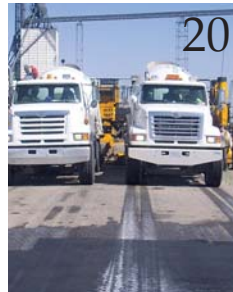
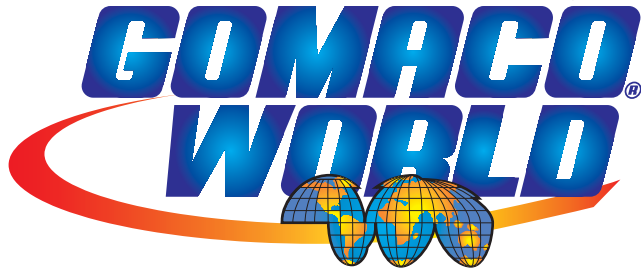




***Slipforming the
Batman Canal in
Southeastern Turkey***



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Fernas Construction and Trade Corp. slipforms the new Batman Canal in a single pass with their GOMACO four-track GP-2600 paver.

New Batman Canal Irrigates Southeastern Turkey

One of the responsibilities of the Southeastern Anatolia Project (GAP) is the development of irrigation systems in southeastern Turkey. GAP oversees nine provinces and approximately 10 percent of Turkey's total population, covering a surface area of 75,000 square kilometers (28,960 mi²). One of the GAP projects is a new concrete canal

stretching approximately 140 kilometers (87 mi) between the cities of Batman and Diyarbakır in southeastern Turkey. The formal name of the project is the Batman Irrigation Canal.

Fernas Construction and Trade Corp., based out of Ankara, Turkey, specializes in hydroelectric power plants and irrigation projects. The company is

responsible for building this new canal and lining it with a 100 millimeter (4 in) thick layer of concrete. They chose the GOMACO four-track GP-2600 to slipform all of the canal on the project. It would be the company's first slipforming project.

Many hours of planning and engineering had to be accomplished

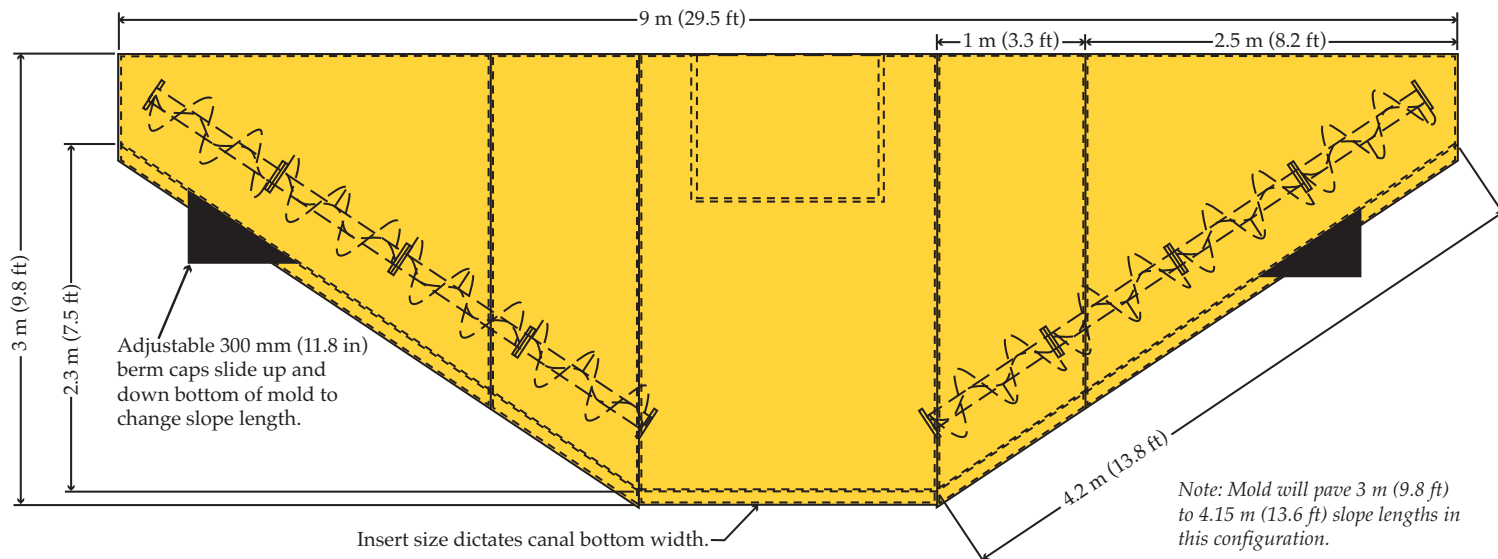
before the first concrete could be placed. The scope of the project included two phases, the Batman Irrigation Left Coast and Right Coast Canals. Between the two, there were 47 different canal sections with varying canal dimensions and slopes. The overall width of the canals varied from 13.2 meters (43.3 ft) to 2.35 meters (7.7 ft). Slope lengths varied from 5.23 meters (17.2 ft) to as short as 0.81 meter (2.7 ft). The biggest challenge for the project would be developing one machine and as few molds as possible for the different profiles.

Engineers from Fernas Construction worked closely with GOMACO engineers to create a solution. The four-track GP-2600 would be equipped with only two molds. A single slope canal mold would be used for canal widths over nine meters (29.5 ft).

Canal widths nine meters (29.5 ft) and less would be slipformed in one paving pass using a sectional trapezoidal mold that could be adjusted for slope and depth. The sectional mold and front hopper feature different inserts to change the slope and the

A chain trimmer on the front of the paver fine trims the final grade.





depth. A sliding adjustable berm cap on either side of the mold allows an extra 300 millimeters (11.8 in) of slope length adjustment. To coordinate all of these transitions while working on site, GOMACO engineers provided a set of charts for canal widths and depths with instructions for the paver's framework, mold, and trimmer conversions.

With the paver plan in place, slipforming on the Batman Canal could begin. The profile of the canal was dug with excavators. A chain trimmer on the front of the GP-2600 is used to trim down the high spots in the grade.

Four mobile batch plants are on site, each with the ability to produce 60 cubic meters (78.5 yd³) of concrete per hour. The concrete is a Class C16/20 mix, 24.3 MPa (3000 psi), with a 2.3 percent air entrainment. Slump averages 60 millimeters (2.4 in).

Concrete is transported in ready-mix trucks to the paving site. The trucks discharge onto a conveyor which dumps into and fills the hopper of the canal mold.

Behind the paver, finishers stand on a work bridge and apply a trowel finish



Ready-mix trucks discharge onto the GP-2600's conveyor which dumps into and fills the hopper on the trapezoidal mold. The GP-2600 features a dual-drive chain trimmer with 27 meters (89 ft) of chain and modified teeth to help move the material up the slope of the canal.



The operator's view of the canal shows the GP-2600 paver leaving a smooth finish.

to the surface of the canal. Transverse and longitudinal joints are cut into the new concrete every three meters (9.8 ft). Paving production for the wider width profiles averages approximately 600 meters (1969 ft) per day.

Service personnel from both GOMACO International Ltd. in England and GOMACO's distributor in Turkey, Göker, were on site at various times during the canal paving. The service personnel were available to aid in machine start-up, training, technical and application support during paving.

"When we were looking to buy a machine, we were looking for a quality machine with a quality dealer for after sale and brand," Kadir Özkan, Project Manager for Fernas Construction, said. "The GP-2600 has easily handled all the dimensions in the project with its half-width and full width molds."

Once the Batman Canal is complete, it will provide irrigation for an 18,593 hectare (45,944 acre) area stretching from the dam and hydroelectric power plant on the Batman River into the city of Diyarbakır.



Photos by Kevin Ackley unless otherwise stated HW-051210 D13



The new concrete overlay is part of a test section on Interstate 90. A GHP-2800 is slipforming the overlay on top of existing asphalt.

Smoothest Concrete Pavement in the State of New York

The New York State Thruway wanted to experiment with unbonded concrete overlays. They chose a five mile (8 km), four-lane section of Interstate 90 near Hamburg as their test section. Surianello General Concrete, based out of Buffalo, New York, won the bid to pave the nine inch (229 mm) thick concrete overlay.

The age and the design of the original roadway created a paving challenge right from the start. It was

built in the 1950s and didn't conform to current geometry requirements for superhighways.

"They built it with a standard crown section going through all horizontal curves. No super elevations," Frank Surianello, President of Surianello General Concrete, explained. "Now, to conform to Federal Highway Administration guidelines for superhighways, you have to adjust and make your transition from

normal crown to full bank horizontal curves. The depth of the blacktop underlayment at these locations varied from 1.5 to 7.5 inches (38 to 191 mm). Anchoring traditional baskets would be a challenge.

"Since this was an overlay, the next issue was setting string. You'd have to pre-drill the holes for the stakes and spend a lot of time and effort anchoring them. Plus, stringline basically holds the job hostage because your access is



The new Batman Canal will help irrigate land throughout southeastern Turkey.

HW-021208 D1

very limited.”

The American Concrete Pavement Association (ACPA) was involved throughout the design and implementation phases of the project. Surianello, who is currently the 2013 Chairman of the ACPA, and his company worked together closely with the association on the Interstate 90 overlay.

The answer to both the transverse joint and stringline challenge for Surianello General Concrete was a GOMACO four-track GHP-2800 equipped with a new independent IDBI attachment and a Leica 3D stringless guidance system to control the paver. Both the 3D and IDBI systems were completely new to the company. Before they took their new paver out on a project, they wanted to do training and a test pour at their headquarters. GOMACO sent members of their 3D team, Service Department, and an instructor from GOMACO University to provide hands-on training.

“We did a 150 foot (45.7 m) test pour at our facilities in Buffalo where we trained our operators on the dowel bar inserter and the stringless,” Surianello said. “The hands-on experience allowed us to get our ducks in a row so when we mobilized for the actual project, everyone knew their job and we could hit the ground running.”

With training completed and

the crew confident in their abilities, Surianello moved their GHP-2800 on site and began paving the overlay project on Interstate 90. Concrete was supplied by their own central mix batch plant batching nine cubic yard (6.9 m³). Tri-axle dump trucks carried the concrete to the paver on the existing road and dumped directly onto it in front of the paver. Tight conditions on the project didn’t allow much room for haul roads or a placer/spreader.

The GHP-2800 paved 25 feet (7.6 m) wide and nine inches (229 mm) thick. Every 15 feet (4.6 m) the GOMACO IDBI was placing 25 dowel bars for the pavement’s transverse joint. Each bar was 1.25 inches (32 mm) in diameter, 18 inches (457 mm) long, and placed at a 12 inch (305 mm) center spacing across the width of the slab.

“We had 1000 joints on the project and we did not find one bar that was out of place,” Surianello said. “The GOMACO service representative did a great job setting up the paver and my guys really got tuned into it.”

The Leica 3D system also worked well for the stringless rookies. Surianello teamed up with a local surveying company to build their paving models.

“They surveyed the existing blacktop and built the models to maximize efficiencies for depth,” Surianello explained. “The company,

“I’ve had some industry feedback stating straight out that this is the smoothest concrete pavement that anybody has ever ridden on in New York,” Frank Surianello proudly said. “And these are blacktop guys saying it!”



Surianello Concrete is using a Leica 3D stringless guidance system on the GOMACO GHP-2800 four-track paver.

Innovative GPS Solutions LLC, actually went through GOMACO University’s stringless class and they did a very good job building our models for us.”

Real-time pavement smoothness behind the GHP-2800 was monitored by two paver-mounted GSI® (GOMACO Smoothness Indicator) units. The state of New York uses the two-tenths blanking band to monitor the smoothness of their new roads.

“It’s a California-type profilograph, two-tenths blanking band, five inches per mile (79 mm/km), so it’s pretty lenient,” Surianello said. “When we profilographed this project, we were getting readings of zero, or 0.1 inch (2 mm). The readings were so good that I was skeptical, so I asked another contractor to bring out their lightweight profiler and see what kind of numbers it read. We were getting in



The GHP-2800 was equipped with an IDBI to place the dowel bars for the transverse joints into the new pavement.



A GOMACO T/C-600 texture/cure machine followed the paver and applied a longitudinal tine and white spray cure.

the 70s on the IRI, with readings as low as 30.

"We really found some interesting things using the GSI and getting real-time smoothness numbers and what affects the smoothness coming out the back of that paver. It was just incredible."

Surianello's paving production averaged around 2600 feet (792 m) per day, or between six to eight feet (1.8 to 2.4 m) per minute. The GSI showed them they were reaching maximum smoothness results at that speed with the concrete paving mix they were using.

A new GOMACO T/C-600 texture/cure machine followed the GHP-2800 applying a longitudinal tine and white spray cure. Wheels attached to the T/C-600's sensors allowed steering and grade control

off the new slab on the stringless project.

"We were excited about this new paver and it really was a celebratory thing for our company," Surianello said. "It has worked out well for us. We had 15 headers on the project and they came out perfect. We didn't have to grind one square foot anywhere on the job."

It's too early yet for the Thruway Authority to have any results on the success of the concrete overlay test. One thing that has been determined though, is how smooth the new overlay is.

"I've had some industry feedback stating straight out that this is the smoothest concrete pavement that anybody has ever ridden on in New York," Surianello proudly said. "And these are blacktop guys saying it!"



An Award-Winning Company with a History of GOMACO Pavers –



Domenic Surianello and his wife, Bina, pose in front of their first GOMACO GT-6000 in Ida Grove, Iowa, in 1974.



A tradition continues... Frank Surianello and his wife, Cathy, pose in front of a GOMACO paver in Ida Grove when they purchased their new GHP-2800.

Surianello General Concrete's overlay work on New York's Interstate 90 has earned them another national paving award from the American Concrete Pavement Association (ACPA). They won this year's Gold Award for Concrete Overlays (Highways) for the 24th Annual National Excellence in Concrete Pavement Awards.

Their first project with their new GHP-2800 paver won them the Silver Award last year in the Commercial Service & Military Airports category.

Congratulations Surianello General Concrete on your award-winning projects. We are proud to have our GOMACO pavers at work on your job sites since 1974.

--From all of us at GOMACO

**Pave
with
Pride**



Photos by Kelly Krueger HW-011316 D16

McNeil Brothers' GP-4000 with IDBI has averaged smoothness under an 80 using the International Roughness Index to measure rideability on Arizona's Interstate 10 in Tucson.

Two-Track IDBI Earns Ride on an Arizona Project

McNeil Brothers, based out of Phoenix, Arizona, is at work on a two mile (3.2 km) stretch of interstate in Tucson. It is a project for the Arizona Department of Transportation (ADOT) that involves widening Interstate 10 to four lanes of traffic in each direction between Ruthrauff Road and Prince Road in Tucson. This new stretch of interstate was needed to better handle increasing traffic demands in the city. Entrance and exit ramps are also being rebuilt to improve access to the traveling public.

McNeil Brothers purchased a new GOMACO two-track GP-4000 paver with a 5400 series mold and IDBI for the 2013 paving season. They also equipped their new paver with two paver-mounted GOMACO Smoothness Indicator (GSI®) units.

"It's 84 feet (25.6 m) of paving at its widest point, including the four through lanes, shoulders, on/off ramps, and even some frontage roads that go along with it," Matt McNeil, Vice President of McNeil Brothers, explained.

Two paver-mounted GSI (GOMACO Smoothness Indicator) units measure smoothness right behind the paver allowing instant adjustments, if needed, to improve the ride.



HW-011317 D11

McNeil Brothers has their mobile batch plant on site mixing the standard concrete mix with a 57 aggregate. Slump averages between one to 1.25 inches (25 to 32 mm). Fifteen trucks run between the mobile batch plant and

the paver, each carrying a 10 cubic yard (7.6 m³) load. The concrete is dumped directly onto the grade in front of the paver.

The GP-4000 is paving the passes 24 feet (7.3 m) wide and 15 inches (381 mm) thick. The paver is equipped with three different bar insertion systems, including a front-mounted center bar inserter, two rear-mounted side bar inserters, and the IDBI that inserts the dowel bars for the transverse joint.

The IDBI is inserting 22 dowel bars across the width of the slab, spaced on 12 inch (305 mm) centers. Each bar is 18 inches (457 mm) long and 1.5 inches (38 mm) in diameter. Joints are every 15 feet (4.6 m).

McNeil Brothers are seasoned professionals paving with an IDBI and

have been using one on a GOMACO paver since 1996. In fact, they helped GOMACO field test the In-The-Pan Dowel Bar Inserter (IDBI), as it's known today. They paved with it on a project in Phoenix. After a successful test and verification of accurate bar placement, they purchased one of their own for a project in Las Vegas, Nevada, and many others.

"If concrete placing is going to include dowels on a majority of the work, we feel like we need an inserter to be competitive...", McNeil said in 2006, in an article for *GOMACO World*, Vol. 25. No. 1. "We believe that this is easier and less labor intensive than setting dowel baskets. To us, that was always a fight."

Now, in 2013 after upgrading IDBI systems over the years, they're using GOMACO's newest dowel bar insertion system. It's already been used in the field on four-track pavers, but McNeil's

is the first one for a two-track GP-4000 paver. Interstate 10 is the first of many highway projects they will pave with it.

"GOMACO has improved a lot of the IDBI's convenience issues and cleaned everything up," McNeil explained. "I like the use of smart cylinders, the bar cart works better, the painting and marking system is better, and the control system is easier... It's numerous small improvements from years of research and development to the IDBI that makes the system work so much better."

Another feature new to McNeil's and their paver are the paver-mounted GSI units for monitoring the smoothness of their newly paved roadway. ADOT uses the two-tenths blanking band to measure smoothness. McNeil Brothers is averaging less than one inch (25 mm) on the project. Their ride has been so good, they decided to see what the numbers averaged on the IRI.



HW-011312 D18

The IDBI for the GP-4000 is in the stand-by position and waits for the signal to fire for the 15 foot (4.6 m) joint spacing.


"We've consistently been under an 80 and I am impressed," McNeil said. "The GSI gives us instant feedback and you can watch what happens going through the paver, see what it does, and what effect it has on the ride, so we can make instantaneous changes instead of waiting until the next day."

The GSI also helps determine the optimum paving speed for maximum

rideability by providing instant feedback on variable factors including the concrete itself. McNeil Brothers' production averages 250 cubic yards (191 m³) an hour on I-10.

"Different concrete mixes will like different paving speeds, or if you're going to pave faster you run the concrete a little bit wetter," McNeil explained. "The GSI takes the guesswork out of all of it. If we're running a little bit wetter, dryer, faster... We know how it's affecting our ride and have that information on the spot. That makes it a valuable tool."

A GOMACO T/C-600 texture/cure machine follows the paver applying a burlap drag finish with longitudinal tining and white spray cure.

Once this project is complete, McNeil Brothers will widen out their GP-4000 and IDBI to 36 feet (11 m) to start work on another one of Arizona's highway projects. 



HW-011311 D16

Along with the three bar insertion systems, the GP-4000 paver is also equipped with an Auto-Float® attachment and burlap drag.



HW-011316 D3

The paving passes are 24 feet (7.3 m) wide and 15 inches (381 mm) thick. The new roadway, at its widest point, will be 84 feet (25.6 m) with four lanes of traffic in each direction.

Buying a Machine on a Dare

Work is progressing at the new Fred Couples-designed Whiskey Jack golf course and subdivision in Sparwood, British Columbia, Canada. Bears paw Contracting Inc., from Elkford, was busy hand-pouring foundations and driveways when one of the project developers approached Leonard Gostick, President of Bears paw, and asked him if he knew of anyone who could slipform the 5.5 kilometers (3.4 mi) of curb and gutter and monolithic sidewalk with curb and gutter on the project.

"I jokingly told him I had done it before as a laborer and he dared me to go buy a machine and he'd give us the contract," Gostick said. "You know concrete guys have a bit of an ego... So, we did."

They shook hands and then Bears paw started the search for a curb

and gutter machine. The company asked for advice from established slipform contractors, a friend at an equipment distributor, Chieftain Equipment Inc., and looked at everything they could find on the Internet.

"We spent probably 24 hours a day for two weeks nonstop online," Gostick said. "We looked at everything possible to see what bang we could get for the buck, what would be most versatile, and what would do what we wanted to do. Plus size of the machine... something big enough, but at the same time something we could also use to work on the little projects."

Their search led them to the GOMACO three-track Commander III. The Commander III's size allows them to slipform on any size project, and its versatility can tackle multiple applications, including Whiskey

Bears paw Contracting is using their new GOMACO Commander III to slipform both curb and gutter and monolithic sidewalk with curb and gutter on the new Whiskey Jack subdivision in Sparwood, British Columbia, Canada.



Photos by Jim Hayward CG-091210 D11



CG-101217 D9



CG-091211 D16

The Commander III trims and pours simultaneously on the curb and gutter and monolithic sidewalk with curb and gutter.

Jack's curb and gutter and monolithic sidewalk with curb and gutter.

Bearspaw took delivery of their Commander III last fall and put it to work in the subdivision. The curb and gutter on the project is a roll-over style with a 500 millimeter (19.7 in) wide base and the curb is 235 millimeters (9.25 in) tall. The monolithic sidewalk with curb and gutter features the same style curb, with a 1.5 meter (5 ft) wide and 127 millimeter (5 in) thick sidewalk.

Both applications on the subdivision are pretrimmed. The learning curve with slipform paving extended to the company in charge of the grade preparation, as well.

"It's one of the fights we've been having," Gostick explained. "They've been using a little bit too big of aggregates so we have been



CG-101217 D15

The monolithic profile on the project features a 1.5 meter (5 ft) wide, 127 millimeter (5 in) thick sidewalk with a roll-over style curb and gutter. The curb has a 500 millimeter (19.7 in) wide base and 235 millimeter (9.25 in) tall curb.

pretrimming because of it. Then we also do a second trim as we pour."

The concrete is produced by a local supplier and is a high early strength concrete with fiber mesh to accommodate the extreme weather conditions. It has a high strength, 35 MPa (5076 psi), to counteract the climate's freeze/thaw cycle and also the large amount of road salt the municipalities use during the winter.

Production with the Commander III on the two different applications has been difficult to measure due to challenging weather conditions and a constantly interrupted supply of concrete.

"Every time we try to book in a large pour, the mines will call right in the middle of it and there goes our concrete supply because they get first

priority," Gostick said. "Sidewalk is nice because you see a lot of volume down on the ground, but curb and gutter is what the guys like. You can start the day on the corner of a subdivision and by the end of the day, you can't see where you started."

The Commander III is applying a smooth finish. Finishers simply apply a broom finish and cut in the joints. Joints in the new curb and gutter are every 2.1 meters (7 ft) and the monolithic joints are every 1.5 meters (5 ft).

Bearspaw started slipforming on the project last fall, but winter caught them before they could complete all of the work. This year, they are finishing the last of it, and then will start on another 6.5 kilometers (4 mi) of both applications for phase two of the development project.

The company is also looking to expand into other applications with their new Commander III and continue to grow their slipforming division. Bearspaw has bid on an 80 kilometer (50 mi) long, one meter (3.3 ft) tall Jersey barrier project on the western coast of British Columbia.

"The possibilities are very exciting for our company," Gostick said. "I have been pleasantly surprised by how willing our competitors have been to share information with us as we were looking to buy a machine and as we work with it. I guess that's the best advice I can offer to others new to this business... don't be shy to ask questions and don't hesitate, especially if it's free, to take any advice that you can get."

A COMMANDER III GOES TO WORK ON AN AIRPORT EXPANSION



Fort McMurray Airport is constructing a new terminal building to accommodate increased passenger and air traffic from work at the Athabasca Oil Sands.

Fort McMurray in Alberta, Canada, is a modern-day boomtown due to its location close to the Athabasca Oil Sands, the world's largest known reservoir of crude bitumen. Since 2010, the city has seen an 80 percent overall population increase and is coping to keep up with the demand the extra people are making on its infrastructure.

One of Fort McMurray's biggest challenges is updating its airport. Its remote location makes air travel the preferred method for traveling to and from the city and the airport is working beyond capacity to try to accommodate all of the travelers. Fort McMurray Airport's terminal was built in 1985 and was designed for a maximum of 250,000 passengers. In 2012, 957,000 passengers passed through the terminal, more than triple its planned capacity.

The Fort McMurray Airport Authority (FMAA) is currently at work on a \$258 million project to build a new 14,000 square meter (150,000 ft²) terminal building, five times larger than the current facility. The terminal will feature several upgrades, including an airport apron large enough to park eight aircraft.

Proform Concrete Services Inc., based out of Red Deer, Alberta, was at work on the project slipforming the new 262.3 meter (861 ft) long by 36.6 meter (120 ft) wide concrete apron. All of the concrete slipform paving on the apron was accomplished with their GOMACO four-track Commander III.

The current terminal building is located north of the runway.

Photos Courtesy of Jason Ohlhauser CG-021301 D2

The FMAA made the decision not to expand that facility, but to instead build a completely new terminal south of the runway. It would mean all new construction.

It would also mean air travel would not be interrupted by construction at any time, because it would be business as usual on the north side of the airport away from the new project. It made Proform Concrete's work at the airport much easier.

"We had open space to work in, which was nice," Jason Ohlhauser, Project Manager for Proform Concrete Services, explained. "We could see the runway and the planes landing, but the FMAA put up a fence between us and them so we were working outside of the airport's border and our work was considered off-site."

Being off-site eliminated most of the security measures that often go hand-

"We kept an eye on the edges the entire time, but the Commander III did a good job with them," Jason Ohlhauser, Project Manager for Proform Services, said. "We didn't do much finishing work, just a broom finish and it was very easy."

in-hand with an airport project. With one challenge taken care of, Proform Concrete could focus on another... getting their concrete through the heavy Fort McMurray traffic in a timely manner.

The 35 MPa (5000 psi) concrete was mixed at a batching plant in town, just a 20 minute drive away from the project in normal traffic conditions.


"Our production on the project was limited by concrete delivery," Ohlhauser said. "Around five o'clock is when traffic gets really crazy and it's just a sea

of headlights. I knew there would be seven trucks on the road, but none on-site to supply our Commander III. That was the most challenging part of the project. We wanted to pave this project in six runs, each 286 lineal meters (938 ft) long, but because of Fort McMurray traffic we couldn't actually finish one run a day."

The Commander III was paving the new apron 6.1 meters (20 ft) wide and 380 millimeters (15 in) thick in six paving passes. Hand-finishing work behind the paver was kept to a

minimum with special attention given to the edges. The six different paving passes needed to connect smoothly, without bumps, for the planes to travel across.

"We kept an eye on the edges the entire time, but the Commander III did a good job with them," Ohlhauser said. "We didn't do much finishing work, just a broom finish and it was very easy. Then we followed the paver with a T/C-600 texture/cure machine applying a white spray cure."

The new terminal is expected to open in the spring of 2014. When that happens, the old terminal building will be re-purposed as either a cargo center or a large FBO (fixed-base operator). Proform Concrete Services will continue to work in the Fort McMurray area. Their next project is slipforming new barrier wall with their Commander III along Highway 63 through the city. 



Proform Concrete Services Inc., used their GOMACO four-track Commander III to slipform an apron next to the new terminal building at the airport.



The Commander III slipformed the new apron in six paving passes. Each pass was 6.1 meters (20 ft) wide and 380 millimeters (15 in) thick.

The Challenges of Time, Traffic, and Church on Easter Sunday...

Last year, Tim Sigler, Vice President and General Manager of JBI Construction in Evansville, Indiana, was reading through bid specs and came across one for 12,000 linear feet (3658 m) of barrier wall in Louisville,

Kentucky. He thought it seemed like a perfect job for his company which, among other things, specializes in concrete barrier wall. But what's that expression... if something sounds too good to be true, it probably is?

The project on Louisville's I-65 required the removal of the existing 32 inch (813 mm) tall barrier wall and replacing it with a 50 inch (1270 mm) single slope barrier wall. All of the work had to be completed in just nine days, with JBI being allowed seven days to slipform the new wall.

Work was scheduled to begin the week before Easter Sunday. An



added deadline was imposed by Mrs. Sigler. She really wanted her boys home to celebrate the holiday with her. Her “boys” include grandsons Michael and Jon, and various other members of the JBI crew in this tight-knit, family-owned company. JBI’s seven day work week would have to be shortened to six to try to accommodate her special request.

CG-041214 D19

Photos by Kelly Krueger CG-041215 D2



JBI Construction had their entire company and three of their GOMACO slipform pavers at work on the project, including their four-track Commander III.

“We were facing hourly penalties up to \$690,000 for not completing on time,” Sigler explained. “It could have gotten really ugly. Plus, Mama wanted us home and in church with her on Easter Sunday. We didn’t want to disappoint her.”

The success of the project had to begin during the pre-planning phase. JBI would bring their GOMACO equipment, three machines in total, to the site for slipforming the safety barrier. The GOMACO machines included a three-track Commander III, a four-track Commander III and a GT-6300. The Commander IIIs featured new GOMACO-built barrier molds with a profile that was 50 inches (1320 mm) tall, with a 12 inch (305 mm) top width and 30 inches (762 mm) wide

across the bottom. The molds were also equipped with a hinged door on the front that hydraulically raises or lowers. Sigler worked closely with GOMACO engineers before the project was let, finalizing the mold design. Once word was received they had won the bid, GOMACO immediately began production on the molds.

Then, all JBI had to do was move

“To make a project of this size a success, you need a good concrete supplier, good equipment, good people, and a lot of patience,” Tim Sigler said. “Everything on this project, including the GOMACO machines, worked as good as you could have ever expected it to work.”



CG-041204 D7

A three-track Commander III slipforms wall on the north end of the project.



CG-041219 D18

The third barrier machine on Louisville’s I-65 was a three-track GOMACO GT-6300.

their GOMACO equipment into place and begin slipforming. They would need to average 2000 feet (610 m) of barrier wall per day to complete the project in just six days.

JBI brought their entire company to work on the 4.2 mile (6.8 km) section of I-65 that stretched from downtown Louisville to the I-264 Henry Watterson Expressway interchange. They were

divided into three crews placed on the north, south or center portion of the project. Each crew was only allowed the one lane in each direction to work in. Working conditions were a challenge with minimal space to get ready-mix trucks in and out as thousands of vehicles passed by the JBI slipforming crews.

The first day on the project proved to be the most challenging. Rain delayed them by three hours when a thunderstorm rolled through. Consistent concrete delivery also proved to be a challenge at start-up, but it was a challenge that was quickly overcome and production improved every day they were on the project.

"The concrete is a state of Kentucky Class A curb mix that has undergone a little bit of tweaking to make it better at this low slump," Sigler said. "We also made it a little bit better for slipforming barrier wall."

The new wall was slipformed over a large trench left over from the removal of the existing barrier. Careful placement of the vibrators within the mold was a consideration for proper concrete consolidation in the trench for a solid foundation for the barrier wall.

There was no steel reinforcing in the single slope barrier wall. The only steel was located at inlet boxes placed for drainage underneath the new wall. The hinged door on the GOMACO molds could be hydraulically raised to clear and slipform over the inlet's steel reinforcing. Once the mold had cleared the steel, the operator simply hydraulically lowered the door again, never having to stop forward progress.

"Almost everywhere we go with barrier wall, there's some kind of cage that we have to pour over," Sigler said. "The hydraulic gate is a great feature

and I don't think we have a barrier wall mold made that doesn't have a front door of some type on it."

After six straight days of barrier paving with three different GOMACO machines, sometimes running double shifts, JBI completed their 12,000 feet (3658 m) of barrier wall. They finished on Saturday afternoon, packed up their equipment, and headed home to Indiana. Mrs. Sigler was able to spend Easter Sunday with her tired, but successful JBI boys.

"To make a project of this size a success, you need a good concrete supplier, good equipment, good people, and a lot of patience," Sigler said. "Everything on this project, including the GOMACO machines, worked as good as you could have ever expected it to work."

The profile of the new barrier wall was 50 inches (1270 mm) tall with a 30 inch (762 mm) bottom width.



The removal of the existing barrier on the project left a large trench. JBI had to place vibrators in the mold to help consolidate the concrete in the trench to create a solid foundation for the new barrier wall.



The new barrier molds on the Commander IIIs were equipped with a hinged door on the front. The door could be hydraulically raised or lowered to slipform over objects like the steel reinforcing used for a drainage inlet.



The intersection between the two major runways at the Sioux Falls Airport was removed and replaced in just two weekends by T&R Contracting Inc.

FSD: Closed for the Weekend

The Sioux Falls Regional Airport (FSD) in Sioux Falls, South Dakota, has been working on upgrading and improving their runways for the past three years. Last fall, they tackled what was probably the most difficult portion of the project... the removal and replacement of 750 feet (228.6 m) of the intersection of the two main runways, 3-21 and 15-33. The location of the intersection did not leave enough room on either runway to land commercial airplanes so the airport would be essentially shut down during the intersection reconstruction.

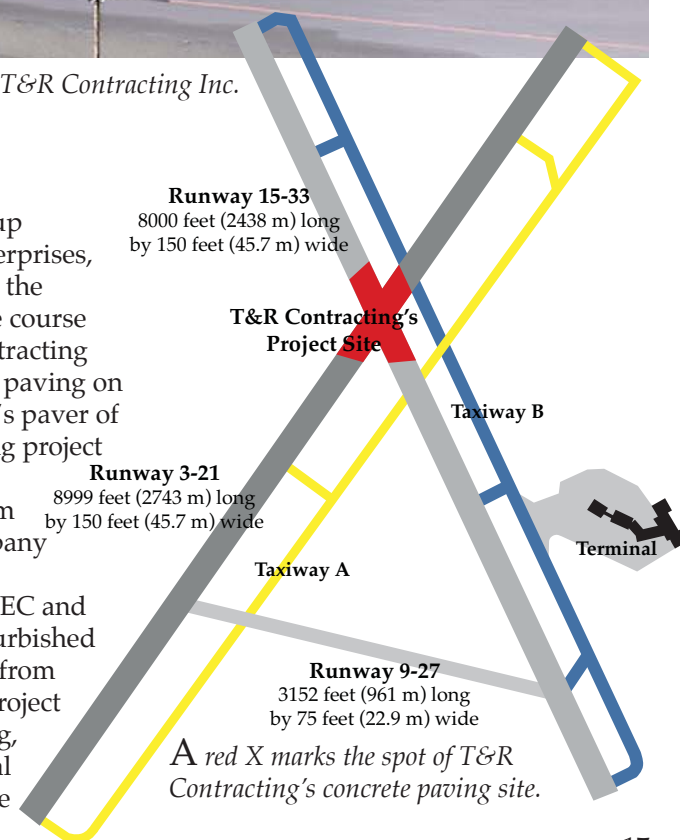
Conventional construction would have the airport closed to commercial air traffic for almost a month. That just wasn't economically plausible. A

different construction approach had to be developed. The answer: a series of four long weekends to rebuild the intersection, two weekends for actual work and an additional two backup weekends in case of inclement weather. The runways would be completely closed down starting at 2 p.m. Friday until 8 p.m. on Monday. One small runway, 9-27, would remain open for general aviation and air ambulance services. Penalties were in place if the main runways weren't opened up in time. They started at \$20,000 and went up to \$185,000 at four hours late, the maximum penalty faced per day.

A Sioux Falls-based company, T&R Contracting Inc., won the bid to complete the time-challenged project.

Project subcontractors, Soukup Construction and Runge Enterprises, would handle the removal of the existing runway and the base course preparations while T&R Contracting would complete the concrete paving on the project. T&R Contracting's paver of choice for this concrete paving project was a GOMACO GP-4000, purchased reconditioned from Godbersen Equipment Company (GEC) in Ida Grove, Iowa.

"We like working with GEC and this isn't the first piece of refurbished equipment we've purchased from them," Ryan Gulbrandson, Project Manager for T&R Contracting, explained. "It's an economical option for a company our size



and you're basically getting a totally refurbished machine for less than the price of a new one."

At 2 p.m. on Friday, August 17, 2012, the airport closed down their runways and demolition work began. Removal of the runways was started right in the center of the two and worked towards the outer edges. Approximately 42 inches (1067 mm) in depth of existing runway, subbase and dirt was removed using 30 pieces of equipment and over 80 trucks. New subbase preparations included a layer of geotextile fabric and then 25 inches (635 mm) of P209 crushed aggregate base course.

Six hours after the runways closed, T&R Contracting was ready to slipform their first paving pass with the GP-4000. Each pass was 37.5 feet (11.4 m) wide and 17 inches (432 mm) thick across each of the 150 foot (45.7 m) wide runways. T&R Contracting also had their GOMACO GHP-2800 slipform paver on site, ready to go, as a precautionary measure in case a second paving train was needed.

"We set up a batch plant right outside the gate of the airport," Gulbrandson said. "But being 17 inches (432 mm) thick and 37.5 foot (11.4 m) wide, one cubic yard (0.8 m³) of concrete would only get us six inches (152 mm) of movement lengthwise so it wasn't moving the fastest with the one plant. We had to fire up another plant in town to help us out."

The concrete was an airport specified mix design with the ability to reach 3000 psi (20.7 MPa) within 24 hours. It also needed to set up quickly to allow T&R Contracting to come through and drill holes in the edge of the new runway for sidebars. Slump averaged between 0.5 to one inch

(13 to 25 mm). Twenty trucks were used to feed the GP-4000, each one carrying 10 cubic yard (7.6 m³) loads. No placer/spreader was used, instead two trucks at a time dumped directly onto grade in front of the paver. Production averaged 400 cubic yards (305.8 m³) per hour.

During the first weekend of paving, T&R Contracting completed four pours and finished one of the 750 foot (228.6 m) long sections of runway by 4 p.m. Sunday afternoon. Monday morning was spent on hand pours for tie-ins and radii at the intersections. By 8 p.m. on Monday night, the runways were reopened and commercial plane traffic restarted.

"Our biggest worries that first weekend were definitely the weather and just making sure the concrete was



Photo by Jeff Rasmussen HW-021326 D4

Thirty pieces of equipment and over 80 trucks were utilized to demolish and remove the existing runway and subbase which was approximately 42 inches (1067 mm) in depth.



HW-021318 D12

Paving production with the GOMACO GP-4000 averaged 400 cubic yards (305.8 m³) per hour. A second batch plant had to be utilized to keep up with the paver's production while slipforming 37.5 feet (11.4 m) wide.



Several of T&R's personnel attended GOMACO University last winter and trained on the GP-4000 hands-on to prepare for this airport project with tight completion deadline.



The GOMACO edge on the airport's new 17 inch (432 mm) thick runway.



Mother Nature cooperated with the project's tight deadline and the concrete paving was accomplished in the first two weekends of work and airport closures.

going to make strength so we could open up the runways again in time," Gulbrandson said. "A lot of guys worked 56 hours straight with only a couple of hour breaks, so it was a grueling weekend for everyone, but a successful one. The GP-4000 worked well and had no problems slipforming the high-strength concrete mix design."

Four days later, on Friday, August 24, T&R was back at the Sioux Falls Airport to finish what they had started. Paving runs would be shorter this weekend, because of the angled runways and the pieces left to pave. They'd have to work the GP-4000 over 16 headers and footers on that final weekend.

"The GP-4000 handled everything we threw at it and performed well over the course of the project and GEC's Manager, Jeff Rassmussen, was available the entire time to answer questions or provide support. He even stayed up with us all night on our first pour," Gulbrandson said. "The GP-4000 applied a nice finish and all we had to do was run a 10 foot (3 m) straightedge behind it. The airport really frowns on touching the edges just in case you drop the slab and create edge slump, but that really wasn't an issue because the GP-4000 was building a good edge for us."

The two extra weekends as backup would not be needed. Rain was only a factor on the very first and the very last pour of the project. Otherwise, Mother Nature cooperated with the tight completion deadline. T&R Contracting finished their last slipforming run early on Sunday morning, August 26.

"This project was a great experience for T&R Contracting and the airport ended up with a project they were really happy with," Gulbrandson said. "It definitely put us and our equipment to the test."



Photos courtesy of The Concrete Voice HW-051303 D11

Dakota Underground used their GOMACO GP-2600 to slipform a smooth overlay and win an American Concrete Paving Association Gold Award on a project in North Dakota.

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Best Rides Ever – North Dakota 200 Concrete Overlay Project Excels

Project Overview

This five inch (127 mm) and six inch (152 mm) overlay project was chosen as the top rated concrete pavement project in North Dakota in 2011 in all categories. The project also won the 2012 American Concrete Paving Association's Gold Award for the Overlays-Highways category. A concrete pavement was chosen for this project due to the very high level of truck traffic generated by American Crystal Sugar and Rahr Malting industrial facilities located on the route. The tight construction schedule played into the strengths of the concrete overlay option.

The contractor achieved a ride smoothness noted to be the smoothest concrete pavement ever constructed in the state and possibly the nation; a 38.6 IRI before corrective action. Some

contractors chose to not bid this project due to the very difficult ride standards. But, using the innovative GOMACO Smoothness Indicator (GSI®) mounted to the paver, the contractor was able to tune paver operations to achieve very smooth paving from the first hour of paving. Through this and other innovations, the contractor was able to meet the "localized roughness" standard of under 80 inches (2032 mm) per mile in a 25 foot (7.6 m) continuous segment, while the final corrective action grinds touched only nine different spots in the 5.5 mile (8.9 km) project.

Public information efforts by the design engineer created the best possible construction staging plan to keep road users happy. Project work was conducted under three individual staging units which kept

traffic flowing to the high intensity industrial complexes. The staging plan was executed perfectly in spite of many planned leave-outs, hot weather and continuous rain. Paving operations requiring trucks to back down to the paver from one mile (1.6 km) away contributed to a most difficult paving coordination, especially when night operations were started. And, through effective planning for sustainability outcomes, almost the entire existing infrastructure was either recycled or reused in the final project to achieve a long life project. This project outcome proved the viability of the concrete overlay as a primary pavement tool for engineers at the North Dakota Department of Transportation (NDDOT). Because of the leadership and performance of Dakota

Underground Construction Company to achieve the highest of goals for quality, scheduling and ride smoothness, many more opportunities to demonstrate the concrete solution using overlays will occur.

Innovative Construction

Innovative construction effort was critical to achieve the productivity and quality necessary for the project to succeed. From extreme efforts from the ready mix supplier to provide very uniform paving mixes to the non-glare lighting systems necessary for efficient night construction, innovation turned the project from a potential nightmare to a showcase effort in the construction of concrete overlays.

Features of the innovative construction process include:

- 1) Project Staging: The project was

divided into three construction stages, keeping two segments open to traffic at all times. Segments had to have earthwork for widening, milling, surveys, replacement of centerline culverts, and be paved and open to traffic within the necessary time period, in order to meet project schedules.

2) Wet Weather: During the first half of maximum activity, a total of seven inches (178 mm) of rain on the project delayed work and forced earthwork activities to an extended halt. Yet, construction was completed early on the very tight timeline aided by the presence of a visual pavement for the overlay.

3) Night Paving: In order to maximize access to sufficient trucks and drivers, the ready-mix producer and the contractor agreed to do much of the paving activity at night. This provided many challenges, but many more benefits, including avoiding “heating of the sun” temperature limitations on the dark asphalt paving surface.

Project Phasing

The overlay was placed on two variations of base.

South End of Project: Shoulder material was removed from the outside of the old 22 foot (6.7 m) wide concrete pavement for the widening operations contiguous with the concrete overlay paving. Unforeseen deteriorated concrete pavement required significant concrete pavement restoration (CPR) before paving operations could commence. The six inch (152 mm) unbonded concrete overlay was placed on the reduced section of the asphalt covering the old concrete pavement. Where milling operations unintentionally removed all asphalt from the concrete, a fabric interlayer was used as a substitute for the asphalt



“The combination of a quality ready-mix supply and an effective paving contractor constructed one of the smoothest concrete pavements to be found, possibly in the whole of the U.S.”

debonding layer.

North End of Project: The remainder was constructed on a milled asphalt surface which removed heavy ruts and restored the surface contour of the old pavement. A total of 31,000 cubic yards (23,701 m³) of borrow was used to widen the roadway, a troublesome process during seemingly continuous rain conditions. After removing about four inches (102 mm) of asphalt, little repair of the old 10 inch (254 mm) asphalt was necessary prior to paving the overlay.

Concrete Batching and Hauling

Achieving superior ride performance with the use of ready mix was noted as a challenge from the very beginning. The ready-mix supplier was tasked with providing a very uniform mix from two batch plants located at the south end of the project. The contractor demanded no room for tolerance in slump of the mix, expecting a 1.25 inch (32 mm) slump from both plants.

Quality and process control of mixes on the project was, by default, controlled by the demand of the contractor for a very uniform mix as delivered to the paver. Mixes were established for high strength, durability and sustainability. The following were implemented:

1. Well graded aggregate gradations
2. Low water cement ratio: 0.40 at 564 pounds per cubic yard total cementitious
3. High-volume fly ash content: 30 percent direct replacement of cement
4. Use of durable local river aggregates
5. Use of a local ready-mix supplier and plant site for paving concrete

Based on the assurances of the ready-mix supplier to produce a very uniform mix, the contractor was able to avoid the necessity of permitting and construction of a separate plant site. The contractor tasked the ready-mix supplier to provide a mix that had an extreme level of optimization of aggregate for efficient paving plus the finishing

capability which would minimize the need for finishers after the paver. The mix met all these requests, allowing the contractor to choose to remove straight-edge/finisher personnel without impact to ride performance.

Production achieved 300 cubic yards (229 m³) per hour routinely. Production control was such that few trucks were rejected due to non-uniform slump. Uniform mix production contributed greatly to the very smooth ride outcome for the project, a very unique challenge for any ready-mix operation.

Paving the ND 200 Overlay

Dakota Underground brought in their GOMACO GP-2600 slipform paver for the overlay project. It paved the overlay 28 feet (8.5 m) wide. To achieve the extreme low IRI standard of 54 and Localized Roughness maximums of IRI = 80, the contractor purchased a GOMACO Smoothness Indicator (GSI®) for real-time monitoring of real-time pavement smoothness out of the paver. The GSI attached to the paver gave real-time output of bumps and dips in the surface, allowing immediate opportunities for tuning of paver operations for smooth ride.

This was extremely useful to tune paver vibrators and controls to achieve the smoothest possible output within minutes of the start of paving. The real-time monitoring allowed immediate adjustment of vibrator frequency and paver controls to calibrate the mix to the paver. This factor alone, allowed the paver to achieve maximum smoothness output to earn high levels of bonus for ride and avoid the costly requirement for grinding to meet spec.

Corrective Measures for Smoothness

A total of nine spots required

grinding to meet the Localized Roughness standard, all at headers, wet track-line spin-outs, or the two non-uniform loads accidentally accepted. Paver output was superior while avoiding any corrective grinding to meet the IRI = 54 standard for the 528 foot (161 m) lots. After grinding the nine locations for the Localized Roughness standard, IRI for the project improved to 37.9. The contractor achieved 65 percent of available IRI ride incentives without significant grinding costs on a project with a very severe ride standard. Every lot met IRI = 54 spec limits.

Unique Solutions - Night Operations

To avoid driver hour limitation problems and to secure adequate trucks for continuous paving process, much of the project ended up being constructed at night. Ready-mix trucks were backed into place for side-by-side double dumping whenever possible. The difficulty of trucks meeting, one approaching the paver backing up, the other leaving the paver empty, was especially difficult in the dark with only 21 feet (6.4 m) of clearance on the road top. Backing trucks caused little disruption to fabric interlayers on the unbonded portion through careful steering operations.

The contractor was able to locate special balloon type non-glare lights for use at the paver. This was a critical success outcome, as the ability of a truck driver to safely back the concrete down the dark road towards the paver lights was critical for production. As the balloon lights cast few shadows, and provided lighting similar to a cloudy day, production was uninhibited. A parallel innovation in guiding the trucks included the use of glow sticks



The paving on the project was the smoothest concrete pavement ever constructed in the state with an IRI of 38.6 before corrective action.

to mark the elevated shoulder tie bars at the edge of the pavement. After implementation of this unique system, few flat tires were experienced from driving into tie bars during side-by-side truck dumping operations.

Every worker involved near the paver during night operations was required to wear either a glow stick on the vest or a headlamp. The NDDOT Quality Assurance crews used a Polaris Ranger all-terrain vehicle to follow the paver in the mostly flooded ditches, keeping personnel out of the main construction zone. No accidents occurred during the entire project activity period.

Traffic Management

Due to the major industrial facilities located on the route, access for trucks and employees was necessary 24 hours a day. Staging of construction was established to keep some driveways open at all times,


with necessary provision for alternate parking facilities at the industrial plants when main parking lots were affected by construction operations. When necessary, temporary driveways were constructed. Traffic was maintained to all farms and industrial facilities without complaint from locals, management or employees.

Railroad traffic was also maintained at all times at the American Crystal Sugar plant crossing. Extreme restrictions by the railroad at the American Crystal Sugar crossing were overcome without significant impact to the construction schedule and without accidents or incidents. Plus, the presence of a railroad crossing in the middle of the project was extremely difficult to manage for the delivery of concrete.

Summary

This project was an extreme success due to the effectiveness of the design engineer, the ready-mix supplier, the

paving contractor and the construction administration crews. Effective staging plans from the beginning allowed the project to be well organized for closed road construction sequences, while keeping traffic flowing. The combination of quality ready-mix supply and an effective paving contractor constructed one of the smoothest concrete pavements to be found, possibly in the whole of the U.S. These effective engineering and construction efforts prove that concrete construction is possible under high traffic scenarios while meeting very rigorous construction schedules.

Compliments to the NDDOT Management and Staff for advancing the technology of concrete overlays through this effective effort. This project shows that North Dakota and the concrete industry remains a leader in pavement technologies and construction quality, even at the national level. 



HW-101222 D20

The GHP-2800 now features GOMACO's exclusive and proprietary G+ control system, which was built from the ground up by GOMACO's own control specialists.



EG-041217 D8

The G+ control system was built to be simple to understand and operate, and makes machine set up easier than ever before.

Does Your Paver Have **G+** On-Board?

G+ is GOMACO's proprietary control system that is both easy to learn and easy to operate. It's been proven throughout the world on the T/C-600 texture/cure machine, IDBI, GT-3200 curb and gutter and sidewalk machine, 4400 barrier machine, and since the first of the year, almost all the remaining line of GOMACO equipment now features G+ controls. It's no small wonder... once operators experience GOMACO's G+ controls, they're not satisfied operating anything else.

"We put together a controls team, tied in our 3D team, and developed the

G+ with all of GOMACO's concrete paving expertise," Kent Godbersen, GOMACO's Vice President of Worldwide Sales and Marketing, said. "We are now able to harness the hardware and software of our digital age and control a concrete paver with simple sophistication to maximize performance and achieve excellent rideability. G+ truly separates us from our competition and is technology developed by GOMACO Corporation for our customers."

G+ Design: The G+ control system was designed in-house from the

ground-up. All of the software for the G+ control system has been designed by GOMACO's control specialists from what we have learned from years of experience in the field and from our customers.

Tough New Hardware: The new hardware includes simple but durable dials and push buttons for machine control. It features a flat-panel 6.5 inch (165 mm) anti-glare display screen with sensor-controlled backlight levels for superior visibility in all operating conditions. Its rugged, shock resistant construction protects it against dust,

moisture and rain.

International Appeal: G+ expresses itself in easy to understand international icons and full script explanations. It operates in all the major languages of the world and in either imperial or metric numbers. The operator can easily toggle between English and another language on the G+ screen while paving or troubleshooting.

Easy to Set Up: Machine set up is easier than ever before with single-person, push-button calibration for steering and grade. It allows the operator to fine tune and dial-in their GOMACO paver for maximum smooth paving results.

Easy to Operate: A “run” screen on the control panel illustrates the various aspects of the paver. It includes leg positioning, paving speed and percentage of drive, steering, travel information, grade information, deviation meters, and more. Newly designed icons and color graphics make it easy to understand and easy to identify the targeted functions.

G+ now features a detailed fault history with time stamp date and information to track when each fault occurred. The odometer can give the operator an indication of yield per concrete truck, lineal production, and feet/meters of production per minute. And, with G+ Connect™, it can be used to fire certain paver accessories.

G+ Connect is the new, proprietary CAN-based network on GOMACO products that allows fast, two-way communication between all accessories and the G+ controller. The closed-loop system between the paver’s valves and various sensors means unparalleled accuracy. The sensed feedback ensures tighter, faster, and more accurate machine corrections. G+ Connect

G+ Connect™



On the ground—personnel have the ability to monitor paving information and make adjustments for PTAs, 3D systems, GSI units, and more.

utilizes a CAN (controller area network) network allowing all of the components of the system to easily communicate with each other for precision set up and paving. At the heart of G+ Connect is the G+ control system and GOMACO’s new paving software.

“After we introduced the G+ system, there was an explosion in unforeseen control technology shifts. Our customers, our engineering staff, and our service personnel kept saying, if it can do this, can we make it do that? And our controls team would say, yes,” Kevin Klein, GOMACO’s Vice President of Engineering/Research and Development, said. “The majority of the breakthrough innovations for mainline paving have come about since its introduction on our smaller paver in

2010. What we have is a living control system that will continuously grow with our ability to change, improve and enhance the system and the G+ Connect network in-house.”

Just Connect: G+ Connect allows all the components of a GOMACO paver to be easily interfaced. Simply “connect” the 3D stringless control system, IDBI, tie bar inserter (TBI), power transition adjustors (PTA), GOMACO Smoothness Indicator (GSI®) and more, and then pave the project with ease and accuracy. G+ Connect also allows the ability to easily share machine resources. For example, pulse pick-up sensors on the tracks of the paver can log the distance the machine has traveled. This allows the odometer in the G+ controls to share accurate



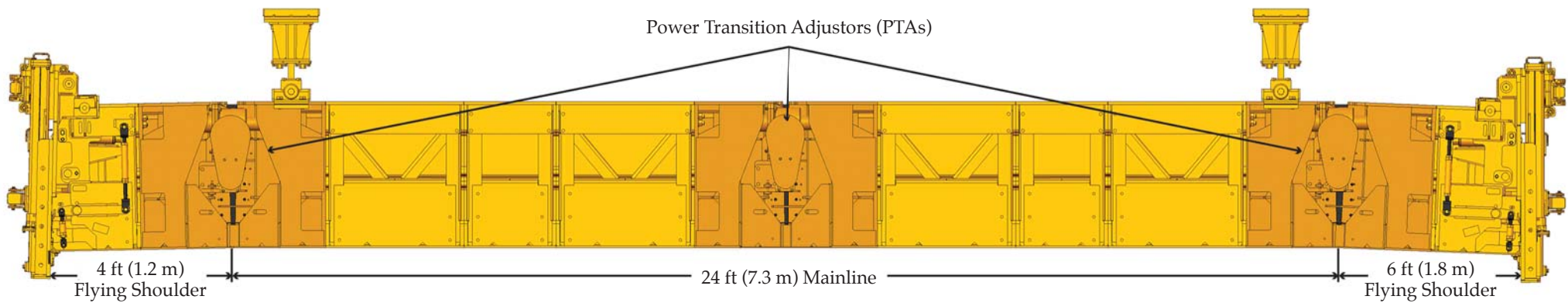
PTA transitions for the center crown and flying shoulders can be monitored at the ground location.



3D stringless systems simply Connect with G+ for ultimate paver control.



GSI units collect smoothness information that is shared by G+ Connect.



Three PTAs are used on Manatt's GHP-2800 paver to maintain a four percent shoulder regardless of how much the superelevation changes. All of the transitions were controlled by G+.

speed and distance measurements with any GOMACO bar insertion system, from TBIs to IDBIs, to manage bar placements.

Sensor Library: G+ features an entire library of sensor capabilities for controlling slope, grade and steer with set-up configurations for any project requirement. This includes paving with 3D stringless systems, laser control, sonic sensors, rotary sensors, slope sensors and all of their set-up requirements. Just connect to G+ Connect and the G+ controls automatically recognize them and communicate with them. Unique applications such as fill-in lanes, tunnel paving, half-width concrete overlays, and sonar steering off an existing barrier wall are examples of projects that can be accomplished through a variety of solutions from the Sensor Library.

Slope Control: GOMACO has introduced digital slope control on our pavers. Long and cross slope can now be configured using high-resolution, dual-slope sensors. These high-resolution, dual-slope sensors are standard on our larger pavers.

A new option for GOMACO pavers this year is the A.I.R., the new Aluminum Instrument Rail for quick

attachment and mounting of multiple CAN-based and rotary sensors from the Sensor Library.

Ground Control: G+ Ground Control offers the unique ability of a viewing screen at ground level. The remote operator's screen features the same G+ graphical display as the operator's station. Ground personnel

can see everything on the screen that the operator can see, and also have the ability to fine tune the machine, make settings adjustments, and monitor the operation from the ground.

Small and Handy: The new MiniMote available with the G+ controls provides on-the-spot assistance for fine adjustment of the GOMACO paver's set

up. The small, handheld remote control is tethered to the machine and can be used to control steering, elevation and the travel of each of the paver's legs to assist in placing them into the transport or paving position. The MiniMote has the ability to jog or vertically adjust one leg at a time, the two legs on either the right or left side of the paver, or all four legs at one time (All Jog). All four legs, two legs, or each individual leg can be traveled in forward or reverse for exacting leg placement.

The first four-track GHP-2800 with G+ and G+ Connect went to Manatt's Inc., from Brooklyn, Iowa. Manatt's personnel, including Paving Superintendent Kevin Hogan, worked closely with GOMACO to develop the ultimate paver for their concrete projects.

The result: a GHP-2800 with G+ Connect, a 5400 series mold, two paver-mounted GSI units, with a Leica Geosystems 3D stringless system.

Manatt's goal: to slipform the smoothest road possible, achieve full bonus incentives, and not use a straightedge behind the paver.

"There are so many things that you always wish... I wish I could change this a little bit or tweak that a little bit,"

Paver-mounted GSI units provide instant feedback to achieve rideability and help pinpoint optimum travel speed, vibration, mix design and other variations with slipform paving.



HW-101216 D20

Hogan explained. "It's all in the G+. You can do that now."

Their first project with the GHP-2800 was slipforming nine miles (14.5 km), both northbound and southbound, of U.S. Highway 71 by Spencer, Iowa. It was an overlay project, six inches (152 mm) thick with a 24 foot (7.3 m) wide mainline and six foot (1.8 m) and four foot (1.2 m) wide flying shoulders. All of it was paved in one 34 foot (10.4 m) wide pass.

The flying shoulders were one of the challenges on the project. The Iowa Department of Transportation (IDOT) required four percent shoulders be maintained at all times, regardless of how much the superelevation changed. The GHP-2800 was equipped with three power transition adjusters (PTAs), one for the center crown and one each for the shoulders. The 5400 series mold features self-supported TAs that are hydraulically driven with the transitions controlled by G+.

"Much like your center PTA crown, the difference we've got to figure in

the cross slope of the mainline and the shoulders through all the superelevated curves and take those calculations and translate them into the PTA controller that GOMACO has built," Hogan explained. "We can't exceed an eight percent break over and there are several supers, most of them range from two percent to 2.5. If the roadway tips into a two percent curvature whichever direction, we've got to compensate and maintain a four percent shoulder on both sides. It's just a matter of inputting some values into a computer and obviously we've had to double-check our math a couple of times and make sure we do that correctly, but it works great... very slick.

"The new 5400 series mold with all three PTAs is so much more advanced and smooth. The name of the game is to keep the roadway as smooth as possible and we couldn't do that manually manipulating any PTAs."

Smooth and easy PTA transitions are just part of the power of the G+ and its closed-loop electronic over hydraulic

control. It also seamlessly integrates with the on-board GSI units that have allowed Manatt's to pinpoint optimum travel speed, vibration, mix design, and variations in ambient temperature to achieve ultimate rideability.

"We've had a lot of luck with those GSIs, and the software and technology they have built in is incredibly smart," Hogan said. "The GSI is telling us a lot of information and with the G+, we know where to go and look for or change items. It is incredibly smart. With this G+, you can really zero in on some items that can knock that smoothness down fast and get everything fine tuned.

"I'm pretty partial to the GSI myself, but with the G+... you really get zeroed in there to be a lot more comfortable. I could not imagine not having the two together. They're a money maker."

When paver adjustments need to be made or other paving information monitored, Manatt's personnel can go to G+ Ground Control. It's mounted to the side of the paver, at easy ground-viewing level, and placed inside a protective box along with the system controls for the Leica Geosystems 3D, PTAs and GSI units.

"That's a very nice setup," Hogan said. "You've got everything in one general location. We've got some good people here at Manatt's and we're all learning this system together. I think every day we learn something and there's always a little trick here or there. We've got a good road that shows that anyway and we look for a lot of bigger, better things to come."

As Manatt's turned their GHP-2800

around to start the northbound nine miles (14.5 km), the crew and the paver hit their stride. Production reached 5700 feet (1737 m) in a 12 hour working day.

G+ Connect allows the Leica 3D stringless system and the on-board vibrator monitoring system to seamlessly interface with G+ for ultimate paver control. The end result is a paving experience that is smooth, efficient and accurate.

IDOT uses the zero-blanking band to measure smoothness on their new roads. Incentive is paid for smoothness under 21. Everything Manatt's was testing on site averaged 17 or under. So smooth, that for a majority of the section, straightedges were pulled off the new pavement.

"That was the ultimate goal," Hogan said. "To put down the smoothest road, full incentive, and no straightedges. The proof is in the numbers and we're getting the smoothness with the GSI, the 5400 series mold, and the GHP-2800 with G+... the whole package is there. We've got the finish and the numbers to prove that you don't have to have straightedges on there."

The ultimate goal was achieved with the complete GOMACO paving package. It is now about the technology that pulls everything together. G+ is the center that Connects all of the paver resources. It's future capabilities and software upgrades are endless and the control system continues to evolve. Make plans today to experience the new G+ upgrades at either World of Concrete or CONEXPO-CON/AGG 2014!



Manatt's goals included a final product requiring no straight edges being used on their project. They achieved that goal and earned some outstanding smoothness readings.



Central Hall
Las Vegas Convention Center
January 21-24, 2014



Central Hall
Las Vegas Convention Center
March 4-8, 2014

GOMACO Names New District Sales Manager, New Service and Warranty Manager, and New Managing Director for the Asia-Pacific Region



DeWayne Krayenhagen is the new Manager of GOMACO's Service and Warranty Department.



Travis Brockman is the new District Manager for the northeast U.S. and eastern Canada.



Julian Dann is the new Managing Director for the Asia-Pacific region.

GOMACO is pleased to announce the promotion of two members within our company and the hiring of a new managing director for the Asia-Pacific region.

DeWayne Krayenhagen has been appointed the new manager of GOMACO's Service and Warranty Department. He will be responsible for supervising the department, administering warranty credits, and coordinating service needs for customers and distributors.

Krayenhagen is a 30-year employee of GOMACO, joining the company in 1983 and working in the Paint Department. He moved to Hydraulics and Testing before transferring to the Service Department in 1988. He traveled the world working with contractors and distributors providing support for GOMACO machines. Since 1999, he has worked as the Assistant Service Manager.

Travis Brockman has been named District Sales Manager for the northeast United States and eastern Canada. His territory in the United States will include: Maryland, Delaware, Pennsylvania, New Jersey, New York, and the New England states. Provinces in Canada include: Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland.

Brockman started at GOMACO in August 2005, in the Service Department as a field service technician. Since then, he has traveled extensively in North and

South America.

Julian Dann is new to GOMACO and has been hired to be Managing Director for the Asia-Pacific region. Dann gained extensive sales experience and construction knowledge working within Trimble Navigation and Spectra Precision in the United Kingdom and the Asia-Pacific region. He held the positions of Technical Sales Engineer and Sales Director for the companies.

Both Brockman and Dann will be responsible for the sale of GOMACO products and managing the distributor network within their respective territories.

"I am excited to make these announcements and proud to promote two dedicated GOMACO employees," Kent Godbersen, Vice President of Worldwide Sales and Marketing, said. "Travis and DeWayne have an extensive knowledge of

GOMACO equipment with their field service backgrounds and I have no doubts they'll serve our customers well in their respective areas.

"Julian will be a valuable addition to the GOMACO team with his previous experience in the Asia-Pacific region. He brings with him extensive sales and marketing knowledge of the region's construction market and we welcome him to GOMACO."



A GOMACO four-track GP-4000 with Leica 3D stringless control and a T/C-600 texture/cure machine is slipforming a portion of the New Silk Road near Shymkent, Kazakhstan.



A Commander III on the Toromocho Dam Project is slipforming 4800 meters (15,748 ft) above sea level near Yauli, Junín, Peru.



A new canal is under construction near Olmos, Peru. A GOMACO SL-450, RC Conveyor, and 2000 Series Spanit® are finishing the canal.



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Commander III Paves the Way at the Busy Sicilian Airport



Aeroporto Falcone e Borsellino or simply Palermo Airport is located in Palermo, on the Italian island of Sicily. Nearly five million passengers travel through its gates on an annual basis making it one of the busiest airports in Italy. Since December 2010, the airport has been at work replacing aprons and upgrading their facilities.

The work at the airport is being carried out by the joint venture, Trinacria, and is composed of partner companies Intercantieri Vitadello

SpA, Impresa Bruno Costruzioni SpA, and Pavimental SpA.

Nordpavi srl is a subcontractor on the project. They are using their GOMACO four-track Commander III to slipform both the subgrade and the new concrete apron. To date, they have slipformed 36,000 cubic meters (47,086 yd³) of 200 millimeter (7.9 in) thick cement-treated base and 34,200 cubic meters (44,732 yd³) of 380 millimeter (15 in) thick concrete apron. The Commander III's paving

pass for both applications is six meters (19.7 ft) wide.

"The Commander III is a good machine for Nordpavi," Christian and Luca Da Canal, CEOs and Managers for Nordpavi, explained. "It allows us the versatility to pave both applications easily, while giving us the production results necessary. Interference with airport operations is also minimized because of it."



Nordpavi srl uses their four-track Commander III to slipform both the cement-treated base and new concrete apron at the Palermo Airport in Palermo, Sicily, Italy.