

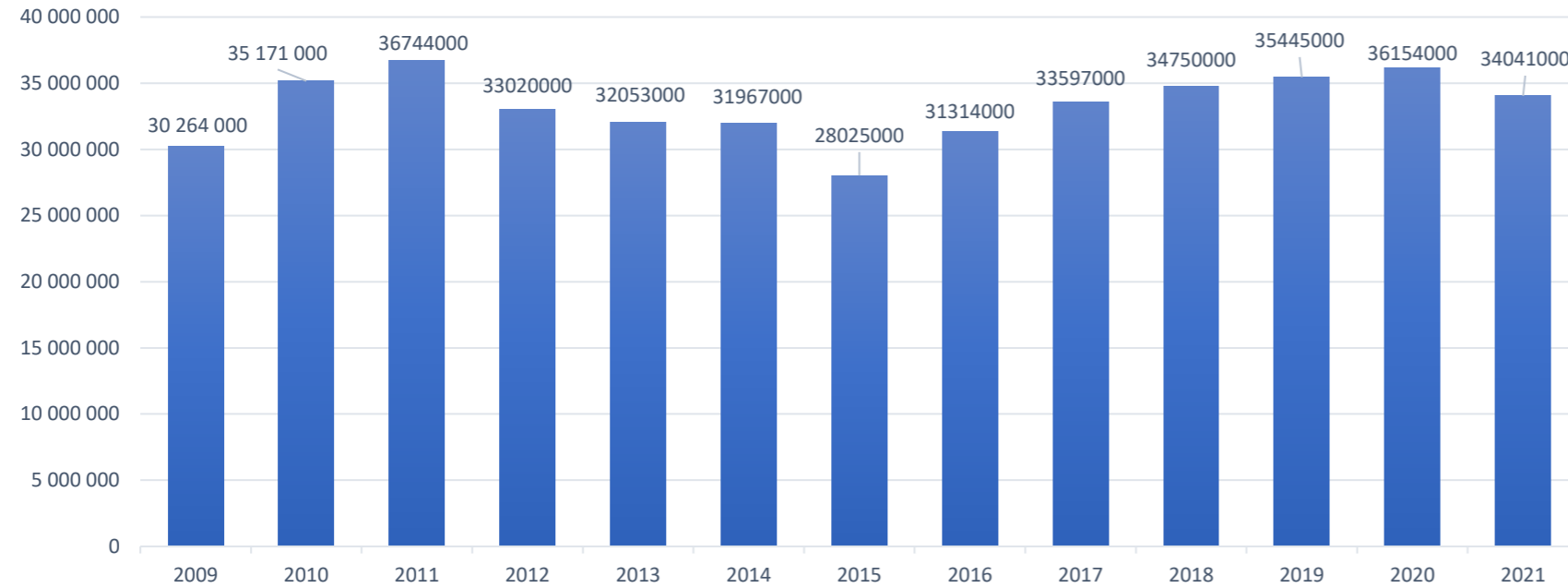
The background image shows a vast industrial facility, likely a float glass plant. The floor is covered with long, parallel rows of glass sheets resting on rollers. The perspective is from a low angle, looking down the length of the factory, creating a strong sense of depth and repetition. The lighting is bright and even, highlighting the smooth surfaces of the glass.

**Float glass plant presentation  
UKRGLASS INDUSTRY LLC**

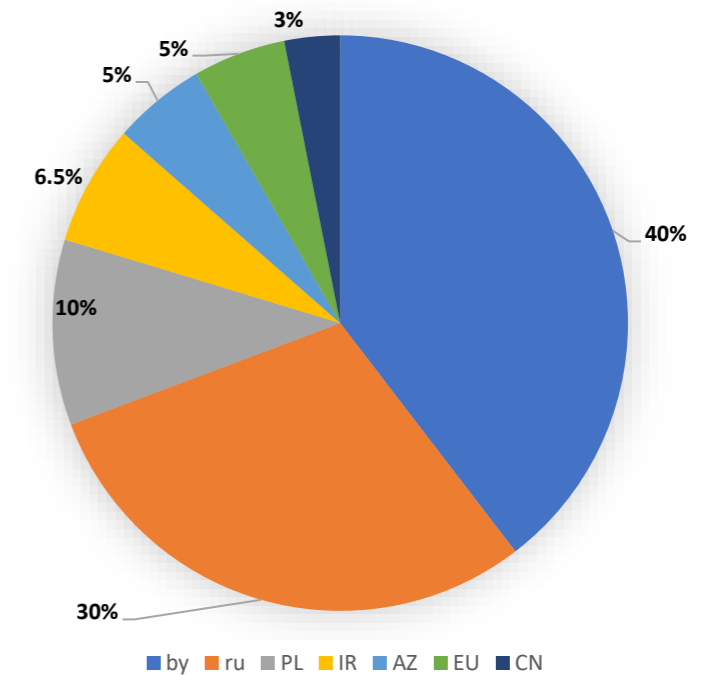
**Ukraine - 2024**

# KEY FEATURES OF UKRAINIAN FLOAT GLASS MARKET

Local float glass market dynamics, sq.m



Glass market structure with distribution by the country of origin, %



## FINANCIAL KEY PERFORMANCE INDICATOR

<i>IRR of investments</i>	<b>31,4%</b>
<i>Average Cash Flow for the period of Bank Loan, kUSD/year</i>	<b>45 186</b>
<i>Average Cash Flow after Bank Loan, kUSD/year</i>	<b>48 957</b>
<i>NPV / Net Present Value – up to 2053, USD</i>	<b>361 472 294</b>
<i>PI / Profitability Index</i>	<b>3.2</b>
<i>Payback of Equity, years</i>	<b>5.1</b>

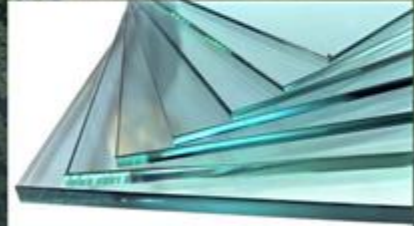
The amount of necessary investment is: **278 517 104 USD**.

**The Payback Period comprises: 5 years and 1 month.**

The given key indicators suggest that the investment project is highly attractive and should be considered a sound investment opportunity. The project has a high **IRR of 31.4%**, positive average cash flows for both the period of bank loan and after the loan is serviced, a very high NPV of 361 472 294 USD up to 2053, a high Profitability Index of 3.2, and a relatively short payback period of 5.1 years. These indicators suggest that the project has the potential to generate strong returns for investors and is expected to generate significant value over its lifetime. Overall, the investment project appears to be a good investment opportunity.

The financial model includes the following components: Float glass plant (\$250 million); Glass coating workshop (\$15 million); Glass processing workshop (\$5 million); Administrative and additional costs (\$8.5 million)

# FLOAT GLASS PLANT AERIAL VIEW



**UKRGLASS**  
UKRGLASS 700T/D FLOAT GLASS LINE, UKRAINE

## INDUSTRIAL PARK KEY TECHNICAL PARAMETERS

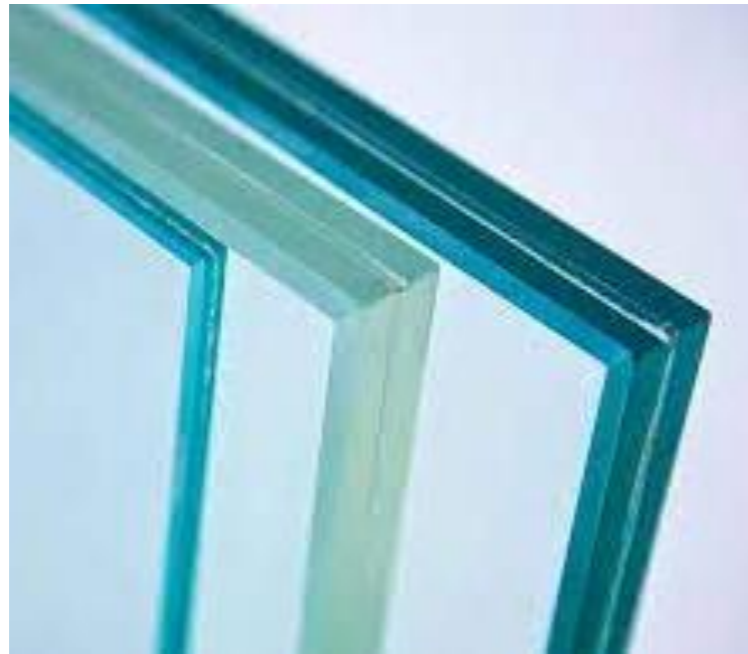
№	Position	Total area, m <sup>2</sup>	Personnel, people	Consumption		
				Water, m <sup>3</sup> /hour	NG, m <sup>3</sup> /hour	Electricity, MW/hour
1	Float glass plant	100 000	450	5	6 000	5,5
2	Silica sand enrichment plant	60 000	100	2	100	1,5
3	Low-E coating workshop	3 000	50	1	-	0,5
4	Glass treatment workshop (laminating and tempering)	20 000	100	1	-	0,5
5	Automotive glass plant	40 000	150	3	-	1
6	Insulating glass plant	60 000	150	3	-	0,5
	<b>Total:</b>	<b>283 000</b>	<b>1 000</b>	<b>15</b>	<b>6 100</b>	<b>9,5</b>

## INDUSTRIAL PARK INVESTMENT

№	Position	Investment, USD
1	Float glass plant	250 000 000
2	Silica sand enrichment plant	3 000 000
3	Low-E coating workshop	15 000 000
4	Glass treatment workshop (laminating and tempering)	5 000 000
5	Automotive glass plant	12 000 000
6	Insulating glass plant	8 000 000
	<b>Total:</b>	<b>293 000 000</b>

## PRODUCT TYPES

- *Clear glass (2-12 mm)*
- *Ultra-clear glass (2-12 mm)*
- *Low-E glass (4 mm)*
- *Tempered glass (4 mm)*
- *Laminated glass (3+1+3 mm)*
- *Automotive glass (windshield, rear, side, sunroof)*
- *Enriched silica sand (PK-010-3, PK-015-3, PK-020-3, PK-030-3)*



**Laminated glass**

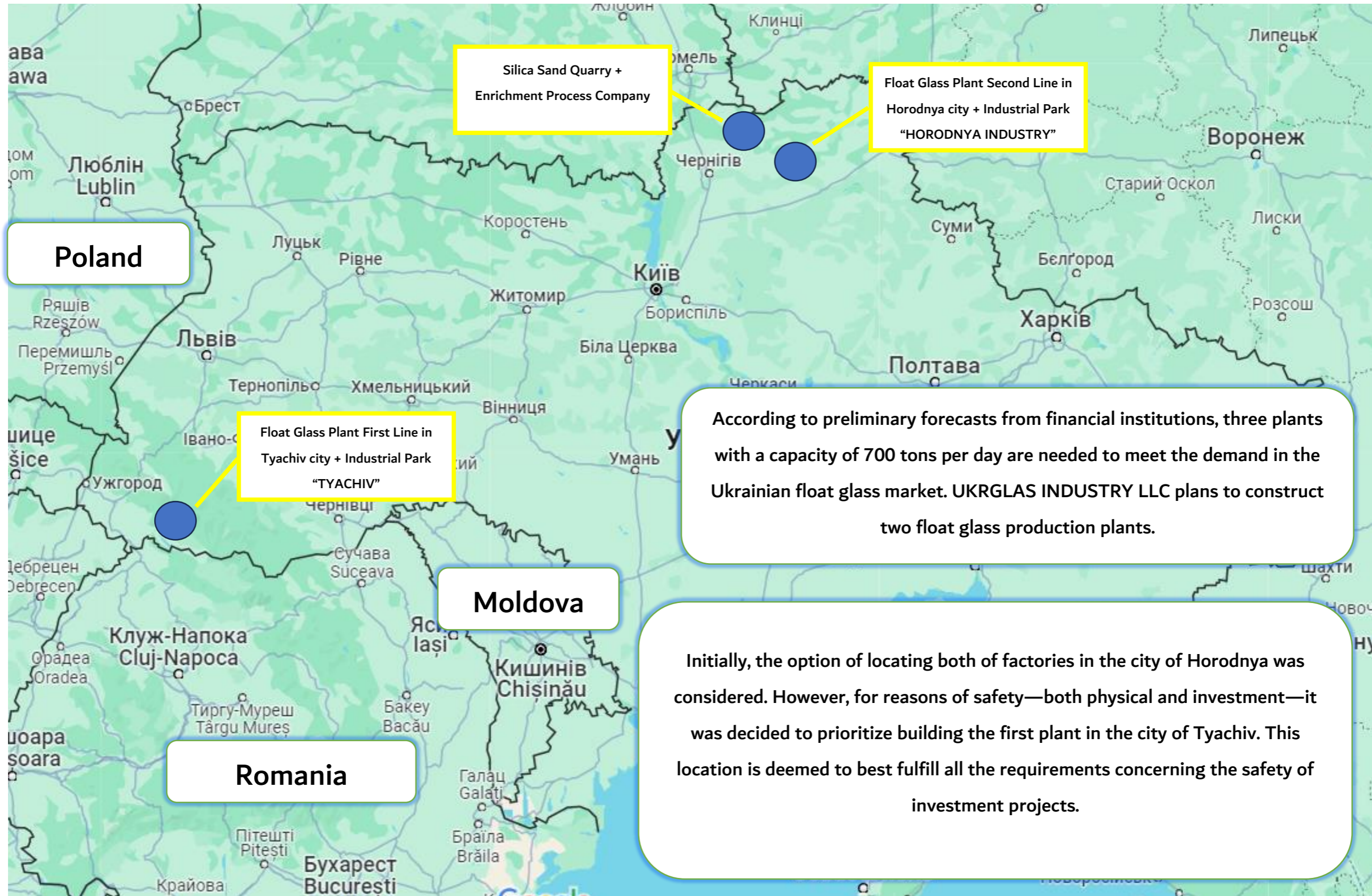


**Tempered glass**

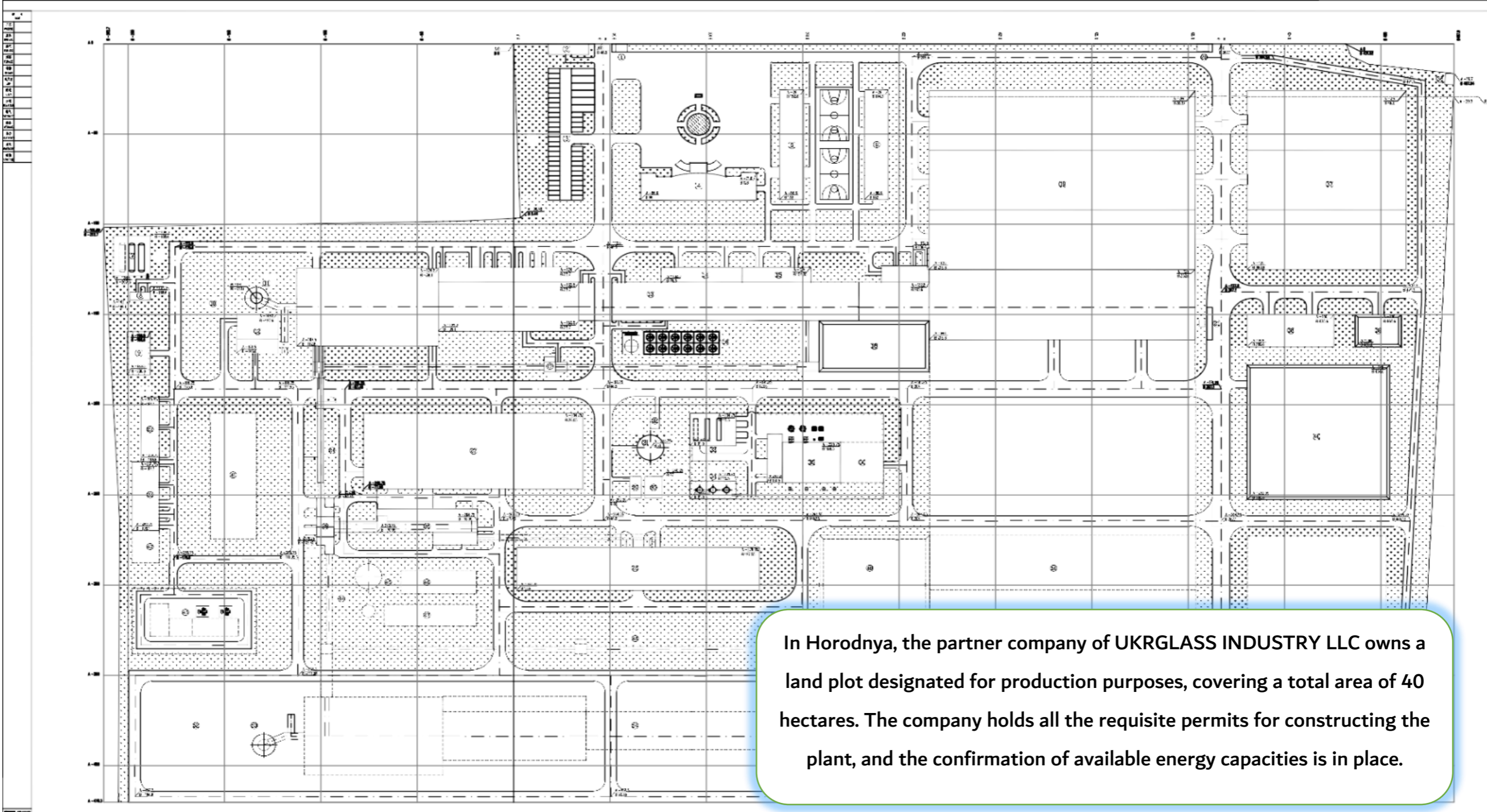


**Automotive glass**

## OBJECTS LOCATION IN GENERAL CONCEPTIONS



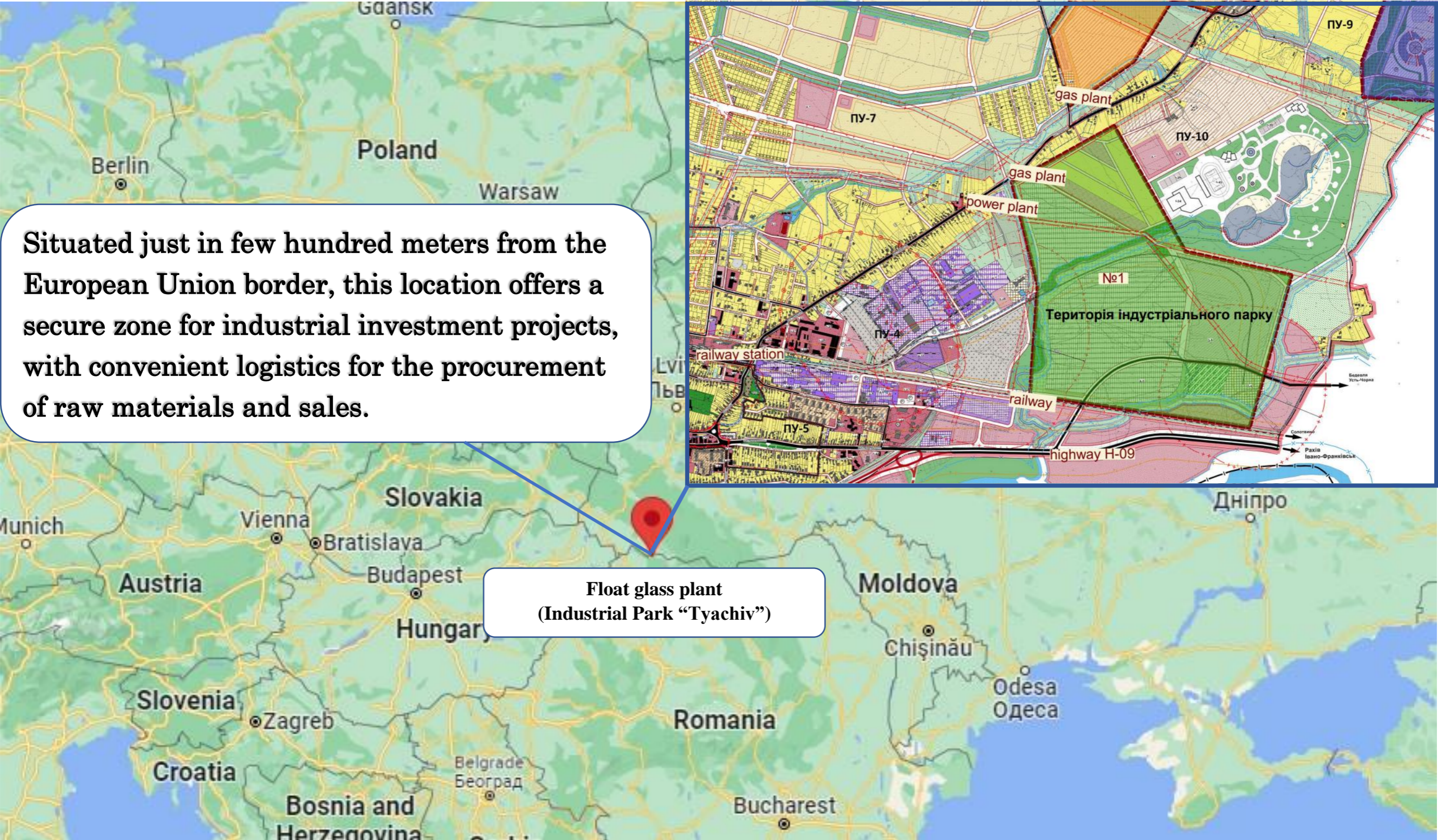
# FLOAT GLASS PLANT PLACEMENT (Horodnya city)



In Horodnya, the partner company of UKRGLASS INDUSTRY LLC owns a land plot designated for production purposes, covering a total area of 40 hectares. The company holds all the requisite permits for constructing the plant, and the confirmation of available energy capacities is in place.

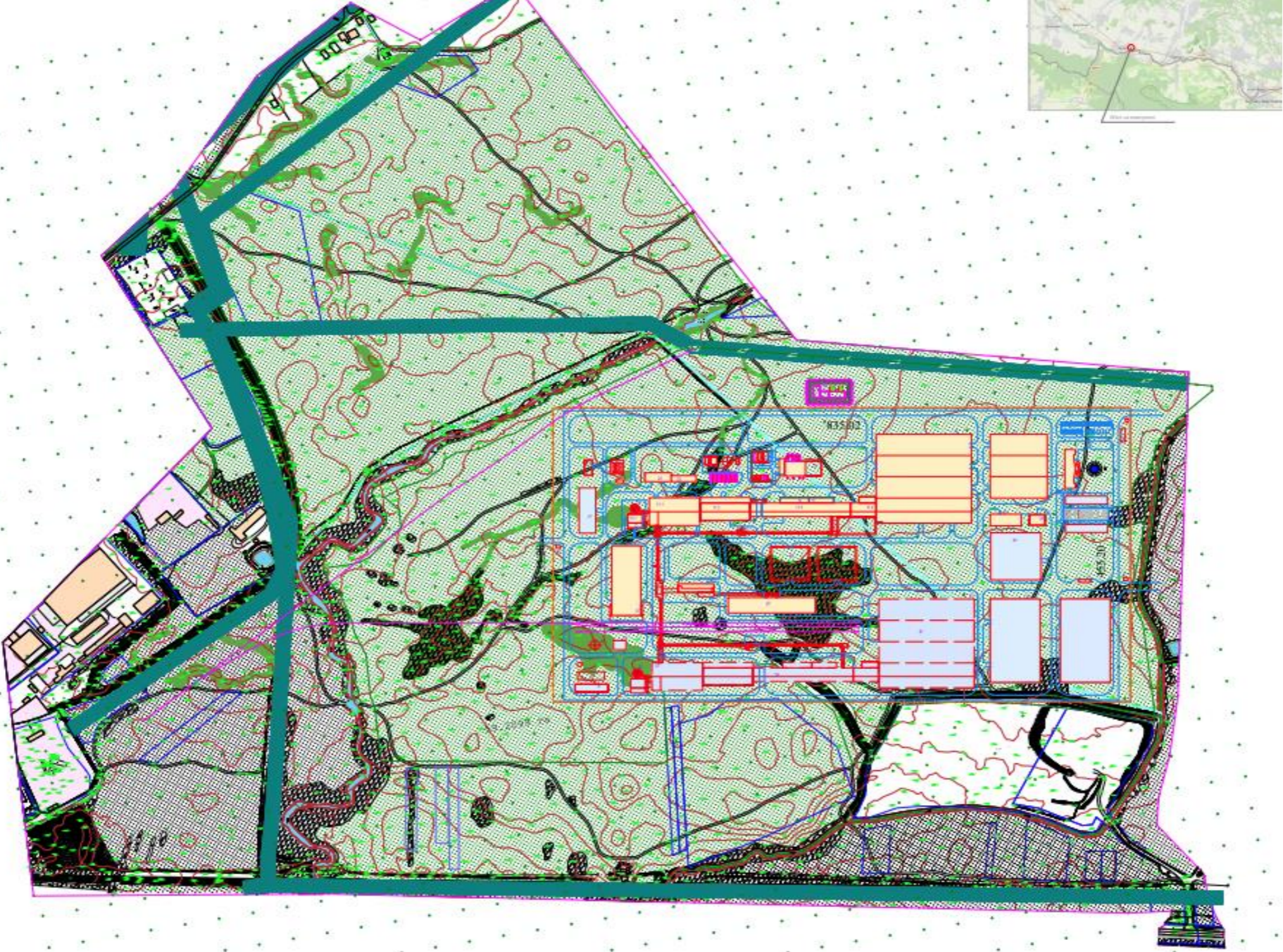
# FLOAT GLASS PLANT LOCATION (Tyachiv city)

Zakarpattia region





# PLANT PLACEMENT (Tyachiv city)



## GOVERNMENTAL SUPPORT

### Local Support

A Memorandum of Cooperation and mutual understanding on the development of industrial production within the future industrial park "Tyachiv" was signed with the City Council of Tyachiv.

The Memorandum underwent through public hearings and was officially approved by a Resolution of the City Council's plenary meeting.

### Governmental Investment Support Program

#### Industrial Park benefits:

- Exemption from income tax of a participants of an industrial park included in the Register of Industrial Parks for 10 consecutive years.
- Compensation is subject to up to 100 percent of the cost (excluding VAT) of connecting to engineering and transport networks.
- Exemption from VAT of the operation of import into the customs territory of Ukraine under the customs regime of import of new equipment (equipment) and accessories for it.



## RAW MATERIALS

The primary chemical compounds utilized in float glass production include:

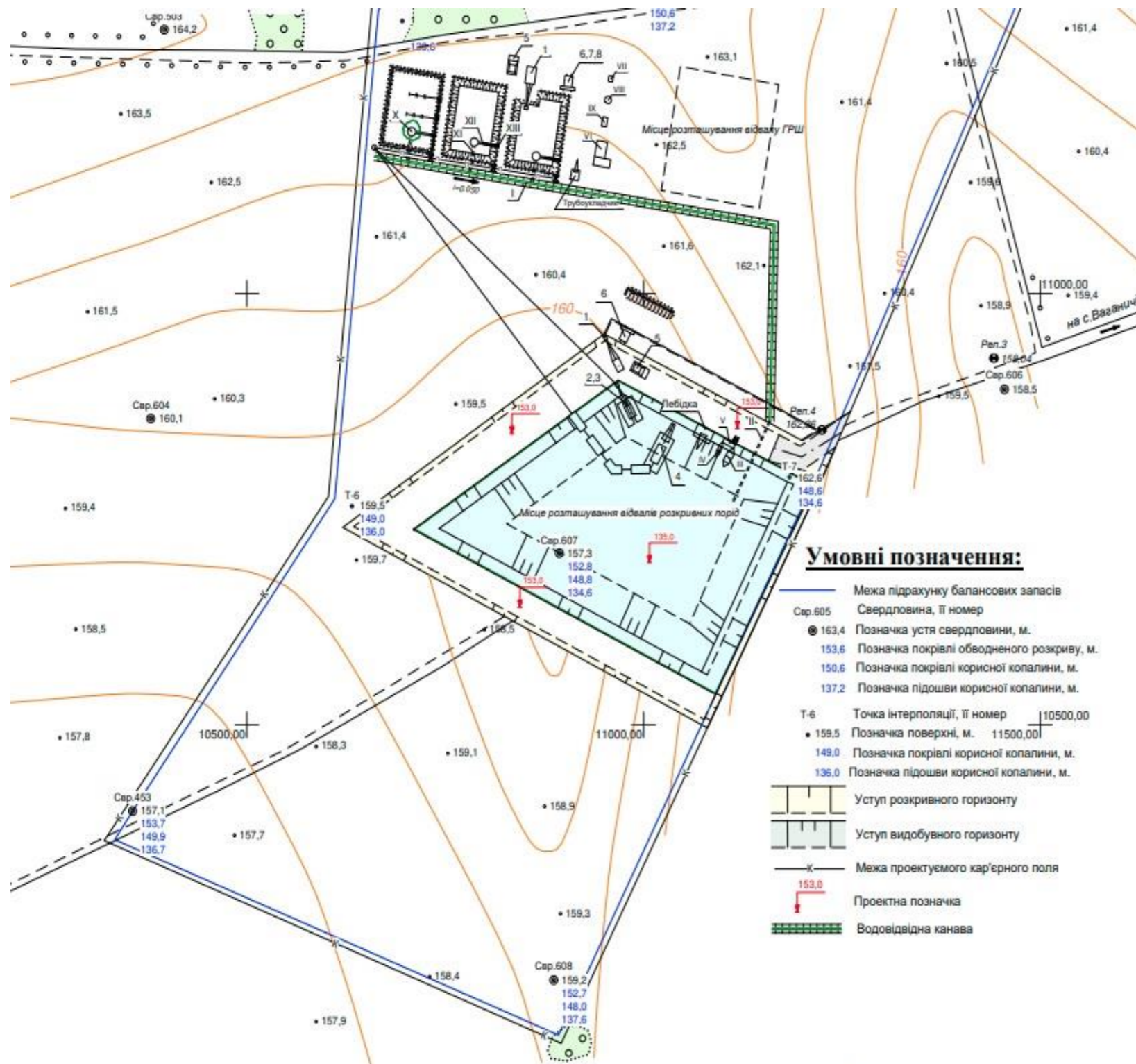
- Silica sand – up to 60% (Chernihiv region, Ukraine)
- Soda ash – up to 20% (Slovakia)
- Dolomite – up to 15% (Slovakia)
- Calcium carbonate – up to 5% (Poland)
- Feldspar – up to 5% (Slovakia)
- Other supplementary materials



# SILICA SAND MINING AND ENRICHMENT LOCATION

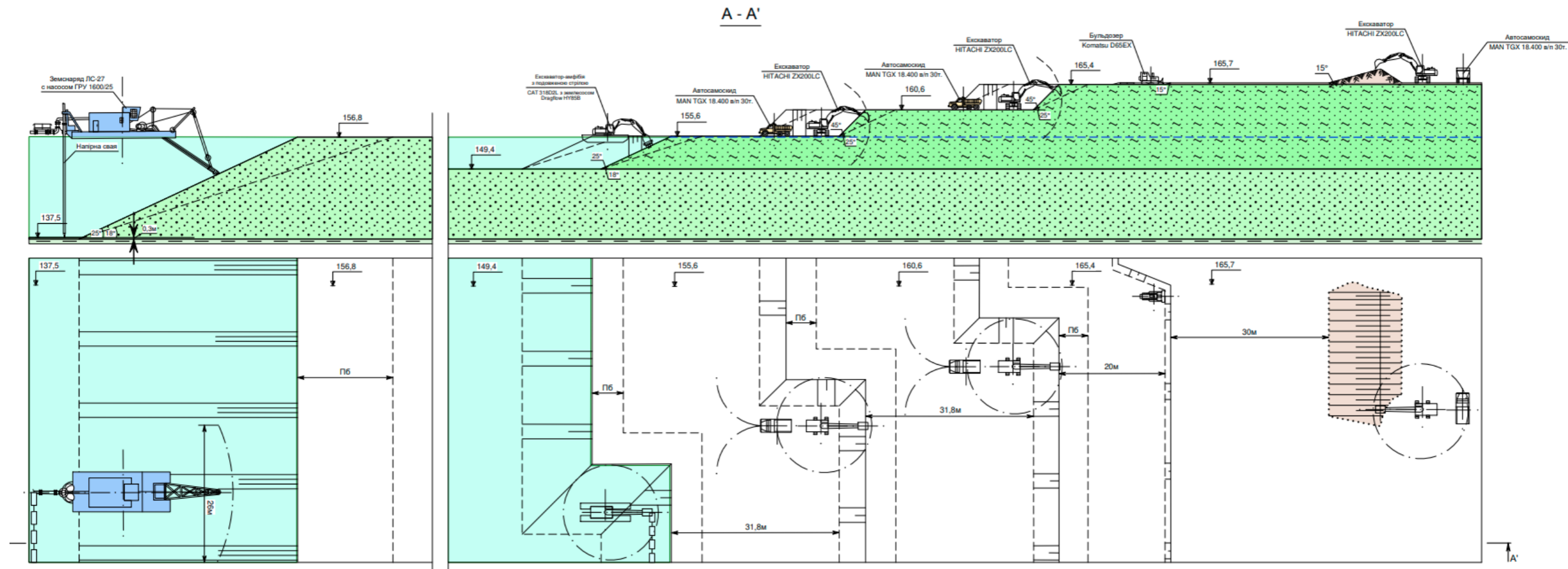


# SILICA SAND MINING AND ENRICHMENT PROJECT



License for silica sand mining valid for 20 years

# SILICA SAND MINING PROCESS



- The deposit contains a substantial reserve of silica sand, with a total volume **exceeding 20 million tons**.
- This substantial quantity is estimated to be sufficient for **over 100 years of float glass production**, considering that silica sand serves as the primary raw material in the process.
- The silica sand found in the deposit **meets all the required chemical and granulometric specifications** necessary for the production of top-quality float glass, as per industry standards and regulations.

## SILICA SAND QUALITY KEY PARAMETERS

### Raw silica sand

Main oxide content (%)			Size (%)		Moisture content (%)	Refractory heavy minerals	
SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	>0.7mm	<0.1mm		content	Size (mm)
>97.50	<1.0	<0.1	0	<5.0	<5.0	≤10 (pcs/kg)	<0.30



### Enriched silica sand

Name	Actual content by grade				
	PK-010-3	PK-015-3	PK-020-3	PK-030-3	PK-050-3
SiO <sub>2</sub> , %	99.8	99.4-99.6	99.2-99.4	99.0-99.3	98.8-99.0
Fe <sub>2</sub> O <sub>3</sub> , %	0.008-0.010	0.011-0.015	0.016-0.020	0.21-0.30	0.31-0.50
Al <sub>2</sub> O <sub>3</sub> , %	0.05-0.06	0.06-0.07	0.06-0.08	0.07-0.09	0.10-0.12
CaO, MgO, %	Traces	Traces	Traces	Traces	Traces
Na <sub>2</sub> O, K <sub>2</sub> O, %	Traces	Traces	Traces	Traces	Traces

## PARTNERSHIP

From the MuliaGlass group of companies was received a pre-project decision for the adaptation, preliminary design, and development of a plant construction project. The group has a successful track record of completing over 70 float glass projects.

<https://muliaindustrindo.com/en>

**(Indonesia)**

Agreements have been made for the engineering and supply of equipment and furnace to bend glass windshields and rear glass.

<http://www.glasstech.com/>

**(USA)**

Agreements have been made for the engineering and supply of equipment for the enrichment of silica sand. Recommendations have also been received regarding its extraction and subsequent use.

<https://akwauv.de>

**(Germany)**

Agreements have been made for the engineering and supply of equipment to cut and grind glass windshields and rear glass.

<https://bandoj.com/en/home/>

**(Japan)**

Agreements have been made for the engineering and supply of equipment for special technological transport, specifically designed for the transportation of glass within the production area.

<https://italcarrelli.eu/>

**(Italy)**



PT MULIA INDUSTRINDO TBK

**glasstech**



Equipment + Process Design



BANDO KIKO CO., LTD.



TOP HANDLING SOLUTIONS SINCE 1962



**Germany**



**USA**



**Indonesia**



**Finland**



**USA**