

Building solar safely on a legacy industrial site

Terrasmart pairs split foundation engineering with proactive EHS planning to deliver 22 MW of solar power ahead of schedule and budget on a former industrial site in Bainbridge, New York.

Background



The 22 MW Payne Solar Project, built on the site of a former synthetic resin manufacturing facility in Bainbridge, NY.

The 22 MW Payne Solar Project sits on the footprint of a former synthetic resin manufacturing facility in Bainbridge, New York. Decades of chemical use and storage during the property's industrial life left the site with hazardous material contamination. Remediation began in the 1990s and was largely completed in 2012, but, because not all contamination could be removed, the property remains listed on New York's Registry of Inactive Hazardous Waste Disposal Sites and continues to operate under an active Site Management Plan (SMP).

For a project of this scale, that history mattered every time a drill went into the ground. Terrasmart's team was engaged to deliver surveying, point-staking, drilling, ground screw installation, and leg installation across the site. Without the proper precautions, this work would put crews and equipment in direct contact with soil the state still classifies as hazardous waste.



Challenges

Payne-Borden's legacy contamination wasn't distributed evenly across the property. The team designated four zones as Solid Waste Management Units (SWMUs): Northern Grid Area, Central Grid Area, Bone Yard Area, and Phenol Recovery Area, reflecting a higher known risk of residual contaminants and requiring continuous, rather than periodic, environmental monitoring.

That variation meant a single foundation method wouldn't work across the whole site. Some areas could safely support driven ground screws while others carried too much risk of disturbing controlled contamination and needed a different approach.

Layered on top of the engineering challenge was an EHS challenge: any drilling or screw installation had the potential to disturb Polychlorinated biphenyls (PCBs), formaldehyde, and other legacy contaminants that had been contained but never fully eliminated, putting crews and the surrounding Bainbridge community at potential risk of exposure.

Terrasmart's team faced a steep challenge: deliver this 22 MW project on schedule and on budget while operating inside safety margins tight enough to stop work the moment air quality readings crossed the threshold.

Solutions

Terrasmart addressed the site's uneven contamination profile with a split installation approach, pairing Terrasmart's GLIDE Agile system on ground screw foundations and GLIDE Wave on ballast foundations depending on the sub-surface conditions and risk profile of each zone. This matched the installation method to the site rather than forcing one method across the whole property.

Safety planning started before crews ever set foot on site. Every team member completed PCB training, reviewed the project's Site-Specific Health and Safety Plan (HASP), and worked through the safety data sheets for PCBs and formaldehyde. Work only started once Terrasmart's EH&S team signed off on each contaminant. Close collaboration with the EH&S team is standard in all Terrasmart projects.

On site, PPE was matched to risk level. Teams were equipped with chemical-resistant boots, undercut gloves, goggles, and coveralls for general site work, with an enhanced kit required inside the four SWMU zones. Portable eyewash and hand-wash stations, along with designated break areas for eating, drinking, and smoking, gave crews a way to stay protected throughout the shift.

The centerpiece of the safety program was continuous airborne particle and VOC monitoring during all drilling and ground screw installation, with clear, tiered action levels built in:

	Particulate readings above 100–150 mcg/m ³ over background triggered immediate dust suppression measures.	
	VOC readings above 25 ppm over background required work to stop entirely until the source was identified and corrective action taken.	
	The four SWMU zones were monitored continuously rather than periodically, with designated client points of contact on call to respond the moment an action level was reached.	
	That combination of specialized PPE and continuous airborne monitoring let crews keep working safely even as site complexity increased.	

Results

The combination of engineering flexibility and rigorous, site-specific safety protocols let Terrasmart's crews work with confidence on ground that demanded caution at every step. Despite the added complexity of a split foundation system, enhanced PPE requirements, and continuous environmental monitoring, execution stayed ahead of schedule and within budget throughout the project.

The Payne Solar Project, alongside projects like Terrasmart's Acton Solar built on a former Superfund site, adds real-world examples of how sites with legacy industrial contamination can be made viable for clean energy development that benefits communities.

With the right foundation engineering and a proactive, well-documented safety program, even sites still listed on state hazardous waste registries can be redeveloped into productive, utility-scale solar assets all while keeping the team safe, and the project on schedule and within budget.



Talk to our experts to explore solutions for your site