



**GENERAL GUIDELINES / SEQUENCE OF WORKS FOR INSTALLING RAINSMART® 50MM NERO™ PAVE
Grass & Gravel Pave Application.**

TECHNICAL SPECIFICATION – Nero Pave with 95% Void Space (Seeding)

PART 1 - GENERAL

1.01 General Provisions

- A. The Conditions of the Contract and all Sections of Division 1 are hereby made a part of this Section.

1.02 Description of Work

A. Work Included:

1. Provide and install sandy gravel road base as per Geotechnical Engineer's recommendations and/or as shown on drawings, to provide adequate support for project design loads. See 2.02 Materials.
2. Provide Rainsmart Solutions Pty Ltd. 50mm Nero-Pave Paving System products including 50mm Nero pave Cell units, and installation per the manufacturer's instructions furnished under this section.
3. Provide and install clean sharp sand to fill the 50mm Nero-Pave units, when needed.
4. Provide and install grass by using hydro-seeding.

B. Related Work:

1. Sub-grade preparation.
2. Utilities and subsurface drainage, as needed.
3. Irrigation installation, when needed.

1.03 Quality Assurance

- A. Follow Shop Drawings, Product Data, and Samples requirements.
- B. Installation: Performed only by skilled workpeople with satisfactory record of performance on landscaping or paving projects of comparable size and quality.

1.04 Submittals

- A. Submit manufacturer's product data and installation instructions.
- B. Submit a full Piece of 50mm Nero-Pave material for review. Reviewed and accepted samples will be returned to the contractor.
- C. Submit material certificates for base course and sand fill materials.

1.05 Delivery, Storage, and Handling

- A. 50mm Nero-Pave comes pre-clipped in 1m x 1.2m x 50mm panel and palletized. Protect 50mm Nero-Pave units from damage during delivery and store under tarp to protect from sunlight, when time from delivery to installation exceeds one week.

1.06 Project Conditions

- A. Review installation procedures and coordinate 50mm Nero-Pave work with other work affected. Generally, 50mm Nero-Pave is installed at the same time as project grass installation, nearly the last site construction activity.
- B. All hard surface paving adjacent to 50mm Nero-Pave areas, including concrete walks and asphalt paving must be completed prior to installation of 50mm Nero-Pave.
- C. Gradients for grass permeable paving surfaces can vary from flat to 20%, depending upon vehicle types to use the surface. Please note that fire lanes, or other emergency vehicles, will generally require a gradient that is less than 6%. If there are any questions regarding existing gradients on this project, please contact the Project Designer.
- D. Cold weather:
 - 1. Do not use frozen materials or materials mixed or coated with ice or frost. Be careful in handling 50mm Nero-Pave in temperatures below 50° F.
 - 2. Do not build on frozen work or wet, saturated or muddy subgrade.
- E. Protect partially completed paving against damage from other construction traffic when work is in progress, and until grass root system has matured (about 3 to 4 weeks). Any barricades constructed must still be accessible by emergency and fire equipment during and after installation.
- F. Protect adjacent work from damage during 50mm Nero-Pave installation.

PART 2 – PRODUCTS

2.01 Availability

- A. Manufacturer: Rainsmart Solutions Pty Ltd., 2/12 Stoddart Road, Prospect, NSW -2148, Australia. (Tele) +61 2-9631 6555. (Fax) +61 2-9631 6556 Contact email: info@rainsmartsolutions.com
- B. Distributor:

2.02 Materials

- A. Base Course: Sandy gravel material from local sources commonly used for road base construction, passing the following sieve analysis.

<u>Sieve</u>	<u>%Passing</u>
1"	100
3/4"	90-100
3/8"	70-80
#4	55-70
#10	45-55
#40	25-35
#200	3-8

- 1. Sources of the material can include either "pit run" or "crusher run." Crusher run material will generally require sharp sand to be added to mixture (33% by volume) to ensure long-term porosity. If there is difficulty in finding local sources to meet this sieve analysis, and alternative mixture can be created by mixing 2/3 crushed drainage rock (0.75" dia) with 1/3 concrete or sharp sand
 - 2. Selected materials should be nearly neutral in pH (range from 6.5 to 7.2) to provide adequate root zone development for turf.
 - 3. Alternative materials such as crushed shell, limerock, and/or crushed lava may be considered for base course use, provided they are mixed with sharp sand (33%), and brought to proper compaction. (Crushed shell and limerock alone can set up like concrete without sand added.)
- B. 50mm Nero-Pave Grass Paving Units: Lightweight injection-molded plastic units 500mm x 600mm x 50mm thick pre clipped with 3-dimensional hexagon openings grid allowing maximum grass root penetration and development. The plastic shall be 100% post-consumer recycled plastic resins, predominately PP.

Loading capability is >to 225 tons/m² (320psi) unconfined and >4456 ton/m² (6351 Psi) when filled with sand, over an appropriate depth of road base. Standard color is black. Unit weight = 2.05kg (65oz.), volume = % 5 solid.

- D. Sand: Obtain clean sharp sand to fill the 25 mm (one inch) high holes and spaces in the structure when seeding or using 13 mm thick sod (soil thickness).
- E. Grass: Use species resistant to wear by traffic generally a Blue/Rye/Fescue mix used for athletic fields and Zoysia, Fescue, or Bermuda types. (Check with local sod and seed suppliers or landscape Architect for the preferred mixtures.) (Dedicated fire lanes can use same grass species used on surrounding turf.) (Parking applications require greatest wear-resistant species possible, generally available only by seed or sprigging.)
 - 1. Seed: Use seed materials, of the preferred species for local environmental and projected traffic conditions, from certified sources. Seed shall be provided in containers clearly labeled to show seed name, lot number, net weight, % weed seed content, and guaranteed % of purity and germination. Pure Live Seed types and amount shall be as shown on plans.
- F. Mulch:(Needed only for seeding.) Shall be of wood or paper cellulose types of commercial mulch materials often used in conjunction with seeding operations. Mulches of straw, pine needles, etc. will not be acceptable because of their low moisture holding capacity.
- G. Fertilizer: A commercial "starter" fertilizer, with Guaranteed Analysis of 17-23-6, or as recommended by local grass supplier, for rapid germination and root development.
- H. 50mm Nero-Pave Sign: A sign to identify the presence of 50mm Nero-Pave paving, stating that special maintenance is required, and made of durable materials for outdoor exposure shall be provided and installed.
- I. Fire lane Signage & Delineation: Fire lanes must be identified regarding their entrance and physical location with the placement of signs, gates, curbs, bollards, etc. Specific signage wording and other details must be coordinated with and approved by local fire authorities.

PART 3 - EXECUTION

3.01 Inspection

(It is recommended that Fire Department inspectors be scheduled to inspect installation of 50mm Nero-Pave during preparation of the subbase, installation of the base course, and installation of Nero-Pave units. Most small projects can accommodate these inspections all on the same day. Verify with Fire Department if certificates of inspection are required.)

- A. Examine subgrade and base course installed conditions. Do not start Nero-Pave installation until unsatisfactory conditions are corrected. Check for improperly compacted trenches, debris, and improper gradients.
- B. Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance. If existing conditions are found unsatisfactory, contact Project Manager for resolution.

3.02 Preparation

(Ensure that subbase materials are structurally adequate to receive designed base course, wearing course, and designed loads. Generally, excavation into undisturbed normal strength soils will require no additional modification. Fill soils and otherwise structurally weak soils may require modifications, such as geotextiles, geogrids, and/or compaction (not to exceed 90%). Ensure that grading and soil porosity of the subbase will provide adequate subsurface drainage.)

- A. Place base course material over prepared subbase to grades shown on plans, in lifts not to exceed 150 mm (6"), compacting each lift separately to 90% Modified Proctor. Leave minimum 50 mm – 75mm for Nero-Pave unit and sand/sod fill to Final Grade.

3.03 Installation of Nero Pave Units

- A. Install the Nero-Pave units by placing units next to each other and clip them in place making a continuous blanket. Units can be easily shaped with hand or electric saw. Units placed on steep slopes shall be anchored to the base course, using 16d Common nails with fender washer, as required to secure units in place. Top surface shall be between 6 mm to 13 mm (0.25" to 0.5") below the surface of adjacent hard-surface pavements.
- B. Install sand in units as they are laid in sections by "back-dumping" directly from a dump truck, or from buckets mounted on tractors, which then exit the site by driving over cell structure already filled with sand. The sand is then spread laterally from the pile using flat bottomed shovels and/or wide "asphalt rakes" to fill the panels. A stiff bristled broom should be used for final "finishing" of the sand. The sand must be "compacted" by using water from hose, irrigation heads, or rainfall, with the finish grade no less than the top of surface and no more than 6 mm (0.25") above top of surface.

3.04 Installation of Grass

(Choose one paragraph below to meet grass installation method desired.)

- A. (Preferred method) Hydroseeding/hydro-mulching - A combination of water, seed and fertilizer are homogeneously mixed in a purpose-built, truck-mounted tank. The seed mixture is sprayed onto the site at rates shown on plans and per hydroseeding manufacturer's recommendations. Coverage must be uniform and complete. Following germination of the seed, areas lacking germination larger than 20 cm x 20 cm (8" x 8") must be reseeded immediately. Seeded areas must be fertilized and kept moist during development of the turf plants.
- B. A light "dusting" of commercial topsoil (dressing) mix, not to exceed 1/2" (25 mm) is recommended to be placed above the seeded surface to aid germination rates. Seeded areas must be fertilized and kept moist during development of the turf plants.

3.05 Protection

- A. Seeded areas must be protected from any traffic, other than emergency vehicles, for a period of 4 to 6 weeks, or until the grass is mature to handle traffic.

3.06 Cleaning

- A. Remove and replace segments of Nero-Pave units where three or more adjacent hexagons are broken or damaged, reinstalling as specified, so no evidence of replacement is apparent.
- B. Perform cleaning during the installation of work and upon completion of the work. Remove all excess materials, debris, and equipment from site. Repair any damage to adjacent materials and surfaces resulting from installation of this work.

END OF SECTION

If you have any questions regarding this specification, please call Rainsmart Solutions Pty Ltd., 2/12 Stoddart Road, Prospect, NSW -2148, Australia. (Tele) +61 2-9631 6555. (Fax) +61 2-9631 6556