

# HIGH-RISE BACKFILL™

# RETAINING WALLS

*(Earlier Tradename 'Introjected Backfil'®)*

- ▲ Cost-effective Technology under Indian Patent Rights
- ▲ Customized to suit every site with 20-30% cost savings
- ▲ Stable and Safe in Static and Seismic conditions
- ▲ Excellent Durability and Enhanced Stability
- ▲ Adheres to Indian Standard Codes and IRC Codes
- ▲ Look is like any other Concrete Retaining Wall

# INNOVATIVE PEOPLE

Sumedha Infra Projects Pvt. Ltd. is an organization shaped by innovation, integrity and technical competency in the fields of Design and Implementation of Cost-Effective Retaining Walls (*Patented Technology*), namely '**High-Rise Backfill™ Retaining Walls**', along with other diverse sectors of Civil Engineering which includes Land Development, Road Infrastructure and Earthwork. Our team consists of individuals with professional attitudes in various works that we undertake.

## VISION

To command a niche position in the High Retaining Walls and Soil-related Technology segment through a single-minded result-oriented pursuit of quality and customer commitment.



## MISSION

To deliver maximum value in our clients' projects by building cost-effective, stable and durable High Retaining Walls through the application of innovative technologies.



## CORE VALUES



### INTEGRITY :

We embrace the highest standards of ethical conduct.



### CLIENT FOCUS :

More than a consultant, we are a dependable co-traveler in our clients' journey to success.



### PROFESSIONALISM :

Agility, efficiency and performance make up the cornerstone of our business.



### GROWTH MINDSET :

We promote a culture of positivity, resilience and continuous improvement.



### PEOPLE FIRST :

We respect our people and empathize with them.

## BUSINESS MODEL

Our business model is based on implementation of the technology of **'High-Rise Backfill™ Retaining Walls'** and Land Development in different modules, suitable to the client's site, which consists of providing optimized Designs, Construction, Supervision, Geotechnical Exploration, Related Land Development, Road Infrastructure, Earth Work and Surveying. The Client who wishes to save equity in Retaining Walls and Land Development is at liberty to choose the module best suitable to him out of the various services provided. Our solutions in Retaining Walls are not only Cost-effective but are tailored to the specific needs of the project, ensure superior and assured quality with high safety standards and durability. Our mastery lies in optimization of Cutting & Filling qualities of a virgin site with optimized quantities of Retaining Walls.

## SUCCESS STORY

Sumedha Infra has achieved demonstrable success in constructing High Retaining Walls (4m and above and maximum till date upto 21m height). Our proven track record and our inspired vision underscore our steadfast commitment to our clients and their Prestigious and High Value projects. The growing scarcity of plain flat land and the high cost of land acquisition has become a major financial hindrance in Civil Infra Development. However, the utilization of available ground area can be considerably optimized by making use of our Retaining Walls. The retaining walls are constructed to hold back the earth, which would otherwise slide down the gradient.



National Highway Projects. Length in kms.



9m high walls for ROB of Central Railways.

The walls have a successful and long history of use till date in National Highway & Industrial Projects. Our esteemed clients include NHAI, Govt. of Maharashtra, Mahindra, TATA, Mercedes Benz, Bajaj, Hiranandani, Serum Institute & many leading Logistic Companies.



## PIONEERING WORK

At Sumedha Infra, we reduce the complexity and excessive cost of constructing Retaining Walls. Being experts in soil mechanics and optimized earth retaining solutions, we are proud pioneers of the '**High-Rise Backfill™ Retaining Walls**' technology.

Our Retaining Walls are marked by:

- Project cost reduction by 20% to 30% depending upon the site conditions and height.
- Excellent durability, which is due to the adaptation of customized wall geometry and professional workmanship which enables efficient construction of these walls in difficult site conditions.
- Exceptional stability in both static and seismic conditions.
- Optimal performance in nearly all types of strata and terrain.
- Good aesthetic appeal with its look like any other Concrete Wall.
- Less time for Construction than Conventional Retaining Walls.

## Why High-Rise Backfill™ Retaining Walls

It takes considerable time, effort and finances to build a Retaining Wall. India requires an investment of about Trillions of Rupees for Sustainable Growth henceforth. With scarcity of plain lands for infrastructure development, one can imagine the quantum of Retaining Walls that will be consequently needed to accomplish the desired infrastructure development across India. Retaining Walls have now become an integral element in infra development and cannot be avoided.

Owing to the stereotyped design and construction techniques adopted in conventional Retaining Walls, lots of resources in the form of concrete, steel, men, material and money, amounting to thousands of crores of rupees, get locked up. Hence any cost reduction in the construction of Retaining Walls, especially the high ones, is welcome, as the same equity can be fruitfully channelized towards other infrastructure development.

At Sumedha Infra, we add value in our clients' Retaining Wall project by reducing cost and optimizing resources judiciously without compromising on stability, safety and quality. Whether your concern is land optimization, erosion control, plugging water run-off or soil retention, the seasoned team at Sumedha Infra provides the right-fit solution. Clients across diverse sectors rely on us to deliver high-performance, cost-effective and superior quality Retaining Walls. We specialize in delivering unusually high Retaining Walls constructed up to 25m and above till date, that stand the test of time. Every Retaining Wall we build is marked by the right blend of innovative design, cutting-edge engineering and stellar workmanship.

## GLIMPSE OF OUR SUCCESS STORY





# HIGH-RISE BACKFILL™ RETAINING WALLS TECHNOLOGY

The concept originated a decade back with technological developments year-on-year and under the trade name 'Introjected Backfill®' technology. Later it was renamed as 'High Rise Backfill™'. The technology has matured with every passing year with respect to its utility on site in terms of ease of construction and reduced the construction time. The ability to reach exceptional heights even up to 25 meters and more than that and deliver cost savings in the range 20% to 30%, depending on site conditions, are perhaps its two biggest advantages. Sumedha Infra has been championing the application of 'High-Rise Backfill™' technology for many good reasons:

## REGULATORY COMPLIANCE :

The Retaining Wall technology conforms to and fulfils the Indian Standard (IS) and Indian Road Congress (IRC) norms. These walls can even be designed to match international codes.

## STABILITY & SAFETY :

The resultant designs and construction methodologies of this technology lead to Retaining Walls that are safe and stable, both in static and seismic conditions.

## IMMENSE EQUITY SAVINGS :

Considerable savings in equity can be accrued over conventional Retaining Walls depending upon the site conditions. This technology requires less Reinforcement and Concrete than Conventional Retaining Walls and is more stable than Conventional.

## ON-SITE ADAPTABILITY :

Retaining Walls designed using High-Rise Backfill™ technology need nearly half the base width than that required by Conventional Retaining Walls.

## TECHNICAL ADAPTABILITY TO UTILIZE AVAILABLE BACKFILL :

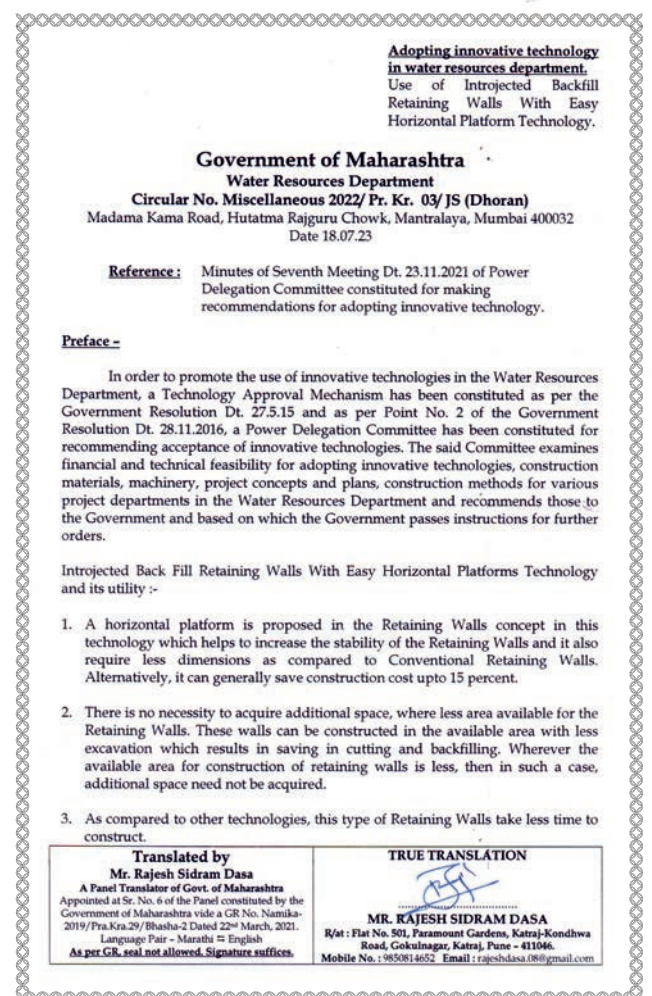
The team uses its technical capability to use backfill as is available on site, resulting in reduced logistics, Government charges and labour cost.

## UNUSUALLY HIGH WALLS :

The technology of High Retaining Walls results in cost-effective Retaining Wall solutions of exceptional heights, with maximum height constructed even up to 25m and more till date.

## CUSTOMIZED DESIGNS :

Designs are customized as per site conditions and adhere to the highest safety standards.



Circular by Govt. of Maharashtra  
(Irrigation Department)

## COMPARATIVE ANALYSIS

Particulars	Conventional Retaining Walls	High-Rise Backfill™ Retaining Walls
Base Pressures	Trapezoidal Pressure distribution with large variation in base pressure values on both sides	Uniform Pressure distribution on both sides
Savings in the Cost	Nil	Nearly 20% to 30% cost saving over conventional walls depending upon the site conditions. Saving starts from Excavation stage and there is a saving in Backfill material also
Base Width	Double the base width as required for Introjected Backfill	The Width required is nearly half the base width required for conventional retaining Walls
Reinforcement	1 to 1.7% of concrete quantity	0.35 to 0.50% concrete quantity
Serviceability in Seismic Conditions	Serviceable in Seismic Conditions but at 15 to 20% extra cost	Serviceable. The base pressures on both sides remain positive during Seismic Conditions resulting in stability even in earthquake conditions without extra cost. This is due to geometrical innovation of the wall
Time of construction	More time of construction compared to Introjected Wall	Less time of Construction due to less reinforcement of concrete quantity
Possibility of separation of wall from backfill soil	There is no embedment of wall component in the backfill soil, hence there is a possibility of separation of wall from backfill material	Due to the provision of platforms with innovative geometry, the wall becomes an integral part of the backfill soil, resulting in enhanced stability
Codal Provisions	Wall satisfies the Codal provisions	Wall satisfies the Codal provisions
Material of Construction	Concrete Grade as per IS 456 (Table 5)	Concrete Grade as per IS 456 (Table 5)
Factor of safety against overturning in static conditions (greater than 2 as per codal provisions)	More than 2	More than 2 ( <i>More stable than Conventional walls</i> )
Factor of safety against Sliding (greater than 1.5 as per codal provisions)	More than 1.5	More than 1.5 ( <i>More stable than Conventional walls</i> )

# MARKET SEGMENTS



Roads



Railways



Ports  
and Harbours



River Beautification  
Projects



Electricity  
Substations



Industrial  
Setups



Major  
Townships



Land Development  
Projects



Dams and  
Reservoirs



Airports



Bridges



Border Roads  
Infrastructure



Testimony of Sumedha's Robust Safety Policy and Culture