DEPARTMENT OF BUILDING

FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING

UNIVERSITI TEKNOLOGI MARA

(PERAK)

DECEMBER 2019

It is recommended that this practical training report provided

Aina Awatif Binti Kamarul Azizi
2017213428
entitled

CONSTRUCTION OF BILLBOARD TYPE GANTRY STRUCTURES AT KM 12.50 ELITE HIGHWAY

be accepted in partial fulfillment of the requirements for obtaining the Diploma in Building.

Report Supervisor	En.Zulkifli Bin Ab Halim
Practical Training Coordinator	En. Muhammad Naim Bin Maliyuddin
Programme Coordinator	Dr. Dzulkamaen Bin Ismail

DEPARTMENT OF BUILDING

FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING

UNIVERSITI TEKNOLOGI MARA

(PERAK)

DECEMBER 2019

STUDENT'S DECLARATION

I hereby declare that this report is my own work, except for extract and summaries for which the original references are stated here in, prepared during a practical training session that I underwent at Perunding Jas Sdn Bhd department of project team for a duration of 20 weeks stalling from 5th August 2019 and ended on 20th December 2019. It is submitted as one of the prerequisite requirements of BGN310 and accepted as a partial fulfillment of the requirements for obtaining the Diploma in Building.

Name : Ama Awatif Binti Kamarul Azizi

UiTMIDNo : 2017213428

Date : 13th December 2019

ACKNOWLEDGMENT

Alhamdulillah, praise to Allah I have successfully completed my industrial training session for semester 5 at Perunding Jas Sdn Bhd, department of project team from 5th August 2019 until 20th December 2019. I have done this report with folly dedication and responsibility so that the given task can be well prepared.

First and foremost, I would like to extend my gratitude to Mi' Zulkifli Bin Ab Halim, my report supervisor who have been helping me to complete this report successfully. His willingness to motivate my friends and me contribute tremendously to my internship session.

Next, I extend my sincere toward my industrial supervisor, Mrs Nur Shazana Binti Hasan for allocating the time to advise and guide me about a lot of tilings including about the department, construction of superstructure work, and many more. Furthermore, with her tips at the work place, I have manage to work well dining the internship. She lias been very supportive to practical students, without her it would be difficult for me to understand and complete this report.

In addition, I would also like to thanks to Mr Mohd Redzuan Hanafi who is the site engineer. He has been assist me during the internship. He give me a lot of knowledge and give die opportunities for me to do the site visit at the site area of billboard type gantry at KM 12.50 Elite highway. He also help me to collect all the data that I need by answering my entire question.

Lastly, I would like to gratitude to the most important person dining my internship which is the project manager, Mr Yahaya Bin Nordin who giving me the opportunity to do my internship at Perunding Jas Sdn Bhd.

Thank you so much.

CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1.0

INTRODUCTION

1.1 Background and Scope of Study

Billboards present large advertisements to passing pedestrians and drivers. Typically showing witty slogans and distinctive visuals, billboards are highly visible in the top designated market areas. Tire largest ordinary-sized billboards are located primarily on major highways, expressways or principal arterials, and command high- density consumer exposure (mostly to vehicular traffic). These afford greatest visibility due not only to their size, but because they allow creative "customizing" through extensions and embellishments. (Wikipedia, 2019)

There are varies type of billboard that this company manage to design such as unipole, minipole, freestanding, parapet, overhead bridge, gantry and rooftop. Gantry billboard is a medium that display your message prominently. A “Gantry billboard” means a billboard fixed to an overhead structure, usually spanning a road. It is a double-sided structure, therefore offers you as an advertiser the option of advertising to either side of die traffic. The design of steel structures is based primarily on the yield str ength or proof strength of the steel, but other properties including ductility, to ugliness and weldability are also important. (Neil Jackson, 1996). Erection is tlie adoption of limit state methods with partial safety factors emphasizes the necessity to access the loads and location of erection plant accurately. The amount of the partial factor applied to these loads should be appraised for each case on its merits, making due allowance for the accuracy or otherwise of the evaluation of temporary loads. (London, 1979)

This report was carried out to study the billboard type gantry structures, which is located at 12.50 KM Elite Highway, Selangor Darul Ehsan. Consequently, the intent of this survey is to learn more about the installation process for structures of billboard and the safety and health risk issues at the workplace. This site has been chosen as subject for this study because the data can be access with permission of the site engineer. Tire results of the research conducted therefore will be collected from the site engineer, Mr Mohamad Redzuan Hanafi.

1.2 Objectives

L To study the constiuction of billboard type gantry structure at KM 12.50 Elite Highway.

ii. To identify the safety and health risk issues of the construction activities at the workplace.

1.3 Methods of Study

1.3.1 Observation

Observations were done in order to get the data and the person in charge, wliich is Mr Redzuan the site engineer, has lead the site visit that need to be observed from tire side of the highway because of the traffic. The car was parked in the emergency lane and put on tire safety jacket to be clearly visible to tire other road users. Then, pictures were taken and data was collected by measuring some structures for records.

1.3.2 Interview

The person in charge for die interview section was also Mr Redzuan and he explained about die types of billboard that this company had worked on. He also explained in detail about die gantry type billboard, how die installation process of the structures and any other data to be collected. For the interview process, a set of questions had been prepared and some other questions were asked during the interviews. All the answers had been recorded in some notes.

1.3.3 Document review

The company and the person in charge liad given die permission to see the documents related to this project of billboard type gantry at 12.50 KM Elite highway. The documents contain information about the organization chart for this project, die project cost, the duration for the project to be completed and any other data that can be recorded. Other documents such as plan copies and pictures also being given by them as the existing documents.

CHAPTER 2.0

COMPANY BACKGROUND

2.1 Introduction of Company

This company was founded on the philosophy to provide engineering edge with a difference, Perunding JAS Sdn Bhd is set to grow successfully in the domestic engineering services arena.

Tire diverse backgrounds and experience of the partners and employees allow them to provide multi-disciplinary engineering design. This team of qualified personnel is supported by up-to-date computerised facilities. By design, they are a highly efficient establishment capable of competing in today's most sophisticated engineering projects and tenders.

Their quality engineering services are derived from then- established engineering systems such as intensive, active and top-down involve me nt of key personnel in project implementation. Plus, a truly “people-oriented” system that elicits a high level of performance at all levels and also a high consciousness of results and constant improvement of our engineering services.

2.2 Company Profile

Name of Company	Perunding Jas Sdn Bhd
Company Registration Number	(840704-T)
Address	Block A-3-13A, Dataran Cascades, Jalan PJU 5/1, Jalan No 13A, PJU 5, Kota Damansara, 47810 Petaling Jaya, Selangor.
Contact Number	Tel : Fax:
Status	Body Corporated
Date of Registration	August 2008
Directors	Ir. Dr. Abu Bakar Bin Hj Hamidon PEng, M.I.E.M. i. BSc (Engineering), University of Manchester, U.K., 1979. ii. MSc (Civil Engineering), Louisiana State University, U.S.A., 1984. iii. PhD (Geotehcnical Engineering), University of Glasgow, U.K., 1994.
	Ir. Mohamad @ Abd Rashid Bin Othman PEng, M.I.E.M. i. BSc (Hons) (Civil Engineering), University of Strathclyde, Glasgow, U.K., 1973. ii. MSc (Water Resources & Environmental Engineering), State University of New York at Buffalo, New York, U.S.A., 1978.
	Prof Dato' Ir. Dr. Wan Hamidon Bn Wan Badaruzzaman PEng, M.I.E.M., D.I.M.P., S.M.P. i. BSc (Hons) (Civil & Structural Engineering), University of Bradford, U.K., 1986. ii. MSc (Structural Engineering), University of Bradford, U.K., 1986. iii. PhD (Structural Engineering), University of Wales, Cardiff U.K., 1994.

Project Manager	Yahaya Bin Nordin L Diploma (Civil Engineering), Institut Teknologi Mara, 1992. ii. Advanced Diploma (Civil Engineering), Institut Teknologi Mara, 1995.
Bank	CIMB Islamic Bank Berhad. Country Heights, Kajang Selangor.
Account Number	1228-0000135-10-2
Secretary Coup any	MRH & Associates

Table 1.0: Company Details (Courtesy of PJ Sdn Bhd)

2.3 Organization Chart

2.3.1 This is an organization chart of the company Perunding Jas Sdn Bhd.

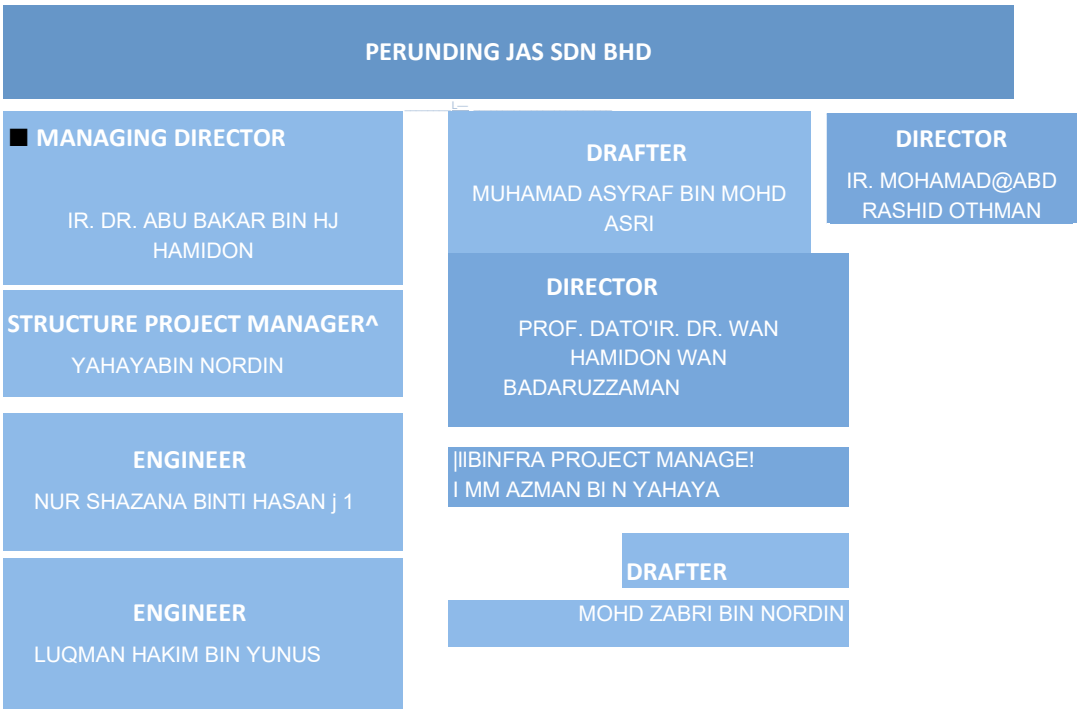


Figure 1.0: Organization Chart of Company (Courtesy of PJ Sdn Bhd)

2.4 List of Projects

2.4.1 Completed Projects

No.	Project Title	Client
1.	Propose design of 5 units unipole 40’x60’xl00’ height along the PLUS Highway and Kuantan town.	Big Tree Outdoor Sdn Bhd
2.	Propose design of 1 units unipole 40’x60'xl00’ height at KLIA Toll Plaza (NB)	Rezstck Sdn Bhd
3.	Propose design of 2 units unipolc 40’x60’x 100’ heightatKM 143.50(NB) PLUS Highway, Penang and Kuantan Town.	Clear Outdoor Sdn Bhd
4.	Propose design of 2 units unipole 40’x60’xl00' height at Sepang Fl Circuit and after Nilai Toll Plaza.	I&P Sericmas Sdn Bhd
5.	Propose design of 4 units directional sign 20’x20’x40’ height at PLUS Highway, Ayer Kerch, Melaka.	University Technology Melaka
6.	Design review and yearly inspection to Maxis Mini Mast located at state of Perak, Selangor and Pahang.	Next Horizon Communication
7.	Panel Consultant for Annual Inspection / Design of New advertising stnicture for Alloy Advertising Sdn Bhd. - MRR2, LPT, Rawang, Taiping, Alor Setar& Johor Bahru.	Alloy Advertising Sdn Bhd
8.	Design, Construct and Maintain for the development of IPP at Mukim Rompin, Pahang.	Scdiaplas Sdn Bhd
9.	Propose upgrading and renovation of Puri Pujanga Hotel, UKM Bangi, Selangor.	UKM Holding Sdn Bhd
10.	Proposed fabrication, erection and completion of advertising structures along Lebuhraya Kcmuning -Shah Alam (LKSA) for Projek Lintasan Shah Alam Sdn Bhd.	Projek Lintasan Kota Sdn Bhd
11.	Proposed development of 30 units terrace house on Lot No 1938 Pekan Sg Besar, Sabak Bemam, Selangor.	Yanimas Jaya Sdn Bhd
12.	Cadangan Membina Dua Unit Struktur Paparan Iklan berbentuk 'Unipole’ Dua Mukaan Berukuran 60’x40’ di Lebuhraya Utara Selatan (PLUS),	Regal Opportunity Sdn Bhd

	Seberang Perai Tcngah, Pulau Pinang untuk Tetuan Regal Opportunity Sdn. Bhd.	
13.	Cadangan Merekabcntuk, Membina dan Menyiapkan Komplcks Temakan Lem- bu Tenusu di Ladang Jelutong Jati, Ulu Bemam untuk Tetuan Perbadanan Kema- juan Pertanian Selangor (PKPS)	Perbadanan Kemajuan Pertanian Selangor (PKPS)
14.	Cadangan Membina Dua Unit Struktur Paparan Iklan berbentuk 'Unipole[1] Dua Mukaan Berukuran 60'x40' di Lebuhraya Jambatan Pulau Pinang (PBSB), Pulau Pinang untuk Tetuan Skyboard Media Sdn. Bhd.	Skyboard Media Sdn Bhd
15.	Cadangan Pendirian Struktur Papan Iklan 'Unipole' 2 Mukaan yang berukuran 40'x30' di Atas zonpenampan antarapersimpangan Jalan Putra Pcrmai dan Jalan 40 kaki ke Pasar Borong Selangor-(RM200,000)	Perbadanan Kemajuan Pertanian Selangor (PKPS)
16.	Cadangan Pcrubahan Material Tanah bagi Pendirian Struktur Paparan Iklan 'Twin pole' 3 Mukaan berukuran 40'x60' di KM24.10, Lebuhraya Maju (MEX) -(RM500,000)	Perbadanan Kemajuan Pertanian Selangor (PKPS)
17.	Cadangan Tambahan dan Perubahan kepada Bazaar Rakyat 2 Tingkat Scdiada PT Lot 49054 Pusat Bandar Putra Permai, Mukim Petaling, Dacrah Petaling, Selangor Da nil Ehsan untuk Tetuan Perbadanan Kemajuan Pertanian Selangor (PKPS)	Perbadanan Kemajuan Pertanian Selangor (PKPS)
18.	Cadangan Membina 1 unit Rumah Banglo 1 Tingkat di Ladang PKPS di sebahagian tanah PT 5207, Mukim Kerling, Daerah Hulu Selangor, Selangor Darul Ehsan untuk Tetuan Per- badanan Kemajuan Pertanian Selangor (PKPS)	Perbadanan Kemajuan Pertanian Selangor (PKPS)
19.	Cadangan Membina 1 Blok x 5 unit Rumah Pekeija di Ladang PKPS di sebahagian tanah PT 5207, Mukim Kerling, Daerah Hulu Selangor, Selangor Darul Ehsan untuk Tetuan Per- badanan Kemajuan Pertanian Selangor (PKPS)	Perbadanan Kemajuan Pertanian Selangor (PKPS)
20.	Kerja—keija permbinaan 1 Blok x 3 unit Rumah Penyelia di Ladang PKPS Jagoharmoni, La- had Datu, Sabah untuk Tetuan Perbadanan Kemajuan Pertanian Selangor (PKPS)	Perbadanan Kemajuan Pertanian Selangor (PKPS)
21.	Cadangan Membina 2 Blok x 3 unit Rumah Pekeija di Ladang PKPS Sungai Panjang, Sabak Bemam, Selangor untuk Tetuan Perbadanan Kemajuan Pertanian Selangor (PKPS)	Perbadanan Kemajuan Pertanian Selangor (PKPS)

22.	Cadangan Membina 1 unit Setor Tahi Ayam di scbahagian kawasan di Ladang PKPS Jclu- tung Jati, Sabak Bcmam, Selangor untuk Tetuan Perbadanan Kemajuan Pertanian Selan- gor (PKPS)	Perbadanan Kemajuan Pertanian Selangor (PKPS)
23.	Cadangan Keija-Keija membina 1 unit rumah Penyelia Ladang di scbahagian tanah di PT 29645 HS(D) 27791 dan PT 29656 HS(D) 27792 di Mukim Tanjung Belas, Daerah Kuala Langat, Selangor Darul Ehsan untuk Tetuan Perbadanan Kemajuan Pertanian Selangor (PKPS)	Perbadanan Kemajuan Pertanian Selangor (PKPS)
24.	Cadangan Keija-Kerja membina 1 Blok x 3 unit rumah Pekeija di scbahagian tanah di PT 29645 HS(D) 27791 dan PT 29656 HS(D) 27792 di Mukim Tanjung Belas, Daerah Kuala Langat, Selangor Darul Ehsan untuk Tetuan Perbadanan Kemajuan Pertanian Selangor (PKPS)	Perbadanan Kemajuan Pertanian Selangor (PKPS)
25.	Panel Consultant for Annual Inspection *I* Design of New advertising structure for Rcdberry Outdoor Sdn Bid - DUKE, SILK Highway, Yayasan Wilayah Pcrsckutuan (YWP), DBKL, Rawang, Bandar Utama & MPAJ	Rcdberry Outdoor Sdn Bhd
26.	Panel Consultant for Annual Inspection / Design of New advertising structure for WOW Outdoor Sdn Bhd - Rawang, MRR2, Shah Alam, PJ, JB, Penang, KL, Puchong,Kajang	WOW Outdoor Sdn Bhd
27.	Panel Consultant for Annual Inspection / Design of New advertising structure for Skyboard Media Sdn Bhd	Skyboard Media Sdn Bhd
28.	Panel Consultant for Annual Inspection / Design of New advertising structure for Prolintas Group of Companies - LKSA, GCE & AKLEH	Prolintas Group of Companies
29.	Cadangan Mendirikan Paparan Iklan Berukuran 4m x 3m LED Display Di Lot 779, Jalan Munshi Abdullah, Kampung Bukit Cina, Mukim Bandar Melaka, Daerah Melaka Tengah, Melaka Bandaraya Bersejarah Untuk Tetuan Bank Simpanan Nasional	Bank Simpanan Nasional
30.	Cadangan Keija-Keija Pengubahsuaian Reka Bentuk Dalaman (Ruang Pejabat dan Lobi Kaunter) Cawangan Utama, Bank Simpanan Nasional (BSN) Kelantan, Di Atas Lot 61-63 & 80-82, Jalan Pintu Pong, 15710 Kota Bharu, Kelantan Darul Naim	Bank Simpanan Nasional

Table 2.0: Completed Projects (Courtesy of PJ Sdn Bhd)

2.5.2 Projects in Progress

No.	Project Title	Client
1.	Yearly inspection to advertising structure for Alloy Advertising Sdn Bhd.	Alloy Advertising Sdn Bhd
2.	Yearly inspection to communication structure (Kedah, Perak & Pahang) for Maxis Communication Sdn. Bhd.	Maxis Communication Sdn Bhd
3.	Cadangan Pembangunan Komcrsial Bersepadu Serta Cadangan Pembangunan Stesen Minyak di Sepanjang Lcbuhraya Kcmuning - Shah Alam di Plot 1 - Kilometer 0.4A arah Barat (Bersebclahan Tol Plaza Alam Impian) Plot 2 - Kilometer 2.5 arah Selatan (Persimpangan Alam Impian Arah Shah Alam - Kota Kemuning), Lebuhraya Kemuning - Shah Alam - (RM3 juta)	Projek Lin las an Shah Alam Sdn Bhd
4.	Appointment Consultant For Engineering Consultancy Services - Annual Rcctification Work Endorsement and Design of New Structures at MRR2, Federal Highway and other highway - (RM 1 juta)	Alloy Advertising Sdn Bhd
5.	Cadangan Mcmbina dan Menyiapkan Pembangunan yang mengandungi : 1 Blok x 2 unit Rumah Staf; 2 Blok x 6 unit Rumah Pekeija ; 1 unit Pusat Asuhan dan 1 unit Kantin dan Kedai Runcit di Ladang PKPS Irat, Lahad Datu, Sabah untuk Tetuan Perbadanan Kcmajuan Pertanian Selangor (PKPS)	Pcrbadanan Kcmajuan Pertanian Selangor (PKPS)
6.	Cadangan Pendirian Struktur Papan Iklan ‘Gantry’ 2 mukaan yang bcrukuran 2O’xl2O’ Merentasi Lebuhraya Pcrsekuluan (FT002) di KM 18.60, Berhampiran Persimpangan Jalan Lapangan Terbang Subang Dan Subang Jaya - (RM Ijula)	Abu Bakar MS Sdn Bhd
7.	Cadangan Membina Struktur Paparan Iklan ’Unipole’ Dua Mukaan Bcrukuran 60’x40' di Line T CH 1.5 (Arah Butterworth) Lebuhraya Jambatan Pulau Pinang (PBSB) Yang Berada Di Bawah Pentadbiran Majlis Perbandaran Seberang Pcrai, Pulau Pinang untuk Tetuan Abu Bakar MS Sdn. Bhd.	Abu Bakar MS Sdn Bhd
8.	Permohonan Kelulusan bagi Cadangan Mendirikan Struktur Paparan Iklan Jenis ‘LED Billboard’ dua mukaan bcrukuran 20x80’xl00’ di atas tanah	Taipan Merit Sdn Bhd

	milik PKNP NoHSD 183454, No PT 228322, 50M di tepi Lebuhraya PLUS KM 267.30, Mukim Hulu Kinta, Dacrah Kinta, Ipoh, Perak Darul Ridzuan	
9.	Cadangan Mendirikan Paparan Iklan bcrukuran 15'xl2' jenis "Digital Outdoor Screen" 1 mukaan di Akadcmi Pengangkutan Jalan Wilayah Selatan, Jalan Kcbun Teh, Johor Bahru, Johor Darul Ta'zim	Gafas Infinity Sdn Bhd
10.	Cadangan Merekabcntuk, Membina dan Menyiapkan Komplcks Tcmakan Lcmbu Tcnusudi Ladang Jelutong Jati, Ulu Bemam untuk Tetuan Perbadanan Kcmajuan Pertanian Selangor (PKPS)	Perbadanan Kemajuan Pertanian Selangor (PKPS)
11.	Cadangan Membina Pintu Gerbang Bagi Jalan-Jalan Utama Ke Pusat Bandar Kuala Lumpur Untuk Tetuan Dewan Bandaraya Kuala Lumpur.	Dewan Bandaraya Kuala Lumpur (DBKL)
12.	Cadangan Mendirikan Satu (1) Unit Struktur Paparan Iklan Jenis Unipole Bcrukuran 50'H X 60*W X 2 Muka Di Dalam Rezab Lebuhraya Di KM 12.9 E:33 Lebuhraya Duta- Ulu Kclang (DUKE) Untuk Tetuan Andaman Media Sdn. Bhd.	Andaman Media Sdn Bhd
13.	Cadangan Merekabcntuk, Membina, Menyiapkan, Mclcngkap, Mcnguji, Mcntau- liah, Menyelenggara serta Kerja-Kcija Lain Yang Berkaitan Untuk Kompleks At-Tijarah AFFIN-UiTM, Di Universili Teknologi Mara Kampus Puncak Alam Dacrah Kuala Selan- gor Darul Ehsan Untuk Tetuan Universiti Teknologi Mara	Univcrsiti Teknologi Mara (UiTM)
14.	Cadangan Merekabcntuk, Membina, Menyiapkan, Mengujilari, Mentauliah, Bangunan Tambahan Tandas Luaran serta Keija-Keija Berkaitan Di Dewan Agung Tuanku Canselor (DATQ UiTM Shah Alam, Selangor	Univcrsiti Teknologi Mara (UiTM)

Table 3.0: Projects in Progress (Courtesy PJ Sdn Bhd)

CHAPTER 3.0

CASE STUDY

3.1 Introduction to Case Study

The site that had been chosen for this report is one of the billboard project in Elite Highway as in figure 1. Tire title of the project is 'Proposed Construction Set Up Temporary Structures 1 Unit Display Advertising Billboard (Gantry) Size 20'xl20'x2 at 12.50 KM North-South Highway (Elite) for owner Naylis Teguh Enterprise'. The overall cost for the project is RM 1,000,000.00. As in figure 3, the project director is Mr Yahaya Nordin and the project manager is Mr Amirul Akmal Yusoff Next the consultant surveyor is Mrs Siti Rohana Che Ismail, the project engineer is Mr Mohamad Redzuan Hanafi, the civil and structural consultant is Ir Dr Abu Bakar Hj Hamidon and the site supervisor is Mr Mohamad Safdar. Tire duration for this project to be completed is about three months but it started on foe 18^{lh} February 2019 until 30th June 2019 about one month over the set date. These are the method statement of foe construction progress for this project.

Figure 2.0: Location of 12.50 KM North-South Highway (Elite)

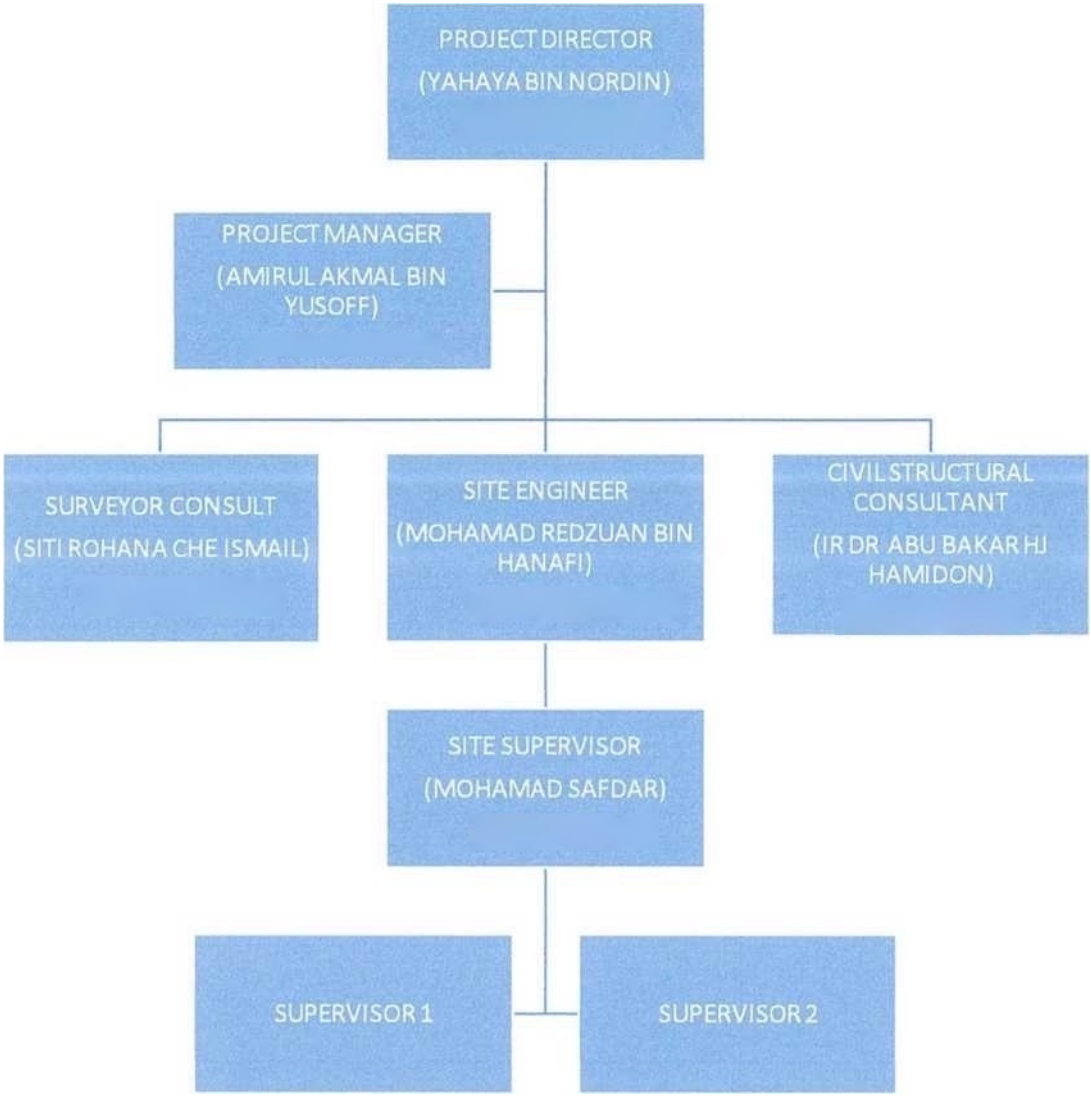


Figure 3.0: Project Organization Chart (Courtesy of FE Sdn Bhd)

3.2 Construction Methods

From the case study at 12.50 KM Elite Highway, the billboard structure gantry type were made using steel structures. It is to convey advertisements to passing pedestrians and drivers. Before the construction process had started, site clearance had been done at the side of the highway, which was the site for construction process. Then, as in figure 4 by using a backhoe the machine dugs out soil within the area that had been marked and transferred the soil into a lorry. The fence was opened up to allow the lorry to enter the site at 12.50 km. After the soil had been removed, the workers installed back the fences to new and made good the fence area.

Figure 4.0: Excavation Works (Courtesy ofFE Sdn Bhd)

Secondly, the workers continued the work with piling. For pile handling, the workers ensured piles were not damaged or broken during transportation, lifting and handling. As in figure 5, the

piles were lifted from both in-built hooks of the piles then stacked up on firm ground to prevent from uneven settlement due to weight of the stacked piles. Before piling, the workers set out the pile position by using pins and two reference steel pins were located equidistant from the pile centre location pin. The workers pitched and positioned die R.C pile into the exact pile position such that reference pins were equidistant from the face. The driving process were done by using the vertical plumb lines to sight the sides of the pile from two different directions and controlled the vertically of pile during driving. The crane piling machine that had been used was the machine with 1.5 ton driving hammer capable for installation of 150mm x 150mm R.C pile at site as in figure 5. Then, additional measures were made to monitor vertically of pile by regular checks in the course of piling by using carpenter's level. Next, the connection between pile segments were done by workers by continuous all around butt weld along the circumferential groove of mild steel and plate of pile as recommended by supplier. The final set of each pile were recorded either as the penetration on 10mm per last 10 blows or as the number of blows required as per Set Calculation which has been submitted for S.O's prior approval. At the end of tire piling process, as in figure 5 when a pile has been driven to he required set, the head of the pile was cut off and stripped using a 12-pound hammer or pneumatic breaker to a required level and to expose the main bar.

Figure 5.0: Piling Works (Courtesy of FE Sdn Bhd)

After that, the workers install the reinforcement bar. They had chosen the appropriate rebar as shown in the construction drawings. The bending works for the structures had been done at the factory. As in figure 6, they placed the rebar in the grid pattern as shown in the construction drawings. The workers tied the rebar together using rebar tie wire. Then, they wrapped the wire securely around any area with two or more rebar sections intersecting or overlapping and they used a rebar hand-tying tool to tie them together securely. Lastly; they placed the rebar support concrete block under rebar to keep it at tire same level while the concrete is poured.

Subsequently, for tire placing formwork process the workers erected the formwork by providing sufficient props and struts including necessary bracing. They sealed gaps in formwork to avoid leakage of grout and ensured checking for the required shape and dimensions as per drawings. The site engineer submitted Request for Inspection Form for joint inspection with client using Structural Work of Reinforcement or Concrete Inspection Checklist. On completion of joint inspection, the site engineer requested client to sign on the checklist and file.

Figure 6.0: Installation of Reinforcement Bar (Courtesy ofFE Sdn Bhd)

Next operation was concreting work. The workers took concrete cube samples for quantity specified in the contract document and marked the location of pour for concrete received on the delivery docket and checklist as reference and identification. The adequate equipment were provided such as machinery and manpower to carry out the concreting works. The operator placed concrete on designated locations using concrete pumps as in figure 7. The workers concreted from a fresh location or a predetermined construction joint and continued uninterrupted up to the next predetermined construction joint or completion. They placed concrete from the lowest point to die final concrete level in one operation in horizontal layers. Then, die workers compacted the concrete by mechanical vibrators and ensured that concrete was worked into the corners of the structural members. After the concrete has set, they carried out curing works by applying curing compound.

Figtire 7.0: Concreting Works (Courtesy of FE Sdn Bhd)

Thereafter, the concrete work had done and continued with the steel assembly work. The workers was planning and set out of holding down bolts, columns to supporting structural frame components. They were working at height when erecting, positioning and connecting structural steel components. They carried out lifting structural steel frame components according to traffic management plan that had been approved by client. The crane operator was lifting and positioning of structural steel frame components. Then, the workers were erecting, securing and temporary guying of a structural steel frame and were connecting and bolting of structural steel frames component.

As for the member arrangement, the workers checked the members mark as packing list enclosed before unloading for best-unloaded positions. Plus, as in figure 8 the columns were arranged closed to their anchor bolt position also the frame members were arranged to ensure the easy assembly and movement. Small components such as nuts, bolts, clips, fasteners and other were stored in a given area convenient to all part of the building. The steel were placed to the outside of the work area properly stored and protected from the weather.

In addition, for the preparation of steel members erection, the columns materials were arranged closed to design position. All traffic management plan were carried out before machineries and equipment arranged safely. The columns materials were cleaned and assembled before erection. Then, the driven rope were attached to the column and the level, position of level nuts and bolts were checked with design. Temporary anchor points were arranged out of working area to avoid hanging materials can be caught by temporary cable, this can cause collapse to erected structures. Then, as in figure 8the manufacturer checked lifting weight, crane position with capacity of applied crane base on crane specification issued.

The erection process begin with the column was lifted and moved slightly to design position. Then, bolts nut connection were tighten after column in right position. Temporary cables were applied to keep column in position. Steel members were lifting by crane by piled up then being tied together with soft ropes at space maximum 4m. For steel members length less than 25m, one crane was applied.

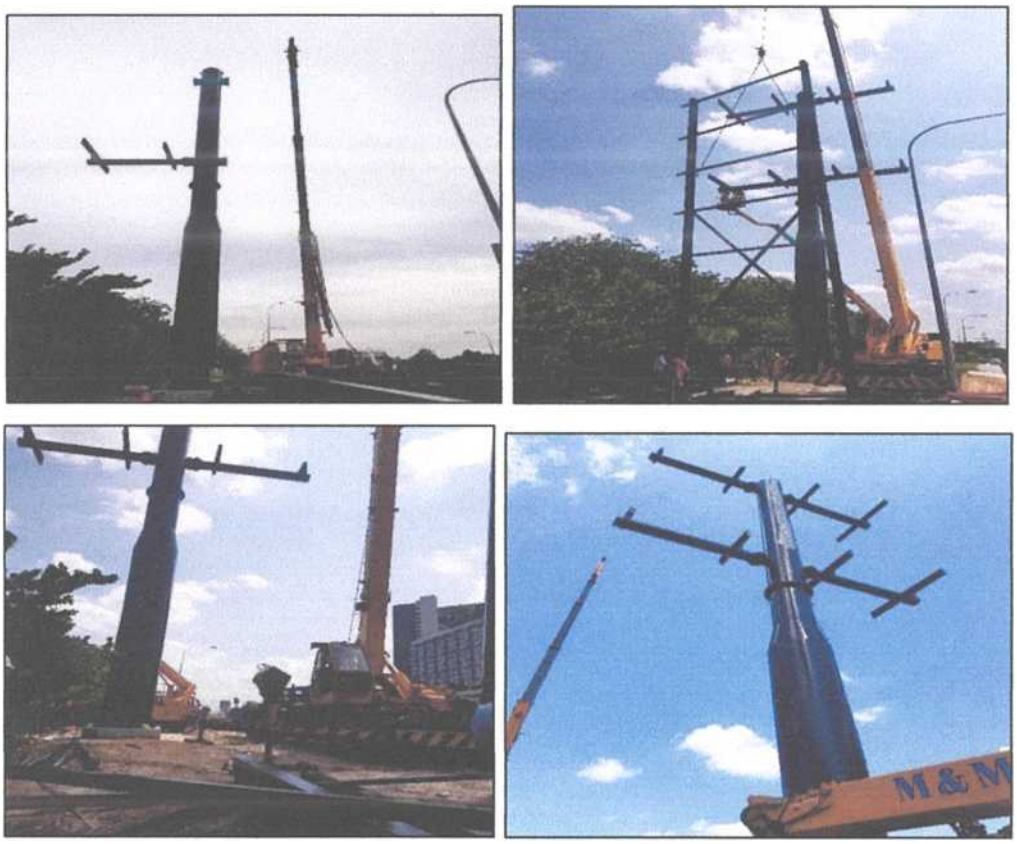


Figure 8.0: Structure Works (Courtesy of Sdn Bhd)

Moreover, the glass fibre reinforced concrete (GFRC) were installed involved the preparation of temporary working platform and the actual physical work of site installation and making good and final painting work. Installation process of GRC units, job site was checked for truck and crane prior to erection of GRC units. As in figure 9, the position and elevation of connection integral with steel frames and members were verified before the GRC units were erected. Then, joint location was established to minimized the variation in joint width and identify problems caused by or alignment tolerance. GRC panel were transported from factory were unloaded at the building site. The mobile crane were utilized to lift the GRC units and gradually lower down to the designated position. Next, the spreader beams or specially designed lifting brackets, mini hoist, chain blocks were used to avoid damaging the units during hoisting and installation. The temporary connections, bracing and guy wires were fully secured to take the necessary loads including horizontal erection loads before the crane released the units and before the components were fully assembled. Temporary erection shims were used to attain the specified joint dimension. Temporary shims were removed from joints after the connection were completed and before applying sealant. The main contractor was ensured adequate barricades, warning lights and signs to safeguard traffic and people in the immediate area of all hoisting. For joint that welded connection were required, rust inhibitive primer oxide paint was applied on welded surface or cut surface.

Figure 9.0: Launching Works (Courtesy FE Sdn Bhd)

Lastly for display ads installation process including the light box it was a bit similar with the

GRC installation process. Prior to installation display ads skylift access was check. As in figure 10, the position and elevation of connection integral with steel frames and members were verified before display were install. Joint location was established to minimize the variation in joint widths and identified problems caused by or alignment tolerance. Display panel transported from factory were unloaded at the building site. Skylift: were utilize to lift the display units and gradually lower down to the designated position. The spreader beams or specially designed lifting bracket, mini hoist, chain blocks were used to avoid damaging the units during hoisting and installation. Temporary connections, bracing and guy wires were fully secured to take the necessary loads including loads before panel released the units and before the components were fully assembled. The temporary erection shims were used to attain the specified joints dimension. Temporary shims were removed from joints after the connection were completed and before applying sealant.

Figure 10.0: Installation of Ads Panel (Courtesy FE Sdn Bhd)

For transportation of the panels, all the panels were packed with polystyrene foam sheets or corrugated sheets and were loaded into the truck in a proper manner. The GRC panels were stored at site in a dry, clean and leveled area properly protected from any accidental damage. The site engineer or site supervisor has checked the GRC panels for the before erection to to make sure the panel size as per approved drawings, to check the colour and texture with the approved sample and to check if any damage happened while loading and unloading. Prior to the starting of installation, the lifting equipment such as mobile crane or skylift and the access to the site were arranged. Then, for the site arrangement to start installation, prior to the starting of installation, co-ordinate with engineer and make sure that all levels and reference were same as the approved drawing. The entire site workers, engineer and supervisors were follow the safety instructions and all the temporary scaffolding setup were agreed by the safety personnel. Next, structural frames were checked for their tolerance level. Alignment was required for the exterior lace of the panel and proper making with string lines were done prior to the start of installation. The main contractor gave the level marking on each elevation as per structural drawings. Any discrepancy beyond tolerance was brought to the notice of the main contractor. Based on the confirmation of alignment and marking of fixing points, approved brackets were fixed to the structural frame. The brackets and fixing were approved by consultant. Then the proper access to the fixing area from the storage area was ensured. The GRC panels were lifted with suitable lifting device at tire point provided at the factory. Tire GRC panels were set level, plump, square and true within the allowable tolerance and fixed to the bracket with suitable approved loose fixings. After the engineer checked the finishing of panels, sealant work was carried out according to the project specifications using the approved sealant and backing rod. MCI to apply die joint sealant with utmost care as not to stain the GRC panels.

In figure 12 shows the completed construction project of billboard gantry type at 12.50 km Elite highway

Figure 11.0: Completed Billboard Project

In figure 12 shows the completed construction project of billboard gantry type at 12.50 km Elite highway at night.

Figure 12.0: Completed Billboard Project at Night

Traffic management had followed the system such as, the blinkers were places at 30m c/c. All water filled plastic barrier shall be interlocked as in figure 11. The concrete barrier were used at excavated work area more than Im depth and at construction area of structure element. The flagman was provided at die construction access. The construction access was closed for the traffic whenever not used by the constructio n machineries. For night work, the contractor installed a reliable spotlight system such as flood lighting system

Figure 13.0: Traffic Management System (Courtesy FE Sdn Bhd)

3.3 Safety & Health Risk Issues

	SAFETY & HEALTH RISK ISSUES									
	MAKING GOOD									
Project Name: Location:	**Proposed Construction SetUp Temporary Structures 1 Unit Display Advertising Billboard (Gantry) Size 20'xl20'x2 at 12.50 KM North-South Highway (Elite) for owner Naylis Teguh Enterprise**									
ITEM	ACTIVITY	POTENTIAL ACCIDENT OR HAZARD	Initial Risk Rating Probability x Severity		Risk Factor	CONTROL MEASURES OR MITIGATION ACTIONS	Final Risk Rating Probability x Severity		Residu al Risk Factor	Final Risk Rating
I	Unloading and lifting of materials onto the work platform.	1. Falling objects	2	3	6	1. Avoid working close to the moving object. 2. Be vigilant of their surroundings, especially if the object does not have lights or beepers. 3. Wear Personal Protective Equipment (PPE), such as a high visibility jacket, to ensure they are seen.	1	2	2	**Low**

2	Correct installation and structural soundness of material used	1. Falling objects 2. Falls 3. Property damage	2	4	8	1. All product, system, components installed according to engineered specification, installation manuals and MS / BS standards for scaffolding. 2. Installation manual, PE approved scaffold plan readily available on-site. 3. Installers to have adequate training. 4. Competent scaffolder to supervise and inspect.	1	2	2	**Low**
3	Establishing and Setting out base / installation of first bay	1. Falling objects 2. Falls 3. Property damage	3	3	9	1. Inspection performed of the supporting structure/base of the PE approved work platform, ensuring soundness and stability, including its guardrails. 2. A 200cm toe-board pre-installed along the edge of the platform and secured to the base of the platform. 3. 1000mm safety netting pre-installed along the guardrails of the work platform. 4. Only U-base plates to be used on the work platform floor consolidated with 70x100mm timber secured to the floor. 5. Position of installation base to consider scaffold plan, client's instruction and the structure facade to be worked.	1	2	2	**Low**

4	Commissioning the installation	1. Multiple	3	4	12	1. Visual inspection of final installation for soundness and all components installed. 2. Completed installation to be checked in accordance to its P.E endorsed drawing and plan. 3. Green (OK) Scaf-tags indicating date erected and its duty rating are to be prominently displayed. 4. Competent scaffolder/nominated person to inspect the erection on weekly basis throughout the duration of use.	1	2	2	**Low**
5	Install structure	1. Fall from height 2. Installation collapse 3. Falling objects	3	4	12	1. The scaffold erection is to be dismantled in the reverse sequence to its installation, working from existing work-platform. 2. Edge protection, bracings and access to the scaffolc to be removed at the last possible stage. 3. Scaffold components shall not be dropped from height during dismantling.	1	2	2	**Low**

PROBABILITY	RISK FACTOR MATRIX								METHODOLOGY
	Probability						Risk Rating		
1. Extremely remote: Unlikely to occur 2. Remote: May occur in time 3. Reasonably probable: Probably will occur in time 4. Probable: Likely to occur immediately or shortly	Severity		1	2	3	4	Low Risk	1-4	1. Identify hazards 2. List hazard event 3. Calculate risk factor with initial risk rating (i.e. Probability x severity) 4. Detail control 5. Calculate residual risk factor with final risk rating 6. Enter risk priority 7. Evaluate acceptability of risk
		1	1	2	3	4	Medium	5-7	
		2	2	4	6	8	High Risk	8-16	
		3	3	6	9	12			
		4	4	8	12	16			

Severity

1. Negligible: Hazard will not result in serious injury or illness, remote possibility of damage beyond minor first aid case.
2. Marginal: Hazard can cause illness, injury or equipment damage, but the results would not be expected to be serious.
3. Critical: Hazard can results in serious illness, severe injury, property and equipment damage.
4. Catastr ophic: Imminent danger exists, hazard capable of causing death and illness on a wide scale.

Table 4.0: Safety and Health Risk Issue

CHAPTER 4.0

CONCLUSION

4.1 Conclusion

As the research had demonstrated, steel structures are the most important component in this billboard project undertaken at km 12.50 Elite highway in Selangor. In this study, the type of the billboard that had been constructed is gantry type across the highway lanes. The construction process were began with excavation works at the site, then piling works before installing the reinforcement bars. After installed the reinforcement bars, the concreting works were done then the installation process of structure columns on both sites and the steel structures such as square hollow section were continued. The last process before installing foe ads was installing the ads panel to the billboard structures then foe construction process were done. The other element used for this project is a light box apart from other type of billboard using the LED type. The problems that occur such as the types of soil being different between the two sites, ones with the soil easy to do foe piling process, but the other one foe soil was a bit watery so it needs a deeper piling process. The safety and health risk issues for the workplace also was identified and foe result for final risk rating were all low and the workplace was safe to foe workers and others to run foe project. To review, the construction process for this billboard type gantry was constructed according to foe specification and drawings specified **(refer APPENDIXES)** also foe workplace of construction was secured.

REFERENCES

Books:

i. Dhir, R. K., & Jackson, N. (1996). *Civil engineering materials.* Basingstoke: Macmillan.

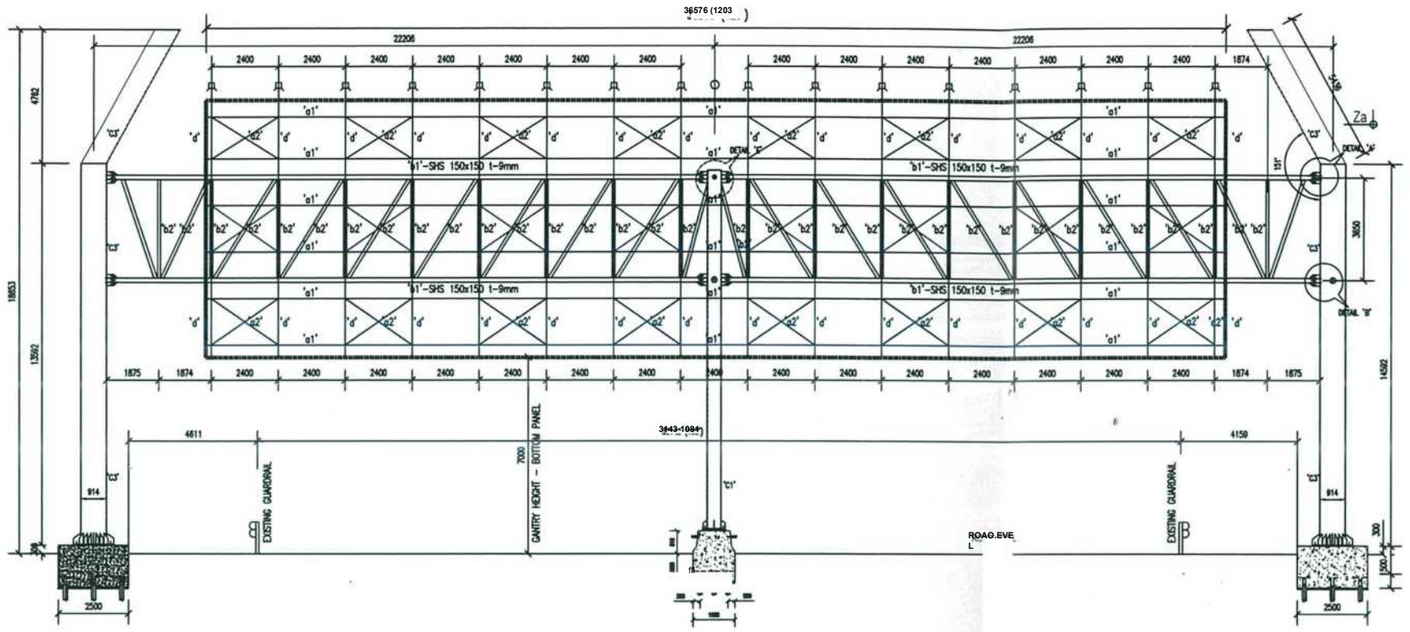
ii. *Steel, concrete and composite bridges. Puhi, by British standards institution, Bsi. 5: Code of practice for design of composite bridges: British standard BS5400.5:1979. Ponts en acier, pouts en beton, ponts mixtes. Briicken aus Stahl, Belon und Verbundbau.* (1979). London 1979.

Web Site:

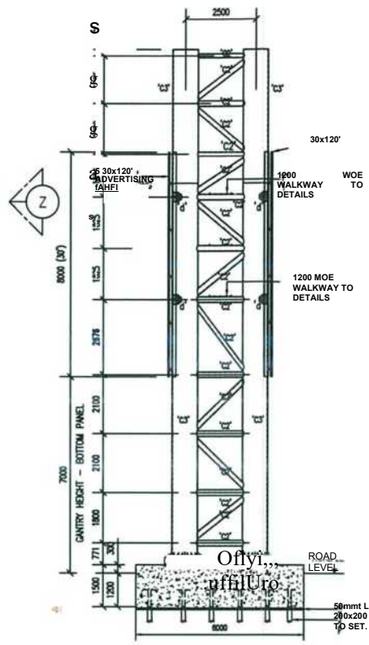
i. Billboard. (2019, November 18). Retrieved from https://en.wikipedia.org/wiki/BilIboard.

ii. Skyboard Media Sdn Bhd - Billboard Advertisement Malaysia: Outdoor Billboard: Outdoor Lightbox - Never Stop Promoting, (n.d.). Retrieved from https //w ww. sk ybo ard. co m. my/.

iii. Gantry Billboards Advertising. (n.d.). Retrieved from https://onestopadvert.com/gantry-billboards-advertising/.



FRONT & REAR ELEVATION
SCALE 1:100

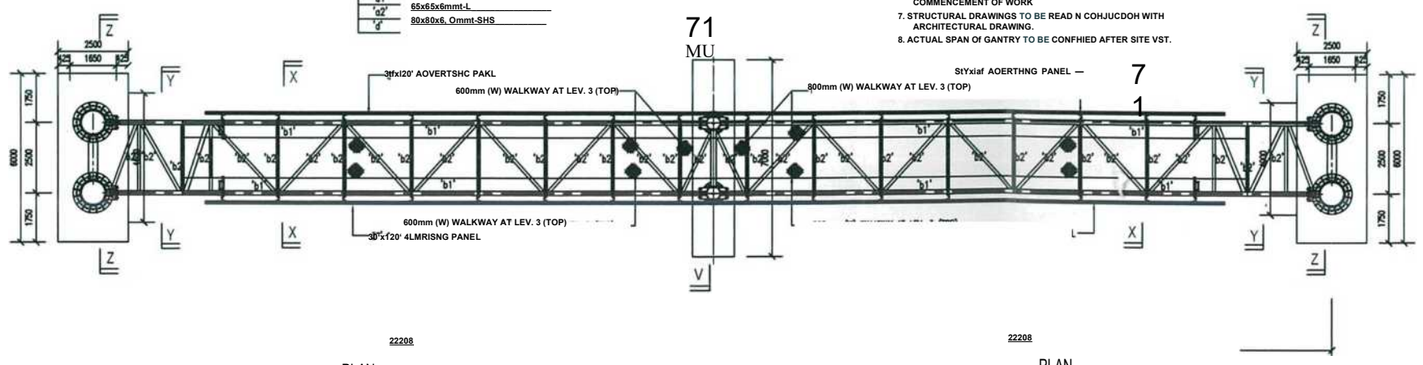


SECTION V-V

HUESJ
I. a\WWCWR E REQUIgI TO SUOMI RX PU ARD ANCHOR BOLTS SPCFICAIKN STORE aMENCaENT OF WCBC
2 REHR TO UMUFACTURDfS SPEOFICAIION FOR ME JOWT OCTAL
3. THE CONTRACTOR 6 REDUSED TO TENDER FOR 120m POESTRATON IENCTH FOR EVERY RLE PONT.

MEMBER	
'c1'	610Rx12mmt-186.92 kg/m-CHS~
'c2'	1684x8.0fnrTTt-31.60 kg/m -CHS
'c3'	9144x10mmt-223kg/m-CHS
'b1'	150x150x9.0mmt-SHS
'b2'	IOOxIOOxS.Ommt-SHS
'b3'	75x75x3.0mmt-SHS
'b4'	50x50x3.0mmt-SHS
'a'	100x1 OOx6mmt-L
'a1'	80xB0x6mmt-L
'a2'	65x65x6mmt-L
'd'	80x80x6. Ommt-SHS

MPQfW MOTES;
1. TO REPLACE OR MAKE COCO UNDER GROUND CULVERT DRAM, Eg
2. TO SUBMIT A SAFETY TRAFFIC MANAGEMENT PROPOSAL DURHG CONSTRUCTION FOR OUR APPROVAL
4. THE FOOONG DESIGN COULD BE CHANGED SUBJECT TO SITE CONOITIONS
5. THE CONTRACTOR IS REQUPED TO MAKE A SHE VHT BEFORE PRKWC, THEY HAVE TO INCLUDE AU NECESSITY COSTS H THE TENDER
6. TIE CONTRACTOR 6 REQUIRED TO VERFY Trt LEVELS AT SITE BEFORE COMMENCEMENT OF WORK
7. STRUCTURAL DRAWINGS TO BE READ N COHJUCDOH WITH ARCHITECTURAL DRAWING.
8. ACTUAL SPAN Of GANTRY TO BE CONFHIED AFTER SITE VST.



PLAN
SCALE 1:100

PLAN
SCALE 1:100

FML NO :
MPSJ

1 OO H

TAJIK PROJEK
PERMOHONAN KELULUSAN PERMIT SEMENTARA BAGI CADANGAN MEMBINA SATU (1) UNIT PAPAN IKLAN JENIS 'GANTRY' 2 MUKAAN BERUKURAN 30'(P) x120*(L) DI KM 12.5 (E6) LEBUHRAYA UTARA - SELATAN HUBUNGAN TENGAH (ELITE)

UNTUK
TETUAN NAYLIS TEGUH ENTERPRISE

TAMMTAHGAN PQMJK STRLKTUR :
'Saya/Kami bonetuju untuk mematuhl petan ba ng u nan yang dSuluskon. Dengan ini sayo/kami bereetuju untuk dikenakan Undakan undang-undang yang berkoitcn dengonnya jika gogal mematuhlnya"

HAMA : FARADILA BT MOHD LAMIN
NO KP :

ALAWkT :
NAYLIS TEGUH ENTERPRISE
NO. 31. LORDNC IM 10/8.
BUKJT EtAMA. 25200. KIWIAM. FWWC MU. IAYMJR. TR : 013-4310047 FAX : 04-51J0S80 EMM. : MrMotasnByWmxoriUrty

PQ4OHON
'Saya mamparokul bahawo detail-detail dalam pelan- pelan odoiah menurut kehendok- kehendak undong - undang kecR bangunan eerogom 1988 dan eayo eetuju torima tanggungjowob penuh

UNTUK KECUNAAN MPSJ :

Tojuk ULtexx
FRONT AND REAR ELEVATION
PLAN VIEW
FOUNDATION 'A' & B'

SKALA :	SEPERT1 DITUNJUK
DILUKIS OLEH	AAY
DISEMAK OLEH	YN
TARIKH	DECEMBER 2018
NO LUKISAN	JAS/2018/NYT/123/30X120/ST-1001

NOTTS :

6. REQUIRED TO SUBMIT B.C. PILE AND ANCHOR TOR BEFORE COMMENCEMENT OF WORK.

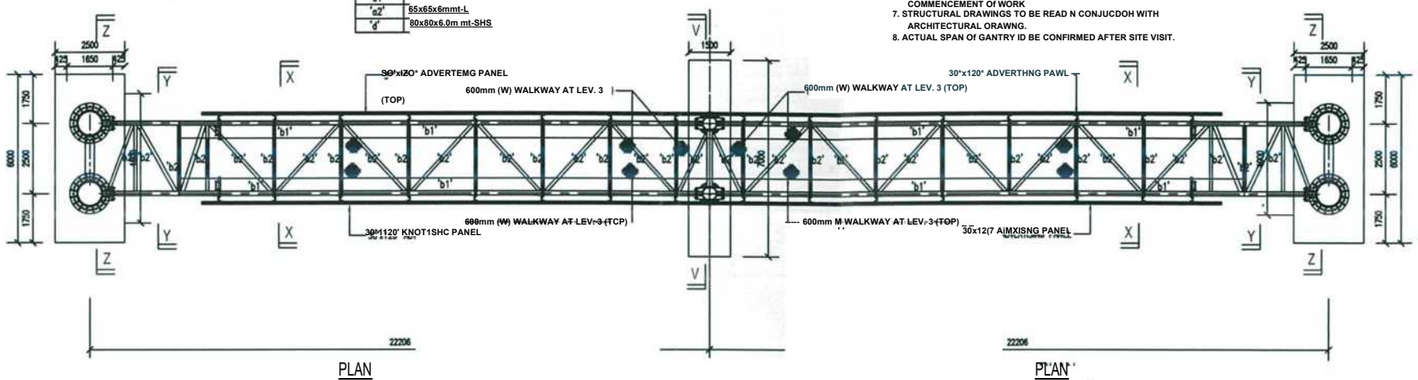
2. REHR TO WHUEXCTWBTS SHOTCATOLFOR PPC JOKT. CETM-

1 THE CONTRACTOR 6 REDURED TO TEMJER FOR I2|A PEXCTRAnON IFICTH FOR EVERY PIE POWT.

MEMBER	
'c1'	6IO»x12mmt-186.92 kg/m-CHS
'c2'	1684x8.0mmt-31.60 kg/m -CHS
'c3'	9144x10mmt-223kg/m-CHS
'b1'	150x150x9.0mmt-SHS
'b2'	100x100x6.0mmt-SHS
'b3'	75x75x3.0mmt-SHS
'b4'	50x50x3.Dm mt-SHS
'a'	100x100x6mmt-L
'a1'	80x80x6mmt-L
'a2'	65x65x6mmt-L
'd'	80x80x6.0m mt-SHS

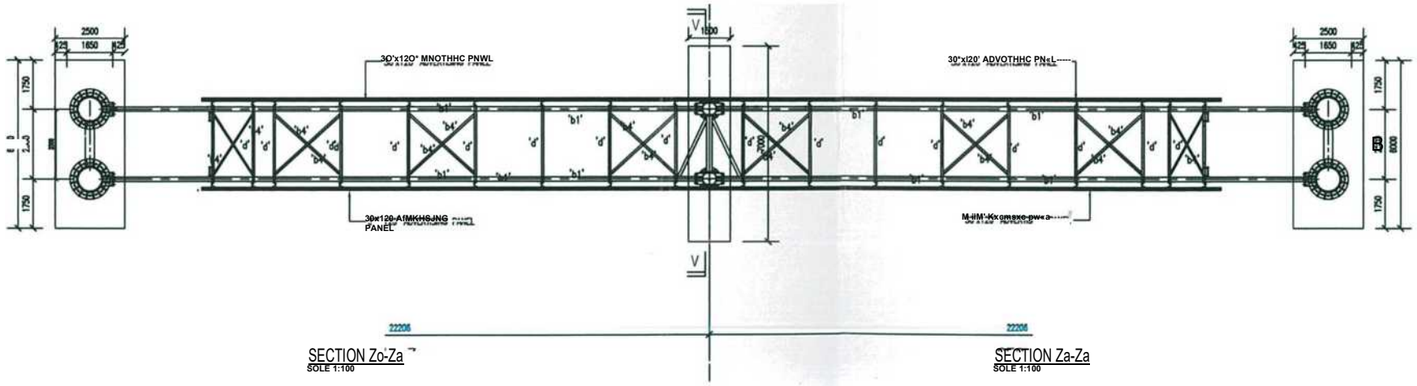
IMPORTANT NOTES:
1. TO REPLACE OR MAKE GOOD UNDER GROUND CULVERT DRAIN,

2. TO SUBMIT A SAFETY TRAFFIC MWACEMENT PROPOSAL 0URMG CONSTRUCTION FOR OUR APPROVAL
3. TO CHECK ANO VERIED AU UNDERGROUND SERVICES ARE SOLELY RESPONSHE FDR ANY DAMAGES TO UNDERGROUND SERVICES
4. THE FOOTING DESIGN COULD BE CHANGED SUBJECT TO SITE CONDITIONS
5. THE CONTRACTOR 6 REQUIRED TO MAKE A SITE VEIT BEFORE PRKSNG, THEY HAVE TO NCLUOE AU NECESSARY COSTS IN THE TENDER
6. THE CONTRACTOR E REQUIRED TO VERIFY THE LEVELS AT SITE BEFORE COMMENCEMENT Of WORK
7. STRUCTURAL DRAWINGS TO BE READ N CONJUCDOH WITH ARCHITECTURAL ORAWNG.
8. ACTUAL SPAN Of GANTRY ID BE CONFIRMED AFTER SITE VISIT.



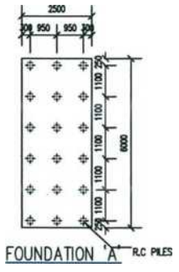
PLAN
SCALE 1:100

PLAN
SCALE 1:100

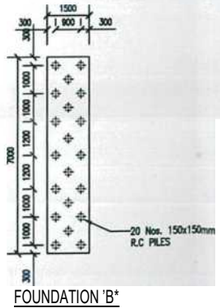


SECTION Zo-Za
SOLE 1:100

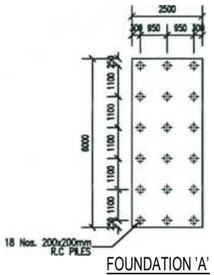
SECTION Za-Za
SOLE 1:100



FOUNDATION 'A'



FOUNDATION 'B*



FOUNDATION 'A'

ML NO :

MPSJ

FE1UUUK : CAMKAN TAMBAHAN BWU

IOUA PQEOWN

TAJIK PROJEX
PERMOHONAN KELULUSAN PERMIT SEMENTARA BAGI CADANGAN MEMBINA SATU (1) UNIT PAPAN IKLAN JENIS 'GANTRY' 2 MUKAAN BERUKURAN 30'(P) x120'(L) DI KM 12.5 (E6) LEBUHRAYA UTARA - SELATAN HUBUNGAN TENGAH (ELITE)

UNTUK
TETUAN NAYLIS TEGUH ENTERPRISE

TMCATAMGMI PEMLK STRUKTUR :

"Sayo/Kaml beroetuju untuk nwnatuhl pelon bangunan yang cRukxskoa. Dangan ini aayo/tomi barsatoju untuk dikenakan Undakon undang-undang yang barkolton dcngonnya jiko gogal memcrtuhlnyo"

HAMA : FARADHA BT MOHD LAMIN
NO KP :

ALAMAT :

NAYLIS TEGUH ENTERPRISE
MO. 31. LORONC IM 10/8.
BUST 51AM4. 25200. KLWOH PMWC 0MU. MWML Ta : 013-8310047
FAX : 08-5130588 EMAL : FalnMjtaartfyahooxaKniy

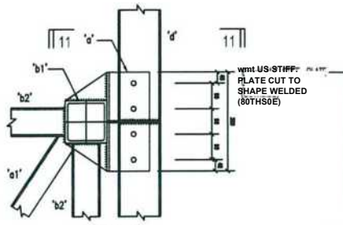
PCJOHON
'Saya mamparakui bahawa datoJI-datcil dalam palan- pakxi odalah manurut kehendak- kahandak undang - undang kacil bangunan larogom 1088 dan aaya aatuju tarima tanggungjowob panuh

UNTUK KEGUNAAN MPSJ :

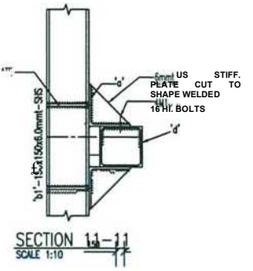
Tojuk
PLAN VIEW
FOUNDATION A & B"

SKALA :	SEPERT1 DITUNJUK
DILUKIS OIEH	AAY
DISEMAK OLEH	YN
TARIKH	DECEMBER 2018
NO LUKISAN	JAS/2018/NTT/12J/30X120/ST-1002

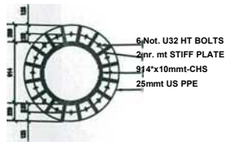
IUP0RTWT NOTES:
1. TO REPLACE OR MAKE 0000 UNDER GROUND CULVERT DRAIN.
OPEN TILES INTERLOCKING
2 TO SUBMIT A SAFETY TRAFFIC MAHAGEMENT PROPOSAL DURING CONSTRUCTION FOR OUR APPROVAL
4. THE FOOTING DESIGN COULD BE CHANCED SUBJECT TO SITE CONORONS
5. THE CONTRACTOR IS REQUIRED TO MAKE A SITE VISIT BEFORE PR1OHG, THEY HAVE TO NCLUOE ALL NECESSARY COSTS IN THE TENDER
6. THE CONTRACTOR IS REQUIRED TO VERIFY THE LEVELS AT SITE BEFORE COMMENCEMENT OF WORK
7. STRUCTURAL DRAWINGS TO BE READ IN CONJUCOON WITH ARCHTECTURAL DRAWING.
8. ACTUAL SPAN OF GANTRY TO BE CONFIRMED AFTER SITE MSIT.



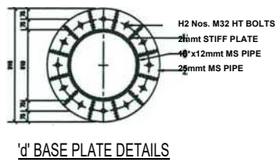
DETAIL 'P'
SOLE 1:10



SECTION 1-1
SCALE 1:10



'C3' BASE PLATE DETAILS
SOLE 120

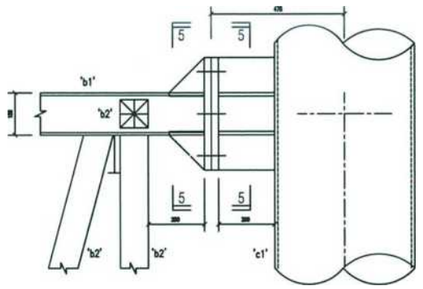


'd' BASE PLATE DETAILS
SOLE 1:20

IMPORTANT NOTES:
1 . UPON COUPUETION. THE STRUCTURE OWNER UUST OBTAIN A LETTER OF CERDF1CAD0N)R0U THE ENGINEER, OTHERWISE LKC JURUTERA PERUNOING WIL NOT BE RESPONSIBLE FOR THIS WORK.
2 THIS COMPLETED STRUCTURE IS REQUIRED TO BE INSPECTED ANO RECERTFED BY LKC JURUTERA PERUNOING YEARLY, OTHERWISE LKC JURUTERA PERUNDING WIL NOT BE RESPONSBLE FOR THIS IIORK

UPORTANT NOTES:
1. TO REPLACE OR UAKE GOOD UNDER GROUND CULVERT DRW,
2. TO SUBAFT A SAFETY TRAFFIC UAHM3EMENT PROPOSAL DURING CONSTRUCTION FOR OUR APPROVAL
4. THE FOOONG DESIGN COULD BE CHANGED SUBJECT TO SHE CONDITIONS
5. THE CONTRACTOR IS REQUIRED TO UAKE A SFTE VHT BEFORE PRKNG, THEY HALE TO INCLUDE ALL NECESSARY COSTS IN THE TENDER
6. THE CONTRACTOR IS REQUIRED TO VERIFY THE LEVELS AT SITE BEFORE COMMENCEMENT OF WORK
7. STRUCTURAL DRAWINGS TO BE READ IN CONJUCOON WITH ARCHITECTURAL DRAWING.
8. ACTUAL SPAN OF GANTRY TO BE CONFIRMED AFTER SITE WSLT.

NOTTS :
1 THE COHnUCTOR S FLOURED TO SUFMT ILC. PIE AHO ANCHOR BOLTS SPECFKATIOH OfIORE COUCNCOCNT OF WORK.
2 REFER TO MANUFACTURER'S S'EDFXADOH FDR FWE JONT OETAL
1 THE CONTRACTOR 6 REDUCED TO TEWER FOR 1L0m POESTRAIIOH LENGTH FOR EVERY RLE POWT.



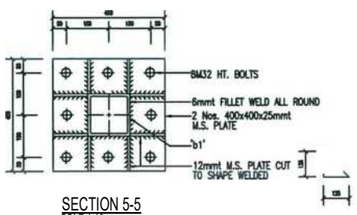
8634x8.74m mt-CHS

-200mm*x12mmt MS PLATE WELDED AT 5'-0' C/C AT CONNECTION JOINTS
-61O'x12mmt MS. PIPE COLUMN
-8mmt WELD

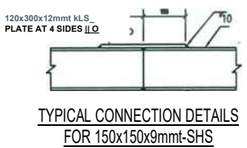
DETAIL 'A'
SOLE 1:10

SECTION 4-4
INTERNAL BRACING
SCALE 1:25

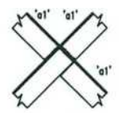

BUTT WELD DETAIL
(COLUMN CONNECTION)
SCALE 1:2



SECTION 5-5
SOLE 1:10

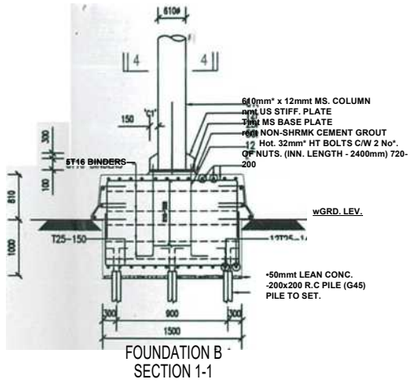


TYPICAL CONNECTION DETAILS FOR 150x150x9mmt-SHS
SOLE 1:10

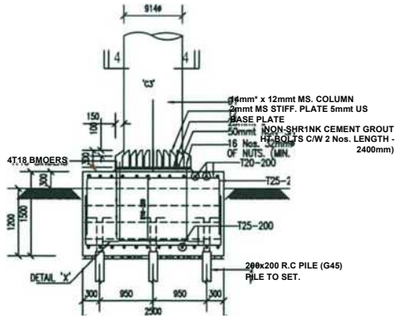


DETAIL N'
SOLE 1:10

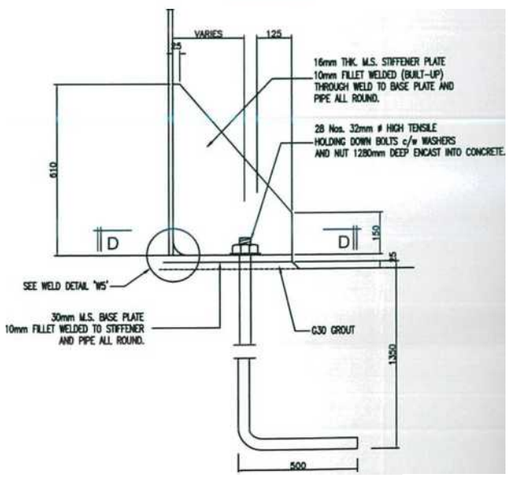
MEMBER	
'c1'	610*x12mmt-CHS
'c2'	162*x8.0mmt-CHS
'b1'	160x150x9.0mmt-SHS
'b2'	100x100Qx6.0mmt-SHS
'b3'	75x75x3.0mmt-SHS
'b4'	50x50x3.0mmt-SHS
'a'	100x100x6mmt-L
'a1'	80xB0x6mmt-L
'a2'	65x65x6mmt-L
'd'	80x8Qx6.0mnrt-SHS



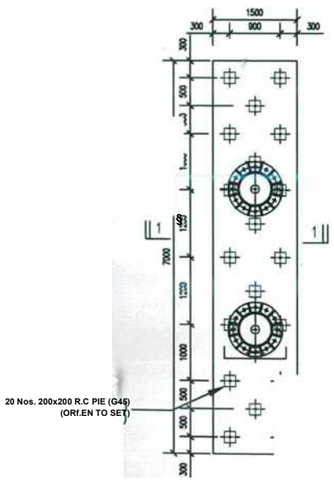
FOUNDATION B
SECTION 1-1



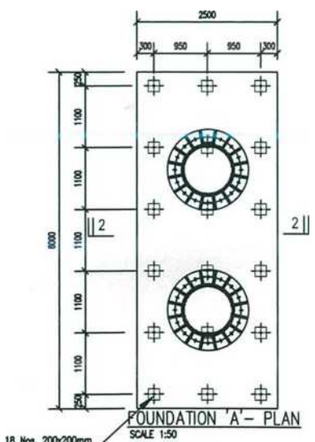
FOUNDATION 'A'
SECTION 2-2



DETAIL 'X'
SCALE 1 : 10



FOUNDATION 'B'- PLAN
SCALE 150



FOUNDATION 'A'— PLAN
SCALE 1:50

EM NO :
MPSJ

PUUHJUK : OOANCAN TAM6VMH W?J
>HUA POCCNUN

TAJIK PROJEX
PERMOHONAN KELULUSAN PERMIT SEMENTARA BAGI CADANGAN MEMBINA SATU (1) UNIT PAPAN IKLAN JENIS 'GANTRY' 2 MUKAAN BERUKURAN 30'(P) x120' (L) DI KM 12.5 (E6) LEBUHRAYA UTARA - SELATAN HUBUNGAN TENGAH (ELITE)

UNTUK
TETUAN NAYLIS TEGUH ENTERPRISE

TAMMTAMGAN PQftJK STRLKTUR :
"Soyo/Kocnl bereetuju untuk mematuN pelon bongunon yang dflukiekon. Dengan M •ayo/komi bereetuju
untuk di ken a kan tJndakan undang-undong yang berfcaiton dengonnya Jika gogol mematuhlnyo"

HAMA : FARADKA BT MOHD LAMIN
NO KP ;

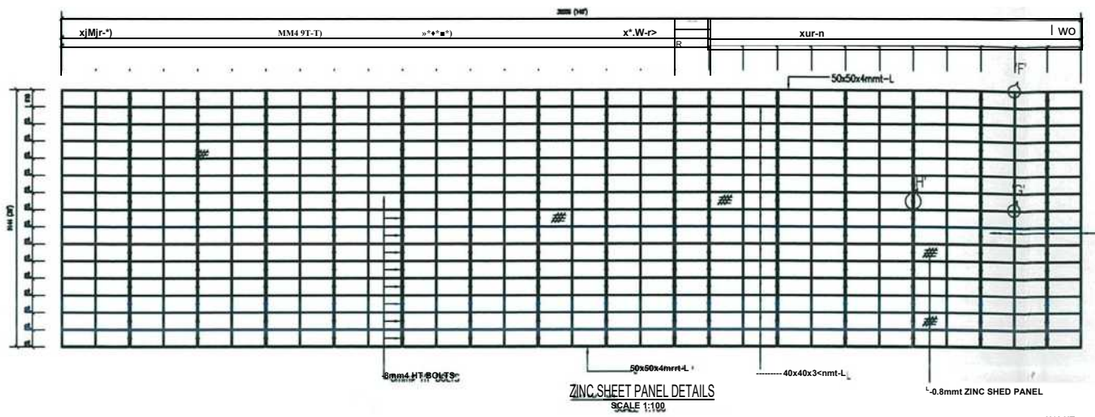
MJMMT :
NAYLIS TEGUH ENTERPRISE
HO. JI, UJOC IM 10/W.
awn SUNK 2U00, mwK PMWC (WU. IWQAJR. TEL : 015-4310047 FM : »-5IX» QM : fahfcjfeamlydmxwuiiy

PEMOHON
'Saya memperokul bchava detail-detail dalom pekxi- pelon odd ah menurut kehendak- kehendok undong - undang keefl bongunon eerogom 1D88 dan eoya •etuj'u terima tanggungjowob penuh

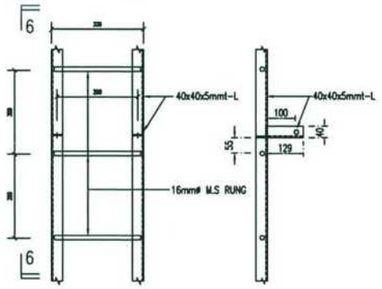
UNTUK KEGUNAAN MPSJ :

Tojuk UWtan STRUCTURAL DETAILS
FOUNDATION DETAILS

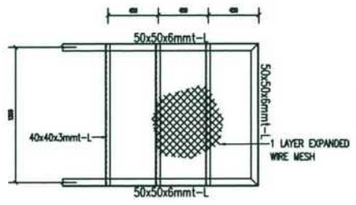
SKALA :	SEPERT1 OmJNJUK
DILUKIS OLEH	AAY
DISEMAK OLEH	YN
TARIKH	DECEMBER 2018
NO LUKISAN	JAS/2018/WT/125/30X120/ST-1003



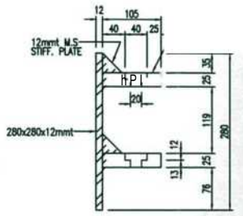
ZINC SHEET PANEL DETAILS
SCALE 1:100



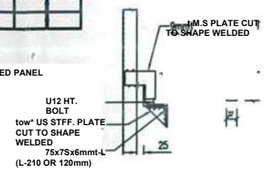
CAT LADDER DETAILS
SCALE 1:10



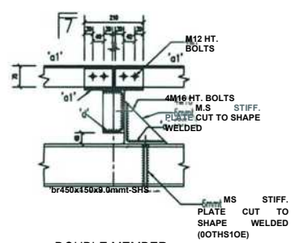
TYPICAL PLAN OF 1200mm WIDE WALKWAY
SCALE 1:25



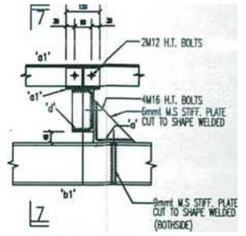
PART '1'
SCALE 1:5



M.S BRACKET HOLDER DETAIL
SCALE 1:10

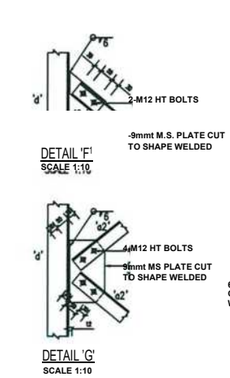


DOUBLE MEMBER



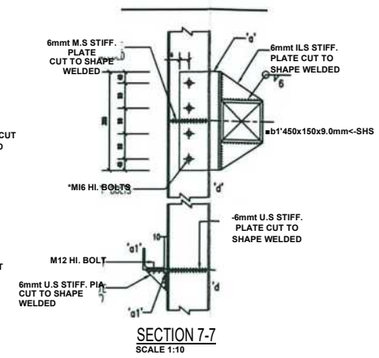
SINGLE MEMBER

ANGLE MEMBER SPLICING CONNECTION DETAIL
SCALE 1:10

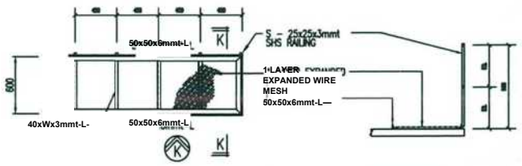


DETAIL 'F'
SCALE 1:10

DETAIL 'G'
SCALE 1:10

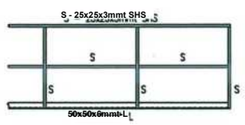


SECTION 7-7
SCALE 1:10



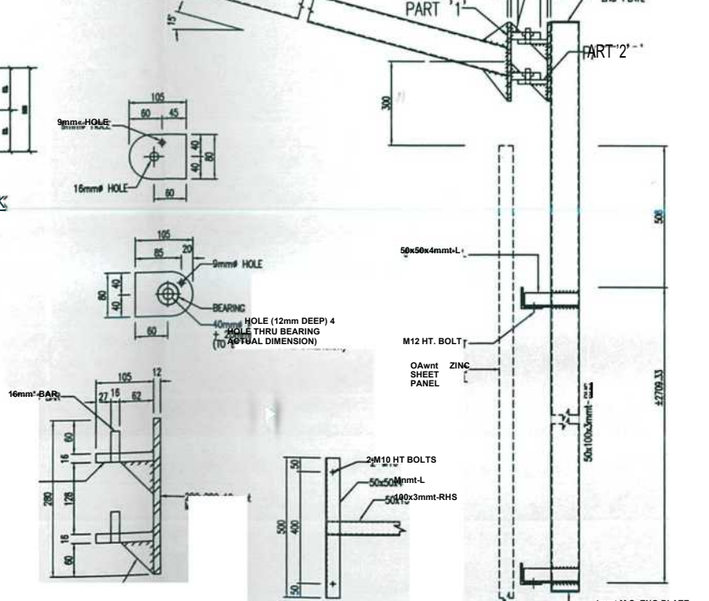
TYPICAL PLAN OF WALKWAY
SCALE: 1:30

SECTION K—K
SCALE: 1:30



ELEVATION 'K
SCALE: 1:30

DETAIL H
SCALE 1:10



PART '2'
SCALE 1:5

VIEW 'A'
SCALE 1:10

TOP LIGHTING ARM DETAIL (2x14 Nos.) + (2x4 Nos. OPTIONAL)
SCALE 1:10

IMPORTANT NOTES

1. UPON COMPLEDON.THE STRUCTURE OWNER MUST OBTAIN A LETTER OF CERDF1CAD0N TOOM THE ENGINEER. OTHERWISE PERUNOING JAS WILL NOT BE RESPONSES FOR THIS WORK.
Z THS COMPLETED STRUCTURE IS REQUIRED TO BE NSPECTED ANO RECERTIFIED BY PERUNOING JAS YEARLY, OTHERWISE PERUNOING JAS WILL NOT BE RESPONSIBLE FOR THS WORK

IMPORTANT NOTES

1. TO REPLACE OR MAKE 0000 UNDER GROUND CULVERT DRAIN, Eg m* TMhc

Z TO SUBMIT A SAFETY TRAFFIC MANAGEMENT PROPOSAL DURING CONSTRUCTION FDR OUR APPROVAL
1 TO CHECK ANO VERIFIED ALL UNDERGROUND SERVICES ARE SOLELY RESPOHSBLE FOR ANY DAMAGES TO UNOERGROUNO SERVICES
4. THE FOOTING DESIGN COULD BE CHANGED SUBJECT TO SHE COHODONS
5. THE CONTRACTOR IS REQUIRED TO MAKE A SITE WSIT BEFORE PRICING, THEY HAVE TO NCUUOE ALL NECESSARY COSTS IN THE TENDER
6. THE CONTRACTOR IS REQUIRED TO VERIFY THE LEVELS AT SUE BEFORE COMMENCEMENT OF WORK
7. STRUCTURAL DRAWINGS TO BE READ N CONJUCTTON WITH ARCHITECTURAL DRAWING.
8. ACTUAL SPAN OF GANTRY TO BE CONFIRMED AFTER SITE VISIT.

EM. NO :

MPSJ

PETIMAM : CNYVON IAI0HM MRU

KEJU* POECNVN

TAJIK PROJEX
PERMOHONAN KELULUSAN PERMIT SEMENTARA BAGI CADANGAN MEMBINA SATU (1) UNIT PAPAN IKLAN JENIS 'GANTRY' 2 MUKAAN BERUKURAN 30'(P) x120'(L) DI KM 12.5 (E6) LEBUHRAYA UTARA - SELATAN HUBUNGAN TENGAH (ELITE)

UNTUK
TETUAN NAYLIS TEGUH ENTERPRISE

TANCATANGAM PQ8JK STRUKTUR :

"Sayo/Koml bereetuju untuk mematuhl petan bongunon yang dSukwekon. Dengan M eayo/kami bereetuju
untuk dikenakan Undakon undang-undang yong bericoiton dengannya Jiko gogol mematuhlnyo"

HAMA : FARADILA BT MOHD LAMIN
NO KP :

M.JMMT :

NAYLIS TEGUH ENTERPRISE

NO. 31, UORONG IM 10/8.
BJOT SIMA, 25200, KUAMTAK FWWC DMU.
1WMJR. TR : 01X310047 FAX : 08-5130580 EMM. :

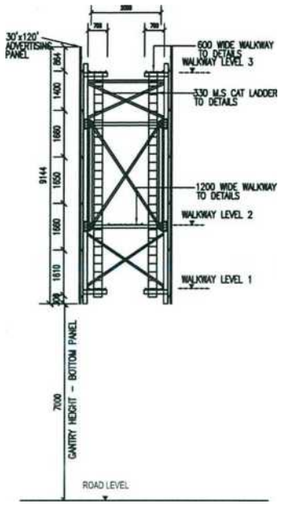
PQ4OHON
'Sayo memperokul bahawa detail -detail da lam pelan- peian odolah menurut kehendok- kehendok undong - undong keel bongunon eerogom 1988 dan eoya eetuju terima tonggungjawob penuh

UNTUK KEGUNAAN MPSJ :

Tojuk UAtert
PANEL FRAME & WALKWAY DETAILS
STRUCTURAL DETAILS

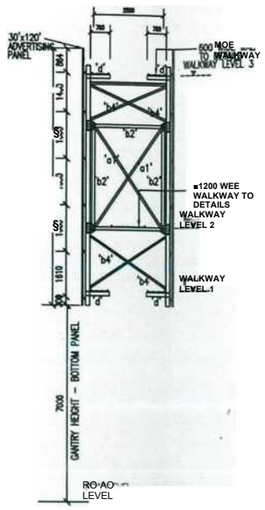
SKALA :	SEPERTI D1RINJUK
DILUKIS OLEH	AAY
DISEMAK OLEH	YN
TARIKH	DECEMBER 2018
NO LUKISAN	JAS/2018/NYT/1Z5/30X120/ST-1004

MEMBER	
'c1'	6104x12mnrt-CHS
'c2'	152Px8.0mmt-CHS
'b1'	150x150x9.0mnrt-SHS 100x100x6.0m<nt-SHS
'b2'	
'b3'	75x75x3.0mnit-SHS
'b4'	50x50x3.0mmt-SHS
'd'	100x100x6fnmt-L
'a1'	80x80x6nxnt-L
'a2'	65x65x6mmt-L
'd'	80xB0x6.0mrrrt-SHS

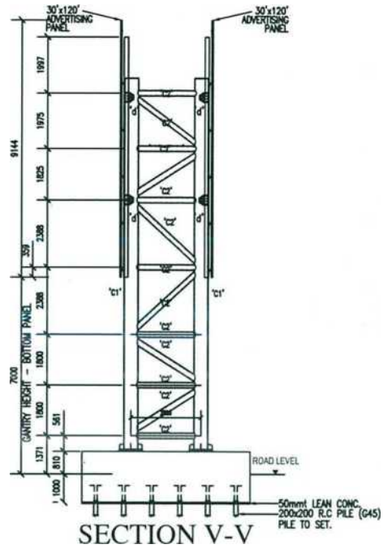


SECTION Y-Y

SCALE I KX>



SECTION X-X



SECTION V-V

SCALE 1:100

IMPORTANT NOTES

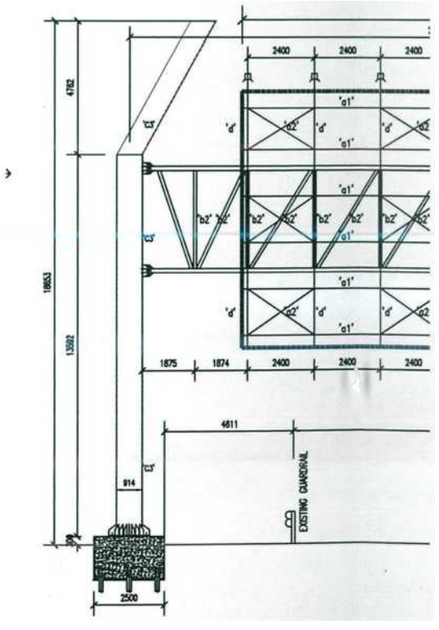
1. TO REPLACE OR MAKE GOOD UNDER GROUND CULVERT DRAIN,

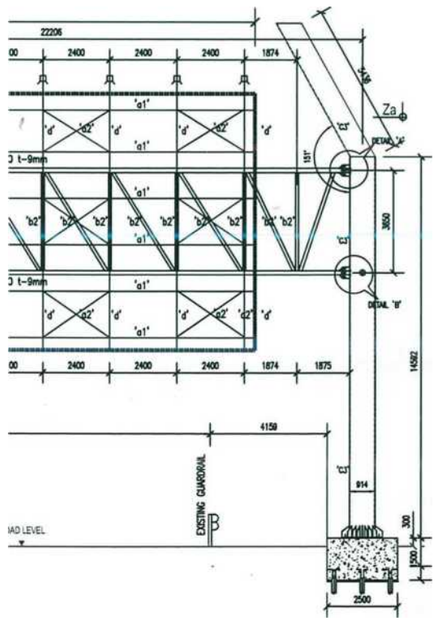
2. TO SUBMIT A SAFETY TRAFFIC IWMGEMENT PROPOSAL DURNC CONSTRUCTION FDR OUR APPROVAL

4. THE FOODNG DESIGN COULD BE CHANGED SUBJECT TO SRE COHOmONS
5. THE CONTRACTOR IS REQUIRED TO MAKE A SHE VISIT BEFORE PRICING, THEY HAVE TO INCLUDE ALL NECESSARY COSTS IN THE TENDER
6. THE CONTRACTOR IS REQUIRED TO VERIFY THE LEVELS AT STTE BEFORE COUKNCQEXT OF WORK
7. STRUCTURAL DRAWINGS TO BE READ H CONJUCDON WITH ARCHITECTURAL DRAWNG.
8. ACTUAL SPAN OF GANTRY TO BE CONFIRMED AFTER SHE VISIT.

WKKIANT NOTES:

1. UPON COMPLETION, THE STRUCTURE OWNER MUST 06TAN A LETTER OF CERTIFICATION FROM THE ENGINEER. OTHERWISE PERUNOING JAS WIL NOT BE RESPONSIBLE FOR THIS WORK.
2. THIS COMPLETED STRUCTURE IS REQUIRD TO BE INSPECTED ANO RECERTIFIED BY PERUNOING JAS YEARLY. OTHERMSEPERUNONC JAS MU. NOT BE RESPONSIBLE FOR THS WORK





ML NO :	
MPSJ	
PCT*** :	<X»CAN Wevwi MtU
I&UA POCCWN	

TAJIK PROJEX

PERMOHONAN KELULUSAN PERMIT SEMENTARA BAGI JE^{D}NIS^{GA}G^{AE}NTOV$^{ASATI)}$ (1) UNIT PAPAN IKLAN

JENIS GANTRY 2 MUKAAN BERUKURAN 30- (P) X120-(L) DI KM 12.5 (E6) LEBUHRAYA UTARA - SELATAN HUBUNGAN TENGAH (ELITE)

UNTUK
TETUAN NAYLIS TEGUH ENTERPRISE

TANQATANGAN PQftJK STRUCTUR :

'Soyo/Koml barwtuju untuk mnmotuhl pakm bongunnn yong dSuluskon. Onngon H aoyn/koml bamtuju untuk dikonokon Undokan undong-undong yang bnrkoilon dengonnyo jika gogal mamatuhlnyo"

NAMA : FARADKA BT MOHD LAMN NO KP :

MAMAT :

NAYLIS TEGUH ENTERPRISE

MO. 31. LORONG IM 10/8.
OKI 5MK 25200. KMfiM, FWWC MU bWMJR. TH : 013-4310047 FAX : W-5130MB □Mi. : fakWu/lcan8^oaxQHUiY

PEMOHON

'Saya mamparokul bahava datoR-datol da torn patan- palon odalah manurut kehendok- kahandok undang — undo ng kacR bongunan wrogom 1966 don tayo •atuju todma tonggungjawob panuh

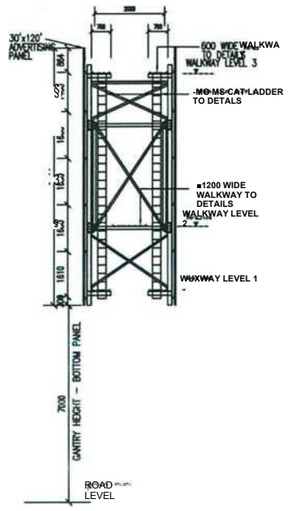
UNTUK KEGUNAAN MPSJ :

Tojuk Lukfjar

SECTION Z-ZV-V, X-X & Y-Y

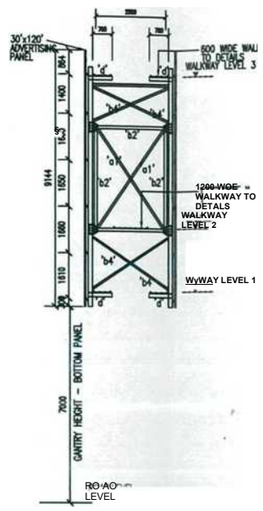
SKALA :	SEPERT1 DITUNJUK
DILUKIS OLEH	AAY
DISEMAK OLEH	YN
TARIKH	DECEMBER 2018
NO LUKISAN	JKS/20IB/>M/12J/W»AT-0Wa

MEMBER	
'c1'	6104x12mmt-CHS
'c2'	152×8.0mmt-CHS
'b1'	150x150x9.0mmt-SHS
'b2'	100x10Qx6.0mmt-SHS
'b3'	75x75x3.Qmmt-SHS
'b4'	50x50x3.Qmmt-SHS
'a'	'OOxlOOx&nmt-L
'a1'	80x80x6mmt-L
'a2'	65x65x6mmt-L
'd'	80x80x6.0mmt-SHS

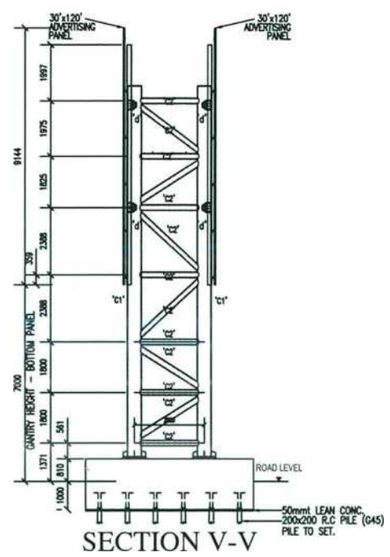


SECTION Y-Y

SCALE 1:100



SECTION X-X



SECTION V-V

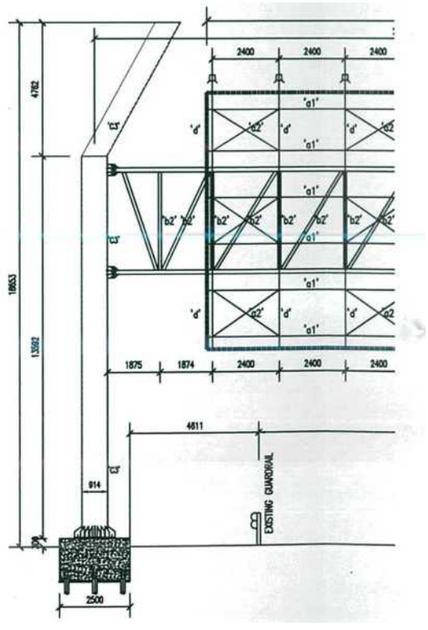
IMPORWff NOTES:

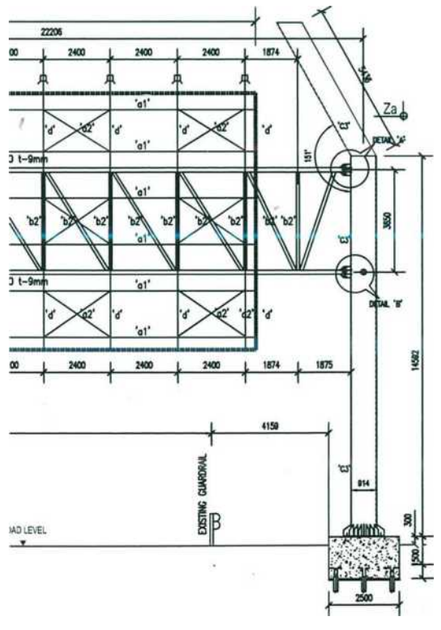
1. TO REPLACE OR MAKE GOOD UNDER GROUND CULVERT DRAIN, OPEN DRAIN. PREMIX ROAD, ROAD KERB, TURFING, LANDSCAPING, INTERLOCKING TIES ANO EXPORTING EXTRA EARTH FRAJM THE srtE
2. TO SUBMIT A SAFETY TRAFFIC MANAGEMENT PROPOSAL DURING CONSTRUCTION FOR OUR APPROVAL

4. THE FOOTWC DESIGH COULD BE CHANGED SUBJECT TO SITE COHCFDORS
5. THE CONTRACTOR IS REOURED TO MAKE A SHE VST BEFORE PRICING, THEY HAVE TO INCLLDE AU NECESSARY COSTS IN THE TENDER
6. THE CONTRACTOR IS REOURED TO VERIFY THE LEVELS AT SITE BEFORE C0U4ENCEMENT OF WORK
7. STRUCTURAL DRAWINGS TO BE READ K COHJUCDOH WITH ARCHITECTURN. DRAWING.
8. ACTUAL SPAN OF GANTRY TO BE CONARMED AFTER SITE VST.

MPORTANT NOTES:

1. UPON COMPLETION, THE STRUCTURE OWNER MUST 08TAH A LETTER OF CERTIFICATION FROM THE ENGINEER, OTHERWISE PERUNOING JAS WALL HOT BE RESPONSIBLE FOR THIS WORK.
2. THIS COMPLETED STRUCTURE IS REQUIRED TO BE INSPECTED ANO RECERTIFIED BY PERUNOING JAS YEARLY, OTHERWSEPERUHOHC JAS WIL NOT BE RESPONSIBLE kOR THS WORK





FM. NO :

«PSJ

TAJIK PROJEX

PERMOHONAN KELULUSAN PERMIT SEMENTARA BAGI CADANGAN MEMBINA SATU (1) UNIT PAPAN IKLAN JENIS 'GANTRY' 2 MUKAAN BERUKURAN 30'(P) x120'(L) DI KM 12.5 (E6) LEBUHRAYA UTARA - SELATAN HUBUNGAN TENGAH (ELITE)

UNTUK
TETUAN NAYLISTEGUH ENTERPRISE

TAMMTANGAN PQAJK STRUKTUR :

"Scyo/Kami bersetuju untuk momatuhi peton bongunan yang dfluluskon. Dengan ini acyo/kami barviuju untuk dikonakan tindakan undang-undang yang barkoiton dengonnya Jiko gogal menxituhinyo"

NAMA : FARADILA BT MOHD LAMIN
NO KP :

ALAMAT :

NAYLIS TEGUH ENTERPRISE

NO. 31. LORDNC IM 10/8.
RWT EWK 25200, KLMKTAM, FWWC DMU. IWMR JR : 013-4310M7
FAX : 00-5130586
EMM. : FolMtjteamBydtooxanuTiy

PEMOHON

'Soya mamparokui bobawa datoil-datail da lam palan- pwkxi odolah manurut k«h«ndak- keMndok undong - undang k«cil bongunan tarogom 1088 dan soya wtuju Udma tanggungjowob pan uh

UNTUK KECUMAN MPSJ :

Tojuk Luifxrc

SECTION Z-Z.V-V, X-X & Y-Y

SKALA :	SEPERTI DITUNJUK
DILUKIS OLEH	AAY
DISEMAK OLEH	YN
TARIKH	DECEMBER 2018
NO LUKISAN	JAS/2018/NYT/12JS/30X120/ST-1004a