

Québec–New Hampshire Interconnection

**Permit application (under section 58.11 of the *National Energy Board Act*)
(National Energy Board File: OF-Fac-IPL-H141-2016-01 0101)**

and

**Application to amend the definition of the 450-kV international power line
(Certificate No. EC-III-21)
(National Energy Board File: OF-Fac-IPL-H141-2017-01 0101)**

**Hydro-Québec TransÉnergie (HQT) responses to the National Energy Board's Request
for Information **No. 2** dated July 10, 2017**
July 24, 2017

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Consultation Matters

2.1 Notification of Potentially Affected Aboriginal Groups

- Reference:**
- i) [A56504](#), National Energy Board (NEB or the Board), Letter to NEB Regulated Companies about preliminary traditional territory analysis for non-hearing applications.
 - ii) [A84264-1](#), Hydro-Québec, Demande de permis, page 5-7 – 5-9 (PDF pages 57 – 59 of 186).

Preamble: Reference i) is a letter from the Board sent on 17 January 2014 to all NEB regulated companies that, if interested, they may request the Board provide information on the Aboriginal groups the Board considers may be impacted by a proposed project under sections 21, 58 and 74 of the *National Energy Board Act* (NEB Act) or other applications where there may be an impact to Aboriginal interests.

The letter informs companies to email the Board requesting a preliminary traditional territory analysis (PTTA) and include information about the project, a map, and a list of Aboriginal groups the company has, or plans to contact about the proposed project.

The Board would then provide PTTA before a company submits project application.

The Board notes that prior to filing its application, HQT requested a PTTA and the Board provided one on 26 August 2015. The Board identified the following Aboriginal groups as having known or asserted traditional territory in the project area and may be impacted by the Project:

- Algonquin Anishinabeg Nation
- Mohawks of Akwesasne
- Mohawks of Kahnawake
- Mohawks of Kanesatake
- Native Alliance of Quebec
- Odanak First Nation
- Québec Métis Nation
- Wôlinak First Nation

Reference ii) is a summary of HQT's engagement with Aboriginal peoples about the Project. HQT indicates that le Bureau du Ndakinna du Grand Conseil de la nation Waban-aki (le Bureau) is responsible for consultation within the territory where the Project is located. The reference provides information regarding HQT's consultation with le Bureau on the Project.

Request: Please provide the following:

- a) Confirmation that the Aboriginal groups identified in reference i) as having known or asserted traditional territory in the Project area have been provided with notice of the Project;

Answer 2.1a)

As stated in section 5.3 of the permit application filed with the National Energy Board ([A81160-3](#)), the project study area encompasses no territory covered by any comprehensive or specific Aboriginal land claim. The administrative agreement covering subsistence, ritual and social hunting and trapping activities signed between the Québec government and the Abenaki communities of Odanak and Wôlinak does not constitute an acknowledgment of ancestral rights.

Nevertheless, as also stated in section 5.3 of the permit application, the Odanak and Wôlinak First Nations have been notified of the project by the Bureau du Ndakinna du Grand Conseil de la nation Waban-aki. This organization, which is responsible for holding territory-related consultations and responding to consultation requests on behalf of the Waban-aki Nation, was consulted by Hydro-Québec and the Direction des évaluations environnementales en milieu terrestre (the branch responsible for land-based environmental assessments) of the Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques du Québec (MDDELCC) [Québec department of sustainable development, environment and the fight against climate change]. Since none of the other communities and organizations cited in the preamble to the Board's Question 2.1 have any known or asserted territory within the project area or are not recognized by the governments as Aboriginal groups, they have not been provided with any specific information concerning the project. For further details, refer to Answer 2.1 d).

- b) A summary of any concerns raised by the Aboriginal groups notified;

Answer 2.1 b)

The concerns expressed by the Waban-aki Nation are described in section 5.3 of the permit application filed with the Board ([A81160-3](#)).

- c) A description of how Hydro-Québec has addressed or will address any concerns raised to the extent possible, or an explanation as to why no further action is required to address the concerns;

Answer 2.1 c) *The actions taken by Hydro-Québec are described in section 5.3 of the permit application filed with the Board ([A81160-3](#)).*

- d) Justification why it was not necessary to carry out consultation activities with respect to the additional groups as noted above.

Answer 2.1 d) *In addition to that provided in the answer to Question 2.1 a), the information below further explains Hydro-Québec's decision not to hold consultations with the following groups.*

Algonquin Anishinabeg Nation

The mandate of the Tribal Council of the Algonquin Anishinabeg Nation is to protect and promote Aboriginal rights and to provide assistance and services to community members. The Algonquin communities of Pikogan, Kebaowek, Kitcisakik, Kitigan Zibi, Lac Simon, Winneway and Wahgoshig are affiliated with this organization.

There are currently no comprehensive land claims associated with Algonquin communities in Québec. Claims by these communities are specific in nature and involve lands adjacent to the territory of the Algonquin communities.

The closest Algonquin community to the project is Kitigan Zibi (Maniwaki), which is located 300 km northwest of the study area. Historically, the Kitigan Zibi Algonquins have frequented the territory north of the Fleuve Saint-Laurent (St. Lawrence River), between the Rouge and Dumoine rivers.

Mohawks of Akwesasne

Akwesasne is located more than 200 km west of the project study area. The Mohawks of Akwesasne do not frequent the study area.

There are currently no comprehensive land claims involving Mohawk communities in Québec. The specific land claim by Akwesasne concerns Dundee, a township located at the edge of the reserve.

Mohawks of Kanesatake

Kanesatake is located about 140 km west of the project study area. The members of the Kanesatake community do not frequent the study area. There are currently no comprehensive land claims involving Mohawk communities in Québec.

The specific land claim by Kanesatake concerns the area covered by the Seigneurie du Lac-des-Deux-Montagnes, located north of the Fleuve Saint-Laurent (St. Lawrence River) in the Laurentides region.

Native Alliance of Québec

Based in Gatineau, this organization's mandate is to promote and represent the interests of Aboriginal peoples (i.e., Indian, Inuit and Métis) living outside the reserves. The organization's member communities are not recognized by the Québec government (see Appendix A) or the Government of Canada.

Québec Métis Nation

The Québec government does not recognize the existence of any Métis community or association in its territory (see Appendix A), nor does the Government of Canada recognize this organization as Aboriginal.

Economic Matters

2.2 Eventual Abandonment of Facilities

- Reference:**
- i) [A83519-2](#) Hydro Quebec, Responses to NEB IR No. 1, IR #1.2 (PDF page 7 of 32).
 - ii) NEB [Electricity Filing Manual](#), Section 4.4 - Other Required Approvals and Project Schedule, PDF page 37 of 122.

Preamble: In reference i) HQT provided an abandonment cost estimate of \$10 million and stated that the expenses incurred would essentially relate to dismantling of the various components of the 320 kilovolt (kV) power line and site rehabilitation.

Reference ii) provides guidance that an application to the Board for the construction of an international power line should include a description of when proposed decommissioning and abandonment of the project might take place.

The Board requires further information regarding the types of costs and activities involved in the eventual abandonment of the Project.

Request: Please provide the proposed plan to eventually abandon the Project that details the specific cost components involved. Include a schedule for when such an abandonment might take place, including the types of expenses likely to be involved.

Answer 2.2 HQT reiterates that it has not established a schedule for abandoning operation of the planned 320-kV IPL or of any other interconnections in Hydro-Québec's transmission system. The system components will be operated and maintained as long as they remain in use.

The useful life of the IPL is estimated to be approximately 80 years as of commissioning. HQT does not plan to abandon the IPL within this period, but intends to ensure the asset's long-term operability by carrying out the required maintenance work.

Should the IPL be abandoned, HQT would notify the Board and then decommission the line in accordance with the applicable legal and regulatory framework.

The work required to dismantle the 320-kV IPL, and the cost of said work in constant 2017 dollars, would be as follows:

- *Conductor removal: \$3.3 million*
- *Tower dismantling: \$3.0 million*
- *Anchor bar and foundation column leveling: \$1.0 million*
- *Site restoration: \$1.0 million*
- *Jobsite management: \$1.0 million*
- *Material recovery: \$2.0 million*

Site restoration essentially consists in leveling the soil disturbed by the work, removing the temporary stream-crossing structures and seeding the areas where the towers were located.

The estimated time required to complete all the work is approximately five months.

Engineering Matters

2.3 Drawings

Reference: i) [A81160-3](#) Hydro-Québec, Demande de permis, Section 4.1, Situation du Projet (PDF Page 35 of 186).

ii) [A81160-19](#) Hydro-Québec, Résumé de l'étude d'impact sur l'environnement, Figure 3: Structure de Croisement des Deux Lignes d'Interconnexion (PDF page 16 of 32).

iii) [A83519-2](#) Hydro-Québec, Réponses à la DR no 1 de l'Office, DR 1.5, Figures 1 through 5, Réaménagement de Lignes au Poste Des Cantons (PDF Pages 15-19 of 32).

Preamble: Reference i) provides a textual description of the proposed reconfiguration of the existing 450 kV line near Des Cantons substation. The proposed works include construction of a crossing structure where the proposed International Power Line (IPL) will run beneath the existing 450 kV line and connect to a set of rigid busbars. The description also states that a steel structure will be erected to protect the busbars from any conductors that may fall from the 450 kV line above.

Reference ii) provides an isometric view of the crossing structure.

Reference iii) provides drawings of the proposed work sequence for the existing 450 kV line reconfiguration with the addition of the proposed IPL.

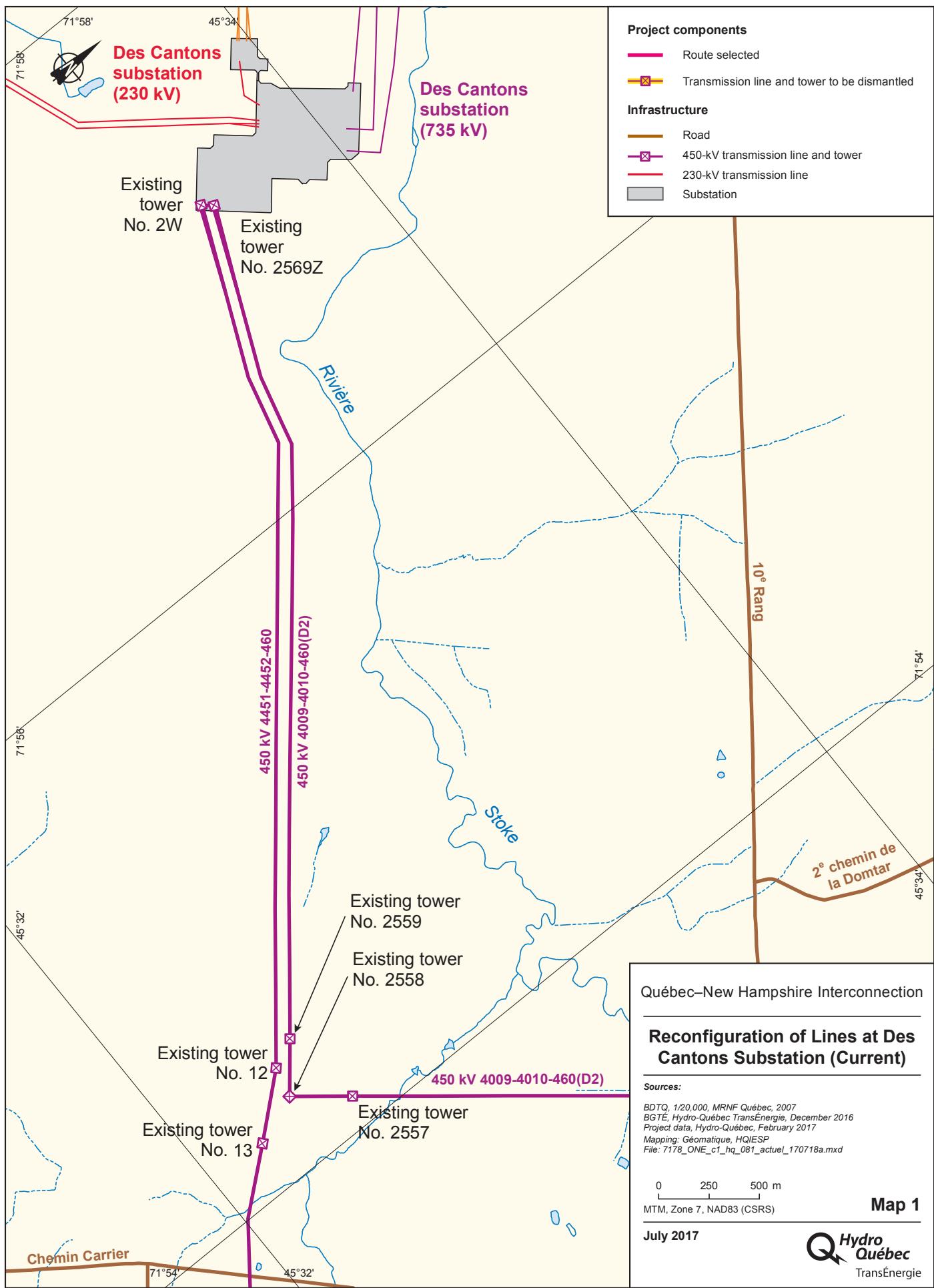
Request: Please provide the following:

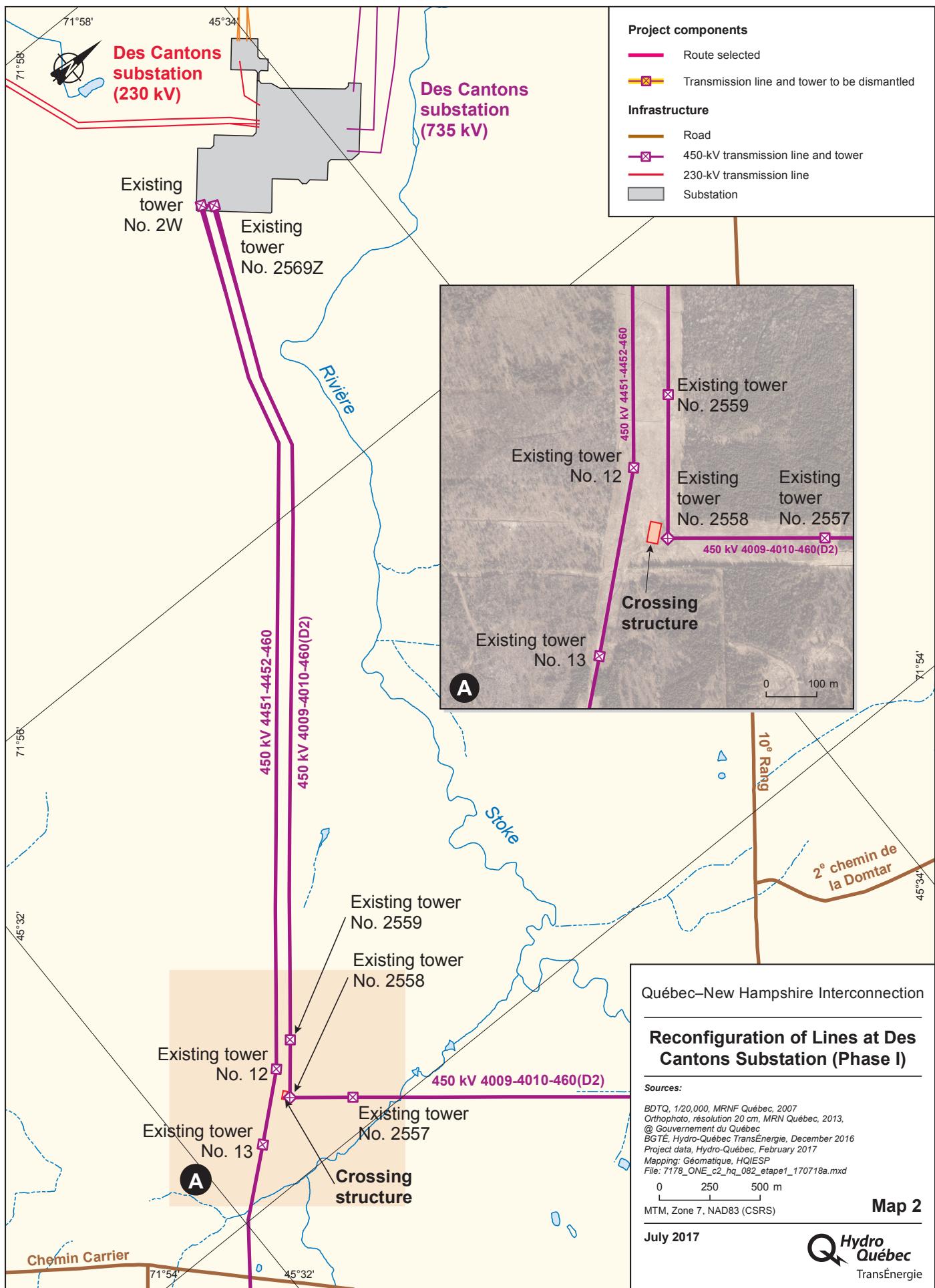
- a) A revised drawing with isometric view showing the following additional components:
 - a.1) The 450 kV line; and
 - a.2) Labels identifying both the 450 kV and 320 kV lines.

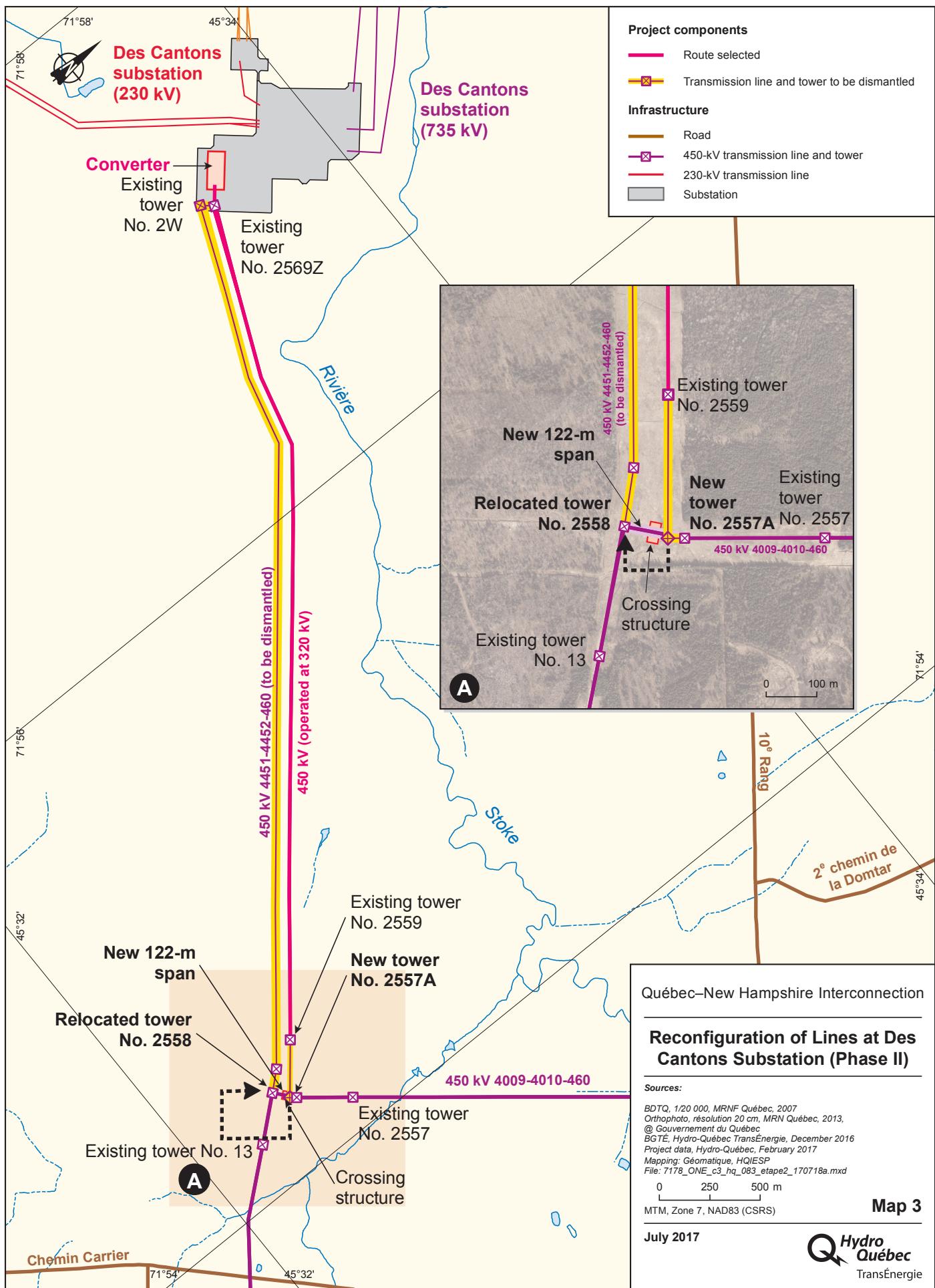
Answer 2.3 a) *The drawing provided in Appendix B shows an isometric view and an electrical layout plan of the crossing structure, as well as two cross-sectional views, each of which includes labels clearly identifying the 450-kV and 320-kV lines.*

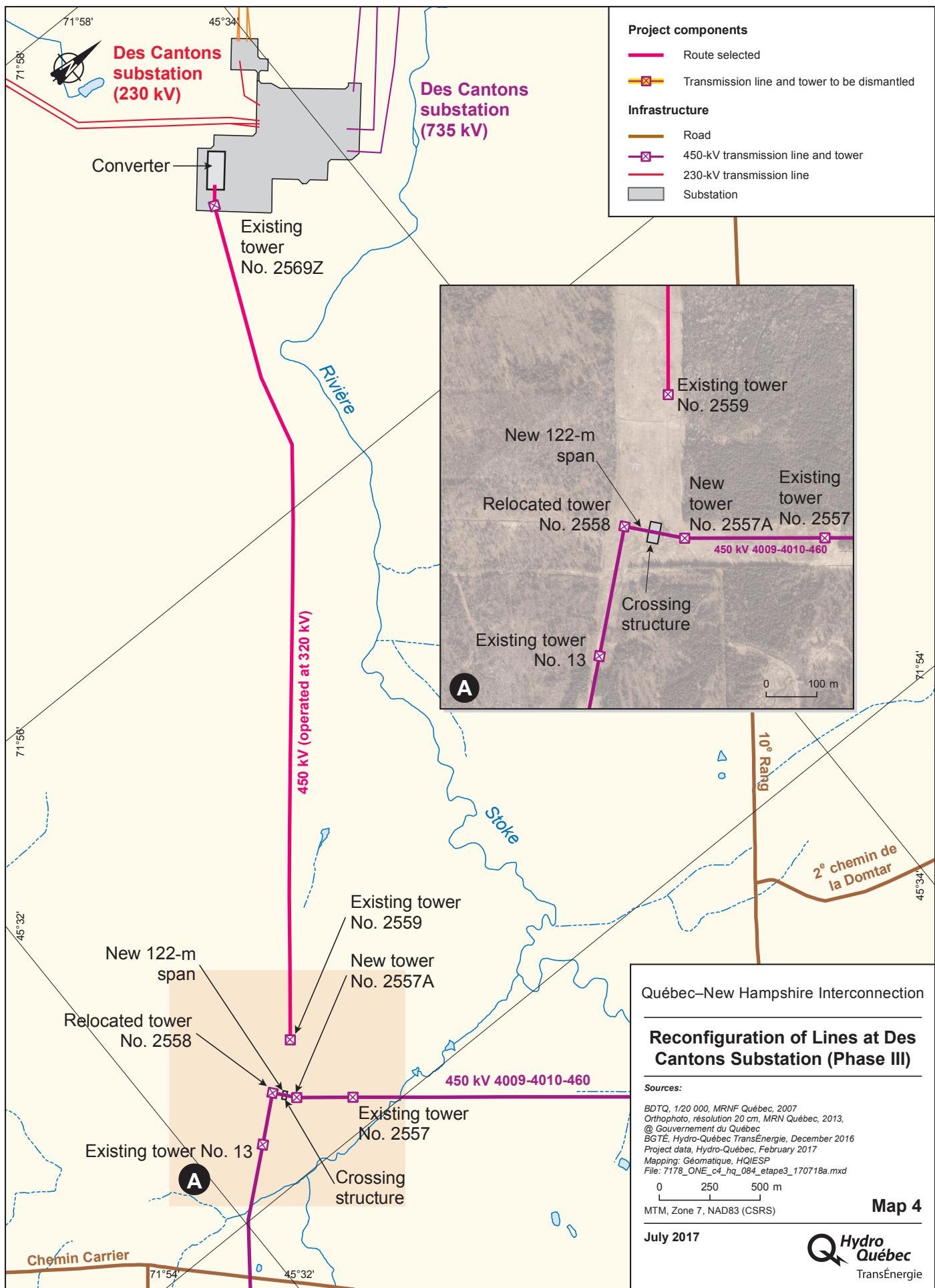
- b) Revised Figures 1 through 5 in Reference iii), showing the numbering (labels) of all the towers.

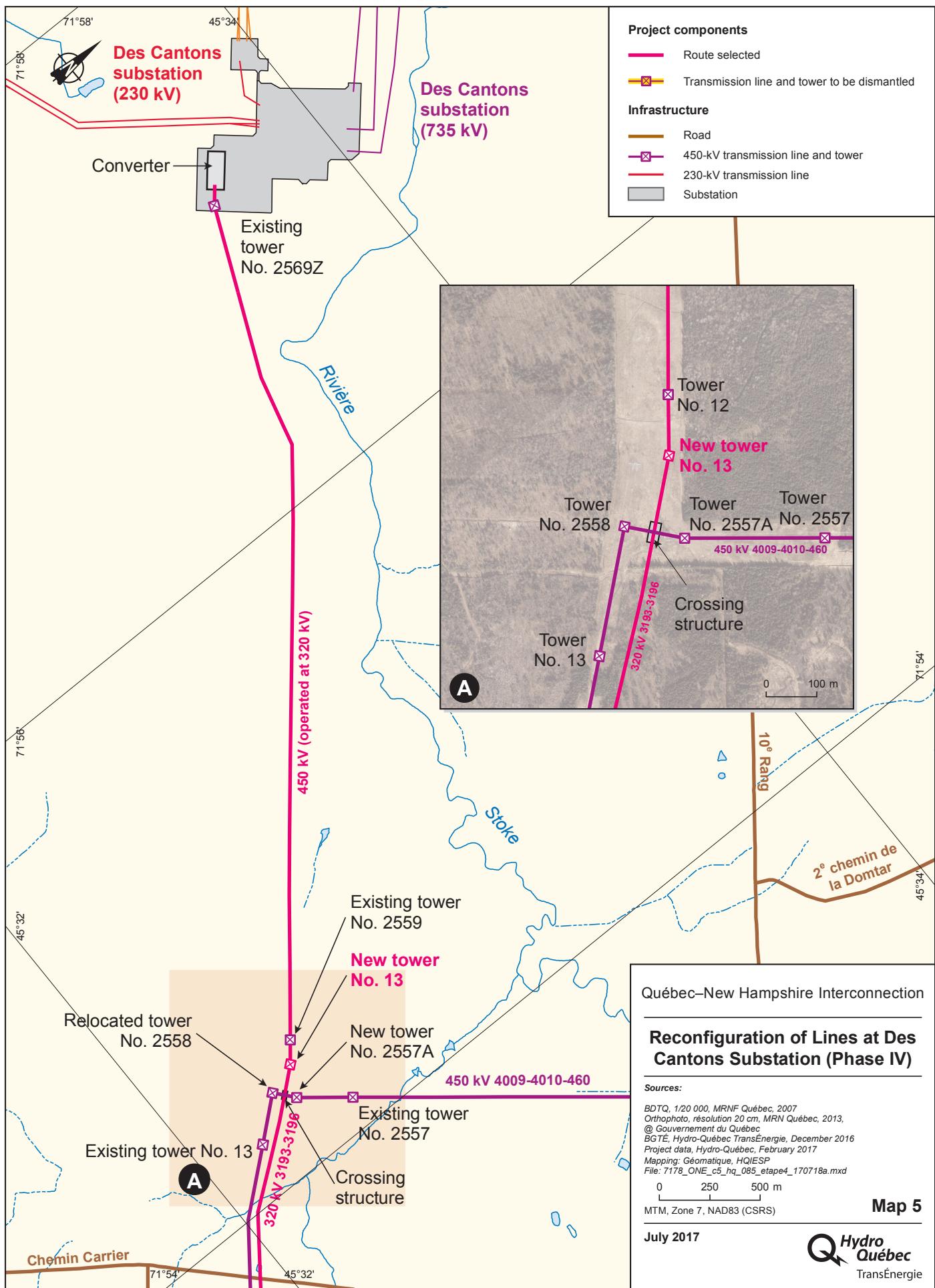
Answer 2.3 b) *Maps 1 through 6 below show the various construction phases for the planned IPL, with all towers clearly labeled with their respective numbers.*

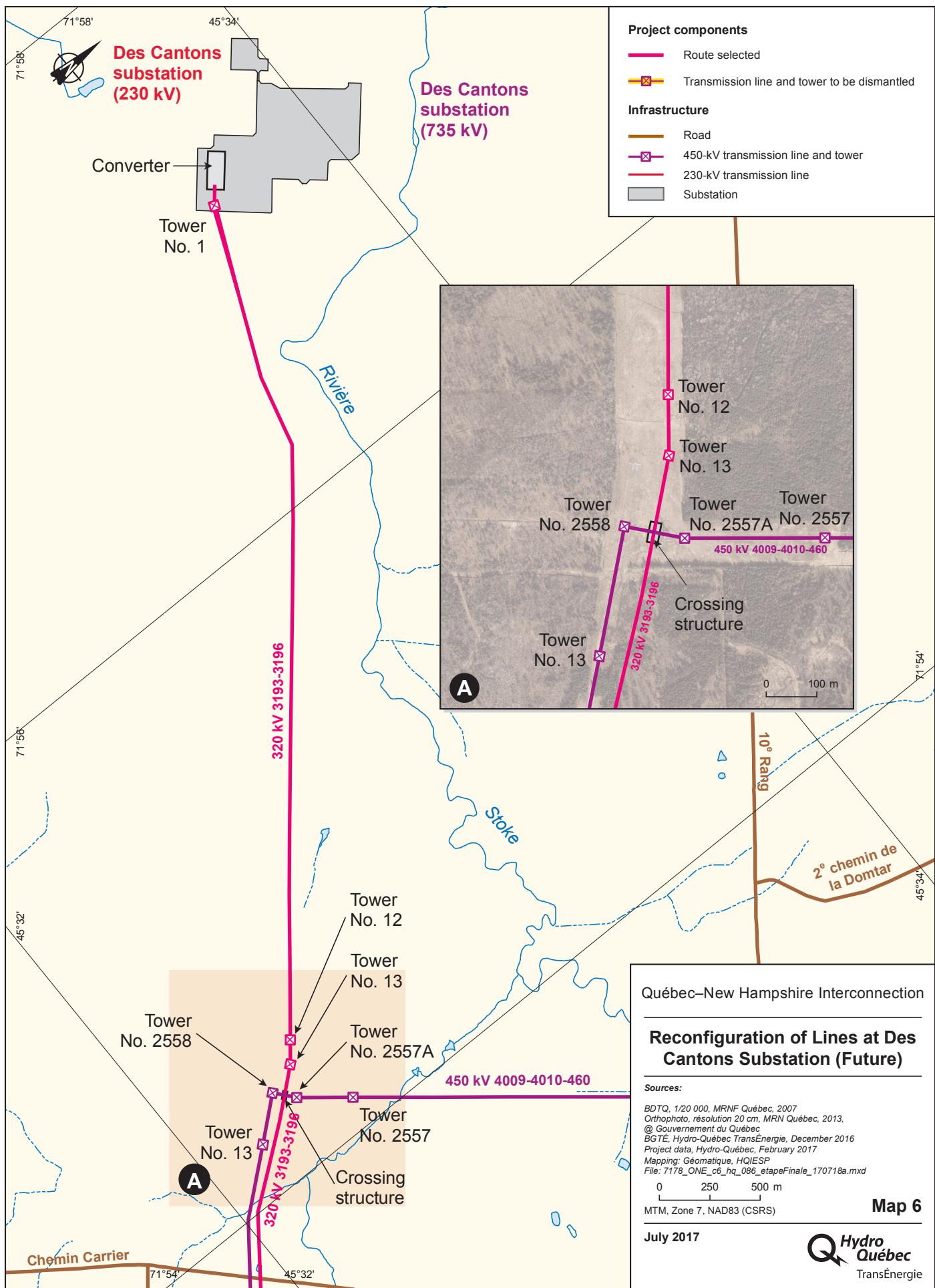












2.4 Standards

- Reference:**
- i) [A81160-3](#) Hydro-Québec, Demande de permis, Annex C, Principales Normes Techniques Appliqués au projet (PDF Pages 87-90 of 186).
 - ii) [A81160-3](#) Hydro-Québec, Demande de permis, Section 4.3.5, Normes de Fiabilité (PDF page 46 of 186).

Preamble: Reference i) provides a list of the principal technical standards which will be applicable to the proposed IPL.

Reference ii) states that the proposed IPL will comply with the reliability standards of the Régie de l'Energie of Québec, the Northeast Power Coordinating Council, and the North American Electric Reliability Corporation (NERC).

Request: Please provide the following:

- a) The safety standard that HQT has adopted and confirm whether the adopted standard is equivalent to or exceeds the requirements of the Canadian Standards Association C22.1-15 – *Canadian Electrical Code, Part I for Electrical Installations*.

Answer 2.4 a) *CSA standard 22.1-15 does not apply to installations or equipment used by a public power distribution system. The applicable Canadian safety standard for overhead transmission lines is C22.3 No. 1-15.*

HQT designs its transmission lines in compliance with internal standard TET-LIA-N-CON0200, which is equivalent to or exceeds the requirements of standard C22.3 No. 1-15.

- b) Confirmation that HQT's *TET-EMP-N- VEG0001 – Programme de maîtrise intégrée de la végétation dans les emprises de lignes aériennes de transport* is compliant with or exceeds the requirements of the NERC Transmission Vegetation Management standard (FAC-003-4).

Answer 2.4 b) *HQT confirms that internal standard TET-EMP-N-VEG0001 – Programme de maîtrise intégrée de la végétation dans les emprises de lignes aériennes de transport complies with or exceeds the requirements of the NERC Transmission Vegetation Management Standard (FAC-003-4).*

- c) List the cyber and physical security standards that HQT has adopted and confirm whether the adopted standards are equivalent to or exceed the requirements of the NERC Critical Infrastructure Protection reliability standards.

Answer 2.4 c)

HQT complies with its internal safety standards and directives, which were developed in accordance with standard ISO/IEC 27000 – Information Security Management Systems, and with the NERC reliability standards for Critical Infrastructure Protection (CIP version 6).

The list of applicable standards is as follows:

Internal HQT standards

- *Standard 04 – Analyse et traitement du risque [risk analysis and management]*
- *Standard 05 – Encadrements de sécurité des TI [IT security guidelines]*
- *Standard 06 – Organisation de la sécurité des TI [organization of IT security]*
- *Standard 07 – Gestion des ressources TI [IT resource management]*
- *Standard 08 – Sécurité des TI liée aux ressources humaines [IT security for human resources]*
- *Standard 09 – Sécurité physique et environnementale [physical and environmental safety]*
- *Standard 10 – Sécurité dans les opérations TIC [ITC operations security]*
- *Standard 11 – Contrôle d'accès [access control]*
- *Standard 12 – Acquisition, développement et maintenance des ressources TI [IT resource acquisition, development and maintenance]*
- *Standard 13 - Gestion des incidents de sécurité des TI [management of security incidents]*
- *Standard 14 - Gestion de la continuité des activités TI de l'entreprise [company IT service continuity management]*
- *Standard 15 – Conformité [compliance]*

NERC reliability standards

- *Standards CIP-002 to CIP-014*

Environment Matters

2.5 Ozone concentrations at the edge of the right of way

- Reference:**
- i) [National Energy Board Electricity Regulations](#), 5(t)(vi), Page 9 (PDF Page 14 of 23).
 - ii) [A81160-3](#) Hydro-Québec, Application, Tableau de concordance, Page xv (PDF Page 17 of 186).
 - iii) [A81160-4](#) Hydro-Québec, Étude d'impact sur l'environnement, Volume 1 – Rapport, Section 7.5.10, Pages 7-70 to 7-72 (PDF Pages 240 to 242).
 - iv) Canadian Council of Ministers of the Environment (CCME), [Canadian Ambient Air Quality Standards Particulate Matter and Ground-level Ozone](#).

Preamble: Reference i) states that for operating voltages above 240 kV, the levels of noise, ozone concentration, electric field gradient and magnetic field strength expected at the edge of the right-of-way at maximum loading of the international power line, and the measures to be taken to protect people and animals, from electric shock on contacting vehicles or metallic structures should be provided.

Reference ii) indicates that Hydro-Québec has filed the requirements of reference i) in reference iii). The Board notes that ozone concentrations are not provided in reference iii).

Reference iv) provides the Canadian Ambient Air Quality Standards for ozone and fine particulate matter (PM2.5) that provide proposed management thresholds to reduce health and environmental effects.

The Board seeks information on whether the applicable standards will be met.

Request: Please provide:

- a) the maximum 8-hour ozone concentration (parts per billion) and the maximum 24-hour and annual concentrations of secondary particulate (PM 2.5) (micro-grams per cubic metre) expected at the edge of the right-of-way at maximum loading of the international power line.

Answer 2.5 a) *The study reports by Hydro-Québec and the Oak Ridge National Laboratory (ORNL), as well as the scientific publications by Hydro-Québec and the reference book produced by the Electric Power Research Institute (EPRI), indicate that high-voltage direct-current (HVDC) power lines produce electric microarcs (i.e., a corona effect), which interact with the oxygen in the air to create ozone (O_3), an unstable molecule that can react with nitrogen to produce nitrates and nitrites.*

HVDC lines produce only produce ozone levels of about 5 ppb,¹ which are below ambient levels.

It should be noted that the maximum ozone concentration permitted in both Canada and Québec is on the order of 63 ppb over an eight-hour period. Therefore, HVDC lines produce an insignificant amount of ozone. The documents produced by Hydro-Québec and the ORNL^{2,3,4} also confirm that the ozone resulting from HVDC lines is negligible.

The secondary particle resulting from the presence of ozone is nitrite. According to the EPRI AND ORNL reports, the nitrite particle concentration near HVDC lines is negligible.^{2,4}

References

1. Hydro-Québec. March 1983. *Effets électriques des lignes à courant continu.*
2. Electric Power Research Institute. 1976. *Transmission Line Reference Book HVDC to -/+ 600 kV.*
3. Varfalvy, L., R.D. Dallaire, P.S. Maruvada and N. Rivest. October 1985. *Measurement and Statistical Analysis of Ozone from HVAC and HVDC Transmission Lines.* IEEE Transactions on Power Apparatus and Systems, Vol. PAS-104, No.10, p. 2789–2797.
4. Oak Ridge National Laboratory. *HVDC Power Transmission Environmental Issues Review.* 1995.

- b) Representative PM 2.5 and ozone background concentrations for the region.

Answer 2.5 b)

According to Environment and Climate Change Canada ([Ambient Levels of Ozone, 2016](#)) the annual average 8-hour ozone concentration in southern Québec (where the planned 320-kV HVDC line will be located) is on the order of 60 to 75 ppb.

- c) an analysis of the expected concentrations added to the background concentrations, including the applicable CCME Management Level.

Answer 2.5 c)

As stated in answers 2.5 a) and 2.5 b), once the ±320-kV HVDC line is in operation, the concentration of ozone and secondary particles beneath it will be negligible. Consequently, the analysis suggested in Question 2.5 c) would not provide any additional information.

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Appendix A

**Letter from the Secrétariat aux affaires autochtones (Québec)
(in French only)**



Québec, le 19 juillet 2017

PAR COURRIEL

Monsieur Mathieu Boucher
Chef - Relations avec les communautés autochtones
Hydro-Québec
75, boulevard René-Lévesque Ouest, 17^e étage
Montréal (Québec) H2Z 1A4

Objet : Projet de ligne de transport Québec - New-Hampshire

Monsieur,

Le 10 juillet dernier, l'Office national de l'énergie (ONÉ) a transmis à Hydro-Québec TransÉnergie (HQT) une lettre accompagnée d'une demande de renseignements relative à diverses questions, dont celle de la consultation des groupes autochtones susceptibles d'être touchés par le projet cité en objet.

Il est demandé à HQT de confirmer que huit groupes autochtones ayant, selon l'ONÉ, un territoire traditionnel connu ou revendiqué dans la zone du projet et pouvant être touchés par ce dernier, ont été avisés du projet. L'ONÉ demande également à HQT de lui fournir un résumé des préoccupations formulées par ces groupes, ainsi que le suivi que la société d'État donnera à celles-ci, s'il y a lieu. Advenant qu'HQT n'aît pas jugé nécessaire de mener des consultations auprès de certains de ces groupes, l'ONÉ souhaite en obtenir la justification.

Le gouvernement du Québec ne partage pas l'évaluation faite par l'ONÉ quant aux communautés autochtones concernées. À la suite de l'analyse préliminaire de son obligation de consulter pour ce projet spécifique, le gouvernement du Québec a mené une démarche de consultation auprès des deux communautés abénaquises d'Odanak et de Wôlinak, par l'entremise du Grand Conseil de la nation Waban-Aki. En l'absence d'effets préjudiciables anticipés sur les droits revendiqués par les autres nations ou communautés identifiées par l'ONÉ, le gouvernement du Québec a estimé n'avoir aucune obligation de les consulter.

Aussi, parmi les huit groupes autochtones identifiés par l'ONÉ comme étant susceptibles d'être touchés par le projet d'Interconnexion Québec - New Hampshire figurent deux

organisations qui ne bénéficient d'aucun statut officiel. Rappelons qu'aucun tribunal n'a encore déclaré l'existence d'une communauté métisse au Québec. Ainsi, bien qu'elles affirment représenter des Autochtones ou des Métis, l'Alliance autochtone du Québec et la Nation des Métis du Québec ne sont pas reconnues par le gouvernement du Québec comme titulaires de droits ancestraux et, de ce fait, n'ont pas à être consultées.

Finalement, si le gouvernement du Canada estime avoir une obligation de consulter les Autochtones pour ce projet, la responsabilité lui incombe de mener ses propres démarches de consultation auprès des groupes qu'il considère être concernés. Dans les circonstances, le gouvernement du Québec estime que cette obligation ne devrait pas être déléguée à un tiers comme HQT.

Je vous prie d'agrérer, Monsieur, l'expression de mes meilleurs sentiments.

Le directeur par intérim,



Olivier Bourdages Sylvain

Québec–New Hampshire Interconnection

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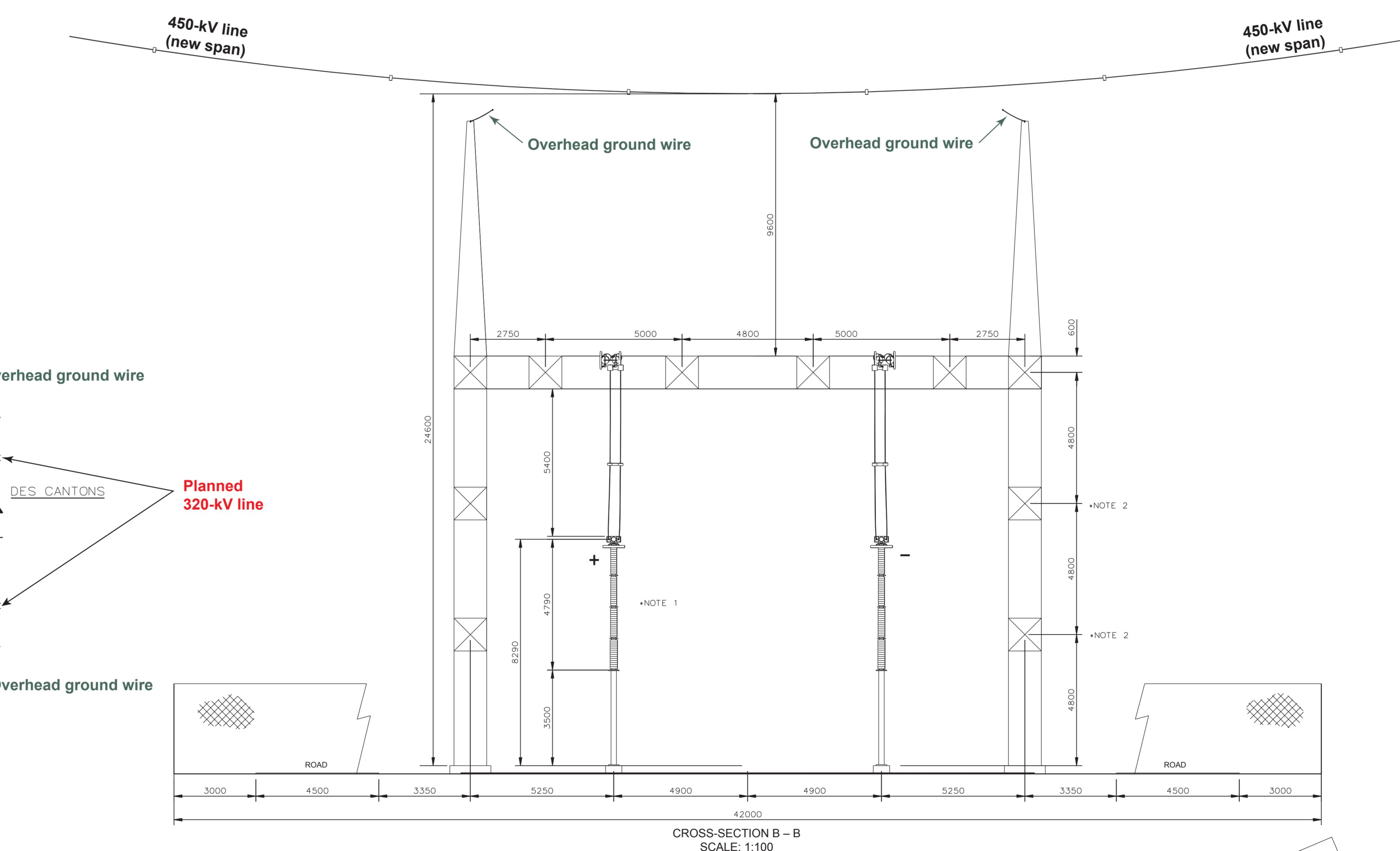
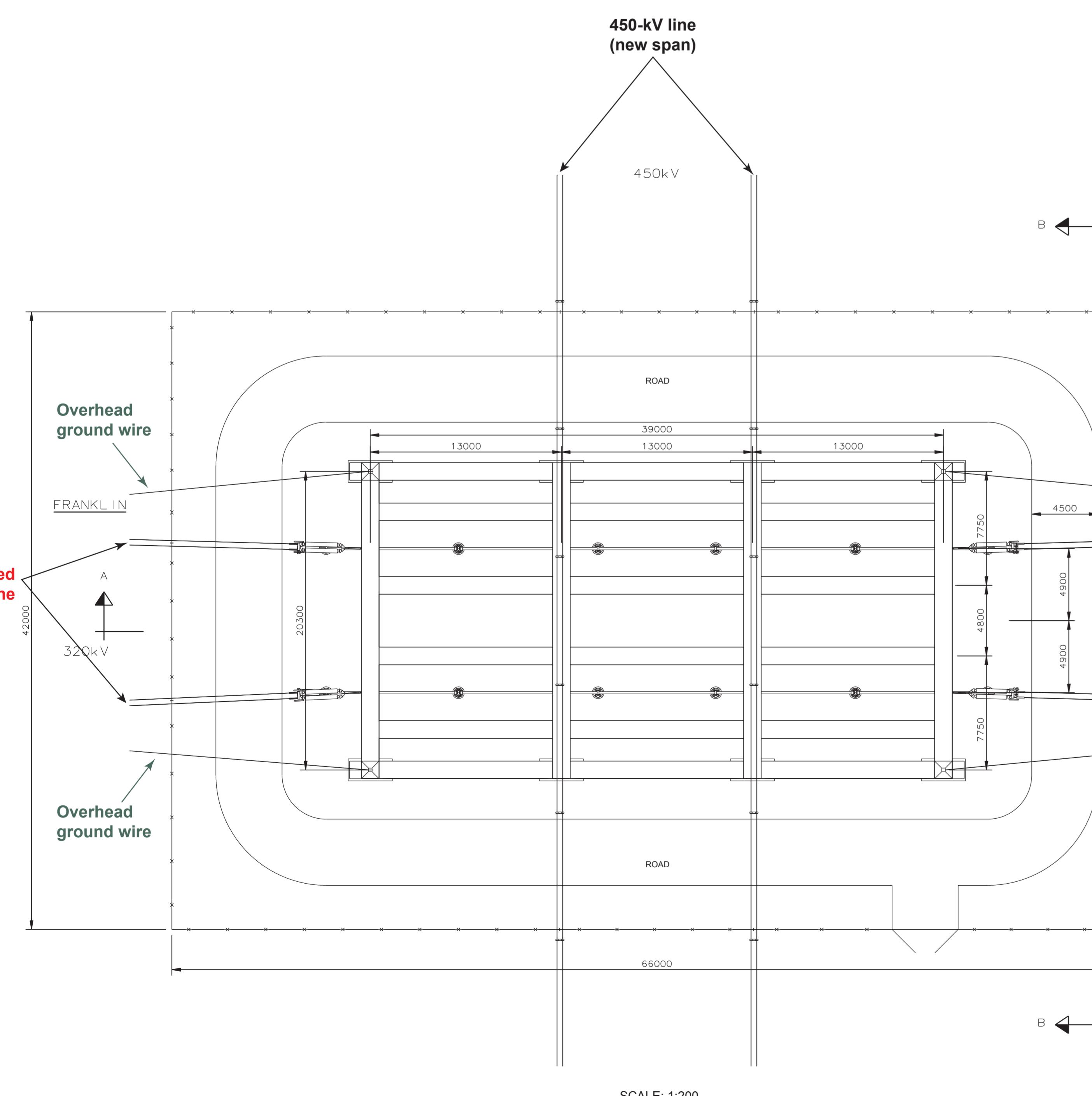
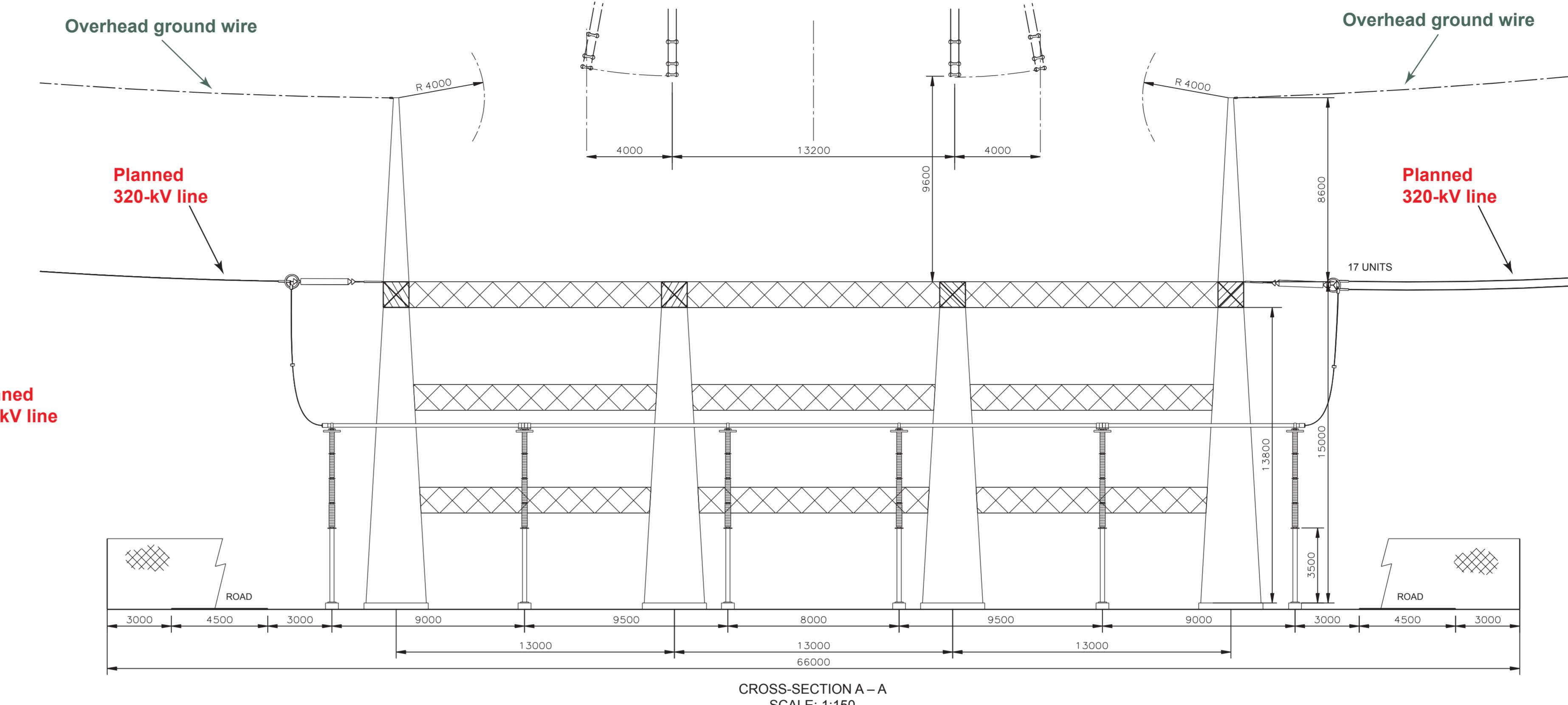
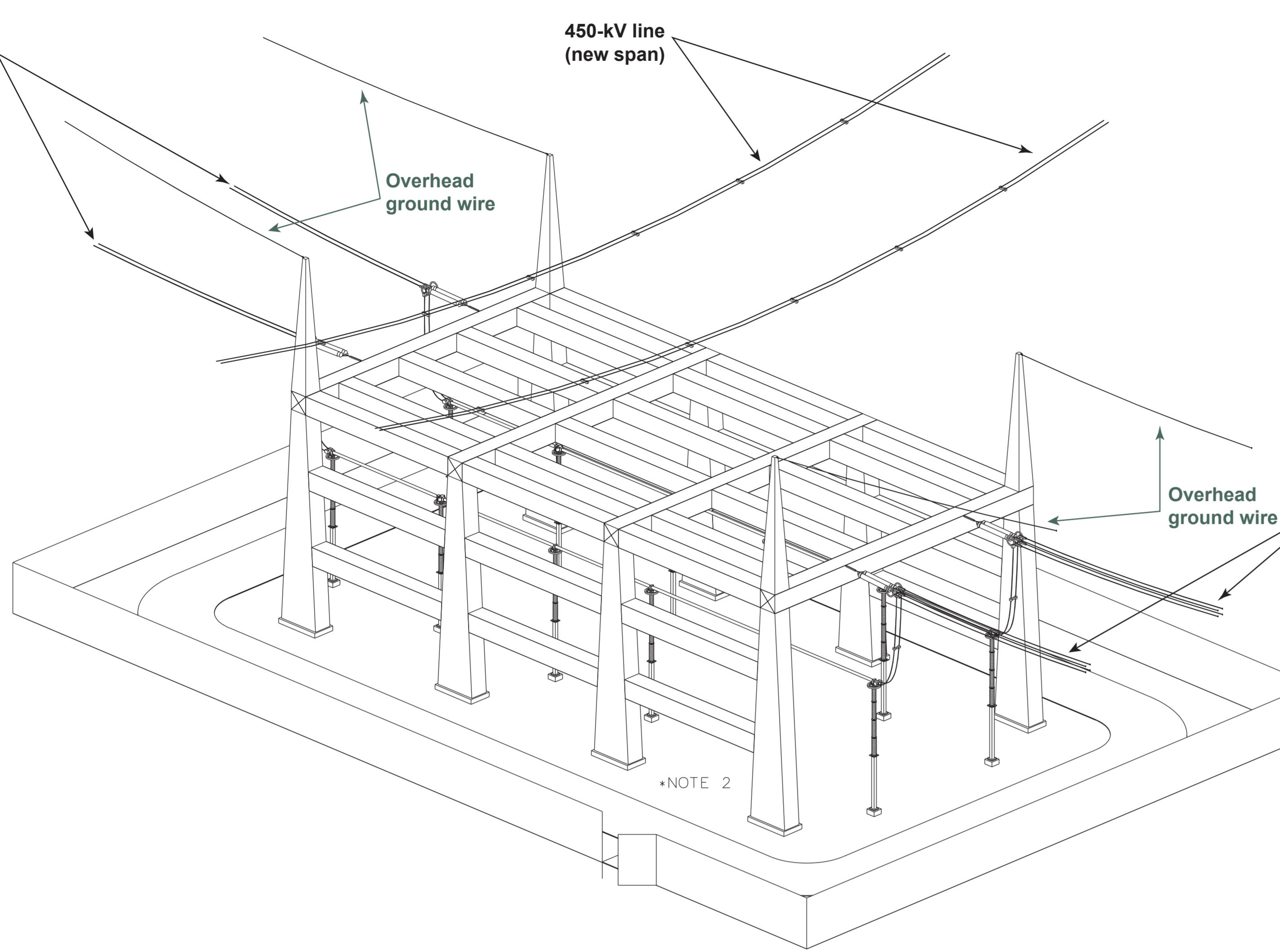
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Appendix B

Drawing of Crossing Structure

7

6



FOR INFORMATION
ONLY

DRAFT-DESIGN

2015-03-16

