

HUTTE HBR 605 DELHI ONE PROJECT – NEW DELHI - INDIA - 2012

CUSTOMER

L&T GeoStructure – INDIA

JOB SITE

- Project : Delhi One – New Delhi , India
- Work : Vertical Ground Anchor
- Owner of Project : Three C Universal Developers Pvt. Ltd.
- Main Contractor : L&T
- Sub Contractor : L&T GeoStructure
- Site Location : Delhi One is located on the DND Flyway between Delhi and Noida

SOIL FEATURES

- Layer 1 - 0.0m to 2.0m ----- Silty Sand / Sand Silt
- Layer 2 - 2.0m to 25.0m ----- Fine Sand with Gravel
- Water table at the depth range of 10.6m to 12.0m

EQUIPMENT

- Three number of Hutte HBR 605 – Hydraulic Drilling Rigs were used for executing vertical anchor
- Hutte HBR 605 arranged with :
 - Max Power of 147 kW and a Hydraulic system with two main pumps “Load Sensing”
 - Have Double-head drill unit – Rotary / Rotary
 - Fitted with Clamp M2Z / M2SZ – Diameter ranges from 40mm to 254mm having maximum Clamping force of 145kN
- Drill Rod – Auger Drill Rods of length 2m Ø115mm and Ø170mm
- Casing of length 2m Ø142mm and Ø 200mm
- Diameter of Drill bit 95mm & 175mm and Casing Shoe of Ø 130mm and Ø 203mm
- Grouting done at 15-25 bar of pressure

JOB FEATURES

“Delhi One” - a Rs.2 billion (Euro 29 million) mixed land use development project promoted by Three C Universal Developers Pvt. Ltd. The project is located in the stretch between Delhi-Noida-Delhi Flyway and Sector 16-B of Noida, Uttar Pradesh, India. This mega project incorporates of High rise - residential, commercial, retail and hospitality zones is spread across 12.5 acres.

The work for this project involved the drilling , assembly , installation , grouting and stressing of 1200 nos of vertical anchors to anchor the raft foundation to the ground.

L&T GeoStructure was awarded the project in April 2012 as a specialty contractor from L&T Construction. As per the design , drilling and installation of 1200 nos of vertical anchors , capacity of 60T have to be done in which two different dimension of vertical anchors were present -:

1. Length 14m (Free Length – 5m , Fixed length – 9m) Ø 200mm , Capacity 60T -----
1020 nos of Vertical anchors
2. Length 20m (Free Length – 5m , Fixed length – 15m) Ø 125mm , Capacity 60T -----
180 nos of Vertical anchors

Drilling of depth 14m and 20m for dia 200mm and 125mm respectively was executed by Hutte HBR 605 Hydraulic Drilling Rig fitted with double rotary head , One rotary was used to drive the casing and the second rotary was used to drive auger drilling rods.

In spite of the congested space at site there was productivity of 250m per shift for each rig

The project was carried out with the design and execution of the following:

- Marking the point by surveyor.
- Positioning the rig and the mast to be at 90 degrees for vertical anchor.
- Casing and drill rod should be inserted and drilling started with water flushing .
- Every 2 meter , addition of rod and casing .
- On reaching desired depth i.e. 14m and 20m ,removal of drill rod one by one .
- Installation of anchor into it (5 strings and four hose pipes) .
- Primary grout is done 15 bar.
- Then one by one removal of casing.
- Secondary grout at 25 bar (1st Grout Pipe ,2nd Grout Pipe & 3rd Grout Pipe).
- After some days stressing is carried out using power pack for capacity of 60T.
- At last MS bearing Plate ,Wedge block and Wedges to lock the anchor.

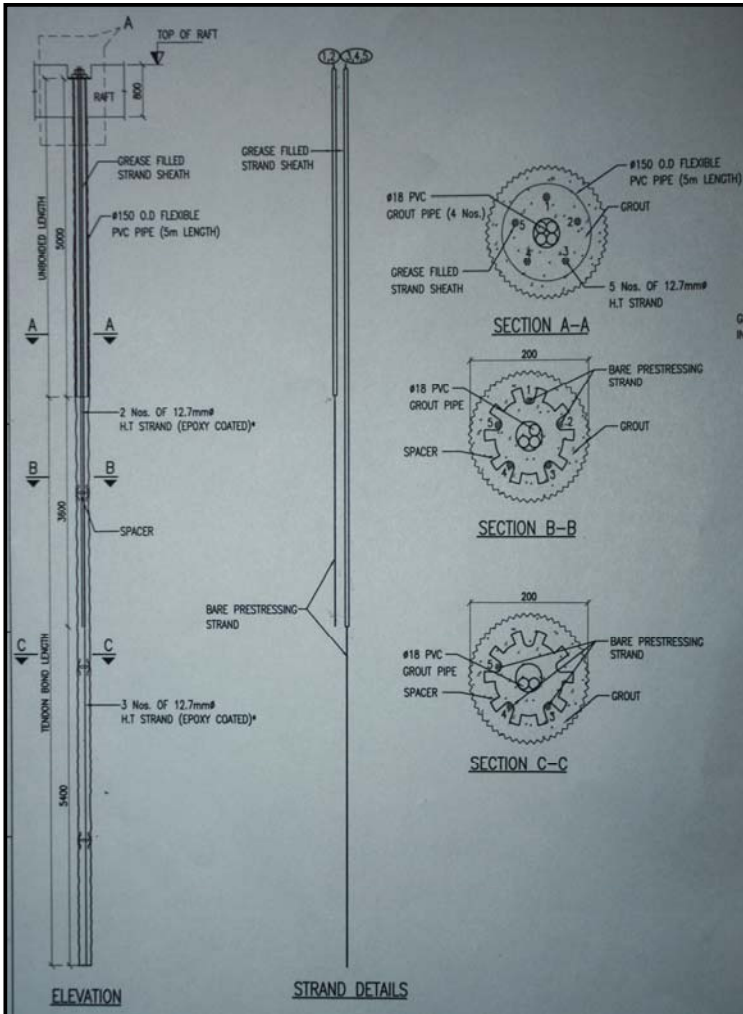


Figure - A

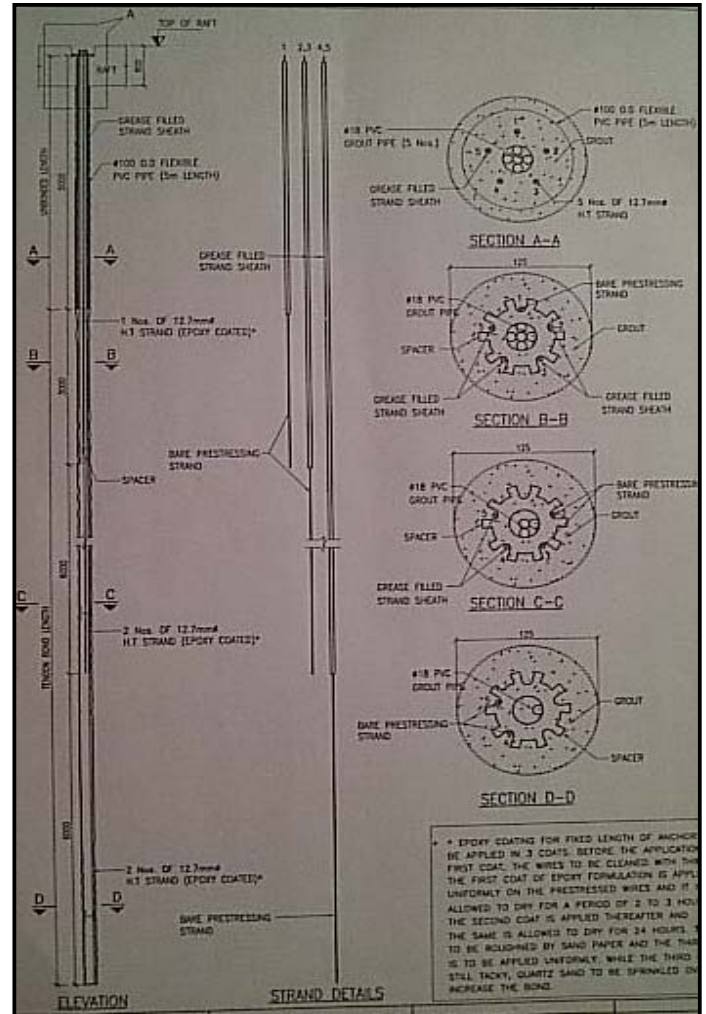


Figure - B

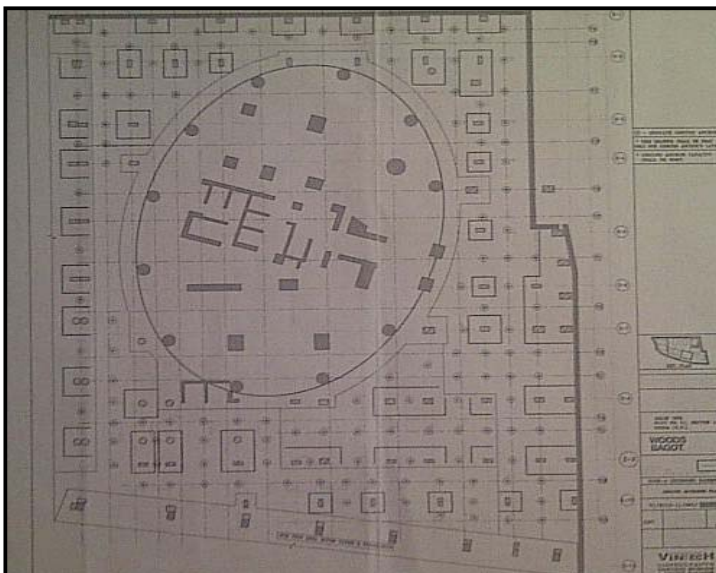


Figure - C

Figure -A ----- Vertical Soil Anchor Detail for 200mm dia hole
 Figure - B ----- Vertical Soil Anchor Detail for 125mm dia hole
 Figure - C ----- Ground Anchors Plan , dots shows vertical anchors

