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Agricultural Properties of Southern Aroostook County, Maine
Name of Multiple Property Listing

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National Register of Historic Places Multiple Property Documentation Form

This form is used for documenting property groups relating to one or several historic contexts. See instructions in National Register Bulletin *How to Complete the Multiple Property Documentation Form* (formerly 16B). Complete each item by entering the requested information.

New Submission Amended Submission

A. Name of Multiple Property Listing

Agricultural Properties of Southern Aroostook County, Maine

B. Associated Historic Contexts

(Name each associated historic context, identifying theme, geographical area, and chronological period for each.)

Southern Aroostook County Agriculture, 1805–1940
Southern Aroostook County Agricultural Architecture and Landscape, 1805–1940

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D. Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this documentation form meets the National Register documentation standards and sets forth requirements for the listing of related properties consistent with the National Register criteria. This submission meets the procedural and professional requirements set forth in 36 CFR 60 and the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation.

Eric S. Dewey Director/SHPO Date 11/10/14
Signature of certifying official Title Date
Maine Historic Preservation Commission
State or Federal Agency or Tribal government

I hereby certify that this multiple property documentation form has been approved by the National Register as a basis for evaluating related properties for listing in the National Register.

[Signature]
Signature of the Keeper

12/31/14
Date of Action

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Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C.460 et seq.).

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E. Statement of Historic Contexts

Introduction

The Agricultural Properties of Southern Aroostook County, Maine Multiple Property Documentation Form (MPDF) encompasses the southern section of Aroostook County, the largest county east of the Mississippi River, and the northeastern-most county in the United States. The MPDF presents the agricultural historic context for the 46 towns¹ that comprise southern Aroostook County, and focuses on case studies in the nine adjacent towns at the center of the area: Dyer Brook, Island Falls, T4 R3 WELS, Oakfield, Smyrna, Merrill, Ludlow, New Limerick, and Linneus. The context also highlights the development of Houlton, the county seat and the earliest and largest community in southern Aroostook County, which is located directly east of Ludlow and New Limerick. The agrarian-based individual properties and rural historic districts property types addressed within the submission are unified by broad trends and patterns of events within two thematic agricultural historic contexts: Southern Aroostook County Agriculture, 1805–1940 and Southern Aroostook County Agricultural Architecture and Landscape, 1805–1940. The overall period of significance for both agricultural-related historic contexts begin with the first permanent European settlement in southern Aroostook County at Houlton, and end in 1940, a date associated with the start of major shifts in farming practices and economics towards consolidation and commercialization that became fully evident after World War II.²

Southern Aroostook County possesses a long continuity of agricultural history that has shaped its development and appearance today. It is within the area renowned as the nation's first premier region of potato crop production, which reached its zenith between 1893 and about 1940 when Aroostook County was referred to as "The Garden of Maine" (Day 1963:123). The area also has a complementary rich history as a place of English frontier settlements, and sections remained as enduring wilderness well into the nineteenth century. The legacy of initial agrarian homesteading and mixed husbandry shifted starting in the mid-nineteenth century to agricultural experimentation and progress with specialized products that accelerated over subsequent decades. Spurred by shipping improvements afforded by the Bangor & Aroostook Railroad built in 1893, the regional farming economy emphasized the commercial mono-culture of potatoes in the late nineteenth and twentieth centuries.

By the early twentieth century, further changes in southern Aroostook County's economic structure began with improvements in farming methods, specialization, and competition from the Midwest and South. Many smaller farms discontinued operations, and the trend towards consolidation into a few larger, more commercialized farms became prevalent, which would dominate Maine farming after World War II (after the end date of this historic context). Agricultural buildings such as mixed-use barns, potato houses, stables, workshops, and other building types often fell into disuse and received little maintenance with the decline in individual farms. Numerous buildings have already been lost, and surviving examples are threatened by deterioration.

This heritage, traced through 200 years of social and economic history, defines the region's distinctive cultural, settlement, and land use patterns. Scenic rural cultural landscapes and simple architecture characterize the region and express the agricultural themes. Large-scale and modest-sized farms sprawl across land of great natural beauty with

¹ The referenced 46 towns in southern Aroostook County are, in order generally northwest to southeast: T8 R5, St. Croix Township (Twp.), T8 R3 WELS, TC R2 WELS, Bridgewater, Monticello, T7 R5, Webbertown Twp., Dudley Twp., Hammond, Littleton, Moro Plantation (Plt.), Merrill, Smyrna, Ludlow, New Limerick, Houlton, Hersey, Dyer Brook, Oakfield, Linneus, Hodgdon, Crystal, Island Falls, T4 R3 WELS, TA R2 WELS, Cary Plt., Sherman, T3 R4 WELS, T3 R3 WELS, Forkstown Twp., Amity, Benedicta, Silver Ridge, T2 R4 WELS, Glenwood, Haynesville, Orient, T1 R5 WELS, Molunkus Twp., Upper Molunkus, North Yarmouth Academy Grant, Macwahoc, Reed Plt., Bancroft, and Weston (USDA 1963).

² The end date coincides with the publication of Clarence A. Day's *Farming in Maine 1860-1940* (1963), which covers the period between the beginning of the Civil War and the start of World War II, and is the principle comprehensive study and compiled synthesis of Maine agriculture in the twentieth century. No comparable overview analysis has yet been prepared for the subsequent decades. This MPDF may be amended in the future to encompass historic contexts and associated property types for the World War II and post-war periods.

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rolling hills and broad valleys affording expansive vistas of Mount Katahdin to the west. Small town centers, often not more than a crossroads, are linked by a network of roads. The Bangor & Aroostook Railroad corridor spine that extends northeast–southwest through the region connects towns with markets to the south and to central and northern Aroostook County.

This MPDF nomination provides two comprehensive over–arching historic contexts (referenced above) and associated property types for the future identification, documentation, evaluation, and nomination of agricultural properties in southern Aroostook County in the period 1805 to 1940. It establishes two frameworks to record and understand the characteristics and significance of these important farm buildings and their rural cultural landscape. The MPDF concentrates on the histories and resources of nine towns as case studies and illustrative examples, and provides a basis for applying the contexts and associated property types to all 46 towns in southern Aroostook County.

Properties Previously Listed in the National Register

Three historic agricultural properties in southern Aroostook County within these thematic historic contexts were previously listed in the National Register:

Donovan–Hussey Farm Historic District, Houlton (listed 2009)
Monticello Grange #338, Monticello (listed 2000)
Oakfield Grange #414, Oakfield (listed 2006, demolished 2012)

E.1 Southern Aroostook County Agriculture, 1805–1940

E.1.a. Natural Resources and Setting

Southern Aroostook County is the southeastern–most portion, or panhandle, of Aroostook County, an L–shaped county at the northeastern–most corner of Maine and the United States at the border with Canada. Aroostook County in total covers 6,820 square miles and includes 2 cities, 54 towns, 11 plantations, and 108 unorganized townships. Southern Aroostook County encompasses overall 1,649 square miles and 46 towns (33 towns, 3 plantations, and 10 unorganized townships) (USDA 1963). Southern Aroostook County’s oldest settlement and agricultural center, and the Aroostook County seat, at Houlton sits on the eastern county boundary with New Brunswick, Canada. The nine case study communities at the center of southern Aroostook County extend across 325 square miles.³

Southern Aroostook County communities developed agriculture–based economies during the late nineteenth and first half of the twentieth centuries in accordance with their individual social and economic history and, after 1894, their position in relation to the Bangor & Aroostook Railroad. Natural ecology factors also shaped agricultural practices and patterns of growth and land use in each town.⁴ By the late nineteenth century, Aroostook County was considered to be divided into three agricultural regions dominated by potato production consisting of southern Aroostook County (south–east), central Aroostook County (east–central), and northern Aroostook County (north–east). The northern and northwestern portion of Aroostook County was, and still is, predominantly forested. Aside from Houlton, the three communities of Island Falls, Oakfield, and Sherman with station stops on the Bangor & Aroostook Railroad have historically been the largest town centers in southern Aroostook County. Other communities such as Dyer Brook, Smyrna, Linneus, New Limerick, Merrill, Ludlow, and T4 R3 WELS have remained more rural.

The Meduxnekeag River, which rises from the outflow of Meduxnekeag Lake (locally known as "Drews Lake") in New Limerick, drains the Houlton area at the northeast corner of southern Aroostook County. The river lies within the

³ Please see map delineating Southern Aroostook County at the end of Section E, page 46.

⁴ Information based on the nine case study communities and Houlton.

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extensive watershed of the St. John River, which runs through northwestern Aroostook County, the northeastern-most corner of Maine, and New Brunswick, Canada to the Bay of Fundy. The Mattawamkeag River drains the remainder of southern Aroostook County. The East Branch (sourced in Dudley Township) and the West Branch (sourced in T6 R6 WELS, Penobscot County) join at Haynesville in the Penobscot River watershed that empties into Penobscot Bay.

The natural topography and soil characteristics of southern Aroostook County have profoundly influenced the evolution of farming from initial agrarian homesteading and mixed husbandry to high volume commercial agriculture of specialized products for export. Two predominant sets of fertile soil types in southern Aroostook County have supported extensive farming. The Caribou-Mapleton-Conant complex, which are shallow to moderately deep silty and gravelly loams derived chiefly from limestone, are well suited for cultivation. These prime agricultural soils occur in a narrow band on the gently rolling upland ridges in the eastern townships that border Canada, extending from south of Hodgdon to north of Bridgewater, as well as in the towns of Linneus and New Limerick. About three-quarters of these soil areas have been used for potato growing in rotation with oats and grass-clover. The Plaisted-Perham-Howland smoothly sloping soils that are derived mostly from acid rocks are found on glacial till ridges and depressions in the northwestern and south-central sections of southern Aroostook County. Some areas in Sherman, Crystal, Hersey, and Dyer Brook townships have been cleared for potatoes, oats, and hay growing, and pastures, but most land with this soil association has remained forested. Annual precipitation in rain and snow, and rivers, streams, and lakes has provided sufficient water for crop irrigation, domestic use, and natural resource based industries (USDA 1964:2-3).

E.1.b. Historical Overview

Early Settlement

In the eighteenth century, Maine was a frontier area of Massachusetts between the North American colonies of New England, New France, and the homelands of the Eastern Abenaki Native Americans to the north and west. While the extensive lumber and hunting resources of the Maine woods drew lumbermen, traders, and trappers to remote areas, the majority of English settlers stayed in the southern coastal and river corridor areas of Maine until the early nineteenth century. During this time, early settlement of the immense Aroostook County area was scattered and disrupted by the turmoil of the French and Indian War (1754-1763) between Britain and France. The war established the Aroostook region as a British, rather than French, settlement area.

After the American Revolution (1775-1783), Maine remained a district of Massachusetts until 1820. About 1800, Massachusetts citizens began migrating to the interior and the north seeking cheap land and new opportunities for settlement and livelihood. During this period, the Massachusetts Legislature funded academies and universities by granting them a township in the wilderness of what is now southern Aroostook County, Maine, which they could then divide into lots and sell to settlers. A group from New Salem, Massachusetts, led by Joseph Houlton, for whom the settlement was named, made the first permanent settlement in southern Aroostook County at Houlton in 1805. This impetus also created southern Aroostook County townships for Commonwealth of Massachusetts academies, including Littleton (for Framingham Academy in 1802), Hodgdon (for Westford and Groton academies in 1802), Linneus (for a botany professorship at Harvard University in 1804), Weston (for Hampden Academy in 1805), New Limerick (for Phillips Limerick Academy in 1810), and the north half of Houlton (for Williams College in 1815). A few towns were associated with academies in the District of Maine, such as Ludlow (for Belfast Academy in 1810) (Collins & Wiggin 1925).

Although Massachusetts had extended land grants in southern Aroostook County prior to 1805, Houlton was the first community to build a settlement immediately upon establishment (Porter 1894-1895:48-54). A 50-mile, heavily forested barrier between the town of Houlton and the remainder of the United States initially isolated the community, aside from interaction with British colonists in New Brunswick. In 1820, when the population of Maine was 298,335, the Aroostook region was still a wilderness, with a few hamlets scattered around Houlton in southern Aroostook County. Families from Maine's Kennebec Valley and Scotch-Irish from New Brunswick were beginning to settle central Aroostook County in

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the area of Presque Isle. Northern Aroostook County's Madawaska region was home to earlier French settlements (Akeley 2011:15–16; Day 1963:124–125; 1954:116, 122).

Town Building

Maine's confirmation as the nation's twenty-third state in 1820 further encouraged settlement of southern Aroostook County. In 1828, construction of a road between Lincoln (in present-day Penobscot County) and Houlton initiated consistent immigration and new settlements in the region. Transportation improved in 1831 when the U.S. Army, which had established a post at Houlton in 1828, completed the Military Road between Houlton and Bangor. Between 1832 and 1834, the State of Maine constructed a second road, the Aroostook Road, extending between the Military Road at Molunkus at the south end of southern Aroostook County and Fort Kent at the north extent of the county. In the years leading up to and following the Aroostook War (1838–1839), the "bloodless" dispute over international boundaries between the United States and the British colonies of New Brunswick, several additional roads were constructed between Houlton and other communities along the eastern border of the state. These roads further opened up townships in southern Aroostook County for settlement. In 1839, the year Aroostook County was officially established, Maine passed "settling lands" legislation as part of a continuing effort to divert land from the hands of speculators. The law allowed settlers to receive up to 200 acres of land for \$0.50 per acre, provided that they took up residence within two years, cleared at least 15 acres within five years, and assisted in road construction (Day 1963:126; Smith 2002:54–59). After the Webster–Ashburn Treaty of 1842, which established a permanent international border between the United States and Canada, large groups from areas throughout the state relocated to Aroostook County (Judd et al. 1995:408; Sawyer 1972:2).

Eight towns formed during the first settlement phase of southern Aroostook County between 1805 and 1850. The prime farming communities of Hodgdon in 1832 (the second town established after Houlton), Linneus in 1836, New Limerick in 1837, and Smyrna in 1839 were among the earliest towns incorporated. Linneus derived its name from the famous Swedish botanist Carl Linneaus (1707–1778) and was granted to Harvard University to establish a professorship of botany. Smyrna was granted to a Methodist minister and named for the renowned ancient Greek city (Hamlin 1948:131). Weston, Amity, and Monticello also incorporated before 1850. Initial settlement of Island Falls and Dyer Brook occurred during this period, although they did not incorporate until later in the nineteenth century.

Settlement of Island Falls began in 1843 and proceeded at a relatively slow pace as outside investors, not settlers, owned timberland covering half of the township. The timber-related industries of building materials, furniture, wooden ware, and lumber export dominated the town's economy in the nineteenth and twentieth centuries. Island Falls incorporated in 1872 (Sawyer 1972).

The first settlement in Dyer Brook Plantation occurred in 1844 when Orrin Laughton, a farmer from Smyrna, established a farmstead near the intersection of current Town Line Road–Moro Road and Dyer Brook Road. By 1850, the parcels flanking the Laughton property were settled by Benjamin Gerry to the east and Moses Levitt to the west. The Benjamin Gerry property (MHPC# 321–0006) is the only property still extant from the original settlements on Town Road/Moro Road. Silver Ridge Road–Dyer Brook Road–Route 2 was laid out in 1860 connecting Houlton to the north with Patten, Penobscot County, to the southwest and spurred additional settlement in Dyer Brook. That same year, Jonathon Sleeper, a farmer from Smyrna, purchased the lot south of the original three settlements and established a farmstead. Other farmers from Smyrna, Limerick and surrounding areas soon followed. By 1863, the population increased enough that Dyer Brook was able to incorporate as a town. However, when population dropped, it later lost incorporation status and did not reorganize again until 1880 when it had 41 voters. By 1890, the population had grown to 221 and it reincorporated in 1891.

Between 1850 and 1890, 16 communities were founded out of the total 38 southern Aroostook County agricultural communities with a recorded population in the U.S. census.⁵ Among the towns formed were Sherman, originally Golden

⁵ Population growth in Maine flattened after 1850, except for the expansion in Aroostook that lasted until 1910 (Black 1950:72).

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Ridge Plantation, in 1862, named for the prominent Senator John Sherman of Ohio (1823–1900), and Bridgewater in 1858, where a sawmill manufactured clapboards. During this period, as shown in the accompanying table of population and number of farms, nine of the towns reached their highest population growth, including Linneus with 1,008 residents in 1870. The other eight towns had fewer than 500 residents at their peak (Hamlin 1948:131; University of Maine 2014a).

Southern Aroostook County farmers felt the effects of the post–Civil War (1861–1865) economic decline and the financial Panic of 1873. Farm prices fell due to lower demand for products, the glut of agricultural products from the rapidly expanding Midwest and West, and government policies limiting the amount of paper currency in circulation (Day 1963:36). For example, between 1860 and 1870, the number of farms decreased in the towns of Houlton (from 157 to 99), Linneus (from 130 to 120), New Limerick (from 40 to 23), and Smyrna (from 32 to 29). However, markets improved by 1900, shown as an increase in farms for Houlton (from 99 to 130) and the other three towns to above 1860 levels: Linneus (131), New Limerick (56), and Smyrna (59) (USCB 1860, 1870, 1880a).

Throughout the nineteenth century, the development of regional transportation infrastructure catalyzed the shift in Maine’s agricultural base. The opening of the Erie Canal in 1825 severely affected farmers in the established southern communities of Maine by creating competition for sales in Boston markets. However, with the exception of Houlton area wheat growers, the few farmers then living in southern Aroostook County did not experience this pressure as they had not yet built trade networks with any major markets. In 1870, the New Brunswick & Canada Railroad (a Canadian company) constructed a branch line connecting Houlton to Debec Junction, New Brunswick. The new railroad allowed local farmers limited access to Canadian markets and helped renew the post–Civil War local economy. However, the New Brunswick & Canada Railroad did not strengthen economic ties to U.S. markets, nor did it serve the remainder of southern Aroostook County. These communities began to advocate for a direct rail line between Houlton and Bangor, located 120 miles to the south and the gateway to southern New England cities like Boston.

Table of Nine Study Towns and Houlton with Number of Farms (F) and Population (P), 1850-1940⁶

YEAR	Dyer Brook		Houlton		Island Falls		Linneus		Ludlow		Merrill		New Limerick		Oakfield		Smyrna	
	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P
1850			103	1453			67	561					21	160			25	172
1860			157	2035			130	785					40	226			32	165
1870	20		99	2850	15	183	120	1008					23	308	51	559	29	159
1880	34	172	130	3228	47	236	131	917	64	468	30	206	56	590	86	636	39	237
1925	36	385	160	6191	43	1683	134	706	78	375	49	361	52	412	95	1016	42	460
1935	38	262	149	6865	47	1455	135	753	74	361	48	458	75	404	103	982	46	442
1940		265	150	7771	30	1370	117	755	66	343	35	424	56	413	77	1059	40	409

The Bangor & Aroostook Railroad, which opened in 1894 (see discussion below), spurred significant economic, agricultural, and town growth in most southern Aroostook County towns from 1900 to 1940. Between 1880 and 1925, including through the Great Depression and World War I, the populations of Dyer Brook, Houlton, Oakfield and Smyrna approximately doubled, while Island Falls increased eight-fold (see table). The number of farms, which mostly concentrated on cultivating potatoes and shipping them to market by railroad, also increased in most communities. Island Falls’ remarkable growth was likely due to its diversified economy based not only on agriculture but also lumber and grist mills, and tourism around its scenic lakes. By 1940, town populations generally stabilized, although Houlton, the largest town and the county seat, grew by about 1,500 people. The number of farms began to decline slightly, a sign of trends towards specialization and fewer, larger farms that would become more prevalent after World War II.

⁶ (State of Maine Department of Agriculture 1925, 1935, 1940; U.S. Census Bureau 1850, 1860, 1870, 1880a; University of Maine 2014a). Lack of farm number indicates that no information was included in the census for that year.

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Bangor & Aroostook Railroad, 1891–1894

The Bangor & Aroostook Railroad more profoundly affected agricultural, industrial, and social conditions in northern Maine, including southern Aroostook County, than any other event in the region's history (Mohney, ed. 2000:28). The prime movers of the railroad project were members of the prominent and politically active Burleigh family of Linneus, Edwin C. Burleigh (1843–1916) governor of Maine from 1889 to 1893 and his brother Albert A. Burleigh (1841–1918) a well-known businessman, farmer, and resident of Houlton. Albert Burleigh, in collaboration with Franklin W. Cram, a long-time railroad employee, devised a plan for the towns along the right-of-way to raise funds for the project. In 1891, the Maine State Railroad Commission approved the plan for a new railroad line that would link the area south of Houlton with Bangor (Chase 1893; Gagnon 2007; Lindsell 2000:298–299; Mohney, ed. 2000:28–29).

The first section of the Bangor & Aroostook Railroad in southern Aroostook County opened in 1893 with the completion of the main line from Brownville, Piscataquis County, to Houlton via Millinocket in Penobscot County. In southern Aroostook County, the line had stops at Oakfield, Island Falls, and Sherman and also passed through New Limerick, Ludlow, Smyrna, and Crystal. Following a ceremonial opening in 1893, the main line route was fully completed with regular service between Houlton and Bangor in January 1894. Later that year, an industrial siding was built in Island Falls, and the line was extended north to Caribou in northern Aroostook County with a branch to Fort Fairfield (Lindsell 2000:298).

Southern Aroostook County improvements included a short branch built in 1895 from Sherman north to Patten, Penobscot County. One year later, a longer line extended north from Oakfield through Smyrna to Ashland in central Aroostook County. In 1901, this line was continued to Fort Kent at the northern border of Aroostook County. The Bangor & Aroostook Railroad increased access to important markets in Bangor and from there south to Boston and New England. The line carried freight, primarily potatoes, other agricultural and lumber products, as well as passengers. By providing a method for sending bulk potatoes to market, the rail was instrumental in creating Aroostook County's flourishing commercial potato business. In 1900, Aroostook County farmers shipped an annual potato crop of two million bushels that jumped to 18 million bushels by 1910 and continued to increase in subsequent decades (Angier 1986; Day 1963:124–132; Jones and Olausen 2009:3, 9; Lindsell 2000:294–302; Mohney, ed. 2000:27–32; Sanborn Map Company 1906, 1919, 1931; Wiggin n.d.).

Two southern Aroostook County towns formed within a few years of the 1894 railroad completion, Merrill in 1895 and Oakfield in 1897. A third town, Crystal, incorporated in 1901 and was the last formal town established in the region. The remaining 18 townships continue to have population levels too low for incorporation to the present day. Between 1890 and 1930, 22 of the 38 southern Aroostook County towns with recorded population data reached their highest population numbers. Only three had more than 1,000 residents, and two of these barely outranked Linneus's peak population in 1870: Island Falls (pop. 1,686), Hodgdon (pop. 1,153), and Littleton (pop. 1,046) (University of Maine 2014a).

Oakfield became an important junction with a depot and a large freight classification yard containing multiple tracks. The town's growing importance was reflected in its incorporation as a municipality in 1897. In 1900 the town had 860 residents, two general stores, and four small manufactories. The 1911 *Souvenir of Oakfield* reported that of 228 men in town, 123 were farmers, and most of the others were employed by the railroad. By 1912, the year the Oakfield Station (National Register listed 1987)⁷ was built, there were nearly 1,000 inhabitants (Jones and Olausen 2009:3, 9; Mitchell 2006; Mohney 1987).

Depots at Island Falls, Dyer Brook, and Smyrna provided transportation access for these communities. In 1893, when the Bangor & Aroostook Railroad was constructed through Island Falls, it was a small farming village with two general stores, a saw mill, and a new carriage shop. The town center exploded with growth after it was surveyed for building lots

⁷ Oakfield Station was given to the Oakfield Historical Society in 1986 and is operated as a museum.

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and a railroad station built, both in 1894. The population grew four times between 1893 and 1900, and building types diversified to include a large tannery and sawmills, stores, boarding houses, and halls. A seasonal tourism economy grew around Mattawamkeag and Pleasant lakes. Agriculture remained important in the outlying areas of town and marketed products, particularly potatoes, through the village (Sawyer 1972).

In 1894, the Bangor & Aroostook Railroad opened a station in Dyer Brook which provided a railroad link to the nearby towns of Oakfield and Island Falls and provided a means of transporting produce, almost exclusively potatoes, to markets north in Houlton and south in Boston. Dyer Brook also had a small passenger station, which is no longer extant. The area around the railroad station developed with a number of residences and community service buildings. In 1905, Dyer Brook's population was 379. Later, in the 1920s the main road through Dyer Brook became part of Route 2, and automobile travel and tourism through the area increased. Between 1930 and 1950, the last eight of the 38 southern Aroostook County towns with recorded population data reached their highest growth levels. Six towns including Bridgewater, Littleton (which remained unchanged from 1920), Monticello, Oakfield, and Sherman had between 1,000 and 1,500 residents. The bustling county center of Houlton, not surprisingly, had five times that number, with 8,377 residents (University of Maine 2014a).

Passenger rail service on the Bangor & Aroostook Railroad declined in the 1930s and ended in 1961. In 1969, the Amoskeag Company bought the railroad and then sold it to Iron Road RYs in 1995. Limited freight service, mostly carrying lumber to the paper mills, continues on portions of the line. Other sections in southern Aroostook County have been abandoned including the main line between Monticello and Bridgewater (1971) and the Patten & Sherman branch line (ca. 2000) (Lindsell 2000:301–302).

E.1.c. Subsistence and Small-Scale Diversified Farming

1805–1850

In the early nineteenth century, the logging economy dominated the densely forested wilderness of southern Aroostook County. Initial settlers in the area purchased lots, cleared land, and established small farmsteads and/or lumbering sites. To meet their own survival needs and generate business through supplying lumber camps, early settlers grew products including grains, hay, and potatoes and raised some kind of livestock. In the early nineteenth century, residents of Houlton depended on farming for survival, although the agriculture was described as “primitive” and appeared to have been unreliable (Day 1963:125). The environment was harsh, with relatively short summers and long winters. In 1816, the Aroostook area, including Houlton, experienced a cold winter, which affected the summer crops, leaving the community without food for one year. Canadian officials shipped food to nearby New Brunswick residents who had settled along the St. John River in the northern reaches of Aroostook County, and also eventually provided relief to the residents of Houlton (Akeley 2011:15; Day 1963:124; 1954:116, 122; Howe 2013:3; Judd et al. 1995).

Pioneer farming throughout Aroostook County, including the southern part, was a vigorous endeavor. In his report following one of his two visits to the area in 1838, Maine's leading agricultural educator and advocate, Ezekial Holmes commented that only the young, robust, hardy, and courageous should attempt settlement farming in Aroostook. He advised prospects to “select a lot suitable for your purpose, and with the common blessings of providence, you will, in a very few years, find yourself an independent freeholder, with a farm of your own subduing, and with a capital of your own creating” (Holmes 1838 quoted in Day 1968:90). Holmes' primary destination on his travels to the area in 1838 and 1851 was central and northern Aroostook, but he passed through southern Aroostook in both directions. In 1838, Holmes traveled via the Military Road to Houlton, an enterprising village center serving the surrounding area. He visited the large farm of lumberman and former Congressman Shepard Cary, where he admired the substantial crops and excellent livestock (Day 1968:96–97). In his survey, Holmes gave little attention to potato cultivation, which would be the dominant crop by the end of the century, and noted primarily the growing of traditional and flint corn; grains including oats, buckwheat, and great quantities wheat; and sugar beets (Howe 2013; 2014).

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As nineteenth-century settlements expanded in southern Aroostook County, especially after Maine became a state in 1820, agriculture emerged to form the basis of the local rural economy, along with lumbering and other natural resource-based industries. Farming was a way of life rather than a business. Farming in the region consist of localized subsistence agriculture on individual family-owned farms created from woodland the farmers cleared for livestock grazing and cultivation. Yeoman farmers generated products for on-site consumption and use, directing surplus for trade or for barter or sale in the local community. Their output included table foods (such as milk, butter, produce, meat, corn, wheat, and other small grains), livestock fodder (grains and hay), and household and farm products (such as tools, shoes, and harnesses). A “thrifty” farm typically covered 20–50 acres of cultivated crops, a woodlot, and one or more barns. Livestock consisted of a few cows, oxen, sheep, pigs, and horses. Individuals operated grist mills to process grains into flour and saw mills to make lumber for construction of houses, barns, and outbuildings. Some farmers included timber harvesting in their livelihood activities, especially in winter, or took in boarders for extra income. Others concentrated on lumber extraction as their primary occupation, with farming as a part-time practice. At the middle of the nineteenth century, southern Aroostook County agriculture remained family-based and locally oriented (Day 1954:118–121, 155; Judd et al. 1995).

1850–1890

In the 1850s, southern Aroostook County still contained large sections of virgin forest land and was isolated from southern Maine and New England. Farmers in older settlement areas in central and southwestern Maine had begun to explore commercial development for regional markets, and respond to competition from western producers of wool, wheat, and other products by shifting production and moving toward specialization. Southern Aroostook County farmers were less affected by these trends and had fewer options. Given the poor quality of the few roads, moving agricultural and lumber products out of the county was nearly an impossible task prior to the construction of the railroad in 1893. Without easy access to and from the more developed southern portions of the state and regions beyond, the farming and lumber industries predominantly served the local community. Most southern Aroostook County farmers continued to practice diversified farming with a varied crop and livestock production that incorporated specialties such as wool, butter, cheese, or leather goods they marketed locally for cash.

The first U.S. agricultural census recorded separately from the well established population census was conducted in 1850, providing the earliest agricultural statistics on farms in southern Aroostook County towns. For example, of the eight towns incorporated at that time, the census recorded 103 farms in Houlton (pop. 1453), 67 farms in Linneus (pop. 561), 21 farms in New Limerick (pop. 160), and 25 farms in Smyrna (pop. 172). Acreage for improved land ranged from 10 to 100 acres, or up to 200 acres in Houlton and Smyrna. Oats and potatoes were typically the highest produced crop per farm, followed by buckwheat and Indian corn, and then wheat, peas, barley, and rye. Half the farms had horses, and half had oxen as draft animals to plow and harvest fields and pull carts. All farmers in New Limerick, almost all farmers in Houlton and Linneus, and about three-quarters of farmers in Smyrna kept milk cows and made butter. Most farmers had one to six cows, but Shephard Cary of Houlton kept 19 cows at his home farm. In Houlton and Smyrna, about 20 percent of farms produced cheese. New Limerick farmers relied slightly more on livestock overall, with 90 to 95 percent keeping pigs and sheep for wool making. In Houlton, Linneus, and Smyrna, 60 to 75 percent of farmers raised these animals. A few farmers in the area made maple sugar (University of Maine 2014a; USCB 1850b).

By 1860, the number of farms had doubled (and population had increased) in Linneus to 130 (pop. 785) and in New Limerick to 40 (pop. 226), and risen 50 percent in Houlton to 157 (pop. 2035) and Smyrna to 32 (pop. 165). During this period, diversified small-scale farmers most commonly produced butter and grew hay, potatoes, oats, wheat, and buckwheat for local consumption. The most common livestock consisted of milk cows, sheep, pigs, and horses. Other crops included beans, peas, corn, hay barley, and rye. These staple continued over the next few decades with few additions. Eighty-five percent of the farms in Smyrna produced cheese and 2 percent of New Limerick and Linneus farms began producing cheese (University of Maine 2014a; USCB 1860).

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In the 1870s, Southern Aroostook County farmers began to shift their strategy from home manufacturing and subsistence crops to regional specialization and factory production. Agricultural reforms and interest in scientific farming that started at the middle of the century and disseminated information through publications, social organizations, and annual fairs informed and supported this trend. Improvements in farm technology such as horse powered reapers, mowing machines, threshing machines and hay rakes increased output over earlier hand held equipment. Starting in the mid-1870s with a cheese factory in Houlton (1875) and a butter factory in Linneus (1878) (see Dairy Farming section), a few southern Aroostook County farmers had begun successful efforts to move towards commercialization with dairy products, but most farms persisted as diversified entities. The 1870 agricultural census surveyed Island Falls, with 15 farms (pop. 183), and Oakfield, with 51 farms (pop. 559), for the first time. The older established towns also showed decreases in the number of farms (and in population) including: Houlton with 99 farms (pop. 2,850), Linneus with 120 farms (pop. 1,008), New Limerick with 23 farms (pop. 308), and Smyrna with 29 farms (pop. 159). Linneus reached its peak number of residents in this year. Nearly all farms reporting in southern Aroostook County had milk cows and produced potatoes. Seven percent of farmers in Oakfield made cheese (Judd et al. 1955; University of Maine 2014a; USCB 1870).⁸

In 1880, the statistics for Dyer Brook with 20 farms (pop. 172), Ludlow with 64 farms (pop. 468), and Merrill with 30 farms (pop. 206) were first recorded. Ludlow reached its peak population in this year (University of Maine 2014a; USCB 1880). Southern Aroostook County farms continued to move towards a wider variety of diversified farming, or mixed husbandry, as they sought to increase production, marketability, and prosperity. This strategy provided some contingencies to protect against crop failure or unstable market demand. The Maine Board of Agriculture advised that mixed crops provided a more secure income than a single crop, as they could potentially absorb any deficits that resulted from market decline. Farmers' livestock consisted of cows, horses, sheep, pigs, and chickens (in Island Falls). Apiculture (beekeeping) with honey and beeswax production, which had been a census category each year since 1850, began to be recorded as a farming activity, and poultry keeping, which appeared as a category for the first time, were noted in several towns. Some towns had a few apple orchards, and Island Falls reported making forest products. Industrious farmers and their wives produced many different home industry products for sale or barter in their own or neighboring communities to contribute to their economic well being and self reliance. In 1883, the State Board of Agriculture noted that farm landscapes appeared cluttered and unkempt being strewn with broken farm implements, fence parts, stove pipes, wood scraps, and other items (Day 1963:129-131; Judd et al. 1955; USCB 1880).

1890-1940

From the early to mid-twentieth century, census data for the state of Maine reflect a decrease in the number of farms, yet an increase in the total acreage of farm land. This shift is also reflected in the statistics of southern Aroostook County. The 1925 and 1935 agricultural censuses defined a farm as "all areas used for agricultural purposes which contained 3 or more acres of land or which produced at least \$250 worth of farm products" (SMDA 1925:4, 1935:2). In 1925, Aroostook County, and especially central Aroostook County, led the state in acres of land per farm, with a top rank of 200 acres and over, and in acreage of crops per farm at the level of 80 acres and over. It was also first in the number of farms with the highest property values (defined as the average value of land and buildings per farm), at \$8,000 and over. Within southern Aroostook County, the towns of Houlton, New Limerick, and Dyer Brook had comparable acres of land per farm, acreage of crops, and high property values. Southern Aroostook County contained the highest concentration of the second tier of property values in the state (ranging from \$6,000 to \$7,999) in the towns of Island Falls, Merrill, Smyrna, Benedicta Township, Sherman, Webbertown Township, T8 R5 WELS, Monticello, Littleton, and Hodgdon. Eleven southern Aroostook County towns remained forested (SMDA 1925:10, 11, 14).

⁸ By 1870, Aroostook County overall had grown rapidly to include 3,209 farms with 133,024 acres of improved land, 5,072 horses, 28,744 cattle, 39,615 sheep, and 6,638 swine. Aroostook County led the state in the production of grass seed, buckwheat, oats, and wheat. Lumber also remained a substantial product in the Aroostook area, requiring grain, hay, and potatoes from local farmers to feed the horses and oxen powering their machines (Day 1963:127).

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Following completion of the Bangor & Aroostook Railroad in 1894, diversified farming in southern Aroostook County largely gave way to the growing of potatoes, which increased steadily through the 1940s and World War II (see Mono-Culture Farming of Potatoes section). From the 1930s, increased use of cars, trucks, tractors, and other mechanized equipment reduced or eliminate the need for horses and oxen. As a result large barns for hay storage became obsolete. Some barns were repurposed as poultry houses (see Other Farming/Animal Husbandry section), but others became underutilized as nominal storage spaces. Limited mixed farming with market crops continued.

E.1.d. Commercial Farming

Additional discussion of commercial farming is in the Mono-Culture Farming of Potatoes and the Dairy Farming sections.

1805–1850

During the early nineteenth century in southern Aroostook County, the raising of farm crops and animals specifically for market did not generally occur other than supplying lumber camps. Local farms participated in a variety of other smaller scale opportunities, with varying results. Very little has been written or recorded about farming in general, and especially commercial farming, in southern Aroostook County in this early period. However, it is possible to deduce from various sources that farmers sold or traded such products as wheat, buckwheat, oats, dairy products, meat, and home industry goods like shoes and clothing within the local community and to lumber camps in the area. In 1838, among towns throughout Maine, Houlton led the state in wheat production, reporting more than 16,000 bushels. However, by the 1840s, parasites and competition from Western wheat caused a major decline in Maine's wheat crop, except for in Aroostook County (Day 1954:159-161; Howe 2013; 2014).

In addition to raising crops and raising livestock most famers had home industries such as leather goods, dairy products, and clothing. The first agricultural census in 1850 recorded entries for the value of homemade manufacturers and value of animals slaughtered, suggesting an ongoing pattern of such activities (USCB 1850).

1850–1890

The regional shift from family-centered, subsistence farming to specialized enterprises in southern Aroostook County accelerated at the middle of the nineteenth century. While markets overall were limited by the range of rough overland transportation available to southern Aroostook County farmers, modest outlets existed in the rural towns and the growing center in Houlton. Prior to the completion of the Bangor & Aroostook Railroad in 1894, the best route to transport goods in and out of southern Aroostook County toward the south was via the Military Road to Bangor built in 1831. Potatoes were considered too bulky to carry by road; therefore, exported goods from the county consisted of the more easily transportable buckwheat, grass and clover seed, butter, wool, and honey. In 1860, Aroostook County was Maine's largest producer of buckwheat, wheat, and rye. Approximately two-thirds of the state's buckwheat was grown in Aroostook County, while Oxford and Aroostook counties produced half the rye in the state. Along with Franklin and Oxford counties, Aroostook County was a leading wheat producer (Day 1954:155–160; 1963:2–7, 127).

The commercialization influenced farm building types, generating the development of new single-purpose buildings in contrast to the traditional multi-use barn. It encouraged crop specialization to fulfill market demands, and induced changes in farm labor practices with more use of hired help (Day 1954:245). The region's center of economic activity at the county seat in Houlton supported the agricultural character of the surrounding communities. Farmers brought raw materials from the farm for processing at Houlton plants, which an observer in 1886 noted as including—

two cheese-factories, two or more starch-factories, a canning-factory, a woollen-mill, four lumber-mills, three flour-mills, one tannery, two iron-foundries and machine-shops, two printing-offices, and a sash, blind and door-factory. Other manufactures are bark-extract, harnesses, boots and shoes, carriages, marble-work,

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cigars, etc. Houlton is the centre of trade for the county, and is a busy and thrifty town. The village has many handsome residences, and there are several well-shaded and very attractive streets (Varney 1886).

When wheat growing became unreliable due to insect infestations and competition from the Midwest, Maine farmers, including those in southern Aroostook County, turned to potatoes as a staple crop. At one tenth the bulk of potatoes, starch was easily transportable. The potato crop could be carted to factories built relatively nearby, and the starch then sent to distant markets like Bangor and Boston (Lapping 1982:215). Starch factory construction to process potatoes first rapidly expanded in southern and central Maine during the 1840s, with 10 to 20 facilities built in 1845 alone. In the *Maine Farmer* of July 17, 1846, Ezekiel Holmes described possibly the earliest group of factories, in Mercer, Somerset County (built 1842-43), as three-story, 40- by 50-foot brick buildings that employed eight men during the grinding season and operated nearly year round. Holmes reported that "During the summer months after the potatoes are all ground, only two or three hands are required to a factory, they being employed in drying the starch that could not be dried during the spring and putting it into casks. The dry rooms are large, on the second floor, and are heated by a huge furnace below. Starch factories are springing up all over the country" (Holmes 1846 quoted in Day 1954:164-165). Blight and drought in the late 1840s and 1850s temporarily reduced Maine potato yields and starch production, which began to turn around in the 1860s with the introduction of new varieties of commercially grown potatoes (Day 1954:167).

By the early 1870s, the reinvigoration of the potato starch industry helped bring increased economic prosperity to southern Aroostook County. Manufacturers shipped starch produced in local mills to the textile mills of southern Maine and beyond. The New Brunswick & Canada Railroad supported the construction of Aroostook County's first starch factories, which were reputedly established in New Limerick and Caribou, Maine, in 1871, followed shortly after by the construction of a starch factory in Presque Isle in 1874.

By 1880, three starch mills were operating in southern Aroostook County, including two in Houlton, which had the only railroad station in the region on the New Brunswick & Canada Railroad, one in Monticello, and another in New Limerick. Later one opened in Smyrna. Although the major starch factories of the county continued to be in central Aroostook County at Presque Isle and Caribou, the southern Aroostook county plants were an important aspect of the region's agricultural based economy. The starch industry required a significant amount of potatoes which was a key factor leading to the development of an agricultural economy based almost solely on potato production. Starch manufacturing fluctuated with the demand for potatoes; when potato prices were low, starch production rose, and vice versa. Normally culls were used but when prices were low, marketable potatoes were used (Day 1963:129-131, 281-282; USDA 1964:59).

1890-1940

By 1890, there were 64 starch factories in Maine, consisting of 42 starch plants throughout Aroostook County, which had the nation's greatest concentration of such factories well into the twentieth century, and 2 in Penobscot County. In 1904, John Watson of Houlton operated 6 starch factories among a total of 63 operating in Aroostook County. By 1939, there were still more than 20 plants operating in Aroostook County, which produced 85 percent of all the potato starch manufactured in the United States. One plant in Houlton is still in operation today producing a similar type of food product (Judd et al. 1995:408; Day 1963:129-133, 281-282).

During this period, southern Aroostook County dairy farmers produced milk, churned butter and sold milk and cream, likely through associated dairy cooperative arrangements. One outlet may have been to the Houlton Creamery in Houlton, the only commercial scale creamery in the area. Farmers may have been engaged in non-potato seed cultivation and sale, but the extent of this activity is unknown.

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E.1.e. Mono-Culture Farming of Potatoes

1805–1850

Originally grown along the western coast of South America in the Andes Mountains, the potato was brought to Europe by Spanish conquistadors, where its popularity subsequently spread. In 1719, potatoes arrived to Londonderry, New Hampshire, and Falmouth (now Portland), Cumberland County, Maine, with Scotch-Irish immigrants. By 1720, the crop was grown in Wells, York County. In subsequent years, Scotch-Irish communities carried the crop with them as they settled along the Maine coastline between Brunswick, Cumberland County, and Belfast, Waldo County. Initially, only a small, red, and tasteless variety of potato was available in the region, but by 1790, settlers brought several other varieties to Maine and the potato became one of the most important crops in the state. In 1807, John Houlton planted the first batch of potatoes (early blue and blue nose varieties) in southern Aroostook County on his Houlton farm. Potatoes would later become the most important crop produced in the county (Akeley 2011:16; Day 1963:118).

Potatoes became a widely cultivated crop for Maine farmers by 1850, the first year the U.S. Census recorded crop data. At that time, Maine ranked second among states in the total number of bushels produced, and was exceeded only by New York. Almost every farmer, including the relatively low density population in southern Aroostook County, grew potatoes by 1850 (Day 1963:117; USCB 1850).⁹ The most successful crops in southern Aroostook County were long red potatoes, grown to feed livestock, and Chenango potatoes, produced for farmers' tables and markets, particularly since the alternative, corn, was not as reliable to grow (Akeley 2011:16; Day 1963:117–118).

In 1844, a potato blight extended over southern Maine, and the following year, 75 percent of the state's potato crops failed. For the next 20 years the blight continued, until it eventually ceased through a combination of cultivating alternate potato varieties and applying "Bordeaux Mixture", a fungicide of copper sulfate and hydrated lime (Akeley 2011:16, 119; Day 1963:118). As discussed in the Subsistence and Small-Scale Diversified Farming section, potato growing was one of a number of crop strategies southern Aroostook County farmers used in the middle of the nineteenth century to support their families.

1850–1890

Following the establishment of the New Brunswick & Canada Railroad in 1870, commercial potato growing began to take hold in southern Aroostook County. Almost immediately, Houlton became a major exporter of potatoes north to Presque Isle, Caribou, and Fort Fairfield in central Aroostook County. By 1880, nearly all farms in Dyer Brook, Linneus, Merrill, Oakfield, and Symrna produced potatoes. Just over one half of the farms in Island Falls (74 percent), New Limerick (64 percent), and Ludlow (60 percent) manufactured the crop (USCB 1880a). Between 1869 and 1889, potato production in Aroostook County multiplied by seven times (Day 1963:129–131). In the 1880s and early 1890s, potato farming advances set the stage for the production surge that would follow the 1894 construction of the Bangor & Aroostook Railroad including: recognition of the need for fertilizers to replenish depleted soils and increase yields (1880); the first use of the barrel for harvesting (1886); the development of the trackside, frost-proof potato house (1886); the introduction of the first horse-drawn "Winged Horseshoe" digger (1890); the establishment of the weight of a full barrel at 165 pounds; and the production of the drop-axle wagon by John Tabor of Houlton (1895) (Akeley 2011:119).

1890–1940

In 1862, the writer "S" had prophesied in the *Maine Farmer* that "Of all the places in Maine where potatoes will pay best, Aroostook will excel as soon as it shall have railroads" (quoted in Day 1954:168). After 1890, advances in transportation, improved equipment, and increasing market demand accelerated the pervasive expansion of potato cultivation in southern

⁹ State agricultural census data does not separate southern Aroostook County from Aroostook County as a whole.

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Aroostook County. Construction of the Bangor & Aroostook Railroad marked the beginning of Aroostook County's reign as the "Potato Empire of the East" (Collins & Wiggin 1925:33).

Shipping facilities on the Bangor & Aroostook Railroad and the Canadian Pacific Railway greatly stimulated potato cultivation. In 1899, 2,894,672 bushels, or nearly 45 percent of the potatoes raised in the state of Maine (including Aroostook, Piscataquis, and a few stations in Penobscot counties), were shipped over the Bangor & Aroostook Railroad, mostly going out of state. In 1903, the amount doubled to 5,604,666. At total of 6,133,800 bushels were calculated to have been exported from Aroostook County on the two rail lines. Southern Aroostook County farmers and distributors' potatoes shipments from ranged from a high of 1,032 cars with approximately 567,600 bushels from Houlton to 96 car loads containing 52,800 bushels from Island Falls. By 1905, two-thirds of the potatoes raised in Maine were grown in Aroostook County (SMBILS 1905:60, 66, 78).

Many potatoes were loaded directly from teams onto rail cars or were stored in farm cellars. However, the need to store large quantities of potatoes from harvest in the early fall until June of the following year resulted in the construction of specialized potato houses with heating stoves. Many farmers built potato houses on their property, and large potato warehouses were built by farmers and buyers along the tracks at railroad stations. In 1905, a total of 201 track-side potato houses were estimated to accommodate 2,326,612 bushels, or less than one-half of the potatoes shipped. They were reported to exist in most southern Aroostook county towns through with the railroad passed, including Houlton (22), Island Falls (5), Ludlow (1), New Limerick (4), Oakfield (6), and Smyrna Mills (5). One of the area's largest potato buyers, E.L. Cleveland Company had four houses in Houlton and several single houses in different towns. Other companies listed included W.R. Whitney with three houses in Houlton, and those who owned single houses in various towns: The National Fertilizer Company, W.H. Cole and Company, Locke and Hurd, Chapin Brothers, Martin and Shorey, C.A. Atherton, Wiseman and Gilman. There were also many single-name owners of trackside potato houses. The houses generally held between about 3,000 and 14,000 bushels; however, The National Fertilizer Company's immense house in Houlton had a capacity of 27,500 bushes (SMBILS 1905:60, 66, 73-75, 78).

One historian claims that "the greatest gains for commercial farming in Maine came with the opening of the eastern sections of Aroostook County to agriculture" (Judd et al. 1995:408). In addition to the market access brought by the railroad, success in potato raising was guided by national economic conditions, technological advances of machinery related to potato production, the development of commercial fertilizers, and ideal soil and climate. Potato production in Aroostook County spiked in 1895 and again in 1904. Farmers developed a system for harvesting potatoes, grain, and hay in rotation that produced the highest yields for their land. Between 1890 and 1900 in Aroostook County, nearly 1,000 farms were constructed, and property values skyrocketed. Acreage and production of potato crops in the county more than doubled and rose 100 percent again in the following decade to a yield of 17,514,491 bushels in 1910. Potatoes produced were destined as food for the table, seed, starch production, and livestock feed (Day 1963:131-132; Judd et al. 1995:408).

With the success created by the railroad catalyst in facilitating the transport of potatoes to markets, farmers felt justified and able to make substantial investments to produce higher crop yields. New machinery included the "Hoover Digger" that covered more ground with less manpower and traction-powered sprayers that eliminated hand-held backpack sprayers for the "Bordeaux Mixture" fungicides and fertilizers were introduced. Many other changes occurred with the wholesale shift from horse-powered farming to mechanized farming in the half century before World War II. Tractors first appeared in limited use about 1916 and steadily increased becoming widespread in the 1940s. Power driven diggers and use of trucks for hauling to the potato house became common in the 1920s. In the 1940s, potato farmers added barrel hoists to trucks and used improved conveying and elevating equipment along with two-row diggers. The increased mechanization reduced the number of horses and oxen on farms. By 1900, fertilizers were in wide use, with subsequent improvements in concentrated commercial compounds that required fewer applications, and aerial crop dusting starting in 1936. From 1900 to 1930, farmers favored the Green Mountain variety of potatoes and later embraced the Katahdin potato in 1932 and the Kennebec potato in 1948 (Akeley 2011:119-120; Blackstone 2013:42; Day 1963:132-133; Judd et al. 1995:410).

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Soon after the opening of the Bangor & Aroostook Railroad in 1894, Aroostook County and southern Aroostook County began producing high quality and widely renowned potato seeds as part of commercial potato cultivation. Since they were grown in the relatively northern and colder climate of the United States, these seeds were known for yielding more potatoes than seeds from other regions in warmer environments, such as the southern states. Edward L. Cleveland of Houlton was one of the leading farmers of potato seeds, as well as a major buyer and shipper in southern Aroostook County, with the largest number of railroad trackside potato houses (Judd et al. 1995:408).

In 1929, Aroostook County became the highest potato-producing region in the United States, eventually harvesting approximately one-eighth of the total potato production in the country. It utilized one half of the country's tractors, and drew the highest farm income in New England (Day 1963:133-134; Judd et al. 1995:509). By 1929, Maine not only grew more potatoes than any other state, Aroostook County grew more potatoes than any other state but Maine. Different portions of the county had different approaches to the crop. While central Aroostook County focused almost exclusively on potatoes, farmers in northern and southern sections of the county were more diversified, often supplementing their potato fields with hay, sheep, or dairy production. The depression years were hard on Maine potato farmers and farm values declined, the Maine Potato Growers association formed in 1932 to help farmers respond to these hardships. However, by the late 1930s, the market price for potatoes had become stable and production boomed. In 1940, the largest potato farms in southern Aroostook County averaged 10 acres or more in size and were found in 15 towns. The county remained the highest potato-producing region in the country until after World War II (Akeley 2011:120; Fitzgerald 2013; Mitchell 2008; USCB 1940).

Between 1929 and 1945, Aroostook County's economy fluctuated with changing prices and crop production. A song written in Aroostook states, "When the price is high enough, we have a little cash and when the markets on the bum we eat a lot of hash" (Judd et al. 1995:509). While mortgage debts were low in the remainder of Maine, they grew in Aroostook County due to low consumption rates and competition from western states, such as Idaho (Judd et al. 1995:509). Farmers continued to invest in potato crops above all others. During a conference in Chicago, one speaker said, "The Aroostook farmer has the dogged inertia of the English squares which Napoleon's charging grenadiers could not break. He knows the potato game more completely than any other spud specialist on earth... We stand humbly before his never-die spirit... He will stick it out and, like England, win the last encounter" (Day 1963:139).

The annual potato growing cycle created a four-season rhythm for southern Aroostook County farmers.¹⁰ The traditional signal for spring planting might be when all the snow is gone from certain slopes or when a fist full of earth falls apart, indicating that the ground is frost-free, typically between late April and early June. Following a spring plowing, if not done the previous fall, and harrowing to loosen the soil, planting occurred as quickly as possible in dry weather. Seed was usually set in ridged rows spaced about three feet apart. Care of the plants through the growing season to the end of August focused on rain watering, and later mechanical irrigation, cultivation to keep weeds down, the application of fertilizers and fungicides, and pest control measures. The mature crop was ready to harvest when the foliage turned brown and the tubers had hardened during the cooler weather.

The potato harvest absorbed all the personnel, resources, and energy available in a rush to get the crop out of the ground and either shipped or into storage before the winter. Traditional hand-picking methods used horse or oxen-drawn mechanical diggers that turned over the earth and exposed the tubers for pickers to transfer to wooden barrels. Standardization began when barrels were accepted as the uniform measure of production in 1886 and the weight of a full barrel was established as 165 pounds in 1891. The first horse-drawn digger was introduced in 1890. Pickers also gathered visible stones and left them in piles around the field for later removal. Picking began at 4:30 in the morning continuing until dark. The pickers' barrels were tabulated for payment and loaded onto the bulk loader carts to be carried to storage. By 1900, improved mechanical planters, diggers, and sprayers were in common usage. Over the first half of the twentieth century, tractors and trucks replaced the animal-powered functions, and innovations developed including mechanical

¹⁰ Although presented in past tense for readability and to convey the long tradition of potato growing practices, many aspects continue to the present day.

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harvesters that could turn over multiple rows and move the potatoes to a conveyor belt. Generally each farmer had their own harvesting equipment until after World War II, when farmers pooled resources to purchase larger machines. Wages for picking potatoes rose from 2–3 cents per barrel in 1900 to 15–18 cents a barrel in the 1940s, with 70 barrels a day as a fair average. Once in the potato house storage area, the crop was brushed, sized, wash, graded, and bagged and tied for shipment (Akeley 2011:20, 41, 1119–120; Fitzgerald 2012; Hamlin 1948:234–235).

During the harvest season, garages, hen house, ice houses or any available outbuilding were temporarily converted for use as a pickers' shack, usually without plumbing or electricity. Pickers primarily came from the local area and New England, mixed with French–Canadians from Quebec, and crews from the southern and Midwestern United States, including some African Americans. The school year calendar was adjusted starting in 1941 with a three–week harvest recess to allow students time off to work in the fields bringing in the crop, contributing to the region's vast economy. In 1940, Maine was ranked as the highest producing potato state in the country, and Aroostook County had 5,706 farms, averaging 139 acres per farm (Akeley 2011:68).

E.1.f. Dairy Farming

1805–1850

From earliest settlement, southern Aroostook County farmers maintained a few dairy cows and made butter and cheese for family use. These cattle were typically “old native cattle”, later Shorthorns, and types kept primarily as work oxen and for beef. Dairy products were a secondary food source in the farm household. Milk production was seasonal, limited to the warm weather, and farmers stored butter for winter use. In some Maine counties, sale of butter and cheese extended to regional markets, but for southern Aroostook County, limited transportation options confined exchange of these perishable items to the local area (Day 1963:47–48, 276).

1850–1890

A shift toward dairy farming in Maine as whole and in southern Aroostook County began after the middle of the nineteenth century, when farmers participated in the development of moderate scale dairying businesses that became a significant state–wide industry by the 1890s. In the 1860s, Maine farmers became interested in associated dairying as an additional source of farm income. Started in Rome, New York in 1850, associated dairying relied on cooperation among farmers to pool their milk for factories making products such as condensed milk and especially cheese. Maine's first associated dairying cheese factory opened in Strong, Franklin County in 1871. In 1874, the Maine Dairymen's Association formed with the goal of assisting and promoting the dairy interests of the state and associated dairying. Francis Barnes of Houlton was an early active member who operated a cheese factory in Houlton starting in 1875. Between 1873 and 1875 at least 65 cheese factories operated across the state, but by 1879, economic difficulties reduced the number of factories by 50 percent. Speaking to farmers at Union and South Paris, Barnes explained that production, including in southern Aroostook County, was hampered by lack of cooperation from the farmers, a short operating season in the summer when milk flow was high, and a small volume of business. There were insufficient numbers of cows on most Maine farms to support factory production and ensure a profit. In 1877, Barnes' factory ran the longest of those in operation, from May 1 to November 10 (Day 1963:49–52). Barnes, the owner and operator of the Nickerson Cheese Factory, one of two cheese factories operating in Houlton in the Carys Mills manufacturing areas south and west of town, continued to advocate for cheese production. In a lecture to farmers at Carroll in 1882 on the “Profits of Dairying” Barnes advocated that dairying was the most profitable branch of stock husbandry for Aroostook county, and that associated cheese making offered the best opportunity for converting milk into a cash product (Varney 1881; Maine Board of Agriculture 1883:27).

With the decline in commercial cheese making, over the following two decades, Maine dairying shifted to production of butter which provided a steady market since creameries operated year round. An important milestone was the state's first privately owned butter factory, which A.P. Bennett opened in Linneus in 1878. Bennett established a small plant that

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could churn a hundred pounds of butter at a time, with most if not all of the cream coming from his large Jersey herd. “An intelligent lady who fully understands all the requirements” (quoted in Day 1963:54) oversaw production of the butter sold by the pound in Bangor. In 1883 Bennett’s sales totaled \$2,000, at which time he was buying corn meal and wheat bran by the carload for his herd. Maine’s first cooperative effort at butter-making, or creamery, began in Wales, Androscoggin County, in 1883. By 1896, there were 7 cheese factories, which used whole milk, and 48 creameries where butter was produced from cream in Maine. The increase inspired improvements and standardization in handling and measurement including pasteurization, cream separators, and testing equipment (Day 1963:54–57; 62).

Dairy farmers began to improve their herds by breeding better cows, more careful treatment, and feeding grains and corn to increase milk production in fall, winter, and spring. Dairy breeds began to be introduced in Maine around the mid-nineteenth century with Ayrshires. The Jersey breed was also introduced to Maine in 1852 and became highly popular for its rich milk. The Maine State Jersey Cattle Association had 303 members in 1898, including T.B. Bradford of Sherman. Silos as winter feed storage were first built in Maine about 1879 and probably appeared in southern Aroostook County within the following few years. Silos were not necessary or popular for small self-sufficient farmers with only a few cows, which constituted the majority of southern Aroostook County farmers, but were commonly introduced on the larger dairy farms with herds of a dozen or more (Day 1963:58–59, 80–81).

1890–1940

During the first decades of the twentieth century dairy farming in Maine, including southern Aroostook County, trended towards commercialization with larger herds and fewer farms. Nevertheless, small-scale self-sufficient farmers with an average of less than five milk cows continued to play an important role. Dairy farmers attended to feeding, breeding, and management. Jerseys continued to be the most popular breed. Farmers formed dairy herd improvement associations beginning in South Waterford, Oxford County in 1907 and held an annual state-wide dairy cattle show starting in 1937 in Monmouth, and Windsor, Kennebec County. During World War I, farmers focused on producing more dairy products, and in 1919, the number of dairy cows reached its height in Aroostook County, with 17,570 cows (Day 1963:133–134; Judd et al. 1995:509). In 1925, the average size of a dairy farm in southern Aroostook County in most towns was between 20 and 30 acres of pasture land. Three towns had larger farms that averaged 30 to 40 acres of pasture, but none had over 40 acres, the top number recorded in the state (Day 1963:63–69, 89; USCB 1925).

Artificial breeding cooperatives were organized starting in 1939, and by 1946 had technicians scattered at convenient locations around the southern part of the state and as far north as Houlton. Health considerations for Maine farmers focused on eliminating bovine tuberculosis, largely achieved in 1929 and eradicating Bang’s disease by about 1945. For human consumption consideration, pasteurization requirements increased and central distribution centers expanded as dairy milk and products were more and more destined for outside markets, including the Boston market area. Farmers organized in two cooperative bargaining entities, the New England Milk Producers Association in 1917, and the Maine Dairymen’s Association in 1937. Further oversight of the dairy business occurred with Federal regulations in 1933 and 1937 and when Maine created a Milk Control Board to oversee the sale and distribution of in-state milk in 1935 (Day 1963:69–75, 84–89).

E.1.g. Non-Potato Specialty Crop Farming

1805–1850

Wheat was an important early-nineteenth-century commercial crop for Maine farmers, especially in frontier areas, as it could be easily and cheaply grown in new fields without needing extensive plowing and manure applications. In the 1820s, wheat production, a once principal crop throughout Maine, began to decline due to environmental diseases and insects such as black stem rust, smut, and Hessian flies. The rapid development of agriculture in New York and the states surrounding the Great Lakes also contributed to the decline in Maine’s wheat production, beginning with the 1825 opening of the Erie Canal between Albany and Buffalo, New York. Freight costs for carrying wheat and flour from New

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York to New England dropped 15 percent, creating steep competition for New England farmers. In an effort to relieve the state's economic struggles, the Maine government provided a bounty, or monetary reward, on wheat in March 1837. Farmers could purchase at least 20 bushels for \$2 and \$0.6 for each bushel after that. In 1838, Houlton led the state in wheat production with 16,167.5 bushels on which farmers collected bounties. A bounty of corn was offered at \$2 for the first 30 bushels. Consequently, wheat harvesting in Maine reached its production peak in 1838. Corn growing was concentrated in the state's four southwestern counties, and southern Aroostook County farmers grew relatively less corn than elsewhere. The partial failure of wheat caused many farmers to turn to potatoes as a cash crop (Day 1954:155–157, 162–164, 263).

1850–1890

During the second half of the nineteenth century, southern Aroostook County farmers continued to concentrate on growing wheat, buckwheat, oats, hay, and potatoes, with lesser amounts of corn (mostly Indian or flint corn, for grain) and barley. Specialty crops grown in other parts of Maine, such as sweet corn for canning, were not grown here. Apple growing became an important Maine crop, evidenced by the formation of the Maine State Pomological Society in 1873. Many southern Aroostook County farmers kept small apple orchards for their own use, and most towns reported large apples orchards starting with the recording of such in the 1880 census. In the 1870s, farmers in Dyer Brook, Linneus, Oakfield, and Smyrna reported producing bee products. In 1880, Island Falls (25 percent of its farms), along with Smyrna (one farm), produced maple sap products. This was likely due to large forested areas when compared to the extensive cleared land for cultivation and grazing in other southern Aroostook County towns. Honey and maple products were important because they were sweeteners and also relatively non-perishable so could be sold locally and sent to markets outside southern Aroostook County. Island Falls (82 percent of its farms) and Dyer Brook were the only towns to report having produced lumber products (Day 1963:112; USCB 1880a).

1890–1940

By 1910, Aroostook County led the state in the growing of oats and subsequently purchased work horses from the western United States to support production. Since potato and grain production had gained such vitality in the county, farmers began to reduce or eliminate other agricultural endeavors, although southern Aroostook County continued with oats, wheat, buckwheat, and hay, along with some apples and forest products. During World War I, a conscious effort was made to produce more wheat. In 1919, wheat production reached its height in Aroostook County, with 167,323 bushels of wheat. From 1919 to 1929, Aroostook County doubled its production of the crop (Day 1963:133–134; Judd et al. 1995:509; State of Maine Department of Agriculture 1925, 1935, 1940).

E.1.h. Other Farming/Animal Husbandry**1805-1850**

Most Maine farmers practiced mixed husbandry as part of diversified farming, and by the mid-nineteenth century, Aroostook County livestock counts were comparable with earlier, developed communities in the state. Early southern Aroostook County farmers typically maintained a few horses and/or oxen as draft animals, cattle and milk cows, and swine. They also had sheep for meat and wool for home use and sale of surplus starting in the initial apex of New England sheep farming between the 1820s and 1840s (Day 1954; Howe 2014).

1850–1890

In the second half of the nineteenth century, southern Aroostook County farmers continued to maintain livestock such as oxen, horses, milk cows, beef cattle, swine, and sheep for family use and farm operations. No records have been found on animal trading. Maine farmers preferred Leicester sheep to Merino and likely sold surplus wool and meat in local markets. Sheep husbandry as a form of specialty farming was important throughout the nineteenth century, with 452,472 sheep

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statewide in 1860. After 1860, it became less important as crop raising, particularly potatoes, gained momentum (Day 1963: 43, 128; Howe 2014:9).

Oxen were the draft animal of choice through the first half of the nineteenth century with 89,000 statewide in 1860, but then declined significantly in favor of horses and were no longer recorded separately by 1900 (Day 1963:42-43; Howe 2014:9). In 1864, the *Maine Farmer* identified Aroostook County as exceeding the rest of the state in the quality and quantity of its horses. The editor remarked that "Aroostook is ahead of the rest of the state in the quantity and quality of its colts" (quoted in Day 1963:128). When horses began to replace oxen as the dominant draught animals, the number of horses statewide rose from 60,000 in 1860 to 100,000 in 1900 (Day 1963:43; Howe 2014:9).

Maine reached her zenith as beef producing state during and immediately after the Civil War, with popular cattle breeds including Durham, Hereford, and Devon, then began a steady decline to 1940 due to low prices, the growing demand for dairy products, greater use of horses, and western competition. The US Census records from 1850 through 1880 record meat slaughtered but do not identify the type (Day 1963:37-38, 128).

Starting in 1880, the US Census began to record poultry, and many towns in southern Aroostook County raised chickens for home use and local sales, with the exception of New Limerick. Chickens were present at 80 percent of farms in Island Falls, 96 percent in Linneus, 7 percent in Ludlow, 63 percent in Merrill, 89 percent in Oakfield, and 79 percent in Smyrna. Every farm in the town of Dyer Brook had chickens and produced butter and 90 percent had horses (USCB 1880).

1890-1940

The role of livestock overall became significantly diminished in southern Aroostook County farming by 1940. Aroostook County led the state of Maine in number of sheep at the turn of the twentieth century; however, overall the number of sheep in Maine decreased drastically from 565,918 in 1880 to 38,517 in 1940. All southern Aroostook County towns continued to produce sheep and wool in declining amounts until 1940, when hardly any were noted in the census. The quantities of beef cattle and meat slaughtered were not recorded in the 1925, 1935, and 1945 US Census. With the arrival of combustion engine powered vehicles and farm equipment, the number of horses in the state declined from 100,000 in 1900 to 37,000 in 1940. As late as World War I, poultry raising remained a small-scale endeavor for most southern Aroostook County farmers. Nearly all kept a small flock of hens, but very few, and possibly none in southern Aroostook County, invested in poultry as a major enterprise (Day 1963:43,169,267; Howe 2014:9; USCB 1940).

E.1.i. Associated Government Policies; Educational, Social, and Cultural Institutions

1805-1850

In the first half of the nineteenth century, the State of Maine took several important actions in support of agriculture, which ultimately benefited southern Aroostook County. The nation's first agricultural school, the Gardiner Lyceum opened at Gardiner, Maine in 1823 with state financial assistance, affirming the role of education for farmers. In 1832, stipends granted to agricultural societies established a precedent for public aid to private agricultural organizations. In the early nineteenth century, the establishment of new agricultural societies, clubs, and other institutions created venues to for active farmers to share knowledge and for progressive leaders to educate farmers about new techniques. A few such organizations had existed in New England since the eighteenth century. State and regional fairs gave farmers an opportunity to exhibit and win premiums for their livestock, produce, dairy products, and farm implements. Maine's first statewide cattle fair was held at Hallowell in 1820. Farm literature was a key source of information for southern Aroostook County farmers, starting in 1833 with the *Maine Farmer*, the leading farm paper in Maine for 100 years. The publication was edited by Dr. Ezekiel Holmes, a noted farm advocate and author who was commonly known as "the father of Maine agriculture" (Day 1954:232-237, 248). Due to the slower pace of development than areas to the south, Southern Aroostook County farmers had no formal agricultural organization until the 1850s.

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1850–1890

Maine Board of Agriculture

Further advances in education, dissemination of technical information, and organizational supports for farmers occurred at mid-century. Creation of the State Board of Agriculture in 1852 established a state-wide and state-controlled institution to serve the needs of Maine agriculture. Dr. Ezekiel Holmes, farming advocate and editor of the *Maine Farmer*, was elected secretary. The organization provided a forum for active farm leader representatives to discuss agricultural interests, make recommendations regarding current and future agricultural activities, and report to the Legislature. At the first meeting, members favored formation of an agricultural college, recommended creating an experimental farm, and urged completion of a geological survey of the state. The members of the board during its operations from 1852 to 1902 were chosen by the approximately 20 agricultural (fair) societies across the state. John Hodgdon of Houlton was an early member of the board, and Alfred Cushman of Sherman served in the late 1860s (Day 1954:253; 1963:196-197, 199-201).

Technical publications of the Maine State Board of Agriculture and other individuals and institutions effectively disseminated information on new farming practices to southern Aroostook County farmers. Stephen L. Goodale, a trained chemist and agricultural leader who served 16 years as board secretary after Dr. Holmes, initiated the *Agriculture of Maine* annual reports and authored a number of influential monographs including an 1860 treatise on animal breeding. In 1855, J.A. Nash, an agriculture professor at Amherst College published *The Progressive Farmer*, one of many educational materials being made available (Day 1954:245; 1963:200-102).

In its 50 years of service, the board and its members promoted and supported numerous improvements in agricultural practices and programs including the establishment of the Maine State College of Agriculture and Mechanic Arts in 1862 and the Maine Agricultural Experiment Station in 1885. Other accomplishments included the formation of the Maine Pomological Society; the inspection of seeds, feeds, and fertilizers; the eradication of tuberculosis in cattle; associated dairying; and the introduction of the silo and the Babcock test for butterfat (Day 1963:208–209).

Agricultural Societies

In the second half of the nineteenth century, Aroostook County had two active agricultural societies.¹¹ North Aroostook was established in 1850 and served the northern and central parts of the county. In southern Aroostook County, the Penobscot and Aroostook Union Society formed in 1853 as a joint organization with Penobscot County located immediately to the west. The Maine Board of Agriculture encouraged the cultivation of certain crops, for which the local societies offered premiums to farmers. In 1857, the Penobscot and Aroostook Union society awarded premiums for Indian corn, wheat, rye, oats, other grains, potatoes, carrots, and other root crops, but nothing for barley, green crops, beets, or turnips. That year, the society held what may have been its first show and fair at Golden Ridge Plantation, which later incorporated as Sherman. In his address, president Alfred Cushman noted that the previous year had been very unfavorable to wheat, but good crops of corn were grown and satisfactory results were had with oats and potatoes. The society subsequently held annual fairs in Patten, Penobscot County. At the 1858 fair, the exhibition of stock was noted to be unusually large. In 1862, it was reported that “During the short time our society has been in operation, its influence is very manifest. Improvement in the mode of cultivating Indian corn, the selections, of seeds, the cultivation of fruits, and in neat stock, has been quite extensive. The 1862 fair organizers awarded \$145 in premiums for live stock, grain and root crops, and for all other purposes. The society appears to have then dissolved, perhaps during the Civil War, as no further fairs were reported by it (Maine Board of Agriculture 1856:17-18; 1857:219, 356-360; Williams, Chase & Co. 1882:165).

¹¹ The list of agricultural societies in the Maine Board of Agriculture’s first report of 1856 includes three in Aroostook County, those discussed here and “Aroostook” established in 1846. However, the later was apparently short-lived and does not appear in the 1857 or subsequent annual reports (Maine Board of Agriculture 1856:17; 1857).

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The University of Maine

Future farmers of southern Aroostook County found opportunity for study and education beyond the local school house and specifically about agriculture starting in the 1860s. Founded in 1862 the Maine College of Agriculture and the Mechanic Arts opened September 21, 1868 at Orono with agriculture as an early course of study. The newly formed State Grange supported the struggling young college in 1876, urging the Legislature to "...use all the honorable means in their power to appropriate an amount of money sufficient to raise our agricultural college out of embarrassment (quoted in Day 1962:192). In 1897, the name changed to the University of Maine. Although the *Maine Farmer* editors feared that the agricultural identity and focus would be lost, within a few years agriculture was one of four main college divisions within the university. The University of Maine has played an important role in the education of young farmers and development of agriculture in Maine (Day 1963:233).

Maine Agricultural Experiment Station

In 1885, the Maine Legislature established the Maine Agricultural Experiment Station in association with the Maine College of Agriculture and the Mechanic Arts, which generated many practical and innovative improvements for Maine farmers. The initial primary purpose was to provide protection from frauds in commercial fertilizers and from adulterations in foods, feeds and seeds, and for promoting agriculture by scientific investigation and experiment. The program issued 20 bulletins and 3 reports before the passage by Congress of the Hatch Act in 1887¹². The Station was formally reorganized as part of the State College of Agriculture and managed a 120-acre farm with laboratories, greenhouses, barns, and fields. The objective shifted under the provisions of the Act to physiology of plants and animals, their diseases, nutrition, and other analyses "bearing directly on the agricultural industry of the United States" (quoted in Maine Agricultural Experiment Station 1900:50) (Day 1963:84; Maine Agricultural Experiment Station 1900:45-52).

By 1900, the Station was conducting its own experiments and working cooperatively with farmers conducting field experiments in different parts of the state, including Houlton, with results published in 90 bulletins and 15 annual reports. About 1915, the Station established Aroostook Farm near Presque Isle as one of several experimentation farms around the state. Here, the U.S. Department of Agriculture built a potato barn and greenhouse for potato breeding. Ora Gilpatrick of Houlton served on the board of trustees of the Station Council in 1921 (Maine Agricultural Experiment Station 1900:45-52; 1907:241; 1921:ix).

Grange

In Maine, as elsewhere, following the Civil War, farming began to change with the proliferation of the railroad, the mass production of farm machinery, and the increase in business men engaged in "middlemen" roles in the sale and distribution of farm products. The Grange, or Patrons of Husbandry, is a secret society founded in 1867 to meet the economic, social, and educational needs of small farmers. Grange membership fluctuated nationally in the 1870s. In the 1880s, membership increased during the so-called "second Grange movement," which focused on education and social benefits, and centered in the Northeast. The first subordinate Grange building in Maine was constructed in Hampden, a town south of Bangor, in 1873 during a period of low years for agriculture following the Civil War. When the Maine State Grange met in Bangor in 1875, 136 granges had been organized. The following year 228 granges existed in Maine with about 12,000 members. By 1887, Maine had the largest Grange membership in the nation. Grange halls were a symbol of progress and community cooperation. Houlton Grange #16, founded in 1874 and reestablished in 1898, claimed in 1957 to have once been the largest Grange building in the United States (Anonymous 1957: Howe 1994:4-5).

¹² The federal Hatch Act of 1887 established land grants and funding to form agricultural experiment stations in every state, including Maine, that conducted research on diseases, pest insects, and soil properties (Day 1963:108).

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State**1890–1940*****State Department of Agriculture***

Around the turn of the twentieth century, a number of changes occurred at the state level that affected southern Aroostook County farmers. The activities of the Maine Board of Agriculture declined, as the submission of papers for publication in the *Agriculture of Maine* dropped, and the interests of the local agricultural societies shifted away from education. In 1901, the Maine Legislature abolished the Board of Agriculture and instead established a State Department of Agriculture, which began operations on January 1, 1902. Initially, the Department of Agriculture continued to focus on farmers' institutes, statewide dairy conference, investigation of violations of laws relating to feeding stuffs and oleomargarine, quarterly bulletins of interest to farmers, the distribution of the state stipend at cultural fairs, and the publication of the annual report, *Agriculture of Maine*. However, starting the following year, the department began a period of growth that continued through World War II. The Maine Legislature, supported new directions and funds for expansion of the department, its programs, and staff in new activity areas (Day 1963:210).

Almost immediately, the vigorous Maine dairymen's organization successfully advocated for the appointment of a dairy inspector within the Department of Agriculture. The dairy programs led to better inspection of products and regulation of markets. In 1910, the department helped to establish the Maine Livestock Breeders Association and the Maine Seed Improvement Association, and through a new position of state entomologist to eradicate the foreign Browntail and gypsy moths. Starting in 1910, the department oversaw the work of the new Maine Seed Improvement Association which developed systematic planning for improving Maine farm crops to produce and use better seed. The department sponsored formation of the Farmers Union movement in 1911, which monitored shipping potatoes from trackside potato houses until the Depression. In 1913, a new Bureau of Markets and Inspection and Bureau of Seed Inspection were established. In 1917, a sheep specialist was added to the department's staff. The Division of Inspection established in 1919 combined the duties of the city sealer of weights and measures with those of the Bureau of Inspection. By 1919, the Department of Agriculture was organized into five divisions: Animal Husbandry, Inspection, Markets, Plant Industry, and Administration. At that time, the department was widely known as the largest of the state departments with the most employees and engaged in the most varied duties comprised of approximately 20 different types of work and programs. The department emphasized improvements in efficient farm management through crop rotation and soil handling along with the application of business principles to farm operations (Day 1963:210-223; Maine Department of Agriculture 1921:7).

In the 1920s and 1930s, the Department of Agriculture played an important role in the development of potato farming which became the preeminent form of agriculture in southern Aroostook County, including new standards for seed potatoes in 1921, and disease and pest control. The department programs supported the efforts of the growing dairy industry, a prominent secondary type of agriculture in southern Aroostook County, and its cooperatives to control quality and markets. The state government programs operated within the context of the regional New England Milk Producers Association, founded in 1917; the federal Agricultural Adjustment Act of 1933; and the Maine Dairyman's Association established in 1937. The department initiated testing programs, including quarantine of entire counties, to eradicate tuberculosis and Bang's disease in bovine herds. Many of the department's new programs and responsibilities were self-supporting through the collections of fees and licenses from the farmers who benefited from these standards and practices. The department's activities were furthered by the cooperation of farmers and its associations with the Grange and other societies. By 1940, international events began to color the country's future, and the department's biennial Annual Report of 1942 observed changes in policies as peace time operations shifted to war time programs associated with the beginnings of World War II (Day 1963:71-73, 87-89; 142-143; Maine Department of Agriculture 1932:10, 1942:5).

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Maine Cooperative Extension

In 1914, The University of Maine initiated the Maine Cooperative Extension, which offers field educational programs by volunteers and staff for both adults and youths. The Extension has undertaken numerous projects and help establish the Soil Conservation Service and the forerunner of the Farmers' Home Administration in Maine. By 1938, the Extension staff had grown to 8,682 (Day 1963:262–275; University of Maine 2014b).

Farm Security Administration

The federal Farm Security Administration (FSA) formed in 1935 as part of the New Deal to help rural communities and farmers during the Depression. The activities of the FSA in Aroostook County included an office in Fort Kent, technical assistance, and photography. A primary legacy for Aroostook County is photographs taken in 1940 and 1942–43 by Jack Delano and John Collier, Jr. for the FSA and the U.S. Office of War Information. The original prints were transferred to the Library of Congress in 1944 are now housed in the Prints and Photographs Division, Library of Congress, Washington D.C.. The photographs focus on central and northern Aroostook County.

Grange

The National Grange of the Patrons of Husbandry, also known as the Grange, was established in Maine in 1873. The creation of local or subordinate granges in southern Aroostook County began slowly. Granges were constructed after 1890 in several towns in southern Aroostook County including the Monticello Grange #338 organized in 1899 (NR listed 2000) and the Oakfield Grange #413 organized in 1903 (NR listed 2006, demolished 2012). One of the benefits for members of area granges was the ability to shop at stores such as the Houlton Grange store (destroyed by fire 1966) near the Houlton Grange #16 (extant), which offered the opportunity to cooperatively purchase farming equipment and supplies, as well as dry goods and groceries at discount. Other granges were organized and built many of which have long been discontinued. In Island Falls, for example, a grange store was built in 1902 and an addition constructed in 1909 for hall. This grange phased out by 1930, when it was purchased and enlarged for use as a community hall until the high school auditorium was built in 1950 (Mitchell 2006; Mohney 2000; Sawyer 1972:60).

E.2 Southern Aroostook County Agricultural Architecture and Landscape, 1805–1940

E.2.a Early Settlement Buildings, 1805–1850

Early farmers in southern Aroostook County were subsistence-based and primarily grew products to support their family and in some cases to supply the lumber camps that dominated the landscape in the first half of the nineteenth century. The earliest structures built by the settlers of southern Aroostook County were made of logs derived from the local virgin forests. Logging was the first major industry in the area practiced by pioneers, whose market was with the English residents of New Brunswick to the east. Settlers also farmed the land, clearing large swaths and building rudimentary log homes until more permanent houses could be built. Log structures were popular in the area into the nineteenth century among all the ethnicities of the settlers because of the abundant timber supply. In New Limerick, John Hogan, who came from Ireland, built a log cabin (not extant) for shelter while he constructed the Hogan Homestead on County Road (Smith [1987]:6). More substantial timber-frame and braced-frame structures were built on most farms within a few years of settlement. This tradition of constructing primarily wood-frame buildings continued into the twentieth century with the development of the balloon and platform frame, because of the plentiful timber forests of the region.

Early nineteenth-century English settlers in southern Aroostook County primarily built English-style barns; a design inherited from England. These are simple, side-gable wood-frame structures with a pair of large hinged doors on one of the long sides. Roofs were typically clad with wood shingles due to the plentiful supply. The barn interior was divided into three sections: a wooden threshing floor in the center, enclosed stalls for animals on one side, and a haymow on the

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opposite side. The Acadians, settlers of French descent from Nova Scotia, brought their own building traditions to northern and central Aroostook County. Their barns, referred to as Acadian barns, were similar to English barns with the main door on the long side wall, but in order to accommodate larger herds, farmers built hip- and side-gable ells onto the gable ends of the structure, giving the form a distinct appearance. Examples of the Acadian barn-type are rare in southern Aroostook County.

Most of the towns in southern Aroostook County were established in the 1830s by settlers from southern New England, particularly Massachusetts, who brought the familiar building traditions of that area with them. Many farmers practiced mixed husbandry in the nineteenth century and built barns and outbuildings to support it. Most of the farmsteads in southern Aroostook County were comprised of buildings that are not connected to the farmhouse, or are in a detached arrangement. A house within a detached farm arrangement, not connected to the primary barn, may retain a rear or side ell that contains a kitchen and utilitarian work spaces, such as a workshop or privy. It was common to build multiple, stand-alone structures, including a house, barn, and outbuildings, surrounding a work area at the core. The buildings within a detached farmstead are located sufficiently far apart to allow for adequate space for farm roads, driveways, and work yards, but still close enough together to be efficient and effective. Cropland, pastures, and woodlots were typically located beyond the core of the property, often delineated by wood or metal boundary fences. The detached farmstead is still the most popular arrangement in southern Aroostook County. Some of the farmsteads in the region are of the connected form in which the house is attached the primary barn, usually via an ell or covered walkway, with additional smaller agricultural structures attached to the main house and barn, or stand-alone within the core work area (Carter and Foster 1941:160).

Mixed-use barns were typically the largest structure found on the farm. Again, because of the abundance of timber, these immense structures were made of timber-frame construction, first with hand-hewn timbers and later with lumber produced by water-powered sawmills. By the 1830s, most New England farmers began to adopt the front-gable orientation for their barns as the dominant style, conforming to the new trend of the front-gable form for religious and residential buildings; however, mixed-use barns in southern Aroostook County continued to be built in both the English and New England forms. Prior to the 1830s, horses and carriages were traditionally stored in the mixed-used barn along with the other animals and equipment. As the scale of farming grew in the early nineteenth to the mid-nineteenth century, space in the large barns became limited and many farmers built stand-alone stables and carriage houses (Visser 1997:144).

Houses in the early nineteenth century were typically small, rectangular, one- to two-story timber-frame structures instead of the log structures built by earlier settlers. The hewn and pegged timber frame was gradually replaced by the braced frame in the early nineteenth century. One- to two-story wings were often added to an earlier rectangular plan for additional living and work space. The L-shaped plan offered more flexible interior spaces as families grew. Many houses were simple vernacular buildings, but some displayed ornamentation from the popular styles of the period including Greek Revival, Italianate, and Gothic Revival. Pattern books and carpenter's guides were published in the early nineteenth century illustrating the details of Greek Revival style, which spread throughout the country. The Greek Revival style was gradually replaced by the Gothic Revival and Italianate styles in by around 1840; however, Greek Revival remained popular in some rural areas until at least the 1860s (McAlester 2013:244–245).

E.2.b Mid- to Late-Nineteenth-Century Buildings, 1850–1890

Agricultural Outbuildings

Mid-nineteenth-century southern Aroostook County farms reflected the shift from subsistence farming towards the diversification into home industries that occurred on many New England farms during the nineteenth century. In addition to a multiple-purpose barn and a farmhouse, farmers constructed specific outbuildings for use as workshops, crop storage, and animal shelters. Agricultural societies and the state agricultural board disseminated information about the latest building designs for barns and outbuildings to make farming more productive and efficient. These groups also encouraged farmers to experiment with focusing on raising specific crops, primarily wheat, apples, and potatoes, and to produce dairy

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products. Some crops required specialized buildings for storage; however, many did not. Mixed-use barns could be easily modified, for example, to accommodate the storage of apples and potatoes (Maine Board of Agriculture 1857; 1873; 1886; 1899).

By the 1850s, as dairy herds grew, bank barns became popular throughout New England. Bank barns were built into the side of a hill, which allowed for a basement level accessible on one or more sides, while the primary entrance was still at grade. The main floor was used to house cattle and for grain storage; the upper story was used for hay storage; and the basement space was commonly used to store manure, which was used as a fertilizer. These barns typically integrated a large, exterior sliding door, which replaced the large double-hinged doors. The doors could be easily opened and closed, even in inclement weather. The construction of small, stand-alone piggeries and chicken coops also became common during the mid-nineteenth century. These smaller buildings were located near the work yard accompanying the large barn.

Outbuildings dedicated to specific purposes for both domestic and agricultural activities were built when needed. With the push toward diversified farming, buildings dedicated to dairy production were developed. Dairies, also known as creameries or cheese houses, were usually built within close proximity to the work yard, but under the shade of trees or into the bank of a hill. Articles and guides ranging from the *Maine Farmer* magazine to publications by the Maine Board of Agriculture, the University of Maine, and the Maine Experimental Station instructed farmers on the proper design of dairies to aid in keeping dairy products at the right temperature. Ice houses were constructed in the mid-nineteenth century, either as stand-alone structures or adjacent to a dairy.

Domestic Architecture

Houses in the mid- to late nineteenth century were primarily the same forms and massing as residences constructed earlier in the century. They were usually one- to two-story, wood-frame, structures with rectangular or L-shaped plans. Ells contained additional living and utilitarian space. Some houses constructed in the later styles could have irregular plans, but many of the houses of this period were still primarily simple vernacular structures that integrated elements of popular architectural styles into the design. The earlier Greek Revival was still popular until the 1860s, but the use of Italianate, and to a lesser extent Gothic Revival, was still common until the 1880s. These styles were slowly replaced by the Second Empire and Queen Anne styles, which developed as a result of the rapid industrialization and growth of the country. This period led to drastic changes in domestic architect. Materials and decorative elements could be massed produced and shipped in larger quantities across the country, offering more options to the home builder. The braced frame, which had replaced the timber frame method of construction in the early nineteenth century, was modified into the balloon frame. The balloon frame was lighter, cheaper, and could be constructed faster using only machine-milled, vertical studs throughout the entire frame (McAlester 2013:314-315).

Agriculture-Related Commercial and Industrial Buildings

Agricultural-related industrial buildings supported the beginnings of commercialized farming-scale processing of agricultural products, while commercial buildings functioned as warehousing and retail distribution outlets for farm equipment, supplies, and products. These buildings were primarily wood construction with simple one and two-story forms of utilitarian, unornamented design that reflected common construction practices and likely using local sourced lumber products. There is little information available on the appearance of the buildings associated with a few commercial dairy processing enterprises known to have occurred in southern Aroostook County during this period. At least one cheese factory, Nickerson Company, operated in Houlton starting in 1875; its ongoing existence has not been verified. A short-lived butter-making operation in Linneus in 1878 has also not been located but could have taken place within an existing multi-purpose dairy farm building. It is likely that these took place in simple wood-frame buildings similar to other farm and small industrial buildings of the time. By the 1880s, cooperative dairies were established and new technology, specifically the centrifugal cream separator, significantly reduced the production and transportation time of cream and milk. The primary processing facilities in southern Aroostook County were factories that processed potato culls into starch. Some factories were established as early as the 1870s in southern Aroostook County, but the activity continued in

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earnest into the twentieth century. One complex, with numerous modern additions, is known to survive in Houlton. The starch factory combined wood and fireproof brick or metal clad construction on one- to two-story buildings in a tight complex with brick and metal smokestacks. Businesses constructed warehouses and stores for general storage and sale of fertilizer, seeds, and farm equipment near the Bangor & Aroostook Railroad such as the cluster of buildings present in the Carys Mills section of Houlton near Houlton Grange #16. Many of the extant commercial buildings in Carys Mills display faded painted signs on the exterior of the buildings advertising the goods and products that were sold.

E.2.c Late-Nineteenth- and Early- to Mid-Twentieth-Century Buildings, 1890–1940

In the late nineteenth century, New England farmers found that specializing in one crop was the most economically beneficial, and southern Aroostook County turned to the commercialized production of potatoes and, to a lesser extent, dairy products. There was also some production of oats and wheat. Overall there were fewer numbers of farms, but the acreage of each farm grew. Large, mixed-use barns were no longer needed for agricultural purposes and many of them were either converted to other purposes or used for storage of equipment. Farming continued to primarily focus on commercialized potato and dairy farming in the early twentieth century.

With the introduction of the Bangor & Aroostook Railroad in 1894, villages in southern Aroostook County prospered and grew to include factories for the production of starch and trackside houses to store large quantities of potatoes to be shipped all over the country. Specialized designs for dairy herds and products, storage of potatoes in the form of potato houses on the farm, and trackside potato houses along the rail line are distinctive building types found throughout southern Aroostook County.

Agricultural-associated property types, such as fairgrounds and grange buildings and stores, developed in rural agrarian communities across the country in the late nineteenth century from a need “to meet the economic, social and educational needs of a class of Americans – the small farmer – whose day to day lives were being irrevocably transformed in the post-Civil War period” (Brown 1922 quoted in Mitchell 2006). By 1887, Maine had the largest Grange, or the Order of Patrons of Husbandry, membership in the nation. The Grange advocated for education and the advancement of modern scientific farming techniques through meetings and publications. By the 1890s, state and federal programs were created to investigate new scientific approaches to farming. This resulted in the establishment of state land grant colleges and agricultural experiment stations that developed “improved farming practices, strains of plants, soil testing procedures, and measures for controlling disease in plants and animals” (Visser 1997:54). These programs led to new designs for agricultural buildings that catered to new practices, such as advanced sanitation and climate control.

Potato Storage

Before the late nineteenth century, basements of houses and barns and root cellars, or pits dug underground for insulated storage, were typically used for potato storage in southern Aroostook County. With the introduction of the Bangor & Aroostook Railroad to the region in 1894, potato production skyrocketed and farmers required better storage for their crop. Some farmers built potato houses specifically designed to accommodate the long-term storage of potatoes. These distinctive buildings are usually built into the bank of a hill with high, masonry walls on the lower level and a wood-frame gambrel roof above. The design integrates partial underground construction, ventilation and stoves as climate and moisture control measures. The design caters to the loading and unloading of potatoes as well. The buildings each have two sets of doors; one on the upper level for unloading the bulk potatoes into the bins that line the walls below and one to load the potatoes into trucks on the lower level. Vestibules were later built onto the earlier potato houses to accommodate larger machinery and to provide a semi-enclosed space for loading and unloading. A good example of a small, simple potato house constructed ca. 1900 exists in New Limerick at 1013 New Limerick Road (MHPC No. 1252-07-167.2).

Potato houses worked well for the small-scale potato farmer, but the larger potato producers relied on trackside potato houses built directly adjacent to the rail line. These buildings were not owned by the railroad, but rather by the farmers or shipping companies. They are categorized as small, medium, and large in size and the walls are all slightly taller than a

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refrigerated boxcar, which are approximately seven-and-one-half-feet tall. Small houses have two doors, but the medium and large houses can have up to four doors. These doors are generally set 40 feet apart, the average length of a refrigerated boxcar. The interior is divided into a center aisle for unloading, loading, and grading the potatoes. Wood bins to hold the bulk potatoes run along either side of the aisle. These can be filled from above and emptied from the first level. The trackside houses also typically have ventilation shafts and dormers along the roof and a stove to regulate the temperature and humidity. A U.S. Department of Agriculture study published in 1938 found that "The farm and trackside storages in the Aroostook potato-producing area have been developed over a period of years into two fairly satisfactory types [the farm and the trackside potato houses], storages of each type being remarkably similar wherever found. Certain practices not usually followed in other sections have been developed, more attention being given to rapid handling than in the storages farther south" (Edgar 1938:3). Good examples of trackside potato houses (all ca. 1880–1920) are three located on Station Road, Smyrna and others on Main Street, Smyrna; the D.P. Mooers & Sons' cluster on Station Road, New Limerick; a group off Route 2 in Dyer Brook; and several on Nina Sawyer Lane in Island Falls.

Dairy Farming

Dairy barns were constructed specifically to meet the needs of large herds of dairy cows and to provide the sanitary conditions needed to produce dairy products. Ice houses were built to store the large quantities of ice needed to keep dairy products cold until they were shipped or sold. Most icehouses rotted due to the constant melting ice or were abandoned with the introduction of electric refrigeration in the twentieth century.

Dairy barns built in the late-nineteenth and at the turn of the twentieth century were typically wood frame with basements used for manure. These barns were typically constructed into a hill side to allow for easier access to the basement level. The gambrel-roof barn form became popular in southern Aroostook County after 1900 and is associated with dairy farming. The expanded roof structure allowed more space in the loft for hay storage. The success of the dairy industry in the area led to larger dairy herds, which required large amounts of fodder and bedding. The Shur Farm on Route 2, Island Falls has an excellent example of a late, gambrel-roof, frame barn with a basement built in the 1940s (MHPC No. 212–0002). Ground-level stable barns were developed in the early twentieth century and reflected a new approach to the design of dairy barns integrating improved sanitation measures and taking advantage of the availability of mechanized power. Most were one- to one-and-one-half-stories tall with the first floor built at ground level on concrete slabs. The Tarr Farm on County Road, Dyer Brook has a large gambrel-roof, ground-level stable barn built in 1921 (MHPC No. 132–0012). One-story, free-stall barns were developed in the mid- to late-twentieth century. Barns no longer required space to store hay and grain with the introduction of silos and hay baling. These barns were also designed as one, open space, with no interior stalls. A group of free-stall barns is located on a dairy farm on Ludlow Road in Ludlow.

Prior to the 1880s, cheese and butter making took place in the main house or in a service ell off the house. After 1880, separate dairies were constructed near the work yard of a farmstead to provide more sanitary conditions and space for cheese and butter. State sanitation regulations were officially enacted in the 1920s, requiring separate spaces for the production and storage of milk products. A new ancillary building type, designated the milk house, was developed. The milk house was a small structure, either attached to the barn or a stand-alone structure that was solely dedicated to liquid milk storage. Milking parlors attached or separate from the dairy barn were primarily constructed beginning in the 1960s and 1970s as new mechanized methods in handling and milking cows were developed (Visser 1997:103).

Other Agricultural Buildings

A variety of secondary buildings served ancillary and support functions within a farm. These secondary buildings were associated with diversified farming, but did not appear in all farms. In general they are one-story, wood-frame structures of a utilitarian type and form that have little or no ornamentation. These include workshops, icehouses, grain storage, dairies or creameries, milk houses, stables or carriage houses, wagon and equipment sheds, smokehouses, piggeries, chicken coops, and poultry houses. Raising poultry on a large scale was never widely popular in southern Aroostook

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County, but most farms kept a small flock. Those few that did invest in poultry farming either built new multi-story poultry houses or converted existing, extraneous mixed-use barns for this purpose.

Although the primary focus of farming in southern Aroostook County was on the commercialized potato and dairy market, southern Aroostook County also produced oats, wheat, and corn in the early twentieth century. Large silos, often made of wood or concrete, were constructed for grain storage. The round, wood stave silo, which were of similar construction to a wood barrel, was the most widely used type of silo; popular from the 1890s through the 1930s. This design was replaced by the round concrete silo, which was poured in place in one piece. Both types of silos could hold substantial amounts of grain with little spoiling and provide an easier way to unload the grain for transportation.

Domestic Architecture

Houses at the turn of the twentieth century were similar in form to those built in the late nineteenth century. Most were still modest, one- to two-story, wood-frame structures that were detached from the primary barn, but many included rear or side ells that contained the kitchen, privy, or workshop. Houses reflected the popular styles of the early twentieth century, including Queen Anne, Colonial Revival, and Arts and Crafts. The Queen Anne style had gained popularity in the county around 1880 and remained a dominant domestic style until the 1910s. The Colonial Revival style, which stressed the use of classically inspired forms, was primarily influenced by the resurgence in interest in early English and Dutch settlement in the country around the turn of the twentieth century. The Arts and Crafts style was one of the dominant styles for smaller houses throughout the country from about 1905 to the early 1920s; however not as popular as other early twentieth century styles in southern Aroostook County. This style, as well as the Colonial Revival style, became the two most common styles for pre-fabricated houses offered by companies like Sears and Roebuck and Aladdin Homes. Popular early-twentieth-century publications like *House Beautiful* and *Good Housekeeping*, as well as widely accessible books on designs and architectural details, exposed the general public to a broader scope of styles and options. Not only were books and magazines more easily acquired, but advances in materials like pre-manufactured lumber and masonry made these options more affordable to the average homeowner (McAlester 2013:314, 406–407, 578).

The garage developed in the early twentieth century with the invention of the automobile. Early garages were generally one-story, wood-frame structures constructed away from other buildings because of a high risk of fire due to the storage of gasoline and other combustible fluids. One-bay garages are the most common form; however, some farms built two-bay buildings to house a car and tractor.

Many farms built cottages to temporarily house workers during period of major harvests. Farms in southern Aroostook County commonly needed an additional temporary workforce to aid in planting, cultivating, harvesting, and the shipping of potatoes. These cottages were typically small, one-story, wood-frame structures built with little or no ornamentation. Oftentimes, other buildings on the farm, such as workshops or sheds, would be converted to house migrant workers.

Agriculture-Related Commercial and Industrial Buildings

The use of wood construction and simple gable roof forms for agricultural-related industrial buildings that supported the increasing trend toward farming commercialization continued during this period, especially after the opening of the Bangor & Aroostook Railroad in 1894. Trackside potato storage warehouses (described in Potato Storage section above) were built along the rail line, and some starch factories expanded.

Grange

Most subordinate granges, or local granges, in southern Aroostook County were established in the late nineteenth and early twentieth centuries. These organizations usually rented or shared a space with another group until funds were raised by the members to construct their own buildings, which could take several years after the establishment of the local chapter. Some early granges were replaced because they became too small for the members or burned. Grange buildings

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may be a single- or multi-story building as long as it contained a large gathering space for the meetings and rituals of the order, and often a dining room, kitchen, and/or stage. Many reflected the popular styles of the late nineteenth and early twentieth centuries, including Italianate and Colonial Revival. Some granges may also be associated with a co-operative store that sold farming equipment and supplies, including dry goods and groceries, to the members at discounted prices. These stores could be adjoining the grange or separate structures located in convenient, commercial locations within a community. The grange buildings often served as the primary space for town meeting and social events, but the popularity of the grange organization dwindled in the second half of the twentieth century, and most of the grange buildings in southern Aroostook County have been abandoned or demolished.

The Houlton Grange #16 (1898), Monticello Grange #338 (1922; NR listed 2000), Amity-Cary Grange #384, and Grand Lake Grange #375 in Weston are excellent examples and may be the only extant grange buildings in southern Aroostook County (based on the MHPC file research, case study of nine towns and Houlton, interviews with local farmers, and general research on granges in southern Aroostook County conducted for this MPDF). The Oakfield Grange #414 (1906; NR listed 2006) was demolished in 2012. The Houlton Grange # 16 had an associated Grange store open to all members in the region until it burned in 1966 (Mitchell 2006).

E.2.d Landscape

1805–1850

During the first half of the nineteenth century, the landscape of southern Aroostook County slowly transformed from a densely forested wilderness to an agrarian landscape in the sections where settlers cleared land for cultivation, grazing, and building. Land clearing was most extensive in the north, northwest, and northeast towns of southern Aroostook County where topography and soils were most suitable for farming land uses like fields and pastures. Much of the prime farming area was gently rolling to flat terrain underlain by a porous, naturally well drained limestone. Other areas remained forested, primarily with pine trees, and were used for firewood or commercial logging. Local roads, dirt lanes, and regional roads like the Military Road (1832) and a stage road from Houlton to Patten connected southern Aroostook County towns to each other and areas beyond. The county seat village of Houlton grew as a civic, commercial, residential, and industrial town center, and small hamlets with community buildings like churches and stores developed at crossroads in some smaller towns. The built environment was characterized by small clusters of detached residence, barn, and ancillary buildings within scattered farmsteads surrounded by agricultural fields. Settlers/farmers, mostly of English ethnic origin, focused on traditional diversified farming for the survival of their families, with any surplus going to supply lumber camps or highly localized trade (Ahn et al. 2002; Day 1954).

1850-1890

Shifts in land use patterns in southern Aroostook County during the second half of the nineteenth century reflected larger regional and national trends over time. The basic road pattern within and in and out of southern Aroostook County was established, but access to Bangor and other markets was limited. As farmers increasingly looked beyond fulfilling their own needs and toward opportunities for diversified farming with products to sell, lack of railroad transportation and competition from the New York area and western states hampered growth. At the same time, farmers had access to many improvements in farm tools, a flow of scientific information on agricultural topics, and the dissemination of new ideas and practices through farm literature and societies. They arranged and oriented farm buildings for proximity to the road or drive, efficiency of movement, and good visibility of the surrounding cultivated fields and grazing pastures. Farmers on well established farms erected secondary buildings such as barns, silos, pens, and workshops within the farmstead cluster. They grew a variety of crops like hay, wheat, buckwheat, potatoes and oats simultaneously and also had orchards and likely kitchen gardens. All farmers kept some livestock including horses or oxen, as well as a few milk cows, and some kept beef cattle, sheep, pigs, and poultry, which could have resulted in the addition of small specialized farm buildings. The introduction of dairy farms, whether new or modified existing farms, brought a collection of new building types (barn, creamery, etc.) to the farmstead cluster surrounded by grazing pastures.

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This period was the height of land cleared for agriculture in Maine, characterized by large fields and lack of fencerows between fields. Statewide, the number of farms peaked in 1880 at 64,309 and then gradually began to decline. In 1883, the State Board of Agriculture noted that farm landscapes appeared cluttered and unkempt being strewn with broken farm implements, fence parts, stove pipes, wood scraps, and other items, but it is not know whether this referred to any southern Aroostook County farms. The acreage of improved land (cropland and pasture) also peaked in 1880, followed by a drop until about 1900. However, agricultural land expanded in Aroostook County by over 60 percent during these years due to an increase in the number of farms. The average farm size in northern and western Maine, including southern Aroostook County, was above the state average at this time. Most farmsteads and cleared fields were located in nearly continuous sequences flanking the primary and secondary roads, with extensive woodland areas managed by farmers for firewood or set back further away from the roads. Smaller wooded areas served as wind breaks or were allowed to grow up along a natural water source. Portions of southern Aroostook County around Island Falls and in the center, south, and northern edge towns remained forested and focused on timbering (Ahn et al. 2002:5, 9, 12, 17; Day 1963; Howe 2014:7; Judd et al. 1955).

1890–1940

In the period from 1890 to 1940, the ongoing trend of decrease in number of farms and increase in farm size throughout Maine continued. In southern Aroostook County between 1925 and 1940, the number of farms in the nine study towns plus Houlton dropped from 687 to 609 and the acreage of all land in farms in these communities was also reduced. Between 1880 and 1939, average farm acreage expanded from 3.5 to 12.4 acres in Aroostook County overall. A farm, as defined by the 1940 US Census, included places of 3 acres or more on which there were agricultural operations, and places of less than 3 acres with agricultural products for home use or sale with a value of \$250 acres or more” (quoted in Day 1963:285). According to Day, fulltime farmers required a farm of more than 30 acres to support a family; people on smaller farms were part-time farmers with other employment (Day 1963:169; USCB 1940).

With the increase in mechanization, gas powered machinery, and consolidation of land on commercial growing farms, as a statewide trend big farms became bigger, and many smaller farms were joined to others or abandoned and reverted to forest. The consolidation and abandonment was seen by most observers as a necessary adjustment in the inevitable trend from subsistence to commercial farming.¹³ In southern Aroostook County, the most significant landscape change, which was a prime mover for increases in agricultural production, especially potatoes, was the Bangor & Aroostook Railroad that was constructed roughly southwest-northeast through this area. As a result, the spatial arrangement of farmsteads began to change with the expansion of field sizes and farms overall, and the introduction of larger buildings. These trends may have been relatively slow in southern Aroostook County before World War II. Many aspects of the traditional nineteenth-century southern Aroostook County agricultural landscape remained relatively unaltered, including road circulation networks and private lanes and the predominance of cultivation of primarily potatoes, but also hay, oats, and some wheat on extensive contiguous fields. Orchards, which had begun in 1870s, largely disappeared as farmers discontinued apple growing and it was not reported in the 1940 census. Dairy farming continued, and silos for feed storage, with their highly visible tall profile, and milk houses for processing and storage were added. Another notable revision to the built environment was the introduction of the distinctive gambrel roofed potato house and trackside warehouse to many farmstead clusters and along railroad sidings. Unlike mixed use and dairy barns, farmers often located the potato house closer to the fields than to existing buildings. Over this period, the need for mixed use barns and grazing pastures declined as farmers faded out use of oxen, horses, and sheep (Day 1963:178,288; USCB 1925, 1935, 1940).

¹³ Beginning in 1940, the widespread use of agricultural machinery allowed farmers to reclaim encroaching woodland and add to the size of farms. Farm size in Maine nearly doubled during the second half of the twentieth century (Ahn et al. 2002:14–15). There are very few known graphic records or detailed written descriptions concerning the southern Aroostook County rural landscape for 1805–1940. See Section F for additional discussion of farm landscape characteristics.

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F: ASSOCIATED PROPERTY TYPES

The following associated property types are related to the history of agricultural development of southern Aroostook County. The property types and subtypes consist of: farmstead, comprised of a variety of domestic and agricultural buildings and, usually, the landscape setting; farmhouse; barn (mixed use, dairy, and potato house); trackside potato house; grange; fairground; and rural agricultural district. The identification of property types is primarily drawn from the nine towns in the case study and the county seat of Houlton based on the data collection methodology for this MPDF as described in the beginning of Section E and in Section H.¹⁴ The property types are associated with one or both of the two thematic agricultural historic contexts: E.1. Southern Aroostook County Agriculture, 1805–1940 and E.2. Southern Aroostook County Agricultural Architecture and Landscape, 1805–1940. All property types and subtypes included currently exist in southern Aroostook County, although some may be rare. Categories of agricultural associated property types that would be eligible and resource types that would be contributing to a farmstead or rural agricultural district, but which have not been documented as existing in southern Aroostook County are not included in the MPDF at this time (see Section H.).¹⁵ However, the MPDF may be updated in the future if other resource types appropriate to the two contexts are identified in southern Aroostook County.

Name of Property Type: F.1 Farmstead

A farmstead is comprised of the property, landscape, and buildings that are used or were historically used for agricultural purposes, including, but not limited to animal husbandry, raising crops, harvesting wood, and producing dairy. Farmsteads in southern Aroostook County are categorized as detached or connected, based on the characteristics of the farmhouse (also see discussion of Type F.2 and its subtypes). A detached farmstead, the primary form found in southern Aroostook County, has its principal structures placed separately on the landscape. These buildings are typically distributed throughout the property to allow for adequate room for roads, work yards, and sanitation, but still close enough together to create a core space easily accessible and effective for farm activities. A connected farmstead has its primary structures joined, which include a house, barn, and any other substantial structure. These buildings are connected either directly to the adjacent building or via a covered walkway. Cropland, pastures, and woodlots are typically located beyond the core of the property, often delineated by wood or metal boundary fences; stone walls are rare.

In addition to a house and barn, many farmsteads contain multiple domestic and specialized agricultural outbuildings including silos, milk houses, workshops, stables, wagon sheds, and worker cottages. Other historic features or sites may also be present on a farmstead, such as foundation holes, orchards, wells, corrals, fences, gardens, and secondary roads.

The Farmstead property type ultimately consists of components that include a Farmhouse (Type F.2) and a Barn (Type F.3), along with the agricultural landscape and secondary domestic and specialized agricultural outbuildings and structures, common examples of which are explained below.

F.1.a. Landscape

Farmstead landscapes in southern Aroostook County are characterized by patterns of agricultural land use; cultivated, intentional, and natural vegetation related to land use in different zones; cluster arrangements and spatial arrangements of landscape features; circulation networks; boundary demarcations; views and vistas; and topography. Farmsteads typically range from 10 to 100 acres, and a few cover up to 150 or 200 acres. Individual farmsteads usually encompass a building cluster set close to the paved main road that is generally surrounded by cultivated fields, which are the dominant land use, grazing pastures, and adjacent woodlots. Spatially, the farmstead building cluster is located in an area that maximizes

¹⁴ The nine case study towns are Dyer Brook, Island Falls, T4 R3 WELS, Oakfield, Smyrna, Merrill, Ludlow, New Limerick, and Linneus.

¹⁵ Examples of resource types not identified or no longer extant in southern Aroostook County included corn canning houses, hop houses, sheep barns, corn cribs, maple sugar houses, tobacco barns, cranberry or blueberry buildings, and fairgrounds.

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views and/or vistas of the remainder of the farm. This orientation is accomplished by placing the building cluster on raised topography and/or clearing vegetation surrounding the core group. The placement of the building cluster also allows for views of adjacent farms, scenic views of the valley, and towards Katahdin. Topographically, the farmstead landscape gently undulates with cropland normally occupying relatively flat or gently sloped land. Cropland, pastures, and woodlots are spatially arranged in a contiguous fashion and can lie on opposite sides of the main road. Although discontinuous land parcels may be associated with the property, they are not included in the farmstead property type for the purpose of this MPDF. These resources may, however, be encompassed in a rural agricultural district.

Cropland includes all the land from which crops were harvested, including general crops, hay fields, and orchards. The appearance, texture, and color of cultivated cropland vary depending on the time of year and the type of crop planted and whether the field is fallow. Pastures are used for animal grazing and occupy either open land or a lightly wooded area. Frequently, wood fencing and, very occasionally, stone walls demarcate cultivated fields from pastures. Woodlots are forested areas traditionally managed and used for small-scale resource extraction for wood products such as firewood. Wooded areas are often used as a barrier between adjacent properties and/or as a windbreak. Natural vegetation often surrounds low lying streams and ponds, or may be allowed to grow in narrow linear swathes between fields. Vegetation is intentionally applied for both practical and ornamental purposes. Trees may be planted ornamentally in the farmstead building cluster or for practical purposes next to dairy buildings and in pastures to provide shade for cooling. Flower, herb, and kitchen gardens may be located near the farmhouse. Natural features such as springs, ponds, streams, or bogs are used for domestic and agricultural water supplies. The farmstead building cluster, cropland, pastures, and woodlots are typically connected by private, narrow, gravel lanes. Circulation between individual buildings in the farmstead building cluster generally consists of private, narrow, paved or gravel lanes.

Historic farm landscapes tend to be characterized by tightly clustered cores of historic wood-frame buildings, and relatively small field sizes adjacent to the farmhouse and secondary structures, reflecting traditional nineteenth-century farming practices. In contrast, the modern agricultural landscape has larger scale, metal or wood buildings more loosely arranged, and expansive fields suited to mechanized and commercial farming that could be adjacent to the core cluster of the buildings or, more often, spread out in separate areas over the town or region.

F.1.b. Domestic Outbuildings and Structures

Domestic outbuildings and structures on a southern Aroostook County farmstead support the daily functions of the human inhabitants of the farm. These buildings are usually located near the main house for convenience. Some, like a workshop, privy, or woodshed, are either stand-alone structures or housed within the rear ell of a connected farmhouse. This category includes buildings that accommodate additional living spaces like worker cottages and support facilities such as privies, springhouses, and icehouses. It also includes workshops and garages used for home industries, general maintenance, and vehicle storage.

1. Workshop

Workshops are constructed to provide a well-lighted, heated space on a farm and serve multiple purposes or are dedicated to a specific function that includes a blacksmith shop, carpentry shop, tool shed, machine shop, tannery, or general maintenance. Workshops are typically one to one-and-one-half-stories tall, wood-frame, and can be either detached from the main house or located within the rear ell of a connected farmstead. They usually contain an easily accessible doorway, multiple windows for interior light, and a cast iron wood or coal stove for heat. Sometimes these buildings have architectural details similar to the main house.

2. Worker Cottage

Worker cottages are built by the farmer to house full-time or seasonal employees. They are typically one- to one-and-one-half-story, wood-frame structures. They can contain little more than space for sleeping and a stove, or may be outfitted

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with the full amenities of the time, depending on the permanence of the occupants. Some seasonal worker cottages are simple shelters referred to as "picker shacks" with asphalt shingles on the roof and walls, small windows, and a pass door. Other types of farm outbuildings may also temporarily house workers during periods of major harvests. For example, in the late nineteenth and early twentieth centuries, southern Aroostook County farms needed large crews, typically from northern Aroostook County, to plant, cultivate, harvest, and ship potatoes.

3. Garage

The garage developed in the 1910s with the invention of the automobile, starting with the Model-T introduced in 1908. Garages were originally built as separate structures away from other buildings because of a high risk of fire due to the storage of gasoline and other combustible fluids. Early garages are typically wood-frame or concrete block and one story tall with a single bay, but double garages on farms are common to house both an automobile and a tractor. They usually have a gable or hip roof, concrete or wood floors, large sliding or hinged doors at one end, and windows on the side and rear elevations. Overhead doors on tracks became popular in the mid-twentieth century. Some garages incorporate a workbench and storage area.

4. Privy

Before the installation of plumbing became common in farmhouses in the late nineteenth and early twentieth centuries, each farm contained at least one privy, or outhouse. Privies are either located slightly away, but still conveniently close to the house, or within the rear ell of a connected farmhouse. They are usually one-story, wood-frame buildings with gable or shed roofs and one or two stalls. A window placed high up on a wall or cut out of the hinged door on the front provides light and ventilation. With the advent of indoor plumbing, many of these structures were abandoned, adapted for alternative use as storage, or demolished.

5. Springhouse/Well House

Springhouses, or well houses, were built over a spring that provided water to the farm before electric water pumps were introduced in the early twentieth century. Prior to the 1860s, water was fed by gravity through wooden pipes, which were later replaced with lead pipes. Springhouses are built to protect the water source and keep it free of debris. They are usually simple wood or masonry shelters with gable or shed roofs rising only a few feet above the ground with a small access door or hatch. Foundations of nineteenth-century structures were often built of stone, and starting in the early twentieth century concrete was used. After the introduction of electric or gasoline-powered pumps in the 1920s and 1930s, many of these wood-frame and masonry structures were built to protect the machinery from freezing during the winter (Visser 1997:119).

6. Windmill

Windmills were commonly built on farmsteads before the turn of the twentieth century to pump water from a well or to power other equipment. They are often placed on top of a small building, such as a well house, or are independent structures. Mid- to late-nineteenth-century windmills have an open wood frames topped with a wood fan and rudder to catch the wind. Beginning in the twentieth century, steel frames, fans and rudders were used. Windmills are now rare in southern Aroostook County.

7. Icehouse

Icehouses were commonly built in the late nineteenth century as a result of the increase in dairy production. Cheese, butter, and liquid milk required improved refrigeration methods than had existed earlier in the century. The icehouse is usually located in a shaded area on the north or west side of a farm complex. Some examples are attached to a dairy or milk house as part of an integrated refrigeration system. The buildings typically have wood frames and are one story tall

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with a door on the gable end. The thick walls of the early buildings are often insulated with sawdust or hay. Few early examples of this type of building exist due to rot caused by constantly melting ice. Electric refrigeration replaced hand-cut ice in the mid-twentieth century, and many icehouses were repurposed or abandoned.

8. Woodshed

Woodsheds, to store firewood for heating and cooking, are usually built attached to or near the kitchen. They can also be located within the rear ell of a connected farmhouse. These structures usually have wood frames and are one story tall with gable or shed roofs and one or more open sides. Covered walls are clad in wood boards spaced apart to allow for air circulation to dry the wood. Most have dirt floors covered in wood chips or bark, but some woodsheds are raised with wood plank flooring to aid in ventilation. If the building has a door, it is usually hinged on one end with smaller holes in the side of the building used to load and unload the wood.

F.1.c. Specialized Agricultural Outbuildings and Structures

Specialized agricultural outbuildings and structures support the operation of the farm. An outbuilding is any building not part of the major building core, including small attached buildings or sheds. These secondary buildings cater to specific functions of the farm that require a separate space, such as dairy production or the rearing of small animals. Each building or structure in this subtype is designed and constructed for a unique purpose and evolved along with advancements in modern science, like sanitation, or production, such as grain storage (Hubka 1984:61; Visser 1997). Barns are a primary agricultural building and are discussed as Property Type F.3 below.

1. Fence

Fences were used for multiple purposes within a farmstead. They are placed around cropland and gardens to keep animals out. They are also installed around pastures and barnyards to keep animals in. Some fencing was used to demarcate property boundaries and roads.

Early fences were often constructed of wood stumps recovered after land clearing. The stumps were set tightly together to form an impassible boundary. Wood fencing later evolved into the zig-zag fence with stakes set into the ground and split rails stacked between the stakes. This type of fence required a lot of material and space to erect. To conserve both materials and space within a farmstead, post-and-rail fences were developed and became relatively common. Post-and-rail fences are composed of posts with slits driven into the ground and rails set within the slits between the posts. Barbed wire was invented in the late nineteenth century, but did not become popular until around the turn of the twentieth century. The wire was stretched between wood posts across long boundary lines with relative ease and fairly inexpensively, but could only be used to contain larger animals like cows and horses. Board fences consisted of sawn boards placed close together and attached to wood posts. Board fences, and later woven wire fences, were primarily used within the barnyard for smaller animals that needed tighter fencing to prevent escape, such as pigs or sheep. Fences required constant maintenance and replacement, and it is unlikely any intact nineteenth-century wood fences remain. Stonewalls are not a common fence type in southern Aroostook County due to the topography and relatively less rocky nature of the soil compared to other parts of New England (Vermont Division for Historic Preservation 1991; Hart and Mather 1957).

2. Silo/Grain Storage

Silos can be made of wood, concrete, tile, and steel and can be located inside or separate from a barn. Early silos in Maine were typically constructed inside dairy barns. These early silos are square or rectangular, wood-frame structures. Some barns have a small dormer above the silo for easier access. By the early 1890s, when the production of corn increased throughout the state, construction of silos outside the barn began. These free-standing wood-frame silos have square and polygonal plans, gable or conical roofs and are usually clad in tongue-and-groove boards. The most widely used form of wood silos in the late nineteenth and early twentieth centuries is the round wooden stave silo. Their construction is similar

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to a wooden barrel, with adjustable metal hoops holding the vertical slats together and topped by a dome roof. The wooden stave silo led to the development of the concrete stave silo, which became the most popular type of silo in twentieth-century New England. Constructed of interlocking concrete staves with steel hoops, it is similar to the wooden stave silo, but was more durable. The concrete stave silo was mass produced and shipped throughout the country. This type of silo was replaced with the steel silo on farms in the 1960s and 1970s. Less popular silo types are the tile silos, built of glazed tile set in cement mortar, and poured concrete silos.

3. Dairy/Creamery

Prior to the 1850s most of the small-scale cheese and butter making took place within the kitchen ell or small, separate, stand-alone buildings often located beneath shade trees to aid in refrigeration. As farmers expanded their dairy herds after the 1850s, dairies were constructed to cater to the specialized production of butter and cheese. Dairies are typically small, one-story, wood-frame or masonry structures with gable roofs and ventilators at the ridge. Some also have a stove and chimney for heating. Often, a portion of the dairy is built below ground level to house the milk room and cooling room or integrated icehouse. The rest of the building is used as a churning room for the production of butter. The walls are usually finished with lime, plaster, or glazed tile to keep the space clean. Centrifugal cream separators were introduced in the 1880s, which reduced the amount of time necessary to separate cream and increased productivity. Larger dairies were built integrating twentieth-century improvements including new machines and providing more space for refrigeration.

4. Milk House

State regulations promoting sanitation to prevent the spread of tuberculosis and other diseases were enacted in the 1920s. To comply with these regulations, many dairy farmers built milk houses solely dedicated to storing milk, separate from where the cows were actually milked. Milk houses are either attached to or sited near the dairy barn with access to cold water from a spring. Some are sited close to the road to ease in loading the milk canisters into wagons or trucks. Most extant milk houses are small, one to one-and-one-half-story, gable-roof, wood-frame structures with a door on the gable end and small windows. Some have a ventilator on the roof ridge. Concrete cooling tubs inside the milk houses were filled with spring water or ice to keep the milk cold. Farmers replaced or expanded many of these structures in the 1950s and 1960s with the introduction of stainless steel refrigerated bulk tanks for milk storage.

5. Stable/Carriage House

A stable is typically a one- to one-and-one-half-story tall, wood-frame building with a large hinged door and small windows on the side and rear elevations. Some buildings were designed in the same style as the main house, but the majority are absent of any architectural details. These buildings are generally located between the house and barn for easy access. There are three main types of stables and carriage houses: for horses only, for vehicles only, and for both horses and vehicles. As farming operations expanded in the mid-nineteenth century, space in the mixed-use barns became limited and many farmers built a separate structure for the storage of carriages and sleighs with additional space for box stalls, harnesses, and grain and hay.

6. Wagon Shed/Equipment Shed

Wagon sheds are one- to one-and-one-half-story, wood-frame structures with a side-gable roof and a row of open bays on one of the long sides. Some were built as separate structures, while others are connected to the stable or barn. Wagon sheds are primarily constructed to protect wagons and tractors from the weather and provide a covered space for small repairs and maintenance.

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7. Smokehouse

Smokehouses are typically small, gable-roof, masonry buildings with no windows and an elevated, hinged metal door on one side. The inside is typically divided by an ash pit below and hooks above for hanging meats. A space for a fire is located inside or a fire box was attached to the side with a flue to direct the smoke into the building. Most smoke houses are sited away from other buildings due to the high risk of fires.

8. Piggery

Nineteenth-century piggeries are commonly small, gable or shed-roof, wood-frame structures less than five feet tall. Few nineteenth-century examples are extant. Larger one- to one-and-one-half-story, wood-frame, twentieth-century piggeries with a gable roof are more common. The interior of larger piggeries are divided into pens with access to an enclosed yard via small openings placed low in the wall. These doors usually slide vertically to control access to the yard. Many of the larger piggeries have a small room or ell with a chimney and stove where grains and root crops can be cooked for the animals.

9. Chicken Coop

Chicken coops were not common on farms until the mid-nineteenth century. Most farms housed small flocks in the lower level of a barn. After 1850, poultry farming became more popular and small, wood-frame, gable- or shed-roof independent structures were built. The interior of the buildings lined with small nesting boxes. By the late nineteenth century, most coops contained an adjacent yard that was enclosed with a woven wire fence.

10. Poultry House

Poultry houses are typically one- or more-story, gable- or shed-roof buildings dedicated to the raising of commercial chickens and eggs. They are commonly wood-frame sheathed in clapboard, asphalt, or sheet metal. These structures are bigger than a chicken coop, with banks of small windows and dormers along the long sides for ventilation. Large-scale poultry farming was not popular among early farmers for fear of the cold northern climate effects on the animals and the spread of disease. Poultry houses in southern Aroostook Maine were constructed beginning in the early twentieth century, but are rare. Some barns were converted into large poultry houses in the 1930s and 1940s. Additional floors were added inside the older barns and multiple banks of windows were installed.

F.1. Statement of Significance

Eligible farmsteads are significant at the local level under Criterion A in the area of Agriculture for their demonstrated associations with the historic agricultural development of southern Aroostook County towns under one or more event, activity, trend, pattern, and/or theme discussed in the historic context E.1. Southern Aroostook County Agriculture, 1805–1940. The purpose, function, and importance of the property will be reflected in the types and arrangement of buildings and the character of the affiliated agrarian landscape, including evidence of changes though time. Examples may range from small-scale diversified farming to a more specific form of specialized/commercial farming like raising potatoes or producing dairy products. An eligible farmstead may be locally significant under Criterion C in the area of Architecture or Landscape Architecture as a representation of an intact collection of historic agricultural landscape and buildings that is a good example of its type and period of design and construction as defined in historic context E.2. Southern Aroostook County Agricultural Architecture and Landscape, 1805–1940. Certain farmsteads may also be eligible under Criterion B for their associations with a notable person in the community identified in the historic contexts, if they are associated with the time of that person's important contribution to local history. Farmsteads may be eligible under Criteria A, B, or C at the state or national level if the property is shown to be important within an identified state or national related agricultural context.

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F.1. Registration Requirements

Completely intact farmsteads from any single point in time are not common in southern Aroostook County as it was the nature of a farmstead to evolve over time. Farmers adapted to new technologies and integrated changes in agriculture practices, buildings necessary to support farm activities, and lifestyle. The functions of early buildings may have become obsolete as usages changed and existing buildings were converted for new uses. Adaptive-reuse is especially true of mixed-use barns and structures as farming moved from a small-scale diversified focus to more specialized and commercialized operations in the late nineteenth and early twentieth centuries. New building types such as potato houses or dairy barns and silos were also introduced to existing farms, and occasionally buildings lost to fire were replaced.

A farmstead retains its historic integrity if the essential features of the original design and significant historical changes are present: buildings, cropland, pastures, and woodlots; most of the historic materials; and evidence of notable construction technology. Alterations and additions made during the period of significance are important to understanding the history of the farmstead, may have achieved significance in their own right, and do not preclude the property's eligibility for listing as an individual property or as a contributing resource in a district. The majority of the buildings should date to the historic period of significance between 1805 and 1940 with few modern infill structures, modifications, and alterations. An eligible farmstead will normally include a landscape that reflects the historic agricultural function of the property, unless the detached or connected farmhouse and agricultural building complex itself possesses an unusually high level of rare and distinctive elements and preservation that convey its significance even without its historically associated farmland. Similarly, in certain exceptional cases otherwise intact farmsteads where either the historic farmhouse or primary barn is missing may continue to retain overall integrity and be eligible under this property type. If both the farmhouse and primary barn are missing, the integrity of the property as a farmstead is likely to be significantly diminished such that it would not be eligible.

In order to be eligible under Criteria A and C, the farmstead landscape and buildings will retain integrity in all or most of the categories of agricultural setting, feeling, association, overall materials, design, and workmanship that convey its historic function and significance. Overall, an eligible farmstead possesses the qualities of a coherent historic agricultural complex and expresses the types of farming and activities that were conducted there over time. In order for a farmstead to be eligible under Criterion B, the person associated with the farmstead must be individually significant within the southern Aroostook County agricultural context.

Name of Property Type: F.2 Farmhouse

The farmhouse is the domestic core and a primary component of the F.1 Farmstead property type. Historic farmhouses in southern Aroostook County primarily date from the 1830s to mid-twentieth century and represent architectural styles and forms popular during that time, including Italianate, Gothic Revival, Colonial Revival, and Queen Anne. Farmhouses typically range from one to two stories tall with side gable, front gable, or hip roofs with asphalt shingles. Most of the houses in the region are wood-frame structures set on masonry foundations with clapboard, wood shingle, or asbestos siding. The farmhouse is the main domestic building on a farmstead and provides shelter for the farmer and his family. Most farmhouses are placed close to and facing the road while associated outbuildings are generally located behind or adjacent to the house. The immediate setting may include kitchen and ornamental gardens. Small outbuildings, such as the dairy or privy, may be attached to the side or rear of the farmhouse. Some houses are connected to the primary barn via a rear or side ell. Farmhouses exist in two subtypes, detached and connected:

Subtype: F.2.1 Detached Farmhouse

The detached farmhouse is a free-standing residential building and is not connected to any other primary agricultural building, such as the main barn. Sometimes detached farmhouses have a rear or side ell that contains a kitchen and or space for other domestic purposes such as a workshop, dairy or privy. The construction of these farmhouses is not

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confined to a specific time or style. The detached farmhouse is the most prominent variety in southern Aroostook County comprising over half of the farmhouses identified in data analyzed for this MPDF.

Subtype: F.2.2 Connected Farmhouse

The connected farmhouse primarily consists of a main house, or big house, along with an ell, or little house, a second ell, or back house, and subsequently attached barns. These buildings may have developed over a period of time or simultaneously. This arrangement of buildings was popular throughout New England in the late eighteenth and nineteenth centuries to provide a covered passage between house and barn in winter months and the convenience of easy access to agricultural buildings and home-industry work spaces. Some originally detached farmhouses were later connected to a barn. The connected organization of buildings is more vulnerable to the total destruction of all the buildings by fire than a freestanding arrangement.

F.2.1 and F.2.2 Statement of Significance

Usually, detached and connected farmhouses will be significant as the domestic core of an eligible historic farmstead and will be eligible as a contributing component within a property type F.1 Farmstead (refer to F.2. Statement of Significance). A farmhouse that lacks its historically associated agricultural buildings and landscape is no longer part of a farmstead. Independent of the farmstead, farmhouses may also possess architectural significance within trends, patterns, and themes of residential architecture design and construction and can continue to convey their architectural contexts as stand-alone resources.

Eligible farmhouses possess significance at the local level under Criterion C in the area of Architecture as a particularly good and intact, and/or possibly rare, example of a type, period, or method of construction of domestic architecture in the town within the historic context E.2. Southern Aroostook County Agricultural Architecture and Landscape, 1805–1940. Farmhouses may also be eligible at the local level under Criterion B for their association with a significant person in the history of southern Aroostook County agriculture, if they are associated with the time of that person's important contribution to local history. Farmhouses might be eligible under Criteria B and C at the state or national level if the property is shown to be important within an identified statewide or national related agricultural context.¹⁶

F.2.1 and F.2.2 Registration Requirements

Eligible detached and connected farmhouses under Criterion C will be intact and good representations of their type, period, or method of construction of domestic architecture. The farmhouse will retain its historic integrity in all or most of the categories of location, immediate domestic setting, feeling, design, workmanship, and materials with the relevant architectural trends and style it embodies. Associative integrity with agricultural history will likely be diminished. Alterations and additions such as porches and ells made during the historic period may have gained significance in their own right and do not necessarily detract from the property's individual eligibility. However, extensive use of replacement materials may diminish integrity of workmanship and materials, and major modern additions may overwhelm the historic building, rendering it not eligible. An affiliated historic period garage, privy, or other domestic outbuilding will contribute to the overall property. To be eligible under Criterion B, a farmhouse will be associated with a person that is individually significant within the southern Aroostook County agricultural context.

¹⁶ Some farmhouses may be eligible for National Register listing within a historic context other than Agricultural Properties of Southern Aroostook County, Maine.

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Name of Property Type: F.3 Barn

A barn is a large agricultural building located on farms and used for various purposes, most notably the storage of livestock and crops. Barns can be built to house multiple utilitarian functions or designed specifically to fulfill the needs of one function, such as hay or potato storage or housing dairy herds and poultry. Barns can be separate structures or connected to a farmhouse, usually via a rear ell. In a connected farm arrangement, the major barn is usually located at the end of the complex. The majority of stand-alone barns are sited near the core of the farmstead for easy access. When southern Aroostook County turned to more specialized commercial farming and new technologies developed, primarily the introduction of the tractor, the less common subtypes of barns, including field/hay barns and sheep barns, were abandoned or converted to new uses.

Early- and mid-nineteenth-century barns were constructed with hand-hewn posts and beams and mortise-and-tenon, wood-frame construction. Mill-sawn heavy timbers replaced hand-hewn timbers after the Civil War and were used for timber-frame construction up through the turn of the twentieth century. The timber-frame construction method was still used for most barns until braced and balloon framing became popular in the mid- to late-nineteenth century with advances in circular blade-cut lumber and wire nails. Most nineteenth-century barns were built on a stone foundation. Poured concrete, concrete block and metal were popular materials used in the twentieth century for foundations and siding, especially with the requirements for improved sanitation for dairy production. Barn forms in southern Aroostook County are predominantly nineteenth-century types referred to as English barns, New England barns, gambrel-roof barns, and bank barns. English barns have side-gable roofs and their primary entrance on the long elevation. New England barns have front-gable roofs and their primary entrance on the short, gable end. Gambrel-roof barns are identified by their double-slope roofs; they developed in the early twentieth century mostly for dairy farming. Bank barns typically have a front-gable or gambrel-roof that is built into natural or man-made hillsides creating an exposed basement level. Two less common, early- to mid-twentieth century barn types in southern Aroostook County are the double barns, also referred to in Maine as Madawaska twin barns, comprised of two main barns connected by a hyphen and pole barns with a frame of "preservative-treated utility poles sunk into the ground" (Visser 1997:150) (Blackstone 2013:48; McAlester 2013:38; Perkins 2012:113; Visser 1997).

The main barn subtypes found in southern Aroostook County are the mixed-use barn, the dairy barn, and the potato house (described below).

Subtype: F.3.1 Mixed-Use Barn

The mixed-use barn is typically the largest structure on a farm and is used for combined animal and crop storage. Mixed-use barns may be one of the oldest structures on a farm in southern Aroostook County. Early farmers in the area built a mixed-use barn to house equipment, animals, hay and other feed or grain. Mixed-use barns are still often used for the same general purposes. The barns are usually wood-frame with clapboard, wood shingle, or asphalt siding. They are typically one-and-one-half or more stories tall with a side-gable, front-gable or gambrel roof and can be connected or detached from the house. By the mid-nineteenth century, some barns displayed architectural detailing similar to, but more understated than, the main house. Mixed-use bank barns of this period created a lower level used as a manure basement, a practice primarily discontinued in the late nineteenth century when new sanitation conditions arose. The majority of barns in southern Aroostook County have front-gable or gambrel roofs. They are also separate from the main house, but conveniently located to the work yard. The most common interior layout of a mixed-use barn has a center aisle with space on either side for cattle, a few horse stalls, possibly a workshop, and grain storage on the main level. The upper level is for the storage of hay. Some mixed-use barns were built with small cellars used as cold storage rooms for vegetables, especially potatoes. Mid- and late-nineteenth century barns are timber-frame constructed using hand hewn and sawn timber frames. Many timber-frame barns were modified after the introduction of larger machines during World War II by removing structural members in the center aisle to provide more space (Perkins 2012:113; Visser 1997:40, 98).

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F.3.1 Statement of Significance

The construction of one large, mixed-use barn was seen as a progressive measure in farming by the 1850s. The consolidation of multiple functions that were formerly housed in several individual smaller structures saved costs on maintenance and time. Throughout the nineteenth century, barn design and construction evolved to maximize storage and efficiency with space to accommodate multiple types of animals, farming equipment and feed. Usually, a mixed-use barn will be significant as the primary agricultural building on an eligible historic farmstead and will be eligible as a contributing component within a property type F.1 Farmstead (refer to F.2. Statement of Significance). However, in some cases a mixed-use barn may be the sole remaining element of a historic farmstead. Many barns are visually the most prominent structure on a farm and in some cases can continue to convey their historical and architectural contexts as stand-alone resources. Mixed use barns will be eligible under Criterion A at the local level in the area of Agriculture if they demonstrate particular trends, patterns, themes or approaches to a period or type of farming within the historic context E.1. Southern Aroostook County Agriculture, 1805-1940. They will be eligible at under Criterion C at the local level in the area of Architecture if they are a particularly good and intact, and/or possibly rare, example of a form, type, period, or method of construction within the historic context E.2. Southern Aroostook County Agricultural Architecture and Landscape, 1805-1940. A mixed-use barn may be eligible under Criteria A and C at the state or national level if the property is shown to be important within an identified state or national related agricultural context.

F.3.1 Registration Requirements

Mixed-use barns eligible under Criterion A will possess characteristics specific to a period or type of agriculture identified above and reflect the types of farming and functions it supported. Although the building may not have recently served the traditional agricultural functions of a mixed-use barn, it will retain integrity in all or most categories of location, setting, and association with a historic agrarian landscape. In order to be eligible under Criterion C, a mixed-use barn will contain its key character-defining features and retain integrity of design, workmanship, and materials that represent particularly important, innovative, or unusual aspects of design and/or construction. Additions and alterations made during the historic period, especially to accommodate new farm functions, do not necessarily detract from the barn's significance or its eligibility as an individual property or as a contributing resource to a historic district. However, large modern additions or modifications to character-defining features may diminish the building's integrity of materials, design and workmanship, rendering it ineligible.

Subtype: F.3.2 Dairy Barn

a. Frame Barn with Basement

Frame barns with basements are typically large, wood-frame buildings with clapboard, wood shingle, or asphalt siding built in the nineteenth and early twentieth century. They are commonly one-and-one-half-story or taller with gable or gambrel roofs and a cupola. These barns are similar in form to mixed-use bank barns with lower levels built into a hillside to create a lower level basement. Most frame dairy barns have rows of windows across the long sides of the building, indicating multiple stalls on the interior for cows. The multi-story barn minimized the labor required to move feed and manure in the building. Many of the southern Aroostook County barns built after 1900 have a gambrel roof, primarily to allow for extra hay storage space in the loft. However, the gable roof is still commonly found throughout the region. The construction of a gambrel-roof barn on a farm usually signified a shift from diversified family farming to specialized dairy farming, where the storage of large amounts of fodder and bedding was necessary to care for the herd (Visser 1997:85-86).

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b. Ground-level Stable Barn

Ground-level stable barns are typically one or one-and-one-half-story, long buildings with gambrel roofs and vents or a cupola at the ridge constructed beginning in the early twentieth century. These barns may also have gable roofs, although that form is less common. Most have rows of windows along the long sides of the building indicating interior stalls for cows and the primary entrance on the gable end. All of these barns were built with the first floor at ground level and concrete floors. Walls were often concrete or stud construction sheathed with vertical boards, clapboards, asphalt and asbestos. Roofs were commonly clad in sheet metal, corrugated metal, asphalt and slate. After the discovery that the tuberculosis virus could be spread through the digestive system and carried in manure dust, the new dairy barns were constructed at ground level to eliminate the use of traditional manure basements. Improvements in air circulation and sufficient light were integrated into the new designs. Concrete was used for flooring because it was much easier to clean and keep sanitary than traditional wood. Wood floors in older barns were often replaced with concrete and the lower levels were converted into ground-level stables. These twentieth-century barns reflect a new approach to dairy barn design that improved sanitation and took advantage of the availability of mechanized power. Many of these barns are accompanied by an attached, or independent, milk house for the sanitary storage of milk (Vermont Division of Historic Preservation 1991; Visser 1997:97-101).

c. Free-stall Barn

Free-stall barns are long, one-story buildings with front-gable roofs constructed in the mid- to late twentieth century. They have concrete floors and either concrete or stud-frame walls sheathed in clapboards or metal. The difference between this type of barn and earlier designs is that there are no stalls or divisions on the interior to house the animals. Most are one open space where the cows are free to roam. The entrance, positioned at the gable end, leads to an open grazing yard. In the mid-twentieth century, the need to store hay and feed in the loft was eliminated with the introduction of silos and baling hay, so many late-twentieth-century barns are only one story. Examples of one-story, free-stall barns are seen on Ludlow Road in Ludlow. Milking parlors attached or separate from the dairy barn were primarily constructed beginning in the 1960s and 1970s, as new mechanized methods in handling and milking cows were developed (Visser 1997:103).

F.3.2. Statement of Significance

Dairy farming became an important commercial industry in southern Aroostook County in the 1870s. Many farmers turned away from diversified farming to focus on dairy farming as their primary industry. Specialized buildings were constructed specifically to meet the needs of large herds of dairy cows and to provide the sanitary conditions required to produce dairy products. A dairy barn normally will be significant as the primary agricultural building on an eligible historic farmstead. However, in some cases a dairy barn may be the sole remaining element of a historic farmstead. Many barns are visually the most prominent structure on a farm and in some cases can continue to convey their historical and architectural contexts as stand-alone resources. Dairy barns will be eligible under Criterion A at the local level in the area of Agriculture if they demonstrate particular trends, patterns, themes or approaches to a period or aspect of dairy farming within the historic context E.1. Southern Aroostook County Agriculture, 1805-1940. They will be eligible at under Criterion C at the local level in the area of Architecture if they are a particularly good and intact, and/or possibly rare, example of a form, type, period, or method of construction. A dairy barn may be eligible under Criteria A and C at the state or national level if the property is shown to be important within an identified state or national related agricultural context.

F.3.2 Registration Requirements

Dairy barns eligible under Criterion A will have been built for or converted for the sole purpose of dairy farming. It will also retain its integrity of location, setting, feeling, and association. Although it does not need to be an active dairy barn, the building will retain its historic architectural appearance as a dairy barn. In order to be eligible under Criterion C, a dairy barn will contain its key character-defining features and retain integrity of design, workmanship, and materials that

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represent particularly important, innovative, or unusual aspects of design and/or construction. Additions, especially in the form of milk houses and parlors, and alterations that were made during the historic period are considered important to understanding the building's evolution and do not preclude its eligibility for listing as an individual resource or contributing element in a historic district. However, large modern additions or modifications to character-defining features may diminish the building's integrity of materials, design and workmanship, rendering it ineligible.

Subtype: F.3.3 Potato House

The potato house is a distinct building type found throughout southern Aroostook County for the storage of potatoes. It was typically constructed with an I-, T-, or L-shaped plan in the region between the late-nineteenth century and mid-twentieth century. A potato house usually has high stone or concrete walls with a wood-frame gambrel roof clad in asphalt shingles set into the bank of a natural or man-made hill. The masonry walls are below ground, while the wood-frame roof extends low to the ground. Potato houses have metal or wood roof ventilators and brick chimneys connected to stoves used for climate control. The building is accessed by two doors: one under the roof for the upper level and one in the lower level at the opposite end of the building. The interior is laid out with a center aisle flanked by wood bins approximately ten-feet wide on either side. The bins are divided and lined with slatted wood walls to promote air circulation. Barrels of bulk potatoes are loaded from the upper level into the bins via a scuttle, usually a rubber tire, and chute. The potatoes can be loaded into trucks for transportation from the lower level. Some potato houses have wings called vestibules that provided extra work space and room for modern machinery, as well as a semi-enclosed space for loading and unloading (Akeley 2012:33; Mitchell 2008; Blackstone 2013:48; Visser 1997:96).¹⁷

F.3.3 Statement of Significance

Prior to the late nineteenth century, farmers stored their potatoes in cool, dark basements of the house or a mixed-use barn. Large-scale potato production expanded with the introduction of the Bangor & Aroostook Railroad in Aroostook County in 1894, which required new ways to store much larger crops of potatoes. Farmers built separate potato houses specifically designed for the long-term storage of bulk potatoes until they were ready to be shipped. Many traditional potato houses were later replaced by stand-alone, above-ground modern facilities with electrically controlled climate control in the second half of the twentieth century. As a result, many potato houses in southern Aroostook County have been abandoned or demolished, and good examples are becoming relatively rare. Potato houses will be eligible under Criterion A at the local level in the area of Agriculture if they demonstrate particular trends, patterns, themes or approaches to a period or type of potato farming within the historic context E.1. Southern Aroostook County Agriculture, 1805–1940. They will be eligible under Criterion C at the local level in the area of Architecture if they are a particularly good and intact example of their distinct architecture and design within the historic context E.2. Southern Aroostook County Agricultural Architecture and Landscape, 1805–1940. A potato house may be eligible under Criteria A and C at the state or national level if the property is shown to be important within an identified state or national related agricultural context.

F.3.3 Registration Requirements

Potato houses eligible under Criterion A will possess characteristics specific to potato farming as outlined above. Although the building may not have recently served the traditional agricultural functions of a potato house, it should retain integrity of location, setting, feeling, and association with a historic agrarian landscape. In order to be eligible under Criterion C, a potato house must portray the original design intended for its unique purpose as described above. Although the building may not be used for its originally intended function, it will retain its key character-defining features and possess integrity of design, workmanship, and materials that represent particularly important, innovative, or unusual

¹⁷ Another form of potato house is the double potato house, referred to as a Madawaska Barn common in central and northern Aroostook County; however this form is less commonly found in southern Aroostook County (Noble and Cleek 2009:101; Visser 1997:96).

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aspects of design and/or construction. Additions made during the historic period, especially the addition of vestibules to older structures, contribute to the history of its evolution and do not detract from the significance of the resource. However, large modern additions or modifications to character-defining features may diminish the building's integrity of materials, design and workmanship, rendering it ineligible.

Name of Property Type: F.4 Trackage Potato House

Trackage potato houses are one-and-one-half-story buildings constructed along the right-of-way of a rail line in the late nineteenth and early twentieth century. These buildings are usually wood-frame construction with side-gable or side-gambrel roofs. Shed and gable dormers are commonly found on both the slope facing the tracks and the opposite slope. The trackage houses are found in rows either connected or placed close together with end fire walls of brick or concrete. The walls of the buildings were built slightly taller than a refrigerated box car, which is approximately seven-and-one-half-feet tall. The buildings are categorized as small, medium and large in size based on capacity. Small houses have two doors while medium and large houses have up to four doors. Windows are sometimes located above the doors or on the long sides of the building to provide natural light. The exterior sheathing was originally wood clapboard or flush-board, but many were resided with building paper, fiber board, asphalt shingles, and corrugated metal sheets to help with insulation and moisture control. The interior layout consists of a main aisle, or work area, on the first floor where grading and shipping of the potatoes took place. Bins made of wood slats located on either side of the main aisle held the bulk potatoes. Hoists allowed the potato barrels to be lifted to the upper story to fill the storage bins from above. Some of the trackage houses have basements which allowed for additional potato storage. A combination of cast iron stoves with brick chimneys and roof ventilators were used to control the climate and humidity inside the building.

F.4 Statement of Significance

The arrival of the Bangor & Aroostook Railroad in 1894 was the catalyst for the potato production boom in southern Aroostook County. Small-scale potato farms managed the storage of their crop on the farm in potato houses; however, larger potato producers generally relied on trackage storage near the railroad. During Aroostook County's peak potato production in the 1940s there were approximately 450 trackage houses, but only a handful remain intact. These buildings were not owned by the railroad, but rather by the farmers themselves or distributors and shipping companies. These properties were used for utilitarian purposes and contain little architectural ornamentation; however, the property's design was created for its unique purpose, and they are often arranged in groups along the railroad. Eligible trackage potato houses are significant at the local level under Criterion A for their association with the development of commercial agriculture and railroad transportation in southern Aroostook County within the historic context E.1. Southern Aroostook County Agriculture, 1805–1940. They are also significant at the local level under Criterion C for their unique design specifically for the large-scale storage of potatoes within the historic context E.2. Southern Aroostook County Agricultural Architecture and Landscape, 1805–1940 (Akeley 2011:71-75; State of Maine 1904). Trackage potato houses may be eligible under Criteria A and C at the state or national level if the property is shown to be important within an identified state or national related agricultural context.

F.4 Registration Requirements

Trackage potato houses eligible under Criterion A will possess the distinctive function of the property type described above. Although the building may not have recently served the traditional agricultural functions of a trackage potato house, it should retain integrity of location, setting, feeling, and association with a railroad. Trackage potato houses eligible under Criterion C will retain integrity of materials, design, and workmanship. The layout of the building should be relatively intact, but replacement materials that played in integral role in the evolution of the building type, such as improvements to insulation and sheathing, are part of the history of the building and do not preclude its eligibility for listing. However, large modern additions or modifications to character-defining features may diminish the building's integrity of materials, design and workmanship, rendering it ineligible.

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Name of Property Type: F.5 Grange

Grange buildings (Grange) are usually located near a center of a town or village and provide a gathering space for meetings of the local Patrons of Husbandry order and often other community organizations. A local, or subordinate, Grange may be a single- or multi-story building as long as it contained a large gathering space for the meetings and rituals of the order, and often a dining room, kitchen, and/or stage. Most of the granges in southern Aroostook County were built between the late nineteenth and early twentieth centuries and were designed in the two most popular styles of that time period, Italianate and Colonial Revival. Some granges were associated with a co-operative store that sold farming equipment and supplies, including dry goods and groceries, to the members at discounted prices. These stores could be adjoining the grange or separate structures located in convenient, commercial locations within a community. There are four known intact grange buildings in southern Aroostook County: Houlton Grange #16 in Houlton; Monticello Grange #338 in Monticello (NR listed 2000); Amity-Cary Grange #384 in Amity; and Grand Lake #375 in Weston. The Oakfield Grange #414 in Oakfield (NR listed 2006) was demolished in 2012. The Houlton Grange had an associated Grange store open to all members in the region until it burned in 1966 (Mitchell 2006). Based on the data collected, no other granges are known to survive in southern Aroostook County. Other Grange stores may exist, including in Island Falls.

F.5 Statement of Significance

The National Grange of the Order of Patrons of Husbandry, or the Grange as it was commonly referred, was established in Maine in 1873 “to meet the economic, social and educational needs of a class of Americans – the small farmer – whose day to day lives were being irrevocably transformed in the post-Civil War period” (Brown 1922 quoted in Mitchell 2006). The hierarchy of the Grange is organized in four tiers: National Grange, State Grange, County Grange, and local Grange. Subordinate grange halls, or local granges, were built from funds raised by members of the local chapter primarily between the late nineteenth and early twentieth centuries. Often the grange hall was the only space large enough to hold big gatherings in a town, including town meetings, community suppers and dances, and public performances. Some granges, like the Oakfield Grange #414 (NR listed 2006, demolished 2012), also served as a gymnasium and auditorium for the local high school. The grange buildings in southern Aroostook County served as a social, civic, and governmental center in many towns. The grange represents an increase in farming activities and was important to a town’s economic and social development. Grange buildings are significant at the local level under Criterion A in the areas of Agriculture under the historic context E.1. Southern Aroostook County Agriculture, 1805-1940. Due to their role and associations beyond the fraternal organization, they may also have important association with the development and social activities of the community. Grange buildings may also be significant under Criterion C at the local level in the area of Architecture as an intact and good representation of its type, period, or method of construction within the historic context E.2. Southern Aroostook County Agricultural Architecture and Landscape, 1805-1940. Granges might be eligible under Criteria A and C at the state or national level if the property is shown to be important within an identified state or national related agricultural context.

F.5 Registration Requirements

Granges eligible under Criterion A will have been constructed or converted for use as grange halls defined in the description above. Buildings eligible under Criterion C will be a good representative of an architectural style, or type or method of construction of the period. Although the building may not have recently served the traditional function as a grange, it will retain integrity in all or most categories of location, setting, design, materials, workmanship, feeling and association. Additions and alterations made during the historic period are considered to be important to understanding the history of a building’s evolution and do not preclude a building’s eligibility for listing. This building type has become so rare in southern Aroostook County that any grange building that possesses its historic integrity and has strong associates with the Grange movement is eligible. However, large modern additions or modifications to character-defining features may diminish the building’s integrity of materials, design and workmanship, rendering it ineligible.

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Name of Property Type: F.6 Starch Factory

Factories are typically one- to two-story, wood-frame, masonry, or metal-frame industrial building or complex of buildings that catered to the production of starch in the late nineteenth and early twentieth centuries. These factories would commonly have a loading bay for the delivery of potatoes or the shipping of the finished product, a large drying room for the processing of the starch, furnace room, and a smokestack. An office space would also be integrated into the overall complex. These buildings typically had little or no ornamentation and were designed for utilitarian purposes. Modern additions and alterations are likely present if the factory is still in operation, as building and operational codes have developed. There is only one known factory to still be in operation in Houlton.

F.6 Statement of Significance

Potato starch factories were established in southern Aroostook County in the late nineteenth century. The first factory was located in New Limerick in 1871, with two built in Houlton by 1880 (Day 1963:130). The potatoes could be transported to factories built relatively nearby, and then the starch sent to markets like in Boston and Bangor. These properties were used for utilitarian purposes and contain little architectural ornamentation; however, the property's design was created for its unique purpose. The arrival of the Bangor & Aroostook Railroad in 1894 was the catalyst for the potato production boom in southern Aroostook County. Some factories, like the extant factory in Houlton, were situated near the railroad for easy access to raw materials and shipping routes. Eligible starch factories are significant at the local level under Criterion A for their association with the development of commercial agriculture, specifically potatoes, and for the processes and function of starch production in southern Aroostook County within the historic context E.1. Southern Aroostook County Agriculture, 1805–1940. They are also significant at the local level under Criterion C for their unique utilitarian design specifically for the processes of potatoes within the historic context E.2. Southern Aroostook County Agricultural Architecture and Landscape, 1805–1940 (Akeley 2011:71-75; State of Maine 1904). Starch factories may be eligible under Criteria A and C at the state or national level if the property is shown to be important within an identified state or national related agricultural context.

F.6 Registration Requirements

Starch factories eligible under Criterion A will possess the distinctive function of the property type described above. Although the building may not have recently served the traditional industrial functions of the starch factory, it should retain integrity of location, setting, feeling, and association with a historic industrial landscape within the agrarian setting of southern Aroostook County. Starch factories eligible under Criterion C will retain integrity of materials, design, and workmanship. The layout of the building should be relatively intact, but replacement materials that played integral role in the evolution of the building type, such as improvements to equipment and sheathing, are part of the history of the building and do not preclude its eligibility for listing. However, large modern additions or modifications to character-defining features may diminish the building's integrity of materials, design, and workmanship, rendering it ineligible.

Name of Property Type: F.7 Agriculture-Related Commercial Building

Agriculture-related commercial buildings are typically one- to two-story wood-frame or masonry structures commonly sheathed in metal or wood cladding. Most of these buildings are located along a main road corridor and within relatively close proximity to the railroad line. They are also typically stand-alone structures, but may be located within a cluster of other commercial buildings. Most commercial structures in southern Aroostook County are vernacular constructed in the late nineteenth and early twentieth centuries, but some display architectural ornamentation from the two most popular styles at the time, Italianate and Colonial Revival. Most plans were arranged with a store at the front of the building, generally with large picture windows to display the merchandise, and additional storage in the rear or the upper story. Many that are still extant in southern Aroostook County display faded painted signs on the exterior advertising their goods and wares.

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F.7 Statement of Significance

Agriculture-related commercial buildings were established to support the agricultural activities in southern Aroostook County. Most carried a variety of goods including seed, fertilizer, and tools, while some specialized in the sale of farming equipment. These businesses were independently owned, but located within a town or village center. After the arrival of the Bangor & Aroostook Railroad in 1894, businesses could provide merchandise from urban centers throughout the country. The emergence of multiple commercial buildings within southern Aroostook County represents an increase in farming activities and was important to a town's economic development. Eligible commercial buildings are significant at the local level under Criterion A for their association with the development of commercial agriculture and the economic growth of southern Aroostook County within the historic context E.1. Southern Aroostook County Agriculture, 1805–1964. They are also significant at the local level under Criterion C in the area of Architecture if they are a particularly good and intact, and/or possibly rare, example of a form, type, period, or method of construction within the historic context E.2. Southern Aroostook County Agricultural Architecture and Landscape, 1805–1946. Commercial buildings may be eligible under Criteria A and C at the state or national level if the property is shown to be important within an identified state or national related agricultural context.

F.7 Registration Requirements

Agriculture-related commercial buildings eligible under Criterion A will possess the distinctive function and form of the property type described above. Although the building may not have recently served the traditional commercial functions of the store, it should retain integrity of location, setting, feeling, and association with a historic town or village center of southern Aroostook County. Agriculture-related commercial buildings eligible under Criterion C will retain integrity of materials, design, and workmanship. The layout of the building should be relatively intact, but replacement materials that played integral role in the evolution of the building type, such as improvements to materials, are part of the history of the building and do not preclude its eligibility for listing. However, large modern additions or modifications to character-defining features may diminish the building's integrity of materials, design, and workmanship, rendering it ineligible.

Name of Property Type: F.8 Rural Agricultural Historic District

A Rural Agricultural Historic District is a concentration of resources that taken together are representative of historic agricultural land uses and activities in a part of southern Aroostook County. A district encompass patterns in spatial arrangement; circulation networks; boundary demarcations; vegetation related to land use; buildings, structures, and objects; clusters of elements; topography; and small-scale elements. It may consist of a series of contiguous farmsteads or include small agricultural hamlets or crossroads with residential, commercial, civil, and storage buildings and other agricultural components. Generally, districts encompass lengthy, linear to slightly curvilinear, paved main roads with intersections every few miles. Buildings dot the edges of the main roads, and clusters of buildings are often located at intersections in small towns or villages. Farmsteads consist of a building cluster surrounded by croplands and pastures with adjacent woodlots (see F.1 Farmsteads, A. Landscape for definitions of croplands, pastures, and woodlands, and for a description of vegetation related to land use). Circulation systems within farmsteads within a district often consist of private, narrow, gravel roads. Natural features such as springs, ponds, streams, or bogs are used for water supply. Higher concentrations of farmsteads are located in the northeast corner of southern Aroostook County in the towns of Hodgdon, Houlton, Linneus, New Limerick, Ludlow, Littleton, Monticello, and Bridgewater due to the arable limestone soil of the region, which is a shallow to moderately deep, silty and gravelly loam.

Topographically, landscapes within districts consist of a rolling terrain, where resources cluster in valleys or at peaks, with cropland and pastures along the slopes. Buildings typically sit on higher elevations to provide for views across the valleys and of Katahdin. A district may be defined by roads or visible property boundaries such as fences or vegetation, but may also be defined by natural barriers such as bodies of water or natural features. Both the variety of crops grown and the rolling topography of southern Aroostook County create a diverse group of agrarian landscapes. The appearance, texture, and color of cultivated cropland vary depending on the time of year and the type of crop planted or livestock

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being raised. Resources are at times spread out, divided by woodlots, waterways, and hills. Natural vegetation often surrounds low lying streams and ponds, or grown in narrow linear swathes between fields and farmstead properties.

F.8 Statement of Significance

At the end of the nineteenth century, Aroostook County was the fastest growing agricultural region in Maine. Southern Aroostook County farmers specialized in a potato mono-culture economy, but also practiced diversified agriculture and grew large amounts of hay and grain. A rural agricultural historic district will be eligible if it conveys the history of land use practices, architecture and/or evolution of agricultural technology. Agricultural districts are significant under Criterion A at the local level in the areas of Agriculture and possibly Community Development, Commerce, and Industry for their associations with the history of the planning and development and commerce of agricultural communities in southern Aroostook County within the historic context E.1. Southern Aroostook County Agriculture, 1805–1964. A rural agricultural historic district may also be eligible under Criterion C at the local level as a collection of representative rural, agriculture-related landscapes and buildings within the historic context E.2. Southern Aroostook County Agricultural Architecture and Landscape, 1805–1964 (Mitchell 2006:3; Jones 2009:19). Rural agricultural historic districts might be eligible under Criteria A and C at the state or national level if the property is shown to be important within a state or national related agricultural context.

F.8 Registration Requirements

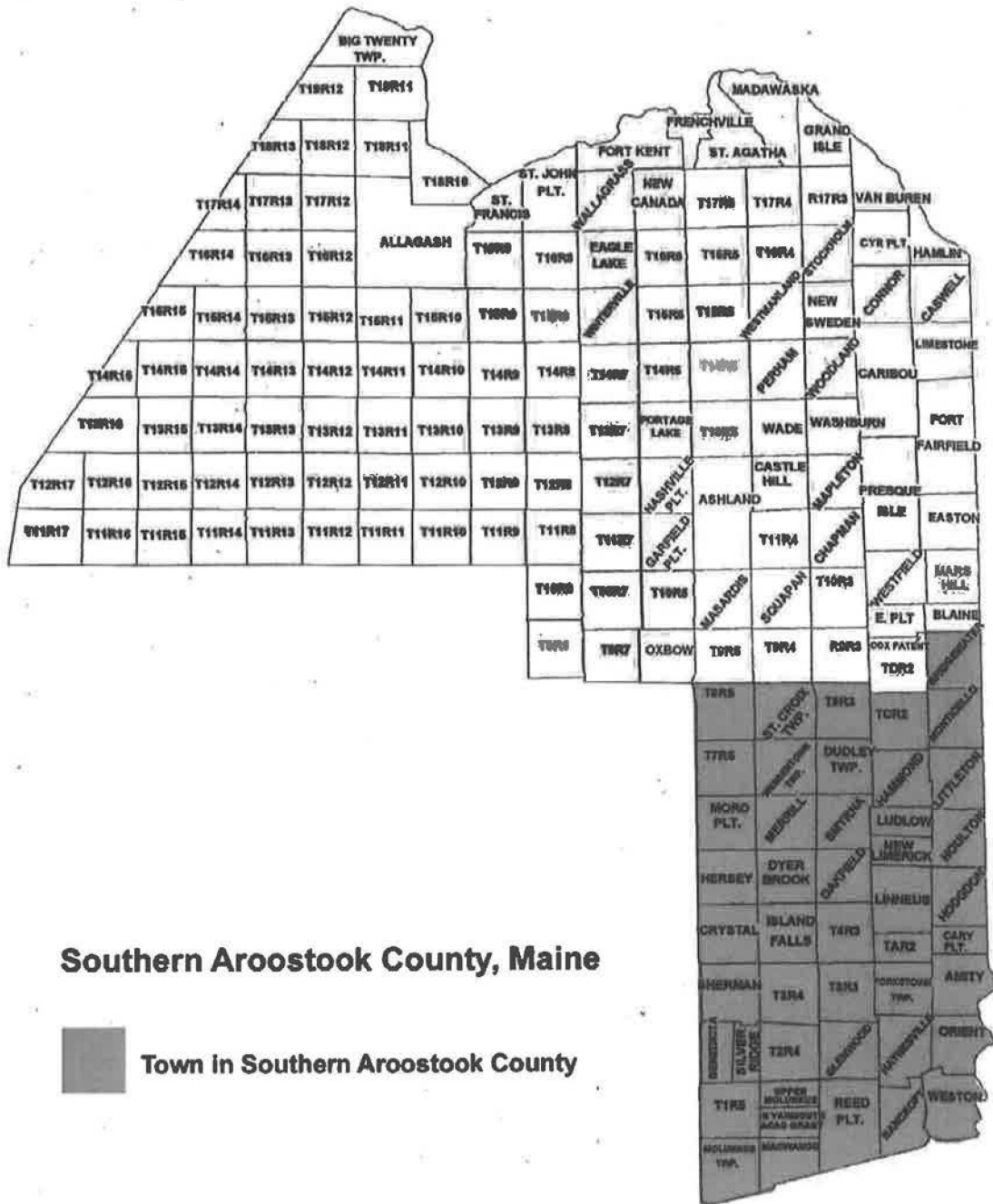
A rural agricultural district eligible under Criterion A will be relatively intact and retain its rural, agricultural setting with few modern intrusions. It will retain its historic integrity of setting, location, feeling, and association as an agricultural landscape and with the development and/or history of agriculture-related commerce and industry of the community. A rural agricultural district eligible under Criterion C will contain resources that maintain their historic features including their landscape and agriculture-related buildings and retain integrity of design, materials, and workmanship.

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G. GEOGRAPHICAL DATA

The geographical area for the Agricultural Properties of Southern Aroostook County, Maine MPDF encompasses the 46 towns and townships that make up southern Aroostook County as defined by the United States Department of Agriculture, Soil Conservation Service (1963), with emphasis on the area within the political boundaries of the nine towns of Dyer Brook, Island Falls, T4 R3 WELS, Oakfield, Smyrna, Merrill, Ludlow, New Limerick, and Linneus. The referenced 46 towns in southern Aroostook County are, in order generally northwest to southeast: T8 R5 WELS, St. Croix Township (Twp.), T8 R3 WELS, TC R2 WELS, Bridgewater, Monticello, T7 R5, Webbertown Twp., Dudley Twp., Hammond, Littleton, Moro Plantation (Plt.), Merrill, Smyrna, Ludlow, New Limerick, Houlton, Hersey, Dyer Brook, Oakfield, Linneus, Hodgdon, Crystal, Island Falls, T4 R3 WELS, TA R2 WELS, Cary Plt., Sherman, T3 R4 WELS, T3 R3 WELS, Forkstown Twp., Amity, Benedicta, Silver Ridge, T2 R4 WELS, Glenwood, Haynesville, Orient, T1 R5 WELS, Molunkus Twp., Upper Molunkus, North Yarmouth Academy Grant, Macwahoc, Reed Plt., Bancroft, and Weston (USDA 1963).

H. SUMMARY OF IDENTIFICATION AND EVALUATION METHODS

The Agricultural Properties of Southern Aroostook County, Maine MPDF was prepared as a framework for the documentation, appreciation, and current and future National Register evaluation of agricultural resources within southern Aroostook County, Maine for the period 1805 to 1940. The historic context was broadly conceived for all of southern Aroostook County, but the detailed fieldwork and research concentrated on a study area comprised of the nine towns of Dyer Brook, Island Falls, Linneus, Ludlow, Merrill, New Limerick, Oakfield, Smyrna, and T4 R3 WELS. Information for Houlton, the county seat, was also collected. The methodology used for identification and evaluation combined research, fieldwork, analysis and writing.

Archival research was conducted in the files of the Maine Historic Preservation Commission, Maine State Library, Cary Public Library (Houlton), Katahdin Public Library (Island Falls), historical societies, and museums, including the Southern Aroostook County Agricultural Museum. Agricultural censuses and reports, business directories, and multiple publications on the construction and design of agricultural buildings were utilized. Extensive use was made of a wide range of scholarly documents, town records, and other primary sources available on the internet included town histories and directories, agricultural censuses, and architectural history analyses. Two key sources consulted, which helped define the end date of the historic contexts, are Clarence Albert Day's *A History of Maine Agriculture, 1604-1860* (1954) and *Farming in Maine, 1860-1940* (1963). Interviews and correspondence with local farmers and historians, where possible, provided further information about the region's development and history. The majority of the resources that are available and were collected provide information at the state or county level, which limits their usefulness for understanding the specific development of southern Aroostook County and researching properties at the local level.

A thorough search of local historic maps and aerial photographs of the region was conducted. The primary historic maps for southern Aroostook County are the Roe & Colby Atlas published in 1877 and United States Geographical Society topographic maps. Aerial photographs for central and northern Aroostook County taken by the Farm Security Administration in the early twentieth century are available through the Library of Congress; however, there is no aerial coverage of southern Aroostook County. Several Maine survey firms have archives of historic aerials for sale going back to 1948.

Additional information that may be helpful when researching information on a specific property or town in southern Aroostook County is available at repositories throughout Maine. Public libraries, such as in Bangor and Portland, hold copies of Maine registers and business directories. These publications recorded information about businesses and active associations in the State of Maine. The University of Maine libraries, primarily Presque Isle and Orono, also hold collections including Maine registers, state annual reports, directories, and U.S. Department of Agriculture publications.

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Many of these resources contain information on businesses, industries, and farming practices at the state and county levels. Census information is also available online through sites such as ancestry.com.

Fieldwork was conducted to supplement existing survey, resulting in a windshield inventory of the agricultural properties in nine towns within southern Aroostook County: Dyer Brook, Island Falls, Linneus, Ludlow, Merrill, New Limerick, Oakfield, Smyrna, and T4 R3 WELS. High resolution photographs were taken and notes were recorded on appearance, materials, design, and condition of the buildings, farmsteads and rural landscape.

The associated property types and National Register eligibility evaluation guidelines were developed from information about the agricultural properties and the specific examples present in the nine towns listed above, with reference to the larger regional context.

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UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
EVALUATION/RETURN SHEET

REQUESTED ACTION: COVER DOCUMENTATION

MULTIPLE NAME: Agricultural Properties Southern Aroostook County MPS

STATE & COUNTY: MAINE, Aroostook

DATE RECEIVED: 11/14/14

DATE OF 45th DAY: 12/31/14

REFERENCE NUMBER: 64501230

ACCEPT RETURN REJECT 12/31/14 DATE

ABSTRACT/SUMMARY COMMENTS:

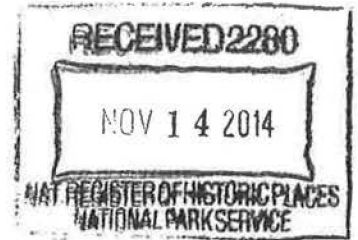
see agricultural context + descriptive descriptions

RECOM./CRITERIA cover accepted
REVIEWER [Signature] DISCIPLINE Historic
DATE 12/31/14

DOCUMENTATION see attsched comments Y/N



MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333



PAUL R. LEPAGE
GOVERNOR

EARLE G. SHETTLEWORTH, JR.
DIRECTOR

10 November 2014

Keeper of the National Register
National Park Service 2280
National Register of Historic Places
1201 "I" (Eye) Street, NW,
Washington D.C. 20005

To Whom It May Concern:

Enclosed please find three (3) new National Register nominations and one Multiple Property Documentation Form for properties in the State of Maine:

Fisherman's Island, Lincoln County
Auburn Commercial Historic District, Androscoggin County
Jordan, F. M., House, Androscoggin County
Agricultural Properties of Southern Aroostook County, Maine (MPDF)

Please note, no nominations are being submitted under the MPDF at this time. If you have any questions relating to these nominations, please do not hesitate to contact me at (207) 287-2132 x 2.

Sincerely,

Christi A. Mitchell
Architectural Historian

Enc.