

DESIGN DATA AND SPECIFICATIONS

BUILDING	1	2
LOWEST FLOOR ELEVATION	804	806
NUMBER OF BEDROOMS	24	24
DESIGN FLOW (GPD)	7200	7200
SEPTIC TANK VOLUME	4(2,000)	4(2,000)
LIQUID LEVEL ELEVATION	800.0	801.5
PUMP STATION DESIGNATION	P1	P2
TOTAL VOLUME (GAL.)	2,000	2,000
BOTTOM ELEVATION	793.5	793.5
PUMP DELIVERY (GPM)	35	35
VELOCITY (FPS)	3.57	3.57
TOTAL DYNAMIC HEAD (FT)	86	86
DOSING CHAMBER ELEVATION	858	850
WORKING VOLUME (AS DESIGNED) (GAL)	1,000	1,000
STORAGE VOLUME (AS DESIGNED) (GAL)	2,600 (600 GAL. PUMP CHAMBER, 2,000 GAL. OVERFLOW TANK)	2,600
DEPTH OF WORKING VOLUME (IN)	30	30
DOSING CHAMBER VOLUME (GAL.)	1,000	1,000

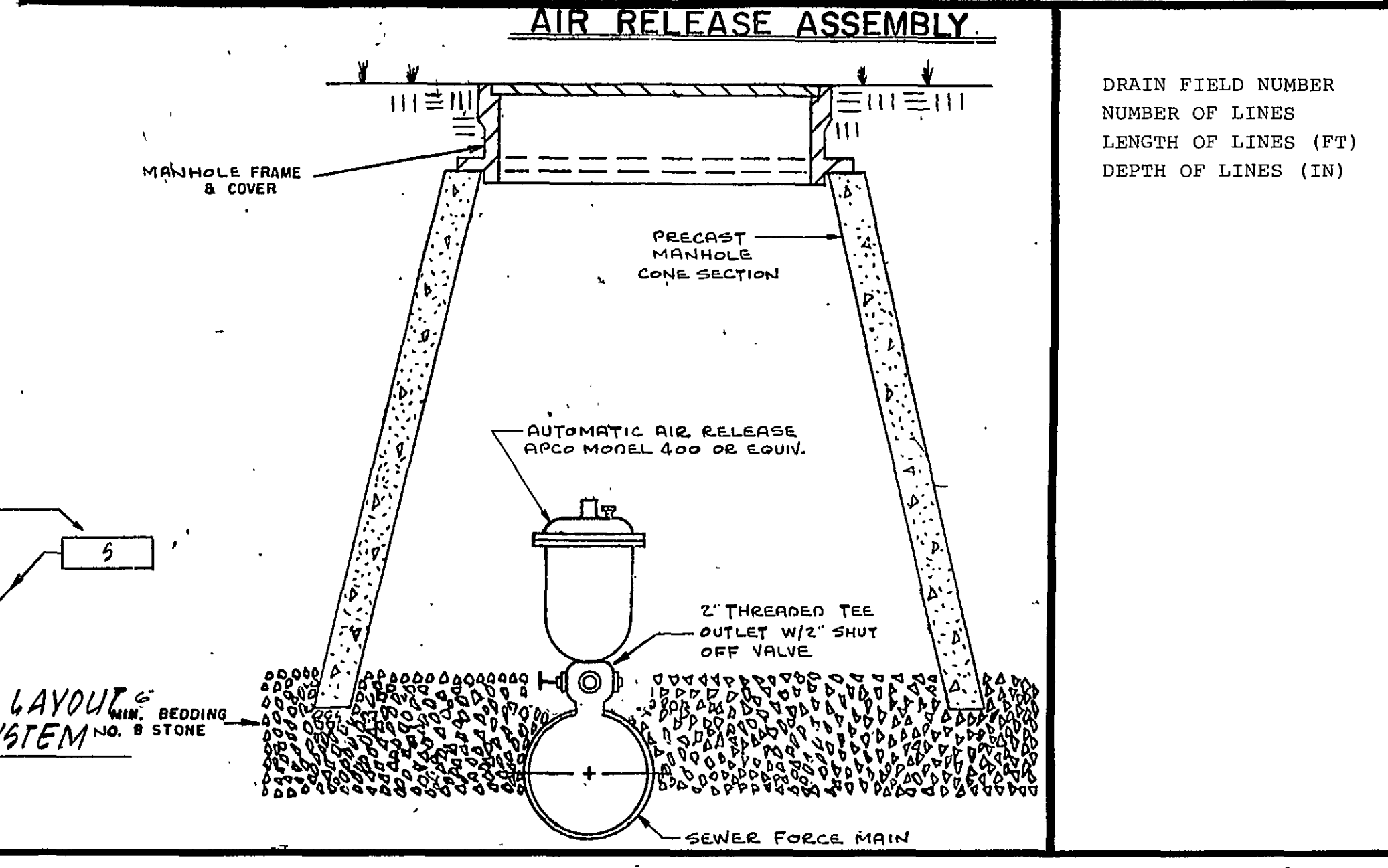
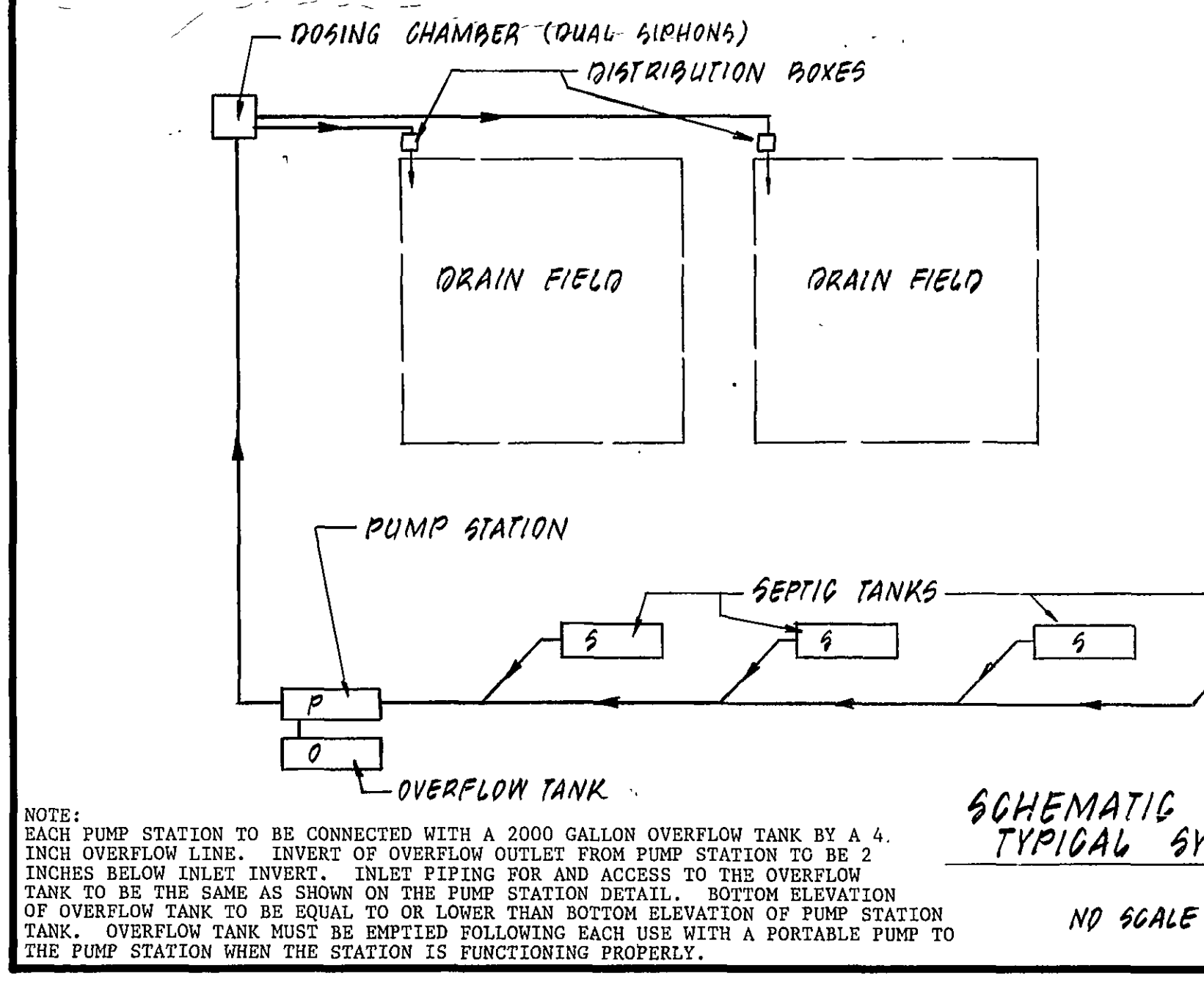
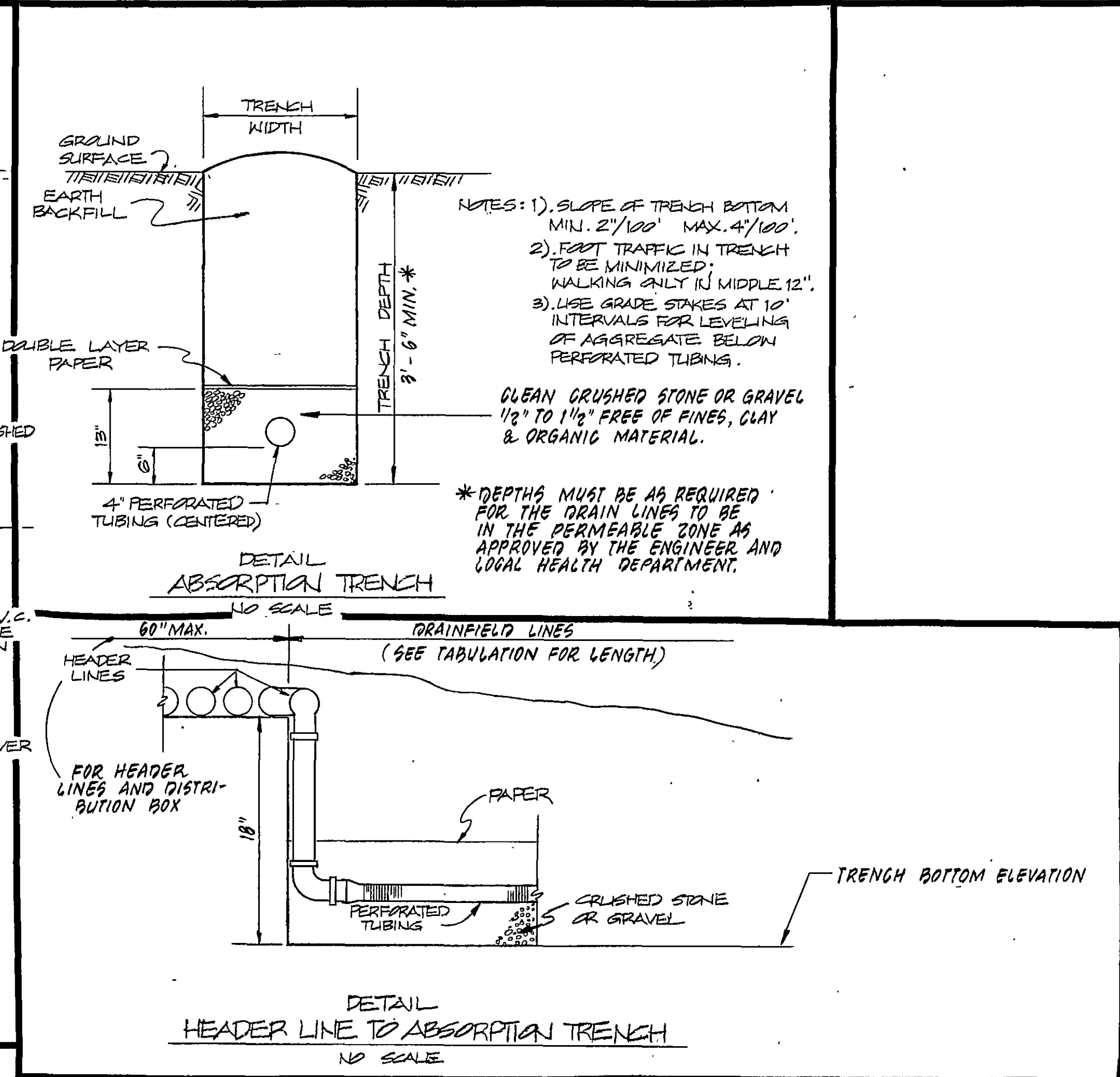
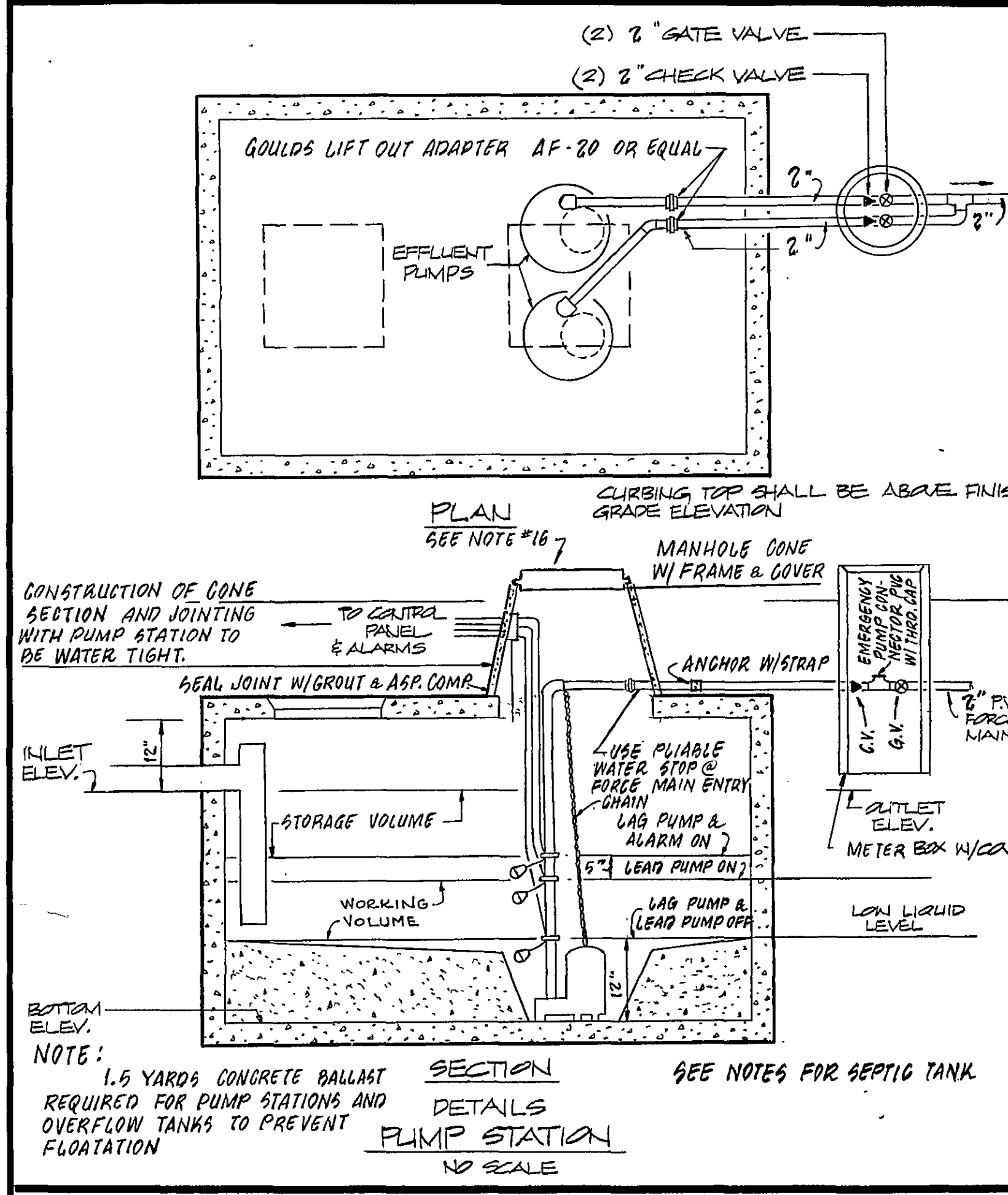
- NOTES TO DESIGN DATA AND SPECIFICATIONS:
- PUMPS: GOULDS 3885 WE1512ZH SUBMERSIBLE EFFLUENT PUMPS - 230 VOLT - SINGLE PHASE - 1 1/4 HP.
 - CONTROLS: GOULDS A6 DUPLEX WITH AUDIO VISUAL ALARM, 3 EA. AZ-3 MERCURY TYPE FLOAT SWITCHES AND AUTOMATIC ALTERNATION OR EQUAL. THIS UNIT WILL BE MOUNTED ON EXTERIOR OF APPROPRIATE UNIT. THEREFORE A COMPLETE NEMA III ENCLOSURE MUST BE PROVIDED.
 - PIPING AND VALVES: ALL GRAVITY LINES AND FORCE MAINS OUTSIDE PUMP STATIONS TO BE SCHEDULE 40 PVC WITH WELDED SLEEVES (WATERTIGHT). PIPE AND FITTINGS INSIDE PUMP STATIONS TO BE SCHEDULE 40 GALVANIZED STEEL. PERCOLATION LINES TO BE ADS #402 (ADVANCED DRAINAGE SYSTEMS), ASTM F-481 OR EQUAL. CHECK VALVES TO BE 2" BRONZE BODY CHECK VALVES. ALL FORCE MAIN PIPING SHALL BE TESTED TO 50 PSI FOR ONE HOUR WITH NO LEAKAGE PERMITTED. PIPING SCHEDULE AS FOLLOWS:

SIZE	MAX BEND	MIN SLOPE	MAX SLOPE
BUILDING SEWERS 4"	45°	1.04%	
CONVEYANCE LINES 4"	90°	0.5%	
FORCE MAINS 2"	90°		
GRAVITY HEADERS 4"	90°	0.2%	
PERCOLATION LINES 4"	0°	0.16%	0.33%
 - SET BACK DISTANCES FOR SEPTIC TANKS, PUMPING STATIONS, DISTRIBUTION BOXES, HEADER LINES AND DRAINFIELD TRENCHES FROM:

PROPERTY LINES	5'
BUILDING FOUNDATIONS	10'
LAKE WATER LINE (795 CONTOUR)	50'
UTILITY LINES	10'

 (ALL SETBACK DISTANCES HORIZONTAL)
 - FOR DESIGN PURPOSES THE 2,000GAL. PUMP STATION WAS CALCULATED AS HAVING INSIDE DIMENSIONS OF 10.5'L X 5.0'W X 6.00' H. THE 1000 GALLON DOSING SIPHON WAS CALCULATED AS HAVING INSIDE DIMENSIONS OF 8.5'L X 4'W X 5'H. THESE DIMENSIONS WILL VARY DEPENDING ON MANUFACTURER. WHEN THE DIMENSIONS VARY THE CONTRACTOR MUST ADJUST PUMP ON, OFF AND ALARM POINTS SUCH THAT OPERATION IS IN ACCORDANCE WITH THE SEWAGE HANDLING AND DISPOSAL REGULATIONS. DIMENSIONS OF TANK USED MUST BE PROVIDED TO THE DESIGN ENGINEER DURING FINAL INSPECTION.

- GENERAL NOTES:
- LOCATIONS OF DRAIN FIELDS, SEPTIC TANKS, PUMP STATIONS, PIPE LINES AND DISTRIBUTION BOXES ARE APPROXIMATE AND ARE SUBJECT TO MINOR ADJUSTMENTS DURING CONSTRUCTION. HOWEVER, SEPTIC TANKS, PUMP STATIONS AND DISTRIBUTION BOXES MUST BE SET AT THE ELEVATION SHOWN. ANY DEVIATIONS MUST BE APPROVED BY THE ENGINEER AND LOCAL HEALTH DEPARTMENT.
 - ALL CONSTRUCTION OF THESE SEWERAGE SYSTEMS TO BE IN ACCORDANCE WITH STATE BOARD OF HEALTH SEWAGE HANDLING AND DISPOSAL REGULATIONS.
 - HEAVY WHEELED VEHICLES ARE PROHIBITED FROM DRAINFIELD AREAS AFTER CONSTRUCTION.
 - SEPTIC TANKS, DISTRIBUTION BOXES AND DRAINFIELD AREAS ARE TO BE CLEARLY MARKED FOR POST-CONSTRUCTION LANDSCAPING. LANDSCAPING EQUIPMENT IS NOT TO BE ALLOWED TO DRIVE DIRECTLY OVER THE DISTRIBUTION BOXES.
 - EXCAVATING EQUIPMENT USED TO CONSTRUCT THE ABSORPTION TRENCHES IS TO BE OF A DESIGN SO AS NOT TO COMPACT THE TRENCH BOTTOM OR THE 13" SIDEWALL AREAS.
 - FINAL SURFACES OF DRAINFIELD AREAS ARE TO BE GRADED TO DRAIN SUCH THAT SURFACE RUNOFF WILL NEITHER POND NOR FLOW IN CONCENTRATION OVER THE DRAINFIELD.
 - BEDDING: ALL BUILDING SEWERS, GRAVITY CONVEYANCE PIPES, FORCE MAINS, AND GRAVITY HEADER PIPES ARE TO BE BEDDED TO PROVIDE UNIFORM SUPPORT THROUGHOUT.
 - BACKFILLING AND TAMPING: TRENCHES FOR BUILDING SEWERS, GRAVITY CONVEYANCE PIPES, FORCE MAINS AND GRAVITY HEADER PIPES ARE TO BE BACKFILLED WITH MATERIAL FREE OF LARGE STONES AND CLUMPS OF EARTH AND TAMPED TO PREVENT MOVEMENT OF PIPES AS SOON AS POSSIBLE AFTER ACCEPTANCE. IN AREAS WHERE FORCE MAINS CROSS A MINIMUM VERTICAL SEPARATION OF 6" MUST BE MAINTAINED.
 - DISTRIBUTION BOXES FOR ALL BUILDINGS TO BE PERMANENTLY LEVELED BY BONDING TO A 4" POURED-IN-PLACE CONCRETE PAD 6" WIDER THAN DISTRIBUTION BOX. FORCE MAIN DISCHARGE SHALL BE BAFFLED IN DISTRIBUTION BOX.
 - ALL SEPTIC TANKS, PUMP CHAMBERS, AND DISTRIBUTION BOXES TO BE PRECAST CONCRETE CONFORMING WITH THE STATE BOARD OF HEALTH SEWAGE HANDLING AND DISPOSAL REGULATIONS.
 - DRAINFIELD TRENCHES FOR EACH DRAINFIELD ARE TO BE INSTALLED WITHIN THE BOUNDARIES SHOWN ON THE SITE PLAN.
 - THRUST BLOCKS REQUIRED AT ALL FITTED BENDS IN FORCE MAIN.
 - ALL OF THE DRAIN FIELDS FOR THIS PHASE MUST BE STAKED OUT AND THEIR LOCATIONS APPROVED BY THE ENGINEER AND THE LOCAL HEALTH DEPARTMENT PRIOR TO THE INSTALLATION OF ANY DRAIN FIELD.
 - FLOATATION OF PUMP STATIONS AND 2000 GAL. OVERFLOW TANKS IS A CONCERN ON THIS PROJECT. FLOATATION HAS BEEN CHECKED WITH A MINIMUM EARTH COVER OF 2.5'. THIS REQUIRES A CONCRETE BALLAST OF 1.5 YARDS IN EACH PUMP STATION AND OVERFLOW TANK. IF CONDITIONS VARY THE ENGINEER MUST BE NOTIFIED AND THIS CONCERN CHECKED FOR THE NEW CONDITIONS.
 - WHERE THE EARTH COVER ON ANY SEPTIC TANK, PUMP STATION OR OVERFLOW TANK EXCEEDS 3'-0" THE TANK SUPPLIER WILL FURNISH THE DESIGN ENGINEER WITH A CERTIFIED STATEMENT BY A CERTIFIED PROFESSIONAL ENGINEER THAT THE TANK SUPPLIED IS ADEQUATE TO SUPPORT THE LOADS IMPOSED BY BACKFILL AT THE LOCATION SHOWN. DETAILS OF REINFORCING AND WALL THICKNESS WILL ALSO BE PROVIDED. WELL
 - MANHOLE COVER OVER PUMP STATIONS TO BE VENTED. MANHOLE COVERS OVER SEPTIC TANKS TO BE UNVENTED TO PREVENT ODORS.



DRAIN FIELD DATA

DRAIN FIELD NUMBER	#C1	#C2	#C3	#C4
NUMBER OF LINES	12	12	12	12
LENGTH OF LINES (FT)	100'	100'	100'	100'
DEPTH OF LINES (IN)	72"	84"	84"	72"

THE SEWERAGE SYSTEMS PLANS WERE DEVELOPED IN CONSULTATION WITH MR. FRANK DAVIS, RT. 1, BOX 214A, ROCKY MOUNT, VIRGINIA, WHO PROVIDED THE FOLLOWING:

- GENERAL LAYOUT OF THE SYSTEMS.
- LOCATION, SIZE AND DEPTHS OF DRAIN-FIELDS.

REVISION	DATE	DESCRIPTION
DESIGNED		SEWERAGE DISPOSAL SYSTEM DETAILS
DRAWN	VJB	MARINA BAY CONDOMINIUM PHASE I
CHECKED		LOCATED IN "THE WATERS EDGE"
		FRANKLIN COUNTY, VIRGINIA
		Willard Construction of Roanoke Valley, Inc.
BUFORD T. LUMSDEN & ASSOCIATES, P.C.		SCALE: AS NOTED
ENGINEERS-SURVEYORS		COMM. 04-666
ROANOKE, VIRGINIA		DATE: 29 SEPT 1988
		SHEET 4 OF 4