

SOIL TEST DATA

THE FOLLOWING TEST PITS WERE PERFORMED ON JANUARY 22, 2022 BY CHRISTOPHER S. BROYLES (CERTIFIED SOIL EVALUATOR #13780) AND WITNESS BY DAN JOHNSON (DOMESTIC SEPTIC DESIGN, INC.) ON BEHALF OF THE TOWN OF HAMILTON BOARD OF HEALTH

TEST PITS
TP-1 (EG=62.0+) (DESIGN ESHGW=57.4+)
 0-13" Ap SL
 17-50" Bw SL
 50-55" C1 SL FINE SANDY LOAM
 55-120" C2 SL
 REDOX @ 55", WEeping @ 72", ESHGW @ 55"

TP-2 (EG=62.4+) (DESIGN ESHGW=52.4+)
 0-12" Ap SL
 12-24" Bw SL
 24-60" C1 S GRAVELY MEDIUM SAND
 60-120" C2 S FINE SAND
 NO ESHGW OBSERVED

TP-3 (EG=64.8+) (DESIGN ESHGW=61.6+)
 0-12" Ap SL
 12-33" Bw SL FINE SANDY LOAM
 33-104" C SL FINE SANDY LOAM
 REDOX @ 36", WEeping @ 60", ESHGW @ 36"

TP-4 (EG=60.9+) (DESIGN ESHGW=55.7+)
 0-13" Ap SL
 13-32" Bw SL
 32-42" C1 S GRAVELY MEDIUM SAND
 42-50" C2 LS
 50-63" C3 S GRAVELY MEDIUM SAND
 63-86" C4 LS
 86-120" C5 SL
 REDOX @ 63", WEeping @ 80", ESHGW @ 63"

TP-5 (EG=61.4+) (DESIGN ESHGW=52.9+)
 0-12" Ap SL
 12-26" Bw SL
 26-72" C1 S GRAVELY MEDIUM SAND
 72-91" C2 LS FINE LOAMY SAND
 91-120" C3 LS
 NO REDOX, WEeping @ 102", ESHGW @ 102"

TP-6 (EG=61.9+) (DESIGN ESHGW=51.9+)
 0-11" Ap SL
 11-21" Bw SL
 21-74" C1 S GRAVELY MEDIUM SAND
 74-120" C2 S FINE SAND
 NO ESHGW OBSERVED

TP-7 (EG=61.4+) (DESIGN ESHGW=51.4+)
 0-12" Ap SL
 12-28" Bw SL
 28-60" C1 S GRAVELY MEDIUM SAND
 60-90" C2 S FINE SAND
 90-120" C2 LS
 NO ESHGW OBSERVED

PERCOLATION TESTS
P-1
 DEPTH = 55" BELOW EXISTING GRADE IN TP-1
 PERC RATE = < 2 MPI

P-2
 DEPTH = 42" BELOW EXISTING GRADE IN TP-2
 PERC RATE = < 2 MPI

P-3
 DEPTH = 48" BELOW EXISTING GRADE IN TP-3
 PERC RATE = 8 MPI

P-5
 DEPTH = 59" BELOW EXISTING GRADE 25' SW FROM TP-5
 PERC RATE = 43 MPI

P-6
 DEPTH = 42" BELOW EXISTING GRADE IN TP-6
 PERC RATE = < 2 MPI

P-7
 DEPTH = 48" BELOW EXISTING GRADE IN TP-7
 PERC RATE = < 2 MPI

THE FOLLOWING TEST PITS WERE PERFORMED ON FEBRUARY 4, 2020 BY CHRISTOPHER S. BROYLES (CERTIFIED SOIL EVALUATOR #13780) AND WITNESS BY DAN JOHNSON (DOMESTIC SEPTIC DESIGN, INC.) ON BEHALF OF THE TOWN OF HAMILTON BOARD OF HEALTH

TEST PITS
TP-8 (EG=60.9+) (DESIGN ESHGW=52.9+)
 0-10" Ap SL
 10-28" Bw SL
 28-48" C1 S GRAVELY MEDIUM SAND
 48-84" C2 LS FINE LOAMY SAND
 84-120" C3 LS
 REDOX @ 96", WEeping @ 118", ESHGW @ 96"

TP-9 (EG=63.7+) (DESIGN ESHGW=59.7+)
 0-10" Ap SL
 10-34" Bw SL
 34-48" C1 S GRAVELY MEDIUM SAND
 48-120" C2 LS FINE LOAMY SAND
 REDOX @ 48", WEeping @ 57", STANDING @ 113", ESHGW @ 96"

PERCOLATION TESTS
P-8
 DEPTH = 49" BELOW EXISTING GRADE IN TP-8
 PERC RATE = 49 MPI

P-1A
 DEPTH = 56" BELOW EXISTING GRADE IN TP-1
 PERC RATE = 60 MPI

TEST PITS WERE PERFORMED ON JUNE 25, 2020 BY CHRISTOPHER S. BROYLES (CERTIFIED SOIL EVALUATOR #13780) AND WITNESS BY DAN JOHNSON (DOMESTIC SEPTIC DESIGN, INC.) ON BEHALF OF THE TOWN OF HAMILTON BOARD OF HEALTH

TEST PITS
TP-10 (EG=66.3+) (DESIGN ESHGW=60.3+)
 0-14" Ap SL
 14-25" Bw SL
 25-33" C1 S GRAVELY MEDIUM SAND
 33-72" C2 SL
 72-120" C3 SL
 REDOX @ 72", STANDING @ 119", ESHGW @ 72"

TP-11 (EG=64.0+) (DESIGN ESHGW=61.3+)
 0-10" Ap SL
 10-32" Bw SL
 32-45" C1 SL FINE SANDY LOAM
 45-79" C2 S
 79-120" C3 SL
 REDOX @ 32", STANDING @ 119", ESHGW @ 32"

TP-12 (EG=59.4+) (DESIGN ESHGW=52.2+)
 0-14" Ap SL
 14-25" Bw SL
 25-33" C1 S GRAVELY SANDY LOAM
 33-72" C2 S
 72-120" C3 S GRAVELY MEDIUM SAND
 120-120" C4 SL GRAVELY SANDY LOAM
 REDOX @ 72", STANDING @ 119", ESHGW @ 72"

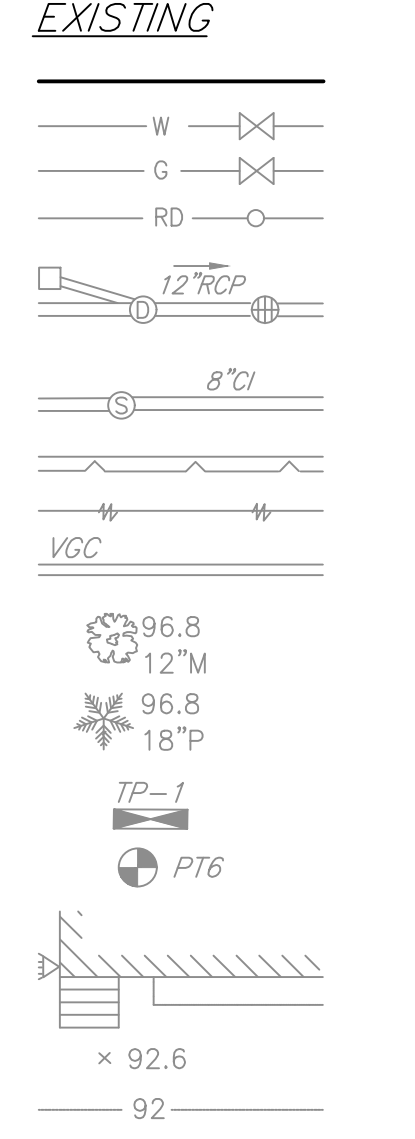
SURVEY NOTES

1. THE TOPOGRAPHY, SITE DETAIL, & SURFACE IMPROVEMENTS DEPICTED HEREON WERE OBTAINED FROM AN INSTRUMENT SURVEY CONDUCTED ON THE GROUND BY MERIDIAN ASSOCIATES, INC (MAI) BETWEEN JUNE 5-11, 2019.
2. THE SURVEYED PREMISES IS LOCATED IN THE SINGLE RESIDENTIAL (R-1B) ZONING DISTRICT AND THE GROUNDWATER PROTECTION OVERLAY DISTRICT.
3. THE SURVEYED PREMISES IS A PORTION OF LOT 11 ON TOWN OF HAMILTON ASSESSOR'S MAP 20.
4. THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE AND ARE BASED UPON A PARTIAL FIELD SURVEY AND COMPILATION OF PLANS OF RECORD. THE LAND SURVEYOR OF RECORD DOES NOT WARRANT NOR GUARANTEE THE LOCATION OF ALL UTILITIES DEPICTED OR NOT DEPICTED. THE CONTRACTOR, PRIOR TO COMMENCING CONSTRUCTION, SHALL VERIFY THE LOCATION OF ALL UTILITIES AND CONTACT DIG SAFE AT 811.
5. THIS PLAN DOES NOT SHOW ANY UNRECORDED OR UNWRITTEN EASEMENTS WHICH MAY EXIST. A REASONABLE AND DILIGENT ATTEMPT HAS BEEN MADE TO OBSERVE ANY APPARENT, VISIBLE USES OF THE LAND; HOWEVER, THIS DOES NOT CONSTITUTE A GUARANTEE THAT NO SUCH EASEMENTS EXIST.
6. PROPERTY LINES DEPICTED HEREON ARE BASED ON COMPLIED DEEDS AND PLANS OF RECORD. THIS PLAN IS NOT TO BE USED FOR THE RECONSTRUCTION OF BOUNDARY LINES OR TITLE INSURANCE PURPOSES. ALL BOUNDARY LINES ARE APPROXIMATE ONLY.
7. THE SURVEYED PREMISES IS LOCATED IN FLOOD ZONE X (UNSHADED), AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN PER FEMA FLOOD INSURANCE RATE MAP NUMBER 25009C0269F DATED JULY 2, 2012

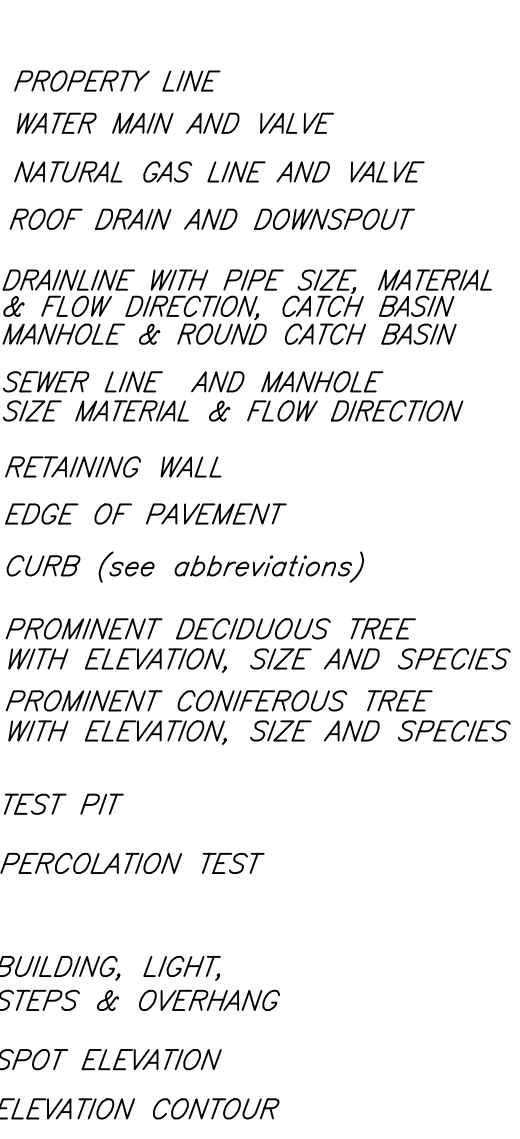
GENERAL NOTES

1. THE INTENT OF THIS PLAN IS TO DEPICT THE PRELIMINARY SITE DESIGN FOR A 45-UNIT MULTIFAMILY RESIDENTIAL DEVELOPMENT IN HAMILTON, MA IN SUPPORT FOR A 40B APPLICATION. THIS PLAN IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.
2. ALL PROPOSED UTILITIES SHOWN ON THIS PLAN ARE PRELIMINARY AND MUST BE COORDINATED WITH THE RESPONSIBLE PARTIES.
3. STORMWATER MANAGEMENT PRACTICES SHOWN ON THIS PLAN ARE PRELIMINARY AND ARE INTENDED TO SHOW COMPLIANCE TO THE MASSACHUSETTS STORMWATER STANDARDS. FINAL STORMWATER DESIGN SHALL BE COORDINATED PRIOR TO PERMITTING AND CONSTRUCTION.
4. THE PROPOSED SEPTIC PRIMARY AND RESERVE AREAS SHOWN ON THIS PLAN ARE PRELIMINARY. FINAL SEPTIC DESIGN SHALL BE COORDINATED PRIOR TO PERMITTING AND CONSTRUCTION.

EXISTING



LEGEND



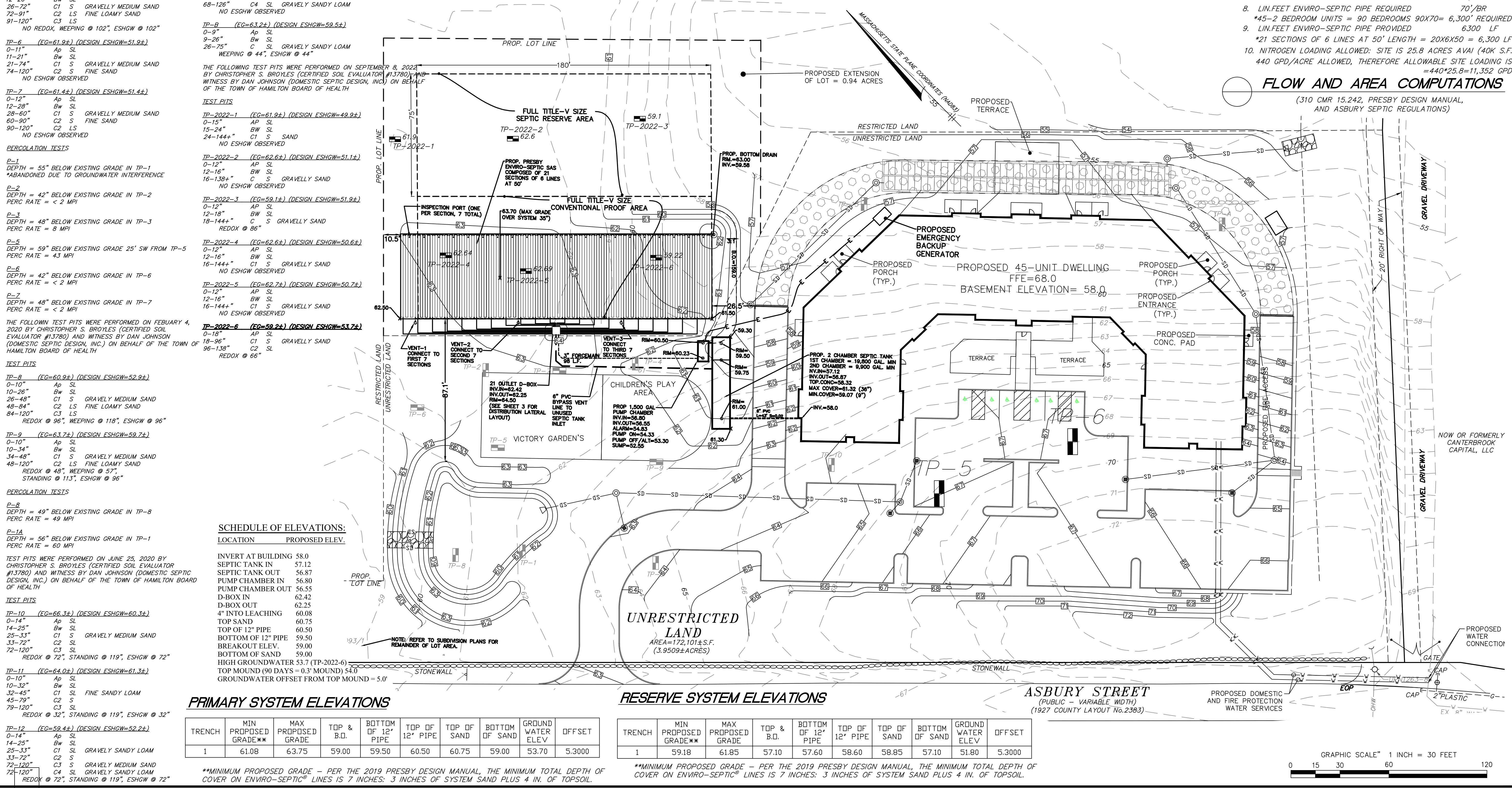
ZONING

SINGLE RESIDENTIAL DISTRICT (R1-B)
ASSESSORS
 PORTION OF MAP 20, LOT 11
REFERENCES
 DEED BOOK 34313, PAGE 385
 PLAN BOOK 285, PLAN 89
RECORD OWNER
 BRITTON FAMILY LLC

FLOW
 1. BUILDING USE : MULTI FAMILY DWELLING
 2. NO. OF BEDROOMS : 90
 3. DESIGN FLOW : 110 GPD/BEDROOM
 4. TOTAL DAILY FLOW : 9,900 GALLONS

SOIL ABSORPTION SYSTEM REQUIREMENTS
 1. DESIGN PERCOLATION RATE : <2 MINUTES PER INCH
 2. SOIL CLASS : INCH 1
 3. LONG TERM ACCEPT. RATE : 0.74 GAL./SF
 4. GARBAGE GRINDER : NO
 5. TOTAL AREA REQ'D - TITLE 5 : 13,379 SF
 6. TOTAL AREA REQ'D - PRESBY* : (13,379)x(0.6) = 8,028 SF*
 *40% REDUCTION IN TITLE-V AREA ALLOWED PER 310 CMR 15.252
 7. TOTAL AREA PROVIDED : 190.5' x 52' FIELD = 9,906 SF
 8. LIN.FEET ENVIRO-SEPTIC PIPE REQUIRED : 70'/BR
 *45-2 BEDROOM UNITS = 90 BEDROOMS 90X70= 6,300' REQUIRED
 9. LIN.FEET ENVIRO-SEPTIC PIPE PROVIDED : 6,300 LF
 *21 SECTIONS OF 6 LINES AT 50' LENGTH = 20X6X50 = 6,300 LF
 10. NITROGEN LOADING ALLOWED: SITE IS 25.8 ACRES AVAIL (40K S.F.)
 440 GPD/ACRE ALLOWED, THEREFORE ALLOWABLE SITE LOADING IS =440*25.8=11,352 GPD

FLOW AND AREA COMPUTATIONS
 (310 CMR 15.242, PRESBY DESIGN MANUAL, AND ASBURY SEPTIC REGULATIONS)



SCHEDULE OF ELEVATIONS:

LOCATION	PROPOSED ELEV.
INVERT AT BUILDING	58.0
SEPTIC TANK IN	57.12
SEPTIC TANK OUT	56.87
PUMP CHAMBER IN	56.80
PUMP CHAMBER OUT	56.55
D-BOX IN	62.42
D-BOX OUT	62.25
4" INTO LEACHING	60.75
TOP SAND	60.50
TOP OF 12" PIPE	60.50
25-33" PIPE	59.50
BOTTOM OF 12" PIPE	59.00
BREAKOUT ELEV.	59.00
BOTTOM OF SAND	59.00
HIGH GROUNDWATER	53.7 (TP-2022-6)
TOP MOUND (90 DAYS = 0.3' MOUND)	54.0
GROUNDWATER OFFSET FROM TOP MOUND = 5.0'	

PRIMARY SYSTEM ELEVATIONS

TRENCH	MIN PROPOSED GRADE**	MAX PROPOSED GRADE	TOP & B.D.	BOTTOM OF 12" PIPE	TOP OF 12" PIPE	TOP OF SAND	BOTTOM OF SAND	GROUND WATER ELEV	OFFSET
1	61.08	63.75	59.00	59.50	60.50	60.75	59.00	53.70	5.3000

RESERVE SYSTEM ELEVATIONS

TRENCH	MIN PROPOSED GRADE**	MAX PROPOSED GRADE	TOP & B.D.	BOTTOM OF 12" PIPE	TOP OF 12" PIPE	TOP OF SAND	BOTTOM OF SAND	GROUND WATER ELEV	OFFSET
1	59.18	61.85	57.10	57.60	58.60	58.85	57.10	51.80	5.3000

**MINIMUM PROPOSED GRADE - PER THE 2019 PRESBY DESIGN MANUAL, THE MINIMUM TOTAL DEPTH OF COVER ON ENVIRO-SEPTIC® LINES IS 7 INCHES: 3 INCHES OF SYSTEM SAND PLUS 4 IN. OF TOPSOIL.

**HCP
ASBURY**

466 Highland Street
Hamilton, Massachusetts 01982

ASSESSORS

MAP 19	LOT 11
--------	--------

PREPARED FOR:

**HARBORLIGHT
COMMUNITY
PARTNERS**

283 Elliot Street
Beverly, Massachusetts 01915

**HANCOCK
ASSOCIATES**

Civil Engineers
Land Surveyors
Wetland Scientists

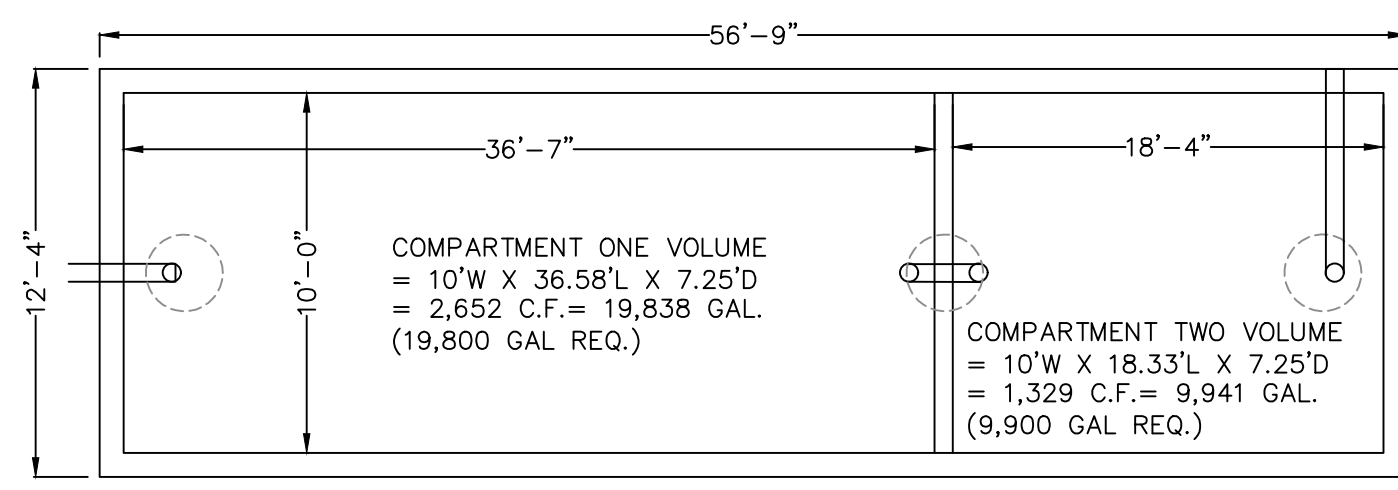
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NO. BY APP DATE ISSUE/REVISION DESCRIPTION

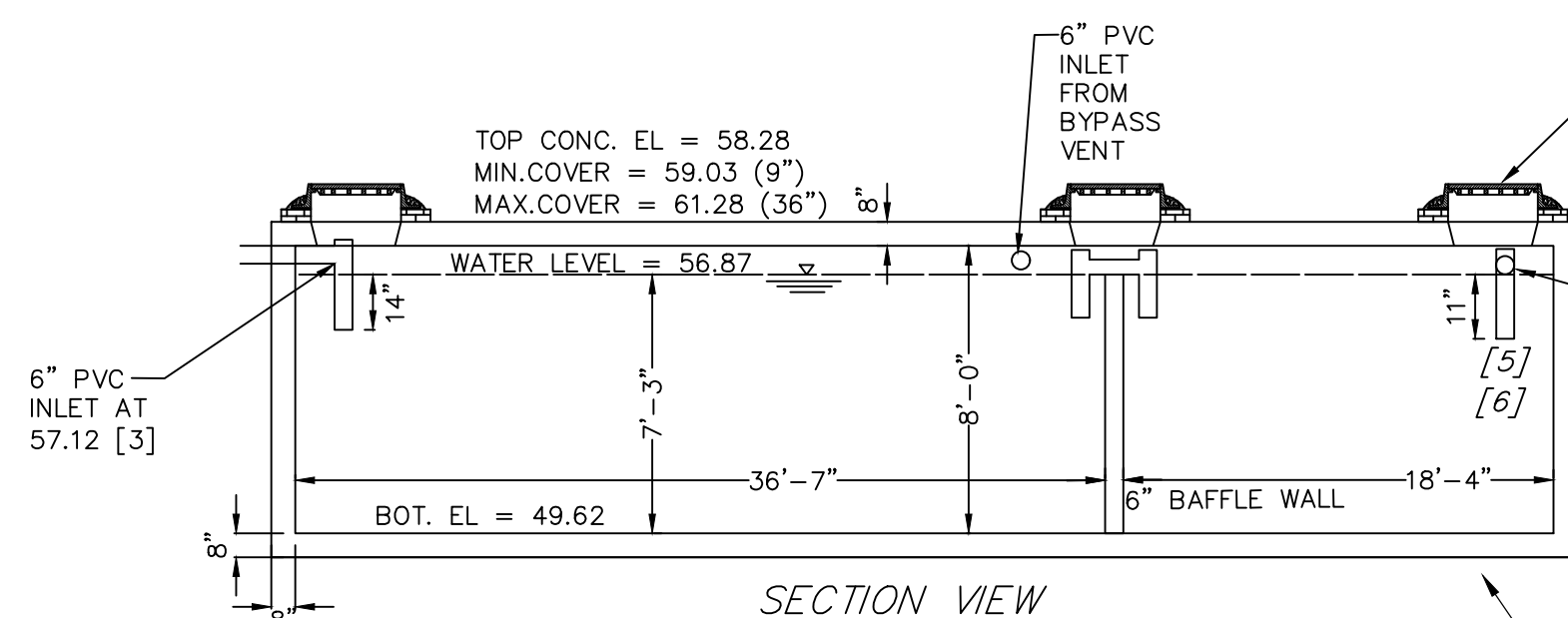
PROGRESS: 10/26/22 DESIGN BY: JTL
 SCALE: 1" = 30' DRAWN BY: JTL
 APPROV. BY: CEW CHECK BY: BGG

**SEPTIC
SYSTEM DESIGN
PLAN**

PROJECT NO.: **24819**



PLAN VIEW

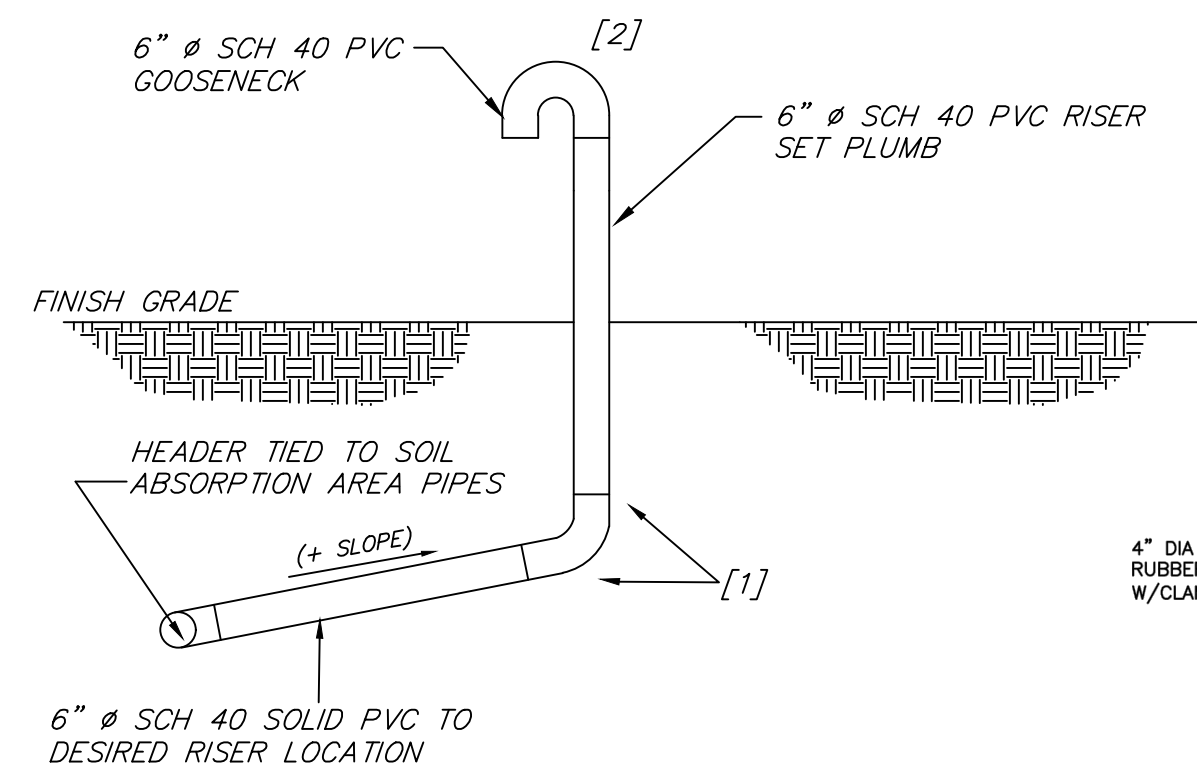


SECTION VIEW

- [1] PRECAST REINFORCED CONCRETE CONSTRUCTION, LOAD RATING: H20 ALL OPENINGS SEALED WATERTIGHT. AS MANUFACTURED BY E.F. SHEA OF WILMINGTON, MA., OR EQUAL.
- [2] IF SIDE INLET OF SEPTIC TANK IS USED, EXTEND INLET PIPE TO CENTER OF TANK.
- [3] WHERE UNDER OR ADJACENT TO AREA TO BE PAVED, COMPACT BACKFILL TO 95% PER ASTM D-1557.
- [4] UNDISTURBED SOIL OR SUBGRADE COMPACTED TO 95% PER ASTM D-1557.
- [5] OUTLET TEES SHALL BE EQUIPPED WITH A CORROSION-RESISTANT GAS DEFLECTOR.
- [6] INSTALL EFFLUENT FILTER: ZABEL A1800 OR EQUAL. BRING MANHOLE ABOVE FILTER TO GRADE AND LABEL IT ZABEL FILTER. FILTER SHOULD BE MAINTAINED YEARLY.
- [7] 15,228 PLACEMENT AND ACCESSIBILITY OF SEPTIC TANK - (1) SEPTIC TANKS SHALL HAVE A MINIMUM COVER OF NINE INCHES. SYSTEMS BURIED GREATER THAN NINE INCHES BELOW GRADE MUST BE EQUIPPED WITH RISERS ON ALL TANK TOP OPENINGS AND THE DISTRIBUTION BOX. (2) AT LEAST THREE MANHOLES WITH READILY REMOVABLE IMPERMEABLE COVERS OF DURABLE MATERIAL SHALL BE PROVIDED. THE MANHOLES OVER THE INLET AND OUTLET TEES SHALL HAVE A MINIMUM OPENING OF 20 INCHES AND THE CENTER MANHOLE SHALL HAVE A MINIMUM OPENING OF EIGHT INCHES.

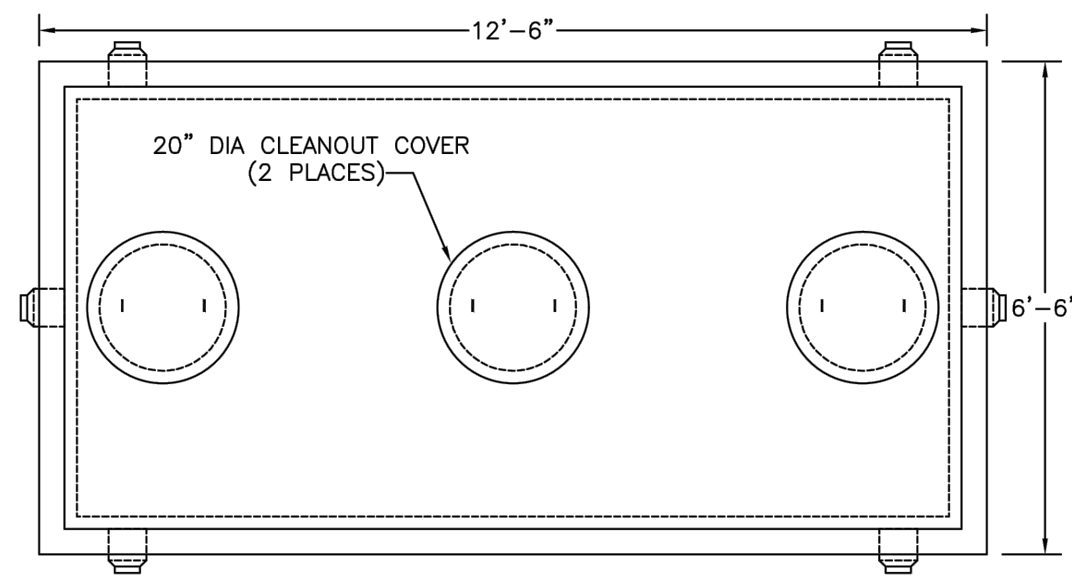
29,780 GALLON SEPTIC TANK

(310 CMR 15.223 - 15.227)
NOT TO SCALE

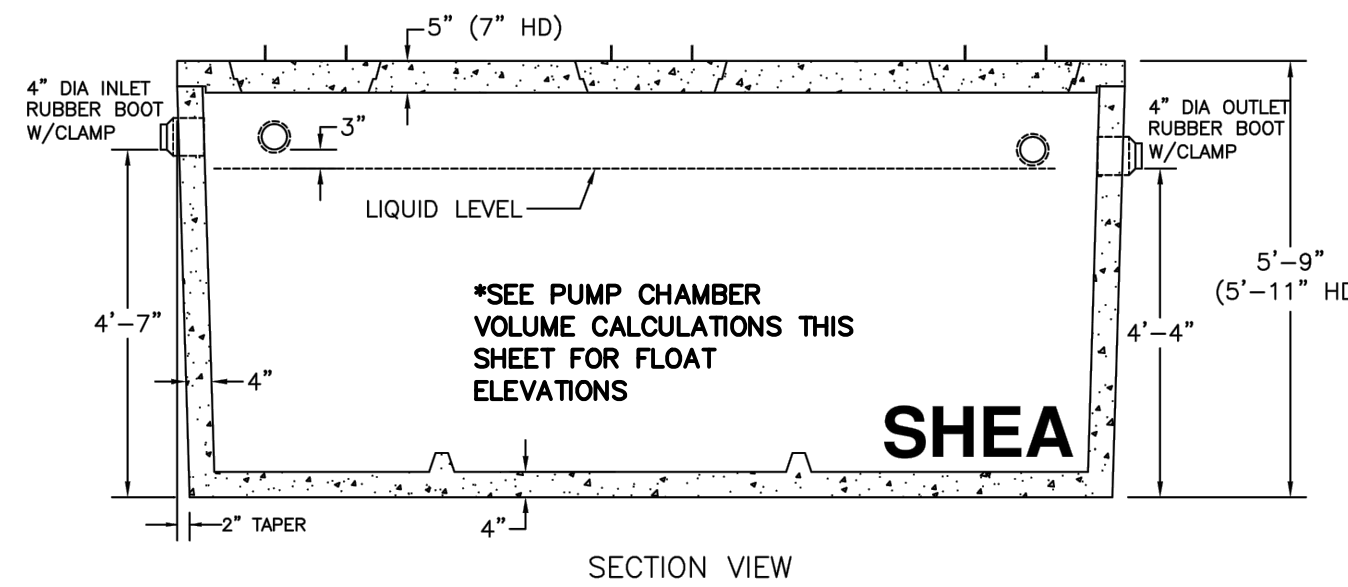


VENT DETAIL
TYPICAL CROSS SECTION
NOT TO SCALE

- [1] WHERE UNDER OR ADJACENT AREA TO BE PAVED, COMPACT BACKFILL TO 95% PER ASTM D-1557.
- [2] PAINT ALL EXPOSED PIPE WITH EXTERIOR GRADE SPRAY PAINT, GREEN GRASS, 2 COATS. (OPTIONAL)



PLAN VIEW

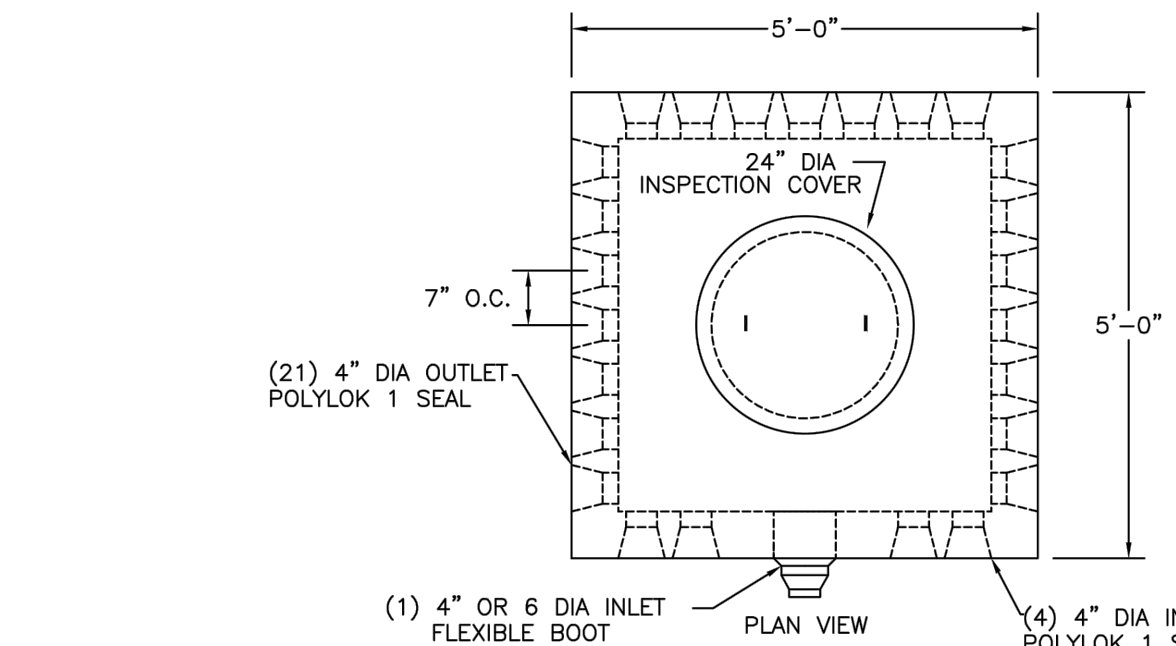


SECTION VIEW

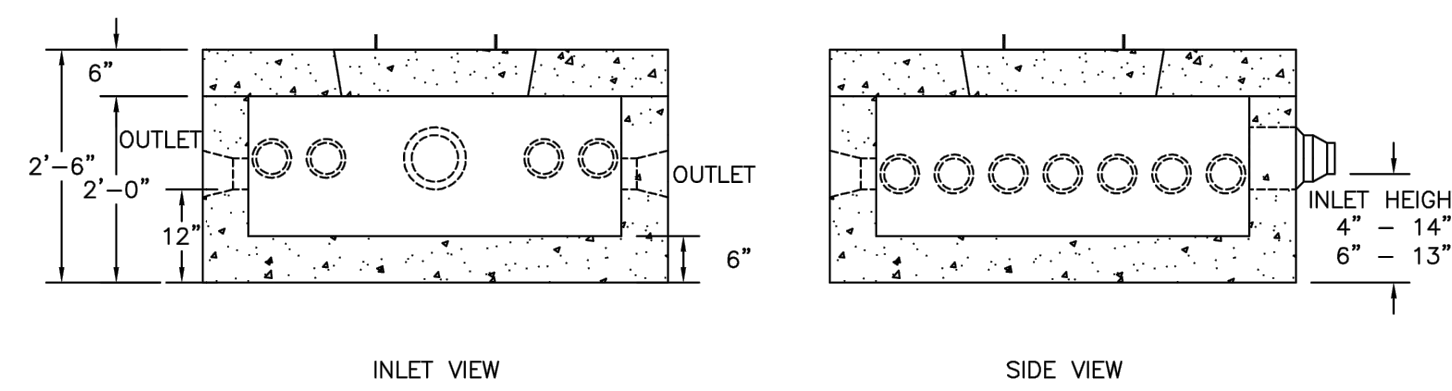
2,000 GALLON PUMP CHAMBER

NOT TO SCALE

- NOTES:
- 1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
- 2. DESIGN CONFORMS WITH 310 CMR, SECTION 15.00 DEP TITLE 5 REGS FOR SEPTIC TANKS
- 3. ALL REINFORCEMENT PER ASTM C1227.
- 4. TEES AND GAS BAFFLE SOLD SEPARATELY.
- 5. TONGUE & GROOVE JOINT SEALED WITH BUTYL RESIN.
- 6. IF COVER EXCEEDS 4 FEET, HEAVY DUTY TANK REQUIRED. ALSO AVAILABLE IN AASHTO HS-20 LOADING.



PLAN VIEW



INLET VIEW

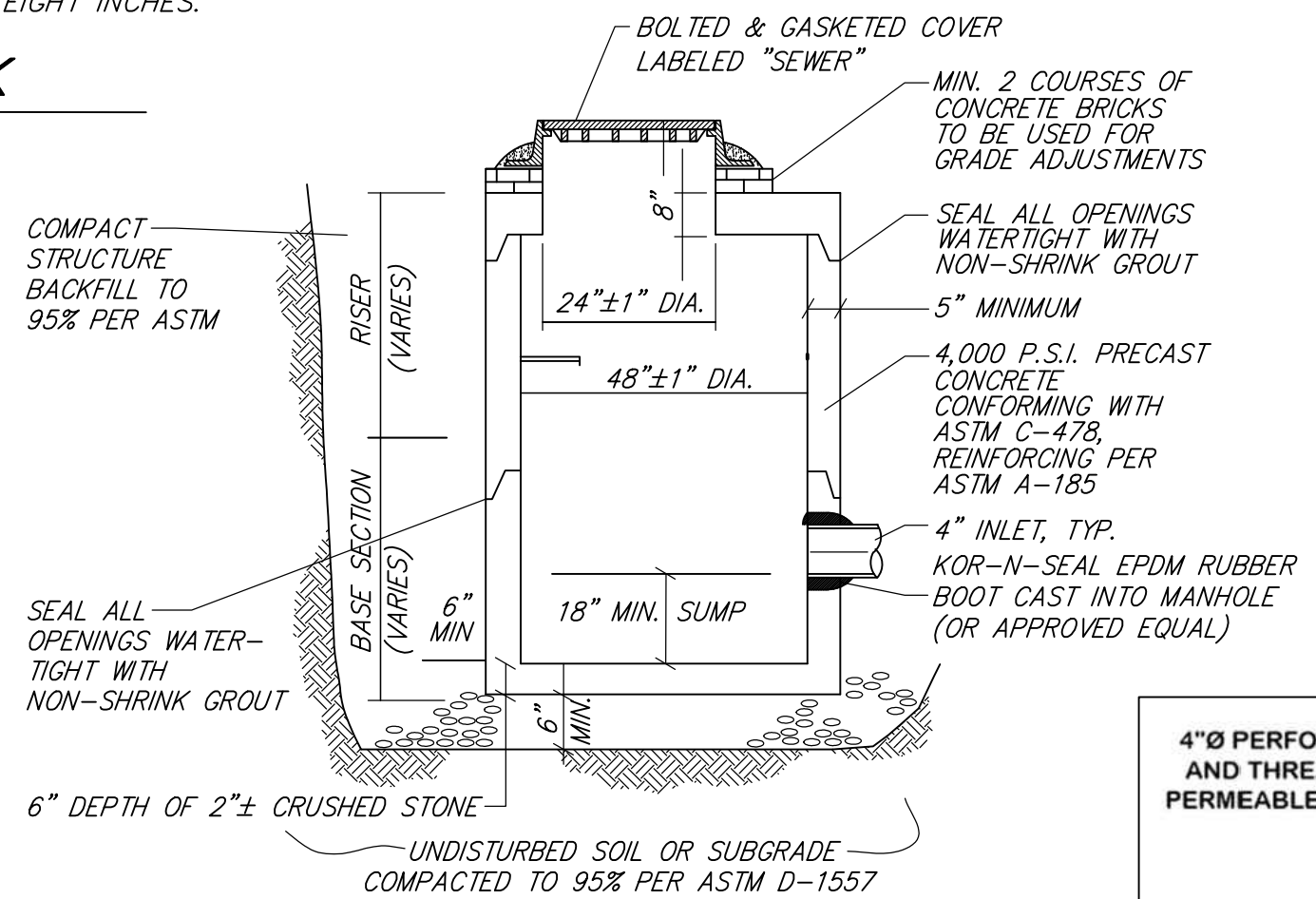
SIDE VIEW

NOTES:

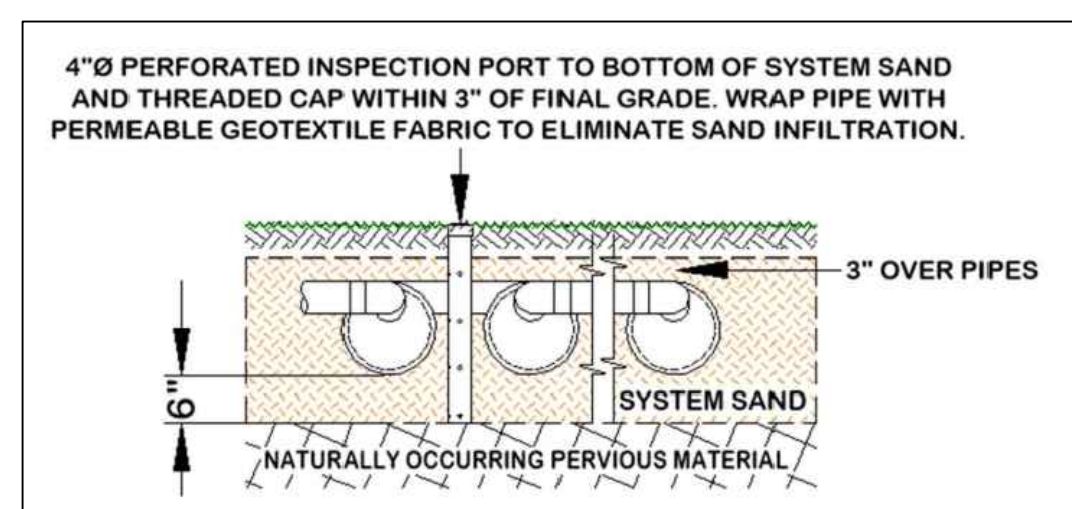
- 1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
- 2. DESIGN CONFORMS WITH 310 CMR 15.000, DEP TITLE 5 REGS, FOR DISTRIBUTION BOXES.
- 3. DESIGNED FOR AASHTO HS-20 LOADING, COVER 1 TO 5 FEET.
- 4. COVER WEIGHT 1,850#

21-OUTLET DISTRIBUTION BOX

NOT TO SCALE



BOTTOM DRAIN
TYPICAL CROSS SECTION
NOT TO SCALE



INSPECTION PORT
TYPICAL CROSS SECTION
NOT TO SCALE

- PUMPS**
- 1. NO. OF PUMPS REQUIRED: TWO
 - 2. STATIC HEAD: 9.4 FEET
 - 3. TOTAL DYNAMIC HEAD AT FLOW: 17' @ 150 GPM
 - 4. IMPELLER DIAMETER: 5.63 IN
 - 5. SOLIDS HANDLING: 3" MAX.
 - 6. MANUF./MODEL (OR EQUAL): GOULDS WS1518D4M
 - 7. HORSEPOWER/SPEED: 1.5/1750 RPM
 - 8. VOLTAGE/PHASE: 208/1

- CONTROL PANEL**
- MANUF.: GOULDS
 - MODEL: D10020
 - TYPE: FLOAT SWITCH DUPLEX
 - PROVIDE MANUAL ON/OFF SWITCH FOR PUMP.

- FLOATS**
- NO. REQUIRED: 3

- ALARM**
- TYPE: VISUAL AND AUDIBLE
 - VISUAL LEG TO REMAIN ON UNTIL REPAIRS INITIATED.
 - ALARM AND PUMP TO BE ON SEPARATE CIRCUITS.

- PUMP OPERATING SEQUENCE (DUPLIX SYSTEM ONLY)**
- 1. PUMPS OFF (FLOAT AT EL. 53.00)
 - 2. PUMP ON (FLOAT AT EL. 54.03)
 - 3. ALARM ON (FLOAT AT EL. 54.50)
 - 3. PUMPS MUST ALTERNATE (WITH PUMP OFF SWITCH ACTIVATION)

DOSE ONCE EVERY 2 HOURS 9,900 GAL/8 DOSES = 1238 GAL DOSE + 36 GAL (F.M.)
DOSE VOLUME = 1274 GAL
PUMP FLOW RATE (Q) = 120 GPM
RUN TIME = 1274 GAL / 120 GPM = 10.6 MIN
F.M. VELOCITY = 5.5 FPS

STATIC HEAD LOSS = D-BOX INLET - PUMP ELEVATION = 9.2 FT

FRICTIONAL HEAD LOSS = FORCEMAIN LOSS
MATERIAL COEFFICIENT = C = 150 (PVC FORCEMAIN)
FORCE MAIN DIAMETER = D = 3 IN
FORCEMAIN LENGTH = L = 98 FT
EQUIVALENT LENGTH OF FITTINGS = 30 FT
(2)-90° SWEEP (8.2), (2)-45° ELBOW (8.2), (1)-GATE VALVE (4'), (1)-CHECK VALVE, (13.0')

DESIGN PIPE LENGTH = 98 FT + 34 FT = 132 FT

FRICTIONAL HEAD LOSS FORCE MAIN = $L(3.55Q/CxD)^{2.63} \times 1.85 = 7.4$ FT

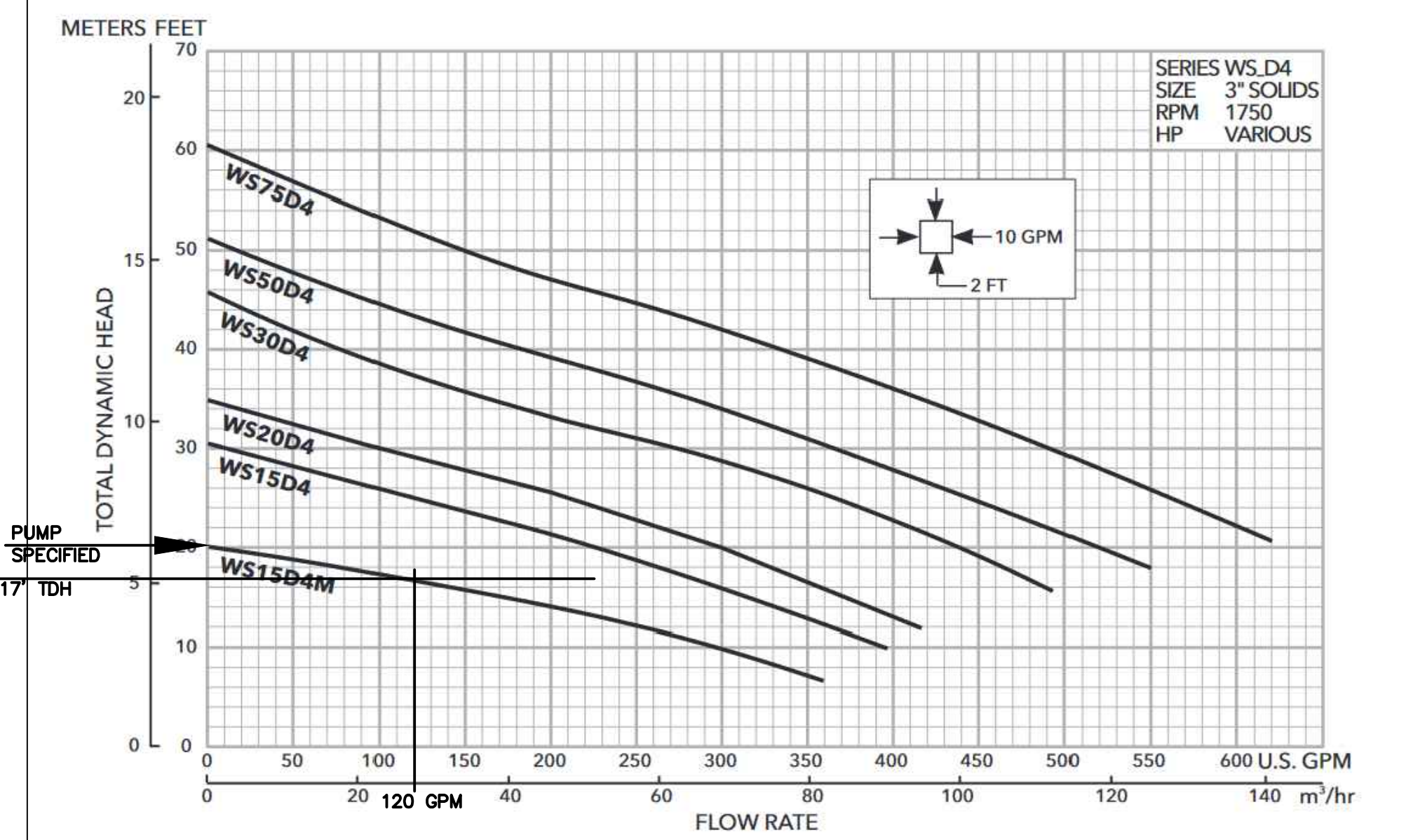
TOTAL DYNAMIC HEAD = STATIC + FRICTIONAL = 9.2 + 7.4 = 17± FT

DOSE VOLUME = 1238 GAL
F.M. BACKFLOW VOL. = $3.14 \times 0.125 \times 0.125 \times 98 = 4.8$ C.F. = 36 GAL
TOTAL PUMP VOLUME PER DOSE = 1238 GAL + 36 GAL = 1274 GAL
PUMP FLOW RATE (Q) = 120 GPM
RUN TIME = 1274 GAL / 120 GPM = 10.6 MIN

PUMP CHAMBER INSIDE DIMENSIONS = 5.83'W x 11.83'L = 69 S.F.
VOLUME PER FOOT OF DEPTH = 69 C.F. = 516 GAL
SUMP = 52.55
PUMP OFF/ALTERNATE PUMPS = 53.30
PUMP ON = 55.77

DOSE VOLUME = (55.77-53.30) x 516 GAL/FT = 1,274 GAL
ALARM = 56.00
INV.OUT=56.55
EMERGENCY STORAGE ABOVE ALARM = (56.55-56.00) x 516 = 283 GAL*

*EMERGENCY GENERATOR PROPOSED FOR <24HR EMERGENCY STORAGE



PUMP FLOW CURVE

PUMP SPECIFICATIONS
(310 CMR 15.231)

FORCE MAIN HEAD LOSS CALCULATIONS
(310 CMR 15.254)

PUMP CHAMBER VOLUME CALCULATIONS

HCP ASBURY

466 Highland Street
Hamilton, Massachusetts 01982

ASSESSORS:
MAP 19 LOT 11

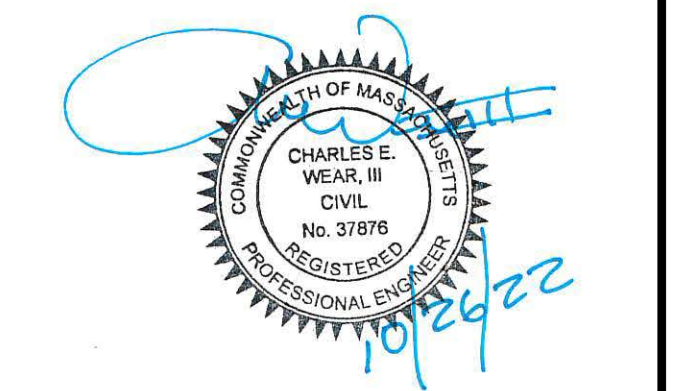
PREPARED FOR:
HARBORLIGHT COMMUNITY PARTNERS

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HANCOCK ASSOCIATES

Civil Engineers
Land Surveyors
Wetland Scientists

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NO.	BY	APP	DATE	ISSUE/REVISION DESCRIPTION
PROGRESS:	10/26/22	DESIGN BY:	JTL	
SCALE:	1" = 30'	DRAWN BY:	JTL	
APPRVD. BY:	CEW	CHECK BY:	BGG	

DETAILS 1

PLOT DATE: Oct 26, 2022 9:29 am
PLOT BY: C:\Users\jlemaire\AppData\Local\Microsoft\Windows\InetCache\Content.Outlook\jlemaire

DWG: 24819-PrelimS (septic) 10-26-22.dwg

LAYOUT: PRELIM (2)

SHEET: 2 OF 3

PROJECT NO.: 24819

HCP ASBURY

466 Highland Street
Hamilton, Massachusetts 01982

ASSESSORS:

MAP 19 LOT 11

PREPARED FOR:

HARBORLIGHT COMMUNITY PARTNERS

283 Elliot Street
Beverly, Massachusetts 01915

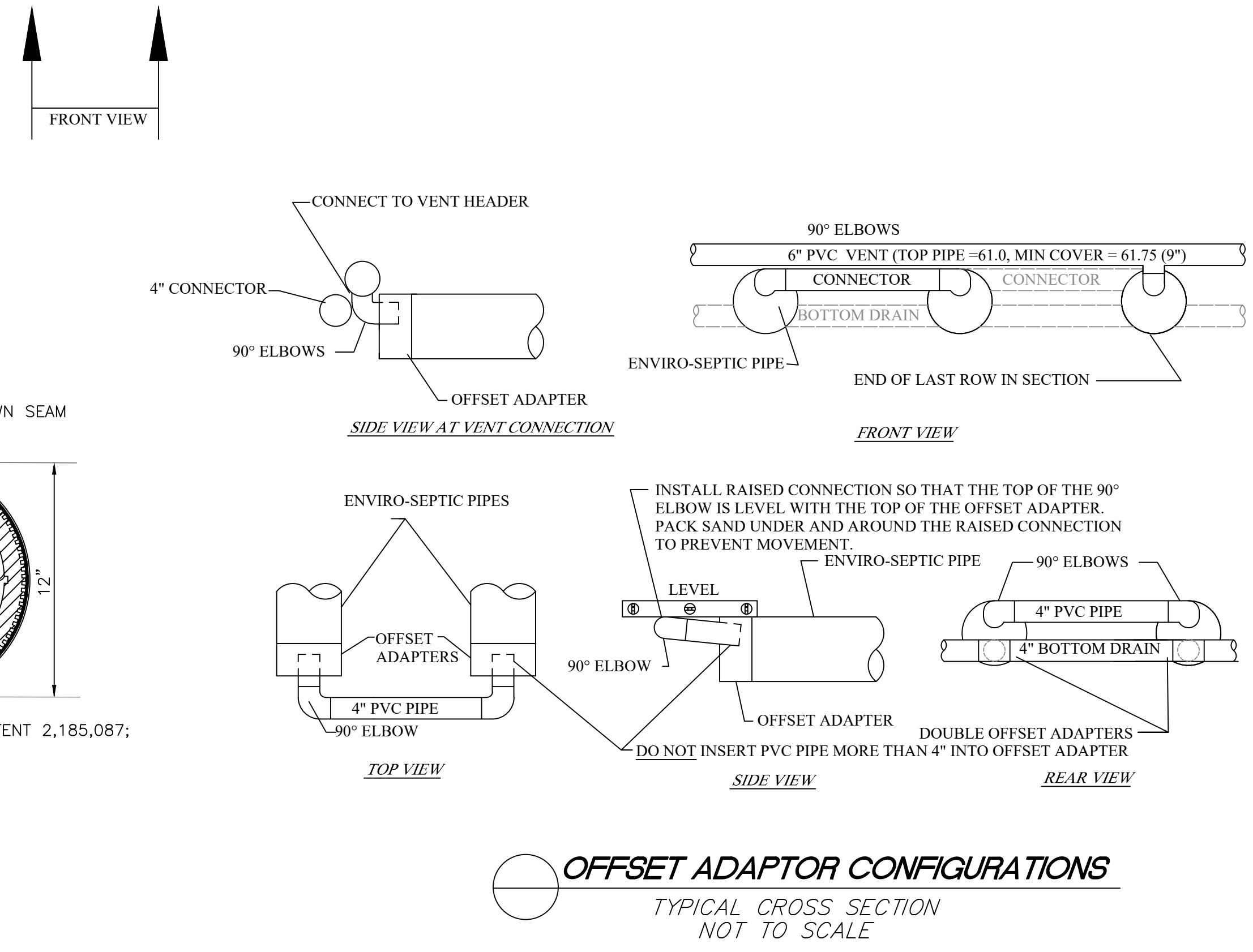
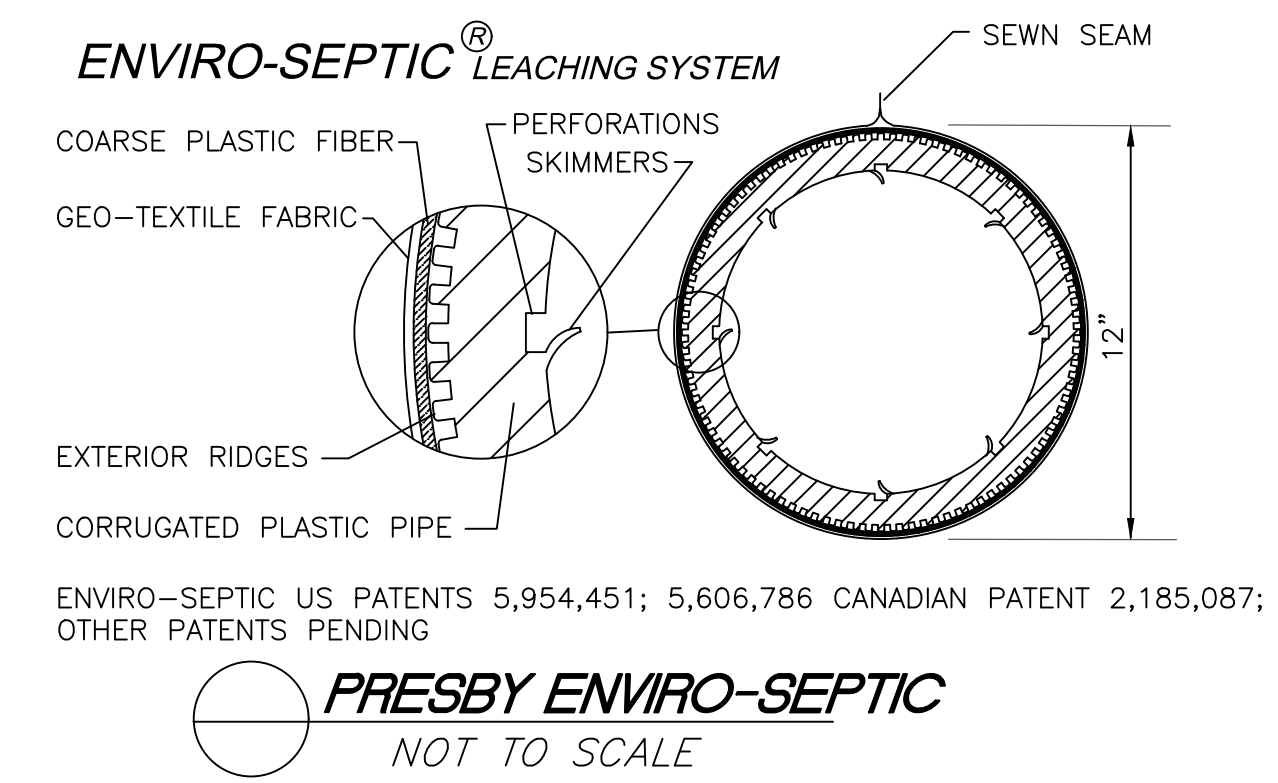
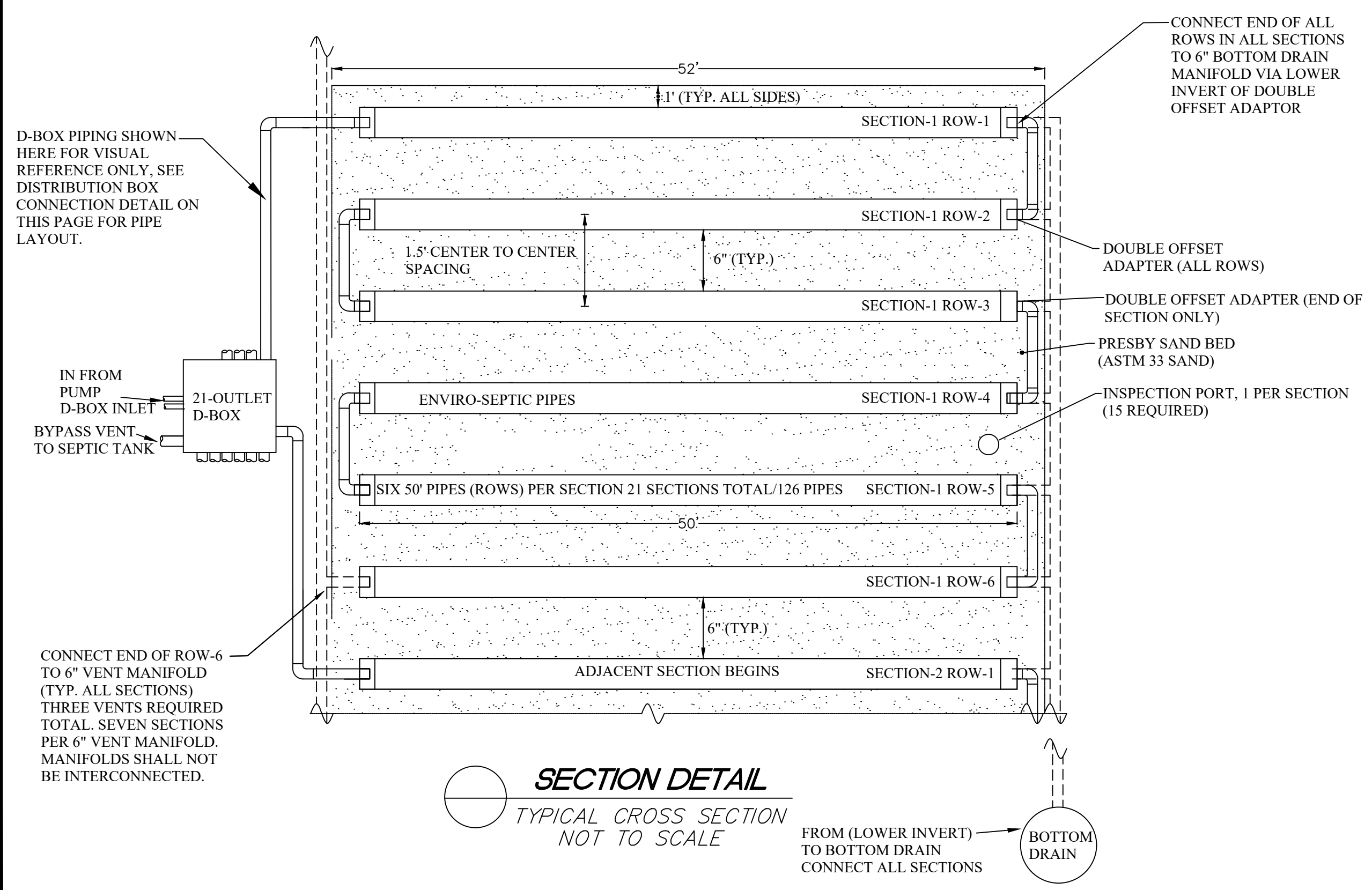
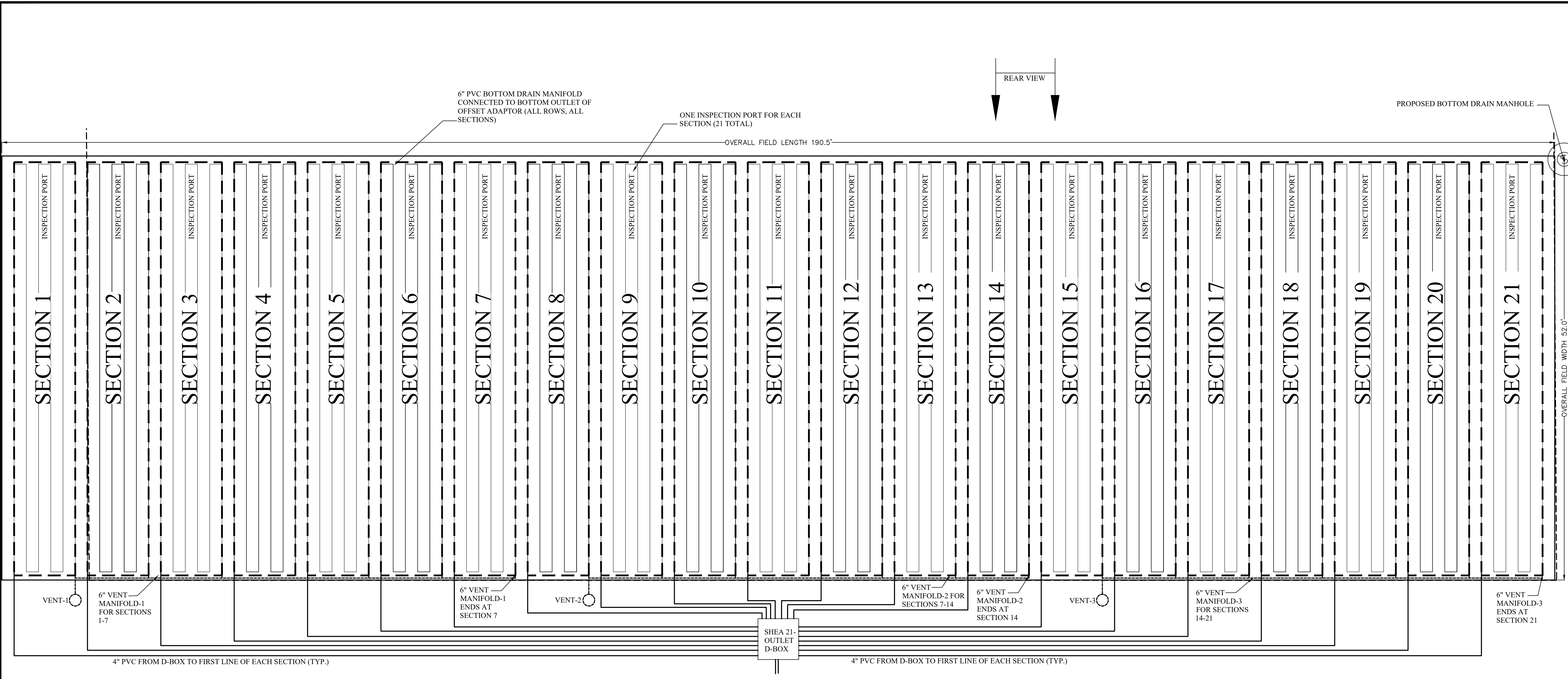
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NO.	BY	APP.	DATE	ISSUE/REVISION	DESCRIPTION

PROGRESS:	10/26/22	DESIGN BY:	JTL
SCALE:	1" = 30'	DRAWN BY:	JTL
APPRVD. BY:	CEW	CHECK BY:	BGG

DETAILS 2

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LAYOUT: PRELIM (3)

SHEET: 3 OF 3

PROJECT NO.: 24819