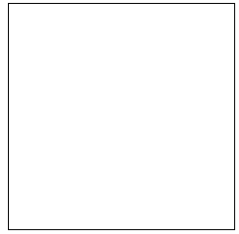
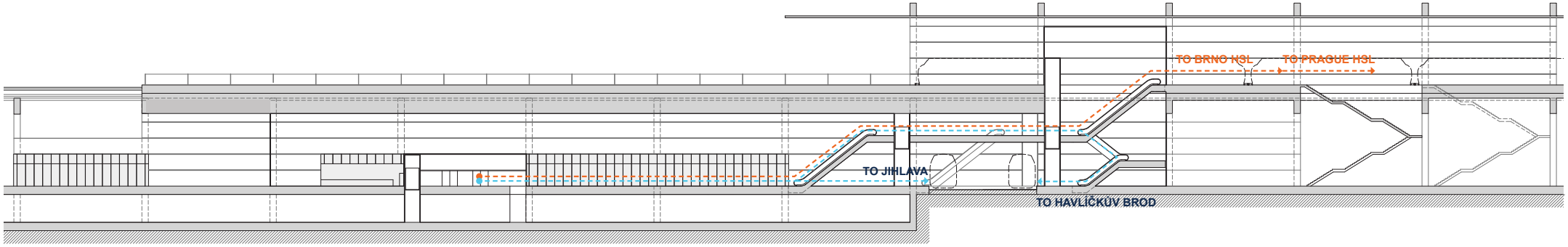
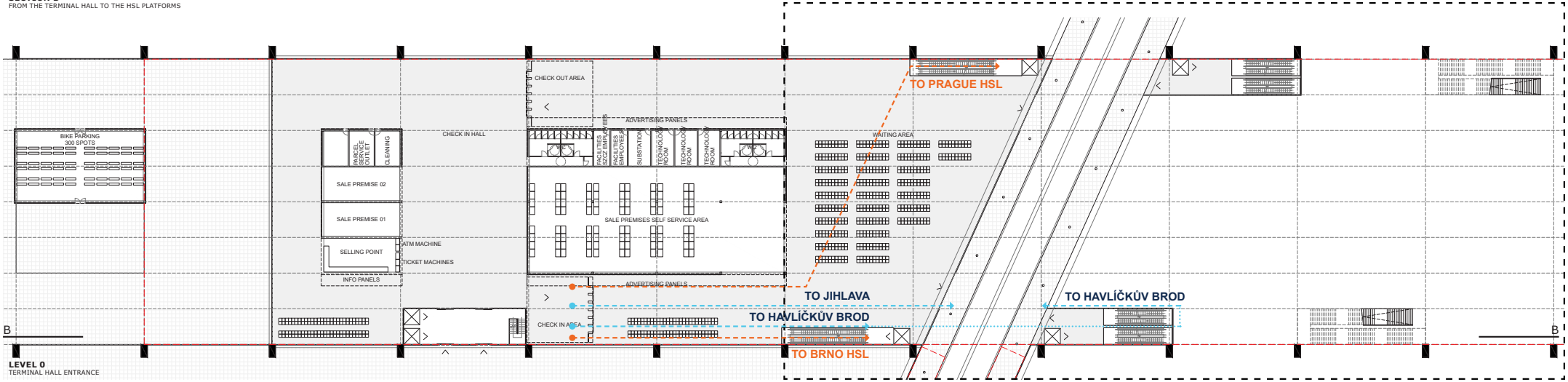
TERMINÁL JIHLAVA VRT

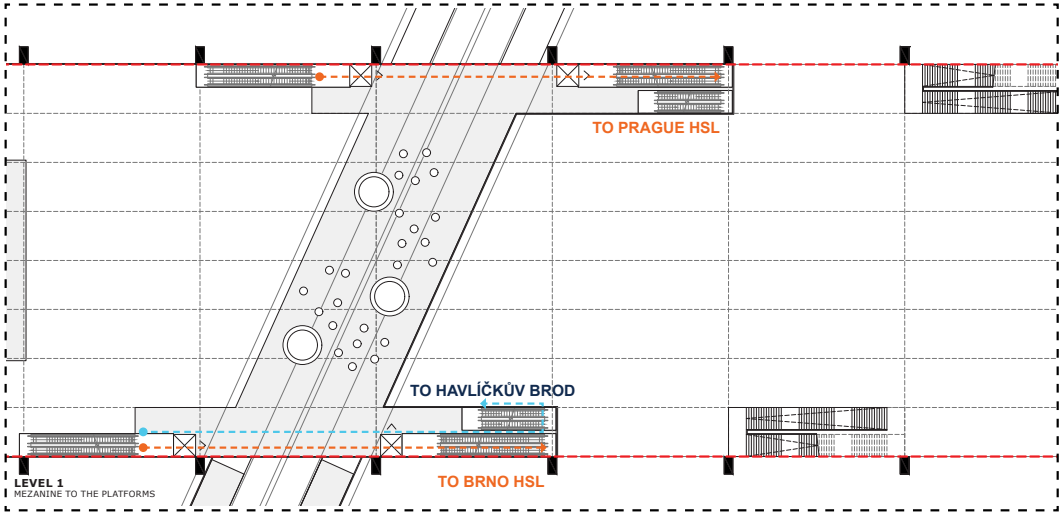




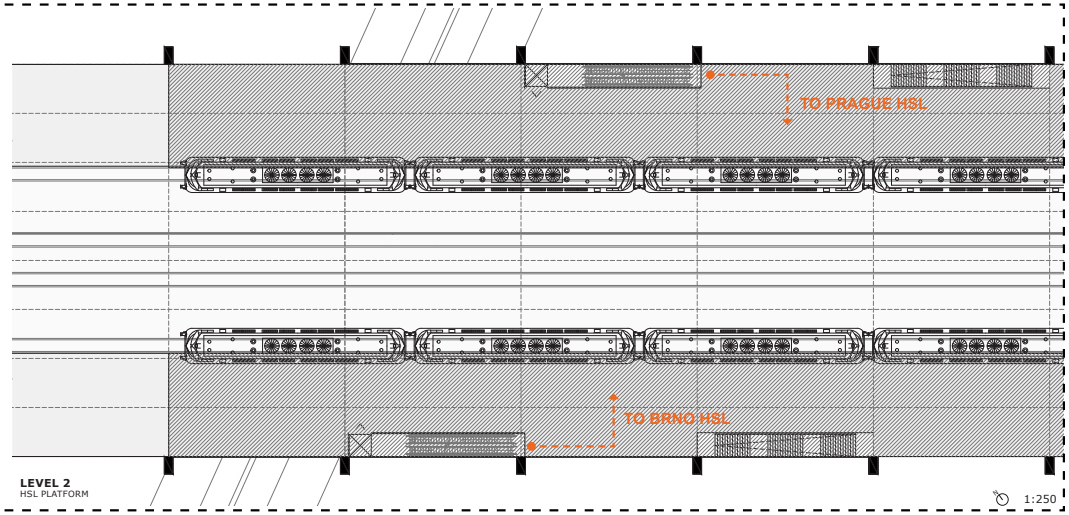
SECTION B
FROM THE TERMINAL HALL TO THE HSL PLATFORMS



LEVEL 0
TERMINAL HALL ENTRANCE



LEVEL 1
MEZANINE TO THE PLATFORMS



LEVEL 2
HSL PLATFORM

1:250

P11 Balance Table

TERMINAL JIHLAVA VRT						13-01-24
BALANCE TABLE						
ITEM		m2	m3	pcs	price per MU	price excl. VAT
TERMINAL						
GROSS FLOOR AREA		6'415	–	–	72'000 Kč	461'883'600 Kč
Gross Floor Area total [m2]		**6'415**	**–**	**–**	**–**	**461'883'600 Kč**
BUILDING VOLUME_UNDER GROUND		–	0	–	0 Kč	0 Kč
BUILDING VOLUME_ABOVE GROUND		–	78792	–	0 Kč	0 Kč
Building volume total [m3]		**0**	**78792**	**–**	**–**	**0 Kč**
OTHER STRUCTURES	platform roofing	6'400.00	–	–	18'500 Kč	118'400'000 Kč
	platform access	2'523.22	–	–	15'500 Kč	39'109'910 Kč
	elevators, escalators	–	–	14	2'200'000 Kč	30'800'000 Kč
	platform finish	4100.23	–	–	3'800 Kč	15'580'874 Kč
Structures in total		13023.45	–	–	–	**203'890'784 Kč**
PUBLIC SPACE						
SURFACES	paved	3'945	–	–	2'800 Kč	11'046'588 Kč
	unpaved	2'080	–	–	1'200 Kč	2'496'432 Kč
ELEMENTS	trees	–	–	150	12'000 Kč	1'800'000 Kč
	furniture	–	–	56	6'000 Kč	336'000 Kč
	lighting	–	–	1	24'500'000 Kč	24'500'000 Kč
Surfaces and elements in total		**–**	**–**	**–**	**–**	**40'179'020 Kč**
SURFACE PARKING, PAVEMENTS AND WALKWAYS (on Terminal premises)						
BUILT-UP AREA	capacity		–	510	–	
	paved surfaces	17'850	–	–	3'500 Kč	62'475'000 Kč
	unpaved surfaces	2'833	–	–	1'200 Kč	3'399'600 Kč
Total [m2]		**20'683**	**–**	**–**	**–**	**65'874'600 Kč**
PARKING HOUSE (except surface parking)						
capacity		–	–		–	
BUILDING VOLUME_UNDER GROUND PHASE 1		13'300	35245	380	3'500 Kč	123'357'500 Kč
BUILDING VOLUME_UNDER GROUND PHASE 2		72'100	191065	2'060	3'500 Kč	668'727'500 Kč
BUILDING VOLUME_ABOVE GROUND		–	0	–	0 Kč	0 Kč
Total [m3]		**–**	**226310**	**–**	**–**	**792'085'000 Kč**
BRIDGE OVER THE CORRIDOR AND ROAD TO ROUDNICE NAD LABEM (from the motorway bridge to the forest and connection to the Maintenance						
BRIDGE STRUCTURE		0	–	–		0 Kč
ROAD STRUCTURE		40'346	–	–	4'200 Kč	169'453'368 Kč
Total		**–**	**–**	**–**	**–**	**169'453'368 Kč**
TECHNICAL INFRASTRUCTURE						
UTILITIES		–	–	-	0 Kč	237'500'000 Kč
OTHER ITEMS		–	–	1	0 Kč	0 Kč
Total		**–**	**–**	**–**	**–**	**237'500'000 Kč**
BRIDGE AND FLYOVER						
LARGE SPAN BRIDGE OVER THE D1 (suspension)		4'320	–	–	145'000 Kč	626'400'000 Kč
FLYOVER ADJACENT TO THE BRIDGE		8'200	–	–	82'000 Kč	672'400'000 Kč
Surfaces and elements in total		**–**	**–**	**–**	**–**	**1'298'800'000 Kč**

TERMINAL, PUBLIC SPACES, PAVEMENTS, WALKWAYS AND PARKING (PARKING HOUSE), BRIDGE OVER D1 AND FLYOVER		
Total excl. VAT		**2'807'782'772 Kč**
Reserve 10%	1.10	3'088'561'049.20 Kč

Note:

Note: You can add more items to the table.

The table will be displayed in the corresponding format according to the provisions of the Terms. Estimated prices as of the date of submission of the competition

Design Annotation

The simplicity and beauty of the landscape inspired an exoskeleton, exposed 'spine' structure, which is clear, understandable, and inspiring as a rhythmic expression of movement.

This we counter-posed with an elegant, vertical suspension bridge flyover, easily spanning the E50 highway while creating a memorable visual reference point on the horizon.

The visual counter-balance between the vertical suspension bridge, and the horizontal terminal hall 'spine', will define the identity of Jihlava HSL Terminal with simple, rational beauty.

The simplicity of our parallel/in-line terminal structure not only shows a clear identity and comprehensibility, but it also allows the creation of a sequence of urban space which includes the forecourt, the allee, the piazzeta and then the entry concourse.

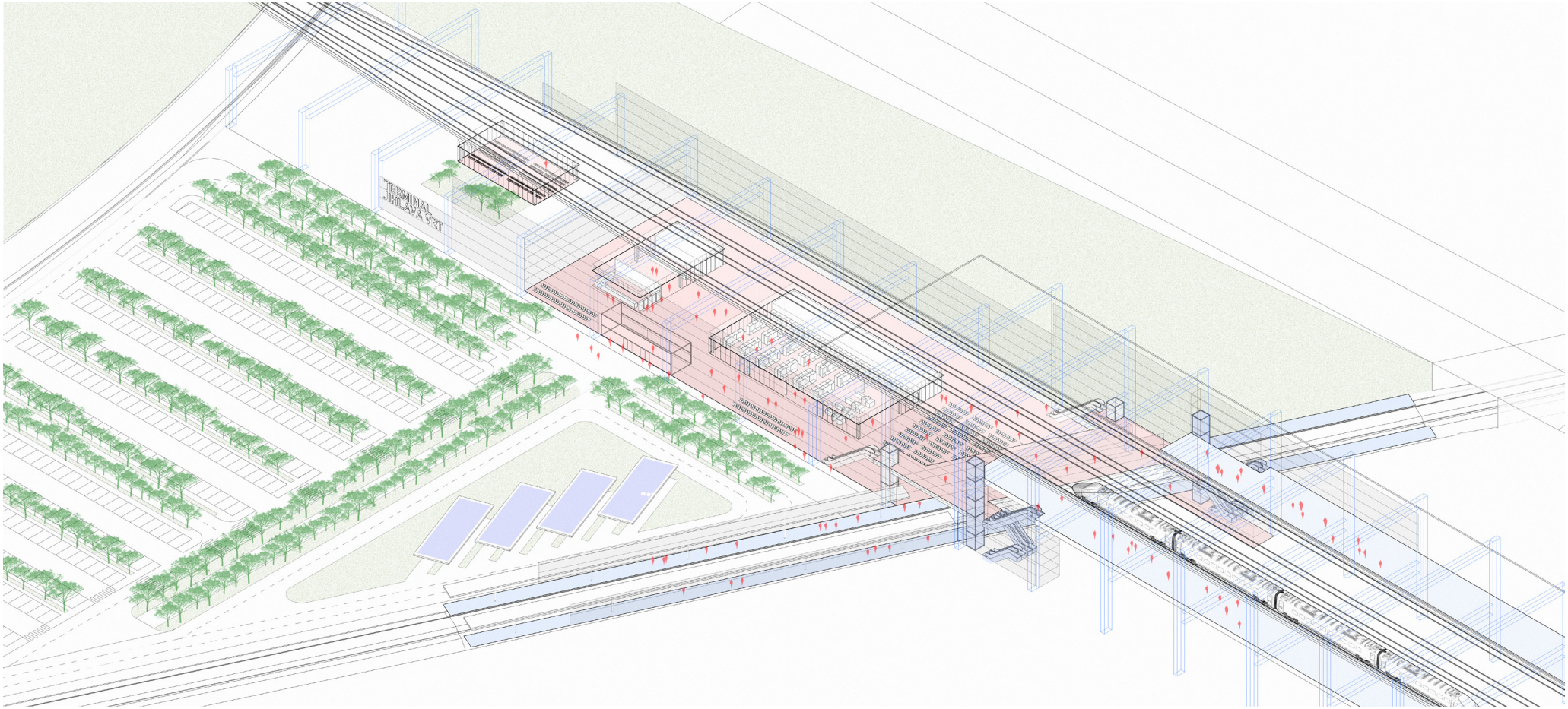
Important to any train travel experience is readability and immediate comprehension of the complex, its zoning and seamless directing of passengers to and from their trains.

a) Urbanistic & Architectural Solution

The Jihlava HSL terminal is located just North of the city of Jihlava, where forests, meadows and agricultural fields create a serene, characteristic Czech landscape. The position here is the main Prague-Brno route South-east, and, while it is relatively quiet visually, in fact, this is a complex transportation moment to be solved by the new HSL Terminal. There is a long-span flyover on the Western edge coming from the Prague direction, which converts into a simple bridge and eventually becomes the terminal hall with the HSL platforms above and parallel.

The simplicity and beauty of the landscape inspired an exoskeleton, exposed 'spine' structure, which is clear, understandable, and inspiring as a rhythmic expression of movement. This we counter-posed with an elegant, vertical suspension bridge flyover, easily spanning the E50 highway while creating a memorable visual reference point on the horizon. The visual counter- balance between the vertical suspension bridge, and the horizontal terminal hall 'spine', will define the identity of Jihlava HSL Terminal with simple, rational beauty.

Urbanistically, the simplicity of our parallel/in-line terminal structure not only shows a clear identity and comprehensibility, but it also allows the creation of a tree-covered 'forecourt', or large approach space, making easily readable the parking, circulation, bus zone and drop-off areas. This 'forecourt' features a pedestrian allee, where all parking aisles lead to and eventually connect to the piazzeta and terminal entry. Parking below ground in the Phase I garage is easily accessed from the connector road on the West edge, as well staying parallel/in-line with the terminal hall.



b) Structural & Material Solution

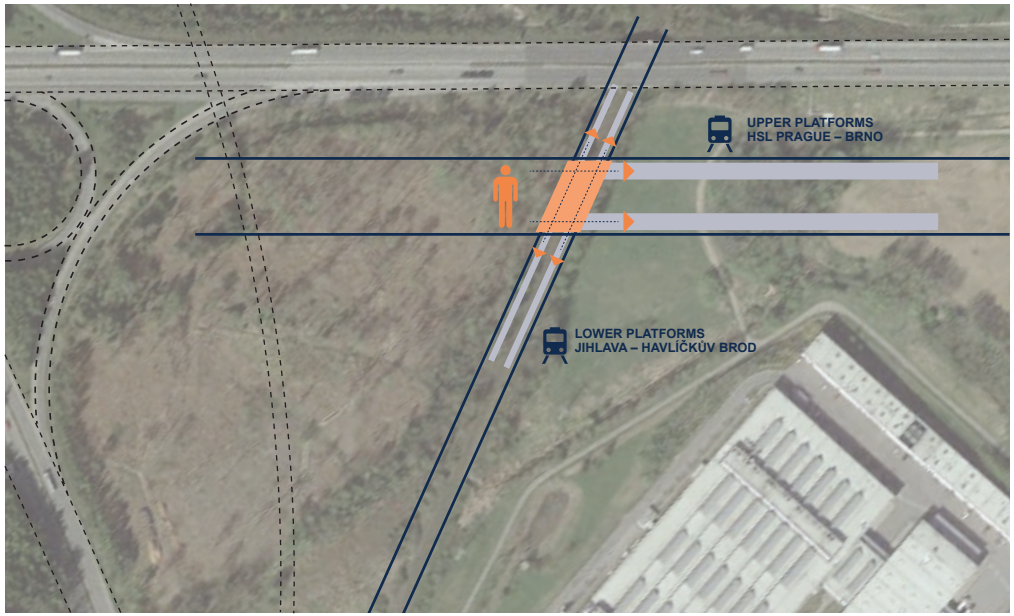
The HSL line crosses the E50/D1 highway in a very skewed/oblique angle, so in order to manage this trajectory and distance, we propose here the concrete, double track railway bridge as a cable stayed, semi-fan type with 160m long central span and 80m side spans. The orthogonal deck has deep side beams and is supported by symmetrical cable layouts anchored into two lambda shaped pylons. The overall bridged distance of the flyover structure is about 320m.

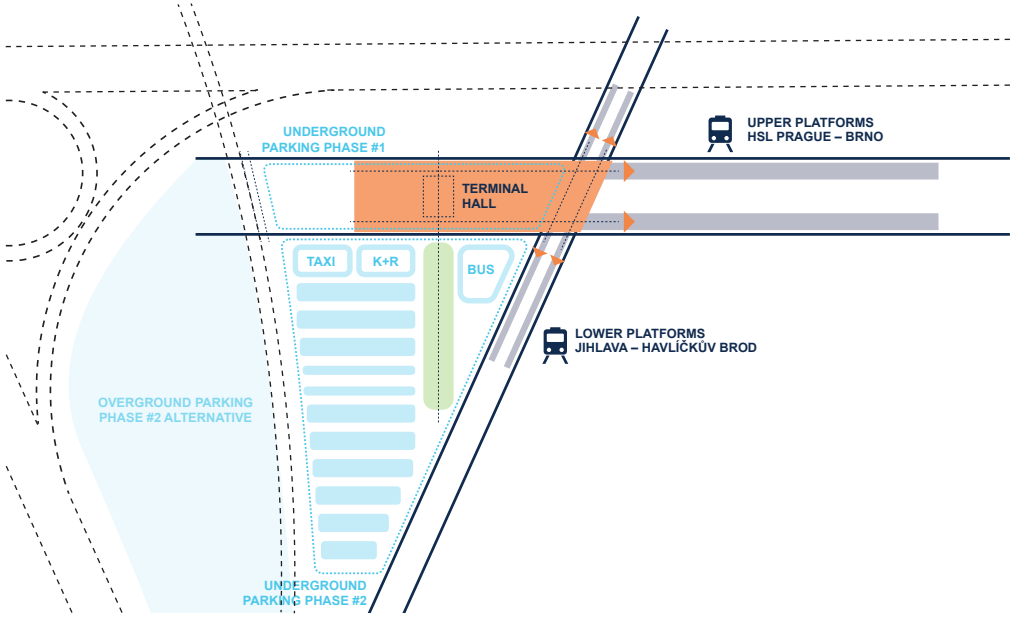
Viaducts for the HSL line between cable stayed bridge and the terminal hall, and between terminal hall - embankment consists of a composite concrete and steel structure. The slab deck for the two HSL tracks supported by beams (pre-stressed concrete or steel) underneath. The continuous upper structure is supported on wall-like piers which form the 'super-structure'.

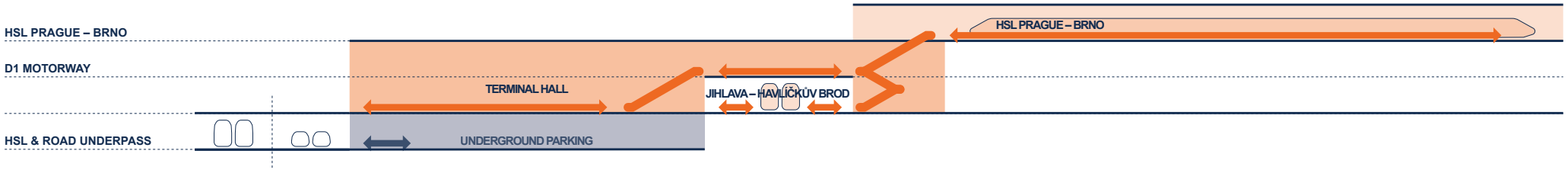
The terminal hall´s primary structural system is made of a two-storey moment frame (possibly pre-stressed concrete – steel - reinforced concrete hybrid) in the direction perpendicular to HSL tracks. The secondary longitudinal beams span across primary beams and support the tracks with platforms on first level and roof over platforms on the second level. The upper HSL platforms are roofed with steel structure and light aluminium cladding, hanged from the reinforced concrete hyper-frames, including a semi-transparent central bay having photovoltaic, safety glass panels.

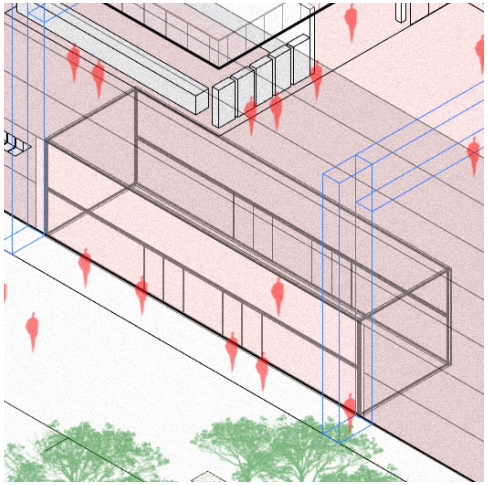
c) Layout & Operational Solution

The new HSL Jihlava Terminal's DNA is in fact based on the simple binary movement principles of the trains themselves – the layout, the superstructure, the movement energies are all East-West oriented in a symbiotic appreciation of both physical and visual comprehension. The parallel/in-line configuration of the entire complex not only helps the users' understanding of how the terminal hall works, but as well facilitates seamless passenger movement along its edges, both vertically and horizontally









within the building. The axial entry for the 'forecourt' or parking area brings passengers into the middle of the terminal hall for easy orientation, while the high ceiling allows excellent visibility through the building and up to the HSL platforms.
The ground level layout is simply zoned into two halves, where free circulation is uncontrolled on the West half after the entry vestibule, in the ticketing and self-service/retail zone, while the East half is a controlled zone for passengers only. Each of the two halves or zones has its main waiting area with fixed seating, with the balance of the space in each zone left for free movement. Over the local, connector train platforms we levitate an inspiring mezzanine for watching, resting, waiting and having refreshments, as a transitional, intermediate space on the way up to the HSL platforms. Focus was concentrated on the 'travel experience' and easy, continuous flow of people and space.

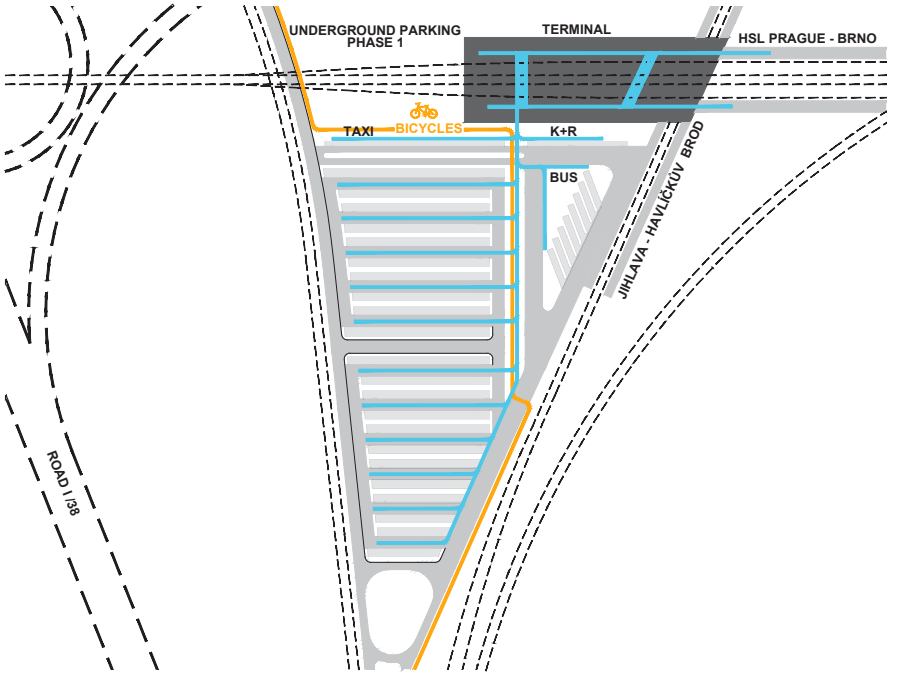
d) Technological & Energy Solution

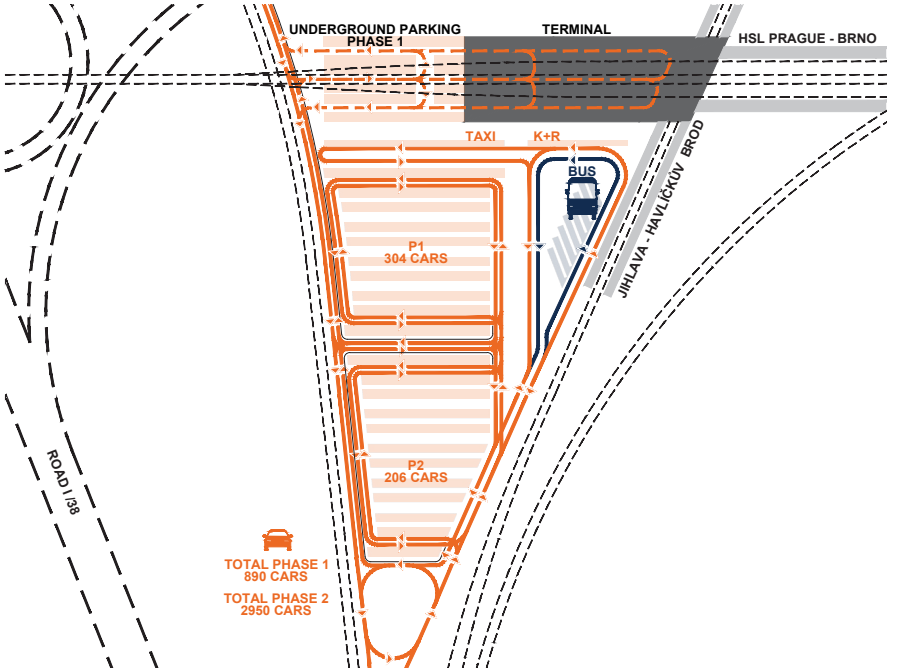
The proposed buildings in the terminal will be designed as near zero-energy buildings in terms of energy management. The technical equipment of the buildings (heating, cooling and ventilating systems) will be designed with energy-saving systems using environmental energy and heat recovery, e.g. heat pumps, solar energy (PV panels on the upper roofs) or geothermal energy sources. Systems will be designed with controls and sensors, based on actual requirements and momentary or seasonal conditions. The terminal hall systems will be designed to guarantee optimum climatic conditions, even if the requirements vary from site to site.

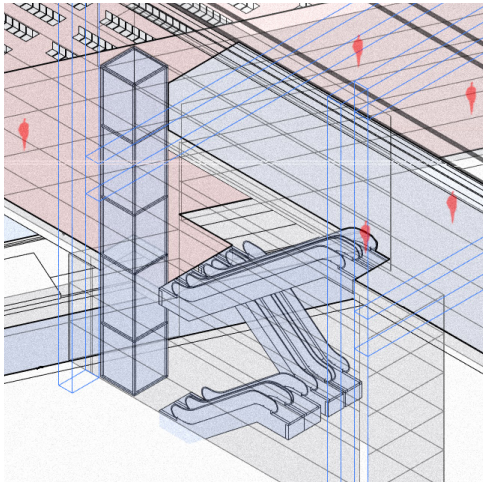
The interior of the terminal hall will be controlled ventilated and cooled. The technology and machinery rooms will be designed according to the technological requirements and located in the garage below ground. The MEP installations will be in vertical shafts and distributed horizontally long the primary beam runs, with main ducts visible in a quasi-industrial aesthetic.

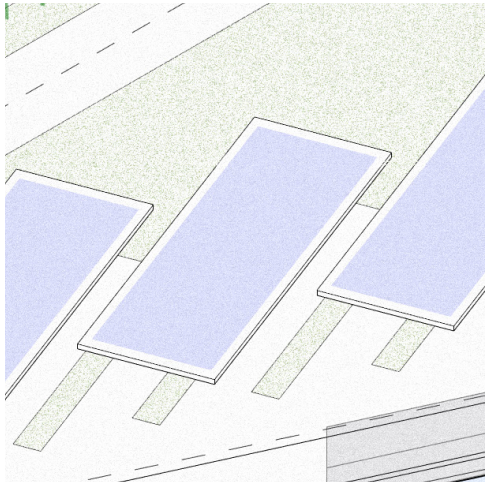
The glass façade walls are designed with integrated screening and will be covered with a high solar factor membrane. Transparency is important in terminal halls, so effort was made in the concept to convey a high-level of visibility throughout the building and its surrounding exterior spaces.

The lighting is designed using an LED









system and is integrated into the ceiling of the hall. The roof of the hall is drained by concealed gutters around the perimeter of the roof structure. Stormwater management will be designed with on-site water conservation (accumulation tank below ground) for recycling, treatment and grey water uses. The external lighting of the access roads and car parking areas will be designed using LED lighting, which we expect to be entirely powered with the PV panels integrated on the upper HSL platform roof.

Information and communication equipment will be designed to inform passengers in all public areas of the terminal site and the passenger concourse. The equipment will be controlled remotely from the Central Dispatch Centre of the high-speed lines. Information and orientation systems will be designed to inform passengers of train and bus departures and arrivals. The system will consist of a visual part - digital information panels and monitors and an acoustic part - a sound system.

The check-in halls, terminal area and car parks will be monitored by CCTV. The entrances to the buildings, lifts and escalators, platforms, parking house including the entrance and exit to the car park will be monitored. Electrical fire and security alarms will be designed, with transmission to a monitoring center. All equipment will be connected and controlled remotely and locally in the event of a fault. The technological systems will be integrated into the DDTS system of the railway.

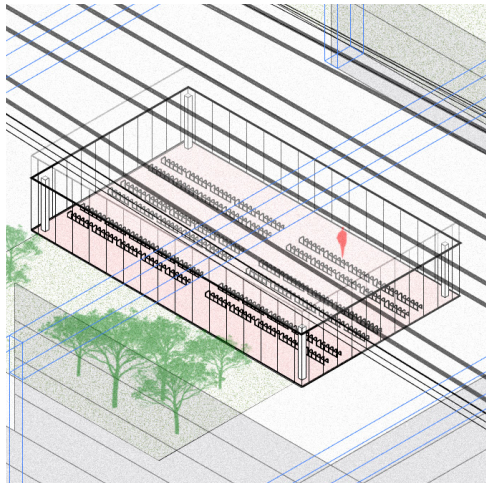
The car park and the parking garages will be equipped with a intelligent parking system. The parking system technology will be installed at the entrances and exits. An orientation system will be set up on the access roads to guide vehicles clearly to the individual car parks.

The terminal complex will be electrically supplied from a new transformer station, connected to the LDSž 22kV VRT railway grid or to the local electricity grid according to the investor's decision.

e) Public Space & Landscape

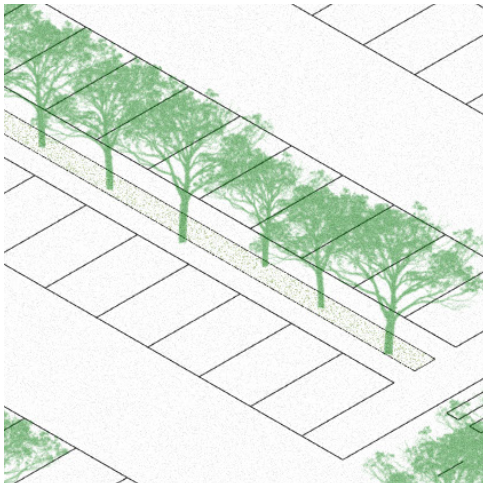
The attractivity of the Jihlava HSL complex is its serene, characteristically Czech country-side location, and how the new terminal hall, with its strong, rhythmic structural expression 'sits' into the landscape. Our terminal hall proposal attempts to 'walk' modestly through the existing landscape, adding its own dense tree layer, while at the same time marking its position and identity on the horizon with the elegant flyover piers.

For the new Jihlava HSL terminal and its surrounding complex, we created a large tree-lined 'forecourt' in the form of an open parking lot, with connecting walkways leading to a central allee, which direct people to the entry vestibule of the main hall. The sequence of urban space includes the forecourt, the allee, the piazzeta and then the entry concourse, which is the extended paving immediately in front of the terminal hall. Important to any train travel experience is readability and immediate comprehension of the complex, its zoning and seamless directing of passengers to and from their trains. The four primary public spaces are clearly defined by the landscape strategies, spatial typologies and materiality.



f) Transport & Infrastructure Solution

The most complex aspect of the Jihlava HSL terminal location is certainly the multi-modal transportation intersection, or 'node', which is created by the E50/D1 highway, the local road 38, the local North-South train route and now the HSL line. It is a 'confluence' of ground movement, which defines modern Europe and its network of towns and villages.



According to the design brief, we connect local traffic to the site via a new turn-off to a frontage road from the South direction, and indirectly via the new roundabout which branches off and goes under the E50 coming from the North. Both the North and South new site access points easily reach both the underground garage entrance on the West end of the terminal hall at the -1 level, and the surface parking lot or tree-lined 'forecourt' on the South side of the complex at the +1 entry level. Buses have a dedicated entry-exit at the South end of the surface parking lot, separated from the ingress-egress of cars and taxis, and circulate along the East edge of the surface parking lot unobstructed, with generous parking and turn-around areas. The buses also have their drop-off zone directly on the piazzeta for comfort and ease of loading both passengers and luggage. Infrastructure is connected in an East-West collector or main corridor, on the South side of the main terminal hall.

g) Conceptual Solution

Many of the conceptual principles have been explained and described in detail in the foregoing text descriptions, with the basic premise being the simple, rational expression of its structural beauty and its open, easily understood plan organization. It is in fact a physical manifestation of the DNA of a train terminal, showing both the elegance of long span structures and the rhythmic, binary movement of train travel. Rationality, simplicity and transparency define the conceptual solution, with its focus on seamless passenger movement and an inspiring travel experience.