

INSYNC

NEWSLETTER

Dec - 2024

INSYNC - The Official Newsletter of Naidu Consulting



ENVIRONMENT
SOCIAL
GOVERNANCE
SUSTAINABILITY

Message From the MD

- 25 Years of Service Excellence To The Industry

Dear colleagues,

As we celebrate the end of another year, we also mark a monumental milestone—**25 years of operations in the civil engineering industry**. This time holds a special significance, not only as a time to reflect on the achievements of the past year but also as an opportunity to honour our company's growth and resilience over the past quarter of a century. Firstly, I must salute and honour Selvan Naidu for his incredible foresight in establishing Naidu Consulting, literally, from his garage.

From humble beginnings, our journey has been nothing short of extraordinary. We have faced countless challenges and navigated a rapidly changing landscape. From COVID lockdowns, Stage 8 load shedding and economic downturns to regulatory shifts and environmental considerations, we have faced our fair share of obstacles. Yet, through it all, we have grown exponentially. We have expanded our capabilities, broadened our portfolio and established ourselves as a trusted and innovative leader in the civil engineering sector.

This growth would not have been possible without the resolute dedication and hard work of our team, the continued trust and collaboration of our clients, and the ongoing support of the communities we serve.

I want to take a moment to express my deepest gratitude to **each one of our staff members**, our incredible team! You are all, collectively, the cornerstone of our success over these 25 years.

Each of you have played an integral role in helping us achieve our goals and push boundaries. Your commitment to excellence, professionalism and teamwork has enabled us to tackle complex projects with efficiency and innovation. I am deeply proud of the culture of collaboration, problem-solving and forward-thinking that we have developed at our company.

To our valued clients, we extend our sincerest thanks. Your trust and partnership have been vital to our success. Over the 25 years, we have had the privilege of working on an array of remarkable projects, ranging from large-scale infrastructure developments to community-driven initiatives. Each project has helped us build our reputation for delivering high quality, timely and cost-effective solutions.

Your confidence in our abilities has fuelled our growth and inspired us to continuously push the envelope, embracing new technologies and methodologies to stay at the forefront of the industry. Together, we have built more than just physical infrastructure—we have built lasting relationships grounded in trust and mutual respect. As we move into the future, we look forward to continuing our collaboration and finding new ways to serve our partners and contribute to their success.

As we celebrate our achievements, we must also **recognise the broader civil engineering industry in South Africa**. Over the past 25 years, the industry has undergone tremendous changes, and we have been privileged to contribute to its growth and transformation. Despite the challenges faced—ranging from fluctuating economic conditions to political uncertainty—the industry has remained a key driver of our nation's development. We have been fortunate to be part of this dynamic sector, contributing to the building and maintenance of critical infrastructure that supports the livelihoods of countless South Africans.

One of our greatest rewards of working in civil engineering is the ability to have a tangible impact on communities. As a company, we have always kept a keen focus on the social and economic challenges facing South Africa, particularly the high unemployment rate that continues to affect millions of people. Through the establishment of the Economic and Advisory Services Division, we have worked tirelessly to create jobs, both directly through our projects and indirectly through the skills development programmes we have implemented over the years. Our commitment to giving back to our communities has been one of the driving forces underlying our efforts to help reduce the unemployment rate and build a stronger, more prosperous South Africa.

Remember, we are not just building roads, bridges, and buildings—we are creating a future where opportunities are available for all.

As we celebrate this incredible milestone, we must never forget that the path to sustainable growth is an ongoing journey, and our success lies not just in the projects we complete but, in the relationships, we build and the



Message From the MD

- 25 Years of Service Excellence To The Industry

positive impact we create. As we enter a new year, let us remain united in our commitment to excellence, innovation and sustainability.

Together, we will continue to build a future that is not only **structurally sound but environmentally conscious and socially responsible**. To this end we will continue accelerating the transformative power of digital technology, data science and artificial intelligence (AI). These tools will empower us to innovate, optimise operations and unlock new possibilities. By leveraging data-driven insights, we will propel our company into a future where intelligent technologies drive success and growth.

In the coming years, we will continue to focus on expansion and growth in Saudi Arabia and Africa. These initiatives are in line with our push for expansion into international markets, driven by our Urban Infrastructure Division.

We will see rapid expansion of our Cape Town office on the back of our 5-year appointment with SANRAL for services related to Ad hoc Structures, as well as the vast roll out of infrastructure projects by the City of Cape Town, with which we have an eight-year appointment. Provision has been made for the acquisition of more office space in 2025 and the employment of new staff. Similar expansion is expected in our Gauteng

office, especially in the mining and energy sectors. The imminent appointment of a Functional Manager for Urban Infrastructure, who is set to start on 1st February 2025, will accelerate these initiatives.

So, with so many opportunities to look forward to, let us continue to nurture a culture that values not just what we achieve but **how we achieve it - with integrity, collaboration and a steadfast focus on the future**.

Here's to another 25 years of growth, sustainability and making a positive impact on our communities and our country. Have a joyous festive season and, most importantly, take care and be safe!

Best Wishes,

Mahendren



Restoring Resilience - Flood Damage M4 Repairs Completed with a Focus on ESGs

Protecting Communities, Enhancing Infrastructure, and Championing Sustainability

This project addressed flood damage from April 2022 at three locations along the M4 Highway:



Location 1: Situated near Boy's Town, along the M4 Highway.

Structural and drainage defects resolved with a 2.4m x 2.4m reinforced concrete culvert. The design solution allowed for the structure replacement with a single cell 2.4m x 2.4m in-situ reinforced concrete box culvert, improving the durability of the structure and its founding conditions.

Location 2: Located 200 meters further north along the M4 highway

Major drainage and structural damage repaired with a cast in-situ reinforced concrete box culvert consisting of 4 cells, each 2,4m x 2,4m.

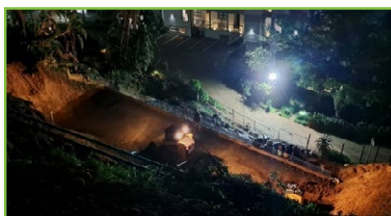


Location 3: Location 3 is located 750m north of the Westbrook Beach traffic circle, where an entire embankment collapsed and the southbound lane, leaving the whole section redundant and closed off to traffic from Tongaat River Bridge to Westbrook turning Circle.

A collapsed embankment rebuilt with a Green Terramesh Wall (Mechanically Stabilized Earth Wall). This was considered the best practicable solution due to the ease of construction, the aesthetic appeal of re-grassing the face of the baskets, the cost-effectiveness of the backfill, the reinstatement of the failed embankment to the natural slope due to the inclination of the basket faces and the ease of transport of construction materials.



Persistent rainfall caused 61 days of delay across the project.



ENVIRONMENT

Restoring Resilience - Flood Damage M4 Repairs Completed with a Focus on ESGs

Successes Achieved:

The Contractor was instructed to re-sequence his works to accelerate and prioritize the works at Location 3 to meet the Employer's deadline to have the road open to traffic by 14 December 2023 to coincide with the Employer's opening of the Tongaat River Bridge. As such the following was implemented;

The contractor prioritized this site through 24-hour Shifts at Location 3 to meet a tight deadline of December 14, 2023, despite severe rains, slope collapses, and resource shortages. A 65m-long, 16m-high wall was completed with 26 layers of Terramesh.

Community resistance led to constructing dual temporary carriageways in challenging watercourse areas for temporary deviations at locations 1 & 2. Design solutions mitigated water pollution and adapted to site-specific issues, like contaminated groundwater and space constraints.

Community Impact:

The Contractor strived to give back to the surrounding community in a wholesome effort to uplift the disaster-ridden area. The Contractor had given aid to local settlements in terms of materials to re-instate their homes after the tornado on 03 June 2024. The Contractor has provided aid to the Boy's Town Precinct with guard huts, platforms and a new boundary wall. The Contractor has also made use of local security companies and public transport services to provide a safe and secure working environment during the Contract.



Thelbridge Enterprise who's the Contractor, has provided opportunities for over 130 families from Boy's Town surroundings and Ward 58. This includes 57 Females and 73 Males, 56 Youth and 74 non-youth employed as well as 1 physically impaired person. These opportunities have helped the locals to develop skills, equipping them to be eligible for further future opportunities. Thelbridge Enterprise has given back R 6 628 107.27 in salaries to locals.

In terms of Targeted Enterprises, twenty-three(23) subcontractors and sixteen(16) suppliers amounting to R 50 265 509.20 of opportunities

Conclusion:

Despite obstacles, the project was completed ahead of schedule, reopening on September 30, 2024. Collaboration between SANRAL, Naidu Consulting, and Thelbridge Enterprise ensured high standards and community upliftment, enhancing infrastructure and championing sustainability. This project serves as a beacon of hope for the community and as the benchmark for service delivery.



Residents of the Nguni complex with the team that worked around the clock to do repairs on the M4.



ENVIRONMENT



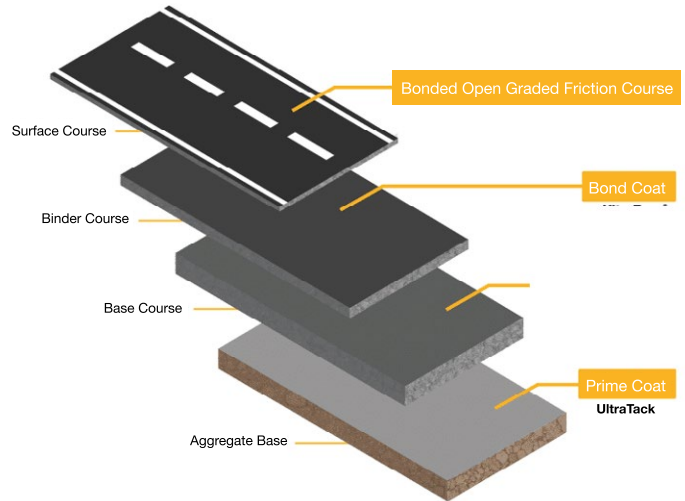
Strength Beneath the Surface - Bond Coats - Driving Sustainable, Durable Roads Aligned with ESG Principles for a Resilient Future



ENVIRONMENT

The Unsung Heroes of Road Construction

Ever wondered what keeps roads smooth and durable under heavy traffic? Meet bond coats—the adhesive layer in road construction. Like mayonnaise in a sandwich, bond coats bind asphalt layers, ensuring firm adhesion and preventing damage caused by layer separation. It's a thin layer of bitumen (a sticky, tar-like substance) applied between the asphalt surfacing layer and a bituminous basecourse or concrete layer, to ensure they adhere firmly.

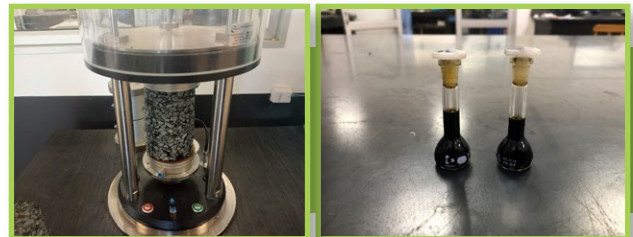


Roads endure heavy trucks, temperature changes, and weather, which can strain pavement layers. Weak bonds can cause delamination and cracking, making optimal bond coat performance essential.

Naidu Consulting, commissioned by SANRAL, embarked on a research journey to investigate various bond coat products available in the market. The goal? To find the best performing bond coat in terms of Shear and Torque performance, that could keep our roads well bonded. This investigation included a mix of literature reviews, laboratory tests, and practical evaluations.

The Pavement team analyzed research to identify factors affecting bond strength, such as tack coat type, application rate, and temperature. They conducted tests to evaluate bond coat performance, including:

- **Chemical Adhesion Tests: Assessing adherence at various temperatures.**
- **Mechanical Tests: Measuring shear and torque strength under stress.**
- **Characterization Tests: Using SARA analysis to examine bitumen properties.**



Notably, a boiling test highlighted the bond coat's strong adhesion under extreme conditions. The study concluded with the selection of the top-performing product for shear and torque strength.



The team is conducting field trials to test the top-performing bond coat from lab studies on various interfaces, such as concrete-to-asphalt and asphalt-to-asphalt, across different temperatures. These trials aim to guide industry standards for bond coat performance under diverse conditions.

The research offers valuable insights to enhance road durability, leading to smoother rides, fewer potholes, and less frequent repairs. While often overlooked, bond coats play a crucial role in keeping roads safe and reliable, ensuring your journey is smooth and comfortable.



Bridging the Past and Future - Canelands Pipe and Pedestrian Bridge

Innovative Design Meets Heritage Preservation on the Canelands Bridge – Delivering ESG Values in Sustainable Infrastructure

Naidu Consulting has delivered a 165-meter-long prestressed concrete bridge over the Mdloti River, merging historical preservation with modern innovation. By dismantling the century-old steel railway bridge which had surpassed its 100-year lifespan (a designated heritage site), and integrating its substructure into the new design, the project honours the past while ensuring a sustainable future.

Innovative Engineering:

The term “Constructing a Bridge within a Bridge” refers to the novel approach of constructing a new post-tensioned bridge deck within the existing steel structure. The “bridge within a bridge” concept overcame significant challenges, including advanced deterioration and COVID-19 restrictions, with cutting-edge BIM technology, 3D designs, and drone imagery. Photo-luminescent balustrades enhance safety and sustainability, reducing lighting needs and vandalism risks.

Social Impact:

The upgraded pedestrian infrastructure ensures safer, more accessible pathways, benefiting residents of Wards 58 and 60. The project exceeded Labour and Contractor Participation Goals, creating tangible benefits for the local community.

Environmental Sensitivity:

Blending impeccably with the natural environment, the bridge’s design includes planter boxes and minimized ecological disruption, requiring no additional environmental authorizations.

This project exemplifies Naidu Consulting commitment to preserving heritage, advancing social equity, and prioritizing sustainability.

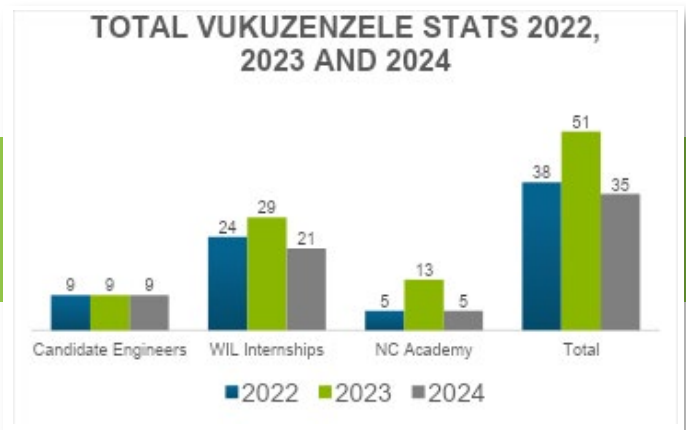


SOCIAL

Rise and Shine - Empowering Youth Through the Vukuzenzele Program – Advancing Youth Development, Transformation, Job Creation, and Sustainability Aligned with ESGS Goals

By integrating life skills with hands-on training, Vukuzenzele prepares participants for the industry while advancing economic transformation and job creation. The program aligns with South Africa's National Development Plan 2030, Priority 2, promoting sustainable development.

Our Vukuzenzele Program stands as a steadfast driver of transformation and economic growth, demonstrating our resolute commitment to equipping young talent with training, education, and work opportunities. With South Africa's unemployment rate at 33.7% (Source: IMF, Oct 2024), this initiative addresses critical challenges while empowering the next generation. Since its inception, 54 trainees have passed through our Academy of Excellence, with 18 retained, showcasing the program's impact and since 2022 we have seen 124 young talent be a part of Vukuzenzele Program.



Our youth championing cutting-edge skills essential for business evolution

Our focus remains steadfast on equipping employees for the future by providing them with cutting-edge skills essential for business evolution. These include advanced competencies in AI, BIM, Data Science, and digital technologies tailored to the engineering sector's dynamic landscape.

Mentorship

Through our mentorship framework, we've created opportunities for emerging engineers to engage in projects aligned with the 11 ECSA outcomes. This approach not only introduces them to diverse responsibilities but also empowers them to achieve critical milestones while honing essential engineering expertise. Four of our employees gained their professional registration in 2024 and 12 have further submitted their applications to receive outcomes in the first quarter of 2025.

Our Vukuzenzele Program positions Naidu Consulting as a transformation leader, empowering aspiring engineers, creating jobs, and driving sustainability in South Africa's engineering industry.

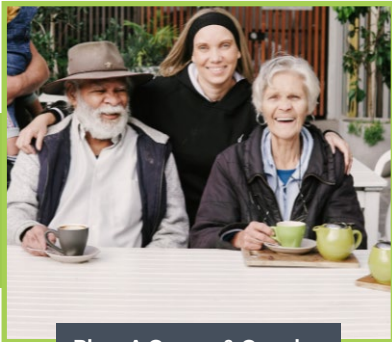


SOCIAL

Naidu Consulting's 2024 Community Impact Highlights - Aligned with Our ESGs Social Ambition

At Naidu Consulting, giving back to our community is woven into the fabric of who we are. This year, we proudly supported a range of impactful initiatives, leaving smiles and warmth wherever we went. We collected heartfelt gifts to bring joy to our senior citizens, we donated projectors and screens to two schools, helping unlock brighter futures for learners. With compassion in action, our team came together to provide much-needed meals for the less fortunate. Contributions to the Verulam Child and Welfare Society furthered vital efforts to uplift at-risk children. Our collection for the Ethelbert Child and Youth Care Centre exemplified the spirit of giving in honour of Madiba. Ensuring comfort and care during the cold months, we rallied to keep our communities warm.

These initiatives reflect our commitment to building a better tomorrow while staying true to our ethos of sustainability and humanity. Together, we are not just engineering change—we are inspiring it.



Bless A Granny & Grandpa



Flambel Primary and Sandfields Primary Handover



Mandela Day



Donation Child Welfare Verulam



Sandwich Drive



Ethelbert Child and Youth Care Centre Support for July

SOCIAL

Leading the Way - Naidu Consulting on Global Stages, Driving ESGs Innovation Through Pioneering Research and Thought Leadership

Our team's participation on international stages demonstrates our commitment to advancing not only our industry but also the global discourse on sustainability, resilience, and future-ready solutions.

Our Principal Specialist, Mohamed Parak, set the tone by presenting a groundbreaking paper, "Designing for Longevity, Resilience, and Extreme Events", at the prestigious International Association for Bridge and Structural Engineering in Manchester, United Kingdom.

Two of our rising stars, Thobekile Ngcobo and Kerusha Ayer, represented us at the 7th International Conference on Concrete Repair, Rehabilitation, and Retrofitting. Their presentations on advanced repair techniques and innovative rehabilitation solutions showcased not only their expertise but also Naidu Consulting's investment in developing young talent to solve global infrastructure challenges.



Further cementing our presence in thought leadership, Sthabile Sibiya, one of our talented technologists, chaired the Chemistry Focus Panel at SatBinderrr, leading discussions on cutting-edge advancements in bituminous binders.

Meanwhile, Tarlia Gerald, a young engineer, presented a forward-thinking paper on Sustainability in Engineering, demonstrating our commitment to sustainable development.

GOVERNANCE



Leading the Way - Naidu Consulting on Global Stages, Driving ESGs Innovation Through Pioneering Research and Thought Leadership

On the leadership front, Managing Director Mahendren Manicum represented Naidu Consulting by invitation at the FIDIC Global Leadership Forum, engaging with global leaders from across the globe to play a key role in helping to address global challenges and creating a united, influential, international voice for the infrastructure industry.



Our commitment to advancing research and innovation extends beyond participation. In 2024, we proudly sponsored the SACQSP International Research Conference, emphasizing our dedication to driving transformative conversations in the built environment.



These achievements highlight Naidu Consulting's role as a trailblazer in engineering, sustainability, and leadership. By championing diverse voices—from seasoned experts to young engineers—we're building a culture that thrives on innovation, collaboration, and excellence.

We are shaping the conversation, advancing the industry, and positioning ourselves as pioneers in engineering excellence. Together, we are paving the way for a more resilient, sustainable, and inclusive future.

GOVERNANCE

Driving Innovation - From Asphalt to Algorithms – Harnessing Python to Build Sustainable, Resilient Pavements Aligned with ESGs Goals.



Embracing Python programming has revolutionized incremental design in pavement engineering, offering a transformative approach to optimizing performance and sustainability. Incremental design involves iterative adjustments to pavement parameters to enhance durability and efficiency. Python, with libraries like NumPy, Pandas, and Matplotlib, surpasses traditional tools like Excel, providing flexibility to integrate real-time data and adapt models dynamically.

While the transition to Python posed challenges, expert guidance from our Principal Specialist Steph Bredenhann made mastering the language attainable. Key achievements include converting the Bailey Method into a Python program, and optimizing asphalt mix design for accuracy and performance.

This technological shift promises more resilient, cost-effective pavement solutions, paving the way for a sustainable infrastructure future.



Winner SANRAL SAICE National Awards Technical Excellence Structural Project Of The Year | 2024

The catastrophic KwaZulu-Natal floods of April 2022 caused extensive damage to the Mhlali River Bridge, located along SANRAL's National Route 2. The solution for the jacking of the bridge deck back into position called for ingenuity, originality, and innovation. The temporary works solution implemented for this work, along with the construction work carried out on the bridge to prevent similar damage from occurring in the case of a similar future flood event has been showcased at IABSE Symposium in Manchester. The highly technical construction work had also been successfully completed in an emergency time frame with no compromise on quality and has made a significant positive social and environmental impact to the local community.



SUSTAINABILITY

Revolutionizing Connectivity - SPUI – The Smart, Safe, and Sustainable Solution Driving ESGS Goals for Future-Ready Infrastructure



SUSTAINABILITY

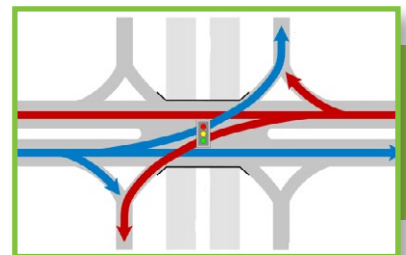
The South African National Roads Agency SOC Limited (SANRAL) appointed Naidu Consulting (Pty) for the upgrade of the National Route N2 section 25 (N2-25) from the Umgeni interchange (km 20.72) to South of the Mount Edgecombe interchange (km 30.45)



The KwaMashu Interchange was upgraded to a diverging diamond-type interchange in 2013 and is facing emerging capacity challenges. The interchange is a combination of left and right turns at ramp terminals with traffic signals at cross-over points on the Curnick Ndlovu Highway / Chris Hani Road. As part of the concept design investigations for the interchange, three interchange configurations were considered namely the diverging diamond interchange (DDI), conventional diamond interchange and the Single Point Urban Interchange (SPUI).

Upon in-depth analysis of the various proposed interchanges, the SPUI represented a refreshing and innovative approach to interchange design approach due to its compact and space-efficient design, improved operational efficiency, reduced accident severity and ability to provide optimal traffic streaming conditions.

Unlike traditional configurations, such as conventional diamond or cloverleaf interchanges, a SPUI reduces right-of-way requirements and allows right-turning traffic from both directions of the intersecting roadways to turn simultaneously without crossing the path of the opposing right turns. The result is a streamlined layout that accommodates simultaneous right turns from both directions, facilitating smoother, quicker traffic movement while reducing potential conflict points.



Whilst the SPUI may appear unfamiliar to road users due to its uniqueness, as when drivers making a right turn may become confused as oncoming turning traffic passes them on the left-hand side. Additionally, given that a SPUI allows only left and right turns from the ramps, vehicles may not re-enter the freeway they are departing in this case the N2.

By comparing the various implications and interchange configurations, Naidu Consulting has identified the SPUI as a viable solution to provide a safe, efficient, and sustainable infrastructure asset within the eThekweni Municipality. Whilst the alternate options are under consideration, the SPUI balances innovation with practicality and forms part of Naidu Consulting's attempt to illustrate a modern and space-efficient solution.



Building Safer Roads - Smart Mobility on National Route 3, Section 3, between Ashburton Interchange (KM 0.8) and Murray Road (KM 5.9)

Roads and Highways, in collaboration with SANRAL, was appointed in expanding the north and southbound carriageways of the National Route 3, Section 3. The existing carriageway consists of two lanes and a climbing lane whilst the proposed cross-section consists of four lanes with a climbing lane. This project faces two major constraints. The first being the limited land available due to surrounding developments along the corridor. Secondly, SANRAL approved the strategy to maintain the existing horizontal and vertical alignment avoiding extensive earthworks and intruding into rock and unstable material. Due to this approach, embankment heights have increased to as much as 20 meters, posing a potential hazard if vehicles were to leave the roadway. In our roadside hazard risk assessment, various elements and mitigation measures were considered, highlighting the need for innovative safety solutions, particularly in the use, and effectiveness of traffic safety barriers.



Innovative Restraint Systems

The standard SANRAL guardrail, with an N2 containment level designed to hold a passenger car and a 2.5m working width, was deemed unsuitable, prompting an investigation into various restraint systems. Pretensioned wire rope restraints were investigated as they align with global safety trends and achieve an H1 containment level implying that, in theory, a rigid-body truck can be contained. These systems absorb impact energy, guiding vehicles back onto the road using their kinetic energy while offering reliability, cost-effectiveness, and ease of maintenance.

Higher classification guardrails featuring bolted anchor steel posts achieve an H2 containment level, providing enhanced safety for heavy vehicles compared to standard steel guardrails. Additionally, permanent H4b containment-level barriers can contain articulated vehicles, minimize traffic disruption, and offer a more cost-effective approach to safeguard errant vehicles on high-risk curved sections of roadway.



Setting a New Standard

Each solution considered design factors such as traffic predictions, shoulder width, embankment height and slope relationship, alignment radii, and the proposed system's containment level and working width. These considerations were aligned with Netsafe's Risk Assessment Procedure for South African Roads (RAPSA). The N3 Ashburton project advances South Africa's infrastructure, showcasing Naidu Consulting's commitment to developing a smart, safe, and sustainable transportation system.

SUSTAINABILITY

Strengthening Global Networks - Driving Sustainability Through ESGs Excellence



SUSTAINABILITY

Celebrating Success

International Projects and Partnerships:

Our global reach expanded significantly this year, anchored by the strong relationships we've cultivated through visits to the Middle East and relationships built in the SADC region. This culminated in securing two prominent international projects—the Dirab Logistics Park in Riyadh and The Rehabilitation of the MAV Towers in Mauritius. These projects not only reinforce our international agenda but also provides our team with exceptional opportunities to engage in groundbreaking work, with many set to travel and contribute directly in 2024 and 2025.



Our partnerships in Africa, the Middle East, Singapore, and India have laid a solid foundation for scaling our international portfolio further in 2025.

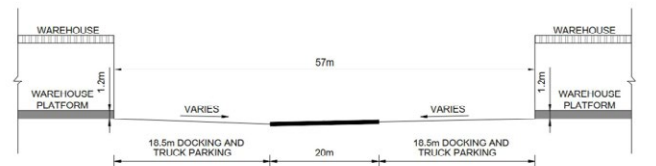
Naidu Consulting's Role in the DIRAB Logistics Park Concept Master Plan

Naidu Consulting is proud to be a key player in the development of the DIRAB Logistics Park Concept Master Plan, an ambitious initiative aimed at establishing a modern, efficient, and environmentally sustainable logistics hub. Strategically located to cater to evolving industrial and logistics demands, this project exemplifies the company's commitment to delivering cutting-edge engineering solutions. It also represents a milestone for Naidu Consulting as it strengthens its foothold in the international market, expanding its reach beyond local projects and showcasing its expertise on a global stage.

The master plan encompasses comprehensive infrastructure strategies across multiple disciplines:

- Roads:** The park features a well-planned road network anchored by a bi-directional main access road, with one-way counterclockwise loops optimizing traffic flow. The design incorporates docking zones with 45-degree angled parking, ensuring seamless vehicular movement for logistics operations.

Infrastructure strategy : Roads



TYPICAL CROSS SECTION A - INTERNAL ACCESS ROADS WITH 45° DOCKING (DOUBLE SIDED)



- Site Grading:** Leveraging the relatively flat topography, the grading plan minimizes earthwork volumes while ensuring effective drainage. Slopes near the wadi are carefully managed to align with design grades and facilitate stormwater discharge into natural systems.
- Stormwater Management:** A combination of underground piped systems and graded inlets ensures efficient drainage during a 1:10-year storm, while roof drainage systems are designed for 1:100-year events. Stormwater outlets integrate seamlessly with the wadi to manage runoff sustainably.



Strengthening Global Networks - Driving Sustainability Through ESG Excellence



- **Water Supply:** Reticulation pipelines sourced from an existing water main provide a reliable water supply to all facilities. Fire flow requirements are accommodated through appropriately sized underground hydrant systems.
- **Sewer Reticulation:** Designed to address the potential absence of municipal sewer connections, the system incorporates gravity pipes leading to a low point, where wastewater can either be pumped or treated onsite.
- **Power and Lighting:** An underground medium-voltage (MV) ring-feed system ensures redundancy and reliability, with mini-substations integrated into buildings to reduce the risk of damage. Solar energy integration on rooftops is proposed to lower energy consumption and enable EV charging points.
- **ICT and Security:** A sleeved network with access points supports communication infrastructure, while a robust CCTV system offers perimeter surveillance and license plate recognition at entrances, ensuring security throughout the development.

This landmark project demonstrates Naidu Consulting's ability to deliver world-class solutions that meet international standards. By participating in the DIRAB Logistics Park project, Naidu Consulting has solidified its reputation as a trusted engineering partner in the global market, paving the way for future collaborations on international projects.

EMPOWERMENT - An Engineering Perspective

I had the privilege of contributing to the technical execution and design development, which was both challenging and deeply rewarding. My responsibilities included conducting detailed site assessments to validate existing conditions and verify the assumptions that informed the design. I played an active role in implementing the grading strategy by aligning proposed levels with the site's natural contours, minimizing earthworks, and optimizing stormwater flow into the wadi system.

Additionally, I was involved in coordinating utility layouts, ensuring seamless integration of water, sewer, and electrical systems into the overall infrastructure design. Working alongside a multidisciplinary team exposed me to advanced engineering practices and solutions that meet international standards.



This project has been a transformative experience, significantly enhancing my technical expertise and expanding my understanding of infrastructure design on a global scale. Collaborating on such a complex and large-scale development has not only deepened my knowledge but also strengthened my ability to merge sustainability principles with engineering solutions. Being part of this project has reaffirmed my commitment to delivering excellence in every technical endeavour and has prepared me to tackle even more ambitious projects in the future.

The DIRAB Logistics Park has not only elevated Naidu Consulting's profile as an international engineering consultancy but has also allowed me, as part of its skilled team, to grow professionally and contribute meaningfully to a globally significant project (Bonga Mhlungu).



SUSTAINABILITY

Building a Sustainable Future - Reducing Carbon Footprints and Enhancing Climate Resilience in Civil Engineering



In recent decades, the civil industry has undergone significant transformations driven by technological advancements, urbanization, and a demand for infrastructure that meets both human and environmental needs. However, as the world grapples with the accelerating impacts of climate change, the civil sector faces mounting pressure to adapt and become a key player in addressing these global challenges. Moreover, the conversation around climate change has transitioned from "What is climate change?" to "What is being done to combat climate change?"

Two critical components of this transformation are climate resilience and carbon emissions reduction, both of which are reshaping how civil engineering projects are conceived, designed and implemented. With the promulgation of the South African Climate Change Act in July of this year, the urgency for substantial climate change movement has intensified. With the civil engineering sectors use of high carbon dioxide equivalent (CO₂e) emitters such as concrete, cement and steel, civil engineers are pivotal in the shift towards climate resilient and carbon efficient infrastructure.



Designs that minimise on-site CO₂e emissions, accommodate present and future climate change stressors and highlight alternate materials and/or energy are pivotal in this shift. The future of civil engineering lies in integrating sustainability and climate resilience into every project phase. For civil engineers to successfully navigate the twin challenges of climate resilience and carbon emission reduction, collaboration and innovation is essential. Policy makers, asset owners, material suppliers, designers and contractors play a vital role in supporting this transition through incentives for sustainable practices, stricter carbon emission regulations, and investments in green technologies. Furthermore, a commitment to long-term thinking is necessary - investing in infrastructure today is investing in the future of our cities and communities.



By embracing innovation and resilient design, civil engineers can help create infrastructure that serves humanity's needs while protecting the planet for future generations and building a more sustainable and equitable world for generations to come.

SUSTAINABILITY

ESGS

ESGS (Environmental, Social, and Governance Sustainability) is at the heart of everything we do. Our 2024 efforts reflect our commitment to sustainable innovation, ethical practices, and social responsibility. Here's how we made a difference;



Environmental Stewardship

- We maintained our ISO 14001 DEKRA Certification, demonstrating continuous dedication to environmentally sustainable practices aligned with international benchmarks and South African legislation
- We balanced in-person client engagements with virtual interactions, significantly reducing travel-related emissions. Our shift to virtual training saved an estimated 0.73 tonnes of CO2 and one tree, showcasing how small changes can yield big environmental gains.
- Delivered virtual training to 369 learners across 9 provinces, breaking barriers and enabling accessibility while reducing environmental impact.
- Established an office carbon footprint baseline for reporting.
- We reduced office paper purchases by 14%, from the prior year.
- We utilise the principles of reduce, reuse and recycle.
- We chose trenchless installation techniques for the DN315 sewer rising main in Cape Town, preserving local ecosystems by minimizing excavation, reducing noise and dust, and ensuring smoother traffic flow.

Social Responsibility

- We ensured continuous adherence to our ISO 45001 DEKRA Certification, aligning our Health & Safety compliance with our country's legislation and regulations.
- We partnered with the KZN Department of Transport to trial luminescent concrete kerbing on the P714 project, enhancing pedestrian safety and setting the stage for sustainable urban mobility solutions..
- During flood damage repairs, we cleared debris and restored river embankments with local labour. Our efforts exceeded SANRAL's Community Participation Goals (CPG), positively impacting women and disabled individuals.
- We contributed to multiple Corporate Social Responsibility Initiatives.
- We conducted roadside hazard assessments and implemented traffic safety barriers using RAPSA cost-benefit analysis, ensuring safety without economic compromise.

Governance and Sustainability

- ISO 9001 DEKRA Certification complies to an international standard for Quality practice aligned to our country's legislation and regulations.
- We reinforced our robust code of conduct and ethics, guided by our memberships with ECSA and SAICE. These principles strengthen our policies, ensure compliance, and instil trust.
- We continued investment into staff training and capacity building, empowering our teams to uphold best practices and drive long-term organizational success.
- We leveraged our integrated management system to ensure legal and financial risk mitigation, promoting transparency and accountability across all operations.