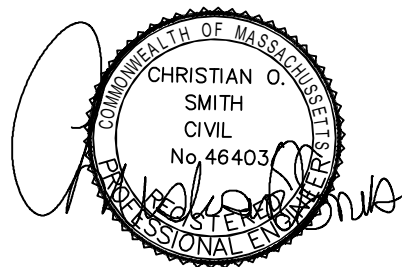


BYFIELD HEIGHTS
MBTA ZONING RESIDENTIAL
DEVELOPMENT
34 CENTRAL STEET
TAX MAP R19, LOT 19

CIVIL ENGINEERS:

BA
BEALS
ASSOCIATES, PLLC

70 PORTSMOUTH AVE,
THIRD FLOOR, SUITE 2
STRATHAM, N.H. 03885
PHONE: 603-583-4860,
FAX: 603-583-4863



LAND SURVEYORS:

PLS Precision Land
Surveying, Inc.
32 Turnpike Road
Southborough, MA 01772
(508) 460-1789 (508) 970-0096 fax

WETLAND / SOIL
CONSULTANT:

NORSE ENVIRONMENTAL SERVICES, INC.
2100 LAKEVIEW AVENUE
UNIT 3A
DRACUT, MA 01826
(978) 649-9932

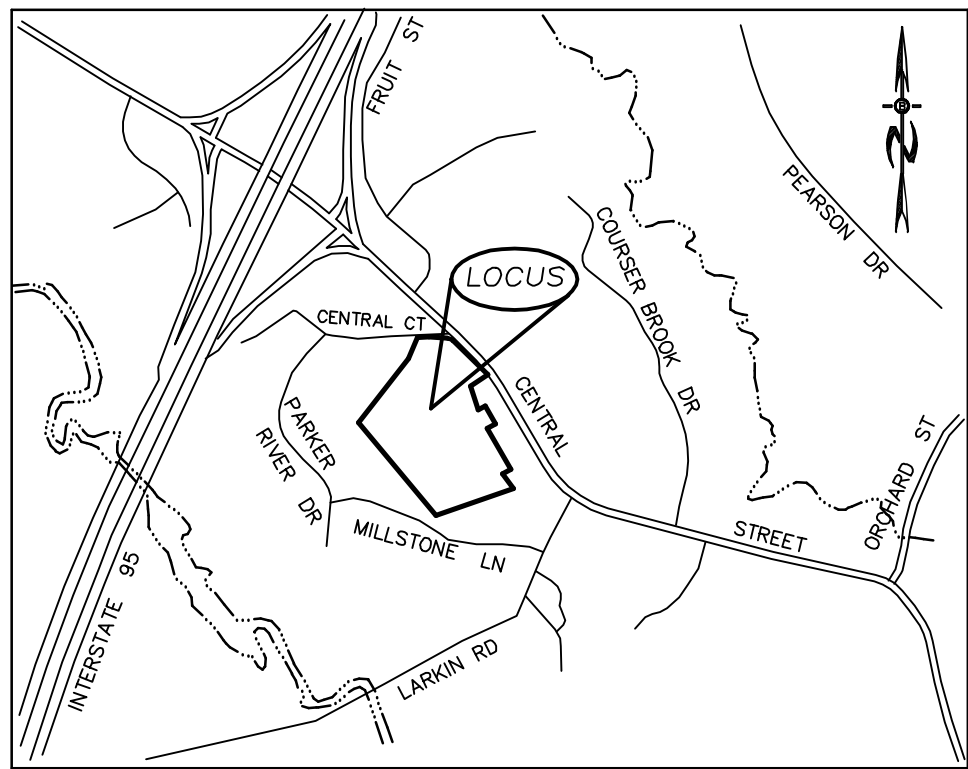
LANDSCAPE DESIGNER:

LM
Land Design, LLC

11 South Road
Brentwood, NH 03833
LMLandDesign.com



AMERICAN SOCIETY OF
LANDSCAPE ARCHITECTS



LOCATION MAP
1"=1000'

PLAN SET LEGEND

5/8" REBAR	●	FENCING	—x—x—x—
DRILL HOLE	○	DRAINAGE LINE	—d—d—d—
CONC. BOUND	□	OVERHEAD ELEC. LINE	—OHE—
UTILITY POLE	⊙	SEWER LINE	—S—
DRAIN MANHOLE	⊗	SEWER FORCEMAIN	—FM—
SEWER MANHOLE	⊕	GAS LINE	—G—
EXISTING LIGHT POLE	☆	WATER LINE	—W—
EXISTING CATCH BASIN	⊞	STONE WALL	—o—o—o—
PROPOSED CATCH BASIN	⊞	TREE LINE	—w—w—w—
WATER GATE	⊞	SOIL LINES	—d—d—d—
WATER SHUT OFF	⊞	WETLAND SETBACK	—d—d—d—
HYDRANT	⊞	100YR FLOOD ZONE	—d—d—d—
PINES, ETC.	⊞	BUILDING SETBACK LINES	—d—d—d—
MAPLES, ETC.	⊞	EXIST. CONTOUR	—d—d—d—
EXIST. SPOT GRADE	⊞	PROP. CONTOUR	—d—d—d—
PROP. SPOT GRADE	⊞	ABUT. PROPERTY LINES	—d—d—d—
DOUBLE POST SIGN	⊞	EXIST. PROPERTY LINES	—d—d—d—
SINGLE POST SIGN	⊞		
PROPOSED LIGHT POLE	⊞		
PROPOSED WALL LIGHT	⊞		
SEPTIC AREA	⊞		

PLAN INDEX

TITLE SHEET
EXISTING CONDITIONS PLANS 1-4
DEMOLITION PLAN 5
OVERALL SITE PLAN 6
SITE PLANS 7-8
ROAD PLAN & PROFILES 9-10
GRADING, DRAINAGE, & EROSION CONTROL PLANS 11-12
UTILITY PLANS 13-14
LIGHTING PLAN 15
PLANTING PLANS 16-17
OFF-SITE IMPROVEMENTS PLAN 18
FIRE TRUCK TURNING ANALYSIS 19
SEPTIC SYSTEM DETAILS 20-22
SEPTIC SYSTEM PLAN & PROFILES 22A
EROSION CONTROL NOTES & DETAILS 23
CONSTRUCTION DETAILS 24-26
WETLAND RESTORATION PLAN 27

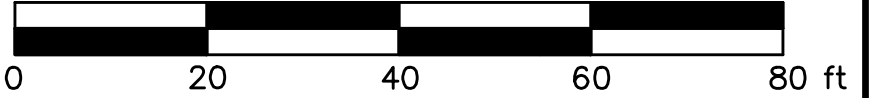
APPLICANT / OWNER
MHOC LLC
11 BOBBY JONES DRIVE
ANDOVER, MA 01810

	REVISIONS:	DATE:
1	REVISED PER REVIEW COMMENTS	06.10.25
2	REVISED PER REVIEW COMMENTS	07.28.25
3	REVISED PER REVIEW COMMENTS	08.26.25
4	REVISED PER REVIEW COMMENTS	09.10.25
5	REVISED PER REVIEW COMMENTS	10.08.25
6	REVISED PER REVIEW COMMENTS	10.29.25
7	REVISED PER REVIEW COMMENTS	11.11.25
8	REVISED PER REVIEW COMMENTS	02.23.26

#34 CENTRAL STREET

EXISTING CONDITIONS PLAN
IN
NEWBURY, MA
(ESSEX COUNTY)

SCALE: 1"= 20' DATE: DECEMBER 4, 2024
REVISED: JANUARY 13, 2026



Precision Land Surveying, Inc.
32 Turnpike Road
Southborough, Massachusetts 01772
TELE NO: (508) 460-1789 FAX NO: (508) 970-0096
SHEET 1 OF 4 5202EX1.DWG

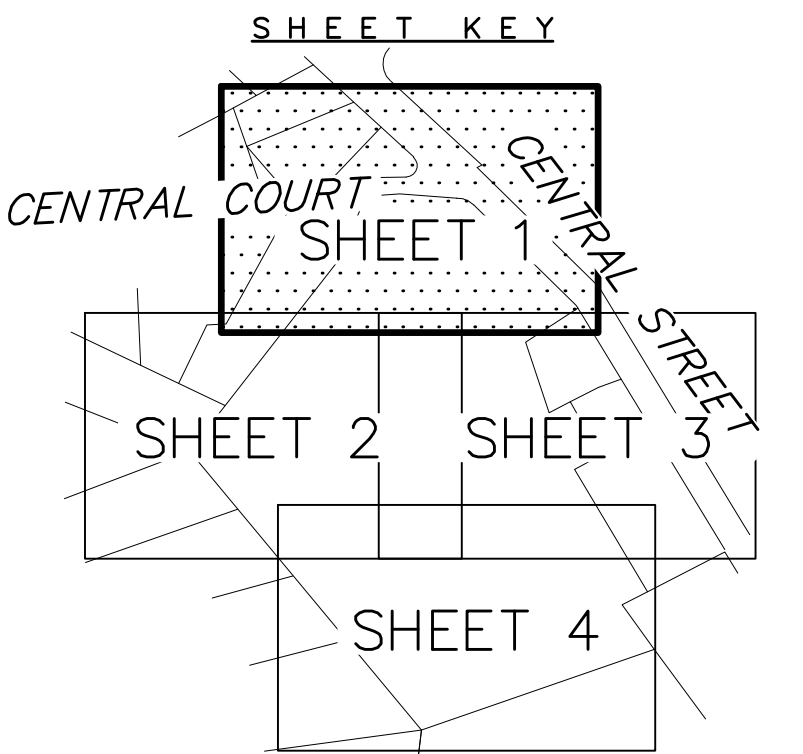
NOTES

- 1) ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 AS DETERMINED BY GPS OBSERVATIONS AND AN OPUS REDUCTION PERFORMED DECEMBER 4, 2024.
- 2) THIS PLAN AND THE SURVEY ON WHICH IT IS BASED WERE PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND ARE SUBJECT TO THE FINDINGS SUCH A REPORT MAY DISCLOSE.
- 3) OWNER: MELODY M. & ROBERT E. PRITCHARD
DEED BOOK 33172 PAGE 276
ASSESSOR'S PARCEL ID No. R19-0-19



WETLAND NOTES

- 1) THE LIMITS OF JURISDICTIONAL WETLANDS AS SHOWN ON THIS PLAN WERE DELINEATED IN OCTOBER 2024 BY MAUREEN HAROLD OF NORSE ENVIRONMENTAL SERVICES, INC., IN ACCORDANCE WITH:
 1. US ARMY CORPS OF ENGINEERS REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHEASTAL AND NORTHEAST REGION, TECHNICAL REPORT ERDC/EL TR-12-1, JANUARY 2012, VERSION 2.0.
 2. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 7.0. UNITED STATES DEPARTMENT OF AGRICULTURE (2010).
 3. NORTH AMERICAN DIGITAL FLORA: NATIONAL WETLAND PLANT LIST VERSION 2.2.1 (2009)
- 2) THE WETLAND DELINEATION WAS REVIEWED AND APPROVED BY THE NEWBURY CONSERVATION COMMISSION IN ACCORDANCE WITH ANRAD ON APRIL 15, 2025.



LEGEND	
BIT CONC	BITUMINOUS CONCRETE
CB	CATCH BASIN
EM	ELECTRIC MANHOLE
GW	GUY WIRE
HYD	HYDRANT
I=	INVERT
MH	MANHOLE
R=	RIM
SMH	SEWER MANHOLE
UP	UTILITY POLE
WG	WATER GATE
WM	WATER METER
32" T	32" TREE
.....	OVERHEAD WIRE



UNDERGROUND UTILITIES WERE COMPILED FROM AVAILABLE RECORD PLANS OF UTILITY COMPANIES AND PUBLIC AGENCIES AND ARE APPROXIMATE ONLY. BEFORE DESIGN AND CONSTRUCTION CALL "DIG SAFE" 1-888-344-7233. SOME DATA IS CONFLICTING AND CAN ONLY BE VERIFIED BY EXCAVATION.

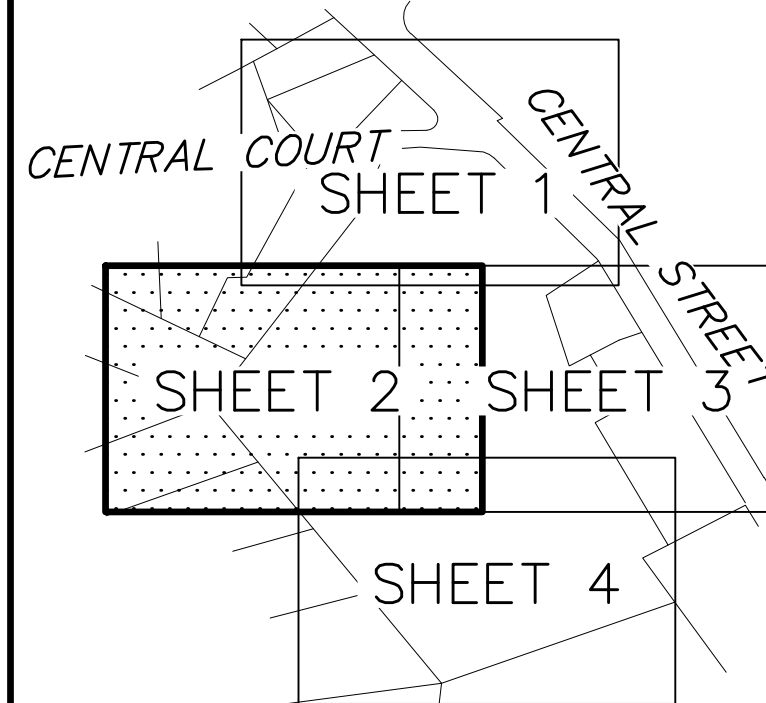
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SHEET KEY

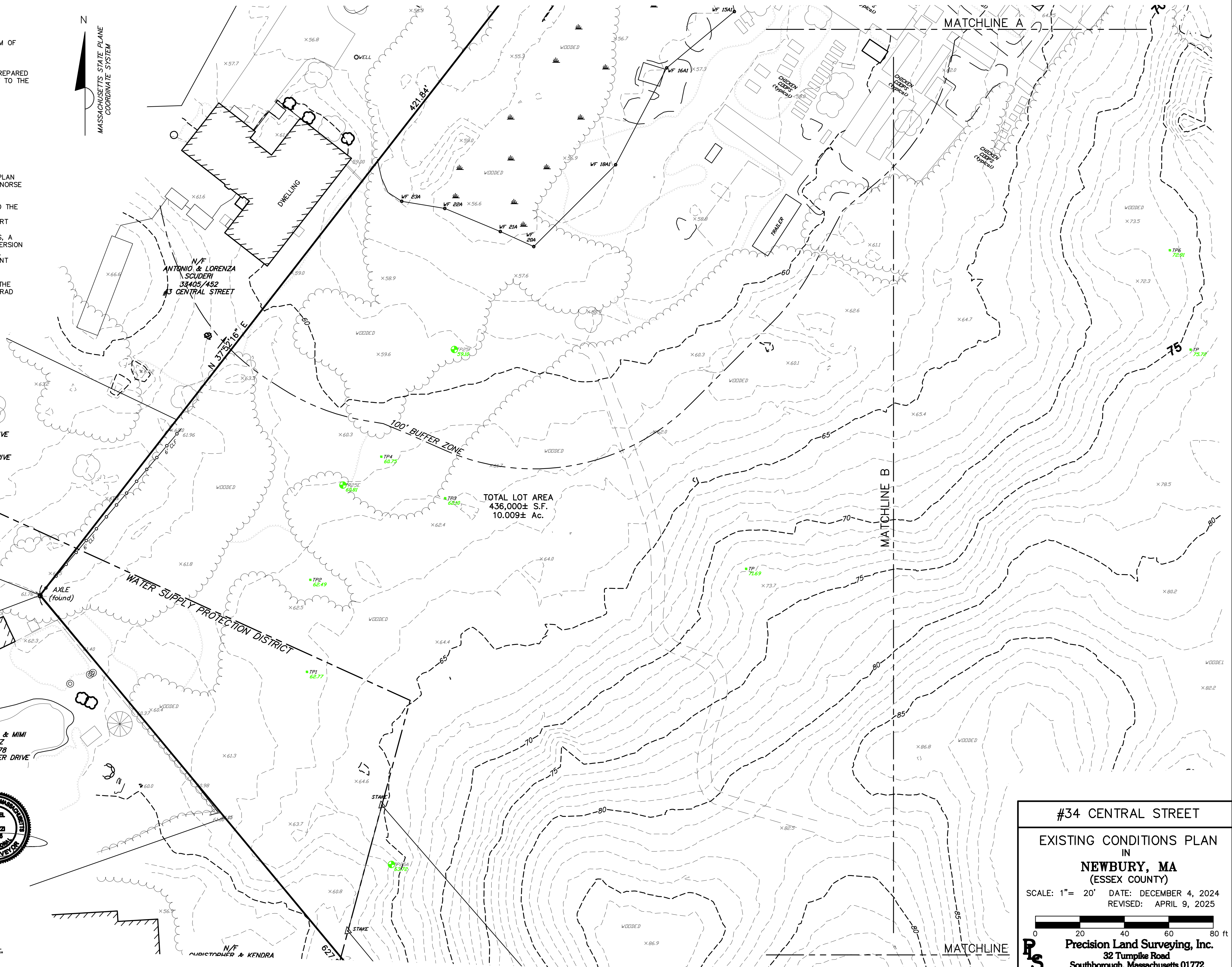


REFERENCES		
ESSEX COUNTY REGISTRY OF DEEDS		
PLAN BOOK 379	PLAN	47
"	"	332
"	"	266
"	"	186
"	"	185
"	"	185
"	"	185
"	"	180
"	"	179
"	"	153
PLAN No. 158	OF 1987	
"	"	431
"	"	1960

LEGEND	
BIT CONC	BITUMINOUS CONCRETE
CB	CATCH BASIN
EM	ELECTRIC MANHOLE
GW	GUY WIRE
HYD	HYDRANT
I=	INVERT
MH	MANHOLE
R=	RIM
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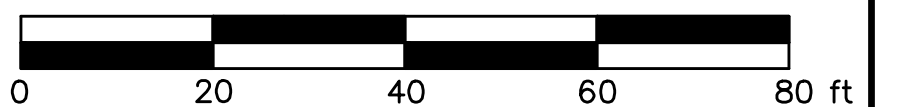
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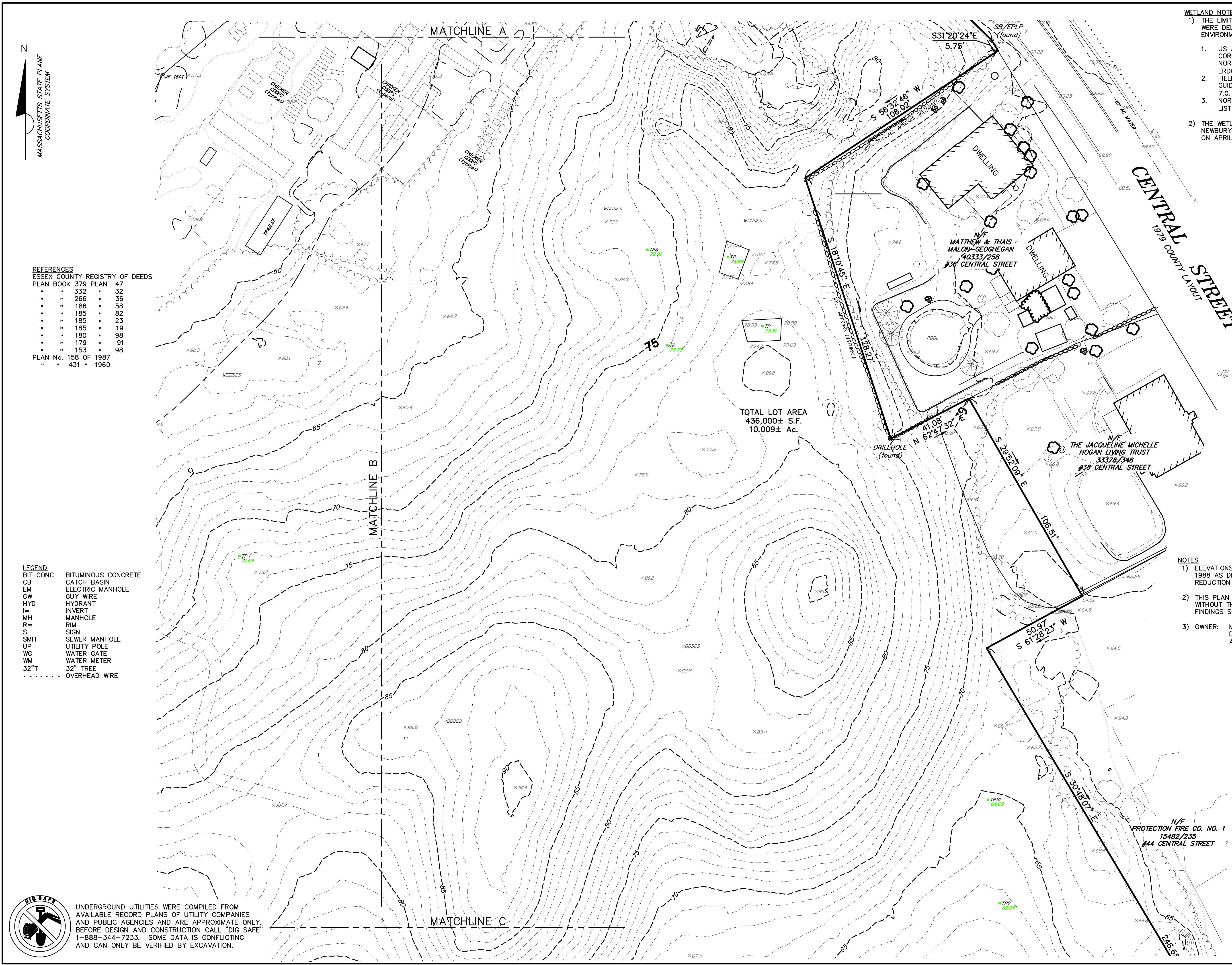
#34 CENTRAL STREET

EXISTING CONDITIONS PLAN
IN
NEWBURY, MA
(ESSEX COUNTY)

SCALE: 1"= 20' DATE: DECEMBER 4, 2024
REVISED: APRIL 9, 2025



Precision Land Surveying, Inc.
32 Turnpike Road
Southborough, Massachusetts 01772
TELE NO.: (508) 460-1789 FAX NO.: (508) 970-0096
SHEET 2 OF 4 5202EX1.DWG

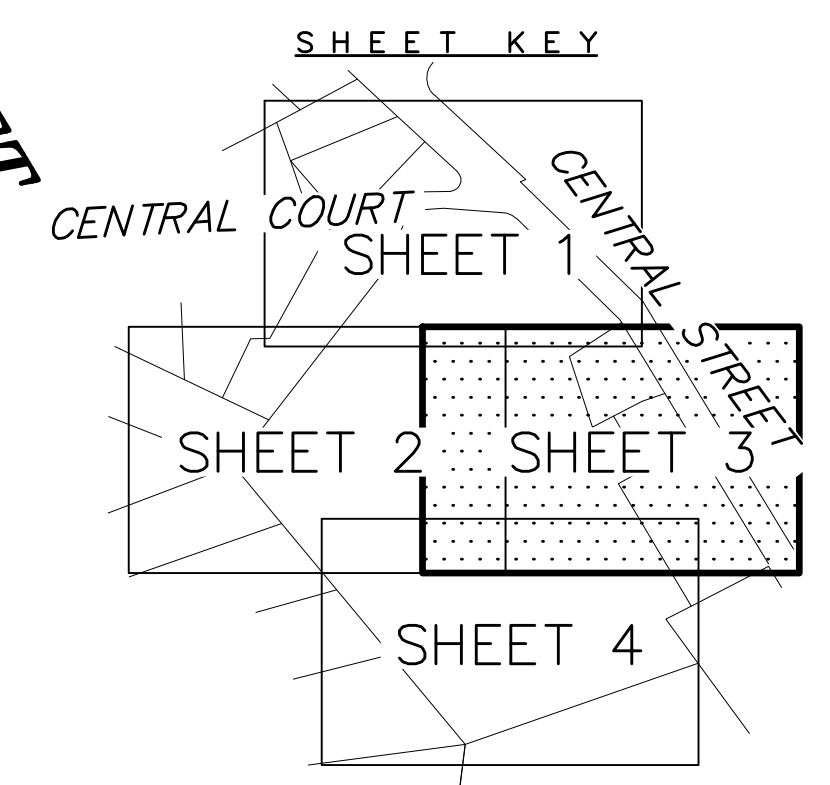


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DEED BOOK 33172 PAGE 276
ASSESSOR'S PARCEL ID No. R19-0-19



#34 CENTRAL STREET

EXISTING CONDITIONS PLAN
IN
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(ESSEX COUNTY)

SCALE: 1"= 20' DATE: DECEMBER 4, 2024
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Precision Land Surveying, Inc.
32 Turnpike Road
Southborough, Massachusetts 01772
TEL NO.: (508) 460-1789 FAX NO.: (508) 970-0096
SHEET 3 OF 4 5202EX1.DWG

REFERENCES

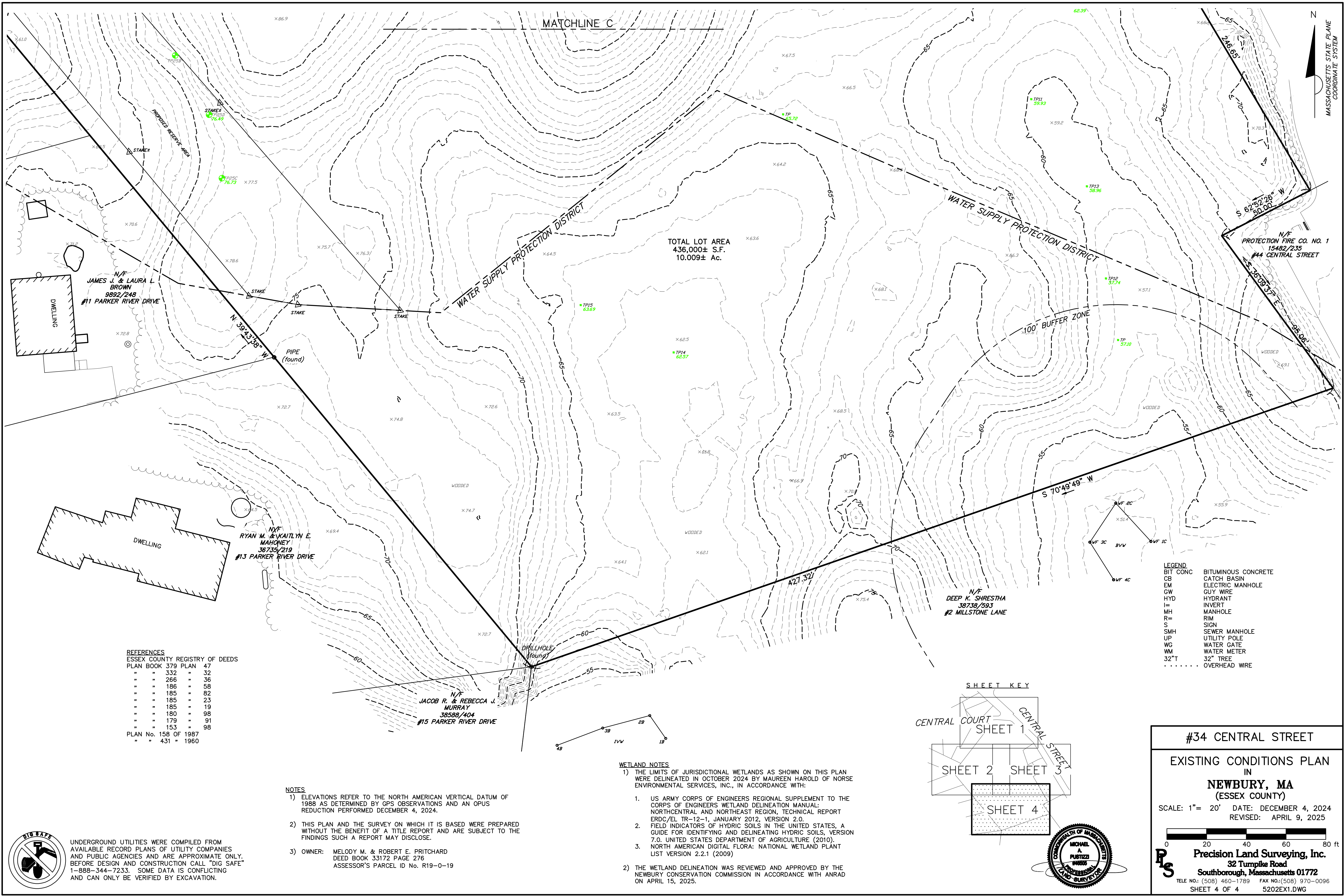
ESSEX COUNTY REGISTRY OF DEEDS

PLAN BOOK	379	PLAN	47
"	"	352	32
"	"	266	36
"	"	186	58
"	"	185	82
"	"	185	23
"	"	185	19
"	"	180	98
"	"	179	91
"	"	153	98
PLAN No.	158	OF	1987
"	"	431	" 1960

LEGEND

BIT CONC	BITUMINOUS CONCRETE
CB	CATCH BASIN
EM	ELECTRIC MANHOLE
GW	GUY WIRE
HYD	HYDRANT
I=	INVERT
MH	MANHOLE
R=	RIM
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UP	UTILITY POLE
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32" T	32" TREE
.....	OVERHEAD WIRE

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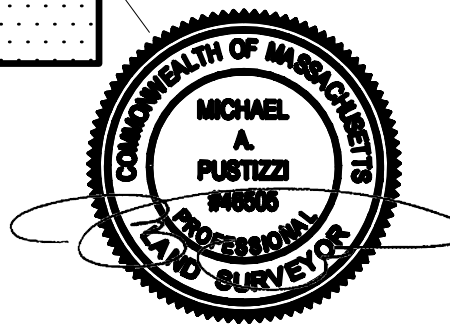
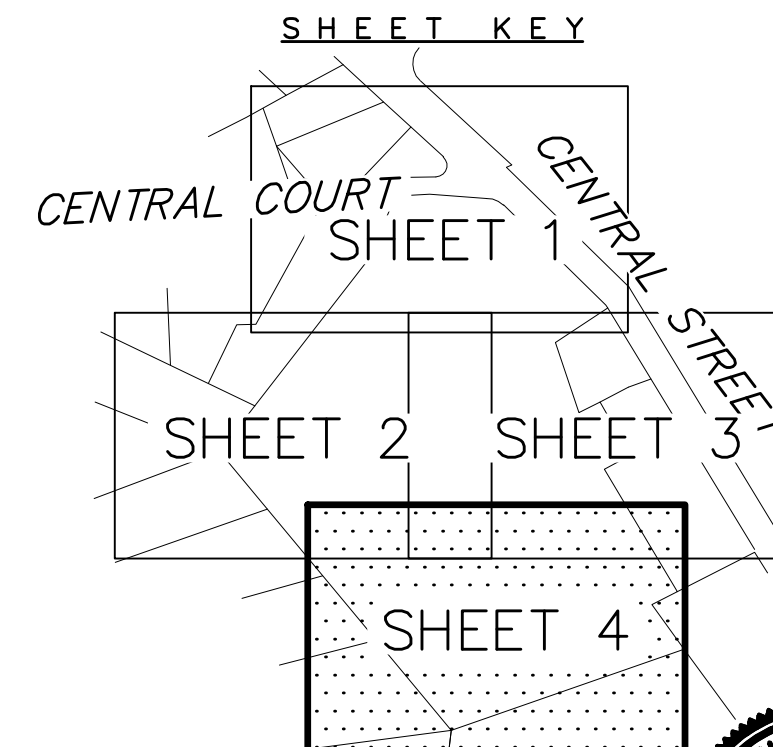
ESSEX COUNTY REGISTRY OF DEEDS	
PLAN BOOK 379 PLAN 47	
" " 332 " 32	
" " 266 " 36	
" " 186 " 58	
" " 185 " 82	
" " 185 " 23	
" " 185 " 19	
" " 180 " 98	
" " 179 " 91	
" " 153 " 98	
PLAN No. 158 OF 1987	
" " 431 " 1960	

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DEED BOOK 33172 PAGE 276
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LEGEND

BIT CONC	BITUMINOUS CONCRETE
CB	CATCH BASIN
EM	ELECTRIC MANHOLE
GW	GUY WIRE
HYD	HYDRANT
I=	INVERT
MH	MANHOLE
R=	RIM
S	SIGN
SMH	SEWER MANHOLE
UP	UTILITY POLE
WG	WATER GATE
WM	WATER METER
32\"T	32\" TREE
.....	OVERHEAD WIRE

#34 CENTRAL STREET

EXISTING CONDITIONS PLAN
IN
NEWBURY, MA
(ESSEX COUNTY)

SCALE: 1"= 20' DATE: DECEMBER 4, 2024
REVISED: APRIL 9, 2025

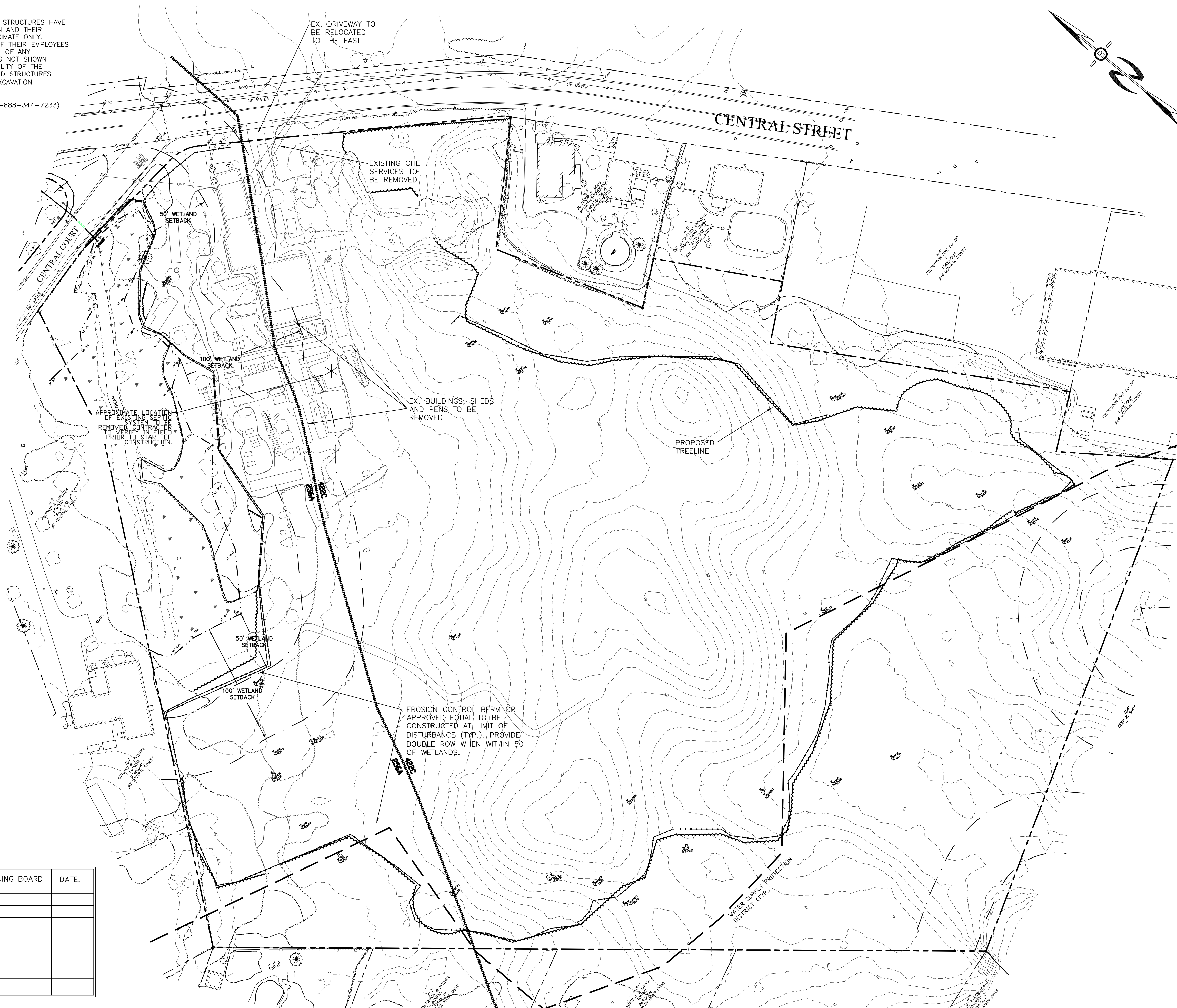
0 20 40 60 80 ft

Precision Land Surveying, Inc.
32 Turnpike Road
Southborough, Massachusetts 01772
TEL NO.: (508) 460-1789 FAX NO.: (508) 970-0096
SHEET 4 OF 4 5202EX1.DWG



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WORK BY CALLING 1-888-DIG-SAFE (1-888-344-7233)

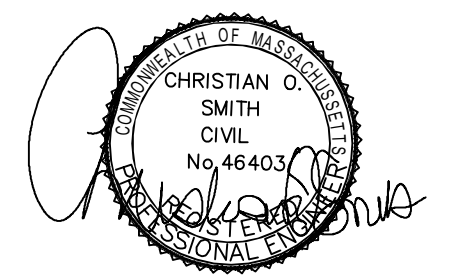


MHOC LLC
11 BOBBY JONES DRIVE
ANDOVER, MA 01810

BA
BEALS
ASSOCIATES, PLLC

70 PORTSMOUTH AVE,
THIRD FLOOR, SUITE 2
STRATHAM, N.H. 03885
PHONE: 603-583-4860,
FAX: 603-583-4863

1. THIS PLAN IS INTENDED TO PROVIDE MINIMUM GUIDELINES FOR SITE DEMOLITION. IT SHOULD BE NOTED THAT ALL MANMADE FEATURES SHALL BE REMOVED AS NECESSARY TO FACILITATE CONSTRUCTION UNLESS OTHERWISE NOTED. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCIES COMPARED TO DESIGN PLANS. THIS INCLUDES ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE FOR REVIEW AND RESOLUTION. ANY CONTRADICTION BETWEEN ITEMS ON THE PLANS AND ON-SITE CONDITIONS MUST BE RESOLVED BEFORE RELATED CONSTRUCTION BEGINS HAS BEEN INITIATED.
2. ALL EXISTING STRUCTURES IN THE CONSTRUCTION AREA SHALL BE REMOVED AND DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS, UNLESS NOTED TO REMAIN ON THE SITE PLANS. ANY BURNING ON-SITE SHALL BE SUBJECT TO LOCAL ORDINANCES.
3. ALL EXISTING UTILITIES SHALL BE TERMINATED AT THE PROPERTY LINE, OR AS SHOWN ON THE DESIGN PLANS, IN CONFORMANCE WITH LOCAL, STATE AND UTILITY COMPANY STANDARDS, SPECIFICATIONS AND DETAILS. THE CONTRACTOR SHALL COORDINATE UTILITY SERVICE DISCONNECTS WITH THE UTILITY REPRESENTATIVES PRIOR TO THE START OF WORK.
4. EROSION AND SEDIMENTATION CONTROLS ARE TO BE INSTALLED PRIOR TO ANY EARTH MOVING ACTIVITIES.
5. A TREE CLEARING PERMIT FROM LOCAL AND STATE AUTHORITIES MAY BE REQUIRED PRIOR TO COMMENCEMENT OF CONSTRUCTION. ALL STUMPS AND DEBRIS ARE TO BE REMOVED FROM SITE.
6. LEAVE SITE IN CLEAN CONDITION.
7. STUMP DISPOSAL TO BE OUTSIDE LIMITS OF PAVEMENT, DRAINAGE STRUCTURES, ETC.
8. TEMPORARY EARTH MATERIAL STOCKPILES TO BE IN UPLAND AREAS AND COMPLETELY IMPOUNDED BY SILT FENCE/HAYBALE EROSION CONTROLS.
9. THE LANDOWNER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS, INCLUDING ANY PERMITTING AND SETBACK REQUIREMENTS REQUIRED UNDER THESE REGULATIONS.
10. COORDINATE ALL WORK WITHIN THE PUBLIC RIGHTS OF WAY WITH THE TOWN OF NEWBURY.



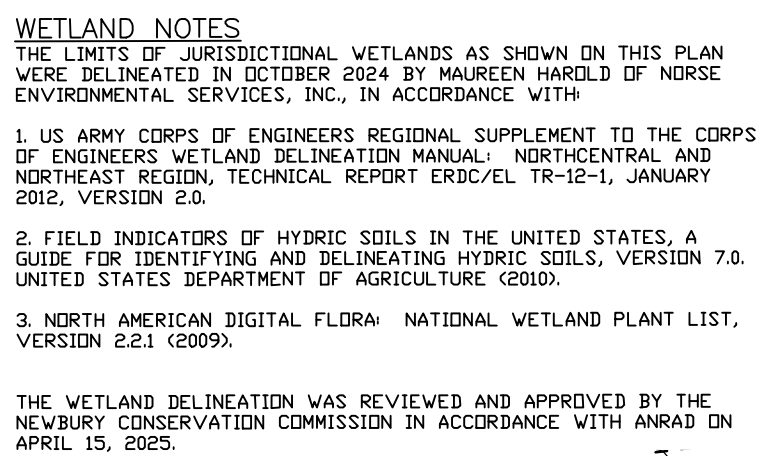
(IN FEET)
1 inch = 40 ft.

REVISED PER REVIEW COMMENTS	10.08.25
REVISED PER REVIEW COMMENTS	09.10.25
REVISED PER REVIEW COMMENTS	08.26.25
REVISED PER REVIEW COMMENTS	07.28.25
REVISED PER REVIEW COMMENTS	06.10.25
REVISIONS:	DATE:

PLAN FOR:
BYFIELD HEIGHTS
RESIDENTIAL DEVELOPMENT
34 CENTRAL STREET, NEWBURY, MA

DATE: MARCH 2025	SCALE: 1"=40'
PROJ. NO: NH-1507	SHEET NO. 5

[illegible]



MCMOD SOUTH-B DISTRICT

REQUIRED:

LOT AREA: 40,000 SF
MIN OPEN SPACE: 50%
MAX BUILDING COVERAGE: 40%

PROVIDED:

LOT AREA: 436,001 SF
MIN OPEN SPACE: 57.5%
MAX BUILDING COVERAGE: 10.0%

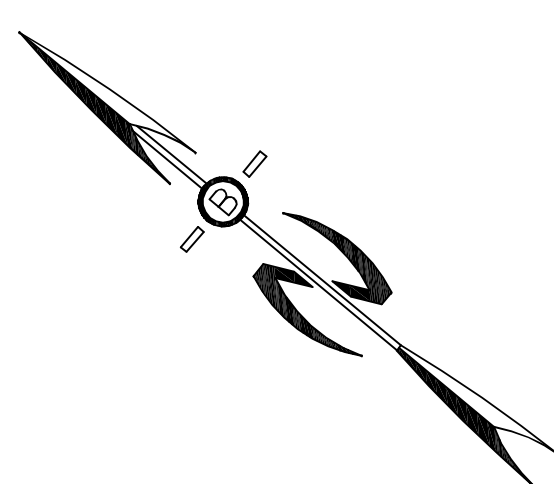
BUILDING SUMMARY:

<u>BUILDING#</u>	<u>TYPE</u>	<u># UNITS</u>	<u>BEDROOMS</u>
1	C	3	5
2	C	3	6
3	C	3	6
4	C	3	6
5	C	4	8
6	C	4	8
7	C	4	7
8	C	4	7
9	C	4	7
10	A	4	9
11	A	4	10
12	A	4	9
TOTALS		= 44	= 88

BUILDING SUMMARY NOTE:

1. BUILDINGS 2, 3, 4, 5, & 6 HAVE WALKOUT BASEMENTS.
2. UNITS 2-2, 5-2, 7-3, & 9-3 WILL BE DESIGNATED AS AFFORDABLE UNITS.

APPROVED BY THE NEWBURY PLANNING BOARD	DATE:
RECORDING AGENT:	

RELOCATION OF CENTRAL COURT
/ (SEE SHEET 18)

PREPARED FOR:

MHOC LLC
11 BOBBY JONES DRIVE
ANDOVER, MA 01810

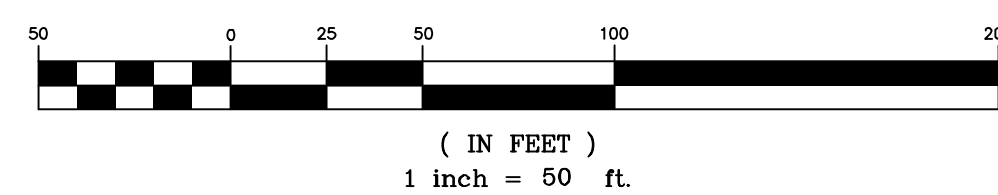


70 PORTSMOUTH AVE,
THIRD FLOOR, SUITE 2
STRATHAM, N.H. 03885
PHONE: 603-583-4860,
FAX. 603-583-4863

NOTES

1. UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN LOCATED FROM FIELD OBSERVATIONS AND THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. BEALS ASSOCIATES OR ANY OF THEIR EMPLOYEES TAKE NO RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES OR UTILITIES NOT SHOWN, THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND UTILITIES OR STRUCTURES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 1-888-DIG-SAFE
2. THIS PLAN HAS BEEN PREPARED FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA AS SHOWN ON THE DESIGN PLANS. THIS INCLUDES ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS OF THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
3. ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR.
4. ALL ROAD AND DRAINAGE WORK TO CONFORM TO TOWN OF NEWBURY STANDARD SPECIFICATIONS FOR CONSTRUCTION.
5. ALL PROPOSED SIGNS SHALL CONFORM TO THE TOWN OF NEWBURY ZONING REGULATIONS.
6. NO PORTION OF THIS PARCEL LIES WITHIN THE 100 YR FLOOD ZONE.
7. PROJECT IS BASED ON NAVD 1988.
8. THE LANDOWNER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING ANY PERMITTING AND SETBACK REQUIREMENTS REQUIRED UNDER THESE REGULATIONS.
9. SEE DETAIL SHEET FOR STANDARD CONSTRUCTION NOTES AND DETAILS.
10. THE PROPOSED ROAD IS TO BE A PRIVATE WAY, OWNED AND MAINTAINED BY THE CONDOMINIUM ASSOCIATION.
11. THE WALKING TRAIL'S FINAL LOCATION SHALL BE DETERMINED IN THE FIELD AND MARKED WITH PLACARDS ATTACHED TO TREES WITH STAINLESS STEEL SCREWS.. NO DISTURBANCE TO HEALTHY VEGETATION IS PROPOSED. TRAIL IS TO BE ALONG EXISTING WOODS PATHS TO BE CLEARED OF FALLEN STICKS, ETC. FOR PEDESTRIAN TRAFFIC ONLY.
12. THE TOWN WILL BE RESPONSIBLE FOR ONGOING VEGETATIVE MAINTENANCE AREA IN CENTRAL STREET.
13. ALL SNOW SHALL BE STORED IN THE AREAS DEPICTED ON THE PLANS AS SNOW STORAGE AREAS. IN THE EVENT THAT THE APPROVED AREAS FOR SNOW STORAGE BECOME FULL, THE OWNER SHALL REASONABLY REMOVE EXCESS NOW FROM THE SITE.
14. ALL SIGNAGE AND PAVEMENT MARKINGS SHALL CONFORM TO THE LATEST VERSION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

GRAPHIC SCALE



REVISED FOR ONE-WAY ENTRY DRIVE	06.10.26
REVISED PER REVIEW COMMENTS	10.29.25
REVISED PER REVIEW COMMENTS	10.08.25
REVISED PER REVIEW COMMENTS	09.10.25
REVISED PER REVIEW COMMENTS	08.26.25
REVISED PER REVIEW COMMENTS	07.28.25
REVISED PER REVIEW COMMENTS	06.10.25
REVISIONS:	DATE:

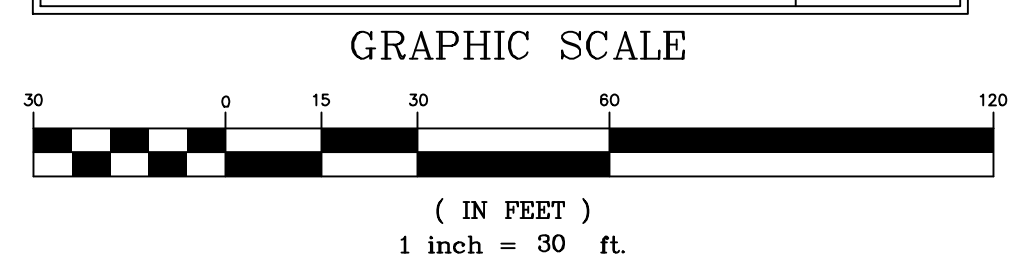
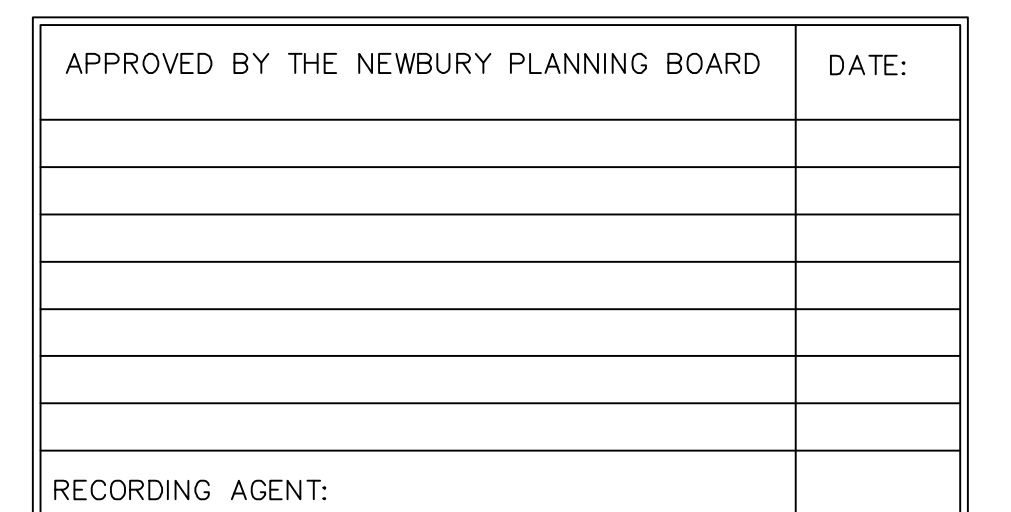
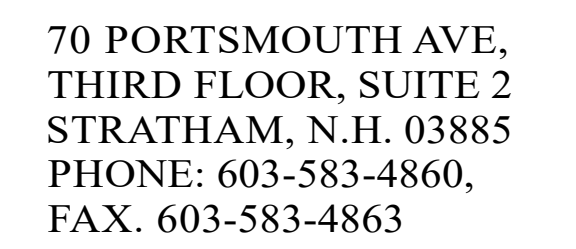
OVERALL SITE PLAN

PLAN FOR:
BYFIELD HEIGHTS
RESIDENTIAL DEVELOPMENT
34 CENTRAL STREET, NEWBURY, MA

DATE:	MARCH 2025	SCALE:	1"=50'
PROJ. NO:	NH-1507	SHEET NO.	6



MHOC LLC
11 BOBBY JONES DRIVE
ANDOVER, MA 01810

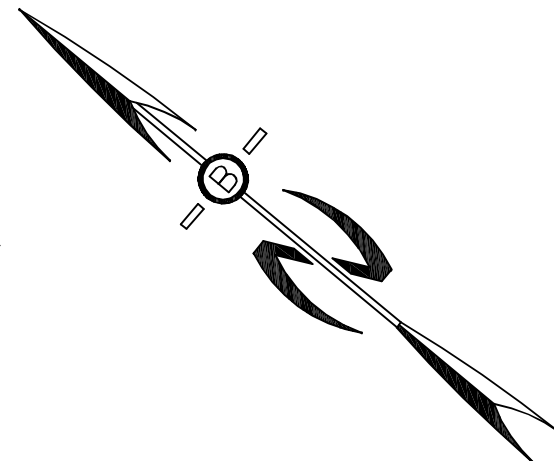
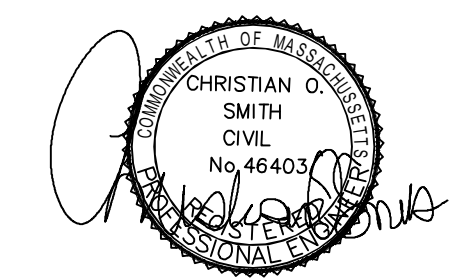
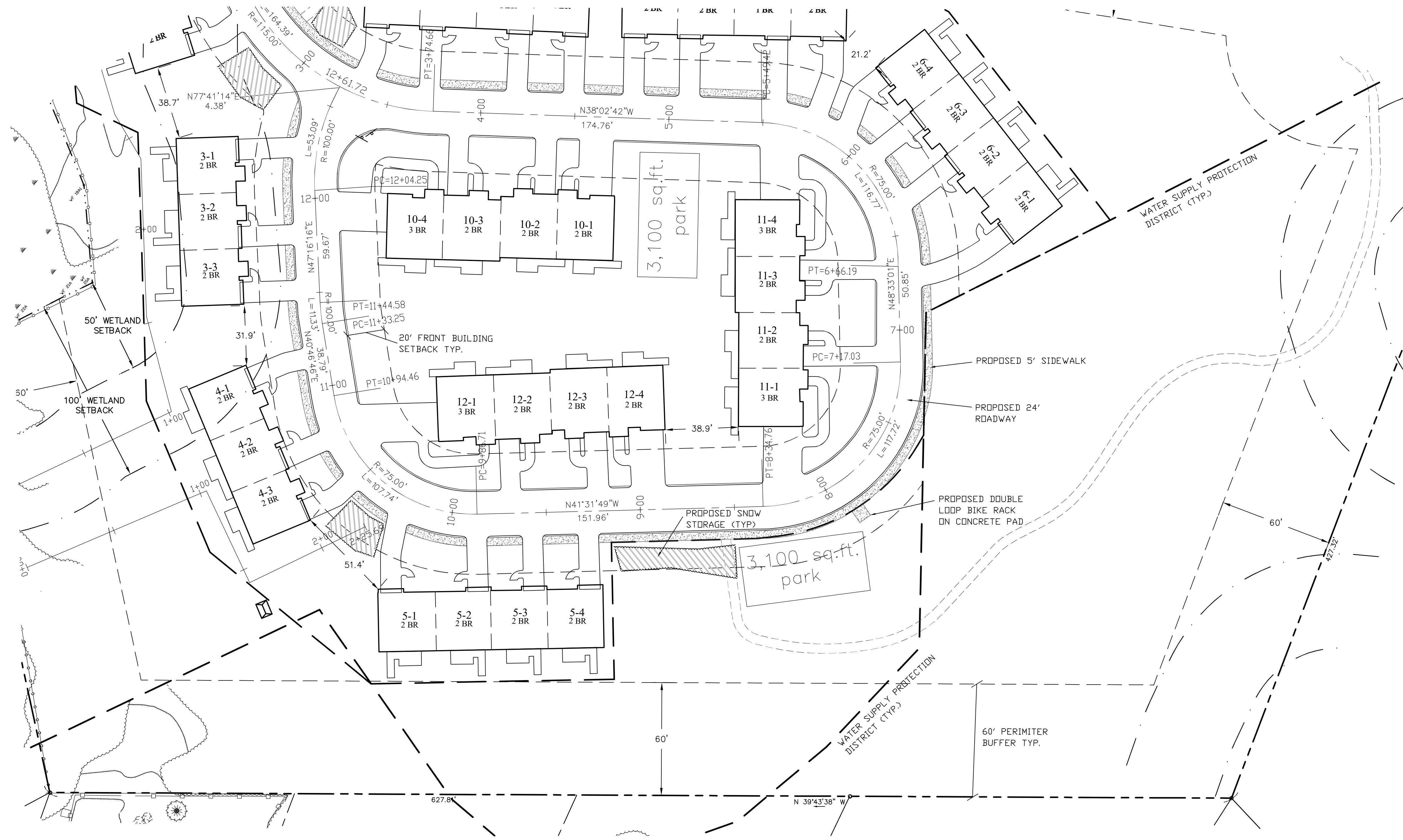


REVISED FOR ONE-WAY ENTRY DRIVE	06.10.26
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REVISED PER REVIEW COMMENTS	10.08.25
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SITE PLAN A

PLAN FOR:
BYFIELD HEIGHTS
RESIDENTIAL DEVELOPMENT
34 CENTRAL STREET, NEWBURY, MA

DATE: MARCH 2025	SCALE: 1"=30'
PROJ. NO: NH-1507	SHEET NO. 7

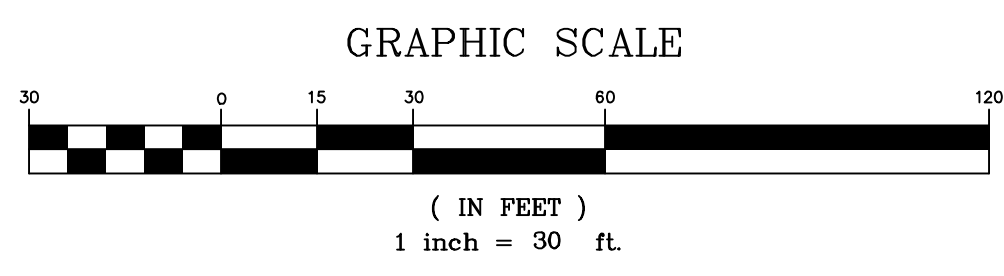


PREPARED FOR:
MHOC LLC
11 BOBBY JONES DRIVE
ANDOVER, MA 01810

BA
BEALS
ASSOCIATES, PLLC

70 PORTSMOUTH AVE,
THIRD FLOOR, SUITE 2
STRATHAM, N.H. 03885
PHONE: 603-583-4860,
FAX: 603-583-4863

APPROVED BY THE NEWBURY PLANNING BOARD	DATE:
RECORDING AGENT:	



REVISED FOR ONE-WAY ENTRY DRIVE	06.10.26
REVISED PER REVIEW COMMENTS	11.11.25
REVISED PER REVIEW COMMENTS	10.29.25
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REVISED PER REVIEW COMMENTS	06.10.25
REVISIONS:	DATE:

SITE PLAN B

PLAN FOR:
BYFIELD HEIGHTS
RESIDENTIAL DEVELOPMENT
34 CENTRAL STREET, NEWBURY, MA

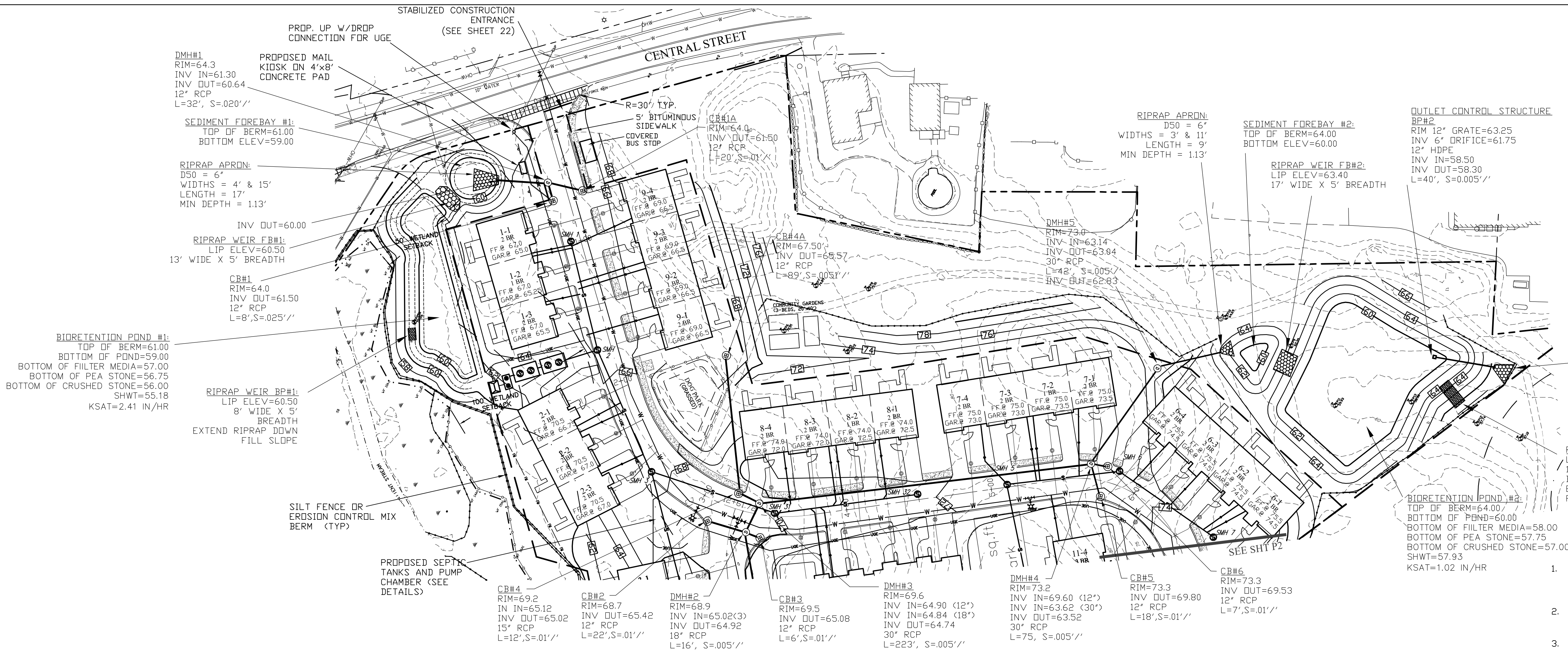
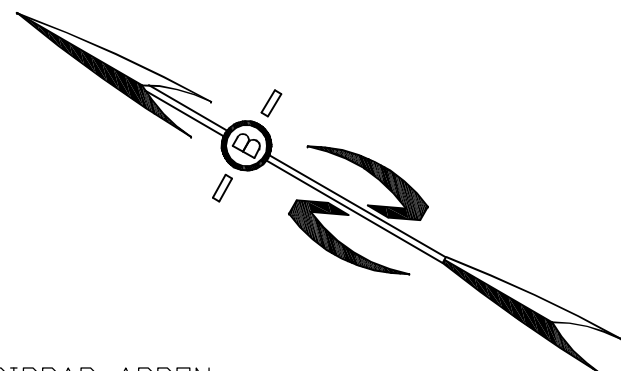
DATE:	MARCH 2025	SCALE:	1"=30'
PROJ. NO:	NH-1507	SHEET NO.	8

PREPARED FOR:

MHOC LLC
11 BOBBY JONES DRIVE
ANDOVER, MA 01810



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PHONE: 603-583-4860,
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NOTES

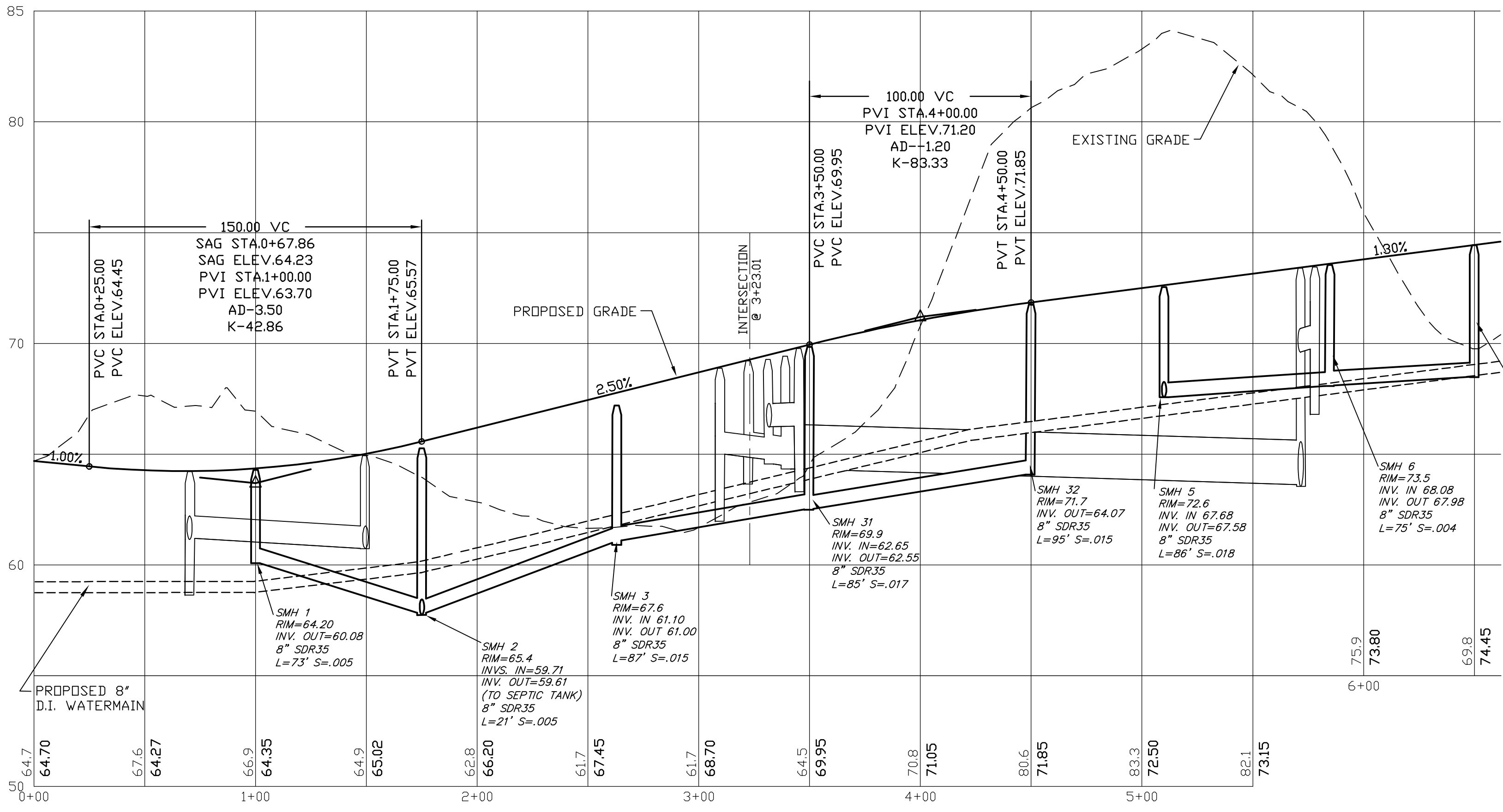
1. ALL ELECTRICAL, TELEPHONE, CABLE TELEVISION AND ALARM LINES TO BE UNDERGROUND. THE SIZE AND LOCATION IS TO BE DETERMINED BY APPROPRIATE UTILITY COMPANY. ALSO SEE TOWN OF NEWBURY PLACEMENT DETAIL ON SHEET D1.
2. ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR, ENGINEER TO BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCY.
3. ALL CONSTRUCTION METHODS AND MATERIALS WILL CONFORM TO THE TOWN OF NEWBURY STANDARD SPECIFICATIONS AND TO MASS.D.O.T. STANDARDS AND REGULATIONS.
4. ALL DRAINAGE STRUCTURE AND SWALES WILL BE BUILT AND STABILIZED PRIOR TO HAVING RUN-OFF DIRECTED TO THEM.
5. SEE DETAIL SHEETS FOR STANDARD CONSTRUCTION NOTES AND DETAILS.
6. ALL CROSS CULVERTS & DRIVEWAY CULVERTS TO BE MIN. 12" ADS N-12 AND TO HAVE MASONRY HEADWALLS UNLESS FLARED END SECTIONS ARE SPECIFIED ON THE PLANS.
7. NATURAL DEVELOPED AREA BUFFERS ARE TO REMAIN WOODED.
8. ALL SIDE SLOPES STEEPER THAN 3:1 (WETLAND CROSSINGS) TO BE LINED WITH JUTE MATTING.
9. ALL SWALE MATTING WILL EXTEND TO THE LIP OF THE LEVEL SPREADER AT THE END OF EACH SWALE.
10. ALL PERMANENT EROSION CONTROL SWALE LINING MATERIAL SHALL BE NAG C350 OR EQUIVALENT. ALL OTHER SWALES WILL BE PROTECTED WITH TEMPORARY STONE CHECK DAMS (S.C.D.) UNTIL THE VEGETATION HAS FULLY STABILIZED. AT THIS TIME THE S.C.D.'S WILL BE REMOVED.
11. SEE ADDITIONAL NOTES ON SHEET 10.

PROFILE SCALES:

HORIZONTAL: 1"=40' VERTICAL: 1"=4'



POSSIBLE 4' DEEP BY 8' WIDE BUS SHELTER
N.T.S.



PLAN AND PROFILE

PLAN FOR:
BYFIELD HEIGHTS
RESIDENTIAL DEVELOPMENT
34 CENTRAL STREET, NEWBURY, MA

DATE:	MARCH 2025	SCALE:	1" = 40'
PROJ. NO:	NH-1507	SHEET NO.	9

PREPARED FOR:

MHOC LLC
11 BOBBY JONES DRIVE
ANDOVER, MA 01810

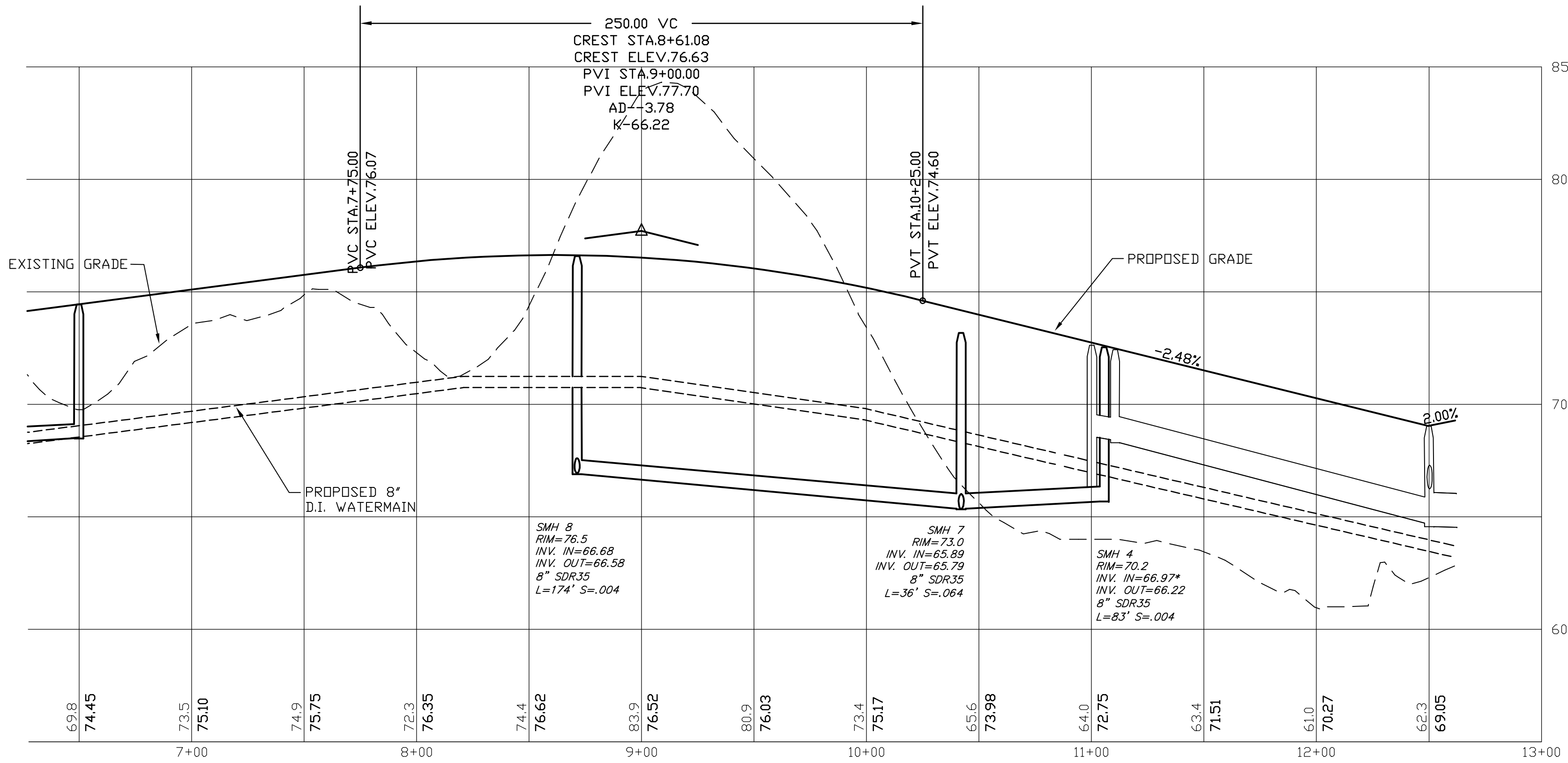
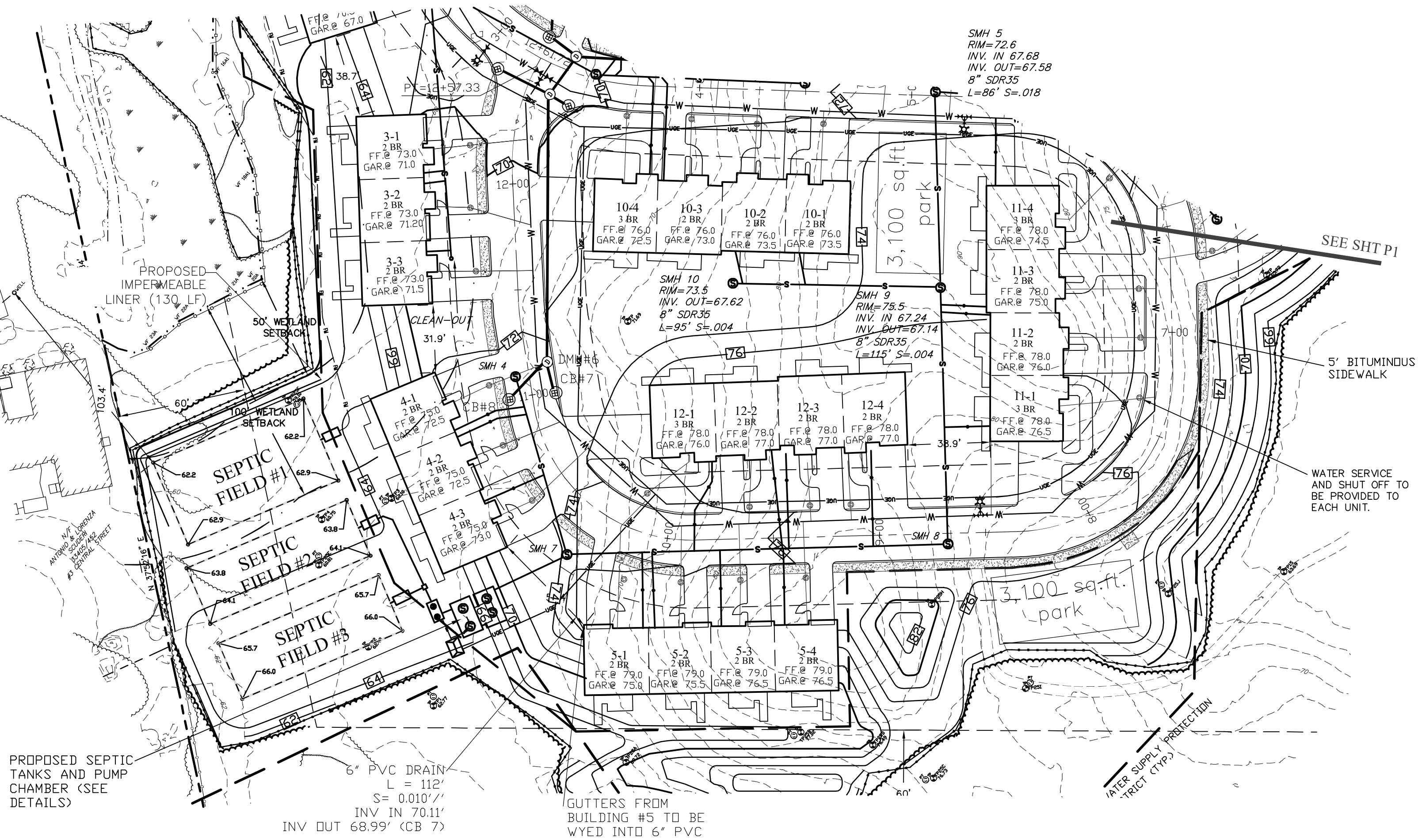


70 PORTSMOUTH AVE,
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STRATHAM, N.H. 03885
PHONE: 603-583-4860,
FAX: 603-583-4863

DMH#6
RIM=72.5
INV. IN=68.81
INV. OUT=68.71
15" RCP
L=123', S=.03'/'

CB#7
RIM=72.5
INV. IN 6'=68.99'
INV. OUT=68.91
12" RCP
L=10', S=.01'/'

CB#8
RIM=72.5
INV. IN=69.01
12" RCP
L=20', S=.01'/'



PROFILE SCALES:
HORIZONTAL: 1"=40' VERTICAL: 1"=4'

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PLAN AND PROFILE

PLAN FOR:
BYFIELD HEIGHTS
RESIDENTIAL DEVELOPMENT
34 CENTRAL STREET, NEWBURY, MA

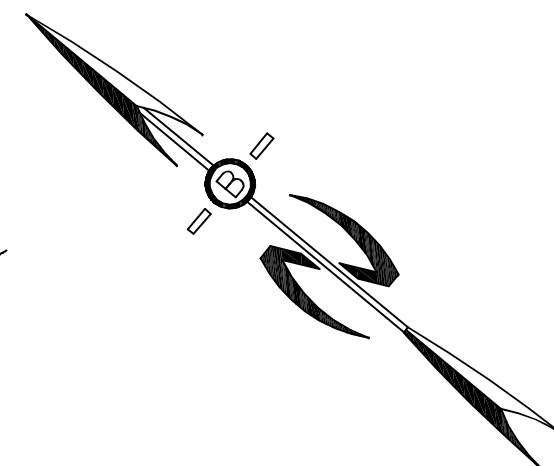
DATE:	MARCH 2025	SCALE:	1" = 40'
PROJ. NO:	NH-1507	SHEET NO.	10

Soil information was obtained from USDA Natural Resources Conservation Service (NRCS).

SOIL IDENTIFICATION LEGEND

Map Unit Symbol	Map Unit Name	Hydrologic Soil Group
256A	Deerfield loamy fine sand	A
422C	Canton fine sandy loam	B

SLOPE PHASE:
A=0-3%, B=3-8%, C=8-15%, D=15-25%, E=25%+



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PHONE: 603-583-4860,
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GRADING AND DRAINAGE NOTES

1. COMPACTION REQUIREMENTS:
BELOW PAVED OR CONCRETE AREAS 95%
TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL 95%
BELOW LOAM AND SEED AREAS 90%
* ALL PERCENTAGES OF COMPACTION SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH ASTM D-1557, METHOD C FIELD DENSITY TESTS SHALL BE MADE IN ACCORDANCE WITH ASTM D-1556 OR ASTM-2922.
2. ALL STORM DRAINAGE PIPES SHALL BE HIGH DENSITY POLYETHYLENE (HANCOR HI-Q, ADS N-12 OR EQUAL) UNLESS OTHERWISE SPECIFIED.
3. SEE UTILITY PLAN FOR ALL SITE UTILITY INFORMATION.
4. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
5. CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE AND LAWN AREAS FREE OF LOW SPOTS AND PONDING AREAS.
6. CONTRACTOR SHALL THOROUGHLY CLEAN ALL CATCH BASINS AND DRAIN LINES, WITHIN THE LIMIT OF WORK, OF SEDIMENT IMMEDIATELY UPON COMPLETION OF CONSTRUCTION.
7. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES.
8. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED FERTILIZER AND MULCH.

EROSION CONTROL NOTES

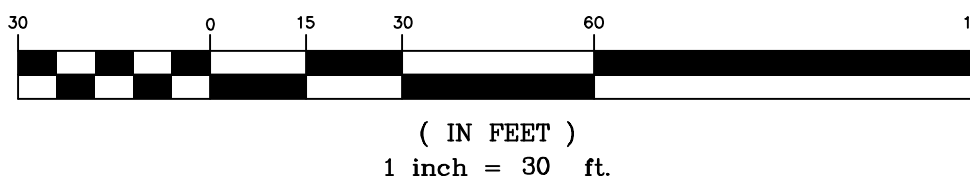
1. INSTALL EROSION CONTROL BARRIERS AS SHOWN AS FIRST ORDER OF WORK.
2. SEE GENERAL EROSION CONTROL NOTES ON "EROSION CONTROL NOTES & DETAILS SHEET".
3. PROVIDE INLET PROTECTION AROUND ALL EXISTING AND PROPOSED CATCH BASIN INLETS WITHIN THE WORK LIMITS AS WELL AS CATCH BASINS/CURB INLETS THAT RECEIVE RUNOFF FROM CONSTRUCTION ACTIVITIES. MAINTAIN FOR THE DURATION OF THE PROJECT.
4. INSTALL STABILIZED CONSTRUCTION EXIT.
5. INSPECT INLET PROTECTION AND PERIMETER EROSION CONTROL MEASURES DAILY AND AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY OF FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE FILTER HEIGHT.
6. CONSTRUCT EROSION CONTROL BLANKET ON ALL SLOPES STEEPER THAN 3:1.
7. PRIOR TO ANY WORK OR SOIL DISTURBANCE COMMENCING ON THE SUBJECT PROPERTY, INCLUDING MOVING OF EARTH, THE APPLICANT SHALL INSTALL ALL EROSION AND SILTATION MITIGATION AND CONTROL MEASURES AS REQUIRED BY STATE AND LOCAL PERMITS AND APPROVALS.
8. CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST AND WIND EROSION THROUGHOUT THE CONSTRUCTION PERIOD. DUST CONTROL MEASURES SHALL INCLUDE, BUT ARE NOT LIMITED TO, SPRINKLING WATER ON UNSTABLE SOILS SUBJECT TO ARID CONDITIONS.
9. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF CONSTRUCTION.
10. ALL CATCH BASIN SUMPS AND PIPING SHALL BE THOROUGHLY CLEANED TO REMOVE ALL SEDIMENT AND DEBRIS AFTER THE PROJECT HAS BEEN FULLY PAVED.
11. TEMPORARY SOIL STOCKPILE SHALL BE SURROUNDED WITH PERIMETER CONTROLS AND SHALL BE STABILIZED BY TEMPORARY EROSION CONTROL SEEDING. STOCKPILE AREAS TO BE LOCATED AS FAR AS POSSIBLE FROM THE DELINEATED EDGE OF WETLANDS.
12. SAFETY FENCING SHALL BE PROVIDED AROUND STOCKPILES OVER 10 FEET.

APPROVED BY THE NEWBURY PLANNING BOARD

DATE:

RECORDING AGENT:

GRAPHIC SCALE

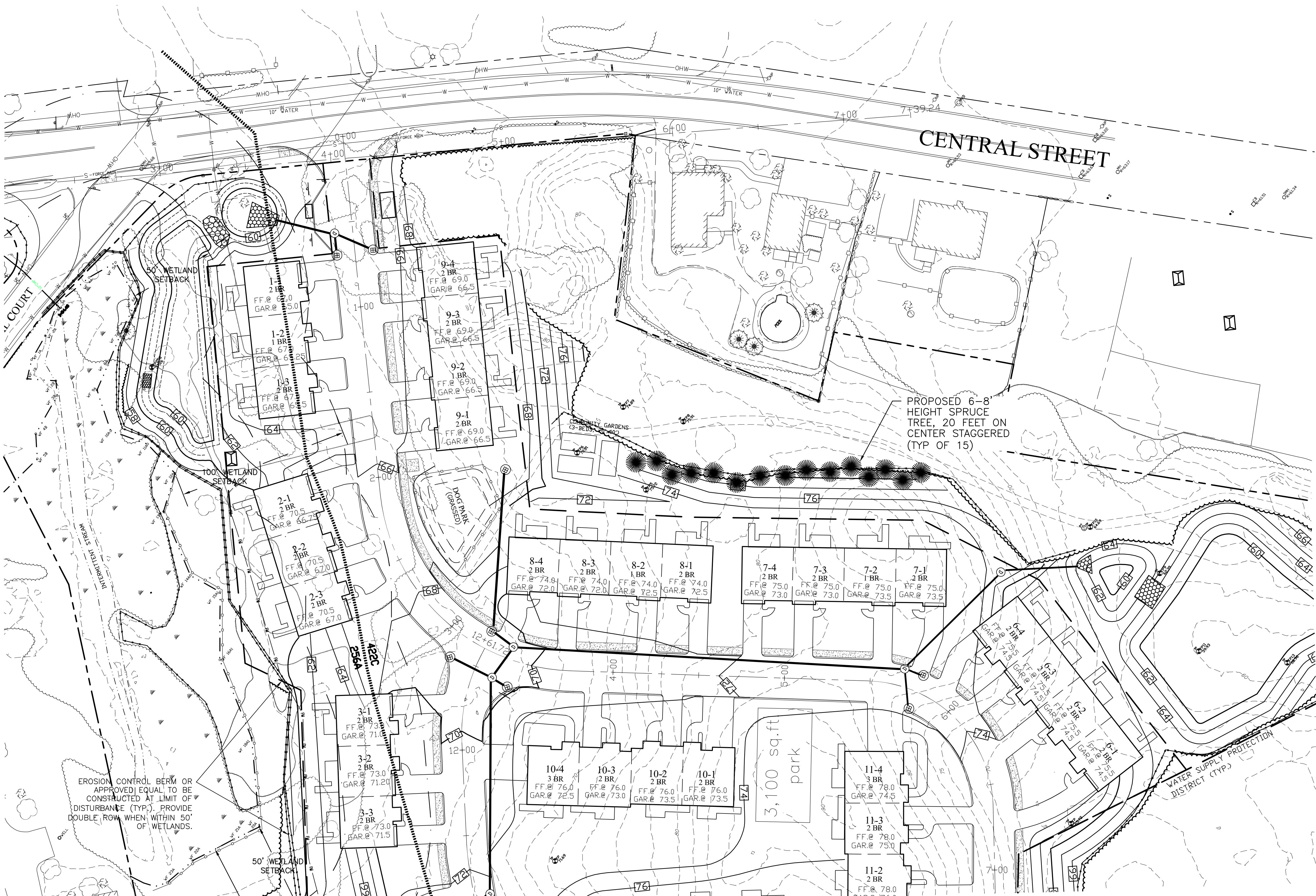


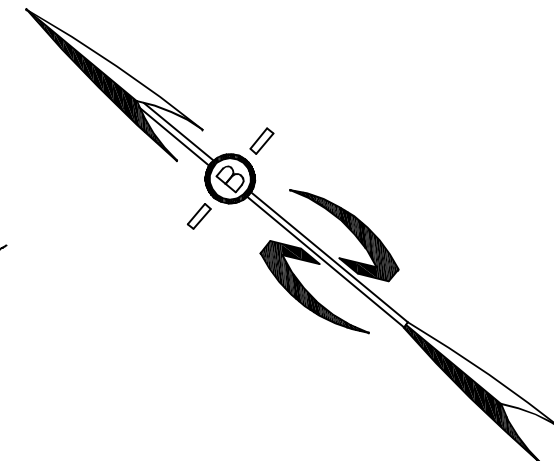
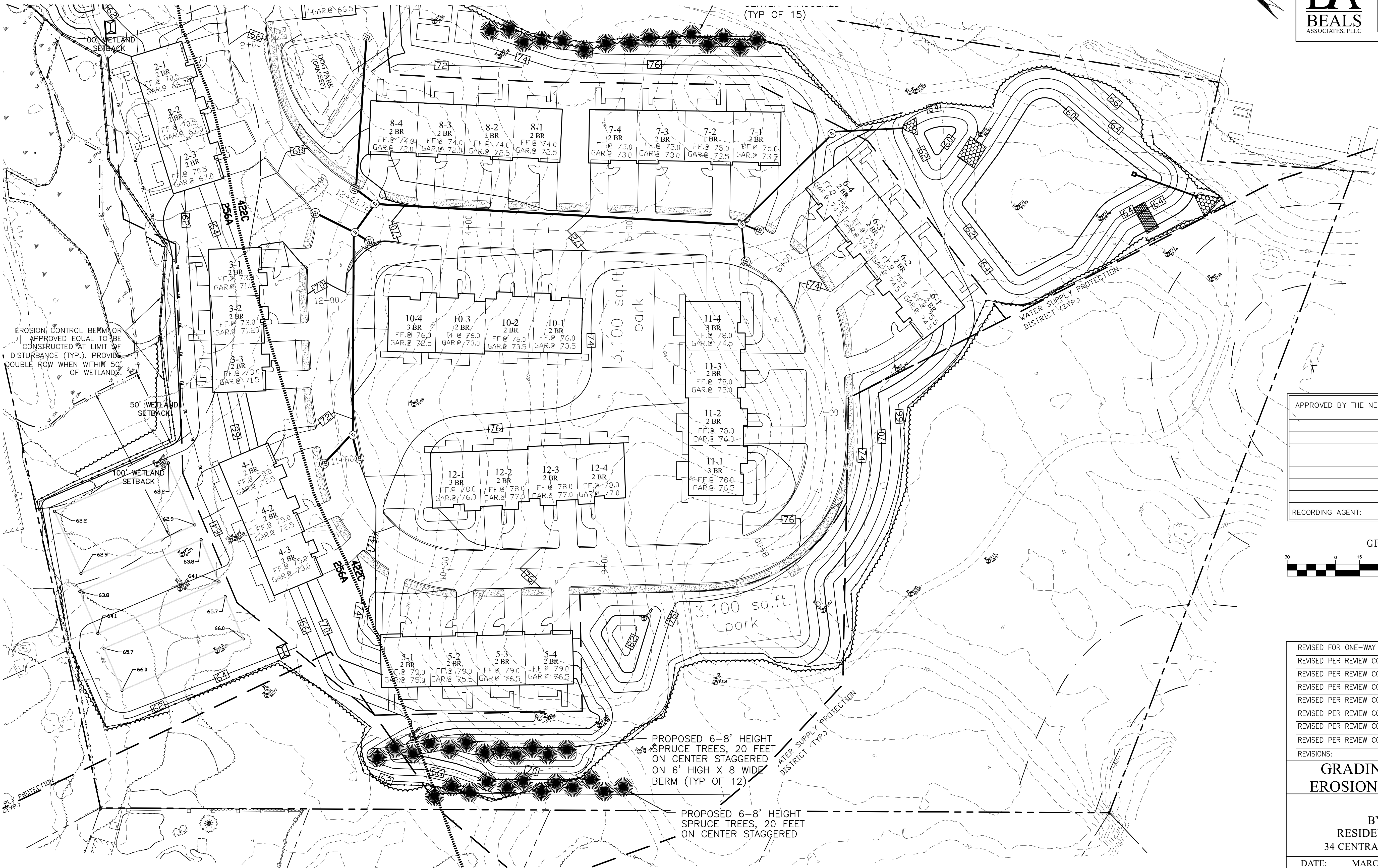
REVISED FOR ONE-WAY ENTRY DRIVE	06.10.26
REVISED BOX CULVERT & WETLAND IMPACTS	02.23.26
REVISED PER REVIEW COMMENTS	11.11.25
REVISED PER REVIEW COMMENTS	10.29.25
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GRADING, DRAINAGE, &
EROSION CONTROL PLAN A

PLAN FOR:
BYFIELD HEIGHTS
RESIDENTIAL DEVELOPMENT
34 CENTRAL STREET, NEWBURY, MA

DATE:	MARCH 2025	SCALE:	1"=30'
PROJ. NO:	NH-1507	SHEET NO.	11



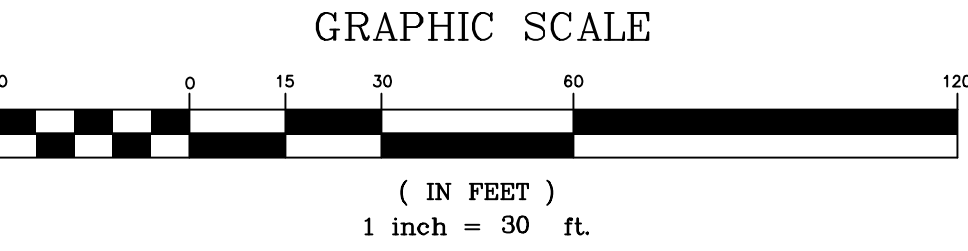


PREPARED FOR:
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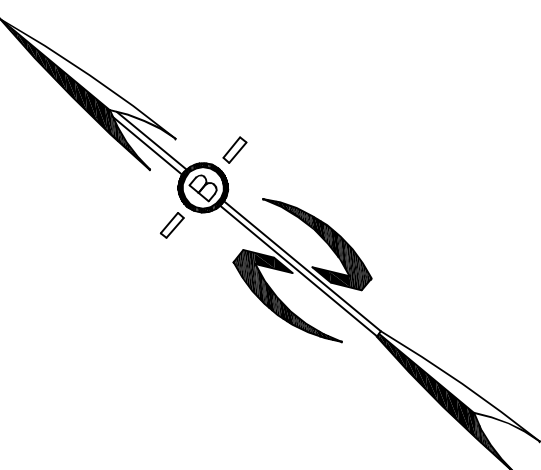
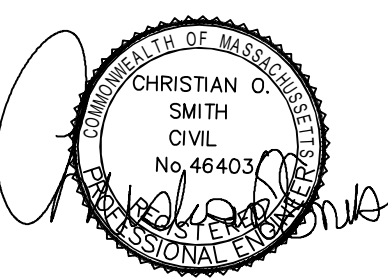


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GRADING, DRAINAGE, &
EROSION CONTROL PLAN B

PLAN FOR:
BYFIELD HEIGHTS
RESIDENTIAL DEVELOPMENT
34 CENTRAL STREET, NEWBURY, MA

DATE:	MARCH 2025	SCALE:	1"=30'
PROJ. NO:	NH-1507	SHEET NO.	12

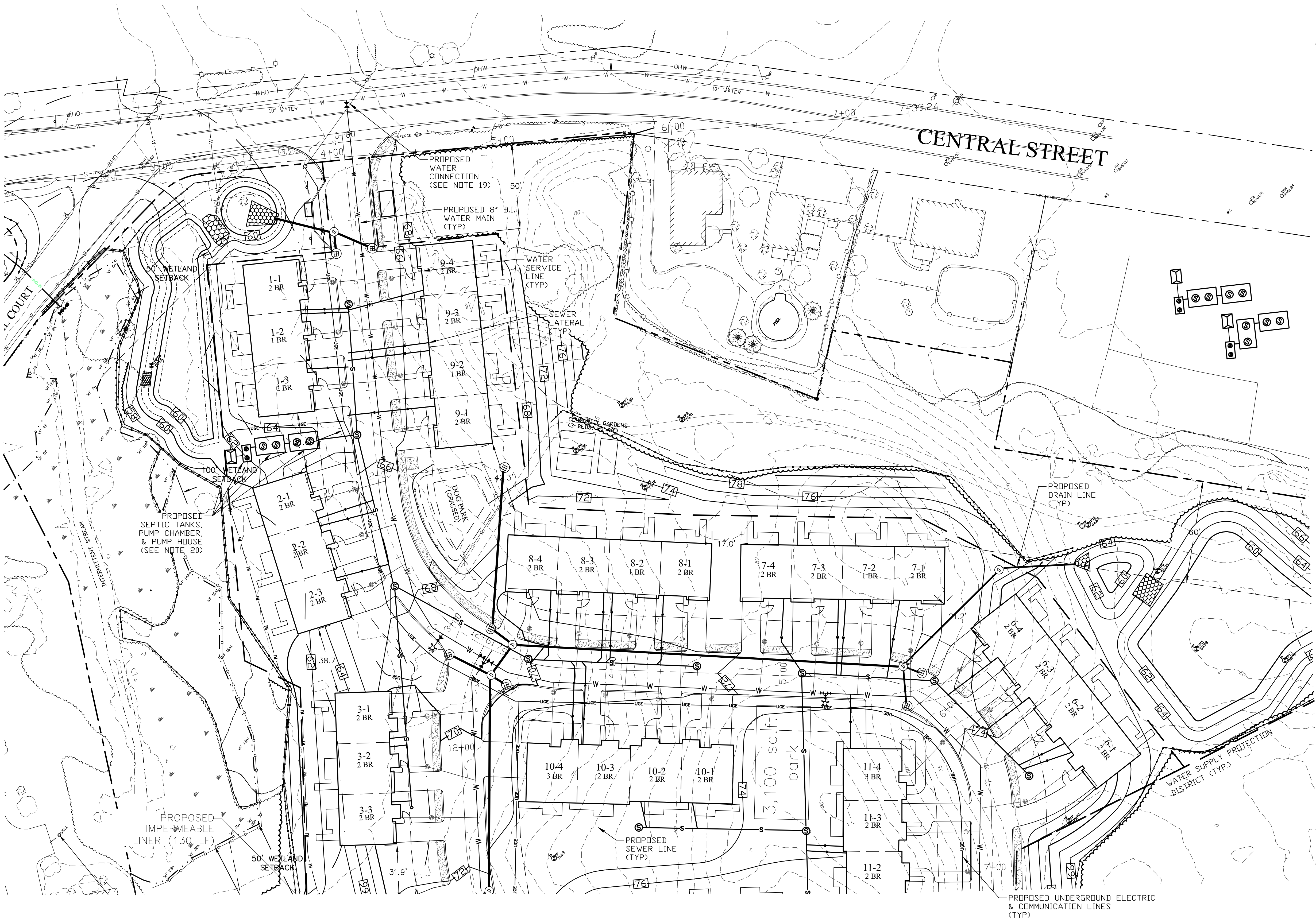


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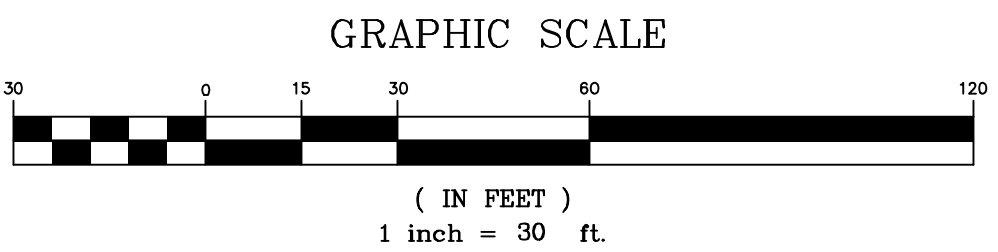
BA
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- UTILITY NOTES
1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES, AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK AT NO ADDITIONAL COST TO THE OWNER.
 2. ALL WATER MAIN INSTALLATIONS SHALL BE CLASS 52, CEMENT LINED DUCTILE IRON PIPE.
 3. ALL WATER MAIN INSTALLATIONS SHALL BE PRESSURE TESTED AND CHLORINATED AFTER CONSTRUCTION PRIOR TO ACTIVATING THE SYSTEM. CONTRACTOR SHALL COORDINATE CHLORINATION AND TESTING WITH THE WATER DEPARTMENT.
 4. ALL SEWER PIPE SHALL BE PVC SDR 35 UNLESS OTHERWISE STATED.
 5. CONNECTION TO EXISTING WATER MAIN SHALL BE CONSTRUCTED TO NEWBURYPORT WATER DEPARTMENT STANDARDS.
 6. EXISTING UTILITIES TO BE REMOVED SHALL BE CAPPED AT THE MAIN AND MEET THE DEPARTMENT OF PUBLIC WORKS STANDARDS FOR CAPPING OF WATER AND SEWER SERVICES.
 7. ALL ELECTRICAL MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE, LATEST EDITION, AND ALL APPLICABLE STATE AND LOCAL CODES.
 8. THE EXACT LOCATION OF NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH THE BUILDING DRAWINGS AND THE APPLICABLE UTILITY COMPANIES.
 9. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
 10. THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATES TO THE OWNER PRIOR TO THE COMPLETION OF THIS PROJECT.
 11. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANHOLES, BOXES, FITTINGS, CONNECTORS, COVER PLATES, AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THESE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL.
 12. CONTRACTOR SHALL PROVIDE EXCAVATION, BEDDING, BACKFILL AND COMPACTION FOR NATURAL GAS SERVICES.
 13. A 10-FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED BETWEEN ALL WATER AND SANITARY SEWER LINES. AN 18-INCH MINIMUM OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER/SANITARY SEWER CROSSINGS.
 14. THE CONTRACTOR SHALL CONTACT "DIG-SAFE" 72 HOURS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL HAVE THE "DIG-SAFE" NUMBER ON SITE AT ALL TIMES.
 15. HYDRANTS, GATE VALVES, FITTINGS, ETC. SHALL MEET THE REQUIREMENTS OF THE TOWN OF NEWBURY.
 16. COORDINATE TESTING OF SEWER CONSTRUCTION WITH THE TOWN OF NEWBURY.
 17. ALL SEWER PIPE WITH LESS THAN 6' OF COVER IN PAVED AREAS OR LESS THAN 4' OF COVER IN UNPAVED AREAS SHALL BE INSULATED.
 18. SITE LIGHTING SPECIFICATIONS, CONDUIT LAYOUT AND CIRCUITRY FOR PROPOSED SITE LIGHTING AND SIGN ILLUMINATION SHALL BE PROVIDED BY THE PROJECT ELECTRICAL ENGINEER.
 19. HYDRANTS SHALL BE RED 5-1/4" AMERICAN-DARLING B-84-B-5 OR WATEROUS PACER.
 20. THE LIMITS OF REPLACEMENT FOR THE EXISTING 10-INCH AC WATER MAIN WITH NEW 10-INCH DUCTILE IRON PIPE SHALL INCLUDE THE SECTION OF PIPE REQUIRED FOR THE NEW CONNECTION, PLUS A MINIMUM OF ONE FULL PIPE LENGTH ON EACH SIDE OF THE CONNECTION. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL FITTINGS, APPURTENANCES, AND CONNECTIONS NECESSARY TO CONNECT TO THE EXISTING AND PROPOSED WATER MAINS, INCLUDING A NEW GATE VALVE, IN ACCORDANCE WITH WATER DEPARTMENT STANDARDS AND SPECIFICATIONS.
 21. EACH PUMP HOUSE SHALL INCLUDE AN UNDERGROUND PROPANE TANK AND EXTERIOR GENERATOR TO SUPPLY POWER IN THE EVENT OF AN OUTAGE. ELECTRICAL SERVICE AND METER TO BE PROVIDED TO EACH PUMP HOUSE.
 22. SEPTIC TANKS, D-BOXES, PUMP CHAMBERS, AND OTHER SEPTIC SYSTEM COMPONENTS SHALL BE INSTALLED NO MORE THAN 36" BELOW FINISH GRADE IN COMPLIANCE WITH 310 CMR 15.221(7).

APPROVED BY THE NEWBURY PLANNING BOARD	DATE:
RECORDING AGENT:	



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UTILITY PLAN A

PLAN FOR:
BYFIELD HEIGHTS
RESIDENTIAL DEVELOPMENT
34 CENTRAL STREET, NEWBURY, MA

DATE:	MARCH 2025	SCALE:	1"=30'
PROJ. NO:	NH-1507	SHEET NO.	13

DESIGN FLOW (15.203)

88 BEDROOMS X 110 GPD/BEDROOM = 9,680 GPD

CONVENTIONAL SEPTIC AREA SIZING

GIVEN THE FOLLOWING:
- PERC RATES OF 3.0 & 3.67 MIN/IN
- CLASS I SOILS
- 9,680 GPD DESIGN FLOW

EACH FIELD (1 & 2):
TOTAL REQUIRED BED SIZE = $1/0.74 \text{ SF/GPD} \times 4,840 \text{ GPD} = 6,541 \text{ SF}$

RESERVE SEPTIC AREA SIZING

FIELD #1

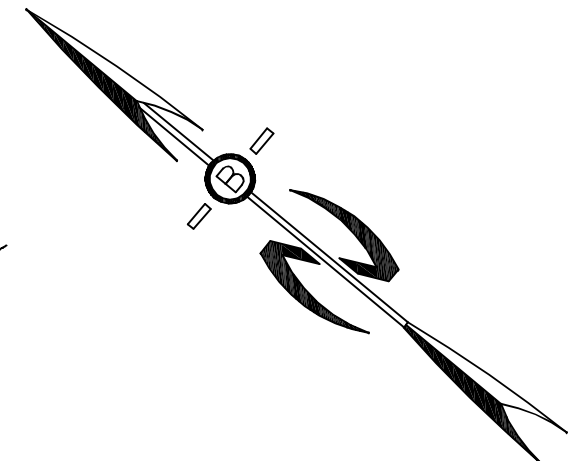
GIVEN THE FOLLOWING:
- PERC RATES OF 16.7 & 17.7 MIN/IN
- CLASS II SOILS
- 43 BR X 110 GPD/BR = 4,730 GPD DESIGN FLOW

TOTAL REQUIRED BED SIZE =
 $1/0.53 \text{ SF/GPD} \times 4,730 \text{ GPD} = 8,925 \text{ SF}$

FIELD #2

GIVEN THE FOLLOWING:
- PERC RATE OF 13.67 MIN/IN
- CLASS II SOILS
- 45 BR X 110 GPD/BR = 4,950 GPD DESIGN FLOW

TOTAL REQUIRED BED SIZE =
 $1/0.56 \text{ SF/GPD} \times 4,950 \text{ GPD} = 8,840 \text{ SF}$

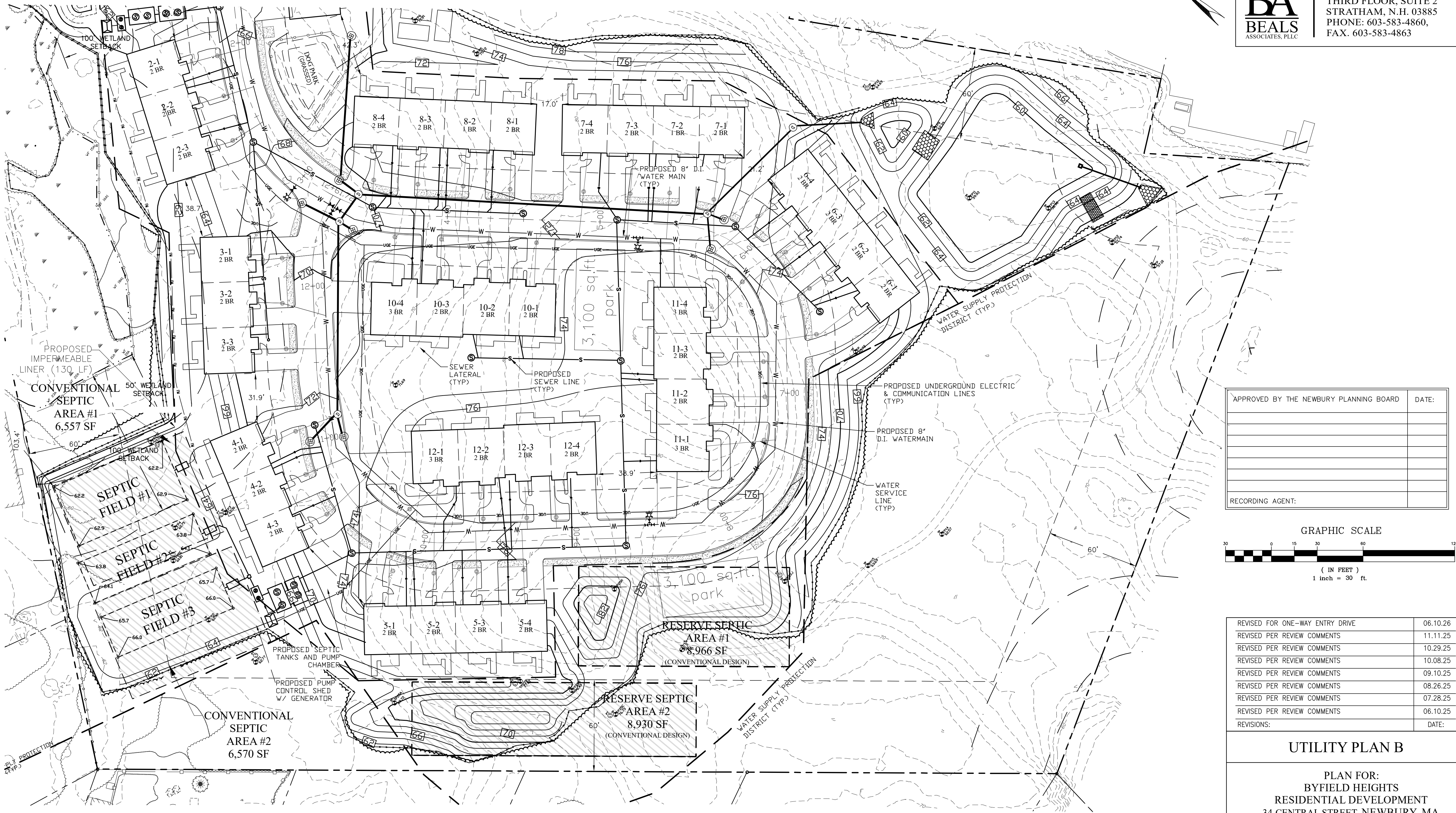


PREPARED FOR:

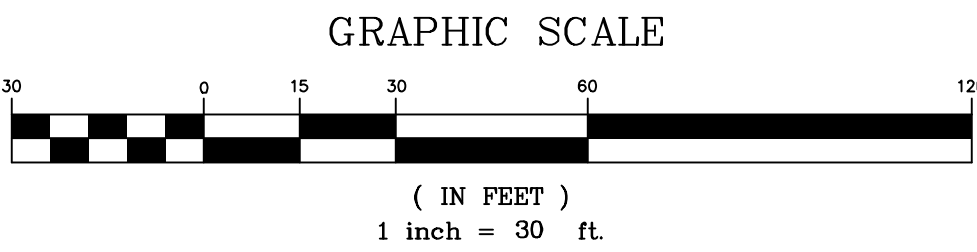
MHOC LLC
11 BOBBY JONES DRIVE
ANDOVER, MA 01810



70 PORTSMOUTH AVE,
THIRD FLOOR, SUITE 2
STRATHAM, N.H. 03885
PHONE: 603-583-4860,
FAX: 603-583-4863



APPROVED BY THE NEWBURY PLANNING BOARD	DATE:
RECORDING AGENT:	

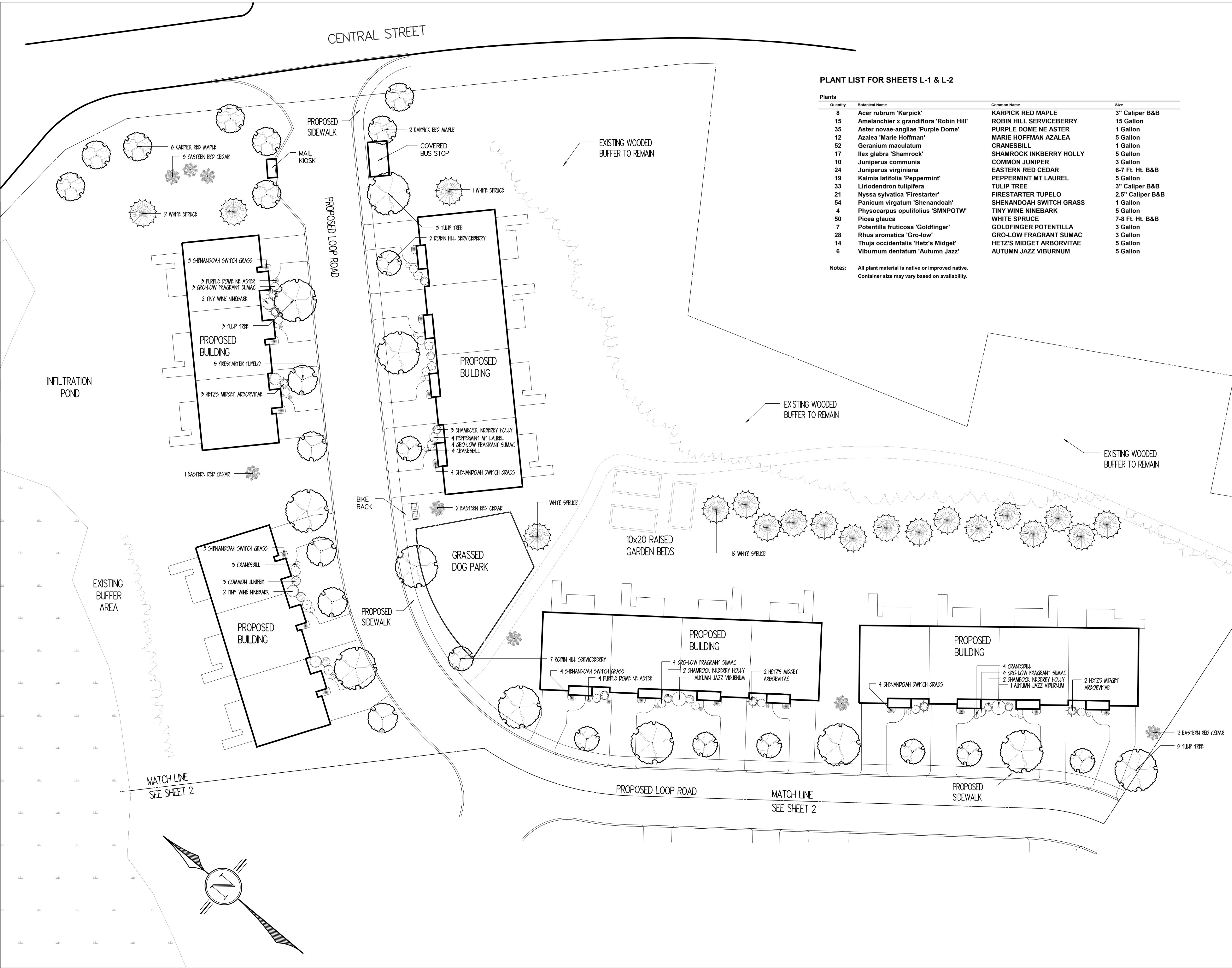


REVISED FOR ONE-WAY ENTRY DRIVE	06.10.26
REVISED PER REVIEW COMMENTS	11.11.25
REVISED PER REVIEW COMMENTS	10.29.25
REVISED PER REVIEW COMMENTS	10.08.25
REVISED PER REVIEW COMMENTS	09.10.25
REVISED PER REVIEW COMMENTS	08.26.25
REVISED PER REVIEW COMMENTS	07.28.25
REVISED PER REVIEW COMMENTS	06.10.25
REVISIONS:	DATE:

UTILITY PLAN B

PLAN FOR:
BYFIELD HEIGHTS
RESIDENTIAL DEVELOPMENT
34 CENTRAL STREET, NEWBURY, MA

DATE:	MARCH 2025	SCALE:	1"=30'
PROJ. NO:	NH-1507	SHEET NO.	14



PLANT LIST FOR SHEETS L-1 & L-2

Plants			
Quantity	Botanical Name	Common Name	Size
8	Acer rubrum 'Karpick'	KARPICK RED MAPLE	3" Caliper B&B
15	Amelanchier x grandiflora 'Robin Hill'	ROBIN HILL SERVICEBERRY	15 Gallon
35	Aster novae-angliae 'Purple Dome'	PURPLE DOME NE ASTER	1 Gallon
12	Azalea 'Marie Hoffman'	MARIE HOFFMAN AZALEA	5 Gallon
52	Geranium maculatum	CRANESBILL	1 Gallon
17	Ilex glabra 'Shamrock'	SHAMROCK INKBERRY HOLLY	5 Gallon
10	Juniperus communis	COMMON JUNIPER	3 Gallon
24	Juniperus virginiana	EASTERN RED CEDAR	6-7 Ft. Ht. B&B
19	Kalmia latifolia 'Peppermint'	PEPPERMINT MT LAUREL	5 Gallon
33	Liriodendron tulipifera	TULIP TREE	3" Caliper B&B
21	Nyssa sylvatica 'Firestarter'	FIRESTARTER TUPELO	2.5" Caliper B&B
54	Panicum virgatum 'Shenandoah'	SHENANDOAH SWITCH GRASS	1 Gallon
4	Physocarpus opulifolius 'SMNPOTW'	TINY WINE NINEBARK	5 Gallon
50	Picea glauca	WHITE SPRUCE	7-8 Ft. Ht. B&B
7	Potentilla fruticosa 'Goldfinger'	GOLDFINGER POTENTILLA	3 Gallon
28	Rhus aromatica 'Gro-low'	GRO-LOW FRAGRANT SUMAC	3 Gallon
14	Thuja occidentalis 'Hetz's Midget'	HETZ'S MIDGET ARBORVITAE	5 Gallon
6	Viburnum dentatum 'Autumn Jazz'	AUTUMN JAZZ VIBURNUM	5 Gallon

Notes: All plant material is native or improved native.
Container size may vary based on availability.

PREPARED FOR:

MHOC LLC
11 BOBBY JONES DRIVE
ANDOVER, MA 01810

11 South Road
Brentwood, NH 03833
LMLandDesign.com

PLANTING NOTES:

THE LANDSCAPE INSTALLATION CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING UTILITIES PRIOR TO STARTING WORK.

THE CONTRACTOR SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE CURRENT AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.

THE DEVELOPER SHALL PLANT A MINIMUM OF THE AMOUNT OF SHRUBS AND TREES SHOWN ON THE PLANT LIST, BUT EXACT SPECIES MAY VARY BASED ON AVAILABILITY. ALL PLANT MATERIAL SHALL BE GUARANTEED BY THE CONTRACTOR FOR ONE FULL YEAR FROM THE TIME OF OWNER ACCEPTANCE.

ALL PLANT MATERIAL SHALL BE WATERED THOROUGHLY DURING THE FIRST 24 HOUR PERIOD AFTER PLANTED. PLANTS SHALL BE WATERED WEEKLY OR MORE AS NECESSARY DURING THE FIRST GROWING YEAR. NATIVE PLANTS SPECIFIED AND SHALL NOT REQUIRE IRRIGATION ONCE ESTABLISHED.

ALL TREES, SHRUBS AND PERENNIALS SHALL BE PLANTED IN MULCH BEDS EXCEPT WHERE SPECIFIED ON THE PLAN. ALL MULCH AREAS SHALL RECEIVE A 3 INCH LAYER OF NATURAL BARK MULCH OVER A CONSTRUCTION GRADE WEED MAT BARRIER.

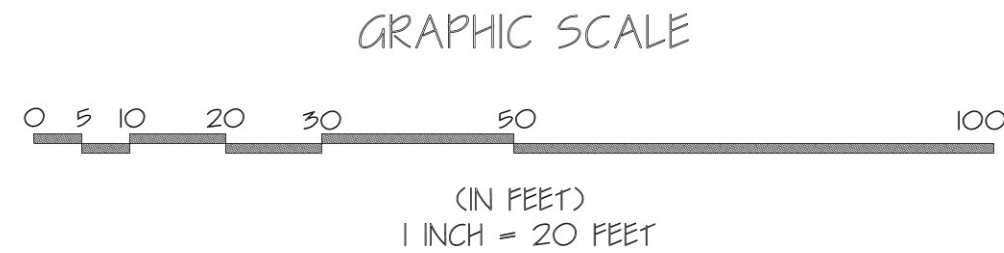
THE CONTRACTOR SHALL REMOVE WEEDS, ROCKS, CONSTRUCTION DEBRIE, ETC. FROM ANY LANDSCAPE AREA UNLESS DESIGNATED TO REMAIN. LEDGE SHALL BE REMOVED MINIMUM OF 3 FEET BELOW ALL PLANTINGS FOR PLANT SURVIVABILITY.

ALL DISTURBED AREAS TO BE LANDSCAPED SHALL BE REPLACED WITH SUITABLE TOPSOIL. LAWN AREAS SHALL UTILIZE TALL FESCUE HYDROSEEDING AS DROUGHT TOLERANT COOL-SEASON LAWN GRASS.

THE BUILDING FOUNDATIONS WILL HAVE STONE MULCH BORDER EXTENDING OUT 18 INCHES FROM FOUNDATION AS DRIP EDGE. THE STONE MULCH SHALL BE 3 INCH DEPTH OVER A CONSTRUCTION GRADE WEED MAT BARRIER.

THIS PLAN SHEET IS INTENDED FOR LANDSCAPING PURPOSES ONLY. REFER TO CIVIL AND SITE SHEETS FOR ALL OTHER SITE CONSTRUCTION INFORMATION.

ALL PLANTING SHALL CONFORM TO CITY OF NEWBURY, MASSACHUSETTS SITE PLAN REVIEW REGULATIONS PLANTING REQUIREMENTS.

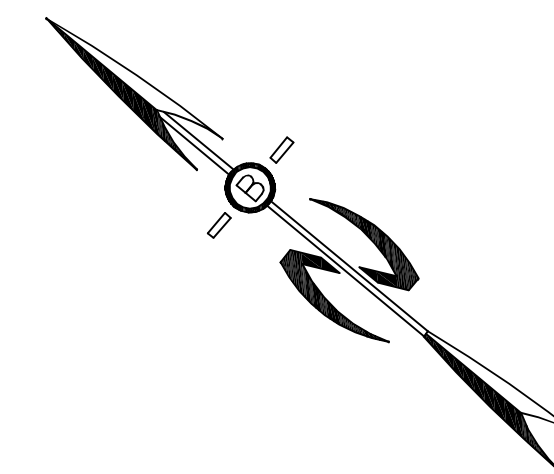
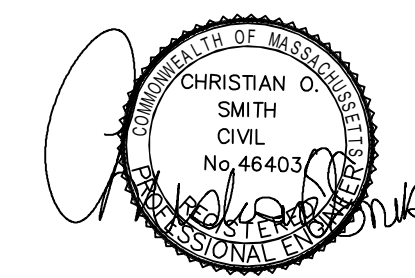


REVISED PER REVIEW COMMENTS	10-08-25
REVISED PER REVIEW COMMENTS	09-09-25
REVISED PER REVIEW COMMENTS	08-26-25
REVISED PER REVIEW COMMENTS	07-28-25
REVISIONS:	DATE:

PLANTING PLAN

PLAN FOR: BYFIELD HEIGHTS RESIDENTIAL DEVELOPMENT 34 CENTRAL STREET, NEWBURY, MA			
DATE:	FEB 26, 2025	SCALE:	1" = 20'
PROJ. NO:	NH-1507	SHEET NO.	16

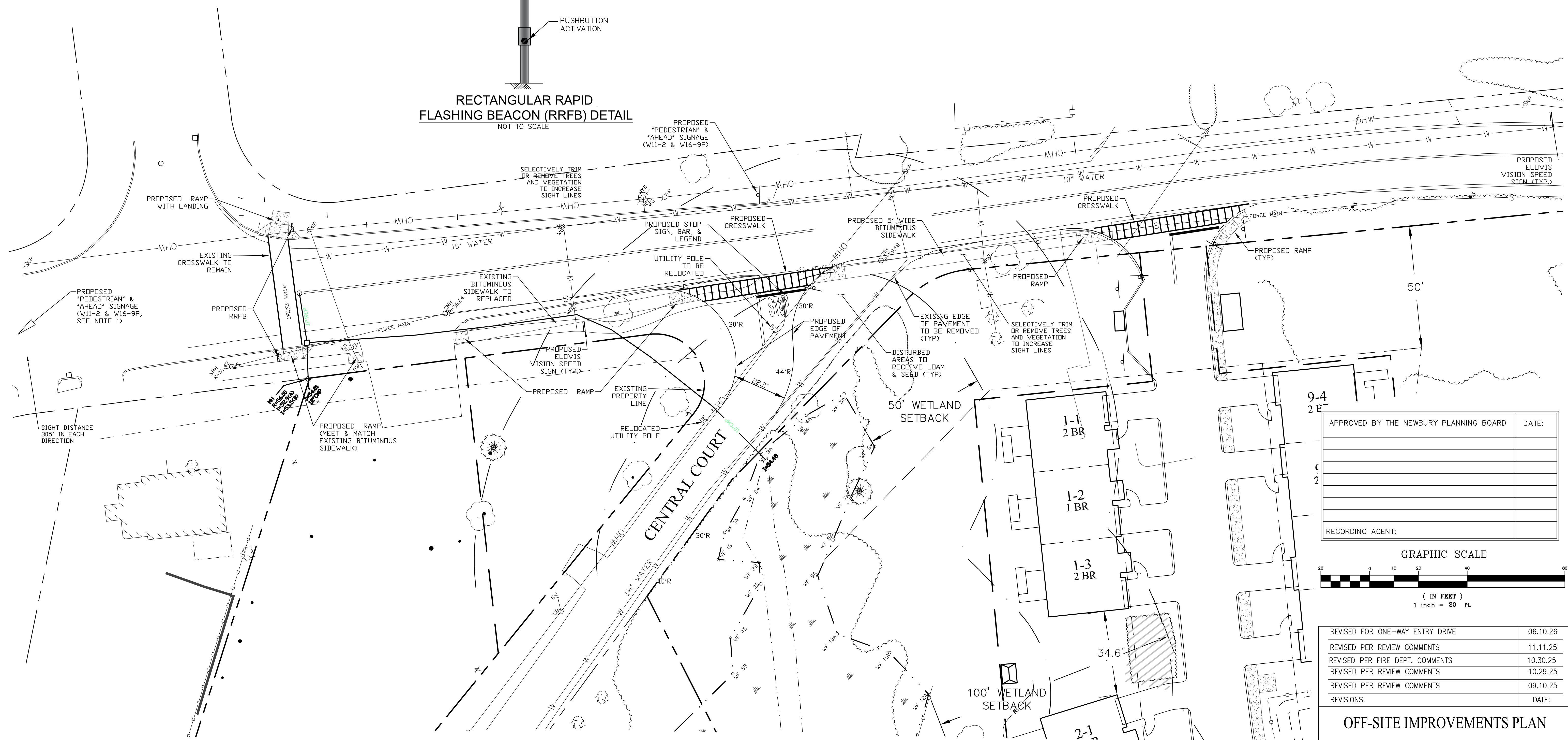
1. RECTANGULAR RAPID FLASHING BEACON (RRFB) ADVANCED WARNING SIGNS TO BE PLACED 200 FEET FROM RRFB. THE LOCATION TOWARDS ROUTE 95 IS OUTSIDE OF THE PROJECT SURVEY AND SHALL BE VERIFIED IN THE FIELD IN CONSULTATION WITH THE NEWBURY POLICE DEPARTMENT.
2. SPEED SIGNS TO BE BY "EVOLUS VISION" OR MUTCD COMPLIANT EQUAL WITH PRIOR APPROVAL OF THE POLICE DEPARTMENT.



MHOC LLC
11 BOBBY JONES DRIVE
ANDOVER, MA 01810

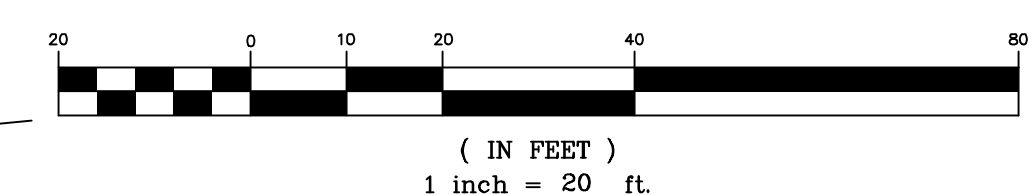
BA
BEALS
ASSOCIATES, PLLC

70 PORTSMOUTH AVE,
THIRD FLOOR, SUITE 2
STRATHAM, N.H. 03885
PHONE: 603-583-4860,
FAX. 603-583-4863



	APPROVED BY THE NEWBURY PLANNING BOARD	DATE:
C		
2		
	RECORDING AGENT:	

GRAPHIC SCALE



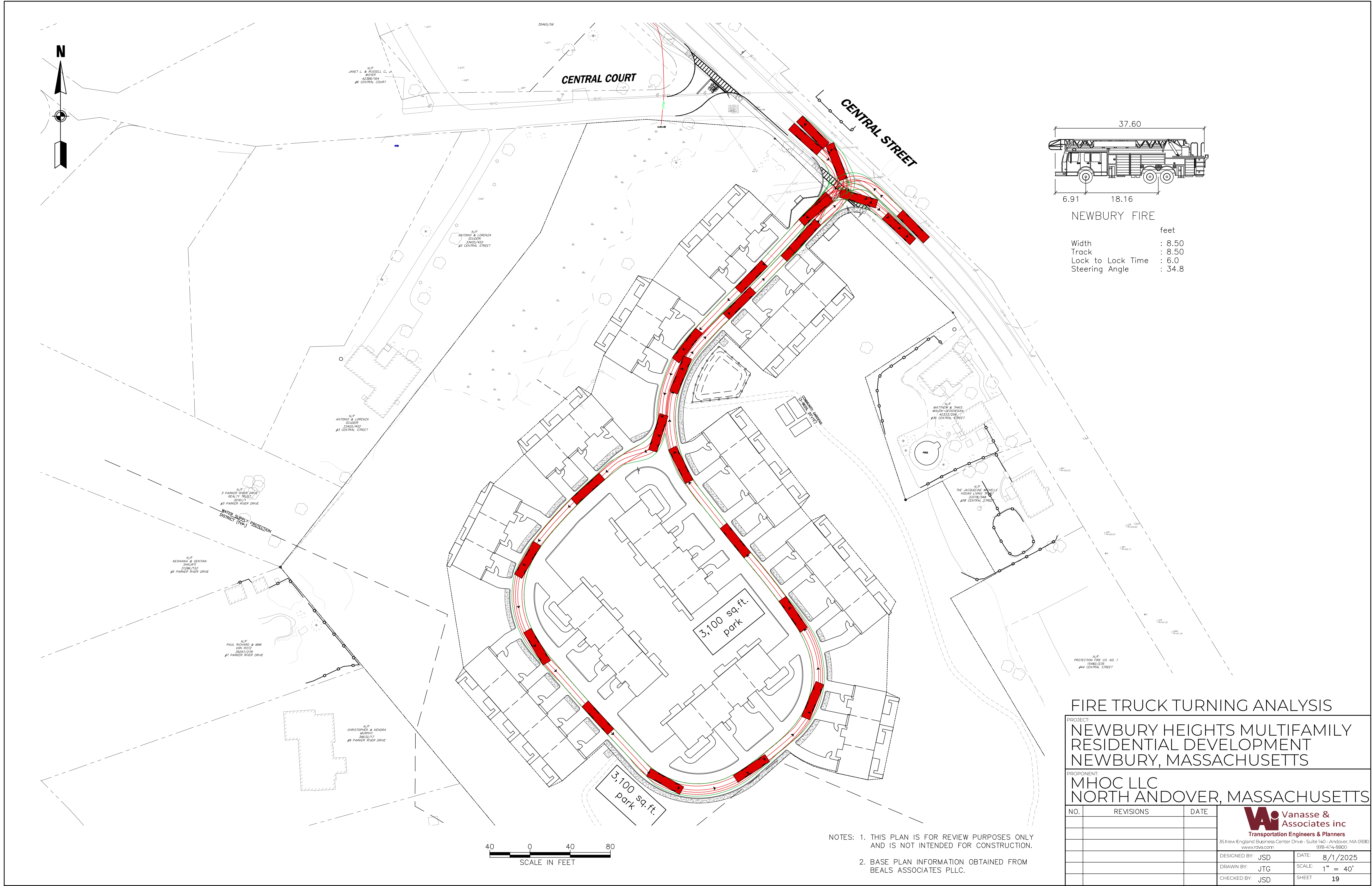
REVISED FOR ONE-WAY ENTRY DRIVE	06.10.26
REVISED PER REVIEW COMMENTS	11.11.25
REVISED PER FIRE DEPT. COMMENTS	10.30.25
REVISED PER REVIEW COMMENTS	10.29.25
REVISED PER REVIEW COMMENTS	09.10.25
REVISIONS:	DATE:

OFF-SITE IMPROVEMENTS PLAN

PLAN FOR:
BYFIELD HEIGHTS
RESIDENTIAL DEVELOPMENT
34 CENTRAL STREET, NEWBURY, MA

DATE: JULY 28, 2025	SCALE: 1"=20'
PROJ. NO: NH-1507	SHEET NO. 18

R:\10202\Concepts\July 2025\10202TTR1.dwg Fri Aug 1 10:44:07 2025



1. THIS PLAN DOES NOT REPRESENT A PROPERTY BOUNDARY SURVEY OR ENGINEERED SITE PLAN.
EVERY ATTEMPT HAS BEEN MADE TO ACCURATELY IDENTIFY THE RELEVANT PROPERTY LINES DEPICTED ON THIS PLAN. HOWEVER, SEPTIC SYSTEM PLANS ARE NOT INTENDED FOR BUILDING LAYOUT. A LICENSED LAND SURVEYOR SHOULD BE RETAINED TO LAY OUT ALL BUILDINGS ON THE SITE AND VERIFY THAT THEY WILL BE IN COMPLIANCE WITH ALL APPLICABLE LOCAL ZONING REQUIREMENTS PRIOR TO CONSTRUCTION.

- 2. ANY DISCREPANCY BETWEEN THESE PLANS AND THE APPARENT FIELD CONDITIONS TO BE REPORTED TO THE DESIGNER PRIOR TO CONSTRUCTION.**
- 3. BOUNDARY INFORMATION FROM ELECTRONIC SURVEY PLAN BY PRECISION LAND SURVEYING, INC.**
- 4. LEACHING TUBES TO BE ENVIROSEPTIC DISTRIBUTED BY: ELIMINATOR INC. OF LEE, N.H. OR EQUAL., TO BE INSTALLED PER MANUFACTURER'S SPECIFICATION.**
- 5. ALL CONCRETE PRODUCTS ARE, TO BE MANUFACTURED BY A.J.FOSS INC. OF FARMINGTON, N.H. OR EQUAL.**
- 6. ALL SEPTIC TANKS MUST HAVE BAFFLES AT INLETS, OUTLETS, AND BETWEEN COMPARTMENTS.**
- 7. CONCRETE STRUCTURE TO BE WATER TIGHT, ALL JOINTS, INLETS, OUTLETS, ETC. TO BE SEALED WITH NON-SHRINK GROUT - "WATER PLUG", "BLOCK BOSS", OR EQUAL.**
- 8. SEPTIC TANK SHALL BE A MINIMUM OF 5 FEET FROM FOUNDATION DRAIN. LEACHING TUBES TO BE A MINIMUM OF 15 FEET FROM FOUNDATION DRAIN. FOUNDATION DRAIN TO BE A MINIMUM OF 25 FEET FROM SEPTIC TANK AND LEACHING TUBES.**
- 9. 4 INCH GRAVITY SEWER TO BE SDR 35 OR SCHEDULE 40 PVC. WHERE WELL IS <75' FROM SEPTIC TANK, 4" GRAVITY SEWER TO BE SDR 26. FORCE MAINS TO BE SDR 26 OR SCHEDULE 40 PVC, OR POLYETHYLENE PIPE ("POLY PIPE"), 100-150 PSI RATING.**
- 10. MINIMUM PIPE SLOPES: BUILDING TO TANK = 2%, TANK TO D-BOX = 1%**
- 11. DISTRIBUTION BOX SHALL HAVE FLOW EQUALIZER OUTLET FITTINGS.**
- 12. PROVIDE A MINIMUM OF A 2" DROP BETWEEN DISTRIBUTION BOX OUTLET AND TUBE INLET.**
- 13. INLET/OUTLET INTERCONNECTIONS SHALL EXTEND NO MORE THAN 4" INTO TUBE BUT NO LESS THAN 2" INTO TUBE.**
- 14. SYSTEM MUST BE INSPECTED AND APPROVED BY NH-DES PRIOR TO BACKFILLING.**
- 15. EFFLUENT DISPOSAL AREA MAY BE REBUILT IN PLACE, SHOULD FAILURE OCCUR, PROVIDED THAT THE REGIONAL WASTE ADMINISTRATION DEPARTMENT HAS GIVEN WRITTEN APPROVAL.**
- 16. TUBES MUST BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUFACTURER'S INSTALLATION MANUAL.**

1. CHECK DESIGN INTENT AND VERIFY THE ELEVATION OF EXISTING GROUND (UPSLOPE SIDE) BEFORE DISTURBING THE "DESIGN INTENT" MUST BE MAINTAINED.
2. REMOVE ALL TREES, BRUSH, BOULDERS, AND DEBRIS FROM THE AREA TO BE FILLED. STUMPS NOT TO BE BURIED WITHIN 75' OF EFFLUENT DISPOSAL AREA, UNLESS UPSLOPE (35' MIN.).
3. REMOVE TOPSOIL, LEAVE SUBSOIL IN PLACE. DO NOT COMPACT SUBSOIL WITH MACHINERY. SCARIFY WITH TEETH OF EXCAVATOR BEFORE PLACING FILL. SCARIFY PARALLEL WITH CONTOURS, WORKING FROM THE CENTER OUTWARD. SOIL MUST BE DRY PRIOR TO PREPARATION.

- 4. MATERIAL SPECIFICATIONS:**
- TOPSOIL:** 6" OF CLEAN LOAM TO BE PLACED AS BLANKET ON TOP AND SIDE SLOPES.
CLEAN FILL: PERMISSIBLE SOIL FREE OF ROOTS, DEBRIS, ORGANICS, AND STONES GREATER THAN 3".
SEEDING: FILL TO BE USED FOR THE SYSTEM AND FOR THE SIDE SLOPES AS SHOWN ON THE SCHEMATIC "FILL" SECTION TO MEET THE FOLLOWING SPECIFICATION: MEDIUM TO COARSE TEXTURED SAND, NO GREATER THAN 5% PASSING THE NUMBER 200 SIEVE, AND NO PARTICLES LARGER THAN 3".
- BEDDING SAND:** USE CLEAN COARSE SAND MEETING ASTM STANDARD C-33 (CONCRETE SAND).
BEDDING SAND: USED BETWEEN, 6" MINIMUM AROUND, ABOVE, & BELOW TUBES.
5. SAND FILL TO BE PUSHED ONTO PREPARED SURFACE FROM THE SIDE. DO NOT ALLOW EQUIPMENT ON THE SCARIFIED SOIL SURFACE. FILL BETWEEN TUBES TO BE CAREFULLY PLACED WITH EXCAVATOR.
6. WHEN FILL IS REQUIRED TO EXTEND BED BOTTOM BEYOND ORIGINAL GRADE, PLACE FILL IN 12" LOOSE LAYERS USING A TRACK TYPE TRACTOR WITH BLADE. ALWAYS KEEP A MINIMUM OF 3" OF FILL MATERIAL BETWEEN EACH LAYER OF TRACTOR TO MINIMIZE COMPACTION OF NATURAL SOIL. EACH LAYER IS TO BE SPREAD IN UNIFORM THICKNESS PRIOR TO PLACING NEXT LAYER. CONTINUOUS GRADING AND SHAPING SHALL BE CARRIED OUT TO ASSURE UNIFORM DENSITY THROUGHOUT EACH LAYER.
7. ENTIRE FILLED AREA SHOULD BE COVERED WITH TOPSOIL, SEEDED, AND MULCHED IMMEDIATELY AFTER BACKFILLING TO PREVENT EROSION.
8. BACKFILL DEPTH OVER SYSTEM TO BE 12"-24". CROWN 2% MIN. TO PROVIDE RUNOFF. SYSTEM BACKFILL WITH MORE THAN 18" MUST BE VENTED.

1. IT IS THE OWNER'S RESPONSIBILITY TO MAINTAIN THIS SYSTEM IN ACCORDANCE WITH THESE "OPERATION AND MAINTENANCE" INSTRUCTIONS.
2. EVERY SYSTEM'S DESIGN CAPACITY IS LIMITED. CAREFUL AND REASONABLE WATER USE IS REQUIRED TO MAXIMIZE THE SYSTEM'S LIFE.
3. THIS SYSTEM MUST BE OPERATED WITHIN ITS DESIGN CAPACITY. THE AVERAGE DAILY FLOW TO THE EFFLUENT DISPOSAL AREA SHOULD BE NO MORE THAN 1/2 ITS APPROVED DESIGN CAPACITY.
4. SYSTEM IS NOT DESIGNED TO HANDLE WASTE FROM A SEWAGE EJECTOR PUMP.
5. SYSTEM IS NOT DESIGNED FOR GARBAGE DISPOSALS.
6. SYSTEM IS NOT DESIGNED TO HANDLE DISCHARGE FROM "JACUZZI" TYPE BATH TUB.
7. DO NOT DISPOSE OF GREASE, CHEMICALS, SOLVENTS ETC. VIA THIS SYSTEM.
8. IT IS NOT RECOMMENDED THAT THE BACKWASH FROM WATER SOFTENERS BE DISCHARGED INTO THE SEPTIC SYSTEM. CURRENT NH-DES RULES ALLOW THAT WATER SOFTENER BACKWASH BE DISCHARGED TO A SEPARATE DRYWELL. NO DESIGN OR APPROVAL IS REQUIRED FOR THIS.
9. SEPTIC TANK MUST BE PUMPED BY A LICENSED HAULER AT LEAST EVERY TWO YEARS. KEEP PUMPING RECEIPTS AS PROOF OF MAINTENANCE. CHECK TANK YEARLY. IF SLUDGE AND SURFACE SCUM EXCEEDS 1/3 OF LIQUID DEPTH, HAVE TANK PUMPED.
10. DO NOT ALLOW VEHICULAR TRAFFIC OVER COMPONENTS OF SYSTEM NOT DESIGNED TO WITHSTAND AN H=20 WHEEL LOAD.
11. THE OWNER SHOULD KEEP A COPY OF THIS PLAN WITH HIS/HER IMPORTANT DOCUMENTS FOR FUTURE REFERENCE. THIS PLAN SHOULD BE PROVIDED TO FUTURE OWNER. COPIES ARE AVAILABLE FROM THIS OFFICE.
12. IF THIS DESIGN UTILIZES A ZABEL TYPE FILTER, FILTER SHOULD BE CLEANED REGULARLY. REFER TO FILTER'S OWNER MANUAL FOR RECOMMENDED FREQUENCY OF CLEANING.

1. THERE ARE SEVERAL TYPES OF ADDITIONAL FILTERS THAT MAY BE ADDED WITHIN THE SEPTIC TANK (SUCH AS "ZABEL FILTER"). THE VOLUNTARY ADDITION OF SUCH FILTERS MAY ALSO INCREASE THE "LIFE" OF THIS EFFLUENT FIELD.

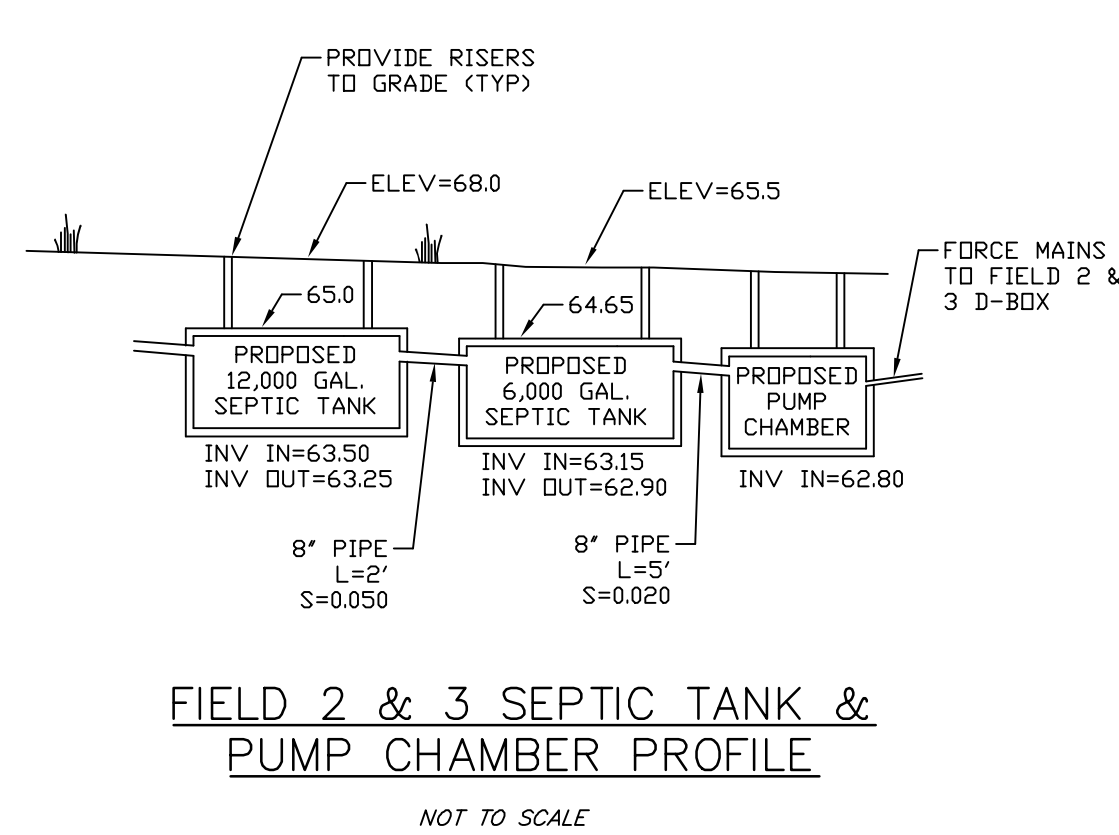
SOIL IDENTIFICATION LEGEND

Map Unit Symbol	Map Unit Name	Hydrologic Soil Group
256A	Deerfield loamy fine sand	A
422C	Canton fine sandy loam	B

SLOPE PHASE:
A=0-3%, B=3-8%, C=8-15%, D=15-25%, E=25%+

THE LIMITS OF JURISDICTIONAL WETLANDS AS SHOWN ON THIS PLAN WERE DELINEATED BY NORSE ENVIRONMENTAL SERVICES, INC., IN ACCORDANCE WITH:

1. U.S. ARMY CORPS OF ENGINEERS REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS' WETLAND DELINEATION MANUAL: NORTHEASTRAL AND NORTHEAST REGION, TECHNICAL REPORT ERDC/EL TR-12-1, JANUARY 2012, VERSION 2.0.
2. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 7.0. UNITED STATES DEPARTMENT OF AGRICULTURE (2010).
3. NORTH AMERICAN DIGITAL FLORA: NATIONAL WETLAND PLANT LIST, VERSION 2.1 (2009).



PROPOSED USE: 88 BEDROOM RESIDENTIAL
DESIGN RATE = 110 GPD/BEDROOM

PROPOSED RESIDENTIAL LOADING = 9,680 GPD

1-5 MIN/IN DESIGN PERC RATE

PER PRESBY, USE COMMERCIAL FROM MANUAL: 50 LF PER 100 GPD

$$9,680 \text{ GPD}/100 = 96.8 \times 50 \text{ LF} = \underline{4,840 \text{ LF REQUIRED}}$$

PROVIDED:

FIELD #1: 75 LF x 27 ROWS = 2,025 LF

FIELD #1: 80 LF x 18 ROWS = 1,440 LF

TOTAL = 4,905 LF PROVIDED

PREPARED FOR:

MHOC LLC
11 BOBBY JONES DRIVE
ANDOVER, MA 01810



70 PORTSMOUTH AVE,
THIRD FLOOR, SUITE 2
STRATHAM, N.H. 03885
PHONE: 603-583-4860,
FAX. 603-583-4863

SYSTEM SAND SPECIFICATIONS:

- SAND SHALL BE PLACED A MINIMUM OF 6" BELOW AND BETWEEN PIPE ROWS, A MINIMUM OF 3" OVER THE PIPES, AND A MINIMUM OF 12" AROUND PERIMETER OF ALL PIPE ROWS.
- 35 OR LESS OF TOTAL SAND SHALL BE GRAVEL
- 40-50% OF TOTAL SAND SHALL BE COARSE TO VERY COARSE SAND
- NO GRAVEL TO EXCEED $\frac{3}{4}$ " DIAMETER OR BE SMALLER THAN 2.0MM/0.075"
- IN DIAMETER (MUST NOT PASS THROUGH A #10 SIEVE)
- NO COARSE SAND SMALLER THAN 0.5MM/0.0196" IN DIAMETER (MUST NOT PASS THROUGH A #35 SIEVE)
- NO MORE THAN 10% OF TOTAL SAND MAY PASS THROUGH A #200 SIEVE
- ASTM STANDARD C-33 IS AN ALTERNATE ACCEPTABLE MATERIAL FOR USE AS SYSTEM SAND.

SURROUNDING SAND SPECIFICATIONS:

- SHALL BE EITHER SYSTEM SAND OR TITLE 5 FILL, 310 CMR 15.255 (3)

INSPECTION PORT REQUIREMENTS:

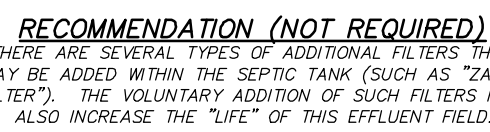
- ONE INSPECTION PORT CONSISTING OF A PERFORATED FOUR INCH PIPE PLACED VERTICALLY 6 INCHES BELOW THE BOTTOM OF THE ENVIRO-SEPTIC PIPE IS REQUIRED.
- THE PIPE SHALL BE CAPPED WITH A SCREW TYPE CAP AND ACCESSIBLE TO WITHIN THREE INCHES OF FINAL GRADE (SEE TITLE 5, 310 CMR 15.240 (13)).
- VERTICAL PIPE SHALL BE WRAPPED WITH PERMEABLE GEOTEXTILE FABRIC.



1. 15 FOOT FILL EXTENSION TO BE REDUCED TO 5 FEET WITH USE OF AN IMPERMEABLE BARRIER
SEE SEE LIMIT OF IMPERMEABLE BARRIER ON UTILITY PLAN.

TYPICAL ENVIRO-SEPTIC MOUNDED SYSTEM DETAIL

N.T.S.



NOTES

1. DISTRIBUTION BOX SHALL HAVE TEE DOWNSPOUT & SPLASH PLATE. CONTRACTOR TO PROVIDE FLOW EQUALIZING FITTINGS AT ALL OCCUPIED OUTLETS.
2. PIPES SHALL BE SCH40 OR SDR35 PVC WITH A MINIMUM SLOPE OF 1% AND MAXIMUM OF 15%.

EFFLUENT DISPOSAL AREA PROFILE (FIELD #1)

NOT TO SCALE

<u>FIELD #</u>	<u>ESHWT</u>	<u>MOUNDING HEIGHT</u>	<u>BOTTOM OF TUBES</u>
1	55.60	0.46	60.56
2	57.39	0.32	62.21
3	59.24	0.32	64.06

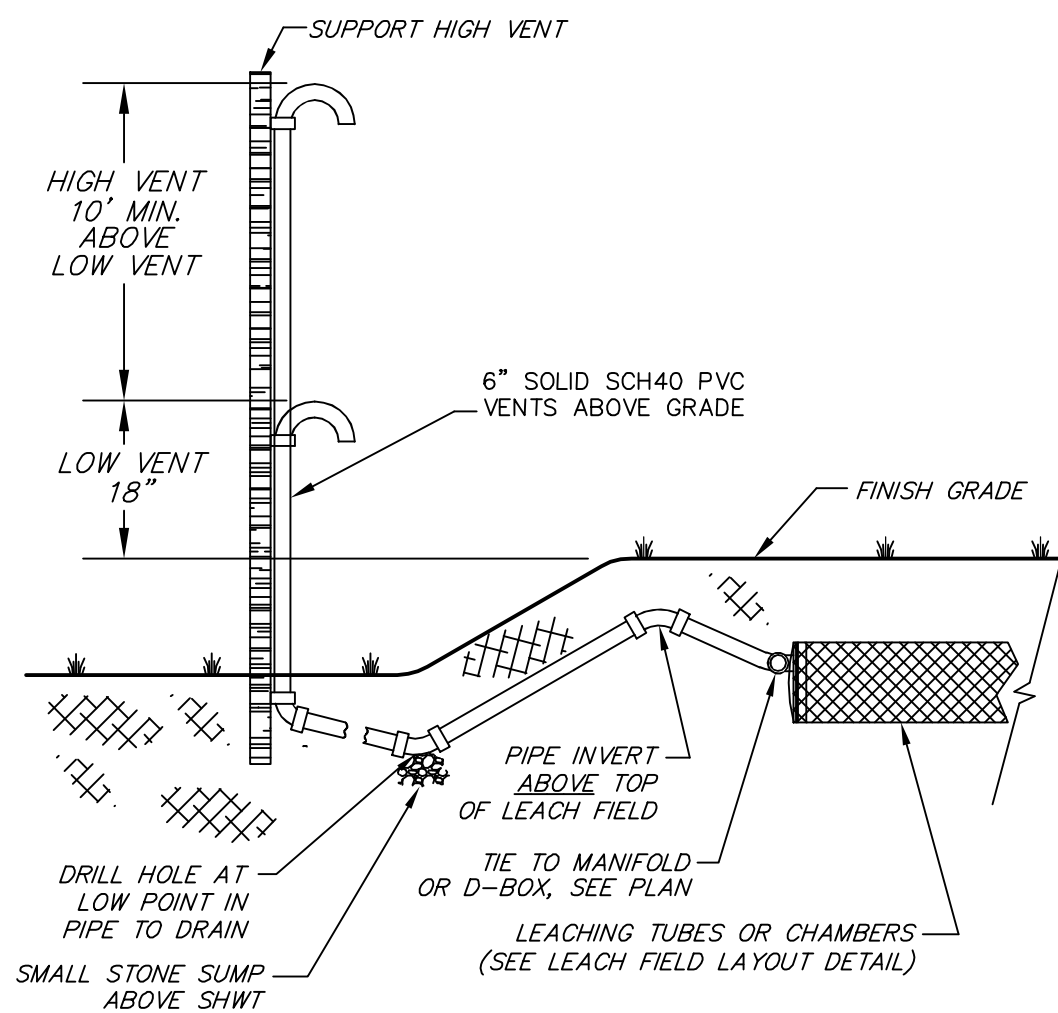
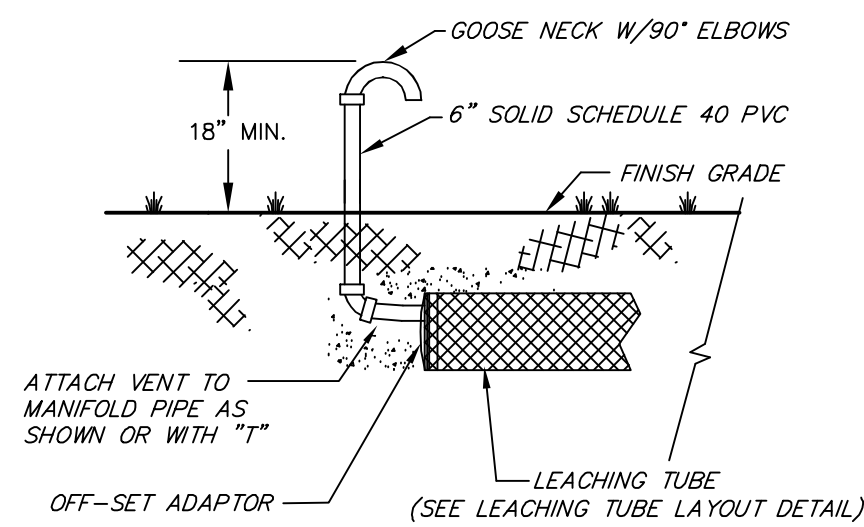
ENGINEER STAMP



SEPTIC SYSTEM DETAILS

PLAN FOR:
BYFIELD HEIGHTS
RESIDENTIAL DEVELOPMENT
34 CENTRAL STREET, NEWBURY, MA

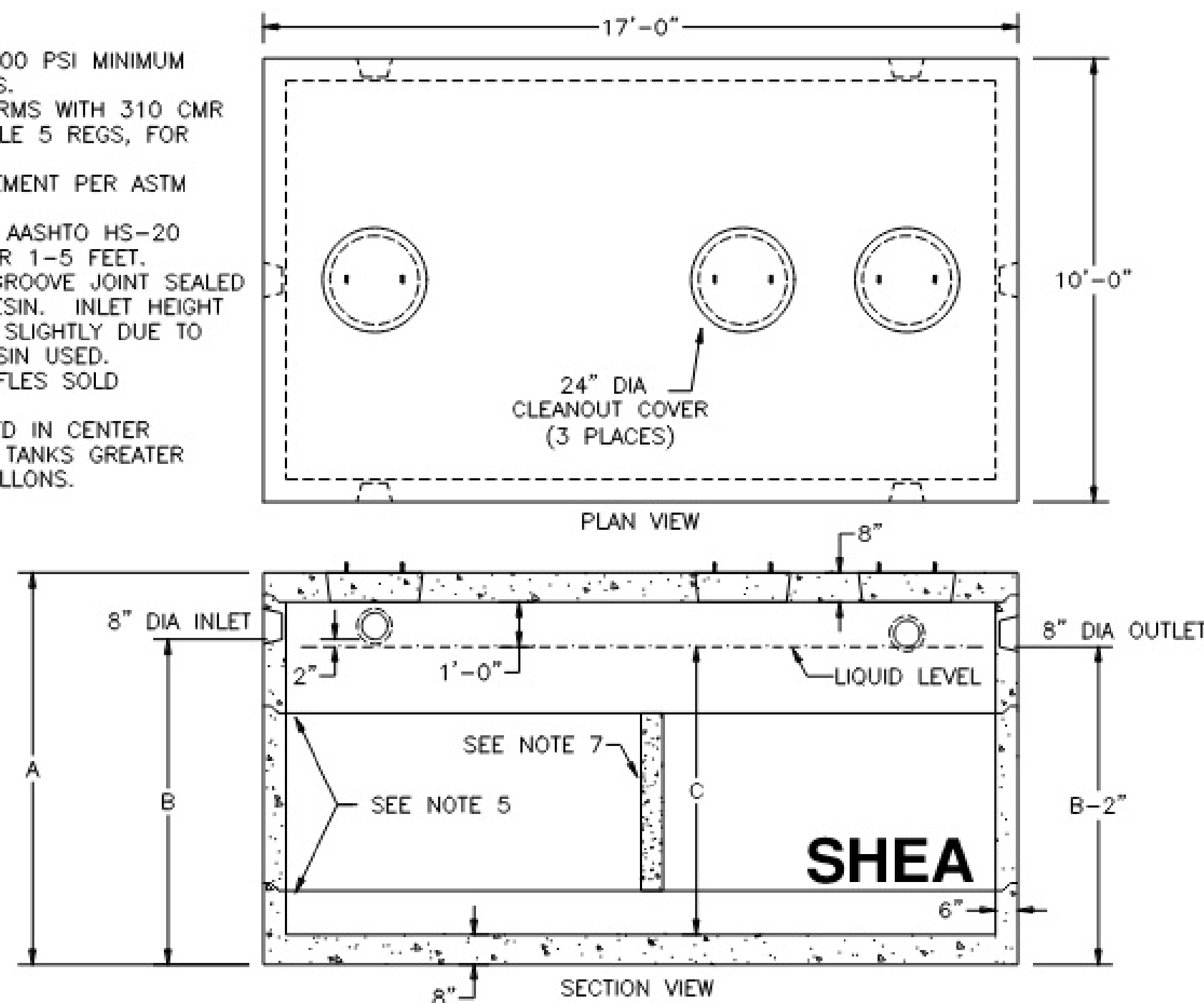
DATE:	JULY 28, 2025	SCALE: N.T.S.
PROJ. NO:	NH-1507	SHEET NO. 20



REMOTE VENTING DETAIL
N.T.S.

NOTES:

1. CONCRETE. 5,000 PSI MINIMUM AFTER 28 DAYS.
2. DESIGN CONFORMS WITH 310 CMR 15.00, DEP TITLE 5 REGS, FOR SEPTIC TANKS.
3. ALL REINFORCEMENT PER ASTM C1227.
4. DESIGNED FOR AASHTO HS-20 LOADING, COVER 1-5 FEET.
5. TONGUE AND GROOVE JOINT SEALED WITH BUTYL RESIN. INLET HEIGHT MAY INCREASE SLIGHTLY DUE TO THE BUTYL RESIN USED.
6. TEES AND BAFFLES SOLD SEPARATELY.
7. SPANNERS USED IN CENTER SECTIONS FOR TANKS GREATER THAN 7000 GALLONS.



GALLONS	A (HEIGHT)	B (INLET)	C (LIQUID)	TOTAL WEIGHT	RISER 1 SIZE	RISER 2 SIZE	RISER 3 SIZE	ITEM NO.
4,000	76"	58"	48"	51,909	48"	0	0	10X17-40
5,000	88"	70"	60"	55,679	30"	30"	0	10X17-50
5,500	92"	74"	64"	56,936	30"	34"	0	10X17-55
6,000	96"	78"	68"	58,193	34"	34"	0	10X17-60
6,500	100"	82"	72"	59,449	30"	42"	0	10X17-65
7,000	106"	88"	78"	61,334	30"	48"	0	10X17-70
7,500	112"	94"	84"	65,586	42"	42" W/SPAN	0	10X17-75
8,000	118"	100"	90"	67,810	42"	48" W/SPAN	0	10X17-80
8,500	124"	106"	96"	69,695	48"	48" W/SPAN	0	10X17-85
9,000	130"	112"	102"	72,932	30"	30" W/SPAN 42" W/SPAN	0	10X17-90
9,500	136"	118"	108"	75,156	30"	30" W/SPAN 48" W/SPAN	0	10X17-95
10,000	140"	122"	112"	76,640	30"	34" W/SPAN 48" W/SPAN	0	10X17-100
10,500	146"	128"	118"	78,635	34"	42" W/SPAN 42" W/SPAN	0	10X17-105
11,000	152"	134"	124"	80,859	34"	42" W/SPAN 48" W/SPAN	0	10X17-110
11,500	158"	140"	130"	83,083	34"	48" W/SPAN 48" W/SPAN	0	10X17-115
12,000	162"	144"	134"	84,341	38"	48" W/SPAN 48" W/SPAN	0	10X17-120

ITEM SIZE	WEIGHT
8" TOP	16,312#
21" BOTTOM	20,517#
30" RISER	9,425#
30" RIS + SPAN	11,116#
34" RISER	10,682#
34" RIS + SPAN	12,600#
38" RISER	11,940#
38" RIS + SPAN	14,080#
42" RISER	13,195#
42" RIS + SPAN	15,562#
48" RISER	15,080#
48" RIS + SPAN	17,786#

SEPTIC TANKS
N.T.S.

FLOW TO FIELD #1 CALCULATION

NUMBER OF BEDROOMS TO PUMP CHAMBER = 36
(BUILDINGS 1, 2, 3, 8, & 9 AND UNITS 10-3 & 10-4)
DESIGN RATE = 110 GPD/BEDROOM

PROPOSED FLOW TO PUMP CHAMBER = 3,960 GPD

PUMP STATION CALCULATION FIELD #1

FLOW = 3,960 GALLONS/12 HRS X HR/60 MINS = 5.5 GPM (12 HOUR DAY)

STORAGE VOLUME BETWEEN DOSINGS:
= 8.6 FT x 4.0 FT PUMP CHAMBER WITH 2.5 FT OF STORAGE DEPTH
= 86.0 CF x 7.48 GAL/CF = 643 GALLONS

STATIC HEAD (H_s):
H_s = ELEVATION IN D-BOX FIELD #1 - PUMP ELEVATION
H_s = 61.39 - 54.80 = 6.59 FT

DYNAMIC HEAD (H_d):
2" PVC PIPE = 300'
1 GATE VALVE = 3'
1 TEE = 13'
4 ELBOWS = 8 x 8' = 64'

H_d = 380' OF PIPE EQUIVALENT

FRICITION LOSS IN FEET PER 100 FT OF 2" PVC PIPE

⑩0 GPM = 0.23 x 3.80 = 0.87'
②0 GPM = 0.84 x 3.80 = 3.19'
③0 GPM = 1.78 x 3.80 = 6.76'
④0 GPM = 3.03 x 3.80 = 11.51'
⑤0 GPM = 4.57 x 3.80 = 17.37'
⑥0 GPM = 6.44 x 3.80 = 24.47'
⑦0 GPM = 8.53 x 3.80 = 32.41'
⑧0 GPM = 10.9 x 3.80 = 41.42'
⑨0 GPM = 13.6 x 3.80 = 51.68'

SYSTEM CURVE:

FLOW (GPM)	TOTAL HEAD (FT)
10	7.46
20	9.78
30	13.35
40	18.10
50	23.96
60	31.06
70	39.00
80	48.01
90	58.27

CRANE/BARNES EVH SERIES 1/2 HP PUMP @ 40 GPM = 0.089 CFS

DOSING CALCULATIONS FIELD #1

VELOCITY:

$$V = \frac{0.089 \text{ FT.}^3/\text{SEC.}}{\frac{\pi}{4} (2/12')^2} = 4.09 \text{ FT/ SEC.}$$

CYCLE TIME:

T = PUMP ON TIME + REFILL TIME

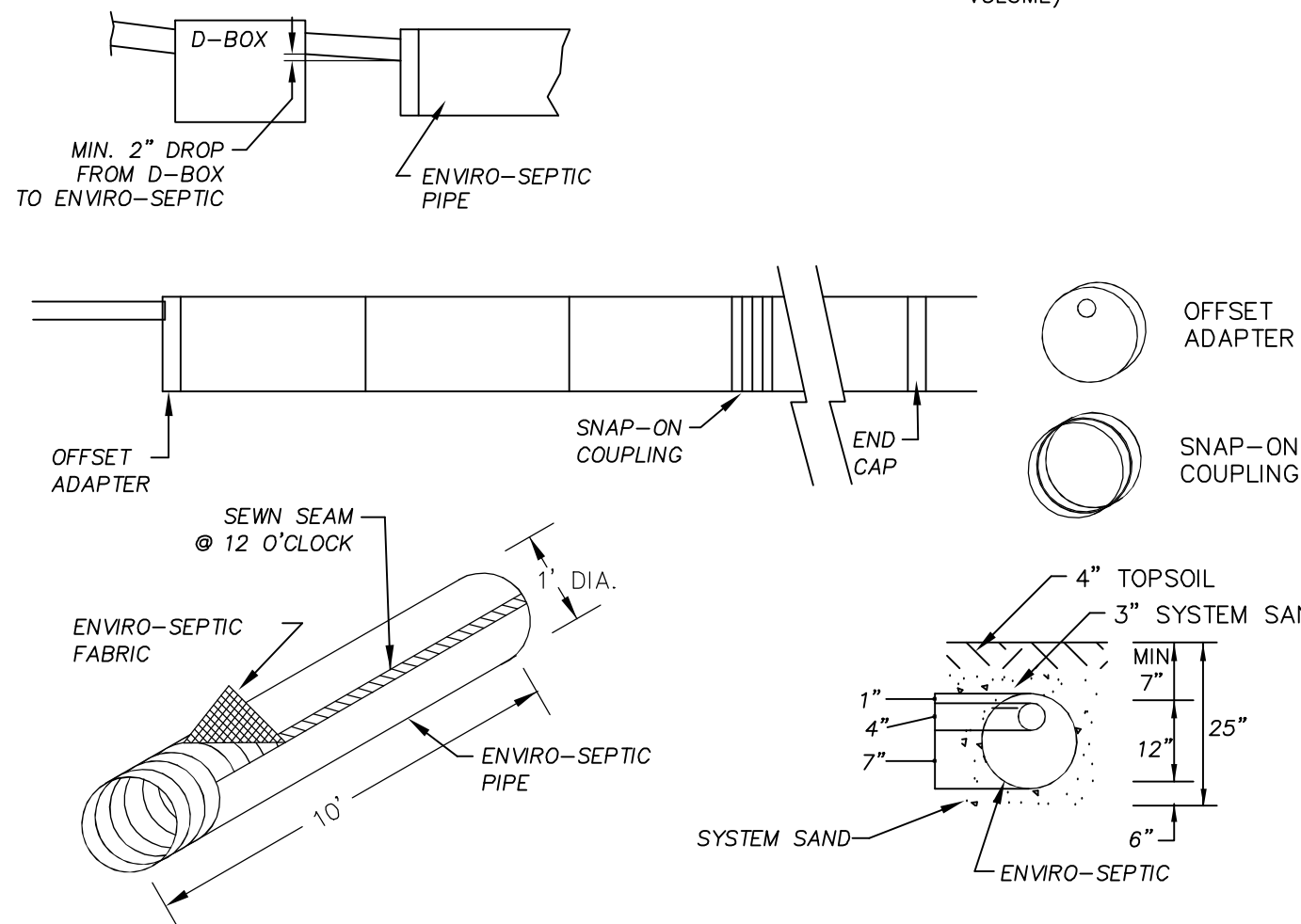
$$T = \frac{643 \text{ GAL.}}{(40.0 - 5.5) \text{ GPM}} + \frac{643 \text{ GAL.}}{5.5 \text{ GPM}}$$

$$T = 18.6 \text{ MIN.} + 116.9 \text{ MIN.} = 135.5 \text{ MIN.}$$

FREQUENCY:

$$F = \frac{3,960 \text{ GPD}}{594 \text{ GAL/DOSE}} = 6.7 \text{ DOSES/DAY}$$

(643 GAL/DOSE - 49 GAL DRAINBACK VOLUME)



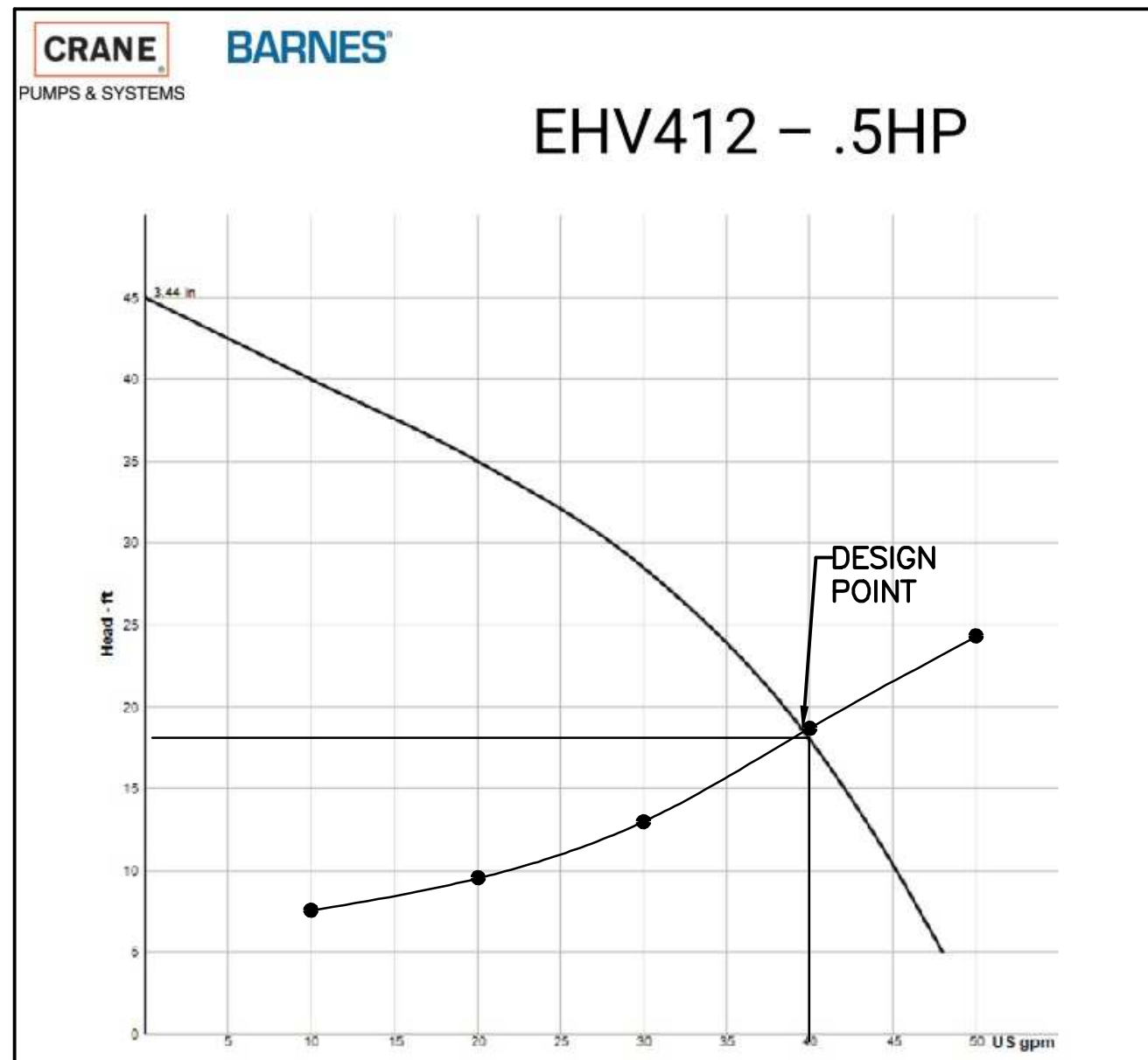
ENVIRO-SEPTIC PIPE DETAIL
N.T.S.

PREPARED FOR:

MHOC LLC
11 BOBBY JONES DRIVE
ANDOVER, MA 01810

BA
BEALS
ASSOCIATES, PLLC

70 PORTSMOUTH AVE,
THIRD FLOOR, SUITE 2
STRATHAM, N.H. 03885
PHONE: 603-583-4860,
FAX: 603-583-4863



PUMP NOTES:

1. EACH PUMP SHALL HAVE A VISUAL AND OR AUDIBLE ALARM THAT SIGNALS IF THE PUMP FAILS FOR ANY REASON.
2. SEPARATE ELECTRONIC CIRCUITS SHALL BE PROVIDED FOR PUMPS AND ALARMS SYSTEMS.
3. IF A HIGH POINT EXISTS IN THE FORCE MAIN, AN AIR RELEASE/ ANTI-SIPHON VALVE SHALL BE INSTALLED AT THE HIGH POINT.

CRANE/BARNES EVH412 (EVH SERIES)
EFFLUENT PUMP
(OR EQUAL)

REVISED FOR ONE-WAY ENTRY DRIVE	06.10.26
REVISED PER REVIEW COMMENTS	01.15.26
REVISED PER REVIEW COMMENTS	11.11.25
REVISED PER REVIEW COMMENTS	10.29.25
REVISED PER REVIEW COMMENTS	10.08.25
REVISED PER REVIEW COMMENTS	09.10.25
REVISIONS:	DATE:

ENGINEER STAMP



SEPTIC SYSTEM DETAILS

PLAN FOR:
BYFIELD HEIGHTS
RESIDENTIAL DEVELOPMENT
34 CENTRAL STREET, NEWBURY, MA

DATE:	JULY 28, 2025	SCALE:	N.T.S.
PROJ. NO:	NH-1507	SHEET NO.	21

PREPARED FOR:

MHOC LLC
11 BOBBY JONES DRIVE
ANDOVER, MA 01810



70 PORTSMOUTH AVE,
THIRD FLOOR, SUITE 2
STRATHAM, N.H. 03885
PHONE: 603-583-4860,
FAX. 603-583-4863

FLOW TO FIELDS #2 & #3 CALCULATION

NUMBER OF BEDROOMS TO PUMP CHAMBER = 52
(BUILDINGS 4, 5, 6, 7, 11, & 12 AND UNITS 10-1 & 10-2)
DESIGN RATE = 110 GPD/BEDROOM

PROPOSED FLOW TO PUMP CHAMBER = 5,720 GPD

PUMP STATION CALCULATION (FIELDS #2 & #3, PER PUMP)

** PUMPS TO BE DUPLEX, ALTERNATING PUMPS **

FLOW = 2,860 GALLONS/12 HRS X HR/60 MINS = 3.97 GPM (12 HOUR DAY)

STORAGE VOLUME BEWTEEN DOSINGS:
= 8.6 FT x 4.0 FT PUMP CHAMBER WITH 2.5 FT OF STORAGE DEPTH
= 86.0 CF x 7.48 GAL/CF = 643 GALLONS

STATIC HEAD (Hs) FIELD #2:
Hs = ELEVATION IN D-BOX - PUMP ELEVATION
Hs = 65.03 - 58.80 = 6.23 FT

DYNAMIC HEAD (Hd):
2' PVC PIPE = 7'
1 GATE VALVE = 3'
1 TEE = 13'
2 ELBOWS = 2 x 8' = 16''

Hd = 39' OF PIPE EQUIVALENT

FRICION LOSS IN FEET PER 100 FT OF 2" PVC PIPE

@10 GPM = 0.23 x 0.39 = 0.09'
@20 GPM = 0.84 x 0.39 = 0.33'
@30 GPM = 1.78 x 0.39 = 0.69'
@40 GPM = 3.03 x 0.39 = 1.18'
@50 GPM = 4.57 x 0.39 = 1.78'
@60 GPM = 6.44 x 0.39 = 2.51'
@70 GPM = 8.53 x 0.39 = 3.33'
@80 GPM = 10.9 x 0.39 = 4.25'
@90 GPM = 13.6 x 0.39 = 5.30'

SYSTEM CURVE:

FLOW (GPM)	TOTAL HEAD (FT)
10	6.32
20	6.56
30	6.92
40	7.41
50	8.01
60	8.74
70	9.56
80	10.48
90	11.53

CRANE/BARNES BP SERIES 1/3 HP PUMP @ 61 GPM = 0.136 CFS

DOSING CACLUATIONS (FIELDS #2 & #3, PER PUMP)

VELOCITY:

$$V = \frac{0.136 \text{ FT.}^3/\text{SEC.}}{\frac{\pi}{4} (2/12')^2} = 6.23 \text{ FT/ SEC.}$$

CYCLE TIME:

T = PUMP ON TIME + REFILL TIME

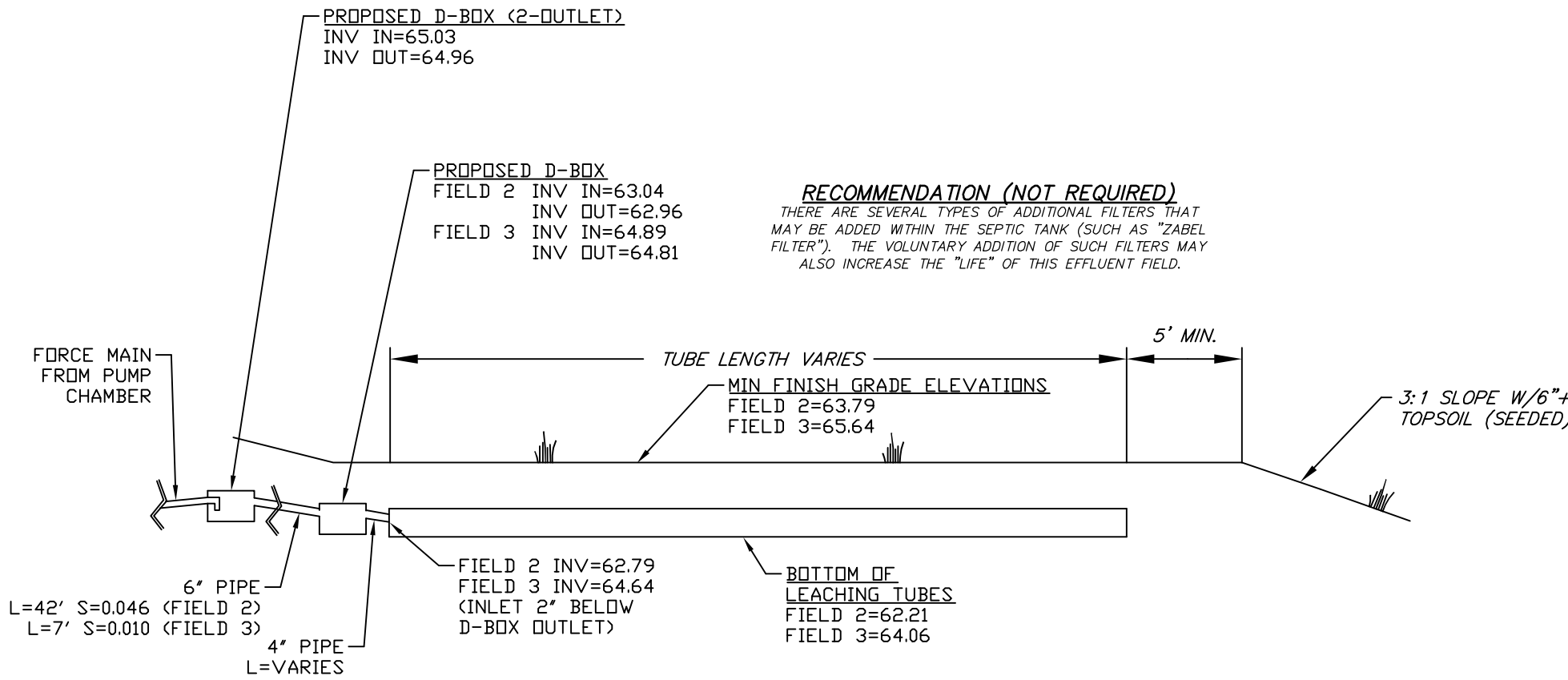
$$T = \frac{643 \text{ GAL.}}{(61 - 3.97) \text{ GPM}} + \frac{643 \text{ GAL.}}{3.97 \text{ GPM}}$$

$$T = 11.3 \text{ MIN.} + 161.9 \text{ MIN.} = 173.1 \text{ MIN.}$$

FREQUENCY:

$$F = \frac{2,860 \text{ GPD}}{642 \text{ GAL/DOSE}} = 4.5 \text{ DOSES/DAY}$$

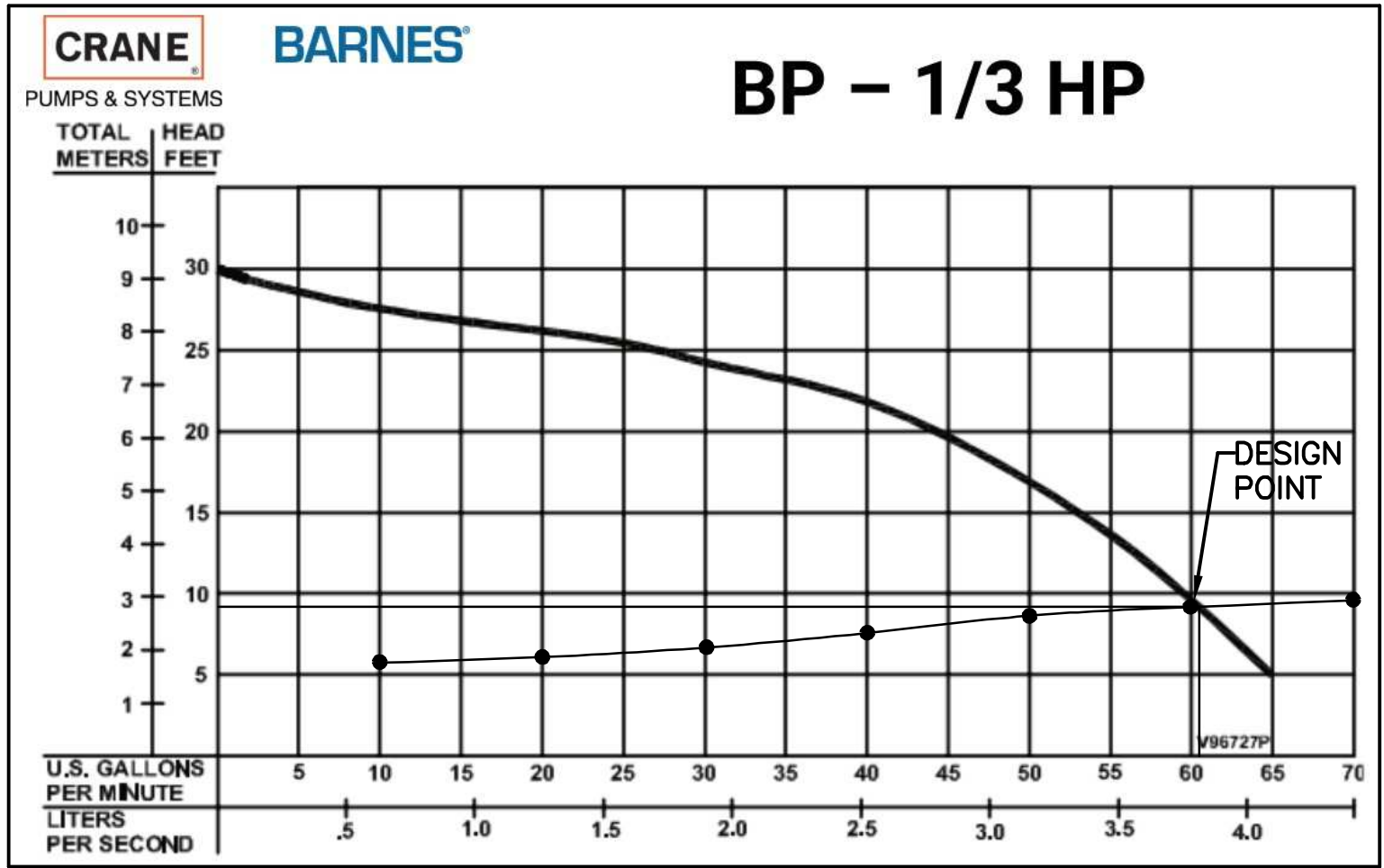
(643 GAL/DOSE - 1 GAL DRAINBACK VOLUME)



NOTES

- DISTRIBUTION BOX SHALL HAVE TEE DOWNSPOUT & SPLASH PLATE. CONTRACTOR TO PROVIDE FLOW EQUALIZING FITTINGS AT ALL OCCUPIED OUTLETS.
- PIPES SHALL BE SCH40 DR SDR35 PVC WITH A MINIMUM SLOPE OF 1% AND MAXIMUM OF 15%.

EFFLUENT DISPOSAL AREA PROFILE (FIELDS #2 & #3)
NOT TO SCALE



PUMP NOTES:

- EACH PUMP SHALL HAVE A VISUAL AND OR AUDIBLE ALARM THAT SIGNALS IF THE PUMP FAILS FOR ANY REASON.
- SEPARATE ELECTRONIC CIRCUITS SHALL BE PROVIDED FOR PUMPS AND ALARMS SYSTEMS.

CRANE/BARNES BP314 (BP SERIES)
EFFLUENT PUMP
(OR EQUAL)

REVISED PER REVIEW COMMENTS	01.15.26
REVISED PER REVIEW COMMENTS	11.11.25
REVISED PER REVIEW COMMENTS	10.29.25
REVISED PER REVIEW COMMENTS	10.08.25
REVISED PER REVIEW COMMENTS	09.10.25
REVISIONS:	DATE:

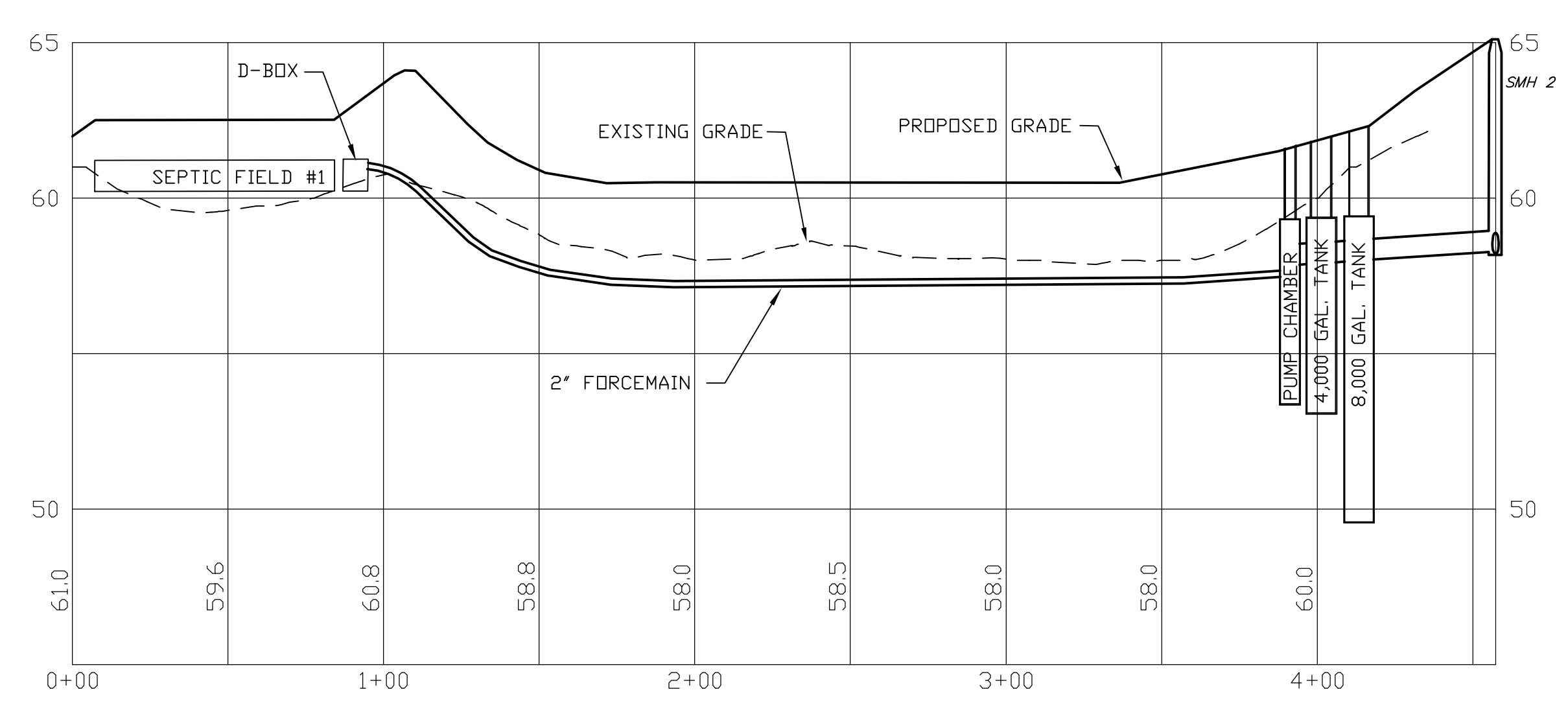
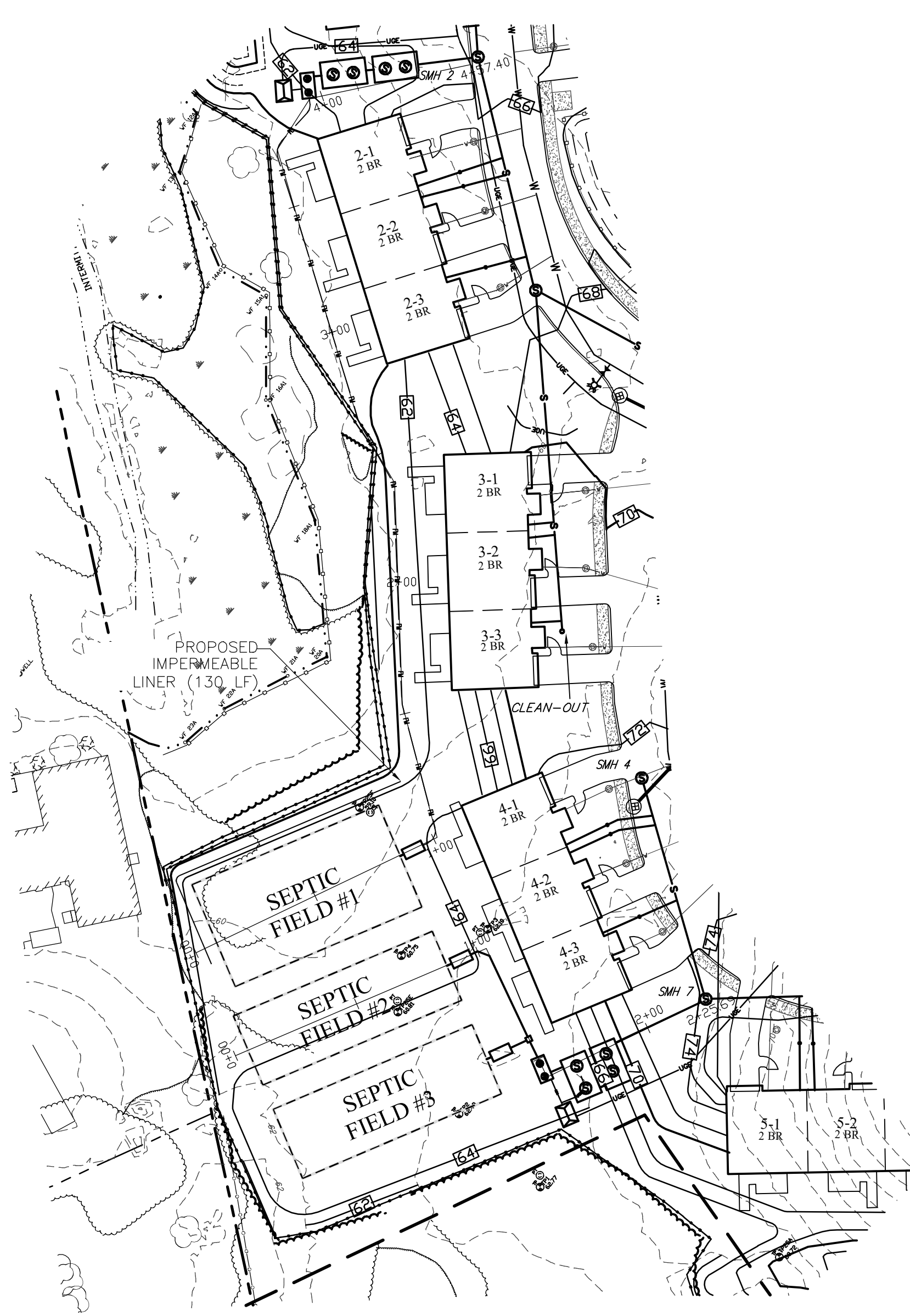
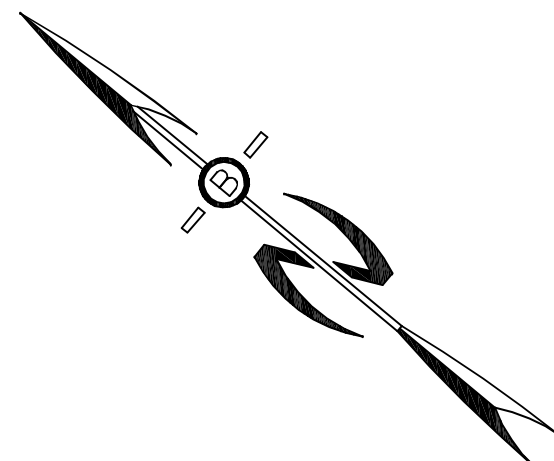
ENGINEER STAMP



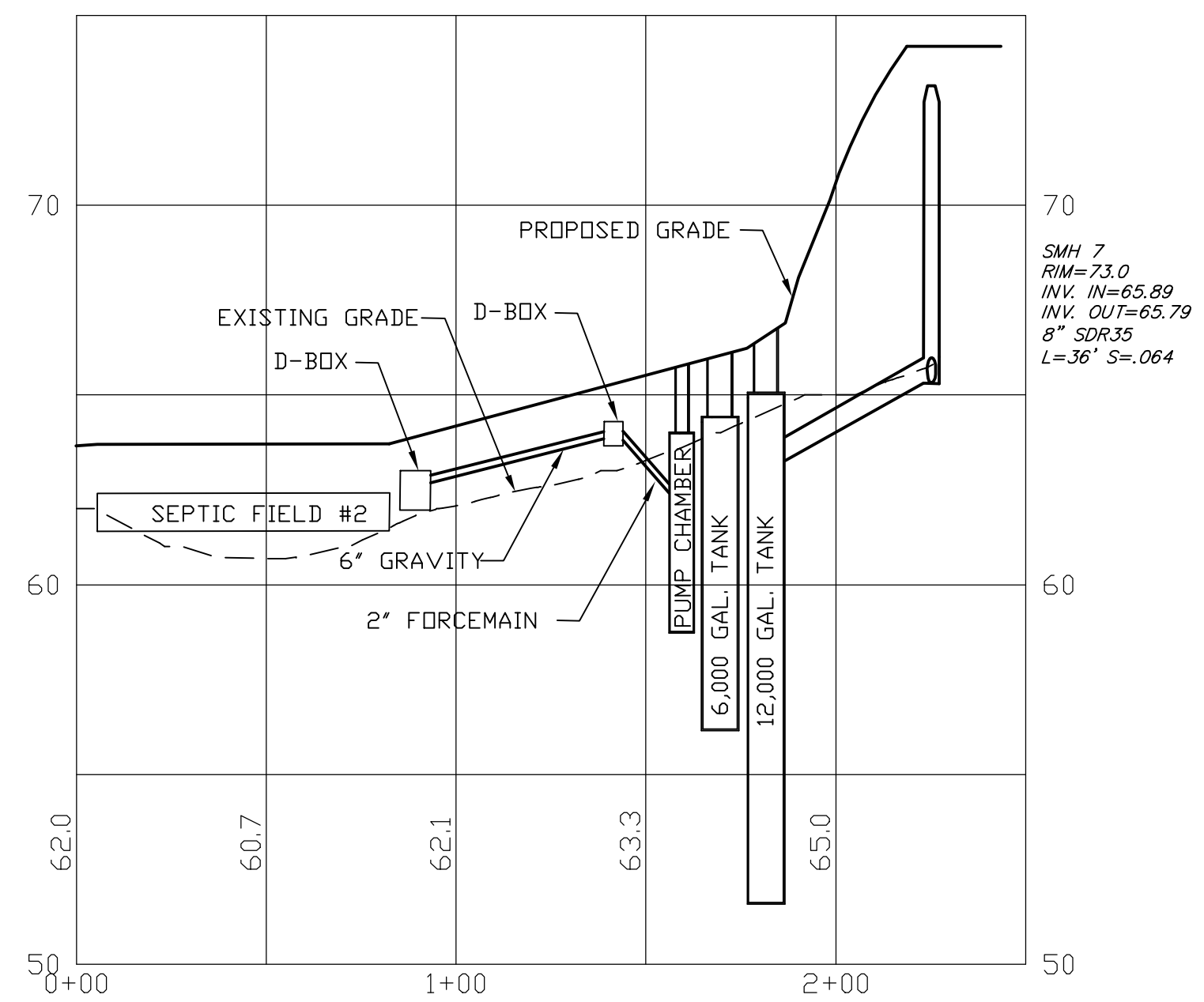
SEPTIC SYSTEM DETAILS

PLAN FOR:
BYFIELD HEIGHTS
RESIDENTIAL DEVELOPMENT
34 CENTRAL STREET, NEWBURY, MA

DATE:	JULY 28, 2025	SCALE: N.T.S.
PROJ. NO:	NH-1507	SHEET NO. 22



SEWER PROFILE FIELD 1 TO SMH2



SEWER PROFILE FIELD 2 TO SMH7



PREPARED FOR:
MHOC LLC
11 BOBBY JONES DRIVE
ANDOVER, MA 01810

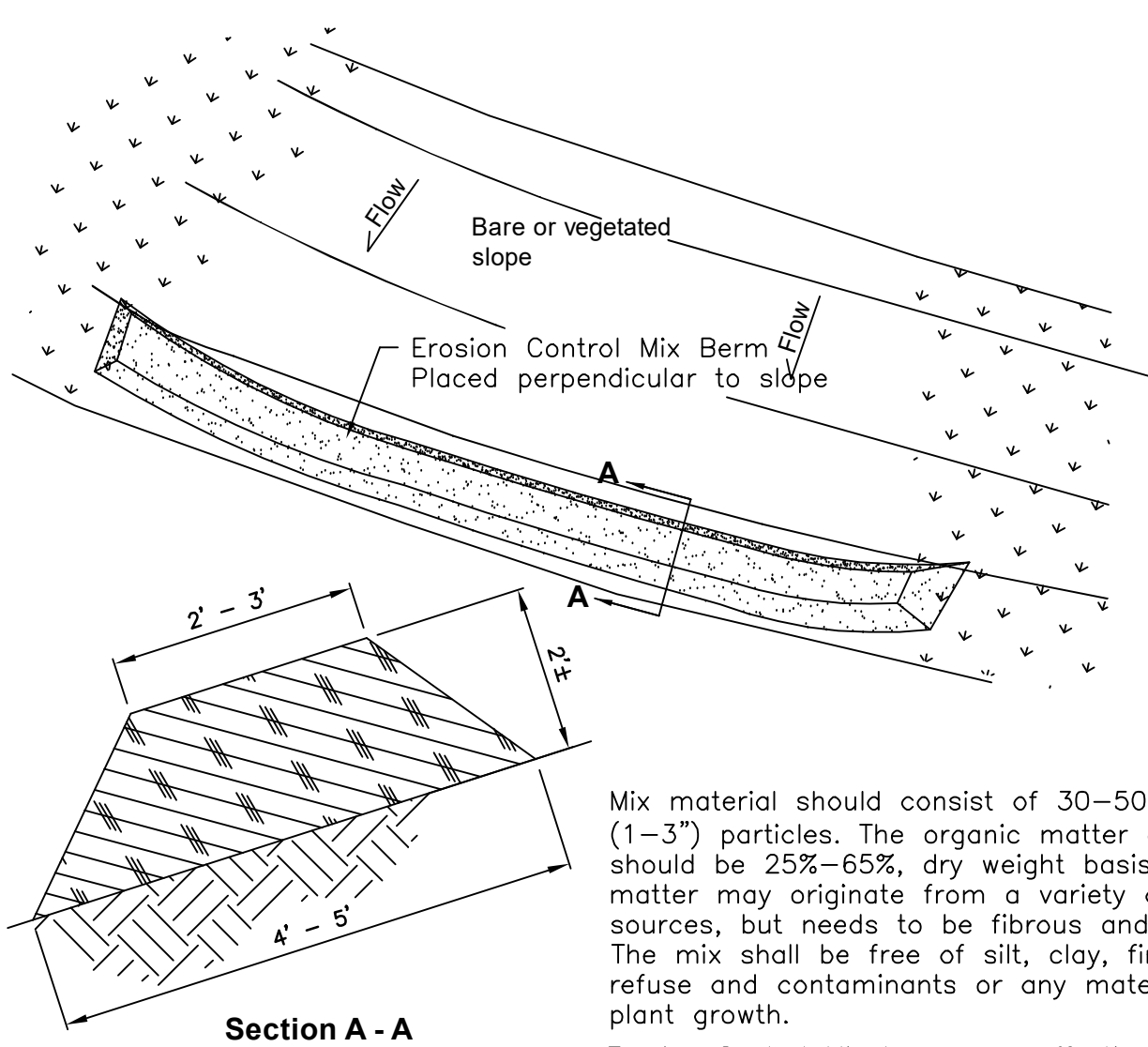
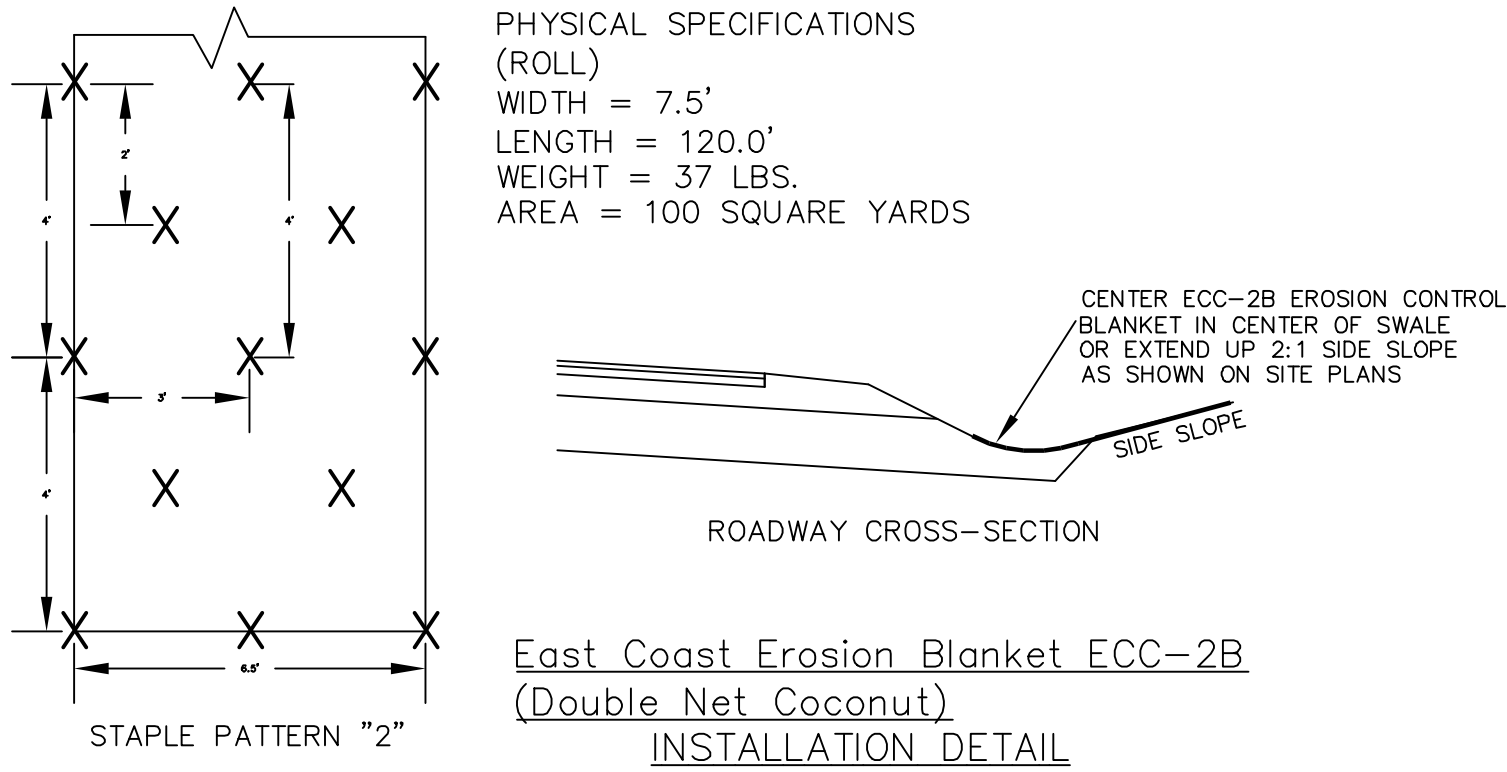
BA BEALS
ASSOCIATES, PLLC
70 PORTSMOUTH AVE,
THIRD FLOOR, SUITE 2
STRATHAM, N.H. 03885
PHONE: 603-583-4860,
FAX: 603-583-4863

PROFILE SCALES:
HORIZONTAL: 1"=40' VERTICAL: 1"=4'

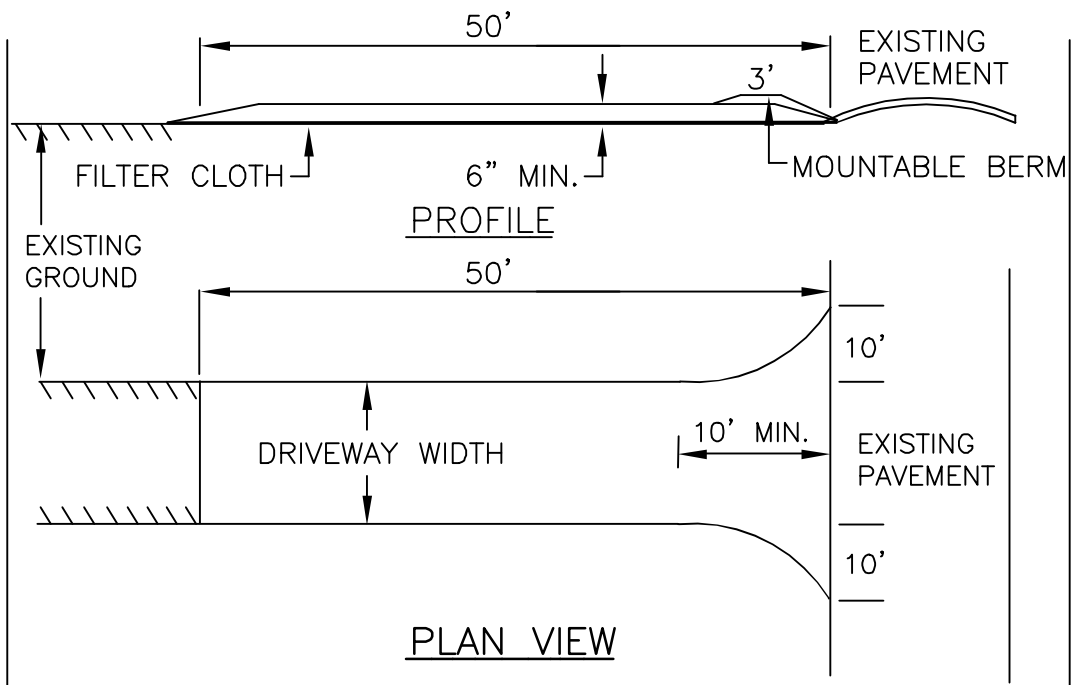
REVISED FOR ONE-WAY ENTRY DRIVE	06.10.26
REVISED PER REVIEW COMMENTS	01.15.26
REVISIONS:	DATE:

SEPTIC SYSTEM PLAN AND PROFILES

PLAN FOR: BYFIELD HEIGHTS RESIDENTIAL DEVELOPMENT 34 CENTRAL STREET, NEWBURY, MA		
DATE:	NOV 12, 2025	SCALE: 1" = 40'
PROJ. NO:	NH-1507	SHEET NO. 22A



Erosion Control Mix Berm



1. STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 3 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET, EXCEPT FOR A SINGLE RESIDENTIAL LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY.
3. THE THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS OR 10 FEET, WHICH EVER IS GREATER.
5. GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE. FILTER CLOTH IS NOT REQUIRED FOR A SINGLE FAMILY RESIDENCE LOT.
6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.

STABILIZED CONSTRUCTION ENTRANCE

TEMPORARY EROSION CONTROL MEASURES

1. THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION, BUT NO MORE THAN 5 ACRES OF LAND SHALL BE EXPOSED BEFORE DISTURBED AREAS ARE STABILIZED.
2. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND AT LOCATIONS AS REQUIRED OR DIRECTED BY THE ENGINEER ALL DISTURBED AREAS SHALL BE RETURNED TO ORIGINAL GRADES AND ELEVATIONS.
3. DISTURBED AREAS SHALL BE LOAMED WITH A MINIMUM OF 4" OF LOAM AND SEEDED WITH NOT LESS THAN 1.10 POUNDS OF SEED PER 1000 SQUARE FEET OF AREA. (48 POUNDS PER ACRE) SEE SEED SPECIFICATIONS THIS SHEET.
4. SILT FENCES AND OTHER EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY RAIN EVENT GREATER THAN 0.25" DURING THE LIFE OF THE PROJECT. ALL DAMAGED AREAS SHALL BE REPAIRED, SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED OF.
5. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, THE TEMPORARY EROSION CONTROL MEASURES ARE TO BE REMOVED AND THE AREA DISTURBED BY THE REMOVAL SMOOTHED AND RE-VEGETATED.
6. AREAS MUST BE SEEDED AND MULCHED WITHIN 3 DAYS OF FINAL GRADING, PERMANENTLY STABILIZED WITHIN 15 DAYS OF FINAL GRADING, OR TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF SOIL.
7. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
 - BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED.
 - A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED.
 - A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS RIPRAP HAS BEEN INSTALLED.
 - EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
8. WITHIN 50 FEET DISTURBANCE TO ANY WETLAND, A DOUBLE ROW OF EROSION BARRIER (SILT FENCE, SILT SOCK, OR MULCH BERM) SHALL BE INSTALLED.
9. TEMPORARY WATER DIVERSION (SWALES, BASINS, ETC.) MUST BE USED AS NECESSARY UNTIL AREAS ARE STABILIZED.
10. DITCHES AND SWALES SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.

CONSTRUCTION SPECIFICATIONS

1. STRUCTURES SHALL BE INSTALLED ACCORDING TO THE DIMENSIONS SHOWN ON THE PLANS AT THE APPROPRIATE SPACING.
2. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER SO THAT EROSION AND AIR AND WATER POLLUTION WILL BE MINIMIZED.
3. WHEN TIMBER STRUCTURES ARE USED, THE TIMBER SHALL EXTEND AT LEAST 18" INTO THE SOIL.
4. STRAW BALES SHALL BE ANCHORED INTO THE SOIL USING 2" X 2" STAKES DRIVEN THROUGH THE BALES AND AT LEAST 18 INCHES IN TO THE SOIL.
5. SEEDING, FERTILIZING, AND MULCHING SHALL CONFORM TO THE RECOMMENDATIONS IN THE APPROPRIATED VEGETATIVE BMP.
6. STRUCTURES SHALL BE REMOVED FROM THE CHANNEL WHEN THEIR USEFUL LIFE HAS BEEN COMPLETED.
7. THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES THE CONTRACTOR SHALL TAKE PRECAUTIONS AND INSTRUCTIONS FROM THE PLANNING DEPARTMENT IN ORDER TO PREVENT, ABATE AND CONTROL THE EMISSION OF FUGITIVE DUST INCLUDING BUT NOT LIMITED TO WETTING, COVERING, SHIELDING, OR VACUUMING.
8. THE CONSTRUCTION SITE OPERATOR AND OWNER SHALL SUBMIT A NOTICE OF INTENT (NOI) TO USEPA, WASHINGTON, DC, STORMWATER NOTICE PROCESSING CENTER AT LEAST FOURTEEN DAYS PRIOR TO COMMENCEMENT OF WORK ON SITE. EPA WILL POST THE NOI AT <http://cfpubl.epa.gov/npdes/stormwater/noi/noisearch.cfm>. AUTHORIZATION IS GRANTED UNDER THE PERMIT ONCE THE NOI IS SHOWN IN "ACTIVE STATUS".

CONSTRUCTION SEQUENCE

1. CUT AND REMOVE TREES IN CONSTRUCTION AREAS AS REQUIRED OR DIRECTED.
2. CONSTRUCT AND/OR INSTALL TEMPORARY AND PERMANENT SEDIMENT EROSION AND DETENTION CONTROL FACILITIES AS REQUIRED. EROSION, SEDIMENT AND DETENTION CONTROL FACILITIES SHALL BE INSTALLED AND STABILIZED PRIOR TO ANY EARTH MOVING OPERATION AND PRIOR TO DIRECTING RUNOFF TO THEM.
3. CLEAR, CUT, GRUB AND DISPOSE OF DEBRIS IN APPROVED FACILITIES. STUMPS AND DEBRIS ARE TO BE REMOVED FROM SITE AND DISPOSED OF PER STATE AND LOCAL REGULATIONS.
4. EXCAVATE AND STOCKPILE TOPSOIL /LOAM. ALL AREAS SHALL BE STABILIZED IMMEDIATELY AFTER GRADING.
5. CONSTRUCT TEMPORARY CULVERTS AS REQUIRED OR DIRECTED.
6. CONSTRUCT THE ROADWAY/DRIVEWAYS AND ITS ASSOCIATED DRAINAGE STRUCTURES. ALL ROADWAYS, PARKING AREAS, AND CUT/FILL SLOPES SHALL BE STABILIZED AND/OR LOAMED AND SEEDED WITHIN 72-HOURS OF ACHIEVING FINISH GRADE AS APPLICABLE.
7. INSTALL PIPE AND CONSTRUCTION ASSOCIATED APPURTENANCES AS REQUIRED OR DIRECTED. ALL DISTURBED AREAS SHALL STABILIZED IMMEDIATELY AFTER GRADING.
8. BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES AND DISTURBED AREAS SHALL BE SEEDED OR MULCHED AS REQUIRED, OR DIRECTED.
9. DAILY OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINAGE CHECK DAMS, DITCHES, SEDIMENT TRAPS, ETC. TO PREVENT EROSION ON THE SITE AND PREVENT ANY SILTATION OF ABUTTING WATERS OR PROPERTY.
10. INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION
11. COMPLETE PERMANENT SEEDING AND LANDSCAPING
12. REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SEEDING AREAS HAVE ESTABLISHED THEMSELVES AND SITE IMPROVEMENTS ARE COMPLETE. SMOOTH AND REVEGETATE ALL DISTURBED AREAS.
13. ALL SWALES AND DRAINAGE STRUCTURES WILL BE CONSTRUCTED AND STABILIZED PRIOR TO HAVING RUNOFF DIRECTED TO THEM.
14. FINISH PAVING ALL ROADWAYS/DRIVEWAYS.
15. LOT DISTURBANCE OTHER THAN THAT SHOWN ON THE APPROVED PLANS SHALL NOT COMMENCE UNTIL THE ROADWAY HAS THE BASE COURSE TO DESIGN ELEVATION AND THE ASSOCIATED DRAINAGE IS COMPLETE AND STABLE.

WINTER MAINTENANCE

1. ALL DISTURBED AREAS THAT DO NOT HAVE AT LEAST 85% VEGETATIVE COVERAGE PRIOR TO OCTOBER 15TH, SHALL BE STABILIZED BY APPLYING MULCH AT A RATE OF 3-4 TONS PER ACRE. ALL SIDE SLOPES, STEEPER THAN 4:1, THAT ARE NOT DIRECTED TO SWALES OR DETENTION BASINS, SHALL BE LINED WITH BIODEGRADABLE/PHOTODEGRADABLE "JUTE MATTING" (EXCELSIOR'S CURLEX II OR EQUAL). ALL OTHER SLOPES SHALL BE MULCHED AND TACKED AT A RATE OF 3-4 TONS PER ACRE. THE APPLICATION OF MULCH AND/OR JUTE MATTING SHALL NOT OCCUR OVER EXISTING SNOW COVER. IF THE SITE IS ACTIVE AFTER OCTOBER 15TH, ANY SNOW THAT ACCUMULATES ON DISTURBED AREAS SHALL BE REMOVED. PRIOR TO SPRING THAW ALL AREAS WILL BE STABILIZED, AS DIRECTED ABOVE.
2. ALL SWALES THAT DO NOT HAVE FULLY ESTABLISHED VEGETATION SHALL BE EITHER LINED WITH TEMPORARY JUTE MATTING OR TEMPORARY STONE CHECK DAMS (APPROPRIATELY SPACED). STONE CHECK DAMS WILL BE MAINTAINED THROUGHOUT THE WINTER MONTHS. IF THE SWALES ARE TO BE MATTED WITH PERMANENT LINERS OR RIPRAP WITH ENGINEERING FABRIC, THIS SHALL BE COMPLETED PRIOR TO WINTER SHUTDOWN OR AS SOON AS THEY ARE PROPERLY GRADED AND SHAPED.
3. PRIOR TO OCT. 15TH ALL ROADWAY AND PARKING AREAS SHALL BE BROUGHT UP TO AND THROUGH THE BANK RUN GRAVEL APPLICATION. IF THESE AREAS' ELEVATIONS ARE PROPOSED TO REMAIN BELOW THE PROPOSED SUBGRADE ELEVATION, THE SUBGRADE MATERIAL SHALL BE ROUGHLY CROWNED AND A 3" LAYER OF CRUSHED GRAVEL SHALL BE PLACED AND COMPACTED. THIS WILL ALLOW THE SUBGRADE TO SHED RUNOFF AND WILL REDUCE ROADWAY EROSION. THIS CRUSHED GRAVEL DOES NOT HAVE TO CONFORM TO NH DOT 304.3, BUT SHALL HAVE BETWEEN 15-25% PASSING THE #200 SIEVE AND THE LARGEST STONE SIZE SHALL BE 2". IF THE SITE IS ACTIVE AFTER NOVEMBER 15TH, ANY ACCUMULATED SNOW SHALL BE REMOVED FROM ALL ROADWAY AND PARKING AREAS.
4. AFTER OCTOBER 15TH, THE END OF NEW HAMPSHIRE'S AVERAGE GROWING SEASON, NO ADDITIONAL LOAM SHALL BE SPREAD ON SIDE SLOPES AND SWALES. THE STOCKPILES THAT WILL BE LEFT UNDISTURBED UNTIL SPRING SHALL BE SEEDED BY THIS DATE. AFTER OCTOBER 15TH, ANY NEW OR DISTURBED PILES SHALL BE MULCHED AT A RATE OF 3-4 TONS PER ACRE. ALL STOCKPILES THAT WILL REMAIN THROUGHOUT THE WINTER SHALL BE SURROUNDED WITH SILT FENCING.

SEEDING SPECIFICATIONS

1. GRADING AND SHAPING
 - A. SLOPES SHALL NOT BE STEEPER THAN 2:1;3:1 SLOPES OR FLATTER ARE PREFERRED. WHERE MOWING WILL BE DONE, 3:1 SLOPES OR FLATTER ARE RECOMMENDED.
2. SEEDBED PREPARATION
 - A. SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
 - B. STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF ABOUT 4 INCHES TO PREPARE A SEEDBED AND MIX FERTILIZER AND LIME INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.
3. ESTABLISHING A STAND
 - A. LIME AND FERTILIZER SHOULD BE APPLIED PRIOR TO OR AT THE TIME OF SEEDING AND INCORPORATED INTO THE SOIL. KINDS AND AMOUNTS OF LIME AND FERTILIZER SHOULD BE BASED ON AN EVALUATION OF SOIL TESTS. WHEN A SOIL TEST IS NOT AVAILABLE, THE FOLLOWING MINIMUM AMOUNTS SHOULD BE APPLIED:
AGRICULTURAL LIMESTONE, 2 TONS PER ACRE OR 100 LBS PER 1,000 SQ. FT..
NITROGEN(N), 50 LBS PER ACRE OR 1. 1 LBS PER 1,000 SQ.FT.
PHOSPHATE(P2O5), 100 LBS PER ACRE OR 2. 2 LBS PER 1,000 SQ.FT.
POTASH(K2O), 100 LBS PER ACRE OR 2. 2 LBS PER 1,000 SQ.FT.
(NOTE: THIS IS THE EQUIVALENT OF 500 LBS PER ACRE OF 10-20-20 FERTILIZER OR 1,000 LBS PER ACRE OF 5-10-10.)
 - B. SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING AND HYDROSEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH .25 INCH OF SOIL OR LESS, BY CULTPACKING OR RAKING.
 - C. A NEW ENGLAND NATIVE SEED MIXTURE SHALL BE USED. REFER TO MANUFACTURER'S SPECIFICATIONS FOR RATES OF SEEDING.
 - D. WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO EARLY OCTOBER. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20 OR FROM AUGUST 10 TO SEPTEMBER 1.
4. MULCH
 - A. HAY, STRAW, OR OTHER MULCH, WHEN NEEDED, SHOULD BE APPLIED IMMEDIATELY AFTER SEEDING.
 - B. MULCH WILL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE BEST MANAGEMENT PRACTICE FOR MULCHING. HAY OR STRAW MULCH SHALL BE PLACED AT A RATE OF 90 LBS PER 1000 SQ. FT.
5. MAINTENANCE TO ESTABLISH A STAND
 - A. PLANTED AREA SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH.
 - B. FERTILIZATION NEEDS SHOULD BE DETERMINED BY ONSITE INSPECTIONS. SUPPLEMENTAL FERTILIZER IS USUALLY THE KEY TO FULLY COMPLETE THE ESTABLISHMENT OF THE STAND BECAUSE MOST PERENNIAL STAKE 2 TO 3 YEARS TO BECOME ESTABLISHED.
 - C. IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, OCCASIONAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.

SEEDING GUIDE

USE	SEEDING MIXTURE*	DROUGHTY	WELL DRAINED	MODERATELY WELL DRAINED	POORLY DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A B C D E	FAIR POOR POOR FAIR FAIR	GOOD GOOD GOOD EXCELLENT FAIR	GOOD FAIR EXCELLENT GOOD EXCELLENT	FAIR GOOD POOR EXCELLENT POOR
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER.	A B C	GOOD GOOD GOOD	GOOD GOOD EXCELLENT	GOOD EXCELLENT EXCELLENT	FAIR FAIR FAIR
LIGHTLY USED PARKING LOTS, OOD AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES.	A B C D	GOOD GOOD GOOD FAIR	GOOD GOOD EXCELLENT GOOD	GOOD FAIR EXCELLENT GOOD	FAIR POOR FAIR EXCELLENT
PLAY AREAS AND ATHLETIC FIELDS. (TOPSOIL IS ESSENTIAL FOR GOOD TURF.)	F G	FAIR FAIR	EXCELLENT EXCELLENT	EXCELLENT EXCELLENT	** **

GRAVEL PIT, SEE NH-PM-24 IN APPENDIX FOR RECOMMENDATION REGARDING RECLAMATION OF SAND AND GRAVEL PITS.

* REFER TO SEEDING MIXTURES AND RATES IN TABLE 7-36.

** POORLY DRAINED SOILS ARE NOT DESIRABLE FOR USE AS PLAY AREAS OR ATHLETIC FIELDS.

NOTE: TEMPORARY SEED MIX FOR STABILIZATION OF TURF SHALL BE WINTER RYE OR DATS AT A RATE OF 2.5 LBS. PER 1000 S.F. AND SHALL BE PLACED PRIOR TO OCT. 15, IF PERMANENT SEEDING NOT YET COMPLETE.

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ANDOVER, MA 01810

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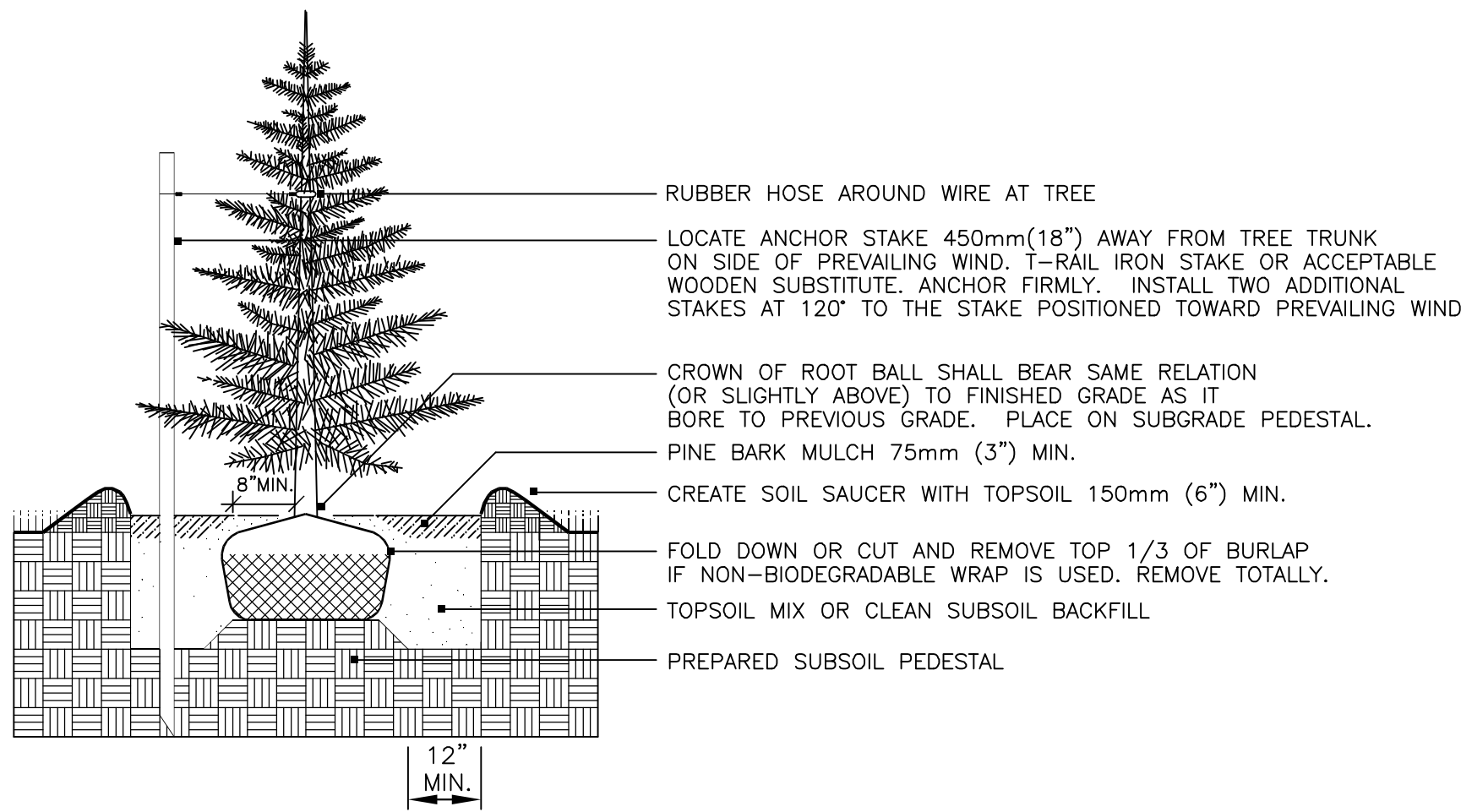
70 PORTSMOUTH AVE,
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PHONE: 603-583-4860,
FAX. 603-583-4863

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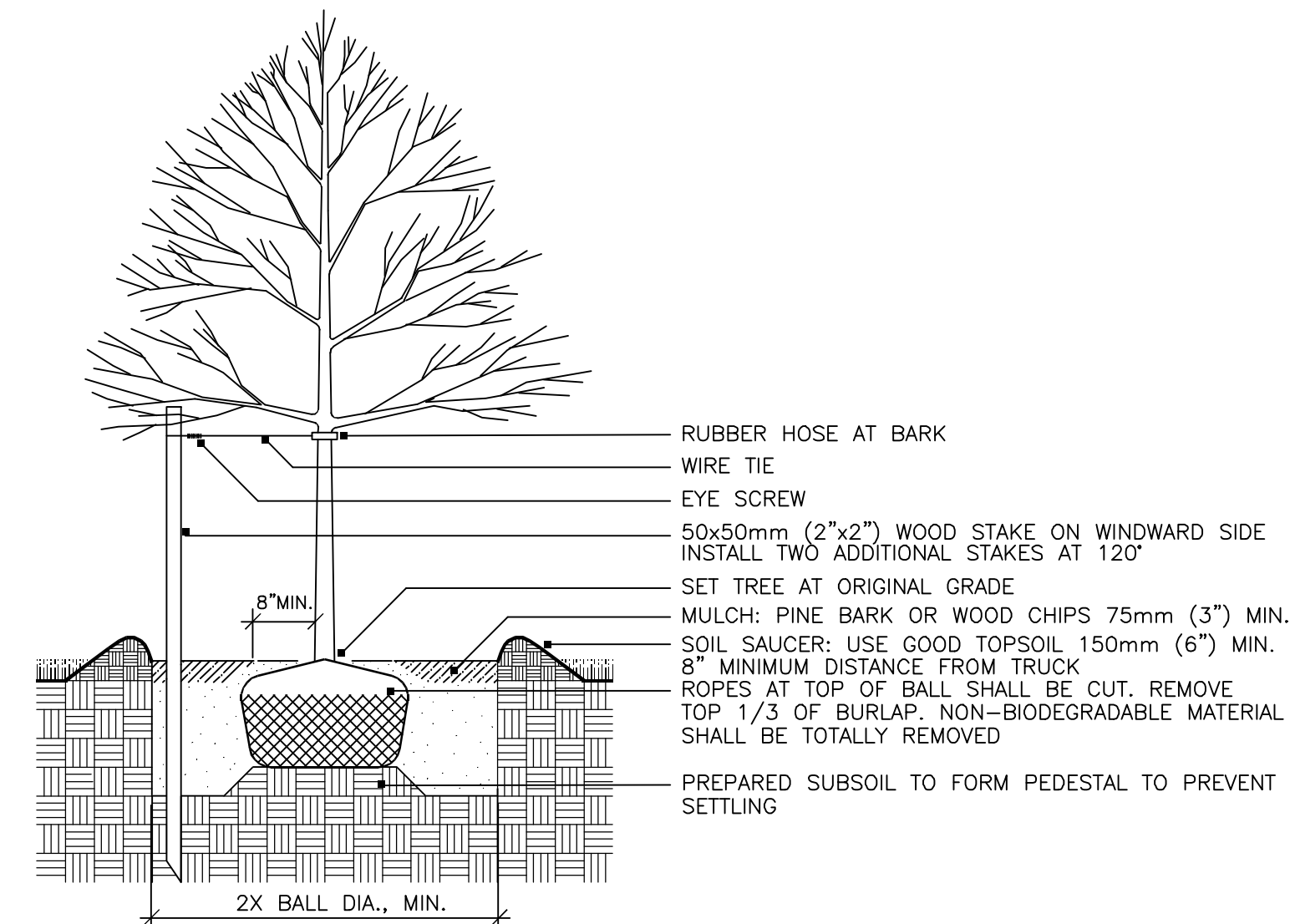
EROSION CONTROL NOTES & DETAILS

PLAN FOR:
BYFIELD HEIGHTS
RESIDENTIAL DEVELOPMENT
34 CENTRAL STREET, NEWBURY, MA

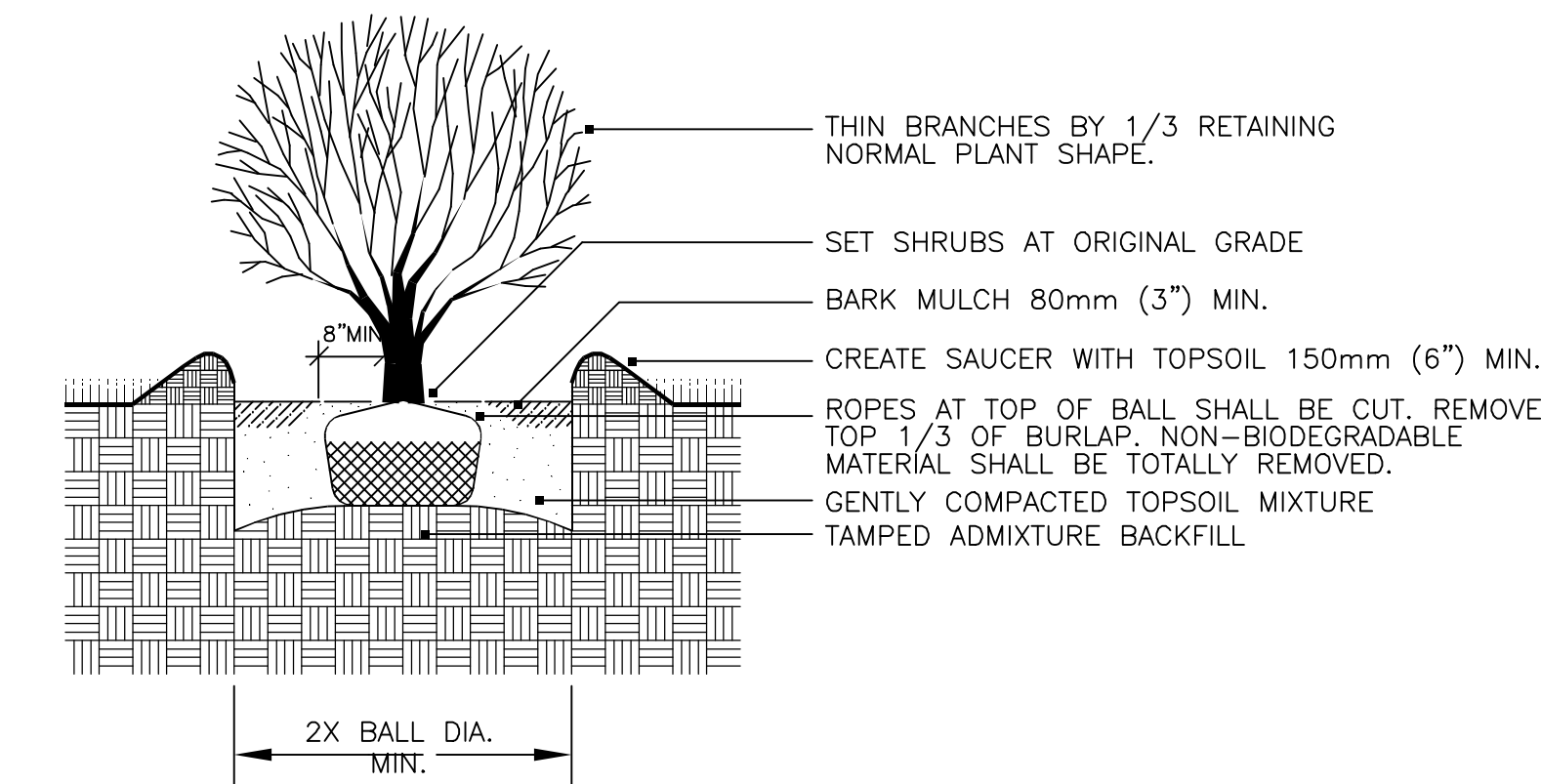
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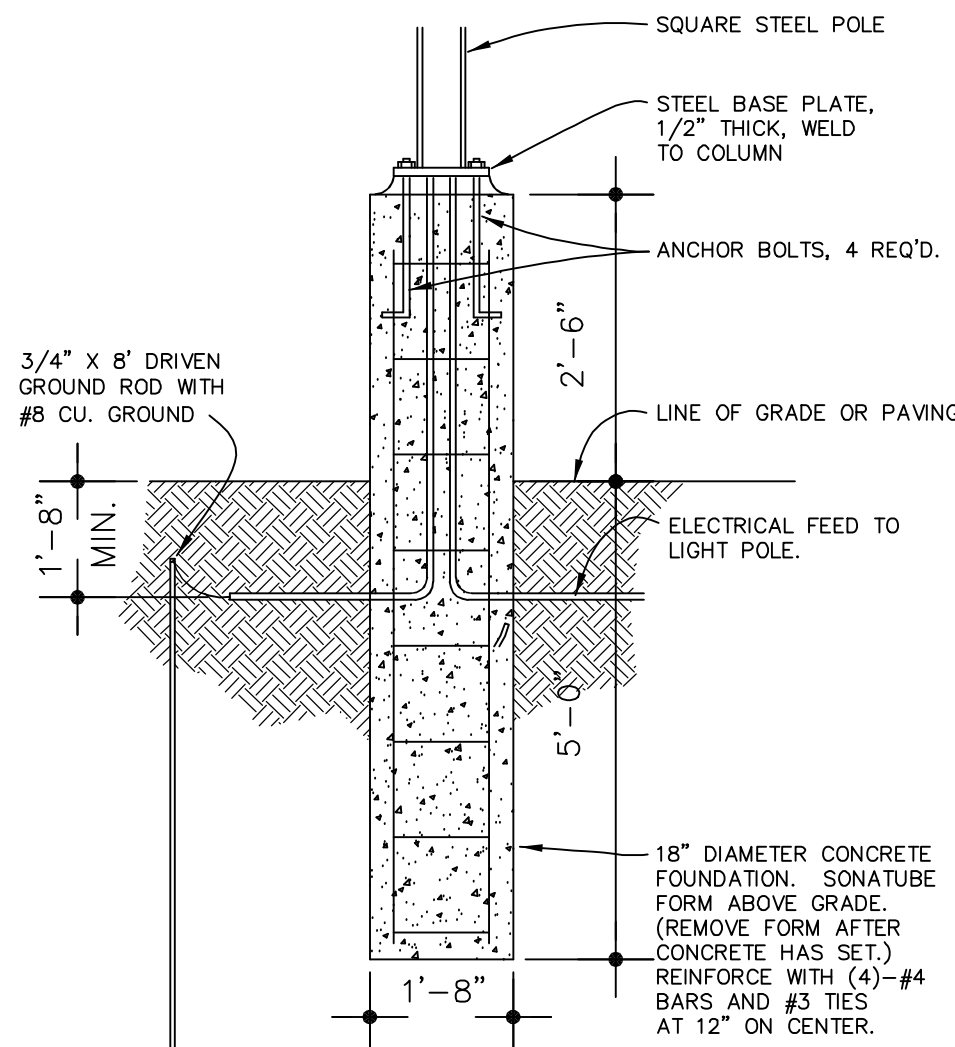
CONIFEROUS TREE PLANTING
NOT TO SCALE



DECIDUOUS TREE PLANTING WITH STAKE AND WIRE TIE – HEAVY DUTY



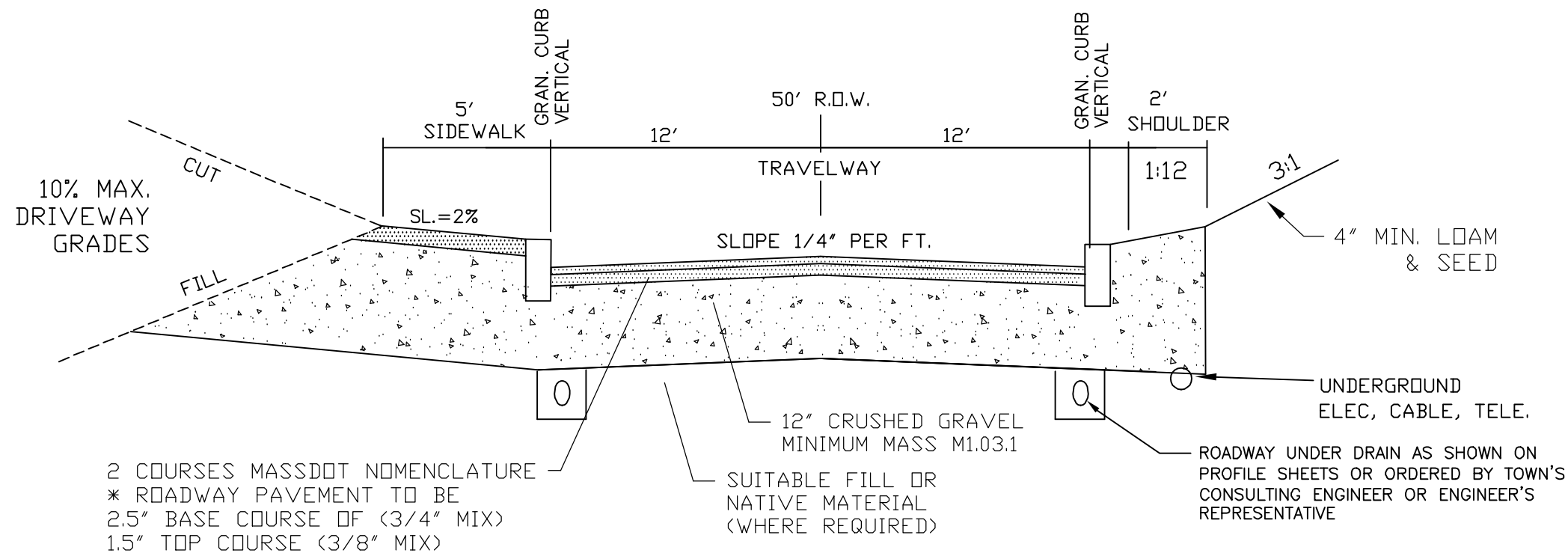
SHRUB PLANTING – BALL & BURLAP



POLE FOUNDATION

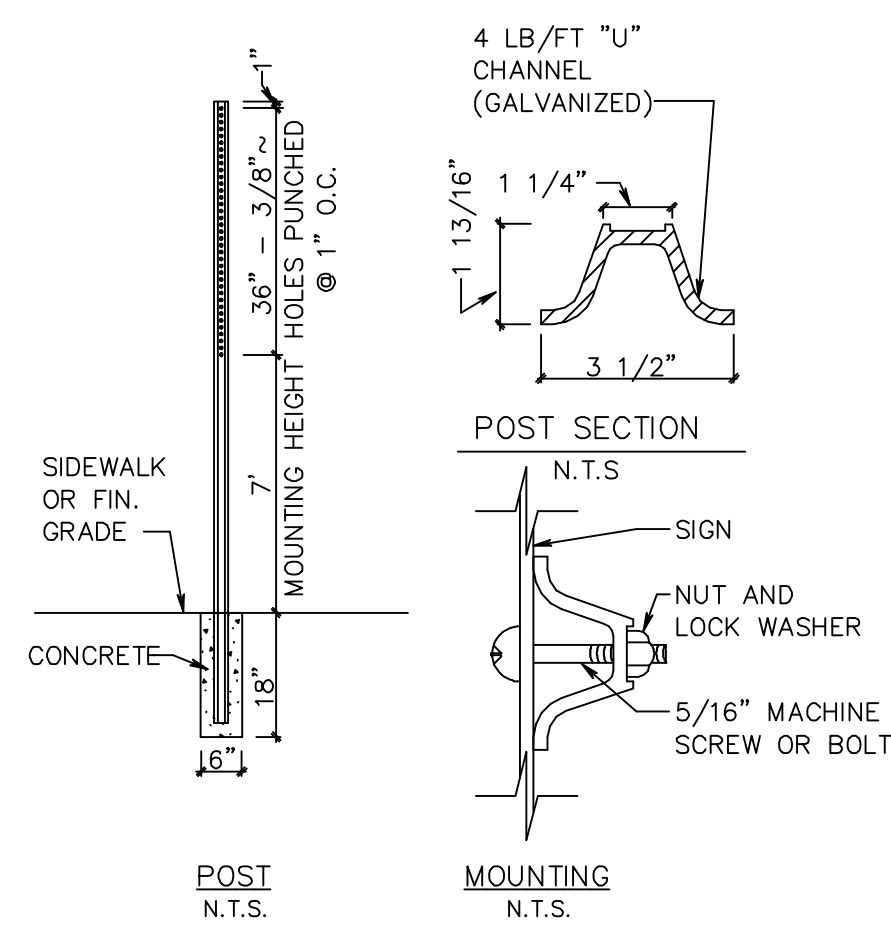
LIGHT BASE DETAIL

SCALE: NONE

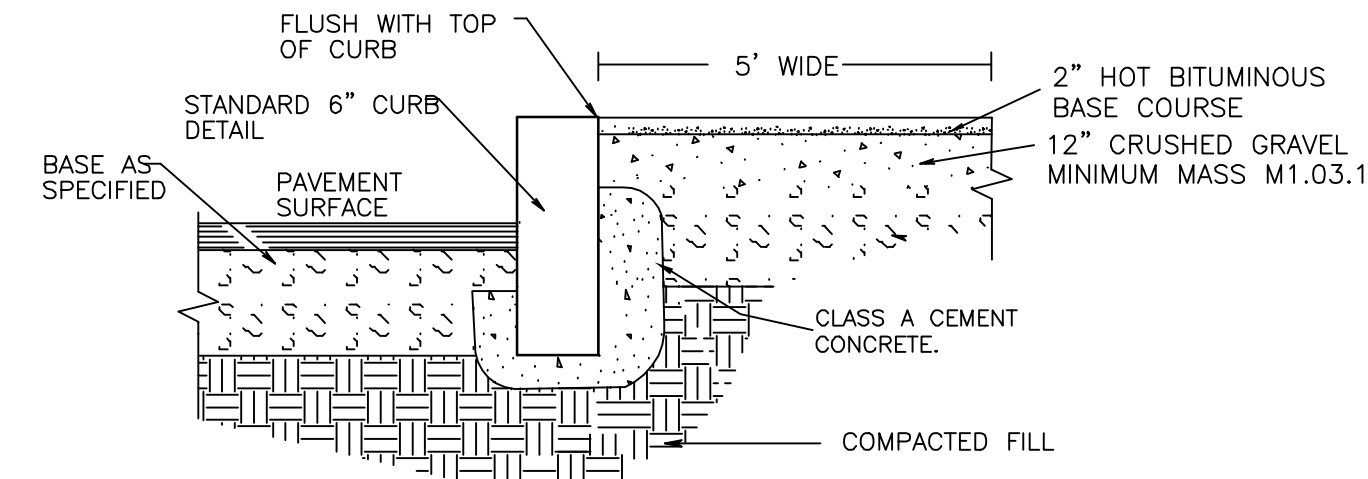


ALL MATERIALS TO BE INSPECTED AND APPROVED BY TOWN ENGINEER AND MEET MASS. DOT STANDARDS.
AREAS MAY REQUIRE UNDERDRAIN OR ADDITIONAL DRAINAGE TO INCLUDE OVER EXCAVATION OF UNSUITABLE MATERIALS AND INSTALLATION OF GEOTEXTILE FABRIC. SEE ADDITIONAL NOTES ON DETAIL SHEETS.

TYPICAL ROADWAY CROSS SECTION

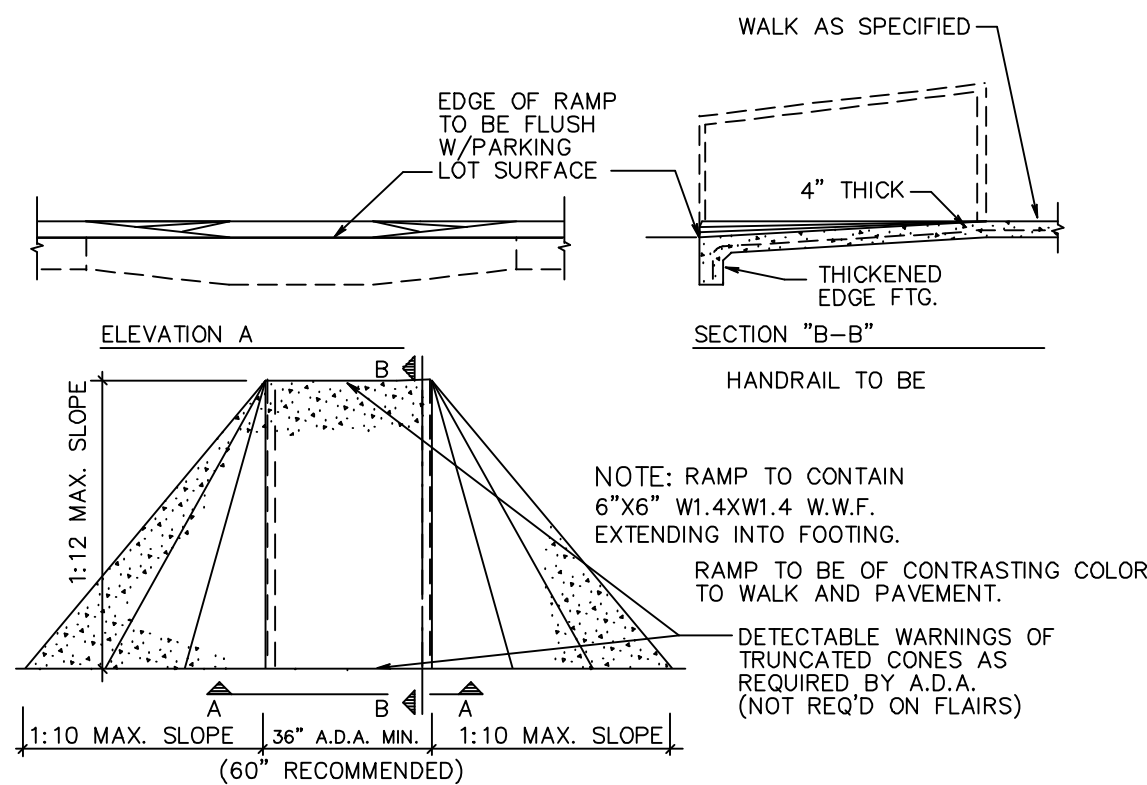


STREET SIGN DETAIL



VERT. GRANITE CURB/BIT. SIDEWALK DETAIL

NOT TO SCALE



CONCRETE RAMP – INTERNAL

NOT TO SCALE

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RESIDENTIAL DEVELOPMENT
34 CENTRAL STREET, NEWBURY, MA

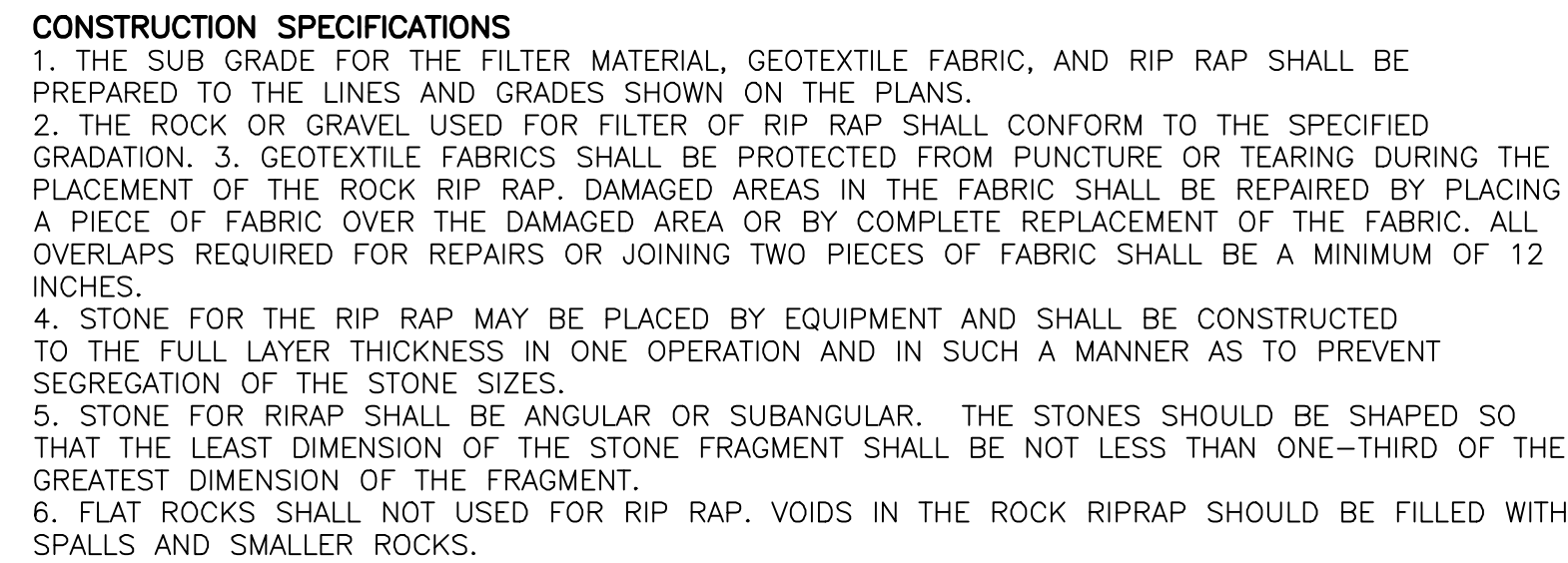
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4" PVC ROOF LEADER WHEN GUTTERS ARE USED

OVERFLOW PIPE

SPLASH BLOCK

UNWOVEN GEOTEXTILE FABRIC LINES TOP AND SIDES OF DRIP EDGE (AEE 480 BY GEOTECHNICAL SUPPLY, INC. OR APPROVED EQUIV.) WHEN TRENCH TOP IS LOADED & SEDED. IF DOWNSPOUTS ARE NOT USED THE TOP OF THE DRIP EDGE TO BE LEFT OPEN TO EXPOSE STONE.

4" TO 6" RAINCATCH FLANGE (PVC)

45° BEND (SCH. 40 PVC)

STONE DRIP EDGE INLET PIPE 2X MIN. SLOPE

STONE FILL 1.5" - 3" DIA.

BUILDING SLAB

1' MIN. SETBACK

2'

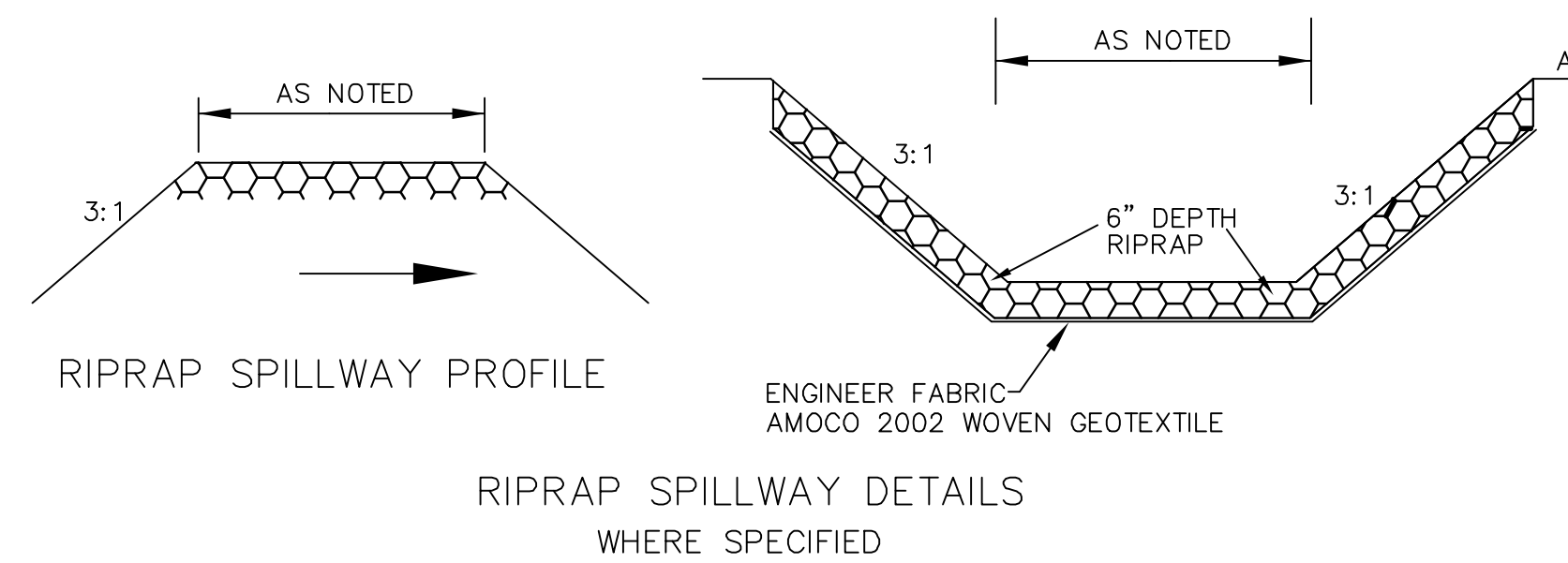
3'

1' Min. or provide underdrain

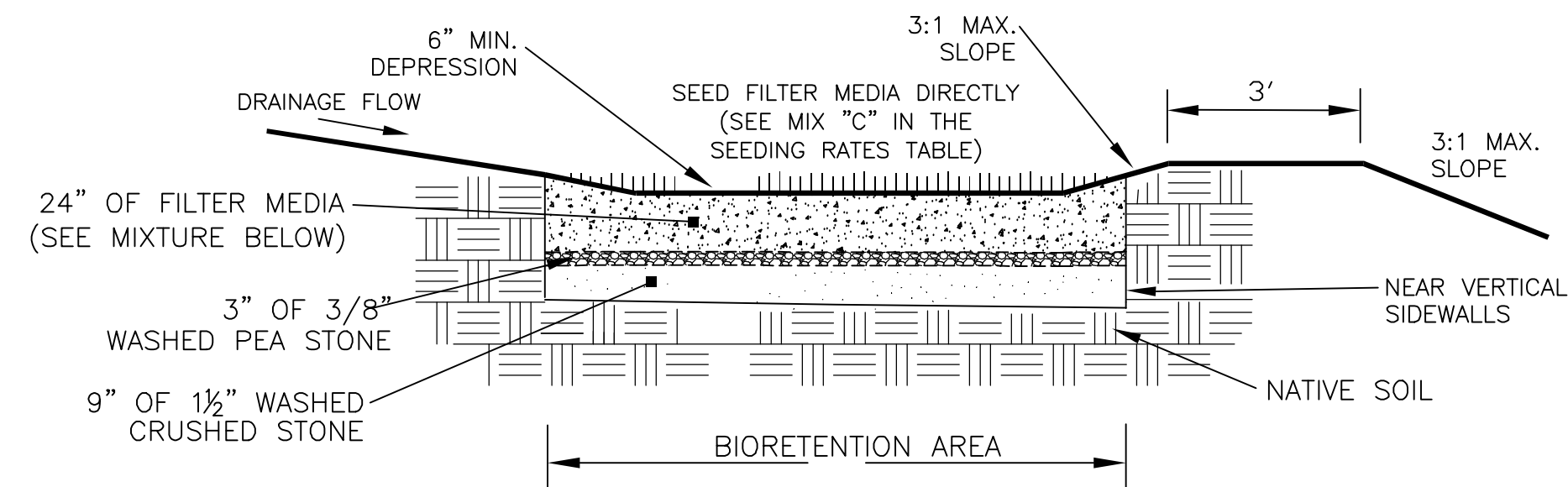
DRIP EDGE TO RUN ENTIRE LENGTH OF ROOF LINE (TYP.)

ESHWT

NOT TO SCALE



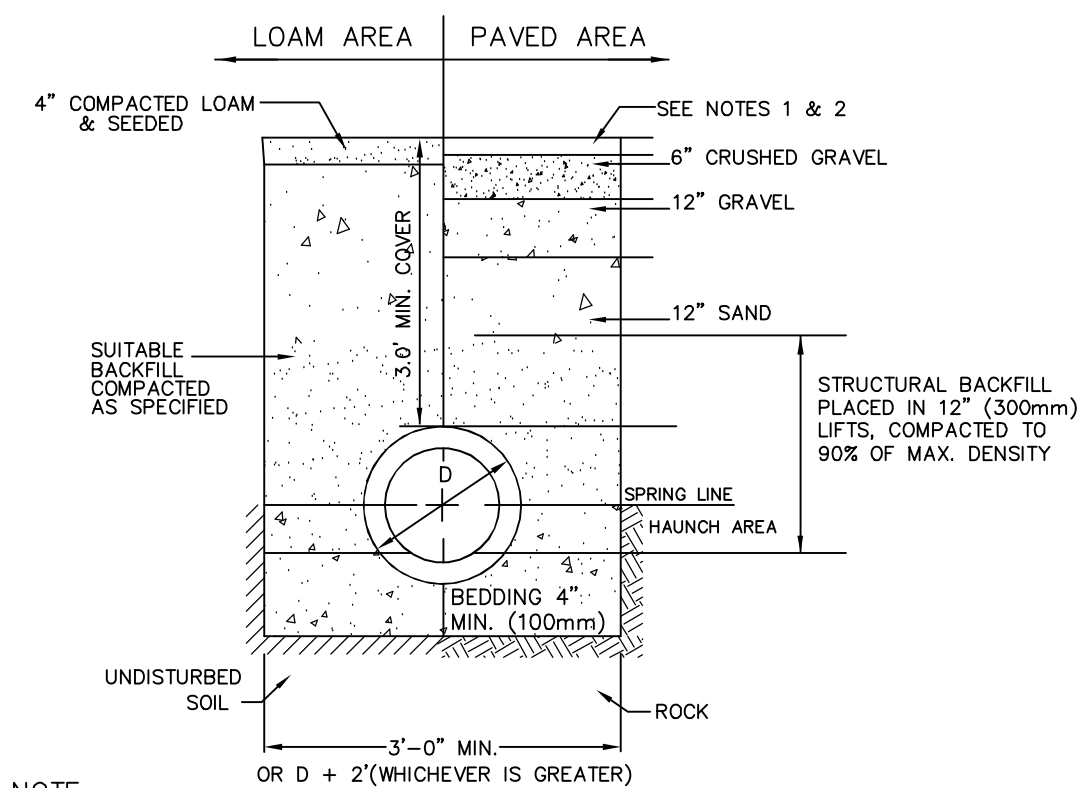
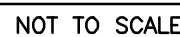
Sieve Designation	Percent by Weight Passing Square Mesh Sieve
12-inch	100%
6-inch	84% - 100%
3-inch	68% - 83%
1-inch	42% - 55%
No. 4	8% - 12%



- 40% SAND (MEET ASTM D 422)
- 20-30% TOPSOIL
- 30-40% COMPOST

1. DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATION WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.
2. AFTER THE INFILTRATION SYSTEM AREA IS EXCAVATED TO THE FINAL DESIGN ELEVATION, THE FLOOR SHOULD BE DEEPLY TILLED (MINIMUM 2 FEET) WITH A ROTARY TILLER OR DISC HARROW TO RESTORE INFILTRATION RATES, FOLLOWED BY A PASS WITH A LEVELING DRAG.
3. DO NOT DISCHARGE SEDIMENT-LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUNOFF, WATER FROM EXCAVATIONS) TO THE BIO-RETENTION AREA DURING ANY STAGE OF CONSTRUCTION.
4. PLACE INFILTRATION SYSTEM HARDWARE UNTIL THE BIORETENTION POND HAS BEEN PLANTED AND CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
5. BIORETENTION POND'S FILTER MEDIA CAN BE SEEDED DIRECTLY WITHOUT ADDITIONAL LOAM.
6. SEE MASSACHUSETTS STORMWATER HANDBOOK FOR ADDITIONAL REQUIREMENTS.

NOT TO SCALE



1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REGULATIONS.
2. NEW ROADWAY CONSTRUCTION SHALL CONFORM TO SUBDIVISION SPEC'S.

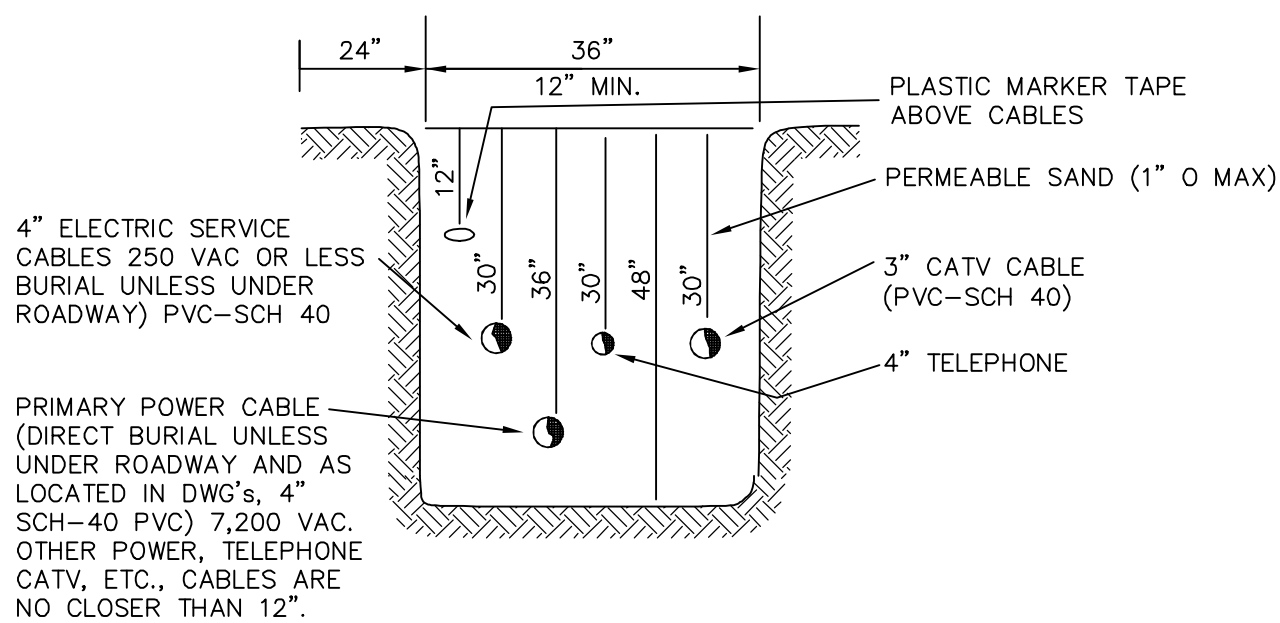
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34 CENTRAL STREET, NEWBURY, MA

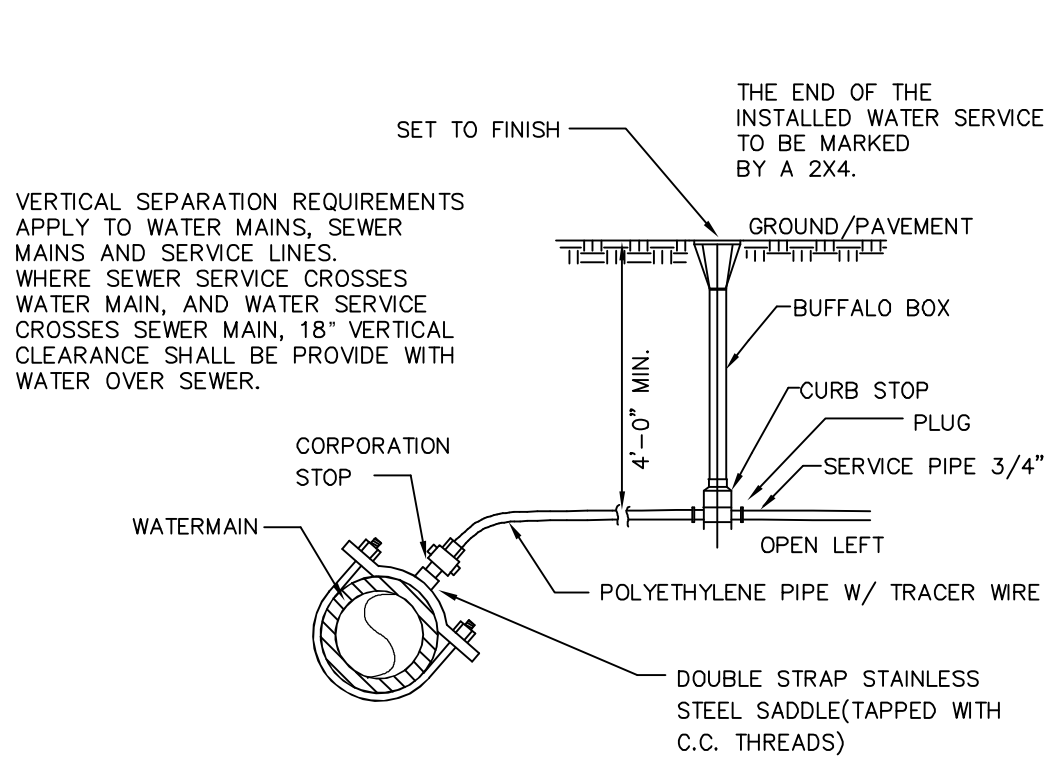
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NOTE: ALL UTILITIES SHALL BE REVIEWED AND APPROVED BY APPROPRIATE UTILITY COMPANY.

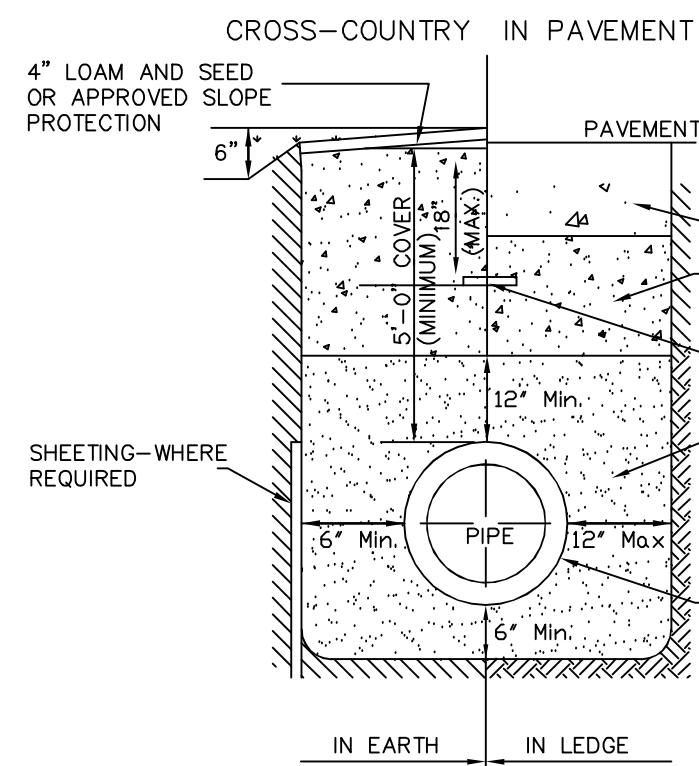
SERVICE BOX CONNECTIONS SHALL BE "FLUSH MOUNT" TO GREATEST EXTENT POSSIBLE AND LOCATED AT PROPERTY LINE CORNERS.



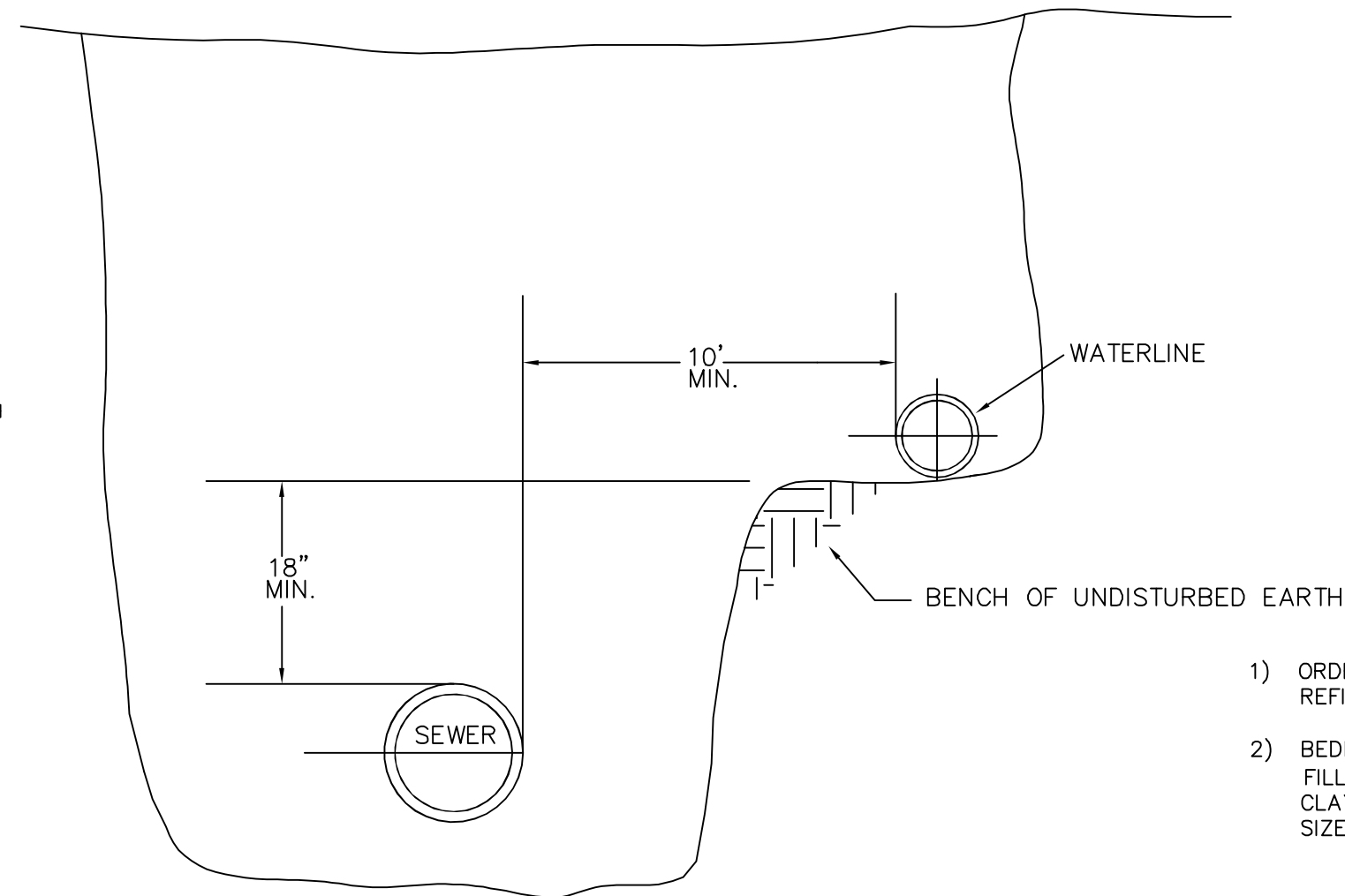
UTILITY TRENCH DETAIL
NOT TO SCALE



TYPICAL WATER SERVICE CONNECTION



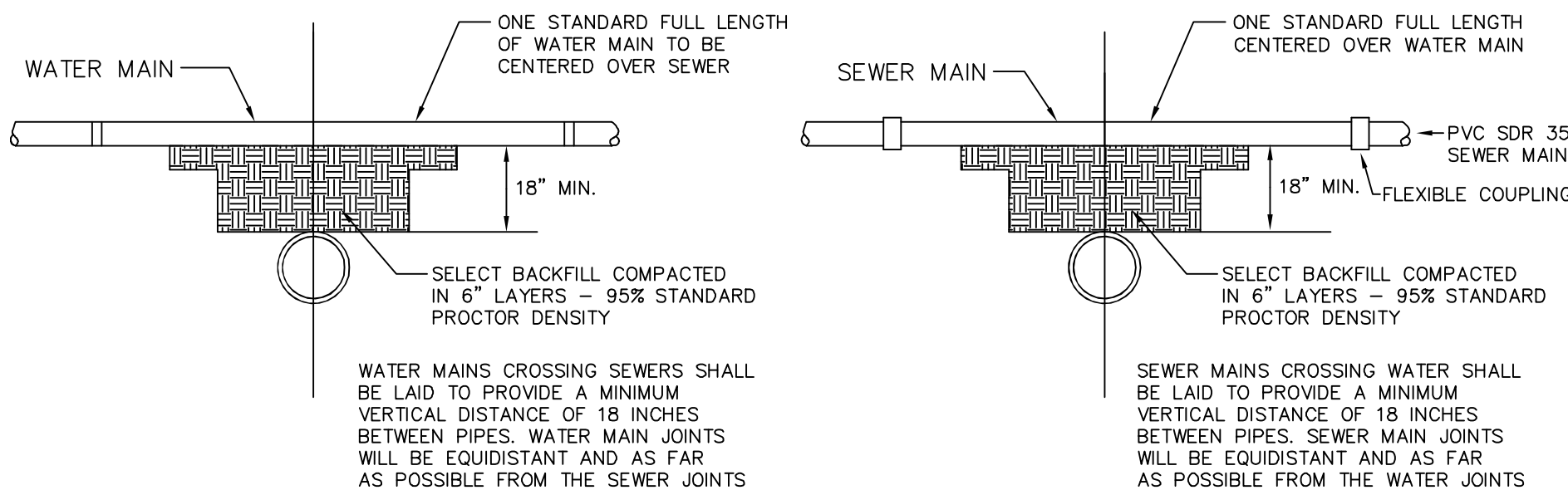
TYPICAL TRENCH DETAIL
FOR WATER SYSTEM



WATER AND SEWER SEPERATION
NOT TO SCALE

SEPARATION NOTES:

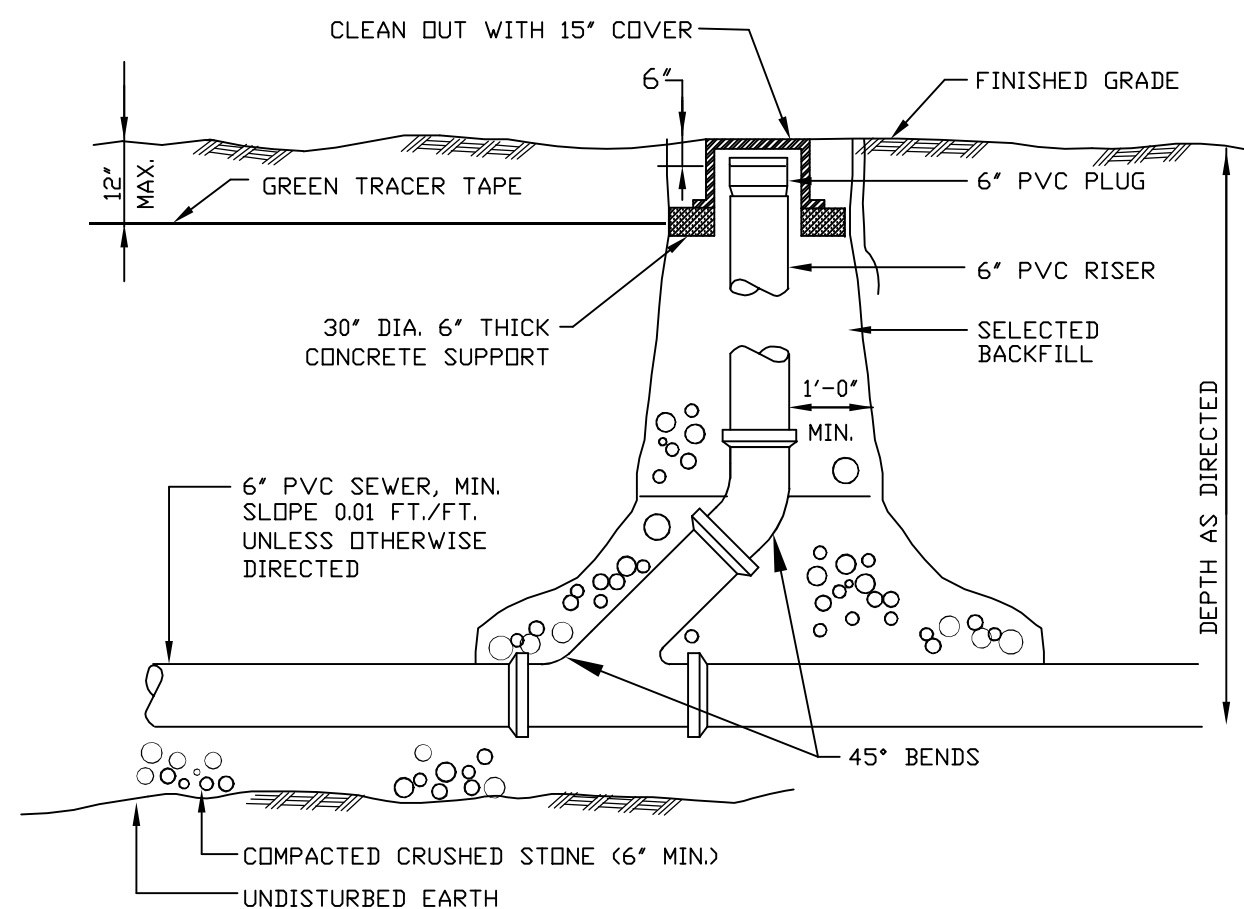
SEWER MAINS JOINTS SHALL BE LOCATED AT LEAST 9 FEET HORIZONTALLY FROM ANY WATER MAIN, AND SEWER PIPE JOINTS SHALL BE PRESSURE TESTED WITH ZERO LEAKAGE AT 25 POUNDS PER SQUARE INCH FOR GRAVITY SEWERS, AND AT 1-1/2 TIMES WORKING PRESSURE FOR FORCE MAINS, AND VERTICAL SEPARATION SHALL NOT BE LESS THAN 18".



WATER MAIN ABOVE SEWER

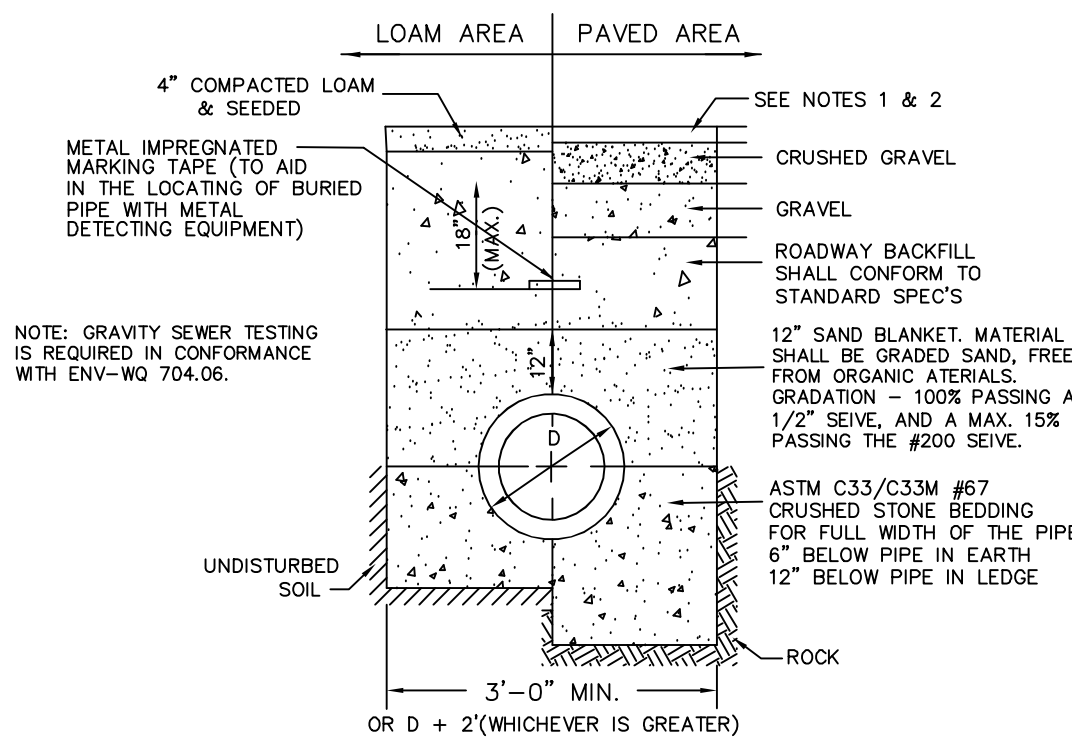
WATER MAIN BELOW SEWER

TYPICAL WATER/SEWER SEPARATION DETAILS
NOT TO SCALE



PVC PIPE SHALL CONFORM WITH ASTM D3034 AND ASTM D2412.
PVC JOINTS SEALS SHALL CONFORM WITH ASTM D3212

SEWER SERVICE CLEAN OUT

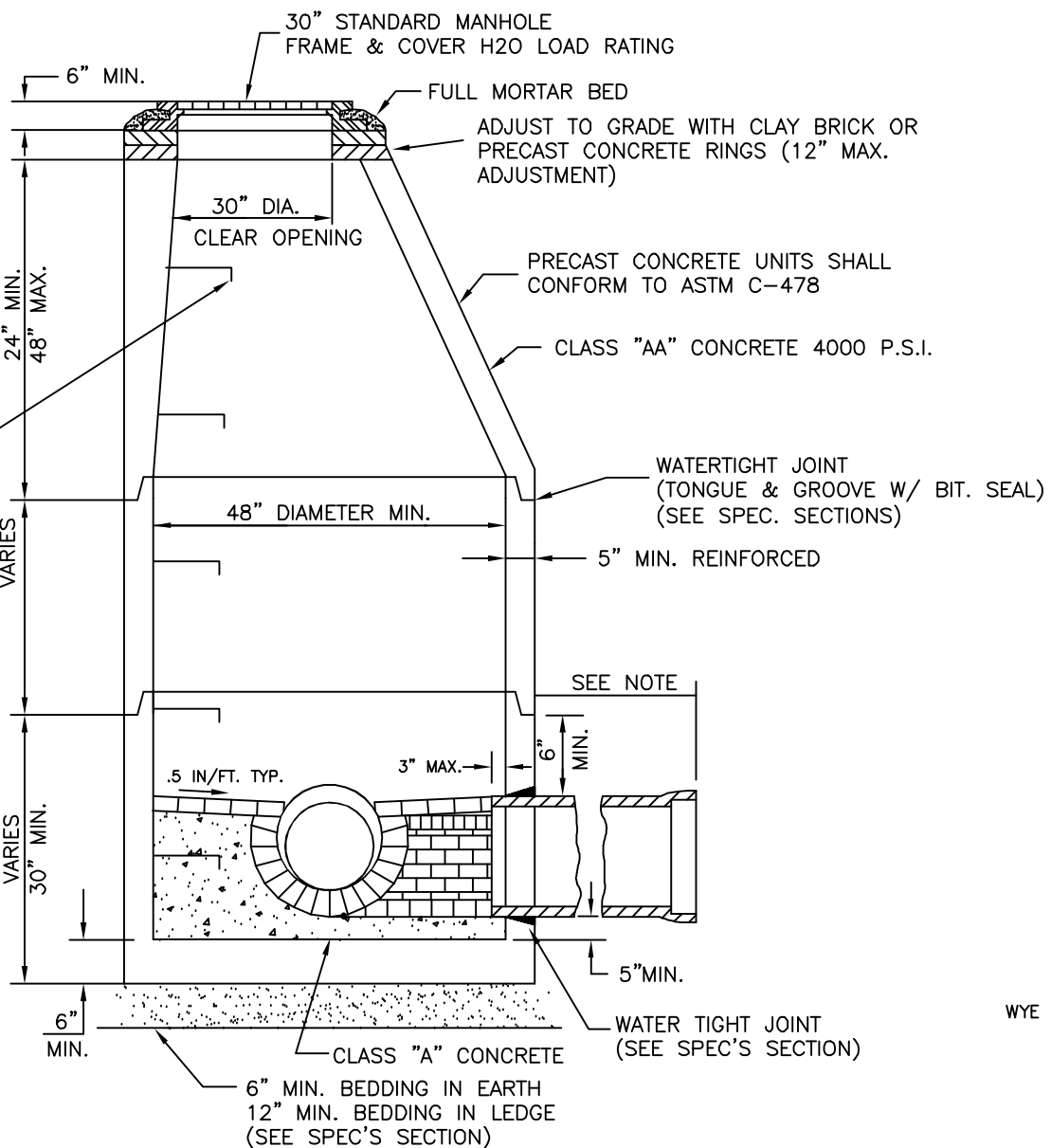


NOTES:

1. PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REGULATIONS.
2. NEW ROADWAY CONSTRUCTION SHALL CONFORM TO MUNICIPAL SPEC'S.

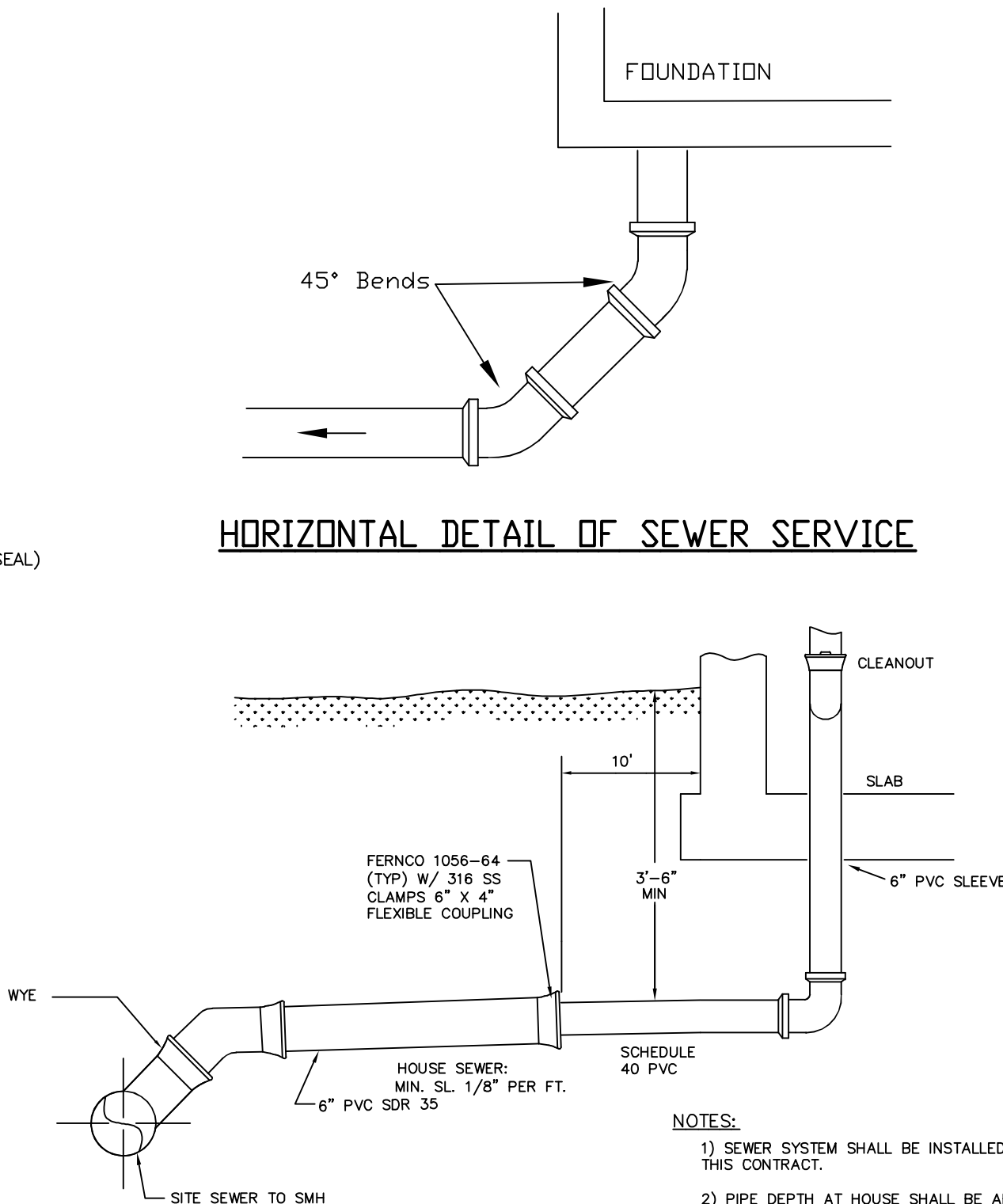
TYPICAL SEWER TRENCH DETAIL

IRON STEP BARS TO BE CAST INTO MANHOLES WITH OVERALL INTERIOR HEIGHT GREATER THAN 6' AT 1' INTERVALS ON NON-SECCENTRIC SIDE OF STRUCTURE. (ASTM C-478).

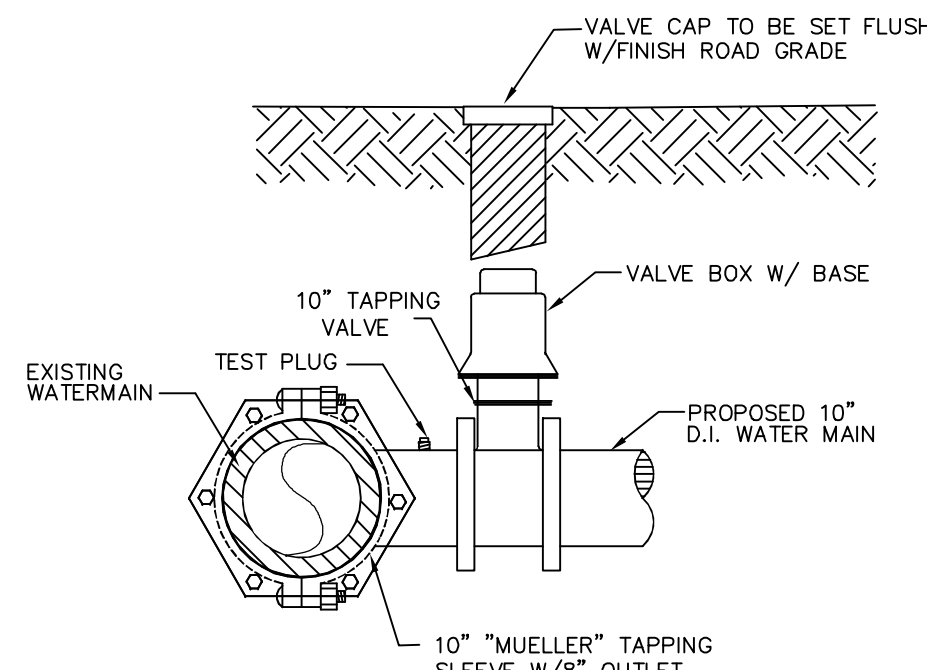


NOTE:
TYPE OF PIPE SIZE MAX. DISTANCE TO FIRST JOINT
R.C.P. C.I. ALL 48"
V.C. 0-12" 18"
V.C. > 12" 36"

SEWER MANHOLE
TYPICAL SECTION



VERTICAL DETAIL OF SEWER SERVICE



WATER MAIN TAPPING SLEEVE DETAIL

- NOTES:
- 1) SEWER SYSTEM SHALL BE INSTALLED UNDER THIS CONTRACT.
 - 2) PIPE DEPTH AT HOUSE SHALL BE ABOVE THE SEASONAL GROUND WATER LEVEL WHEREVER POSSIBLE.

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NOTES

- 1) ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE: REFILL WITH BEDDING MATERIAL. (SEE NOTE 6 ALSO)
- 2) BEDDING: MINIMUM 12" SAND BLANKET AS SPECIFIED AND REMAINING FILL AS SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATERIAL AND MEETING ASTM C-33 STONE SIZE No. 67

100%	PASSING	1 INCH SCREEN
90-100%	PASSING	3/4 INCH SCREEN
20-50%	PASSING	3/8 INCH SCREEN
0-10%	PASSING	No. 4 SIEVE
0-5%	PASSING	No. 8 SIEVE

WHERE ORDERED BY THE ENGINEER TO STABILIZE THE TRENCH BASE, GRADED SCREENED GRAVEL OR CRUSHED STONE 3/4 INCH TO 1-1/2 INCH SHALL BE USED.

- 3) SUITABLE MATERIAL IN ROADS, ROAD SHOULDERS, WALKWAYS, AND TRAVELED WAYS: SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT OR CLAY, ALL EXCAVATED LEDGE MATERIAL, AND ALL ROCKS OVER SIX INCHES IN LARGEST DIMENSION.
- 4) WOOD SHEETING: IF REQUIRED, WHERE SHEETING IS PLACED ALONG SIDE THE PIPE AND EXTENDS BELOW MID-DIAMETER, IT SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION NOT LESS THAN ONE FOOT ABOVE THE TOP OF THE PIPE. WHERE SHEETING IS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE, IT SHALL BE CUT OFF AT LEAST 3 FEET BELOW FINISHED GRADE, BUT NOT LESS THAN ONE FOOT ABOVE THE TOP OF THE PIPE.
- 5) W = MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12 INCHES ABOVE THE PIPE FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES; FOR PIPES GREATER THAN 15 INCHES NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE O.D., W SHALL ALSO BE THE PAYMENT WIDTH FOR LEDGE EXCAVATION AND FOR ORDERED EXCAVATION BELOW GRADE.
- 6) FOR CROSS COUNTRY CONSTRUCTION: BACKFILL OR FILL SHALL BE MOUNDED TO A HEIGHT OF 6 INCHES ABOVE THE ORIGINAL GROUND SURFACE.

- 7) CAST-IRON PIPE FITTINGS AND JOINTS:
1- CAST-IRON PIPE FITTINGS SHALL CONFORM TO THE FOLLOWING STANDARDS OF THE AMERICAN NATIONAL STANDARDS INSTITUTE:

A211 THICKNESS DESIGN OF CAST IRON PIPE
A214 CEMENT MORTAR LINING FOR CAST IRON PIPE AND FITTINGS
A216 CAST IRON PIPE CENTRIFUGAL CAST IN METAL MOLDS
A218 CAST IRON PIPE CENTRIFUGAL CAST IN SAND-LINED MOLDS FOR WATER OR OTHER LIQUIDS
A2110 CAST IRON FITTINGS, 2 INCHES THROUGH 48 INCHES FOR WATER AND OTHER LIQUIDS

- 2- JOINTS SHALL BE OF THE MECHANICAL OR PUSH-ON TYPE JOINTS AND GASKETS SHALL CONFORM TO A2111 RUBBER GASKET JOINTS FOR CAST IRON PRESSURE PIPE AND FITTINGS

- 8) DUCTILE-IRON PIPE, FITTINGS AND JOINTS:
1- DUCTILE IRON PIPE AND FITTINGS SHALL CONFORM TO THE FOLLOWING STANDARDS OF THE UNITED STATES OF AMERICA STANDARDS INSTITUTE
A2150 THICKNESS DESIGN OF DUCTILE-IRON PIPE AND WITH ASTM A-536 DUCTILE-IRON CASTINGS
A2151 DUCTILE-IRON PIPE, CENTRIFUGALLY CAST IN METAL MOLDS OR SAND-LINED MOLDS FOR WATER OR OTHER LIQUIDS

- 2- JOINTS SHALL BE AS SPECIFIED IN B2 ABOVE, CAST-IRON PIPE JOINTS

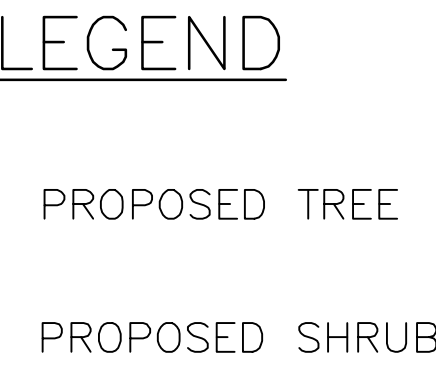
- 9) ALL WATER LINES SHALL BE DISINFECTED AND PRESSURE TESTED TO THE APPROVAL OF THE SEWER COMMISSION. MIN. TEST PRESSURE 150 PSI OR 1 1/2 TIMES THE WORKING PRESSURE WHICH EVER IS GREATER.

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34 CENTRAL STREET, NEWBURY, MA

DATE:	MARCH 2025	SCALE:	NTS
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DATE:	FEB 2026	SCALE:	1"=20'
PROJ. NO:	NH-1507	SHEET NO.	27