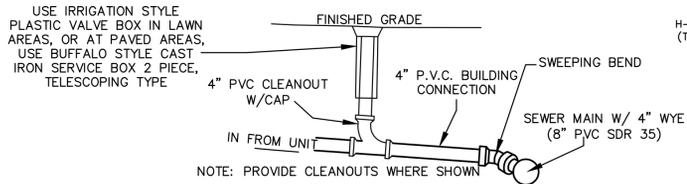


TYPICAL SEPTIC SYSTEM PROFILE
NOT TO SCALE



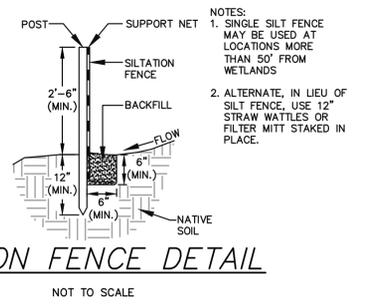
TYPICAL SEWER CONNECTION W/ CLEANOUT
NOT TO SCALE

DESIGN CALCULATIONS FOR UNITS #1-4:
SYSTEM #1
1.) ESTIMATED DAILY FLOW:
4 UNITS: 12 BEDROOMS X 110 GPD/BEDROOM = 1320 GPD (4-3 BEDROOM)
3.) 2'D X 2'W TRENCHES REQUIRED: <2 MPI (CLASS I)
1320 GPD / 0.74 = 1784 S.F. / 6 S.F./L.F. = 298 L.F.
USE (6) 2'D X 2'W X 50'L TRENCHES = 300 L.F.

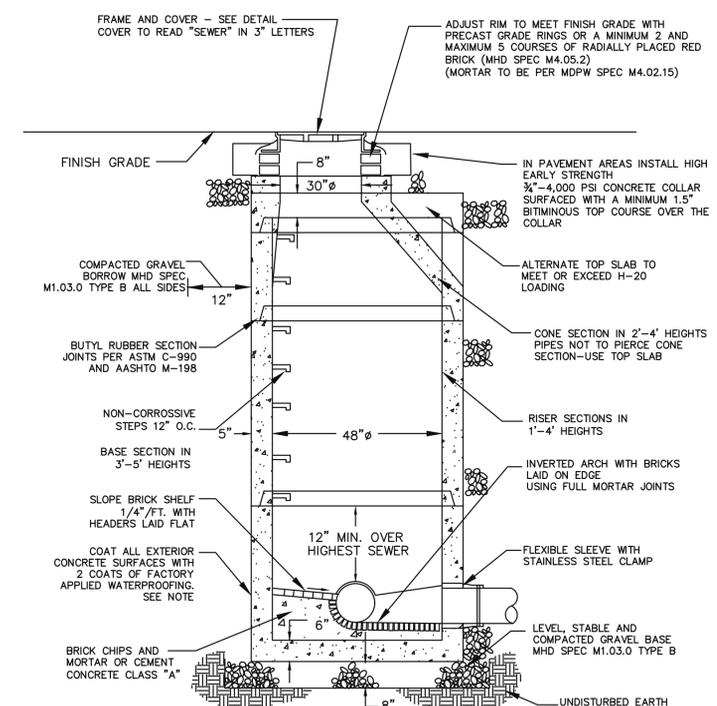
DESIGN CALCULATIONS FOR UNITS #6-8:
SYSTEM #2
1.) ESTIMATED DAILY FLOW:
3 UNITS: 7 BEDROOMS X 110 GPD/BEDROOM = 880 GPD (1-3 BEDROOM AND 2-2 BEDROOM)
2.) REQUIRED SEPTIC TANK CAPACITY: (PER TITLE 5)
TWO TANKS IN SERIES (OR TWO COMPARTMENT TANK):
FIRST COMPARTMENT = 48 HOUR DETENTION X 770 GPD = 1540 GAL (MIN)
SECOND COMPARTMENT = 24 HOUR DETENTION X 770 GPD = 770 GAL
SEPTIC TANK SIZE PROVIDED (2-COMPARTMENT TANK) = 3,000 GAL
3.) 2'D X 2'W TRENCHES REQUIRED: <2 MPI (CLASS I)
770 GPD / 0.74 = 1040 S.F. / 6 S.F./L.F. = 174 L.F.
USE (3) 2'D X 2'W X 61'L TRENCHES = 183 L.F.

DESIGN CALCULATIONS FOR UNITS #21-28:
SYSTEM #3
1.) ESTIMATED DAILY FLOW:
9 UNITS: 25 BEDROOMS X 110 GPD/BEDROOM = 2,750 GPD (7 X 3 BEDROOM AND 2 X 2 BEDROOM)
2.) REQUIRED SEPTIC TANK CAPACITY: (PER TITLE 5)
FOR UNITS #21-23 (9 BEDROOM): TWO TANKS IN SERIES (OR TWO COMPARTMENT TANK):
FIRST COMPARTMENT = 48 HOUR DETENTION X 990 GPD = 1980 GAL
SECOND COMPARTMENT = 24 HOUR DETENTION X 990 GPD = 990 GAL
SEPTIC TANK SIZE PROVIDED (2-COMPARTMENT TANK) = 3000 GAL
FOR UNITS #24-28 (16 BEDROOM): TWO TANKS IN SERIES (OR TWO COMPARTMENT TANK):
FIRST COMPARTMENT = 48 HOUR DETENTION X 1760 GPD = 3520 GAL
SECOND COMPARTMENT = 24 HOUR DETENTION X 1760 GPD = 1760 GAL
SEPTIC TANK SIZE PROVIDED (2-COMPARTMENT TANK) = 6000 GAL
3.) PRESBY ADVANCED ENVIRO-SEPTIC SYSTEM LEACHING REQUIREMENTS:
USE <2 M.P.I. PERCOLATION RATE (CLASS I)
EFFLUENT LOADING RATE = 0.74 GPD/SF
PER TITLE V, AREA REQUIRED = 2,750 GPD / 0.74 GPD/SF = 3716 SF
*USING PRESBY ENVIRO-SEPTIC SYSTEM, EMPLOY 40% REDUCTION TO LEACHING SYSTEM AREA: 3716 SF X 0.6 = 2,229 S.F.
(2,229 S.F. MIN. REQUIRED PER PRESBY DESIGN MANUAL)
USE (1) 103'L X 25'W LEACHING BEDS = 2,575 S.F.
RESERVE: 4162 S.F. REQUIRED
USE LEACHING FIELD TRENCHES
2'D X 2'W TRENCHES = 6 S.F./L.F. OF LEACHING AREA
4162 S.F. / 6 = 694 L.F. OF TRENCHES REQUIRED
USE (7) 2'D X 2'W X 100'L TRENCHES = 700 L.F.
4.) PRESBY ADVANCED ENVIRO-SEPTIC PIPE REQUIREMENTS:
FOR A PERC RATE OF 1-60 MPI:
NEED 100 LF OF PRESBY AES SEPTIC PIPE FOR EACH 2 BEDROOMS
100 L.F. PER 2 BEDROOMS X 28 BEDROOMS = 1400 LF OF AES PIPE REQ'D
USE (14) 100' LENGTHS OF PIPE SPACED @ 1.5' O.C.
WITH 2.25' OF SAND ON SIDES AND 1.5' OF SAND AT ENDS

DESIGN CALCULATIONS FOR UNITS 12-17:
SYSTEM #4
1.) ESTIMATED DAILY FLOW:
6 UNITS: 14 BEDROOMS X 110 GPD/BEDROOM = 1,540 GPD (2 X 3 BEDROOMS AND 4 X 2 BEDROOM)
2.) REQUIRED SEPTIC TANK CAPACITY: (PER TITLE 5)
TWO TANKS IN SERIES (OR TWO COMPARTMENT TANK):
FIRST COMPARTMENT = 48 HOUR DETENTION X 1,540 GPD = 3,080 GAL
SECOND COMPARTMENT = 24 HOUR DETENTION X 1,540 GPD = 1,540 GAL
SEPTIC TANK SIZE PROVIDED (2-COMPARTMENT TANK) = 5,000 GAL
3.) PRESBY ENVIRO-SEPTIC SYSTEM LEACHING REQUIREMENTS:
USE 6 M.P.I. PERCOLATION RATE (CLASS II)
EFFLUENT LOADING RATE = 0.60 GPD/SF
PER TITLE V, AREA REQUIRED = 1,540 GPD / 0.60 GPD/SF = 2,567 S.F.
*USING ADVANCED PRESBY ENVIRO-SEPTIC SYSTEM, EMPLOY 40% REDUCTION TO LEACHING SYSTEM AREA: 2,567 S.F. X 0.6 = 1,540 S.F.
USE (1) 92'L X 17'W LEACHING BEDS = 1,564 S.F.
RESERVE: 1,540 S.F. REQUIRED
USE LEACHING FIELD TRENCHES
2'D X 2'W TRENCHES = 6 S.F./L.F. OF LEACHING AREA
2,567 S.F. / 6 = 428 L.F. OF TRENCHES REQUIRED
USE (6) 2'D X 2'W X 72'L TRENCHES = 432 L.F.
4.) PRESBY ADVANCED ENVIRO-SEPTIC PIPE REQUIREMENTS:
FOR A PERC RATE OF 1-60 MPI:
NEED 100 L.F. OF PRESBY AES SEPTIC PIPE FOR EACH 2 BEDROOMS
100 L.F. PER 2 BEDROOMS X 14 BEDROOMS = 700 LF OF AES PIPE REQ'D
USE (8) 90' LENGTHS OF PIPE SPACED @ 2.0' O.C.
WITH 1.0' OF SAND ALL AROUND.



SILTATION FENCE DETAIL
NOT TO SCALE



4' I.D. DIAMETER PRECAST CONCRETE SEWER MANHOLE
N.T.S.

NOTES:
1. EXCAVATION TO ALLOW FOR FREE TRAVEL OF COMPACTION EQUIPMENT
2. ALL COMPACTION TO A MINIMUM 95 PERCENT DRY DENSITY DETERMINED BY ASTM D1557. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS
3. ALL PRECAST TO MEET OR EXCEED ASTM C-478 AND ASHTO M 199 SPECIFICATIONS
4. REINFORCED STEEL TO MEET OR EXCEED ASTM A185 AND H-20 LOADING REQUIREMENTS
5. ALL PRECAST CONCRETE TO BE 4,000 PSI MINIMUM AND MEET ASTM C-478 (6.1)

REVISIONS		
1	5/11/17	BETA ENG./TOWN COMMENTS
2	6/16/17	GENERAL
APPLICANT		
THE VILLAGE AT NORFOLK, LLC 32 NORFOLK AVENUE S. EASTON, MA 02375		
OWNERS		
PAUL AND PATRICIA KELLEY 25 ROCKWOOD ROAD NORFOLK, MA 02056 ASSESSORS MAP 14 BLOCK 49 LOT 11 DEED BOOK 11286 PAGE 26		
DETAILS SHEET FOR "THE VILLAGE AT NORFOLK"		
IN NORFOLK MASSACHUSETTS		
Outback Engineering Incorporated		
165 EAST GROVE STREET MIDDLEBOROUGH, MA 02346 TEL: (508)-946-9231 FAX: (508)-947-8873 www.outback-eng.com		
DATE: FEBRUARY 21, 2017		
DRAWN BY: CJV CHECKED BY: J.A.P.		
SCALE: NTS SHEET 8 OF 10		
OE-3012		