



By Jack Burke

## ALABAMA

### Montgomery

#### Catoma Wet Weather Improvements Phase III Lower Catoma Interceptor Bradshaw Construction Corp.

Bradshaw Construction Corp. has been awarded a contract to construct four soft ground tunnels under state roads and railroads by microtunneling as part of a 37,000 lf sewer pipeline project. The tunnels range from 83- to 99-in. ID and 110 to 220 lf. Work is scheduled to start in February 2008. Area Manager: Eric Eisold; Project Manager: Mark Rybak; General Superintendent: Frank Jones.

## CALIFORNIA

### Pacific

#### Devil's Slide Tunnel Kiewit Pacific Co.

Excavation of the first of two tunnels began on Nov. 26, 2007. Work began in the northbound tunnel with an AM-105 roadheader excavating the top heading and using Category II ground support. A Category II round consists of excavating 1.6 m of tunnel, applying 8.6 cubic m of shotcrete, standing 1 girder and installing 11 4-m No. 7 dowels.

Approximately the first 30 m of the northbound tunnel was soft enough for the roadheader to cut without a problem. The ground conditions became much harder once the tunnel excavation reached 30 m.

On Dec. 21, 2007, drill-and-blast became the primary method of excavation in the northbound tunnel. The ground classification was also changed from Category II to Category I. Category I excavation consists of excavating a 2.2 m top round using drill-and-blast, installing 3.6 m No.7 dowels and placing shotcrete.

The northbound tunnel excavation type changed back again and is currently being excavated using a roadheader and Category II support.

Excavation on the southbound tunnel started on Jan. 10, 2008, excavating the top heading with the AM-105 and using Category II ground support.

Kiewit Team: Project Sponsor: Ray Backen; Project Manager: Sean Menge; Assistant Project Manager: Ryan Sheedy; Tunnel Manager: Todd Cummings; Tunnel Superintendent: JD Martin; Concrete Manager: Mark Ramsey; Equipment Manager: Larry Andersen; Tunnel Consultants: Gall-Zeidler Consultants. Information: (650) 290-5100.

## Sacramento

#### Upper Northwest Interceptor Sect. 1 & 2 Traylor/Shea JV

Project calls for installation by EPB tunneling methods of approximately 19,240 lf of 144-in., PVC lined, precast concrete segment lined tunnel. One 84- by 144-in. transition structure, one 144- by 120-in. transition structure, 20 access manholes, one interceptor manhole, and connections to three existing trunk sewer lines.

NTP was given on Oct. 1, 2007. Traylor/Shea JV has mobilized the infrastructure to

the job site. General facility installation (office trailers, shop, grout and foam plant, etc.) is proceeding at the New Natomas Pump Station site. Electrical Substation installation is currently 90 percent complete. Dewatering system installation and subsequent shaft bracing installation and excavation will proceed in early February. Robbins will furnish the EPB machine, which has been designed by Mitsubishi. Delivery to the site is set for September 2008.

Project Manager: Dave Ferguson; Project Superintendent: Bert Dore; Project Engineer: Jeremy Theys; Assistant Project Engineer: Christophe Bragard; Field Engineer: Edouard Whitman. Information: Jeremy Theys (916) 515-3933.

## San Bernardino

#### Arrowhead East and West Tunnels Shea/Kenny JV

Arrowhead East Heading-Strawberry Portal — The Strawberry Tunnel excavation has advanced to over 90 percent of the drive with 21,400 lf mined to date, with approximately 1,000 lf left for completion of the mining. The TBM is expected to hole through into the original tunnel mined and supported with segments and permanent steel pipe in place in February 2008. The TBM will be dismantled and removed from the Strawberry Portal and provisions for pipe installation will commence.

Arrowhead West Heading-Waterman Canyon Portal — The Waterman Tunnel excavation has advanced to over 75 percent of the drive with 12,900 lf mined to date, with approximately 5,000 lf left to complete TBM mining. Detailed planning and equipment procurements are under way for all post-mining operations including the RCCP final tunnel lining and grouting operations.

Project Director: Brian Fulcher; Project Manager: Bob Gordon, Mike Belcher PA.; Assistant Project Manager: Stuart Lipofsky; Project Engineer: Dana Downs; Superintendent Strawberry: Ron Walton; Superintendent Waterman: Bob Leslie; Walkers: Danny Sayre, Don Fullmer, Jeff Bright, Bobbie Briggs, Ron Sammeth, Bradley Leonard, Jim Autry.

MWD Construction Manager: John Wallace; Resident Engineer: Mike Bell; Deputy Resident Engineer: Ian Ward-McNally; Assistant Resident Engineer: Dan McMaster. Information: Brian Fulcher (909) 883-3399, [Brian.Fulcher@JFShea.com](mailto:Brian.Fulcher@JFShea.com).

## San Diego

#### San Vicente Pipeline Traylor/Shea JV

The San Vicente Pipeline Tunnel is an 11-mile water conveyance project being built for the San Diego County Water Authority. The joint venture of Traylor Bros. Inc. and J. F. Shea were low bidder at \$198,366,900 on April 20, 2005. Award occurred July 1, 2005 and NTP was July 14. Contract completion is scheduled for Dec. 1, 2008. TSJV is presently mobilizing to site, setting up yards, etc.

The 8.5-ft diameter pipeline will connect an existing aqueduct feeding San Diego County to the San Vicente Reservoir. The system will

provide additional storage during wet periods, and another water source during dry periods or when the main aqueduct suffers a catastrophe, such as an earthquake.

The tunnel runs generally east-west across the northern end of San Diego County. The western terminus is a shaft 100-ft deep, the eastern terminus is a portal, and two additional shafts are in between, with depths of around 75 ft. Depth of tunnel varies according to the surface topography, but can be as great as 600 ft. The tunnel encounters varying geology, ranging from extremely hard granitic rock near the ends, to loosely cemented conglomerate in between. Some of the conglomerate may also be tightly cemented. The water table is below the tunnel for approximately half its length, at the 'peaked' middle section of the alignment.

Due to the varying geology, multiple tunneling methods have been chosen. Two open face shields, equipped with excavator arms and replaceable roadheader-type attachments, will mine the conglomerates. These shields will be manufactured by Construction Tunneling Service (CTS). A refurbished Robbins main beam machine will mine the rock sections at each end. Conventional excavation methods will be used in a section of tunnel which interfaces the rock and conglomerate in an unpredictable fashion. Drill-blast, combined with sequential excavation method techniques, will be used here.

West Shaft Site/Reach 1 — Shaft excavation is complete to 115 ft. Excavation of starter tunnel for the rock TBM has been completed to 400 ft. The Robbins TBM has been delivered from Reach 6, and assembled in the starter tunnel. It is currently mining through granite variously requiring ribs, channel or bolts, and has advanced approximately 2,000 ft. Total reach length is 4,400 lf.

Central Shaft Site/Reach 4 West — The CTS digger shield has advanced 12,000 ft through sporadically very hard, well cemented conglomerate to complete Reach 4 West. Excavation of Reach 3, which involves blasting through granite in front of the shield, has recently begun. Ground support consists of precast concrete segments with backfill grout. Reach 3 is approximately 550 ft followed by precast concrete segments, with backfill grout, installed as the shield advances.

Slaughterhouse Shaft Site/Reach 5 — Reach 5 has been completed, and the Slaughterhouse shaft is used only for access.

San Vicente Portal Site/Reach 6 — Support of the second CTS digger shield is from the San Vicente Portal site. This machine is currently 2,700 ft into the conglomerate of Reach 4 East, where the ground has been consistently hard, and difficult to mine. This reach is 22,000 ft.

Precast Concrete Segments: Manufacture by Traylor Shea Ghazi is complete.

Project Manager: Mike Jateczak. Further information: (619) 631-0777.

# North American Project Update

## **Fountain Valley** **Ellis Avenue Trunk Sewer** **Barnard/Soletanche JV**

The Orange County Sanitation District awarded the \$31 million contract to the joint venture team of Barnard Construction Co. Inc. and Soletanche Inc. NTP was issued on Nov. 14, 2006. Final completion is May 16, 2008.

The Ellis Avenue Project is a portion of a \$2.5 billion capital improvement program for the Orange County Sanitation District. The project consists of a 5,437 lf of 9-ft diameter rib and board supported. A PVC liner is placed behind the ribs and boards to control water inflow to the tunnel. A 66-in. carrier pipe will be installed in the tunnel and the annulus between the pipe and tunnel lining filled with cellular grout. There are a total of eight shafts to be constructed on the project, five of which are to be access manholes to the pipeline. The other three shafts include a junction structure, a diversion structure and an exit shaft for removal of the TBM. The junction structure shaft will serve as the main shaft for mining operations. Camp, Dresser & McKee and Malcolm Pirnie designed this project.

### **Project Highlights:**

- Excavate 45- by 45-ft junction shaft, 16- by 25-ft TBM retrieval shaft, and 30- by 20-ft diversion structure shaft
- Chemical grout 350 lf of alignment in advance of tunnel excavation to consolidate area of known petroleum contamination
- Excavate five manhole shafts
- EPB mine 5,437 lf of 9-ft diameter tunnel in soft ground using steel ribs and wood lagging boards for initial support
- Hand-mine 25 lf tunnel connecting TBM retrieval shaft to diversion structure shaft
- Install 5,500 lf of 66-in. ID carrier pipe within the tunnels and shafts and grout annulus between carrier pipe and tunnel
- Install manhole risers and concrete shafts

Barnard/Soletanche is nearing completion of the project. The tunnel portion was completed on Oct. 4, 2007, with final lining being completed in mid-January.

Operations Manager: Dan Schall; Project Manager: Ben Campbell; Project Superintendent: Mickey Aliff; Field Superintendents: Alvin Matthew, Andy Granger, Chris Eckhardt, Dave Meyer, Willy Flores; Safety: Boodie Hurd; Project Engineers: Jordan Hoover, Patrick Stump, Ismail Benamar. Information: Shelley Burg (406) 586-1995.

## **Stanford** **Stanford Linear Accelerator** **Affholder Inc.**

This job consists of 1,600 ft of shotcrete-lined NATM tunnel. The first tunnel drive is a curved access tunnel 20- by 20-ft, 300 ft long that connects to a 40- by 40-ft experimental hall 200 ft long. On the opposite end of the experimental hall is a 500 ft long x-ray tunnel 20- by 20-ft. There is a 600-ft long undulator tunnel under the next hillside.

Construction of the undulator tunnel has been completed and turned over to the general contractor and owner. The access tunnel mining has been completed and the balance of

the section will be completed shortly. The Far Experimental Hall mining is complete and crews are currently placing the invert mud mat. This will be followed by final shotcrete lining and final concrete slab. The x-ray tunnel mining will be completed within the next few weeks and Johnson Western, subcontractor for shotcrete lining, is in the process of laying out the final lining. With completion of the x-ray tunnel all mining activities for the project will be complete.

Project Manager: John Forero; Project Superintendent: Roger Lynch; Project Engineer: Tolga Togan; Safety Managers: Jack Lynch and Mikel Seely; Business manager: John Heidish; Electrical Superintendent: Jose Cruz. Information: John Forero (916) 302-7258.

## **GEORGIA**

### **Atlanta** **West Area CSO Storage Tunnel and** **Pumping Station** **Atlanta CSO Constructors**

The West Area CSO storage tunnel and pumping station consists of 8.5 miles of 24-ft finished diameter tunnel with three intakes and a pumping station. The two sections of the main tunnel will be mined using two 27-ft diameter Herrenknecht TBMs. The North Avenue Tunnel is staged from the R.M. Clayton shaft and will mine 23,600 lf to the North Avenue CSO intake. The Clear Creek Tunnel is staged from the Rockdale shaft and will mine 20,600 lf to the Clear Creek CSO intake. The Tanyard CSO intake is connected to the Clear Creek Tunnel through a 400-ft long connecting tunnel. The Clear Creek Tunnel joins the North Avenue Tunnel at Rockdale shaft. The project also includes a section of drill-blast tunnel connecting to an overflow structure.

Both TBM tunnels are currently being lined in areas of poor ground or groundwater. A portable concrete batch plant has been setup on the Rockdale site to supply tunnel concrete to both tunnels. In the Clear Creek Tunnel, forms have moved 8,800 ft from Clear Creek toward Rockdale. In the North Avenue Tunnel, forms have moved 4,700 ft from North Avenue to R.M. Clayton. All underground work has been completed at the Clear Creek and Tanyard sites. Chamber lining remains to be completed at the North Avenue site. All diversion structure work is complete at the Clear Creek and North Avenue sites. Intake structure construction is under way at the Tanyard site. Construction of the 85 mgd pump station is being performed by W.L. Hailey as a subcontractor to ACC. Pump station concrete work is complete with discharge piping and other mechanical and electrical work ongoing.

City of Atlanta: Construction Manager: Ken Johnston; Atlanta CSO Constructors: Project Manager: Taro Nonaka; Assistant Project Manager: Darrell Liebno; Project Engineer: Ray Hutton; Safety Manager: Barry Jackson, Survey Manager: Bill Currier, Office Engineer: T.J. Kobayashi; Tunnel Engineers: Adam Stremcha, Percy Townsend, Stuart Sullivan, Koichiro Shimomura; Raj Magam; Harash Sayyar; General Superintendent: Jeff Early;

Assistant Superintendent: Ray Beasley

W.L. Hailey & Company: Project Manager: Randy Wiek; Project Engineer: Mark Palmieri; JDH Joint Venture: Resident Construction Manager: Mike Robison; Resident Engineer: Dave Beck; Project Engineer: Ron Davis; Concrete Specialist: Parvez Sheikh, Project Controls Engineer: James Talley; Chief Underground Inspector: Dave Mundis; Chief Surface Inspector: Wendell Brown. Information: (404) 352-0701 x21.

## **Snellville** **No Business Creek Tunnel and** **Pump Station**

### **Mole/Jay Dee/Kassouf/Murray Hill JV**

Winning bid of roughly \$54 million awarded March 1, 2007. Project includes sewer interceptor/storage tunnel, 16,000 lf, 12-ft diameter tunnel with five shafts ranging from 70 ft in depth to over 240 ft in depth and pump station and odor control facility.

Secant pile support is complete at Shaft 2 and almost complete at Shaft 1. Crews are halfway through excavating the first 198-ft deep shaft through granite and gneiss. Rebuilding the TBM is well under way and on target for an April launch. Currently, the trailing gear is being re-configured and the new VFD frequency drives are being installed in our shop. A new main bearing is en route from Europe to the Robbins facility in Solon, Ohio. New rolling stock has been delivered from Mining Equipment, Durango, Colo. Lachel Felice is well into a geotechnical drilling campaign and the VECP re-design has begun.

Key subcontractors and consultants: Lachel Felice & Associates, American Shoring Inc., Reynolds Inc., Headland Contracting Inc.

Project Executive: Rod R. Shoulders; Project Superintendent: Norman A. Gray; Superintendent: Ray Venturi; Project Engineer: Jake Coibion; Office Engineer: Zack West; Health & Safety Manager: Leveius Byrant; Equipment Superintendent: Mike Rule; Walking Boss: Randy Kirk, Jacques Daigneau. Information: Rod Shoulders (440) 248-0616.

## **ILLINOIS**

### **Chicago** **TARP Project, Calumet Tunnel System,** **Valve Isolation Chamber, TARP Pump** **Station** **Kenny Construction**

The project involves the splitting of the two pump rooms at the existing Calumet TARP pump station. The project includes the excavation of a 20-ft diameter valve shaft for access to a new valve isolation chamber where four 4- by 7-ft hydraulically operated bonneted gate valves, a canopy system, sump pumps, a ventilation system and a bridge crane will be installed for the separation. A stair and elevator system will be installed in the 320-ft deep shaft along with an access building at the surface after the chamber is completed. The existing wet well for the existing station will be divided by constructing a new dividing wall to full height of wet well shaft.

In addition to the valve chamber access shaft, there are two 10-ft diameter utility shafts to each of the two existing pump rooms,

an additional vent shaft with another 19-ft diameter West Pump Room access shaft. The new access shaft also includes a stairway and elevator with an access building at the surface. Each of the existing bifurcation legs will be isolated with stainless steel inlet and outlet flumes to/from the new isolation valves. The existing pump rooms will be re-configured and upgraded for larger capacity dewatering pumps.

All of the shafts have been excavated and concreted.

The access shaft to the TARP tunnel gives access to the existing TARP tunnel that flows to the pump station. The flow was diverted to one side of the existing bifurcation and the new valves and flume were installed and encased in the vacated side. The TARP flow was re-diverted into the new flumes and the second flume and valves are currently being installed. Due to several unseasonable early winter rains and runoff, the existing TARP tunnel was flooded several times, hampering access into the tunnel and delaying the process. Concurrent with this operation was the required demolition and reconfiguration work in the inactive pump room followed by the installation of new TARP pumps. Crews are in the existing wet well, when weather permits, in preparation for the division of the wet well into two separate wet wells for the new divided station.

Kenny Construction Tunnel Division Manager: Ted Budd; Project Manager: Mike Surman; Project Engineer: Christian Heinz; Senior Staff Engineer: Donn Renfro; Safety Manager: Ken Dumas; Safety: Richard Dresser. Information: Ted Budd (847) 541-8200, [TedBudd@kennyconstruction.com](mailto:TedBudd@kennyconstruction.com).

## Hodgkins

### C.U.P. McCook Reservoir

#### Kenny Construction

The \$60 million C.U.P. project being built by Kenny Construction for the Corps of Engineers is nearly complete with only final acceptance remaining.

The project consisted of two 11.5-ft and two 8.5 ft-ID concrete-lined tunnels approximately 3,320 lf and 850 lf, respectively; temporary rock plugs and concrete/steel bulkheads; an 11.5 ft-ID concrete-lined access shaft; a 60-by 100-ft underground chamber with a 26-ft ID access shaft approximately 340-ft deep, a 12-ft ID shaft approximately 320-ft deep for ventilation; six 60-in. conical plug valves; four 5-ft bonneted slide gates; 4- by 60-ft control (service) building at the ground surface; and site work including excavation, site grading, utilities, maintenance of traffic plan, staging and storage area and project signage.

Restoration and contract completion will occur within the next 30 days.

Kenny Construction Tunnel Division Manager: Ted Budd; Project Manager: Bob Rautenberg; Safety Manager: Paul Lauricella; Superintendent: Jack Finn; Project Sponsor: Doug Heinz. Information: Doug Heinz (847) 541-8200, [DHeinz@kennyconstruction.com](mailto:DHeinz@kennyconstruction.com).

## INDIANA

### Gibson County Coal

#### New North Mine #2 Portal Service Shaft Frontier-Kemper Constructors

Project calls for construction of a new service shaft at the Alliance Coal/Gibson County Coal North Mine near Princeton, Ind. The shaft will serve as a new portal for the mine's expanded operations. The shaft will be 28-ft finished diameter divided shaft and conventionally excavated to a depth of approximately 550 ft. The use of ground freezing techniques will be required to sink through the upper 120 ft of overburden. The work also includes construction of a 30 ft deep sump and a four-way concrete and shotcrete lined station. The project was mobilized in September 2006 and drilling of freeze holes completed and the freeze started October 2006, and completed by the end of December. Shaft excavation has been completed and curtain wall and shaft equipment installation has begun.

Information: Bob Pond (812) 431-8363.

## KANSAS

### Kansas City

#### Turkey Creek Tunnel Rehabilitation & Improvements

#### Merco/Obayashi JV

Modifications to the tunnel flume have been completed. Work continues on the tunnel invert rehabilitation including rock excavation and lean concrete placement in advance of the reinforced structural invert slab. Mass grouting of the upstream sidewalls has been completed. Surface grouting along the upstream sections has also been completed. Upon completion of the invert slab structural sidewall repairs and contact grouting will commence.

Project Sponsor: M.V. Mergentime; Project Superintendent: Lock Spencer; Tunnel Superintendent: Mike Levoy, Joey Jennings. Information: Mike Mergentime (908) 730-8622.

## KENTUCKY

### Louisville

#### Riverbank Filtration Tunnel & Lift Station

#### Mole/Jay Dee/Murray Hill/Kassouf JV

Project includes 8,000 lf fresh water collection tunnel 12-ft diameter with one shaft 230-ft in depth. Construction of a pump station and four horizontal collector wells.

Excavation of the work shaft is complete and crews are excavating the 14-ft diameter starter tunnel via drill and blast. TBM rehab is nearing completion and an early February launch is expected. Major equipment including new rolling stock and a new Manitowoc 1015 crane has been mobilized. The caissons are complete for Collector Well No. 2 and VCW4 and crews are beginning the construction of the caisson for Collector Well No. 5.

Key Subcontractors and Consultants: Lachel Felice & Associates, Bencor Foundation Specialist, Reynolds Inc., Collector Well Int. Inc.

Project Manager: Gevan McCoy; Project Superintendent: Terry Lowe; Project Engineer: Alesia Beck; Equipment Superintendent: Mike Clington; Walking Boss: Glen Lowe, Chris Stover. Information: Rod Shoulders (440) 248-0616.

## MASSACHUSETTS

### Dorchester

#### Dorchester CSO

#### Shank/Barletta J/V

This project for the Massachusetts Water Resources Authority (MWRA) was awarded to the joint venture with a bid price of \$140 million. It consists of two miles of 19-ft excavated, 17-ft segment lined tunnel one pass lining from single shaft. Both the mining and receiving shafts have been constructed. The EPB TBM arrived from Japan and was off loaded on Sept. 6, 2007. TBM excavation started in October 2007. As of January they had advanced 676-ft and started a two-shift operation on Jan. 15 after installing the portal switch and shaft turntable. The push frame and temporary segments were also removed during the shutdown. Mining with a full muck train behind the TBM also commenced on Jan. 15. Information: Steve Wardwell (617) 464-4444.

### Viburnum

#### Doe Run Ventilation Shaft

#### Frontier-Kemper Constructors Inc.

On July 6, 2006, FKCI was awarded the contract to construct a new ventilation shaft for Doe Run Mining Company's Southeast Missouri Mining and Milling Division (SEMO) at the Casteel Mine near Viburnum, Mo. The shaft will be raise bored to a diameter of 6-ft from a depth of approximately 900-ft using a DUR1000 drill rig. Work will be performed at the Casteel Mine and was scheduled to start September 2006. Presently the job is on hold until the issue of surface rights is resolved. Once a resolution is reached the crews will move back and complete the job in approximately three-months. Information: Bob Pond (812) 431-8363.

## NEW JERSEY

### Sayreville

#### Middlesex County Utilities Authority

#### Kenny Construction

On July 10, 2007, Kenny Construction was issued NTP for the force main tunnel under the Raritan River in Sayreville, N.J. The \$41,150,000 project consists of two 80-ft deep slurry wall shafts on either side of the river and 3,900 ft of 15-ft, 6-in. diameter segmental lined tunnel under the Raritan River between the shafts. A Lovat EPB TBM is currently being refurbished for the drive. Compressed air interventions will be required to access the cutterhead. Once the tunnel is complete, two 60-in. force mains will be installed and partially encased leaving an access walkway above the pipes for inspection purposes.

Mobilization started in September. Bencor has started the installation of the slurry walls for the portaling out shaft. Once complete, Bencor will move to the extraction shaft on the opposite side of the river and crews will excavate the launching shaft in the wet followed by the tremie plug. Mining is scheduled for late spring.

Tunnel Division Manager: Ted Budd; Project Manager: Bob Rautenberg; Equipment Manager: Mark Saylor; Project Sponsor Mike Smithson; Electrical Superintendent: Joe John-

# North American Project Update

son; TBM Specialist: Tom Peterson; Superintendent: Mike Quinn. Inquiries can be directed to [MSmithson@kennyconstruction.com](mailto:MSmithson@kennyconstruction.com).

## NEW YORK

### New York City

#### East Side Access

##### Dragados/Judlau JV

The project consists of 25,200 lf of 22-ft diameter hard rock TBM excavated tunnels. There are four tunnel runs: two 7,400-lf long and two 5,200-lf long. The tunnels start from the existing 63rd Street terminus. The job shaft will be in Long Island City in Queens and crews will have to travel 8,800 ft to the heading. The drill and blast excavation consists of two large crossover caverns between tunnels that will be lined with reinforced concrete. Approximately 11,000 ft of excavated tunnel will be concrete lined. The project duration is 48 months.

The JV had a busy fall and winter with the assembly and launching of two TBMs, including building conveyor systems to handle the muck and transporting the TBM pieces through the existing 8,100-ft long tunnel to the assembly chamber to build the TBMs in place. The JV has successfully launched both TBMs. The EB and WB tunnel started very close to each other with a very small rock pillar between so the JV had to build and install a gripper load transfer strut in the adjacent tunnel to avoid any issues with large gripper loads on a thin pillar. The SELI TBM was launched in October and has mined approximately 1,700 ft thus far. The Robbins TBM was launched in December and has mined approximately 200 ft. The SELI TBM is at a contract identified shear zone and crews are pre-excavation grouting and setting ring steel if needed.

Project Executive: Jose Miguel Gonzalez; Project Executive: Pablo Diez; Project Manager: Don Hickey; Project Engineers: Joaquin Fernandez and Julio Velez, Job Superintendent: Denis O'Neill, Equipment Manager: Louis Sanchez. Survey Superintendent: Jim Skura; General Superintendent: Terry Beesley; Equipment Superintendent: Jim Disley. Information: Don Hickey (718) 321-1818.

### New York City

#### Water Tunnel #3, Stage 2

##### Schiavone/Frontier-Kemper/Shea J/V

New York Water Tunnel No. 3 currently being constructed by Schiavone/Shea/Frontier Kemper JV involves excavation of 27,178 lf of 12-ft, 6-in. tunnel, concrete lining of 45,899 lf of tunnel to a finish diameter of 10 ft, excavation and lining of nine shafts approximately 500-ft deep, installation of stainless steel pipes in the shafts, and building distribution chambers at the top of the shafts.

The TBM excavation was completed on Aug. 4, 2006. Tunnel forms were installed in the South Tunnel and the 10-ft diameter concrete lining placement started in October 2006. Crews have completed the concrete lining of the 14,017 lf North Tunnel and are currently completing 11,445 lf of concrete lining for the 15,035 lf of the final East Tunnel. North Tunnel grouting will be starting in the next couple of weeks. Currently removing the

vertical conveyor from the main shaft 26B. Shafts 24B, 27B, 28B, 29B, 30B and 31B are in various stages of work on the Distribution Chambers; Shafts 25B and 32B the stainless steel pipe is being installed. Shaft 33B will be starting to install stainless steel pipe at the end of January. Final contract completion is in July 2009.

Schiavone Project Director: Anthony Del Vescovo; Project Manager: Kevin F. Clark; General Superintendent: Dale Estus; Project Engineer: Florentino Sison; J.F. Shea Shaft Manager: Shemek Oginski; Shaft Superintendent: Mike Jennings; Shaft Project Engineer: Jim Rosteck. Information: (212) 564-8552.

## NORTH CAROLINA

### Charlotte

#### Briar Creek Relief Sewer, Phase 1B

##### Bradshaw Construction Corp.

Bradshaw Construction Corp. has started on a 165 ft tunnel under Providence Road as part of a 9,600 ft sewer project. The 96-in. ID liner plate supported tunnel is being mined through mixed face conditions.

The owner is also evaluating a proposal to convert approximately 700 lf of open cut to a 101-in. diameter tunnel.

### Charlotte

#### Wachovia/Knight Theatre Tunnels

##### Bradshaw Construction Corp.

Bradshaw Construction has been awarded a design-build contract to construct two pedestrian tunnels under the streets of downtown Charlotte to connect a new performing Arts Center to underground parking. The work is part of Wachovia Bank's First Street Development Project. Teamed with Jenny Engineering Corp. of Springfield, N.J., a concept was developed including initial/final lining NATM and waterproofing and a cast-in-place floor.

The subsurface conditions include rock and mixed face tunneling with about 16 to 20 ft of cover. The 13-ft high by 16-ft wide finish horseshoe shell will be fitted with an architectural finish corridor in a follow-on contract. Work was scheduled to start in January 2008.

Project Manager: Eric Eisold; General Superintendent: Jerry Simon; Design Engineers: Prakash Donde and Iwona Tarchala (Jenny Engineering)

## OHIO

### Cleveland

#### Mill Creek Contract 3

##### KM&M&K JV

Concrete final lining to a 20-ft ID is complete. Shaft construction and connector sewer installation continues.

Project Manager: Robert J. Kassouf; Project Superintendent: Ralph Doderio. Information Contact: Bob Kassouf (216) 651-3333.

### Columbus

#### BWARI

##### Jay Dee/Michels/Traylor JV

The tunnel has been cleaned and currently working on the installation of the Line A bond lining required for the full length. Have completed approximately 50 percent of the lining.

City of Columbus, Division of Sewerage and Drainage: Gary Gilbert, Civil Engineer;

City of Columbus, Division of Sewerage and Drainage: Tanya Arsh, Sewer System Engineering Manager; URS Corp., Designer: Douglas Uhren and Tom Richardson; HR Gray, Construction Management: Robert Scott, Sr. Mgr., James Joyce; Lachel & Assoc., Geotechnical Design: David Chapman and Glen Frank; Contractor, Jay Dee / Michels / Traylor JV: Michael DiPonio, Project Manager; Mark Lafaze, Project Engineer and Tim Awald, Project Superintendent. Information: (614) 491-9551.

## BWOAS II

### McNally/Kiewit JV

This project consists of 167-in. diameter, 144-in. ID concrete segment lined, 13,200 lf excavated tunnel 60-ft below surface, one work shaft, four access shafts and one interconnected structure at the end. The geology is glacial clay, tills, and sands with boulders. Also involves 5,000 lf of surface sewer with two 400-ft lengths of pipe jacking.

The TBM holed through into the recovery shaft on Aug. 1, 2007, work within the tunnel has been completed. Access shafts 9, 10 and 11 are complete and sites restored. Access shaft 12 is complete and the site will be restored in spring 2008. Structures at the ICS and shaft 8 sites will be completed in early spring 2008.

Project Sponsor: Larry Lenahan; Project Manager: Tom Szaraz; Project Engineer: Gary Bulla; Project Superintendent: Bill Bracken; Field Engineer: Jeff Acor. Information: Tom Szaraz (614) 491-2800.

## Columbus

### Big Walnut Sanitary Trunk Sewer Extension

#### Kassouf/Mole/Murray Hill/Jay Dee JV

Site work is under way at the five shaft sites. Shaft 4 (Mining Shaft) excavation is complete. Drilling and shooting at Shaft 3 is under way. Soft ground excavation at Shaft 2 is complete, with vertical boring machine excavation scheduled to begin soon. Soft ground excavation at Shaft 1 is under way.

Tunnel mining operations have begun and advanced approximately 300 lf. Mining will resume after switch and utilities are installed. Shaft excavations continue.

Project manager: Robert J. Kassouf; Project Superintendent: Bill McFadden; Information: Bob Kassouf (216)651-3333.

## Marysville

### Sewer Tunnel

#### Super Excavators

The project includes 21,000 lf of 60-in. sanitary sewer, 14,800 lf in microtunnel and 6,200 lf open-cut construction. The 14,800 lf tunnel is broken down into 20 drives with the longest being 1,056 lf. To date, three drives for a total of 2,600 lf has been completed. The project allows for the abandonment of Marysville existing wastewater and transport sewage to the new treatment plant. The contractor is using an Akkerman MTBM-SL60 and MT860K keyhole jacking frame. This jacking frame was the first manufactured by Akkerman and previously used in Milwaukee

Project Manager: Dave Schlosser. Information: (937) 642-1393.

## OREGON

### Portland

#### East Side CSO

##### Kiewit/Bilfinger Berger (KBB) JV

Of the seven primary shaft site locations, the slurry walls have now been completed at all seven sites. Shaft excavation and tremie slab placement have been completed at three sites; and excavation is currently in progress at the two northern-most sites.

Excavation of the 25-ft. diameter slurry tunnel began in summer 2007. The tunnel is divided into several drives along the alignment separated by the seven shafts. The TBM holed-through at the first shaft on Dec. 4, 2007, completing about 4,200 lf of the 30,000 lf tunnel. After completing maintenance, the TBM was scheduled to resume mining in January 2008. KBB's precast segment casting operation was 25 percent complete at the end of 2007.

Both the open-cut and the microtunnelled pipeline work activities continue. Since October 2007, the second and third microtunnel drives were completed. The next drive will be the longest of the eight microtunnel drives at about 3,300 lf. Crews will launch the MTBM for this fourth drive in early February 2008.

Several diversion structures are also under construction. Excavation has been completed at seven of 11 outfall shafts and concrete build-out is under way at three of those shafts.

Project Director: Bill Mariucci; Project Manager: Tom Corry; Safety Manager: Paul Weisheit; Quality Manager: Glen Tomack; Engineering Manager: Tony O'Donnell; Site and Shaft Manager: Scott Wimmer; Tunnel Manager: Christof Metzger. Information: (503) 290-7000.

## PENNSYLVANIA

### Pittsburgh

#### Pittsburgh Light Rail Tunnels

##### North Shore Constructors JV

The JV (Obayashi Corp. & Trumbull Corp.) project includes construction of 2,200 lf twin tube 20-ft ID bored pre-cast lined tunnels underneath the Allegheny River, cut-and-cover tunnel including station shell and launch and receiving pits for the TBM. Work also includes utility removal, relocation, support and replacement, mass excavation, (CDSM and slurry walls) cut and cover tunnel and station pits, soil stabilization (jet grouting, compensation grouting) instrumentation, placement of cast-in-place (secondary liner) controlled fill and site work, removal and replacement of existing retaining walls and underpinning State Road 65 viaduct pier bents. Duration of project is 1,030 calendar days.

Utility removal, relocation, support and replacement is 90 percent complete. Support of excavation, (CDSM and slurry walls) cut-and-cover tunnel and station pits, soil stabilization (jet grouting) instrumentation installation will be complete in mid-January 2008. Mass excavation, cast-in-place concrete and underpinning State Road 65 viaduct pier bents are under way.

A Herrenknecht slurry TBM will be used to bore the tunnels. The machine is assembled

at the face and was scheduled to begin mining in early 2008.

Major subcontractors currently working: Nicholson Construction – CDSM and slurry walls, jet grouting; Brayman Construction – drilled piers, soldier piles and lagging; More-trench – dewatering.

Project Manager: Asao Nomura; Construction Manager: John Murray; Project Engineer: Shu Mino; Tunnel Engineer: Kenji Yamauchi; Chief Field Engineer: Russ Pollard; Safety Supervisor: Mike Restani; QC Manager: Al Dube; General Superintendent: Randy Marnhout; Shift Superintendent: Bill Gyofi.

## TEXAS

### Round Rock

#### Mole/Kassouf/Murray Hill

Tunnel and shaft excavation and lining are complete and construction of the Pump Station is complete and commissioned on Dec. 21, 2007. Crews are installing landscaping.

Subcontractors and consultants: Lachel Felice & Associates, Pacific International Grout Co., Benitez Construction Co.

Project Manager: Norman A Gray; Project Superintendent: Mike Clingon; Project Engineer: Alesia Beck. Information: Rod Shoulder (440) 248-0616.

## VIRGINIA

### Richmond

#### Battery Park Emergency Trunk Sewer Replacement Project

##### Bradshaw Construction Corp.

This project was completed in January 2008 on time and on budget.

Area Project Manager: Mark Rybak; General Superintendent: Frank Jones; General Superintendent: Jack Jones; Project Engineer: Todd Brown; Safety Director: John Katchan. Information: Mark Rybak (410) 461-4466.

### Oakwood

#### Buchanan Mine No. 1

##### Frontier-Kemper Constructors

The shaft will be 22-ft diameter by approximately 2,000-ft deep and will have two water rings, and a shotcrete-lined four-way station. Pre-grouting of the shaft was performed as a change order and was completed in 2006 and site mobilization began in mid-January 2007. The hoist drum and related equipment is in place and the collar excavation has started.

Information: Frontier-Kemper (812) 426-2741.

## WASHINGTON

### Seattle

#### Beacon Hill Tunnel

##### Obayashi Corp.

The TBM was re-launched in September on the northbound running tunnel and is set to hole through on the final drive in mid-February 2008.

The SEM mining work at the station is complete and one of three cross passages have been driven. The final concrete lining in the southbound platform tunnel is complete and the northbound tunnel is being prepped for final concrete. Work continues on waterproofing, main shaft concrete and both head house structures.

The 2,400 lf aerial guide way at the East Portal is substantially complete and work continues on miscellaneous concrete and steel erection for the Mt. Baker station. Concrete work at both portals is continuing. Plinth operations and rail work on the guide way is substantially complete and is ongoing in the southbound tunnel.

Major Subcontractors/Suppliers: Elcon – permanent electrical; Luwa – mechanical; J. P. Francis Plumbing; Thunderbird – temporary electrical; Rebar International – rebar; Technopref – precast segments; Wisco – waterproofing; Apex Steel – structural steel.

Obayashi Job Site Personnel – Senior Project Manager: Masaki Omote; Project Manager: Steve Redmond; Business Manager: Jon Kirk; General Superintendent: Richard Bouteille; SEM Tunneling Manager: Rohit Shetty; SEM Tunneling Superintendent: Neto Jacques; Structural Manager: Bob Clucas; Project Engineer: Gregg Olsen; Safety Manager: Billy Hahn; Tunnel Concrete Superintendent: Lester Wescott; SEM Engineer: Satoshi Akai; EPB Tunnel Engineer: Tomo Kudo; Structural/Building Engineer: Mat Matsumoto; Estimator: Brent Buzzard. Information: Jon Kirk (206) 262-0665.

Sound Transit Job Site Personnel – Deputy Construction Manager: Richard Sage; Resident Engineer: Rick Capka; Station Project Engineer: Brian Wilson; Tunnel Project Engineer: Clement Wiggins; Resident Engineer Structures: Roger Smith.

### Bothell

#### Brightwater – East Contract

##### Kenny/Shea/Traylor JV

Site utilities and screen/sound wall fence are complete and slurry wall construction for the IS shaft was completed by Bencor Corp. in spite of a six-week setback due to an operator's strike against the ready-mix concrete suppliers in King County. Bencor has since completed the binocular twin 84-ft diameter shafts and center wall for the IPS shaft using 160-ft deep by 48-in. thick panels. The IS shaft excavation was completed and the 13-ft thick, 2,600 cu yd concrete tremie plug installed. The shaft was concrete lined back to the final diameter with all the portals installed. Northwest Boring assembled the microtunnel equipment for the first drive out and has completed the first 850-ft drive. The receiving shaft for the first microtunnel drive was completed (80-ft deep caisson) and the second and third caissons have been completed for the remaining drives. The second microtunnel drive has been completed. The 19-ft, 3-in. diameter Lovat EPB TBM was delivered to the site in September 2007, and was partially assembled in the IS shaft for the launch of the ECT (East Combined Tunnel) 14,050-ft drive. Mining started and the trailing gear added as the tunnel advanced. The entire trailing gear (325 ft) has been installed and the tunnel advanced 350 ft. Full production is currently under way.

The IPS slurry wall binocular shaft excavation was completed in the wet and the 15.5-ft thick tremie plug pours (2,700 cu yds each) completed for both lobes. Following the cure of the plugs, dewatering was started and the

# North American Project Update

upper and middle struts poured in conjunction with the demolition of the common slurry wall. Crews have completed the center wall demolition to the bottom of the bottom strut and are forming the last strut. Once completed and cured, the dewatering will be completed and the final concrete lining of the binocular pump station started.

Kenny Construction Co. Tunnel Division Manager: Ted Budd; Project Manager: John Kennedy; Project Engineer: Jake Taylor; Cost and Schedule Manager: Luminita Calin; QA/QC Manager: Tony Huphauf; Grounding Conditioning: Eric Simonson, Engineer; Division Equipment Manager: Mark Saylor; Project General Superintendent: Rich Mascarello; Electrical Superintendent: Dale Wold; Warehouse Manager: Terry Walls; Safety Manager: Mike Sarlitto; Asst. Safety Manager: "Chip" Graeber; Home Office Sponsor: Austin Cooney. Information: Ted Budd (847) 541-8200, [TedBudd@kennyconstruction.com](mailto:TedBudd@kennyconstruction.com).

## Brightwater – West Contract Jay Dee/Coluccio/Taisei JV

Currently the shafts for the microtunnel launch and recovery are completed and the launch for the microtunnel TBM is complete. The joint venture is waiting for delivery of the Hobas pipe to set the TBM and turn under. The remainder of the main shaft is excavated to about 14-ft deep, half of the final depth, and installation of the wales is under way. The conveyors for the barge loading facility are installed, but not yet operational, from the muck bin to the discharge location on the existing pier. All the jet grouting for the main shaft is complete and the crews are now grouting the TBM launch eye for the main tunnel. Other support work and facilities continue including the distribution for electrical facilities and the water treatment plants. A 15-ft, 5-in. diameter Lovat EPB TBM is being manufactured for the tunnel drive and scheduled for delivery in March 2008. The concrete segments will be fabricated by CSI/Hanson JV in Tacoma, Wash. All 21,100 lf of tunnel will be from the shaft portal at Point Wells in Richmond Beach, very close to the shore line of Puget Sound.

Major subcontractors include Delta Technology Corp. – HVAC; J.P. Francis & Assoc. Inc. – plumbing and mechanical; United States Electrical Corp. of Washington – permanent and temporary electrical.

Managing Partner for the JV: Thomas S. DiPonio; Project Manager: Greg Hauser; General Superintendent: Tom McMahon; Project Engineer: Glen Frank; Assistant Project Engineer: Mina Shinouda; Tunnel Engineer: Hiro Uchida; Health and Safety Officer: Andrew Cook; Microtunnel Manager: Bill Austell; Office Manager: Renee Halley; Jet Grout Manager: Bobby Partridge (Coluccio); Jet Grout Tech: Guiliano Priest (Coluccio).

King County Project Representative: Mann-Ling Thibert; Resident Engineer: Bob Mues (Jacobs Engineering); Assistant Resident Engineer: Mike Cole (EPC Consultants); Chief Inspector: Ken Rossi (EPC Consultants); Design Engineer: John Giardrone (Jacobs Associates). Information: Greg Hauser (206) 542-2865.

## Brightwater – Central Contract Vinci/Parsons/FKCI JV

The \$210 million contract includes 11,600 lf of 14.33-ft diameter steel fiber reinforced segmentally lined tunnel (BT2) between the North Kenmore Shaft and the North Creek Shaft and 21,100 lf of 14.33-ft diameter steel fiber reinforced segmentally lined tunnel (BT3) between the North Kenmore Shaft and the Ballinger Way Shaft. The tunnel excavation will utilize two Herrenknecht 17.38 ft mixshield machines. The project also includes 3,400 lf of 3- to 5-ft interceptor work constructed by microtunneling and cut-and-cover methods. The JV will also construct the North Kenmore Shaft 54-ft diameter and 90-ft deep and the Ballinger Way Shaft 28-ft diameter and 200-ft deep using mixed slurry (slurry and compressed air) TBM – a first for FKCI and rarely used technology in North America but popular in Europe. Maximum operating pressure is expected to be just over 5 bar. To retrieve one of the TBMs the Ballinger Way Shaft 200-ft deep and 30-ft diameter will be constructed using freezing techniques. The other TBM will be retrieved from the existing North Creek Shaft upon completion of its drive.

The North Kenmore Shaft has been excavated and partially lined. The BT2 Tunnel was started and mined to ring 90 (450 lf). The tunnel linear plant was removed as well as the electrical and mechanical umbilicals. Jacking frame and temporary rings were removed from the shaft and trailing cars one through nine were placed in BT2.

TBM cradles for BR3 were installed with associated work to the BT3 tunnel eye (Bull flex and Phoenix seal). The BT3 TBM has been assembled, including cutterhead, front, middle shield 1 and 2 and the tail skin. At this time mining is at a reduced production rate while BT3 gantries are installed.

Ballinger Way freeze shaft by Moretrench is near completion of the maintenance period (prior to beginning excavation works). In the meantime foundations are being prepared for a work deck, as well as mobilizing and prep work for the shaft collar.

A 5-ft ID 1,608-ft long interceptor sewer was microtunnelled in the spring and summer and is complete. The receiving shaft at the west end of the project (Ballinger Way shaft) is under construction.

Project Manager: Lionel Suquet; Project Engineer: Yvonnick Rescamps; General Superintendent: Francois DeLille; Tunnel Superintendent: Jim Nickerson; Equipment Superintendent: Greg Cook; Electrical Superintendent: John Issacs; Business Manager: Cheryl Sturdefant. Information: Dave Rogstad (296) 766-8106.

## WEST VIRGINIA

### Neal

#### Cavern #2

### Kiewit Construction Co.

Production top heading mining is just getting under way and currently crews are ramping up at 10 percent grade in order to get the arch out of the laminated shale and into homogeneous burrowed shale. After the first initial

production mining was complete a mucker and jack platform were lowered underground through the 8-ft diameter shaft and reassembled while the main ventilation system was installed.

All muck is being brought to the surface using a headframe, 1,000 hp shaft hoist and an automated loading pocket underground. The entire round trip, from the skip filling up with 5.5 cu yd of muck to dumping on the surface (560 ft above cavern elevation) and returning to the loading pocket below takes only 2.5 minutes. Impressive, considering the distance traveled and the total loaded weight being conveyed is nearly 30,000 lbs.

The final phase of the underground mining will be the bottom bench excavation which will increase the height of the final height of the tunnel to 27.25 ft.

Project Sponsor: Bob Stier; Job Superintendent: Matt Swinton; Assistant Job Superintendent: Jamie Bonner; Project Engineer: Bridget Wallis. Information: (304) 453-7030.

## WISCONSIN

### Milwaukee

#### Elm Road Generating Plant Intake Kenny Construction

The project is a design-build subcontract for Bechtel Corp., which is the design/build contractor for the \$2 billion plant for WE Energies (Wisconsin Electric) consisting of a lake water intake tunnel excavated in rock approximately 9,200 ft in length, 27-ft, 4-in. in diameter of which 930 ft is to be lined to a finished diameter of 25 ft. Also included are two land-based upshafts at 25- and 18-ft finished diameters as well as a temporary construction shaft at 30-ft diameter. In addition, there are four offshore water intake shafts, 12-ft diameter, along with ancillary intake piping. These shafts are 8,000 ft offshore in Lake Michigan. Part of the intake system includes a 250-ft long dike wall with an emergency bypass backup surface water intake system and an estimated 50,000 cu yd of channel dredging.

Marine crews have completed the drilling and the installation of the vertical piping in the four drilled intake shafts. Dredging was completed and all vertical risers connected to the previously installed risers below the lake floor followed by installation of manifold piping. This was followed by the installation of the intake screens to complete the installation of the intake system. Once the tunnel is flooded, divers will remove the horizontal bulkheads in the intakes.

The overburden excavation using a 32 ft ID caisson method to the rock (80-ft deep) for the first of three land based shafts was completed and the rock drilled and shot to the top of the tunnel and TBM erection chamber. The 200-ft deep shaft was lined followed by the drilling and shooting of the 30-ft horseshoe erection chamber. The 27-ft, 4-in. diameter TBM was erected and completed mining in early March 2007. The tunnel was cleaned and the TBM cycled back to the work shaft for disassembly and removal. Tunnel concrete forms were erected and the land based tunnel poured. The forms moved out to the intake risers and the connections poured at the four risers and the

tunnel poured back to land based shaft and the forms removed after pouring the riser shaft intersection.

The dredging operation in the Intake channel was completed and followed by steel sheeting work in the existing inlet channel. Dyke wall excavation and concreting with intake inlets, gates and screens have been completed.

With the tunnel, intakes, riser shafts and the dyke wall complete, flooding of the tunnel will take place when the new plant is ready to receive flow and direction is given to remove intake riser bulkheads.

Kenny Construction Co. Tunnel Division Manager: Ted Budd; Project Manager: Paul McDermott; QA/QC Manager and Project Engineer: Tom Plinke; Design/Build Coordinator: Mike Smithson; Equipment Manager: Mark Saylor; Electrical Superintendent: Joe Johnson; TBM Specialist: Tom Peterson; Site Equipment Manager: Dave Kuepper; Warehouse Manager: Chuck Hartman; Survey Manager: Rich O'Neil; Site Safety Manager: Matt Hadaway; Safety: Phil Harris; Home Office Sponsor: Austin Cooney. Information: Ted Budd (847) 541-8200, [TedBudd@kennyconstruction.com](mailto:TedBudd@kennyconstruction.com).

### **Milwaukee Harbor Siphons Project Shea/Kenny JV**

The project consists of approximately 2,100 ft and 2,400 ft of 17-ft horseshoe drill and blast tunnel, with two 20-ft drop shafts and one 30-ft riser shaft. The shafts range from 250- to 300-ft deep with approximately 190-ft of overburden which has to be frozen into the bedrock by contract. Also included is a frozen cofferdam of 80- by 250-ft for the various pipe connections.

Pipe installation in both the Scott & Barclay and Erie Street shafts has been completed. The Erie Street Diversion is being excavated. The 42-, 48- and 60-in. concrete stressed pipe have been installed in the A-B Tunnel and have been backfilled with flow fill. Two 78-in. concrete stressed pipes have been installed in the EOH Tunnel and are presently being backfilled with Flow Fill. One 96-in. pipe in the A-B Tunnel and one 60-in. pipe in the E-H Tunnel remain to be installed and backfilled. A total of 32,000 ft of pipe will be installed at completion.

Vice President: Martin "Dutch" Vliegthart; Project Manager: Carl Christensen; Office Manager: Bonnie Senkowski; Structure Superintendent: Jerry Straube; Shaft Superintendent: Darrell Vliegthart. Information: (414) 258-2510.

### **Milwaukee North 27th Street ISS extension Shea/Kenny JV**

Currently performing pre-excavation grouting of the shafts from the surface. Drilling and placing freeze pipes around the circumference and starting freeze. Excavation was to start in November 2007.

The main access shaft is presently being constructed. The shaft is 24-ft diameter finished with rebar.

Water treatment plants have been installed. The Mill Road shaft has been pre-grouted and Layne Christensen is drilling the freeze pipe and installing the freeze plant.

Project manager: Dan Martz; Project Engineer: Len Postregna; TBM Superintendent: Norm Hutchins; Master Mechanic: Keith Walters; Office manager: Bonnie Senkowski; Safety: Randy Britton; VP Area Manager: Dutch Vliegthart. Information: (414) 258-2510.

### **Milwaukee Underwood Creek Relief Sewer Michels Pipeline**

Project involves microtunnel installation of 2,100 lf of 48-in. reinforced concrete pipe. Crews are mobilizing to the site at the George Hanson Golf Course in Milwaukee and are assembling a newly manufactured Akkerman MT875K Jacking Frame and MTBM SL60. This job is replacing a portion of the existing Underwood Creek MIS with a 48-in. RCP.

Information: Laura Anderson (507) 567-2261 x157.

### **CANADA - ONTARIO Vaughan, Region of York Bathurst and Langstaff Tunnels McNally Construction Inc.**

The project consists of three tunnels: two tunnels at Bathurst 2.74-m (8.8-ft) diameter each, 2.6 km (1.62 mile) long, and one at Langstaff 2.74-m (8.8-ft) diameter 3.2-km (1.99-miles) long.

Mining commenced on the first Bathurst tunnel January 2007. The first drive was completed in December 2007. TBM is reinstalled for the second drive with mining set to commence late January 2008.

Mining commenced on Langstaff in August 2007. Currently 500 1.2-m (4-ft) long rings have been completed. The contract involves six access shafts of various diameters. Construction techniques included liner plate shaft, ribs and lagging and secant pile shafts. All shafts are completed.

Project Manager: Laura McNally; Toronto Area Manager: Tim Cleary. Information: Steve Skelhorn (416) 252-6321

### **Richmond Hill, Region of York 19th Avenue McNally/Aecon JV**

The project consists of two tunnels: the South Tunnel is 2.74-m (8.8-ft) diameter, 500 m (1641 ft) long, and the West Tunnel 2.7-m (8.8-foot) diameter, 3.3-km (2.05-miles) long.

Mining commenced on the West Tunnel in February 2007 and in December reached the intermediate shaft S3 after completing 2.4 km (1.49 miles) of tunnel. TBM is reinstalled for the second drive with mining set to commence late January 2008.

Mining on the South Tunnel commenced in April 2007 and was completed in July 2007; the TBM was removed and relocated to the Langstaff project.

Included in the contract are five access shafts (two liner plate shafts, one rib and lagging shaft, and two octagonal slurry wall shafts 10-m (32.81-ft) diameter). All shafts are completed.

Project Manager: Steve Skelhorn; Toronto Area Manager: Tim Cleary. Information: Steve Skelhorn (416) 252-6321.

### **Sudbury South End Tunnel McNally Construction Inc.**

Project consists of 6.4 km of 7- by 5-ft sewer tunnel excavated in hard rock by drill-blast. Currently eight headings have been developed with approximately 60 percent of the excavation completed to date. With completion of excavation, the tunnels will receive a concrete lined invert.

Project Manager: Dan McNally; Information: Ray Hutton (905) 549-6561.

### **Welland Welland OAS McNally Construction Inc.**

This project consists of 2.7 km of 96-in. rib and lagging tunnel excavated in clay. To date one drive (1.4 km) has been excavated and a 65-in. cast-in-place concrete lining being placed. The second drive (1.3-km long) got under way in January 2008.

Project Manager: Chris Banks. Information: Ray Hutton (905) 549-6561.

### **CANADA - BRITISH COLUMBIA Ashlu Creek Frontier-Kemper Constructors**

The Ashlu Creek contract is a design-build-operate-transfer, run-of-the-river hydroelectric project. It consists of an upriver diversion weir, drop shaft, transfer tunnel and downriver powerhouse. The weir diverts the part of the river into the drop shaft and tunnel which then conveys the water 4.3 km downstream to a powerhouse, and is finally discharged back to Ashlu Creek. Frontier-Kemper's portion of the work includes the design and construction of a 130-m deep raise bored shaft and boring 4.3 km of 4.1-m diameter power tunnel. After a two year delay, the Provincial Government of British Columbia has resolved the land use dispute with the local regulatory body. The developer of the project, Ashlu Creek Investments (an Innergex & Ledcor partnership) issued Frontier-Kemper Constructors a notice to proceed effective August 2006.

A 30-m long starter tunnel was excavated under a subcontract by a local contractor using drill-blast. The Wirth TBM was completely refurbished in the Evansville shops of Frontier-Kemper together with an entirely new backup system and delivered to the site and assembled in March 2007. Excavation commenced in May 2007.

The 4.08-m Wirth TBM has excavated approximately 880 m (20 percent) of the drive total of 4,420 m.

Project Manager: Serge Moalli; General Superintendent: Roger Blankenship; Project Engineers: Jonathan Prenger and Dave Watson; Business Manager Richard Olason. Information: Dave Rogstad (812) 426-2741.