



**MIDWEST
MOLE**
TRENCHLESS SPECIALIST

**A LEADER IN TRENCHLESS TECHNOLOGY OFFERING
A RANGE OF UNDERGROUND SERVICES TO
OUR MUNICIPAL, UTILITY, HIGHWAY, RAILROAD,
AND PRIVATE SECTOR CUSTOMERS.**

Midwest Mole is a leader in the trenchless technology industry. We have the resources to respond quickly and effectively to your trenchless technology needs.



**MIDWEST
MOLE**

Our people and supervisory personnel have over 450 years of combined industry experience. Midwest Mole's reputation is built on a tradition of dedication. Our entire team is committed to working with clients from the planning stages through project execution to ensure customer satisfaction.

We have a reputation for providing reliable, efficient, state-of-the-art services. Our own fleet of trucks and heavy equipment allows us to respond swiftly to customer needs—even in an emergency. Our team has designed new methods and procedures when necessary to complete projects that once seemed almost impossible.

Since 1982, our customers have come to know that they can expect the best from Midwest Mole. We offer a broad range of underground services to our municipal, utility, highway, railroad and private sector customers. Midwest Mole has the financial strength to provide payment and performance bonding along with special insurance coverage.

Our team will do whatever it takes to get the job done correctly, safely and on time. Make Midwest Mole a partner on your next project team!

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SERVICES



AUGER BORING

Auger boring forms a horizontal bore by jacking the steel casing through the earth from a main shaft to a reception shaft. Spoil is removed from inside the encasement by means of a rotating flight auger. An Auger Boring Machine (ABM) bores through soil or rock with a cutting head and auger to install steel casing pipe. The equipment may have limited steering capability.



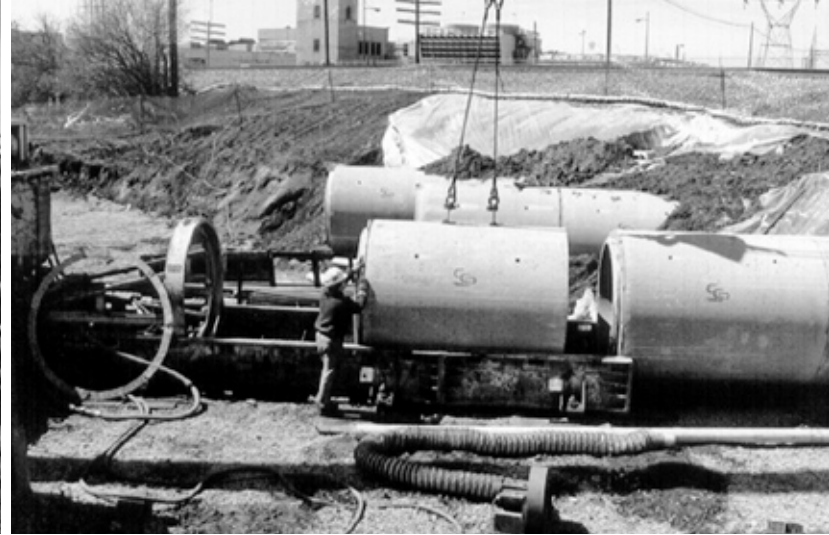
GUIDED BORING

The Guided Boring Method (GBM), also referred as Pilot Tube Microtunneling (PTMT), uses small diameter tubes (pilot tubes) that are installed and steered through the ground. This technology utilizes a slanted face at the cutting head containing a target with light emitting diodes (LEDs) and a camera mounted theodolite located in the shaft to achieve high accuracy in line and grade. The hole is enlarged to the same outside diameter of the final product pipe after the installation of the pilot tubes, then the pipe is either jacked or pulled into place.



PIPE RAMMING

This non-steerable system forms a bore by driving an open-ended steel casing using a percussive hammer from a drive pit. The soil may be removed from the casing by augering, jetting, or compressed air.



PIPE JACKING

Pipe jacking is a system of directly installing pipes behind a shield machine by hydraulic jacking from a drive shaft such that the pipes form a continuous string in the ground. Excavation is performed manually or mechanically with the use of a tunnel boring machine (TBM).



SERVICES



MICROTUNNELING

Microtunneling is a trenchless construction method for installing pipes for sewer, water and other utilities. The Microtunneling boring machine (MTBM) is operated remotely from the surface. The system simultaneously installs pipe as spoil is excavated and removed through slurry lines. Continuous pressure is provided to the face of the excavation to balance ground water and earth pressures.

Remote Controlled

The microtunneling boring machine (MTBM) is operated from a control panel, normally located on the surface. The system simultaneously installs pipe as spoil is excavated and removed. Personnel entry is not required for routine operation.

Guided

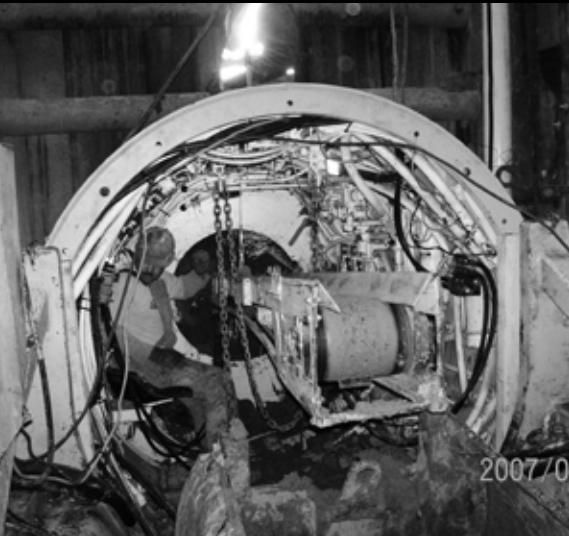
The guidance system usually references a laser beam projected onto a target in the MTBM and is capable of installing gravity sewers or other types of pipelines to the required tolerance for line and grade.

Continuously Supported

Continuous pressure is provided to the face of the excavation to balance ground water and earth pressures.

HANDMINING

Handmining is a method of constructing a tunnel in reasonably stable ground conditions. The tunnel must be large enough for man entry. The tunnel face is manually excavated with hand-held tools. With this method, if obstructions are encountered they can be manually removed from the tunnel face.



CONVENTIONAL TUNNELING

Conventional tunneling is a method for excavating a tunnel using either manual excavation or a tunnel boring machine (TBM). A TBM or Shield is used to support the ground during excavation and provides a place to erect tunnel support.



SLIP-LINING

Slip-lining is insertion of a new pipe by pulling or pushing it into the existing pipe and grouting the annular space. The pipe used may be continuous or a string of individual pipes of a smaller diameter than the original pipe. This is a very effective method of improving a damaged or deteriorated pipe and costs less than replacing it. This technique is effective in the rehabilitation of failing culverts, sewers and storm drains.



SHAFT INSTALLATION

Shaft installation is the process of constructing a vertical pit or wall from the ground surface to the tunnel to furnish access to the tunnel. Methods of shaft installation include liner plate, soldier beam and wood lagging, steel sheeting and trench safety boxes. Midwest Mole can furnish a turnkey price by including the excavation of main work pits and receiving pits for any trenchless installation.



SERVICES

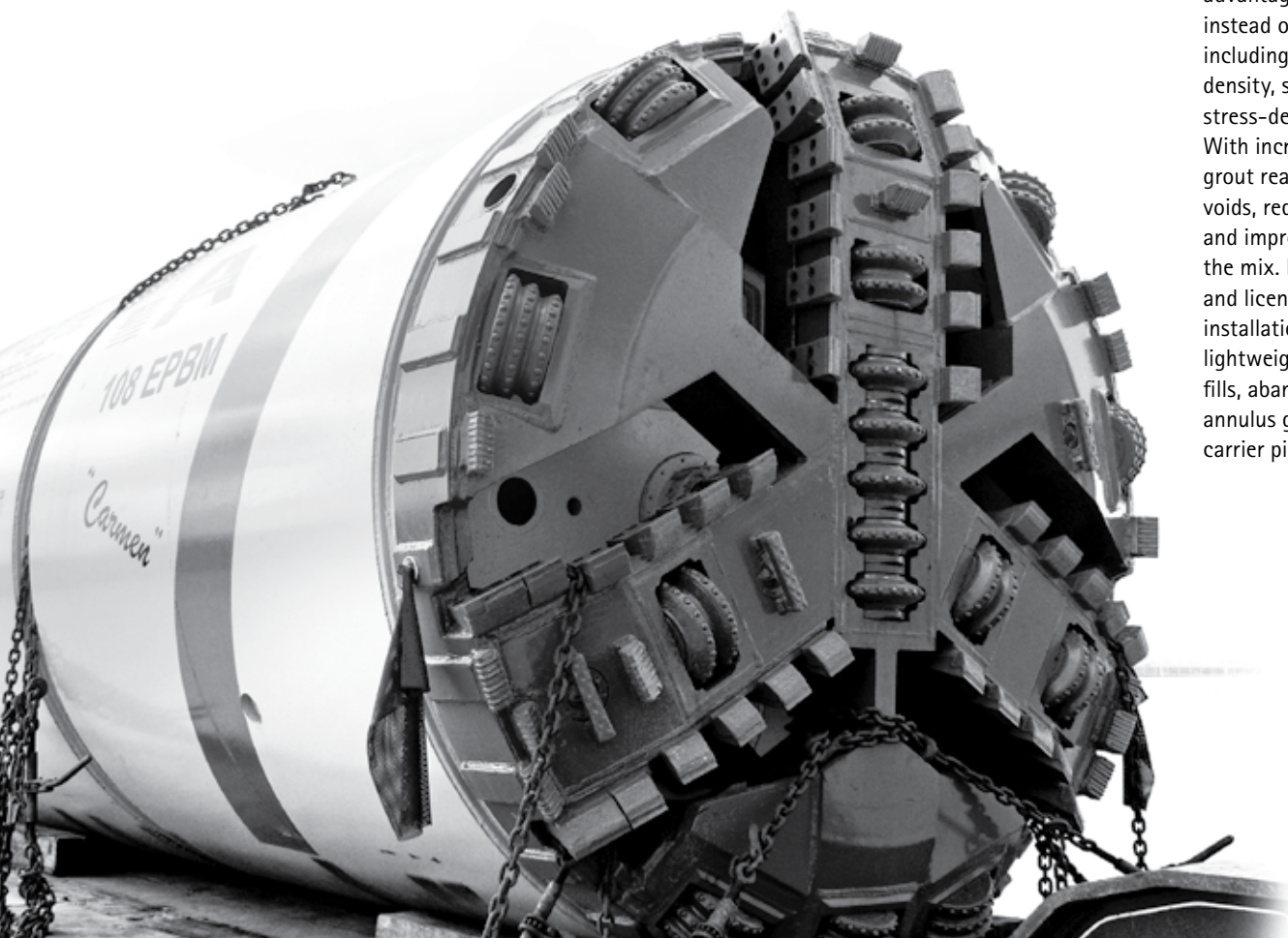


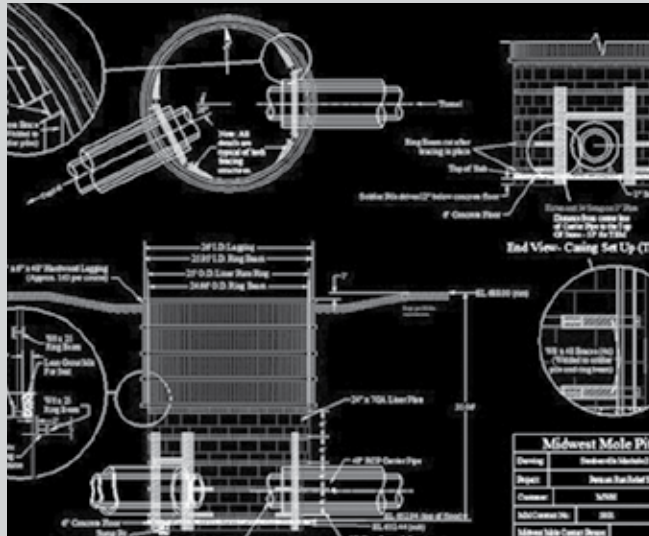
EARTH PRESSURE BALANCE (EPB) TUNNELING

Earth Pressure Balance (EPB) tunneling utilizes a Tunnel Boring Machine (TBM) that allows for installations in unstable ground. The ground at the cutting face is supported by "earth pressure" by balancing the advancement of the tunnel with the discharge rate of the excavated soil that is contained through a screw auger.

CELLULAR GROUTING

Cellular Grout is an ideal material for filling the annular space between the carrier pipe and tunnel, and for slip-line projects. There are many advantages in using cellular grout instead of regular sand-cement grout including the considerably lower density, superior fluidity, and unique stress-deformation characteristics. With increased fluidity, the cellular grout readily flows into irregular voids, requires no consolidation, and improves the pumpability of the mix. Midwest Mole is a trained and licensed contractor for the installation of cellular grouts to install lightweight grouts for geotechnical fills, abandoned structures, mines, and annulus grouting for slip-lining and carrier pipe installations.





HYDRO-EXCAVATION

Hydro-excavation uses pressurized water and vacuum to remove the soil on excavation projects. It affords the luxury of excavating around existing underground utilities without potential damage to the structure. Hydro-excavation is used for the safe exposure of buried infrastructure including pipeline, utilities, cable, fiber optics, and electrical lines. This new technology will save project time and budget by reducing damage repair and down time. Hydro-excavation is "The Safe Way to Dig."

DESIGN BUILD & ENGINEERING SUPPORT

Midwest Mole can assist engineering firms with preliminary design. We work closely with the project engineers during the early phases of a project. Our mobile drilling capabilities permit us to conduct soil testing and make underground construction recommendations. Our engineering staff can perform job site investigations and provide design assistance.



SAFETY

At Midwest Mole, safety is always a part of everything we do. "Safety first, Quality second and Production third" is more than a slogan, it is how we conduct our business and ourselves.

At each job site Midwest Mole identifies and reacts to eliminate hazards to maintain a safe work environment.

RESPONSIBILITY

"Working Safe Is My Responsibility" is on the back of each safety vest. Each worker must commit to working safe, not just to protect them but to also protect their co-workers.

SAFETY COMMITTEE

Our Safety Committee is a growing force in shaping safety at Midwest Mole. The committee is made up of people from all levels and skills working at the Mole and they are proposing some great innovations.

SAFETY TRAINING

Continuous training is a proven aspect of a successful safety program. From orientation to site and hazard-specific training, we are dedicated to having a well trained work force.

SAFETY INSPECTIONS

Job site inspections by our safety director provide a means to gauge how our program is succeeding. We address areas of concern and interact and exchange ideas with the foremen and crews.

SAFETY AWARDS

Safety awards are given annually to everyone on crews with an exemplary safety record. We also present special "Safety Recognition" awards and a top Foreman safety award.



To provide our clients with the most responsive, innovative, and dependable trenchless technology service by leveraging our resources and experience to complete every job safely and on time. To approach each job with integrity and dedication in order to maintain a reputation as a leader in the industry.



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