

LEGEND

- PROPOSED EDGE OF DRIVE
- - - - - APPROXIMATE PROPERTY LINE
- - - - - EXISTING GRADE CONTOUR
- - - - - FINISH GRADE CONTOUR
- - - - - DELINEATED WETLAND BOUNDARY
- ||||| 50' WIDE WETLAND BUFFER
- - - - - PROPOSED WATER LINE
- - - - - PROPOSED SEWER LINE
- - - - - LIMITS OF DISTURBANCE
- - - - - SALT FENCE
- PROPOSED IMPERVIOUS AREA
- EXISTING IMPERVIOUS AREA



BRAD WASHBURN, PE
PE # 9788



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149 Gilman Street, Marshfield, VT 05659

PLAN DATE:	12/08/2025	SHEET 03	3 OF 6
NO.	DATE	DESCRIPTION	BY
3	03/24/26	ADDED OVERHEAD GARAGE PARKING & SPECIAL STORAGE ZONE	BMW
2	03/13/26	ADDED STORMWATER PRACTICE	BMW
1	02/09/26	RELOCATED TINY HOMES, WATER & SEWER. ADDED ELECTRIC	BMW

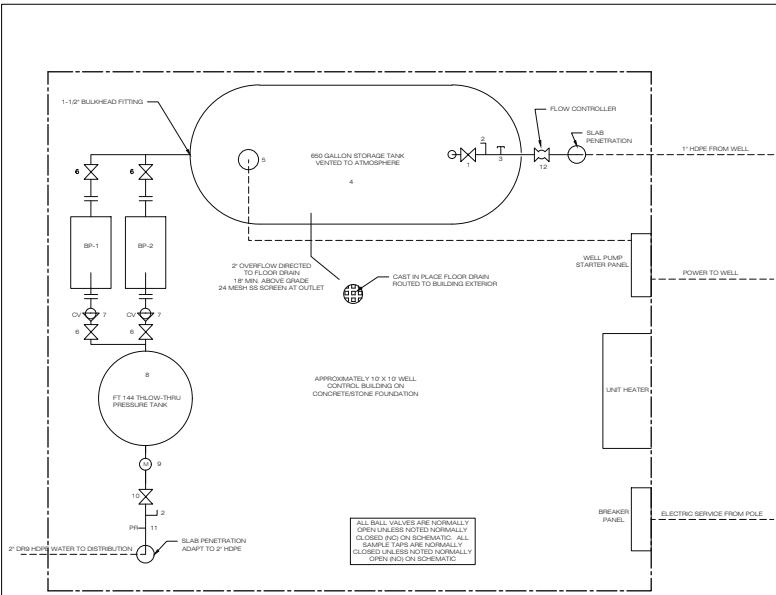
PLANNED UNIT DEVELOPMENT
PROPOSED SITE PLAN

LANDOWNER & PARCEL ADDRESS
FRANK MITCHELL
1800 LOWER ROAD, PLAINFIELD, VT

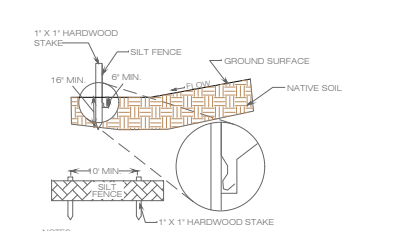
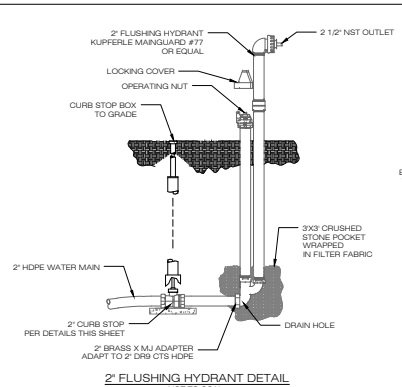
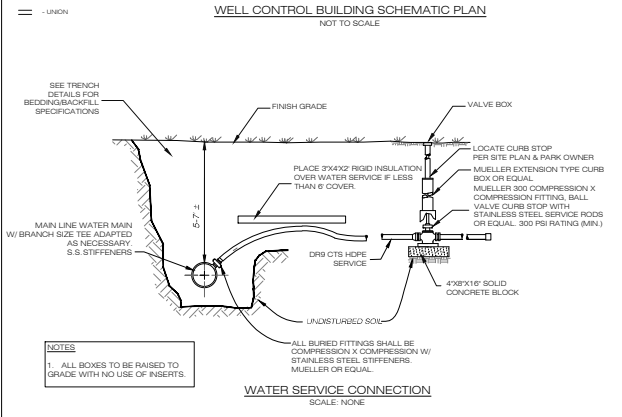
SITE PLAN
SCALE: 1" = 30'



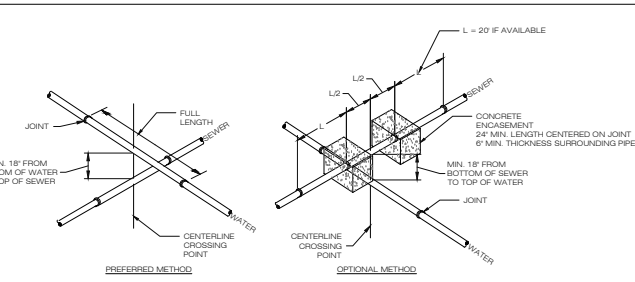
GRAPHIC SCALE
1" = 30'



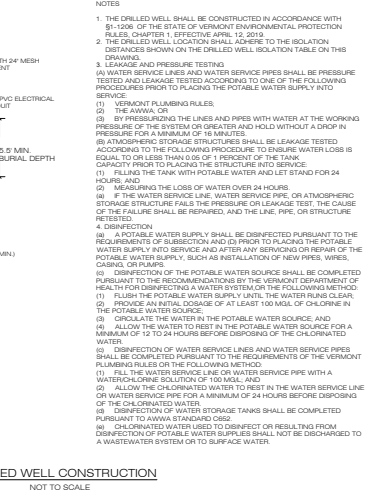
- LEGEND**
- W - DRILLED WELL
 - BP - BOOSTER PUMP 1
 - S - SAMPLE TAP
 - M - WATER METER
 - PM - PRESSURE GAGE W/ VALVE
 - BV - BALL VALVE
 - CV - CHECK VALVE
 - BD - BOILER DRAIN W/ VACUUM BREAKER
 - PR - PRESSURE RELIEF VALVE
 - - UNION
- EQUIPMENT SCHEDULE**
- 1" BALL VALVE BRASS OR LEAD FREE COPPER, VEGA BRAND OR EQUAL.
 - SMOOTH HOSE SAMPLE TAP, VEGA OR EQUAL.
 - 1" X 1/2" TEE W/ CAP FOR FUTURE DISINFECTANT INJECTION IF REQUIRED.
 - 650 GALLON STORAGE TANK, 24" THICKNESS, 48" DIA. OR EQUAL.
 - FLAT TREE, OR ULTRASONIC/ADAM CONTROL SYSTEM, PUMP ON AT 100 GALLONS, PUMP OFF AT 500 GALLONS.
 - 1-1/4" BALL VALVE BRASS OR LEAD FREE COPPER, VEGA BRAND OR EQUAL.
 - 1-1/4" CHECK VALVE.
 - PRESSURE TANK, FLEXCON FT-14, OR EQUAL.
 - OPTIONAL WATER METER - NPEI.
 - 1-1/2" BALL VALVE BRASS OR LEAD FREE COPPER, VEGA BRAND OR EQUAL.
 - PRESSURE RELIEF VALVE, SET TO 100 PSI.
 - 3/4" FLOW CONTROLLER & GPM, SURFLO 27-0009 OR EQUAL.
 - BOOSTER PUMP #1 - DAB WATER TECHNOLOGIES EVOBOX (TWIN CONFIGURATION W/ BP-2)
 - BOOSTER PUMP #2 - DAB WATER TECHNOLOGIES EVOBOX (TWIN CONFIGURATION W/ BP-1)
- BOOSTER PUMP SYSTEM IS A CONSTANT PRESSURE SYSTEM, DUPLEX CONFIGURATION SET FOR 60 PSI.
- SEE ATTACHMENT FOR WATER SYSTEM BASIS OF DESIGN



- NOTES**
1. SILT FENCE SHALL BE CONSTRUCTED BEFORE UPSLOPE LAND DISTURBANCE BEGINS.
 2. SILT FENCE SHALL BE PLACED AS CLOSE TO ALONG GROUND CONTOUR AS POSSIBLE.
 3. SILT FENCE SHALL BE AT LEAST 16-INCHES ABOVE GROUND SURFACE.
 4. SILT FENCE SHALL BE PLACED IN A TRENCH THAT IS A MINIMUM OF 8-INCHES DEEP.
 5. HARDWOOD STAKES SHALL BE ON THE DOWN-SLOPE SIDE.
 6. SEAMS BETWEEN THE SILT FENCE SECTIONS SHALL OVERLAP.



- NOTES**
1. NEW WATER MAINS SHALL BE LAID AT LEAST 10' FROM EXISTING OR PROPOSED SEWER LINES WHEN RUNNING PARALLEL AND AT SAME ELEVATION. WHERE HORIZONTAL SEPARATION CANNOT BE MET THE WATER LINE SHALL BE SLEEVED WITH THE ENDS OF THE SLEEVE SEALED WATERTIGHT, OR THE SEWER PIPE JOINTS WITHIN 10' HORIZONTALLY OF THE WATER LINE SHALL BE CONCRETE ENCASED AS DEPICTED.
 2. WHERE A NEW WATER MAIN CROSSES OVER AN EXISTING OR PROPOSED SEWER LINE THERE WILL BE A MINIMUM VERTICAL SEPARATION DISTANCE OF 18" BETWEEN THE OUTSIDE OF THE WATER AND THE OUTSIDE OF THE SEWER. AT CROSSINGS, ONE FULL LENGTH OF WATER PIPE SHALL BE LOCATED SO AS BOTH JOINTS ARE AS FAR FROM THE SEWER AS POSSIBLE.
 3. WHERE A NEW WATER MAIN CROSSES UNDER AN EXISTING OR PROPOSED SEWER LINE THERE WILL BE A MINIMUM VERTICAL SEPARATION DISTANCE OF 18" BETWEEN THE OUTSIDE OF THE WATER AND THE OUTSIDE OF THE SEWER. THE JOINTS ON THE SEWER LINE SHALL BE SET EQUAL DISTANCE FROM THE WATER MAIN CROSSING. ANY JOINTS WITHIN 10' HORIZONTALLY OF THE WATER MAIN CROSSING SHALL BE CONCRETE ENCASED AS DEPICTED.
 4. IF THE MINIMUM VERTICAL SEPARATION CANNOT BE MET, THE SEWER LINE SHALL BE SLEEVED TO 10' HORIZONTALLY BEYOND THE WATER MAIN CROSSING EACH DIRECTION, OR THE SEWER PIPE SHALL BE CONSTRUCTED OF WATER MAIN PIPE AND ANY AND ALL SEWER JOINTS WITHIN 10' HORIZONTALLY OF THE CROSSING SHALL BE CONCRETE ENCASED AS DEPICTED.



STATE OF VERMONT
Professional Engineer
No. 9758
BRAD WASHBURN, PE
PE # 9758B

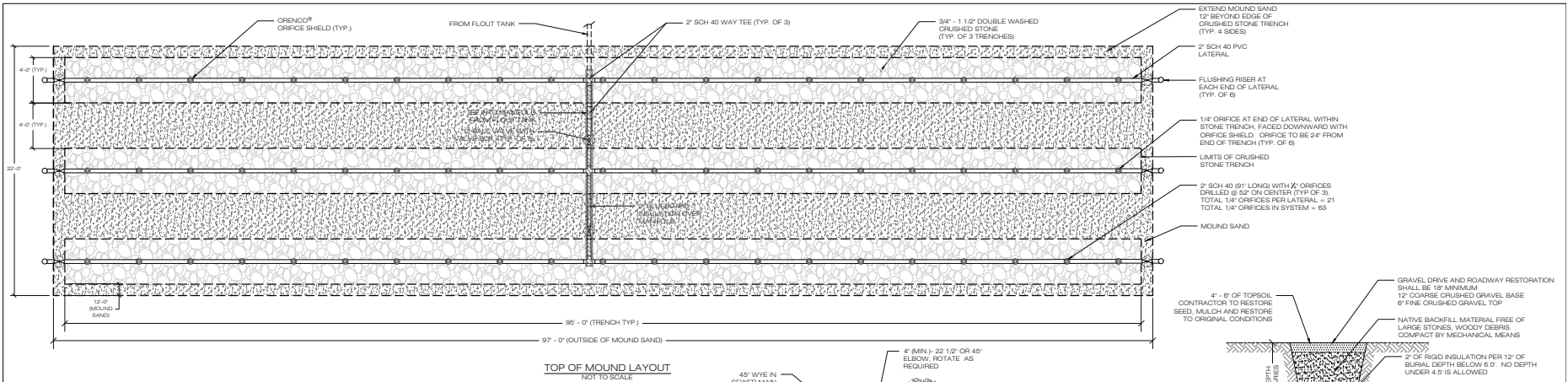
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PLAN DATE:	12/08/2025	SHEET C4	4 OF 6
		TWE JOB# 24-046	
1	02/09/26	ADDED WELL DETAIL & NOTES	BMW
NO.	DATE	DESCRIPTION	BY

PLANNED UNIT DEVELOPMENT

WATER SYSTEM CONSTRUCTION DETAILS

LANDOWNER & PARCEL ADDRESS
FRANK MITCHELL
1800 LOWER ROAD, PLAINFIELD, VT



EXPLORATORY SOIL TEST PITS
BACKHOLE EXCAVATED MAY 30, 2025
LOGGED: BRAD WASHBURN, PE

- TP-1:** 0' - 4" - BLACK TOPSOIL, HEAVY ROOTS, LOOSE
4" - 7" - LIGHT GREY - ALBIC LAYER
7" - 16" - YELLOW BROWN, LOAMY FINE SAND, LOOSE, GRANULAR
16" - 32" - DARK BROWN, LOAMY FINE TO MEDIUM SAND, FRAGILE, GRANULAR
32" - 38" - DARKER BROWN, GRAVELLY SAND, FRAGILE, GRANULAR
38" - 51" - DARK GREY, SILT LOAM, FRM, SUB ANGULAR
NO BEDROCK TO DEPTH, SEEPS AT 32', ESHWT @ 30', FEW, FINE, FAINT DEPLETIONS
- TP-2:** 0' - 4" - BLACK TOPSOIL, HEAVY ROOTS, LOOSE
4" - 17" - YELLOW BROWN, LOAMY FINE SAND, LOOSE, GRANULAR
17" - 32" - DARK BROWN, LOAMY FINE TO MEDIUM SAND, FRAGILE, GRANULAR
32" - 48" - DARKER BROWN, GRAVELLY SAND, FRAGILE, GRANULAR
48" - 54" - DARK GREY, SILT LOAM, FRM, SUB ANGULAR
NO BEDROCK TO DEPTH, SEEPS AT 32', FEW, FINE, FAINT DEPLETIONS
- TP-3:** 0' - 5" - BLACK TOPSOIL, HEAVY ROOTS, LOOSE
4" - 12" - YELLOW BROWN, LOAMY FINE SAND, LOOSE, GRANULAR
12" - 32" - DARK BROWN, LOAMY FINE TO MEDIUM SAND, FRAGILE, GRANULAR
32" - 48" - DARKER BROWN, GRAVELLY SAND, FRAGILE, GRANULAR
BEDROCK @ 48', ESHWT @ 30', FEW, FINE, FAINT DEPLETIONS
- TP-4:** 0' - 5" - BLACK TOPSOIL, HEAVY ROOTS, LOOSE
4" - 12" - YELLOW BROWN, LOAMY FINE SAND, LOOSE, GRANULAR
12" - 32" - DARK BROWN, LOAMY FINE TO MEDIUM SAND, FRAGILE, GRANULAR
32" - 42" - DARKER BROWN, GRAVELLY SAND, FRAGILE, GRANULAR
BEDROCK @ 42', ESHWT @ 32', FEW, FINE, FAINT DEPLETIONS
- HAND AUGERS - PERFORMED 02/02/2025
- HA#1:** 0' - 5" - GRASS / BLACK TOPSOIL
5" - 20" - GREY/BROWN, FINE SANDY LOAM, FRAGILE, SBK STRUCTURE
20" - 30" - GREY/BROWN, VERY FINE SANDY LOAM, DENSER, SBK STRUCTURE
30" - 42" - GREY, VERY FINE SANDY LOAM, SBK STRUCTURE
NO BEDROCK OR SHWT TO DEPTH
- HA#2:** 0' - 5" - GRASS / BLACK TOPSOIL
5" - 20" - GREY/BROWN, FINE SANDY LOAM, FRAGILE, SBK STRUCTURE
20" - 38" - GREY/BROWN, VERY FINE SANDY LOAM, DENSER, SBK STRUCTURE
38" - 42" - GREY, VERY FINE SANDY LOAM, SBK STRUCTURE
NO BEDROCK OR SHWT TO DEPTH

WASTEWATER DISPOSAL SYSTEM - BASIS OF DESIGN

IN-GROUND TRENCH SYSTEM

- AVERAGE DAILY DEMAND DESIGN FLOWS FROM TABLE 8-3 OF THE STATE OF VERMONT WASTEWATER SYSTEM AND POTABLE WATER SUPPLY RULES**
- (8) (1) BEDROOM TINY HOUSES = (140 GPD/8 TINY HOUSES) = 1120 GPD
 - (1) EMPLOYEE GARAGE = (1 EMPLOYEES) (115 GPD/EMPLOYEE) = 115 GPD
 - TOTAL AVERAGE DAILY DEMAND = 1135 GPD

WASTEWATER DISPOSAL SYSTEM SIZING

- USE APPLICATION RATE OF 1.0 GAL/SQ-FT/DAY PER WW RULES
- MINIMUM SYSTEM SIZE = (TOTAL FLOWS) / (APPLICATION RATE) = (1135 GPD) / (1.0 GAL/SQ-FT/DAY) = 1135 SQ-FT.
- PROPOSED SYSTEM SIZE = (3) TRENCHES X (4) WIDE X (95) LONG = 1140 SQ-FT.

REPLACEMENT WASTEWATER DISPOSAL SYSTEM - BASIS OF DESIGN

IN-GROUND TRENCH SYSTEM

AVERAGE DAILY DEMAND DESIGN FLOWS FROM TABLE 8-3 OF THE STATE OF VERMONT WASTEWATER SYSTEM AND POTABLE WATER SUPPLY RULES

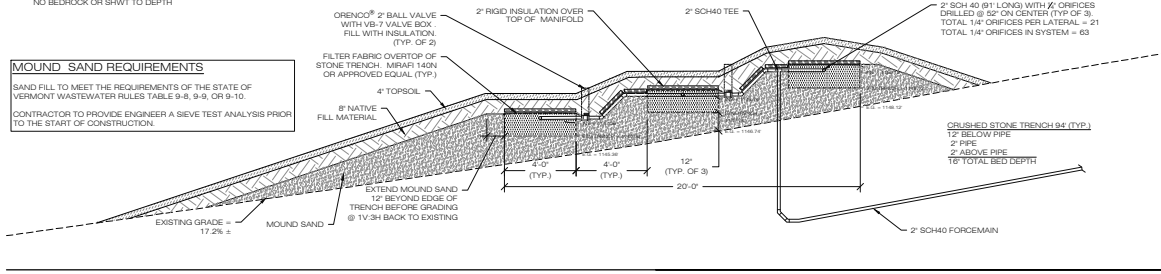
- (1) BEDROOM HOUSE = (1 BEDROOM) (140 GPD) = 140 GPD
- TOTAL AVERAGE DAILY DEMAND = 140 GPD

WASTEWATER DISPOSAL SYSTEM SIZING

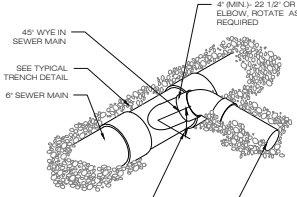
- USE APPLICATION RATE OF 0.6 GAL/SQ-FT/DAY PER WW RULES
- MINIMUM SYSTEM SIZE = (TOTAL FLOWS) / (APPLICATION RATE) = (140 GPD) / (0.6 GAL/SQ-FT/DAY) = 234 SQ-FT.
- PROPOSED SYSTEM SIZE = (2) TRENCHES X (4) WIDE X (30) LONG = 240 SQ-FT.

MOUND SAND REQUIREMENTS

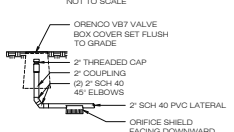
SAND FILL TO MEET THE REQUIREMENTS OF THE STATE OF VERMONT WASTEWATER RULES TABLE 8-8, 9-4, OR 9-10.
CONTRACTOR TO PROVIDE ENGINEER A SIEVE TEST ANALYSIS PRIOR TO THE START OF CONSTRUCTION.



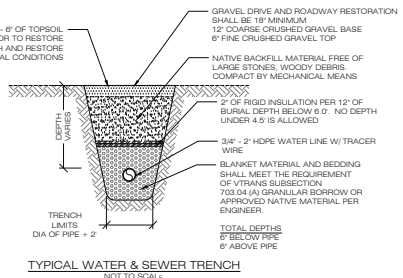
MOUND SECTION A-A
HORIZONTAL: 1" = 3'
VERTICAL: 1" = 3'



SEWER SERVICE CONNECTION



LATERAL FLUSHING RISER
NOT TO SCALE



TYPICAL WATER & SEWER TRENCH
NOT TO SCALE

WASTEWATER DISPOSAL SYSTEM NOTES

1. THE WASTEWATER DISPOSAL SYSTEM IS DESIGNED TO SERVE (8) (1) BEDROOM TINY HOUSES AND A PROPOSED GARAGE WITH (1) EMPLOYEE. (1135 GPD).
2. DISPOSAL AREA SHALL BE PLOWED OR ROTO-TILLED BEFORE CONSTRUCTION.
3. CONSTRUCT A SHALLOW DITCH ON THE UPHILL SIDE OF THE LEACH FIELD SYSTEM TO DIVERT THE FLOW OF SURFACE WATER AWAY FROM THE LEACH FIELD AREA.
4. MAINTAIN THE FINISHED MOUND SURFACE AS A LAWN AREA. THERE ARE TO BE NO VEHICLES LARGER THAN A LAWN TRACTOR ON THE SYSTEM AT ANY TIME.
5. GARAGE DISPOSAL IS NOT TO BE INSTALLED IN ANY OF THE RESIDENCES.
6. TOPSOIL AND ORGANIC MATERIAL TO BE PLOWED UNDER DISPOSAL AREA PRIOR TO PLACING SAND FILL.
7. FINAL GRADING TO SHED SURFACE WATER AWAY FROM SYSTEM COMPONENTS.
8. THE SEPTIC TANK SHALL BE CLEANED BY EXPERIENCED PERSONNEL AT NO MORE THAN 3 YEAR INTERVALS. THE SEPTIC TANK IS TO BE INSPECTED YEARLY TO ENSURE THAT THE EFFLUENT FILTER IS WORKING PROPERLY AND IF IT NEEDS TO BE HOSED OFF AND CLEANED.
9. THIS SEPTIC SYSTEM IS DESIGNED FOR NORMAL HOUSEHOLD USE ONLY. THE DISCHARGE OF EXCESSIVE QUANTITIES OF WATER FROM HOT TUBS OR OTHER HEAVY CONSUMPTION DEVICES WILL OVERLOAD THE SYSTEM AND GREATLY SHORTEN ITS LIFE. CHLORINATED WATER OF ANY KIND IS NOT TO BE DISCHARGED TO THE SYSTEM.
10. THE AREA WITHIN THE LEACH FIELD AREA IS TO BE CLEARED OF TREES. THERE ARE TO BE NO TREES LARGER THAN 6" GROWING WITHIN 10' OF THE SYSTEM AREA.
11. THE SYSTEM IS TO BE STAKED OUT BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF CONSTRUCTION TO ENSURE THAT THE AREAS DESIGNATED ARE THE AREAS THAT WERE APPROVED BY THE STATE OF VERMONT.
12. CONTACT ENGINEER WITH ANY QUESTIONS REGARDING THIS SYSTEM.
13. ALL OF THE PIPING AND TANKS IN THE SYSTEM SHALL BE TESTED IN ACCORDANCE WITH THE ENVIRONMENTAL PROTECTION RULES CHAPTER 1 OF THE WASTEWATER SYSTEM AND POTABLE WATER SUPPLY RULES. INCLUDED IN THIS TESTING IS THE LEAKAGE TEST OF THE SEPTIC TANK AND A PRESSURE TEST OF THE SEWER LINES. FAILURE TO CONDUCT THE PROPER TESTING WILL DEEM THE SYSTEM INOPERABLE.
14. ANY DEVIATIONS FROM THE APPROVED PLANS MAY DEEM THE SYSTEM NON-CERTIFIABLE. THEREFORE CONTACT THE ENGINEER WITH ANY QUESTIONS ABOUT THE PROJECT.



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PLAN DATE: 12/08/2025 SHEET 5 5 OF 6
TWE JOB# 24-046

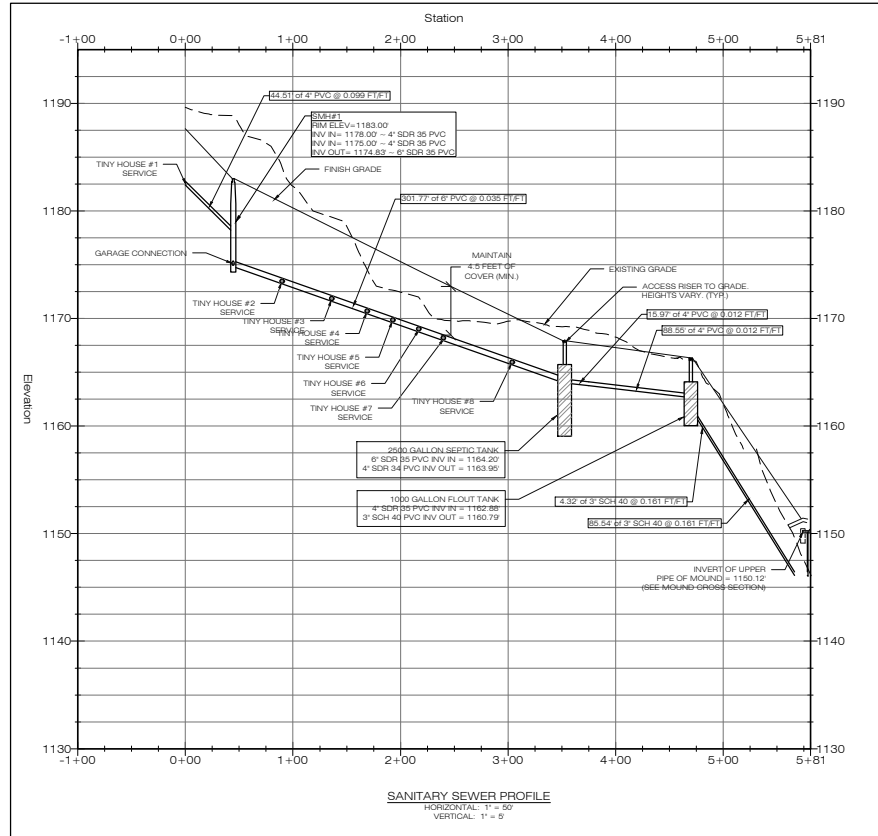
NO.	DATE	DESCRIPTION	BY
1	02/09/25	ADDED TRENCH DETAIL & HAND AUGER TEST PIT	BMW

PLANNED UNIT DEVELOPMENT

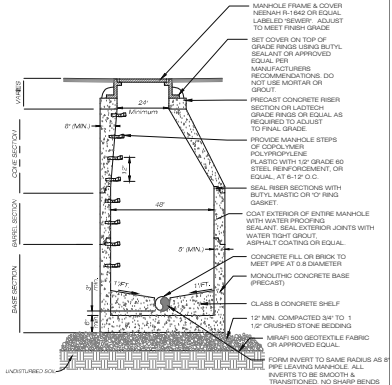
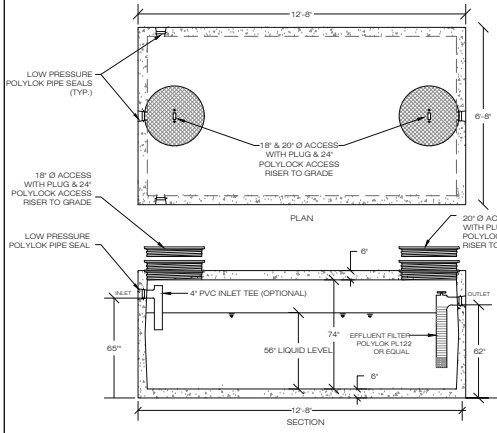
WASTEWATER DISPOSAL SYSTEM CONSTRUCTION DETAILS (1)

LANDOWNER & PARCEL ADDRESS

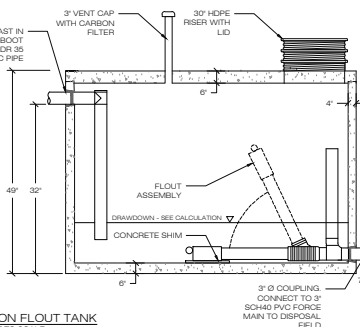
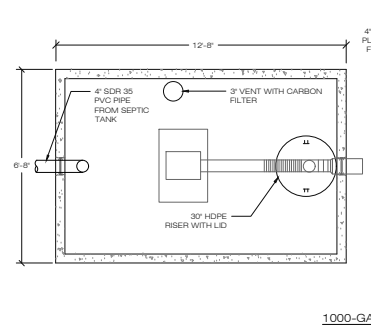
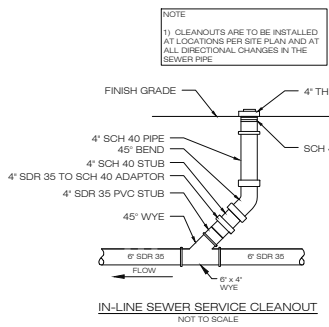
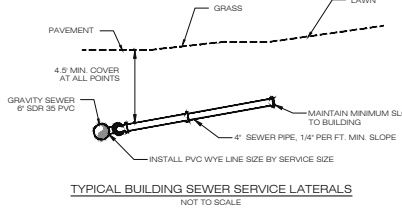
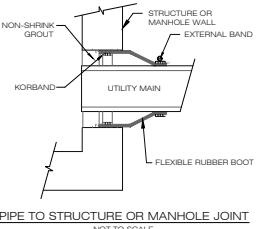
FRANK MITCHELL
1800 LOWER ROAD, PLAINFIELD, VT



- SEPTIC TANK SPECIFICATIONS & NOTES**
- 1) TANK TO BE H10 LOAD RATED WITH 5,000 PSI TEST AFTER 28 DAYS
 - 2) TANK TO HAVE NO MORE THAN 36" OF COVER OVER TOP OF TANK
 - 3) TANK TO BE PUMPED EVERY THREE YEARS OR LESS. DURING PUMPING OF TANK THE EFFLUENT FILTER IS TO BE CLEANED AND OR REPLACED
 - 4) ACCESS RISERS ARE TO BE CONSTRUCTED TO FINISH GRADE
 - 5) TANK TO BE SET LEVEL IN ALL DIRECTIONS ON 12" (MIN.) OF 3/4" CRUSHED STONE
 - 6) WETTED JOINT SEALED WITH BITUMASTIC TAPE
 - 7) EXCAVATION MUST BE AT LEAST 12" WIDER AND LONGER THAN TANK SIZE.
 - 8) TANK TO BE A STANDARD 2,500 GALLON PRE-CAST CONCRETE SEPTIC TANK, CAMP PRECAST OR EQUAL.



- MANHOLE NOTES**
1. SD IRELAND, CAMP PRECAST OR APPROVED EQUAL.
 2. INLET AND OUTLET PIPES SHALL BE JOINED TO THE MANHOLE WITH A CAST IN PLACE RUBBER, WATERTIGHT GASKET CONNECTION OR BOOTED FLEXIBLE CONNECTION, LOCKJOINT OR APPROVED EQUAL.
 3. VACUUM TEST MANHOLE WITH LOWEST JOINT EXPOSED.
 4. MANHOLES (STRUCTURE AND COVER) ARE DESIGNED FOR HL-93 LOADINGS.



- FLOUT TANK SPECIFICATIONS & NOTES**
- 1) TANK TO BE H10 LOAD RATED WITH 5,000 PSI TEST AFTER 28 DAYS
 - 2) TANK TO HAVE NO MORE THAN 36" OF COVER OVER TOP OF TANK
 - 3) ACCESS RISERS ARE TO BE CONSTRUCTED TO FINISH GRADE
 - 4) TANK TO BE SET LEVEL IN ALL DIRECTIONS ON 12" (MIN.) OF 3/4" CRUSHED STONE
 - 5) WETTED JOINT SEALED WITH BITUMASTIC TAPE
 - 6) EXCAVATION MUST BE AT LEAST 12" WIDER AND LONGER THAN TANK SIZE.
 - 7) TANK TO BE A STANDARD 1,000 GALLON PRE-CAST CONCRETE SEPTIC TANK, CAMP PRECAST OR EQUAL.

DOSE & DRAWDOWN CALCULATION

MINIMUM DOSE VOLUME = (5)(DISTRIBUTION VOLUME)

- DISTRIBUTION VOLUME = (349 OF 2" SCH 40) + (40 OF 3" SCH 40) = 72 GALLONS
- MINIMUM DOSE VOLUME = (5) (72 GALLONS) = 360 GALLONS

DRAWDOWN BASED ON TANK DIMENSIONS

- GALLONS PER FOOT = (12) * (6W) * (1)H * (7.481 GAL / CUBIC FOOT) = 538.6 GAL/FOOT
- TOTAL DRAWDOWN = (680 GALLONS) / (538.6 GAL/FOOT) = 0.67' OR 8"



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 PE # 975588

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PLAN DATE: 12/08/2025	SHEET 06	6 OF 6	
TWE JOB# 24-046			
1	02/09/26	UPDATED SEWER PROFILE	BMW
NO.	DATE	DESCRIPTION	BY
PLANNED UNIT DEVELOPMENT			
WASTEWATER DISPOSAL SYSTEM CONSTRUCTION DETAILS (2)			
LANDOWNER & PARCEL ADDRESS			
FRANK MITCHELL 1800 LOWER ROAD, PLAINFIELD, VT			