2024-04-071

cervenka green & ducharme llc

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April 12, 2024

VIA EMAIL AND HAND DELIVERY
Coastal Resources Management Council
Oliver Stedman Government Center
4808 Tower Hill Road, Suite 116
Wakefield, RI 02879
cstaff1@crmc.ri.gov

Re: Quidnessett Country Club Petition for Change to Map of Water Type Classification for North Kingstown (north)

Dear CRMC Staff:

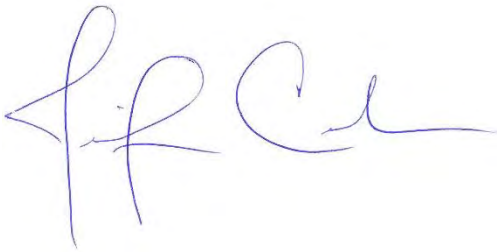
On behalf of our client Quidnessett Country Club ("QCC"), we are submitting a Petition for Change to Map of Water Type Classification for North Kingstown (north), brought pursuant to the Coastal Resources Management Council's Management Procedures, Rule 1.4.9.

QCC seeks a change to the CRMP water type classification abutting a segment of shoreline from the northeastern portion of the QCC's property (950 North Quidnessett Road) to the northern property line of the abutting property owned by the Pios Society of Missionaries (860 North Quidnessett Road). The waters adjacent to this area of shoreline are designated as Type 1 or "Conservation Area". However, since its original designation as Type 1, there have been considerable changes in the mainland uses in this area of shoreline. As a result, the predominant land uses are now medium to high-density recreational and residential. Such upland uses – which the Coastal Resources Management Program ("CRMP") describes as the "primary determinant of the uses and quality of any specific water site" – are more characteristic of Type 2 Waters or "Low Intensity Use". *See* CRMP 1.2.1 C (1) (Type 2 category includes areas that "support low intensity recreational and residential uses."). Indeed, the CRMC has characterized as Type 2 Waters an area just south of the QCC property next to medium-density residential use. Additionally, the QCC golf club and its surrounding uses are similar to two other golf clubs located on Rhode Island's shoreline, which abut waters designated as Type 2 and 4.

If the water type change is approved, the QCC will evaluate all alternatives for shoreline protection allowed by the CRMP in Type 2 Waters and apply for a Category B Assent to address the pending enforcement action for the rock revetment along its northeastern shoreline. Without the flexibility afforded for shoreline protection in areas abutting Type 2 Waters, the QCC will certainly lose a critical piece of its historic 18-hole golf course, and result in devastating losses to both its business and members, as well as thousands of individuals, businesses, and associations across the State that use QCC for professional golf tournaments, charity events, fundraisers, weddings, proms, and countless other engagements. For the last 30 years, the QCC has spent collectively over 1 million dollars on non-structural shoreline protection (the only type allowed next to Type 1 Waters), which, to date, has failed to protect its golf course from the damage of increasingly more intense and frequent coastal storms.

In support of our petition, we are enclosing three paper copies of a report from Ecotones, Inc. providing: 1) a proposed revised water type map for North Kingstown (north) (CRMP 1.6(I)(5)); and 2) a detailed statement of reasons, including historical data, land use analysis, and existing regulatory precedents, to support a water type change. Also included is a filing fee of $1,000.00.

Sincerely,
CERVENKA GREEN &
DUCHARME LLC



Jennifer R. Cervenka

Enclosures

2024-04-071

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ENVIRONMENTAL CONSULTANTS

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EAST GREENWICH, RI 02818
PHONE 401-256-5199
FAX 401-256-5191

Rhode Island Coastal Resources Management Program
Stedman Government Center
Wakefield, RI 02879

April 11, 2024
Project 23068

Water Type Map Change Petition
Quidnessett Country Club
North Kingstown, RI

Prepared for:

Quidnessett Country Club
950 North Quidnessett Road
North Kingstown, RI 02852

Prepared by:

Ecotones, Inc.
PO Box 1131
East Greenwich, RI 02818
www.ecotonesinc.com

TABLE OF CONTENTS

OVERVIEW: Quidnessett Country Club (QCC) is petitioning the Council to change the Water Type along a portion of the Club's shoreline frontage from Type 1 to Type 2, which would constitute a regulation change to the Water Type Classification Map for North Kingstown (north), found at the Coastal Resources Management Plan 1.6(I)(5). The petition is based on site characteristics, changes in the area since the original designation, and a land use analysis of similar properties.

SITE DESCRIPTION: The Club's signature feature is an 18-hole, par 72, 6,500-yard course, designed by the world renown golf course architect Geoffrey Cornish. The Club opened on January 24, 1960, with golf legend Sam Sneed and baseball legend Ted Williams serving on the Club's advisory board. Its first tournament featured Mr. Sneed and Arnold Palmer and benefited the Providence Polio Fund. (Tatro, 1994). In the 64 years since that opening, the Club has hosted thousands of golf tournaments, including State professional and amateur golf championships, as well as weekly non-profit, charity golf tournaments. Last year, the Club hosted the Rhode Island Golf Classic, the largest fundraiser put on by the Rhode Island Hospitality Association. The Club is a member of the Rhode Island Golf Association, a non-profit organization comprised of private and public clubs and courses dedicated to the service of golf in Rhode Island. The RIGA uses the Club course for its events three times per year. It has hosted several PGA Junior league team events over the last couple of years. In 2023, close to 20,000 rounds of golf were played at QCC, of which rounds 2,000 were for charitable fundraisers. (see Affidavit of Janice Mathews at Appendix A).

The Club employs up to 100 people, has over 1000 members, and paid over $125,000.00 in local taxes in 2023. Beyond golf, the Club is home to dozens of high school proms annually, and numerous weddings, fundraisers, University of Rhode Island events, business events to support the East Greenwich and North Kingstown Chamber of Commerce (in which the Club is an active member), and other social and non-profit events. Similar to most years, in 2023, public banquet traffic at QCC was close to 18,000 people (see Appendix A).

Prior to construction of the course at QCC, the area was primarily agricultural fields visible on 1939 and 1952 (RIGIS, 2014a, b) aerial photos. As revised in 1970, the 1957 USGS (1970) Topographic Map (Figure 1) depicts a golf course southwest of Tibbets Creek and a borrow pit on the northeast side in purple (indicating extension of urban areas). The map revisions were based on a 1970 aerial photo. The first areas of the course southwest of the creek and the excavation area to the northeast are apparent on the 1962 (RIGIS, 2014c) and 1972 (RIGIS, 2014d) aerial photos (Figure 2 and 3). The excavation was presumably used to provide the material to regrade/recontour the area as part of the course construction and expansion. The course in near-current layout is visible on the 1981 aerial photos (RIGIS, 2014e).

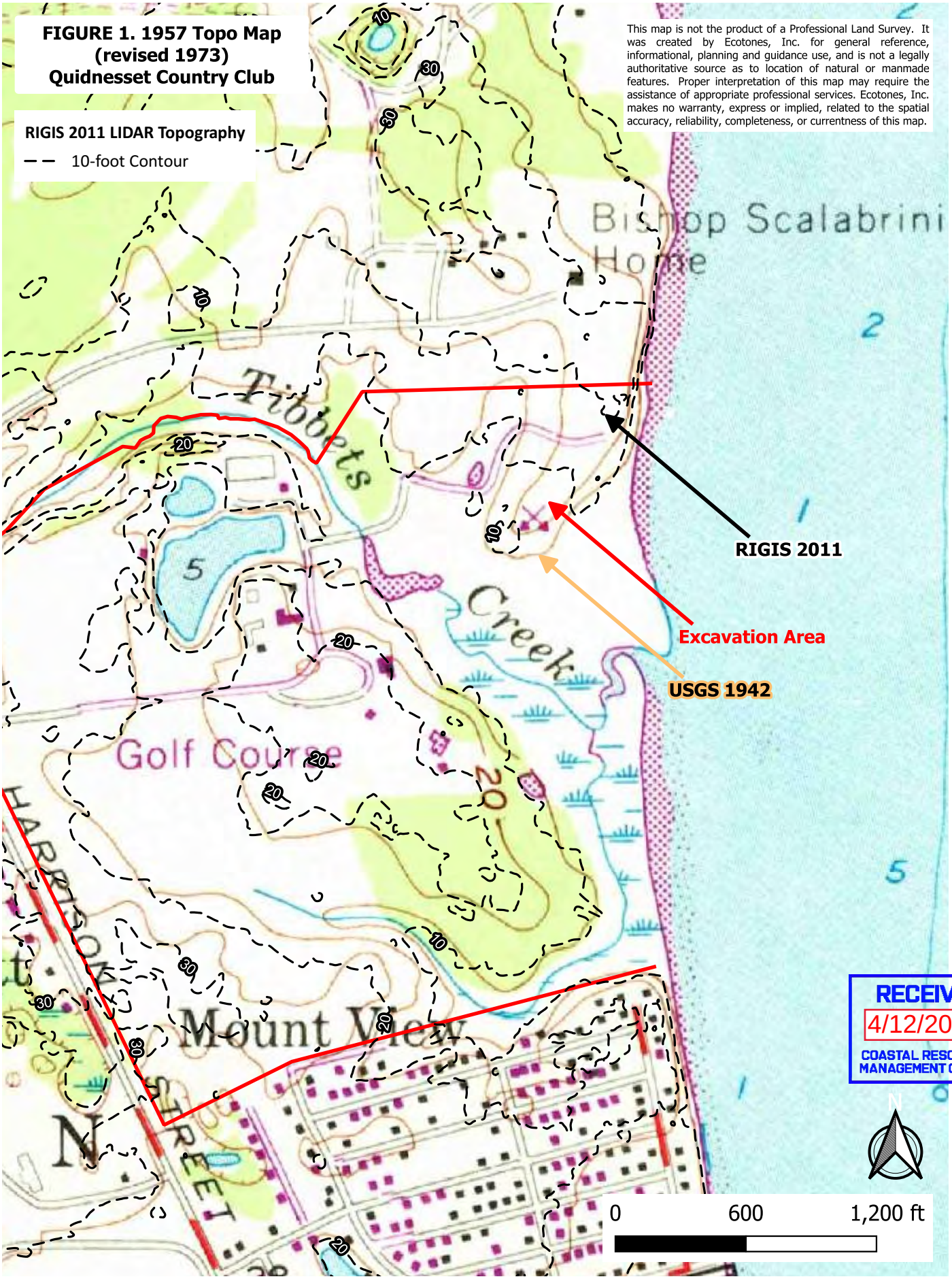
FIGURE 1. 1957 Topo Map
(revised 1973)
Quidnesset Country Club
RIGIS 2011 LIDAR Topography
10-foot Contour
This map is not the product of a Professional Land Survey. It was created by Ecotones, Inc. for general reference, informational, planning and guidance use, and is not a legally authoritative source as to location of natural or manmade features. Proper interpretation of this map may require the assistance of appropriate professional services. Ecotones, Inc. makes no warranty, express or implied, related to the spatial accuracy, reliability, completeness, or currentness of this map.
Bishop Scalabrini Home
Tibbets
Creek
Golf Course
Mount View
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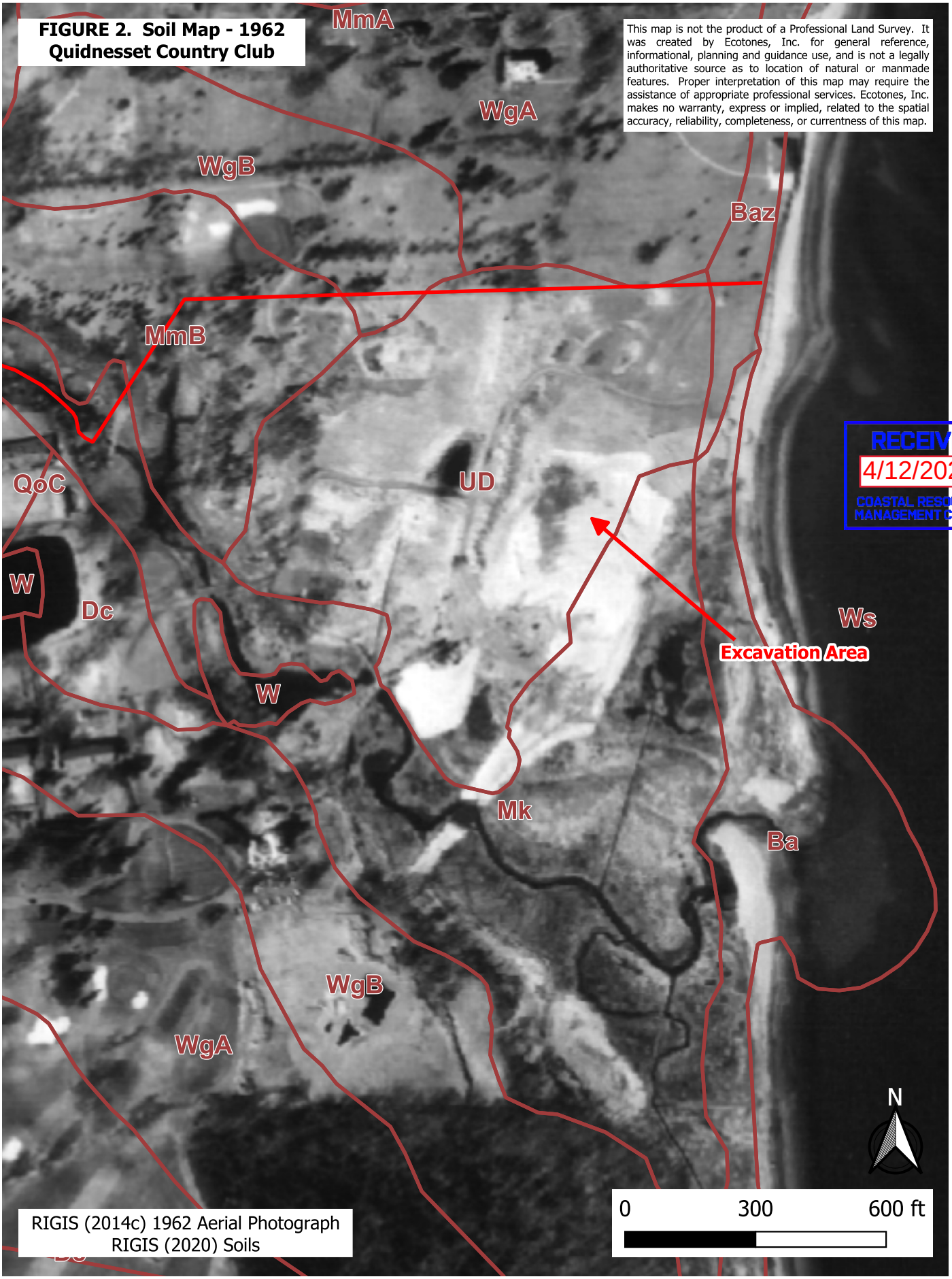
FIGURE 2. Soil Map - 1962
Quidnesset Country Club
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RIGIS (2014c) 1962 Aerial Photograph
RIGIS (2020) Soils

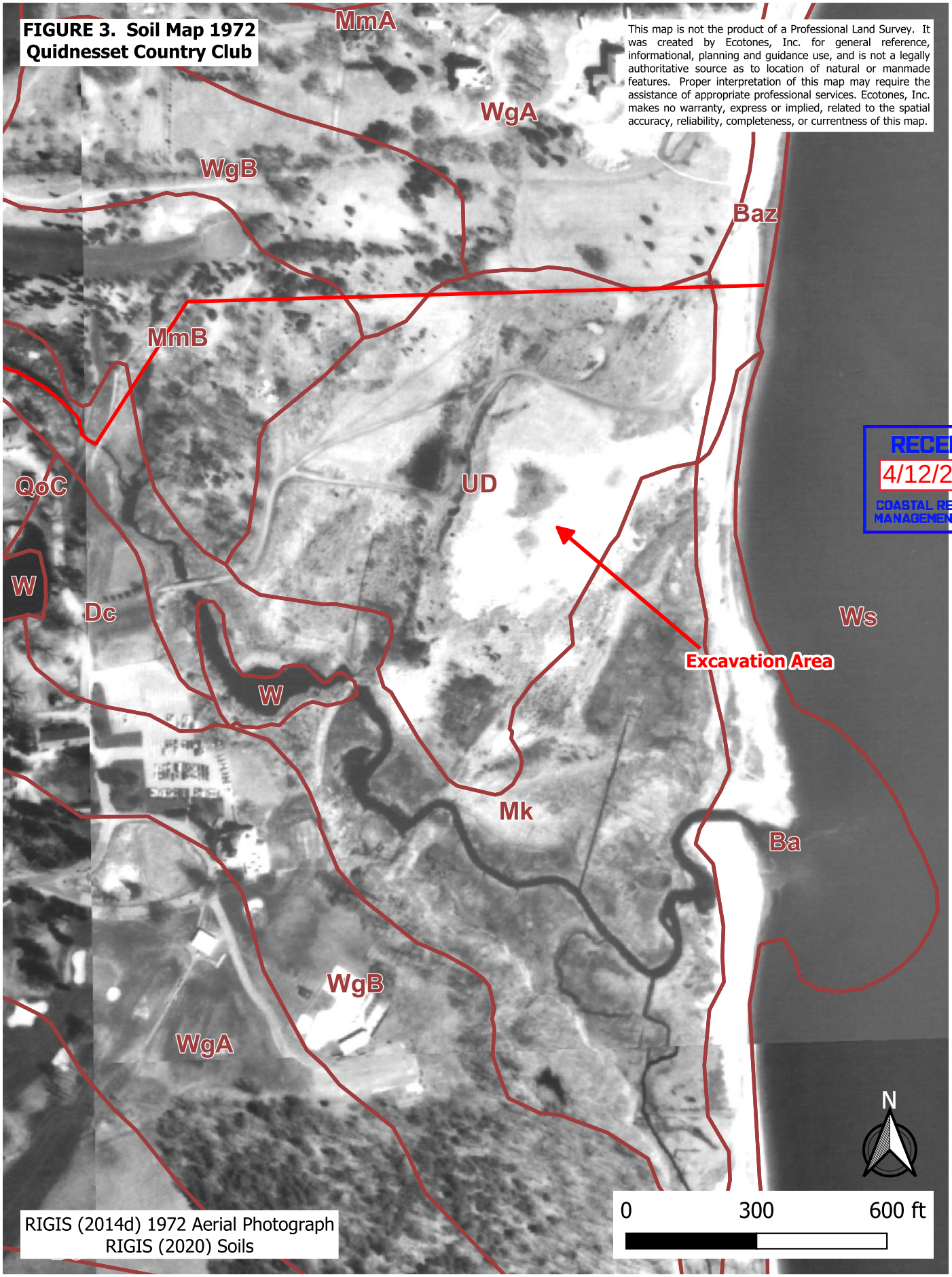
FIGURE 3. Soil Map 1972
Quidnesset Country Club
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RIGIS (2014d) 1972 Aerial Photograph
RIGIS (2020) Soils

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FIGURE 4b.
Coastal Features - North
RIGIS (2022) Spring Photo

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Photo 1. Coastal Features - South. Looking south towards Tibbets Creek outlet. Klinger. April 5, 2024.

Photo 2. Coastal Features - North. Looking north along shoreline. William Janikies. December 26, 2022.

After the CRMC's Water Types were defined in the late 1970's to early 1980's, two areas of condominiums were added to the golf course, including 17 buildings with 46 residential units. In addition, intensification of use on the northern abutting property, on which Bayview Rehabilitation and Healthcare Center at Scalabrini operates, doubled in size to provide care for up to 120 patients. See detail below.

Coastal Features**:** To the south, features include Type 1 Tidal Water, backed by a Coastal beach on an Undeveloped Coastal Barrier and contiguous Coastal Wetland extending inland/upstream along Tibbets Creek (Figure 4a & Photo 1). To the north, features include Coastal Beach, Rocky Shore, and Coastal Bluff (currently partially revetted) (Figure 4b & Photo 2).

PROPOSED TYPE CHANGE: The application proposes to have a portion of the Type 1 designation in the northeast section of the site to Type 2. Specifically, an area extending approximately 1,430 feet (0.27 miles) north of the wetland area/undeveloped barrier is proposed to be changed from Type 1 to Type 2 waters (Figure 5).

The proposed text change to CRMP 1.6(I) North Kingstown (north) Water Type Classification map is as follows:

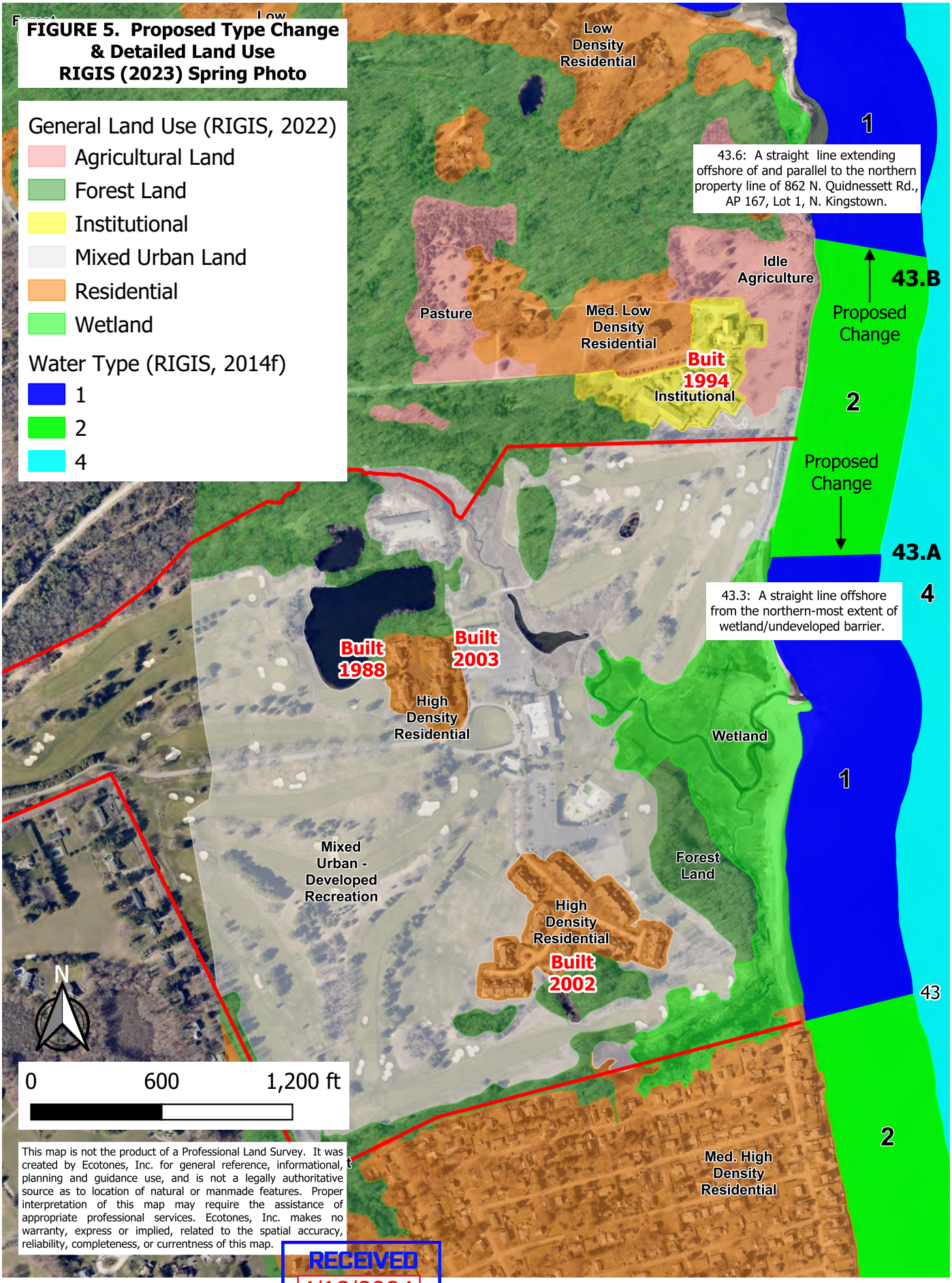
> *"43.A: A straight line offshore from the northern-most extent of wetland/undeveloped barrier.*
>
> *43.B: A straight line extending offshore of and parallel to the northern property line of 862 North Quidnessett Rd., AP 167, Lot 1, N. Kingstown."*

The change is based on review of the type definitions, land use analysis, and history of site disturbance.

Definitions: Coastal Resources Management Program (CRMP) § 1.2.1.A states: "*The six categories of waters…are directly linked to the characteristics of the shoreline, since the activities on the adjacent mainland are the primary determinant of the uses and qualities….*" (emphasis added)

"*Type 1 waters abut shorelines in a natural undisturbed condition, where alterations, including the construction of docks and any dredging, are considered by the Council as unsuitable. Type 2 waters are adjacent to predominantly residential areas, where docks are acceptable, but more intense forms of development, including more marinas and new dredging projects (but not maintenance dredging), would change the area's character and alter the established balance among uses. Alterations such as these would bring more intensive uses and are therefore prohibited in Type 2 waters.*"

FIGURE 5. Proposed Type Change & Detailed Land Use RIGIS (2023) Spring Photo



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Site Disturbance: A portion of the shoreline and adjacent mainland has been significantly modified and therefore "*natural habitat*" has not been maintained. Past disturbance is evident on soil and topographic mapping, historic aerial photos, and prior CRMC permits.

Soil Mapping: The northeast area of the course is mapped (Figure 2 & 3) as Udorthents – Urban Land Complex (UD) (NRCS, 2023). UD soil are entisols (young soils) formed from Human Transported Material (significantly filled or cut – not natural) with a typical profile depth of fill between 12 to 60 inches (NRCS, 2023). The original unit description in Rector (1981) defines UD as *"…soils that have been disturbed by cuffing or filling, and areas that are covered by buildings and pavement. Udorthents are in areas that have been cut to a depth of 2 feet or more or are on areas with more than 2 feet of fill. Most cut areas were used as a source of fill material, but in some areas cuts were made in order to level sites for buildings, recreational facilities, and roads…In some areas fill has been used to build up recreational areas and highways."* (emphasis added).

Topography: The topography depicted on the 1970-revised 1957 topographic map (USGS, 1970) was based on 1924 surveys (pre-course development). Compared to 2011 (RIGIS, 2013) and 2012 (USGS, 2021) topography, it appears over 10 feet of land were excavated in this area (Figure 1) - consistent with soil classification.

Permitted Modifications: Although intended to provide predominantly nonstructural erosion protection, CRMC Emergency Assent 2013-03-133 allowed for rearrangement of natural beach stone: "*Conditions for the Placement of Existing Beach Stone: 1. Only existing beach stone from the immediate vicinity…of the eroded bluff may be used…by stacking it against the scarp*".

Land Use: Based on the land use evaluation of other similar areas, as discussed below, Type 2 or even Type 4 designations are appropriate to portions of the QCC shoreline waters. Type 2 designation would continue to support recreational and residential uses while still protecting water quality and fish and wildlife habitat. Type 4 could result in future activities that could be detrimental to water quality and scenic value and possibly conflict with other regulations (RIDEM (2023) Water Quality Regulations, for example).

Although the QCC mainland activities are primarily High Density Recreational, it is intermixed with High Density Residential areas and adjacent to Medium High Density Residential areas to the south and Institutional (Bayview Rehabilitation and Healthcare Center at Scalabrini) and Medium Low Density Residential areas to the north (Figure 5). As such, a Type 2 designation appears consistent with the CRMP § 1.2.1.C definition:

"Type 2 Low Intensity Use

1. This category includes waters in areas with high scenic value that support low intensity recreational and residential uses. These waters include seasonal mooring areas where good water quality and fish and wildlife habitat are maintained." (emphasis added)

The scale of activity at QCC is at least low intensity recreation (arguably higher given the cited numbers of groups and users). The previously described intermixed and adjacent Medium Low to High Density residential areas and Institutional uses are also consistent with a Type 2 designation.

Land Use Changes: Since the original water types were defined, land use has changed. The golf course expanded to approximately its current configuration by 1981 (RIGIS, 2014e). Four condominiums buildings consisting of 7 residences, with a total of 14 bedrooms and 19,492 SF of living space were constructed in 1988 (Vision Government Solutions, Inc., 2024) on the west side of Eagle Drive. Another four were added in 2003 with the same number of units and bedrooms and 19,108 SF of living area. In 2002 nine buildings with 32 residences, 89 bedrooms, and a total of 85,348 SF of living area were constructed along Woods Way and Overlook Drive. Combined, a total of 17 high-density residential buildings with 46 units and associated roads, parking lots, and Onsite Wastewater Treatment Systems (OWTS) serving 117 bedrooms were added since the original water type designations.

To the north, adjacent institutional uses have also expanded considerably since the original water types were designated. The hospital doubled in size in 1994 to provide care for 120 patients (Bayview Rehabilitation at Scalabrini, 2024). Vision Government Solutions, Inc. (2024) lists the construction date as 1993. The expanded facility includes 60,380 SF of living area (Vision Government Solutions, Inc., 2024) associated parking driveways, and OWTS. This appears to be a generally equivalent intensity of use as compared to the condominiums (greater than low density residential development).

Although it appears the activity and uses may be greater than what is consistent with Type 2 areas, higher designations (3 or 4) appear inconsistent. Type 3 areas are more aligned with commercial boating facilities (CRMP § 1.2.1.A). As mentioned, a Type 4 designation may be inconsistent and conflict with other regulations and standards.

The CRMP § 1.2.1.B. definition for Type 1 Conservation Areas includes one or more of:

"a. Water areas that are within or adjacent to the boundaries of designated wildlife refuges and conservation areas;

b. Water areas that have retained natural habitat or maintain scenic values of unique or unusual significance;

Photo 3. Northern Lateral Access. Looking north along shoreline. William Janikies. October 30, 2012 7:55 AM. Newport Predicted High Tide at 8:43 AM. Quonset Point Predicted Hight Tide 8:49 AM (NOAA, 2024a & b).

Photo 4. Scenically Degraded Shoreline. View west at degraded bluff. William Janikies. December 23, 2012.

c. Water areas that are particularly unsuitable for structures due to their exposure to severe wave action, flooding, and erosion."

There are no designated refuges or conservation areas. While the wetland portion of the shoreline has retained habitat and scenic values, areas to the north have been modified.

Although subjective, no areas with unique or unusually significant scenic values are present. Other coastal areas identified for their scenic value have been designated as Coastal Natural Area (CRMP § 1.2.2.D.a.c). This area is not included in that list. This stretch of shoreline is largely isolated. There is no public access from the north and Tibbet's Creek limits access from the south (Figure 4b). In addition, the northern area (where the change is proposed) is comprised of jagged rocks that appears only readily passable at low tide when sandier areas are exposed (Photo 3). In addition, given the years of permitted shoreline protection implemented on the steep bluff and rocky shoreline, the area is significantly visually degraded (Photo 4).

There are no buildings in close proximity to erosional areas. The clubhouse is over approximately 700 feet from the closest coastal feature and over 1,000 feet from the shoreline. The closest condominium building is over 200 feet from the closest coastal feature and approximately 500 feet from the shoreline. Further, the shoreline area with medium residential just south of the QCC, which is subject to similar, if not, more exposure to wave action, flooding, and erosion, has been designated as Type 2.

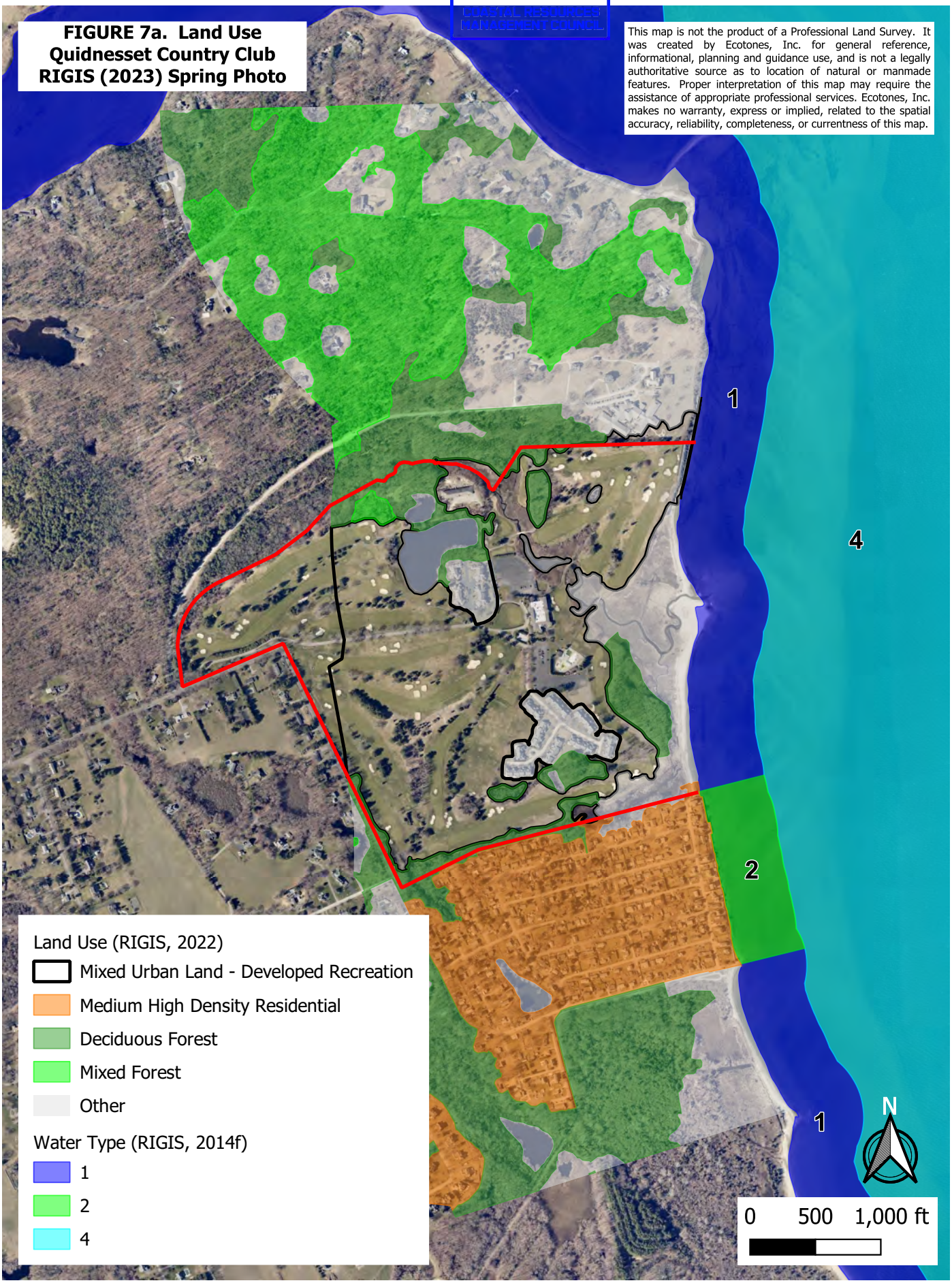
WATER TYPE COMPARISON: Land Use (RIGIS, 2022) surrounding QCC was evaluated to determine dominant uses around the course (combined to be more than 2/3rd of the total area). The area included ½ mile to either side of the course along shore and ½ mile inland. The dominant uses include: Mixed Urban Land – Developed Recreation (the course), Deciduous Forest, Mixed Forest, and Medium High Density Residential Land (Figure 7a).

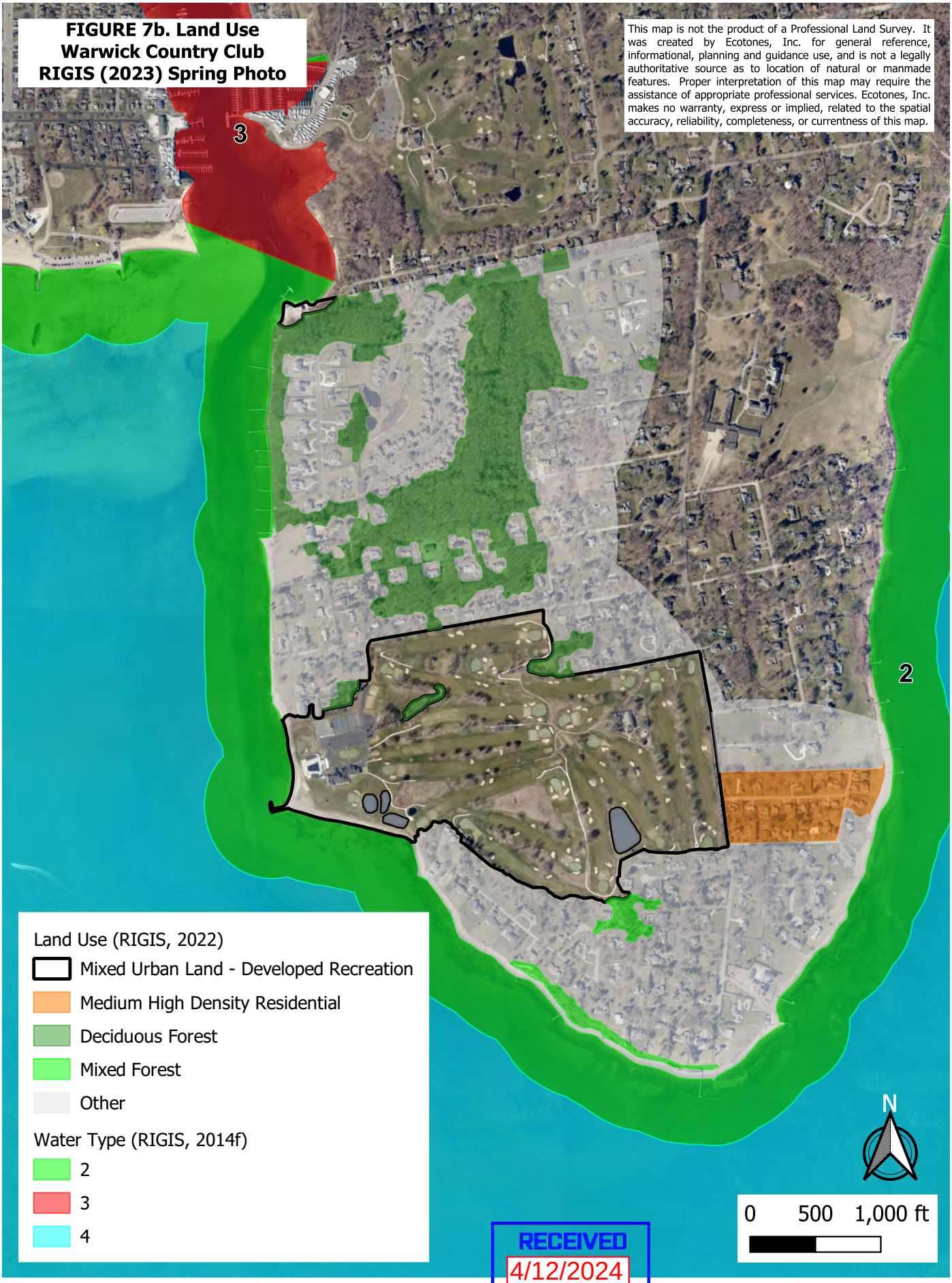
A review of similar areas around 8 other golf courses adjacent to Narraganset Bay (Figure 6) was conducted to compare the mainland uses and Water Type designations. The cumulative % area of the QCC dominant uses for each course were calculated and compared to provide a similarity index.

For example, the Warwick Country Club golf course (Developed Recreation) was 5% smaller than QCC, but the Deciduous Forest, Mixed Forest, and Medium High Density Residential were 1%, 17%, and 29% larger, respectively. Combined the uses were 42% larger than QCC (or alternatively 58% similar as compared to QCC). Other courses were 70% similar (Metacomet) to 7% similar (Jamestown).

Figure 6.
Narragansett Bay Golf Courses

FIGURE 7a. Land Use Quidnesset Country Club RIGIS (2023) Spring Photo





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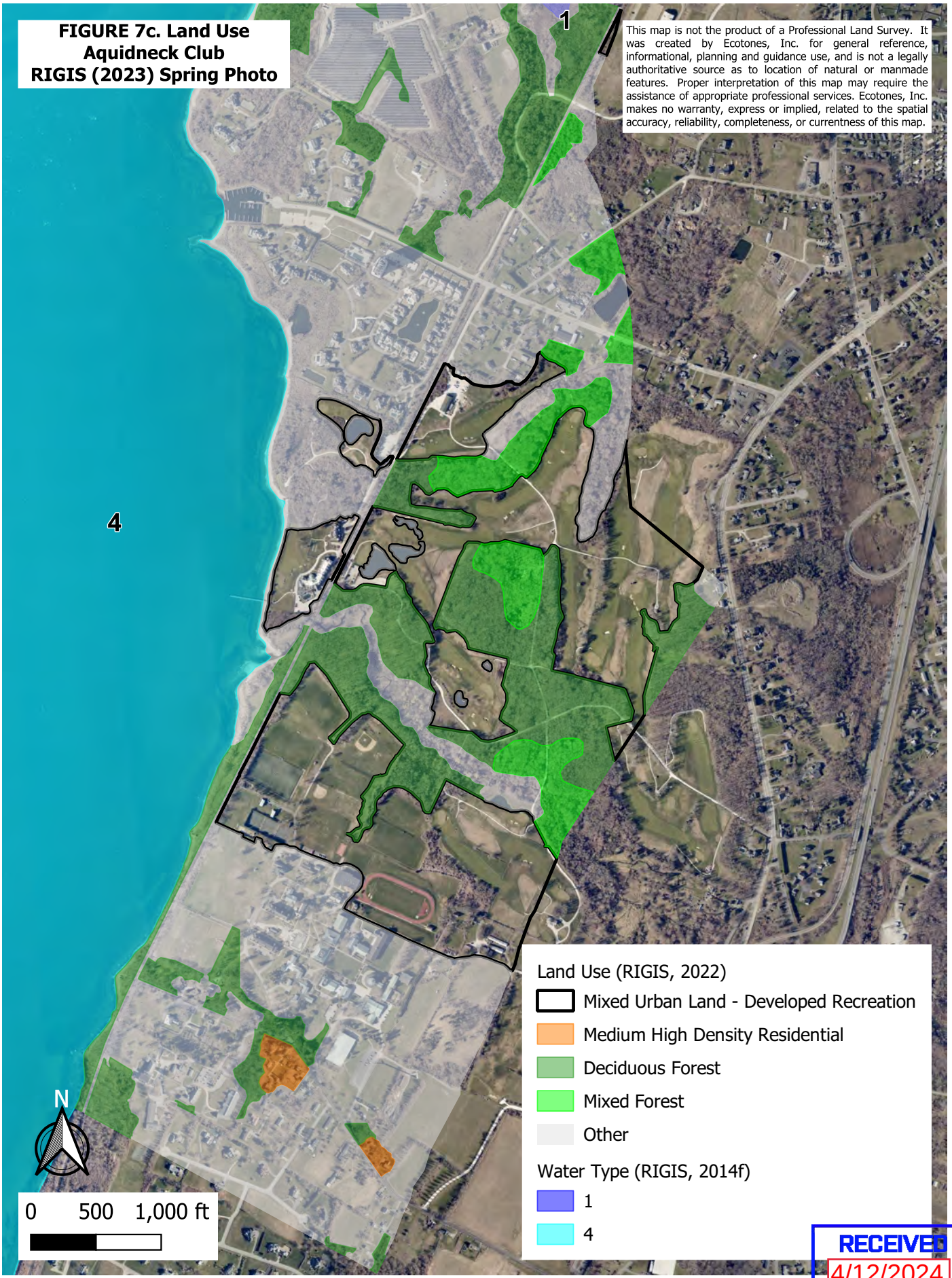

Three courses were reasonably similar and included water types varying from Type 1 to 5. The courses associated water type and % similarity to QCC dominant uses is summarized in Table 1 (the larger the %, the more similar to QCC). The compiled land use for each course is shown in Figures 7b & c. A summary of other courses is provided in Appendix B (Table B1). All land use data and calculations are provided in Appendix D.

Although Metacomet was determined to be the most similar based on the QCC dominant uses, its unique proximity to both port infrastructure (Type 5) and wetland areas (Type 1) appear to make it unsuitable for comparison (Appendix C. Figure AC1). The next most-similar courses (Warwick Country Club – Figure 7b and the Aquidneck Club – Figure 7c) were also the closest to QCC with Type 2 and Type 4 designations, respectively.

Table 1. Similar Course Summary

Course	Distance (miles)	Water Type	CUMULATIVE SIMILARITY	Mixed Urban -Developed Recreation	Deciduous Forest	Mixed Forest	Medium High Density Residential
Metacomet	11.5	1 & 5	70%	11%	-3%	-19%	-20%
Warwick	2.5	2	58%	-5%	1%	17%	29%
Aquidneck	8.2	4	53%	-1%	3%	15%	30%

See Appendix D for all land use data and calculations.

CONCLUSION: Based on a review of land use of comparable areas and more detailed evaluation of the site land use and changes over time, documentation of site disturbance, a Type 2 designation appears appropriate for a portion of the shoreline. Specifically, an area extending approximately 1,430 feet (0.27 miles) north of the wetland area/undeveloped barrier is proposed to be changed from Type 1 to Type 2 waters (Figure 5).

The proposed text change to CRMP 1.6(I) North Kingstown (north) Water Type Classification map is as follows:

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43.B: A straight line extending offshore of and parallel to the northern property line of 862 North Quidnessett Rd., AP 167, Lot 1, N. Kingstown."

CITATIONS:

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National Oceanic and Atmospheric Agency (NOAA). 2024b. Tides & Currents. 8454049 Quonset Point. RI. https://tidesandcurrents.noaa.gov/noaatidepredictions.html?id=8454049&units=standard&bdate=20121030&edate=20121030&timezone=LST/LDT&clock=12hour&datum=MLLW&interval=hilo&action=dailychart

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RIGIS. 2023. Rhode Island Aerial Photographs (March 2023). Rhode Island Geographic Information System (RIGIS) Data Distribution System, URL: https://www.rigis.org, Environmental Data Center, University of Rhode Island, Kingston, Rhode Island

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RIGIS. 2014b. 1952 Rhode Island Aerial Photograph. Rhode Island Geographic Information System (RIGIS) Data Distribution System, URL: https://www.rigis.org, Environmental Data Center, University of Rhode Island, Kingston, Rhode Island.

RIGIS. 2014c. 1962 Rhode Island Aerial Photograph. Rhode Island Geographic Information System (RIGIS) Data Distribution System, URL: https://www.rigis.org, Environmental Data Center, University of Rhode Island, Kingston, Rhode Island.

RIGIS. 2014d. 1972 Rhode Island Aerial Photograph. Rhode Island Geographic Information System (RIGIS) Data Distribution System, URL: https://www.rigis.org, Environmental Data Center, University of Rhode Island, Kingston, Rhode Island.

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APPENDIX A.

AFFIDAVIT OF JANICE MATHEWS

I, Janice Mathews, hereby declare as follows:

1. I am the Vice-President of Quidnessett Country Club ("QCC"), located at 950 North Quidnessett Road, North Kingstown, Rhode Island. I've held this position for the past thirty years.

2. I give this affidavit in support of QCC's Petition to the Rhode Island Coastal Resources Management Council ("CRMC") for Change to Map of Water Type Classification for North Kingstown (north).

3. I oversee and have personal knowledge of the operations of QCC.

4. I oversee and have personal knowledge of the maintenance of the golf course at QCC.

5. I oversee and have personal knowledge of the installation and maintenance of shoreline protection at the northeastern corner of the golf course.

6. The Club employs up to one hundred people, has over 1000 members, and paid over $125,000.00 in local taxes in 2023.

7. QCC has hosted thousands of golf tournaments, including State professional and amateur golf championships, as well as weekly non-profit, charity golf tournaments. Last year, the Club hosted the Rhode Island Golf Classic, the largest fundraiser put on by the Rhode Island Hospitality Association. The Club is a member of the Rhode Island Golf Association, a non-profit organization comprised of private and public clubs and courses dedicated to the service of golf in Rhode Island. The RIGA uses the Club course for its events three times per year. It has hosted several PGA Junior league team events over the last couple of years. In 2023, close to

20,000 rounds of golf were played at QCC, of which rounds 2,000 were for charitable fundraisers.

8. The Club is home to dozens of high school proms annually, and numerous weddings, fundraisers, University of Rhode Island events, business events to support the East Greenwich and North Kingstown Chamber of Commerce (in which the Club is an active member), and other social and non-profit events. In 2023, public banquet traffic at QCC was close to 18,000 people.

9. Over the last thirty years, QCC has spent close to $1,000,000.00 on the installation and maintenance of non-structural shoreline protection on the eroding bluff and rocky shore in the northeastern corner of the QCC property, adjacent to its fourteenth hole. These measures have failed to protect the golf course and ensure the safety of the course users.

10. The photographs of the subject shoreline that are included in the Ecotones, Inc. report as photographs 2-4 were taken by William Janikies in my presence between 2012 and 2022.

Signed this 10 day of April, 2024 under the pains and penalties of perjury.

Janice Mathews

STATE OF RHODE ISLAND
COUNTY OF ~~NEWPORT~~ PROVIDENCE

In CRANSTON, in said County, on the 10TH day of APRIL, 2024 before me personally appeared the within-named Janice Mathews, to me known and known by me to be the person executing the foregoing instrument, and she acknowledged said instrument by her so executed to be her free act and deed.

Notary Public
Print Name: GARY A. KACHADOURIAN
My Commission Expires: 4/7/27
Notary ID No.: 44776

GARY A. KACHADOURIAN NOTARY I.D. #44776 PUBLIC RHODE ISLAND

APPENDIX B.

Table B1. Other Course Summary

Course	Distance (miles)	Water Type	CUMULATIVE SIMILARITY	Mixed Urban - Developed Recreation	Deciduous Forest	Mixed Forest	Medium High Density Residential
Sakonnet	16.7	1	45%	1%	4%	20%	30%
Wanumetonomy	9.4	4	36%	1%	9%	25%	29%
Rhode Island	7.4	1	31%	6%	12%	28%	23%
Montaup	9.4	2	31%	4%	18%	31%	15%
Jamestown	9.7	1	7%	10%	17%	32%	34%

See Appendix D for all land use data and calculations.

APPENDIX C. Metacomet Country Club Generalized Land Use

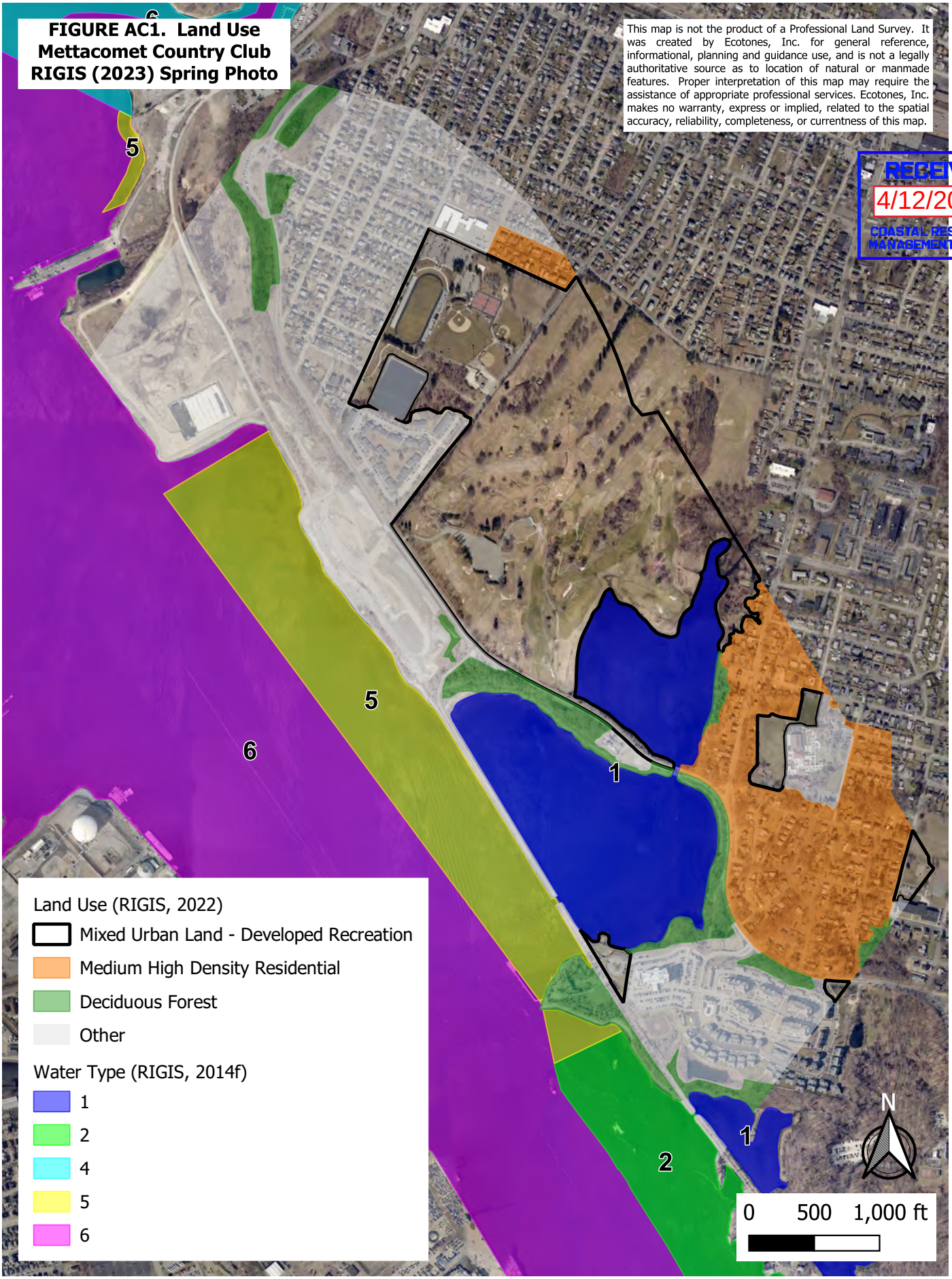
FIGURE AC1. Land Use
Mettacomet Country Club
RIGIS (2023) Spring Photo
This map is not the product of a Professional Land Survey. It was created by Ecotones, Inc. for general reference, informational, planning and guidance use, and is not a legally authoritative source as to location of natural or manmade features. Proper interpretation of this map may require the assistance of appropriate professional services. Ecotones, Inc. makes no warranty, express or implied, related to the spatial accuracy, reliability, completeness, or currentness of this map.
RECEIVED
4/12/2024
COASTAL RESOURCES MANAGEMENT COUNCIL
Land Use (RIGIS, 2022)
Mixed Urban Land - Developed Recreation
Medium High Density Residential
Deciduous Forest
Other
Water Type (RIGIS, 2014f)
1
2
4
5
6
N
0 500 1,000 ft

APPENDIX D. Land Use Data

	Metacomet		Type 1 & 5	Warwick CC		Type 2	Aquidneck Club		Type 4	Sakonet CC		Type 1	Wanumetonomy CC		Type 4	Montaup CC		Type 2	Rhode Island CC		Type 1	Jamestown CC		Type 1		ALL	
	% area	cumulative % area	QCC Similarity 70%	% area	cumulative	QCC Similarity 58%	% area	cumulative	QCC Similarity 53%	% area	cumulative	QCC Similarity 45%	% area	cumulative	QCC Similarity 36%	% area	cumulative	QCC Similarity 31%	% area	cumulative	QCC Similarity 31%	% area	cumulative	QCC Similarity 7%	% diff.	Cuml.	56%
Developed Recreation (all recreation)	33%	33%	11%	26%	26%	5%	23%	23%	1%	21%	21%	-1%	20%	20%	-1%	17%	17%	-4%	15%	15%	-6%	11%	11%	-10%	20%	20%	-2%
Deciduous Forest (>80% hardwood)	7%	40%	-3%	15%	41%	-1%	16%	39%	-3%	18%	38%	-4%	14%	34%	-9%	7%	24%	-18%	16%	31%	-12%	14%	25%	-17%	14%	34%	-9%
Mixed Forest	0%	40%	-19%	1%	42%	-17%	4%	43%	-15%	0%	38%	-20%	0%	34%	-25%	3%	27%	-31%	0%	31%	-28%	1%	27%	-32%	3%	37%	-22%
Medium High Density Residential (1/4 to 1/8 acre lots)	14%	54%	-20%	3%	45%	-29%	1%	44%	-30%	6%	44%	-30%	11%	45%	-29%	31%	58%	-15%	19%	50%	-23%	13%	40%	-34%	14%	50%	-24%
Land Use 2020	**MCCC Acres**	**MCCC %**	**MCCC % CML**	**WKCC Acres**	**WKCC %**	**WKCC % CML**	**AQC Acres**	**AQC %**	**AQC % CML**	**SKCC Acres**	**SKCC %**	**SKCC % CML**	**WYCC Acres**	**WYCC %**	**WYCC % CML**	**MPCC Acres**	**MPCC %**	**MPCC % CML**	**RICC Acres**	**RICC %**	**RICC % CML**	**JTCC Acres**	**JTCC %**	**JTCC % CML**	**ALL Acres**	**ALL %**	**ALL % CML**
Developed Recreation (all recreation)	12.953	33%	33%	10.335	26%	75%	13.464	23%	23%	11.346	21%	21%	9.737	20%	52%	12.279	17%	48%	10.59	15%	76%	8.836	11%	58%	100.486	20%	20%
Deciduous Forest (>80% hardwood)	2.852	7%	88%	5.927	15%	90%	9.658	16%	39%	9.545	18%	38%	6.565	14%	65%	4.773	7%	78%	10.88	16%	61%	10.837	14%	34%	71.868	14%	49%
Mixed Forest		0%	100%	0.402	1%	98%	2.476	4%	81%		0%	100%		0%	100%	2.328	3%	81%	0.223	0%	99%	1.116	1%	96%	14.934	3%	84%
Medium High Density Residential (1/4 to 1/8 acre lots)	5.756	14%	68%	1.242	3%	93%	0.538	1%	98%	3.049	6%	93%	5.295	11%	76%	21.935	31%	31%	13.521	19%	46%	10.251	13%	47%	69.285	14%	62%
Low Density Residential (>2 acre lots)		0%	100%		0%	100%		0%	100%	0.324	1%	100%		0%	100%		0%	100%	0.13	0%	100%	1.561	2%	88%	5.899	1%	94%
Wetland	0.131	0%	100%		0%	100%	2.882	5%	77%	6.749	12%	67%	1.653	3%	93%	8.385	12%	60%	5.418	8%	84%	7.575	10%	68%	35.978	7%	69%
Water	0.359	1%	98%	0.22	1%	99%	0.777	1%	95%	3.389	6%	87%	0.325	1%	99%	1.009	1%	97%	4.852	7%	91%	0.185	0%	100%	12.395	2%	86%
Idle Agriculture (abandoned fields and orchards)		0%	100%	0.175	0%	100%		0%	100%		0%	100%		0%	100%		0%	100%		0%	100%		0%	100%	1.193	0%	99%
High Density Residential (<1/8 acre lots)	8.25	21%	53%	0.19	0%	99%	3.804	6%	66%		0%	100%	2.18	5%	86%	0.639	1%	98%		0%	100%	1.136	1%	95%	17.203	3%	78%
Medium Low Density Residential (1 to 2 acre lots)		0%	100%	0.323	1%	98%	1.308	2%	90%	1.781	3%	96%		0%	100%		0%	100%	0.414	1%	99%	1.462	2%	92%	6.199	1%	93%
Institutional (schools, hospitals, churches, etc.)	0.925	2%	93%		0%	100%	6.318	11%	50%		0%	100%	15.08	31%	31%		0%	100%	0.155	0%	100%	1.787	2%	86%	24.803	5%	74%
Brushland (shrub and brush areas, reforestation)	1.071	3%	91%	0.064	0%	100%	3.734	6%	72%		0%	100%	0.387	1%	98%	1.81	3%	89%		0%	100%	0.725	1%	98%	8.197	2%	88%
Pasture (agricultural not suitable for tillage)		0%	100%	0.92	2%	95%	2.405	4%	85%	4.152	8%	75%		0%	100%		0%	100%	1.925	3%	94%	7.013	9%	77%	16.813	3%	81%
Cropland (tillable)		0%	100%		0%	100%	1.672	3%	88%	3.546	7%	81%		0%	100%	0.277	0%	99%	0.526	1%	99%	1.176	2%	93%	7.533	1%	89%
Beaches		0%	100%	0.572	1%	97%	0.785	1%	94%	0.7	1%	98%	0.164	0%	100%	1.751	2%	94%	1.505	2%	96%	0.827	1%	97%	6.518	1%	92%
Softwood Forest (>80% softwood)		0%	100%		0%	100%		0%	100%		0%	100%	0.002	0%	100%		0%	100%	0.607	1%	97%		0%	100%	0.794	0%	100%
Orchards, Groves, Nurseries		0%	100%		0%	100%		0%	100%		0%	100%		0%	100%		0%	100%		0%	100%		0%	100%	0.058	0%	100%
Medium Density Residential (1 to 1/4 acre lots)	0.004	0%	100%	19.237	49%	49%	5.497	9%	59%	8.846	16%	55%	1.519	3%	96%	7.749	11%	71%	18.293	26%	26%	15.26	20%	20%	76.405	15%	35%
Vacant Land	5.379	14%	81%		0%	100%	0.504	1%	99%		0%	100%	0.024	0%	100%	1.014	1%	96%	0.064	0%	100%	0.203	0%	100%	7.188	1%	91%
Sandy Areas (not beaches)		0%	100%		0%	100%	0.24	0%	100%	0.37	1%	99%	1.834	4%	90%	2.195	3%	84%	0.592	1%	98%	0.443	1%	99%	5.674	1%	96%
Commercial (sale of products and services)	0.869	2%	96%		0%	100%	0.094	0%	100%	0.62	1%	99%		0%	100%	1.792	3%	92%		0%	100%	1.947	3%	83%	5.322	1%	97%
Roads (divided highways >200' plus related facilities)	0.328	1%	99%		0%	100%		0%	100%		0%	100%		0%	100%	1.887	3%	87%		0%	100%	2.851	4%	81%	5.066	1%	98%
Cemeteries		0%	100%		0%	100%		0%	100%		0%	100%	2.567	5%	81%		0%	100%		0%	100%		0%	100%	2.567	1%	98%
Railroads (and associated facilities)	0.8	2%	98%		0%	100%	0.617	1%	96%		0%	100%	0.567	1%	98%	0.583	1%	99%		0%	100%		0%	100%	2.567	1%	99%
Commercial/Residential Mixed		0%	100%		0%	100%		0%	100%		0%	100%		0%	100%		0%	100%		0%	100%	1.508	2%	90%	1.508	0%	99%
Industrial (manufacturing, design, assembly, etc.)		0%	100%		0%	100%	1.285	2%	92%		0%	100%		0%	100%	0.21	0%	100%		0%	100%		0%	100%	1.495	0%	99%
Transitional Areas (urban open)		0%	100%		0%	100%	0.576	1%	97%		0%	100%		0%	100%	0.166	0%	100%	0.051	0%	100%		0%	100%	0.793	0%	100%
Water and Sewage Treatment	0.136	0%	100%		0%	100%		0%	100%		0%	100%		0%	100%		0%	100%		0%	100%	0.634	1%	99%	0.77	0%	100%
Waste Disposal (landfills, junkyards, etc.)		0%	100%		0%	100%	0.4	1%	99%		0%	100%		0%	100%		0%	100%		0%	100%		0%	100%	0.4	0%	100%
Other Transportation (terminals, docks, etc.)		0%	100%		0%	100%		0%	100%		0%	100%	0.265	1%	100%		0%	100%		0%	100%		0%	100%	0.265	0%	100%
Rock Outcrops		0%	100%		0%	100%		0%	100%	0.045	0%	100%		0%	100%		0%	100%		0%	100%		0%	100%	0.045	0%	100%
Grand Total	39.813	100%	100%	39.607	100%	100%	59.034	100%	100%	54.462	100%	100%	48.164	100%	100%	70.782	100%	100%	69.746	100%	100%	77.333	100%	100%	510.221	100%	100%