United Rentals®
Matting Solutions

GROUND PROTECTION MATS GUIDE

WORK UNITED®

WHATEVER YOUR PROJECT DEMANDS, WHENEVER IT DEMANDS IT, UNITED RENTALS IS PROUD TO BE YOUR PARTNER.

INTRODUCTION

Site access can be one of the most challenging—and valuable—aspects of a construction or utility maintenance project, especially in remote locations without permanent roads.

Ground protection mats can be used in a wide variety of situations, and the need for them should be evaluated on a case-by-case basis. Some of the most common scenarios include:

- **Leveling uneven terrain**
- **Providing ground protection**
- **Creating temporary roads**
- **Providing temporary access across swampy or muddy terrain**
- **Building work pads for equipment and materials**
- **Providing decking on temporary bridges**
- **Removing mud and other debris from equipment and vehicles**

In mountainous terrain or areas where a gravel road can be installed, matting may not be required. However, in most other situations where a road doesn't exist, matting should at least be considered.

SUCCESSFUL SITE ACCESS DEPENDS ON THREE KEY FACTORS:

SAFETY
THIS IS ALWAYS THE NUMBER ONE PRIORITY.

FUNCTION
THE CREW AND EQUIPMENT MUST BE ABLE TO ACCESS THE JOBSITE.

SUSTAINABILITY
LEAVE THE SITE AS YOU FOUND IT WITH MINIMAL DISRUPTION TO THE SURROUNDING ENVIRONMENT.

IN ORDER TO MEET THESE THREE KEY OBJECTIVES, SELECTING THE RIGHT ACCESS MATTING SOLUTION IS ESSENTIAL.

WHEN TO USE GROUND PROTECTION MATTING

When determining whether or not matting is required, evaluate the three key elements of site access success:

SAFETY

What seems like a stable work surface under normal conditions could be dramatically different after it rains or snows. Creating a safe work environment literally starts from the ground up. If there is any risk of the ground becoming slippery, unstable, too soft, or unlevel, consider using access matting.

EFFICIENCY

Keeping a project on schedule requires efficiently moving people and equipment in and out of a site every day. If the right of way is too rugged, it slows the project down, increases risk, and puts unnecessary wear and tear on equipment. In addition to allowing more efficient access, using matting reduces the risk of equipment getting stuck and creating further delays.

SUSTAINABILITY

Projects in environmentally sensitive areas need matting to prevent erosion or soil compaction, protect plants, and minimize the overall impact. For projects that depend on a right of way, the costs to repair damaged property and replant areas can outweigh the expense of installing access mats.

Even when the terrain is suitable for equipment to safely move back and forth, the reality is that equipment will tear up the ground and make a mess if the terrain is not protected. Ground protection matting spreads out the load to leave the ground and plants—and your company's reputation—intact.

To help determine whether or not you need ground protection matting, ask yourself:

- Are there any portions of the project site that may become unsafe?
- Would installing matting make site access more efficient?
- Will continual access to the site with heavy equipment disturb the terrain?

If you answer "yes" to any of these questions, it's time to consider your access matting options.

HOW TO CHOOSE THE RIGHT GROUND PROTECTION MATS

Once you have determined that ground protection mats are necessary for the project, the next step is to determine which ones to use. The more up-front planning that can be completed, the better your plan will be.

This is because matting companies have various mats placed throughout the country depending on demand. With advance notice and planning, specific mats based on the project and terrain can be placed in those regions to minimize costly freight concerns. On the other hand, tight timelines often require mats to be shipped from various locations throughout the country, creating costly freight charges.

THERE IS NO ONE-SIZE-FITS-ALL SOLUTION.

In fact, some site access solutions may require multiple types of matting. Some of the factors to consider when selecting mats include the existing terrain, likely conditions, and your requirements for site access.

TERRAIN

Sometimes you can't get the full picture of the terrain until you're on the ground, but you can use data from Google Earth and other local maps to get a good sense of the landscape. This information can help inform the types of mats that would be suitable, how many are necessary, and what installation methods would make the most sense.

In addition to analyzing maps, performing a site visit with your site access partner will help you gather more detail and refine estimates for matting.

CONDITIONS

When evaluating the conditions of the site, think beyond your current status and do your best to predict what the project team might face in the future. Factors such as weather, seasonal changes, vehicle traffic, and local environmental regulations will influence which types of mats are most suitable for the project.

USE CASES

One major factor in determining what type of matting to install is the way it will be used. Considerations include:

- Types of equipment
- Weight of equipment
- Frequency of travel
- Length of the project

The project type may also play a role because there are different needs for construction, utility maintenance, ditch digging, pipe laying, and so on.

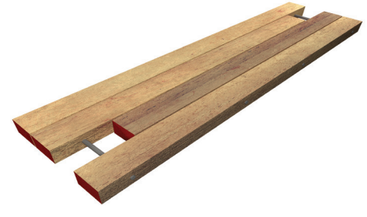
ACCESS MAT USAGE GUIDE

We know that creating access on project sites can be a challenge. Condition, terrain, and location all must be considered to determine the best access solution for your project. We hope this guide helps determine the best mats for your project to solve your access challenges.

Need more help? Visit **UnitedRentals.com/Matting** to contact one of our Matting Solutions experts.

Please Note

The average weights and average number of mats provided in this guide are based on 45,000 lbs. truck carrying capacity. The actual number of mats, weight, and load capacity may vary. Always check with United Rentals for specific information about your project.



DIMENSIONS	LOAD SIZE	WEIGHT (lbs.)
4' x 8" x 16'	18 - 21	2,139 – 2,461
4' x 8" x 18'	18 - 20	2,558 – 2,943

NOTE: CUSTOM DIMENSIONS AVAILABLE

TIMBER MATS

CONDITIONS

Timber mats can be used on level or uneven ground for heavy equipment, crane and vehicle traffic. This is the best hardwood mat when digging ditches or laying pipe off the side of an access roadway.

MATERIALS: Hardwoods

RECOMMENDED UTILIZATION

- Ground protection
- Access on the right-of-way
- Work pads
- Pads for staging equipment and materials on pipeline project yards
- Track equipment and rubber tire equipment/vehicles

DIMENSIONS	LOAD SIZE	WEIGHT (lbs.)
4' x 12" x 20'	9 – 10	4,650 – 5,350
4' x 12" x 30'	5 – 6	5,370 – 7,347
4' x 12" x 40'	4	9,300 – 10,700

NOTE: CUSTOM DIMENSIONS AVAILABLE

BRIDGE MATS

CONDITIONS

Bridge mats are best used as decking on existing temporary bridges to support heavy equipment and vehicles. These mats are very strong and sturdy with a rough surface that creates a safe traction area.

MATERIALS: Hardwoods

RECOMMENDED UTILIZATION

- Ground protection
- Platforms
- Temporary roads
- Work pads
- Stabilization and strong support for cranes and heavy equipment
- Load distribution

CRANE MATS

CONDITIONS

Crane mats are used on level or uneven ground to create roadways and platforms for heavy cranes and equipment.

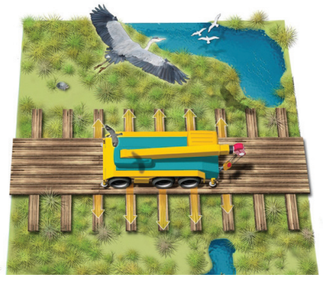
MATERIALS: Hardwoods

RECOMMENDED UTILIZATION

- Ground protection
- Platforms
- Temporary roads
- Work pads
- Stabilization and strong support for cranes and heavy equipment
- Load distribution

DIMENSIONS	LOAD SIZE	WEIGHT (lbs.)
4' x 12" x 20'	9 – 10	4,650 – 5,350
4' x 12" x 30'	5 – 6	5,370 – 7,347
4' x 12" x 40'	4	9,300 – 10,700

NOTE: CUSTOM DIMENSIONS AVAILABLE



EMTEK® WETLAND PROTECTION SYSTEM

CONDITIONS

The emtek® wetland access system provides minimal impact access into environmentally sensitive wetlands. This system can be utilized in challenging areas such as wetlands, grasslands, forests, and open water.

RECOMMENDED UTILIZATION

- Wetland protection
- Water crossings
- Subsurface utility protection
- Pipeline crossings
- Engineered crane pads
- Critical access on the right-of-way

DIMENSIONS	LOAD SIZE	WEIGHT (lbs.)
4' x 4.5" x 14'	36	1,285
8' x 4.5" x 14'	24	2,200

NOTE: CUSTOM DIMENSIONS AVAILABLE

LIGHT-DUTY MATS (TIMBERLITE™ MATS)

CONDITIONS

These mats are made of pine middle timbers and mixed hardwoods outside timbers. Lighter than our traditional timbers, these mats contour to the ground allowing strategic placement of temporary roads for heavy equipment and trucks to cross.

MATERIALS: Pinewood Interior, Hardwood Exterio

RECOMMENDED UTILIZATION

- 50% lighter than traditional access mats
- Same stability and bend/flexibility of a timber mat
- Durable for multiple uses
- Rough sawn texture improves traction and helps reduce mat slippage
- Contour to the ground allowing for a smooth ride

DIMENSIONS	LOAD SIZE	WEIGHT (lbs.)
8' x 4.25" x 14'	28 – 34	1,395 – 1,605

NOTE: CUSTOM DIMENSIONS AVAILABLE

CLT MATS

CONDITIONS

Cross Laminated Timber (CLT) Mats are best suited for use on level terrain or flat surfaces. These mats are lightweight, approximately two-thirds less than a standard hardwood mat.

MATERIALS: Pinewood Interior, Hardwood Exterior

RECOMMENDED UTILIZATION

- Ground protection
- Access to the right-of-way
- Parking pads
- Pads for staging equipment and materials
- Most rubber tire equipment/vehicles

SAFETY NOTES

- Not for use as crane work pads
- Not for use on terrain with high slope
- Not for use when digging ditches or laying pipe off the side of an access roadway

3-PLY MATS

CONDITIONS

These laminated mats can be used on level or unlevel ground for heavy equipment and vehicle traffic.

MATERIALS: Hardwoods or Pine

RECOMMENDED UTILIZATION

- Ground protection
- Surface decking
- Access on the right-of-way
- Parking pads
- Pads for staging equipment and materials
- Rubber tire equipment/vehicles

SAFETY NOTE

- Not for use as crane work pads

DIMENSIONS	LOAD SIZE	WEIGHT (lbs.)
8' x 6" x 14'	18 – 20	2,558 – 2,943
8' x 6" x 16'	14 – 16	2,790 – 3,210

NOTE: CUSTOM DIMENSIONS AVAILABLE

2-PLY MATS

CONDITIONS

A cost comparative alternative to the traditional CLT, this is a lightweight mat that is ideally used in areas with minimal ground saturation.

MATERIALS: Hardwoods or Pine

RECOMMENDED UTILIZATION

- Lightweight mat
- Minimal ground saturation
- Alternative solution to CLT

DIMENSIONS	LOAD SIZE	WEIGHT (lbs.)
8' x 4" x 14'	20 – 22	1,940

NOTE: CUSTOM DIMENSIONS AVAILABLE

OUTRIGGER MAT

CONDITIONS

Outrigger mats can be used on level or uneven ground for large cranes and large scale machinery.

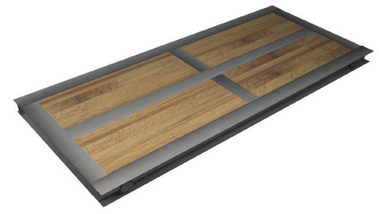
MATERIALS: Hardwoods

RECOMMENDED UTILIZATION

- Stabilization and strong support for heavy-duty equipment
- Load distribution

DIMENSIONS	LOAD SIZE	WEIGHT (lbs.)
4' x 8" x 4'	150 – 171	260 – 300

NOTE: CUSTOM DIMENSIONS AVAILABLE



RIG MAT

CONDITIONS

Rig mats should be used on level ground for drill rig pads.

MATERIALS: Hardwoods or Pine

RECOMMENDED UTILIZATION

- Stabilization for drilling rigs
- Load distribution
- Additional strength and support for rigs and extremely heavy equipment

DIMENSIONS	LOAD SIZE	WEIGHT (lbs.)
8' x 6" x 20'	10	4,800
8' x 6" x 30'	7 – 8	6,400
8' x 6" x 40'	5	9,600

NOTE: CUSTOM DIMENSIONS AVAILABLE

DIMENSIONS	LOAD SIZE	WEIGHT (lbs.)
4' x 12" x 8'	42 – 48	930 – 1,070

NOTE: CUSTOM DIMENSIONS AVAILABLE

TRANSITION MAT

CONDITIONS

These transition mats connect roadways from one level to another. Use is ideal in any weather condition except ice.

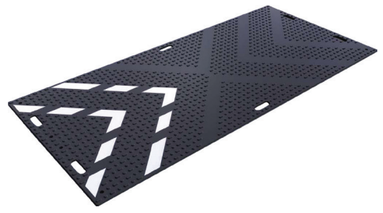
MATERIALS: Hardwoods

RECOMMENDED UTILIZATION

- These transition mats connect roadways from one level to another.
- Use is ideal in any weather condition except ice.

SAFETY NOTE

- Not for use on ice



DIMENSIONS	LOAD SIZE	WEIGHT (lbs.)
4' x 0.5" x 8'	550 – 600	79

NOTE: AVAILABLE WITH OR WITHOUT HANDLE HOLDS

LIGHT-DUTY COMPOSITE MATS

CONDITIONS

Light-duty composite mats are designed for moving and operating equipment over soft or sensitive ground. These mats provide non-slip access for vehicles, construction equipment, and pedestrians. Black and white colors are available. This composite serves as a plywood alternative and comes with 6 handle holds.

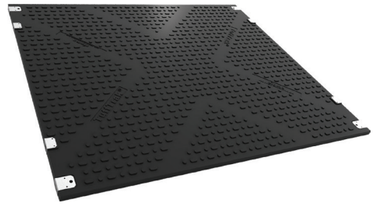
MATERIALS: Composites / High Density
Polyethylene Plastic (HMWPE and HDPE)

RECOMMENDED UTILIZATION

- Pedestrian walkways
- Emergency access routes
- Temporary roadways
- Landscaping and protection of eco-sensitive areas
-

SAFETY NOTE

- Not for use as crane work pads
- Not for use as temporary bridges



DIMENSIONS	LOAD SIZE	WEIGHT (lbs.)
6' x 2.5" x 10'	90	498
6.6' x 2" x 13.4'	55 – 60	794

NOTE: AVAILABLE WITH OR WITHOUT HANDLE HOLDS

MEDIUM-DUTY COMPOSITE MATS

CONDITIONS

Medium-duty composite mats provide temporary roadways and access for machinery and vehicles. These mats are ideal for construction applications as well as large outdoor events where ground protection is a concern.

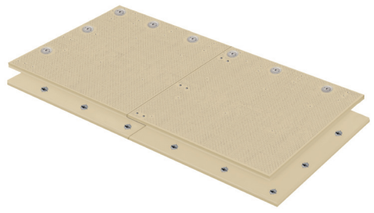
MATERIALS: Composites / High Density
Polyethylene Plastic (HMWPE and HDPE)

RECOMMENDED UTILIZATION

- Temporary roadways
- Pedestrian walkways
- Construction applications
- Light access roads
- Track equipment and rubber tire equipment/vehicles

SAFETY NOTES

- Not for use as crane work pads
- Not for use as temporary bridges



DIMENSIONS	LOAD SIZE	WEIGHT (lbs.)
7.5' x 4" x 14'	42	1,092

NOTE: AVAILABLE WITH OR WITHOUT HANDLE HOLDS

HEAVY-DUTY COMPOSITE NON-CONDUCTIVE MATS

CONDITIONS

Heavy-duty composite non-conductive mats provide the strongest modular matting system. This mat is specifically designed for high-traffic worksites, construction sites, oil rigs and power transmission sites. The composite materials are inert, providing a non-conductive safe working platform.

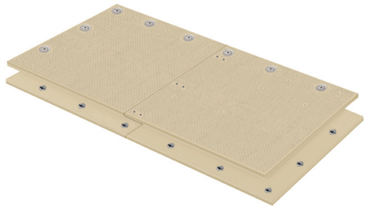
MATERIALS: Composites / High Density
Polyethylene Plastic (HMWPE and HDPE)

RECOMMENDED UTILIZATION

- High-traffic worksites
- Portable roadways
- Environmental remediation
- Trenching and shoring
- Transmission & distribution
- Track equipment and rubber tire equipment/vehicles
- Drill rig platform

SAFETY NOTES

- Not for use as crane work pads
- Not for use as temporary bridges



DIMENSIONS	LOAD SIZE	WEIGHT (lbs.)
8' x 4" x 14'	45	1,050

HEAVY-DUTY COMPOSITE MATS

CONDITIONS

Heavy-duty composite mats provide a strong modular matting system. This mat is specifically designed for high-traffic worksites, construction sites, oil rigs and power transmission sites.

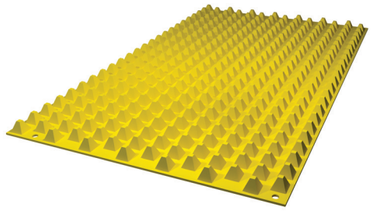
MATERIALS: Composites / High Density Polyethylene Plastic (HMWPE and HDPE)

RECOMMENDED UTILIZATION

- High-traffic worksites
- Portable roadways
- Environmental remediation
- Trenching and shoring
- Transmission & distribution
- Track equipment and rubber tire equipment/vehicles
- Drill rig platform

SAFETY NOTES

- Not for use as crane work pads
- Not for use as temporary bridges



DIMENSIONS	LOAD SIZE	WEIGHT (lbs.)
7' x 4" x 12'	96	430

NOTE: AVAILABLE WITH OR WITHOUT HANDLE HOLDS

TRACK OUT MATS

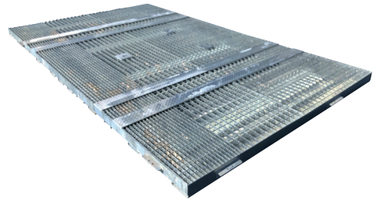
CONDITIONS

Track out mats are ideally used at the entrances and exits of projects to remove mud from trucks and equipment.

MATERIALS: High-Density Polyethylene Plastic

RECOMMENDED UTILIZATION

- Project site exits/entrances
- Removal of mud, sediment, gravel, stones and other debris from rubber tire equipment/ vehicles as they leave project sites
- Minimizes the transfer of invasive species from project sites



DIMENSIONS	LOAD SIZE	WEIGHT (lbs.)
8' x 3.5" x 14'	26 – 30	1,488 – 1,712

EPZ GROUNDING GRATES

CONDITIONS

EPZ Grounding Grates are galvanized steel grates, bonded together to create grounded equipotential zones to protect crews from step potential and Grade 5 fault currents.

MATERIALS: Galvanized Steel

RECOMMENDED UTILIZATION

- Transmission line work
- Distribution work
- Substation work
- Renewable energy work

RISKS OF CHOOSING THE WRONG MATTING TYPE

Mats are more than just a line item on the budget. They are often a critical part of keeping projects on schedule and on budget. Without the appropriate site access solution, you could be putting your project at a disadvantage

SAFETY ISSUES

In some cases, using the wrong type of mat could cause safety issues. For example, if you need a heavy-duty mat and instead install a light-duty one, it could affect the stability of the access route. Specialized situations also call for certain types of matting, such as grounding grates for utility projects. The texture of the mat surface is also an important factor because the decking of some mats becomes slippery in certain conditions. Additionally, certain terrain needs a more solid or heavier mat so that it doesn't move on the ground in wet conditions. Lighter-weight mats can move on the ground, causing shifting, which could be hazardous.

FAILURE TO MEET FUNCTIONAL REQUIREMENTS

If you use the wrong mat, you can actually destroy the ground you are trying to protect. This can lead to environmental issues, extra costs, and even damage to your company's reputation. Specific environmental mat systems should be used based on the terrain and area being accessed. Work with an access consultant to determine the best solution because a poor mat choice can lead to inefficiencies and delays if it doesn't allow you to easily access the site or if you have to replace mats during the course of the project.

COST AND WASTE

Ordering too many mats or a more expensive matting solution than is necessary could cause you to overspend. In some cases, there may be areas where no mats are needed at all or where you can use a mat mix to optimize the cost. You may also be able to use installation techniques such as leap-frogging to save on mat costs and improve efficiency of mat installation. This takes expertise and a matting service partner that is skilled and experienced in determining the best installation methods throughout the entire scope of the project to get the maximum use of mats.

COMMON MISTAKES WHEN CHOOSING MATTING

Even the most seasoned professionals make mistakes when choosing matting, which is one reason it's so important to work with a provider that has specialized expertise. These are some of the most common mistakes we see:

USING THE SAME MATS FOR ALL PROJECTS

It's important to remember that even if you have used matting on previous projects, you can't assume that the same approach will work on the next project. Different site conditions call for different matting solutions. You may need a heavier- or lighter-duty mat, matting made from a different material, or a different combination of mat types throughout the right of way or project site. You may not use just one type of mat on a project if it makes more sense to use a mat mix based on the terrain of the right of way.

NOT CONSIDERING INSTALLATION METHODS

Many project managers assume that there is only one installation method for mats and that the entire access route should be matted from beginning to end. One way to optimize matting costs is to look at the big picture. There might be areas that don't need mats at all. You might be able to move mats to an active area once work is completed in another area. Working with a consultant to choose your matting solution could result in significant savings.

ORDERING THE WRONG QUANTITY OF MATS

It can be challenging for people who don't have expertise in matting to estimate the number of mats they need. In addition to the cost of the mats, freight costs can quickly add up. When you over-order, you waste money and cut into the project budget. By contrast, shortages can cause project delays that also cost money. The best way to get an accurate estimate is to work directly with your access partner to perform a site visit. By looking at the ground conditions, slope, and type of land, you can better understand the mat and access demands.

BENEFITS OF WORKING WITH A MATTING SOLUTIONS EXPERT

United Rentals is more than just a mat supplier. We also provide expert consultation to ensure that you're getting the right matting and using the best installation methods for your project.

We have a vast catalog of matting solutions to meet every project's needs. We also consider ourselves to be mat-agnostic, which means that we don't have loyalty to any particular brand or type of mat. Our primary goal is to help you select the right site access solution for your project every time.

In addition to providing mat expertise, we also consider factors such as product location. If there is suitable inventory closer to your site, we can help you choose the solution that will save on freight costs.

Rather than just having you call and place an order, we walk you through a consultative process with the goal of helping you achieve site access success through:

SAFETY

At United Rentals, safety comes first. With the help of matting solutions, customers can keep crews and people safe, while providing a sustainable, cost-effective solution that will keep projects on-time and on-budget.

EFFICIENCY

Keeping a project on schedule requires the ability to efficiently move people and equipment in and out of a site each day. Matting solutions provide stable, reliable ground so crews and equipment can access job sites without delays.

SUSTAINABILITY

If your project is crossing an environmentally sensitive area, access matting can help to prevent erosion or soil compaction, protect surrounding plants, and minimize overall impact to a location. Ground protection matting can also prevent damage to job sites and surrounding areas, which can often come with costly repairs—especially on protected ground.

It all starts with a conversation. Give us a call to talk about your next project, and we'll work together to determine the site access solution that makes the most sense

WORK SMARTER WITH DIGITAL TOOLS

With United Rentals' digital worksite performance solutions, you get full visibility and control over your fleet—rented and owned. Our digital tools let you track your equipment, give you actionable insights and allow you to manage your fleet from any connected device. From the office to the field, our digital tools keep teams in the know and in control to minimize downtime and increase productivity.

- **Total Control®**
  Right-size your fleet, maximize your impact and streamline your processes with a worksite performance solution configured to your needs.
- **Mobile App**
  With its intuitive design, the United Rentals mobile app lets you track equipment and manage rentals—all from your phone.
- **UnitedRentals.com**
  Find what you need from a robust catalog of rental equipment, order equipment and schedule delivery to your worksite.
- **Telematics**
  Our telematics-enabled fleet delivers the data and insight to help customers manage their worksites more effectively.

To learn more, visit UnitedRentals.com/Digital

IMPROVE VISIBILITY AND CONTROL OVER YOUR JOBSITE

USE ANALYTICS AND BENCHMARKS TO IMPROVE EFFICIENCY

RIGHT-SIZE YOUR FLEET AND OPTIMIZE SPEND

MANAGE YOUR FLEET WITH PROACTIVE ALERTS AND NOTIFICATIONS

ACCESS YOUR INFORMATION IN THE OFFICE OR THE FIELD THROUGH INTUITIVE APPS