

# NEWSOIL TECHNOLOGIES PTE LTD

SUBSIDIARY OF BOLDTEK HOLDINGS LTD



**REDUCE  
CARBON FOOTPRINT  
REUSE  
CONSTRUCTION WASTE  
RECYCLE  
UNWANTED RAW MATERIALS**



72 Senoko Drive  
Singapore (758240)



(+65) 6891 0831  
[enquiry@newsoiltech.com.sg](mailto:enquiry@newsoiltech.com.sg)



[www.newsoiltech.com.sg](http://www.newsoiltech.com.sg)

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# Our Vision & Mission



## **Eric Ng**

Director

NewSoil Technologies Pte Ltd

## **Phua Lam Soon**

Director

NewSoil Technologies Pte Ltd

“NewSoil aims to provide a solution that is beneficial to the environment with our engineering capacities.”

NewSoil Technologies is a Singapore founded company that primarily engages in green construction and treatment of soft clay into local formulated dry cementitious soil material.

Our area of expertise includes **temporary access sites, backfilling, reclamation filling** and **caisson filling** purposes.

The future of construction is NewSoil. With natural resources becoming scarce and the environment being affected, it becomes crucial to encourage reusing waste generated.

The introduction of NewSoil is to **promote sustainability, pioneer the future of construction materials and to support a circular economy.**



# WHAT IS NEWSOIL

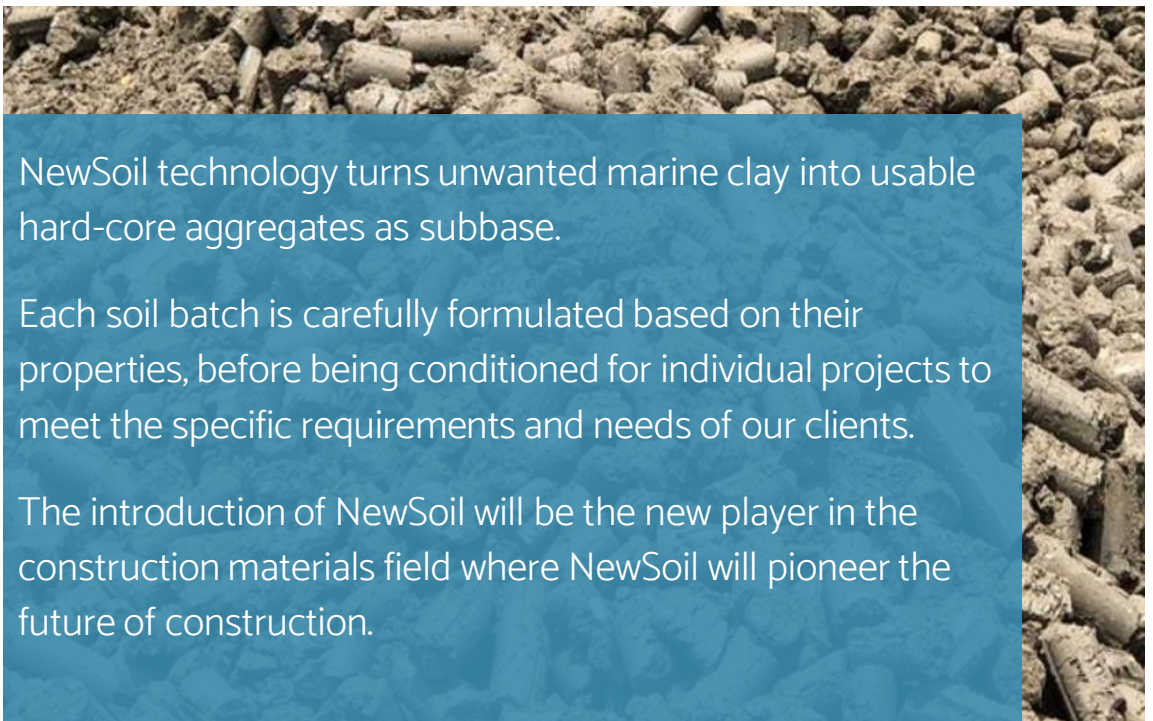


A one-stop cost saving solution for marine clay disposal, converting it into engineered soil.

A combination of marine clay with a formulated chemical additive.

Primarily an alternative source of hard-core aggregates.

## QUALITIES OF NEWSOIL

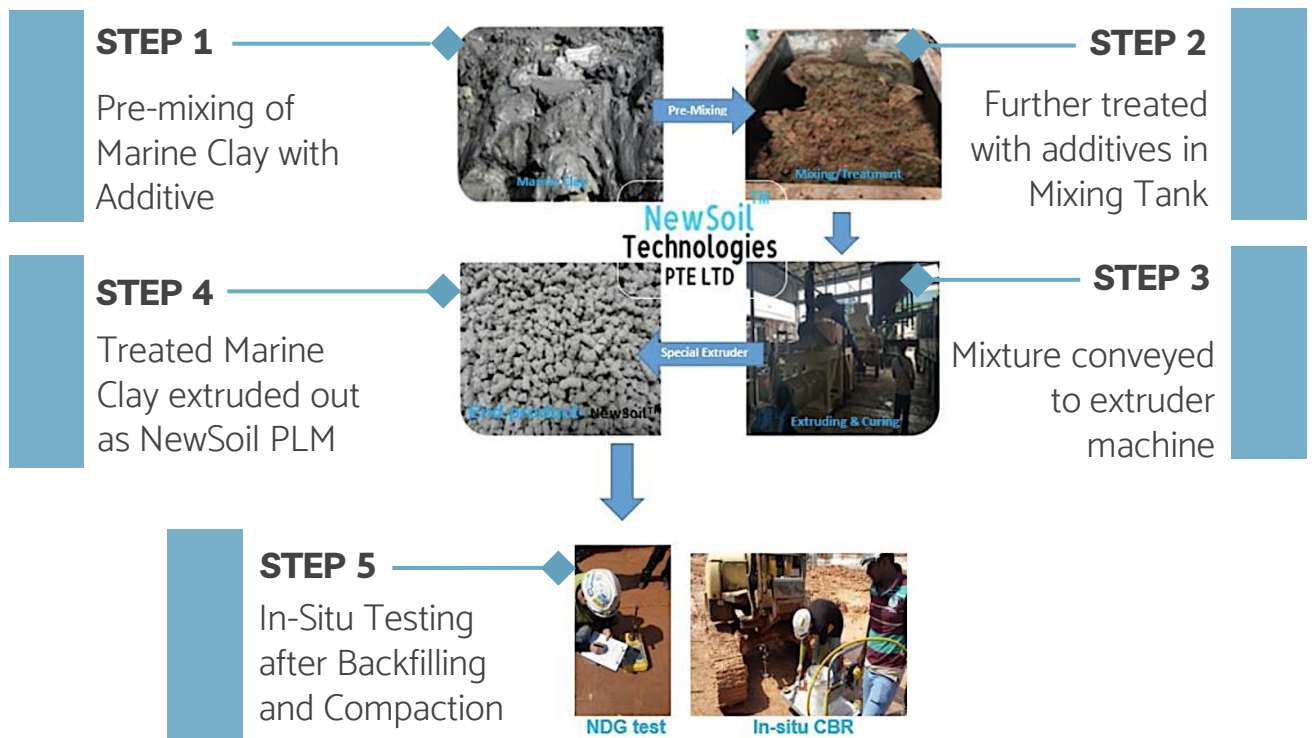


NewSoil technology turns unwanted marine clay into usable hard-core aggregates as subbase.

Each soil batch is carefully formulated based on their properties, before being conditioned for individual projects to meet the specific requirements and needs of our clients.

The introduction of NewSoil will be the new player in the construction materials field where NewSoil will pioneer the future of construction.

# TREATMENT PROCESS



## BENEFITS OF NEWSOIL

### **COST SAVINGS**

Alleviate costs associated with disposal of marine clay as well as its transportation to staging grounds.

Cheaper than the traditional methods of backfilling/reclamation filling.

### **ENERGY CONSERVATION**

Cleaner and greener material for reclamation filling & backfilling.

Decrease in CO<sub>2</sub> production with the elimination of transportation, hence reduction in carbon footprint.

### **REDUCE, REUSE, RECYCLE**

Previously obsolete material can now be reused and recycled with NewSoil Technology.

Reduction in imported soil with the adaptation of NewSoil.



# PROPERTIES OF NEWSOIL

1

## STRENGTH TEST [UCS (Unconfined Compressive Strength) & CBR]

|                              | BEFORE TREATMENT<br>(100% MARINE CLAY) | AFTER TREATMENT<br>(NEWSOIL) | TYPICAL SAND RECLAMATION FILL REQUIREMENT |
|------------------------------|--|------------------------------|---|
| UCS (kPA)                    | 30                                     | 1567.8                       | 700-1000                                  |
| CBR (%) SOAKED               | 4-5                                    | 23.34                        | MIN 10                                    |
| CBR (%) UNSOAKED             | 19.96                                  | 58.64                        | MIN 30                                    |
| RECLAMATION FILL REQUIREMENT | FAIL                                   | PASS                         | -   |

NewSoil displays greater strength as compared to marine clay before treatment.

2

## PERMEABILITY TEST

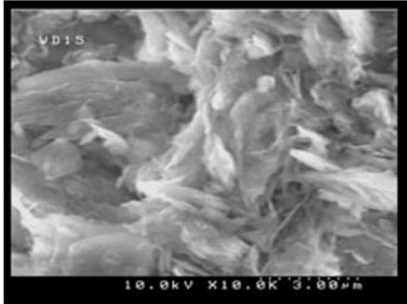
|   |   |                               |                               |                               |
|---|---|-------------------------------|-------------------------------|-------------------------------|
| BEFORE TREATMENT<br>(100 % MARINE CLAY) | $k = 1.0 \times 10^{-8}$ to $1.0 \times 10^{-10}$ m/s |                               |                               |                               |
| AFTER TREATMENT<br>(NEWSOIL)            | $k = 8.96 \times 10^{-5}$ m/s                         | $k = 8.80 \times 10^{-5}$ m/s | $k = 8.52 \times 10^{-5}$ m/s | $k = 8.31 \times 10^{-5}$ m/s |
| TYPICAL SAND                            | $k = 1.0 \times 10^{-3}$ to $1.0 \times 10^{-6}$ m/s  |                               |                               |                               |

NewSoil displays the same range as typical sand.

# PROPERTIES OF NEWSOIL

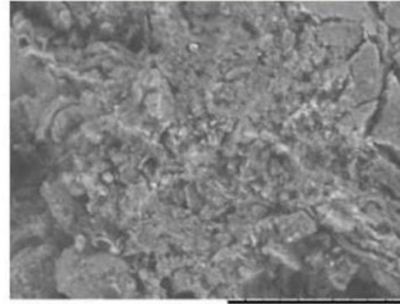
3

## SCANNING ELECTRONIC MICROSCOPE (SEM)



UNTREATED MARINE CLAY

PLATY & STICKY



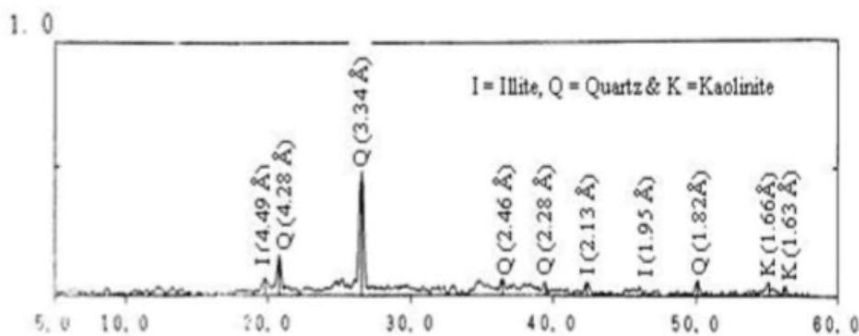
NEWSOIL

INDIVIDUAL PARTICLES

4

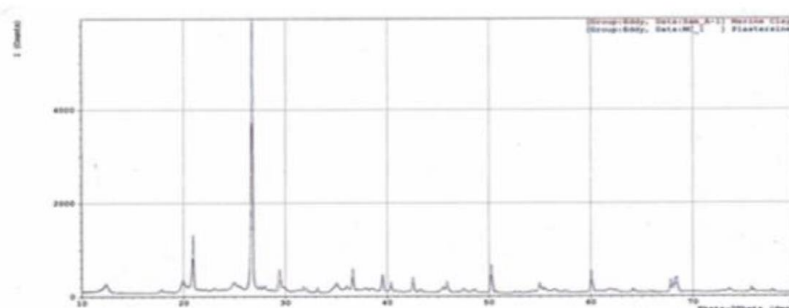
## X-RAY DIFFRACTION ANALYSIS

X-Ray  
Refraction  
of Pure  
Marine Clay



Content of NewSoil is similar to pure marine clay + cemented compounds.

X-Ray  
Refraction  
of NewSoil



Results show no trace of additional foreign materials, heavy metals or toxic materials.



# PROJECT REFERENCES



STAGE 1

Site Preparation



STAGE 2

Excavation & Compaction



STAGE 4

Backfilling &  
Compaction of Pavement



STAGE 3

Mixing

**BCA**  
**co-funded trial**  
Temporary  
site access

# PROJECT REFERENCES

## Paya Lebar

Place 8



Cluster homes

PLM is used to backfill  
ground beams of 400mm



# PROJECT REFERENCES

## Gardens by the Bay



Carpark and pavement

PLM is backfilled to raise platform level of 200mm

# PROJECT REFERENCES

Temporary road access

PLM backfill to 200mm



## Eden School (Bukit Batok)

# Contact us

[www.newsoiltech.com.sg](http://www.newsoiltech.com.sg)

[enquiry@newsoiltech.com.sg](mailto:enquiry@newsoiltech.com.sg)

[ericng@newsoiltech.com.sg](mailto:ericng@newsoiltech.com.sg)

[shengrong@newsoiltech.com.sg](mailto:shengrong@newsoiltech.com.sg)

Tel. (+65) 6891 2562

Fax (+65) 6891 0835

**NewSoil<sup>®</sup>**  
**Technologies**  
PTE LTD