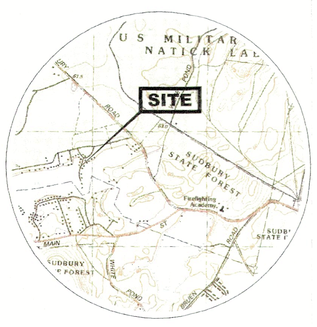


LOCUS MAP

SCALE: 1" = 1,500'

CALCULATIONS:

HYDRAULIC LOADING:
FOUR (4) BEDROOMS AT 110 GALLONS PER DAY PER BEDROOM = 440 GALLONS PER DAY.

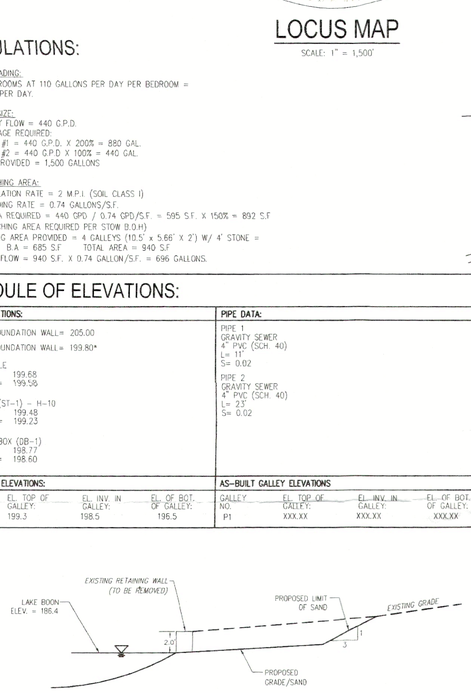
SEPTIC TANK SIZE:
AVERAGE DAILY FLOW = 440 G.P.D.
MINIMUM STORAGE REQUIRED:
COMPARTMENT #1 = 440 G.P.D. X 200% = 880 GAL.
COMPARTMENT #2 = 440 G.P.D X 100% = 440 GAL.
SEPTIC TANK PROVIDED = 1,500 GALLONS

PRIMARY LEACHING AREA:
DESIGN PERCOLATION RATE = 2 M.P.I. (SOIL CLASS I)
EFFLUENT LOADING RATE = 0.74 GALLONS/S.F.
LEACHING AREA REQUIRED = 440 GPD / 0.74 GPD/S.F. = 595 S.F. X 150% = 892 S.F
(150% OF LEACHING AREA REQUIRED PER STOW B.O.H.)
TOTAL LEACHING AREA PROVIDED = 4 GALLEYS (10.5' x 5.66' X 2') W/ 4' STONE =
S.W.= 255 S.F. B.A. = 685 S.F. TOTAL AREA = 940 S.F.
TOTAL DESIGN FLOW = 940 S.F. X 0.74 GALLON/S.F. = 696 GALLONS.

SCHEDULE OF ELEVATIONS:

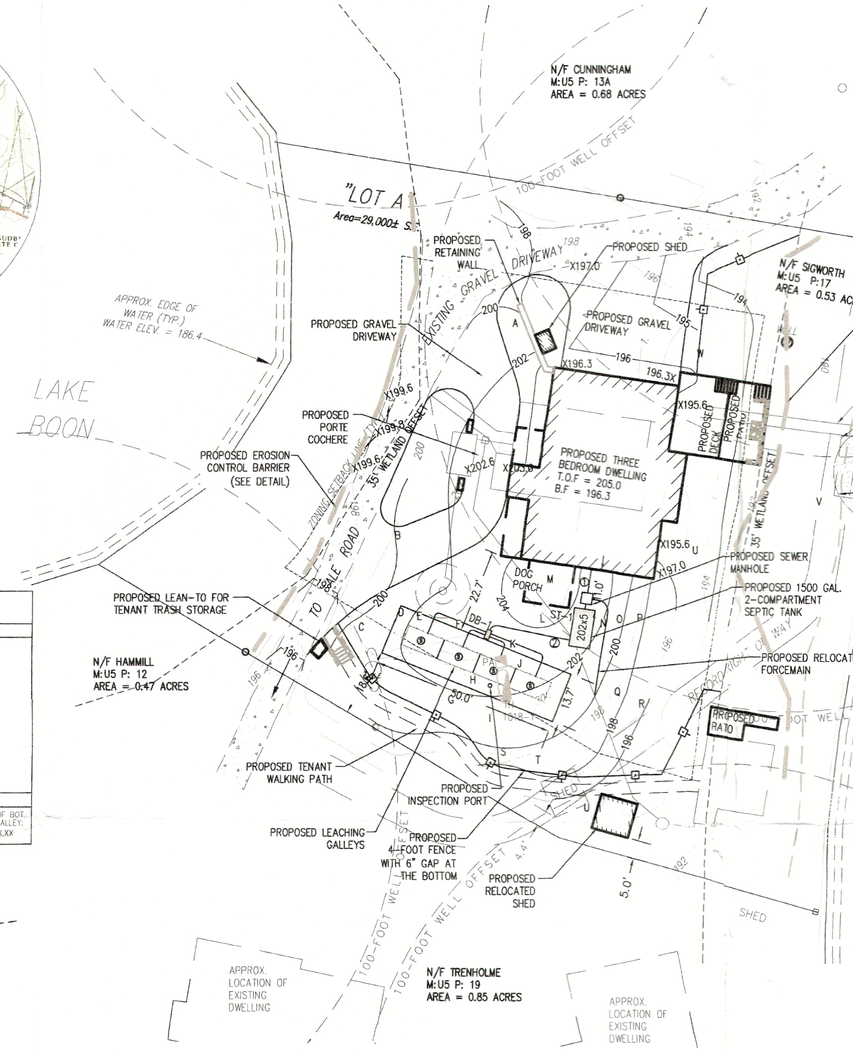
SYSTEM ELEVATIONS:	PIPE DATA:
TOP EL. OF FOUNDATION WALL= 205.00 INV. EL. AT FOUNDATION WALL= 199.80* SEWER MANHOLE 4" INV. (IN)= 199.68 4" INV. (OUT)= 199.56 SEPTIC TANK (ST-1) - H-10 4" INV. (IN)= 199.48 4" INV. (OUT)= 199.23 DISTRIBUTION BOX (DB-1) 4" INV. (IN)= 198.77 4" INV. (OUT)= 198.60	PIPE 1 GRAVITY SEWER 4" PVC (SCH. 40) L= 11' S= 0.02 PIPE 2 GRAVITY SEWER 4" PVC (SCH. 40) L= 23' S= 0.02

PRIMARY FIELD ELEVATIONS:				AS-BUILT GALLEY ELEVATIONS			
GALLEY NO.	EL. TOP OF GALLEY:	EL. INV. IN GALLEY:	EL. OF BOT. OF GALLEY:	GALLEY NO.	EL. TOP OF GALLEY:	EL. INV. IN GALLEY:	EL. OF BOT. OF GALLEY:
P1-4	199.3	198.5	196.5	P1	XXX.XX	XXX.XX	XXX.XX



SAND BEACH DETAIL

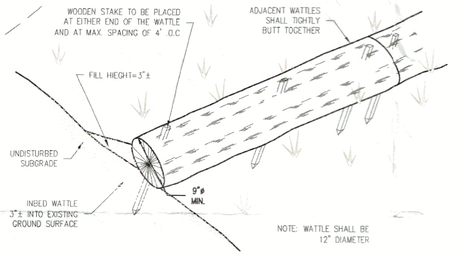
NOT TO SCALE



TREE REMOVAL SUMMARY

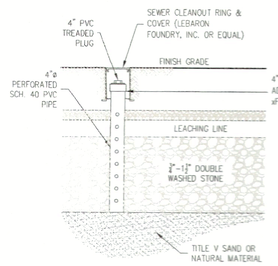
TREE LABEL:	TREE DIAMETER:	SPECIES:
A	14"	APPLE
B	18"	OAK
C	15"	PINE
D	16"	OAK
E	10"	PINE
F	28"	PINE
G	28"	PINE
H	12"	PINE
I	20"	PINE
J	12"	OAK
K	18"	OAK
L	16"	PINE
M	24"	PINE
N	24"	OAK
O	12"	PINE
P	12"	PINE
Q	18"	OAK
R	12"	PINE
S	18"	PINE
T	10"	PINE
U	30"	OAK
V	36"	PINE
W	12"	CHERRY CLUSTER

*TREE REMOVAL NOTE: TREES TO BE REMOVED DENOTED BY A CORRESPONDING LETTER DRAWN IN THE CENTER



STRAW WATTLE DETAIL

NOT TO SCALE



INSPECTION PORT DETAIL

NOT TO SCALE

EXISTING SYSTEM NOTE:

EXISTING SYSTEM MAY BE ENCOUNTERED DURING INSTALLATION OF NEW SOIL ABSORPTION SYSTEM, (S.A.S.). REMOVAL, DISPOSAL AND UTILIZATION OF MATERIAL SHALL BE IN ACCORDANCE WITH THE TOWN OF STOW'S BOARD OF HEALTH RULES AND REGULATIONS.

GENERAL NOTES:

1. TOPOGRAPHIC INFORMATION IS THE RESULT OF AN ON-THE-GROUND SURVEY PERFORMED BY DUCHARME & DILLIS CIVIL DESIGN GROUP, INC. ELEVATIONS REFER TO ASSUMED DATUM (SEE BENCH MARK LOCATED ON PLOT PLAN).
2. PROPERTY LINE INFORMATION TAKEN FROM RECORDED PLAN ON FILE WITH THE S. MIDDLESEX REGISTRY OF DEEDS. PLAN BOOK: U-5 PLAN: 17
3. PERCOLATION TESTS PERFORMED IN ACCORDANCE WITH 310 CMR (TITLE 5) REGULATIONS 15.104 AND 15.105.
4. ANY DEVIATIONS FROM THE DESIGN PLAN MUST BE APPROVED IN WRITING BY DUCHARME & DILLIS CIVIL DESIGN GROUP, INC.
5. NO PERMANENT STRUCTURES MAY BE CONSTRUCTED OVER THE RESERVE LEACHING AREA.
6. THE BOARD OF HEALTH REQUIRES INSPECTION OF ALL CONSTRUCTION BY THE DESIGN ENGINEER OR BY AN AGENT OF THE BOARD OF HEALTH, AND THAT SUCH A PERSON CERTIFIES IN WRITING THAT ALL WORK HAS BEEN COMPLETED IN ACCORDANCE WITH THE TERMS OF THE PERMIT AND THE APPROVED PLANS.
7. FOR PROPER PERFORMANCE, A SEPTIC TANK SHOULD BE INSPECTED AT LEAST ONCE EVERY YEAR AND WHEN THE TOTAL DEPTH OF SCUM AND SOLIDS EXCEEDS ONE THIRD OF LIQUID DEPTH OF THE TANK, THE TANK SHOULD BE PUMPED.
8. THIS DESIGN DOES NOT ACCOMMODATE A GARBAGE DISPOSAL.
9. CONSTRUCTION WITHIN 100 FEET OF A WETLAND RESOURCE AREA AS DEFINED IN THE MASSACHUSETTS WETLAND PROTECTION ACT AND REGULATIONS (310 CMR 10.00) SHALL NOT BE PERFORMED UNTIL AN ORDER OF CONDITIONS OR NEGATIVE DETERMINATION OF APPLICABILITY HAS BEEN OBTAINED FROM THE LOCAL CONSERVATION COMMISSION.
10. EXISTING UTILITIES SHOWN ON THIS PLAN WERE COMPILED FROM FIELD MEASUREMENT AND RECORD PLANS. THE UTILITIES SHOWN ON THIS PLAN ARE FOR REFERENCE ONLY AND SHOULD NOT BE ASSUMED TO BE CORRECT NOR SHOULD IT BE ASSUMED THAT THE UTILITIES SHOWN ARE THE ONLY UTILITIES LOCATED ON OR NEAR THE SITE. THE CONTRACTOR SHALL CALL DIG SAFE 1-888-DIG-SAFE PRIOR TO CONSTRUCTION IN ACCORDANCE WITH STATE LAWS.
11. FOR PROPOSED PLANTING LOCATIONS AND DESCRIPTIONS, PLEASE REFER TO THE LANDSCAPE PLAN ENTITLED "PROPOSED PLANTING PLAN", PREPARED BY LANDSCAPE ELEMENTS, LLC DATED 12/03/2018.

CONSTRUCTION NOTES:

1. FINISH GRADING SHALL BE DONE IN ACCORDANCE WITH THE PLOT PLAN. ALL DISTURBED AREAS SHALL BE COVERED WITH A MINIMUM OF 4" OF LOAM AND SEEDED WITH A NATIVE GRASS MIXTURE.
2. BACKFILL OVER THE SOIL ABSORPTION SYSTEM, SEPTIC TANK AND PUMP CHAMBER SHALL BE A MINIMUM OF 9 INCHES EXCLUDING TOPSOIL, PLACED IN LIFTS AND SUFFICIENTLY COMPACTED TOP PREVENT DEPRESSIONS DUE TO SETTLING. BACKFILL OVER THE SOIL ABSORPTION SYSTEM SHALL BE FREE OF STONES AND BOULDERS GREATER THAN 6 INCHES IN SIZE.
3. THE BUILDING SEWER SHALL BE LAID ON A COMPACTED FIRM BASE.
4. ALL PIPING SHALL BE MINIMUM OF SCHEDULE 40 UNLESS OTHERWISE NOTED.
5. ALL PIPE JOINTS AND CONNECTIONS TO SYSTEM COMPONENTS SHALL BE MECHANICALLY SOUND, WATER TIGHT AND PROTECTED AGAINST DAMAGE BY ROOTS.
6. ALL BUILDING SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STATE PLUMBING CODE 248 CMR 2.00.
7. FINAL COVER OVER THE SYSTEM SHALL BE GRADED TO REDUCE INFILTRATION OF SURFACE WATER AND MINIMIZE EROSION. FINISH GRADE SHALL HAVE A MINIMUM SLOPE OF 2%.
8. EFFLUENT DISTRIBUTION LINES SHALL HAVE A SLOPE OF 0.05%.
9. OUTLET DISTRIBUTION LINES FROM THE D-BOX SHALL BE LEVEL FOR A MINIMUM OF TWO FEET OF THEIR LENGTH.
10. FILL MATERIAL FOR SYSTEMS CONSTRUCTED IN FILL SHALL CONSIST OF SELECT ON-SITE OR IMPORTED SOILS THAT MEET THE MINIMUM REQUIREMENTS STATED IN 310 CMR 15.255(3).
11. WHERE FILL IS REQUIRED TO REPLACE UNSUITABLE OR IMPERMEABLE SOILS, THE EXCAVATION OF THE UNSUITABLE MATERIAL SHALL EXTEND A MINIMUM OF 5 FEET LATERALLY IN ALL DIRECTIONS BEYOND THE OUTER PERIMETER OF THE SOIL ABSORPTION SYSTEM TO THE DEPTH OF 3 INCHES INTO THE NATURALLY OCCURRING PERVIOUS MATERIAL.
12. THE BOTTOM SURFACE OF THE EXCAVATION SHALL BE SCARIFIED AND RELATIVELY DRY. FILL SHALL NOT BE PLACED DURING RAIN OR SNOW STORMS. IF THE WATER TABLE ELEVATION IS ABOVE THE ELEVATION OF THE BOTTOM OF THE EXCAVATION, THE EXCAVATION SHALL BE DEWATERED.
13. SUBSURFACE COMPONENTS OF A SYSTEM SHALL NOT BE BACKFILLED OR OTHERWISE CONCEALED FROM VIEW UNTIL A FINAL INSPECTION HAS BEEN CONDUCTED BY THE APPROVING AUTHORITY AND PERMISSION HAS BEEN GRANTED BY THE APPROVING AUTHORITY TO BACKFILL THE SYSTEM. THE DESIGNER SHALL INSPECT THE CONSTRUCTION AFTER THE INITIAL EXCAVATION, PRIOR TO BACKFILLING, AND DURING BACKFILLING. IN ADDITION, THE FINAL INSPECTION OF THE SYSTEM SHALL BE CONDUCTED BY THE APPROVING AUTHORITY, THE SYSTEM INSTALLER AND THE DESIGNER PRIOR TO THE ISSUANCE OF A CERTIFICATE OF COMPLIANCE PURSUANT TO 310 CMR 15.021(3). ANY COMPONENT OF THE SYSTEM WHICH HAS BEEN COVERED WITHOUT SUCH PERMISSION SHALL BE UNCOVERED UPON THE REQUEST OF THE APPROVING AUTHORITY OR THE DESIGNER.
14. ALL SYSTEM COMPONENTS SHALL BE MARKED WITH MAGNETIC MARKING TAPE OR A COMPARABLE MEANS IN ORDER TO LOCATE THEM ONCE BURIED.
15. ALL SOIL ABSORPTION SYSTEMS SHALL HAVE A MINIMUM OF ONE (1) INSPECTION PORT CONSISTING OF A PERFORATED FOUR (4) INCH PIPE PLACED VERTICALLY DOWN INTO THE STONE TO THE NATURALLY OCCURRING SOIL OR SAND FILL BELOW THE STONE. THE PIPE SHALL BE CAPPED WITH A SCREW TYPE CAP AND ACCESSIBLE TO WITHIN THREE (3) INCHES OF FINISH GRADE.

NAME OF APPROVING AUTHORITY: NASHOBA BOARD OF HEALTH
JAMES GARRETT, BOH AGENT

SOIL TEST DATA

NAME OF SOIL EVALUATOR: DUCHARME AND DILLIS CIVIL DESIGN GROUP
WILLIAM J. "JACK" MALONEY, JR. (SE-13704)

IN-SEASON GROUND WATER TESTING - (IF REQ'D)

PERCOLATION TEST DATA

TEST PIT NO.	DATE	SURFACE ELEVATION	DEPTH TO OBSERVED GROUNDWATER	GWATER ELEVATION	TEST PIT NO	DATE	TOP OF 12" OF WATER: DEPTH FROM SURFACE	TOP OF 12" OF WATER: SURFACE ELEVATION	RATE: MINUTES PER INCH
					P.A.	10/9/18	52"	202.0	2 MPI

SOIL CLASSIFICATION: HINCKLEY LOAMY SAND
GEOLOGICAL MATERIAL: PROGLACIAL OUTWASH
LAND FORM: OUTWASH PLAIN
SOIL LIMITATIONS: NONE
GENERAL NOTES: X

DEEP TEST PIT: 1018-1
DATE OF TEST: 10/9/18
REFUSAL AT: NONE OBSERVED

DEPTH	HOR.	TEX.	COLOR	MOTT.	G.W.	OTHER
0-10"	A	SL	10YR 3/3	NONE	NONE	CRUMB, FRIABLE
10-20"	B	LS	10YR 3/8	NONE	NONE	CRUMB, FRIABLE
20-120"	C	SAND	10YR 5/4	NONE	NONE	CRUMB, FRIABLE

(SURFACE ELEV. = 201.0)
ESTIMATED SEASONAL HIGH GROUND WATER AT 120" (ELEVATION = 191.0)

I CERTIFY THAT I AM CURRENTLY APPROVED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION PURSUANT TO 310 CMR 15.017 TO CONDUCT SOIL EVALUATIONS AND THAT THE ABOVE ANALYSIS HAS BEEN PERFORMED BY ME CONSISTENT WITH THE REQUIRED TRAINING, EXPERTISE, AND EXPERIENCE DESCRIBED IN 310 CMR 15.017. I FURTHER CERTIFY THAT THE RESULTS OF MY SOIL EVALUATION, AS INDICATED ON THE ATTACHED SOIL EVALUATION FORM, ARE ACCURATE IN ACCORDANCE WITH 310 CMR 15.100 THROUGH 15.107

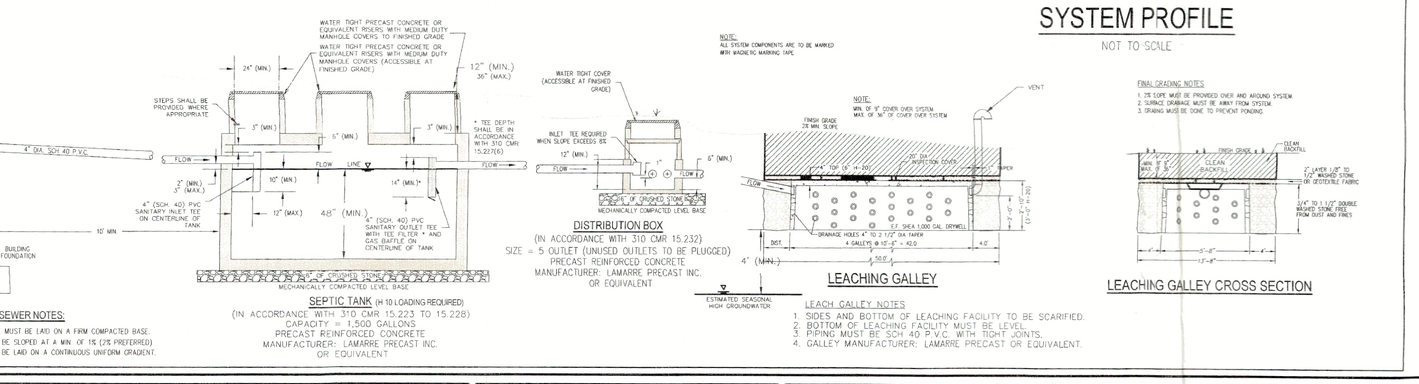
LICENSED SOIL EVALUATOR:
WILLIAM J. "JACK" MALONEY, JR (S.E.# 13704)

REPAIR NOTES:

1. CONTRACTOR TO VERIFY ELEVATION (*) PRIOR TO THE START OF CONSTRUCTION AND REPORT TO ENGINEER ANY VARIATIONS IN ELEVATIONS TO THOSE SHOWN ON THIS PLAN.
2. EXISTING SYSTEM MAY BE ENCOUNTERED DURING THE INSTALLATION OF NEW SOIL ABSORPTION SYSTEM (S.A.S.) REMOVAL, DISPOSAL AND UTILIZATION OF MATERIAL SHALL BE IN ACCORDANCE WITH THE TOWN OF STOW BOARD OF HEALTH RULES AND REGULATIONS.
3. EXISTING CESSPOOL TO BE PUMPED, CRUSHED AND BACKFILLED WITH CLEAN GRANULAR MATERIAL AND/OR IN ACCORDANCE WITH THE TOWN OF STOW BOARD OF HEALTH RULES AND REGULATIONS.

LEGEND

DESCRIPTION	DRAWING ENTITY
DENOTES EXISTING CONTOUR (INDEX)	100
DENOTES EXISTING CONTOUR (INTERMEDIATE)	98
DENOTES PROPOSED CONTOUR (INDEX)	100
DENOTES PROPOSED CONTOUR (INTERMEDIATE)	98
DENOTES LIMIT OF EXCAVATION OF UNSUITABLE SOILS	5' EXC.
DENOTES PROPOSED SEWER LINE	
DENOTES PROPOSED WATER LINE	
DENOTES PROPOSED UNDERGROUND UTILITIES	
DENOTES PROPOSED BUILDING ENVELOPE	
DENOTES PROPOSED CONCRETE SEPTIC TANK	ST-1
DENOTES PROPOSED CONCRETE PUMP CHAMBER	PC-1
DENOTES PROPOSED CONCRETE DISTRIBUTION BOX	DB-1
DENOTES PROPOSED SEWER CLEANOUT	C.O.



SYSTEM PROFILE

NOT TO SCALE

PREPARED BY:
DUCHARME & DILLIS
Civil Design Group, Inc.
CIVIL ENGINEERS • LAND SURVEYORS • WETLAND CONSULTANTS
1092 MAIN STREET, P.O. BOX 428
BOLTON, MASSACHUSETTS 01740
PHONE: (978) 779-6091 FAX: (978) 779-0260
www.DuchermeandDillis.com

OWNER:
BRETT SIGWORTH
25 HALE ROAD
STOW, MASSACHUSETTS

APPLICANT:
BRETT SIGWORTH
25 HALE ROAD
STOW, MASSACHUSETTS

SCALE:
20 0 10 20 40 80
1 in. = 20 ft.

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DIG SAFE 1-888-344-7233

GREGORY J. MALONEY 49377 REGISTERED PROFESSIONAL ENGINEER 1/24/19

DATE: 12/3/18
DESIGN BY: GSR
DRAWN BY: RWP
CHECKED BY: GSR

SEWAGE DISPOSAL SYSTEM DESIGN
25 HALE ROAD
STOW, MASSACHUSETTS

NO.	DATE	DESCRIPTION	BY
1.	12/5/18	REV. FOR CON. COM. SUBMITTAL	GSR
2.	1/24/19	REV. PER CONSERVATION COMMISSION COMMENTS	RWP

RECEIVED
JAN 25 2019
TOWN OF STOW
CONSERVATION COMMISSION

JOB NO. 5910
DRAWING NO. 5910-SDS
SHEET NO. 1 OF 1