

Quick to Install, Rapidly Trafficable, Integrated Track-Road Surface for High Quality and Extended Service Life CONTRACK Powered by Sika, Poland

Rail Fixing | Grouting | Concrete Protection

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Project description

CONTRACK is a prefabricated slab technology for the rapid construction and modernization of tram tracks, turnouts, and road-tram crossings in densely populated urban areas. Large-format reinforced concrete slabs are individually designed according to the required track geometry and manufactured off-site with the rail infrastructure integrated into the precast elements.

The technology significantly reduces on-site construction time and disruption to public transportation and road traffic compared with conventional track construction. CONTRACK has been successfully implemented on several demanding tram infrastructure projects in Poland, including Zawiszy Square in Warsaw, Telimieny Street in Kraków, and Powstańców Śląskich/Jastrzębia Streets in Wrocław.

Sika technologies for rail fixing, elastic bonding, grouting, and concrete protection complement the prefabricated system, supporting rapid installation and durable long-term performance.

Project requirements

Modernizing tram tracks at major urban intersections requires construction work to be completed within very short time windows to minimize disruption to public transportation, road traffic, businesses, and residents.

The CONTRACK system required precise positioning of large prefabricated slabs incorporating complex track geometries, curves, and turnouts. Once positioned, the slabs required a high-strength, fast-performing grout capable of resisting vibration and impact.

The embedded rails required durable elastic fixation to accommodate dynamic loads, reduce vibration and secondary noise, and provide electrical insulation against stray currents. All materials used during installation also needed to allow efficient application and rapid development of the required properties to support the accelerated construction schedules.





Sika solutions

Sika supplied complementary technologies supporting both the rapid installation and long-term performance of the CONTRACK prefabricated system.

After precise positioning of the prefabricated slabs, SikaGrout®-4 R was used for grouting. The expansive, shrinkage-compensated, self-leveling cementitious grout provides high strength and resistance to vibration and impact.

For continuous elastic rail fixing, the Icosit® KC system was used. Icosit® KC 340/45 provides elastic rail support, absorbs vibration, reduces secondary noise, and provides electrical insulation against stray currents. Icosit® KC-330 Primer was used for substrate preparation, while Icosit® KC 330 FK provided flexible bonding of filler blocks. Sikadur®-53 was used for elastic bonding to prepared rail and rail-channel substrates.

For the Zawiszy Square project, additional protection of the prefabricated concrete slabs was provided with Sikafloor® CureHard LI, Sikafloor® ProSeal-12, and Sikagard®-700 S, helping reduce water absorption and chloride penetration while improving resistance to abrasion and contamination.

Together, CONTRACK and Sika technologies provide an integrated solution for rapid, durable, and low-disruption tram track modernization.

Sika products

Rail fixing:

- Icosit® KC 340/45
- Icosit® KC-330 Primer
- Icosit® KC 330 FK

Elastic bonding:

- Sikadur®-53

Grouting:

- SikaGrout®-4 R

Concrete protection:

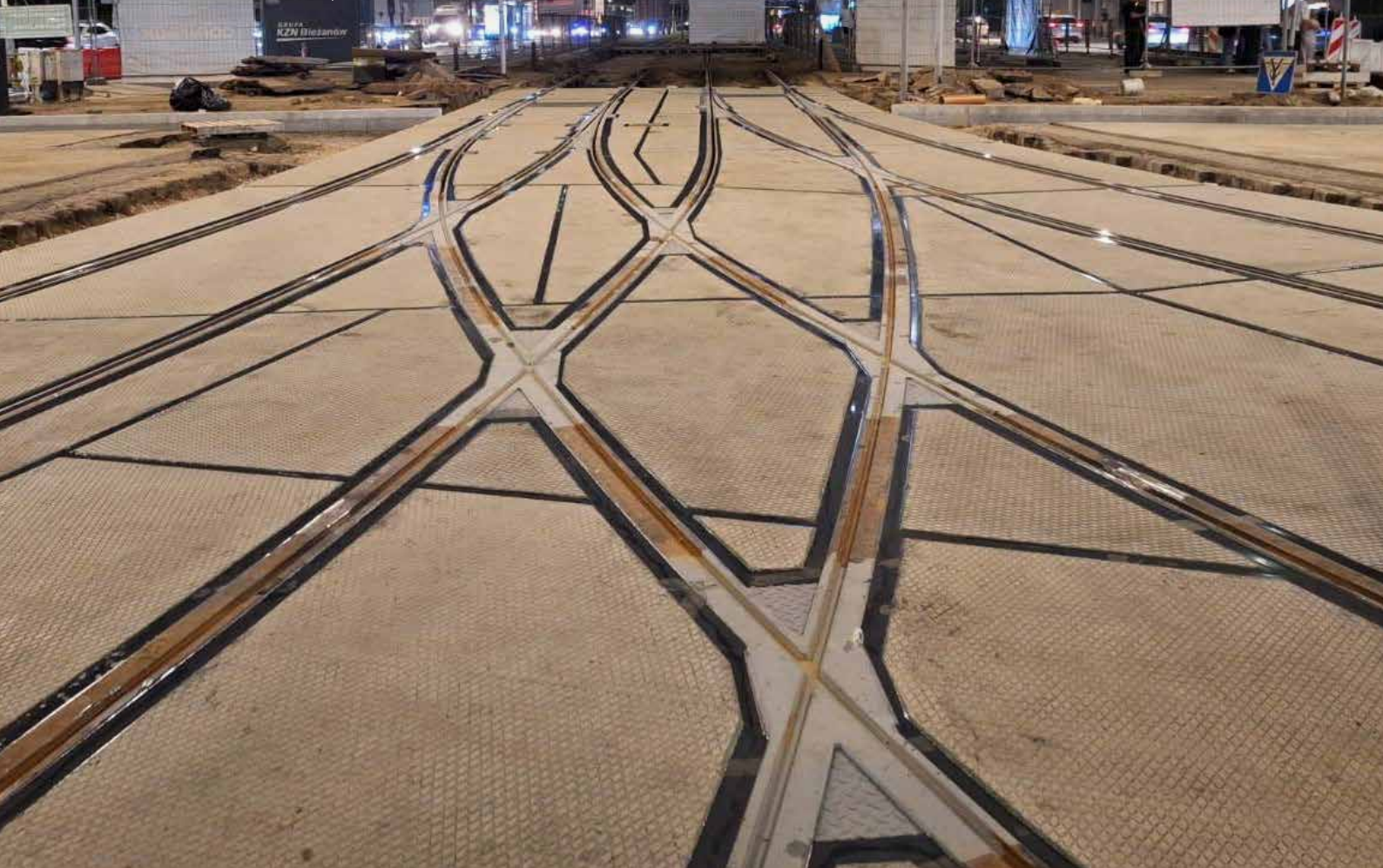
- Sikafloor® CureHard LI
- Sikafloor® ProSeal-12
- Sikagard®-700 S



Rapid Tramway Reconstruction in Just Five Weeks

Zawiszy Square, Warsaw

Reference Project 1



Zawiszy Square is one of Warsaw's key transportation hubs. Three tram routes intersect at the square, with more than 600 trams passing through every day and peak traffic reaching 30 to 45 trams per hour at each approach. The project included the reconstruction of approximately 737 m of single tram track and three tram stops along Jerozolimskie Avenue. Minimizing disruption to both tram and road traffic was therefore a critical requirement.

The project used 121 large-format CONTRACK slabs with a total area of approximately 1,600 m², incorporating around 540 m³ of concrete. Each slab was individually designed according to the required track geometry, including curves and turnouts. The prefabricated modules incorporated the reinforced concrete slab and steel track structure as well as equipment such as sensors, drainage, switch drives, and heating systems.

A full-scale trial assembly was carried out at the KZN production facility before the elements were transported to Warsaw and installed on site. The combination of precise prefabrication, efficient installation, and fast-performing Sika technologies enabled the entire reconstruction to be completed within only five weeks, compared with at least three months using conventional technology.

Project participants

Owner/Investor	Tramwaje Warszawskie
Contractor	KZN Rail Sp. z o.o.
Sika Organization	Sika Poland Sp. z o.o.



Telimeny Street Road-Tram Crossing, Kraków

Reference Project 2



The modernization of the road-tram crossing at the intersection of Telimeny, Ćwiklińska, and Aleksandry Streets in Kraków demonstrated the advantages of large-format CONTRACK technology for complex track geometry and restricted urban construction conditions.

Because the tram line follows a curve through the intersection, reconstruction using conventional prefabricated concrete slabs would have required approximately 25 individual panels. With CONTRACK technology, the same crossing could be constructed using only four large-format prefabricated slabs.

A full-scale trial assembly was carried out before installation. The project was also used to test alternative logistics for transporting, unloading, and positioning large, heavy prefabricated elements in restricted working areas beneath an active overhead traction system. Specialized lifting equipment enabled the slabs to be installed efficiently despite the limited construction space.

The project demonstrated how large-format prefabrication combined with Sika grouting and elastic rail-fixing technologies can significantly reduce the time required to reconstruct critical urban tram crossings while minimizing traffic disruption.

Project participants

Owner/Investor	Zarząd Dróg Miasta Krakowa
Contractor	KZN Rail Sp. z o.o.
Sika Organization	Sika Poland Sp. z o.o.





Road-Tram Crossing Replaced within a Single Weekend

Powstańców Śląskich / Jastrzębia Streets, Wrocław

Reference Project 3

The replacement of the road-tram crossing at Powstańców Śląskich and Jastrzębia Streets in Wrocław formed part of a wider modernization of the tram infrastructure, including new platforms, green track, and pedestrian facilities.

Because of the importance of the intersection for both tram and road traffic, the replacement of the crossing was scheduled for a single weekend. This required precise planning, extensive prefabrication, and materials capable of supporting a highly accelerated construction schedule.

The crossing was reconstructed using six individually designed CONTRACK slabs with a total area of approximately 130 m². Following a full-scale trial assembly, the finished elements were transported from the production facility in Kraków to Wrocław and installed on site within a few hours.

The combination of prefabricated CONTRACK technology with Sika grouting and elastic rail-fixing systems enabled the modernization to be carried out within the restricted construction window while minimizing interruption to tram and road traffic.

Project participants

Owner/Investor	MPK Sp. z o.o. Wrocław
Contractor	KZN Rail Sp. z o.o.
Sika Organization	Sika Poland Sp. z o.o.





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