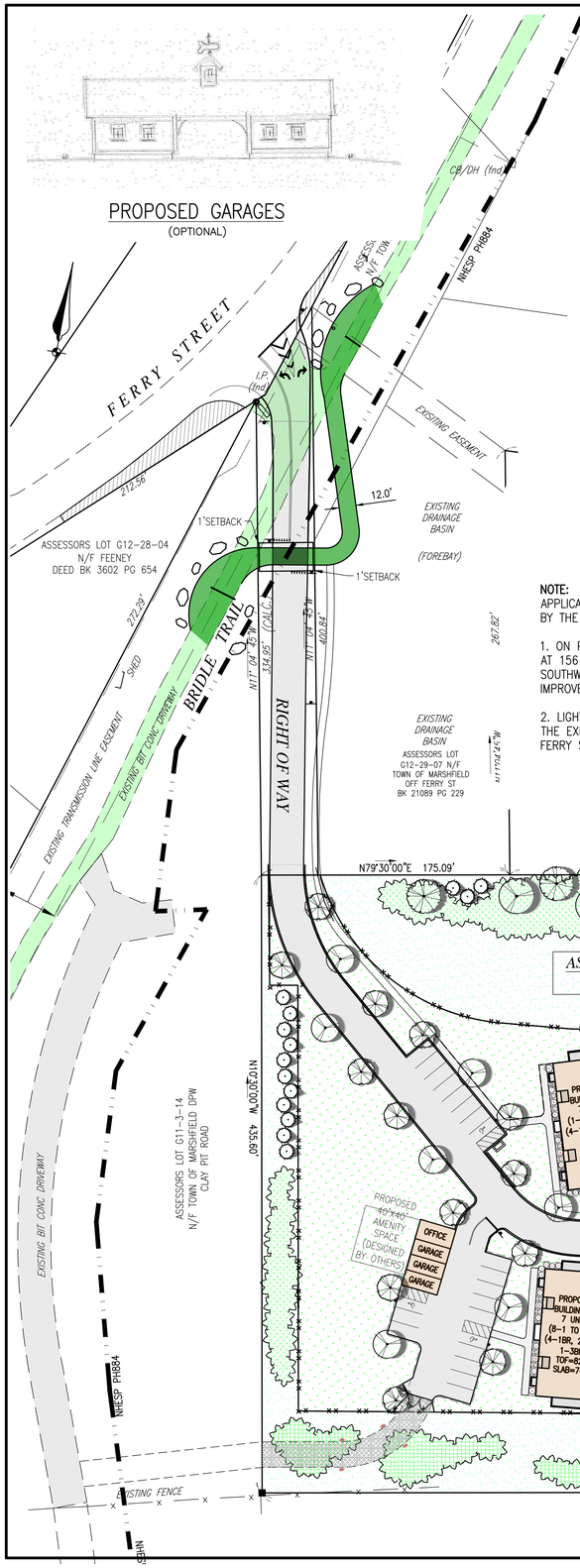
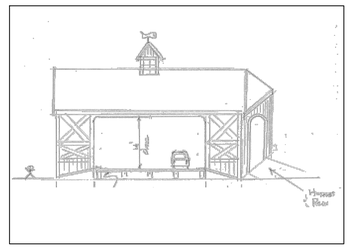


TRUCK TRIPS

GRAVEL REMOVAL QUANTITY = 125,000 C.Y.

40 TRUCKS PER DAY
26 CY PER TRUCK X 40 TRUCKS = 1,040 CY/DAY
125,000 C.Y. / 1,040 = 120 WORKING DAYS (GRAVEL REMOVAL < 1 YEAR)

30 TRUCKS PER DAY
26 CY PER TRUCK X 30 TRUCKS = 780 CY/DAY
125,000 C.Y. / 780 = 160 WORKING DAYS (GRAVEL REMOVAL < 1 YEAR)



PROPOSED ENTRANCE STRUCTURE

(OPTIONAL)
*STRUCTURE SHALL BE DESIGNED BY OTHERS
*SETBACKS TO BE APPROVED BY THE ZBA

NOTE:
APPLICANT HAS AGREED TO PERFORM THE FOLLOWING WORK AS REQUESTED BY THE TOWN OF MARSHFIELD

1. ON PARCEL G11-03-13 WHICH IS THE MARSHFIELD ANIMAL SHELTER AT 156 CLAY PIT RD, WE WILL REMOVE TREES AND REGRADE THE SOUTHWEST CORNER OF THE PROPERTY WHERE IT ABUTS THE TRAIL TO IMPROVE SITE DISTANCE.

2. LIGHT GRADING AND SOME BOULDERS PLACED TO IMPROVE PARKING AT THE EXISTING LOT FOR BRIDLE PATH PARKING ON THE NORTH SIDE OF FERRY ST AT CROSSING AJACENT TO PARCEL G12-30-03

NITROGEN LOADING LIMITATIONS

NOTE: ASSESSORS LOT G12-29-02 AND H12-01-09B ARE BOTH WITHIN A ZONE II AQUIFER PROTECTION ZONE.
ASSESSORS LOT G12-29-02 AND H12-01-09B ARE NOT WITHIN 400 FEET OF A PUBLIC WELL.
ASSESSORS LOT G12-29-02 AND H12-01-09B ARE NOT WITHIN A NATURAL RESOURCE AREA PER 15.214 (1)(b)

15.215: NITROGEN LOADING LIMITATIONS
PUBLIC AND PRIVATE WATER SUPPLY PROTECTION AREAS. NO FACILITY OWNER FOR NEW CONSTRUCTION IN NITROGEN SENSITIVE AREAS DESIGNATED IN 310 CMR 15.214(1)(A) SHALL INSTALL A SYSTEM DESIGNED TO RECEIVE OR ALLOW 310 CMR 15.202 (USE OF RECIRCULATING SAND FILTERS), A SYSTEM TO RECEIVE MORE THAN 440 GALLONS OF DESIGN FLOW PER DAY PER ACRE EXCEPT AS SET FORTH IN 310 CMR 15.216 (AGGREGATE FLOWS) OR 15.217 (ENHANCED NITROGEN REMOVAL)

15.216: AGGREGATE DETERMINATIONS OF FLOWS AND NITROGEN LOADINGS
(1)THE 440 GALLONS PER DAY PER ACRE NITROGEN LOADING LIMITATION IMPOSED BY 310 CMR 15.215(1) MAY BE CALCULATED IN THE AGGREGATE BY USING NITROGEN CREDIT LAND IN ACCORDANCE WITH AN APPROVED FACILITY AGGREGATION PLAN OR COMMUNITY AGGREGATION PLAN. APPLICANTS PROPOSING SYSTEMS TO BE LOCATED WITHIN A COMMUNITY OR REGION COVERED BY A COMMUNITY AGGREGATION PLAN APPROVED BY THE DEPARTMENT SHALL CALCULATE AGGREGATE DETERMINATIONS OF FLOWS AND NITROGEN LOADINGS IN ACCORDANCE WITH THE PLAN AND THE DEPARTMENT'S GUIDELINES FOR TITLE 5 AGGREGATION OF FLOWS AND NITROGEN LOADING. ALL OTHER APPLICANTS SEEKING AGGREGATE DETERMINATION OF FLOWS AND NITROGEN LOADING SHALL PREPARE A FACILITY AGGREGATION PLAN IN ACCORDANCE WITH 310 CMR 15.216 AND THE DEPARTMENT'S GUIDELINES FOR TITLE 5 AGGREGATION OF FLOWS AND NITROGEN LOADING

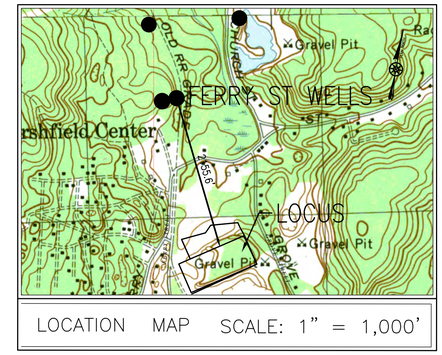
PROPOSED DESIGN FLOW: 88 BEDROOMS X 110 GPD = 9,680 GPD
OFFICE = 20 GPD
TOTAL = 9,700 GPD

LOT AREA: G12-29-02 435,600 S.F. H12-01-09B 220,349 S.F.

NITROGEN LOADING RATE: = 40,000 X 9,700 / (435,600 + 220,349) = 592 GPD/ACRE
> 440 GPD/ACRE ALLOWED
(660 GPD DENITE SYSTEM IS AN ALTERNATIVE)

BUILDING TABLE

BUILDING #	UNITS/BUILDING	BEDROOMS	BEDROOMS/BLD	SEPTIC SYSTEM DESIGN FLOW GPD
OFFICE	1	=364 x 50 GPD/1000 S.F.		20
1	7	4-1BR, 2-2BR, 1-3BR	11	1210
2	7	4-1BR, 2-2BR, 1-3BR	11	1210
3	7	4-1BR, 2-2BR, 1-3BR	11	1210
4	7	4-1BR, 2-2BR, 1-3BR	11	1210
5	7	4-1BR, 2-2BR, 1-3BR	11	1210
6	7	4-1BR, 2-2BR, 1-3BR	11	1210
7	7	4-1BR, 2-2BR, 1-3BR	11	1210
8	7	4-1BR, 2-2BR, 1-3BR	11	1210
TOTAL	57		88	9700



LOCATION MAP SCALE: 1" = 1,000'

REFERENCES:
1. PLAN OF LAND SHOWING TOWN OF MARSHFIELD GRAVEL PIT & AREAS CONVEYED TO MARSHFIELD SAND & GRAVEL COMPANY & GINO RUGANI, DATED APRIL 26, 1954, BY STENBECK & TAYLOR, PLAN #608 OF 1956.

2. COMPILED PLAN OF LAND IN MARSHFIELD, MA BEING A SUBDIVISION OF PARCELS H12-01-01B & G12-29-03 GROVE & FERRY STREETS, DRAWN FOR P.A. REALTY TRUST, DATED 19 MARCH 2001, REVISED 11 APRIL 2001, DRAWN BY STENBECK & TAYLOR, INC., PLAN BK 45, PG 50.

3. PLAN OF ROAD IN THE TOWN OF MARSHFIELD PLYMOUTH COUNTY DISCONTINUANCE AS A STATE HIGHWAY BY THE DEPARTMENT OF PUBLIC WORKS, OCTOBER 15, 1929.

4. NEW YORK, NEW HAVEN AND HARTFORD RAILROAD REAL ESTATE AND RIGHT OF WAY DEPARTMENT, LAND IN MARSHFIELD, MASS. TO BE CONVEYED TO THE TOWN OF MARSHFIELD, APRIL 1940, PLAN BK 6, PG 278.

5. PLAN OF LOTS IN MARSHFIELD, MASS., DRAWN FOR ROBERT T. AMES AND JOHN N. FLAGG, DATED MAY 1968, BY STENBECK AND TAYLOR, INC. ENGINEERS, MARSHFIELD, MASSACHUSETTS, PLAN BK 14, PG 943.

DISTRICT: R-1 RESIDENTIAL RURAL &
WATER RESOURCE PROTECTION DISTRICT

	REQUIRED	PROPOSED
LOT AREA:	43,560 SF	435,600 SF
FRONTAGE:	125'	0'
LOT WIDTH:	125'	435.6'
(MEASURED PARALLEL TO THE FRONT LOT LINE AT THE REAR BUILDING LINE AND ALL POINTS BETWEEN)		
IMAGINARY CIRCLE:	125'	125'
FRONT SETBACK:	40'	47.5'
(RIGHT OF WAY LESS THAN 40', MEASURED TO CENTERLINE OF THE WAY)		
SIDE SETBACK:	20'	7.9'
REAR SETBACK:	40'	119'
BUILDING HEIGHT:	35'	34'
BUILDING COVERAGE:	15% MAX	10.3%
LOT COVERAGE	30% (WRPD)	35% (OVER 10 ACRES) 24% (OVER 15 ACRES)
OPEN SPACE	50% MIN	65%

DENSITY = 56 UNITS/ 10 ACRES = 5.6 UNITS PER ACRE

PROPOSED BUILDING SPACING = 12.4' (MIN)

PARKING: 130 PROPOSED PARKING SPACES (2.3 SPACES/UNIT)
3 PROPOSED PARKING SPACES FOR OFFICE
133 TOTAL PARKING SPACES

17 ACCESSIBLE SPACES

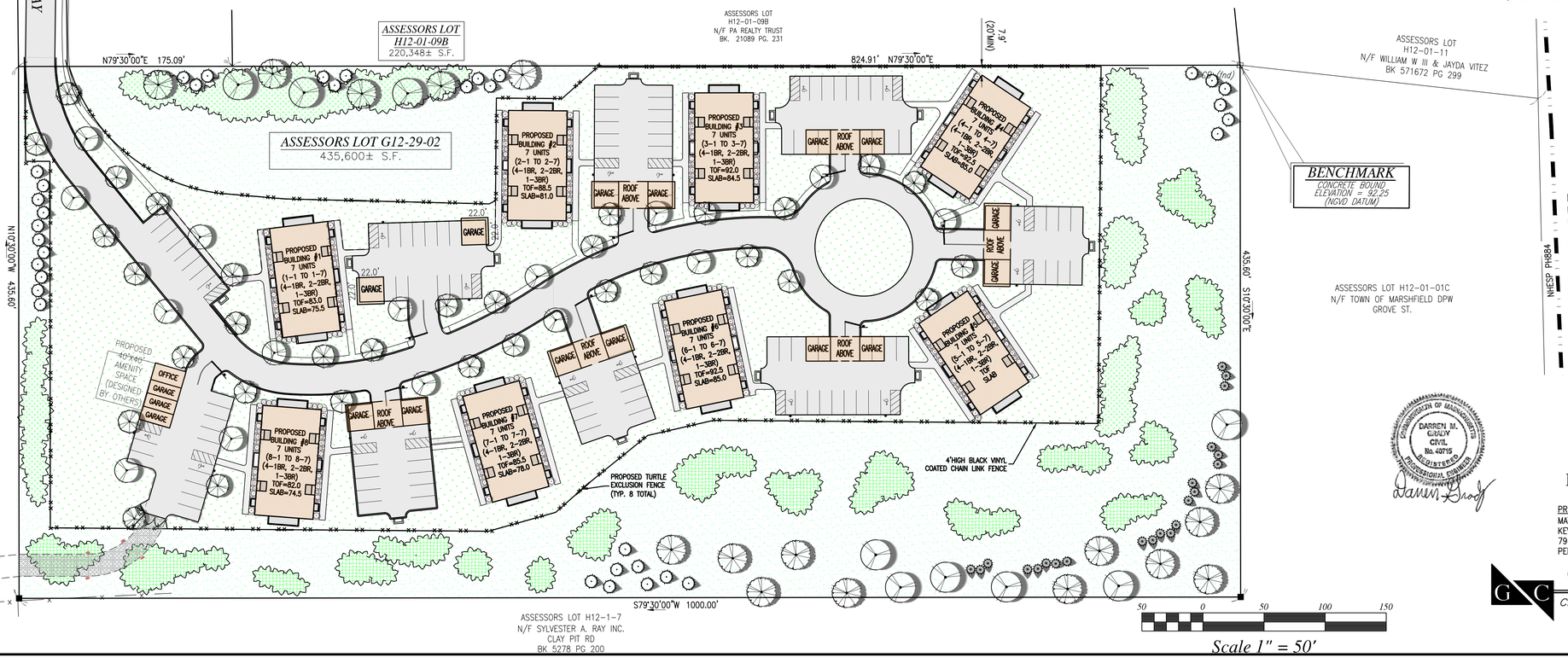
COMMONWEALTH OF MASSACHUSETTS
TIMOTHY R. BENNETT
No. 36856
REGISTERED PROFESSIONAL LAND SURVEYOR

4/3/24
TIMOTHY R. BENNETT P.L.S. #36856

SHEET INDEX

RECORD OWNER:
ASSESSORS MAPS G12-29-02

PETER ARMSTRONG
44 ALLERTON STREET
MARSHFIELD, MA 02050
DEED BOOK 31665 PAGE 346
PLAN BOOK 10 PAGE 1007



REVISIONS	
JANUARY 5, 2024	PEER REVIEW COMMENTS
FEBRUARY 9, 2024	PEER REVIEW COMMENTS, NitROE 2KM
FEBRUARY 28, 2024	PERCOLATION TESTING
APRIL 3, 2024	PEER REVIEW COMMENTS

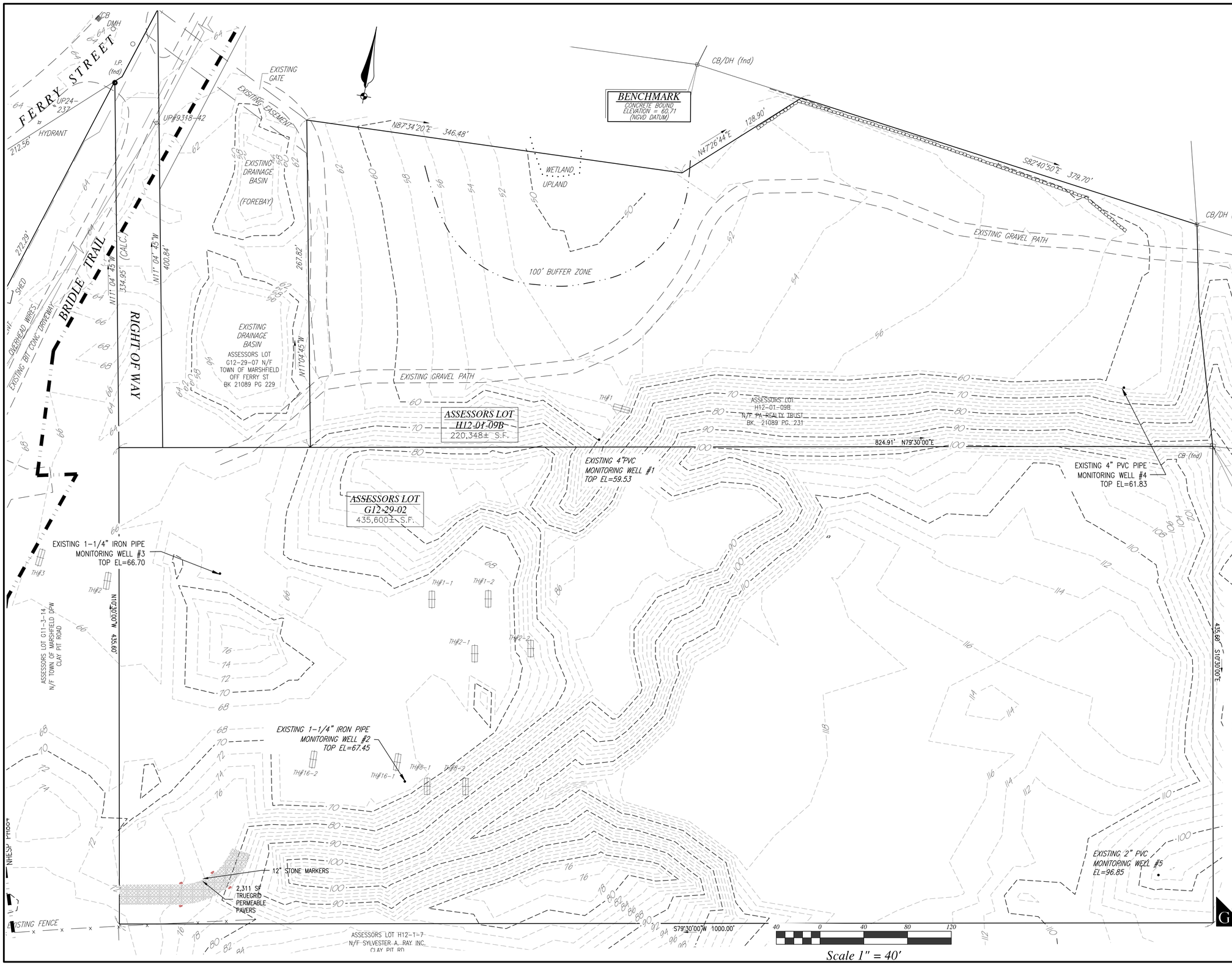
COMMONWEALTH OF MASSACHUSETTS
DARREN M. GRADY
CIVIL
No. 40715
REGISTERED PROFESSIONAL ENGINEER

SITE PLAN
BRIDLE CROSSING
OFF FERRY STREET
MARSHFIELD, MASSACHUSETTS

PREPARED FOR:
MATLIN LLC C/O
KEVIN SEALUND & MATTHEW DACEY
794 WASHINGTON STREET
PEMBROKE, MA 02359

NOVEMBER 9, 2023
SCALE: AS SHOWN
JOB No. 12-243

GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors & Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300



SOIL LOGS

NOT TO SCALE

T.H.#1-1	T.H.#1-2	T.H.#2-1
EL. 66.42	EL. 66.72	EL. 67.32
REMOVE & REPLACE TOP 18" 0"-132" C MEDIUM-FINE SAND	REMOVE & REPLACE TOP 18" 0"-132" C MEDIUM-FINE SAND	REMOVE & REPLACE TOP 18" 0"-120" C MEDIUM-FINE SAND
PERC ☒ @ 24"-42" P.R.=3 MIN/IN	PERC ☒ @ 24"-42" P.R.<2 MIN/IN	PERC ☒ @ 18"-36" P.R.=3 MIN/IN
55.42	55.72	57.32
D=11'-0" NO WATER	D=11'-0" NO WATER	D=10'-0" NO WATER

T.H.#2-2	T.H.#8-1	T.H.#8-2
EL. 74.50	EL. 71.66	EL. 83.10
REMOVE & REPLACE TOP 18" 0"-120" C MEDIUM-FINE SAND	REMOVE & REPLACE TOP 18" 0"-120" C MEDIUM-FINE SAND	REMOVE & REPLACE TOP 18" 0"-120" C MEDIUM-FINE SAND
PERC ☒ @ 24"-42" P.R.=5 MIN/IN	PERC ☒ @ 20"-38" P.R.<2 MIN/IN	PERC ☒ @ 24"-42" P.R.<2 MIN/IN
64.50	61.66	73.10
D=10'-0" NO WATER	D=10'-0" NO WATER	D=10'-0" NO WATER

TEST HOLES 1-1,1-2,2-1,2-2,8-1,8-2 WERE PERFORMED BY DARREN GRADY, P.E. ON AND WITNESSED BY PETER FALABELLA ON FEBRUARY 20, 2024.

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY R. BENNETT
No. 36856
REGISTERED PROFESSIONAL LAND SURVEYOR

4/3/24

TIMOTHY R. BENNETT P.L.S. #36856

BENCHMARK
CONCRETE BOUND
ELEVATION = 92.25
(NGVD DATUM)

NOTES:

1. NO WETLANDS EXIST ON THE SITE.
2. THE SITE IS NOT LOCATED IN A FEMA SPECIAL FLOOD HAZARD AREA.
3. THE SITE IS LOCATED WITHIN A PRIORITY HABITAT OF RARE AND ENDANGERED SPECIES AND ESTIMATED HABITAT OF RARE WILDLIFE ACCORDING THE THE NATURAL HERITAGE AND ENDANGERED SPECIES MAP DATED 10/1/08 AND AUGUST 2021.
4. THE SITE IS LOCATED WITHIN AN AQUIFER PROTECTION ZONE.

REVISIONS	
JANUARY 5, 2024	PEER REVIEW COMMENTS
FEBRUARY 9, 2024	PEER REVIEW COMMENTS, NitROE 2KM
FEBRUARY 28, 2024	PERCOLATION TESTING
APRIL 3, 2024	PEER REVIEW COMMENTS

COMMONWEALTH OF MASSACHUSETTS
DARREN M. GRADY
CIVIL
No. 40715
REGISTERED PROFESSIONAL ENGINEER

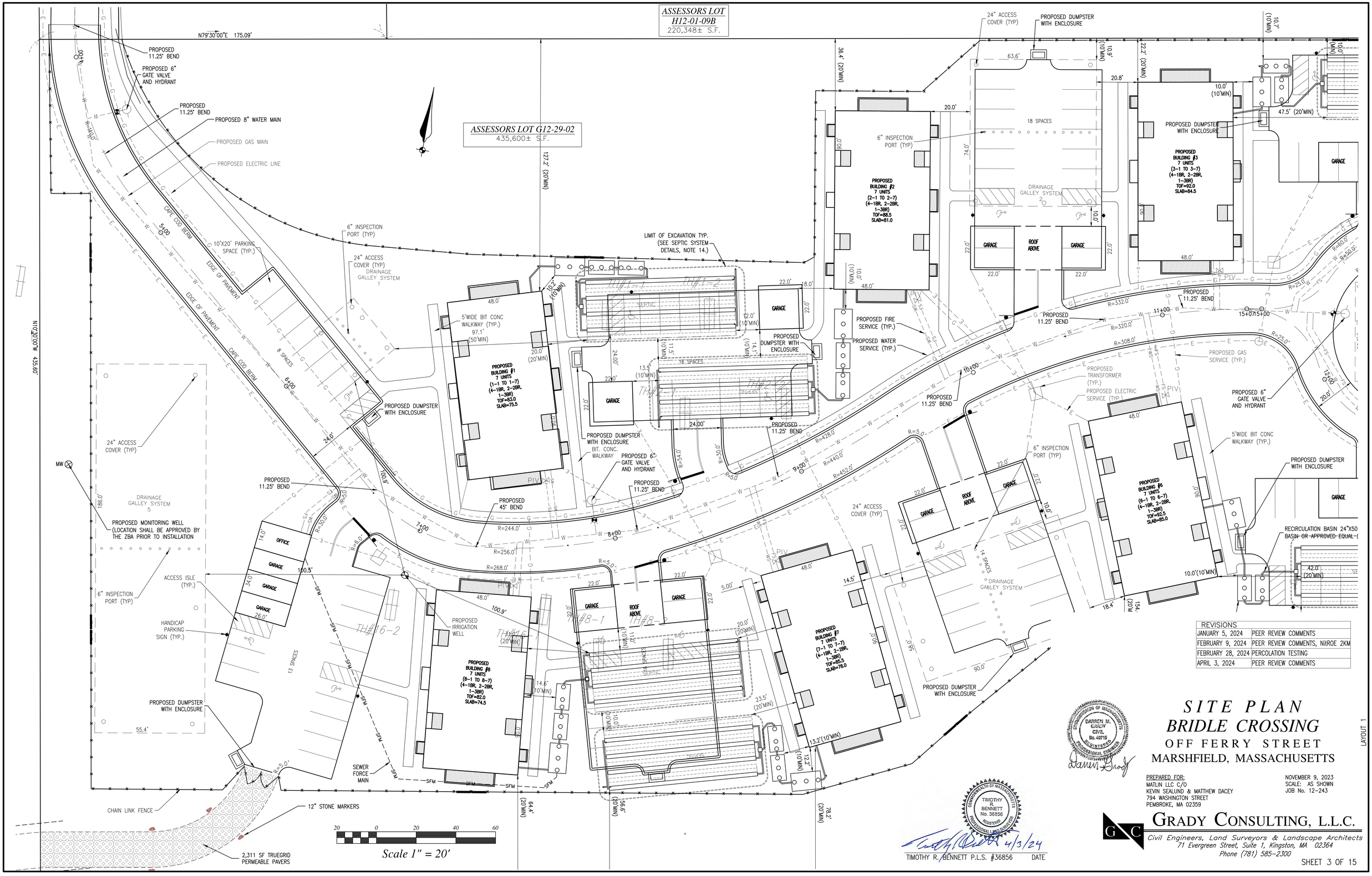
SITE PLAN
BRIDLE CROSSING
OFF FERRY STREET
MARSHFIELD, MASSACHUSETTS

PREPARED FOR:
MATLIN LLC C/O
KEVIN SEALUND & MATTHEW DACEY
794 WASHINGTON STREET
PEMBROKE, MA 02359

NOVEMBER 9, 2023
SCALE: AS SHOWN
JOB No. 12-243

GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors & Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300

EXISTING CONDITIONS



REVISIONS	
JANUARY 5, 2024	PEER REVIEW COMMENTS
FEBRUARY 9, 2024	PEER REVIEW COMMENTS, NitROE 2KM
FEBRUARY 28, 2024	PERCOLATION TESTING
APRIL 3, 2024	PEER REVIEW COMMENTS

SITE PLAN
BRIDLE CROSSING
OFF FERRY STREET
MARSHFIELD, MASSACHUSETTS

PREPARED FOR:
MATLIN LLC C/O
KEVIN SEALUND & MATTHEW DACEY
794 WASHINGTON STREET
PEMBROKE, MA 02359

NOVEMBER 9, 2023
SCALE: AS SHOWN
JOB No. 12-243

COMMONWEALTH OF MASSACHUSETTS DARREN M. GRADY CIVIL No. 40715 REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS TIMOTHY R. BENNETT No. 36856 REGISTERED PROFESSIONAL LAND SURVEYOR

4/3/24
TIMOTHY R. BENNETT P.L.S. #36856 DATE

GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors & Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300

LAYOUT 1

ASSESSORS LOT
H12-01-09B
220,348± S.F.

824.91' N79°30'00"E

PROPOSED BUILDING #2
7 UNITS
(2-1 TO 2-7)
(4-1BR, 2-2BR, 1-3BR)
TOF=88.5
SLAB=81.0

PROPOSED BUILDING #3
7 UNITS
(3-1 TO 3-7)
(4-1BR, 2-2BR, 1-3BR)
TOF=92.0
SLAB=84.5

PROPOSED BUILDING #4
(4-1 UNITS
(4-1BR, 2-2BR, 1-3BR)
TOF=92.0
SLAB=85.0

PROPOSED BUILDING #5
7 UNITS
(5-1 TO 5-7)
(4-1BR, 2-2BR, 1-3BR)
TOF
SLAB

PROPOSED BUILDING #6
7 UNITS
(6-1 TO 6-7)
(4-1BR, 2-2BR, 1-3BR)
TOF=92.5
SLAB=85.0

PROPOSED BUILDING #7
7 UNITS
(7-1 TO 7-7)
(4-1BR, 2-2BR, 1-3BR)
TOF=85.5
SLAB=78.0

18 SPACES
16 SPACES
14 SPACES
8 SPACES
DRAINAGE GALLEY SYSTEM 2
DRAINAGE GALLEY SYSTEM 3a
DRAINAGE GALLEY SYSTEM 4
SEPTIC
GARAGE
ROOF ABOVE

24" ACCESS COVER (TYP)
PROPOSED DUMPSTER WITH ENCLOSURE
6" INSPECTION PORT (TYP)
LIMIT OF EXCAVATION TYP. (SEE SEPTIC SYSTEM DETAILS, NOTE 14.)
PROPOSED FIRE SERVICE (TYP.)
PROPOSED WATER SERVICE (TYP.)
PROPOSED 11.25° BEND
PROPOSED TRANSFORMER (TYP.)
PROPOSED ELECTRIC SERVICE (TYP.)
PROPOSED GAS SERVICE (TYP.)
PROPOSED 6" GATE VALVE AND HYDRANT
5'WIDE BIT CONC WALKWAY (TYP.)
POST INDICATOR VALVE (TYP)
PROPOSED IRRIGATION WELL
PROPOSED MONITORING WELL (LOCATION SHALL BE APPROVED BY THE ZBA PRIOR TO INSTALLATION
RECIRCULATION BASIN 24"X50" POLY-LOK BASIN OR APPROVED EQUAL (TYP.)
INSPECTION PORT (TYP.)
VENT (TYP.)
NORWECO LOW PRIFILE HYDROKINETIC MODEL 1800 FEULP WASTEWATER TREATMENT SYSTEM (TYP.)
PROPOSED 75'LONG X 2'WIDE X 2'DEEP LEACHING TRENCHES WITH RESERVE TRENCHES (TYP.)

171.5' (40'MIN)
118.8' (10'MIN)
119.7' (10'MIN)
173.3' (40'MIN)

REVISIONS	
JANUARY 5, 2024	PEER REVIEW COMMENTS
FEBRUARY 9, 2024	PEER REVIEW COMMENTS, NitROE 2KM
FEBRUARY 28, 2024	PERCOLATION TESTING
APRIL 3, 2024	PEER REVIEW COMMENTS

Scale 1" = 20'

SITE PLAN
BRIDLE CROSSING
OFF FERRY STREET
MARSHFIELD, MASSACHUSETTS

PREPARED FOR:
MATLIN LLC C/O
KEVIN SEALUND & MATTHEW DACEY
794 WASHINGTON STREET
PEMBROKE, MA 02359

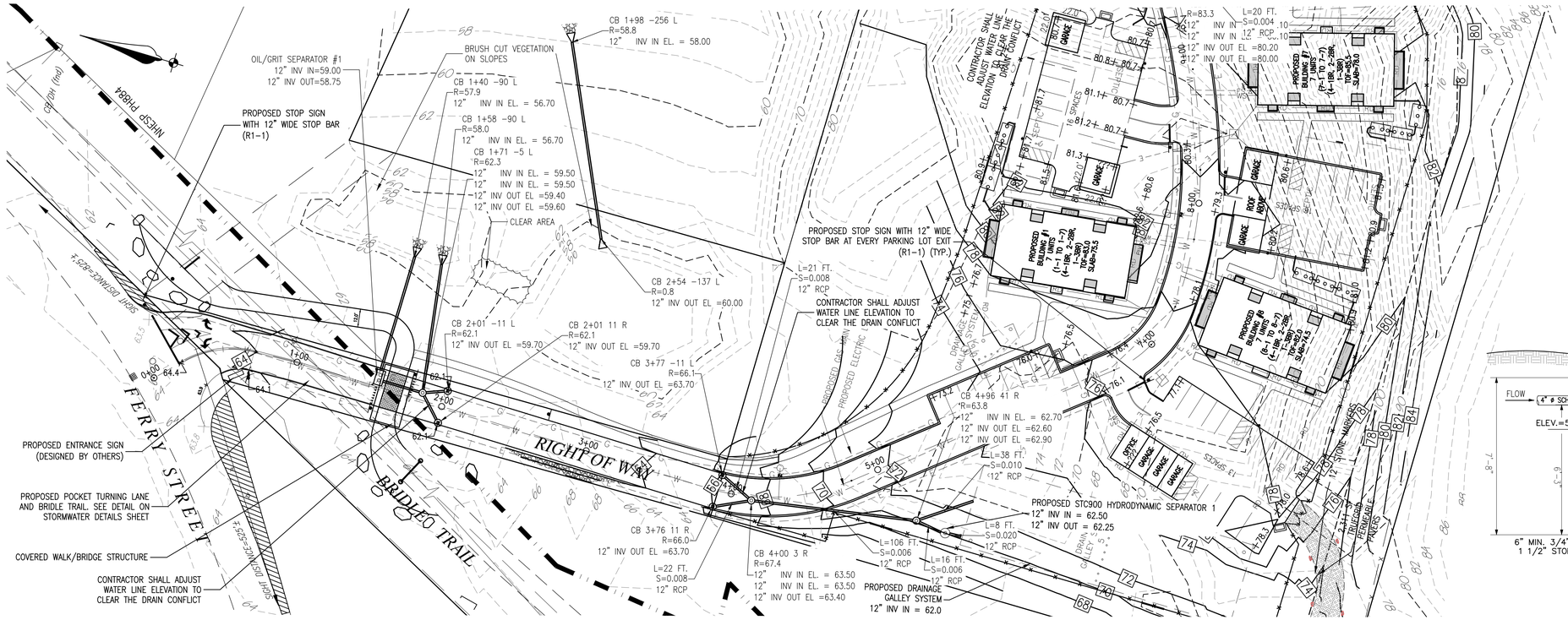
NOVEMBER 9, 2023
SCALE: AS SHOWN
JOB No. 12-243

COMMONWEALTH OF MASSACHUSETTS
DARREN M. GRADY
CIVIL
No. 40715
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS
TIMOTHY R. BENNETT
No. 36856
REGISTERED PROFESSIONAL LAND SURVEYOR
4/3/24

GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors & Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300

LAYOUT 2



BRIDLE CROSSING PLAN

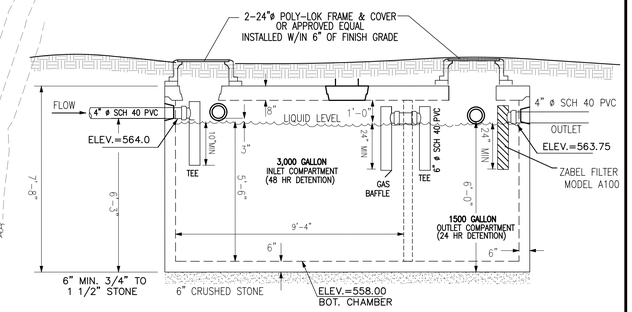
SCALE: 1"=40'

SIGN LEGEND	
R1-1	STOP
W11-7	
W16-9P	AHEAD
R1-5A	HERE TO PEDESTRIANS

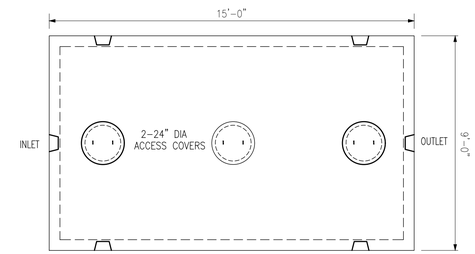
STRIPING LEGEND

- DYCL – DOUBLE YELLOW CENTER LINE
- DYL – DOUBLE YELLOW LINE
- SWEL – SOLID WHITE EDGE LINE
- SWLL – SOLID WHITE LANE LINE
- SWGL – SOLID WHITE GORE LINE
- SYGL – SOLID YELLOW GORE LINE
- SL – STOP LINE

NOTE: ALL SIGNAGE AND LANE MARKING SHALL COMPLY WITH THE STANDARDS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD, 11th EDITION).



CROSS-SECTION VIEW

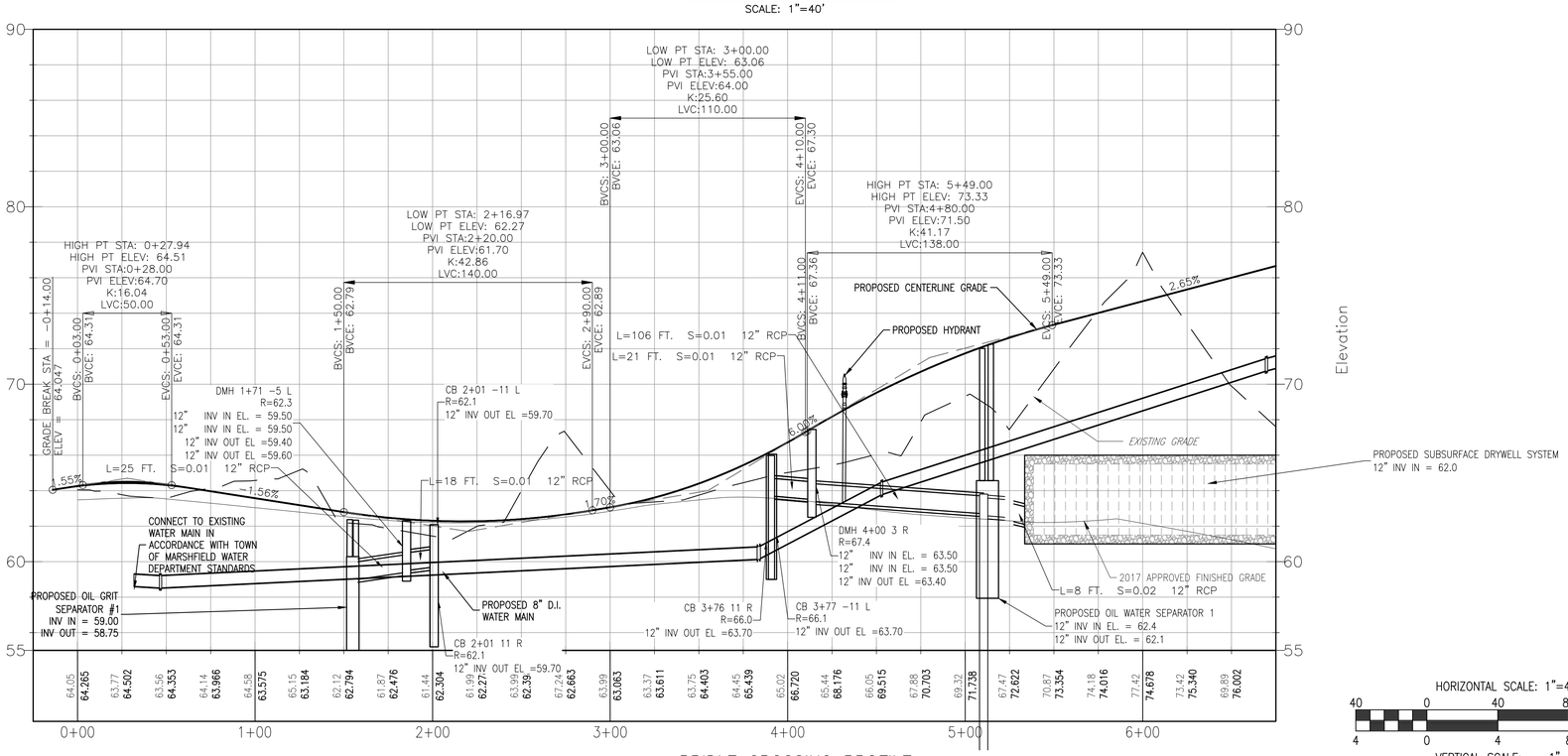


PLAN VIEW

DESIGN NOTES
1. CONCRETE 5,000 PSI @ 28 DAYS
2. HS-20-44 LOADING WITH 12"-60" COVER
3. REINFORCING ASTM A-615 GRADE 60
4. CONST. JOINT TO HAVE MIN. 1" BUTYL SEALANT

4500 GALLON 2-COMPARTMENT SEPTIC TANK

(NOT TO SCALE)



BRIDLE CROSSING PROFILE

SCALE: H: 1"=40' V:1"=4'

HORIZONTAL SCALE: 1"=40'

VERTICAL SCALE: 1"=4'

REVISIONS	
JANUARY 5, 2024	PEER REVIEW COMMENTS
FEBRUARY 9, 2024	PEER REVIEW COMMENTS, NitROE 2KM
FEBRUARY 28, 2024	PERCOLATION TESTING
APRIL 3, 2024	PEER REVIEW COMMENTS

COMMONWEALTH OF MASSACHUSETTS
DARREN M. GRADY
CIVIL
No. 40715
REGISTERED PROFESSIONAL ENGINEER

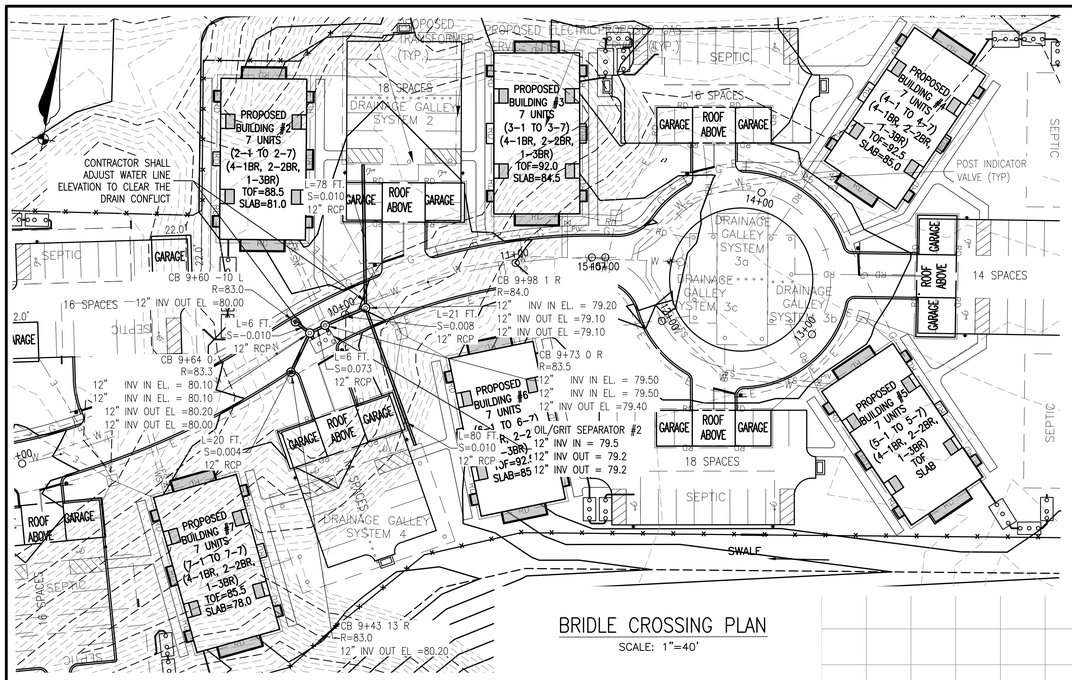
SITE PLAN
BRIDLE CROSSING
OFF FERRY STREET
MARSHFIELD, MASSACHUSETTS

PREPARED FOR:
MATLIN LLC C/O
KEVIN SEALUND & MATTHEW DACEY
794 WASHINGTON STREET
PEMBROKE, MA 02359

NOVEMBER 9, 2023
SCALE: AS SHOWN
JOB No. 12-243

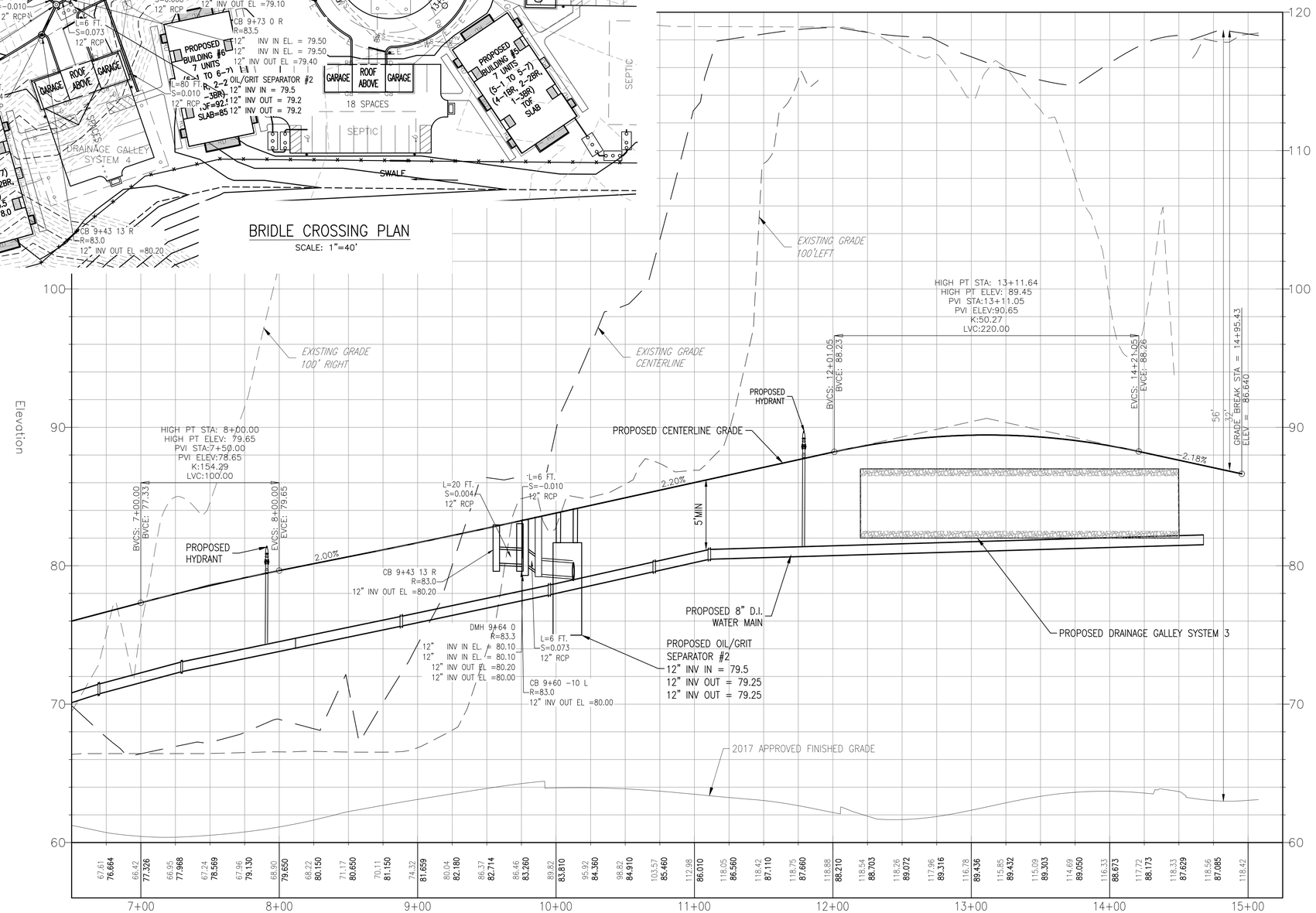
GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors & Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300

PLAN, PROFILE, & SIGNAGE



BRIDLE CROSSING PLAN

SCALE: 1"=40'



BRIDLE CROSSING PROFILE

SCALE: H: 1"=40' V:1"=4'

HORIZONTAL SCALE: 1"=40'

40 0 40 80 120

4 0 4 8 12

VERTICAL SCALE: 1"=4'

REVISIONS	
JANUARY 5, 2024	PEER REVIEW COMMENTS
FEBRUARY 9, 2024	PEER REVIEW COMMENTS, NitROE 2KM
FEBRUARY 28, 2024	PERCOLATION TESTING
APRIL 3, 2024	PEER REVIEW COMMENTS

COMMONWEALTH OF MASSACHUSETTS
DARREN M. GRADY
CIVIL
No. 40715
REGISTERED PROFESSIONAL ENGINEER

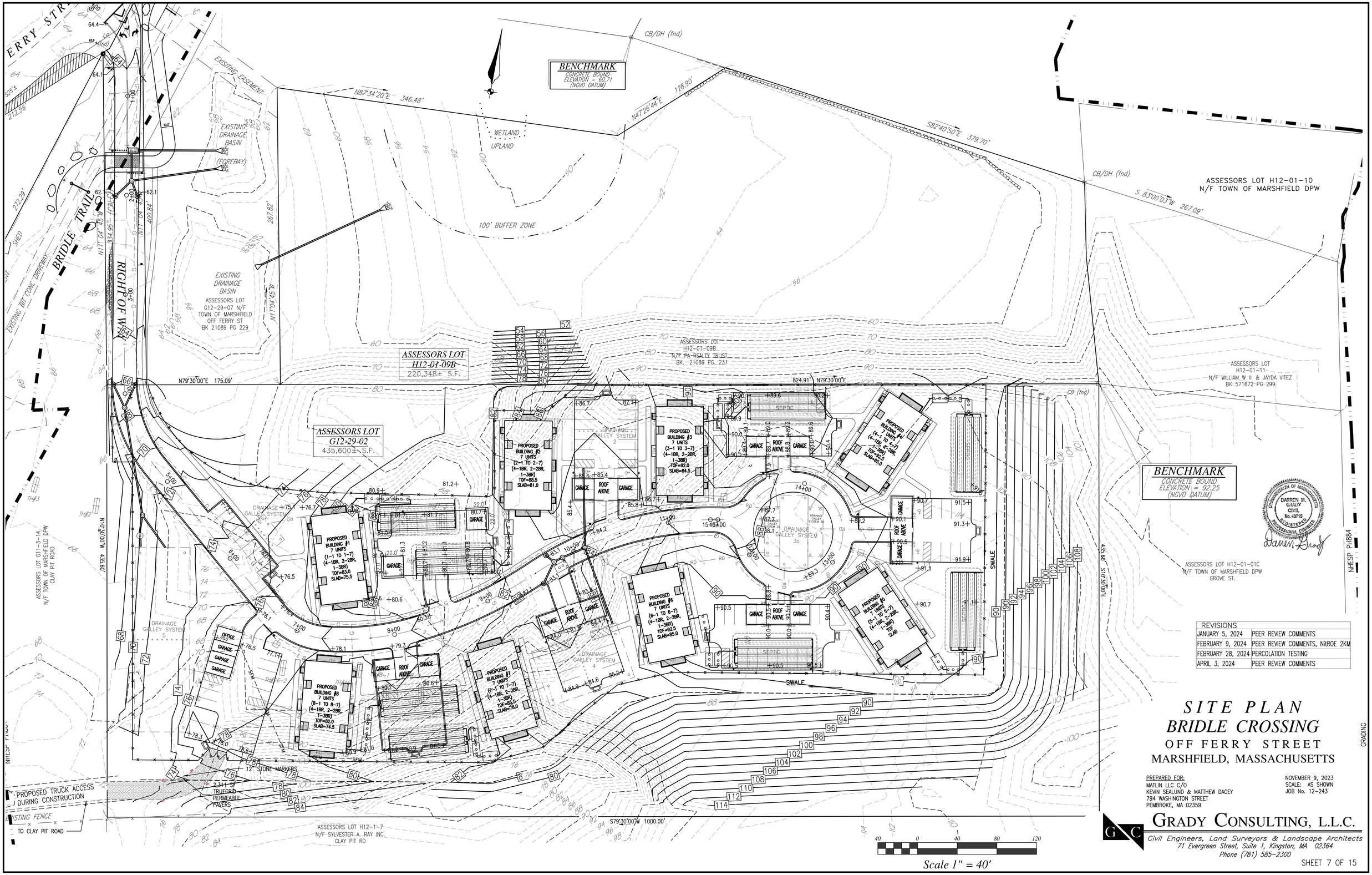
SITE PLAN
BRIDLE CROSSING
OFF FERRY STREET
MARSHFIELD, MASSACHUSETTS

PREPARED FOR:
MATLIN LLC C/O
KEVIN SEALUND & MATTHEW DACEY
794 WASHINGTON STREET
PEMBROKE, MA 02359

NOVEMBER 9, 2023
SCALE: AS SHOWN
JOB No. 12-243

GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors & Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300

PLAN & PROFILE 2



REVISIONS	
JANUARY 5, 2024	PEER REVIEW COMMENTS
FEBRUARY 9, 2024	PEER REVIEW COMMENTS, NitROE 2KM
FEBRUARY 28, 2024	PERCOLATION TESTING
APRIL 3, 2024	PEER REVIEW COMMENTS

SITE PLAN
BRIDLE CROSSING
OFF FERRY STREET
MARSHFIELD, MASSACHUSETTS

PREPARED FOR:
MATLIN LLC C/O
KEVIN SEALUND & MATTHEW DACEY
794 WASHINGTON STREET
PEMBROKE, MA 02359

NOVEMBER 9, 2023
SCALE: AS SHOWN
JOB No. 12-243

GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors & Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300

Cut/Fill Summary

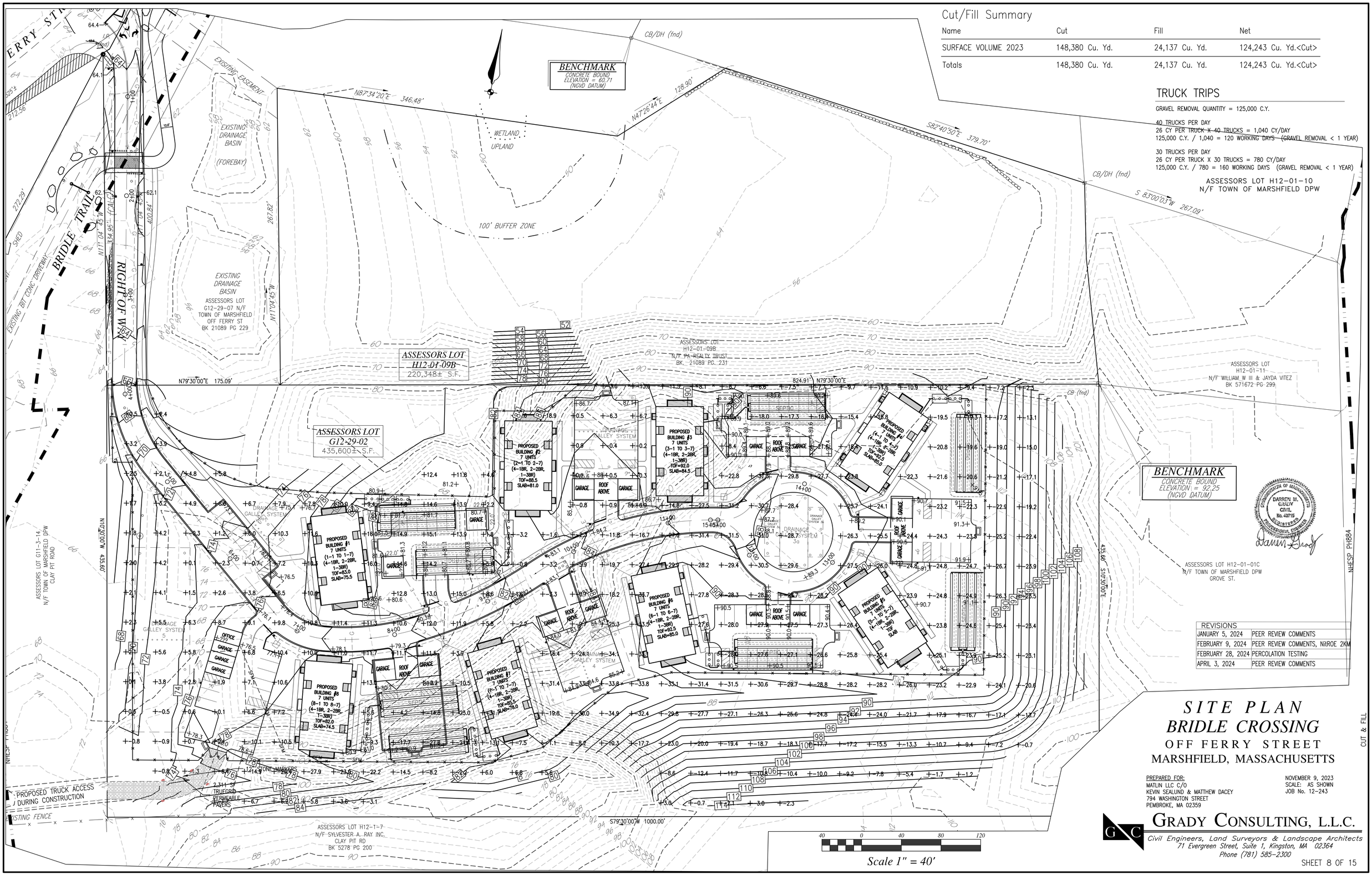
Name	Cut	Fill	Net
SURFACE VOLUME 2023	148,380 Cu. Yd.	24,137 Cu. Yd.	124,243 Cu. Yd.<Cut>
Totals	148,380 Cu. Yd.	24,137 Cu. Yd.	124,243 Cu. Yd.<Cut>

TRUCK TRIPS

GRAVEL REMOVAL QUANTITY = 125,000 C.Y.

40 TRUCKS PER DAY
26 CY PER TRUCK X 40 TRUCKS = 1,040 CY/DAY
125,000 C.Y. / 1,040 = 120 WORKING DAYS (GRAVEL REMOVAL < 1 YEAR)

30 TRUCKS PER DAY
26 CY PER TRUCK X 30 TRUCKS = 780 CY/DAY
125,000 C.Y. / 780 = 160 WORKING DAYS (GRAVEL REMOVAL < 1 YEAR)



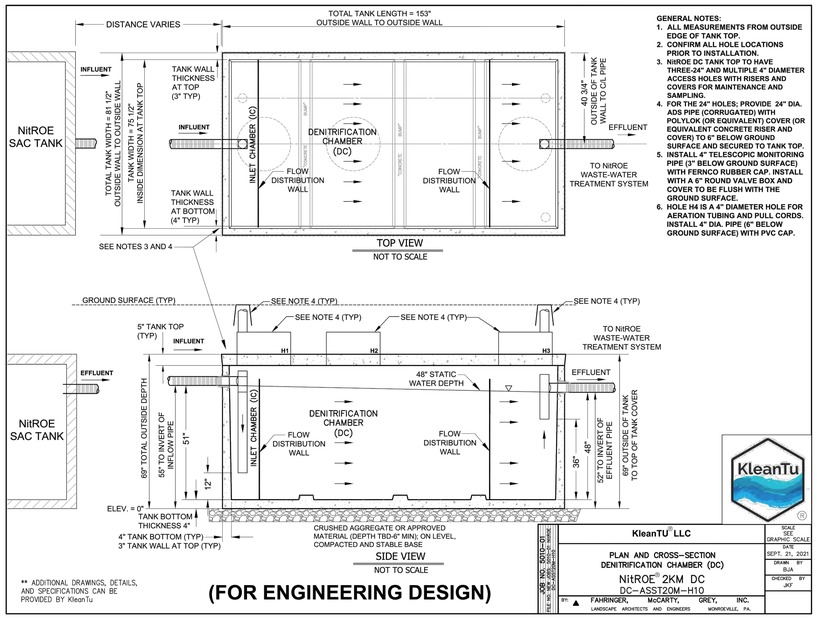
REVISIONS	
JANUARY 5, 2024	PEER REVIEW COMMENTS
FEBRUARY 9, 2024	PEER REVIEW COMMENTS, NitROE 2KM
FEBRUARY 28, 2024	PERCOLATION TESTING
APRIL 3, 2024	PEER REVIEW COMMENTS

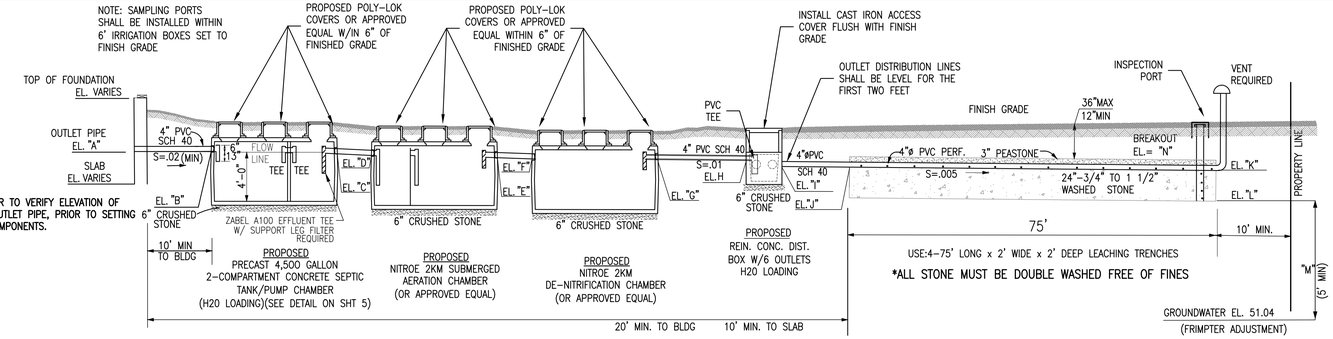
SITE PLAN
BRIDLE CROSSING
OFF FERRY STREET
MARSHFIELD, MASSACHUSETTS

PREPARED FOR:
MATLIN LLC C/O
KEVIN SEALUND & MATTHEW DACEY
794 WASHINGTON STREET
PEMBROKE, MA 02359

NOVEMBER 9, 2023
SCALE: AS SHOWN
JOB No. 12-243

GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors & Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300





SUBSURFACE SEWAGE DISPOSAL SYSTEM

(NOT TO SCALE)

SCHEDULE OF INVERTS / ELEVATIONS

BUILDING #'S	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H	"I"	"J"	"K"	"L"	"M"	"N"
1	80.70	80.30	80.05	80.00	79.75	79.70	79.45	78.82	78.65	78.55	78.17	76.17	25.13	79.13
2	79.25	78.85	78.60	78.55	78.30	78.25	78.00	77.82	77.65	77.55	77.17	75.17	24.13	78.13
3	89.20	88.82	88.57	88.52	88.27	88.22	87.97	87.67	87.5	87.40	87.02	85.02	33.98	87.98
4	90.77	90.37	90.12	90.07	89.82	89.72	89.47	89.42	89.25	89.15	88.77	86.77	35.73	89.73
5	89.37	88.97	88.72	88.67	88.42	88.37	88.12	88.07	87.9	87.80	87.42	85.42	34.38	88.38
6	89.30	88.96	88.71	88.62	88.37	88.07	87.82	87.62	87.45	87.35	86.97	84.97	33.93	87.93
7	80.10	79.80	79.55	79.40	79.15	79.27	79.02	78.82	78.65	78.55	78.17	76.17	25.13	79.13
8	79.30	79.02	78.77	78.72	78.47	78.42	78.17	78.07	77.9	77.80	77.42	75.42	24.38	78.38

SEPTIC DESIGN (NOT DESIGNED FOR GARBAGE GRINDER)

1. DESIGN DAILY FLOW: 11 BR. x 110 GPD = 1,230 GPD
2. SEPTIC TANK: (2 COMPARTMENT TANK REQUIRED)
   2,460 GALLONS FIRST COMPARTMENT 1,230 GALLONS 2ND COMPARTMENT
   USE: 4,500 GAL 2-COMPARTMENT TANK
3. LEACHING: P.R. < 2 MIN/IN – 5 MIN/IN CLASS I ASSUMED

USE: 4 – 75' LONG x 2' WIDE x 2' DEEP LEACHING TRENCHES
TITLE 5

PROPOSED AREA: 4 X 75 LF x 6 SF/LF = 1,800 S.F.
CAPACITY: 1,800 S.F. x 0.74 GPD/S.F. = 1,332 > 1,230 GPD(D.D.F.)

SEPTIC NOTES

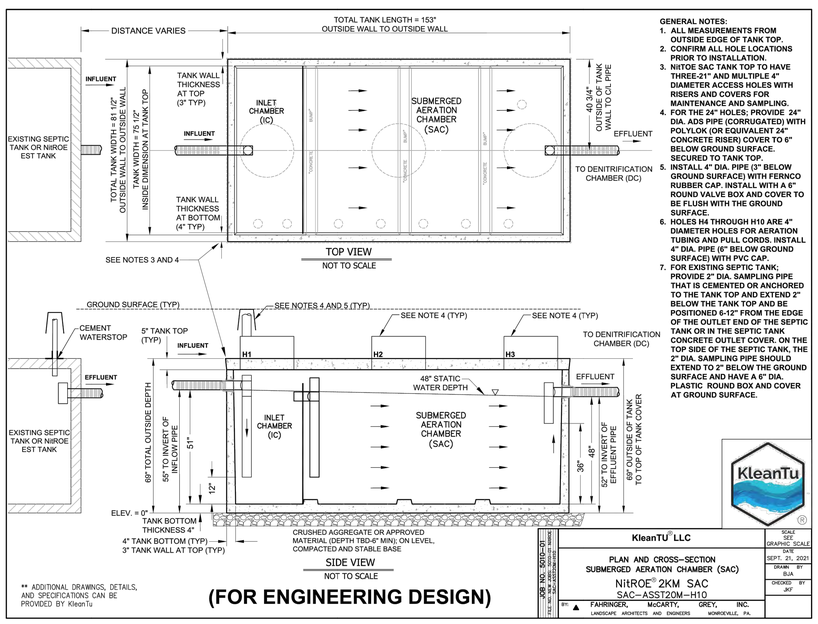
1. PROPERTY LINE DATA FROM PLAN SHOWING TOWN OF MARSHFIELD GRAVEL PIT & AREAS CONVEYED TO MARSHFIELD SAND AND GRAVEL COMPANY AND GINO RUGANI BY STENBECK & TAYLOR, SURVEYORS MARSHFIELD MASSACHUSETTS DATED APRIL 26, 1954. PLAN RECORDED AT THE PLYMOUTH COUNTY REGISTRY OF DEEDS AS PLAN 608 OF 1956.
2. TOPOGRAPHIC SURVEY PERFORMED BY GRADY CONSULTING, LLC DATED APRIL 2007.
3. SOILS TESTING BY DARREN GRADY, GRADY CONSULTING, LLC WITNESSED BY HEALTH AGENT PETER FALABELLA FEBRUARY 20, 2024
4. CALL DIG SAFE 1-888-344-7233 AT LEAST 4 DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
5. NOTIFY TOWN AND GRADY CONSULTING PRIOR TO BACKFILLING OF SYSTEM.
6. NO KNOWN WELLS EXIST WITHIN 200' OF THE PROPOSED SYSTEM
7. THE SITE IS LOCATED IN AN AQUIFER PROTECTION ZONE II.
8. THE SYSTEM IS LOCATED IN A PUBLIC OR PRIVATE WATER SUPPLY PROTECTION AREA (310CMR15.214(1)(a).
9. THE SYSTEM IS NOT LOCATED IN A NATURAL RESOURCE AREA (310CMR15.214(1)(b)
10. ALL SYSTEM COMPONENTS SHALL BE MARKED WITH MAGNETIC MARKING TAPE OR A COMPARABLE MEANS IN ORDER TO LOCATE THEM ONCE BURIED (310 CMR 15.221(12))
11. NO STREAMS, SURFACE & SUBSURFACE DRAINS AND WETLANDS EXIST WITHIN 100 FT OF THE PROPOSED SYSTEM.
12. THE SITE IS NOT LOCATED IN A FLOOD PLAIN DISTRICT.
13. NO KNOWN EASEMENTS ARE IN THE AREA OF THE PROPOSED SYSTEM.
14. EXCAVATE ALL MATERIAL (DISTURBED C LAYER) TO COARSE SAND C LAYER (18"), 5' AROUND SYSTEM. REPLACE WITH CLEAN COARSE SAND IN ACCORDANCE WITH 310 CMR 15.255 (3). EXCAVATION TO BE INSPECTED BY GRADY CONSULTING L.L.C. AND TOWN PRIOR TO SOIL REPLACEMENT

APPROXIMATE PERC SAND VOLUME = 85 X 36.25 X (1.5') /27 + 20% = 210± C.Y. PER SYSTEM

REQUIRED INSPECTIONS

1. AFTER SYSTEM CONSTRUCTION PRIOR TO BACKFILLING.
2. AFTER FINAL GRADING IS COMPLETED.

(ADDITIONAL INSPECTIONS MAY BE REQUIRED BY THE BOARD OF HEALTH)

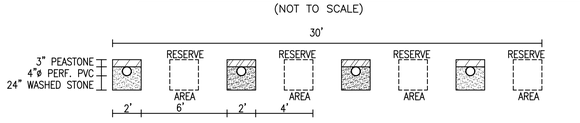


KLEANTU NITROE 2KM SUBMERGED AERATION CHAMBER & DE-NITRIFICATION CHAMBER

(NOT TO SCALE)

GENERAL NOTES:
1. ALL MEASUREMENTS FROM OUTSIDE EDGE OF TANK TOP.
2. CONFIRM ALL HOLE LOCATIONS PRIOR TO INSTALLATION.
3. NitROE DC TANK TOP TO HAVE THREE-24" AND MULTIPLE 4" DIAMETER ACCESS HOLES WITH RISERS AND COVERS FOR MAINTENANCE AND SAMPLING.
4. FOR THE 24" HOLES; PROVIDE 24" DIA. ADS PIPE (CORRUGATED) WITH POLYLOK (OR EQUIVALENT) COVER (OR EQUIVALENT CONCRETE RISER AND COVER) TO 6" BELOW GROUND SURFACE AND SECURED TO TANK TOP.
5. INSTALL 4" TELESCOPIC MONITORING PIPE (3" BELOW GROUND SURFACE) WITH FERNCO RUBBER CAP. INSTALL WITH A 6" ROUND VALVE BOX AND COVER TO BE FLUSH WITH THE GROUND SURFACE.
6. HOLE H4 IS A 4" DIAMETER HOLE FOR AERATION TUBING AND PULL CORDS. INSTALL 4" DIA. PIPE (6" BELOW GROUND SURFACE) WITH PVC CAP.

GENERAL NOTES:
1. ALL MEASUREMENTS FROM OUTSIDE EDGE OF TANK TOP.
2. CONFIRM ALL HOLE LOCATIONS PRIOR TO INSTALLATION.
3. NitOE SAC TANK TOP TO HAVE THREE-21" AND MULTIPLE 4" DIAMETER ACCESS HOLES WITH RISERS AND COVERS FOR MAINTENANCE AND SAMPLING.
4. FOR THE 24" HOLES; PROVIDE 24" DIA. ADS PIPE (CORRUGATED) WITH POLYLOK (OR EQUIVALENT 24" CONCRETE RISER) COVER TO 6" BELOW GROUND SURFACE. SECURED TO TANK TOP.
5. INSTALL 4" DIA. PIPE (3" BELOW GROUND SURFACE) WITH FERNCO RUBBER CAP. INSTALL WITH A 6" ROUND VALVE BOX AND COVER TO BE FLUSH WITH THE GROUND SURFACE.
6. HOLES H4 THROUGH H10 ARE 4" DIAMETER HOLES FOR AERATION TUBING AND PULL CORDS. INSTALL 4" DIA. PIPE (6" BELOW GROUND SURFACE) WITH PVC CAP.
7. FOR EXISTING SEPTIC TANK; PROVIDE 2" DIA. SAMPLING PIPE THAT IS CEMENTED OR ANCHORED TO THE TANK TOP AND EXTEND 2" BELOW THE TANK TOP AND BE POSITIONED 6-12" FROM THE EDGE OF THE OUTLET END OF THE SEPTIC TANK OR IN THE SEPTIC TANK CONCRETE OUTLET COVER. ON THE TOP SIDE OF THE SEPTIC TANK, THE 2" DIA. SAMPLING PIPE SHOULD EXTEND TO 2" BELOW THE GROUND SURFACE AND HAVE A 6" DIA. PLASTIC ROUND BOX AND COVER AT GROUND SURFACE.

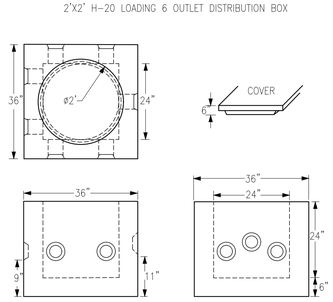


LEACHING TRENCHES X-SECTION A-A

(NOT TO SCALE)

INSPECTION PORT DETAIL

NOT TO SCALE



DESIGN NOTES

1. 4,000 P.S.I. CONCRETE @ 28 DAYS
2. KNOCK-OUT OPENINGS FOR 4" PVC
3. REINFORCING ASTM A-615, GRADE-60
4. BUTYL SEALANT AVAILABLE
5. DESIGN LOADING AASHTO HS-20

D-BOX DETAIL

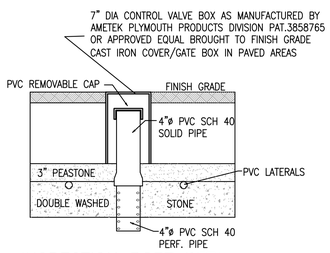
(NOT TO SCALE)

NOTES:

1. THIS SYSTEM HAS BEEN DESIGNED IN ACCORDANCE WITH THE COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION PROVISIONAL USE APPROVAL RENEWAL PURSUANT TO TITLE 5, 310 CMR 15.000, ISSUED MAY 12, 2020.
2. RESPONSIBLE COMPANY FOR OVERSIGHT AND SAMPLING IS: KLEANTU LLC, 300 OLD POND ROAD, STE# 206, BRIDGEVILLE, PA 15017
3. THE USE OF THE TECHNOLOGY UNDER THIS APPROVAL REQUIRES:
   3.1. DISCLOSURE NOTICE IN THE DEED TO THE PROPERTY;
   3.2. CERTIFICATIONS BY THE COMPANY, THE DESIGNER, AND THE INSTALLER;
   3.3. SYSTEM OWNER ACKNOWLEDGEMENT OF RESPONSIBILITIES;
   3.4. A CERTIFIED OPERATOR UNDER CONTRACT FOR PERIODIC INSPECTION AND MAINTENANCE;
   3.5. PERIODIC SAMPLING;
   3.6. RECORDKEEPING AND REPORTING; AND
   3.7. AN EXTERNAL POWER SUPPLY
4. THE SYSTEM OWNER SHALL PROVIDE ACCESS TO THE SITE FOR PURPOSES OF SAMPLING THE SYSTEM IN ACCORDANCE WITH THE COMPANY'S TECHNOLOGY PERFORMANCE EVALUATION PLAN APPROVED BY THE DEPARTMENT, IN ADDITION TO PROVIDING ACCESS FOR PERFORMING INSPECTIONS, MAINTENANCE, REPAIRS, AND RESPONDING TO ALARM EVENTS.
5. THE CONTROL PANEL INCLUDING ALARMS SHALL BE MOUNTED IN A LOCATION ACCESSIBLE TO THE SYSTEM OPERATOR.
6. IN COMPLIANCE WITH 310 CMR 15.240(13), A MINIMUM OF ONE (1) INSPECTION PORT SHALL BE PROVIDED WITHIN THE SAS CONSISTING OF A PERFORATED FOUR INCH PIPE PLACED VERTICALLY DOWN INTO THE STONE TO THE NATURALLY OCCURRING SOIL OR SAND FILL BELOW THE STONE. THE PIPE SHALL BE CAPPED WITH A SCREW TYPE CAP AND ACCESSIBLE TO WITHIN THREE INCHES OF FINISH GRADE.
7. INSPECTION, OPERATION AND MAINTENANCE (O & M), SAMPLING, AND FIELD TESTING OF THE SYSTEM REQUIRED BY THIS APPROVAL SHALL BE PERFORMED BY A SYSTEM OPERATOR WITH THE FOLLOWING QUALIFICATIONS:
   7.1. IS AN APPROVED SYSTEM INSPECTOR IN ACCORDANCE WITH 310 CMR 15.340;
   7.2. HAS BEEN TRAINED BY THE COMPANY AND WHOSE NAME APPEARS ON THE COMPANY'S CURRENT LIST OF QUALIFIED OPERATORS; AND
   7.3. HAS BEEN CERTIFIED AT A MINIMUM OF GRADE LEVEL IV (FOUR) BY THE BOARD OF REGISTRATION OF OPERATORS OF WASTEWATER TREATMENT FACILITIES, IN ACCORDANCE WITH MASSACHUSETTS REGULATIONS 257 CMR 2.00. THE NAME OF THE OPERATOR SHALL BE INCLUDED IN THE O&M AGREEMENT REQUIRED BY PARAGRAPH B (14).
8. PRIOR TO THE USE OF THE SYSTEM, THE SYSTEM OWNER SHALL ENTER INTO AN O&M AGREEMENT WITH A QUALIFIED CONTRACTOR AND SUBMIT THE AGREEMENT TO THE APPROVING AUTHORITY AND THE COMPANY. THE AGREEMENT SHALL BE AT LEAST FOR ONE YEAR
9. A WiFi CONNECTION SHALL BE PROVIDED FOR EACH OF THE SYSTEMS TO ALLOW REMOTE MONITORING.
10. THE TENANTS/RESIDENTS OF THE APARTMENT BUILDINGS SHALL BE NOTIFIED WITH THE FOLLOWING NOTICE:

THE DOS & DON'TS OF YOUR NITROE® WWTS TANK
AVOID FLUSHING THE FOLLOWING ITEMS DOWN YOUR TOILET OR DRAIN:

COOKING GREASE	STRONG ACIDS AND BASES
BABY WIPES / CLEANING PADS	Q-TIPS / COTTON BALLS
PILLS	CIGARETTE BUTTS
PAINTS AND/OR SOLVENTS	FOOD
DRAIN CLEANING PRODUCTS	DENTAL FLOSS
DIAPERS	PAPER TOWELS
HIGHLY CONCENTRATED CHLORINE	PERSONAL HYGIENE PRODUCTS



REVISIONS	
JANUARY 5, 2024	PEER REVIEW COMMENTS
FEBRUARY 9, 2024	PEER REVIEW COMMENTS, NitROE 2KM
FEBRUARY 28, 2024	PERCOLATION TESTING
APRIL 3, 2024	PEER REVIEW COMMENTS

COMMONWEALTH OF MASSACHUSETTS
DARREN M. GRADY
CIVIL
No. 40715
REGISTERED PROFESSIONAL ENGINEER

SITE PLAN
BRIDLE CROSSING
OFF FERRY STREET
MARSHFIELD, MASSACHUSETTS

PREPARED FOR:
MATLIN LLC C/O
KEVIN SEALUND & MATTHEW DACEY
794 WASHINGTON STREET
PEMBROKE, MA 02359

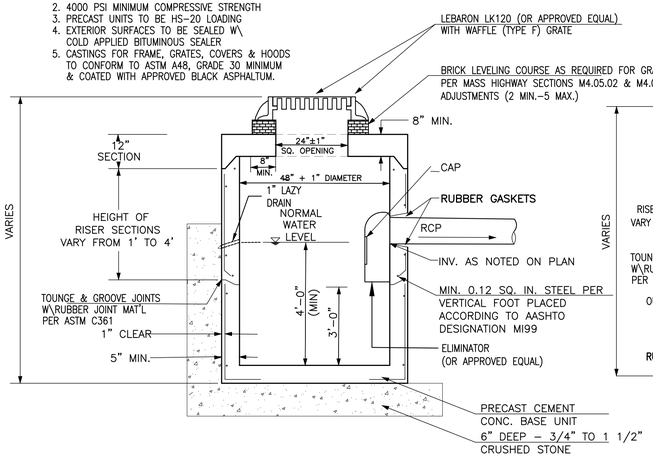
NOVEMBER 9, 2023
SCALE: AS SHOWN
JOB No. 12-243

GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors & Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300

SEPTIC DETAILS

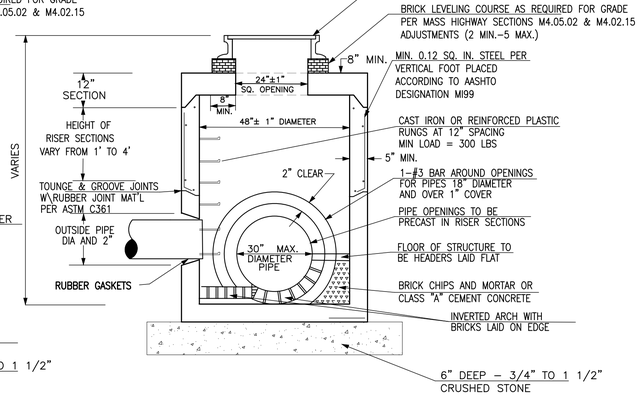
NOTES:

1. PRECAST CONCRETE UNITS TO CONFORM TO THE MASS HIGHWAY SECTION M4.02.14
2. 4000 PSI MINIMUM COMPRESSIVE STRENGTH
3. PRECAST UNITS TO BE HS-20 LOADING
4. EXTERIOR SURFACES TO BE SEALED W\ COLD APPLIED BITUMINOUS SEALER
5. CASTINGS FOR FRAME, GRATES, COVERS & HOODS TO CONFORM TO ASTM A48, GRADE 30 MINIMUM & COATED WITH APPROVED BLACK ASPHALTUM.



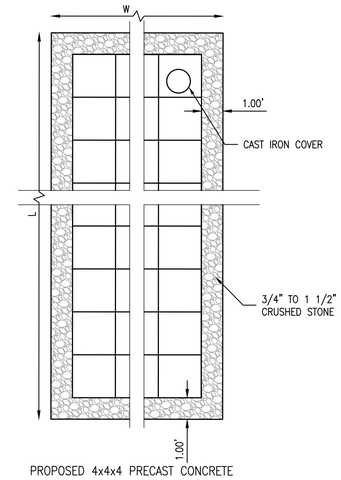
PRECAST GASOLINE TRAP CATCH BASIN

(NOT TO SCALE)



PRECAST CONCRETE MANHOLE

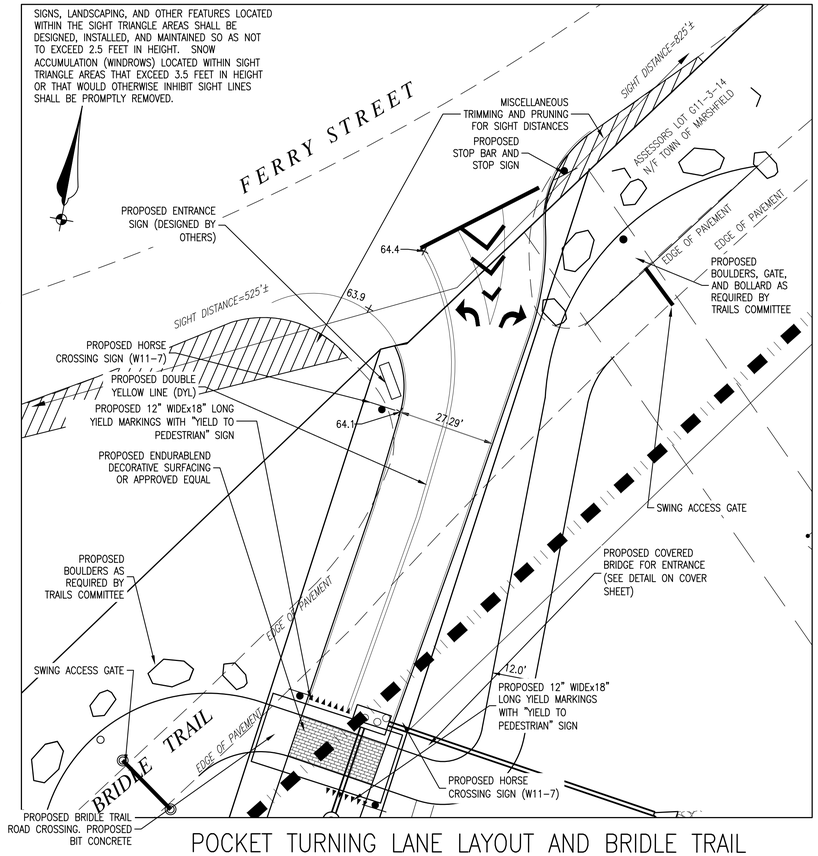
(NOT TO SCALE)



PROPOSED 4x4x4 PRECAST CONCRETE GALLEY CHAMBER SYSTEM (SEE PROPOSED GALLEY SYSTEM DIMENSIONS BELOW)

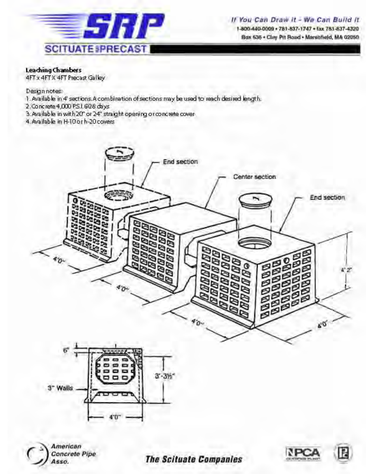
PROPOSED GALLEY SYSTEM DETAIL

(NOT TO SCALE)



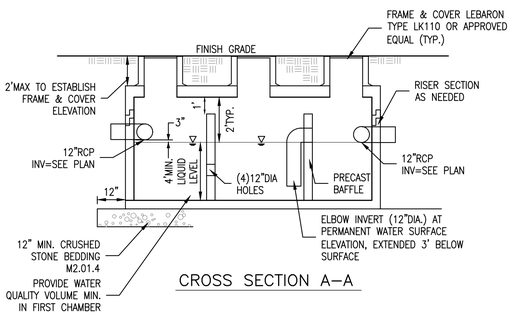
POCKET TURNING LANE LAYOUT AND BRIDLE TRAIL

(NOT TO SCALE)

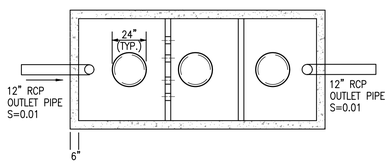


4'x4'x4' PRECAST GALLEY (H-20)

NOT TO SCALE



CROSS SECTION A-A

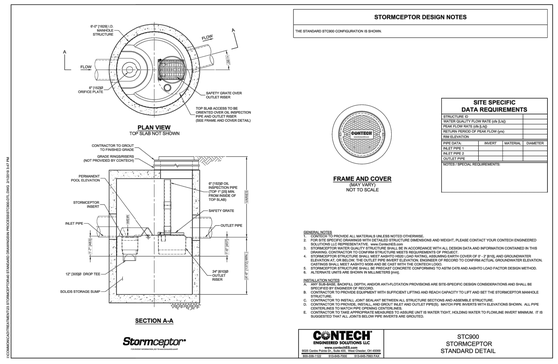


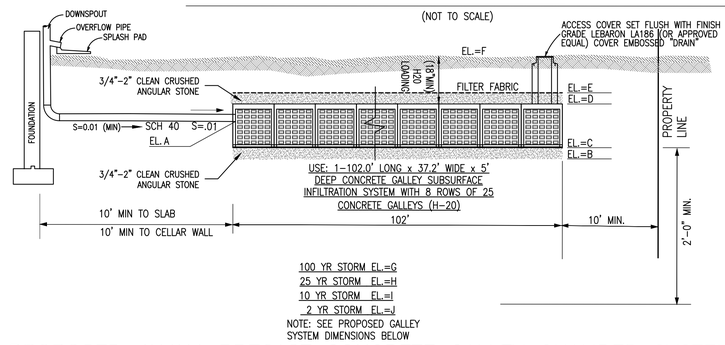
PLAN VIEW

SCITUATE RAY PRECAST 10'LONG X 5'-8"WIDE X 8'DEEP OIL GRIT SEPARATOR #1 - 700 GPM 1 ACRE (WQV=780 CF MIN)
SCITUATE RAY PRECAST 13'LONG X 7'-8"WIDE X 8'DEEP OIL GRIT SEPARATOR #2 - 2000 GPM 1 ACRE (WQV=4070 CF MIN)
OR APPROVED EQUAL

OIL AND GRIT SEPARATOR

(NOT TO SCALE)





PROPOSED 4X4X4 PRECAST CONCRETE GALLEY CHAMBER SYSTEM

(NOT TO SCALE)

PROPOSED GALLEY SYSTEMS DIMENSIONS

UNIT	INVERT IN A	BOT. STONE B	BOT. DRYWELL C	TOP DRYWELL D	TOP STONE E	FG F	2YR. G	10YR. H	25YR. I	100YR. J	LENGTH (L)	WIDTH (W)	CONFIGURATION
1	67.00	66.00	66.50	70.50	71.00	72.00	67.98	68.77	6.25	70.06	32.80	265.00	7X6
2	78.30	77.80	78.30	82.30	82.80	85.50	79.23	80.19	0.87	82.62	74.00	63.60	14X18
3a	83.00	82.00	82.50	86.50	87.00	88.00	84.10	84.94	65.45	86.82	74.00	28.40	6X18
3b	83.00	82.00	82.50	86.50	87.00	88.00	84.10	84.94	85.45	86.82	50.00	15.20	3X12
3c	83.00	82.00	82.50	86.50	87.00	88.00	84.10	84.94	85.45	86.82	50.00	15.20	3X12
4	78.30	77.80	78.30	82.30	82.30	83.90	79.16	80.19	80.87	82.62	90.00	58.00	20X14
5	62.00	61.05	61.55	65.55	66.05	72.00	62.50	63.52	64.19	65.93	186.00	55.40	11X46

REVISIONS	
JANUARY 5, 2024	PEER REVIEW COMMENTS
FEBRUARY 9, 2024	PEER REVIEW COMMENTS, NitROE 2KM
FEBRUARY 28, 2024	PERCOLATION TESTING
APRIL 3, 2024	PEER REVIEW COMMENTS

REQUIRED INSPECTIONS

CONTRACTOR SHALL CONTACT GRADY CONSULTING 781 585-2300 AND MERRILL ENGINEERS AND LAND SURVEYORS 781-826-9200 FOR INSPECTIONS

1. AFTER EXCAVATION OF LEACHING AREA PRIOR TO INSTALLING SAND.
2. AFTER SYSTEM CONSTRUCTION PRIOR TO BACKFILLING.

COMMONWEALTH OF MASSACHUSETTS
DARREN M. GRADY
CIVIL
No. 40715
REGISTERED PROFESSIONAL ENGINEER

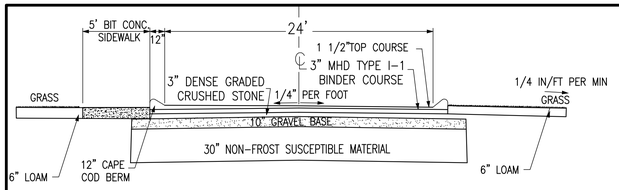
SITE PLAN
BRIDLE CROSSING
OFF FERRY STREET
MARSHFIELD, MASSACHUSETTS

PREPARED FOR:
MATLIN LLC C/O
KEVIN SEALUND & MATTHEW DACEY
794 WASHINGTON STREET
PEMBROKE, MA 02359

NOVEMBER 9, 2023
SCALE: AS SHOWN
JOB No. 12-243

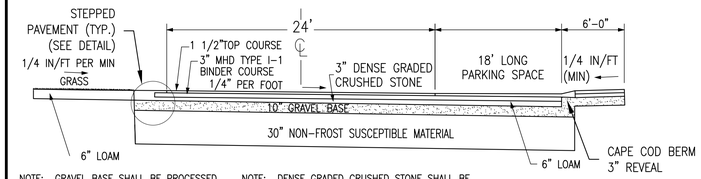
GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors & Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300

STORMWATER DETAILS



ROADWAY SECTION

(NOT TO SCALE)



NOTE: GRAVEL BASE SHALL BE PROCESSED GRAVEL MEETING MASSDOT SPEC M1.03.1

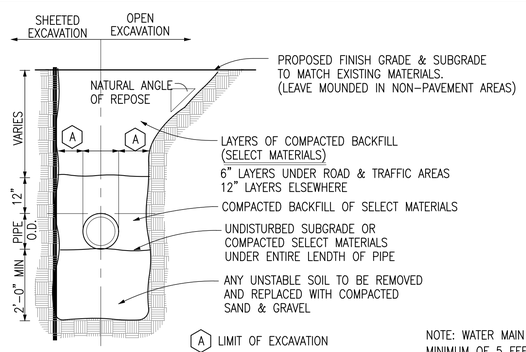
SIEVE DESIGNATION	PERCENT PASSING
3 INCH	100%
1 1/2 INCH	70%-100%
1/4 INCH	30%-60%
NO. 200	0%-10%

NOTE: DENSE GRADED CRUSHED STONE SHALL BE CONFORM TO MASSDOT SPEC M2.01.7

SIEVE DESIGNATION	PERCENT PASSING
2 INCH	100%
1 1/2 INCH	70%-100%
3/4 INCH	50%-85%
NO. 4	30%-55%
NO. 50	8%-24%
NO. 200	3%-10%

ROADWAY AND PARKING SECTION

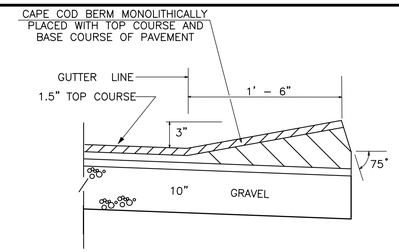
(NOT TO SCALE)



NOTE: WATER MAIN SHALL HAVE A MINIMUM OF 5 FEET OF COVER

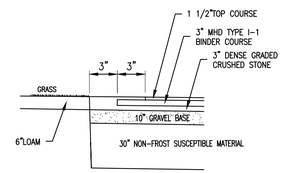
TRENCH EXCAVATION DETAIL

NOT TO SCALE



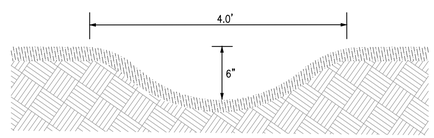
CAPE COD BERM DETAIL

(NOT TO SCALE)



STEPPED PAVEMENT DETAIL

NOT TO SCALE



SWALE DETAIL

NOT TO SCALE

DATE	OBSERVATION WELL ELEVATIONS					WITNESS
	#1	#2	#3	#4	#5	
3/28/08	41.63	43.65	–	–	–	RP +JP
5/30/08	41.01	43.25	44.40	40.66	–	PGB
3/13/09	41.71	44.35	44.90	40.66	40.45	PGB
4/29/10	45.41	48.75	49.30	45.13	44.85	PF
3/4/11	41.44	44.05	45.00	40.66	40.05	PF + LT
12/30/16	–	38.95	NW	–	–	EP
12/30/16	–	40.95	NW	NW	37.25	EP

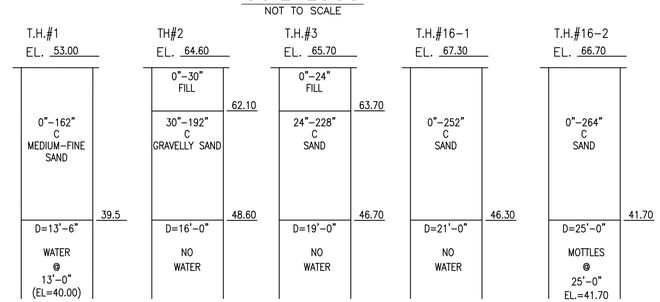
FRIMPTER ADJUSTMENT

Sh = Sc – [(Sr/Owr) * (Owc – Owmax)]
Sh = 17.4 – [(4.20/4.11) * (7.56 – 5.86)]
Sh = 17.4 – 1.74 = 15.7'

ADJUSTED GROUNDWATER ELEVATION WELL #3 (4/29/10) =49.3 + 1.74 = EL. 51.04

SOIL LOGS

NOT TO SCALE



TEST HOLES 1, 2, 3 WERE PERFORMED BY DARREN GRADY, P.E. ON MARCH 14, 2007
TEST HOLES 16-1, 16-2 WERE PERFORMED BY DARREN GRADY, P.E. AND WITNESSED BY ED PESCE, P.E. ON DECEMBER 30, 2016

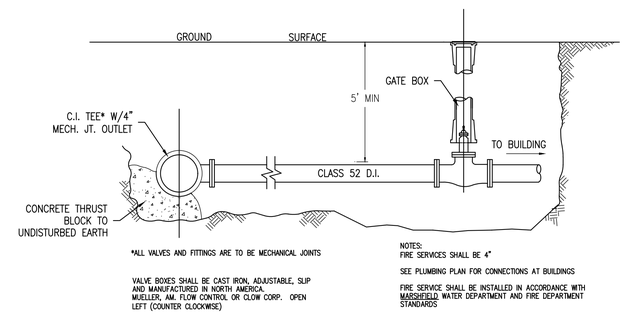
CONSTRUCTION NOTES

GENERAL:

1. THE ACCURACY OF EXISTING UTILITY LOCATIONS, DIMENSIONS AND LINES IS FROM EXISTING INFORMATION OF RECORD AND IS NOT WARRANTED. CONTRACTOR TO VERIFY PRIOR TO INITIATING CONSTRUCTION.
2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SECURE ALL NECESSARY STATE, MUNICIPAL AND OTHER UTILITY PERMITS AND VERIFY THE PROPOSED LOCATIONS OF UTILITIES WITH UTILITY COMPANIES.
3. CONTRACTOR SHALL NOTIFY "DIG SAFE" (1-800-322-4844) AT LEAST 4 DAYS PRIOR TO CONSTRUCTION.
4. UNDERGROUND UTILITIES SHALL BE INSTALLED IN ACCORDANCE WITH THE SPECIFICATIONS OF THE APPROPRIATE DEPARTMENT OR COMPANY. THE CONTRACTOR SHALL NOTIFY THE MARSHFIELD D.P.W. (834-5589) AT LEAST 4 DAYS PRIOR TO CONSTRUCTION OF DRAINAGE & WATER SYSTEMS.
5. SEWAGE DISPOSAL TO CONSIST OF SEPTIC SYSTEMS.
6. ALL STUMPS SHALL BE DISPOSED OFF SITE.

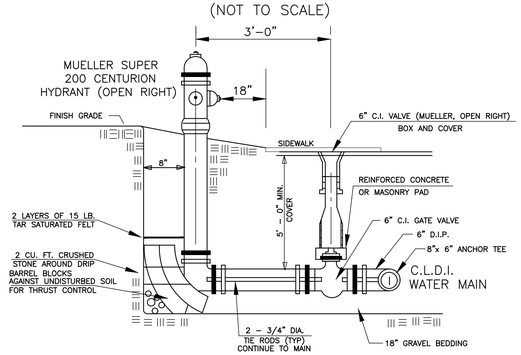
WATER SYSTEM NOTES:

1. ALL MAINS SHALL BE 8" CEMENT LINED DUCTILE IRON PIPE, CLASS 52.
2. ALL WATER SERVICES SHALL BE 2" POLYETHYLENE PIPE.
3. ALL CONSTRUCTION MATERIALS AND METHODS SHALL CONFORM TO TOWN OF MARSHFIELD WATER DEPARTMENT REQUIREMENTS.
4. PROVIDE THRUST BLOCKS AT ALL WATER MAIN FITTINGS.
5. HYDRANTS SHALL BE MUELLER CENTURION 200 WITH BRASS FITTINGS, MECHANICAL JOINT ANCHORING TEES AND THRUST BLOCKS.



FIRE SERVICE DETAIL

NOT TO SCALE

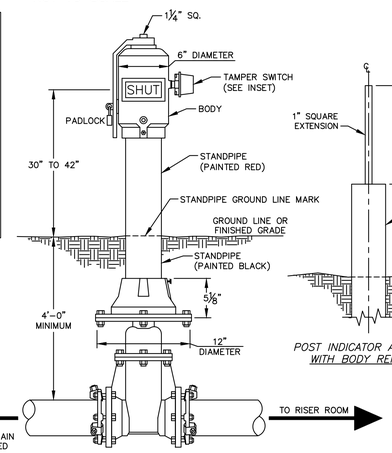


TYPICAL HYDRANT DETAIL

(NOT TO SCALE)

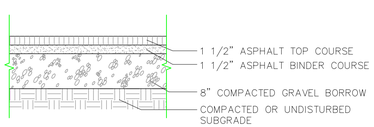
FIELD ADJUSTMENT INSTRUCTIONS

1. REMOVE THE BODY FROM THE TOP OF THE INDICATOR POST ASSEMBLY.
2. CUT THE REQUIRED LENGTH OFF THE BOTTOM OF THE STANDPIPE FOR THE GROUND LINE TO MATCH UP WITH STANDPIPE GROUND LINE MARK.
3. CUT THE 1 INCH SQ. EXTENSION AT A DISTANCE OF 9 INCHES ABOVE THE TOP OF THE STANDPIPE.
4. SET THE "OPEN" AND "SHUT" TARGETS FOR THE APPROPRIATE VALVE SIZE.
5. RE-ATTACH THE BODY TO THE TOP OF THE INDICATOR POST ASSEMBLY.
6. ALL POST INDICATOR VALVES SHALL BE INSTALLED WITH AN ELECTRONIC UL LISTED TAMPER SWITCH.
7. THERE SHALL BE 36 INCHES OF UNOBSTRUCTED CLEARANCE AROUND THE PERIMETER OF ALL POST INDICATOR VALVES.
8. POST INDICATOR VALVE SHALL BE LOCATED AT A MINIMUM 5 FEET FROM BUILDING.



POST INDICATOR VALVE

(NOT TO SCALE)



BIT CONCRETE SIDEWALK

(NOT TO SCALE)

CONSTRUCTION SEQUENCE:

INSTALL GATES, AND "KEEP OUT – DANGER" SIGNS.

POST EMERGENCY RESPONSE PLAN AND PLACE SPILL KITS ON-SITE (SPILL KITS SHALL BE KEPT AT A MINIMUM OF 500 FEET FROM EXCAVATION AREA)

CONSTRUCT TEMPORARY EARTH BERM

CONSTRUCT CRUSHED STONE APRON(S) AND ACCESS DRIVE FOR EARTH REMOVAL

REMOVE STUMPS FROM SITE

STOCKPILE LOAM ON-SITE

EXCAVATION WILL START AT THE WEST END PROPERTY LINE AND MOVE IN AN EASTERLY DIRECTION DOWN TO ROUGH GRADE LEVEL AS SHOWN ON THE PHASING PLANS

STABILIZE SLOPES AS EXCAVATION PROCEED EASTERLY

CONSTRUCT PROPOSED INTERSECTION IMPROVEMENTS ON FERRY STREET AT ACCESS DRIVE

INSTALL UTILITIES (I.E. DRAINAGE, WATER, GAS, ELECTRIC, TELEPHONE, CABLE)

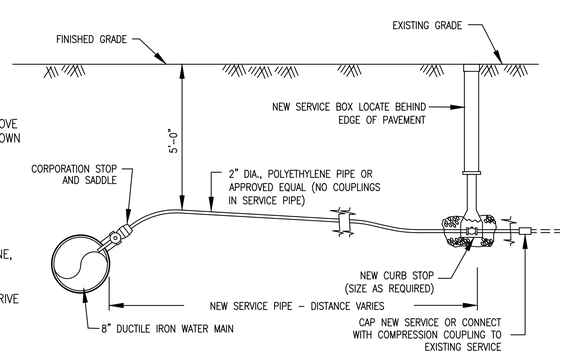
REMOVE TEMPORARY EARTH BERM AND EARTH REMOVAL ACCESS DRIVE

PREPARE SUBGRADE FOR ACCESS DRIVEWAY AND PARKING AREA

INSTALL LOAM, SEED, LANDSCAPING, AT FINISH GRADES

INSTALL FINISHED DRIVEWAY AND PARKING SURFACES.

INSTALL FENCING.



2"Ø DOMESTIC WATER SERVICE DETAIL

NOT TO SCALE

REVISIONS	
JANUARY 5, 2024	PEER REVIEW COMMENTS
FEBRUARY 9, 2024	PEER REVIEW COMMENTS, NitROE 2KM
FEBRUARY 28, 2024	PERCOLATION TESTING
APRIL 3, 2024	PEER REVIEW COMMENTS

COMMONWEALTH OF MASSACHUSETTS
DARREN M. GRADY
CIVIL
No. 40715
REGISTERED PROFESSIONAL ENGINEER

SITE PLAN
BRIDLE CROSSING
OFF FERRY STREET
MARSHFIELD, MASSACHUSETTS

PREPARED FOR:
MATLIN LLC C/O
KEVIN SEALUND & MATTHEW DACEY
794 WASHINGTON STREET
PEMBROKE, MA 02359

NOVEMBER 9, 2023
SCALE: AS SHOWN
JOB No. 12-243

GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors & Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300

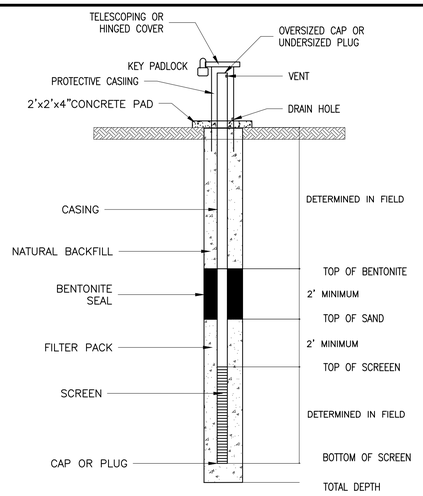
WATER DETAILS

DANGER – KEEP OUT SIGN

(NOT TO SCALE)

HANDICAP PARKING SIGN

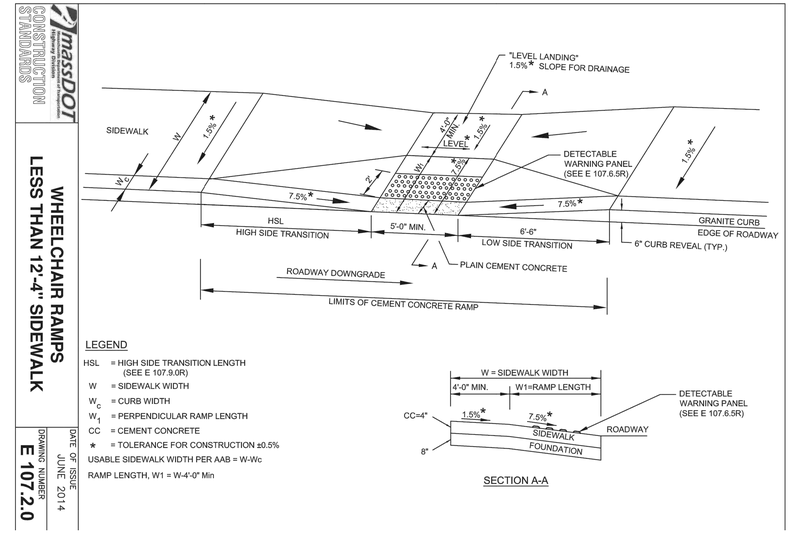
(NOT TO SCALE)

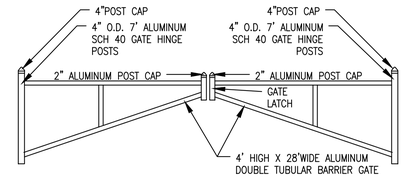


NOTE: SCREENS SHALL BE INSTALLED AT A DEPTH THAT STRADDLES THE AVERAGE ELEVATION OF THE WATER TABLE, 5 FEET ABOVE THE AVERAGE WATER TABLE AND 5 FEET BELOW THE AVERAGE WATER TABLE.

MONITORING WELL

(NOT TO SCALE)





1. THE GATE SHALL BE AS SHOWN OR APPROVED EQUAL.

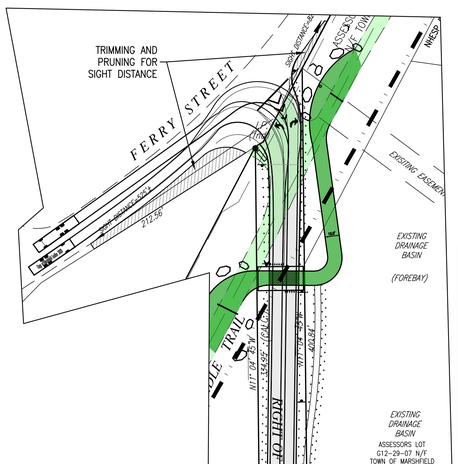
2. GATE HINGE POSTS SHALL BE SET IN CONCRETE IN ACCORDANCE WITH THE MANUFACTURERS INSTALLATION MANUAL

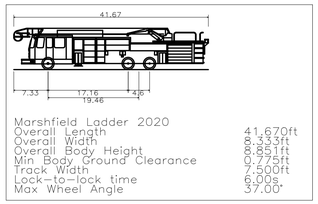
3. ACCESS GATE SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS GUIDELINES

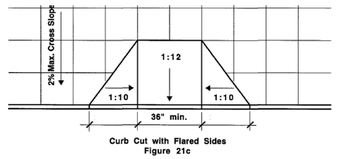
4. THE GATE SHALL BE FITTED WITH "DANGER KEEP OUT" SIGNAGE.

ACCESS GATE DETAIL

(NOT TO SCALE)







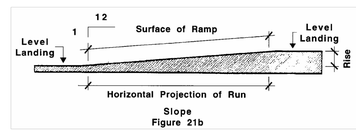
Curb Cut with Flared Sides
Figure 21c

21.8 **RETURNED SIDES**
Curb cuts with returned sides are only permitted where they are protected by handrails pursuant to **521 CMR 24.5, Handrails** or where pedestrian travel across the *ramp* is obstructed by permanently installed street hardware or landscaping. **See Fig. 21d**.

RAMP FLARED SIDES DETAIL

(NOT TO SCALE)

!1.3 **SLOPE**
The least possible slope should be used for any ramp. The maximum slope shall be one-in-12 (1:12) (8.3%). Where *sidewalks* are too narrow to install a straight-line *curb cut* at a slope of one-in-12 (1:12) (8.3%), the sides of the *curb cut* shall not exceed one-in-12 (1:12) (8.3%). **See Fig. 21b**. The maximum cross-slope for any *curb cut* shall be 1:50 (2%). (There is no tolerance allowed on slope requirements). (Refer to 521 CMR 2.4.4d).

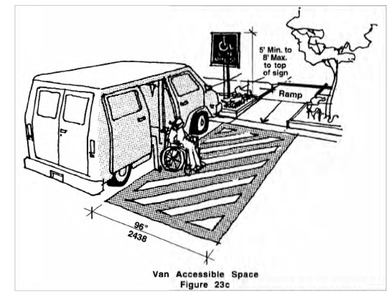


Slope
Figure 21b

RAMP SLOPE DETAIL

(NOT TO SCALE)

: **PARKING AND PASSENGER LOADING ZONES**

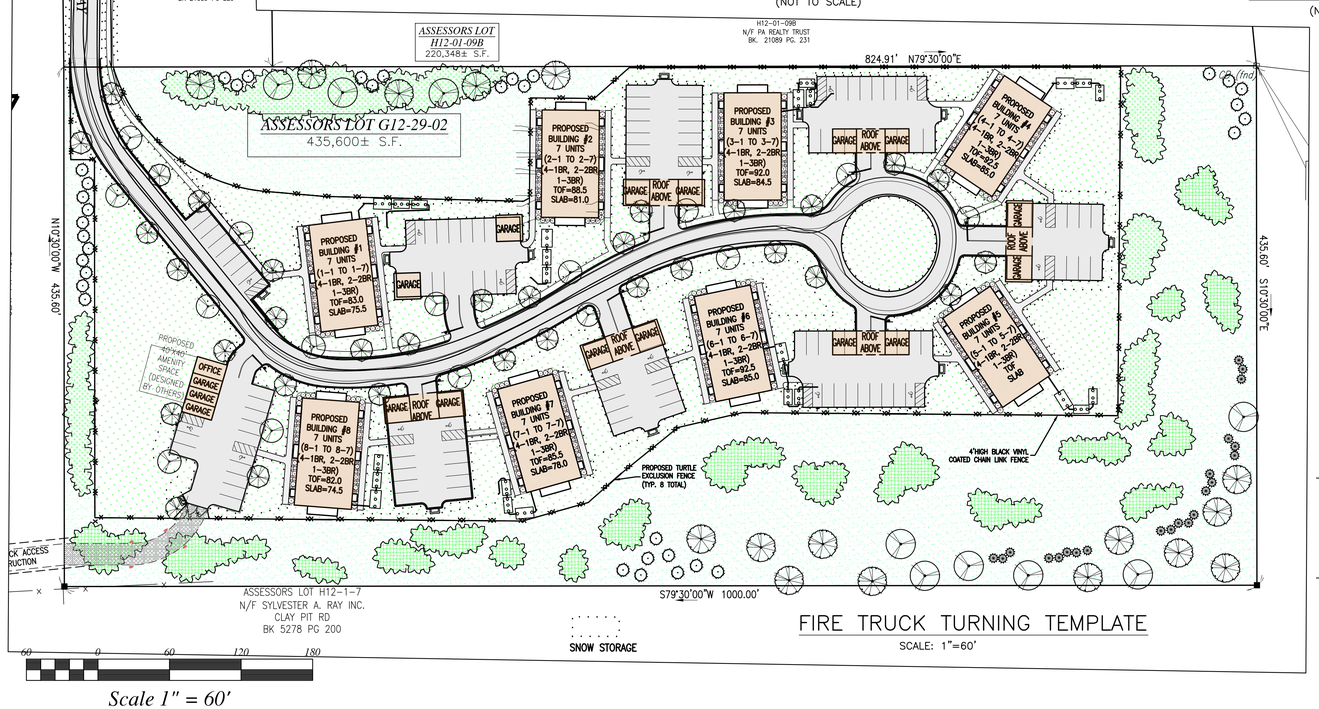


Van Accessible Space
Figure 23c

b. Each *space* shall have a sign designating it "Van Accessible" as required by **521 CMR 23.6, Signage**.
c. All such *spaces* may be grouped on one level of a parking structure.
d. Eight foot minimum (8' = 2438mm) wide *space*.
e. Provide an *access aisle* of eight feet (8' = 2438mm).

ACCESSIBILITY LOADING ZONE

(NOT TO SCALE)



FIRE TRUCK TURNING TEMPLATE

SCALE: 1"=60'

23.4.6 *Access aisles*: All *accessible spaces* shall have *access aisles* that comply with the following:

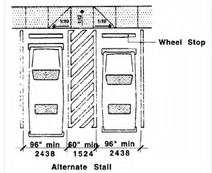
a. Parking *access aisles* shall be part of an *accessible route* to the *building* or *facility entrance* and shall comply with **521 CMR 20.00: ACCESSIBLE ROUTE**.

Exception: For temporary accessible parking, directional signage along the entire accessible route, using the international symbol of accessibility and an arrow, shall be used to direct people to the closest accessible entrance.

b. *Access aisles* adjacent to *accessible spaces* shall be five feet (5' = 1524mm) wide minimum, except adjacent to van *accessible spaces* the *access aisle* shall be a minimum of eight feet (8' = 2438mm) wide.

Exception: When temporary accessible parking is located within a field or otherwise unpaved site, when such area has not been improved in accordance with 521 CMR, the spaces shall be located on the least sloping area of the parking lot in conjunction with the temporary accessible parking spaces.

c. Two *accessible* parking spaces may share a common *access aisle*. *See* **Fig. 23a** and **23b**.



Alternate Stall
Figure 23a

d. *Access aisles* shall be *level* with surface slopes not exceeding 1:50 (2%) in all directions.
e. *Access aisles* shall be clearly marked by means of diagonal stripes.

23.4.7 Van *Accessible spaces* shall comply with the following:

a. Provide minimum vertical clearance of eight feet, two inches (8'2" = 2489mm) at the parking *space* and along at least one vehicle *access route* to such spaces from site entrance(s) and exit(s). *See* **Fig. 23c**.

ACCESSIBILITY PARKING

(NOT TO SCALE)

REVISIONS	
JANUARY 5, 2024	PEER REVIEW COMMENTS
FEBRUARY 9, 2024	PEER REVIEW COMMENTS, NitROE 2KM
FEBRUARY 28, 2024	PERCOLATION TESTING
APRIL 3, 2024	PEER REVIEW COMMENTS

COMMONWEALTH OF MASSACHUSETTS
DARREN M. GRADY
CIVIL
No. 40715
REGISTERED PROFESSIONAL ENGINEER

SITE PLAN
BRIDLE CROSSING
OFF FERRY STREET
MARSHFIELD, MASSACHUSETTS

PREPARED FOR:
MATLIN LLC C/O
KEVIN SEALUND & MATTHEW DACEY
794 WASHINGTON STREET
PEMBROKE, MA 02359

NOVEMBER 9, 2023
SCALE: AS SHOWN
JOB No. 12-243

GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors & Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300

PARKING DETAILS

TRUCK TRIPS

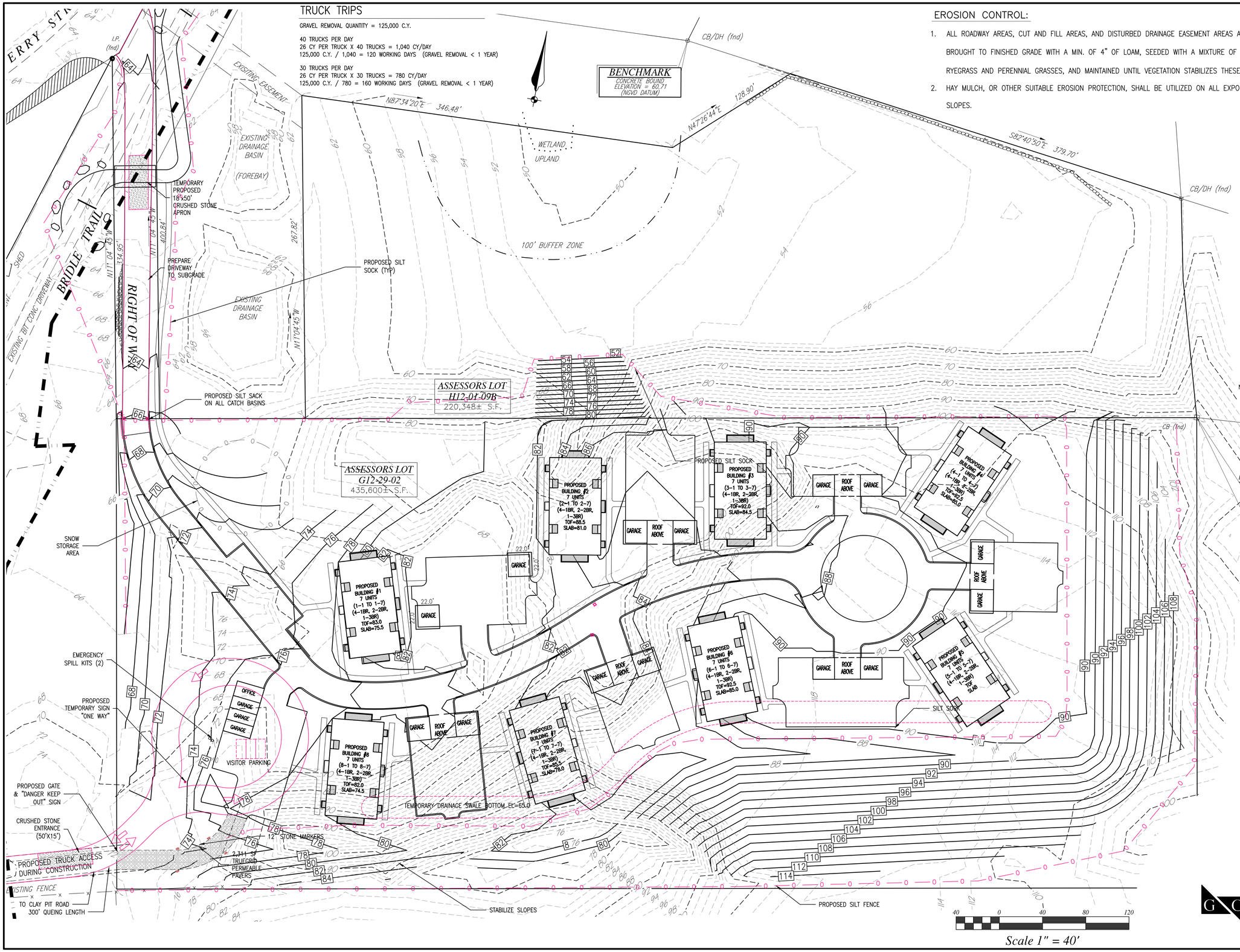
GRAVEL REMOVAL QUANTITY = 125,000 C.Y.

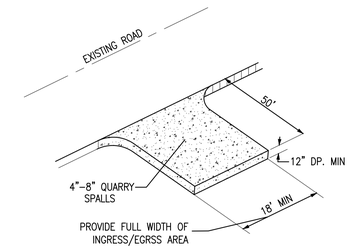
40 TRUCKS PER DAY
26 CY PER TRUCK X 40 TRUCKS = 1,040 CY/DAY
125,000 C.Y. / 1,040 = 120 WORKING DAYS (GRAVEL REMOVAL < 1 YEAR)

30 TRUCKS PER DAY
26 CY PER TRUCK X 30 TRUCKS = 780 CY/DAY
125,000 C.Y. / 780 = 160 WORKING DAYS (GRAVEL REMOVAL < 1 YEAR)

EROSION CONTROL:

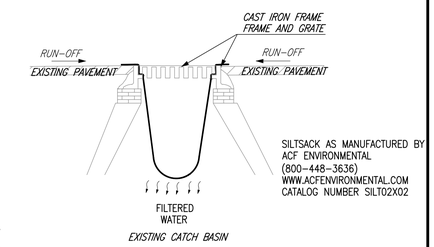
1. ALL ROADWAY AREAS, CUT AND FILL AREAS, AND DISTURBED DRAINAGE EASEMENT AREAS ARE TO BE BROUGHT TO FINISHED GRADE WITH A MIN. OF 4" OF LOAM, SEEDED WITH A MIXTURE OF ANNUAL RYEGRASS AND PERENNIAL GRASSES, AND MAINTAINED UNTIL VEGETATION STABILIZES THESE AREAS.
2. HAY MULCH, OR OTHER SUITABLE EROSION PROTECTION, SHALL BE UTILIZED ON ALL EXPOSED SLOPES.





CRUSHED STONE CONSTRUCTION ENTRANCE

(NOT TO SCALE)



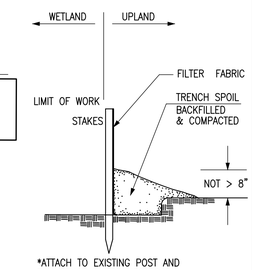
SILTSACK AS MANUFACTURED BY ACF ENVIRONMENTAL (800-448-3636) WWW.ACFENVIRONMENTAL.COM CATALOG NUMBER SILT02X02

NOTE: SILT SACKS SHALL BE INSPECTED WEEKLY AND SILT SHALL BE REMOVED WHEN ACCUMULATED TO ALLOW CATCH BASIN TO FUNCTION PROPERLY.

SILT SACK

(NOT TO SCALE)

BENCHMARK
CONCRETE BOUND
ELEVATION = 92.25
(NGVD DATUM)



SILT FENCE

(NOT TO SCALE)

COMMONWEALTH OF MASSACHUSETTS
DARREN M. GRADY
CIVIL
No. 40715
REGISTERED PROFESSIONAL ENGINEER

REVISIONS	
JANUARY 5, 2024	PEER REVIEW COMMENTS
FEBRUARY 9, 2024	PEER REVIEW COMMENTS, NitROE 2KM
FEBRUARY 28, 2024	PERCOLATION TESTING
APRIL 3, 2024	PEER REVIEW COMMENTS

SITE PLAN
BRIDLE CROSSING

OFF FERRY STREET
MARSHFIELD, MASSACHUSETTS

PREPARED FOR:
MATLIN LLC C/O
KEVIN SEALUND & MATTHEW DACEY
794 WASHINGTON STREET
PEMBROKE, MA 02359

NOVEMBER 9, 2023
SCALE: AS SHOWN
JOB No. 12-243

GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors & Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300

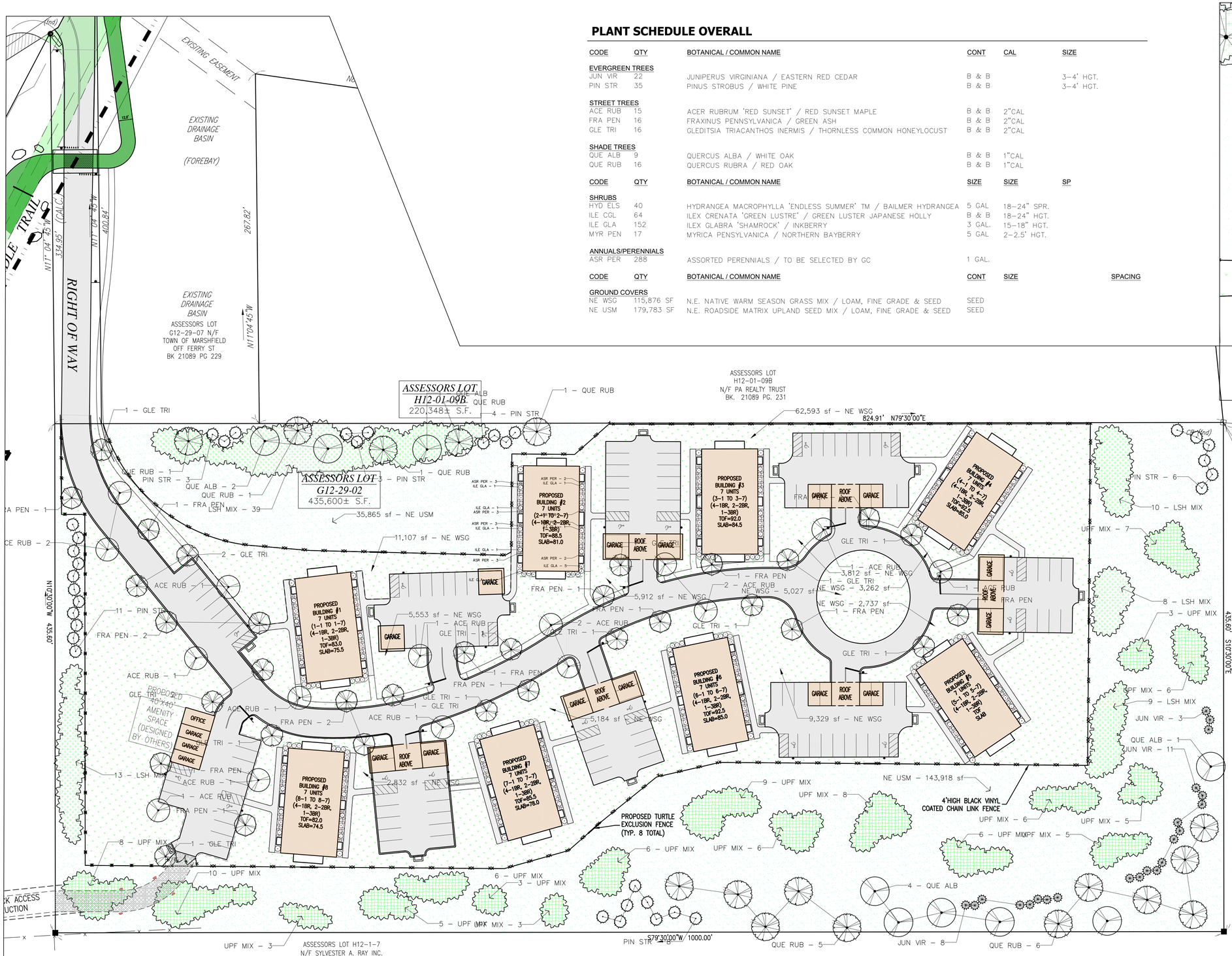
EROSION CONTROL / PHASING

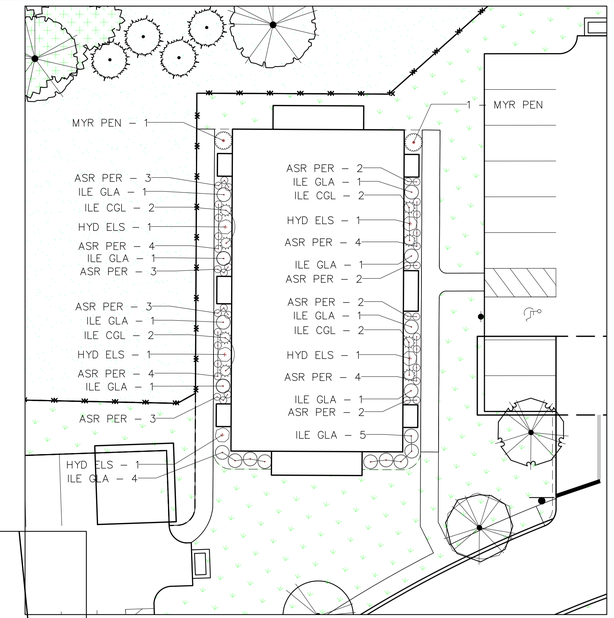
PLANT SCHEDULE OVERALL

CODE	QTY	BOTANICAL / COMMON NAME	CONT	CAL	SIZE
EVERGREEN TREES					
JUN VIR	22	JUNIPERUS VIRGINIANA / EASTERN RED CEDAR	B & B		3–4' HGT.
PIN STR	35	PINUS STROBUS / WHITE PINE	B & B		3–4' HGT.
STREET TREES					
ACE RUB	15	ACER RUBRUM 'RED SUNSET' / RED SUNSET MAPLE	B & B	2"CAL	
FRA PEN	16	FRAXINUS PENNSYLVANICA / GREEN ASH	B & B	2"CAL	
GLE TRI	16	GLEDITSIA TRIACANTHOS INERMIS / THORNLESS COMMON HONEYLOCUST	B & B	2"CAL	
SHADE TREES					
QUE ALB	9	QUERCUS ALBA / WHITE OAK	B & B	1"CAL	
QUE RUB	16	QUERCUS RUBRA / RED OAK	B & B	1"CAL	

CODE	QTY	BOTANICAL / COMMON NAME	SIZE	SIZE	SP
SHRUBS					
HYD ELS	40	HYDRANGEA MACROPHYLLA 'ENDLESS SUMMER' TM / BAILMER HYDRANGEA	5 GAL	18–24" SPR.	
ILE CGL	64	ILEX CRENATA 'GREEN LUSTRE' / GREEN LUSTER JAPANESE HOLLY	B & B	18–24" HGT.	
ILE GLA	152	ILEX GLABRA 'SHAMROCK' / INKBERRY	3 GAL.	15–18" HGT.	
MYR PEN	17	MYRICA PENSYLVANICA / NORTHERN BAYBERRY	5 GAL	2–2.5' HGT.	
ANNUALS/PERENNIALS					
ASR PER	288	ASSORTED PERENNIALS / TO BE SELECTED BY GC	1 GAL.		

CODE	QTY	BOTANICAL / COMMON NAME	CONT	SIZE	SPACING
GROUND COVERS					
NE WSG	115,876 SF	N.E. NATIVE WARM SEASON GRASS MIX / LOAM, FINE GRADE & SEED	SEED		
NE USM	179,783 SF	N.E. ROADSIDE MATRIX UPLAND SEED MIX / LOAM, FINE GRADE & SEED	SEED		

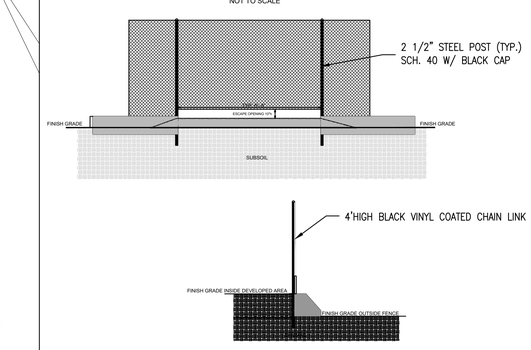




TYPICAL BUILDING PLANTING PLAN

1" = 20'-0"

EASTERN BOX TURTLE EXCLUSION FENCE WITH ESCAPE DETAIL
NOT TO SCALE



FENCE DETAIL
(NOT TO SCALE)

REVISIONS	
JANUARY 5, 2024	PEER REVIEW COMMENTS
FEBRUARY 9, 2024	PEER REVIEW COMMENTS, NitROE 2KM
FEBRUARY 28, 2024	PERCOLATION TESTING
APRIL 3, 2024	PEER REVIEW COMMENTS

COMMONWEALTH OF MASSACHUSETTS DARREN M. GRADY CIVIL No. 40715 REGISTERED PROFESSIONAL ENGINEER

SITE PLAN
BRIDLE CROSSING
OFF FERRY STREET
MARSHFIELD, MASSACHUSETTS

PREPARED FOR:
MATLIN LLC C/O
KEVIN SEALUND & MATTHEW DACEY
794 WASHINGTON STREET
PEMBROKE, MA 02359

NOVEMBER 9, 2023
SCALE: AS SHOWN
JOB No. 12–243

GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors & Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585–2300

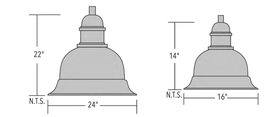
LANDSCAPING

Luminaire Schedule							
Symbol	Qty	Label	Arrangement	Tag	LLF	Luminaire Lumens	Luminaire Watts
	1	LAKE16 3500K TYPE V (1) 50W_1	Single	P5PN	0.970	4771	51.2
	5	LAKE16 3500K TYPE II 50W HSS	Single	P2S.	0.970	4307	55.5
	1	LAKE16 3500K TYPE V (1) 50W	Single	P5.	0.970	4771	51.2
	12	LAKE16 3500K TYPE III (1) 50W	Single	P3.	0.970	4619	51.8
	21	LAKE16 3500K TYPE IV 50W HSS	Single	P4S.	0.970	4044	55.7

ALL POLES ARE 12 FEET.

LAKE SERIES

AREA LIGHTING | PENDANT MOUNT



LKE24 LKE16

FEATURES + BENEFITS

- Industry leading LED systems
- High efficiency & energy savings
- Environmentally friendly
- Reliable & low-maintenance
- 7-year limited warranty
- UL Listed electrical components
- ***Suitable for wet locations***

SPECIFICATIONS

LUMINAIRE All aluminum construction.

DRIVER Electronic LED driver, 120-277V
Options: 480V Driver, Dimming control 0-10V.

ELECTRICAL All components UL recognized. Luminaire shipped complete & ready to install.

FINISH Powder coat – Standard colors are Black, White, Dark Green & Dark Bronze. *Custom colors available, consult factory.* All exposed hardware shall be stainless-steel.

ORDER INFORMATION *EXAMPLE: LKE24-100W-4K-SMT-FL III-PM-DBZ-EMB*

SERIES	WATTAGE	COLOR TEMP.	VOLTAGE	OPTICS	MOUNTING	FINISH	OPTIONS
LKE16 LKE24	5W–300W *PLEASE SPECIFY* *LKE16: 100W MAX*	27K *2700K* 3K *3000K* 35K *3500K* 4K *4000K* 5K *5000K* *CUSTOM COLOR TEMP. CONSULT FACTORY*	5MT *120-277V* 480V	FL *FLAT LENS* TYPE II TYPE III TYPE IV TYPE V	PM *PENDANT MOUNT* WM *WALL MOUNT*	BLK *BLACK* WHT *WHITE* GRN *DARK GREEN* DBZ *DARK BRONZE* CC *CUSTOM COLOR*	DIM *0-10V DIMMING* BPC *BUTTON PHOTO-CELL* HSS *HOUSE SIDE SHIELD* MS *MOTION SENSOR* EMB *INTEGRATED EMERGENCY BATTERY*

ECHO LIGHTING, INC.
Designers and Manufacturers of Outdoor Lighting
Ph.: +1-323-890-9008
Fax: +1-323-890-1981
Email: info@echoltg.com
5618 E. Washington Blvd.
Commerce, CA 90040
www.echolighting.com

REVISIONS	
JANUARY 5, 2024	PEER REVIEW COMMENTS
FEBRUARY 9, 2024	PEER REVIEW COMMENTS, NitROE 2KM
FEBRUARY 28, 2024	PERCOLATION TESTING
APRIL 3, 2024	PEER REVIEW COMMENTS

COMMONWEALTH OF MASSACHUSETTS
DARREN M. GRADY
CIVIL
No. 40715
REGISTERED PROFESSIONAL ENGINEER

SITE PLAN
BRIDLE CROSSING
OFF FERRY STREET
MARSHFIELD, MASSACHUSETTS

PREPARED FOR:
MATLIN LLC C/O
KEVIN SEALUND & MATTHEW DACEY
794 WASHINGTON STREET
PEMBROKE, MA 02359

NOVEMBER 9, 2023
SCALE: AS SHOWN
JOB No. 12-243

GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors & Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300

LIGHTING