

Session : Geoarchaeological and botanical approaches of  
archaeological materials

# Archeology and microscopy : Geoarcheological and micromorphological approaches of traffic axes in France

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*With the collaboration of Patrick Huard (1) and Pascal Stocker (1)*

(1) Inrap, (2) UMR ASM 5140

# Introduction

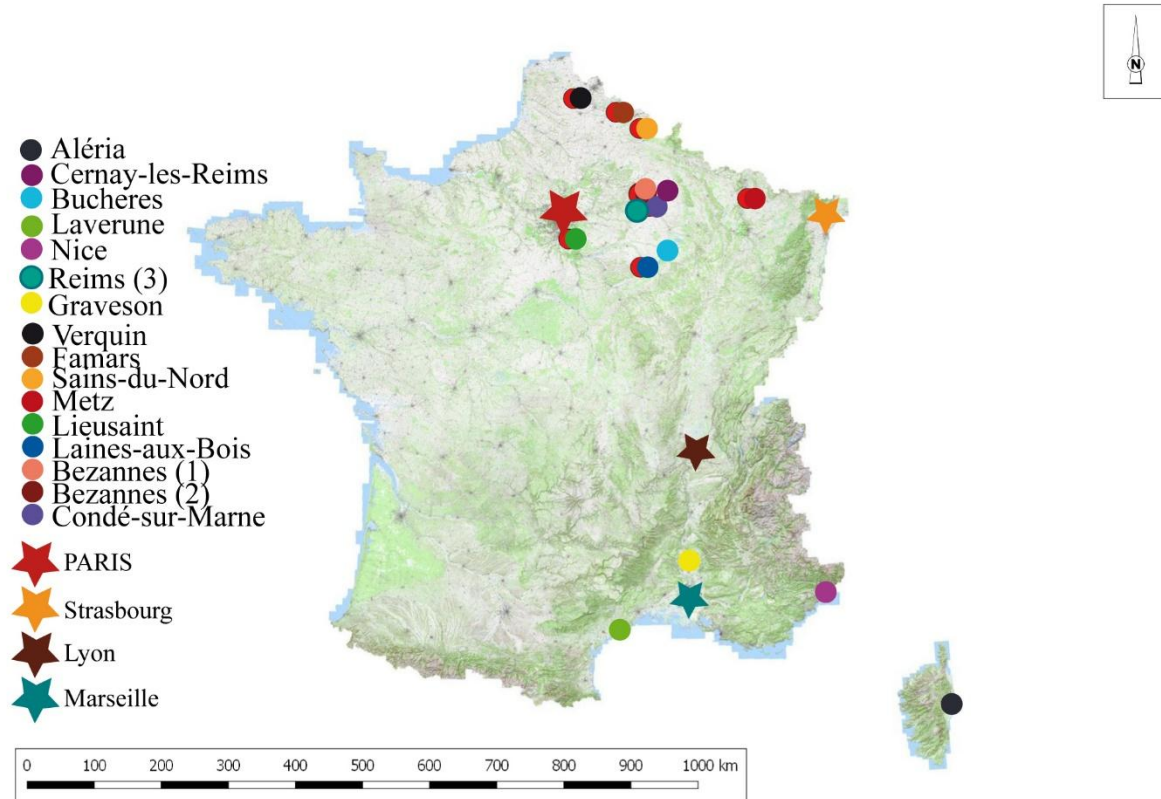
## Introduction

### 1. Street and road development methods

### 2. Formation processes of traffic axes

### 3. Thematic analysis: a section of street in *Durocortorum* (Reims)

## Conclusion

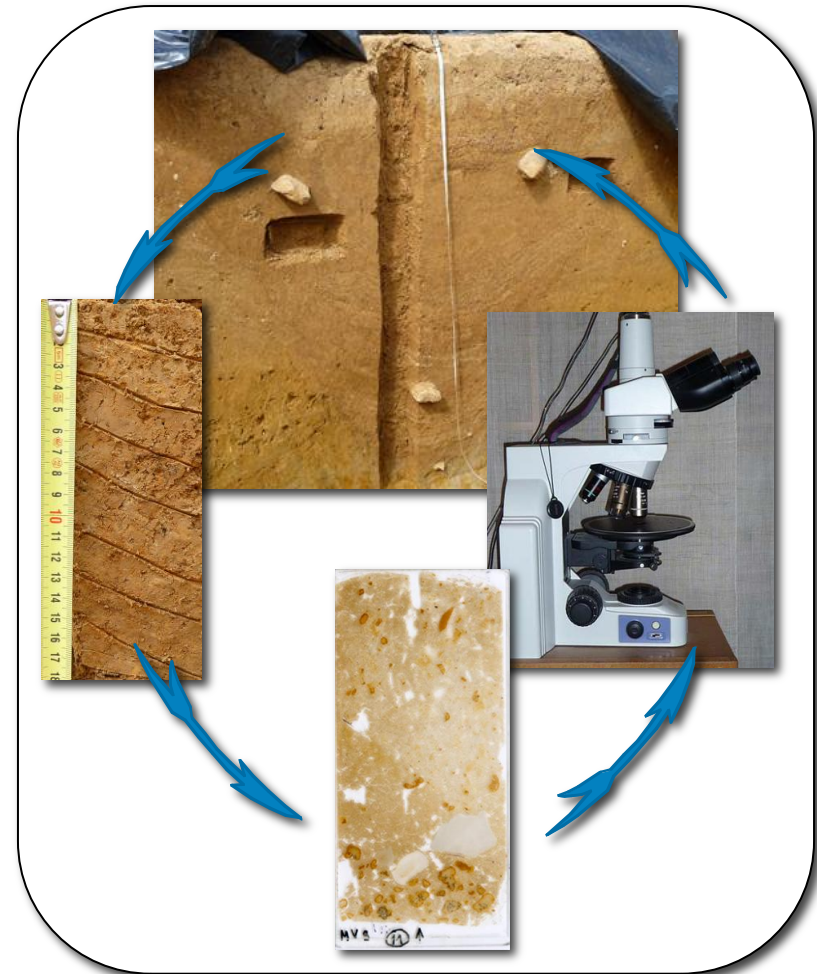


Streets and roads remain underrepresented in studies of soil micromorphology as the sedimentary expression of traffic remains poorly investigated in the archaeological context

# Introduction

Geoarchaeology, and more specifically micromorphology, is applied to gain an understanding of archaeological stratigraphy, site formation processes and the dynamics of soils and landscape from the city district to territory

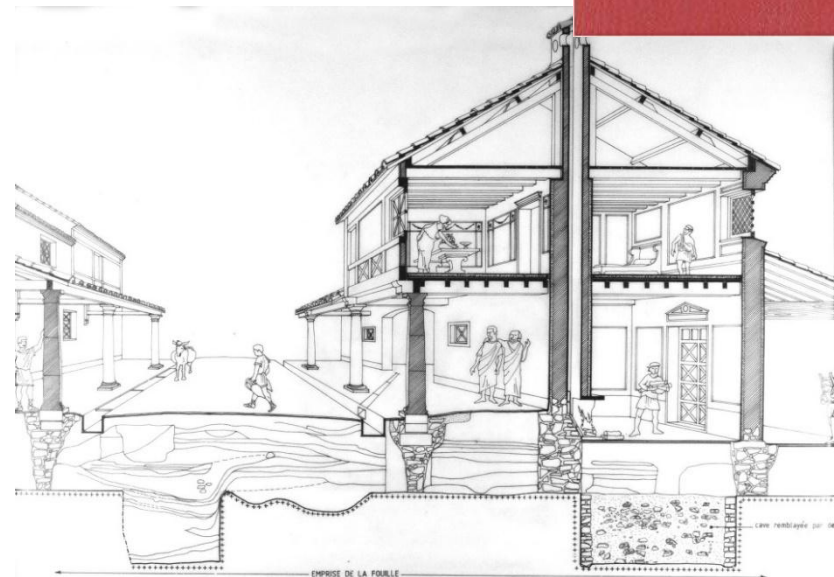
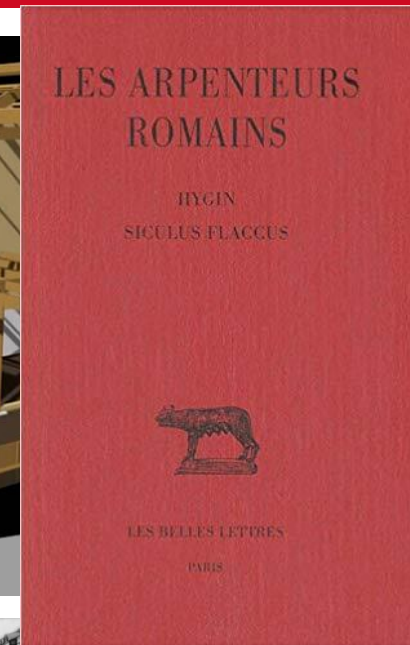
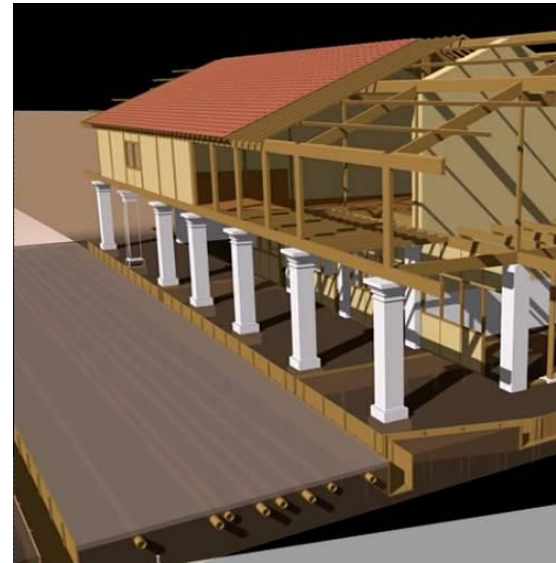
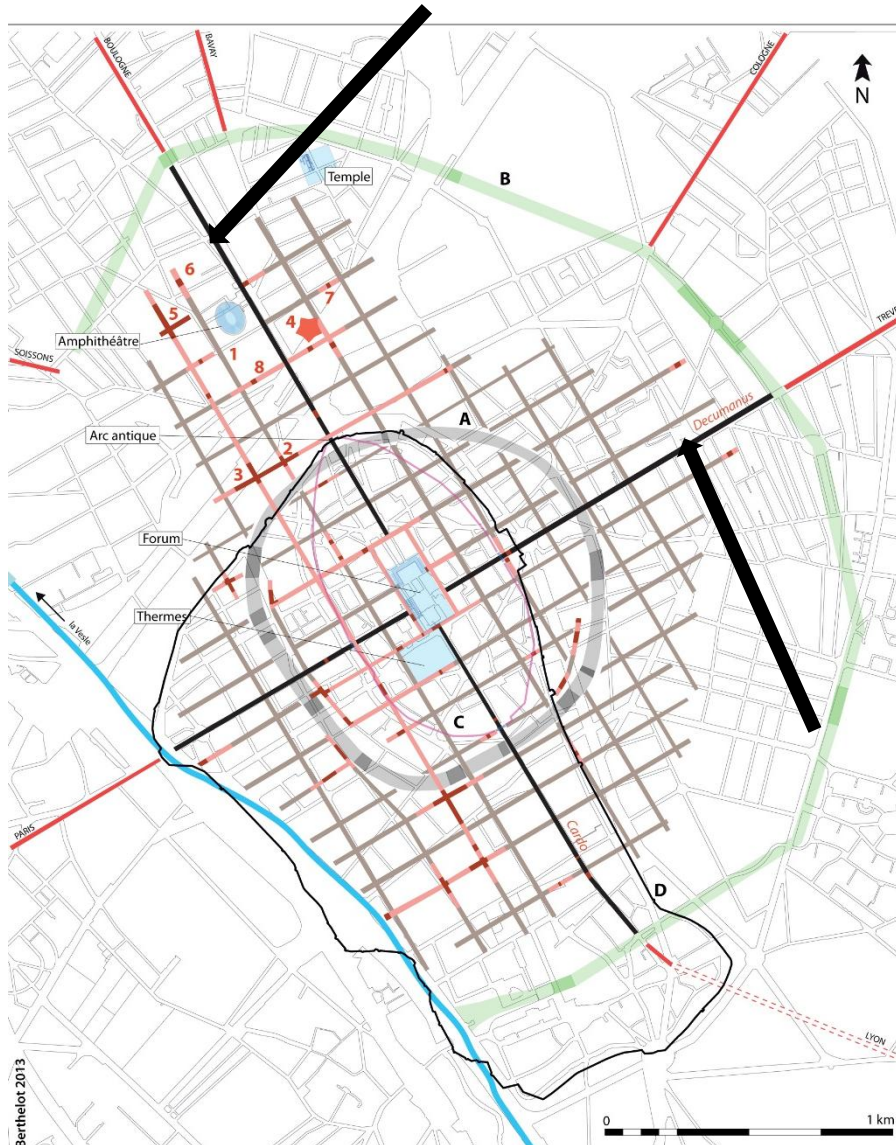
Investigations should address the characterization of traffic areas, as well as their method of construction and organization, in order to restore the formation processes





# 1. Street and road development methods

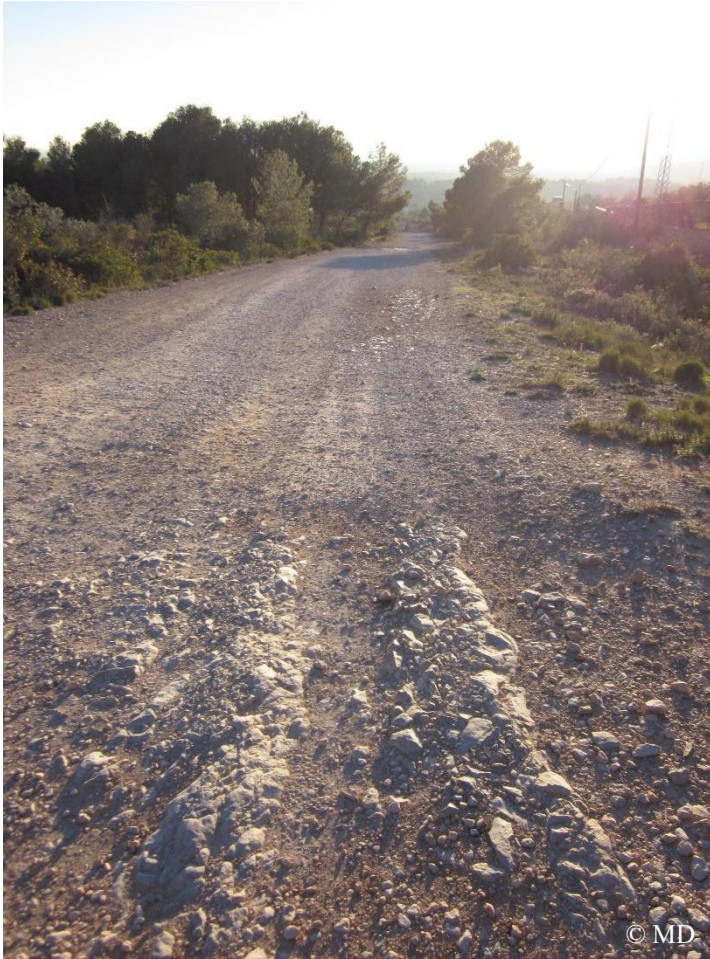
## a. Cultural factors





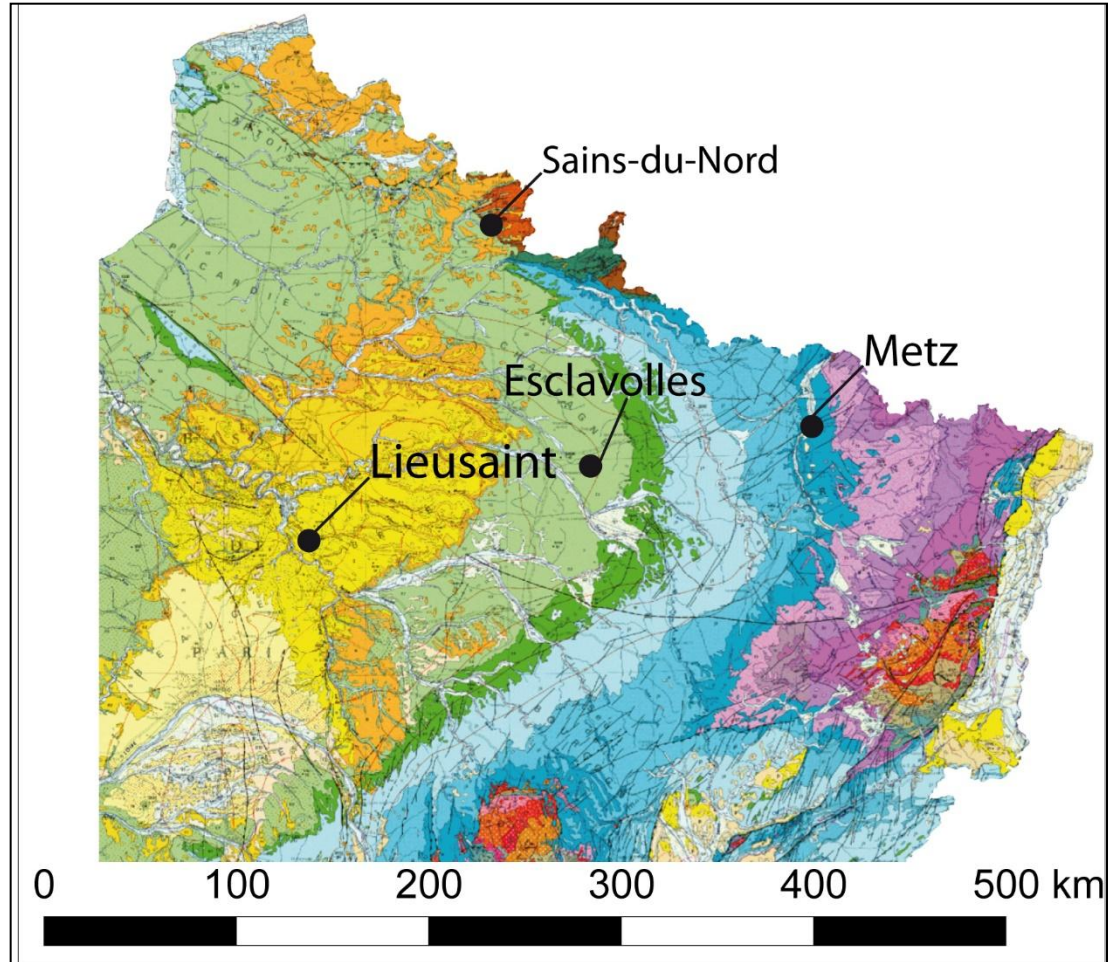
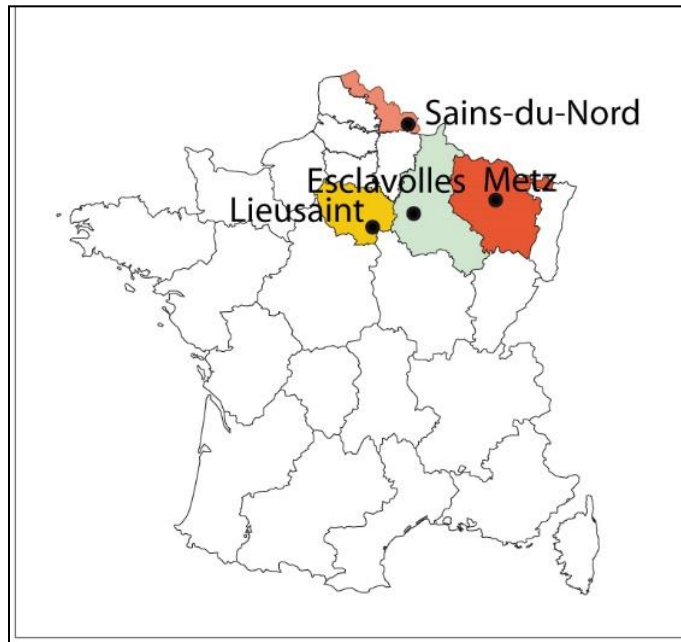
# 1. Street and road development methods

## b. Environnemental factors





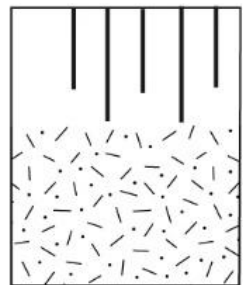
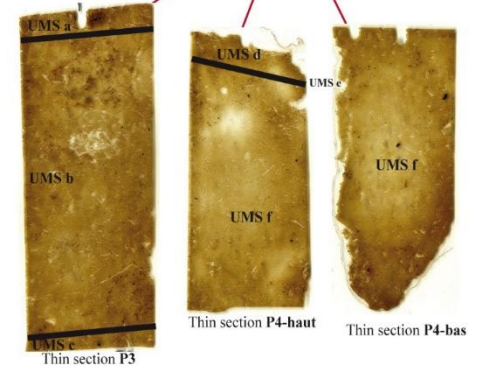
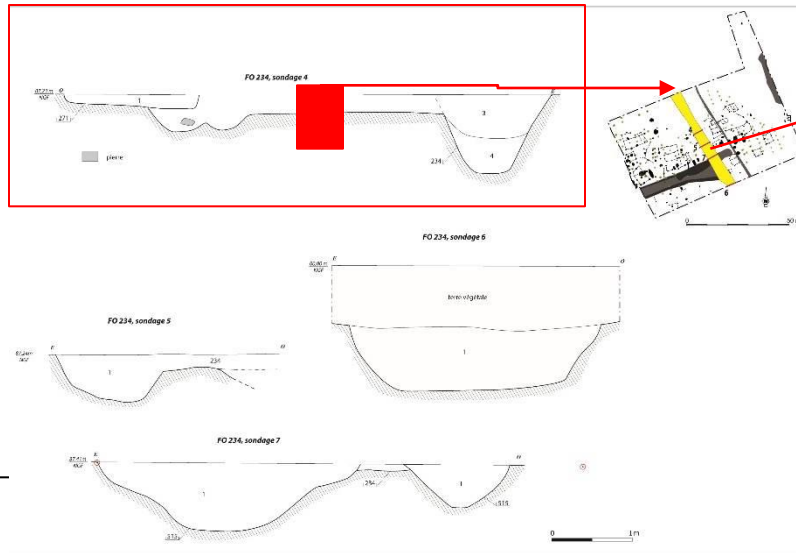
## 2. Formation processes of traffic axes



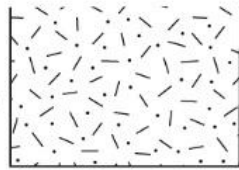


# 2. Formation processes of traffic axes

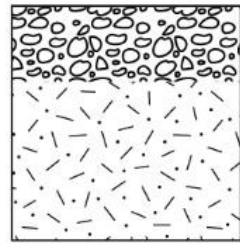
## Monophasic pattern (Liesaint lane)



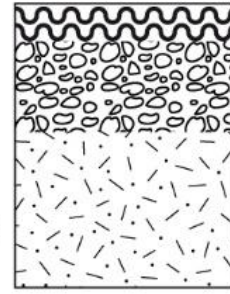
Geological layer



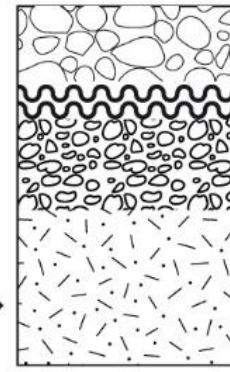
Troncature of the soil



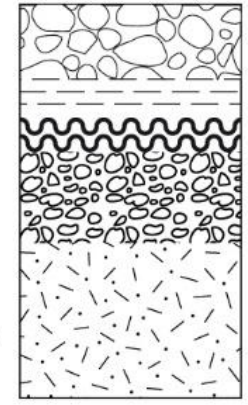
Leveling



Runoff deposit



Vehicle traffic

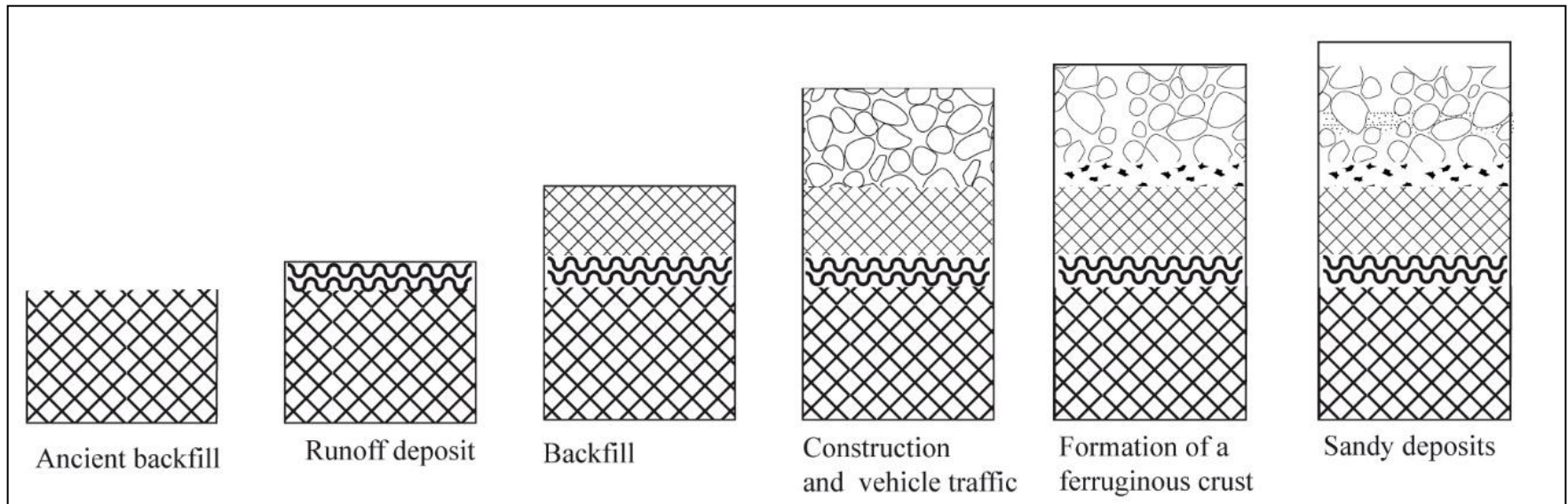
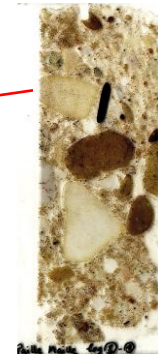
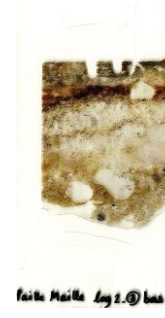
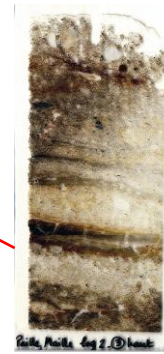
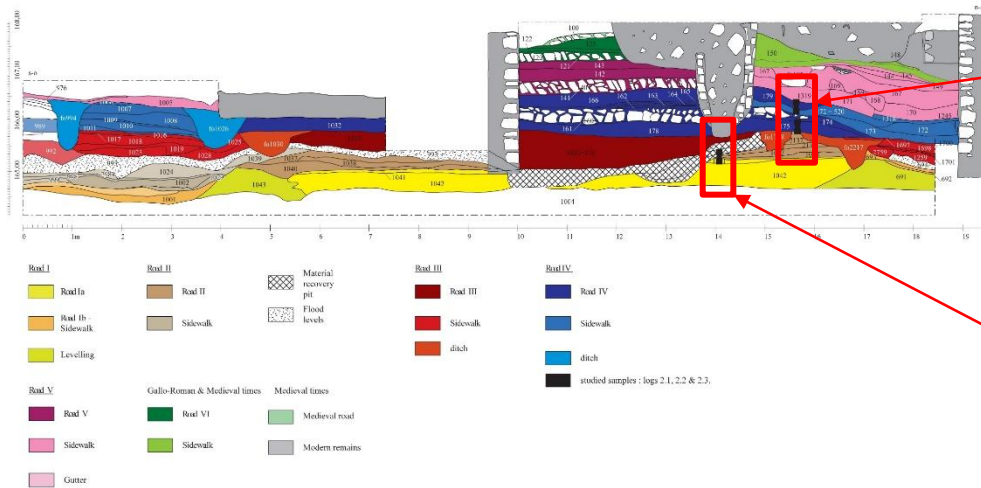


Compaction



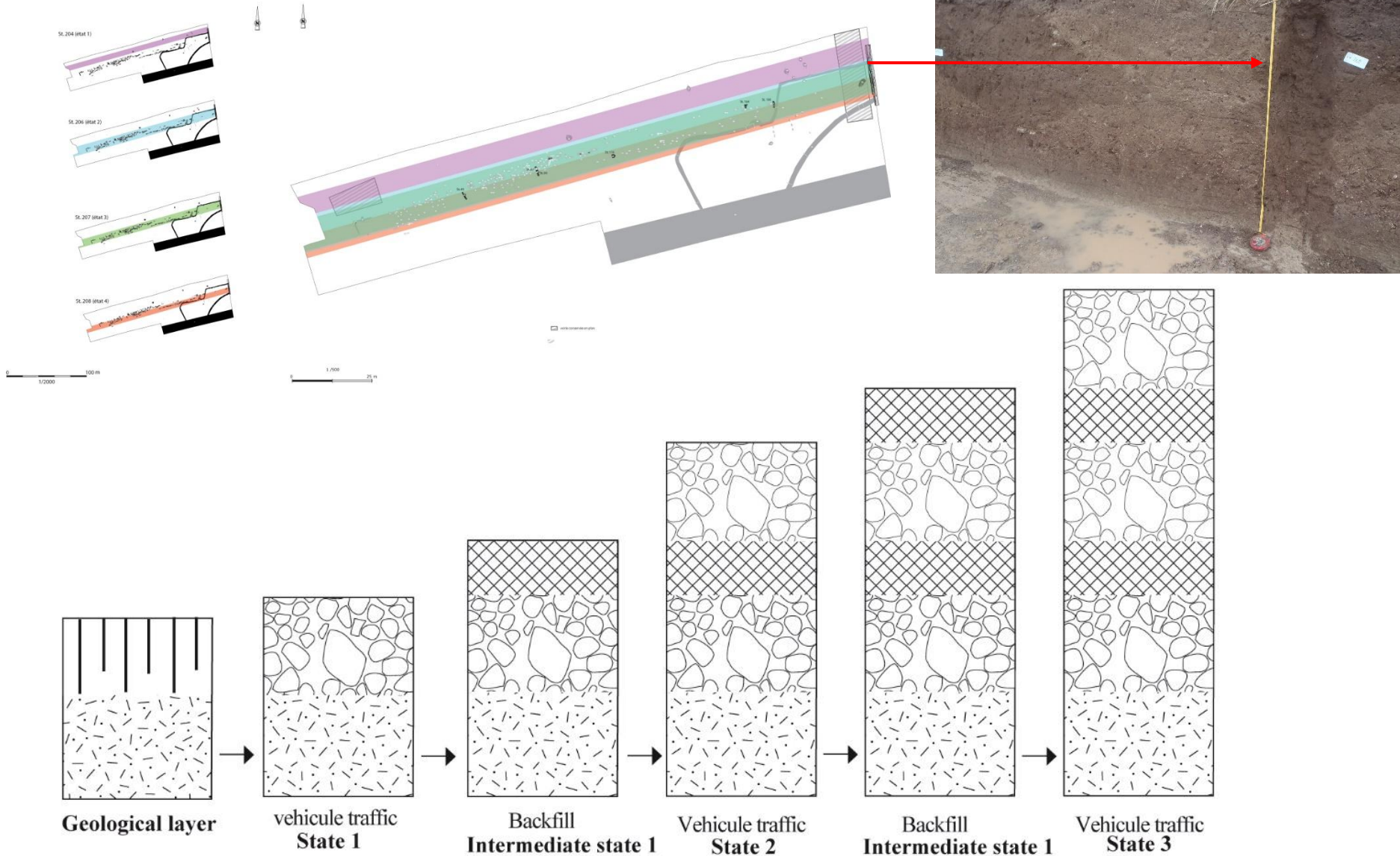
## 2. Formation processes of traffic axes

### Polyphasic pattern (Metz road)



## 2. Formation processes of traffic axes

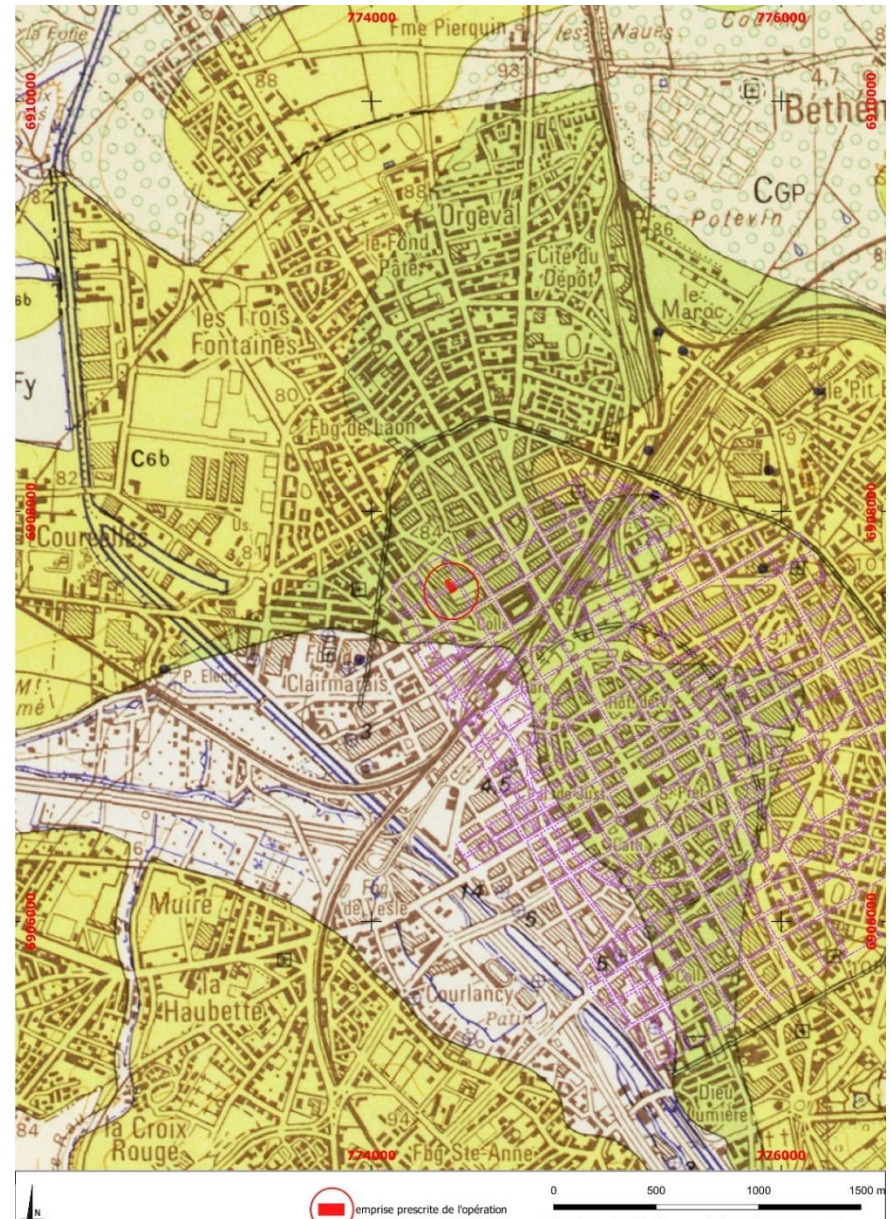
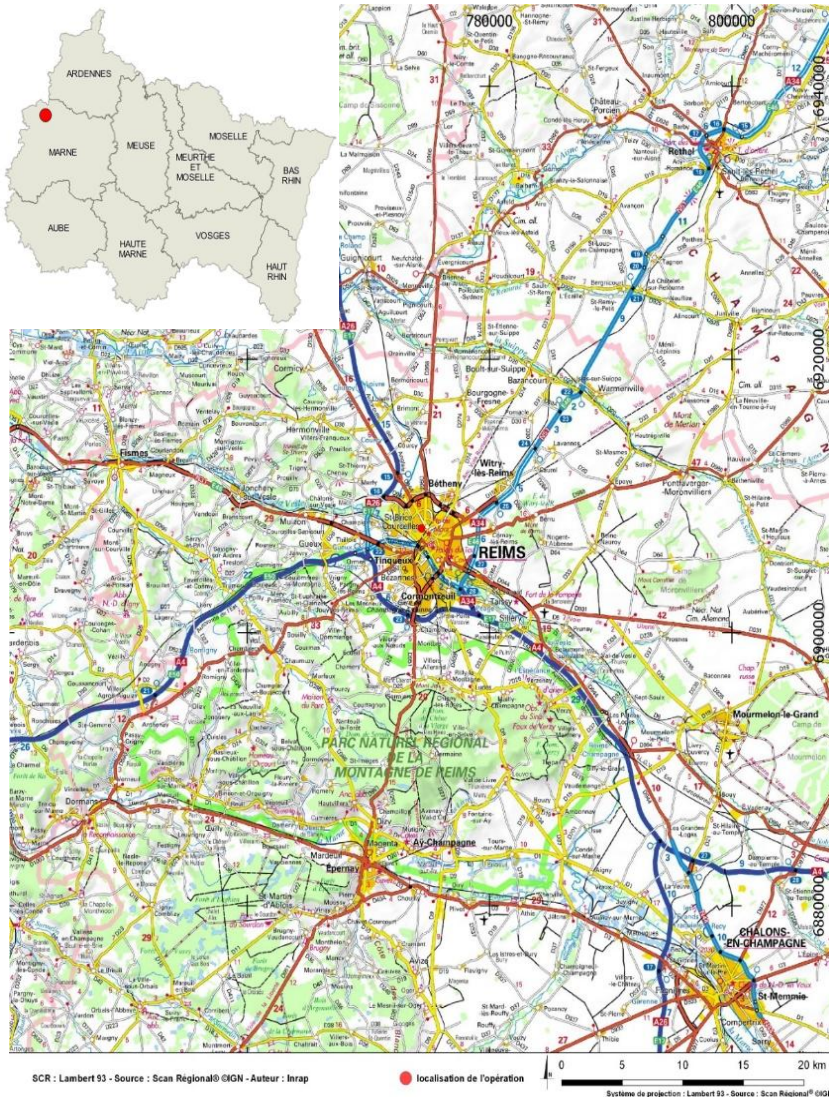
### Polycyclic pattern (Esclavolles-Lurey road)





# 3. Thematic analysis: a section of street in *Durocortorum* (Reims)

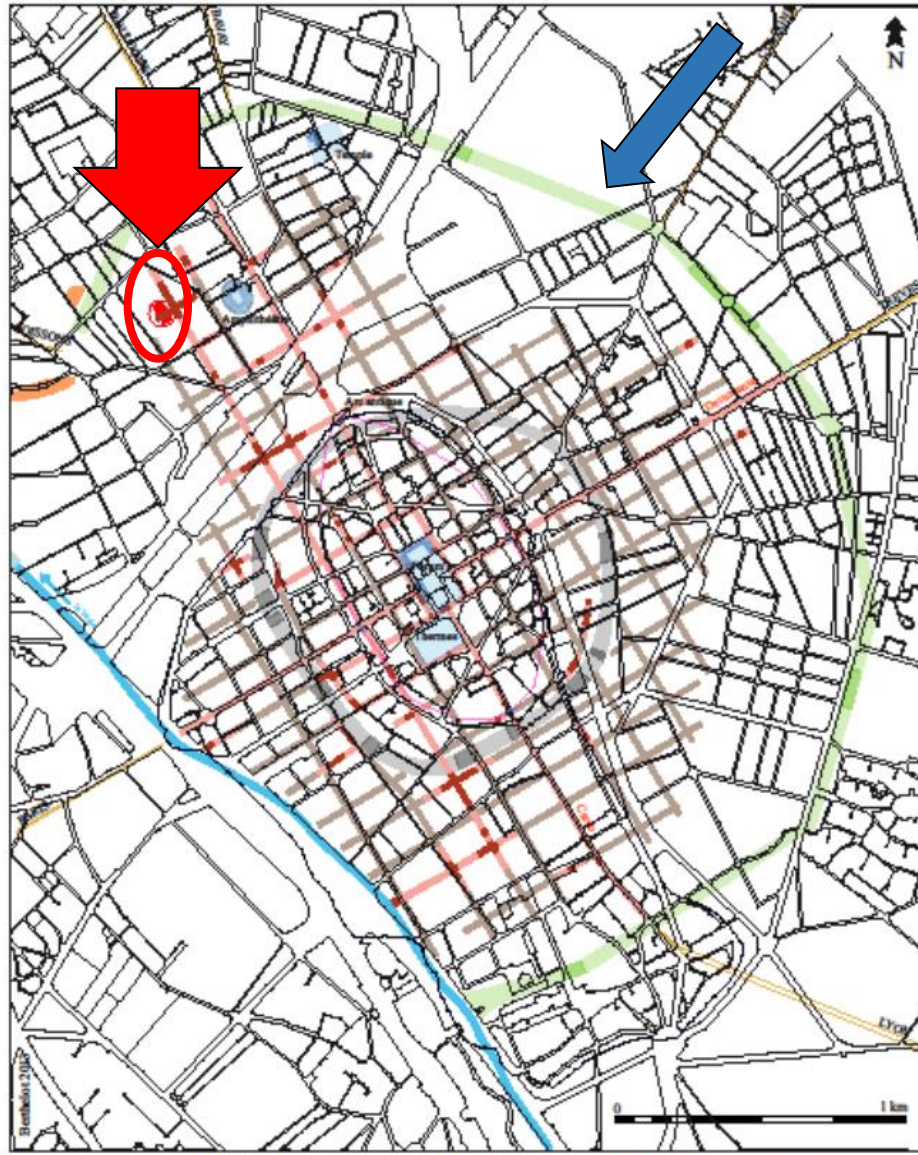
## a. Study area and archaeological context



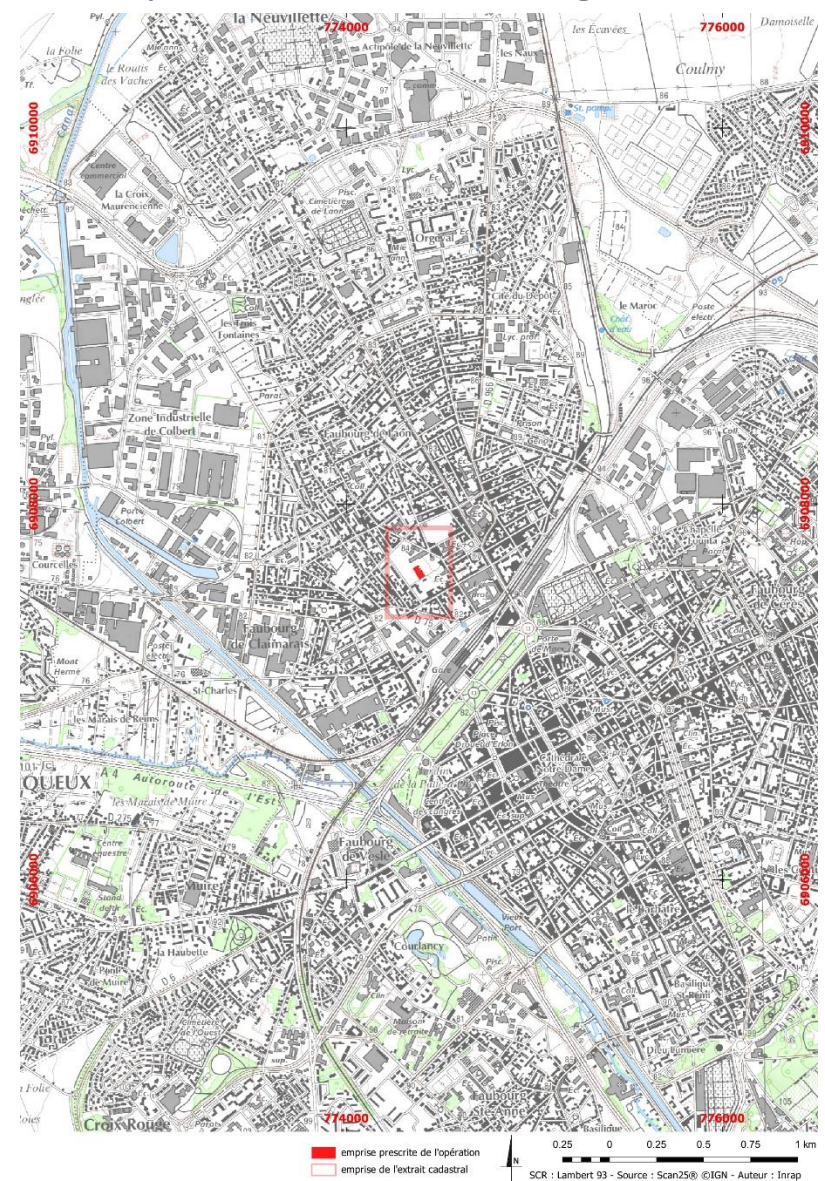


# 3. Thematic analysis: a section of street in *Durocortorum* (Reims)

Fond de carte : IDR1 Reims Métropole, 2007  
Sources : SRA Champagne-Ardenne - INRAP Reims



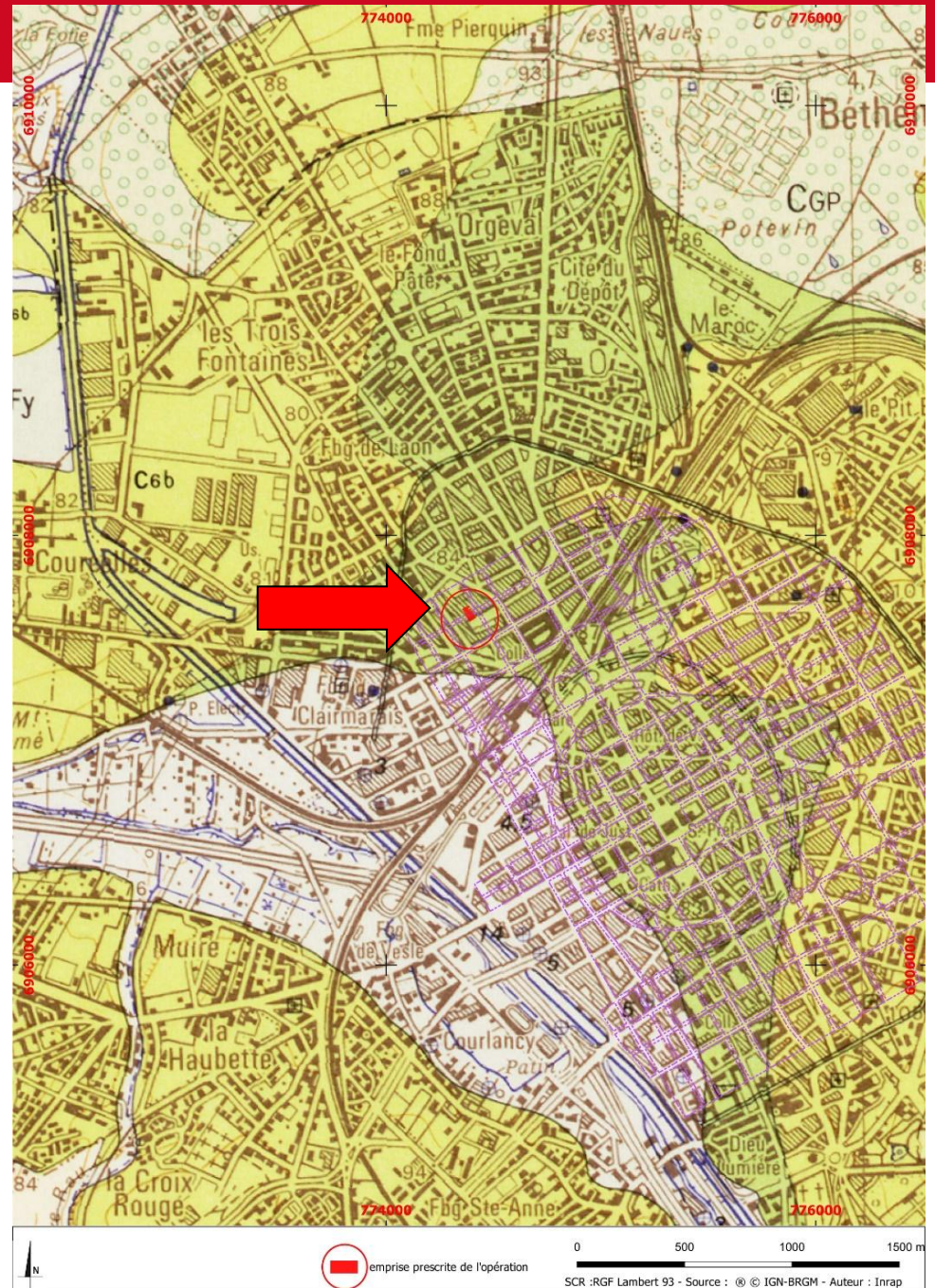
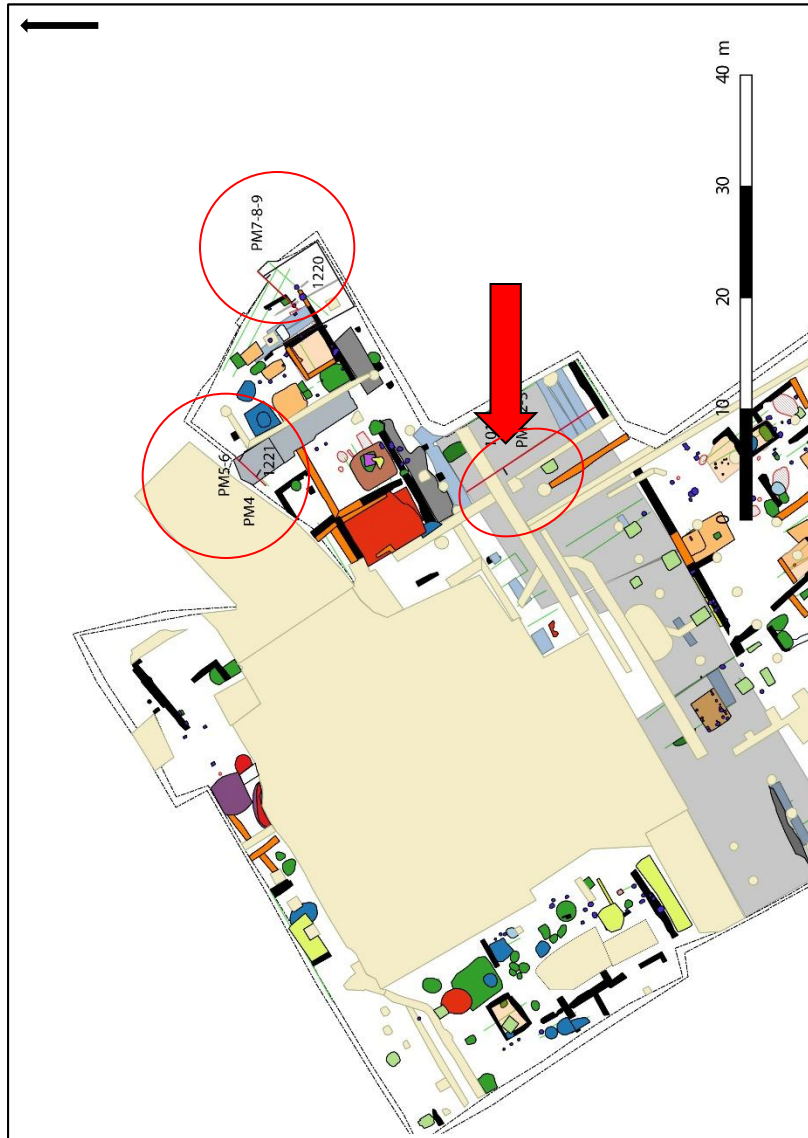
## a. Study area and archaeological context





# 3. Thematic analysis: a section of street in *Durocortorum* (Reims)

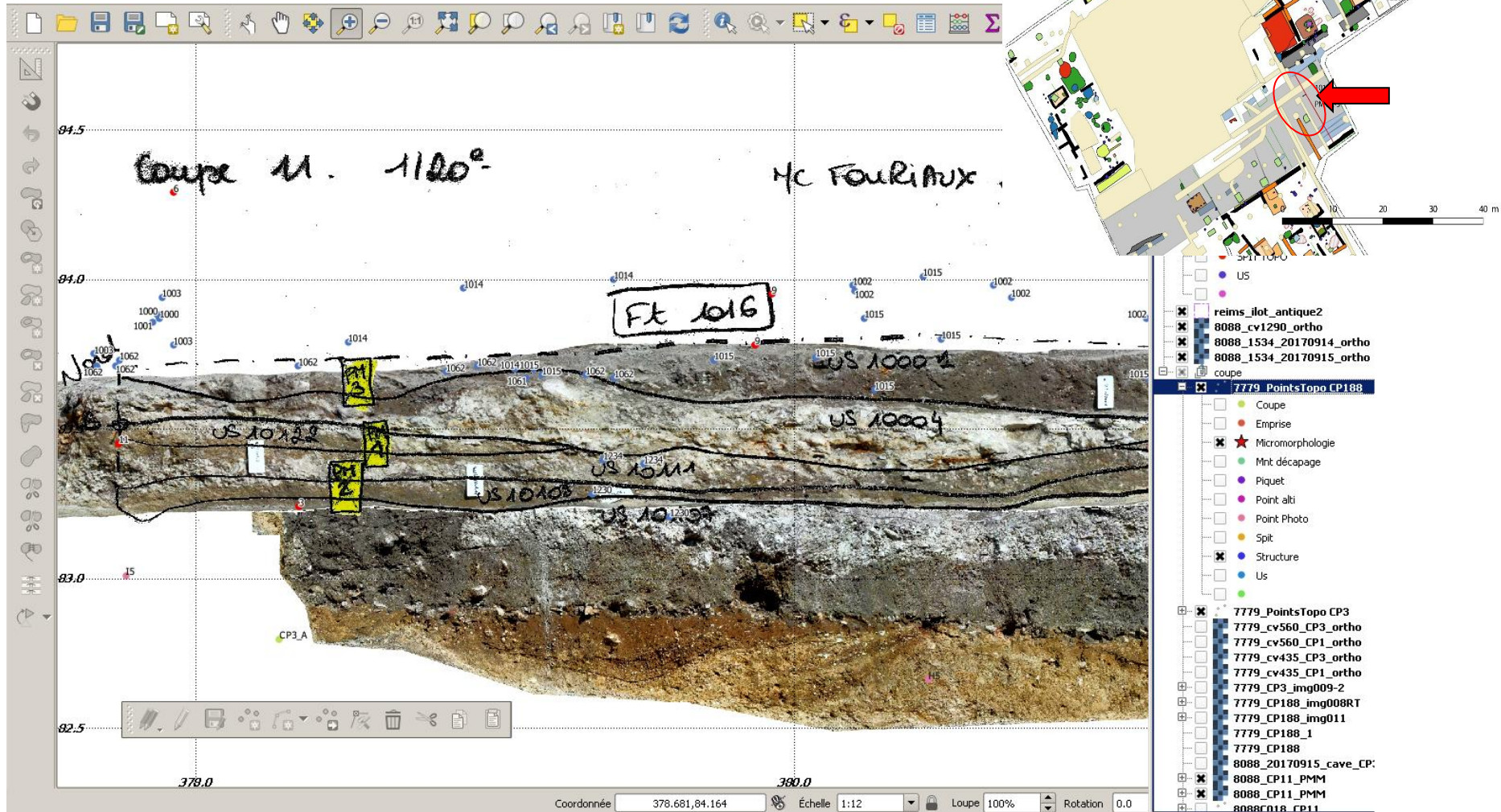
## b. Material and methods





# 3. Thematic analysis: a section of street in *Durocortorum* (Reims)

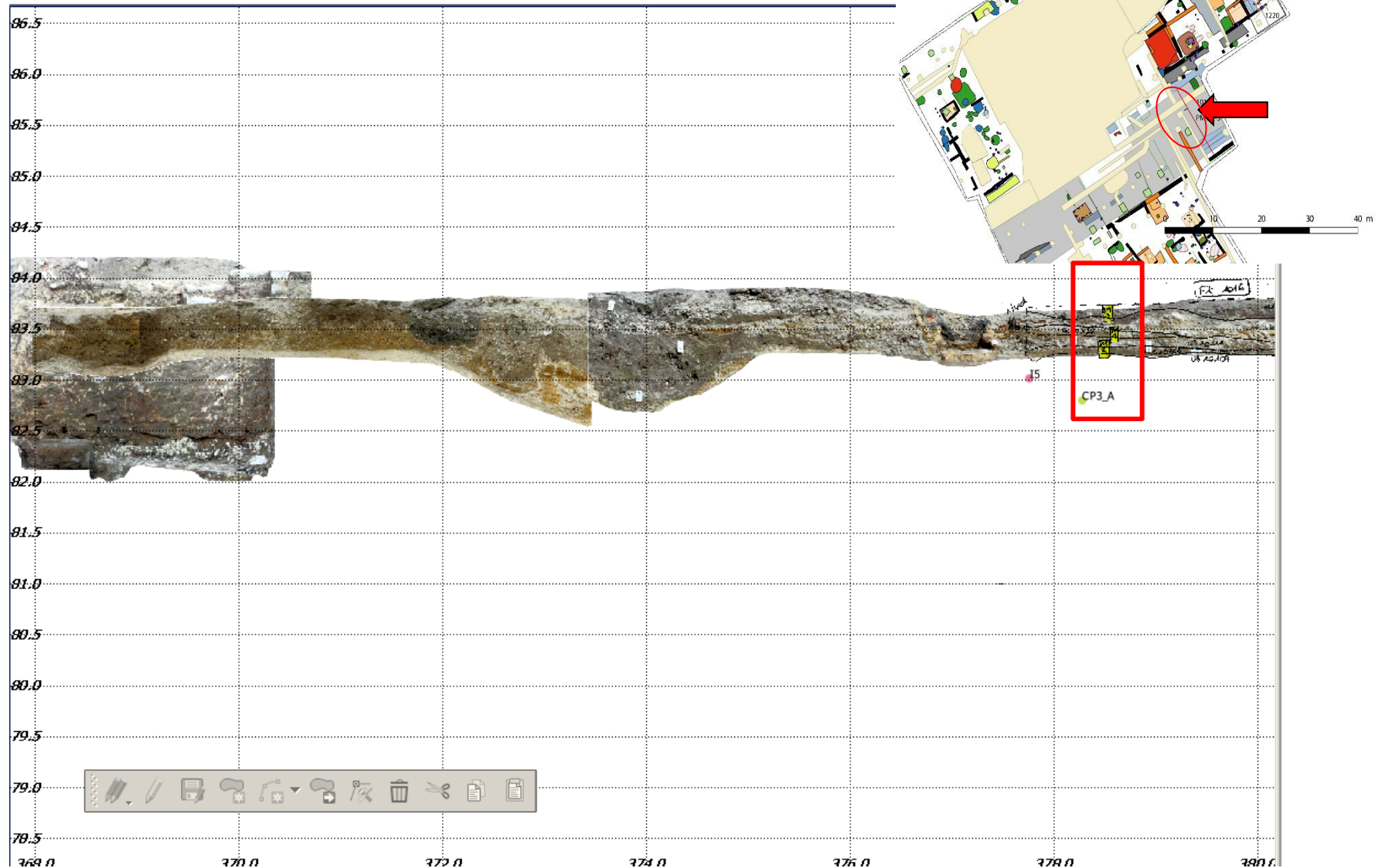
## b. Material and methods





# 3. Thematic analysis: a section of street in *Durocortorum* (Reims)

## b. Material and methods

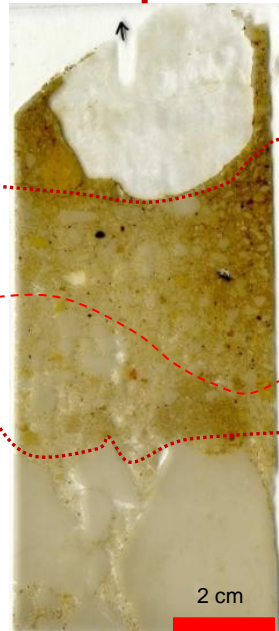
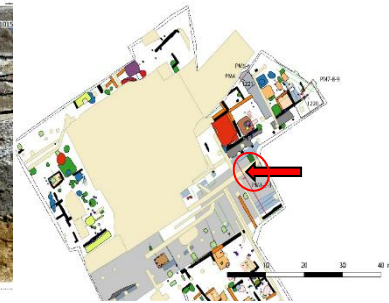
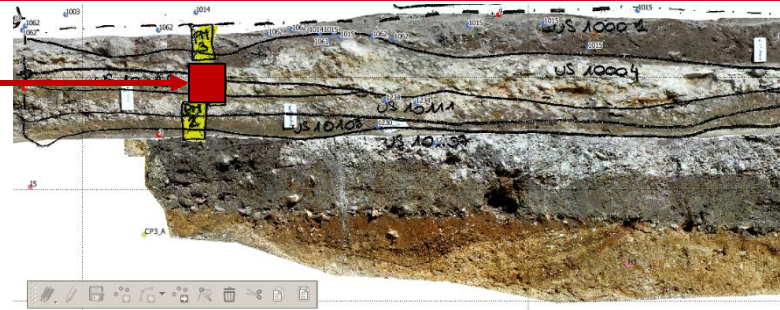






# 3. Thematic analysis: a section of street in *Durocortorum* (Reims)

## 3.3 Results

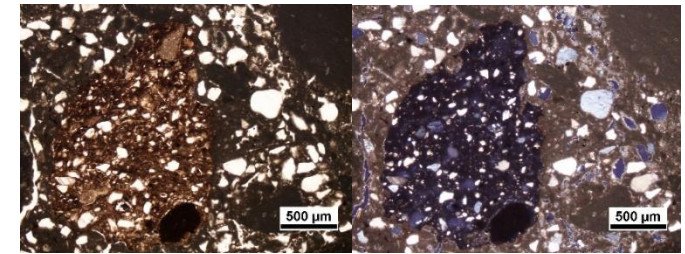


Vehicle traffic

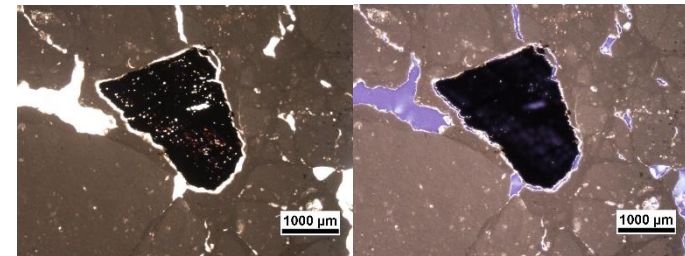
rut



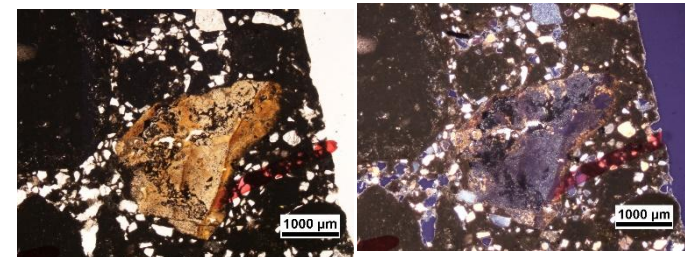
Levelling, vehicle traffic



Fragment of pottery (PPL and XPPL)



Fragment of charcoal (PPL and XPPL)

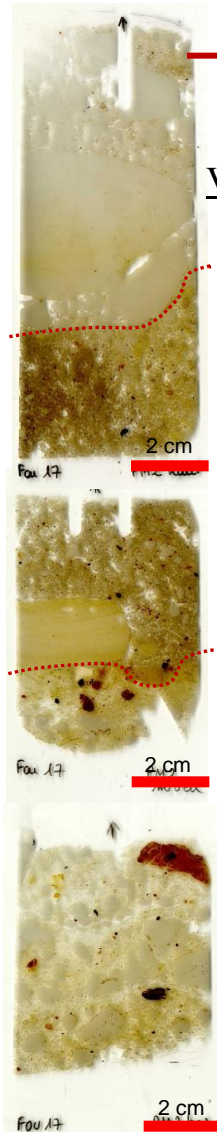


Fragment of flint (PPL and XPPL)



# 3. Thematic analysis: a section of street in *Durocortorum* (Reims)

## 3.3 Results

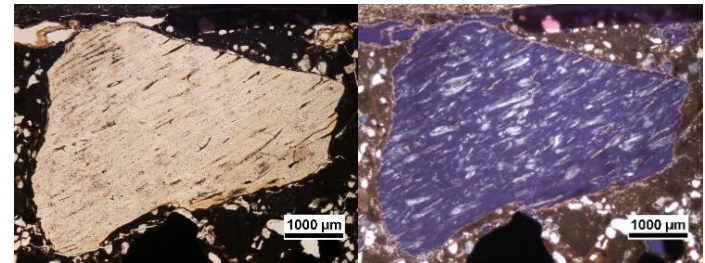
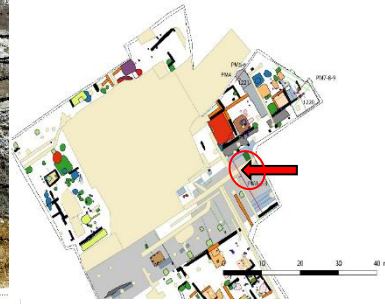
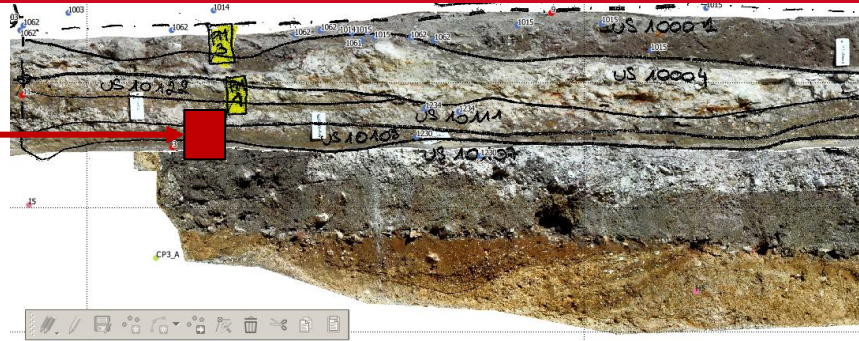


Vehicle traffic

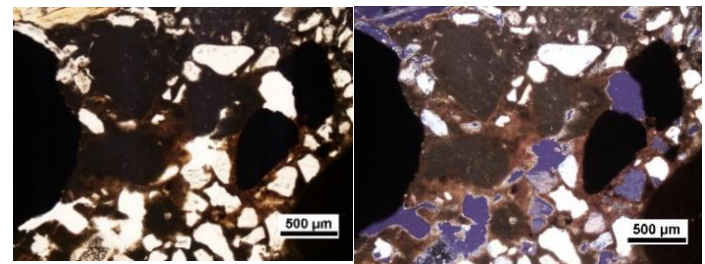
Repair

rut

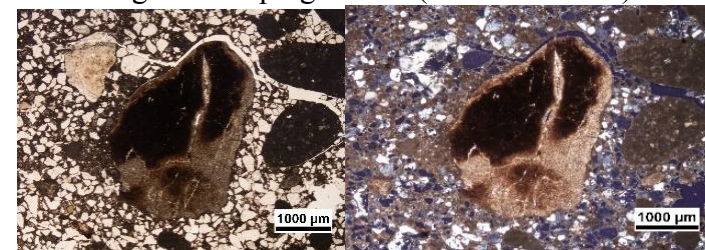
Pavement ?



Fragment of bone (PPL and XPPL)



Ferruginous impregnations (PPL and XPPL)

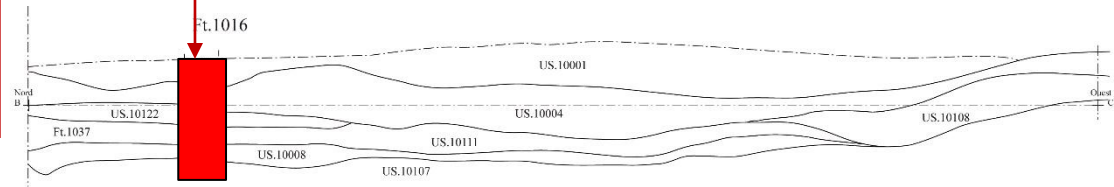
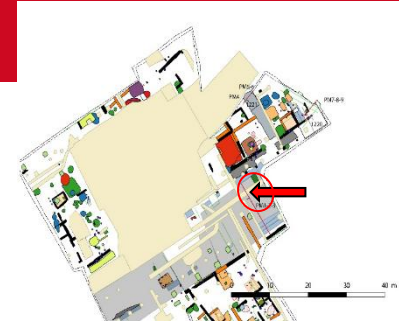


Fragment of pottery (PPL and XPPL)

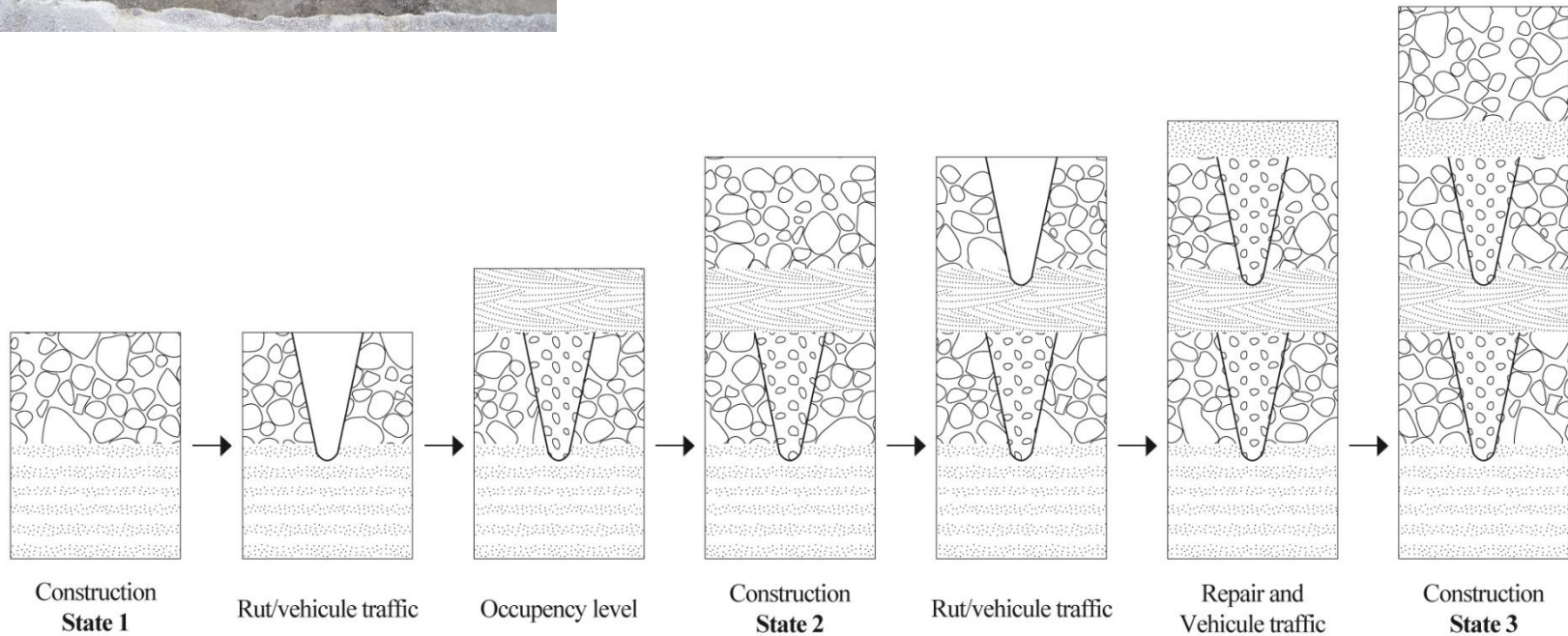


# 3. Thematic analysis: a section of street in *Durocortorum* (Reims)

## 3.4 Discussion



Relevé stratigraphique de la coupe 11 au 1/20 © Inrap



# Conclusion

- Field observations and interpretations together with the results of micromorphological analyses facilitate a better understanding of the construction, maintenance and use of traffic axes
- Models of formation processes :
  - monophasic model : permanent maintenance due to the status or continuous use of the street or lane
  - polyphasic and polycyclic model : rhythmic use and rebuilding.
- Present study allows us to distance ourselves from the vision of a road or street as a paved area and sheds new light on traffic axes. It shows that they should not be considered as one massive deposit or superimposition of backfills, but should be investigated with the same geoarcheological methods and the same care as other archaeological layers



**Thank you for your attention**