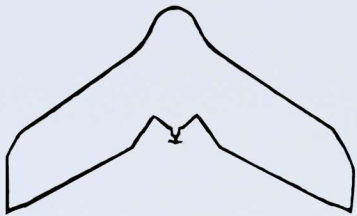


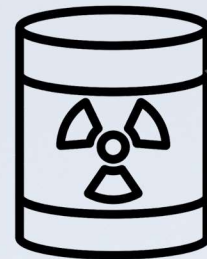
**ENGINEERING &  
TECHNICAL SERVICES**



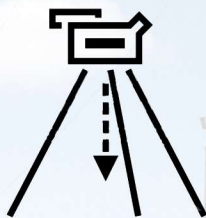
**CONSTRUCTION**



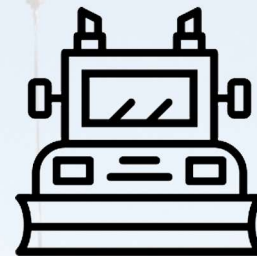
**UAV (DRONE)  
SURVEYING**



**REMEDIATION**



**DGPS SURVEYING**



**WINTER MAINTENANCE**

### EXECUTIVE SUMMARY

In business since 2002, Northwind Engineering, LLC (Northwind) is a Native American woman-owned business. Northwind is a civil design-build contractor serving clients throughout the United States. Our seasoned personnel have been providing engineering, design, and construction services in support of oil and gas operators in the US since 2002; in 2008, we expanded internationally.

### CAPABILITY OVERVIEW

- ✓ Robust experience in every aspect of drilling operation, from design, to site preparation, to infrastructure installation, through operation and maintenance
- ✓ At the forefront of drone technology as a surveying tool, and are experts in Best Management Practices
- ✓ Experts in operating in austere and hostile environments
- ✓ \$5 million fleet of in-house support equipment.
- ✓ Historically managed up to \$44 million contracts; currently handle a contract exceeding \$460 million

### WORLDWIDE PRESENCE



US



Middle East



Europe/UK

### CLIENTELE

Northwind prides itself on building and maintaining quality relationships with our valued clients. Most of our work has been attained by repeat customers who are thoroughly satisfied with our service; this is demonstrated by our continued relationship with HKN Energy and Crescent Petroleum. Our customer base varies between clients in commercial industries as well as a wide range of federal contracts.

### Notable Oil & Gas Operator Clients

HKN Energy Ltd.                      Crescent Petroleum  
Marathon Oil Corporation        Hess  
Axis                                        TAQA

### Notable Federal Clients

US Air Force    US Navy        US Army  
US Army Corps of Engineers: Multiple Districts  
Department of Energy        Bureau of Land Management  
US EPA                              USDA Forest Service

### RELIABILITY

**Strong insurance:** Northwind exceeds most insurance requirements. We also carry in-land marine, auto, pollution, and professional insurance, maintained through CNA Insurance Company.

**Experience Modification Rate (EMR):** Northwind consistently maintains an EMR below the industry standard of 1.0.

**Bonding:** Northwind is a Treasury Listed A rated Bonding Company with \$2 million in revolving credit through Somerset Bank. We hold several equipment and capital facilities, managed through PNC Bank and Wells Fargo Bank.

### CAPACITY

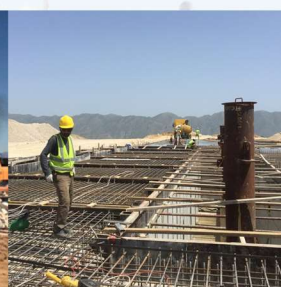
Northwind provides the full scope of oil and gas operation services, from design and planning through to full operation and maintenance of production facilities. Our team of seasoned professionals offer their direct field experience to deliver results through hands-on, comprehensive design, construction and operation.

### AWARDS

- ★ 2011 SBA Pittsburgh Minority Small Business of the Year
- ★ 2015 Department of Defense Nunn Perry Award

### Other Commercial Clients

Phelps Dodge                              BHPBilliton  
Westinghouse Electric Company      URS  
AECOM                                        Shaw (now CBI)  
Environmental Chemical Corp.        Envirocon  
Hayward Baker/Keller                    CH2M Hill  
Wastren Advantage, Inc.





## ENGINEERING AND DESIGN CAPABILITIES

Northwind is a trusted provider of a wide range of engineering and design services to oil and gas operators. A brief overview of our related services is included below.

### Design and Construction

Well Pads      Camps      Site Infrastructure

### Surveying and Testing

Drone Surveying      3D Modeling      Compaction Testing

### Permitting and Licensing

NPDES      DOT      Hazardous Waste

### Transportation and Logistics

Planning      Equipment      Operators

## SOFTWARE EXPERTISE

Northwind personnel offer their expertise in the following software applications:

### Data Collection and Management

AQTESOLV Aquifer Testing      VPN and VoIP

### Mapping and Modeling

eBee Plus SenseFly SA Drone      eMotion  
Trimble      Pix4D  
ESRI GIS      Google Earth Pro

### Drafting and Design

AutoCAD Civil 3D 2018      HydroCAD  
Bentley Infrastructure      STAAD Pro  
Autodesk Inventor      NavisWorks 2017

### Scheduling

Microsoft Project 2016      Primavera P6

### Administrative

Microsoft Office Suite 2016      QuickBooks

## HIGHLY QUALIFIED PERSONNEL

Northwind offers a host of degreed, licensed professionals in a variety of fields relevant to oil and gas operation.

### Licensed Engineers

Civil      Structural      Architectural  
Geotechnical      Chemical      Petroleum  
Environmental      Mechanical

### Scientists and Specialists

Professional Geologists      Geologists  
Hydrogeologists      Geophysicists  
Architects      Physicists  
Horticulturists      Agriculturalists  
Certified Health Physicists      Construction Managers

*Northwind has demonstrated performance capability in design for structure supports, flow lines, pipelines, production pads, worker camps, and a multitude of other oil and gas-related applications.*





### UAV SURVEYING CAPABILITIES

Northwind offers state-of-the-art unmanned aerial vehicle (UAV) surveying services as a highly efficient, dynamically superior alternative to traditional ground-based DGPS surveying. Our autonomous, fixed-wing UAVs capture millions of data points instantaneously during their pre-planned flights. Our surveyors are trained and highly skilled in programming and operating these machines, synthesizing and integrating captured data into specialized software applications to streamline data dissemination and utilization.

Northwind's UAV surveying approach offers an exponential increase in data quality at significant cost savings over traditional DGPS surveying. One 20-minute UAV flight collects data that would take years to collect using traditional surveying practices.

Northwind has performed extensive UAV surveys internationally and is authorized to export all related equipment.



*The image above is not a photograph, but a 3D rendering comprised of millions of data points from our drone surveying system. Below, UAV operators upload survey data.*



### SYSTEM HIGHLIGHTS

- ★ Autonomous, pre-programmed flight
- ★ 20-50 minute flight times
- ★ Millions of data points collected
- ★ Accuracy within 1-2 cm
- ★ Data directly uploadable to diverse software
- ★ Significant cost savings over manual survey
- ★ Expert operators

### UAV APPLICATIONS

Our UAVs are capable of carrying a variety of specialized payloads, enabling them to be used for a host of diverse tasks. Our team is always available to discuss how our UAVs can be used to benefit our clients' operations.

3D Modeling  
Construction Progress Surveys  
Thermal Pipeline Leak Detection  
Vegetation Studies

Pipeline Surveys  
Security Monitoring  
Power Line Surveys  
Volumetrics





# NORTHWIND

## PERSONNEL

### EXPERTISE

Northwind personnel have been active in oil and gas operations continually since 2008. We offer a host of experienced and highly qualified professionals in a wide variety of disciplines.

For overseas oil and gas operations, we employ local personnel in addition to American and European citizens.

Our experts are not merely consultants; Northwind personnel are hands-on and ready to travel to project sites in order to deliver the highest quality service.

### LICENSED ENGINEERS

Civil	Structural	Geotechnical
Architectural	Mechanical	Petroleum
Chemical	Environmental	

### SPECIALISTS

#### Scientific Experts

- Professional Geologists (PGs)
- Certified Health Physicists (CHPs)

#### Project-Based Experts

Project Managers	Quality Control Managers
Site Superintendents	Drone Operators
Surveyors	Sample Technicians
Truck Drivers	Heavy Equipment Operators
Logistical Specialists	Craft Labor Crews
Carpenters	Community Relations Experts



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### EQUIPMENT OVERVIEW

- ★ Construction Equipment
- ★ Surveying Equipment
  - Fixed Wing Drones
  - DGPS Total Base Station
- ★ Winter Maintenance Equipment
- ★ Tanker Services
- ★ In-House or On-Site Maintenance

### AVAILABLE EQUIPMENT

Northwind offers the following equipment for daily, weekly, or monthly rental. We offer skilled operators for all listed equipment.

- |                |                 |                      |
|----------------|-----------------|----------------------|
| Cars           | Dozers          | ATVs                 |
| Pickup Trucks  | Road Graders    | Jon Boats            |
| Vans           | Excavators      | Chippers             |
| SUVs           | Skid Steers     | Compaction Equipment |
| Box Trucks     | Track Loaders   | Concrete Equipment   |
| Buses          | Wheel Loaders   | Electrical Equipment |
| Dump Trucks    | Augers          | Generators           |
| Fuel Trucks    | Disc Harrows    | Monitoring Equipment |
| Office Trucks  | Boat Trailers   | Mowers               |
| Semi Trucks    | Tool Trailers   | Pressure Washers     |
| Service Trucks | Dump Trailers   | Survey Equipment     |
| Water Trucks   | Flatbeds        | Tractors             |
| Utility Trucks | Semi Trailers   | Water Pumps          |
| Scissors       | Travel Trailers | Pallet Forks         |
| Lifts          | Air Compressors | Power Brooms         |





### OVERVIEW

Northwind personnel carry significant environmental remediation and emergency response experience. We have planned, managed, and executed a multitude of highly complex remediation projects both throughout the United States and internationally. Our international emergency response experience equips us with the skills necessary to tackle any emergency.

### EXPERT SITE REMEDIATION

- Radiological Contaminants including NORM & Radon
- Detection, Excavation, Packaging, Transportation, & Disposal
- Professional Geologists
- Closing Drill Pits & Waste Pits
- Water Treatment & Disposal
- Soil Treatment for Organics & Heavy Metals

### DIVERSE EMERGENCY RESPONSE EXPERIENCE

- Explosions, Fires, Spills, Natural Disasters, Civil Unrest
- Mobile Command Units for Nationwide Rapid Response
- Domestic & International Response
- Treatment Systems
- Highly Qualified Technicians



*Excavating a radiologically contaminated hot spot*



*Sampling soil using X-Ray Fluorescence*



*Responding to a deadly explosion*



# NORTHWIND

## CONSTRUCTION

### OVERVIEW

Northwind's seasoned construction crew offers its expertise in the complete design and construction of oil and gas operation facilities. Our team's in-house capacity to design and construct oil and gas production sites, including all related buildings and infrastructure, makes Northwind a clear choice for operation site construction.

### AREAS OF EXPERTISE

Design-Build Capabilities  
Full Engineering Design Packages  
Tender Packages Procurement  
Best Management Practices  
Experienced & Reliable Field Crew

Facility Construction  
Road Construction  
Clearing & Grubbing  
Bridge & Culvert Construction & Repair  
Security Design & Installation  
Site Infrastructure Design & Installation

Earthwork & Excavation:  
• Water Diversion  
• Property Cleanup  
• Site Development  
• Utility Installation  
Pipeline Design & Installation



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# NORTHWIND

## WINTER MAINTENANCE

### OVERVIEW

Northwind offers tried-and-true management practices to ensure continual functionality of roads during the winter months. We recognize that reliable logistics are a key component in the success of your operation, and take a proactive approach to ensure that roads are clear and well-maintained through harsh weather.

### EXPERT 24/7 SERVICES

- Snow Removal
- Salting
- Road Maintenance
- Facility Maintenance

### PERFORMANCE HIGHLIGHTS

- ★ Zero downtime on Northwind-managed sites despite rugged terrain and dramatic snow events
- ★ In-house equipment and experienced operators
- ★ Successfully managed 2+ meter overnight snowfall events



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### TYPES

- Differential GPS (DGPS): has become a universal measurement system with a high capacity for positioning survey points on a very precise scale.
- Robotic Total Station (more cost effective & accurate than standard total station)
- Unmanned Aerial Vehicles (UAVs)

### APPLICATIONS

- Property Surveys
- Pipeline Alignments
- Levels
- Cross-sections
- Construction Stakeouts
- Road Alignments

