

Assessing A20 permit applications for onsite wastewater management systems

Training for Council Officers

Where to Obtain the Information to Check LCAs

Centre for Environmental Training 


Council GIS Data

- Each council has their own GIS database containing cadastre and property data
- Some councils will have layers for contours, flood, bushfire, planning, vegetation, assets
- Some councils link OWMS and development applications and approvals to property data
- You may be able to add / import data layers to the existing council managed GIS. Confirm parameters with your GIS support staff

Centre for Environmental Training 

Maps and Spatial Data

- Department of Transport and Planning manage VicMap™
www.land.vic.gov.au/maps-and-spatial
- VicMap is government data source
- Data is viewable on Digital Twin Victoria
- Available to government, private industry and public
- Provides maps (topographic), spatial data and imagery (aerial, elevation)
- May have licencing costs for some services

Centre for Environmental Training 


Imagery

- Satellite imagery earth.google.com
- Free to download and activate
- Image quality and date varies
- Location (latitude/longitude), elevation and has capacity for measurement and historical imagery
- Images can be rotated for different views (including Street View)

Centre for Environmental Training 

Case Study - example



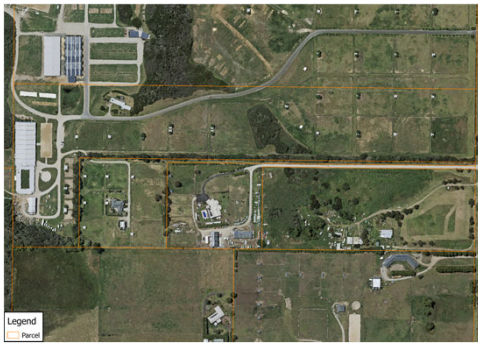
Centre for Environmental Training 

Aerial Imagery

- NearMap – Aerial imagery www.nearmap.com
- Subscription service
- High resolution aerial photos with georeferencing
- Current and historical aerial imagery
- Location (latitude/longitude), elevation and has capacity for measurement and historical imagery time-series

Centre for Environmental Training 

Case Study - example



Centre for Environmental Training cet

Topographic Maps

Show:

- Landscape
- Contours
- Anthropogenic (human) features
- Cadastral boundaries
- Grid references
- 1:25,000 maps have 10 metre contours

Centre for Environmental Training cet

Topographic Maps

Can determine or identify:

- Shape of land
- Drainage direction
- Water bodies and drainage lines
- Slope
- Relief (difference in elevation)
- Aspect (facing direction)

Centre for Environmental Training cet

Case Study – Contours (10m)



Image: MapshareVic

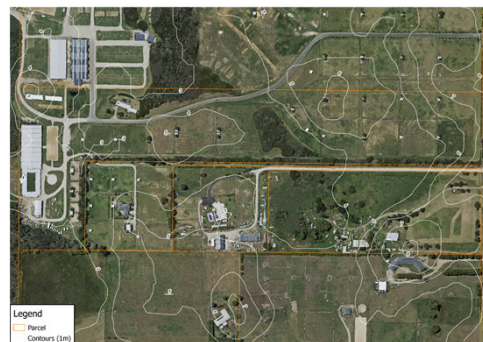
Centre for Environmental Training cet

Interactive Maps - Australia

- Geoscience Australia www.ga.gov.au
 - GA Portal – Geological, boreholes, minerals, ASRIS (soils), digital elevation
- Elvis – Elevation and Depth – Foundation Spatial Data elevation.fsdf.org.au
 - Digital Elevation Model, Point Cloud and Bathymetry – used to generate contours

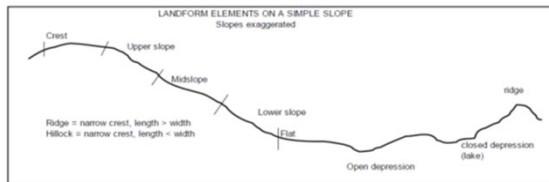
Centre for Environmental Training cet

Case Study – DEM (1m)



Centre for Environmental Training cet

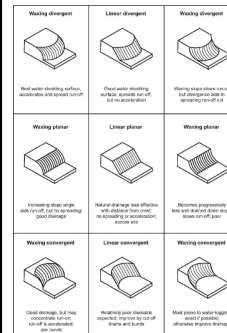
Site Landform



Landform elements on a simple slope

Centre for Environmental Training cet

Slope Configuration



- Slope (gradient and shape)
- Important to understand how surface water will flow in or near LAA
- Waxing / waning / linear
- Converging or diverging

Figure from AS/NZS1547:2012

Centre for Environmental Training cet

Interactive Maps - Victoria

- Resources Victoria – GeoVic
resources.vic.gov.au/geology-exploration/maps-reports-data
 - Registered or anonymous user option
 - Geological, mineral, land-use, borehole and well data
- MapshareVic
www.mapshare.vic.gov.au/mapsharevic
 - Property data, SWSC, wetlands, contours

Centre for Environmental Training cet

Interactive Maps - Victoria

- Department of Transport and Planning – VicPlan
- www.mapshare.vic.gov.au/vicplan
 - Special Water Supply Catchment Areas
 - Planning (projects, zones)
 - Other (heritage, bushfire, contours)
 - Property (parcels, crown land, roads)

Centre for Environmental Training cet

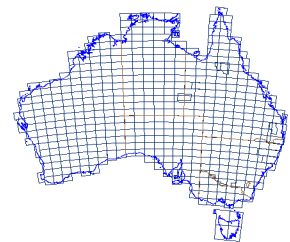
Geological Maps

- Geoscience Australia www.ga.gov.au
 - Scanned 1:250,000 geological maps
- Resources Victoria
resources.vic.gov.au/geology-exploration/maps-reports-data
 - Geoscience catalogue and publications

Centre for Environmental Training cet

Geological Maps

- Select location
- Choose resolution
- Relate landforms
- Solid geology
- Superficial deposits
 - Alluvium
 - Beach deposits
 - Colluvium



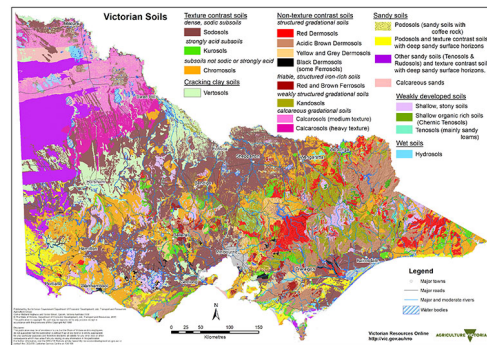
Centre for Environmental Training cet

Soil Information Sources

- Atlas of Australian Resources, Volume 1 Soils and Land Use (Division of National Mapping, Canberra, 1980)
- Victorian Resources Online (VRO) soils maps and data from Agriculture Victoria vro.agriculture.vic.gov.au
 - Generally 1:100,000 – 1:250,000 scale
 - Detailed 1:25,000 (irrigation regions)

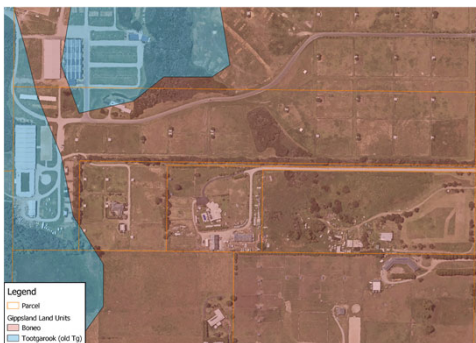
Centre for Environmental Training cet

Soil Maps



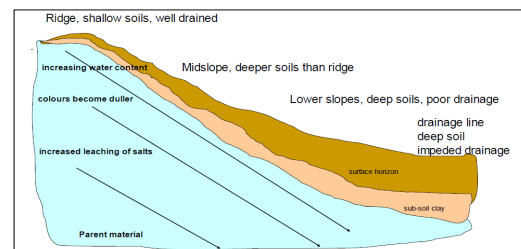
Centre for Environmental Training cet

Case Study - Soils



Centre for Environmental Training cet

Soil Properties and Topography



Position in landscape significant in soil profile characteristics

Centre for Environmental Training cet

Soil Data Online

- Australian Soil Resource Information System (ASRIS)
See GeoScience Australia in Interactive Maps
- TERN ecosystem data collection (90m resolution) Australian Soil Classification www.tern.org.au/news-australian-soil-classification-map

Centre for Environmental Training cet

Climate Data

- Bureau of Meteorology www.bom.gov.au
- Rainfall
- Evaporation
- Consider data range (years) and location suitability
- Compile local climate data into zones across the council area based on topography
- SILO data drill is available if no suitable or local station

Centre for Environmental Training cet

SILO Data Drill

- QLD DNR www.longpaddock.qld.gov.au/silo

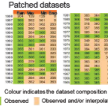
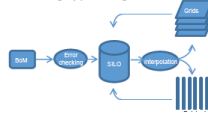
SILO Climate data online resource

SILO (Scientific Information for Land Owners) is a Queensland Government database containing point and gridded daily climate data for Australia from 1889 until present. SILO was designed to serve the needs of agricultural and hydrological modelling and bridges the gap between meteorological services and modellers.

SILO provides daily point and spatially interpolated data with continuous (no missing days) datasets covering the period of 1889 until present. Consistent long-term climate data-series supports various modelling efforts within the Australian environmental sciences community.

SILO climate data service:

- Historical daily climate data for Australia, 1889-present
- Observed data with data in-filling
- SILO data are complete and ready to use
 - Gridded datasets (spatial data for a given day)
 - Point data (time-series data for a given location)
- SILO does nightly processing:



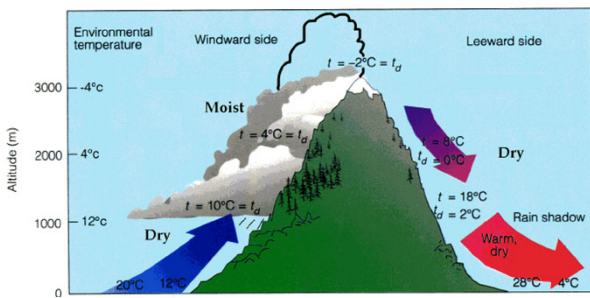
Centre for Environmental Training cet

Applicability of Climate Data

- May need to review or interpolate data if Site is a long way from station
- Don't assume the 'nearest' station is most representative
- Councils may download (at cost) all available data for BoM stations in their area to assist in publishing / checking LCA reports
- Advisable to include a reference climate data set for use in water balance analysis in onsite wastewater planning documents (OWMP's etc.)

Centre for Environmental Training cet

Orographic Rainfall Effects



Centre for Environmental Training cet

Groundwater

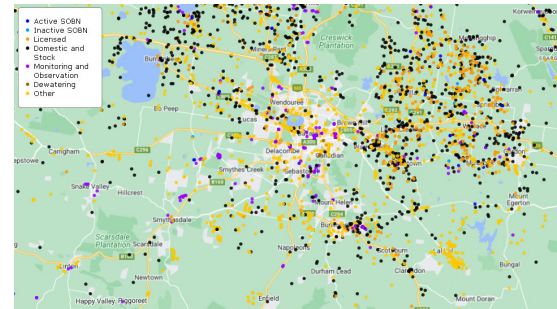


Image: DELWP (GW bores Ballarat)

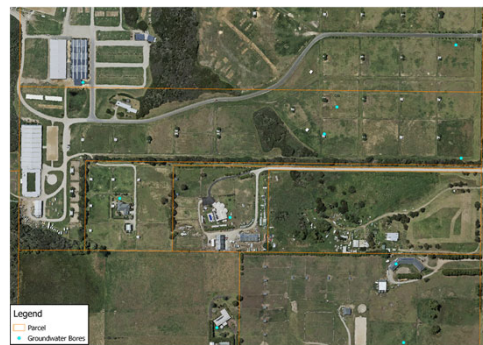
Centre for Environmental Training cet

Groundwater

- Visualising Victoria's Groundwater www.vvq.org.au
 - Groundwater bores, mineral bores, depth of watertable, drill a virtual bore
 - Other (EPA audit reports and registered sites, wetlands, ecosystems, elevation, geology, SWSCA, CMA)
- DELWP Water Measurement Information System (WMIS) www.data.water.vic.gov.au
 - Surface water, groundwater, state bores

Centre for Environmental Training cet


Case Study – GW bores



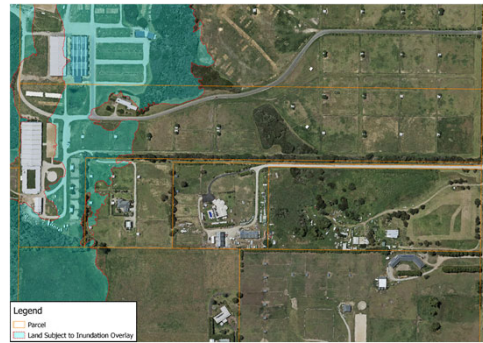
Centre for Environmental Training cet


Flooding

- Melbourne Water
- Local Flood Planning Overlays (SBO, LSIO, FO and UFZ)
- Local Catchment Management Authority
- Australian Flood Risk Information Portal – Geoscience Australia
afrif.ga.gov.au/flood-study-web/#/search
– Pins and data on flood studies and sources

Centre for Environmental Training 

Case Study - LSIO



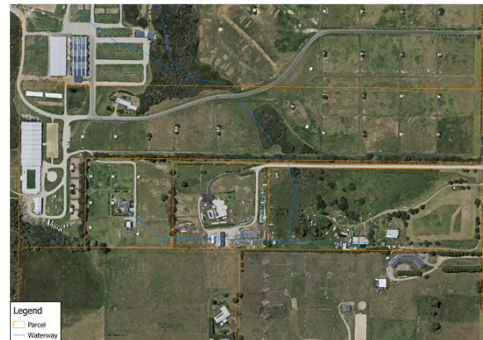
Centre for Environmental Training 


Other Resources

- Hydrological maps (waterways)
- Vegetation maps
- Bushfire maps
- Special Water Supply Catchment maps
- Maps of services (water, sewer)
- Local studies
- Council planning documents

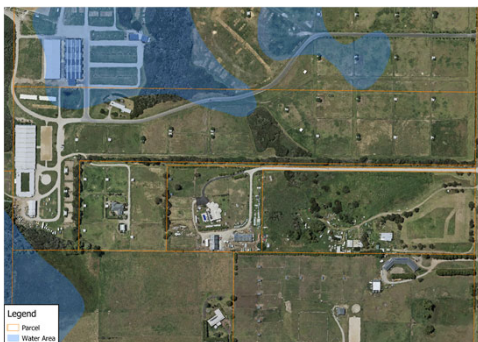
Centre for Environmental Training 


Case Study - Waterways



Centre for Environmental Training 

Case Study - Marshland



Centre for Environmental Training 


Utility / Service Searches

- Before You Dig Australia
www.byda.com.au
- Asset location referral service
- Interactive map to order asset plans
- Protection of people and assets
- Certified locator database (Telstra)

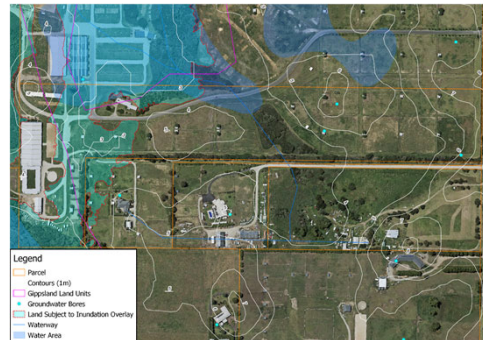
Centre for Environmental Training 


Compiling LGA Data

- Compile the available data into individual layers in a single GIS project, to allow you to look at all data in one location
- Periodic update of some data sources will be necessary, e.g. groundwater bores and climate data
- This will often be undertaken at LGA level in the Onsite Wastewater Management Plan (OWMP)

Centre for Environmental Training 

Case Study - Constraints



Centre for Environmental Training 

Comparing Local LCA Reports

- Actively compare data provided in LCAs from different assessors - will often vary in quality, resolution and accuracy
- Note what information is necessary to assist your assessment
- Identify common omissions and errors
- How could you improve LCA submissions
 - Revise application requirements
 - Targeted feedback to assessors

Centre for Environmental Training 