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UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

OUTLINE REPORT OF
ARCHITECTURAL WORK
ON THE RESTORATION OF THE
CHESAPEAKE AND OHIO CANAL
FOR RECREATIONAL USE
(GEORGETOWN, D. C., TO SENECA, MD)

BRANCH OF PLANS AND DESIGN
Thos. C. Vint
Chief of Planning

1939

Dallas D. L. McGrew
Associate Architect


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OUTLINE REPORT OF ARCHITECTURAL WORK ON THE RESTORATION OF THE CHESAPEAKE AND OHIO CANAL

The restoration of the Chesapeake and Ohio Canal for use as a recreational waterway presents a problem with a number of interesting elements. The Canal structures themselves are of a type, architecturally and structurally, so characteristic of their time that they have been taken as a guide in all the restoration work.

In addition to such material evidence, there are also available, from the records obtained from the Canal Company when the property was acquired by the Government, the original specifications of 1828 that governed the design of the lock tenders' houses in the beginning.

The historical interest in the Canal is so great that it seems justifiable to outline its major elements here. One of them lies in the fact that the C & O Canal is a direct successor to the Canal of the Potomac Company. That waterway was surveyed, at least in part, by George Washington and was built, it seems clear, largely as a result of his personal efforts. It is pertinent to note that his interest in this matter became acute when he acquired, by grant from Virginia in recognition of his services to the colony in the French and Indian Wars, 1745 – 55, a large tract of land in the region of the Potomac headwaters. His shrewd mind at once perceived the importance of transportation between Western areas and tidewater, and there followed his suggestion of the canalization of the Potomac River. The actual work began in 1785, as soon as opportunity offered after the end of the Revolutionary War.

This might be considered one of the earliest practical expressions of the impulse to expand westward that became the dominant note in the development of the nation during the succeeding seventy-five years.

The Potomac Company's canal locked boats around Great Falls on the Virginia side of the River, apparently launching them below the Falls through a steep, roaring slide, blasted through rock ledges for several hundred feet. This adventurous chute still exists, below a series of boldly conceived locks, to give the observer a graphic picture of the daring and directness of the men of the time.

After about forty years of operation of this older canal, a much more ambitious project was proposed to carry water-borne traffic from the Atlantic across the Appalachian Mountains to the Ohio River watershed. A new company was formed to acquire the Potomac Company's property. Construction of the Chesapeake and Ohio Canal was begun in 1828. In 1850 the work was completed to Cumberland, 186 miles from Washington.

The canal functioned successfully for a quarter century thereafter, carrying a great tonnage of freight and many passengers with some profit at times, but the development of other means of transportation, highways and railroads, gradually cut into its usefulness. Great freshets recurrently destroyed portions of the canal itself, as well as its buildings, and the cost of repairs

mounted as the revenue shrank. Eventually, the canal became so clearly unprofitable that its operation was abandoned in 1923, nearly a century after its construction was started.

In 1938 the Canal was bought by the Government and placed under the jurisdiction of the National Park Service, to be restored for use as a recreational waterway. As it was at once evident that the section of the Canal nearest Washington would be most accessible to the greatest number, that section was chosen for the present restoration project. It extends from Lock No. 0 at the Potomac River outlet of Rock Creek, to Lock No. 23 where water is admitted through a feeder from the Potomac. At Lock No. 24, just above is the aqueduct carrying the Canal across Seneca Creek, about twenty-three miles upstream from Georgetown. In this section, besides the twenty-four locks, each with a lift of about eight feet, are a bridge, culverts, underpasses (tunnels), dams, a stop lock, feeder canals, numerous lock tenders' houses and shelters, and the celebrated Lock Tavern at Great Falls. Most of these facilities were provided by the company, from the beginning as practical adjuncts to the successful operation of the canal.

Naturally, the objective of recreational use has meant first restoration of the waterway itself. The masonry and gates of the locks were measured, repaired or replaced, all work being done in the character of the originals. The bed of the canal had to be cleared of accumulated silt, debris and vegetation. The feeders and dams and the towpath dyke itself had to be repaired and, in places where flood damage had been serious, rebuilt. Altogether, this work amounted to a substantial effort.

The architectural work is concerned with restoring the structures necessary to the operation of the canal for use as a recreational waterway. As has been noted before, the guide in this work has been the determination to have nothing out of character with the originals, in so far as would be consistent with the new needs to be served.

These sturdy old canal buildings have a simplicity and a beauty derived directly from honest use of local materials combined with a considerable degree of skill in craftsmanship. They have withstood, in most cases successfully, the battering of a century's floods and little has been spent on them for repairs, and yet many of them today are in useful condition.

To meet present day standards of sanitation and comfort, modern plumbing, heating and electrical services are being installed and dormers added to the second floor rooms for increased light and ventilation. In other respects the original buildings are admirably suited to their purpose.

In reconditioning the canal for use as a recreational waterway, it would of course be possible to disregard its historical aspect and to replace the old structures with new ones. On the other hand, rehabilitation of the old structures relating to the canal as once operated will greatly diversify the recreation offered by the area, in that historical and educational exhibits of considerable cultural interest will thus be retained. Moreover, the old structures are so typical of the forthright construction of a century ago and those of architectural character are so excellent in their simplicity and proportions that they well merit preservation. Preserved in their original settings, they are there for the visual enjoyment and inspiration of all who may have the good luck to see them. They are so much an integral part of the waterway and so completely assimilated into their surroundings by reason of decades of weathering that there can be no valid

accusation that they compete with the natural beauties of the area or with the primary responsibility of providing a waterway affording active recreation.

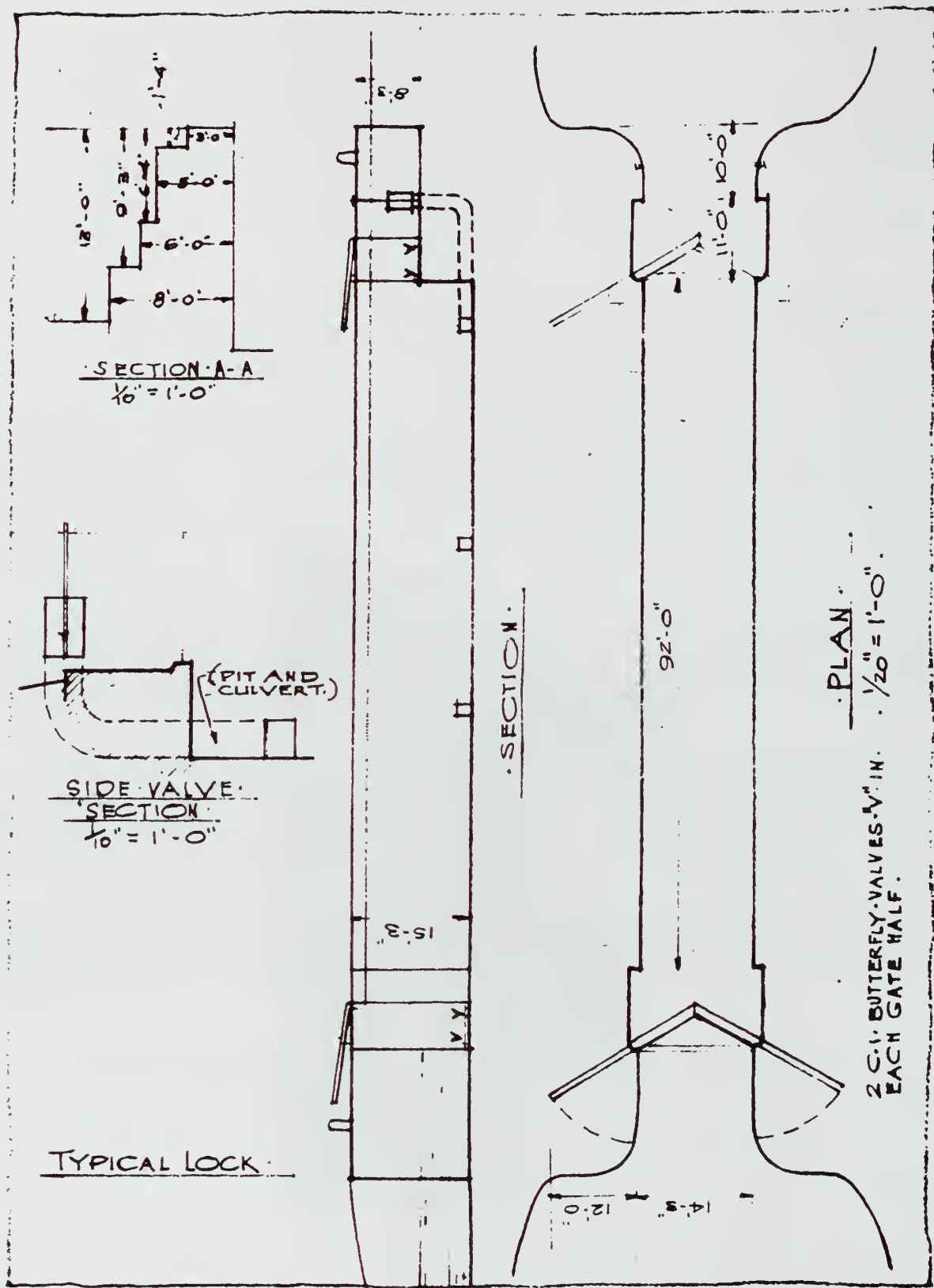
Reconditioning has been confined to structures without which the canal cannot function, but all others have been accurately measured and recorded, and plans have been prepared ready for use when additional buildings may be needed and it becomes possible to continue the restoration.

In presenting this report, structures of similar function are enumerated and illustrated together.

LOCKS: Of the locks it can be said that they are of almost uniform design and dimensions, of excellent masonry, using the most readily available stone, either sandstone from the canal quarries near Seneca, Aquia freestone or granite. They are equipped with either of two types of gate, drop or swing. The swing gates operated easily and quickly by pressure exerted on the booms by a man on each side of the lock. The drop gates could be worked by one man using the gears, as easily as two men handled the other type, but with less speed. The hand-wrought iron-work has been taken from the old gates and used again in the new.



Photograph 1: Swing Gates. Lock No. 4, in Georgetown, shows also the character of the Lock masonry and the dam at head of the Lock. Composed of heavy planks lowered into slots cut in the stone. This served to hold back water during repairs. The curve of the arch of the Wisconsin Avenue Bridge appears in the background.



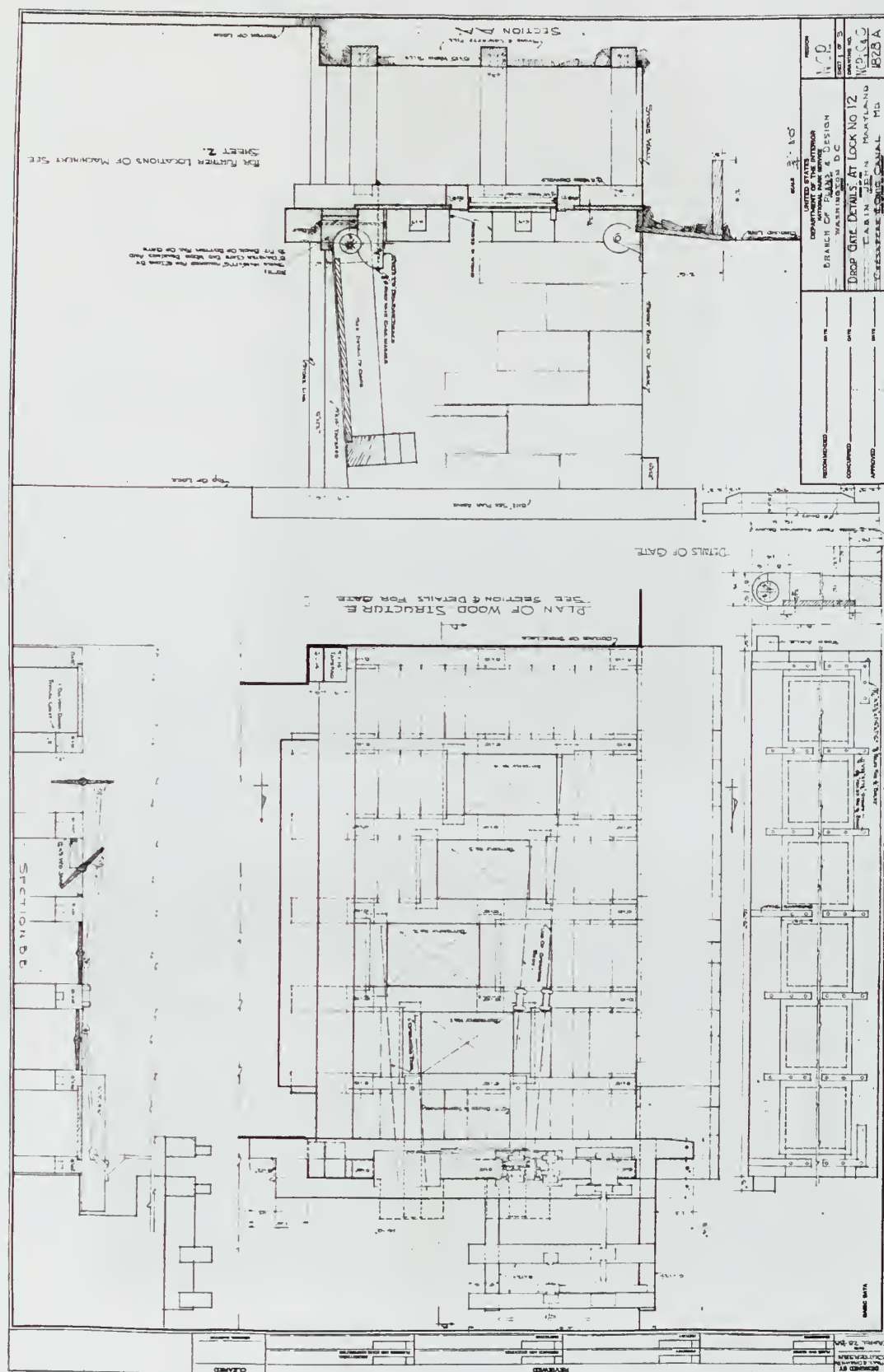
Drawing 1: Plan and elevation views of a typical lock.



Photograph 2: Drop gate and machinery at Lock No. 12. Gate in open position.

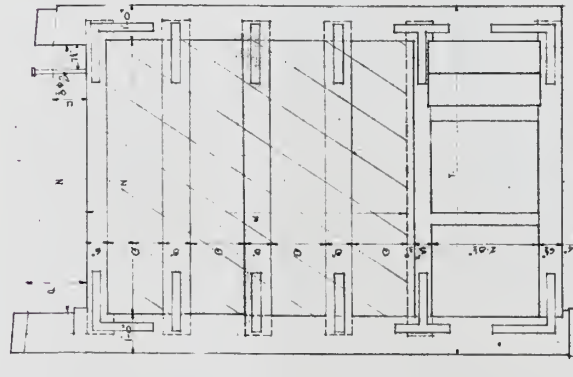


Photograph 3: Machinery for raising and lowering gate.

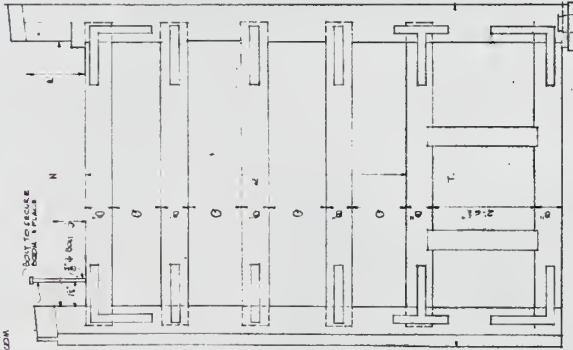


Drawing 2: Drop Gate Details at Lock No. 12, Sheet 1 of 3.

SEE SHEET #1 FOR DETAIL OF THE BUZZ



FRONT ELEVATION OF LOWER GATE



SIDE ELEVATION OF LOWER GATE

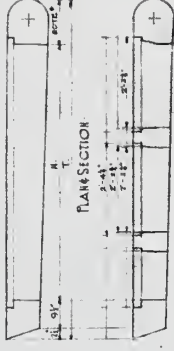


SECTION OF LOWER GATE

TYPICAL DETAILS OF LOWER GATE
DUE TO VARIATION IN THE SIZE OF THE GATES, THE DETAILS OF THE FRAME VARY IN THE FOLLOWING MANNER:

SCALE: 3/8" = 1'-0"

NOTES:
SEE SHEET #1 FOR DETAILS OF THE BUTTERFLY FRAME DETAIL
SEE SHEET #2 FOR BUTTERFLY FRAME DETAIL



SEE SHEET #1 FOR BUTTERFLY FRAME DETAIL

SEE SHEET #2 FOR BUTTERFLY FRAME DETAIL

GATE DIMENSION SCHEDULE

LOCK	N	P	Q	R	S	T	U
1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64
65	66	67	68	69	70	71	72
73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88
89	90	91	92	93	94	95	96
97	98	99	100	101	102	103	104
105	106	107	108	109	110	111	112
113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128
129	130	131	132	133	134	135	136
137	138	139	140	141	142	143	144
145	146	147	148	149	150	151	152
153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168
169	170	171	172	173	174	175	176
177	178	179	180	181	182	183	184
185	186	187	188	189	190	191	192
193	194	195	196	197	198	199	200

Upper Gate is 10' 6"

Lower Gate is 10' 6"

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF RECLAMATION WASHINGTON, D. C.		N	
PROJECT: CANAL GATE DETAIL-SWING TYPE		SHEET: 2	
DRAWN BY: J. H. HARRIS		CHECKED BY: J. H. HARRIS	
APPROVED BY: J. H. HARRIS		DATE: 10/1/22	

Drawing 5: Canal Gate Detail – Swing Type, Sheet 2 of 3.

BRIDGES: In passing through Georgetown, the Canal was spanned by a series of stone arch bridges of which only that carrying Wisconsin Avenue survives. This handsome structure, completed in 1831, is in excellent condition. An inscription on its east face records the fact that Andrew Jackson was President at the time. In its northwest corner stands a marble obelisk to mark the completion of the Canal to Cumberland in 1850.

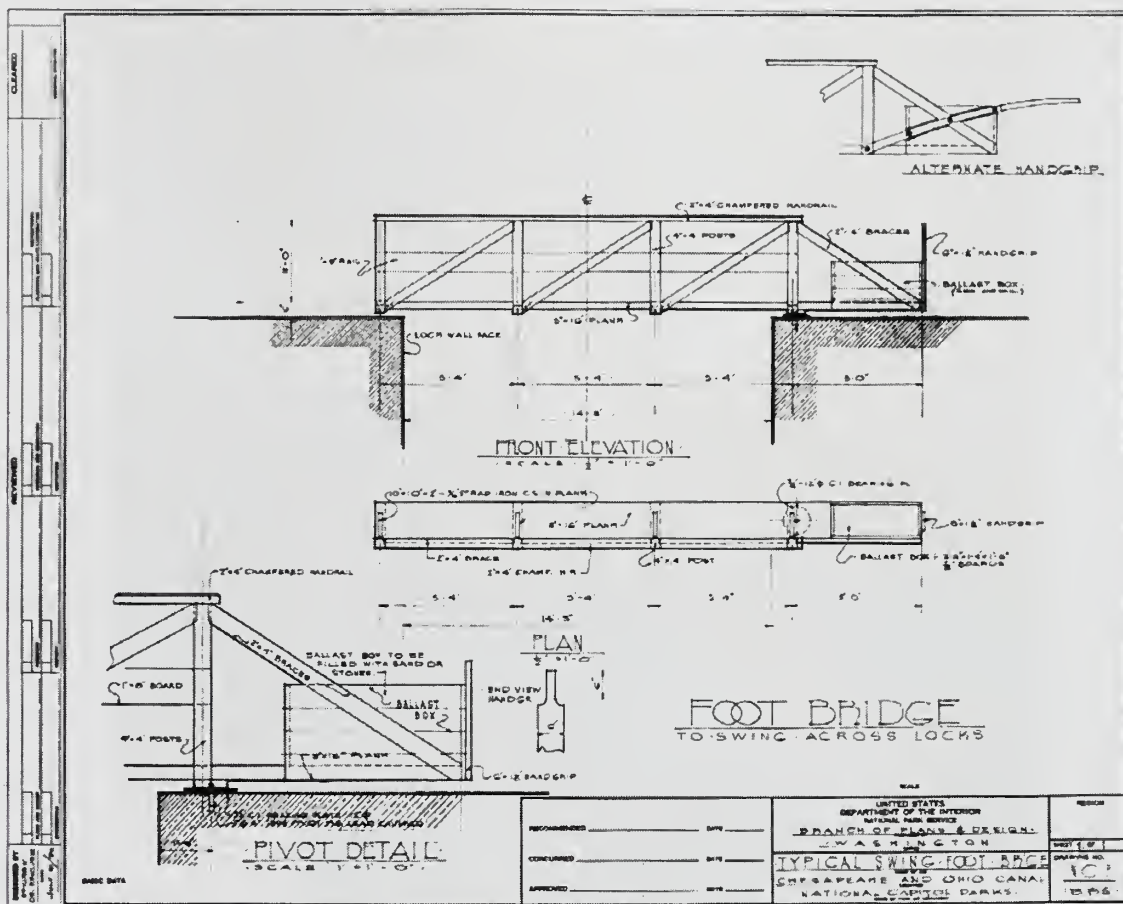
At Lock No. 25 is a swing bridge to carry wagons across the lock to Edwards' Ferry across the Potomac. This type will be used when needed, either for pedestrians or vehicles. Another type of swing bridge is recorded by old photographs and illustrated by a drawing here. This, with minor variations, will also be used.



Photograph 4: Wisconsin Avenue Bridge, looking east along towpath.



Photograph 5: Northwest corner of Wisconsin Avenue Bridge. Note character of masonry of bridge and retaining wall, the sturdy wrought iron fence, and the memorial obelisk.



Drawing No. 8: Typical Swing Foot Bridge, Sheet 1 of 1.



Photograph 7: Footbridge across Lock No. 9.

UNDERPASSES: There are two masonry underpasses carrying roads under the canal, providing access to areas between the Canal and the River. Both are stone barrel vaults with cut-stone arches at the ends. The first of them carried both a road and a channel for the Foundry Branch, a few hundred yards west of Key Bridge. It is in fair condition but has been defaced by an added brick lining and a concrete facing at the north end. The second of these structures is almost hidden in a small ravine near Fletcher's Boat House, a privately-owned building, built at the time the Canal was constructed and like the canal buildings except that it is somewhat larger. Both tunnels will continue to serve their original purpose. The Foundry Branch Underpass served also as a passage for towing mules in changing from the towpath on the west side of the Canal to the other bank.



Photograph 8: Foundry Branch Underpass, South Arch.



Photograph 9: North Arch, Fletcher's Underpass.



Photograph 10: South Arch, Fletcher's underpass.



Photograph 11: Fletcher's house from the towpath. This privately owned building is a well known resort for anglers and picnickers. It was built early in the canal period and is of similar architectural character to the canal houses.

CULVERTS: A number of culverts, structurally resembling the underpasses, carry streams under the canal. All of these have not been studied, but their character is here illustrated by photographs of two of the larger ones, the first below Lock No. 5 and the second between Locks Nos. 10 and 11, the Rock Run, and one smaller just below Lock No. 18, the masonry of which has been repointed. This particular one served to carry excess water from the Canal under the towpath.



Photograph 12: Culvert below Lock No. 5.



Photograph 13: Rock Run Culvert, below Lock No. 11. An excellent example of the substantial character and simple design of the canal masonry.



Photograph 14: Spillway culvert, south end of Lock No. 18, carrying excess water under the towpath to the River. This masonry has been repointed.

AQUEDUCT: Although it is outside the scope of the present project, an aqueduct crosses Seneca Creek at Lock No. 24. This is illustrated here because it is a substantial and handsome structure of three segmental arches and abutments built of cut Seneca sandstone. It is in fair condition and can be used without repairs.



Photograph 15: Seneca Aqueduct, looking from Seneca Creek toward the Potomac. Although this is beyond the present restoration project, it is easily accessible from Lock No 23 and is so handsome and sturdy a structure, typical of such work throughout the length of the canal, that it is illustrated here.

FEEDER CANALS: The first of these in this section enters the Canal at Lock No. 5. It is part of the original canal of the Potomac Company, which was acquired and utilized by the C & O from this point to Georgetown.



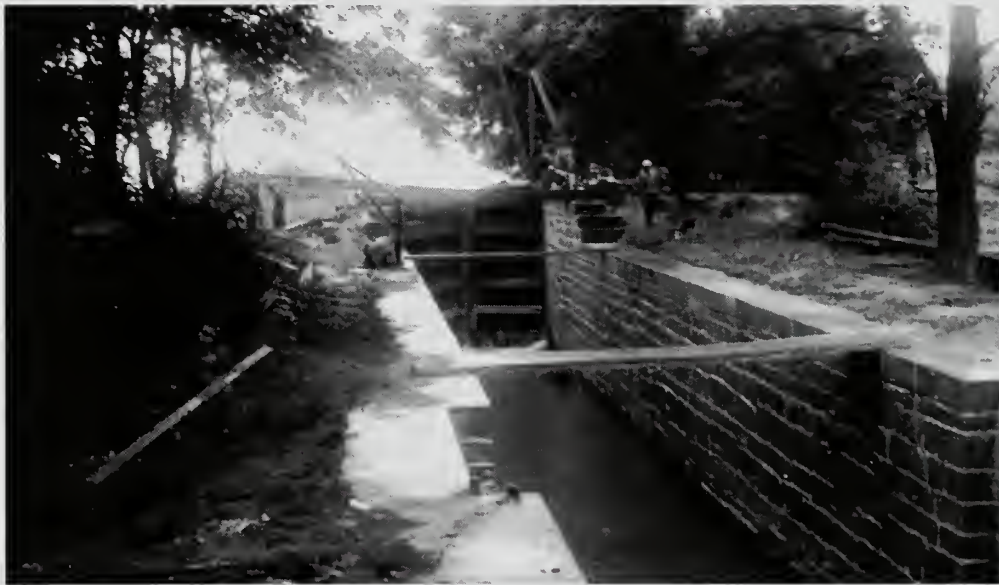
Photograph 16: Control Gate on Feeder Canal where it enters canal at Lock No. 5.



Photograph 17: Feeder Canal looking upstream from the control gate. The gates of a guard lock are visible a few hundred feet away for use in floods to turn water into the River. This section is part of the older canal of the “Potomac Company”, taken over on the formation of the Chesapeake and Ohio Canal Company in 1828.



Photograph 18: Lock No. 23 at right, Feeder Lock at left. On Feeder Lock wall is a masonry abutment for the mule-crossing that carried the towpath.



Photograph 19: Feeder Lock with inlet gate closed. The water entering the canal here serves all the way to Lock No. 5.

DAMS: This feeder carries water from the Potomac raised by a dam built of loose stones above Little Falls and High Island. Another dam above Lock No. 23 raises water to supply the canal through the second feeder, or outlet lock.

A third dam was built between Locks 16 and 17 and equipped with a Stop Lock to turn flood water away from the Canal, and back into the River.

STOP LOCK: Of this structure only the abutments, one considerably damaged, survive. The dam also was washed out in places – especially at the bermside end. A concrete core wall has been built, covering the old masonry core, and considerable work is required here to put the structure in useful condition. The building that sheltered the operation of this Stop Lock was long since washed away and no record of it has been discovered. At Dam No. 4, below Williamsport, Maryland, however, there is a structure serving a similar purpose, and this has been studied to provide a knowledge of its operation. On the basis of this evidence a building of the same structural system and architectural character, logically adapted to the different conditions of the site, has been designed for the Stop Lock at Lock No. 16. In this building it is planned to install the original hoisting machinery from Dam No. 4, the later being outside the present program. Thus the old equipment will be both preserved and also used in a practical demonstration of considerable historical interest. The building is to be covered with well weathered siding taken from another Canal building, of no particular significance, and will therefore start with an appearance of mellow age.



Photograph 20: Stop Lock above Lock No. 16, showing the abutments and the new concrete core wall covering the old masonry core at the Berm, or east end.



Photograph 21: Stop Lock and building at Dam No. 4 below Williamsport, Maryland. It is reported that in the great flood of 1936, that destroyed this section of the dam, this little building was submerged to within eighteen inches of its ridge and survived. The girders forming the temporary dam between the stop lock abutments can be seen in place, below the building.

HOUSES: The first of the Lock Houses now stands, rebuilt, at the southwest corner of Seventeenth Street and Constitution Avenue. It was moved more than twenty years ago from its original site, where it had been built in 1837 on the canal connecting the C & O outlet with Tiber Creek (see map), flowing then into the Anacostia River. This building has characteristic dormers, much like those of the house at Lock No. 16. These have furnished the pattern for the dormers it has been necessary to add to other lock houses in order to give adequate light and ventilation to rooms under the roofs.

At Lock No. 1, where the Canal joins Rock Creek there is no record of any lock tender's house having existed. Here in Georgetown, dwellings were plentiful and in all likelihood there was provided for this lock tender a shelter only, probably about where the stranded barge now lies under the great sycamore tree.

The next house above, and the first on the Canal itself, is at Lock No. 5, about a mile above Chain Bridge, and a few hundred yards outside the District of Columbia. The first building on this site was erected in 1830 and destroyed by a freshet in April 1852. The present building was put up the following year. It differs from all the other lock houses in that it is of frame construction on a stone first story. As the exterior was in bad condition it was necessary to rebuild. The frame, when uncovered, was found to be in good condition and, moreover, an excellent example of the skill and sound quality characteristic of the carpentry of the period. In rebuilding this house no change has been made in the exterior except by the addition of two windows in the gable ends and of dormers in the attic story, but the interior has been rearranged to provide the facilities now regarded as necessary to comfort and health.



Photograph 22: Lock House from canal once connecting Potomac River through Tiber Creek (see map) with the Eastern Branch (Anacostia) and converted in 1878 into a sewer. The house was moved about twenty years ago to this site at 17th Street and Constitution Avenue. It is like the C & O Lock houses in design and construction. Work on this older canal began in 1792.



Photograph 23: It is believed that a Lock tender's shelter stood here at Lock No. 1 where the canal joins Rock Creek, about where the stranded barge lies under the great sycamore tree. Lock No. 2 is just beyond the bridge and a similarly short distance separates each pair of the first four locks.



Photograph 24: The house at Lock No. 5, a frame building on masonry walls. This is being restored for use, with the addition of dormers for added light and ventilation, and of plumbing.



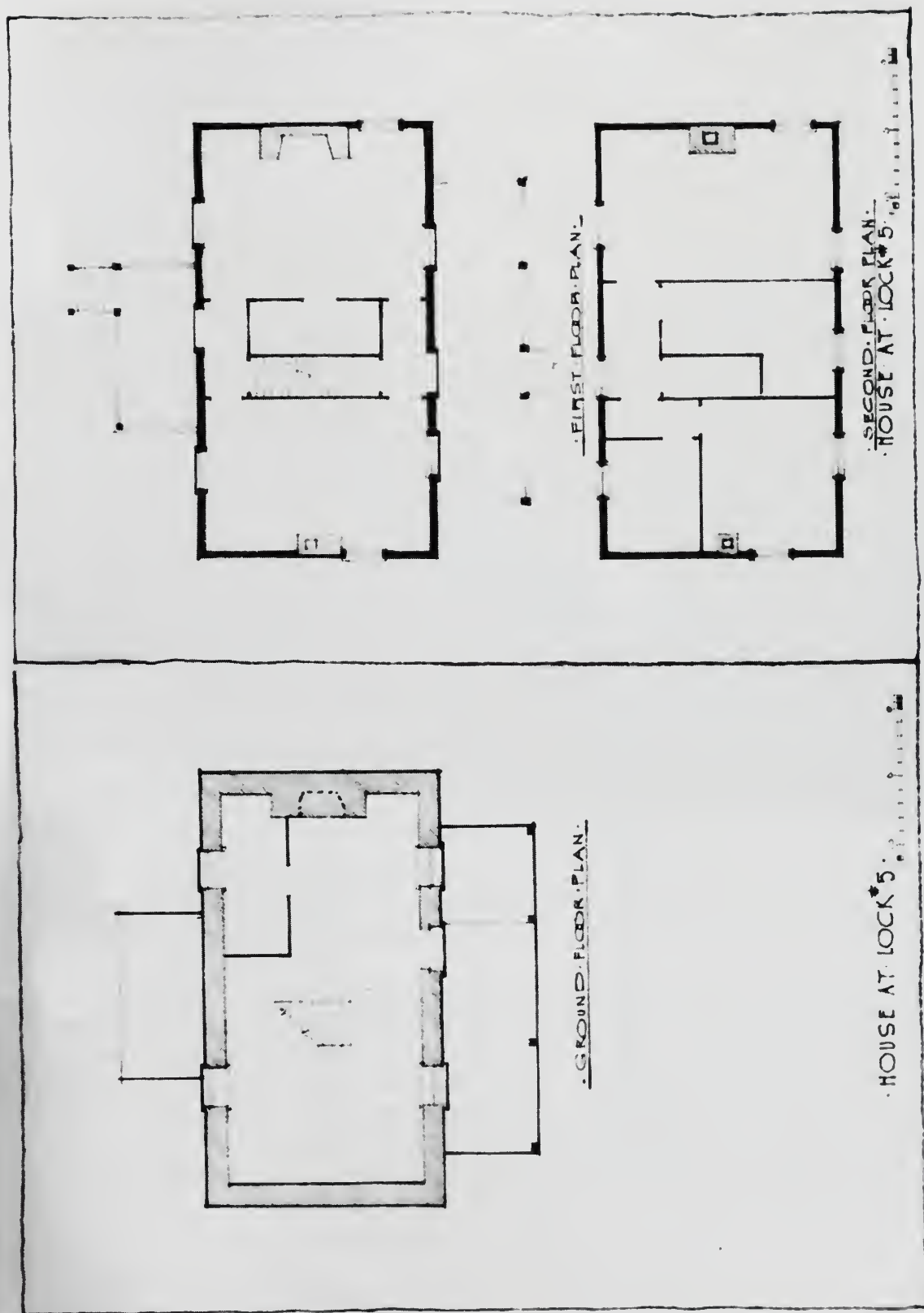
Photograph 25: Another view of this house from the hillside behind it. Beyond the house is the canal lock crossed by a bridge leading to the towpath. This will be replaced by a swing bridge. Beyond again is the gate controlling the water entering the canal from the Feeder canal, and in the background the Potomac River can be seen.



Photograph 26: The framing of the house at Lock No. 5. The diagonal braces were mortised and pegged into both the posts and the sills. Note that rats have gnawed away the studding just above the sill.



Photograph 27: Another view of the old framing; the header at the hearth, showing tail joints mortised and pegged. This framing is found to be generally in sound condition although it has stood since 1853, when this house was rebuilt. With very little repair it is serving now.



Drawing 9: Floor Plan Drawings for House at Lock No. 5

At Lock No. 6 is the first of the typical stone houses built from the specifications laid down by the Canal directorate in 1828. It is interesting to note that these houses were expected to cost, under contract, about \$700 each, and most of them were completed at about that figure. The records show that this house, built in 1848, was the second on this site, the first one having been so seriously damaged by flood in October 1847, that it was considered cheaper to build anew than to repair. Here, as elsewhere, slight individual variations from type appear, caused by small differences in conditions. In this case variation is in the projecting side walls at the south end to form the foundations for a wooden kitchen. This building is sound and in usable condition.

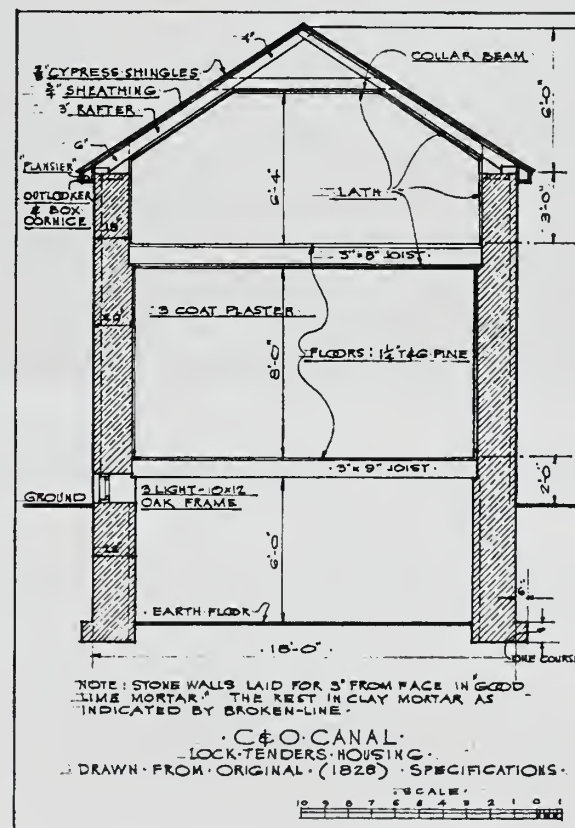


Photograph 28: House at Lock No. 6 has kitchen built partly on projecting stone walls. The line of the lock appears in the background. This photograph shows excellently the texture of the old masonry as well as the adaptation of the specified type to differing conditions of site.

The house at Lock No. 7 is the first of the stone houses selected for rebuilding under the restoration program. Floods had damaged the masonry so badly that one corner had collapsed. It had been relaid sometime in the past, but so badly that it had to be taken down again and rebuilt properly to insure future stability. The building presents no unusual features. The design for restoring it introduces dormers and modern facilities as in the house at Lock No. 5. Built by the contractor James O'Brien, this was the first house to be completed on the Canal (August 1829). In excavating the basement, it became evident that Mr. O'Brien ignored the masonry specifications, and it was necessary to strengthen the structure.



Photograph 29: House at Lock No. 7. Settlement cracks in the wall, carelessly rebuilt after the 1936 flood tore away some of it. This had to be taken down and relaid before the work of restoration for use could be carried out. Here again dormer windows and plumbing were added and the interior rearranged for greater economy and comfort.



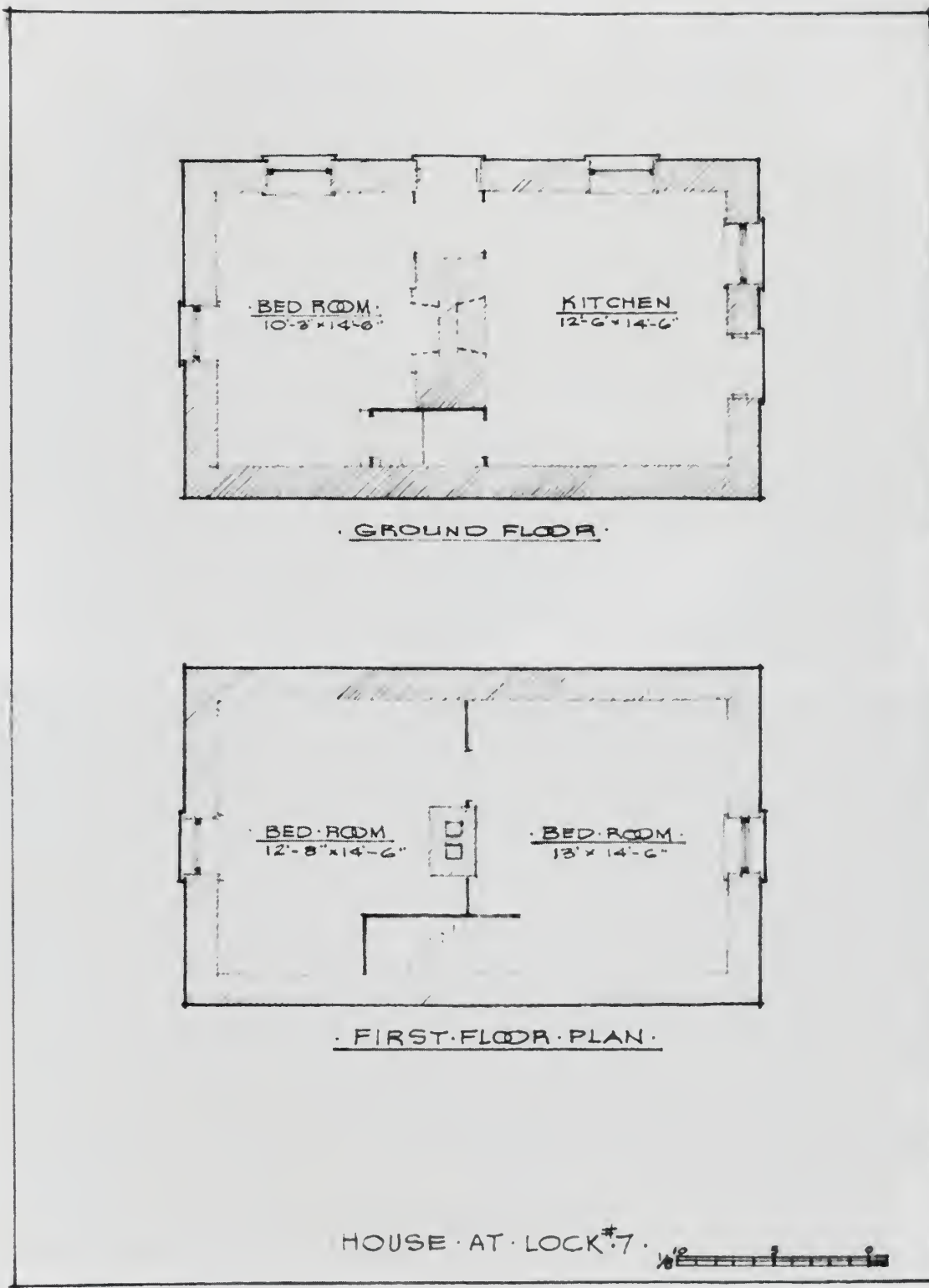
Drawing 10: Note the 2" decrease in wall thickness to provide bearing for joists. Rafters taper in depth from 6" at the plate to 4" at the ridge.



Photograph 30: The masonry of house at Lock No. 7. This shows the plate resting on the stone wall without the wooden grounds called for by the specifications; also the joists are built into the masonry.

At Lock No. 8 is another stone house of the usual type, still usable in the condition to which it was brought by the repairs authorized in 1868.

The building at Lock No. 9 is a light wooden structure erected on stone foundations. There is no record of its history, and it seems to be of comparatively recent date, with an even later addition. It is hardly usable without repairs.



Drawing 11: Floor plan drawing for House at Lock No. 7.



Photograph 31: House at Lock No. 8. Lock wall in foreground at right. The walls of all the houses are to be whitewashed as in this case. In most instances the lock houses are flanked by a pair of fine trees, here maples.



Photograph 32: House at Lock No. 9. This building is a piece-meal structure of uncertain date, hardly usable in its present state, except for the new, shingled addition.

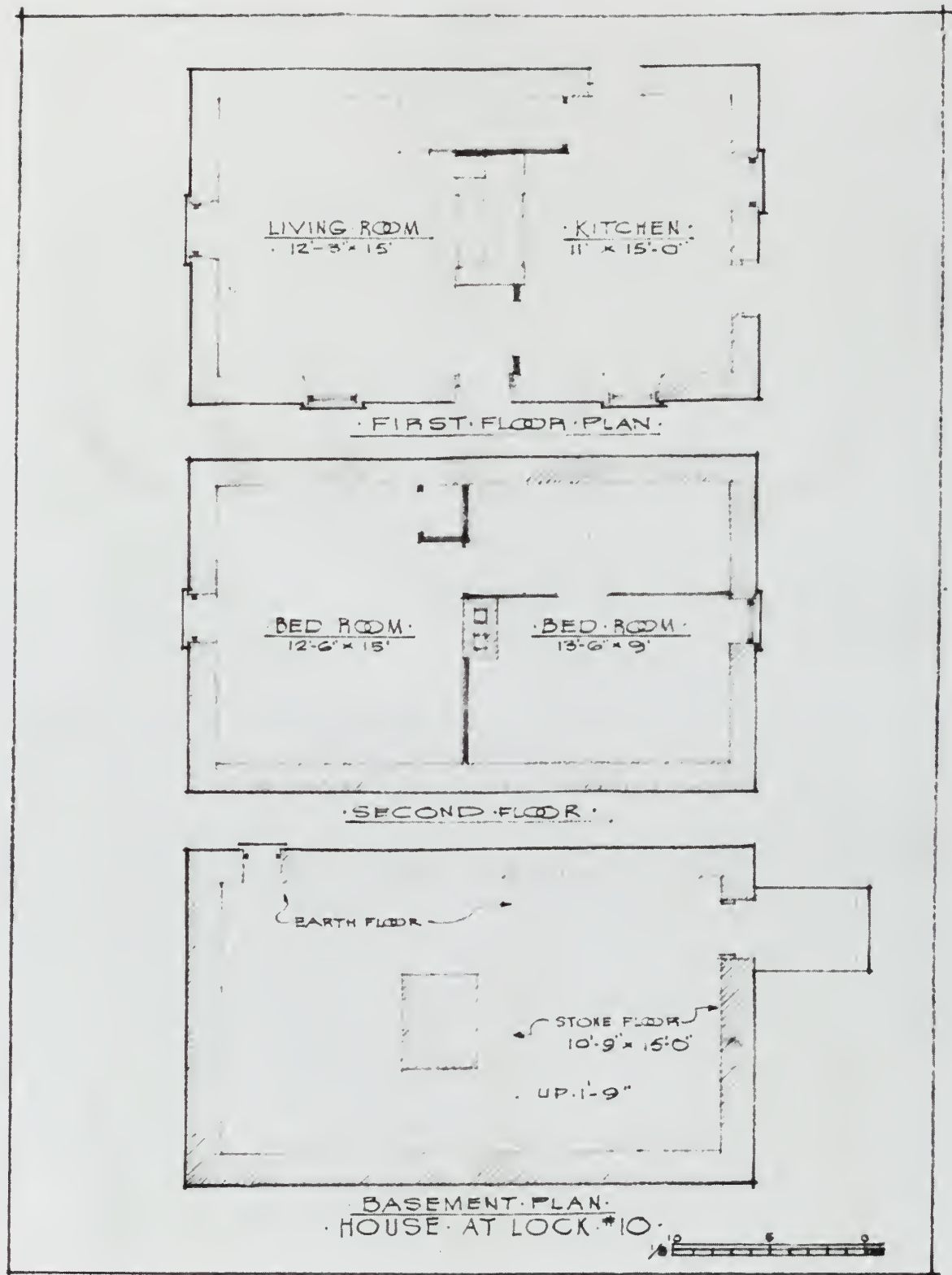
Another of the old stone houses stands at Lock No. 10. It is on higher ground a short distance from the Canal; was first occupied in 1830, and is in good condition. This is the third lock house selected for restoration and the problem is much the same as that of the house at Lock No. 7. On doors remaining in this house were found some of the original items of hardware, which have been reproduced to equip the other houses.



Photograph 33: House at Lock No. 10. The house is on higher ground and at a greater distance than usual from the lock; lock and gate in foreground.



Photograph 34: The same house, showing bulkhead entrance to cellar, typical whitewashed masonry and the corner of the wooden kitchen addition. This building is being restored in the same manner as the houses at Locks No. 7 and No. 5.



Drawing 12: Floor plans for House at Lock No. 10.

Lock No. 11 has another of the typical stone houses to which nothing is being done.



Photograph 35: House at Lock No. 11. This house on the towpath side has a small shed addition; it is in fair condition, and will continue in use as it is.

The house at Lock No. 12 is a departure from type, being a frame building on shallow stone foundations, and a little larger than the earlier houses. It is in poor condition and, if ever needed in the operation of the Canal, it will have to be entirely rebuilt.



Photograph 36: House at Lock No. 12. A frame building differing from the established type. There are only shallow foundations, no cellar. If the building is to be used it virtually will have to be rebuilt. The lock wall appears in foreground.

At Lock No. 13 stands another typical stone house, in fair condition. No work has been done.



Photograph 37: House at Lock No. 13 shown in relation to the Lock. As both gates are open, Lock No. 14 can be seen in the background. The house is in usable condition and continues to serve.

Another typical house is at Lock No. 14. On characteristic stone foundations with concrete additions of later date the frame building is hardly in condition for use, but no work is contemplated on it.



Photograph 38: House at Lock No. 14. A departure from type. Frame structure on the towpath side. Substantial repairs will be needed here if this house is to be used.

At Locks Nos. 15 and 19, although records show that houses once existed, scarcely any trace remains.

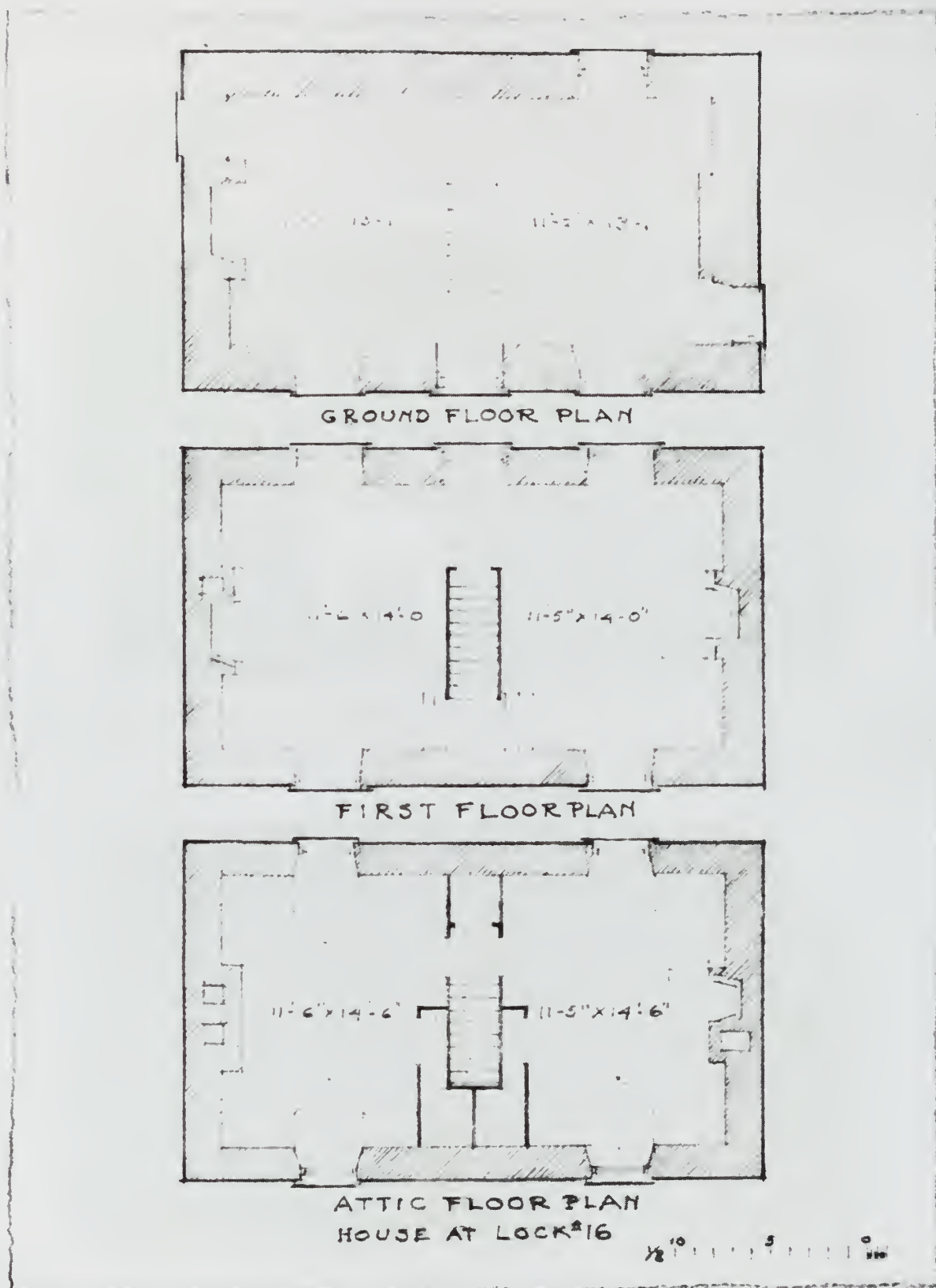
On a rocky ledge overhanging Lock No. 16 is a stone house having two stories and an attic with dormers, and a chimney at each end. This was built from a second specification, adopted in 1836. The building is in sound condition, being out of reach of all but the highest floods, but considerable work would be required to render it habitable.



Photograph 39: House at Lock No. 16. The first house built from the second or 1836 specifications. It stands on a rock ledge well above the lock. This building cannot be used without considerable reconstruction of the interior.



Photograph 40: The substantial character of the masonry is clearly seen in this picture, as well as the type of dormer windows.



Drawing 13: Floor plans for House at Lock No. 16.

At Lock No. 17 is a modern frame house of no historical value.

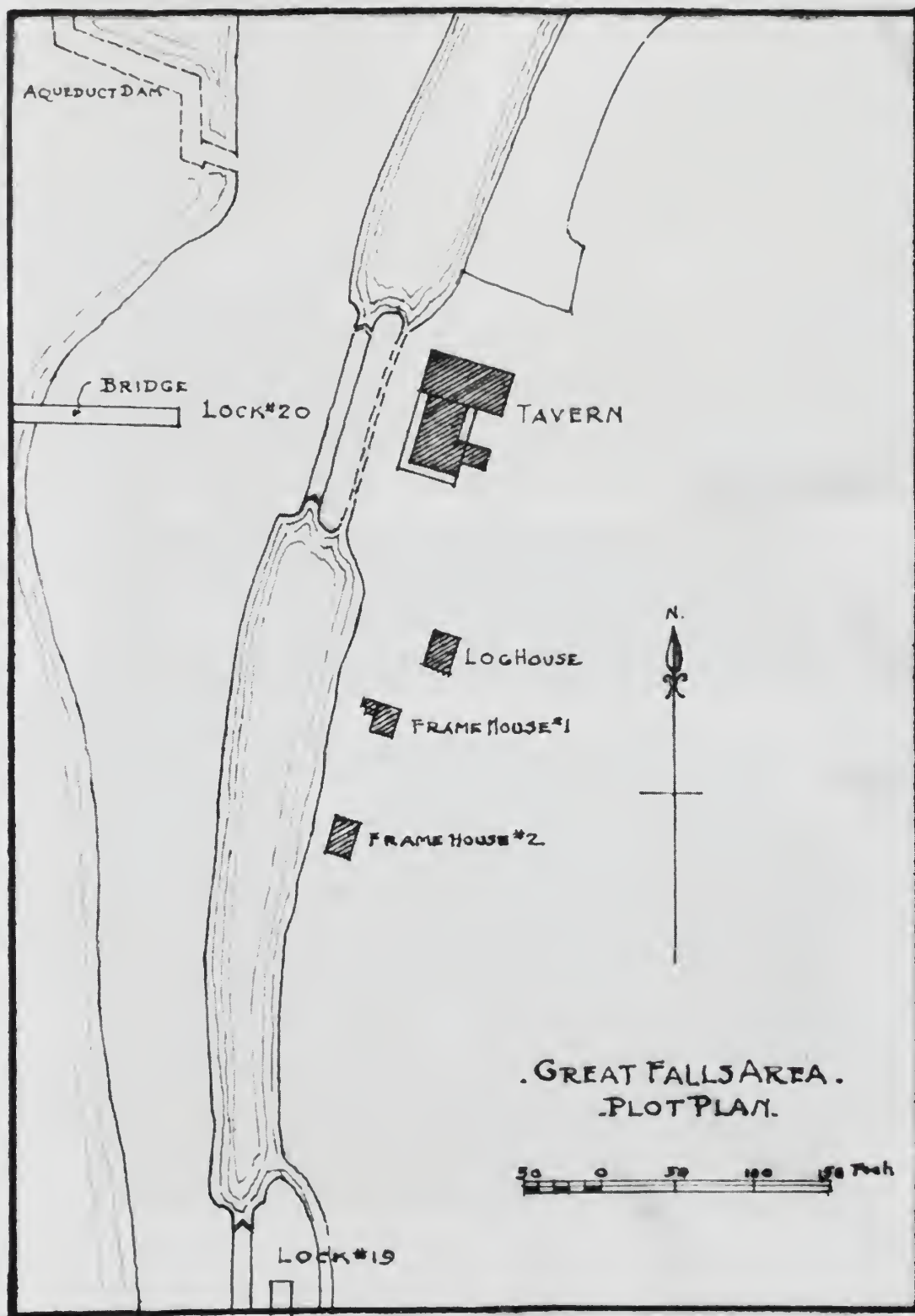


Photograph 41: Frame house at Lock No. 17. In dilapidated state and of unknown date.

The walls of another stone house stand at Lock No. 18. This structure was gutted by fire not many years ago, but the standing masonry walls are a picturesque ruin, and will be preserved in this condition.



Photograph 42: House at Lock 18. Gutted by fire; will be kept in this condition. Lower end of the lock walls in foreground.



Drawing 15: Great Falls Area Plot Plan

The Great Falls area, including Lock No. 20, contains the most interesting group of structures on the Canal. First among them is the celebrated Lock Tavern, begun as a typical tender's house in 1828. Before it was completed, however, a demand for greater accommodation showed itself. As a result, two brick additions were begun at once, and by 1832 the building in approximately its present size, was completed. In 1876 a wooden shed was added for use as a kitchen, and in 1926 this was removed and a similar frame structure, built by the tenant, replaced it. Until the best use for this building that has provided food and shelter on the Canal for the greater part of a century is determined, only the most sorely needed repairs to save the building from further dilapidation are to be made.



Photograph 43: The Great Falls Tavern. The central portion, from the chimney to the higher wall, was begun in 1828 as a lock tender's house, and is of the typical stone construction.



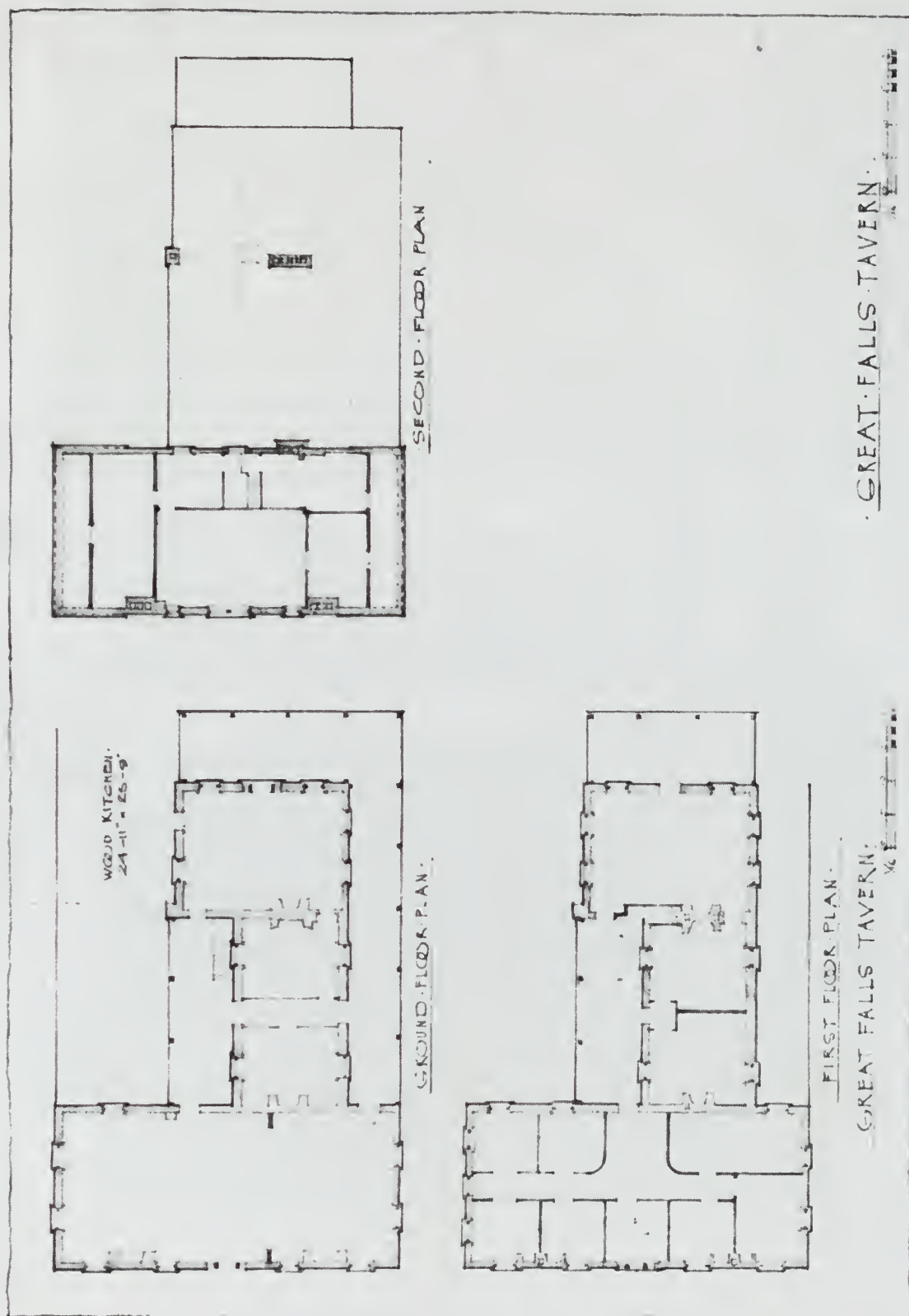
Photograph 44: The north front of the Tavern, completed in 1832, and built of brick, like the addition at the south end, completed at the same time. The porch is a comparatively recent addition and is to be removed. In the right foreground are the Lock (No. 20), gate closed, butterfly valve open, one of the slots for temporary dam, the cribbing between the lock and the opening for the spillway, and the much newer shack for the lock tender.



Photograph 45: Tavern from the southwest. Part of this brick addition of 1832 is in bad condition and repairs are to be made. This tavern has served its purpose almost continuously for more than a century, operated by the members of one family since the Civil War.



Photograph 46: The north side of the Tavern. On the left is the wooden kitchen added in 1926 to replace a similar structure. In the verandah or gallery, appears the slope of the outside stair that was the only means of communication between the ground and first floors. The central part is the 1828 building.



Drawing 16: Floor Plans for Great Falls Tavern.

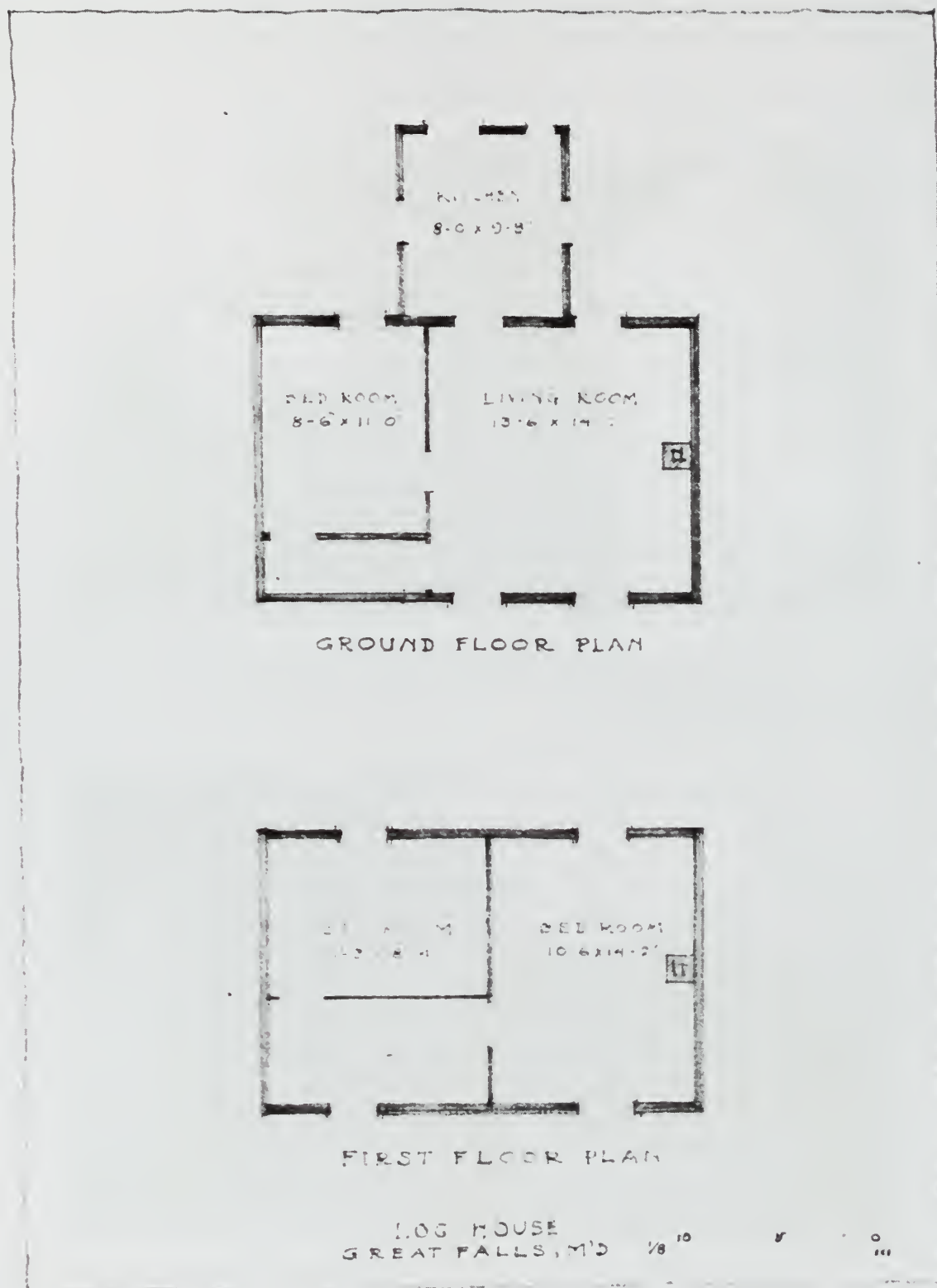
Near the Tavern stands a log house built about 1884 and used since as a tender's dwelling. This small building is being put into good condition and will continue to serve its original purpose. It is interesting to note that the occupant of the log structure considers it most comfortable, as the thick logs keep it cool in summer and warm in winter.



Photograph 47: The Log House south of Tavern, built of hewn logs about 1884. This is to be repaired for use as a Lock Tender's House. It is described by those who live in it as particularly cool in summer and warm in winter.



Photograph 48: A corner of the Log House in foreground and beyond it frame Houses No. 1 and 2, built about the same time. They are of little value and will probably be demolished and the material salvaged for use elsewhere on the canal.



Drawing 17: Floor Plans for Log House at Great Falls.

Also in this group are two frame houses erected at the same time as the log house, but of no importance, either historically or economically, to the Canal. It is proposed to raze both and to use the salvaged material wherever possible on other buildings.



Photograph 49: Frame House No. 1 at Great Falls. This will probably be demolished.



Photograph 50: Frame House No. 2 at Great Falls, from the Canal bank. Some of the material in these buildings will be salvaged for use. The siding from this house will probably be used on the structure at the stop lock above Lock No. 16.

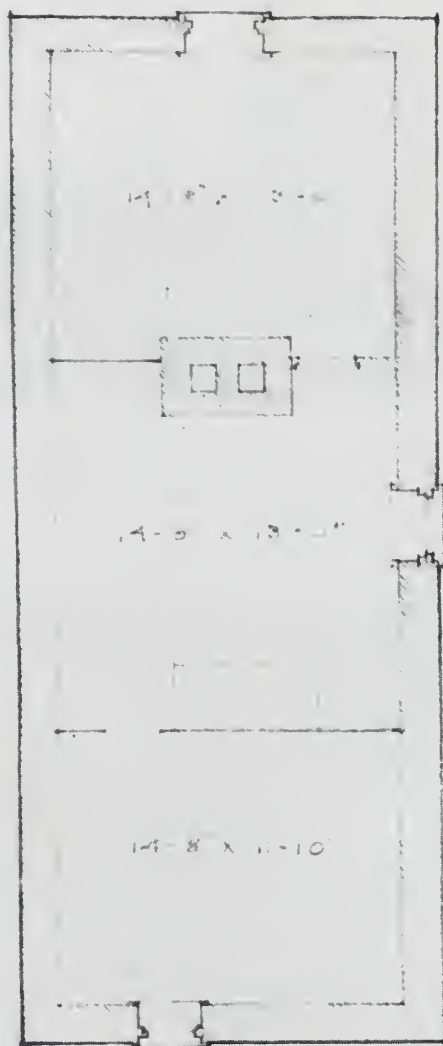
Above Great Falls, after a stretch of several miles, is Lock No. 21 or Swain's Lock, with a stone house of still another type. This is in usable condition but needs repairs.



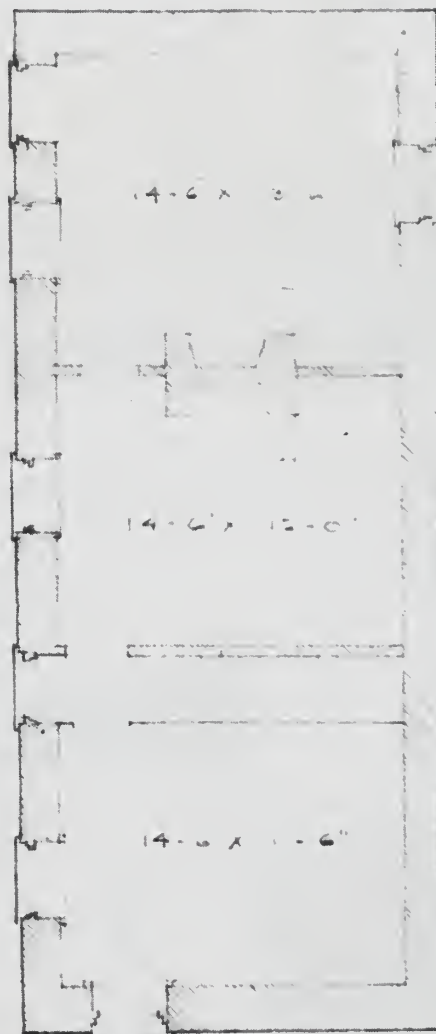
Photograph 51: House at Swain's Lock (No. 21). This building varies from the established type. Its relationship to the lock can be judged from the lock curbing in the left foreground. The structure is in fair condition and continues in use.



Photograph 52: New log house on foundations of Lock Tender's house at No. 23, burned a few years ago. Although the building is out of character with the other Canal structures it will continue in use.



FIRST FLOOR PLAN.



GROUND FLOOR PLAN.

HOUSE AT SWAIN'S LOCK # 21.

1/4" = 1'-0"

Drawing 18: Floor Plans for House at Swain's Lock No. 21.

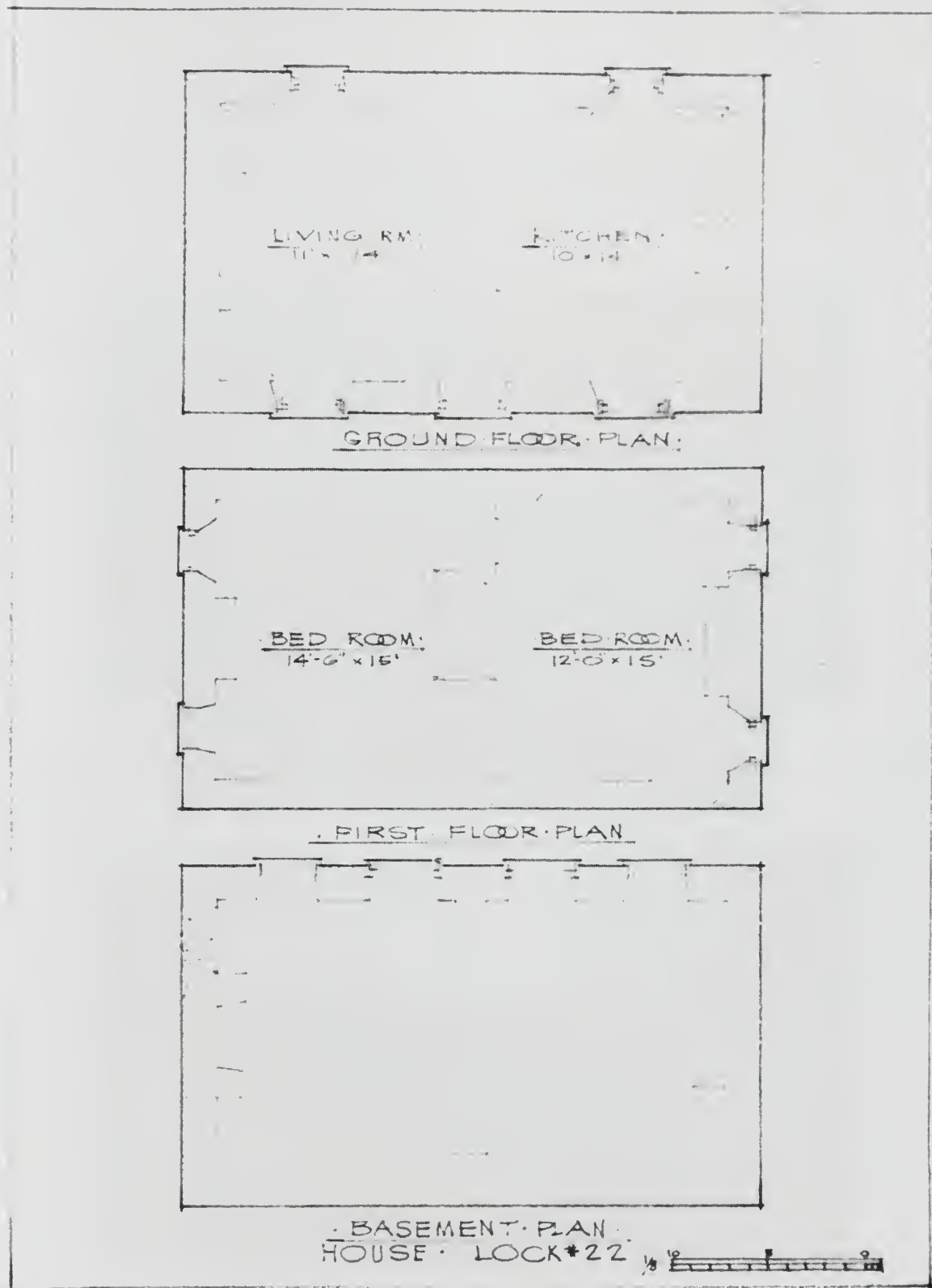
Lock No. 22 has a house of the type built from the 1836 specification, in good condition and needing little or no repair work.



Photograph 53: House at Lock No. 22, with Lock wall in foreground. These chimneys vary from type in being built of cut Seneca sandstone instead of brick. The trees here are black walnut.



Photograph 54: Standing on sloping ground the house has another full story at the rear. This building is in good condition and can be used as is.



Drawing 19: Floor Plans for House at Lock No. 22

At Lock 23 are old foundation walls carrying a log house of later date. Here a feeder enters the Canal and once a bridge carried the towpath over the feeder canal. This has been replaced.

BOATS AND BARGES: The Canal Company owned no barges. These were all built for private owners or the Towage Company and paid tolls for the use of the Canal. All of the barges were built in Cumberland by local boatwrights who were so familiar through experience with the job that they used no plans or drawings. Their only guides were a set of sheet-metal templates for the uprights at the ends of the boats. These timbers established the curves at bow and stern and the planking at these points was 1½" oak, steamed and bent to fit. The rest of the structure was of straight lumber, generally Georgia pine. The seven longitudinal keels were three 6" x 6" members and four 4" x 6" members. The bottom planking nailed transversely under the keels was of 3" lumber, dressed to an even thickness, and the inner planking which constituted the floor of the cargo holds, was of 2" stuff. The larger boats were about 92 feet long, with a capacity of more than 100 tons. Their journey from Cumberland to Georgetown with a full cargo of coal was accomplished in four or five days. Their crews were four men, or three man and a boy mule tender.



Photograph 55: Old photograph of canal barge under way.



Photograph 56: Old photograph of canal barge under way.

The boats or barges used on the Canal have virtually all been broken up, but it has been possible to measure and study the almost complete remains of the sole survivor, now resting on the mud near Hancock, Maryland. The passenger "Packets" have all disappeared, as has the steam excursion Packet "Louise", that plied for many years between Georgetown and Great Falls. So far as we know all other boats on the Canal, excepting a few privately-owned pleasure craft, were moved by mule-power. It will be noted that the freight barges provided living quarters for the skipper and his crew in a cabin aft, "Hay House" amidships, a mule stable forward, and that freight was carried under hatches in the space between. At the terminal dock in Georgetown, freight was handled by cranes and winches.



Photograph 57: Bow of canal barge No. 57 at Hancock, Maryland, showing the mule stable.



Photograph 58: Looking aft from Hay House, amidships, over cargo hold to cabins; cross brace in foreground. Diagonal brace below at right.



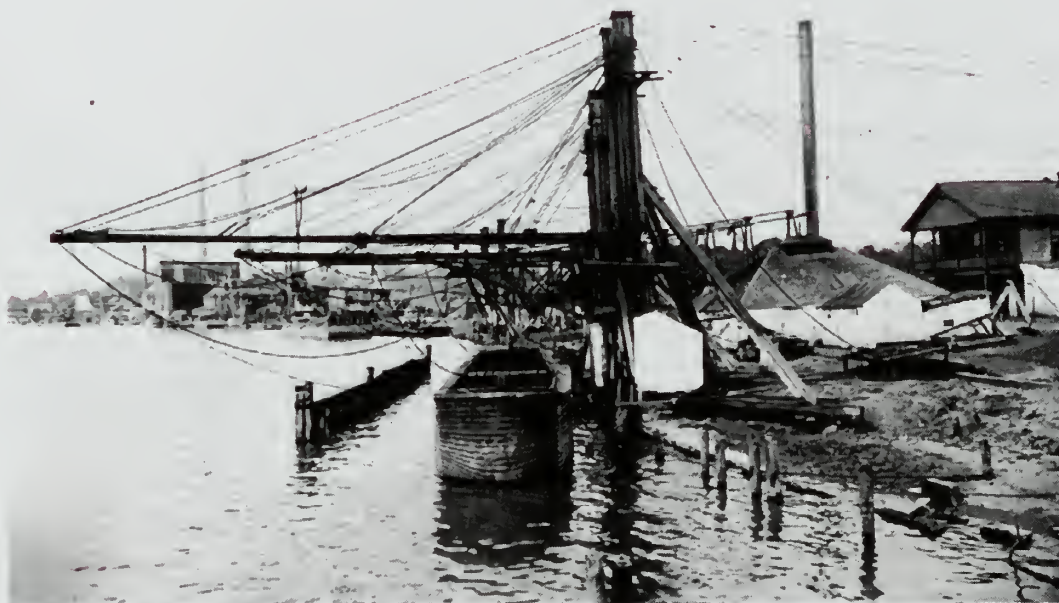
Photograph 59: Stern, cabin, rudder post, quarter-deck and one post of taffrail. Also curved planking on upright timbers. Construction of bow is similar.



Photograph 60: Cumberland Packet lying at Lock No. 1, Georgetown. In the background appears the centering for the masonry arch of the Pennsylvania Avenue Bridge.



Photograph 61: The old steam excursion packet “Louise” moored at Lock No. 20, near the Tavern. This craft plied for many years between Georgetown and the Tavern.



Photograph 62: The Terminal Dock in the Potomac River just north of the mouth of Rock Creek.



Photograph 63: Barges on Canal – Aqueduct Bridge in Background.



Photograph 64: The Canal “Graveyard”: An abandoned work barge and the dismantled dredge with boiler and some of the machinery lying on the shore. This is between Chain Bridge and Lock No. 5.

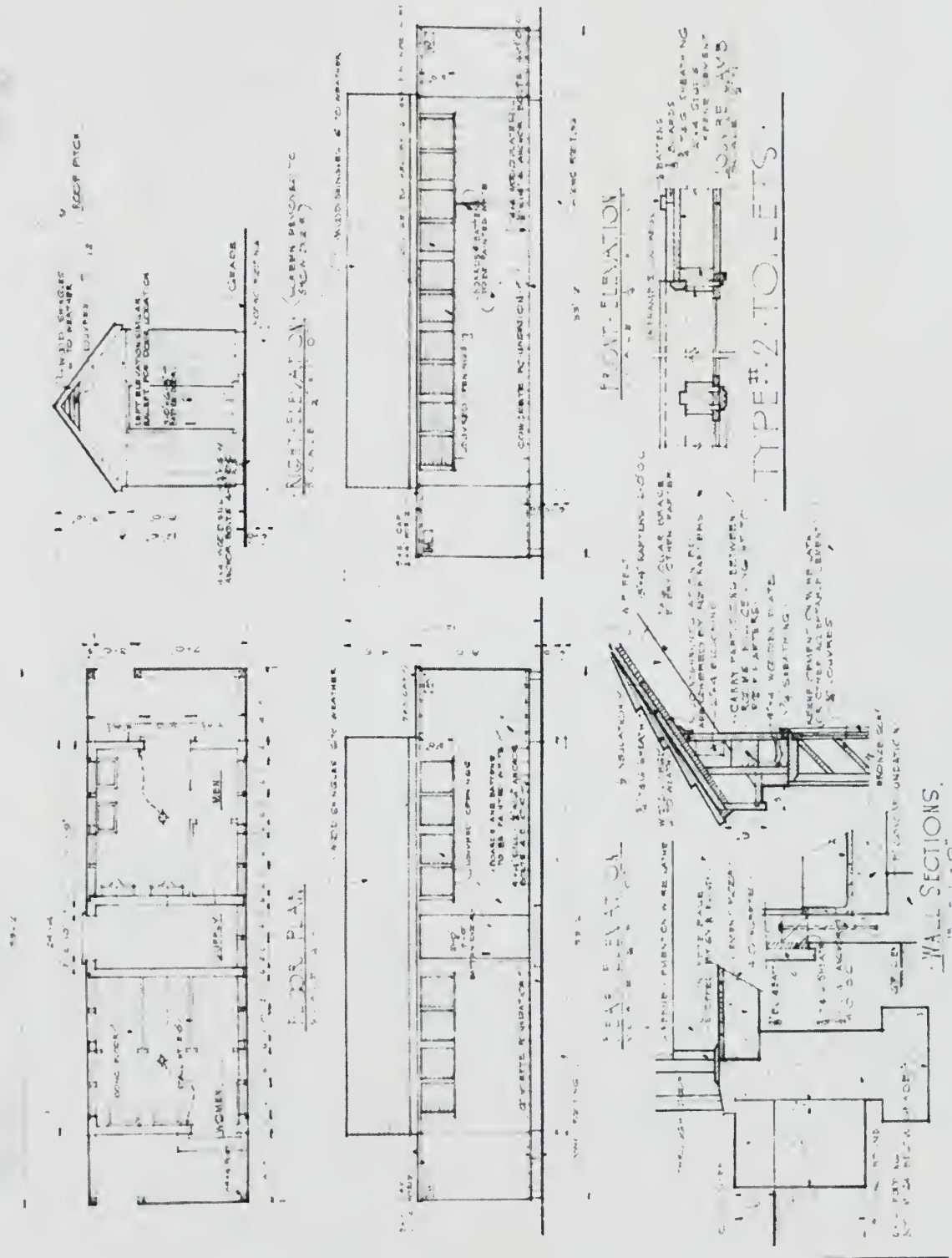


Photograph 65: Milestone with inscription "9 Miles to W. C." (Washington City).

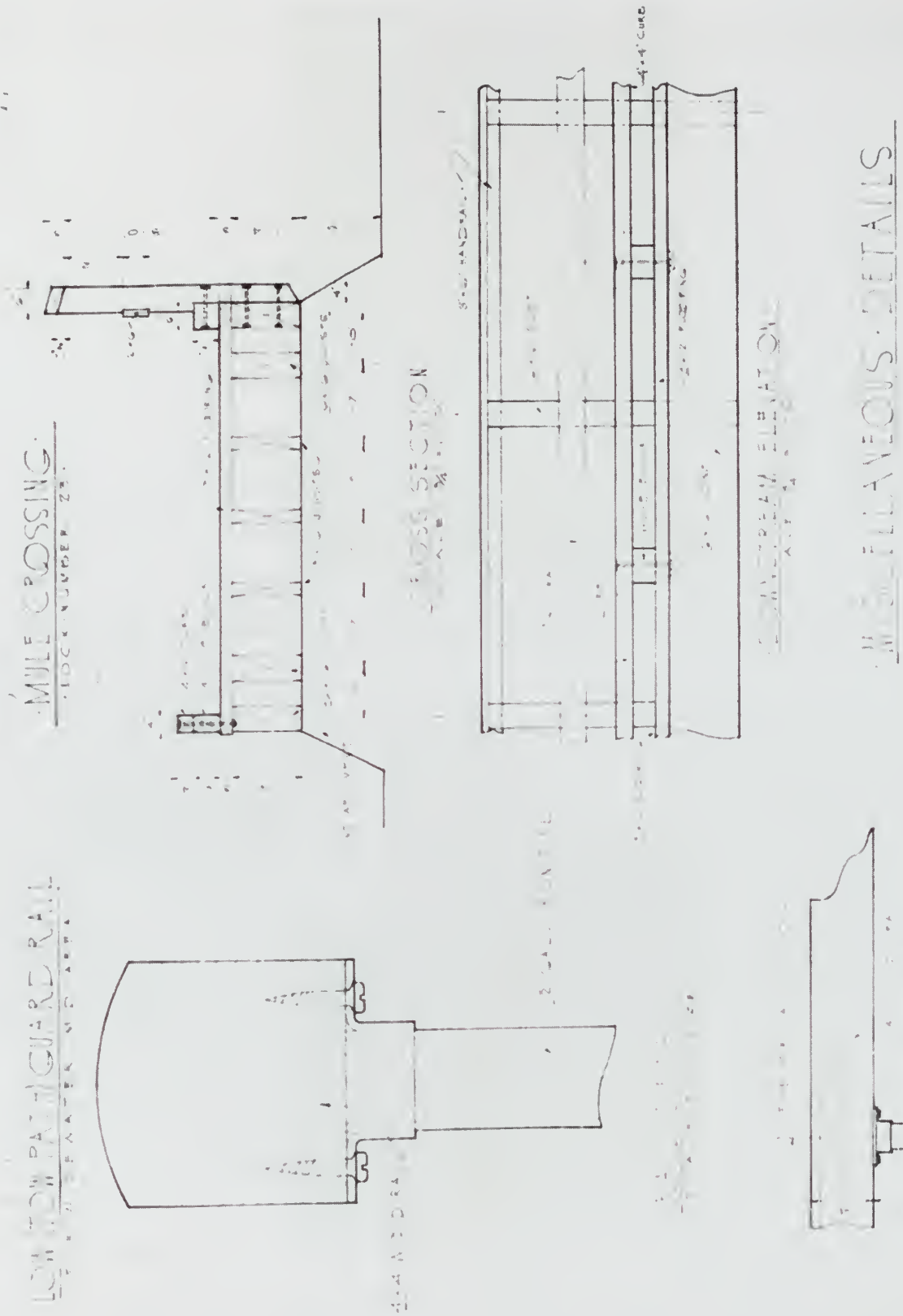


Photograph 66: Marble obelisk at northwest corner of Wisconsin Avenue Bridge. Inscribed: "Chesapeake and Ohio Canal Commenced at Georgetown, July 4th, 1828. Chief Engineer, Benjamin Wright." "Completed to Cumberland. Oct'r. 10th, 1850. Chief Engineer, Charles B. Fiske."

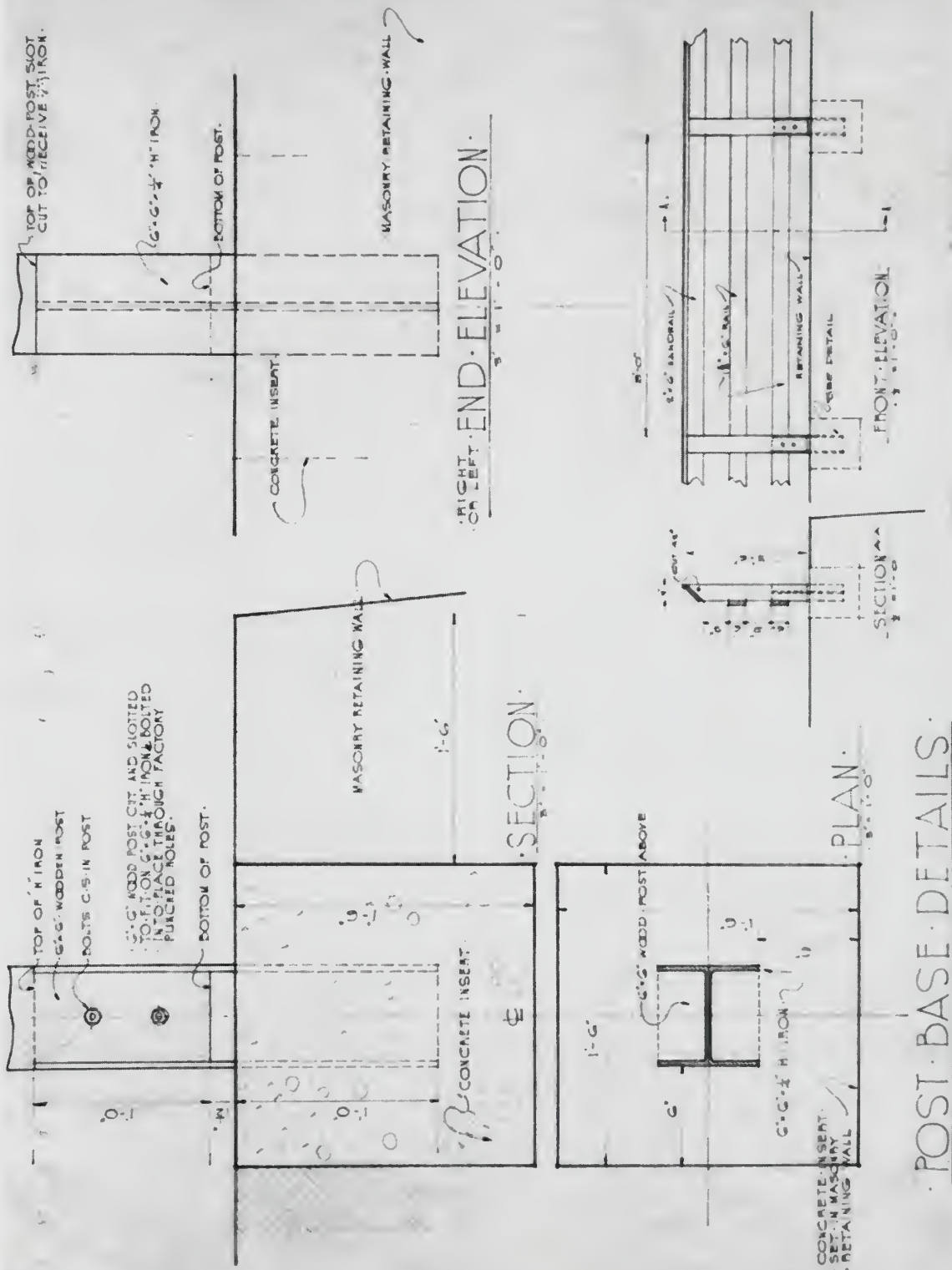
Some of the subsidiary structures to be provided for the convenience of the public are illustrated from working drawings.



Drawing 21: Type #2 Toilets.

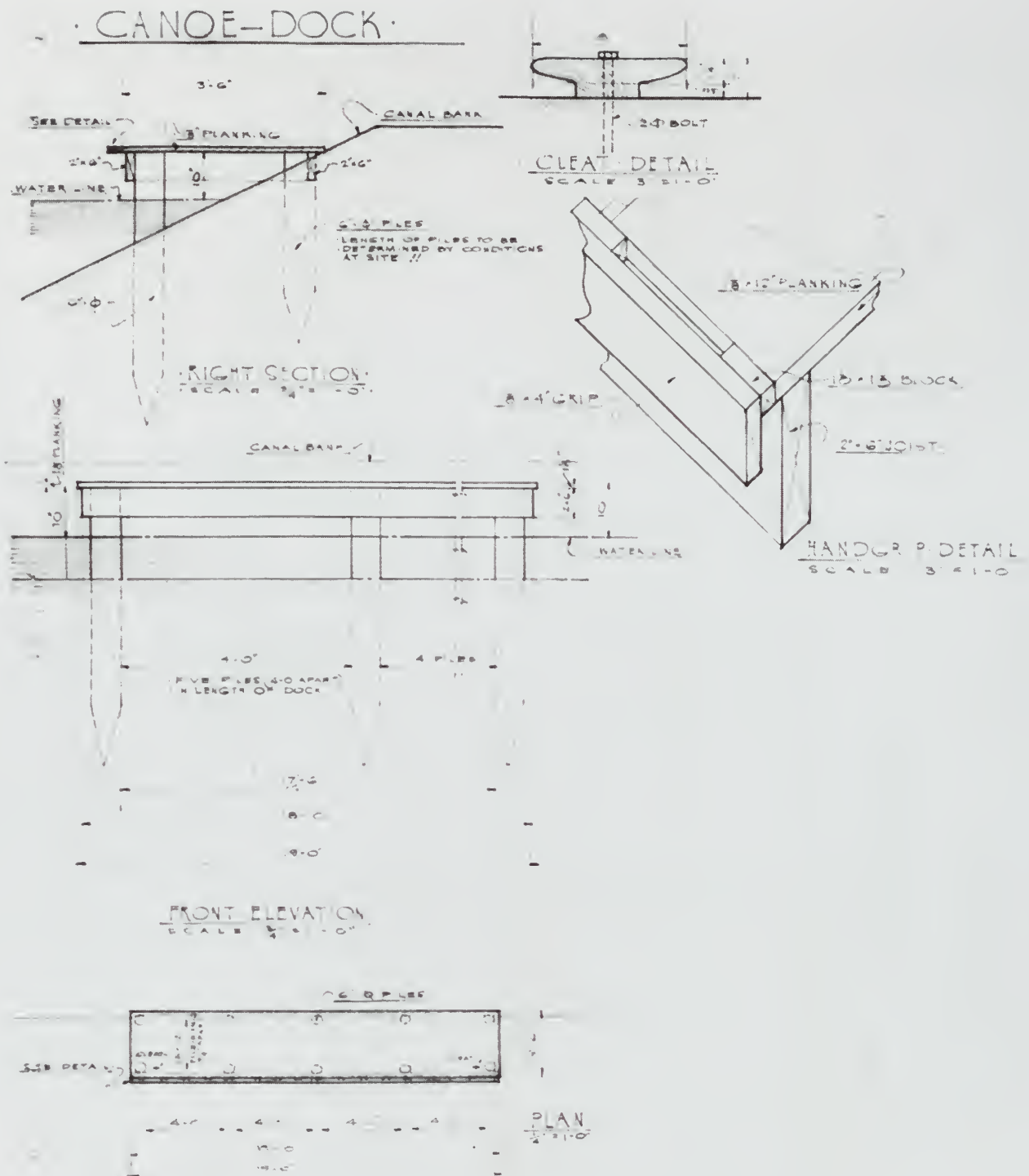


Drawing 22: Mule Crossing Bridge, Lock No. 23, Miscellaneous Details.

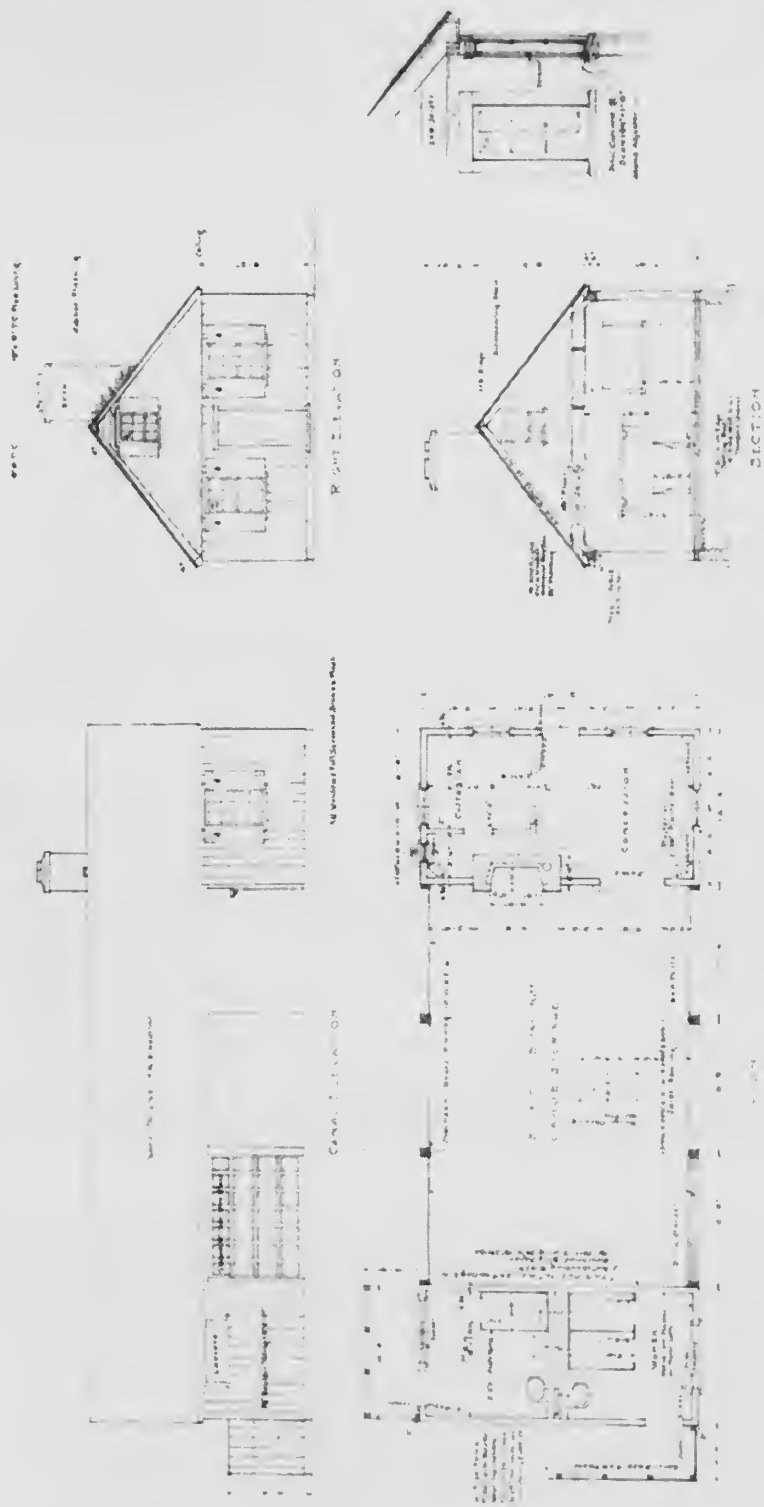


10W-PATH-GUARDRAIL-DETAILS

Drawing 23: Towpath Guardrail Details



Drawing 24: Canoe - Dock Details



NCP NATIONAL CANOE SHED DEPARTMENT OF THE INTERIOR BRANCH OF LAND AND MINES WASHINGTON, D. C. 1896	
DRAWING NO. 1000	SHEET NO. 1
TITLE SMALL CANOE SHED, LATRINE AND CONCESSION BETWEEN GUNPOWDER AND JAMES C. CROSBY'S AND JAMES LAMAR	
ARCHITECT J. C. ROBERTS	ENGINEER J. C. ROBERTS

Drawing 25: Small Canoe Shed, Latrine and Concession, Sheet 1 of 1.

The specifications from which the lock houses were constructed have been included in this report following this text. These specifications were not always carefully followed by the builders. Also the records indicate that some of the contractors abandoned their undertakings and the partly built structures were completed by others. If the house at Lock No. 5, which was built in 1852, cost about \$1,500, complete, its unit cost would be about 10 cents a cubic foot, which is particularly interesting to the builder today, when such construction would cost at least two and a half times as much.

Specification of a lock keepers house the outlines
of which are exhibited on the accompanying plan and
positions of the respective houses noted on the line
of the Canal

Specifications for 1828 – 29 Lock keepers Houses.

MASONRY -- The building to be of stone and to be 30 x 18 feet over the walls, with a cellar under the kitchen part 6 feet in the clear, with a floor of earth, the walls to be 22 inches thick, and have a projection on the outside of 6 inches all round, and at least one course of stone high the cellar door to have stone steps, and a locust frame with grooves to receive the doors, which are to have substantial strap hinges and be fastened in the usual way with a padlock; there will be a window on each side consisting of a single sash each of 10 x 12 glass & 3 lights in width, each to shut in an oaken frame, the sash, to have hinges, to open upwards.

PRINCIPAL STORY -- The floor to be 2 feet above the surface of ground; the walls to be 20 inches thick, and that part not over the cellar to have a footing of stone all around of 6 inches more, one course of stone high, the space between the ground and the bottom of floor to have 3 slits in each side, 9 x 4 inches, to be covered with perforated iron or copper plates, to exclude vermin, and admit air, under the end where there is no cellar: the height in the clear of the story to be 8 feet between floor & ceiling.

ATTIC STORY -- The walls to be 18 inches thick and three feet high from the top of floor to the square: The peak of the roof to be 6 feet above side walls: The stone to be laid in clay mortar excepting 3 inches on the outside of the walls above ground and the inside of the cellar which 3 inches is to be good lime mortar and well pointed.

CHIMNEY STALK -- To be begun as near the surface of the ground as a good foundation can be obtained, one side to be supported by the cross wall of cellar, the foundation to be of stone 8 x 4 feet to top of arch of oven where it will be 6 x 4 feet the stalk may be of brick or stone; if built of stone, the openings of the fireplaces, the insides of the flues, & the oven should be of brick; and the top above the roof should be hammered; or built of hard bricks, and good mortar: the kitchen flue to be 18 x 12 and that of the parlor 12 x 12 inches after they are plastered. The outside doors to have stone sills, and stone steps; the window sills should be of stone, or locust painted and sanded. All the lintels of the doors & windows are to be of stone.

CARPENTER WORK -- Joists of first floor to be 3 x 9 inches: of 2d floor 3 x 8 inches. Floors, to be of 1 ¼ heart pine planed and tongued and grooved. Doors to be of 1 ¼ heart pine not to

exceed 6 inches in width to be battened and fastened with wrought nails the outside doors, to have jamb casings of 2 inch heart pine, let into the sills and framed at the top the outside doors to have substantial strap hinges put on with screws, the front door to have a good stock lock, and the kitchen door an inside bolt, the parlor door to be furnished with a good 7 inch nob lock, all the rest of the doors to have thumb latches.

Windows -- Those in the principal story to have 10 x 12 glass, those in the upper story to have 8 x 10 glass: The casings to be 1¼ inch yellow pine plank.

A sash of 10 x 12 glass is to be put over the front door to light the entry.

ROOF -- To have 10 pairs of rafters, 4 inches deep at top and 6 inches at lower end and three inches thick to be framed together at top and be secured by a brace at a point on the rafter that will afford a clear head way of 6 feet 4 inches in the attic story; the horizontal slope of foot of rafters to project 6 inches over the face of the wall & to have a plansier or casing, spiked to them, to extend to face of wall, the shingles to project 4 inches over that, making in all 10 inches of projection; the lower ends of rafters to be notched into a wall plate, and spiked to it; said wall plate to be 4 inches thick, and spiked to pieces of 3 x 4 scantling; built angling into top of wall, a rafter of 1 ½ inch plank to be built in the center of gables to project like the others: Sheeting, to be ¾ boards, laid close, the shingles to be cypress, of good quality 18 inches long, & to show 5 ½ inches to the weather & not less than 4 inches wide [here a word is missing due to torn ms., but it is probably] and 5/8 thick.

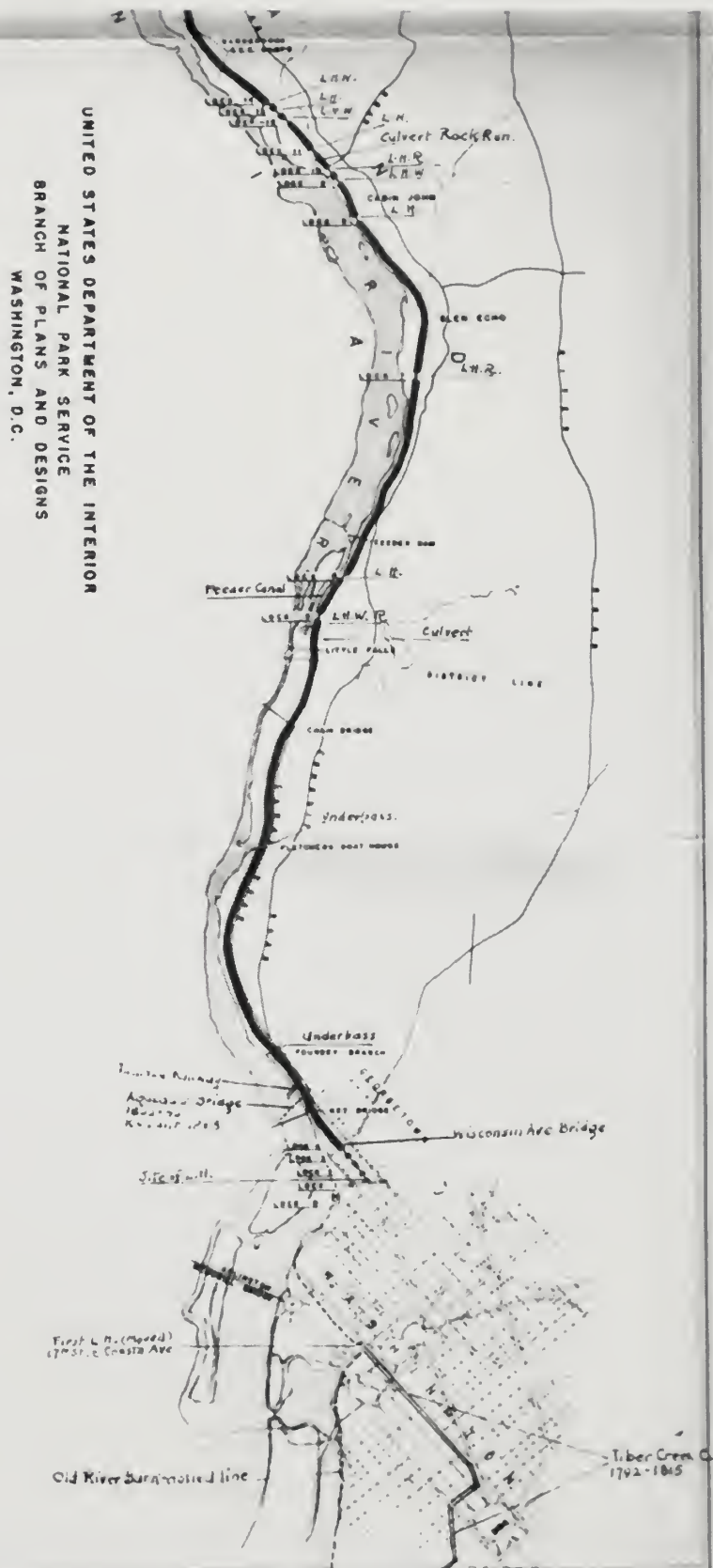
CARPENTER WORK OF INSIDE -- The inside doors to have plain jamb casings; the washboards and surface to be plain, only single beaded; the mantle pieces to have plain pilasters, and moldings to support the shelf: The spaces to the right & left of front entry to have stud partitions, the space between chimney stalk & back wall to have a two inch plank partition, the space between the fireplace and door of stairway to be stud partition the stair to be plain with a nosing. The partition separating the rooms in attic story, to be 1 ½ inch plank: The small closet to be finished in a plain manner.

PLASTERING -- The ceilings, and stud partitions, to be lathed and those, as well as the walls to be finished with three coats of good lime mortar, made with glue and proper proportions of good clean sand.

I propose to erect House No. _____ according to the above specifications and the plan therein referred to – and to complete the Same, by the _____ day of 18____ furnishing all the materials – for _____ Dollars.

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
BRANCH OF PLANS AND DESIGNS
WASHINGTON, D.C.

1
1/2 0 1 2
SCALE IN MILES



L. A. P. - 7-6-39
DRAWN - MAY 13, 1939 - C. Z. P. DEL.

Drawing 26B: Chesapeake & Ohio Canal, Location of Structures, Georgetown to Seneca.

