FIELDS MASTERS

PRESENTATION

HYBRID TURF

A COMPREHENSIVE GUIDE TO THE TECHNOLOGY

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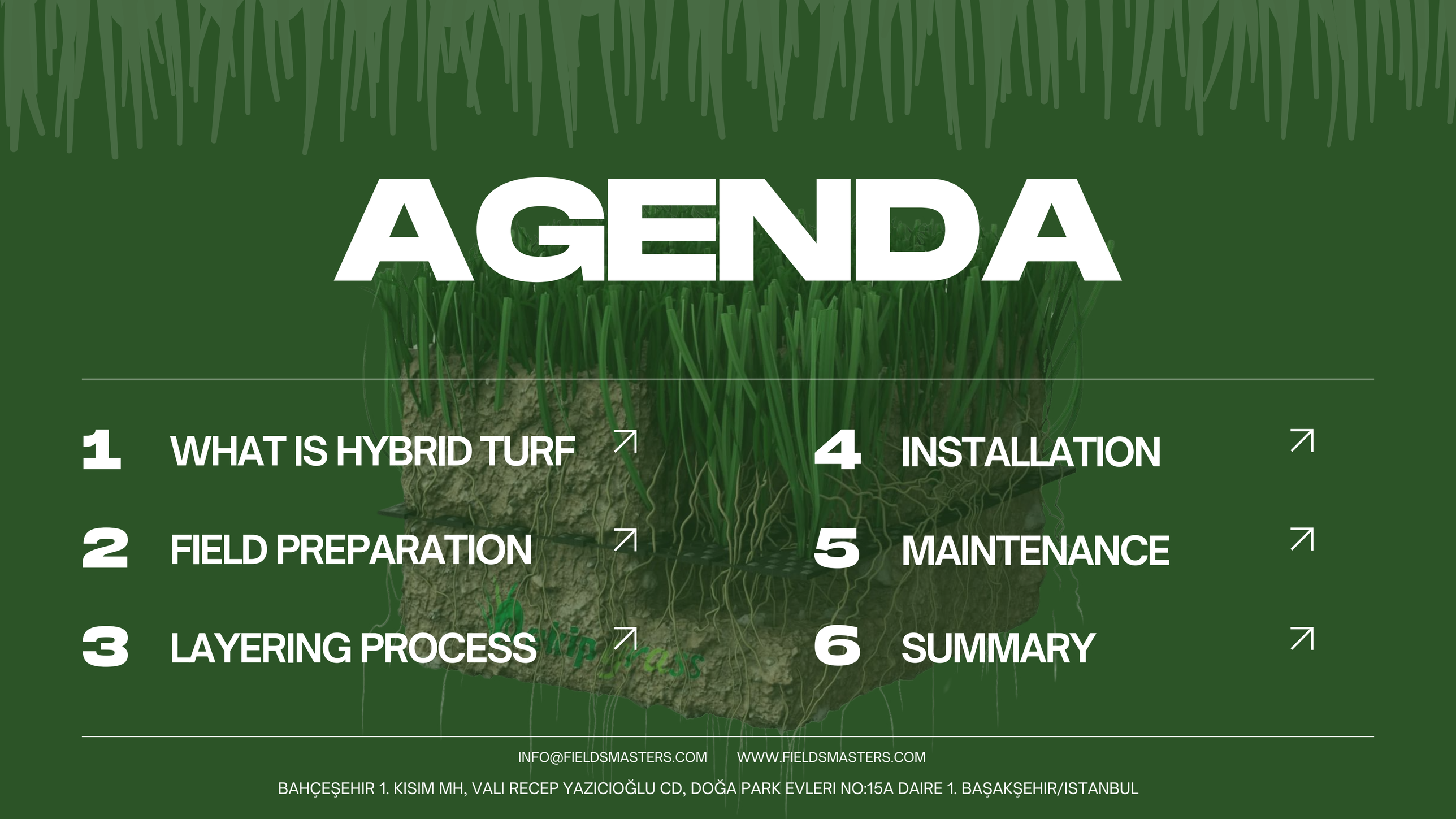
AGENDA



1 WHAT IS HYBRID TURF

2 FIELD PREPARATION

3 LAYERING PROCESS

4 INSTALLATION

5 MAINTENANCE

6 SUMMARY

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WHAT IS HYBRID TURF

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WHAT IS HYBRID TURF

REFERENCE AREA (KYRGYZSTAN)

THE USES & BENEFITS

Hybrid grass is a combination of natural grass reinforced with artificial fibers. This integration provides enhanced durability and functionality, offering a versatile solution for sports pitches and other applications.

Hybrid grass, which we call reinforced natural grass, consists of a combination of natural turf and artificial turf. Hybrid turf is produced by attaching artificial turf systems to natural turf seeds. The aim is to obtain maximum ground quality in areas where air flow and sun rays are not sufficient.
It is suitable for the new generation stadiums. Hybrid turf application is applied to all newly built stadiums in the world.

The reason for the widespread use of hybrid grass as a football ground is that natural grass is a suitable ground type for football. However, the longevity of natural grass and the high maintenance cost necessitated the development of artificial turf.

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HYBRID GRASS IS THE CLOSEST GROUND TYPE TO NATURAL GRASS AND THE GROUND QUALITY IS VERY HIGH BECAUSE IT IS REINFORCED WITH ARTIFICIAL GRASS YARNS.

It provides an aesthetic and elegant stadium layout.
Different color alternatives are available.
Thanks to its strong root structure, the grass does not break away from the ground.
Refreshes the image of soccer clubs.
Maintenance is easy.

It is suitable for use in four seasons.

UV resistant, does not fade in the sun.

Does not freeze in winter months.

There is no puddle on it.
It is suitable for use in bad weather conditions.

Maintenance costs are very low.

It is more durable compared to natural and artificial grass.

It provides the quality of playing games on natural grass.

It remains green in all four seasons.

The floor regenerates itself very quickly and is ready for reuse.

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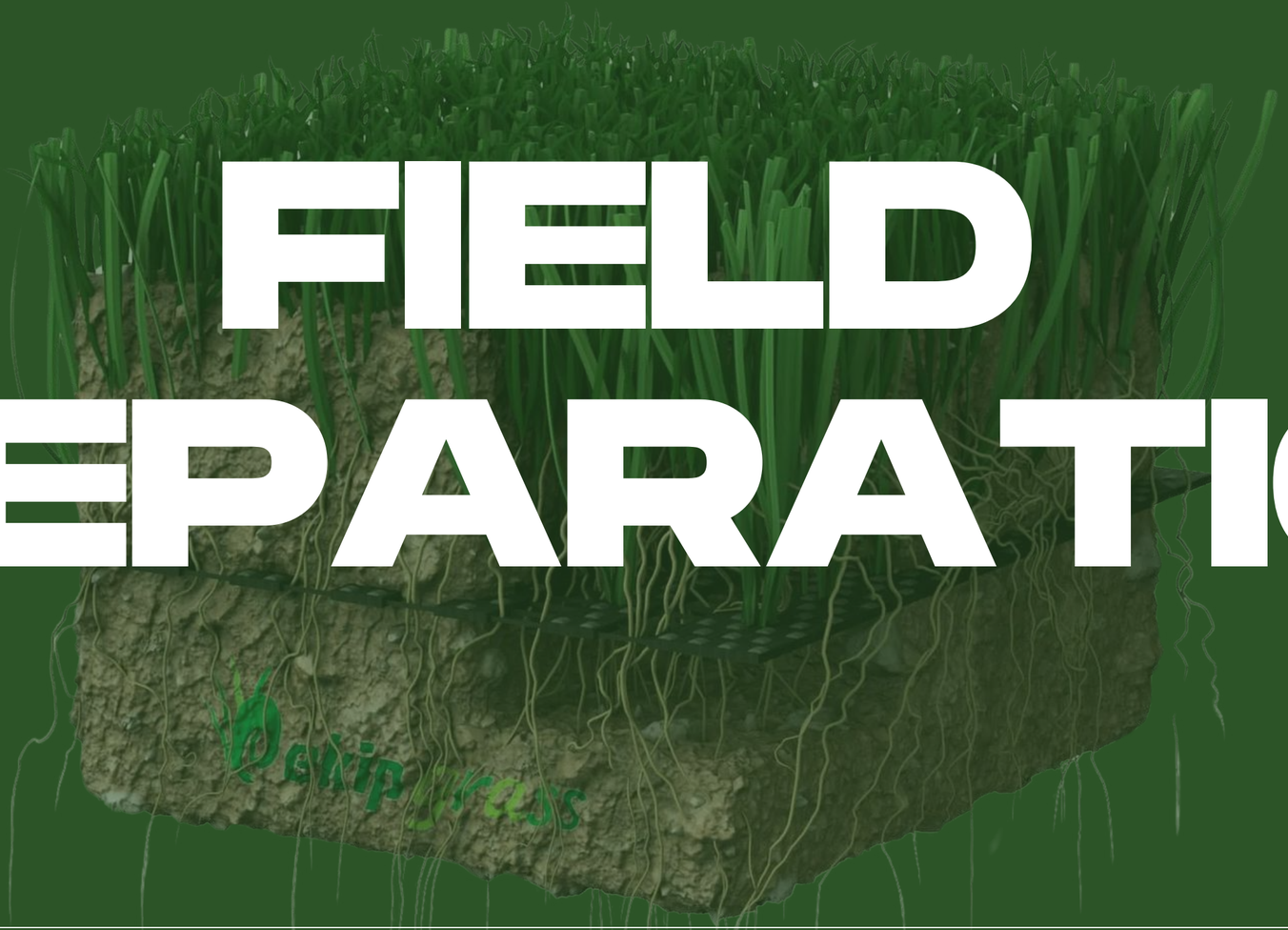
FIELD PREPARATION



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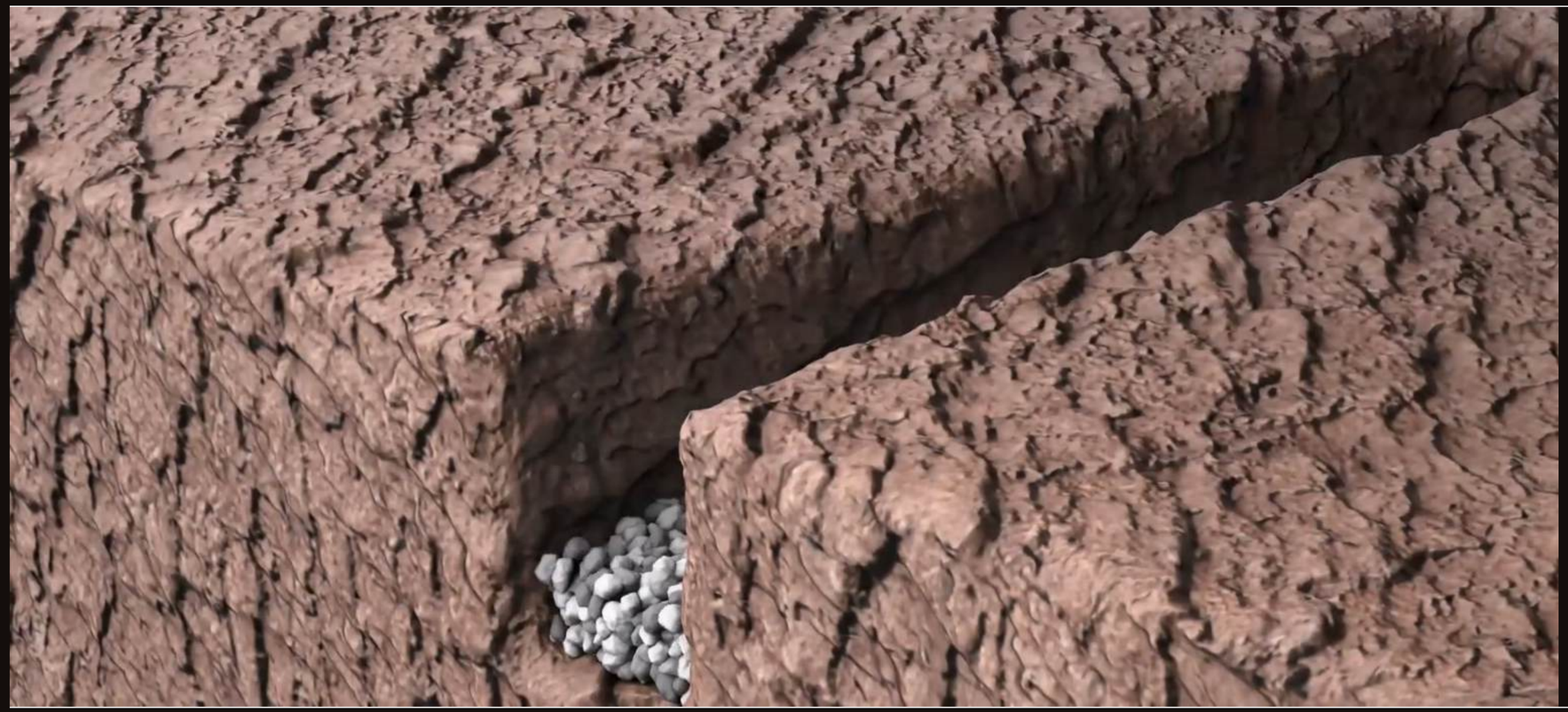
PREPARING THE GROUND



Preparing a field for hybrid grass involves creating a stable and efficient base to support the grass system, ensuring optimal drainage, durability, and growth.

This step is split into 2 phases:

- **Ground Leveling and Compacting**
- **Drainage System Installation**

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GROUND LEVELING & COMPACTING

Rough leveling of the field using heavy machinery to achieve a cradle roof system for drainage.

Compacting the soil with a heavy-tonnage roller to ensure a firm and stable base.

Purpose

To create a flat, even surface that matches the desired design and elevation of the field.

To ensure proper water flow and drainage by shaping the field with a slight slope or cradle roof system.

Process

Topographic Survey:
Initial elevation measurements are taken to identify uneven areas.
A 3x3 meter grid survey ensures precise leveling.

Excavation and Filling:
High areas are cut down, and low areas are filled with soil or gravel.
Excavated materials are reused where possible to maintain cost efficiency.

Fine Leveling:
A grader or laser-guided machinery is used to achieve precise leveling.
Surface accuracy is checked to meet project specifications, often within a few centimeters of tolerance.

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GROUND LEVELING & COMPACTING

Rough leveling of the field using heavy machinery to achieve a cradle roof system for drainage.

Compacting the soil with a heavy-tonnage roller to ensure a firm and stable base.

Purpose

To increase soil density and strength, reducing the risk of settling or shifting under the weight of equipment or players.

To prevent waterlogging by creating a firm base for drainage layers.

Process

Initial Compaction:

Heavy-tonnage rollers or vibratory compactors are used to compress the soil after rough leveling.
This removes air pockets and provides a solid foundation for the drainage and grass layers.

Layer-by-Layer Compacting:

If additional materials (gravel, sand, or soil) are added, each layer is compacted separately.
This ensures uniform density throughout the base.

Testing for Density:

Soil compaction is tested using devices like a nuclear density gauge or dynamic cone penetrometer.
Results ensure that compaction meets the design specifications, typically around 90–95% of the soil's maximum density.

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PREPARING THE GROUND

Preparing a field for hybrid grass involves creating a stable and efficient base to support the grass system, ensuring optimal drainage, durability, and growth.

This step is split into 2 phases:

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DRAINAGE SYSTEM

The drainage system is a vital component in hybrid grass field preparation. It ensures proper water management, which prevents waterlogging, promotes healthy grass growth, and extends the lifespan of the field. The system needs to efficiently channel excess water away while maintaining a stable and dry surface for play.

Purpose

Water Management

Proper drainage prevents standing water that can damage the hybrid grass and affect playability.

Soil Health

It helps maintain the proper moisture level in the soil, preventing waterlogging and root rot while allowing the grass to thrive.

Field Durability

Effective drainage minimizes wear on the field and reduces the need for frequent maintenance.

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DRAINAGE SYSTEM

Components of the System

Drainage Channels

- Excavation
- Gravel and Sand Layers: Channels are lined with gravel (typically 15—30 mm) and sand (7—15 mm) to create a filtration system. These layers allow water to move freely through the soil and into the drainage pipes.

Drainage Pipes

- Types of Pipes: Perforated pipes (typically PVC or corrugated pipes) are laid inside the drainage channels that allows water to flow through into the channels.
- Pipe Layout: The pipes are laid in a grid or network pattern, with lateral connections every 3 meters, to ensure uniform water distribution and flow across the entire field.
- Manholes: At the junction of the pipes, manholes are placed to access and maintain the drainage system. These are important for inspecting and cleaning the system as needed.

Outlets and Discharge

- Discharge Points: The water collected through the drainage pipes is directed to designated discharge points, typically connected to the municipal sewage system or a stormwater collection system.
- Water Flow Control: Drainage systems often have control features like valves or filters to regulate the outflow of water and prevent backflow into the field.

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LAYERING PROCESS

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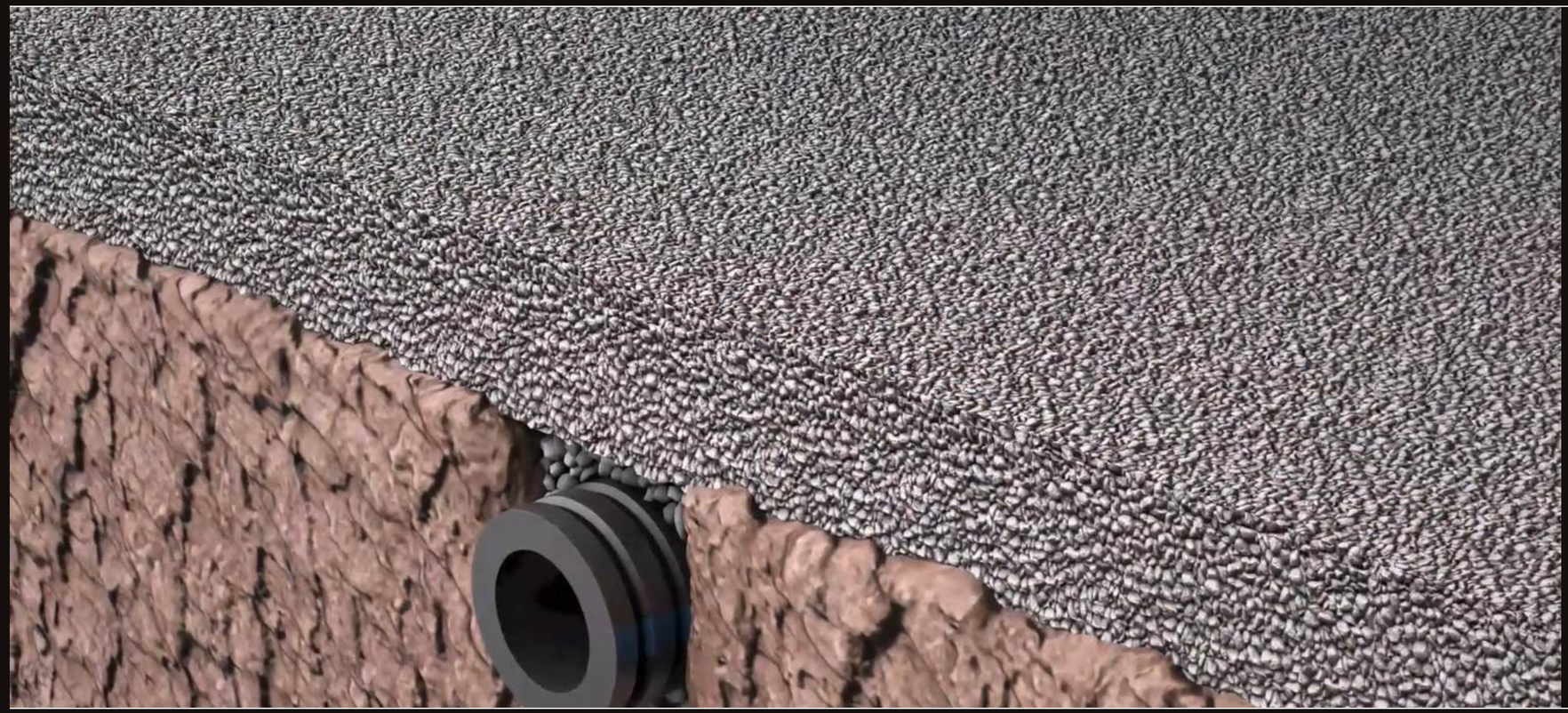
PREPARING THE GROUND



Layering the field base is a crucial step in preparing a hybrid grass field. It involves constructing multiple layers of materials, each with specific properties, to provide stability, drainage, and a conducive environment for grass growth.

This base supports the hybrid turf system, ensuring durability and functionality.

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LAYERING PROCESS

Rough leveling of the field using heavy machinery to achieve a cradle roof system for drainage.

Compacting the soil with a heavy-tonnage roller to ensure a firm and stable base.

Purpose

Drainage Support: Facilitates efficient water flow and prevents waterlogging.

Surface Stability: Ensures a firm and level foundation for the hybrid grass system.

Plant Health: Creates a suitable environment for the roots of natural grass to grow and thrive.

Process

Gravel Layer (Drainage Layer):

- **Description:**

Consists of rounded or crushed gravel with a size range of 15–30 mm.
This layer is the primary drainage medium.

- **Application:**

Spread to a depth of about 20 cm across the field.
Leveled and compacted to ensure uniform thickness.

- **Function:**

Allows water to flow freely toward drainage pipes or channels.
Prevents soil or finer materials from clogging the drainage system.

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LAYERING PROCESS

Purpose

Fine Gravel Layer:

Description:
Made up of smaller gravel, typically 7—15 mm in size.

Application:
Added as a secondary drainage layer on top of the larger gravel layer.
Spread to a thickness of 10—15 cm and leveled precisely.

Function:
Filters water as it passes through, ensuring cleaner flow into drainage channels.

Sand Layer:

Description:
A fine sand layer, usually 0—7 mm in size, spread evenly across the field.

Application:
Applied to a depth of about 10 cm.
Leveled without heavy machinery to avoid compaction issues that could impede drainage.

Function:
Acts as a transition layer, providing a smooth surface for the vegetation layer.
Promotes even water distribution across the field.

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LAYERING PROCESS

Purpose

Vegetation Layer:

- **Description:**

A mixture of sand (80%) and pumice or similar organic material (20%).
Typically 12 cm thick, compacted lightly with water to maintain structure.

- **Application:**

Spread evenly to ensure a level surface and compacted for uniform density.
Includes nutrients or fertilizer for supporting grass growth.

- **Function:**

Provides an ideal environment for natural grass roots to establish.
Ensures optimal moisture and nutrient retention for healthy grass growth.

Compaction and Leveling:

Each layer is compacted individually to achieve the required density and prevent settling over time.
Heavy rollers (ranging from 300—750 kg) are used to ensure firmness, especially for the gravel and sand layers.
Precision leveling tools, such as laser graders, are used to maintain the correct elevations and slopes for drainage.

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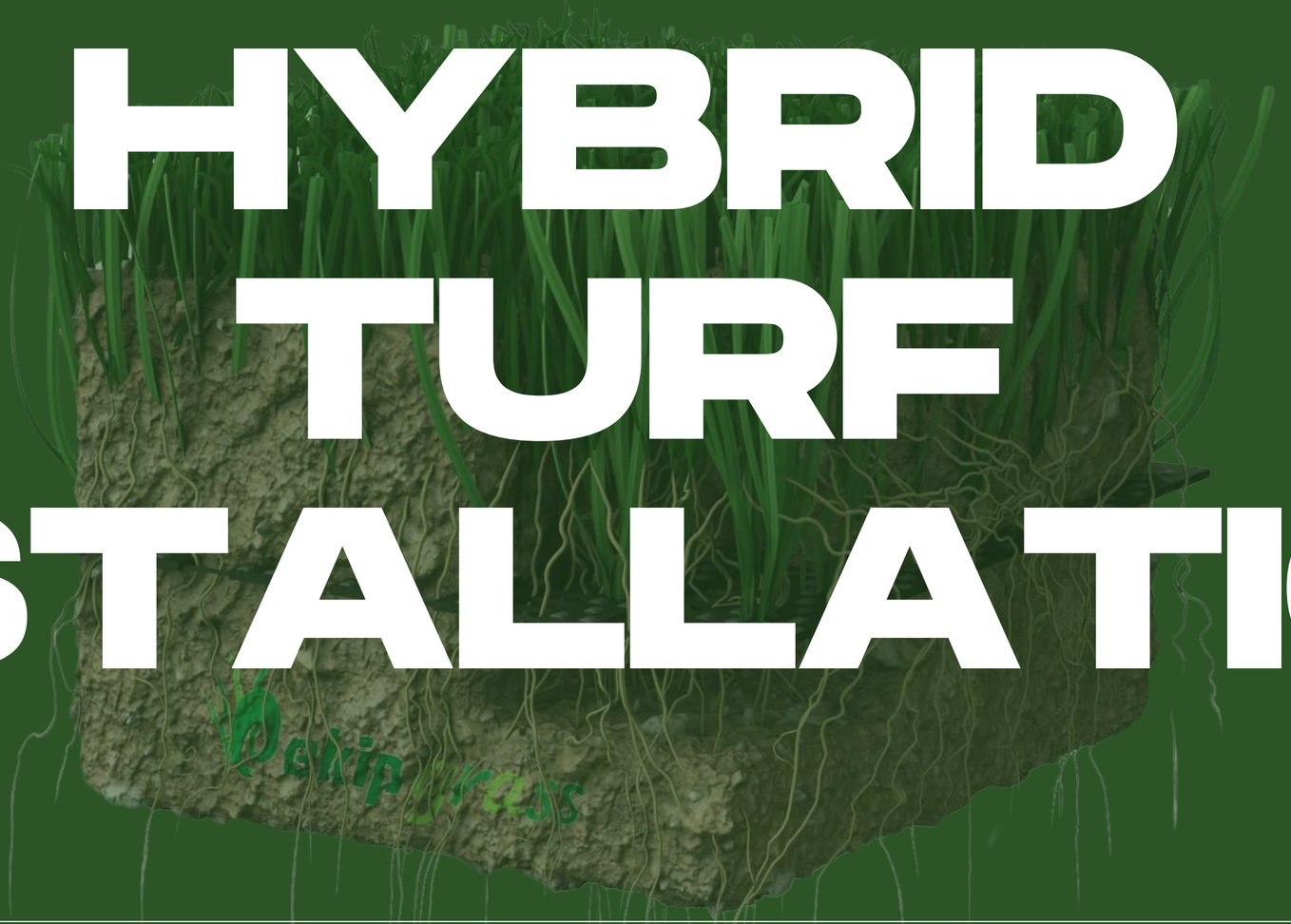
HYBRID TURF INSTALLATION



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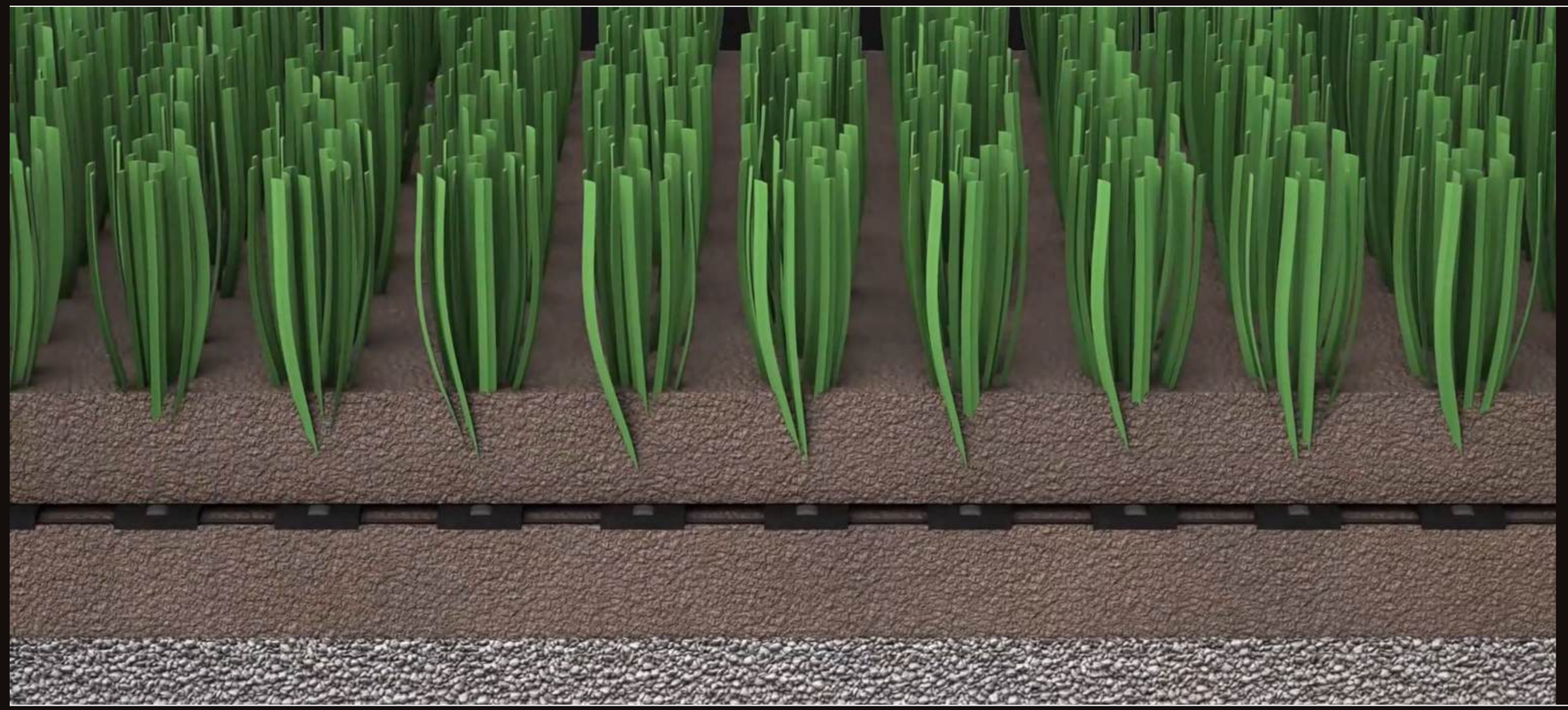
TURF INSTALLATION



The carpet system involves laying an artificial grass carpet directly on a prepared natural grass or base layer. It is quick to install with "lay-and-play" technology.

This system is easy to install and remove, offers a lifespan of about 3 years, and provides flexibility for various uses, such as sports or events.

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TURF INSTALLATION

Carpet System:

An artificial grass carpet is laid directly on top of the natural grass or prepared base.
The carpet is secured to the ground using adhesives or pins.
Quick installation with "lay-and-play" technology.
Easy to remove and replace, making it suitable for temporary setups like concerts.

Turf Alignment and Securing:

- Alignment:
  - Turf sections are aligned carefully to avoid gaps or overlaps.
  - The direction of artificial fibers is adjusted for a uniform appearance.
- Seaming:
  - Seams between turf rolls are bonded using adhesive or heat-sealing techniques.
- Edge Securing:
  - Turf edges are anchored to the ground to prevent lifting or shifting during play.

Top Dressing and Sand Infill:

- A light layer of washed sand (0.1 cm) is spread over the installed hybrid turf.
- This stabilizes the fibers and creates a bed for grass seeds, enhancing the integration of natural and artificial elements.

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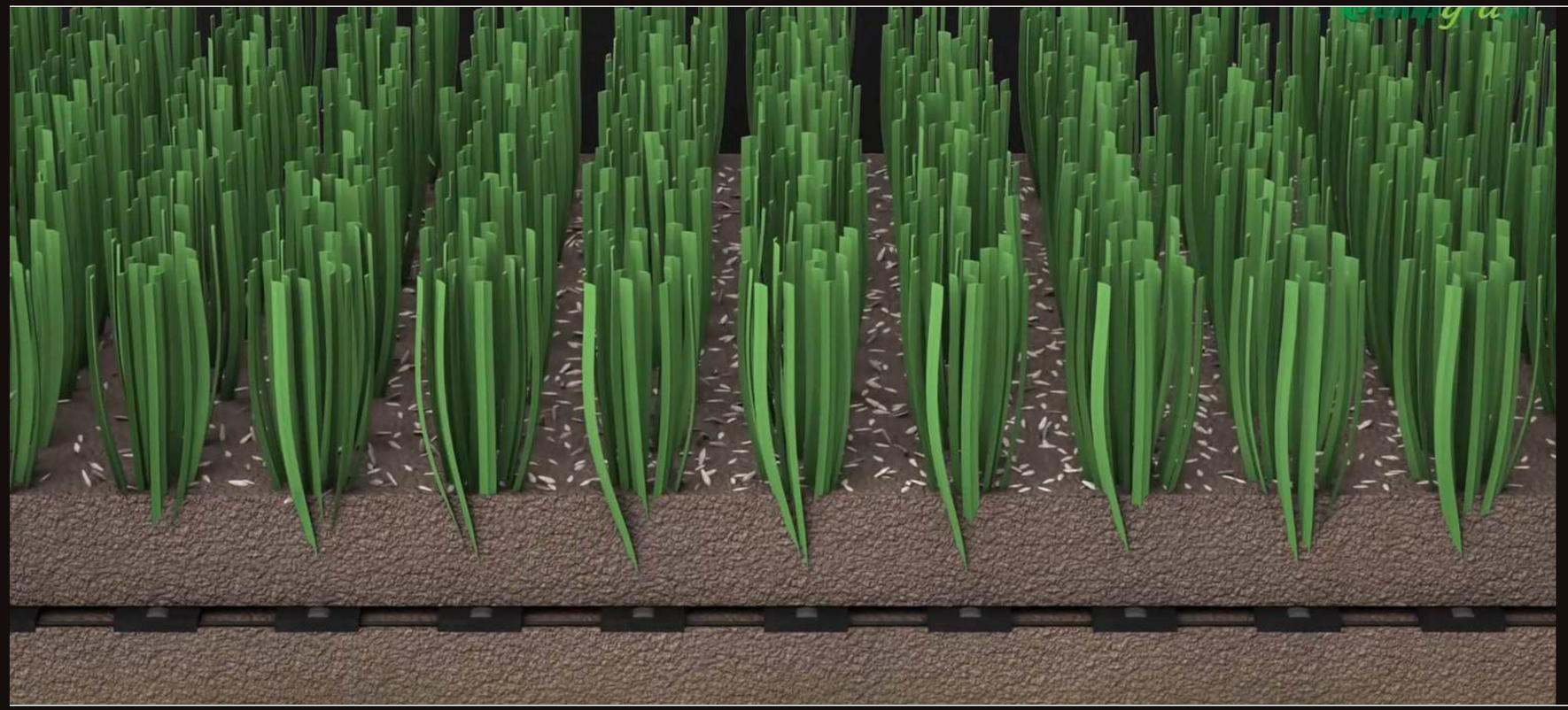
SEEDING THE TURF



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TURF INSTALLATION

Grass Seeding and Fertilization:

- Seeding: Grass seeds are sown into the sand layer at 50 g per square meter, ensuring even coverage.
- Fertilization: A base fertilizer, such as TSP (Triple Super Phosphate), is applied to promote healthy grass growth.

Post-Installation Care:

- Watering: Regular irrigation ensures proper germination and root development for natural grass.
- Growth Monitoring: Nutrient levels are analyzed, and fertilizers are applied based on the grass's needs.
- Light Rolling: Gentle rolling ensures the fibers and grass remain upright.

Final Testing and Quality Checks:

- The field is inspected for uniformity, drainage performance, and playability.
- Turf fibers are tested for durability and adherence, ensuring they meet safety and performance standards.

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MAINTENANCE

After the hybrid turf is installed, an initial maintenance phase ensures proper grass establishment and long-term performance.

Irrigation:

- Frequency: Watering is essential during the early stages to encourage seed germination and root growth.
- System Setup: Automated sprinkler systems are often used to ensure even and adequate watering.

Fertilization:

- Initial Fertilizer Application: Nutrients like TSP (Triple Super Phosphate) are applied during installation to support root development.
- Regular Applications: Fertilizers are periodically applied based on soil nutrient analysis to maintain grass health.

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MAINTENANCE

After the hybrid turf is installed, an initial maintenance phase ensures proper grass establishment and long-term performance.

Aeration:

- Purpose: Aeration prevents soil compaction, improves water penetration, and enhances root growth.
- Method: Small holes are made in the soil using an aerator to allow air and nutrients to reach the roots.

Monitoring:

- Soil Testing: Nutrient levels, pH, and moisture content are regularly checked to adjust maintenance practices.
- Grass Growth: Inspections ensure even grass growth and identify any areas needing reseeding.

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MAINTENANCE

Cutting and Mowing After Installation:

Initial Cutting:

- Timing: The first cut should occur when the natural grass reaches about 5—6 cm in height, ensuring it is firmly rooted.
- Method:
  - Use a sharp, lightweight mower to avoid pulling or damaging the grass and fibers.
  - Set the mower height to remove only the top third of the grass blade to prevent stress on young plants.

Regular Mowing:

- Frequency: Mow the field 1—2 times a week, depending on grass growth and usage.
- Height Maintenance:
  - Keep the grass height between 2.5—3.5 cm for sports fields, ensuring an even and safe playing surface.
  - Adjust mowing height seasonally to accommodate growth patterns and weather conditions.
- Equipment: Use rotary or reel mowers with sharp blades to maintain a clean cut without tearing the grass.

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MAINTENANCE

Clipping Management:

- Removal: Remove clippings to prevent them from smothering the grass or accumulating around the artificial fibers.
- Mulching: Optionally, mulch the clippings to return nutrients to the soil if conditions allow.

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MAINTENANCE

Long-Term Maintenance Practices:

Grooming:

- Purpose: Grooming redistributes infill materials, realigns artificial fibers, and prevents matting.
- Method: Specialized grooming machines or brushes are used periodically.

Reseeding:

- When Needed: Thin or damaged areas of natural grass are reseeded to maintain a consistent surface.
- Method: Over-seeding with grass varieties compatible with the existing turf ensures a seamless repair.

Cleaning:

- Artificial Fiber Care: Remove debris, such as leaves or dirt, to prevent clogging drainage or hindering playability.
- Surface Cleaning: Use a light washing system or a vacuum sweeper for a pristine appearance.

Inspections and Repairs:

- Drainage Check: Ensure drainage systems are functioning effectively after heavy rains.
- Turf Repair: Address any areas where artificial fibers or seams are damaged.

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MAINTENANCE

Seasonal Maintenance Adjustments:

- Spring: Reseed and aerate to repair winter damage.
- Summer: Increase watering and fertilization to support vigorous growth.
- Autumn: Prepare for dormancy with balanced fertilizers and reduced mowing frequency.
- Winter: Clear snow and ice carefully to avoid damaging the turf.

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QUICK SUMMARY

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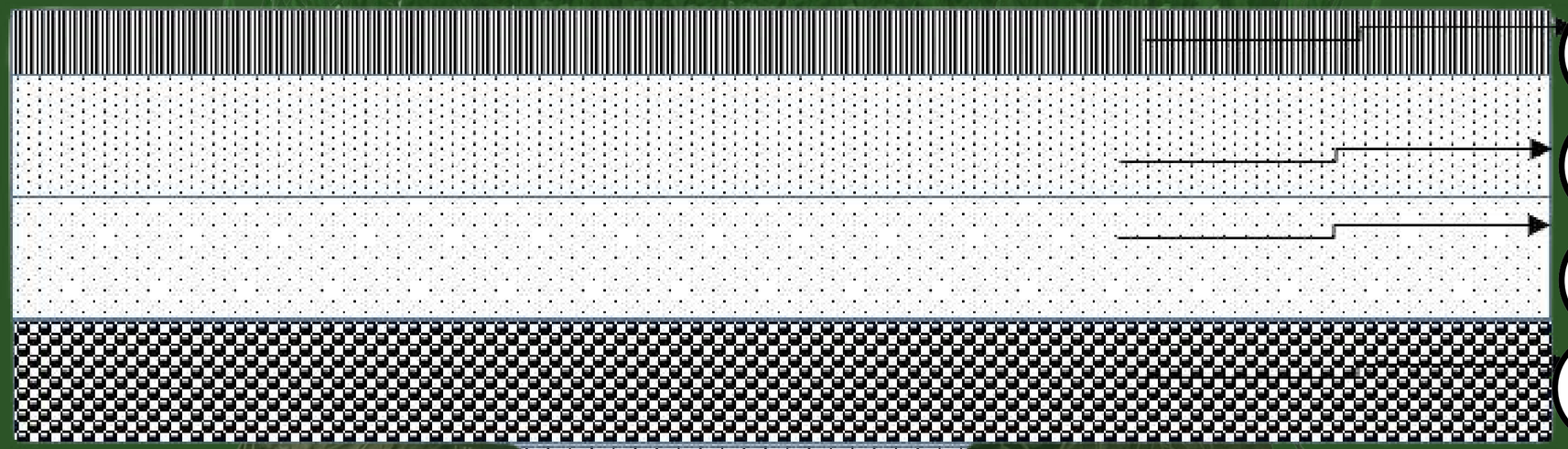
SYSTEM DIAGRAM



Vegetation Layer

Upper Rootzone

Lower Rootzone

Gravel Layer

Drainage Layer

10 CM
VEGETATION LAYER

20 CM
of 0.3 Sand

20 CM
of 0.7 Sand

20 CM
7–15 CM GRAVEL

15–30 CM GRAVEL

Inner Diameter of Drainage 100 MM
Outer Diameter of Drainage 150 MM

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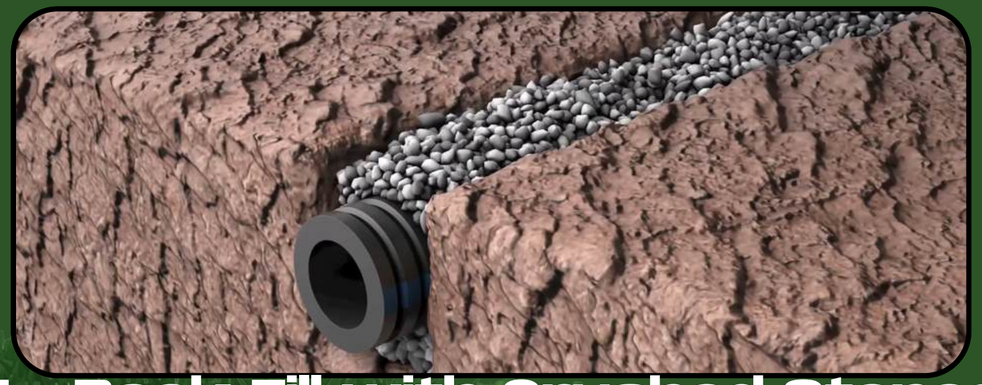
1– Draining Trench

2– Preparation of Draining Trench

3– Draining Pipe System



4– Back Fill with Crushed Stones

5– Fine Crushed Stone Layer

6– Lower Root Zone

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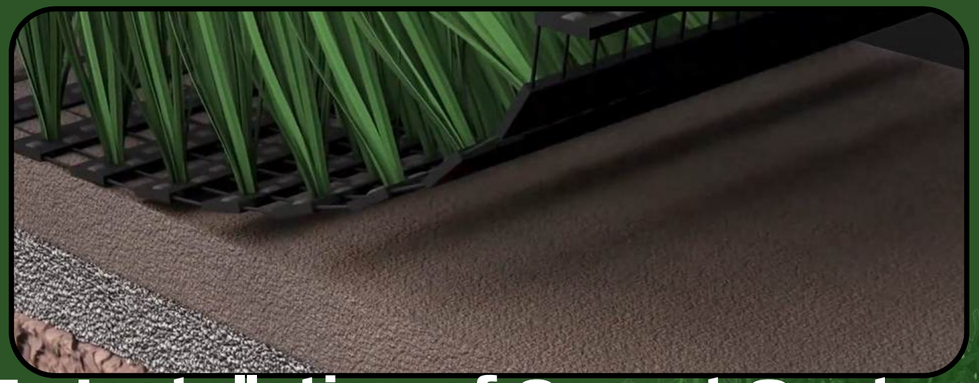
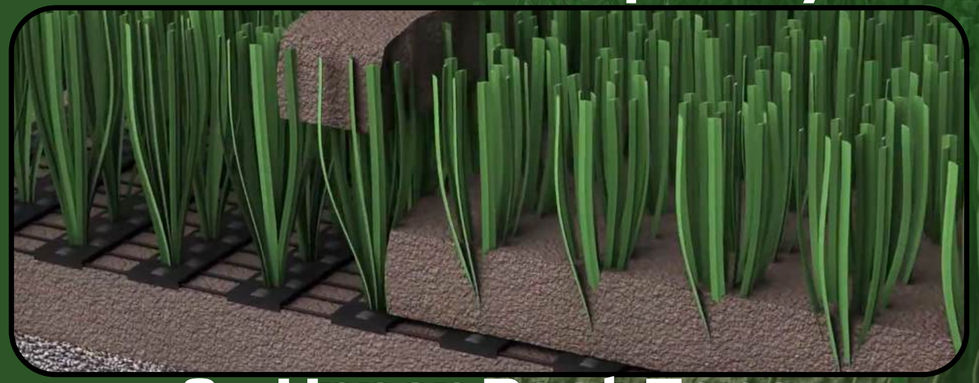
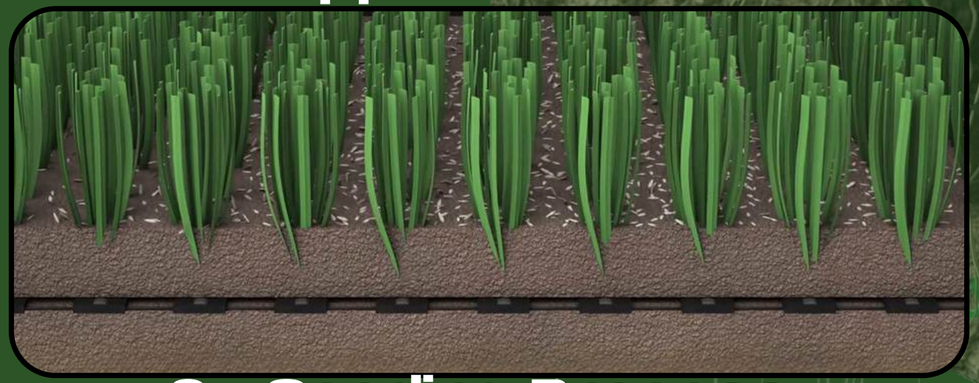


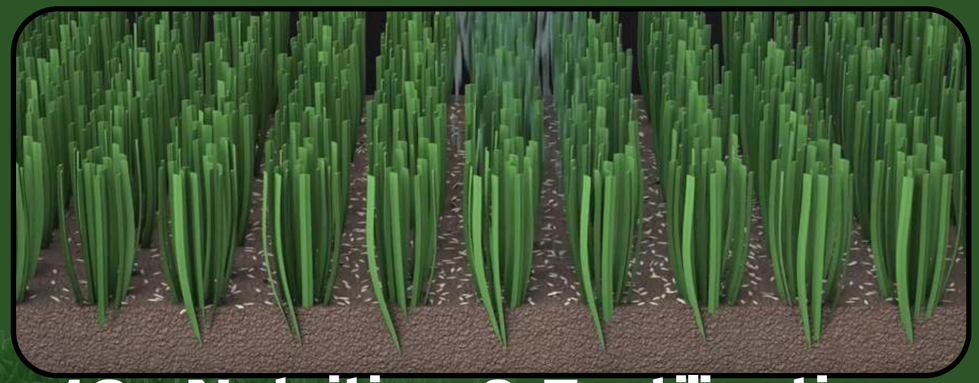
7– Installation of Carpet System



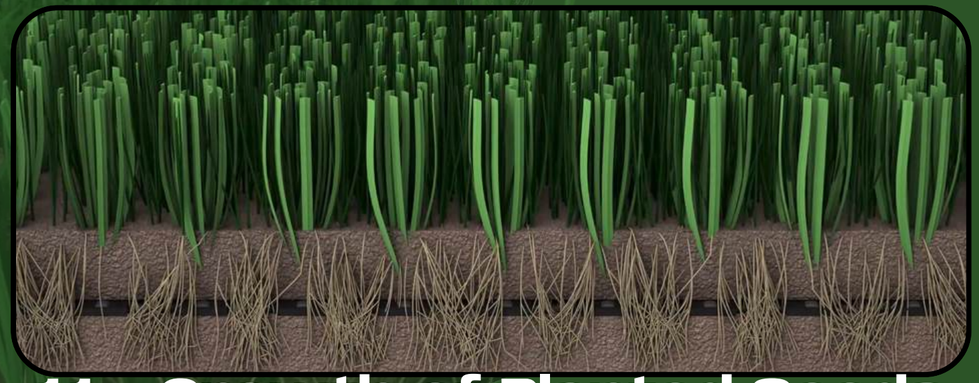
8– Upper Root Zone



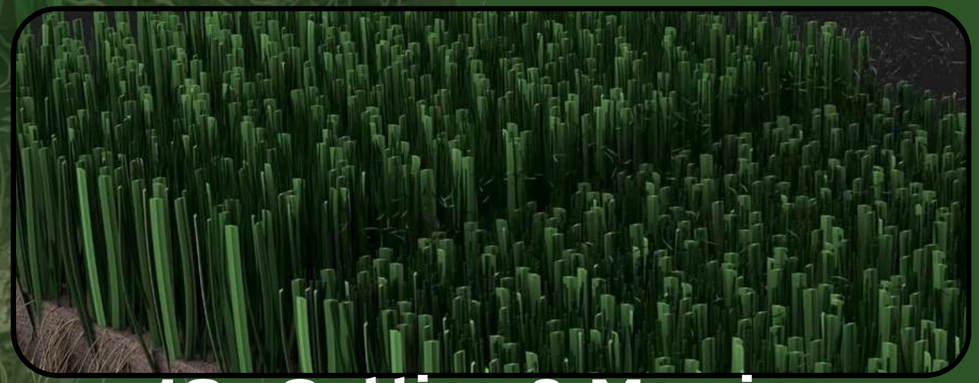
9– Seeding Process



10– Nutrition & Fertilisation



11– Growth of Planted Seeds



12– Cutting & Mowing

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Side View of Demonstration

Carpet System

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Hybrid Turf Cross-Section Demonstration

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CLOSE LOOK ON HYBRID TURF

HYBRID GRASS

EKIPHYBRID® OFFERS CONFIDENCE TO PLAYERS FOR SPECTACULAR ACTIONS.

EKIPHYBRID® PRODUCED A TURF SYSTEM THAT WOULD MEET STANDARDS

FIFA QUALITY

FIFA QUALITY PRO

★★★★★

BEST QUALITY

USAGE AREA

FOOTBALL, HOCKEY, BASEBALL, MULTI-SPORT RUGBY AND MORE ...

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AGREEMENT BETWEEN EKIPSPOR & FIELDSMASTERS

21.10.2024

AUTHORIZED DEALER CERTIFICATE

FİELDS MASTERS SPOR SİSTEMLERİ VE GIDA SANAYİ TİCARET LİMİTED ŞİRKETİ

ADDRESS : TAHTAKALE MAHALLESİ FIRAT 1 STREET NO:4/2 A BLOCK D:52 BAHÇE CITY 34000 AVCILAR / ISTANBUL

Tax Office : İKİTELLİ

Tax Number : 3870574455

CONTACT : 0 542 660 84 12

The above mentioned FİELDS MASTERS SPOR SİSTEMLERİ VE GIDA SANAYİ TİCARET LİMİTED ŞİRKETİ is fully authorized to use our FIFA QUALITY (Star 1) and FIFA QUALTY PRO (Star 2) certificates, the defined yarn report of our synthetic grass products that we manufacture, and the test results of our synthetic grass products that we manufacture, which were made by a laboratory accredited by Fifa, and to carry out the sales and applications of our synthetic grass and HYBRID SYSTEM ARTIFICIAL GRASS CARPET products that we manufacture, in all MIDDLE EAST COUNTRIES.

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