

Arab Republic of Egypt

Ministry of Civil Aviation

Egyptian Civil Aviation Authority

OLS SURFACED MODELING

Safeguarding Workshop Cairo 4-6 December 2017

Agenda :

- 1. Introduction .**
- 2. Using GIS Software.**
- 3. GIS for Height Permits**
- 4. GIS for Inspection.**
- 5. penetration**

1. Introduction :

1. Our 2D modeling system started by airport's runway(s) and its OLS been manually drawn on contour maps; and hanged on the wall for the use of every one; distance
2. measurements and calculations related to runway surfaces done manually.
3. Locations near navigation aids been sent to concerned departments to be studied and sent back to safeguarding department for permit issuance



1. Introduction :

The collage displays several official documents from the Egyptian Civil Aviation Authority (ECAA). The documents are titled "سلطة الطيران المدني" (Civil Aviation Authority) and "الإدارة العامة للإرتفاق" (General Administration of Air Traffic). They include maps of Cairo and the Red Sea region, and various regulatory text in Arabic. The documents are dated from 2001 to 2008. A central text reads "تطور شكل" (Evolution of form) with arrows pointing to the documents.

1. Introduction :

4- first automation of the system started on 2006 by 3 PCs with a very simple and basic GIS for only the two largest airports Cairo and Alexandria then Aswan and Arish been added .



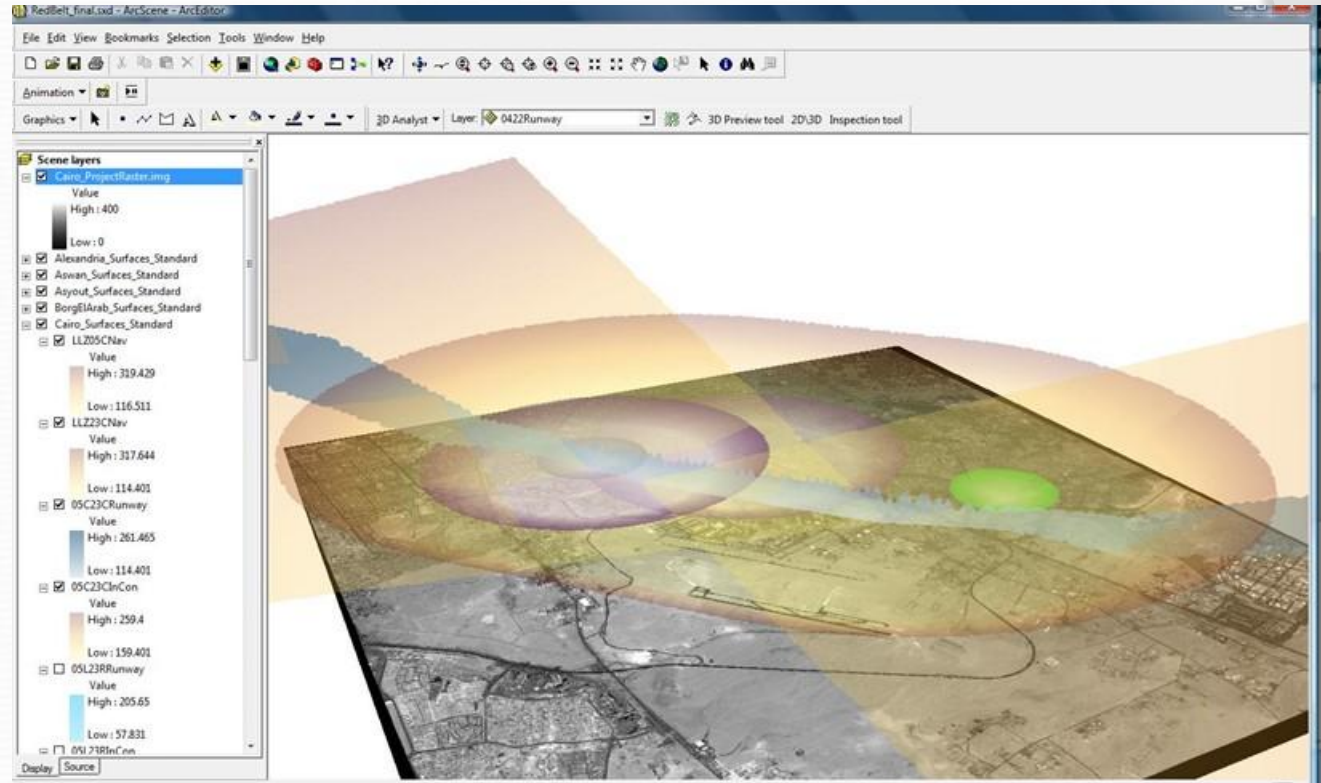
2 – Using GIS Software :

GIS Interface

Main function

OLS assessment

Civil Aviation Desk top application



2 – Using GIS Software :

GIS Interface

Map Display

Spatial Query

Attributes
Query

Main function

2D Modeling

3D Modeling

Data
Management

OLS assessment

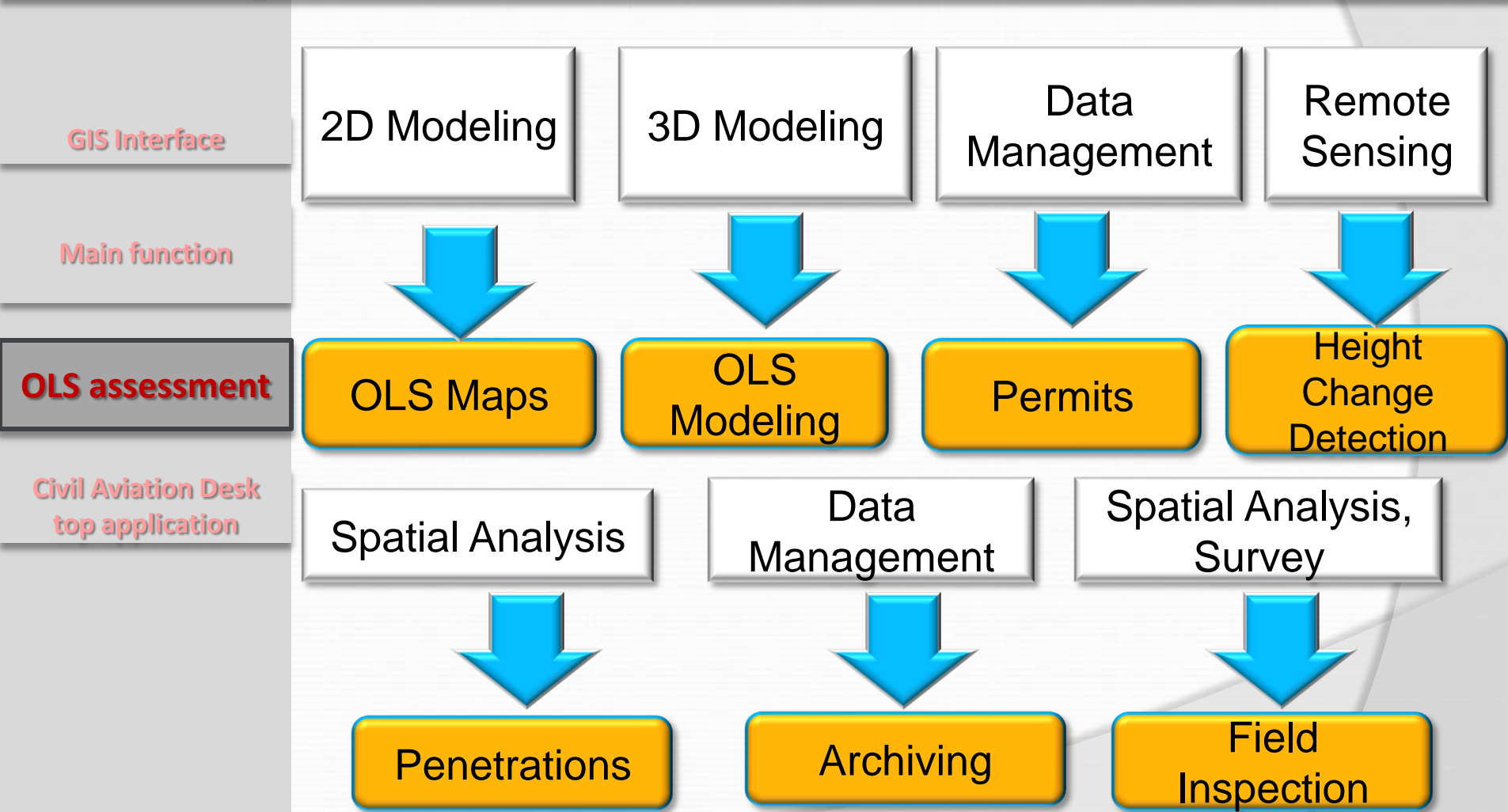
Civil Aviation Desk
top application

Field Survey

Remote
Sensing

Reporting

2 – Using GIS Software :



2 – Using GIS Software :

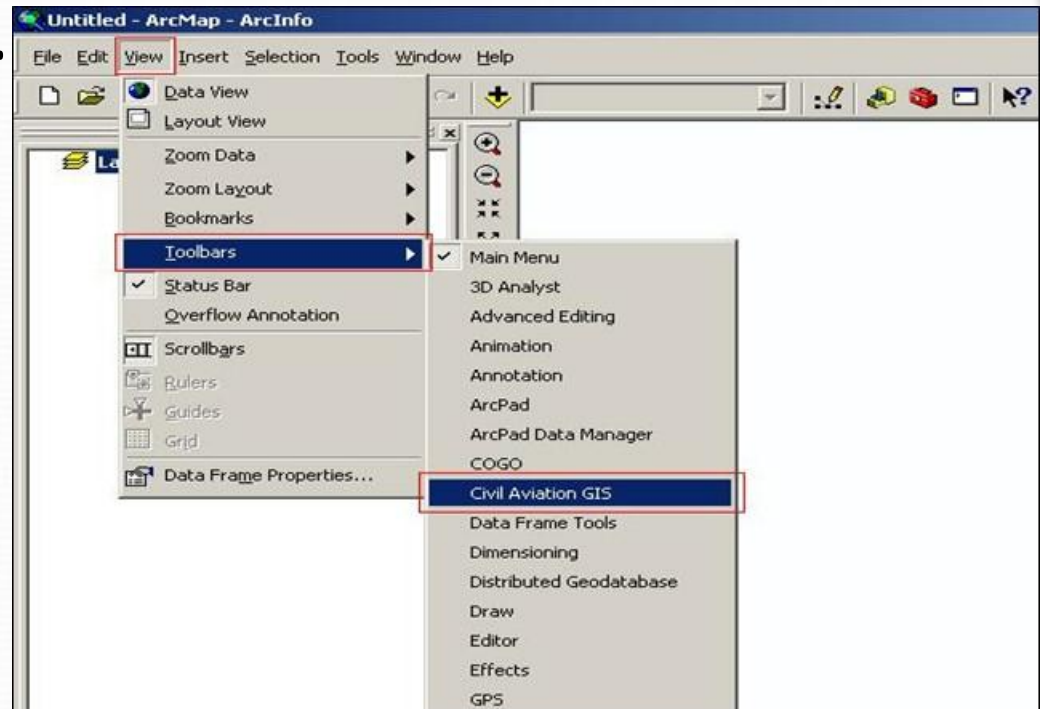
Safeguarding Lab was created in order to automate permit's process, starting at designing of the new runways and creation of their virtual surface till importing according to Egyptian Law No. 28 year 2004.

GIS Interface

Main function

OLS assessment

Civil Aviation
Desk top
application



2 – Using GIS Software :

Civil Aviation GIS

Airport manager Building license Coordinate calculator Grid merger Penetration heights Help

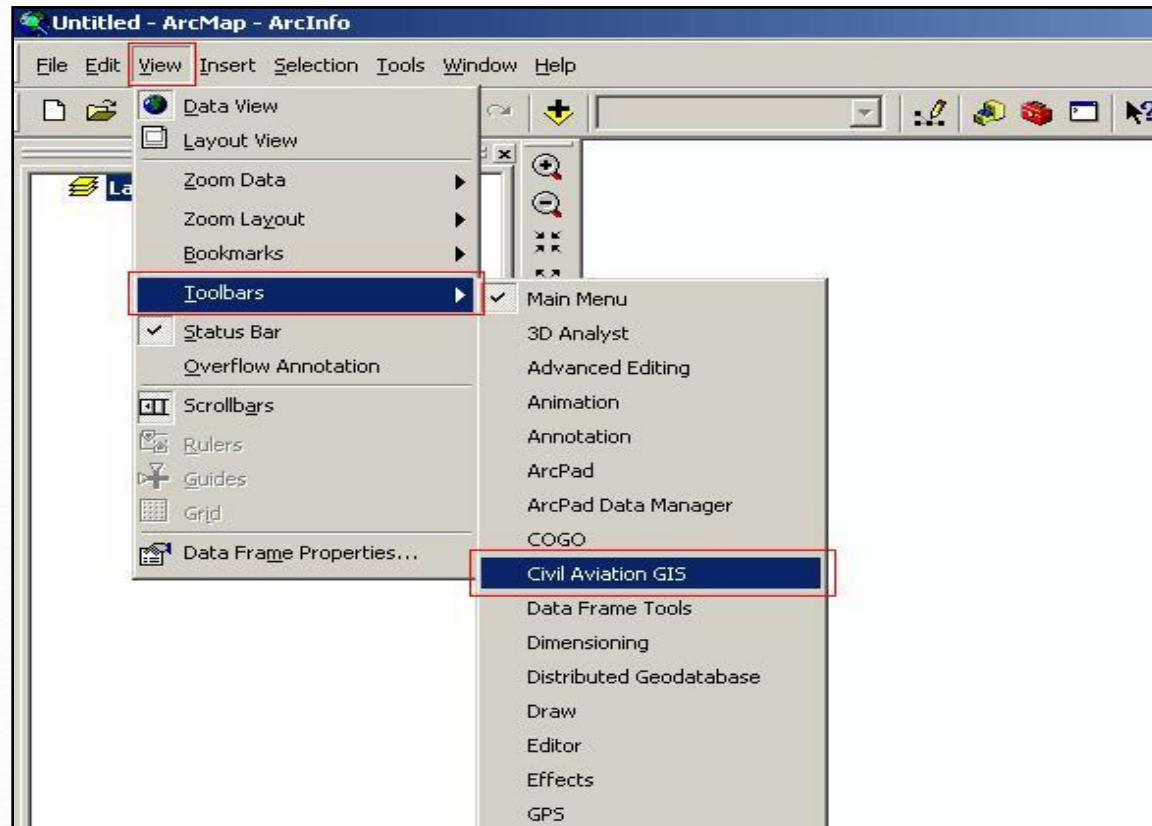
Civil aviation toolbar

GIS Interface

Main function

OLS assessment

**Civil Aviation
Desk top
application**



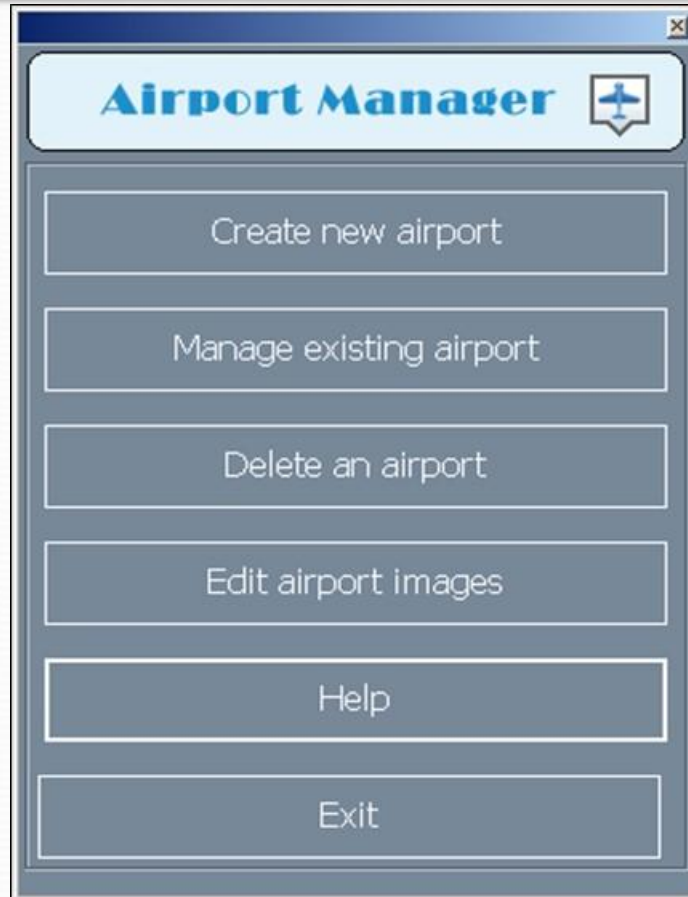
2 – Using GIS Software :


GIS Interface

Main function

OLS assessment

**Civil Aviation
Desk top
application**



Airport Manager 

Create new airport

Manage existing airport

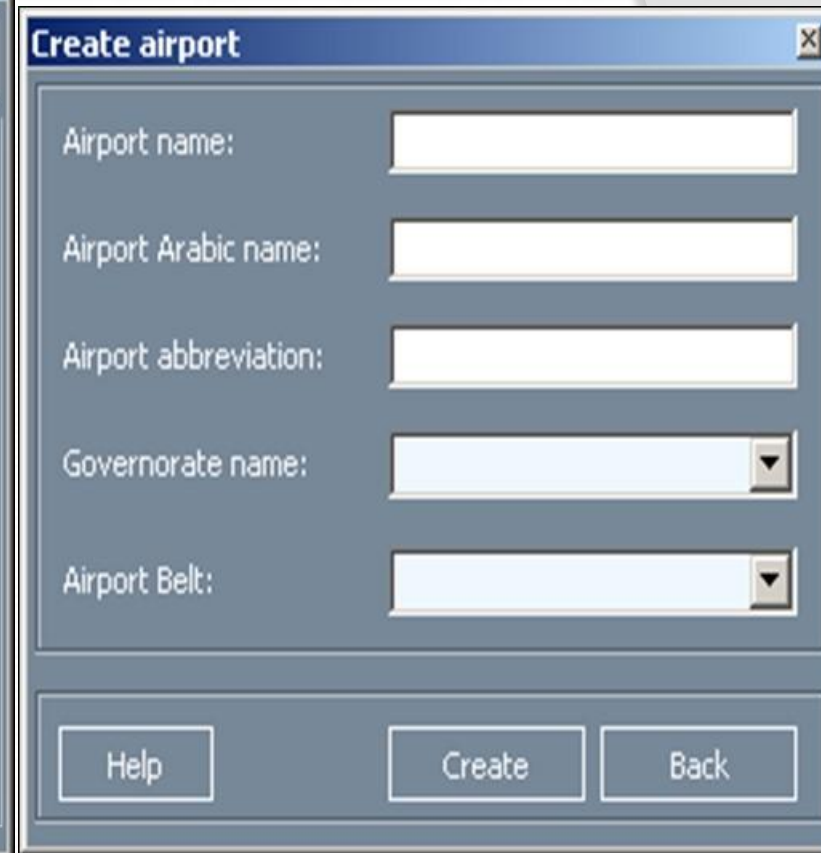
Delete an airport


Edit airport images

Help

Exit

Form airport manager



Create airport 

Airport name:

Airport Arabic name:

Airport abbreviation:

Governorate name:

Airport Belt:

Help Create Back

Form create airport

2 – Using GIS Software :

GIS Interface

Main function

OLS assessment

Civil Aviation
Desk top
application

Create airport

Airport name:

Airport Arabic name:

Airport abbreviation:

Governorate name:

Airport Belt:

Help Create Back

Create runway

Runway threshold

Runway name:

Start threshold:

End threshold:

Import

Help Next Exit

Airport: Cairo - Runway: 05L23R

Runway handler

Runway data:

Runway name: 05L23R

Start Y Coordinate: 823314.643 m

Start X Coordinate: 551483.123 m

Elevation: 57.829 m

End Y Coordinate: 825469.717 m

End X Coordinate: 553983.22 m

Elevation: 50.65 m

Runway width: 60 m

Help Next Exit

Edit custom runway data

Custom data:

Select All Unselect All

Strip Data

Transitional Data

Inner Horizontal

Conical

First Approach Section

Second Approach Section

Third Approach Section

Fourth Approach Section

Strip Data

Width: 300 m

Dist. From THR: 60 m

Usage in drawing

First approach section

Second approach section

Third approach section

Conical surface

Inner surface

Fourth approach section

Strip data

Transitional Data

Help Restore defaults Save

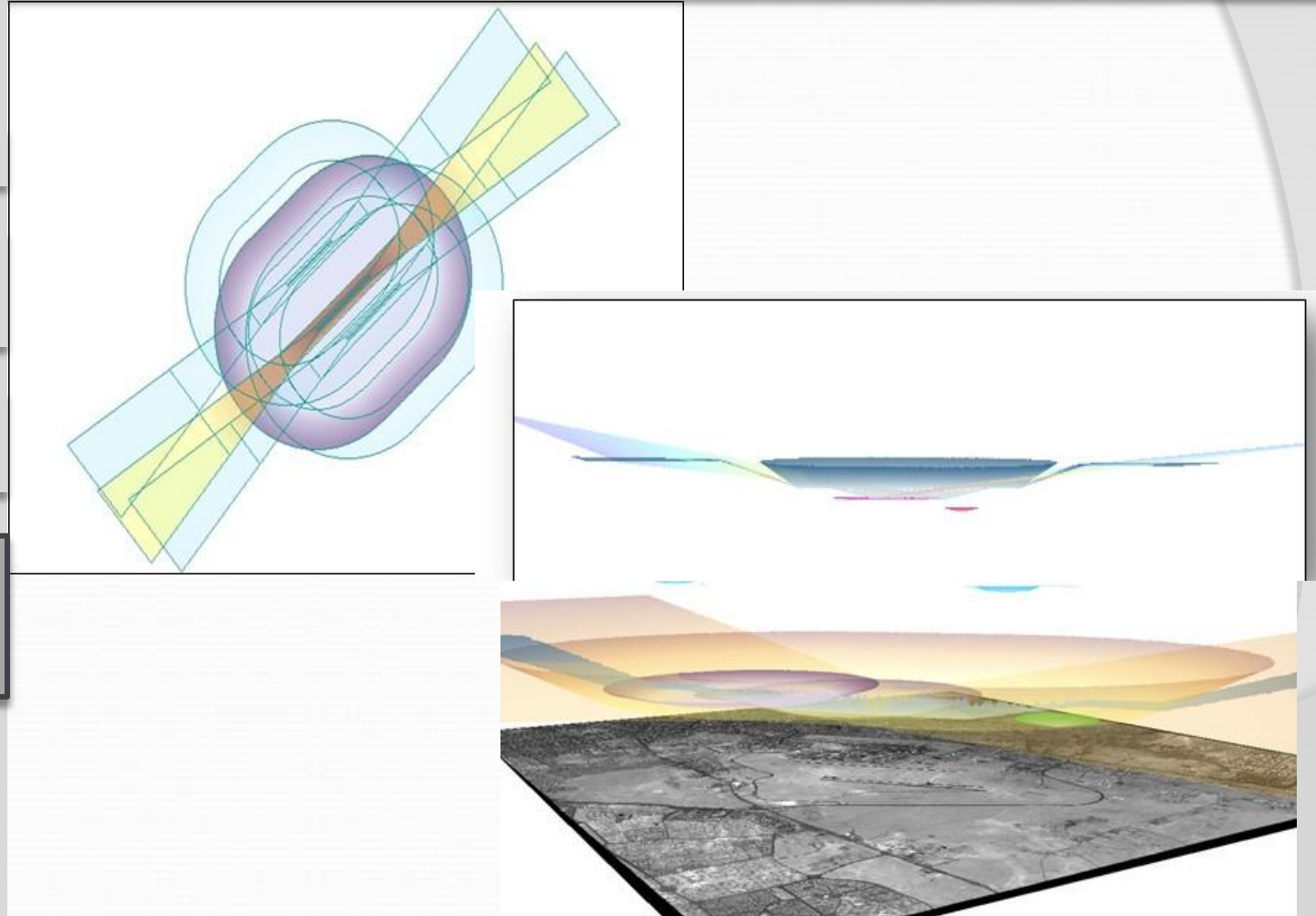
2 – Using GIS Software :

GIS Interface

Main function

OLS assessment

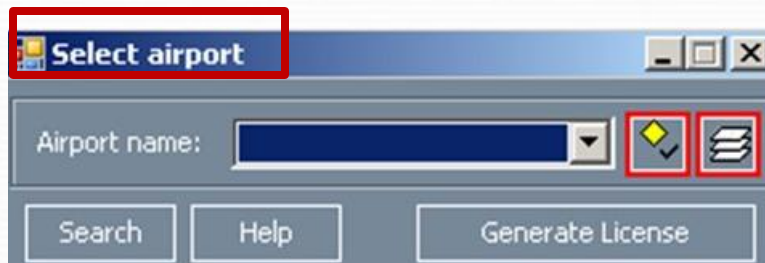
**Civil Aviation
Desk top
application**



3 – GIS for Height Permits :

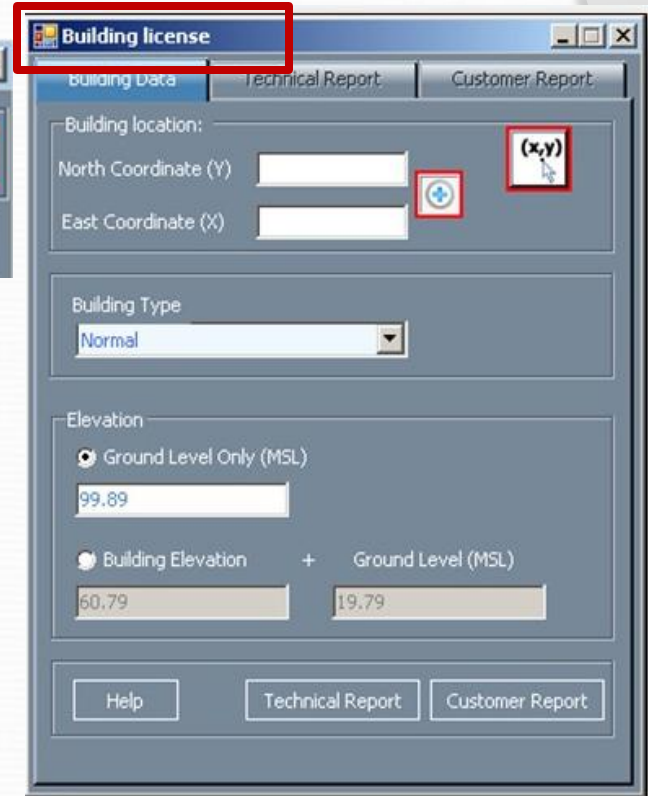
Permits Steps

Main outputs



The 'Select airport' dialog box features a text input field for 'Airport name', a dropdown arrow, a checkmark icon, and a list icon. Below the input field are three buttons: 'Search', 'Help', and 'Generate License'. The title bar of the dialog is highlighted with a red box.

1



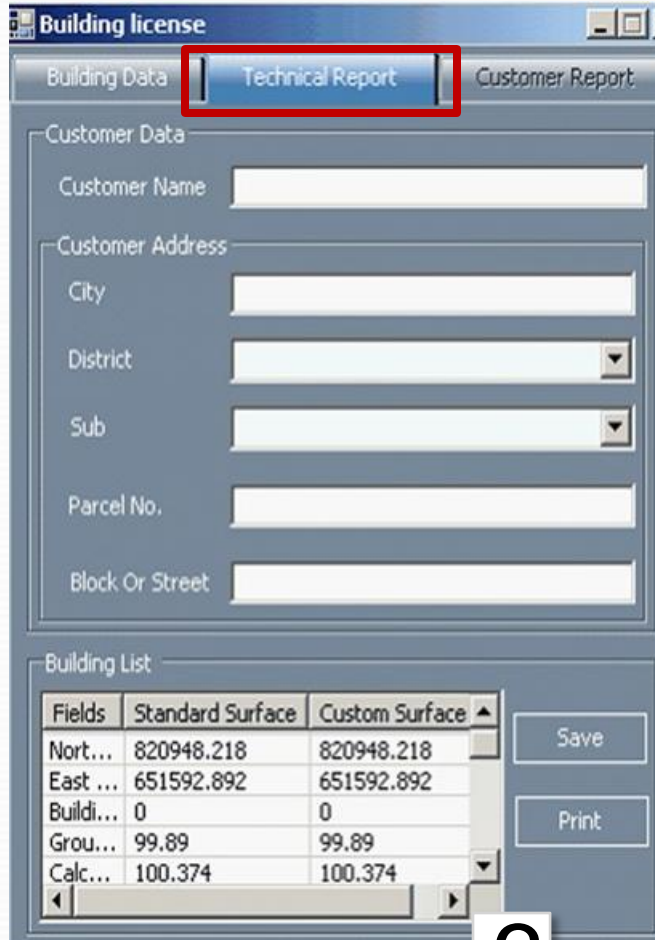
The 'Building license' dialog box has three tabs: 'Building Data', 'Technical Report', and 'Customer Report'. The 'Building Data' tab is active. It contains fields for 'Building location' with 'North Coordinate (Y)' and 'East Coordinate (X)' inputs, a plus icon, and an '(x,y)' icon. Below is a 'Building Type' dropdown menu set to 'Normal'. The 'Elevation' section has radio buttons for 'Ground Level Only (MSL)' (selected) and 'Building Elevation + Ground Level (MSL)'. It includes input fields for '99.89', '60.79', and '19.79'. At the bottom are buttons for 'Help', 'Technical Report', and 'Customer Report'. The title bar is highlighted with a red box.

2

3 – GIS for Height Permits :

Permits Steps

Main outputs



Building license

Building Data | **Technical Report** | Customer Report

Customer Data

Customer Name

Customer Address

City

District

Sub

Parcel No.

Block Or Street

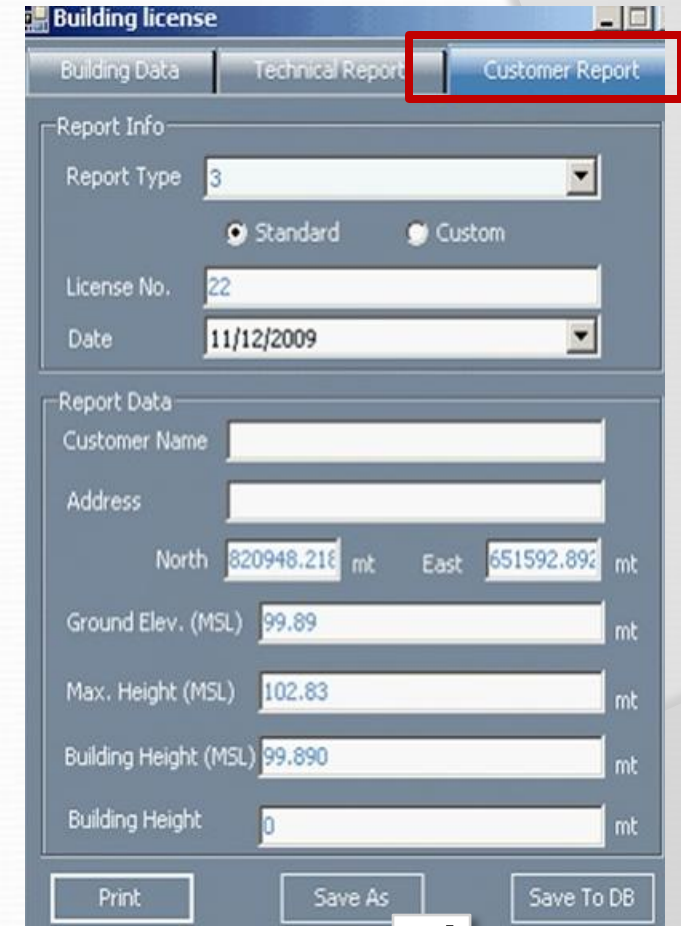
Building List

Fields	Standard Surface	Custom Surface
Nort...	820948.218	820948.218
East ...	651592.892	651592.892
Buidi...	0	0
Grou...	99.89	99.89
Calc...	100.374	100.374

Save

Print

3



Building license

Building Data | Technical Report | **Customer Report**

Report Info

Report Type: 3

Standard Custom

License No.: 22

Date: 11/12/2009

Report Data

Customer Name

Address

North: 820948.218 mt East: 651592.892 mt

Ground Elev. (MSL): 99.89 mt

Max. Height (MSL): 102.83 mt

Building Height (MSL): 99.890 mt

Building Height: 0 mt

Print Save As Save To DB

4

3 – GIS for Height Permits :

Permits Steps

Main outputs

It helps the user to issue \
search permits or licenses.

Technical
Report

Customer
Report

3 – GIS for Height Permits :

Permits Steps

Main outputs

	
الإدارة المركزية لسلامة ومقاييس المطارات الإدارة العامة للإرتفاع الجوي	
اسم صاحب التصريح	التاريخ :
حورن المشا	الرقم والقمر والفرصة
التاريخ :	الوارد :
المطارات الواقع في دائرته المشا	Standard
الاحتياطات الشرقية لعمشما	651584.059
الاحتياطات الشمالية لعمشما	818840.096
مستوى ارتفاع المشا فوق سطح البحر	User Input: 114 Calculated: 0
الارتفاع المطلوب من سطح الأرض H نوع الترخيص	مستوى سطح الأرض
مستوى سطح الأرض من سطح البحر 114	الارتفاع المطلوب من سطح الأرض
الارتفاع المتغيرة التي يقع بها المشا	<p style="text-align: center;">Cairo Rad Line inner curve implemented Distance From Rad Line - 1769</p>
LL205C(05C23C, MAX H:186.520, DIST:7045) Inner Surface (05C23C, MAX.H:159.401, DIST:2792) Conical Surface (05L23R, MAX.H:125.003, DIST:4476) Inner Surface (05R23L, MAX.H:118.144, DIST:3884) RADAR2(NA, MAX H:153, DIST:1852) LL205R(05R23L, MAX H:223.457, DIST:8151) LL205L(05L23R, MAX H:123.750, DIST:7226)	LL205L 123.75 9.75 0
مطارات الجيرة المتعلقة التي يقع بها المشا	VOR(No Magnetic.) DIST:1597 RADAR2(No Magnetic.) DIST:1852
نظري جهاز المتعلقة المتوتر	No Phase/No Line خطوط الهوائية لتثبيت الميكروبيف خط الهوائية المتوتر
مراجعة	مراجعة
مدير إدارة الترخيص	مدير إدارة الترخيص
مدير عام الإرتفاع الجوي	مدير عام الإرتفاع الجوي
رئيس الإدارة المركزية لسلامة ومقاييس المطارات	رئيس الإدارة المركزية لسلامة ومقاييس المطارات

Page 1

	
الإدارة المركزية لسلامة ومقاييس المطارات الإدارة العامة للإرتفاع الجوي	
اسم صاحب التصريح	التاريخ :
حورن المشا	الرقم والقمر والفرصة
التاريخ :	الوارد :
المطارات الواقع في دائرته المشا	Standard
الاحتياطات الشرقية لعمشما	651584.059
الاحتياطات الشمالية لعمشما	818840.096
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الارتفاع المطلوب من سطح الأرض H نوع الترخيص	مستوى سطح الأرض
مستوى سطح الأرض من سطح البحر 114	الارتفاع المطلوب من سطح الأرض
الارتفاع المتغيرة التي يقع بها المشا	<p style="text-align: center;">Cairo Rad Line inner curve implemented Distance From Rad Line - 1769</p>
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نظري جهاز المتعلقة المتوتر	No Phase/No Line خطوط الهوائية لتثبيت الميكروبيف خط الهوائية المتوتر
مراجعة	مراجعة
مدير إدارة الترخيص	مدير إدارة الترخيص
مدير عام الإرتفاع الجوي	مدير عام الإرتفاع الجوي
رئيس الإدارة المركزية لسلامة ومقاييس المطارات	رئيس الإدارة المركزية لسلامة ومقاييس المطارات

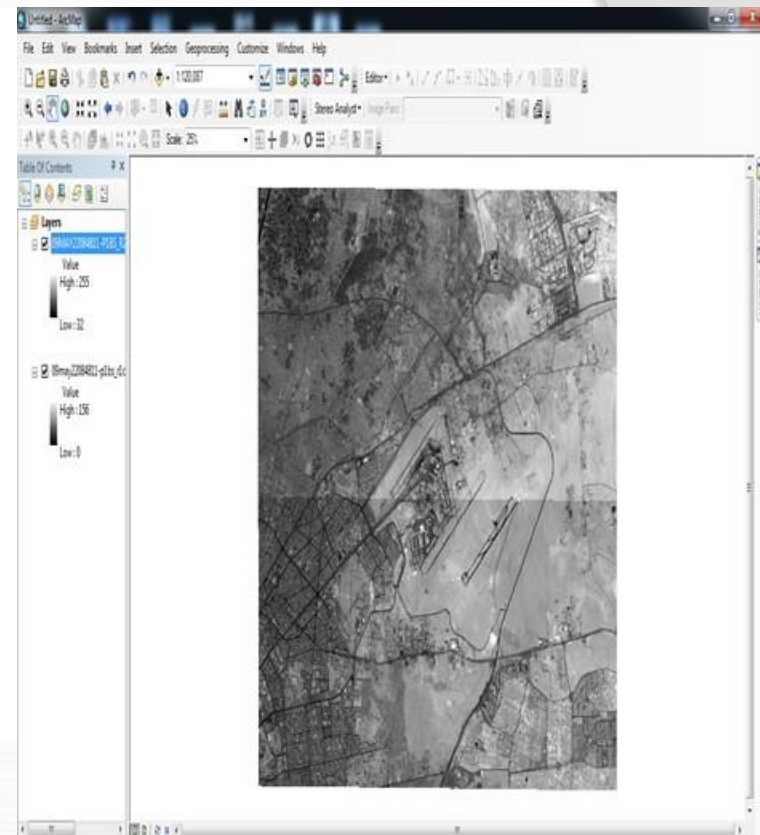
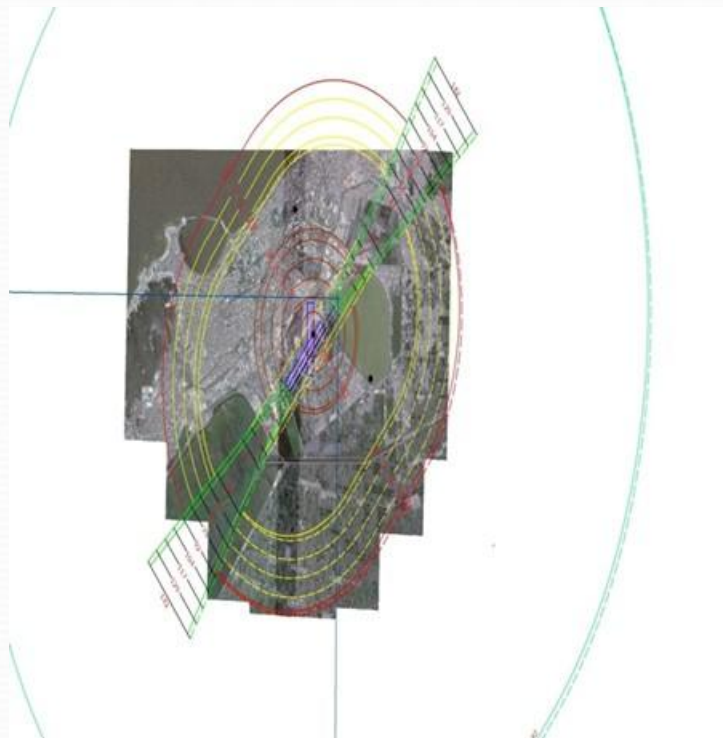
Technical report

Customer report

4 – GIS for Height Change Inspection :

Permits Steps

Main outputs



4 – GIS for Height Change Inspection :

Permits Steps

Main outputs

Detect changes in buildings height or detect new buildings

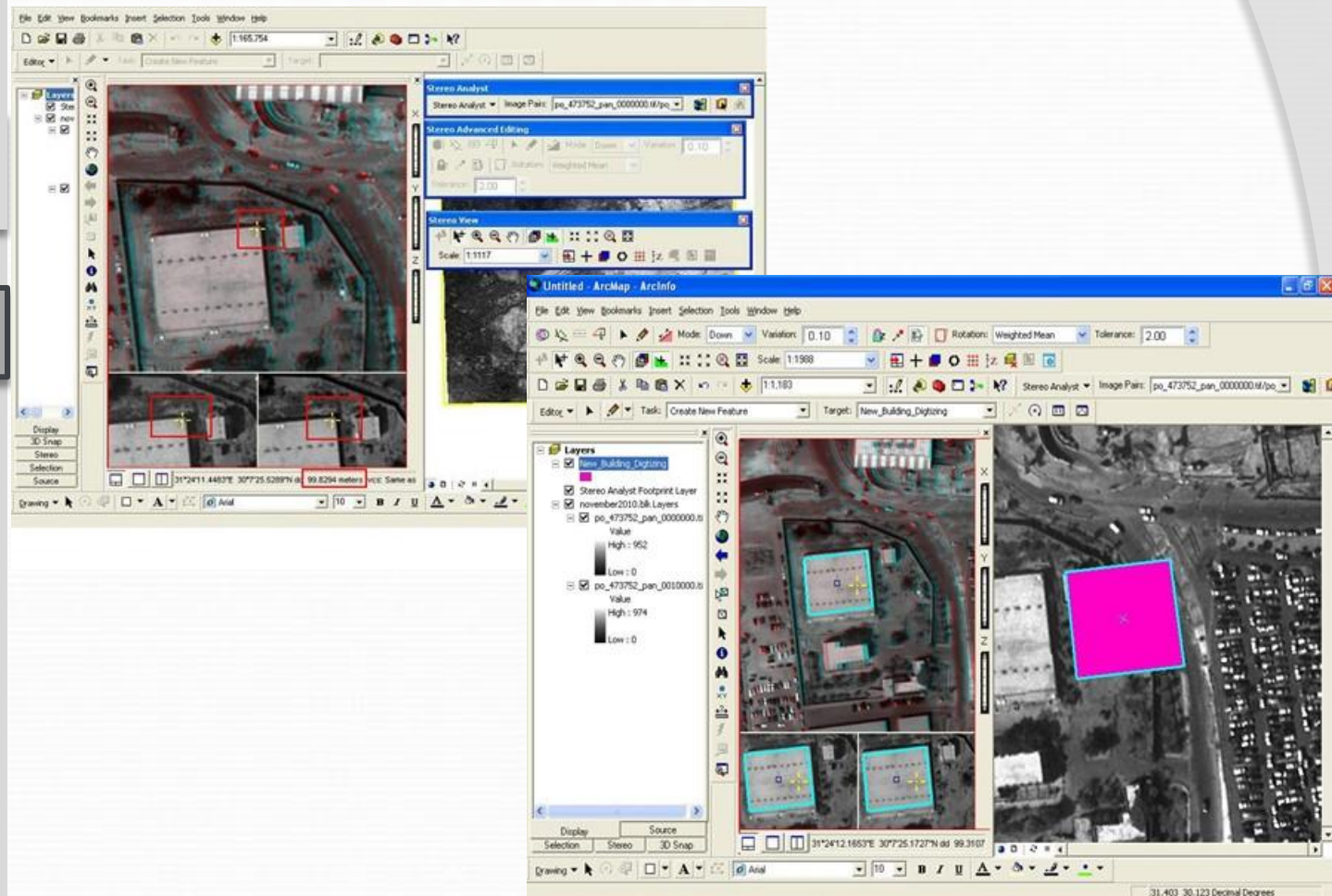
Satellite images

DSM

4 – GIS for Height Change Inspection :

Permits Steps

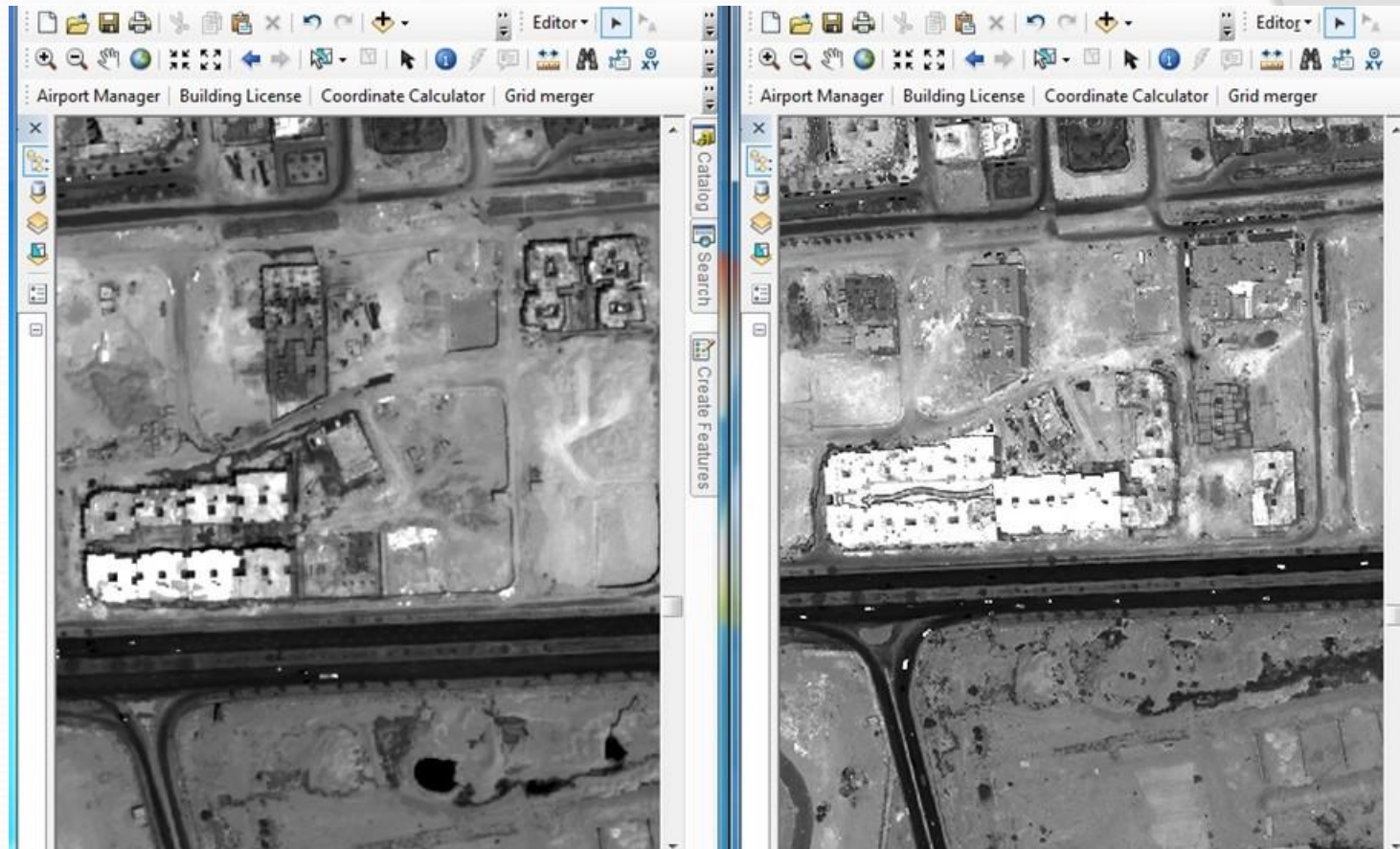
Main outputs



4 – GIS for Height Change Inspection :

Permits Steps

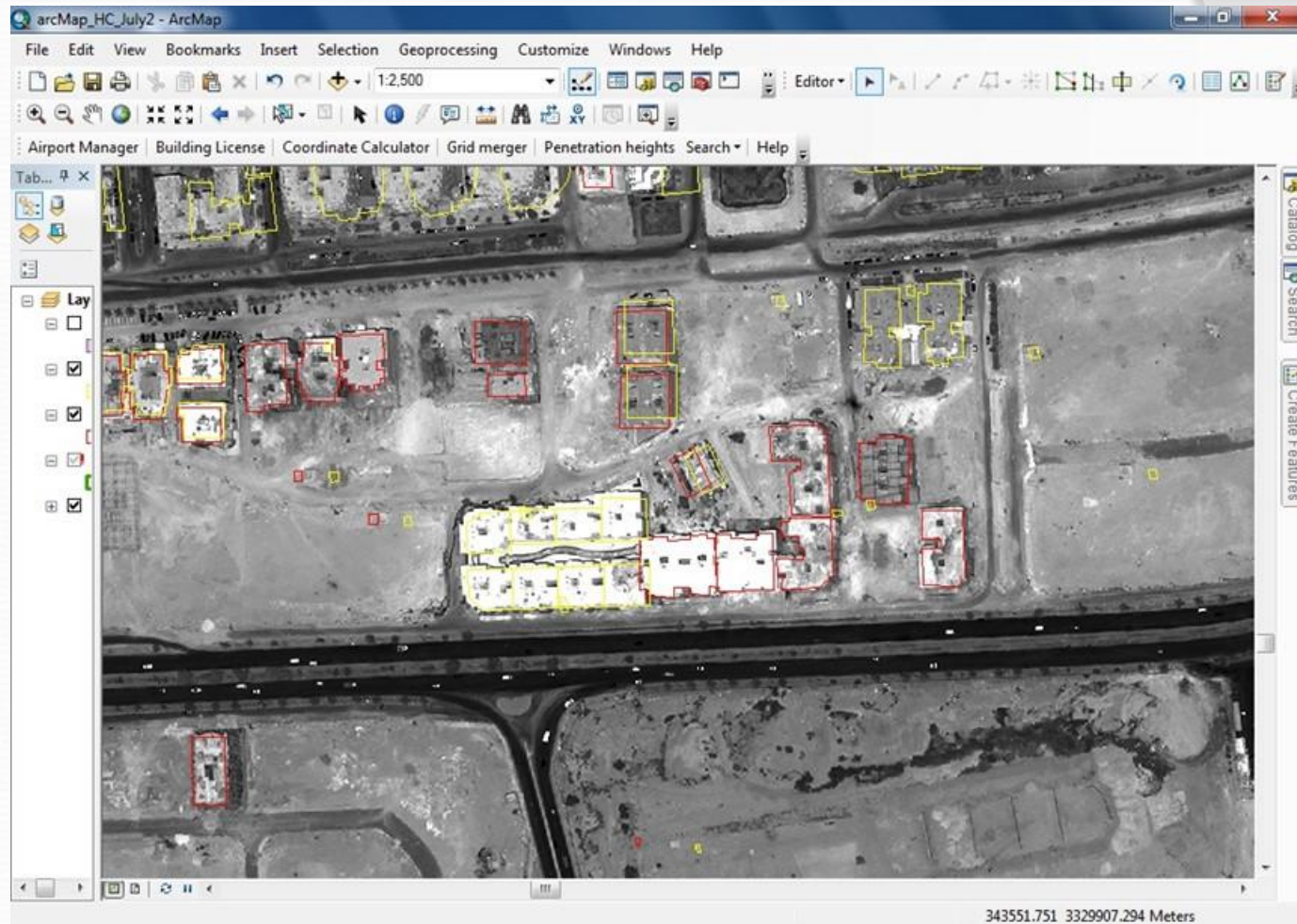
Main outputs



4 – GIS for Height Change Inspection :

Permits Steps

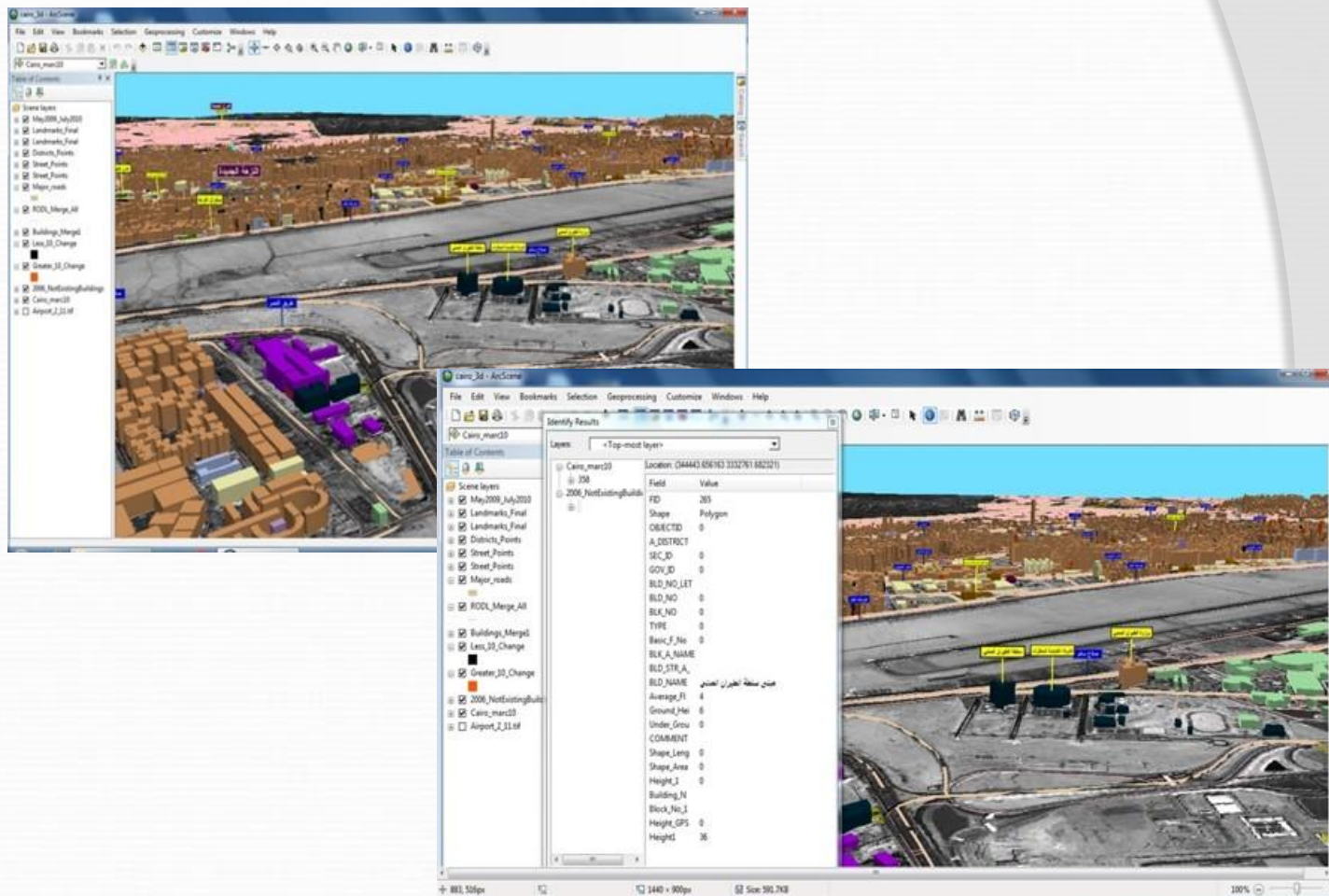
Main outputs



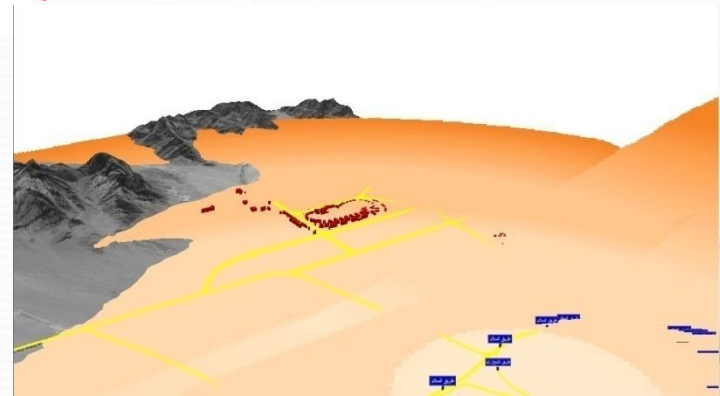
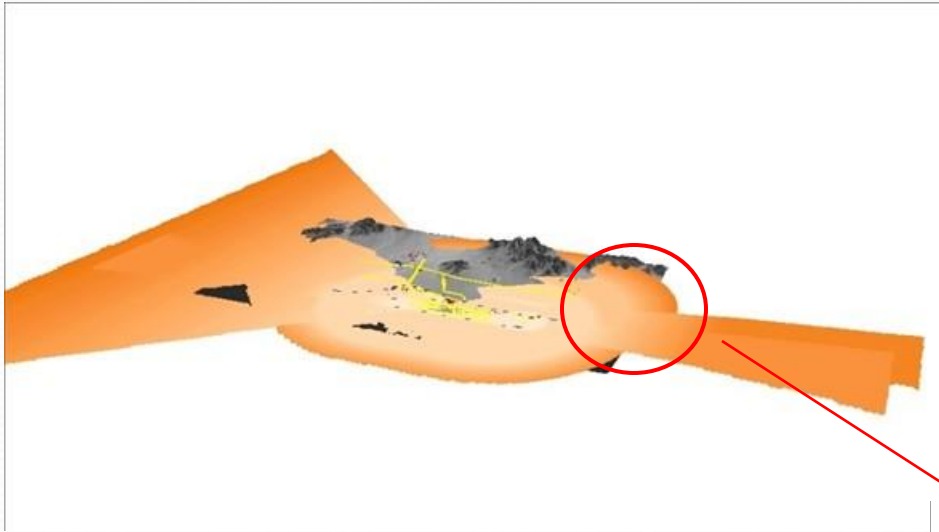
4 – GIS for Height Change Inspection :

Permits Steps

Main outputs



5 – Penetration :



5 – Penetration :



