

I135N & J136N 115kV LINES**SITE REVIEW OF THE
CONNECTICUT RIVER CROSSING, THE
COLD RIVER CROSSING, AND THE ASHUELOT RIVER CROSSING****IDENTIFICATION OF CLEARANCE ISSUES**

(September, 2008)

1. Introduction

The I135N and J136N are 115 kV transmission lines that were constructed in 1927 and cross three rivers in the southeastern portion of New Hampshire: The Connecticut River, the Cold River, and the Ashuelot River.

A site visit and investigation of these crossings was undertaken because the I135N Line is being replaced with larger and stronger aluminum conductors with steel reinforcement.

Although the existing copper phase conductors on the J136N Line are not being replaced, the J136N was included in the site review to identify physical features and other factors that have established the existing clearance at the three crossings over the last 80 years.

Application of the present 2007 National Electrical Safety Code (NESC) minimum clearances to the I135N and J136N lines over these river crossings are determined in part by whether the associated areas are suitable for sailboating. The areas surrounding the I135N / J136N Lines, including the crossings of the Connecticut River, the Cold River, and the Ashuelot River, are not suitable for sailboating.

Kayaks and canoes are unaffected at these crossings, because sufficient clearance exists when the water is at the 10-year flood level for the Connecticut River, the Cold River, and the Ashuelot River. At the Design High-Water Level for the Ashuelot River Crossing when it becomes part of the impoundment for the Surry Mountain Dam, and the conductor is at maximum operating temperature, the clearances are reduced.

The conductor at the maximum operating temperature (More commonly known as the short time emergency temperature) has the design attributes specified below. (Other conditions will result in a conductor temperature less than the maximum operating temperature).

- The electric system is at the peak operating conditions (Summer conditions)
- Maximum operating condition is allowed to only last a maximum of 15 minutes, if it does occur
- Can only occur if another line on the system experiences an unexpected outage during the system peak operating conditions
- The ambient conditions assumed for this to occur in good weather are listed below:
 - ___ Ambient temperature: 100 °F
 - ___ Wind Speed: 3 feet / second (2 miles per hour)
 - ___ Bright sunny day with full solar effect acting on the conductor

2. Connecticut River and Cold River Crossings

The purpose of this section of the report is to address the issues associated with suitability for sailboats on the Connecticut River and the Cold River in close proximity to the phase conductors of I135N Line and the J136N Line, based on a site review. (Note: A separate site review was conducted of the I135N and J136N crossings of the Ashuelot. See Section 3 of this report.)

Objectives

Bridge clearances, shallow water, waterfalls, rapids, vegetation and river velocity are all factors needed to determine suitability for sailboating.

The following objectives were established for the site investigation:

- Identify bridges that limit the height of a watercraft
- Identify rapids, or changes in the river's elevation that are natural barriers to sailboats
- Identify channels and rock formations that limit the size of a watercraft
- Identify the structures associated with the tail race at Bellows Falls Generating Hydro Station that exclude sail boating.

Site Review

Vanderweil Engineers visited the site for two of the river crossings of the I135N and J136N: The Connecticut and River and the Cold River. A heavy rain event had occurred four days prior to the site visit, and the water levels were still elevated. Below is a summary of the site review.

A. Connecticut River

The 115 kV lines begin at a hydro station switchyard in Bellows Falls, Vermont at the Connecticut River, and cross into Walpole, New Hampshire over the Connecticut River. The station is located on the west side of the river from a channel cut to direct water through the station.

The following is a summary of the water levels at the crossing and the corresponding elevations (Appendix D-4, Connecticut River Profile from FEMA).

- Normal water levels – less than 5 feet: Elevation 227'
- 10-year flood event – over 30 feet: Elevation 252.3' Change in water level- 25 feet

Just upstream of the 115 kV crossing and the hydro plant, there is a falls that crosses under Bridge Street. The falls are a natural barrier to sailboating from the North. Below is a picture of the falls. Note the narrow channel through the rock outcrops.



Rapids exist from the base of the falls to a location just south of the 115 kV transmission lines crossing the Connecticut River, defined by a ledge outcropping which bisects the Connecticut River. A concrete headwall connects the ledge to the sides of the fall constricting the flow path of the east side of the river, while maintaining high velocity water beyond the 115 kV crossings, and beyond the outcropping, where the river channel widens significantly. Water depths at the rapids appear to be minimal. Although measurements were not taken, rocks appear to be just below the surface. Below is a picture of the rapids which extend beyond the 115 kV crossings.



Since sailboats are restricted by currents more than other crafts, the rapids present a formidable barrier to the 115 kV crossings from the south. Increased water elevations associated with 10-year water levels further increase the velocity of the rapids within the channel.

On the west side of the river, the opposite side of the headwall, is the tail race of the hydro station, which is a channel that leads and diverts the water back into the river. Outlet volumes from plant operations are variable and could increase unexpectedly. Warning signs are posted throughout the site warning of water level changes from water being released up stream. Signs are also posted on the rock outcrop that bisects the river to the south, warning boats to stay clear of the area.



To access the power line crossings, a sailboat would be required to travel up the tail race channel, past the warning signs, towards the outlet for the power stations. To exit the area, the sailboat would have to maneuver in a confined space, possibly in the presence of rapidly changing water levels. Approaching the outlet to a hydro station is dangerous and is a restricted area, not accessible to the public.

In summary, both crossing locations on the Connecticut River are not suitable for sailboating.

B. Cold River

The following is a summary of the water levels at the crossing and the corresponding elevations (Appendix D-4, Cold River Profile from FEMA).

- Normal water levels – less than 2 feet: Elevation 234'
- 10-year flood event – over 18' feet: Elevation 250.6'. Change in water level- 16 feet

The I135N and J136N Lines cross the Cold River, a tributary of the Connecticut River, in Walpole, NH, less than one mile from Bellows Falls. Any sailboat access from the Connecticut River to the power line crossings is limited by the height of two bridges. The first barrier is a bridge on Main Street, Route 12, with a highest point clearance of twenty two feet measured from the bottom of the bridge to the current water elevation, which was estimated to be approximately 2 to 3 feet deep.

A second road crossing is at Whitcomb Road, Route 139, which washed out about two years ago according to a local resident. Initial staging for reconstruction of the bridge was apparent because of the presence of survey stakes and construction equipment. Clearance over the water for the new bridge is limited to the southern approach and may leave only twenty feet between the top of the roadway and current river levels, which were estimated to be approximately 2 feet. Overall, the clearance from the bottom of the bridge to the water surface is in the order of 16 feet or less.

Below is a picture of the Main Street Bridge taken from Whitcomb Road. A review of the picture shows the shallow water depth and the rocky riverbed, which appears to be totally unsuitable for sailboating. Based on the FEMA 10-year flood elevation of 250.6 feet, the water level could rise as much as 16 to 17 feet (Elev 250.6-Elev 234), resulting in a clearance under the Main Street Bridge of less than 6 feet.

In conclusion, the Cold River at the 115 kV crossings is not suitable for sailboating from the Connecticut River due to the height of the bridges in the area, and the shallow water levels.



BENCH MARK ON TOP HEADWALL WHITCOMB STREET CROSSING

3. Ashuelot River Crossing

The I135N and J136N are 115 kV transmission lines that were constructed in 1927, and cross the Ashuelot River in Surry, New Hampshire. Fourteen years later in 1941, the Corps of Engineers constructed a dam, approximately 1-1/2 miles downstream of the crossing to control flooding affecting the town of Keene, NH, thereby creating Surry Mountain Lake.

In 1938, the Corps of Engineers entered into an agreement with the New England Power Company to relocate the existing I135N/J136N Lines to their present alignment for the purpose of impounding the area, without altering the continuous operation of these lines.

The area surrounding the I135N / J136N Lines, including the crossing of the Ashuelot River, is not suitable for sailboating.

The purpose for this section of the report is to address the issues associated with suitability for sailboating on the Ashuelot River in close proximity to the phase conductors of the I135N Line and the J136N Line, based on a site review, the operating practices of the Corps of Engineers for Surry Mountain Lake, safe sailboating practices, and the agreement with the Corps of Engineers in 1938 to relocate and operate the I135N/J136N Lines

Objectives

Shallow water, river width, and navigation certainty are all factors needed to determine suitability for sailboating.

The following objectives were established for the site investigation:

- Identify the river crossing during normal water level
- Identify the natural barriers that exclude sailboats during normal conditions
- Identify the accessibility of the I135N / J136N crossing to sailboats during design high-water level
- Identify the natural barriers that exclude sailboats during design high-water level conditions

Surry Mountain Lake

Surry Mountain Lake is part of a 600-Acre controlled impoundment behind the dam. At the design high-water level of the dam, elevation 550 feet, which is the 70-year Frequency (See Appendix D-4), the surface area encompasses the lake and an area extending about a mile to the north, which includes the I135N/ J136N Lines. Attached in Appendix D-1 is an aerial view of Surry Mountain Lake during normal water levels, and its associated Beach and Boat Launch. Further to the North, about a mile is the crossing of the I135N / J136N transmission line.

The water depths of Surry Mountain Lake, which is operated by the Corps of Engineers, are normally between 5 and 10 feet, generally closer to 5 feet, due to an accumulation of sedimentation over the years since the dam was built. Normally, the lake consists of about 200 acres.

Boats with motors greater than 10 horsepower require a permit, and these are generally bass fishing boats, because of the water depth and the presence of tree trunks projecting from the water. Fishing boats and kayaks frequent the lake.

Sailboating is not expressly prohibited from the lake, but when speaking with the Army Corps of Engineers, stationed at Surry Mountain Lake, they did not remember any sailing on the lake. The sailboating question was asked because the recreation and boating literature, provided by the State of NH, or the Corps of Engineers, referenced fishing boats and kayaks only. Attached in Appendix D-5 is a photograph of the beach area.

During normal water levels, the edge of the Lake is about a mile from the crossing along the river. See scaled aerial photograph in Appendix D-3.

Corps of Engineers Operating Practices for Surry Mountain Lake

During high water events, the lake and surrounding park are closed to the public; the entrance gate is locked, and much of the facility is submerged, including the beach and the boat launch. According to the

Corps' Standard Operating Procedure (SOP) considerations to close the access road to the park are made after the lake rises to the 18 foot stage. The normal pool level is 15 feet, according to the Us Army Corps of Engineers, Pool Stage Frequencies in Appendix D-4. Accordingly, the access road may be closed after the lake has risen three feet.

The following is a summary of the operating procedures:

- The park is open seasonally: Closed from the beginning of September to the middle of May. The Army Corps staff operates out of the nearby Otter Brook Lake Station in the off season.
- The normal pool level is 15 feet; after the lake rises to the 18 foot stage, considerations to close the access road to the park are made
- During high water events, the lake and surrounding park are closed to the public and the entrance gate is locked because much of the facility is submerged, including the beach and the boat launch
- During the offseason, the recreation area is open for winter activities including ice fishing, snowshoeing and snowmobiling, weather permitting.

Site Review : Ashuelot River at the crossing

Access to the I135N / J136N crossing from the Lake is along the Ashuelot River, which is shallow and narrow during normal waters, as demonstrated by the attached photographs in Appendix D-2, is lined with vegetation, and clearly not suitable for sailboating.

The Ashuelot River crossing is affected by the rising waters of Surry Mountain Lake, and access from the lake due to topography and vegetation. During normal water levels, the I135N/J136N water crossing area is not suitable for sailboating because of its limited width and depth down stream of the crossing. Directly under the conductors, the river channel is approximately 20 feet wide and 5 feet deep, during normal flow. The adjacent areas are bordering vegetated wetlands.

Down stream the river diverges into multiple channels, which vary in width between 5 and 15 feet and depths that are generally less than a foot. Outside of the Right of Way, trees line the banks of the river. Trees between 12 to 18 inches in width line the bank of the river and are clustered within the flood plain. There is a stand of pines to the south of the ROW at the East bank, which is also the foot of Surry Mountain. Across from the pines on the west bank, a Birch cranes over the Ashuelot leaving a clearance, between the trees and water surface, of only 26 feet. Clusters of Birch and Poplar trees are tightly grouped to the North and South of the ROW within the flood plain.

An access road, from an abutting sand pit, curves around the hill that Structure 64 sits atop. On the south side of the ROW and east of the access road is a pine grove.

The following is a summary of the water levels at the crossing and the corresponding elevations.

- Ashuelot River: Normal water levels – 5 feet: Elevation 500 (15-foot pool depth at the dam)
- Impoundment: 10-year flood event–39 feet: Elevation 539 (Pool Stage Frequencies in App. D)
- Impoundment: Design high-water level – 50 feet: Elevation 550 (Pool Stage Frequencies in Appendix D-4)
(70-year recurrence interval) Change in water level from normal water level - 50 feet

Overflow is released down stream as the river below the dam can handle excess discharge. Drawdown of the lake is limited to five feet in 24 hours, according to the SOP.

During the design high-water level, this entire area, except for the hilltop area around Structure 64, is submerged. This area is not suitable for sailboating, because the area directly under the conductors is inaccessible to sailing vessels. Sailboats would have no means of access through the trees from either the North or South, or from the boat launch in the park, which is submerged. Also, the gate to the boat launch is locked.

The time frame for water depths to reach the levels needed for sailboating is extremely limited. Normally, the river is shallow, and the controlled impoundment area adjacent to the river is dry. The flood event to reach the design high water level is assumed to take several days, during which time the park, including the boat launch, are closed for safety reasons. Following the peak water level, drawdown of the lake and the impoundment is limited to five feet in 24 hours, until the normal level is reached.

Safe and Reasonable Sailboating Practices

The lake would need to rise significantly before the water would be deep enough for a sailboat to be able to approach the I135/J136 Lines. It would have to sail into a recently flooded area with exposed and submerged tree tops, unknown debris including downed trees, equipment in the submerged sandpit, and variable water depths.

Navigation charts, which are routinely used to identify a safe channel, submerged obstacles, and provide a safe sailing course, would be needed to navigate the area. Otherwise, sailing in an uncharted area is considered an unsafe and dangerous practice. The vessel would also be required to get a permit if it had a motor rated for more than ten horsepower, and would be on the lake when the park is closed.

Since no navigation charts are available to provide any assurance of safe passage for sailboats in this area, the area is not suitable for sailboating.

Clearances Specified by Corps of Engineers

An "Agreement for Relocation of Utility Right-of-way and Transmission Lines at Surry Mountain" (See Appendix D-6) was created in 1938 between the United States of America through the United States Engineer Office to accommodate the construction of the Surry Mountain Dam and reservoir.

"WHEREAS, by reason of the construction of said dam and the creation of said reservoir it will be necessary to relocate one portion and make alterations to the remaining portion of the transmission line and telephone lines and right-of-way of the Power Company (hereinafter referred to as the Transmission Line) crossing said reservoir, so that the Transmission Line as relocated and altered and its continuous operation shall not be affected by the impounding of waters to the elevation of 560 feet mean sea level,....."

The agreement established the clearances and the corresponding operating conditions for the I135N/J136N lines for that crossing. The relocated lines were specifically designed and installed to operate continuously and safely up to an elevation of 560, which is 10 feet greater than the design high-water level for the dam.

With respect to the NES Code, "Where the US Army Corps of Engineers, or the state or surrogate thereof has issued a crossing permit, clearances of that shall govern." See Footnote 21 to Table 232-1, Row #6, Water areas not suitable for sailboating including lakes, ponds, reservoirs, tidal waters, rivers, streams and canals with an unobstructed surface area of.....

Article 5 of the Agreement further states that the Government, its agents, servants or employees are responsible for damages to the Transmission Line caused by their negligence by reason of construction, maintenance and operation of the dam and reservoir to elevation 560, which prohibits any sailboating or other activities within the reservoir that could affect the Transmission Line.

Summary

- Sailboat access to the I135N/J136N Line crossing of the Ashuelot River is from Surry Mountain Lake
- During normal water levels, the edge of Surry Mountain Lake is about a mile from the I135N/J136N crossing of the Ashuelot River.
- During normal water levels, the Ashuelot River is narrow, shallow, tree lined, and is not suitable for sailboating
- During high water levels, the area under the crossing is not suitable for sailboating:
 - Surry Mountain Lake Park is closed. The boat ramp and the beach are closed, and because of safety, the gate is locked. The facilities are submerged.
 - There is no access from the Lake to the crossing because of the presence of exposed and unexposed trees, and other objects
 - The area is uncharted for navigation
- Permits would be required for motors greater than 10 horsepower

- The existing agreement between the New Power Company and the Corps of Engineers establishes the required clearances for both the I135N Line and the J136N Line, and they are satisfactory for safe continuous operation.



APPROXIMATE LOCATION
STRUCTURE #64

APPROXIMATE LOCATION
STRUCTURE #65

APPROXIMATE
RIVER CROSSING

BOAT LAUNCH

APPROXIMATE FLOOD
PLAIN BOUNDARY

R.O.W.

SURRY MOUNTAIN
DAM

12A

Surry

W. Surry Rd.

Village Rd.

W. Surry Rd.

Park Dr.

Campground Rd.

Malcolm Rd.

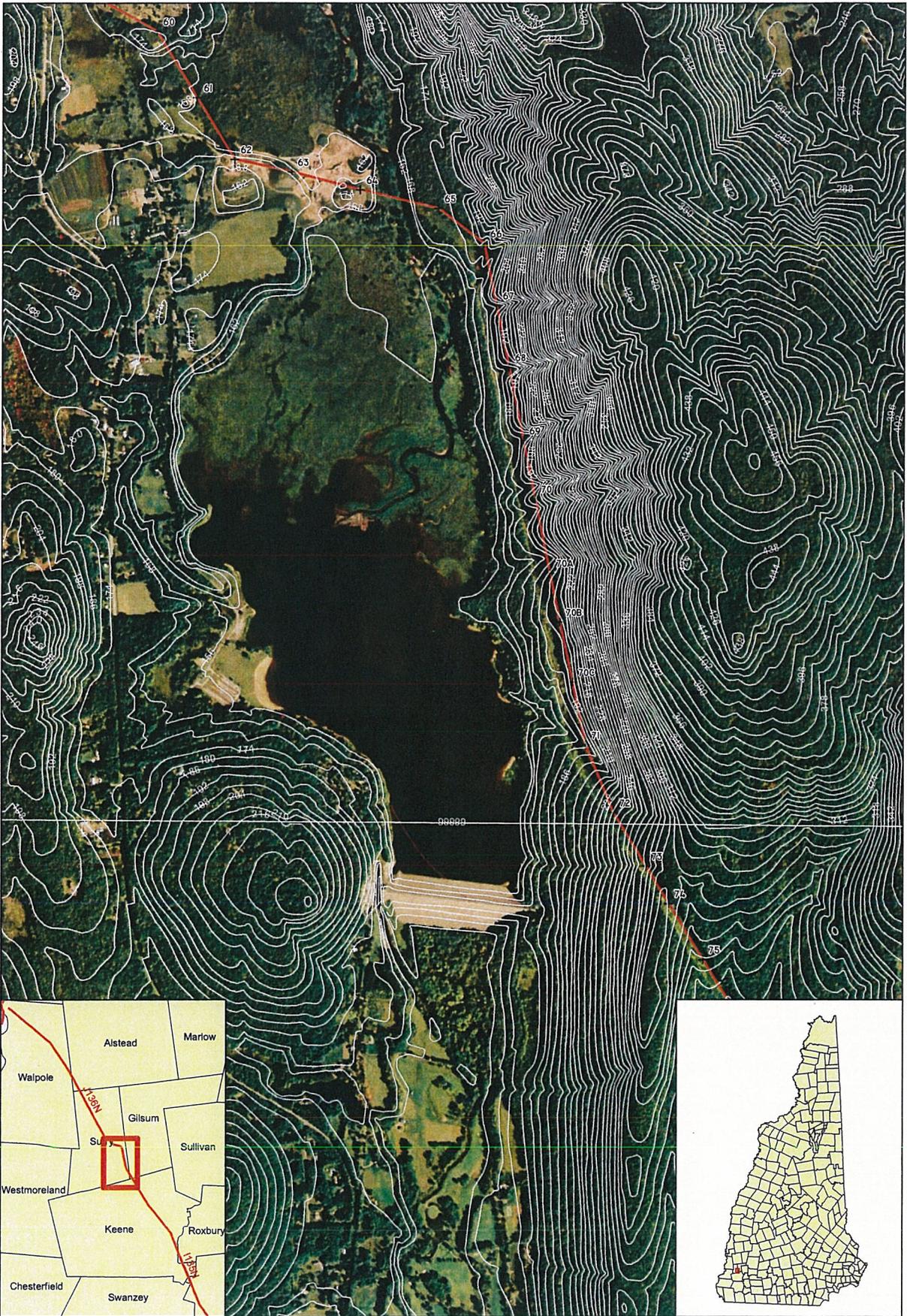
McCurdy Hill

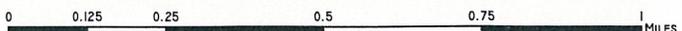
W. Surry Rd.

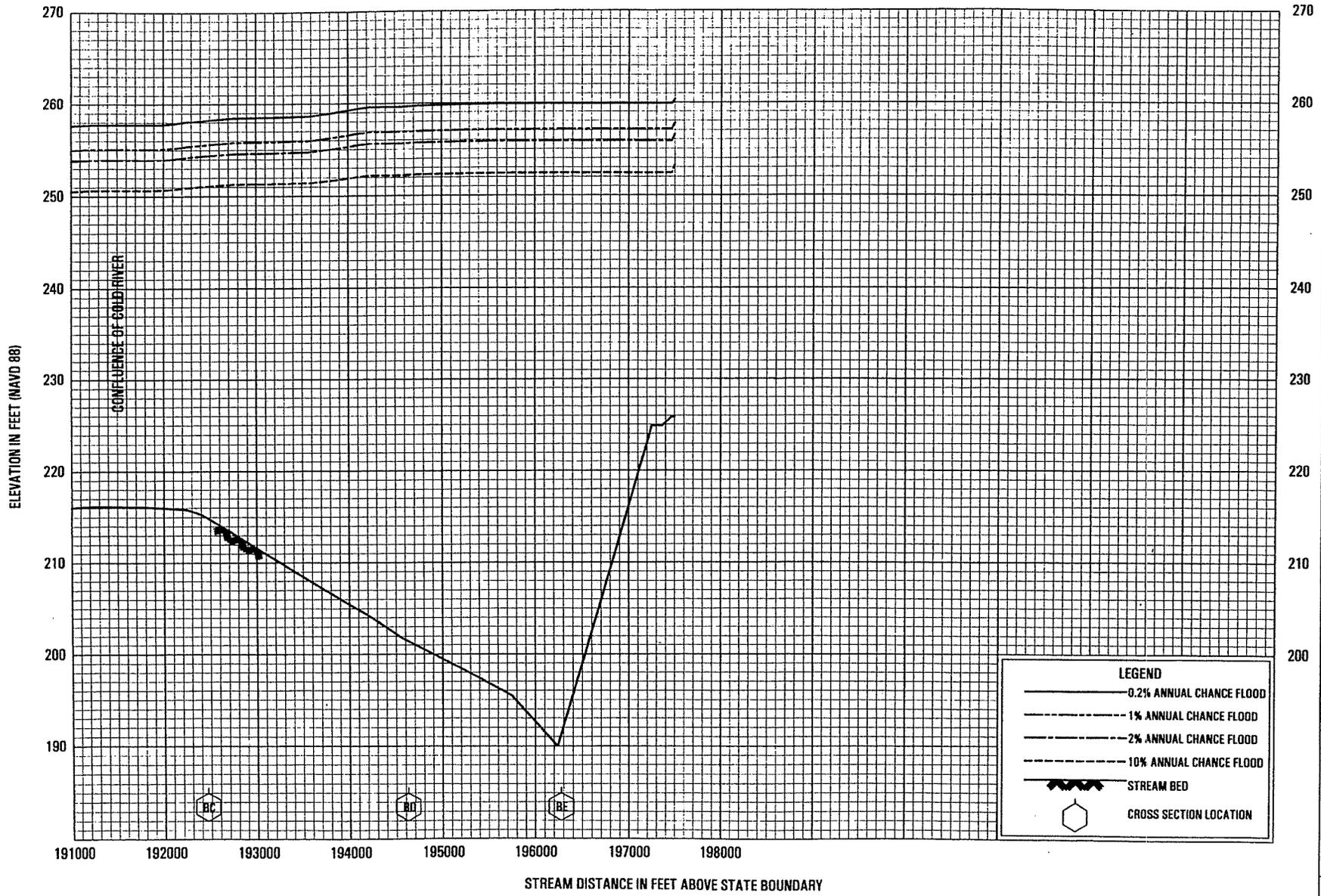
APPENDIX D-2







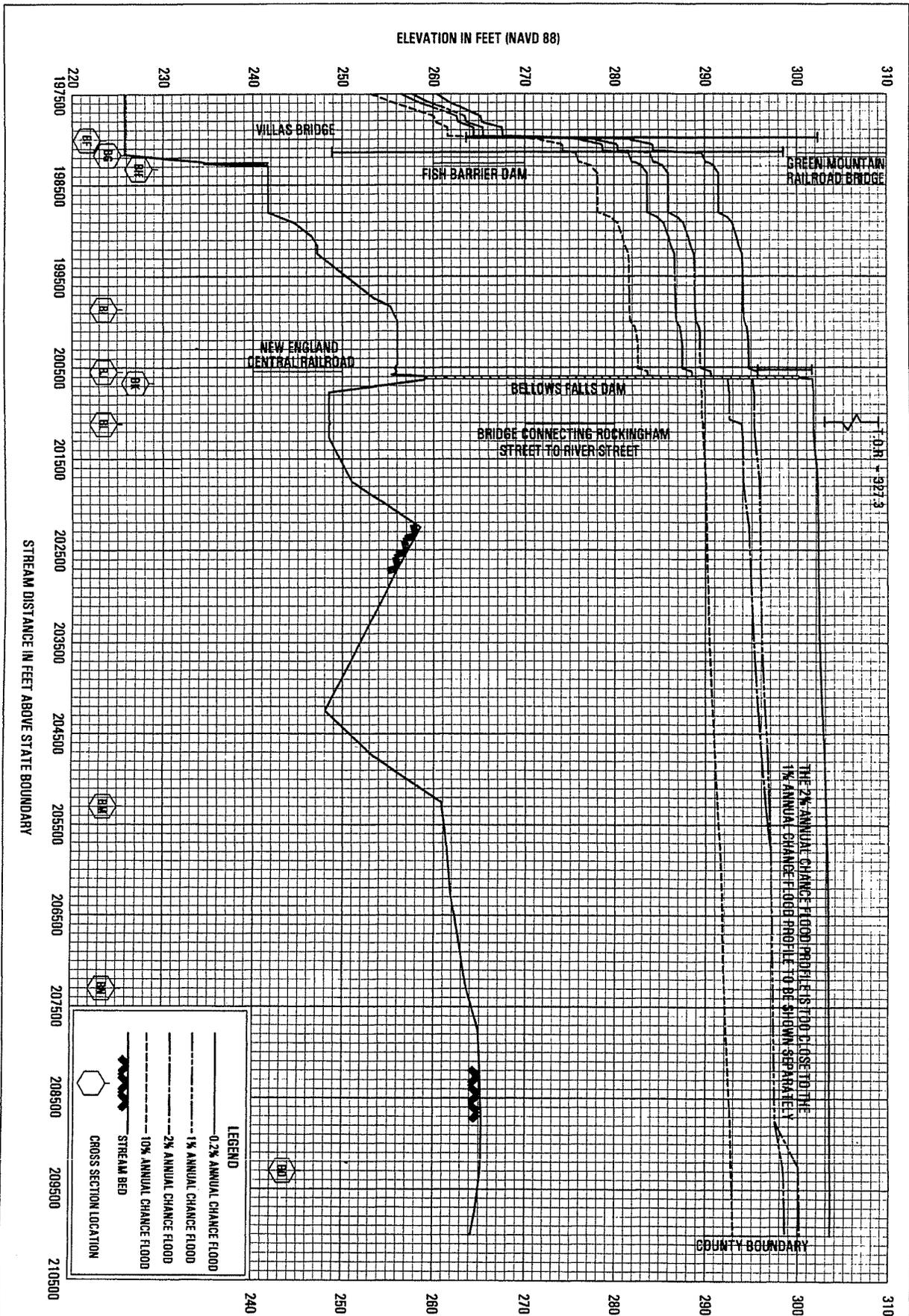
 <p>NORTH</p>	<h3>CIRCUIT 1135N AT SURRY MOUNTAIN LAKE</h3>			<p>Elevation (Meters) + NGRID STRUCTURES — NGRID CIRCUITS ■ SUBSTATIONS</p>
<p>VOLTAGE 115 KV</p>	<p>DATA SOURCES: ESRI ONLINE, NATIONAL GRID, NH GRANIT</p>	<p>1:12,000</p>	<p>1 INCH EQUALS 1,000 FEET</p>	<p>PROJECTION: NH STATE PLANE, METERS, NAD83</p>
				

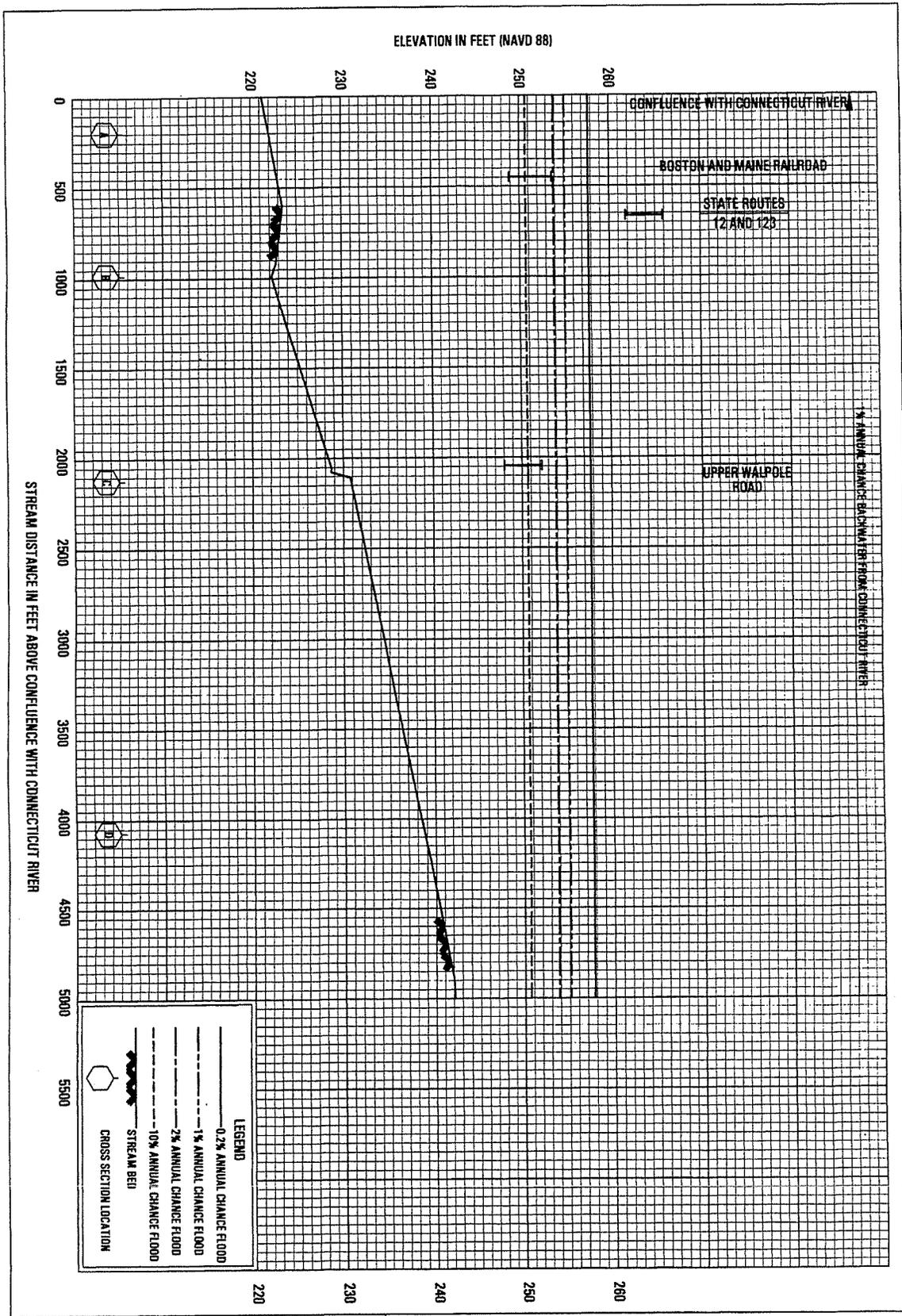


FLOOD PROFILES
CONNECTICUT RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY
CHESHIRE COUNTY, NH
(ALL JURISDICTIONS)

57P





FEDERAL EMERGENCY MANAGEMENT AGENCY
CHESHIRE COUNTY, NH
 (ALL JURISDICTIONS)

FLOOD PROFILES
COLD RIVER

40P

POOL STAGE FREQUENCIES

SURRY MOUNTAIN DAM

Ashuelot River, New Hampshire

(D.A. = 100 square miles)

(1936, 1938, 1943 & 2002)

<u>FREQUENCY</u>	<u>POOL STAGE</u>	<u>STORAGE</u>		
(yr)	(ft)	(acre-feet)	(inches)	(percent full)
2	37.0	9,500	1.8	30
5	48.0	17,000	3.2	54
10	54.0	21,700	4.1	60
20	59.8	26,950	5.1	84
50	64.0	30,700	5.8	97
100	66.0	32,700	6.1	100+
200	67.2	33,800	6.4	100+

NORMAL POOL LEVEL = 15.0 ft.

SPILLWAY CREST = 65.0 ft. (70-yr Freq)

GATE INVERT = 485.0 ft-NGVD



*Formerly
MUSD 259*

BF-PJ 78-8

BF-PJ 72-11

BF-PJ 73-10

BF-PJ 74- 9

BF-PJ 75-10

BF-PJ 76-9

BF-PJ 77-11

UNITED STATES OF AMERICA

AND

CONNECTICUT RIVER POWER
COMPANY

AND

NEW ENGLAND POWER
SERVICE COMPANY

FORCE ACCOUNT
RELOCATION AGREEMENT

Copy

VOIR AREA, IN CHERSHIRE COUNTY, NEW HAMPSHIRE
POWER COMPANY CROSSING THE SUREY MOUNTAIN RIVER-
LINE AND RIGHT-OF-WAY OF THE CONNECTICUT RIVER
AND ALTERATION OF THE TRANSMISSION AND TELEPHONE
ISLAND POWER SERVICE COMPANY FOR THE RELOCATION
THE CONNECTICUT RIVER POWER COMPANY AND THE NEW
AGREEMENT BETWEEN THE UNITED STATES OF AMERICA.

Contract No. W69986-1180

AGREEMENT FOR RELOCATION OF UTILITY RIGHT-OF-WAY

AND TRANSMISSION LINES AT SURRY MOUNTAIN

THIS AGREEMENT made and entered into this 28th day of June, 1940, between the UNITED STATES OF AMERICA, acting through and by Lieutenant Colonel J. S. Bragdon, District Engineer, United States Engineer Office, Providence, Rhode Island, hereinafter referred to as the Government, and CONNECTICUT RIVER POWER COMPANY, a corporation of the State of New Hampshire, hereinafter referred to as the Power Company, and NEW ENGLAND POWER SERVICE COMPANY, a corporation of The Commonwealth of Massachusetts, qualified to do business in the State of New Hampshire, hereinafter referred to as the Service Company;

WHEREAS, the Government pursuant to an Act of Congress authorizing the construction of certain public works on rivers and harbors for flood control and other purposes, approved June 28, 1938, is now engaged in the construction of the Surry Mountain Dam, Cheshire County, New Hampshire, which dam and the reservoir to be created by it are included in the general plan for the improvement of the Connecticut River Basin authorized by said Act; and

WHEREAS, by reason of the construction of said dam and the creation of said reservoir it will be necessary for the Government to relocate one portion and make alterations to the remaining portion of the transmission and telephone lines and right-of-way of the Power Company (hereinafter referred to as the Transmission Line) crossing said reservoir, so that the Transmission Line as relocated and altered and its continuous operation

shall not be affected by the impounding of waters by said dam to the elevation of 560 feet mean sea level, as determined by reference to bench mark established by the U. S. Geological Survey, described as follows:

U. S. C. S. B. M. (Dise) C-29-1926; Surry Town, tablet on west side of road on catch basin 150 ft. north of cemetery in the Town of Surry, approximately one and one-half miles north of the Surry Mountain dam site; elevation 538.00 ft. above mean sea level.

and

WHEREAS, under the provisions of Section 2 of the Flood Control Act approved June 28, 1938, the Government may relocate any transmission line or other utility affected by such flood control dam, and under the terms of said section as amended August 11, 1939, can, acting through the Secretary of War, exchange lands or interests therein of the Government for private lands or interests therein required for such project; and

WHEREAS, because of the highly technical character of the work involved and because of the additional fact that all the engineering and construction of the Power Company is now and has been performed by the said Service Company, it is deemed for the best interests of all parties concerned that the Service Company shall perform for the Government all the work incidental to the relocation and modification of the Transmission Line involved and be reimbursed by the Government for the cost thereof:

NOW, THEREFORE, the said parties do hereby covenant and agree to and with each other as follows:

ARTICLE 1. The relocation and alteration of the Transmission Line

across the reservoir shall be made as shown on plan "Surry Mountain Reservoir Area" which plan is attached hereto and made a part hereof. This map shows the section of the Transmission Line to be relocated, the section of the Transmission Line to be modified and altered, the right-of-way to be conveyed to the Government and the right-of-way for the relocated Transmission Line to be conveyed to the Power Company.

ARTICLE 2. The Service Company shall perform for the Government all work in connection with the relocation and protection of the Transmission Line. Such work shall include:

- a. All surveys and plans necessary or incident to the relocation of that section of the Transmission Line designated on said plot being between Towers #62 and #71 as shown thereon, and likewise incident to the modification and alteration of that section between Tower #62 and the limit of the flow line designated on said plot as "A", including temporary construction necessary to keep one circuit in operation during the relocation of said Transmission Line and, upon the completion of the surveys and plans, submission thereof to the Government for approval. In the preparation of plans for the relocated and altered Transmission Line, standards of design and construction shall be such as to provide a Transmission Line comparable to that being replaced in matters of utility, durability and service.
- b. All construction work including purchase of materials required for the alteration, removal, relocation and reconstruction of the Transmission Line and including temporary construction of said Transmission Line.

- c. Supervision by the Service Company of the work herein described and responsibility of the Service Company for the efficient, economical and expeditious performance thereof.
- d. EIGHT HOUR LABOR--No laborer or mechanic doing any part of the work contemplated by this contract, in the employ of the contractor or any subcontractor contracting for any part of said work contemplated, shall be required or permitted to work more than eight hours, in any one calendar day upon such work at the site thereof. For each violation of the requirements of this article a penalty of five dollars shall be imposed upon the contractor for each laborer or mechanic for every calendar day in which such employee is required or permitted to labor more than eight hours upon said work, and all penalties thus imposed shall be withheld for the use and benefit of the Government: Provided, That this stipulation shall be subject in all respects to the exceptions and provisions of the U.S. Code, title 40, sections 321, 324, 325 and 326, relating to hours of labor.

ARTICLE 3. For the services and work to be performed by the Service Company for the Government, the latter shall pay the Service Company there-

for the sum of Fifty Three Thousand Six Hundred Sixty Five (\$53,665.00) Dollars in two installments, one-half of said amount shall be paid when the Service Company has completed the installation of the temporary line and removed Towers #62 to #70 inclusive as now located, and the remaining half shall be paid at the time construction of the new section of the line is completed.

ARTICLE 4. The Government shall immediately acquire all rights-of-way necessary for the Transmission Line as relocated. The Service Company shall have the right to enter forthwith upon said rights-of-way for all purposes incidental to the relocation and reconstruction, including the removal of 25,000 yards of gravel from other land owned by the Government for the protection of towers which will remain in the flooded area or may be hereafter erected in said flooded area. The Power Company shall convey to the Government all its right, title and interest in and to the abandoned right-of-way lying between Towers #62 and #71 and the perpetual right to overflow, up to said elevation 560, its right-of-way between "A" and Tower #62, and between Tower #71 and the east boundary of Tract 6, as shown on attached map. Such conveyance shall be coincident with and in exchange for the conveyance by the Government to the Power Company of the perpetual right and easement to construct, maintain and operate transmission and telephone lines over those

portions of the Government-owned land required for the Transmission Line as relocated and lying between the point designated on plot as "A" and a point about 1075 feet south of Tower #71. This easement shall be in substantially the same terms as the easements now enjoyed by the Power Company over its existing line, and shall be subject to the perpetual right of the Government to overflow said right-of-way up to said elevation 560 and shall also include the right of the Power Company to take 25,000 cubic yards of gravel from such other portions of Government land as shall be designated by the Government for the protection of poles and towers now or hereafter constructed on the right-of-way over Government land. The above exchange of conveyances shall be made when the construction of the new section of the line is completed.

ARTICLE 5. All maintenance and upkeep of the Transmission Line after its relocation and alteration shall be assumed by the Power Company. The Power Company and the Service Company shall remise, release and discharge the Government for any and all matters of claims, demands, liabilities, actions and payments by reason of any damages caused to the Transmission Line which it has or could at any time hereafter have against the Government by reason of the construction, maintenance and operation of said dam and reservoir to said elevation 560, unless such damage be caused by the negligence of the Government, its agents, servants or employees.

ARTICLE 6. The Service Company shall commence removal and relocation of that portion of the Transmission Line set forth in Article 1 within thirty (30) days after receipt by the Service Company of notice of approval of the surveys and plans by the Government, and shall prosecute said work with diligence and continuity to its completion so that the Transmission Line

shall be altered, relocated and in operation and the reservoir site cleared of all equipment to be abandoned prior to July 1, 1941.

ARTICLE 7. The Service Company warrants that it has not employed any person to solicit or secure this agreement upon any agreement for commission, percentage, brokerage, or contingent fee. Breach of this warranty shall give the Government the right to terminate the agreement, or, in its discretion, to deduct from the contract price or consideration the amount of such commission, percentage, brokerage, or contingent fee.

ARTICLE 8. No member of or delegate to Congress or Resident Commission shall be admitted to any share or part of this agreement or any benefit that may arise therefrom, that this provision shall not be construed to extend to this agreement if made with a corporation for its general benefit.

ARTICLE 9. This agreement shall be subject to the written approval of the Chief of Engineers and shall not be binding until so approved.

IN WITNESS WHEREOF the parties hereto have executed this agreement as of the day and year first above written.

Approved: Aug 19 1940

(Sgd.) J L Schley
Eng

J. L. Schley,
Major General,
Chief of Engineers

UNITED STATES OF AMERICA

By (Sgd.) J. S. Bragdon
J. S. Bragdon

Lieutenant Colonel, Corps of Engineers
United States Army
District Engineer
United States Engineer Office
Providence, Rhode Island

WITNESS:

(Sgd.) A. F. Brown

" David J. Donahue

CONNECTICUT RIVER POWER COMPANY

By (Sgd.) Carl S. Herrmann
PRESIDENT

NEW ENGLAND POWER SERVICE COMPANY

By (Sgd.) Harry Hansen
TREASURER

FAA 2

(Formerly MISC 259) ...305

UNITED STATES OF AMERICA

AND

CONNECTICUT RIVER POWER CO. and
NEW ENGLAND POWER SERVICE CO.

AGREEMENT

(Copy)

(Re relocation of B.F.-P.J. Line)