

Name of Project / Product: Ground Based Global Positioning Systems

Project Team: *Developer / Owner* SAAB Grintek

Project Manager Tim Tasioulas (Tass Engineering)

Main Contractor Grintek

Hot Dip Galvanizer Armco Galvanizers

Tonnes & Type of Steel: 15 tons per unit of structural steel

Project Inception Date: 2007 - 2009

Project Value: R35 million

Description of Project: Ground based global positioning systems for ATNS. Air Traffic Management Systems. Doppler



Introduction:

From small beginnings in 1968, Tass Engineering has grown to become one of South Africa's leading Structural Engineering companies.

From their reef headquarters in Spartan, their operations cover the entire country, including the neighbouring states of Namibia, Botswana, Zimbabwe, Mozambique and extended to exporting structural steel to the rest of Africa.

Tass Engineering has considerable experience in private sector construction work and number among their clients leading architects, engineers, quantity surveyors, developers and construction companies.

For the communication network of Telkom and Eskom they have specialised in the construction and the erection of self supporting structural steel towers from 15 to 80 metres high throughout the Republic, including a rural telecommunications network in Swaziland and two complete satellite antennas for Telkom SA.

Tass Engineering undertakes steelwork to client's requirements and specifications. Whether it be factories, bridges, stadiums, warehouses, towers, satellite antennas, shops, or shopping centres of any size, if it's made of steel then they make it. Quality is the first priority and stringent quality control is practised from manufacture through to erection and completion. Their Quality Management and Quality Assurance Systems are based on SABS ISO 9002.

With the workshop area of over 4000m² serviced by six overhead cranes, Tass Engineering is capable of handling up to 350 tons per month. In order for Tass Engineering to support this magnitude of steel they have a fleet of trucks, trailers and two 25 ton mobile cranes to ensure speedy erection.

Recent achievements include: The new Metro Concourse for Park Station and the lower main roof structure at the International Departures Terminal Johannesburg International Airport. Bruma Autopark. Atrium roofs at Gateway 2, Michelangelo Hotel and Sandton Square; steel balustrading to the Johannesburg Athletic Stadium; various Microwave towers; various shopping centre complexes.

Works Specifically Undertaken in the Air Traffic Management Arena

1. Design, supply, fabrication, hot dip galvanising, deliver and erection of 3m and 5m high 30m diameter DVOR's including all civil works, fencing , yard stone, etc.
 - 1.1. Cape Town International Airport.
 - 1.2. ORIBI Airport Pietermaritzburg.
 - 1.3. Polokwane Airport.
 - 1.4. Ceres top of mountain (civil works and erection to be complete by end 2009)
 - 1.5. Hofmeyer.
 - 1.6. La Mercy Airport (currently in progress).
 - 1.7. Gabarone Airport Botswana.
 - 1.8. Francis Town Airport Botswana.
 - 1.9. Hartebeespoort.
 - 1.10. Sun City Doppler upgrade Pilanesberg.
 - 1.11. Greytown Airport Kwazulu Natal.
 - 1.12. Greyton — top of mountain — Western Cape.
 - 1.13. Nieuwoudtville— Northern Cape.
 - 1.14. Port St Johns — Eastern Cape.
 - 1.15. Ladysmith—Kwazulu Natal.
 - 1.16. Gorge—Western Cape.
 - 1.17. Mwanza — Tanzania.

2. 5m CVOR's — Supply, fabricate, hot dip galvanising, delivery and erection, including all civil works.

- 2.1. 5m Training doppler at OR Tambo International Airport.
- 2.2. 5m CVOR Kirnberley.
- 2.3. 5m CVOR Welkom.
- 2.4. 5m CVOR Petrusville.
- 2.5. 5m CVOR Sishen.
- 2.6. 5m CVOR Victoria West.
- 2.7. 5m CVOR Mafikeng.
- 2.8. 5m CVOR Zanzibar Tanzania.
- 2.9. 5m CVOR Warden
- 2.10. 5m CVOR Sutherland.

3. Design, supply, fabrication, hot dip galvanising of antenna rings.

- 3.1. OR Tambo International Airport
- 3.2. Kilimanjaro Tanzania / Kenya.

4. Weather Tower.

- 4.1. Nquthu — 1 5m weather tower — Dundee

The DVOR/CVOR system is an international standard for short range navigation, providing bearing information to pilots. It offers improved performance for locations, with unfavourable terrain conditions, owing to a wide-aperture antenna system and utilisation of the Doppler Effect.

Motivation

Obviously "Air Traffic Control" is not something that can be stopped every couple of months for routine maintenance, so it is therefore obvious that a corrosion protection with a long life is required. What better than a hot dip galvanized product?!
Need we say more?

Innovation and the Promotion of Benefits

As can be seen by the attached list, these DVORs and CVORs are situated in all kinds of environments and areas of the country, having chosen a galvanized coating makes this product suitable for all types of conditions.

With a galvanized coating, the product is of a neutral colour and therefore it fits in wherever it is positioned and has a very good aesthetic finish.

Improved Technology

There is a very strong teamwork must exist between Tass Engineering and Grintek purely due to the long time frame of this project and the vast expanse over which the DVORs and CVORs are situated.

The project in it's self promotes safer air travel by upgrading the navigational systems available. This is a tremendous input to improving the local standard of navigational facilities.

Promote Professionalism

Now that the huge project has been tackled, there must be a large amount of people from various professions that will see the fantastic advantages of galvanizing over painting.

The long-term quality of this project will promote long-term partnerships and will be a very good article for promotional purposes and even a very interesting case study. Obviously, as mentioned above, there was and still is teamwork needed to complete such an enormous project successfully.

Provide Service

By having used a reputable Galvanizer such as Armco, the customer is assured of a high quality product and the sound back up, combined with the HDGASA if the need should arise. This will ensure customer satisfaction and service.

As Tass Engineering has been involved in Galvanized projects for many years, it was not necessary to do any training with them.

All parties concerned will benefit from such a project as it is a fine quality, long-lasting and a quality product.

Celebration of Superiority

Standing out all over the country must make this a very visible and high profile project. As it will look good for many years to come, it will attract attention for the same period.

Dissemination of Knowledge

As our customer is well informed about galvanizing, it was not necessary to inform them of any of the pro's or con's of our product.

The end user has now a greater knowledge of galvanizing and the advantages there of.

The customer is always training and improving his employee's knowledge, so any involvement in such a project must have a positive effect on them.

Market Growth

As this project ran well for a lengthy period and without problems, it can only be a good advertisement for the promotion of Hot Dip Galvanizing and obviously for Armco as well.

As this project is a success there will more than likely be more requests for galvanizing of similar projects in the future.

Being a country wide project the reputation of galvanizing is also country wide.

Sustainable Resources

As already mentioned an air traffic control device can not be switched off from time to time for maintenance, so therefore a galvanized product which is maintenance-free is the way to go.

Hot dip galvanizing is one of the best corrosive coatings available so here the customer gets the best of both worlds.

Exceptional Merit

One of the things that makes this project so special is the fact that it is basically covers the whole country. This in its own must have been a tremendous logistics problem.

Conclusion:

I believe that purely for the enormous area which this project cover should make it a winner.

