

# JONES ISLAND WRF

## HAND DRAFTING TO

# LASER SCANNING



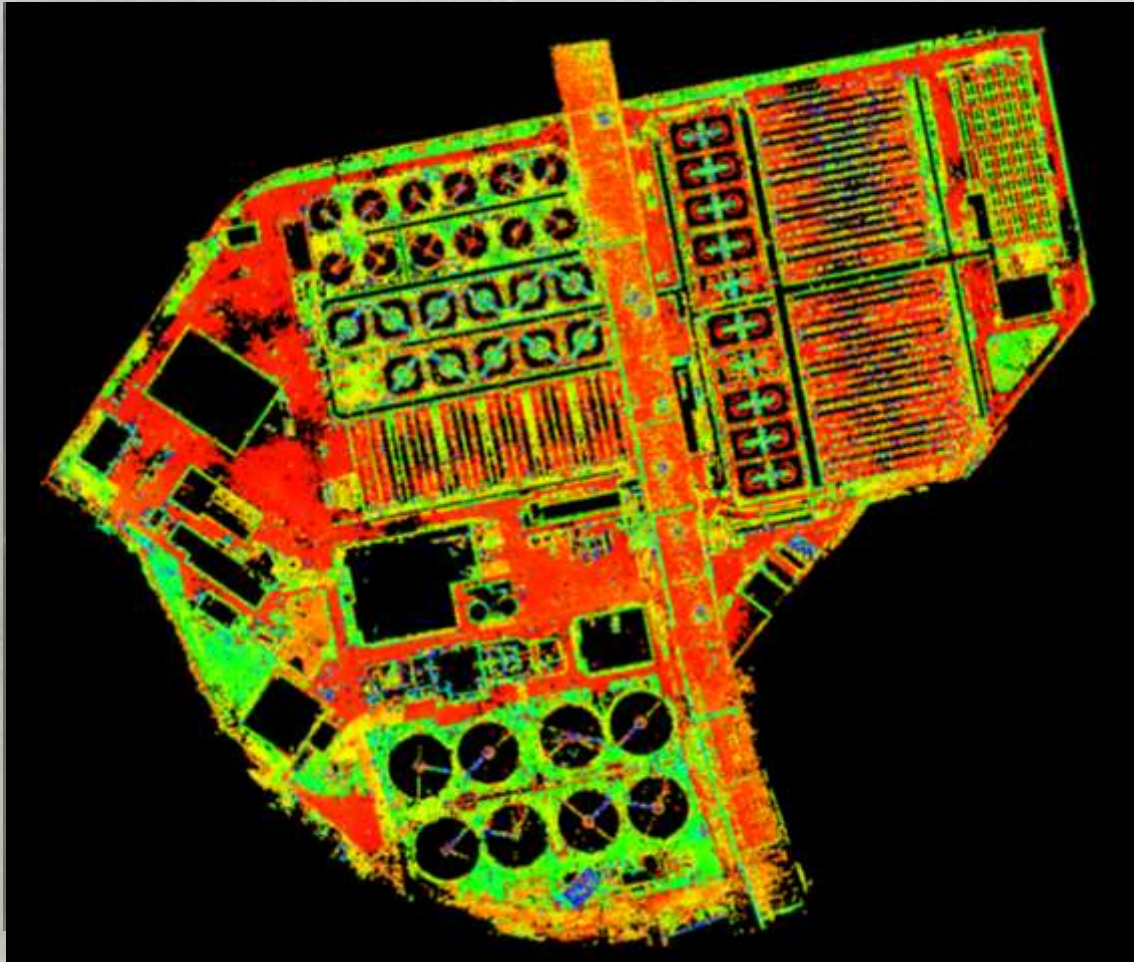
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Jon Chapman R.A Smith 3D Laser Scanning Manager & Robert Chavez MMSD CAD Coordinator

# JONES ISLAND WRF



- Milwaukee, WI
- Built in 1925
- 75 Acres
- Previous site plan established by heads-up digitization
- New site plan created using LiDAR (Light detection and ranging)

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# SITE PLAN INACCURACIES

## MISSING SITE IN GIS



## CAD SITE PLAN



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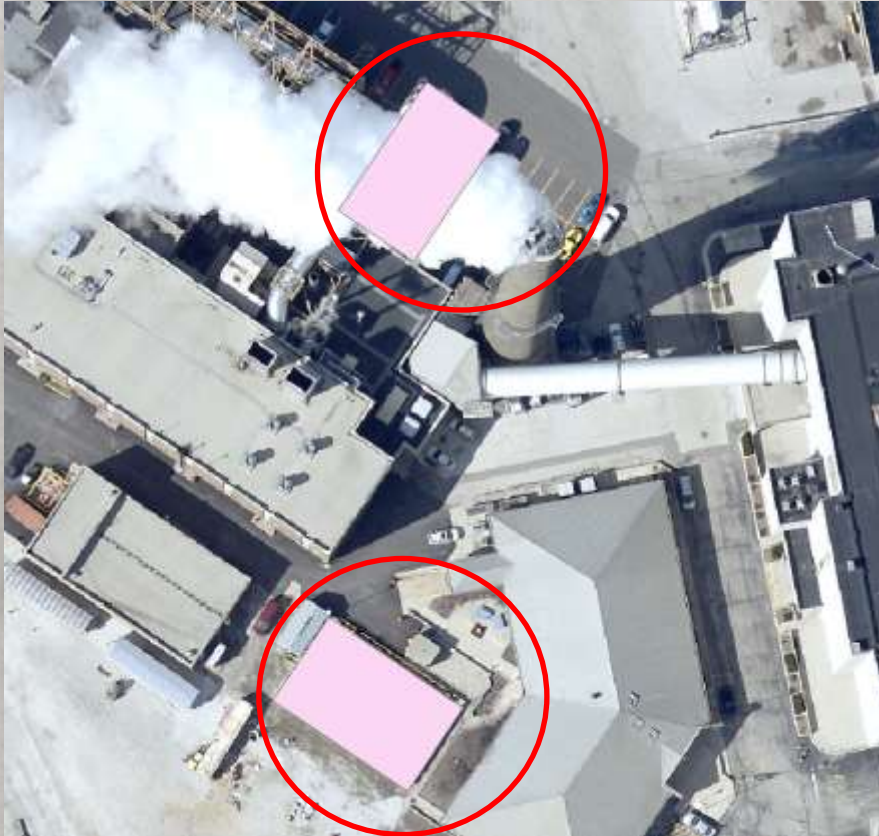
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# SITE PLAN INACCURACIES

FACILITY 282 ON TOP DOES NOT EXIST



# JILIDAR SCAN OBJECTIVES

- **Create a survey grade site plan of JI**
- **Update GIS application PlantMan**
- **Create Master CAD drawings**
- **All future District contracts will utilize Master site plan**
- **Eliminate inconsistencies between CAD & GIS**

# SITE PLAN CAPTURE

## First Option:

- Conventional Survey done internally
- Work estimated at roughly 800 hours for Jones Island

## Second Option:

- RFP for work to be done by a consultant using LiDAR
- RA Smith selected 10/01/2014
- Work commenced 11/10/2014
- Final deliverable received 12/03/2014
- Substantial time and cost savings to MMSD

# WHAT IS LIDAR?

- LiDAR
  - Light Detection And Ranging
- Types
  - Aerial
  - Mobile
  - Static



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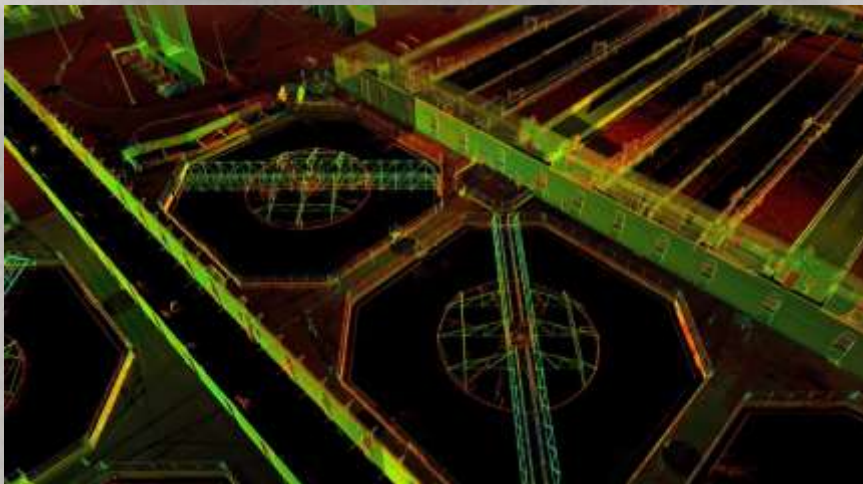
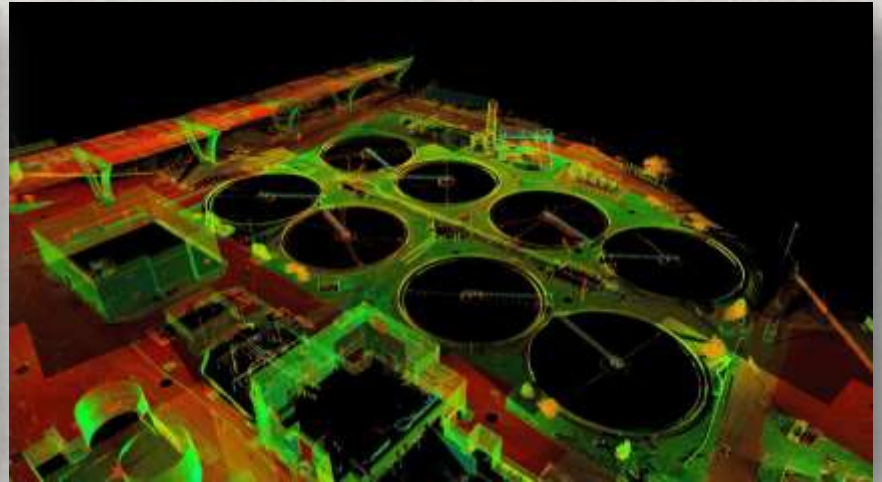
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# STATIC LIDAR – SIMPLIFIED

- Laser scanner on a tripod

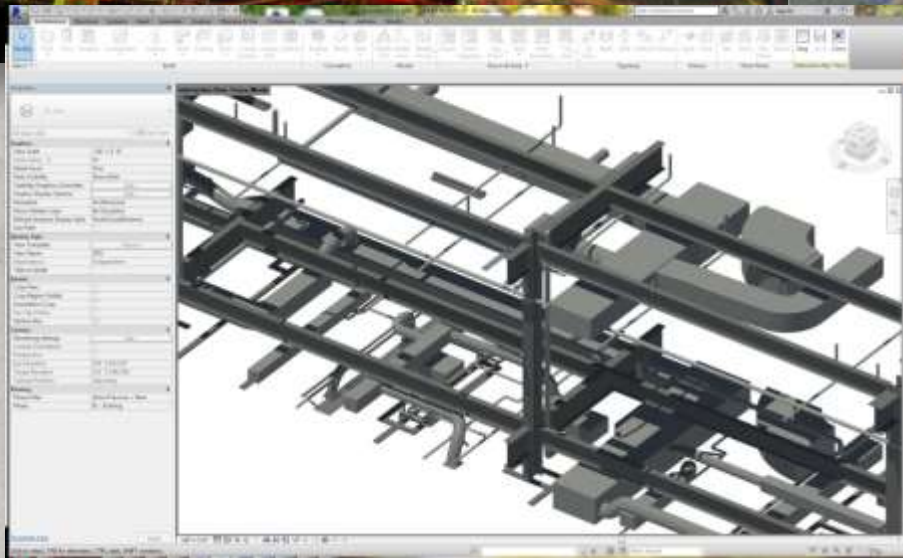
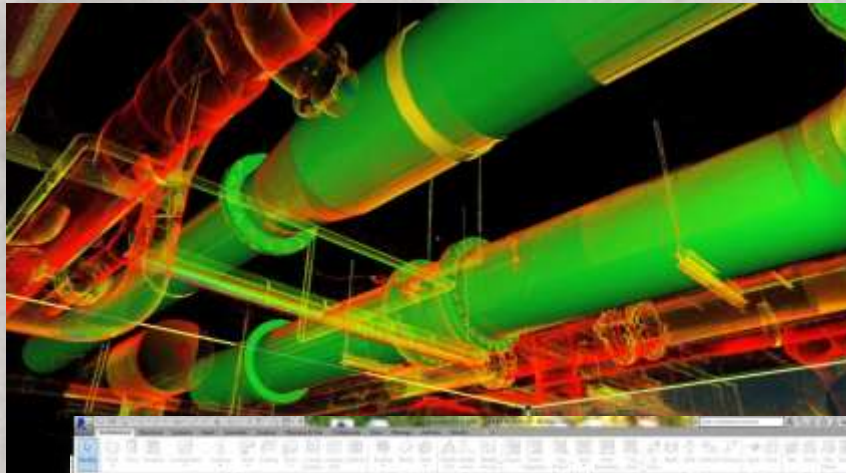


# 3D POINT CLOUDS



# DATA EXTRACTION

- 2D & 3D CAD Data



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# PROJECT DETAILS

## Leica P20:

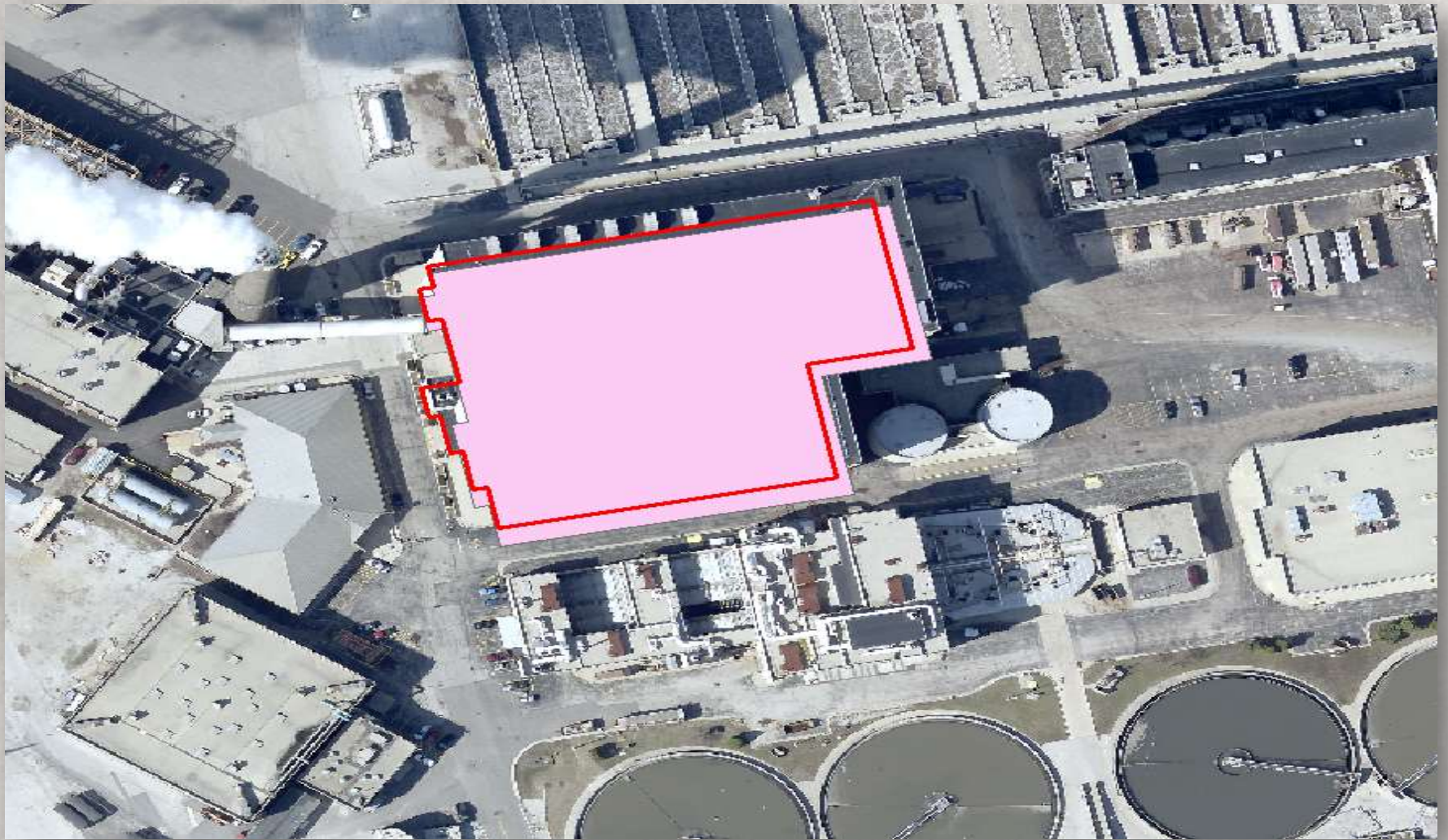
- 210 scan positions at JI
- Between 16 & 20 million points per scan
- Survey grade accuracy to an eighth of an inch



## Deliverables:

- AutoCAD Civil 3D based survey grade planimetric map
- Point cloud data in Civil 3D compatible format
- TruView data set

# LIDAR SCAN RESULTS



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# LEVEL OF DETAIL

## Original Site Plan



## Updated Site Plan



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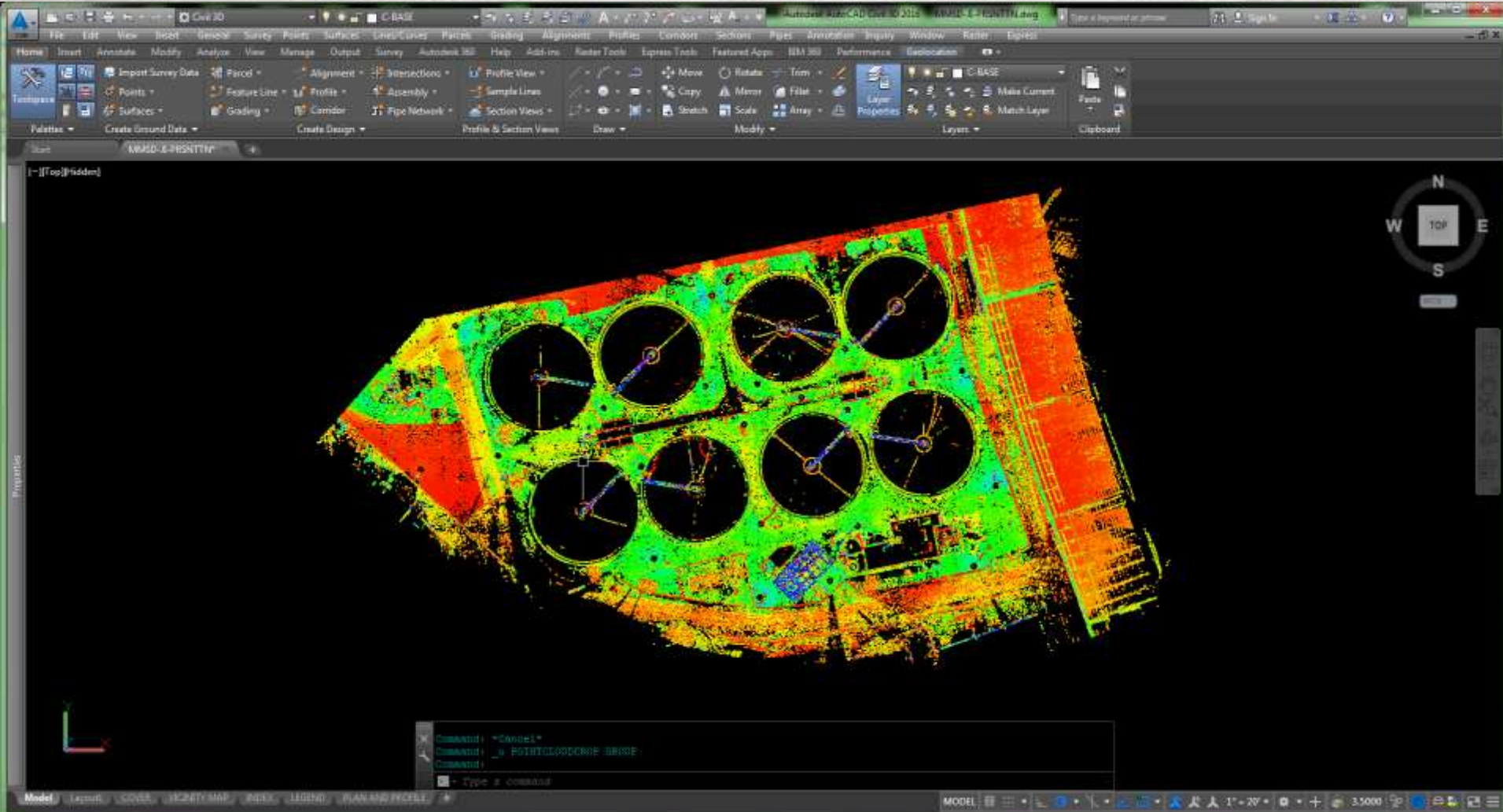
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# POINT CLOUD TOOLS



# POINT CLOUD - CIVIL 3D



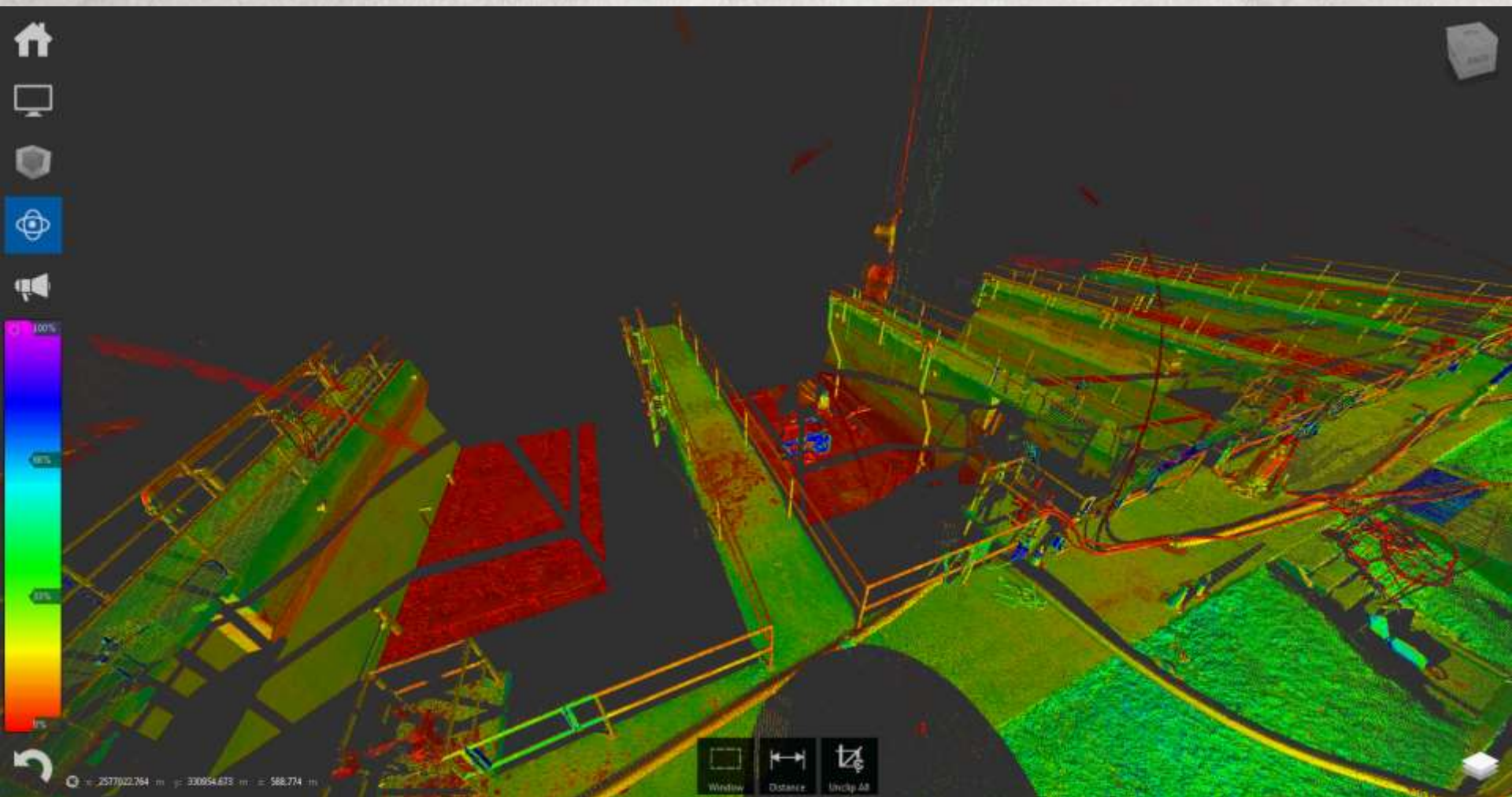
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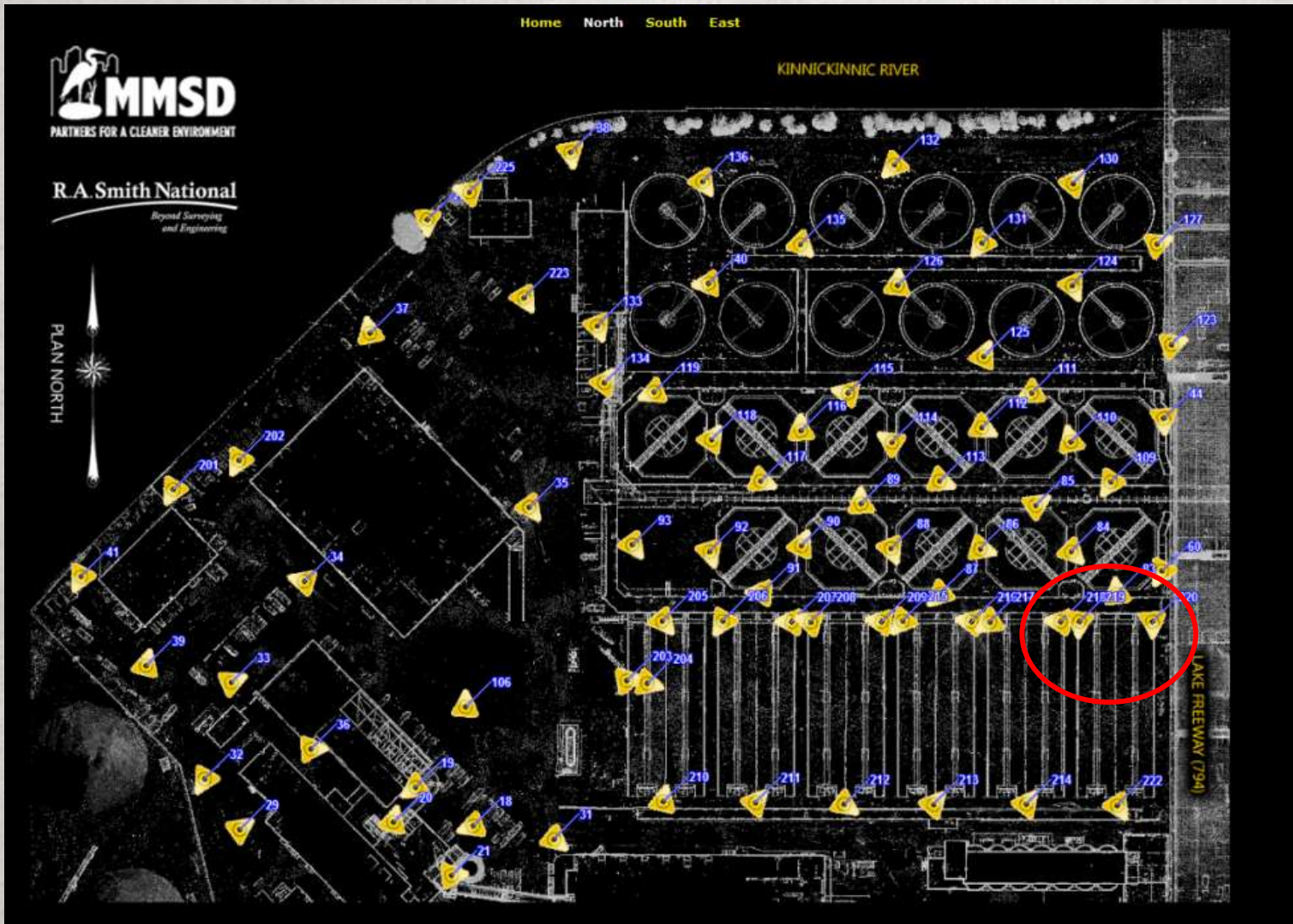


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# POINT CLOUD TOOLS – RECAP



# POINT CLOUD TOOLS - TRUVIEW



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# POINT CLOUD TOOLS - TRUVIEW



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# QUESTIONS?



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