



SOLIDERE

الجمهورية اللبنانية
مكتب وزير الدولة لشؤون التنمية الإدارية
مركز مشاريع ودراسات القطاع العام

Proposal for Development of Two Archeological Heritage Sites
in the Beirut Central District

TECHNICAL REPORT

Republic of Lebanon
Office of the Minister of State for Administrative Reform
Center for Public Sector Projects and Studies
(C.P.S.P.S.)

NOVEMBER 1998

Introduction

The excavations in the Beirut Central District have revealed archeological remains that have been appreciated for their historical importance at the national level and beyond. The attached brochure shows briefly the main results of these excavations and some ideas regarding their layout. Four archeological sites are going to be emphasized : The Roman Baths, the Phoenico-Persian Quarter, the Roman Cardo-Maximus site and the Ancient Tell site. Two of them only need a layout plan while the layout of the others has been already done.

The site of the Roman bath near the Grand Serail was excavated before the civil war. With the reconstruction of Beirut the site was cleaned, partially restored and integrated into a public garden. A second site includes the remains of an urban quarter of the Persian Period. Its consolidation and presentation is embedded in the Souk project. Two major areas of excavation have become part of public space by ministerial decree (October 12, 1996) or agreement between Directorate General of Antiquities, UNESCO and SOLIDERE (1993) and, therefore, remain to be integrated into a developmental program.

To allow evaluation of the plans all excavated sites are listed, as are the archeologists responsible for the excavations as well as relevant publications. Furthermore the main results and the value and characteristics of the exposed features are included. Two complementary layout alternatives are proposed and commented. Subsequently the financial estimation for each area is provided.

An exhaustive chart at the end of this report is resuming the main information and figures.

nofer

1. Technical details and description of the sites

1.1 Tell area

The location of the ancient *tell* extends east from the Boulevard Georges Haddad to the northern end of Rue Argentine. The sites excavated in the zone of the ancient *tell* are also situated north of Rue Cadmus and west of Rue Zaarafane. The site contains the fortification works of the Bronze Age, Iron Age, Classical period and the Crusader period.

Total site surface	30,000 square meters
Archaeological area surface	18,000 square meters

The area has been excavated in several sites due to the phasing of the infrastructure works. The technical details are listed below by site number.

BEY 003

Director/institute	Dr Leila Badre, American University of Beirut Museum
Duration of work	17 months
Periods of work	October 1993 - July 1996
Excavated surface	3000 square meters
Scientific report	Badre, Leila (1998) Bey 003 Preliminary Report, Excavations of the American University of Beirut Museum. <i>Bulletin d'Archéologie et d'Architecture Libanaises</i> 2 (1997): 6-94.
Archeological results	Early Bronze Age stone walls (3100 -2000 BC) Middle Bronze Age deposits with mud-brick walls (2000 -1550 BC) Middle Bronze Age deposits with shallow pits and child burial in vessel Late Bronze Age gate with its city wall, glacis and drain (1550 - 1200 BC) Late Bronze Age rock chamber with shaft Iron Age II Glacis (1000 - 800 BC) Iron Age IIIa-b (800 - 550 BC) Retaining walls and multi-room building Crusader castle remains
Evaluation	The value and characteristics are well summarized as 'the contribution of the <i>tell</i> excavation is probably the most important in the urban archaeological project of Beirut' (Badre 1998:92). A presentation to the general public will allow full appreciation of the history of Beirut through the ages.

BEY 013

Director/institute	Dr Naji Karam, Lebanese University, section 2
Duration of work	8 months
Start of work	January - August, 1995
Excavated surface	1500 square meters
Scientific report	Karam, Naji (1998) Bey 013 Rapport préliminaire, <i>BAAL</i> 2 (1997): 95 - 113.
Archeological results	Late Bronze Age city wall (1550-1250 BC) Iron Age II (1000 - 800 BC) Glacis Semi-circular towers of the Classical period (300 BC - 400 AD)
Evaluation	The towers represent the defensive structures of the Classical period.

BEY 020

Director/institute	Dr Helen Sadr, American University of Beirut and dr Uwe Finkbeiner, Tuebingen University
Duration of work	15 weeks
Periods of work	April 1995 - September, 1997
Excavated surface	2700 square meters
Literature	Finkbeiner, Uwe and Sadr, Hélène (1998) Bey 020 Preliminary Report of

Archeological results	the Excavations 1995, <i>BAAL</i> 2 (1997): 114-166. Bronze Age (1550 - 1200 BC) city wall(s) Iron Age I (1200 - 1000 BC) stairway and tower room Iron Age II (1000 - 800 BC) glacis with stairway Iron Age IIIa-b (800 - 550 BC) retaining walls
Evaluation	The steps and tower built into the glacis provide an attractive element to the Iron Age defensive system.

BEY 078 and 114

Director/institute	Dr Hans H. Curvers, IPP-University of Amsterdam
Duration of work	2 months
Period of work	March - June 1998
Excavated surface	2000 square meters
Archeological results	see BEY 020
Evaluation	see BEY 020

BEY 032

Director/institute	Dr Hans H. Curvers, IPP-University of Amsterdam
Duration of work	4 months
Period of work	May - August 1998
Excavated surface	1000 square meters
Scientific report	Curvers, Hans H. and Stuart, Barbara (1998) The BCD Infrastructure Archaeology Project, 1995, <i>BAAL</i> 2 (1997): 167 - 205.
Archeological results	Iron Age II glacis (fragmentary) Iron Age IIIa-b road, connecting <i>tell</i> with harbor Imperial Roman (2-3d cent. AD) Retaining Wall and architecture
Evaluation	The ramp and its connection to the harbor put the <i>tell</i> in a wider context. The Roman architecture indicates that the Romans adjusted their urban design to the presence of the <i>tell</i> .

BEY 098

Director/institute	Dr Hans H. Curvers, IPP-University of Amsterdam
Duration of work	1 week
Period of work	August 1997
Excavated surface	20 square meters
Archeological results	Recording of a foundation that could represent western facade of the Crusader castle. It appeared to be 20 th century AD foundation.
Evaluation	No remains to be preserved, foundation still <i>in situ</i> .

1.2 Cardo Maximus area

This large zone extends from the south between the two churches St. Georges-des-Maronites and St. Georges Greek Orthodox towards the north along the Greek Catholic church St. Elie and Emir Assaf mosque.

total site surface	18.000 square meters
archaeological area surface	12.000 square meters

The excavations of the *Cardo Maximus* area has been divided into two sites due to the nature of the infrastructure works and other developmental works. The technical details are listed below by site number.

BEY 004

Director/institute	Dr Muntaha Saghie, Lebanese University, section 1
Duration of work	23 months
Period of work	October, 1993 - March 1999
Excavated surface	6000 square meters

Scientific report	Saghieh, Muntaha (1996) Bey 001 & 004 Preliminary Report, <i>BAAL</i> 1 (1996): 23 - 59.
Archeological results	Remains of Persian period (5th century BC), fragmentary Architecture of Hellenistic period (300 - 100 BC) Architecture of Roman Period (100 BC - 400 AD) <i>Cardo Maximus</i> , main N-S road <i>Decumanus secundus</i> perpendicular to <i>Cardo Maximus</i> with houses on both sides. Early (500 - 1100 AD) and Late Medieval (1100 - 1500) architecture over <i>Cardo Maximus</i> , including reused pavement slabs and adjacent houses. Late Medieval pottery kilns (Fatimid/Mamluk)
Evaluation	The site includes a representative part of the ancient Roman colony. Its later and intrusive remains allow a full appreciation of the urban history.

BEY 089

Director/institute	Dr Hans H. Curvers, IPP-University of Amsterdam
Duration of work	1 month
Period of work	February 1997
Excavated surface	50 square meters
Archeological results	Remains of Persian period (5th century BC), fragmentary Architecture of Roman Period (100 BC - 400 AD)
Evaluation	The fragmentary remains have been preserved by record in order to make place for a retaining wall. This wall separates the archeological remains of the <i>Cardo Maximus</i> area from Emir Bechir street.

BEY 113

Director/institute	Dr Hans H. Curvers, IPP-University of Amsterdam
Duration of work	13 months
Period of work	September 1997 - September, 1998
Excavated surface	2100 square meters
Archeological results	Remains of Persian period (5th century BC), fragmentary Architecture of Hellenistic period (300 - 100 BC) Architecture of Roman Period (100 BC - 400 AD) Monumental building with large marble-floor hall, and seven rooms bordering the large hall Architecture of the Byzantine period Re-use and rebuilding of monumental building Small bath complex Late Medieval pottery kilns (Fatimid/Mamluk)
Evaluation	Two buildings stand out, due to their architectural characteristics. The small bath complex reflects ancient entrepreneurship and the building with the large marble-floored hall represents a public building (church?).

2. Site development plans

In order to appreciate the discoveries in the *Tell* area and the *Cardo Maximus* area several alternatives for consolidation, preservation, presentation have been developed. The present proposal contains two options varying from a minimal approach (restoration of the remains in a public garden) to a maximal approach (an innovative development and restoration of the remains within a partly open, partly covered space with additional facilities for visitors and stands with information)..

Maintenance of the archeological remains in both the *Tell* area and the *Cardo Maximus* area need an annual program in which these remains are kept in proper order. Cleaning of the site will be included into a general scheme for all public gardens in the BCD. Regular inspections of the stability and quality ask for inspectors and crafts persons involved in the upkeep of the archeological resources.

2.1 The layout alternatives

Whatever alternative layout will be selected, the exposed remains will need a restoration in order to avoid decay (1).

The excavated walls can be divided into two chronological groups. In the early period the walls are made of natural stones collected at the beach and river beds; they are dry laid. These walls belong to the Bronze Age, Iron Age and Persian period. The later group of walls made of worked limestones and sandstones. The building blocks vary in size. The large blocks are dry laid, whereas the smaller elements are sometimes embedded in mortar. Some foundations of the sandstone walls consist of dry laid natural stones (collected during terracing of the previous deposits).

On the basis of the execution of the restoration described above it is possible to emphasize some of the important remains in the two sites. Two complementary alternatives are proposed :

- The first alternative is based on the integration of the archeological remains into a public garden.
- The second alternative is based on the first alternative with a more innovative use and development of the archeological remains.

2.1.1 The public garden layout alternative

The remains restored in open air can be made accessible in a public garden with all necessary items : Hardscaping, little retaining walls, irrigation, infrastructure, softscaping, urban furniture, urban lighting and signage.

The average execution costs per square meter are generally based on experience with the Roman Bath project (executed) and are 250 US dollars per square meter, all above landscaping and associated items are included.

An average of 12% of execution costs are foreseen as consultancy fees.

2.1.2 The innovative layout alternative

This alternative gives way for a more creative and educational use of the exposed remains. This more innovative use of archeological resources in which their sustainability is guaranteed aims at both consolidation, partial restoration but especially presentation of the ancient remains. This approach aims at a presentation of the complexity of superimposed archeological remains through reconstitution of the exposed remains. Through the construction of roofs over the most important features of the site a presentation of the architecture together with its objects is possible. Basic services for the visitors in reception halls allow for a full exploitation of the historical value of the sites through an educational program.

The average costs per square meter are based on the average cost of the public garden layout alternative added to the average costs per square meter of the covered area building. An average of 12% of execution costs are foreseen as consultancy fees.

2.2 Advantages and disadvantages of the proposed layout alternatives

2.2.1 The public garden layout alternative

The advantages of this approach are that the remains are accessible to the general public, a limited presentation through signs is possible. Furthermore the creation of a public garden is defined by ancient remains. Ample possibilities for publicity and promotion are present. Disadvantages of this approach are the recreation of a pure archeological structure of the site into a public garden in which the ancient remains may be exposed to pollution and vandalism. A presentation of archeological finds and the architecture is not possible.

2.2.2 The innovative layout alternative

The main advantage of this approach is the possibility to integrate the archeological remains into the urban landscape. A modern building is constructed that links modern times with the past. The covered space allows for a more authentic preservation and presentation of the remains, in which objects and architecture can be shown together. The means for promotion and publicity reach a maximum, and Beirut, the reborn capital of Lebanon creates a monument for its past. The disadvantage of this approach are the high costs.

3. Layout cost details of the Tell and the Cardo-Maximus areas

3.1 The *Tell* area

3.1.1 The public garden layout alternative

The walls in the Tell area are made of natural stones. The specific nature of this site and the preliminary consolidation project of 1996 (Badre and Makaroun 1995) ask for an approach in which the wall joints can be plastered after cleaning the voids between the stones. The plaster should have a certain flexibility to face the changes in humidity and temperature.

The existing adhesive materials have to be inspected and in some cases will have to be replaced. Application of new adhesives is necessary in 20% of the remains.

The surface with a high density of these wall remains in the *Tell* area is 15,000 square meters. The plan includes two sub-projects: the first is to repair the damaged joints and the second is to execute the consolidation of the untreated features. Based on previous projects in the Roman Bath site and the *Tell* area we can estimate costs at 100 US dollars per sqm (execution works).

The estimated budget of the restoration works is 1,500,000 US dollars.

In this alternative, the landscaping of Tell area will occupy an important free open space. It will be mainly located on the Ottoman Castle and its extension to the East where the symbol of the Ancient Tell will be reconstituted. Also, the Bronze Age gate and its city wall, the Iron Age glacis in its full extent, the late Iron Age multi-room building and the street and the Crusader castle are to be included in the landscaping.

The estimated cost of this landscaping and associated items is 7,000,000 S.

To avoid interference between the archeological site and the roads scheduled in the BCD master plan, two bridges have to be constructed : One in the western part of site BEY 003, the other in the eastern part.

The budget for the construction of the road bridges is 4,000,000 US dollars.

To protect the Tell archeology, a retaining wall of 400 m length and 5 m average height has to be constructed around the area. Based on our estimation for a similar retaining wall, the estimated cost will be 2000 \$/ml (execution works).

Based on that, the construction budget of this retaining wall is 800,000 S

In order to improve the pedestrian accessibility to the Tell area, an underground connection between the underground public car park of "Place des Martyrs" and the site is foreseen through a tunnel of 40m length. The estimated cost will be 5,000 \$/ml (execution works).

The estimated cost for the execution of this tunnel is 200,000 S.

The total costs of the public garden alternative of the Tell site are as following :

-Restoration works :	1,500,000 S
-Landscaping and associated items (250 S/m2) :	7,000,000 S
-2 road bridges	4,000,000 S
-Connection tunnel	200,000 S
-Retaining wall :	800,000 S
.....	
Total cost of works	13,500,000 S
Consultancy fees based on 12% of total cost of works	1,620,000 S
.....	
General total cost	15,120,000 S

3.1.2 The innovative layout alternative

The principle of this alternative is to create a services building within the site and to cover some archaeological area. Inside the building, we will be able to add more value to the archaeological structures : the reception hall, the exposition, the auditorium are the main proposed functions of the new building. In its appearance, the building will be the testimony of the past, the present and the future of the site. Located on the site axes, it becomes a physical landmark.

The total costs of the innovative layout alternative of the Tell site are as following :

-Restoration works :	1,500,000 S
-Landscaping and associated items (250 S/m2) :	3,500,000 S
-2 road bridges	4,000,000 S
-Connection tunnel	200,000 S
-Retaining wall :	800,000 S
-Reception and services building :	24,000,000 S
-Inside museum layout :	09,000,000 S
-Extra fees and miscellaneous	03,500,000 S
.....	
Total cost of works	47,000,000 S
Consultancy fees based on 12% of total cost of works	5,640,000 S
.....	
General total cost	52,640,000 S

3.2 Cardo Maximus area

3.2.1 The public garden layout alternative

The total surface to be restored in the *Cardo Maximus* area is 12,000 sqm. In this zone the restoration of mosaic and marble floors is also included in the costs as well as the installation of a drainage system.

Based on the cost of 100 US dollars per square meter, the total budget for the restoration is 1,200,000 US dollars.

The main features to be emphasized are the *Cardo Maximus*, its perpendicular *Decumanus*, the small bath complex, and the monumental building. The reconstitution of the *Cardo Maximus* is foreseen as the main archaeological finding in this area. The area surface to be reconstituted is estimated around 4,000 m².

The estimated cost of the Cardo-Maximus reconstitution is 500,000 S

A "Forgiveness Garden" is foreseen to be located within the perimeter of the area. This means that the urban elements (archeology, buildings *etc.*) are subject to landscaping. The churches, the mosques and the general quietness of this urban quarter add to the cultural and symbolic importance.

In order to protect the archeology, a retaining wall of 697 m length and 4 m average height has to be constructed around the area. The budget for the construction of this retaining wall is included in the average cost of 250 US dollars.

The total costs of the public garden alternative of the Cardo-Maximus site are as following :

-Restoration works :	1,200,000 S
-Landscaping and associated items (250 S/m ²) :	4,000,000 S
-Reconstitution of Cardo-Maximus	500,000 S
.....	
Total cost of works	5,700,000 S
Consultancy fees based on 12% of total cost of works	684,000 S
.....	
General total cost	6,384,000 S

For urban planning reasons, only a landscaped garden is considered in this area. The option of integrating a part of the remaining in a building is not considered.

N.B. In order to present the BCD archaeology as a main part of the urban context, a heritage trail, linking the main historical buildings and the different archeological sites of BCD, is foreseen. The principle of this heritage trail is to highlight the path by a special pavement tiles with indicative information and logo. This heritage trail is foreseen in both layout alternatives : public garden and innovative layouts. Thus, the costs of this trail are complementary to both layout alternatives.

The total costs of this trail are 374,500 US dollars.

Bibliography

-Badre, Leila and Makaroun, Yasmine (1995) *Projet Préliminaire : conservation et aménagement du chantier BEY 003* in: DOSSIER TECHNIQUE. *Les fouilles archéologiques du centre-ville à Beyrouth*. Beyrouth, Direction Générale des Antiquités - UNESCO.

-Badre, Leila (1998) *Bey 003 Preliminary Report, Excavations of the American University of Beirut Museum*. Bulletin d'Archéologie et d'Architecture Libanaises 2 (1997): 6-94.

Notes

(1): We follow the guide-lines of the ICOMOS-UNESCO publications, the suggestions for consolidation and restoration of Leila Badre and Yasmine Makaroun (1995) and the suggestions made by John Schofield (Museum of London). Furthermore evaluations of excavation of the latest results with Uwe Finkbeiner and Helen Sadr during and at the end of their periods of work has provided useful information and suggestions to be able to compile this file on the consolidation and preservation of the archeological features exposed in the *Tell* area and the *Cardo Maximus* area. For the latter zone continuous feedback on the site has been provided by Muntaha Saghiyeh and Fahr Gereige. Last but not least, discussions concerning issues of consolidation and presentation with Mrs. Tarazi and Anna Helou (both Directorate General of Antiquities) have contributed to the consolidation of the separate features in both areas.

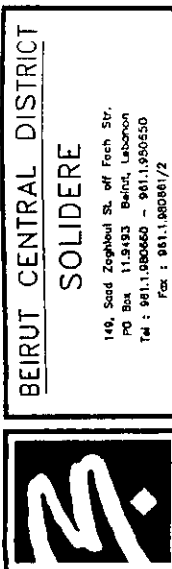
TELL AREA			
Total site surface	Archeological area surface	Public garden alternative costs	Innovative layout alternative costs
30,000 sqm	18,000 sqm	15,120,000 \$	52,640,000 \$

Site	Director	Main results
003	dr Leila Badre	Bronze Age gate and wall Iron Age glacis, casemate blg and retaining walls Crusader castle
013	dr Naji Karam	Bronze Age wall Iron Age glacis Classical period towers
020	dr Uwe Finkbeiner dr Helene Sadr	Bronze Age wall Iron Age glacis and stairways
032	dr Hans H. Curvers	Iron Age glacis and road Roman reating wall and architecture
078	dr Hans H. Curvers	see site 020
098	dr Hans H Curvers	-
114	dr Hans H Curvers	Classical period defensive system

CARDO MAXIMUS AREA			
Total site surface	Archeological area surface	Public garden alternative costs	Innovative layout alternative costs
18,000 sqm	12,000 sqm	6,384,000 \$	not applicable

Site	Director	Main results
004	dr Muntaha Saghie	<i>Cardo Maximus</i> (Roman main N-S street) <i>Decumanus secundus</i> (Roman E-W street)
113	dr Hans H. Curvers	Byzantine bath complex Late Roman monumental building

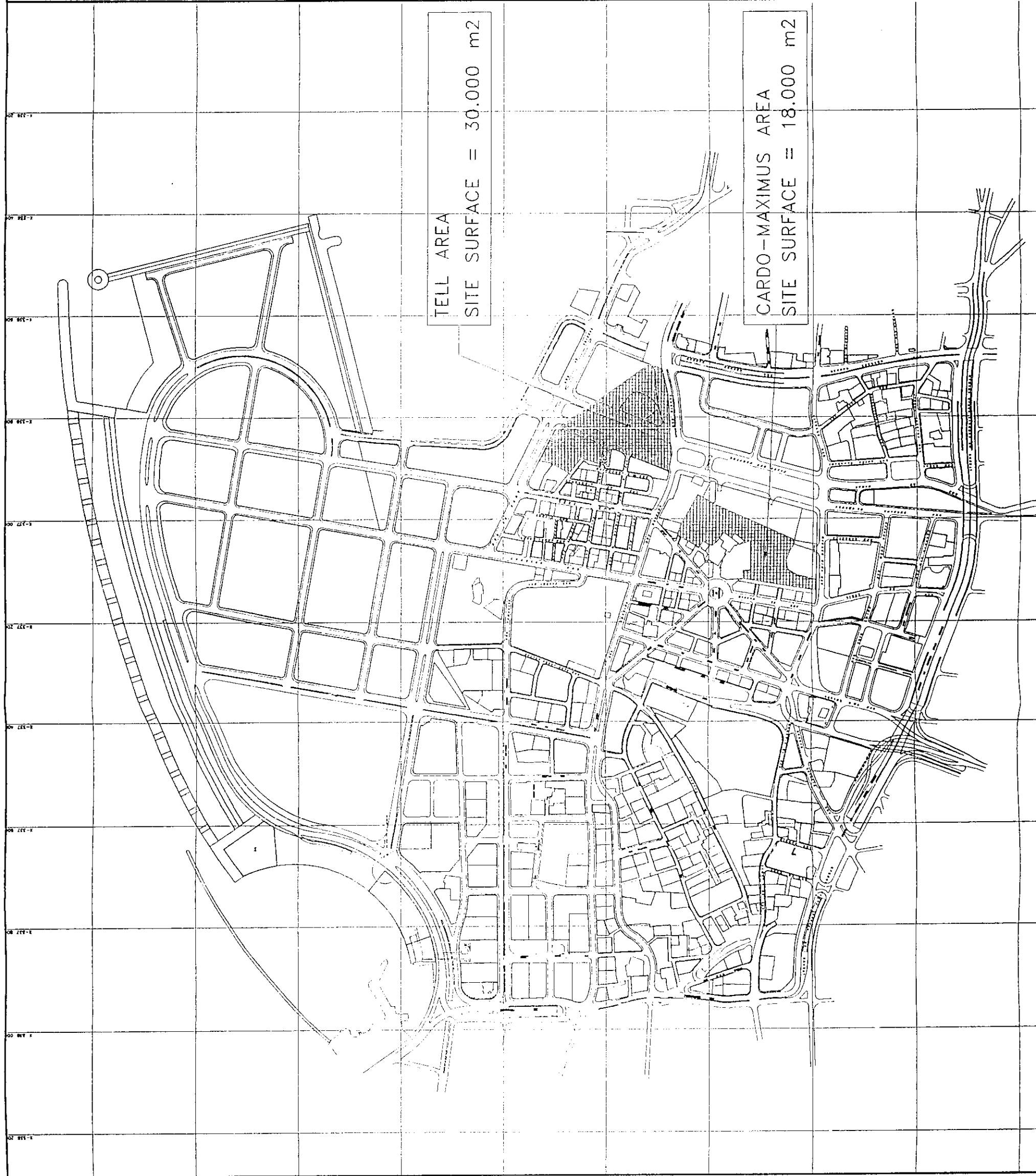
General total costs for the <i>Tell</i> and the <i>Cardo Maximus</i> areas			
Public garden layout alternatives	Innovative layout alternatives	Public garden with heritage trail	Innovative layout with heritage trail
21,504,000 \$	52,640,000 \$	21,878,500 \$	53,014,500 \$



BEIRUT CENTRAL DISTRICT

SOLIDERE

140, Saad Zoghbi St. off Fakh St.,
PO Box 115493 Beirut, Lebanon
Tel : 961.1.900660 - 961.1.900550
Fax : 961.1.900661/2

[illegible]

Project	1.1.0014	
INFRASTRUCTURE SOUTH OF BLVD		
Project Work Package		
Infrastructure Works - South of Blvd	1.1.0014.002	
User	10072	
Methodes et Pilotage S.A.		
Phase / Nature	EDW	
Execution drawing		
Primary Technical Discipline	R --	
Roads		
Drawing Number and Title	0007	
TELL & CARDO-MAXIMUS AREA		
SITE LOCATION		
Revision Number	00	
Revision Cycle :	Revision issue Date : 29/10/98	
Folio Type Format	Scale	
1/1 POL A3	1/7500	
Fila spec :	TELLCARD.DWG	
	Geographic Data	
	S2 M 1	
1.1.0014.002	10072	EDW
R -- - 0007-00		



BEIRUT CENTRAL DISTRICT
SOLIDERE
140, Sad Zaphiel St. off Foch Str.
PO Box 11.943 Beirut, Lebanon
Tel : 961.1.880650 - 961.1.880650
Fax : 961.1.880652/2

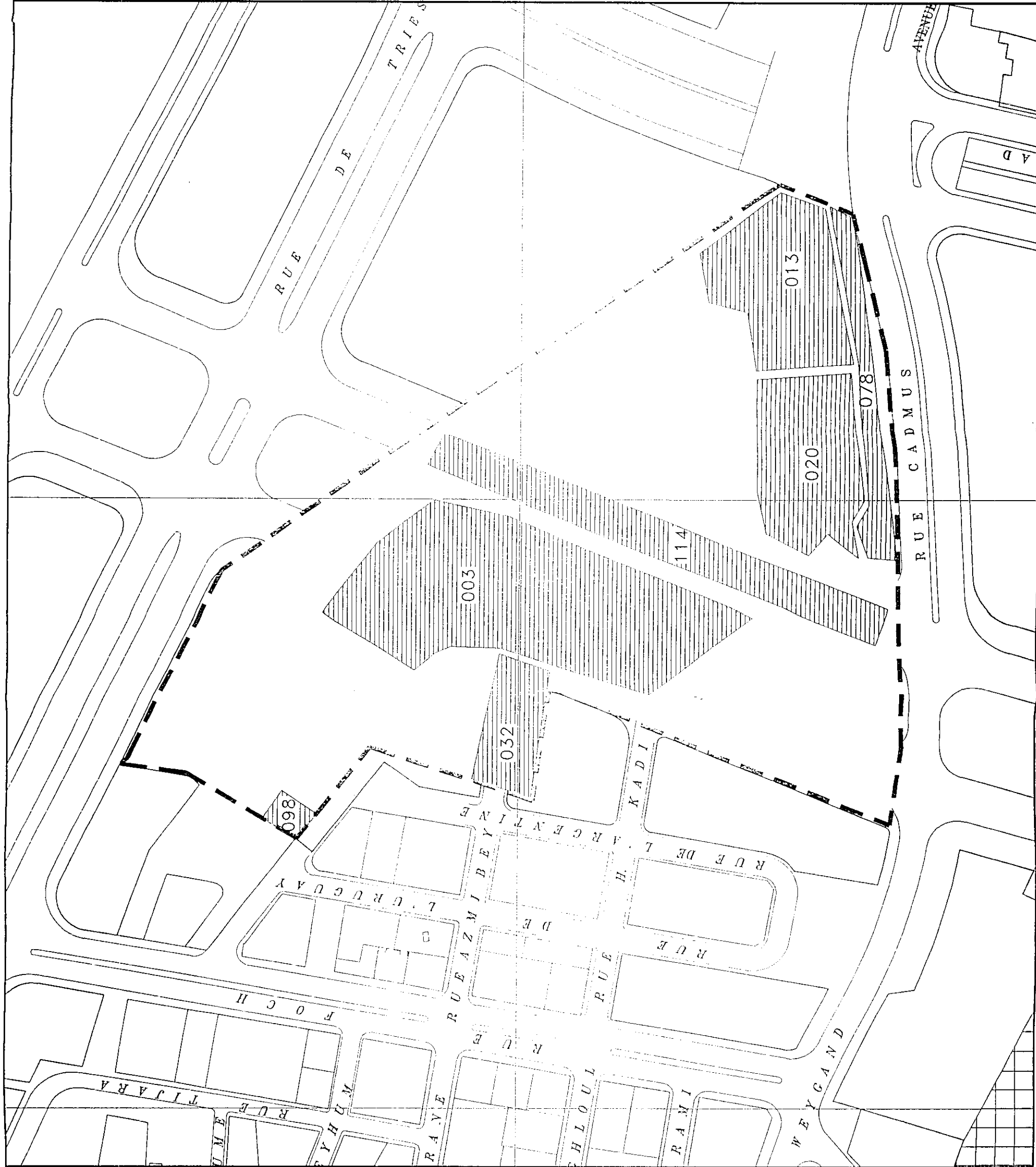


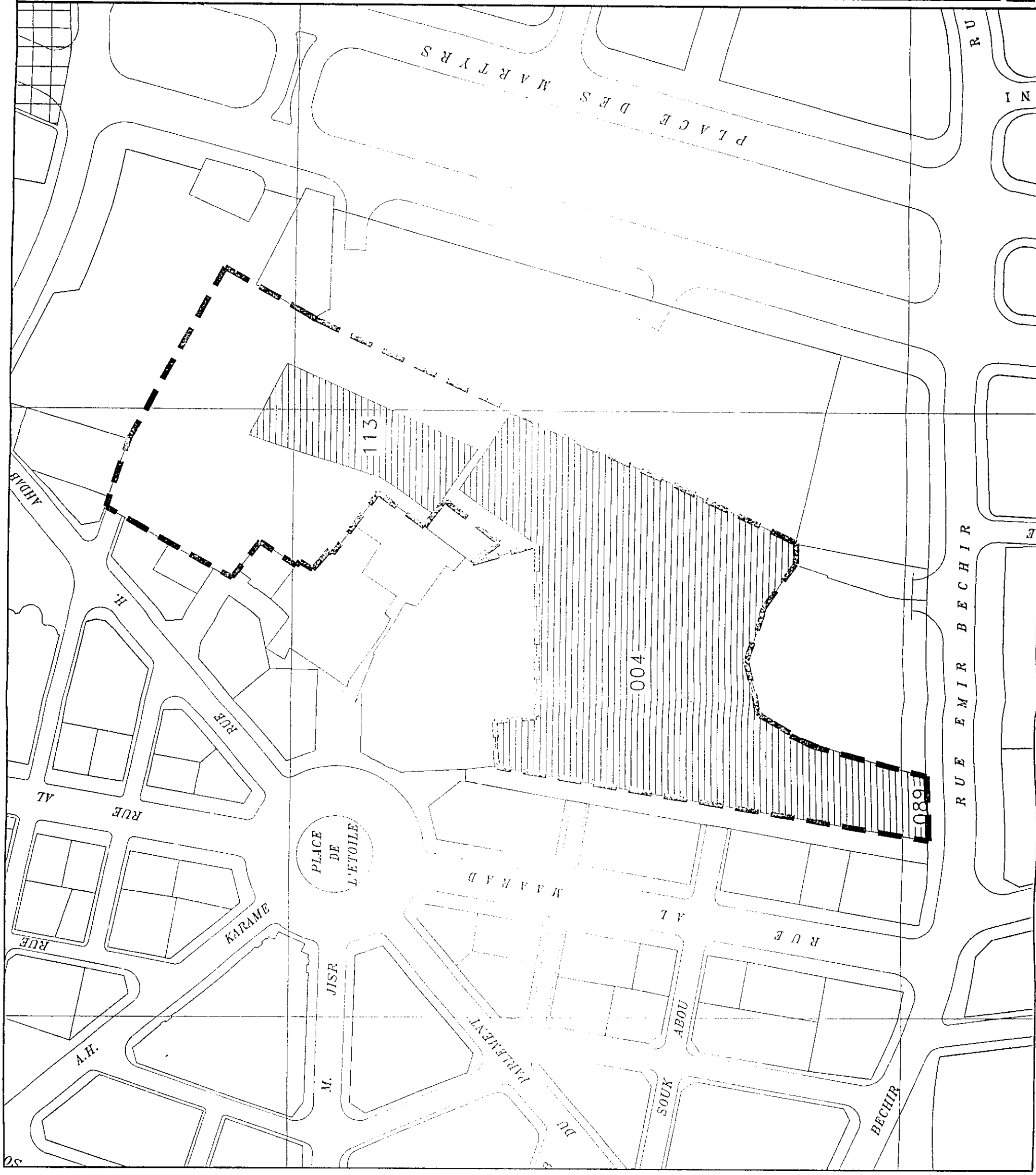
003 : L.BADRE
020 : U.Finkbeiner & H.Sadr
013 : N.karam
098-032-114-078:H.Curvers

--- Tell area limit

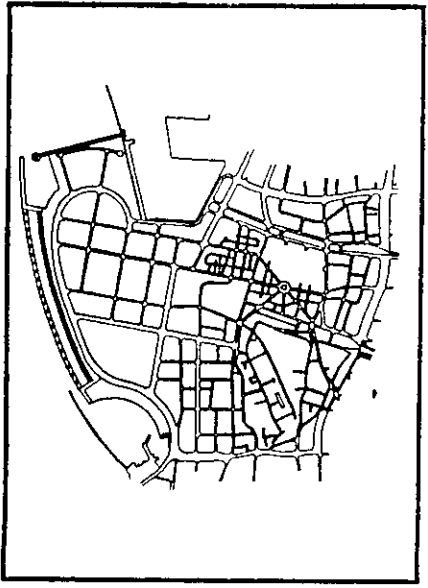
00	INTHEL ISSUE	K&Z	FIA	HHA
Rev	Last revision title	30/10/98	30/10/98	30/10/98
#		Drawn by: Verified by: Approved by: Scale	60/100 30/100 60/100 30/100	60/100 30/100 60/100 30/100
Issued: Internal approval circuit and revision history 1-in development; 2-issued; 3-available in Electronic Drawing Cabinet 4-ready for execution; X-cancelled				

Project	1.1.0014
INFRASTRUCTURE SOUTH OF BLVD	
Project Work Package	
Infrastructure Works - South of Blvd	1.1.0014.002
Issued	
Methodes et Pilotage S.A.	10072
Phase / Nature	EDW
Execution drawing	
Primary Technical Discipline	R---
Roads	
Drawing Number and Title	0008
TELL AREA	
SITES NUMBERS	
Revision Number	00
Revision Cycle :	Revision Issue Date : 30/10/98
Folio Type Format Scale	Sector Block Plot Bldg Floor Unit
1/1 PGL A3 1/1250	H
File spec : TELSTIES.DWG	Geographic Code GS KL :
1.1.0014.002	10072
EDW	R---0008-00





BEIRUT CENTRAL DISTRICT
SOLIDERE
146, Saad Zoghbiat St. off Fakh. Str.
PO Box 11.9493 Beirut, Lebanon
Tel : 961.1.950650 - 961.1.950650
Fax : 961.1.950651/2



004 : M.Saghieh
113-089 : H.Curvers

Cardo-Maximus
area limit

00	INITIAL ISSUE	KAZ	FJA	HHA
Rev	Last revision titles	30/10/98	30/10/98	30/10/98
#	Drawn by: Verified by: Approved by: Status	dd/mm/yy	dd/mm/yy	dd/mm/yy
ISSUER: internal approval circuit and revision history 1-in development; 2-issued; 3-available in Electronic Drawing Cabinet 4-ready for execution; X-cancelled				

Project	1.1.0014
Project Work Package	INFRASTRUCTURE SOUTH OF BLVD
Infrastructure Works - South of Blvd	1.1.0014.002
Issuer	10072
Methodes et Pilotage S.A.	EDW
Phase / Nature	R--
Execution drawing	0009
Primary Technical Discipline	CARDO-MAXIMUS AREA
Roads	SITE NUMBERS
Drawing Number and Title	
Revision Number	00
Revision Cycle :	Revision Issue Date : 30/10/98
Scale	Sector Block Plot Bldg Floor Unit
1/1 PGL A3 1/1250	H
File spec : CARDOSITE.DWG	Geographic Code GIS id :
1.1.0014.002	10072 EDW R--0009-00