

# ON-SITE WASTEWATER TREATMENT (SEPTIC) SYSTEM

## Standard Absorption Trench System for

### 4 Bedroom Single Family Home

Prepared For:  
**Brian Russo**

Site Location:  
**Johnson Road**

(T) Canandaigua, Ontario County, New York  
Tax Map ID No. 126.00-1-60.210

Prepared By:

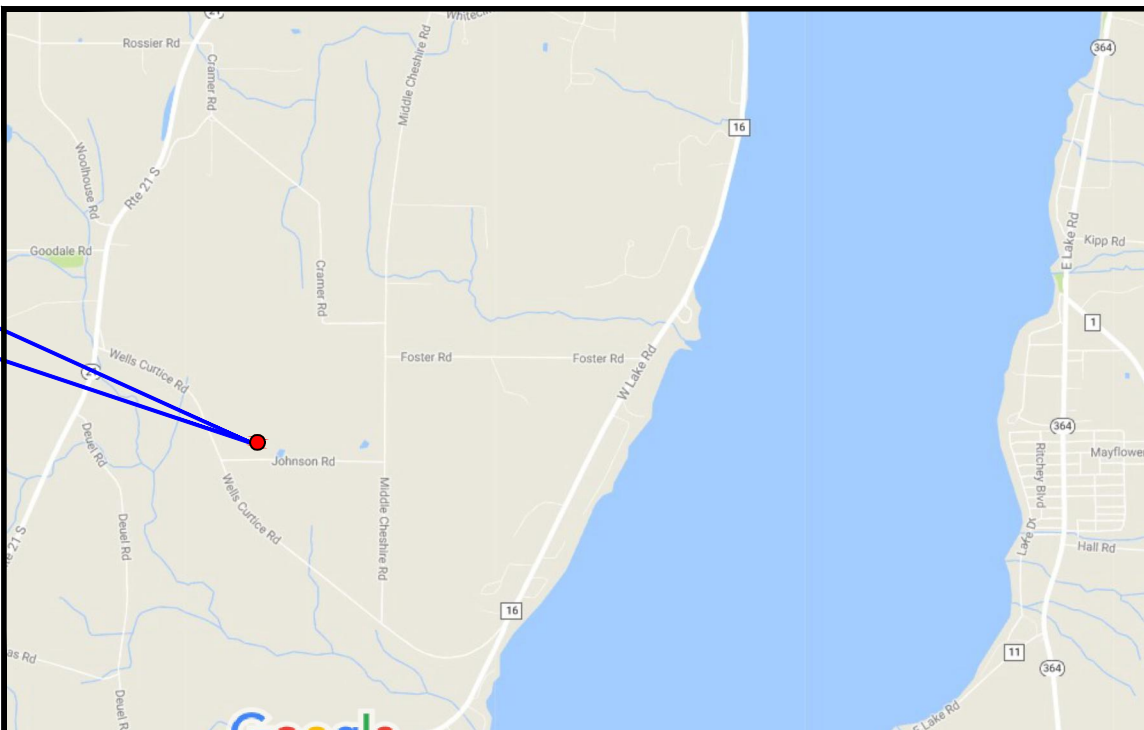
**McCormick Engineering P.C.**

294 Skuse Road Geneva, NY 14456  
Tel: 585-721-7219  
E-Mail: JTMccormickPE@aol.com



PROJECT SITE

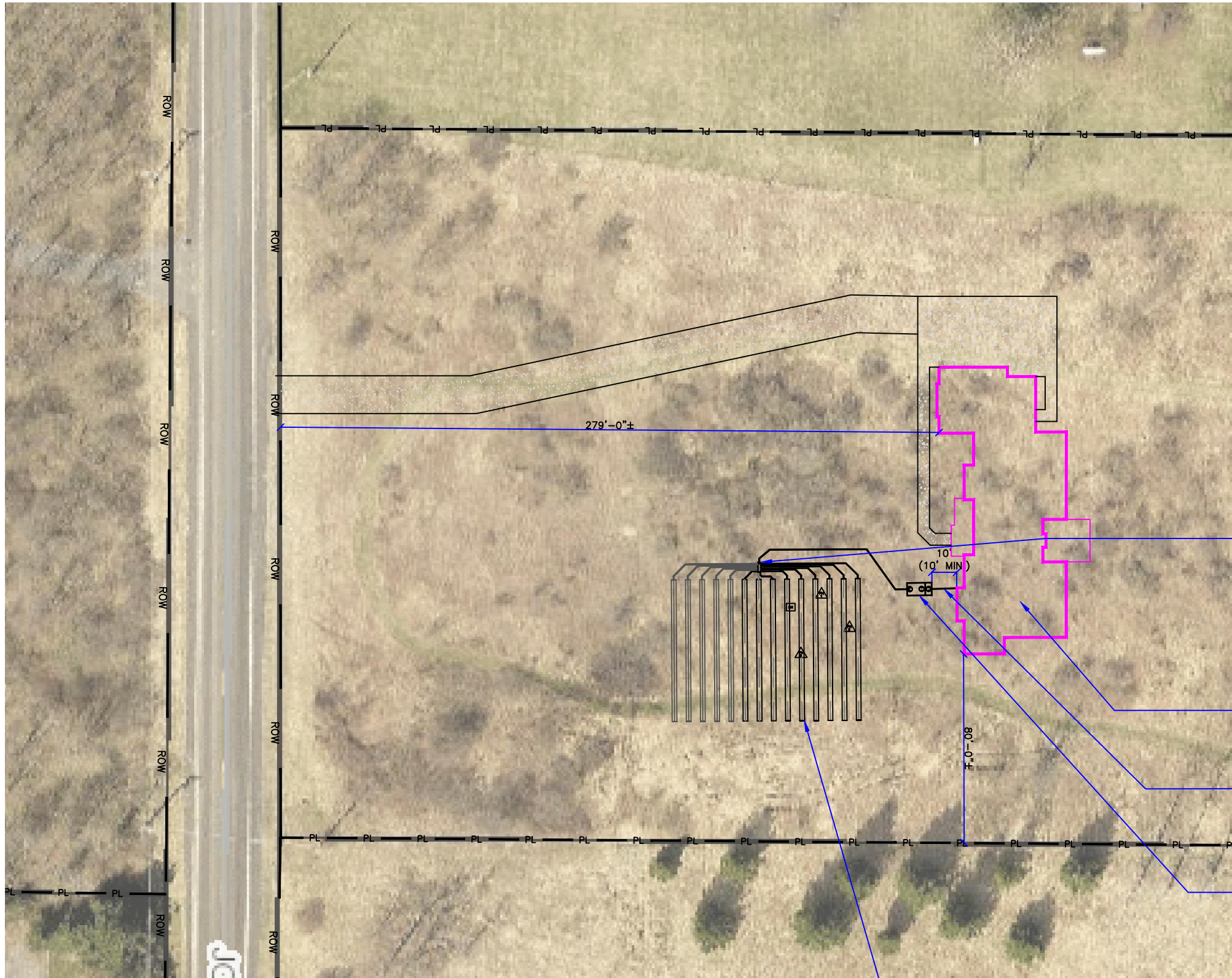
DRAWING NO.	DRAWING TITLE
C-1.0	SITE PLAN
C-2.0	SEPTIC SYSTEM BASIS OF DESIGN
C-3.0	SEPTIC SYSTEM DETAILS 1 OF 3
C-4.0	SEPTIC SYSTEM DETAILS 2 OF 3
C-5.0	SEPTIC SYSTEM DETAILS 3 OF 3





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- NOTES:
1. REFER TO BASIS OF DESIGN ON DRAWING C-2.0 AND THE PIPE SCHEDULE ON DRAWING C-5.0 FOR ADDITIONAL REQUIREMENTS AND INFORMATION
  2. CONTRACTOR SHALL CONFIRM ALL REQUIRED SETBACKS ARE MET PRIOR TO START OF CONSTRUCTION. ANY CONFLICTS SHALL BE REPORTED TO MCCORMICK ENGINEERING PC FOR RESOLUTION.
  3. THE LOCATIONS OF THE SEPTIC TANK AND DISTRIBUTION BOX SHALL BE FIELD ADJUSTED AS REQUIRED TO MAINTAIN MINIMUM SEPARATIONS AND GRAVITY FLOW.
  4. CONTRACTOR SHALL CONFIRM THAT THE REQUIRED SEPARATION DISTANCE FROM THE NEIGHBOR'S GROUNDWATER WELL IS MET.

NEW 14-OUTLET DISTRIBUTION BOX – REFER TO DETAILS ON DRAWING C-4.0. FIELD ADJUST LOCATION AS REQUIRED TO ENSURE GRAVITY FLOW

SINGLE FAMILY HOME  
4 BEDROOMS

NEW 4-INCH DIA SEWER LATERAL  
WITH CLEANOUT AND VENT, REFER  
TO DETAIL ON DRAWING C-4.0.

NEW 1,250 GALLON DUAL CHAMBER  
PRE-CAST CONCRETE SEPTIC TANK WITH  
EFFLUENT FILTER SHALL BE INSTALLED.  
REFER TO DETAILS ON DRAWING C-5.0.  
MINIMUM 10' SEPARATION FROM HOUSE  
AND PROPERTY LINES AND 50'  
SEPARATION FROM WELL.

NEW ABSORPTION TRENCH – 2'-0" WIDE X 55'-0" LONG  
(TYPICAL OF 9) WITH 50% FUTURE EXPANSION AREA.  
REFER TO PLAN VIEW AND SECTION A-A ON DRAWING  
C-3.0, SECTION B-B ON DRAWING C-4.0 AND TRENCH  
DETAILS ON DRAWING C-5.0 FOR DETAILS. MINIMUM 20'  
SEPARATION FROM HOUSE, 10' FROM PROPERTY LINES.

# SITE PLAN

SCALE: 1" = 50'-0"



SITE PLAN

Date: 09/13/17 Drawing No.: C-1.0

Prepared For:  
**Brian Russo**

Site Location:  
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(T) Canandaigua, Ontario County, NY  
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Prepared By:  
**Mccormick Engineering P.C.**

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License No.: 076842

# BASIS OF DESIGN (NEW SYSTEM)

NEW ON-SITE WASTEWATER TREATMENT (SEPTIC) SYSTEM FOR SINGLE FAMILY HOME. THE ON-SITE WASTEWATER TREATMENT (SEPTIC) SYSTEM WAS DESIGNED BASED ON THE NYSDOH RESIDENTIAL ONSITE WASTEWATER TREATMENT SYSTEMS DESIGN HANDBOOK, 2012.

AREA TO BE SERVED: RESIDENTIAL – THREE BEDROOM SINGLE FAMILY HOME

DESIGN FLOW: 440 GPD (4 BEDROOMS X 110 GPD/BEDROOM) NO GARBAGE DISPOSAL/NO GARDEN TUB

SITE CHARACTERISTICS: DEPTH TO GROUNDWATER OR IMPERMEABLE LAYER – GREATER THAN 5’

SITE SLOPE – 3% (APPROXIMATELY)

POTABLE WATER FROM A MUNICIPAL WATER SERVICE

## ON-SITE TESTS

PERCOLATION TESTS AND DEEP HOLE TEST COMPLETED BY MR. JASON MCCORMICK, PE, MCCORMICK ENGINEERING PC. ON SEPTEMBER 13, 2017

PERC TEST

HOLE	DEPTH OF HOLE (INCH)	PERCOLATION RATE (MIN/INCH)			
		RUN 1	RUN 2	RUN 3	RUN 4
PT-1	24	46	51	53	53
PT-2	24	44	48	49	50
PT-3	24	51	53	56	56

DESIGN PERC RATE OF 46-60 MIN/INCH (APPLICATION RATE – 0.45 GAL/DAY/SF)

DEEP HOLE

DEPTH	SOIL CONDITION
0”-5”	DARK BROWN SILTY TOPSOIL, SOME ROCKS, ROOTS
5”-23”	LIGHT BROWN SILTY LOAM FEW ROCKS AND FEW ROOTS
23”-63”	BROWN SILTY LOAM NO ROCKS AND NO ROOTS

DEPTH TO GROUNDWATER – GREATER THAN 5’

DEPTH TO MINERAL DEPOSITS\MOTTLING – GREATER THAN 5’

A STANDARD SYSTEM IS RECOMMENDED

DURING CONSTRUCTION, CONTRACTOR SHALL CONFIRM SOILS ARE CONSISTENT WITH THE PERC AND DEEP HOLE TESTS. MCCORMICK ENGINEERING PC SHALL BE NOTIFIED IMMEDIATELY OF ANY DIFFERENCES.

## SEPTIC TANK

1. A 1,250 GALLON DUAL CHAMBER, PRE-CAST CONCRETE SEPTIC TANK SHALL BE INSTALLED SUCH THAT IT WILL RECEIVE THE DISCHARGE FROM THE NEW HOME.
2. CONTRACTOR SHALL CONFIRM DIMENSIONS OF SEPTIC TANK PRIOR TO EXCAVATION.
3. SEPTIC TANKS SHOULD BE PUMPED OUT EVERY TWO TO THREE YEARS.
4. SEPTIC TANK ADDITIVES (BIOLOGICAL OR CHEMICAL) SHOULD NOT BE USED.

## EFFLUENT FILTER (RECOMMENDED)

A ZABEL FILTER (MODEL A1800-4X18) SHALL BE INSTALLED ON THE EFFLUENT PIPE OF THE SEPTIC TANK.

## ABSORPTION SYSTEM

THE ABSORPTION SYSTEM WAS DESIGNED BASED ON THE NYSDOH RESIDENTIAL ONSITE WASTEWATER TREATMENT SYSTEMS DESIGN HANDBOOK, 2012.

TRENCH LENGTH

APPLICATION RATE: 0.45 GPD PER SQ FT (TABLE 6B – APPLICATION RATES FOR NONSTANDARD FLOWS)

REQUIRED AREA = 440 GPD / 0.45 GPD PER SQ FT = 978 SQ FT

REQUIRED LENGTH OF 2’ WIDE TRENCH: 489 FEET (MINIMUM)

PROPOSED CONFIGURATION: (9) 2’ WIDE BY 55 FT LONG TRENCHES (TOTAL LENGTH = 495 FT)

GRAVITY FLOW TO DISTRIBUTION BOX AND ABSORPTION FIELD

## SEPARATION REQUIREMENTS

MINIMUM SEPARATION DISTANCES FROM THE ABSORPTION FIELD.

1. 100 FEET FROM ALL GROUNDWATER WELLS LOCATED UPHILL OF THE SYSTEM
2. 200 FEET FROM ALL GROUNDWATER WELLS LOCATED DOWNHILL OF THE SYSTEM
3. 20 FEET FROM ALL HOUSES\BUILDINGS
4. 10 FEET FROM ALL PROPERTY LINES
5. 20 FEET FROM DRAINAGE DITCHES
6. 100 FEET FROM ANY SURFACE WATER (PONDS, STREAMS, ETC.)
7. ANY DRAINAGE TILE FOUND WITHIN 30’ OF THE ON-SITE WASTEWATER TREATMENT SYSTEM SHALL BE REROUTED.

MINIMUM SEPARATION DISTANCES FROM THE SEPTIC TANK.

1. 50 FEET FROM ALL GROUNDWATER WELLS
2. 10 FEET FROM ALL HOUSES\BUILDINGS
3. 10 FEET FROM ALL PROPERTY LINES
4. 10 FEET FROM DRAINAGE DITCHES
5. 50 FEET FROM ANY SURFACE WATER (PONDS, STREAMS, ETC.)

ALL SEPARATION REQUIREMENTS SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. IF SEPARATION REQUIREMENTS CAN NOT BE MET, CONTRACTOR SHALL NOTIFY MCCORMICK ENGINEERING PC AT (585) 721-7219 PRIOR TO CONSTRUCTION.

## NOTES:

1. REFER TO PIPE SCHEDULE ON THIS DRAWING FOR DETAILS ON SIZE, TYPE AND SLOPE OF PROPOSED PIPING.
2. CONTRACTOR SHALL CONFIRM ALL REQUIRED SETBACKS ARE MET PRIOR TO START OF CONSTRUCTION. ANY CONFLICTS SHALL BE REPORTED TO MCCORMICK ENGINEERING PC FOR RESOLUTION.
3. THE LOCATIONS OF THE SEPTIC TANK AND DISTRIBUTION DROP BOXES SHALL BE FIELD ADJUSTED AS REQUIRED TO MAINTAIN GRAVITY. MINIMUM SEPARATION REQUIREMENTS SHALL BE MAINTAINED.
4. BASED ON FIELD INVESTIGATIONS, THE ABSORPTION FIELD CAN BE RELOCATED TO ANY OPEN AREA OF THE PROPERTY MEETING SETBACK REQUIREMENTS.
5. HEAVY EQUIPMENT USE IN THE DESIGNATED ABSORPTION SYSTEM AREA SHALL BE MINIMIZED TO PREVENT SOIL PERMEABILITY REDUCTION DUE TO COMPACTION AND POSSIBLE TRENCH CAVE-IN & PIPE BREAKAGE.
6. DO NOT INSTALL GARBAGE GRINDERS ON WASTE LINES.

## INSPECTIONS

ALL INSTALLATIONS MUST BE INSPECTED AND APPROVED BY MCCORMICK ENGINEERING PC PRIOR TO USE. A MINIMUM OF 48 HOUR NOTICE IS REQUIRED TO SCHEDULE INSPECTIONS.

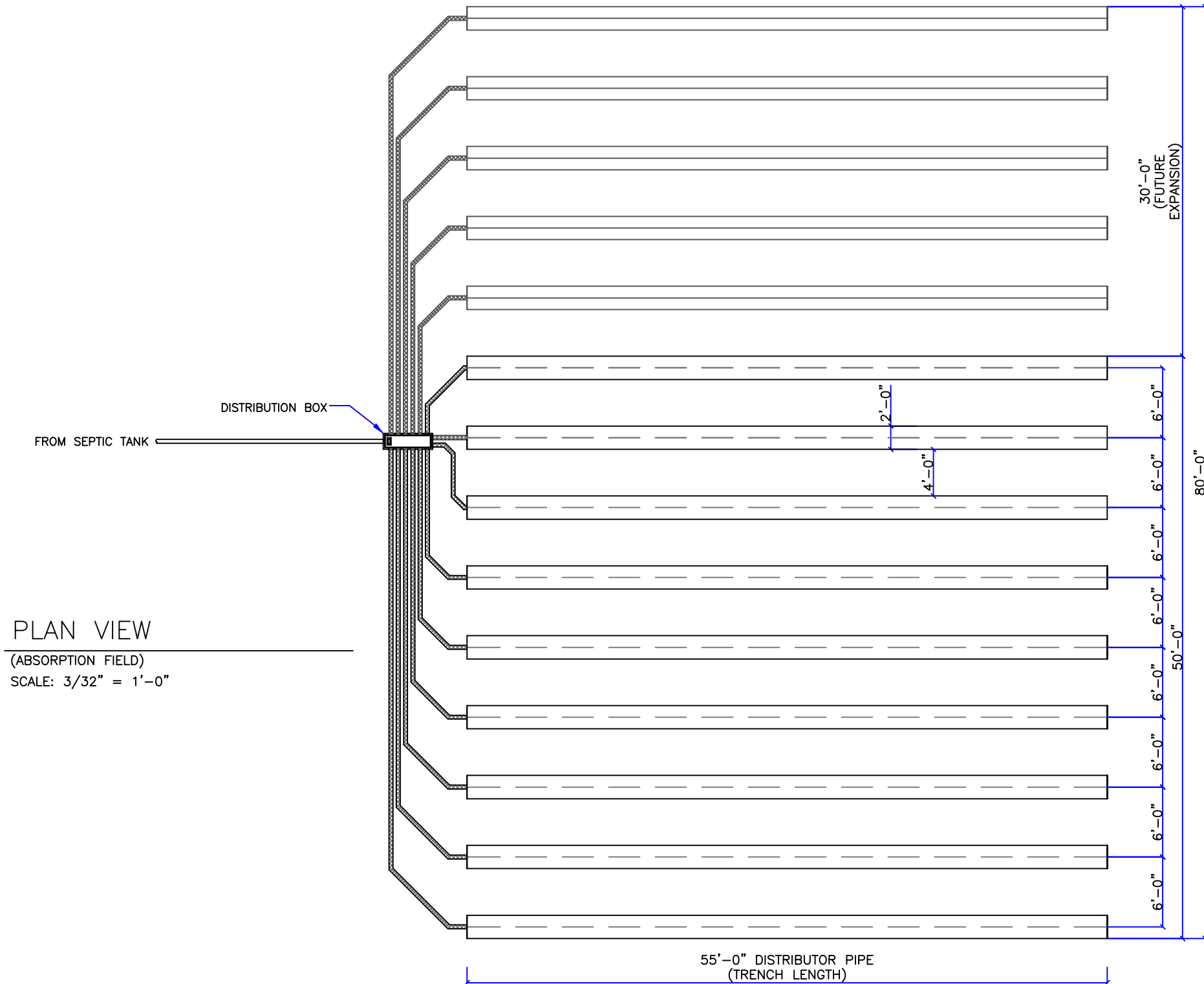
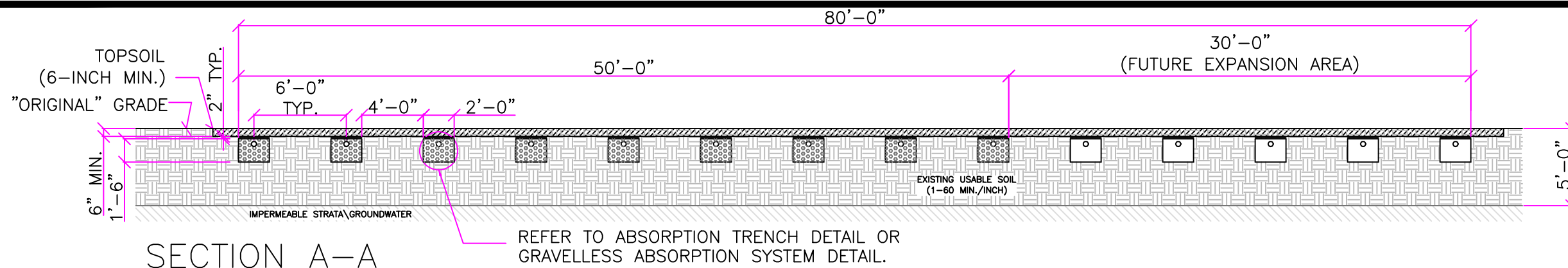


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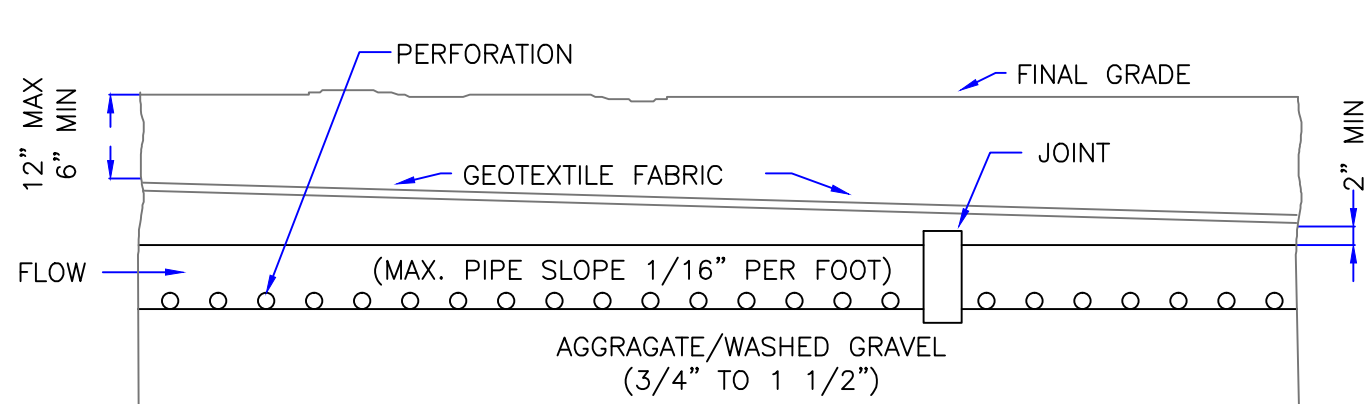


SEPTIC SYSTEM BASIS OF DESIGN

Date: 09/13/17 Drawing No.: C-2.0



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SEPTIC SYSTEM DETAILS 1 OF 3		
Date: 09/13/17		Drawing No.: C-3.0

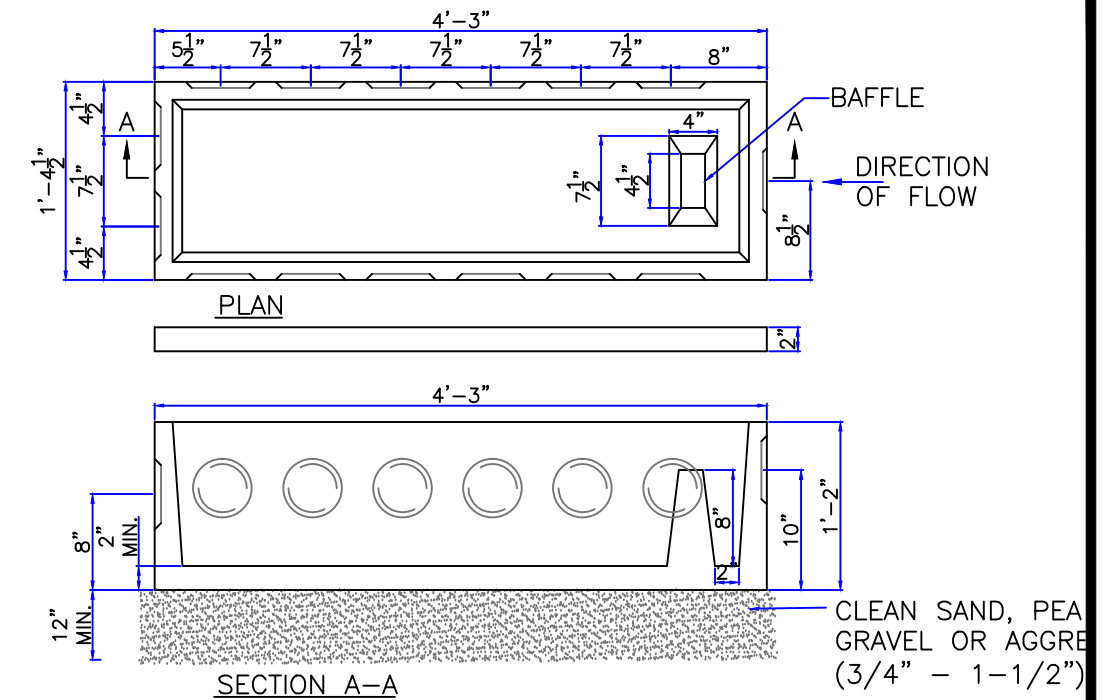


**NOTE:**

- 1) SPACING OF ABSORPTION TRENCH – 6' O.C.
- 2) ENDS OF ALL DISTRIBUTOR PIPES MUST BE CAPPED.

## ABSORPTION TRENCH PROFILE –SECTION B–B

SCALE: N.T.S.



## 14 OUTLET DISTRIBUTION BOX

NOT TO SCALE

**DISTRIBUTION BOX NOTES:**

1. PIPE JOINTS TO BE SEALED WITH ASPHALT MATERIAL OR EQUIVALENT.
2. INVERT ELEVATIONS OF ALL OUTLET PIPES SHALL BE EQUAL. SPEED LEVELING DEVICES ARE REQUIRED.

**PRECAST CONCRETE SPECIFICATIONS:**

CONCRETE: 4,000 P.S.I. @ 28 DAYS.

ENTRAINED AIR: 5% – 9%.

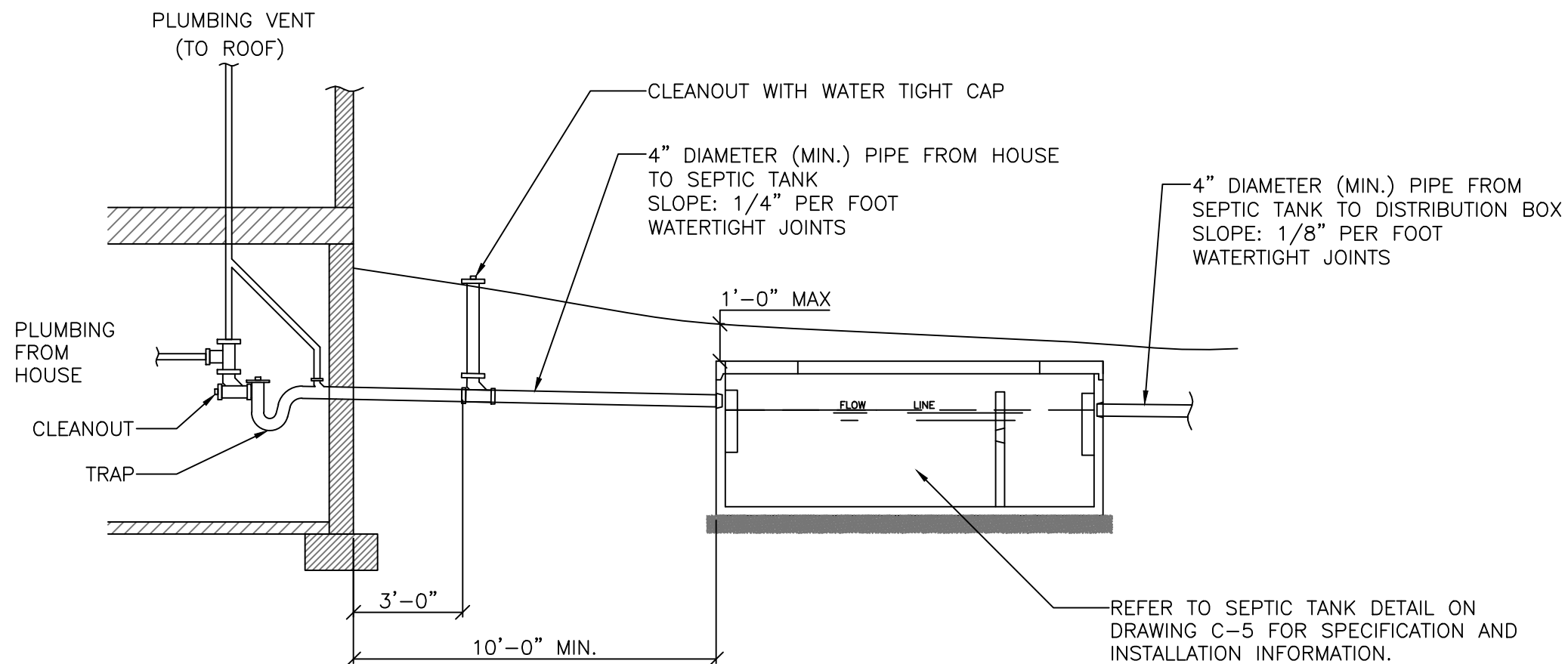
A.S.T.M. A496–A615

STEEL: GRADE 60–60 KSI.

**DISTRIBUTION BOX SPECIFICATIONS:**

DESIGN LOADING: A–0.3/300PSF/WALKWAYS.

INLET/OUTLETS: LOW PRESSURE POLYETHYLENE WATERTIGHT PIPE TO BOX CONNECTION.



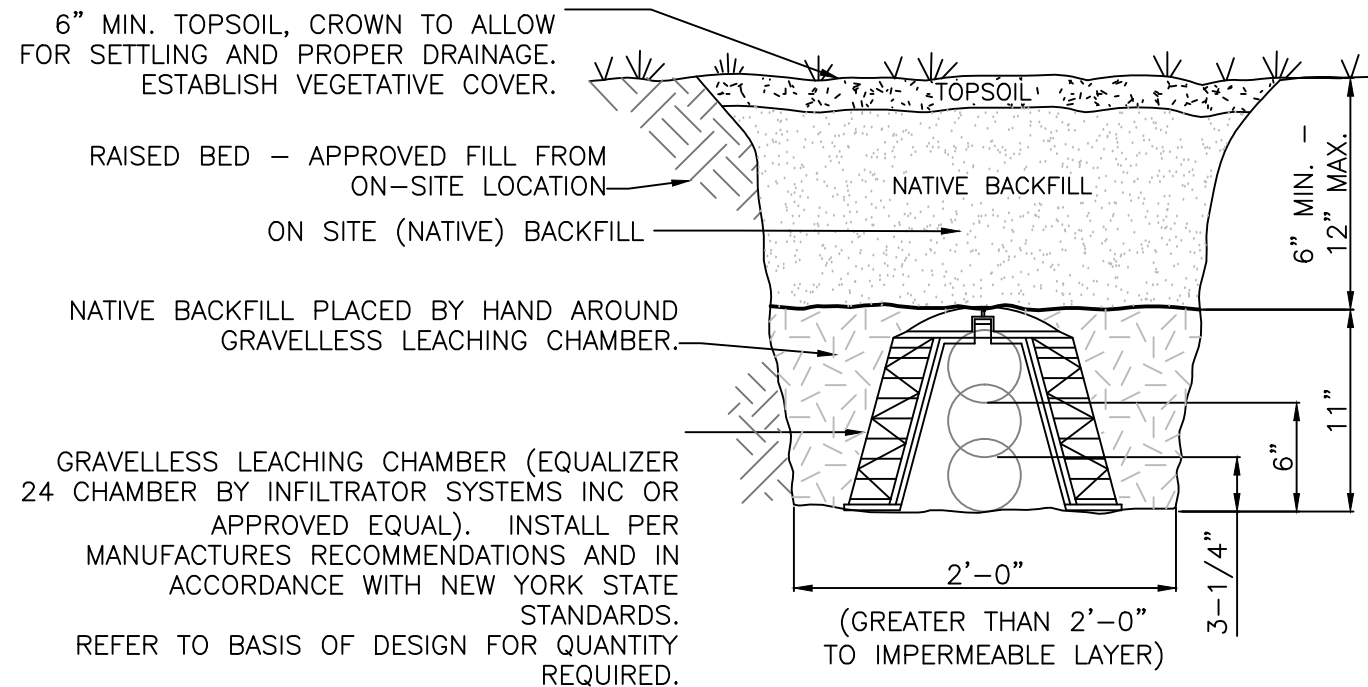
## PLUMBING DETAIL

NOT TO SCALE

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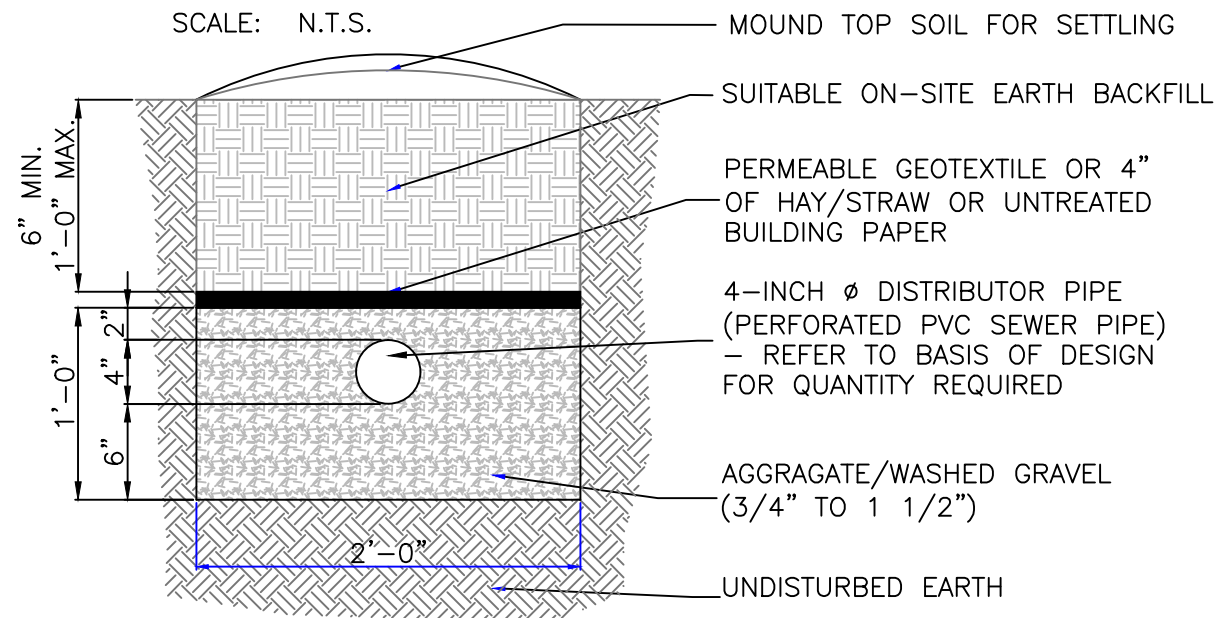
SEPTIC SYSTEM DETAILS 2 OF 3

Date: 09/13/17 Drawing No.: C–4.0



## GRAVELLESS ABSORPTION SYSTEM DETAIL

SCALE: N.T.S.

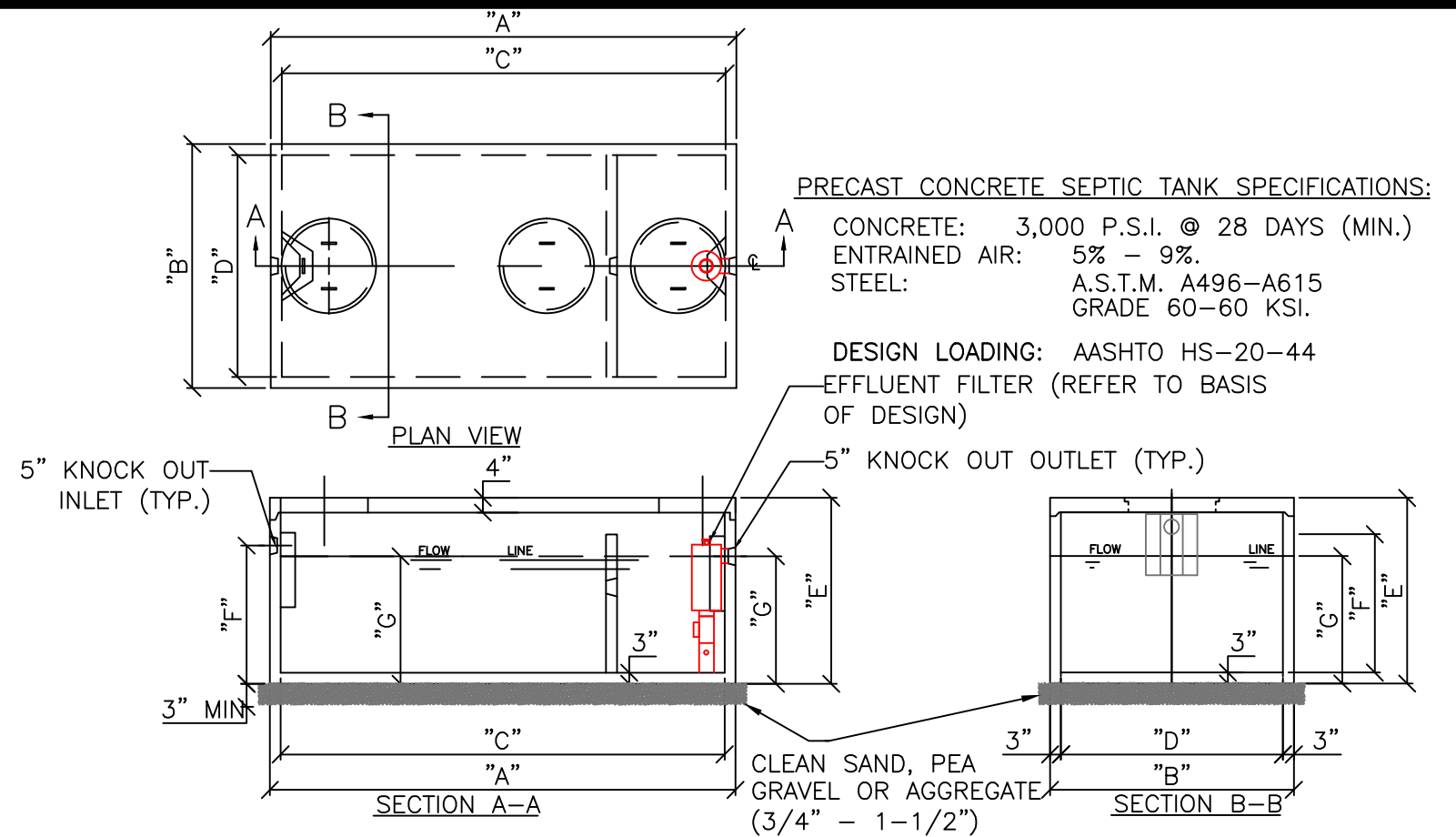


## ABSORPTION TRENCH DETAIL

SCALE: 1" = 1'-0"

PIPE SCHEDULE			
LOCATION	SIZE	TYPE	SLOPE
HOUSE TO SEPTIC TANK	4"	PVC SEWER PIPE (SCH. 40) – NON PERFORATED	1/4" PER FOOT (MIN)
SEPTIC TANK TO DISTRIBUTION BOX	4"	PVC SEWER PIPE (SCH. 40) – NON PERFORATED	1/8" PER FOOT (MIN)
DISTRIBUTION BOX TO DISTRIBUTOR PIPE	4"	PVC SEWER PIPE – NON PERFORATED	1/32" (MIN) – 1/8" (MAX) PER FOOT
ABSORPTION TRENCH DISTRIBUTOR PIPE	4"	PVC SEWER PIPE – PERFORATED	1/16" PER FOOT (MAX)
	OR	OR	OR
GRAVELLESS LEACHING CHAMBER	EQ –24	INFILTRATOR EQUALIZER 24	LEVEL – 1/16" PER FOOT (MAX)

REFER TO BASIS OF DESIGN FOR REQUIRED LENGTH OF ABSORPTION TRENCH.




SEPTIC TANK SIZE (GALLONS)	LENGTH O.D. "A"	WIDTH O.D. "B"	LENGTH I.D. "C"	WIDTH I.D. "D"	HEIGHT O.D. "E"	INLET "F"	OUTLET "G"
1,250	129"	68"	123"	62"	59"	46"	43"

## SEPTIC TANK DETAIL

NOTES:

1. CONTRACTOR SHALL VERIFY DIMENSIONS PRIOR TO CONSTRUCTION.
2. INSTALL A ZABEL FILTER ON OUTLET
3. REFER TO BASIS OF DESIGN NOTES ON DWG C-1 FOR ADDITIONAL INFORMATION.
4. PLACE A MIN. OF 3-INCH OF CLEAN SAND, PEA GRAVEL OR AGGREGATE (3/4" - 1-1/2") UNDER SEPTIC TANK.

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<p>SEPTIC SYSTEM DETAILS 3 OF 3</p>		
<p>Date: 09/13/17</p>	<p>Drawing No.:</p>	<p>C-5.0</p>