

## APPENDIX A

### **A-152 ASHUELOT RIVER SWANZEY, NH**

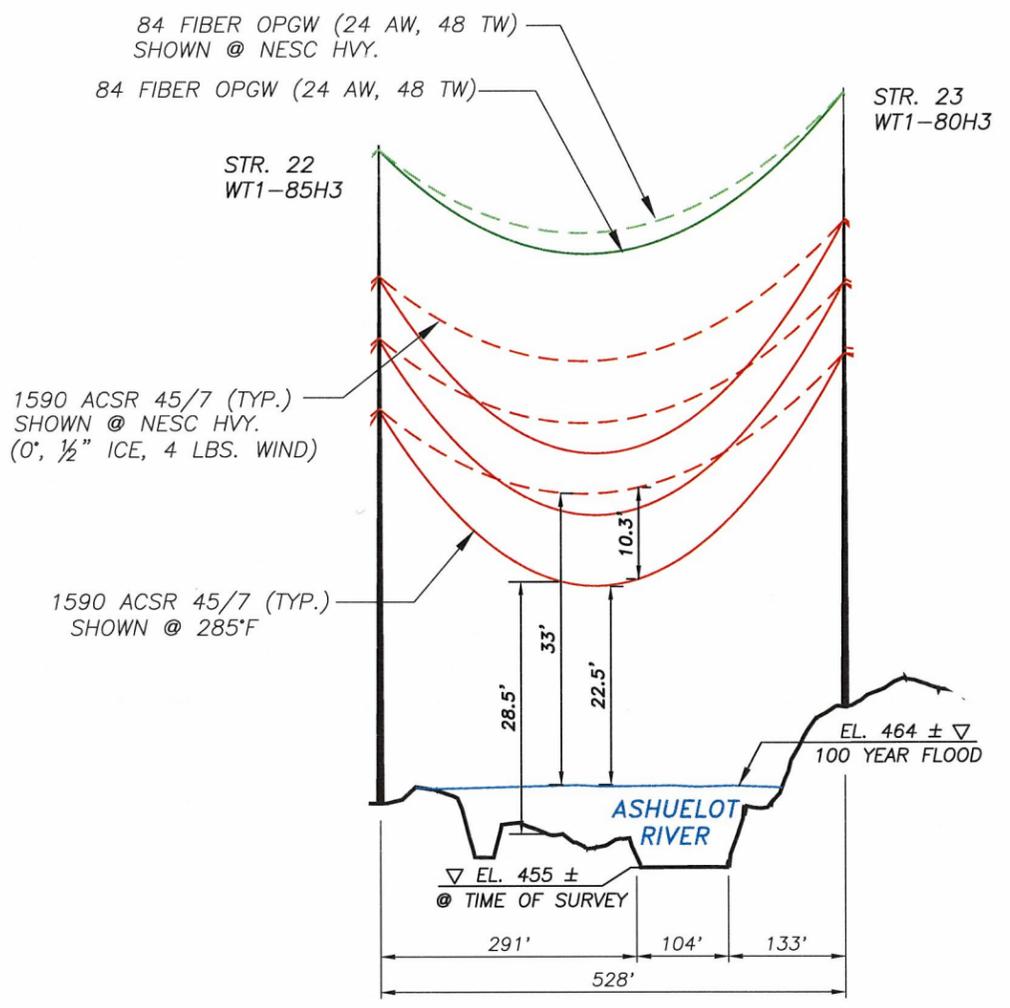
1. The location of this crossing is shown on the attached location map marked as Exhibit 1.
2. The design and proposed construction of this crossing is shown on the attached PSNH Transmission Drawing entitled “A-152 LINE – 115 KV, BETWEEN STRUCTURES 22 & 23, ASHUELOT RIVER WATER CROSSING, SWANZEY, NEW HAMPSHIRE” (Drawing No. 7649-500) marked as Exhibit 2.
3. Line A-152 will cross the Ashuelot River on single-poles, 85’ (north) and 80’ (south), wood tangent structures with a span of 528.00. A detail of this structure has been provided with the Petition as FIGURE 1. As shown on FIGURE 1, the top and middle phase wires have an approximate separation at the structure of 7’ vertically and 12’ horizontally, while the middle and bottom phase wires are 8’ vertically and 13’ horizontally. The OPGW wire is carried on the structures above the phase wires by a support bracket approximately 14’-6” above and 6’ laterally from the top phase wire. Minimum distances to ground for truck traffic of 20.1’ per the NESC have been met as 28.5’ of clearance is provided.
4. Flood water elevations for the Ashuelot River were based on information contained in flood insurance rate maps provided by FEMA. The 100-year flood elevation for this portion of the River is approximately 464’. No information was available for the 10-year flood elevation for this portion of the River. However, it should be noted that the 100-year elevation, which these lines were designed to safely exceed, would be well above the 10-year flood elevation. The area of the crossing, as required by the NESC (Table 232-1.7, Note 19), is approximately 12.1 acres. This is based on the total area of the River for a 1-mile stretch in either direction of the crossing ( $100' \times 5,280'$ )/43,560 sf/ac = 12.1 ac). As stated in paragraph 9 of the Petition, the minimum required 115 kV conductor clearances for water surface areas less than 20 acres is 22.1’. As required by the Federal Aviation Administration, all of the structures for this project were kept as low as possible due to the proximity of the A-152 Line to the Dillant-Hopkins Airport in Keene, NH. The water crossings for this project were purposely kept as low as possible to adhere to stringent Federal regulations regarding elevations and aircraft flight paths.

5. The sags and clearances to the water surface during a 100-year flood event for this crossing are as follows;

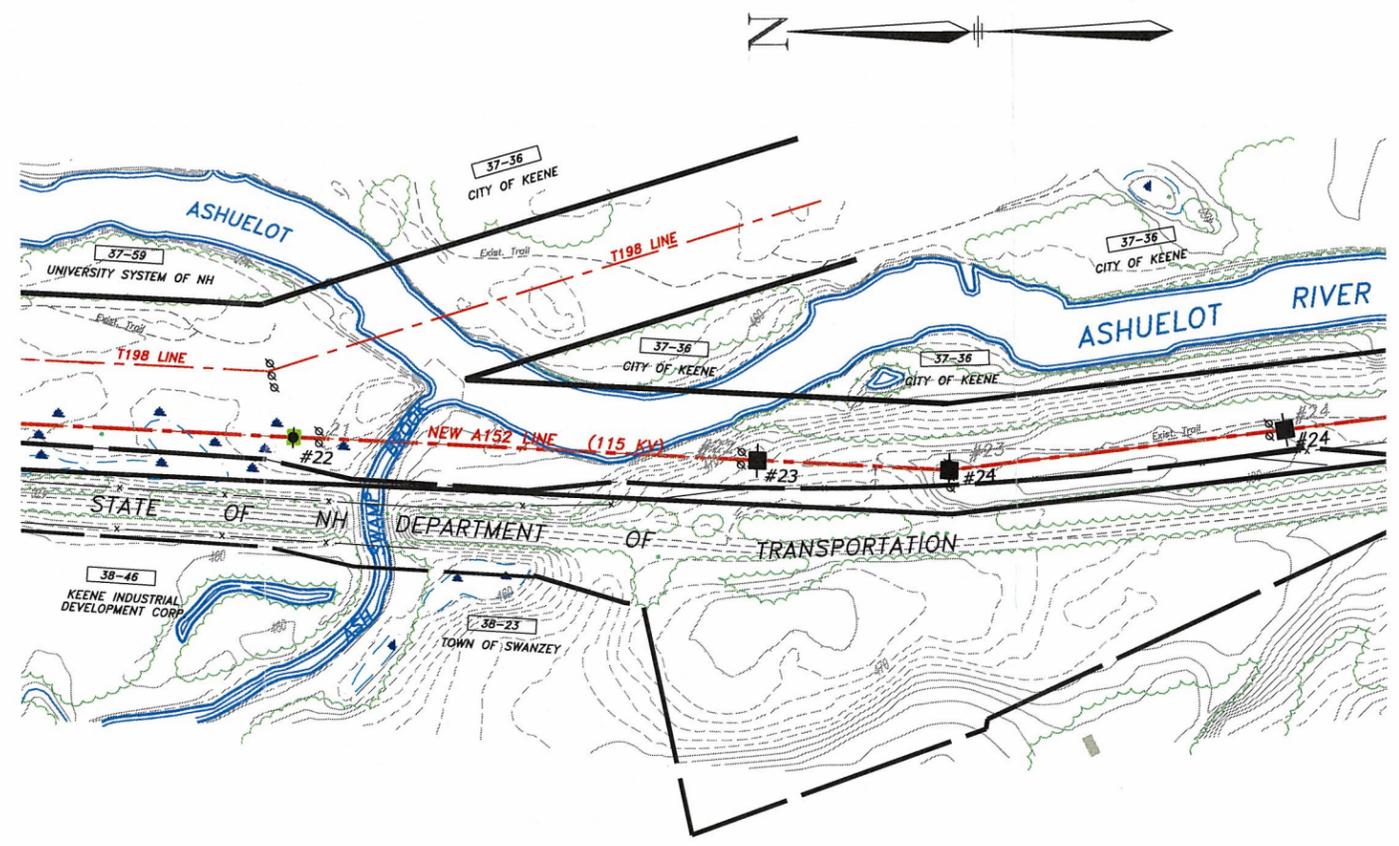
- Shield wires – Due to the fact that the OPGW wire and the static wire are located above the phase wires, its clearance to the water surface will always exceed the minimum required NESC distance.
- NESC Heavy Loading - The maximum conductor sag for this weather case will be 12.3' with a clearance to the water surface of 33.0'.
- -20 degrees F - The maximum conductor sag for this weather case will be 4.5' with a clearance to the water surface of 37.2'.
- 285 degrees F – Max operating temperature (Phase wires) based on PSNH transmission standards - The maximum conductor sag for this weather case will be 23.1' with a clearance to the water surface of 22.5'. This condition produces the greatest sag in the phase wires and therefore the minimum clearance to the water surface. This design will exceed the minimum clearance requirement of 22.1' by 0.4' under temporary emergency conditions during a 100-yr storm event.
- Minimum phase to OPGW and static wire clearance – The weather case that would produce the minimum clearance between the phase wires and the shield wires 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 10.96' vertically and 7.0' horizontally from the shield wires 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 57.4", or approximately 4'-10" [29" + (121 kV-50 kV) x 0.4"].



THIS PLAN IS FOR REFERENCE ONLY.  
NO REPRESENTATION OR WARRANTY IS  
MADE AS TO LOCATION OF BOUNDARIES  
OR OTHER POINTS OF REFERENCE



**PROFILE**  
SCALE: 1"=200' HORIZ.  
20" VERT.



**PLAN VIEW**  
SCALE: 1"=200'



GRAPHIC SCALE  
(Feet)

**EXHIBIT 2**

	Public Service of New Hampshire		Transmission Business	
	<b>A152 LINE (115 KV) BETWEEN STRUCTURES 22 &amp; 23 ASHUELOT RIVER WATER CROSSING SWANZEY, NEW HAMPSHIRE</b>			
DRAWN WNT DESIGNED DSD CHECKED DSD APPROVED DSD	SCALE 1"=200'	DATE 5/5/2008	SHEET 1 OF 2	DRAWING NO. D-7649-500

NO.	REVISION	DATE	DRWN	CHK	APPR