TUNNELING & SHORING DESIGN

PE LICENSED IN ALL 50 STATES
& VARIOUS CANADIAN PROVINCES

JACKING & REC. PIT DESIGN
TUNNEL SUPPORT SYSTEMS
RIB & LAGGING DESIGN
SECANT PILE SHAFTS
ANTI-UPLIFT SUPPORTS

THRUST BLOCK DESIGN
ESTIMATED JACKING FORCES
CASING & PIPE CERTIFICATION
HDD SUBMITTALS
LINER PLATE SYSTEMS

euclid Creek Tunnel Project – Cleveland, oh
Evaluated jacking load and pipeline installation methods as necessary to determine IJS locations for 42” and 72” dia. fiberglass pipe install. Prepared submittal to check the pipes and IJSs for maximum jacking loads and external pressures, as well as determined the minimum thrust block size based on supporting soil conditions.

Santa Monica low Flow Diversion upgrades – los Angeles, CA
Checked 60” dia. steel casing for the external pressures, performed buoyancy analysis, checked pipe to support the maximum jacking loading, and determined the minimum thrust block size. Prepared design of -14’ x 19’ x 32’- deep receiving pit, using interlocking sheet pile shoring with welded waler bracing.

Balch Consolidation Conduit – Portland, or
Provided shoring, entry/exit seal anchorage, traffic deck, pipe support, pipe bulkhead with ventilation, jacking frame, and slide rail shoring design services.
D.H. Charles Engineering, Inc.
is a civil/structural engineering firm
specializing in providing construction engineering
services to contractors throughout the United States
and Canada. The firm, which was founded in 1992, is
owned and managed by Jasper Calcarca, P.E., who has
design, consulting, and field inspection experience on
thousands of projects since 1998.

We are distinguished from other engineering
firms by the following:

- A professional and experienced staff of eleven engineers
  ensures projects are prepared efficiently and accurately by
  qualified personnel.

- PE stamp in all 50 states, Washington D.C., Ontario, Alberta,
  British Columbia, Manitoba, Saskatchewan, Newfoundland and
  Labrador.


- Focus on innovative solutions and problem solving, by relying
  on vast design experience and knowledge of state-of-the-art
  technologies.

- Dedicated to providing immediate and emergency response,
  with many critical designs turned around the same day.

- A one-stop-shop, offering a wide range of construction
  engineering services to satisfy all of our clients’ needs on even
  the largest projects.

- Services specifically tailored to satisfy clients in all time zones
  using electronic submittals, flexible hours, and prompt
  response to all inquiries.

- Onsite inspection, certification, coordination, and data
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More Project Photos and Details Online.
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More Project Photos and Details online.

707.537.8282 | WWW.ChArleSengineering.CoM

**ENGINEERING SERVICES PROVIDED**

**Jack/Bore & Receiving Pit Design**
- Beam and plate
- Sheet pile systems
- Secant pile or tangent pile
- Unbraced circular shafts
- Trench shields
- Slide rail systems
- Reinforced concrete shoring

**Casing, Pipe, IJS Installation Analysis**
- External pressure checks
- Estimated jacking forces
- Wall crushing, deflection, bending strain & buckling
- Stability analysis
- Face pressure evaluation
- Backfill & anti-float blocking

**Tunnel Support Design**
- Rib & Lagging
- Liner Plate
- Concrete

**Horizontal Direction Drilling**
- Pull-back checks

**Thrust Block Design**
- Concrete, steel, sheet pile & plate systems
- Soil capacity checks

**Miscellaneous Tunnel Submittals**
- Entry & exit seals
- Pipe adapters
- Thrust frames
- Bulkheads
- Custom systems
- Tunnel Boring Machines
- Rigging systems
- Temp access & fall protection
NOTABLE PROJECTS:

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