HISTORIC RESOURCE DOCUMENTATION
COLCHESTER MILL POND DAM REMOVAL PROJECT
(DAM STATE ID 51.02)
COLCHESTER, CHITTENDEN COUNTY, VERMONT

View southwest across Indian Brook during deconstruction of the Mill Pond Dam

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Report No. 1218

November 19, 2019

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Submitted to:
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PROJECT SUMMARY

The Vermont Natural Resources Council (VNRC) undertook the removal of the c. 1800 (with later modifications) Mill Pond Dam (Vermont Dam Inventory ID #51.02), located on Indian Brook in Colchester, Chittenden County, Vermont, from July through September, 2019 (Figures 1 – X). The goal of the dam removal was to restore habitat to a riverine condition, remove a fish passage barrier, reconnect habitat for aquatic biota, facilitate natural sediment transport, improve water quality and eliminate a safety hazard.

As outlined in the 2019 Memorandum of Agreement among the U.S. Fish and Wildlife Service (the USFWS), the Vermont State Historic Preservation Officer (SHPO), and the Vermont Natural Resources Council (VNRC), whereas the USFWS plans to partially fund the Mill Pond Dam Removal project (undertaking) pursuant to the Fish and Wildlife Act (16 U.S.C. 742a-742j, not including 742d-l; 70 Stat. 1119) and the Fish and Wildlife Coordination Act (16 U.S.C. 661-667e; the Act of March 10, 1934; Ch. 55, 48 Stat. 401), and the USFWS has determined that the undertaking will have an adverse effect on Mill Pond Dam which is eligible for listing in the National Register of Historic Places, the USFWS consulted with the SHPO pursuant to 36 CFR Part 800, the regulations implementing Section 106 of the National Historic Preservation Act (54 U.S.C. § 306108). As a result of the consultation, the USFWS, SHPO and VNRC agreed that the undertaking shall be implemented in accordance with stipulations in order to take into account the effect of the undertaking on historic properties. One stipulation to be carried out included:

I. DOCUMENTATION

VNRC shall provide a complete Historic Resource Documentation Package to the USFWS and the VTSHPO in accordance with the Vermont Division for Historic Preservation's "Photographic Documentation Requirements", within 60 days of removing the dam. This shall include photographs of the dam prior to the start of construction and during dewatering as well as photographs of any structures such as a timber crib dam or boom discovered during dam and sediment removal near the current dam.

The photographic Documentation Package shall be supplemented by measured drawings or sketches of the dam showing overall dimensions, construction details, and any other structural features that will aid in the interpretation of the photographic record.

The Historic Resources Documentation Package (HRDP) was completed by University of Vermont Consulting Archaeology Program (UVM CAP) Historic Preservation Specialist Catherine Quinn, and UVM CAP Program Historian Kate Kenny. Prior to the start of the dam removal, Catherine and Kate conducted a site visit to the dam on December 4, 2018, and Catherine visited the site on July 22, 2019. Catherine made a site visit during dam removal/dewatering on July 30, 2019, and Kate visited the site on October 5, 2019 at the completion of project work. Photographs were taken during all site visits and supplemented by photographs taken during the dam removal/dewatering process by the consulting firm Milone & MacBroom, and Brian Fitzgerald, VNRC Dam Project Coordinator.

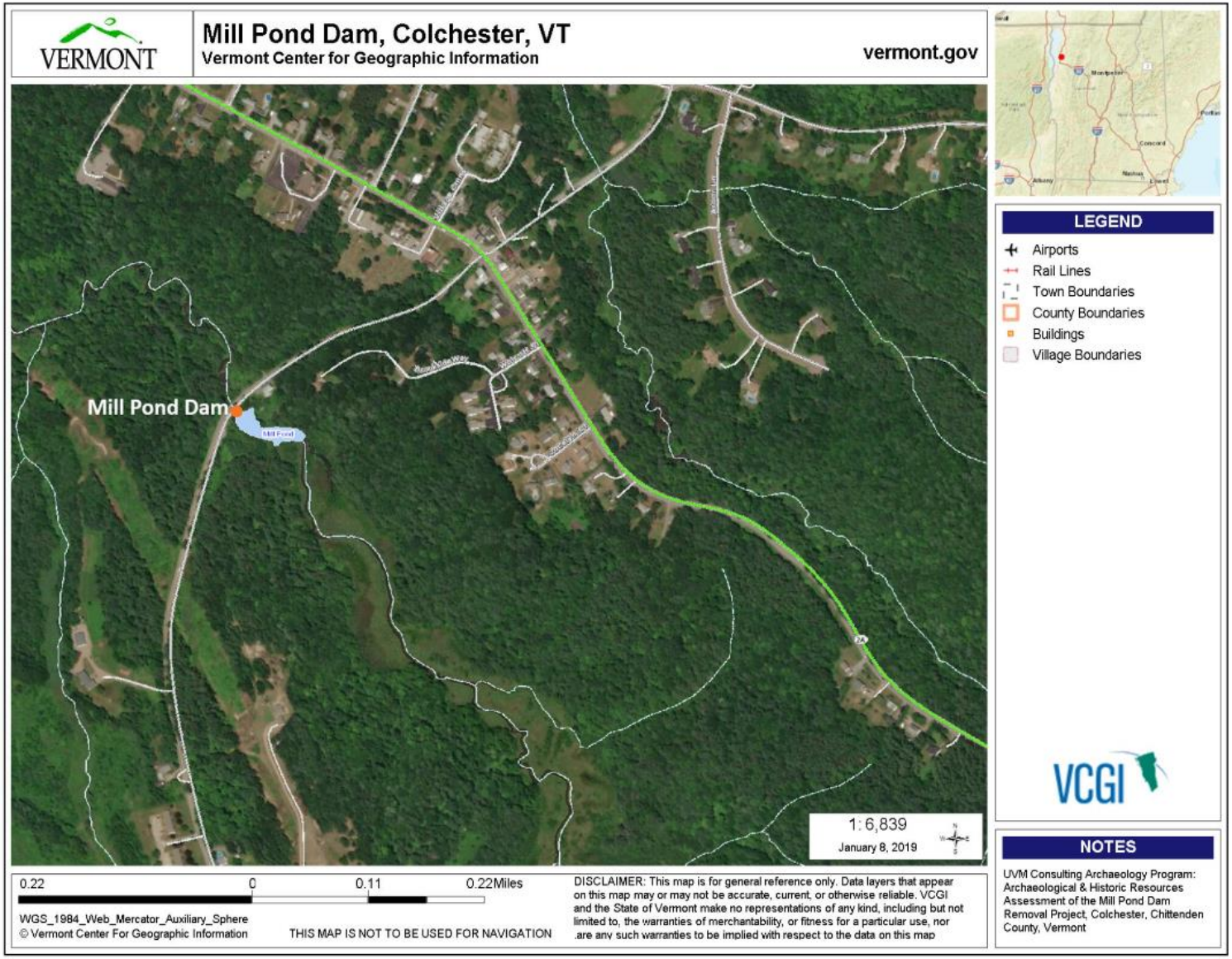


Figure 1. Map showing the location of the Mill Pond Dam, Colchester, Chittenden County, Vermont.

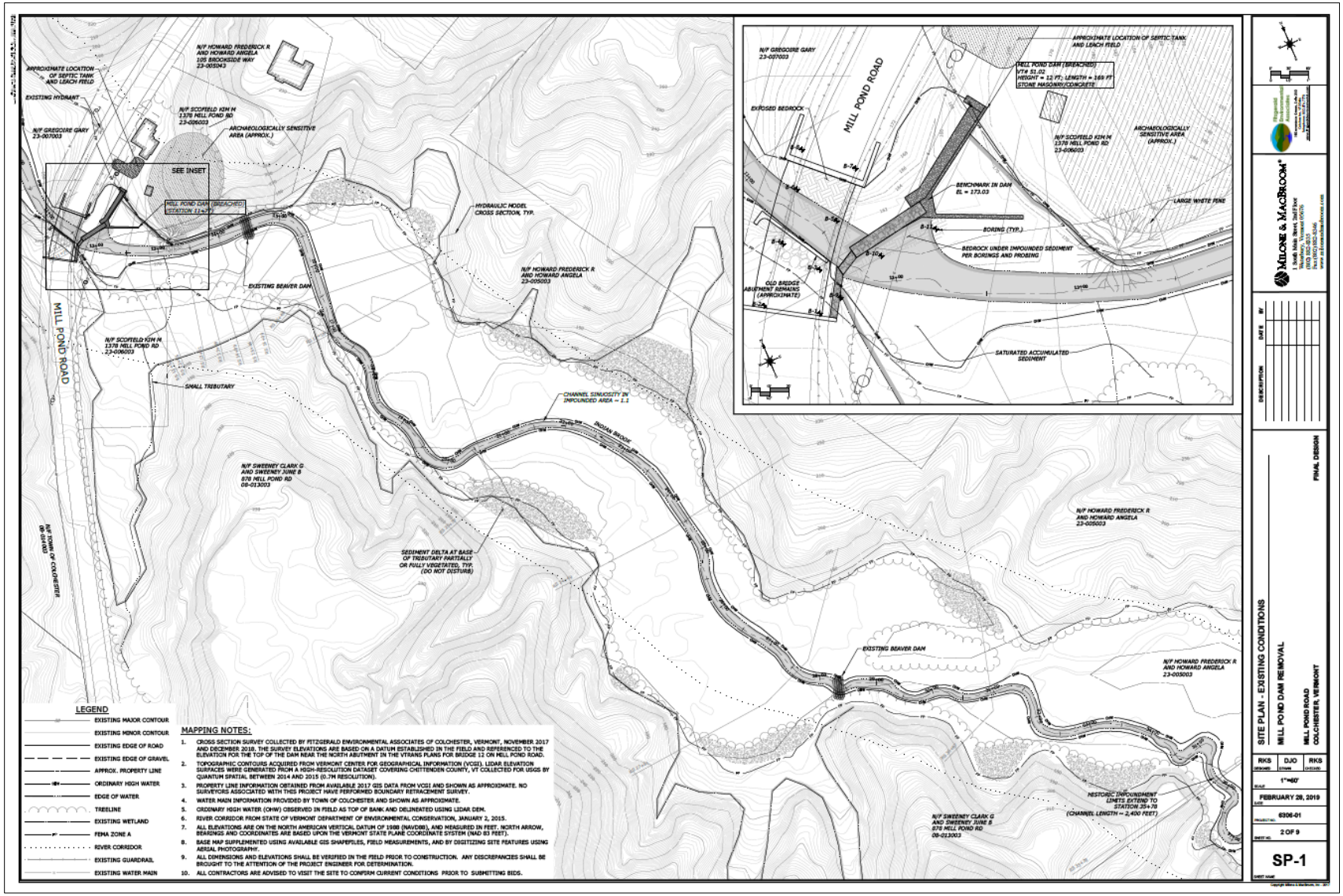


Figure 2. Site Plan showing Existing Conditions for the Mill Pond Dam Removal Project, Colchester, Vermont (Milone & MacBroom 2019).

Figure 3. View east of the Mill Pond Dam, from under Bridge No. 12.

Figure 4. View southwest of the Mill Pond Dam; Bridge No. 12 at right.

Figure 5. View northeast of the Mill Pond Dam, Bridge No. 12 at left.

Figure 6. View west of the Mill Pond Dam, Bridge No. 12 at background left.

Figure 7. View northwest of the Mill Pond Dam; Bridge No. 12 at background.

A wide variety of archival records were used in the preparation of this report including: historic maps, land records, newspapers, probate records, aerial imagery, town histories, historic photographs and postcards, census records, vital records, and family histories. In addition to on-line databases, the archives consulted included: the University of Vermont Silver Special Collections, the University of Vermont Map Room, and Howe Memorial Library, Burlington, Vermont; the Vermont Historical Society Library, Barre, Vermont; the Vermont State Archives & Records Administration (VSARA), Middlesex, Vermont; the Colchester Town Clerk's Office and the Colchester Historical Society, Colchester, Vermont; the Vermont Division for Historic Preservation (VDHP), Montpelier, Vermont; and the Vermont Department of Environmental Conservation Facilities Engineering Division Dam Safety Program, Montpelier, Vermont. This documentation builds on a previous report prepared by Kate Kenny and Catherine Quinn entitled, *Archaeological and Historic Resources Assessment of the Mill Pond Dam Removal Project, Colchester, Chittenden County, Vermont* (UVM CAP 2019).

An historic background of the the dam property is presented for context, followed by a physical description of the structure, including a sketch plan and elevation. A statement of sgnificance for the dam is also provided. Select photographs of the dam are included in this write-up, with additional photographs inlcuded on a HRDP USB Flash Drive; a numbered photograph index and sketch map keyed to the photographs are included in Appendix I. Appendix II contains Milone & MacBroom's engineering plan sheets.

HISTORIC BACKGROUND

General Area History Context

Colchester was chartered as part of the New Hampshire grants on June 7, 1763 to Edward Burling and sixty-six associates, including nine others with the last name of Burling, likely indicting that the town was intended to be named Burlingtown or Burlington (Child 1883; Rann 1886). However, it is suggested that through an error, the name Burlington was given to the town to the south (Child 1883). Instead, "Colchester" was probably named for William de Nassau Zulestein who was High Stewart of Colchester, England, and Secretary of State in the rein of King George III (Vermont Historical Quarterly 1953). Colchester's charter indicates that the original area of the town measured six miles square.

Ira Allen and his cousin, Remember Baker, were the first settlers to take possession under the charter, in the fall of 1772, constructing Fort Frederick along the Winooski River and cutting a road through to Castleton (Child 1883; Rann 1886). Baker and his family, including Allen, resided in a clearing around the fort, and by 1775 additional land had been cleared and settled on the intervale below the falls and at Mallet's Bay (Child 1883; Rann 1886). Due to the Revolutionary War, Colchester was abandoned from 1776 to 1783, except for a settler named Mallet who lived at Mallett's Head, and who had likely settled there prior to the chartering of the town (Child 1883). After the war, Colchester Point was settled, and most of the former inhabitants returned and resumed their settlement at the falls (Rann 1886). Upon his return, Ira Allen built an upper dam, two saw mills, a grist mill, two forges and a furnace (Rann 1886) (Figure 8). The town of Colchester was organized in 1791, with the first town meeting recorded on March 18, 1793 (Rann 1886).

Additional settlers arrived throughout the first half of the 1800s, engaging in farming, saw mill operation, lumbering, blacksmithing, the lime industry, tavern keeping, brick manufacturing, livery stable operation, teaching and numerous public offices (Child 1883; Rann 1886). By 1857, the six square mile area of Colchester was fairly well settled, with village centers established at Winooski Falls and the more northerly Colchester Centre, which includes the Mill Pond Dam Removal project area (Figure 9). Twelve years later, in 1869, Winooski Falls had grown into a large woolen mill town, divided into wards, while Colchester Centre remained a small village of farmers and tradesmen (Figures 10 and 11). Eventually, in 1922, Winooski split from Colchester and became an independent city (Schaefer 2009).

Figure 8. Detail of James Whitelaw's 1796 *A Correct Map of the State of Vermont From Actual Survey: Exhibiting the County and Town Lines, Rivers, Lakes, Ponds, Mountains, Meetinghouses, Mills, Public Roads &c.*, showing mills at present day Winooski, but no mill indicated within the project area on Indian Brook, previously known as "Indian River."

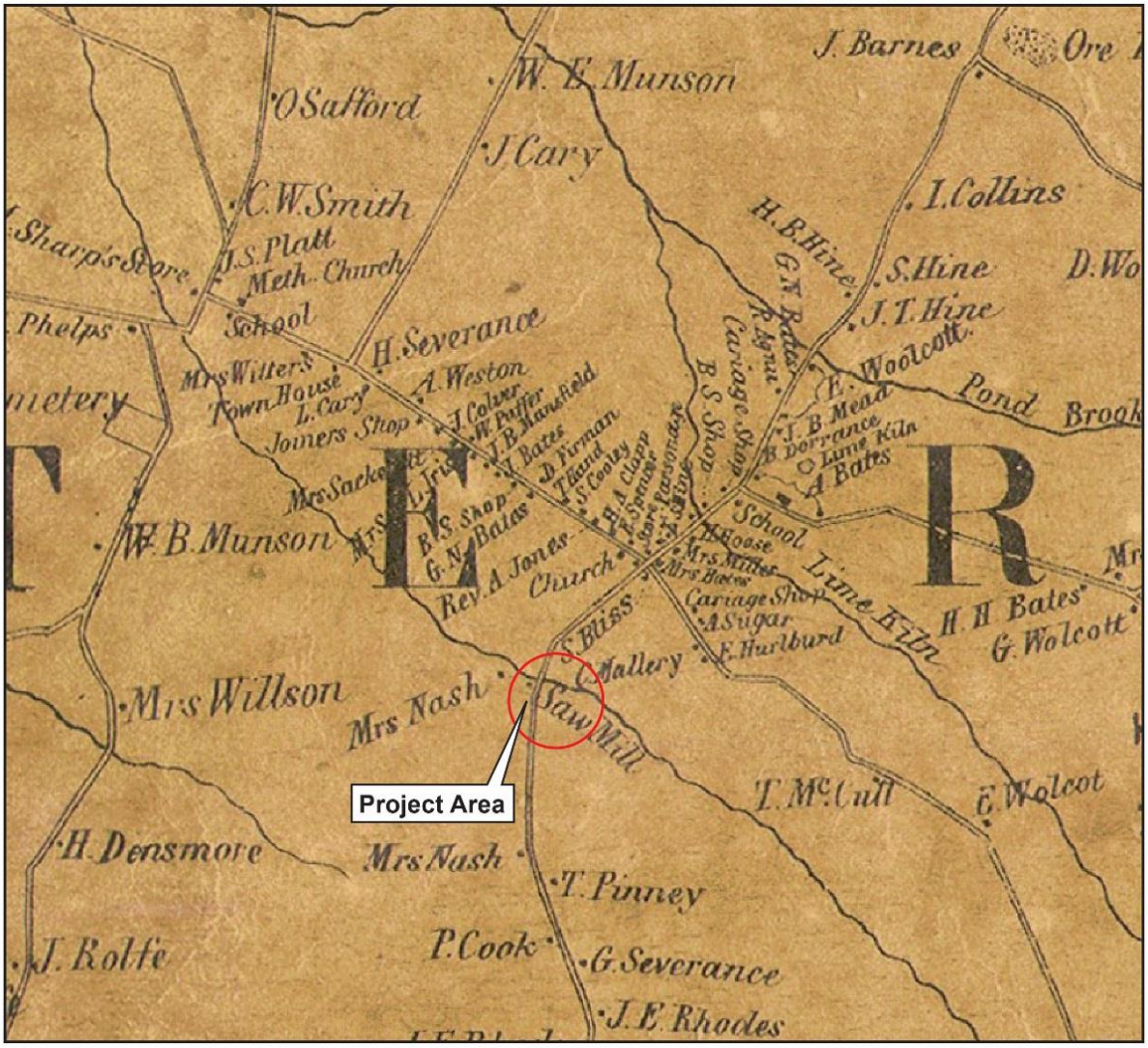


Figure 9. Detail of H.F. Walling's *Map of Chittenden County, Vermont* (1857), with the project area circled.

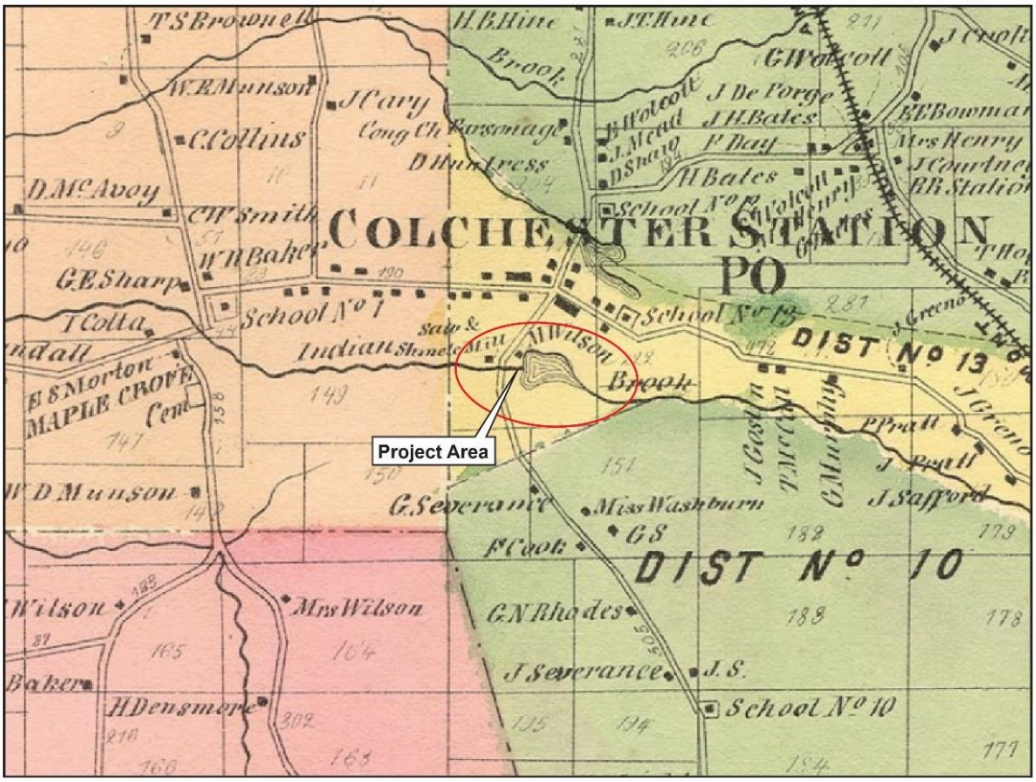


Figure 10. Detail of the map of "Colchester" from F.W. Beers' *Atlas of Chittenden County, Vermont* (1869), with the project area circled.

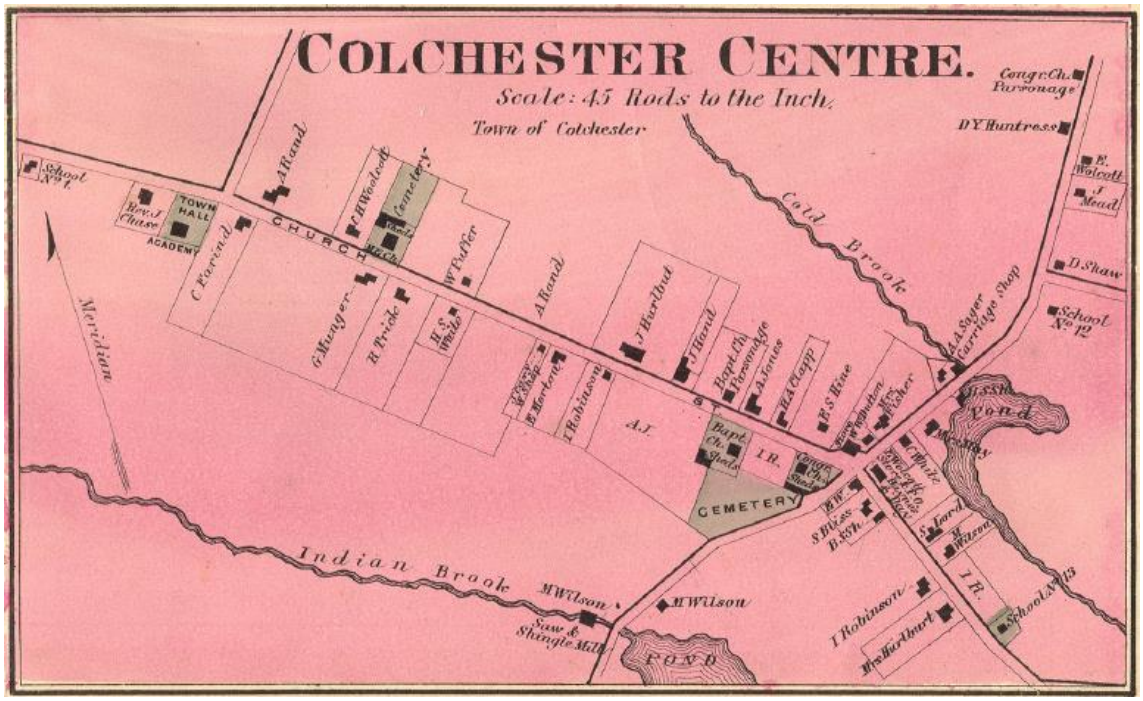


Figure 11. Detail of Colchester Centre within Colchester, from F.W. Beers' 1869 *Atlas of Chittenden County, Vermont*, with the project area at base of map.

Colchester Centre, now Colchester, changed little throughout the late 19th and 20th centuries, with noticeable residential development not occurring until the late 1960s/early 1970s (Figure 12). The specific Mill Pond Dam project area has seen no additional development since the loss of the saw mill at the dam in 1941; a detailed history of the dam/mill property is presented below.

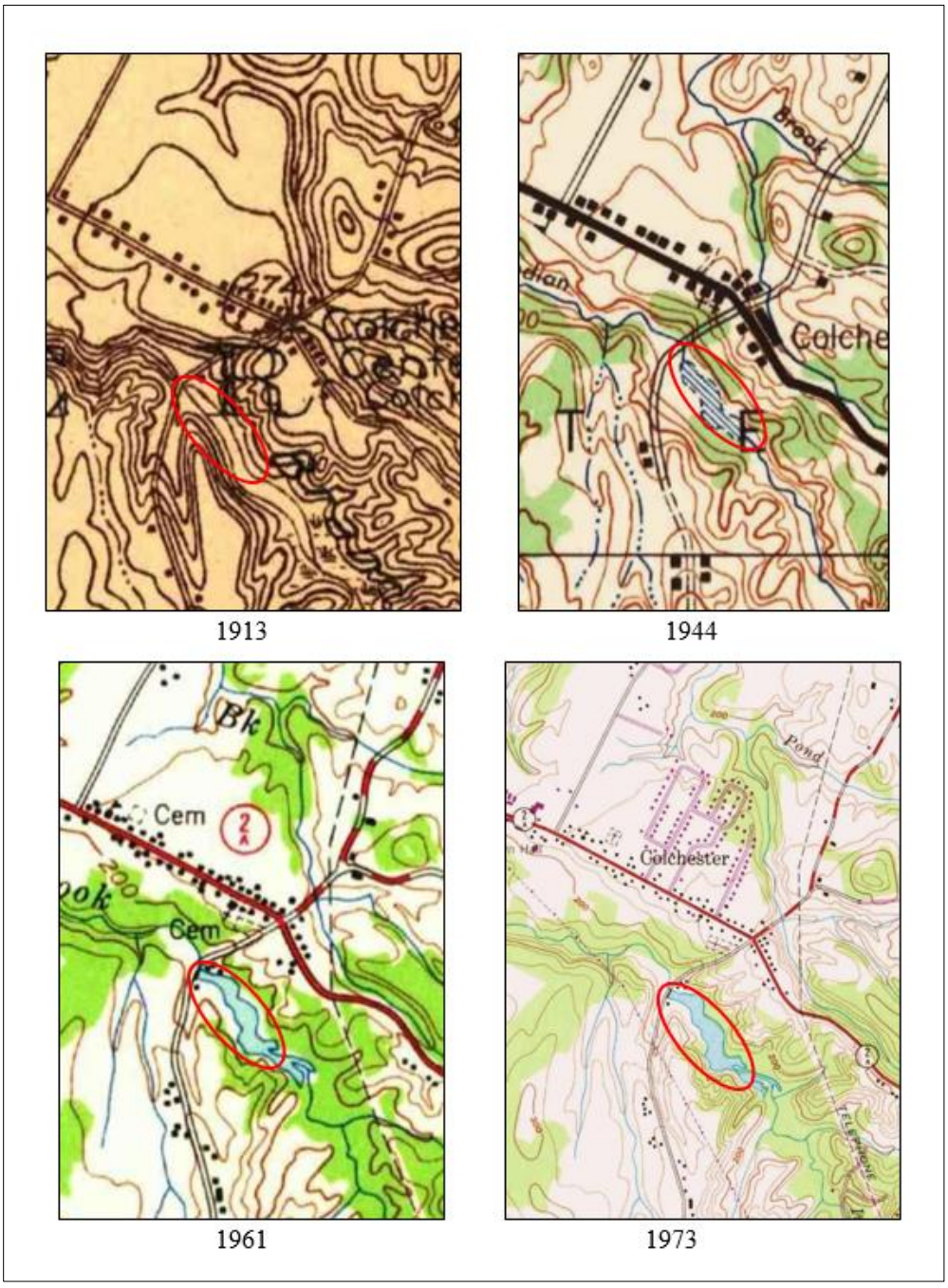


Figure 12. Topographic maps depicting little change at Colchester Centre/Colchester throughout the 1900s, until the late 1960s/early 1970s, and little change within the Mill Pond Dam Removal project area.

History of Mill Pond Dam Property

Mill Pond Dam is located on Lot #204 of the original division of land in the Town of Colchester. Lot #204, consisting of 168.25 acres,[1] was granted to Richard Burling, of Harrison, Westchester County, New York, who sold it, along with other lots, to John Collard and Daniel Hurlburt of Burlington, Vermont, on March 23, 1798 (Colchester Land Records Old Series [CLRo] 2:145 see also 2:161). On January 26, 1799, Collard and Hurlburt sold "150 acres" of the original right of Richard Burling to Simeon Hine, Dennis Downing, John Downing (ca. 1795-1832), and Hine's brother-in-law, David Farrand[2] (CLRo 2:203: Find-a-Grave, Gravestone, Munson Cemetery, Colchester, Vermont). Between 1799 and 1802, Simeon Hine acquired full right to Lot #204, apparently through a series of tax sales (CLRo 2:294; 2:358; 2:466-467; 2:466; 3:352).

Simeon Hine (1754-1811), said to be a native of England, moved to Colchester, Vermont, between 1790 and 1800, by way of Connecticut, and quickly established himself as a farmer, saw mill owner, and tavern keeper (Degree 2000:6; Find-a-Grave, Gravestone, Munson Cemetery, Colchester, Vermont; Rann 1886:205, 598; Sylvester, Wiley, and Garner 1893:249; U.S. Census 1790, 1800; Vermont Wills and Probate Records 1749-1999:1811). Hine's saw mill on Lot #204, built ca. 1799-1802, was, reportedly, "the first improvement made in Colchester Center" around which the community eventually developed (Degree 2000:4, 30). Hine was fortunate to reap the early benefits of the first lumber boom in the local area. In this lumber boom, which ran through the first half of the 1800s, the PreContact period forests were cut, milled and hauled to Malletts' Bay to be rafted to Canada (Degree 2000:8-9; Howe 1910:128; Vermont Wills and Probate Records 1749-1999:1811). At this time, the white pines could range up to 43-55 m (141-180 ft) tall and have base diameters of 1.5-2 m (4.9-6.6 ft) (Howe 1910:128).

Simeon Hine had many children; those surviving to adulthood included: William (ca. 1782-1829); Olive (1783-1863); Hezekiah (ca. 1784-1841); Arunah/Annah (1787-1872); Mary (ca. 1789-?); Sally/Sarah (1793-1854); Israel (ca. 1798-1869); and Mindwell (1803-1847) (Connecticut Deaths and Burial Index 1650-1934; Find-a-Grave, Gravestone, Colchester Village Cemetery, Colchester, Vermont; Find-a-Grave, Gravestone, Essex Common Burial Ground, Essex, Vermont; U.S. Census 1850; Vermont Secretary of State, Vermont Vital Records 1720-1908; Vermont Wills and Probate Records 1749-1999:1811). Upon his death in April of 1811, Simeon Hine Esq. owned 64 acres on Lot #11; a third of Lot #74; a third of Lot #203; all of Lot #204 (with the saw mill); 87 acres in the north part of Lot #206; and all of Lot #207 in the Town of Colchester as well as a third interest in a house located on the west side of the 'College Green'

[1] The lot was described as beginning at the southeast corner of Lot #203; then N54W 27 chains and twelve links (1796 ft); then S36W 62 chains and two links (4093.3 ft); then S54E 27 chains and twelve links (1796 ft); then N36E 62 chains and two links (4093.3 ft).

[2] Sarah Hine (1766-1819) married David S. Farrand (1762-1842) and one of their children was the Dea. Cyrus Farrand (1793-1883) who was born in Burlington and moved to Colchester with the family (he was the father-in-law to E H Tyler of Essex) (Find-a-Grave, Gravestones, Munson Cemetery, Colchester, Vermont; *Vermont Chronicle* July 13, 1883).

in Burlington (Vermont Wills and Probate Records 1749-1999:1811). Most of his estate was kept together and managed by his executors, William and Hezekiah Hine, into the early 1830s (Vermont Wills and Probate Records 1749-1999:1811).

While the administrators' records do not indicate the earliest type of dam built at this site, they do illustrate the various difficulties faced by mill owners in the early 1800s. Over the eighteen years that the mill remained under the control of the administrators, a number of payments had to be made by the estate regarding the mill and dam. For example, in November of 1811 there was a bill for rebuilding the saw mill "that was burnt," cost $700; in 1812 for "repairing the north wing of the dam which was carried away by freshet," cost $75; and in 1815 for "making new dam," cost $350 (Vermont Wills and Probate Records 1749-1999:1811). In 1817, there were several expenses associated with the dam and mill including one for "repairing north end of dam," cost $100; a payment to "Mr. Martin for repairing bulkhead and making two set of running gears for the mill," cost $200; for "boarding 3 men 10 weeks while repairing bulk-head and making gears," cost $60; for 71,450 feet of lumber for building the floom [sic], cost $428.70 (Vermont Wills and Probate Records 1749-1999:1811). Between 1824 and 1825, additional expenses were listed "for 69.5 days work done by C. Farrand on the mill and floom [sic]," $69.50; for "3 men work with Farrand on the mill and floom [sic]," cost $104.25; for "boarding 4 men 10 weeks," cost $60; for "69.5 days myself superintending the foregoing business," cost $69.50, and for "building the [?] Mill," cost $1000 (Vermont Wills and Probate Records 1749-1999:1811). Finally, in 1827, there was one bill for "repairing north wing of Dam," cost $35.50 (Vermont Wills and Probate Records 1749-1999:1811).

In November of 1829, the settlement of Simeon Hine's estate distributed some of his property to his surviving heirs (CLRo 7:101). Around this time, William Hine acquired the saw mill and remaining land on Lot #204, along with Lot #111 and Lot #303 (Degree 2000:12).[3] William Hine died on December 11, 1829, and his estate was subsequently administered by Henry Boardman, a prominent lumber dealer of South Hero, Colchester, and, later, Burlington, between ca. 1830 and 1836 (Find-a-Grave, Gravestone, Munson Cemetery, Colchester, Vermont; Rann 1886:325; U.S. Census 1810, 1820, 1830, 1840; Vermont Wills and Probate Records 1749-1999:1829). Again, the probate records reveal several expenses concerning the mill and dam. For example, in March of 1830 there was paid to C. Brewster "for labor on road and dam," cost $4.00; in May of 1830 "for saw mill [saw?]," cost $6.75; in April of 1831 to Mayo & Follett for a saw, cost $5.98; in May of 1833 there was a bill for 10 days of labor repairing the dam, cost $7.50; in October of 1833 a payment to M.D. Mallory for "repairs on mill," cost $163.03; in May of 1834 to Newell "for repairing mill irons," cost $1.25; in September of 1834 to C. Hulbut for "labor on dam," cost $0.50; in April of 1835 for a "sawmill saw," cost $5.69; and in August of 1835 "to Culen & Owen for repairing saw mill crank," cost $12.00 (Vermont Wills and Probate Records 1749-1999:1829).

[3] For example, the brothers sold off 73 acres of Lot #204 located north of Main Street (Rte 2A) road to Israel Hine in 1821 (Degree 2000:11; see also Vermont Wills and Probate Records 1749-1999:1811).

On August 24, 1835, Henry Boardman, sold 70 acres in the southern half of Lot #204 along with the saw mill and the "right of flowing" to Guy Catlin (1782-1853), a Burlington mill owner and manufacturer, for $410 at public auction[4] (CLRo 8:463; Rann 1866:413, 465; *Sentinel and Democrat* March 20, 1835; Vermont Wills and Probate Records 1749-1999:1829). On December 30, 1835, Guy Catlin sold a half interest in the same property to Henry Boardman (CLRo 8:464). On April 1, 1837, Henry Boardman and Guy Catlin, sold the saw mill, mill yard, and "the privilege of making and continuing a dam as it now is and continuing a pond of water of equal height with the present dam" to Moses Bates (1777-1849) of Colchester for $500 (CLRo 8:481; Find-a-Grave, Gravestone, Colchester Village Cemetery, Colchester, Vermont). This property was more particularly described as: beginning at a stake and stones in the west side of the road running through the lot at the south corner of the mill yard near the saw mill on Indian Brook, then N23W three chains and ten links (204.6 ft); then N60E four chains (264 ft) to stake on the north side Indian Brook; then S30E one chain (66 ft); then N76E about three chains (198 ft) to the west line of the road; then south on the road to the beginning (CLRo 8:481).

Moses Bates, who had previously run a saw mill at the outlet of Colchester Pond with his brother, Elijah, kept the saw mill on Indian Brook for about four years (Degree 2000:22). On March 27, 1841, he sold a half interest in the saw mill to his nephew, George Bates II, for $250 (CLRo 10:46; Degree 2000:30). On September 21, 1842, Moses Bates sold the other half interest in the saw mill to his son, Alphonso Bates, for $250 (Degree 2000:30; CLRo 10:47). A grist mill was added to the property between 1842 and 1844. On December 14, 1844, George Bates II sold his half interest in the property, then described as "containing a saw mill, grist mill, mill yard, and including the privilege of making and continuing a dam as it now is…water at equal height of present dam" to Alphonso Bates for $400 (CLRo 10:338).

On December 16, 1844, Alphonso Bates sold a half interest in the saw mill and grist mill to the Rev. Ansel Nash for $400 (CLRo 10:367; Degree 2000:30). On July 28, 1847, Nash sold his interest back to Alphonso Bates for $300 (CLRo 11:322). On October 11, 1847, Alphonso Bates sold the property except for the grist mill building, corn cracker, and all of the machinery belonging to the grist mill and reserving the right to remove them from the property, to Henry B. Hine of Colchester for $400 (CLRo 11:360). The grist mill was apparently removed from the property, as it does not appear on Walling's map of 1857 (see Figure 9). On May 30, 1853, Henry and Laura Hine sold the saw mill, all of the land, and the right to continue the dam, to Ebenezer and John Hulburd of Colchester for $500 (CLRo 13:508). On the Walling map of 1857, the saw mill is depicted on the west side of the road, on the south bank of Indian Brook (see Figure 9). On November 21, 1860, Ebenezer Hulburd sold the property with the "saw mill and other buildings," the dam and pond privilege, and all of the saws, belts, fixtures, and

[4] While the sale of the mill and its yard to Catlin stood up, there was, evidently, an error in the sale of the '70 acres.' Although this property, which also included a small house, barn, and blacksmith shop, was listed in the inventory of William Hine's estate it had, in fact, been previously awarded to heirs of Simeon Hine by the probate court in 1834 (Vermont Wills and Probate Records 1749-1999:1811, 1829). Specifically, the 23 acres located north of Indian Brook, south of Main Street, and west of Mill Pond Road was set to Mindwell Rhodes and the 23 acres located south of Indian Brook and west of Mill Pond Road (except for the saw mill & yard) and all land on the east side of Mill Pond Road [incomplete record] was set to Mary (Hine) Bates, wife of George Bates, a blacksmith (Vermont Wills and Probate Records 1749-1999:1811).

machinery associated with the mill to Ebenezer S. Hine, son of Hezekiah Hine and grandson of Simeon Hine, of Colchester, for $1,200 (CLRo 16:17; Degree 2000:63).

Ebenezer Hine added one parcel to the mill property. On June 24, 1861, he bought a small piece of land from Ira Fobes (a son of Eliab Fobes), his wife, Stella, and his sister, Unity Fobes for $15 (CLRo 16:114; U.S. Census 1850). This land was described as beginning at a hemlock located on the side hill above E.S. Hine's saw mill and near the pond; then south to pond; then N24W3.72 chains (225.72 ft) to the south line of the road leading past the saw mill; then S62W3.28 chains (216.48 ft) on the road to a stake; then south to the pond; then along the pond to the first mentioned line running to the pond (CLRo 16:114). E.S. Hine built the 'mill house' on this parcel prior to 1866 (Beers 1869; CLRo 17:476; Degree 2000:63).

On March 10, 1866, Ebenezer Hine sold the whole property, then consisting of the two lots, the saw mill, other buildings, the right to the dam and pond, and all of the machinery on hand, to Milon Wilson (ca. 1837-1913) and Erasmus Tyler (1833-1888) of Colchester, both of whom had served as corporals in Company D of the 13th Vermont Infantry during the Civil War, for $2,500 (CLRo 17:476; Degree 2000:64; Find-a-Grave, Gravestone, Danville National Cemetery, Danville, Illinois; Peck 1892:489; Savery 1894:406; U.S. Census 1850). After selling the property, E.S. Hine "moved to New York where he would run a hotel" (Degree 2000:63). On June 28, 1867, Erasums Tyler, sold his share of the Indian Brook saw mill property to Milon Wilson (CLRo 18:332; Degree 2000:64). In 1869, Milon Wilson "advertised himself as a manufacturer of lumber, staves, shingles and cider" (Beers 1869; Degree 2000:64). The general Beers map of 1869 depicts a saw mill and shingle mill on the west side of the road, on the north bank of Indian Brook, and a house labeled "M. Wilson" located across the road from them (see Figure 10). However, Beers' detail of Colchester Centre shows the saw mill and shingle mill on the west side of the road, but south side of the brook, perhaps overhanging the river, and at the same location as depicted on the Walling map (see Figure 11). A second "M. Wilson" building is shown on the west side of the road, north side of Indian Brook (see Figure 11).

On January 10, 1870, "the saw-mill, shingle-mill, and cider mill of Milon Wilson at Colchester" burned down as a result of a fire originating in the chimney of the cider-mill (*Vermont Watchman and State Journal* January 12, 1870). Although, the property was "insured for $3,600," Wilson "was shattered by this event" and soon sold out to move west (Degree 2000:73; *Vermont Watchman and State Journal* January 12, 1870; Wright 1963:214). On September 20, 1870, Milon Wilson sold the land and the machinery in the saw mill to Robert P. Thompson (1815-1895) and William A. Thompson (1818-1888) of Colchester, brothers and both successful farmers, for $1,000 (CLRo 20:41; Degree 2000:73; Find-a-Grave, Gravestones, Colchester Village Cemetery, Colchester, Vermont; U.S. Census 1870, 1880). They built new mills on the property beginning ca. 1870-1871 (Child 1882:184; Wright 1963:103). William Thompson conveyed his interest in the property to Robert P. Thompson on April 25, 1871 (CLRo 20:196). In 1882, it was noted that "Thompson's Mills," at Colchester Center was "engaged in the manufacture of lumber, flour, cider and shingles" and that "the cider mill has a capacity for turning out thirty-two barrels of cider per day, while the grist-mill has one run of stones" (Child 1882:184).

Although Robert Thompson owned the mill complex, it was his son, Herbert E. Thompson (1844-1925), a former laborer on his father's farm, who ran the day to day operations (Child 1882:284; U.S. Census 1870, 1880; Vermont Secretary of State, Vermont Death Records 1909-2008). In 1880, it was reported that the saw mill run by Herbert E. Thompson on Indian Brook in Colchester represented a capital investment of $2,500 and employed three men year round in ten hour days (with a mechanic receiving $2 a day and a laborer receiving $1 a day) (U.S. Census of Manufactures 1880). The mill was equipped with one circular saw and processed $2,000 worth of logs into 400,000 board feet of lumber valued at $4,000 annually (U.S. Census of Manufactures 1880). The mill operated on a fall of 18 ft and used one 3 ft diameter Tyler wheel (a turbine type water wheel) running at 160 rpm and producing 35 horsepower (U.S. Census of Manufactures 1880).

On March 17, 1883, Robert Thompson sold the mill to Joseph Bombard (1839-1902) of Colchester for $2,500 (*Burlington Clipper* January 22, 1891; *Burlington Free Press* October 8, 1902; CLRo 24:125; Degree 2000:73-74; Find-a-Grave, Gravestone, Colchester Village Cemetery, Colchester, Vermont). In the spring of 1885, it was reported that "when the ice broke up in the mill pond, Mr. Bombard's boom broke loose, letting a large cake of ice over the dam, which so injured it that the stone work will have to be re-laid as soon as the water will permit" (*Burlington Free Press* April 22, 1885). The *Argus and Patriot* reported on July 8, 1885 that, "Joseph Bombard put in a new bulkhead and relaid the mason work on his mill dam last week. During the break fast [sic] spring the ice came near carrying the dam away, which made the repairs necessary" (*Argus and Patriot* July 8, 1885). The *Burlington Free Press* of July 8, 1885, reported that Joseph Bombard of Colchester "has his new mill dam completed, and is now ready to do grinding again" (*Burlington Free Press* July 8, 1885). In November of 1886, the dam survived a high water event that "carried off' the bridge by the saw mill near Colchester Center and another small bridge in the valley beyond" (*Burlington Free Press* November 20, 1886).

On April 14, 1894, Joseph and Lillian Bombard sold the mill property, meaning all of the land, buildings, and machinery purchased from Thompson, along with a shed that stood "on property owned by one Severence," to Rolla Lyon Wright (1862-1924) of Colchester for $3,000 (*Burlington Free Press* March 20, 1924; CLRo 28:216). Rolla Wright was a son of Norman Wright, a prosperous farmer of Milton, Vermont, and his wife, Ellen (U.S. Census 1870, 1880). After trying his luck in Gardner, Massachusetts, as a patternmaker ca. 1891-1893 (*Argus and Patriot* February 11, 1891; U.S. City Directories Gardner, Massachusetts, 1893, 1894), he returned to Vermont and took over the mills on Indian Brook at Colchester Center and became "a wealthy man" (Figures 13 and 14) (*Burlington Free Press* March 20, 1924; Degree 2000:90; U.S. Census 1910, 1920). Wright's mill in Colchester was important for local farmers and not only for processing lumber. For example, in April of 1896, a newspaper correspondent from West Milton reported that "several loads of grain went from here to Rolla Wright's mill in Colchester (*Burlington Free Press* April 1, 1896) and in November of the same year, that "more cider, apple jelly and boiled cider have been made in the vicinity than in any year previous, most of the apples going to Wright's mill in Colchester" (*Argus and Patriot* November 11, 1896).

Rolla Wright married Adell "Della" M. Cook (1864-1924) and had two daughters, Carrie and Ruth (*Burlington Free Press* March 20, 1924; Find-a-Grave, Gravestones, Colchester Village Cemetery, Colchester, Vermont; U.S. Census 1910; Vermont Secretary of State,

Figure 13. Photographic postcard view of "Wright's Mill" and Mill Pond in Colchester Center, Colchester, Vermont, looking east ca. 1903-1920 (Colchester Historical Society, Colchester, Vermont).

Figure 14. Photographic postcard view of "The Old Mill, Colchester, Vermont," looking northeast in the early 1900s, and prior to 1920 (Colchester Historical Society, Colchester, Vermont).

Vermont Death Records 1909-2008). In the 1960s, his daughter, Ruth Wright (1903-1971) published a history of Colchester (*Burlington Free Press* November 12, 1971; Vermont Secretary of State, Vermont Death Records 1909-2008). According to his daughter, Rolla Wright "rebuilt the dam and added considerable equipment to the mill, including a planer, a matcher, a lathe, a lathe-making and a shingle making machine" (Wright 1963:138). Ruth Wright also noted that "Rolla L. Wright sold clear Grade A lumber for not more than $40 a thousand " and that the "boards edged with bark or containing large knots were cut into slabwood which sold at $1.50 per cord" (Wright 1963:138).

While Wright's mill relied primarily on the water power provided by Indian Brook throughout its history, in the midst of a regional drought that extended from the summer of 1895 to the spring of 1896, it was reported that: "R.L. Wright is to put a steam plant into his mill because of the failing of the water power, and has purchased a 30 horse power boiler from Dr. Webb" (*Argus and Patriot* February 5, 1896; *Bennington Banner* January 25, 1895; *Burlington Free Press* April 1, 1896). On July 14, 1897, a freshet caused a "bad washout" near "Rolla Wright's saw mill . . . the water near the saw mill was never so high" the bridge, however, survived (*Burlington Free Press* July 15, 1897 and July 21, 1897; *The Vermont Sun* July 24, 1897).

On April 8, 1902, Rolla Wright added two small parcels to the property, both of which he purchased from John and Celia Severence for a total of $72 (CLRo 32:129). The first parcel was described as beginning at a stake located 88 links N7.5W from a large pine tree located above Wright's mill yard then N60E 3.31 chains (218.46 ft) to the south bank of brook; then on the bank to an elm tree which is in a direct line N21W 1.97 chains (130.02 ft) to the elm tree; then S47W 3.20 chains (211.2 ft); then S7.5E 1.29 chains (85.14 ft) to the beginning being .52848 acre (CLRo 32:129). The second parcel was about 3/8 of an acre located on the south side of the mill pond and on the east side of the road. It was described as beginning in the east line of highway at a point S26W 4.21 chains (277.86 ft) from the southeast corner of Wright's saw mill; then S53E 1.52 chains (100.32 ft); then N53E to the high water mark of the mill pond; then west along the high water mark of the pond to the east line of the highway; then in the east line of the highway to the beginning (CLRo 32:129).

Early in 1920, R.L. Wright advertised his mill property for sale as follows:

> "Three acres land, a good 8-room house, barn, saw mill, shingle mill, cider mill, grist mill, feed storehouse, wood-shed, horse-shed, etc. Water power, 45 h.p. water wheel, cement dam, new penstock, log saw with top saw and 32-ft carriage; slab saw, band saw, bench saw, lath mill, shingle saw, band saw, 24-inch planers, 3-side planer and matcher, boring machine, turning lathe, power grindstone, emery gummer, slab car and railroad, sawdust conveyor, etc. A modern 24-inch Attrition feed grinder, corn and cob cracker, grain elevators, bins, sieves, etc. Five-ton wagon scale, ½ ton floor scale. Apple grater, 2 big power presses, cider pump, power washing machine. The belting, shafting, pulleys alone are worth more than $2,000. This property is in the midst of a live, prosperous, farming community, ¼ mile to post office, stores, churches, creamery, etc. and only 8 miles to Burlington, Vt. All in good repair and in good running order, and doing

good business every day. I have run this business successfully for 26 years and am forced to sell on account of failing health. Price only $8,000, and could not be replaced for twice that amount" (*Burlington Free Press* April 13, 1920).

On August 1, 1921, Rolla Wright sold the property to Eugene S. Wright of Colchester (CLRo 42:143).[5] On August 12, 1921, Eugene S. Wright transferred this property to the Colchester Milling Company *(Burlington Free Press* March 20, 1924). The company was incorporated in August of 1921, with J.E. Wolcott, E.S. Wright[6] and Alma C. Wright of Colchester Center, and W.G. and A.E. Minckler of Grand Isle, for the purpose of "grinding grist, making cider and vinegar, cutting lumber, making wooden boxes, grinding flour, handling grain, feed and roofing cement" (*Barre Daily Times* August 8, 1921). Soon after the Colchester Milling Company purchased the mill, they "installed an electric motor so that custom work did not have to wait for a full penstock" (Wright 1963:138). The large amount of sawdust produced by this mill was "heaped by a conveyor belt in a large mound north of Indian Brook mill and sold to farmers for bedding" [7] (Wright 1963:138). However, "cider and vinegar were no longer made" (Wright 1963:138).

During the Flood of 1927, Colchester as a whole suffered "comparatively" little damage, however, the water "wreaked havoc" at the Colchester Milling Company's property in Colchester Center (Degree 2000:111). During the flood, "a deep channel" was cut around the north end of the dam, the mill was partially flooded damaging a considerable amount of grain, and the nearby bridge was undercut (*Burlington Free Press* November 11, 1927; Degree 2000:111; Wright 1963:138). Immediately after the flood, it was reported that: "R.E. Minckler of Grand Isle has been at E.S. Wright's the past week while at work rebuilding the dam at the Colchester Milling Company" (*Burlington Free Press* November 22, 1927). Romeo E. Minkler (1874-1938) was native of Chazy, New York, and in 1920 and 1930 ran a general store in Grand Isle, Vermont (U.S. Census 1920, 1930; Vermont Secretary of State, Vermont Death Records 1909-2008). According to Rolla Wright's daughter, the company built a "larger dam" at this time (Figure 15) (Wright 1963:138). On Tuesday December 6, 1927, it was reported that "the high water following Wednesday's rain tunneled under the new wing of the dam of the Colchester Milling Co. This wing was necessitated by the flood early last month, and has been barely completed" (*Burlington Free Press* December 6, 1927). In late December, it was reported that "Ervin Pitts was injured Monday afternoon when he fell off his truck down a steep bank while unloading stones at the dam of the Colchester Milling Company" (*Burlington Free Press* December 22, 1927).

[5] R.L.Wright's wife died on February 9, 1924, and he committed suicide by hanging on March 18, 1924, due to "despondency over the death of his wife" (*Burlington Free Press* March 20, 1924; Vermont Secretary of State, Vermont Death Records 1909-2008).

[6] On May 23, 1940, Eugene S. Wright (68) of Colchester died at his mill, it was noted at the time that despite "poor health" Wright had continued to work at the mill (*Burlington Free Press* May 24, 1940).

[7] The Colchester Milling Company "began sawing the second or third-growth pines cut on the plains southeast of Malletts Bay" (Wright 1963:138). The *Burlington Free Press* of April 25, 1935, reported that the company planted 4,000 red pines at "White's Woodlot" at Mallets Bay.

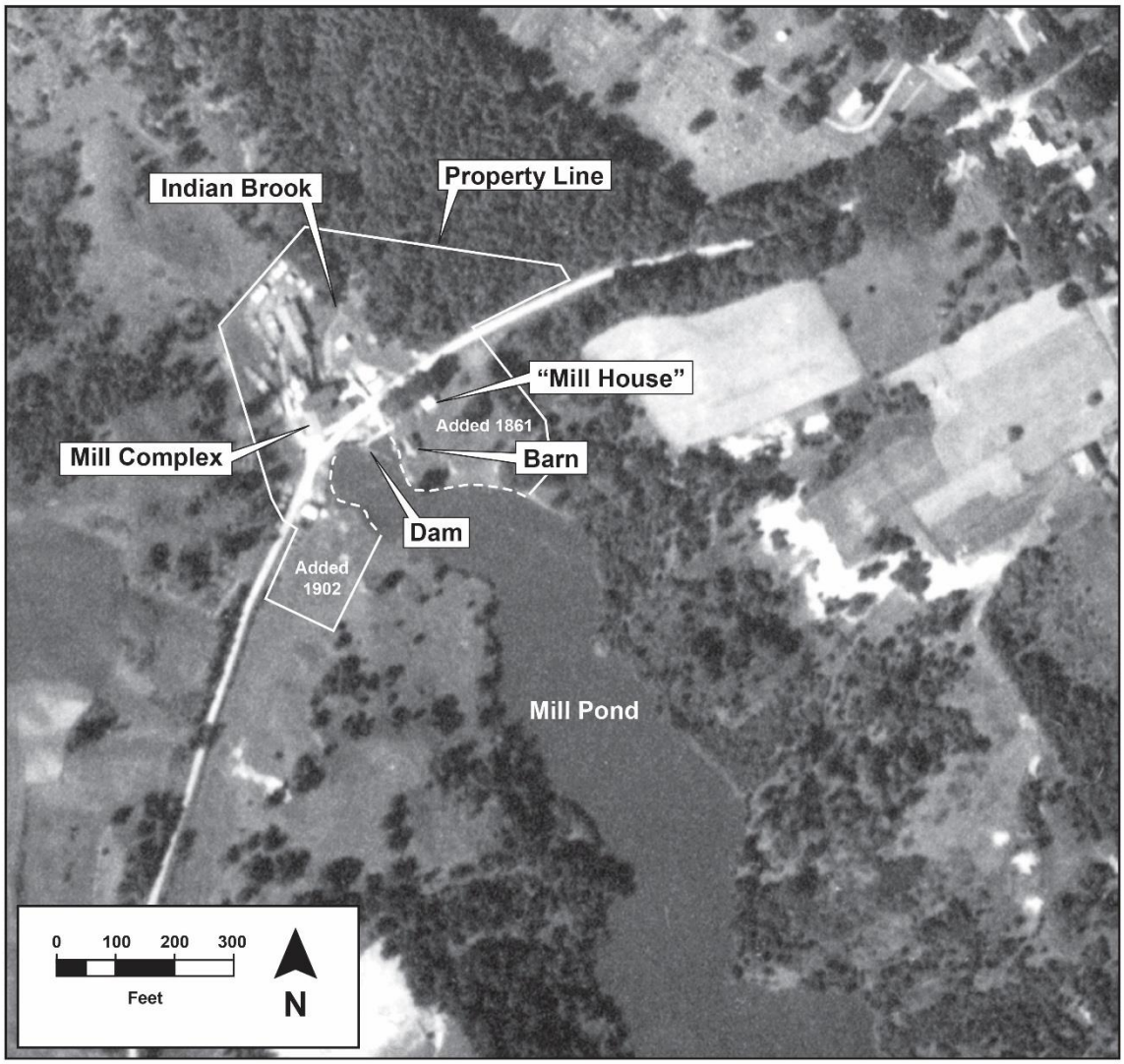


Figure 15. Detail of an aerial photograph showing the project area in 1937 and showing the mill complex prior to the fire of 1941 (Arial Explorations Inc., 1937).

Early in the morning of May 4, 1941, the quarter acre mill complex, buildings and yards, of the Colchester Milling Company on Indian Brook burned, with a "loss of between $30,000 and $40,000" (Figures 16 and 17) (*Burlington Free Press* May 5, 1941). According to a local newspaper, "the flames were fought from 2:30 till 9 am and Burlington and Winooski sent fire trucks to help the local force" (*Burlington Free Press* May 5, 1941). While some logs and green lumber were saved, the main building and several smaller buildings were lost, including the slab shed along with "much lumber grain, roofing and . . . building material" (*Burlington Free Press* May 5, 1941). It was noted that "the cause of the fire is unknown" (*Burlington Free Press* May 5, 1941).

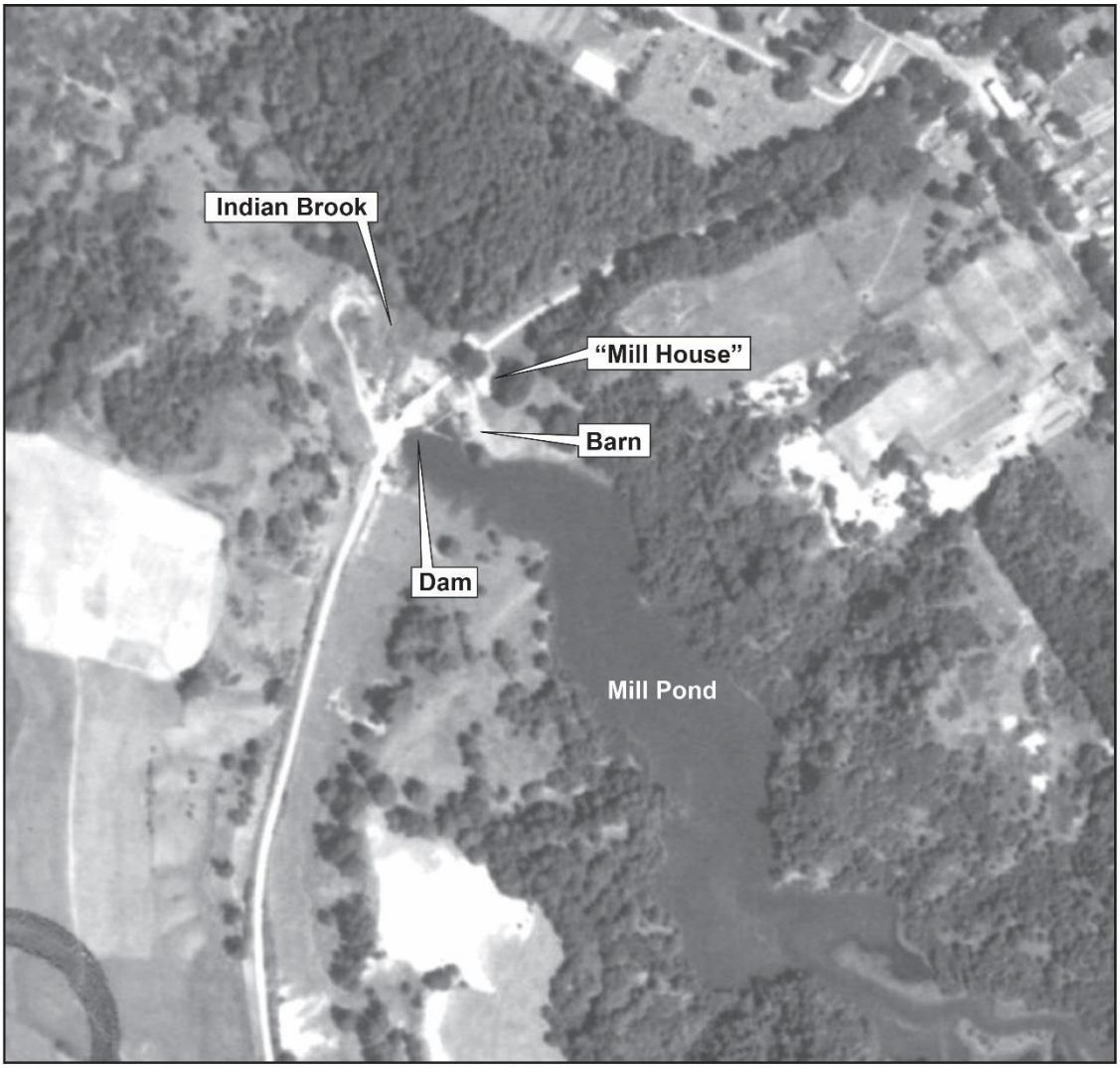


Figure 16. Detail of an aerial photograph showing the project area in 1942; note that mill buildings are no longer standing due to the fire of 1941 (Air Mapping Corp. 1942).

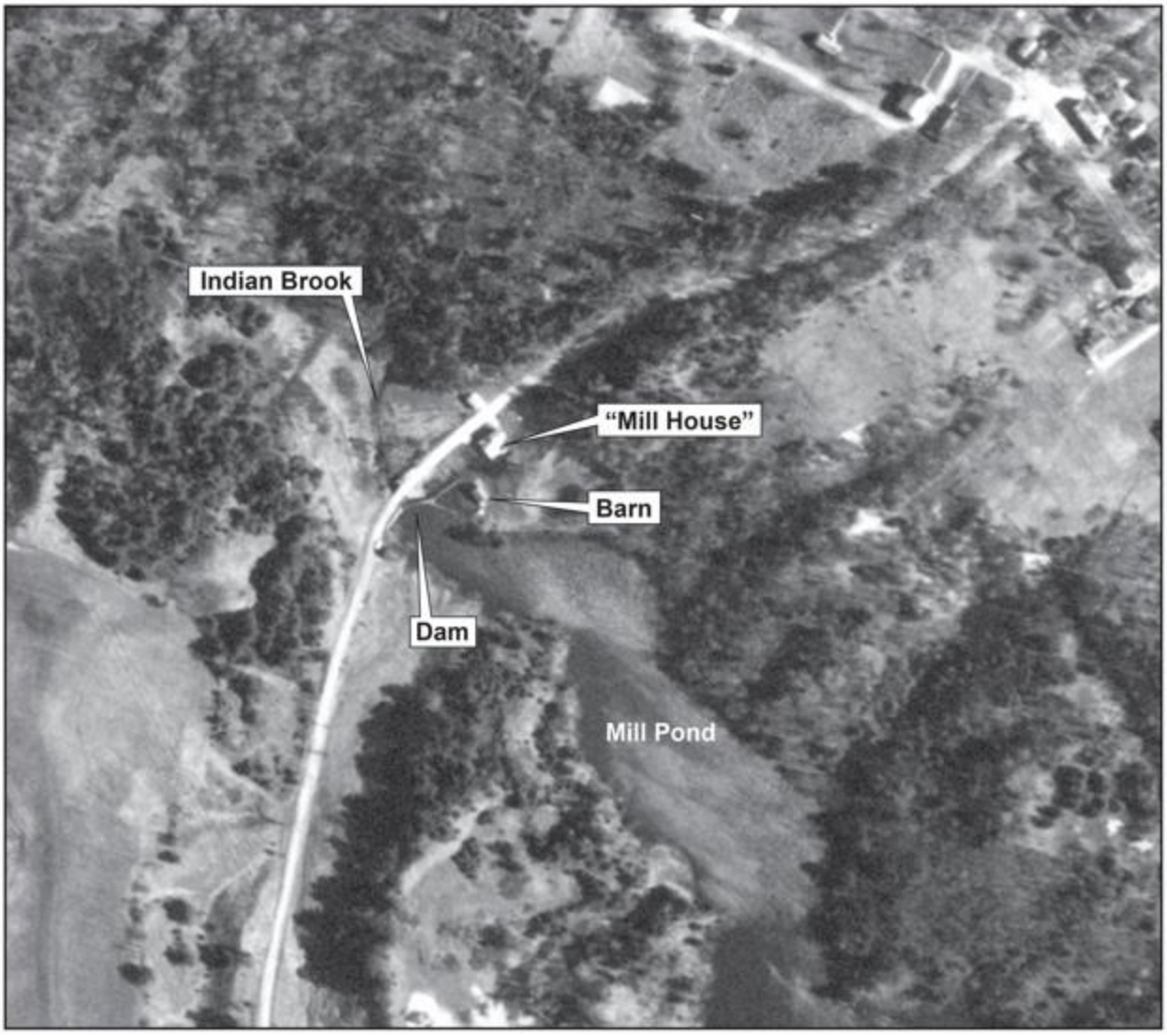


Figure 17. Detail of an aerial photograph showing the project area in 1962 (Geotechnics & Resources Inc. 1962).

On March 16, 1946, the Colchester Milling Company sold the mill property to Harrison B. Shangraw of Colchester (Colchester Land Records New Series [CLRn] 3:262). At the time, this property included the house where Harrison Shangraw then lived, two garages, a shed, and a barn (*Burlington Free Press* March 18, 1946; CLRn 3:262). Harrison Beecher Shangraw (1922-2007) was a son of Eugene and Hazel Shangraw (Vermont Secretary of State, Vermont Death Records 1909-2008). On April 29, 1971, Harrison and Marion Shangraw sold the property to Hazel Shangraw (CLRn 18:83). In 1982, the Town of Colchester replaced the Mill Pond Road bridge. It was noted that "town crews worked for two weeks to replace the 17-foot long bridge with a new span that is almost 7 feet wider" (*Burlington Free Press* October 22, 1982). On May 5, 1992, the property was sold from the estate of Hazel F. Shangraw to George B. Shangraw and Carol (Shangraw) Pare of Colchester (CLRn 196:533). On August 26, 2014, the property was

transferred to Garry L. Gregoire by the Federal National Credit Union following a foreclosure on Carol Pare (CLRn 769:395). On June 13, 2016, Garry L. Gregoire, of Clearwater, Florida, sold that part of the land formerly owned by the Colchester Milling Company located on the east side of Mill Pond Road, 1.75 acres, including the house, to Kim M. Scofield of Essex, Vermont (CLRn 800:146). Garry Gregoire kept the 1.52 acres located on the west side of the road (*Burlington Free Press* May 30, 2017; CLRn 800:146).

The dam was abandoned in 1941 after the mill was destroyed by fire (Haybrook 1952:41). By 1952, state dam inspectors reported significant disintegration and minor insufficient maintenance problems (Haybrook 1952:41). In 1975, Barranco and Fitch noted that a "week point" had developed in the primary spillway section near where it joined the left wing (Barranco and Fitch 1975). In 1982, the left wing was cut down up to 2 ft (0.6 m) when the town widened the road. In 2004 it was noted that the stone masonry portion of the dam had developed a 10 degree downstream lean (Leonard Allen and Ferrell 2004). Probably between 2007 and 2011, a breach "about 15 feet across and two feet deep" occurred at the primary spillway section (Bushman and Carpenter 2011; Terhune and Pollock 2007). In 2015, a new bridge (Bridge #12) on Mill Pond Road (TH #27) was built. This project further covered the left (west) wing area, especially at its downstream side.

The ten acre pond created by the Mill Pond Dam was a recreational spot for "local anglers, paddlers and partygoers" for many years (*Burlington Free Press* May 30, 2017). For example, in 1887, it was noted that "Bombard's mill pond was frozen over so there was good skating" (*Burlington Free Press* December 1, 1887). However, the pond was, at least once, a scene of tragedy with the drowning of 10-year old Hugh 'Hughie' Thompson, son of Kenneth and Dorothy Thompson, in June of 1942 when he went fishing alone at the mill pond and, it is believed, tripped on one of the rails set into the dam (*Burlington Free Press* June 5, 1942; Vermont Secretary of State, Vermont Death Records 1909-2008). Numerous injuries that occurred to workers in the mills at the dam are also recorded in early newspapers.[8]

Since its abandonment and becoming especially noticeable from the 1970s on, the pond had slowly filled with silt and fine sand sediments, transforming itself into bottom land (*Burlington Free Press* May 30, 2017; Lamoureux & Dickinson 2003:8). In 2003, there was up to 6 feet of sediment located at the upstream side of the dam (Lamoureux & Dickinson 2003:8).

[8] In 1871, "a young man named Kimball had one foot cut off while kicking sawdust in front of the saw in the mill of R.P. Thompson, at Colchester Center" (*Rutland Weekly Herald* May 11, 1871). In April of 1879, "it was almost a serious accident which occurred last Saturday, at the lumbering mills owned by R.P. Thompson . . . The large circular saw caught in some part of the log carriage, and the teeth and castings made the atmosphere thick with fine shot for a short time. As the machinery was being reversed even afterwards one of the guards of the log carriage caught Herbert Thompson's foot, doubling it together and so disabling him that he will be unable to attend business at present, but it is not probable that he is permanently injured. An hour or two previously his eye had been injured by a piece of bark which flew from one of the large shafting belts" (*Burlington Free Press* April 10, 1879). In 1900, "Rolla Wright had the misfortune to cut his hand on a saw while working in his mill" (*Burlington Clipper* July 28, 1900). In 1903, "Horace White, a mill hand at Wright's saw mill in Colchester, lost part of the thumb and forefinger of the right hand and had the other three fingers badly lacerated, while running a planer" (*Burlington Clipper* November 7, 1903). In March of 1908, "Joseph Florence broke a bone in his leg . . . while working at R.L. Wright's saw mill" (*Burlington Daily News* March 31, 1908).

MILL POND DAM PHYSICAL DESCRIPTION

The existing Mill Pond Dam (State ID #51.02) is a combination stone masonry and mass concrete run-of-river (or low-head) gravity structure founded mostly on bedrock and having a watershed area of approximately 6,670 acres (10.4 sq mi) (Figure 18) (Barranco and Fitch 1975; *Burlington Free Press* December 6, 1927; DuBois & King 1990:2, 4-5, Plate #2 and #3; Milone & MacBroom 2018). The present dam reflects a number of significant changes made to the structure through redesign and/or necessary repair. The crest length, or the overall developed length of the top of the dam, is approximately 169 ft (Milone & MacBroom 2018). Crest widths vary between 1.5 and 6 feet (Barranco and Fitch 1975; DuBois & King 1990:2, 3, Plate #2 and #3). The structural height of the dam, or the vertical distance from the lowest point of natural ground on the downstream side to the highest part of dam that would impound water, is 12.3 ft with the 'top of dam' set at 174.7 ft above sea level (Milone & MacBroom 2018). The exposed natural ledge in the area serves as the apron for the dam. As designed, the dam's height to normal pond level was about 10 ft (3 m), which created an impoundment of approximately 10 acres at about 170.0 ft above sea level (DuBois & King 1990:2, 4; Haybrook 1952:41; Milone & MacBroom 2018). At normal pond level, the impoundment extended upstream along Indian Brook about 2,000 ft (Lamoureux & Dickinson 2003:4) (Figure 19; see Figures 15 – 17). Prior to dam removal, the pond extended only about 170 ft from the dam (Figure 20).

There are several sections to the dam. The central portion is the secondary spillway section (Figures 21 and 22) (DuBois & King 1989 and 1990:4, Plate #2 and #3). This is the oldest part of the structure. It consists of a 44 ft long broad crested stone masonry straight drop weir with a concrete cap and upstream facing (Barranco and Fitch 1975; DuBois & King 1990:2, 3, Plate #2 and #3). The crest width of the secondary spillway is 6 ft and the height of the spillway crest is set at 171.3 ft above sea level (Milone & MacBroom 2018). The base width or thickness of this section is roughly the same as the top (DuBois & King 1990:3, Plate #2 and #3). This section is of rubble stone construction laid without mortar using local stones, most unmodified and/or minimally shaped, generally varying in size from 6 inches to 4 feet, but with a few smaller rocks inserted into joints between the larger stones. There are several areas where mortar or cement has been applied between the stones on the downstream (air) face, presumably in response to water seepage through this part of the structure.

In the late 19th or early 20th century, this section of the structure was capped and faced with concrete (Figure 23 and 24). The concrete cap is about 1 ft thick (Dubois & King 1990: Plate #3). It appears that the application of concrete was carried down the upstream (water) face and along the entire length of this part of the structure, presumably to provide a watertight surface. The upstream face appears to be slightly battered. Embedded into the concrete along the upstream face are a series of light stock railroad rails set nearly vertically at about 5 ft intervals (on center), but angled slightly downstream (Figures 25 and 26) (Dubois & King 1990: Plate #2 and #3). Most of these have been cut down from their original length since they were installed (see Figures 23 and 24). The rails do not appear to be related to flashboards, but rather may have been placed to catch large pieces of ice/floating debris at the upstream side of the dam that managed to bypass a boom placed for that same purpose further upstream. The broad crest of the masonry section of the dam may have been vulnerable to damage if ice or large debris caught on top.

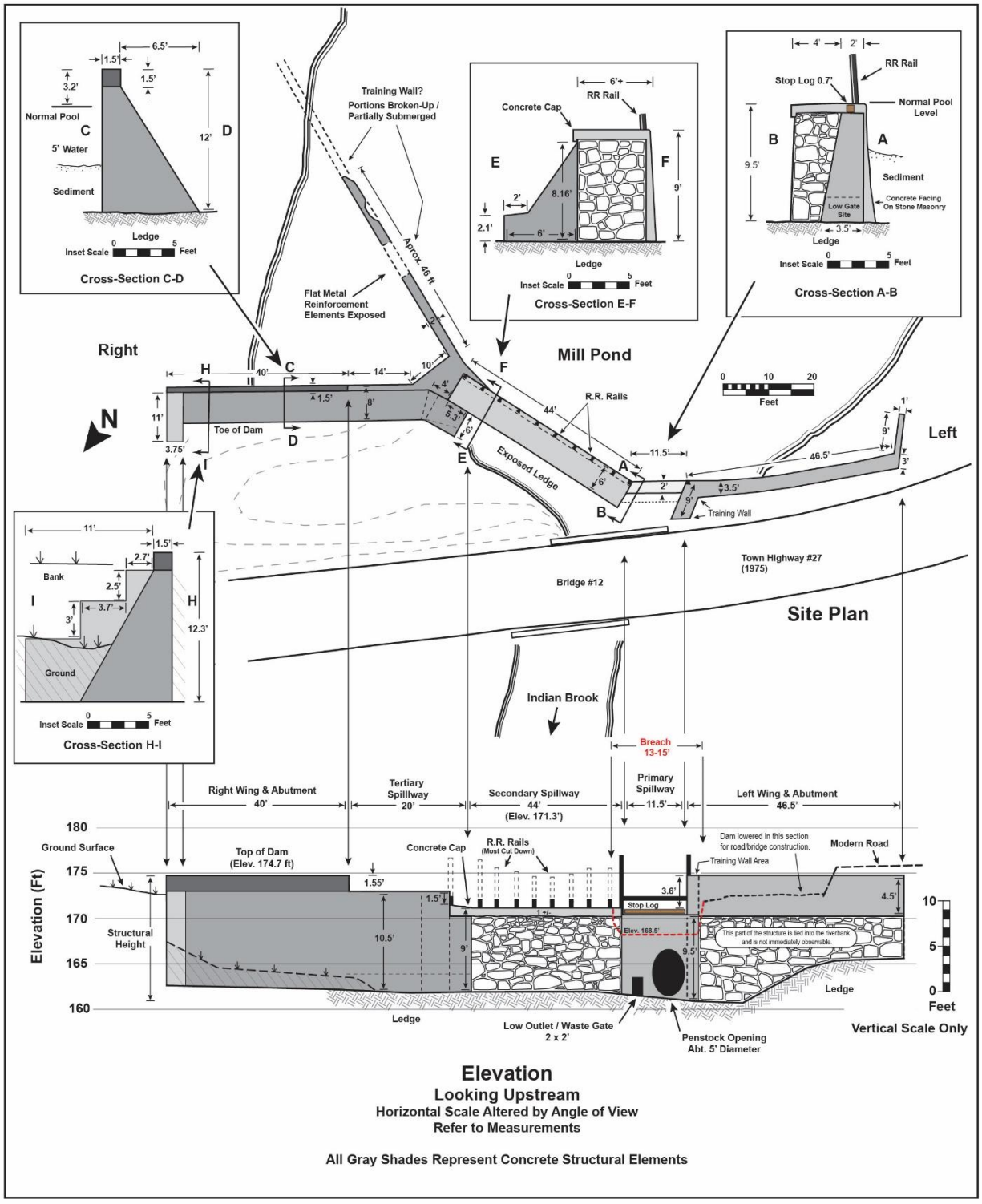


Figure 18. Plan, downstream elevation, and key cross-sections of Mill Pond Dam.
(*Base maps: A. Peter Barranco and Larry Fitch of the Vermont Department of Environmental Conservation in 1975 and included in DuBois & King 1990: Plate #2: Plan of Dam p. 19 and Plate #3: Section of Dam p. 20; DuBois & King ca. 1989; Milone & MacBroom 2018; photographs and sketches made by A. Peter Barranco in 1980; and UVM CAP field observations 2018*).

Figure 19. View southeast (upstream) of Mill Pond in Colchester Center, Colchester, Chittenden County, Vermont (Colchester Historical Society).

Figure 20. View southeast (upstream) of the former impoundment area of the Mill Pond Dam.

Figure 21. View southwest of the secondary (stone masonry portion) and primary spillway (breached portion) sections of the Mill Pond Dam.

Figure 22. View southwest of the secondary spillway section (stone masonry portion) of the Mill Pond Dam.

Figure 23. View east of the concrete cap on the secondary spillway section (stone masonry portion) of the Mill Pond Dam.

Figure 24. View east of the concrete cap and upstream facing on the secondary spillway section (stone masonry portion) of the Mill Pond Dam, during deconstruction.

Figure 25. Historic view of Mill Pond Dam at Colchester Center, taken prior to 1927, looking southwest; note railroad rails in place and a stone structure at the former (pre-1927) right (east) abutment area. (Colchester Historical Society, Colchester, Vermont).

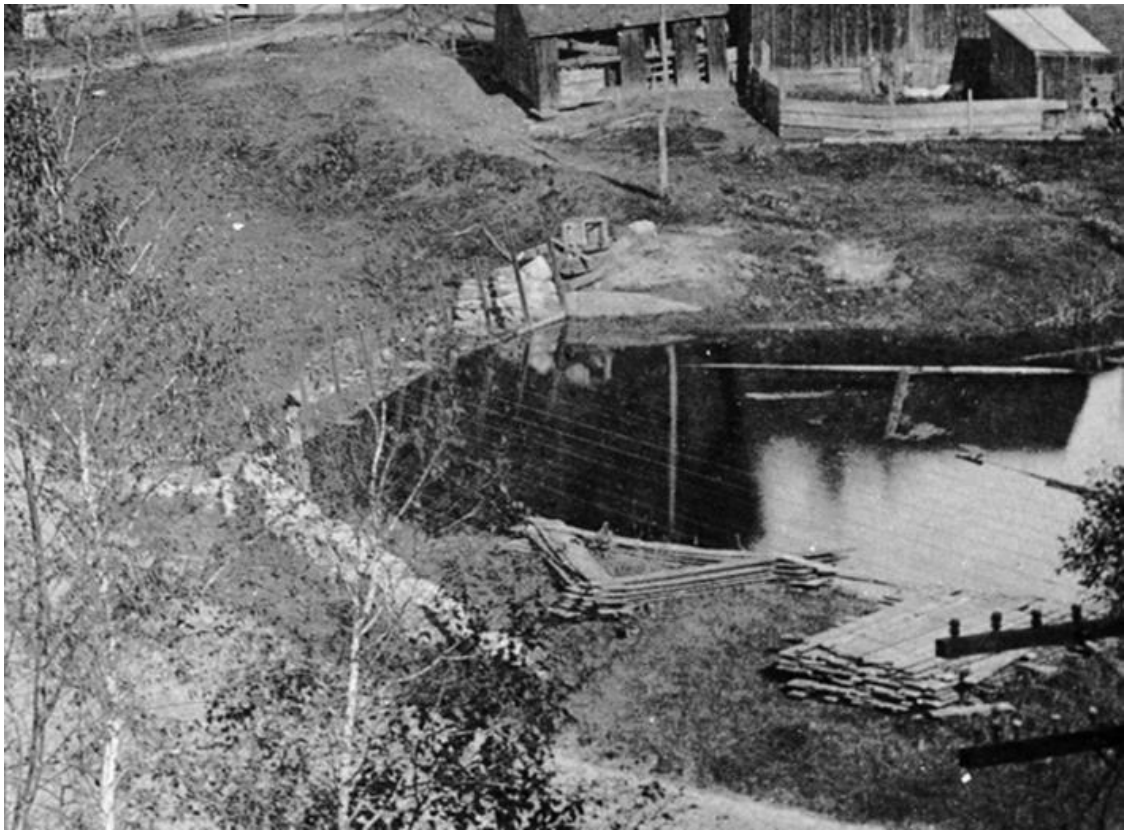


Figure 26. Detail of historic photographic postcard (see Figure 14); note railroad rails in place and stone structures at the left (west) and right (east) wing, and abutment areas.

Although historically somewhat rarer than other types of dams in Vermont, such as timber crib dams, stone masonry dams were fairly popular in the 19th century. As one period text noted:

> "stone is on many accounts the most suitable material for a barrier against the pressure of water, and the one which will naturally be selected where the circumstances do not make it too costly, or where the object in view cannot be as effectually accomplished by more convenient methods . . . its weight, though it renders the work of building more arduous, is a source of strength when it is once in position, such as can hardly be given to any other material; it is subject to neither rot nor rust, and unless undermined or caved, in consequence of the weakness of some other part of the structure, is not liable to yield to any of the ordinary forces which a dam is intended to resist. When properly guarded from the gradual inroads of the water through apertures or crevices, or in the form of underwash by which the foundations are sapped, a stone dam is an unmovable bulwark and will withstand the heaviest freshets, saving in the long run, in many cases, by the avoidance of any outlay for repairs" (Leffel & Co. 1874:121).

However, because stacked stone is porous, stone masonry dams require "some sort" of effective impermeable barrier to be built with them (Thorson 2005:109). The masonry part of this dam may have been built in one of two ways. It could be composed of two nearly vertical dry laid masonry retaining walls with the intervening space filled by "well packed" loam and gravel (or perhaps dredged silt or clay from a clay bank) (Allen 1829:203; Leffel 1874:10; Thorson 2005:109). It is also possible that the dam once had "a planked covering" on the upstream side, also probably backed with some similar 'well packed' material (Allen 1829:202). A ramped wooden surface upstream leading to the breast of the dam would have helped carry ice or other large pieces of floating debris over it.

To the west of the above described section was the principal spillway, a 11.5 ft concrete weir that is now partially breached (Figure 27; see Figure 21) (Bushman and Carpenter 2011; DuBois & King ca. 1989; DuBois & King 1990:2, 4, Plate #2 and #3). From previous surveys, it appears that the crest height of the primary spillway was set at 8.0 in lower than the secondary spillway, but "had provisions" for stop logs to make its elevation equal to the secondary spillway (Barranco and Fitch 1975; DuBois & King ca. 1989; Dubois & King 1990: Plate #2 and #3). The crest width or thickness of this section was reported to have been 2 ft and the base thickness 3.5 ft (Dubois & King 1990: Plate #2 and #3). In 2003, it was reported that there are two rectangular outlets located "at the base of the dam, directly below the spillway" (Lamoureux & Dickinson 2003:3). These outlets were reportedly "blocked in recent times by sheets of plywood covered with fill" (Lamoureux & Dickinson 2003:3). This was probably done in an effort to maintain the level of the pond for recreational uses. However, a rough sketch of the dam made in 1980 appears to indicate that there is one "2 x 2 ft waste gate" (aka, low outlet, flood, drain, sluice, or draw down gate) at the base of the primary spillway section (Barranco 1980). This gate would have been used to draw down the mill pond to make repairs on the dam, scour sediment, vent flood waters, or fluctuate the level of the pond in order to kill weeds and/or mosquitoes. This low outlet opening was exposed during the dewatering/deconstruction; it appeared to have horizontal wood boards blocking it, possibly the remnants of a wooden gate (Figures 28 – 30).

Figure 27. View southwest of the breached primary spillway section of the Mill Pond Dam, from Bridge No. 12.

Figure 28. View east of the primary spillway section of the Mill Pond Dam during deconstruction with low outlet gate (left) and penstock (right) openings exposed.

Figure 29. View southeast of the primary spillway section of the Mill Pond Dam during deconstruction with low outlet gate (left) and penstock (right) openings exposed.

Figure 30. View southeast of wooden boards within the low outlet gate opening in the primary spillway section of the Mill Pond Dam during deconstruction.

Since this dam was used to power mills, it would have to of had at least one intake structure or 'head-gate' by which water could have been turned into a race, flume or penstock. During the dewatering/deconstruction of the dam, a penstock opening was exposed within the primary spillway, to the west of the low outlet gate opening (see Figures 28 and 29). No evidence of a forebay, a structure which "serves the purpose of confining water where it is free from turbulence so that sand and dirt may settle before the water goes through the penstock to the turbine," or other headworks, such as a trash rack intended to stop floating debris from entering and damaging the water wheel/turbine, or gate structures or gate operating mechanisms were recorded or observed during the deconstruction of the dam (Crowley 1940:626; Leonard, Allen, and Ferrell 2004; Webb and Cox 2012:31). No conclusive evidence of the use of flashboards (e.g. lengths of timber, concrete or steel placed on the crest of a spillway in order to raise the retention level or 'operating head' of the pond) was identified.

To the left (west) of the principal spillway section, is the left wing and abutment (Figure 31). According to historic images and earlier surveys, the left wing was once 46.5 ft long and composed of a substantial stone wall about 3.5 ft wide at the stream side and about 3 ft wide at its far end (Barranco 1980; Dubois & King 1990: Plate #2 and #3). Presently, only about 12 feet of the wing can be traced. Most of this structure appears to have been buried by road construction in 1982 and 2015 (Barranco 1980; VTrans 2014). Sometime in the early 20th century a concrete cap, up to 4.5 ft thick was added to the left wing, however, this feature was lowered about 2 ft when the road was widened in 1982 (Barranco 1980; Dubois & King ca. 1989; Dubois & King 1990: Plate #2 and #3; Milone & MacBroom 2018). Also, according to earlier surveys, there was once a short concrete training wall with a 1 ft wide crest that extended about 9 ft upstream from the end of the left wing (Dubois & King 1990: Plate #2).

The entire right (east) wing of the dam, to the east of the stone masonry section, is a large truncated Y-shaped concrete structure consisting of a substantial mass concrete section and a possible 'training wall' section, which come together to form a socket around the right end of the stone masonry section (Dubois & King 1990: Plate #2) (Figure 32; see Figure 18). The mass concrete section appears to have been constructed at the same time, in December 1927. In places, the slight horizontal impressions made by the boards of concrete forms are visible on this part of the structure.

The downstream portion of the right wing is a concrete gravity dam that is buttress-like in cross-section (e.g. vertical upstream and angled or battered downstream) (Figures 33 – 35) (Dubois & King 1990: Plate #2 and #3). Overall, this section is about 60 ft long with a base thickness of about 8 ft (or more) (Dubois & King 1990: Plate #2 and #3). However, it has sub-sections having two different crest heights (Barranco and Fitch 1975). The more in-stream section is about 20 ft long and is about 1.5 ft higher than the secondary spillway (Dubois & King 1989; Dubois & King 1990: Plate #2 and #3). The remaining 40 ft, leading into the embankment, has a crest height about 1.55 ft higher (Dubois & King 1989; Dubois & King 1990: Plate #2 and #3). In this part of the structure, there is a distinct construction joint (a joint between two successive places or pours of concrete) visible between the base and the 1.55 ft high crest section. There is also a possible vertical construction joint between the 20 ft and 40 ft section. It is not clear how far the right wing is keyed into the bank. However, at the downstream side of

Figure 31. View east across the top of the left (west) wing (foreground) of the Mill Pond Dam.

Figure 32. View southeast of the Y-shaped right (east) wing of the Mill Pond Dam; secondary spillway section (stone masonry portion) at right.

Figure 33. View east of the mass concrete section of the right (east) wing of the Mill Pond Dam.

Figure 34. View east of the junction between the stone masonry and the mass concrete sections of the Mill Pond Dam; note concrete “buttress” at center.

Figure 35. View northwest of the upstream face of the right (east) wing of the Mill Pond Dam.

the east end of the wing there is a large concrete stepped baulk that is partially buried in the bank (Figure 36). The visible part of the baulk extends about 11 ft downstream and it is minimally 3.75 ft wide (Dubois & King 1990: Plate #2).At the west end of the mass concrete section, is the 5.3 ft of buttress-like section that stands on the downstream side of the central stone masonry section (Figure 37; see Figure 34). The contractor who removed the dam reported that the mass concrete section contained a lot of rock and contained no rebar (Figure 38).

The upstream part of the east side of the dam is a *possible* concrete training wall (Figures 39 – 41). Although it was once estimated at 75 ft long, presently only about 46 ft of it is traceable (Dubois & King 1990: Plate #2; Milone & MacBroom 2018). This feature has a crest width of 2 ft and appears to have vertical sides (Dubois & King 1990: Plate #2). Some parts of this structure have settled and are partially submerged and other parts are simply missing (Barranco and Fitch 1975; Terhune and Pollock 2007). The broken sections show exposed horizontal reinforcing steel, possibly flat reinforcing bars. One team of state dam inspectors noted that the truncated Y shaped structure appeared to form a forebay, but also noted that "there are no signs of any headworks & etc." in that part of the structure (Barranco and Fitch 1975). It is possible that the right (east) side of the dam may represent (at least in part) an artificial abutment, constructed where there was no longer a suitable natural abutment after the 1927 flood (see Figure 26).

Figure 36. View southeast of the downstream side of the right (east) wing and abutment area of the Mill Pond Dam showing the concrete stepped baulk partially buried in the bank.

Figure 37. View east of the concrete “buttress” at the junction between the stone masonry and the mass concrete sections of the Mill Pond Dam.

Figure 38. View southeast during the deconstruction of the mass concrete section of the right (east) wing of the Mill Pond Dam.

Figure 39. View west of the possible training wall, looking from the right (east) bank to the left (west) bank.

Figure 40. View east of the possible training wall looking from the left (west) bank.

Figure 41. View south of west portion of possible training wall looking over the top of the mass concrete section of the right (east) wing of the Mill Pond Dam.

STATEMENT OF SIGNIFICANCE

Based on historic research, the first dam on this site was built c. 1799 – 1802. The dam was replaced at least once, in 1815, and required repairs, some being extensive, on several occasions (e.g. in 1812, 1817, 1827, 1834, 1833, 1834, 1885, and 1927). Often the repairs were focused on the right (east) side of the structure (e.g. in 1812, 1817, 1827, and 1927). While the type of dam first located at this site is not known, a stone masonry dam was built here prior to 1885. In 1885, the dam was damaged by ice and "re-laid" with a "new bulkhead." The concrete cap and facing with the installation of the railroad rails may date to c. 1894-1920, an improvement possibly made by Rolla Wright, who owned the dam from 1894 to 1921, and who reportedly "rebuilt the dam" at some point (Wright 1963:138). In 1920, Rolla Wright described the dam as being a "cement" one (*Burlington Free Press* April 13, 1920). The large truncated Y-shaped concrete structure at the right end of the dam dates to 1927. The concrete cap on top of the stone part of the left (west) wing dates to after the installation of the railroad rails, possibly to ca. 1927 (to equalize the height of the left wing with the new right wing).

Historically, the Mill Pond Dam supported sawmills, a grist mill, a shingle mill, cider mills and a flour mill. The dam and its associated industries were therefore important to the village and its development from the late 17th century through the mid-20th century. The Mill Pond Dam, along with its associated mill foundation remains north of the dam, are important locally and to Vermont due to its early harnessing of water power and development, and its association with the village that grew up around it. This review therefore recommends that the dam and mill foundation remains are significant historic resources eligible for inclusion on the National Register of Historic Places. The complex is recommended as eligible under Criterion A for its association with the broad pattern of historic development of 19th century villages and industry in Vermont, and also under Criterion C because the dam embodies the distinctive characteristics of type, period and a method of construction. The site retains its integrity of location, design, setting, materials, workmanship, feeling and association.

REFERENCES CITED

Air Mapping Corp.

1942 *Aerial Photograph DCC-2-192*. Air Mapping Corp., Minneapolis, Minnesota. U.S. Department of Agriculture Soil Conservation Service Survey of Vermont. Image on file: Vermont Archives and Records Administration Center, Middlesex, Vermont.

Allen, Zachariah

1829 *The Science of Mechanics As Applied to the Present Improvements in the Useful Arts in Europe and the United States of America: Adapted as a Manual For Mechanics and Manufactures and Containing Tables and Calculations of General Practical Utility*. Hutchens & Cory Providence, Rhode Island.

Argus and Patriot (Montpelier, Vermont)

1885 July 8, "Colchester Center Crumbs." p. 2.

1891 February 11, "Colchester Chit-Chat." p. 3.

1896 February 5, "Colchester Chit-Chat." p. 3.

1896 November 11, "West Milton Whirlings." p. 2.

Arial Explorations Inc.

1937 *Aerial Photograph FY 1-36.* Arial Explorations Inc. New York, New York. Image part of U.S. Department of Agriculture Soil Conservation Service Survey of the Winooski River, VT. Flown August 14-23, 1937. Flight Scale 1:20:000. Image on file: Map Room, Bailey-Howe Library, University of Vermont, Burlington, Vermont.

Barranco, A. Peter

1980 [Sketches and Photographs of Mill Pond Dam]. Miscellaneous Documents in the Dam Safety Engineer File for Mill Pond Dam, Colchester, Vermont. On file at the Vermont Department of Environmental Conservation, Facilities Engineering Division, Agency of Natural Resources, Montpelier. Vermont.

Barranco, A. Peter and Larry Fitch

1975 *Mill Pond Dam Inspection Report.* Document on File: Dam Safety Engineer File; Mill Pond Dam; Vermont Department of Environmental Conservation, Facilities Engineering Division, Agency of Natural Resources, Montpelier. Vermont.

Barre Daily Times (Barre, Vermont)

1921 August 8, "Colchester Milling Co. Incorporates." p. 8.

Beers, F.W.

1869 Colchester. In: *The Atlas of Chittenden County, Vermont*. F.W. Beers, New York, New York.

Bennington Banner (Bennington, Vermont)
1895 January 25, “The drought of the summer . . .” p. 4.

Burlington Clipper (Burlington, Vermont)
1891 January 22, “Colchester.” p. 4.
1900 July 28, “Rolla Wright . . .” p. 6.
1903 November 7, “Winooski.” p. 5.

Burlington Daily News (Burlington, Vermont)
1908 March 1, “Colchester.” p. 2.

Burlington Free Press (Burlington, Vermont)
1869 October 11, “The Freshest at Montpelier.” p. 3
1879 April 10, “Colchester.” p. 3.
1885 January 8, “The Thaw at Home.” p. 1.
1885 April 22, “Colchester.” p. 4.
1885 July 8, “Colchester.” p. 4.
1886 November 20, “Chittenden County.” p. 5.
1887 December 1, “Colchester.” p. 5.
1896 April 1, “West Milton.” p. 6.
1897 July 15, “Vermont Deluged.” p. 1.
1897 July 21, “Winooski: The Damages to Highways in Colchester . . .” p. 6.
1902 October 8, “Joseph Bombard’s Injuries Prove Fatal.” p. 6.
1920 April 13, “Saw Mill, Grist Mill, Cider Mill . . .” p. 15.
1924 March 20, “Despondency is Suicide Cause.” p. 2.
1927 November 11, “Colchester.” p. 5.
1927 November 22, “Colchester.” p. 15.
1927 December 6, “Colchester.” p. 10.
1927 December 22, “Colchester.” p. 12.
1935 April 25, “Forester to Give Demonstrations in Tree Planting” p. 11.
1940 May 24, “Eugene S. Wright.” p. 5.
1941 May 5, “Saw Mill Burns At Colchester with Big Loss.” p. 2.
1942 June 5, “Body of Hughie Thompson . . .” p. 2.
1946 March 18, “Colchester.” p. 11.
1971 November 12, “Deaths and Funerals.” p. 8.
1982 October 22, “Crews Finish Work on Colchester Bridge.” p. 16.
2017 May 30, “Colchester woman wants ‘deadbeat dam gone.” p. A2.

Burlington Weekly Free Press (Burlington, Vermont)
1830 July 30, “Most Destructive Flood.” p. 3.
1879 April 18, “Colchester.” p. 3.

Bushman, Stephen and Charles Carpenter
2011 *Mill Pond Dam Inspection Report.* Document on File: Dam Safety Engineer File; Mill Pond Dam; Vermont Department of Environmental Conservation, Facilities Engineering Division, Agency of Natural Resources, Montpelier. Vermont.

Child, Hamilton
1882 *Gazetteer and Business Directory of Chittenden County, Vermont, for 1882-1883*. The Journal Office, Syracuse, New York.

Colchester (Town of) Land Records, New Series [CLRn]
Various Years. *Colchester Land Records, New Series*. Manuscript of file: Colchester Town Clerk Office, Colchester, Vermont.

Colchester (Town of) Land Records, Old Series [CLRo]
Various Years. *Colchester Land Records, Old Series*. Manuscript of file: Colchester Town Clerk Office, Colchester, Vermont.

Connecticut Deaths and Burial Index 1650-1934
Various Years. Connecticut Deaths and Burial Index 1650-1934. Database and Digital Images. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com : 2011. From: Connecticut Deaths and Burial Index 1650-1934. Index. FamilySearch, Salt Lake City, Utah 2009, 2010.

Crowley, C.A.
1940 Power from Small Streams: Part II. *Popular Mechanics*. 74(4):626-630.

Degree, Kenneth A.
2000 *Colchester Center: The Evolution of a Village*. Colchester Historical Society, Colchester, Vermont.

Doll, Charles G. (editor)
1970 *Surficial Geologic Map of Vermont, Vermont*. Geological Survey, Montpelier Vermont.

DuBois & King
1989 [Weir Elevation Data for Mill Pond Dam, Colchester, Vermont.]. ca. 1989. Miscellaneous Document within the file for Mill Pond Dam, Colchester Vermont, at the Vermont Department of Environmental Conservation, Facilities Engineering Division, Agency of Natural Resources, Montpelier. Vermont.
1990 *Mill Pond Dam, Colchester, Vermont, Dam-Break Flood Analysis*. Prepared by DuBois & King Inc., South Burlington, Vermont, for the U.S. Army Corps of Engineers, New York District and State of Vermont Department of Environmental Conservation Dam Safety Program. Document on file: Vermont Department of Environmental Conservation, Facilities Engineering Division, Agency of Natural Resources, Montpelier. Vermont.

Find-a-Grave
Various Years. *Find-a-Grave.* On-line database. https://www.findagrave.com/

Geotechnics & Resources Inc.
1962 *Aerial Photograph VT-62-H 20-222.* Geotechnics & Resources Inc., Ammann Division, San Antonio, Texas. Image on file: Map Room, Bailey-Howe Library, University of Vermont, Burlington, Vermont.

Haybrook, Stephen H.
1952 Summary of Vermont Dams. In *Biennial Report of the Public Service Commission of the State of Vermont, July 1, 1950-June 30, 1952.* Vermont Public Service Commission, Montpelier, Vermont. pp. 28-44.

Howe, Clifton Durant
1910 The Reforestation of Sand Plans in Vermont a Study in Succession. *Botanical Gazette*. 49(2):126-148.

Lamoureux & Dickinson
2003 *Environmental Assessment for Potential Removal of the Mill Pond Dam, Colchester, Vermont (Colchester TH 3-9521).* Report prepared by Lamoureux & Dickinson Consulting Engineers Inc. Essex Junction, Vt., for Vermont Agency of Transportation, Montpelier, Vermont. Document on File: Vermont Department of Environmental Conservation, Facilities Engineering Division, Agency of Natural Resources, Montpelier. Vermont.

Latimer, W. J., S.O. Perkins, F.R. Lesh, L.R. Smith, and K.V. Goodman
1930 *Soil Survey (Reconnaissance) of Vermont.* United Sates Department of Agriculture, Bureau of Chemistry and Soils, Superintendant of Documents, Washington, D.C.

Leffel, James & Co.
1874 *Leffel's Construction of Mill Dams: Comprising also the Building of Race and Reservoir Embankments and Head Gates, The Measurement of Streams, Gauging of the Water Supply, &c.* James Leffel & Co., Springfield, Ohio.

Leonard, Edward, Laura Allen, and Joshua Ferrell
2004 *Mill Pond Dam Inspection Report.* Document on File: Dam Safety Engineer File; Mill Pond Dam; Vermont Department of Environmental Conservation, Facilities Engineering Division, Agency of Natural Resources, Montpelier. Vermont.

Natural Resources Conservation Service (NRCS)
2018 *National Cooperative Soil Survey, Web Soil Survey*. United States Department of Agriculture, Natural Resources Conservation Service. Washington D.C. https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

Milone & MacBroom
2018 *Mill Pond Dam Removal Project, Mill Pond Road, Colchester, Vermont: Concept Design.* Prepared by Milone & MacBroom, Waterbury, Vermont for Vermont Natural Resources Council, Montpelier, Vermont. Document on File: Vermont Department of Environmental Conservation, Facilities Engineering Division, Agency of Natural Resources, Montpelier. Vermont.

Peck, Theodore S.
1892 *Revised Roster of Vermont Volunteers and Lists of Vermonters Who Served in the Army and Navy of the United States During the War of the Rebellion 1861-66.* Press of the Watchman Publishing Co., Montpelier, Vermont.

Rann, W.S.
1886 *History of Chittenden County Vermont, With Illustrations and Biographical Sketches of Some of its Prominent Men and Pioneers*. D. Mason & Co., Publishers, Syracuse, New York.

Rutland Weekly Herald (Rutland, Vermont)
1871 May 11, "Chittenden County." p. 7.

St. Johnsbury Caledonian (St. Johnsbury, Vermont)
1897 July 23, "July Freshets." p. 2.

Savery, Elizabeth Tyler
1894 A *Genealogical and Biographical Record of One Branch of the Tyler Family Descended from Jon Tyler of Thurlow, County of Suffolk, England*. Alfred Mudge & Son Printers, Boston, Massachusetts.

Schafer, Inge
2003 *Images of America: Colchester*. Arcadia Publishing. Portsmouth, New Hampshire.

Sentinel and Democrat (Burlington, Vermont)
1835 March 20, "Administrator's Sale." p. 3.

Sylvester, Nathaniel Bartlett, Samuel T. Wiley and W. Scott Garner
1893 *History of Saratoga County, New York With Historical Notes on its Various Towns Together with Biographical Sketches of its Prominent Men and Leading Citizens*. Gresham Publishing Company. Chicago, Illinois.

Terhune, Brian and Chris Pollock
2007 *Mill Pond Dam Inspection Report.* Document on File: Vermont Department of Environmental Conservation, Facilities Engineering Division, Agency of Natural Resources, Montpelier. Vermont.

Thorson, Robert M

2005 *Exploring Stone Walls: A Field Guide to New England's Stone Walls*. Walker & Co., New York, New York.

United States Census Bureau [U.S. Census]

1790 United States Federal Population Census. Database and Digital Image. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com : 2010. Original data: National Archives Microfilm Publication M637.

1800 United States Federal Census. Database and Digital Image. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com : 2011. From National Archives microfilm publication M32.

1810 United States Federal Census. Database and Digital Image. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com : 2011. From National Archives microfilm publication M252.

1820 United States Federal Census. Database and Digital Image. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com : 2011. From National Archives microfilm publication M33.

1830 United States Federal Census. Database and Digital Image. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com : 2011. From National Archives microfilm publication M19.

1840 United States Federal Census. Database and Digital Image. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com : 2011. From National Archives microfilm publication M704.

1850 United States Federal Census. Database and Digital Image. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com : 2011. From National Archives microfilm publication M432.

1870 United States Federal Census. Database and Digital Image. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com : 2011. From National Archives microfilm publication M593.

1880 United States Federal Census. Database and Digital Image. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com : 2011. From National Archives microfilm publication T9.

1900 United States Federal Census. Database and Digital Image. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com : 2011. From National Archives microfilm publication T623.

1910 United States Federal Census. Database and Digital Image. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com : 2011. From National Archives microfilm publication T624.

1920 United States Federal Census. Database and Digital Image. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com : 2011. From National Archives microfilm publication T625.

1930 United States Federal Census. Database and Digital Image. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com : 2011. From National Archives microfilm publication T626.

U.S. Census Bureau Manufacturing Schedules

1880 *Tenth Census of the United States; Non-population Census, Manufacturing Schedules: State of Vermont.* United States National Archives Microfilm. Microfilm available, Special Collections, University of Vermont, Howe Memorial Library, Burlington, Vermont.

U.S. City Directories, Gardner, Massachusetts

1893-1894 *U.S. City Directories 1822-1995* [Gardner, Massachusetts]. Database on-line. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com 2011. Original data: *Gardner Directory*. The Price & Lee Co., New Haven, Connecticut.

U.S. Geological Survey [USGS]

1913 *Milton Quadrangle.* United States Geological Survey.

1944 *Milton Quadrangle.* 15 minute series. War Department Corps of Engineers, U.S. Army.

1961 *Milton Quadrangle.* 15 minute series. U.S. Department of the Interior Geological Survey.

1973 *Milton Quadrangle.* 15 minute series. U.S. Department of the Interior Geological Survey.

University of Vermont Consulting Archaeology Program (UVM CAP)

2019 *Archaeological and Historic Resources Assessment of the Mill Pond Dam Removal Project, Colchester, Chittenden County, Vermont*. UVM Report N. 1174. Prepared by Kate Kenny and Catherine Quinn, April 2019. Submitted to Vermont Natural Resources Council, Montpelier, Vermont.

Vermont Agency of Transportation [VTrans]

2014 *Replacement of Bridge No. 12 on TH 27 over Indian Brook, Colchester, Chittenden County, Vermont (STP 5600(12).* Sheet 48. Vermont Agency of Transportation, Montpelier, Vermont.

Vermont Chronicle (Bellows Falls, Vermont)

1883 July 13, "Decan Cyrus Farrand." p. 1.

Vermont Secretary of State

Various years. Vermont Vital Records 1720-1908. Database and Digital Images. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com : 2011. From Microfilmed original documents of the Vermont Secretary of State, Montpelier, Vermont.

Various years. *Vermont Death Records 1909-2008*. Database and Digital Images. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com: 2011. From Microfilmed original documents of the Vermont Secretary of State, Montpelier, Vermont.

The Vermont Sun (St. Albans, Vermont)
1897 July 24, "First selectman F.E. Allard, Jr. . . ." p. 4.

Vermont Watchman and State Journal (Montpelier, Vermont).
1870 January 12, "The saw-mill . . ." p. 3.

Vermont Wills and Probate Records 1749-1999
1811 Estate of Simeon Hine (Probate Estate Files, Folder 2). Accessed online. Database and Digital Images. Vermont Wills and Probate Records 1749-1999. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com : 2011. From Microfilmed original documents of the Chittenden County Probate Court as preserved by the Vermont Secretary of State, Montpelier, Vermont.
1829 Estate of William Hine (Probate Estate Files, Box 7; Files #754-780). Accessed online. Database and Digital Images. Vermont Wills and Probate Records 1749-1999. Ancestry.com Operations Inc. Provo, Utah. *Ancestry.com.* www.http://ancestry.com : 2011. From Microfilmed original documents of the Chittenden County Probate Court as preserved by the Vermont Secretary of State, Montpelier, Vermont.

Walling, H.F.
1857 *Map of Chittenden County, Vermont*. Baker & Tilden & Co., New York, New York.

Webb, Franklin F. and Ricky L. Cox
2012 *The Water-Powered Mills of Floyd County, Virginia: Illustrated Histories, 1770-2010*. Contributions to Southern Appalachian Studies #30. McFarland & Company, Inc. Publishers, Jefferson, North Carolina.

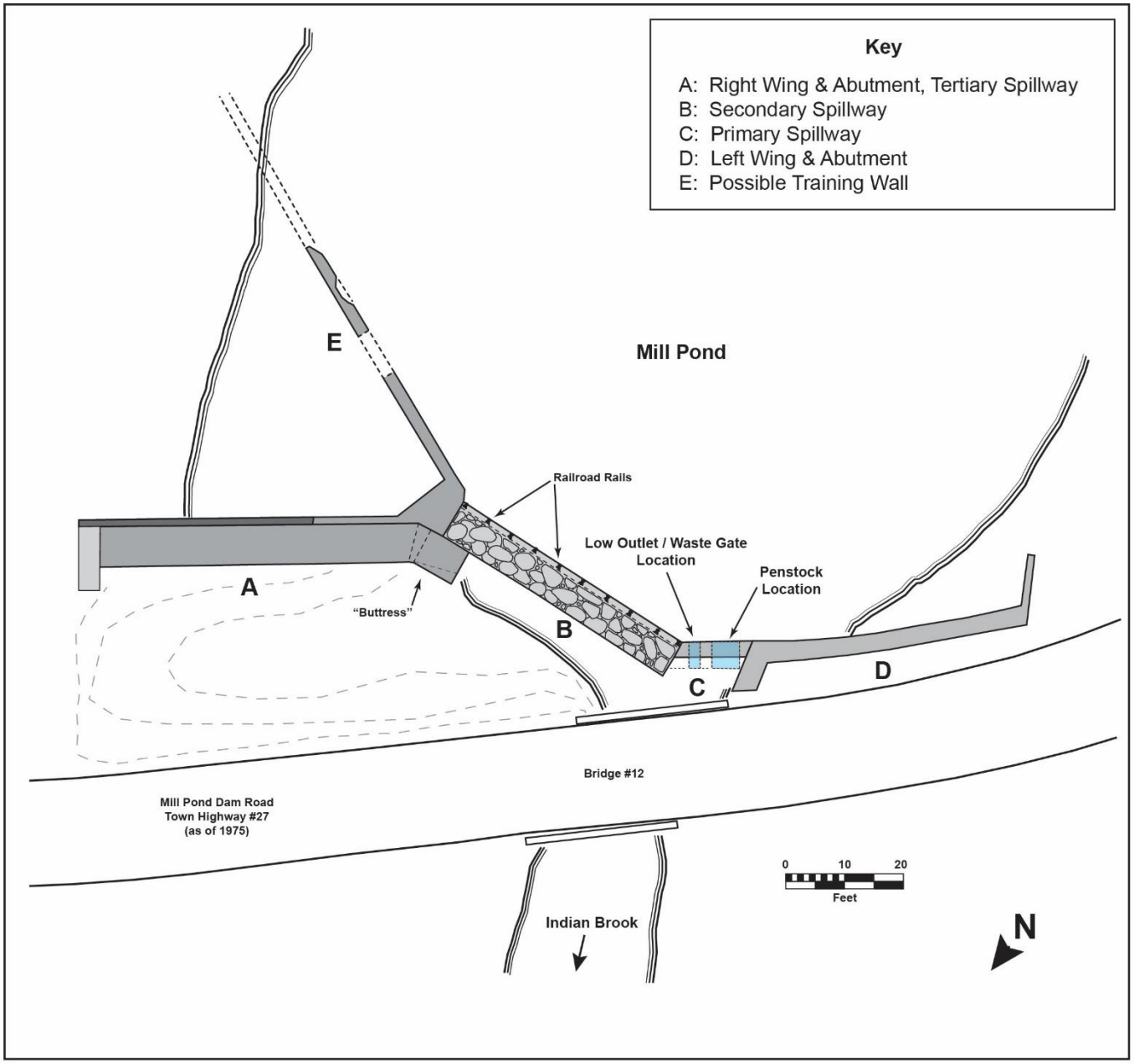
Whitelaw, James and Amos Doolittle
1796 *A Correct Map of the State of Vermont From Actual Survey: Exhibiting the County and Town Lines, Rivers, Lakes, Ponds, Mountains, Meetinghouses, Mills, Public Roads &c.* Amos Doolittle, New Haven, Connecticut. Retrieved from the Library of Congress Geography and Map Division, Washington, D.C. https://www.loc.gov/item/2011589152/.

Wright, Ruth
1963 *History of the Town of Colchester*. Queen City Printers, Burlington, Vermont.

Wright, Stephen F.
n.d. *Glacial Geology of the Burlington and Colchester 7.5' Quadrangles, Northern Vermont.* https://dec.vermont.gov/sites/dec/files/geo/documents/GlacGeoBurlwright.pdf. Vermont Geological Survey, Department of Environmental Conservation and the U.S. Geological Survey, National Cooperative Mapping Program Award No. 98HQAG2068.

APPENDIX I: PHOTOGRAPH SKETCH MAP AND INDEX

Mill Pond Dam, Colchester, Vermont: Sketch Map to Photograph Index



Mill Pond Dam, Colchester, Vermont: Photograph Index

PHOTO #	IMAGE	DIRECTION	DESCRIPTION
01		West	Mill Pond Dam with right wing (A) in foreground, secondary spillway (B) at center, primary spillway (C) at background; Bridge No. 12 at background left.
02		East	Mill Pond Dam with primary spillway (C) at right and secondary spillway (B) at left; from under Bridge No. 12.
03		Southwest	Mill Pond Dam with secondary spillway at left and primary spillway (C) at background right; Bridge No. 12 at right.
04		Southwest	Mill Pond Dam with secondary spillway at left and primary spillway (C) at background right; Bridge No. 12 at right.
05		East	Concrete cap and cut down railroad rails on the secondary spillway (B) of the Mill Pond Dam.
06		Southwest	Secondary spillway (B) of the Mill Pond Dam.
07		East	Mass concrete section of the right wing (A) of the Mill Pond Dam.
08		Southeast	Mass concrete section of the right wing (A) of the Mill Pond Dam.
09		East	Junction between the secondary spillway (B) and the mass concrete sections of the right wing (A) of the Mill Pond Dam; note concrete “buttress” at center.
10		East	Junction between the secondary spillway (B) and the mass concrete sections of the right wing (A) of the Mill Pond Dam; note concrete “buttress” at center.
11		Southeast	Close-up of concrete “buttress” at junction between the secondary spillway (B) and the mass concrete sections of the right wing (A) of the Mill Pond Dam

PHOTO #	IMAGE	DIRECTION	DESCRIPTION
12		East	Close-up of concrete “buttress” at junction between the secondary spillway (B) and the mass concrete sections of the right wing (A) of the Mill Pond Dam
13		Southeast	Downstream side of the right wing/abutment area (A) of the Mill Pond Dam showing concrete stepped baulk partially buried in the bank.
14		East	View east of the concrete cap on the secondary spillway (B) of the Mill Pond Dam.
15		South	Close-up of concrete cap and cut down railroad rails on the secondary spillway (B) of the Mill Pond Dam.
16		Southwest	Breached primary spillway (C) of the Mill Pond Dam with secondary spillway (B) at left; from Bridge No. 12.
17		East	Mill Pond Dam with breached primary spillway (C) at right and secondary spillway (B) at left; from under Bridge No. 12.
18		Northeast	Breached primary spillway (C) of the Mill Pond Dam with secondary spillway (B) at background.
19		East	Mill Pond Dam with left wing (D) in foreground, primary spillway (C) at center and secondary spillway (B) at background.
20		Northwest	Mill Pond Dam with upstream side of right wing (A) at right and possible training wall (E) at left; Bridge No. 12 at background.
21		West	Mill Pond Dam with possible training wall (E) at background.
22		East	Mill Pond Dam with possible training wall (E) at background and secondary spillway (B) at right.

PHOTO #	IMAGE	DIRECTION	DESCRIPTION
23		Northwest	Mill Pond Dam with close-up of upstream side of right wing (A) at right; Bridge No. 12 at background.
24		South	West portion of possible training wall (E) looking over the top of the mass concrete section of the right wing (A) of the Mill Pond Dam.
25		Northeast	Mill Pond Dam with left wing (D) at foreground, primary spillway (C) at center and secondary spillway (B) at background; Bridge No. 12 at left.
26		Northwest	Mill Pond Dam during deconstruction with location of former left wing (D) and primary spillway (C) in foreground and remnants of secondary spillway (B) in background.
27		Northwest	Upstream face of secondary spillway (B) of the Mill Pond Dam during deconstruction.
28		East	Primary spillway (C) of the Mill Pond Dam during deconstruction with low outlet gate (left) and penstock (right) openings exposed.
29		Southeast	Primary spillway (C) of the Mill Pond Dam during deconstruction with low outlet gate (left) and penstock (right) openings exposed.
30		Southeast	Wooden boards within low outlet gate opening in the primary spillway (C) of the Mill Pond Dam during deconstruction.
31		Southeast	Upstream view of the impoundment area of the Mill Pond Dam during deconstruction; former primary spillway (C) and left wing (D) in foreground.
32		Southeast	Upstream view of the impoundment area of the Mill Pond Dam from Bridge No. 12.
33		Southeast	Upstream view of the impoundment area of the Mill Pond Dam with breached primary spillway (C) in foreground.

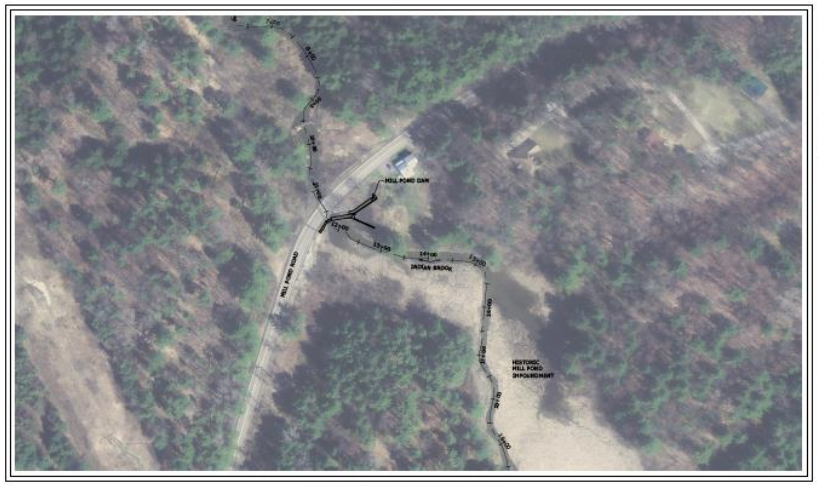
PHOTO #	IMAGE	DIRECTION	DESCRIPTION
34		Southwest	View across Indian Brook during deconstruction of the Mill Pond Dam; secondary spillway (B) at left and primary spillway (C) at right.
35		Southeast	Deconstruction of the mass concrete section of the right wing (A) of the Mill Pond Dam.
36		North	View across Indian Brook during deconstruction of the Mill Pond Dam; remnants of the secondary spillway (B) at background right; Bridge No. 12 at background and note sediment buildup.
37		North	View across Indian Brook after deconstruction of the Mill Pond Dam; Bridge No. 12 at background.
38		Southeast	Upstream view of the former impoundment area of the Mill Pond Dam near completion of the mill pond dam removal project.
39		Northeast	Historic photographic postcard view of "The Old Mill, Colchester, Vermont," in the early 1900s, and prior to 1920 (Colchester Historical Society, Colchester, Vermont).
40		Southwest	Historic view of Mill Pond Dam at Colchester Center, taken prior to 1927; note railroad rails in place and a stone structure at the former (pre-1927) right (east) abutment area. (Colchester Historical Society, Colchester, Vermont).
41		Southeast	Historic view upstream of Mill Pond in Colchester Center, Colchester, Chittenden County, Vermont (Colchester Historical Society).
42		East	Historic photographic postcard view of "Wright's Mill" and Mill Pond in Colchester Center, Colchester, Vermont, ca. 1903-1920 (Colchester Historical Society, Colchester, Vermont).

APPENDIX II: MILONE & MACBROOM MILL POND DAM REMOVAL (VT # 51.02)
DESIGN PLANS

MILL POND DAM (VT # 51.02) REMOVAL

MILL POND ROAD
COLCHESTER, VERMONT

FINAL DESIGN
FEBRUARY 28, 2019
REVISED JULY 16, 2019



PROJECT SITE VICINITY MAP:

LOCATION MAP:

PREPARED FOR:

Vermont Natural Resources Council
9 Bailey Avenue
Montpelier, Vermont 05602
www.vnrc.org

LIST OF DRAWINGS

NO.	NAME	TITLE
01	--	TITLE SHEET
02	SP-1	SITE PLAN - EXISTING CONDITIONS
03	SP-2	SITE PLAN - PROPOSED CONDITIONS
04	ST-1	STRUCTURE - REMOVALS
05	CP-1	SITE PLAN - CONSTRUCTION ACCESS, SEQUENCE & CONTROLS
06	CS-1	CROSS SECTIONS
07	PRO-1	RIVER PROFILE
08	DET-1	DETAILS I
09	DET-2	DETAILS II

PREPARED BY:

MILONE & MACBROOM®

1 South Main Street - 2nd Floor
Waterbury, Vermont 05676
(802) 882-8335 Fax (802) 882-8346
www.miloneandmacbroom.com

811
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Call before you dig.
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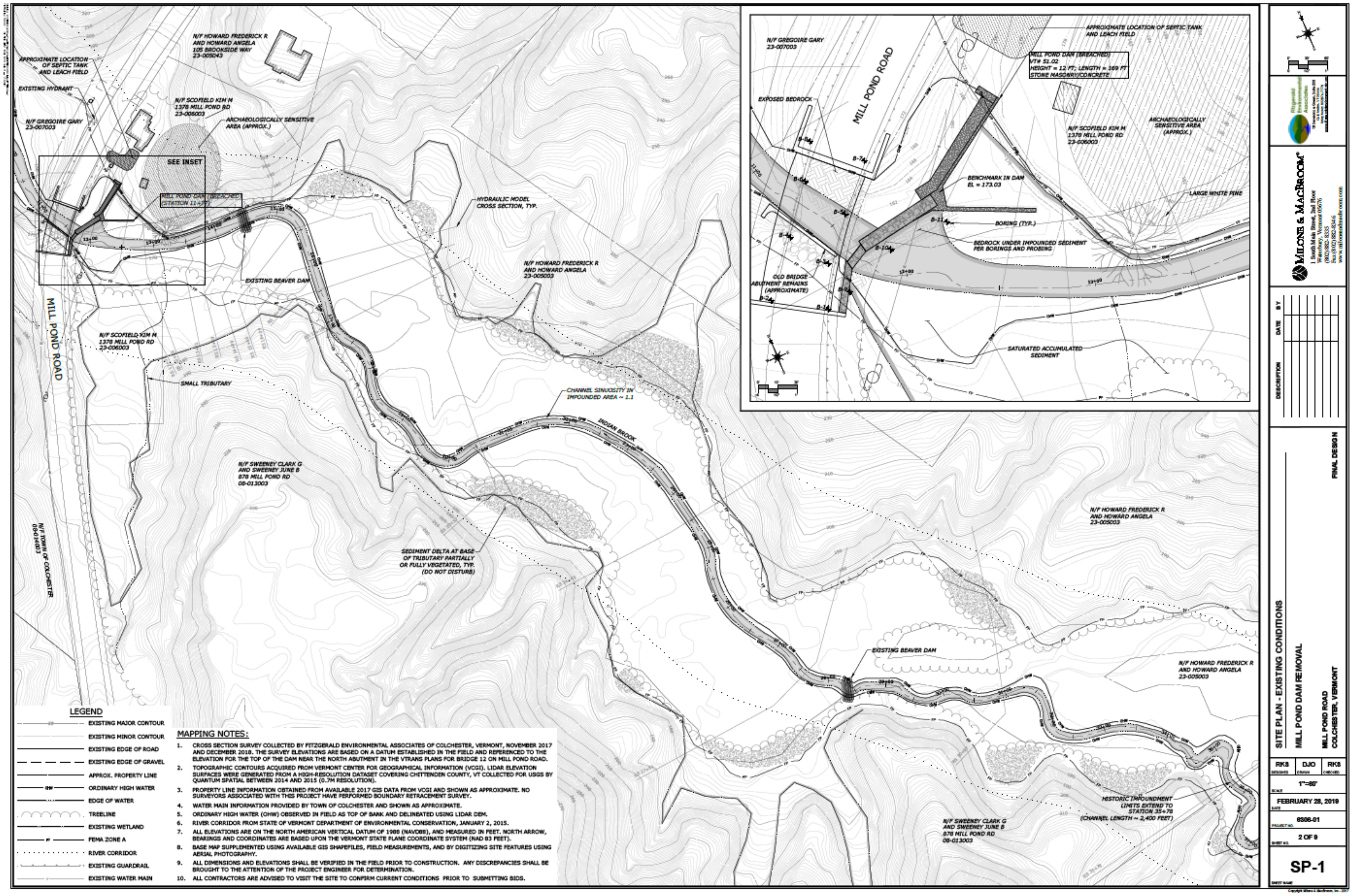
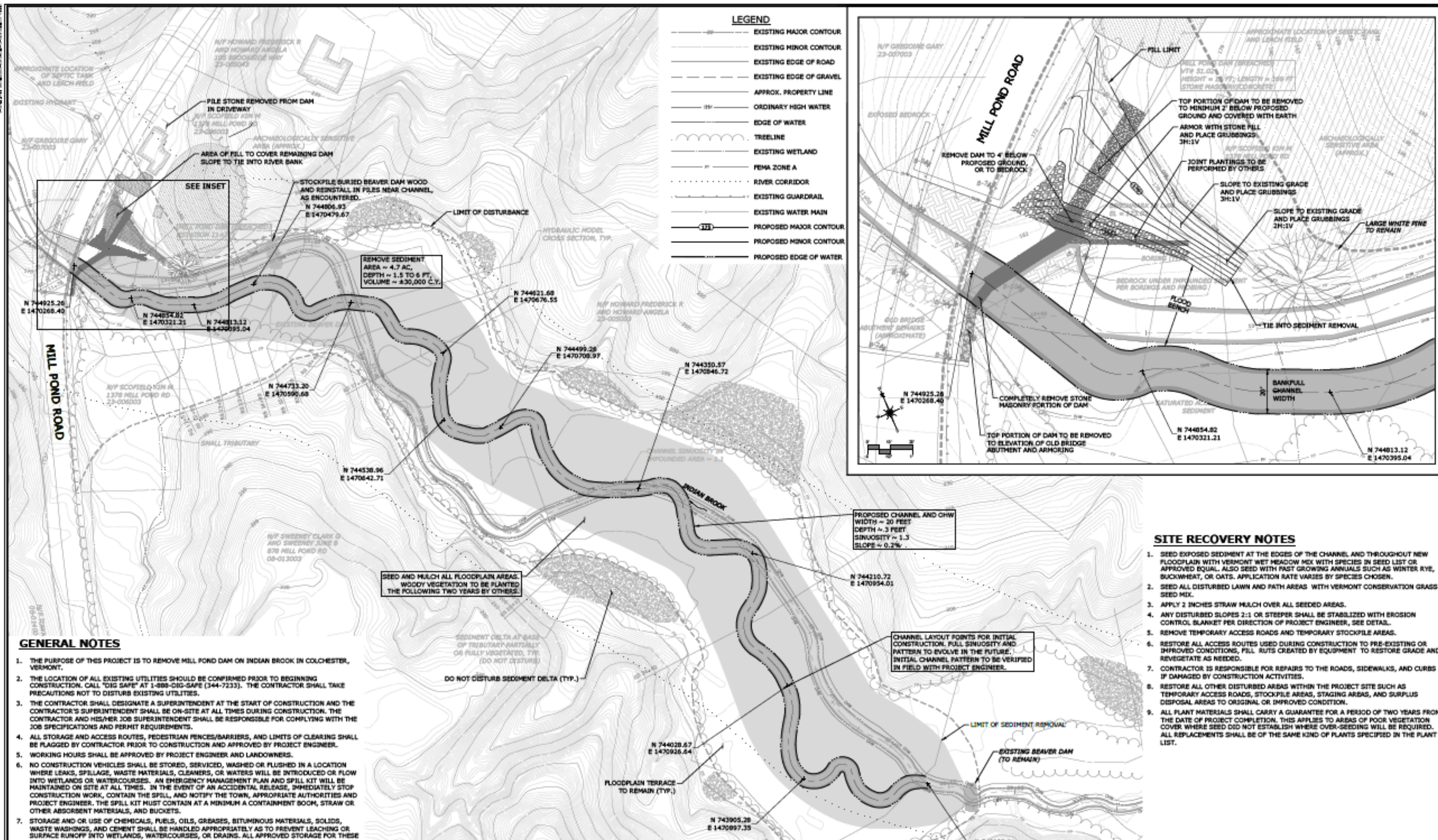

N/F HOWARD FREDERICK R AND HOWARD ANGELA 105 BROOKSIDE WAY 23-005043
APPROXIMATE LOCATION OF SEPTIC TANK AND LEACH FIELD
EXISTING HYDRANT
N/F SCOFIELD KIM M 1378 MILL POND RD 23-006003
ARCHAEOLOGICALLY SENSITIVE AREA (APPROX.)
N/F GREGOIRE GARY 23-007003
SEE INSET
MILL POND ROAD
HYDRAULIC MODEL CROSS SECTION, TYP.
EXISTING BEAVER DAM
N/F HOWARD FREDERICK R AND HOWARD ANGELA 23-005003
SMALL TRIBUTARY
CHANNEL SINUOSITY IN IMPOUNDED AREA ~ 1.1
INDIAN BROOK
N/F SWEENEY CLARK G AND SWEENEY JUNE B 878 MILL POND RD 08-013003
N/F TOWN OF COLCHESTER
SEDIMENT DELTA AT BASE OF TRIBUTARY PARTIALLY OR FULLY VEGETATED, TYP. (DO NOT DISTURB)
HISTORIC IMPOUNDMENT LIMITS EXTEND TO STATION 35+78 (CHANNEL LENGTH ~ 2,400 FEET)
EXPOSED BEDROCK
BENCHMARK IN DAM EL = 173.03
LARGE WHITE PINE
BORING (TYP.)
BEDROCK UNDER IMPOUNDED SEDIMENT PER BORINGS AND PROBING
OLD BRIDGE ABUTMENT REMAINS (APPROXIMATE)
SATURATED ACCUMULATED SEDIMENT
LEGEND
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
EXISTING EDGE OF ROAD
EXISTING EDGE OF GRAVEL
APPROX. PROPERTY LINE
ORDINARY HIGH WATER
EDGE OF WATER
TREELINE
EXISTING WETLAND
FEMA ZONE A
RIVER CORRIDOR
EXISTING GUARDRAIL
EXISTING WATER MAIN
MAPPING NOTES:
1. CROSS SECTION SURVEY COLLECTED BY FITZGERALD ENVIRONMENTAL ASSOCIATES OF COLCHESTER, VERMONT, NOVEMBER 2017 AND DECEMBER 2018. THE SURVEY ELEVATIONS ARE BASED ON A DATUM ESTABLISHED IN THE FIELD AND REFERENCED TO THE ELEVATION FOR THE TOP OF THE DAM NEAR THE NORTH ABUTMENT IN THE VTRANS PLANS FOR BRIDGE 12 ON MILL POND ROAD.
2. TOPOGRAPHIC CONTOURS ACQUIRED FROM VERMONT CENTER FOR GEOGRAPHICAL INFORMATION (VCGI). LIDAR ELEVATION SURFACES WERE GENERATED FROM A HIGH-RESOLUTION DATASET COVERING CHITTENDEN COUNTY, VT COLLECTED FOR USGS BY QUANTUM SPATIAL BETWEEN 2014 AND 2015 (0.7M RESOLUTION).
3. PROPERTY LINE INFORMATION OBTAINED FROM AVAILABLE 2017 GIS DATA FROM VCGI AND SHOWN AS APPROXIMATE. NO SURVEYORS ASSOCIATED WITH THIS PROJECT HAVE PERFORMED BOUNDARY RETRACEMENT SURVEY.
4. WATER MAIN INFORMATION PROVIDED BY TOWN OF COLCHESTER AND SHOWN AS APPROXIMATE.
5. ORDINARY HIGH WATER (OHW) OBSERVED IN FIELD AS TOP OF BANK AND DELINEATED USING LIDAR DEM.
6. RIVER CORRIDOR FROM STATE OF VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION, JANUARY 2, 2015.
7. ALL ELEVATIONS ARE ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), AND MEASURED IN FEET. NORTH ARROW, BEARINGS AND COORDINATES ARE BASED UPON THE VERMONT STATE PLANE COORDINATE SYSTEM (NAD 83 FEET).
8. BASE MAP SUPPLEMENTED USING AVAILABLE GIS SHAPEFILES, FIELD MEASUREMENTS, AND BY DIGITIZING SITE FEATURES USING AERIAL PHOTOGRAPHY.
9. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED IN THE FIELD PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT ENGINEER FOR DETERMINATION.
10. ALL CONTRACTORS ARE ADVISED TO VISIT THE SITE TO CONFIRM CURRENT CONDITIONS PRIOR TO SUBMITTING BIDS.
MILONE & MACBROOM
1 South Main Street, 2nd Floor
Waterbury, Vermont 05676
DESCRIPTION
DATE
BY
FINAL DESIGN
SITE PLAN - EXISTING CONDITIONS
MILL POND DAM REMOVAL
MILL POND ROAD
COLCHESTER, VERMONT
RKS
DJO
RKS
1"=80'
FEBRUARY 28, 2019
2 OF 9
SP-1



SITE RECOVERY NOTES

1. SEED EXPOSED SEDIMENT AT THE EDGES OF THE CHANNEL AND THROUGHOUT NEW FLOODPLAIN WITH VERMONT WET MEADOW MIX WITH SPECIES IN SEED LIST OR APPROVED EQUAL. ALSO SEED WITH FAST GROWING ANNUALS SUCH AS WINTER RYE, BUCKWHEAT, OR OATS. APPLICATION RATE VARIES BY SPECIES CHOSEN.
2. SEED ALL DISTURBED LAWN AND PATH AREAS WITH VERMONT CONSERVATION GRASS SEED MIX.
3. APPLY 2 INCHES STRAW MULCH OVER ALL SEEDED AREAS.
4. ANY DISTURBED SLOPES 2:1 OR STEEPER SHALL BE STABILIZED WITH EROSION CONTROL BLANKET PER DIRECTION OF PROJECT ENGINEER, SEE DETAIL.
5. REMOVE TEMPORARY ACCESS ROADS AND TEMPORARY STOCKPILE AREAS.
6. RESTORE ALL ACCESS ROUTES USED DURING CONSTRUCTION TO PRE-EXISTING OR IMPROVED CONDITIONS, FILL RUTS CREATED BY EQUIPMENT TO RESTORE GRADE AND REVEGETATE AS NEEDED.
7. CONTRACTOR IS RESPONSIBLE FOR REPAIRS TO THE ROADS, SIDEWALKS, AND CURBS IF DAMAGED BY CONSTRUCTION ACTIVITIES.
8. RESTORE ALL OTHER DISTURBED AREAS WITHIN THE PROJECT SITE SUCH AS TEMPORARY ACCESS ROADS, STOCKPILE AREAS, STAGING AREAS, AND SURPLUS DISPOSAL AREAS TO ORIGINAL OR IMPROVED CONDITION.
9. ALL PLANT MATERIALS SHALL CARRY A GUARANTEE FOR A PERIOD OF TWO YEARS FROM THE DATE OF PROJECT COMPLETION. THIS APPLIES TO AREAS OF POOR VEGETATION COVER WHERE SEED DID NOT ESTABLISH WHERE OVER-SEEDING WILL BE REQUIRED. ALL REPLACEMENTS SHALL BE OF THE SAME KIND OF PLANTS SPECIFIED IN THE PLANT LIST.

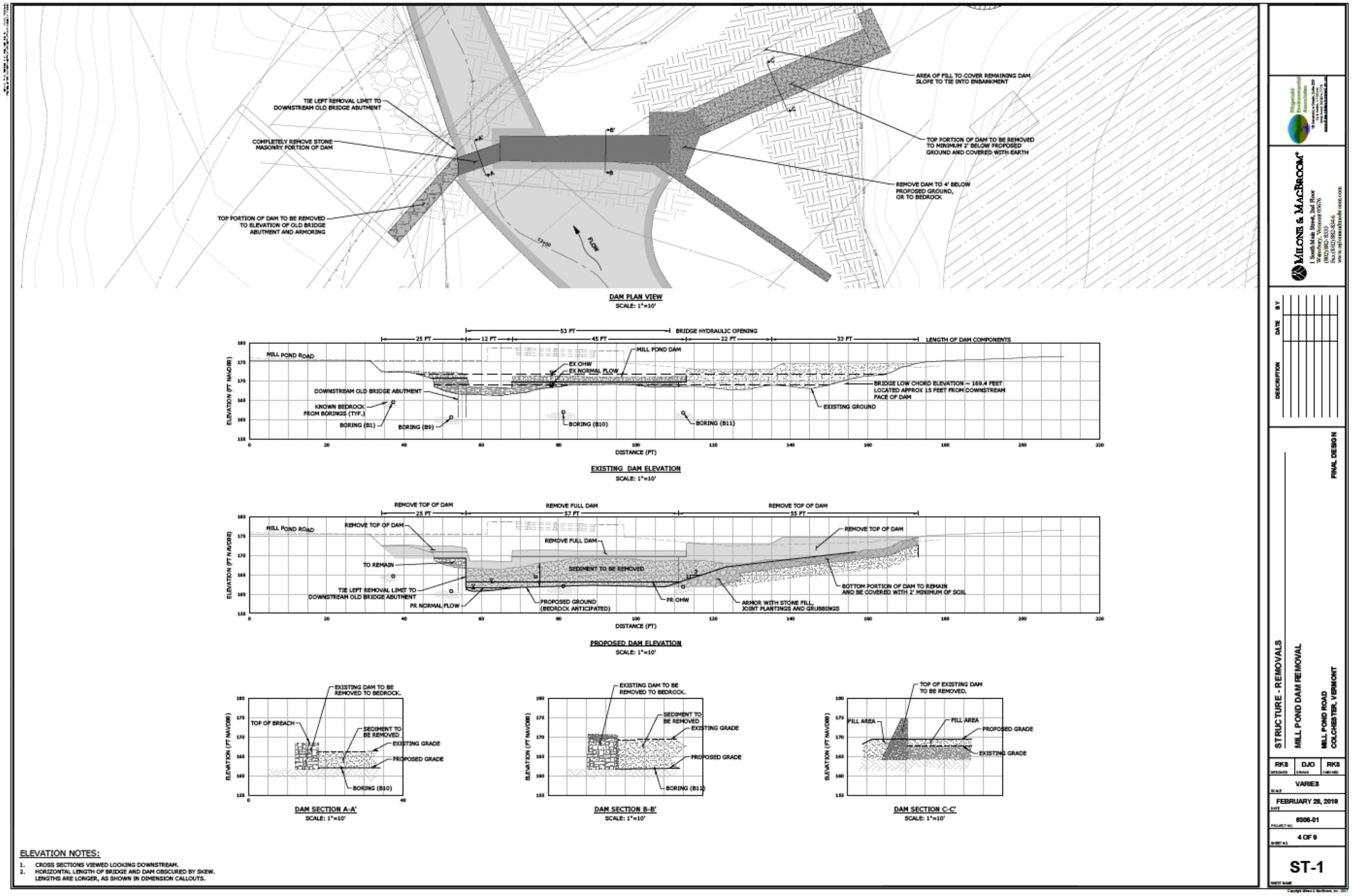
GENERAL NOTES

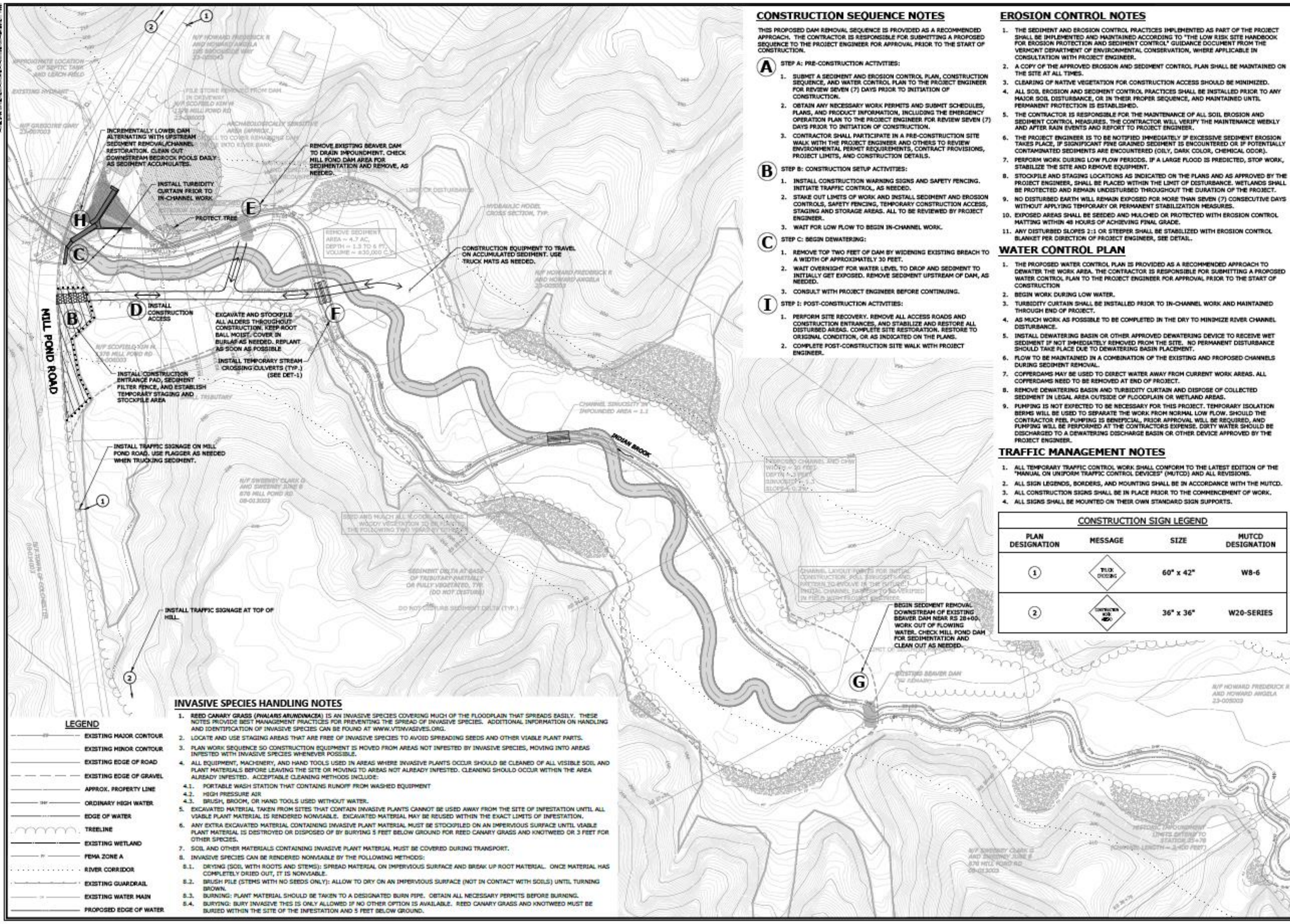
1. THE PURPOSE OF THIS PROJECT IS TO REMOVE MILL POND DAM ON INDIAN BROOK IN COLCHESTER, VERMONT.
2. THE LOCATION OF ALL EXISTING UTILITIES SHOULD BE CONFIRMED PRIOR TO BEGINNING CONSTRUCTION. CALL "DIG SAFE" AT 1-888-DIG-SAFE (344-7233). THE CONTRACTOR SHALL TAKE PRECAUTIONS NOT TO DISTURB EXISTING UTILITIES.
3. THE CONTRACTOR SHALL DESIGNATE A SUPERINTENDENT AT THE START OF CONSTRUCTION AND THE CONTRACTOR'S SUPERINTENDENT SHALL BE ON-SITE AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR AND HIS/HER JOB SUPERINTENDENT SHALL BE RESPONSIBLE FOR COMPLYING WITH THE JOB SPECIFICATIONS AND PERMIT REQUIREMENTS.
4. ALL STORAGE AND ACCESS ROUTES, PEDESTRIAN FENCES/BARRIERS, AND LIMITS OF CLEARING SHALL BE FLAGGED BY CONTRACTOR PRIOR TO CONSTRUCTION AND APPROVED BY PROJECT ENGINEER.
5. WORKING HOURS SHALL BE APPROVED BY PROJECT ENGINEER AND LANDOWNERS.
6. NO CONSTRUCTION VEHICLES SHALL BE STORED, SERVICED, WASHED OR FLUSHED IN A LOCATION WHERE LEAKS, SPILLAGE, WASTE MATERIALS, CLEANERS, OR WATERS WILL BE INTRODUCED OR FLOW INTO WETLANDS OR WATERCOURSES. AN EMERGENCY MANAGEMENT PLAN AND SPILL KIT WILL BE MAINTAINED ON SITE AT ALL TIMES. IN THE EVENT OF AN ACCIDENTAL RELEASE, IMMEDIATELY STOP CONSTRUCTION WORK, CONTAIN THE SPILL, AND NOTIFY THE TOWN, APPROPRIATE AUTHORITIES AND PROJECT ENGINEER. THE SPILL KIT MUST CONTAIN AT A MINIMUM A CONTAINMENT BOOM, STRAW OR OTHER ABSORBENT MATERIALS, AND BUCKETS.
7. STORAGE AND OR USE OF CHEMICALS, FUELS, OILS, GREASES, BITUMINOUS MATERIALS, SOLIDS, WASTE WASHINGS, AND CEMENT SHALL BE HANDLED APPROPRIATELY AS TO PREVENT LEACHING OR SURFACE RUNOFF INTO WETLANDS, WATERCOURSES, OR DRAINS. ALL APPROVED STORAGE FOR THESE MATERIALS MUST BE CONTAINED.
8. EQUIPMENT SHALL BE REMOVED FROM THE RIVER PRIOR TO REFUELING. NO REFUELING OF EQUIPMENT ALLOWED IN THE WATER.
9. ALL EQUIPMENT AND VEHICLES SHALL BE CLEANED PRIOR TO AND FOLLOWING CONSTRUCTION TO REDUCE THE POTENTIAL FOR SPREAD OF INVASIVE SPECIES AND SEDIMENT.
10. THE PROJECT SITE IS SUBJECT TO FLOODING. THE CONTRACTOR SHALL MONITOR WEATHER FORECASTS AND STABILIZE THE CONSTRUCTION SITE AND REMOVE EQUIPMENT FROM FLOOD PRONE AREAS. ALL EQUIPMENT TO BE STORED ON HIGH GROUND THROUGHOUT PROJECT.
11. WORK SHALL BE PERFORMED DURING LOW WATER.
12. THERE SHALL BE NO CLAIMS FOR EXTRA COMPENSATION DUE TO DELAYS IN WATER CONTROL ASSOCIATED WITH HIGH WATER LEVELS FROM NATURAL EVENTS SUCH AS FLOODS.
13. THE CONTRACTOR SHALL MAINTAIN ALL ROADWAYS, SIDEWALKS, AND WALKWAYS IN THE AREA FREE OF SOIL, MUD, AND CONSTRUCTION DEBRIS. CONSTRUCTION ENTRANCES MUST BE MAINTAINED AT EACH SITE ACCESS POINT. SEE PLANS AND DETAILS.
14. CONTRACTOR MUST COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL PERMITS THROUGHOUT DURATION OF PROJECT.
15. ALL CONCRETE AND REINFORCING STEEL IS TO BE REMOVED FROM RIVER AND DISPOSED OF OR RECYCLED OFF SITE.
16. ALL STONE FROM DAM IS TO BE STACKED IN LANDOWNER ACCESS DRIVE ON THE NORTHEAST SIDE OF HER HOUSE.
17. PROPOSED LAYOUT, PROFILE, AND CROSS SECTIONS ARE TO BE STAKED BY THE CONTRACTOR AND REVIEWED BY THE PROJECT ENGINEER. FINAL DIMENSIONS WILL BE FINE-TUNED IN THE FIELD BY THE PROJECT ENGINEER.
18. BEDROCK REMOVAL IS NOT PROPOSED. DO NOT REMOVE BEDROCK WITHOUT DIRECTION OF PROJECT ENGINEER.
19. EXCAVATION TO BE PERFORMED BY MECHANICAL MEANS ONLY - BLASTING AND HYDRAULIC DREDGING ARE NOT PERMITTED. DO NOT REMOVE COARSE NATURAL BED ARMOR LAYER. DO NOT OVER-EXCAVATE. PROJECT ENGINEER TO REVIEW PROPOSED GRADES WITH CONTRACTOR AS WORK PROGRESSES.
20. ANY MATERIAL EXPORTED OFF-SITE SHALL BE LEGALLY DISPOSED OF IN AN UPLAND LOCATION AT NO ADDITIONAL COST. THE CONTRACTOR IS RESPONSIBLE FOR FINDING A SUITABLE RECIPIENT OF THE MATERIAL, GAINING REGULATORY APPROVAL FOR EXPORTED MATERIAL PLACEMENT IF NEEDED, AND HAULING.
21. ALL AREAS SURROUNDING THE PROJECT SITE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED UPON COMPLETION OF CONSTRUCTION. THE RESTORATION OF THE SITE IS SUBJECT TO APPROVAL BY THE PROJECT ENGINEER AND LANDOWNER.
22. FOLLOWING COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL PARTICIPATE IN A FINAL SITE INSPECTION WITH PROJECT ENGINEER FOR THE PURPOSE OF VERIFYING THAT THE PROJECT HAS BEEN COMPLETED ACCORDING TO THE CONSTRUCTION PLANS AND THE TERMS AND CONDITIONS OF THE CONTRACT.

VERMONT SEED MIX LIST:

	Species	Application Rate	Area	Estimated Quantity
Vermont Wet Meadow Mix	Switchgrass (Panicum virgatum), Virginia wild rye (Elymus virginicus), Red fescue (Festuca rubra), Fox sedge (Carex vulpinoidea), Woolgrass (Scirpus cyperinus), Green bulrush (Scirpus atrovirens), Nodding bur-marigold (Bidens cernua), Boneset (Eupatorium perfoliatum), Joe-pye weed (Eupatoriadelphus maculatus), soft rush (Juncus effusus), Sensitive fern (Onoclea sensibilis), Blue vervain (Verbena hastata), New England aster (Symphyotrichum nova-angliaea)	35 Lbs. / Acre	4.7 Acres	164.5 Lbs.
Fast Growing Annuals	Winter Rye, Buckwheat, or Oats	Varies by species	4.7 Acres	Varies by species
VAOT Rural Area Mix	37.5% Creeping Red Fescue, 37.5% Tall Fescue, 15% White Field Clover, 5% Red Top, 5% Annual Ryegrass	120 Lbs. / Acre	0.4 Acres	48.0 Lbs.

MILONE & MACBROOM
FINAL DESIGN
SITE PLAN - PROPOSED CONDITIONS
MILL POND DAM REMOVAL
MILL POND ROAD
COLCHESTER, VERMONT
1"=80'
FEBRUARY 28, 2019
3 OF 9
SP-2


TIE LEFT REMOVAL LIMIT TO DOWNSTREAM OLD BRIDGE ABUTMENT
COMPLETELY REMOVE STONE MASONRY PORTION OF DAM
TOP PORTION OF DAM TO BE REMOVED TO ELEVATION OF OLD BRIDGE ABUTMENT AND ARMORING
AREA OF FILL TO COVER REMAINING DAM SLOPE TO TIE INTO EMBANKMENT
TOP PORTION OF DAM TO BE REMOVED TO MINIMUM 2' BELOW PROPOSED GROUND AND COVERED WITH EARTH
REMOVE DAM TO 4' BELOW PROPOSED GROUND, OR TO BEDROCK
FLOW
DAM PLAN VIEW
SCALE: 1"=10'
BRIDGE HYDRAULIC OPENING
LENGTH OF DAM COMPONENTS
MILL POND ROAD
MILL POND DAM
EX OHW
EX NORMAL FLOW
DOWNSTREAM OLD BRIDGE ABUTMENT
KNOWN BEDROCK FROM BORINGS (TYP.)
BORING (B1)
BORING (B9)
BORING (B10)
BORING (B11)
BRIDGE LOW CHORD ELEVATION ~ 169.4 FEET LOCATED APPROX 15 FEET FROM DOWNSTREAM FACE OF DAM
EXISTING GROUND
ELEVATION (FT NAVD88)
DISTANCE (FT)
EXISTING DAM ELEVATION
SCALE: 1"=10'
REMOVE TOP OF DAM
REMOVE FULL DAM
TO REMAIN
SEDIMENT TO BE REMOVED
TIE LEFT REMOVAL LIMIT TO DOWNSTREAM OLD BRIDGE ABUTMENT
PR NORMAL FLOW
PROPOSED GROUND (BEDROCK ANTICIPATED)
PR OHW
ARMOR WITH STONE FILL, JOINT PLANTINGS AND GRUBBINGS
BOTTOM PORTION OF DAM TO REMAIN AND BE COVERED WITH 2' MINIMUM OF SOIL
PROPOSED DAM ELEVATION
SCALE: 1"=10'
EXISTING DAM TO BE REMOVED TO BEDROCK.
TOP OF BREACH
SEDIMENT TO BE REMOVED
EXISTING GRADE
PROPOSED GRADE
BORING (B10)
DAM SECTION A-A'
SCALE: 1"=10'
BORING (B11)
DAM SECTION B-B'
SCALE: 1"=10'
TOP OF EXISTING DAM TO BE REMOVED.
FILL AREA
DAM SECTION C-C'
SCALE: 1"=10'
ELEVATION NOTES:
1. CROSS SECTIONS VIEWED LOOKING DOWNSTREAM.
2. HORIZONTAL LENGTH OF BRIDGE AND DAM OBSCURED BY SKEW. LENGTHS ARE LONGER, AS SHOWN IN DIMENSION CALLOUTS.
MILONE & MACBROOM
1 South Main Street, 2nd Floor
Waterbury, Vermont 05676
(802) 882-8335
DESCRIPTION
DATE
BY
FINAL DESIGN
STRUCTURE - REMOVALS
MILL POND DAM REMOVAL
MILL POND ROAD
COLCHESTER, VERMONT
RKS
DJO
RKS
VARIES
FEBRUARY 28, 2019
6306-01
4 OF 9
ST-1



CONSTRUCTION SEQUENCE NOTES

THIS PROPOSED DAM REMOVAL SEQUENCE IS PROVIDED AS A RECOMMENDED APPROACH. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING A PROPOSED SEQUENCE TO THE PROJECT ENGINEER FOR APPROVAL PRIOR TO THE START OF CONSTRUCTION.

(A) STEP A: PRE-CONSTRUCTION ACTIVITIES:

1. SUBMIT A SEDIMENT AND EROSION CONTROL PLAN, CONSTRUCTION SEQUENCE, AND WATER CONTROL PLAN TO THE PROJECT ENGINEER FOR REVIEW SEVEN (7) DAYS PRIOR TO INITIATION OF CONSTRUCTION.
2. OBTAIN ANY NECESSARY WORK PERMITS AND SUBMIT SCHEDULES, PLANS, AND PRODUCT INFORMATION, INCLUDING THE EMERGENCY OPERATION PLAN TO THE PROJECT ENGINEER FOR REVIEW SEVEN (7) DAYS PRIOR TO INITIATION OF CONSTRUCTION.
3. CONTRACTOR SHALL PARTICIPATE IN A PRE-CONSTRUCTION SITE WALK WITH THE PROJECT ENGINEER AND OTHERS TO REVIEW ENVIRONMENTAL PERMIT REQUIREMENTS, CONTRACT PROVISIONS, PROJECT LIMITS, AND CONSTRUCTION DETAILS.

(B) STEP B: CONSTRUCTION SETUP ACTIVITIES:

1. INSTALL CONSTRUCTION WARNING SIGNS AND SAFETY FENCING. INITIATE TRAFFIC CONTROL, AS NEEDED.
2. STAKE OUT LIMITS OF WORK AND INSTALL SEDIMENT AND EROSION CONTROLS, SAFETY FENCING, TEMPORARY CONSTRUCTION ACCESS, STAGING AND STORAGE AREAS. ALL TO BE REVIEWED BY PROJECT ENGINEER.
3. WAIT FOR LOW FLOW TO BEGIN IN-CHANNEL WORK.

(C) STEP C: BEGIN DEWATERING:

1. REMOVE TOP TWO FEET OF DAM BY WIDENING EXISTING BREACH TO A WIDTH OF APPROXIMATELY 30 FEET.
2. WAIT OVERNIGHT FOR WATER LEVEL TO DROP AND SEDIMENT TO INITIALLY GET EXPOSED. REMOVE SEDIMENT UPSTREAM OF DAM, AS NEEDED.
3. CONSULT WITH PROJECT ENGINEER BEFORE CONTINUING.

(I) STEP I: POST-CONSTRUCTION ACTIVITIES:

1. PERFORM SITE RECOVERY. REMOVE ALL ACCESS ROADS AND CONSTRUCTION ENTRANCES, AND STABILIZE AND RESTORE ALL DISTURBED AREAS. COMPLETE SITE RESTORATION. RESTORE TO ORIGINAL CONDITION, OR AS INDICATED ON THE PLANS.
2. COMPLETE POST-CONSTRUCTION SITE WALK WITH PROJECT ENGINEER.

EROSION CONTROL NOTES

1. THE SEDIMENT AND EROSION CONTROL PRACTICES IMPLEMENTED AS PART OF THE PROJECT SHALL BE IMPLEMENTED AND MAINTAINED ACCORDING TO "THE LOW RISK SITE HANDBOOK FOR EROSION PROTECTION AND SEDIMENT CONTROL" GUIDANCE DOCUMENT FROM THE VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION, WHERE APPLICABLE IN CONSULTATION WITH PROJECT ENGINEER.
2. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
3. CLEARING OF NATIVE VEGETATION FOR CONSTRUCTION ACCESS SHOULD BE MINIMIZED.
4. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE INSTALLED PRIOR TO ANY MAJOR SOIL DISTURBANCE, OR IN THEIR PROPER SEQUENCE, AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
5. THE CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE OF ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES. THE CONTRACTOR WILL VERIFY THE MAINTENANCE WEEKLY AND AFTER RAIN EVENTS AND REPORT TO PROJECT ENGINEER.
6. THE PROJECT ENGINEER IS TO BE NOTIFIED IMMEDIATELY IF EXCESSIVE SEDIMENT EROSION TAKES PLACE, IF SIGNIFICANT FINE GRAINED SEDIMENT IS ENCOUNTERED OR IF POTENTIALLY CONTAMINATED SEDIMENTS ARE ENCOUNTERED (OILY, DARK COLOR, CHEMICAL ODOR).
7. PERFORM WORK DURING LOW FLOW PERIODS. IF A LARGE FLOOD IS PREDICTED, STOP WORK, STABILIZE THE SITE AND REMOVE EQUIPMENT.
8. STOCKPILE AND STAGING LOCATIONS AS INDICATED ON THE PLANS AND AS APPROVED BY THE PROJECT ENGINEER, SHALL BE PLACED WITHIN THE LIMIT OF DISTURBANCE. WETLANDS SHALL BE PROTECTED AND REMAIN UNDISTURBED THROUGHOUT THE DURATION OF THE PROJECT.
9. NO DISTURBED EARTH WILL REMAIN EXPOSED FOR MORE THAN SEVEN (7) CONSECUTIVE DAYS WITHOUT APPLYING TEMPORARY OR PERMANENT STABILIZATION MEASURES.
10. EXPOSED AREAS SHALL BE SEEDED AND MULCHED OR PROTECTED WITH EROSION CONTROL MATTING WITHIN 48 HOURS OF ACHIEVING FINAL GRADE.
11. ANY DISTURBED SLOPES 2:1 OR STEEPER SHALL BE STABILIZED WITH EROSION CONTROL BLANKET PER DIRECTION OF PROJECT ENGINEER, SEE DETAIL.

WATER CONTROL PLAN

1. THE PROPOSED WATER CONTROL PLAN IS PROVIDED AS A RECOMMENDED APPROACH TO DEWATER THE WORK AREA. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING A PROPOSED WATER CONTROL PLAN TO THE PROJECT ENGINEER FOR APPROVAL PRIOR TO THE START OF CONSTRUCTION
2. BEGIN WORK DURING LOW WATER.
3. TURBIDITY CURTAIN SHALL BE INSTALLED PRIOR TO IN-CHANNEL WORK AND MAINTAINED THROUGH END OF PROJECT.
4. AS MUCH WORK AS POSSIBLE TO BE COMPLETED IN THE DRY TO MINIMIZE RIVER CHANNEL DISTURBANCE.
5. INSTALL DEWATERING BASIN OR OTHER APPROVED DEWATERING DEVICE TO RECEIVE WET SEDIMENT IF NOT IMMEDIATELY REMOVED FROM THE SITE. NO PERMANENT DISTURBANCE SHOULD TAKE PLACE DUE TO DEWATERING BASIN PLACEMENT.
6. FLOW TO BE MAINTAINED IN A COMBINATION OF THE EXISTING AND PROPOSED CHANNELS DURING SEDIMENT REMOVAL.
7. COFFERDAMS MAY BE USED TO DIRECT WATER AWAY FROM CURRENT WORK AREAS. ALL COFFERDAMS NEED TO BE REMOVED AT END OF PROJECT.
8. REMOVE DEWATERING BASIN AND TURBIDITY CURTAIN AND DISPOSE OF COLLECTED SEDIMENT IN LEGAL AREA OUTSIDE OF FLOODPLAIN OR WETLAND AREAS.
9. PUMPING IS NOT EXPECTED TO BE NECESSARY FOR THIS PROJECT. TEMPORARY ISOLATION BERMS WILL BE USED TO SEPARATE THE WORK FROM NORMAL LOW FLOW. SHOULD THE CONTRACTOR FEEL PUMPING IS BENEFICIAL, PRIOR APPROVAL WILL BE REQUIRED, AND PUMPING WILL BE PERFORMED AT THE CONTRACTORS EXPENSE. DIRTY WATER SHOULD BE DISCHARGED TO A DEWATERING DISCHARGE BASIN OR OTHER DEVICE APPROVED BY THE PROJECT ENGINEER.

TRAFFIC MANAGEMENT NOTES

1. ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS.
2. ALL SIGN LEGENDS, BORDERS, AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD.
3. ALL CONSTRUCTION SIGNS SHALL BE IN PLACE PRIOR TO THE COMMENCEMENT OF WORK.
4. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.

CONSTRUCTION SIGN LEGEND

PLAN DESIGNATION	MESSAGE	SIZE	MUTCD DESIGNATION
(1)	TRUCK CROSSING	60" x 42"	W8-6
(2)	CONSTRUCTION WORK AHEAD	36" x 36"	W20-SERIES

INVASIVE SPECIES HANDLING NOTES

1. REED CANARY GRASS (*PHALARIS ARUNDINACEA*) IS AN INVASIVE SPECIES COVERING MUCH OF THE FLOODPLAIN THAT SPREADS EASILY. THESE NOTES PROVIDE BEST MANAGEMENT PRACTICES FOR PREVENTING THE SPREAD OF INVASIVE SPECIES. ADDITIONAL INFORMATION ON HANDLING AND IDENTIFICATION OF INVASIVE SPECIES CAN BE FOUND AT WWW.VTINVASIVES.ORG.
2. LOCATE AND USE STAGING AREAS THAT ARE FREE OF INVASIVE SPECIES TO AVOID SPREADING SEEDS AND OTHER VIABLE PLANT PARTS.
3. PLAN WORK SEQUENCE SO CONSTRUCTION EQUIPMENT IS MOVED FROM AREAS NOT INFESTED BY INVASIVE SPECIES, MOVING INTO AREAS INFESTED WITH INVASIVE SPECIES WHENEVER POSSIBLE.
4. ALL EQUIPMENT, MACHINERY, AND HAND TOOLS USED IN AREAS WHERE INVASIVE PLANTS OCCUR SHOULD BE CLEANED OF ALL VISIBLE SOIL AND PLANT MATERIALS BEFORE LEAVING THE SITE OR MOVING TO AREAS NOT ALREADY INFESTED. CLEANING SHOULD OCCUR WITHIN THE AREA ALREADY INFESTED. ACCEPTABLE CLEANING METHODS INCLUDE:
   - 4.1. PORTABLE WASH STATION THAT CONTAINS RUNOFF FROM WASHED EQUIPMENT
   - 4.2. HIGH PRESSURE AIR
   - 4.3. BRUSH, BROOM, OR HAND TOOLS USED WITHOUT WATER.
5. EXCAVATED MATERIAL TAKEN FROM SITES THAT CONTAIN INVASIVE PLANTS CANNOT BE USED AWAY FROM THE SITE OF INFESTATION UNTIL ALL VIABLE PLANT MATERIAL IS RENDERED NONVIABLE. EXCAVATED MATERIAL MAY BE REUSED WITHIN THE EXACT LIMITS OF INFESTATION.
6. ANY EXTRA EXCAVATED MATERIAL CONTAINING INVASIVE PLANT MATERIAL MUST BE STOCKPILED ON AN IMPERVIOUS SURFACE UNTIL VIABLE PLANT MATERIAL IS DESTROYED OR DISPOSED OF BY BURYING 5 FEET BELOW GROUND FOR REED CANARY GRASS AND KNOTWEED OR 3 FEET FOR OTHER SPECIES.
7. SOIL AND OTHER MATERIALS CONTAINING INVASIVE PLANT MATERIAL MUST BE COVERED DURING TRANSPORT.
8. INVASIVE SPECIES CAN BE RENDERED NONVIABLE BY THE FOLLOWING METHODS:
   - 8.1. DRYING (SOIL WITH ROOTS AND STEMS): SPREAD MATERIAL ON IMPERVIOUS SURFACE AND BREAK UP ROOT MATERIAL. ONCE MATERIAL HAS COMPLETELY DRIED OUT, IT IS NONVIABLE.
   - 8.2. BRUSH PILE (STEMS WITH NO SEEDS ONLY): ALLOW TO DRY ON AN IMPERVIOUS SURFACE (NOT IN CONTACT WITH SOILS) UNTIL TURNING BROWN.
   - 8.3. BURNING: PLANT MATERIAL SHOULD BE TAKEN TO A DESIGNATED BURN PIPE. OBTAIN ALL NECESSARY PERMITS BEFORE BURNING.
   - 8.4. BURYING: BURY INVASIVE THIS IS ONLY ALLOWED IF NO OTHER OPTION IS AVAILABLE. REED CANARY GRASS AND KNOTWEED MUST BE BURIED WITHIN THE SITE OF THE INFESTATION AND 5 FEET BELOW GROUND.

LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING EDGE OF ROAD
- EXISTING EDGE OF GRAVEL
- APPROX. PROPERTY LINE
- ORDINARY HIGH WATER
- EDGE OF WATER
- TREELINE
- EXISTING WETLAND
- FEMA ZONE A
- RIVER CORRIDOR
- EXISTING GUARDRAIL
- EXISTING WATER MAIN
- PROPOSED EDGE OF WATER

MILONE & MACBROOM

SITE PLAN - CONSTRUCTION ACCESS, SEQUENCE & CONTROLS

MILL POND DAM REMOVAL

MILL POND ROAD
COLCHESTER, VERMONT

FINAL DESIGN

RKS | DJO | RKS

1"=80'

FEBRUARY 28, 2019

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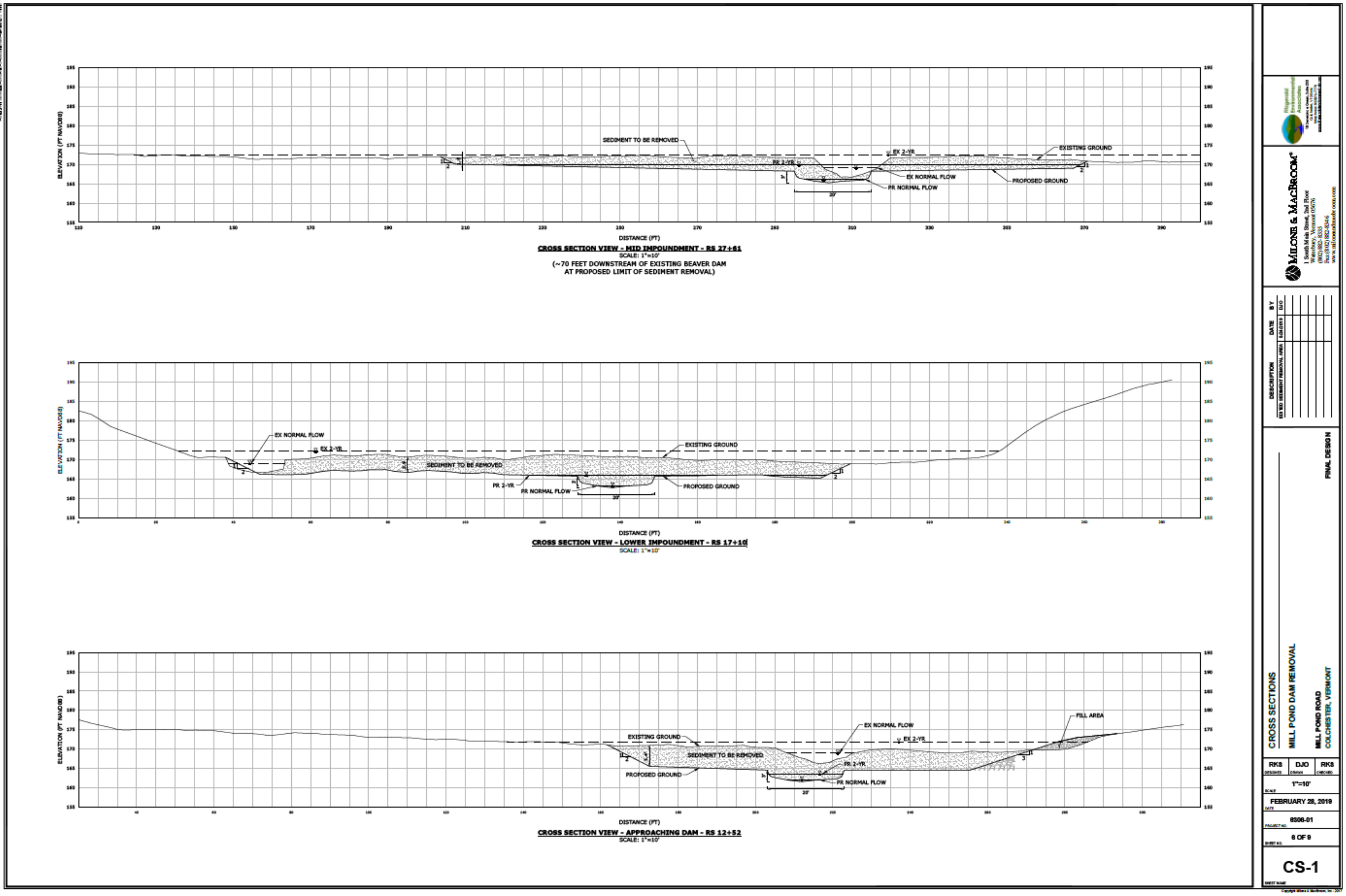
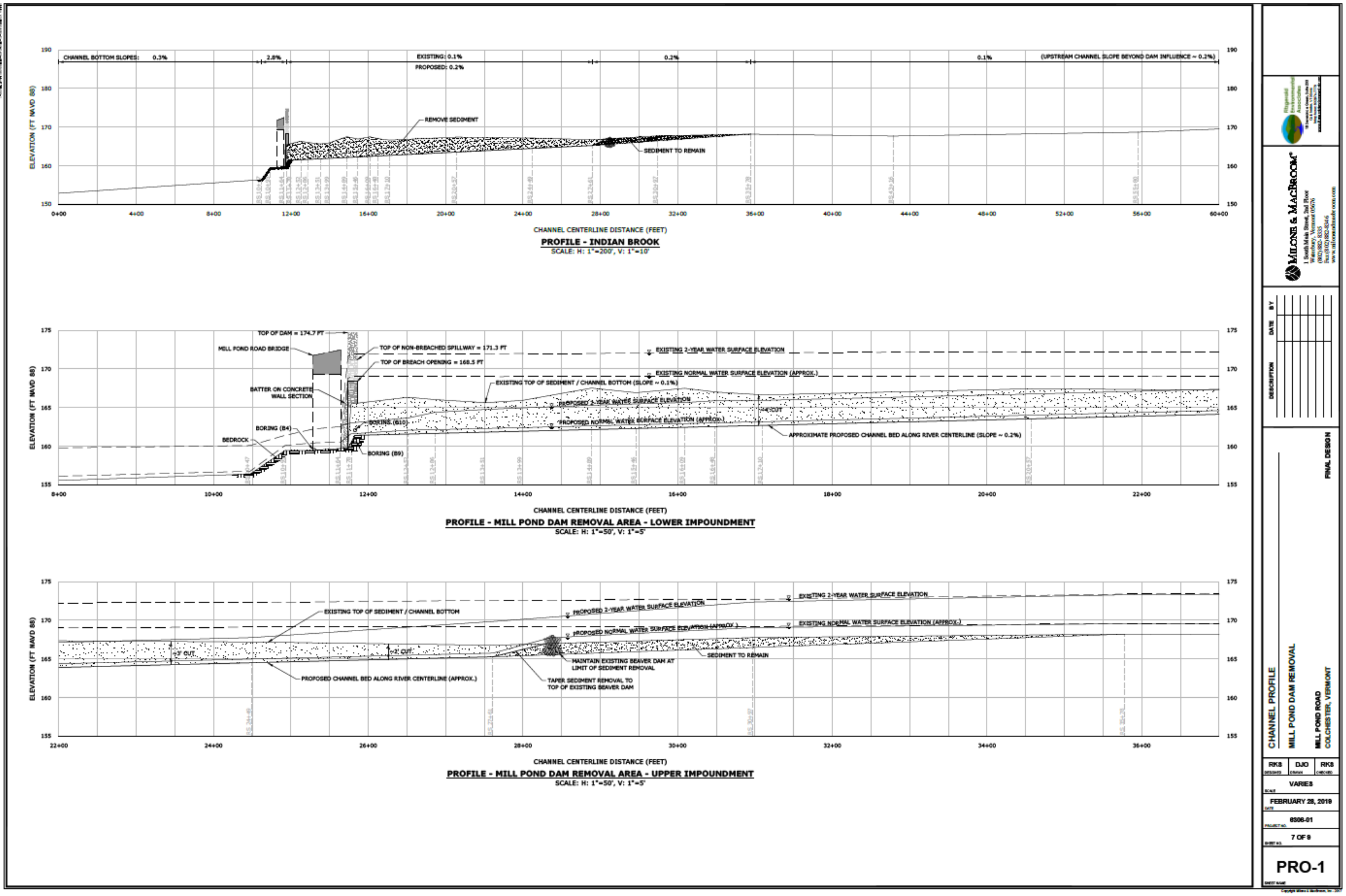
CP-1


SEDIMENT TO BE REMOVED
EX 2-YR
EXISTING GROUND
PR 2-YR
EX NORMAL FLOW
PR NORMAL FLOW
PROPOSED GROUND
ELEVATION (FT NAVD88)
DISTANCE (FT)
CROSS SECTION VIEW - MID IMPOUNDMENT - RS 27+61
SCALE: 1"=10'
(~70 FEET DOWNSTREAM OF EXISTING BEAVER DAM
AT PROPOSED LIMIT OF SEDIMENT REMOVAL)
CROSS SECTION VIEW - LOWER IMPOUNDMENT - RS 17+10
SCALE: 1"=10'
FILL AREA
CROSS SECTION VIEW - APPROACHING DAM - RS 12+52
SCALE: 1"=10'
DESCRIPTION
DATE
BY
MILONE & MACBROOM
1 South Main Street, 2nd Floor
Waterbury, Vermont 05676
FINAL DESIGN
CROSS SECTIONS
MILL POND DAM REMOVAL
MILL POND ROAD
COLCHESTER, VERMONT
RKS
DJO
RKS
1"=10'
FEBRUARY 28, 2019
6 OF 9
CS-1


CHANNEL BOTTOM SLOPES: 0.3%
2.8%
EXISTING: 0.1%
PROPOSED: 0.2%
0.2%
0.1%
(UPSTREAM CHANNEL SLOPE BEYOND DAM INFLUENCE ~ 0.2%)
ELEVATION (FT NAVD 88)
REMOVE SEDIMENT
SEDIMENT TO REMAIN
CHANNEL CENTERLINE DISTANCE (FEET)
PROFILE - INDIAN BROOK
SCALE: H: 1"=200', V: 1"=10'
TOP OF DAM = 174.7 FT
MILL POND ROAD BRIDGE
TOP OF NON-BREACHED SPILLWAY = 171.3 FT
TOP OF BREACH OPENING = 168.5 FT
EXISTING 2-YEAR WATER SURFACE ELEVATION
EXISTING NORMAL WATER SURFACE ELEVATION (APPROX.)
EXISTING TOP OF SEDIMENT / CHANNEL BOTTOM (SLOPE ~ 0.1%)
BATTER ON CONCRETE WALL SECTION
PROPOSED 2-YEAR WATER SURFACE ELEVATION
PROPOSED NORMAL WATER SURFACE ELEVATION (APPROX.)
BORING (B4)
BORING (B10)
BORING (B9)
BEDROCK
APPROXIMATE PROPOSED CHANNEL BED ALONG RIVER CENTERLINE (SLOPE ~ 0.2%)
CHANNEL CENTERLINE DISTANCE (FEET)
PROFILE - MILL POND DAM REMOVAL AREA - LOWER IMPOUNDMENT
SCALE: H: 1"=50', V: 1"=5'
EXISTING TOP OF SEDIMENT / CHANNEL BOTTOM
PROPOSED 2-YEAR WATER SURFACE ELEVATION
EXISTING 2-YEAR WATER SURFACE ELEVATION
PROPOSED NORMAL WATER SURFACE ELEVATION (APPROX.)
EXISTING NORMAL WATER SURFACE ELEVATION (APPROX.)
SEDIMENT TO REMAIN
MAINTAIN EXISTING BEAVER DAM AT LIMIT OF SEDIMENT REMOVAL
TAPER SEDIMENT REMOVAL TO TOP OF EXISTING BEAVER DAM
PROPOSED CHANNEL BED ALONG RIVER CENTERLINE (APPROX.)
CHANNEL CENTERLINE DISTANCE (FEET)
PROFILE - MILL POND DAM REMOVAL AREA - UPPER IMPOUNDMENT
SCALE: H: 1"=50', V: 1"=5'
MILONE & MACBROOM
DESCRIPTION
DATE
BY
FINAL DESIGN
CHANNEL PROFILE
MILL POND DAM REMOVAL
MILL POND ROAD
COLCHESTER, VERMONT
RKS
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RKS
VARIES
FEBRUARY 28, 2018
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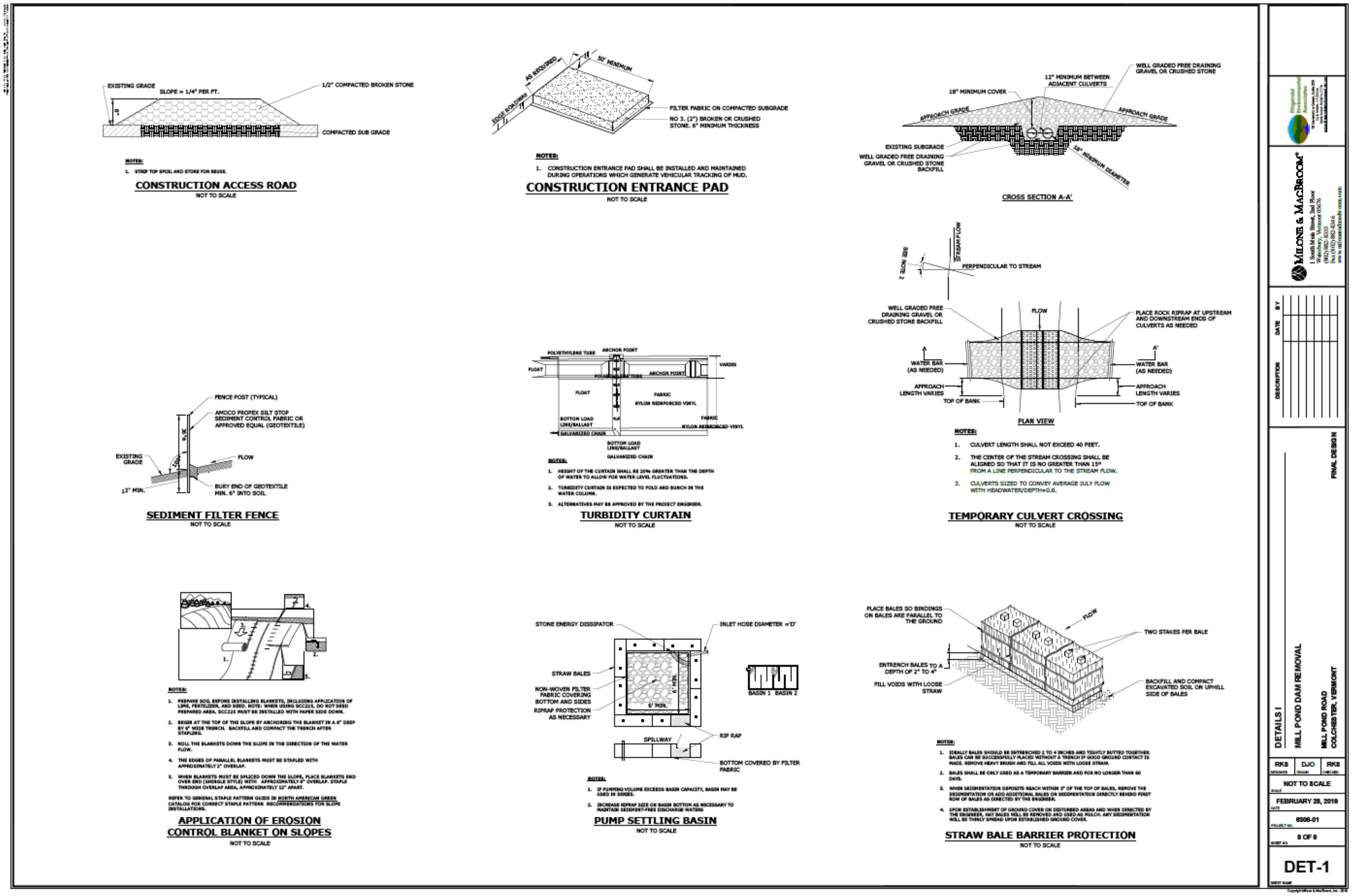
PRO-1


CONSTRUCTION ACCESS ROAD
NOT TO SCALE
CONSTRUCTION ENTRANCE PAD
NOT TO SCALE
CROSS SECTION A-A'
SEDIMENT FILTER FENCE
NOT TO SCALE
TURBIDITY CURTAIN
NOT TO SCALE
PLAN VIEW
TEMPORARY CULVERT CROSSING
NOT TO SCALE
APPLICATION OF EROSION CONTROL BLANKET ON SLOPES
NOT TO SCALE
PUMP SETTLING BASIN
NOT TO SCALE
STRAW BALE BARRIER PROTECTION
NOT TO SCALE
MILONE & MACBROOM
FINAL DESIGN
DETAILS I
MILL POND DAM REMOVAL
MILL POND ROAD
COLCHESTER, VERMONT
NOT TO SCALE
FEBRUARY 28, 2019
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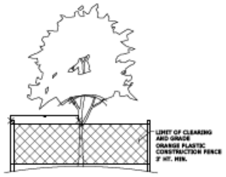
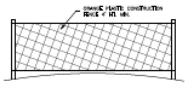
DET-1

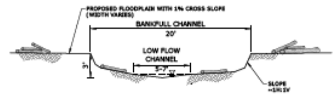


TREE PROTECTION
NOT TO SCALE



NOTE:
1. CONTRACTOR SHALL COORDINATE TEMPORARY FENCE INSTALLATION WITH OWNERS REPRESENTATIVES.
2. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVALS PRIOR TO CONSTRUCTION.

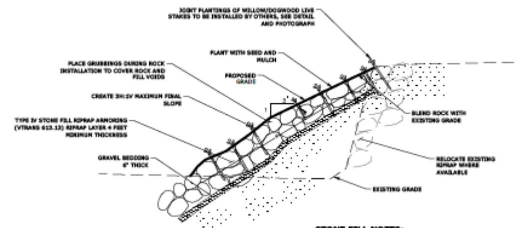
ORANGE CONSTRUCTION SAFETY FENCING
NOT TO SCALE



NOTES:
1. SET LOW FLOW CHANNEL WIDTH TO APPROXIMATELY ⅓ THE BANKFULL CHANNEL WIDTH.
2. SEE TYPICAL CHANNEL DIMENSIONS.
3. ALIGNMENT OF THE LOW FLOW CHANNEL TO BE LOCATED IN THE FIELD DURING CONSTRUCTION BY THE PROJECT ENGINEER.
4. PROPOSED CHANNEL TO BE CONSTRUCTED USING NATIVE CHANNEL BED MATERIAL. MAINTAIN ROUGH AND IRREGULAR CROSS SECTION.
5. SEED PROPOSED CHANNEL BED AND FLOODPLAIN WITH LARGE WOOD AS DIRECTED BY THE PROJECT ENGINEER.

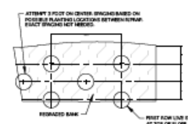
TYPICAL CHANNEL SECTION
NOT TO SCALE

LIVE STAKE PHOTOGRAPH
NOT TO SCALE

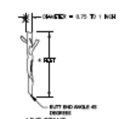


STONE FILL NOTES:
1. FINISHED ELEVATION OF THE STONES AS SHOWN ON CROSS SECTIONS AND GRADING PLAN.

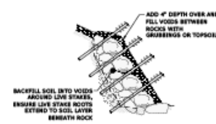
STONE FILL WITH JOINT PLANTINGS
NOT TO SCALE



PLAN VIEW



LIVE STAKE



SECTION VIEW

LIVE STAKE JOINT PLANTING NOTES:
1. JOINT PLANTING TO BE PERFORMED BY OTHERS.
2. SHRUB WILLOW AND DOGWOOD BRANCHES MUST BE HARVESTED DORMANT. COLD STORAGE MUST BE MAINTAINED BEFORE PLANTING.
3. INSTALL RIPRAP PER PLAN, AND PLACE GRUBBINGS OR TOPSOIL TO FILL VOIDS AND 4 INCHES OF COVER OVER ROCK AS SHOWN IN DETAIL.
4. INSTALLATION SHOULD BE COMPLETED USING THE "STINGER" TOOL, PRYBARS, OR SIMILAR METHOD TO CREATE VOIDS IN THE ROCK.
5. INSTALL 4' LONG LIVE WILLOW STAKES (*SALIX LUCIDA* OR SIMILAR NATIVE WILLOW SPECIES) SPACED 3' ON CENTER. THESE ARE TO BE INSERTED INTO PREDRILLED PILOT HOLES SLIGHTLY LARGER THAN THE STAKE DIAMETER AND BACKFILLED. STAKES SHOULD BE INSERTED TO 30" DEPTH.
6. LIGHTLY TAMP TOPSOIL AROUND EACH STAKE AND SATURATE WITH WATER.
7. SEED BANK WITH RIPARIAN AREA SEED MIX SPECIFIED IN RESTORATION NOTES. THE SLOPE SHOULD BE HAND RAKED TO SCARIFY THE SOIL SURFACE, THEN HAND SEEDED, HYDROMULCHED OR HAND SPREAD WITH A STRAW MULCH, AND RAKED LIGHTLY TO ENSURE SEED TO SOIL CONTACT. SEE SEEDING NOTES BELOW FOR SEED MIX COMPOSITION.
8. PLANT MATERIALS SHOULD BE PLANTED THE DAY THEY ARRIVE ON SITE. PLANTS AND CUTTINGS THAT CANNOT BE PLANTED THE DAY THEY ARRIVE SHALL BE STORED ON SITE UNDER A WET TARP TO PROTECT THEM FROM WIND, DIRECT SUNLIGHT, DRYING OR OTHER DAMAGE. CUTTINGS OR UNROOTED STOCK THAT IS NOT PLANTED WITHIN TWO DAYS AFTER ARRIVAL ON THE SITE SHALL BE DISCARDED UNLESS REFRIGERATED AT 40 TO 50 DEGREES FAHRENHEIT.
9. WILLOW CUTTINGS FOR BIOENGINEERING SHOULD BE SOAKED 24 - 48 HOURS PRIOR TO INSTALLATION.

LIVE STAKE PLANTINGS
NOT TO SCALE

MILONE & MACBROOM®
1 South Main Street, 2nd Floor
Waterbury, Vermont 05676
(802) 882-8335
Fax (802) 882-8346
www.miloneandmacbroom.com

DESCRIPTION	DATE	BY

FINAL DESIGN

DETAILS II
MILL POND DAM REMOVAL
MILL POND ROAD
COLCHESTER, VERMONT

RKS	DJO	RKS
DESIGNED	DRAWN	CHECKED

NOT TO SCALE
FEBRUARY 28, 2019
6306-01
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DET-2