THE STATE OF NEW HAMPSHIRE
BEFORE THE
PUBLIC UTILITIES COMMISSION

PETITION OF PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE FOR A LICENSE TO CONSTRUCT AND MAINTAIN A STATIC WIRE WITH FIBER OPTIC CABLE OVER AND ACROSS GLEN LAKE IN THE TOWN OF GOFFSTOWN, NEW HAMPSHIRE.

TO THE PUBLIC UTILITIES COMMISSION:

Public Service Company of New Hampshire ("PSNH"), a public utility engaged in the generation, transmission, distribution and sale of electricity in the State of New Hampshire, hereby petitions the Public Utilities Commission ("Commission"), pursuant to RSA 371:17-20, for a license to install a static wire with fiber optic cable over and across the public waters of Glen Lake in the Town of Goffstown, New Hampshire, and in support of its petition states as follows:

1. In order to meet the reasonable requirements of service to the public, PSNH has previously constructed and currently operates and maintains a 115 kV transmission line, designated as line C-196. The C-196 line runs between PSNH's Merrimack Substation in Bow, New Hampshire and PSNH's Greggs Substation in Goffstown, New Hampshire, and is an integral part of the PSNH transmission system and the overall New England transmission grid. The C-196 line crosses over the public waters of Glen Lake, in Goffstown, New Hampshire. This crossing has previously been licensed by the Commission in Docket DE 75-106, Order No. 11,856, dated June 6, 1975.

2. The C-196 line as presently constructed and licensed by the Commission, crosses Glen Lake with 3 phase wires and two static wires. PSNH proposes to replace one of the static wires on the C-196 line with a new static wire that has an integral fiber optic cable, known an optical ground wire (OPGW). This OPGW cable would serve the same functions as the existing static wire but would also add fiber optic capabilities. Use of OPGW cable in place of the regular Alumoweld static wire will improve and enhance the reliability and capacity of the communications systems used in PSNH's electric system operations. The in-service date for this project is November 18, 2010. To support this date, the C-196 Line will be removed from service between October 25, 2010 and November 18, 2010.

3. The existing H-frame structures for the C-196 line at the location of the water crossing (structures 143 and 144) will remain, with no modifications to the existing phase wires or their heights. The clearances between the new OPGW cable and the existing conductors have been determined and are summarized in Appendix A attached to this petition. The structures have also been determined to be able to accept the increased loads imparted by the larger cable diameter.

4. The required technical information provided in this petition is based on the 2007 National Electrical Safety Code (NESC) C2-2007.

5. Glen Lake will be spanned on existing round wood structures. These structures are a two-pole tangent structure (Type D) and a three-pole deadend structure (Type DA). A detail design specification for these structure types is attached to this petition as FIGURE 1 and FIGURE 2, respectively. As shown on FIGURE 1, the phase wires have a separation at the structure of 14-ft horizontally. The static wire (OPGW cable) will be carried on the structure by a support bracket approximately 2' up from the top of pole and is attached approximately 7-ft horizontally from the phase wires. As shown in FIGURE 2, the phase wires have a separation at the structure of 14-ft horizontally. The static wire (OPGW cable) will be carried on the structure by a support bracket at the top of the crossarm and is approximately 7-ft 6-in up vertically from the phase wire.

6. The OPGW cable will be sagged using a maximum tension of 6,500 pounds at NESC Heavy Load conditions.

7. No wetlands permits will be required as part of the construction of this crossing.

8. The proposed crossing has been designed and will be constructed, maintained and operated by PSNH in accordance with the applicable requirements of the NESC.

9. PSNH owns permanent easements, not less than 375 feet wide, for its lines and facilities on both sides of Glen Lake. This crossing will be constructed within the limits of those easements.

10. PSNH submits that the license petitioned for herein may be exercised without substantially affecting the rights of the public in the public waters of Glen Lake. Minimum safe line clearances above all water surfaces and affected shorelines will be maintained at all times. The use and enjoyment by the public will not be diminished in any material respect as a result of the overhead wire and cable crossing.

WHEREFORE, PSNH respectfully requests that the Commission:

a. Find that the license petitioned for herein may be exercised without substantially affecting the public rights in the public waters which are the subject of this petition;

b. Grant PSNH a license to construct and maintain a static wire with fiber optic cable over and across the public waters of Glen Lake as specified in the petition; and

c. Issue an Order Nisi and orders for its publication.

Dated at Manchester this 3rd day of September, 2010.

Respectfully submitted,

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE
By Its Attorney

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APPENDIX A
C196
GLEN LAKE
GOFFSTOWN, NH

1. The location of this crossing is shown on the attached location map marked as Exhibit 1.

2. The design and proposed construction of this crossing is shown on the attached PSNH Engineering Drawing entitled "C-196 115 kV Line Crossing Glen Lake Goffstown, NH" (Drawing No. B-7649-130) marked as Exhibit 2.

3. Line C-196 will cross Glen Lake on a two pole 110' type D structure (North) and one, three pole 85' deadend Structure (South) with a span of 1180'. A detail of these structures have been provided with the petition as FIGURE 1 and FIGURE 2 respectively.

4. The sags and clearance to the phase wires under worst case scenarios are as follows;

- Minimum phase to OPGW clearance – The weather case that would produce the minimum clearance between the phase wires and the OPGW wire would be a combination of winter weather factors. First, the phase wires would have to be at 30 deg. F just after an ice storm and would have just dropped their ice. The OPGW wire would also be at 30 deg. F and would still be iced with 1" of radial ice. Under these conditions the clearance would be 3' vertically and 7' horizontally from the OPGW to the closest phase wire. Based on Section 235.C.2.a.1 and Table 235-6 section 2.a of the NESC, the minimum clearance required is 56.2", or approximately 4.7' [29" + (118 kV-50 kV) x 0.4"].

EXHIBIT 1

NO.	REVISION	DATE	DRWN	CHCK	APPR

DRAWN: WNT

DESIGNED: MTM

CHECKED: MTM

APPROVED: DSD

Northeast Utilities Transmission Business

LOCATION PLAN
C196 LINE (115 KV)
GLEN LAKE WATER CROSSING
GOFFSTOWN, NEW HAMPSHIRE

SCALE	DATE	SHEET	DRAWING NO.
1"=2000'	7/22/2010	1 OF 2	D-7649-130A

DEAD END STRUCTURE TYPE DA
APPLICATION: ANGLES ABOVE 50°
GENERAL ARRANGEMENT

(110) 141

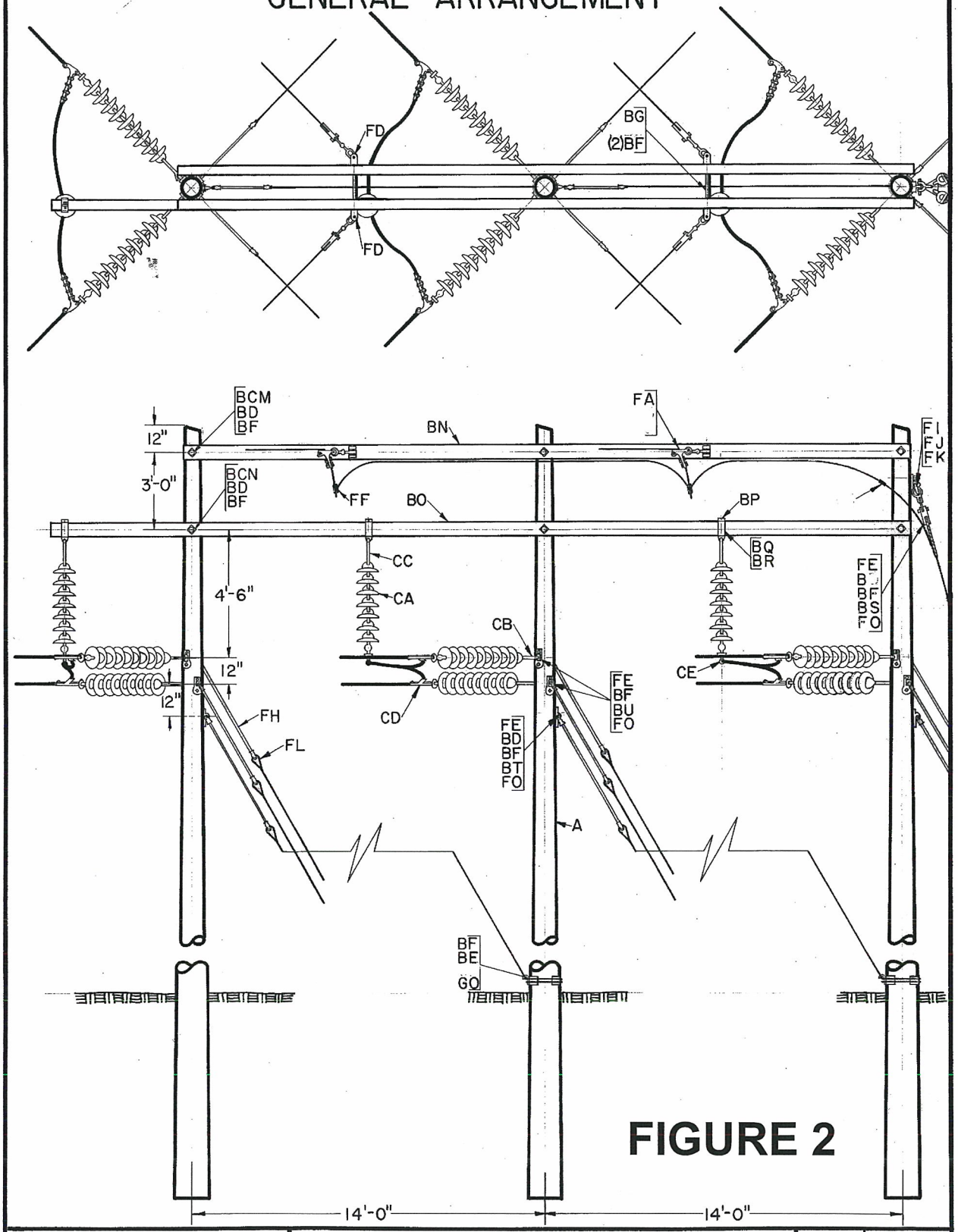


FIGURE 2

PSNH PUBLIC SERVICE Company of New Hampshire

115 KV

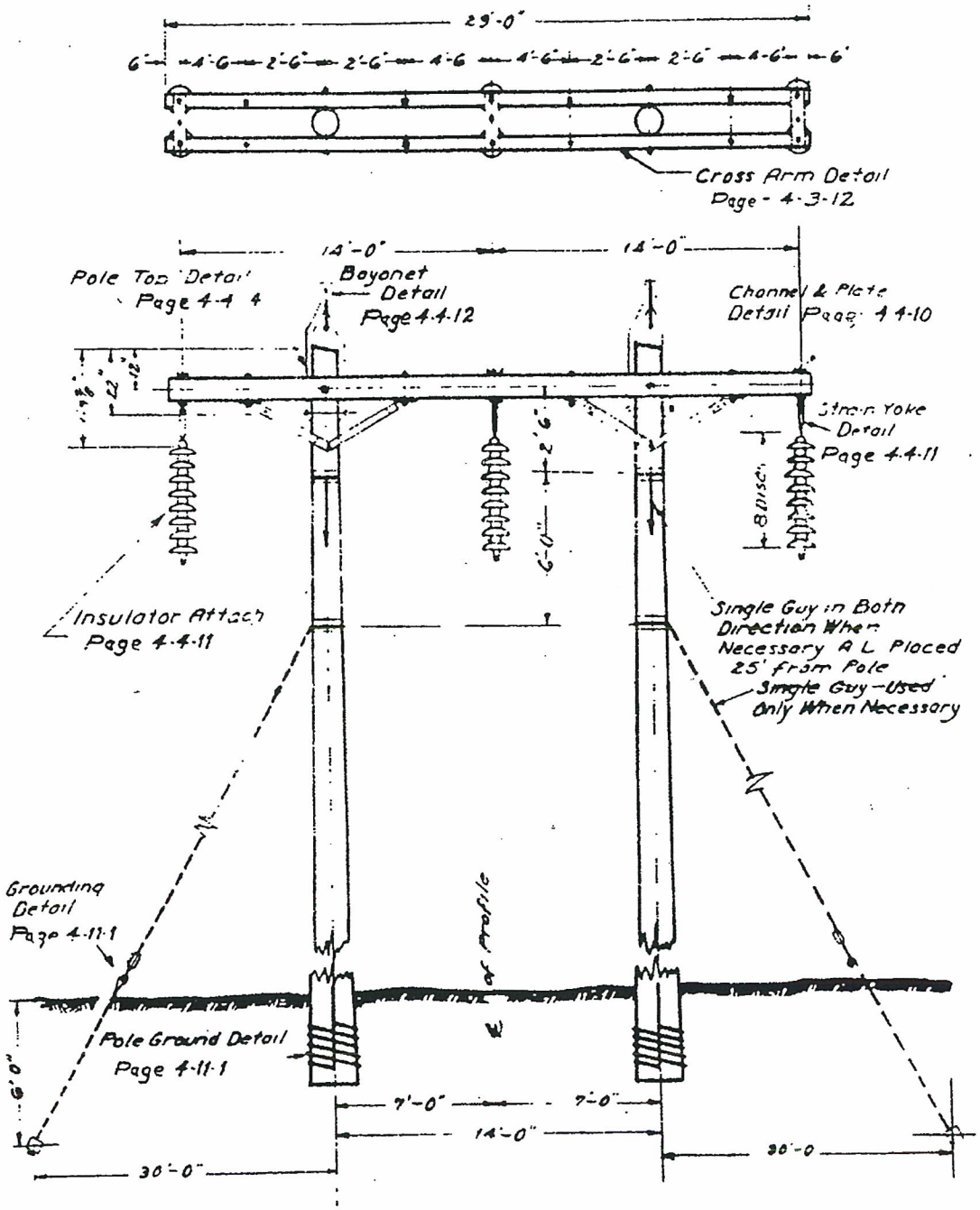
TRANSMISSION STANDARDS

ISSUE	DATE
ORIGINAL	03-31-80

MAKEPEACE P-2404

TYPE D STRUCTURE

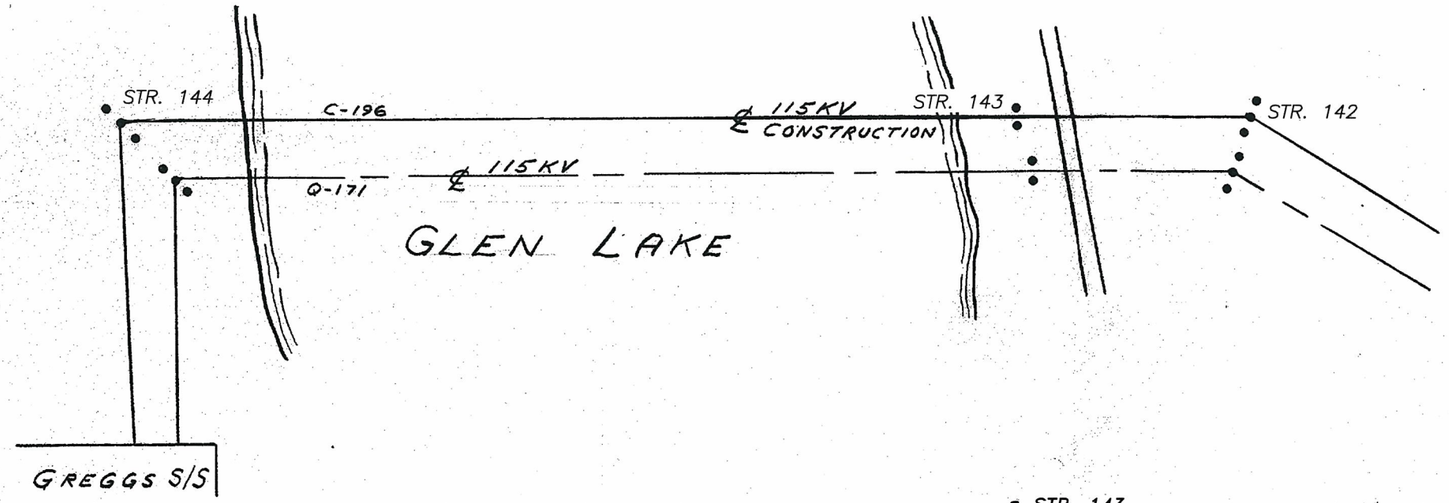
HIGHWAY & RAILROAD CROSSINGS

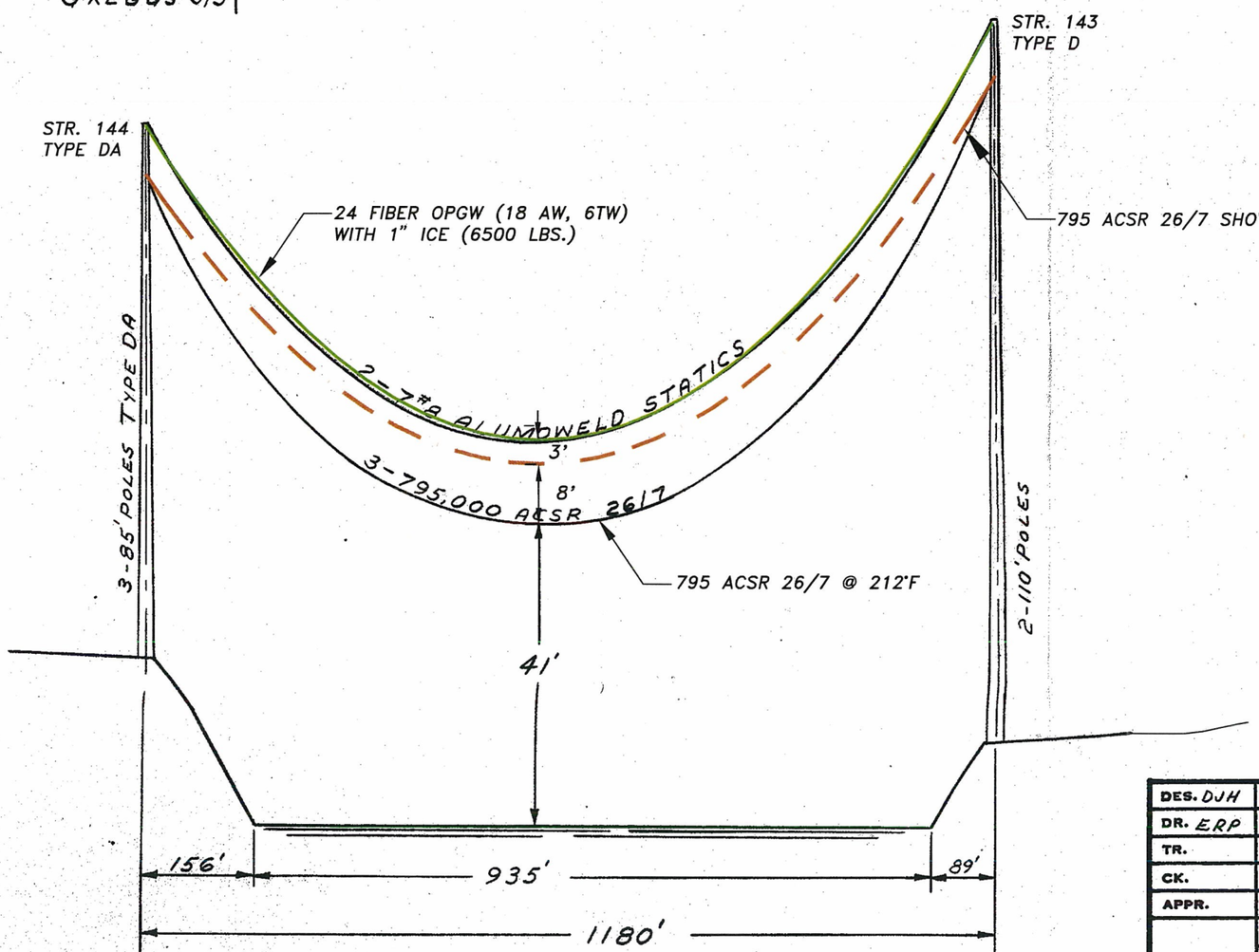


For Method of Pole Guying
See Page 4-10-15
For Method of Pole & Guy
Grounding See Page 4-11-2

FIGURE 1

PUBLIC SERVICE Company of New Hampshire	115 KV TRANSMISSION STANDARDS	ISSUE	DATE
		ORIGINAL	





NOTES:

1. CONDUCTOR SAG INDICATED IS 212°F, THE MAXIMUM NORMAL OPERATING TEMPERATURE.
2. CLEARANCE SHOWN IS BASED ON 2 FT. OF FLASHBOARDS ON DAM.

EXHIBIT 2

DES. DJH	NO.	REVISION	DATE	BY
DR. ERP	1	ADD OPGW	7/2010	WNT
TR.	2			
CK.	3			
APPR.	4			
	5			
	6			

C196 115 KV LINE CROSSING
GLEN LAKE
GOFFSTOWN, N.H.

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
ENGINEERING DEPARTMENT
SCALE 1"=20' VERT. 1"=200' HOR. DATE 4/15/75

B-7649-130