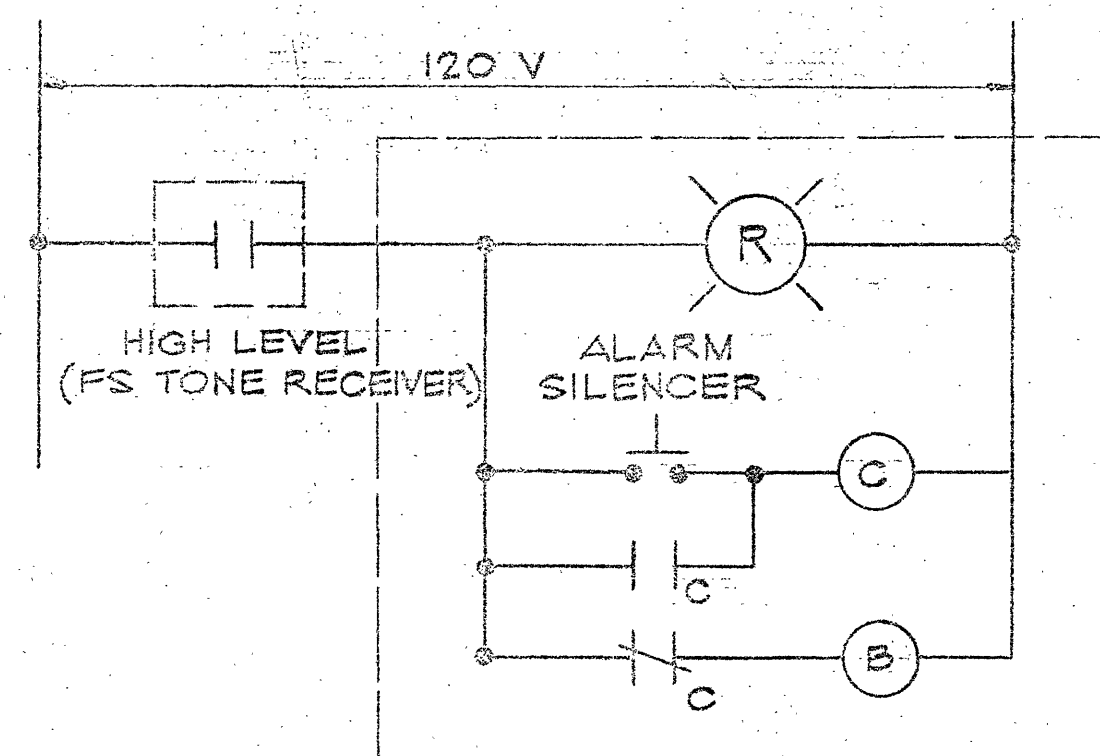
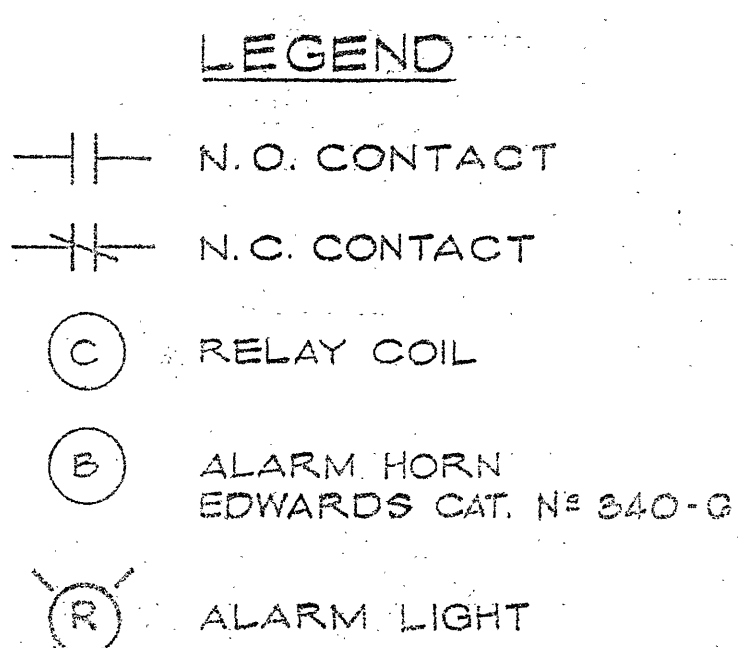


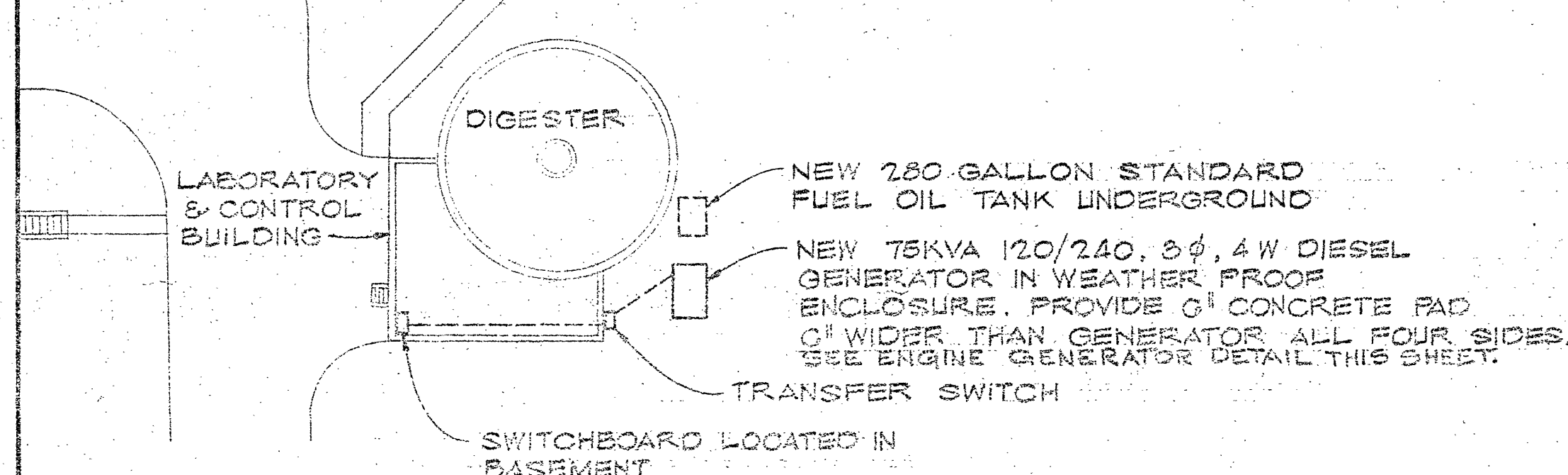
NOTE: ALARM CIRCUIT, HIGH WATER LEVEL

1. FURNISH AND INSTALL B.I.F. MODEL 244 FS TONE TRANSMITTER AND FS TONE RECEIVER AS INDICATED ON THE DWG'S.
2. FURNISH AND INSTALL ADDITIONAL SWITCH ON EXISTING AUTOCON LEVEL CONTROLLER, TYPE MB, N° 20550. NEW SWITCH TO BE SET AS DIRECTED BY ENGINEER TO ACTIVATE HIGH WATER LEVEL ALARM.

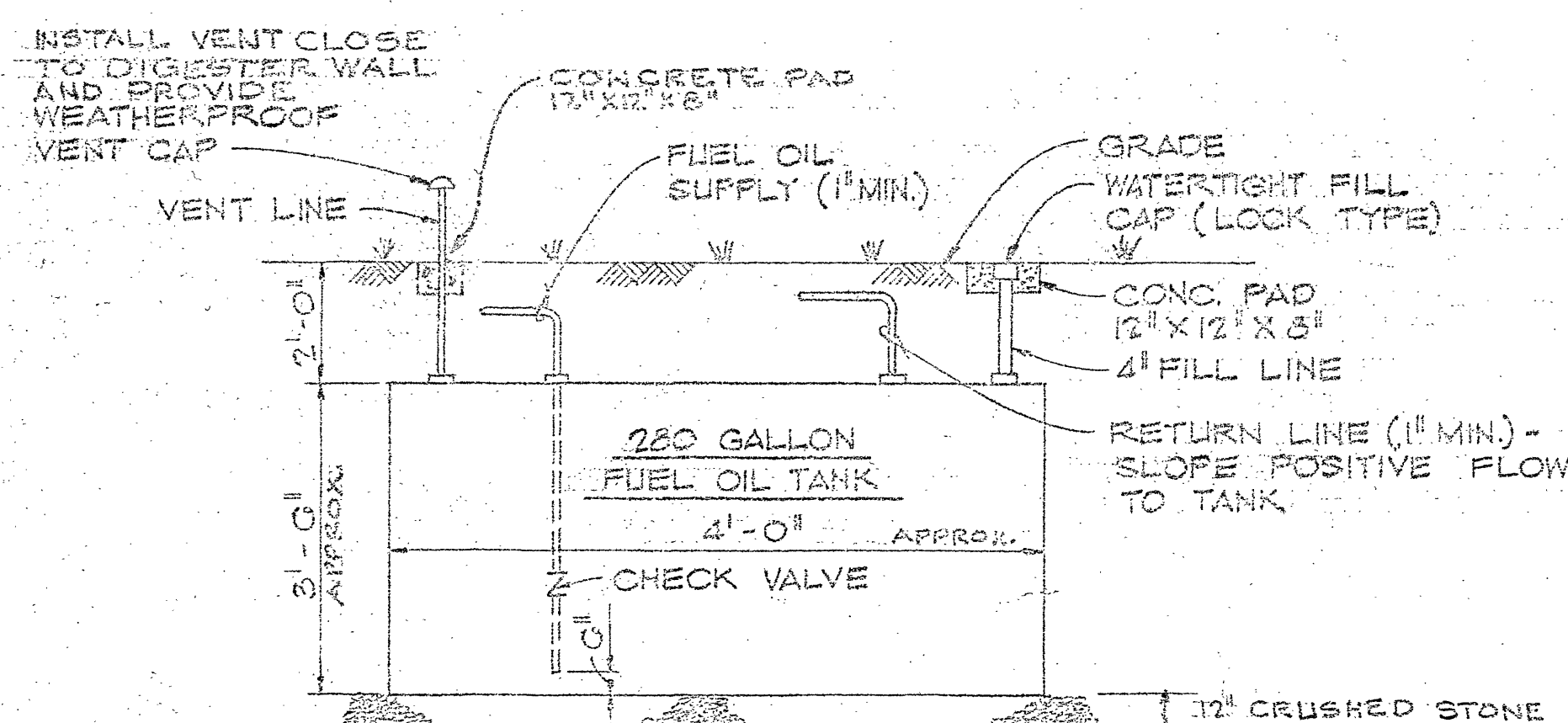


CONTROLS MTD IN STANDARD 12"X12"X6" HINGED NEMA I ENCLOSURE, LOCATE AS DIRECTED BY OWNER.

TYPICAL ALARM CIRCUIT
NO SCALE



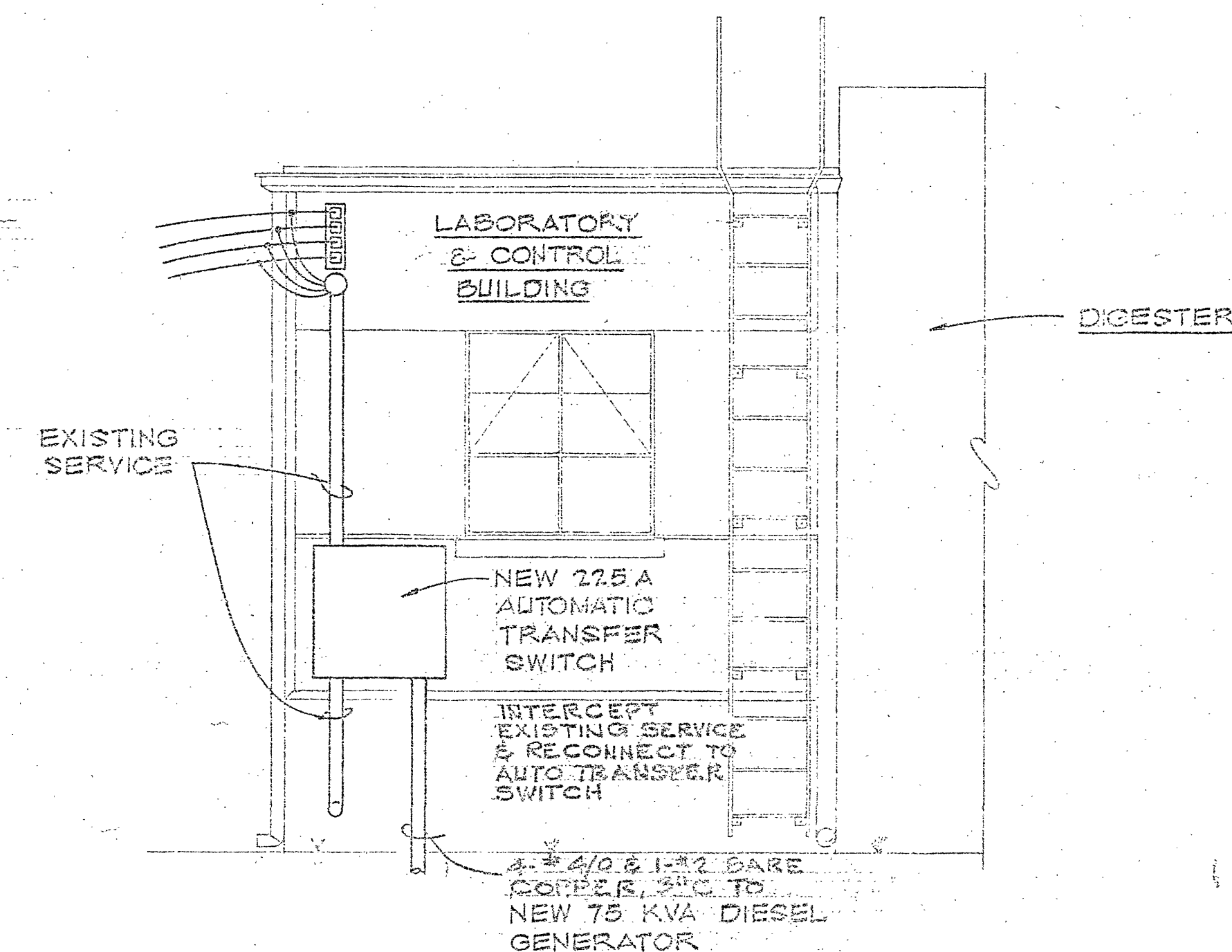
PART SITE PLAN
SCALE: 1"=20'-0"



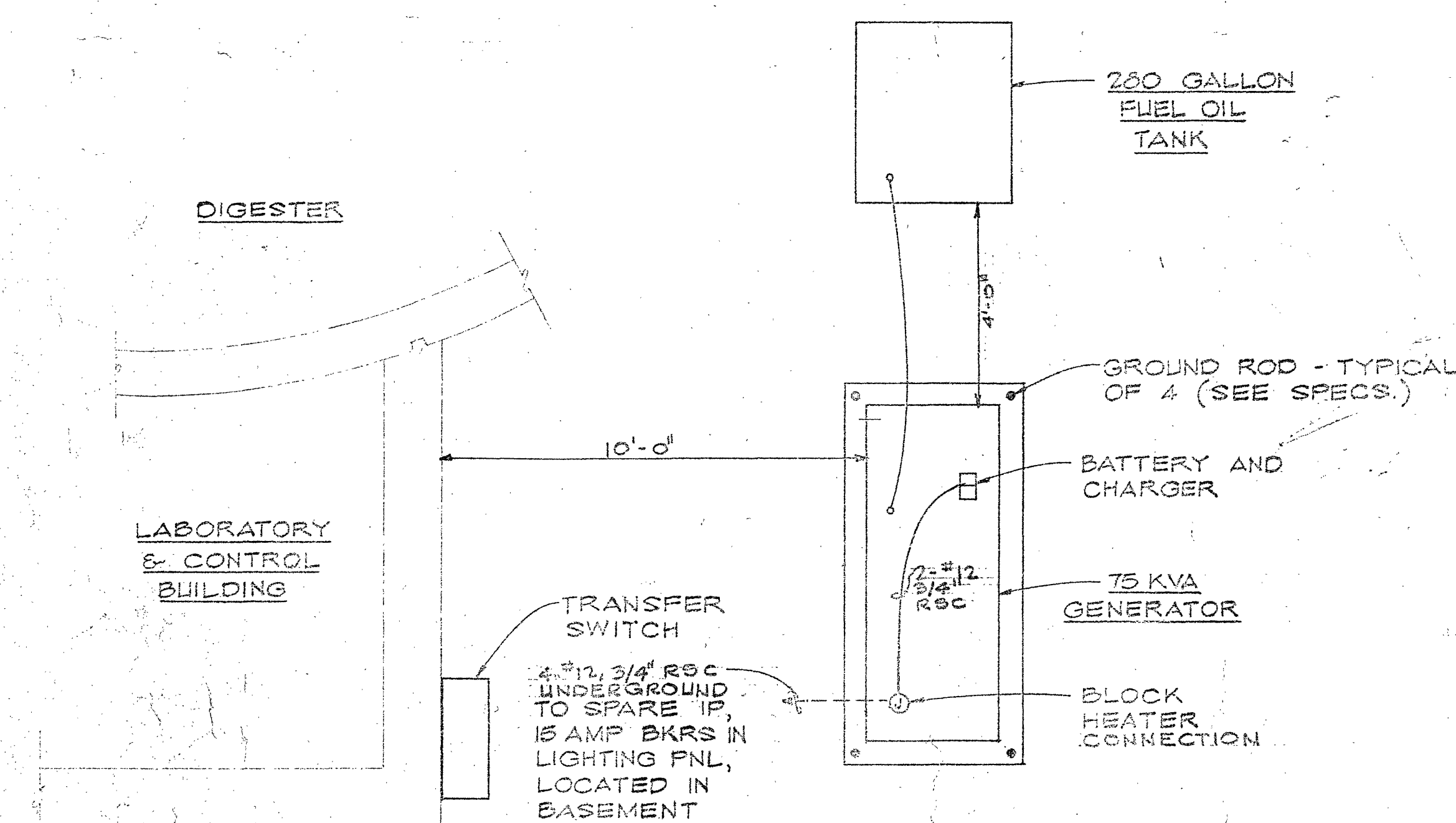
NOTES: 1. TANK AND INSTALLATION SHALL COMPLY WITH NFPA STANDARDS 30 & 31.

2. FUEL OIL SUPPLY AND RETURN LINE SHALL BE TYPE 1/2" COPPER HD. DRAWN ASTM B-88. FITTINGS SHALL WRT. COPPER SWEAT ANGLE 5-10-22.

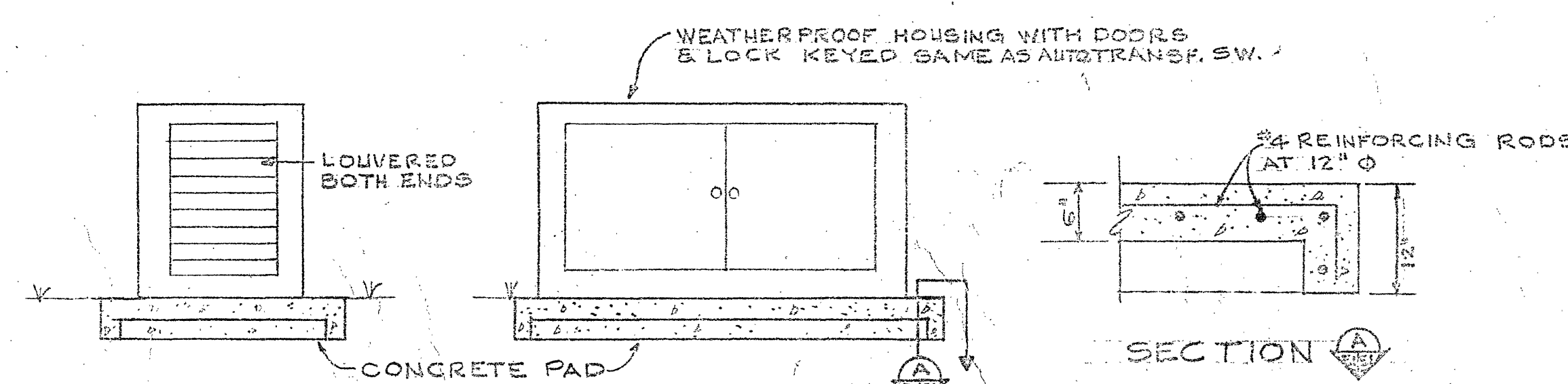
UNDERGROUND FUEL OIL STORAGE TANK
NOT TO SCALE



TRANSFER SWITCH
DETAIL
SCALE: 3/8"=1'-0"



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



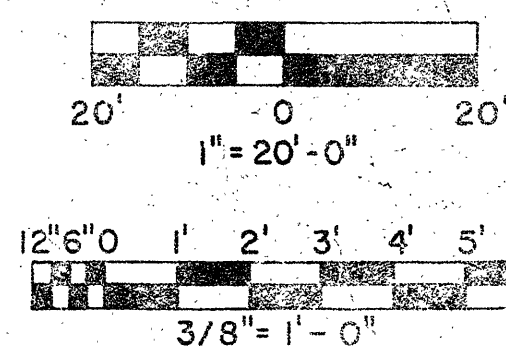
TYPICAL DETAIL
ENGINE GENERATOR FOUNDATION
NO SCALE

SPECIFICATIONS

1. STANDBY GENERATOR:
 - (A) GENERAL: THE EQUIPMENT UNDER THIS SPECIFICATION IS FOR ONE DIESEL ENGINE DRIVEN GENERATOR, FOR OUTDOOR INSTALLATION, COMPLETE WITH ALL ACCESSORIES AND ASSOCIATED EQUIPMENT TO COMPRISE A FULLY AUTOMATIC, UNATTENDED, EMERGENCY POWER SYSTEM, INCLUDING AUTOMATIC TRANSFER SWITCH. THE GENERATOR UNIT SHALL BE AS INDICATED ON THE DRAWINGS FOR MINIMUM OUTPUT AT 0.8 POWER FACTOR, 120/240 VOLTS DELTA, 3 PHASE WIRE, 60 HERTZ, 1800 RPM, FOR CONTINUOUS STANDBY SERVICE. WILL COMPRISE A COMPLETE OPERATING PACKAGE FOR INSTALLATION 800 FEET ABOVE SEA LEVEL IN AN AMBIENT TEMPERATURE OF 110° F. MAXIMUM 10° F. MINIMUM. ALL EQUIPMENT SHALL MEET LATEST APPLICABLE IEEE AND NEMA STANDARDS. UNIT SHALL BE CATERPILLAR SERIES 3145 OR APPROVED EQUAL.
 - (B) GENERATOR SHALL HAVE CLASS B INSULATION OR BETTER WITH MAXIMUM 50° C. RISE BASED ON 40° C. AMBIENT.
 - (C) GENERATOR CONTROL PANEL:
 - (1) THE GENERATOR CONTROL PANEL SHALL BE ENCLOSED, FOR GENERATOR MOUNTING AND SHALL CONTAIN AC VOLTMETER, AC AMMETER, AMMETER-VOLTMETER SELECTOR SWITCH, FREQUENCY METER, MAIN CIRCUIT BREAKER, THREE CURRENT TRANSFORMERS, GENERATOR AND LOAD LEAD CONNECTOR LUGS, NECESSARY CONTROL WIRING AND SOLID NEUTRAL BAR.
 - (D) ENGINE:
 - (1) ENGINE STARTING SYSTEM SHALL CONSIST OF HEAVY DUTY 12 VOLT STARTING MOTORS WITH NECESSARY CONTACTORS AND SOLENOIDS ON ENGINE WIRED TO A COMMON JUNCTION BOX FOR FULL AUTOMATIC START-STOP OPERATION. AN AUTOMATIC BATTERY CHARGER WITH CRANK CIRCUIT DISCONNECT RELAY SHALL BE FURNISHED. CHARGER SHALL BE 12 VOLT DC @ 6 AMPERES WITH 120 VOLT SINGLE PHASE AC INPUT, COMPLETE WITH AMMETER.
 - (2) ENGINE GOVERNOR FOR ACCURATE FREQUENCY CONTROL SHALL BE A 5% REGULATION HYDRA-MECHANICAL GOVERNOR.
 - (3) ENGINE INSTRUMENTS SHALL CONSIST OF WATER TEMPERATURE GAUGE, OIL PRESSURE GAUGE, FUEL PRESSURE GAUGE, TACHOMETER, AND SERVICE HOUR METER. SAFETY SHUT-OFFS SHALL BE PROVIDED FOR LOW OIL PRESSURE, HIGH WATER TEMPERATURE, OVERSPEED AND OVERCRANK.
 - (4) ENGINE COOLING SYSTEM SHALL CONSIST OF AN ENGINE MOUNTED RADIATOR FOR 110°F. AMBIENT AIR, COMPLETE WITH BLOWER TYPE FAN, FAN DRIVE, FAN GUARD, GEAR DRIVEN JACKET WATER PUMP AND A 1000 WATT JACKET WATER HEATER WITH FULL THERMOSTATIC CONTROL. THIS HEATER TO BE FOR OPERATION ON 120 VOLTS. COOLING SYSTEM SHALL BE PROTECTED FROM FREEZING DOWN TO -10° F. AND SHALL INCLUDE A RUST INHIBITOR. ALL GASKETS SHALL BE A MATERIAL SUITABLE FOR USE WITH COOLANT USED.
 - (5) FURNISH PIPING FOR EXHAUST. MUFFLER SHALL BE OF THE RESIDENTIAL SILENCING TYPE. CLAMPS, FITTINGS AND OTHER ACCESSORIES SHALL BE FURNISHED FOR COMPLETE INSTALLATION.
 - (E) GENERATOR:
 - (1) THE GENERATOR SHALL BE STATIC EXCITED AND STATIC REGULATED TO HOLD VOLTAGE WITHIN PLUS OR MINUS 2% OF RATED VOLTAGE. VOLTAGE LEVEL SHALL BE ADJUSTABLE PLUS OR MINUS 5% OF RATED VOLTAGE. FREQUENCY REGULATION FROM NO LOAD TO FULL LOAD SHALL NOT EXCEED 5% OF RATED FREQUENCY.
 - (F) AUTOMATIC TRANSFER SWITCH:
 - (1) THE AUTOMATIC TRANSFER SWITCH SHALL BE RATED AS INDICATED ON DRAWINGS AND IN A NEMA 3R ENCLOSURE FOR WALL MOUNTING AND SHALL BE EITHER SOLENOID OR MOTOR OPERATED. THIS SWITCH SHALL BE RATED FOR INDUCTIVE OR MIXED LOADS. SWITCH SHALL BE ASCO 84032266C3. DOOR SHALL BE PROVIDED WITH LOCK.
 - (G) INSTALLATION AND SERVICE:
 - (1) ENGINE-GENERATOR SUPPLIER SHALL FURNISH THE PURCHASER WITH INSTALLATION DRAWINGS AND WIRING DIAGRAMS, COMPLETE AND IN DETAIL, INCLUDING RECOMMENDATIONS BY THE SUPPLIER IN ADDITION TO THIS SPECIFICATION.
 - (2) ENGINE-GENERATOR SUPPLIER SHALL FURNISH THE PURCHASER GENERAL SUPERVISION OF THE INSTALLATION.
 - (3) ENGINE-GENERATOR SUPPLIER SHALL CONDUCT INITIAL START-UP AND CHECK OUT OF THIS EQUIPMENT AND SYSTEM TO INSURE PROPER OPERATION OF ALL EQUIPMENT FURNISHED.
 - (4) ENGINE-GENERATOR SUPPLIER SHALL WARRANT ALL EQUIPMENT AND ACCESSORIES FOR A PERIOD OF ONE YEAR (365 DAYS) FROM DATE PUT IN SERVICE, SUCH DATE BEING DEFINED AS THE DAY THE SUPPLIER MAINTAINS A RUNNING CONDITION OF ALL EQUIPMENT AND ACCESSORIES FOR A PERIOD OF ONE HOUR WITH THREE START-STOP CONDITIONS (OTHER THAN EQUIPMENT FAILURE) IN THE HOUR WITH STOP PERIODS NOT TO EXCEED FIVE MINUTES.
2. GROUNDING:

PROVIDE GROUND RODS AS INDICATED ON THE DRAWINGS. GROUND RODS SHALL BE 3/4 IN. GALVANIZED PIPE 8 FT. LONG OR A SOLID STEEL OR COPPER CLAD ROD WITH THE SAME SURFACE AREA. A CLAMP OR CAP SHALL BE PROVIDED WHICH WILL MAKE A POSITIVE AND PERMANENT CONTACT WITH THE ROD AND PROVIDE MEANS FOR MAKING CONNECTIONS TO THE GROUND WIRE. GROUND WIRES SHALL NOT BE SMALLER THAN NO. 4 GROUND CONNECTIONS SHALL BE MADE WITH MECHANICAL CONNECTORS. ALL RODS ENGINE & GENERATOR SHALL BE CONNECTED TOGETHER AND TO BUILDING SERVICE GROUND AT MAIN DISCONNECT IN BUILDING.
3. FLEXIBLE COUPLINGS.

ALL PIPE AND CONDUIT SHALL BE CONNECTED TO GENERATOR SET THROUGH USE OF FLEXIBLE COUPLING SECTIONS.



SEWAGE SYSTEM IMPROVEMENTS FOR THE TOWN OF VINTON VINTON, VIRGINIA			
WILEY & WILSON ENGINEERS-ARCHITECTS-PLANNERS LYNCHBURG, VIRGINIA			
DATE: FEBRUARY 18, 1971	SCALE: AS NOTED	SHEET 2 OF 2	
PROJECT: SEWAGE SYSTEM IMPROVEMENTS	CONTRACT NO. 012	DWG. E-1	
ELECTRICAL			
PERMANENT RESIDENCE			