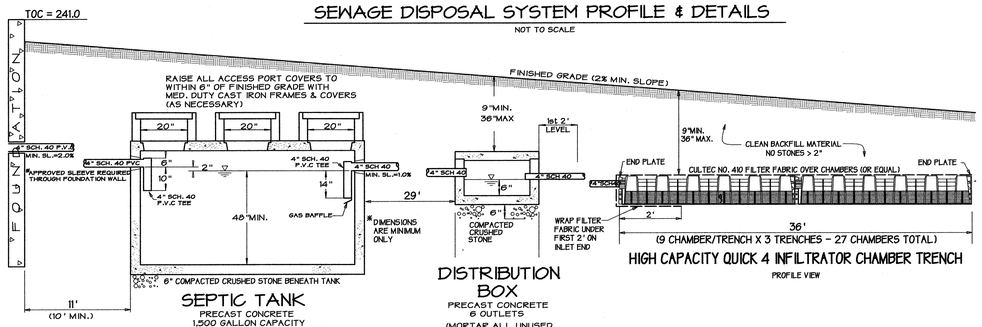
SEWAGE DISPOSAL SYSTEM PROFILE & DETAILS

NOT TO SCALE



SEPTIC TANK

PRECAST CONCRETE
1,500 GALLON CAPACITY
(SHALL CONFORM TO 310 CMR 15.226)
(SHEA CONCRETE PRODUCTS, INC. OR APPROVED EQUIVALENT)

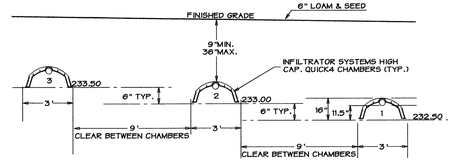
1. INLET AND OUTLET TEES MUST BE SCHED. 40
2. ACCESS COVER MUST BE AT LEAST 20".
3. SEPTIC TANK MUST BE INSPECTED AND MAINTAINED IN ACCORDANCE WITH 310 CMR 15.300.
4. TANK SHALL HAVE AN AIR SPACE A MIN. OF 3 INCHES ABOVE TEES AND 9 INCHES ABOVE FLOW LINE.

DISTRIBUTION BOX

PRECAST CONCRETE
6 OUTLETS
(MORTAR ALL UNUSED KNOCKOUTS)

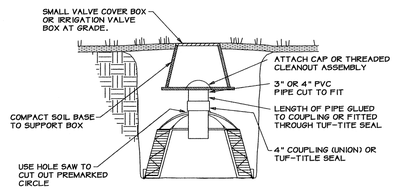
HIGH CAPACITY QUICK 4 INFILTRATOR CHAMBER TRENCH

PROFILE VIEW



SYSTEM CROSS SECTION

NO SCALE



INSPECTION PORT DETAIL

NOT TO SCALE

PROVIDE A MIN. OF ONE (1) INSPECTION PORT AT LOCATION SHOWN IN PLAN VIEW

DEEP OBSERVATION HOLE LOGS

TEST HOLE: 614-21
DATE: 6/27/14
SOIL EVALUATOR: SCOTT HAYES, P.E.
B.O.H. AGENT: EVAN CARLONI, R.S.

SURFACE EL.: 233.8

DEPTH	HORIZON	TEXTURE	COLOR	MOTTLING	REMARKS
0-6"	A	SL	10YR3/2	NONE	WEAK, FRIABLE
6-30"	Bw	SL	10YR5/8	NONE	WEAK, MASSIVE
30-108"	C	LS	2.5Y5/4	>5% @ 56"	WEAK, MANY COBBLES & BOULDERS

DEPTH TO:
BEDROCK: 108"
STANDING WATER: NONE
SEEPAGE: NONE

ESTIMATED SEASONAL HIGH GROUNDWATER: 56" (229.1)

TEST HOLE: 614-22
DATE: 6/27/14
SOIL EVALUATOR: SCOTT HAYES, P.E.
B.O.H. AGENT: EVAN CARLONI, R.S.

SURFACE EL.: 232.3

DEPTH	HORIZON	TEXTURE	COLOR	MOTTLING	REMARKS
0-8"	A	SL	10YR3/2	NONE	WEAK, FRIABLE
8-28"	Bw	SL	10YR5/8	NONE	WEAK, MASSIVE
28-102"	C	LS	2.5Y5/4	>5% @ 60"	WEAK, MANY COBBLES & BOULDERS

DEPTH TO:
BEDROCK: 102"
STANDING WATER: NONE
SEEPAGE: NONE

ESTIMATED SEASONAL HIGH GROUNDWATER: 60" (227.3)

TEST HOLE: 614-23
DATE: 6/27/14
SOIL EVALUATOR: SCOTT HAYES, P.E.
B.O.H. AGENT: EVAN CARLONI, R.S.

SURFACE EL.: 234.7

DEPTH	HORIZON	TEXTURE	COLOR	MOTTLING	REMARKS
0-8"	A	SL	10YR3/2	NONE	WEAK, FRIABLE
8-30"	Bw	SL	10YR5/8	NONE	WEAK, MASSIVE
30-96"	C	LS	2.5Y5/4	>5% @ 56"	WEAK TO MOD. FIRM, SOME COB. BOULDERS

DEPTH TO:
BEDROCK: 96"
STANDING WATER: NONE
SEEPAGE: NONE

ESTIMATED SEASONAL HIGH GROUNDWATER: 56" (230.1)

TEST HOLE: 614-24
DATE: 6/27/14
SOIL EVALUATOR: SCOTT HAYES, P.E.
B.O.H. AGENT: EVAN CARLONI, R.S.

SURFACE EL.: 235.0

DEPTH	HORIZON	TEXTURE	COLOR	MOTTLING	REMARKS
0-8"	A	SL	10YR3/2	NONE	WEAK, FRIABLE
8-30"	Bw	SL	10YR5/8	NONE	WEAK, MASSIVE
30-108"	C	LS	2.5Y5/4	>5% @ 62"	WEAK TO MOD. FIRM, SOME COB. BOULDERS

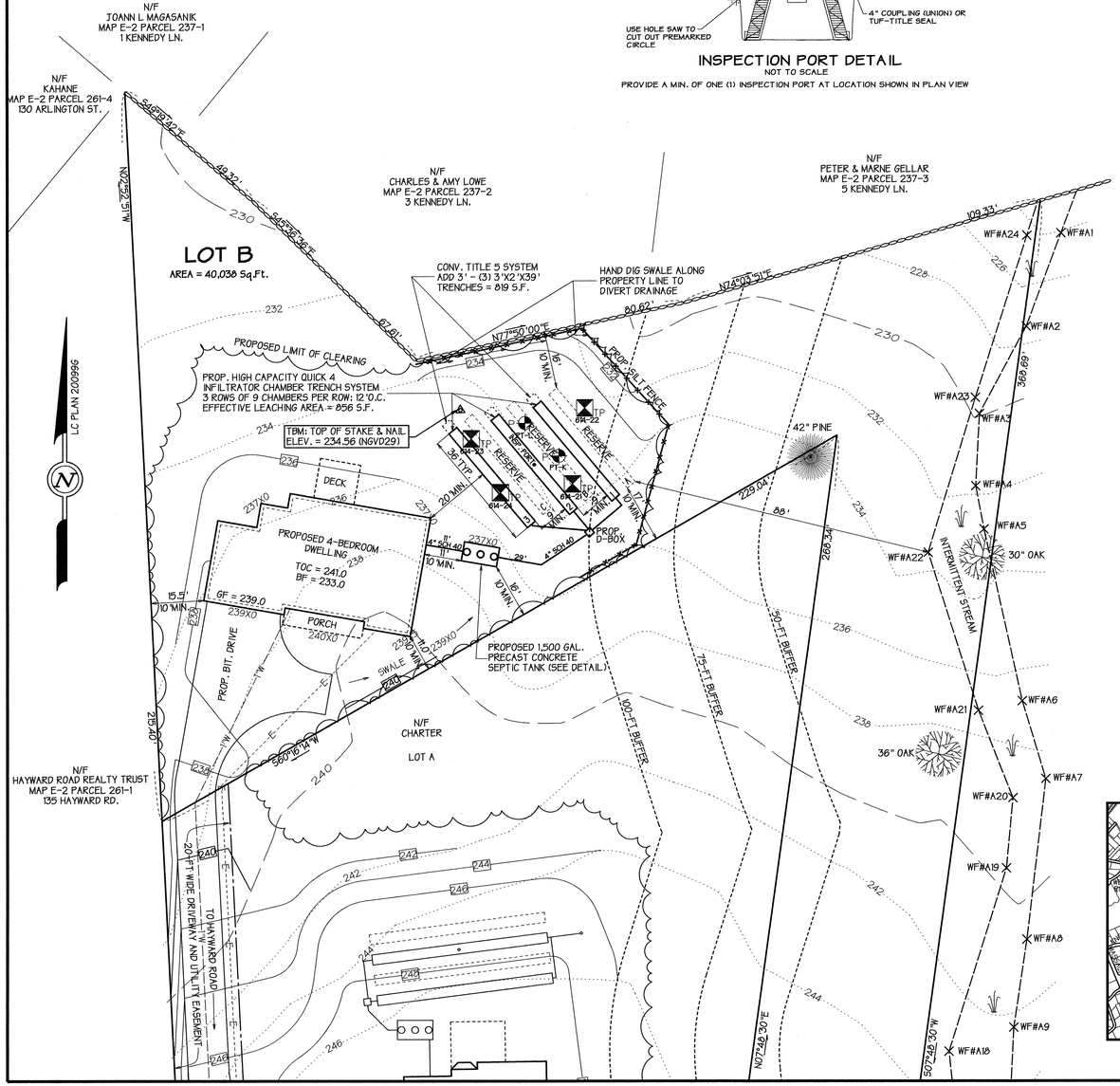
DEPTH TO:
BEDROCK: 108"
STANDING WATER: NONE
SEEPAGE: NONE

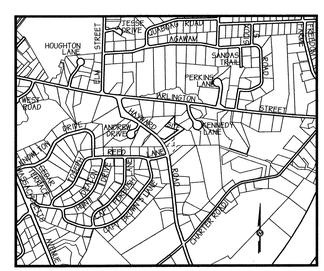
ESTIMATED SEASONAL HIGH GROUNDWATER: 62" (229.9)

PERCOLATION TESTS

SOIL EVALUATOR: SCOTT HAYES, P.E. - FORESITE ENG.
BOH AGENT: EVAN CARLONI, ACTON HEALTH DEPT.

	PT-K	PT-L
DATE	6/27/14	6/27/14
DEPTH	64"	50"
RATE (MPI)	4 MPI	11 MPI





LOCUS MAP

SCALE: 1" = 1200'

DESIGN CALCULATIONS

1. SEWAGE DISPOSAL SYSTEM IS NOT DESIGNED FOR USE WITH A GARBAGE GRINDER.
2. SEPTIC TANK:
   A VOLUME EQUAL TO TWICE THE DESIGN FLOW OR A MINIMUM VOLUME OF 1,500 GALLONS IS REQUIRED. A 1,500 GALLON TANK IS REQUIRED.
3. DESIGN CRITERIA:
   NUMBER OF BEDROOMS: 4
   DESIGN FLOW: 440
   SOIL TEXTURAL CLASS: 1
   PERCOLATION RATE: 11 MPI
   APPLICATION RATE: 0.56 GPD/SF
   DESIGN GROUNDWATER DEPTH: 56"
   GROUNDWATER OFFSET: 4-FT
4. LEACHING FACILITY SIZING:
   AREA REQUIRED IS EQUAL TO THE DESIGN FLOW DIVIDED BY THE APPLICATION RATE:

   $\frac{440 \text{ GPD}}{0.56 \text{ GPD/S.F.}} = 785 \text{ S.F. } (800 \text{ S.F. MIN.})$

   UTILIZE HIGH CAPACITY QUICK 4 INFILTRATOR SYSTEMS INC. CHAMBERS IN TRENCH CONFIGURATION
   LOADING RATE 7.93 SF/LF (TABLE 2)
   MIN. LINEAR FOOTAGE REQ'D = 800 / 7.93 = 101 L.F.

   PROVIDE 3 ROWS OF 9 HIGH CAP. QUICK4 CHAMBERS PER ROW IN TRENCH CONFIGURATION

   TRENCH SPACING:
   9' ON CENTER; 6' MIN. CLEAR BETWEEN TRENCHES
5. HYDRAULIC LOADING CAPACITY:
   7.93 SF/LF X 36 LF X 3 ROWS X 0.56 GPD/SF = 479 GPD
   EFF. LEACHING AREA = 7.93 SF/LF X 36 L.F. X 3 = 856 S.F.
6. CONVENTIONAL TITLE 5 SYSTEM DESIGN:
   (3) 3'W X 2'D X 39'L. CRUSHED STONE TRENCHES
   6' CLEAR SPACING; PROVIDE 819 S.F. LEACHING AREA.

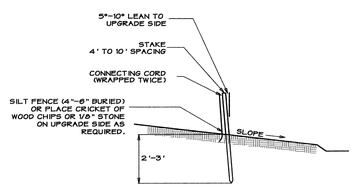
ELEVATION SCHEDULE

TOP OF FOUNDATION	241.00

SYSTEM ELEVATIONS

INV. AT FOUNDATION	236.00
INV. AT SEPTIC TANK INLET	235.50
INV. AT SEPTIC TANK OUTLET	235.25
INV. AT D-BOX INLET	234.77
INV. AT D-BOX OUTLET	234.60

	1/A	2/B	3/C
INV. AT CHAMBER INLET	233.46	233.96	234.46
BOTTOM OF CHAMBER	232.50	233.00	233.50
TOP OF CHAMBER	233.83	234.33	234.83



SILT FENCE DETAIL

NOT TO SCALE

LEGEND

S.T.	PROPOSED 1,500 GAL. PRECAST CONCRETE SEPTIC TANK
D-BOX	PROPOSED 8-OUTLET PRECAST CONCRETE DISTRIBUTION BOX
TP	DEEP TEST HOLE
P	PERCOLATION TEST
198X2	PROPOSED SPOT ELEVATION (TYP.)
—200—	EXISTING 5-FT CONTOUR (TYP.)
···201···	EXISTING 1-FT CONTOUR (TYP.)
—202—	PROPOSED CONTOUR (TYP.)
—×—×—	PROPOSED SILT FENCE EROSION CONTROL BARRIER (SEE DETAIL)

COMMONWEALTH OF MASSACHUSETTS
SCOTT P. HAYES
CIVIL
No. 41017
REGISTERED PROFESSIONAL ENGINEER
7-8-14

GENERAL NOTES

1. THIS PLAN IS FOR THE CONSTRUCTION OF THE PROPOSED SEWAGE DISPOSAL SYSTEM ONLY. OTHER LOCAL REGULATIONS MAY BE APPLICABLE TO THE PROJECT (I.E. ZONING, WETLANDS, ETC.).
2. CONTRACTOR SHALL REPORT ANY DISCREPANCIES BETWEEN OBSERVED FIELD CONDITIONS AND THIS DESIGN PLAN PRIOR TO INITIATING CONSTRUCTION.
3. PROPERTY BOUNDARIES SHOWN ARE A PROPOSED SUBDIVISION OF LAND SHOWN ON ACTON ASSESSORS MAP E-2 PARCEL 261 A PORTION OF THE PROPERTY IDENTIFIED AS NO. 121 HAYWARD ROAD.
4. THE SYSTEM IS NOT DESIGNED FOR USE WITH A GARBAGE GRINDER.
5. THE SEPTIC TANK SHALL BE PUMPED WHEN THE SLUDGE DEPTH EXCEEDS 1/3 OF THE LIQUID CAPACITY OF THE SEPTIC TANK (ABOUT ONCE EVERY 2 YEARS) OR AS REQUIRED BY THE LOCAL BOARD OF HEALTH.
6. ANY PROPOSED WORK WITHIN 100 FEET OF A BORDERING VEGETATED WETLAND OR OTHER PROTECTED RESOURCE AREA IS UNDER THE JURISDICTION OF THE WETLANDS PROTECTION ACT AND THE LOCAL CONSERVATION COMMISSION.
7. ALL KNOWN DRINKING WATER WELLS WITHIN 200 FEET OF THE PROPOSED SEWAGE DISPOSAL SYSTEM ARE SHOWN OR INDICATED.
8. SITE IS WITHIN TOWN OF ACTON GROUNDWTER PROTECTION DISTRICT ZONE 4.
9. SITE IS NOT WITHIN A DEP APPROVED INTERIM WELLHEAD PROTECTION AREA (IWPA) OR DEP APPROVED ZONE II.

CONSTRUCTION NOTES

1. CONTRACTOR SHALL CONTACT "DIGSAFE" AT 1-888-344-7233 AT LEAST 72 HOURS BEFORE EXCAVATING ON PUBLIC OR PRIVATE PROPERTY.
2. CONSTRUCTION MATERIALS AND CONSTRUCTION METHODOLOGY SHALL CONFORM TO THIS PLAN, TITLE 5, AND THE REQUIREMENTS OF THE BOARD OF HEALTH.
3. ANY DEVIATION IN CONSTRUCTION FROM THIS PLAN SHALL VOID ANY CERTIFICATION MADE RELATIVE TO THE SYSTEM UNLESS APPROVED IN WRITING BY THE LOCAL APPROVING AUTHORITY AND FORESITE ENGINEERING ASSOCIATES, INC.
4. ALL TANKS INCLUDING SEPTIC TANKS, DISTRIBUTION BOXES, DOSING CHAMBERS AND GREASE TRAPS, SHALL EITHER BE WATERTIGHT BY MANUFACTURER'S SPECIFICATIONS AND WARRANTY OR MADE WATERTIGHT WITH ASPHALT OR POLYMER SEALER.
5. ALL PRECAST CONCRETE TANKS AND DISTRIBUTION BOXES SHALL BE SET ON A MINIMUM OF SIX INCHES OF WELL COMPACTED CRUSHED STONE AND SHALL BE MADE WATER TIGHT.
6. DISTRIBUTION BOX OUTLET PIPES SHALL BE LAID LEVEL FOR THE FIRST TWO FEET OUT OF THE BOX.
7. DISTRIBUTION BOX SHALL BE SET ON A FIRM BASE OF EITHER SIX INCHES OF COMPACTED CRUSHED STONE OR A SIX-INCH THICK CONCRETE PAD WITH AN AREA 1.5 TIMES THE BOTTOM AREA OF THE DISTRIBUTION BOX.
8. AN INLET TEE SHALL BE INSTALLED IN THE DISTRIBUTION BOX WHEN THE SYSTEM IS A PUMP SYSTEM OR WHEN THE SLOPE OF THE INLET PIPE EXCEEDS 0%.
9. SYSTEM SHALL BE VENTED THROUGH THE BUILDING PLUMBING OR AS SHOWN ON THE SYSTEM PROFILE.
10. ALL SURFACES SHALL BE SCARIFIED PRIOR TO THE PLACEMENT OF FILL.
11. ALL UNSUITABLE MATERIAL ENCOUNTERED IN THE EXCAVATION SHALL BE REMOVED.
12. ALL CRUSHED STONE USED IN THE CONSTRUCTION OF THE SEWAGE DISPOSAL SYSTEM SHALL BE THE SIZE SPECIFIED, DURABLE AND DOUBLE WASHED.
13. WHEN GRAVEL FILL IS REQUIRED, ALL ORGANIC MATERIAL WITHIN 5 FEET OF THE PROPOSED LEACHING FACILITY SHALL BE REMOVED AND REPLACED WITH WELL COMPACTED GRANULAR FILL MEETING THE REQUIREMENTS OF 310 CMR 15.255.
14. ALL BACKFILL AND BREAKOUT FILL REQUIRED SHALL BE CLEAN EARTHEN MATERIAL FREEE OF CONSTRUCTION DEBRIS, STUMPS, BOULDERS AND FROZEN EARTH. FILL MATERIAL SHALL BE PLACED IN A MANNER THAT WILL ENSURE RUNOFF AND PREVENT EROSION.
15. SEWAGE DISPOSAL SYSTEM CORNERS SHALL BE STAKED AND FLAGGED BY A PROFESSSIONAL ENGINEER OR PROFESSIONAL LAND SURVEYOR PRIOR TO THE START OF CONSTRUCTION.
16. ALL SYSTEM COMPONENTS SHALL BE MARKED WITH MAGNETIC MARKING TAPE OR OTHER COMPARABLE MEANS IN ORDER TO LOCATE THEM ONCE BURIED.

SEWAGE DISPOSAL SYSTEM DESIGN PLAN

LOCATION:

LOT B HAYWARD ROAD

ACTON, MASSACHUSETTS
(A SUBDIVISION OF 121 HAYWARD ROAD)

PREPARED FOR:

ACTON MANAGEMENT
P.O. BOX 2350
ACTON, MASSACHUSETS 01720

DATE: JULY 8, 2014 | SCALE: 1 INCH = 20 FEET

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