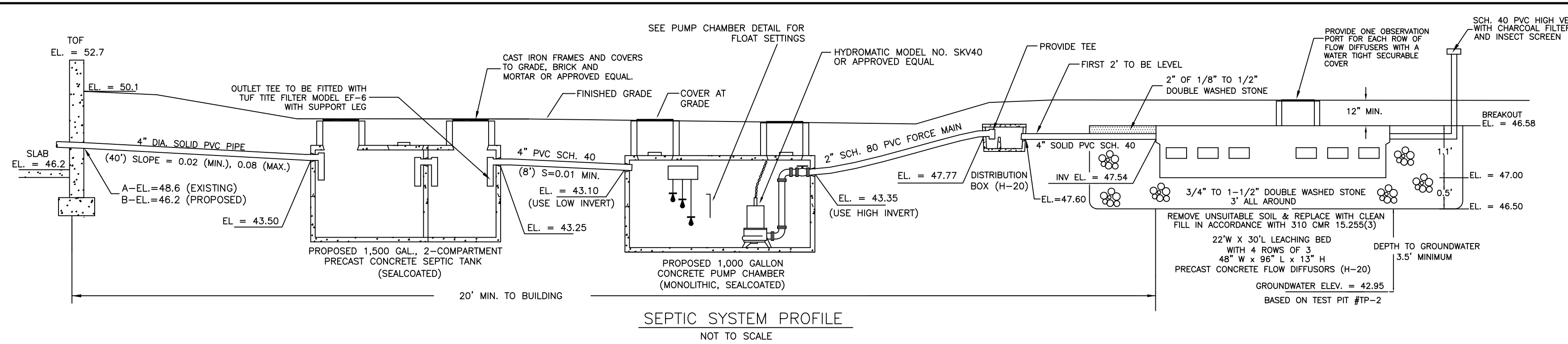


LOCUS PLAN

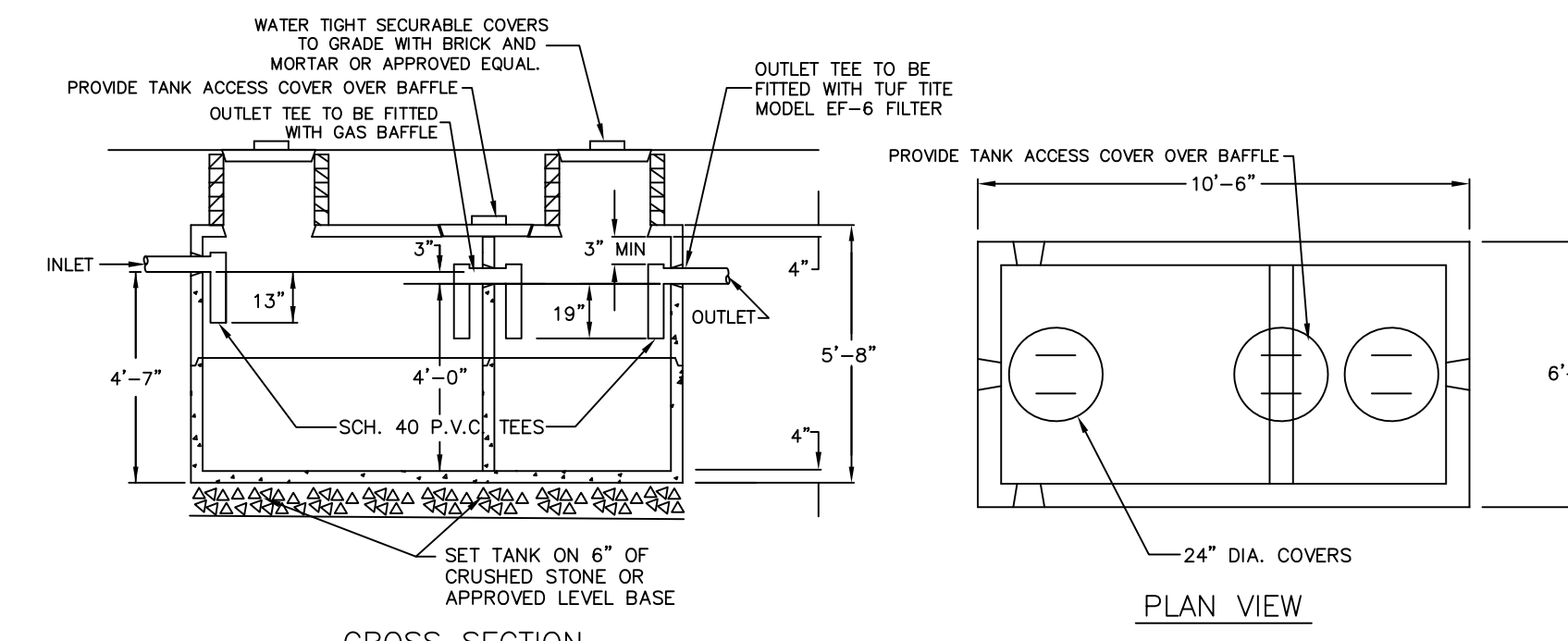


ELEVATION SCHEDULE:

DESCRIPTION	ELEVATION
4" INV. AT HOUSE-A (EXISTING)	48.6
4" INV. AT HOUSE-B (PROPOSED)	46.2
4" INV. AT SEPTIC TANK (IN)	43.50
4" INV. AT SEPTIC TANK (OUT)	43.25
4" INV. AT PUMP CHAMBER (IN)	43.10
4" INV. AT PUMP CHAMBER (OUT)	43.35
4" INV. AT DIST. BOX (IN)	47.77
4" INV. AT DIST. BOX (OUT)	47.60
4" INV. INTO SAS	47.54
ELEVATION AT BOTTOM OF SAS	47.00
ELEVATION AT BOTTOM OF STONE	46.50
GROUNDWATER ELEVATION	42.95

NOTES:

- THE CONTRACTOR SHALL NOTIFY THE LOCAL BOARD OF HEALTH AND COLLINS ENGINEERING GROUP AT LEAST 48 HOURS PRIOR TO REQUIRED INSPECTIONS.
- BENCHMARK IS THE TOP OF THE LOWEST REAR STEP AS INDICATED ON THIS PLAN, EL = 50.93 (ASSUMED DATUM).
- HEAVY EQUIPMENT SHALL NOT BE ALLOWED TO OPERATE OVER THE LIMITS OF THE WRITTEN DISPOSAL FIELD DURING THE COURSE OF CONSTRUCTION OF THE SYSTEM.
- NO FIELD MODIFICATIONS TO THE SEWAGE SYSTEM SHALL BE MADE WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER AND THE LOCAL BOARD OF HEALTH.
- UNLESS OTHERWISE NOTED ALL SYSTEM COMPONENTS SHALL BE INSTALLED IN ACCORDANCE WITH TITLE V OF THE STATE ENVIRONMENTAL CODE DATED JANUARY 2014 AND ANY APPLICABLE LOCAL RULES.
- DISTRIBUTION BOX SHALL BE MANUFACTURED BY J&R PRECAST, INC. OR APPROVED EQUAL.
- GROUT TO BE USED AT ALL POINTS WHERE PIPES ENTER OR LEAVE ALL CONCRETE STRUCTURES IN ORDER TO PROVIDE A WATER TIGHT SEAL.
- THE FIRST TWO FEET OF EACH LINE EXITING THE DISTRIBUTION BOX SHALL BE LEVEL.
- THIS SYSTEM IS NOT DESIGNED TO ACCOMMODATE A GARBAGE GRINDER OR WATER FILTRATION SYSTEM BACKWASH.
- SYSTEM COMPONENTS TO WITHSTAND H-10 LOADING CRITERIA (H-20 WHERE NOTED).
- PROPERTY LINE SHOWN IS APPROXIMATE ONLY AND IS NOT A RESULT OF A PROPERTY LINE OR VERTICAL SURVEY.
- THE CONTRACTOR SHALL DECOMMISSION (PUMP & FILL OR REMOVE) THE EXISTING SEPTIC SYSTEM IN ACCORDANCE WITH 310 CMR 15.354.
- AS SHOWN, THERE ARE NO KNOWN WELLS WITHIN 100 FEET OF THE PROPOSED LEACH FIELD.
- RESTORE (LOAM & SEED) ALL AREAS DISTURBED DURING CONSTRUCTION.
- AN AUDIBLE AND VISUAL ALARM SHALL BE PROVIDED. PUMP TO BE ON SEPARATE CIRCUIT FROM ALARM.
- PUMPS AND APPURTENANCES TO BE INSTALLED AND LOCATED ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND LOCAL BUILDING AND WIRING CODES.
- PUMP SHALL CONSIST OF HYDROMATIC MODEL SKV40 SUBMERSIBLE PUMP (OR APPROVED EQUAL). PUMP SHALL BE RATED AT 4/10 HP AND SHALL HAVE A 2" DISCHARGE. THE PUMP SHALL OPERATE FROM A 115 VOLT, 12.6 AMP, SINGLE PHASE, 60 HERTZ POWER SUPPLY.
- CONTRACTOR TO ENSURE LIQUID IN DISCHARGE PIPE FLOWS BACK TO PUMP CHAMBER AFTER PUMP CYCLE.
- PUMP CONTROL PANEL SHALL CONSIST OF MYERS CE SIMPLEX ELECTRICAL CONTROL PANEL (OR APPROVED EQUAL). PUMP CONTROL PANEL TO BE LOCATED INSIDE EXISTING DWELLING. NOT LIMITED TO CONFINED SPACE ENTRY PROCEDURES.
- CONTRACTOR WILL BE RESPONSIBLE FOR CONTACTING DIG SAFE (888-DIGSAFE) AND ANY OTHER APPLICABLE UTILITY COMPANIES PRIOR TO STARTING WORK.
- CONTRACTOR WILL BE RESPONSIBLE FOR COMBINING LAUNDRY FLOW WITH SYSTEM.
- CONTRACTOR RESPONSIBLE FOR IMPLEMENTING ALL O.S.H.A. PROCEDURES TO INCLUDE BUT NOT LIMITED TO CONFINED SPACE ENTRY PROCEDURES.
- CONTRACTOR RESPONSIBLE FOR CONFIRMING LOCATION OF EXISTING LEACHING FACILITY AND DECOMMISSION AS REQUIRED.
- CONTRACTOR TO CONFIRM EXISTING PLUMBING, SILL AND BENCHMARK ELEVATIONS PRIOR TO CONSTRUCTION.
- MAGNETIC LOCATOR TAPE TO BE PLACED ON ALL SEPTIC SYSTEM COMPONENTS.



1,500 GALLON 2-COMPARTMENT PRECAST SEPTIC TANK

BUOYANCY CALCULATIONS 1,500 GALLON TANK:

DOWNWARD FORCE: 12,930 LBS.
 WEIGHT OF EMPTY 1,500 GAL. TANK = 12,930 LBS.
 100 CF OF SOIL X 110 LB/CF OF SOIL = 11,000 LBS.
 DOWNWARD FORCE = 12,930 + 11,000 = 23,930 LBS.
 BUOYANT FORCE: (ASSUMES TANK FULLY SUBMERGED IN WATER)
 VOLUME OF DISPLACED WATER = 357 CF
 BUOYANT FORCE = 357 CF X 62.4 LB/CF = 22,277 LB
 23,930 LB > 22,277 LB (DOWNWARD FORCE > BUOYANT FORCE)

BUOYANCY CALCULATIONS 1,000 GALLON TANK:

DOWNWARD FORCE: 8,800 LBS.
 WEIGHT OF EMPTY 1,000 GAL. TANK = 8,800 LBS.
 72.25 CF OF SOIL X 110 LB/CF OF SOIL = 7,947.5 LBS.
 DOWNWARD FORCE = 8,800 + 7,947.5 = 16,747.5 LBS.
 BUOYANT FORCE: (ASSUMES TANK FULLY SUBMERGED IN WATER)
 VOLUME OF DISPLACED WATER = 255 CF
 BUOYANT FORCE = 255 CF X 62.4 LB/CF = 15,912 LB
 16,747.5 LB > 15,912 LB (DOWNWARD FORCE > BUOYANT FORCE)

DESIGN DATA:

DESIGN FLOW:
 3 BEDROOMS X 110 GPD/BEDROOM = 330 GPD

SEPTIC TANK:
 330 GPD X 2.0 = 660 GALLONS
 USE NEW 1,500 GALLON SEPTIC TANK

SOIL ABSORPTION SYSTEM:
 PERCOLATION RATE DETERMINED FROM SIEVE ANALYSIS PERFORMED ON SOIL SAMPLE COLLECTED FROM LAYER C AT TEST PIT TP-2. TEST REVEALED SOIL IS A LOAMY SAND (78.2% SAND, 17.3% SILT, 4.4% CLAY). DESIGN LOADING RATE SELECTED FOR CLASS I SOILS WITH 70-85% SAND IN ACCORDANCE WITH DEP GUIDANCE POLICY #BRP/DWM/PeP-P00-1.
 DESIGN LOADING RATE = 0.66 GPD/SF
 LEACHING AREA REQ'D = (330 GPD) / (0.66 GPD/SF) = 500 S.F.

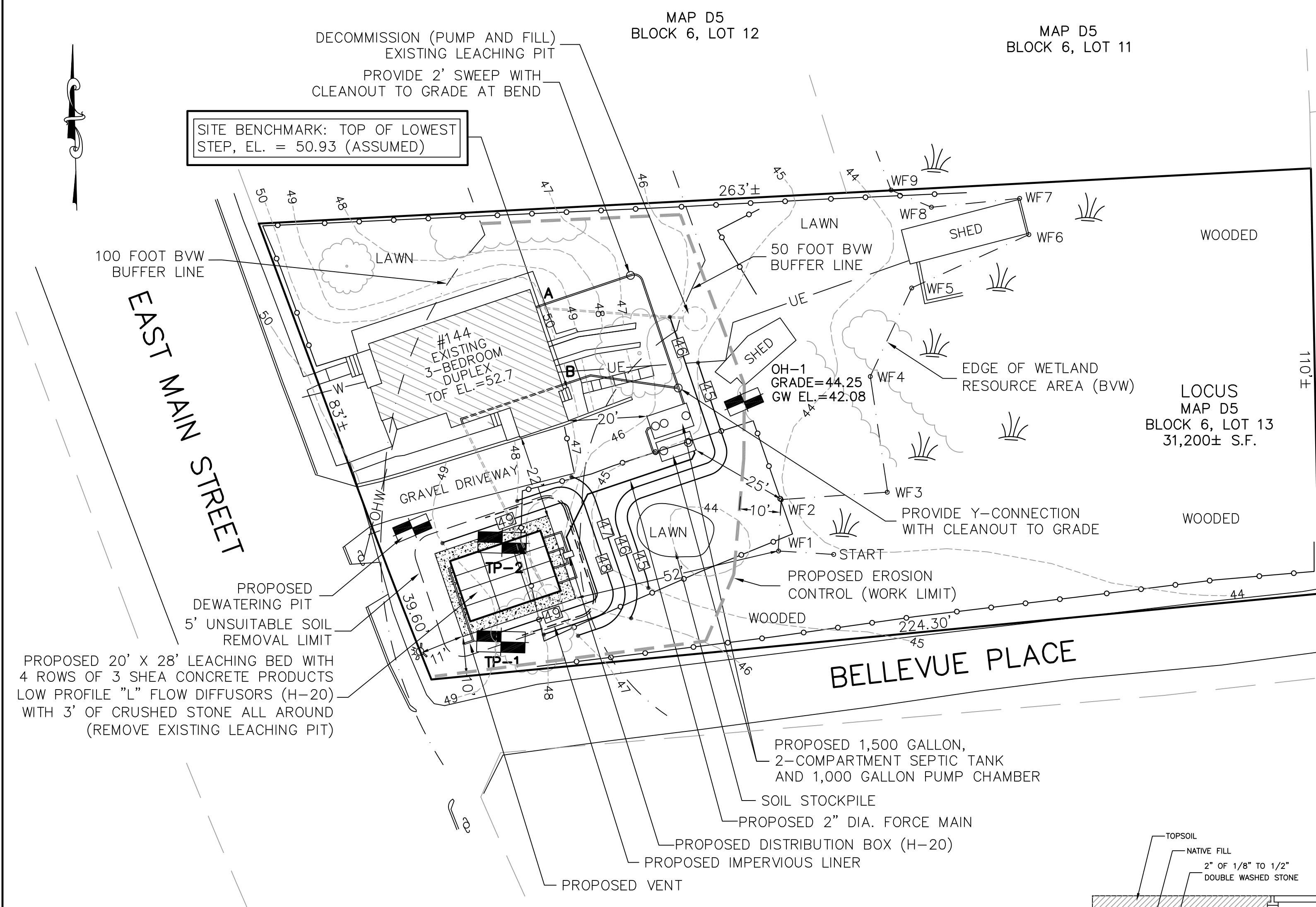
SOIL DATA:

DATE: OCTOBER 29, 2020
 PERFORMED BY: GEORGE R. COLLINS, P.E.
 WITNESSED BY: KATHLEEN WALDRON, AVON BOH

TP-1	DEPTH	ELEV.	SOIL HORIZ.	SOIL COLOR	TP-2	DEPTH	ELEV.
	0	48.95				0	48.45
	60"					60"	
	78"	42.45	Bw 10YR 5/6			66"	42.95
	80"					86"	
	140"	37.28	C 2.5Y 6/2			140"	36.78

EST. SEASONAL HIGH GROUNDWATER ELEV. 42.95
 DESIGN LOADING RATE ESTABLISHED BY SIEVE SAMPLE COLLECTED FROM LAYER C AT TP-2.

NOTE: LAYERS FILL/A, B, AND C TO BE REMOVED TO A DEPTH OF 90" BELOW GRADE AND REPLACED WITH CLEAN FILL IN ACCORDANCE WITH 310 CMR 15.255(3). UNSUITABLE SOIL TO BE REMOVED TO A DISTANCE OF 5'-0" BEYOND THE LIMITS OF THE SOIL ABSORPTION SYSTEM.

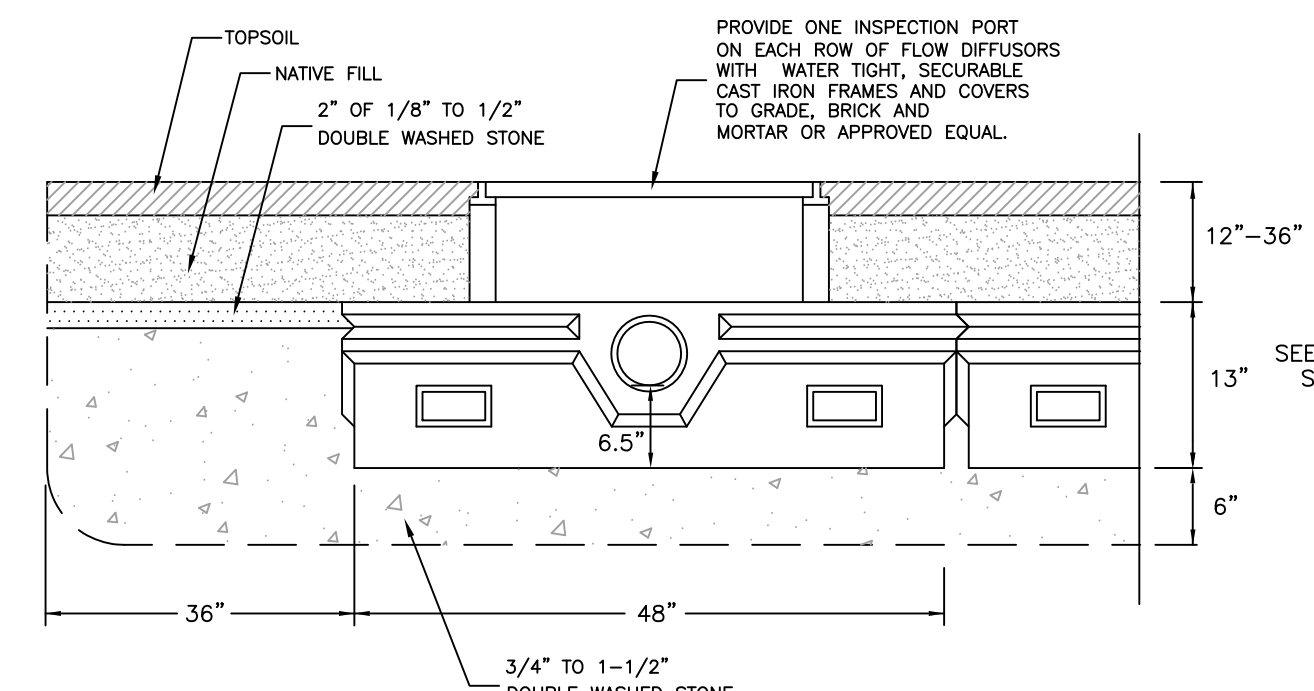


WETLAND AND EROSION CONTROL NOTES

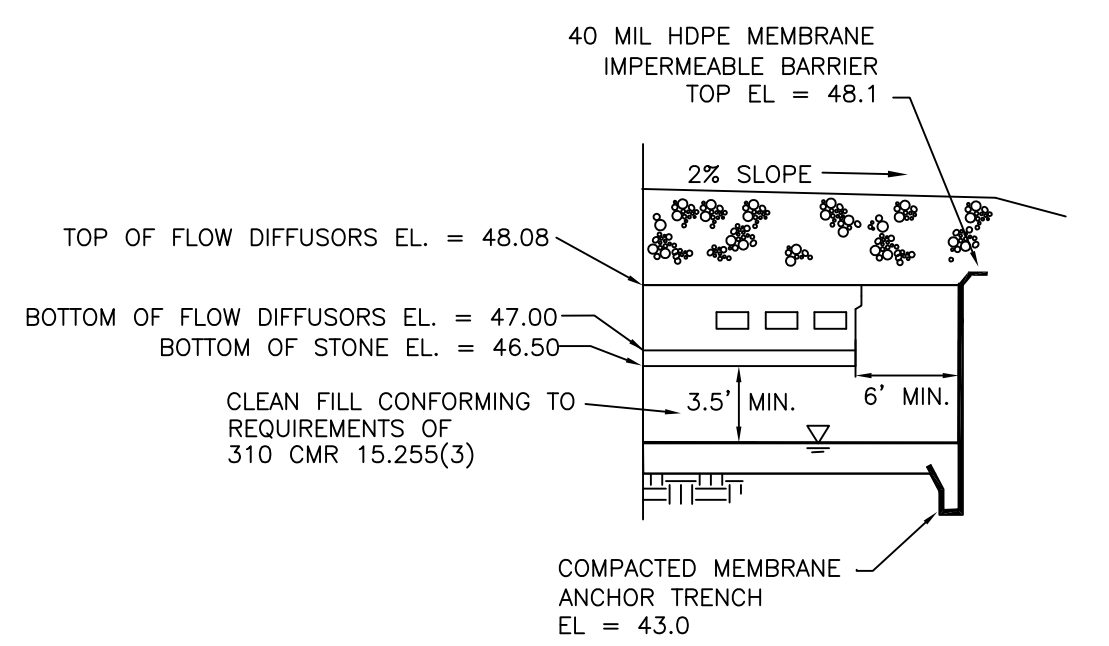
- WETLAND DELINEATION PERFORMED BY BROOKE MONROE, BOTANIST.
- EROSION CONTROL (WORK LIMIT) LINE TO BE INSTALLED PRIOR TO ANY ACTIVITY AND REMAIN IN PLACE UNTIL ALL DISTURBED AREAS HAVE BEEN STABILIZED.
- CONTRACTOR RESPONSIBLE FOR IMPLEMENTING ALL CONSERVATION COMMISSION AND BOARD OF HEALTH DIRECTIVES.
- THE SITE IS NOT LOCATED IN AN AREA OF CRITICAL ENVIRONMENTAL CONCERN.
- CONTRACTOR TO SWEEP STREET AT THE END OF EACH WORK DAY.
- THE DEP FILE NUMBER MUST BE POSTED ON SITE PRIOR TO STARTING WORK.
- A COPY OF THE REGISTRY RECORDED ORDER OF CONDITIONS MUST BE ON SITE AT ALL TIME DURING WORK.
- THE NAME AND CONTACT NUMBERS OF THE GENERAL CONTRACTOR MUST BE PROVIDED TO THE ENGINEER AND CONSERVATION COMMISSION PRIOR TO STARTING WORK.
- CONTRACTOR TO MONITOR, REPAIR AND MODIFY EROSION CONTROL TO ASSURE THAT THERE IS NO WETLAND RESOURCE AREA OR BUTTER ENCROACHMENT.

LOCAL UPGRADE APPROVAL REQUESTS:

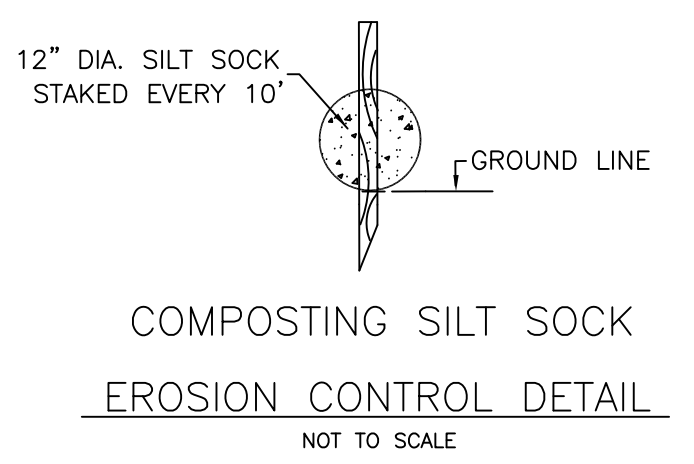
- VARIANCE FROM SECTION 310 CMR 15.212 OF THE STATE SANITARY CODE WHICH REQUIRES A MINIMUM VERTICAL SEPARATION FROM THE SOIL UNDERLYING THE SOIL ABSORPTION SYSTEM ABOVE THE HIGH GROUND-WATER ELEVATION SHALL BE FOUR (4) FEET WITH A RECORDED PERC RATE OF GREATER THAN TWO MINUTES PER INCH. A VARIANCE THAT WOULD ALLOW A VERTICAL SEPARATION REDUCTION FROM THE REQUIRED FOUR (4) FEET TO 3.5 FEET IS REQUESTED.
- USE OF A GRAIN SIZE DISTRIBUTION ANALYSIS ACCORDANCE WITH DEP GUIDANCE POLICY #BRP/DWM/PeP-P00-1 TO ESTABLISH DESIGN LOADING RATE.



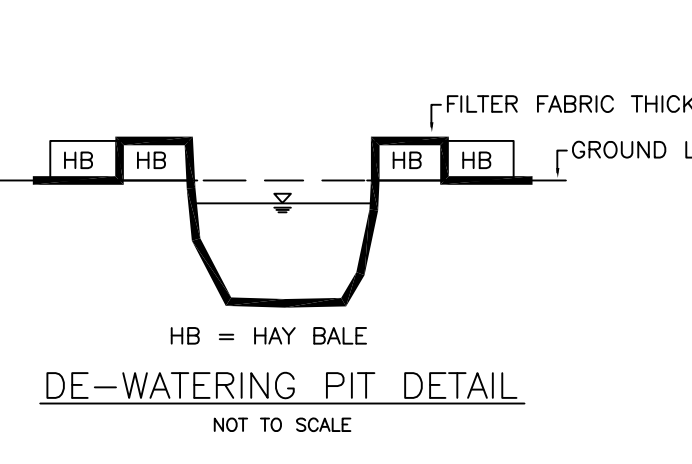
SHEA LOW PROFILE "L" FLOW DIFFUSOR™ CONFIGURATION (H-20)



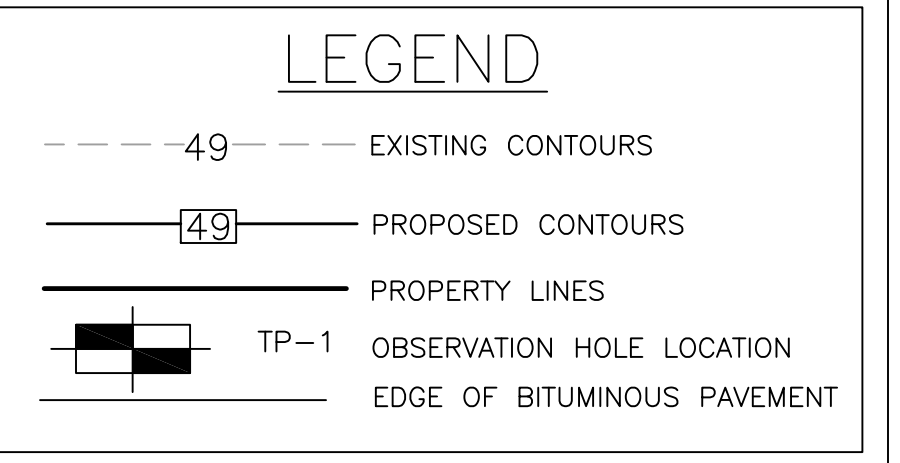
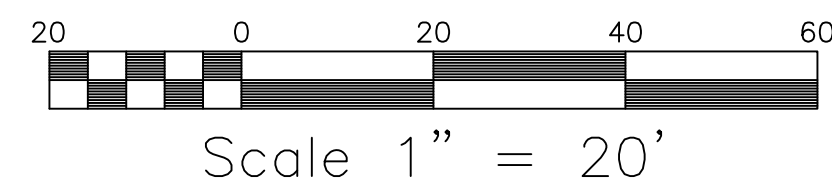
CROSS SECTION IMPERMEABLE BARRIER



COMPOSTING SILT SOCK EROSION CONTROL DETAIL



DE-WATERING PIT DETAIL



PLAN TO ACCOMPANY A CONSERVATION FILING

DRAWING TITLE	PLAN AND DETAILS	SCALE:	AS SHOWN
PROJECT	SUBSURFACE SEWAGE DISPOSAL SYSTEM UPGRADE	DATE:	11-18-20
CLIENT	WARREN PHILLIPS 6 KENMAR DRIVE, HOLBROOK, MA 02343	DRAWN BY:	SWR
		DESIGNED BY:	SWR
		CHECKED BY:	GRC
		APPROVED BY:	GRC
		DRAWING NO.	
		PROJECT NO.	20-225-3198

