Appendix B: PERTH SPATIAL DATABASE METADATA

build_db; footprints; ft_bld_join; flood_srv; cbd_srv

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Spatial Database: BUILD_DB.SHP

Keywords

Theme: building, database, points, VGO, GA
Place: Perth

Description

Abstract

This point database was created from the Valuer-General's Office (VGO) Microsoft Access database 2002. Geoscience Australia (GA) has value added to this database by generating additional attribute fields, and creating a spatial context using the X/Y columns and the functionality of ESRI software.

Purpose

This dataset was used as a base dataset for earthquake, wind and flood modelling. The attributes from this shapefile were extracted and saved as another shapefile called export8, extra fields such as lat/long values were added. Only the dbf file from this shapefile was used for the earthquake risk modelling (EQRM) MapLab program.

Supplementary information

Some errors are inherent from the original data and difficult to rectify such as street address information. This dataset was joined with the building footprints dataset using the PIN attribute data field.

Links to graphics describing the data

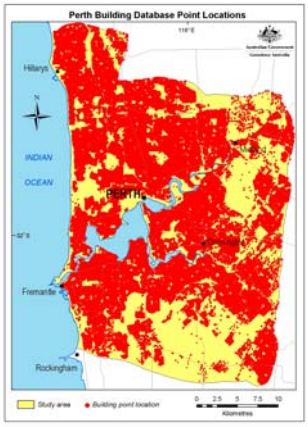
Extent of shapefile (JPEG): build_db.jpg

Status of the data

Complete
Data update frequency: As needed

Time period for which the data is relevant

Date and time: 2002 – base data
Description: Ground condition



Publication information

Who created the data: Geoscience Australia
Date and time: from unpublished material

Data storage and access information

File name: build_db
Type of data: vector digital data
Location of the data: dvd\build_db.shp
Data processing environment: Microsoft Windows 2000 Version 5.0 (Build 2195) Service Pack 4; ESRI ArcCatalog 9.0.0.535

Accessing the data

Size of the data: 9.487 MB
Data transfer size: 9.487 MB

Constraints on accessing and using the data

Access constraints: Contact GA/VGO/DLI
Use constraints: Some fields are VGO owned

Details about this document

Contents last updated: 20050221 at time 15423300

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Hours of service: 7am–7pm

Contact instructions: First contact via email

Spatial description

Horizontal coordinate system

Projected coordinate system name: GDA_1994_MGA_Zone_50
Geographic coordinate system name: GCS_GDA_1994

Details

Map projection

Name: Transverse Mercator
Scale Factor at Central Meridian: 0.999600
Longitude of Central Meridian: 117.000000
Latitude of Projection Origin: 0.000000
False Easting: 500000.000000
False Northing: 10000000.000000

Planar Coordinate Information

Planar Distance Units: meters
Coordinate Encoding Method: coordinate pair

Coordinate Representation

Abscissa Resolution: 0.000064
Ordinate Resolution: 0.000064

Geodetic Model

Horizontal Datum Name: D_GDA_1994
Ellipsoid Name: Geodetic Reference System 80
Semi-major Axis: 6378137.000000
Denominator of Flattening Ratio: 298.257222

Bounding Coordinates

In decimal degrees
West: 115.727196
East: 116.057747
North*:* -31.764400
South*:* -32.168344

In projected or local coordinates
Left: 379989.000000
Right: 410773.250000
Top: 6484979.500000
Bottom: 6440512.000000

Lineage

FGDC lineage
Process step 1
Process description: Please see FLOWCHART.jpg for lineage.
Process software and version: ArcGIS

ESRI description

build_db
ESRI feature type: Simple
Geometry type: Point
Topology: FALSE
Feature count: 355265
Spatial Index: TRUE
Linear referencing: FALSE

Attributes details for build_db

Type of object: Feature Class
Number of records: 355265

Attributes

FID
Alias: FID
Data type: OID
Width: 4
Precision: 0
Scale: 0
Definition: Internal feature number
Definition source: ESRI

Shape
Alias: Shape
Data type: Geometry
Width: 0
Precision: 0
Scale: 0
Definition: Feature geometry
Definition Source: ESRI

AREA
Alias: AREA
Data type: Number
Width: 9
Number of decimals: 3
Definition: Feature geometry (Sourced from Footprints coverage)
Definition Source: ESRI

PERIMETER
Alias: PERIMETER
Data type: Number
Width: 9
Number of decimals: 3
Definition: Feature geometry (Sourced from Footprints coverage)
Definition Source: ESRI

*BUILD_DB_*
Alias: BUILD_DB_
Data type: Number
Width: 9
Definition: UFI
Definition Source: ESRI

FT_AREA
Alias: FT_AREA
Data type: Number
Width: 19
Number of decimals: 3
Definition: Footprint area

Definition Source: Geoscience Australia

FT_PERIM
Alias: FT_PERIM
Data type: Number
Width: 19
Number of decimals: 3
Definition**:** Footprint Perimeter
Definition Source: Geoscience Australia

PIN
Alias: PIN
Data type: Number
Width: 19
Number of decimals: 3
Definition: Property/Cadastre number UFI
Definition Source: Valuer-General's Office

PROPERTY_N
Alias: PROPERTY_N
Data type: String
Width: 10
Definition: Property number
Definition Source: Geoscience Australia

CLASSIFICA
Alias: CLASSIFICA
Data type: String
Width: 50
Definition: Building Classification
Definition Source: Valuer-General's Office

PROPERTY_U
Alias: PROPERTY_U
Data type: String
Width: 50
Definition: Property usage
Definition Source: Geoscience Australia

PRIMARY_LA
Alias: PRIMARY_LA
Data type: String
Width: 20
Definition: Primary (unknown)
Definition Source: Valuer-General's Office

UNIT_NO
Alias: UNIT_NO
Data type: String
Width: 9
Definition: Unit Number
Definition Source: Valuer-General's Office

HOUSE_NO
Alias: HOUSE_NO
Data type: String
Width: 9
Definition: House number
Definition Source: Valuer-General's Office

HSE_NO_SUF
Alias: HSE_NO_SUF
Data type: String
Width: 1
Definition: House number suffix
Definition Source: Valuer-General's Office

STREET
Alias: STREET
Data type: String
Width: 40
Definition: Street number
Definition Source: Valuer-General's Office

ST_SUFFIX
Alias: ST_SUFFIX
Data type: String
Width: 4
Definition: Street suffix
Definition Source: Valuer-General's Office

SUBURB
Alias: SUBURB
Data type: String
Width: 40
Definition: Suburb name
Definition Source: Valuer-General's Office

LOCAL_GOVE
Alias: LOCAL_GOVE
Data type: String
Width: 50
Definition: Local Government Area
Definition Source: Valuer-General's Office

YEAR_BUILT
Alias: YEAR_BUILT
Data type: String
Width: 4
Definition: Year built
Definition Source: Valuer-General's Office

WALLS
Alias: WALLS
Data type: String
Width: 6
Definition: Wall type
Definition Source: Valuer-General's Office

ROOF
Alias: ROOF
Data type: String
Width: 6
Definition: Roof type
Definition Source: Valuer-General's Office

DERIVED_AR
Alias: DERIVED_AR
Data type: Number
Width: 19
Number of decimals: 3
Definition: Derived area
Definition Source: Geoscience Australia/VGO

ROOM_COUNT
Alias: ROOM_COUNT
Data type: Number
Width: 19
Number of decimals: 3
Definition: Number of rooms
Definition Source: Valuer-General's Office

BEDROOMS
Alias: BEDROOMS
Data type: Number
Width: 19
Number of decimals: 3
Definition: Number of bedrooms
Definition Source: Valuer-General's Office

FCB
Alias: FCB
Data type: Number
Width: 19
Number of decimals: 3
Definition: Functional classification of buildings
Definition Source: Geoscience Australia

HAZ_STRUC
Alias: HAZ_STRUC
Data type: String
Width: 20
Definition: HAZUS structural building classification
Definition Source: Geoscience Australia

AREA_VGO
Alias: AREA_VGO
Data type: Number
Width: 19
Number of decimals: 3
Definition: Area by VGO
Definition Source: Geoscience Australia

WEALTH_CAT
Alias: WEALTH_CAT
Data type: String
Width: 12
Definition: Wealth category
Definition Source: Geoscience Australia/Australian Bureau Statistics (ABS)

REPLACE
Alias: REPLACE
Data type: Number
Width: 19
Number of decimals: 3
Definition: Replacement cost
Definition Source: Geoscience Australia

PIN_OLD
Alias: PIN_OLD
Data type: Number
Width: 19
Number of decimals: 3
Definition: QA/QC purposes
Definition Source: Geoscience Australia

FREQUENCY
Alias: FREQUENCY
Data type: Number
Width: 19
Number of decimals: 3
Definition: QA/QC purposes
Definition Source: Geoscience Australia

CONTENTS
Alias: CONTENTS
Data type: Number
Width: 19
Number of decimals: 3
Definition: Estimated contents replacement
Definition Source: Geoscience Australia

EQRM_AREA
Alias: EQRM_AREA
Data type: Number
Width: 19
Number of decimals: 3
Definition: Earthquake modelling building area (EQRM)
Definition Source: Geoscience Australia

YEAR
Alias: YEAR
Data type: Number
Width: 9
Definition: Estimated year built
Definition Source: Geoscience Australia

STOREYS
Alias: STOREYS
Data type: Number
Width: 9
Definition:
Number of stories
Definition Source:
Geoscience Australia

Spatial Database: FOOTPRINTS.SHP

Keywords

Theme: Building, Footprints, polygons

Description

Abstract

This database was created from 1600 CAD–MicroStation data files supplied by the WA Department of Land Information (DLI). These files were merged, cleaned and exported into an ESRI shapefile, using FME Universal Translator and other GIS software.

Purpose

To create a clean polygon shapefile so the building footprints could be spatially intersected with the Valuer General's data, and to populate attribute fields such as area and perimeter. This dataset has proven to be a valuable resource for the Reed Construction Data contract in defining replacement cost models for metropolitan Perth.

Supplementary information

The original CAD files of the building footprints primary error was topology associated. The arcs associated with the building outlines were not 'closed' to form a true polygon, approximately 10% to 15% had this data error.

The shapefile now represents approximately 600,000 building footprints that cover 280 suburbs for metropolitan Perth. The closed building footprints have been spatially intersected with the Valuer-General's Office data (VGO).

Links to graphics describing the data

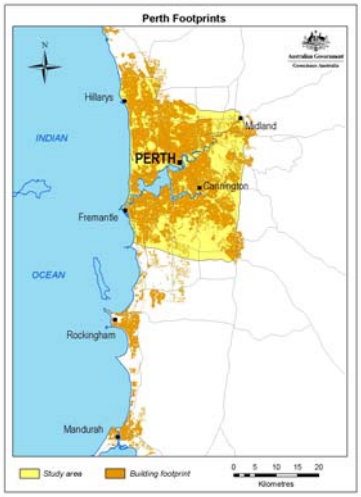
Extent of shapefile (JPEG): footprints.jpg

Status of the data

Complete
Data update frequency: As needed

Time period for which the data is relevant

Beginning date and time: 1989
Ending date and time: 1999
Description: Ground condition



Publication information

Who created the data: GA/DLI
Date and time: from unpublished material

Data storage and access information

File name: footprints
Type of data: vector digital data
Data processing environment: Microsoft Windows 2000 Version 5.0 (Build 2195) Service Pack 4; ESRI ArcCatalog 9.0.0.535

Accessing the data

Size of the data: 116.555 MB
Data transfer size: 116.555 MB

Constraints on accessing and using the data

Access constraints: Contact DLI
Use constraints: Contact DLI

Details about this document

Contents last updated: 20050221 at time 17545000

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Contact instructions: First contact via email

Spatial description

Horizontal coordinate system

Projected coordinate system name: GDA_1994_MGA_Zone_50
Geographic coordinate system name: GCS_GDA_1994

Details

Map projection

Name: Transverse Mercator
Scale Factor at Central Meridian: 0.999600
Longitude of Central Meridian: 117.000000
Latitude of Projection Origin: 0.000000
False Easting: 500000.000000
False Northing: 10000000.000000

Planar Coordinate Information

Planar Distance Units: meters
Coordinate Encoding Method: coordinate pair

Coordinate Representation

Abscissa Resolution: 0.000256
Ordinate Resolution: 0.000256

Geodetic Model

Horizontal Datum Name: D_GDA_1994
Ellipsoid Name: Geodetic Reference System 80
Semi-major Axis: 6378137.000000
Denominator of Flattening Ratio: 298.257222

Bounding coordinates

In decimal degrees
West: 115.677391
East: 116.072916
North: -31.656055
South: -32.583995

In projected or local coordinates
Left: 375861.375000
Right: 412108.031250
Top: 6496942.500000
Bottom: 6394443.000000

Lineage

FGDC lineage
Process step 1
Process description: FME Universal Translator was used to convert the dgn files into ESRI shape files and a number of AMLs have been created to produce the closed linework. Please see FLOWCHART.jpg for lineage.
Process software and version: ArcGIS

ESRI description

footprints
ESRI feature type: Simple
Geometry type: Polygon
Topology: FALSE
Feature count: 524598
Spatial Index: FALSE
Linear referencing: FALSE

Attributes details for Footprints

Type of object: Feature Class
Number of records: 524598

Attributes

FID
Alias: FID
Data type: OID
Width: 4
Precision: 0
Scale: 0
Definition: Internal feature number.
Definition Source: ESRI

Shape
Alias: Shape
Data type: Geometry
Width: 0
Precision: 0
Scale: 0
Definition: Feature geometry
Definition Source: ESRI

AREA
Alias: AREA
Data type: Number
Width: 19
Number of decimals: 3
Definition: Feature geometry
Definition Source: ESRI

PERIMETER
Alias: PERIMETER
Data type: Number
Width: 19
Number of decimals: 3
Definition: Feature geometry
Definition Source: ESRI

BUILD_DCDB
Alias: BUILD_DCDB
Data type: Number
Width: 9
Definition: UFI
Definition Source: ESRI

FT_AREA
Alias: FT_AREA
Data type: Number
Width: 9

Number of decimals: 3

Definition: Footprint area (sourced from Arc coverage)
Definition Source: GA

FT_PERIM
Alias: FT_PERIM
Data type: Number
Width: 9
Number of decimals: 3
Definition: Footprint perimeter (sourced from Arc coverage)
Definition Source: GA

PIN
Alias: PIN
Data type: Number
Width: 19
Number of decimals: 3
Definition: VGO, Cadastre/Property number
Definition Source: VGO

Spatial Database: FT_BLD_JOIN.SHP

Keywords

Theme: Building, Footprints, Join, database, polygon

Description

Abstract

This database was created by joining the GA BUILD_DB (VGO) point database to the FOOTPRINTS (DLI) polygon shapefile using the PIN field as the unique identifying attribute for the join. Any polygons that don't join with a PIN from the point shapefile will be removed automatically – see lineage for more detail.

Purpose

This dataset is a combination of a point shapefile database which was used for earthquake modelling purposes and a polygon shapefile which was used for wind and flood vulnerability modelling.

Supplementary information

For the complete polygon shapefile of the DLI building footprints see FOOTPRINTS shapefile.
For the complete point shapefile of the GA building (VGO) database see BUILD_DB shapefile.

Links to graphics describing the data

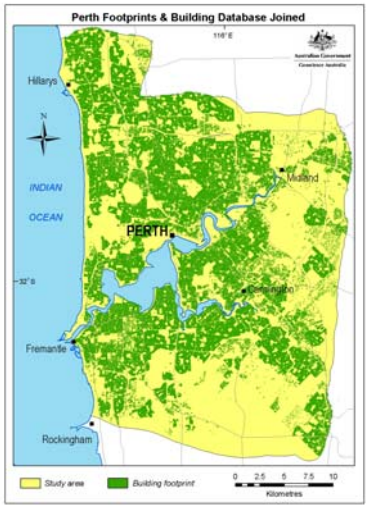
extent of ft_bld_join shapefile (JPEG): ft_bld_join.jpg

Status of the data

Complete
Data update frequency: As needed

Time period for which the data is relevant

Beginning date and time: 1989 – 1999 DLI CAD files
Ending date and time: 2002 – VGO data
Description: Ground condition



Publication information

Who created the data: GA, DLI
Date and time: from unpublished material

Data storage and access information

File name: ft_bld_join
Type of data: vector digital data
Location of the data: dvd\ft_bld_join.shp
Data processing environment: Microsoft Windows 2000 Version 5.0 (Build 2195) Service Pack 4; ESRI ArcCatalog 9.0.0.535

Accessing the data

Size of the data: 87.647 MB
Data transfer size: 87.647 MB

Constraints on accessing and using the data

Access constraints: Contact DLI/GA
Use constraints: Contact DLI/GA

Details about this document

Contents last updated: 20050221 at time 18302000

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Spatial description

Horizontal coordinate system

Projected coordinate system name:
GDA_1994_MGA_Zone_50
Geographic coordinate system name:
GCS_GDA_1994

Details

Map projection

Name: Transverse Mercator
Scale Factor at Central Meridian: 0.999600
Longitude of Central Meridian: 117.000000
Latitude of Projection Origin: 0.000000
False Easting: 500000.000000
False Northing: 10000000.000000

Planar Coordinate Information

Planar Distance Units: meters
Coordinate Encoding Method: coordinate pair

Coordinate Representation

Abscissa Resolution: 0.000064
Ordinate Resolution: 0.000064

Geodetic Model

Horizontal Datum Name: D_GDA_1994
Ellipsoid Name: Geodetic Reference System 80
Semi-major Axis: 6378137.000000
Denominator of Flattening Ratio: 298.257222

Bounding Coordinates

Horizontal

In decimal degrees
West: 115.728199
East: 116.063865
North: -31.764324
South: -32.165607

In projected or local coordinates
Left: 380079.968750
Right: 411352.593750
Top: 6484989.000000
Bottom: 6440820.500000

Lineage

FGDC lineage
Process step 1
Process description: A join was created using the footprints dataset as the main dataset. The build_db shapefile was joined by the attribute called PIN. Any polygon which didn't join was assigned a null value and removed to produce a complete database, this is an automatic process within ArcGIS.
Process software and version: ArcGIS 9

Who did this process

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Hours of service: 7am - 7pm
Contact Instructions:
First contact via email

ESRI description

ft_bld_join
ESRI feature type: Simple
Geometry type: Polygon
Topology: FALSE
Feature count: 384133
Spatial Index: FALSE
Linear referencing: FALSE

Attributes details for ft_bld_join

Type of object: Feature Class
Number of records: 384133

Attributes

FID
Alias: FID
Data type: OID
Width: 4
Precision: 0
Scale: 0
Definition: Internal feature number
Definition Source: ESRI

Shape
Alias: Shape
Data type: Geometry
Width: 0
Precision: 0
Scale: 0
Definition: Feature geometry
Definition Source: ESRI

AREA
Alias: AREA
Data type: Number
Width: 19
Number of decimals: 3
Definition: Area of polygon
Definition Source: ESRI

PERIMETER
Alias: PERIMETER
Data type: Number

Width: 19
Number of decimals: 3
Definition: Perimeter of polygon
Definition Source: ESRI

BUILD_DCDB
Alias: BUILD_DCDB
Data type: Number
Width: 9
Definition: UFI
Definition Source: Cadastre

PIN
Alias: PIN
Data type: Number
Width: 19
Number of decimals: 3
Definition: Property/Cadastre number
Definition Source: Valuer-General's Office

FID_1
Alias: FID_1
Data type: Number
Width: 9
Definition: Unique field identifier
Definition Source:

PROPERTY_N
Alias: PROPERTY_N
Data type: String
Width: 10
Definition: Property number
Definition Source: Geoscience Australia

CLASSIFICA
Alias: CLASSIFICA
Data type: String
Width: 50
Definition: Building classification
Definition Source: Valuer-General's Office

PROPERTY_U
Alias: PROPERTY_U
Data type: String
Width: 50
Definition: Property Usage
Definition Source: Geoscience Australia

PRIMARY_LA
Alias: PRIMARY_LA
Data type: String
Width: 20
Definition: Primary (unknown)
Definition Source: Valuer-General's Office

UNIT_NO
Alias: UNIT_NO
Data type: String
Width: 9
Definition: Unit number
Definition Source: Valuer-General's Office

HOUSE_NO
Alias: HOUSE_NO
Data type: String
Width: 9
Definition: House number
Definition Source: Valuer-General's Office

HSE_NO_SUF
Alias: HSE_NO_SUF
Data type: String
Width: 1
Definition: House number suffix
Definition Source: Valuer-General's Office

STREET
Alias: STREET
Data type: String
Width: 40
Definition: Street number
Definition Source: Valuer-General's Office

ST_SUFFIX
Alias: ST_SUFFIX
Data type: String
Width: 4
Definition: Street suffix
Definition Source: Valuer-General's Office

SUBURB
Alias: SUBURB
Data type: String
Width: 40
Definition: Suburb name
Definition Source: Valuer-General's Office

LOCAL_GOVE
Alias: LOCAL_GOVE
Data type: String
Width: 50
Definition: Local Government Area
Definition Source: Valuer-General's Office

YEAR_BUILT
Alias: YEAR_BUILT
Data type: String
Width: 4
Definition: Year built
Definition Source: Valuer-General's Office

WALLS
Alias: WALLS
Data type: String
Width: 6
Definition: Wall type
Definition Source: Valuer-General's Office

ROOF
Alias: ROOF
Data type: String
Width: 6
Definition: Roof type
Definition Source: Valuer-General's Office

DERIVED_AR
Alias: DERIVED_AR
Data type: Number
Width: 19
Number of decimals: 3
Definition: Derived area
Definition Source: Geoscience Australia/VGO

ROOM_COUNT
Alias: ROOM_COUNT
Data type: Number
Width: 19
Number of decimals: 3
Definition: Number of rooms
Definition Source: Valuer-General's Office

BEDROOMS
Alias: BEDROOMS
Data type: Number
Width: 19
Number of decimals: 3
Definition: Number of bedrooms
Definition Source: Valuer-General's Office

FCB
Alias: FCB
Data type: Number
Width: 19
Number of decimals: 3
Definition: Functional classification of buildings
Definition Source: Geoscience Australia

HAZ_STRUC
Alias: HAZ_STRUC
Data type: String
Width: 20
Definition: HAZUS structural building classification
Definition Source: Geoscience Australia

AREA_VGO
Alias: AREA_VGO
Data type: Number
Width: 19
Number of decimals: 3
Definition: Area by VGO
Definition Source: Geoscience Australia

WEALTH_CAT
Alias: WEALTH_CAT
Data type: String
Width: 12
Definition: Wealth category
Definition Source: Geoscience Australia (ABS)

REPLACE
Alias: REPLACE
Data type: Number
Width: 19
Number of decimals: 3
Definition: Replacement cost
Definition Source: Geoscience Australia

PIN_OLD
Alias: PIN_OLD
Data type: Number
Width: 19
Number of decimals: 3
Definition: QA/QC purposes
Definition Source: Geoscience Australia

FREQUENCY
Alias: FREQUENCY
Data type: Number
Width: 19
Number of decimals: 3
Definition: QA/QC purposes
Definition Source: Geoscience Australia

CONTENTS
Alias: CONTENTS
Data type: Number
Width: 19
Number of decimals: 3
Definition: Estimated contents replacement
Definition Source: Geoscience Australia

EQRM_AREA
Alias: EQRM_AREA
Data type: Number
Width: 19
Number of decimals: 3
Definition: Earthquake modelling building area
Definition Source: Geoscience Australia

YEAR
Alias: YEAR
Data type: Number
Width: 9
Definition: Estimated year built
Definition Source: Geoscience Australia

STOREYS
Alias: STOREYS
Data type: Number
Width: 9
Definition: Number of stories
Definition Source: Geoscience Australia

Spatial Database: FLOOD_SRV.SHP

Keywords

Theme: Survey, Flood, Building
Place: Perth

Description

Abstract

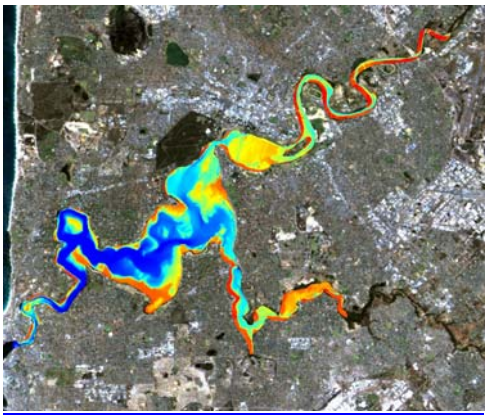
This dataset contains the Perth fieldwork survey completed 1–10 December 2003 for a 1 in 500 year flood zone. Building attributes were collected using PDA units, Global Positioning Systems and digital cameras.

Purpose

To capture building attributes to enter into GA's flood modelling database.

Links to graphics describing the data

Landsat image with flooding polygon with flow strength (JPEG): flood_srv.jpg



Status of the data

Complete
Data update frequency: As needed

Time period for which the data is relevant

Beginning date and time: 01/12/2003 at time 7:30am
Ending date and time: 10/12/2003 at time 4:30pm
Description: Ground condition

Publication information

Who created the data: Geoscience Australia
Date and time: from unpublished material

Data storage and access information

File name: flood_srv
Type of data: vector digital data
Location of the data: dvd\fieldwork\flood_srv.shp
Data processing environment: Microsoft Windows 2000 Version 5.0 (Build 2195) Service Pack 4; ESRI ArcCatalog 9.0.0.535

Accessing the data

Size of the data: 0.056 MB
Data transfer size: 0.056 MB

Constraints on accessing and using the data

Access constraints: Contact GA
Use constraints: Contact GA

Details about this document

Contents last updated: 20050222 at time 12263500

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Hours of service: 7am–7pm

Contact instructions: First contact via email

Spatial description

Horizontal coordinate system

Projected coordinate system name: WGS_1984_UTM_Zone_50S
Geographic coordinate system name: GCS_WGS_1984

Details

Grid Coordinate System Name: Universal Transverse Mercator
UTM Zone Number: -50

Transverse Mercator Projection
Scale Factor at Central Meridian: 0.999600
Longitude of Central Meridian: 117.000000
Latitude of Projection Origin: 0.000000

False Easting: 500000.000000
False Northing: 10000000.000000

Planar Coordinate Information

Planar Distance Units: meters
Coordinate Encoding Method: coordinate pair

Coordinate Representation

Abscissa Resolution: 0.000032
Ordinate Resolution: 0.000032

Geodetic Model

Horizontal Datum Name: D_WGS_1984
Ellipsoid Name: WGS_1984
Semi-major Axis: 6378137.000000
Denominator of Flattening Ratio: 298.257224

Bounding coordinates

Horizontal

In decimal degrees
West: 115.876936
East: 116.003628
North: -31.895418
South: -32.036597

In projected or local coordinates
Left: 393958.553216
Right: 405779.657371
Top: 6470607.962976
Bottom: 6455072.569810

Lineage

FGDC lineage
Process step 1
Process description: Capture building attributes with PDA units, GPS and digital camera. 3 field data capture units were used and the data combined to make this dataset. Photos renamed using photo.aml to match unit number.
Process software and version: ArcPad Version 6.0.1 and ArcGIS 8.3
Process date: 10/12/2004 at 5:00pm

Spatial data quality

Horizontal positional accuracy
All point locations were placed within the cadastre boundary. GPS position is accurate to +/- 10m
Estimated accuracy: +/- 10m
How this value was determined: More likely to be +/- 5m due to GPS readings

Vertical positional accuracy
Was not captured

Spatial data description

Vector data information

ESRI description

flood_srv
ESRI feature type: Simple
Geometry type: Point
Feature description: Building site attributes
Topology: FALSE
Feature count: 2092
Spatial Index: FALSE
Linear referencing: FALSE

Attributes details for flood_srv

Type of object: Feature Class
Number of records: 2092

Attributes

FID
Alias: FID
Data type: OID
Width: 4
Precision: 0
Scale: 0
Definition: Internal feature number
Definition Source: ESRI

Shape
Alias: Shape
Data type: Geometry
Width: 0
Precision: 0
Scale: 0
Definition: Feature geometry
Definition Source: ESRI

ID
Alias: ID
Data type: Number
Width: 6
Definition: UFI
Definition Source: ESRI

CONSTR
Alias: CONSTR
Data type: Number
Width: 4
Definition: Construction site if equal to 1
Definition Source: Geoscience Australia

HOUSE_TXT
Alias: HOUSE_TXT
Data type: String
Width: 10
Definition:
Housing number
Definition Source:
Geoscience Australia

STREET
Alias: STREET
Data type: String

Width: 35
Definition: Street address
Definition Source: Geoscience Australia

SUBURB
Alias: SUBURB
Data type: String
Width: 20
Definition: Suburb
Definition Source: Geoscience Australia

DATETIME
Alias: DATETIME
Data type: Date
Width: 8
Definition: Date collected
Definition Source: Geoscience Australia

CAM_JPG
Alias: CAM_JPG
Data type: String
Width: 20
Definition: Camera filename for a photo
Definition Source: Geoscience Australia

CAM_MOV
Alias: CAM_MOV
Data type: String
Width: 20
Definition: Camera filename for a movie
Definition Source: Geoscience Australia

AGE
Alias: AGE
Data type: String
Width: 15
Definition: Estimated age of building
Definition Source: Geoscience Australia

LIV_UNIT
Alias: LIV_UNIT
Data type: Number
Width: 9
Definition: Number of living units in complex
Definition Source: Geoscience Australia

BASEMENT
Alias: BASEMENT
Data type: String
Width: 10
Definition: Number of basements levels
Definition Source: Geoscience Australia

STOREYS
Alias: STOREYS
Data type: String
Width: 30
Definition: Number of storeys
Definition Source: Geoscience Australia

FLOOR_H
Alias: FLOOR_H
Data type: String
Width: 10
Definition: Floor height
Definition Source: Geoscience Australia

EAVE_H
Alias: EAVE_H
Data type: String
Width: 10
Definition: Eaves height
Definition Source: Geoscience Australia

WIDTH
Alias: WIDTH
Data type: String
Width: 10
Definition: Width of building
Definition Source: Geoscience Australia

DEPTH
Alias: DEPTH
Data type: String
Width: 10
Definition: Depth of building
Definition Source: Geoscience Australia

ROOF_TYPE
Alias: ROOF_TYPE
Data type: String
Width: 20
Definition: Roof material
Definition Source: Geoscience Australia

ROOF_SHAPE
Alias: ROOF_SHAPE
Data type: String
Width: 25
Definition: Roof shape
Definition Source: Geoscience Australia

ROOF_PITCH
Alias: ROOF_PITCH
Data type: String
Width: 10
Definition: Roof pitch
Definition Source: Geoscience Australia

ROOF_EAVES
Alias: ROOF_EAVES
Data type: String
Width: 10
Definition: Width of eaves
Definition Source: Geoscience Australia

SOFFIT
Alias: SOFFIT
Data type: Number
Width: 4
Definition: Under eaves covering
Definition Source: Geoscience Australia

SKYLIGHT
Alias: SKYLIGHT
Data type: String
Width: 15
Definition: Skylight exists
Definition Source: Geoscience Australia

ROOF_SPAN
Alias: ROOF_SPAN
Data type: String

Width: 10
Definition: Roof span
Definition Source: Geoscience Australia

STRUCTURE
Alias: STRUCTURE
Data type: String
Width: 35
Definition: Structural type
Definition Source: Geoscience Australia

FOUNDATION
Alias: FOUNDATION
Data type: String
Width: 25
Definition: Foundation type
Definition Source: Geoscience Australia

WALLS
Alias: WALLS
Data type: String
Width: 25
Definition: Wall type
Definition Source: Geoscience Australia

GABLE
Alias: GABLE
Data type: String
Width: 15
Definition: How many gables
Definition Source: Geoscience Australia

PARAPET
Alias: PARAPET
Data type: String
Width: 10
Definition: Parapet percentage of width
Definition Source: Geoscience Australia

PARA_HGT
Alias: PARA_HGT
Data type: String
Width: 10
Definition: Parapet height
Definition Source: Geoscience Australia

ROOF_VENT
Alias: ROOF_VENT
Data type: Number
Width: 4
Definition: Roof ventalation
Definition Source: Geoscience Australia

WALL_VENT
Alias: WALL_VENT
Data type: Number
Width: 4
Definition: Wall ventalation
Definition Source: Geoscience Australia

CHIMNEY
Alias: CHIMNEY
Data type: String
Width: 20
Definition: Chimney exists + height
Definition Source: Geoscience Australia

VERANDA
Alias: VERANDA
Data type: String
Width: 20
Definition: Verandah
Definition Source: Geoscience Australia

WIN_PROT
Alias: WIN_PROT
Data type: Number
Width: 4
Definition: Window protectors
Definition Source: Geoscience Australia

WIN_SIZE
Alias: WIN_SIZE
Data type: String
Width: 15
Definition: Window size
Definition Source: Geoscience Australia

WIN_PERC
Alias: WIN_PERC
Data type: String
Width: 15
Definition: Window percentage cover
Definition Source: Geoscience Australia

SILL_HGT
Alias: SILL_HGT
Data type: String
Width: 15
Definition: Sill height
Definition Source: Geoscience Australia

TREE
Alias: TREE
Data type: Number
Width: 4
Definition: Tree danger
Definition Source: Geoscience Australia

NEAREST
Alias: NEAREST
Data type: String
Width: 10
Definition: Nearest building
Definition Source: Geoscience Australia

PLAN_REGUL
Alias: PLAN_REGUL
Data type: String
Width: 25
Definition: Plan regularity
Definition Source: Geoscience Australia

VERT_REGUL
Alias: VERT_REGUL
Data type: String
Width: 25
Definition: Vertical regularity
Definition Source: Geoscience Australia

PARKING
Alias: PARKING
Data type: String

Width: 25
Definition: Parking
Definition Source: Geoscience Australia

P_SPACE
Alias: P_SPACE
Data type: String
Width: 10
Definition: Number of parking spaces
Definition Source: Geoscience Australia

P_MATERIAL
Alias: P_MATERIAL
Data type: String
Width: 25
Definition: Garage material
Definition Source: Geoscience Australia

P_DOOR
Alias: P_DOOR
Data type: String
Width: 15
Definition: Garage door
Definition Source: Geoscience Australia

STRUC_COM
Alias: STRUC_COM
Data type: String
Width: 60
Definition: Other structures
Definition Source: Geoscience Australia

CONFID
Alias: CONFID
Data type: String
Width: 10
Definition: Confidence in data collected
Definition Source: Geoscience Australia

INDUSTRY
Alias: INDUSTRY
Data type: String
Width: 15
Definition: Industry type
Definition Source: Geoscience Australia

CATEGORY
Alias: CATEGORY
Data type: String
Width: 20
Definition: Category type
Definition Source: Geoscience Australia

TYPE
Alias: TYPE
Data type: String
Width: 15
Definition: Usage type
Definition Source: Geoscience Australia

COMMENT
Alias: COMMENT
Data type: String
Width: 60
Definition: Comment field
Definition Source: Geoscience Australia

SPARE1
Alias: SPARE1
Data type: String
Width: 30
Definition: Spare field
Definition Source: Geoscience Australia

SPARE2
Alias: SPARE2
Data type: String
Width: 30
Definition: spare field
Definition Source: Geoscience Australia

UFI
Alias: UFI
Data type: Number
Width: 8
Definition: Unique field number
Definition Source: Geoscience Australia

PICTURE
Alias: PICTURE
Data type: String
Width: 75
Definition: picture jpg filename
Definition Source: Geoscience Australia

MOVIE
Alias: MOVIE
Data type: String
Width: 75
Definition: movie filename
Definition Source: Geoscience Australia

Spatial Database: CBD_SRV.SHP

Keywords

Theme: Buildings, points, database, GA
Place: Perth CBD

Description

Abstract

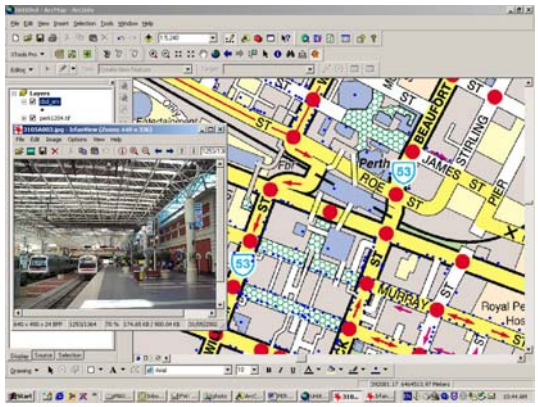
Fieldwork completed in the Perth CBD area using PDA units, GPS and digital cameras. Photos were taken of individual buildings and can be connected using attribute field photo_l.

Purpose

This database was used for the Perth Counter Terrorism exercise and 3D modelling.

Links to graphics describing the data

Screen snap of ArcGIS (JPEG): cbd_srv.jpg



Status of the data

Complete
Data update frequency: As needed

Time period for which the data is relevant

Date and time: May 2002
Description: Ground condition

Publication information

Who created the data: Geoscience Australia
Date and time: from unpublished material

Data storage and access information

File name: cbd_srv
Type of data: vector digital data
Location of the data:
dvd\fieldwork2\cbd_srv.shp
Data processing environment: Microsoft Windows 2000 Version 5.0 (Build 2195) Service Pack 4; ESRI ArcCatalog 9.0.0.535

Accessing the data

Size of the data: 0.028 MB
Data transfer size: 0.028 MB

Constraints on accessing and using the data

Access constraints: Contact GA
Use constraints: Contact GA

Details about this document

Contents last updated: 20050223 at time 10272800

Who completed this document

Neil Corby, Geoscience Australia

Mailing address:

P.O. BOX 378
Canberra, ACT 2601
Australia
02 62499 9176 (voice)
02 62499 986 (fax)
neil.corby@ga.gov.au

Hours of service: 7am–7pm

Contact instructions: First contact via email

Spatial description

Horizontal coordinate system

Projected coordinate system name:
GDA_1994_MGA_Zone_50
Geographic coordinate system name:
GCS_GDA_1994

Details

Map Projection

Name: Transverse Mercator
Scale Factor at Central Meridian: 0.999600
Longitude of Central Meridian: 117.000000
Latitude of Projection Origin: 0.000000
False Easting: 500000.000000
False Northing: 10000000.000000

Planar Coordinate Information

Planar Distance Units: meters
Coordinate Encoding Method: coordinate pair

Coordinate Representation

Abscissa Resolution: 0.000128
Ordinate Resolution: 0.000128

Geodetic Model

Horizontal Datum Name: D_GDA_1994
Ellipsoid Name: Geodetic Reference System 80
Semi-major Axis: 6378137.000000
Denominator of Flattening Ratio: 298.257222

Bounding coordinates

Horizontal

In decimal degrees
West: 115.737191
East: 116.067647
North: -31.717430
South: -32.246440

In projected or local coordinates
Left: 381033.247246
Right: 411666.179387
Top: 6490199.000000
Bottom: 6431862.036641

Lineage

FGDC lineage
Process step 1
Process description: Data collected using PDA, GPS and digital cameras
Process software and version: ArcPAD 5.0.1
Process date: 2002

Who did this process

Don Gordon, Geoscience Australia
Mailing address as above
donald.gordon@ga.gov.au

Hours of service: 7am–7pm

Contact instructions: First contact via email

Spatial data quality

Horizontal positional accuracy

GPS units used were accurate to +/- 10m, building footprints and cadastre were used in the field to place points into polygons when GPS units could not find satellites.

ESRI description

cbd_srv
ESRI feature type: Simple
Geometry type: Point
Topology: FALSE
Feature count: 1038
Spatial Index: FALSE
Linear referencing: FALSE

Attributes details for cbd_srv

Type of object: Feature Class
Number of records: 1038

Attributes

FID
Alias: FID
Data type: OID
Width: 4
Precision: 0
Scale: 0
Definition: Internal feature number
Definition Source: ESRI

Shape
Alias: Shape
Data type: Geometry
Width: 0
Precision: 0
Scale: 0
Definition: Feature geometry
Definition Source: ESRI

STUD_PT_ID
Alias: STUD_PT_ID
Data type: Number
Width: 9
Definition: UFI
Definition Source: ESRI

CONSTR
Alias: CONSTR
Data type: Number
Width: 4
Definition: Construction site if equal to 1
Definition Source: Geoscience Australia

QUALITY
Alias: QUALITY
Data type: Number
Width: 4
Definition: QA/QC
Definition Source: Geoscience Australia

UNIT
Alias: UNIT
Data type: String
Width: 6
Definition: PDA unit used
Definition Source: Geoscience Australia

DATETIME
Alias: DATETIME
Data type: Date
Width: 8
Definition: Date of collection
Definition Source: Geoscience Australia

HOUSE_NUM
Alias: HOUSE_NUM
Data type: String
Width: 5
Definition: House number
Definition Source: Geoscience Australia

HOUSE_TXT
Alias: HOUSE_TXT
Data type: String
Width: 10

Definition: House letter
Definition Source: Geoscience Australia

STREET
Alias: STREET
Data type: String
Width: 20
Definition: Street address
Definition Source: Geoscience Australia

SUBURB
Alias: SUBURB
Data type: String
Width: 20
Definition: Suburb
Definition Source: Geoscience Australia

AGE
Alias: AGE
Data type: String
Width: 20
Definition: Estimated age of building
Definition Source: Geoscience Australia

CAM_INDEX1
Alias: CAM_INDEX1
Data type: String
Width: 3
Definition: Camera index
Definition Source: Geoscience Australia

CAM_INDEX2
Alias: CAM_INDEX2
Data type: String
Width: 3
Definition: Camera index
Definition Source: Geoscience Australia

LIV_UNIT
Alias: LIV_UNIT
Data type: String
Width: 8
Definition: Number of living units in complex
Definition Source: Geoscience Australia

BASEM
Alias: BASEM
Data type: String
Width: 8
Definition: Number of basements levels
Definition Source: Geoscience Australia

STOREYS
Alias: STOREYS
Data type: String
Width: 8
Definition: Number of storeys (times by 3.5 to get building height)
Definition Source: Geoscience Australia

HEIGHT1
Alias: HEIGHT1
Data type: String
Width: 8
Definition: Floor height
Definition Source: Geoscience Australia

HEIGHT2
Alias: HEIGHT2
Data type: String
Width: 8
Definition: Eaves height
Definition Source: Geoscience Australia

FLOOR_WID
Alias: FLOOR_WID
Data type: String
Width: 8
Definition: Width of building
Definition Source: Geoscience Australia

FLOOR_DEP
Alias: FLOOR_DEP
Data type: String
Width: 8
Definition: Depth of building
Definition Source:
Geoscience Australia

NEAREST
Alias: NEAREST
Data type: String
Width: 8
Definition: Nearest building
Definition Source: Geoscience Australia

PLAN_REGUL
Alias: PLAN_REGUL
Data type: String
Width: 15
Definition: Plan regularity
Definition Source: Geoscience Australia

VERT_REGUL
Alias: VERT_REGUL
Data type: String
Width: 15
Definition: Vertical regularity (soft storey e.g. car park under)
Definition Source: Geoscience Australia

FOUNDATION
Alias: FOUNDATION
Data type: String
Width: 20
Definition: Foundation type
Definition Source: Geoscience Australia

WALLS
Alias: WALLS
Data type: String
Width: 35
Definition: Wall type
Definition Source: Geoscience Australia

ROOF_MAT
Alias: ROOF_MAT
Data type: String
Width: 10
Definition: Roof material
Definition Source: Geoscience Australia

WINDOWS
Alias: WINDOWS
Data type: String
Width: 8
Definition: Window size
Definition Source: Geoscience Australia

WIN_PROT
Alias: WIN_PROT
Data type: Number
Width: 4
Definition: Window protectors fitted
Definition Source: Geoscience Australia

VERAN
Alias: VERAN
Data type: String
Width: 10
Definition: Veranda attached
Definition Source: Geoscience Australia

BRI_CHIM
Alias: BRI_CHIM
Data type: String
Width: 4
Definition: Brick chimney height
Definition Source: Geoscience Australia

BRI_PARA
Alias: BRI_PARA
Data type: String
Width: 4
Definition: Brick parapet height
Definition Source: Geoscience Australia

BRI_FENC
Alias: BRI_FENC
Data type: String
Width: 4
Definition: Brick fence
Definition Source: Geoscience Australia

GABLE
Alias: GABLE
Data type: Number
Width: 4
Definition: Gable end
Definition Source: Geoscience Australia

SOFFIT
Alias: SOFFIT
Data type: Number
Width: 4
Definition: Soffit (Eaves exists)
Definition Source: Geoscience Australia

WAT_TANK
Alias: WAT_TANK
Data type: Number
Width: 4
Definition: Water tank
Definition Source: Geoscience Australia

VENT
Alias: VENT
Data type: Number
Width: 4
Definition: Roof ventilation
Definition Source: Geoscience Australia

PARK_STR
Alias: PARK_STR
Data type: String
Width: 20
Definition: Park structure
Definition Source: Geoscience Australia

PARK_SPA
Alias: PARK_SPA
Data type: String
Width: 20
Definition: Number of parking spaces
Definition Source: Geoscience Australia

PARK_MAT
Alias: PARK_MAT
Data type: String
Width: 20
Definition: Parking material
Definition Source: Geoscience Australia

STR1_NUM
Alias: STR1_NUM
Data type: String
Width: 8
Definition: Other structures
Definition Source: Geoscience Australia

STR1_SIZ
Alias: STR1_SIZ
Data type: String
Width: 8
Definition: Other structures size
Definition Source: Geoscience Australia

STR1_MAT
Alias: STR1_MAT
Data type: String
Width: 20
Definition: Other structures material
Definition Source: Geoscience Australia

STR2_NUM
Alias: STR2_NUM
Data type: String
Width: 8
Definition: Other structures2
Definition Source: Geoscience Australia

STR2_SIZ
Alias: STR2_SIZ
Data type: String
Width: 8
Definition: Other structures2 size
Definition Source: Geoscience Australia

STR2_MAT
Alias: STR2_MAT
Data type: String
Width: 20
Definition: Other structures2 material
Definition Source: Geoscience Australia

CONFID
Alias: CONFID
Data type: String
Width: 10
Definition: Confidence in collection
Definition Source: Geoscience Australia

BUILD_TYPE
Alias: BUILD_TYPE
Data type: String
Width: 40
Definition: Building structure
Definition Source: Geoscience Australia

FEAT_IND
Alias: FEAT_IND
Data type: String
Width: 20
Definition: Industry type
Definition Source: Geoscience Australia

FEAT_CAT
Alias: FEAT_CAT
Data type: String
Width: 20
Definition: Category type
Definition Source: Geoscience Australia

FEAT_TYPE
Alias: FEAT_TYPE
Data type: String
Width: 20
Definition: Usage type
Definition Source: Geoscience Australia

UFI
Alias: UFI
Data type: Number
Width: 8
Definition: UFI
Definition Source: Geoscience Australia

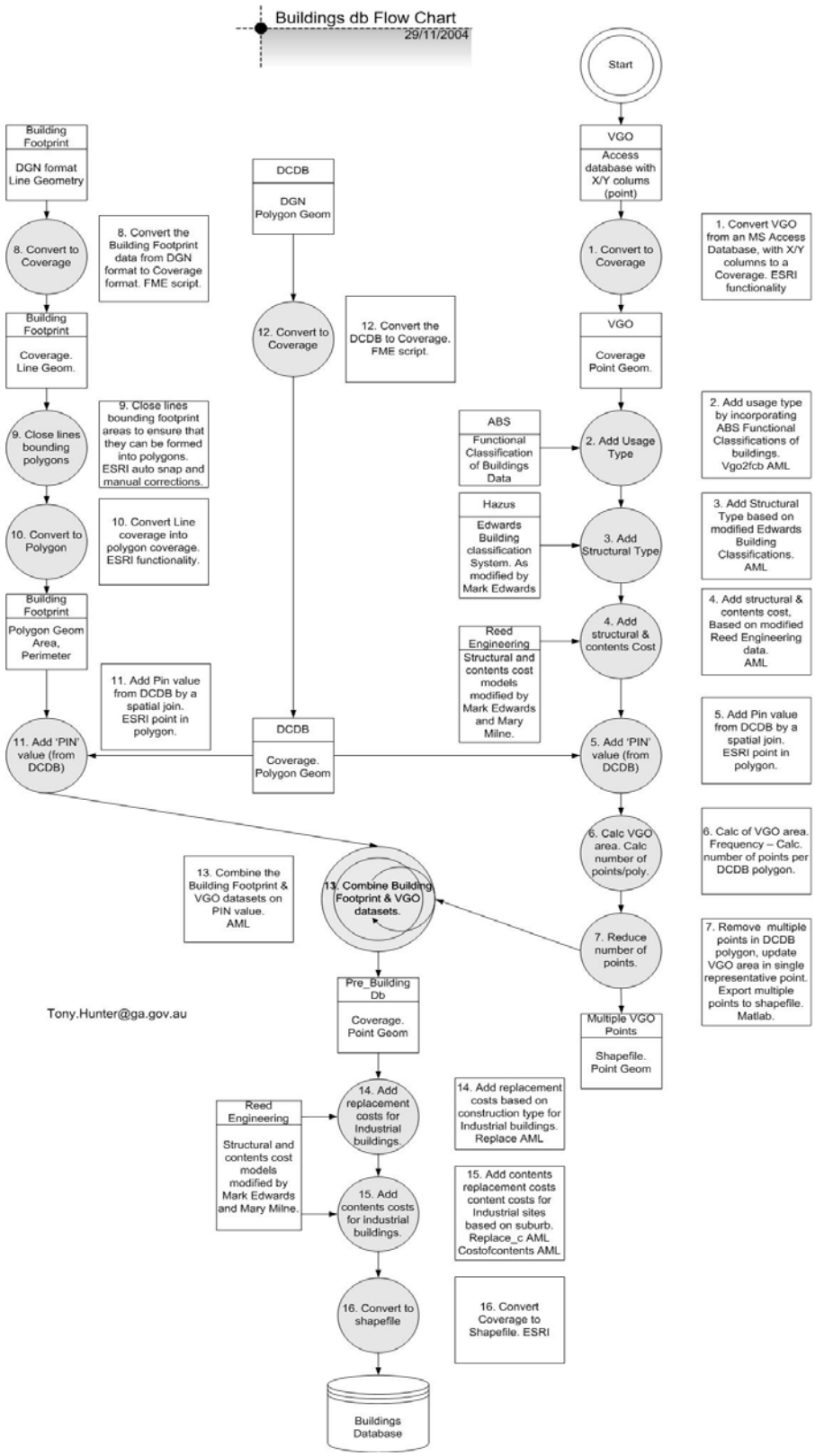
PHOTO_L
Alias: PHOTO_L
Data type: String
Width: 12
Definition: Photo link attribute
Definition Source: Geoscience Australia

Standards used to create this document and preceding metadata

Standard name: FGDC Content Standards for Digital Geospatial Metadata
Standard version: FGDC-STD-001-1998
Time convention used in this document: local time

Metadata profiles defining additional information
ESRI Metadata Profile:
http://www.esri.com/metadata/esriprof80.html

Perth Spatial Database Metadata on PROCESSES



ESRI: Arc Marco Language (AMLs) created

Location: dvd/processes
AML
CONTENTS.AML
COSTOFCONTENTS.AML
REPLACE_C.AML
SUB_POST.AML
STRUC_MAP.AML
BUILD_MARK.AML
BUILD_PTH.AML
BUILD_PTH1.AML
BUILD1.AML
BUILD2.AML
BUILD3.AML
BUILD4.AML

VGO2FCB.AML

Creator: JUSTIN WHITE
Date: 04/02/04
This AML is the one used to map the VGO 2002 input file to the FCB classification system.

Files required: VGO (coverage)

CONTENTS.AML

Creator: JUSTIN WHITE
Date: 04/11/03
Modified: 09/08/04
This AML sets the contents value per square metre, based on Reed construction data and Mary Milne (GA) modifications and interpretations.

Files required: VGO (coverage)

COSTOFCONTENTS.AML

Creator: JUSTIN WHITE
Date: 04/11/03
Modified: 25/05/04
This AML is the one used to classify suburbs regarding their contents quality. Information was derived by Reed Construction and modified by Mary Milne using Census 2001 data.

Files required: VGO (coverage)

REPLACE_C.AML

Creator: JUSTIN WHITE
Date: 04/11/03
Modified: 09/08/04
This AML sets the replacement cost per square metre. Based on Reed construction data and Mark Edwards' modifications.

Files required: VGO (coverage)

SUB_POST.AML

Creator: JUSTIN WHITE
Date: 04/11/03
Modified: 09/08/04
This AML sets the postcode for each suburb.

Files required: VGO (coverage)

STRUC_MAP.AML

Creator: JUSTIN WHITE
Date: 04/11/03
Modified: 25/05/04
This AML maps the Edwards structural classification (based on HAZUS) to the building use, wall and roof. Information from Mark Edwards with reference to HAZUS.

Files required: VGO (coverage)

BUILD_MARK.AML

BUILD_PTH1.AML

BUILD_PTH.AML

Creator: KANE ORR and JUSTIN WHITE
Date: 05/05/03
Modified: 25/11/03
These AML's join Perth VGO residential data to building footprints through a series of steps that involve intersecting the Perth cadastre (1 only may need to be run).

Files required:
1. DCDB coverage
2. postcode_clips_shp (folder contains shapefiles)
3. VGO
4. info

Final output file not to be deleted, all redundant coverages will be deleted automatically, selected VGO attributes will be deleted in the final coverage

Each time the AML is run it will put the VGO data into the building footprints coverage.. Each time a new file is to run through this AML you need to change (name_of_shape) and (suburb_clip_zone) with the building footprint shapefile and suburb clip shapefile respectively.

BUILD1.AML

BUILD2.AML

BUILD3.AML

BUILD4.AML

Creator: JUSTIN WHITE
Date: 05/05/03
Modified: 17/11/03
These AMLs join Perth building footprints through a series of steps that takes lines and combines them into a polygon coverage.

Files required:
1. DCDB
2. postcode_clips_shp (folder contains shapefiles)
3. info

Final output file not to be deleted, all redundant coverages will be deleted automatically, selected VGO attributes will be deleted in the final coverage

Each time the AML is run it will put the VGO data into the building footprints coverage. Each time a new file is to run through this AML you need to change (name_of_shape) and (suburb_clip_zone) with the building footprint shapefile and suburb clip shapefile respectively.

Perth Spatial Database Metadata on VALIDATION CHECKS

Geoscience Australia

Attribute Checks

- Range checks on all individual attribute columns.
- Comparison of FCB and Classification pairs.
- Comparison of Haz-struc, Walls and Roof triplets.

Feature Count Checks

- Detection of mismatch between numbers of buildings per parcel from VGO database and Building Footprint database.

Building Area Checks

- Comparison of building areas from VGO database and Building Footprint database.
- Comparison of aggregated areas of building(s) per parcel from VGO database and Building Footprint database taking into consideration multiple buildings on a single parcel.

Perth Microtremor Survey DATA LINEAGE

Perth Microtremor Survey

- Field data-collection was carried out from 23rd October 2001 to 23rd November 2001
- Team of 5 persons (one being a GIS specialist) form Geoscience Australia - Geohazards – Cities Project Perth
- Each with a standard set field equipment:
  - Pentium Laptop > 166MhZ
  - Windows 98
  - PCMCIA type 1 slot
  - LabView Microtremor application software
  - 48 Meg PCMCIA data card
  - PAR4CH 24 bit 4 Channel Analog to Digital Converter
  - Calibration pulse box
  - 12v to 240 volt inverter
  - 12v SLA battery and charger
  - Garmin 12 GPS
  - Various cables
  - Mark Products L4C3D seismometer
  - Safety cones and triangle, safety vest and mobile phone.
  - Street directory and colour copy of individual pages (with borehole and geology data overlaid).
- High end Dell Laptop with ESRI GIS software was used as BASE PC & used for download of data from field units each evening, as well as data processing & backup
- In excess of 3000 sites recorded
- On a 500m rectangular grid across the Perth Metropolitan area (minor relocation for OH&S or proximity to borehole sites permitted)

- Total area covered approx. 800 km^2

GPS calibration site

All GPS units were calibrated on a State Survey Mark at the beginning and end of the survey. A single reading taken by each GPS (at the same time), using WGS 84 Datum which was the closest available to GDA 94.

  - SSM APPLECROSS 26
  - Datum GDA 94
  - Easting 393272.874
  - Northing 6458358.989
  - AHD 11.112M

- However the UBD (edition 44) directories used AGD 66 Datum , so the GPS units were reset to **AGD 66** for this data collection exercise.

Field Recording Guidelines

1) Wait for the GPS to give a position and check the Eastings and Northings are close to the desired position on the UBD, and or near bore site
2) Run *setup.exe* on the laptop and check the settings are correct
3) Run *microtremor.exe*. Wait for 10 positions on the GPS to be averaged
4) Add comments in site information box in the order site material/ landuse/ weather/ other
5) Check all channels from the seismometer are working and the accumulating spectra look realistic
6) Check that the calibration looks OK. An unlevelled seismometer would be apparent here
7) Acquire the data and check the sample spectra look realistic and note the site number
8) After about 400 secs save and exit.
9) Check the file size is around 1.3 MB
10) Pack up and move to the next site.

All recording sets, recorded the same site for comparison and accuracy (at the same time) at the beginning, middle and end of the survey. This site was on the southern side of the Swan River opposite the city.

Microtremor Recording Procedure in the field

Each operator given mapped area of the PMA. The sites pre-selected on a rectangular grid of 500 metres. However, minor adjustments to the actual recording site was made by the operator using the following guidelines:

1) The site chosen should be as close as possible, within reason, to the grid reference
2) If a registered borehole is marked near to the site, then it is advantageous to bias the observation site so that it is nearest as possible to it.
3) Stable compacted ground is preferred. Road base or bitumen is normally used, otherwise dig a hole down to solid ground. Concrete (especially drains) may have a cavity underneath and hence should be avoided. Also large or tall objects like trees and power transformers, excessive wind or rain, pedestrians will introduce noise.
4) Safety of personnel and equipment is most important, so do not put yourself at risk. Use safety cones and/or triangles at a safe distance around the equipment.
5) Run out the seismometer keeping it clear of the car.
6) The seismometer should be oriented to the north and levelled.

The microtremor interpretation at base (field office)

- Nightly download of the day's data from each field laptop, onto the Base GIS Laptop,
- Scaling the fundamental period for each of the days recordings using this Base Computer for interpreting the plots generated by *MatLab software.*
- Two parameters scaled from each of the spectral plots
  - Natural period of vibration of the ground and quality factor (A,B,C).
  - The quality factor was an expression of how sharp and pronounced the resonance was observed
  - All data files were lodged into the Microtremor sub-directory on the PC

Saving the interpreted data created a text file. The natural period and quality, along with site ID and location, are stored in a ".txt" file and were ultimately transferred into another software environment known as *ArcView* by the designated GIS officer in the field party.

GIS component

- All .txt files were then converted to Event themes in ESRI ArcView & combined into one daily file and backed up by date of collection.
- Event theme converted to shape file as Lat / long file in AGD66

- Shape file reprojected to WGS84 (closest available to GDA94) using the ESRI Projection Utility Wizard extension.
- Daily shape file added to previous day's combination shape file, to produce a daily hard copy & digital map of survey progress & suspect site recordings requiring a revisit.
- Once the point data was spatially located in ArcView GIS, the natural period values were used for giving a visual impression of natural period using contouring over the study area. The contouring process was of little value, until adequate areas had been covered by the field party.

Once back at head office all field data was re-scrutinised & values refined.

Ultimately only sites that were considered to the highest confidence of quality factor (A & B) were to be used for site class mapping.

Name and location of microtremor coverage, as at 11/11/04

Data Type: Point Feature Class
Coverage: V:\5\cit\perth\hazards\earthquake\microtremor\mt_18-01_a-b.shp
Feature Class: point
Coordinate System: Transverse_Mercator
False_Easting: 500000.000000
False_Northing: 10000000.000000
Central_Meridian: 117.000000
Scale_Factor: 0.999600
Latitude_Of_Origin: 0.000000
GCS_GDA_1994
Datum: D_GDA_1994
Prime Meridian: 0

Items/Attributes imported from field units

Field	Value
FID	153
Shape	Point
AREA	0
PERIMETER	0
MT_22-12_A-B#	153
MT_22-12_A-B-ID	204
ID	1204
LONG	115.8348
LAT	-32.0671
NATURAL_FR	1.9878
NATURAL_PE	0.50307
QUALITY	B
UTC_DATE	4/11/2001
UTC_TIME	31/12/1899
PROJECT_NA	Perth 200
GROUP_ID	1
OPERATOR	Brian
GEOPHONE_I	608
SITE_INFO	bit uni carpark some breeze rel traffic free near grid out of order
SAMPLE_RAT	100
$POLYGONID	153
$SCALE	1
$ANGLE	1

Perth Seismic Cone Penetrometer SURVEY DATA

Contractor

Probedrill Pty Ltd, 17 Wichmann Road, Attadale, W.A., 6156

Survey information

Survey No.	Survey Dates	No. of Sites	Data File ID Numbers
1	Jan-May 2002	16	GSA001-GSA016
2	31 Mar 2003 - 30 Apr 2003	24	GSA017-GSA039 (site 14 - no data file)
3	May 2003	18	GSA040-GSA057

Equipment:
24 tonne truck-mounted electric friction-cone penetrometer with seismic testing.

Cone Information:
Serial Numbers - 667TC and 823TC
Seismic geophone 250 mm from cone tip.
Marker, Delay and Velocity selected by Hogentogler & Co., Inc. Seismic Program C.P.T. Seismic Version 1.07A and Probedrill Pty Ltd.

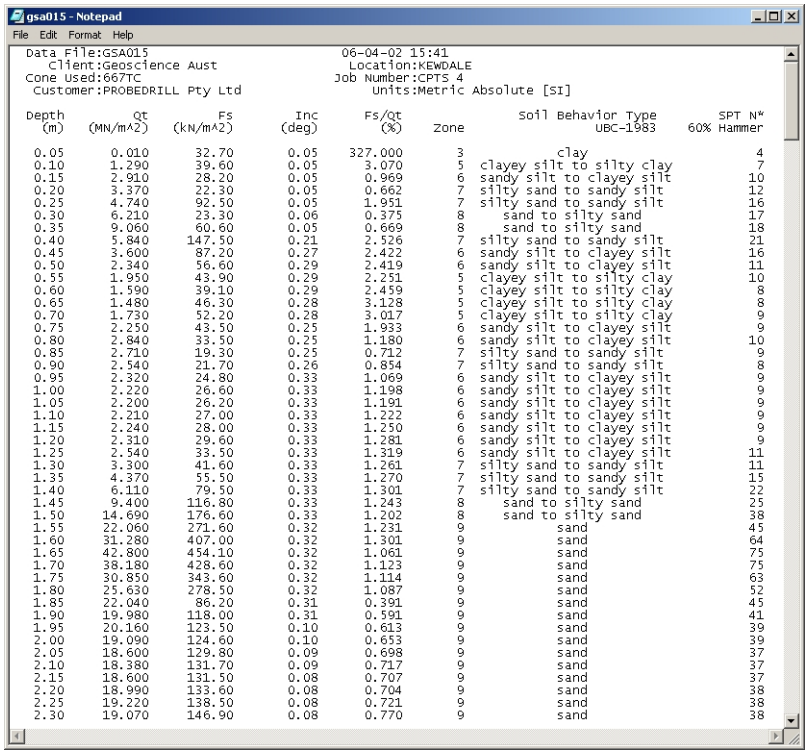
Testing interval - 1.5m

Measurement Units:
Metric, Absolute (SI)

Testing standard:
AS 1289.6.5.1 – 1999

Data Formats and Storage

Data were provided to GA in hardcopy (paper) and digital form, the latter as ASCII files (.CPD extension). These files were converted to text files (see figure below) using Coneplot software supplied by Probedrill Pty Ltd (Coneplot, version 2.30 Beta, April 2002 - Hogentogler & Co., Inc.).



gsa015 - Notepad

File Edit Format Help

Data File:GSA015 06-04-02 15:41
Client:Geoscience Aust Location:KEWDALE
Cone Used:667TC Job Number:CPTS 4
Customer:PROBEDRILL Pty Ltd Units:Metric Absolute [SI]

Depth (m)	Qt (MN/m^2)	Fs (kN/m^2)	Inc (deg)	Fs/Qt (%)	Zone	Soil Behavior Type UBC-1983	SPT N^ 60% Hammer
0.05	0.010	32.70	0.05	327.000	3	clay	4
0.10	1.290	39.60	0.05	3.070	5	clayey silt to silty clay	7
0.15	2.910	28.20	0.05	0.969	6	sandy silt to clayey silt	10
0.20	3.370	22.30	0.05	0.662	7	silty sand to sandy silt	12
0.25	4.740	92.50	0.05	1.951	7	silty sand to sandy silt	16
0.30	6.210	23.30	0.06	0.375	8	sand to silty sand	17
0.35	9.060	60.60	0.05	0.669	8	sand to silty sand	18
0.40	5.840	147.50	0.21	2.526	7	silty sand to sandy silt	21
0.45	3.600	87.20	0.27	2.422	6	sandy silt to clayey silt	16
0.50	2.340	56.60	0.29	2.419	6	sandy silt to clayey silt	11
0.55	1.950	43.90	0.29	2.251	5	clayey silt to silty clay	10
0.60	1.590	39.10	0.29	2.459	5	clayey silt to silty clay	8
0.65	1.480	46.30	0.28	3.128	5	clayey silt to silty clay	8
0.70	1.730	52.20	0.28	3.017	5	clayey silt to silty clay	9
0.75	2.250	43.50	0.25	1.933	6	sandy silt to clayey silt	9
0.80	2.840	33.50	0.25	1.180	6	sandy silt to clayey silt	10
0.85	2.710	19.30	0.25	0.712	7	silty sand to sandy silt	9
0.90	2.540	21.70	0.26	0.854	7	silty sand to sandy silt	8
0.95	2.320	24.80	0.33	1.069	6	sandy silt to clayey silt	9
1.00	2.220	26.60	0.33	1.198	6	sandy silt to clayey silt	9
1.05	2.200	26.20	0.33	1.191	6	sandy silt to clayey silt	9
1.10	2.210	27.00	0.33	1.222	6	sandy silt to clayey silt	9
1.15	2.240	28.00	0.33	1.250	6	sandy silt to clayey silt	9
1.20	2.310	29.60	0.33	1.281	6	sandy silt to clayey silt	9
1.25	2.540	33.50	0.33	1.319	6	sandy silt to clayey silt	11
1.30	3.300	41.60	0.33	1.261	7	silty sand to sandy silt	11
1.35	4.370	55.50	0.33	1.270	7	silty sand to sandy silt	15
1.40	6.110	79.50	0.33	1.301	7	silty sand to sandy silt	22
1.45	9.400	116.80	0.33	1.243	8	sand to silty sand	25
1.50	14.690	176.60	0.33	1.202	8	sand to silty sand	38
1.55	22.060	271.60	0.32	1.231	9	sand	45
1.60	31.280	407.00	0.32	1.301	9	sand	64
1.65	42.800	454.10	0.32	1.061	9	sand	75
1.70	38.180	428.60	0.32	1.123	9	sand	75
1.75	30.850	343.60	0.32	1.114	9	sand	63
1.80	25.630	278.50	0.32	1.087	9	sand	52
1.85	22.040	86.20	0.31	0.391	9	sand	45
1.90	19.980	118.00	0.31	0.591	9	sand	41
1.95	20.160	123.50	0.10	0.613	9	sand	39
2.00	19.090	124.60	0.10	0.653	9	sand	39
2.05	18.600	129.80	0.09	0.698	9	sand	37
2.10	18.380	131.70	0.09	0.717	9	sand	37
2.15	18.600	131.50	0.08	0.707	9	sand	37
2.20	18.990	133.60	0.08	0.704	9	sand	38
2.25	19.220	138.50	0.08	0.721	9	sand	38
2.30	19.070	146.90	0.08	0.770	9	sand	38

Due to issues with importing non-delimited header rows, text file data were manually transferred into Microsoft Excel spreadsheets, which were in turn imported into a Microsoft Access database:

Perlite\cit\5\cit\perth\hazards\earthquake\SCPT_Vs\Perth_Study_SCPT_database_full.mdb

Seismic data were provided separately, and were combined into a single Microsoft Excel file (Perlite\cit\5\cit\perth\hazards\earthquake\SCPT_Vs\AllperthVsData.xls) prior to transfer into the Access database

Spatial Information

Sites were located predominantly in parks and reserves, and were spatially referenced visually using orthophoto imagery and a Perth Street Directory based on an AGD66 datum. As such, site location co-ordinates derived using these methods can be expected to incorporate significant error.

GIS Component:

Text files from Microsoft Excel spreadsheets were combined and exported as .dbf (IV) files.

Fields pertaining to site and survey identification, and spatial location were included. These data were imported into ESRI ArcMap and converted into an Event theme. The theme was converted to a shapefile as map grid coordinates in AGD66, and reprojected to GDA94 using ESRI Projection Utility Wizard Extension.

Properties of Seismic Cone Penetrometer Test survey coverage, as at 16/11/2004

Location:
Perlite\5\cit\perth\hazards\earthquake\GIS\SCPT\allSCPTsites_XY.shp
Data Type: Point feature Class
Feature Class: Point
Coordinate System:
Transverse_Mercator
False_Easting: 500000.000000
False_Northing: 10000000.000000
Central_Meridian: 117.000000
Scale_Factor: 0.999600
Latitude_Of_Origin: 0.000000
GCS_GDA_1994
Datum: D_GDA_1994
Prime Meridian: 0

Perth Cities Project SOFTWARE and HARDWARE

Geographic Information Systems

Spanning the life of the Perth Cities project many programs were created to run inside purchased software. These programs are too numerous to list, but the major software and hardware used in the project are listed below.

Software

ESRI ArcInfo 8.3 (unix and PC)
ESRI ArcInfo 9.0 (PC)
ESRI ArcPAD 6.0.1 (PDA)
MapInfo 7.5
MapLab 7.0.1
ERDAS Imagine
ER Mapper
Exceed 6.2
Windows NT/2000/CE
Microsoft Office – Access/Excel/Word

Hardware

PC – DELL Precision 350/360
UNIX Storage Disk – 120 Gigabytes
iPAQ 5550 PDA units (field survey)
Bluetooth Global Positioning System (GPS – field survey)
3.2 Mega-pixel Kodak Digital Cameras (field survey)
Colour Design Jet Printers
Maxtor External Hard Drive 160 Gigabytes