

# MATTING 101:

AN INTRODUCTION TO EFFECTIVE GROUND PROTECTION

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What is matting? Simply put, it's ground protection for people to enter and work in a job site — and leave it just as they found it.

**That's why matting may be one of the most critical components of your overall site access plan and your project's profitability.**

Your decisions about whether to use matting, and what type, determine the ease and efficiency of getting to the job site, how much the environment is protected or damaged, and how safe and stable your workers and equipment will be.

Understanding and choosing the right matting helps ensure safer, successful site access and a job well done.

# WHAT'S AT STAKE: THE IMPORTANCE OF MATTING

WHILE SITE ACCESS MAY BE A RELATIVELY SMALL PART OF THE PLANNING AND PREPARATION THAT GOES INTO A PROJECT, IT CAN HAVE AN OUTSIZED EFFECT ON ITS SUCCESS.

Mats are easily installed to create temporary access and to protect landscapes, even on soggy or uneven terrain. When no ground protection is planned, or inferior options are used, the risks and costs can quickly escalate and turn this smaller piece of the project into its biggest problem. Many companies take chances or bet on the weather, but that rarely works in their favor.

"Time and again, we see companies that are willing to take a risk and not put anything down on the right-of-way," says Carter Sterling, Chief Executive Officer of Sterling. "Then it rains, their equipment gets stuck, their project gets delayed, and safety becomes an issue. We've also seen significant payouts for crop loss and damage. In one situation, a utility was budgeting millions of dollars for stakeholder reimbursements due to damaged fields. By using matting, they kept the project on schedule despite record rainfall and ultimately reduced their landowner payments by 75 percent."

**THE RISKS OF POOR GROUND PROTECTION  
PLANNING CAN COST — IN A BIG WAY.**

## TOP BENEFITS OF USING MATTING IN SITE ACCESS



### SAFETY

Ground protection gives you more control over the job site, creating a safe, stable work surface for people and equipment.



### SITE ACCESS EFFICIENCY

Ground protection dramatically boosts the ease of moving on the ROW. Better temporary access roads also put less wear and tear on equipment.



### ENVIRONMENTAL/ CROPLAND RISKS

Working without proper ground protection in a protected area can cause damage — even irreparable damage that can create the need for costly restoration and lead to major fines from the Environmental Protection Agency or Department of Natural Resources.

Damage to valuable cropland can also be costly, in the form of crop loss payments, longer timelines for restoration, and ultimately a poor company reputation.

# SITE ACCESS WITHOUT MATTING

There are several ways to enter the job site, including making the choice to use no ground protection at all or creating temporary roads that do not involve mats. In fact, there are few local, state, or national regulations regarding ground protection. But more companies are realizing that while it may reduce their up-front costs, operating without proper site access is a costly risk to take.

|                                                                             | ADVANTAGES                                        | DISADVANTAGES                                                                                                                                                   |
|-----------------------------------------------------------------------------|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>NO MATTING OR PLAN</b><br>Directly enter site                            | No initial costs; possibly faster pending weather | Costly soil and environmental damage, soil mixing, rutting, drain tile disturbance, and other costly delays with changes in weather                             |
| <b>BLADING</b><br>Removing black topsoil layer to create a smoother surface | Inexpensive and easy with the right equipment     | Significant soil compaction can reduce crop yield and lead to crop recovery payouts year over year                                                              |
| <b>GRAVEL ROAD</b><br>A thick layer of gravel aggregate                     | Supports traction on steep hills                  | Costly removal and restoration after job is done; disturbs the environment and leaves debris, even when used with permeable geotextiles; expensive upfront cost |



No site access plan — rutting, compaction, soil mixing



Blading example



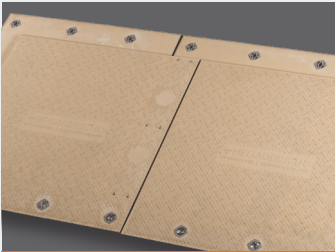
Gravel road

# SITE ACCESS WITH MATTING: APPLICATIONS AND ADVANTAGES

Choosing to use matting for site access is an excellent way to reduce environmental and safety risks and improve efficiency. Each solution offers different sizes, materials, and construction, for either — which results in a range of advantages and disadvantages. The chart below clearly breaks down each of your options for both entering the site and as a platform for performing the work.



CROSS-LAMINATED TIMBER



PLASTIC



BOLTED



TIMBER

## MATTING SOLUTIONS IN ACTION: APPLICATIONS AND ADVANTAGES (Continued)

|                                                | 3-PLY CLT (CROSS-LAMINATED TIMBER) MATS                                                                                                                                                                                                                                 | PLASTIC/COMPOSITE MATS                                                                                                                                                                                                 | BOLTED ACCESS MATS                                                                                                                                                                                       |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SIZES</b>                                   | 8'x14', 8'x16'                                                                                                                                                                                                                                                          | 7'x13'                                                                                                                                                                                                                 | 8'x14', 8'x16'                                                                                                                                                                                           |
| <b>RAW MATERIALS</b>                           | <ul style="list-style-type: none"> <li>• Sustainable southern yellow pine</li> <li>• Environmentally friendly adhesive</li> </ul>                                                                                                                                       | <ul style="list-style-type: none"> <li>• Polyethylene plastic</li> </ul>                                                                                                                                               | <ul style="list-style-type: none"> <li>• Hard and soft woods</li> <li>• Metal bolts</li> <li>• Nuts and washers</li> </ul>                                                                               |
| <b>DESIGN &amp; CONSTRUCTION</b>               | <ul style="list-style-type: none"> <li>• Engineered product of alternating perpendicular wood layers and adhesive</li> </ul>                                                                                                                                            | <ul style="list-style-type: none"> <li>• Compression-molded plastic</li> </ul>                                                                                                                                         | <ul style="list-style-type: none"> <li>• Hard and soft wood timbers mechanically fastened in a 3-ply lattice pattern</li> </ul>                                                                          |
| <b>ADVANTAGES</b>                              | <ul style="list-style-type: none"> <li>• High strength-to-weight ratio</li> <li>• Lower direct freight costs</li> <li>• Faster install and removal</li> <li>• Solid construction</li> <li>• Consistent performance</li> <li>• Minimizes environmental impact</li> </ul> | <ul style="list-style-type: none"> <li>• Flexible integrated connection system</li> <li>• More per truckload than timber</li> <li>• Equivalent linear feet to CLT</li> <li>• Flexibility over uneven ground</li> </ul> | <ul style="list-style-type: none"> <li>• Flexibility over uneven ground</li> <li>• Relatively inexpensive</li> </ul>                                                                                     |
| <b>DISADVANTAGES</b>                           | <ul style="list-style-type: none"> <li>• Higher initial purchase price</li> </ul>                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>• Higher cost</li> <li>• Slower install</li> <li>• Plastic pellets left behind in the ROW</li> </ul>                                                                            | <ul style="list-style-type: none"> <li>• Creates an unstable environment</li> <li>• Low longevity and durability</li> <li>• High safety risks</li> <li>• Unsustainable raw hardwood materials</li> </ul> |
| <b>EXPECTED LIFE (depending on conditions)</b> | 3-5 years                                                                                                                                                                                                                                                               | 8-10 years                                                                                                                                                                                                             | 2 years                                                                                                                                                                                                  |
| <b>COST</b>                                    | \$\$\$                                                                                                                                                                                                                                                                  | \$\$\$\$                                                                                                                                                                                                               | \$\$                                                                                                                                                                                                     |



3-ply CLT mat



Plastic/composite mats



Bolted access mats



5-ply CLT



Bolted timber mat

|                                                | 5-PLY CLT (CROSS-LAMINATED TIMBER) MATS                                                                                                                                                                                                                                 | BOLTED TIMBER MATS                                                                                                                                                                                                |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SIZES</b>                                   | 8'x16', 8'x18', 4'x16', 4'x18'                                                                                                                                                                                                                                          | 4'x16', 4'x18', Up to 40' in length                                                                                                                                                                               |
| <b>RAW MATERIALS</b>                           | <ul style="list-style-type: none"> <li>• Sustainable Southern Yellow Pine</li> <li>• Environmentally friendly adhesive</li> </ul>                                                                                                                                       | <ul style="list-style-type: none"> <li>• Hard and soft woods</li> <li>• Metal bolts</li> <li>• Nuts and washers</li> </ul>                                                                                        |
| <b>DESIGN &amp; CONSTRUCTION</b>               | <ul style="list-style-type: none"> <li>• Alternating perpendicular wood layers and adhesive</li> </ul>                                                                                                                                                                  | <ul style="list-style-type: none"> <li>• Hard and soft wood timbers mechanically fastened with bolts</li> </ul>                                                                                                   |
| <b>ADVANTAGES</b>                              | <ul style="list-style-type: none"> <li>• High strength-to-weight ratio</li> <li>• Lower direct freight costs</li> <li>• Faster install and removal</li> <li>• Solid construction</li> <li>• Consistent performance</li> <li>• Minimizes environmental impact</li> </ul> | <ul style="list-style-type: none"> <li>• Relatively strong (hardwood)</li> <li>• Longer lengths can be used for some bridging and crossing applications</li> </ul>                                                |
| <b>DISADVANTAGES</b>                           | <ul style="list-style-type: none"> <li>• Higher purchase price</li> </ul>                                                                                                                                                                                               | <ul style="list-style-type: none"> <li>• Low longevity and durability</li> <li>• Notch creates a tripping hazard</li> <li>• Unsustainable raw hardwood materials</li> <li>• Lack of consistent product</li> </ul> |
| <b>EXPECTED LIFE (depending on conditions)</b> | 3-5 years                                                                                                                                                                                                                                                               | 2 years                                                                                                                                                                                                           |
| <b>COST</b>                                    | \$\$\$                                                                                                                                                                                                                                                                  | \$\$                                                                                                                                                                                                              |

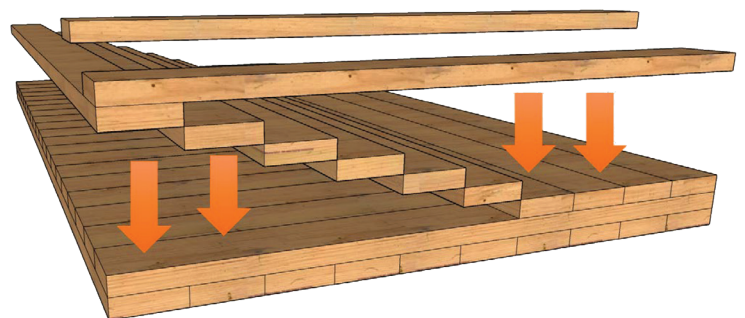


## A CLOSER LOOK AT CLT (CROSS-LAMINATED TIMBER) MATS

CLT is a type of wooden mat. But unlike raw timber mats, it is an engineered product. This engineering results in a more solid construction, making CLT particularly effective in preventing environmental and equipment damage as well as safety incidents.

CLT mats are constructed from a consistent grade of wood assembled in perpendicular layers to ensure a high strength-to-weight ratio. Layers are adhered to avoid the safety and damage risks of bolts.

Sterling TerraLam® CLT mats feature alternating perpendicular layers of southern yellow pine (grade #2 or better) bonded with a special adhesive for unmatched strength and safety in a lightweight solution.





# THE DIFFERENCE BETWEEN CLT AND OTHER MATS — THE MAT’S **ENGINEERING** — IS KEY TO PROJECT VALUE

## EFFICIENCY (TIMING AND HARD COSTS)

CLT mats reduce freight, environmental, and maintenance costs while improving safety and reducing injury-related expense. CLT mats are easier to install than other mats, resulting in significant labor, equipment, and time savings as well. Because you can move and install quickly, CLT mats can positively impact project schedule adherence.

UPTO  
**\$100K**  
estimated cost per  
day of overrun

**\$5K–10K**  
estimated labor savings

**50%**  
fewer trucks with  
new CLT mats

## ENVIRONMENTAL STEWARDSHIP

CLT mats are designed to minimize impact on delicate environments. Their lighter weight reduces the number of emission-producing truckloads going to the site and the time spent laying down the mats — which means less harmful CO<sup>2</sup> output overall. The solid surface and adhesive barriers keep out invasive species and can be vigorously washed. In contrast with hardwood timber mats, CLT mats can be made from sustainable materials such as fast-growing southern yellow pine.

**\$250K** estimated ROW  
restoration and soil  
decompaction cost

**\$25K** estimated  
invasive species  
mitigation fees

## SAFETY IMPROVEMENT

Using matting of any type will always be the safer choice over other, non-matting options. And within the matting options available, CLT’s solid construction provides an additional layer of safety. The solid surface and the absence of bolts minimizes trips and falls while providing a more stable road that can reduce vehicle incidents. This solid construction also minimizes water and mud pumping, which can reduce the slips and falls hazards common at most job sites.

**\$1M** total estimated  
cost of a worker  
fatality

**\$25–50K** average  
worker  
injury cost

# MORE THAN MATS: THINK SITE ACCESS PLANNING

Limiting site access planning to mat options means focusing just on materials and quantity. The more effective approach is to look at the big picture: mat types, geography, permits, restoration, and more. That's why a truly proactive and cost-conscious company goes beyond "what mats should we use" and instead creates a plan that places mats within the larger context of your project. With the right expertise, it's possible to find the ideal combination of mat type, quantity, and timing to manage risk and maximize savings.

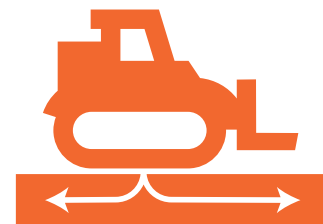


**Site access is about much more than what you put on the ground. Developing a plan is the best ROI you can get for your job.**

— Carter Sterling, Chief Executive Officer, Sterling



## SITE ACCESS PLANNING CHECKLIST



- ☒ Proper mat selection and quantity needed for total project miles
- ☒ Access point selection
- ☒ ROW geography — creeks, rivers, ditches
- ☒ Installation and staging within the ROW
- ☒ Best roadways and routes for minimizing impact
- ☒ Maintenance of mat roads and pads
- ☒ Ground conditions and interferences
- ☒ Storm Water Pollution Protection Planning (SWPPP)
- ☒ Delineated wetlands and restoration requirements
- ☒ Environmental permitting issues
- ☒ Endangered species habitats
- ☒ Managing invasive species and mat washing
- ☒ Protecting drain tiles and underground pipelines
- ☒ Returning site to original condition

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# CONCLUSION

Ground protection shouldn't be taken for granted or be an afterthought — it's one of the best ways to keep your job safe and profitable. Plenty of options exist, each with its own pros and cons. An experienced site access partner like Sterling can guide you through a full site access plan and help you save time and money. We also offer TerraLam<sup>®</sup>, the only CLT mat on the market precision engineered for maximum safety, sustainability, and efficiency to deliver a total project win.

# ABOUT STERLING

Sterling is a leading provider of innovative site access solutions for companies that build our nation's energy infrastructure. From initial site planning through final restoration, Sterling provides a full suite of site access products and expert services for projects of all sizes and scopes. As America's largest manufacturer of CLT (cross-laminated timber) site access mats, our TerraLam® CLT is an engineered matting solution that saves time and money, protects the environment, and ensures worker safety. Our innovative matting products, combined with site access planning expertise, and an array of turnkey services, will deliver exceptional value on any size project and lay the groundwork for your success.

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CONTACT US

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