Tieless Innovation Protects Queens Communities

Jamaica, Queens, New York



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Idlewild Park Flood Control: Engineering a 300-Foot Waterproofed Solution

When severe weather threatens Queens neighborhoods, the Idlewild Park flood control system stands as a critical line of defense. This triple-barrel box culvert project represents one 300-foot section of a multi-mile underground water management network running through Jamaica, Queens.

Designed to handle massive stormwater flows and protect surrounding residential areas, the structure demanded a unique engineering approach that would preserve waterproofing integrity while maintaining structural precision. For the communities that depend on this infrastructure, effective flood control means protected homes, preserved property values, and peace of mind during storm season.



The Waterproofing Challenge

The project's defining challenge emerged from a fundamental conflict between conventional forming practices and waterproofing integrity. Water stops—specialized membranes that prevent water infiltration at concrete joints—were specified to run the full height and length of the culvert walls. Traditional tie-through systems would have punctured these membranes at hundreds of points, creating potential failure paths for the flood control structure.

Any water penetration would compromise the system's ability to protect Queens neighborhoods during severe weather events. The contractor needed a completely tieless formwork solution.

Engineering the Solution

Inter LaPeruta J.V., a joint venture combining the expertise of two established New York contractors, had exclusively used competitive formwork systems for decades. However, they recognized that this project's unique waterproofing requirements demanded a different approach.

EFCO's engineering team designed a comprehensive solution that eliminated ties entirely by converting the SUPER STUD® system into structural compression struts spanning the interior of the culvert. Rather than using tension ties to pull formwork panels together, the SUPER STUDS® resisted lateral concrete pressure through compression alone.

The formwork package included *PLATE GIRDER*® panels for the culvert roof and walls, SUPER STUDS® functioning as compression struts, heavy-duty tolerance plates, DC-20 ratchet jacks, Combination Bias Corner (CBC) struts, flying slab headers, and a wheeled traveler system enabling efficient cycling. This approach allowed the contractor to pour the culvert roof and walls monolithically, in a single continuous pour, while preserving the unbroken waterproofing membrane.

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Maximizing Construction Efficiency

EFCO divided the 300-foot culvert into three equal 100-foot sections. Each section was preassembled off-site with uniform dimensions, dramatically reducing on-site installation time and labor costs. The standardization eliminated time-consuming field adjustments and reduced the specialized labor typically required for complex culvert forming.

Heavy-duty tolerance plates installed in the culvert roof created a controlled gap between *PLATE GIRDER*® panels, providing essential stripping relief. When combined with DC-20 ratchet jacks, this system allowed crews to collapse each section approximately 1 inch inward, lower the forms onto wheels, and roll the entire assembly forward to the next pour location. The equipment was cycled daily.

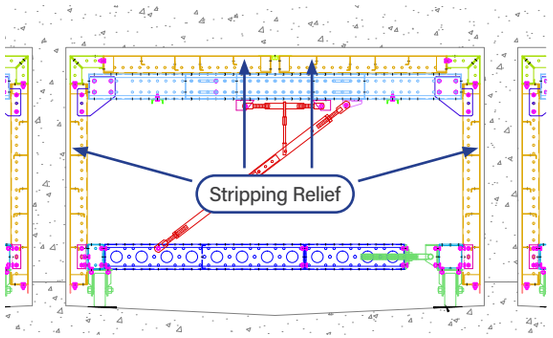
The *PLATE GIRDER*® system delivered an architectural-quality concrete finish. For flood control structures where water flow efficiency directly impacts performance, smooth interior surfaces minimize friction and turbulence, optimizing hydraulic performance while reducing long-term maintenance requirements.

The entire system used standard EFCO components, eliminating the need for custom fabrication and keeping costs predictable and replacement parts readily available.

From Rental to Partnership

Through multiple on-site meetings where both teams analyzed construction progress and refined cost projections, the relationship evolved beyond a typical vendor arrangement. The contractor ultimately converted the entire formwork package from rental to purchase.

This decision represented more than a financial transaction. A joint venture that had exclusively used competitive systems for decades became an EFCO customer, recognizing how innovative problem-solving and collaborative service delivery achieve the Lowest In-place Concrete Cost (LIPCC).







The entire tieless compression strut system used standard EFCO components, eliminating custom fabrication while keeping costs predictable and replacement parts readily available throughout the multi-mile underground network construction.

Why Inter LaPeruta J.V. Chose EFCO

Inter LaPeruta selected EFCO because the Idlewild Park flood control project demanded more than standard equipment rental—it required engineering innovation to solve unprecedented waterproofing challenges. When conventional tie-through systems threatened to compromise critical water stops, EFCO responded with a completely tieless solution using SUPER STUDS® as compression struts, enabling monolithic pours while maintaining structural integrity.

The preassembled traveler sections, standardized gang configurations, and efficient cycling system demonstrated how thoughtful engineering reduces labor costs and accelerates schedules without sacrificing precision. By converting an initial rental agreement into an equipment purchase, Inter LaPeruta acknowledged that EFCO's collaborative approach, technical expertise, and commitment to delivering the Lowest In-place Concrete Cost (LIPCC) aligned perfectly with their operational requirements.

For contractors facing infrastructure projects where innovative problem-solving makes the difference between meeting specifications and compromising performance, EFCO's work at Idlewild Park demonstrates why investing in the right formwork partner delivers measurable returns.

EFCO EQUIPMENT

PLATE GIRDER®, SUPER STUD®

EFCO FORMWORK SPECIALISTS - MARLBORO

Matt Tomaschek ..... Territory Manager
Dan Astarita ..... Field Supervisor
Joel Lindberg ..... District Engineer
Eric Skaug ..... Regional Engineer

INTER LAPERUTA J.V.

Vincent LaPeruta ..... Vice President, LaPeruta
Michael Mutino ..... Project Manager
Michael Buckle ..... Vice President, Inter
Joe Mutino ..... Chief Engineer