

Open Data, recent developments in Estonia and implementation in REIB

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Open Data

Open Data means data in machine-readable format, which has been made available to everyone for free and public use.

Centre of Registers and Information Systems (RIK)

Information system	Format	Updating frequency
Official Announcements	XML, RTF, TXT	Downloadable in URIs in real time
Estonian Classification of Economic Activities (EMTAK)	XML, ODF, CSV	Downloadable in real time
Commercial Register	XML, CSV	Once a week
Land Register	XML	Once a week
Ship Register	XML	Once a month
State Gazette	XML	Once a week
Databases of the Patent Office	MySQL	Once a month
The Court Decisions Database (KOLA)	xlsx	

Open Data in Geodesy and Cadaster

- Land Register
- Land Board

Dataset

```
<?xml version="1.0" encoding="UTF-8"?>
- <avaandmed>
  - <kinnistud>
    - <kinnistu registriosa_number="2721238">
      <registriosa_seisund>Avatud</registriosa_seisund>
      <kinnistu_liik_tekstina>Kinnisasi</kinnistu_liik_tekstina>
      <kinnistu_liik_klassifikaatorina>51</kinnistu_liik_klassifikaatorina>
    - <kataster katastritunnus="87201:001:0102">
      - <sihtotstarve>
        <sihtotstarve_nimetus_tekstina>Maatulundusmaa</sihtotstarve_nimetus_tekstina>
        <sihtotstarve_nimetus_klassifikaatorina>38302</sihtotstarve_nimetus_klassifikaatorina>
        <sihtotstarve_protsent>100.0000000000</sihtotstarve_protsent>
      </sihtotstarve>
      - <aadress>
        <aadress_tekstina>Põlva maakond, Põlva vald, Valgemetsa küla, Kitsemampli</aadress_tekstina>
        <aadressi_ADR_ID>3217040</aadressi_ADR_ID>
        <aadressi_aadresskood>64622892200000000D2F300000000</aadressi_aadresskood>
      </aadress>
      <pindala>15888,0</pindala>
      <pindala_ühik>m2</pindala_ühik>
    </kataster>
  </kinnistu>
</kinnistud>
</avaandmed>
```

e-Land Register

List of XML services of the e-Land Register (without boundaries)

- Search by Person's immovable properties – 1 € / Person
 - Was 1 € / property recently
- Detailed data about an immovable property – 1...3 € / property
- Number of properties, that belongs to a Person – 0 €

(You should have an agreement)

Land Board

- WMS service
- URL query
- Downloadable data

WMS Service

- Public Web Map Service is a service that is offered by the Estonian Land Board for displaying spatially referenced data on the computer screen and is based on OGC WMS (Open Geospatial Consortium Web Map Service) standard.
- WMS services uses national coordinate system L-EST97 (epsg: 3301), except „<http://kaart.maaamet.ee/wms/alus-geo?>“, which uses geographic coordinates (epsg: 4326).

WMS Service

Example - <http://kaart.maaamet.ee/wms/alus?> contains

- Cadastral data
- Administrative and Settlement Division
- Restrictions
- Estonian Basic Map (color and monochrome)
- Ortho-photos (including NGR photo layer used in forestry)
- Soil Map
- Corine land cover (relief)
- Map sheet indexes

URL Query

Each of these queries gives a result in formats:

- text
- xml
- json

- Pöördumine soovitud rakenduse poole
- Pöördumine soovitud HTML5 rakenduse poole
- Pöördumine otsingupaneeli funktsionaalsuse kaudu
- Pöördumine HTML5 rakenduse poole otsingupaneeli funktsionaalsuse kaudu
- Pöördumine koordinaatpaari ja määtkava-arvuga
- Pöördumine HTML5 rakendusse koordinaatpaari ja määtkava-arvuga
- Pöördumine kaardiakna nurga L-Est97 koordinaatidega
- Pöördumine HTML5 kaardirakenduse kaardiakna nurga L-Est97 koordinaatidega
- Pöördumine aadressotsingu poole (Flash näited)
- Pöördumine aadressotsingu poole (HTML5 näited)
- Universaalne katastriüksuse aadressotsing
- Katastriüksuse tunnuse päring koordinaatipaari ja raadiuse väärtusega
- Katastriüksuse tunnuse ja aadressi päring geograafiliste koordinaatide väärtustega
- Kiirpäring maakatastrist
- L-Est97 <-> WGS84 koordinaatide teisendamine
- X-GIS JSON aadressiotsing
- Aadressiobjekti leidmine koordinaatide alusel
- Aadressiobjekti andmed ADS_OID-i alusel
- Maapinna kõrguse päring XY koordinaatpaari alusel
- Posti sihtnumber aadressi ADR_ID alusel

Downloadable Data (since July 1st, 2018)

- Cadastral data - Boundaries and data of cadastral units prepared for download in Esri Shape (shp), MapInfo (tab), OGC GeoPackage (gpkg) and Bentley (dgn) format. Data is updated nightly.
- Estonian Topographic Database - seamless digital topographic database covering the whole territory of Estonia.

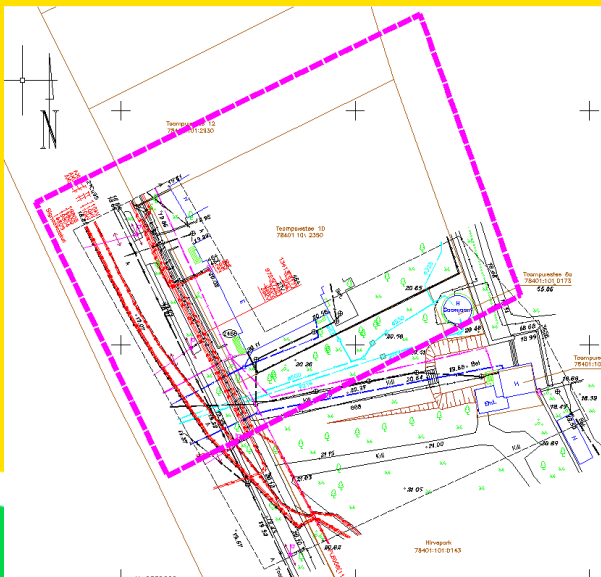
Estonian Topographic Database

- Estonian Topographic Database core vector data - Automatic data updates at every weekend
- Estonian Basic Map - Data is updated once a year, in January-February.
- Orthophotos - In addition to major cities, half of the Estonian territory is covered yearly with new orthophotos.
- Elevation data - About 1/4 of Estonian territory is laser-scanned (ALS) every year. New editions each December-January.

REIB Ltd and Open Data

- WMS service – CAD and Intranet
- Elevation data – CAD
- Cadastral data – CAD
- URL query – CAD, BK77 to EH2000 height transformations

WMS Service within Intranet



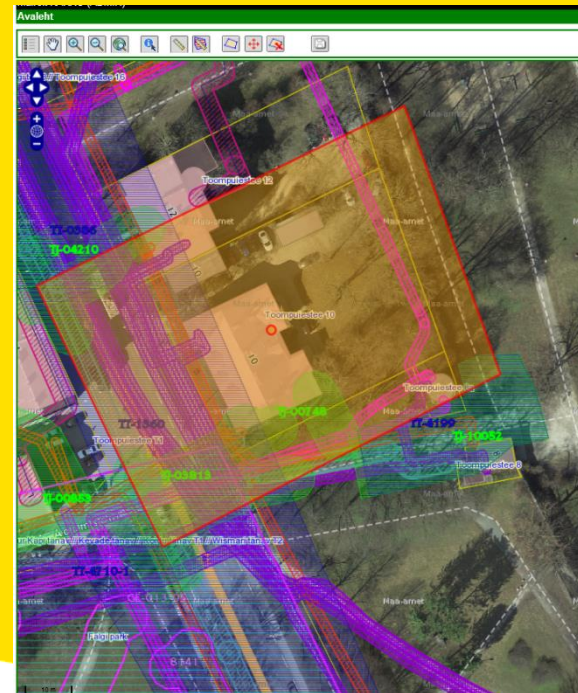
TENDER P0830/2019

Object: **Tallinn, Toompuiestee 10.**

Services offered: **Topo-geodeetilised uuringud.**

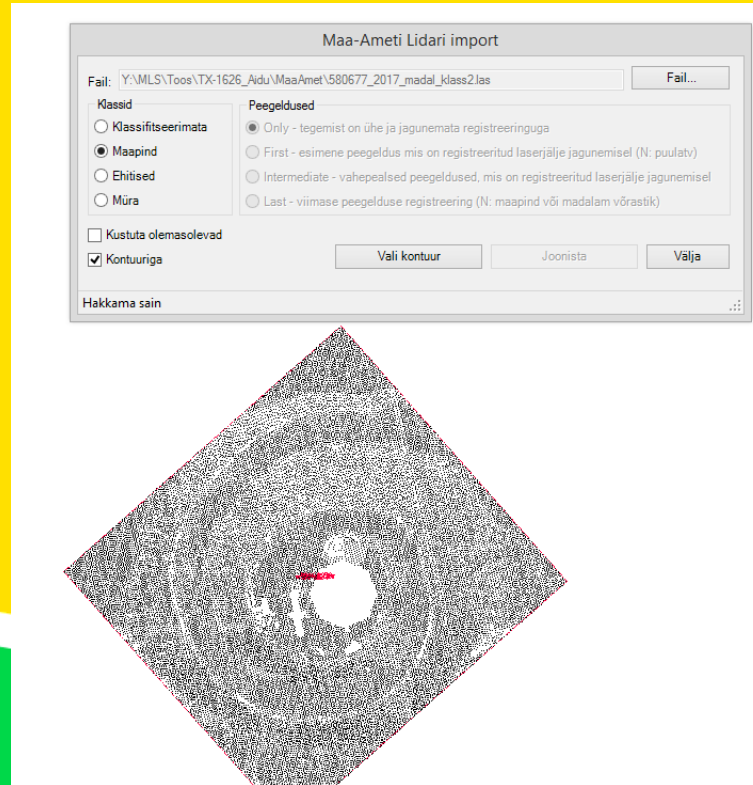
Initial data	Hinnapakkumise küsimine 03.06.2019.
Map	
Program of work offered	Tööd teostatakse vastavalt Ehitusseadustikust tulenevale topo-geodeetilisele uuringutele ja teostusmöödamistele esitatavatele nõuetele. Mõõtkava 1:500. Maa-ala plaani väljundformaad dwg. Tehnovõrkude asendi õigus kooskõlastatakse nende valdajatega.
Volume of Work	Krunt ja selle lähimübrus.

REIB Valveplaan	
Too nr	Too nimi
TJ-03813	Toompuiestee veetrasside märkimine ning teostusmöödamine Tehnika ja Luise tn vahelisel lõigul
Ava	
TI-1360	Toompuiestee topo-geodeetilised uurimistööd Luise tn ristmikust kuni Tehnika tn ristmikuni.
Ava	
Teie Valveplaan	
Too nr	Nimi
GE-013-05	Wismari park dendroga
Firma	Elisor
Fail	V:\TALLINN\KESKLINN\TEIE\WISMARI_TN\WISMARI_PARK_DENDROGA_ELISOR.DWG



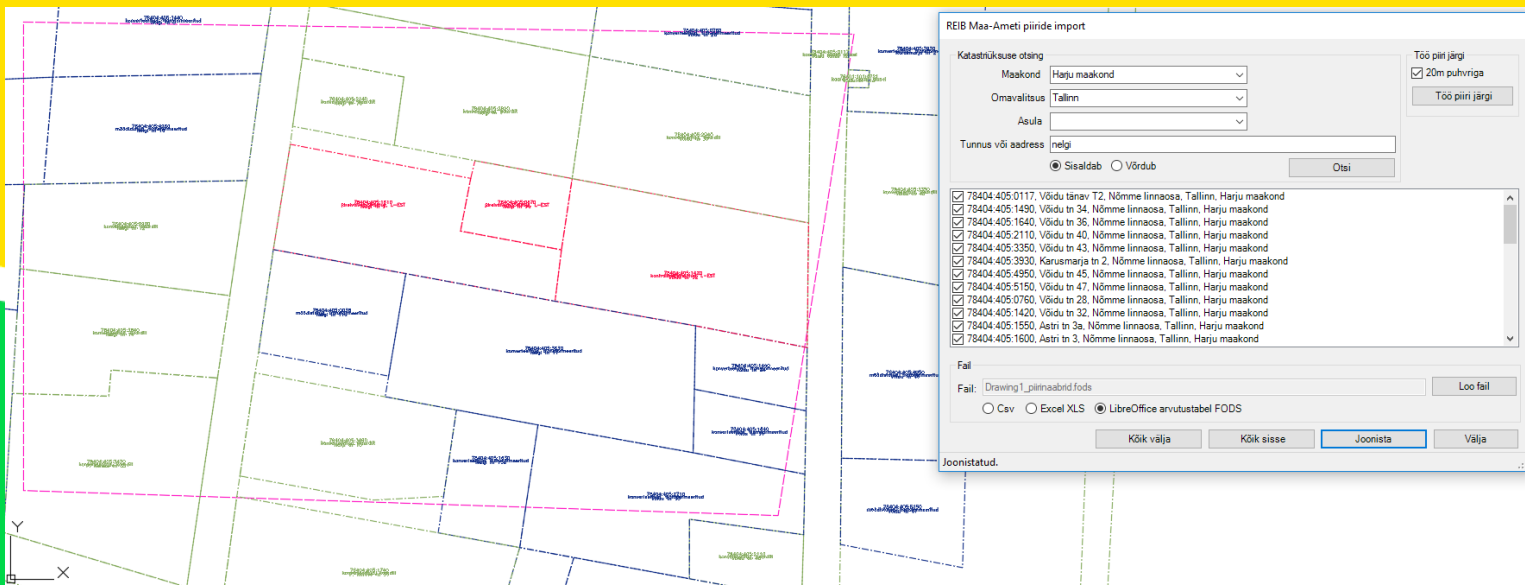
Elevation Data (Lidar, contours etc)

- Download LAZ
- LAZ -> LAS
- LAS -> dwg



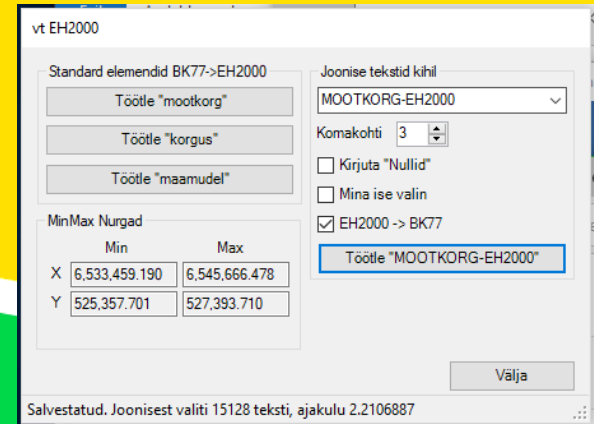
Cadastral data – from Monday to Friday

- 03:19 – Land Board publishes latest cadastral database.
- 06:47 – we download this data and write it into PostgreSQL database.

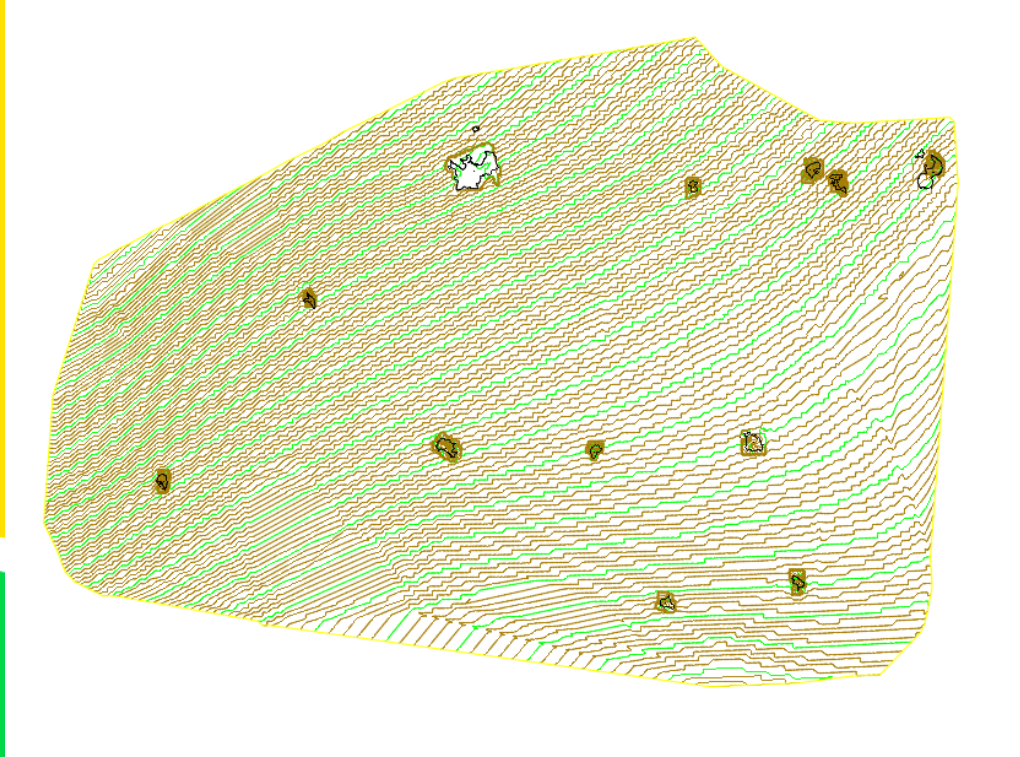


URL Query – Height Transformations

- User select layer, which contains numbers as text.
- Program takes the min-max boundary.
- Program asks from Land Board the height corrections in 9 points.
- Program calculates from 3 points new plane ($Ax + By + Cz + D = 0$) and checks height differences in 6 points.
- If errors does not exceed the limits (3 mm), then program changes the heights by using formula $Ax + By + Cz + D = 0$.



If errors exceed the limits...



Thank You for Your attention!

[Video 1](#)
[Video 2](#)