED, AGRICULTURAL LIMING MATERIALS, COMMERCIAL FERTILIZER, MULCHING MATERIAL, AND FURNISHING, HAULING, EXCAVATION FOR AND PREPARATION OF THE BED, FOR ALL AREAS WITHIN OR ADJACENT TO THE PROJECT SITE THAT HAVE BEEN CLEARED, FILLED, BACKFILLED, OR DISTURBED DURING THE PROCESS OF CONSTRUCTION. ALL WORK WILL COMPLY TO ALL RULES AND SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, CONSTRUCTION, AND MATERIAL SPECIFICATIONS, LATEST EDITION. AT MINIMUM SEED 20' ON EACH SIDE OF THE ACCESS DRIVE AND 30' BEYOND ALL STRUCTURES.

ACCESS DRIVE

SITE ACCESS DRIVE SHALL BE 12' WIDE WITH A MINIMUM OF 2" OF ITEM 404 WITH A MINIMUM BASE OF 8" OF ITEM 404. SEE DELAWARE COUNTY STANDARD DRAWINGS FOR DETAILS. DRIVEWAY SHALL BE 12' WIDE.

SEWAGE GRINDER

EACH SEWAGE GRINDER SYSTEM SHALL INCLUDE THE DRUMS/SCREENS, GRINDER, HYDRAULIC MOTOR, HYDRAULIC POWER UNIT, HYDRAULIC HOSE, MOTOR CONTROLLER, AND MOUNTING BRACKET WITH GUIDE RAILS.

THE EQUIPMENT SHALL BE INSTALLED AS SHOWN ON THE PLANS, AS RECOMMENDED BY THE MANUFACTURER, AND IN COMPLIANCE WITH ALL OSHA, LOCAL, STATE, AND FEDERAL CODES AND REGULATIONS.

THE SEWAGE GRINDER AND ITS ASSOCIATED COMPONENTS SHALL BE A HYDRAULIC MUFFIN MONSTER, MODEL NO. 30000-0032, MANUFACTURED BY JWC ENVIRONMENTAL. THE GRINDER SHALL BE CAPABLE OF HANDLING 1366 GPM WITHOUT SURCHARGING THE INFLUENT SEWER. GRINDER SHALL BE CAPABLE OF RUNNING DRY WITHOUT DAMAGE.

THE GRINDER SHALL BE MOUNTED IN A 304 STAINLESS STEEL BRACKET WITH 304 S.S. GUIDE RAILS. THE MOUNTING BRACKET SHALL BE LARGE ENOUGH FOR A 21" I.D. INFLUENT SEWER. ALL STEEL SHALL BE MINIMUM 1/4" THICK. ALL SEAM AND FILLET WELDS SHALL BE 1/4". BRACKET AND RAIL SYSTEM SHALL BE PROVIDED BY JWC ENVIRONMENTAL.

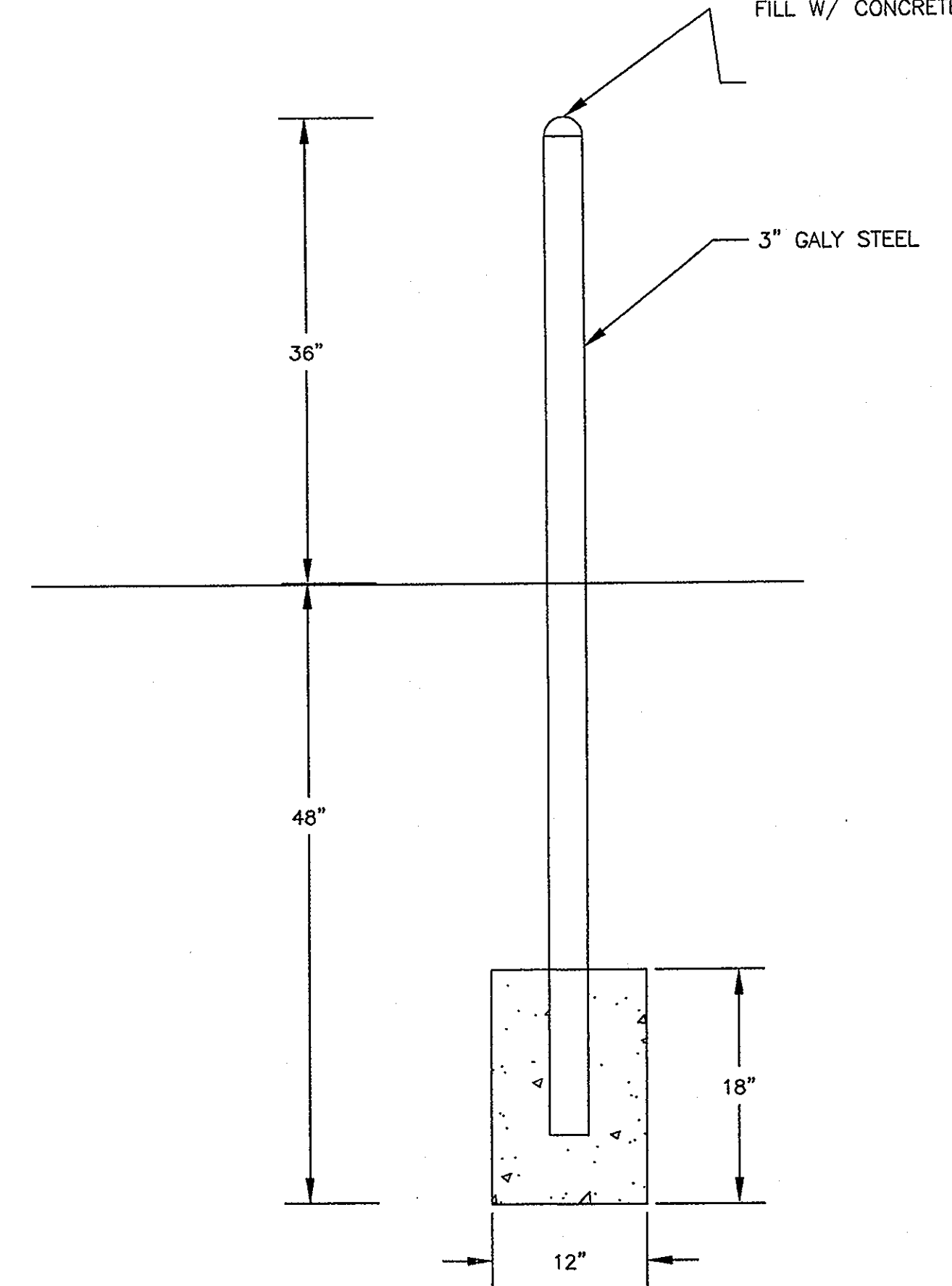
THE CONTRACTOR SHALL PROVIDE 25' OF 3" CONDUIT OF RUNNING THE HYDRAULIC

DEWATERING

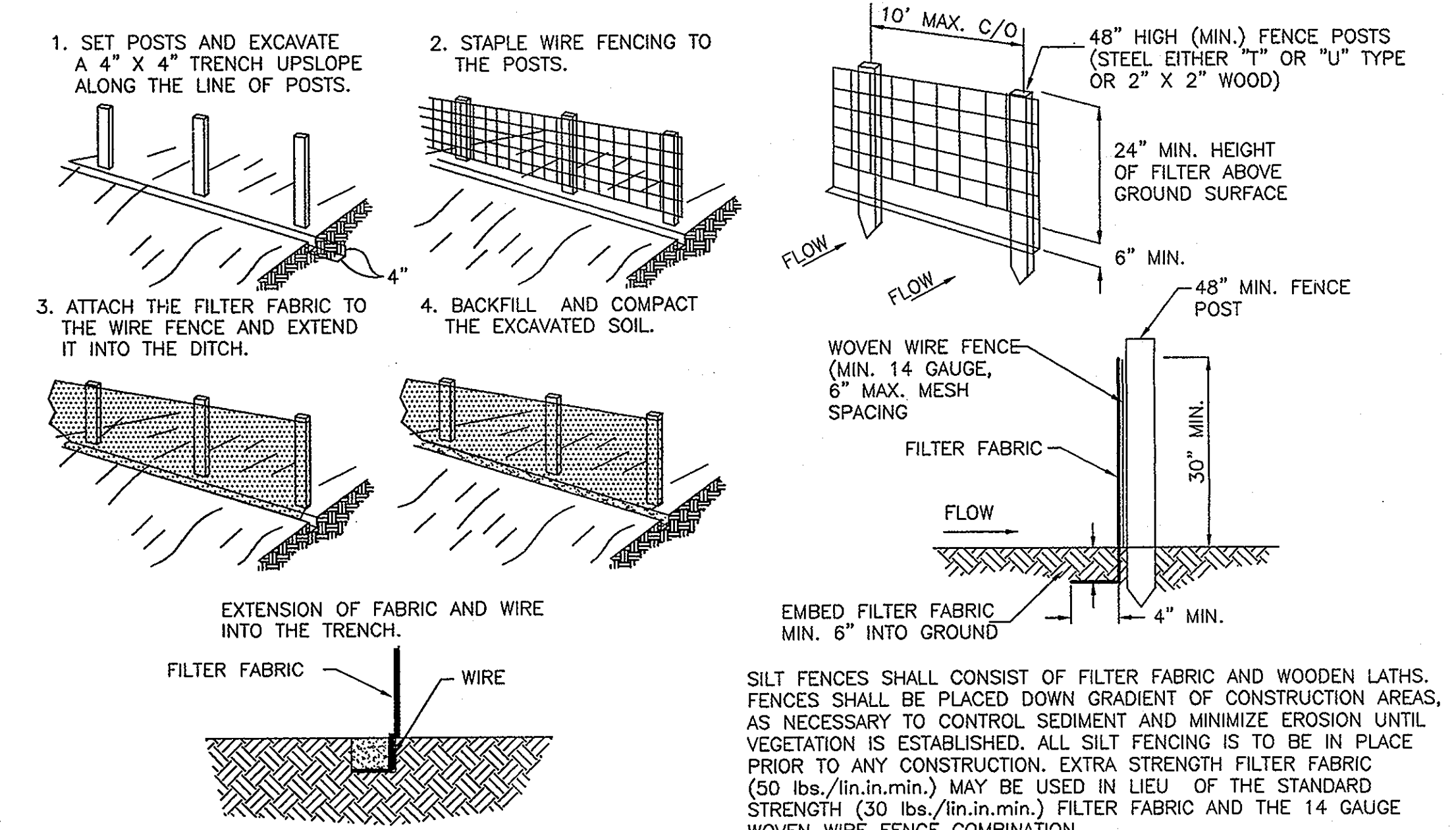
SHOULD WATER BE ENCOUNTERED, THE CONTRACTOR SHALL FURNISH AND OPERATE SUITABLE EQUIPMENT OF SUCH CAPACITY ADEQUATE TO DEWATER THE TRENCH OR EXCAVATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE DEWATERING METHODS DO NOT AFFECT EXISTING SHALLOW GROUNDWATER WELLS IN THE AREA, IF PRESENT. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING POTABLE WATER TO THOSE PROPERTY OWNERS WHOSE WELLS ARE AFFECTED BY THE CONSTRUCTION FOR AS LONG AS NECESSARY. ALL DEWATERING FLOWS ARE TO BE SETTLED IN SILTATION BASINS OR DIRECTED THROUGH FILTERS BEFORE DISCHARGE TO STABILIZED SITES, SUCH AS STREAMS OR STORM SEWERS; NOT ON TO EXPOSED SOILS, STREAM BANKS, OR ANY OTHER SITES WHERE THE FLOWS COULD CAUSE EROSION.

BACKFILL

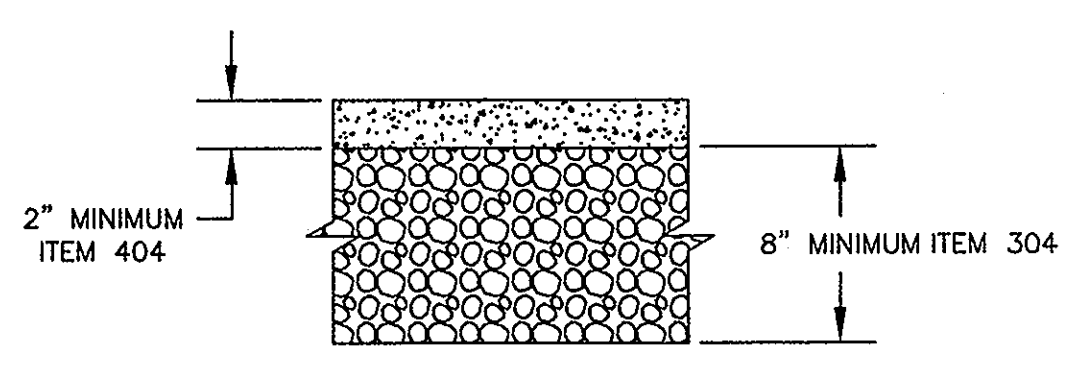
BACKFILL UNDER ALL STRUCTURES SHALL BE COMPACTED GRANULAR BACKFILL, ITEM 304 COMPACTED TO 100% MAXIMUM DRY DENSITY.



BOLLARD DETAIL



CONSTRUCTION OF A SILT FENCE
EROSION CONTROL DETAILS
NOT TO SCALE



TYPICAL DRIVEWAY SECTION
NOT TO SCALE

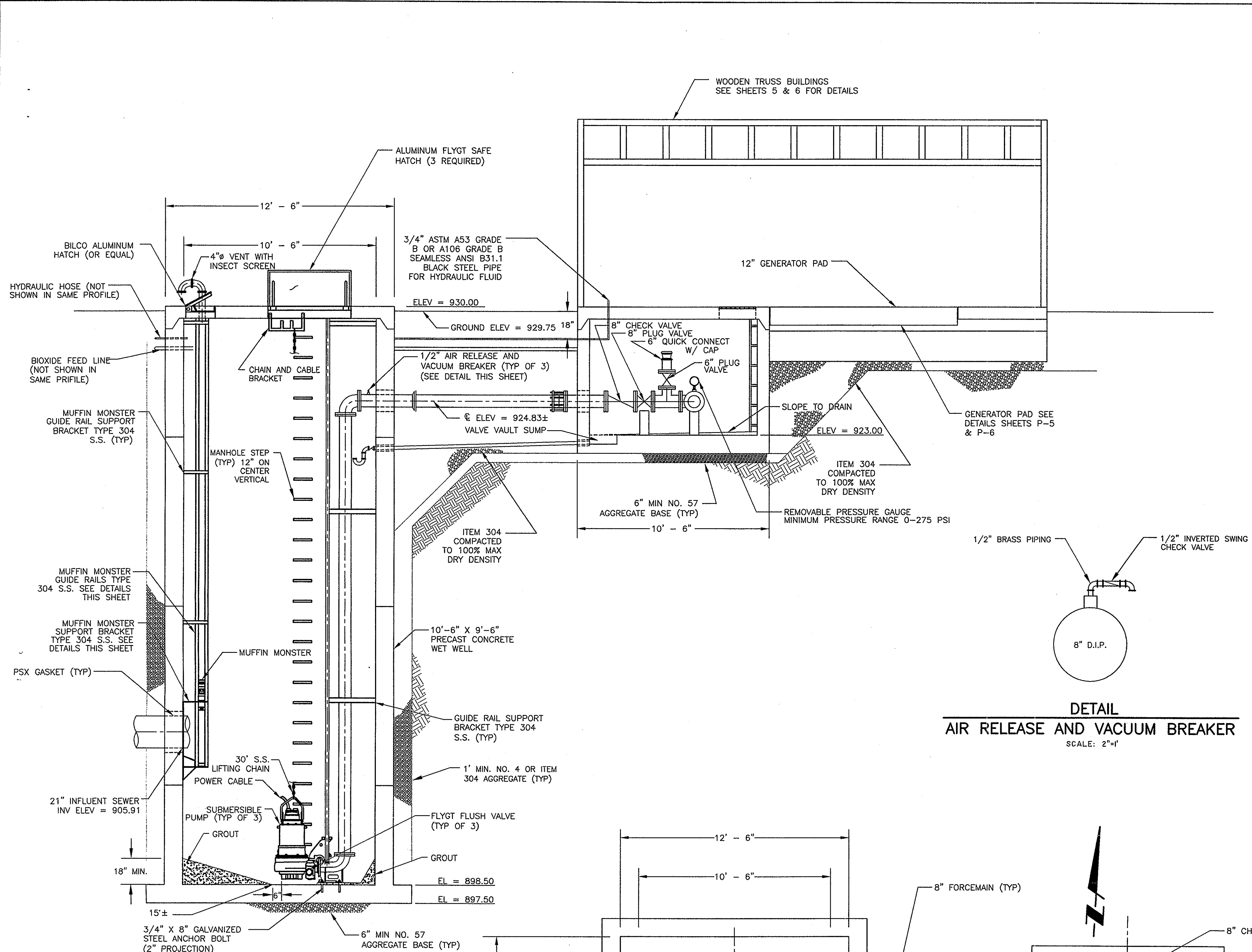
DELAWARE COUNTY
GOLF VILLAGE
REGIONAL PUMP STATION
GENERAL NOTES

R.D. Zande & Associates, Inc.
1287 Dublin Road, Columbus, Ohio 43216
(614) 488-4388 • (614) 488-4387
FAX (614) 488-4387

SCALE: N T S

P-2

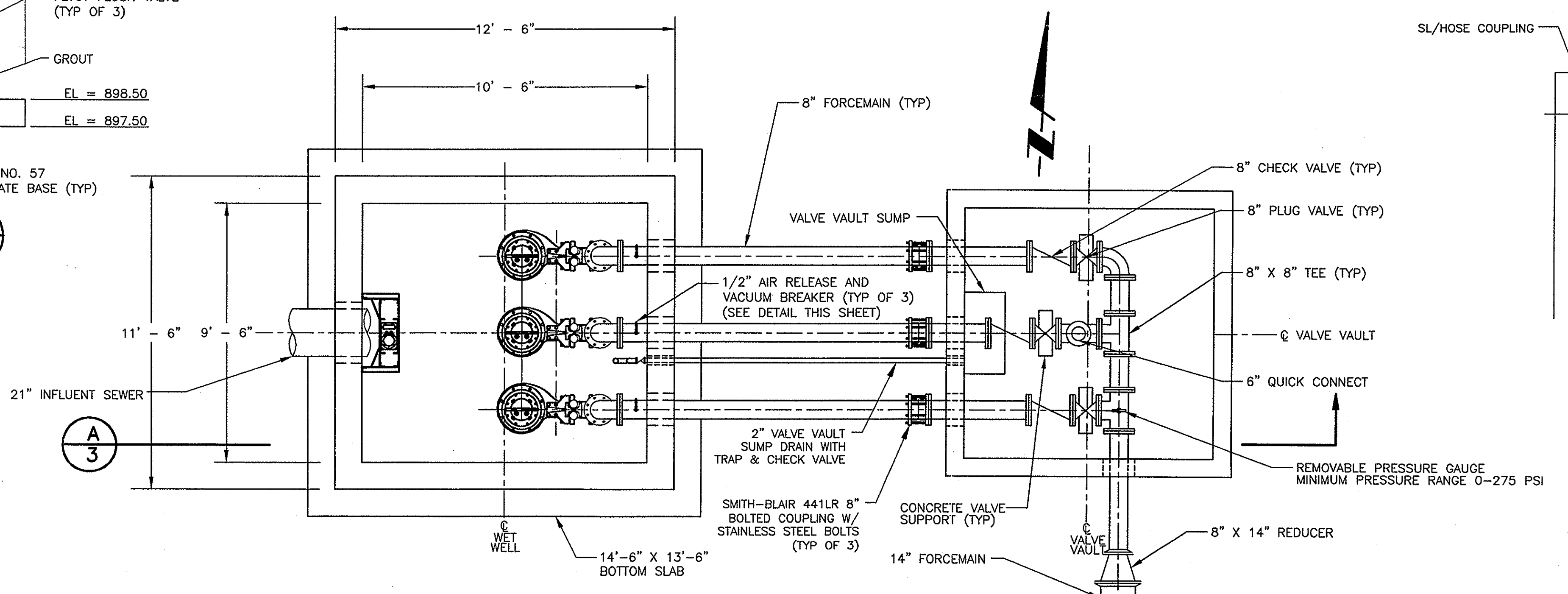
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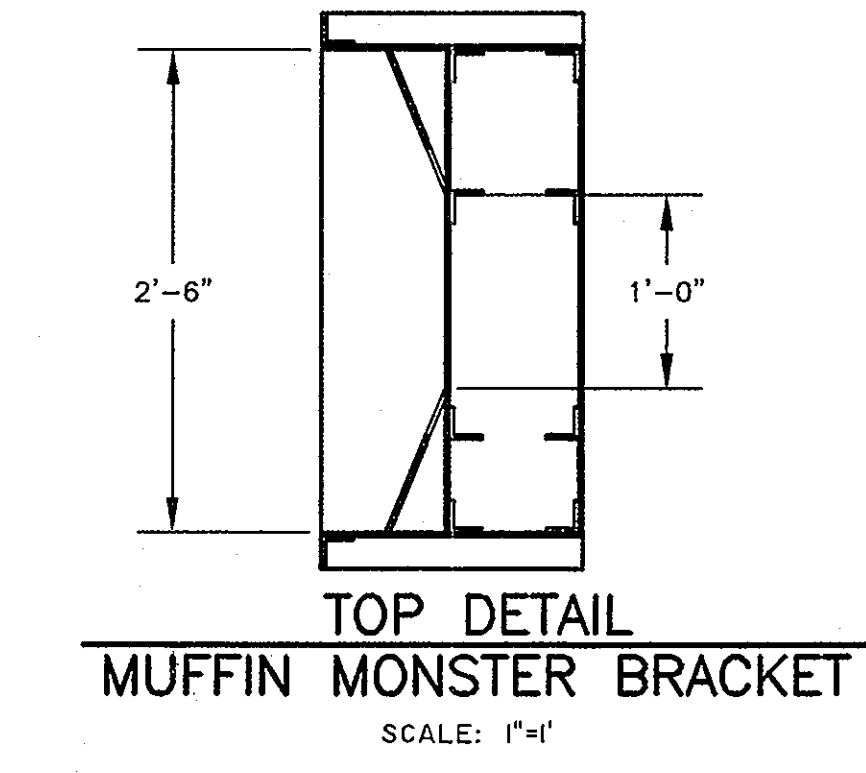
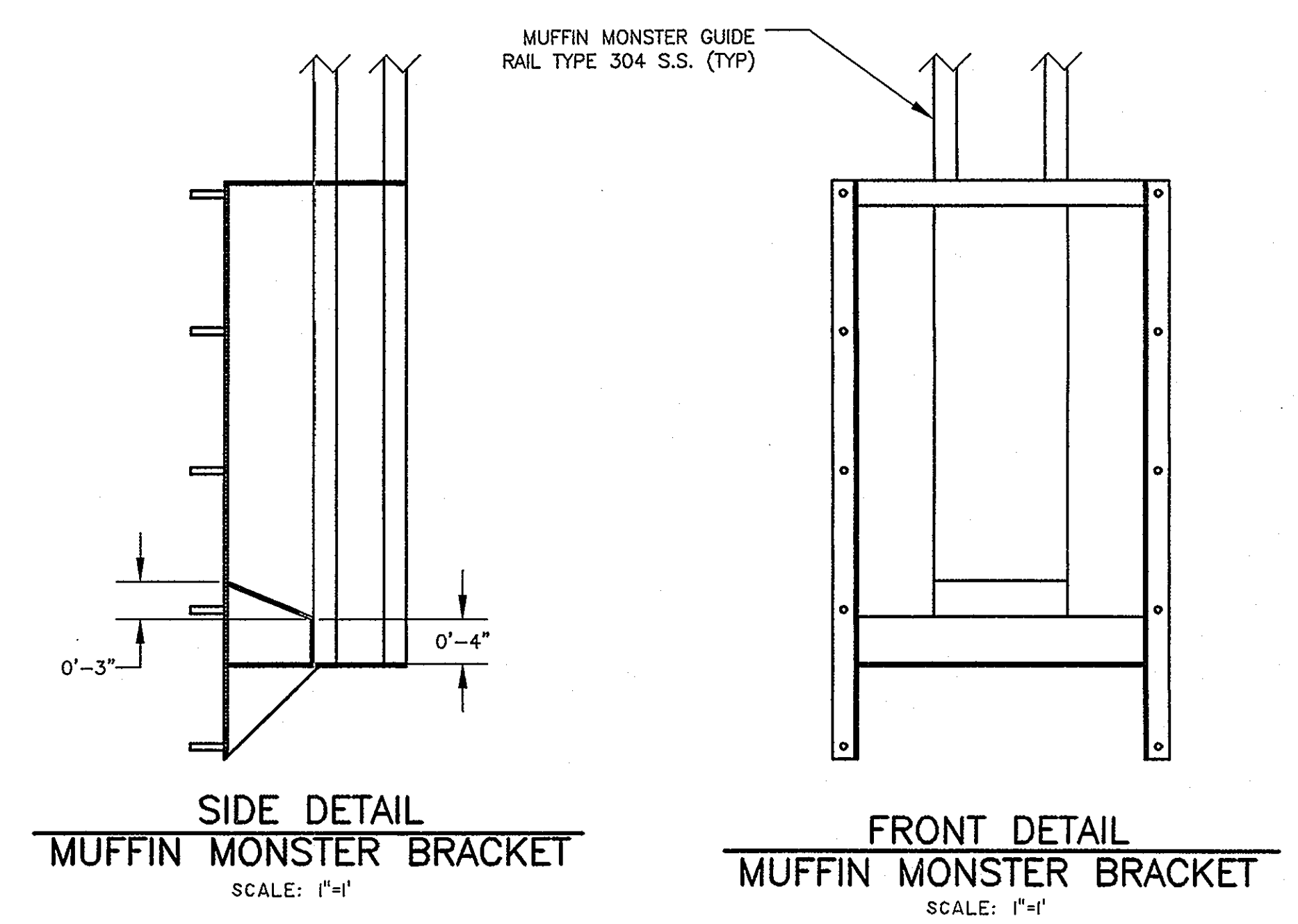
SECTION A-3
PUMP STATION PROFILE
 SCALE: 1"=3'

CONTROL (ULTRASONIC) ELEVATIONS:

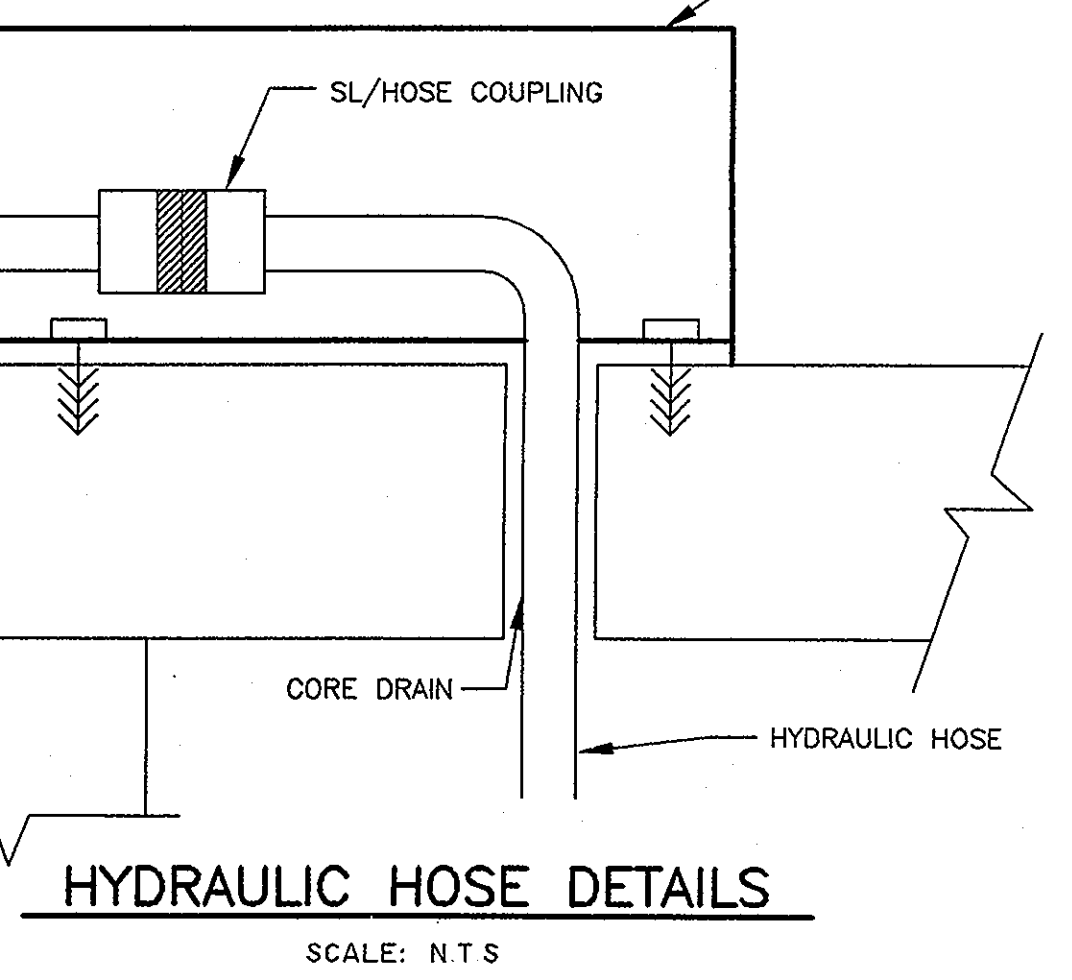
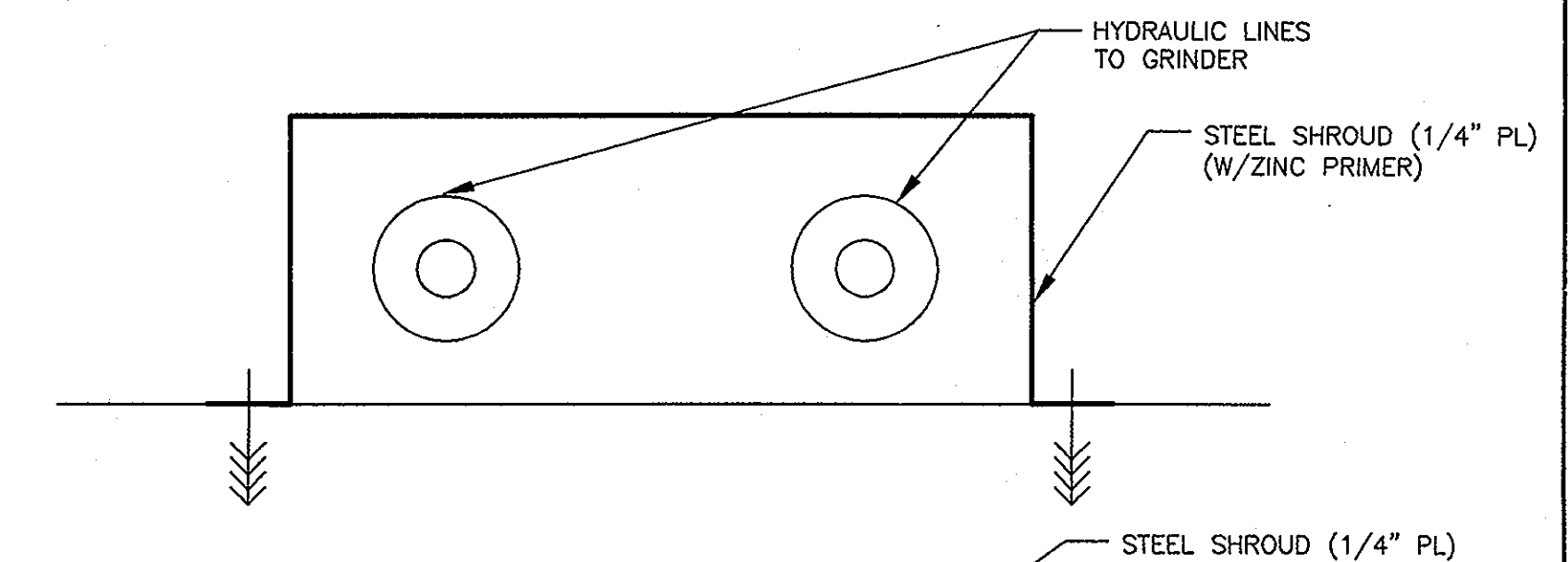
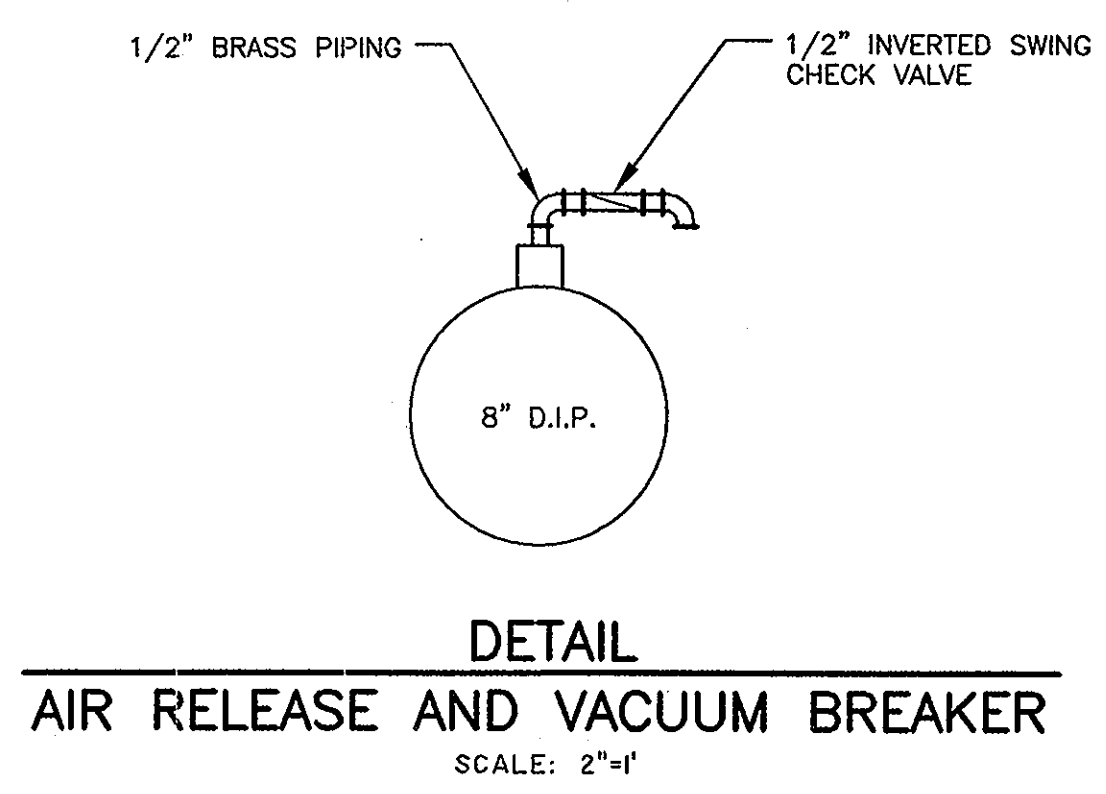
CONTROL	DESCRIPTION	ELEV.
A	PUMPS OFF	899.92
B	FIRST PUMP ON	902.67
C	SECOND PUMP ON	903.67
D	ALARM/3RD PUMP ON	904.67



PLAN
PUMP STATION
 SCALE: 1"=3'



NOTES:
 BRACKET AND GUIDE RAIL SYSTEM TO BE PROVIDED BY JWC ENVIRONMENTAL.
 ALL ANCHOR BOLTS TO BE 1/2" X 3" STAINLESS STEEL SUPPLIED BY JWC ENVIRONMENTAL.



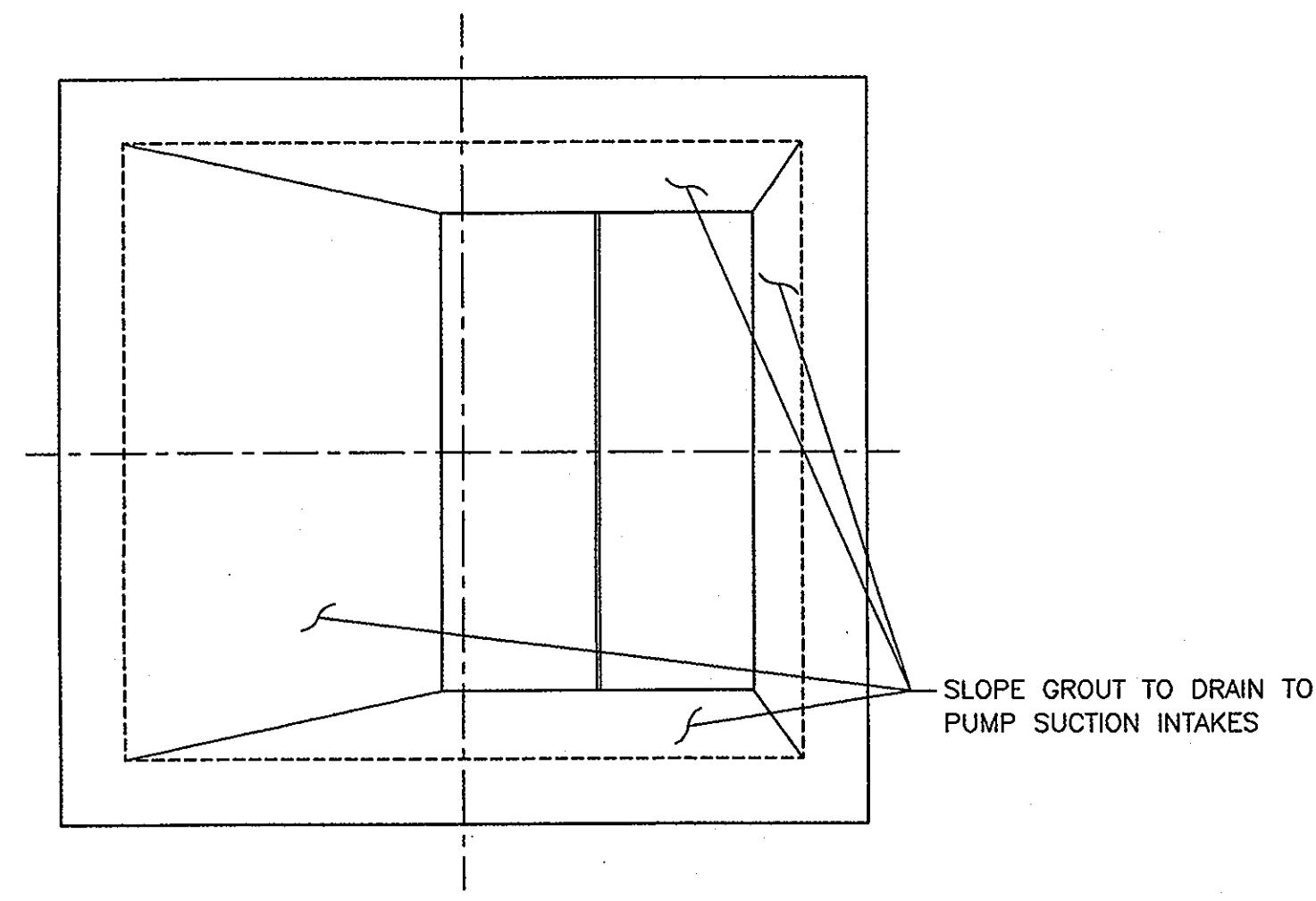
DELAWARE COUNTY
GOLF VILLAGE
 REGIONAL PUMP STATION
 PUMP STATION PLAN, PROFILE & DETAILS

R.D. Zande & Associates, Inc.
 1287 Dublin Road, Columbus, Ohio 43215
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 FAX (614) 488-4387

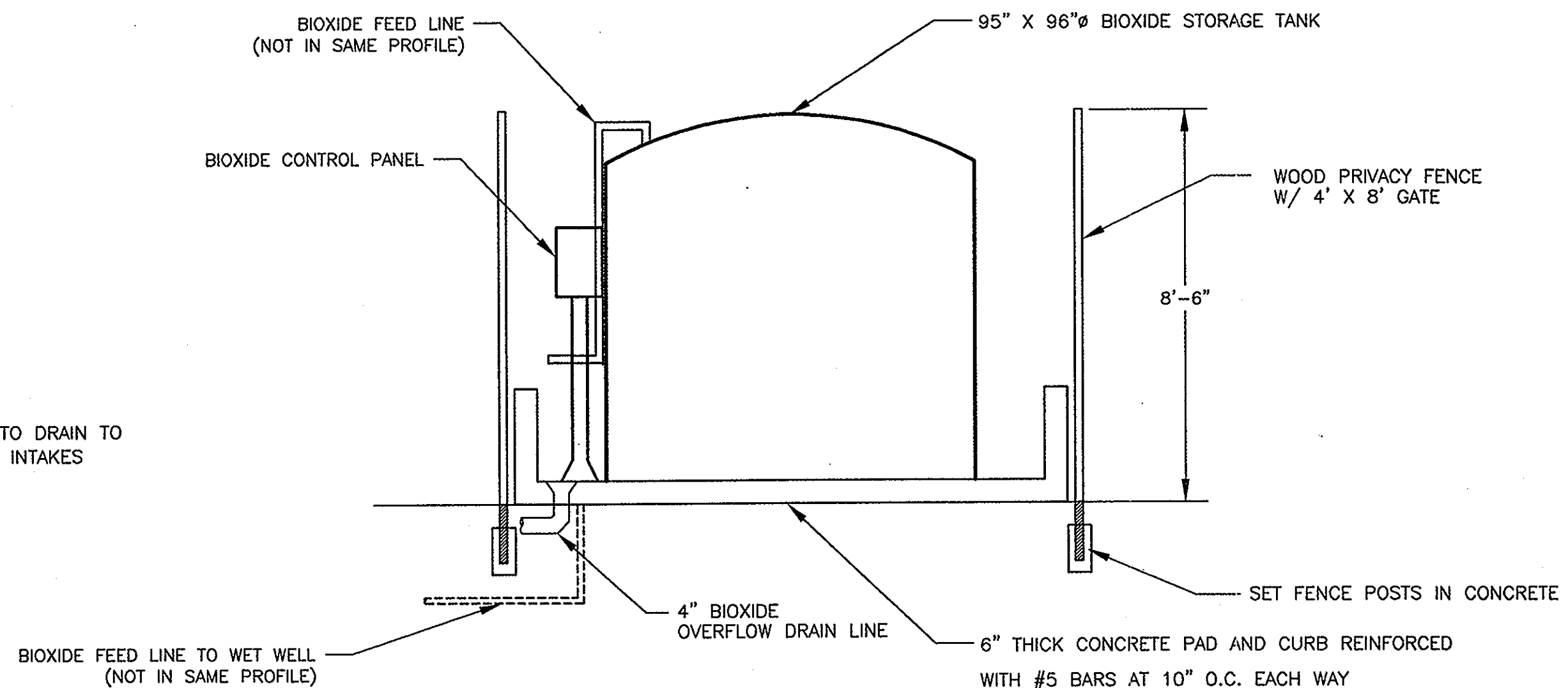
SCALE: AS NOTED

P-3

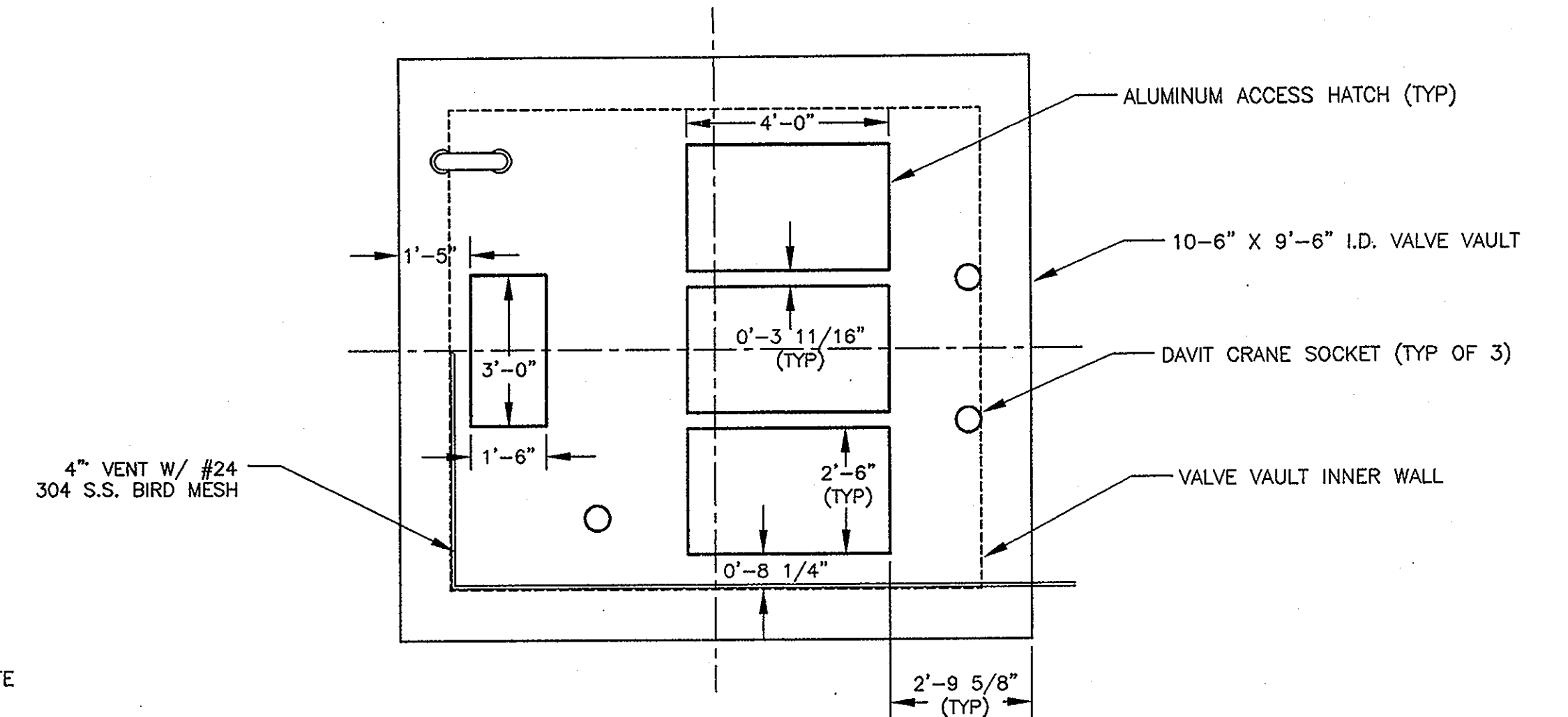
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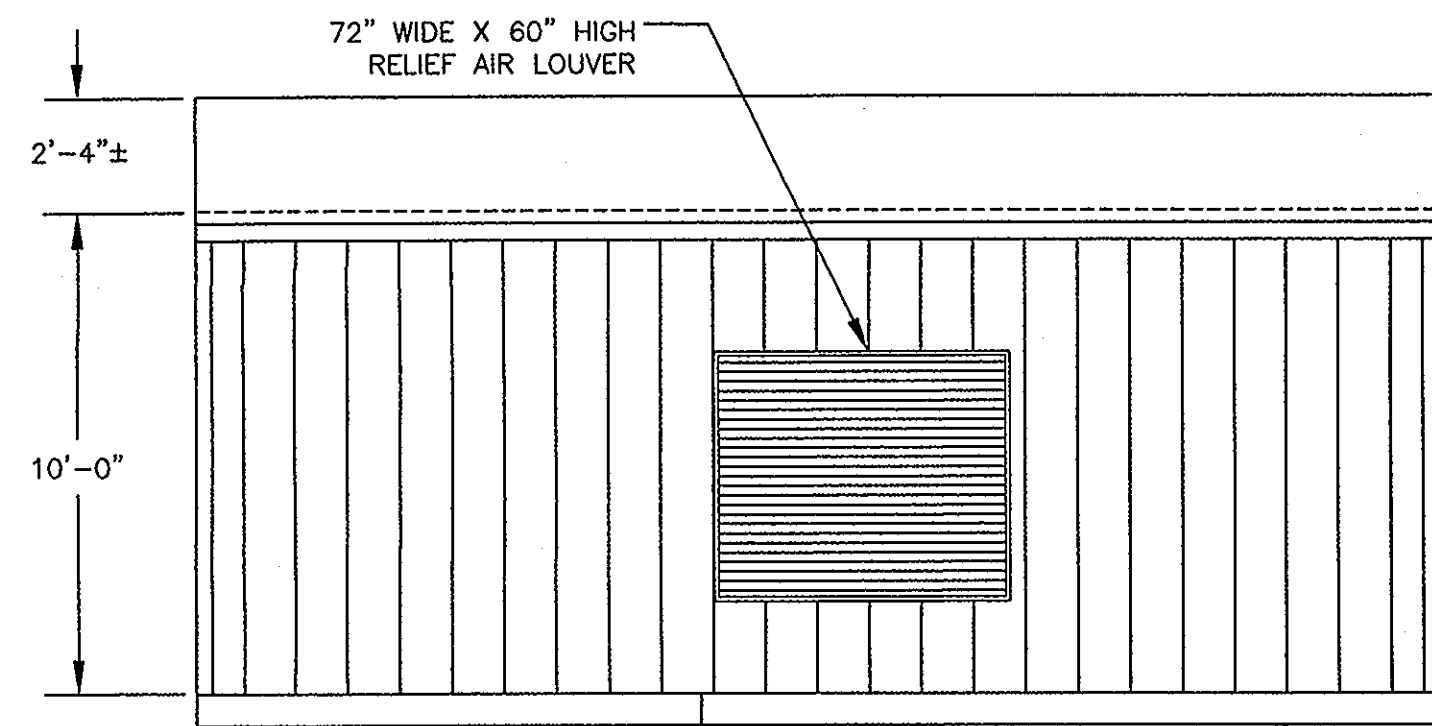
PLAN
WET WELL BOTTOM
SCALE: 3/8" = 1'



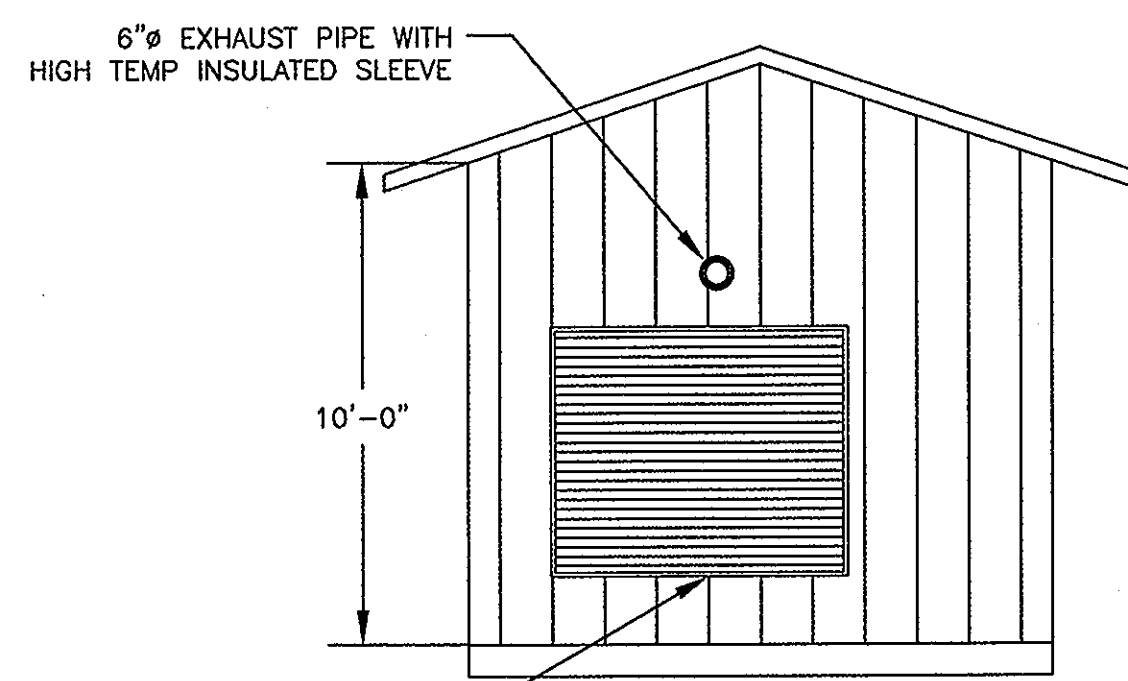
SECTION
BIOXIDE TANK AND SLAB
SCALE: 3/8" = 1'



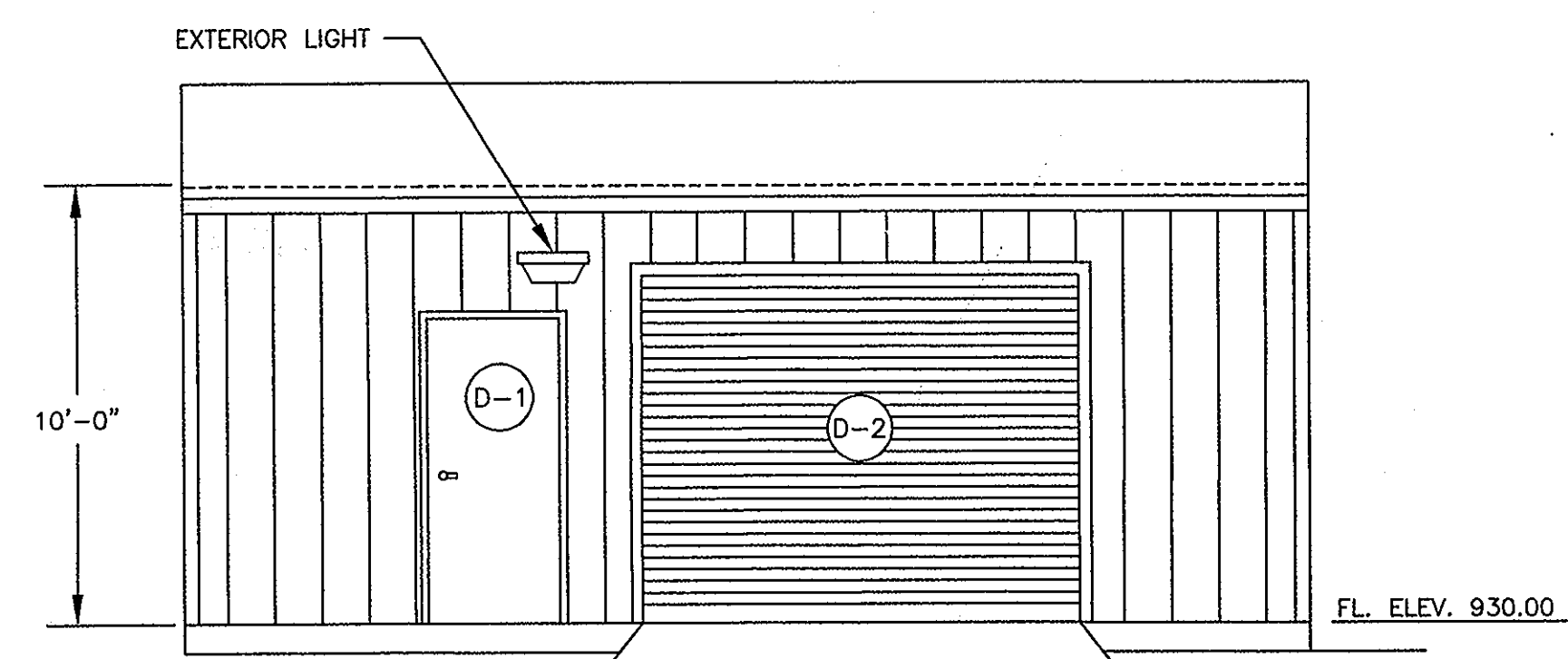
PLAN
WET WELL TOP SLAB AND HOIST FOUNDATION
SCALE: 3/8" = 1'



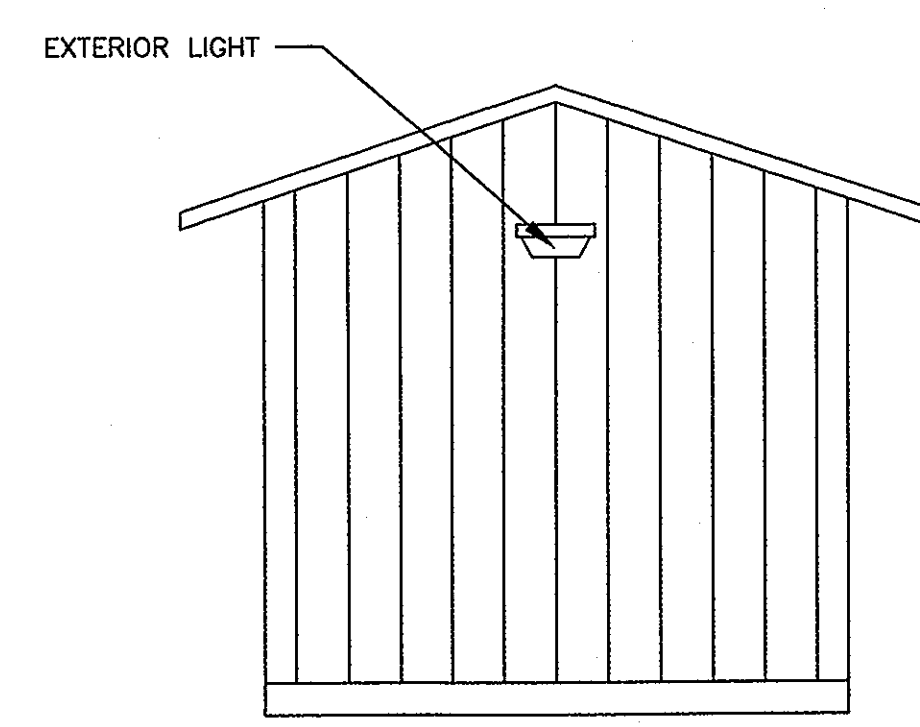
NORTH ELEVATION
SCALE: 1/4" = 1'



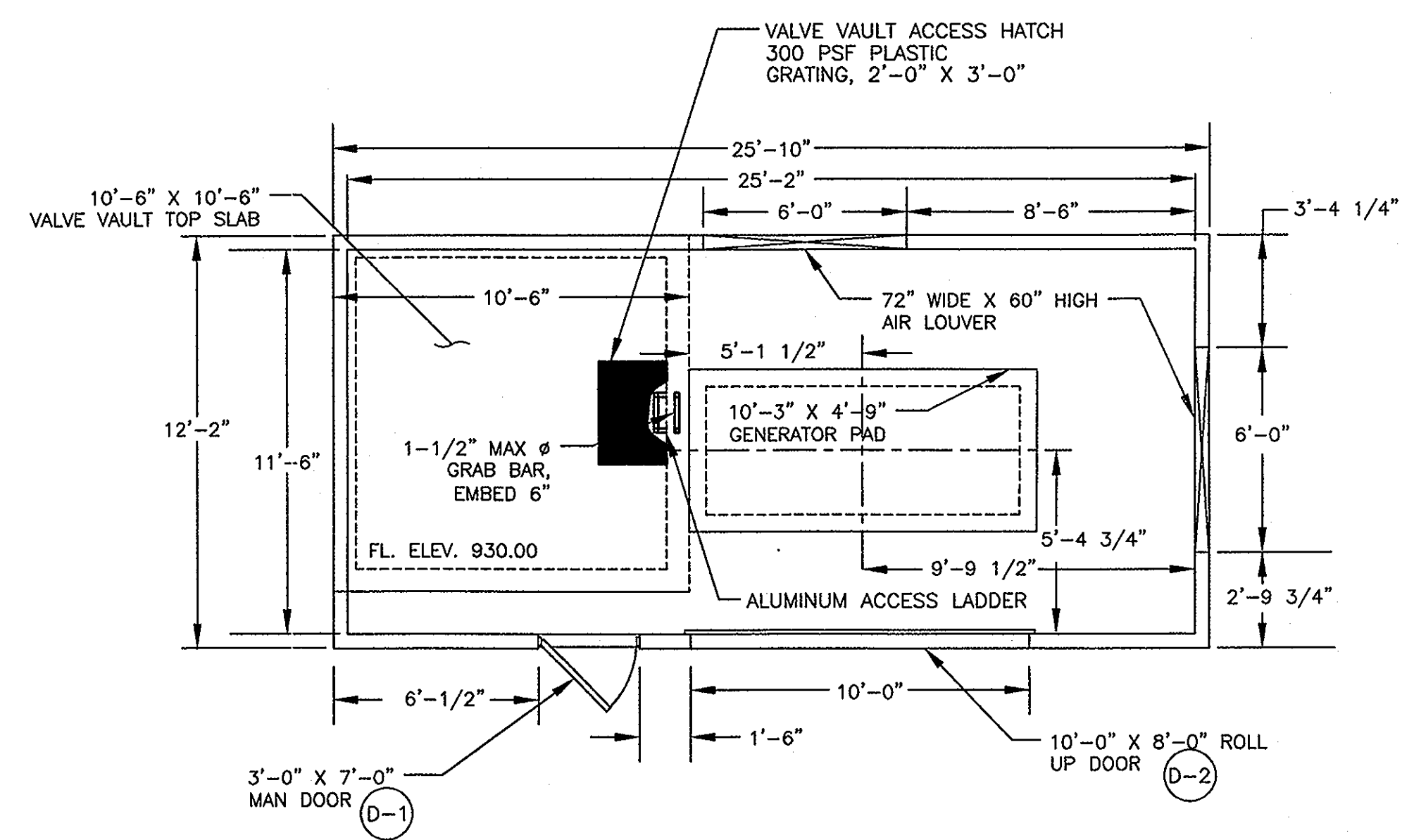
EAST ELEVATION
SCALE: 1/4" = 1'



SOUTH ELEVATION
SCALE: 1/4" = 1'



WEST ELEVATION
SCALE: 1/4" = 1'



GENERATOR BUILDING FLOOR PLAN
SCALE: 1/4" = 1'

NOTES:
MAN DOOR (D-1) SHALL BE 3'-0" x 7'-0" HOLLOW METAL DOOR W/O WINDOW OR VENT AS MANUFACTURED BY FENESTRA CORP, OR EQUAL. BUILDING OPENING SHALL BE 3'-4" x 7'-4".

COILING DOOR (D-2) SHALL BE 10'-0" x 8'-0" INSULATED COILING ROLL-UP DOOR AS MANUFACTURED BY CORNELL IRONWORKS, OR EQUAL.

ALL DOORS SHALL BE LOCKABLE. MAN DOOR SHALL HAVE A DEADBOLT. CONTRACTOR SHALL COORDINATE KEYING WITH DELAWARE COUNTY.

DELAWARE COUNTY
GOLF VILLAGE
REGIONAL PUMP STATION
BUILDING DETAILS

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1257 Dublin Road, Columbus, Ohio 43216
(614) 488-4888 1-800-340-2748
FAX (614) 488-4887

SCALE: AS NOTED

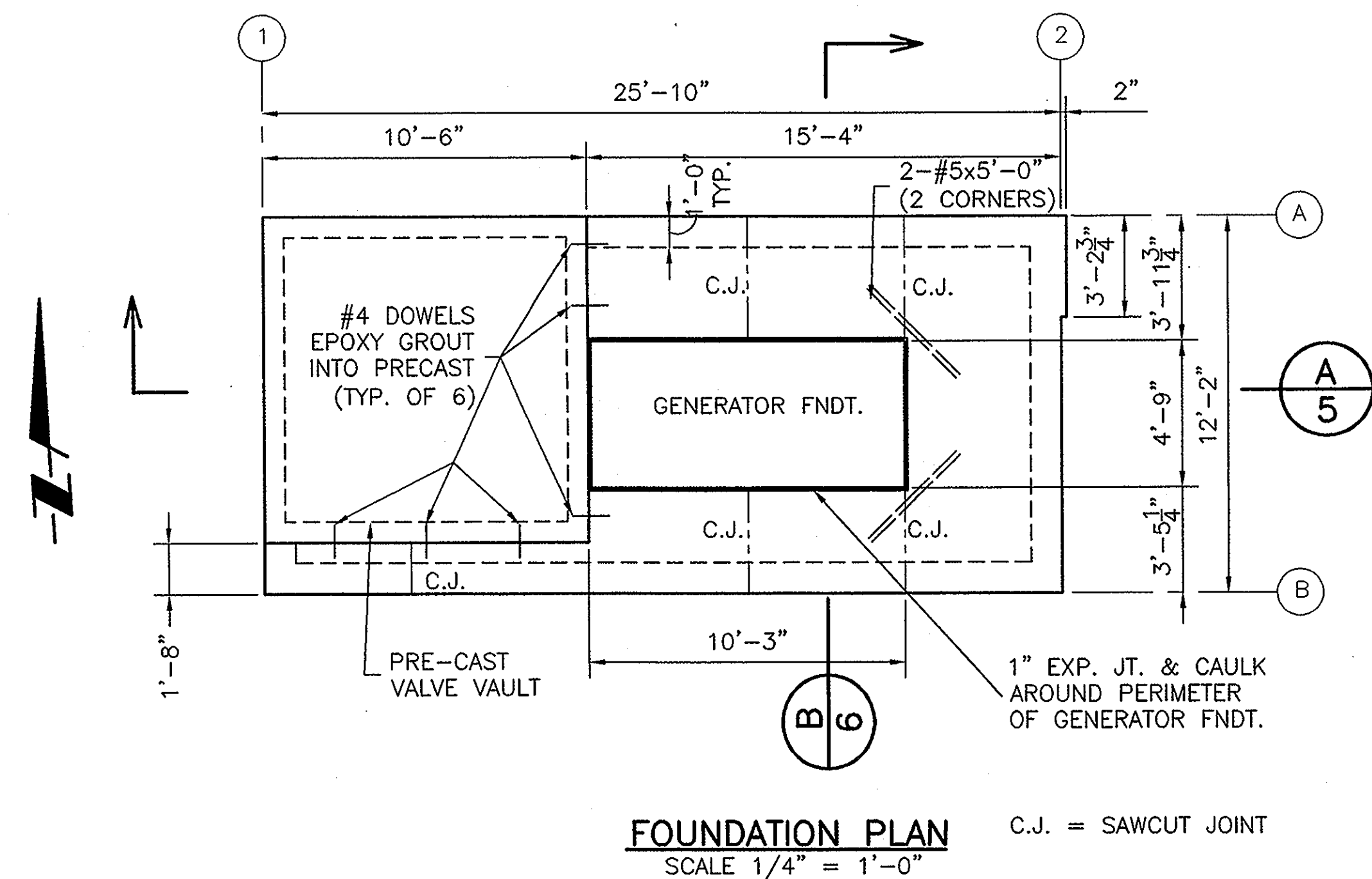
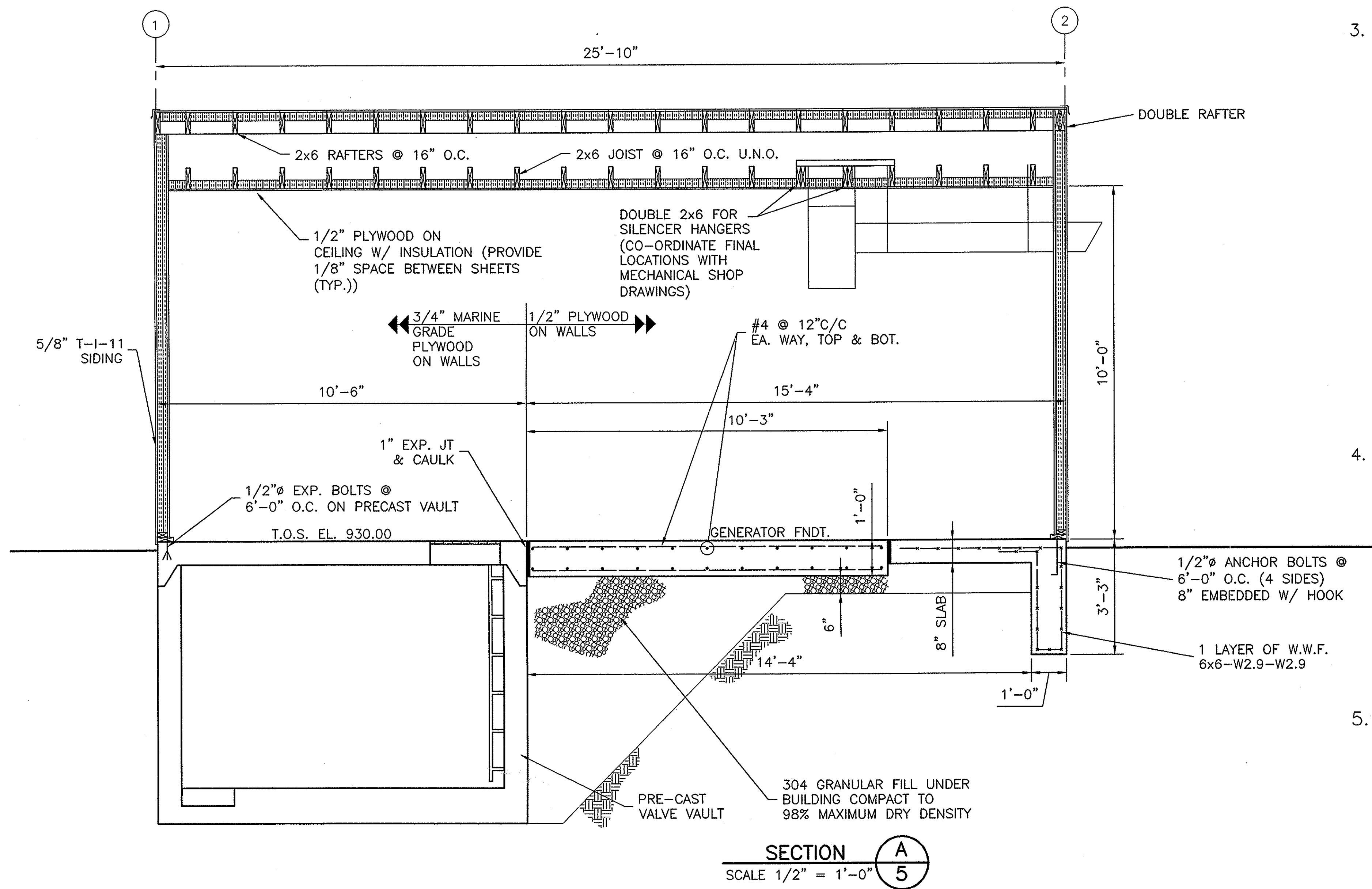
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GENERAL NOTES

1. **GOVERNING SPECIFICATIONS:** "STATE OF OHIO, CONSTRUCTION AND MATERIAL SPECIFICATIONS, 1997."
2. **DESIGN:**
 - a. OHIO BASIC BUILDING CODE BUILDING, 1998 - USER GROUP F-2
3. **LOADS:**
 - a. ROOFING LIVE LOAD = 20 POUNDS/SQ. FT., ROOF DEAD LOAD = 17 (P.S.F.)
 - b. SNOW LOADS
 1. GROUND SNOW LOAD (PG) = 25 P.S.F.
 2. FLAT ROOF LOAD (PF) = 21 P.S.F.
 3. SNOW EXPOSURE FACTOR (CE) = 0.7
 4. SNOW IMPORTANCE FACTOR (I) = 1.2
 - c. WIND LOAD
 1. BASIC WIND SPEED = 80 M.P.H.
 2. WIND LOAD IMPORTANCE FACTOR (I) = 1.15
 3. WIND EXPOSURE FACTOR (CE) = 0.7
 4. WIND DESIGN PRESSURE (P) = 20 PSF
 - d. SEISMIC LOAD
 - a. PEAK VELOCITY - RELATED ACCELERATION (Av) = 0.07
 - b. PEAK ACCELERATION (Aa) = 0.07
 - c. SEISMIC HAZARD EXPOSURE GROUP III
 - d. SEISMIC PERFORMANCE CATEGORY C
 - e. SITE COEFFICIENT S = 1.0
 - f. BASIC STRUCTURE SYSTEM & SEISMIC RESISTING SYSTEM - LIGHT FRAME WALL WITH SHEAR PANELS
 - g. RESPONSE MODIFICATION FACTOR (R) = 6 1/2
 - h. DEFLECTION AMPLIFICATION FACTOR (Cd) = 4
 - j. EQUIVALENT LATERAL FORCE PROCEDURE USED - SEC. 1610.4
4. **MATERIALS:**
 - a. WOOD SHALL BE SPRUCE PINE FIR #2 OR BETTER GRADE SEASONED AT 19% M.C. EXCEPT SHEAR WALL & RAFTERS FOR NORTHEAST CORNER SHALL BE #2 SOUTHERN PINE.
 - b. CONCRETE SHALL BE CLASS "C".
 - c. REINFORCING STEEL SHALL BE GRADE 60
 - d. SHINGLES SHALL BE "ROYAL SOVERIGN" FIBERGLASS ASPHALT SHINGLES W/ 25 YEAR GUARANTEE AS MANUFACTURED BY GAF OR EQUAL. INSTALLATION SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.
 - e. SIDING - GEORGIA PACIFIC T-1-11 OR APPROVED EQUIVALENT- INSTALL PER MANUFACTURER'S RECOMMENDATIONS & DETAILS ON SHT. 6 FOR NORTHEAST SHEAR WALL.
 - f. SEALER - SHERMIN WILLIAMS CUPRINOL CLEAR DECK & SIDING WOOD FINISH OR EQUIVALENT. INSTALL SEALER AT EDGES OF ALL EXTERIOR SIDING AND 1'-0" FROM BOTTOM.
 - g. 3/4" PLYWOOD SHALL BE MARINE GRADE, ALL OTHER PLYWOOD SHALL BE C-D INTERIOR GRADE.
5. **FASTENING SCHEDULE:** (SEE SECTION 25 OF OBBC FOR ADDITIONAL CONNECTIONS)

a. STUD TO SOLE PLATE	-8d COMMON	-4 TOE NAIL
	-16d COMMON	-2 DIRECT NAIL
b. STUD TO CAP PLATE	-16d COMMON	-2 TOE NAIL OR 2 DIRECT NAIL
c. CONTINUOUS HEADER TO STUD	-8d COMMON	-4 TOE NAIL
d. CONTINUOUS HEADER, TWO PIECES	-16d COMMON	-16" O.C. DIRECT
e. ROOF RAFTER TO PLATE	-8d COMMON	-3 TOE NAIL
f. ROOF RAFTER TO RIDGE	-16d COMMON	-2 TOE NAIL OR DIRECT NAIL
g. ROOF SHEATHING	-8d COMMON	-6" O.C. DIRECT EDGES & 12" O.C. INTERMEDIATE
h. WALL SHEATHING (T-1-11)	-8d COMMON	-6" O.C. DIRECT EDGES & 12" O.C. INTERMEDIATE

(SEE SHEET 6 FOR EXTRA FASTENING FOR NORTHEAST SHEAR WALL & ROOF SHEATHING)
6. **HEADER SCHEDULE:** (SEE SHEET P-4 FOR OPENING LOCATIONS)
 - a. OVERHEAD DOOR - 2-2X12
 - b. DUCT OPENINGS AND MAN DOOR - 2-2X6
7. **SOIL BEARING:** DEVELOPER/OWNER SHALL VERIFY A SOIL BEARING PRESSURE OF 2500 PSF BY TESTING PERFORMED BY A SOILS ENGINEER WHO IS A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF OHIO.



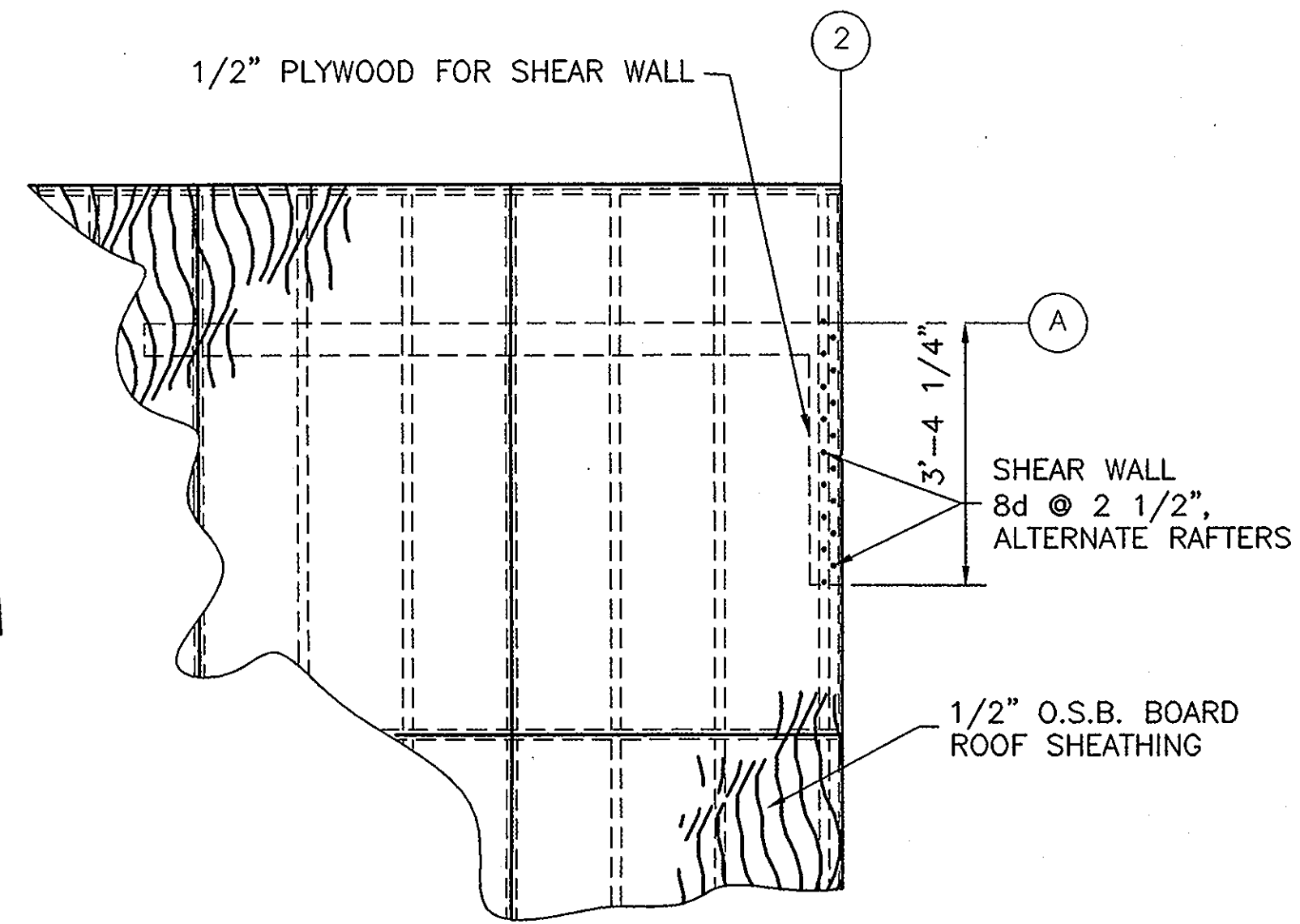
NOTE: - SEE SHEET P4 FOR DOOR & WALL OPENINGS.

DELAWARE COUNTY
GOLF VILLAGE
REGIONAL PUMP STATION
FOUNDATION PLAN & DETAILS

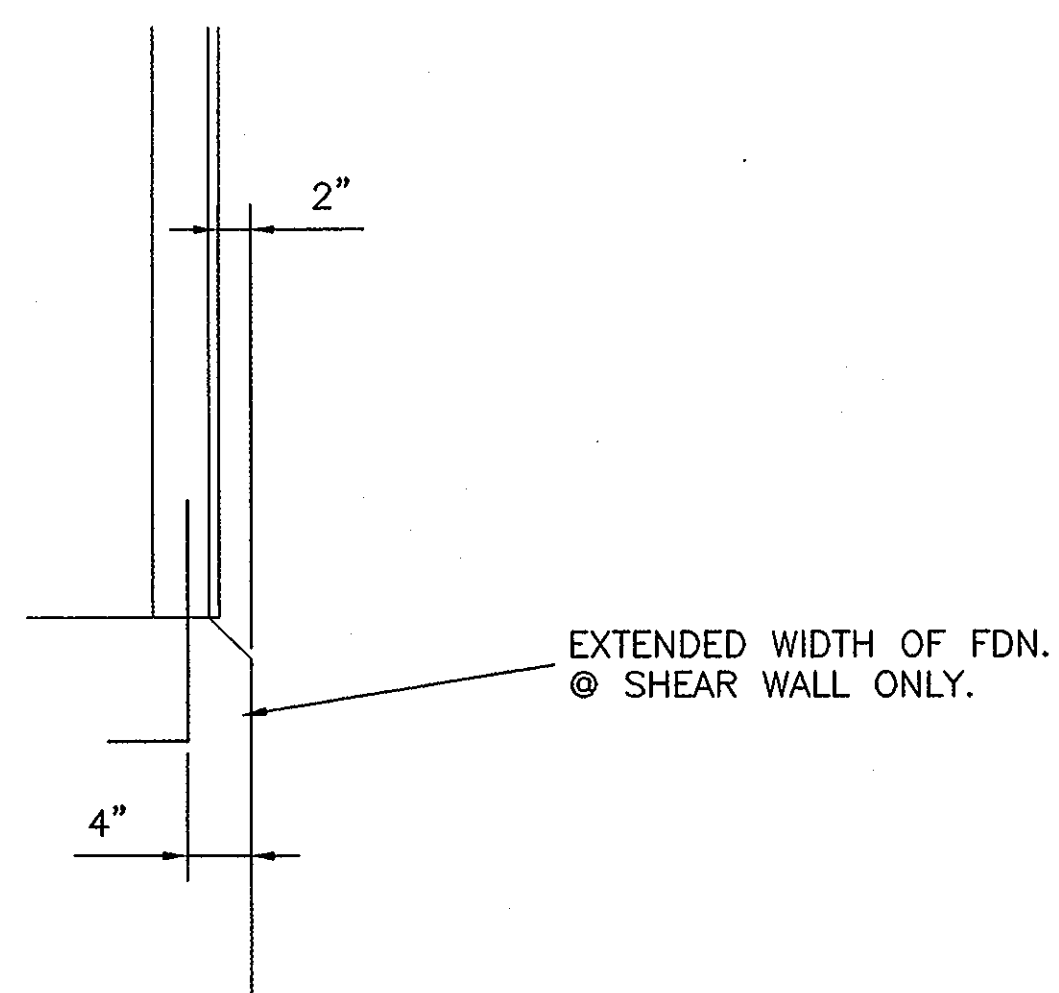
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1237 Dublin Road Columbus, Ohio 43215
(614) 488-4883 1-800-340-2743
FAX (614) 488-4887

SCALE: AS NOTED

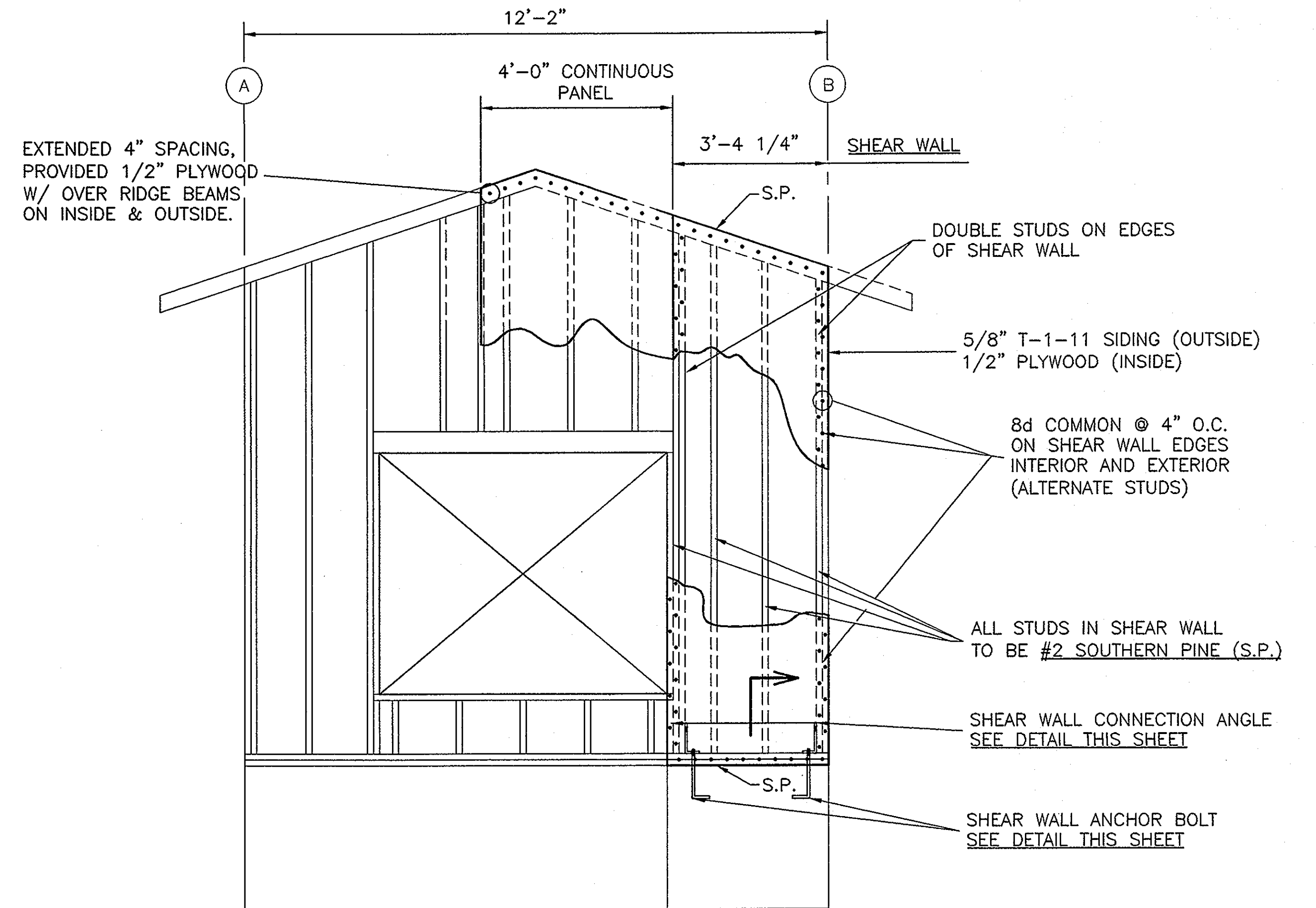
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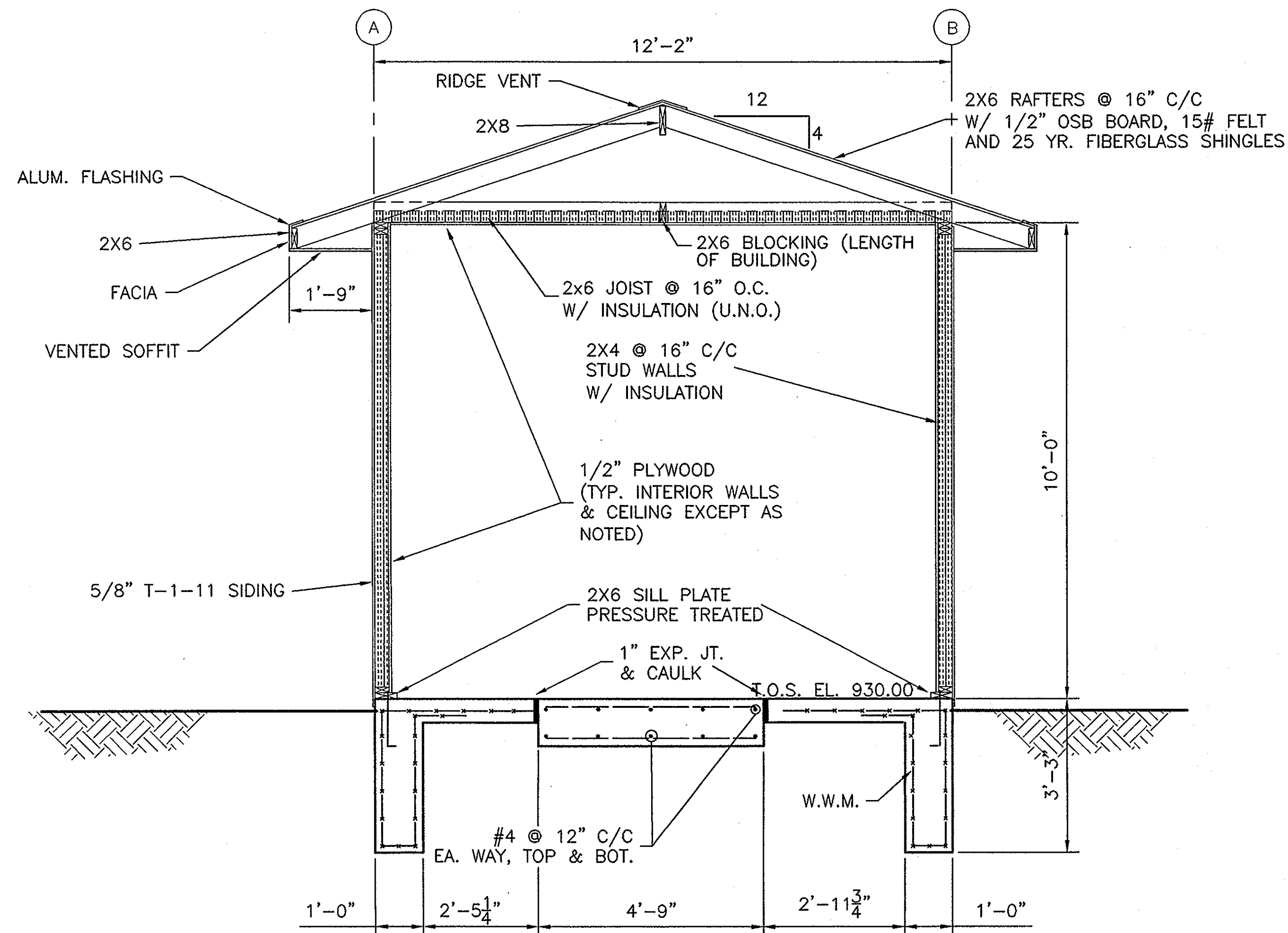
ROOF FRAMING PLAN (NORTHEAST CORNER)
SCALE 1/2" = 1'-0"



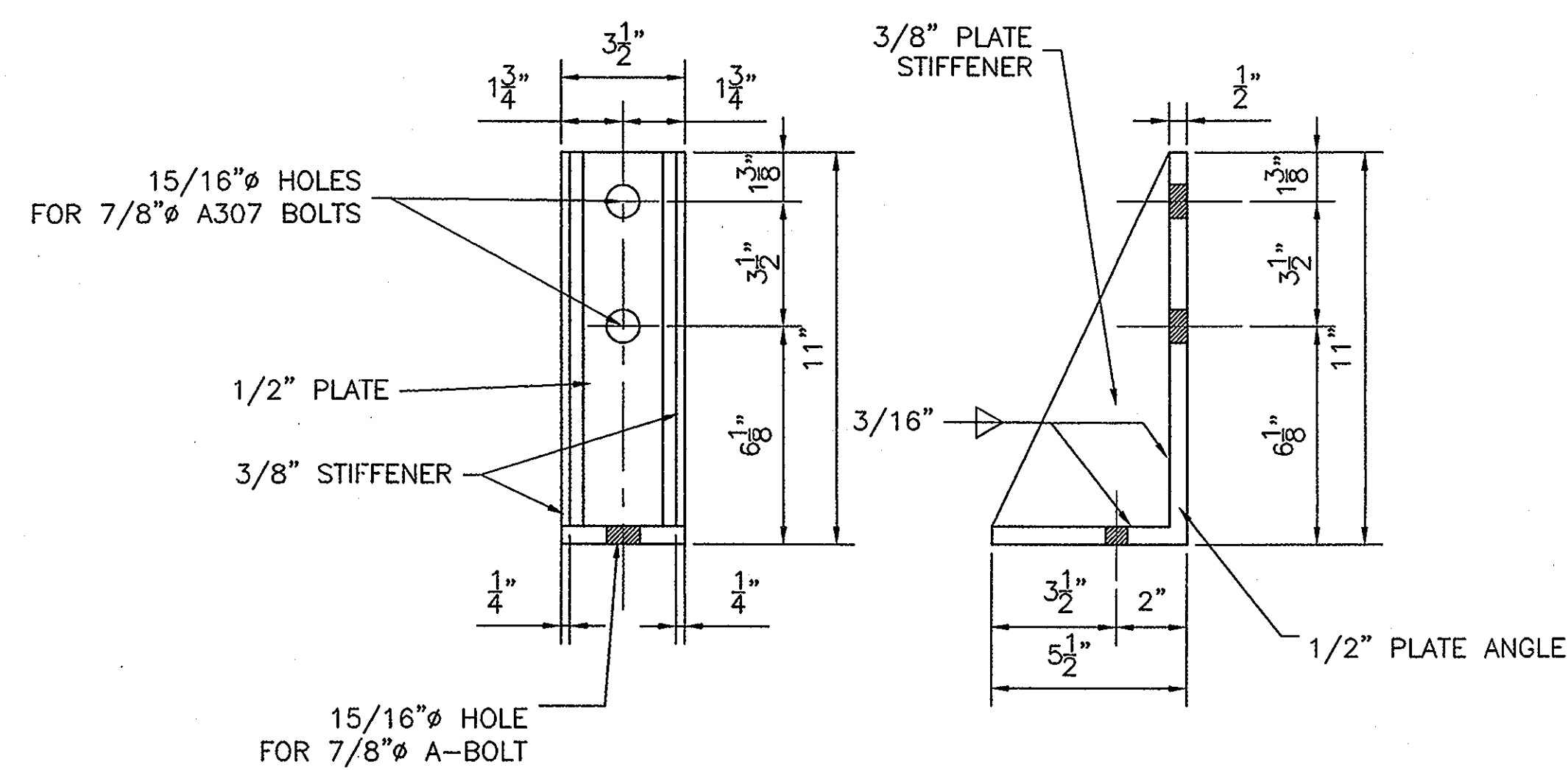
SECTION C-6
SCALE 1/2" = 1'-0"



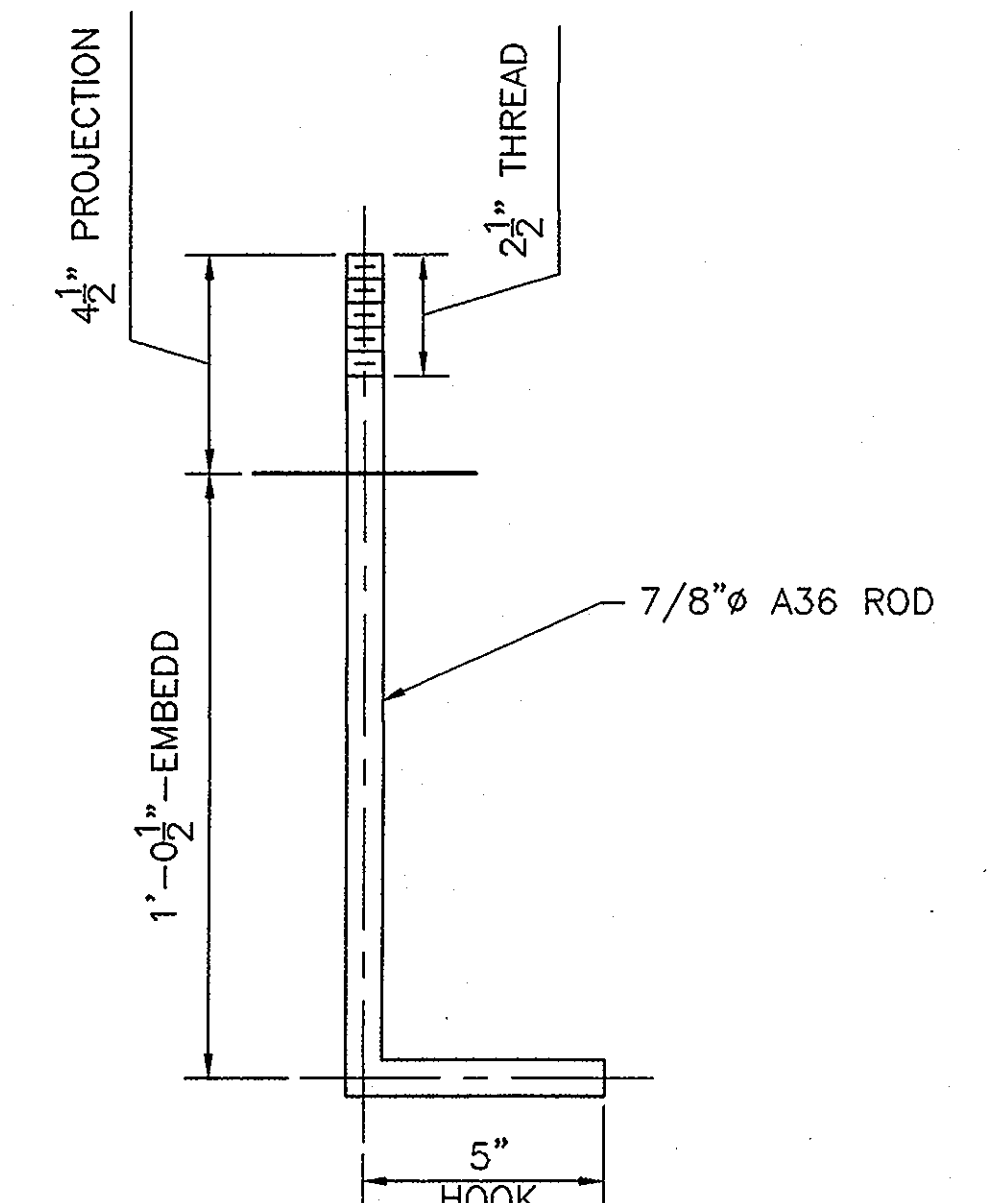
EAST ELEVATION
SCALE 1/2" = 1'-0"



EAST ELEVATION B-5
SCALE 1/2" = 1'-0"



SHEAR WALL CONNECTION ANGLE DETAIL - 2 REQ'D
SCALE 1 1/2" = 1'-0"

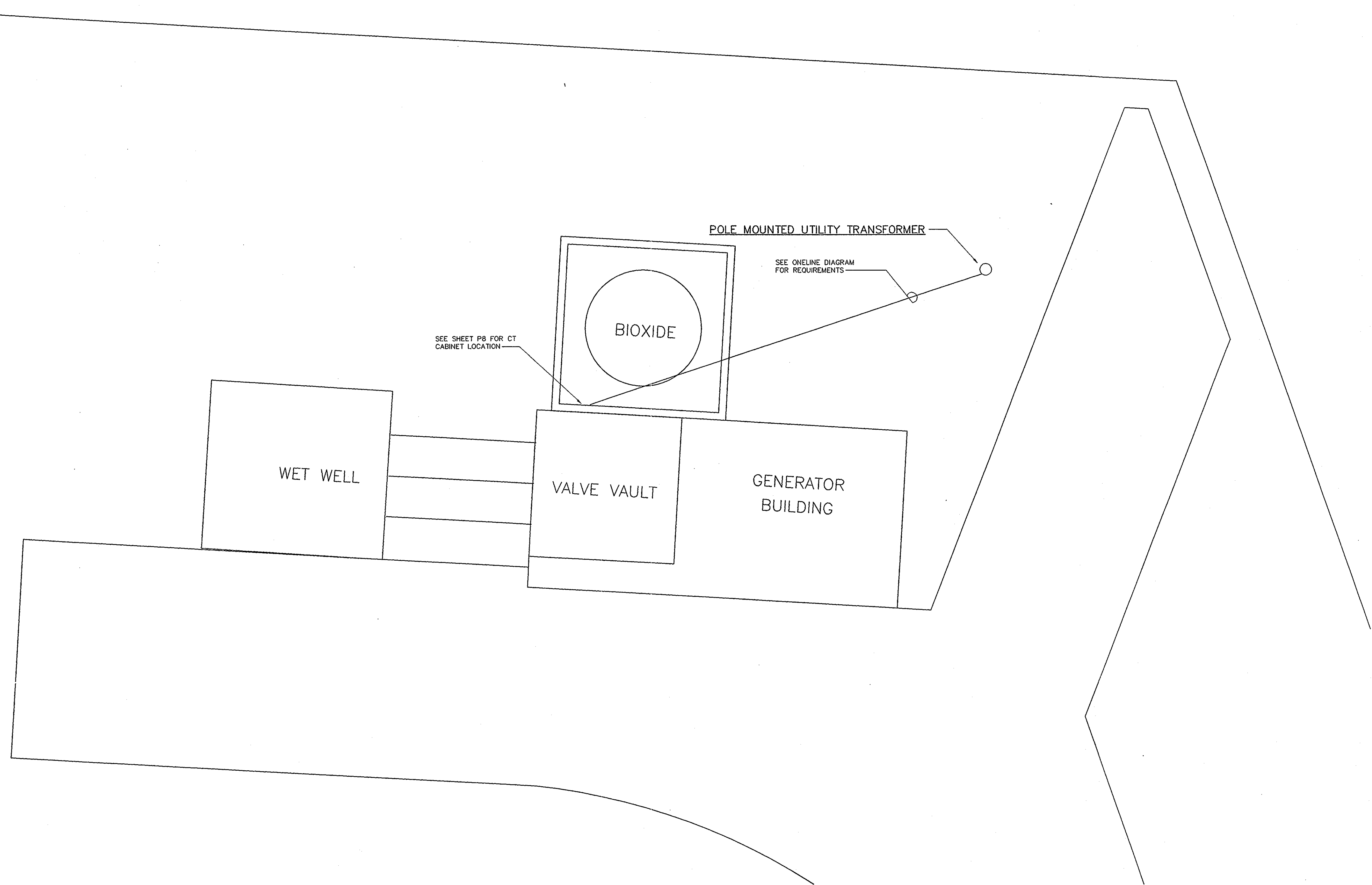


SHEAR WALL ANCHOR BOLT DETAIL - 2 REQ'D
SCALE 1 1/2" = 1'-0"

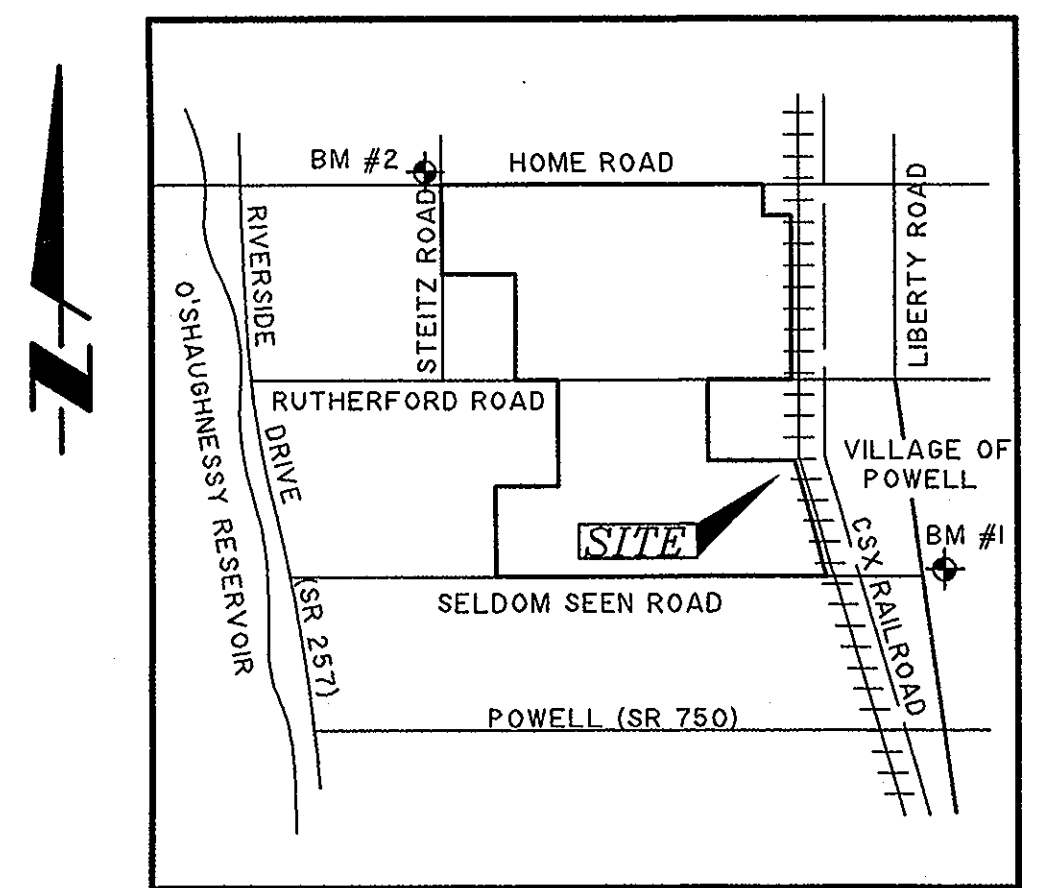
DELAWARE COUNTY
GOLF VILLAGE
REGIONAL PUMP STATION
STRUCTURAL DETAILS

R.D. Zande & Associates, Inc.
1337 Dublin Road, Columbus, Ohio 43215
(614) 456-4383 1-800-240-2743
FAX (614) 488-4387

SCALE: AS NOTED



ELECTRICAL SITE PLAN
SCALE: 1/4" = 1'-0"



VICINITY MAP
(NOT TO SCALE)

BENNETT ENGINEERING, INC.
Consulting Engineers

250 EAST HOME STREET
WESTERVILLE, OHIO 43081

PHONE (614) 818 3303
FAX (614) 818 3322

JOB NO. 2000-015

DESIGNED BY
MARK A. BENNETT P.E.

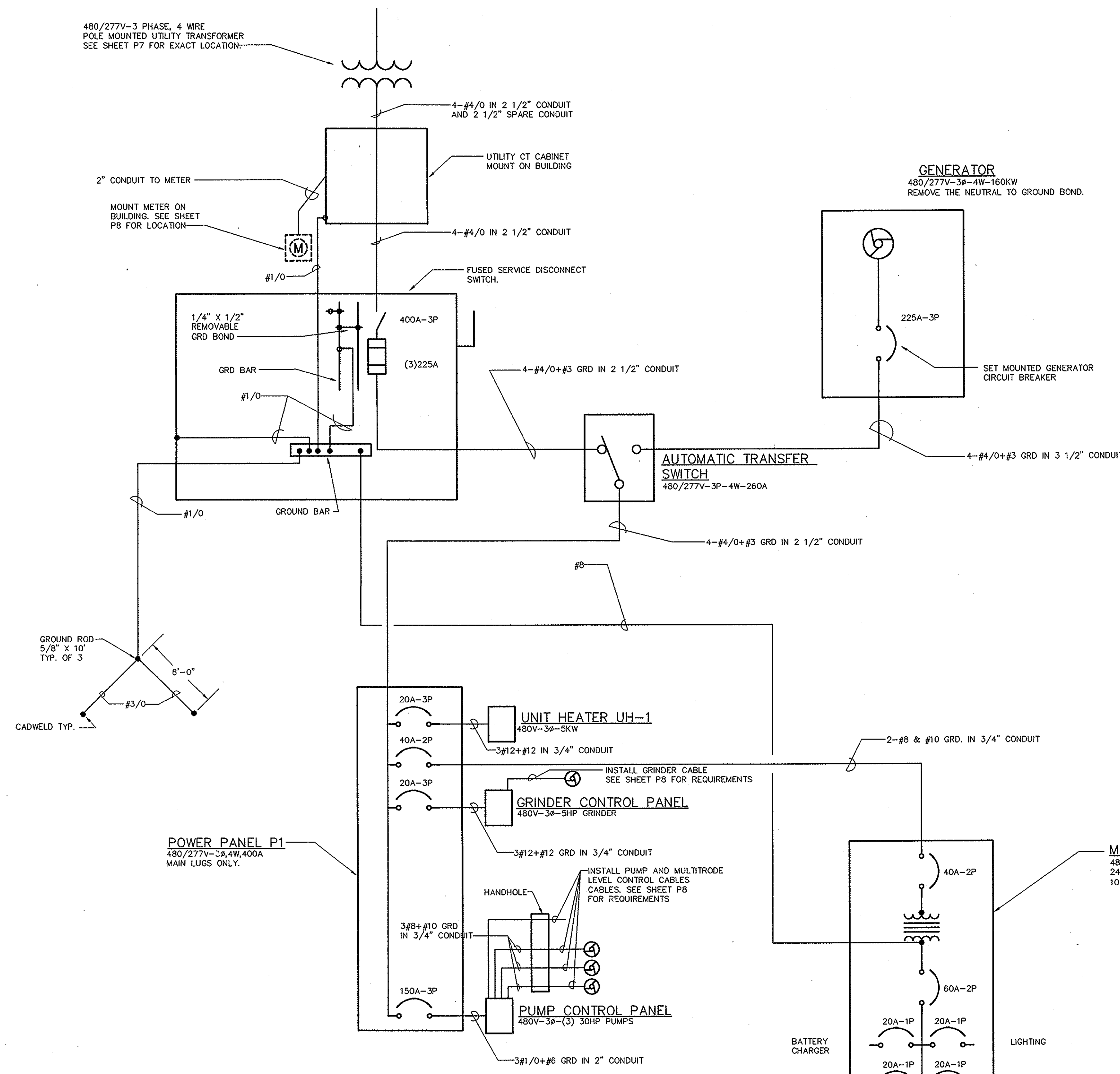
DRAWN BY
MAB

CHECKED BY
MAB

DELAWARE COUNTY
GOLF VILLAGE
REGIONAL PUMP STATION
ELECTRICAL FLOOR PLANS

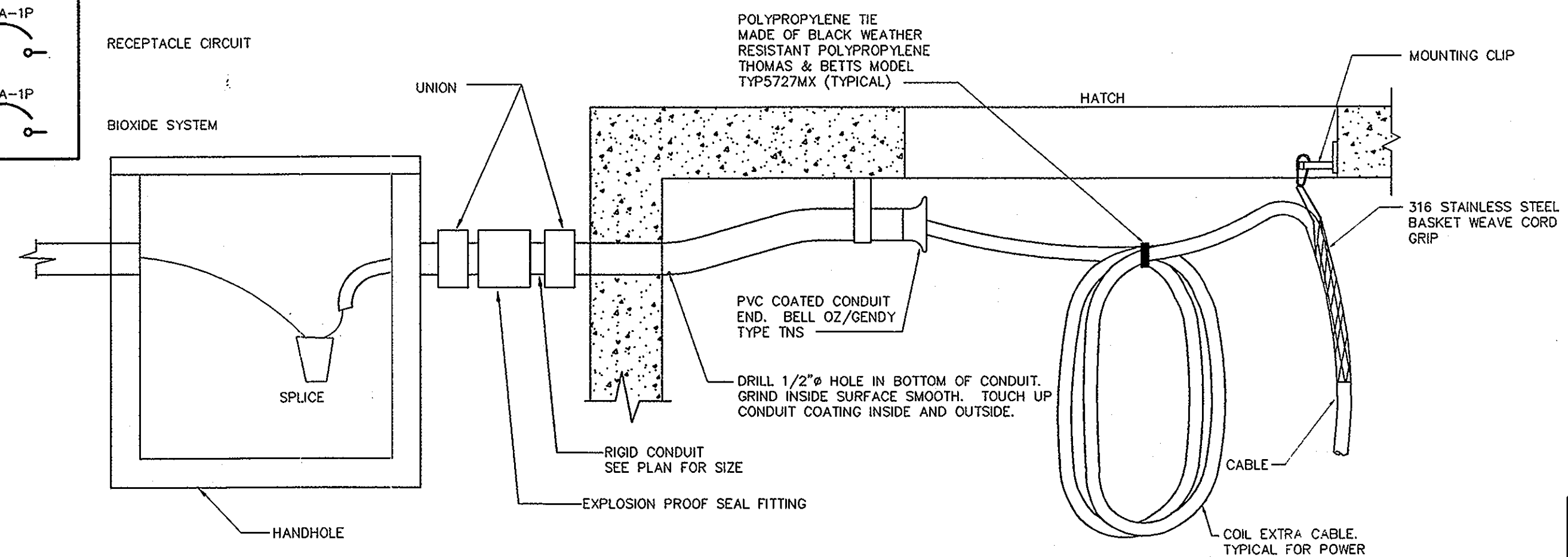
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(614) 486-4383 1-800-340-2743
FAX (614)-486-4387

SCALE: AS NOTED



2- 30 HP Pumps
1- 5HP Grinder
3- 5KW Heaters
Misc - 100A

ELECTRICAL ONE LINE DIAGRAM
NOT TO SCALE



CABLE SUPPORT DETAIL
NOT TO SCALE

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION	MOUNTING HGT. TO CENTER UNLESS OTHERWISE NOTED
⊕	DUPLEX RECEPTACLE - FLOOR MOUNTED	
⊕	DOUBLE DUPLEX RECEPTACLE	18"
⊕	SPECIAL OUTLET AS REQUIRED	SEE DRAWINGS
⊕	WIRED JUNCTION BOX	SEE DRAWINGS
⊕	SPECIAL FLOOR OUTLET AS REQUIRED	
⊕	DUPLEX RECEPTACLE 3 WIRE GRD. TYPE	18"
⊕	DUPLEX RECEPTACLE WEATHERPROOF	18"
⊕	DUPLEX RECEPTACLE w/ GROUND FAULT INTERRUPTER	18"
⊕	TOGGLE SWITCH - SINGLE, 3-WAY & 4-WAY	42"
⊕	TOGGLE SWITCH - w/ PILOT LIGHT	42"
⊕	TELEPHONE OUTLET	18"
⊕	TELEPHONE OUTLET - FLOOR MOUNTED	
⊕	MOTOR - 3 PHASE	AS REQUIRED
⊕	MOTOR - 3 PHASE	AS REQUIRED
⊕	WALL Mtb. EXIT LIGHT w/ DIRECTIONAL ARROWS	SEE DRAWINGS
⊕	SAFETY SWITCH	AS REQUIRED
⊕	MAGNETIC MOTOR STARTER	AS REQUIRED
⊕	MANUAL MOTOR STARTING SWITCH w/ PILOT LIGHT	42"
⊕	LINE VOLTAGE THERMOSTAT	60"
⊕	WALL BOX DIMMER	42"
⊕	T V OUTLET	42"
⊕	CEILING MOUNTED EXIT LIGHT	42"
⊕	ELECTRICAL PANEL	6'-0" TO TOP

ELECTRICAL ABBREVIATIONS

AWG	AMERICAN WIRE GAUGE	FRACT	FRACTIONAL
A	AMPERE	FSBL	FUSIBLE
AB	ABOVE	GRD	GENERAL
AUX	AUXILIARY	HTG	HEATING
BD	BOARD	IC	INTERCOM
BRKR	BREAKER	JUNC	JUNCTION
BLDG	BUILDING	LTG	LIGHTING
CAB	CABINET	M.H.	MANHOLE
CLG	CEILING	MFR	MANUFACTURER
CIRC	CIRCUIT	MECH	MECHANICAL
CONC	CONCRETE	PLBG	PLUMBING
COND	CONDUIT	OPER	OPERATOR/OPERATED
CONN	CONNECTION / CONNECTOR	PNL	PANEL
CONTR	CONTRACTOR	PB	PUSHBUTTON
CONT	CONTROL	RECEPT	RECEPTACLE
DTL	DETAIL	RECD	REQUIRED
DIAG	DIAGRAM	STAT	THERMOSTAT
DISC	DISCONNECT	SW	SWITCH
ELEC	ELECTRICAL	SW/BD	SWITCHBOARD
ELEV	ELEVATION	TELE	TELEPHONE
EMERG	EMERGENCY	TERM. BD.	TERMINAL BOARD
EXH	EXHAUST	TRANS	TRANSFER
FDR	FEEDER	TRFR	TRANSFORMER
FA	FIRE ALARM	T.C.C.	TEMP. CONTROL CONTRACTOR
FIX	FIXTURE	WP	WEATHERPROOF
FLUOR	FLUORESCENT		

BENNETT ENGINEERING, INC.
Consulting Engineers

250 EAST HOUE STREET WESTERVILLE, OHIO 43081

PHONE (614) 818 3303
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JOB NO. 2000-015

DESIGNED BY
MARK A. BENNETT P.E.

DRAWN BY
MAB

CHECKED BY
MAB

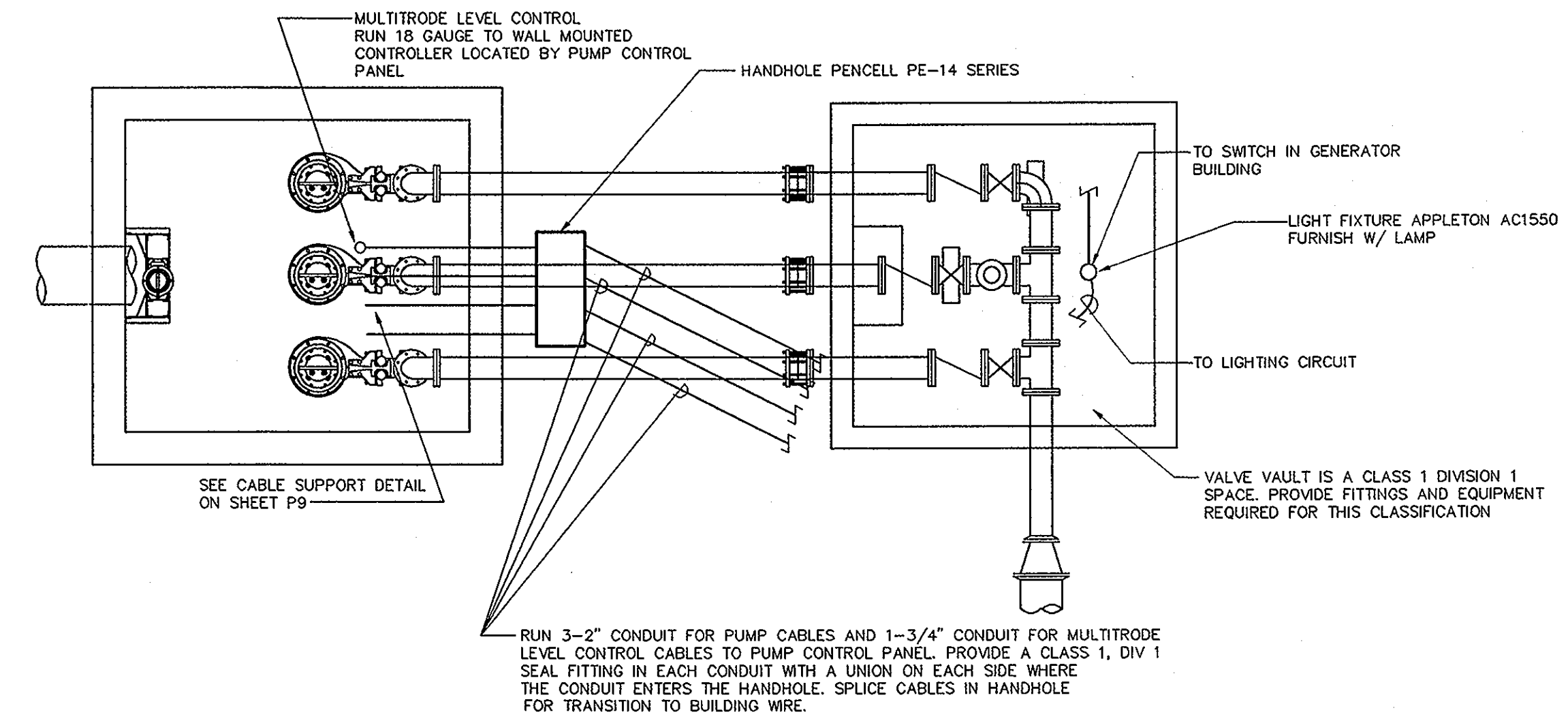
STATE OF OHIO
PROFESSIONAL ENGINEER
MARK BENNETT
E-64451

DELAWARE COUNTY
GOLF VILLAGE
REGIONAL PUMP STATION
ELECTRICAL DETAILS

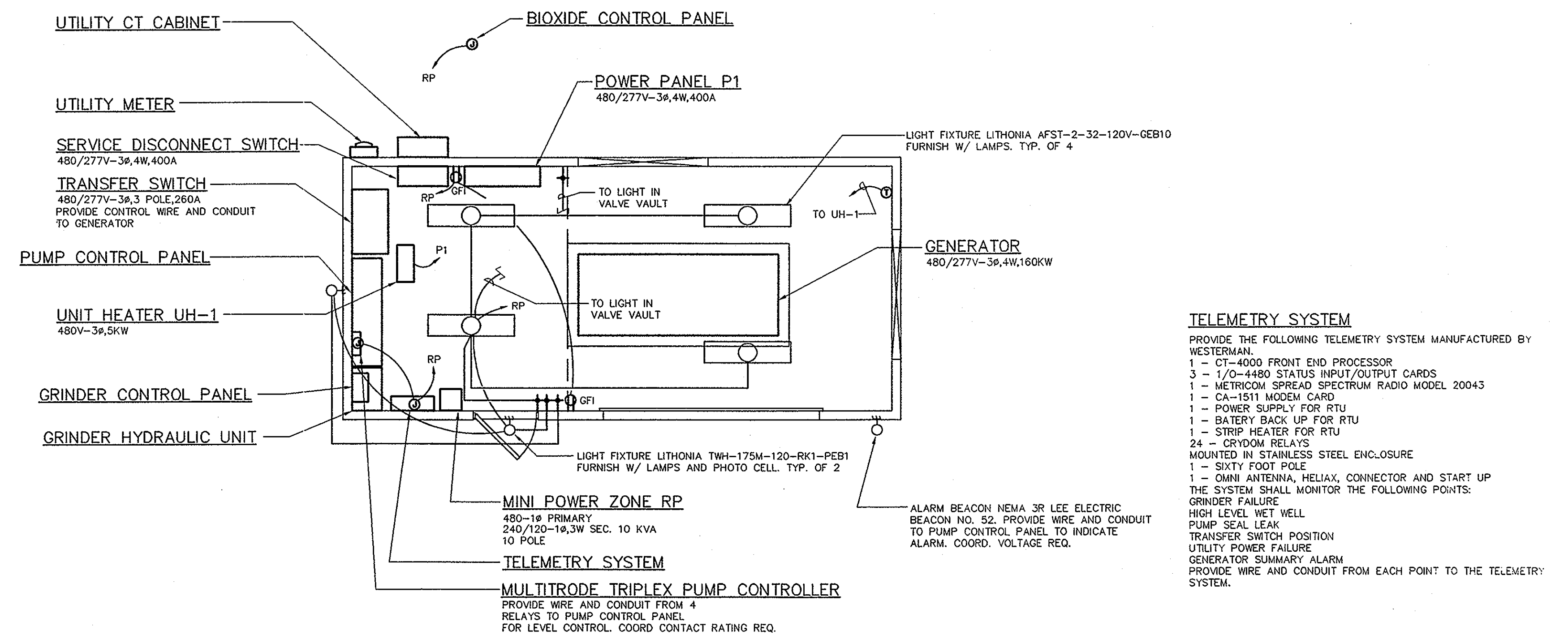
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1237 Dublin Road Columbus Ohio 43215
(614) 488-4383 1-800-340-2743
FAX (614)-488-4387

SCALE: AS NOTED

P9



PUMP STATION ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"



GENERATOR BUILDING ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"

BENNETT ENGINEERING, INC.
Consulting Engineers
250 EAST HOME STREET WESTERVILLE, OHIO 43081
PHONE (614) 818 3303 FAX (614) 818 3352
JOB NO. 2000-015
DESIGNED BY MARK A. BENNETT P.E.
DRAWN BY MAB
CHECKED BY MAB

DELAWARE COUNTY
GOLF VILLAGE
REGIONAL PUMP STATION
ELECTRICAL FLOOR PLANS

R.D. Zande & Associates, Inc.
1297 Dublin Road Columbus, Ohio 43216
(614) 486-4383 1-800-340-2743
FAX (614) 486-4387

SCALE: AS NOTED

GENERAL NOTES

GENERAL:

ALL WORK SHALL BE DONE AND ALL MATERIAL FURNISHED IN ACCORDANCE WITH THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, CONSTRUCTION AND MATERIAL SPECIFICATIONS, LATEST EDITION AND CURRENT DELAWARE COUNTY SPECIFICATIONS. SEWER STANDARD DRAWINGS REFER TO THE DELAWARE COUNTY SANITARY ENGINEERING DEPARTMENT STANDARD DRAWINGS.

PROPOSED 14" FORCE MAIN CONDUIT SHALL BE CL53 DUCTILE IRON PIPE (DIP).

ALL PIPE, FITTINGS AND VALVES SHALL BE CAREFULLY LOWERED INTO THE TRENCH PIECE BY PIECE BY MEANS OF A DERRICK, ROPES OR OTHER SUITABLE TOOLS OR EQUIPMENT, IN SUCH MANNER AS TO PREVENT DAMAGE TO THE SEWER MATERIAL AND PROTECTIVE COATINGS AND LININGS. THE PIPE AND FITTING SHALL BE INSPECTED FOR DEFECTS AND, WHILE SUSPENDED ABOVE GRADE, BE RUNG WITH A LIGHT HAMMER TO DETECT CRACKS. AT TIMES WHEN PIPE LAYING IS NOT IN PROGRESS, THE OPEN ENDS OF PIPE SHALL BE CLOSED BY A WATERTIGHT PLUG OR OTHER MEANS APPROVED BY THE ENGINEER.

RESTRAINED JOINTS SHALL BE PROVIDED BY CONCRETE BLOCKING OR FAST GRIP GASKETS OR MEGALUGS AND SHALL BE USED ON ALL HORIZONTAL AND VERTICAL BENDS AS SHOWN ON STANDARD DRAWING NO. 23 AND 24. COST FOR BLOCKING SHALL BE INCLUDED IN THE PRICE BID FOR THE FORCE MAIN. THE SURFACES WITH WHICH THE RUBBER GASKET COMES IN CONTACT SHALL BE CLEANED THOROUGHLY JUST PRIOR TO ASSEMBLY.

PROVIDE MINIMUM COVER FOR FORCE MAIN AS SHOWN ON THE PLAN AND PROFILE DRAWINGS. MAINTAIN THE PROFILE GRADES IN ORDER TO PROVIDE HIGH POINTS AT LOCATIONS DESIGNATED FOR AIR RELEASE VALVES.

COMMENCEMENT OF WORK:

THE CONTRACTOR SHALL NOTIFY THE DELAWARE COUNTY SANITARY DEPARTMENT AND THE VILLAGE OF POWELL ENGINEERING DEPARTMENT FOR ALL WORK WITHIN THE VILLAGE OF POWELL 48 HOURS PRIOR TO COMMENCING WORK ON THIS PROJECT, HOLIDAYS AND WEEKENDS EXCLUDED.

EXTRA COMPENSATION:

NO EXTRA COMPENSATION WILL BE PAID TO THE CONTRACTOR BY REASON OF COMPLIANCE WITH ANY OF THE REQUIREMENTS INDICATED IN THE CONTRACT DRAWINGS. PAYMENT SHALL BE DEEMED TO BE INCLUDED AMONG THE PAY ITEMS, AS BID UPON, UNLESS OTHERWISE SPECIFICALLY PROVIDED.

SAFETY REQUIREMENTS:

THE CONTRACTOR AND SUB-CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COMPLYING WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 AND ALL AMENDMENTS THERETO, DURING THE CONDUCT AND PERFORMANCE ON AND IN CONJUNCTION WITH THIS PROJECT.

BENCHMARKS AND ELEVATIONS:

ALL ELEVATIONS SHOWN ARE BASED ON 1988 DATUM. BENCHMARKS HAVE BEEN SET AND REFERENCED ON THE DRAWINGS. CONTRACTOR SHALL VERIFY ELEVATION ON EACH WITH PERMANENT BENCHMARKS PRIOR TO COMMENCING THE WORK. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE COUNTY'S REPRESENTATIVE AND RESOLVED BEFORE PROCEEDING WITH WORK. BENCHMARKS SHALL BE MAINTAINED AS REQUIRED TO COMPLETE THE WORK AT THE CONTRACTOR'S COST.

IRON PINS AND MONUMENTS:

IF ANY PINS OR MONUMENTS ARE DESTROYED OR DAMAGED THEY SHALL BE ACCURATELY REPLACED BY A REGISTERED SURVEYOR AT THE COMPLETION OF THE PROJECT AT CONTRACTOR'S COST.

MAINTENANCE OF TRAFFIC:

ALL TRAFFIC CONTROL DEVICES SHALL BE FURNISHED, ERECTED, MAINTAINED AND REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH THE "OHIO MANUAL OF CONTROL DEVICES FOR CONSTRUCTION AND MAINTENANCE OPERATION" (CURRENT EDITION); COPIES OF WHICH ARE AVAILABLE FROM THE OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF TRAFFIC, 1980 WEST BROAD STREET, COLUMBUS, OHIO 43215.

ALL TRENCHES SHALL BE BACKFILLED OR SECURELY PLATED DURING NON-WORKING HOURS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING "LOCAL" TRAFFIC AT ALL TIMES AND FOR OBTAINING APPROVAL FROM THE PROPER AUTHORITIES REGARDING THE CLOSING OF ROADS, PRIOR TO ANY ROAD CLOSURES.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL, STORAGE AND REPLACEMENT OF ALL PERMANENT TRAFFIC CONTROL DEVICES WITHIN THE PROJECT LIMITS. PERMANENT TRAFFIC CONTROL DEVICES INCLUDE, BUT ARE NOT LIMITED TO PAVEMENT MARKINGS AND SIGNS.

THE CONTRACTOR SHALL NOT BEGIN WORK UNTIL STANDARD BARRICADES AND WARNING SIGNS ARE IN ACCEPTABLE POSITION AND THE MARKERS AND SIGNS CONFORM TO THE "OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS".

THE CONTRACTOR SHALL MAINTAIN LOCAL TRAFFIC AT ALL TIMES DURING CONSTRUCTION OF THIS PROJECT IN A MANNER CAUSING THE LEAST AMOUNT OF INCONVENIENCE TO THE ADJUTING PROPERTY OWNERS. TEMPORARY DRIVEWAYS, TEMPORARY ROADWAYS, OR RUN-AROUNDS AS MAY BE NECESSARY TO PROVIDE VEHICULAR ACCESS TO AND FROM THE ADJUTING PROPERTIES SHALL BE CONSTRUCTED, MAINTAINED AND SUBSEQUENTLY REMOVED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER.

STEADY BURNING, TYPE "C" LIGHTS SHALL BE REQUIRED ON ALL BARRICADES, DRUMS, AND SIMILAR TRAFFIC CONTROL DEVICES IN USE AT NIGHT. CONES ARE NOT APPROVED FOR USE AT NIGHT.

POLICE OFFICERS ARE NOT NEEDED UNLESS A HAZARD DEVELOPS. IF A HAZARD DEVELOPS, AN OFF-DUTY OFFICER MAY BE ASSIGNED BY THE VILLAGE OF POWELL'S SERVICE DIRECTOR (FOR WORK WITHIN THE VILLAGE OF POWELL) TO THE PROJECT AT THE CONTRACTOR'S EXPENSE.

ALL PAVEMENT AND/OR RIGHT-OF-WAY OPENINGS WITHIN THE PUBLIC RIGHT-OF-WAY MUST CONFORM TO THE CURRENT EDITION OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, CONSTRUCTION AND MATERIAL SPECIFICATIONS, WITH SUPPLEMENTS OR CHANGES THERETO. ALSO, THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES AND LIABILITIES REGARDING STRICT ADHERENCE TO APPLICABLE SECTIONS FOR THE MAINTENANCE OF TRAFFIC AND PUBLIC SAFETY AS SET FORTH IN THE "OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS". ALL TRAFFIC CONTROL DEVICES MUST BE IN PLACE PRIOR TO STARTING CONSTRUCTION.

THE PORTION OF THE PAVEMENT NOT IN THE SEWER MAIN CONSTRUCTION SHALL BE KEPT CLEAR OF ALL EXCAVATED MATERIAL. ONLY A PORTION OF THE TRENCH SHALL BE EXCAVATED AT A TIME AND CLOSED AGAIN WITH GRANULAR MATERIAL, BEFORE THE PAVEMENT OVER THE BALANCE IS REMOVED, AS DIRECTED BY THE ENGINEER.

EXCAVATION WHICH ARE NOT PROTECTED BY TEMPORARY FENCING SHALL BE BACKFILLED AT THE END OF EACH WORKING DAY.

IF AT ANY TIME TRAFFIC HAS TO BE BLOCKED, THE CONTRACTOR SHALL NOTIFY THE NEAREST FIRE AND POLICE DEPARTMENTS (EMERGENCIES ONLY).

NO NON-RUBBER TIRED VEHICLES SHALL BE MOVED ON COUNTY ROADS OR VILLAGE OF POWELL ROADWAYS.

EXISTING UTILITIES :

THE CONTRACT DRAWINGS SHOW ALL UTILITIES, WATER, GAS, AND SEWER LINES KNOWN TO EXIST. HOWEVER, THIS DOES NOT GUARANTEE THAT ALL EXISTING LINES AND APPURTENANCES HAVE BEEN SHOWN ON THE CONTRACT DRAWINGS, AND THE COUNTY OR THE VILLAGE OF POWELL ASSUME NO RESPONSIBILITY FOR THE ACCURACY THEREOF AND DOES NOT FREE THE CONTRACTOR FROM NECESSARY PRECAUTIONS FOR THE PROTECTION OF ANY UTILITY ENCOUNTERED ON THE PROJECT OR THE RESTORATION OF ANY UTILITY DAMAGED DURING THE WORK.

THE INFORMATION SHOWN CONCERNING EXISTING UTILITIES IS APPROXIMATE ONLY AND IS ONLY AS ACCURATE AS THE INFORMATION PROVIDED BY THE OWNERS OF THE UTILITY COMPANY. IT IS NOT REPRESENTED, WARRANTED, OR GUARANTEED TO BE COMPLETE OR ACCURATE. THE ENGINEER DOES NOT INDEPENDENTLY VERIFY NOR FIELD LOCATE UTILITIES.

THE FOLLOWING UTILITY COMPANIES PROVIDED INFORMATION, WHICH IS SHOWN ON THE PLANS TO THE SAME DEGREE OF ACCURACY AS THE INFORMATION PROVIDED BY THE UTILITY COMPANY:

ACI-WILLIAMS CONSTRUCTION 629 OLIVER STREET TOLEDO, OH 43609 CONTACT: ERIC WILHELM	COLUMBIA GAS OF OHIO 920 WEST GOODALE BOULEVARD COLUMBUS, OH 43212 CONTACT: ERIC HUNDLEY	SPRINT COMMUNICATIONS CO. 8350 METCALF BOULEVARD OVERLAND PARK, KS 66212 CONTACT: JOE THOMAS
AEP 850 TECH CENTER DRIVE GAHANNA, OH 43230 CONTACT: DAVE BOWMAN	DELAWARE COUNTY SANITARY ENGINEERS 50 CHANNING STREET DELAWARE, OH 43015	TIME WARNER TELECOM 250 WEST OLD HENDERSON BRIDGE COLUMBUS, OH 43085 CONTACT: KEVIN THOMPSON
AMERITECH 150 EAST GAY STREET ROOM 349 COLUMBUS, OH 43215 CONTACT: THERESA LOVELY	DEL-CO WATER 17 STREET HANGY RIVER ROAD DELAWARE, OH 43015-8872 CONTACT: ELMER SCHANCK	VILLAGE OF POWELL 47 HALL STREET POWELL, OHIO 43065 CONTACT: ROBERT RICE (614) 885-5380 FAX: (614) 885-5339
AT&T-FIBER OPTICS ENGINEERING INQUIRIES RESPONSE 2315 SALEM ROAD FIRST FLOOR F-11 CONYERS, GA 30013-2019 CONTACT: EDWARD J. ARNOLD	INSIGHT COMMUNICATIONS 3770 EAST LIVINGSTON AVENUE COLUMBUS, OH 43227 CONTACT: PAUL E. SIEMER	

THE FOLLOWING UTILITY COMPANIES PROVIDED NO INFORMATION IN RESPONSE TO OUR REQUEST, BUT THEY MAY HAVE FACILITIES IN THE PROJECT AREA:

MCI WORLDCOM
7000 WESTON PARKWAY
CARY, NC 27513
CONTACT: MARVIN MUNCY

THE CONTRACTOR SHALL EXPOSE THE UTILITY OR STRUCTURE INDICATED ON THE DRAWING BEFORE PERFORMING THE ASSOCIATED WORK IN ORDER TO VERIFY THE LOCATION.

THE CONTRACTOR SHALL NOTIFY AT LEAST 48 HOURS BEFORE BREAKING GROUND, ALL PUBLIC AND/OR PRIVATE SERVICE CORPORATIONS HAVING WIRE, POLES, PIPES, CONDUIT, MANHOLES OR OTHER STRUCTURES THAT MAY BE AFFECTED BY THIS OPERATION, INCLUDING ALL STRUCTURES WHICH ARE AFFECTED AND NOT SHOWN ON THESE PLANS. OWNERS OF UNDERGROUND UTILITIES WHICH ARE MEMBERS OF THE OHIO UTILITIES PROTECTION SERVICE CAN BE NOTIFIED BY CALLING 800-362-2764 (TOLL FREE). NON-MEMBER UNDERGROUND UTILITY OWNERS MUST BE CALLED DIRECTLY.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL RESIDENTS OF INTERRUPTION TO THEIR UTILITIES THAT WILL BE CAUSED BY CONSTRUCTION AT LEAST 24 HOURS IN ADVANCE.

IF CONTRACTOR DAMAGES EXISTING UTILITY LINES, THEY WILL BE REPAIRED OR REPLACED IN A MANNER ACCEPTABLE TO THE ENGINEER.

SUPPORTING AND/OR PROTECTING EXISTING WATER LINES, GAS MAINS, TELEPHONE CONDUIT, STORM SEWERS, ETC., SHALL BE INCLUDED IN PAYMENT FOR THE VARIOUS CONTRACT ITEMS OF WORK.

ALL WORK REQUIRED FOR THE MAINTENANCE OF SERVICE OF EXISTING UTILITIES SHALL BE DONE BY, AND AT THE EXPENSE OF THE CONTRACTOR.

ALL EXISTING STORM SEWERS, DRIVEWAY DRAINS, AND OTHER SURFACE DRAIN PIPES, WHETHER SHOWN ON THE CONTRACT DRAWINGS OR NOT, REMOVED OR DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED AND RECONNECTED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER, AT NO COST TO THE COUNTY.

IT IS ASSUMED THAT THERE ARE WATER AND GAS BRANCH LINES, ELECTRIC AND TELEPHONE SERVICES, ETC., SERVING EACH RESIDENCE. THE CONTRACTOR SHALL REPAIR AND REPLACE THESE UTILITIES IF DAMAGED AT NO COST TO THE COUNTY.

AT&T:

CONTRACTOR SHALL CONTACT THE COMPANY UPON DISCOVERY OF OLD COAX LEAD CABLE, NOT IN SERVICE.

ACI:

IF EXCAVATION TAKES PLACE WITHIN 10 FEET OF ACI'S FIBER OPTIC CABLE, CONTRACTOR SHALL CONSULT WITH THE COMPANY TO HAVE A REPRESENTATIVE FROM WILLIAMS COMMUNICATIONS PRESENT. AT BORE CROSSING OF CABLE, IT IS REQUIRED TO HAND DIG A "WINDOW" TO ENSURE HEAD OF BORE DOES NOT COME INTO CONTACT WITH CABLE.

MCI WORLDCOM:

CONTRACTOR MUST MAINTAIN A MINIMUM CLEARANCE OF TWENTY-FOUR (24) INCHES VERTICALLY WHEN CROSSING MCI WORLDCOM CABLE AND SIXTY (60) INCHES HORIZONTALLY WHEN RUNNING LINE PARALLEL TO COMPANY'S FACILITIES.

USE OF PREMISES:

IN ADDITION TO DIRECT REQUIREMENTS OF THE CONTRACT SPECIFICATION, THE CONTRACTOR SHALL OBSERVE AND CONFORM TO THE SPECIFIC REQUIREMENTS OF ALL RIGHT-OF-WAY, INCLUDING EASEMENTS, COURT ENTRIES, RIGHT-OF-ENTRY, OR ACTION FILED IN COURT IN ACCORDANCE WITH THE CODE OF APPLICABLE GOVERNING AGENCY.

THE CONTRACTOR SHALL NOT TRESPASS UPON OR IN ANY WAY DISTURB PROPERTY ADJACENT TO THE STREET RIGHT-OF-WAY WITHOUT FIRST OBTAINING WRITTEN PERMISSION FROM THE OWNER TO DO SO. A COPY OF SUCH WRITTEN PERMISSION SHALL BE FURNISHED TO THE ENGINEER.

IF THE CONTRACTOR FINDS IT NECESSARY TO OBTAIN ADDITIONAL WORKING AREA, IT SHALL BE HIS RESPONSIBILITY FOR ITS ACQUISITION. ALL REQUIREMENTS LISTED UNDER THE "USE OF PREMISES" SHALL APPLY IF ADDITIONAL AREA IS OBTAINED.

ALL ITEMS WITHIN THE STREET RIGHT-OF-WAY SHALL BE REMOVED, OR REMOVED AND REPLACED, OR RESTORED AS REQUIRED BY THE CONTRACT DRAWINGS AND DETAILED PROVISIONS, AS DIRECTED BY THE ENGINEER.

PROTECTION OF TREES:

SPECIAL CARE SHALL BE TAKEN TO AVOID DAMAGES TO TREES AND THEIR ROOT SYSTEM. MACHINE EXCAVATION SHALL NOT BE USED WHEN, IN THE OPINION OF THE ENGINEER, IT WOULD ENDANGER TREE ROOTS. IN GENERAL, WHERE THE LINE OF TRENCH FALLS WITHIN THE LIMITS OF THE LIMB SPREAD, THE LEAVING OF HEADERS ACROSS THE TRENCH TO PROTECT ROOTS WILL BE REQUIRED. THE OPERATION OF ALL EQUIPMENT, PARTICULARLY WHEN EMPLOYING BOOMS; THE STORAGE OF MATERIALS; AND THE DEPOSITION OF EXCAVATION SHALL BE CONDUCTED IN THE MANNER WHICH WILL NOT INJURE TREES, TRUNKS, BRANCHES OR THEIR ROOTS.

BRANCHES WHICH OVERHANG THE CONSTRUCTION LIMITS AND WHICH INTERFERE WITH THE OPERATION OF EQUIPMENT SHALL BE TIED BACK TO AVOID DAMAGE, IF POSSIBLE, WHERE INJURY TO BRANCHES IS UNAVOIDABLE, THE BRANCHES SHALL BE SAWS OFF NEATLY AT THE TRUNK OR MAIN BRANCH AND THE CUT AREA SHALL BE PAINTED WITH AN APPROVED TREE PAINT IMMEDIATELY. ANY TREE DAMAGED BEYOND SAVING SHALL BE REMOVED BY THE CONTRACTOR AT HIS OWN EXPENSE.

WITHIN THE VILLAGE OF POWELL, ANY TREES REMOVED WHICH ARE GREATER THAN OR EQUAL TO 6" IN DIAMETER SHALL BE REPLACED PER THE POWELL ZONING CODE. PRIOR TO ANY TREE REMOVAL, THE CONTRACTOR SHALL COORDINATE ANY PROPOSED REMOVALS OF TREES GREATER THAN OR EQUAL TO 6" IN DIAMETER WITH THE VILLAGE OF POWELL'S DIRECTOR OF DEVELOPMENT, MR. DAVID BETZ.

CLEARING AND GRUBBING:

TREES AND SHRUBS WITHIN CONSTRUCTION EASEMENT NOT DESIGNATED TO BE SAVED ON THE DRAWINGS ARE TO BE REMOVED AND SHALL BE DISPOSED OF WITH NO ADDITIONAL COST TO THE COUNTY.

MAINTAINING FLOW:

IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR, THROUGHOUT THE TENURE OF THIS CONTRACT, TO PROVIDE AND MAINTAIN SUFFICIENT FLOW AT ALL TIMES TO PASS ANY FLASH OR STORM FLOW OF DRAINAGE DITCHES, CREEKS, STREAMS AND RIVERS, AND TO PREVENT ANY BACKWATER FLOODING DUE TO OBSTRUCTION CAUSED BY CONSTRUCTION EQUIPMENT AND/OR MATERIALS.

THE CONTRACTOR SHALL MAINTAIN SEWAGE FLOW OF THE SEWER MAIN AT ALL TIMES DURING CONSTRUCTION OF THE PROPOSED CONDUIT.

THE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

FENCES, SIGNS, MAILBOXES, GUARDRAILS, ETC.:

ANY FENCES, INCLUDING HEDGES AND SHRUBS, SIGNS, MAILBOXES AND GUARDRAILS THAT NEED TO BE REMOVED TO FACILITATE SEWER CONSTRUCTION OPERATIONS SHALL BE REPLACED, IN KIND OR WITH REPAIRS SATISFACTORY TO THE OWNER, AT THE CONTRACTOR'S EXPENSE. REPLACEMENT OF FENCES, HEDGES AND SHRUBS, SIGNS, MAILBOXES AND GUARDRAILS SHALL BE CONSIDERED A PART OF THE FORCE MAIN INSTALLATION AND SHALL BE DONE IMMEDIATELY AFTER THE INSTALLATION AND BACKFILLING OF THE FORCE MAIN.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING MAIL SERVICE IN THE CONSTRUCTION AREA. PRIOR TO DISTURBING ANY MAILBOXES THE CONTRACTOR SHALL CONTACT THE POSTAL AUTHORITIES AND SHALL TEMPORARILY RELOCATE MAILBOXES IN ACCORDANCE WITH THE REQUIREMENTS THEREOF. THE CONTRACTOR SHALL RESTORE MAILBOXES TO THEIR ORIGINAL CONDITION AND LOCATION. COST OF SAME SHALL BE INCLUDED IN UNIT PRICE BID FOR THE FORCE MAIN.

VALVES

CONTRACTORS SHALL INSTALL AMERICAN-DARLING 14" GATE VALVES, MJ NONRISING STEM AND VALVE BOX IN ACCORDANCE WITH DELAWARE COUNTY STANDARD PLANS AND SPECIFICATIONS, SECTION 10.7.

PAVEMENT/CROSSING:

ALL PAVEMENT CROSSING WITHIN THE VILLAGE OF POWELL SHALL BE JACK AND BORE UNLESS OTHERWISE STATED ON THE PLANS.

WHERE NECESSARY TO DISTURB PAVEMENT OR DRIVES, THE PAVEMENT SHALL BE SAW CUT TO FULL DEPTH OF PAVEMENT AND IN NEAR STRAIGHT LINES. IF DURING CONSTRUCTION THE PAVEMENT IS DAMAGED BEYOND THE ORIGINAL SAW CUT, THE PAVEMENT SHALL BE RECUT TO NEAT LINES.

RESTORATION:

ALL ROADWAY BERMS AND DRAINAGE DITCHES DISTURBED BY THE WORK SHALL BE RESTORED, RESHAPED AND GRADED TO DRAIN PROPERLY AND TO A CONDITION EQUAL TO OR BETTER THAN PRIOR TO CONSTRUCTION.

PAVEMENT RESTORATION SHALL BE IN ACCORDANCE WITH DELAWARE COUNTY SANITARY ENGINEERING DEPARTMENT STANDARD DRAWING NO. 22, AND THE PROVISIONS OF THE GOVERNING AGENCY RESPONSIBLE FOR THE PARTICULAR ROAD AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL RESTORE UNPAVED AREAS BY SEEDING AND MULCHING (ITEM 659), EXCEPT FOR STATION 157+42.31 TO 153+45.37 AND STATION 157+17.98 TO 168+57.77, UNLESS OTHERWISE NOTED HEREIN. COMMERCIAL FERTILIZER SHALL BE USED AND SHALL HAVE A CHEMICAL ANALYSIS OF 12-7-5. THE FERTILIZER SHALL BE DELIVERED TO THE PROJECT SITE IN MANUFACTURER'S CONTAINERS, UNOPENED. THE CONTAINER OR AN ATTACHED TAG SHALL HAVE PRINTED UPON IT THE MANUFACTURER'S NAME AND THE CHEMICAL ANALYSIS OF THE CONTENTS.

DRIVES AND WALKS SHALL BE RESTORED AS SHOWN ON STANDARD DRAWING 22 OF DELAWARE COUNTY SANITARY ENGINEERING DEPARTMENT, AND IN ACCORDANCE WITH THE LATEST CONSTRUCTION AND MATERIAL SPECIFICATION, STATE OF OHIO, AND DEPARTMENT OF TRANSPORTATION.

ALL DISTURBED AREAS SHALL BE RESTORED AS NEARLY AS PRACTICAL TO THE CONDITION IT WAS PRIOR TO CONSTRUCTION, INCLUDING SIDEWALKS.

ALL RESTORATION SHALL BE COMPLETED IN STRICT ACCORDANCE WITH THE APPROPRIATE ITEMS OF THE SPECIFICATIONS AS DIRECTED BY THE ENGINEER. COST OF RESTORATION AND BACKFILL SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

BACKFILLING:

SEE DELAWARE COUNTY STANDARD DRAWING DCED-R100.

TRENCHES SHALL BE BACKFILLED WITH GRANULAR MATERIAL WHERE INDICATED ON THE PLANS. GRANULAR MATERIAL SHALL BE PLACED AT ALL UTILITY AND ROAD CROSSINGS.

GRANULAR MATERIAL MAY BE GRAVEL OR CRUSHED STONE MEETING THE REQUIREMENTS OF SECTION 304.02 (AS APPROVED BY THE COUNTY ENGINEER), STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, CONSTRUCTION AND MATERIAL SPECIFICATIONS, OR OTHER WELL GRADED GRANULAR MATERIAL APPROVED BY THE ENGINEER.

THE MATERIAL SHALL BE PLACED IN LAYERS OF APPROXIMATELY TWELVE (12) INCHES IN THICKNESS AND COMPACTED TO THE SATISFACTION OF THE SANITARY ENGINEER IN ACCORDANCE WITH STATE OF OHIO, CONSTRUCTION AND MATERIAL SPECIFICATIONS, SECTION 203.12. IT MAY BE COMPACTED WITH WATER IF SATISFACTORY DRAINAGE IS PROVIDED FOR THE FREE WATER. IF IN PAVEMENT, DRIVEWAY OR BERM, THE TOP EIGHT (8) INCHES OF GRANULAR MATERIAL SHALL BE SUITABLE FOR TEMPORARY PAVING MATERIAL, IF IN LAWN, THE TOP FOUR (4) INCHES SHALL BE TOPSOIL OR SUITABLE MATERIAL.

WHERE THE CONTRACTOR IS REQUIRED TO EXCAVATE BELOW PIPE GRADE, SUCH AS IN ROCK EXCAVATION OR TO OBTAIN A STABLE FOUNDATION FOR THE PIPE, THE GRANULAR MATERIAL REQUIRED TO RESTORE THE GRADE SHALL BE AS HEREIN SPECIFIED, OR AS APPROVED BY THE COUNTY ENGINEER.

ENCOUNTERING HAZARDOUS OR TOXIC MATERIALS:

IF THE CONTRACTOR ENCOUNTERS ANY ABNORMAL MATERIALS SUCH AS, BUT NOT LIMITED TO, DRUMS, TANKS, OR STAINED EARTH OR ANY UNUSUAL ODOR DURING CONSTRUCTION OPERATION, THE WORK IN THIS AREA SHALL BE TEMPORARILY DISCONTINUED, EQUIPMENT LEFT IN PLACE, THE AREA CORDONED OFF AND THE COUNTY NOTIFIED. IF THE AREA IS CONSIDERED TO CONTAIN HAZARDOUS OR TOXIC MATERIALS IT MUST BE HANDLED CORRECTLY IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL LAWS.

STATE OF OHIO PERMIT:

ALL WORK WITHIN STATE OF OHIO RIGHT-OF-WAY IS SUBJECT TO THE INSPECTION AND APPROVAL OF THE STATE OF OHIO ENGINEER. THE CONTRACTOR SHALL SECURE A WRITTEN PERMIT FROM THE STATE OF OHIO ENGINEER 48 HOURS IN ADVANCE OF STARTING ANY WORK WITHIN THE STATE RIGHT-OF-WAY.

DELAWARE COUNTY NOTIFICATION:

THE CONTRACTOR SHALL NOTIFY THE DELAWARE COUNTY ENGINEER, AND COUNTY SANITARY ENGINEER 48 HOURS IN ADVANCE OF COMMENCING ANY WORK.

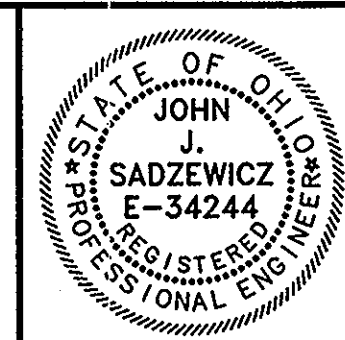
STANDARD DRAWINGS:

01 SEWER INSTALLATION
14 FORCE MAIN CONNECTION TO MANHOLE DETAIL
20 WATERLINE CROSSING
22 PAVEMENT REPLACEMENT DETAILS
23 CONCRETE REACTION BACKING DETAILS
24 BACKING FOR VERTICAL BEND
25 AUTOMATIC AIR RELEASE VALVE
DCED-R100 BACKFILL DETAIL

R.D.Zande & Associates

DESIGNED BY: AKM		REVISIONS	
DRAWN BY: MMR	DATE	REMARKS	
CHECKED BY: HMJ			
APPROVED BY: JJS			
DATE: MARCH, 2001			
JOB NO. 5701			

SANITARY FORCE MAIN
GOLF VILLAGE
DELAWARE COUNTY, OHIO



GOLF VILLAGE

SCALE:

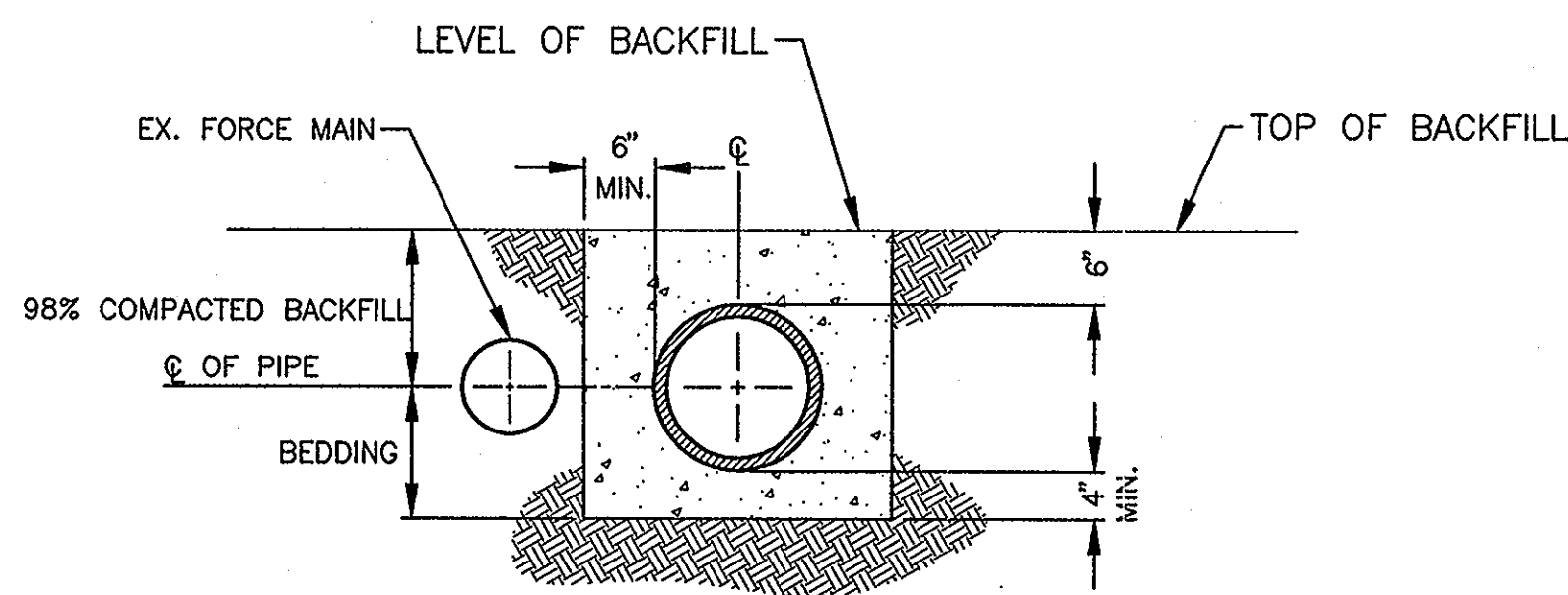
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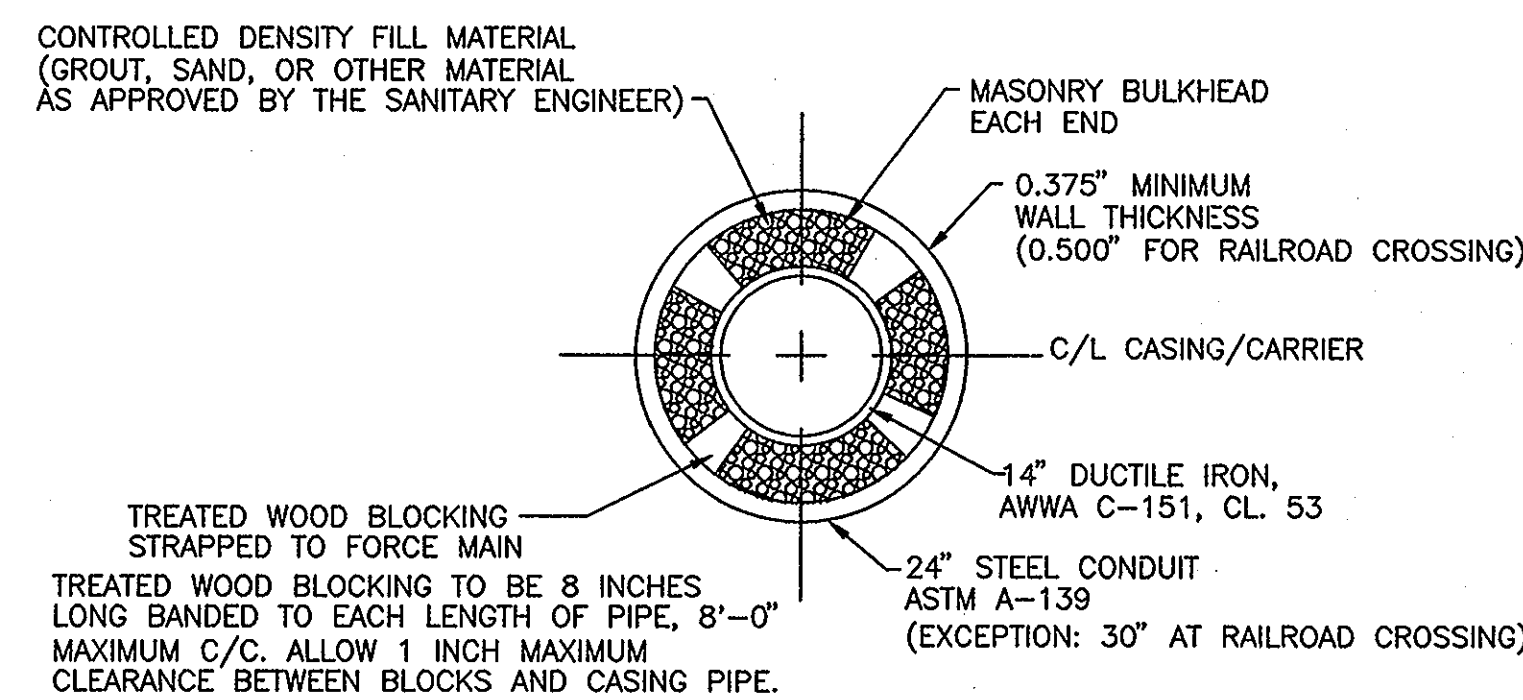
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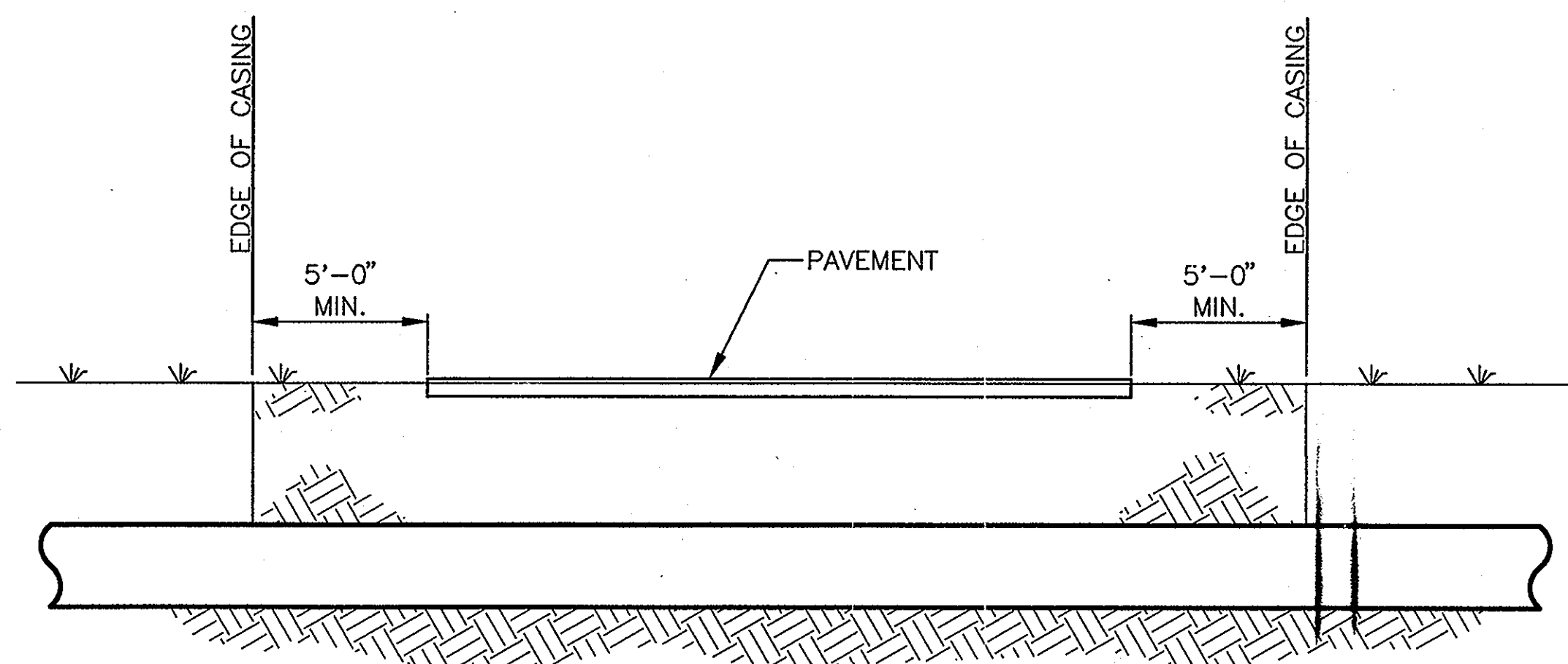
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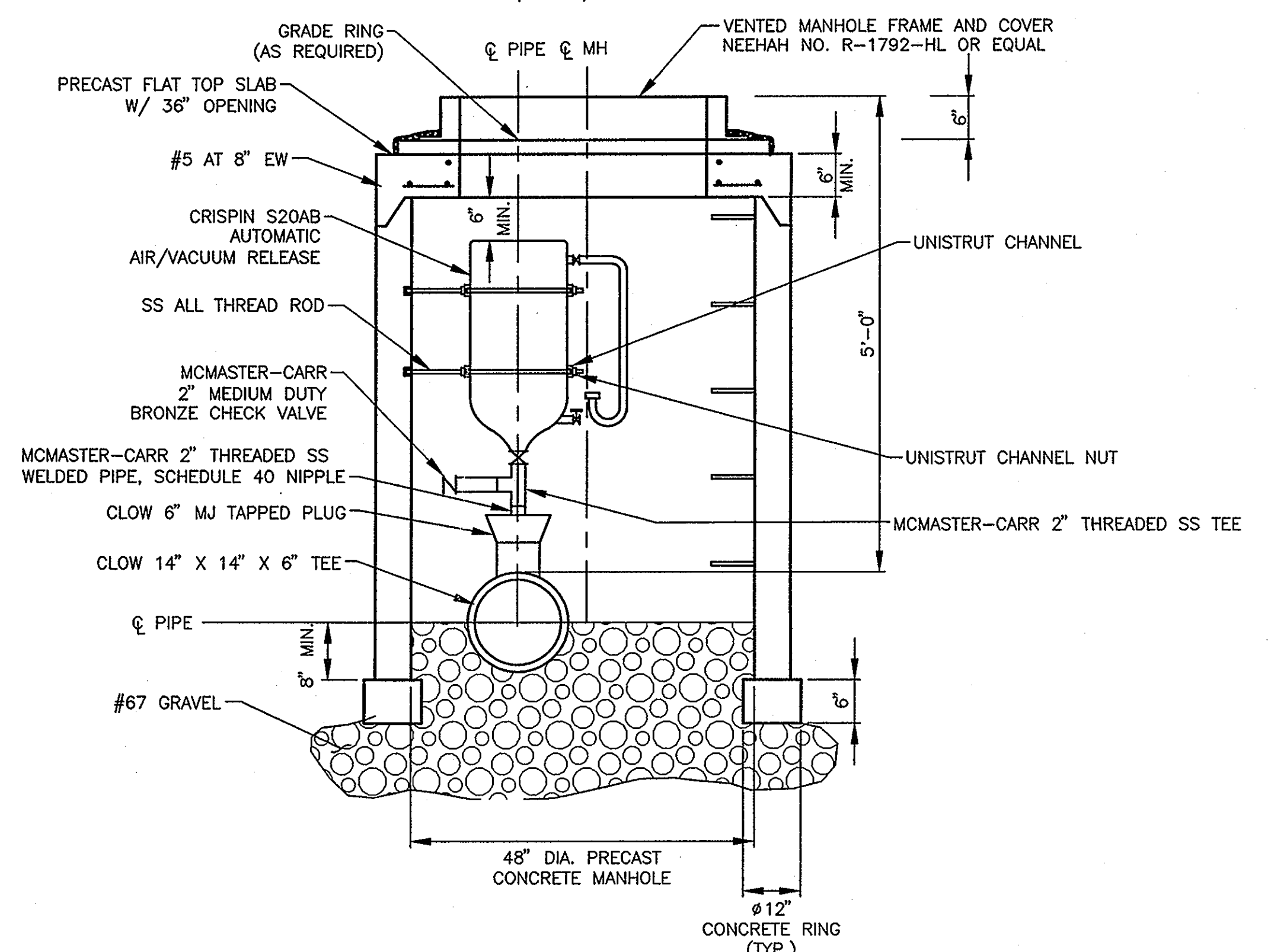
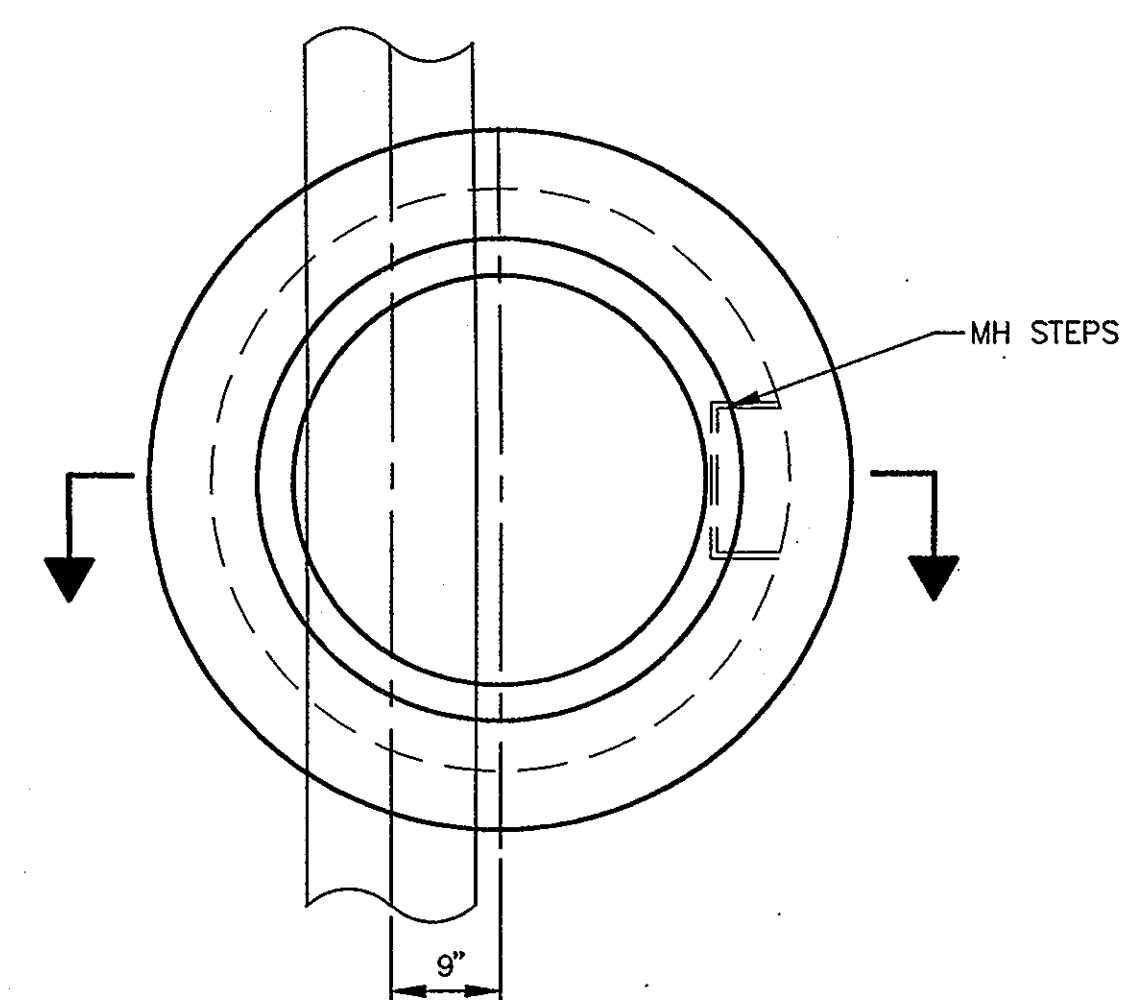
**SEWER INSTALLATION
FROM STA. 170+16.75 TO 188+84.17**
SCALE: 3/4" = 1'-0"



JACK & BORE DETAIL
NOT TO SCALE



**EXCAVATION LIMITS FOR
JACK AND BORE
UNDER DRIVEWAYS AND ROADS**
SCALE: 1/4" = 1'-0"



AUTOMATIC AIR AND VACUUM RELEASE VALVE
SCALE: 3/4" = 1'-0"

LEGEND

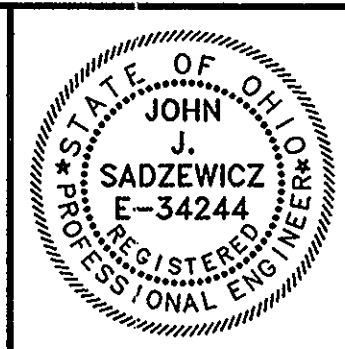
- | | | | |
|--|-----------------------|--|----------------------|
| | EDGE OF PAVEMENT | | EX. CURB INLET |
| | UNDERGROUND TELEPHONE | | EX. WATER VALVE |
| | EX. STORM | | PROPOSED WATER VALVE |
| | EX. DITCH | | FIRE HYDRANT |
| | PROPOSED ALIGNMENT | | COMBINATION POLE |
| | EX. FENCES | | TELEPHONE BOX |
| | PROPERTY LINES | | GUY WIRE |
| | RIGHT-OF-WAYS | | GUY POLE |
| | PAVEMENT REPLACEMENT | | POWER POLE |
| | C/L DITCH / C/L SWALE | | AIR RELEASE VALVE |
| | EX. WATER LINE | | FUTURE STORM MH |
| | EX. SANITARY SEWER | | FUTURE CATCHBASIN |
| | EX. GAS LINE | | |
| | EX. ELECTRIC LINE | | |
| | EASEMENT | | |
| | JACK AND BORE | | BENCH MARK |
| | | | DEC. TREE |
| | | | CON. TREE |

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DESIGNED BY:	AKM	REVISIONS	
DRAWN BY:	MMR	DATE	REMARKS
CHECKED BY:	HMJ		
APPROVED BY:	JUS		
DATE:	MARCH, 2001		
JOB NO.	5701		

SANITARY FORCE MAIN
GOLF VILLAGE
DELAWARE COUNTY, OHIO

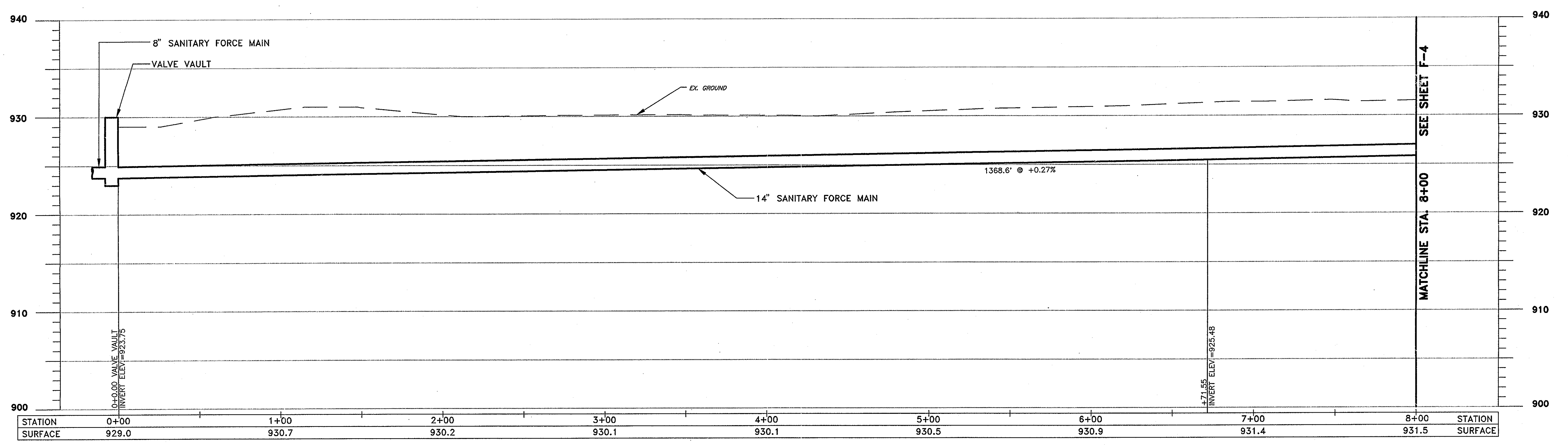
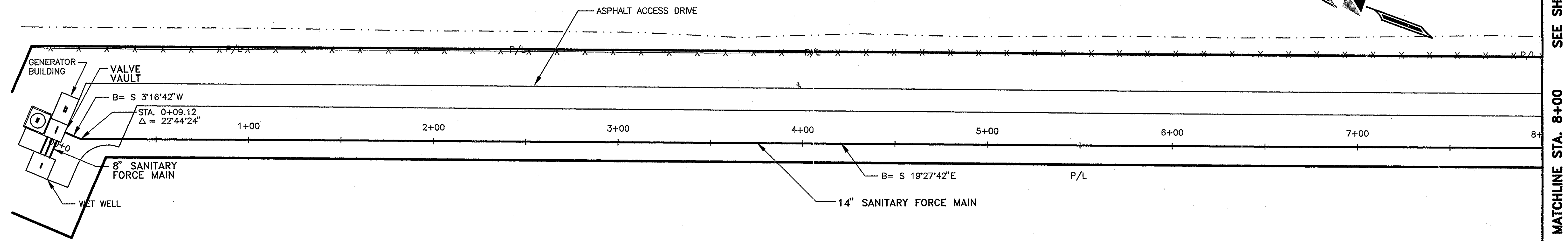


GOLF VILLAGE

SCALE:
NONE

GENERAL NOTES
DETAILS

SHEET NO.
F-2

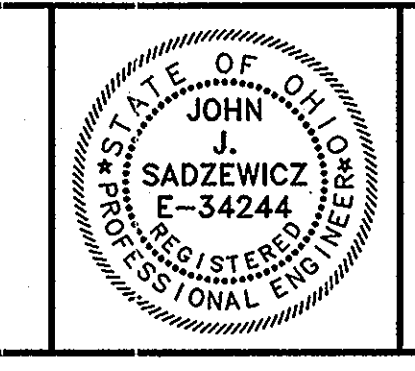


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DESIGNED BY:	AKM	REVISIONS	
DRAWN BY:	MMR	DATE	REMARKS
CHECKED BY:	HMJ		
APPROVED BY:	JJS		
DATE:	MARCH, 2001		
JOB NO.	5701		

**SANITARY FORCE MAIN
GOLF VILLAGE
DELAWARE COUNTY, OHIO**



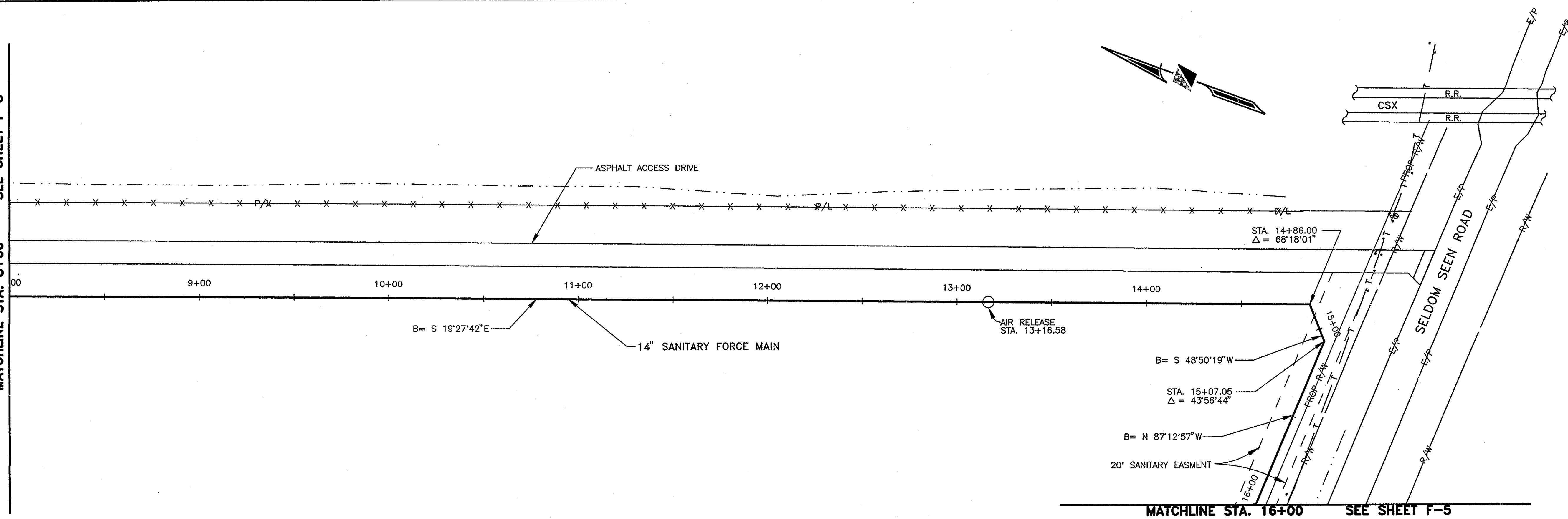
GOLF VILLAGE

SCALE:
HORZ. 1"=30'
VERT. 1"=5'

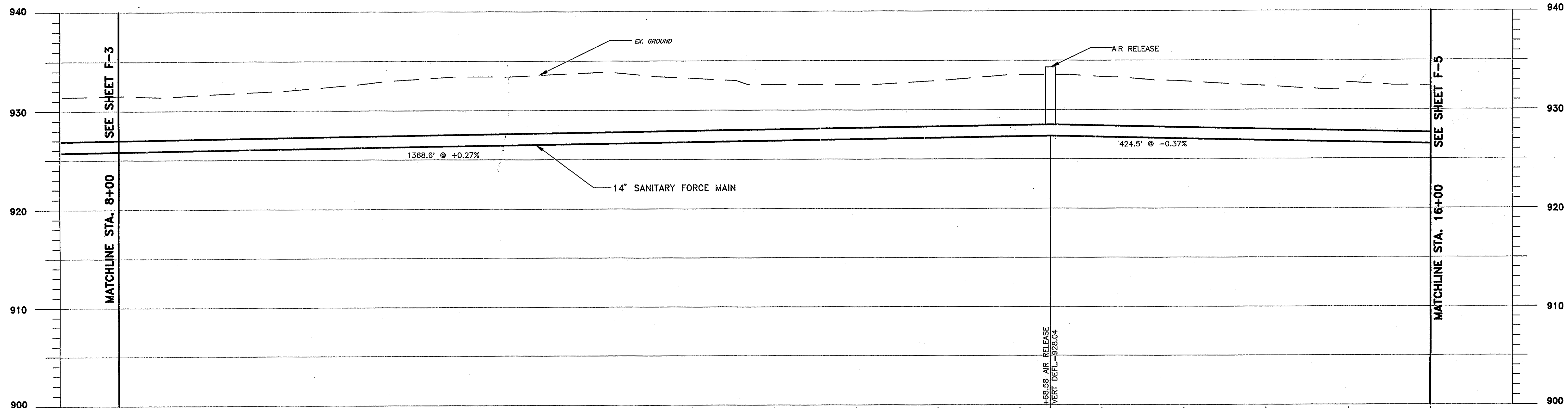
**PLAN & PROFILE
SANITARY FORCE MAIN**

SHEET NO.
F-3

MATCHLINE STA. 8+00 SEE SHEET F-3



MATCHLINE STA. 16+00 SEE SHEET F-5

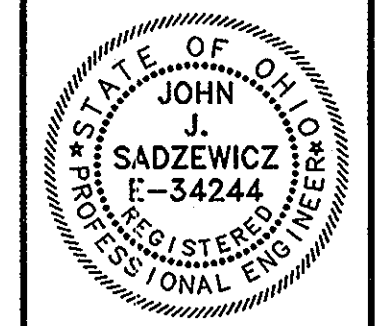


STATION	8+00	9+00	10+00	11+00	12+00	13+00	14+00	15+00	16+00	STATION
SURFACE	931.5	932.0	933.4	933.9	932.6	933.0	933.3	932.4	932.4	SURFACE



DESIGNED BY:	AKM	REVISIONS	
DRAWN BY:	MMR	DATE	REMARKS
CHECKED BY:	HMJ		
APPROVED BY:	JJS		
DATE:	MARCH, 2001		
JOB NO.	5701		

SANITARY FORCE MAIN
GOLF VILLAGE
DELAWARE COUNTY, OHIO

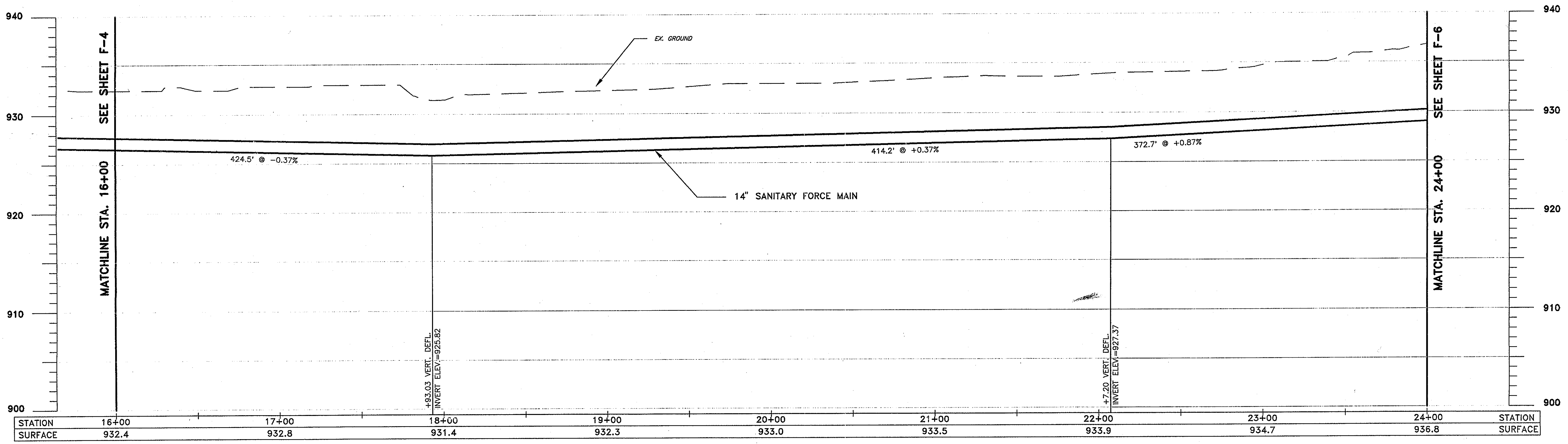
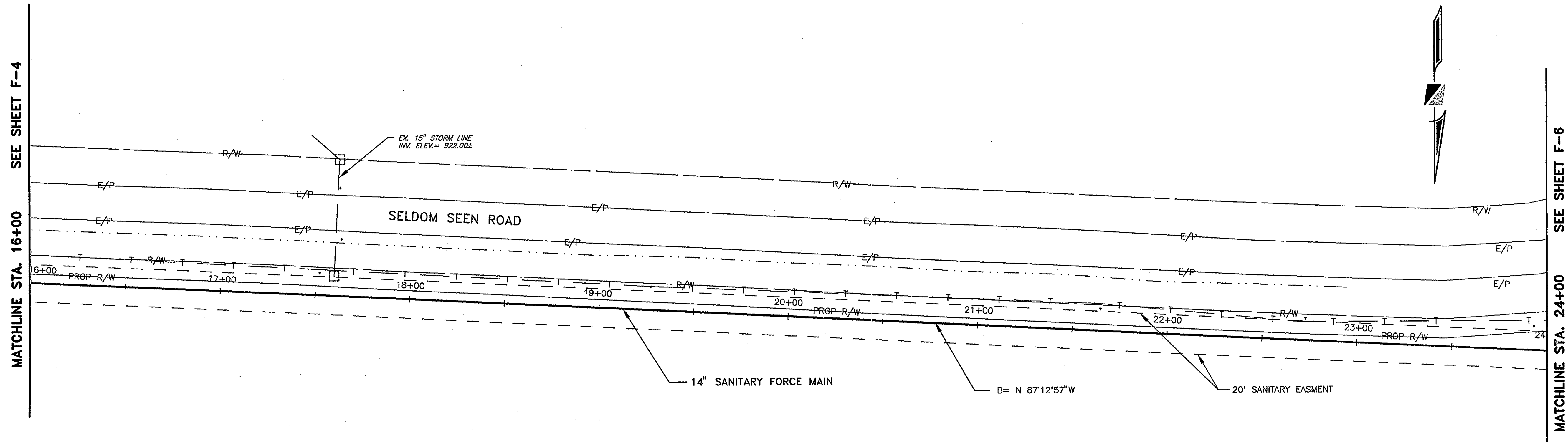


GOLF VILLAGE

SCALE:
HORZ. 1"=30'
VERT. 1"=5'

PLAN & PROFILE
SANITARY FORCE MAIN

SHEET NO.
F-4



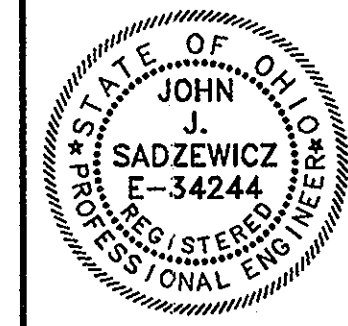
P:\5701\ACAD\5701\PP03.dwg, Layout1, 05/14/01 02:47:37 PM, wall2



DESIGNED BY:	AKM
DRAWN BY:	MMR
CHECKED BY:	HMJ
APPROVED BY:	JJS
DATE:	MARCH, 2001
JOB NO.	5701

REVISIONS	
DATE	REMARKS

SANITARY FORCE MAIN
GOLF VILLAGE
DELAWARE COUNTY, OHIO

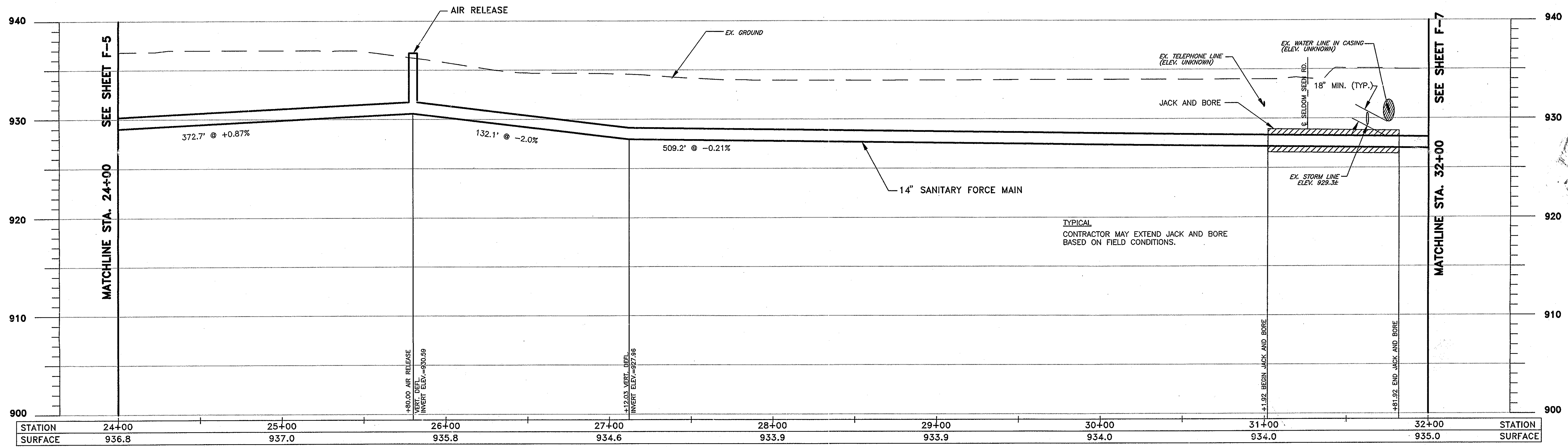
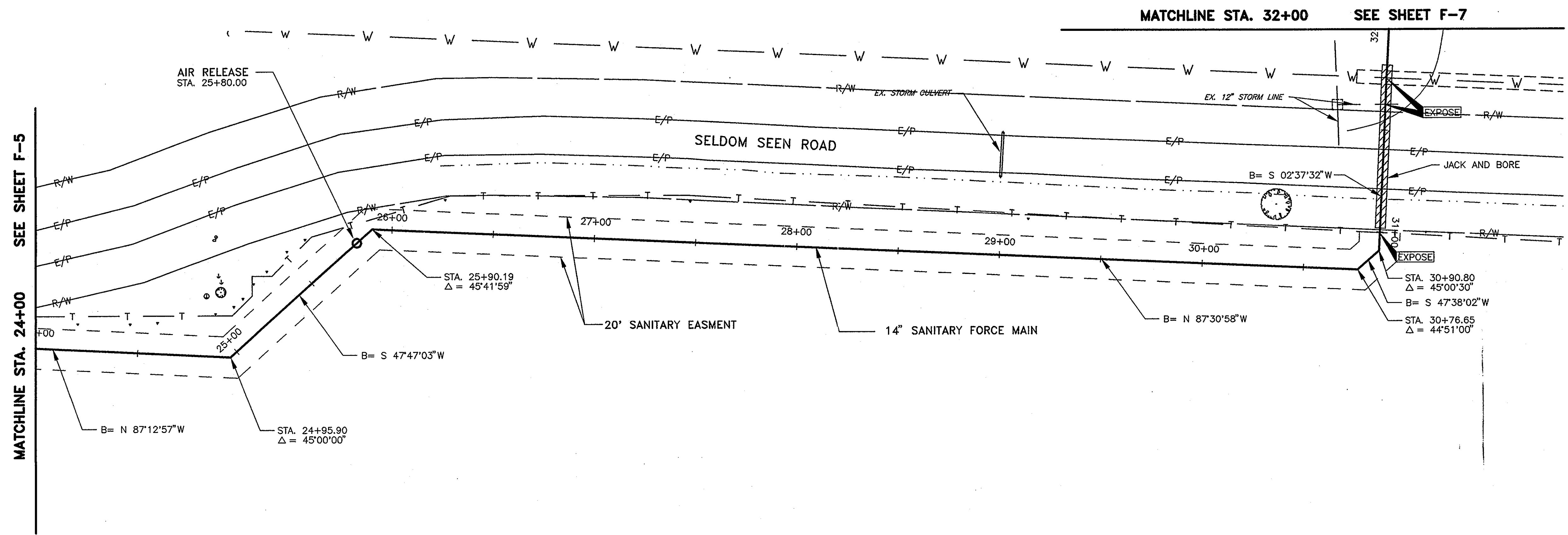


GOLF VILLAGE

SCALE:
HORZ. 1"=30'
VERT. 1"=5'

PLAN & PROFILE
SANITARY FORCE MAIN

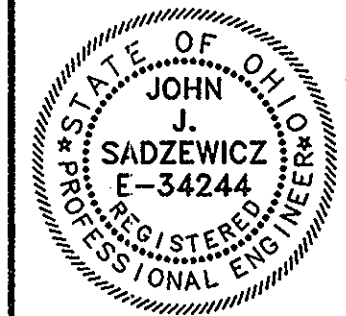
SHEET NO.
F-5



R.D.Zande & Associates

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DRAWN BY:	MMR	DATE	REMARKS
CHECKED BY:	HMJ		
APPROVED BY:	JJS		
DATE:	MARCH, 2001		
JOB NO.	5701		

**SANITARY FORCE MAIN
GOLF VILLAGE
DELAWARE COUNTY, OHIO**

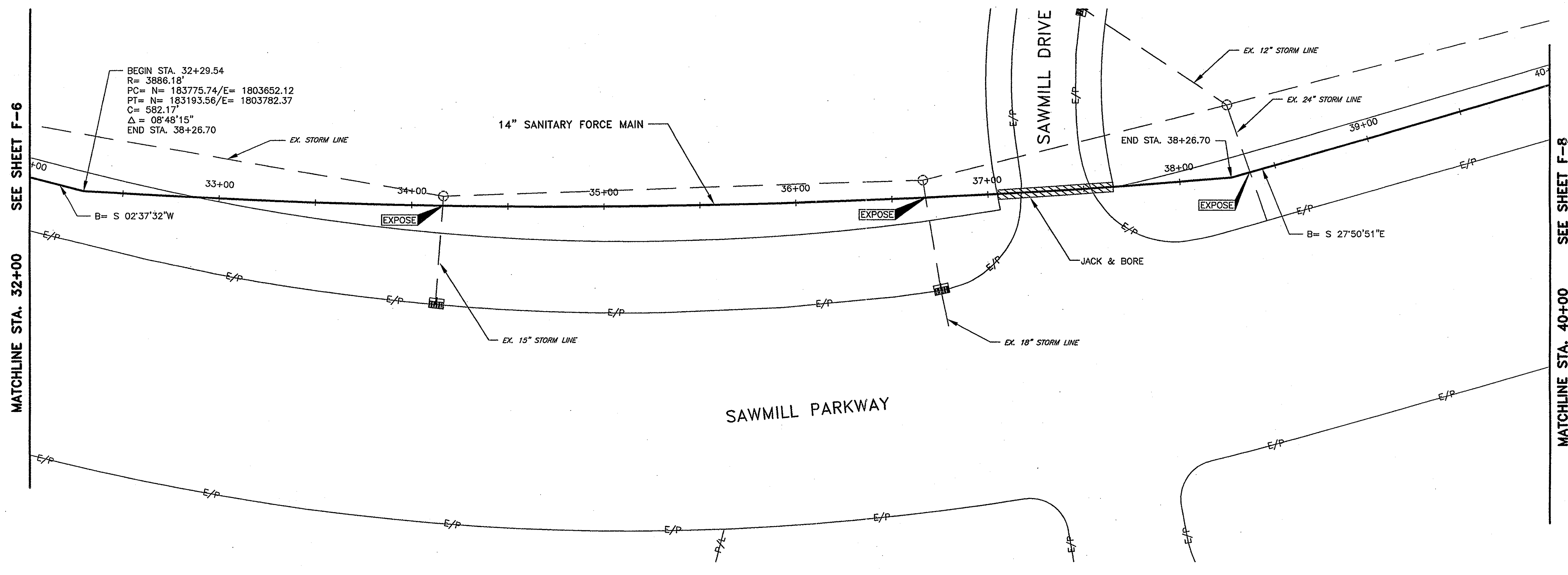


GOLF VILLAGE

SCALE:
HORZ. 1"=30'
VERT. 1"=5'

**PLAN & PROFILE
SANITARY FORCE MAIN**

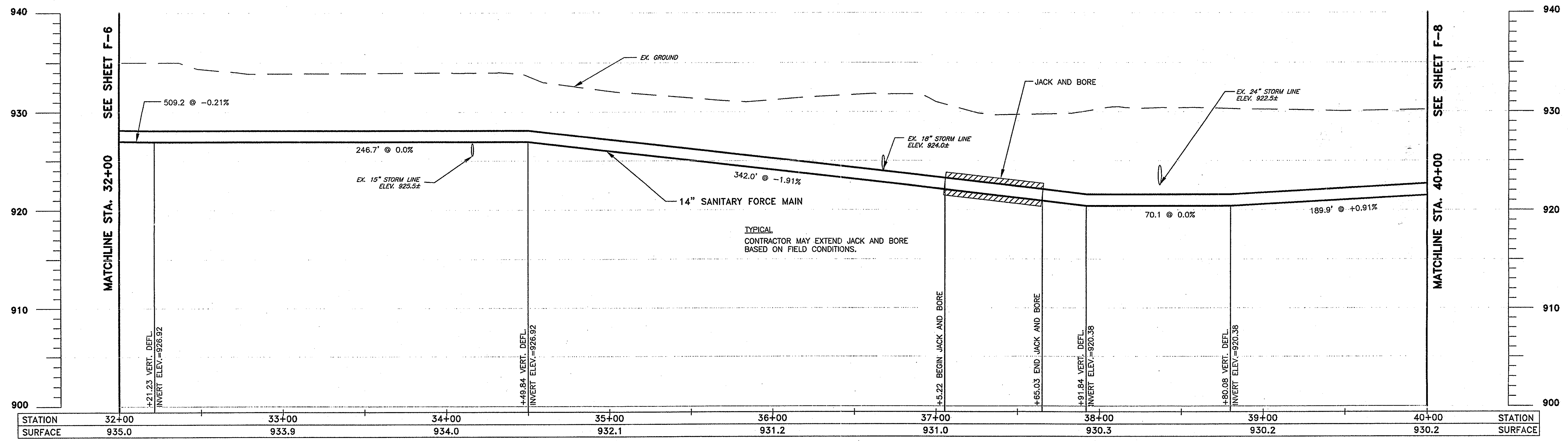
SHEET NO.
F-6



BEGIN STA. 32+29.54
 R= 3886.18'
 PC= N= 183775.74/E= 1803652.12
 PT= N= 183193.56/E= 1803782.37
 C= 582.17'
 Δ= 08°48'15"
 END STA. 38+26.70

SEE SHEET F-6
 MATCHLINE STA. 32+00

SEE SHEET F-8
 MATCHLINE STA. 40+00



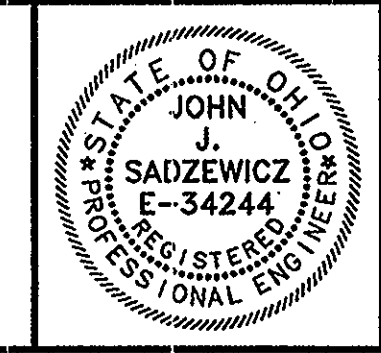
SEE SHEET F-6
 MATCHLINE STA. 32+00

SEE SHEET F-8
 MATCHLINE STA. 40+00



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CHECKED BY:	HMJ		
APPROVED BY:	JJS		
DATE:	MARCH, 2001		
JOB NO.	5701		

SANITARY FORCE MAIN
 GOLF VILLAGE
 DELAWARE COUNTY, OHIO



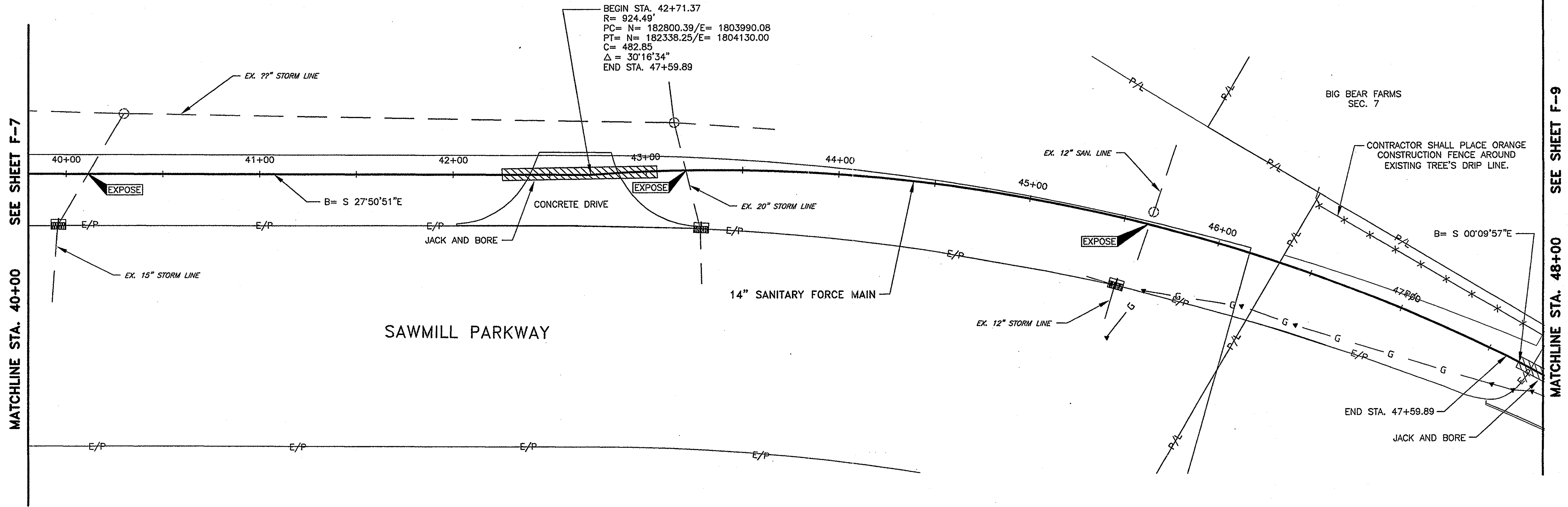
GOLF VILLAGE

SCALE:
 HORZ. 1"=30'
 VERT. 1"=5'

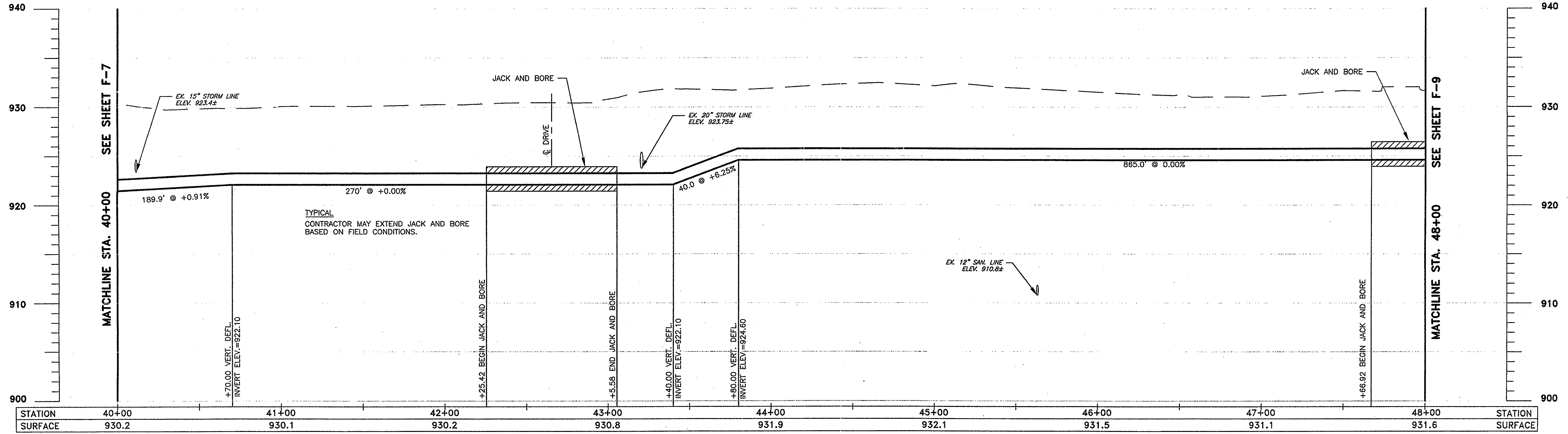
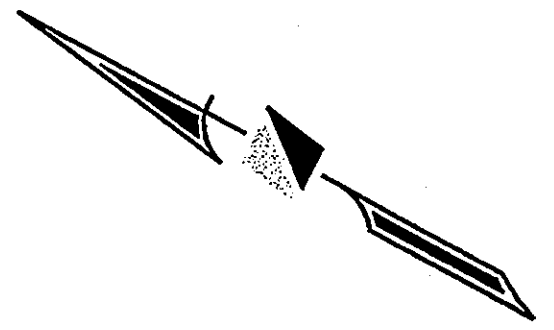
PLAN & PROFILE
 SANITARY FORCE MAIN

SHEET NO.
 F-7

m02 P:\5701\A045\5701P05.dwg Layout1 Layout MAR 17, 2001 11:09 AM



BEGIN STA. 42+71.37
 R= 924.49'
 PC= N= 182800.39/E= 1803990.08
 PT= N= 182338.25/E= 1804130.00
 C= 432.85
 Δ= 30°16'34"
 END STA. 47+59.89



STATION	40+00	41+00	42+00	43+00	44+00	45+00	46+00	47+00	48+00	STATION
SURFACE	930.2	930.1	930.2	930.8	931.9	932.1	931.5	931.1	931.6	SURFACE

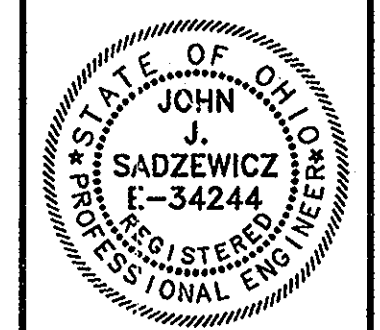
P:\5701\463\5701-PP06.dwg Layout MAR 17, 2001 11:36 AM



DESIGNED BY:	AKM
DRAWN BY:	MMR
CHECKED BY:	HMJ
APPROVED BY:	JJS
DATE:	MARCH, 2001
JOB NO.	5701

REVISIONS	
DATE	REMARKS

SANITARY FORCE MAIN
 GOLF VILLAGE
 DELAWARE COUNTY, OHIO



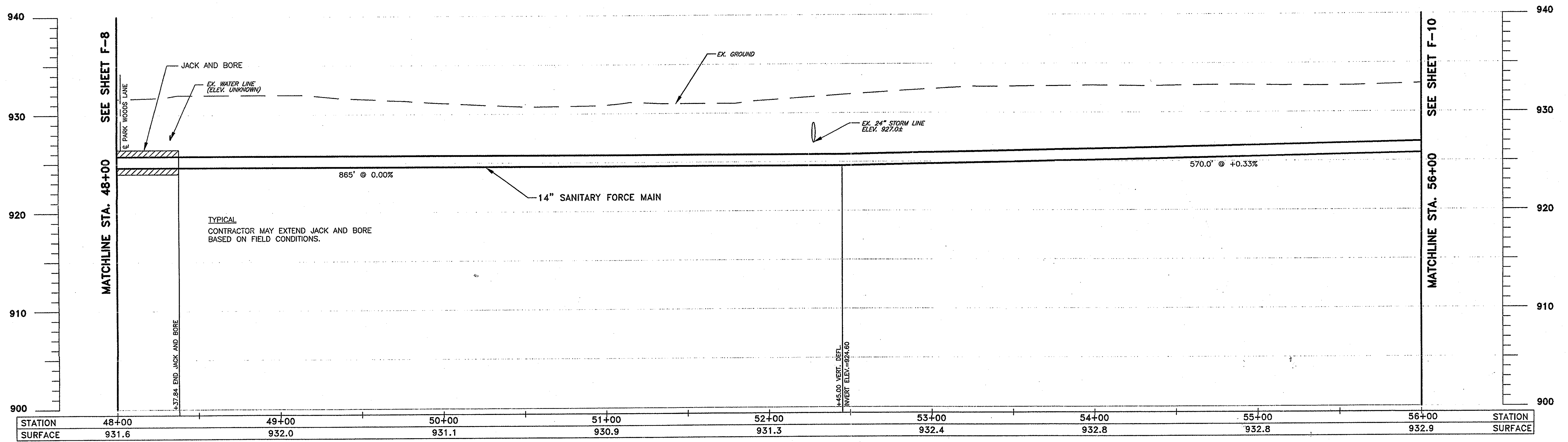
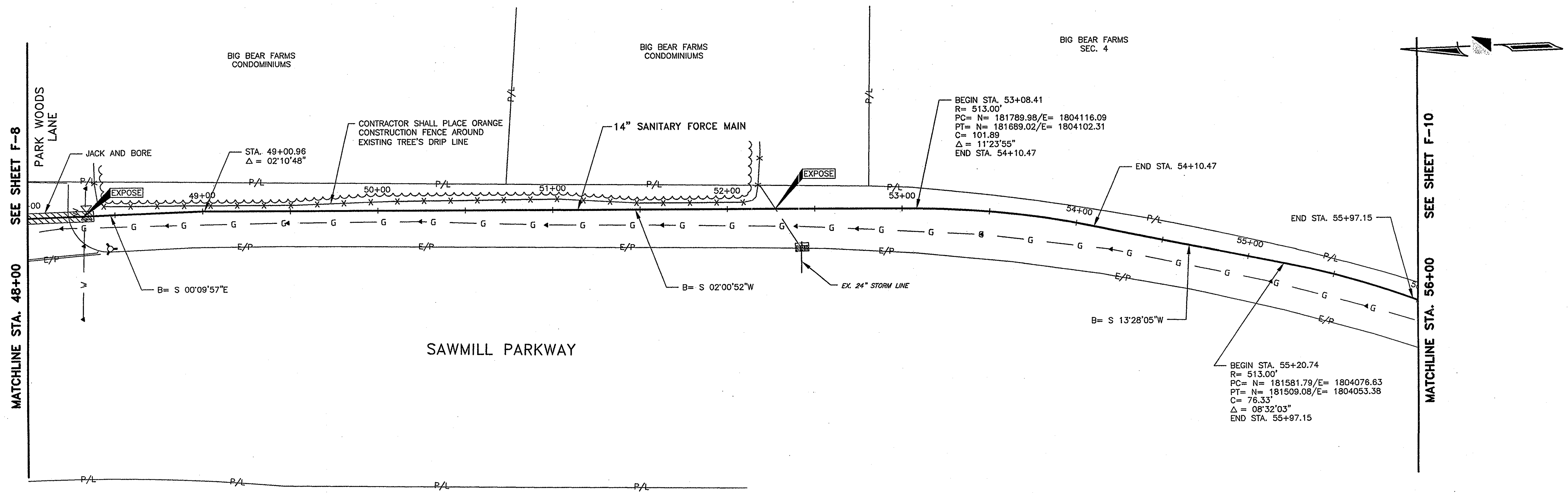
GOLF VILLAGE

SCALE:
 HORZ. 1"=30'
 VERT. 1"=5'

PLAN & PROFILE
 SANITARY FORCE MAIN

SHEET NO.

F-8

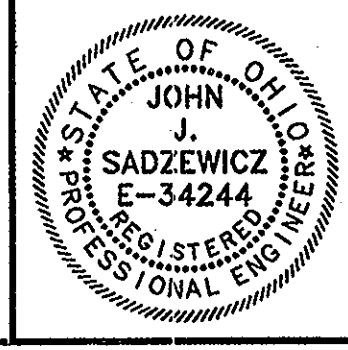


STATION	48+00	49+00	50+00	51+00	52+00	53+00	54+00	55+00	56+00	STATION
SURFACE	931.6	932.0	931.1	930.9	931.3	932.4	932.8	932.8	932.9	SURFACE

R.D.Zande & Associates

DESIGNED BY:	AKM	REVISIONS	
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CHECKED BY:	HMJ		
APPROVED BY:	JJS		
DATE:	MARCH, 2001		
JOB NO.	5701		

SANITARY FORCE MAIN
GOLF VILLAGE
DELAWARE COUNTY, OHIO

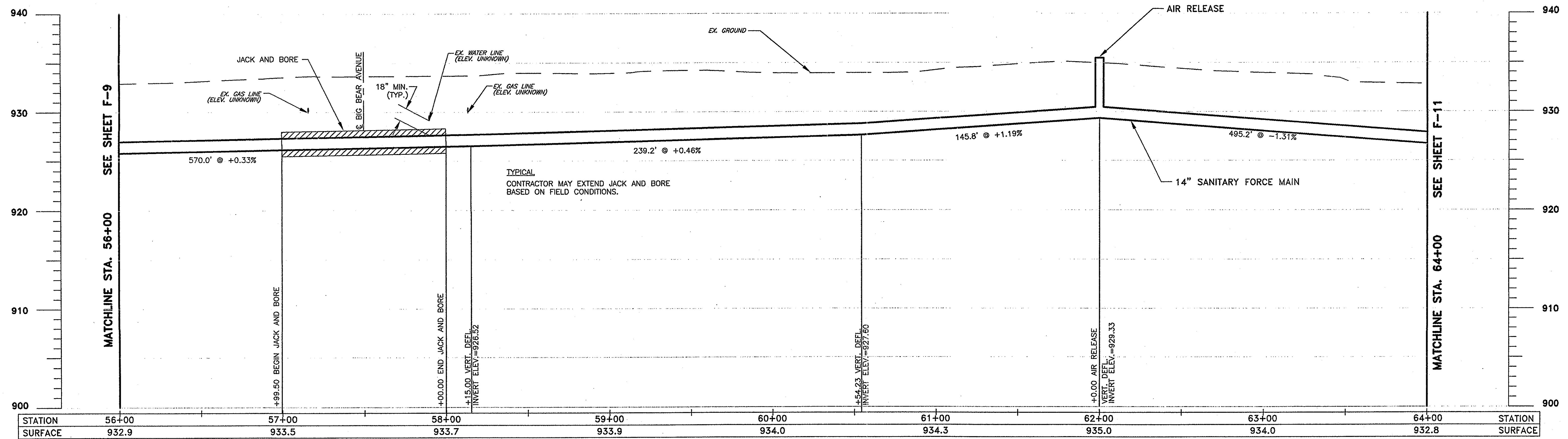
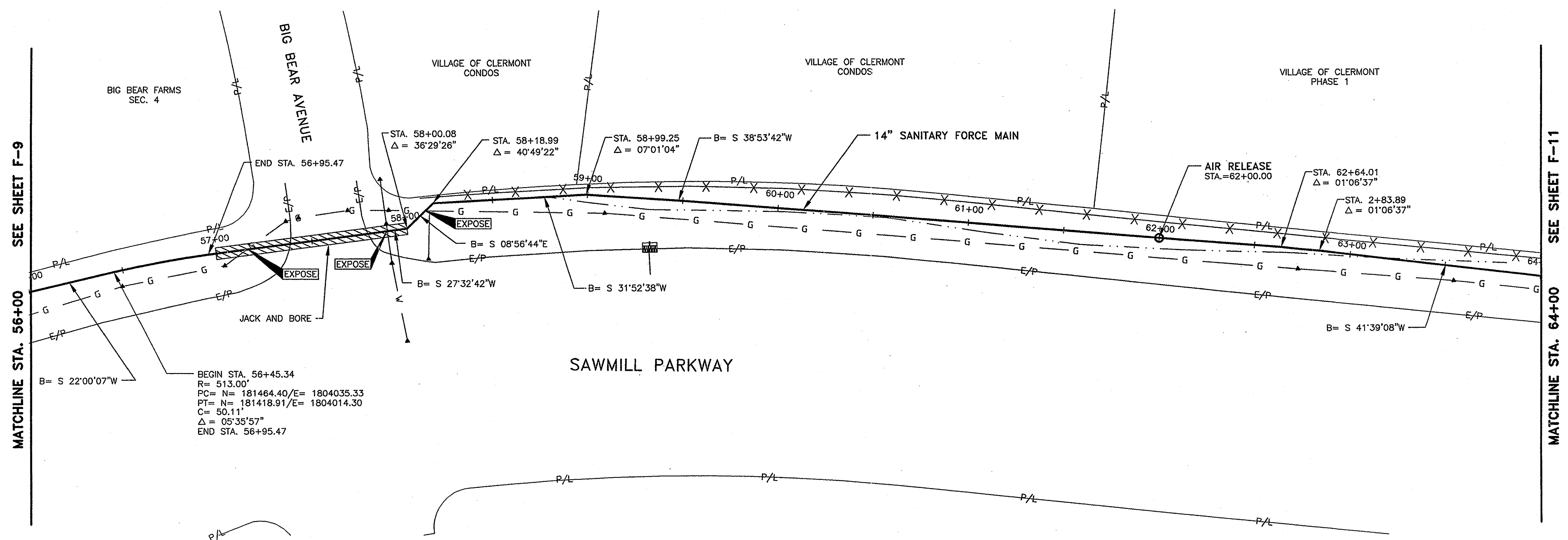


GOLF VILLAGE

SCALE:
HORZ. 1"=30'
VERT. 1"=5'

PLAN & PROFILE
SANITARY FORCE MAIN

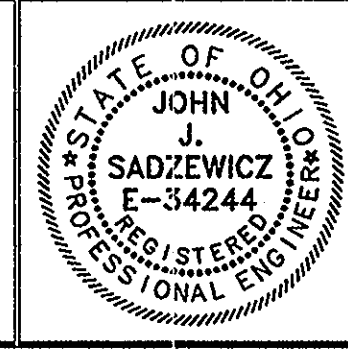
SHEET NO.
F-9



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CHECKED BY:	HMJ		
APPROVED BY:	JJS		
DATE:	MARCH, 2001		
JOB NO.	5701		

**SANITARY FORCE MAIN
GOLF VILLAGE
DELAWARE COUNTY, OHIO**

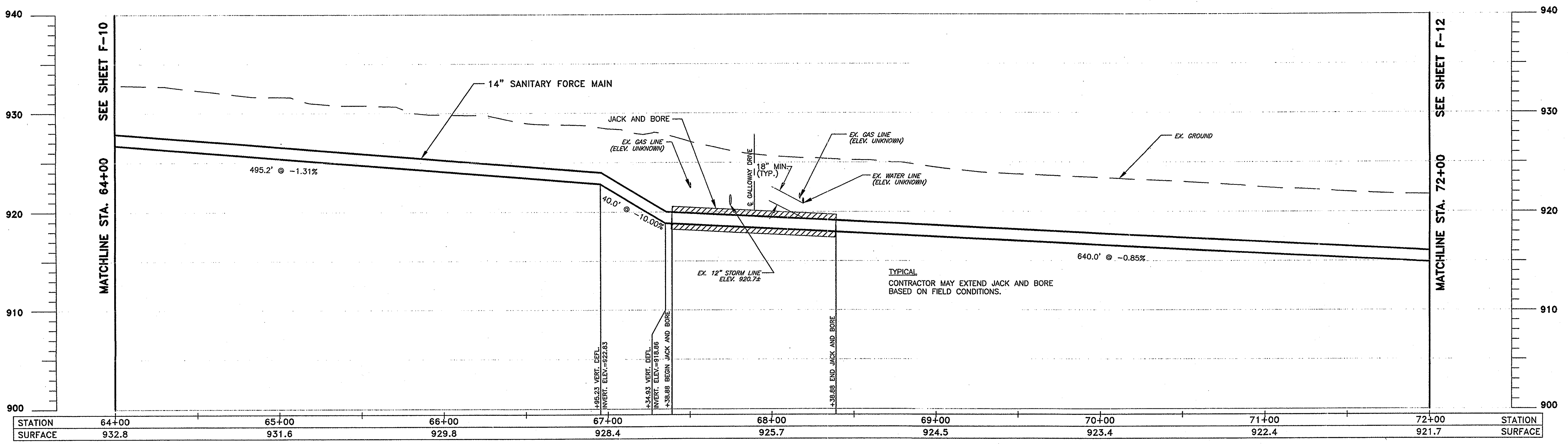
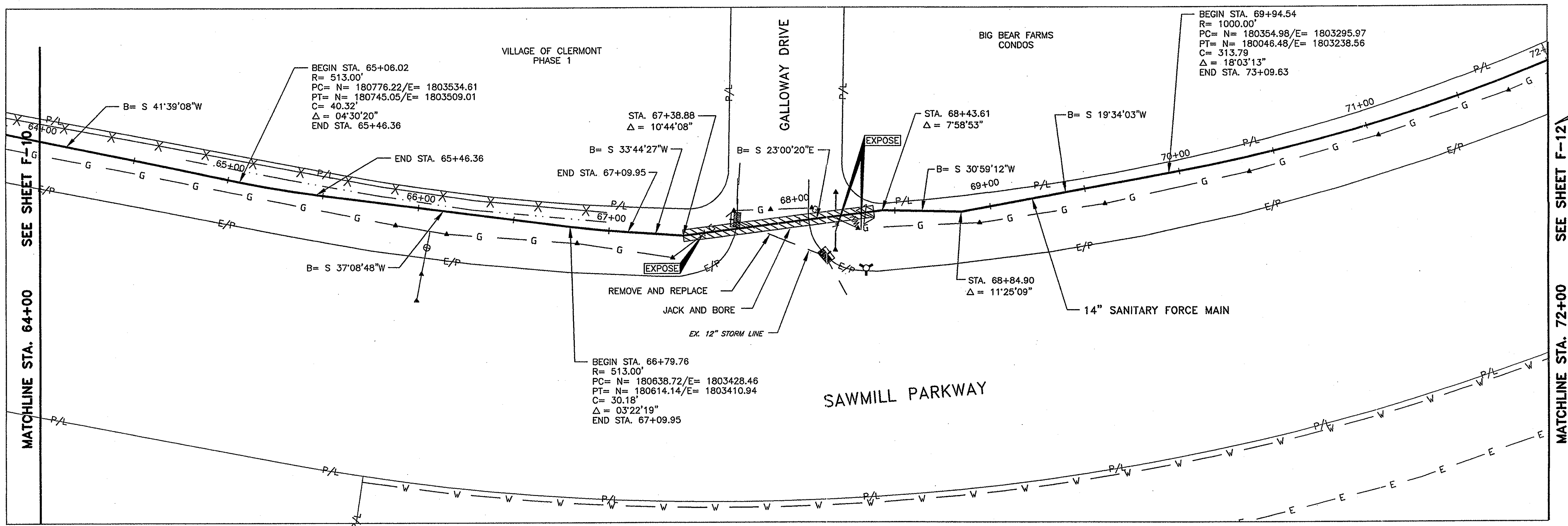


GOLF VILLAGE

SCALE:
HORZ. 1"=30'
VERT. 1"=5'

**PLAN & PROFILE
SANITARY FORCE MAIN**

SHEET NO.
F-10

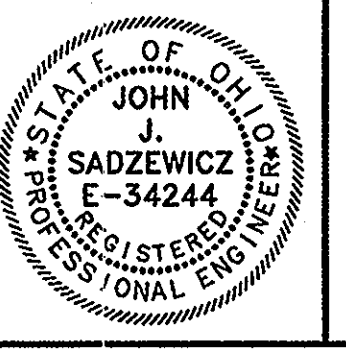


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DRAWN BY:	MMR	DATE	REMARKS
CHECKED BY:	HMJ		
APPROVED BY:	JJS		
DATE:	MARCH, 2001		
JOB NO.	5701		

SANITARY FORCE MAIN
GOLF VILLAGE
DELAWARE COUNTY, OHIO

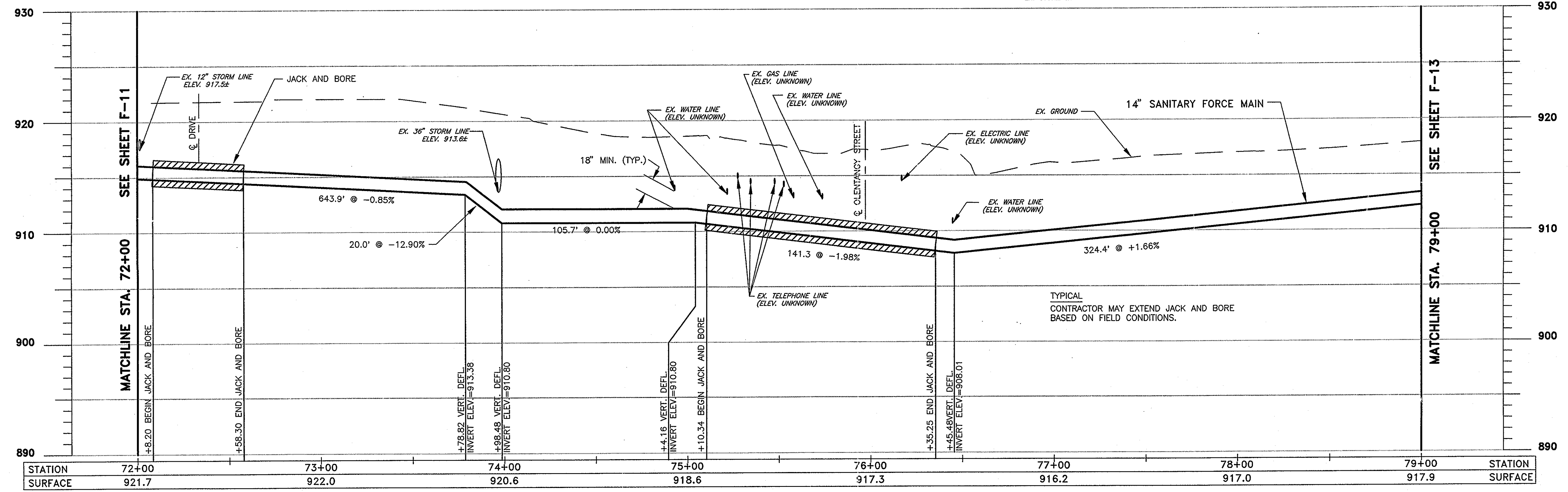
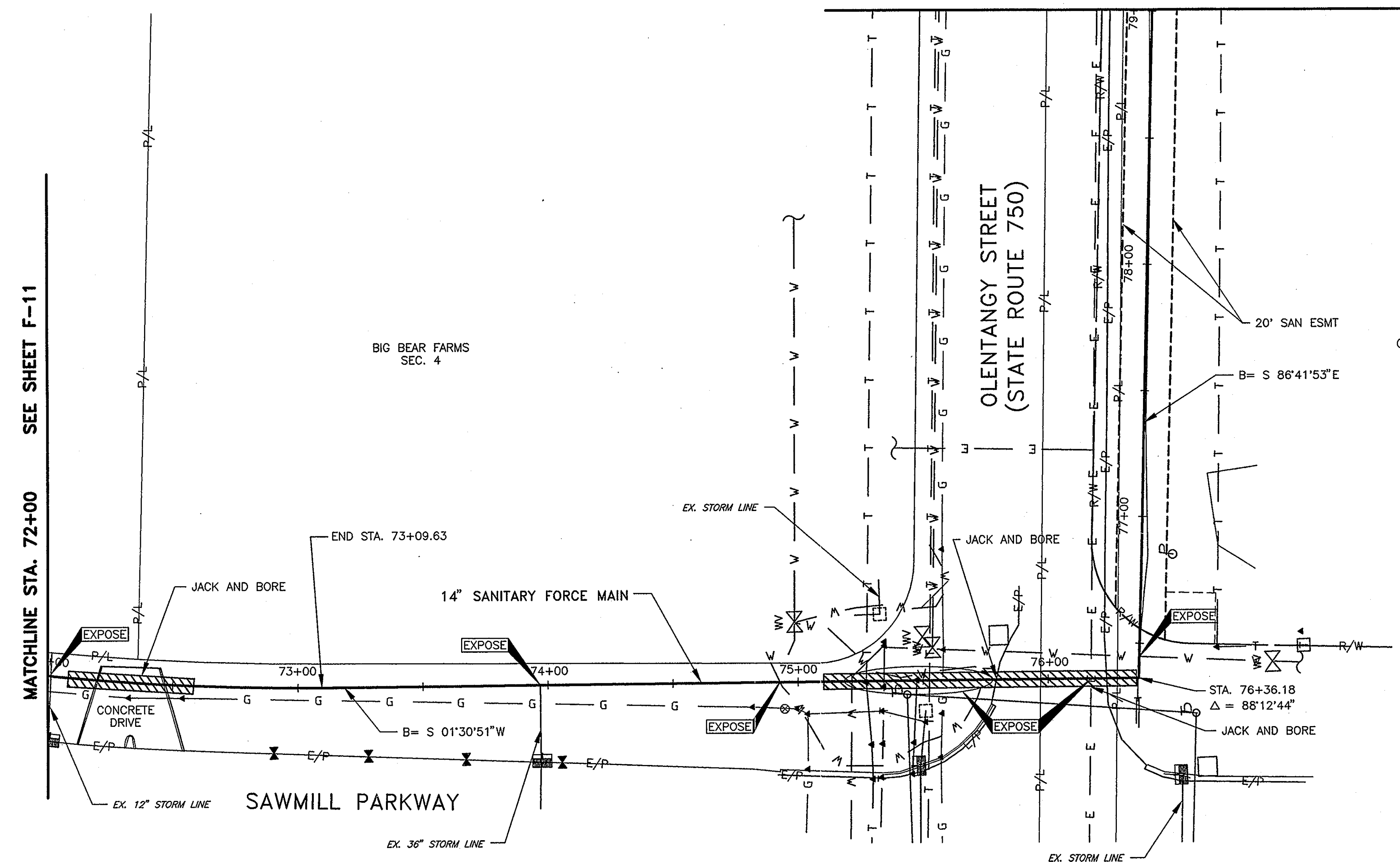


GOLF VILLAGE

SCALE:
 HORZ. 1"=30'
 VERT. 1"=5'

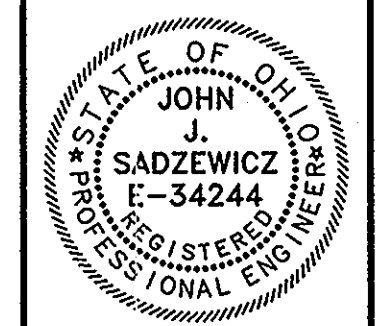
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SANITARY FORCE MAIN

SHEET NO.
F-11



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DRAWN BY:	MMR	DATE	REMARKS
CHECKED BY:	HMJ		
APPROVED BY:	JJS		
DATE:	MARCH, 2001		
JOB NO.	5701		

**SANITARY FORCE MAIN
GOLF VILLAGE
DELAWARE COUNTY, OHIO**

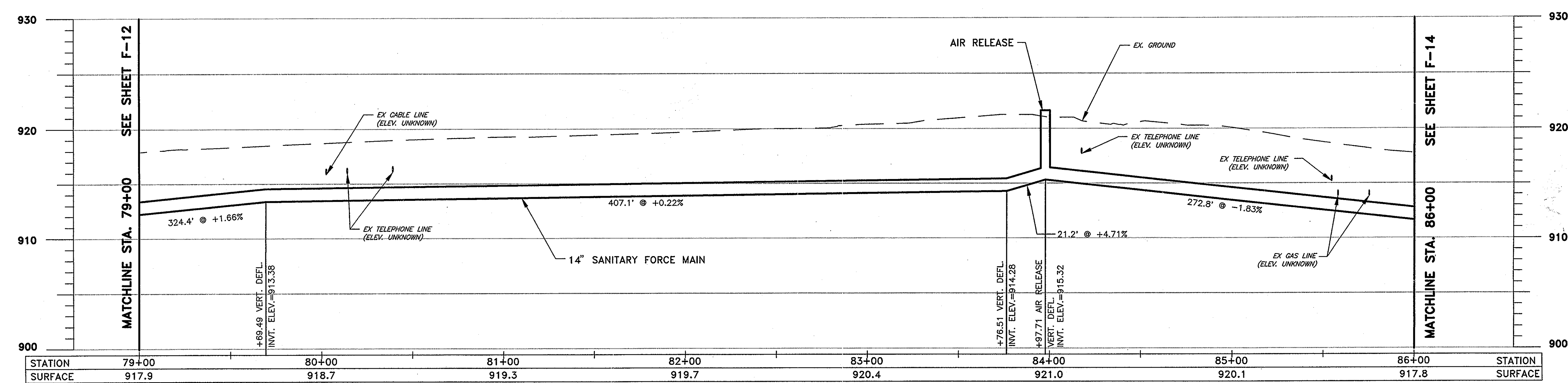
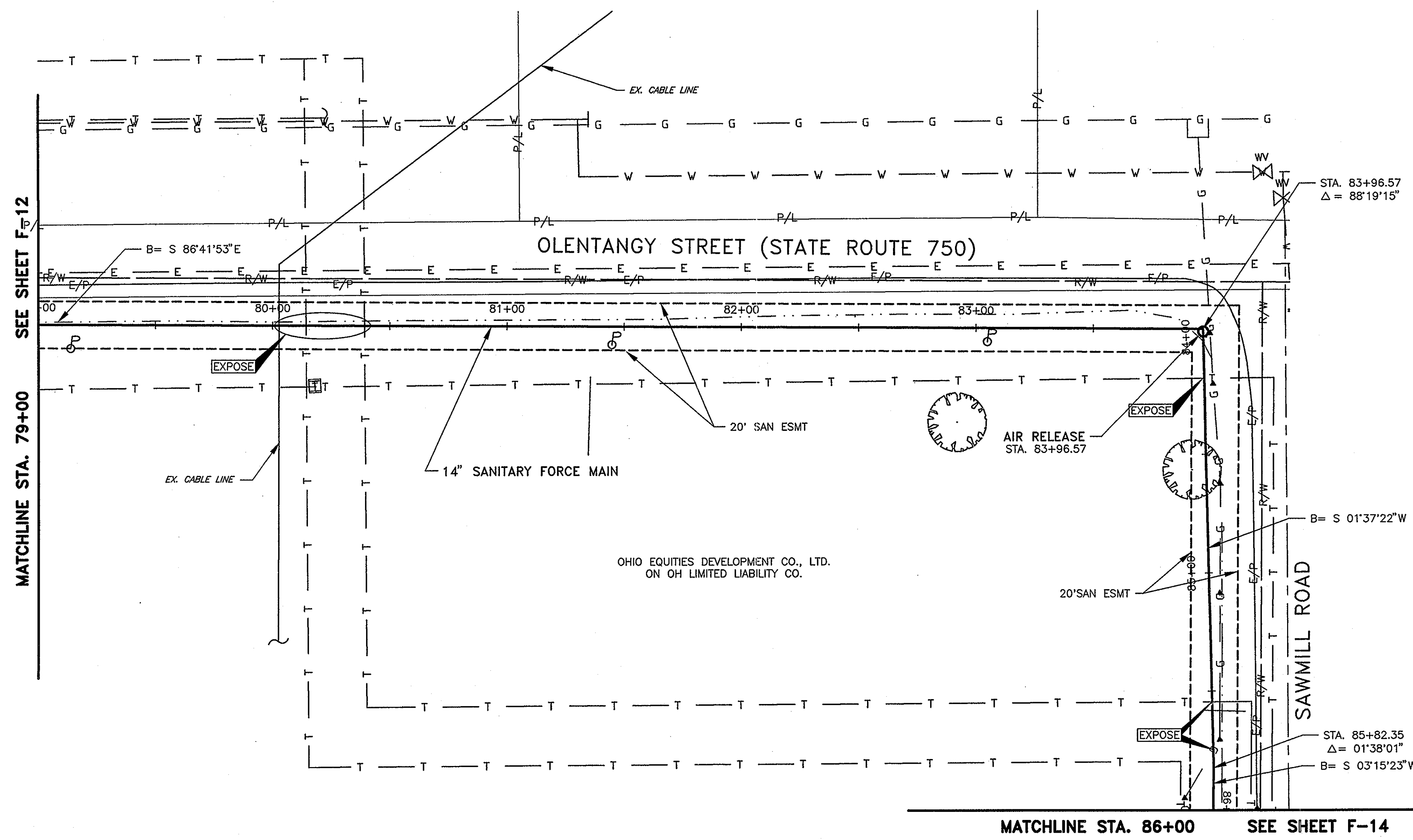


GOLF VILLAGE

SCALE:
HORZ. 1"=30'
VERT. 1"=5'

PLAN & PROFILE
SANITARY FORCE MAIN

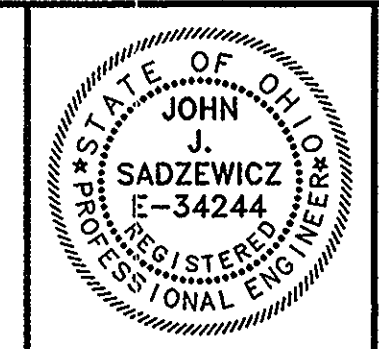
SHEET NO.
F-12



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APPROVED BY:	JJS		
DATE:	MARCH, 2001		
JOB NO.	5701		

**SANITARY FORCE MAIN
GOLF VILLAGE
DELAWARE COUNTY, OHIO**

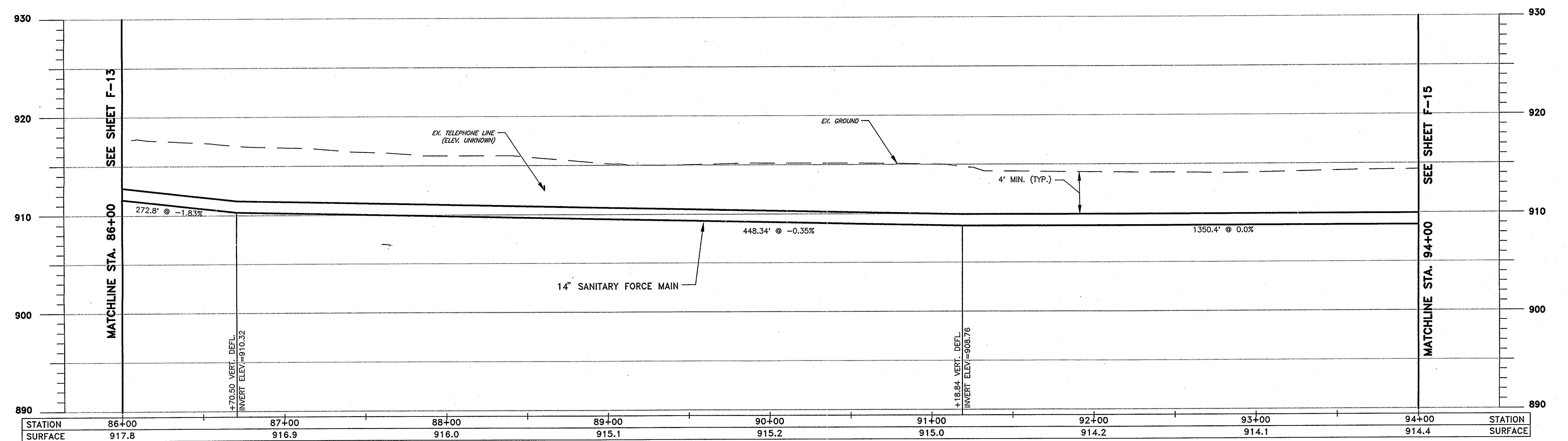
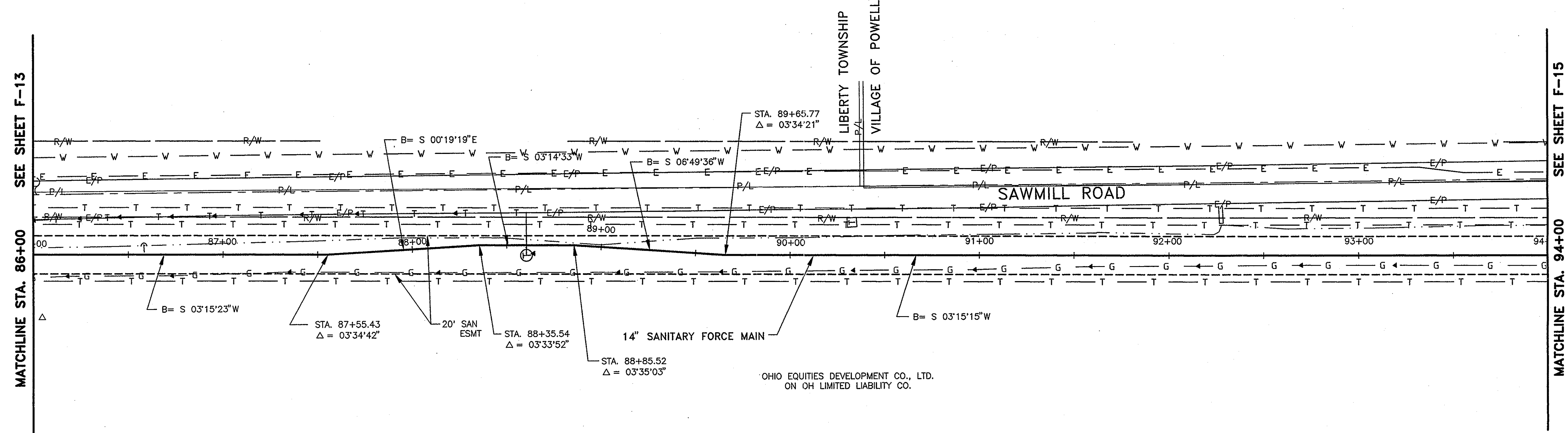


GOLF VILLAGE

SCALE:
HORZ. 1"=30'
VERT. 1"=5'

**PLAN & PROFILE
SANITARY FORCE MAIN**

SHEET NO.
F-13

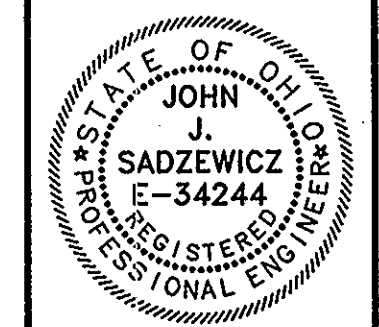


STATION	86+00	87+00	88+00	89+00	90+00	91+00	92+00	93+00	94+00	STATION
SURFACE	917.8	916.9	916.0	915.1	915.2	915.0	914.2	914.1	914.4	SURFACE



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APPROVED BY:	JJS		
DATE:	MARCH, 2001		
JOB NO.	5701		

SANITARY FORCE MAIN
GOLF VILLAGE
DELAWARE COUNTY, OHIO

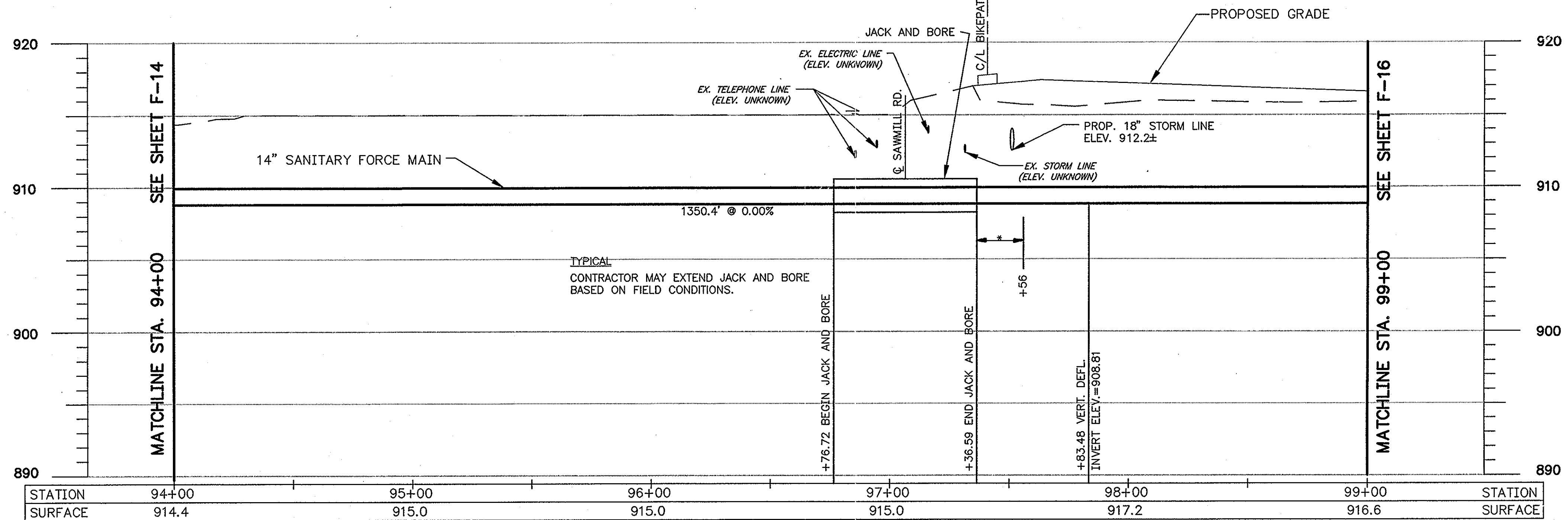
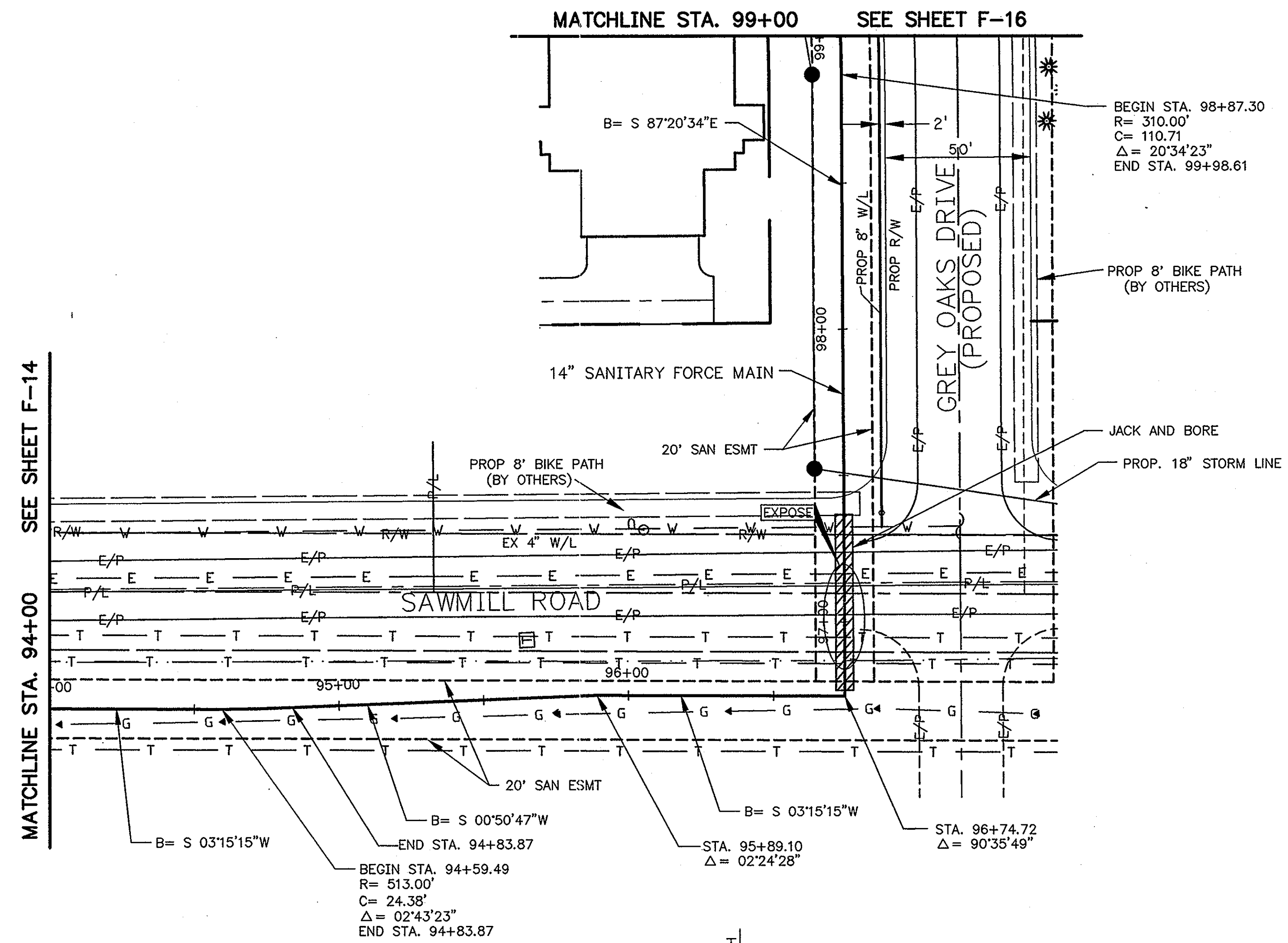


GOLF VILLAGE

SCALE:
HORZ. 1"=30'
VERT. 1"=5'

PLAN & PROFILE
SANITARY FORCE MAIN

SHEET NO.
F-14



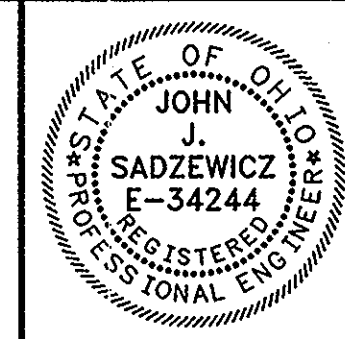
* ITEM 912
COMPACTED GRANULAR BACKFILL

P:\9701\ACAD\9701\PP13.dwg, Layout1, 05/21/01, 12:42:50 PM, grem2

R.D.Zande
& Associates

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APPROVED BY:	JJS		
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JOB NO.	5701		

SANITARY FORCE MAIN
GOLF VILLAGE
DELAWARE COUNTY, OHIO

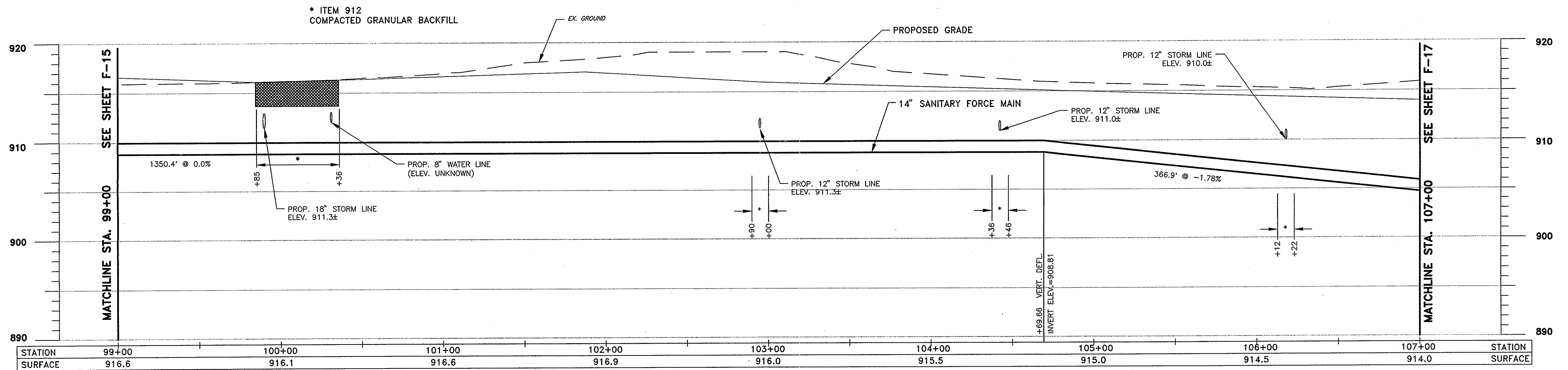
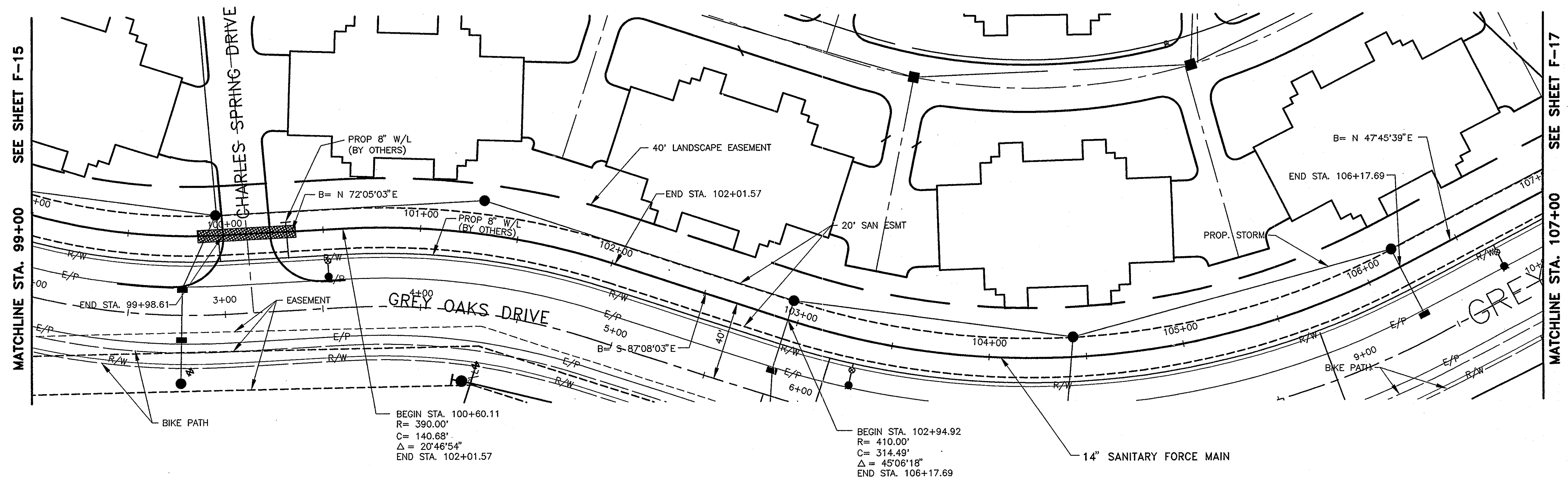


GOLF VILLAGE

SCALE:
HORZ. 1"=30'
VERT. 1"=5'

PLAN & PROFILE
SANITARY FORCE MAIN

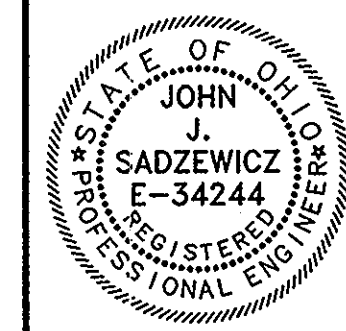
SHEET NO.
F-15



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DRAWN BY:	MMR	DATE	REMARKS
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APPROVED BY:	JJS		
DATE:	MARCH, 2001		
JOB NO.	5701		

**SANITARY FORCE MAIN
GOLF VILLAGE
DELAWARE COUNTY, OHIO**

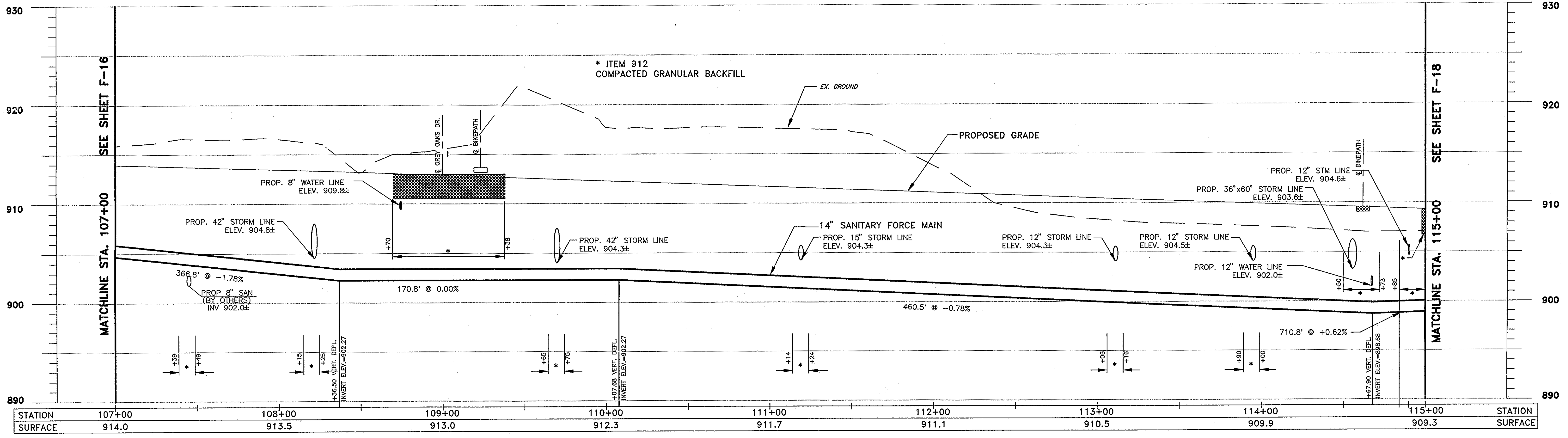
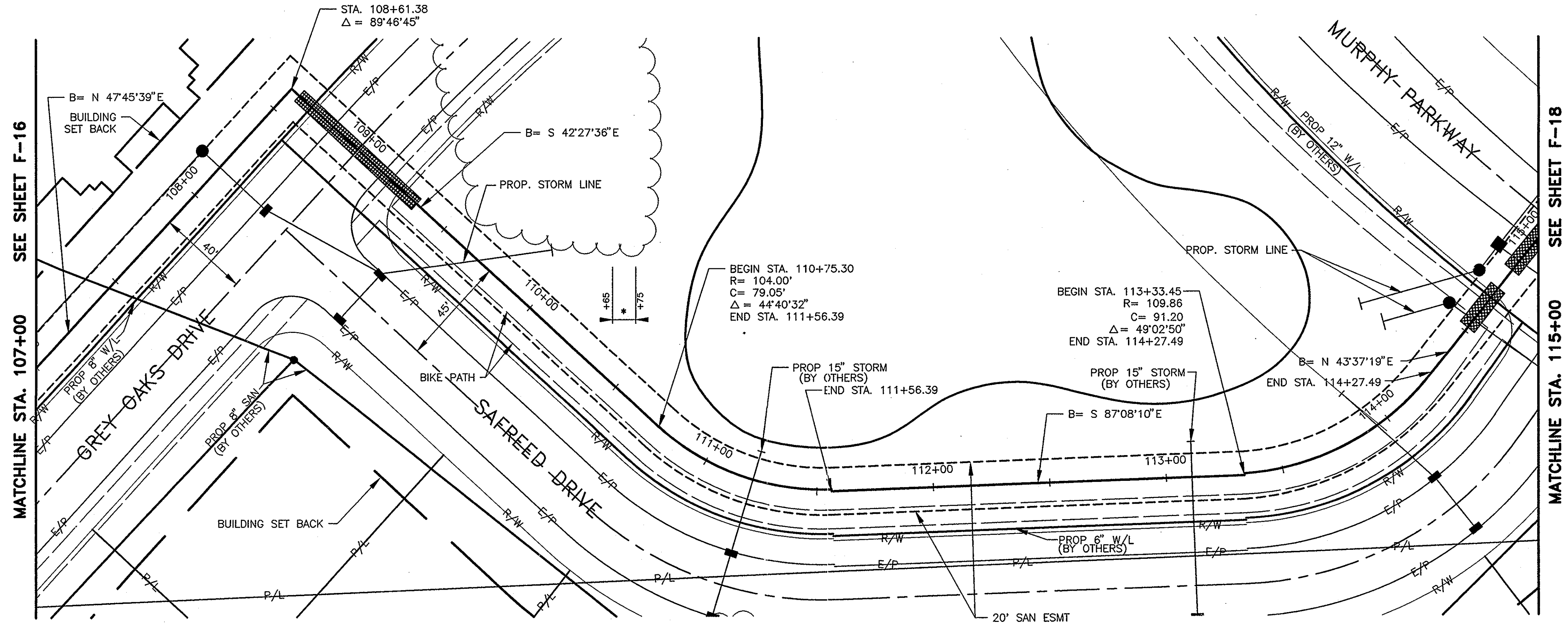


GOLF VILLAGE

SCALE:
HORIZ. 1"=30'
VERT. 1"=5'

PLAN & PROFILE
SANITARY FORCE MAIN

SHEET NO.
F-16



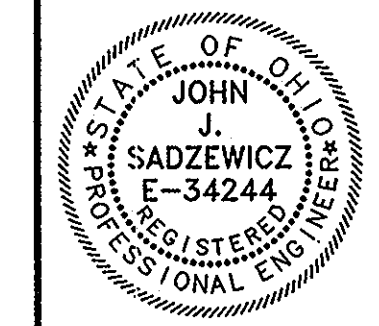
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DESIGNED BY: AKM
 DRAWN BY: MMR
 CHECKED BY: HMJ
 APPROVED BY: JJS
 DATE: MARCH, 2001
 JOB NO. 5701

REVISIONS	
DATE	REMARKS

SANITARY FORCE MAIN
 GOLF VILLAGE
 DELAWARE COUNTY, OHIO

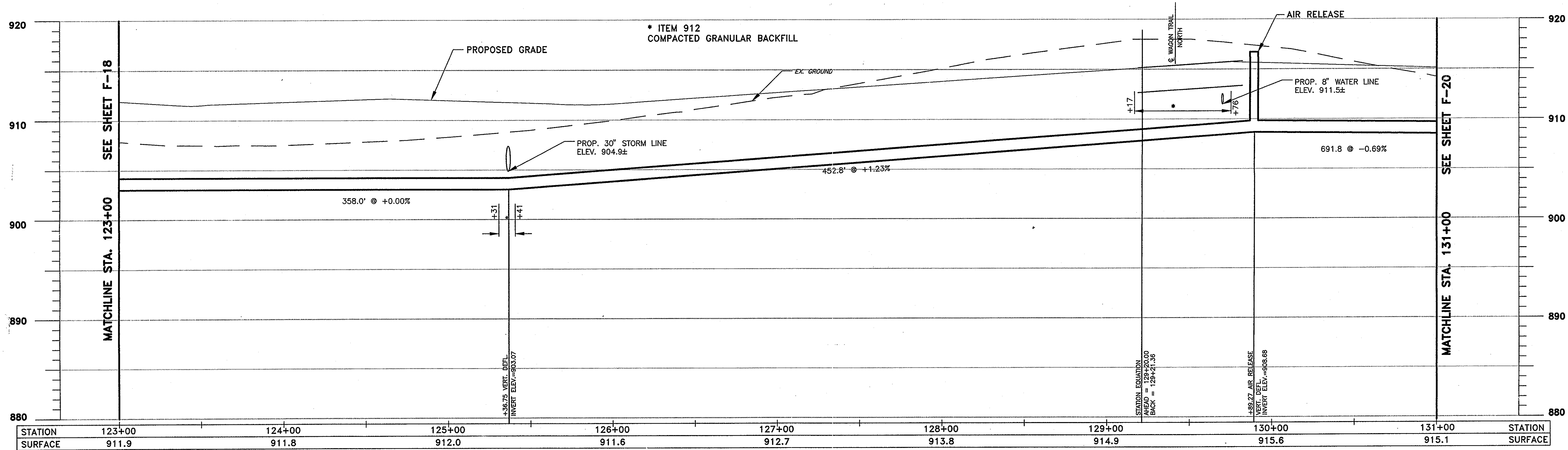
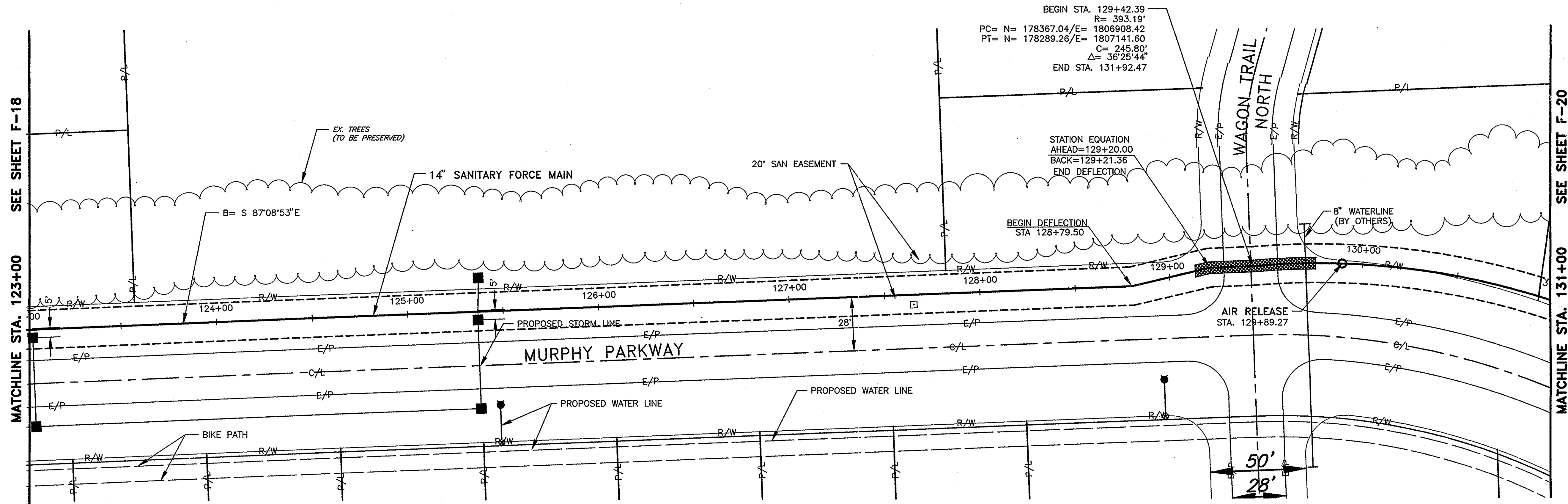


GOLF VILLAGE

SCALE:
 HORZ. 1"=30'
 VERT. 1"=5'

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 SANITARY FORCE MAIN

SHEET NO.
 F-17



DESIGNED BY:	AKM	REVISIONS	
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CHECKED BY:	HMJ		
APPROVED BY:	JJS		
DATE:	MARCH, 2001		
JOB NO.	5701		

SANITARY FORCE MAIN
 GOLF VILLAGE
 DELAWARE COUNTY, OHIO

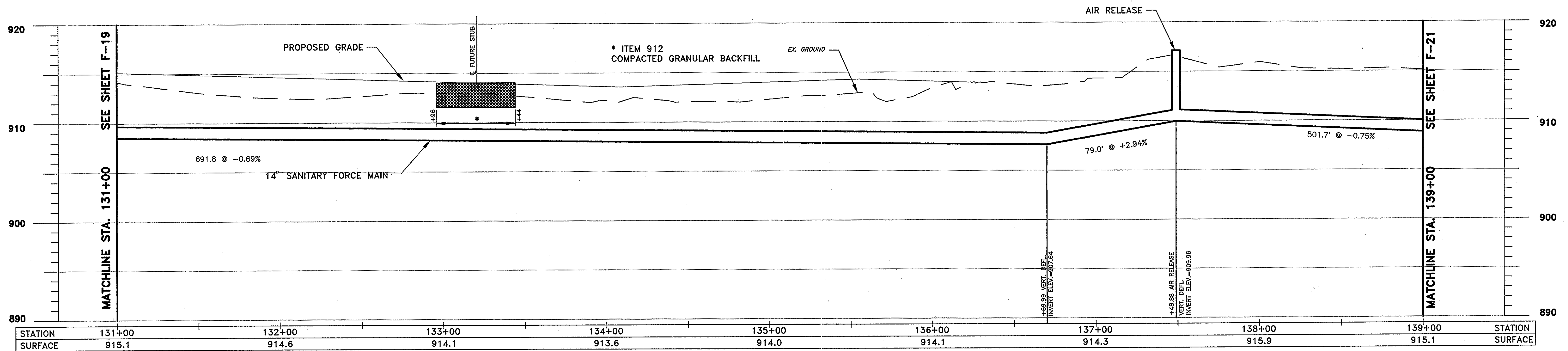
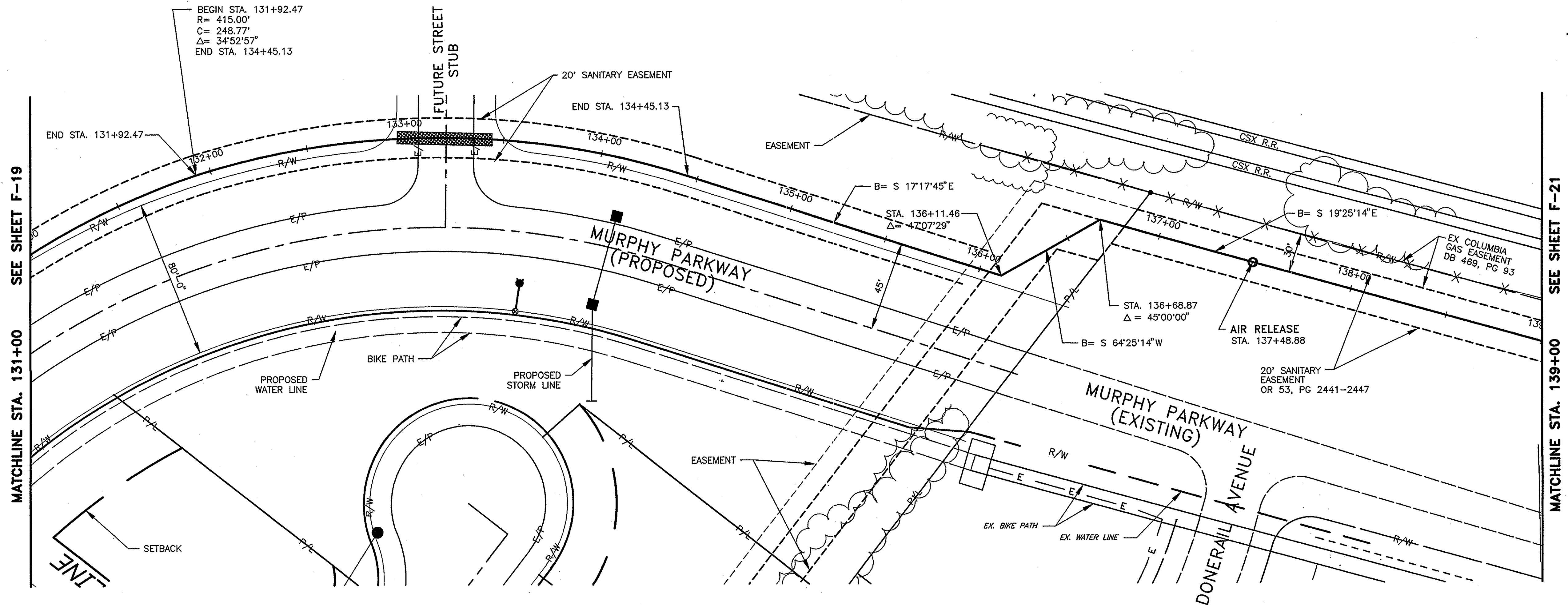


GOLF VILLAGE

SCALE:
 HORZ. 1"=30'
 VERT. 1"=5'

PLAN & PROFILE
 SANITARY FORCE MAIN

SHEET NO.
 F-19

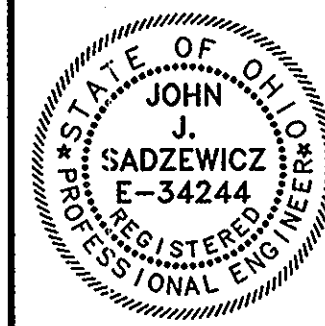


R.D.Zande & Associates

DESIGNED BY: AKM
 DRAWN BY: MMR
 CHECKED BY: HMJ
 APPROVED BY: JJS
 DATE: MARCH, 2001
 JOB NO. 5701

REVISIONS	
DATE	REMARKS

SANITARY FORCE MAIN
 GOLF VILLAGE
 DELAWARE COUNTY, OHIO



GOLF VILLAGE

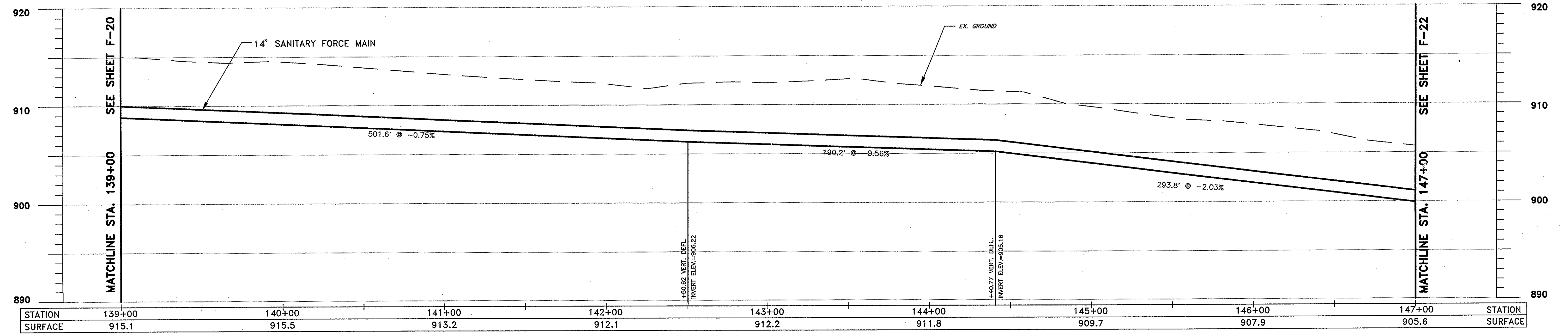
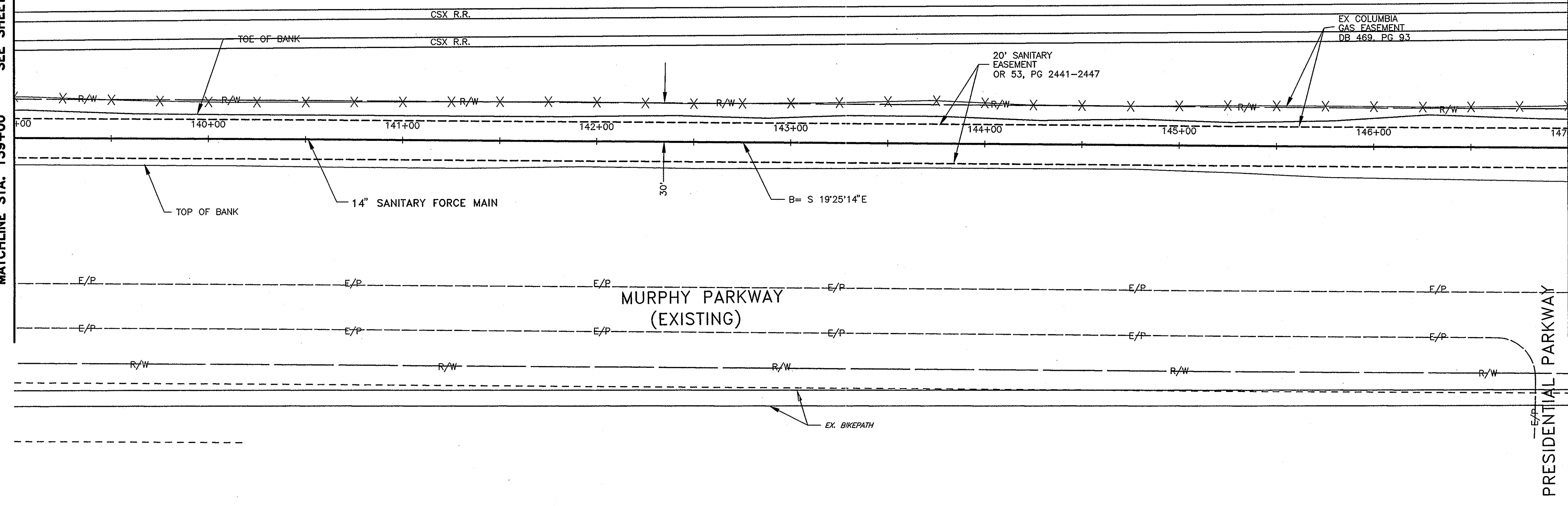
SCALE:
 HORZ. 1"=30'
 VERT. 1"=5'

PLAN & PROFILE
 SANITARY FORCE MAIN

SHEET NO.
 F-20

SEE SHEET F-20
MATCHLINE STA. 139+00

SEE SHEET F-22
MATCHLINE STA. 147+00

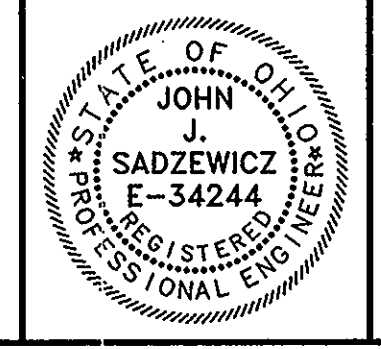


P:\5701\ACAD\5701\PP18.dwg, Layout1, 05/19/01, 11:02:12 AM, grem2



DESIGNED BY:	AKM	REVISIONS	
DRAWN BY:	MMR	DATE	REMARKS
CHECKED BY:	HMJ		
APPROVED BY:	JJS		
DATE:	MARCH, 2001		
JOB NO.	5701		

SANITARY FORCE MAIN
GOLF VILLAGE
DELAWARE COUNTY, OHIO

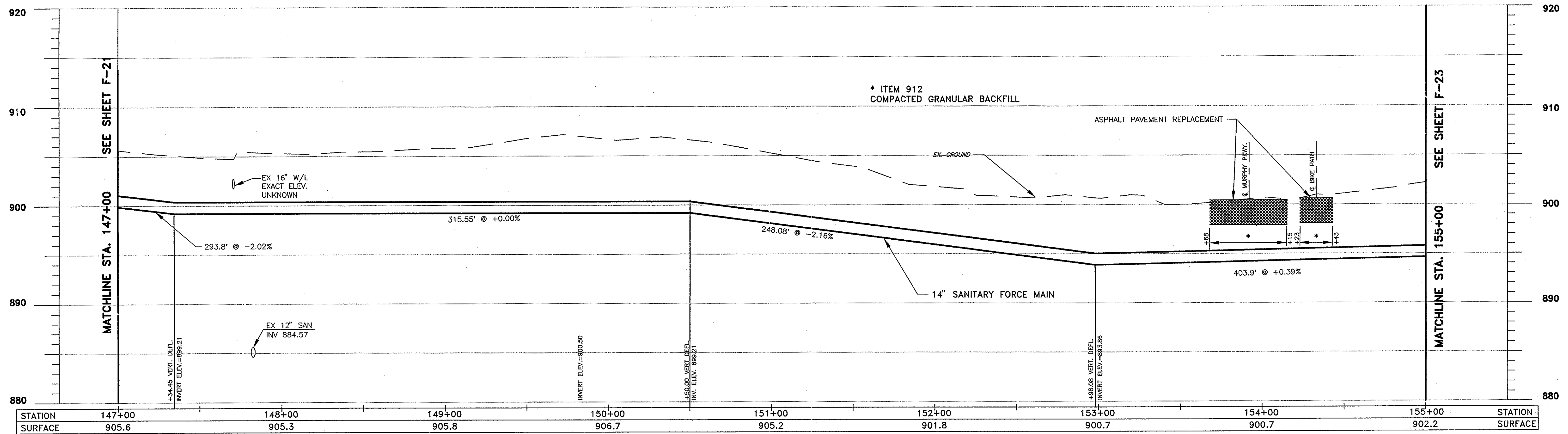
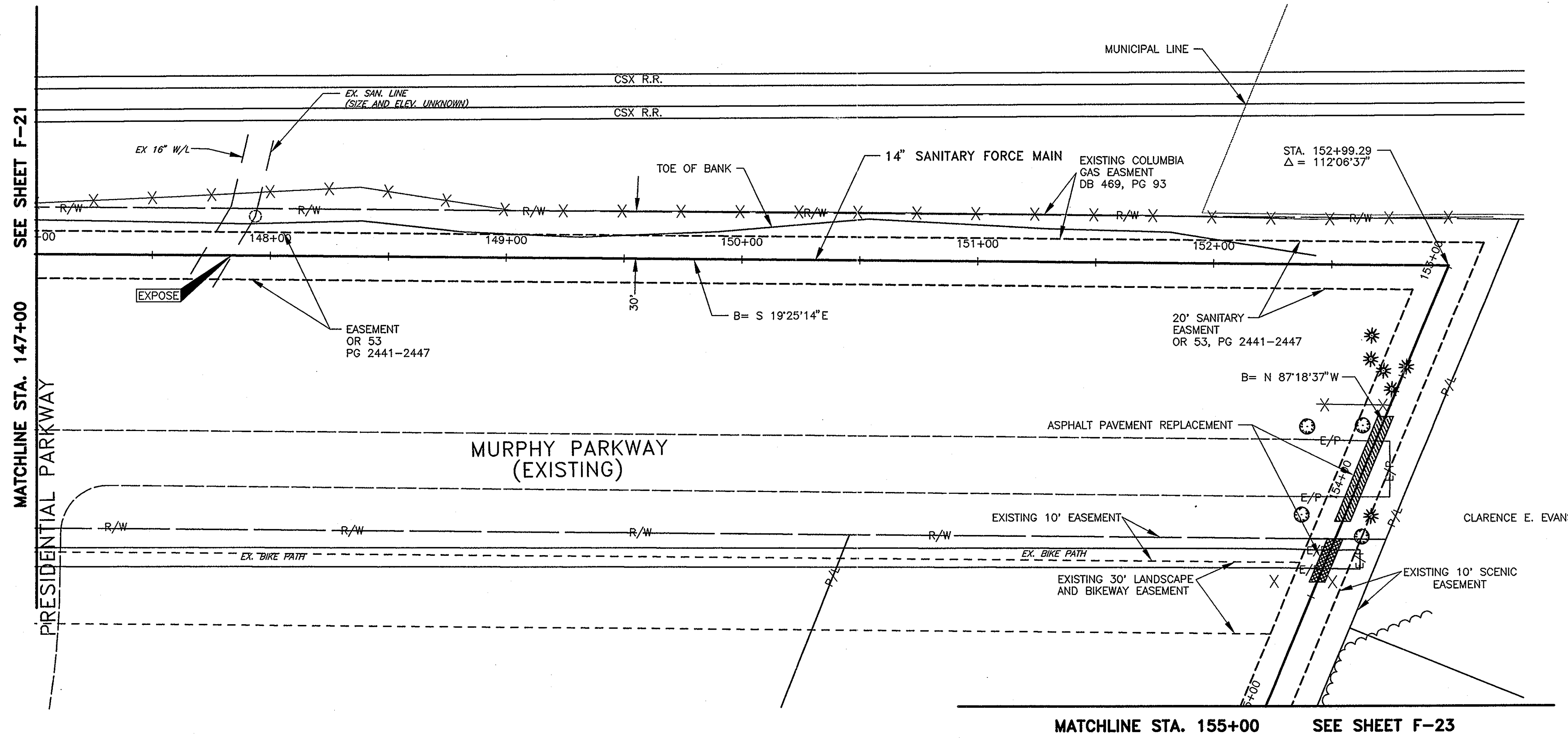


GOLF VILLAGE

SCALE:
HORZ. 1"=30'
VERT. 1"=5'

PLAN & PROFILE
SANITARY FORCE MAIN

SHEET NO.
F-21

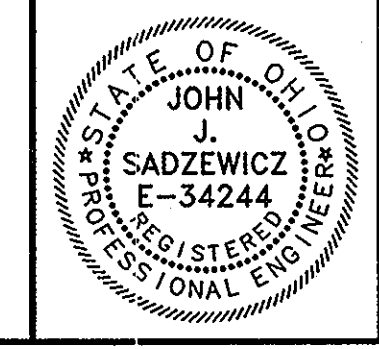


STATION	147+00	148+00	149+00	150+00	151+00	152+00	153+00	154+00	155+00	STATION
SURFACE	905.6	905.3	905.8	906.7	905.2	901.8	900.7	900.7	902.2	SURFACE



DESIGNED BY:	AKM	REVISIONS	
DRAWN BY:	MMR	DATE	REMARKS
CHECKED BY:	HMJ		
APPROVED BY:	JJS		
DATE:	MARCH, 2001		
JOB NO.	5701		

SANITARY FORCE MAIN
GOLF VILLAGE
DELAWARE COUNTY, OHIO

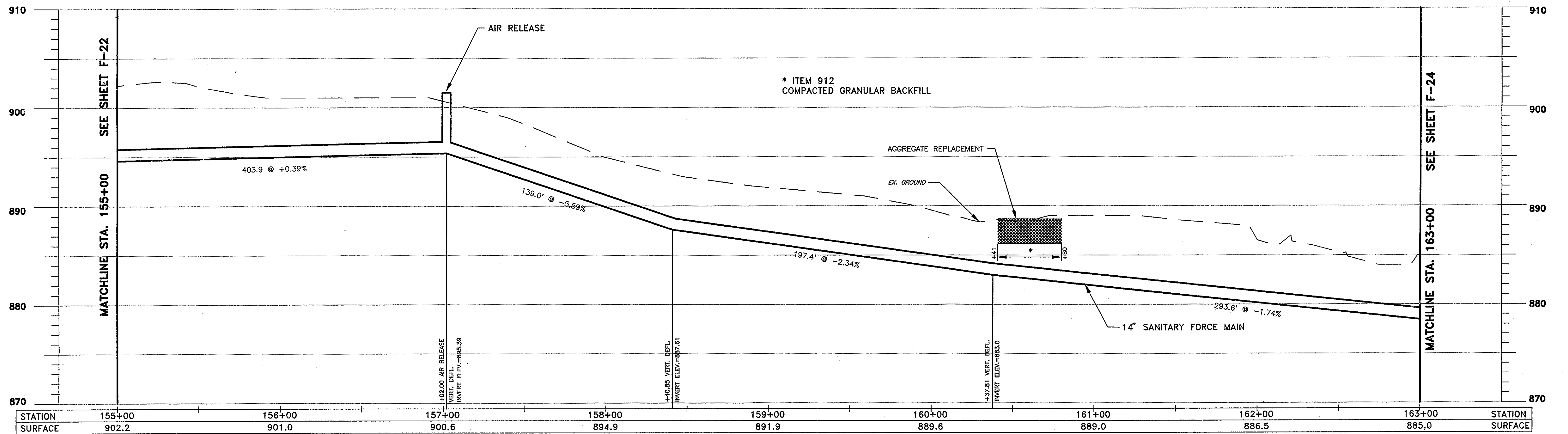
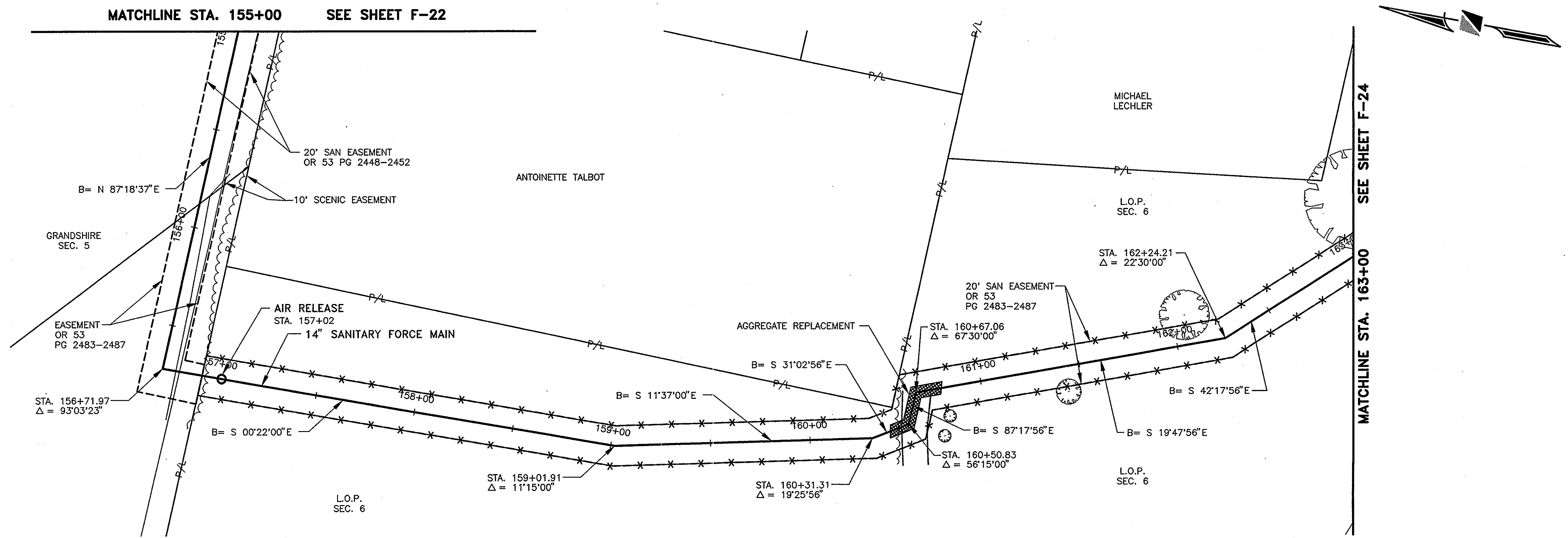


GOLF VILLAGE

SCALE:
HORZ. 1"=30'
VERT. 1"=5'

PLAN & PROFILE
SANITARY FORCE MAIN

SHEET NO.
F-22

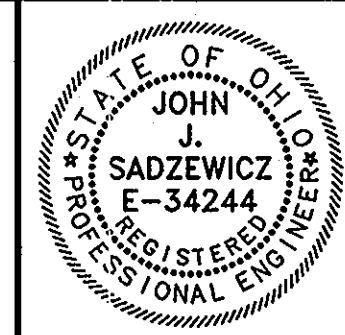


STATION	155+00	156+00	157+00	158+00	159+00	160+00	161+00	162+00	163+00	STATION
SURFACE	902.2	901.0	900.6	894.9	891.9	889.6	889.0	886.5	885.0	SURFACE

R.D.Zande & Associates

DESIGNED BY:	AKM	REVISIONS	
DRAWN BY:	MMR	DATE	REMARKS
CHECKED BY:	HMJ		
APPROVED BY:	JUS		
DATE:	MARCH, 2001		
JOB NO.	5701		

SANITARY FORCE MAIN
GOLF VILLAGE
DELAWARE COUNTY, OHIO

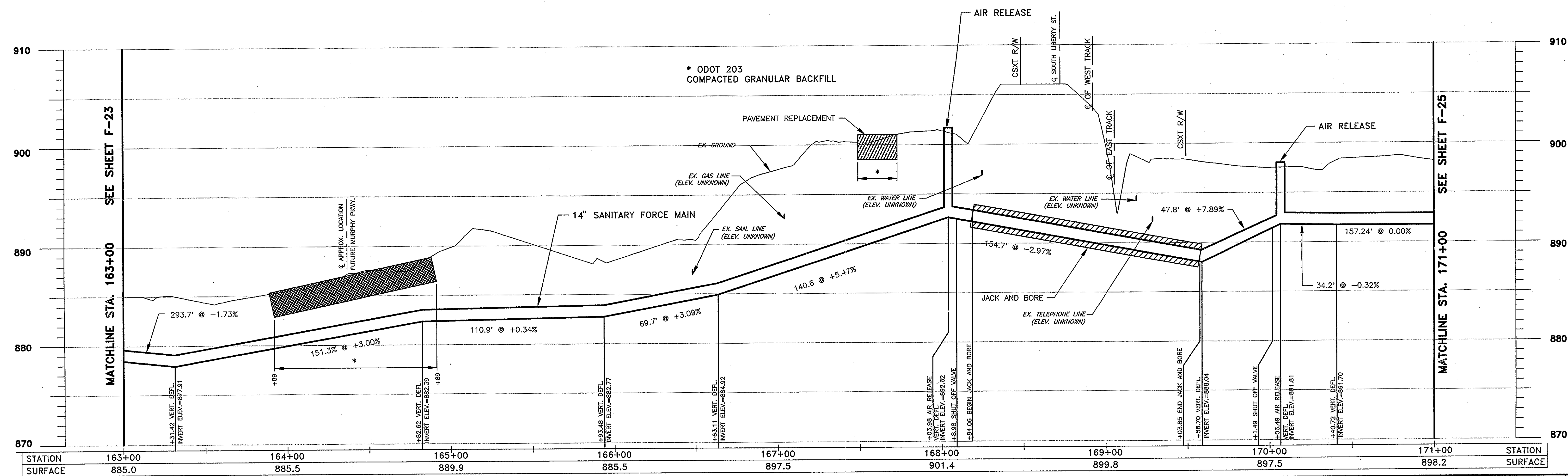
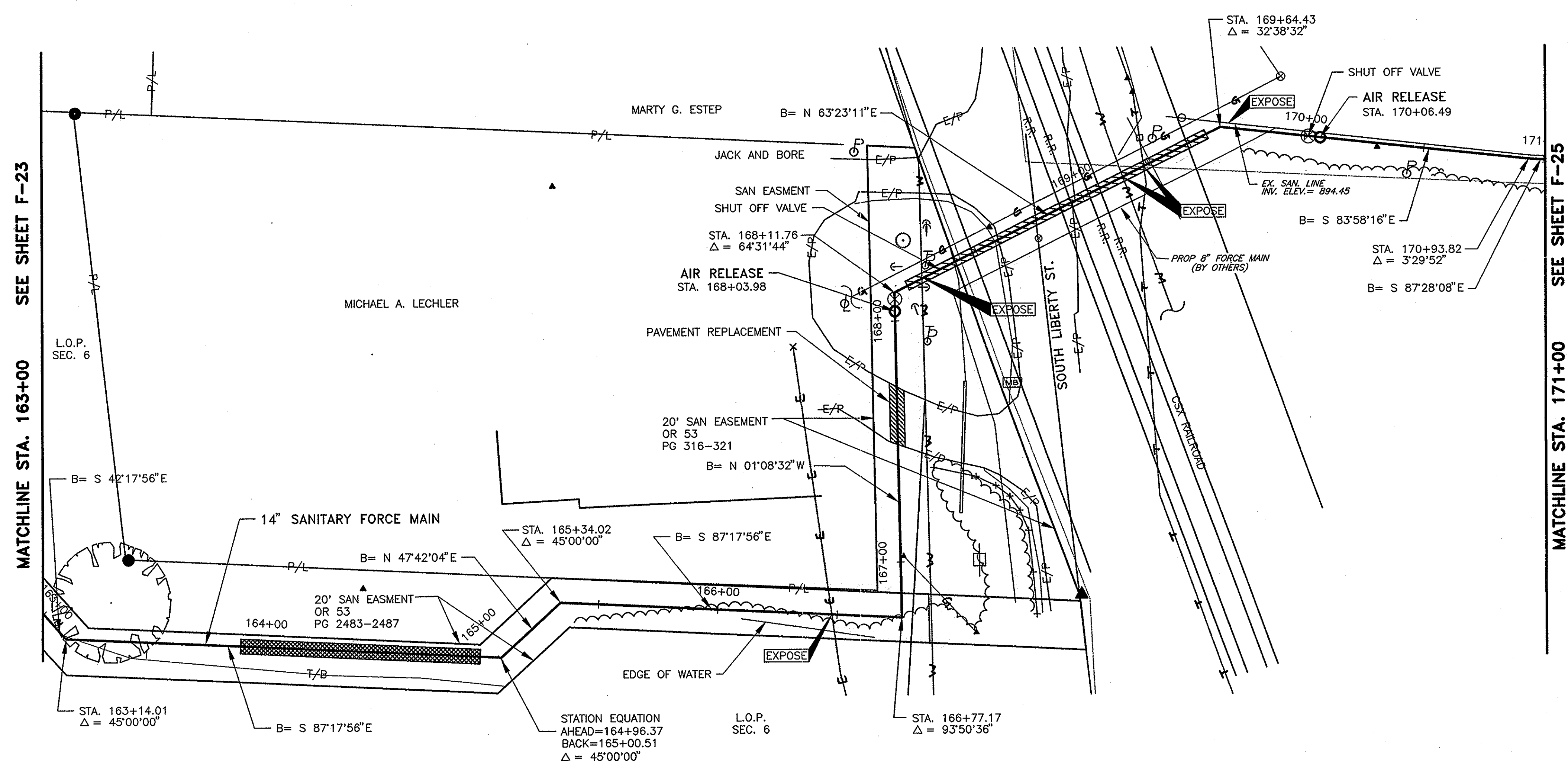


GOLF VILLAGE

SCALE:
HORIZ. 1"=30'
VERT. 1"=5'

293.7' @ -1.73%	PLAN & PROFILE	SHEET NO.
	SANITARY FORCE MAIN	F-23

P:\5701VACAD\5701PP22.dwg, Layout1, 05/21/01 02:09:09 PM, grem2



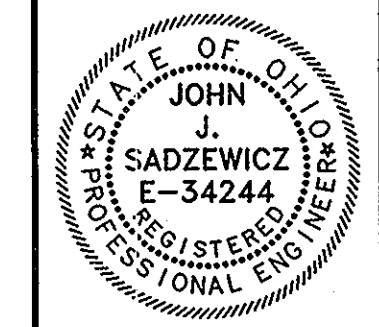
STATION	163+00	164+00	165+00	166+00	167+00	168+00	169+00	170+00	171+00	STATION
SURFACE	885.0	885.5	889.9	885.5	897.5	901.4	899.8	897.5	898.2	SURFACE

R.D.Zande & Associates

DESIGNED BY: AKM
 DRAWN BY: MMR
 CHECKED BY: HMJ
 APPROVED BY: JJS
 DATE: MARCH, 2001
 JOB NO. 5701

REVISIONS	
DATE	REMARKS

SANITARY FORCE MAIN
 GOLF VILLAGE
 DELAWARE COUNTY, OHIO

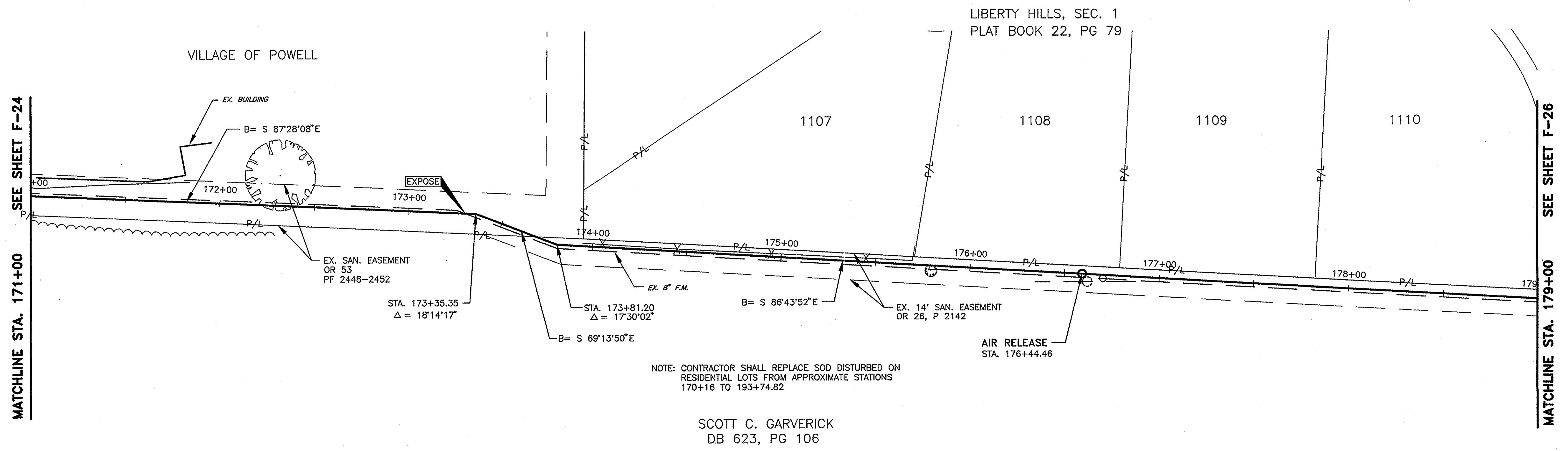


GOLF VILLAGE

SCALE:
 HORZ. 1"=30'
 VERT. 1"=5'

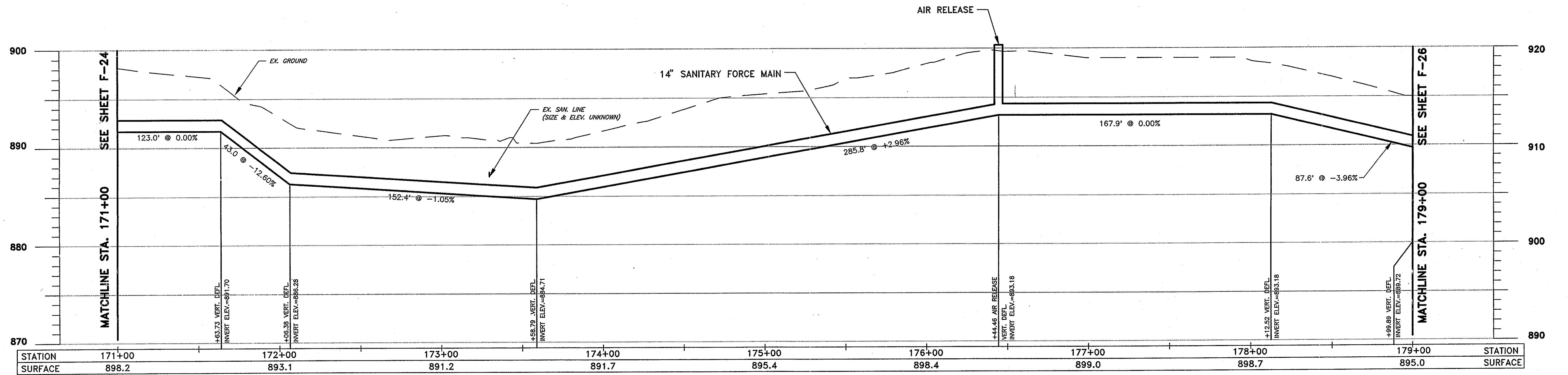
PLAN & PROFILE
 SANITARY FORCE MAIN

SHEET NO.
 F-24



NOTE: CONTRACTOR SHALL REPLACE SOD DISTURBED ON RESIDENTIAL LOTS FROM APPROXIMATE STATIONS 170+16 TO 193+74.82

SCOTT C. GARVERICK
DB 623, PG 106

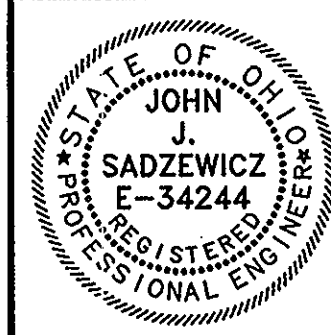


R.D.Zande & Associates

DESIGNED BY: AKM
DRAWN BY: MMR
CHECKED BY: HMJ
APPROVED BY: JJS
DATE: MARCH, 2001
JOB NO. 5701

REVISIONS	
DATE	REMARKS

SANITARY FORCE MAIN
GOLF VILLAGE
DELAWARE COUNTY, OHIO

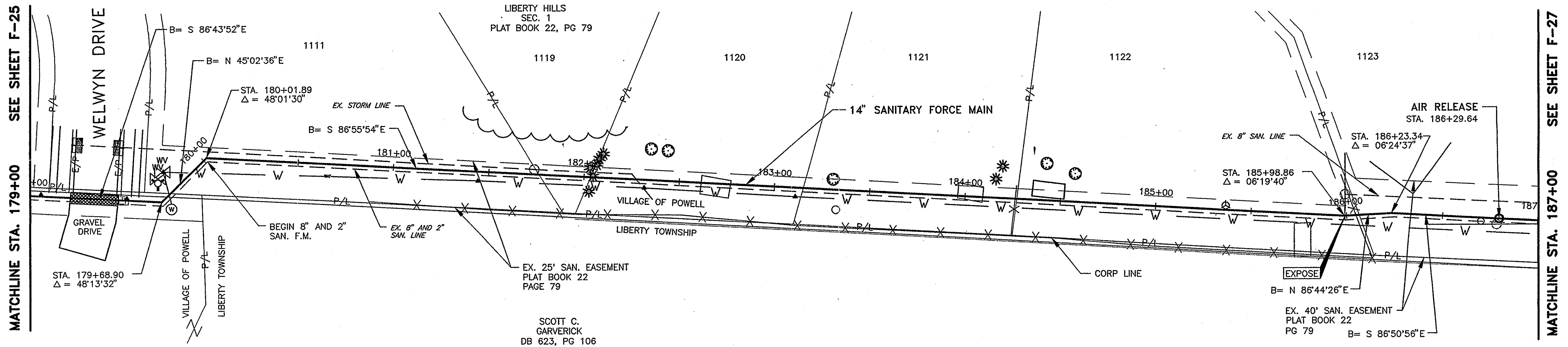


GOLF VILLAGE

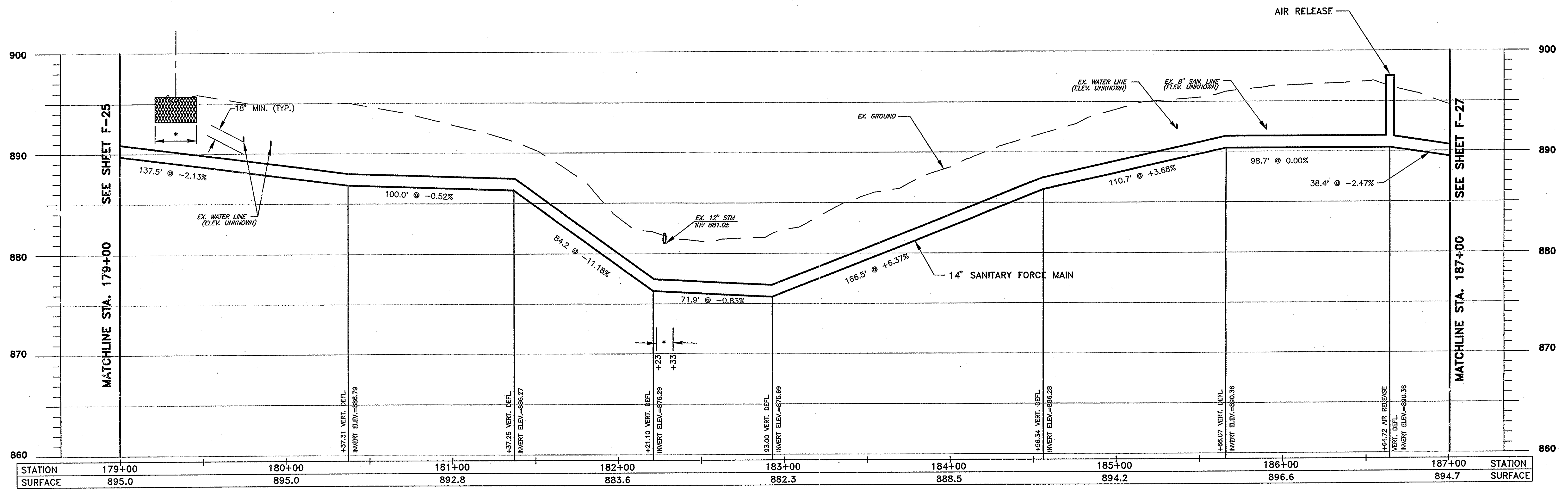
SCALE:
HORZ. 1"=30'
VERT. 1"=5'

PLAN & PROFILE
SANITARY FORCE MAIN

SHEET NO.
F-25



* ITEM 912
COMPACTED GRANULAR BACKFILL

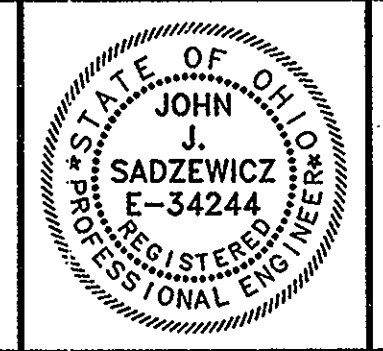


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DESIGNED BY:	AKM	REVISIONS	
DRAWN BY:	MMR	DATE	REMARKS
CHECKED BY:	HMJ		
APPROVED BY:	JJS		
DATE:	MARCH, 2001		
JOB NO.	5701		

SANITARY FORCE MAIN
GOLF VILLAGE
DELAWARE COUNTY, OHIO



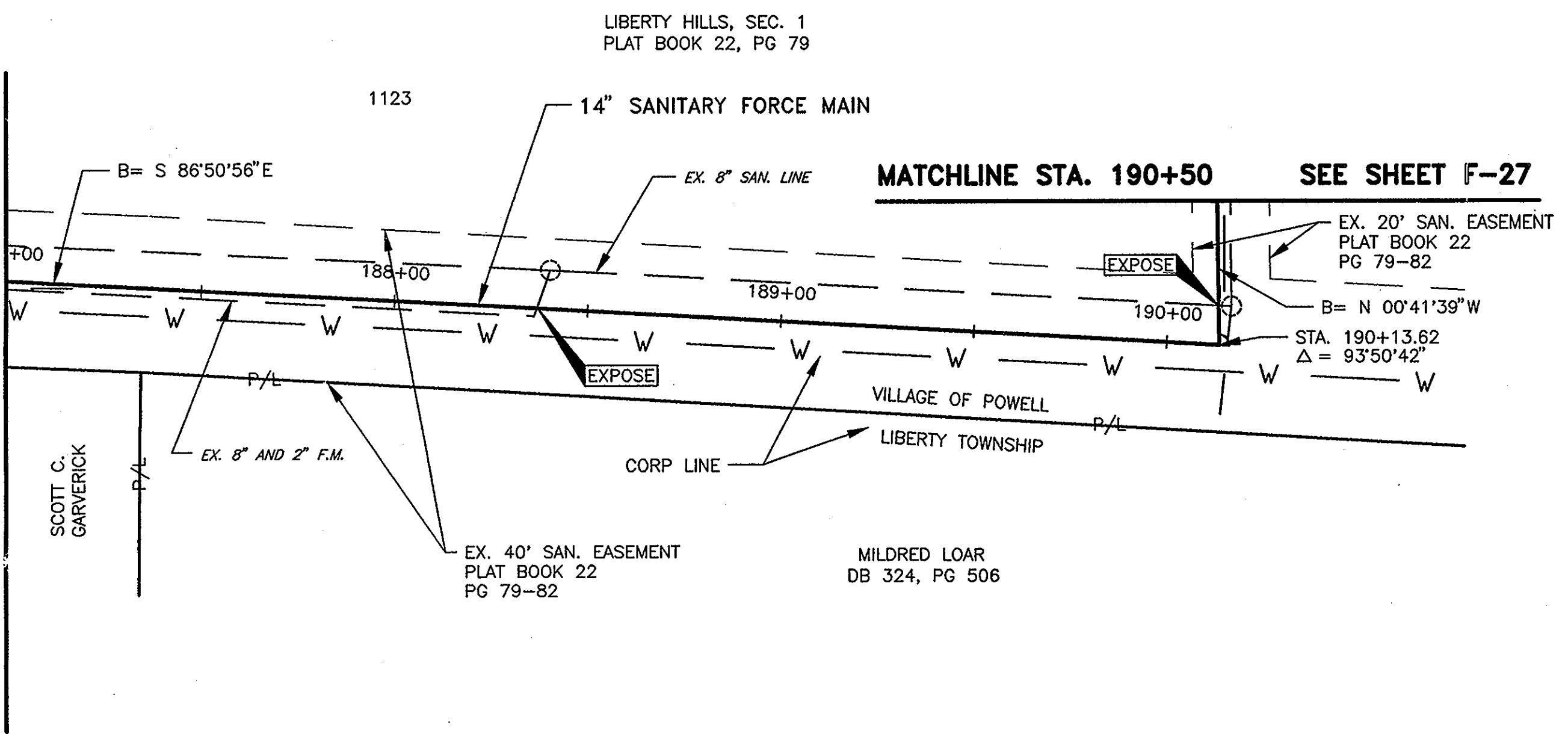
GOLF VILLAGE

SCALE:
HORZ. 1"=30'
VERT. 1"=5'

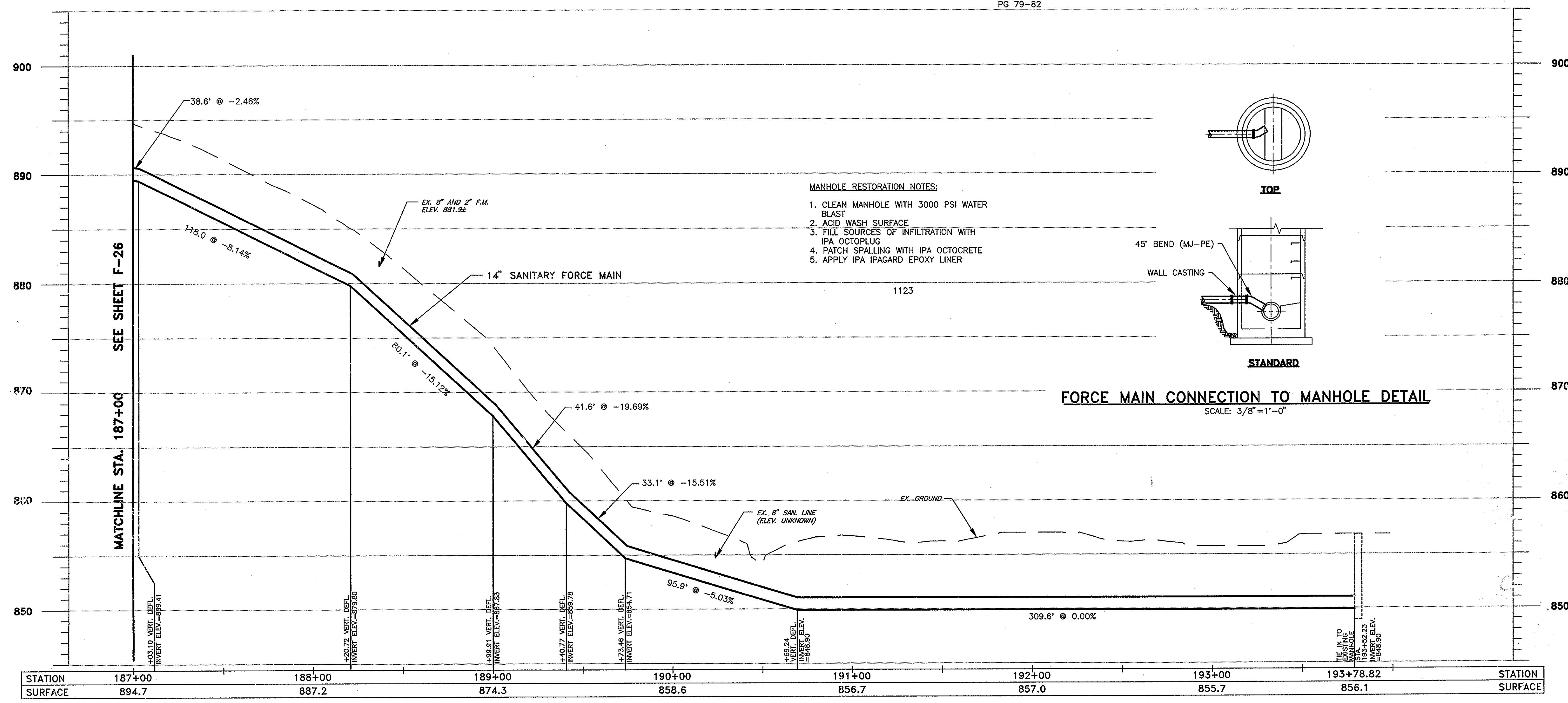
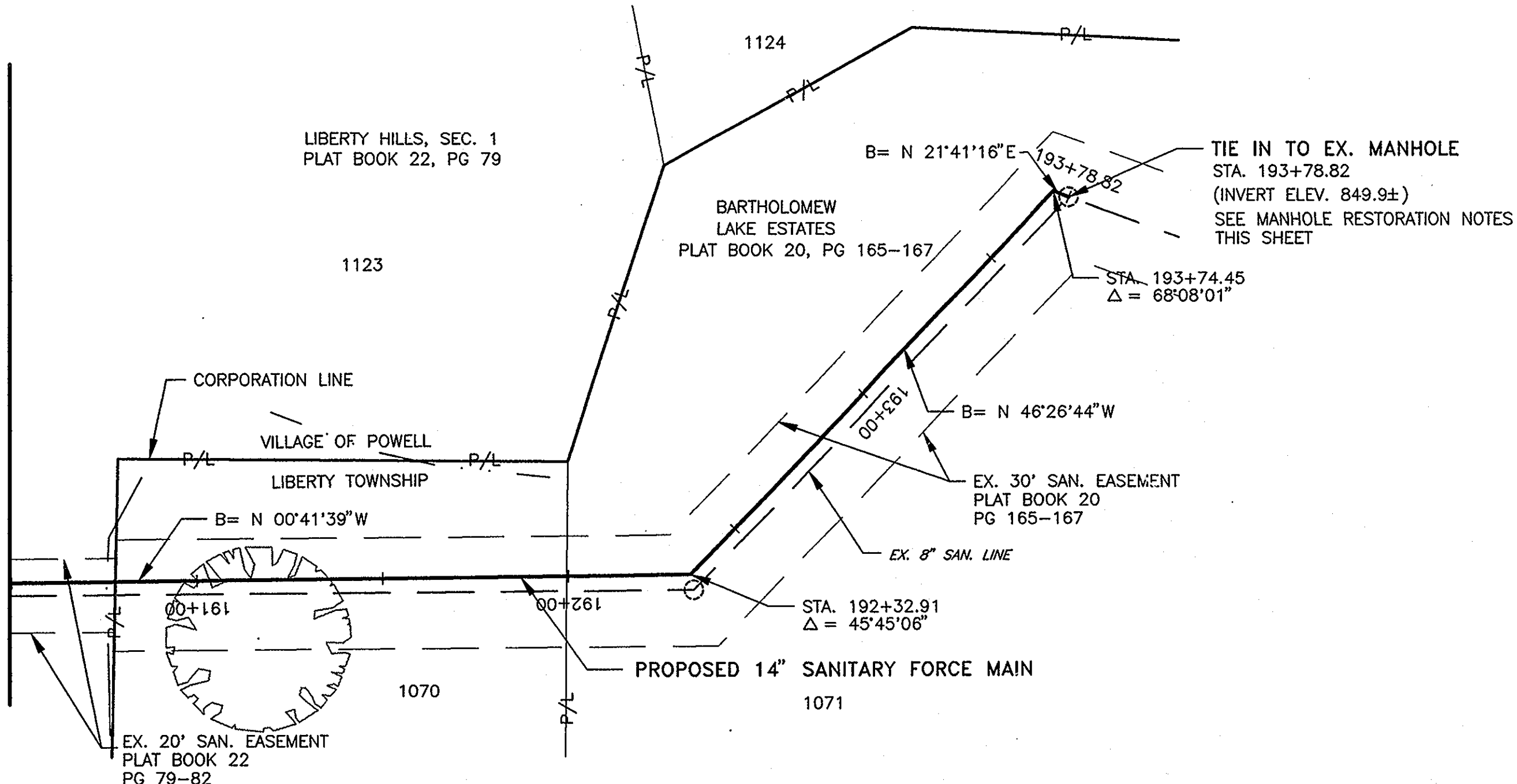
PLAN & PROFILE
SANITARY FORCE MAIN

SHEET NO.
F-26

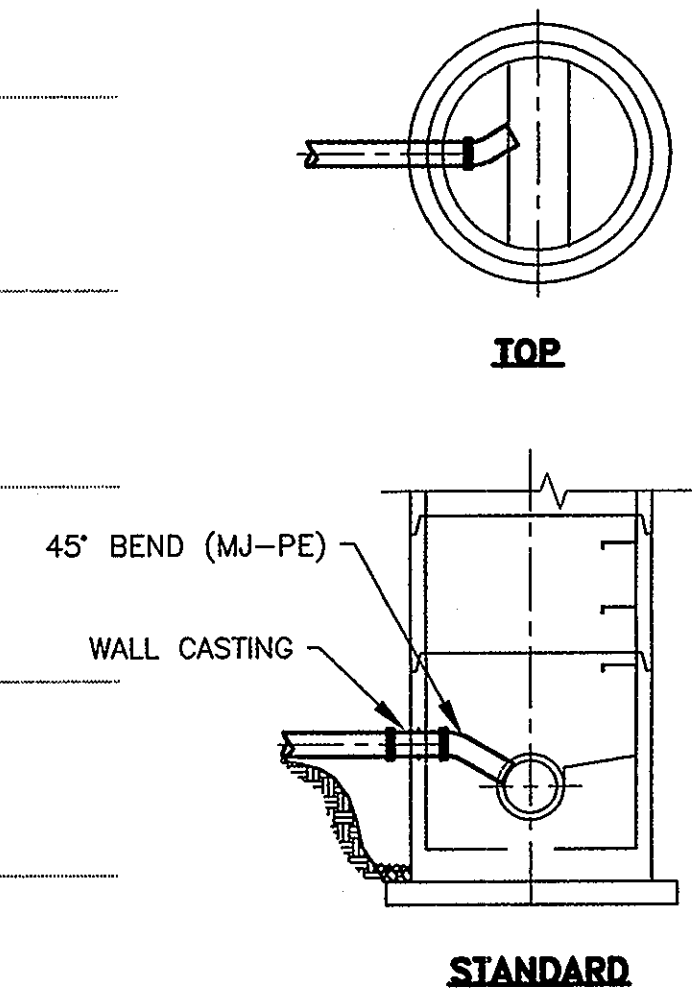
SEE SHEET F-26
MATCHLINE STA. 187+00



SEE SHEET F-27
MATCHLINE STA. 190+50



- MANHOLE RESTORATION NOTES:**
1. CLEAN MANHOLE WITH 3000 PSI WATER BLAST
 2. ACID WASH SURFACE
 3. FILL SOURCES OF INFILTRATION WITH IPA OCTOPLUG
 4. PATCH SPALLING WITH IPA OCTOCRETE
 5. APPLY IPA IPAGARD EPOXY LINER

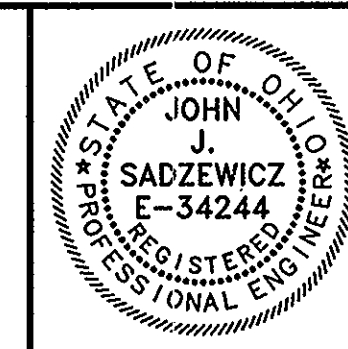


FORCE MAIN CONNECTION TO MANHOLE DETAIL
SCALE: 3/8"=1'-0"

R.D.Zande & Associates

DESIGNED BY:	AKM	REVISIONS	
DRAWN BY:	MMR	DATE	REMARKS
CHECKED BY:	HMJ		
APPROVED BY:	JJS		
DATE:	MARCH, 2001		
JOB NO.	5701		

**SANITARY FORCE MAIN
GOLF VILLAGE
DELAWARE COUNTY, OHIO**



GOLF VILLAGE

SCALE:
HORZ. 1"=30'
VERT. 1"=5'

**PLAN & PROFILE
SANITARY FORCE MAIN**

SHEET NO.
F-27