

REPORT 8A

Summary of data deliveries

Data to be read and used in Orbit Geospatial Technologies

Part of R&D project "Infrastructure in 3D" in cooperation between Innovation Norway, Trafikverket and TerraTec



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Introduction

Trafikverket are using Orbit Geospatial Technologies software (<https://orbitgt.com/>) for storage, use and sharing of 3D mapping data. This includes datasets containing multiple imagery and LiDAR point clouds and the software can facilitate accessibility of data, improving possibilities for demonstration, collaboration, delivery, data integration and more.

Summary of deliveries

The delivery of data, along with the written reports, as part of this project is to give Trafikverket insight into the possibilities high-resolution georeferenced data contains. Please note that the delivered data is only for inspection use, see TerraTecs reports regarding the diversity of products possible to generate from our sensor systems.

The data is delivered in formats that are compatible with Orbit solutions, a list of the data delivered is presented below.

Item	Data delivery: item description	Coordinate and Height reference system	Format	Date acquired
1	GPR point cloud; Interpreted underground features and infrastructure from GPR survey in Strömstad town, only for visualization.	SWEREF 99 12.00, RH2000	LAS 1.2	29-06-2016
2	Strömstad 3D model: Visualization model of delimited area in Strömstad based on GPR and MMS data.	Relative coordinates	7zip & rar archive	-
3	ViaPPS point cloud: Point cloud from Strömstad town, MMS ViaPPS laser scanning.	SWEREF 99 12.00, RH2000	LAS 1.2	29-06-2016
4	Lynx Ladybug images: Panoramic images from Ladybug camera captured along project test area; Svinesund Bridge and Svinesund-Hogdal.	SWEREF 99 12.00, RH2000	JPEG	10-11-2016
5	Lynx point cloud: Point cloud from MMS Lynx captured along project test area; Svinesund Bridge and Svinesund-Hogdal.	SWEREF 99 12.00, RH2000	LAS 1.2	10-11-2016
6	MIDAR-H orthophoto: Orthophoto generated from MIDAR-H images captured over project test area;	SWEREF 99 12.00, RH2000	ECW	28-10-2016

	Svinesund Bridge and Svinesund-Hogdal.			
7	MIDAR-H point cloud: Point cloud from MIDAR-H laser scanning captured over project test area; Svinesund Bridge and Svinesund-Hogdal.	SWEREF 99 12.00, RH2000	LAS 1.2	28-10-2016
8	ViaPPS point cloud: Point cloud from MMS ViaPPS laser scanning of project area; Svinesund Bridge.	SWEREF 99 12.00, RH2000	LAS 1.2	29-06-2016
9	GPR point cloud; Interpretated asphalt layer over project test area; Svinesund Bridge, only for visualization.	SWEREF 99 12.00, RH2000	LAS 1.2	29-06-2016

Coordinate reference and height systems

All work has been carried out in local coordinate reference systems. The coordinate system used for data in Strömstad town and in Svinesund is SWEREF99 12.00. The height reference system used for these data is RH2000. Information about these systems is presented below:

The projection parameters for all projection zones in SWEREF 99				
Projection	Central meridian, λ_0	Scale reduction factor, k_0	N reduction (m)	E addition (m)
SWEREF 99 TM	15°00'E	0,9996	0	500 000
SWEREF 99 12 00	12°00'E	1	0	150 000
SWEREF 99 13 30	13°30'E	1	0	150 000
SWEREF 99 15 00	15°00'E	1	0	150 000
SWEREF 99 16 30	16°30'E	1	0	150 000
SWEREF 99 18 00	18°00'E	1	0	150 000
SWEREF 99 14 15	14°15'E	1	0	150 000
SWEREF 99 15 45	15°45'E	1	0	150 000
SWEREF 99 17 15	17°15'E	1	0	150 000
SWEREF 99 18 45	18°45'E	1	0	150 000
SWEREF 99 20 15	20°15'E	1	0	150 000
SWEREF 99 21 45	21°45'E	1	0	150 000
SWEREF 99 23 15	23°15'E	1	0	150 000

Source: <https://www.lantmateriet.se/en/Maps-and-geographic-information/GPS-and-geodetic-surveys/Reference-systems/Two-dimensional-systems/SWEREF-99-projections/>

System facts for RH 2000 height reference system:

- Vertical datum point: *Normaal Amsterdam Peil (NAP)*
- Reference epoch: *Year 2000*
- Type of heights: *Normal heights*
- Standard error: *1.0 mm/ \sqrt{km}*
- Corrections: *Postglacial land uplift, permanent tide (zero), earth curvature, gravity, length of levelling staff etc.*

Source: <https://www.lantmateriet.se/en/Maps-and-geographic-information/GPS-and-geodetic-surveys/Reference-systems/Height-systems/RH-2000/>



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