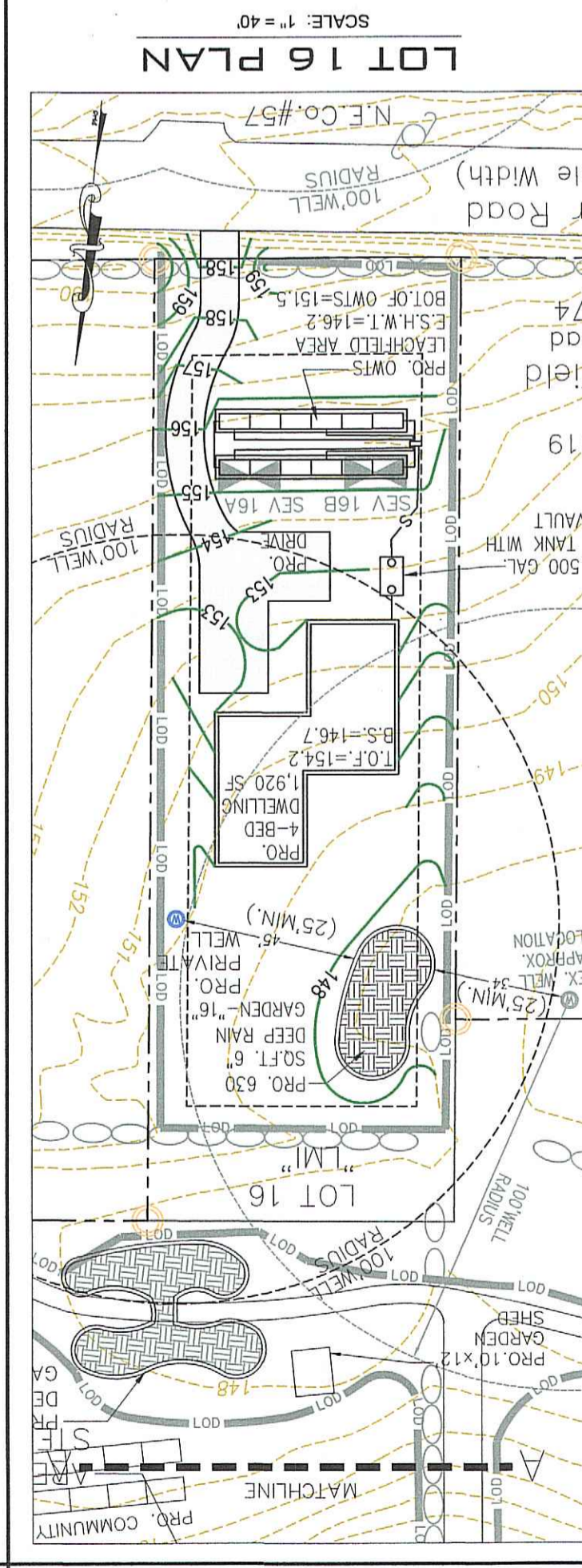
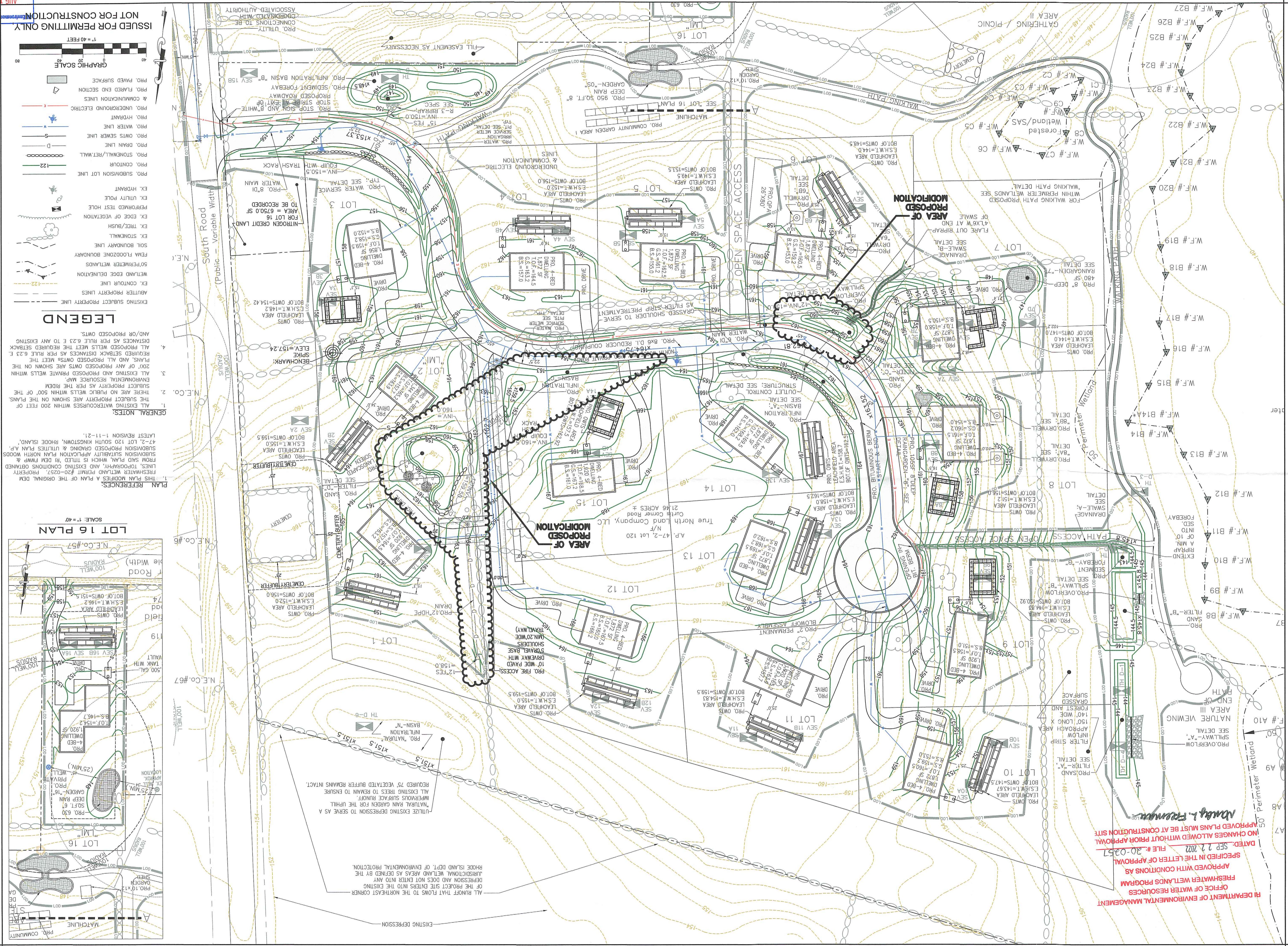


RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM
 APPROVED WITH CONDITIONS AS
 SPECIFIED IN THE LETTER OF APPROVAL
 DATE: SEP 2 2022 FILE # 20-0257
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE



Office of Water Resources
 DATE: 07/29/22

ISSUED FOR PERMITTING ONLY
 NOT FOR CONSTRUCTION

GROUND BREAKING
DESIGNS, LLC
 CIVIL ENGINEERING SOLUTIONS

90 HIGHLAND AVE., SOUTH KINGSTOWN, RI 02879 • PHONE: (401) 622-2932

REGISTRATION:
 DAVID KENNETH MANONI
 REGISTERED PROFESSIONAL ENGINEER (CIVIL)

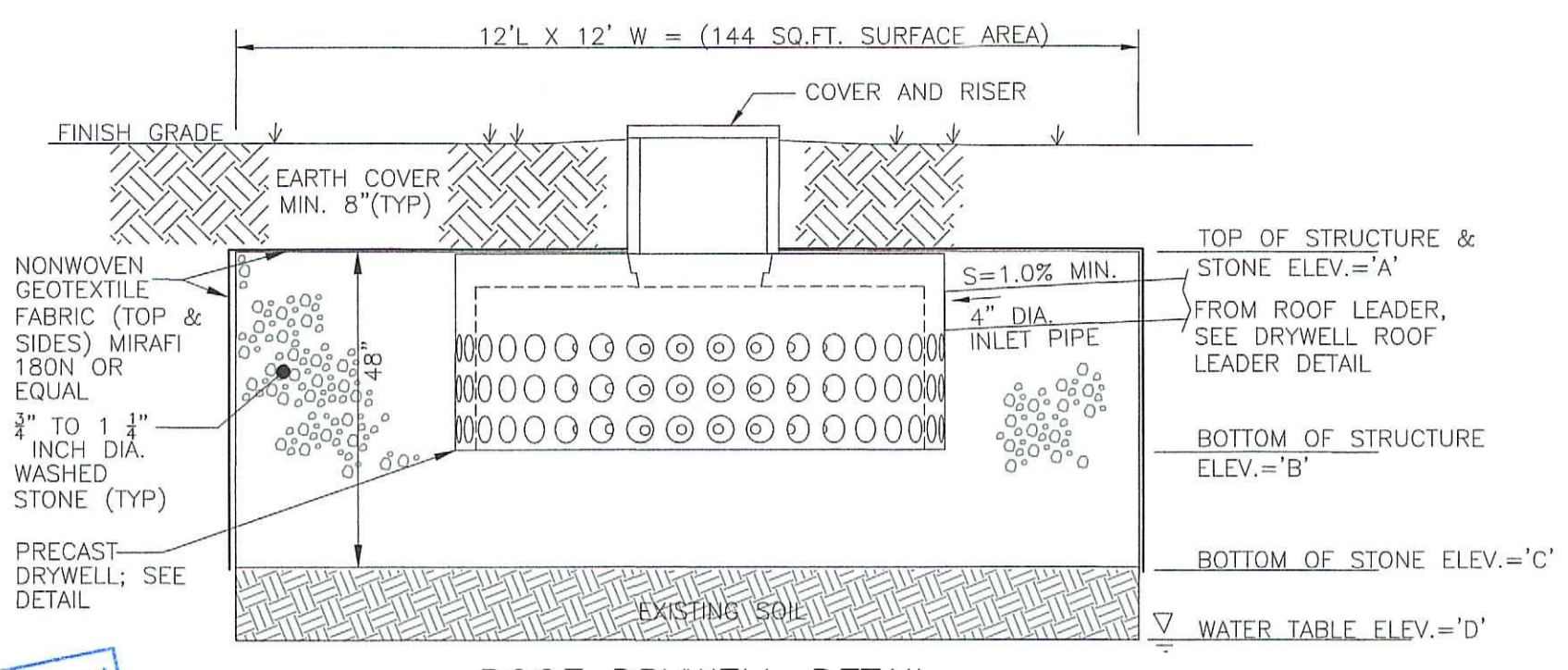
REVISIONS:

NO.	DATE	DESCRIPTION	BY

RIDEM PERMIT MODIFICATION PLAN
 NORTH WOODS SUBDIVISION
 PROPOSED GRADING & UTILITIES PLAN
 A.P. 47-2, LOT 120
 SOUTH KINGSTOWN, RHODE ISLAND
 SCALE: AS SHOWN DATE: 07/29/22 SHEET 1 of 2

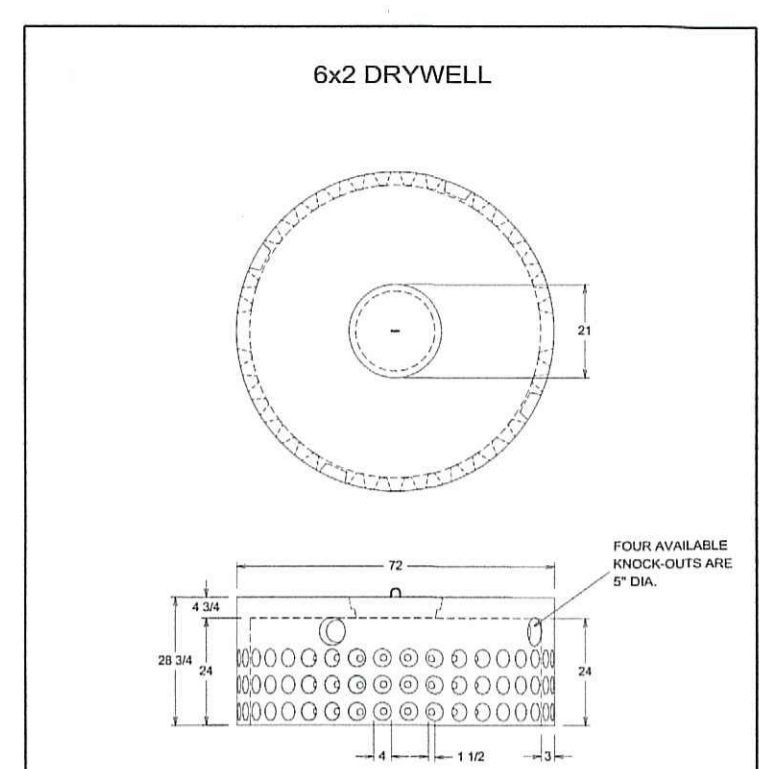
JOB NO.: 20.01

RI Environmental Management
 AUG 9 2022
 Office of Water Resources

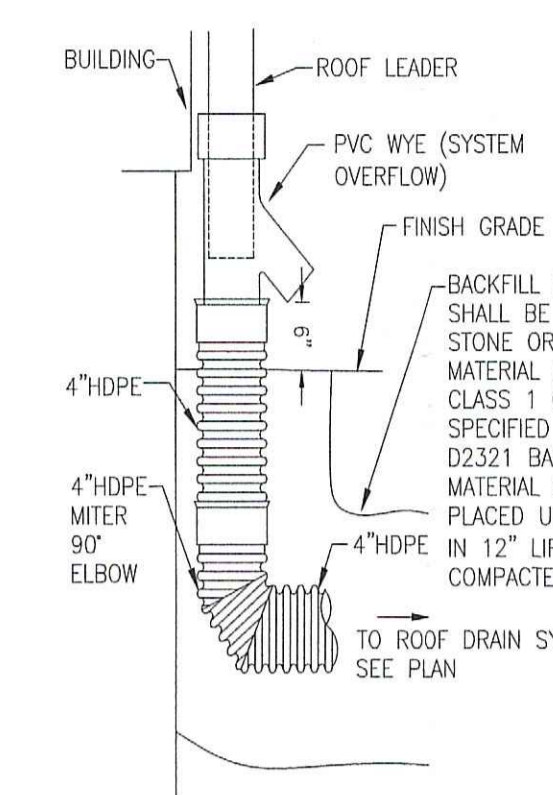


ROOF DRYWELL DETAIL
 NOT TO SCALE

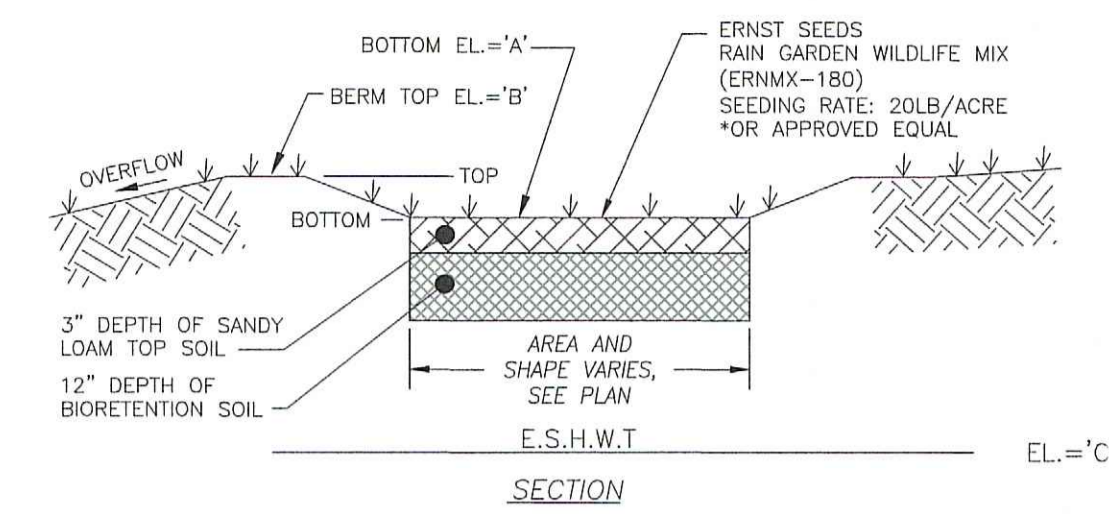
- TYPICAL NOTES:**
1. CRUSHED STONE SHALL BE CLEAN WITH NO FINES.
 2. CRUSHED STONE SHALL BE WRAPPED WITH FABRIC ON TOP & SIDES.
 3. SCARIFY BOTTOM PRIOR TO PLACEMENT OF STONE.
 4. PIPE ROOF RUNOFF FROM DOWNSPOUTS (WHERE INDICATED) TO DRYWELL TO MAXIMUM EXTENT POSSIBLE.
 5. DO NOT ALLOW SEDIMENT LAIDEN RUNOFF TO ENTER DRYWELL.
 6. 4" PIPE SHALL BE HDPE OR APPROVED EQUAL, MINIMUM SLOPE = 1.0% (1/8" PER FOOT).



PRECAST DRYWELL DETAIL
 NOT TO SCALE



DRYWELL ROOF LEADER DETAIL
 NOT TO SCALE



RAIN GARDEN DETAIL
 NOT TO SCALE

NOTES:

1. DO NOT COMPACT SOILS IN RAIN GARDEN AREA. TILL BOTTOM OF RAIN GARDEN PRIOR TO PLACEMENT OF SANDY LOAM TOPSOIL AND BIORETENTION SOIL TO PROMOTE GOOD INFILTRATION RATES.
2. FINE GRADE RAIN GARDEN SO IT HOLDS REQUIRED DEPTH OF RUNOFF PRIOR TO OVERFLOWING.
3. DIRECT FLOWWAY AREAS (TO THE MAXIMUM EXTENT POSSIBLE) TO FLOW INTO RAIN GARDEN.
4. BIORETENTION SOIL MIX (BY VOLUME):
 SAND 85 TO 88%
 SILT 0 TO 12%
 CLAY 0 TO 2%
 ORGANIC MATTER 3 TO 5%
5. THE BIORETENTION SOIL SHOULD BE FREE OF STONES, STUMPS, ROOTS, OTHER WOODY MATERIAL OVER 1" IN DIAMETER, OR BRUSH/SEEDS FROM NOXIOUS WEEDS. PLACEMENT OF THE SOIL SHOULD BE IN LIFTS OF 6 INCHES, LOOSELY COMPACTED (TAMPED LIGHTLY WITH A BACKHOE BUCKET).

ELEVATION SCHEDULE:

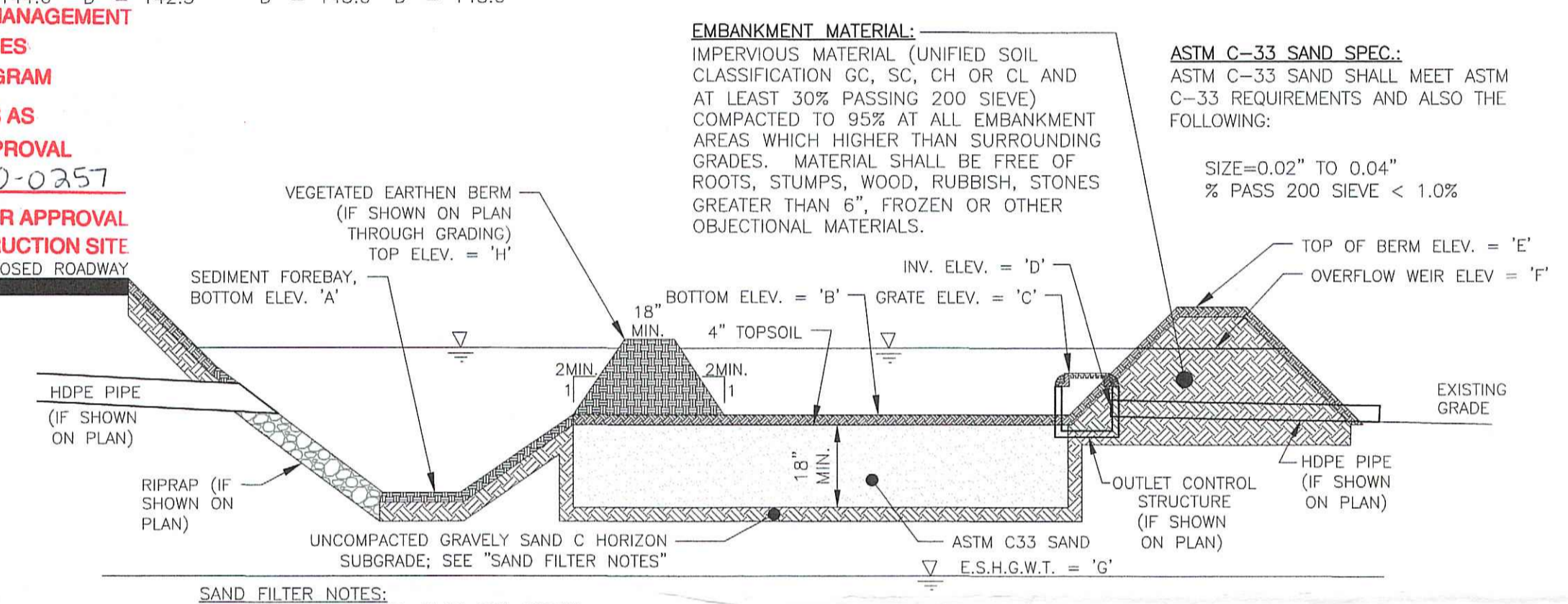
	RAIN GARDEN "7"	RAIN GARDEN "8"	RAIN GARDEN "OS"	RAIN GARDEN "16"
ELEV. 'A'	147.00	158.33	147.33	147.00
ELEV. 'B'	147.67	159.00	148.00	147.50
ELEV. 'C'	144.00	151.00	144.00	144.00

RAIN GARDENS "7", "8", "OS", & "16" ALL FULLY INFILTRATE THE 1.2" STORM EVENT AND OVERFLOW AT GREATER STORM EVENTS.
 RAIN GARDEN "N" FULLY INFILTRATES RUNOFF FROM STORMS UP TO AND INCLUDING THE 2-YR, TYPE III, 24-HOUR STORM EVENT AND OVERFLOWS AT GREATER STORM EVENTS.

DIMENSION/ELEVATION SCHEDULE:

DRYWELL 'BA'	DRYWELL 'BB'	DRYWELL 'GA'	DRYWELL 'GB'
'A' = 151.0'	'A' = 149.5'	'A' = 152.0'	'A' = 155.0'
'B' = 148.6'	'B' = 147.1'	'B' = 149.6'	'B' = 152.6'
'C' = 147.0'	'C' = 145.5'	'C' = 148.0'	'C' = 151.0'
'D' = 144.0'	'D' = 142.5'	'D' = 145.0'	'D' = 148.0'

RI DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 OFFICE OF WATER RESOURCES
 FRESHWATER WETLANDS PROGRAM
 APPROVED WITH CONDITIONS AS SPECIFIED IN THE LETTER OF APPROVAL
 DATED: SEP 22 2022 FILE # 20-02357
 NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
 APPROVED PLANS MUST BE AT CONSTRUCTION SITE



SAND FILTER DETAIL
 NOT TO SCALE

SAND FILTER DIMENSION/ELEVATION SCHEDULE:

SAND FILTER-A	SAND FILTER-C
'A' = N/A	'A' = N/A
'B' = 144.0'	'B' = 159.0'
'C' = N/A	'C' = N/A
'D' = N/A	'D' = N/A
'E' = 145.75'	'E' = 160.5'
'F' = 144.75'	'F' = 160.0'
'G' = 141.0'	'G' = 152.0'
'H' = N/A	'H' = N/A
WQF = 144.02'	WQF = 159.04'
1YR = 144.68'	1YR = 159.21'
10YR = 144.84'	10YR = 160.10'
100YR = 144.92'	100YR = 160.22'

SAND FILTER-B SAND FILTER-D

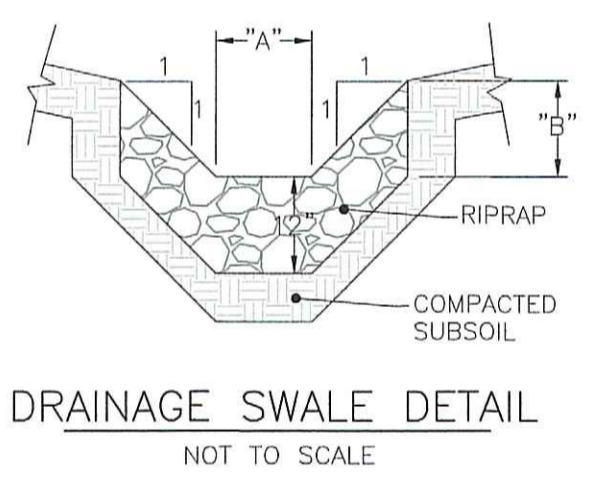
'A' = 143.0'	'A' = N/A
'B' = 144.5'	'B' = 158.0'
'C' = N/A	'C' = N/A
'D' = N/A	'D' = 159.50
'E' = 145.8'	'E' = 162.50'
'F' = 145.0'	'F' = N/A
'G' = 141.5'	'G' = 150.0'
'H' = 145.5'	'H' = 159.0'
WQF = 143.48'	WQF = 158.04'
1YR = 144.27'	1YR = 158.25'
10YR = 145.11'	10YR = 159.24'
100YR = 145.34'	100YR = 160.20'

INFILTRATION BASIN DIMENSION/ELEVATION SCHEDULE:

INFILTRATION BASIN-A	INFILTRATION BASIN-B
'A' = N/A	'A' = 147.0'
'B' = 161.0'	'B' = 148.0'
'C' = 161.5'	'C' = N/A
'D' = 159.4'	'D' = 150.0'
'E' = 162.5'	'E' = 151.0'
'F' = N/A	'F' = 141.5'
'G' = 156.5'	'G' = N/A
'H' = N/A	'H' = 149.0'
WQF = 161.12'	WQF = 148.22'
1YR = 161.52'	1YR = 148.97'
10YR = 161.55'	10YR = 150.05'
100YR = 161.61'	10YR = 150.49'

INFILTRATION BASIN-C INFILTRATION BASIN-D

'A' = N/A	'A' = 151.01'
'B' = 159.5'	'B' = 151.01'
'C' = N/A	'C' = 151.56'
'D' = N/A	'D' = 151.67'
'E' = 153.0'	'E' = 151.5'
'F' = 151.5'	'F' = 147.5'
'G' = 147.5'	'G' = N/A
'H' = N/A	'H' = N/A



DRAINAGE SWALE DETAIL
 NOT TO SCALE

DRAINAGE SWALE "A" USE R-4 RIPRAP OR GREATER

FLOW DEPTH	VELOCITY
1-YR 0.07'	3.06 FPS
10-YR 0.15'	4.69 FPS
100-YR 0.27'	6.57 FPS
1000-YR 0.44'	8.44 FPS

OVERFLOW SPILLWAY DIMENSION/ELEVATION SCHEDULE:

OVERFLOW SPILLWAY-"A"	OVERFLOW SPILLWAY-"C"
'A' = 145.75'	'A' = 160.5'
'B' = 144.75'	'B' = 160.0'
'C' = 143.25'	'C' = 143.75'
'D' = 143.25'	'D' = 158.5'
'E' = 142.0'	'E' = 150.0'
'F' = 40'	'F' = 10'
'G' = 46'	'G' = 16'

OVERFLOW SPILLWAY-"B"

'A' = 145.5'
'B' = 145.0'
'C' = 144.5'
'D' = 143.5'
'E' = 142.0'
'F' = 5'
'G' = 10'

R-2 RIPRAP SPECIFICATION

100% PASSING	0-50% PASSING	0-15% PASSING
4"	2"	1"

R-3 RIPRAP SPECIFICATION

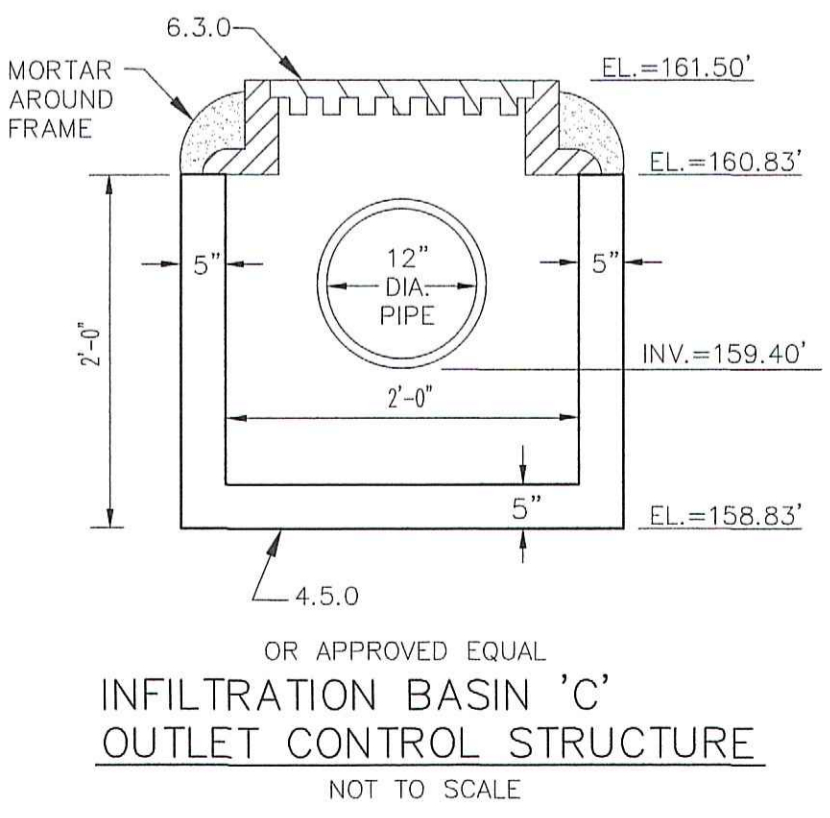
100% PASSING	0-50% PASSING	0-15% PASSING
8"	4"	2"

R-4 RIPRAP SPECIFICATION

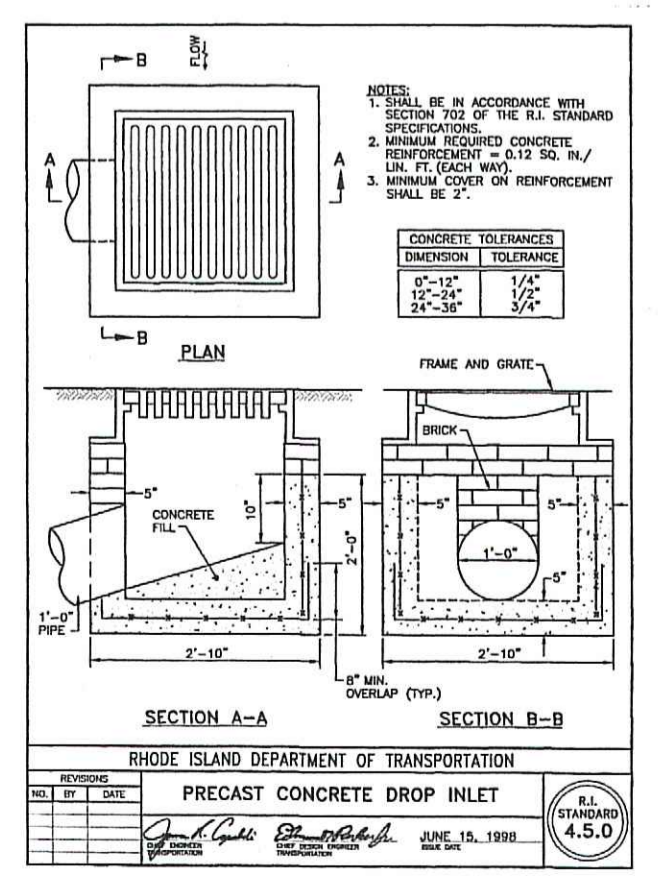
100% PASSING	0-50% PASSING	0-15% PASSING
14"	7"	4"

TESTHOLE DATA

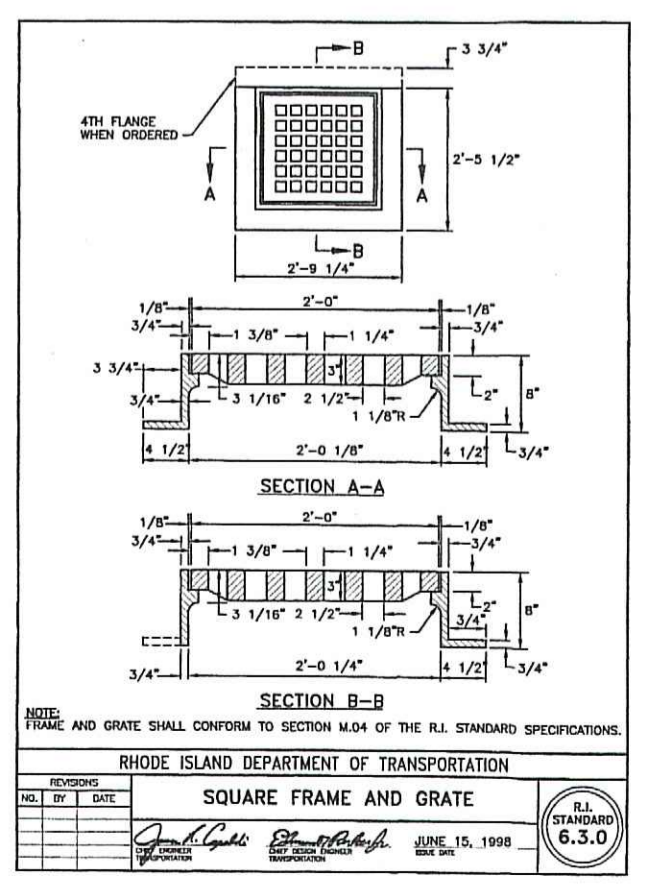
SEV 1A	SEV 2A	SEV 3A	SEV 4A	SEV 5A	SEV 6A	SEV 7A	SEV 7C
DEPTH TEXTURE 0-39" SIL 39-96" S	DEPTH TEXTURE 0-50" SIL 50-102" G,COS	DEPTH TEXTURE 0-77" SIL 77-96" G,COS	DEPTH TEXTURE 0-52" SIL 52-96" G,COS	DEPTH TEXTURE 0-61" SIL 61-108" G,COS	DEPTH TEXTURE 0-44" SIL 44-102" G,COS	DEPTH TEXTURE 0-34" SIL 34-102" G,COS	DEPTH TEXTURE 0-42" SIL 42-120" C,BLS
E.S.H.G.W.T. = 96" NO REFUSAL	E.S.H.G.W.T. = 102" NO REFUSAL	E.S.H.G.W.T. = 96" NO REFUSAL	E.S.H.G.W.T. = 96" NO REFUSAL	E.S.H.G.W.T. = 108" NO REFUSAL	E.S.H.G.W.T. = 102" NO REFUSAL	E.S.H.G.W.T. = 102" NO REFUSAL	E.S.H.G.W.T. = 72" NO REFUSAL
SEV 1B	SEV 2B	SEV 3B	SEV 4B	SEV 5B	SEV 6B	SEV 7B	SEV 7D
DEPTH TEXTURE 0-19" SIL 19-96" S	DEPTH TEXTURE 0-57" SIL 57-102" G,COS	DEPTH TEXTURE 0-21" SIL 21-51" SL/LS 51-108" G,COS	DEPTH TEXTURE 0-31" SIL 31-96" G,COS	DEPTH TEXTURE 0-57" SIL 57-96" G,COS	DEPTH TEXTURE 0-7" SIL 7-30" SIL 30-102" G,COS	DEPTH TEXTURE 0-49" SIL 49-102" G,COS	DEPTH TEXTURE 0-30" SIL 30-40" G,SL 40-96" G,LS
E.S.H.G.W.T. = 96" NO REFUSAL	E.S.H.G.W.T. = 102" NO REFUSAL	E.S.H.G.W.T. = 108" NO REFUSAL	E.S.H.G.W.T. = 96" NO REFUSAL	E.S.H.G.W.T. = 96" NO REFUSAL	E.S.H.G.W.T. = 102" NO REFUSAL	E.S.H.G.W.T. = 102" NO REFUSAL	E.S.H.G.W.T. = 30" NO REFUSAL
SEV 8A	SEV 9A	SEV 10A	SEV 11A	SEV 12A	SEV 13A	SEV 14A	SEV 15A
DEPTH TEXTURE 0-31" SIL 31-96" G,COS	DEPTH TEXTURE 0-55" SIL 55-98" G,COS	DEPTH TEXTURE 0-24" SIL 24-100" G,COS	DEPTH TEXTURE 0-41" SIL 41-102" G,COS	DEPTH TEXTURE 0-57" SIL 57-102" G,COS	DEPTH TEXTURE 0-41" SIL 41-102" G,COS	DEPTH TEXTURE 0-30" SIL 30-102" G,COS	DEPTH TEXTURE 0-30" SIL 34-96" G,COS
E.S.H.G.W.T. = 96" NO REFUSAL	E.S.H.G.W.T. = 98" NO REFUSAL	E.S.H.G.W.T. = 100" NO REFUSAL	E.S.H.G.W.T. = 102" NO REFUSAL	E.S.H.G.W.T. = 102" NO REFUSAL	E.S.H.G.W.T. = 102" NO REFUSAL	E.S.H.G.W.T. = 102" NO REFUSAL	E.S.H.G.W.T. = 96" NO REFUSAL
SEV 8B	SEV 9B	SEV 10B	SEV 11B	SEV 12B	SEV 13B	SEV 14B	SEV 15B
DEPTH TEXTURE 0-36" SIL 36-102" G,COS	DEPTH TEXTURE 0-75" SIL 75-100" G,COS	DEPTH TEXTURE 0-84" SIL 84-108" G,COS	DEPTH TEXTURE 0-35" SIL 35-98" G,COS	DEPTH TEXTURE 0-65" SIL 65-96" G,COS	DEPTH TEXTURE 0-28" SIL 28-96" G,COS	DEPTH TEXTURE 0-27" SIL 27-63" SL/SIL 63-96" G,COS	DEPTH TEXTURE 0-32" SIL 32-96" G,LS
E.S.H.G.W.T. = 102" NO REFUSAL	E.S.H.G.W.T. = 100" NO REFUSAL	E.S.H.G.W.T. = 108" NO REFUSAL	E.S.H.G.W.T. = 98" NO REFUSAL	E.S.H.G.W.T. = 96" NO REFUSAL	E.S.H.G.W.T. = 96" NO REFUSAL	E.S.H.G.W.T. = 96" NO REFUSAL	E.S.H.G.W.T. = 96" NO REFUSAL
D-1	D-2	D-3	D-4	D-5	D-6	SEV 16A	SEV 16B
DEPTH TEXTURE 0-22" FSL 22-42" G,FSL 42-72" G,S	DEPTH TEXTURE 0-60" FSL 60-84" G,S	DEPTH TEXTURE 0-18" SIL 18-36" FSL 36-72" G,FSL	DEPTH TEXTURE 0-42" FSL 42-96" ST,S	DEPTH TEXTURE 0-30" HTM 30-42" G,S	DEPTH TEXTURE 0-30" HTM 30-42" G,S	DEPTH TEXTURE 0-7" HTM 7-108" C,BLS	DEPTH TEXTURE 27-0" HTM 0-11" LS 11-108" G,LS
E.S.H.G.W.T. = 48" NO REFUSAL	E.S.H.G.W.T. = 30" NO REFUSAL	E.S.H.G.W.T. = 18" NO REFUSAL	E.S.H.G.W.T. = 48" NO REFUSAL	E.S.H.G.W.T. = 60" NO REFUSAL	E.S.H.G.W.T. = 42" NO REFUSAL	E.S.H.G.W.T. = 96" NO REFUSAL	E.S.H.G.W.T. = 96" NO REFUSAL



INFILTRATION BASIN 'C'
 OUTLET CONTROL STRUCTURE
 NOT TO SCALE



SECTION A-A SECTION B-B
 OR APPROVED EQUAL



SECTION A-A SECTION B-B
 OR APPROVED EQUAL

RIDEM PERMIT MODIFICATION PLAN

NORTH WOODS SUBDIVISION
 MODIFICATION DETAIL SHEET

A.P. 47-2, LOT 120

SOUTH KINGSTOWN, RHODE ISLAND

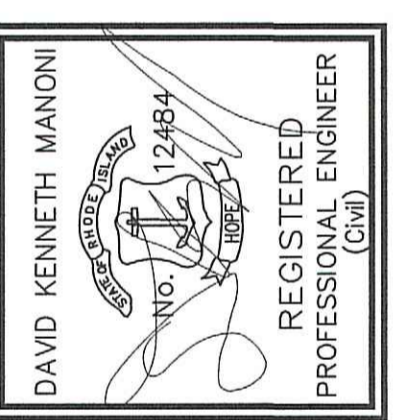
SCALE: AS SHOWN DATE: 07/29/22 SHEET 2 of 2

REVISIONS:

NO.	DATE	DESCRIPTION	BY

OVERFLOW SPILLWAY-"A"

'A' = 145.75'
'B' = 144.75'
'C' = 143.25'
'D' = 143.25'
'E' = 142.0'
'F' = 40'
'G' = 46'



MODIFICATION NOTE:
 ONLY DETAILS OUTLINED AND LABELED AS "PROPOSED MODIFICATION" HAVE BEEN CHANGED FROM THE ORIGINAL PERMIT. ALL OTHER DETAILS REMAIN THE SAME AS THE ORIGINAL PERMIT #20-0257

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