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Faculty of Mechanical and Manufacturing Engineering Technology

DEVELOPMENT OF 3D MODEL AND BATHYMETRY CONTOUR MAPS FOR SUNGAI MELAKA USING SURFER

Ahmad Zairy Bin Jamaludin

Bachelor of Mechanical Engineering Technology (Automotive Technology) with Honours

2023

DEVELOPMENT OF 3D MODEL AND BATHYMETRY CONTOUR MAPS FOR SUNGAI MELAKA USING SURFER

TS. Shikh Ismail Fairus Bin Shikh Zakaria

A thesis submitted
in fulfilment of the requirements for the degree of
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2023

DECLARATION

I declare that this project entitled "Development of 3D Model and Bathymetry Contour Maps For Sungai Melaka Using Surfer " is the result of my research except as cited in references. The project report has not been accepted for any degree and is not concurrently submitted in the candidature of any other degree.

Signature :

Name : Ahmad Zairy Bin Jamaludin

Date : 10 January 2023

APPROVAL

I hereby declare that I have checked this thesis and in my opinion, this thesis is adequate in terms of scope and quality for the award of the Bachelor of Mechanical Engineering Technology (Automotive Technology) with Honours.

Signature :

Supervisor Name : TS. Shikh Ismail Fairus Bin Shikh Zakaria

Date : 15 Januari 2023

DEDICATION

This project is dedicated to my beloved family and friends. In honour of my dearest parents, Jamaludin Bin Mohd Som and Ruminon Binti Badri for the words of encouragement and inspiration to keep me going. Also, my only sister and her family, they are very dear to me.

This dedication was also forwarded to my friends that helped me in a lot of situations throughout the whole progress of this project. They will always have a special place in my heart and their kindness will always be remembered.

Thank you, everyone.

ABSTRACT

This project's objective is to develop a 3D model and bathymetry contour map of the Malacca River by using the Surfer program. Some significant components of this project must be implemented, such as the use of numerous computer tools, such as MapCreator, QGIS, Google Earth Pro and GRASS GIS. The Deeper Chirp + sonar technology, which was originally developed to identify fish flocks for fishing purposes, is now being utilized to scan the hydrography of the specified region. As a result, my assignment required me to collect depth data from a section of the Malacca River that my supervisor, TS. Sheik Ismail Fairus Bin Shikh Zakaria had designated. After that, I am required to develop a 3D model of the designated river section by utilizing the obtained data to visualize the underwater topographic structure by using the Surfer program. It is hoped that the thesis will be accepted. It is intended that this project would aid in the development of 3D models for use by many others in the future, who are interested in doing so.

ABSTRAK

Projek ini bertujuan untuk membangunkan sebuah model 3D dan peta kontur batimetri Sungai Melaka dengan menggunakan program Surfer. Projek ini memerlukan beberapa elemen yang penting untuk dilaksanakan seperti menggunakan pelbagai program komputer contohnya MapCreator, QGIS, Google Earth Pro dan GRASS GIS. Projek ini juga memanfaatkan satu teknologi sonar yang dipanggil Deeper Chirp + yang pada asalnya digunakan untuk mengesan kawanan ikan untuk aktiviti memancing, sebaliknya digunakan untuk mengesan kedalam sesebuah kawasan berair. Oleh itu projek ini memerlukan saya untuk turun padang untuk mengambil data kedalaman sebahagian Sungai Melaka yang telah ditetapkan oleh penyelia saya, TS. Shikh Ismail Fairus Bin Shikh Zakaria. Selepas itu, saya dikehendaki untuk membangunkan sebuah model 3D untuk sebahagian kawasan sungai yang telah ditetapkan dan dengan menggunakan data yang diperolehi untuk menggambarkan struktur topografi bawah air dengan menggunakan program Surfer. Diharapkan dengan adanya thesis untuk projek ini dapat membantu dalam proses pembangunan model 3D untuk digunakan oleh orang ramai di masa hadapan, yang berminat dalam membangun model 3D mereka sendiri.

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In the Name of Allah, the Most Gracious, the Most Merciful

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Last but not least, from the bottom of my heart gratitude to my parents, Jamaludin Bin Mohd Som and Ruminon Binti Badri for always being there for me when I too tired to do this project, they are the ones that always be there to fuel my strength and help me get through in difficult times. My friends and housemates that has helped me in finishing this project by giving me some advice on what I should do for the thesis. Finally, thank you to all the individuals who had provided me with assistance, support, and inspiration to embark on my study.

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LIST OF SYMBOLS AND ABBREVIATIONS

3D	-	Three Dimension
CHIRP	-	Compressed High-Intensity Radar Pulse
WQI	-	Water Quality Index
CAD	-	Computer-Aided Design
DO	-	Dissolved Oxygen
BOD	-	Biological Oxygen Demand
COD	-	Chemical Oxygen Demand
NH3N	-	ammoniacal-nitrogen
SS	-	Suspended Solid
pH	-	Potential of Hydrogen
SI	-	Sub-Index
LiDAR	-	Laser imaging, Detection, And Ranging
DOP	-	Depth of Penetration
TM	-	Thematic Mapper
Landsat MMS	-	Landsat Multispectral Scanner
DN	-	Digital Number
GIS	-	Geographic Information System
VNS	-	Visual Nature Studio
SBES	-	Single-Beam Echo Sounder
MBES	-	Multi-Beam Echo Sounder
DTM	-	Digital Terrain Model
CHIRP	-	Compressed High-Intensity Radiated Pulse
ABS	-	Acrylonitrile Butadiene Styrene
UTM	-	Universal Transverse Mercator
mAh	-	milliamp hours
GPS	-	Global Positioning System

LIST OF APPENDICES

CHAPTER 1

INTRODUCTION

1.1 Background

Earth's surfaces have many kinds of elevation and landforms that can be found in our surroundings. Contour maps are the depiction of a portion of the earth's surface using the contour line to visualize the elevation above sea level or depth below sea level. This contour line will connect the location of equal value and separate points of higher or lower values from it. Normally encountered types of contour maps such as topographic contour map that shows elevation of the earth's surface, structure contour maps that show the elevation or depth of a formation, and isopachs which show variation in the thickness of a stratigraphic unit.

1.2 Problem Statement

Malacca River is riddled with histories stretching back to the grandiose days of the important and powerful 'Malacca Malay Sultanate', which drew merchants from all over the world to trade and commerce, earning the state the nickname 'Venice Of The East' from Portuguese historian Tomes Pires.

Malacca River, on the other hand, today serves primarily as a rich reminder of its wonderful and bountiful past, as well as its current growth. What better way to learn about it than to go on a riverboat cruise and learn about its history while admiring its quaint and scenic beauty.

The problem statement for this project will be:

- There are barely any data regarding bathymetry or hydrographic study on Malacca River, moreover no illustration of the underwater landscape in any shape or form.

- Due to the constant change in the underwater landscape of Malacca River, it is worrying that it may pose a significant danger to the local and industries in terms of disaster such as flood .

1.3 Project Objective

The main aim of this project is to develop a 3D model and bathymetry contour maps of the Malacca River. Specifically, the objectives are as follows:

a) To develop a 3D contour map of the Malacca River using Surfer based on the obtained data.

b) To analyse the condition of the Malacca River using the created 3D model of its underwater surfaces through observation and comparison with local data and then determine whether the Malacca River is still safe as the way it is or need to undergo maintenance.

1.4 Scope Of Study

The scope of study will be limited and conducted at 100 meters of Malacca River nearest to Jalan Duku 2. This study will start in my semester seven (7) in UTeM for PSM 2. This study will also utilise a few kinds of equipment, namely the RC boat, deeper CHIRP+ device, smartphone, a computer and some software like Microsoft Excel and Surfer. After acquiring all the data needed, the focus will be centered to the developing 3D model of the bathymetry contour map for that Malacca River area.

CHAPTER 2

LITERATURE REVIEW

2.1 Background

For this chapter, a lot of information has been gathered related to this project which is developing the 3D model and bathymetry contour maps of the Malacca River from the past article, research paper and any other sources, and will be presented based on Figure 2.1 below.

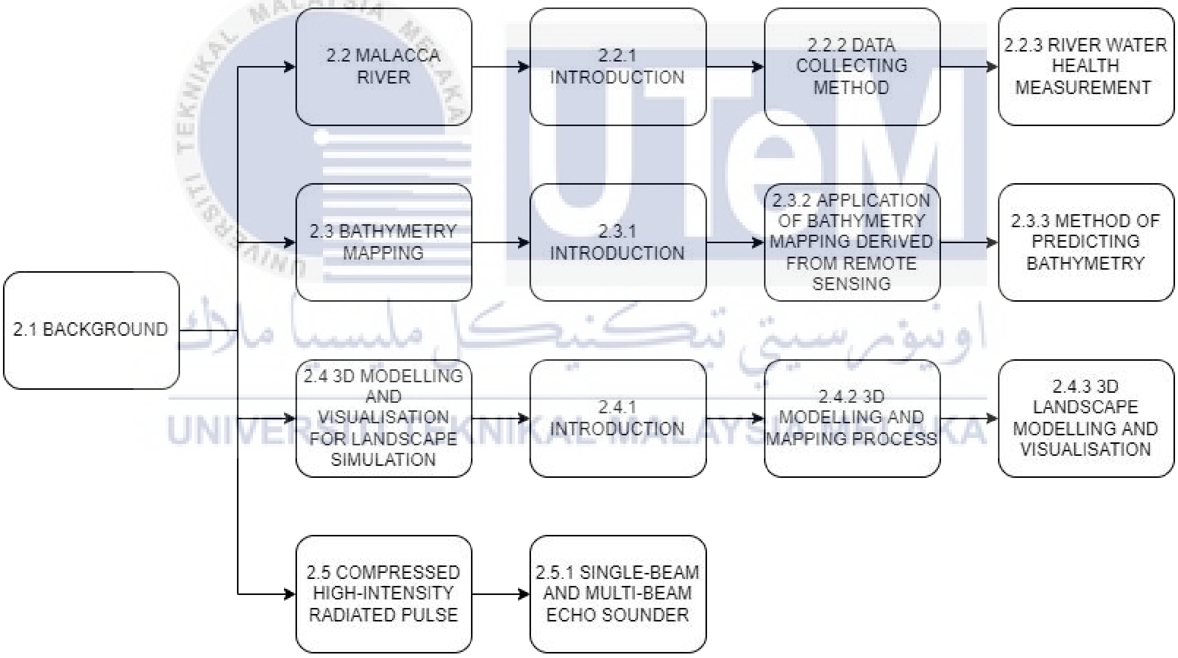

Figure 2.1 *Flow Chart of Literature Review*

2.2 Malacca River

2.2.1 Introduction

The State of Malacca is located between the states of Johor and Negeri Sembilan, in the southwest of Peninsular Malaysia with the geographical coordinates of 2°23’16.08” N to 2°24’52.27” N latitude and 102°10’36.45” E to 102°29’17.68” E longitude. Malacca is divided into three districts, namely Alor Gajah, Jasin, and Malacca Central. (Ang Kean Hua, 2017) believes that the basin of malacca River is formed by 13 sub-basins, namely Kampung Ampang Batu Gadek sub-basin, Kampung Balai sub-basin, Kampung Batu Berendam sub-basin, Kampung Buloh China sub-basin, Kampung Cheng sub-basin, Kampung Gadek sub-basin, Kampung Harmoni Belimbing Dalam sub-basin, Kampung Kelemak sub-basin, Kampung Panchor sub-basin, Kampung Pulau sub-basin, Kampung Sungai Petai sub-basin, Kampung Tamah Merahsub-basin, and Kampung Tualang sub-basin. Among the 13 sub-basins, only 7 sub-basins were selected, with 9 sampling stations located alongside the Malacca River.

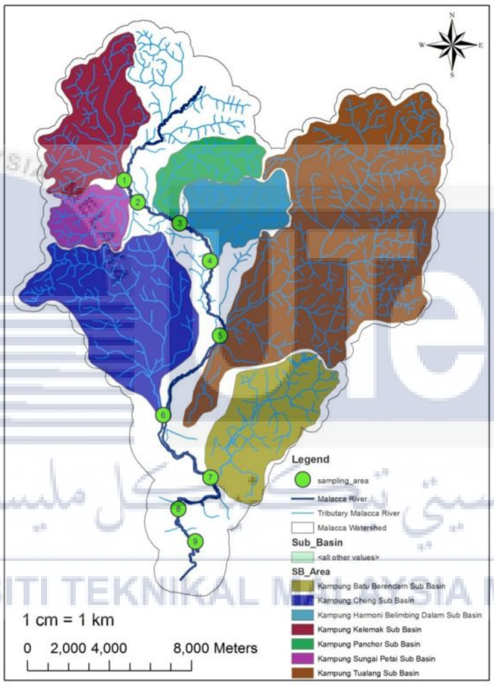

Figure 2.2 *Malacca River sub-basin and sampling area*

2.2.2 Data Collecting Method

As mentioned before, there was 9 sampling location that was chosen at 7 sub-basin that was selected along the Malacca River. The exact locations were determined by using the Global Positioning System (GPS) coordinate as displayed in Table 2.1. The collection of water quality samples was carried out monthly from January to December 2015.

Station	Latitude	Longitude
S1	02°21’57.41”N	102°13’7.10”E
S2	02°21’30.16”N	102°13’18.20”E
S3	02°20’49.52”N	102°14’36.44”E
S4	02°19’41.70”N	102°15’27.30”E
S5	02°17’48.86”N	102°15’39.51”E
S6	02°15’46.55”N	102°14’10.72”E
S7	02°14’5.02”N	102°15’24.67”E
S8	02°13’14.33”N	102°14’35.01”E
S9	02°12’23.42”N	102°15’0.80”E

Source: Global Positioning System

Table 2.1 *Latitude Longitude of sampling station*

Water samples were collected in polyethylene bottles using a 'grab sampling' technique to avoid entangling air bubbles. To reduce microbial activity in the water, each bottle was labelled with the sampling station's name and maintained at 4°C (Ang Kean Hua, 2017 as cited by APHA, 2005). The physico-chemical characteristics of the water samples were investigated. Because colloidal or suspended particle material in water samples could interfere with metal detection, the samples were immediately filtered in the laboratory using a 0.45 m cellulose acetate membrane filter (Ang Kean Hua, 2017 as cited by Whatman Milipores, Clifton, NJ). The goal of this approach was to avoid clogging during spectrometry analysis and to get dissolved ions for metal analysis (Ang Kean Hua, 2017 as cited by APHA, 2005). The samples were then acidified with HNO3 to pH 2 to prevent the components from precipitating for trace metal analysis and to slow down any biological activities (Ang Kean Hua, 2017 as cited by APHA, 2005).

2.2.3 The River Water Health Measurement

A healthy river should have good water quality to assist with the survival of aquatic animals (Ang Kean Hua, 2017). The river health level is measured using WQI which is based on several other parameters that need assessment and monitors. Department of Environment (DOE) Malaysia use DO, BOD, COD NH3N, SS AND pH to determine the WQI. DO is used to measure the amount of oxygen available in water (Ang Kean Hua, 2017 as cited by Juahir et al.,2011); BOD determines the strength of pollutants in terms of oxygen required to stabilize the wastes or measures biodegradable waste present in water (Ang Kean Hua, 2017 as cited by WSDE, 2002); COD measure the amount of organic and inorganic oxidizable compound in water (Ang Kean Hua, 2017 as cited by Davis and

McCuen, 2005); SS determines the natural pollutants and causes of turbidity in water (Ang Kean Hua, 2017 as cited by Mathvi and Razazi, 2005); NH3N determine the amount of ammonia exists in water that could cause eutrophication (Ang Kean Hua, 2017 as cited by Wang et al., 2010); and pH are to measure the acid strength in water (Ang Kean Hua, 2017 as cited by Davis and McCuen, 2005). The Malacca River's WQI is then calculated using a formula that was developed by DOE (Eq.1) which then consists of other sub-indexes(SIs) and calculated according to the best-fit relationship (Eq.2-7):

Water Quality Index (WQI) formula :

$$WQI = 0.22 * SI_{DO} + 0.19 * SI_{BOD} + 0.16 * SI_{COD} + 0.15 * SI_{AN} + 0.16 * SI_{SS} + 0.12 * SI_{pH}$$

(Eq.1)

Best-fit equations for DO sub-index (SI_{DO}) :

$$SI_{DO} = \begin{cases} 0 & \text{for DO} < 8 \\ 100 & \text{for DO} > 92 \\ -0.395 + 0.030DO^2 - 0.00020DO^3 & \text{for } 8 \leq \text{DO} < 92 \end{cases}$$

(Eq.2)

Best-fit equations for BOD sub-index (SI_{BOD}):

$$SI_{BOD} = \begin{cases} 100.4 - 4.23BOD & \text{for BOD} < 5 \\ 108e^{-0.055BOD} - 0.1BOD & \text{for BOD} > 5 \end{cases}$$

(Eq.3)

Best-fit equations for COD sub-index (SI_{COD}):

$$SI_{COD} = \begin{cases} -1.33COD + 99.1 & \text{for COD} < 20 \\ 103e^{-0.0157COD} - 0.04COD & \text{for COD} > 20 \end{cases}$$

(Eq.4)

Best-fit equations for AN sub-index (SI_{AN}):

$$SI_{AN} = \begin{cases} 100.5 - 105AN & \text{for } AN < 0.3 \\ 94e^{-0.573AN} - 5|AN - 2| & \text{for } 0.3 < AN < 4 \\ 0 & \text{for } AN > 4 \end{cases}$$

(Eq.5)

Best-fit equations for SS sub-index (SI_{SS}):

$$SI_{SS} = \begin{cases} 97.5e^{-0.00676SS} + 0.05SS & \text{for } SS < 100 \\ 71e^{-0.0016SS} - 0.015SS & \text{for } 100 < SS < 1000 \\ 0 & \text{for } SS > 1000 \end{cases}$$

(Eq.6)

Best-fit equations for pH sub-index (SI_{pH}):

$$SI_{pH} = \begin{cases} 17.2 - 17.2pH + 5.02pH^2 & \text{for } pH < 5.5 \\ -242 + 95.5pH - 6.67pH^2 & \text{for } 5.5 \le pH < 7 \\ -181 + 82.4pH - 6.05pH^2 & \text{for } 7 < pH < 8.75 \\ 536 - 77.0pH + 2.76pH^2 & \text{for } pH > 8.75 \end{cases}$$

(Eq.7)

2.3 Bathymetry Mapping

2.3.1 Introduction

In superficial bathymetric mapping, colour is the most prominent feature that can be differentiated at a glance. For reference, the shallow areas (< 1 m deep) are bright, light blue whereas the deep area (15–20 m) is dark blue. Medium depth areas (5–15 m) to are intermediate between the two extremes. Bathymetric mapping using optical remote sensing is used because the sea floor reflects light from the seabed as more light is reflected in shallow water. After all, less light has been absorbed in the water column above. As a result, these areas appear bright, whereas deep areas appear dark. To construct a bathymetric chart for the image area, all of the approaches mentioned here attempt to connect individual pixel values to depth. This allows for the rapid acquisition of a synoptic image of water depth over wide areas. Airborne LiDAR or hydrographic survey is used to acquire point or track depth data, with echo-sounders, which are alternatives to passive optical remote sensing.

2.3.2 Application Of Bathymetric Mapping Derived From Remote Sensing

Bathymetric data acquired from remote sensing has been applied to a variety of uses, as shown in Table 2.2. A lot of things have been able to be done due to the use of bathymetric data derived from remote sensing. Remote sensing has been used to augment existing charts (Alasdair and Peter,2000 as cited by Bullard 1983, Pirazolli 1985), assist in interpreting reef features (Alasdair and Peter,2000 as cited by Jupp et al. 1985), and map shipping corridors (Alasdair and Peter,2000 as cited by Kuchler et al. 1988). Though have many uses, it has never been used as a primary source of bathymetric data for navigation. Insufficient geographical resolution is the main problem of satellite data. Emergent coral outcrops and rocks, for example, are typically a lot smaller than the sensor pixel and thus will not be detected. Another limitation is that the accuracy of depths predicted from pictures might range from 1–2 m, which is generally deemed insufficient for navigation in shallow waters (less than 25 m deep).

Application of bathymetric data	Landsat MSS	Landsat TM	SPOT XS	Airborne MSS
Mapping shipping hazards	Cracknell *et al.* 1987, Jupp *et al.* 1988	Cracknell *et al.* 1987, Lantieri 1988	Lantieri 1988	Cracknell *et al.* 1987
Mapping transportation corridors	Gray *et al.* 1988, Kuchler *et al.* 1988			
Updating/augmenting existing charts	Benny and Dawson 1983, Biña 1982, 1988, Bullard 1983, Guerin 1985, Hammack 1977, Ibrahim and Cracknell 1990, Lyons 1977, Nordmann 1990, Pirazzoli 1985, Siswandono 1992, Warne 1978	Lantieri 1988, Jiamin and Faiz 1990	Lantieri 1988, Albert and Nosmas 1990, Biña 1988, Fourgrassie 1990, Masson *et al.* 1990	
Planning hydrographic surveys	Benny and Dawson 1983, Claasen and Pirazzoli 1984, Warne 1978		Albert and Nosmas 1990, Fourgrassie 1990	
Coastal sediment accumulation/loss				Danaher and Cottrell 1987, Danaher and Smith 1988
Assisting interpretation of reef features	Jupp *et al.* 1985, Siswandono 1992	Zainal 1993		

Table 2.2 *Some uses of bathymetric data derived from remote sensing*

2.3.3 Methods Of Predicting Bathymetry

Benny and Dawson (1983) method

For this method, there are three (3) assumptions implicit. The first one is light attenuation is an exponential function of depth (Eq.8). The second is water quality (and hence the attenuation coefficient, k) does not vary within an image. The third is the colour (and therefore reflective properties or albedo) of the substrate is constant. The second assumption may or may not be valid for any images but is necessary unless, at the moment of image acquisition, additional field data is acquired. As for the third assumption, this is not the case in many places, for dark, shallow, benthos (such as dense seagrass beds) will be misinterpreted as deep water. If a habitat map exists and the depth range, for instance, dense seagrass beds is known, corrections to the final bathymetry chart could be made. The final assumption can theoretically be avoided if portions of the seabed have been divided into different ecosystems with varied albedos, which can then be processed individually. However, this would take a lot of amounts of time to be done.

$$I_d = R.I_0.e^{-k.d(1+cosec(E'))}$$

(Eq.8)

Jupp (1988) method

Jupp’s method makes the same assumptions as Benny and Dawson’s method as well as its limitations. Jupp's method has three parts. One is the calculating depth of penetration zones or DOP zones. Two, interpolating depths within DOP zones. Three, calibrating depth inside DOP zones. To make it less abstract, the implementation of his method will be presented in connection to Landsat MSS and TM imagery.

Depth of penetration zones (DOP zones) is when red light diminishes more quickly than green or blue light, there will be a depth at which all of the light detected by band 3 of the Landsat TM sensor (630–690 nm) has been totally diminished (and so appears dark in a band 3 image). But at this depth, there still be some light that visible by the Landsat TM sensor's bands 2 and 1 (520–600 nm and 450–520 nm, respectively). The maximal depths of penetration (zi) of gradually shorter wavelengths define DOP zones. Figure 2.3 show the Depth of Penetration Zones (DOPs) for Landsat TM bands 1–4. Figure 2.4 show the Landsat TM images (DN) for bands 1 and 4 of the area around South Caicos.

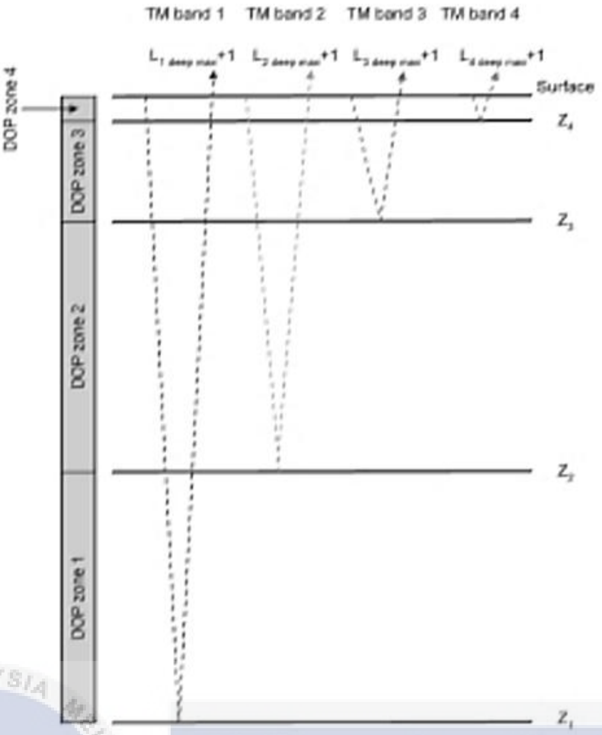

Figure 2.3 *Depth of Penetration Zones (DOPs) for Landsat TM bands 1–4.*

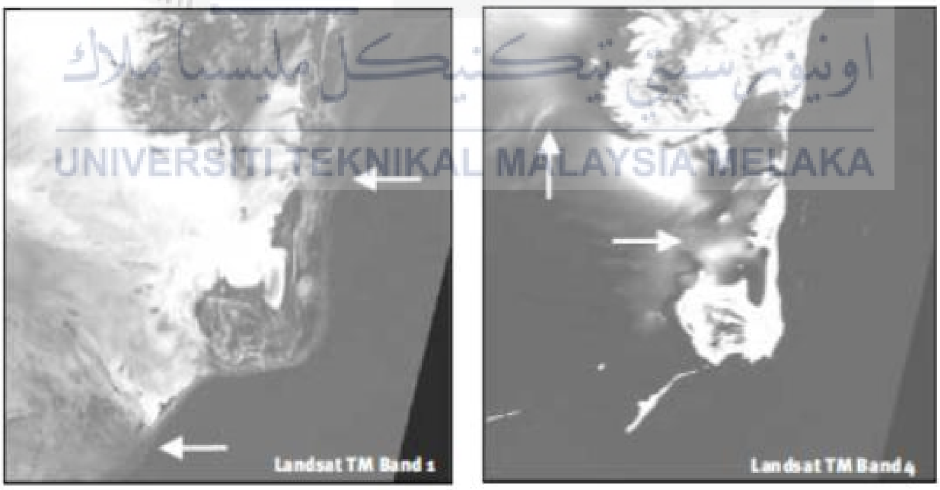

Figure 2.4 *The Landsat TM images (DN) for bands 1 and 4 of the area around South Caicos.*

Band (i)	Caicos Bank deep water Mean reflectance ($L_{deep\ min}$–$L_{deep\ max}$)	Great Barrier Reef Depth of penetration, z_i
1	19.2% (18.7–20.3%)	25 m
2	10.2% (8.9–11.3%)	15 m
3	5.5% (5.1–6.4%)	5 m
4	0.9% (0.7–1.6%)	1 m

***Table 2.3** Mean reflectance values – $L_{deep\ means}$ (with range in parentheses) for an area of typical deep water off the Caicos Bank and a maximum depth of penetration, zi, for Landsat TM bands over the waters of the Great Barrier Reef (from Jupp 1988).*

The second part of Jupp's method is interpolation depth for each pixel within each DOP zones. For illustration consider only Landsat TM DOP zone 2 (Figure 2.3.3.2). The DN value for a certain bottom type can range from a minimum, which is the mean deep-water DN, to a maximum, which is the DN which would result if the bottom type was at the top. There was no attenuation on the surface. The DN value is entirely a function of depth (z) between the maximum depth of penetration for TM band 2 (z2) and the surface, where the substrate (and seabed albedo) remains constant. The rate of decline in DN with depth is controlled by the attenuation coefficient for band 2 (k2).

The last part of Jupp's method is the Calibration of DOP zones. Calibration requires depth information from sites within each DOP zone. This is used to calculate the real maximum and minimum depths inside each DOP zone. Interpolation, for example, assumes that z2 is 15 m (Table 2.3). However, if the maximum depth recorded in DOP zone 2 is, say, 12 m due to a combination of atmospheric conditions, turbidity, and bottom albedo, this value would be utilised as z2 to derive more realistic values. For calibration, depth measurements over a homogenous substrate like sand are commonly employed. If sand and seagrass dominated an image, independent calibrations for both habitat types may be undertaken.

Lyzenga (1978) method

Like the others, Lyzenga's method assumes that light attenuation is an exponential function of depth, and that water quality does not fluctuate within an image, resulting in a constant ratio of attenuation coefficients for a pair of bands over an image. But, calculating the ratio of attenuation coefficients for band pairs does not, however, require that the substrate's reflective characteristics are constant.

Referring to (Eq.9), we can see that a transformation based on natural logarithms will linearise the influence of depth on bottom reflectance because light attenuates exponentially with depth. In theory, each bottom type should be represented by a parallel line which is the ratio of the attenuation coefficient for each band. Figure 2.5 shows that all pixels for one bottom type, sand, lie along the same line. Further up the line, the pixels have a higher reflectivity and are situated in shallower water. Deeper water is represented by pixels closest to the y-intercept.

$$\log_e(I_d) = \log_e(I_0) - 2dk \qquad \text{(Eq.9)}$$

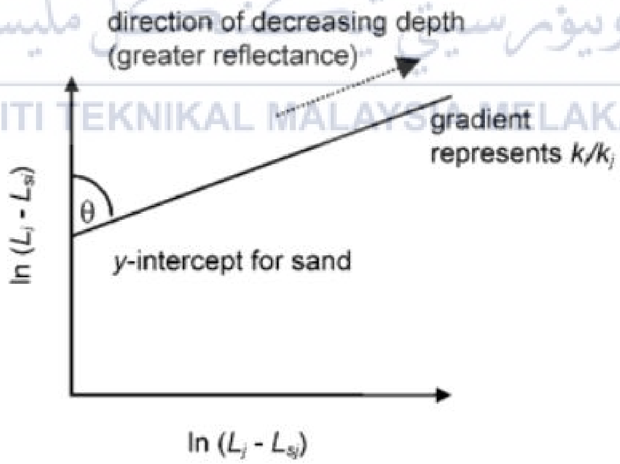

Figure 2.5 *Regression line through a biplot of the natural logarithms of pixel radiances (atmospherically corrected using the deep water subtraction method) in bands i and j for sand at a range of depths. The slope of the line represents the ratio of the attenuation coefficients ki/kj, whilst the y-intercept is the depth-invariant bottom index for*

sand. Li and Lj represent the pixel radiances recorded, and Lsi and Lsj are the average deep-water radiances in bands i and j respectively.

2.4 3D Modelling And Visualization For Landscape Simulation

2.4.1 Introduction

Building three-dimensional (3D) models and photorealistic representations of the environment is critical for a variety of applications, including virtual landscape representation, land cover/use analysis and monitoring, and landscape management and planning. The goal of 3D landscape modelling is to create a sufficiently trustworthy and accurate digital three-dimensional model of the earth's surface that can be displayed dynamically using selected software or used to create static cartographic or presentation goods, depending on the user's needs. GIS datasets for terrain, land cover, hydrography, buildings, roads, and tourist infrastructure, as well as remote sensing data such as satellite and orthophoto pictures, Radar, and LiDAR, are all used in 3D modelling. The initial step is to create a 3D terrain model using remote sensing data, followed by the preparation of basic data for landscape simulation (geology, soil, vegetation, hydrography, etc.). The required presentation software varies depending on the type of viewing of 3D models (dynamic or static). The flight simulation at a preset height above ground for landscape observation is one of the advanced outcomes. Case studies of national parks, Natura 2000 sites, and tourist resorts in Bulgaria are presented as applications of generated 3D models and photorealistic visuals.

2.4.2 3D Modelling And Mapping Process

3D mapping includes four general process steps concept, modelling, symbolisation and visualization (Figure 2.6) that have an impact on the final quality of the map and running iteratively (Dinkov and Vatseva, 2016 as cited by Haeberling, 2005).

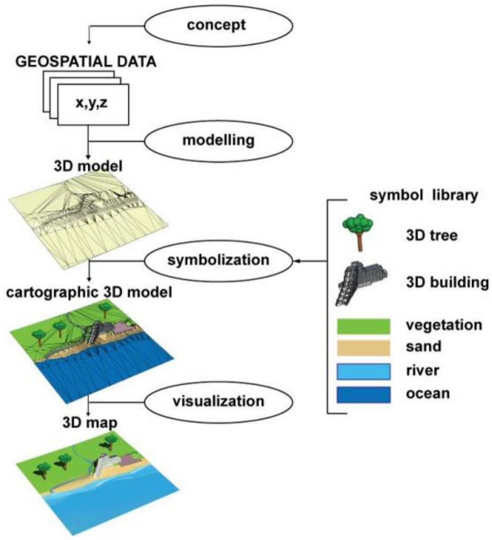

Figure 2.6 *Schematic 3D landscape mapping process (modified, Source: Terribilini, 2001)*

The first phase is a conceptual phase. In this phase, It was necessary to specify the user context as well as the product specs. As a result, the map type is determined by the user's knowledge and expertise, as well as the required geospatial data.

The second phase is the modelling phase. This step involves the processing of original theme data sets (both raster and vector data) comprising transformations of data format and structure, object geometry and semantics. A sophisticated structured 3D landscape model is built from the original geographical data, allowing for detailed investigation of the landscape as a static model as well as the implementation of dynamic and interactive capabilities.

The third one is the symbolization phase which is when the graphic properties are added to the single objects of the 3D landscape model. As a result, the graphic look of each object class is defined in the same way as the legend for classic maps is constructed, and cartographic generalization principles are taken into account. It should be noted that the legend's construction does not affect the visual appearance of the objects when they are graphically ascribed. As a result, the landscape model becomes a cartographic 3D model.

The last phase is the visualization phase. On the designated media, the cartographic 3D model is displayed in perspective. A viewing position or moving perspective path is established using cameras. To create a photorealistic image, the final rendering procedure converts the cartographic 3D model into a 3D map with projection parameters and simulation of lighting and shading effects. Rendering entails configuring final image settings (such as size and resolution) as well as output file format specifications.

In this particular study, using the professional 3D GIS programme VNS (Visual Nature Studio), 3D landscape models were produced and visualised by following the four process phases outlined above (Dinkov and Vatseva, 2016 as cited by 3D Nature, 2008). VNS allows for a very high level of detail in modelling the real world and facilitates an attractive representation of the environment through the creation of 3D models and realistic visualisation. Several primary structural elements in VNS perform 3D modelling and visualisation.

2.4.3 3D Landscape Modelling And Visualization

Cartographic representation of the environment, infrastructure and recreation amenities, and sport and leisure facilities are required for tourist complex modelling and visualisation. The coverage of such maps is typically around 10 km^2, allowing for extremely precise and detailed 3D modelling. For this study, the main focus will be on the production of a 3D panoramic map of Albena Black Sea resort in Bulgaria with VNS software. Figure 2.7 shows the flowchart of 3D landscape modelling and visualisation for the panoramic map of Albena Black Sea resort

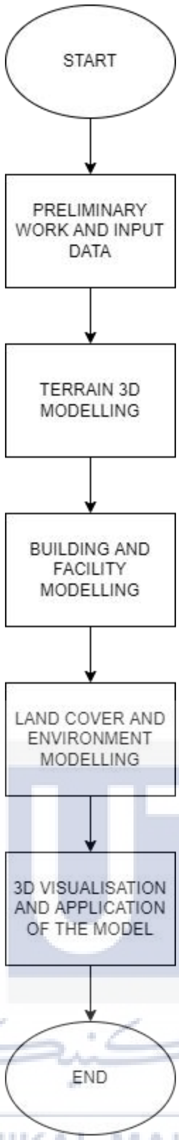

Figure 2.7 *Flowchart of 3D landscape modelling and visualisation for the 3D panoramic map of Albena Black Sea resort*

2.5 Compressed High-Intensity Radiated Pulse

2.5.1 Single-Beam And Multi-Beam Echo Sounder

Single-beam (SBES) and multi-beam (MBES) echo sounders are commonly used to determine depths. SBES is still the most commonly used tool in port and harbour surveys, and when used correctly in a well-planned and executed survey, it will continue to produce reliable findings (EL-Hattab, 2014 as cited by Federation Internationale des

Geometres FIG, 2010). The SBES is only obtained as soundings directly beneath the transducer. The survey lines are perpendicular to the undersea slopes, and the line spacing between them is determined by the final product's scale and resolution requirements. Tie lines (longitudinal lines) run perpendicular to the principal survey lines but at a larger spacing and serve as a quality assurance cross-check on the field data collected. SBES has a major drawback in that it only lights a small section of the bottom. The bathymetric data would also be missing the depths between survey lines, whereas MBES can offer continuous coverage as illustrated in Figure 2.8 (a and b). As a result, reliable bathymetric modelling is critical for interpolating depths and filling gaps between survey lines.

Bathymetric models are created using Digital Terrain Models (DTM) with regular grids, which are defined as "a digital representation of the topography (bathymetry) of the seafloor by coordinates and depths" (EL-Hattab, 2014 as cited by International Hydrographic Organization (IHO), 2008). It is critical to choose the gridding interpolation technique when determining the model since it has a direct impact on the DTM uncertainty.

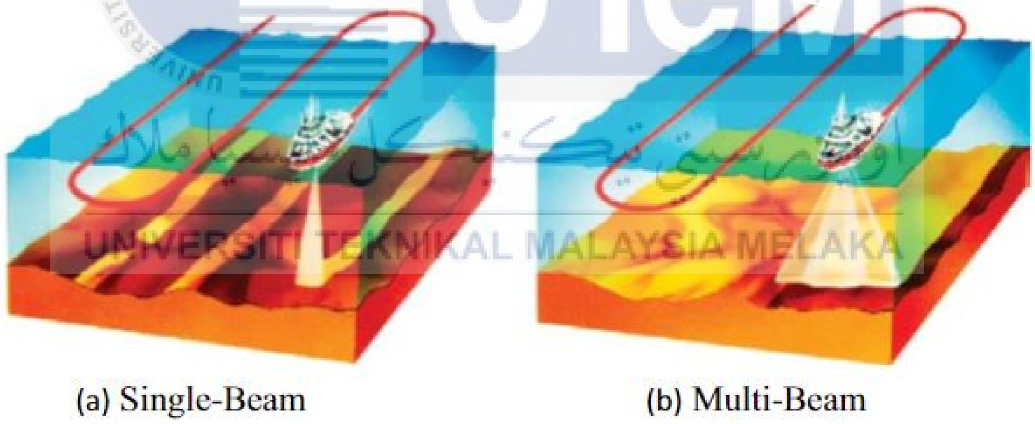

Figure 2.8 *Coverage of single-beam and multi-beam echo sounders (El-Hattab, 2014 as cited by Kearns and Breman et al., 2010).*

2.6 Summary

No	Literature Title	Strength	Weakness	Notable Features	Reference
1.	IDENTIFYING THE SOURCE OF POLLUTANTS IN MALACCA RIVER USING THE GIS	Introductory on Malacca River basin and sub-basin location.	Not so much on bathymetry study-related information presented	Usage of GPS to locate the position of basin and sub-basin. This project will also utilise GPS.	Ang Kean Hua (2017)
2.	Mapping Bathymetry	A lot of information about bathymetry map	More to the technical aspect of bathymetry mapping and its significant intricate	Have an interesting element remote sensing that might or might not be useful for this project	Alasdair and Peter (2000)
3.	3D MODELLING AND VISUALIZATION FOR LANDSCAPE	Abundant information regarding the 3D modelling process	Not using the same software as this project.	A very structured procedure. General step-by-step process with an illustration.	Davis and Rumiana (2016)
4.	Single beam bathymetric data modelling techniques for accurate maintenance	A relatable take on our data acquisition process and may prove to be useful	Bathymetry studies presented are giving too much focus on The technique that this project will not be using	The data recording path of the echo sounder in this literature is neat	EL-Hattab (2014)

CHAPTER 3

METHODOLOGY

3.1 Introduction

Chapter 3 will solely discuss about the methodology used in this project. Figure 3.1 show the flowchart of the methodology that was used throughout the project.

Figure 3.1 *Flowchart of Methodology*

3.2 Data Acquisition

3.2.1 Study Region

The study region that was designated is at a Malacca River watershed, This study cover approximately 100 m of a Malacca River section. This section of the river is located not far from the Melaka Central.

3.2.2 Proposed Method of Data Collecting

Equipment

A remote-control boat (Flytec 2011-5) and compressed high intensity radiated pulse smart sonar equipment (Deeper Chirp+) will be used in this study. The smart sonar equipment will be put on the boat and dragged around the river by the boat. The picture of the devices is as the figure below.

Figure 3.2 *RC Boat (Flytec 2011-5)*

Figure 3.3 *Deeper CHIRP+ device*

The Flytec 2011-5 is a remote-control boat or more specifically a baiting RC boat used by fisherfolks. The boat is made from Acrylonitrile Butadiene Styrene (ABS) material, a thermoplastic polymer that is commonly used in injection moulding. This engineering plastic is popular because of its low manufacturing cost and simplicity. Not only it's a low-cost material, but it's also durable enough to withstand the waves of the river. The remote-control distance for this boat is advertised at around 500 meters which is more than enough for this operation. Flytec 2011-5 also comes with a high-capacity Lithium battery so we do not need to worry that the battery will run out before we finish taking the data.

Deeper CHIRP+ Smart Sonar uses a Compressed High-Intensity Radar Pulse technology. This is suitable for recording the depth of the Malacca River and visualising underwater topography due to its three beam frequencies, clear clarity, and remarkable depth accuracy, and it greatly aids this project. This particular product is also great because it was advertised to be very capable to be used for mapping by using the integrated application on a smartphone or tablet with GPS and can maintain a good connection for as far as 100 meters. When compared to typical sonars, a CHIRP sonar sends out a continuous flow of frequencies spanning from low to high. As a result, the sonar readings are significantly clearer and have a greater resolution. Surface clutter and noise are reduced when using CHIRP, so we can expect precise sonar readings even in very shallow water. Bottom huggers, on the other hand, can be distinguished in water as deep as 100 metres. In addition, this Deeper CHIRP+ Smart Sonar comes with a 950 mAh rechargeable Lithium Polymer battery that lasts around 6.5 hours with GPS turned on and also has fast charging capability so covering a large area will not be a problem.

Figure 3.4 *Deeper CHIRP+ depth range and connectivity range*

Data Accumulation Plan

There is no proven optimised procedure to obtain the data on the Malacca River. Thus, for this part, a plan was proposed. The plan is to get the data by having the Deeper CHIRP+ Smart Sonar move perpendicular to the Malacca River and having this step repeated many times and spanning 100 meters of the river. By doing so, we assume that this is the most optimal way to scan and cover the study area more effectively.

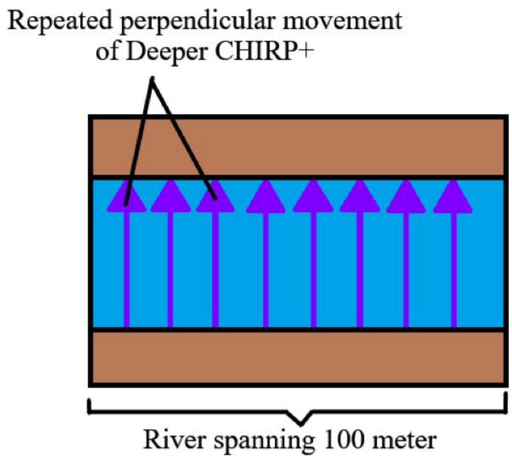

Figure 3.5 *Proposed method of obtaining raw data*

3.3 Data Processing

3.3.1 Raw Data And Conversion

Deeper CHIRP+ Smart Sonar has its own integrated application called Fish Deeper™. These apps usually used to view the underwater structure and fish arches but for this project, they will be used to capture the coordinate and the depth of the river and will be saved in the cloud storage on the internet. This way we can view or use the data obtained whenever we want.

After we obtain the raw data, there will be three types of data which is the latitude, longitude, and depth. The depth data can be used as it is but the other two need to be converted to other units. The latitude and longitude raw data comes in form of decimal degrees and to be used on Surfer software, we need to convert the value into UTM (Universal Transverse Mercator) coordinate value. To do that, we will be using a conversion template courtesy of ArcGeek, in Microsoft Excel software to easily convert the vast amount of raw data obtained into UTM coordinate value. The conversion of raw data from decimal degree to UTM is a crucial step because Surfer software can only read the coordinate in form of UTM. That is why unit conversions are important.

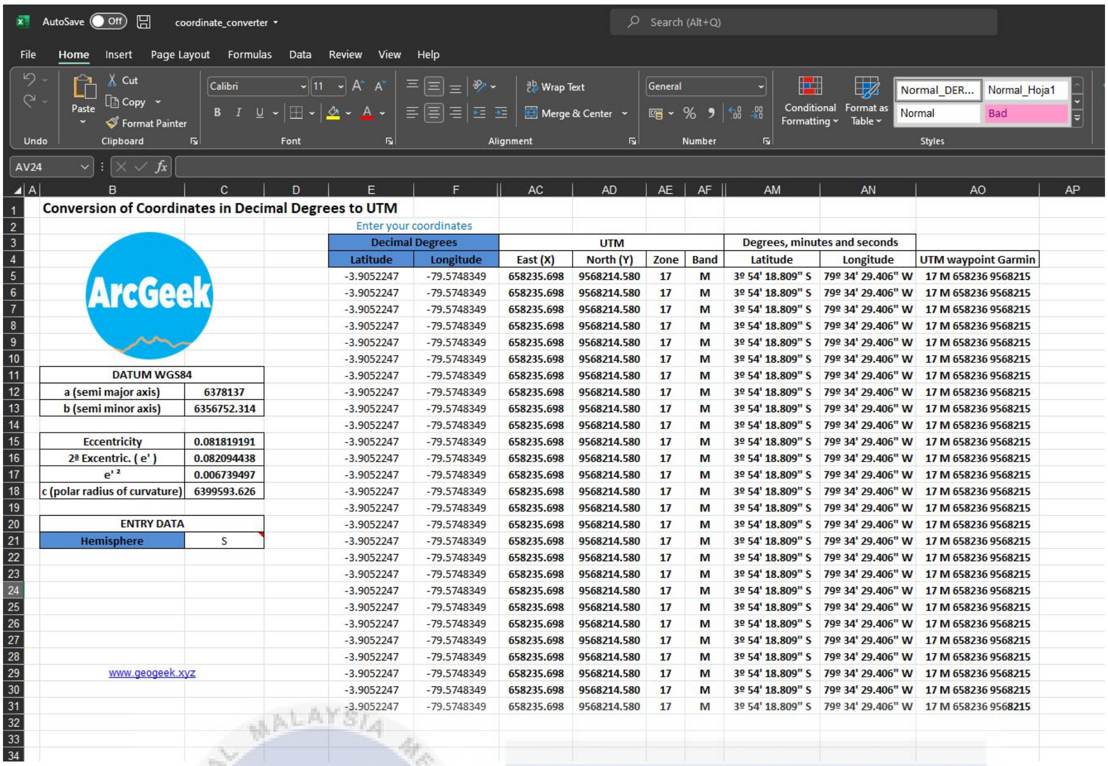

Figure 3.6 *Decimal Degree to UTM conversion Microsoft Excel template*

3.4 3D Model Development

Surfer is a robust contouring, gridding, and surface mapping software for scientists, engineers, educators, and anybody else who wants to create maps fast and efficiently. It has never been simpler or faster to produce appealing and educational publication quality maps with capabilities like adding numerous map layers and objects, changing the map presentation, and annotating with text. Almost every feature of your maps can be altered to create the precise presentation you desire.

For this project, Surfer is chosen to be used as the software to develop the 3D model of the bathymetry contour map of Malacca River. Surfer has numerous features that can be used to create 3D terrain models. But the procedure of actually very interactive and easy to understand depending on how much we understand and know what kind of setting we want to use. A suitable setting are required to avoid creating wrong terrain model.

3.5 Summary

This chapter presents the proposed methodology to develop a 3D model of the bathymetry contour map of the Malacca River. The primary focus of the proposed methodology is to show a simple, less rigorous and give effective estimation in such a way that it would not cause a significant loss of accuracy in the results. The methods also intended to use the generally limited data of past research and journal and incorporate it into the proposed method. The ultimate intention of the method is not to obtain the best accuracy sets of data, but, for the abundance of the data itself so the final model development will have more data to work with.

CHAPTER 4

RESULTS AND ANALYSIS

4.1 Introduction

This chapter will be discussing on the preliminary result, final result and analysis of the project. After several weeks of getting the raw data and developing the 3D model, all the information regarding the final product of this project is presented and explained.

4.2 Preliminary Result

Developing a 3D bathymetry contour map is extremely complex and time-consuming and due to that reason, even a mock CAD model is not able to be made in time as the representation of the preliminary result. So, for this section, there will only be some figures fetched from the website simply to give an idea of what the in progress/final product which is a 3D bathymetry contour map would look like.

Figure 4.1 *Export surfer contour map (fetched from Golden Software Support)*

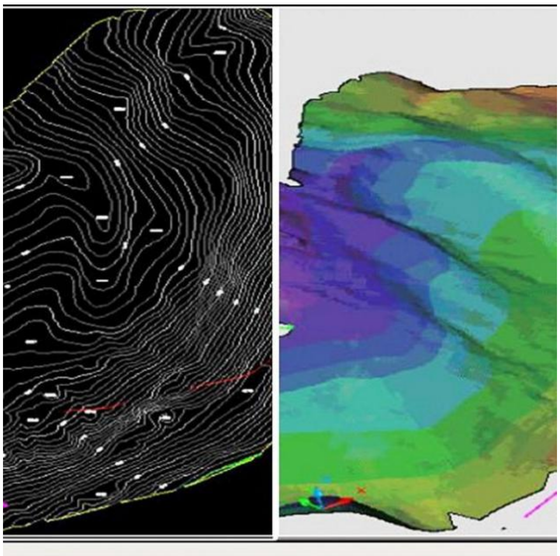

Figure 4.2 *Images of terrain created by AutoCAD Civil 3D (Uploaded by Biswajeet Pradhan (2012) from Research Gate)*

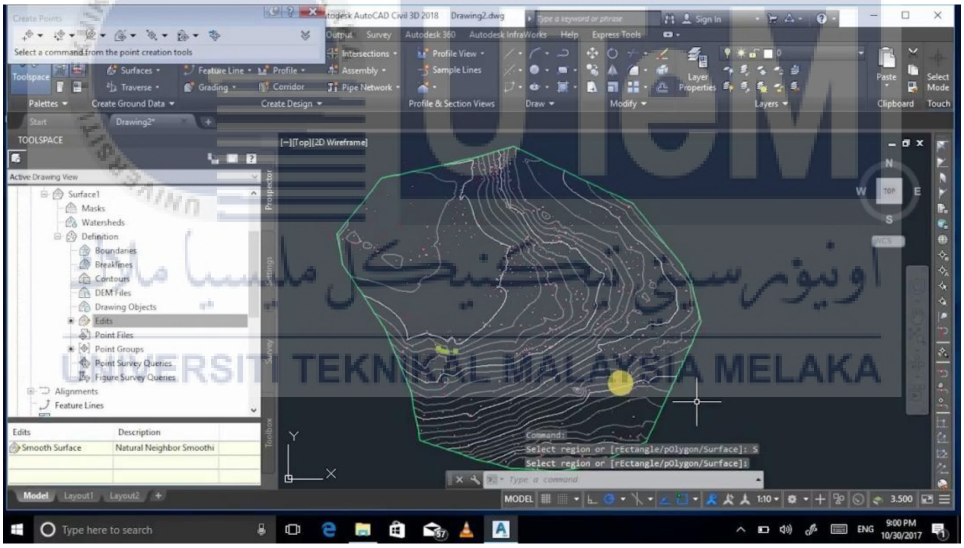

Figure 4.3 *Autocad Civil 3D Import points and Create contours/surface (source: YouTube)*

4.3 Final Result

After finishing the process of developing the 3D terrain of bathymetry contour map for a section of Malacca River using Surfer program, we can clearly see the underwater surface based on the the finished 3D model that was made. From there, we can deduce whether the river is alright to be left as it is or need a maintenance to avoid disaster as mentioned in the project objective. We also included the 2D contour map, the water level portrayal and global map view that use Google Earth Pro to display the actual location of the data acquisition on the map

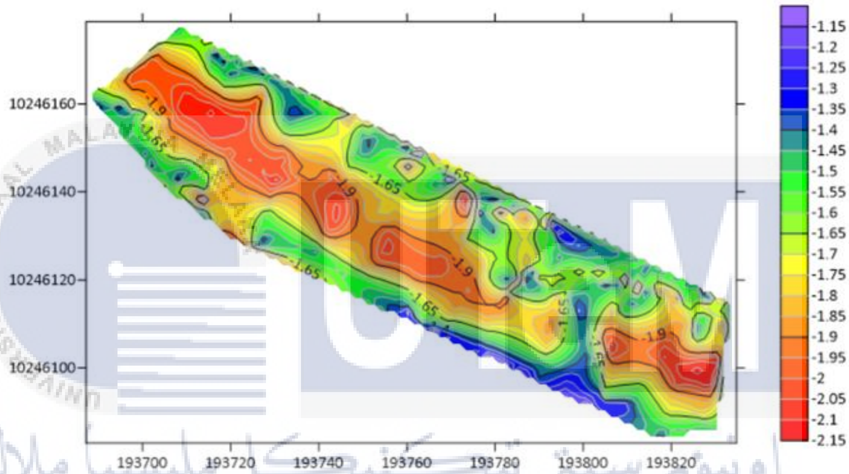

Figure 4.4 2D Contour Map

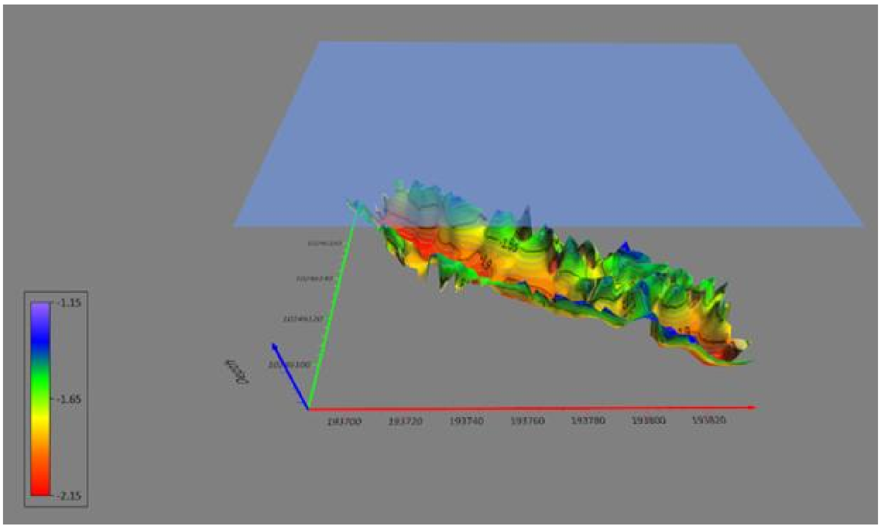

Figure 4.5 *Representation for water level and the contour under the river (view 1)*

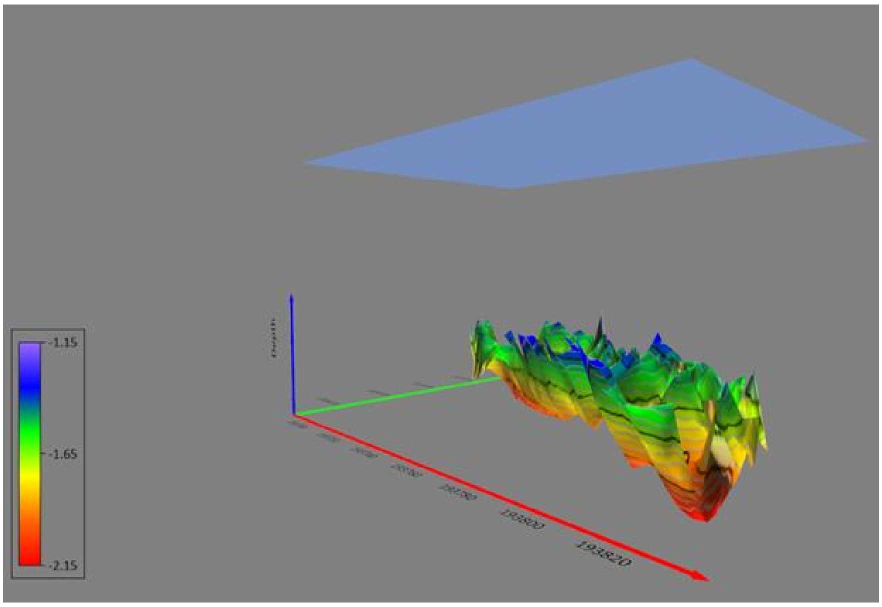

Figure 4.6 *Representation for water level and the contour under the river (view 2)*

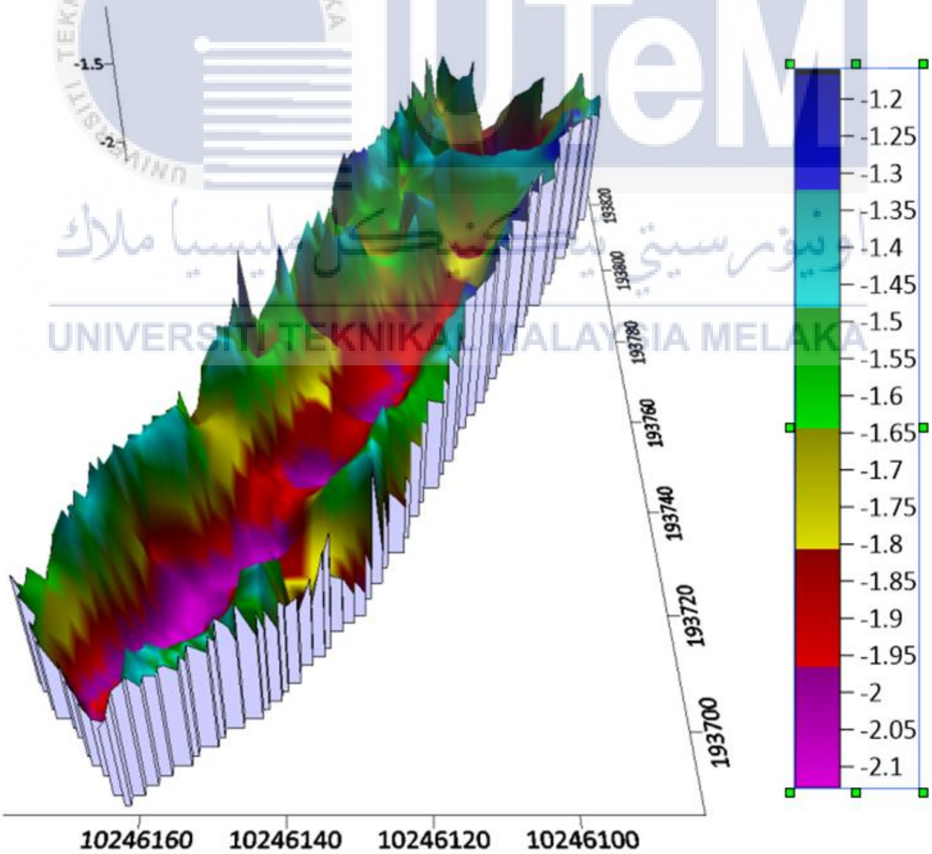

Figure 4.7 *3D Contour Map Side View 1*

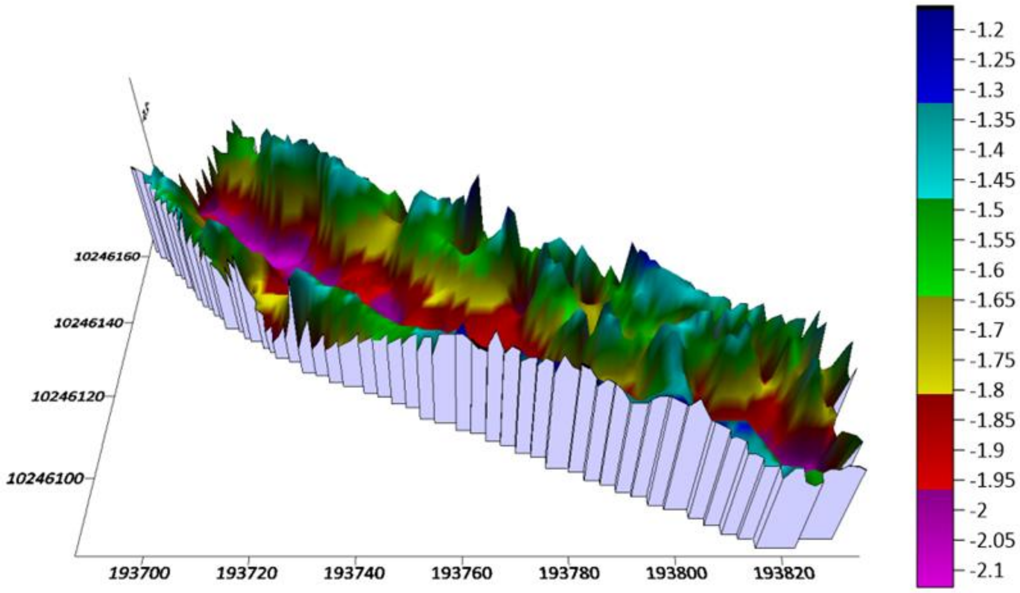

Figure 4.8 *3D Contour Map Side View 2*

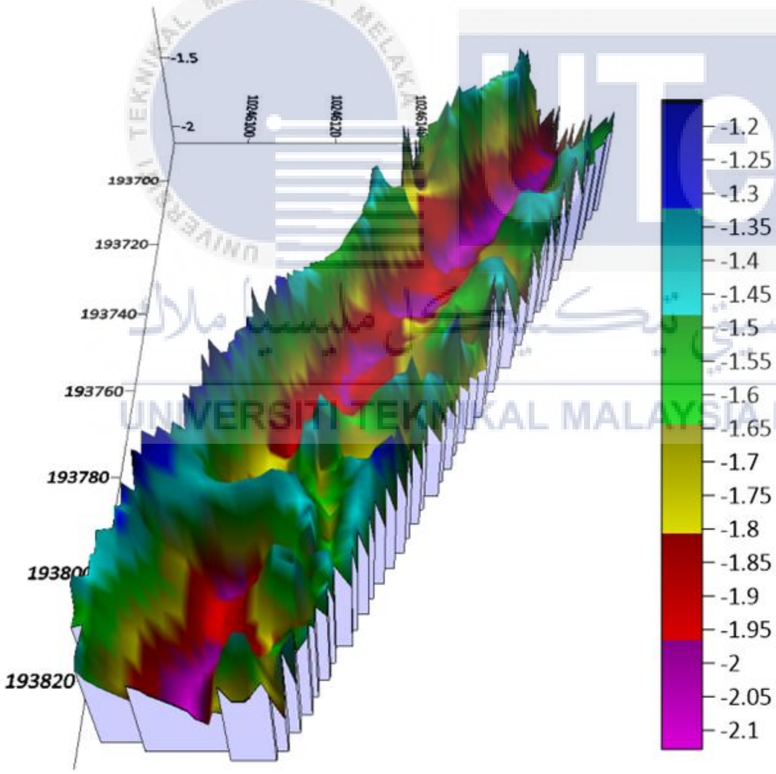

Figure 4.9 *3D Contour Map Side View 3*

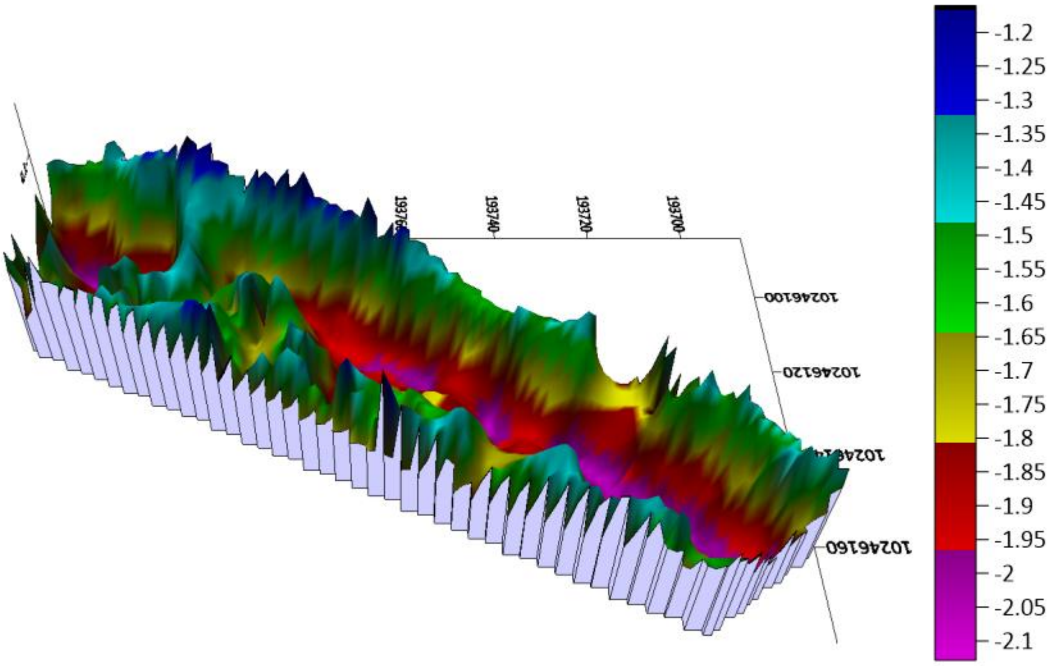

Figure 4.10 3D Contour Map Side View 4

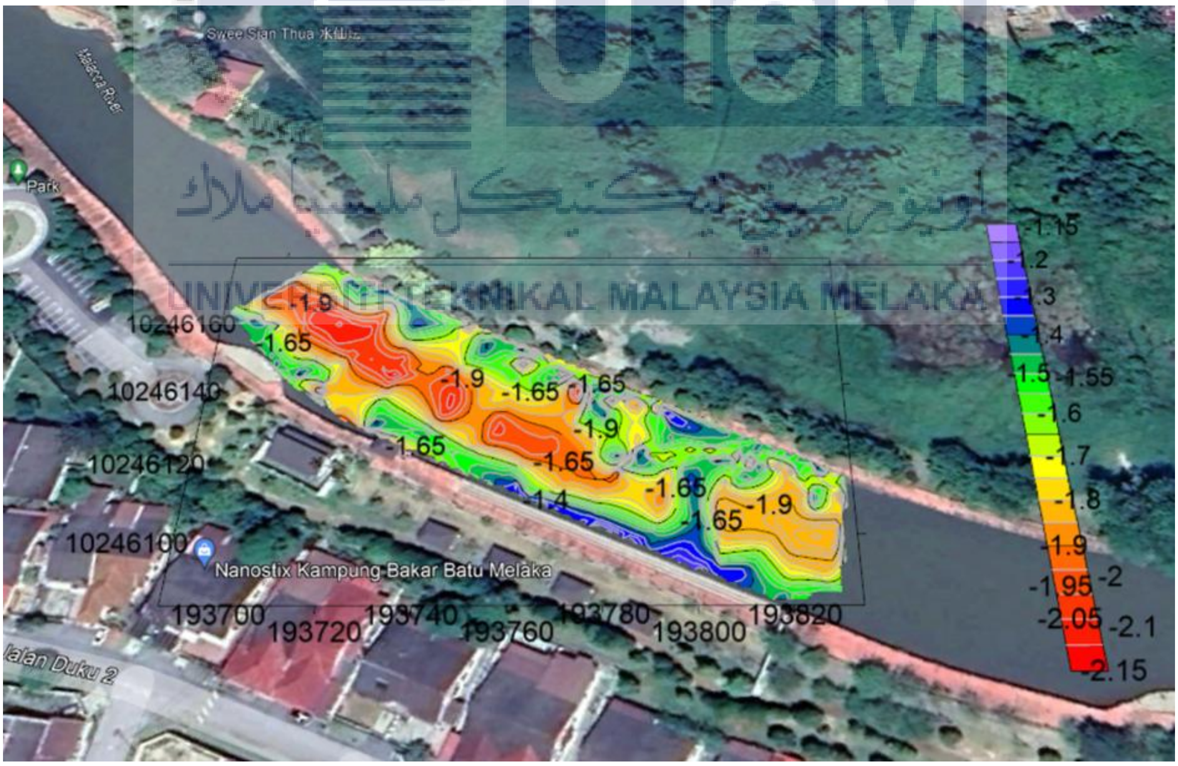

Figure 4.11 *2D Contour Map - Global Map View (Google Earth Pro)*

4.4 Result Analysis

4.4.1 Analysis On The 3D Model

When we take a look at the result in 4.3, we can see that the 3D model produced by using the Surfer program is very clear and easy to understand. The shape of the terrain match with the contour from its 2D map counterpart. We can also add colour mapping and the colour scale so we can see the difference in depth between contour. Although the contour line already did that with the help of label on the contour line, the colour just make the observation and analyzing process much easier and the colour are very distinct so we can really see the depth of separation between contour line. It safe to say that we have manage to develop the 3D bathymetry contour map of a section of Malacca River as mentioned in this project objective.

4.4.2 Analysis On Malacca River Based On The Acquired Data, 3D Model Developed, And Tides Height

If we have a look at Figure 4.5 and Figure 4.6, we can see that there are considerable depth between the water level and the underwater surface. Based on the processed data, the shallowest part of the underwater surface is 1.034m below water level and the deepest part can goes down to the maximum of 2.357m below water level. But, in order to analyse whether this water level is actually normal for a river, we need to take a look at tide gauge and compare both water level and to do that we use Melaka Water Level Graph fetched from JPS Melaka Telemetry System which is access able to the public. The time that the data was acquired is 6th of December 2022 around 4:00 PM and if we look at the Figure 4.12 we can see that the water level at that time are 1.9 m above sea level .Water level threshold are different depending on the location so we need to rely on official sources and in this cases we can refer back again to JPS Melaka Telemetry System in Table 4.1, we can see at 16:00 hours which is 4:00 PM , it was labeled warning colour which is a level just below danger level. Its also important to note that it was dry that day and also at that time it supposed to be at low tide (Figure 4.13) so the water level should not be that high for at least until around 8:00 PM. So, we can conclude that depth of the water that we get should have been lower compared to what we get in the data acquisition process.

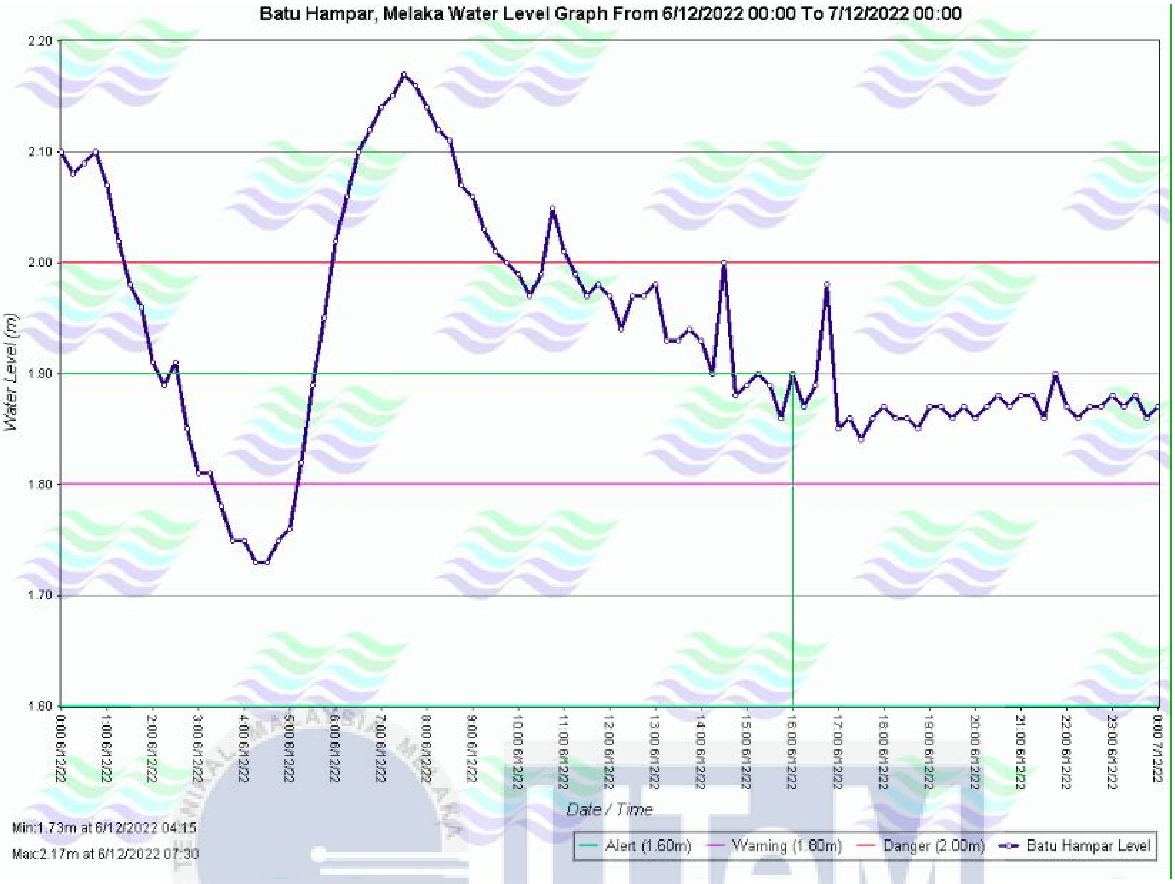

Figure 4.12 *Batu Hampar, Melaka Water Graph Level (6/12/2022)*

JPS Melaka Telemetry System
Server Date/Time: 05/01/2023 23:43

Water Level Data For The Date 6/12/2022

Normal | Alert | Warning | Danger | Back

ID	Station	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	0000
1	Durian Tunggal U/S	2.80	2.77	3.03	3.11	3.15	3.20	3.22	3.23	3.15	3.08	3.04	3.00	2.96	2.93	2.96	2.95	2.94	2.93	2.96	3.01	3.04	3.06	3.08	3.09	3.08
1	Durian Tunggal D/S	1.84	1.85	1.68	1.60	1.54	1.50	1.52	1.59	1.73	1.76	1.76	1.75	1.72	1.69	1.59	1.56	1.53	1.50	1.50	1.52	1.53	1.54	1.56	1.57	1.57
2	Klebang Besar U/S	0.08	0.04	0.18	0.38	0.83	1.20	1.40	1.46	1.35	1.10	0.77	0.51	0.30	0.15	0.06	0.01	0.14	0.39	0.77	0.93	0.86	0.70	0.44	0.26	0.06
2	Klebang Besar D/S	***	***	***	0.15	0.60	1.00	1.24	1.26	1.14	0.88	0.52	0.24	0.04	***	***	***	***	0.10	0.52	0.68	0.64	0.49	0.22	0.03	***
3	Melaka Pindah	10.63	10.60	10.57	10.54	10.52	10.50	10.47	10.47	10.45	10.45	10.45	10.44	10.45	10.45	10.42	10.43	10.48	10.50	10.47	10.44	10.44	10.44	10.57	10.66	10.74
4	Taman Merdeka U/S	1.46	1.47	1.44	1.32	1.25	1.21	1.26	1.35	1.40	1.43	1.42	1.40	1.37	1.34	1.32	1.27	1.23	1.21	1.19	1.20	1.23	1.24	1.23	1.23	1.22
4	Taman Merdeka D/S	1.09	1.07	1.05	0.97	0.95	1.13	1.45	1.57	1.54	1.40	1.27	1.16	1.08	1.00	0.97	0.90	0.89	0.86	0.89	1.00	1.07	1.06	0.98	0.95	0.90
5	Chohong	9.15	9.15	9.14	9.15	9.15	9.13	9.14	9.14	9.13	9.16	9.16	9.16	9.17	9.20	9.18	9.18	9.20	9.19	9.15	9.15	9.13	9.13	9.14	9.14	9.17
6	Teluk Rimba	2.22	2.22	2.22	2.22	2.22	2.22	2.21	2.21	2.21	2.19	2.19	2.18	2.17	2.19	2.18	2.17	2.17	2.16	2.15	2.19	2.19	2.19	2.20	2.21	2.21
7	Batu Hampar	2.10	2.07	1.91	1.81	1.75	1.76	2.02	2.14	2.14	2.06	1.99	2.01	1.97	1.98	1.93	1.89	1.90	1.85	1.87	1.87	1.86	1.88	1.87	1.88	1.87
8	Sungai Duyong	0.88	0.77	0.71	0.75	1.02	1.32	-0.01	-0.01	1.45	1.27	0.98	0.96	0.85	0.76	0.67	0.61	0.31	0.65	0.96	1.10	1.07	0.96	0.80	0.94	0.78

Hourly Rainfall Data (mm) For The Date 6/12/2022

Normal | Alert | Warning | Danger | Home

ID	Station	24Hrs	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	0000
1	Durian Tunggal	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	4	0	0	0	0	0	0
2	Klebang Besar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Melaka Pindah	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	6	0	0	0	0	0	0	0
4	Taman Merdeka	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
5	Chohong	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	18	0	0	0	0	0
6	Teluk Rimba	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	0	0
7	Batu Hampar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Sungai Duyong	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Tebolang Tebug	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0
10	PPSUdang	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Ladang Lendu	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	1	0
12	JSSJEmpat	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	0	0
13	Hospital Jasin	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0

DAY 6 MONTH 12 YEAR 2022 HOUR 0 QUERY

Table 4.1 *Water Level Data For The Date 6/12/2022*

Figure 4.13 *Tide Schedule for Malacca For The Date 6/12/2022*

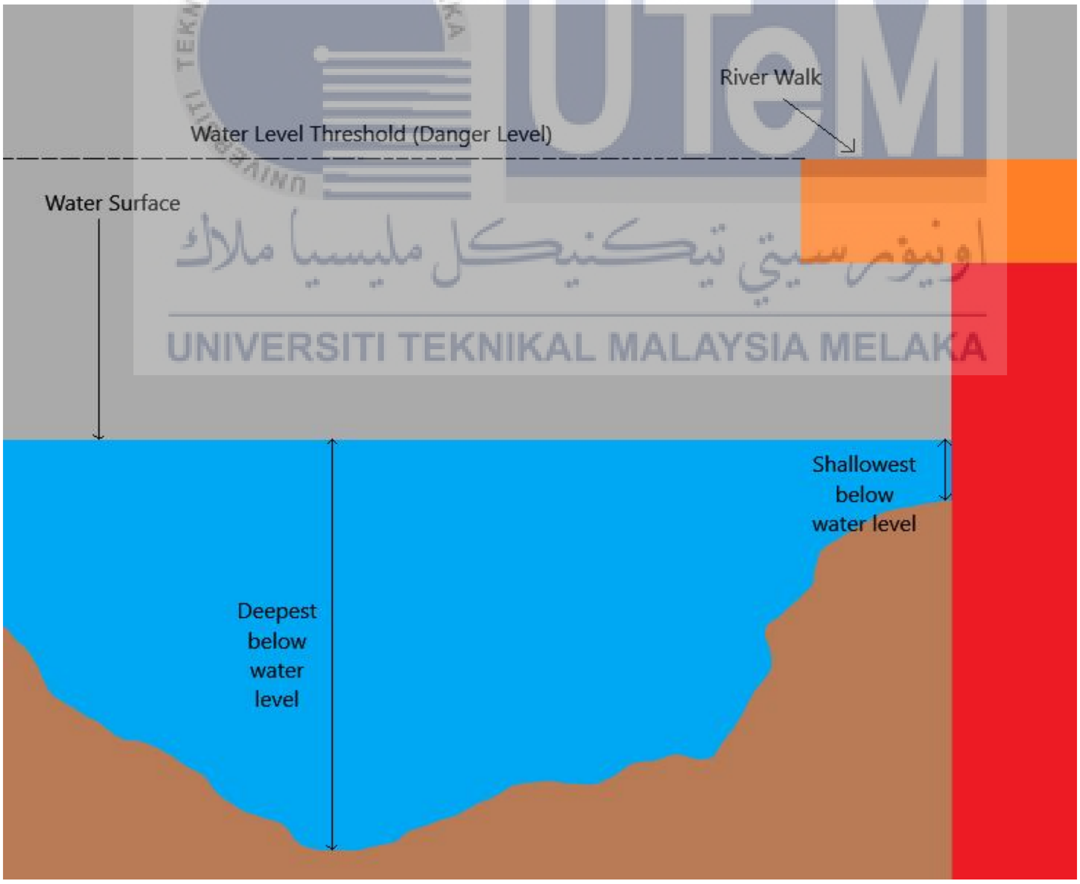

Figure 4.14 *River cut section view*

4.5 Summary

This chapter intention are to show the result and full analysis of the research project using the proposed methodology and developed a 3D model of the bathymetry contour map of the Malacca River. The 3D model is successfully created using Surfer and can be observed to further the Malacca River condition analysis. We also add a new sets of information such as data from JPS Melaka telemetry system as reference for help to make sure if our data is consistent. We do find it helpful since we manage to detect an anomaly which is the mysteriously high water level where it should not be at low tide and dry weather and the data that we get should have been lower in the context of depth. There are few assumption that can be made here but one in particular is logical from the observing of the 3D model created. The assumption is that sediment build up at the riverbed and the most of them at the side of the river causing this abnormally high water level. This also supported by the fact that it is a river in the middle of the city so this kind of sedimentation is to be expected.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter will be discussing on the overall conclusion for this project and additional recommendation for the future if there is in any circumstances that this thesis would be used as references for others in order to help them to get more significant gain in terms of result's quality and accuracy.

5.2 Conclusion

The leading purpose of this study is to develop a 3D model and bathymetry contour maps of the Malacca River by conducting hydrographic study using a Deeper CHIRP + device hooked on to a remote controlled boat to obtain a very huge volume of data of a specific area in Malacca river.

The remote control boat is regrettably one of the biggest setback that we encounter in this whole project. Due to unfortunate malfunction of the motor unit of the boat, the data gathering session had to be hold back for over 3 weeks to get the replacement and to resume the session. Even after that, the boat itself is relatively weak to go against the current in the river even though it was low tide at the moment the data gathering session. Alas, the data acquisition task manage to be completed albeit taking longer then we expected.

The Deeper CHIRP+ is one of the vital piece of device that has been a great help in this research. It was easy to use, has a user friendly interface in the application and great overall performance. The set of data was stored on cloud storage which is very handy since it make accessibility easier. The battery life are also its strong point since we only need one charger of the device and we manage to get a good amount hour of active hour. All and all, its is a great Sonar device that can be purchase on the market out there.

The surfer is one of the greatest contouring, gridding, and surface mapping program that we can get on the market out there. It was easy to use, intuitive, feature-rich and there also a lot of community using this program, so third party support is basically can be found everywhere. When using this program, the only thing that we need to be wary about is the set of data that was used. We need to make sure the data is in a readable file and in the right type of unit.

The second purpose of this project is the analysis of the Malacca River by using the acquired data, 3D model developed, and tide height data to make sure if this section of the river is still safe as the way it is or need an additional maintenance. As the analysis in chapter 4 concluded, we found out that there is abnormality on the river which strongly suggest that this part of the river need either further study or flat out maintenance. The reason that we give the option of requiring further study is because this abnormality that we detected is still unknown to us in terms of the actual causes and we do not have concrete evidence to back up our assumption even though our assumption is logical and most likely the cause. So it is important we detect the actual causes before proceeding any further.

5.3 Recommendation For Improvement

There are a lot of room for improvement that can be done for the project like this. The best way to perform the scanning process is to make sure to cover a lot of area. By doing so we can get a lot more coordinated data and by doing that, more detail riverbed contour can be generated.

Remote control boat is considered to be very important in this project because it is the only thing that we can use to maneuver the Sonar device effectively. So, a high-quality, high-performance remote control boat can surely made the data acquisition process to be much more easier. Also high quality battery is also favoured so that the scanning process can be as long as possible and the concern and troublesome of the boat to have the battery drained and stuck the middle of the river is also diminish.

Connectivity is also play an important roll while scanning process happen. In this project, we are lucky enough to have the river in the middle of the city which the river width is not very wide so connectivity problem is least of our concern. But, should this kind of project are to be replicate again at the river in remote region or at the seas which is vast area, please be aware with the distance of yourself and the sonar device. For example, Deeper CHIRP + can go as far as 100m from the device it is connected so get further than that device will most likely lose connection and scanning process will be terminated.

Lastly,time and weather. This two element are important because it can directly tempered with the accuracy of you data when you acquire them. For example, if the weather is stormy, the strong wind will tempered with the water surface making the wave a lot more aggressive and making the scanning process a lot more unstable. So the data that we will get from that scanning process is also unstable and more inconsistent and directly making our set of data become worthless because of its inconsistency. The best case scenario would be a sunny day. Time is also important because we need to make sure on what tide the river is. It is preferable that we do the scanning process on low tide because on low tide, the wave is reduced and if we do that, it will lessen the uncertainties variable there is in which the better it is from the research perspective.

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APPENDICES

Appendix A *Data From A Section Of Malacca River*

latitude	longtitude	depth		East (X) (UTM)	North (Y) (UTM)
2.223877	102.2511	-1.87091		194227.7	10246091
2.223875	102.2511	-1.81714		194227.1	10246091
2.223873	102.2511	-1.76545		194226.8	10246091
2.223875	102.2511	-1.962		194226.4	10246091
2.223867	102.2511	-1.96667		194227	10246090
2.223863	102.2511	-2.06077		194227	10246090
2.223862	102.2511	-1.998		194226.6	10246090
2.22386	102.2511	-2.047		194226.4	10246089
2.22386	102.2511	-2.01333		194224.9	10246089
2.223762	102.2512	-1.99667		194233.1	10246078
2.223753	102.2512	-1.99143		194233.1	10246078
2.223745	102.2511	-2.07444		194231.9	10246077
2.223735	102.2511	-2.07143		194231	10246076
2.223735	102.2511	-2.05		194229.5	10246076
2.223732	102.2511	-2.074		194229.3	10246075
2.223722	102.2511	-2.10571		194229	10246074
2.223715	102.2511	-2.12		194228.6	10246073
2.223713	102.2511	-2.11		194228.8	10246073
2.223712	102.2511	-3.3025		194228.8	10246073
2.22369	102.2511	-5.65889		194227.9	10246071
2.223667	102.2511	-5.776		194225.6	10246068
2.223657	102.2511	-3.60304		194224.9	10246067
2.223643	102.2511	-1.94857		194224.3	10246065
2.223635	102.2511	-1.54333		194224.3	10246064
2.223627	102.2511	-1.751		194222.8	10246064
2.223627	102.2511	-2.21		194221.7	10246064
2.223628	102.251	-2.47769		194220.8	10246064
2.22363	102.251	-2.66769		194220.6	10246064
2.22363	102.251	-2.05133		194219.7	10246064
2.223623	102.251	-1.90786		194218.7	10246063
2.22362	102.251	-2.16133		194218	10246063
2.223618	102.251	-2.19833		194217.6	10246063
2.22362	102.251	-2.5		194217.6	10246063
2.223617	102.251	-2.47308		194217.1	10246062
2.223615	102.251	-2.47		194216.9	10246062
2.223613	102.251	-2.41333		194216.7	10246062

2.223612	102.251	-2.30077		194216.7	10246062
2.22361	102.251	-2.385		194216.1	10246062
2.22361	102.251	-2.407		194216	10246062
2.22361	102.251	-2.49125		194215.8	10246062
2.223602	102.251	-2.39727		194214.5	10246061
2.2236	102.251	-2.48333		194213.9	10246061
2.223608	102.251	-2.51857		194214.8	10246062
2.223608	102.251	-2.51636		194214.1	10246062
2.223607	102.251	-2.47875		194213.2	10246061
2.223608	102.251	-2.46909		194212.1	10246062
2.223612	102.251	-2.08375		194211.3	10246062
2.223617	102.251	-1.84333		194211.1	10246062
2.223612	102.2509	-1.88857		194210.4	10246062
2.223612	102.2509	-2.148		194209.8	10246062
2.223615	102.2509	-1.88429		194209.5	10246062
2.223618	102.2509	-1.50929		194209.1	10246063
2.223615	102.2509	-1.53267		194208.2	10246062
2.223612	102.2509	-1.62692		194207.4	10246062
2.22361	102.2509	-1.89857		194206.7	10246062
2.22361	102.2509	-2.07063		194205.9	10246062
2.223612	102.2509	-2.18545		194205.4	10246062
2.22361	102.2509	-2.25		194205	10246062
2.223612	102.2509	-2.21692		194204.3	10246062
2.223615	102.2509	-2.10429		194203.7	10246062
2.223618	102.2509	-2.00417		194203.2	10246063
2.22362	102.2509	-1.99375		194202.8	10246063
2.223618	102.2509	-2.05875		194202.2	10246063
2.223617	102.2509	-2.02857		194201.7	10246063
2.22362	102.2509	-1.703		194201.7	10246063
2.223622	102.2509	-1.69167		194201.5	10246063
2.223625	102.2509	-1.61375		194201.1	10246063
2.223628	102.2509	-1.961		194201.1	10246064
2.223635	102.2509	-2.4225		194200.9	10246065
2.22364	102.2509	-1.82267		194200.8	10246065
2.223645	102.2509	-1.71214		194200.4	10246066
2.22365	102.2509	-1.50133		194200.2	10246066
2.223653	102.2509	-1.51455		194199.8	10246067
2.223657	102.2509	-1.506		194199.6	10246067
2.223662	102.2509	-1.54462		194199.5	10246067
2.223667	102.2508	-1.5625		194199.3	10246068
2.223672	102.2508	-1.59444		194199.1	10246069
2.223673	102.2508	-1.686		194198.9	10246069
2.223678	102.2508	-1.766		194198.7	10246069
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2.223687	102.2508	-1.81615		194198.3	10246070
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2.223695	102.2508	-1.90273		194198.2	10246071
2.223698	102.2508	-1.95778		194198.2	10246072
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2.223718	102.2508	-2.02818		194198	10246074
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2.22373	102.2508	-1.98385		194197.6	10246075
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2.223737	102.2508	-1.9475		194196.9	10246076
2.223742	102.2508	-2.01556		194196.9	10246076
2.223745	102.2508	-2.005		194196.7	10246077
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2.223753	102.2508	-1.99538		194196.3	10246078
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2.223787	102.2508	-1.684		194193.9	10246081
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2.223838	102.2507	-1.8725		194184.7	10246087
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2.22373	102.2507	-1.98091		194184.1	10246075
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2.223645	102.2507	-1.9975		194182	10246066
2.223635	102.2507	-1.88625		194181.8	10246065
2.22363	102.2507	-1.78143		194181.6	10246064
2.223623	102.2507	-1.75222		194181.3	10246063
2.22362	102.2507	-2.524		194181.1	10246063
2.223605	102.2507	-2.44298		194181.1	10246061
2.223592	102.2507	-1.544		194180.9	10246060
2.223588	102.2507	-1.80583		194180.5	10246059
2.223585	102.2507	-1.77182		194180.2	10246059
2.223583	102.2507	-1.53333		194179.6	10246059
2.223582	102.2507	-1.54333		194178.8	10246059
2.22358	102.2507	-1.664		194178.1	10246058
2.22358	102.2506	-1.75667		194177	10246058
2.223578	102.2506	-2.04		194176.3	10246058
2.223577	102.2506	-2.21571		194175.9	10246058
2.223573	102.2506	-2.0475		194172.9	10246058
2.223572	102.2506	-1.952		194172	10246058
2.223572	102.2506	-2.08455		194170.5	10246058
2.22357	102.2506	-2.07429		194169.9	10246057
2.22357	102.2506	-2.12417		194169.6	10246057
2.223575	102.2506	-1.75714		194169.2	10246058
2.223578	102.2506	-1.69417		194168.8	10246058
2.22358	102.2506	-1.41692		194168.6	10246059
2.223585	102.2506	-1.41		194168.5	10246059
2.223588	102.2506	-1.395		194168.3	10246059
2.223593	102.2506	-1.43875		194167.9	10246060
2.223598	102.2506	-1.52		194167.5	10246061
2.223603	102.2506	-1.585		194167.2	10246061
2.223608	102.2506	-1.60143		194167	10246062
2.223612	102.2506	-1.62667		194166.8	10246062
2.223615	102.2506	-1.63571		194166.6	10246062
2.223618	102.2506	-1.705		194166.2	10246063
2.223623	102.2506	-1.73571		194166.1	10246063
2.223627	102.2505	-1.78444		194165.7	10246064

2.223632	102.2505	-1.84636		194165.3	10246064
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2.223645	102.2505	-2.066		194164.8	10246066
2.223647	102.2505	-2.07214		194164.6	10246066
2.22365	102.2505	-2.13091		194164.4	10246066
2.223653	102.2505	-2.135		194164.2	10246067
2.223658	102.2505	-2.1475		194164.2	10246067
2.223663	102.2505	-2.211		194164.2	10246068
2.223668	102.2505	-2.2575		194164.2	10246068
2.223673	102.2505	-2.26		194164	10246069
2.223678	102.2505	-2.28714		194163.6	10246069
2.223683	102.2505	-2.35636		194163.7	10246070
2.223687	102.2505	-2.318		194163.7	10246070
2.223692	102.2505	-2.334		194163.7	10246071
2.223695	102.2505	-2.28909		194163.5	10246071
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2.223713	102.2505	-2.04231		194162.5	10246073
2.223717	102.2505	-1.997		194162.4	10246074
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2.223635	102.2499	-1.96692		194092.8	10246065
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2.223662	102.2499	-2.07364		194092.4	10246068
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2.223692	102.2499	-2.09		194091.9	10246071
2.223697	102.2499	-2.04357		194091.9	10246072
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2.223707	102.2499	-2.08727		194091.5	10246073
2.223712	102.2499	-2.048		194091.5	10246073
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2.223718	102.2499	-1.99667		194091.5	10246074
2.223723	102.2499	-1.96667		194091.3	10246075
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2.223735	102.2499	-1.90375		194091.1	10246076

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2.223778	102.2499	-1.75375		194091.5	10246081
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2.223787	102.2499	-1.63417		194091.5	10246082
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2.223807	102.2499	-1.85571		194091	10246084
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2.223813	102.2499	-2.27667		194090.8	10246084
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2.223825	102.2499	-3.00667		194090.4	10246086
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2.223837	102.2499	-2.12786		194090.6	10246087
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2.223848	102.2499	-1.8075		194091	10246088
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2.223838	102.2497	-2.07267		194067.9	10246087
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2.223898	102.2475	-1.935		193827.5	10246094
2.223902	102.2475	-2.00769		193827.7	10246095
2.223905	102.2475	-2.04833		193828.1	10246095
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2.223928	102.2475	-2.05867		193829.4	10246098
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2.223982	102.2475	-1.916		193831.2	10246104
2.223985	102.2475	-1.84083		193831.4	10246104
2.223988	102.2475	-1.82462		193831.8	10246104
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2.224003	102.2476	-1.638		193832.7	10246106
2.224007	102.2476	-1.60125		193832.9	10246106
2.224008	102.2476	-1.50667		193833.1	10246107
2.224012	102.2476	-1.44182		193833.3	10246107
2.224013	102.2476	-1.39556		193833.3	10246107
2.224017	102.2476	-1.465		193833.5	10246107
2.22402	102.2476	-1.60083		193833.3	10246108
2.224023	102.2476	-1.65333		193832.9	10246108
2.224027	102.2476	-1.878		193832.7	10246109
2.224028	102.2476	-2.06		193832.5	10246109
2.224037	102.2476	-1.9		193832.2	10246110

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2.224043	102.2475	-1.87286		193831.8	10246110
2.224048	102.2475	-1.7		193832	10246111
2.224048	102.2476	-1.72		193832.2	10246111
2.224055	102.2476	-1.64333		193832.5	10246112
2.22406	102.2476	-1.655		193832.4	10246112
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2.224073	102.2476	-1.22875		193833.9	10246114
2.224078	102.2476	-1.30222		193834.6	10246114
2.224082	102.2476	-1.4		193834.8	10246115
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2.224087	102.2476	-1.38375		193834.6	10246115
2.22409	102.2476	-1.54667		193834.2	10246116
2.224092	102.2476	-1.70357		193833.9	10246116
2.224098	102.2475	-1.968		193830.9	10246116
2.224097	102.2475	-1.84		193830.2	10246116
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2.224098	102.2475	-1.22833		193827.5	10246117
2.224095	102.2475	-1.28818		193828.1	10246116
2.224092	102.2475	-1.43167		193828.8	10246116
2.224088	102.2475	-1.44538		193829	10246115
2.224088	102.2475	-1.56143		193829	10246115
2.224087	102.2475	-1.665		193828.8	10246115
2.22407	102.2475	-1.7925		193828.5	10246113
2.224065	102.2475	-1.66167		193828.3	10246113
2.22406	102.2475	-1.5375		193827.9	10246112
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2.224048	102.2475	-1.514		193826.1	10246111
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2.22398	102.2474	-2.03		193819	10246103
2.223977	102.2474	-2.03143		193819	10246103
2.223973	102.2474	-2.05286		193819	10246103
2.223972	102.2474	-2.0575		193819	10246103
2.22397	102.2474	-2.053		193818.2	10246102
2.22397	102.2474	-2.026		193817.9	10246102
2.223967	102.2474	-1.983		193817.7	10246102
2.223963	102.2474	-1.96		193817.3	10246102
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2.223952	102.2474	-1.88571		193816.4	10246100
2.223948	102.2474	-1.87929		193816	10246100
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2.224347	102.2467	-2.01571		193732.2	10246144

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2.22435	102.2466	-2.04583		193731.1	10246145
2.22435	102.2466	-2.02		193730.6	10246145
2.224348	102.2466	-2.00867		193729.1	10246144
2.224347	102.2466	-2.06		193728.5	10246144
2.224347	102.2466	-2.05538		193728.3	10246144
2.224347	102.2466	-2.07083		193728.3	10246144
2.224345	102.2466	-2.09571		193728.3	10246144
2.224345	102.2466	-2.06059		193728.7	10246144
2.224345	102.2466	-2.03417		193728.3	10246144
2.224348	102.2466	-2.05214		193728.3	10246144
2.224353	102.2466	-2.07733		193728.2	10246145
2.224357	102.2466	-2.03133		193727.4	10246145
2.22436	102.2466	-2.05059		193726.7	10246146
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2.224368	102.2466	-2.04063		193725.7	10246147
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2.224372	102.2466	-2.05923		193724.8	10246147
2.22437	102.2466	-2.04		193724.6	10246147
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2.224372	102.2466	-2.05133		193723.3	10246147
2.22437	102.2466	-2.05143		193722.2	10246147
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2.224368	102.2466	-2.05077		193721.7	10246147
2.224368	102.2466	-2.02267		193721.5	10246147
2.22437	102.2466	-2.01429		193720.9	10246147
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2.224377	102.2465	-2.00692		193719.8	10246148
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2.224387	102.2465	-2.004		193718.7	10246149
2.22439	102.2465	-2.03063		193718.9	10246149
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2.224393	102.2465	-2.00133		193719.1	10246149
2.224393	102.2465	-1.989		193720.2	10246149
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2.224385	102.2465	-1.86727		193719.3	10246148
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2.22438	102.2465	-1.91083		193716.5	10246148

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2.224383	102.2465	-1.84571		193715.4	10246148
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2.224395	102.2464	-1.85455		193708.5	10246150
2.224397	102.2464	-1.83067		193708.1	10246150
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2.224398	102.2464	-1.81941		193707.9	10246150
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2.224405	102.2464	-1.79933		193707.8	10246151
2.224407	102.2464	-1.82429		193707.6	10246151
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2.224417	102.2464	-1.83643		193706.8	10246152
2.224418	102.2464	-1.82333		193706.8	10246152
2.224418	102.2464	-1.86933		193706.7	10246152
2.224418	102.2464	-1.8225		193706.7	10246152
2.22442	102.2464	-1.84933		193706.5	10246152

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2.224435	102.2464	-1.87188		193705.5	10246154
2.224437	102.2464	-1.86688		193705	10246154
2.224437	102.2464	-1.85143		193704.4	10246154
2.224437	102.2464	-1.83938		193704.2	10246154
2.224438	102.2464	-1.83923		193704.4	10246154
2.224443	102.2464	-1.84667		193704.8	10246155
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2.224448	102.2464	-1.85667		193705.5	10246155
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2.224447	102.2464	-1.74		193704.2	10246155
2.224448	102.2464	-1.79214		193703.9	10246155
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2.22445	102.2464	-1.73857		193702.2	10246156
2.224453	102.2464	-1.766		193701.5	10246156
2.224462	102.2464	-1.775		193700	10246157
2.22447	102.2464	-1.80429		193700	10246158
2.224475	102.2464	-1.76833		193700.4	10246158
2.224478	102.2464	-1.725		193699.6	10246159
2.224483	102.2463	-1.76833		193697.2	10246159
2.224488	102.2463	-1.594		193696.6	10246160
2.224463	102.2464	-1.47667		193700.7	10246157
2.224465	102.2464	-1.46		193700.5	10246157
2.224465	102.2464	-1.47905		193700.4	10246157
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2.22447	102.2464	-1.47		193698.7	10246158
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2.224473	102.2463	-1.43727		193696.5	10246158
2.224478	102.2463	-1.38846		193696.3	10246159
2.224482	102.2463	-1.41625		193695.3	10246159
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2.224487	102.2463	-1.34385		193693.7	10246160
2.224487	102.2463	-1.32875		193693.1	10246160
2.224485	102.2463	-1.375		193692.2	10246160
2.224478	102.2463	-1.48556		193691.4	10246159
2.224475	102.2463	-1.52571		193690.9	10246158
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2.224478	102.2463	-1.346		193689.8	10246159
2.22448	102.2463	-1.47357		193689.2	10246159
2.224482	102.2463	-1.38		193689	10246159
2.224487	102.2463	-1.425		193688.9	10246160
2.224492	102.2463	-1.36909		193688.5	10246160
2.224493	102.2463	-1.36875		193688.3	10246160
2.224497	102.2463	-1.47188		193688.1	10246161
2.224507	102.2463	-1.454		193688.7	10246162
2.224508	102.2463	-1.486		193688.5	10246162
2.224513	102.2463	-1.62909		193687.7	10246163
2.224508	102.2463	-1.4225		193687.6	10246162
2.224502	102.2462	-1.248		193687.4	10246161
2.224505	102.2462	-1.32667		193687.2	10246162
2.224507	102.2462	-1.414		193687.4	10246162
2.224508	102.2463	-1.34667		193688.1	10246162
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2.224507	102.2463	-1.47571		193687.9	10246162
2.224503	102.2462	-1.49746		193687.2	10246162
2.224485	102.2463	-1.5		193689	10246160
2.224488	102.2463	-1.435		193689.2	10246160
2.224487	102.2463	-1.38867		193690	10246160
2.224483	102.2463	-1.41615		193691.3	10246159
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2.224478	102.2463	-1.39038		193692.2	10246159
2.224483	102.2463	-1.35231		193692.4	10246159
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2.224483	102.2463	-1.5		193693.1	10246159

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2.224492	102.2463	-1.58933		193693.1	10246160
2.224495	102.2463	-1.62286		193693.9	10246161
2.224498	102.2463	-1.65714		193694.2	10246161
2.224502	102.2463	-1.63167		193694.6	10246161
2.224505	102.2463	-1.64571		193695	10246162
2.224508	102.2463	-1.71857		193695.4	10246162
2.224513	102.2463	-1.803		193695.5	10246163
2.224517	102.2463	-1.78385		193695.7	10246163
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2.22452	102.2463	-1.91625		193697	10246163
2.224525	102.2463	-1.92308		193697	10246164
2.224528	102.2463	-1.93214		193697.2	10246164
2.224533	102.2463	-2.00125		193697.4	10246165
2.224537	102.2463	-1.98182		193697.6	10246165
2.22454	102.2463	-2.01		193697.8	10246166
2.224542	102.2463	-1.97467		193698.1	10246166
2.224543	102.2463	-2.003		193698.3	10246166
2.224547	102.2463	-2.04444		193698.5	10246166
2.224548	102.2463	-2.01917		193698.5	10246167
2.224553	102.2463	-2.022		193698.5	10246167
2.224557	102.2464	-2.02182		193699.1	10246167
2.224558	102.2464	-1.99733		193699.4	10246168
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2.224567	102.2464	-1.94857		193701.1	10246169
2.224572	102.2464	-1.98		193701.3	10246169
2.224575	102.2464	-2.02083		193701.7	10246169
2.22458	102.2464	-1.99857		193701.9	10246170
2.224583	102.2464	-1.98462		193702.2	10246170
2.224587	102.2464	-1.986		193702.6	10246171
2.224592	102.2464	-1.919		193703	10246171
2.224595	102.2464	-1.872		193703.2	10246172
2.224598	102.2464	-1.86667		193703.4	10246172
2.224603	102.2464	-1.80556		193703.5	10246173
2.224608	102.2464	-1.74667		193703.7	10246173
2.224612	102.2464	-1.68714		193704.1	10246174
2.224613	102.2464	-1.6725		193704.3	10246174
2.224617	102.2464	-1.68		193704.5	10246174
2.224618	102.2464	-1.6375		193704.8	10246174
2.224622	102.2464	-1.57889		193705	10246175
2.224627	102.2464	-1.56875		193705.2	10246175

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2.224633	102.2464	-1.46692		193706	10246176
2.224637	102.2464	-1.46063		193706	10246176
2.224638	102.2464	-1.38636		193706.3	10246176
2.224643	102.2464	-1.41167		193706.3	10246177
2.224645	102.2464	-1.37769		193706.5	10246177
2.224647	102.2464	-1.37		193706.9	10246177
2.224648	102.2464	-1.318		193707.3	10246178
2.224653	102.2464	-1.31692		193707.8	10246178
2.224657	102.2464	-1.29308		193708.2	10246179
2.224658	102.2464	-1.54636		193708.6	10246179
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2.224657	102.2464	-1.58214		193709.1	10246179
2.224657	102.2464	-1.586		193709.1	10246179
2.224655	102.2465	-1.29154		193709.9	10246178
2.224655	102.2465	-1.6775		193710	10246178
2.224652	102.2465	-1.72875		193710.4	10246178
2.224652	102.2465	-1.71		193710.6	10246178
2.224645	102.2465	-1.665		193711	10246177
2.224645	102.2465	-1.678		193711.3	10246177
2.224647	102.2465	-1.62154		193711.9	10246177
2.224643	102.2465	-1.5025		193712.3	10246177
2.224638	102.2465	-1.7775		193712.1	10246176
2.224635	102.2465	-1.66889		193711.9	10246176
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2.224628	102.2465	-1.43417		193713.7	10246175
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2.224625	102.2465	-1.72375		193714.5	10246175
2.224623	102.2465	-1.80167		193714.3	10246175
2.224622	102.2465	-1.66667		193714.3	10246175
2.224615	102.2465	-1.738		193714.1	10246174
2.224613	102.2465	-1.74545		193714.7	10246174
2.224615	102.2465	-1.69636		193715	10246174
2.224613	102.2465	-1.71		193715.2	10246174
2.22461	102.2465	-1.61778		193715.2	10246173
2.224605	102.2465	-1.653		193715.4	10246173
2.2246	102.2465	-1.304		193715.6	10246172
2.224597	102.2465	-1.33583		193716.2	10246172
2.224592	102.2465	-1.39286		193716.7	10246171
2.22459	102.2465	-1.324		193717.3	10246171
2.22459	102.2465	-1.525		193717.4	10246171
2.224593	102.2465	-1.623		193718	10246171
2.224595	102.2465	-1.72667		193718.4	10246172

2.224598	102.2465	-1.86769		193718.9	10246172
2.224598	102.2465	-1.70818		193719.1	10246172
2.2246	102.2465	-1.49833		193719.1	10246172
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2.224603	102.2465	-1.40833		193719.7	10246173
2.224602	102.2465	-1.10933		193719.5	10246172
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2.2246	102.2465	-1.80182		193720.4	10246172
2.224598	102.2465	-1.80286		193720.2	10246172
2.224597	102.2465	-1.565		193720.4	10246172
2.224595	102.2465	-1.21455		193720.6	10246172
2.224592	102.2465	-1.27364		193720.4	10246171
2.22459	102.2465	-1.40231		193720.2	10246171
2.224585	102.2465	-1.35154		193719.7	10246171
2.22458	102.2465	-1.36077		193718.7	10246170
2.224573	102.2465	-1.40364		193718.2	10246169
2.224568	102.2465	-1.45625		193717.6	10246169
2.224563	102.2465	-1.5		193716.9	10246168
2.224563	102.2465	-1.51143		193716.3	10246168
2.22456	102.2465	-1.54714		193715.8	10246168
2.224557	102.2465	-1.59688		193715.2	10246167
2.224555	102.2465	-1.60692		193714.7	10246167
2.224553	102.2465	-1.65		193714.3	10246167
2.224552	102.2465	-1.72		193713.9	10246167
2.22455	102.2465	-1.768		193713.5	10246167
2.224547	102.2465	-1.8475		193713.2	10246166
2.224543	102.2465	-1.895		193712.8	10246166
2.22454	102.2465	-1.88182		193712.6	10246166
2.224537	102.2465	-1.923		193712.2	10246165
2.224533	102.2465	-1.94846		193711.7	10246165
2.22453	102.2465	-1.97818		193711.5	10246164
2.224525	102.2465	-2.017		193711.1	10246164
2.22452	102.2465	-2.04		193710.9	10246163
2.224515	102.2465	-2.06417		193710.6	10246163
2.22451	102.2465	-2.04833		193710.4	10246162
2.224505	102.2465	-2.08357		193710.2	10246162
2.2245	102.2465	-2.1025		193710	10246161
2.224495	102.2465	-2.04308		193710	10246161
2.224492	102.2464	-2.07571		193709.6	10246160
2.224488	102.2465	-2.07643		193709.8	10246160
2.224488	102.2464	-2.08063		193709.5	10246160
2.224485	102.2464	-2.07538		193709.5	10246160
2.224483	102.2464	-2.11267		193709.3	10246159
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2.224478	102.2464	-2.07923		193708.3	10246159
2.224477	102.2464	-2.04615		193708	10246159
2.224475	102.2464	-2.02286		193707.6	10246158
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2.224468	102.2464	-1.95733		193706.3	10246158
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2.224455	102.2464	-1.81091		193704.6	10246156
2.224453	102.2464	-1.805		193704.1	10246156
2.224452	102.2464	-1.79		193703.5	10246156
2.22445	102.2464	-1.79071		193703.1	10246156
2.224447	102.2464	-1.72714		193702.8	10246155
2.224443	102.2464	-1.72583		193702.6	10246155
2.22444	102.2464	-1.665		193701.8	10246155
2.224438	102.2464	-1.67286		193701.5	10246154
2.224437	102.2464	-1.65		193701.1	10246154
2.224433	102.2464	-1.61615		193700.7	10246154
2.22443	102.2464	-1.61429		193700.5	10246153
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2.224423	102.2464	-1.55538		193700.3	10246153
2.22442	102.2464	-1.55385		193700.2	10246152
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2.224412	102.2464	-1.458		193699.6	10246151
2.224405	102.2464	-1.46333		193699.6	10246151
2.224402	102.2464	-1.522		193699.4	10246150
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2.224392	102.2464	-1.44667		193699.8	10246149
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2.224362	102.2464	-1.37		193702	10246146
2.224357	102.2464	-1.434		193702.2	10246145
2.224352	102.2464	-1.66727		193702.4	10246145
2.224347	102.2464	-1.47714		193702.6	10246144
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2.224313	102.2464	-1.6125		193704.2	10246141
2.22431	102.2464	-1.75667		193704.4	10246140
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2.224308	102.2464	-1.59538		193705.1	10246140
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2.224315	102.2464	-1.3275		193706.4	10246141
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2.224337	102.2464	-1.315		193708.3	10246143
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2.224413	102.2465	-1.98714		193714.3	10246152
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2.224492	102.2465	-2.031		193716.7	10246160
2.224495	102.2465	-1.96769		193716.9	10246161
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2.224505	102.2465	-1.92917		193717.2	10246162
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2.224518	102.2465	-1.83		193718	10246163
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2.224528	102.2465	-1.549		193718.7	10246164
2.224533	102.2465	-1.47909		193718.9	10246165
2.224537	102.2465	-1.49875		193719.3	10246165
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2.224547	102.2465	-1.44727		193719.8	10246166
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2.22455	102.2465	-1.47333		193719.8	10246167
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2.224558	102.2465	-1.36167		193720.2	10246168
2.224563	102.2465	-1.59167		193720.4	10246168
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2.224573	102.2466	-1.87333		193721.2	10246169
2.224575	102.2466	-1.32714		193721.5	10246169
2.224577	102.2466	-1.33455		193722.1	10246170
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2.224578	102.2466	-1.74727		193723.2	10246170
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2.224578	102.2466	-1.29667		193723.4	10246170
2.224578	102.2466	-1.361		193723.4	10246170

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2.224562	102.2466	-1.34455		193726	10246168
2.224557	102.2466	-1.37667		193726	10246167
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2.224552	102.2466	-1.42		193726.5	10246167
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2.22455	102.2466	-1.44692		193726.7	10246167
2.224547	102.2466	-1.44462		193726.7	10246166
2.224543	102.2466	-1.45455		193727.1	10246166
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2.224543	102.2466	-1.48364		193727.6	10246166
2.224542	102.2466	-1.44231		193728	10246166
2.22454	102.2466	-1.42846		193728.2	10246166
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2.22454	102.2466	-1.39		193728.9	10246166
2.224538	102.2466	-1.37455		193728.8	10246165
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2.2245	102.2466	-1.97571		193726.5	10246161
2.224493	102.2466	-1.98222		193726.1	10246160
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2.224483	102.2466	-1.99		193725.4	10246159
2.224477	102.2466	-2.02615		193724.8	10246159
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2.224437	102.2466	-2.07667		193722.4	10246154
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2.224428	102.2466	-2.01385		193722.6	10246153
2.224423	102.2466	-2.06375		193722.4	10246153
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2.224413	102.2466	-2.00333		193721.7	10246152
2.22441	102.2466	-2.025		193721.5	10246151
2.224403	102.2466	-2.00231		193720.9	10246150
2.224398	102.2465	-1.9975		193720.2	10246150
2.224393	102.2465	-1.91385		193719.6	10246149
2.224387	102.2465	-1.895		193719.1	10246149
2.224382	102.2465	-1.87273		193718.9	10246148
2.224378	102.2465	-1.85462		193718.5	10246148
2.224375	102.2465	-1.84467		193718.1	10246147
2.224372	102.2465	-1.78833		193717.8	10246147
2.224367	102.2465	-1.78182		193717.6	10246146
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2.224353	102.2465	-1.63857		193716.3	10246145
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2.224347	102.2465	-1.67455		193715.5	10246144
2.224342	102.2465	-1.64778		193715.4	10246144
2.224338	102.2465	-1.70091		193715.4	10246143
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2.224332	102.2465	-1.58467		193714.8	10246143
2.224328	102.2465	-1.57313		193714.8	10246142
2.224323	102.2465	-1.535		193714.6	10246142
2.224313	102.2465	-1.55111		193714.4	10246141
2.224308	102.2465	-1.76889		193714.4	10246140
2.224303	102.2465	-1.81923		193714.2	10246139
2.2243	102.2465	-1.988		193714.2	10246139
2.224292	102.2465	-2.30429		193713.9	10246138
2.224287	102.2465	-2.3025		193713.9	10246138
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2.224278	102.2465	-1.99417		193713.9	10246137
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2.22427	102.2465	-1.59818		193714	10246136

2.224265	102.2465	-1.50267		193714	10246135
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2.224255	102.2465	-1.52222		193713.9	10246134
2.224252	102.2465	-1.1875		193713.9	10246134
2.224248	102.2465	-1.328		193714	10246133
2.224245	102.2465	-1.26267		193714.4	10246133
2.224242	102.2465	-1.37846		193714.8	10246133
2.22424	102.2465	-1.42111		193715.1	10246132
2.224237	102.2465	-1.49727		193715.3	10246132
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2.224232	102.2465	-1.625		193716.3	10246131
2.224228	102.2465	-1.925		193716.6	10246131
2.224227	102.2465	-2.077		193717	10246131
2.224225	102.2465	-2.05667		193717.4	10246131
2.224222	102.2465	-2.0025		193717.7	10246130
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2.224215	102.2465	-2.0875		193718.5	10246130
2.224212	102.2465	-2.02417		193718.9	10246129
2.224208	102.2465	-2.03889		193719.2	10246129
2.224205	102.2465	-2.19818		193719.6	10246129
2.224202	102.2465	-2.044		193720.1	10246128
2.2242	102.2465	-1.99556		193720.5	10246128
2.224197	102.2466	-2.03667		193721.1	10246128
2.224197	102.2466	-2.017		193721.4	10246128
2.224195	102.2466	-2.04429		193722	10246127
2.224193	102.2466	-2.16		193722.4	10246127
2.224193	102.2466	-2.069		193722.9	10246127
2.224192	102.2466	-2.074		193723.7	10246127
2.22419	102.2466	-2.048		193724.2	10246127
2.22419	102.2466	-1.737		193724.8	10246127
2.22419	102.2466	-1.7		193725	10246127
2.22419	102.2466	-1.92867		193725.2	10246127
2.22419	102.2466	-1.62167		193725.5	10246127
2.224192	102.2466	-1.51846		193725.9	10246127
2.224197	102.2466	-1.32643		193726.1	10246128
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2.224202	102.2466	-1.37333		193726.1	10246128
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2.224213	102.2466	-1.29273		193726.8	10246129
2.224223	102.2466	-1.47583		193727.2	10246131
2.224232	102.2466	-1.51583		193727.4	10246131
2.224238	102.2466	-1.53417		193727.6	10246132
2.224243	102.2466	-1.5		193727.6	10246133

2.22425	102.2466	-1.4975		193727.8	10246133
2.224255	102.2466	-1.508		193727.8	10246134
2.224262	102.2466	-1.505		193727.9	10246135
2.224267	102.2466	-1.55462		193728.3	10246135
2.224272	102.2466	-1.597		193728.1	10246136
2.224277	102.2466	-1.704		193728.3	10246136
2.22428	102.2466	-1.76643		193728.3	10246137
2.224285	102.2466	-1.859		193728.3	10246137
2.224288	102.2466	-1.84643		193728.5	10246138
2.224293	102.2466	-1.89286		193728.5	10246138
2.224298	102.2466	-1.94429		193728.7	10246139
2.224302	102.2466	-1.9125		193728.7	10246139
2.224307	102.2466	-1.9675		193728.9	10246140
2.22431	102.2466	-1.9875		193729.3	10246140
2.224313	102.2466	-1.96769		193729.3	10246140
2.224317	102.2466	-2.021		193729.3	10246141
2.224322	102.2466	-2.07692		193729.5	10246141
2.224325	102.2466	-2.09385		193729.6	10246142
2.224328	102.2466	-2.10125		193729.8	10246142
2.224332	102.2466	-2.12		193730	10246143
2.224335	102.2466	-2.10818		193730.2	10246143
2.224338	102.2466	-2.12308		193730.6	10246143
2.224342	102.2466	-2.08692		193730.7	10246144
2.224348	102.2466	-2.102		193730.9	10246144
2.224353	102.2466	-2.06167		193731.3	10246145
2.224357	102.2466	-2.026		193731.3	10246145
2.22436	102.2466	-2.00867		193731.5	10246146
2.224363	102.2466	-1.98		193731.9	10246146
2.224368	102.2466	-2.021		193731.9	10246147
2.224373	102.2467	-2.04286		193732.1	10246147
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2.224378	102.2467	-1.98		193732.4	10246148
2.224383	102.2467	-2.00182		193732.4	10246148
2.224388	102.2467	-2.002		193732.6	10246149
2.22439	102.2467	-1.94308		193732.8	10246149
2.224395	102.2467	-1.955		193732.8	10246150
2.2244	102.2467	-1.955		193732.4	10246150
2.224402	102.2466	-1.90846		193731.9	10246150
2.224408	102.2467	-1.88778		193732.1	10246151
2.224412	102.2467	-1.85333		193732.4	10246151
2.224415	102.2467	-1.83833		193732.6	10246152
2.22442	102.2467	-1.73077		193732.6	10246152
2.224423	102.2467	-1.655		193732.8	10246153
2.224427	102.2467	-1.56714		193732.6	10246153

2.224432	102.2467	-1.586		193732.6	10246154
2.224438	102.2467	-1.50636		193732.6	10246154
2.224445	102.2467	-1.43222		193732.8	10246155
2.22445	102.2467	-1.42111		193732.8	10246156
2.224455	102.2467	-1.41833		193733	10246156
2.224457	102.2467	-1.45571		193732.4	10246156
2.224462	102.2467	-1.5425		193732.6	10246157
2.224462	102.2467	-1.33769		193732.4	10246157
2.224467	102.2467	-1.38625		193732.4	10246157
2.224473	102.2467	-1.35571		193736.2	10246158
2.224473	102.2467	-1.38429		193736.5	10246158
2.224477	102.2467	-1.35429		193737.3	10246159
2.224478	102.2467	-1.43444		193737.6	10246159
2.224478	102.2467	-1.56167		193738.2	10246159
2.224477	102.2467	-1.45286		193738.6	10246159
2.224477	102.2467	-1.339		193738.9	10246159
2.224477	102.2467	-1.37909		193739.3	10246159
2.224477	102.2467	-1.54667		193739.3	10246159
2.224473	102.2467	-1.43		193739.7	10246158
2.224475	102.2467	-1.42333		193740.1	10246158
2.224477	102.2467	-1.50091		193740.4	10246159
2.224477	102.2467	-1.30417		193740.8	10246159
2.224478	102.2467	-1.39529		193741.4	10246159
2.224478	102.2467	-1.5375		193741.9	10246159
2.224478	102.2467	-1.88111		193742.1	10246159
2.224477	102.2467	-1.53364		193742.3	10246159
2.224478	102.2467	-1.69667		193742.5	10246159
2.224477	102.2467	-2.014		193742.8	10246159
2.224477	102.2468	-1.67444		193743.2	10246159
2.224475	102.2468	-1.42688		193743.6	10246158
2.224473	102.2468	-1.33214		193744	10246158
2.224473	102.2468	-1.54857		193744.3	10246158
2.224473	102.2468	-1.3275		193744.7	10246158
2.224473	102.2468	-1.41222		193745.1	10246158
2.224473	102.2468	-1.60923		193745.4	10246158
2.224473	102.2468	-1.52429		193745.6	10246158
2.224472	102.2468	-1.59		193745.8	10246158
2.224468	102.2468	-1.46182		193746	10246158
2.224463	102.2468	-1.447		193745.8	10246157
2.224462	102.2468	-1.78625		193745.6	10246157
2.224453	102.2468	-1.94077		193746.5	10246156
2.224452	102.2468	-1.84867		193746.7	10246156
2.224452	102.2468	-2.06083		193747.3	10246156
2.224448	102.2468	-1.536		193747.5	10246155

2.224448	102.2468	-1.801		193748	10246155
2.224445	102.2468	-2.23909		193748.4	10246155
2.224443	102.2468	-1.75214		193748.6	10246155
2.224443	102.2468	-1.90286		193748.6	10246155
2.224443	102.2468	-1.673		193748.8	10246155
2.22444	102.2468	-1.69182		193749.1	10246154
2.224438	102.2468	-1.558		193749.3	10246154
2.224438	102.2468	-1.42733		193749.5	10246154
2.22444	102.2468	-1.68667		193749.7	10246154
2.224442	102.2468	-1.56333		193750.1	10246155
2.224443	102.2468	-1.56667		193750.1	10246155
2.224445	102.2468	-1.77818		193750.4	10246155
2.224447	102.2468	-1.43429		193750.8	10246155
2.224448	102.2468	-1.70182		193751.2	10246155
2.22445	102.2468	-1.8775		193751.9	10246156
2.224448	102.2468	-1.62846		193752.1	10246155
2.224445	102.2468	-1.59857		193752.3	10246155
2.22444	102.2468	-1.44		193752.3	10246154
2.224437	102.2468	-1.8675		193752.1	10246154
2.224433	102.2468	-1.792		193751.9	10246154
2.22443	102.2468	-1.585		193751.7	10246153
2.224427	102.2468	-1.40545		193751.9	10246153
2.224422	102.2468	-1.40786		193751.5	10246152
2.224417	102.2468	-1.29		193750.8	10246152
2.22441	102.2468	-1.37		193750.6	10246151
2.224407	102.2468	-1.43214		193750.4	10246151
2.224402	102.2468	-1.33143		193750.4	10246150
2.224398	102.2468	-1.43		193750.1	10246150
2.224392	102.2468	-1.42273		193749.5	10246149
2.22439	102.2468	-1.395		193748.9	10246149
2.224385	102.2468	-1.47563		193748.6	10246148
2.22438	102.2468	-1.55286		193747.8	10246148
2.224372	102.2468	-1.52154		193747.5	10246147
2.224367	102.2468	-1.58889		193747.1	10246146
2.22436	102.2468	-1.66		193746.9	10246146
2.224353	102.2468	-1.69556		193746.7	10246145
2.22435	102.2468	-1.6975		193746.3	10246145
2.224345	102.2468	-1.72417		193746.2	10246144
2.224342	102.2468	-1.72267		193746.5	10246144
2.22434	102.2468	-1.76417		193746.5	10246143
2.224338	102.2468	-1.79071		193746.5	10246143
2.224337	102.2468	-1.74286		193746.5	10246143
2.224335	102.2468	-1.78167		193746.5	10246143
2.224332	102.2468	-1.876		193746.3	10246142

2.224328	102.2468	-1.82917		193746.3	10246142
2.224323	102.2468	-1.8875		193746.5	10246142
2.22432	102.2468	-1.90364		193746.5	10246141
2.224317	102.2468	-1.91462		193746.7	10246141
2.224312	102.2468	-1.92917		193746.5	10246140
2.224308	102.2468	-1.92833		193746.3	10246140
2.224305	102.2468	-1.96545		193746.1	10246140
2.224302	102.2468	-1.99167		193746.1	10246139
2.224297	102.2468	-2.02417		193745.8	10246139
2.224292	102.2468	-2.03333		193745.6	10246138
2.224288	102.2468	-2.07833		193745.4	10246138
2.224285	102.2468	-2.062		193745.2	10246137
2.224282	102.2468	-2.08667		193744.8	10246137
2.224278	102.2468	-2.04714		193744.8	10246137
2.224275	102.2468	-2.064		193744.7	10246136
2.224272	102.2468	-2.095		193744.5	10246136
2.224267	102.2468	-2.03167		193744.5	10246135
2.224263	102.2468	-2.03462		193744.3	10246135
2.224262	102.2468	-2.05267		193744.5	10246135
2.224262	102.2468	-2.04667		193744.3	10246135
2.224258	102.2468	-2.1		193744.3	10246134
2.224257	102.2468	-2.13923		193744.3	10246134
2.224253	102.2468	-2.09455		193743.9	10246134
2.22425	102.2468	-2.04786		193743.7	10246133
2.224245	102.2468	-2.04786		193743.5	10246133
2.22424	102.2467	-2.071		193743	10246132
2.224237	102.2467	-2.04857		193742.6	10246132
2.224233	102.2467	-2.05556		193742.4	10246132
2.22423	102.2467	-2.03091		193741.9	10246131
2.224225	102.2467	-1.94714		193741.7	10246131
2.224222	102.2467	-1.881		193741.1	10246130
2.224217	102.2467	-1.84462		193740.9	10246130
2.224212	102.2467	-1.81		193740.6	10246129
2.224208	102.2467	-1.77214		193740.2	10246129
2.224205	102.2467	-1.73071		193740	10246128
2.224203	102.2467	-1.663		193739.8	10246128
2.2242	102.2467	-1.58		193739.6	10246128
2.224197	102.2467	-1.53545		193739.4	10246128
2.224193	102.2467	-1.452		193739.3	10246127
2.224192	102.2467	-1.45786		193739.3	10246127
2.22419	102.2467	-1.415		193739.1	10246127
2.224187	102.2467	-1.44643		193739.1	10246126
2.224185	102.2467	-1.44455		193739.3	10246126
2.224183	102.2467	-1.42867		193739.6	10246126

2.224182	102.2467	-1.48125		193740.2	10246126
2.224182	102.2467	-1.458		193740.2	10246126
2.22418	102.2467	-1.45571		193740.4	10246126
2.224178	102.2467	-1.49		193740.7	10246126
2.224178	102.2467	-1.48231		193741.1	10246126
2.224178	102.2467	-1.53667		193741.5	10246126
2.224178	102.2467	-1.511		193741.7	10246126
2.224177	102.2467	-1.54813		193742	10246125
2.224177	102.2467	-1.59308		193742.2	10246125
2.224178	102.2467	-1.62125		193742.4	10246126
2.224178	102.2467	-1.59765		193742.6	10246126
2.224178	102.2467	-1.64923		193743	10246126
2.224178	102.2468	-1.63583		193743.2	10246126
2.224178	102.2468	-1.61429		193743.5	10246126
2.224178	102.2468	-1.60909		193744.1	10246126
2.224178	102.2468	-1.68714		193744.3	10246126
2.224178	102.2468	-1.69		193744.6	10246126
2.224177	102.2468	-1.66643		193745	10246125
2.224177	102.2468	-1.69308		193745.2	10246125
2.224177	102.2468	-1.68		193745.6	10246125
2.224177	102.2468	-1.67429		193745.7	10246125
2.224175	102.2468	-1.725		193745.9	10246125
2.224177	102.2468	-1.74		193745.9	10246125
2.224175	102.2468	-1.73818		193746.3	10246125
2.224175	102.2468	-1.734		193746.7	10246125
2.224175	102.2468	-1.73929		193746.9	10246125
2.224175	102.2468	-1.733		193747.2	10246125
2.224173	102.2468	-1.762		193747.4	10246125
2.224172	102.2468	-1.75667		193747.6	10246125
2.224168	102.2468	-1.7925		193748.2	10246124
2.224167	102.2468	-1.8125		193748.5	10246124
2.224165	102.2468	-1.8075		193748.9	10246124
2.224162	102.2468	-1.80313		193749.1	10246124
2.22416	102.2468	-1.81231		193749.3	10246123
2.224158	102.2468	-1.79667		193749.5	10246123
2.224157	102.2468	-1.79176		193749.8	10246123
2.224155	102.2468	-1.78429		193750	10246123
2.224153	102.2468	-1.78167		193750.2	10246123
2.224152	102.2468	-1.78917		193750.6	10246123
2.22415	102.2468	-1.77091		193750.7	10246122
2.224148	102.2468	-1.77471		193750.9	10246122
2.224147	102.2468	-1.74222		193751.3	10246122
2.224145	102.2468	-1.74692		193751.7	10246122
2.224145	102.2468	-1.66167		193751.9	10246122

2.224143	102.2468	-1.64		193752	10246122
2.224142	102.2468	-1.67438		193752.2	10246121
2.224143	102.2468	-1.72643		193752.4	10246122
2.224145	102.2468	-1.805		193752.6	10246122
2.224147	102.2468	-1.78643		193753	10246122
2.22415	102.2468	-1.838		193753.4	10246122
2.224155	102.2468	-1.88625		193753.4	10246123
2.224158	102.2468	-1.91875		193753.5	10246123
2.224163	102.2468	-1.96583		193753.7	10246124
2.224168	102.2468	-1.95917		193753.9	10246124
2.224172	102.2469	-1.96273		193754.3	10246125
2.224178	102.2469	-2.015		193754.3	10246125
2.224183	102.2469	-2.00333		193754.5	10246126
2.224185	102.2469	-2.00063		193754.5	10246126
2.224188	102.2469	-2.05357		193754.7	10246127
2.224193	102.2469	-2.0425		193754.8	10246127
2.224198	102.2469	-2.04111		193755	10246128
2.224202	102.2469	-1.97769		193755	10246128
2.224207	102.2469	-2.03857		193755.2	10246129
2.224212	102.2469	-2.04538		193755.4	10246129
2.224215	102.2469	-2.001		193755.6	10246130
2.224218	102.2469	-2.036		193755.6	10246130
2.224222	102.2469	-1.97692		193755.8	10246130
2.224225	102.2469	-1.96071		193756	10246131
2.22423	102.2469	-1.975		193756.2	10246131
2.224233	102.2469	-1.94917		193756.3	10246132
2.224237	102.2469	-1.90333		193756.3	10246132
2.224242	102.2469	-1.88167		193756.5	10246132
2.224247	102.2469	-1.88		193756.7	10246133
2.224252	102.2469	-1.90583		193756.7	10246134
2.224255	102.2469	-1.83357		193756.9	10246134
2.224262	102.2469	-1.82		193757.1	10246135
2.224267	102.2469	-1.82		193757.3	10246135
2.22427	102.2469	-1.81067		193757.5	10246136
2.224273	102.2469	-1.78714		193757.6	10246136
2.224278	102.2469	-1.76667		193757.8	10246137
2.224283	102.2469	-1.74643		193758	10246137
2.224288	102.2469	-1.744		193758.2	10246138
2.224293	102.2469	-1.74833		193758.4	10246138
2.224297	102.2469	-1.74364		193758.4	10246139
2.224303	102.2469	-1.70583		193758.4	10246139
2.22431	102.2469	-1.66667		193758.6	10246140
2.224315	102.2469	-1.63214		193758.4	10246141
2.22432	102.2469	-1.585		193758.6	10246141

2.224325	102.2469	-1.545		193758.6	10246142
2.22433	102.2469	-1.493		193758.4	10246142
2.224335	102.2469	-1.473		193758.4	10246143
2.224338	102.2469	-1.47364		193758.4	10246143
2.22434	102.2469	-1.43		193758.2	10246143
2.224342	102.2469	-1.44455		193758.2	10246144
2.224345	102.2469	-1.56		193758.2	10246144
2.224347	102.2469	-1.47143		193758.4	10246144
2.22435	102.2469	-1.773		193758.6	10246144
2.224353	102.2469	-1.596		193758.8	10246145
2.224357	102.2469	-1.70875		193759.1	10246145
2.22436	102.2469	-2.11333		193759.5	10246146
2.224363	102.2469	-2.357		193759.9	10246146
2.224365	102.2469	-2.184		193760.1	10246146
2.22437	102.2469	-1.85154		193760.6	10246147
2.224373	102.2469	-1.84308		193761	10246147
2.224377	102.2469	-1.505		193761.2	10246147
2.22438	102.2469	-1.48		193761.7	10246148
2.224383	102.2469	-1.32875		193762.1	10246148
2.224385	102.2469	-1.23857		193762.5	10246148
2.224388	102.2469	-1.14929		193763.2	10246149
2.224385	102.2469	-1.47		193763.6	10246148
2.224383	102.2469	-1.40846		193764.2	10246148
2.224387	102.2469	-1.25571		193764.2	10246149
2.224385	102.2469	-1.30625		193764.7	10246148
2.224382	102.2469	-1.64909		193765.1	10246148
2.224382	102.247	-1.56909		193765.5	10246148
2.224378	102.247	-1.76077		193766.2	10246148
2.224373	102.247	-1.81615		193766.4	10246147
2.224363	102.247	-1.854		193766.4	10246146
2.22436	102.247	-1.768		193766.4	10246146
2.224358	102.247	-1.44071		193766.4	10246145
2.224358	102.247	-1.562		193766.6	10246145
2.224353	102.247	-1.52833		193766.8	10246145
2.224348	102.247	-1.53778		193767.1	10246144
2.224345	102.247	-1.545		193767.3	10246144
2.224343	102.247	-1.72444		193767.5	10246144
2.224342	102.247	-1.66091		193767.7	10246144
2.22434	102.247	-1.35667		193767.5	10246143
2.224342	102.247	-1.42818		193767.9	10246144
2.224338	102.247	-1.54857		193767.3	10246143
2.224337	102.247	-1.66846		193767.3	10246143
2.224335	102.247	-1.62083		193767.5	10246143
2.224335	102.247	-1.55778		193767.7	10246143

2.22433	102.247	-1.34818		193767.5	10246142
2.224325	102.247	-1.34429		193767.7	10246142
2.224323	102.247	-1.41067		193767.9	10246142
2.224325	102.247	-1.35545		193768.4	10246142
2.224328	102.247	-1.325		193769	10246142
2.224333	102.247	-1.17933		193769.7	10246143
2.224337	102.247	-1.1775		193770.3	10246143
2.224337	102.247	-1.14909		193770.3	10246143
2.224337	102.247	-1.26538		193770.6	10246143
2.224335	102.247	-1.42571		193771.2	10246143
2.224333	102.247	-1.63167		193771.6	10246143
2.224332	102.247	-1.59		193772.1	10246142
2.224327	102.247	-1.793		193772.3	10246142
2.224325	102.247	-1.75313		193772.5	10246142
2.224322	102.247	-1.901		193772.7	10246141
2.22432	102.247	-1.995		193773	10246141
2.224315	102.247	-1.946		193773	10246141
2.224308	102.247	-2.01333		193773.2	10246140
2.224303	102.247	-2.09333		193773.2	10246139
2.224298	102.247	-2.13375		193773.2	10246139
2.224293	102.247	-2.19167		193773.4	10246138
2.22429	102.247	-2.25833		193773.4	10246138
2.224288	102.247	-2.24375		193773.8	10246138
2.224288	102.247	-1.94556		193774.2	10246138
2.224288	102.247	-1.83636		193774.5	10246138
2.224297	102.247	-1.87545		193775.8	10246139
2.224302	102.247	-1.52333		193776.4	10246139
2.224298	102.247	-1.45417		193776	10246139
2.224302	102.247	-1.32923		193776.4	10246139
2.2243	102.247	-1.2175		193776.4	10246139
2.2243	102.2471	-1.29286		193776.6	10246139
2.2243	102.247	-1.39556		193776.4	10246139
2.224298	102.247	-1.39455		193776.4	10246139
2.224297	102.247	-1.39833		193776	10246139
2.224295	102.247	-1.581		193775.8	10246138
2.224292	102.247	-1.78556		193775.8	10246138
2.224287	102.247	-1.708		193775.6	10246137
2.224283	102.247	-1.77143		193775.8	10246137
2.224278	102.247	-1.56333		193775.8	10246137
2.224263	102.2471	-1.21		193776.8	10246135
2.224257	102.2471	-1.4675		193776.6	10246134
2.22425	102.2471	-1.41727		193776.6	10246133
2.22425	102.2471	-1.43769		193776.6	10246133
2.224242	102.247	-1.45231		193776.4	10246132

2.224238	102.247	-1.49909		193776.2	10246132
2.224232	102.247	-1.514		193775.4	10246131
2.224228	102.247	-1.56		193775.3	10246131
2.224225	102.247	-1.531		193774.9	10246131
2.224223	102.247	-1.59333		193774.9	10246130
2.22422	102.247	-1.57571		193774.5	10246130
2.224217	102.247	-1.55333		193774	10246130
2.224213	102.247	-1.66636		193773.6	10246129
2.22421	102.247	-1.72154		193773.2	10246129
2.224205	102.247	-1.77273		193772.8	10246128
2.224202	102.247	-1.85556		193772.5	10246128
2.224198	102.247	-1.815		193772.1	10246128
2.224197	102.247	-1.87938		193771.7	10246127
2.224193	102.247	-1.857		193770.8	10246127
2.224192	102.247	-1.903		193770.1	10246127
2.224188	102.247	-1.94692		193769.7	10246127
2.224183	102.247	-1.89545		193769.1	10246126
2.224182	102.247	-1.88923		193768.6	10246126
2.224178	102.247	-1.905		193768.2	10246125
2.224177	102.247	-1.92		193768	10246125
2.224172	102.247	-2.00545		193767.6	10246125
2.224168	102.247	-1.984		193767.1	10246124
2.224165	102.247	-1.99214		193766.5	10246124
2.224162	102.247	-2.01545		193766.3	10246124
2.224158	102.247	-1.96625		193766	10246123
2.224155	102.247	-1.97143		193765.6	10246123
2.224152	102.247	-1.95917		193765.4	10246123
2.224148	102.2469	-1.96818		193764.9	10246122
2.224147	102.2469	-1.975		193764.5	10246122
2.224143	102.2469	-2.00231		193764.1	10246122
2.22414	102.2469	-1.983		193763.7	10246121
2.224138	102.2469	-1.97462		193763.4	10246121
2.224137	102.2469	-1.97286		193763	10246121
2.224133	102.2469	-1.9		193762.4	10246121
2.22413	102.2469	-1.93167		193762.1	10246120
2.224125	102.2469	-1.88667		193761.7	10246120
2.224122	102.2469	-1.8575		193761.3	10246119
2.224117	102.2469	-1.80231		193760.9	10246119
2.224113	102.2469	-1.78364		193760.6	10246118
2.22411	102.2469	-1.64583		193760.4	10246118
2.224107	102.2469	-1.52222		193760	10246118
2.224102	102.2469	-1.53462		193759.8	10246117
2.224098	102.2469	-1.48467		193759.6	10246117
2.224095	102.2469	-1.46167		193759.5	10246116

2.224093	102.2469	-1.44857		193759.3	10246116
2.22409	102.2469	-1.468		193759.5	10246116
2.224088	102.2469	-1.45444		193759.5	10246116
2.224083	102.2469	-1.42643		193759.3	10246115
2.22408	102.2469	-1.39111		193759.5	10246115
2.224077	102.2469	-1.40273		193759.3	10246114
2.224075	102.2469	-1.36417		193759.5	10246114
2.224072	102.2469	-1.30769		193759.5	10246114
2.224068	102.2469	-1.41545		193759.6	10246113
2.224067	102.2469	-1.35167		193760	10246113
2.224063	102.2469	-1.25167		193760.4	10246113
2.224062	102.2469	-1.389		193760.7	10246113
2.22406	102.2469	-1.27692		193761.1	10246112
2.224058	102.2469	-1.28467		193761.5	10246112
2.224057	102.2469	-1.44375		193761.9	10246112
2.224053	102.2469	-1.83364		193762	10246112
2.224048	102.2469	-1.35308		193762.2	10246111
2.224047	102.2469	-1.65462		193762.4	10246111
2.224043	102.2469	-1.62333		193762.4	10246111
2.224042	102.2469	-1.40167		193762.4	10246110
2.224038	102.2469	-1.24		193762.6	10246110
2.224037	102.2469	-1.381		193763	10246110
2.224035	102.2469	-1.155		193763.2	10246110
2.224032	102.2469	-1.35636		193763.3	10246109
2.22403	102.2469	-1.20667		193763.5	10246109
2.22403	102.2469	-1.27636		193763.9	10246109
2.224028	102.2469	-1.12273		193764.1	10246109
2.224028	102.2469	-1.219		193764.5	10246109
2.224028	102.2469	-1.1175		193764.5	10246109
2.224027	102.2469	-1.10273		193764.6	10246109
2.224027	102.2469	-1.17467		193765	10246109
2.224025	102.247	-1.12333		193765.6	10246109
2.224022	102.247	-1.08		193765.9	10246108
2.22402	102.247	-1.14		193766.1	10246108
2.224017	102.247	-1.365		193766.5	10246108
2.224017	102.247	-1.41917		193766.7	10246108
2.224015	102.247	-1.322		193767.2	10246107
2.224015	102.247	-1.26077		193767.2	10246107
2.224015	102.247	-1.23		193767.4	10246107
2.224015	102.247	-1.19		193767.8	10246107
2.224015	102.247	-1.252		193768	10246107
2.224018	102.247	-1.312		193768.2	10246108
2.22402	102.247	-1.335		193768.5	10246108
2.224022	102.247	-1.34125		193768.7	10246108

2.224027	102.247	-1.407		193768.9	10246109
2.22403	102.247	-1.38214		193769.1	10246109
2.224033	102.247	-1.58167		193769.1	10246109
2.224037	102.247	-1.55917		193769.3	10246110
2.224042	102.247	-1.56563		193769.3	10246110
2.224047	102.247	-1.63357		193769.5	10246111
2.22405	102.247	-1.66267		193769.7	10246111
2.224052	102.247	-1.7475		193769.5	10246111
2.224055	102.247	-1.76267		193769.7	10246112
2.224058	102.247	-1.823		193769.8	10246112
2.224062	102.247	-1.80417		193770	10246113
2.224065	102.247	-1.81909		193770.2	10246113
2.224067	102.247	-1.88429		193770.4	10246113
2.22407	102.247	-1.892		193770.6	10246113
2.224073	102.247	-1.85133		193770.8	10246114
2.224078	102.247	-1.888		193771	10246114
2.224082	102.247	-1.83357		193771.3	10246115
2.224085	102.247	-1.85643		193771.3	10246115
2.224087	102.247	-1.869		193771.7	10246115
2.22409	102.247	-1.85214		193771.9	10246116
2.224093	102.247	-1.85929		193772.3	10246116
2.224095	102.247	-1.90455		193772.6	10246116
2.224098	102.247	-1.88889		193772.8	10246117
2.224102	102.247	-1.92		193773.2	10246117
2.224105	102.247	-1.93941		193773.6	10246117
2.224108	102.247	-2.00125		193773.9	10246118
2.224112	102.247	-1.97455		193774.1	10246118
2.224117	102.247	-1.96615		193774.3	10246119
2.22412	102.247	-1.96625		193774.7	10246119
2.224123	102.247	-1.93467		193774.9	10246119
2.224128	102.247	-1.93917		193775.1	10246120
2.224132	102.247	-1.9125		193775.2	10246120
2.224137	102.247	-1.87091		193775.6	10246121
2.224138	102.247	-1.83444		193775.8	10246121
2.224142	102.247	-1.83222		193776	10246121
2.224145	102.247	-1.82		193776.4	10246122
2.224152	102.2471	-1.86286		193776.5	10246123
2.224155	102.2471	-1.89556		193776.7	10246123
2.224157	102.2471	-1.878		193776.7	10246123
2.224162	102.2471	-1.86		193776.9	10246124
2.224165	102.2471	-1.8025		193776.7	10246124
2.224168	102.2471	-1.81833		193776.9	10246124
2.224172	102.2471	-1.798		193776.9	10246125
2.224177	102.2471	-1.7825		193777.1	10246125

2.224178	102.2471	-1.73917		193777.3	10246125
2.224183	102.2471	-1.71286		193777.5	10246126
2.224187	102.2471	-1.69667		193777.5	10246126
2.224192	102.2471	-1.6675		193777.9	10246127
2.224195	102.2471	-1.62615		193777.9	10246127
2.224198	102.2471	-1.62214		193778	10246128
2.224202	102.2471	-1.58111		193778.2	10246128
2.224205	102.2471	-1.60167		193778.6	10246128
2.224208	102.2471	-1.57417		193778.8	10246129
2.224213	102.2471	-1.55846		193779	10246129
2.22422	102.2471	-1.46538		193779.1	10246130
2.224223	102.2471	-1.40643		193779.3	10246130
2.224228	102.2471	-1.36643		193779.5	10246131
2.224235	102.2471	-1.34833		193779.7	10246132
2.22424	102.2471	-1.38		193779.9	10246132
2.224243	102.2471	-1.50333		193780.1	10246133
2.224248	102.2471	-1.60462		193780.5	10246133
2.224252	102.2471	-1.54538		193780.5	10246134
2.224257	102.2471	-1.852		193780.8	10246134
2.224262	102.2471	-2.1		193781	10246135
2.224267	102.2471	-1.94727		193781.2	10246135
2.224272	102.2471	-1.90444		193781.4	10246136
2.224277	102.2471	-2.10625		193781.4	10246136
2.22428	102.2471	-1.87714		193781.6	10246137
2.224282	102.2471	-1.69545		193781.6	10246137
2.224282	102.2471	-1.66357		193781.6	10246137
2.224283	102.2471	-1.315		193781.6	10246137
2.224283	102.2471	-1.47429		193781.9	10246137
2.224285	102.2471	-1.27846		193782.1	10246137
2.224283	102.2471	-1.36143		193782.5	10246137
2.224282	102.2471	-1.49563		193782.7	10246137
2.224277	102.2471	-1.592		193782.9	10246136
2.224273	102.2471	-1.7025		193783.1	10246136
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2.224272	102.2471	-1.91		193783.2	10246136
2.22427	102.2471	-1.77167		193783.6	10246136
2.22427	102.2471	-1.65364		193783.8	10246136
2.224268	102.2471	-1.701		193784.2	10246135
2.224267	102.2471	-1.55		193784.2	10246135
2.224268	102.2471	-1.574		193784.7	10246135
2.224265	102.2471	-1.96583		193785.1	10246135
2.224265	102.2471	-2.09		193785.5	10246135
2.224262	102.2471	-1.98		193785.8	10246135
2.224262	102.2471	-1.961		193786	10246135

2.22426	102.2471	-1.92667		193786.2	10246134
2.224262	102.2471	-1.84444		193786.4	10246135
2.224262	102.2471	-2.12333		193786.9	10246135
2.224265	102.2471	-2.05083		193787.3	10246135
2.224265	102.2472	-1.86222		193788.1	10246135
2.224262	102.2472	-1.846		193788.8	10246135
2.22426	102.2472	-1.53286		193789.4	10246134
2.224263	102.2472	-1.53727		193790.1	10246135
2.224265	102.2472	-1.51643		193791.2	10246135
2.224258	102.2472	-1.56083		193791.4	10246134
2.224253	102.2472	-1.89231		193791.6	10246134
2.224252	102.2472	-1.41462		193792	10246134
2.22425	102.2472	-1.80889		193792.1	10246133
2.224248	102.2472	-1.24615		193792.3	10246133
2.224247	102.2472	-1.054		193792.5	10246133
2.224245	102.2472	-1.30778		193792.5	10246133
2.224248	102.2472	-1.07375		193792.7	10246133
2.224247	102.2472	-1.148		193792.9	10246133
2.224245	102.2472	-1.56		193792.7	10246133
2.224238	102.2472	-1.84875		193792.3	10246132
2.224233	102.2472	-1.8525		193791.8	10246132
2.224228	102.2472	-1.67357		193792	10246131
2.224228	102.2472	-1.552		193791.6	10246131
2.224227	102.2472	-1.499		193791.2	10246131
2.224222	102.2472	-1.47083		193790.8	10246130
2.224218	102.2472	-1.47818		193790.3	10246130
2.224217	102.2472	-1.48818		193790.1	10246130
2.224212	102.2472	-1.584		193789.9	10246129
2.224207	102.2472	-1.55625		193789.7	10246129
2.224203	102.2472	-1.59375		193789.7	10246128
2.224198	102.2472	-1.665		193789.4	10246128
2.224195	102.2472	-1.68417		193789.2	10246127
2.224192	102.2472	-1.745		193788.6	10246127
2.224188	102.2472	-1.75786		193788	10246127
2.224183	102.2472	-1.77833		193787.9	10246126
2.224178	102.2472	-1.794		193787.9	10246125
2.224173	102.2472	-1.78727		193787.7	10246125
2.22417	102.2471	-1.77444		193787.5	10246125
2.224165	102.2471	-1.757		193787.3	10246124
2.22416	102.2471	-1.77556		193787.1	10246123
2.224155	102.2471	-1.775		193786.9	10246123
2.224152	102.2471	-1.81385		193786.6	10246122
2.224147	102.2471	-1.816		193786.4	10246122
2.224143	102.2471	-1.84429		193786.2	10246122

2.224138	102.2471	-1.8525		193786	10246121
2.224133	102.2471	-1.86636		193785.6	10246120
2.22413	102.2471	-1.91357		193785.1	10246120
2.224127	102.2471	-1.89091		193784.9	10246120
2.224123	102.2471	-1.85583		193784.5	10246119
2.22412	102.2471	-1.8675		193784.1	10246119
2.224117	102.2471	-1.87563		193784	10246119
2.224113	102.2471	-1.89063		193783.8	10246118
2.224108	102.2471	-1.9125		193783.6	10246118
2.224105	102.2471	-1.95231		193783.4	10246117
2.224102	102.2471	-1.971		193783.2	10246117
2.224097	102.2471	-1.99182		193783	10246116
2.224093	102.2471	-1.97714		193782.7	10246116
2.224088	102.2471	-1.956		193782.3	10246115
2.224083	102.2471	-1.95692		193781.9	10246115
2.22408	102.2471	-1.93636		193781.3	10246115
2.224077	102.2471	-1.89636		193781	10246114
2.224073	102.2471	-1.88214		193780.6	10246114
2.224072	102.2471	-1.92		193780.1	10246114
2.224068	102.2471	-1.88625		193779.7	10246113
2.224065	102.2471	-1.86429		193779.3	10246113
2.22406	102.2471	-1.88533		193779.1	10246112
2.224057	102.2471	-1.87417		193778.7	10246112
2.224053	102.2471	-1.87091		193778.6	10246112
2.224048	102.2471	-1.84778		193778.4	10246111
2.224047	102.2471	-1.81286		193778.2	10246111
2.224043	102.2471	-1.81182		193778	10246111
2.22404	102.2471	-1.82167		193777.8	10246110
2.224037	102.2471	-1.825		193777.6	10246110
2.224033	102.2471	-1.81375		193777.4	10246109
2.224032	102.2471	-1.73923		193777.3	10246109
2.224028	102.2471	-1.65333		193777.3	10246109
2.224027	102.2471	-1.63		193777.1	10246109
2.224023	102.2471	-1.56643		193776.9	10246108
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2.224017	102.2471	-1.492		193776.5	10246108
2.224013	102.2471	-1.46571		193776.5	10246107
2.224008	102.2471	-1.45182		193776.5	10246107
2.224003	102.247	-1.43625		193776.3	10246106
2.223997	102.247	-1.33333		193776.3	10246105
2.223993	102.247	-1.32688		193776	10246105
2.223992	102.247	-1.32286		193776	10246105
2.223988	102.247	-1.31867		193776	10246104
2.223985	102.247	-1.527		193775.9	10246104

2.223983	102.247	-1.262		193775.9	10246104
2.22398	102.247	-1.28067		193776.1	10246104
2.223978	102.247	-1.311		193776.3	10246103
2.223977	102.2471	-1.37857		193776.5	10246103
2.223975	102.2471	-1.278		193776.7	10246103
2.223973	102.2471	-1.21714		193777.2	10246103
2.223972	102.2471	-1.23889		193777.4	10246103
2.223972	102.2471	-1.185		193777.8	10246103
2.223968	102.2471	-1.11692		193778.2	10246102
2.223968	102.2471	-1.12		193778.4	10246102
2.223967	102.2471	-1.23182		193778.9	10246102
2.223965	102.2471	-1.28692		193779.3	10246102
2.223963	102.2471	-1.15692		193779.7	10246102
2.223962	102.2471	-1.18385		193780	10246101
2.22396	102.2471	-1.222		193780.4	10246101
2.223958	102.2471	-1.128		193780.8	10246101
2.223957	102.2471	-1.17545		193781.1	10246101
2.223957	102.2471	-1.10714		193781.5	10246101
2.223955	102.2471	-1.178		193781.9	10246101
2.223952	102.2471	-1.1475		193782.4	10246100
2.22395	102.2471	-1.32778		193782.8	10246100
2.223948	102.2471	-1.381		193783	10246100
2.223947	102.2471	-1.26846		193783.5	10246100
2.223945	102.2471	-1.28273		193783.9	10246100
2.223942	102.2471	-1.30583		193784.3	10246099
2.22394	102.2471	-1.085		193784.7	10246099
2.223937	102.2471	-1.1875		193785	10246099
2.223935	102.2471	-1.19		193785.2	10246099
2.223932	102.2471	-1.15733		193785.6	10246098
2.22393	102.2471	-1.21		193786	10246098
2.223928	102.2471	-1.19071		193786.3	10246098
2.223927	102.2471	-1.25		193786.5	10246098
2.223923	102.2471	-1.215		193786.9	10246097
2.223922	102.2471	-1.23231		193787.3	10246097
2.22392	102.2472	-1.24182		193787.6	10246097
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2.223917	102.2472	-1.255		193788.2	10246096
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2.22392	102.2472	-1.37214		193789.7	10246097
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2.223925	102.2472	-1.38438		193790.2	10246097

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2.223933	102.2472	-1.43556		193790.2	10246098
2.223937	102.2472	-1.41455		193790	10246099
2.223942	102.2472	-1.42222		193790	10246099
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2.223955	102.2472	-1.43154		193790	10246101
2.223958	102.2472	-1.434		193790.2	10246101
2.223963	102.2472	-1.44769		193790.6	10246102
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2.223972	102.2472	-1.5525		193791	10246103
2.223975	102.2472	-1.62538		193791	10246103
2.223978	102.2472	-1.76063		193791.2	10246103
2.223983	102.2472	-1.7375		193791.3	10246104
2.223985	102.2472	-1.76438		193791.3	10246104
2.223992	102.2472	-1.769		193791.5	10246105
2.223995	102.2472	-1.78688		193791.5	10246105
2.223998	102.2472	-1.79071		193791.9	10246106
2.224	102.2472	-1.81333		193791.9	10246106
2.224002	102.2472	-1.83077		193792.1	10246106
2.224005	102.2472	-1.84214		193792.3	10246106
2.224007	102.2472	-1.85133		193792.5	10246106
2.22401	102.2472	-1.88267		193792.5	10246107
2.224012	102.2472	-1.86867		193792.7	10246107
2.224015	102.2472	-1.84929		193792.8	10246107
2.224018	102.2472	-1.81111		193792.8	10246108
2.224022	102.2472	-1.86375		193792.8	10246108
2.224025	102.2472	-1.92214		193792.8	10246108
2.224028	102.2472	-1.88273		193793	10246109
2.224032	102.2472	-1.92091		193793	10246109
2.224037	102.2472	-1.8825		193793.2	10246110
2.22404	102.2472	-1.85385		193793.2	10246110
2.224045	102.2472	-1.84818		193793.4	10246111
2.224048	102.2472	-1.85714		193793.4	10246111
2.224052	102.2472	-1.84818		193793.6	10246111
2.224052	102.2472	-1.87615		193793.6	10246111
2.224055	102.2472	-1.89583		193793.8	10246112
2.224057	102.2472	-1.84417		193793.8	10246112
2.22406	102.2472	-1.87929		193793.8	10246112
2.224063	102.2472	-1.87818		193793.8	10246113
2.224068	102.2472	-1.89375		193793.8	10246113
2.224072	102.2472	-1.86		193793.6	10246114
2.224075	102.2472	-1.79583		193793.6	10246114
2.224078	102.2472	-1.85538		193793.8	10246114

2.224083	102.2472	-1.812		193793.8	10246115
2.224088	102.2472	-1.8575		193793.8	10246115
2.224095	102.2472	-1.814		193794	10246116
2.224098	102.2472	-1.77833		193794.5	10246117
2.224103	102.2472	-1.80091		193795.1	10246117
2.224107	102.2472	-1.79		193795.8	10246117
2.224112	102.2472	-1.73818		193796.2	10246118
2.224113	102.2472	-1.695		193796.8	10246118
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2.224122	102.2472	-1.57417		193797.7	10246119
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2.224132	102.2472	-1.593		193798.4	10246120
2.224135	102.2472	-1.62643		193798.2	10246121
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2.224145	102.2473	-1.67733		193798.8	10246122
2.224147	102.2473	-1.71133		193799	10246122
2.224147	102.2473	-1.72308		193799.2	10246122
2.224147	102.2473	-1.70083		193799.4	10246122
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2.224145	102.2473	-1.70286		193799.2	10246122
2.224147	102.2473	-1.655		193799.2	10246122
2.224148	102.2473	-1.64571		193799.4	10246122
2.224143	102.2473	-1.64444		193799.7	10246122
2.22414	102.2473	-1.60667		193799.9	10246121
2.224137	102.2473	-1.61333		193799.5	10246121
2.224135	102.2473	-1.56429		193799.9	10246121
2.224132	102.2473	-1.59077		193799.7	10246120
2.224128	102.2473	-1.575		193799.9	10246120
2.224127	102.2473	-1.58563		193800.3	10246120
2.224127	102.2473	-1.54571		193800.1	10246120
2.224128	102.2473	-1.595		193800.1	10246120
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2.224133	102.2473	-1.52875		193800.7	10246120
2.224133	102.2473	-1.631		193800.8	10246120
2.224133	102.2473	-1.53		193800.8	10246120
2.224132	102.2473	-1.48111		193801.2	10246120
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2.224128	102.2473	-1.4175		193802.1	10246120
2.224127	102.2473	-1.6625		193802.7	10246120
2.224125	102.2473	-1.47333		193802.9	10246120

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2.22412	102.2473	-1.38667		193804.7	10246119
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2.224117	102.2473	-1.33		193805.7	10246119
2.224118	102.2473	-1.37231		193806	10246119
2.224115	102.2473	-1.57667		193806.2	10246118
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2.224118	102.2473	-1.34231		193807	10246119
2.224117	102.2473	-1.46222		193807	10246119
2.224115	102.2473	-1.36364		193807.3	10246118
2.224117	102.2473	-1.28333		193807.9	10246119
2.224115	102.2473	-1.35692		193808.4	10246118
2.224117	102.2473	-1.41813		193809	10246119
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2.224125	102.2474	-1.32385		193813.1	10246119
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2.224115	102.2474	-1.866		193814.2	10246118
2.224113	102.2474	-1.88143		193814.6	10246118
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2.224117	102.2474	-1.61		193815.7	10246119
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2.2241	102.2474	-1.2275		193814.2	10246117
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2.224092	102.2474	-1.4775		193813.5	10246116
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2.223905	102.2472	-1.26		193795.4	10246095
2.223902	102.2472	-1.287		193795.4	10246095
2.2239	102.2472	-1.2175		193795.4	10246095

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2.223893	102.2472	-1.1775		193796	10246094
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2.223888	102.2472	-1.18846		193796.2	10246093
2.223885	102.2472	-1.2		193796.3	10246093
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2.223883	102.2472	-1.18308		193797.3	10246093
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2.22388	102.2472	-1.19385		193798.4	10246092
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2.223867	102.2473	-1.302		193803.2	10246091
2.223867	102.2473	-1.29		193803.6	10246091
2.223868	102.2473	-1.30143		193803.9	10246091
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2.223873	102.2473	-1.31769		193804.5	10246092
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2.22388	102.2473	-1.42818		193804.5	10246092
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2.22389	102.2473	-1.53833		193804.7	10246093
2.223895	102.2473	-1.60929		193804.9	10246094
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2.22392	102.2473	-1.7025		193805.1	10246097

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2.22395	102.2473	-1.85417		193805.1	10246100
2.223953	102.2473	-1.86		193804.9	10246101
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2.223977	102.2473	-2.02071		193805.4	10246103
2.223978	102.2473	-2.02625		193805.6	10246103
2.223983	102.2473	-2.05857		193805.8	10246104
2.223987	102.2473	-2.06818		193805.6	10246104
2.223992	102.2473	-2.06455		193805.8	10246105
2.223995	102.2473	-2.103		193806	10246105
2.224	102.2473	-2.08214		193806.2	10246106
2.224003	102.2473	-2.066		193806.2	10246106
2.224007	102.2473	-2.03385		193806.4	10246106
2.224012	102.2473	-1.97545		193806.6	10246107
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2.224022	102.2473	-1.94455		193806.9	10246108
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2.224028	102.2473	-1.895		193807.3	10246109
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2.224037	102.2473	-1.83545		193807.9	10246110
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2.224062	102.2473	-1.52833		193809	10246112
2.224065	102.2473	-1.4825		193809.2	10246113
2.224068	102.2473	-1.47667		193809.4	10246113
2.22407	102.2474	-1.45462		193809.9	10246113
2.224073	102.2474	-1.43067		193810.1	10246114
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2.224083	102.2474	-1.39		193810.5	10246115
2.224088	102.2474	-1.425		193810.7	10246115
2.224093	102.2474	-1.47714		193811	10246116

2.224098	102.2474	-1.47818		193811.4	10246117
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2.224112	102.2474	-1.99556		193812.3	10246118
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2.22414	102.2474	-1.52636		193812.4	10246121
2.224143	102.2474	-1.284		193812.5	10246122
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2.224153	102.2474	-1.366		193813.8	10246123
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2.224122	102.2474	-1.65667		193815.5	10246119
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2.224105	102.2474	-1.96		193817.7	10246117
2.2241	102.2474	-1.896		193817.9	10246117
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2.224097	102.2474	-1.57375		193817.9	10246116
2.224095	102.2474	-1.65429		193818.3	10246116
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2.22409	102.2474	-1.72		193819.4	10246116

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2.22409	102.2475	-1.38786		193821.4	10246116
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2.224102	102.2475	-1.49333		193822.7	10246117
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2.224113	102.2475	-1.70214		193824	10246118
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2.224117	102.2475	-1.48231		193824.6	10246119
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2.224005	102.2475	-1.6675		193826	10246106
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Tuan

PENGKELASAN TESIS SEBAGAI TERHAD BAGI TESIS PROJEK SARJANA MUDA

Dengan segala hormatnya merujuk kepada perkara di atas.

2. Dengan ini, dimaklumkan permohonan pengkelasan tesis yang dilampirkan sebagai TERHAD untuk tempoh **LIMA** tahun dari tarikh surat ini. Butiran lanjut laporan PSM tersebut adalah seperti berikut:

Nama pelajar: AHMAD ZAIRY BIN JAMALUDIN
Tajuk Tesis: DEVELOPMENT OF 3D MODEL AND BATHYMETRY CONTOUR MAPS FOR SUNGAI MELAKA USING SURFER.

3. Hal ini adalah kerana IANYA MERUPAKAN PROJEK YANG DITAJA OLEH SYARIKAT LUAR DAN HASIL KAJIANNYA ADALAH SULIT.

Sekian, terima kasih.

"BERKHIDMAT UNTUK NEGARA"
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Saya yang menjalankan amanah,

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