
**Mont-Joli Airport, Quebec
Former Building H-3, Former Coal Depot and Former Landfill**

Remediation Plan

**Responses to the Supplemental Information Request from MDDEP
dated July 20, 2011,
Concerning Remediation of the Former Hangar H-3 Sector**



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from MDDEP dated July 20, 2011, concerning
remediation of the former hangar H-3 sector
at the Mont-Joli Airport**

Foreword

Since Transport Canada (TC) submitted the Remediation Plan (the Plan) to MDDEP, the Municipality of Mont-Joli has initiated a characterization study on lot 4 395 755. That study, which is currently being conducted by LVM, based in Rimouski, has revealed the presence of new elements that pose a risk to the environment and new areas of contamination. In light of this information, TC agreed that only the former hangar H-3 sector would be remediated in 2011. An amended remediation plan, which will include the results of the site characterization in-progress, will be prepared once the characterization report has been certified by an expert.

General

1. The owner of lot 4 395 755 is the Municipality of Mont-Joli. The contact information for the Municipality is as follows:
 - 40 Avenue Hôtel de ville, Mont-Joli, QC G5H 1W7;
 - Telephone: 418-775-7285;
 - Fax: 418-775-6320;
 - Email: mont-joli@ville.mont-joli.qc.ca
2. The site is located on part of lot 4 395 755 of the Land Register of Quebec. The boundaries of this lot are illustrated in Figure 2.3 of the Plan (see Annex 2).
3. Lots 4 015 682 and 4 015 683, which were created on July 28, 2008 by subdividing lot 706-1, are occupied by the Écocentre and the Centre de transfert de matières résiduelles. These lots are located within lot 4 395 755 and were included in the Phase I environmental assessment conducted by LVM in 2009 (Ref: 073-P016127-0153-EN-0001-00). Following a review of the land-use history of the lot (4 395 755), a Phase II environmental assessment was conducted in September 2011 by the Municipality of Mont-Joli (LVM was the consulting firm responsible for the assessment) on the part of the lot (former lot 706-1) that had not been covered by the 2009 assessment.

The results from previous characterization studies showed that contaminant concentrations in soil samples taken on or near lots 4 015 682 and 4 015 683 were all below the limits in Annex II of the Land Protection and Rehabilitation Regulation.

Four boreholes were drilled on these two lots: two in 2001 by Groupe Conseil TS (F27-2000 and F28-2000) and two in 2007 by LVM (F-1 and F-2). The results from the site characterizations revealed the following:

- Groupe Conseil TS, 2001: concentrations of total petroleum hydrocarbon (TPH) C₁₀-C₅₀, monocyclic aromatic hydrocarbons (MAHs), and metals in soil were below or equal level A;

- LVM, 2007: TPH C₁₀-C₅₀ concentrations were below level A for the two surface soil samples, and the hydrocarbon vapour measurements were equal to zero in all the underlying samples.

Results for groundwater demonstrated concentrations of MAHs and metals above the MDDEP's criteria for seepage into surface water or infiltration into sewers (RESIE) in monitoring well F-28-2000. Other exceedances were observed in monitoring wells F-13 and F-29-2000, located on either side of lot 4 015 682. Based on the results from all of the monitoring wells, a contaminant plume was delineated; it crosses lot 4 015 682.

No site remediation planned for these two lots. However, groundwater quality monitoring is planned for the contaminant plume sector, including well F-28-2000.

4. To meet the requirements set out in Section 31.48 of Quebec's *Environment Quality Act*, as soon as the site remediation is completed, including monitoring of groundwater quality, a report will be produced, and attested by an expert. The remediation report and the duly completed and signed attestation form will be submitted to the MDDEP.

Soil

5. For the two areas of residual contamination shown in Figure 3.1 in the Plan, the following information has been added (see Annex 2): "No exceedance of level C observed by Entraco (2009)." According to the Entraco study (2009), the TPH C₁₀-C₅₀ concentrations are in the B–C range in trenches T-2 and T-4, and in the A–B range in trench T-1. In 2008, during demolition of hangar H-3, no exceedances of level C were observed by Inspec-Sol in this sector.
6. The quantity of potentially contaminated soil along the southern wall of former hangar H-3 was estimated at 18 m³ within an area of 36 m². These figures, which have been used in the remediation plan, are based on the results of the Entraco study (2009).

The values used by LVM were taken from the Inspec-Sol study (2008) and are based on the results of a single sample from an excavation along the wall, where the northeastern limit was not determined. LVM will use the same values as those estimated by Entraco.

7. Tables 4.1 and 4.2 in the Plan will be modified (see Annex 1). For Zones 1.1 and 1.2, the parameters to be analyzed will be petroleum hydrocarbons (PHCs) C₁₀-C₅₀, MAHs, and polycyclic aromatic hydrocarbons (PAHs).
8. Based on the recommendations in the *Guide d'échantillonnage à des fins d'analyses environnementales*, the number of samples analyzed from the pile of clean surface soil taken from Zone 1.1 should be 10 (not 8, as shown in Table 4.1). That is, for a soil volume of 800 m³, the number of samples should be 4 (for 200 m³) + 1/100m³.
9. In Table 5.1 of the Plan, for Zones 1.1 and 1.2, the option for managing contaminated soils in an engineered landfill site will be removed (see Annex 1). Only the option of disposal in an MDDEP-authorized treatment centre will be retained.
10. Following the comprehensive Phase 1 environmental assessment, a soil and groundwater characterization was conducted by LVM in September 2011. This study (currently in progress) covers various risk areas identified within the boundaries of lot 4 395 755,

including two former septic tanks and the former aboveground storage tanks located southeast of former hangar H-3.

The results of this characterization study will be presented in a report that will be attested by an expert and submitted to MDDEP. Based on the results of this study, an amended remediation plan will be produced and submitted to MDDEP.

The remediation plan will include the former coal depot and the former landfill, which are excluded from the current Plan.

11. At this stage, it is impossible to specify the treatment centre(s) authorized for disposal of contaminated soil. The centre(s) will be chosen by the contractor that obtains the remediation contract following the bidding process to be posted by Public Works and Government Services Canada (PWGSC). Once the contractor has been selected, Transport Canada will send a notice to MDDEP specifying the treatment centre proposed by the contractor. The treatment centre will be selected from the MDDEP-authorized list.

It is likely that the soil will be transported to either the Centre de traitement BSL inc. in Saint-Anaclet or the Newalta site in Rimouski.

12. Contaminated soil will be stored temporarily within the boundaries of lot 4 395 755, near the former building H-3 site. The process for temporary storage will be as described in the Plan.
13. To prevent dispersion of contaminated soil on and off the site during the remediation work (including excavation, loading of trucks and transportation of contaminated soil), the following procedures will be applied:
 - Contaminated soil must be transported in a closed container or a dump bed fitted with a tarpaulin that completely covers the top of the bed and the load.
 - Given that water infiltration was observed in a trench at the level of the contaminated soil, the container or dump bed must be watertight.
 - When trucks are being loaded, close attention must be paid to the backhoe operations in order to avoid dropping material on the sides of the trucks and in the surrounding area.
 - Before departure, the trucks will be inspected and cleaned if necessary. Once the work is completed, the backhoe and the manoeuvring areas will also be inspected and cleaned, and the soil recovered through this process will be managed in the same way as the soil being transported.
 - Soil stored in piles must be placed on an impermeable membrane and covered with an impermeable membrane weighted down so as to prevent water from infiltrating and percolating through the pile and contaminating underlying soil.
 - The site being remediated will be accessed via Perrault Road, about 500 metres to the southeast, and the airport road. That is the route taken regularly by users of the Écocentre and the Centre de transfert de matières résiduelles. These roads are paved or covered with a mix of crushed asphalt and sand.
 - If unpaved roads are used, the speed limit on them will be 10 km/h. Unpaved roads will be sprayed with water to control the dust.

Groundwater

14. If necessary, water which has infiltrated into the excavation will be pumped out by a specialized firm using a vacuum truck. The recovered water will be analyzed to determine the disposal options. If the water does not meet the standards for discharge to sewers, it will be recovered and treated by the specialized firm. Once the contractor has been selected for the remediation work, Transport Canada will inform MDDEP of the specialized firm proposed by the contractor.

15.

- a. As mentioned in paragraph 10, a soil and groundwater characterization is currently being conducted within the boundaries of lot 4 395 755. Several monitoring wells have been installed in the sectors identified as being at risk, based on the historical research done for this recent study.

The results of the groundwater characterization for the new monitoring wells will be used to plan the groundwater quality monitoring program for the entire lot. In addition to the existing wells (about 13 wells) and wells to be constructed (about 3 wells) northwest of the contaminant plume identified in the previous studies (see Figure 15.1 in Annex 2), other wells installed as part of the site characterization could be added to the monitoring program.

Before beginning the monitoring program, Transport Canada will inform MDDEP of the wells to be monitored and the parameters to be analyzed.

- b. In the aforementioned notice to MDDEP, Transport Canada will also specify the frequency and duration of monitoring. At this point, it is expected that the annual monitoring for will continue for two years following the remediation work.
- c. This program meets the requirements set out in the *Guide de caractérisation des terrains* and the *Sampling Guide for Environmental Analysis (Booklet 3 – Groundwater Sampling (Guide d'échantillonnage à des fins d'analyses environnementales Cahier 3 – Échantillonnage des eaux souterraines))* (Revised June 30, 2011).

16. Because of the scale used in the figures, the contaminant plume cannot be displayed on Figures 3.1 and 4.1 of the Plan. This contaminant plume, identified in the previous studies, is presented in Figure 15.1 (Annex 2), together with the existing wells and those to be constructed. Note that other wells could be added based on the results of the site characterization currently underway.

Sample analyses

17. All of the soil and water analyses called for in the Plan will be conducted by a laboratory that is accredited by the Centre d'expertise en analyse environnementale du Québec (CEAEQ). The analyses will be conducted by one of the following accredited laboratories:

- AGAT Laboratoires;
- Exova Canada inc.; or
- Maxxam Analytique.

Residual materials

18. The concrete debris from the partial dismantling of the foundation wall of Hangar H-3 will be disposed of through a recycled aggregate producer.

Once the contractor has been selected for the remediation work, Transport Canada will inform the MDDEP, and specify the recycled aggregate producer proposed by the contractor. For example, the producer might be "Entreprises Claveau Ltée" of Mont-Joli.

Approved and signed by:



Normand Lalonde, Project Leader

ANNEX 1

MODIFIED TABLES

Table 4.1 Characterization program for piled soil

Site	Zone ⁽¹⁾	Issues	Estimated volume (m ³)	Number of samples	Parameters to be analysed			
					Metals ⁽²⁾	PH C ₁₀ -C ₅₀	MAHs ⁽³⁾	MAPs ⁽⁴⁾
Former building H-3	Zone 1.1	Surface soil (clean) - BTEX and PAHs contamination (exceedance C criteria) in underlying soil	800 ⁽⁵⁾	10 ⁽⁶⁾		√	√	√
	Zone 1.2	PAHs contamination of soil (exceedance C criteria) by	18	1		√	√	√
Former coal depot	Zone 2.4	Potential metals contamination (exceedance of C criteria) in soil	65	3	√			
Former landfill	Zone 3.1	Surface soil (clean) - underlying residual materials	14	1	√			
	Zone 3.2	Potential metals contamination (exceedance of C criteria) in soil	44	2	√			
	Zone 3.3	Potential metals contamination (exceedance of C criteria) in soil	49	2	√			
TOTAL			990	19	n.a.	n.a.	n.a.	n.a.

NOTES

- (1) Locations of the zones are shown in Figures 4.1 through 4.3.
- (2) Metals: Arsenic, cadmium, chrome, copper, tin, manganese, nickel, lead, zinc.
- (3) MAHs: monocyclic aromatic hydrocarbons.
- (4) PAHs: polycyclic aromatic hydrocarbons.
- (5) The estimated volume takes into account the need to enlarge the excavation at the top so that the slope of the sides are at a ratio of 1:1.
- (6) The samples from Zone 1.1 must be grab samples for MAH testing.



Table 4.2 Quality control program for excavations

Site	Zone ⁽¹⁾	Issues	Sample quantity		Parameters to be analysed			
			Walls	Bottom	Metals ⁽²⁾	PH C ₁₀ -C ₅₀	MAHs ⁽³⁾	PAHs ⁽⁴⁾
Former building H-3	Zone 1.1	BTEX and PAHs soil contamination (exceedance of C criteria)	4 ⁽⁵⁾	1 ⁽⁵⁾		√	√	√
	Zone 1.2	Potential PAH contamination in soil	4	1		√	√	√
Former coal depot	Zone 2.1	Presence of residual materials (above 50%) in soil; potential metals contamination in soil	11	5	√			
	Zone 2.2	Presence of residual materials (above 50%) in soil; potential metals contamination in soil	6	1	√			
	Zone 2.3	Presence of residual materials (above 50%) in soil; potential metals contamination in soil	4	1	√			
	Zone 2.4	Potential metals contamination in soil	4	1	√			
Former landfill	Zone 3.1	Potential metals contamination in soil	4	1	√			
	Zone 3.2	Potential metals contamination in soil	7 ⁽⁶⁾	1	√			
	Zone 3.3	Potential metals contamination in soil	8 ⁽⁷⁾	1	√			
TOTAL ⁽⁸⁾			52	13	n.a.	n.a.	n.a.	n.a.

NOTES

- (1) Locations of the zones are shown in Figures 4.1 through 4.3.
- (2) Metals: Arsenic, cadmium, chrome, copper, tin, manganese, nickel, lead, zinc.
- (3) MAHs: monocyclic aromatic hydrocarbons.
- (4) PAHs: polycyclic aromatic hydrocarbons.
- (5) The samples from the walls and bottom of the excavation in Zone 1.1 analysed for BTEX must be grab samples.
- (6) Two samples per side (height about 1.2 m); one sample from the east side (between 60 and 120 cm, following the excavation of Zone 3.1 from 0 to 60 cm).
- (7) Two samples per side (height about 1.4 m).
- (8) Does not include field duplicates (minimum of 10%).
- n.a. Not applicable.

Table 5.1 Management of soil, residual materials, and backfill materials

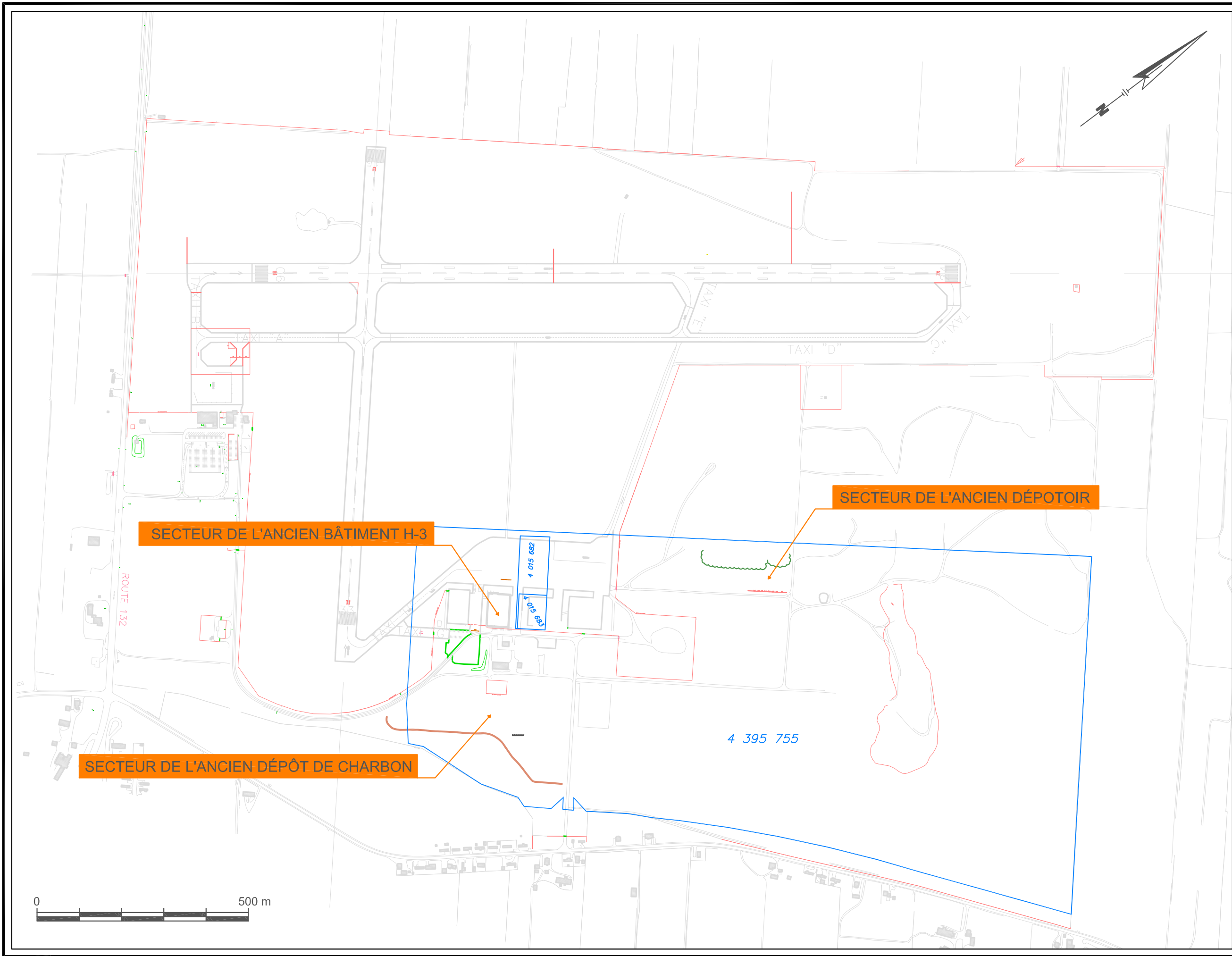
Site	Zone ⁽¹⁾	Description of materials	Soil management			Residual material management			Source of fill material	
			Estimated volume (m ³)	To be characterized	Recommended destination	Estimated volume (m ³)	To be characterized	Recommended destination	Estimated volume (m ³)	Source
Former building H-3	Zone 1.1	Soil contaminated by BTEX and PAHs (C-D range)	42	No	Authorized treatment site	n.a.	n.a.	n.a.	42	Recognized borrow pit
		Surface soil (not contaminated)	800	Yes	If contaminated: authorized treatment site	n.a.	n.a.	n.a.	800	Surface soil (if not contaminated) or recognized borrow pit
		Concrete debris from the foundation	n.a.	n.a.	n.a.	10	No	Recycled aggregate producer	10	Recognized borrow pit
	Zone 1.2	Soil potentially contaminated by PAHs	18	Yes	If contaminated: authorized treatment site	n.a.	n.a.	n.a.	18	Excavated soil (if not contaminated) or recognized borrow pit
Former coal depot	Zone 2.1	Presence of residual materials (above 50%) in soil; potential metals contamination in soil	n.a.	n.a.	n.a.	170	No	Engineered landfill site	170	Recognized borrow pit
	Zone 2.2	Presence of residual materials (above 50%) in soil; potential metals contamination in soil	n.a.	n.a.	n.a.	70	No	Engineered landfill site	70	Recognized borrow pit
	Zone 2.3	Presence of residual materials (above 50%) in soil; potential metals contamination in soil	n.a.	n.a.	n.a.	20	No	Engineered landfill site	20	Recognized borrow pit
	Zone 2.4	Soil potentially contaminated by metals	65	Yes	If contaminated: engineered landfill site or landfill site for contaminated soil	n.a.	n.a.	n.a.	65	Excavated soil (if not contaminated) or recognized borrow pit
Former landfill	Zone 3.1	Presence of residual materials (above 50%) in soil; potential metals contamination in soil	n.a.	n.a.	n.a.	7	No	Engineered landfill site	7	Recognized borrow pit
		Surface soil (not contaminated)	14	Yes	If contaminated: engineered landfill site or landfill site for contaminated soil	n.a.	n.a.	n.a.	14	Surface soil (if not contaminated) or recognized borrow pit
	Zone 3.2	Potential metals contamination in soil	44	Yes	If contaminated: engineered landfill site or landfill site for contaminated soil	n.a.	n.a.	n.a.	44	Excavated soil (if not contaminated) or recognized borrow pit
	Zone 3.3	Potential metals contamination in soil	49	Yes	If contaminated: engineered landfill site or landfill site for contaminated soil	n.a.	n.a.	n.a.	49	Excavated soil (if not contaminated) or recognized borrow pit

NOTE

n.a. Not applicable.

ANNEX 2

MODIFIED FIGURES



SOURCE : Plan dessiné par TPSGC
(C00pg01.dwg)

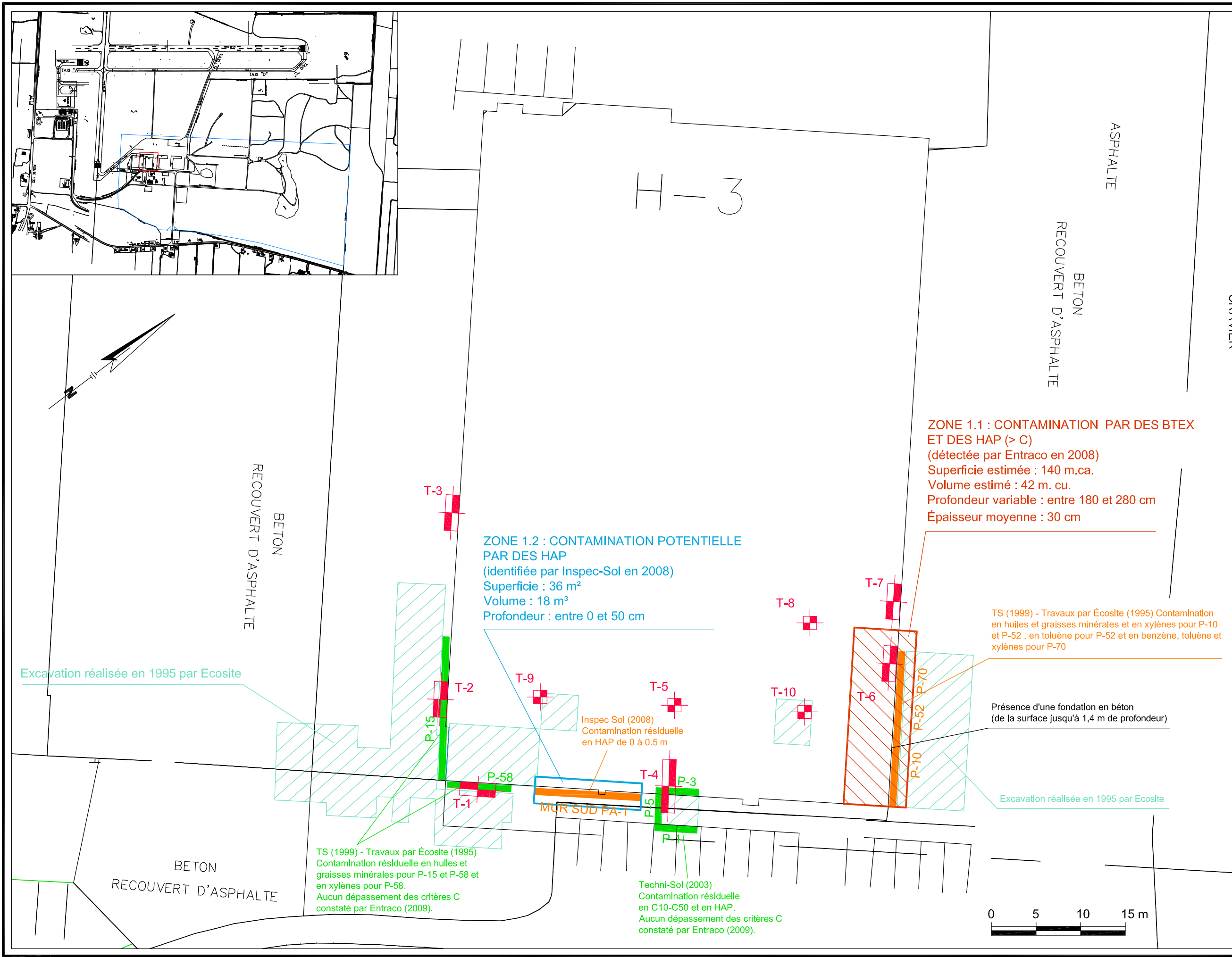
Rév.	Description	Par/By	Date
01	Modifications au plan de réhabilitation	N.L.	2011-10-21
-	-	-	-



Dossier / File:
AÉROPORT DE MONT-JOLI
Plan de réhabilitation
Ancien bâtiment H-3, ancien dépôt de charbon
et ancien dépotoir

Dessin / Drawing:
FIGURE 2.3
Plan d'ensemble des secteurs à réhabiliter

Conçu par / Designed by: N.L.		Date 04-10-2010
Dessiné par / Drawn by: É.L.F./N.L.		Date 10-10-2010
Vérifié par / Verified by: N.L.		Date 24-10-2011
Approuvé par / Approved by: N.L.		Date 24-10-2011
No. dossier / File no.: P0939/P0922		Échelle / Scale: Graphique
No. dessin / Drawing no.:		Page / Page: 7



LÉGENDE

- T-11 Tranchée d'exploration_Entraco 2008
- T-25 Tranchée d'exploration allongée_Entraco 2008
- Zone contaminée à restaurer identifiée par Entraco
- Secteur potentiellement contaminé identifié par Inspec-Sol en 2008
- Zone restaurée antérieurement
- Contamination supérieure au critère C
- Contamination inférieure au critère C

SOURCE : Plan dessiné par TPSGC
(C00pg01.dwg)

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01	Modifications au plan de réhabilitation	N.L.	2011-10-21
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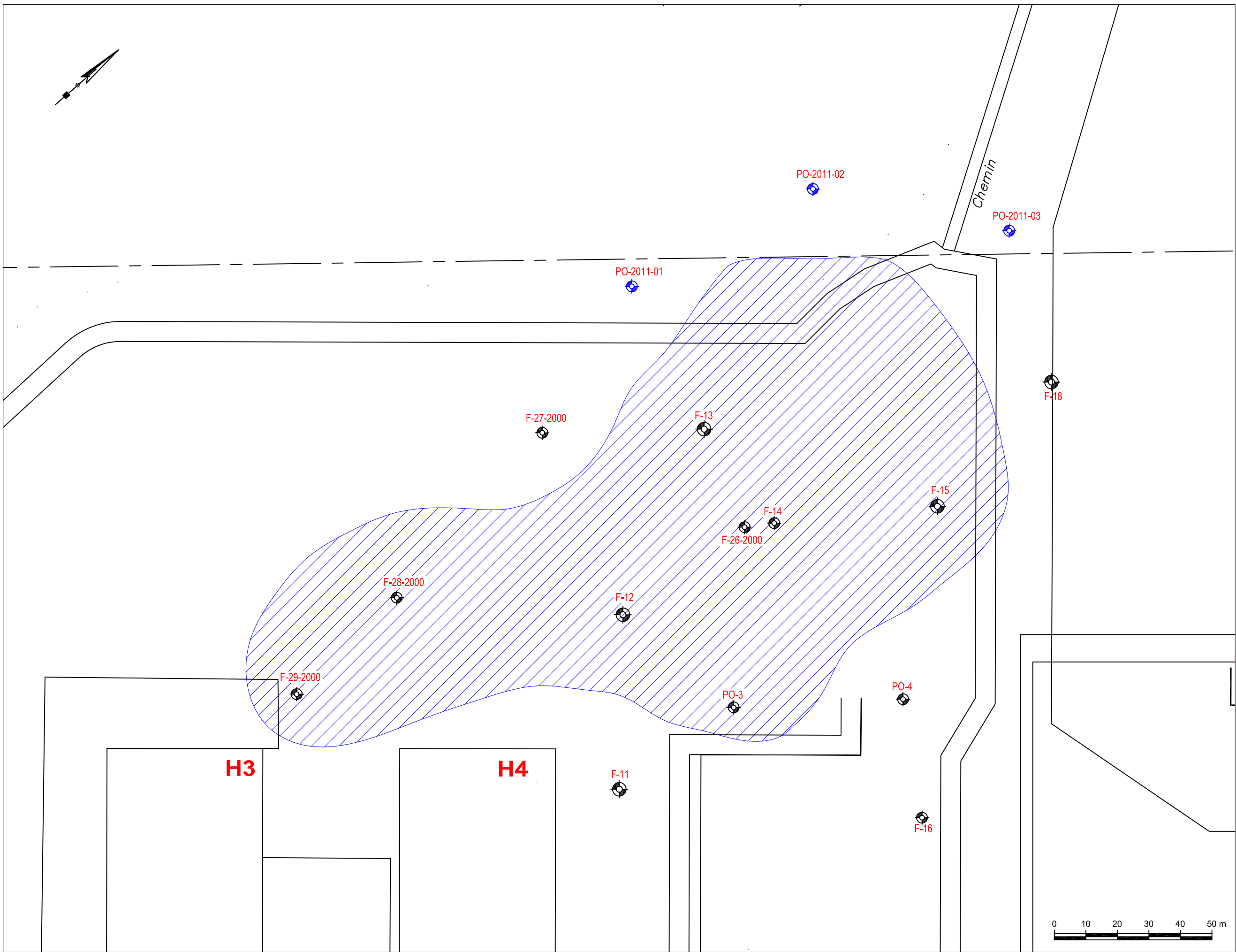


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Dessin / Drawing:
FIGURE 3.1
Synthèse des données
Secteur de l'ancien bâtiment H-3

Conçu par / Designed by:	Date
N.L.	04-10-2010
Dessiné par / Drawn by:	Date
É.L.F./N.L.	04-01-2011
Vérifié par / Verified by:	Date
N.L.	21-10-2011
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-	21-10-2011

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P0939/P0922	Graphique
No. dessin / Drawing no.:	Page / Page:
	21



LÉGENDE

-  **F-18**
Puits d'observation antérieur
(localisation approximative)
-  **PO-2011-01**
Puits d'observation proposé
(localisation approximative)
-  Panache de contamination
de l'eau souterraine

SOURCE : Plan dessiné par LVM
(073-P038375-0140-000-EN-F001-01)

Rév.	Description	Par/By	Date
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-	-	-	-



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Dessin / Drawing:
FIGURE 15.1
Localisation des puits d'observation
et du panache de contamination

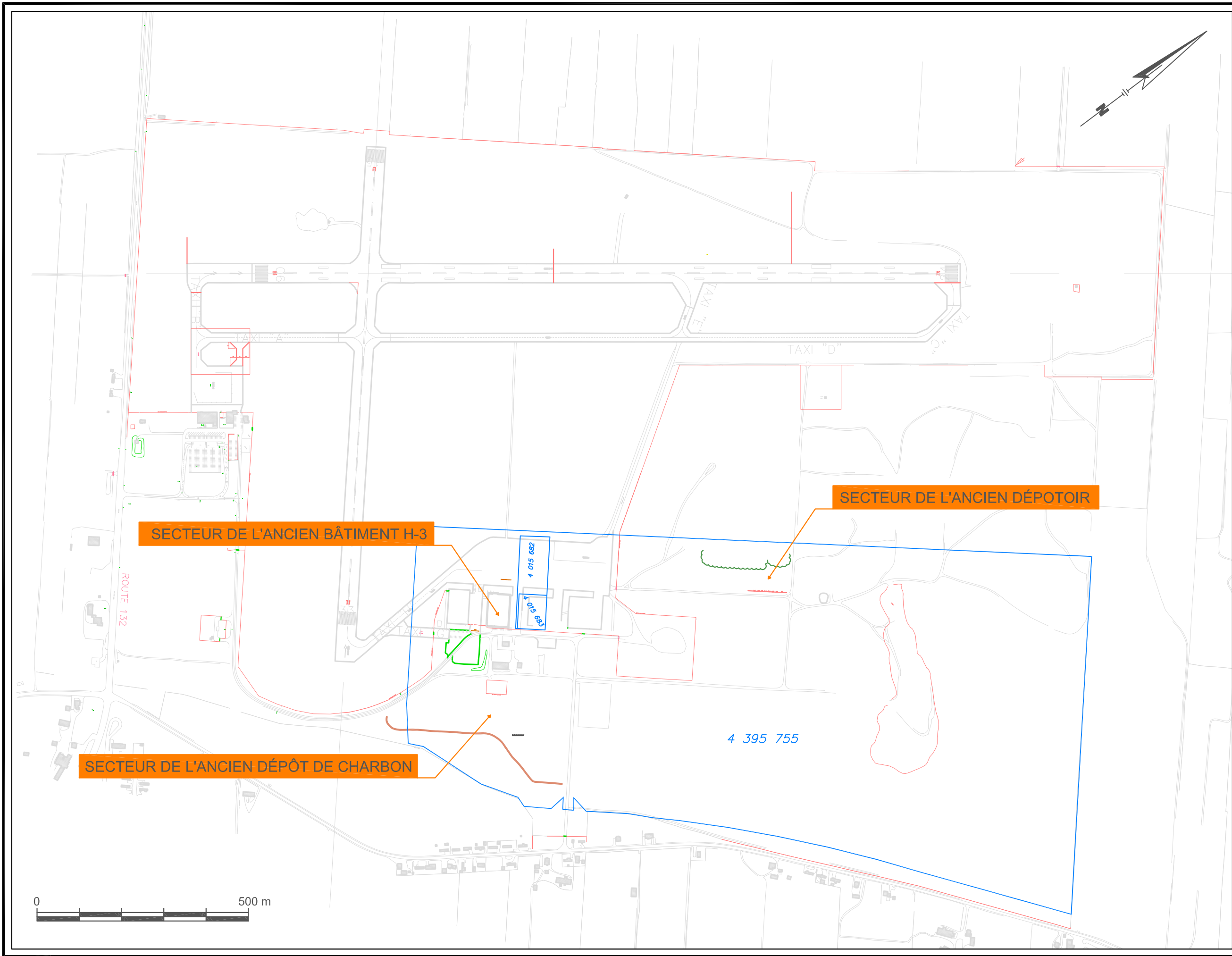
Conçu par / Designed by:	Date
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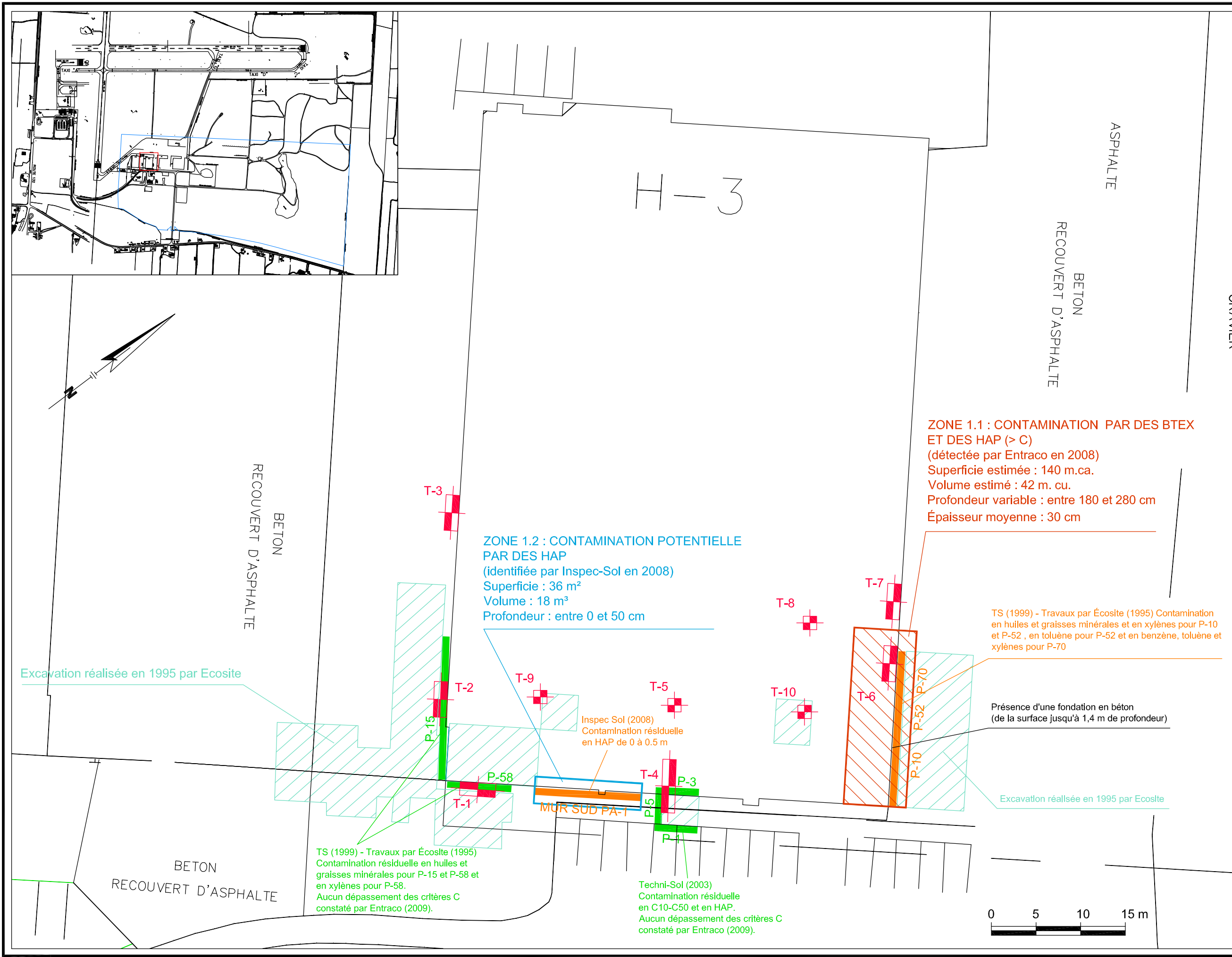
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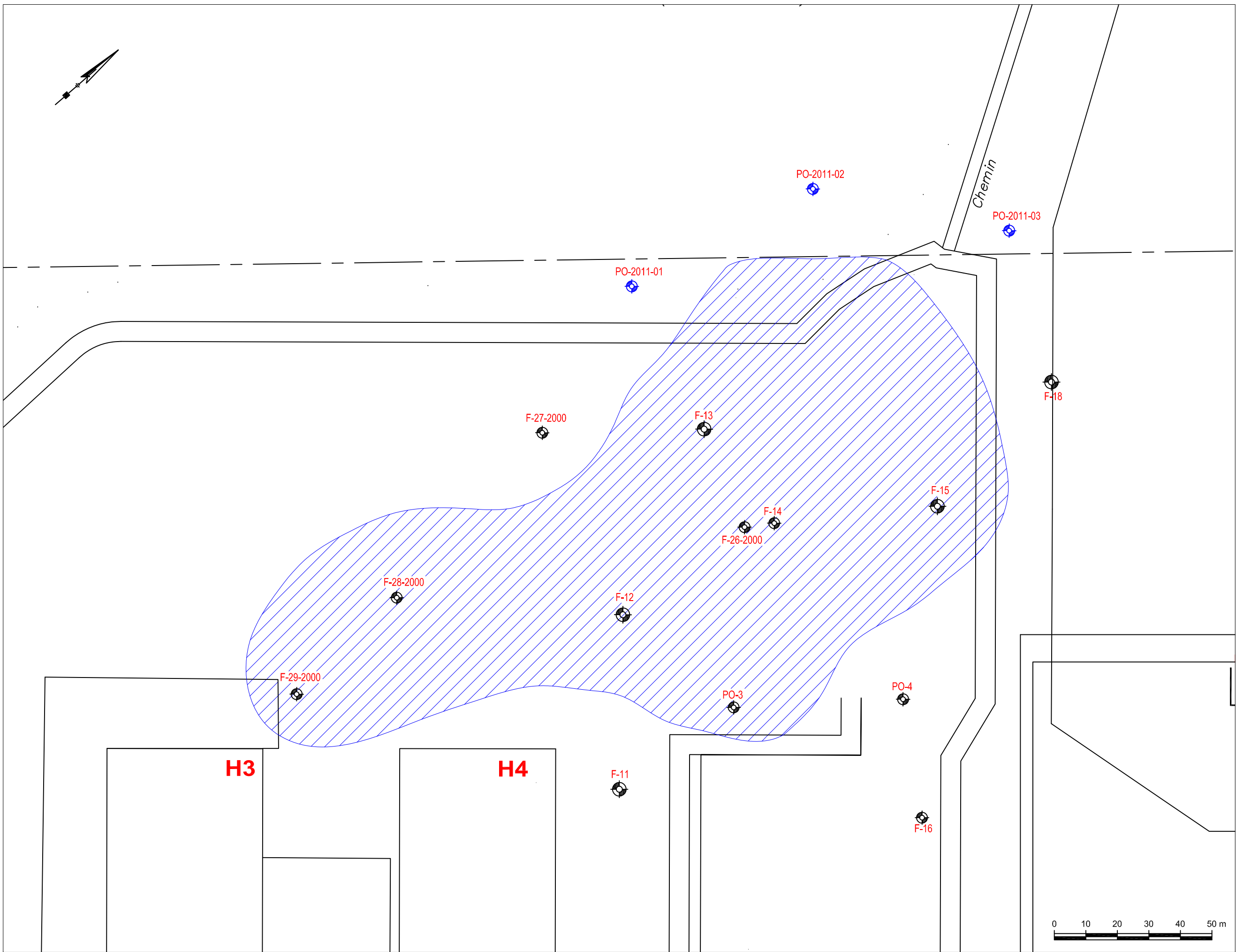


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