

October 27, 2021
File No. 2021-120A

Sean Kavanagh
First Hartford Realty Corporation
149 Colonial Road
Manchester, CT 06042
skavanagh@firsthartford.com

Re: Test Pit Results
Geotechnical Engineering Assistance Services
3013 Cranberry Highway
Wareham, MA

Dear Mr. Kavanagh:

Aries Engineering, LLC (Aries) is pleased to submit this summary of the results of a test pit program that was conducted at 3013 Cranberry Highway in Wareham, Massachusetts (site). A site locus is shown on Figure 1. General site features and site test pits are shown on Figure 2.

The objective of Aries' Geotechnical Engineering Assistance Services (services) was to collect site geotechnical engineering data in support of a stormwater design for the site.

Aries prepared this report on behalf of and for the exclusive use of First Hartford Realty Corporation. The findings and conclusions presented herein are not scientific certainties, but rather our professional opinions concerning data and information gathered during our work. This report is subject to the attached limitations.

SOIL SURVEY REVIEW

Prior to conducting the test pit activities, Aries reviewed the Natural Resources Conservation Service (NRCS) soil type and hydrologic group using the electronic Web Soil Survey. The site soils are identified by NRCS as Carver – urban land complex, Hydrologic Soil Group A. The Carver unit is described by NRCS as typically consisting of surficial layers or organic topsoils overlying coarse sand. The Web Soil Survey results for the site are attached.

TEST PIT OBSERVATIONS AND RESULTS

On October 21, 2021, Aries observed Rock River Irrigation (RRI) excavate six test pits (designated TP-1 through TP-6) at the site to assess soil and groundwater characteristics. The test pits were excavated at locations identified by Vanasse Hangan Brustlin (VHB) to evaluate subsurface conditions in areas proposed for stormwater infiltration systems.

An Aries representative (qualified as a Competent Soils Professional in accordance with the Massachusetts Stormwater Management Handbook) monitored the test pit program, classified soils in accordance with NRCS methods, prepared test pit logs, measured the depths to groundwater, and made observations for indicators of the seasonal high groundwater table. The test pit locations are depicted on attached Figure 2.

The test pits were excavated to depths ranging from approximately 3 to 6.4 feet below grade. The test pits generally encountered surficial layers of topsoil, pavement, or sand, underlain by sand and loamy sand. Fill materials, or soils suspected to be fill materials, were observed in test pits TP-3 and TP-4 to depths up to approximately 3.25 feet below grade. Surface elevations at the test pit locations ranged from approximately 8.8 to 11.9 feet referenced to NAVD of 1988 (NAVD 88).

Water-saturated soils were observed in five of the six test pits at depths ranging from approximately 3 to 6.4 feet below grade, corresponding to elevations ranging from approximately 4.4 to 6.5 feet referenced to NAVD 88. Oxidation staining was observed at a depth of approximately 4.4 feet below grade (elevation 7.5 feet referenced to NAVD 88) in test pit TP-5, which could be interpreted to be an indicator of the seasonal high water elevation were it not for the absence of oxidation in all other test pits conducted at the site with similar soils. The soils observed in site test pits were generally consistent with the attached NRCS Web Soil Survey classification results. The test pit logs are attached to this letter and include descriptions of Aries' observations made during the test pitting activities. At the conclusion of the explorations, the test pits were backfilled with the excavated soils flush to grade.

Aries appreciates the opportunity to provide First Hartford with geotechnical engineering assistance on this project. If you have any questions or need additional information regarding this investigation, please contact the undersigned.


Sincerely,
Aries Engineering, LLC



Jay P. Johonnett, P.E.
Senior Geotechnical Engineer



George C. Holt, P.G.
Principal Hydrogeologist



Stephen J. Graham, P.E.
Director of Engineering

JPJ:kh

Attachments: Limitations
Figure 1 – Locus Plan
Figure 2 – Site and Test Pit Location Plan
Test Pit Logs
NRCS Web Soil Survey

LIMITATIONS

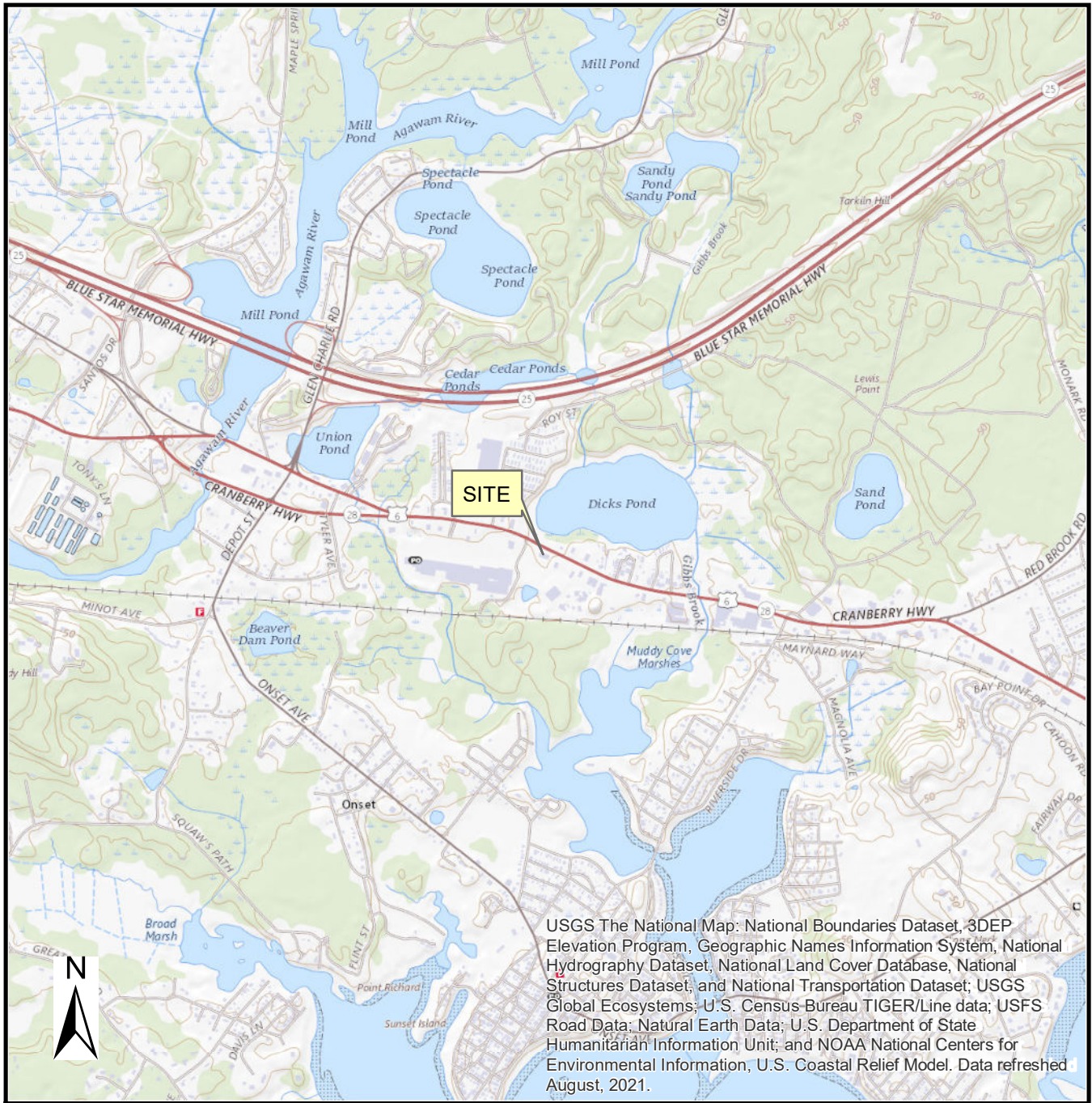
Aries prepared this report on behalf of and for the exclusive use of First Hartford Realty Corporation (Client) solely for use at the 3013 Cranberry Highway property in Wareham, Massachusetts. This report shall not be transmitted to any other party, or relied upon by any other party, without Aries' written consent. However, Aries acknowledges the report may be conveyed to the Town of Wareham.

Aries made the reported observations under the conditions stated herein. Aries based the report conclusions solely on the services described herein, and not on scientific tasks or procedures beyond the scope of described services.

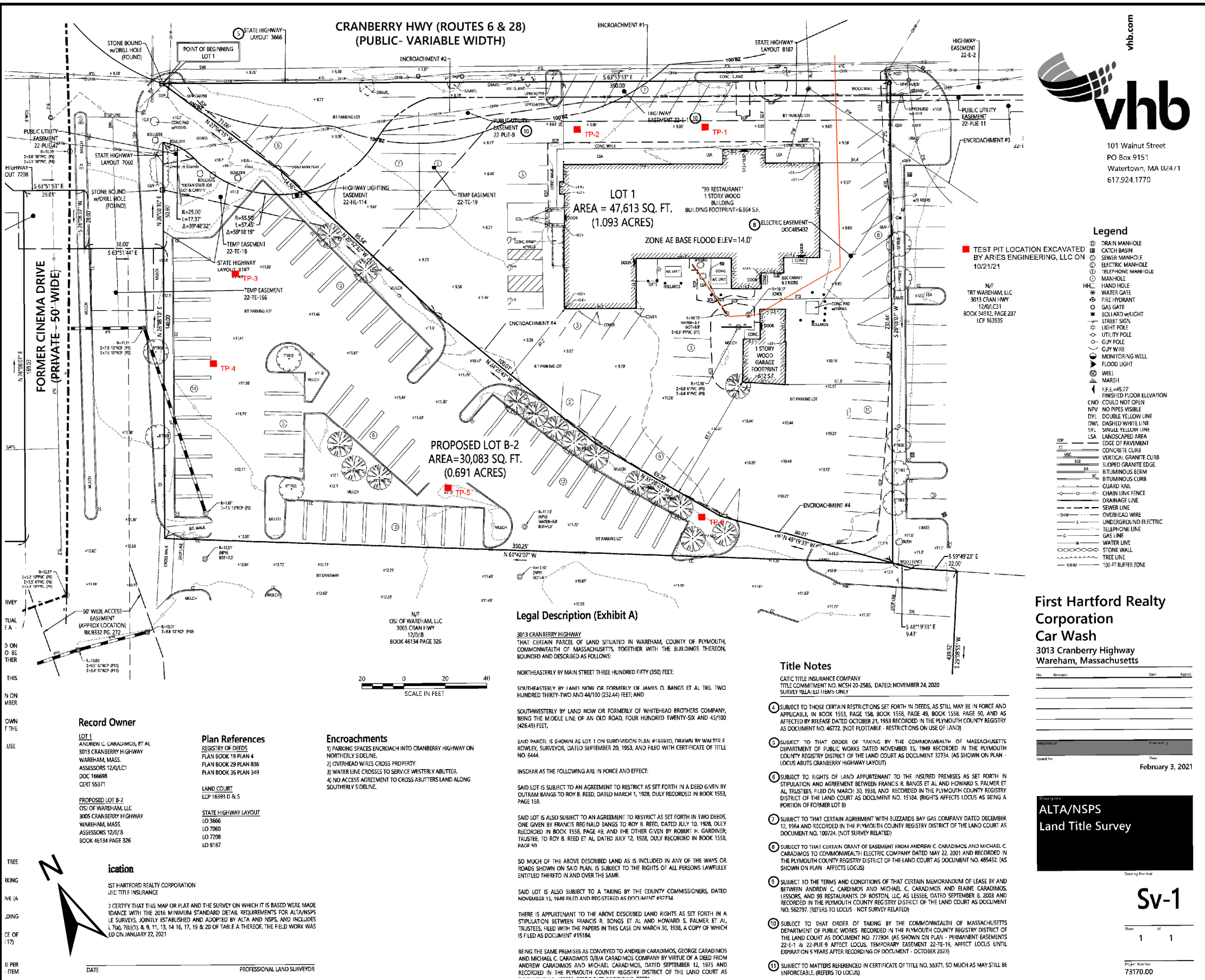
In preparing this report, Aries relied on certain information provided by state officials, federal officials and other parties referenced herein, and on information contained in the files of federal, state and local agencies available to Aries at the time of the report. Although there may have been some degree of overlap in the information provided by these various sources, Aries did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this report.


Aries' conclusions are based solely on the site observations made during the site reconnaissance. If variations or other latent conditions later appear evident, Aries may need to re-evaluate and may change the report conclusions and/or recommendations.

Aries conducted this report in general accordance with accepted consulting practices. Aries makes no warranty, either expressed or implied.



Aries Project # 2021-120A
File # 2021-120(1)10.21.mxd





101 Walnut Street
PO Box 9151
Watertown, MA 02471
617.924.1770

NOTES

- Plan prepared from: an ALTA/NSPS Land Title Survey plan prepared by Vanasse Hangan Brustlin (VHB), dated February 3, 2021; and Geographic Information System (GIS) data provided by the Massachusetts Bureau of Geographic Information (MassGIS).
- Site boundary locations are based on an overlay of the site features on MassGIS data. Therefore, all site features are approximately located.
- This plan is not to be used for construction, survey or boundary purposes.

Legend

- TEST PIT LOCATION EXCAVATED BY ARIES ENGINEERING, LLC ON 10/21/21
- N/F TRT WAREHAM, LLC 3013 CRANBERRY HWY 12/01/18 BOOK 46134 PAGE 326 LCP 163935
- DRAIN MAN-HOLE
- CATCH BASIN
- SEWER MAN-HOLE
- ELECTRIC MAN-HOLE
- TELEPHONE MAN-HOLE
- MAN-HOLE
- HAND-HOLE
- WATER GATE
- FIRE HYDRANT
- GAS GATE
- SLOTTED WEIGHT
- STREET SIGN
- LIGHT POLE
- UTILITY POLE
- GUY POLE
- GUY WIRE
- MONITORING WELL
- FLOOD LIGHT
- WELL
- MARSH
- F.F.E.=45.77 FINISHED FLOOR ELEVATION
- CNO COULD NOT OPEN
- NPV NO PIPES VISIBLE
- DYL DOUBLE YELLOW LINE
- DWL DASHED WHITE LINE
- SYL SINGLE YELLOW LINE
- LSA LANDSCAPED AREA
- E.P. EDGE OF PAVEMENT
- C.C. CONCRETE CURB
- V.C. VERTICAL GRANITE CURB
- S.C. SLOPED GRANITE CURB
- B.B. BITUMINOUS BERM
- B.C. BITUMINOUS CURB
- C.F. CHAIN LINK FENCE
- D.L. DRAINAGE LINE
- S.W. SEWER LINE
- O.W. OVERHEAD WIRE
- U.E. UNDERGROUND ELECTRIC
- T.L. TELEPHONE LINE
- G.L. GAS LINE
- W.L. WATER LINE
- S.W. STONE WALL
- T.L. TREE LINE
- 100 FT BUFFER ZONE

Legal Description (Exhibit A)

3013 CRANBERRY HIGHWAY THAT CERTAIN PARCEL OF LAND SITUATED IN WAREHAM, COUNTY OF PLYMOUTH, COMMONWEALTH OF MASSACHUSETTS, TOGETHER WITH THE BUILDINGS THEREON, BOUNDED AND DESCRIBED AS FOLLOWS:

NORTHEASTERLY BY MAIN STREET THREE HUNDRED FIFTY (350) FEET;

SOUTHEASTERLY BY LAND NOW OR FORMERLY OF JAMES O. BANGS ET AL TRS. TWO HUNDRED THIRTY-TWO AND 447/100 (232.44) FEET; AND

SOUTHWESTERLY BY LAND NOW OR FORMERLY OF WHITEHEAD BROTHERS COMPANY, BEING THE MIDDLE LINE OF AN OLD ROAD, FOUR HUNDRED TWENTY-SIX AND 45/100 (426.45) FEET;

SAID PARCEL IS SHOWN AS LOT 1 ON SUBDIVISION PLAN #161940, DRAWN BY WM FR F ROWLEY, SURVEYOR, DATED SEPTEMBER 20, 1953, AND FILED WITH CERTIFICATE OF TITLE NO. 6444.

INSHAR AS THE FOLLOWING ARE IN FORCE AND EFFECT:

SAID LOT IS SUBJECT TO AN AGREEMENT TO RESTRICT AS SET FORTH IN A DEED GIVEN BY OUTRAM BANGS TO ROY B. REED, DATED MARCH 1, 1928, DULY RECORDED IN BOOK 1553, PAGE 158.

SAID LOT IS ALSO SUBJECT TO AN AGREEMENT TO RESTRICT AS SET FORTH IN TWO DEEDS, ONE GIVEN BY FRANCIS REGINALD BANGS TO ROY B. REED, DATED JULY 10, 1928, DULY RECORDED IN BOOK 1553, PAGE 49, AND THE OTHER GIVEN BY ROBERT H. GARDINER, TRUSTEE, TO ROY B. REED ET AL, DATED JULY 12, 1928, DULY RECORDED IN BOOK 1553, PAGE 91.

SO MUCH OF THE ABOVE DESCRIBED LAND AS IS INCLUDED IN ANY OF THE WAYS OR ROADS SHOWN ON SAID PLAN, IS SUBJECT TO THE RIGHTS OF ALL PERSONS LAWFULLY ENTITLED THERETO IN AND OVER THE SAME.

SAID LOT IS ALSO SUBJECT TO A TAKING BY THE COUNTY COMMISSIONERS, DATED NOVEMBER 15, 1949 FILED AND REGISTERED AS DOCUMENT #97734.

THERE IS APPURTENANT TO THE ABOVE DESCRIBED LAND RIGHTS AS SET FORTH IN A STIPULATION BETWEEN FRANCIS R. BANGS ET AL AND HOWARD S. PALMER ET AL, TRUSTEES, FILED WITH THE PAPERS IN THIS CASE ON MARCH 30, 1938, A COPY OF WHICH IS FILED AS DOCUMENT #15184.

BEING THE SAME PREMISES AS CONVEYED TO ANDREW CARADIMOS, GEORGE CARADIMOS AND MICHAEL C. CARADIMOS (D/B/A CARADIMOS COMPANY) BY VIRTUE OF A DEED FROM ANDREW CARADIMOS AND MICHAEL CARADIMOS, DATED SEPTEMBER 12, 1975 AND RECORDED IN THE PLYMOUTH COUNTY REGISTRY DISTRICT OF THE LAND COURT AS

Title Notes

CATC TITLE INSURANCE COMPANY TITLE COMMITMENT NO. MCH 20-2585, DATED: NOVEMBER 24, 2020 SURVEY RELATED ITEMS ONLY

- SUBJECT TO THOSE CERTAIN RESTRICTIONS SET FORTH IN DEEDS, AS STILL MAY BE IN FORCE AND APPLICABLE, IN BOOK 1553, PAGE 158; BOOK 1558, PAGE 49; BOOK 1558, PAGE 90, AND AS AFFECTED BY RELEASE DATED OCTOBER 21, 1953 RECORDED IN THE PLYMOUTH COUNTY REGISTRY DISTRICT AS DOCUMENT NO. 46772. (NOT PLOTTABLE - RESTRICTIONS ON USE OF LAND)
- SUBJECT TO THAT ORDER OF TAKING BY THE COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS, DATED NOVEMBER 15, 1949 RECORDED IN THE PLYMOUTH COUNTY REGISTRY DISTRICT OF THE LAND COURT AS DOCUMENT 32734. (AS SHOWN ON PLAN - LOCUS AFFECTS CRANBERRY HIGHWAY LAYOUT)
- SUBJECT TO RIGHTS OF LAND APPURTENANT TO THE INSURED PREMISES AS SET FORTH IN STIPULATION AND AGREEMENT BETWEEN FRANCIS R. BANGS ET AL AND HOWARD S. PALMER ET AL, TRUSTEES, FILED ON MARCH 30, 1938, AND RECORDED IN THE PLYMOUTH COUNTY REGISTRY DISTRICT OF THE LAND COURT AS DOCUMENT NO. 15184. (RIGHTS AFFECTS LOCUS AS BEING A PORTION OF FORMER LOT B)
- SUBJECT TO THAT CERTAIN AGREEMENT WITH BUZZARDS BAY GAS COMPANY DATED DECEMBER 12, 1964 AND RECORDED IN THE PLYMOUTH COUNTY REGISTRY DISTRICT OF THE LAND COURT AS DOCUMENT NO. 100724. (NOT SURVEY RELATED)
- SUBJECT TO THAT CERTAIN GRANT OF EASEMENT FROM ANDREW C. CARADIMOS AND MICHAEL C. CARADIMOS TO COMMONWEALTH ELECTRIC COMPANY DATED MAY 22, 2001 AND RECORDED IN THE PLYMOUTH COUNTY REGISTRY DISTRICT OF THE LAND COURT AS DOCUMENT NO. 48542. (AS SHOWN ON PLAN - AFFECTS LOCUS)
- SUBJECT TO THE TERMS AND CONDITIONS OF THAT CERTAIN MEMORANDUM OF LEASE BY AND BETWEEN ANDREW C. CARADIMOS AND MICHAEL C. CARADIMOS AND BLAINE CARADIMOS, LESSORS, AND 99 RESTAURANTS OF BOSTON, LLC AS LESSEE, DATED SEPTEMBER 9, 2003 AND RECORDED IN THE PLYMOUTH COUNTY REGISTRY DISTRICT OF THE LAND COURT AS DOCUMENT NO. 562797. (REFERS TO LOCUS - NOT SURVEY RELATED)
- SUBJECT TO THAT ORDER OF TAKING BY THE COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS, RECORDED IN THE PLYMOUTH COUNTY REGISTRY DISTRICT OF THE LAND COURT AS DOCUMENT NO. 777904. (AS SHOWN ON PLAN - PERMANENT EASEMENTS 22-E-1 & 22-PIE-9 AFFECT LOCUS. TEMPORARY EASEMENT 22-TE-19, AFFECT LOCUS UNTIL EXPIRATION 5 YEARS AFTER RECORDING OF DOCUMENT - OCTOBER 2023)
- SUBJECT TO MATTERS REFERENCED IN CERTIFICATE OF TITLE NO. 53371, SO MUCH AS MAY STILL BE ENFORCEABLE. (REFERS TO LOCUS)

Record Owner

LOT 1
ANDREW C. CARADIMOS, ET AL
3013 CRANBERRY HIGHWAY
WAREHAM, MASS
ASSESSORS 12/01/18
DOC 166698
CERT 55371

PROPOSED LOT B-2
OSI OF WAREHAM, LLC
3013 CRANBERRY HIGHWAY
WAREHAM, MASS
ASSESSORS 12/01/18
BOOK 46134 PAGE 326

Plan References

REGISTRY OF DEEDS
PLAN BOOK 19 PLAN 4
PLAN BOOK 29 PLAN 836
PLAN BOOK 35 PLAN 349

LAND COURT
LCP 16393 D & S

STATE HIGHWAY LAYOUT
LO 3666
LO 7060
LO 7208
LO 8187

Encroachments

- PARKING SPACES ENCRUSCH INTO CRANBERRY HIGHWAY ON NORTHERLY SIDELINE.
- OVERHEAD WIRES CROSS PROPERTY.
- WATER LINE CROSSES TO SERVICE WESTERLY ABUTTER.
- NO ACCESS AGREEMENT TO CROSS ABUTTERS LAND ALONG SOUTHERLY SIDELINE.

Record Owner

LOT 1
OSI OF WAREHAM, LLC
3013 CRANBERRY HIGHWAY
WAREHAM, MASS
ASSESSORS 12/01/18
BOOK 46134 PAGE 326

Location

1ST HARTFORD REALTY CORPORATION
VIC TITLE INSURANCE

I CERTIFY THAT THIS MAP OR PLAN AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES TABLE A, 7(a), 7(b)(1), & 9, 11, 13, 14, 16, 17, 19 & 20 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON JANUARY 22, 2021

DATE _____ PROFESSIONAL LAND SURVEYOR _____

**First Hartford Realty Corporation
Car Wash**

3013 Cranberry Highway
Wareham, Massachusetts

February 3, 2021

ALTA/NSPS
Land Title Survey

Sv-1

Sheet 1 of 1
Project Number 73170.00

0 25 50 100 150 200 Feet

Aries Project # 2021-120A
File # 2021-120A(2)10.21.MXD



104 PLEASANT STREET
CONCORD, NH 03301
(603) 228-0008
www.aries-eng.com

PROJECT: 3013 Cranberry Highway

LOCATION: Wareham, Massachusetts

TEST PIT NO. TP-1

SHEET 1 of 1

EXCAVATION CO. Rock River Irrigation

Groundwater Observations

FILE NO. 2021-120

FOREMAN Kenneth Beaulieu

DATE 10/21/2021 TIME 8:27:00 AM DEPTH 3 feet REFERENCE STAB T. Grade

GROUND ELEVATION: 9.5 feet

ARIES REP. J. Drebaum

DATE 10/21/2021

DATUM: NAVD 88

DEPTH (feet bgs)	SAMPLE NO.	EXCAVATION EFFORT	SAMPLE INTERVAL (feet below grade)	PID HEADSPACE (PPMV)	SOIL DESCRIPTION	STRATA CHANGE	NOTES	NO EQUIPMENT INSTALLED
1	S-1	Easy	0 - 2	NA	S-1 (0-2 feet) - Loamy sand, 10YR 6/3.	LOAMY SAND		
2								
3	S-2	Easy	2 - 3	NA	S-2 (2-3 feet) - Sand, 10YR 4/4. No mottling observed. Standing water observed at 36" below grade.	SAND	Groundwater	
4					Bottom of test pit at approximately 3 feet below the ground surface.			
5								
6								
7								
8								
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1. Termination depth at 3' below grade.
2. The test pit excavations were backfilled by Rock River Irrigation using the excavated soils.

NE = Not Encountered
NA = Not Applicable



104 PLEASANT STREET
 CONCORD, NH 03301
 (603) 228-0008
 www.aries-eng.com

PROJECT: 3013 Cranberry Highway

LOCATION: Wareham, Massachusetts

TEST PIT NO. TP-2

SHEET 1 of 1

EXCAVATION CO. Rock River Irrigation

Groundwater Observations

FILE NO. 2021-120

FOREMAN Kenneth Beaulieu

DATE 10/21/2021 TIME 8:46:00 AM DEPTH 4.4 feet REFERENCE STAB T. Grade

GROUND ELEVATION: 8.8 feet

ARIES REP. J. Drebaum

DATE 10/21/2021

DATUM: NAVD 88

DEPTH (feet bgs)	SAMPLE NO.	EXCAVATION EFFORT	SAMPLE INTERVAL (feet below grade)	PID HEADSPACE (PPMV)	SOIL DESCRIPTION	STRATA CHANGE	NOTES	NO EQUIPMENT INSTALLED
1	S-1	Easy	0 - 0.5	NA	S-1 (0-0.5 feet) - Sand, 10YR 3/2.	SAND		
1	S-2	Easy	0.5 - 1.3	NA	S-2 (0.5-1.3 feet) - Sand, 10YR 5/6.			
2	S-3	Easy	1.3 - 1.5	NA	S-3 (1.3-1.5 feet) - Loamy sand, 7.5YR 2/0.	LOAMY SAND		
2	S-4	Easy	1.5 - 3.2	NA	S-4 (1.5-3.2 feet) - Sand, 10YR 4/1.	SAND		
3								
3	S-5	Easy	3.2 - 4.5	NA	S-4 (3.2-4.5 feet) - Loamy sand, 10YR 3/3.	LOAMY SAND	Perched Water @ 3.5 feet	
4					Groundwater observed at 4.4 feet below grade.		Groundwater @ 4.4 feet	
4					Bottom of test pit at approximately 4.5 feet below the ground surface.			
5								
6								
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1. Termination depth at 4.5' below grade.
 2. The test pit excavations were backfilled by Rock River Irrigation using the excavated soils.

NE = Not Encountered
 NA = Not Applicable



104 PLEASANT STREET
CONCORD, NH 03301
(603) 228-0008
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PROJECT: 3013 Cranberry Highway

LOCATION: Wareham, Massachusetts

TEST PIT NO. TP-3

SHEET 1 of 1

EXCAVATION CO. Rock River Irrigation

Groundwater Observations

FILE NO. 2021-120

FOREMAN Kenneth Beaulieu

DATE 10/21/2021 TIME 9:13:00 AM DEPTH 5.0 feet REFERENCE GRADE STAB T.

GROUND ELEVATION: 11.5 feet

ARIES REP. J. Drebaum

DATE 10/21/2021

DATUM: NAVD 88

DEPTH (feet bgs)	SAMPLE NO.	EXCAVATION EFFORT	SAMPLE INTERVAL (feet below grade)	PID HEADSPACE (PPMV)	SOIL DESCRIPTION	STRATA CHANGE	NOTES	NO EQUIPMENT INSTALLED
---					4" asphalt pavement	ASPHALT		
1	S-1	Easy	0 - 3.2	NA	S-1 (0.3-2 feet) - Loamy sand, 10YR 5/4 (suspected fill materials).	LOAMY SAND (FILL MATERIAL)		
2	S-2	Easy	2 - 2.6	NA	S-2 (2-2.6 feet) - Sand, 7.5YR 5/6.	SAND		
3	S-3	Easy	2.6 - 5	NA	S-3 (2.6-5 feet) - Sand, 10YR 6/2.			
4								
5					Groundwater observed at 5 feet below grade.		Groundwater @ 5 feet	
6					Bottom of test pit at approximately 5 feet below the ground surface.			
7								
8								
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1. Termination depth at 5' below grade.
2. The test pit excavations were backfilled by Rock River Irrigation using the excavated soils.

NE = Not Encountered
NA = Not Applicable



104 PLEASANT STREET
 CONCORD, NH 03301
 (603) 228-0008
 www.aries-eng.com

PROJECT: 3013 Cranberry Highway

LOCATION: Wareham, Massachusetts

TEST PIT NO. TP-4

SHEET 1 of 1

EXCAVATION CO. Rock River Irrigation

Groundwater Observations

FILE NO. 2021-120

FOREMAN Kenneth Beaulieu

DATE TIME DEPTH REFERENCE STAB T.

GROUND ELEVATION: 11.5 feet

ARIES REP. J. Drebaum

Grade

DATUM: NAVD 88

DATE 10/21/2021

DEPTH (feet bgs)	SAMPLE NO.	EXCAVATION EFFORT	SAMPLE INTERVAL (feet below grade)	PID HEADSPACE (PPMV)	SOIL DESCRIPTION	STRATA CHANGE	NOTES	NO EQUIPMENT INSTALLED	
					4" asphalt pavement	ASPHALT			
1	S-1	Easy	0.3 - 0.67	NA	S-1 (0.3-0.67 feet) - Sand, 10YR 6/3 (suspected fill materials)	SAND (FILL MATERIAL)			
	S-2	Easy	0.67 - 3.25	NA	S-2 (0.67-3.25 feet) - Sand, 10YR 6/4 (suspected fill materials)				
2									
3									
4	S-3	Easy	3.25 - 4.1	NA	S-3 (3.25-4.1 feet) - Loamy sand, 10YR 6/3 with bands of 10YR 4/1 and 10YR 2/1.	LOAMY SAND			
	S-4	Easy	4.1 - 5.4	NA	S-4 (4.1-5.4 feet) - Sand, 10YR 4/3 with bands of 10YR 6/6.	SAND			
5									
6					Test pit caving, groundwater not encountered.				
					Bottom of test pit at approximately 5.4 feet below the ground surface.				
7									
8									
9									
10									

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1. Termination depth at 5.4' below grade.
 2. The test pit excavations were backfilled by Rock River Irrigation using the excavated soils.

NE = Not Encountered
 NA = Not Applicable



104 PLEASANT STREET
CONCORD, NH 03301
(603) 228-0008
www.aries-eng.com

PROJECT: 3013 Cranberry Highway

LOCATION: Wareham, Massachusetts

TEST PIT NO. TP-5

SHEET 1 of 1

EXCAVATION CO. Rock River Irrigation

Groundwater Observations

FILE NO. 2021-120

FOREMAN Kenneth Beaulieu

DATE 10/21/2021 TIME 10:02:00 AM DEPTH 6.4 feet REFERENCE GRADE STAB T.

GROUND ELEVATION: 11.9 feet

ARIES REP. J. Drebaum

DATE 10/21/2021

DATUM: NAVD 88

DEPTH (feet bgs)	SAMPLE NO.	EXCAVATION EFFORT	SAMPLE INTERVAL (feet below grade)	PID HEADSPACE (PPMV)	SOIL DESCRIPTION	STRATA CHANGE	NOTES	NO EQUIPMENT INSTALLED
1	S-1	Easy	0 - 1.9	NA	S-1 (0-1.9 feet) - Sand, 10YR 5/4.	SAND		
2								
3	S-2	Easy	1.9 - 6.4	NA	S-2 (1.9-6.4 feet) - Sand, 10YR 6/3.	SAND		
4								
5					Oxidation line @ 4.4 feet below grade (5YR 5/8).		Oxidation staining	
6					Groundwater observed at 6.4 feet below grade.		Groundwater @ 6.4 feet	
7					Bottom of test pit at approximately 6.4 feet below the ground surface.			
8								
9								
10								

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1. Termination depth at 6.4' below grade.
 2. The test pit excavations were backfilled by Rock River Irrigation using the excavated soils.

NE = Not Encountered
NA = Not Applicable



104 PLEASANT STREET
CONCORD, NH 03301
(603) 228-0008
www.aries-eng.com

PROJECT: 3013 Cranberry Highway

LOCATION: Wareham, Massachusetts

TEST PIT NO. TP-6

SHEET 1 of 1

EXCAVATION CO. Rock River Irrigation

Groundwater Observations

FILE NO. 2021-120

FOREMAN Kenneth Beaulieu

DATE 10/21/2021 TIME 10:32:00 AM DEPTH 5.3 feet REFERENCE STAB T. Grade

GROUND ELEVATION: 11.0 feet

ARIES REP. J. Drebaum

DATE 10/21/2021

DATUM: NAVD 88

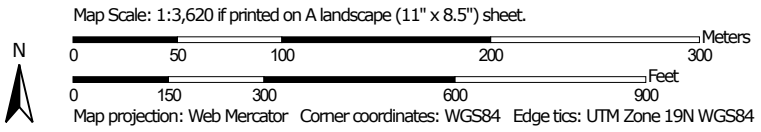
DEPTH (feet bgs)	SAMPLE NO.	EXCAVATION EFFORT	SAMPLE INTERVAL (feet below grade)	PID HEADSPACE (PPMV)	SOIL DESCRIPTION	STRATA CHANGE	NOTES	NO EQUIPMENT INSTALLED
---	S-1	Easy	0 - 0.6	NA	S-1 (0-0.6 feet) - Organic topsoil, roots.	TOPSOIL		
1	S-2	Easy	0.6 - 1.7	NA	S-2 (0.6-1.7 feet) - Sand and gravel, fill materials.	FILL MATERIAL		
2	S-3	Easy	1.7 - 2.7	NA	S-3 (1.7-2.7 feet) - Loamy sand, roots, asphalt, fill materials.			
3	S-4	Easy	2.7 - 4.5	NA	S-4 (2.7-4.5 feet) - Loamy sand, 10YR 6/5 and 10YR 4/3.	LOAMY SAND		
4								
5	S-5	Easy	4.5 - 5.8	NA	S-5 (4.5-5.8 feet) - Loamy sand, 10YR 3/2, slight sulfur odor. Groundwater seeping into test pit @ 5.3 feet below grade.		Sulfur odor Groundwater seep	
6					Bottom of test pit at approximately 5.8 feet below the ground surface.			
7								
8								
9								
10								

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1. Termination depth at 5.8' below grade.
2. The test pit excavations were backfilled by Rock River Irrigation using the excavated soils.

NE = Not Encountered
NA = Not Applicable

Soil Map—Plymouth County, Massachusetts
(3013 Cranberry Highway, Wareham, MA)




MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Plymouth County, Massachusetts

Survey Area Data: Version 14, Sep 2, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 10, 2018—Nov 17, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Water	12.4	20.5%
53A	Freetown muck, ponded, 0 to 1 percent slopes	2.1	3.5%
252C	Carver coarse sand, 8 to 15 percent slopes	1.0	1.6%
256A	Deerfield loamy fine sand, 0 to 3 percent slopes	0.2	0.4%
259B	Carver loamy coarse sand, 3 to 8 percent slopes	2.2	3.7%
637B	Carver - Urban land complex, 0 to 8 percent slopes	33.4	55.1%
665B	Udipsamments, 0 to 8 percent slopes	0.6	0.9%
702C	Udipsamments, 8 to 15 percent slopes	8.7	14.3%
Totals for Area of Interest		60.5	100.0%

Plymouth County, Massachusetts

637B—Carver - Urban land complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9y58

Elevation: 0 to 390 feet

Mean annual precipitation: 41 to 54 inches

Mean annual air temperature: 43 to 54 degrees F

Frost-free period: 145 to 240 days

Farmland classification: Not prime farmland

Map Unit Composition

Carver and similar soils: 45 percent

Urban land: 40 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Carver

Setting

Landform: Moraines, pitted outwash plains, outwash plains

Landform position (two-dimensional): Shoulder, summit

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Sandy glaciofluvial deposits

Typical profile

O_i - 0 to 2 inches: slightly decomposed plant material

O_e - 2 to 3 inches: moderately decomposed plant material

A - 3 to 7 inches: coarse sand

E - 7 to 10 inches: coarse sand

Bw₁ - 10 to 15 inches: coarse sand

Bw₂ - 15 to 28 inches: coarse sand

BC - 28 to 32 inches: coarse sand

C - 32 to 67 inches: coarse sand

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water

(K_{sat}): Moderately high to very high (1.42 to 14.17 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Very low (about 2.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: A

Ecological site: F149BY005MA - Dry Outwash

Hydric soil rating: No

Minor Components

Udipsamments

Percent of map unit: 10 percent

Landform: Dikes

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Tread

Down-slope shape: Linear, convex

Across-slope shape: Linear

Hydric soil rating: No

Merrimac

Percent of map unit: 5 percent

Landform: Kames, terraces, outwash plains

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Convex

Hydric soil rating: No

Data Source Information

Soil Survey Area: Plymouth County, Massachusetts

Survey Area Data: Version 14, Sep 2, 2021