



BOW

CONSULTING GROUP
Accelerating Transformation

CIVIL ENGINEERING SERVICES

Engineering Built on Experience & Intelligence

BOW Consulting Group is a multidisciplinary consulting firm providing civil engineering, land development, environmental, geospatial, construction, and project management services across commercial, residential, industrial, data center, utility, renewable energy, infrastructure, and public-sector projects. Our engineering team pairs decades of hands-on design experience with modern, AI-enabled analysis tools to deliver accurate, defensible engineering calculations, plans, and supporting documentation that move projects efficiently from concept through construction.

How We Work

BOW's civil engineering team develops the calculations, models, and design documents that underpin land development and infrastructure projects — grading and drainage design, hydrology and hydraulics, stormwater and erosion control, earthwork, and constructability analysis. We combine experienced engineering judgment with state-of-the-art software and AI-assisted modeling to produce accurate analyses faster, identify design conflicts earlier, and give clients confidence in every plan set and technical submittal.

Why BOW?

BOW combines an experienced civil engineering team with an extensive knowledge and experience base built across hundreds of land development, energy, and infrastructure projects. Our engineers understand how grading, drainage, stormwater, earthwork, and site constraints interact with permitting requirements and construction logistics — and we put state-of-the-art tools and a clear understanding of practical AI application to work, accelerating analysis, improving accuracy, and delivering well-engineered, construction-ready solutions on schedule and on budget.

- Experienced civil engineering team with an extensive multi-market knowledge base
- Effective, practical use of AI to accelerate analysis, modeling, and quality control
- State-of-the-art engineering software paired with clear, defensible engineering judgment
- Engineering calculations and plans built to withstand agency and third-party review
- Seamless coordination between design engineering and permitting strategy
- Single point of accountability from concept design through construction support

Civil Site Design & Engineering

- Site feasibility, constraints analysis & conceptual layout engineering
- Civil site plans, grading plans & construction documents
- Earthwork, cut/fill & grading optimization (AI-assisted modeling & GIS)
- Utility & infrastructure design coordination
- Construction details, specifications & quantity/cost estimating support

Stormwater, Drainage & SWPPP Engineering

- Hydrology & hydraulic calculations for detention, infiltration & conveyance
- Stormwater management design & water quality / BMP sizing
- Erosion & sediment control plans & SWPPP/NPDES technical documentation
- Drainage modeling supporting Land Development & Grading Permit submittals

Land Development & Grading Engineering

- Grading & earthwork engineering for permit submittals
- Cut/fill balance, slope stability review & access/pad design
- Engineering support for Special Use & Conditional Use Permit design

Site Plan & Roadway Engineering

- Site Plan Approval exhibits, layout design & code-compliance calculations
- Highway Occupancy & Right-of-Way engineering design and traffic control plans
- Circulation, parking & ADA-compliant site engineering design

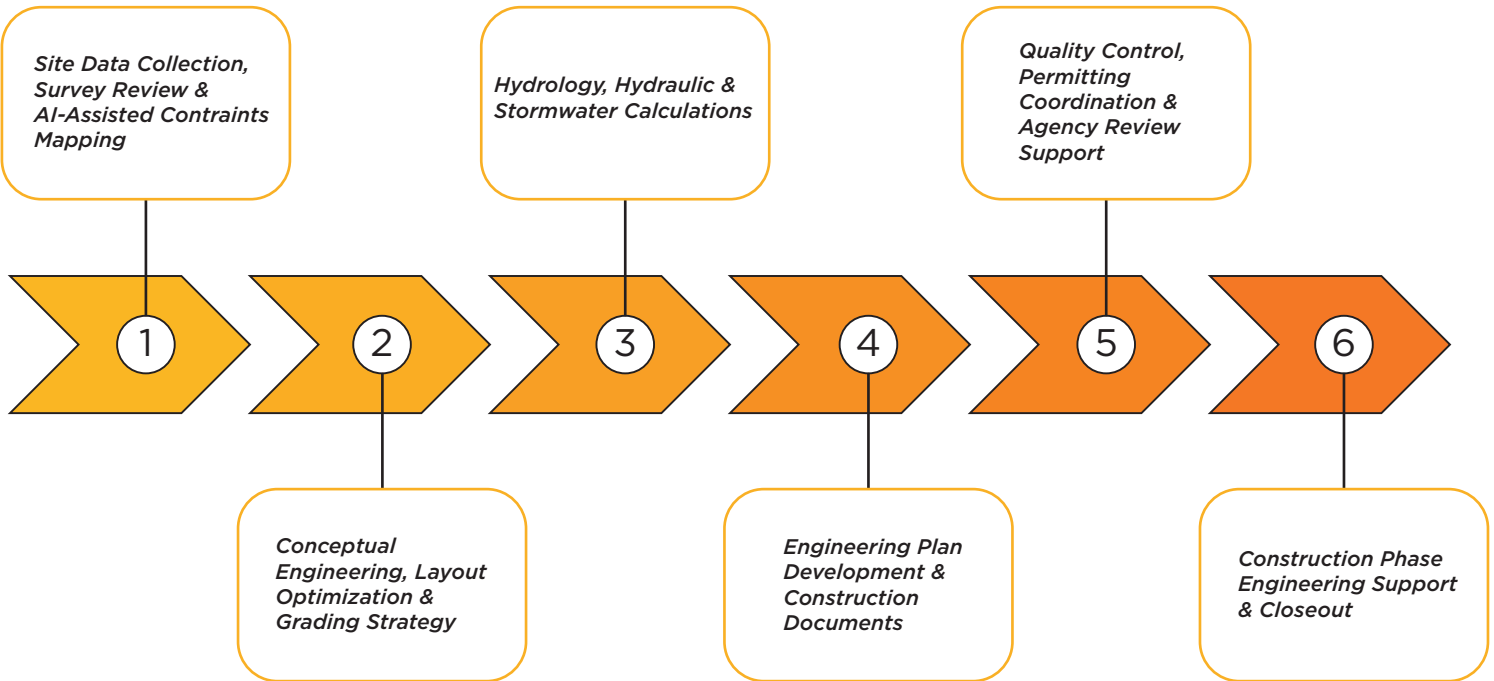
Floodplain & Hydraulic Engineering

- Floodplain development engineering analysis & hydraulic/no-rise modeling
- Elevation certificate support & FEMA-compliant design calculations

Geospatial & AI-Enabled Site Analysis

- GIS-based constraints mapping, suitability analysis & site optimization
- AI-assisted design iteration, layout optimization & engineering QA/QC
- Survey coordination & digital terrain modeling

Civil Design Workflow



Top Civil Engineering Services

Grading & Earthwork Engineering

BOW's engineers develop grading, earthwork, and cut/fill calculations that balance constructability, code compliance, and cost. AI-assisted modeling and GIS analysis evaluate dozens of grading scenarios quickly, reducing redesign risk and supporting Land Development & Grading Permit submittals.

Stormwater & Hydrology/Hydraulics

BOW performs the hydrology, hydraulic, and water quality calculations behind stormwater management plans, detention and infiltration design, and SWPPP/NPDES documentation — producing accurate, agency-ready analyses that anticipate review comments.

Site Plan & Roadway Engineering

BOW engineers the layout, access, circulation, and code-compliance calculations supporting Site Plan Approvals, Highway Occupancy, and Right-of-Way permits, coordinating traffic control plan design with permitting strategy.

Floodplain & Hydraulic Modeling

BOW prepares the hydraulic modeling, no-rise analysis, and elevation calculations required for Floodplain Development Permits, applying FEMA-compliant methods and AI-assisted model iteration.

AI-Enabled Engineering & GIS Analysis

BOW applies a clear, practical understanding of AI application to engineering workflows — accelerating constraints mapping, layout optimization, and design QA/QC — backed by an extensive in-house knowledge base.

Construction Documents & Plan Sets

BOW translates engineering calculations and design decisions into clear, construction-ready plan sets, specifications, and quantity takeoffs, keeping design intent and field constructability aligned through construction.