



***Detailed Project Report for Augmenting
Infrastructure Facilities at Government
College, Thripunithura, Ernakulam for KIIFB
funding***



Table of Contents

Preface	8
Executive Summary	9
Chapter 1: Salient Features.....	11
Chapter 2: Project Background.....	13
2.1 Global Scenario.....	13
2.2 Indian Scenario.....	14
2.3 Higher education development in Kerala	14
2.4 Nava Kerala Mission and Creation of Centers of Excellence in Education	15
2.5 A Brief Introduction to Government College, Thripunithura	16
2.6 Project Objective	19
2.6.1 Vision.....	20
2.6.2 Mission.....	20
2.7 Methodology	20
2.8 Overview of the Project Area.....	22
2.8.1 Ernakulam District	23
2.8.2 Kanayannur Taluk.....	23
2.8.3 Government College, Thripunithura	24
Chapter 3: Project Feasibility Studies.....	29
3.1 Existing Situation Assessment	29
3.1.1 Affiliation, recognition and NAAC Accreditation	29
3.1.2 Academic Programmes	32
3.1.3 Support Facilities to Students	32
3.1.3.1 Support & Activity	32
3.1.4 Initiatives.....	42
3.1.5 Academic Buildings and Other Facilities	42
3.1.6. Utilities and Auxiliaries.....	48
3.1.7. Intake and strength	49
3.1.8. Staff and administration:	49
3.2 Stakeholders Consultation.....	49
3.3 SWOT Analysis.....	51

3.4	Requirement/demand Analysis	53
3.5	Justification of the components	54
3.6	Environmental and Sustainability Aspects	55
Chapter 4: Site Surveys and Investigations		56
4.1.	Ocular/ Reconnaissance Survey	57
4.1.1.	Land	57
4.1.2.	Road access, Entrance Gate to the College premises	57
4.1.3.	Compound wall	59
4.1.5.	Buildings	62
4.1.6	Classrooms, Quarters, Hostel, Labs, Library, Canteen and Playground	62
4.1.7	Toilets	64
4.2	Topographical survey details	65
4.3	Soil Investigation Report	65
4.4	Hydro-geological Survey	66
4.5	Primary Surveys	67
Chapter 5: Functional Design		68
5.1	Master Plan - GOVERNMENT ARTS AND SCIENCE COLLEGE, THRIPUNITHURA	68
5.1.1	Background	68
5.1.2	Location Assessment	68
5.1.3	Existing Building and Circulation	69
5.1.4	Redevelopment Plans	72
5.1.5	Future development Plans	80
5.1.6	CoE Components of the Master plan as Envisioned	83
Chapter 6: Proposal for augmenting library		86
6.1.	Augmentation of Library	86
6.1.1	Additional requirements for the library:	86
6.2	Computer Lab/UGC-NRC (Network Resource Centre) with Networking Facility	88
6.3	Language lab	89
Chapter 7: Engineering Design		90
7.1.	General	90

7.2. Soil condition and Foundation.....	90
7.3. Structural analysis.....	91
7.3.1 Material Properties	91
7.3.2 Loading and Analysis.....	92
7.3.3 Analysis and design methodology	93
7.4. Structural Drawings	93
7.5. Electrical System Design.....	93
7.6 Lift & Fire Fighting System Design	95
7.7 Demolition of the existing buildings.....	95
Chapter 8: Financial Estimates and Cost Projections	96
8.1 Summary of Cost Estimate.....	96
Chapter 9: Revenue Streams.....	101
Chapter 10: Cost Benefit Analysis and Investment Criteria	102
10.1 Project Cost	103
10.2 Social Benefits	103
Chapter 11: Risk Assessment and Mitigation Measures	110
Chapter 12: Project Management Organization.....	113
Chapter 13: Contract Management Strategy	118
Chapter 14: Implementation Schedule and WBS.....	121
Chapter 15: Statutory Clearances	122
Chapter 16: Quality Management Plan	123
Chapter 17: Operations and Maintenance Plan.....	125
Annexures	126

List of Tables

Table 1: Project Phasing.....	9
Table 2: Statistics of the educational institutions in Kanayannur Taluk	25
Table 3: Details of academic programmes.....	32
Table 4: Physical infrastructure available for academic activities	48
Table 5: Intake and Strength	49
Table 6: Details of staff strength and administration.....	49
Table 7: Primary survey details	67
Table 8: Abstract of the library augmentation cost estimate	88
Table 9: Name of machinery/ item with detailed specification.....	88
Table 10: Details of items required for language lab	89
Table 11: Load calculation for different buildings.....	93
Table 12: Abstract of the cost estimate.....	96
Table 13: Abstract of the civil cost estimate	96
Table 14: Abstract of the electrical cost estimate for academic block .	97
Table 15: Abstract of the firefighting system cost estimate	97
Table 16: Abstract of the library augmentation cost estimate	97
Table 17: Abstract of the computer lab augmentation cost estimate....	98
Table 18: Abstract of the language lab modernization cost estimate.	100
Table 19: Revenue generating components.....	101
Table 20: Investment of project expected	103
Table 21: Social cost benefit analysis.....	107
Table 22: Assumptions of Cost benefit Analysis	108
Table 23: Risk assessment and mitigation measures.....	110
Table 24: Project implementation schedule.....	121
Table 25: Quality analysis checklist.....	123

List of Figures

Figure 1: A view of the existing college campus	19
Figure 2: Methodology for preparation of Detailed Project Report.....	21
Figure 3: Project Methodology adopted for demand analysis	21
Figure 4: Location map of Project Area	22
Figure 5: Ernakulam District Map.....	23
Figure 6: Kanayannur Taluk.....	24
Figure 7: Road Network of the Location.....	25
Figure 8: A view of the existing greenery in the campus	26
Figure 9: NAAC Accreditation sheet.....	30
Figure 10: Govt. College, Thripunithura – Existing Campus layout.....	43
Figure 11: Existing Buildings.....	45
Figure 12: Existing canteen block.....	46
Figure 13: Existing indoor court	47
Figure 14: Existing Site plan	56
Figure 15: New Site Plan for the College	57
Figure 16: Entrance for the existing campus	58
Figure 17: Road access to the proposed campus (Plot 2).....	59
Figure 18: Compound Wall of Existing Campus.....	60
Figure 19: Existing condition of the compound wall at Plot 2.....	60
Figure 20: Existing Parking	62
Figure 21: Existing Canteen and indoor court.....	63
Figure 22: Premises of the proposed new campus	64
Figure 23: Location map	69
Figure 24: Existing Site Plan	70
Figure 25: Proposed location for new campus.....	72
Figure 26: First phase demolition plan.....	74
Figure 27: First phase development plan	75
Figure 28: Ground floor plan	76
Figure 29: First floor plan.....	77

Figure 30: Second floor plan..... 78
Figure 31: Academic block elevation..... 79
Figure 32: Academic block section..... 79
Figure 33: Academic block 3 D view..... 80
Figure 34: Proposed Master Plan..... 81
Figure 35: Aerial View of the campus..... 82
Figure 36: View of canteen cum amenity centre 82
Figure 37: View of the residential blocks 83
Figure 38: Project management organization..... 115
Figure 39: Project management heirarchy 117
Figure 40: Quality management strategy..... 123

Preface

Government of Kerala has launched the Nava Kerala Mission under which 4 major initiatives are being taken up: Agriculture; Housing; Health; and Education. For education sector, along with the massive efforts of improving the facilities of Government Colleges to emerge as center of excellence, Government has initiated a programme for enhancing the facilities of Arts and Science Colleges, Heritage colleges, Engineering Colleges and Polytechnics. The Kerala Infrastructure Investment Fund Board (KIIFB) is the funding agency for this infrastructure projects. KITCO Ltd. has been entrusted by Government of Kerala for the preparation of Detailed Project Report (DPR) for the approval of KIIFB. The scope of the work includes:

- 1) Project Background
- 2) Existing situation Assessment
- 3) Site Surveys and Investigations
- 4) Functional Design
- 5) Proposals for Augmentation of Library and Laboratory equipments
- 6) Engineering Design
- 7) Financial Estimates and Cost projections
- 8) Revenue Streams Identification
- 9) Cost Benefit Analysis and Investment Criteria
- 10) Risk Assessment and Identification of the Mitigation Measures
- 11) Project Management Organization
- 12) Contract Management Strategy
- 13) Implementation Schedule and Work Breakdown Structure
- 14) Statutory Clearances
- 15) Quality Management Plan
- 16) Operations and Maintenance Plan

This report focuses on augmentation of infrastructural facilities at **Government College, Thripunithura, Ernakulam.**

Executive Summary

Government of Kerala through its ambitious programme is committed to develop world class education facilities at Government Schools, Arts & Science Colleges, Heritage Colleges, Engineering Colleges, and Polytechnic etc. The project aims at the augmentation of facilities at Government College, Thripunithura to enhance the learning environment.

This Detailed Project Report for “**Augmenting the Infrastructure Facilities at Government College, Thripunithura**” is submitted for funding assistance from KIIFB. This college is a leading education institution in the region. The facilities and activities are proposed considering the enhancement of the college to international standard.

The key components proposed are:

- i. Academic block with sufficient number of classrooms for the immediate future.
- ii. Compound wall for the new campus
- iii. Walkways to the existing new campus
- iv. Augmentation of laboratory and library facilities.

The first phase developmental 15.51 crores. The college is hopeful of obtaining funding from KIIFB as a part of the special investment package of Government of Kerala.

The project phasing is planned in the following manner:

Table 1: Project Phasing

Phase	Duration	Components	Any specific execution strategy/ preparatory act
Phase 1	12 months	Academic block with sufficient classrooms, compound wall,	As mentioned in Chapter 10

		<i>walkways, entrance gate well-equipped lab & library facilities, toilet facilities, etc.</i>	
--	--	--	--

On implementation of the proposal, students will be benefited by improved facilities and environment which will enhance the educational, social and cultural development of the students.

Chapter 1: Salient Features

1.	Title of the project	Detailed Project Report for Augmenting the Infrastructure Facilities at Govt. College, Thripunithura, Ernakulam for KIIFB funding
2.	Department	Higher Education
3.	District	Ernakulam
	Corporation/ Municipality/ Panchayat	Thripunithura Municipality
	Taluk	Kanayannur
	Legislative Assembly constituency	Thripunithura
4.	Implementing agency/ SPV	KITE - Kerala Infrastructure and Technology for Education
5.	DPR prepared by	KITCO LTD
6.	Project outlay	15.51 crores
7.	Budget provision	425 Crores For 48 Colleges
8.	Budget speech reference	Finance Budget speech 2017-18 – Para 186, under special investment package
9.	Administrative sanction	GO (Rt) No: 603/2018/H.Edn dated 27.03.2018.
10	Nature of the Project (New building/ Renovation of existing building)	New building
11	Present status of existing building	Details in Chapter 3.1.6 and Chapter 4
12	Need for the project	Details in chapter 3

13	Details of investigations/ surveys conducted	
	i. Topographical	Attached in annexure
	ii. Geotechnical	Attached in annexure
	iii. Hydrological	Details in chapter 4.4
	iv. Others	
14	Whether Land Acquisition involved?	No
	If yes, furnish details	
15	Total estimated cost and item wise cost break up and details of schedule of Rates	Details in Chapter 8
	Whether detailed estimate attached?	Yes
16	Details of revenue streams, if any	Chapter 9
17	Details of Cost Benefit Analysis (CBR value)	Chapter 10
18	Details of project risks	Details in chapter 11
19	Details of project management organization strategy	Details in chapter 12
20	Details of contract management strategy	Details in chapter 13
21	Details of Project Implementation Schedule (PIS) & Work Breakdown Schedule (WBS) – Proposed duration to complete the project	Details in chapter 14
22	Details of statutory clearances	Details in chapter 15
23	Quality Control infrastructure and Mechanism	Details in chapter 16
24	Operations & Maintenance (O&M) arrangements of the project after Completion	Details in chapter 17
25	Details of attached drawings	Attached in Annexure
26	Other attachments	Nil

Chapter 2: Project Background

2.1 Global Scenario

Colleges and Universities are playing an important role in all societies across the globe as a center of learning, exchange of ideas, place of research and development leading to economic benefits. With fast development in ICT and globalization, universities across the globe are accessible to all beneficiaries

Higher education institutions produce much of the new information and analysis that not only leads to important advances in technology but also significantly contributes, to better understanding of the human condition through the social sciences and humanities. They are both national institutions that contribute to culture, technology, society and international institutions that link to global Intellectual and scientific trends.

Colleges are evolving as center for innovation and technological breakthrough. Enhancing the facilities on colleges are essential to pass on these benefits to the society.

Colleges and Universities with focus on research have been the organizations for performing advanced basic research and even applied research when government or industrial organizations are looking for cost-effective ways to perform a development program. For many years now, academia has performed the majority of basic research as industrial organizations have reduced their involvement in basic research. The basic research by Industrial research organization has been made a very tenuous pursuit due to the high cost incurred and high requirements for faster times to market. The strong scientific and technological expertise and knowledge available with academic research laboratories make them a much more reliable group to perform basic research programs.

2.2 Indian Scenario

India currently has the second largest education network in the world. The fast growing and fast-changing global scenario place complex demands on the higher education sector in the country, necessitating significant yet natural metamorphosis. The Central and State Governments are therefore engaged in a massive exercise to increase the knowledge base, skills and employability of the new generation. It is estimated that the population in the age group 18 to 24 (relevant age group for higher education) is around 16 crores which is 13% of the population. Currently there are 713 Universities, 36,739 colleges and 11,343 diploma level institutions in India with over 3 crore students on the rolls.

The IITs and IIMs are considered to be beacons of higher education in India. Central and various state governments are spending large amount of money for betterment of infrastructural facilities at various Colleges.

2.3 Higher education development in Kerala

From early times, education has been at high demand in Kerala and successive Governments have been committed to providing fair and equal opportunity for education to all citizens. The Government expends a significant portion of its revenue for education in its attempt to create a safe and supportive environment to provide quality education to achieve excellence in knowledge, skills and values, and aims to create and sustain better human resources. However, development and modernization of higher education in Kerala has not attained the desired direction in full measure till date.

The enrolment ratio in Kerala is near 100 per cent in the primary and the upper primary sectors and that at the secondary level has been reasonably high for the last several years.

Drivers for development of Higher Education in Kerala are:

- a) High literacy rate and growing demand for quality higher education.
- b) Desire of parents and students for modern and relevant courses in institutions of international standard and reputation.

- c) *Fast growing base of Indian economy attracting companies/ corporates to set up establishments and R&D bases all over India including Kerala.*
- d) *Migration of students to other States and abroad in search of quality education and modern courses of study.*
- e) *Interest and ambition of academicians and scientists working abroad to come back and work in Kerala.*

In continuation with the good efforts in developing result oriented higher education sector in Kerala in the Budget Speech for 2015-16, the Government of Kerala has already announced a scheme to take steps to project Kerala as a preferred international destination for education in India. International Higher Education Zones (HEZ) are proposed to be opened in various parts of the State.

Each HEZ will host academic courses from reputed international Universities.

Higher education in Kerala has to evolve itself to accelerate the industrial and economic development of the state. This is possible only with the proactive role of universities in the State by forming a strong and mutually beneficial bonding with industry, research entities in India and abroad and with foreign universities and academicians.

Augmenting the infrastructure at all levels will enable the colleges in Kerala to facilitate an R&D driven academic environment in Kerala with its vast expertise and excellent track record in introducing path breaking initiatives in the past.

2.4 Nava Kerala Mission and Creation of Centers of Excellence in Education

Government of Kerala has launched the Nava Kerala Mission under which 4 major initiatives are being taken up: Agriculture; Housing; Health; and Education. Education practices are continuously evolving and the basic principle underlying the orientation of education to the future is that education and any system built around it must be centered on the human person. This shift to person-centered education will mean the following core principles:

- To give high priority to nurture and promote creativity both in the personal and collective development of the learners;
- To give higher valuation to the learners' freedom to explore and inquire, to develop awareness of self and identify - to their questioning, challenging and self-learning habits, to enhance sensitivity, compassion and empathy.
- Re-direct the institutional systems in education to creative approaches.
- To give strategic importance to the learning process as a person-to-person interaction — the teacher and the learner, the learner and other learners, the learner and the person of knowledge or wisdom in the community.
- To impart thoughtful and well-informed awareness of the social and development problems of contemporary society such as population growth, environmental damage, poverty, racial and ideological conflicts, deepening disparities in qualities of life within the nation and internationally.

Acknowledging the change in education landscape, Government of Kerala launched its ambitious mission to rejuvenate the Public Education system in the State.

In the above context **Government College, Thripunithura** has been considered for the augmentation of the facilities through funding assistance from KIIFB.

2.5 A Brief Introduction to Government College, Thripunithura

The Government College, Thripunithura is the reality of the long cherished dreams of the public of Thripunithura Municipality and the neighboring Panchayats. The indefatigable endeavor of the sponsoring Committee headed by Sri A. G. Raghava Menon (President) and Sri A. O. Raphael (Secretary) with the able guidance and support of Sri K.G.R. Kartha then Minister for Health, Government of Kerala and Thripunithura Municipality, was materialized and the college started functioning in the academic year 1982-83 with III and IV groups of Pre-degree Course at R. L. V. U. P. School. The College was formally inaugurated on 30th January 1983

by Sri K. Karunakaran, Hon'ble Chief Minister of Kerala at a special function presided over by Sri T, M, Jacob, Hon'ble Minister for Education, Government of Kerala. Subsequently the college was shifted to the premises of Government Boy's High School, Thripunithura. From the academic year 2005-06 the college has been housed in the new building at the permanent site of the college at Mekkara, Thripunithura.

Government College, Thripunithura, which comes under section 2(f) and 12(B) of the UGC, is a state-funded institution. The College became a first Grade College during 1990-1991 and the B.Com. Course commenced with Taxation as the elective subject. At present the college offers four Under Graduate Programmes and two Post Graduate Programmes.

The academic developmental activities of the college happened through the following steps:

- B.Com.-Started in 1990-1991
- B.A. History-Started in 1994-1995
- B.A English-Started in 1998-1999
- B.A Economics-Started in 1999-2000.

Over the years, the infrastructure was developed into about 17000 square feet built-up area with smart class rooms, well equipped laboratories, title-rich library, air-conditioned seminar hall, open-air auditorium, language lab, gymnasium, volleyball and basketball courts, EDUSAT centre, canteen etc. Thus, the college has evolved into an excellent educational hub, catering to students of all strata of the society.

More than 50 staff is working in the college. The present strength of the college is 951. It is the responsibility of the college to provide high quality education for a broad range of students of all strata of the society. With the concerted effort of all stakeholders of the college, the academic ambience of the college has shown a marked progress in the last several years.

The NAAC peer team has visited the college for its reaccreditation during 17-02 2017. As recognition of its curricular, co-curricular and extra-curricular activities and achievements in the academic, cultural and social realms, the college is re-accredited by NAAC with B grade.

Situated in a rural area which lies in the suburbs of the fast expanding Kochi city, the college performs a significant role in effecting positive changes in native life. The continuous contribution and support from the Government of Kerala, Stake holders and the public has helped to facilitate the development of Government College, Thripunithura, which has contributed to a major development in the field of the general education of the public to a greater extent.

The college has great potential to advance into a major higher educational institution in Kerala in the near future provided with best infrastructure facilities. As mentioned above, the existing campus has no more facilities to accommodate the augmentation of the facilities including addition of courses, addition of physical infrastructure etc.

In this perspective, the college priorities the development of a new campus to a nearby location (a property owns by the college), which includes the development of new modern classrooms and laboratories and generation of best infrastructure including construction of new buildings for academic space, recreation, accommodation.



Figure 1: A view of the existing college campus

2.6 Project Objective

The project objective is to augment the infrastructure facilities to enhance the facilities along with special emphasis for academics, research, sports and other extra-curricular activities. The focus is on the following core areas:

- **Creation of Improved learning Environment:** *It is essential to have adequate and modern class room, laboratories that provide positive learning environment for all students.*
- **Developing Enhanced Teaching, Leading and Learning Opportunities:** *All students must have access to high-quality instruction. Highly effective, well qualified teachers must be equitably distributed across districts and colleges. Students, especially those in high-need colleges and districts, need strong administrators.*
- **Promote research:** *The project aims augmenting the facilities to enhance and promote research.*

- **Create a collaborative learning and development environment:** Learning and teaching are continuous and long term activities. Teachers need time and opportunities for collaboration to learn from one another, observe best practice and develop effective instructional standards. Hence colleges will need to use time more effectively and efficiently.
- **Create a clean and safe campus:** In order to facilitate world class learning experience provision of proper waste disposal methods thereby creating the cleanliness. Providing improved safety is also an objective.

2.6.1 Vision

The college aims at instilling in young minds a culture of excellence and a passion to conquer new frontiers. The motto of the college being ‘Amritham tu Vidya’ (Knowledge Bestows Immortality), it envisions the pursuit of knowledge for the benefit of humanity. Incorporating a world vision, it focuses on the creation of global citizens. The vision is to mould a generation committed to society and develop citizenship values in them. Ultimately the idea is the holistic development of the student community thereby benefitting the society at large.

2.6.2 Mission

1. To equip students with necessary skills to realize their full potential to achieve the career of their choice.
2. To instill in young minds a passion for knowledge and to motivate them to persevere in their relentless quest for academic excellence.
3. To inculcate in them ideals of secularism and social justice and promote democratic plurality of our culture.
4. To create in them a sense of self-esteem, social responsibility and environmental consciousness.

2.7 Methodology

The methodology adopted for the up gradation of the Detailed Project Report is enumerated below in detail:

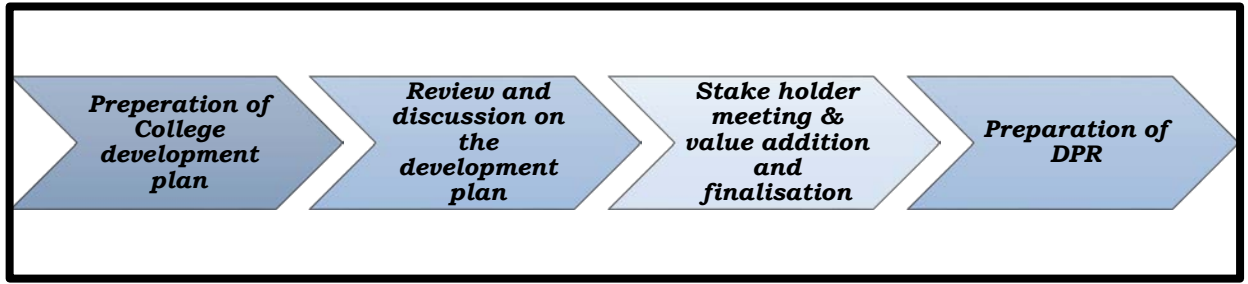


Figure 2: Methodology for preparation of Detailed Project Report

Personal interviews and discussions were conducted with the stake holders including college officials. Site visit and data collection were carried out. The requirements of the colleges were captured and based on the same, the master plan was analyzed.

During the site visit, the existing situation of the colleges, in terms of infrastructure facilities, NAAC Accreditation, academic and non-academic excellence were studied and the potential for future growth was discussed with the stake holders.

Project report is prepared after reviewing the existing situation, requirements informed by the college officials, need analysis, preparing the detailed design and estimates, cost benefit analysis, etc.

The methodology adopted in brief is as follows:

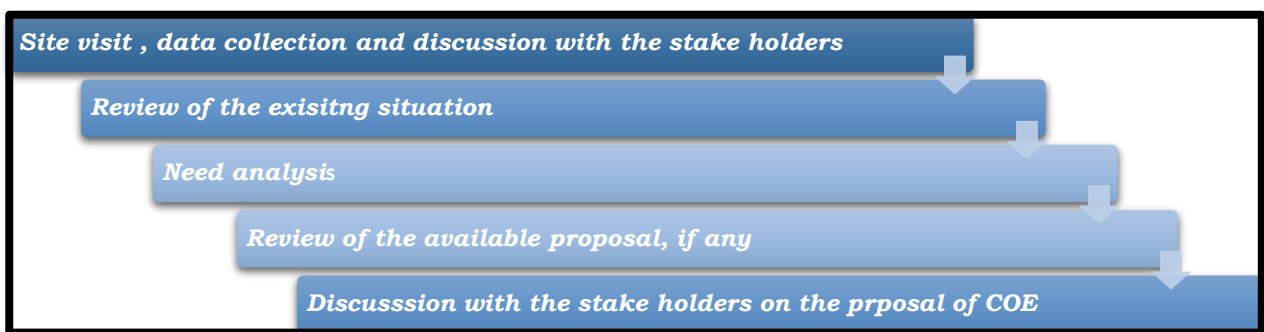
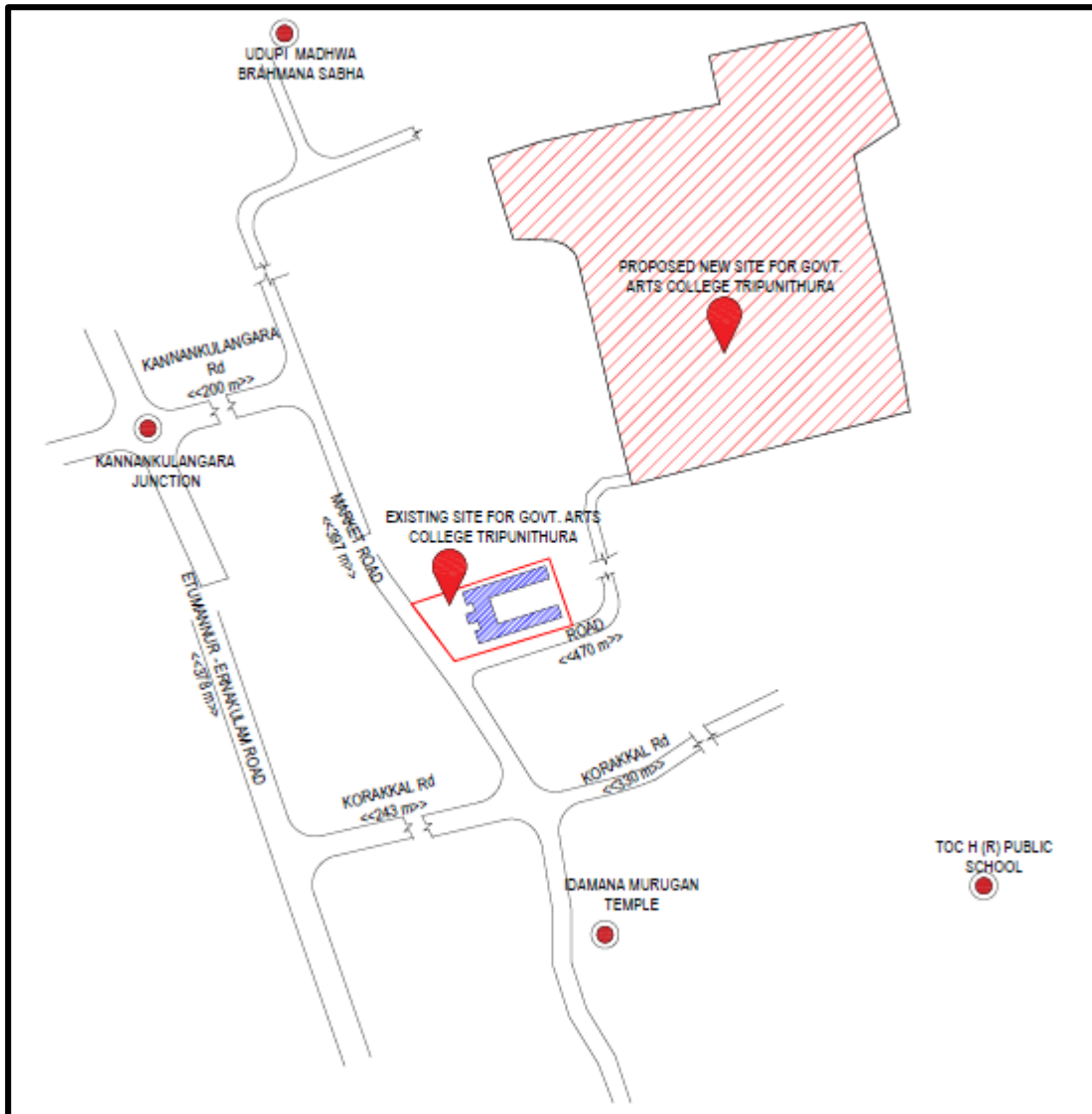


Figure 3: Project Methodology adopted for demand analysis

2.8 Overview of the Project Area



**This is a schematic representation. Detailed drawings with dimensions are attached as annexure*

Figure 4: Location map of Project Area

The College is located at Thripunithura municipality, at Ernakulum district. The college is about 16km from the Ernakulam city. The Government College of Thripunithura, is situated in a campus on the outskirts of Ernakulam. It has a prominent place in the academic and cultural arena of Ernakulam.

The college serves the higher education needs of the rural populace in the Kanyannur Taluk.

2.8.1 Ernakulam District

Ernakulam is a district of Kerala, India formed on 1 April 1958, situated almost at the central part of Kerala State and on the coast of the Arabian Sea. Spanning an area of about 3,068 km², Ernakulam district is home to over 12% of Kerala’s population. According to the 2011 census Ernakulam district has a population of 3,282,388. The district has a population density of 1,069 inhabitants per square kilometer. Its population growth rate over the decade 2001–2011 was 5.6%. Ernakulam has a sex ratio of 1028 females for every 1000 males, and a literacy rate of 95.68%.

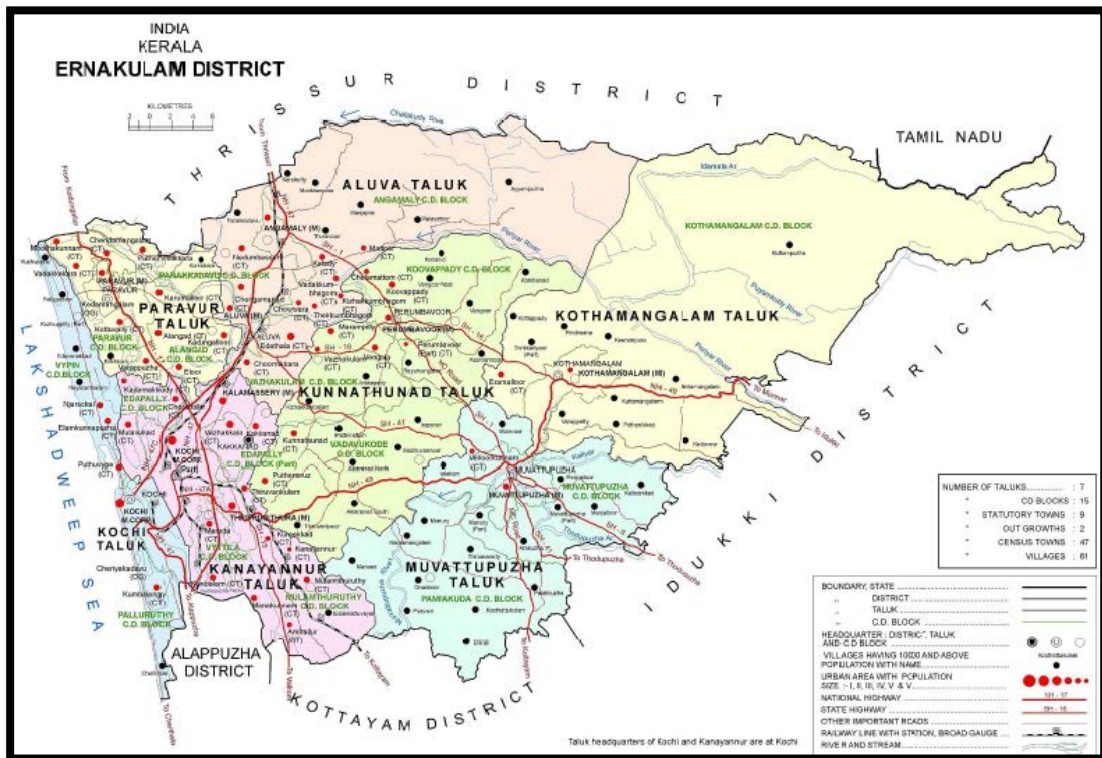


Figure 5: Ernakulam District Map

2.8.2 Kanayannur Taluk

With a population of 851406 people, Kanayannur Taluk has the highest population in the district. As per Census 2011 it has a population density of 2908 people per square kilometer. The Taluk has a sex ratio of 1034 females per 1000 males. It has the highest literacy rate among the Taluks in Ernakulam with 97.12 percentage. (As per census report 2011 for Ernakulam district Part A)

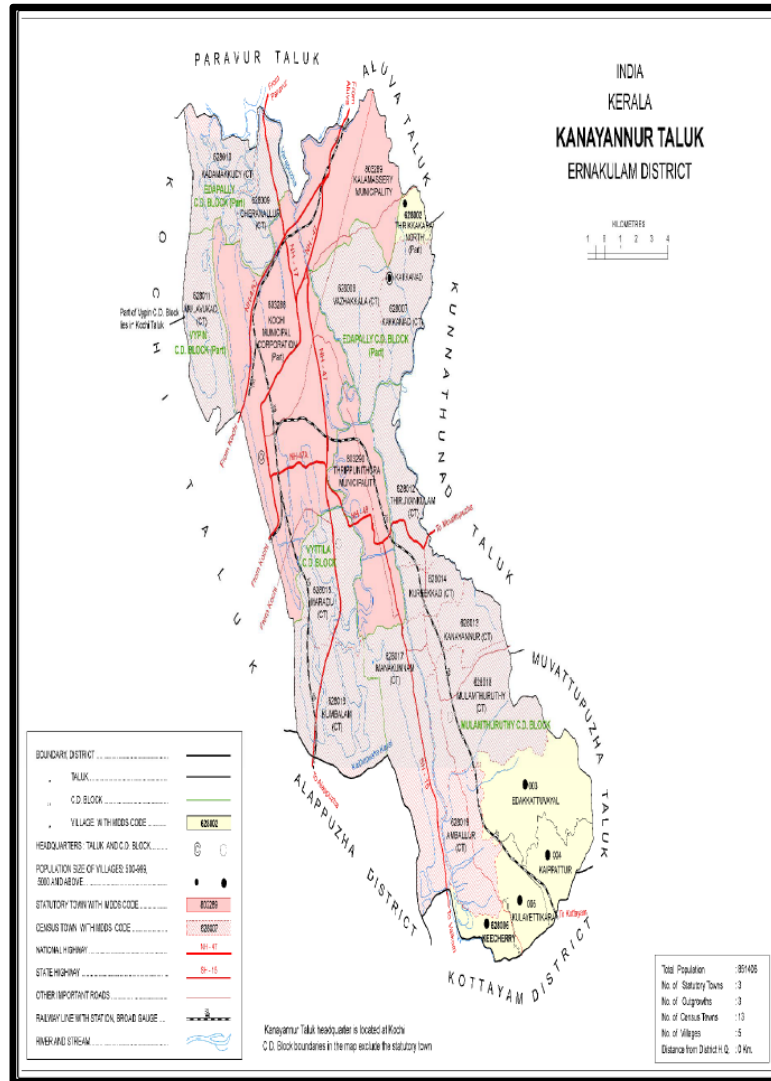


Figure 6: Kanayannur Taluk

2.8.3 Government College, Thripunithura

The College is located at Thripunithura in the Ernakulam district in the central region, state of Kerala.

(a) Accessibility

The college is located at about 16 km from Ernakulam town. The college is connected to SH 15 via Market Road and Korakkal Road. The college is located at a distance of 2.2 km from the Thripunithura town. Ample buses ply on this region. Public transport facilities are available all around the time to the college.

Thrippunithura Railway Station is about 1.9 km and Ernakulam Rail Way Station is about 10.2 km from the college.

The nearest airport to Thrippunithura is Cochin International Airport, which is around 33.7 km from the place.

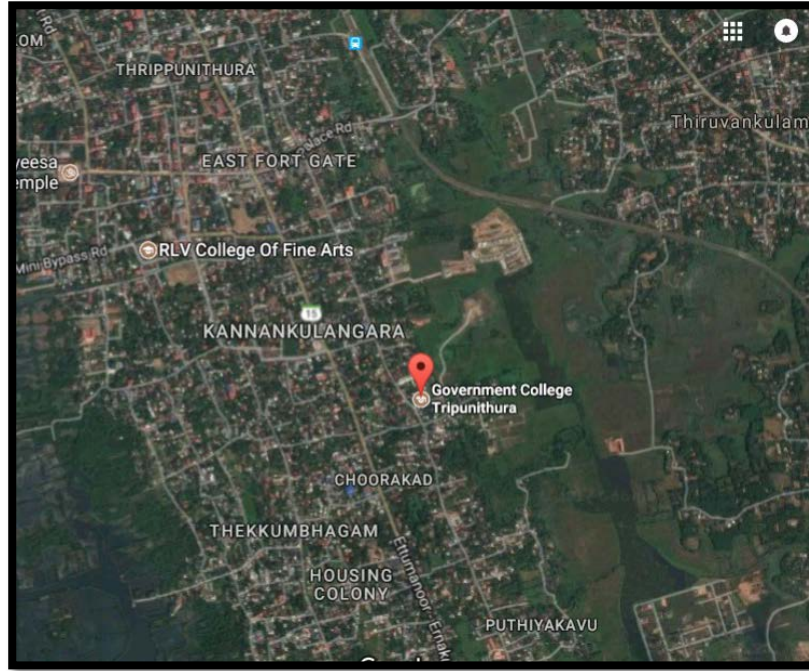


Figure 7: Road Network of the Location

(b) Population under direct and indirect impact of DPR

The table below shows a statistics of other educational institutions in Kanayannur Taluk.

Table 2: Statistics of the educational institutions in Kanayannur Taluk

Sl. No.	Particulars	Count
1	Total population (2011 census)	8,51,406 (Total)
		8,18,432 (Rural)
		32,974 (Urban)
2	Population in the age group 0-6 years(2011 census)	75,904 (Total)
		2,694(Rural)
		73,210 (Urban)
3	No of Arts and Science colleges	1

(c) Ecological and Environmental Conditions

Kanayannur Taluk of Ernakulam District faces hot season begins from the month of February. During March and April the average daily temperature (maximum) is about 30°C and minimum temperature is about 25°C in the coastal region and it increases slightly towards the interior. During the South West Monsoon and North- East Monsoon periods the relative humidity is generally over 70 percent. The district has an actual average annual rainfall of 3379.5 mm.

Agriculture constitutes the most important component of the district's economy and it is the biggest source of employment. About 70 per cent of the geographical area is under cultivation. Ernakulam district is the largest producer of nutmeg and pineapple in the state. The Rubber is the most cultivated plantation crop in the district and the district is the second largest producer of rubber in the state behind Kottayam. The other important crops cultivated in the district are Tapioca, Black pepper, Arecanut, Coconut, Turmeric, Banana and Plantain.

The existing college premises is fully covered with buildings and the college was trying to incorporate greenery inn the campus to great extent.



Figure 8: A view of the existing greenery in the campus

(d) Soil and Terrain Condition

As mentioned in chapter 2.5, the future developmental activities are proposed in a nearby property, owns by the college. The existing college facilities are occupied in a 72.3 cents of land. The proposed location for development is having an area of 9.33 acres.

The terrain condition was analyzed during the reconnaissance survey and from the topographical survey conducted. The existing campus is located in a lower terrain of +99.7 compared to the public road, which is at a terrain of +102, taken as chart datum.

The second plot is located about 0.5 km from the present campus. The terrain of this premises is also flat with a slight slope towards the northern direction. A tributary of the Muvattupuzha river is flowing near to this land. The same is a filled up land, where the filling was done by the corporation by using non-degradable wastes.

The soil condition was analyzed from the geo-technical investigation conducted. The following are the major observation from the soil report.

- A total of three bore holes were taken. All bore holes were terminated at hard rock between 32 m and 38 m below ground level.
- In bore hole (1), filling plastic waste up to 5 m is followed by clay with organic matter up to 8.10 m then by lateritic clay up to 12 m followed by lateritic sand up to 21 m then by silty weathered rock up to 30.25 m followed by soft rock up to 35 m and then by medium hard rock up to 38 m.
- In bore hole (2), filling plastic waste is present till 5 m underground depth, lateritic sand from 5m to 7.5 m, silty weathered from 7.5 m to 18 m, soft rock from 30 m to 32 m.
- In bore hole (3), filling plastic waste is present till 6 m underground depth, lateritic clay from 6 to 12 m, lateritic sand from 12 to 18m, lateritic clay from 18 to 27 m, weathered rock from 27 m to 27.03 m and Soft Rock from 27.03 to 33.50 m.

- *It is recommended to provide DMC/drilling concrete pile foundation to support column loads. Alternately for lighter loads, it is recommended to provide DMC/drilling concrete pile foundation to support column loads.*

Chapter 3: Project Feasibility Studies

3.1 Existing Situation Assessment

The existing infrastructural facilities, buildings and facilities, utilities and other auxiliaries, intake and strength, staff and administration and extra-curricular activities are assessed as below:

3.1.1 Affiliation, recognition and NAAC Accreditation

a) Affiliation:

The College is currently affiliated to Mahatma Gandhi University, Kottayam. As per the University norms, the college follows six semester Choice Based Credit and Semester System (CBCSS) for UG and four semester courses for PG. The college has four UG courses and two PG courses.

b) UGC Recognition:

The college has been recognized by UGC, and included in the list of institutions eligible to receive Central assistance as per Section 2 (f) & 12 (B) of the UGC Act, 1956.

c) NAAC accreditation:

Government College, Thripunithura has been assessed and accredited by the National Assessment and Accreditation Council (NAAC), Bangalore (an Autonomous Institute of the University Grants Commission) in February 16, 2017 with a CGPA of 2.27 on seven point scale at 'B' Grade valid upto September 15, 2021. The Certificate of Accreditation is shown below:



Figure 9: NAAC Accreditation sheet

d) Internal Quality Assurance Cell:

IQAC of Government College Thripunithura was established in pursuance of the NAAC policy. The IQAC takes care of the performance evaluation, assessment and accreditation and quality upgradation of the college. The IQAC is also responsible for ensuring the post-accreditation quality sustenance of the

institution. Since quality enhancement is a continuous process, the IQAC has become a part of the institution's system. It works towards realizing the goals of quality enhancement and sustenance. It is engaged in the deliberate task of developing a system for conscious, consistent and catalytic improvement in the performance of the college.

e) Post Accreditation Initiatives:

The NAAC peer team visited Government College Thripunithura in February 2017, had made specific recommendation for the quality improvement of the institution. All activities of the college, since then, are done taking in the view of these recommendations by the NAAC accreditation team:

- Immediate introduction of UG courses in science stream and Performing Arts, Psychology, Geography, Mass communication etc._
- Augmentation of faculty and staff positions as expeditiously as possible.
- Introduction of Viable, value added job oriented courses like BCA, BBA, Tourism through self-financing mode .
- Adequate thrust be given in faculty development activities for latest pedagogy and e-content preparation.
- Library be fully computerized with online facilities and e-journal be procured.
- Major research projects sponsored by different funding agencies be taken up with institutional funding.
- Internet facilities be expanded on priority basis for easy access to all the students.
- Career Counselling and Placement Cell be strengthened.
- The potential of Alumni be capitalized for overall growth and development of the College.
- IQAC should be made more proactive.

- Introduction of bus transport for students

3.1.2 Academic Programmes

The college offers 4 Under-graduate courses and 2 Post-graduate courses. The various department includes Commerce, Economics, English, Hindi, History, Malayalam, Political science, Physical education and Statistics.

The details of the academic programs are tabulated below:

Table 3: Details of academic programmes

Faculty	Departments	UG	PG	Research
Arts	English	B A English	MA English	Nil
	Economics	B A Economics	Nil	Nil
	History	BA History	Nil	Nil
	Commerce	B Com	M Com	Nil

3.1.3 Support Facilities to Students

To enhance the extra-curricular cum co-curricular activities among students, the supporting facilities associated with Government College Thripunithura plays a vital role.

3.1.3.1 Support & Activity

(a) College council

The College Council consists of the Principal and the Heads of the Department. The Council helps the Principal in the general administration and academic matters of the college.

(b) Parent Teachers Association

The PTA is functioning effectively in the institution with the Principal as Ex-officio President, a parent as the Vice President and a teacher as the Secretary. PTA executive committee consists of elected representatives from parents and

teachers. The committee plays an active role in the activities connected with the welfare of the College.

(c) College Development Council (CDC)

The CDC is empowered to accept donations from students and the public. It takes care of student amenities and other developmental activities of the College. The members of CDC are the District Collector (Chairman), the Principal (Secretary/Treasurer), Chairman of College Union, President of Alumni Association, Executive Engineer of PWD, College Council nominee and four persons nominated by the DCE.

(d) College has a College Students Union

The College Union is intended to promote social and cultural life of students and to train them their rights and duties of citizenship. It also helps in the development of their personalities and skills.

The College has a democratically elected student union which looks after student welfare through its various programmes. The College Union comprises a Chairman, Vice Chairman, General Secretary, Treasurer, Arts Club Secretary and Representatives from the Departments.

Besides, there are two University Union Councilors who represent the College students in the Mahatma Gandhi University Union. The major activities of the union include organizing of debates, discussions and talks on relevant issues, Arts Fest of two days that give opportunities to students to express their talents, film fest and the College Day. Staff Advisor and other faculty members assist students in the holding of competitions. College union receives funds for its various programmes from the donations from students and faculty as well as from the PTA. University Union also supports the College Union in organizing different programmes.

The following are the responsibilities of College Students Union:

1. To train the students of the college in the duties, responsibilities and rights of citizenship.

2. To promote opportunities for the development of character, leadership, efficiency, knowledge and spirit of service among the students.
3. To encourage sports, arts and other cultural, educational and recreational activities that are incidental and conducive to the above objectives and
4. To work for the general welfare of the student community.

(e) Career and Placement Cell

A Placement Cell has been formed in the college with a view to help students to get good placements. Awareness classes were conducted about the various placement opportunities and the job market in general. Different companies were contacted for conducting campus interviews. Some of the students were guided to get placements in Govt. and private sectors. An action plan is prepared to improve the functioning of the placement cell.

(f) Internal Quality Assurance Cell (IQAC)

In order to improve the quality of higher education in the country, the NAAC has proposed all recognized higher educational institutions to form Internal Quality Assurance Cells (IQAC) to monitor the quality improvement initiatives of the institution. This is to ensure that the long-term objectives of the institution are fulfilled in a time-bound manner. In accordance with these guidelines the Government College Thripunithura, has established an IQAC. The college IQAC ensures the establishment and accomplishment of the college's long-term objectives in consonance with the stated Vision and Mission. The Cell strives to inculcate a sense of quality consciousness in the minds of the stakeholders. In its relentless pursuit of perfection, the Cell is involved in development of benchmarks for performance and deployment of review systems for outcomes.

IQAC has been set up to ensure quality in academic work and in the manifold activities of the College. It is engaged in securing good grade for the College in the next NAAC visit for assessment and accreditation. IQAC supervises and

coordinates the activities of various departments, clubs and fora. It is also concerned with the up gradation of infrastructure in the College.

- i. IQAC monitored and coordinated all the programmes related to the reaccreditation of the college by NAAC. For this, IQAC prepared and distributed a proforma for preparing Annual Quality Assurance Report (AQAR) to all the departments, NCC, NSS and other organizations, in the college. A team constituted by IQAC collected, analyzed and compiled the proforma and prepared AQAR. IQAC submitted AQAR to the NAAC, and started the preparation of Self Study Report (SSR) to NAAC.*
- ii. IQAC advocated, supported and guided faculty members to submit major and minor research project proposals to various funding agencies and arranged for a preliminary scrutiny of the proposals.*
- iii. IQAC published a newsletter describing the academic and co-curricular activities of the college.*
- iv. IQAC designed and installed an online feedback survey system and collected and analyzed feedback from all students of the college.*
- v. IQAC is on the process of conducting an academic audit of the college,*
- vi. IQAC is also arranging environmental audits in the college.*

(g) EDUSAT

The college is equipped with a well-set EDUSAT satellite interactive class room. The EDUSAT programme of Government of India is aimed to assist the conventional class room teaching in educational institutions by bringing latest information through satellite enabled interactive classes, delivered by the experts in various subjects. The programme brings great opportunity to the students to attend the classes of those who are specialized on particular topics, and to interact directly with them to clear the queries. EDUSAT classes are conducted regularly on Thursdays

(h) RUSA

Rashtriya Uchchatar Shiksha Abhiyan (RUSA) under the ministry of Human Resource is the new funding agency for catering the needs of higher education sector in India. Financial assistance for Institutional development such as academic reforms, infrastructural development, students amenities improvement ,administrative reforms etc.- are taken care of by the RUSA through the state Higher Education Council. The College has submitted proposals for its overall development to the RUSA as per the direction of Kerala State Higher Education Council.

(i) UGC Cell

UGC cell of the college acts as the official unit for implementing UGC schemes and programmes effectively. As a part of its activities, three programmes are running in the college, which are the NET/SET coaching, Remedial coaching and coaching programme for entry into service.

(j) National Service Scheme (NSS)

The aim of NSS is to promote national consciousness and a sense of social responsibility, discipline and dignity of labour and to help students to develop their personality. NSS special camps are arranged during December every year. More than hundred boys and girls participate in the camps. Rural areas are selected for community service and educational programmes. Besides the annual camp, regular works in the college campus are also undertaken. Students who attend the camp are given a certificate and are eligible for grace marks for seeking admission to higher studies.

(k) Quality enhancement programme (Govt of Kerala)

The programmes conducted as part of the Quality enhancement programmes supported by Government of Kerala include Scholarship Support Programme, Walk with a Scholar, ASAP, and FLAIR.

- **Scholarship Support Programme:** The Scholar Support Programme, part of the ‘New Initiatives in Higher Education’ initiated by the Department of Higher Education, Govt. of Kerala aims at imparting additional support to students in curricular areas of weakness. The programme also extends personalized additional support to students in chosen subjects of the curriculum which are challenging to them and are to be identified through a systematic result analysis. As part of the SSP programme, tutorials, study materials, additional lectures, question banks etc. are distributed and interactive sessions are organized to help students to understand the subjects in an easy manner.
- **Walk with a Scholar (WWS):** Walk with a Scholar (WWS) scheme proposes to arrange specialized mentoring programs for students in Under Graduate Programs in Arts, Science and Commerce and to provide guidance for their future. The scheme introduces the idea of mentoring and builds on the concept of mentor as a ‘Guide’ and ‘Friend’.

The mentoring scheme for students will be purely voluntary in nature. It will be open for all students entering the first year of the Under Graduate Programme of Study. The Scheme aims at giving necessary orientation to needy students, to prepare them for employment and give them necessary guidance, motivation and necessary mental support to identify appropriate areas for higher study as well as employment. The mentoring scheme should be planned to identify the opportunities available for the scholars, the areas suitable for them, the manner in which the scholar should proceed before them and evolve ways by which they can be acquired.

There is a College level Coordinator for the WWS Scheme from the faculty of the college. The College Council acts as a Monitoring Committee for the implementation of the Programme and the Coordinator should function in consultation with the Principal and the College Council.

- **Additional Skill Acquisition Programme (ASAP):** The objective of the programme is to enhance additional skills for the employability of the

students who are studying in under graduate programmes by providing them with skills required for the industry. ASAP intends to enhance the skill development of Kerala's youth at a rapid pace by bringing in new skill courses. ASAP equips the students with industry relevant skills. The students can choose courses in different areas, depending on their aptitude. The students are given training in skill courses in such a way that the student's skill-sets match that of the world's best. The main skill courses are in IT/ITES, Automobile, Banking & Finance, Hospitality, Retail, Telecom, Logistics, Media and Entertainment, Electronics Sector, Gem & Jewellery and Construction sectors. In total, ASAP is offering 92 skill courses to impart skill training to the young populace of the state.

- **FLAIR (Fostering Linkages in Academic Innovation and Research):**

It is a new initiative of the Department of Higher Education of the Government of Kerala, implemented in government colleges, to train the faculty members in teaching-learning and research to contribute to the overall development of the higher education system of the state.

Newly joined faculty with a minimum of 20 years of remaining service are covered in the first phase of FLAIR. The membership is voluntary in nature and the motivation for the faculty members to join the program includes the reward structure it offers along with long term career growth opportunities. Highly performing faculty members will be recognized as FLAIR Professors and Scientists. Academic and research grants will be given on the basis of the performance of the faculty members.

(I) Cells

- **Women's Cell**

The Women's Cell was constituted with faculties and students from various departments. The Women's Cell with the guidance and help of the principal conducted the following activities:

- *Made the Ladies Room fully functional by opening it up and*

providing facilities like a bed with pillow and mattress, a pad vending machine whereby female students could get a sanitary napkin by inserting a five rupee coin.

- *An incinerator was installed in the Ladies Toilet for easy and hygienic disposal of used sanitary napkins.*

- **Old Students' Association**

This is the alumni association that consists of former students and teachers. An elected member from the former students is the President of the association and a faculty member is the Secretary. The OSA plays an important role in the developmental activities of the college.

- **Student's Grievances and Redressal Cell**

Grievances pertaining to academic matters will be taken up by the teacher in-charge of that particular class to which the student belongs. Such academic grievances will be finally heard and decided by the Head of the Department. Grievances related to union activities and other non-academic matters will be sorted out by the Vice Principal to the College Union. At the appellate level, all the unresolved issues will be redressed by a cell consisting of the Principal, Head of the Department concerned and one staff member nominated by the principal.

- **Sports and games**

A Sports committee consisting of the Principal as president, a member of the staff nominated by the principal as vice-president, the Head of the Dept. Of Physical Education as Secretary and all captains as other members is constituted at the beginning of each academic year to organise the activities of the Department.

The college has a full-fledged gymnasium which caters for the physical well-being of the students, teachers and non-teaching staff. The college has indoor synthetic court, Table Tennis center and recreation center.

All the Departments practice all possible measures for effective teaching learning process. Assignments, Seminars, Tutorials, Remedial Classes through SSP, Teacher's Diary, and continuous Evaluation etc. are important in this regard. In addition to these regular practices, the institution followed some other innovative programmes

- **Socio-economic Survey:**

The institution conducted a socio-economic survey to study the socio-economic and educational status of the students in the college.

- **Instructional Skill Work Shop:**

A workshop popularly known as Instructional Skill Workshop is conducted for the newly appointed teachers to closely monitor their instructional skills.

- **Know Your Campus Greens:**

The innovative programme introduces the Green Wealth of the College campus with the involvement of the students.

- **Campus Word Bank:**

Every day a letter of English alphabet is displayed on the bulletin board of the Department of English accompanied with explication of a word, phrase, idiom, proverb, myth, writer, confused spelling, and one- word substitute beginning with this letter.

- **Rashtra Bhasha Hindi:**

To inculcate in the minds of students and staff a love towards our National Language, Hindi and to make the administration familiar with the official Hindi words, everyday Hindi equivalent of an English word related to administration is displayed on a bulletin board placed in front of the office.

- **Health Card System:**

The Department of Physical Education conducted a health check - up among the students in the college.

(m) Clubs

- **Red Ribbon Club**

The Red Ribbon Club is functioning in the college under the auspices of the N.S.S. The major objective of the club is to promote voluntary blood donation. It aims at creating an awareness about AIDS among the youth.

- **Film Club**

This club engages in activities to create film literacy among students. Great films are shown to them by organizing Film festivals. The club organized Film festival titled “DRISHYA 16” and screened the films Munnamidam, Kaka Muttai, Burn My Body, Pathemari and Pele Birth of a Legend. Film club student members produced a Short film titled Sara.

- **Nature Club**

The aim of the Nature Club is to educate students about the natural environment and its importance in human developments. The nature club conducts various programmes in association with different organizations.

- **Road Safety Club**

The aim of the club is to create an awareness among students on the safety measures they have to observe while travelling on the roads. This will enable them to be responsible citizens conscious about the safety of the public. The club functions with the help of the Traffic Department, Tripunithura

- **Health Care Club**

Good health encompasses physical, mental and social well-being. A physical fitness center functions in the campus with equipment like treadmill and other facilities.

- **Literary Club**

The objective of Literary club is to inspire and enhance the aesthetic sensibility of the students. “Quest” is the intercollegiate Literary Quiz, a new initiative by the Literary Club of the college in association with the PG Department of English.

- **Redcross**

The Red Cross wing of the college organizes Orientation Programmes and Camps under the programmed Red. They also conduct classes on Blood & Organ donation, First Aid, Road Safety, etc.

3.1.4 Initiatives

(a) Gender

Anti-ragging: The Anti-ragging Cell is constituted as per directions from the Government, University and the Supreme Court of India. The Cell constantly monitored the activities of the students throughout the year. The Cell was extra vigilant during the period immediately following the new admissions to new academic programmes. A helpline to report and prevent ragging cases is established. A notice is being at a prominent place in the college as warning regarding ragging as per Supreme Court direction.

Women Empowerment Cell: With the recent findings on the atrocities against women, a Women Empowerment Cell is established in the College to help girl students.

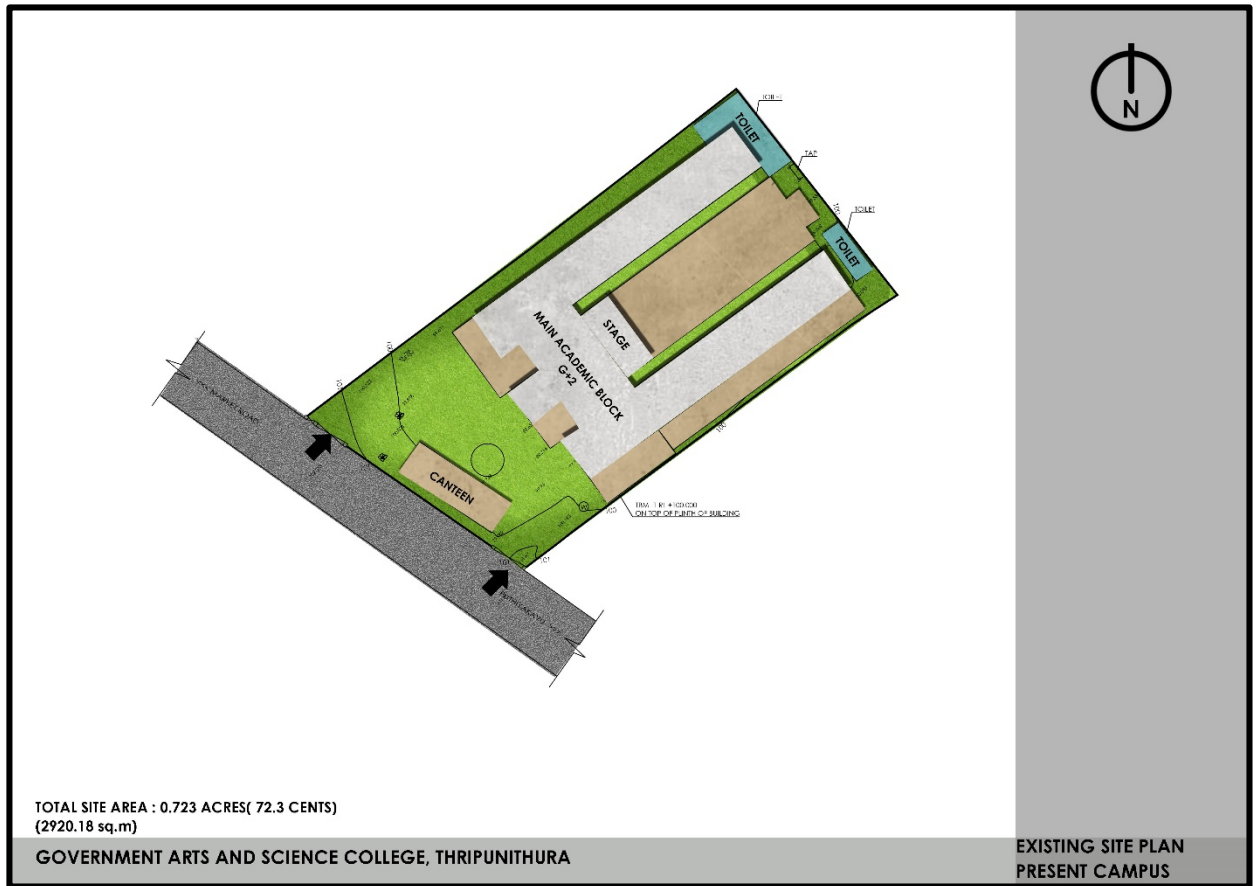
(b) Green

Garden: Even in the midst of heavy academic work load, college is maintaining a planned Garden in the campus.

3.1.5 Academic Buildings and Other Facilities

(A) Academic and other utility buildings:

The detail of the existing academic and other utility buildings are enumerated below:



**This is a schematic representation. Detailed drawings with dimensions are attached as annexure*

Figure 10: Govt. College, Thripunithura – Existing Campus layout

The present campus is distributed in a 72.3 cents of land. The college is having 4 buildings including main academic blocks, office block, computer labs, open air auditorium, laboratories, staff rooms, classroom blocks, seminar halls, Canteen, toilets, etc. All the buildings are relatively new. .

The college has buildings with facilities like Academic space, Auditorium/ Seminar Complex, Gymnasium, Cafeteria and Health Centre.

(i) Main building:

The main building is a 3 storied RCC roofed structure with all the departments and classrooms accommodating. The main block of the college building consist of rooms for Economics department, General department, Convention room, Counseling room, Physical Education department, retiring room, history department, Commerce department, NSS room, EDUSAT room, Smart room,

Seminar hall, Computer lab, Indoor court, Union room, Vice-Principal's room, Cell & committee rooms 1&2, Principal's office, administrative office, Library, Gents toilet, English department, Sports room, recreation room and Multi-gym
The main academic block is having a plinth area of 911.28 sq.m. The present condition of the buildings is shown below:





Figure 11: Existing Buildings

(ii) Canteen block:

The canteen block is a standalone single storied sheet roofed building. The canteen block is having a plinth area of 90 sq.m. The following figure shows the existing condition of the canteen block:



Figure 12: Existing canteen block

(iii) Open air auditorium:

An open air auditorium is maintained in between the 2 wings of the main academic block. The facility is covered with asbestos sheet. The college is using the facility as an open air assembly area and as an open air stadium. The facility is having a plinth area of 419 sq.m. A stage is also provided in the assembly area with an area of 61 sq.m. The following figure shows the existing condition of the facility:



Figure 13: Existing indoor court

The following are the details of the existing facilities in the campus for Curricular, Co-curricular activities and Extra-curricular activities:

Table 4: Physical infrastructure available for academic activities

Type	Number	Remarks
Class rooms	6	Well furnished
Library	1	With photocopying facility
Gymnasium	1	With multi-gym facility
Store rooms	2	For keeping valuable items.
Smart room	1	With Computer facility
Indoor Court	1	For Volleyball & Badminton
EDUSAT class room	1	Air Conditioned room with video conferencing facility through EDUSAT
Staff rooms	2	Well-furnished spacious rooms
Sports room	1	Stores all the sports equipment
Computer Lab	1	With 31 multimedia computers, 5 KVA UPS (2Nos.)
Admin & Principal's office	1	Well-arranged office facility
Two/ four -wheeler/ parking facility	1	Open parking in front of the main building

3.1.6. Utilities and Auxiliaries

- 1) **Power supply connection:** The college has a 3-phase connection
- 2) **Water supply:** The College a connection from the Kerala water authority.
- 3) **Bio-gas plant:** There is a biogas plant in the college premise.
- 4) **Rain water harvesting:** There are two tanks of 10,0000 L capacity each, though these are not used at present.
- 5) **Waste disposal:** Waste from the campus is collected and managed by the municipality.

3.1.7. Intake and strength

Intake and Strength of students are as given in table below:

Table 5:. Intake and Strength

Programmes	Title of Programmes	Sanctioned Annual Intake
U G Programmes	B. Com	40
	B.A. English	24
	B.A. Economics.	24
	B.A. History	40
P G Programmes	M Com	12
	M.A. English	12

3.1.8. Staff and administration:

Staff Strength of the College is given as table below.

Table 6: Details of staff strength and administration

Designation	Principal	Teaching staff	Non-teaching staff
Strength	1	30 (Asst Professors), 1 (Guest lecture)	19

3.2 Stakeholders Consultation

A stakeholders' meeting was organized on 20.07.2017, at the College premises, to understand the requirements in terms of additional infrastructural facilities for the campus, in order to elevate facilities. The summary of requirements put forth in the meeting are as follows:

- 30 Nos of Degree Class rooms of 600 sq ft area
- 10 PG Class rooms of 400 sq ft area
- A 600 sq ft area Principal Room
- A 400 sq ft Vice Principal Room
- A 400 sq ft Guest Room

- A 2000 sq ft Office Room
- A 600 sq ft Store Room
- A 5000 sq ft Library
- A 1000 sq ft Reading Room
- Two 8000 sq ft Seminar Halls
- A 4000 sq ft Auditorium
- 15 600 sq ft Staff Room
- 10 250 sq ft HOD's room
- A 250 sq ft Counselling Room
- A 400 sq ft Ladies Waiting Room
- Three 400 sq ft Refreshment Rooms
- Two 600 sq ft Language Labs
- 11 Art & Media Rom of 600 sq ft area
- A IQAC room of 400 sq ft Area
- A 600 sq ft Health Club
- 4 Sports rooms of 400 sq ft
- A 600 sq ft Screening Room
- A 1000 sq ft EDUSAT room
- Two 400 sq ft NSS room
- Two 400 sq ft NCC rooms
- A 800 sq ft room for Various Club Activities
- A watchman tower
- A 600 sq ft Cooperative Society Room
- A 1200 sq ft Canteen
- Four 1000 sq ft Laboratories
- 3 each of Gents and Ladies Toilets
- A 400 sq ft Exam Control Room
- Two 800 sq ft Smart Rooms
- Stadium Including 400 m track, Parking Area, Ramp, Landscape and Garden

The copy of MOM is attached as annexure.

3.3 SWOT Analysis

A close analysis of its strength, weakness, opportunities and threat are enumerated below.

(a) Strength:

- *Qualified, dedicated and permanent teaching faculty.*
- *Students from diverse socio-cultural background which equips them to face the challenges ahead.*
- *A small and compatible campus having strong and healthy bondage among students and faculty that helps in fostering democratic values*
- *The small size of student community helps teachers to pay individual attention.*
- *The nearness of the college to the city of Cochin, the largest industrial hub of Kerala, and its accessibility via road and rail.*
- *A well-equipped seminar hall with a seating capacity of 200 people.*
- *‘EDUSAT Facility’ using interactive satellite linked transmission providing ample opportunity for e-learning and video conferencing.*
- *The College Library, partly digitalized and fully computerized, containing over 15000 books in addition to reference books, journals, magazines, periodicals and newspapers.*
- *The new Govt initiatives like Walk With a Scholar Programme (WWS), Additional Skill Acquisition Programme (ASAP), Scholar Support Programme (SSP) are successfully implemented.*
- *Students are provided guidance to avail various scholarship schemes of central and state governments.*
- *Various talent clubs, cells and committees together make the college a beehive of activities. National Service Scheme (NSS) and Women’s Cell’ require special mention.*
- *In addition to the liberal financial backing of Government of Kerala and UGC the college is getting financial support from the ‘Cluster of Colleges’.*

- *The resource sharing mechanism enabled by the ‘Cluster of Colleges’ has helped the college to overcome its many infrastructural and resource constraints.*
- *Well framed curriculum which promote research even at UG level with a timely updating of syllabus in every 3 years*

(b) Weakness:

- *Inordinate delay in getting the encumbrance clearance of the college property, the proposed site for new campus put a great constraint to our infrastructural development prospects.*
- *The transferable nature of the principal’s post affects administrative efficiency.*
- *Complicated procedural formalities in fund utilization slows down the developmental activities*
- *Lack of NAAC accreditation stood in the way of obtaining financial assistance from RUSSA.*
- *Though named as a Govt. Arts and Science College, Govt. has not sanctioned courses in science stream*
- *Due to lack of hostel accommodation many meritorious outstation students are reluctant to join the college, especially in PG programmes.*

(c) Opportunities:

- *After a long period’s waiting, the institution has finally succeeded in getting the possession certificate of the 10 acres meant for the construction of the new college complex and playground. The Govt. has also sanctioned Rs. 5 crores and construction of the boundary wall and college ground has already started.*
- *Proximity to key industrial and economic zones (KINFRA, CSEZ, Smart City, Petroleum Corporations etc.), add to the utility of the courses offered in terms of employment.*
- *The implementation of New Govt. initiatives such as WWS, ASAP and SSP helps capacity building of the primary stake holders.*

- *The State and Central Governments’ varied scholarship schemes open up new avenues and opportunities to ambitious students.*
- *The state govt. new scholarship scheme for promoting research work among faculty*
- *Improved curriculum, which promote and focus research, can attract studios and research-minded students.*

(d) Threats:

- *Dealing with the First Generation College goers, the difficulty in motivating them and their parents.*
- *Except in Commerce the results are not up to expectations. The college objective is to produce cent percent result in all subjects.*
- *Due to lack of adequate infrastructure like playground it is difficult to promote sports and games. For regular practice and annual sports meet the college is neighboring institutions playground.*
- *To obtain a good grade in NAAC accreditation amidst many limitations.*

3.4 Requirement/demand Analysis

(A).Requirement for the Augmentation of Infrastructural facilities:

The College has few constraints and some of them are:

- **Construction of an Academic Block:** *Construction of academic space is the prime requirement of the college. An academic block may be constructed with three floors, ground floor with sufficient classrooms, laboratory spaces, a seminar hall, staffroom spaces and separate toilet facility for boys and girls.*
- **Class Room Modernization:** *Interactive Panels, Computers, Document Camera, Magnetic Ceramic White Boards and Digital Podium in all class rooms.*
- **Modernization of Labs:** *Construction of Modular Lab.*

- **Library:** Furniture, Interactive Panel, Digital Signage Board, Online Journals, Printers, Scanners and computers, photocopier with networking to computers in the library
- **Language Lab:** Digital Language lab software, headphones with microphones, desktop computers and printer.
- **Ladies and Boys Hostel facility:** To develop new hostel facilities for girls and boys.
- **Seminar hall :** construction of well-equipped seminar hall facility for the college.
- Solar Panel
- Lady's Amenity Centre
- Construction of staff quarters.
- Public address system, digital signage boards, and water cooler
- Auditorium facility

3.5 Justification of the components

- The college is proposed to have 15 UG class rooms. This solves the problem of inadequacy of class rooms for the UG courses as well as the colleges plan to start 4 more UG courses. More over the existing classrooms are congested and not constructed as per norms.
- The college would have 12 PG class rooms which is essential to meet the college's plans to start 8 more PG courses.
- To meet the lack of laboratories for the existing and planned courses, 6 laboratories are required.
- The lack of seminar halls is met by the construction of 3 rooms which can be used either as UG class rooms or Seminar Halls.
- A Conference Hall is envisaged to conduct conferences/meetings.
- For the proper administration of the college campus, Principal's and Vice Principal's Room is provided in the Academic Block
- 8 Staff rooms are required for the teaching faculty
- Additional toilet facilities are provided for both the students as well as faculty

3.6 Environmental and Sustainability Aspects

As per the item 8(a) of schedule of EIA Notification, 2006, it is mandatory that building and construction projects ≥ 20000 m² and $< 1, 50,000$ m² of built-up area are categorized as Category B and requires clearance from State Level Environmental Impact Assessment Authority. As the total built up area for the present project fall far below the minimum limit, the project does not attract EIA Notification, 2006.

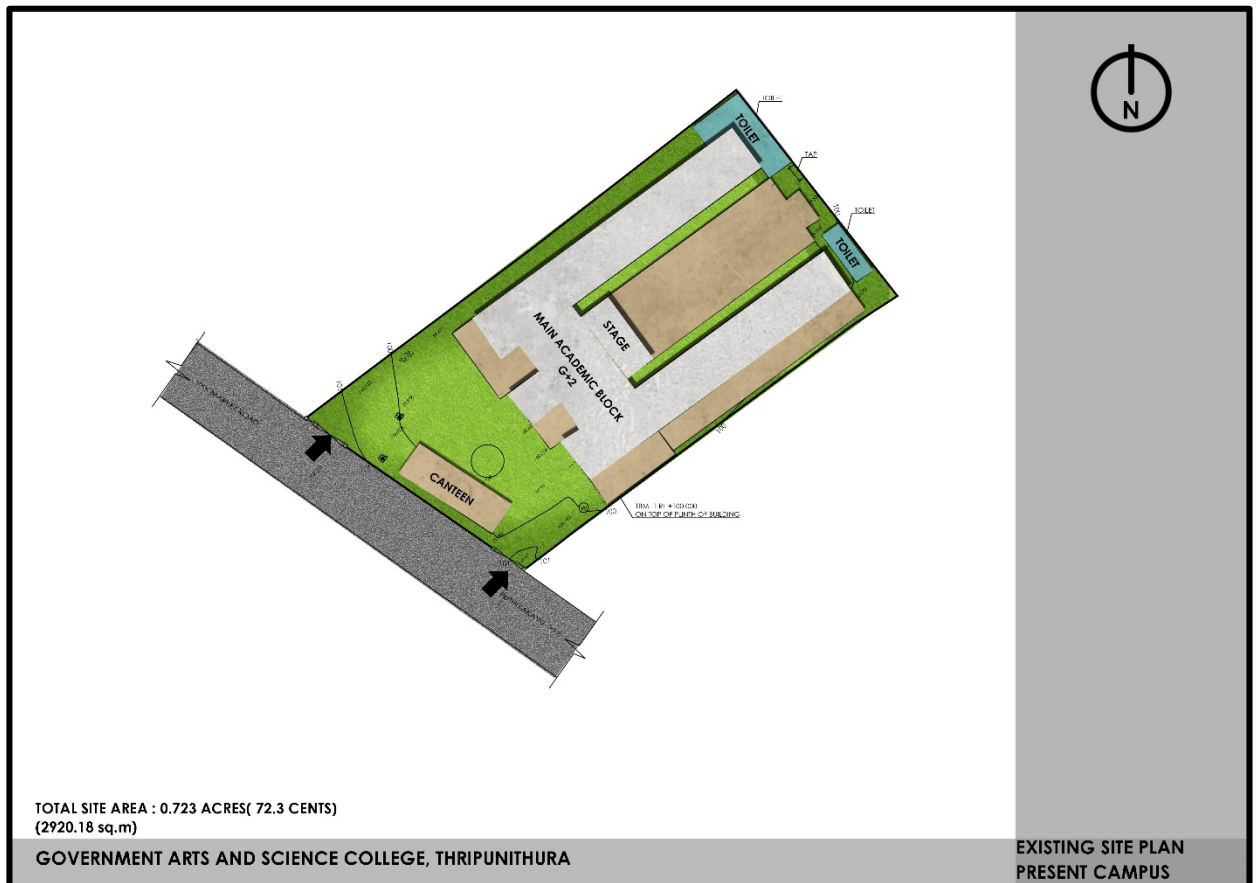
However, during the phases of demolition of recommended buildings, and construction of proposed buildings, all aspects like noise, dust, wastes including hazardous wastes, etc. may have a temporary impact on environmental equilibrium. Hence, they need to be managed, especially since it happens in the college premises.

Various risks have been identified in demolition/ construction as well as operations phases, and mitigation strategies have been discussed in detail, in Chapter 11.

In addition to the above, good practices in environmental sustainability relevant to the college have been identified which includes solar power, waste management system, rain water harvesting, etc.

Chapter 4: Site Surveys and Investigations

The following figure below shows the existing site plan of the College.



**This is a schematic representation. Detailed drawings with dimensions are attached as annexure*

Figure 14: Existing Site plan



**This is a schematic representation. Detailed drawings with dimensions are attached as annexure*

Figure 15: New Site Plan for the College

4.1. Ocular/ Reconnaissance Survey

This chapter enumerate in detail about the existing infrastructural facilities at the location:

4.1.1. Land

The College is having a total land area of 10.053 acres. The existing campus is occupied in an area of 72.3 cents. At the new site, the area of the plot is 9.32 acres to set up the full-fledged campus.

4.1.2. Road access, Entrance Gate to the College premises



Figure 16: Entrance for the existing campus



Figure 17: Road access to the proposed campus (Plot 2)

The college has a direct entrance from the Market road and this road is well connected to Kannankulangara road, Korakkal road and Ettumanoor-Ernakulam road.

The proposed location is located at a distance of 470m from the Market road connecting Kannankulangara and Puthiyakavu. The road access to the proposed location is through one corner of the plot.

4.1.3. Compound wall

A continuous compound wall is available around the campus which is in a good condition. The proposed new campus site needs a compound wall. The boundary is demarcated at present.



Figure 18: Compound Wall of Existing Campus



Figure 19: Existing condition of the compound wall at Plot 2

4.1.4. Parking Space:

The parking inside the present campus is limited and only a few cars & bikes can park inside. It is an open parking area. The following figure shows the present condition of parking.





Figure 20: Existing Parking

The parking facilities provided are not sufficient to cater the present needs.

4.1.5. Buildings

The detailed description about the existing buildings in the campus was provided in chapter 2.

4.1.6 Classrooms, Quarters, Hostel, Labs, Library, Canteen and Playground

The existing campus facilities are enumerated in Chapter 3. From the analysis done and by considering the current and future student strength in the College

as well as prescribed student classroom ratio, there is a deficiency in number of class rooms to cater to the existing requirement.

The following figure shows canteen and indoor court.



Figure 21: Existing Canteen and indoor court

Hence, there is a requirement for additional classrooms in the proposed new campus. The available class rooms also need maintenance and improvements.

The pictures below shows the site condition of the proposed new campus in 9.33 acres of land.





Figure 22: Premises of the proposed new campus

4.1.7 Toilets

The toilets available in the campus are insufficient to meet the current strength.

4.2 Topographical survey details

The existing campus is located in a lower terrain of +99.7 compared to the public road, which is at a terrain of +102, taken as chart datum.

The second plot is located about 0.5 km from the present campus. The terrain of this premises is also flat with a slight slope towards the northern direction..

4.3 Soil Investigation Report

The soil investigation was conducted at the site. The observation from the report are:

- Three bore holes were taken. All bore holes were terminated at hard rock between 33 m and 38 m below ground level.
- The soil profile in the BH-1 location shows that the topsoil is of filled plastic waste up to 5.0 m depth. This is followed by clay with organic content up to 8.1 m depth having N value of zero. After that it is lateritic clay up to 12.0 m depth having N value of 8 and 10, followed by lateritic sand up to 13.5m depth having N value of 18. Below that, there is lateritic clay up to 21.0 m depth having N value varying between 11 and 14. It is followed by weathered rock up to 30.25 m depth having N value of 20 and >50. After that there is very poor very weak soft rock up to 35.0 m depth having core recovery=2 % and 34% and RQD=0% and 11 %. Below that it is very poor very weak medium hard rock up to the bored depth 38.0 m having core recovery=27 % and 60 % and RQD= 5 % and 11 %. Ground water table is located at 2.0 m below the ground level.
- The soil profile in the BH-2 location shows that the topsoil is of filled plastic waste up to 5.0 m depth. This is followed by lateritic sand up to 7.5 m depth having N value of 3. After that it is lateritic clay up to 18.0 m depth having N value varying between 3 and 17. Below that, there is silty weathered rock up to 30.0 m depth having N value of 20 and >50. It is followed by very poor very weak soft rock up to bored depth 33.0 m depth

having core recovery=0 % and 10 % and RQD=0 % and 10 %. Ground water table is located at 2.0 m below the ground level.

- The soil profile in the BH-3 location shows that the topsoil is of filled plastic waste up to 6.0 m depth. This is followed by lateritic clay up to 12.0 m depth having N value ranging from 6 to 8. After that it is lateritic sand up to 18.0 m depth having N value varying between 10 and 50. Below that, there is lateritic clay up to 27.0 m depth having N value ranging from 33 to 44. It is followed by weathered rock up to 27.03 m having N value >50. After that it is very poor very weak soft rock up to bored depth 33.5 m depth having core recovery=0 % and 30 % and RQD=0 % and 9 %. Ground water table is located at 2.0 m below the ground level.

4.4 Hydro-geological Survey

Ernakulam district is underlain by Charnockites, pyroxene granulates, garnetiferous gneisses, hornblende biotite gneisses and schistose rocks overlain by Tertiaries and coastal alluvium along the coast ranging in age from Archaean to recent. These rocks have undergone weathering and lateralization. The hydrogeological units encountered in the district are:

- Consolidated formations (weathered and fractured crystallines).
- Semi consolidated sediments equivalent to Warkalies of Southern Kerala and Laterite formations and
- Unconsolidated formations (Recent alluvium occurring along the coast).

Consolidated formations

The weathered and fractured rocks in the crystalline formations form potential phreatic shallow aquifers and is composed essentially of charnockites, hornblende gneisses, schists and other intrusive. In the phreatic crystalline formations the depth to water level varies from 2.14 to 19.95m bgl during pre-monsoon and from 1.28 to 19.03m bgl during post monsoon period. The thickness of weathered zone in the district is in the range of 3 to 20 m. The degree of

weathering is generally low in charnockite areas. The gneissic rocks are highly weathered and well jointed and form good water bearing zones.

Semi consolidated formations

Tertiaries, equivalent to Vaikom beds of Southern Kerala occur along the coastal region of the district from Dharmadom (8 kms south of Ernakulam) upto the district boundary in the north. These are found to be lateralized on the top. Tertiaries are not potential aquifers in this district as they do not have potential fracture zones. Laterite is considered to be the marker horizon to differentiate between Tertiary and Recent alluvial sediments. The thickness of laterite ranges from 10 to 20 m. Laterite constitutes a potential aquifer in the mid land regions of the District. Depth to water level varies from 4 to 20 m bgl during pre-monsoon and 1.5 to 19 m bgl during post monsoon period.

Unconsolidated formations

The coastal alluvium comprising of sand, silt and clay forms potential phreatic aquifers in the district. It occurs all along the coast and in the valleys and is extensively developed by a large number of dug wells and filter point wells.

4.5 Primary Surveys

Table 7: Primary survey details

Sl. No:	Particulars	Details	Remarks
1	Ocular/ Reconnaissance survey	Detailed about the buildings and other facilities available.	Detailed above
2	Topographical Survey	Flat terrain with slight slope	Attached in Annexure
3	Soil Investigation	Clayey in nature with less bearing capacity	Attached in Annexure
4	Hydro-Geological Survey	Formed by 3 hydrogeological units	Detailed above

Chapter 5: Functional Design

5.1 Master Plan - GOVERNMENT ARTS AND SCIENCE COLLEGE, THRIPUNITHURA

5.1.1 Background

The Government College, Thripunithura is the reality of the long cherished dreams of the public of Thripunithura Municipality and the neighboring Panchayats. The college was shifted to the University of Kerala during 1982-83. Now the college is affiliated to the Mahatma Gandhi University. The existing campus is developed in a 72.3 cents of land. An area of 9.33 acres of land located at 0.5 km away from the existing campus is earmarked for the development of the new campus.

5.1.2 Location Assessment

The campus is located in a low density area, having a calm and serene atmosphere for the students. The main entry to the campus is from the road abutting on the southern side of the campus. The main vehicular and pedestrian entry is from the southern side of the campus. It is situated on Market Road, Mekkaram, Thripunithura. The second plot is located at a distance of 0.5 km from the existing campus. The location sketch for the college is shown below:

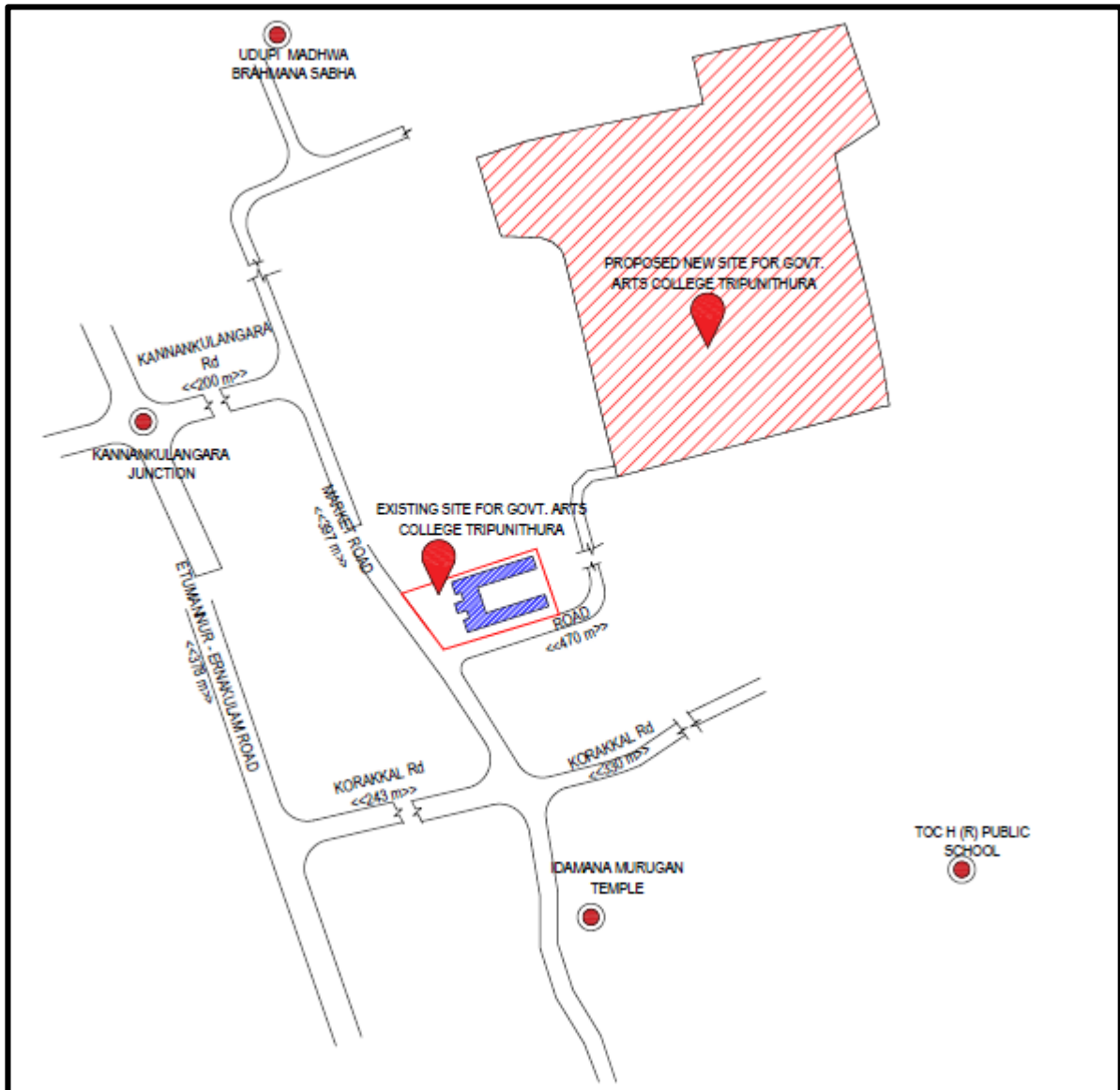
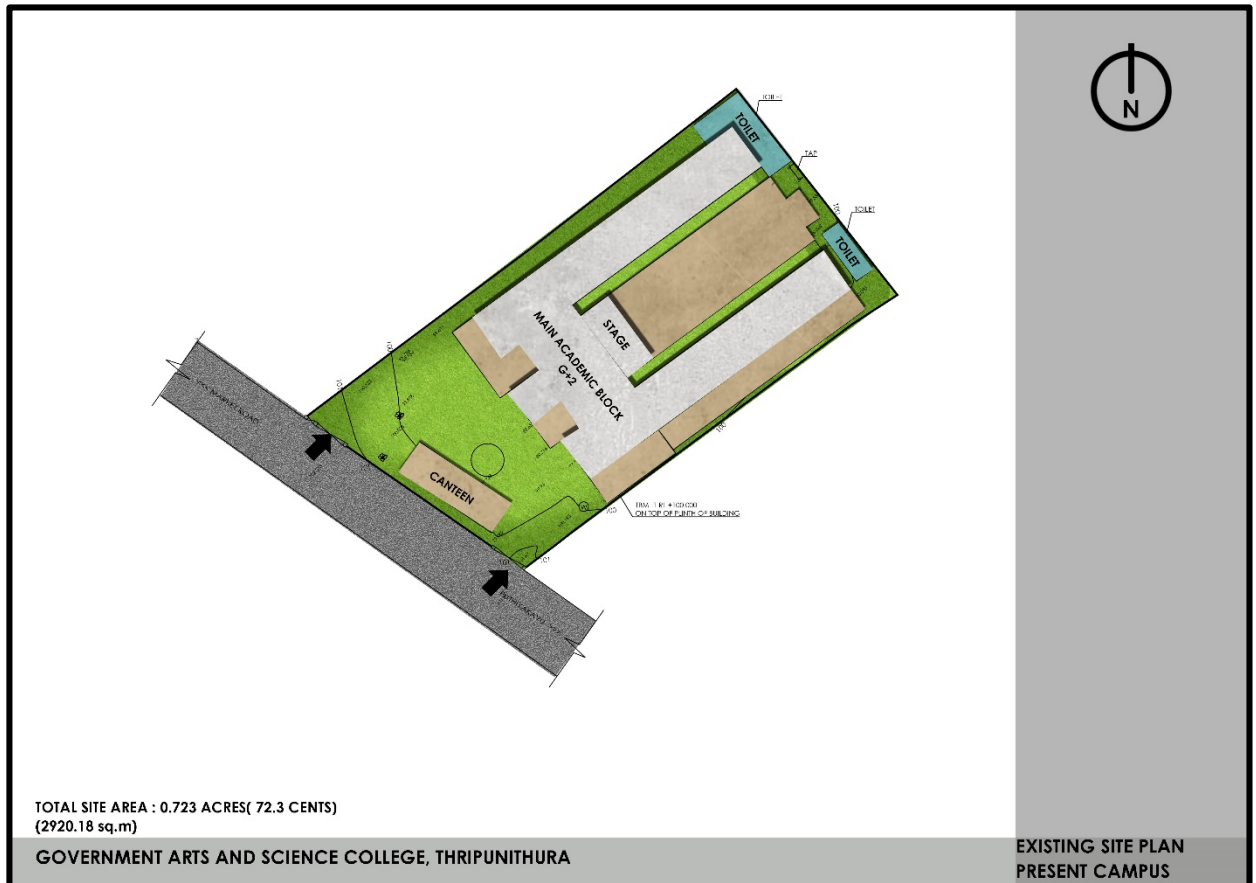


Figure 23: Location map

5.1.3 Existing Building and Circulation

The total area of the campus is 0.72 acres with a built up area of 1873.84 sq.m, with class rooms, laboratories, auditorium, library and with other existing amenities. The existing building plan is shown in the figure below:

The FAR is 1.27 and the total coverage is 64.17%.



**This is a schematic representation. Detailed drawings with dimensions are attached as annexure*

Figure 24: Existing Site Plan

The existing building are completely occupied in the total plot area. The existing campus is having a FAR of 1.27 and the total coverage is 64.17%.

The whole site can be mainly zoned into academic zone, auditorium zone, canteen zone, sports zone and recreation zone. One could see that the academic zones are spread over the plot and sports zone is located at the middle of the academic zone. No appropriate separation is made between the academic zone and sports zone. Residential zone is lacking in the campus due to the unavailability of space. The canteen is located as a separate building. The toilet spaces are also located outside the academic block, where the integrated toilet concept is not properly executed.

The area statement of the existing facilities are as follows:

- **Open air auditorium cum indoor court with stage** (Tin sheet roofed building - Area – 418.11 sq.m)
- **Canteen facility** (Tin sheet roofed building - Area – 418.11 sq.m)
- **Toilet facilities** (Tin sheet roofed building - Area – 97.95 sq.m)
- **Parking facilities** (Tin sheet roofed building - Area – 119.23 sq.m)
- **Academic block** (RCC roofed building with tin sheet roofed – Area – 2732.25 sq.m).

The facilities included in the academic block is as follows:

- **Ground floor**
 - Economics department
 - General department
 - Convention room
 - Counselling room
 - Physical Education Department
 - Computer lab
 - Principal's office
 - Administrative office
 - Library
 - Gents toilet
- **First Floor**
 - History department
 - Commerce department
 - NSS room
 - EDUSAT
 - Union room
 - Vice Principal room & IQAC room
 - Road safety club
 - Language lab
 - English department
- **Second Floor**
 - Smart room

- Seminar Hall
- Cell & Committee room 1
- Cell & Committee room 2
- Sports room
- Recreation room
- Multi-Gym

The existing condition of all these buildings are good. The details of the existing building condition was done at chapter 2.

5.1.4 Redevelopment Plans

Due to the lack of sufficient space in the existing campus, no developmental activities are proposed in this main campus. Also the existing condition of all the buildings are good. The following figure shows the existing condition at the second plot.



**This is a schematic representation. Detailed drawings with dimensions are attached as annexure*

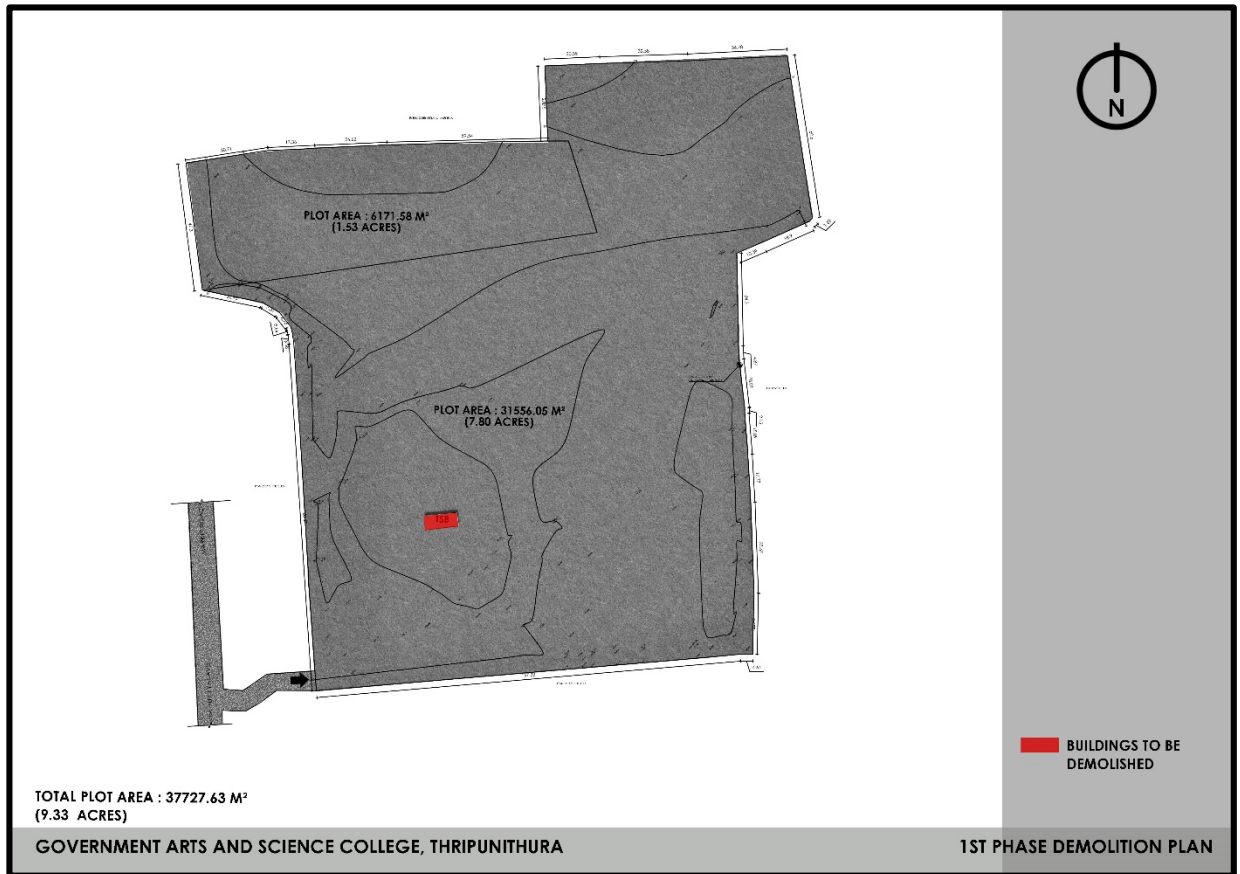
Figure 25: Proposed location for new campus

Since the proposed campus is located in another premises, the existing campus facilities/buildings can be utilized as hostel facilities for the students (if required), the same which is now lacking in the campus.

The redevelopment program constitutes 2 phases. The first phase developmental activities include development of the academic block. The initial phase is for the development of a 3 storied academic block (the immediate requirement can be met from this development). Foundation of the building is designed for a four storied building. Since the first phase construction is minimized to the development of a 3 storied building, the same can be vertically expanded to accommodate any augmentation in courses. An entrance gate, compound wall and internal paving are also proposed as part of the first phase development. The second phase developmental activities include the development of an auditorium, playground, hostel facilities, staff quarters, amenity center etc.

From the topographical survey drawing, we can identify that the plot is not flat. Hence a land filling is proposed to a level of +101.5, where the entrance to the premises is located at +100 level, which is fixed as the chart datum. The filling will be done on the first phase development areas.

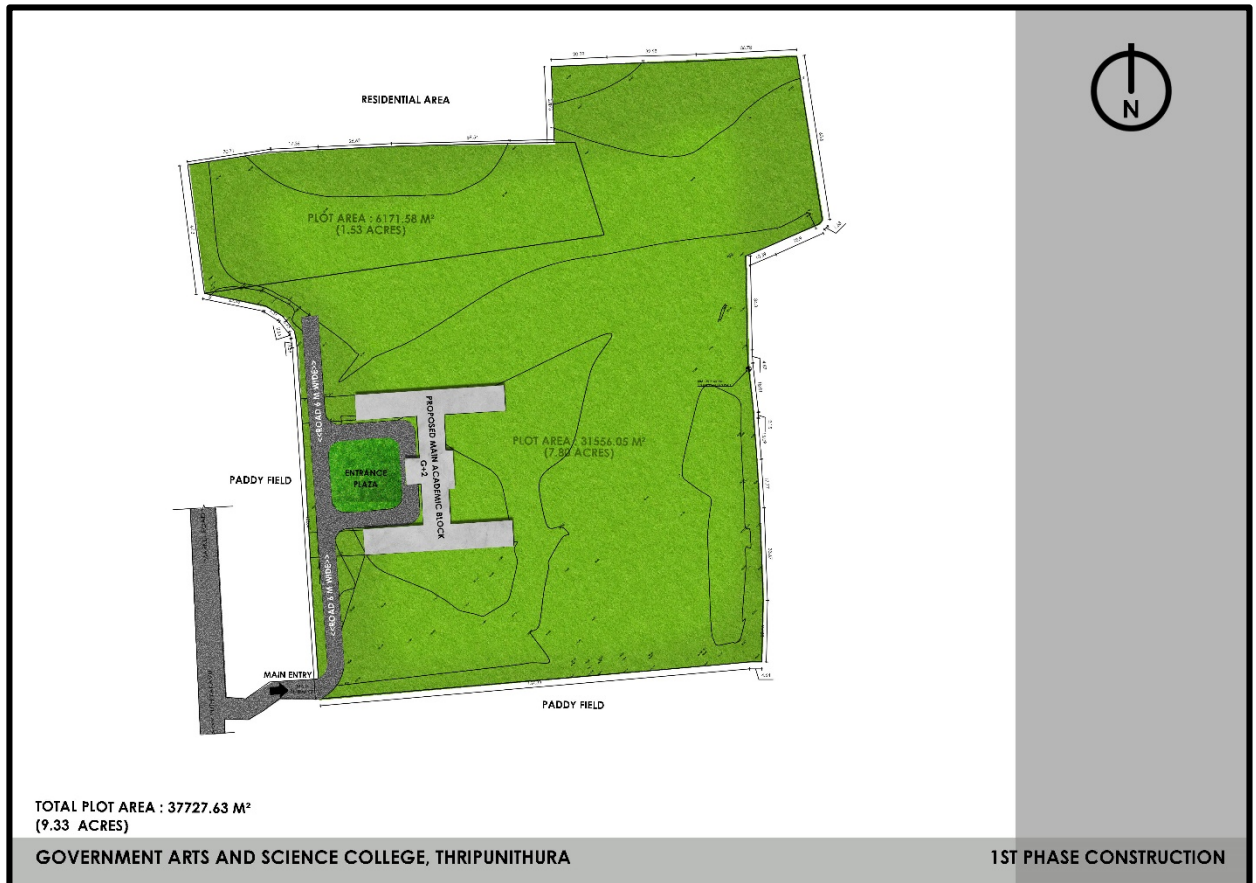
The first phase development include the demolition of a sheet roofed temporary structure located at the plot. The same is shown in the figure below:



**This is a schematic representation. Detailed drawings with dimensions are attached as annexure*

Figure 26: First phase demolition plan

The first phase developmental activity is shown in the figure below:



**This is a schematic representation. Detailed drawings with dimensions are attached as annexure*

Figure 27: First phase development plan

The first phase include the construction of a three storied academic block having a plinth area of 1467.83 sq.m and having a total area of 4333.57 sq.m. After completing the first phase developments, the campus is having an FAR of 0.039 and coverage of 11.47 %.

The proposed building will not come under the CRZ zone, since the salinity of the water at this location is nil since the proposed location is located at a distance of 27 km from the river mouth to the sea. Also, the part of the Muvattupuzha river at this location is clogged due to encroachment and waste dumping. The proposed academic block is located at a distance of 108m from the river side, where the river has a width of 78 m at this location. (As per CRZ rules, the construction has to be done at a distance equal to the width of the river).

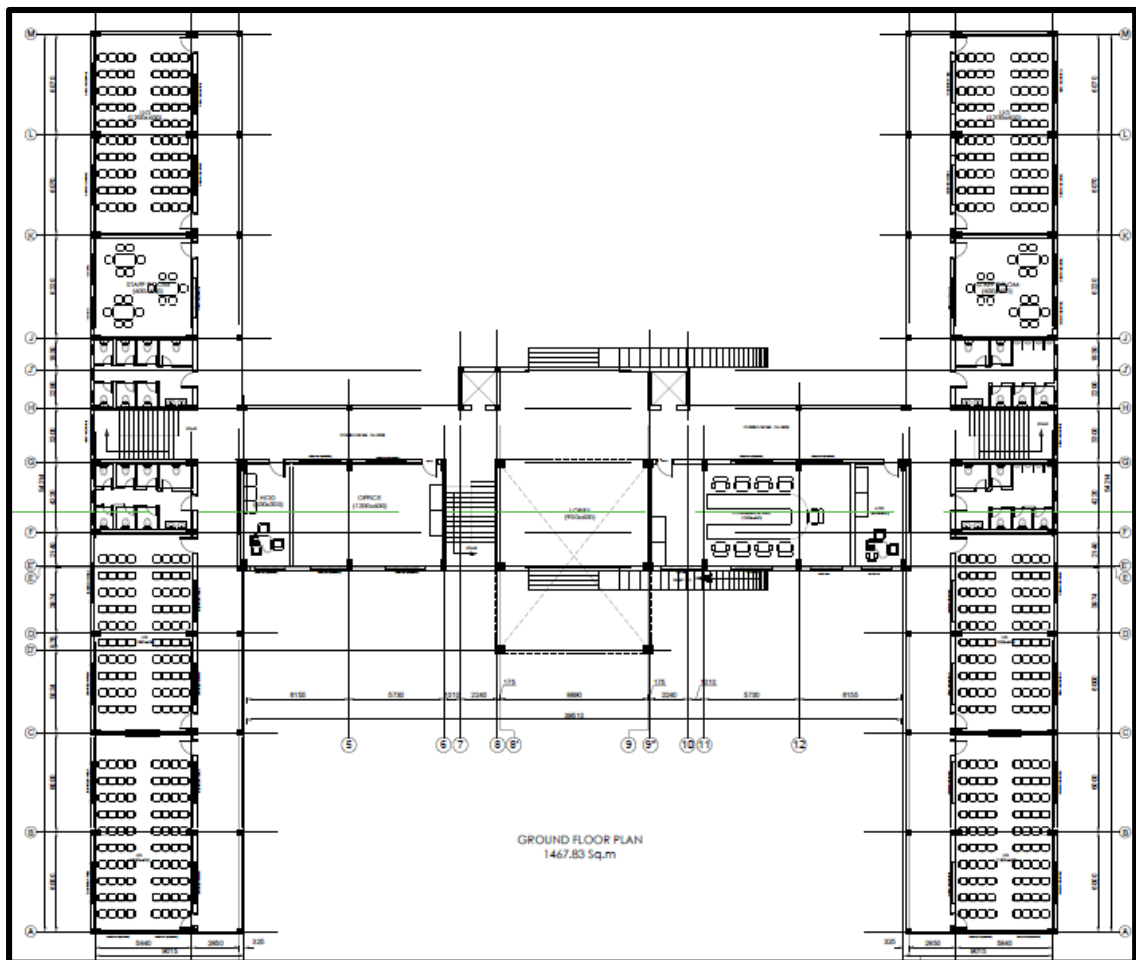
The first phase proposal include the development of following facilities:

Academic block (G+2 – Total area – 4333.57 sq.m)

Ground floor – Area – 1467.83 sq.m

- Porch – (Area - 46.8 sq.m)
- Lobby – (Area – 54 sq.m)
- Office space - (Area – 72 sq.m)
- 2 HOD rooms - (Area – 18 sq.m each)
- Conference hall - (Area – 72 sq.m)
- 2 Staffrooms - (Area – 36 sq.m each)
- 6 UG classrooms- (Area – 72 sq.m each)
- 4 Toilets - (Area – 24 sq.m each)

The ground floor plan is shown in the figure below:



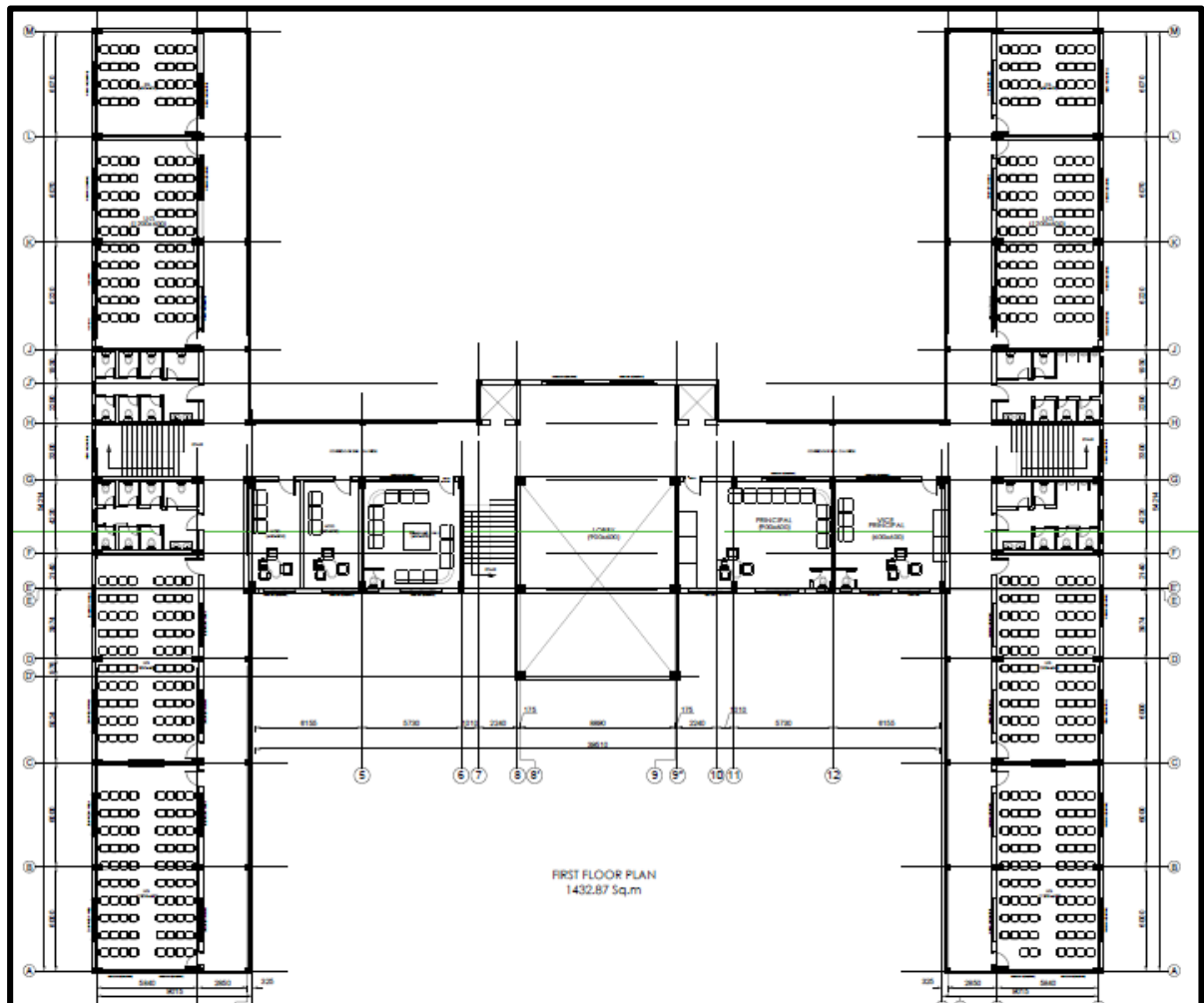
**This is a schematic representation. Detailed drawings with dimensions are attached as annexure*

Figure 28: Ground floor plan

First floor – Area – 1432.87 sq.m

- Lobby – (Area – 54 sq.m)
- Principal room - (Area – 54 sq.m)
- Vice Principal room - (Area – 36 sq.m)
- Seminar hall - (Area – 34.68 sq.m)
- 2 HOD rooms - (Area – 18 sq.m each)
- 2 PG classrooms - (Area – 36 sq.m each)
- 6 UG classrooms- (Area – 72 sq.m each)
- 4 Toilets - (Area – 24 sq.m each)

The first floor plan is shown in the figure below:



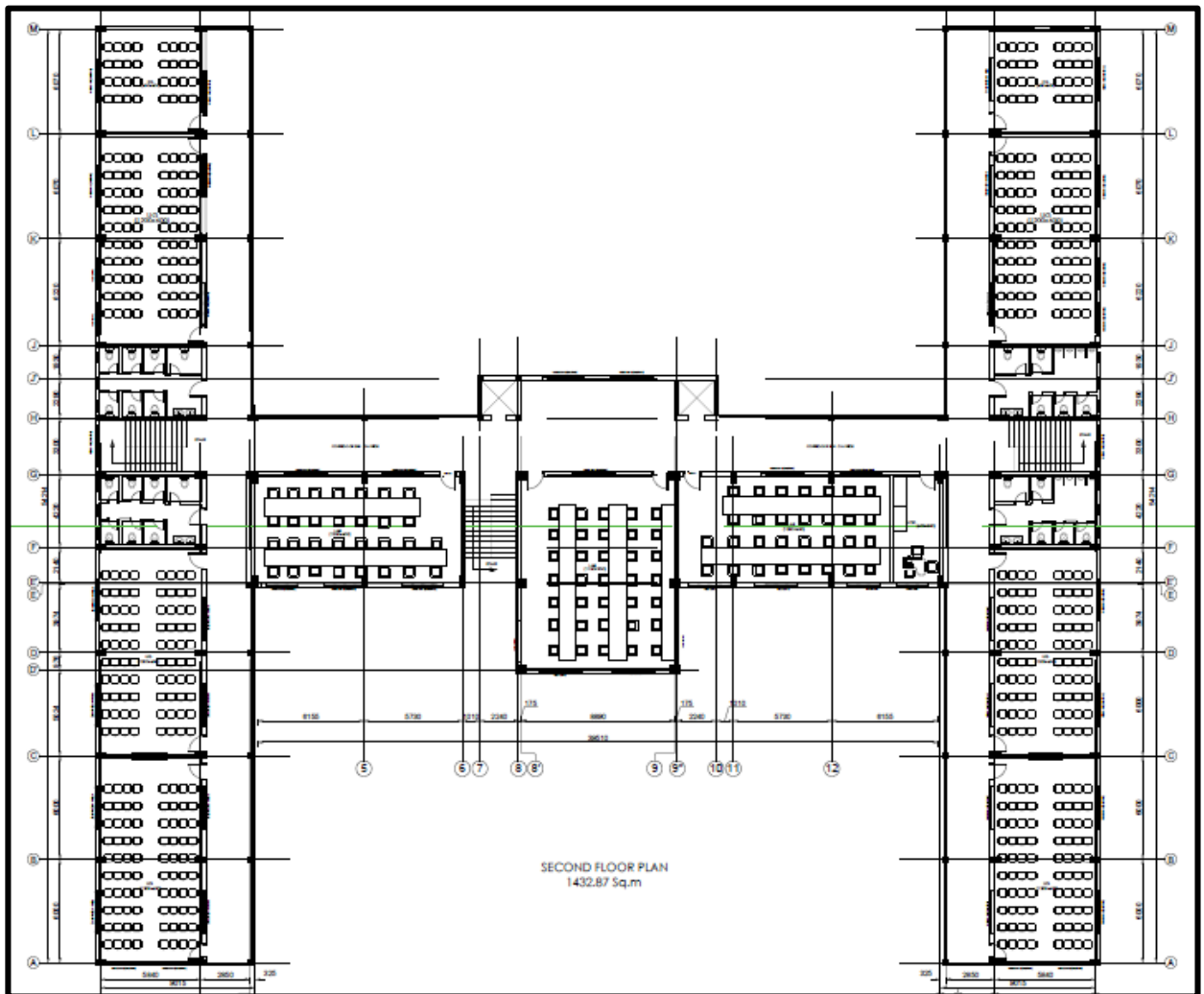
**This is a schematic representation. Detailed drawings with dimensions are attached as annexure*

Figure 29: First floor plan

Second floor – Area – 1432.87 sq.m

- 2 Laboratory - (Area – 72 sq.m each)
- 1 Laboratory - (Area – 99 sq.m)
- 1 HOD room - (Area – 18 sq.m)
- 2 PG classrooms - (Area – 36 sq.m each)
- 6 UG classrooms- (Area – 72 sq.m each)
- 4 Toilets - (Area – 24 sq.m each)

The floor plan for the second floor is shown in the figure below:



**This is a schematic representation. Detailed drawings with dimensions are attached as annexure*

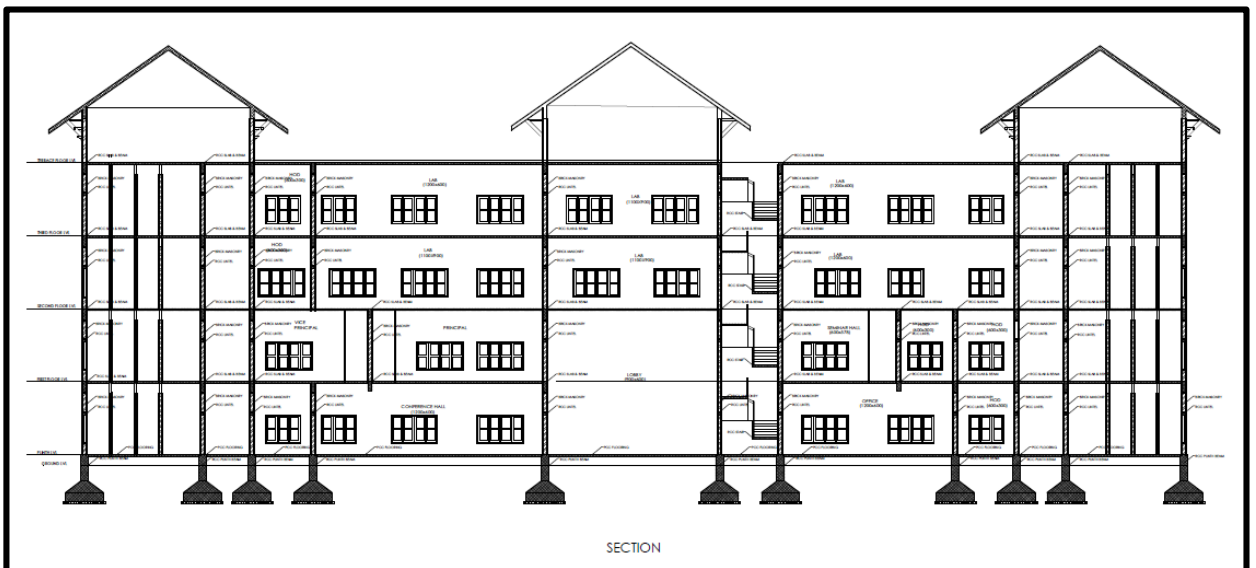
Figure 30: Second floor plan

The elevation and sectional drawing of academic block is shown below:



**This is a schematic representation. Detailed drawings with dimensions are attached as annexure*

Figure 31: Academic block elevation



**This is a schematic representation. Detailed drawings with dimensions are attached as annexure*

Figure 32: Academic block section



Figure 33: Academic block 3 D view

5.1.5 Future development Plans

As detailed above, the construction of a three stories academic block, entrance gate, compound wall and internal pavements are included in the first phase proposal. The second phase proposal include the following development activities:

- a) Vertical expansion of one floor over the academic block constructed as part of phase 1. (Area – 1432.87 sq.m)*
- b) Canteen cum amenity center – (Two storied – Area – 689.30 sq.m)*
- c) Boys hostel - (Three storied – Area – 1198.32 sq.m)*
- d) Ladies hostel - (Three storied – Area – 1198.32 sq.m)*
- e) Staff quarters - (Four storied – Area – 802.76 sq.m)*
- f) Auditorium cum library block - (Three storied – Area – 1215 sq.m)*
- g) Stage - (Area – 135 sq.m)*
- h) 11 a-side football court*

After the development of all these facilities, the whole campus will have a FAR of 1.23 and a coverage of 9.14 %, which are under the permissible limits.

The following is the proposed master plan for Government College Thripunithura.



Figure 34: Proposed Master Plan

The following figures shows the views of the campus after development.



Figure 35: Aerial View of the campus



Figure 36: View of canteen cum amenity centre



Figure 37: View of the residential blocks

The academic block has been positioned and planned with following considerations:

- (a) The building is planned considering the CRZ (Coastal Regulation Zone) rules.
- (b) Make use of the natural wind available in the plot
- (c) Create a good playground with future provision for Kayaking/ water based Sports facilities.
- (d) Future provision for vertical expansion as the foundation is pile foundation.

5.1.6 CoE Components of the Master plan as Envisioned

Based on the guidelines for creating master plans for colleges developed by KITCO the following are key changes proposed for the college:

1. Laws and Guidelines: After the execution of the proposed aspects within the master plan all existing and new buildings, infrastructure and assets will conform to standards.

2. Open space: A 9.33 acres of land provides abundant open space around building which in turn allows air movement inside the class rooms and activity space making it ideal setting for education.

3. Biodiversity and Landscaping: The master plan of the college designates spaces for developing trees. The proposed master plan takes care of a full-fledged landscaped campus. The proposed, designated and landscaped spaces will facilitate recreation, interaction, and sport.

4. Sanitation: Toilets blocks are incorporated within the proposed buildings. Separate toilets for boys and girls are provided in each floor. And also each toilet block has the provision for disabled persons.

5. Pedestrian Mobility: New pedestrian pathways and alleyways have been included in the proposed master plan to improve access to various buildings and playground within the college campus. Sidewalks will be provided for easy access to major pedestrian routes. New & existing buildings shall be connected using pedestrian pathways.

6. Sports: The master plan envisaged the development of a full fledged 11 a-side football ground in the campus. The same was placed along the back side of the proposed academic block.

7. Parking: The College has no proper road for the entry of vehicles. Proposal of new roads within the campus and provision for separate open parking for students and staffs have been included in the master plan. Students parking has been limited at the entrance. Staffs and visitors have been provided with provision for parking near the college buildings away from the main entrance.

8. Signage: Proper signage is important within college campus to help everyone navigate through the campus. The master plan provides guidelines on signage that will provide students and visitors easy orientation to various buildings and aspects within the college campus. The signs should be informational & welcoming.

9. Water: *The proposed master plan include the development of a sump to store water and also can be used for rain water harvesting. The College can apply for water connection from the Kerala Water Authority also.*

10. Expansion and Growth: *The master plan provides a schematic on future expansion phase by identifying new areas for construction and buildings, both residential and academic, which can be remodeled for enhanced use.*

Chapter 6: Proposal for augmenting library

6.1. Augmentation of Library

The General Library has 15,379 books, 12 Periodical and 10 magazines 26 Maps and 6 Newspapers which are profusely used by students and faculty for teaching-learning purpose. The students depend on the library to complete the seminars and assignments assigned to them. The students also borrow books for the purpose of reading for pleasure. There are twelve periodicals as well as newspapers both in English and in Malayalam which are frequently read by students during intervals and after class hours. The faculty also use the library for the purpose of reference and light reading.

The contemporary nature of higher education system has increased the significance of libraries and learning resource centers. The modern academic atmosphere warrants, students and faculty to rely more on the resources of the library in order to make achievements in their respective fields. This is a fact, which has already been recognized by Higher Education Council, National Assessment and Accreditation Council, etc. and the grading of the college heavily depends upon the infrastructural facilities of the library.

6.1.1 Additional requirements for the library:

The emerging information and communication technologies (ICT) have a significant role to play in college libraries. They should be aimed at providing timely, accurate and current information to the students, researchers and teachers. The real challenge of today's library in the context of information explosion, is not primarily accessing information, but distribute and effectively making use of the available information. This necessitates updated, state of the art communication and reprographic facilities to be installed in the central library.

A modern college central library should be spacious enough to accommodate its users in such a way that dissemination of information will take place comfortably. This has to be carried out by following various standards of library infrastructure. The proposal includes the following components:

- (a) **Subscription of Journals:** Journals contain the most current information, often in great detail than other publication formats, in a particular field. It is a primary source of original scholarly articles that any researcher or a teacher will love to comprehend. It is regrettable that our central library do not subscribe to any of such journals. The various Post Graduate and research departments which the College has at the moment will be immensely benefited by long term subscription to scholarly journals.*
- (b) **Digitalization of the library:** Academic and research libraries have greater significance in the modern digital era. Digital library will help to download and store articles and e-books accessed through INFLIBNET's N-List resources. With the advent of digitization, contents can be accessed through electronic apparatus or computers. Library services like online public access catalogue (OPAC), book reservation, current awareness bulletins, and document delivery, etc can be performed through this environment.*
- (c) **Infrastructure Improvement:** The library needs to act as an activity based learning space by providing additional area for reading, research activities etc. Increasing the number of seats, improving the furniture's, proving improved internal spaces are part of the infrastructure improvement.*
- (d) **Archives:** The college library is having a good collection of old and rare books. Many of them are out of print now. Therefore preservation of such books has to be given utmost importance.*

The proposed library augmentation facilities are:

Table 8: Abstract of the library augmentation cost estimate

1	Subscription of printed Journals	
2	Subscription of e journals	
3	Computer chairs	10
4	Computer table	10
5	C D Rack	1
5	Property Rack	4
6	Chairs	50
7	Tables	24
8	Double sided powder coated steel rack (6.5 H x 9 L x 22 D)	10

6.2 Computer Lab/UGC-NRC (Network Resource Centre) with Networking Facility

A fully equipped Computer Lab is highly essential in the college. It is proposed to set up a new full-fledged Computer lab for the use of students. In addition, training can be imparted to students, faculty and the public in analyzing data and making inferences. In due course, an analysis wing may be set up in the college so that services of trained personnel can be made available to the public for research and other activities. Add-on courses can serve to provide research assistance to the society, hands-on training to students, and generate income for the students and the college.

The items proposed for modernization of computer lab with networking facility are listed below.

Table 9: Name of machinery/ item with detailed specification

Sl. No	Name of machinery/equipments /item with detailed specifications
1	Desktop Computer-
2	Rack server-

3	42U Rack with all accessories
4	Multi-function printer
5	HP monitor 22” For use server
7	IBM SPSS Statistics Standard GradPack 24 for Windows (12-MoRental)(SPSS software for 50 systems 3 year license)
8	20 KVA UPS

6.3 Language lab

In the current digital age, we are all connected regardless of the geographic distance. Advancement in technology has literally brought the world into our living room in the form of TV or internet which allow us to watch events happening in other countries or talk to friends and family living in another continents via internet. As a result, we are exposed to different languages, cultures and traditions of people from all over the world. As we live in multilingual and multicultural world, language lab can greatly help students to learn language of their choice, as it will allow students to learn at their own pace. They can record and assess their performance to make sure that they are paying attention to all aspects of phonetics such as pronunciation, accents and stress etc. The language lab provides access to native-speakers via audio-video aids so that they learn correctly. Given large number of students pursue higher studies outside their home country; language lab would help them in studying the language of the country where they are planning to pursue their higher education. It is also important that the lay out of the lab is conducive for effective communication and monitoring of the students. As strong communication skills are essential in almost all of the professional careers, language lab can help in acquiring this important skill.

Table 10: Details of items required for language lab

Sl. No	Particular
1	Computer
2	Printer
3	Audio system
4	Furniture

Chapter 7: Engineering Design

7.1. General

The newly proposed buildings are multistoried structures with three floors to be constructed in the first phase. A provision for vertical expansion of one more floor is considered in the foundation design of academic block. So, a framed structure with RCC column, beam and slab is the ideal solution for such buildings. In case of RCC framed structures, the inside planning of rooms can be altered by changing the position of partition walls. Monolithic construction is possible with R.C.C framed structures so they can resist vibrations, earthquakes and shocks more effectively than load bearing walled structures.

Depending upon the nature of founding earth and type of structure, pile foundation shall be adopted based on the available geotechnical data.

7.2. Soil condition and Foundation

The soil condition was assessed based on the soil investigation conducted. The soil investigation report is attached as annexure. The recommendations in the soil investigation report are as follows:

- Three bore holes were taken. All bore holes were terminated at hard rock between 33 m and 38 m below ground level.
- The soil profile in the BH-1 location shows that the topsoil is of filled plastic waste up to 5.0 m depth. This is followed by clay with organic content up to 8.1 m depth having N value of zero. After that it is lateritic clay up to 12.0 m depth having N value of 8 and 10, followed by lateritic sand up to 13.5m depth having N value of 18. Below that, there is lateritic clay up to 21.0 m depth having N value varying between 11 and 14. It is followed by weathered rock up to 30.25 m depth having N value of 20 and >50. After that there is very poor very weak soft rock up to 35.0 m depth having core

recovery=2 % and 34% and RQD=0% and 11 %. Below that it is very poor very weak medium hard rock up to the bored depth 38.0 m having core recovery=27 % and 60 % and RQD= 5 % and 11 %. Ground water table is located at 2.0 m below the ground level.

- The soil profile in the BH-2 location shows that the topsoil is of filled plastic waste up to 5.0 m depth. This is followed by lateritic sand up to 7.5 m depth having N value of 3. After that it is lateritic clay up to 18.0 m depth having N value varying between 3 and 17. Below that, there is silty weathered rock up to 30.0 m depth having N value of 20 and >50. It is followed by very poor very weak soft rock up to bored depth 33.0 m depth having core recovery=0 % and 10 % and RQD=0 % and 10 %. Ground water table is located at 2.0 m below the ground level.
- The soil profile in the BH-3 location shows that the topsoil is of filled plastic waste up to 6.0 m depth. This is followed by lateritic clay up to 12.0 m depth having N value ranging from 6 to 8. After that it is lateritic sand up to 18.0 m depth having N value varying between 10 and 50. Below that, there is lateritic clay up to 27.0 m depth having N value ranging from 33 to 44. It is followed by weathered rock up to 27.03 m having N value >50. After that it is very poor very weak soft rock up to bored depth 33.5 m depth having core recovery=0 % and 30 % and RQD=0 % and 9 %. Ground water table is located at 2.0 m below the ground level.

Apart from the soil investigation report (recommended for G+7 building), the academic block is designed as a four storied building, where three floors can be constructed in the first phase. The immediate requirements of the College can be met from the first phase development. Future extension can be done based on the increase in the intake and addition of new courses.

7.3. Structural analysis

7.3.1 Material Properties

Concrete

- *M25 grade of concrete is proposed for all structural elements.*
- *Unit weight of concrete (in kN/m³) -25.0*

Reinforcement Steel

- *The reinforcement steel proposed is high yield strength deformed bars of grade Fe-500*
- *Conforming to IS:1786-2008*
- *Unit mass of steel (in Kg/m³) - 7850*
- *Modulus of Elasticity (N/mm²) - 2.1x10⁵*

Clear Cover to Reinforcements

By considering the exposure condition a minimum clear cover to outer reinforcement is provided as per IS standards.

Codes and Standards

The latest versions of the following Codes and Standards are used in this calculation:

- IS: 875 -1987 Part I to part V : Code of Practice for Design Loads (other than Earthquake) for Buildings and Structures- Imposed Loads.*
- IS: 456-2000: Code of Practice for Plain Reinforced Concrete.*
- IS:800-2007 : Code of Practice for General Construction in Steel*
- SP:16 : Design aids for Reinforced Concrete to IS:456*
- SP:34 :Handbook on Concrete Reinforcement & detailing*

7.3.2 Loading and Analysis

Loads considered

- Dead load:** *Dead load of the modelled elements will be taken care by the analysis software*
- Live load:** *Suitable Live Load as per IS:875 Part-II is also applied as mentioned in the below table.*

Table 11: Load calculation for different buildings

SL. No.	Item	Load (kN/m²)
1	Class Rooms, Laboratories	3.00
2	Toilet areas	2.00
3	Roof	1.5
4	Kitchen & Dining area	3.00
5	Corridors, Staircase, Passages etc.	4.00
6	Office and Staff rooms	2.50

7.3.3 Analysis and design methodology

The structure is modeled and analyzed in STAAD pro or ETabs software. Analysis is performed for the various load combinations as per IS: 875 -1987. Limit state Design is carried out for RC members as per IS: 456 – 2000. Forces obtained from the critical combination of loads from the analysis model is taken as the input for design.

7.4. Structural Drawings

Based on the structural analysis and design, detailed reinforcement drawings are prepared for foundation, column, grade beam, floor beam and slab which are attached in annexure.

7.5. Electrical System Design

- The design and engineering of the electrical installation shall satisfy all statutory requirements of the national and State/local authorities. The electrical system is designed in such a way that energy consumption is minimum through the selection and utilization of efficient electrical fixtures.
- Good quality of light and ventilation play a significant role in the psychological and biological processes of students, teachers and administrators.
- Effective classroom lighting scheme will make use of any natural light that is available, with the addition of artificial light where it is necessary. With artificial lighting accounting for the greatest proportion of energy costs in colleges, the energy efficiency of any lighting installation will be a primary

concern. Good design, specification, management and controls can have a significant impact on limiting electricity consumption, saving energy and keeping running costs to a minimum. LED light fixtures are proposed which can reduce energy consumption by up to 70%, which translates directly into substantially lower utility costs.

- Adequate ventilation is equally important in classrooms as lighting. Rooms should also have ventilators & ceiling fans in working conditions so as to make summer heat and suffocation in monsoons bearable. BEE 5star rated fans are proposed which can reduce energy consumption by up to 30%.
- MCB distribution boards with RCCB+MCB's are proposed for light and power distribution. Every building will have localized switching and distribution board.
- Armored XLPE insulated Aluminum conductor cables are proposed for LT power distribution. Cables up to 2.5 sq.mm size will be XLPE/PVC insulated, PVC sheathed, steel braided / wire armored copper cables. The design of distribution system is to achieve voltage drop not exceeding 3% to the farthest cable termination. For internal wiring, Fire Retardant Low Smoke (FRLS), suitable up to 660V grade wires for single phase circuits and 1100 V grade for 3 phase circuits as per IS 694/1990 amended up to date shall be used.
- Earthing shall be as per Indian Standards (IS 3043: 1987), IEEE Guidelines, and Indian Electricity Rules 1957 with latest amendments
- Lightning protection as per IS: 2309 / IEC 60305 is proposed for the building depending upon the height.
- Colleges across the country are not only working to make their students smarter, but also to make their campuses smarter and more energy efficient. For colleges, solar panels can easily offset monthly utility bills. With a larger installation, it may even be possible to switch to 100% renewable energy. As a part of the Up-Gradation and to promote a cost effective energy option, Solar Photo Voltaic (PV) System is proposed to be installed to meet the increasing energy demand.

7.6 Lift & Fire Fighting System Design

As per KPBR 56 (5) and KMBR 54 (4a), for educational buildings exceeding 1000 sq.m plinth area or exceeding 15 m height, a certificate of approval from the Director of fire force or an officer authorized by him in this behalf shall be obtained and produced before issuing permit and in case of buildings exceeding 300 sq. m. & below 1000 sq. m., as also in case of buildings not exceeding 15m height, a self-declaration in the prescribed format, from the applicant along with a certificate from the architect/ engineer who had prepared the plan to the effect that the construction of the building shall conform to fire & safety norms of Part IV, Fire & Life Safety, NBC, India.

In this proposal, the plinth area of academic building is 1467.83 sq.m and the height is 11.1 m (considering first phase construction of three storied academic block). Hence the proposed buildings require certificate of approval from state fire department based on the plinth area.

Also, NBC specifies that fire lifts shall be provided for buildings 15 m in height or above and for educational buildings exceeding 4 floors. Since the proposed buildings does not exceed the limits, lift shall not be provided.

However, considering the safety point of view, number of occupants and easy movability, a lift is proposed. The provision for the lift was included and can be installed through plan fund or college PTA fund etc.

7.7 Demolition of the existing buildings

As discussed in chapter 5, a tin sheet roofed building need to be demolished as part of the first phase developmental activities. The building will be offered for public auction after due publicity. The agency undertaking the dismantling (identified in the public auction) has the responsibility to clear all items from the site within the permitted time period. Proper safety procedures need to be taken prior to demolition.

Chapter 8: Financial Estimates and Cost Projections

8.1 Summary of Cost Estimate

KITCO has used the PRICE software for carrying out the detailed estimate. Cost estimate prepared based on DSR 2016 and market rates (wherever items are not reflected in DSR) and the same is placed at annexure.

Abstract of the estimate is tabulated below:-

Table 12: Abstract of the cost estimate

Sl. No	Description	Amount (Rs)
1	<i>Civil Works</i>	14,27,90,909.00
2	<i>Electrical Works</i>	51,39,867.00
3	<i>Fire Hydrant systems</i>	4,24,450.00
4	<i>Library Augmentation</i>	20,90,000.00
5	<i>Computer Lab</i>	27,00,000.00
6	<i>Language lab</i>	19,90,000.00
GRAND TOTAL		15,51,35,226.00

a) Abstract of civil works:

Table 13: Abstract of the civil cost estimate

Sl. No	Description	Amount (Rs)
1	<i>Academic Block</i>	12,76,99,641.93
2	<i>Sump & External Water Supply</i>	9,80,040.57
3	<i>RCC Septic Tank</i>	6,11,067.72
	<i>Compound wall and Gate</i>	98,44,920.29
4	<i>Internal Roads and Pathways</i>	36,55,239.12

TOTAL	14,27,90,909.00
--------------	------------------------

b) Abstract of electrical works:**Table 14: Abstract of the electrical cost estimate for academic block**

Sl. No	Description	Amount (Rs)
1.0	<i>LT Panel Board and Accessories</i>	393250.21
2.0	<i>Cables and Cabling</i>	181120.53
3.0	<i>Wiring and Accessories</i>	3073055.91
4.0	<i>MCBs and MCB Distribution Boards</i>	201663.83
5.0	<i>Light Fixtures and Fans</i>	1222452.38
6.0	<i>Earthing and Safety Equipments</i>	68324.12
TOTAL		5139867.00

c) Abstract of fire hydrant systems**Table 15: Abstract of the firefighting system cost estimate**

Sl. No	Items	Amount (Rs)
1	<i>Fire hydrant system</i>	3,84,166.00
2	<i>Portable fire extinguishers</i>	18,432.00
3	<i>Signage</i>	21,852.00
TOTAL		4,24,450.00

d) Abstract of cost incurred for library augmentation.**Table 16: Abstract of the library augmentation cost estimate**

Sl. No	Items	Quantity	Amount (Rs)

1	Subscription of printed Journals		7,50,000
2	Subscription of e journals		1,00,000
3	Computer chairs	10	30,000
4	Computer table	10	50,000
5	C D Rack	1	20,000
5	Property Rack	4	1,00,000
6	Chairs	50	2,40,000
7	Tables	24	4,00,000
8	Double sided powder coated steel rack 6.5 H x 9 L x 22 D	10	4,00,000
TOTAL			20,90,000

e) Abstract of the cost incurred for computer lab modification:

Table 17: Abstract of the computer lab augmentation cost estimate

Sl. No	Name of machinery /equipments /item with detailed specifications	Qty. required (nos.)	Unit price (Rs.)	Total amount
1	Desktop Computer- Model- S510 Tower series Intel Core i5- 6400 6th Generation Processor 4GB RAM 1TB SATA HDD 19.5" LED Monitor Windows 10 Professional Keyboard & Optical Mouse 3 year onsite warranty	30	40,000	12,00,000
2	Rack server- 2 No x X 3650 M5, Xeon 12C	1	8,25,000	8,25,000

	<p>E5-2650 v4 105W 2.2GHz/2400MHz/30MB, O/Bay HS 2.5in SAS/SATA, SR M5210, 750W p/s, Rack 64GB, O/Bay HS 2.5in SAS/SATA, SR M5210, 750W p/s, Rack 2 x 300GB 15K 12Gbps SAS 2.5in G3HS HDD 8Gb FC Dual-port HBA Redundant Power Supply- System x 750W High Efficiency Platinum AC Power Supply x3650 M5 Front IO Cage Adv. (3x USB, LCD, Optional Optical drive) 18.5" LED Monitor, USB Keyboard & Optical Mouse 9.5mm Ultra-Slim SATA Multi- Burner System x3650 M5 ODD Cable Line cord - 2.8M 10A/250V C13(2P+Gnd) (India)</p>			
3	42U Rack with all accessories	1	35,000	35,000
4	Multi-function printer(canon) latest	1	1,50,000	1,50,000
5	HP monitor 22" For use server	1	10,000	10,000
6	IBM SPSS Statistics Standard GradPack 24 for Windows (12- MoRental)(SPSS software for 50	30	6000	1,80,000 (for 3 years)

	systems 3 year license)			
7	20 KVA UPS	1	3,00,000	3,00,000
TOTAL			27,00,000	

f) Abstract of the cost incurred for modernization of Language lab

The summary of the proposed language lab is:

Table 18: Abstract of the language lab modernization cost estimate

Particular	Qty	Cost	Amount (Rs.)
Computer	30	40,000	12,00,000
Multi-function printer(canon) latest	1	1,50,000	1,50,000
Audio system + all associated system and software	1 set	4,00,000	4,00,000
Furniture	30	8000.00	2,40,000
TOTAL			19,90,000

Chapter 9: Revenue Streams

The project proposed includes the development of the college building with establishment of facilities for education without compromising in other aspects like safety, hygiene, health and comfort to students. Hence the proposal of development of the infrastructural facilities is not intended for revenue generation.

However, some of the other facilities proposed in this project can be intended for revenue generation, which may result in a revenue generation. This revenue can be utilized for operation and maintenance of these facilities, provided these facilities can be used for revenue generation on non-working days or at any time which will not cause any difficulty to students to use these facilities.

The revenue generating features of this proposal are:

Table 19: Revenue generating components

Sl. No.	Identified revenue generating components		Remarks
1	Class rooms, seminar halls etc.	<ul style="list-style-type: none"> To conduct skill enhancement programs etc. 	As per the prevailing market/ government rate.

***The facilities will be made available for the above activities for external purpose only on off working hours.**

Chapter 10: Cost Benefit Analysis and Investment Criteria

Cost benefit analysis is defined as a practical way of assessing the desirability of projects, where it is important to take a long view and a wide view. It implies the enumeration and evaluation of all the relevant costs and benefits.

Public education is a worthy investment for state government, with immense social and economic benefits. Research shows that individuals who graduate and have access to quality education throughout primary, secondary school, colleges are more likely to find gainful employment, have stable families, and be active and productive citizens. They are also less likely to commit serious crimes, less likely to place high demands on the public health care system, and less likely to be enrolled in welfare assistance programs.

A good education provides substantial benefits to individuals and, as individual benefits are aggregated throughout a community, creates broad social and economic benefits.

Investing in public education is thus far more cost-effective for the state than paying for the social and economic consequences of under-funded, low quality schools.

The Cost Benefit Analysis (CBA) is the implicit or explicit assessment of the benefits and costs (i.e., economic costs and economic benefits) associated with an investment project. Benefits and costs may be non-monetary and monetary in nature.

Economic Rate of Return (ERR) and Cost Benefit Ratio (Benefit / Cost) are some of the measure to arrive at the social benefits from any infrastructure project. The

financial analysis appraises the project in terms of return on investment while the economic analysis appraises the project contribution to the social and economic welfare of the city, region or country.

Though all the cost and benefits from proposed facility is not possible to be expressed in monetary terms, possible costs and benefits are being measured in monetary terms and evaluated to arrive at a conclusion whether the facility is worth to the society.

10.1 Project Cost

The investment in the project is to be expected in 1 year with the investment plans are tabulated as below:

Table 20: Investment of project expected

Sl. No	Year	Investment Rs (in crores)
1	<i>1st year</i>	15.51

10.2 Social Benefits

There are various benefits through the development of the proposed developments. The major benefits from the project are described below:

- *The proposed laboratory facilities will augment the research activities in these areas and will be an asset to the society as a whole.*
- *It will further act a facilitator to the industry and thereby give better and advanced products and facilities to the people.*
- *The advanced lab facilities will produce experts and scientists for the nation.*
- *The real time experience will uplift the quality of research scholars and will increase their earning potential manifold.*
- *The lab facilities can also be used for industry and commerce for better products and services and thereby yield effective use of scarce resources.*

- *Creates local jobs and business opportunities. These include those jobs directly related to education (employment) and those that indirectly support (such as books, research gears, food, housing construction, etc.).*
- *The facilities created will attract more visitors and increased cash flow to the state.*
- *Encourages civic involvement and pride.*
- *Provides cultural exchange between people.*
- *Facilities and infrastructure development may also benefit local people in various forms including increased property values.*
- *The living standard of people will increase*
- *Helps diversify and stabilize the local economy*

Among the above benefits, it is difficult to arrive at the monetary value of all the benefits and costs. Further, some of the cost and benefits cannot even be measured in monetary terms at all. Even though to arrive at a logical conclusion all possible benefits which can be expressed in monetary terms are evaluated and the monetary value of social benefits are worked out as explained here under.

The broad benefits of the project are enumerated below:

a) Value of increased revenue generation by improved human capital

Education is universally recognized as a form of investment in human capital that yields economic benefits and contributes to the country's future wealth creation by increasing the productive capacity of the people. By better education it is expected that the quality and competencies of students and in turn the society is expected to increase. Thus expenditure on education can be partially justified in terms of potential contribution of education to economic growth.

From the CBA data sheet it can be inferred that a cost saving of Rs. 50 lakhs, Rs. 75 lakhs, Rs. 125 lakhs, Rs. 150 lakhs, Rs. 300 lakhs has been considered for the 5 consecutive years.

The calculation is based on the assumption that 50% of the students in each batch are expected to get employed. This will facilitate benefits to the government as

tax etc. From the same, we can expect a revenue of Rs. 50 lakhs in the first year and it will increase accordingly as the proposed facilities become fully established and gain appreciation among the public. A total of 50% students has been considered in the first year and it will increase accordingly.

b) Incremental Earnings for students upon employment

The College is having graduation and post-graduation courses. The high-end world-class research facilities proposed will augment the quality of pupils and their practical experience. This will intern increase the earning potential and employability of the pupil once he/she passes out or completes the research. As identifying the exact quantum of increase in the earning potential is difficult, it is assumed that the incremental earnings would be at least 20% above the current level. The average earnings of research scholars currently, on successful completion of their studies is expected to be between Rs.75,000 to Rs.1,00,000 monthly. Considering, Rs.75,000 as monthly earnings, the average yearly earnings would be Rs.40 lakhs.

c) Project related additional Employment

It is expected that for the new facilities and to cater to the requirements with regard to new facilities including lab, additional employment created would be 20, 30 and 40 persons during the 1st, 2nd, and 3rd year onwards of operation phase. This will be an incremental benefit to the society. The benefits derived from additional employment assuming an average monthly emoluments of Rs.40,000 per person. The cost saving of Rs. 15 lakhs, Rs. 20 lakhs, Rs. 30 lakhs, Rs. 50 lakhs, Rs. 60 lakhs has been considered for the 5 consecutive years.

d) Benefits to the Industry

The research facilities are expected to be useful for the industry as a whole. The industries falling in these sectors will get direct benefit from the proposed research and development projects to a certain extend. The benefit to industries can be broadly summarized in the following areas:

- Reduction in cost of production due to introduction of improved and advanced scientific use of input materials and thereby higher output
- Reduction in conversion time and cost through introduction of new and effective processes and manufacturing technologies
- Reduction in cost due to extended shelf life of goods
- Increase in the marine resources through scientific approaches.
- Identification / innovation of new products and services
- Other supports to industries through research supports in procurement, production technology, processing, inventory management, transportation and marketing

As quantification of benefits to the industry in monetary terms is difficult, it is assumed that through the lab facility for research a consolidated benefit of 0.10% of total GSDP pertaining to related industries/ sectors would be the social benefit.

d) Gain on opportunity cost

Students in their desire to get educated from colleges with modern amenities which are providing international standard education, generally travel to far off places, which will cause unforeseen expenses and wastage of time. The same, otherwise could have utilized for other activities like learning, research oriented programmes, listening to lectures, other extra-curricular activities etc.

On implementing the proposed facilities as enumerated in the above chapters, it is expected that the students who are availing the facilities will also increase. On assuming all these scenarios and extrapolating this, it is assumed that a total of Rs. 20 lakhs/year is expected to save each year. This can be considered as a benefit to the society.

e) Gain on account of R & D

As mentioned earlier, on developing the facilities for post graduates with well-equipped labs will enable the development of knowledge to international standards. Also the same can be facilitated for research studies for other students from other universities or from other colleges. The same will provide an overall

gain in the social benefits and the same is accounted and it is assumed that a total of Rs. 30 lakhs/unit, Rs. 40 lakhs/unit, Rs. 60 lakhs/unit, Rs. 80 lakhs/unit, Rs. 100 lakhs/unit is expected to generate each year.

The cost benefit analysis has been calculated based on the following assumptions:-

Table 21: Social cost benefit analysis

Impact	Assumptions and evidence	Certainty
Increased employability	<ul style="list-style-type: none"> Expects enhanced quality education to more number of students and the skill development activities will have positive impact on the overall development leading to better employability 	Medium
Physical and mental health improvement	<ul style="list-style-type: none"> Better games and playing facilities will improve the physical fitness. This will reduce the stress and improve the mental health. Lesser people with obesity problems. 	High
Gain on opportunity cost	<ul style="list-style-type: none"> The students by saving traveling time to college can use more time for doing more creative things they are interested in. This will improve student's overall development. 	Medium
Lesser cost for education	<ul style="list-style-type: none"> More students in public colleges will mean less overall expense for education by society. This will enhance the savings and improve the social life. 	Medium
Maximizing the benefits of public education	<ul style="list-style-type: none"> Public education system has a fixed cost in the form of cost of assets, salary and other expenses. With more students in public colleges, the expenses for student gets lowered. 	High
More talents in various sectors	<ul style="list-style-type: none"> The programmes give equal priority to development of various skills and talents. This will give birth to talents to represent the country in international forums. 	High

The cost benefit analysis has been calculated based on the following assumptions as shown in table below.

Table 22: Assumptions of Cost benefit Analysis

	Year 0 (2020)	Year 1 (2021)	Year 2 (2022)	Year 3 (2023)	Year 4 (2024)	Year 5 (2025)	Year 6 and above (approximate % of benefit for that item to the benefit derived in the FIRST five years)
Cost of construction (Development of the campus facilities are expected to be completed within 2 years)	1551						
Value of increased revenue generation by improved human capital		50	75	125	150	300	100
Incremental Earnings for students upon employment		40	40	40	40	40	100
Project Related New Employment		15	20	30	50	60	100
Incremental Benefits to Industry		15	50	45	75	100	100
Gain on opportunity cost		20	20	20	20	20	100
Gain on account of R&D Center		30	40	60	80	100	100

The details showing the CBR analysis are attached in the annexure:

Considering the Net Present Value of the amount investing and the Net Present value of the revenue from the facilities, the Cost Benefit Ratio (CBR) 1.040.

Chapter 11: Risk Assessment and Mitigation Measures

As the majority of work involved is construction of the facilities, risks are associated with the project implementation. The occurrence of the unexpected events may adversely affect the timely completion of the project. The chances of such occurrences are verified and the mitigation measures are proposed.

The major risks identified are as follows:

- Adverse weather condition
- Unforeseeable shortages of labour or materials
- Strikes
- Disputes
- Damage to person and property due to fire, flood, earth quake, etc.

The chances of occurrence of various unexpected and adverse effects are analyzed considering the ground condition and the mitigation measures are proposed.

Table 23: Risk assessment and mitigation measures

Sl. No	Risk	Mitigation measures proposed
1	<i>Adverse weather condition</i>	<ul style="list-style-type: none"> • Proper planning • Excavations to be completed before monsoon and the super structure to be built up.
2	<i>Shortage of labour and materials</i>	<ul style="list-style-type: none"> • Proper work scheduling • Shall be handled by the Contractor by making the same available
3	<i>Strikes</i>	<ul style="list-style-type: none"> • This shall be accounted by additional working hours/ augmentation of resources thereafter

4	<i>Disputes</i>	<ul style="list-style-type: none"> • <i>Increased communication and reviews to avoid occurrences of disputes.</i> • <i>Any disputes to be settled without delay by properly assessing the situation and arriving at a win-win situation</i>
5	<i>Damage to person and property due to safety issues or force majeure</i>	<ul style="list-style-type: none"> • <i>Proper safety measures shall be ensured during construction.</i> • <i>Insurance coverage</i>
6	<i>Project Management risks : This includes change in priorities , overload, communication issues, lack of coordination , in experienced work force, etc.</i>	<ul style="list-style-type: none"> • <i>Institutionalizing an activity based project schedule</i> • <i>Regular reviews and assessment of progress</i> • <i>Shall be avoided by appointing well experienced and reputed organizations as implementation agencies.</i> • <i>Proper monitoring</i> • <i>Constant reviews</i>
7	<i>Organizational risk : This includes in experienced staff, in sufficient time to plan, losing critical staff at critical time, Inconsistent cost, time, scope, and quality objectives</i>	<ul style="list-style-type: none"> • <i>Each unit in the Project Management Organization is planned considering minimizing the organizational risk</i>
8	<i>Objection from the local community</i>	<ul style="list-style-type: none"> • <i>Settled by setting a time limit without affecting the work progress</i>
9	<i>Contractual relations: Issues arise due to permit and license, new stake holders, priority changes, funding changes</i>	<ul style="list-style-type: none"> • <i>The chance of occurrence of the same is very less as the frame works are completed and freezed in the initial stage itself. However, in case of occurrence immediate measures shall be adopted</i>
10	<i>Security issues due to laborers</i>	<ul style="list-style-type: none"> • <i>Proper ID cards</i> • <i>Surveillance measures</i> • <i>Entry restrictions</i> • <i>Minimum activities during college time</i>

11	<i>Student safety</i>	<ul style="list-style-type: none">• <i>The constructions are happening in a working campus.</i>• <i>Necessary safety measures need to be maintained for avoiding unauthorized entry to workplace by students.</i>
----	-----------------------	--

Chapter 12: Project Management Organization

A Special Purpose Vehicle (SPV) as Project Management and Support Unit (PPE-SU) will be formed for the overall smooth roll out of PPE Mission.

Roles and Responsibilities of various stakeholders are enumerated below:

a) Government

The Government shall facilitate the linkages between parties and different Ministries and their departments and other stakeholders as required for the smooth implementation of PPE Mission.

b) Special Purpose Vehicle (SPV)

In order to implement the project an SPV will be formed. The funds received from KIIFB will be utilized through this SPV. In order to ascertain the timely completion of the project, SPV will appoint an agency, which is called the Implementation Agency. The progress of the work will be monitored by the SPV through the Implementation Agency with the assistance of the Technical committee.

c) Implementing Agencies

The Implementation Agency will be a Government Corporation appointed by the SPV. This unit is responsible for preparing the detail design and tender document, appointing the Contactor for carrying out the construction work, supervision of the work, quality assurance, monitoring the progress of work, etc. Implementation Agency will give detailed report to SPV on the work progress and fund utilization in each stage of the project. SPV will constantly review the project with the help of Implementation Agency and technical Committee.

d) Technical Consultant

The duties and responsibilities of the Technical Consultant are:

- e) Carry out the detailed review of the master plans provided to it by the Higher Education Department, who has received them from the Technical committees constituted by faculties from various Engineering Colleges .
 - f) In case the master plans are not available, prepare them after discussions with College authorities, College Development committee etc.
 - g) Consult with the implementing SPV and develop the DPRs (Detailed Project Reports) for civil works to be completed under PPE Mission.
 - h) Preparation of the detailed estimate based on the structural drawings and architectural drawings prepared.
 - i) These DPRs need to be submitted to KIIFB through SPV.
 - j) Providing necessary clarifications to KIIFB based on the DPRs submitted.
- k) College Development Committee/ College level Monitoring Committee:**

The development committee at each college also will be in charge of the project monitoring. The members of the committee will include the Principal, Head Teacher, PTA and other various stake holders.

l) Contractor:

The works will be carried out by the Contactor appointed through the tendering process.

The process is summarized as below in figure below:

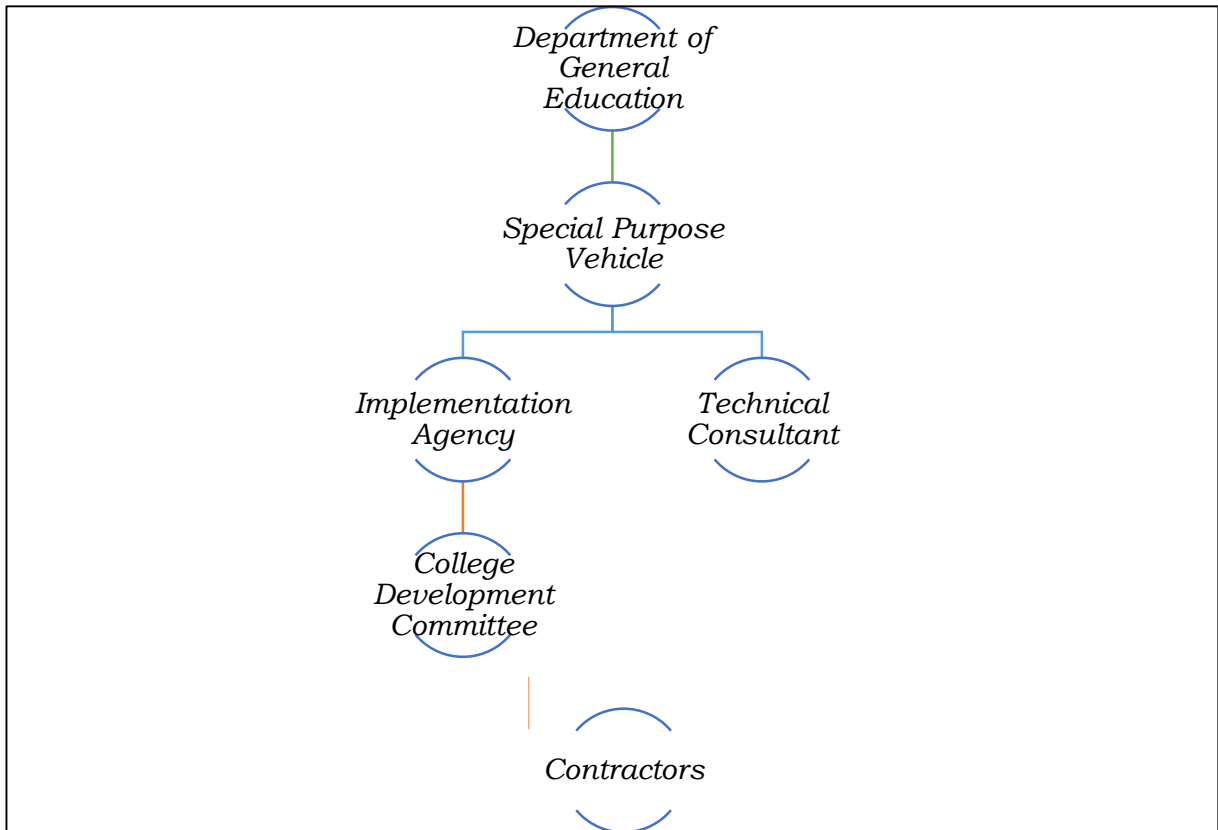


Figure 38: Project management organization

Organization chart and Roles and responsibilities of various PMO members:

SPV will engage the implementing agency for implementation of the project. The SPV will monitor the project through a Project Management Unit at its end. A team of engineers including technical consultant will form this PMU.

The implementing agency will appoint a Project Manager (PM) for the project and he will be responsible to the PMU for all project related matters. The PM will have a team to carry out the site supervision while implementing the project.

(1) Roles and responsibilities of PM:

- (a) Coordinate with PMU
- (b) Ensure project execution as per the agreed scope, cost and time lines
- (c) Ensure quality construction
- (d) Obtaining all the statutory clearances

- (e) *Conducting weekly reviews at site and sending weekly reports to PMU and stakeholders*
- (f) *Ensure the bills are recorded timely and as per the specifications*
- (g) *Completion and handing over*

(2) Roles and responsibilities of Civil Engineer/ electrical engineer:

- (a) *Review of execution drawings and carryout the supervision of work as per the drawings and specifications*
- (b) *Inspection of materials at site for its quality, carryout the quality tests*
- (c) *Monitoring of work as per the agreed schedule*
- (d) *Anticipate and resolves hindrances*
- (e) *Record the measurements*

(3) Roles and responsibilities of Safety engineer:

- (a) *Carryout the safety audit at site*
- (b) *Review the safety measures engaged at site*
- (c) *Ensure proper material stacking/ storage at site*
- (d) *Ensure safe movement of vehicles, construction equipment, cranes etc*
- (e) *Responsible for zero accident work execution*
- (f) *Ensure availability of medical aids at site*

(4) Roles and responsibilities of QA/QC engineer:

- (a) *Prepare the QA/QC plan*
- (b) *Ensure adherence to the QA/QC plan*
- (c) *Prepare the QA/QC report, quality test reports and submit to the PM on weekly basis*
- (d) *Ensure the material used in the project are approved and agreed makes only*

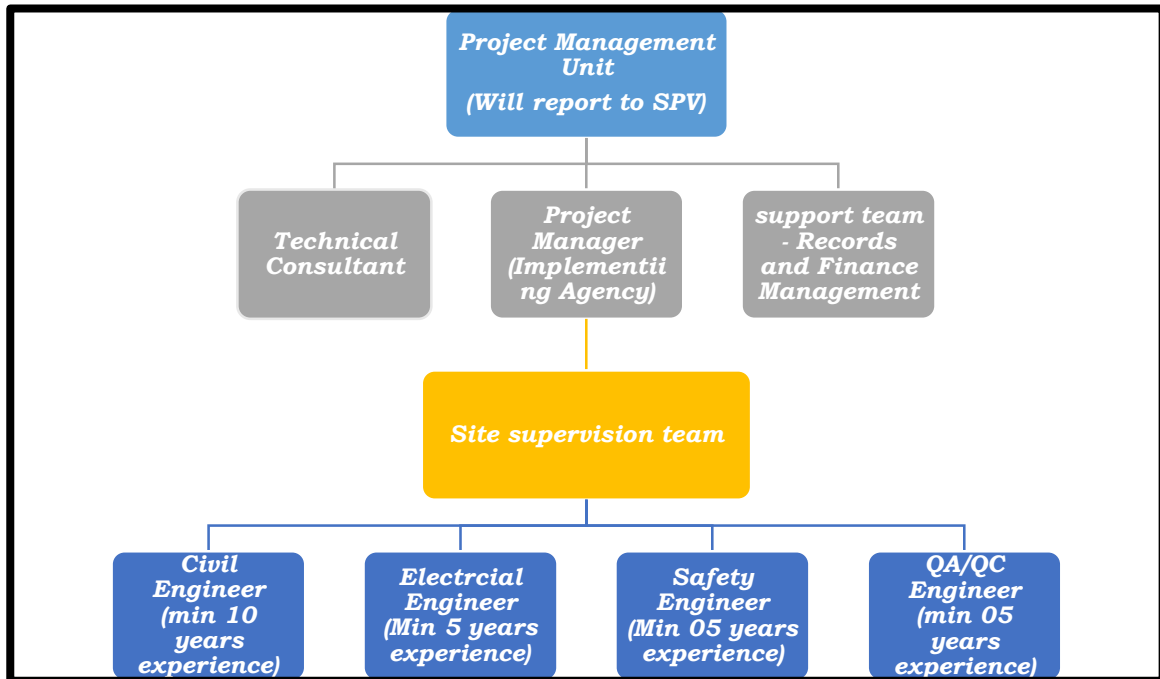


Figure 39: Project management hierarchy

The SPV, with the help of technical consultant will review the reports, bills, statements from the site and will provide the feedback to the Project Manager.

(1) Duties and responsibilities of Technical Consultant:

- a) Carryout occasional site visits, if required.
- b) Review the project along with the SPV officials
- c) Provide advice, feedback and technical guidance to SPV.

SPV will have a team to handle the records, documents of the project. The team will also act as finance control team for the project to support the payments as per the agreed schedule. Also this team will extend the administrative support to the SPV while implementing the project.

(1) Duties and responsibilities of SPV Support Team:

- (a) Maintain the records, documents of the project
- (b) Process the bill requests as per the contract terms
- (c) Process the request/ approvals from the SPV for the project.

Chapter 13: Contract Management Strategy

The project is intended to execute through capable and competent implementing agencies. The agencies with proven track record, recognized by Government of Kerala for executing its works etc are eligible for considering as implementing agencies. Through a fair and transparent process, the agencies will be empanelled. Among these agencies, through suitable means (as decided by the SPV in line with the existing practices and guidelines), selection will be carried out for implementing the project.

The work will be executed as item rate tender PWD procedures will be adhered to. Project will be implemented by adhering to the laid down procedures from the contactor selection to commissioning. The following procedures need to be followed:

1) Preparation of the tender document:

A detailed Bill of Quantities will be prepared by the Implementing Agency and the tender documents will be finalized. Suitable pre-qualification criteria will be developed and included.

2) Tendering:

Tendering process will be undertaken adhering to the existing procedures.

3) Tender evaluation and selection of the contractor:

All the bids received will be evaluated and the selection of contractor as per the existing norms.

4) Award of work

Work order will be issued to the selected bidder.

5) Signing of Agreement

The contractor to whom the work is awarded need to sign an Agreement with the Implementing Agency.

6) Finalization of the project implementation schedule

Time is the essence of Contract, hence clear time line with details about the works to be completed in each phase or within stipulated time should be mentioned in detail. The project implementation schedule will be a part of the Agreement.

7) Work execution

During execution, the compliance with the Contract conditions and adherence to the contractual obligations shall be ensured by multiple level reviews under taken by the SPV, technical team and implementation team. The Project Manager, who is in charge of the project, member of the implementation team will strictly monitor the project in adhering to the contract conditions. The amendments and changes shall be properly documented and the necessary approvals will be obtained from the Approving Authority. All such matters will be routed through the Project Manager.

8) Quality Analysis and Quality Control (QA/QC) plan

The quality analysis and quality control of the works need to assess as per the approved QA/QC plan.

9) Site supervision and bill measurement

The Implementation Agency need to set up a proper supervisory plan to check the status of the work and to do bill measurements, to check whether the progress of work is as per the implementation schedule provided.

10) Release of payment

The Contractor can raise the Running Account Bill as per the payment after conducting the joint inspection at site, as certified by the Project Manager.

11) Commissioning of the project

After completing all the works including civil works, electrical works, mechanical works, plumbing, instrumentation works, signage works, security systems and other auxiliary works, the implementing agency will hand over the facilities to the college for inauguration.

Chapter 14: Implementation

Schedule and WBS

Project schedule:

The work has been considered as a composite work combining the civil, electrical and all other utility work packages combined in one contract. The work in each phase has been scheduled to complete as per the following schedule:

Table 24: Project implementation schedule

Activity	Months												
	1	2	3	4	5	6	7	8	9	10	11	12	
1. Tendering and award of work													
1.1 Issue of tender notice													
1.2 Receipt of bids													
1.3 Bid evaluation / Selection of Contractor													
1.4 Award of work													
2. Preparatory work and mobilisation													
2.1 Signing of contract													
2.2 Obtaining of preliminary statutory approvals													
2.3 Submission of drawings													
2.4 Completion of mobilisation													
3. Implementation of Civil package													
4. Up gradation of Electrical works													
5. Up gradation of Utilities													
6. Landscaping, signage, circulation improvement													
7. Procurement and placing of college furniture													
8. Obtaining approvals and inauguration													

Chapter 15: Statutory Clearances

- *As per the item 8(a) of schedule of EIA Notification, 2006, it is made mandatory that building and construction projects ≥ 20000 m² and $< 1,50,000$ m² of built-up area are categorized as Category B and requires clearance from State Level Environmental Impact Assessment Authority. As the total built up area for the present project fall far below the minimum limit, the project does not attract EIA Notification, 2006.*
- *Kerala Panchayat Building Rules (KPBR) strictly need to be followed for construction of the buildings.*

Chapter 16: Quality Management Plan

In order to manage the quality of the work specific plan is envisaged. Even though quality is the responsibility of each individual involved in the project, a team will be formed with objective to assure quality. The team will be headed by a Quality Manager from the implementation unit whose activities will be reviewed by the SPV. Under the quality manger, there will be a quality team consist of inspection and testing unit and site engineers. The quality management organization frame work is as follows:

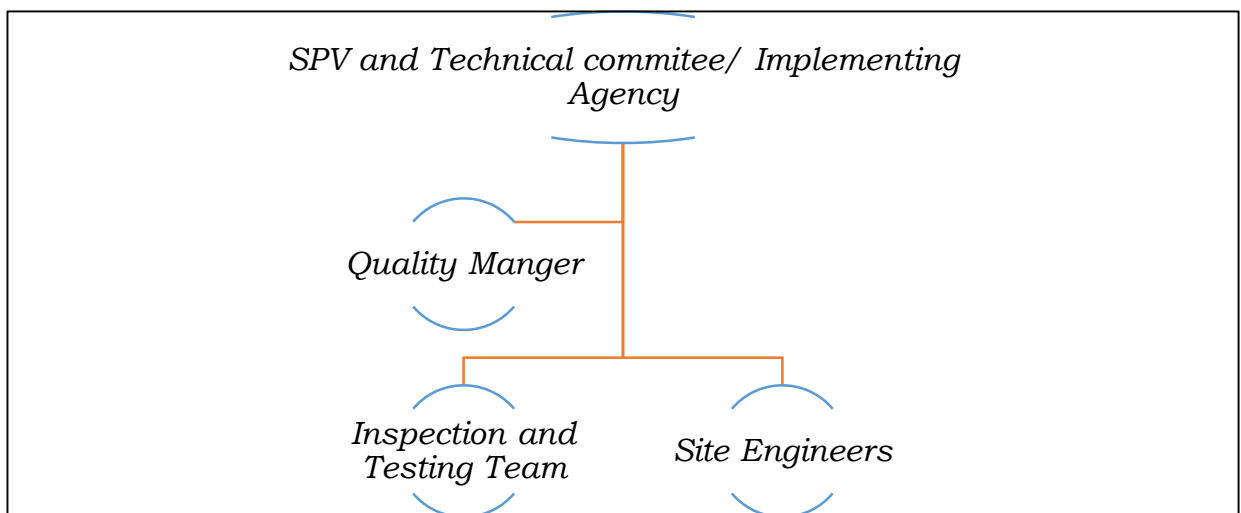


Figure 40: Quality management strategy

Following documents need to be maintained in order to facilitate quality assurance:

Table 25: Quality analysis checklist

Sl. No.	Description
1.	Material Inspection Report - Structural Steel
2	Check list for Construction Site Safety
3	Material Inspection Checklist
4	In process / Stage Inspection Report

5	Checklist for Sieve Analysis
6	Checklist for Water
7	Checklist for Masonry
8	Checklist for Plumbing Works
9	Checklist for Woodwork
10	Checklist for Internal Plaster
11	Checklist for External Plaster
12	Checklist for Flooring and Dado
13	Checklist for Painting Work
14	Checklist for Fabrication
15	Checklist for Builder's Hardware
16	Checklist for Electrical works
17	Checklist for Construction Completed Buildings
18	Check list for Wiring and Accessories
19	Check list for Cables and Cabling
20	Check list for MCB & Distribution Boards
21	Checklist for Earthing & Lighting
22	Check list for Requirement for recommendation of Bill for Payment
23	Check list for Checking Measurement

The Quality Control Manual of Kerala PWD (Part A for buildings) also need to be verified for proper monitoring of the quality.

Quality Management system will be as per IS 9001: 2015. All the organizations involved in the implementation has to strictly adhere to the Quality Management Policies.

Chapter 17: Operations and Maintenance Plan

O&M plays a vital role in deriving maximum output of any infrastructure. Colleges generally lack mechanism/ system for operation and maintenance of its facilities due to various reasons including inadequate fund, lack of dedicated staff etc.

The following are the proposed Operation and Maintenance plans:

a) Creation of a “College Resource Maintenance Committee”

A College Resource Maintenance Committee isto be formed with representatives of all stakeholder members.

b) Maintenance of an O&M fund:

An O&M fund need to be maintained which will take care of all the revenue from providing these facilities to the public, as mentioned in chapter 7.

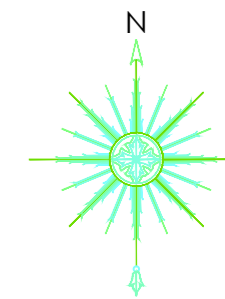
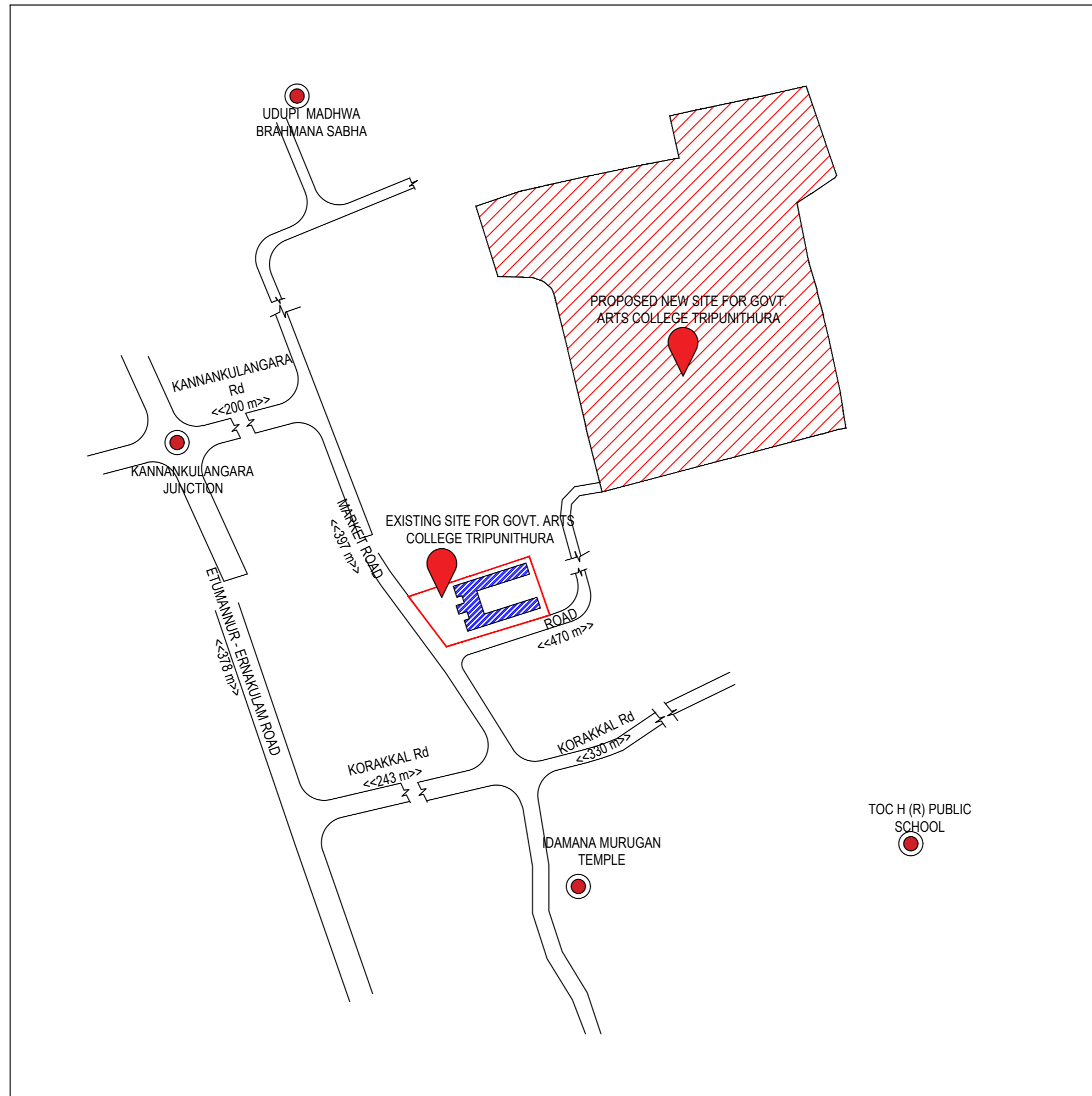
c) O&M staff


Additional staffs need to be engaged, other than the existing staff, if required for keeping clean and safe campus. The remuneration for these staffs needs to be met from the O&M fund.

Annexures

Annexure 1

Key map of Project Region

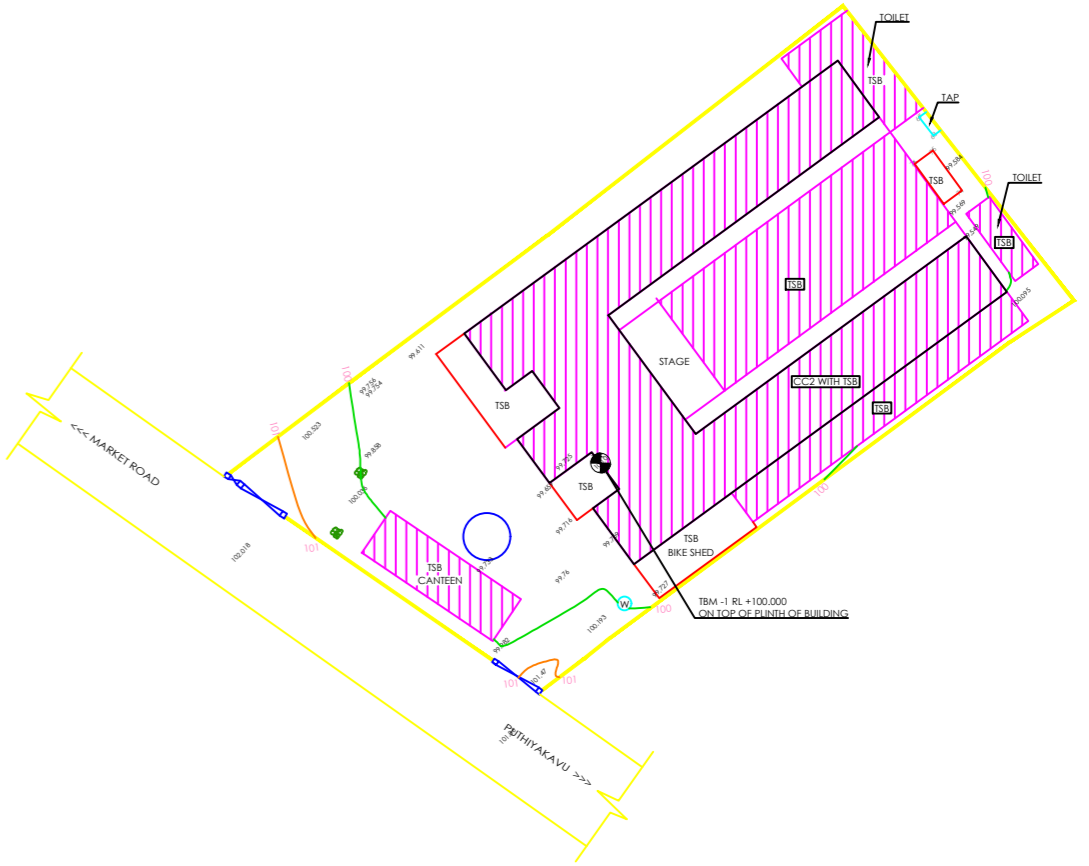
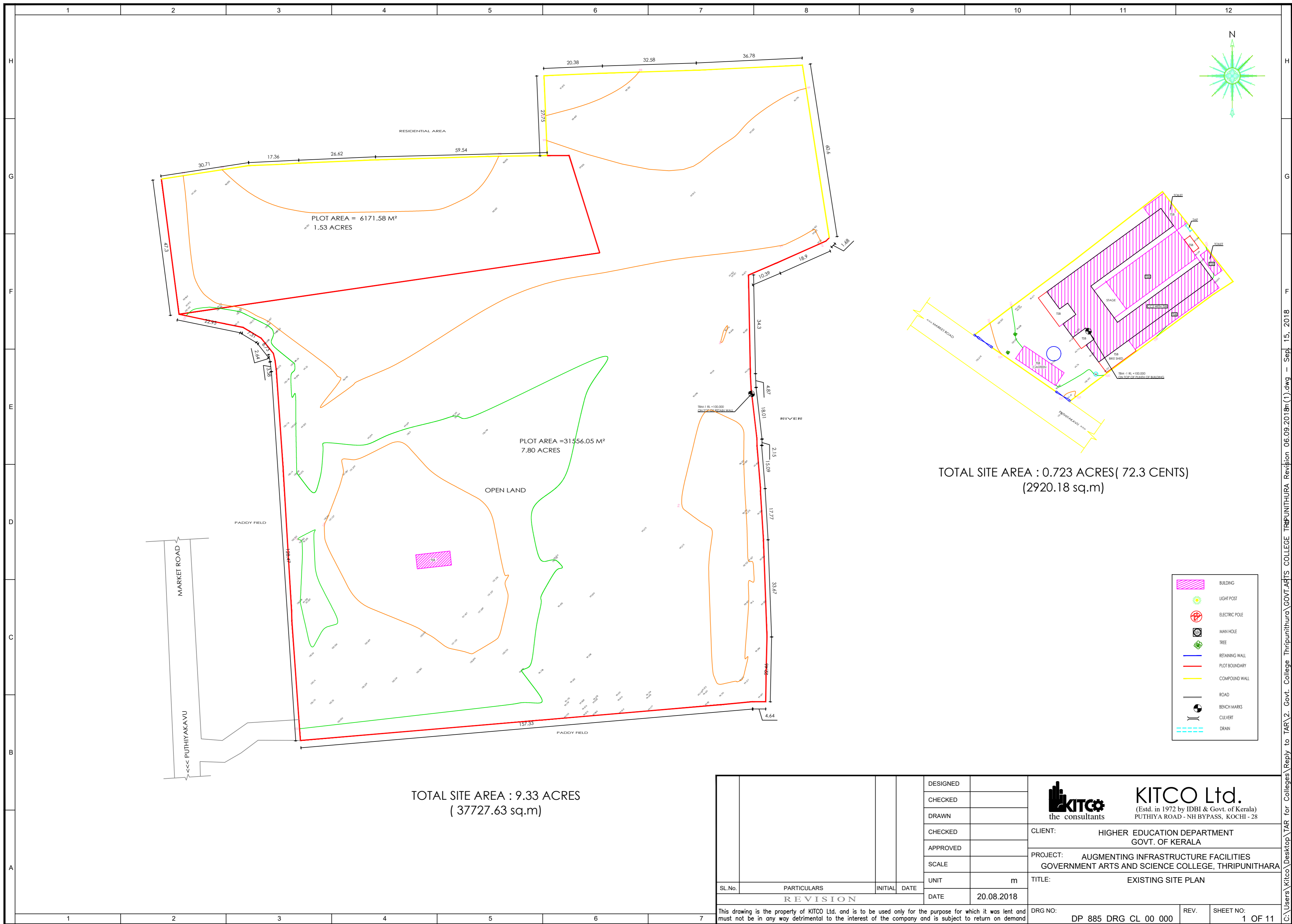


		DESIGNED		 KITCO Ltd. <small>(Estd. in 1972 by IDBI & Govt. of Kerala) PUTHIYA ROAD - NH BYPASS, KOCHI - 28</small>
		CHECKED		
		DRAWN		
		CHECKED	CLIENT: HIGHER EDUCATION DEPARTMENT GOVT. OF KERALA	
		APPROVED	PROJECT: AUGMENTING INFRASTRUCTURE FACILITIES GOVERNMENT ARTS AND SCIENCE COLLEGE, THRIPIUNITHARA	
		SCALE	N.T.S	
SL.No.	PARTICULARS	INITIAL	DATE	TITLE: LOCATION KEY PLAN
REVISION				
			DATE: 20.08.2018	
This drawing is the property of KITCO Ltd. and is to be used only for the purpose for which it was lent and must not be in any way detrimental to the interest of the company and is subject to return on demand				DRG NO: DP 885 DRG CL 00 000
				REV. SHEET NO: 5 OF 11

C:\Users\Kitco\Desktop\TAR for Colleges\Reply to TAR\2. Govt. College Thripunithura\GOVT ARTS COLLEGE TRIPUNITHURA Revision 06.09.2018\1.dwg - Sep. 15, 2018

Annexure 2

Architectural Drawings



TOTAL SITE AREA : 0.723 ACRES (72.3 CENTS)
(2920.18 sq.m)

TOTAL SITE AREA : 9.33 ACRES
(37727.63 sq.m)

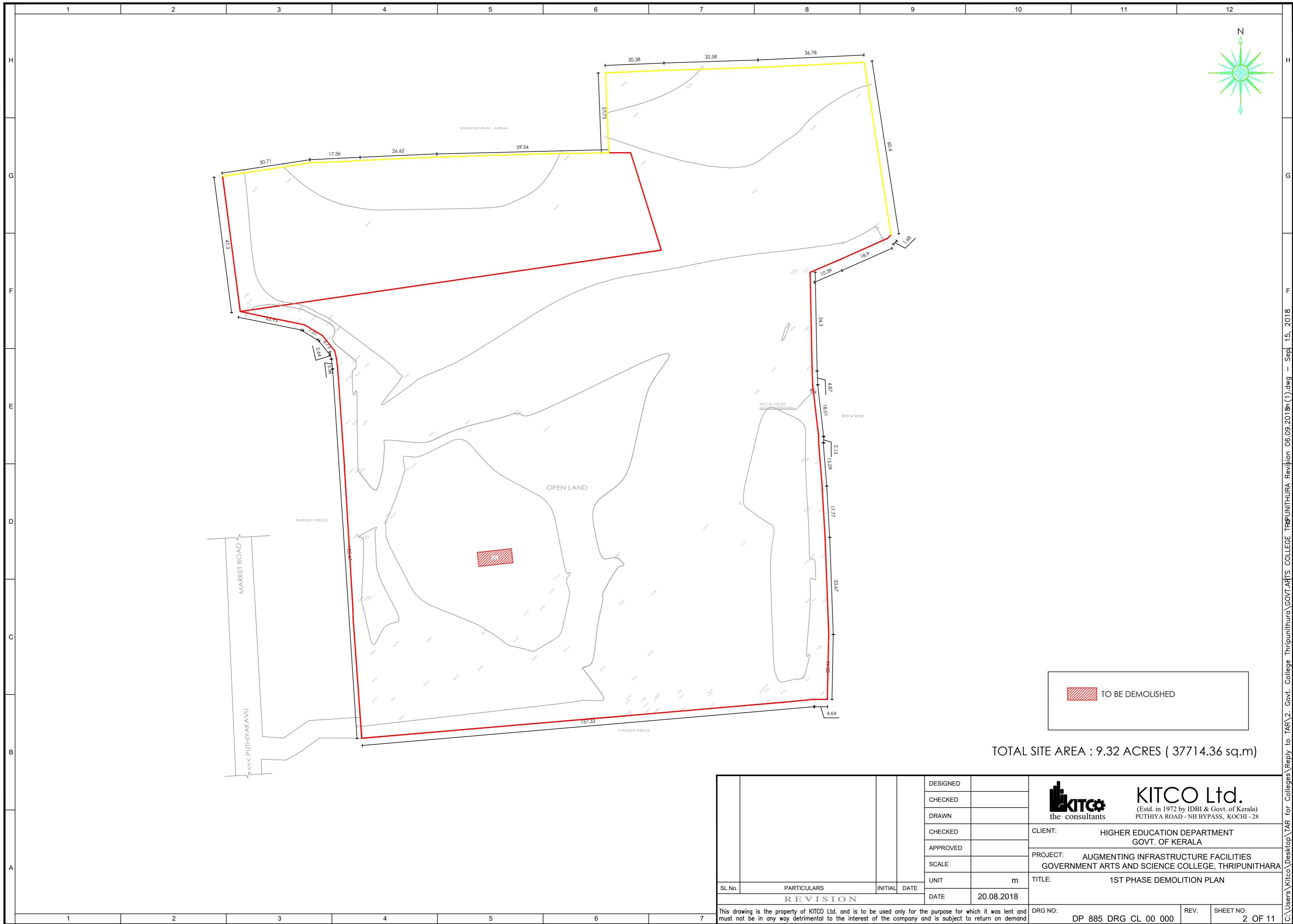
DESIGNED		 KITCO Ltd. <small>(Estd. in 1972 by IDBI & Govt. of Kerala) PUTHIYA ROAD - NH BYPASS, KOCHI - 28</small>
CHECKED		
DRAWN		
CHECKED		
APPROVED		
SCALE		CLIENT: HIGHER EDUCATION DEPARTMENT GOVT. OF KERALA
UNIT		PROJECT: AUGMENTING INFRASTRUCTURE FACILITIES GOVERNMENT ARTS AND SCIENCE COLLEGE, THIRPUNITHARA
DATE		TITLE: EXISTING SITE PLAN
DATE		20.08.2018

SL.No.	PARTICULARS	INITIAL	DATE
REVISION			


DRG NO:	DP 885 DRG CL 00 000	REV.	SHEET NO:	1 OF 11
---------	----------------------	------	-----------	---------

This drawing is the property of KITCO Ltd. and is to be used only for the purpose for which it was lent and must not be in any way detrimental to the interest of the company and is subject to return on demand

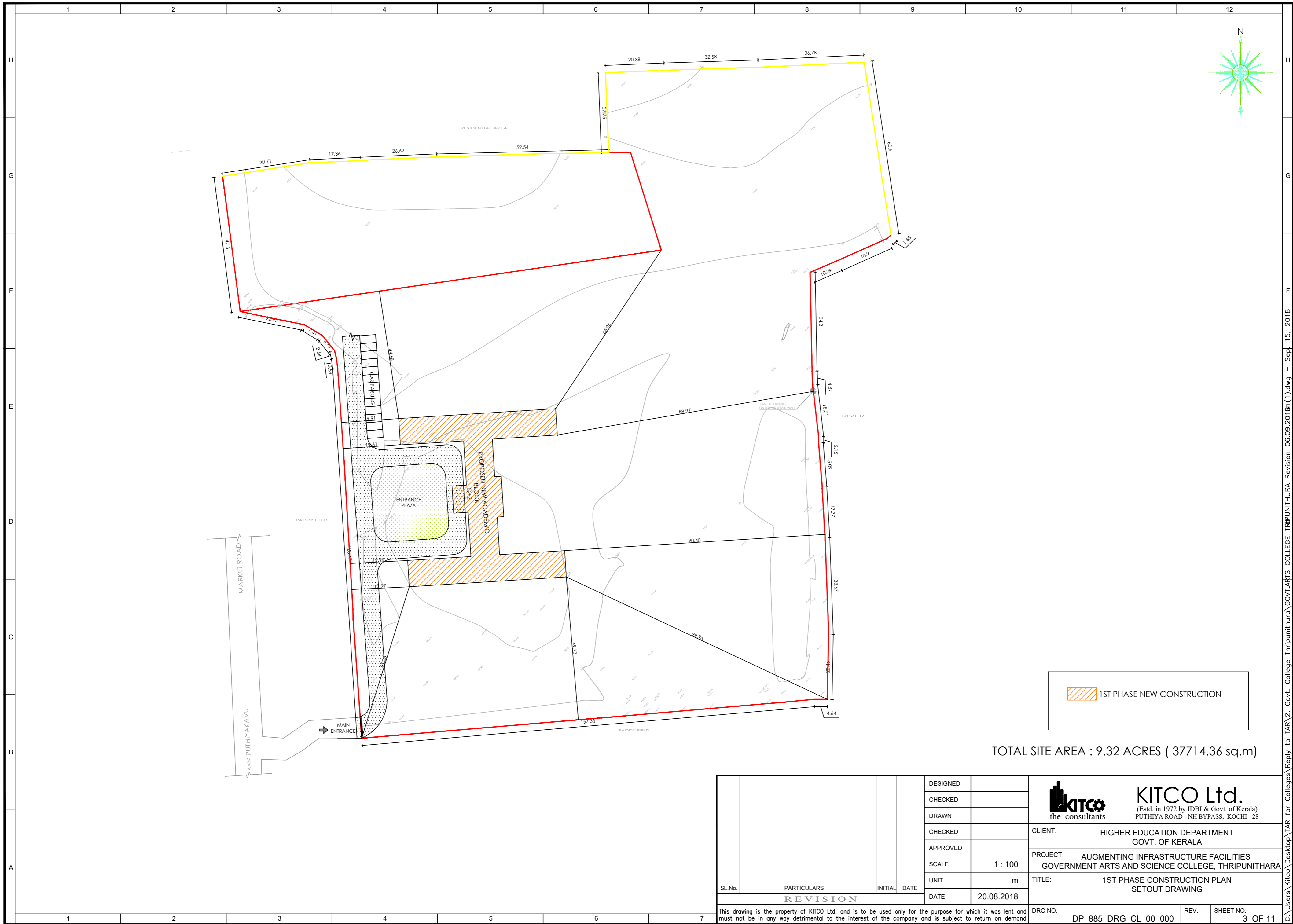
C:\Users\Kitco\Desktop\TAR for Colleges\Reply to TAR\2. Govt. College Thripunithura\GOVT ARTS COLLEGE THIRPUNITHURA\Revision 06.09.2018\1.dwg - Sep. 15, 2018




TOTAL SITE AREA : 9.32 ACRES (37714.36 sq.m)

DESIGNED		 KITCO Ltd. (Estd. in 1972 by IDBI & Govt. of Kerala) PUTHIYA ROAD - NH BYPASS, KOCHI - 28 the consultants									
CHECKED											
DRAWN											
CHECKED			CLIENT: HIGHER EDUCATION DEPARTMENT GOVT. OF KERALA								
APPROVED			PROJECT: AUGMENTING INFRASTRUCTURE FACILITIES GOVERNMENT ARTS AND SCIENCE COLLEGE, THIRPUNITHARA								
SCALE			TITLE: 1ST PHASE DEMOLITION PLAN								
UNIT	m										
DATE	20.08.2018										
<table border="1"> <thead> <tr> <th>SL.No.</th> <th>PARTICULARS</th> <th>INITIAL</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td colspan="4" style="text-align: center;">REVISION</td> </tr> </tbody> </table>			SL.No.	PARTICULARS	INITIAL	DATE	REVISION				
SL.No.	PARTICULARS	INITIAL	DATE								
REVISION											
This drawing is the property of KITCO Ltd. and is to be used only for the purpose for which it was lent and must not be in any way detrimental to the interest of the company and is subject to return on demand			DRG NO: DP 885 DRG CL 00 000	REV. SHEET NO: 2 OF 11							

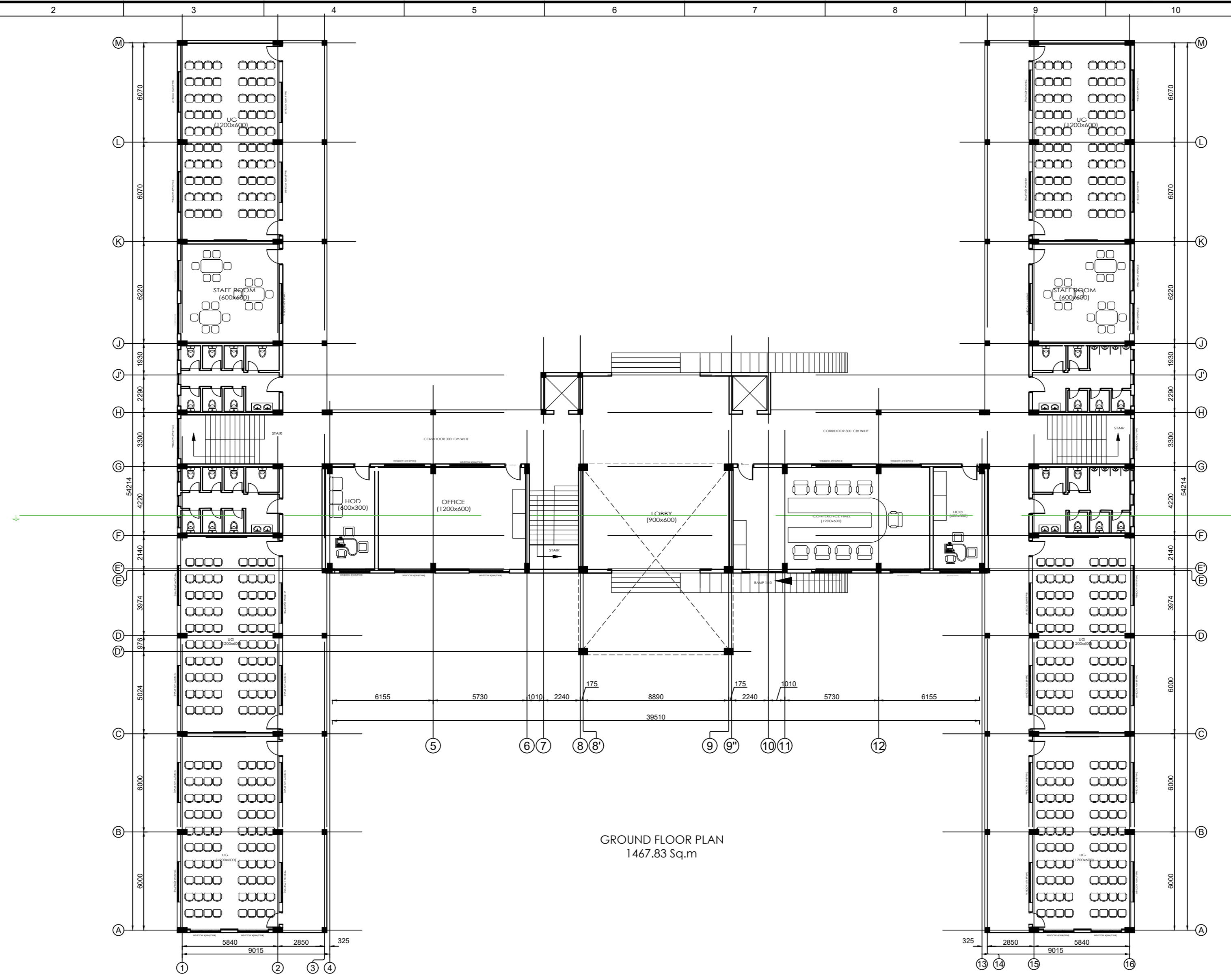
C:\Users\Kitco\Desktop\TAR for Colleges\TAR for Colleges\Thripunithura\GOVT ARTS COLLEGE THIRPUNITHURA Revision 06.09.2018\TAR (1).dwg - Sep 15, 2018




TOTAL SITE AREA : 9.32 ACRES (37714.36 sq.m)

DESIGNED		 KITCO Ltd. (Estd. in 1972 by IDBI & Govt. of Kerala) PUTHIYA ROAD - NH BYPASS, KOCHI - 28 the consultants								
CHECKED										
DRAWN										
CHECKED										
APPROVED										
SCALE	1 : 100	CLIENT: HIGHER EDUCATION DEPARTMENT GOVT. OF KERALA								
UNIT	m	PROJECT: AUGMENTING INFRASTRUCTURE FACILITIES GOVERNMENT ARTS AND SCIENCE COLLEGE, THIRPUNITHARA								
DATE	20.08.2018	TITLE: 1ST PHASE CONSTRUCTION PLAN SETOUT DRAWING								
<table border="1"> <thead> <tr> <th>SL.No.</th> <th>PARTICULARS</th> <th>INITIAL</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td colspan="4" style="text-align: center;">REVISION</td> </tr> </tbody> </table>		SL.No.	PARTICULARS	INITIAL	DATE	REVISION				DRG NO: DP 885 DRG CL 00 000
SL.No.	PARTICULARS	INITIAL	DATE							
REVISION										
This drawing is the property of KITCO Ltd. and is to be used only for the purpose for which it was lent and must not be in any way detrimental to the interest of the company and is subject to return on demand		REV. SHEET NO: 3 OF 11								

C:\Users\Kitco\Desktop\TAR for Colleges\TAR for Colleges\Thripunithura\GOVT ARTS COLLEGE THIRPUNITHARA Revision 06.09.2018\1.dwg - Sep. 15, 2018

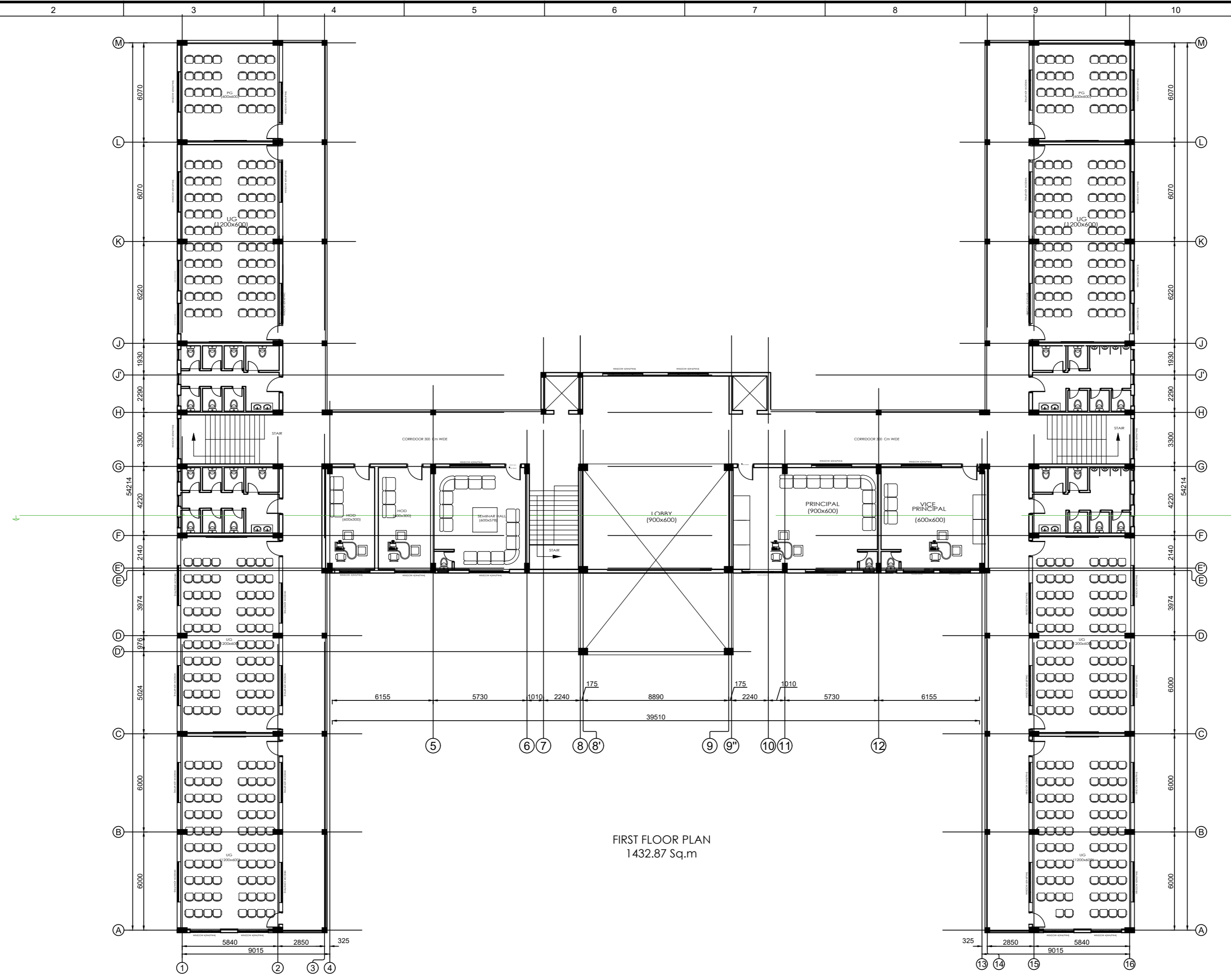



GROUND FLOOR PLAN
1467.83 Sq.m

DESIGNED		 KITCO Ltd. (Estd. in 1972 by IDBI & Govt. of Kerala) PUTHIYA ROAD - NH BYPASS, KOCHI - 28 the consultants		
CHECKED				
DRAWN				
CHECKED				
APPROVED				
SCALE	1 : 100	CLIENT: HIGHER EDUCATION DEPARTMENT GOVT. OF KERALA		
UNIT	mm.	PROJECT: AUGMENTING INFRASTRUCTURE FACILITIES FOR GOVERNMENT ARTS AND SCIENCE COLLEGE, THIRPUNITHARA		
DATE	23.08.2018	TITLE: PROPOSED ACADEMIC BLOCK GROUND FLOOR PLAN		
SL.No.	PARTICULARS	INITIAL	DATE	DRG NO: DP 885 DRG CL 00 000
REVISION				REV. SHEET NO: 6 OF 11

This drawing is the property of KITCO Ltd. and is to be used only for the purpose for which it was lent and must not be in any way detrimental to the interest of the company and is subject to return on demand

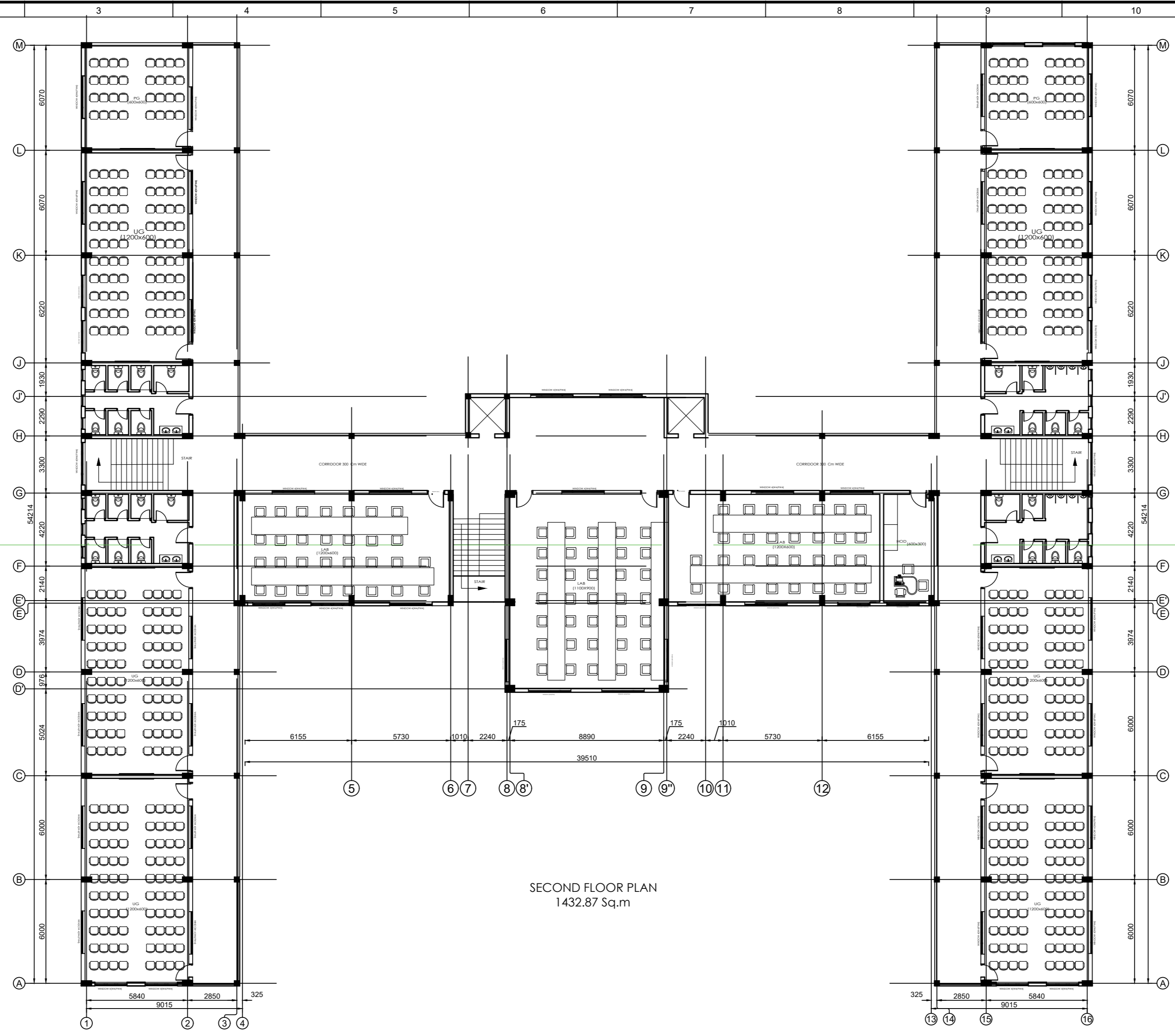
C:\Users\Kitco\Desktop\TAR for Colleges\Reply to TAR\2. Govt. College Thripunithura\GOVT ARTS COLLEGE THIRPUNITHURA Revision 06.09.2018\1.dwg - Sep. 15, 2018




DESIGNED		 KITCO Ltd. (Estd. in 1972 by IDBI & Govt. of Kerala) PUTHIYA ROAD - NH BYPASS, KOCHI - 28 the consultants		
CHECKED				
DRAWN				
CHECKED				
APPROVED				
SCALE	1 : 100	CLIENT: HIGHER EDUCATION DEPARTMENT GOVT. OF KERALA		
UNIT	mm.	PROJECT: AUGMENTING INFRASTRUCTURE FACILITIES FOR GOVERNMENT ARTS AND SCIENCE COLLEGE, THIRPUNITHARA		
DATE	23.08.2018	TITLE: PROPOSED ACADEMIC BLOCK FIRST FLOOR PLAN		
SL.No.	PARTICULARS	INITIAL	DATE	DRG NO: DP 885 DRG CL 00 000
REVISION				REV. SHEET NO: 7 OF 11

This drawing is the property of KITCO Ltd. and is to be used only for the purpose for which it was lent and must not be in any way detrimental to the interest of the company and is subject to return on demand

C:\Users\Kitco\Desktop\TAR for Colleges\Reply to TAR\2. Govt. College Thripunithura\GOVT ARTS COLLEGE THIRPUNITHURA Revision 06.09.2018\1.dwg - Sep. 15, 2018

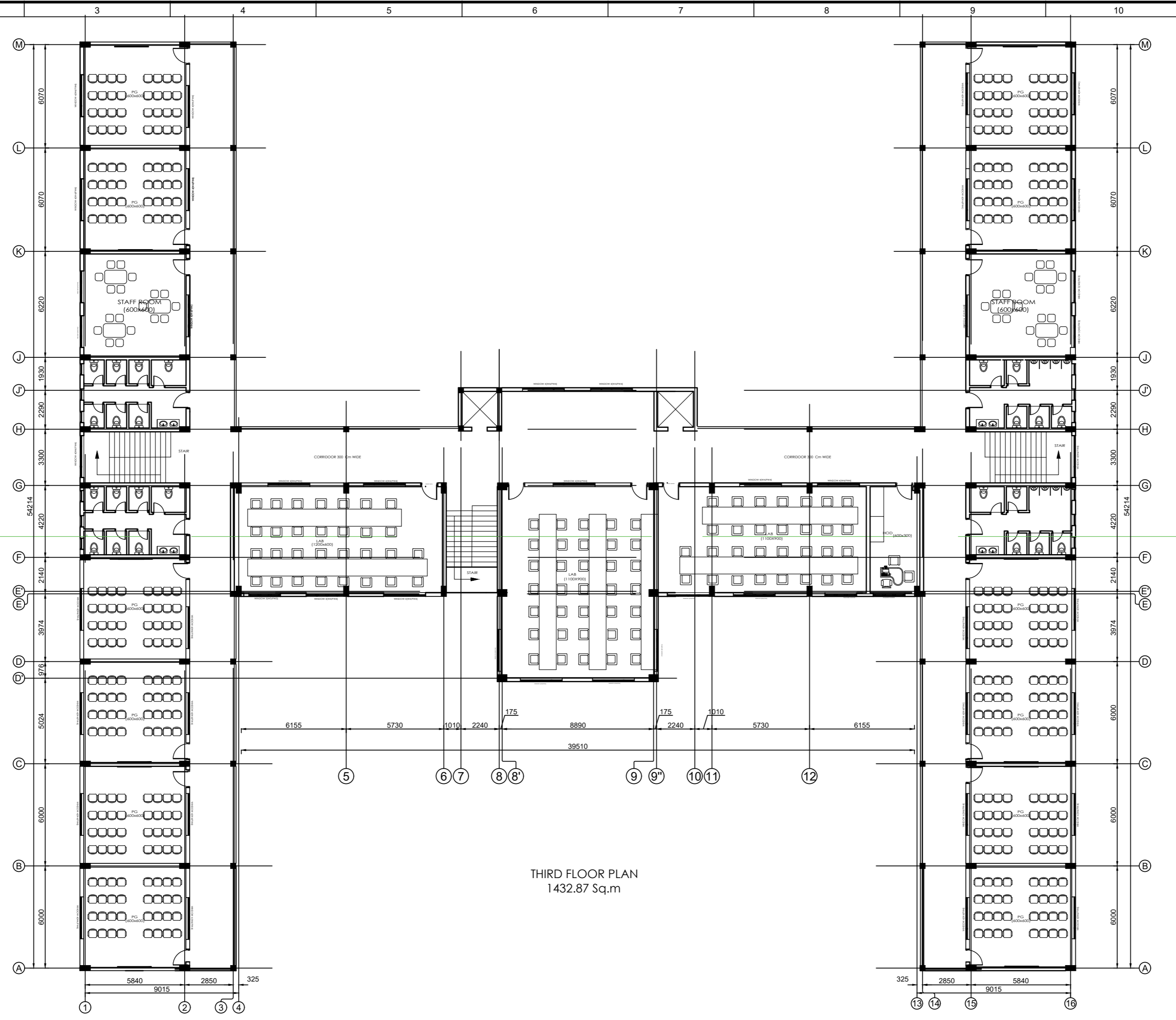


SECOND FLOOR PLAN
1432.87 Sq.m


DESIGNED	CHECKED	DRAWN	APPROVED	SCALE	1 : 100	UNIT	mm.	DATE	23.08.2018	 KITCO Ltd. (Estd. in 1972 by IDBI & Govt. of Kerala) PUTHIYA ROAD - NH BYPASS, KOCHI - 28 the consultants	CLIENT:	HIGHER EDUCATION DEPARTMENT GOVT. OF KERALA
											PROJECT:	AUGMENTING INFRASTRUCTURE FACILITIES FOR GOVERNMENT ARTS AND SCIENCE COLLEGE, THIRPUNITHARA
											TITLE:	PROPOSED ACADEMIC BLOCK SECOND FLOOR PLAN
											DRG NO:	DP 885 DRG CL 00 000
											REV.	SHEET NO: 8 OF 11

This drawing is the property of KITCO Ltd. and is to be used only for the purpose for which it was lent and must not be in any way detrimental to the interest of the company and is subject to return on demand

C:\Users\Kitco\Desktop\TAR for Colleges\Reply to TAR\2. Govt. College Thripunithura\GOVT ARTS COLLEGE THIRPUNITHURA Revision 06.09.2018\1.dwg - Sep. 15, 2018

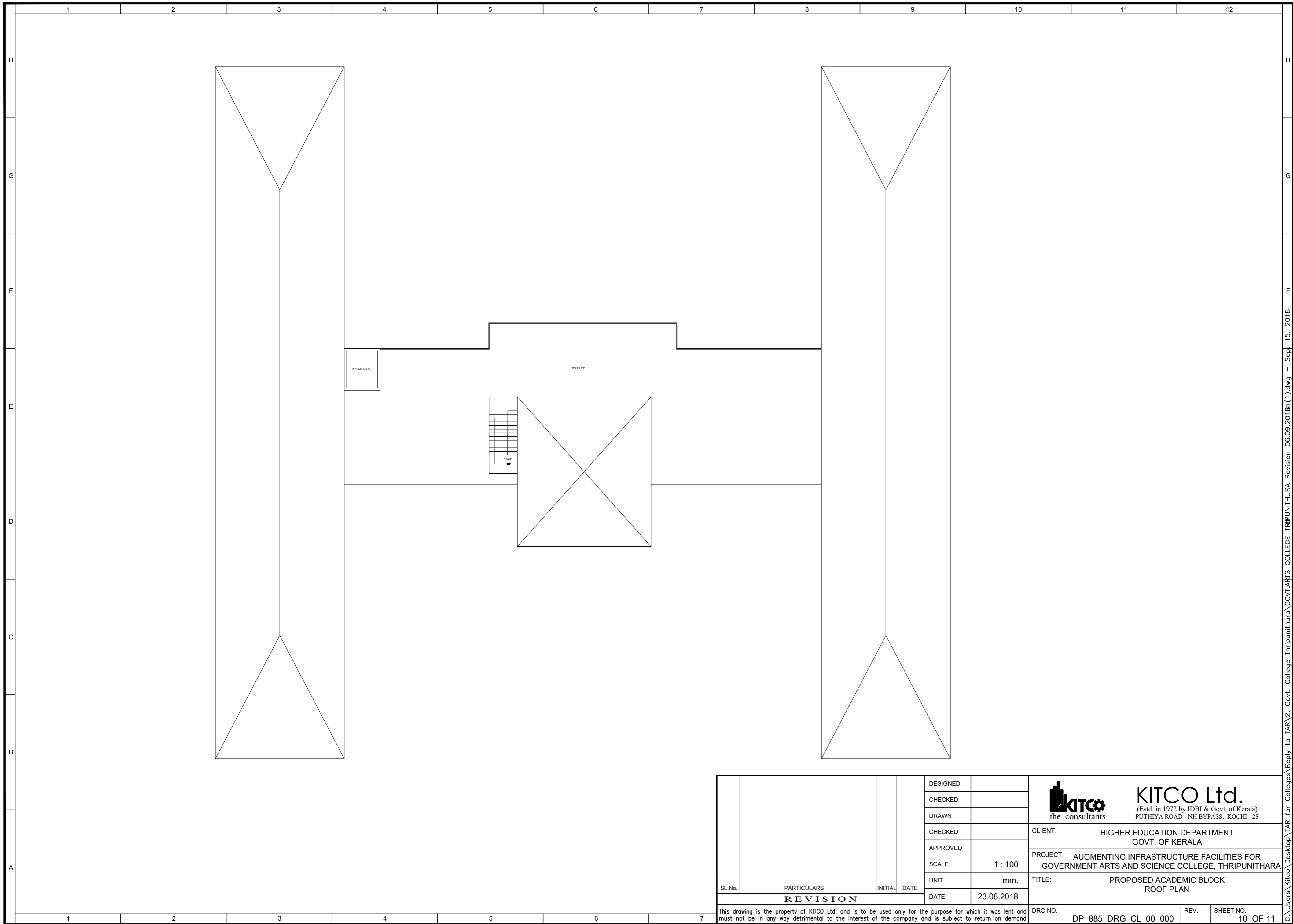



THIRD FLOOR PLAN
1432.87 Sq.m

DESIGNED		 KITCO Ltd. (Estd. in 1972 by IDBI & Govt. of Kerala) PUTHIYA ROAD - NH BYPASS, KOCHI - 28 the consultants		
CHECKED				
DRAWN				
CHECKED				
APPROVED				
SCALE	1 : 100	CLIENT: HIGHER EDUCATION DEPARTMENT GOVT. OF KERALA		
UNIT	mm.	PROJECT: AUGMENTING INFRASTRUCTURE FACILITIES FOR GOVERNMENT ARTS AND SCIENCE COLLEGE, THIRPUNITHARA		
DATE	23.08.2018	TITLE: PROPOSED ACADEMIC BLOCK THIRD FLOOR PLAN		
SL.No.	PARTICULARS	INITIAL	DATE	DRG NO: DP 885 DRG CL 00 000
REVISION				REV. SHEET NO: 9 OF 11

This drawing is the property of KITCO Ltd. and is to be used only for the purpose for which it was lent and must not be in any way detrimental to the interest of the company and is subject to return on demand

C:\Users\Kitco\Desktop\TAR for Colleges\Reply to TAR\2. Govt. College Thripunithura\GOVT ARTS COLLEGE THIRPUNITHURA Revision 06.09.2018\1.dwg - Sep. 15, 2018



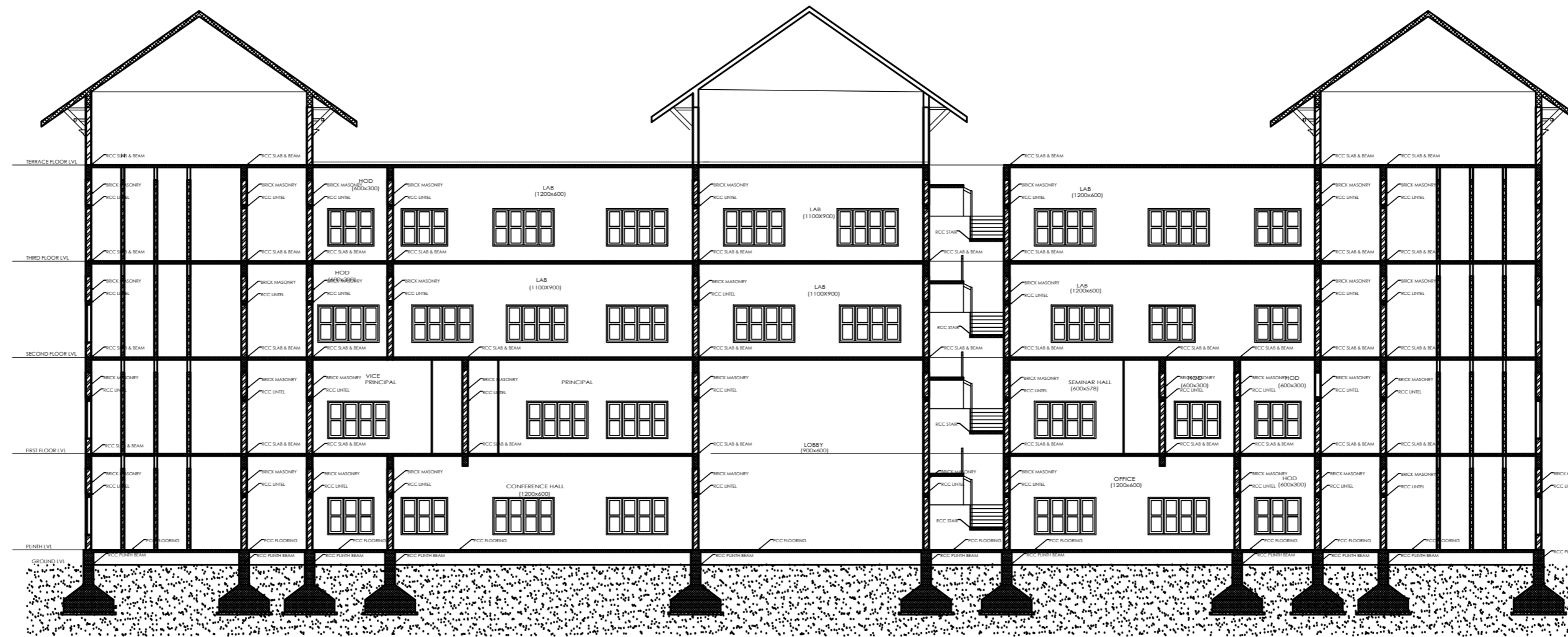
DESIGNED		 KITCO Ltd. (Estd. in 1972 by IDBI & Govt. of Kerala) PUTHIYA ROAD - NH BYPASS, KOCHI - 28					
CHECKED							
DRAWN							
CHECKED							
APPROVED							
SCALE	1 : 100	CLIENT: HIGHER EDUCATION DEPARTMENT GOVT. OF KERALA					
UNIT	mm.	PROJECT: AUGMENTING INFRASTRUCTURE FACILITIES FOR GOVERNMENT ARTS AND SCIENCE COLLEGE, THIRPUNITHARA					
DATE	23.08.2018	TITLE: PROPOSED ACADEMIC BLOCK ROOF PLAN					
SL.No.	PARTICULARS	INITIAL	DATE	DRG NO:	DP 885 DRG CL 00 000	REV.	SHEET NO:
REVISION							10 OF 11

This drawing is the property of KITCO Ltd. and is to be used only for the purpose for which it was lent and must not be in any way detrimental to the interest of the company and is subject to return on demand


C:\Users\Kitco\Desktop\TAR for Colleges\Reply to TAR\2. Govt. College Thripunithura\GOVT-ARTS COLLEGE THIRPUNITHURA Revision 06.09.2018\1.dwg - Sep 15, 2018



ELEVATION



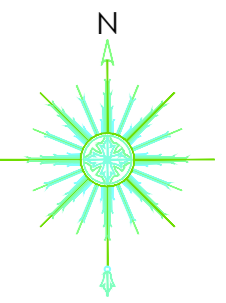
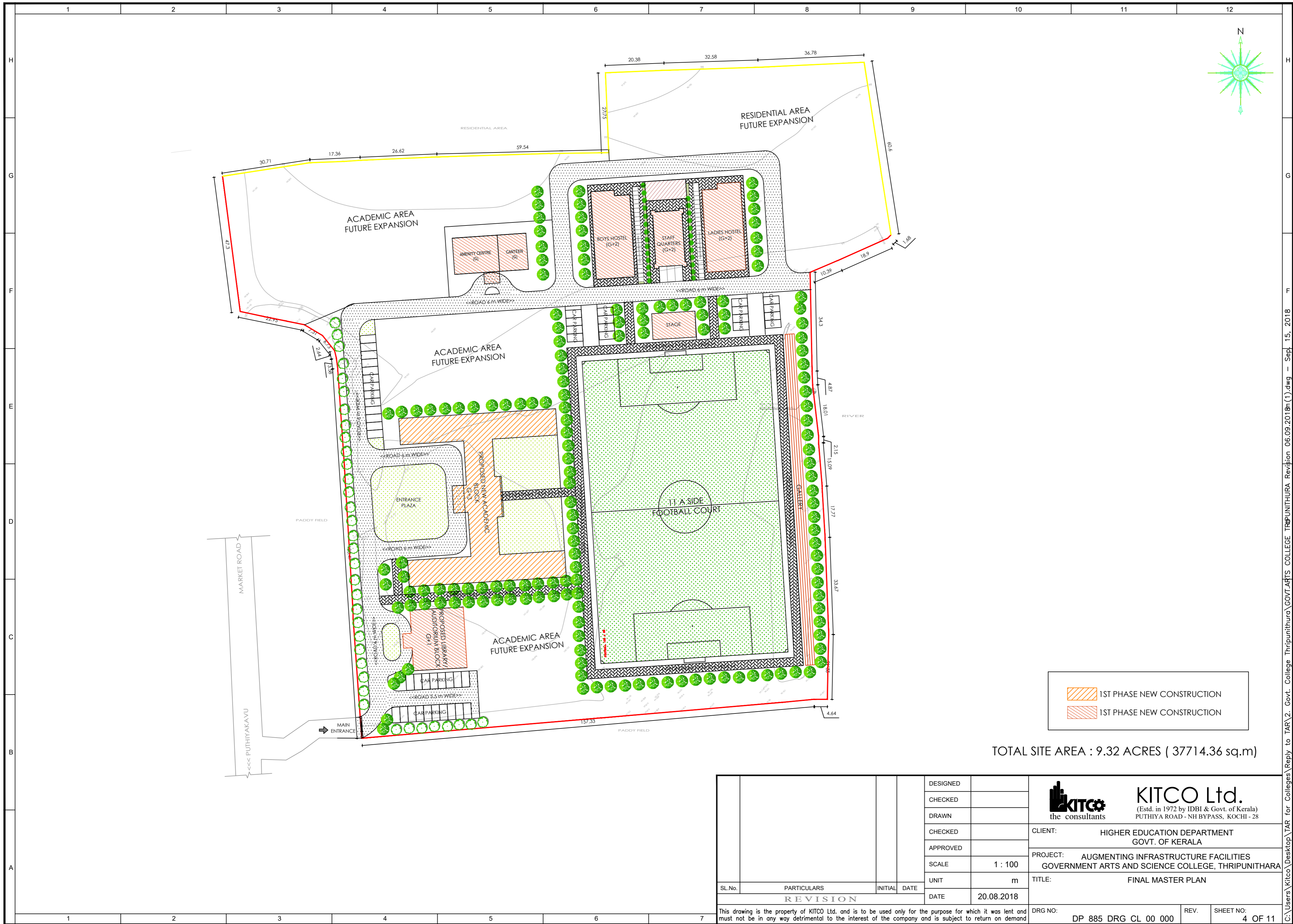
SECTION

		DESIGNED		 KITCO Ltd. (Estd. in 1972 by IDBI & Govt. of Kerala) PUTHIYA ROAD - NH BYPASS, KOCHI - 28 the consultants	CLIENT:	HIGHER EDUCATION DEPARTMENT GOVT. OF KERALA
		CHECKED			PROJECT:	AUGMENTING INFRASTRUCTURE FACILITIES FOR GOVERNMENT ARTS AND SCIENCE COLLEGE, THIRPUNITHARA
		DRAWN			TITLE:	PROPOSED ACADEMIC BLOCK SECTION & ELEVATION
		CHECKED			SCALE	1 : 100
		APPROVED			UNIT	mm.
		DATE	23.08.2018		DRG NO:	DP 885 DRG CL 00 000
SL.No.	PARTICULARS	INITIAL	DATE	REV.	SHEET NO:	
REVISION					11 OF 11	

This drawing is the property of KITCO Ltd. and is to be used only for the purpose for which it was lent and must not be in any way detrimental to the interest of the company and is subject to return on demand

DRG NO: DP 885 DRG CL 00 000

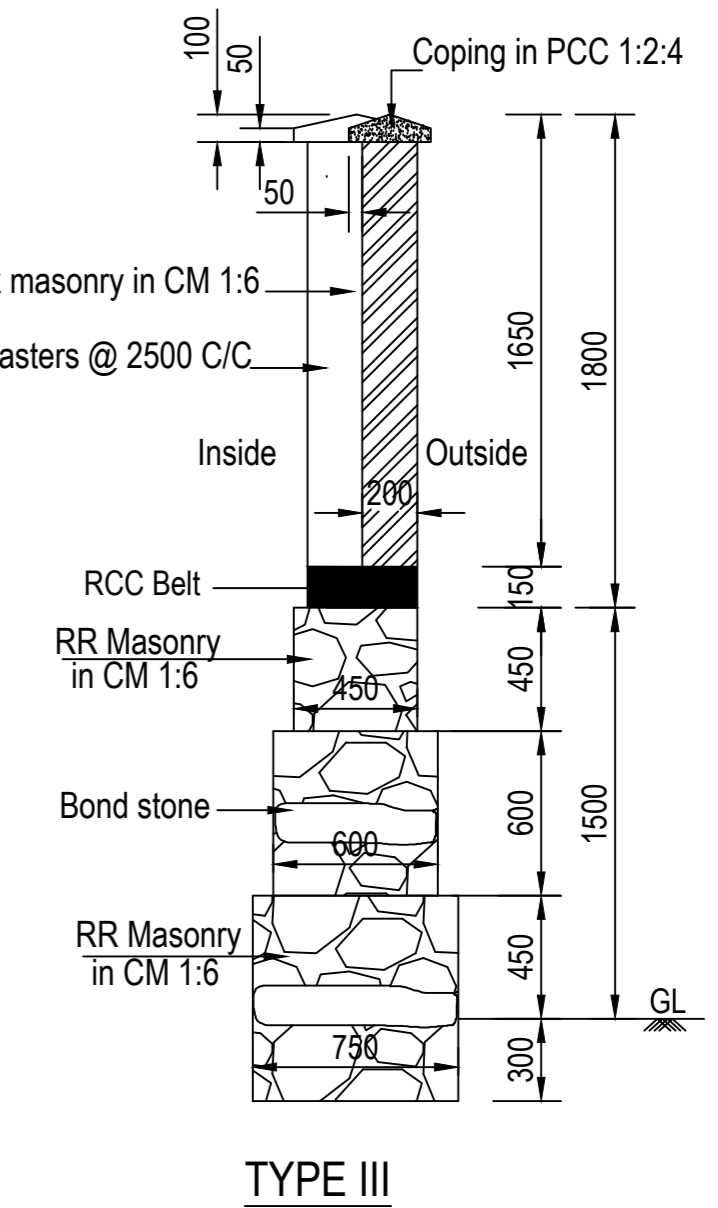
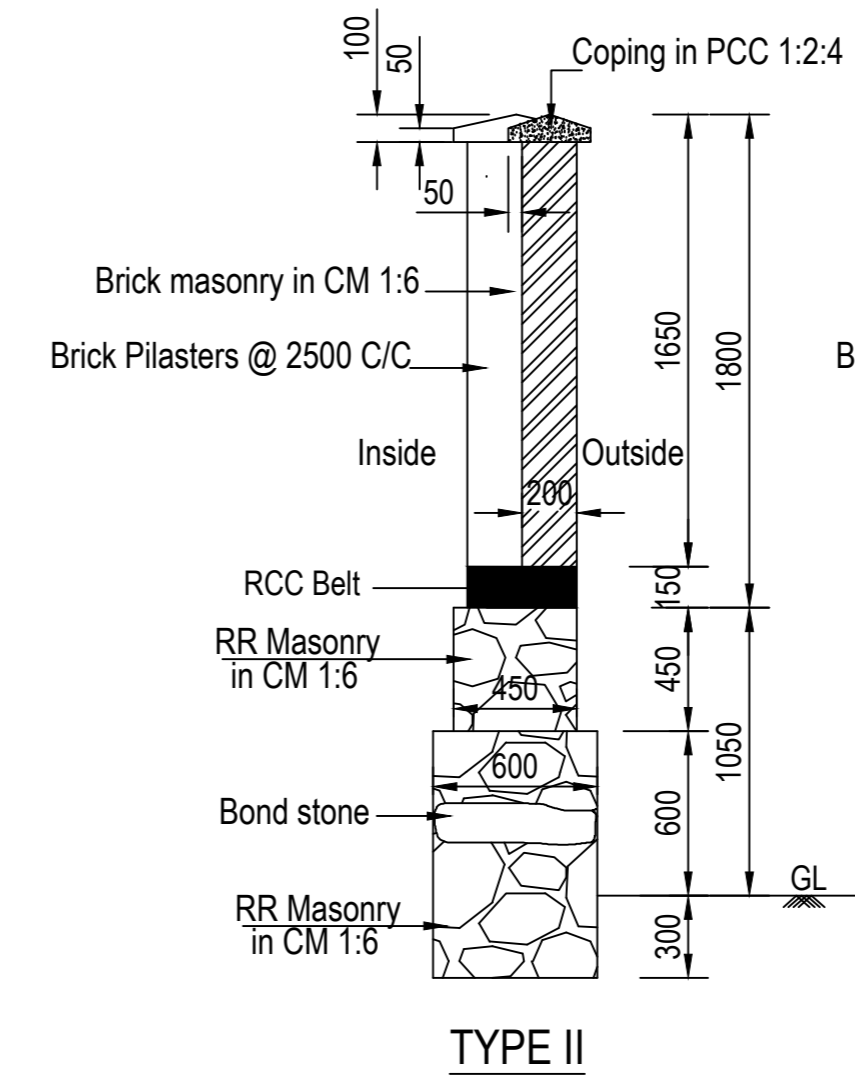
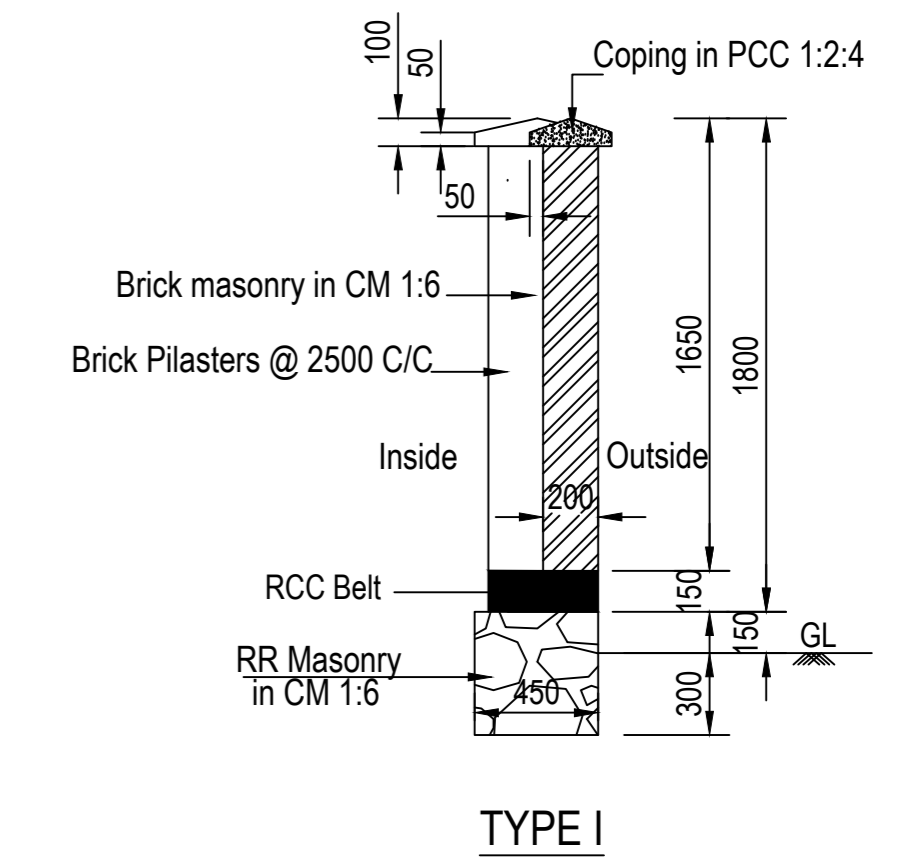
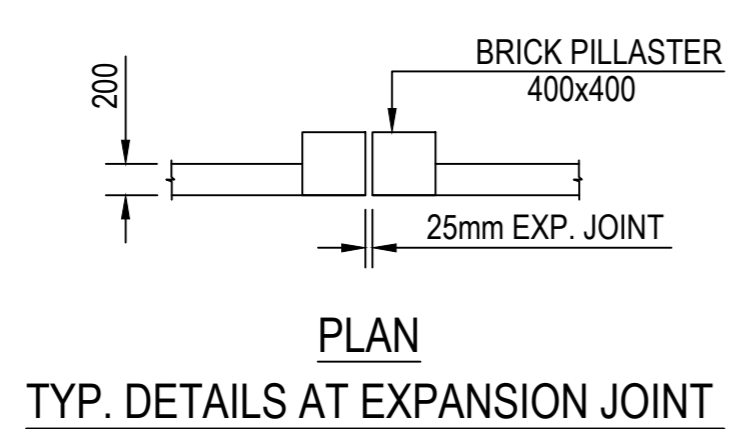
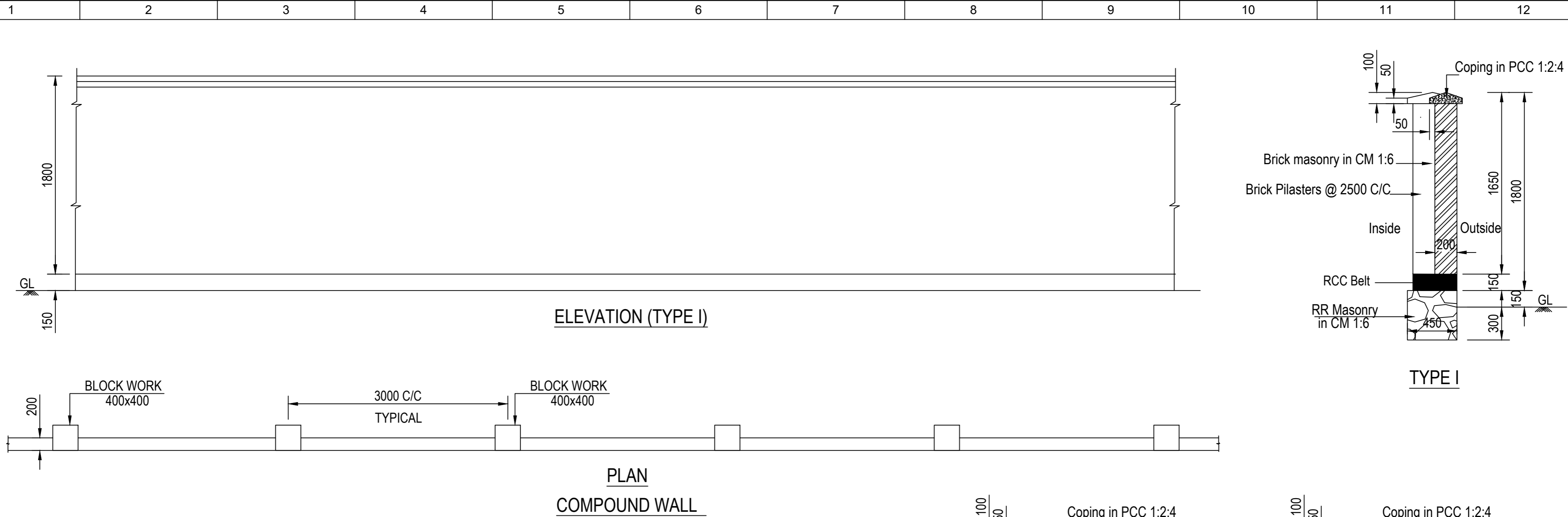
REV. SHEET NO: 11 OF 11



	1ST PHASE NEW CONSTRUCTION
	1ST PHASE NEW CONSTRUCTION


TOTAL SITE AREA : 9.32 ACRES (37714.36 sq.m)

	DESIGNED		<p>KITCO Ltd. (Estd. in 1972 by IDBI & Govt. of Kerala) PUTHIYA ROAD - NH BYPASS, KOCHI - 28</p>	
	CHECKED			
	DRAWN			
	CHECKED	CLIENT:		HIGHER EDUCATION DEPARTMENT GOVT. OF KERALA
	APPROVED	PROJECT:		AUGMENTING INFRASTRUCTURE FACILITIES GOVERNMENT ARTS AND SCIENCE COLLEGE, THRIPUNITHARA
	SCALE	1 : 100		TITLE:
	UNIT	m		
	DATE	20.08.2018		
REVISION				
SL.No.	PARTICULARS	INITIAL	DATE	
This drawing is the property of KITCO Ltd. and is to be used only for the purpose for which it was lent and must not be in any way detrimental to the interest of the company and is subject to return on demand				
	DRG NO:	DP 885 DRG CL 00 000	REV. SHEET NO: 4 OF 11	



- NOTE:-**
1. ALL DIMENSIONS ARE IN MILLIMETRES & LEVELS ARE IN METRES.
 2. DRAWING IS NOT TO BE SCALED. ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
 3. ONE BOND STONE SHALL BE PROVIDED FOR EVERY 0.50 SQM. OF THE AREA OF WALL SURFACE OF RR MASONRY.
 4. ALL BOND STONE SHALL BE MARKED SUITABLY WITH PAINT. BOND STONES RUNNING RIGHT THROUGH THE THICKNESS OF THE WALLS SHALL BE PROVIDED IN WALLS UPTO 60 CM THICKNESS.
 5. EXPANSION JOINT OF 25MM TO BE PROVIDED AT EVERY 20M INTERVALS

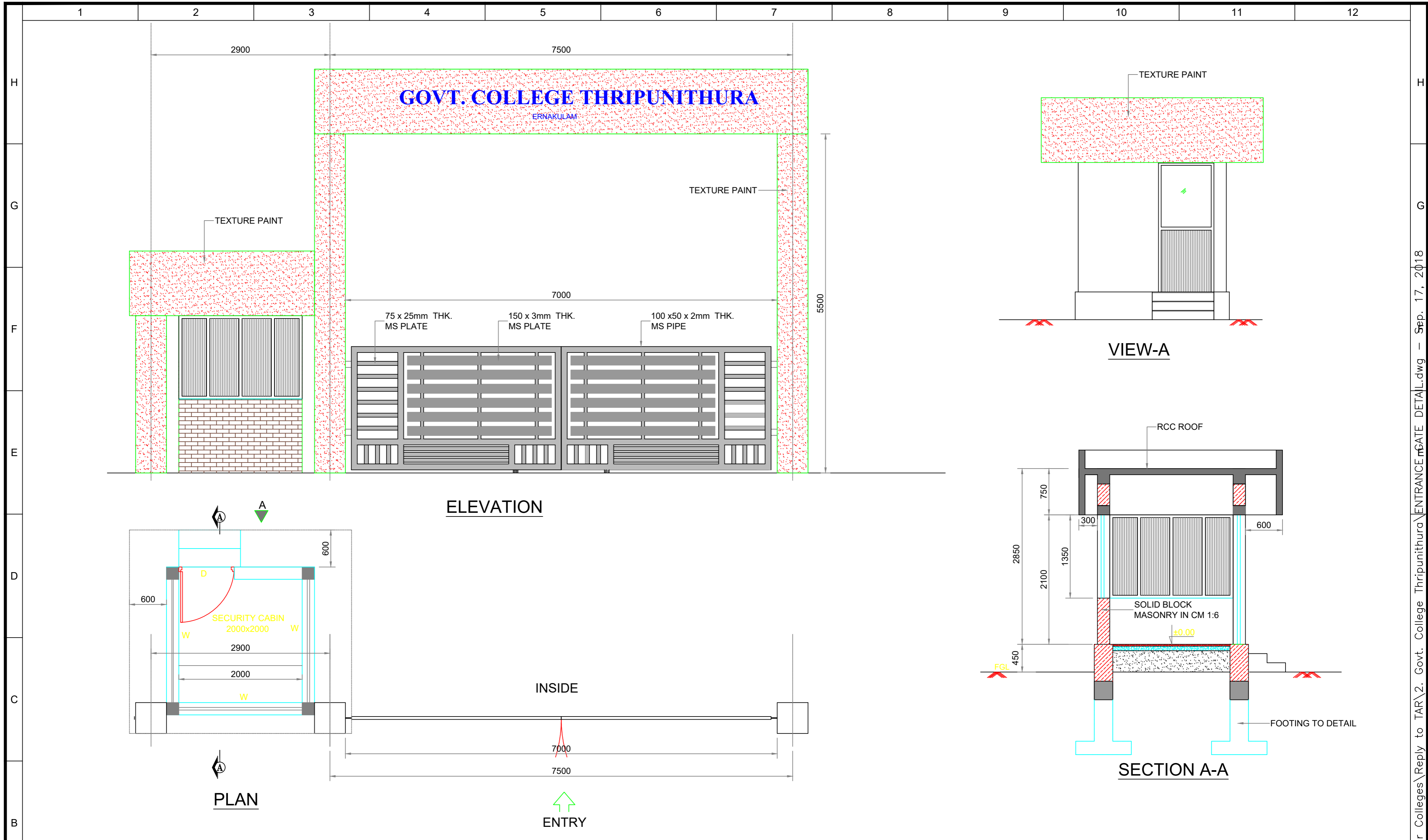
DESIGNED	CHECKED	DRAWN	CHECKED	APPROVED	CLIENT: HIGHER EDUCATION DEPARTMENT GOVT. OF KERALA					
					PROJECT: AUGMENTATION OF INFRASTRUCTURAL FACILITIES AT GOVERNMENT COLLEGES GOVERNMENT COLLEGE THRIPIUNITHURA					
					TITLE: DETAILS OF COMPOUND WALL					
					UNIT:	SCALE:	DRG NO:	SHEET NO:	REV.	DATE:
					mm.	NTS	DP 885 DRG CL 04 005	1 OF 1		03.08.2017




KITCO Ltd.
(Estd. in 1972 by IDBI & Govt. of Kerala)
PUTHIYA ROAD - NH BYPASS, KOCHI - 28

KITCO Ltd.
(Estd. in 1972 by IDBI & Govt. of Kerala)
PUTHIYA ROAD - NH BYPASS, KOCHI - 28

This drawing is the property of KITCO Ltd. and is to be used only for the purpose for which it was lent and must not be in any way detrimental to the interest of the company and is subject to return on demand



DESIGNED		CLIENT:	HIGHER EDUCATION DEPARTMENT GOVT. OF KERALA
CHECKED		PROJECT:	AUGMENTING INFRASTRUCTURE FACILITIES GOVT. COLLEGE THIRIPUNITHURA
DRAWN	Aswathy	TITLE:	-:ENTRANCE GATE & SECURITY CABIN:- PLAN, ELEVATION AND SECTION
CHECKED			
APPROVED			



KITCO Ltd.
(Estd. in 1972 by IDBI & Govt. of Kerala)
PUTHIYA ROAD - NH BYPASS, KOCHI - 28

the consultants

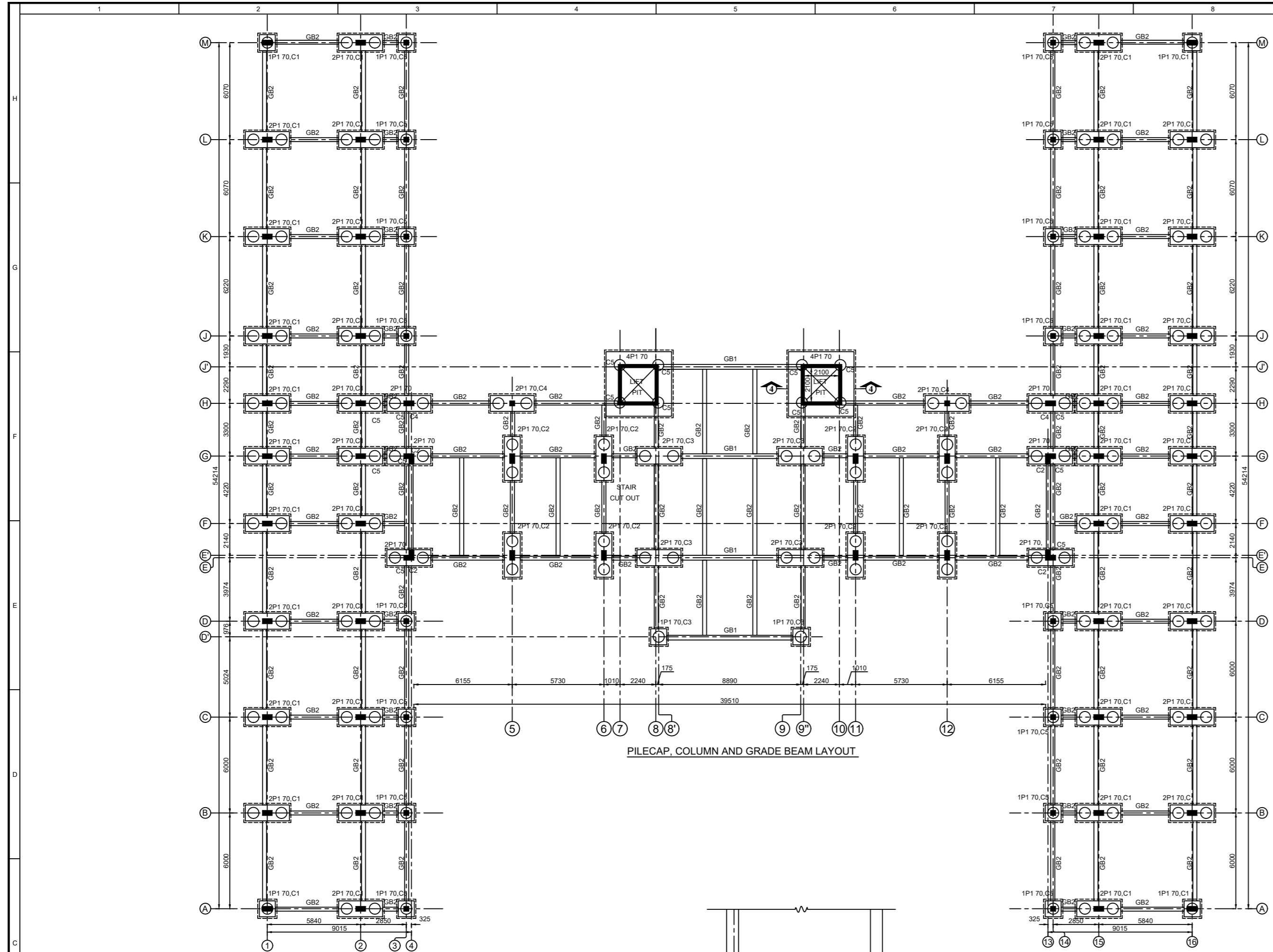
SL.No.	PARTICULARS	INITIAL	DATE
REVISION			

UNIT:	SCALE:	DRG NO:	SHEET NO:	REV.	DATE:
mm.	NTS	DP 885 DRG CL 39 005	1 OF 1		31.05.2018

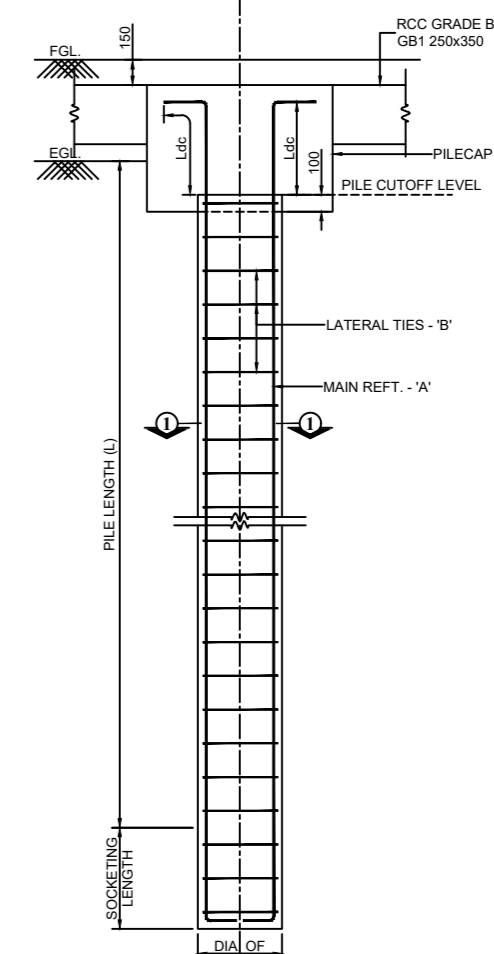
This drawing is the property of KITCO Ltd. and is to be used only for the purpose for which it was lent and must not be in any way detrimental to the interest of the company and is subject to return on demand

Annexure 3

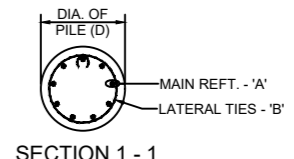
Structural Drawings



PILECAP, COLUMN AND GRADE BEAM LAYOUT



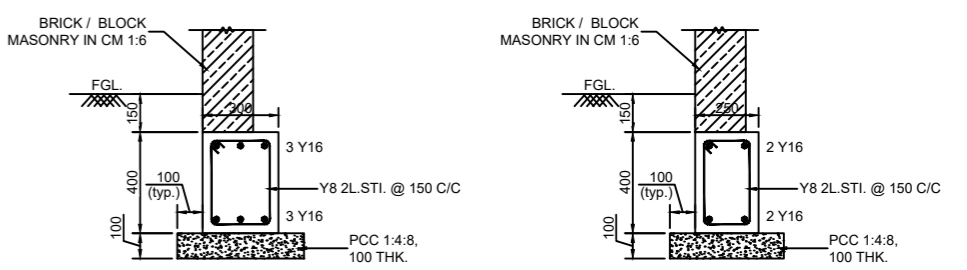
TYP. CROSS SECTION DETAILS OF PILE
(SOCKETING LENGTH OF 3D (3 x PILE DIA) IN SOIL HAVING N=50)



SECTION 1 - 1

DETAILS OF DMC PILE					
PILE TYPE	PILE DIA. (D) in mm	PILE LENGTH (L) in mm	REFT. DETAILS		SAFE LOAD CAPACITY OF PILE
			MAIN REFT. 'A'	LATERAL REFT. 'B'	
P1	700	32000	16 Y16	Y8 RINGS @ 200 C/C	840 kN

* SAFE LOAD CAPACITY OF PILE SHOULD BE CONFIRMED BY ROUTINE LOAD TEST AT SITE

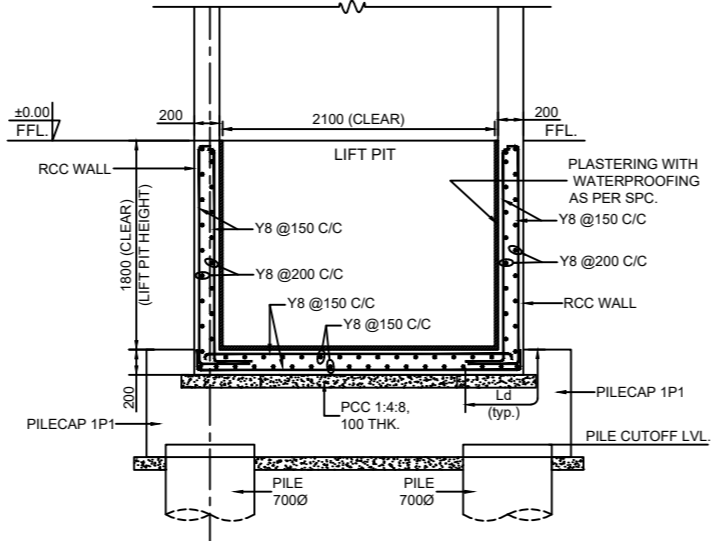


TYPICAL REFT. DETAILS OF GRADE BEAM - GB1 300 x 400

TYPICAL REFT. DETAILS OF GRADE BEAM - GB2 250 x 400

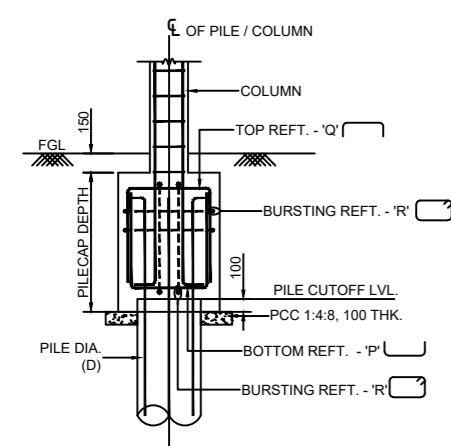
PILECAP TYPE	PILE DIA. (D) in mm	PILECAP SIZE			REFT. DETAILS		
		LENGTH (M) in mm	WIDTH (N) in mm	DEPTH in mm	BOTTOM REFT. 'P'	TOP REFT. 'Q'	BURSTING REFT. 'R'
1P1 (SINGLE PILE)	700	1000	1000	1100	Y12 @ 90 C/C	Y12 @ 180 C/C	Y12 @ 150 C/C
2P1 (2 PILE)	700	3100	1000	1200	Y20 @ 120 C/C	Y16 @ 120 C/C	Y12 @ 150 C/C
4P1 (4 PILE)	700	4055	4055	1100	Y16 @ 120 C/C	Y16 @ 120 C/C	Y12 @ 150 C/C

- NOTE:**
- ALL DIMENSIONS ARE IN MILLIMETERS AND LEVELS ARE IN METERS
 - ONLY WRITTEN DIMENSIONS ARE TO BE FOLLOWED.
 - ±0.00 LVL. CORRESPONDS TO FINISHED FLOOR LEVEL.
 - THIS DRAWING SHALL BE READ WITH RELEVANT ARCHITECTURAL DRAWING.
 - CONCRETE MIX M30 FOR PILE SHALL BE CONTROLLED QUALITY AS PER IS:456-2000
 - REINFORCEMENT MARKED Y DENOTES GRADE FE 500.
 - CLEAR COVER TO OUTER REFT. FOR PILE - 75mm, PILECAP - 50mm, COLUMN - 40mm, GRADE BEAM - 40mm, LIFT PIT - 40mm, STRIP FOOTING - 40mm
 - MINIMUM LAP LENGTH FOR REFT. BARS SHALL BE 46 x DIA OF BAR
 - LAPS SHALL BE STAGGERED. NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT ONE SECTION
 - DEVELOPMENT LENGTH IN COMPRESSION (L_{dc}) - 37 x DIA OF BAR, DEVELOPMENT LENGTH IN TENSION (L_{dt}) - 46 x DIA OF BAR
 - PILE TO BE CAST UP TO EXISTING GROUND LEVEL AND THE PORTION ABOVE CUT OFF LEVEL TO BE CHISELED BEFORE CASTING PILECAP.
 - ADEQUATE LINKS / STIFFNER USING Y16 @ 1500 C/C SHALL BE PROVIDED FOR PROPER POSITIONING OF REINFORCEMENT.
 - SAFE LOAD CAPACITY OF PILE SHOULD BE CONFIRMED BY ROUTINE LOAD TEST AT SITE.
 - ANY CHANGE FROM SOIL INVESTIGATION REPORT, ENCOUNTERED DURING ACTUAL BORING SHOULD BE INFORMED.
 - FOUNDATION IS DESIGNED FOR G+3 FLOOR, NO FUTURE PROVISION CONSIDERED.

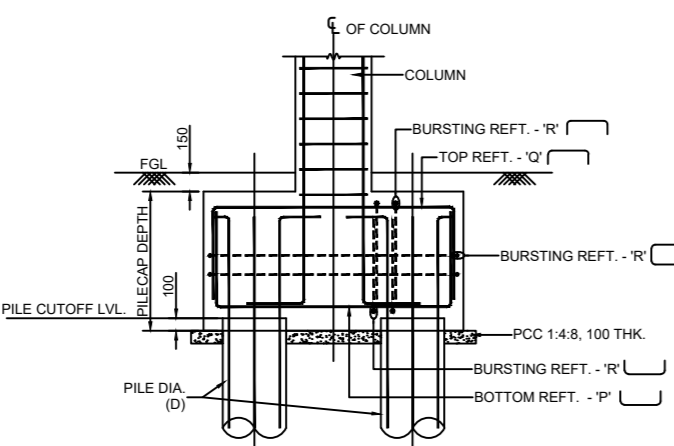


SECTION 4-4

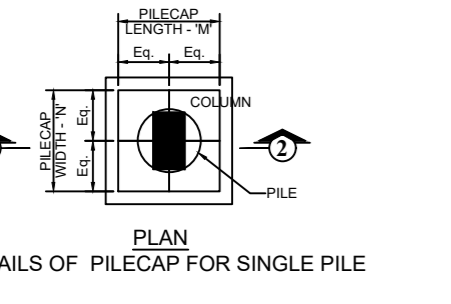
COLUMN SCHEDULE				
<p>COLUMN - C1 (300 X 600)</p>	<p>COLUMN - C2 (300 X 600)</p>	<p>COLUMN - C3 (400 X 550)</p>	<p>COLUMN - C4 (300 X 300)</p>	<p>COLUMN - C5 (300 X 300)</p>



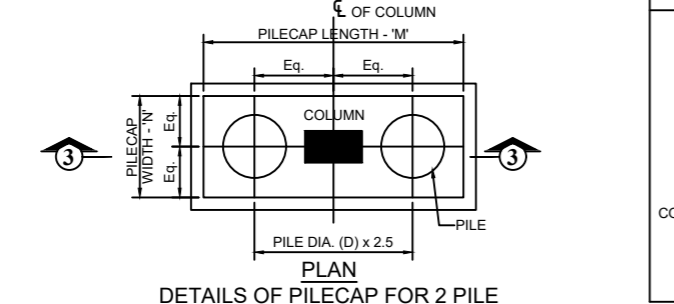
SECTION 2-2



SECTION 3-3



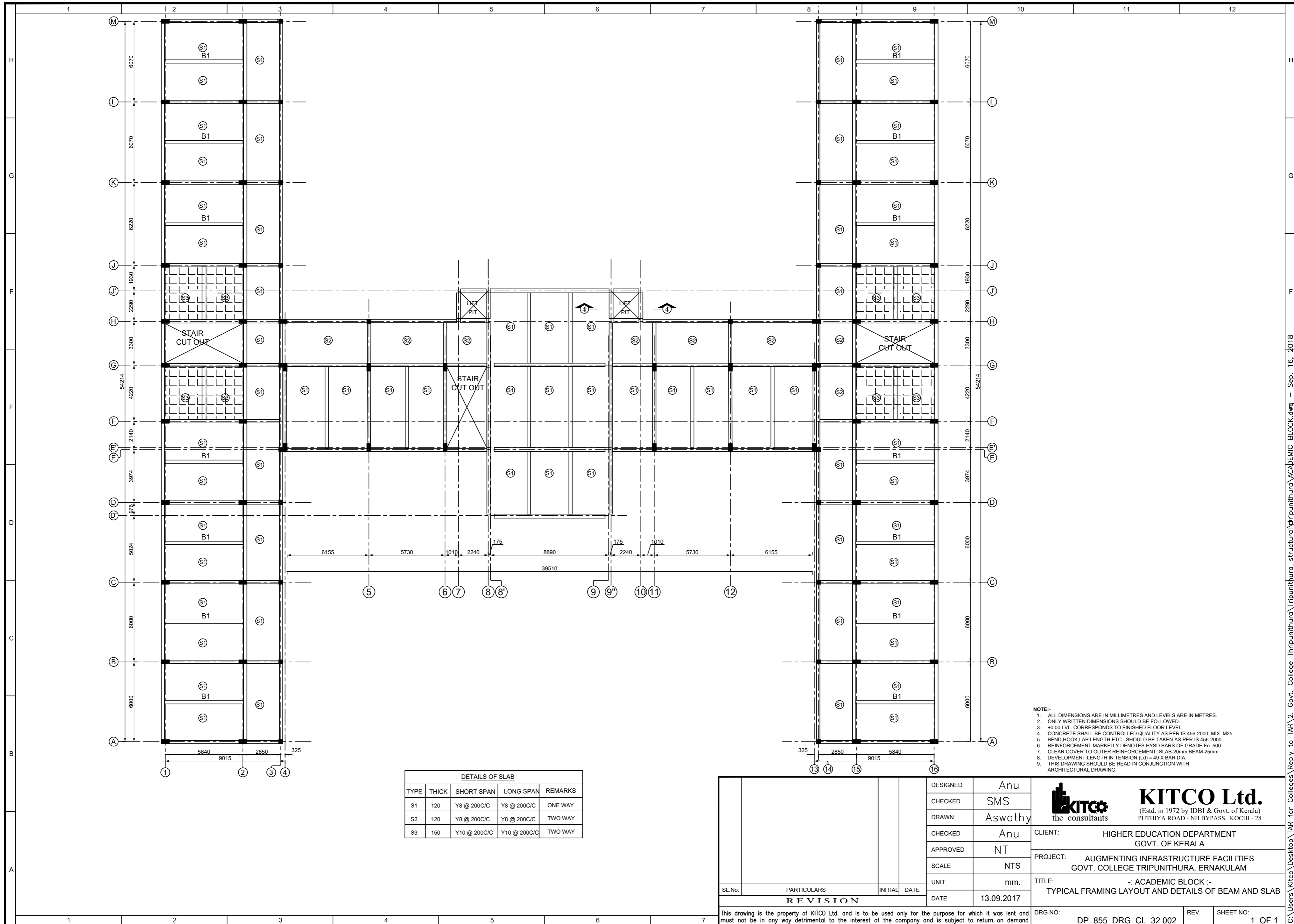
PLAN



PLAN


DESIGNED	Tibu	<p>KITCO Ltd. (Est. in 1972 by IDBI & Govt of Kerala) PUTHIYA ROAD - NH BYPASS, KOCHI - 28</p>
CHECKED	SMS	
DRAWN	Aswathy	
CHECKED	Tibu	
APPROVED	NT	
SCALE	NTS	CLIENT: HIGHER EDUCATION DEPARTMENT GOVT. OF KERALA
UNIT	mm.	PROJECT: AUGMENTING INFRASTRUCTURE FACILITIES GOVT. COLLEGE TRIPUNITHURA, ERNAKULAM
DATE	16.08.2018	TITLE: ACADEMIC BLOCK - LAYOUT AND DETAIL OF RCC COLUMN AND PILE FOUNDATION

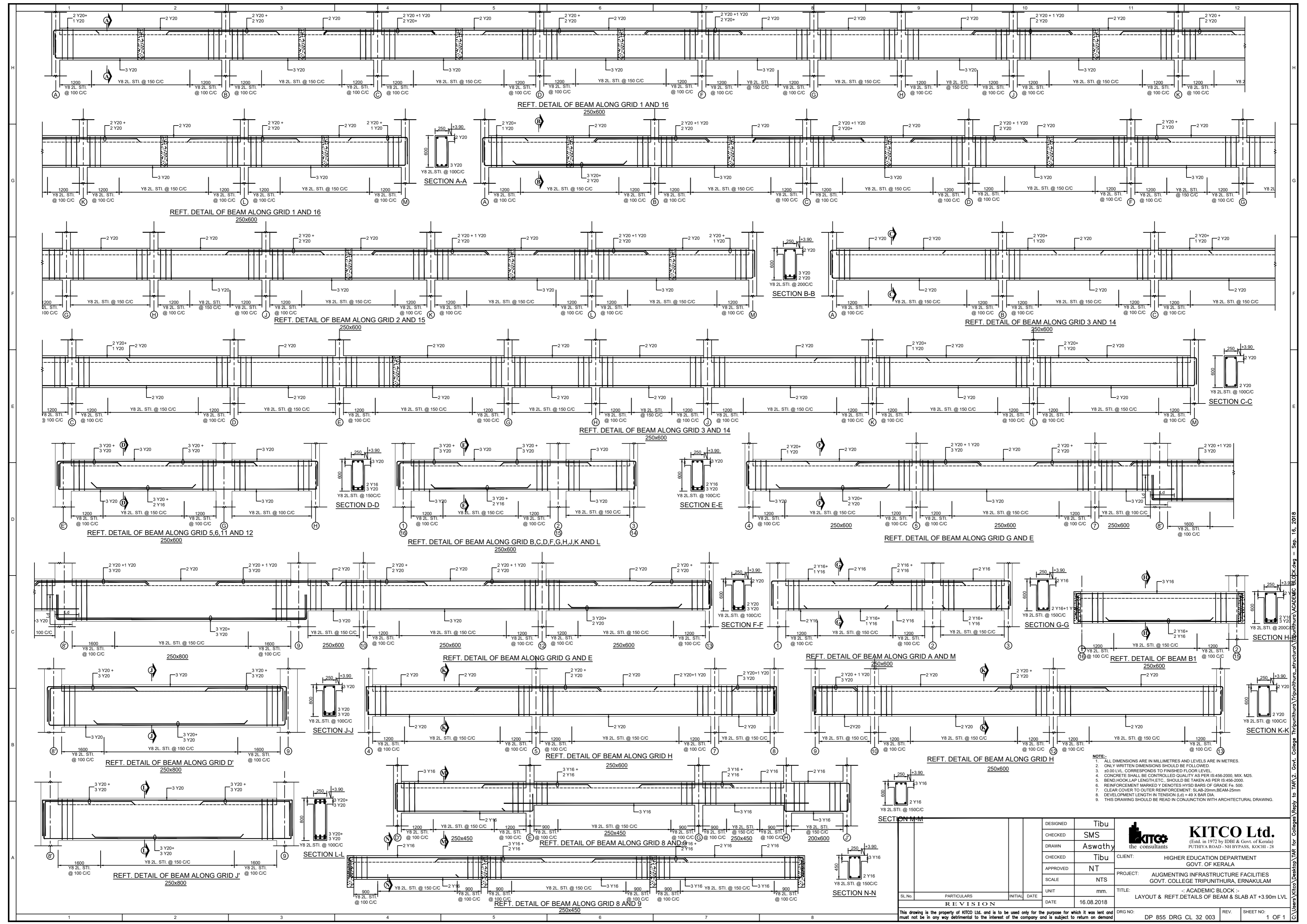
DRG No: DP 855 DRG CL 32 001



- NOTE:-**
1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES.
 2. ONLY WRITTEN DIMENSIONS SHOULD BE FOLLOWED.
 3. ±0.00 LVL. CORRESPONDS TO FINISHED FLOOR LEVEL.
 4. CONCRETE SHALL BE CONTROLLED QUALITY AS PER IS-456-2000, MIX, M25.
 5. BEND, HOOK, LAP LENGTH, ETC., SHOULD BE TAKEN AS PER IS-456-2000.
 6. REINFORCEMENT MARKED Y DENOTES HYSD BARS OF GRADE Fe 500.
 7. CLEAR COVER TO OUTER REINFORCEMENT: SLAB-20mm, BEAM-25mm
 8. DEVELOPMENT LENGTH IN TENSION (L_d) = 49 X BAR DIA.
 9. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ARCHITECTURAL DRAWING.

DETAILS OF SLAB				
TYPE	THICK	SHORT SPAN	LONG SPAN	REMARKS
S1	120	Y8 @ 200C/C	Y8 @ 200C/C	ONE WAY
S2	120	Y8 @ 200C/C	Y8 @ 200C/C	TWO WAY
S3	150	Y10 @ 200C/C	Y10 @ 200C/C	TWO WAY

DESIGNED	Anu	 KITCO Ltd. (Estd. in 1972 by IDBI & Govt. of Kerala) PUTHIYA ROAD - NH BYPASS, KOCHI - 28
CHECKED	SMS	
DRAWN	Aswathy	
CHECKED	Anu	CLIENT: HIGHER EDUCATION DEPARTMENT GOVT. OF KERALA
APPROVED	NT	PROJECT: AUGMENTING INFRASTRUCTURE FACILITIES GOVT. COLLEGE TRIPUNITHURA, ERNAKULAM
SCALE	NTS	TITLE: - : ACADEMIC BLOCK - : TYPICAL FRAMING LAYOUT AND DETAILS OF BEAM AND SLAB
UNIT	mm.	
DATE	13.09.2017	
This drawing is the property of KITCO Ltd. and is to be used only for the purpose for which it was lent and must not be in any way detrimental to the interest of the company and is subject to return on demand		DRG NO: DP 855 DRG CL 32 002
		REV. SHEET NO: 1 OF 1



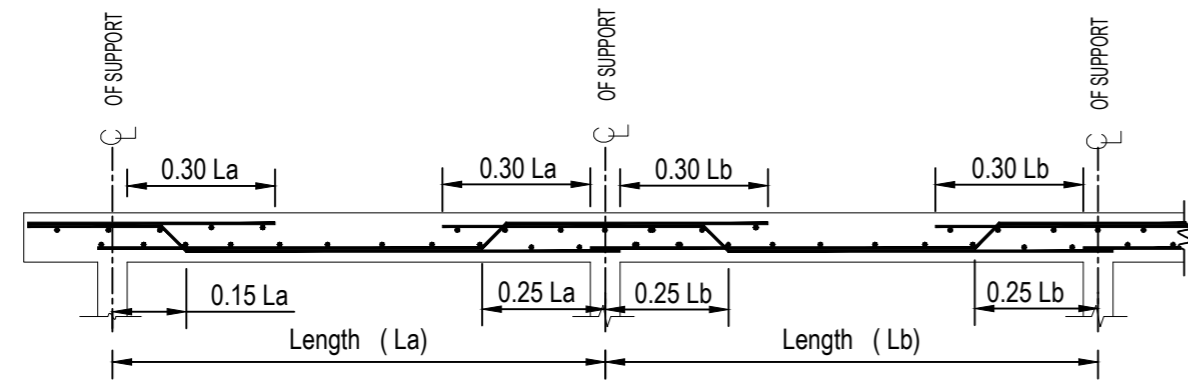
- NOTE:
1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES.
 2. ONLY WRITTEN DIMENSIONS SHOULD BE FOLLOWED.
 3. ±0.00 LVL CORRESPONDS TO FINISHED FLOOR LEVEL.
 4. CONCRETE SHALL BE CONTROLLED QUALITY AS PER IS:456-2000, MIX M25.
 5. BEND/HOOK LAP LENGTH ETC. SHOULD BE TAKEN AS PER IS:456-2000.
 6. REINFORCEMENT MARKED Y DENOTES HYSD BARS OF GRADE Fe 500.
 7. CLEAR COVER TO OUTER REINFORCEMENT: SLAB-20mm, BEAM-25mm
 8. DEVELOPMENT LENGTH IN TENSION (Ld) = 48 x BAR DIA.
 9. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ARCHITECTURAL DRAWING.

DESIGNED	Tibu	 (Est. in 1972 by IDBI & Govt of Kerala) PUTHIYA ROAD - NH BYPASS, KOCHI - 28	CLIENT: HIGHER EDUCATION DEPARTMENT GOVT. OF KERALA
CHECKED	SMS		
DRAWN	Aswathy	PROJECT: AUGMENTING INFRASTRUCTURE FACILITIES GOVT. COLLEGE TRIPUNITHURA, ERNAKULAM	TITLE: - ACADEMIC BLOCK - LAYOUT & REF. DETAILS OF BEAM & SLAB AT +3.90m LVL
CHECKED	Tibu		
APPROVED	NT	UNIT	mm.
SCALE	NTS	DATE	16.08.2018
DRG No.	DP 855 DRG CL 32 003	REV.	SHEET No.
			1 OF 1

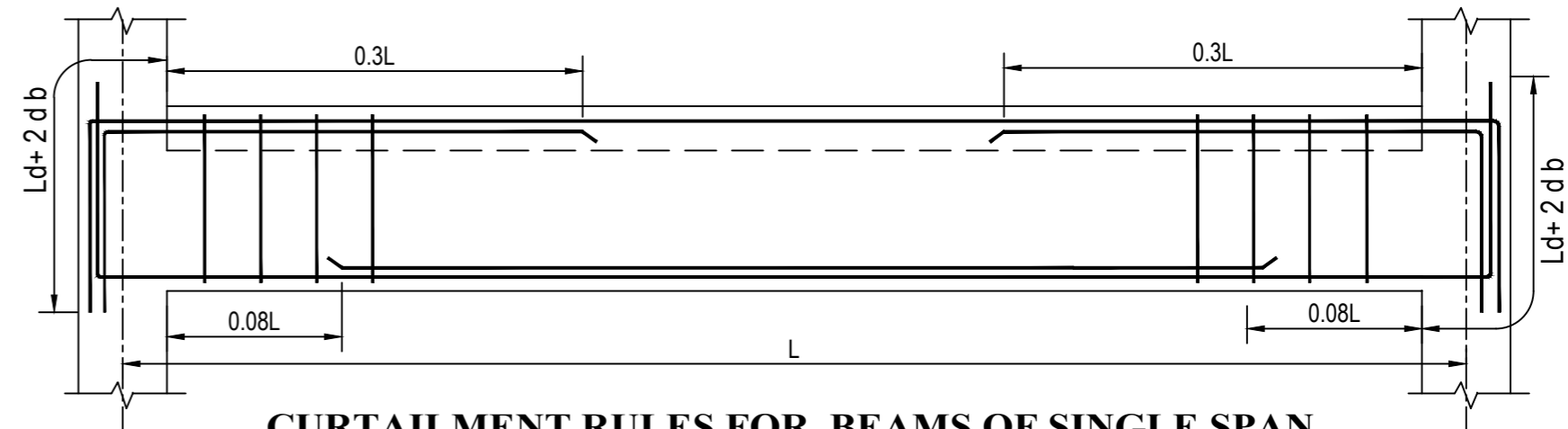
SL.No.	PARTICULARS	INITIAL	DATE
	REVISION		

This drawing is the property of KITCO Ltd. and is to be used only for the purpose for which it was lent and must not be in any way detrimental to the interest of the company and is subject to return on demand.

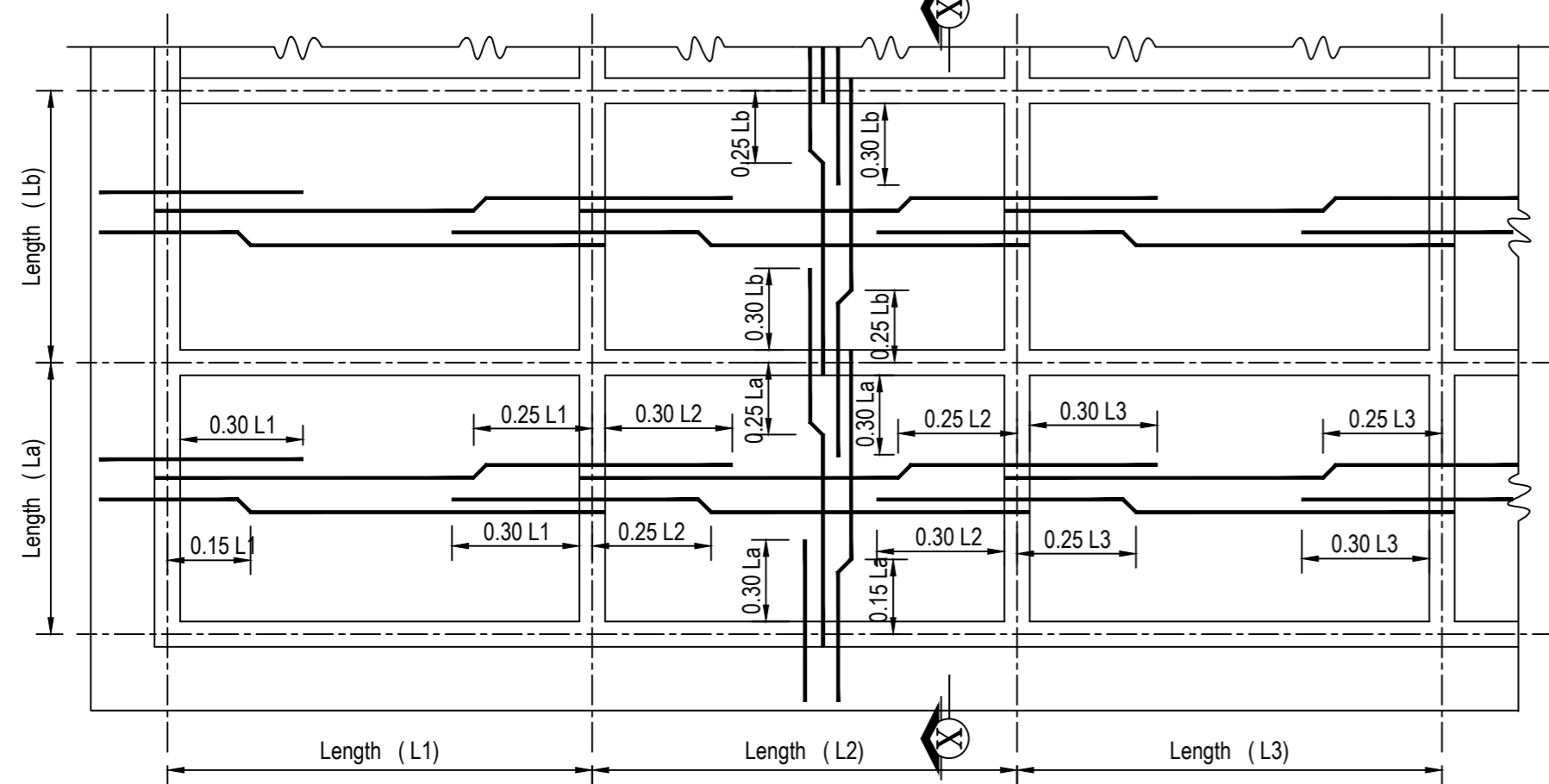
C:\Users\Klicca\Desktop\IAR2_Coat_College_Tripunithura\structural\acadmic\BLOCK.dwg - Sep. 16, 2018



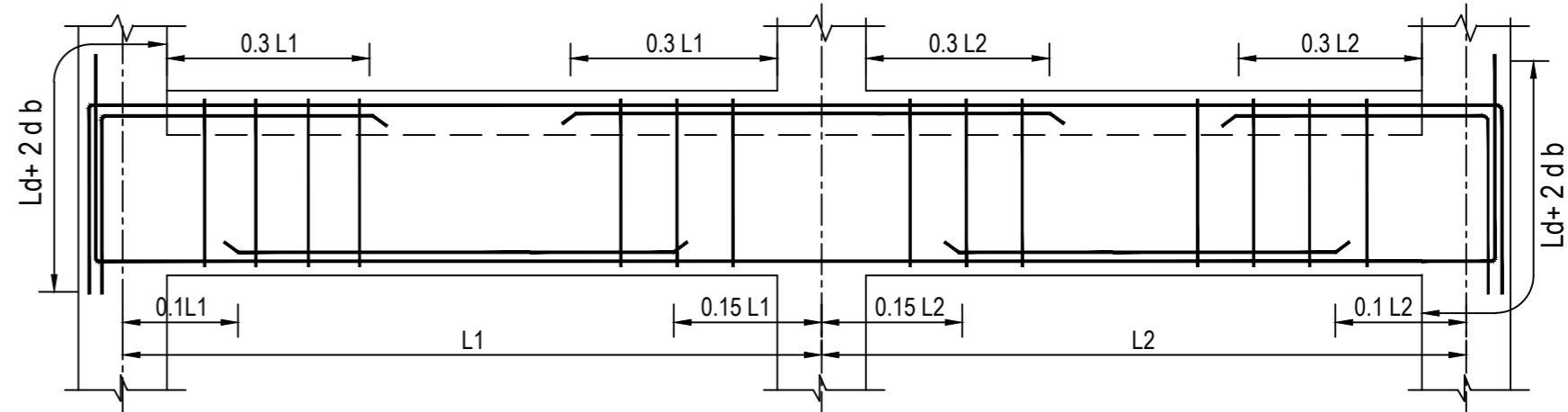
SECTION X-X



CURTAILMENT RULES FOR BEAMS OF SINGLE SPAN (TYPICAL)



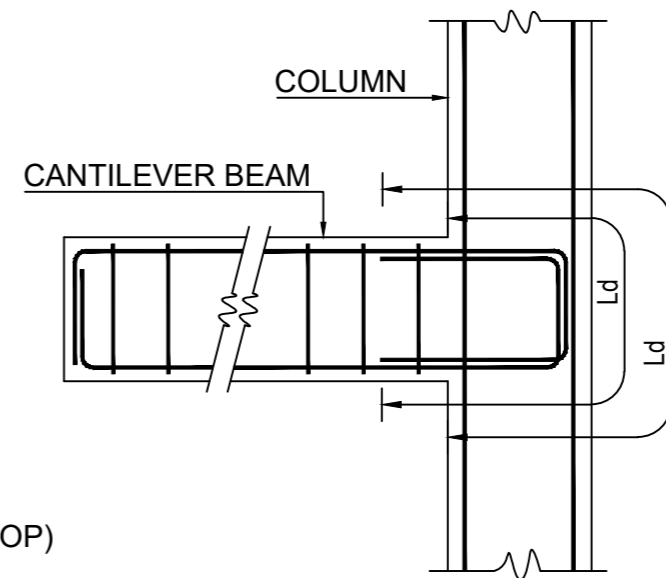
TYP. DETAILING OF REINFORCEMENT IN TWO WAY SLAB



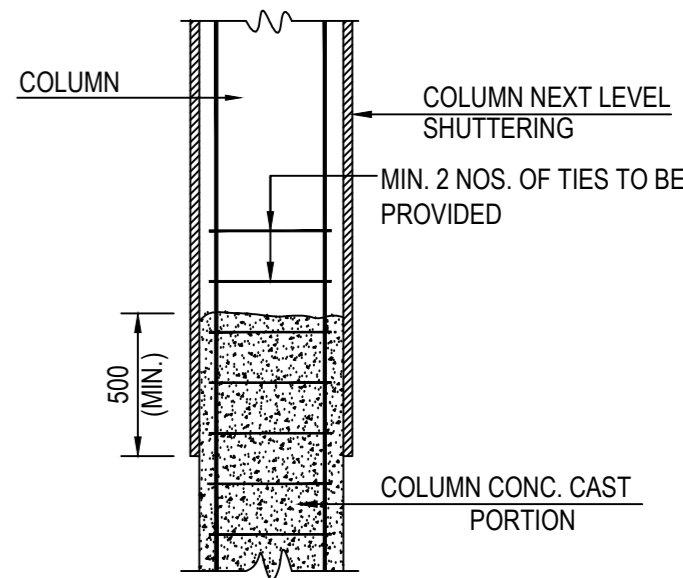
CURTAILMENT RULES FOR CONTINUOUS BEAMS OF DIFFERENT SPANS (TYPICAL)

LEGEND :-

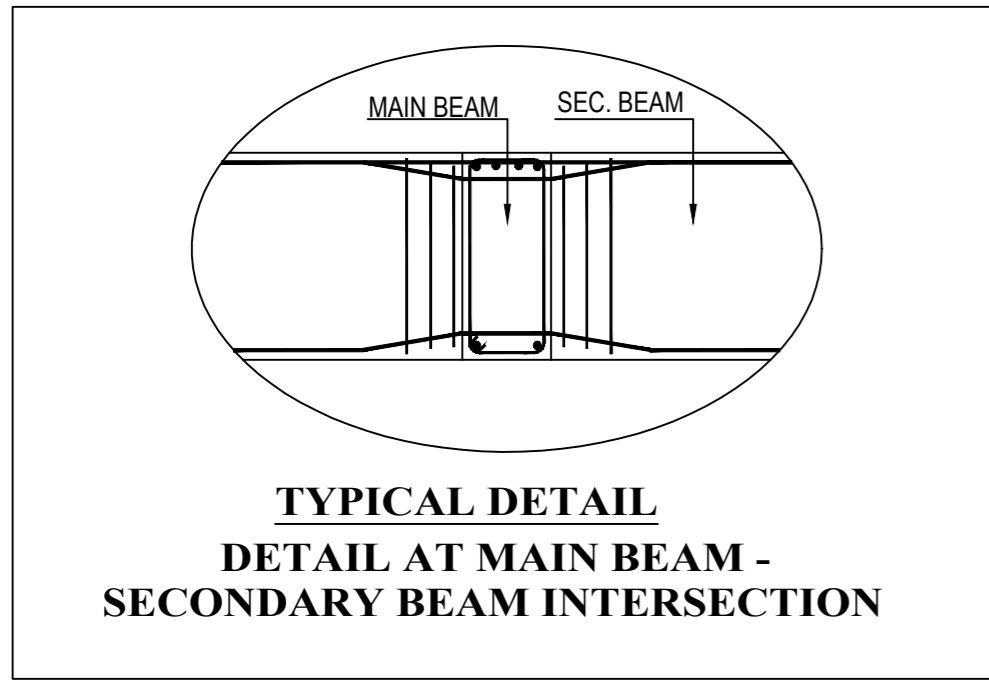
2 Y20	DENOTE DIA. OF BARS
—	DENOTE NO. OF BARS
Y8 2L.STI. @ 100 C/C	DENOTE SPACING OF BARS
—	DENOTE DIA. OF BARS



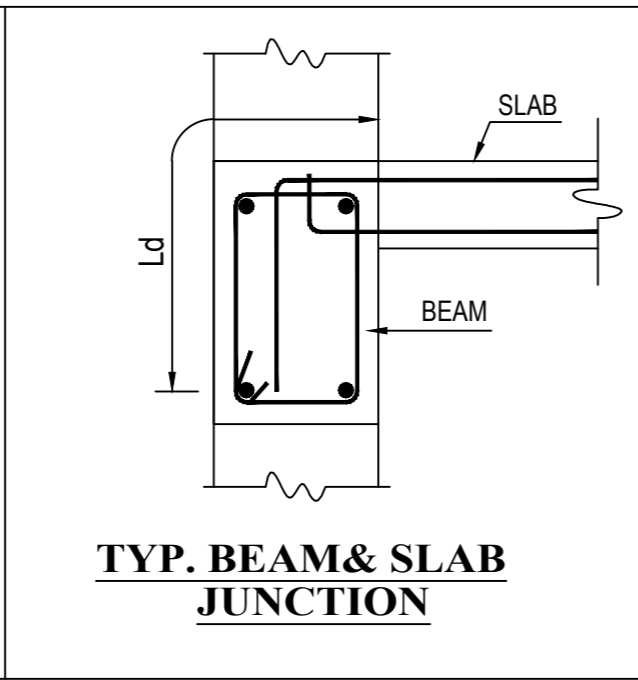
TYPICAL CONNECTION DETAILS OF CANTILEVER BEAM WITH RCC COLUMN



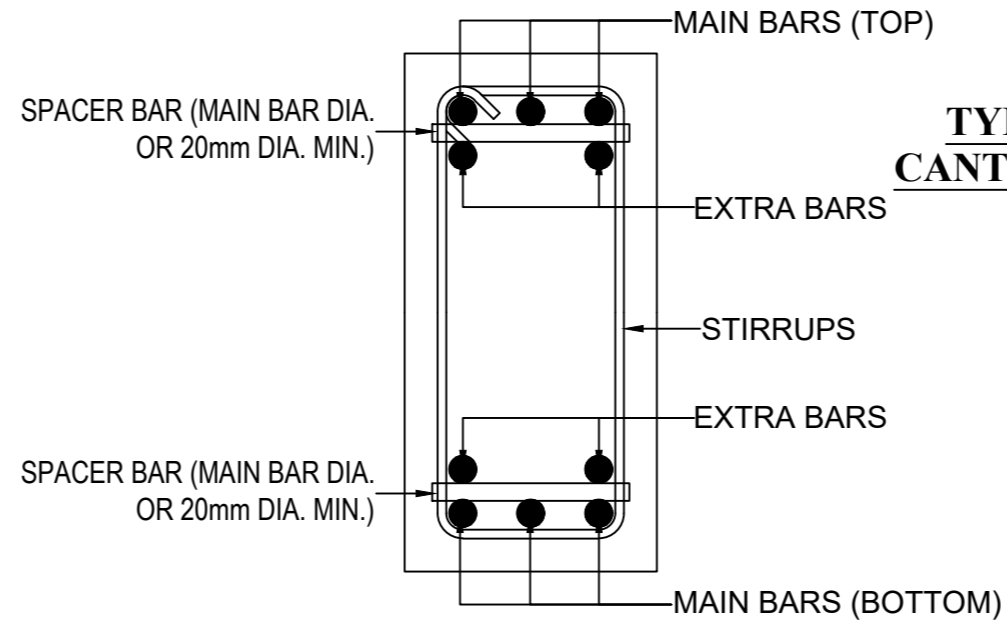
TYPICAL DETAILS OF COLUMN SHUTTERING



TYPICAL DETAIL DETAIL AT MAIN BEAM - SECONDARY BEAM INTERSECTION



TYP. BEAM & SLAB JUNCTION



TYPICAL CROSS SECTION DETAILS OF BEAM

NOTE:-

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES
2. ONLY WRITTEN DIMENSIONS SHOULD BE FOLLOWED
3. ±0.00 LVL. CORRESPONDS TO FINISHED FLOOR LEVEL
4. CONCRETE SHALL BE CONTROLLED QUALITY AS PER IS:456-2000, MIX. M25
5. BEND,HOOK,ETC., SHOULD BE TAKEN AS PER IS:456-2000
6. REINFORCEMENT MARKED Y DENOTES HYSD BARS OF GRADE Fe 500
7. CLEAR COVER TO OUTER REINFORCEMENT: BEAM - 25mm, SLAB -20mm
8. DEVELOPMENT LENGTH IN TENSION (Ld)= 46 x BAR DIA

DESIGNED	BP	CLIENT:	HIGHER EDUCATION DEPARTMENT GOVT. OF KERALA
CHECKED	SAG	PROJECT:	AUGMENTING INFRASTRUCTURE FACILITIES GOVT. COLLEGE TRIPUNITHURA, ERNAKULAM
DRAWN	Aswathy	TITLE:	TYPICAL CURTAILMENT DETAILS OF REFT. FOR BEAM AND SLAB
CHECKED	BP		
APPROVED	NT		
SL.No.	PARTICULARS	INITIAL	DATE
	REVISION		
UNIT:	SCALE:	DRG NO:	SHEET NO:
mm.	NTS	DP 855 DRG CL 32 004	1 OF 1
		REV.	DATE:
			04.09.2018

KITCO Ltd.
(Estd. in 1972 by IDBI & Govt. of Kerala)
PUTHIYA ROAD - NH BYPASS, KOCHI - 28

This drawing is the property of KITCO Ltd. and is to be used only for the purpose for which it was lent and must not be in any way detrimental to the interest of the company and is subject to return on demand

Annexure 4

Estimate Report

KITCO LTD
HIGHER EDUCATION DEPARTMENT
GOVT. OF KERALA
AUGMENTATION OF GOVERNMENT COLLEGES IN KERALA
GOVERNMENT COLLEGE THIRIPUNITHURA, ERNAKULAM

BRIEF SPECIFICATION OF ESTIMATE REPORT

1	General Specification	Estimate is based on DSR 2016 enhanced with a cost index of 48.04%. Market rates based on lowest quotation are considered for items not covered under above.
2	Type of structure	RCC framed, M25 grade concrete structure
3	No of storeys	Academic Block (G+2) -1467.83 sq.m or 15,794 sq.ft (Plinth Area) and 4333.57 sq.m or 46,630 sq. ft (Total area) Plinth area rate – Rs. 2738.57/sq.ft
4	Foundation	DMC piles of 700mm dia. 32.0m deep
5	Superstructure	Finished with M 25 grade concrete with solid block masonry
6	Joinery	Wooden doors for the rooms, FRP doors for the toilets and ducts, aluminum windows are ventilators.
7	Flooring / skirting	Kota stone flooring for the rooms and ceramic tile flooring for the toilets
8	Roofing	RCC flat roof is considered for the entire building
9	Ceiling	NA
10	Hand rail	Hand rail considered with brickwork with Stainless steel of 304 grade top rail.
11	Finishing	External walls are proposed to finish with acrylic smooth exterior emulsion and interior walls with emulsion paint
12	Other External finishes	NA
13	Water supply & Sanitary installation	As per norms
14	Other services	Septic tank for 150 users (1No.), Sump 50 cum

Annexure 5

Detailed Civil Estimate

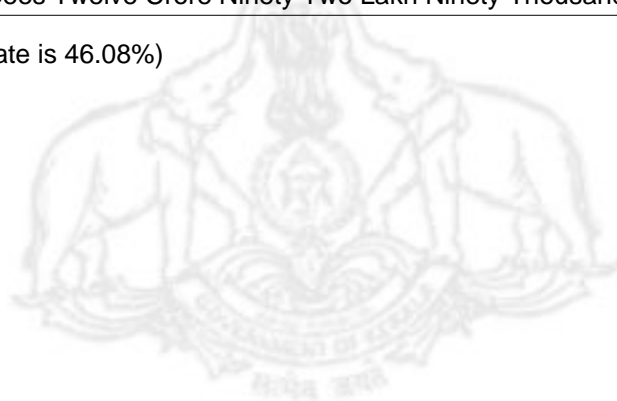
GOVT COLLEGE THRIPUNITHURA

General Abstract

(Dsor year: **2016**, Cost Index Applied for this estimate is **46.08%**)

SI No	Heading Description	Amount
1	ACADEMIC BLOCK	127699641.93
2	Sump &&& External water supply	980040.57
3	Rcc septic tank for 150 users 1 No.	611067.72
Total Amount		129290750.00
Lumpsum for round off		0.00
		TOTAL Rs 129290750.00
		Rounded Total Rs 12,92,90,750
Rupees Twelve Crore Ninety Two Lakh Ninety Thousand Seven Hundred and Fifty Only		

(Cost Index Applied for this estimate is 46.08%)



Other Engineering Organisations

PRICE

GOVT COLLEGE THRIPIUNITHURA

Abstract Estimate

(Dsr year: **2016**, Cost Index Applied for this estimate is **46.08%**)

1 ACADEMIC BLOCK		
1	2.32 Clearing grass and removal of the rubbish up to a distance of 50 m outside the periphery of the area cleared.	
Net Total Quantity		3600.000 sqm
Say 3600.000 sqm @ Rs 5.33 / sqm		Rs 19188.00
2	od39807/2017_2018 Boring, providing and installing bored cast-in-situ reinforced cement concrete piles of grade M-25 of specified diameter and length below the pile cap to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring, with bentonite solution and temporary casing of appropriate length for setting out and removal of same and the length of the pile to be embedded in the pile cap etc. all complete, including removal of excavated earth with all lifts and leads (Length of pile for payment shall be measured upto bottom of pile cap). 700 mm dia piles	
Net Total Quantity		4800.000 metre
Say 4800.000 metre @ Rs 4860.83 / metre		Rs 23331984.00
3	20.6.2.2 Vertical load testing of piles in accordance with IS 2911(Part IV) including installation of loading platform and preparation of pile head or construction of test cap and dismantling of test cap after test etc. complete as per specification & the direction of engineer -in-Charge. Single pile above 50 tonne and upto 100 tonne capacity Routine test	
Net Total Quantity		3.000 per test
Say 3.000 per test @ Rs 39024.54 / per test		Rs 117073.62
4	2.8.1 Earth work in excavation by mechanical means (Hydraulic excavator) /manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil	
Net Total Quantity		343.802 cum
Say 343.802 cum @ Rs 243.08 / cum		Rs 83571.39
5	2.6.1 Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed. All kinds of soil	
Net Total Quantity		988.630 cum
Say 988.630 cum @ Rs 183.99 / cum		Rs 181898.03

6	od39808/2017_2018 Earth work in excavation by means (Hydraulic excavator)/manual means over areas (exceeding 30cm in depth.1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50 m disposed earth to be levelled and neatly dressed, as directed by the Engineer- in-Charge but for every additional lift of 1.5m to 3.00m or part there of : All kinds of soil	
Net Total Quantity		59.481 cum
Say 59.481 cum @ Rs 208.29 / cum		Rs 12389.30
7	2.25 Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundation etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m.	
Net Total Quantity		893.842 cum
Say 893.842 cum @ Rs 183.70 / cum		Rs 164198.78
8	50.2.25.1 Filling with contractor's own earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m as per direction of site Engineer-in-charge	
Net Total Quantity		98.414 cum
Say 98.414 cum @ Rs 454.68 / cum		Rs 44746.88
9	50.2.26.1 Filling with contractor own earth (excluding rock) in open areas in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m as per direction of site Engineer-in-charge.	
Net Total Quantity		7000.000 cum
Say 7000.000 cum @ Rs 291.06 / cum		Rs 2037420.00
10	4.1.8 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 nominal size)	
Net Total Quantity		174.378 cum
Say 174.378 cum @ Rs 6541.68 / cum		Rs 1140725.08
11	4.11 Providing and laying damp-proof course 50 mm thick with cement concrete 1:2:4(1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size).	
Net Total Quantity		120.674 sqm
Say 120.674 sqm @ Rs 467.82 / sqm		Rs 56453.71

12	4.13 Applying a coat of residual petroleum bitumen of grade of VG-10 of approved quality using 1.7 kg per square metre on damp proof course after cleaning the surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil.	
Net Total Quantity		120.674 sqm
Say 120.674 sqm @ Rs 134.25 / sqm		Rs 16200.48
13	5.33.1 Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer - in-charge. Note:- Cement content considered in this item is @ 330 kg/ cum. Excess or less cement used as per design mix is payable or recoverable separately. All work upto plinth level	
Net Total Quantity		334.273 cum
Say 334.273 cum @ Rs 9417.05 / cum		Rs 3147865.55
14	5.33.2 Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer - in-charge. Note:- Cement content considered in this item is @ 330 kg/ cum. Excess or less cement used as per design mix is payable or recoverable separately. All work above plinth level upto floor V level	
Net Total Quantity		1223.360 cum
Say 1223.360 cum @ Rs 10590.87 / cum		Rs 12956446.72
15	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo - Mechanically Treated bars of grade Fe-500D or more	
Net Total Quantity		439433.375 kilogram
Say 439433.375 kilogram @ Rs 82.68 / kilogram		Rs 36332351.45
16	5.9.1 Centering and shuttering including strutting, etc. and removal of form for: Foundations, footings, bases of columns, etc for mass concrete	
Net Total Quantity		888.132 sqm
Say 888.132 sqm @ Rs 283.32 / sqm		Rs 251625.56
17	5.9.3 Centering and shuttering including strutting, etc. and removal of form for: Suspended floors, roofs, landings, balconies and access platform	

		Net Total Quantity	4936.170 sqm
		Say 4936.170 sqm @ Rs 616.90 / sqm	Rs 3045123.27
18	5.9.5	Centering and shuttering including strutting, etc. and removal of form for:Lintels, beams, plinth beams, girders bressumers and cantilevers	
		Net Total Quantity	3767.651 sqm
		Say 3767.651 sqm @ Rs 500.91 / sqm	Rs 1887254.06
19	5.9.6	Centering and shuttering including strutting, etc. and removal of form for:Columns, Pillars, Piers, Abutments, Posts and Struts	
		Net Total Quantity	1728.000 sqm
		Say 1728.000 sqm @ Rs 683.44 / sqm	Rs 1180984.32
20	5.9.7	Centering and shuttering including strutting, etc. and removal of form for:Stairs, (excluding landings) except spiral - staircases)	
		Net Total Quantity	176.130 sqm
		Say 176.130 sqm @ Rs 612.59 / sqm	Rs 107895.48
21	5.9.16.1	Centering and shuttering including strutting, etc. and removal of form for:Edges of slabs and breaks in floors and walls Under 20 cm wide	
		Net Total Quantity	1037.341 metre
		Say 1037.341 metre @ Rs 178.51 / metre	Rs 185175.74
22	5.9.2	Centering and shuttering including strutting, etc. and removal of form for:Walls (any thickness) including attached pilasters, butteresses, plinth and string courses etc.	
		Net Total Quantity	58.881 sqm
		Say 58.881 sqm @ Rs 553.06 / sqm	Rs 32564.73
23	5.9.19	Centering and shuttering including strutting, etc. and removal of form for:Weather shade, Chajjas, corbels etc., including edges	
		Net Total Quantity	371.250 sqm
		Say 371.250 sqm @ Rs 762.17 / sqm	Rs 282955.61
24	5.11.1	Extra additional height in centering, shuttering where ever required with adequate bracing, propping etc. including cost of de-shuttering and decentering at all levels, over a height of 3.5m, for every additional height of 1 metre or part thereof (Plan area to be measured).Suspended floors, roofs, landing, beams and balconies (Plan area to be measured)	

		Net Total Quantity	4320.572 sqm
		Say 4320.572 sqm @ Rs 250.53 / sqm	Rs 1082432.90
25	50.6.1.4 Solid block masonry using pre cast solid blocks (Factory made) of size 30x20x20cm or nearest available size confirming to IS 2185 part I of 1979 for foundation and plinth with thickness 20cm and above in: CM 1:6 (1 cement : 6 coarse sand) etc complete		
		Net Total Quantity	128.018 cum
		Say 128.018 cum @ Rs 5328.37 / cum	Rs 682127.27
26	50.6.1.5 Solid block masonry using pre cast solid blocks (Factory made) of size 30x20x20cm or nearest available size confirming to IS 2185 Part I of 1979 for super structure up to floor two level thickness 20cm and above in: CM 1:6 (1 cement : 6 coarse sand) etc complete		
		Net Total Quantity	482.747 cum
		Say 482.747 cum @ Rs 5837.01 / cum	Rs 2817799.07
27	50.6.1.6 Solid block masonry using pre cast solid blocks (Factory made) of size 30x20x20cm or nearest available size confirming to IS 2185 part I of 1979 for super structure above floor two level upto floor five level thickness 20cm and above in : CM 1:6 (1 cement : 6 coarse sand sand) etc complete		
		Net Total Quantity	352.528 cum
		Say 352.528 cum @ Rs 6542.58 / cum	Rs 2306442.64
28	6.13.2 Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level.Cement mortar 1:4 (1 cement : 4 coarse sand)		
		Net Total Quantity	423.363 sqm
		Say 423.363 sqm @ Rs 999.48 / sqm	Rs 423142.85
29	6.15 Extra for providing and placing in position 2 Nos 6 mm dia M.S bars at every third course of half brick masonry.		
		Net Total Quantity	562.802 sqm
		Say 562.802 sqm @ Rs 83.05 / sqm	Rs 46740.71

30	21.1.1.2 Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS : 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing /paneling, C.P. brass/ stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge.(Glazing, paneling and dash fasteners to be paid for separately):For fixed portion Powder coated aluminium (minimum thickness of powder coating 50 micron)	
Net Total Quantity		1770.661 kg
Say 1770.661 kg @ Rs 561.68 / kg		Rs 994544.87
31	21.1.2.2 For shutters of doors, windows & ventilators including providing and fixing hinges / pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber/ neoprene gasket required (Fittings shall be paid for separately) Powder coated aluminium (minimum thickness of powder coating 50 micron)	
Net Total Quantity		1770.661 kg
Say 1770.661 kg @ Rs 649.98 / kg		Rs 1150894.24
32	21.3.1 Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer - in -Charge. (Cost of aluminium snap beading shall be paid in basic item):With float glass panes of 4.0 mm thickness	
Net Total Quantity		387.000 sqm
Say 387.000 sqm @ Rs 1083.18 / sqm		Rs 419190.66
33	od39812/2017_2018 Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer - in -Charge. (Cost of aluminium snap beading shall be paid in basic item): With pin headed glass panes of 4.0 mm thickness	
Net Total Quantity		6.480 sqm
Say 6.480 sqm @ Rs 1146.63 / sqm		Rs 7430.16
34	9.100.1 Providing and fixing aluminium handles, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete:125 mm	
Net Total Quantity		96.000 no
Say 96.000 no @ Rs 74.65 / no		Rs 7166.40

35	9.97.3 Providing and fixing aluminium tower bolts, ISI marked, anodised(anodic coating not less than grade AC 10 as per : 1868), transparent or dyed to required colour or shade, with necessary screws complete:200x10 mm		
		Net Total Quantity	96.000 no
		Say 96.000 no @ Rs 111.24 / no	Rs 10679.04
36	50.9.15.1 Supplying and fixing 200 mm Aluminium aldop		
		Net Total Quantity	48.000 no
		Say 48.000 no @ Rs 171.38 / no	Rs 8226.24
37	9.102 Providing and fixing aluminium casement stays, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade, with necessary screws etc. complete.		
		Net Total Quantity	516.000 no
		Say 516.000 no @ Rs 72.31 / no	Rs 37311.96
38	9.1.1 Providing wood work in frames of doors, windows, clerestory windows and other frames, wrought framed and fixed in position with hold fast lugs or with dash fasteners of required dia & length (hold fast lugs or dash fastener shall be paid for separately).Second class teak wood		
		Net Total Quantity	1.815 cum
		Say 1.815 cum @ Rs 135479.05 / cum	Rs 245894.48
39	od39813/2017_2018 Providing and fixing panelled or panelled and glazed shutters for shutters for doors, windows and clerestory windows, including ISI marked M.S. pressed butt hinges bright finished of required size with necessary screws, excluding panelling which will be paid for separately, all complete as per direction of Engineer - in-charge. Second class teak wood 35 mm thick shutters		
		Net Total Quantity	105.754 sqm
		Say 105.754 sqm @ Rs 3838.30 / sqm	Rs 405915.58
40	9.7.1 Providing and fixing panelling or panelling and glazing in panelled or panelled and glazed shutters for doors, windows and clerestory windows (Area of opening for panel inserts excluding portion inside grooves or rebates to be measured), Panelling for panelled or panelled and glazed shutters 25 mm to 40 mm thick:Second class teak wood		
		Net Total Quantity	105.754 sqm
		Say 105.754 sqm @ Rs 2975.72 / sqm	Rs 314694.29

41	9.53 Providing 40x5 mm flat iron hold fast 40 cm long including fixing to frame with 10 mm diameter bolts, nuts and wooden plugs and embeddings in cement concrete block 30x10x15 cm 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)	
Net Total Quantity		288.000 each
Say 288.000 each @ Rs 173.25 / each		Rs 49896.00
42	9.121 Providing and fixing Fiber Glass Reinforced plastic (FRP) Door Frames of cross- section 90 mm x 45 mm having single rebate of 32 mm x 15 mm to receive shutter of 30 mm thickness. The laminated shall be moulded with fire resistant grade unsaturated polyester resin and chopped mat. Door frame laminate shall be 2 mm thick and shall be filled with suitable wooden block in all the three legs. The frame shall be covered with fiber glass from all sides. M.S. stay shall be provided at the bottom to steady the frame.	
Net Total Quantity		278.400 metre
Say 278.400 metre @ Rs 606.96 / metre		Rs 168977.66
43	9.122.2 Providing and fixing to existing door frames.30 mm thick Fiberglass Reinforced Plastic (F.R.P) flush door shutter in different plain and wood finish made with fire retardant grade unsaturated polyester resin, moulded to 3 mm thick FRP laminate all around, with suitable wooden blocks inside at required places for fixing of fittings and polyurethane foam (PUF) / Polystyrene foam to be used all filler material throughout the hollow panel, casted monolithically with testing parameters of F.R.P. laminate conforming to table - 3 of IS : 14856, complete as per direction of Engineer-in-charge.	
Net Total Quantity		72.461 sqm
Say 72.461 sqm @ Rs 3704.30 / sqm		Rs 268417.28
44	9.103 Providing and fixing bright finished brass 100 mm mortice latch and lock, ISI marked, with six levers and a pair of anodised (anodic coating not less than grade AC 10 as per IS: 1868) aluminium lever handles of approved quality with necessary screws etc . complete.	
Net Total Quantity		48.000 each
Say 48.000 each @ Rs 908.84 / each		Rs 43624.32
45	9.48.2 Providing and fixing M.S. Grills of required pattern in frames of windows etc. with M.S. flats, square or round bars etc. including priming coat with approved steel primer all complete.Fixed to openings/ wooden frames with rawl plugs screws etc	
Net Total Quantity		4721.760 kg
Say 4721.760 kg @ Rs 164.27 / kg		Rs 775643.52
46	od39814/2017_2018 Providing and fixing S.S fan clamp of 16mm dia in RCC slabs, beams including cost and conveyance of all materials,labour charges etc complete as directed by the Engineer-in-Charge at all levels.	
Net Total Quantity		200.000 each

Say 200.000 each @ Rs 127.16 / each		Rs 25432.00
47	<p>10.28</p> <p>Providing and fixing stainless steel (Grade 304) railing made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners, stainless steel bolts etc., of required size on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in-charge, (for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.)</p>	
Net Total Quantity		6758.133 kg
Say 6758.133 kg @ Rs 690.08 / kg		Rs 4663652.42
48	<p>od39815/2017_2018</p> <p>Providing and fixing in position collapsible steel shutters with vertical channels 20x10x2mm and braced with flat iron diagonals 20x5mm size, with top and bottom rail of T-iron 40x40x6mm, with 40mm dia steel pulleys, complete with bolts, nuts, locking arrangement, stoppers, handles, including painting with two coats of approved make and colour synthetic enamel paint over two coats of approved make anticorrosive yellow zinc chromate primer, including cost and conveyance of all materials, labour charges, lead, lift etc complete as directed by Engineer-in-Charge</p>	
Net Total Quantity		36.750 sqm
Say 36.750 sqm @ Rs 7900.35 / sqm		Rs 290337.86
49	<p>od39816/2017_2018</p> <p>Steel work in built up tubular sections YST 310 grade as per IS: 4923 including cutting, bending, hoisting, fixing in position, welded and bolted including special shaped washers etc. complete with electric resistance or induction butt welded tubes including painting with two coats of approved make and colour synthetic enamel paint over two coats of approved make anticorrosive yellow zinc chromate primer, closing all the open ends properly with same material cost and conveyance of all materials, labour, etc., complete as directed by the Engineer-in-Charge at all levels.</p>	
Net Total Quantity		6022.800 per kg
Say 6022.800 per kg @ Rs 166.97 / per kg		Rs 1005626.92
50	<p>od39817/2017_2018</p> <p>Providing and laying MP hip & ridge tiles with class AA magalore pattern tile manufactured by M/s common wealth trust ltd or equivalent including fixing with cement mortar 1:2 as directed by Engineer-in-charge at all levels</p>	
Net Total Quantity		396.000 metre
Say 396.000 metre @ Rs 468.49 / metre		Rs 185522.04
51	<p>od39818/2017_2018</p> <p>Providing and laying MP tiles of size 320mm or nearest with class AA Mangalore pattern tiles (COMTRUST) manufactured by M/s Common wealth Trust Ltd. or equivalent over the cement mortar reeper bands already done to correct lines and levels including the cost, conveyance of all material, labour charges, led lift etc complete as directed by the Engineer-in-charge at all levels</p>	

		Net Total Quantity	514.801 sqm
		Say 514.801 sqm @ Rs 1008.73 / sqm	Rs 519295.21
52	od39819/2017_2018 Providing and laying Antiskid Ceramic floor tiles 300x300x7 mm of 1st quality conforming to IS : 15622 of approved make, shade, and pattern laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand) and jointed with grey cement slurry @ 3.3 kg/sqm including pointing the joints with white cement and matching pigment etc. including cost and conveyance of all materials, labour charges, lead, lift etc, complete as directed by the Engineer-in-Charge at all levels.		
		Net Total Quantity	288.000 sqm
		Say 288.000 sqm @ Rs 1005.56 / sqm	Rs 289601.28
53	11.36 Providing and fixing 1st quality ceramic glazed wall tiles conforming to IS : 15622 (thickness to be specified by the manufacturer), of approved make, in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer -in-Charge, in skirting, risers of steps and dados, over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3 kg per sqm, including pointing in white cement mixed with pigment of matching shade complete.		
		Net Total Quantity	715.681 sqm
		Say 715.681 sqm @ Rs 1088.00 / sqm	Rs 778660.93
54	22.5 Providing and laying water proofing treatment in sunken portion of WCs, bathroom etc., by applying cement slurry mixed with water proofing cement consisting of applying : a) First layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. This layer will be allowed to air cure for 4 hours. b) Second layer of slurry of cement @ 0.242 kg /sqm mixed with water proofing cement compound @ 0.126 kg/ sqm. This layer will be allowed to air cure for 4 hours followed with water curing for 48 hours. The rate includes preparation of surface, treatment and sealing of all joints, corners, junctions of pipes and masonry with polymer mixed slurry.		
		Net Total Quantity	256.000 sqm
		Say 256.000 sqm @ Rs 435.76 / sqm	Rs 111554.56
55	8.2.2.2 Providing and fixing 18 mm thick gang saw cut, mirror, polished, premoulded and prepolished, machine cut for kitchen platforms, vanity counters, window sills, facias and similar locations, of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edges to give high gloss finish etc. complete at all levels. Area of slab over 0.50 sqm		
		Net Total Quantity	36.000 sqm
		Say 36.000 sqm @ Rs 4547.91 / sqm	Rs 163724.76

56	8.3.2 Providing edge moulding to 18 mm thick marble stone counters, vanities etc., including machine polishing to edge to give high gloss finish etc. complete as per design approved by Engineer -in-Charge.Granite work	
Net Total Quantity		68.000 metre
Say 68.000 metre @ Rs 358.92 / metre		Rs 24406.56
57	8.5 Extra for providing opening or required size & shape for wash basin/kitchen sink in kitchen platform, vanity counter and similar location in marble/granite/ stone work, including necessary holes for pillar taps etc. including moulding, rubbing and polishing of cut edges etc. complete.	
Net Total Quantity		21.000 each
Say 21.000 each @ Rs 625.22 / each		Rs 13129.62
58	11.20.3 Chequerred precast cement concrete tiles 22 mm thick in footpath & courtyard, jointed with neat cement slurry mixed with pigment to match the shade of tiles, including rubbing and cleaning etc. complete on 20 mm thick bed of cement mortar 1:4 (1 cement : 4 coarse sand).Dark shade pigment using ordinary cement	
Net Total Quantity		53.760 sqm
Say 53.760 sqm @ Rs 1046.44 / sqm		Rs 56256.61
59	11.26.1 Kota stone slab flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab, including rubbing and polishing complete with base of cement mortar 1:4 (1 cement : 4 coarse sand)25 mm thick	
Net Total Quantity		3671.066 sqm
Say 3671.066 sqm @ Rs 1691.75 / sqm		Rs 6210525.91
60	11.27 Kota stone slab 20 mm thick in risers of steps, skirting, dado and pillars laid on 12 mm (average) thick cement mortar 1:3 (1 cement : 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing and polishing complete.	
Net Total Quantity		307.111 sqm
Say 307.111 sqm @ Rs 1808.76 / sqm		Rs 555490.09
61	od39820/2017_2018 Providing and fixing PVC tile edging to match the wall tiles and finishing as directed by the Engineer-in-Charge at all levels.	
Net Total Quantity		147.000 metre
Say 147.000 metre @ Rs 48.78 / metre		Rs 7170.66
62	13.16.1 6 mm cement plaster of mix:1:3 (1 cement : 3 fine sand)	

		Net Total Quantity	5414.430 sqm
		Say 5414.430 sqm @ Rs 210.06 / sqm	Rs 1137355.17
63	13.1.1	12 mm cement plaster of mix:1:4 (1 cement : 4 fine sand)	
		Net Total Quantity	11357.313 sqm
		Say 11357.313 sqm @ Rs 252.65 / sqm	Rs 2869425.13
64	13.2.1	15 mm cement plaster on the rough side of single or half brick wall of mix:1:4 (1 cement :4 fine sand)	
		Net Total Quantity	6638.609 sqm
		Say 6638.609 sqm @ Rs 292.53 / sqm	Rs 1941992.29
65	13.10	15 mm cement plaster 1:3 (1 cement :3 coarse sand) finished with a floating coat of neat cement on the rough side of single or half brick wall.	
		Net Total Quantity	1545.310 sqm
		Say 1545.310 sqm @ Rs 388.50 / sqm	Rs 600352.93
66	13.22	Extra for plastering exterior walls of height more than 10 m from ground level for every additional height of 3 m or part thereof.	
		Net Total Quantity	1564.964 sqm
		Say 1564.964 sqm @ Rs 59.38 / sqm	Rs 92927.56
67	13.47.1	Finishing walls with Premium Acrylic Smooth exterior paint with Silicone additives of required shade:New work (Two or more coats applied @ 1.43 ltr/ 10 sqm over and including priming coat of exterior primer applied @ 2.20 kg/ 10 sqm)	
		Net Total Quantity	6638.609 sqm
		Say 6638.609 sqm @ Rs 141.41 / sqm	Rs 938765.70
68	13.43.1	Applying one coat of water thinnable cement primer of approved brand and manufacture on wall surface:Water thinnable cement primer	
		Net Total Quantity	16771.743 sqm
		Say 16771.743 sqm @ Rs 53.98 / sqm	Rs 905338.69
69	13.60.1	Wall painting with acrylic emulsion paint of approved brand and manufacture to give an even shade:Two or more coats on new work	
		Net Total Quantity	16771.743 sqm
		Say 16771.743 sqm @ Rs 123.36 / sqm	Rs 2068962.22

70	od39821/2017_2018 Providing and applying melamine matt finish on wood work after scraping and cleaning the surface applying necessary coats of putty, filler and sealer, etc. Sanding shall be done along the grains using water paper/emery paper before applying filler, sealer and melamine to get a perfectly smooth and uniform finish. Melamine and sealer shall be applied using spary gun. The rate shall include cost and conveyance of all materials, lead lift, all labour	
Net Total Quantity		272.160 sqm
Say 272.160 sqm @ Rs 749.86 / sqm		Rs 204081.90
71	2.34.1 Supplying chemical emulsion in sealed containers including delivery as specified.Chlorpyriphos / Lindane emulsifiable concentrate of 20%	
Net Total Quantity		672.152 Litre
Say 672.152 Litre @ Rs 271.64 / Litre		Rs 182583.37
72	2.35.3.1 Diluting and injecting chemical emulsion for POST -CONSTRUCTIONAL anti-termite treatment (excluding the cost of chemical emulsion):Treatment of soil under existing floors using chemical emulsion @ one litre per hole, 300 mm apart including drilling 12 mm diameter holes and plugging with cement mortar 1:2 (1 cement : 2 coarse sand) to match the existing floor:With Chlorpyriphos/Lindane E.C. 20% with 1% concentration	
Net Total Quantity		1222.093 sqm
Say 1222.093 sqm @ Rs 192.68 / sqm		Rs 235472.88
73	od39822/2017_2018 Supplying and fixing of following sizes of Medium duty PVC conduits conforming to IS 9537/1983 Part III along with accessories in surface/ recess including cutting the wall and making good the same in case of recessed conduit as required. 20mm dia	
Net Total Quantity		600.000 metre
Say 600.000 metre @ Rs 105.93 / metre		Rs 63558.00
74	od39823/2017_2018 Supplying and fixing of following sizes of Medium duty PVC conduits conforming to IS 9537/1983 Part III along with accessories in surface/ recess including cutting the wall and making good the same in case of recessed conduit as required. 25mm dia	
Net Total Quantity		600.000 metre
Say 600.000 metre @ Rs 128.23 / metre		Rs 76938.00
75	od39824/2017_2018 Supplying and fixing of following sizes of Medium duty PVC conduits conforming to IS 9537/1983 Part III along with accessories in surface/ recess including cutting the wall and making good the same in case of recessed conduit as required. 32mm dia	
Net Total Quantity		600.000 metre
Say 600.000 metre @ Rs 165.40 / metre		Rs 99240.00

76	od39825/2017_2018 Providing GI profiled sheet partition / screening of 2.5m height with vertical & horizontal bracing with 40mm dia GI pipe. The vertical member have 3.0m long, 50cm embeded into foundation concrete 1:3:6 using 20mm broken stone of size 30x30x60cm at 2m intervvels and horizontal members braced at bottom, middle and top of partitions including all cost, and conveyance of materials and labour charges etc. including dismatling and removing the materials after use.	
Net Total Quantity		200.000 metre
Say 200.000 metre @ Rs 4214.48 / metre		Rs 842896.00
77	17.3.1 Providing and fixing white vitreous china pedestal type water closet (European type) with seat and lid, 10 litre low level white vitreous china flushing cistern & C.P. flush bend with fittings & C.I. brackets, 40 mm flush bend, overflow arrangement with specials of standard make and mosquito proof coupling of approved municipal design complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required :W.C. pan with ISI marked white solid plastic seat and lid	
Net Total Quantity		49.000 each
Say 49.000 each @ Rs 6710.55 / each		Rs 328816.95
78	50.17.1.5 Supplying and fixing CP Health Faucet superior quality (Jagur or equivalent make) including cost of materials and labour charges etc complete as per the direction of site Engineer-in-charge.	
Net Total Quantity		49.000 no
Say 49.000 no @ Rs 1280.58 / no		Rs 62748.42
79	17.5.1 Providing and fixing white vitreous china flat back half stall urinal of size 580x380x350 mm with white PVC automatic flushing cistern, with fittings, standard size C.P. brass flush pipe, spreaders with unions and clamps (all in C.P. brass) with waste fitting as per IS : 2556, C.I. trap with outlet grating and other couplings in C.P. brass, including painting of fittings and cutting and making good the walls and floors wherever required:Single half stall urinal with 5 litre PVC. automatic flushing cistern	
Net Total Quantity		16.000 each
Say 16.000 each @ Rs 9038.55 / each		Rs 144616.80
80	od39826/2017_2018 Providing and fixing coloured vitreous china under counter round wash basin 440 mm dia or nearest size of approved make including one CP brass pillar cock 15 mm NB including connecting pipes with all fittings 32 mm dia rubber plugs 32 mm dia CP brass waste coupling, 32 mm dia CP brass bottle trap, 15mm angle valve, etc. complete as directed by the Engineer-in-charge.	
Net Total Quantity		28.000 each
Say 28.000 each @ Rs 6000.99 / each		Rs 168027.72
81	od39827/2017_2018 Supplying and fixing approved quality white vitreous china urinal division plate 700 x 340 including cost and conveyance of all material, labour charge, lead, lift, all taxes etc. complete as directed by the Engineer-in-Charge.	

Net Total Quantity		12.000 no
Say 12.000 no @ Rs 1683.01 / no		Rs 20196.12
82	od39828/2017_2018 Providing and fixing sanitary fixtures for handicapped toilet including one wash basin of size 65 x 35cm, one pair mounting brackets, one number pillar cock & all other related fittings like bottle trap ,angle cock,waste coupling etc,one number EWC & Cistern complete with fittings & seat cover, one no. hinged rail 76cm & 5 nos. of grab rails 60cm etc designed for people with special needs comes with as per manufactures specification including cutting and making good the walls and floors wherever required as directed by Engineer-in-Charge.	
Net Total Quantity		1.000 set
Say 1.000 set @ Rs 33695.22 / set		Rs 33695.22
83	18.51.1 Providing and fixing C.P. brass long body bib cock of approved quality conforming to IS standards and weighing not less than 690 gms.15 mm nominal bore	
Net Total Quantity		50.000 each
Say 50.000 each @ Rs 719.52 / each		Rs 35976.00
84	18.52.1 Providing and fixing C.P brass stop cock (concealed) of standard design and of approved make conforming to IS: 893115 mm nominal bore	
Net Total Quantity		28.000 each
Say 28.000 each @ Rs 797.52 / each		Rs 22330.56
85	od39829/2017_2018 Providing and fixing Cleanout with Spigot, with SS 304 Square Frame & Round Frame with Flat Round Cover with Rubber Seal & SS Screw including cost and conveyance of all materials, labour charges, sundries etc complete as directed by the Engineer in charge at all levels 75mm dia	
Net Total Quantity		6.000 each
Say 6.000 each @ Rs 1527.49 / each		Rs 9164.94
86	od39830/2017_2018 Providing and fixing Cleanout with Spigot, with SS 304 Square Frame & Round Frame with Flat Round Cover with Rubber Seal & SS Screw including cost and conveyance of all materials, labour charges, sundries etc complete as directed by the Engineer in charge at all levels 110mm dia	
Net Total Quantity		6.000 each
Say 6.000 each @ Rs 1673.78 / each		Rs 10042.68
87	od39831/2017_2018 Providing and fixing frameless mirror, with all four edges machine polished and back side protected with safety film and 4 mm thick Plywood backing and fixed on walls with mirror screws. The rate includes lifting, cutting etc. as per design and drawing.	
Net Total Quantity		5.000 sqm

Say 5.000 sqm @ Rs 3891.03 / sqm		Rs 19455.15
88	od39832/2017_2018 Providing and fixing floor trap of PVC,110 mm outer dia(multi trap) including CP cockroach free floor grating with cup etc including cost and conveyance of all materials, labour charges, sundries etc complete as directed by the Engineer-in-Charge at all levels	
Net Total Quantity		54.000 no
Say 54.000 no @ Rs 427.63 / no		Rs 23092.02
89	50.18.8.6.2 Providing and fixing PVC pipes, fittings including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step PVC solvent cement and testing of joints complete as per direction of Engineer-in-Charge. Concealed work, including cutting chases and making good the wall etc. 50 mm pipe 6 kgf/cm2	
Net Total Quantity		144.000 metre
Say 144.000 metre @ Rs 346.33 / metre		Rs 49871.52
90	50.18.8.8.1 Providing and fixing PVC pipes, fittings including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes with one step PVC solvent cement and testing of joints complete as per direction of Engineer-in-Charge. Concealed work, including cutting chases and making good the wall etc. 75 mm pipe 6 Kgf/cm2	
Net Total Quantity		36.000 metre
Say 36.000 metre @ Rs 510.65 / metre		Rs 18383.40
91	50.18.8.9.1 Providing and fixing PVC pipes, fittings including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes with one step PVC solvent cement and testing of joints complete as per direction of Engineer-in-Charge. Concealed work, including cutting chased and making good the wall etc. 110 mm pipe 6kgf/cm2	
Net Total Quantity		90.000 metre
Say 90.000 metre @ Rs 610.65 / metre		Rs 54958.50
92	od39833/2017_2018 Providing and fixing PVC pipes, fittings including fixing the pipe with clamps at 1.00 m spacing . This includes jointing of pipes & fittings with one step PVC solvent cement and testing of joints complete as per direction of Engineer-in-Charge 75 mm dia 6 Kgf/cm2 - Internal work- Exposed on wall	
Net Total Quantity		24.000 metre
Say 24.000 metre @ Rs 382.52 / metre		Rs 9180.48
93	od39834/2017_2018 Providing and fixing PVC pipes, fittings including fixing the pipe with clamps at 1.00 m spacing . This includes jointing of pipes & fittings with one step PVC solvent cement and testing of joints complete as per direction of Engineer-in-Charge 110mm dia 6 Kgf/cm2 - Internal work- Exposed on wall	
Net Total Quantity		24.000 metre

Say 24.000 metre @ Rs 492.04 / metre		Rs 11808.96
94	od39835/2017_2018 Providing and fixing PVC pipes, fittings including fixing the pipe with clamps at 1.00 m spacing . This includes jointing of pipes & fittings with one step PVC solvent cement and testing of joints complete as per direction of Engineer-in-Charge 75 mm dia 4 Kgf/cm2 - Internal work- Exposed on wall	
Net Total Quantity		24.000 metre
Say 24.000 metre @ Rs 337.10 / metre		Rs 8090.40
95	od39836/2017_2018 Supplying approved make PVC gully trap of size 160 x 110mm and CI grating 150mmx150mm size and light duty C.I cover with frames 300mmx300mm size(inside) the weight of cover to be not less than4.5kg and frame to be not less than2.7kg (CI MH cover and frame as per IS:1726) single sealed of size conveying to size the above mentioned items and constructing 30cmx30cm internal size gully trap chamber and depth upto 60cm,115 thk brick wall in CM 1:6 on a foundation of PCC 1:4:8.100mm thick plastering inside with CM 1:3,12mm thk with a neat cement flushing coat and conveying to site,cleaning ,installing and testing approved make PVC gully trap with 160mm outlet(Fabricated),surrounding with CC 1:1.5:3, 150x150mmm,top with CI grating above the PVC gulley trap and light duty CI cover and frame over the chamber including cost of all materials, etc complete as per approved drawing and as directed by Engineer-in- Charge.	
Net Total Quantity		6.000 each
Say 6.000 each @ Rs 2691.59 / each		Rs 16149.54
96	19.7.1.1 Constructing brick masonry manhole in cement mortar 1:4 (1 cement : 4 coarse sand) with R.C.C. top with 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size,) inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement and making channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement complete as per standard design:Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions, total weight of cover and frame to be not less than 38 kg (weigh of cover 23 kg and weight of frame 15 kg):With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	
Net Total Quantity		4.000 each
Say 4.000 each @ Rs 12612.69 / each		Rs 50450.76
97	19.33 Constructing soak pit 1.20x1.20 m filled with brickbats including S.W. drain pipe 100 mm diameter and 1.20 m long complete as per standard design.	
Net Total Quantity		1.000 each
Say 1.000 each @ Rs 3091.64 / each		Rs 3091.64
98	50.18.9.21.7 Providing and fixing PVC moulded fittings/ accessories for Rigid PVC pipes, including jointing with PVC solvent cement - 75 mm dia Vent cowl	

		Net Total Quantity	4.000 no
		Say 4.000 no @ Rs 84.29 / no	Rs 337.16
99	50.18.9.22.8 Providing and fixing PVC moulded fittings /accessories for Rigid PVC pipes, including jointing with PVC solvent cement -110 mm dia Vent cowl		
		Net Total Quantity	4.000 no
		Say 4.000 no @ Rs 120.97 / no	Rs 483.88
100	od39837/2017_2018 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes& fittings, with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer-in-Charge. Concealed work, including cutting chases and making good the wall etc. 40 mm nominal outer dia pipes		
		Net Total Quantity	60.000 metre
		Say 60.000 metre @ Rs 527.22 / metre	Rs 31633.20
101	18.8.2 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes& fittings, with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer-in-Charge. Concealed work, including cutting chases and making good the wall etc.20 mm nominal outer dia pipes		
		Net Total Quantity	102.000 metre
		Say 102.000 metre @ Rs 416.11 / metre	Rs 42443.22
102	18.8.3 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes& fittings, with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer-in-Charge. Concealed work, including cutting chases and making good the wall etc.25 mm nominal outer dia pipes		
		Net Total Quantity	204.000 metre
		Say 204.000 metre @ Rs 487.32 / metre	Rs 99413.28

103	18.8.4 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes& fittings, with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer-in-Charge. Concealed work, including cutting chases and making good the wall etc.32 mm nominal outer dia pipes	
Net Total Quantity		18.000 metre
Say 18.000 metre @ Rs 603.16 / metre		Rs 10856.88
104	18.9.5 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings. This includes jointing of pipes & fittings with one step CPVC solvent cement, trenching , refilling & testing of joints complete as per direction of Engineer- in-Charge. External work40 mm nominal outer dia pipes	
Net Total Quantity		60.000 metre
Say 60.000 metre @ Rs 469.14 / metre		Rs 28148.40
105	18.9.3 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings. This includes jointing of pipes & fittings with one step CPVC solvent cement, trenching , refilling & testing of joints complete as per direction of Engineer- in-Charge. External work25 mm nominal outer dia pipes	
Net Total Quantity		72.000 metre
Say 72.000 metre @ Rs 279.96 / metre		Rs 20157.12
106	18.9.4 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings. This includes jointing of pipes & fittings with one step CPVC solvent cement, trenching , refilling & testing of joints complete as per direction of Engineer- in-Charge. External work32 mm nominal outer dia pipes	
Net Total Quantity		12.000 metre
Say 12.000 metre @ Rs 366.00 / metre		Rs 4392.00
107	18.9.6 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings. This includes jointing of pipes & fittings with one step CPVC solvent cement, trenching , refilling & testing of joints complete as per direction of Engineer- in-Charge. External work50 mm nominal outer dia pipes	
Net Total Quantity		24.000 metre
Say 24.000 metre @ Rs 707.39 / metre		Rs 16977.36

108	18.7.3 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer -in-Charge. Internal work - Exposed on wall 25 mm nominal outer dia pipes	
Net Total Quantity		60.000 metre
Say 60.000 metre @ Rs 315.82 / metre		Rs 18949.20
109	18.7.4 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer -in-Charge. Internal work - Exposed on wall 32 mm nominal outer dia pipes	
Net Total Quantity		12.000 metre
Say 12.000 metre @ Rs 422.24 / metre		Rs 5066.88
110	18.7.5 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer -in-Charge. Internal work - Exposed on wall 40 mm nominal outer dia pipes	
Net Total Quantity		24.000 metre
Say 24.000 metre @ Rs 563.14 / metre		Rs 13515.36
111	18.7.6 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer -in-Charge. Internal work - Exposed on wall 50 mm nominal outer dia pipes	
Net Total Quantity		24.000 metre
Say 24.000 metre @ Rs 801.32 / metre		Rs 19231.68
112	18.17.1 Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :25 mm nominal bore	
Net Total Quantity		4.000 each
Say 4.000 each @ Rs 625.51 / each		Rs 2502.04
113	18.17.2 Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :32 mm nominal bore	

		Net Total Quantity	4.000 each
		Say 4.000 each @ Rs 731.50 / each	Rs 2926.00
114	18.17.3 Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :40 mm nominal bore		
		Net Total Quantity	2.000 each
		Say 2.000 each @ Rs 854.13 / each	Rs 1708.26
115	18.17.4 Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :50 mm nominal bore		
		Net Total Quantity	2.000 each
		Say 2.000 each @ Rs 1095.45 / each	Rs 2190.90
116	18.48 Providing and placing on terrace (at all floor levels) polyethylene water storage tank :ISI 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.		
		Net Total Quantity	5000.000 Litre
		Say 5000.000 Litre @ Rs 10.59 / Litre	Rs 52950.00
117	od39838/2017_2018 Supplying and fixing of centrifugal pump, with CI construction, CI impeller complete with motor, base plate, foundation bolts, nuts, pressure gauge and all accessories. and working with 415V, 3ph and 50 Hz frequency capacity :17m ³ /hr head :21m		
		Net Total Quantity	1.000 each
		Say 1.000 each @ Rs 10888.70 / each	Rs 10888.70
118	od39839/2017_2018 Supplying and fixing of CI double flanged wall casting pipe with puddle, 0.6m length including cost and conveyance of all materials,labour charges,making good the walls etc complete as directed by the Engineer-in-Charge.: 80 mm		
		Net Total Quantity	2.000 no
		Say 2.000 no @ Rs 3642.32 / no	Rs 7284.64
119	od39840/2017_2018 Supplying and fixing of CI double flanged wall casting pipe with puddle, 0.6m length including cost and conveyance of all materials,labour charges,making good the walls etc complete as directed by the Engineer-in-Charge. : 65 mm		
		Net Total Quantity	2.000 no
		Say 2.000 no @ Rs 3424.16 / no	Rs 6848.32

120	od39841/2017_2018 Supplying and fixing of CI double flanged wall casting pipe with puddle, 0.6m length including cost and conveyance of all materials,labour charges,making good the walls etc complete as directed by the Engineer-in-Charge. : 150 mm	
Net Total Quantity		2.000 no
Say 2.000 no @ Rs 7098.66 / no		Rs 14197.32
121	od39842/2017_2018 Supplying and fixing of CI double flanged wall casting pipe with puddle, 0.6m length including cost and conveyance of all materials,labour charges,making good the walls etc complete as directed by the Engineer-in-Charge. : 100 mm	
Net Total Quantity		2.000 no
Say 2.000 no @ Rs 4696.21 / no		Rs 9392.42
122	od39843/2017_2018 Providing and fixing C.I. basket type dirt box strainer 50mm dia for bulk type water meter with nuts, bolts, rubber etc. complete conforming to IS : 2373 : including cost and conveyance of all materials, labour etc. complete and as directed by Engineer-in-Charge	
Net Total Quantity		1.000 each
Say 1.000 each @ Rs 6668.23 / each		Rs 6668.23
123	od39844/2017_2018 Supplying and fixing of CI single flanged wall casting pipe with puddle, 0.6m length including cost and conveyance of all materials,labour charges,making good the walls etc complete as directed by the Engineer-in-Charge. 200mm	
Net Total Quantity		1.000 each
Say 1.000 each @ Rs 6551.53 / each		Rs 6551.53
124	od39845/2017_2018 Supplying and fixing of CI single flanged wall casting pipe with puddle, 0.6m length including cost and conveyance of all materials,labour charges,making good the walls etc complete as directed by the Engineer-in-Charge. 150mm	
Net Total Quantity		1.000 each
Say 1.000 each @ Rs 5734.41 / each		Rs 5734.41
125	od39846/2017_2018 Providing and fixing enclosed type water meter (bulk type) 50mm dia conforming to IS : 2373 and tested by Municipal Board complete with bolts, nuts, rubber etc. (The tail pieces if required will be paid separately) including cost and conveyance of all materials, labour etc. complete and as directed by Engineer-in-Charge	
Net Total Quantity		1.000 each
Say 1.000 each @ Rs 8248.07 / each		Rs 8248.07

126	od39847/2017_2018 Supplying and fixing CI foot valve with all accessories including cost and conveyance of all materials,labour charges etc complete as directed by the Engineer -in - charge at all levels. 50 mm dia	
Net Total Quantity		1.000 each
Say 1.000 each @ Rs 3221.60 / each		Rs 3221.60
127	18.19.3.1 Providing and fixing gun metal non-return valve of approved quality (screwed end):40 mm nominal boreHorizontal	
Net Total Quantity		1.000 each
Say 1.000 each @ Rs 997.51 / each		Rs 997.51
128	18.19.4.1 Providing and fixing gun metal non-return valve of approved quality (screwed end):50 mm nominal boreHorizontal	
Net Total Quantity		1.000 each
Say 1.000 each @ Rs 1442.83 / each		Rs 1442.83
129	18.19.5.1 Providing and fixing gun metal non-return valve of approved quality (screwed end):65 mm nominal boreHorizontal	
Net Total Quantity		1.000 each
Say 1.000 each @ Rs 2583.42 / each		Rs 2583.42
130	19.6.2 Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete:150 mm dia R.C.C. pipe	
Net Total Quantity		20.000 metre
Say 20.000 metre @ Rs 521.14 / metre		Rs 10422.80
131	19.6.4 Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete:300 mm dia R.C.C. pipe	
Net Total Quantity		20.000 metre
Say 20.000 metre @ Rs 757.50 / metre		Rs 15150.00
132	50.18.9.8.1 Providing and fixing PVC pipes includings jointing of pipes with one step PVC solvent cement, trenching, refilling & testing of joints complete as per direction of Engineer in Charge. 75 mm dia 6 Kg/ cm2	
Net Total Quantity		36.000 metre
Say 36.000 metre @ Rs 301.61 / metre		Rs 10857.96

133	50.18.9.9.1 Providing and fixing PVC pipes includings jointing of pipes with one step PVC solvent cement, trenching, refilling & testing of Joints complete as per direction of engineer in charge.110 mm dia 6Kgf/cm2	
Net Total Quantity		60.000 metre
Say 60.000 metre @ Rs 448.36 / metre		Rs 26901.60
134	50.18.9.10.1 Providing and fixing PVC pipes includings jointing of pipes with one step pvc solvent cement, trenching , refilling & testing of joints complete as per direction of Engineer in Charge. 150 mm dia 6 Kgf/cm2	
Net Total Quantity		42.000 metre
Say 42.000 metre @ Rs 825.21 / metre		Rs 34658.82
2 Sump & External water supply		
1	2.32 Clearing grass and removal of the rubbish up to a distance of 50 m outside the periphery of the area cleared.	
Net Total Quantity		57.003 sqm
Say 57.003 sqm @ Rs 5.33 / sqm		Rs 303.83
2	2.6.1 Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed.All kinds of soil	
Net Total Quantity		85.504 cum
Say 85.504 cum @ Rs 183.99 / cum		Rs 15731.88
3	od39808/2017_2018 Earth work in excavation by means (Hydraulic excavator)/manual means over areas (exceeding 30cm in depth.1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50 m disposed earth to be levelled and neatly dressed, as directed by the Engineer- in-Charge but for every additional lift of 1.5m to 3.00m or part there of : All kinds of soil	
Net Total Quantity		65.553 cum
Say 65.553 cum @ Rs 208.29 / cum		Rs 13654.03
4	2.25 Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundation etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m.	
Net Total Quantity		75.014 cum
Say 75.014 cum @ Rs 183.70 / cum		Rs 13780.07

5	4.1.8 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 nominal size)	
Net Total Quantity		4.291 cum
Say 4.291 cum @ Rs 6541.68 / cum		Rs 28070.35
6	od39809/2017_2018 Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, Providing and laying in position machine batched and machine mixed design mix M-30 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge.“(Note :- Cement content considered in this item is @ 340 kg/cum.“Excess/ less cement used as per design mix is payable/recoverable separately). All work upto plinth level	
Net Total Quantity		43.106 cum
Say 43.106 cum @ Rs 9518.58 / cum		Rs 410307.91
7	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth levelThermo - Mechanically Treated bars of grade Fe-500D or more	
Net Total Quantity		3408.800 kilogram
Say 3408.800 kilogram @ Rs 82.68 / kilogram		Rs 281839.58
8	5.9.1 Centering and shuttering including strutting, etc. and removal of form for:Foundations, footings, bases of columns, etc for mass concrete	
Net Total Quantity		10.240 sqm
Say 10.240 sqm @ Rs 283.32 / sqm		Rs 2901.20
9	5.9.3 Centering and shuttering including strutting, etc. and removal of form for:Suspended floors, roofs, landings, balconies and access platform	
Net Total Quantity		33.063 sqm
Say 33.063 sqm @ Rs 616.90 / sqm		Rs 20396.56
10	5.9.2 Centering and shuttering including strutting, etc. and removal of form for:Walls (any thickness) including attached pilasters, butteresses, plinth and string courses etc.	

		Net Total Quantity	178.801 sqm
		Say 178.801 sqm @ Rs 553.06 / sqm	Rs 98887.68
11	19.18.3 Supplying and fixing C.I with out frame for manholes:560 mm diameter (heavy duty) the weight of the cover to be not less than 108 kg		
		Net Total Quantity	4.000 each
		Say 4.000 each @ Rs 8605.86 / each	Rs 34423.44
12	13.10 15 mm cement plaster 1:3 (1 cement :3 coarse sand) finished with a floating coat of neat cement on the rough side of single or half brick wall.		
		Net Total Quantity	71.983 sqm
		Say 71.983 sqm @ Rs 388.50 / sqm	Rs 27965.40
13	od39811/2017_2018 Providing and applying 2 coats an acrylic polymer modified elastomeric cementitious water proof coating on roof slab , gutter ,OHT,SUMP etc which shall be mixed as per manufacture's technical specification, after thoroughly cleaning the surface by mechanical means to making it free of any loose mortar,unsound substrate,"V" grooves cut along the construction joints, cracks and joints of slab/wall on the external face and the same shall be filled with polymermodified mortar(CM 1:3 mixed with approved water proofing compound in the proportion recommended by the manufacturers), cracks in the slab (if any), pressure grouting wherever necessary by injecting mixed with approved expanding agent using pressure grouting pump with a pressure of 3 to 4kg/sqm ,strictly maintaining the coverage specified by the manufacturer, including cost and conveyance of all materials,labour charges etc complete as directed by the Engineer-in-Charge .(The above work shall be carriedout by an agency having sufficient experience in membrane water proofing and should ensure a guarantee of 5 years. .Only skilled and experienced persons shall be employed for this purpose.)		
		Net Total Quantity	76.000 sqm
		Say 76.000 sqm @ Rs 418.14 / sqm	Rs 31778.64
3 Rcc septic tank for 150 users 1 No.			
1	2.32 Clearing grass and removal of the rubbish up to a distance of 50 m outside the periphery of the area cleared.		
		Net Total Quantity	300.000 sqm
		Say 300.000 sqm @ Rs 5.33 / sqm	Rs 1599.00
2	2.6.1 Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed.All kinds of soil		
		Net Total Quantity	87.000 cum

Say 87.000 cum @ Rs 183.99 / cum		Rs 16007.13
3	<p>od39808/2017_2018</p> <p>Earth work in excavation by means (Hydraulic excavator)/manual means over areas (exceeding 30cm in depth.1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50 m disposed earth to be levelled and neatly dressed, as directed by the Engineer- in-Charge but for every additional lift of 1.5m to 3.00m or part there of : All kinds of soil</p>	
Net Total Quantity		29.397 cum
Say 29.397 cum @ Rs 208.29 / cum		Rs 6123.10
4	<p>2.25</p> <p>Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundation etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m.</p>	
Net Total Quantity		43.462 cum
Say 43.462 cum @ Rs 183.70 / cum		Rs 7983.97
5	<p>4.1.8</p> <p>Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 nominal size)</p>	
Net Total Quantity		3.998 cum
Say 3.998 cum @ Rs 6541.68 / cum		Rs 26153.64
6	<p>5.33.1</p> <p>Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer - in-charge. Note:- Cement content considered in this item is @ 330 kg/ cum. Excess or less cement used as per design mix is payable or recoverable separately.All work upto plinth level</p>	
Net Total Quantity		24.292 cum
Say 24.292 cum @ Rs 9417.05 / cum		Rs 228758.98
7	<p>5.12</p> <p>Providing, hoisting and fixing up to floor level precast reinforced cement concrete work in string courses, bands, copings, bed plates, anchor blocks, plain window sills and the like, including the cost of required centering, shuttering but excluding cost of reinforcement, with1:1.5:3 (1 cement : 1.5 coarse sand (Zone - III) : 3 graded stone aggregate 20 mm nominal size)</p>	
Net Total Quantity		0.036 cum
Say 0.036 cum @ Rs 10184.84 / cum		Rs 366.65

8	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo - Mechanically Treated bars of grade Fe-500D or more		
		Net Total Quantity	1949.762 kilogram
		Say 1949.762 kilogram @ Rs 82.68 / kilogram	Rs 161206.32
9	5.9.1 Centering and shuttering including strutting, etc. and removal of form for: Foundations, footings, bases of columns, etc for mass concrete		
		Net Total Quantity	40.596 sqm
		Say 40.596 sqm @ Rs 283.32 / sqm	Rs 11501.66
10	5.9.3 Centering and shuttering including strutting, etc. and removal of form for: Suspended floors, roofs, landings, balconies and access platform		
		Net Total Quantity	29.280 sqm
		Say 29.280 sqm @ Rs 616.90 / sqm	Rs 18062.83
11	5.9.2 Centering and shuttering including strutting, etc. and removal of form for: Walls (any thickness) including attached pilasters, buttersesses, plinth and string courses etc.		
		Net Total Quantity	99.874 sqm
		Say 99.874 sqm @ Rs 553.06 / sqm	Rs 55236.31
12	5.9.16.1 Centering and shuttering including strutting, etc. and removal of form for: Edges of slabs and breaks in floors and walls Under 20 cm wide		
		Net Total Quantity	30.440 metre
		Say 30.440 metre @ Rs 178.51 / metre	Rs 5433.84
13	10.2 Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.		
		Net Total Quantity	21.280 kg
		Say 21.280 kg @ Rs 98.82 / kg	Rs 2102.89
14	19.18.3 Supplying and fixing C.I with out frame for manholes: 560 mm diameter (heavy duty) the weight of the cover to be not less than 108 kg		
		Net Total Quantity	2.000 each
		Say 2.000 each @ Rs 8605.86 / each	Rs 17211.72

15	13.10 15 mm cement plaster 1:3 (1 cement :3 coarse sand) finished with a floating coat of neat cement on the rough side of single or half brick wall.		
		Net Total Quantity	95.406 sqm
		Say 95.406 sqm @ Rs 388.50 / sqm	Rs 37065.23
16	50.18.9.10.1 Providing and fixing PVC pipes includings jointing of pipes with one step pvc solvent cement, trenching , refilling & testing of joints complete as per direction of Engineer in Charge. 150 mm dia 6 Kgf/cm2		
		Net Total Quantity	8.000 metre
		Say 8.000 metre @ Rs 825.21 / metre	Rs 6601.68
17	22.4.1 Providing and Placing in position suitable PVC water stops conforming to IS : 12200 for construction / expansion joints between two RCC members and fixed to the reinforcement with binding wire before pouring concrete etc. complete:Serrated with central bulb (225 mm wide, 8-11 mm thick)		
		Net Total Quantity	26.000 metre
		Say 26.000 metre @ Rs 371.26 / metre	Rs 9652.76
		Total Amount	129290750.00
		Lumpsum for round off	0.00
		TOTAL Rs 129290750.00	
		Other Engineering Organisation Rounded Total Rs 12,92,90,750	
		Rupees Twelve Crore Ninety Two Lakh Ninety Thousand Seven Hundred and Fifty Only	

(Cost Index Applied for this estimate is 46.08%)

GOVT COLLEGE THRIPIUNITHURA

Detailed Estimate

(Dsr year: **2016**, Cost Index Applied for this estimate is **46.08%**)

SI No	Description	No	L	B	D	CF	Quantity	Remark	
1 ACADEMIC BLOCK									
1	2.32 Clearing grass and removal of the rubbish up to a distance of 50 m outside the periphery of the area cleared.								
		1	60.000	60.000			3600.000		
		Total Quantity						3600.000 sqm	
		Total Deducted Quantity						0.000 sqm	
		Net Total Quantity						3600.000 sqm	
		Say 3600.000 sqm @ Rs 5.33 / sqm						Rs 19188.00	
2	od39807/2017_2018 Boring, providing and installing bored cast-in-situ reinforced cement concrete piles of grade M-25 of specified diameter and length below the pile cap to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring, with bentonite solution and temporary casing of appropriate length for setting out and removal of same and the length of the pile to be embedded in the pile cap etc. all complete, including removal of excavated earth with all lifts and leads (Length of pile for payment shall be measured upto bottom of pile cap). 700 mm dia piles								
	1P1	22	32.000				704.000		
	2P1	60*2	32.000				3840.000		
	4P1	2*4	32.000				256.000		
		Total Quantity						4800.000 metre	
		Total Deducted Quantity						0.000 metre	
		Net Total Quantity						4800.000 metre	
		Say 4800.000 metre @ Rs 4860.83 / metre						Rs 23331984.00	
3	20.6.2.2 Vertical load testing of piles in accordance with IS 2911(Part IV) including installation of loading platform and preparation of pile head or construction of test cap and dismantling of test cap after test etc. complete as per specification & the direction of engineer -in-Charge. Single pile above 50 tonne and upto 100 tonne capacity Routine test								
		3					3.000		
		Total Quantity						3.000 per test	
		Total Deducted Quantity						0.000 per test	
		Net Total Quantity						3.000 per test	

	Say 3.000 per test @ Rs 39024.54 / per test						Rs 117073.62	
4	2.8.1 Earth work in excavation by mechanical means (Hydraulic excavator) /manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.All kinds of soil							
	PB							
	GB1	4	8.890	0.300+.6	0.400+.15 +.1		20.803	
	GB2	22	3.865	0.250+.6	0.400+.15 +.1		46.980	
		6	54.214	0.250+.6	0.400+.15 +.1		179.720	
		22	0.975	0.250+.6	0.400+.15 +.1		11.852	
		6	10.322	0.250+.6	0.400+.15 +.1		34.218	
		10	6.160	0.250+.6	0.400+.15 +.1		34.034	
		6	3.310	0.250+.6	0.400+.15 +.1		10.973	
		6	1.575	0.250+.6	0.400+.15 +.1		5.222	
	Total Quantity						343.802 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						343.802 cum	
	Say 343.802 cum @ Rs 243.08 / cum						Rs 83571.39	
5	2.6.1 Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed.All kinds of soil							
	Foundation							
	Pile cap 1P1	22	2.200	2.200	1.500		159.721	
	2 P1	60	3.950	2.200	1.500		782.101	
	4 P1	2	3.950	3.950	1.500		46.808	
	Total Quantity						988.630 cum	

		Total Deducted Quantity					0.000 cum	
		Net Total Quantity					988.630 cum	
		Say 988.630 cum @ Rs 183.99 / cum					Rs 181898.03	
6	od39808/2017_2018 Earth work in excavation by means (Hydraulic excavator)/manual means over areas (exceeding 30cm in depth.1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50 m disposed earth to be levelled and neatly dressed, as directed by the Engineer- in-Charge but for every additional lift of 1.5m to 3.00m or part there of : All kinds of soil							
		foundation						
	1 P1	22	2.200	2.200	0.050		5.325	
	2 P1	60	3.950	2.200	0.050		26.071	
	4 P1	2	3.950	3.950	0.900		28.085	
		Total Quantity					59.481 cum	
		Total Deducted Quantity					0.000 cum	
		Net Total Quantity					59.481 cum	
		Say 59.481 cum @ Rs 208.29 / cum					Rs 12389.30	
7	2.25 Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundation etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m.							
	Total cutting qty	1	1257.497				1257.497	
	PCC & RCC below GL	1	363.655				-363.655	
		Total Quantity					1257.497 cum	
		Total Deducted Quantity					-363.655 cum	
		Net Total Quantity					893.842 cum	
		Say 893.842 cum @ Rs 183.70 / cum					Rs 164198.78	
8	50.2.25.1 Filling with contractor's own earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m as per direction of site Engineer-in-charge							
	Class	6	12.000	6.000	0.500		216.000	
	Toilet	2	6.000	4.000	0.500		24.000	
	Staff	2	6.000	6.000	0.500		36.000	
	Stait	3	6.000	3.000	0.500		27.000	
	HOD	2	6.000	3.000	0.500		18.000	

	Lobby	1	9.000	6.000	0.500		27.000		
	Office	1	9.000	6.000	0.500		27.000		
	Conference hall	1	12.000	6.000	0.500		36.000		
	Corridor	2	54.540	2.400	0.500		130.896		
	"	1	40.100	3.000	0.500		60.151		
	"	1	9.000	2.000	0.500		9.000		
	PCC & RCC below GL	1	363.655				-363.655		
	Earth available from sump and septic tank	1	76.043+72.935				-148.978	Total=76.043+72.935	
	Total Quantity						611.047 cum		
	Total Deducted Quantity						-512.633 cum		
	Net Total Quantity						98.414 cum		
	Say 98.414 cum @ Rs 454.68 / cum						Rs 44746.88		
9	50.2.26.1 Filling with contractor own earth (excluding rock) in open areas in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m as per direction of site Engineer-in-charge.								
	Site filling	1	7000.000	1.000			7000.000		
	Total Quantity						7000.000 cum		
	Total Deducted Quantity						0.000 cum		
	Net Total Quantity						7000.000 cum		
	Say 7000.000 cum @ Rs 291.06 / cum						Rs 2037420.00		
10	4.1.8 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 nominal size)								
	Footing								
	1P1	22	1.200	1.200	0.100		3.168		
	2P1	60	2.950	1.200	0.100		21.241		
	4P1	2	2.950	2.950	0.100		1.741		
	Plinth beam								
		2	28.790	0.500	0.100		2.879		
		2	27.040	0.500	0.100		2.704		
		2	39.290	0.500	0.100		3.930		

		2	21.070	0.500	0.100		2.107		
		1	26.570	0.500	0.100		1.329		
		1	8.000	0.500	0.100		0.400		
		28	4.440	0.500	0.100		6.217		
		6	2.220	0.500	0.100		0.667		
		22	1.620	0.500	0.100		1.783		
		2	4.000	0.500	0.100		0.400		
	Step	2	4.500	1.000	0.100		0.900		
	Ramp	2	9.000	1.500	0.100		2.700		
	Flooring								
	Class	6	12.000	6.000	0.100		43.200		
	Toilet	2	6.000	4.000	0.100		4.801		
	Staff	2	6.000	6.000	0.100		7.200		
	Stait	3	6.000	3.000	0.100		5.400		
	HOD	2	6.000	3.000	0.100		3.600		
	Lobby	1	9.000	6.000	0.100		5.400		
	Office	1	9.000	6.000	0.100		5.400		
	Conference hall	1	12.000	6.000	0.100		7.200		
	Corridor	2	54.540	2.400	0.100		26.180		
	"	1	40.100	3.000	0.100		12.031		
	"	1	9.000	2.000	0.100		1.800		
	Total Quantity						174.378 cum		
	Total Deducted Quantity						0.000 cum		
	Net Total Quantity						174.378 cum		
	Say 174.378 cum @ Rs 6541.68 / cum						Rs 1140725.08		
11	4.11	Providing and laying damp-proof course 50 mm thick with cement concrete 1:2:4(1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size).							
		2*2	51.240	0.300			61.488		
		2*7	5.440	0.300			22.849		
		2	37.520	0.300			22.512		
		1	8.000	0.300			2.400		
		7	5.440	0.300			11.425		

		Total Quantity					120.674 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					120.674 sqm	
		Say 120.674 sqm @ Rs 467.82 / sqm					Rs 56453.71	
12	4.13	Applying a coat of residual petroleum bitumen of grade of VG-10 of approved quality using 1.7 kg per square metre on damp proof course after cleaning the surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil.						
		1	120.674				120.674	
		Total Quantity					120.674 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					120.674 sqm	
		Say 120.674 sqm @ Rs 134.25 / sqm					Rs 16200.48	
13	5.33.1	Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer - in-charge. Note:- Cement content considered in this item is @ 330 kg/ cum. Excess or less cement used as per design mix is payable or recoverable separately.All work upto plinth level						
		Pile cap						
	1P1	22	1.000	1.000	1.300		28.600	
	2P1	60	2.750	1.000	1.300		214.500	
	4P1	2	2.750	2.750	1.300		19.663	
		Column up to ground level						
	C1	44	0.300	0.600	0.600		4.752	
	C2	12	0.300	0.600	0.600		1.296	
	C3	6	0.450	0.550	0.600		0.892	
	C4	4	0.300	0.300	0.600		0.216	
	C5	30	0.300	0.300	0.600		1.620	
		PB						
	GB1	4	8.890	0.300	0.400		4.268	
	GB2	22	3.865	0.250	0.400		8.504	
		6	54.214	0.250	0.400		32.529	
		22	0.975	0.250	0.400		2.145	

		6	10.322	0.250	0.400		6.194		
		10	6.160	0.250	0.400		6.161		
		6	3.310	0.250	0.400		1.987		
		6	1.575	0.250	0.400		0.946		
	Total Quantity							334.273 cum	
	Total Deducted Quantity							0.000 cum	
	Net Total Quantity							334.273 cum	
	Say 334.273 cum @ Rs 9417.05 / cum							Rs 3147865.55	
14	<p>5.33.2 Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer - in-charge. Note:- Cement content considered in this item is @ 330 kg/ cum. Excess or less cement used as per design mix is payable or recoverable separately. All work above plinth level upto floor V level</p>								
	Beams								
		3*2*3	51.240	0.250	0.480		110.679		
		3*2*3	14.620	0.250	0.480		31.580		
		3*4	8.440	0.300	0.480		14.585		
		3*50	5.440	0.250	0.480		97.920		
		3*22	2.320	0.250	0.480		18.375		
		3*8	2.920	0.250	0.480		8.410		
		3*8	4.700	0.250	0.480		13.536		
		3*2	1.700	0.250	0.480		1.224		
	Lintel level	3*2	51.240	0.250	0.600		46.116		
		3*2	15.820	0.250	0.600		14.238		
		3*4	2.320	0.250	0.600		4.176		
	HR	4	8.260	0.250	0.600		4.956		
		2	8.440	0.300	0.600		3.039		
		2	5.440	0.250	0.600		1.633		
	Stair								
	Flight	3*3*2	4.100	1.450	0.150		16.052		
	Landing	3*3	3.000	1.450	0.150		5.873		

	Step	3*3*24	1.450	0.300	0.075		7.048	
	Lintel & & & sunshade							
		3*2*2	51.240	0.200	0.150		18.447	
		3*4	14.160	0.200	0.150		5.098	
	GF	21	5.440	0.200	0.150		3.428	
	FF	22	5.440	0.200	0.150		3.591	
	SF	20	5.440	0.200	0.150		3.265	
		2	4.700	0.200	0.150		0.282	
		2	8.440	0.200	0.150		0.507	
	Sunshade	3*55	2.500	0.900	0.100		37.125	
	Slab							
		3*2	55.960	10.250	0.120		412.985	
		2*2	15.060	10.250	0.120		74.096	
		2	38.920	10.250	0.120		95.744	
		2	10.640	5.000	0.120		12.768	
	HR	3	7.600	4.200	0.120		11.492	
	Stair	3*3	6.000	3.000	0.120		-19.440	
	Other Engineering Organisations Column							
	C1	44*3	0.300	0.600	3.750		89.100	
	C2	12*3	0.300	0.600	3.750		24.300	
	C3	6*3	0.450	0.550	3.750		16.707	
	C4	4*3	0.300	0.300	3.750		4.050	
	C5	30*3	0.300	0.300	3.750		30.375	
	Total Quantity						1242.800 cum	
	Total Deducted Quantity						-19.440 cum	
	Net Total Quantity						1223.360 cum	
	Say 1223.360 cum @ Rs 10590.87 / cum						Rs 12956446.72	
15	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo - Mechanically Treated bars of grade Fe-500D or more							
	Pile	1	1846.320	96.000			177246.72 0	
	Pile cap	1	262.763	245.000			64376.935	
	Column	1	173.308	340.000			58924.720	

	Plinthbeam	1	62.734	160.000			10037.440	
	Roofbeam	1	370.467	170.000			62979.390	
	Stair	1	28.973	140.000			4056.220	
	Lintel&sunshade	1	71.743	100.000			7174.300	
	Slab	1	607.085	90.000			54637.650	
	Total Quantity						439433.375 kilogram	
	Total Deducted Quantity						0.000 kilogram	
	Net Total Quantity						439433.375 kilogram	
	Say 439433.375 kilogram @ Rs 82.68 / kilogram						Rs 36332351.45	
16	5.9.1 Centering and shuttering including strutting, etc. and removal of form for:Foundations, footings, bases of columns, etc for mass concrete							
	Column footing							
	1P1	22	4.800	0.100			10.560	
	2P1	60	8.300	0.100			49.801	
	4P1	4	11.800	0.100			4.721	
	RCC Footing							
	1P1	22	4.000		1.300		114.400	
	2P1	60	7.500		1.300		585.000	
	4P1	2	11.000		1.300		28.600	
	Plinth beam							
		2	28.790		0.200		11.516	
		2	27.040		0.200		10.816	
		2	39.290		0.200		15.717	
		2	21.070		0.200		8.428	
		1	26.570		0.200		5.314	
		1	8.000		0.200		1.600	
		28	4.440		0.200		24.865	
		6	2.220		0.200		2.665	
		22	1.620		0.200		7.129	
		2	4.000		0.200		1.600	
	Step	2	4.500		0.200		1.800	
	Ramp	2	9.000		0.200		3.600	

		Total Quantity					888.132 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					888.132 sqm	
		Say 888.132 sqm @ Rs 283.32 / sqm					Rs 251625.56	
17	5.9.3	Centering and shuttering including strutting, etc. and removal of form for:Suspended floors, roofs, landings, balconies and access platform						
		Slab						
		3*2	55.960	10.250			3441.540	
		2*2	15.060	10.250			617.460	
		2	38.920	10.250			797.860	
		2	10.640	5.000			106.400	
	HR	3	7.600	4.200			95.760	
	Landing	3*3	3.000	1.450			39.150	
	Stair	3*3	6.000	3.000			-162.000	
		Total Quantity					5098.170 sqm	
		Total Deducted Quantity					-162.000 sqm	
		Net Total Quantity					4936.170 sqm	
		Say 4936.170 sqm @ Rs 616.90 / sqm					Rs 3045123.27	
18	5.9.5	Centering and shuttering including strutting, etc. and removal of form for:Lintels, beams, plinth beams, girders bressumers and cantilevers						
		Plinth beam						
		2	28.790		0.800		46.064	
		2	27.040		0.800		43.264	
		2	39.270		0.800		62.833	
		2	21.070		0.800		33.712	
		1	26.570		0.800		21.256	
		1	8.000		0.800		6.400	
		28	4.440		0.800		99.457	
		6	2.220		0.800		10.657	
		22	1.620		0.800		28.513	
		2	4.000		0.800		6.400	
		Beams						

		3*2*3	51.240		0.960		885.428	
		3*2*3	14.620		0.960		252.634	
		3*4	8.440		0.960		97.229	
		3*50	5.440		0.960		783.360	
		3*22	2.320		0.960		146.996	
		3*8	2.920		0.960		67.277	
		3*8	4.700		0.960		108.288	
		3*2	1.700		0.960		9.792	
	Lintel level	3*2	51.240		1.450		445.788	
		3*2	15.820		1.450		137.634	
		3*4	2.320		1.450		40.368	
	HR	4	8.260		1.450		47.908	
		2	8.440		1.450		24.476	
		2	5.440		1.450		15.776	
		Lintel						
		3*2*2	51.240		0.300		184.464	
		3*4	14.160		0.300		50.976	
	GF	21	5.440		0.300		34.273	
	FF	22	5.440		0.300		35.904	
	SF	20	5.440		0.300		32.640	
		2	4.700		0.300		2.820	
		2	8.440		0.300		5.064	
		Total Quantity						3767.651 sqm
		Total Deducted Quantity						0.000 sqm
		Net Total Quantity						3767.651 sqm
		Say 3767.651 sqm @ Rs 500.91 / sqm						Rs 1887254.06
19	5.9.6 Centering and shuttering including strutting, etc. and removal of form for:Columns, Pillars, Piers, Abutments, Posts and Struts							
		Column						
	C1	44*3	0.300+0.6 00		3.750	2.0	891.000	
	C2	12*3	0.300+0.6 00		3.750	2.0	243.000	

	C3	6*3	0.450+0.5 50		3.750	2.0	135.000		
	C4	4*3	0.300		3.750	4.0	54.000		
	C5	30*3	0.300		3.750	4.0	405.000		
	Total Quantity						1728.000 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						1728.000 sqm		
	Say 1728.000 sqm @ Rs 683.44 / sqm						Rs 1180984.32		
20	5.9.7 Centering and shuttering including strutting, etc. and removal of form for:Stairs, (excluding landings) except spiral - staircases)								
	Flight	3*3*2	4.100	1.450			107.010		
	"	3*3*2	4.100	0.300			22.140		
	Step	3*3*24	1.450	0.150			46.980		
	Total Quantity						176.130 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						176.130 sqm		
	Say 176.130 sqm @ Rs 612.59 / sqm						Rs 107895.48		
21	5.9.16.1 Centering and shuttering including strutting, etc. and removal of form for:Edges of slabs and breaks in floors and walls Under 20 cm wide								
		3	244.340				733.020		
		3*2	38.920				233.520		
		3	23.600				70.801		
	Total Quantity						1037.341 metre		
	Total Deducted Quantity						0.000 metre		
	Net Total Quantity						1037.341 metre		
	Say 1037.341 metre @ Rs 178.51 / metre						Rs 185175.74		
22	5.9.2 Centering and shuttering including strutting, etc. and removal of form for:Walls (any thickness) including attached pilasters, butresses, plinth and string courses etc.								
	Lift	2	8.400	1.600			26.881		
		2	10.000	1.600			32.000		
	Total Quantity						58.881 sqm		
	Total Deducted Quantity						0.000 sqm		

		Net Total Quantity					58.881 sqm	
		Say 58.881 sqm @ Rs 553.06 / sqm					Rs 32564.73	
23	5.9.19	Centering and shuttering including strutting, etc. and removal of form for:Weather shade, Chajjas, corbels etc., including edges						
		3*55	2.500	0.900			371.250	
		Total Quantity					371.250 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					371.250 sqm	
		Say 371.250 sqm @ Rs 762.17 / sqm					Rs 282955.61	
24	5.11.1	Extra additional height in centering, shuttering where ever required with adequate bracing, propping etc. including cost of de-shuttering and decentering at all levels, over a height of 3.5m, for every additional height of 1 metre or part thereof (Plan area to be measured).Suspended floors, roofs, landing, beams and balconies (Plan area to be measured)						
		3*2	54.760	9.060			2976.754	
		3	40.100	9.660			1162.099	
		2	9.440	5.000			94.400	
		3	13.860	2.100			87.319	
		Total Quantity					4320.572 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					4320.572 sqm	
		Say 4320.572 sqm @ Rs 250.53 / sqm					Rs 1082432.90	
25	50.6.1.4	Solid block masonry using pre cast solid blocks (Factory made) of size 30x20x20cm or nearest available size confirming to IS 2185 part I of 1979 for foundation and plinth with thickness 20cm and above in: CM 1:6 (1 cement : 6 coarse sand) etc complete						
		2*3	51.240	0.300	0.750		69.174	
		2*7	5.440	0.300	0.750		17.137	
		2	37.520	0.300	0.750		16.884	
		2	8.000	0.300	0.750		3.600	
		2	11.620	0.300	0.750		5.229	
		7	5.440	0.300	0.750		8.569	
		4	2.400	0.300	0.750		2.160	
	Step	2	4.500	0.900	0.300		2.430	

		2	4.500	0.600	0.150		0.810		
		2	4.500	0.300	0.150		0.405		
	Ramp	2	9.000	0.300	0.300		1.620		
		Total Quantity						128.018 cum	
		Total Deducted Quantity						0.000 cum	
		Net Total Quantity						128.018 cum	
		Say 128.018 cum @ Rs 5328.37 / cum						Rs 682127.27	
26	50.6.1.5 Solid block masonry using pre cast solid blocks (Factory made) of size 30x20x20cm or nearest available size confirming to IS 2185 Part I of 1979 for super structure up to floor two level thickness 20cm and above in: CM 1:6 (1 cement : 6 coarse sand) etc complete								
	G/F, F/F	2*2*2	51.240	0.200	3.120		255.791		
		2*2*7	5.440	0.200	3.120		95.048		
		2*2	37.520	0.200	3.120		93.650		
		2*7	5.440	0.200	3.120		47.524		
	Lift	2*2	9.200	0.200	3.120		22.964		
	Lintel Lvl	2*2	56.040	0.200	0.570		25.555		
		1	5.440	0.200	3.120		3.395		
		2	56.040	0.200	1.200		26.900		
	D	29	1.200	0.200	2.100		-14.616		
	W	116	1.500	0.200	1.500		-52.200		
	Lift door	2*2	1.000	0.200	2.100		-1.680		
	V	8	0.900	0.200	0.600		-0.864		
	OP	2	6.000	0.200	3.120		-7.488		
		2*3	3.000	0.200	3.120		-11.232		
		Total Quantity						570.827 cum	
		Total Deducted Quantity						-88.080 cum	
		Net Total Quantity						482.747 cum	
		Say 482.747 cum @ Rs 5837.01 / cum						Rs 2817799.07	
27	50.6.1.6 Solid block masonry using pre cast solid blocks (Factory made) of size 30x20x20cm or nearest available size confirming to IS 2185 part I of 1979 for super structure above floor two level upto floor five level thickness 20cm and above in : CM 1:6 (1 cement : 6 coarse sand sand) etc complete								
	S/F,								
	S/F	2*2	51.240	0.200	3.120		127.896		

		2*8	5.440	0.200	3.120		54.313		
		2	37.520	0.200	3.120		46.825		
		6	5.440	0.200	3.120		20.368		
	Lift	2	9.200	0.200	3.120		11.482		
	Lintel Lvl	2	56.040	0.200	0.570		12.778		
	Parapet	2	56.040	0.200	1.200		26.900		
		2	4.700	0.200	3.120		5.866		
	HR	2	18.800	0.200	2.400		18.048		
		1	30.000	0.200	2.400		14.400		
	Roof parapet	1	37.520	0.200	1.200		9.005		
		2	96.480	0.200	1.200		46.311		
	D	19	1.200	0.200	2.100		-9.576		
	W	56	1.500	0.200	1.500		-25.200		
	V	4	0.900	0.200	0.600		-0.432		
	OP	3	3.000	0.200	3.120		-5.616		
	Lift door	2	1.000	0.200	2.100		-0.840		
		Total Quantity						394.192 cum	
		Total Deducted Quantity						-41.664 cum	
		Net Total Quantity						352.528 cum	
		Say 352.528 cum @ Rs 6542.58 / cum						Rs 2306442.64	
28	6.13.2 Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level.Cement mortar 1:4 (1 cement : 4 coarse sand)								
	Toilet	3*2	5.200	3.600			112.321		
		3*2	3.900	3.600			84.240		
		2	5.200	3.600			37.441		
		2	3.900	3.600			28.080		
		48	1.400	3.600			241.921		
	D2	48	0.800	2.100			-80.640		
		Total Quantity						504.003 sqm	
		Total Deducted Quantity						-80.640 sqm	
		Net Total Quantity						423.363 sqm	
		Say 423.363 sqm @ Rs 999.48 / sqm						Rs 423142.85	

29	6.15 Extra for providing and placing in position 2 Nos 6 mm dia M.S bars at every third course of half brick masonry.		1	562.802			562.802	
		Total Quantity					562.802 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					562.802 sqm	
		Say 562.802 sqm @ Rs 83.05 / sqm					Rs 46740.71	
30	21.1.1.2 Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS : 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing /paneling, C.P. brass/ stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge.(Glazing, paneling and dash fasteners to be paid for separately):For fixed portion Powder coated aluminium (minimum thickness of powder coating 50 micron)							
		G/F.F/F,S/F						
	W	172	1.500	1.500	4.500		1741.500	
	V	12	0.900	0.600	4.500		29.161	
		Total Quantity					1770.661 kg	
		Total Deducted Quantity					0.000 kg	
		Net Total Quantity					1770.661 kg	
		Say 1770.661 kg @ Rs 561.68 / kg					Rs 994544.87	
31	21.1.2.2 For shutters of doors, windows & ventilators including providing and fixing hinges / pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber/ neoprene gasket required (Fittings shall be paid for separately) Powder coated aluminium (minimum thickness of powder coating 50 micron)							
	W	172	1.500	1.500	4.500		1741.500	
	V	12	0.900	0.600	4.500		29.161	
		Total Quantity					1770.661 kg	
		Total Deducted Quantity					0.000 kg	
		Net Total Quantity					1770.661 kg	
		Say 1770.661 kg @ Rs 649.98 / kg					Rs 1150894.24	
32	21.3.1 Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM							

	rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer - in -Charge. (Cost of aluminium snap beading shall be paid in basic item):With float glass panes of 4.0 mm thickness						
W	172	1.500	1.500			387.000	
	Total Quantity					387.000 sqm	
	Total Deducted Quantity					0.000 sqm	
	Net Total Quantity					387.000 sqm	
	Say 387.000 sqm @ Rs 1083.18 / sqm					Rs 419190.66	
33	od39812/2017_2018 Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer - in -Charge. (Cost of aluminium snap beading shall be paid in basic item): With pin headed glass panes of 4.0 mm thickness						
V	12	0.900	0.600			6.480	
	Total Quantity					6.480 sqm	
	Total Deducted Quantity					0.000 sqm	
	Net Total Quantity					6.480 sqm	
	Say 6.480 sqm @ Rs 1146.63 / sqm					Rs 7430.16	
34	9.100.1 Providing and fixing aluminium handles, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete:125 mm						
D	48*2					96.000	
	Total Quantity					96.000 no	
	Total Deducted Quantity					0.000 no	
	Net Total Quantity					96.000 no	
	Say 96.000 no @ Rs 74.65 / no					Rs 7166.40	
35	9.97.3 Providing and fixing aluminium tower bolts, ISI marked, anodised(anodic coating not less than grade AC 10 as per : 1868), transparent or dyed to required colour or shade, with necessary screws complete:200x10 mm						
D	48*2					96.000	
	Total Quantity					96.000 no	
	Total Deducted Quantity					0.000 no	
	Net Total Quantity					96.000 no	
	Say 96.000 no @ Rs 111.24 / no					Rs 10679.04	

36	50.9.15.1 Supplying and fixing 200 mm Aluminium aldrops						
	D	48*1					48.000
	Total Quantity						48.000 no
	Total Deducted Quantity						0.000 no
	Net Total Quantity						48.000 no
	Say 48.000 no @ Rs 171.38 / no						Rs 8226.24
37	9.102 Providing and fixing aluminium casement stays, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade, with necessary screws etc. complete.						
	W	172*3					516.000
	Total Quantity						516.000 no
	Total Deducted Quantity						0.000 no
	Net Total Quantity						516.000 no
	Say 516.000 no @ Rs 72.31 / no						Rs 37311.96
38	9.1.1 Providing wood work in frames of doors, windows, clerestory windows and other frames, wrought framed and fixed in position with hold fast lugs or with dash fasteners of required dia & length (hold fast lugs or dash fastener shall be paid for separately). Second class teak wood						
	D	48	5.400	0.100	0.070		1.815
	Total Quantity						1.815 cum
	Total Deducted Quantity						0.000 cum
	Net Total Quantity						1.815 cum
	Say 1.815 cum @ Rs 135479.05 / cum						Rs 245894.48
39	od39813/2017_2018 Providing and fixing panelled or panelled and glazed shutters for shutters for doors, windows and clerestory windows, including ISI marked M.S. pressed butt hinges bright finished of required size with necessary screws, excluding panelling which will be paid for separately, all complete as per direction of Engineer - in-charge. Second class teak wood 35 mm thick shutters						
	D	48	1.080	2.040			105.754
	Total Quantity						105.754 sqm
	Total Deducted Quantity						0.000 sqm
	Net Total Quantity						105.754 sqm
	Say 105.754 sqm @ Rs 3838.30 / sqm						Rs 405915.58

40	9.7.1 Providing and fixing panelling or panelling and glazing in panelled or panelled and glazed shutters for doors, windows and clerestory windows (Area of opening for panel inserts excluding portion inside grooves or rebates to be measured), Panelling for panelled or panelled and glazed shutters 25 mm to 40 mm thick:Second class teak wood							
	D	48	1.080	2.040			105.754	
	Total Quantity						105.754 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						105.754 sqm	
	Say 105.754 sqm @ Rs 2975.72 / sqm						Rs 314694.29	
41	9.53 Providing 40x5 mm flat iron hold fast 40 cm long including fixing to frame with 10 mm diameter bolts, nuts and wooden plugs and embeddings in cement concrete block 30x10x15 cm 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)							
	D	48	6.000				288.000	
	Total Quantity						288.000 each	
	Total Deducted Quantity						0.000 each	
	Net Total Quantity						288.000 each	
	Say 288.000 each @ Rs 173.25 / each						Rs 49896.00	
42	9.121 Providing and fixing Fiber Glass Reinforced plastic (FRP) Door Frames of cross- section 90 mm x 45 mm having single rebate of 32 mm x 15 mm to receive shutter of 30 mm thickness. The laminated shall be moulded with fire resistant grade unsaturated polyester resin and chopped mat. Door frame laminate shall be 2 mm thick and shall be filled with suitable wooden block in all the three legs. The frame shall be covered with fiber glass from all sides. M.S. stay shall be provided at the bottom to steady the frame.							
	Frame	48	5.800				278.400	
	Total Quantity						278.400 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						278.400 metre	
	Say 278.400 metre @ Rs 606.96 / metre						Rs 168977.66	
43	9.122.2 Providing and fixing to existing door frames.30 mm thick Fiberglass Reinforced Plastic (F.R.P) flush door shutter in different plain and wood finish made with fire retardant grade unsaturated polyester resin, moulded to 3 mm thick FRP laminate all around, with suitable wooden blocks inside at required places for fixing of fittings and polyurethane foam (PUF) / Polystyrene foam to be used all filler material throughout the hollow panel, casted monolithically with testing parameters of F.R.P. laminate conforming to table - 3 of IS : 14856, complete as per direction of Engineer-in-charge.							
	Shutter	48	0.740	2.040			72.461	

						Total Quantity	72.461 sqm	
						Total Deducted Quantity	0.000 sqm	
						Net Total Quantity	72.461 sqm	
						Say 72.461 sqm @ Rs 3704.30 / sqm	Rs 268417.28	
44	9.103	Providing and fixing bright finished brass 100 mm mortice latch and lock, ISI marked, with six levers and a pair of anodised (anodic coating not less than grade AC 10 as per IS: 1868) aluminium lever handles of approved quality with necessary screws etc . complete.						
	D	48					48.000	
						Total Quantity	48.000 each	
						Total Deducted Quantity	0.000 each	
						Net Total Quantity	48.000 each	
						Say 48.000 each @ Rs 908.84 / each	Rs 43624.32	
45	9.48.2	Providing and fixing M.S. Grills of required pattern in frames of windows etc. with M.S. flats, square or round bars etc. including priming coat with approved steel primer all complete.Fixed to openings/ wooden frames with rawl plugs screws etc						
	W	172	1.500	1.500	12.000		4644.000	
	V	12	0.900	0.600	12.000		77.760	
						Total Quantity	4721.760 kg	
						Total Deducted Quantity	0.000 kg	
						Net Total Quantity	4721.760 kg	
						Say 4721.760 kg @ Rs 164.27 / kg	Rs 775643.52	
46	od39814/2017_2018	Providing and fixing S.S fan clamp of 16mm dia in RCC slabs, beams including cost and conveyance of all materials,labour charges etc complete as directed by the Engineer-in-Charge at all levels.						
		200					200.000	
						Total Quantity	200.000 each	
						Total Deducted Quantity	0.000 each	
						Net Total Quantity	200.000 each	
						Say 200.000 each @ Rs 127.16 / each	Rs 25432.00	
47	10.28	Providing and fixing stainless steel (Grade 304) railing made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners, stainless steel bolts etc., of required size on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in-charge, (for						

	payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.)						
	Stairs	2*3*3	3.680		13.350		884.304
	Verandah	3	164.810		11.880		5873.829
	Total Quantity						6758.133 kg
	Total Deducted Quantity						0.000 kg
	Net Total Quantity						6758.133 kg
	Say 6758.133 kg @ Rs 690.08 / kg						Rs 4663652.42
48	od39815/2017_2018 Providing and fixing in position collapsible steel shutters with vertical channels 20x10x2mm and braced with flat iron diagonals 20x5mm size, with top and bottom rail of T-iron 40x40x6mm, with 40mm dia steel pulleys, complete with bolts, nuts, locking arrangement, stoppers, handles, including painting with two coats of approved make and colour synthetic enamel paint over two coats of approved make anticorrosive yellow zinc chromate primer, including cost and conveyance of all materials, labour charges, lead, lift etc complete as directed by Engineer-in-Charge						
	Stair entrance	3	3.500	3.500			36.750
	Total Quantity						36.750 sqm
	Total Deducted Quantity						0.000 sqm
	Net Total Quantity						36.750 sqm
	Say 36.750 sqm @ Rs 7900.35 / sqm						Rs 290337.86
49	od39816/2017_2018 Steel work in built up tubular sections YST 310 grade as per IS: 4923 including cutting, bending, hoisting, fixing in position, welded and bolted including special shaped washers etc. complete with electric resistance or induction butt welded tubes including painting with two coats of approved make and colour synthetic enamel paint over two coats of approved make anticorrosive yellow zinc chromate primer, closing all the open ends properly with same material cost and conveyance of all materials, labour, etc., complete as directed by the Engineer-in-Charge at all levels.						
	head room roof	3	10.500	10.500	1.200	12.0	4762.800
	For chajjas	210	6.000				1260.000
	Total Quantity						6022.800 per kg
	Total Deducted Quantity						0.000 per kg
	Net Total Quantity						6022.800 per kg
	Say 6022.800 per kg @ Rs 166.97 / per kg						Rs 1005626.92
50	od39817/2017_2018 Providing and laying MP hip & ridge tiles with class AA magalore pattern tile manufactured by M/s common wealth trust ltd or equivalent including fixing with cement mortar 1:2 as directed by Engineer-in-charge at all levels						

	over sun shade	3*55*2	1.200				396.000		
	Total Quantity						396.000 metre		
	Total Deducted Quantity						0.000 metre		
	Net Total Quantity						396.000 metre		
	Say 396.000 metre @ Rs 468.49 / metre						Rs 185522.04		
51	od39818/2017_2018 Providing and laying MP tiles of size 320mm or nearest with class AA Mangalore pattern tiles (COMTRUST) manufactured by M/s Common wealth Trust Ltd. or equivalent over the cement mortar reeper bands already done to correct lines and levels including the cost, conveyance of all material, labour charges, led lift etc complete as directed by the Engineer-in-charge at all levels								
	sunshade	3*55	2.600	1.000	1.200		514.801		
	Total Quantity						514.801 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						514.801 sqm		
	Say 514.801 sqm @ Rs 1008.73 / sqm						Rs 519295.21		
52	od39819/2017_2018 Providing and laying Antiskid Ceramic floor tiles 300x300x7 mm of 1st quality conforming to IS : 15622 of approved make,shade,and pattern laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand) and jointed with grey cement slurry @ 3.3 kg/sqm including pointing the joints with white cement and matching pigment etc.including cost and conveyance of all materials,labour charges,lead,lift etc, complete as directed by the Engineer-in-Charge at all levels.								
	Toilet G/F,F/F,S/F								
		12	6.000	4.000			288.000		
	Total Quantity						288.000 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						288.000 sqm		
	Say 288.000 sqm @ Rs 1005.56 / sqm						Rs 289601.28		
53	11.36 Providing and fixing 1 st quality ceramic glazed wall tiles conforming to IS : 15622 (thickness to be specified by the manufacturer), of approved make, in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer -in-Charge, in skirting, risers of steps and dados, over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3 kg per sqm, including pointing in white cement mixed with pigment of matching shade complete.								
	Toilet	12	14.000	2.100			352.800		
	"	48	5.200	2.100			524.161		
	D2	48*2	0.800	2.100			-161.280		
	Total Quantity						876.961 sqm		

		Total Deducted Quantity					-161.280 sqm	
		Net Total Quantity					715.681 sqm	
		Say 715.681 sqm @ Rs 1088.00 / sqm					Rs 778660.93	
54	22.5	Providing and laying water proofing treatment in sunken portion of WCs, bathroom etc., by applying cement slurry mixed with water proofing cement compound consisting of applying : a) First layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. This layer will be allowed to air cure for 4 hours. b) Second layer of slurry of cement @ 0.242 kg /sqm mixed with water proofing cement compound @ 0.126 kg/ sqm. This layer will be allowed to air cure for 4 hours followed with water curing for 48 hours. The rate includes preparation of surface, treatment and sealing of all joints, corners, junctions of pipes and masonry with polymer mixed slurry.						
		F/F, SF						
	Toilet	8	6.000	4.000			192.000	
	side	8	20.000	0.400			64.000	
		Total Quantity					256.000 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					256.000 sqm	
		Say 256.000 sqm @ Rs 435.76 / sqm					Rs 111554.56	
55	8.2.2.2	Providing and fixing 18 mm thick gang saw cut, mirror, polished, premoulded and prepolished, machine cut for kitchen platforms, vanity counters, window sills, facias and similar locations, of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edges to give high gloss finish etc. complete at all levels. Area of slab over 0.50 sqm						
	Toilet	12	2.000	0.600			14.400	
		3*2	6.000	0.600			21.600	
		Total Quantity					36.000 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					36.000 sqm	
		Say 36.000 sqm @ Rs 4547.91 / sqm					Rs 163724.76	
56	8.3.2	Providing edge moulding to 18 mm thick marble stone counters, vanities etc., including machine polishing to edge to give high gloss finish etc. complete as per design approved by Engineer -in-Charge. Granite work						
		10	2.000				20.000	
		8	6.000				48.000	
		Total Quantity					68.000 metre	

	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						68.000 metre	
	Say 68.000 metre @ Rs 358.92 / metre						Rs 24406.56	
57	8.5 Extra for providing opening or required size & shape for wash basin/kitchen sink in kitchen platform, vanity counter and similar location in marble/granite/ stone work, including necessary holes for pillar taps etc. including moulding, rubbing and polishing of cut edges etc. complete.							
		21					21.000	
	Total Quantity						21.000 each	
	Total Deducted Quantity						0.000 each	
	Net Total Quantity						21.000 each	
	Say 21.000 each @ Rs 625.22 / each						Rs 13129.62	
58	11.20.3 Chequerred precast cement concrete tiles 22 mm thick in footpath & courtyard, jointed with neat cement slurry mixed with pigment to match the shade of tiles, including rubbing and cleaning etc. complete on 20 mm thick bed of cement mortar 1:4 (1 cement : 4 coarse sand).Dark shade pigment using ordinary cement							
	Porch	1	9.600	5.600			53.760	
	Total Quantity						53.760 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						53.760 sqm	
	Say 53.760 sqm @ Rs 1046.44 / sqm						Rs 56256.61	
59	11.26.1 Kota stone slab flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab, including rubbing and polishing complete with base of cement mortar 1:4 (1 cement : 4 coarse sand)25 mm thick							
	Class	3*6	12.000	6.000			1296.000	
	Staff	3*2	6.000	6.000			216.000	
	Stair	3	6.000	3.000			54.000	
	HOD	2*2	6.000	3.000			72.000	
	Office	1	9.000	6.000			54.000	
	Conference hall	1	12.000	6.000			72.000	
	Lobby	2	9.000	6.000			108.000	
		2	9.000	2.100			37.801	
	Principle	1	9.000	6.000			54.000	
	V principle	1	6.000	6.000			36.000	

	Lab	2	12.000	6.000			144.000	
		2	12.000	9.000			216.000	
	Verandah	3*2	54.360	2.400			782.784	
		3	39.880	3.000			358.921	
	Step	2*3	4.500	0.300			8.100	
	Ramp	2	9.000	1.500			27.000	
	Stair	3*3*24	1.450	0.300			93.960	
	Landing	3*3	3.000	1.500			40.500	
	Total Quantity						3671.066 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						3671.066 sqm	
	Say 3671.066 sqm @ Rs 1691.75 / sqm						Rs 6210525.91	
60	11.27 Kota stone slab 20 mm thick in risers of steps, skirting, dado and pillars laid on 12 mm (average) thick cement mortar 1:3 (1 cement : 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing and polishing complete.							
		21	36.000	0.100			75.601	
		4	30.000	0.100			12.000	
		7	24.000	0.100			16.801	
		7	18.000	0.100			12.600	
		2	42.000	0.100			8.400	
		2	22.200	0.100			4.440	
		8*2	54.360	0.100			86.976	
		8	39.880	0.100			31.905	
		6	4.500	0.150			4.050	
		3*3*25	1.450	0.150			48.938	
		3*3	6.000	0.100			5.400	
	Total Quantity						307.111 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						307.111 sqm	
	Say 307.111 sqm @ Rs 1808.76 / sqm						Rs 555490.09	
61	od39820/2017_2018 Providing and fixing PVC tile edging to match the wall tiles and finishing as directed by the Engineer-in-Charge at all levels.							

		10*7	2.100				147.000		
	Total Quantity						147.000 metre		
	Total Deducted Quantity						0.000 metre		
	Net Total Quantity						147.000 metre		
	Say 147.000 metre @ Rs 48.78 / metre						Rs 7170.66		
62	13.16.1 6 mm cement plaster of mix:1:3 (1 cement : 3 fine sand)								
	Slab								
		3*2	55.960	10.250			3441.540		
		2*2	15.060	10.250			617.460		
		2	38.920	10.250			797.860		
		2	10.640	5.000			106.400		
	HR	3	7.600	4.200			95.760		
	Landing	3*3	3.000	1.450			39.150		
	Sunshade	3*55	2.500	0.900			371.250		
	Flight	3*3*2	4.100	1.450			107.010		
	Stair	3*3	6.000	3.000			-162.000		
	Total Quantity						5576.430 sqm		
	Total Deducted Quantity						-162.000 sqm		
	Net Total Quantity						5414.430 sqm		
	Say 5414.430 sqm @ Rs 210.06 / sqm						Rs 1137355.17		
63	13.1.1 12 mm cement plaster of mix:1:4 (1 cement : 4 fine sand)								
	Class	21	36.000	3.750			2835.000		
		4	30.000	3.750			450.000		
		21	24.000	3.750			1890.000		
		7	18.000	3.750			472.500		
		3*3	18.300	3.750			617.625		
		2	42.000	3.750			315.000		
		2	22.200	3.750			166.500		
		2*5	8.000	3.900			312.000		
		4*2	56.040	3.550			1591.536		
		4*2	56.040	2.600			1165.632		

		3	36.000	2.400			259.200		
		70	5.200	3.750			1365.000		
		10	14.000	3.750			525.000		
	D	48	1.200	2.100			-120.960		
	W	172	1.500	1.500			-387.000		
	V	12	0.900	0.600			-6.480		
	D2	48	0.800	2.100			-80.640		
	Lift	6	1.000	2.100			-12.600		
		Total Quantity					11964.993 sqm		
		Total Deducted Quantity					-607.680 sqm		
		Net Total Quantity					11357.313 sqm		
		Say 11357.313 sqm @ Rs 252.65 / sqm					Rs 2869425.13		
64	13.2.1 15 mm cement plaster on the rough side of single or half brick wall of mix:1:4 (1 cement :4 fine sand)								
		8	127.520	3.900			3978.624		
		1	127.920	0.750			95.940		
		4*2	39.880	3.900			1244.256		
		2	39.880	0.750			59.821		
		3	37.600	2.400			270.720		
		2*5	10.000	3.900			390.000		
		1	230.480	2.600			599.248		
		Total Quantity					6638.609 sqm		
		Total Deducted Quantity					0.000 sqm		
		Net Total Quantity					6638.609 sqm		
		Say 6638.609 sqm @ Rs 292.53 / sqm					Rs 1941992.29		
65	13.10 15 mm cement plaster 1:3 (1 cement :3 coarse sand) finished with a floating coat of neat cement on the rough side of single or half brick wall.								
	Slab	2	55.960	10.250			1147.180		
		1	38.920	10.250			398.930		
		1	10.640	5.000			53.200		
	Stair	3	6.000	3.000			-54.000		
		Total Quantity					1599.310 sqm		
		Total Deducted Quantity					-54.000 sqm		

	Net Total Quantity						1545.310 sqm	
	Say 1545.310 sqm @ Rs 388.50 / sqm						Rs 600352.93	
66	13.22 Extra for plastering exterior walls of height more than 10 m from ground level for every additional height of 3 m or part thereof.							
		1	127.520	7.550			962.776	
		2	39.880	7.550			602.188	
	Total Quantity						1564.964 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						1564.964 sqm	
	Say 1564.964 sqm @ Rs 59.38 / sqm						Rs 92927.56	
67	13.47.1 Finishing walls with Premium Acrylic Smooth exterior paint with Silicone additives of required shade:New work (Two or more coats applied @ 1.43 ltr/ 10 sqm over and including priming coat of exterior primer applied @ 2.20 kg/ 10 sqm)							
		1	6638.609				6638.609	
	Total Quantity						6638.609 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						6638.609 sqm	
	Say 6638.609 sqm @ Rs 141.41 / sqm						Rs 938765.70	
68	13.43.1 Applying one coat of water thinnable cement primer of approved brand and manufacture on wall surface:Water thinnable cement primer							
	6mm+12mm(plastering)	1	16771.743				16771.743	
	Total Quantity						16771.743 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						16771.743 sqm	
	Say 16771.743 sqm @ Rs 53.98 / sqm						Rs 905338.69	
69	13.60.1 Wall painting with acrylic emulsion paint of approved brand and manufacture to give an even shade:Two or more coats on new work							
	6mm+12mm(plastering)	1	16771.743				16771.743	
	Total Quantity						16771.743 sqm	
	Total Deducted Quantity						0.000 sqm	

	Net Total Quantity						16771.743 sqm	
	Say 16771.743 sqm @ Rs 123.36 / sqm						Rs 2068962.22	
70	od39821/2017_2018 Providing and applying melamine matt finish on wood work after scraping and cleaning the surface applying necessary coats of putty, filler and sealer, etc. Sanding shall be done along the grains using water paper/emery paper before applying filler, sealer and melamine to get a perfectly smooth and uniform finish. Melamine and sealer shall be applied using spary gun. The rate shall include cost and conveyance of all materials, lead lift, all labour							
	D	48	1.200	2.100	2.250		272.160	
	Total Quantity						272.160 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						272.160 sqm	
	Say 272.160 sqm @ Rs 749.86 / sqm						Rs 204081.90	
71	2.34.1 Supplying chemical emulsion in sealed containers including delivery as specified.Chlorpyriphos / Lindane emulsifiable concentrate of 20%							
		1	1222.093	0.550			672.152	
	Total Quantity						672.152 Litre	
	Total Deducted Quantity						0.000 Litre	
	Net Total Quantity						672.152 Litre	
	Say 672.152 Litre @ Rs 271.64 / Litre						Rs 182583.37	
72	2.35.3.1 Diluting and injecting chemical emulsion for POST -CONSTRUCTIONAL anti-termite treatment (excluding the cost of chemical emulsion):Treatment of soil under existing floors using chemical emulsion @ one litre per hole, 300 mm apart including drilling 12 mm diameter holes and plugging with cement mortar 1:2 (1 cement : 2 coarse sand) to match the existing floor:With Chlorpyriphos/Lindane E.C. 20% with 1% concentration							
	Class	6	12.000	6.000			432.000	
	Toilet	2	6.000	4.000			48.000	
	Staff	2	6.000	6.000			72.000	
	Stait	3	6.000	3.000			54.000	
	HOD	2	6.000	3.000			36.000	
	Lobby	1	9.000	6.000			54.000	
	Office	1	9.000	6.000			54.000	
	Conference hall	1	12.000	6.000			72.000	
	Corridor	2	54.540	2.400			261.792	

	"	1	40.100	3.000			120.301	
	"	1	9.000	2.000			18.000	
	Total Quantity						1222.093 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						1222.093 sqm	
	Say 1222.093 sqm @ Rs 192.68 / sqm						Rs 235472.88	
73	od39822/2017_2018 Supplying and fixing of following sizes of Medium duty PVC conduits conforming to IS 9537/1983 Part III along with accessories in surface/ recess including cutting the wall and making good the same in case of recessed conduit as required. 20mm dia							
		4	150.000				600.000	
	Total Quantity						600.000 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						600.000 metre	
	Say 600.000 metre @ Rs 105.93 / metre						Rs 63558.00	
74	od39823/2017_2018 Supplying and fixing of following sizes of Medium duty PVC conduits conforming to IS 9537/1983 Part III along with accessories in surface/ recess including cutting the wall and making good the same in case of recessed conduit as required. 25mm dia							
		4	150.000				600.000	
	Total Quantity						600.000 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						600.000 metre	
	Say 600.000 metre @ Rs 128.23 / metre						Rs 76938.00	
75	od39824/2017_2018 Supplying and fixing of following sizes of Medium duty PVC conduits conforming to IS 9537/1983 Part III along with accessories in surface/ recess including cutting the wall and making good the same in case of recessed conduit as required. 32mm dia							
		4	150.000				600.000	
	Total Quantity						600.000 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						600.000 metre	
	Say 600.000 metre @ Rs 165.40 / metre						Rs 99240.00	
76	od39825/2017_2018 Providing GI profiled sheet partition / screening of 2.5m height with vertical & horizontal bracing with 40mm dia GI pipe. The vertical member have 3.0m long, 50cm embedded into foundation concrete 1:3:6							

	using 20mm broken stone of size 30x30x60cm at 2m intervals and horizontal members braced at bottom, middle and top of partitions including all cost, and conveyance of materials and labour charges etc. including dismantling and removing the materials after use.						
		1	200.000				200.000
	Total Quantity						200.000 metre
	Total Deducted Quantity						0.000 metre
	Net Total Quantity						200.000 metre
	Say 200.000 metre @ Rs 4214.48 / metre						Rs 842896.00
77	17.3.1 Providing and fixing white vitreous china pedestal type water closet (European type) with seat and lid, 10 litre low level white vitreous china flushing cistern & C.P. flush bend with fittings & C.I. brackets, 40 mm flush bend, overflow arrangement with specials of standard make and mosquito proof coupling of approved municipal design complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required :W.C. pan with ISI marked white solid plastic seat and lid						
		49					49.000
	Total Quantity						49.000 each
	Total Deducted Quantity						0.000 each
	Net Total Quantity						49.000 each
	Say 49.000 each @ Rs 6710.55 / each						Rs 328816.95
78	50.17.1.5 Supplying and fixing CP Health Faucet superior quality (Jagur or equivalent make) including cost of materials and labour charges etc complete as per the direction of site Engineer-in-charge.						
		49					49.000
	Total Quantity						49.000 no
	Total Deducted Quantity						0.000 no
	Net Total Quantity						49.000 no
	Say 49.000 no @ Rs 1280.58 / no						Rs 62748.42
79	17.5.1 Providing and fixing white vitreous china flat back half stall urinal of size 580x380x350 mm with white PVC automatic flushing cistern, with fittings, standard size C.P. brass flush pipe, spreaders with unions and clamps (all in C.P. brass) with waste fitting as per IS : 2556, C.I. trap with outlet grating and other couplings in C.P. brass, including painting of fittings and cutting and making good the walls and floors wherever required:Single half stall urinal with 5 litre PVC. automatic flushing cistern						
		16					16.000
	Total Quantity						16.000 each
	Total Deducted Quantity						0.000 each
	Net Total Quantity						16.000 each

								Say 16.000 each @ Rs 9038.55 / each	Rs 144616.80
80	od39826/2017_2018	Providing and fixing coloured vitreous china under counter round wash basin 440 mm dia or nearest size of approved make including one CP brass pillar cock 15 mm NB including connecting pipes with all fittings 32 mm dia rubber plugs 32 mm dia CP brass waste coupling, 32 mm dia CP brass bottle trap, 15mm angle valve, etc. complete as directed by the Engineer-in-charge.							
		28							28.000
		Total Quantity							28.000 each
		Total Deducted Quantity							0.000 each
		Net Total Quantity							28.000 each
		Say 28.000 each @ Rs 6000.99 / each							Rs 168027.72
81	od39827/2017_2018	Supplying and fixing approved quality white vitreous china urinal division plate 700 x 340 including cost and conveyance of all material, labour charge, lead, lift, all taxes etc. complete as directed by the Engineer-in-Charge.							
		12							12.000
		Total Quantity							12.000 no
		Total Deducted Quantity							0.000 no
		Net Total Quantity							12.000 no
		Say 12.000 no @ Rs 1683.01 / no							Rs 20196.12
82	od39828/2017_2018	Providing and fixing sanitary fixtures for handicapped toilet including one wash basin of size 65 x 35cm, one pair mounting brackets, one number pillar cock & all other related fittings like bottle trap ,angle cock,waste coupling etc,one number EWC & Cistern complete with fittings & seat cover, one no. hinged rail 76cm & 5 nos. of grab rails 60cm etc designed for people with special needs comes with as per manufactures specification including cutting and making good the walls and floors wherever required as directed by Engineer-in-Charge.							
		1							1.000
		Total Quantity							1.000 set
		Total Deducted Quantity							0.000 set
		Net Total Quantity							1.000 set
		Say 1.000 set @ Rs 33695.22 / set							Rs 33695.22
83	18.51.1	Providing and fixing C.P. brass long body bib cock of approved quality conforming to IS standards and weighing not less than 690 gms.15 mm nominal bore							
		50							50.000
		Total Quantity							50.000 each

										Total Deducted Quantity	0.000 each
										Net Total Quantity	50.000 each
										Say 50.000 each @ Rs 719.52 / each	Rs 35976.00
84	18.52.1	Providing and fixing C.P brass stop cock (concealed) of standard design and of approved make conforming to IS: 893115 mm nominal bore									
			28								28.000
										Total Quantity	28.000 each
										Total Deducted Quantity	0.000 each
										Net Total Quantity	28.000 each
										Say 28.000 each @ Rs 797.52 / each	Rs 22330.56
85	od39829/2017_2018	Providing and fixing Cleanout with Spigot, with SS 304 Square Frame & Round Frame with Flat Round Cover with Rubber Seal & SS Screw including cost and conveyance of all materials, labour charges, sundries etc complete as directed by the Engineer in charge at all levels 75mm dia									
			6								6.000
										Total Quantity	6.000 each
										Total Deducted Quantity	0.000 each
										Net Total Quantity	6.000 each
										Say 6.000 each @ Rs 1527.49 / each	Rs 9164.94
86	od39830/2017_2018	Providing and fixing Cleanout with Spigot, with SS 304 Square Frame & Round Frame with Flat Round Cover with Rubber Seal & SS Screw including cost and conveyance of all materials, labour charges, sundries etc complete as directed by the Engineer in charge at all levels 110mm dia									
			6								6.000
										Total Quantity	6.000 each
										Total Deducted Quantity	0.000 each
										Net Total Quantity	6.000 each
										Say 6.000 each @ Rs 1673.78 / each	Rs 10042.68
87	od39831/2017_2018	Providing and fixing frameless mirror, with all four edges machine polished and back side protected with safety film and 4 mm thick Plywood backing and fixed on walls with mirror screws. The rate includes lifting, cutting etc. as per design and drawing.									
			1	5.000							5.000
										Total Quantity	5.000 sqm
										Total Deducted Quantity	0.000 sqm

		Net Total Quantity					5.000 sqm	
		Say 5.000 sqm @ Rs 3891.03 / sqm					Rs 19455.15	
88	od39832/2017_2018 Providing and fixing floor trap of PVC,110 mm outer dia(multi trap) including CP cockroach free floor grating with cup etc including cost and conveyance of all materials, labour charges, sundries etc complete as directed by the Engineer-in-Charge at all levels							
		54				54.000		
		Total Quantity					54.000 no	
		Total Deducted Quantity					0.000 no	
		Net Total Quantity					54.000 no	
		Say 54.000 no @ Rs 427.63 / no					Rs 23092.02	
89	50.18.8.6.2 Providing and fixing PVC pipes, fittings including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step PVC solvent cement and testing of joints complete as per direction of Engineer-in-Charge. Concealed work, including cutting chases and making good the wall etc. 50 mm pipe 6 kgf/cm2							
		1	144.000			144.000		
		Total Quantity					144.000 metre	
		Total Deducted Quantity					0.000 metre	
		Net Total Quantity					144.000 metre	
		Say 144.000 metre @ Rs 346.33 / metre					Rs 49871.52	
90	50.18.8.8.1 Providing and fixing PVC pipes, fittings including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes with one step PVC solvent cement and testing of joints complete as per direction of Engineer-in-Charge. Concealed work, including cutting chases and making good the wall etc. 75 mm pipe 6 Kgf/cm2							
		1	36.000			36.000		
		Total Quantity					36.000 metre	
		Total Deducted Quantity					0.000 metre	
		Net Total Quantity					36.000 metre	
		Say 36.000 metre @ Rs 510.65 / metre					Rs 18383.40	
91	50.18.8.9.1 Providing and fixing PVC pipes, fittings including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes with one step PVC solvent cement and testing of joints complete as per direction of Engineer-in-Charge. Concealed work, including cutting chased and making good the wall etc. 110 mm pipe 6kgf/cm2							
		1	90.000			90.000		

							Total Quantity	90.000 metre
							Total Deducted Quantity	0.000 metre
							Net Total Quantity	90.000 metre
							Say 90.000 metre @ Rs 610.65 / metre	Rs 54958.50
92	od39833/2017_2018 Providing and fixing PVC pipes, fittings including fixing the pipe with clamps at 1.00 m spacing . This includes jointing of pipes & fittings with one step PVC solvent cement and testing of joints complete as per direction of Engineer-in-Charge 75 mm dia 6 Kgf/cm ² - Internal work- Exposed on wall							
		24						24.000
							Total Quantity	24.000 metre
							Total Deducted Quantity	0.000 metre
							Net Total Quantity	24.000 metre
							Say 24.000 metre @ Rs 382.52 / metre	Rs 9180.48
93	od39834/2017_2018 Providing and fixing PVC pipes, fittings including fixing the pipe with clamps at 1.00 m spacing . This includes jointing of pipes & fittings with one step PVC solvent cement and testing of joints complete as per direction of Engineer-in-Charge 110mm dia 6 Kgf/cm ² - Internal work- Exposed on wall							
		1	24.000					24.000
							Total Quantity	24.000 metre
							Total Deducted Quantity	0.000 metre
							Net Total Quantity	24.000 metre
							Say 24.000 metre @ Rs 492.04 / metre	Rs 11808.96
94	od39835/2017_2018 Providing and fixing PVC pipes, fittings including fixing the pipe with clamps at 1.00 m spacing . This includes jointing of pipes & fittings with one step PVC solvent cement and testing of joints complete as per direction of Engineer-in-Charge 75 mm dia 4 Kgf/cm ² - Internal work- Exposed on wall							
		24						24.000
							Total Quantity	24.000 metre
							Total Deducted Quantity	0.000 metre
							Net Total Quantity	24.000 metre
							Say 24.000 metre @ Rs 337.10 / metre	Rs 8090.40
95	od39836/2017_2018 Supplying approved make PVC gully trap of size 160 x 110mm and CI grating 150mmx150mm size and light duty C.I cover with frames 300mmx300mm size(inside) the weight of cover to be not less than4.5kg and frame to be not less than2.7kg (CI MH cover and frame as per IS:1726) single sealed of size conveying to size the above mentioned items and constructing 30cmx30cm internal size gully trap chamber and depth upto 60cm,115 thk brick wall in CM 1:6 on a foundation of PCC 1:4:8.100mm thick							

	plastering inside with CM 1:3,12mm thk with a neat cement flushing coat and conveying to site,cleaning ,installing and testing approved make PVC gully trap with 160mm outlet(Fabricated),surrounding with CC 1:1.5:3, 150x150mmm,top with CI grating above the PVC gulley trap and light duty CI cover and frame over the chamber including cost of all materials, etc complete as per approved drawing and as directed by Engineer-in- Charge.								
		6					6.000		
		Total Quantity					6.000	each	
		Total Deducted Quantity					0.000	each	
		Net Total Quantity					6.000	each	
		Say 6.000 each @ Rs 2691.59 / each					Rs 16149.54		
96	19.7.1.1 Constructing brick masonry manhole in cement mortar 1:4 (1 cement : 4 coarse sand) with R.C.C. top with 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size,) inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement and making channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement complete as per standard design:Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions, total weight of cover and frame to be not less than 38 kg (weigh of cover 23 kg and weight of frame 15 kg):With common burnt clay F.P.S. (non modular) bricks of class designation 7.5								
		4					4.000		
		Total Quantity					4.000	each	
		Total Deducted Quantity					0.000	each	
		Net Total Quantity					4.000	each	
		Say 4.000 each @ Rs 12612.69 / each					Rs 50450.76		
97	19.33 Constructing soak pit 1.20x1.20 m filled with brickbats including S.W. drain pipe 100 mm diameter and 1.20 m long complete as per standard design.								
		1					1.000		
		Total Quantity					1.000	each	
		Total Deducted Quantity					0.000	each	
		Net Total Quantity					1.000	each	
		Say 1.000 each @ Rs 3091.64 / each					Rs 3091.64		
98	50.18.9.21.7 Providing and fixing PVC moulded fittings/ accessories for Rigid PVC pipes, including jointing with PVC solvent cement - 75 mm dia Vent cowl								
		4					4.000		
		Total Quantity					4.000	no	

								Total Deducted Quantity		0.000 no	
								Net Total Quantity		4.000 no	
								Say 4.000 no @ Rs 84.29 / no		Rs 337.16	
99	50.18.9.22.8 Providing and fixing PVC moulded fittings /accessories for Rigid PVC pipes, including jointing with PVC solvent cement -110 mm dia Vent cowl										
		4						4.000			
								Total Quantity		4.000 no	
								Total Deducted Quantity		0.000 no	
								Net Total Quantity		4.000 no	
								Say 4.000 no @ Rs 120.97 / no		Rs 483.88	
100	od39837/2017_2018 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes& fittings, with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer-in-Charge. Concealed work, including cutting chases and making good the wall etc. 40 mm nominal outer dia pipes										
		1	60.000					60.000			
								Total Quantity		60.000 metre	
								Total Deducted Quantity		0.000 metre	
								Net Total Quantity		60.000 metre	
								Say 60.000 metre @ Rs 527.22 / metre		Rs 31633.20	
101	18.8.2 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes& fittings, with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer-in-Charge. Concealed work, including cutting chases and making good the wall etc.20 mm nominal outer dia pipes										
		1	102.000					102.000			
								Total Quantity		102.000 metre	
								Total Deducted Quantity		0.000 metre	
								Net Total Quantity		102.000 metre	
								Say 102.000 metre @ Rs 416.11 / metre		Rs 42443.22	
102	18.8.3 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m										

	spacing. This includes jointing of pipes& fittings, with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer-in-Charge. Concealed work, including cutting chases and making good the wall etc.25 mm nominal outer dia pipes						
		1	204.000				204.000
	Total Quantity						204.000 metre
	Total Deducted Quantity						0.000 metre
	Net Total Quantity						204.000 metre
	Say 204.000 metre @ Rs 487.32 / metre						Rs 99413.28
103	18.8.4 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes& fittings, with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer-in-Charge. Concealed work, including cutting chases and making good the wall etc.32 mm nominal outer dia pipes						
		1	18.000				18.000
	Total Quantity						18.000 metre
	Total Deducted Quantity						0.000 metre
	Net Total Quantity						18.000 metre
	Say 18.000 metre @ Rs 603.16 / metre						Rs 10856.88
104	18.9.5 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings. This includes jointing of pipes & fittings with one step CPVC solvent cement, trenching , refilling & testing of joints complete as per direction of Engineer- in-Charge. External work40 mm nominal outer dia pipes						
		1	60.000				60.000
	Total Quantity						60.000 metre
	Total Deducted Quantity						0.000 metre
	Net Total Quantity						60.000 metre
	Say 60.000 metre @ Rs 469.14 / metre						Rs 28148.40
105	18.9.3 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings. This includes jointing of pipes & fittings with one step CPVC solvent cement, trenching , refilling & testing of joints complete as per direction of Engineer- in-Charge. External work25 mm nominal outer dia pipes						
		1	72.000				72.000
	Total Quantity						72.000 metre

		Total Deducted Quantity					0.000 metre	
		Net Total Quantity					72.000 metre	
		Say 72.000 metre @ Rs 279.96 / metre					Rs 20157.12	
106	18.9.4 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings. This includes jointing of pipes & fittings with one step CPVC solvent cement, trenching , refilling & testing of joints complete as per direction of Engineer- in-Charge. External work32 mm nominal outer dia pipes							
		1	12.000				12.000	
		Total Quantity					12.000 metre	
		Total Deducted Quantity					0.000 metre	
		Net Total Quantity					12.000 metre	
		Say 12.000 metre @ Rs 366.00 / metre					Rs 4392.00	
107	18.9.6 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings. This includes jointing of pipes & fittings with one step CPVC solvent cement, trenching , refilling & testing of joints complete as per direction of Engineer- in-Charge. External work50 mm nominal outer dia pipes							
		1	24.000				24.000	
		Total Quantity					24.000 metre	
		Total Deducted Quantity					0.000 metre	
		Net Total Quantity					24.000 metre	
		Say 24.000 metre @ Rs 707.39 / metre					Rs 16977.36	
108	18.7.3 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer -in-Charge. Internal work - Exposed on wall25 mm nominal outer dia pipes							
		1	60.000				60.000	
		Total Quantity					60.000 metre	
		Total Deducted Quantity					0.000 metre	
		Net Total Quantity					60.000 metre	
		Say 60.000 metre @ Rs 315.82 / metre					Rs 18949.20	
109	18.7.4 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing							

	of joints complete as per direction of Engineer -in-Charge. Internal work - Exposed on wall32 mm nominal outer dia pipes							
		1	12.000				12.000	
		Total Quantity					12.000 metre	
		Total Deducted Quantity					0.000 metre	
		Net Total Quantity					12.000 metre	
		Say 12.000 metre @ Rs 422.24 / metre					Rs 5066.88	
110	18.7.5 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer -in-Charge. Internal work - Exposed on wall40 mm nominal outer dia pipes							
		1	24.000				24.000	
		Total Quantity					24.000 metre	
		Total Deducted Quantity					0.000 metre	
		Net Total Quantity					24.000 metre	
		Say 24.000 metre @ Rs 563.14 / metre					Rs 13515.36	
111	18.7.6 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer -in-Charge. Internal work - Exposed on wall50 mm nominal outer dia pipes							
		1	24.000				24.000	
		Total Quantity					24.000 metre	
		Total Deducted Quantity					0.000 metre	
		Net Total Quantity					24.000 metre	
		Say 24.000 metre @ Rs 801.32 / metre					Rs 19231.68	
112	18.17.1 Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :25 mm nominal bore							
		4					4.000	
		Total Quantity					4.000 each	
		Total Deducted Quantity					0.000 each	
		Net Total Quantity					4.000 each	
		Say 4.000 each @ Rs 625.51 / each					Rs 2502.04	

113	18.17.2 Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :32 mm nominal bore		4				4.000	
		Total Quantity					4.000 each	
		Total Deducted Quantity					0.000 each	
		Net Total Quantity					4.000 each	
		Say 4.000 each @ Rs 731.50 / each					Rs 2926.00	
114	18.17.3 Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :40 mm nominal bore		2				2.000	
		Total Quantity					2.000 each	
		Total Deducted Quantity					0.000 each	
		Net Total Quantity					2.000 each	
		Say 2.000 each @ Rs 854.13 / each					Rs 1708.26	
115	18.17.4 Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :50 mm nominal bore		2				2.000	
		Total Quantity					2.000 each	
		Total Deducted Quantity					0.000 each	
		Net Total Quantity					2.000 each	
		Say 2.000 each @ Rs 1095.45 / each					Rs 2190.90	
116	18.48 Providing and placing on terrace (at all floor levels) polyethylene water storage tank :ISI 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.		1	5000.000			5000.000	
		Total Quantity					5000.000 Litre	
		Total Deducted Quantity					0.000 Litre	
		Net Total Quantity					5000.000 Litre	
		Say 5000.000 Litre @ Rs 10.59 / Litre					Rs 52950.00	
117	od39838/2017_2018 Supplying and fixing of centrifugal pump, with CI construction, CI impeller complete with motor, base plate, foundation bolts, nuts, pressure guage and all accessories. and working with 415V, 3ph and 50 Hz							

	frequency capacity :17m3/hr head :21m								
		1					1.000		
		Total Quantity					1.000	each	
		Total Deducted Quantity					0.000	each	
		Net Total Quantity					1.000	each	
		Say 1.000 each @ Rs 10888.70 / each					Rs 10888.70		
118	od39839/2017_2018 Supplying and fixing of CI double flanged wall casting pipe with puddle, 0.6m length including cost and conveyance of all materials,labour charges,making good the walls etc complete as directed by the Engineer-in-Charge.: 80 mm								
		2					2.000		
		Total Quantity					2.000	no	
		Total Deducted Quantity					0.000	no	
		Net Total Quantity					2.000	no	
		Say 2.000 no @ Rs 3642.32 / no					Rs 7284.64		
119	od39840/2017_2018 Supplying and fixing of CI double flanged wall casting pipe with puddle, 0.6m length including cost and conveyance of all materials,labour charges,making good the walls etc complete as directed by the Engineer-in-Charge. : 65 mm								
		2					2.000		
		Total Quantity					2.000	no	
		Total Deducted Quantity					0.000	no	
		Net Total Quantity					2.000	no	
		Say 2.000 no @ Rs 3424.16 / no					Rs 6848.32		
120	od39841/2017_2018 Supplying and fixing of CI double flanged wall casting pipe with puddle, 0.6m length including cost and conveyance of all materials,labour charges,making good the walls etc complete as directed by the Engineer-in-Charge. : 150 mm								
		2					2.000		
		Total Quantity					2.000	no	
		Total Deducted Quantity					0.000	no	
		Net Total Quantity					2.000	no	
		Say 2.000 no @ Rs 7098.66 / no					Rs 14197.32		
121	od39842/2017_2018								

	Supplying and fixing of CI double flanged wall casting pipe with puddle, 0.6m length including cost and conveyance of all materials,labour charges,making good the walls etc complete as directed by the Engineer-in-Charge. : 100 mm									
		2						2.000		
		Total Quantity						2.000	no	
		Total Deducted Quantity						0.000	no	
		Net Total Quantity						2.000	no	
		Say 2.000 no @ Rs 4696.21 / no						Rs 9392.42		
122	od39843/2017_2018 Providing and fixing C.I. basket type dirt box strainer 50mm dia for bulk type water meter with nuts, bolts, rubber etc. complete conforming to IS : 2373 : including cost and conveyance of all materials, labour etc. complete and as directed by Engineer-in-Charge									
		1						1.000		
		Total Quantity						1.000	each	
		Total Deducted Quantity						0.000	each	
		Net Total Quantity						1.000	each	
		Say 1.000 each @ Rs 6668.23 / each						Rs 6668.23		
123	od39844/2017_2018 Supplying and fixing of CI single flanged wall casting pipe with puddle, 0.6m length including cost and conveyance of all materials,labour charges,making good the walls etc complete as directed by the Engineer-in-Charge. 200mm									
		1						1.000		
		Total Quantity						1.000	each	
		Total Deducted Quantity						0.000	each	
		Net Total Quantity						1.000	each	
		Say 1.000 each @ Rs 6551.53 / each						Rs 6551.53		
124	od39845/2017_2018 Supplying and fixing of CI single flanged wall casting pipe with puddle, 0.6m length including cost and conveyance of all materials,labour charges,making good the walls etc complete as directed by the Engineer-in-Charge. 150mm									
		1						1.000		
		Total Quantity						1.000	each	
		Total Deducted Quantity						0.000	each	
		Net Total Quantity						1.000	each	
		Say 1.000 each @ Rs 5734.41 / each						Rs 5734.41		
125	od39846/2017_2018									

	Providing and fixing enclosed type water meter (bulk type) 50mm dia conforming to IS : 2373 and tested by Municipal Board complete with bolts, nuts, rubber etc. (The tail pieces if required will be paid separately) including cost and conveyance of all materials, labour etc. complete and as directed by Engineer-in-Charge							
		1					1.000	
		Total Quantity					1.000 each	
		Total Deducted Quantity					0.000 each	
		Net Total Quantity					1.000 each	
		Say 1.000 each @ Rs 8248.07 / each					Rs 8248.07	
126	od39847/2017_2018 Supplying and fixing CI foot valve with all accessories including cost and conveyance of all materials,labour charges etc complete as directed by the Engineer -in - charge at all levels. 50 mm dia							
		1					1.000	
		Total Quantity					1.000 each	
		Total Deducted Quantity					0.000 each	
		Net Total Quantity					1.000 each	
		Say 1.000 each @ Rs 3221.60 / each					Rs 3221.60	
127	18.19.3.1 Providing and fixing gun metal non-return valve of approved quality (screwed end):40 mm nominal boreHorizontal							
		1					1.000	
		Total Quantity					1.000 each	
		Total Deducted Quantity					0.000 each	
		Net Total Quantity					1.000 each	
		Say 1.000 each @ Rs 997.51 / each					Rs 997.51	
128	18.19.4.1 Providing and fixing gun metal non-return valve of approved quality (screwed end):50 mm nominal boreHorizontal							
		1					1.000	
		Total Quantity					1.000 each	
		Total Deducted Quantity					0.000 each	
		Net Total Quantity					1.000 each	
		Say 1.000 each @ Rs 1442.83 / each					Rs 1442.83	
129	18.19.5.1 Providing and fixing gun metal non-return valve of approved quality (screwed end):65 mm nominal boreHorizontal							

		1					1.000	
	Total Quantity						1.000 each	
	Total Deducted Quantity						0.000 each	
	Net Total Quantity						1.000 each	
	Say 1.000 each @ Rs 2583.42 / each						Rs 2583.42	
130	19.6.2 Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete:150 mm dia R.C.C. pipe							
		1	20.000				20.000	
	Total Quantity						20.000 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						20.000 metre	
	Say 20.000 metre @ Rs 521.14 / metre						Rs 10422.80	
131	19.6.4 Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete:300 mm dia R.C.C. pipe							
		1	20.000				20.000	
	Total Quantity						20.000 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						20.000 metre	
	Say 20.000 metre @ Rs 757.50 / metre						Rs 15150.00	
132	50.18.9.8.1 Providing and fixing PVC pipes includings jointing of pipes with one step PVC solvent cement, trenching, refilling & testing of joints complete as per direction of Engineer in Charge. 75 mm dia 6 Kgf/ cm2							
		1	36.000				36.000	
	Total Quantity						36.000 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						36.000 metre	
	Say 36.000 metre @ Rs 301.61 / metre						Rs 10857.96	
133	50.18.9.9.1 Providing and fixing PVC pipes includings jointing of pipes with one step PVC solvent cement, trenching, refilling & testing of Joints complete as per direction of engineer in charge.110 mm dia 6Kgf/cm2							
		1	60.000				60.000	
	Total Quantity						60.000 metre	

							Total Deducted Quantity	0.000 metre
							Net Total Quantity	60.000 metre
							Say 60.000 metre @ Rs 448.36 / metre	Rs 26901.60
134	50.18.9.10.1 Providing and fixing PVC pipes including jointing of pipes with one step pvc solvent cement, trenching, refilling & testing of joints complete as per direction of Engineer in Charge. 150 mm dia 6 Kgf/cm2							
		1	42.000				42.000	
							Total Quantity	42.000 metre
							Total Deducted Quantity	0.000 metre
							Net Total Quantity	42.000 metre
							Say 42.000 metre @ Rs 825.21 / metre	Rs 34658.82
Sl No	Description	No	L	B	D	CF	Quantity	Remark
2 Sump & External water supply								
1	2.32 Clearing grass and removal of the rubbish up to a distance of 50 m outside the periphery of the area cleared.							
	Area	1	7.550	7.550			57.003	
							Total Quantity	57.003 sqm
							Total Deducted Quantity	0.000 sqm
							Net Total Quantity	57.003 sqm
							Say 57.003 sqm @ Rs 5.33 / sqm	Rs 303.83
2	2.6.1 Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed. All kinds of soil							
	Sump	1	7.550	7.550	1.500		85.504	
							Total Quantity	85.504 cum
							Total Deducted Quantity	0.000 cum
							Net Total Quantity	85.504 cum
							Say 85.504 cum @ Rs 183.99 / cum	Rs 15731.88
3	od39808/2017_2018 Earth work in excavation by means (Hydraulic excavator)/manual means over areas (exceeding 30cm in depth.1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50 m disposed earth to be levelled and neatly dressed, as directed by the Engineer- in-Charge but for every additional lift of 1.5m to 3.00m or part there of : All kinds of soil							
		1	7.550	7.550	1.150		65.553	

	Total Quantity						65.553 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						65.553 cum	
	Say 65.553 cum @ Rs 208.29 / cum						Rs 13654.03	
4	2.25 Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundation etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m.							
	Total sump excavation	1			151.057		151.057	
	deduct sump volume	-1	5.750	5.750	2.300		-76.043	
	Total Quantity						75.014 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						75.014 cum	
	Say 75.014 cum @ Rs 183.70 / cum						Rs 13780.07	
5	4.1.8 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 nominal size)							
	sump	1	6.550	6.550	0.100		4.291	
	Total Quantity						4.291 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						4.291 cum	
	Say 4.291 cum @ Rs 6541.68 / cum						Rs 28070.35	
6	od39809/2017_2018 Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, Providing and laying in position machine batched and machine mixed design mix M-30 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge. (Note :- Cement content considered in this item is @ 340 kg/cum. "Excess/ less cement used as per design mix is payable/recoverable separately). All work upto plinth level							
	Sump base slab	1	6.350	6.350	0.300		12.097	
	Wall	2	5.750	0.282	2.400		7.784	

		5	5.150	0.280	2.400		17.305		
		1	2.000	0.200	2.400		0.960		
	sump cover slab	1	5.750	5.750	0.150		4.960		
		Total Quantity						43.106 cum	
		Total Deducted Quantity						0.000 cum	
		Net Total Quantity						43.106 cum	
		Say 43.106 cum @ Rs 9518.58 / cum						Rs 410307.91	
7	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo - Mechanically Treated bars of grade Fe-500D or more								
	Sump side wall	1	25.550		80.000		2044.000		
	raft	1	12.100		80.000		968.000		
	cover slab	1	4.960		80.000		396.800		
		Total Quantity						3408.800 kilogram	
		Total Deducted Quantity						0.000 kilogram	
		Net Total Quantity						3408.800 kilogram	
		Say 3408.800 kilogram @ Rs 82.68 / kilogram						Rs 281839.58	
8	5.9.1 Centering and shuttering including strutting, etc. and removal of form for: Foundations, footings, bases of columns, etc for mass concrete								
	P.C.C Sump	1	26.200		0.100		2.620		
	R.C.C Sump base slab	1	25.400		0.300		7.620		
		Total Quantity						10.240 sqm	
		Total Deducted Quantity						0.000 sqm	
		Net Total Quantity						10.240 sqm	
		Say 10.240 sqm @ Rs 283.32 / sqm						Rs 2901.20	
9	5.9.3 Centering and shuttering including strutting, etc. and removal of form for: Suspended floors, roofs, landings, balconies and access platform								
	Sump cover slab	1	5.750	5.750			33.063		
		Total Quantity						33.063 sqm	
		Total Deducted Quantity						0.000 sqm	
		Net Total Quantity						33.063 sqm	
		Say 33.063 sqm @ Rs 616.90 / sqm						Rs 20396.56	

10	5.9.2 Centering and shuttering including strutting, etc. and removal of form for:Walls (any thickness) including attached pilasters, buttersesses, plinth and string courses etc.							
	Sump wall	4	5.750		2.400		55.200	
		10	5.150		2.400		123.601	
	Total Quantity						178.801 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						178.801 sqm	
	Say 178.801 sqm @ Rs 553.06 / sqm						Rs 98887.68	
11	19.18.3 Supplying and fixing C.I with out frame for manholes:560 mm diameter (heavy duty) the weight of the cover to be not less than 108 kg							
		4					4.000	
	Total Quantity						4.000 each	
	Total Deducted Quantity						0.000 each	
	Net Total Quantity						4.000 each	
	Say 4.000 each @ Rs 8605.86 / each						Rs 34423.44	
12	13.10 15 mm cement plaster 1:3 (1 cement :3 coarse sand) finished with a floating coat of neat cement on the rough side of single or half brick wall.							
	Sump base slab	1	4.750	5.150			24.463	
	Inside wall	1	19.800	2.400			47.520	
	Total Quantity						71.983 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						71.983 sqm	
	Say 71.983 sqm @ Rs 388.50 / sqm						Rs 27965.40	
13	od39811/2017_2018 Providing and applying 2 coats an acrylic polymer modified elastomeric cementitious water proof coating on roof slab , gutter ,OHT,SUMP etc which shall be mixed as per manufacture's technical specification, after thoroughly cleaning the surface by mechanical means to making it free of any loose mortar,unsound substrate,"V" grooves cut along the construction joints, cracks and joints of slab/wall on the external face and the same shall be filled with polymermodified mortar(CM 1:3 mixed with approved water proofing compound in the proportion recommended by the manufacturers), cracks in the slab (if any), pressure grouting wherever necessary by injecting mixed with approved expanding agent using pressure grouting pump with a pressure of 3 to 4kg/sqm ,strictly maintaining the coverage specified by the manufacturer, including cost and conveyance of all materials,labour charges etc complete as directed by the Engineer-in-Charge .(The above work shall be carriedout by an agency having sufficient experience in membrane water proofing and should ensure a guarantee of 5 years. .Only skilled and experienced persons shall be							

	employed for this purpose.)							
		1	76.000				76.000	
	Total Quantity						76.000 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						76.000 sqm	
	Say 76.000 sqm @ Rs 418.14 / sqm						Rs 31778.64	
SI No	Description	No	L	B	D	CF	Quantity	Remark
3 Rcc septic tank for 150 users 1 No.								
1	2.32 Clearing grass and removal of the rubbish up to a distance of 50 m outside the periphery of the area cleared.							
	Septic tank	1	20.000	15.000			300.000	
	Total Quantity						300.000 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						300.000 sqm	
	Say 300.000 sqm @ Rs 5.33 / sqm						Rs 1599.00	
2	2.6.1 Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed.All kinds of soil							
	Septic tank	1	11.860	4.860	1.500		86.460	
		2	0.500	2.160	0.250		0.540	
	Total Quantity						87.000 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						87.000 cum	
	Say 87.000 cum @ Rs 183.99 / cum						Rs 16007.13	
3	od39808/2017_2018 Earth work in excavation by means (Hydraulic excavator)/manual means over areas (exceeding 30cm in depth.1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50 m disposed earth to be levelled and neatly dressed, as directed by the Engineer- in-Charge but for every additional lift of 1.5m to 3.00m or part there of : All kinds of soil							
	Septic tank	1	11.860	4.860	0.510		29.397	
	Total Quantity						29.397 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						29.397 cum	

	Say 29.397 cum @ Rs 208.29 / cum						Rs 6123.10	
4	2.25 Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundation etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m.							
	Total excavation	1	116.397				116.397	
	deduct septic tank volume	-1	10.460	3.460	2.010		-72.745	
		-2	0.500	0.760	0.250		-0.190	
	Total Quantity						43.462 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						43.462 cum	
	Say 43.462 cum @ Rs 183.70 / cum						Rs 7983.97	
5	4.1.8 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 nominal size)							
		1	10.660	3.660	0.100		3.902	
		2	0.500	0.960	0.100		0.096	
	Total Quantity						3.998 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						3.998 cum	
	Say 3.998 cum @ Rs 6541.68 / cum						Rs 26153.64	
6	5.33.1 Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer - in-charge. Note:- Cement content considered in this item is @ 330 kg/ cum. Excess or less cement used as per design mix is payable or recoverable separately.All work upto plinth level							
	Septic tank	1	10.460	3.460	0.230		8.325	
	Inlet & Outlet	2	0.500	0.760	0.230		0.175	
	Vertical slab							
		2	10.460	0.230	1.550		7.458	
		2	3.000	0.230	1.550		2.140	
		3	3.000	0.120	1.250		1.350	

		2	0.760	0.200	0.300		0.092		
		4	0.300	0.230	0.300		0.083		
		1	10.460	3.460	0.130		4.705		
		2	0.500	0.760	0.130		0.099		
		-2	0.600	0.600	0.130		-0.093		
		-2	0.650	0.650	0.050		-0.042		
	Total Quantity						24.292 cum		
	Total Deducted Quantity						0.000 cum		
	Net Total Quantity						24.292 cum		
	Say 24.292 cum @ Rs 9417.05 / cum						Rs 228758.98		
7	5.12 Providing, hoisting and fixing up to floor level precast reinforced cement concrete work in string courses, bands, copings, bed plates, anchor blocks, plain window sills and the like, including the cost of required centering, shuttering but excluding cost of reinforcement, with 1:1.5:3 (1 cement : 1.5 coarse sand (Zone - III) : 3 graded stone aggregate 20 mm nominal size)								
	R.C.C Precast slab for Inlet & amp; Outlet chamber	2	0.600	0.600	0.050		0.036		
	Total Quantity						0.036 cum		
	Total Deducted Quantity						0.000 cum		
	Net Total Quantity						0.036 cum		
	Say 0.036 cum @ Rs 10184.84 / cum						Rs 366.65		
8	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo - Mechanically Treated bars of grade Fe-500D or more								
	Slab	1	4.752		80.000		380.160		
	base slab	1	8.499		80.000		679.921		
	vertical walls	1	11.121		80.000		889.681		
	Total Quantity						1949.762 kilogram		
	Total Deducted Quantity						0.000 kilogram		
	Net Total Quantity						1949.762 kilogram		
	Say 1949.762 kilogram @ Rs 82.68 / kilogram						Rs 161206.32		
9	5.9.1 Centering and shuttering including strutting, etc. and removal of form for: Foundations, footings, bases of columns, etc for mass concrete								
		1	28.640		0.100		2.865		

		1	27.840		0.230		6.404		
		2	2.160		0.100		0.433		
		2	1.760		0.230		0.810		
		1	10.000		3.000		30.000		
		2	0.300		0.300		0.180		
		8	0.600		0.130		0.624		
	deduct	-2	0.600		0.600		-0.720		
		Total Quantity					40.596 sqm		
		Total Deducted Quantity					0.000 sqm		
		Net Total Quantity					40.596 sqm		
		Say 40.596 sqm @ Rs 283.32 / sqm					Rs 11501.66		
10	5.9.3 Centering and shuttering including strutting, etc. and removal of form for:Suspended floors, roofs, landings, balconies and access platform								
	Cast in situ RCC cover slab	1	10.000	3.000			30.000		
	Manhole	-2	0.600	0.600			-0.720		
		Total Quantity					29.280 sqm		
		Total Deducted Quantity					0.000 sqm		
		Net Total Quantity					29.280 sqm		
		Say 29.280 sqm @ Rs 616.90 / sqm					Rs 18062.83		
11	5.9.2 Centering and shuttering including strutting, etc. and removal of form for:Walls (any thickness) including attached pilasters, butresses, plinth and string courses etc.								
		2	26.920		1.550		83.453		
		2	1.760		0.370		1.303		
		2	0.970		0.370		0.718		
		4	3.000		1.200		14.400		
		Total Quantity					99.874 sqm		
		Total Deducted Quantity					0.000 sqm		
		Net Total Quantity					99.874 sqm		
		Say 99.874 sqm @ Rs 553.06 / sqm					Rs 55236.31		
12	5.9.16.1 Centering and shuttering including strutting, etc. and removal of form for:Edges of slabs and breaks in floors and wallsUnder 20 cm wide								

		1	26.920				26.920	
		2	1.760				3.520	
	Total Quantity						30.440 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						30.440 metre	
	Say 30.440 metre @ Rs 178.51 / metre						Rs 5433.84	
13	10.2 Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.							
		8	0.700	3.800			21.280	
	Total Quantity						21.280 kg	
	Total Deducted Quantity						0.000 kg	
	Net Total Quantity						21.280 kg	
	Say 21.280 kg @ Rs 98.82 / kg						Rs 2102.89	
14	19.18.3 Supplying and fixing C.I with out frame for manholes:560 mm diameter (heavy duty) the weight of the cover to be not less than 108 kg							
		2					2.000	
	Total Quantity						2.000 each	
	Total Deducted Quantity						0.000 each	
	Net Total Quantity						2.000 each	
	Say 2.000 each @ Rs 8605.86 / each						Rs 17211.72	
15	13.10 15 mm cement plaster 1:3 (1 cement :3 coarse sand) finished with a floating coat of neat cement on the rough side of single or half brick wall.							
		2	10.000		1.550		31.000	
		2	3.000		1.550		9.300	
		6	3.000		1.250		22.500	
		2	1.760		0.500		1.760	
		6	0.300		0.370		0.666	
		1	10.000		3.000		30.000	
		2	0.300		0.300		0.180	
	Total Quantity						95.406 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						95.406 sqm	

	Say 95.406 sqm @ Rs 388.50 / sqm						Rs 37065.23	
16	50.18.9.10.1 Providing and fixing PVC pipes including jointing of pipes with one step pvc solvent cement, trenching , refilling & testing of joints complete as per direction of Engineer in Charge. 150 mm dia 6 Kgf/cm2							
		1	8.000				8.000	
	Total Quantity						8.000 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						8.000 metre	
	Say 8.000 metre @ Rs 825.21 / metre						Rs 6601.68	
17	22.4.1 Providing and Placing in position suitable PVC water stops conforming to IS : 12200 for construction / expansion joints between two RCC members and fixed to the reinforcement with binding wire before pouring concrete etc. complete:Serrated with central bulb (225 mm wide, 8-11 mm thick)							
		1	26.000				26.000	
	Total Quantity						26.000 metre	
	Total Deducted Quantity						0.000 metre	
	Net Total Quantity						26.000 metre	
	Say 26.000 metre @ Rs 371.26 / metre						Rs 9652.76	
Total Amount						129290750.00		
Lumpsum for round off						0.00		
						TOTAL Rs 129290750.00		
						Rounded Total Rs 12,92,90,750		
Rupees Twelve Crore Ninety Two Lakh Ninety Thousand Seven Hundred and Fifty Only								

(Cost Index Applied for this estimate is 46.08%)

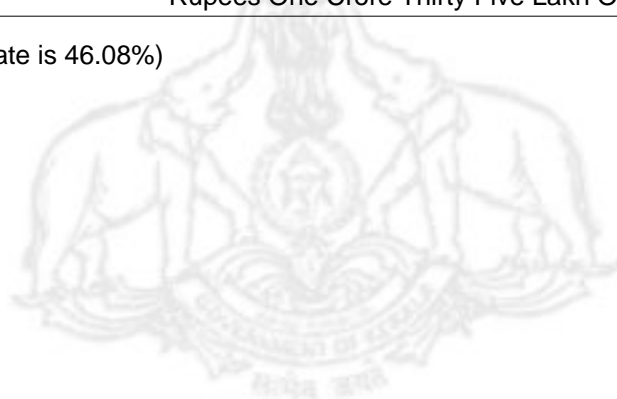
**GOVT COLLEGE THIRIPUNITHURA (INTERNAL ROADS AND COMPOUND
WALL)**

General Abstract

(Dsr year: **2016**, Cost Index Applied for this estimate is **46.08%**)

SI No	Heading Description	Amount
1	Compound wall and Gate	9844920.29
2	Internal Roads and Pathways	3655239.12
Total Amount		13500159.00
Lumpsum for round off		0.00
		TOTAL Rs 13500159.00
		Rounded Total Rs 1,35,00,159
Rupees One Crore Thirty Five Lakh One Hundred and Fifty Nine Only		

(Cost Index Applied for this estimate is 46.08%)



Other Engineering Organisations

PRICE

**GOVT COLLEGE THRIPIUNITHURA (INTERNAL ROADS AND COMPOUND
WALL)**

Abstract Estimate

(Dsr year: **2016**, Cost Index Applied for this estimate is **46.08%**)

1 Compound wall and Gate		
1	2.32 Clearing grass and removal of the rubbish up to a distance of 50 m outside the periphery of the area cleared.	
		Net Total Quantity
		544.000 sqm
		Say 544.000 sqm @ Rs 5.33 / sqm
		Rs 2899.52
2	2.8.1 Earth work in excavation by mechanical means (Hydraulic excavator) /manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.All kinds of soil	
		Net Total Quantity
		204.960 cum
		Say 204.960 cum @ Rs 243.08 / cum
		Rs 49821.68
3	od44936/2018_2019 Earth work in excavation over areas (exceeding 30cms in depth, 1.50m in width as well as 10sqm on plan) including disposal of excavated earth lead upto 50ms and disposed earth to be levelled and neatly dressed - Extra for every additional lift of 1.50 m or part thereof in excavation / banking excavated or stacked materials. All kinds of soil upto 4.50m	
		Net Total Quantity
		70.058 cum
		Say 70.058 cum @ Rs 373.60 / cum
		Rs 26173.67
4	4.1.8 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 nominal size)	
		Net Total Quantity
		4.540 cum
		Say 4.540 cum @ Rs 6541.68 / cum
		Rs 29699.23
5	5.33.1 Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer - in-charge. Note:- Cement content considered in this item is @ 330 kg/ cum. Excess or less cement used as per design mix is payable or recoverable separately.All work upto plinth level	
		Net Total Quantity
		69.730 cum
		Say 69.730 cum @ Rs 9417.05 / cum
		Rs 656650.90

6	5.33.2 Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer - in-charge. Note:- Cement content considered in this item is @ 330 kg/ cum. Excess or less cement used as per design mix is payable or recoverable separately.All work above plinth level upto floor V level	
Net Total Quantity		9.995 cum
Say 9.995 cum @ Rs 10590.87 / cum		Rs 105855.75
7	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth levelThermo - Mechanically Treated bars of grade Fe-500D or more	
Net Total Quantity		7280.771 kilogram
Say 7280.771 kilogram @ Rs 82.68 / kilogram		Rs 601974.15
8	5.9.1 Centering and shuttering including strutting, etc. and removal of form for:Foundations, footings, bases of columns, etc for mass concrete	
Net Total Quantity		288.121 sqm
Say 288.121 sqm @ Rs 283.32 / sqm		Rs 81630.44
9	5.9.3 Centering and shuttering including strutting, etc. and removal of form for:Suspended floors, roofs, landings, balconies and access platform	
Net Total Quantity		9.000 sqm
Say 9.000 sqm @ Rs 616.90 / sqm		Rs 5552.10
10	5.9.5 Centering and shuttering including strutting, etc. and removal of form for:Lintels, beams, plinth beams, girders bressumers and cantilevers	
Net Total Quantity		23.350 sqm
Say 23.350 sqm @ Rs 500.91 / sqm		Rs 11696.25
11	5.9.6 Centering and shuttering including strutting, etc. and removal of form for:Columns, Pillars, Piers, Abutments, Posts and Struts	
Net Total Quantity		40.840 sqm
Say 40.840 sqm @ Rs 683.44 / sqm		Rs 27911.69
12	5.9.13 Centering and shuttering including strutting, etc. and removal of form for:Vertical and horizontal fins individually for forming box louvers band, facias and eaves boards	

		Net Total Quantity	12.601 sqm
		Say 12.601 sqm @ Rs 917.16 / sqm	Rs 11557.13
13	5.9.16.1 Centering and shuttering including strutting, etc. and removal of form for:Edges of slabs and breaks in floors and wallsUnder 20 cm wide		
		Net Total Quantity	8.000 metre
		Say 8.000 metre @ Rs 178.51 / metre	Rs 1428.08
14	5.11.1 Extra additional height in centering, shuttering where ever required with adequate bracing, propping etc. including cost of de-shuttering and decentering at all levels, over a height of 3.5m, for every additional height of 1 metre or part thereof (Plan area to be measured).Suspended floors, roofs, landing, beams and balconies (Plan area to be measured)		
		Net Total Quantity	38.400 sqm
		Say 38.400 sqm @ Rs 250.53 / sqm	Rs 9620.35
15	2.25 Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundation etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m.		
		Net Total Quantity	169.949 cum
		Say 169.949 cum @ Rs 183.70 / cum	Rs 31219.63
16	50.6.1.4 Solid block masonry using pre cast solid blocks (Factory made) of size 30x20x20cm or nearest available size confirming to IS 2185 part I of 1979 for foundation and plinth with thickness 20cm and above in: CM 1:6 (1 cement : 6 coarse sand) etc complete		
		Net Total Quantity	1.920 cum
		Say 1.920 cum @ Rs 5328.37 / cum	Rs 10230.47
17	50.6.1.5 Solid block masonry using pre cast solid blocks (Factory made) of size 30x20x20cm or nearest available size confirming to IS 2185 Part I of 1979 for super structure up to floor two level thickness 20cm and above in: CM 1:6 (1 cement : 6 coarse sand) etc complete		
		Net Total Quantity	631.853 cum
		Say 631.853 cum @ Rs 5837.01 / cum	Rs 3688132.28
18	7.1.1 Random rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) up to plinth level with:Cement mortar 1:6 (1 cement : 6 coarse sand)		
		Net Total Quantity	543.071 cum
		Say 543.071 cum @ Rs 5793.31 / cum	Rs 3146178.66

19	13.16.1 6 mm cement plaster of mix:1:3 (1 cement : 3 fine sand)		
		Net Total Quantity	34.201 sqm
		Say 34.201 sqm @ Rs 210.06 / sqm	Rs 7184.26
20	13.1.1 12 mm cement plaster of mix:1:4 (1 cement : 4 fine sand)		
		Net Total Quantity	1629.046 sqm
		Say 1629.046 sqm @ Rs 252.65 / sqm	Rs 411578.47
21	13.2.1 15 mm cement plaster on the rough side of single or half brick wall of mix:1:4 (1 cement :4 fine sand)		
		Net Total Quantity	1596.526 sqm
		Say 1596.526 sqm @ Rs 292.53 / sqm	Rs 467031.75
22	13.45.1 Finishing walls with textured exterior pint of required shade:New work (Two or more coats applied @ 3.28 ltr/ 10 sqm) over and including priming coat of exterior primer applied @ 2.20 kg/ 10 sqm		
		Net Total Quantity	44.071 sqm
		Say 44.071 sqm @ Rs 220.07 / sqm	Rs 9698.70
23	13.46.1 Finishing walls with Acrylic Smooth exterior paint of required shade:New work (Two or more coat applied @ 1.67 ltr/10 sqm over and including priming coat of exterior primer applied @ 2.20 kg/10 sqm)		
		Net Total Quantity	3215.702 sqm
		Say 3215.702 sqm @ Rs 140.31 / sqm	Rs 451195.15
2 Internal Roads and Pathways			
1	16.78.2 Construction of granular sub- base by Providing close graded Material conforming to specifications, mixing in a mechanical mix plant at OMC, Carriage of mixed material by tippers to work site, for all leads & lifts, spreading in uniform layers of specified thickness with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per specifications and directions of Engineer-in- Charge.With material conforming to Grade-II (size range 53 mm to 0.075 mm) having CBRValue-25		
		Net Total Quantity	540.000 cum
		Say 540.000 cum @ Rs 3038.68 / cum	Rs 1640887.20
2	16.68 Providing and laying 60 mm thick factory made cement concrete interlocking paver block of M - 30 grade made by block making machine with strong vibratory compaction, of approved size, design & shape, laid in required colour and pattern over and including 50 mm thick compacted bed of coarse sand, filling the joints with fine sand etc. all complete as per the direction of Engineer-in-charge.		
		Net Total Quantity	1800.000 sqm

Say 1800.000 sqm @ Rs 899.41 / sqm		Rs 1618938.00
3	16.69 Providing and laying at or near ground level factory made kerb stone of M-25 grade cement concrete in position to the required line, level and curvature jointed with cement mortar 1:3 (1 cement : 3 coarse sand) , including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5 mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-Charge)	
Net Total Quantity		54.000 cum
Say 54.000 cum @ Rs 7322.48 / cum		Rs 395413.92
Total Amount		13500159.00
Lumpsum for round off		0.00
		TOTAL Rs 13500159.00
		Rounded Total Rs 1,35,00,159
Rupees One Crore Thirty Five Lakh One Hundred and Fifty Nine Only		

(Cost Index Applied for this estimate is 46.08%)

Other Engineering Organisations

PRICE

**GOVT COLLEGE THIRUPUNITHURA (INTERNAL ROADS AND COMPOUND
WALL)**

Detailed Estimate

(Dsr year: 2016, Cost Index Applied for this estimate is 46.08%)

SI No	Description	No	L	B	D	CF	Quantity	Remark	
1 Compound wall and Gate									
1	2.32 Clearing grass and removal of the rubbish up to a distance of 50 m outside the periphery of the area cleared.								
		1	294.000	1.000			294.000		
		1	250.000	1.000			250.000		
		Total Quantity						544.000 sqm	
		Total Deducted Quantity						0.000 sqm	
		Net Total Quantity						544.000 sqm	
		Say 544.000 sqm @ Rs 5.33 / sqm						Rs 2899.52	
2	2.8.1 Earth work in excavation by mechanical means (Hydraulic excavator) /manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.All kinds of soil								
		1	560.000	0.600	0.600		201.600		
		Academic Block							
	Plinth beams	4	2.000	.2+.3+.2	.15+.35+.1		3.360		
		Total Quantity						204.960 cum	
		Total Deducted Quantity						0.000 cum	
		Net Total Quantity						204.960 cum	
		Say 204.960 cum @ Rs 243.08 / cum						Rs 49821.68	
3	od44936/2018_2019 Earth work in excavation over areas (exceeding 30cms in depth, 1.50m in width as well as 10sqm on plan) including disposal of excavated earth lead upto 50ms and disposed earth to be levelled and neatly dressed - Extra for every additional lift of 1.50 m or part thereof in excavation / banking excavated or stacked materials. All kinds of soil upto 4.50m								
		Entance Gate Academic Block							
	F1	3	2.500+.2+.3	2.500+.2+.3	1.500		40.500		
	F2	4	1.500+.2+.3	1.500+.2+.3	1.500		24.000		

Entrance Gate Hostel Block								
	Columns	2	0.600	0.600	3.000		2.160	
		4	0.200	0.200	2.600		0.417	
	Beams	4	2.000	0.250	0.200		0.400	
	Slab	1	3.000	3.000	0.120		1.080	
	Lintel	4	2.000	0.200	0.150		0.240	
	facia	4	3.000	1.050	0.100		1.261	
						Total Quantity	70.058 cum	
						Total Deducted Quantity	0.000 cum	
						Net Total Quantity	70.058 cum	
						Say 70.058 cum @ Rs 373.60 / cum	Rs 26173.67	
4	4.1.8 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 nominal size)							
Academic Block Entrance Gate								
	Plinth beam PCC	1	7.500	0.300	0.100		0.225	
	Plinth beam PCC Security cabin	4	2.000	0.300	0.100		0.240	
	Security cabin floor PCC	1	2.000	2.000	0.100		0.400	
						Footing Security cabin Academic &&& Hostel Block		
	F1	3	2.500	2.500	0.100		1.875	
	F2	4	1.500	1.500	0.100	2.0	1.800	
						Total Quantity	4.540 cum	
						Total Deducted Quantity	0.000 cum	
						Net Total Quantity	4.540 cum	
						Say 4.540 cum @ Rs 6541.68 / cum	Rs 29699.23	
5	5.33.1 Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer - in-charge. Note:- Cement content considered in this item is @ 330 kg/ cum. Excess or less cement used as per design mix is payable or recoverable separately.All work upto plinth level							

Footing Entrance Gate Academic Block &&& Hostel Block								
F1	3	2.500	2.500	0.600	2.0	22.500		
F2	4	1.500	1.500	0.350	2.0	6.300		
Plinth Beams Entrance Gate Academic Block								
Plinth beams	1	7.500	0.600	0.300		1.350		
	4	2.000	0.200	0.200		0.321		
CW								
RCC Belt	1	312.330	0.300	0.150		14.055		
	1	560.070	0.300	0.150		25.204		
Total Quantity						69.730 cum		
Total Deducted Quantity						0.000 cum		
Net Total Quantity						69.730 cum		
Say 69.730 cum @ Rs 9417.05 / cum						Rs 656650.90		
6	5.33.2 Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer - in-charge. Note:- Cement content considered in this item is @ 330 kg/ cum. Excess or less cement used as per design mix is payable or recoverable separately. All work above plinth level upto floor V level							
Entrance Gate								
Columns Gate	2	0.600	0.600	5.500		3.960		
Beams	1	7.200	0.600	0.600		2.592		
Columns Security cabin	4	0.200	0.200	2.600		0.417		
Beams	4	2.000	0.250	0.200		0.400		
Slab	1	3.000	3.000	0.125		1.125		
Lintel	4	2.000	0.200	0.150		0.240		
facia	4	3.000	1.050	0.100		1.261		
Total Quantity						9.995 cum		
Total Deducted Quantity						0.000 cum		
Net Total Quantity						9.995 cum		
Say 9.995 cum @ Rs 10590.87 / cum						Rs 105855.75		
7	5.22.6							

	Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo - Mechanically Treated bars of grade Fe-500D or more								
	Footing	22.5+6.3				80.0	2304.000		
	PB	1.35+0.32 1				120.0	200.520		
	C	3.96+0.41 7				230.0	1006.710		
	Beam	2.592+0.4				160.0	478.720		
	lintel	0.24				100.0	24.000		
	facia	1.261				100.0	126.100		
		39.259				80.0	3140.721		
	Total Quantity						7280.771 kilogram		
	Total Deducted Quantity						0.000 kilogram		
	Net Total Quantity						7280.771 kilogram		
	Say 7280.771 kilogram @ Rs 82.68 / kilogram						Rs 601974.15		
8	5.9.1 Centering and shuttering including strutting, etc. and removal of form for: Foundations, footings, bases of columns, etc for mass concrete								
	Footing								
	F1	3*4	2.500			0.600	18.000		
	F2	4*4	1.500			0.350	8.400		
	CW								
	RCC Belt	1	312.330			0.150	2.0	93.699	
		1	560.070			0.150	2.0	168.022	
	Total Quantity						288.121 sqm		
	Total Deducted Quantity						0.000 sqm		
	Net Total Quantity						288.121 sqm		
	Say 288.121 sqm @ Rs 283.32 / sqm						Rs 81630.44		
9	5.9.3 Centering and shuttering including strutting, etc. and removal of form for: Suspended floors, roofs, landings, balconies and access platform								
	Roof slab								
	Roof slab	1	3.000	3.000			9.000		
	Total Quantity						9.000 sqm		
	Total Deducted Quantity						0.000 sqm		

		Net Total Quantity						9.000 sqm
		Say 9.000 sqm @ Rs 616.90 / sqm						Rs 5552.10
10	5.9.5	Centering and shuttering including strutting, etc. and removal of form for:Lintels, beams, plinth beams, girders bressumers and cantilevers						
		Beams						
	B1	1	7.500	0.300			2.250	
		1	7.500		0.500	2.0	7.500	
	B2	4	2.000	0.250		2.0	4.000	
		4	2.000		0.200		1.600	
		Lintels						
	Lintel	4	2.000		0.150	2.0	2.400	
		Beams						
	B2	4	2.000	0.250		2.0	4.000	
		4	2.000		0.200		1.600	
		Total Quantity						23.350 sqm
		Total Deducted Quantity						0.000 sqm
		Net Total Quantity						23.350 sqm
		Say 23.350 sqm @ Rs 500.91 / sqm						Rs 11696.25
11	5.9.6	Centering and shuttering including strutting, etc. and removal of form for:Columns, Pillars, Piers, Abutments, Posts and Struts						
		Columns						
	C1	2	0.600		5.500	4.0	26.400	
	C1	1	0.600		2.550	4.0	6.120	
	C2	4	0.200		2.600	4.0	8.320	
		Total Quantity						40.840 sqm
		Total Deducted Quantity						0.000 sqm
		Net Total Quantity						40.840 sqm
		Say 40.840 sqm @ Rs 683.44 / sqm						Rs 27911.69
12	5.9.13	Centering and shuttering including strutting, etc. and removal of form for:Vertical and horizontal fins individually for forming box louvers band, facias and eaves boards						
		facia						
	facia	4	3.000	1.050			12.601	

	Total Quantity							12.601 sqm
	Total Deducted Quantity							0.000 sqm
	Net Total Quantity							12.601 sqm
	Say 12.601 sqm @ Rs 917.16 / sqm							Rs 11557.13
13	5.9.16.1 Centering and shuttering including strutting, etc. and removal of form for:Edges of slabs and breaks in floors and wallsUnder 20 cm wide							
	Sides of slabs	4	2.000				8.000	
	Total Quantity							8.000 metre
	Total Deducted Quantity							0.000 metre
	Net Total Quantity							8.000 metre
	Say 8.000 metre @ Rs 178.51 / metre							Rs 1428.08
14	5.11.1 Extra additional height in centering, shuttering where ever required with adequate bracing, propping etc. including cost of de-shuttering and decentering at all levels, over a height of 3.5m, for every additional height of 1 metre or part thereof (Plan area to be measured).Suspended floors, roofs, landing, beams and balconies (Plan area to be measured)							
		2	8.000	1.200		2.0	38.400	
	Total Quantity							38.400 sqm
	Total Deducted Quantity							0.000 sqm
	Net Total Quantity							38.400 sqm
	Say 38.400 sqm @ Rs 250.53 / sqm							Rs 9620.35
15	2.25 Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundation etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m.							
	Total cutting	204.96					204.960	
	PCC	4.54					-4.540	
	Rcc	30.471					-30.471	
	Total Quantity							204.960 cum
	Total Deducted Quantity							-35.011 cum
	Net Total Quantity							169.949 cum
	Say 169.949 cum @ Rs 183.70 / cum							Rs 31219.63
16	50.6.1.4 Solid block masonry using pre cast solid blocks (Factory made) of size 30x20x20cm or nearest available size confirming to IS 2185 part I of 1979 for foundation and plinth with thickness 20cm and above in: CM							

	1:6 (1 cement : 6 coarse sand) etc complete							
		4	2.000	0.200	.15+.45	2.0	1.920	
	Total Quantity						1.920 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						1.920 cum	
	Say 1.920 cum @ Rs 5328.37 / cum						Rs 10230.47	
17	50.6.1.5 Solid block masonry using pre cast solid blocks (Factory made) of size 30x20x20cm or nearest available size confirming to IS 2185 Part I of 1979 for super structure up to floor two level thickness 20cm and above in: CM 1:6 (1 cement : 6 coarse sand) etc complete							
	Compond wall	1	312.330	0.200	1.800	2.0	224.878	
	Compond wall	1	560.000	0.200	1.800	2.0	403.200	
	Above gate	1	8.000	0.200	1.05-.5		0.881	
	Above gate	1	3.000	0.200	1.05-.5		0.331	
	Security cabin	4	2.000	0.200	2.850		4.561	
	W	3	2.000	0.200	1.350		-1.620	
	D	1	0.900	0.200	2.100		-0.378	
	Total Quantity						633.851 cum	
	Total Deducted Quantity						-1.998 cum	
	Net Total Quantity						631.853 cum	
	Say 631.853 cum @ Rs 5837.01 / cum						Rs 3688132.28	
18	7.1.1 Random rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) up to plinth level with:Cement mortar 1:6 (1 cement : 6 coarse sand)							
		1	312.330	0.600	0.600+.1		131.179	
		1	560.070	0.600	0.600+.1		235.230	
		1	312.330	0.450	0.450		63.247	
		1	560.070	0.450	0.450		113.415	
	Total Quantity						543.071 cum	
	Total Deducted Quantity						0.000 cum	
	Net Total Quantity						543.071 cum	
	Say 543.071 cum @ Rs 5793.31 / cum						Rs 3146178.66	
19	13.16.1 6 mm cement plaster of mix:1:3 (1 cement : 3 fine sand)							

	Security cabin	1	3.000	3.000	1.000		9.000	
	facia							
	facia	4	3.000	1.050		2.0	25.201	
	Total Quantity						34.201 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						34.201 sqm	
	Say 34.201 sqm @ Rs 210.06 / sqm						Rs 7184.26	
20	13.1.1 12 mm cement plaster of mix:1:4 (1 cement : 4 fine sand)							
	W	3	2.000		1.350	0.5	-4.050	
	D	1	0.900		2.100	0.5	-0.945	
	Compond wall	1	312.330		1.800		562.194	
	Compond wall	1	560.070		1.800		1008.127	
	Above gate	1	8.000		1.050		8.400	
	Security cabin	4	2.000		2.850		22.800	
	Column	2*4	0.600		5.500		26.400	
		1*4	0.600		2.550		6.120	
	Total Quantity						1634.041 sqm	
	Total Deducted Quantity						-4.995 sqm	
	Net Total Quantity						1629.046 sqm	
	Say 1629.046 sqm @ Rs 252.65 / sqm						Rs 411578.47	
21	13.2.1 15 mm cement plaster on the rough side of single or half brick wall of mix:1:4 (1 cement :4 fine sand)							
	W	3	2.000		1.350	0.5	-4.050	
	D	1	0.900		2.100	0.5	-0.945	
	Compond wall	1	312.330		1.800		562.194	
	Compond wall	1	560.070		1.800		1008.127	
	Above gate	1	8.000		1.050		8.400	
	Security cabin	4	2.000		2.850		22.800	
	Total Quantity						1601.521 sqm	
	Total Deducted Quantity						-4.995 sqm	
	Net Total Quantity						1596.526 sqm	
	Say 1596.526 sqm @ Rs 292.53 / sqm						Rs 467031.75	

22	13.45.1	Finishing walls with textured exterior pint of required shade:New work (Two or more coats applied @ 3.28 ltr/ 10 sqm) over and including priming coat of exterior primer applied @ 2.20 kg/ 10 sqm						
	Above gate	1	8.000		1.050		8.400	
	Above gate	1	3.000		1.050		3.151	
	Columns	2*4	0.600		5.500		26.400	
		1*4	0.600		2.550		6.120	
		Total Quantity					44.071 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					44.071 sqm	
		Say 44.071 sqm @ Rs 220.07 / sqm					Rs 9698.70	
23	13.46.1	Finishing walls with Acrylic Smooth exterior paint of required shade:New work (Two or more coat applied @ 1.67 ltr/10 sqm over and including priming coat of exterior primer applied @ 2.20 kg/10 sqm)						
	6mm	1	34.201				34.201	
	12mm	1	1629.046				1629.046	
	15mm	1	1596.526				1596.526	
	less texture paint	-1	44.071				-44.071	
		Total Quantity					3215.702 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					3215.702 sqm	
		Say 3215.702 sqm @ Rs 140.31 / sqm					Rs 451195.15	
SI No	Description	No	L	B	D	CF	Quantity	Remark
2 Internal Roads and Pathways								
1	16.78.2	Construction of granular sub- base by Providing close graded Material conforming to specifications, mixing in a mechanical mix plant at OMC, Carriage of mixed material by tippers to work site, for all leads & lifts, spreading in uniform layers of specified thickness with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per specifications and directions of Engineer-in- Charge.With material conforming to Grade-II (size range 53 mm to 0.075 mm) having CBRValue-25						
	Internal Road	1	250.000	6.000	0.300		450.000	
	Parking	1	50.000	6.000	0.300		90.000	
		Total Quantity					540.000 cum	
		Total Deducted Quantity					0.000 cum	
		Net Total Quantity					540.000 cum	

	Say 540.000 cum @ Rs 3038.68 / cum						Rs 1640887.20
2	<p>16.68 Providing and laying 60 mm thick factory made cement concrete interlocking paver block of M - 30 grade made by block making machine with strong vibratory compaction, of approved size, design & shape, laid in required colour and pattern over and including 50 mm thick compacted bed of coarse sand, filling the joints with fine sand etc. all complete as per the direction of Engineer-in-charge.</p>						
	Internal Road	1	250.000	6.000			1500.000
	Parking	1	50.000	6.000			300.000
	Total Quantity						1800.000 sqm
	Total Deducted Quantity						0.000 sqm
	Net Total Quantity						1800.000 sqm
	Say 1800.000 sqm @ Rs 899.41 / sqm						Rs 1618938.00
3	<p>16.69 Providing and laying at or near ground level factory made kerb stone of M-25 grade cement concrete in position to the required line, level and curvature jointed with cement mortar 1:3 (1 cement : 3 coarse sand) , including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5 mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-Charge)</p>						
	Internal Road	2	250.000	0.200	0.450		45.000
	Parking	2	50.000	0.200	0.450		9.000
	Total Quantity						54.000 cum
	Total Deducted Quantity						0.000 cum
	Net Total Quantity						54.000 cum
	Say 54.000 cum @ Rs 7322.48 / cum						Rs 395413.92
	Total Amount						13500159.00
	Lumpsum for round off						0.00
	TOTAL Rs 13500159.00						
	Rounded Total Rs 1,35,00,159						
	Rupees One Crore Thirty Five Lakh One Hundred and Fifty Nine Only						

(Cost Index Applied for this estimate is 46.08%)

Annexure 6

Detailed Electrical Estimate

KITCO LTD
DEPARTMENT OF EDUCATION, GOVT. OF KERALA
Govt. Arts College Thripunithura
SH: ELECTRICAL WORKS
ABSTRACT OF COST

Sl.No	Description		Amount (Rs)
1.0	PART -A	LT PANEL BOARDS AND ACCESSORIES	393250.21
2.0	PART -B	CABLES AND CABLING	181120.53
3.0	PART- C	WIRING AND ACCESSORIES	3073055.91
4.0	PART -D	MCBs AND MCB DISTRIBUTION BOARDS	201663.83
5.0	PART- E	LIGHT FIXTURES AND FANS	1222452.38
6.0	PART - F	EARTHING AND SAFETY EQUIPMENTS	68324.12
		GRAND TOTAL	5139867.00

KITCO LTD
DEPARTMENT OF EDUCATION, GOVT. OF KERALA
Govt. Arts College Thripunithura
SH: ELECTRICAL WORKS
SPECIFICATION AND SCHEDULE OF QUANTITIES

Sl.No	Description of Items	Unit	Qty	Rate (Rs)	Amount (Rs)
PART -A					
LT PANEL BOARDS AND ACCESSORIES					
1.0	METERING BOARD				
1.01	Supplying and fixing following ways surface/ recess mounting, vertical type, 415 volts, TPN MCB distribution board of sheet steel, dust protected, duly powder painted, inclusive of 200 amps tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCB's, with provision of 100 amps TP 16 KA MCCB as incomer, interconnection between incomer MCCB and bus bars (but without MCB's/ MCCB) as required . (Note : Vertical type MCB TPDB is normally used where 3 phase outlets are required.)	no	1.00	32390.11	32390.11
1.02	Supply, installation, testing and commissioning of energymeter box of cubicle construction made from 16SWG CRCA sheet suitable for accomodating one number of TOD meter with CT and 3 Nos of 63A HRC fuse,63 A FP isolator and neutral link, interconnections, providing necessary supports made from the same gauge CRCA sheet to fix energymeters, etc.The cubicle shall be provided with hinged door construction and vision panel for the meter compartment. Suitable knock out for cable entry and exit shall be provided. The entire board shall be painted with 2 coats of synthetic enamel paint over a coat of zinc chromate primer etc as required including fixing it on wall, making good the damages colour washing etc. as required.	no	1.00	13042.10	13042.10
2.0	UPS				
2.01	Supply , Installation, Testing and Commissioning of 10 kVA, three phase input, three Phase output, true on-line UPS system with 30 minutes back up , output isolation transformer, including all accessories, SMF batteries VRLA type with powder coated CRCA cabinet including all accessories such as cabling etc as required complete having following specification.The UPS system consist of one numbers of UPS unit andone set of battery bank . Refer technical specification and drawing for details. Fully digital controlled based on DSP Power factor corrected from end > 0.9 Pure sine wave output. Full time output voltage & frequency regulation Auto regulation of battery end voltage Intelligent interface with LED/LCD display Static bypass switch / manual by pass switch Auto temperature compensation	no	1.00	347818.00	347818.00
SUB TOTAL PART -A					393250.21
PART -B					
CABLES AND CABLING					

Sl.No	Description of Items	Unit	Qty	Rate (Rs)	Amount (Rs)
3.0	Supply of following size 1.1 KV grade XLPE insulated, PVC sheathed, armoured Aluminium /copper conductor cable conforming to IS 7098 (Part 1) amended upto date.				
3.02	3.5C 70 Sq.mm Al	m	30.00	349.00	10470.00
3.04	3.5C 35 Sq.mm Al	m	0.00	198.00	0.00
3.06	4C 6 Sq.mm Al	m	50.00	93.00	4650.00
3.07	4C 4 sqmm Al	m	50.00	81.00	4050.00
4.0	Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.				
4.02	3.5C 70 Sq.mm Al	m	2.00	540.77	1081.53
4.02	3.5C 35 Sq.mm Al	no	0.00	387.05	0.00
4.04	4C 6 Sq.mm Al	no	2.00	392.38	784.76
4.05	4C 4 sqmm Al	no	2.00	385.39	770.78
5.0	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on wall or surface as required.				
5.01	Upto 35 sq. mm (clamped with 1mm thick saddle)	m	90.00	34.31	3088.13
5.02	Above 35 sq. mm and upto 95 sq. mm (clamped with 25x3mm MS flat clamp)	m	5.00	98.82	494.10
6.0	Laying of one number PVC insulated and PVC sheathed armoured power cable of 1.1kV grade fo the following sizes in ground including excavation ,sand cushioning , providing protective covering and refilling the trench etc. as required				
6.01	Above 35 sq. mm and upto 95 sq. mm	m	25.00	293.72	7342.88

Sl.No	Description of Items	Unit	Qty	Rate (Rs)	Amount (Rs)
8.0	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size in the existing RCC/ HUME/ METAL pipe as required.				
8.01	Upto 35 sq mm	m	10.00	24.71	247.05
8.02	Above 35 sq. mm and upto 95 sq. mm	m	5.00	38.43	192.15
7.0	Laying and fixing of one number PVC insulated and PVC sheathed/ XLPE power cable of 1.1 KV grade of following size on cable tray as required.				
7.01	Upto 35 sq. mm (clamped with 1mm thick saddle)	m	70.00	28.82	2017.58
7.02	Above 95 sq. mm and upto 185 sq. mm	m	5.00	83.72	418.61
8.0	Providing, laying and fixing following dia G.I. pipe (medium class) in ground complete with G.I. fittings including trenching (75 cm deep)and re-filling etc as required				
8.01	40mm	m	30.00	423.10	12693.00
8.02	50 mm	m	20.00	532.53	10650.60
8.03	100 mm	m	20.00	1136.43	22728.60
9.00	Fabrication, supply and installation of following size of Ladder type GI hot dip galvanised cable tray including horizontal and vertical reducers, tees, cross members and other accessories as required and duly suspended from the ceiling with MS suspenders and painting etc as required 150 MM WIDTH X 50 MM DEPTH X 1.6 MM THICK	m	25.00	691.74	17293.50
10.0	Providing, laying and fixing following dia RCC pipe NP2 class (light duty) in ground complete with RCC collars, jointing with cement mortar 1:2 (1 cement : 2 fine sand) including trenching (75 cm deep) and refilling etc as required. 100 mm dia	m	10.00	487.24	4872.38
11.0	Supply, fabricating and installing MS items such as Tees/ angles/ channels etc. on floor/ ceiling/ wall including necessary civil work such as grouting, finishing etc. and painting with two coats of primer and two coats of synthetic enamel paint as required.	kg	200.00	154.31	30862.00

Sl.No	Description of Items	Unit	Qty	Rate (Rs)	Amount (Rs)
12.0	Providing & fixing Fire Barrier mortar with minimum 2 hours fire rating when tested in accordance with BS 476 part 20 and UL 1479 for horizontal openings in fire rated floors or slabs and vertical openings in walls for passing service shafts. The service lines could be of various types like electrical cables trays, metal pipes, GI Ducts for AC, etc.The mortar shall have minimum hardened density of 0.8 g/cm ³ and It should have a compressive strength of 2.9N/Sq mm . The product shall be Smoke & Air Seal and 30 years Age tested as per Dafstb and DIBT standards. The product shall be tested and approved by third party agencies such as UL and FM. The mortar should be tested in accordance with IEC 60068-2-57:1999-11 (Environmental Testing) as per Part 2-57: Test for Vibration-Time-history method and VERTEQII for seismic zone 4. The product shall bear the UL and FM approval logo on the packing where applicable.	sqm	0.43	11500.00	4968.00
SUB TOTAL PART -B					181120.53
PART- C					
WIRING AND ACCESSORIES					
13.0	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm. FRLS PVC insulated copper conductor single core cable etc as required. (Note:The total distance from the switch box to the point will not exceed 5mtr, incase if length increases above 5 metres, the wiring shall be measured under item 15.1)	no	951.00	1038.98	988072.36
14.0	Wiring for twin control light point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, 2 way modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm. FRLS PVC insulated copper conductor single core cable etc as required.. (Note:The total distance from the switch box to the point will not exceed 5mtr, incase if length increases above 5 metres, the wiring shall be measured under item 15.1)	no	7.00	986.83	6907.79
15.0	Group controlled light point with 1.5 sq. mm wire - Wiring for Group controlled light point (from one point to another point) with 3X 1.5 sq. mm PVC insulated, (FRLS), copper conductor cable in surface/recessed mounted rigid medium class 20mm PVC conduit with all accessories as required. (Note: This item does not include the cost of MCB or 16Amp/ 6Amp one way switches. The total distance from one point to another point will not exceed 5meters. In case if the total length increases 5meters, the additional length shall be measured under item 15.1 The distance from DB to 1st point will be measured under point circuit wiring.	no	45.00	824.87	37119.26

Sl.No	Description of Items	Unit	Qty	Rate (Rs)	Amount (Rs)
16.0	Circuit wiring -Wiring for circuit/ submain wiring along with earth wire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required.				
16.1	2 X 1.5 sq. mm + 1 X 1.5 sq. mm earth wire	m	2006.00	153.72	308362.32
16.2	2 X 2.5 sq. mm + 1 X 2.5 sq. mm earth wire	m	6018.00	188.03	1131579.59
16.3	2 X 4 sq. mm + 1 X 4 sq. mm earth wire	m	420.00	230.58	96843.60
17.0	Supplying and fixing following modular switch/ socket with modular plate & cover on surface or in recess, including proving and fixing suitable size GI box,inter connection etc as required complete.				
17.1	6 pin 15/16 amp socket outlet	no	11.00	351.36	3864.96
17.2	15/16 amp switch	no	11.00	450.18	4951.98
17.3	Telephone socket outlet	no	20.00	371.95	7438.95
17.4	TV antenna socket outlet	no	4.00	373.32	1493.28
18.0	Supplying and fixing stepped type electronic fan regulator with modular plate & cover on surface or in recess, including proving and fixing suitable size GI box,inter connection etc as required complete.	no	253.00	635.47	160773.28
20.0	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 6 pin 5/6 & 15/16 amps modular socket outlet and 15/16 amps modular switch, connection etc. as required.	no	3.00	557.24	1671.71
21.0	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 3 pin 5/6 amps modular socket outlet and 5/6 amps modular switch, connection etc. as required. (For light plugs to be used in non residential buildings).	no	88.00	429.59	37804.14
22.0	Supply & fixing Computer points with 3 nos 3 pin 5/6A socket with 2no.5/6A switch with modular front plate and cover on surface/recess, including proving and fixing suitable size GI boxes, its interconnections etc as required complete. (Note: 2 nos 5/6A socket fixed at 60cm above FFL and 2 nos 6A switch with 1no 5/6A socket at 1m above FFL)	no	142.00	1076.18	152817.56
23.0	Supply, fixing of Network point , UTP RJ45 , CAT 6 modular type socket with modular plate & cover on surface or in recess, including proving and fixing suitable size GI box, inter connection etc as required complete.	no	142.00	828.26	117612.57
24.0	Supplying and fixing modular blanking plate on the existing modular plate & switch box excluding modular plate as required.	no	30.00	32.94	988.20

Sl.No	Description of Items	Unit	Qty	Rate (Rs)	Amount (Rs)
25.0	Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required.				
25.01	20 mm	m	50.00	78.23	3911.63
25.02	25 mm	m	50.00	94.70	4735.13
25.03	32 mm	m	50.00	122.15	6107.63
SUB TOTAL OF PART - C					3073055.91
PART -D					
MCBs AND MCB DISTRIBUTION BOARDS					
26.0	Supplying and fixing following ways surface/ recess mounting, vertical type, 415 volts, TPN MCB distribution board of sheet steel, dust protected, duly powder painted, inclusive of 200 amps tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCB's, with provision of 125 amps TP 16 KA MCCB as incomer, interconnection between incomer MCCB and bus bars (but without MCB's/ MCCB) as required . (Note : Vertical type MCB TPDB is normally used where 3 phase outlets are required.)				
26.01	8 way, Double door	no	1.00	12358.69	12358.69
26	Supplying and fixing of following ways surface/ recess mounting, vertical type, 415 volts, TPN MCB distribution board of sheet steel, dust protected, duly powder painted, inclusive of 200 amps tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCB's (but without MCB's and incomer) as required. (Note : Vertical type MCB TPDB is normally used where 3 phase outlets are required.)				
26.1	4 way (4 + 12), Double door	no	0.00	6179.00	0.00
26.2	8 way (4 + 24), Double door	no	2.00	7773.84	15547.68
27.0	Supplying and fixing following way, horizontal type three pole and neutral, sheet steel, MCB distribution board, 415 volts, on surface/recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator).				
27.01	8 way (4 + 24), Double door	no	0.00	4352.20	0.00
27.02	6 way (4 + 18), Double door	no	8.00	3649.48	29195.82
27.03	4 way (4 + 12), Double door	no	9.00	3016.76	27150.80
28.0	Providing and fixing following rating and breaking capacity and pole MCCB in existing cubicle panel board including drilling holes in cubicle panel, making connections, etc. as required. 100 Amp, 30 KA,FPMCCB	no	0.00	7356.60	0.00

SI.No	Description of Items	Unit	Qty	Rate (Rs)	Amount (Rs)
29.0	Supply and fixing of following rating residual current circuit breaker with MCB having earth leakage and overload protection (RCCB+MCB) as per specification as required				
29.02	4 pole 25 amps. (415 Volts),30mA sensitivity.	no	13.00	4683.63	60887.24
29.04	4 pole 63 amps. (415 Volts),30mA sensitivity.	no	1.00	5630.02	5630.02
30.0	Supply and fixing of following rating, 10 KA, Miniature Circuit Breakers as required.				
30.01	6A to 32A, SP, B/C-CURVE	no	166.00	237.44	39415.46
30.02	6A to 32A, TP, B/C-CURVE	no	8.00	960.75	7686.00
30.02	6A to 32A, SP, D-CURVE	no	9.00	359.02	3231.19
31.0	Supply and fixing of 32A DP isolator with DP enclosure	no	1.00	920.55	920.55
32.0	Supply and fixing of 63A FP isolator with FP enclosure	no	1.00	1279.10	1279.10
33.0	Supplying and fixing single pole blanking plate in the existing MCB DB complete etc. as required.	no	45.00	9.61	432.34
SUB TOTAL OF PART- D					201663.83
PART- E					
LIGHT FIXTURES AND FANS					
34.0	Supply of indoor decorative surface mounted LED Batten with High Efficiency Extruded aluminium housing and Polycarbonate Diffuser with provision of End to End connection,along with driver,system wattage of 20+/-2 Watts,lumen output of lamp greater than 1500, power factor > 0.9,rated life of L70 @ 50,000 hours, system efficacy greater than 70lumen/watt and including all the necessary accessories as required complete.Make:- Cat No: Philips BN021C LED20S PSU NW GR or Wipro LL20-221-XXX-60-XX or Crompton Greaves DMLN1LT16+LT16	no	552.00	835.00	460920.00
35.0	Supply of indoor decorative surface mounted LED Batten with High Efficiency Extruded aluminium housing and Polycarbonate Diffuser with provision of End to End connection,along with driver,system wattage of 10+/-2 Watts,lumen output of lamp greater than 800, power factor > 0.9,rated life of L70 @ 50,000 hours, system efficacy greater than 70lumen/watt and including all the necessary accessories as required complete.Make:- Cat No: Philips BN021C LED20S PSU NW GR or Wipro LL20-121-XXX-60-XX or Crompton Greaves DMLN1LT16+LT8	no	150.00	506.00	75900.00

Sl.No	Description of Items	Unit	Qty	Rate (Rs)	Amount (Rs)
36.0	Supply of indoor industrial surface mounted LED tube with Batten along with driver , surge protector,,system wattage of 40+/-4 Watts(2x20 watts),lumen output of lamp greater than 3000 lumen, power factor > 0.9, rated life of L70 @ 50,000 hours, system efficacy greater than 70lumen/watt and including all necessary accessories as required complete.Make:- Cat No: Wipro WIO922208 + 2 Nos. of 18W LED Tube Light or Crompton Greaves IGP132LT8-16+LT8-16	no	5.00	2289.00	11445.00
37.0	Installation, testing and commissioning of High bay/LED/ FLOOD type fittings on wall/Column/truss/false ceiling using suitable MS clamps, nuts, bolts/ 20mm heavy duty GI chain/ pipe (upto 50cm)etc including connections with 3C 1.5 Sq.mm PVC insulated flexible copper conductor cable as required.	no	0.00	6520.00	0.00
38.0	Supply of following sizes of 1200 mm sweep. 5 star rated ceiling fan , with double ball bearing, Aluminium pressure die cast body with Aluminium blades, canopies, hanging shackle, 30 cm down rod and without speed regulator suitable for 240V 50 HZ, AC supply confirms to IS 374/1979 as required complete. (Make crompton-High	no	253.00	1749.00	442497.00
40.0	Supply of 250 mm sweep,900 rpm light duty exhaust fan in plastic body with self opening louvers working on 230 V AC supply complete with all accessories as required. (Crompton Brisk Air or equivalent approved make)	no	43.00	1092.00	46956.00
41.0	ITC LIGHT FITTINGS AND FANS				
41.01	Installation, testing and commissioning of pre-wired, fluorescent fitting / compact fluorescent fitting/LED Fitting of all types, complete with all accessories and tube etc. directly on ceiling/ wall, including connection with 1.5 sq. mm FRLS PVC insulated, copper conductor, single core cable and earthing etc. as required.	no	704.00	137.25	96624.00
41.02	Installation, testing and commissioning of ceiling fan, including wiring the down rods of standard length (upto 30 cm) with 1.5 sq.mm FRLS PVC insulated, copper conductor, single core cable, including providing and fixing phenolic laminated sheet cover on the fan box etc. as required.	no	253.00	144.11	36460.46

Sl.No	Description of Items	Unit	Qty	Rate (Rs)	Amount (Rs)
41.04	Installation, testing and commissioning of exhaust fan upto 450mm sweep in the existing opening, including making the hole to suit the size of the above fan, making good the damage, connections, testing & commissioning etc as required.	no	43.00	307.44	13219.92
41.05	Numbering of ceiling fan / exhaust fan/ fluorescent fitting as required.	no	1000.00	38.43	38430.00
SUB TOTAL OF PART- E					1222452.38
PART - F					
EARTHING AND SAFETY EQUIPMENTS					
42.0	Earthing with C.I. earth pipe 4 metre long, 100 mm dia including accessories, and providing masonry enclosure with heavy duty CI cover plate of 300X300mm having locking arrangement and watering pipe etc. with 64kg charcoal/ coke and 5kg salt as required. (As per IS 3043 ammended uptodate)	no	3.00	13348.99	40046.97
43.0	Providing and fixing GI/Cu strip/wire on surface or in recess for connections etc. as required.				
43.01	25mm X 6mm GI	m	30.00	186.40	5592.00
43.02	3.15mm Cu (10 SWG)	m	160.00	92.39	14782.40
44.00	Supplying and laying G.I/Copper strip at 0.50 metre below ground as strip earth electrode, including connection/ terminating with G.I. nut, bolt, spring, washer etc. as required. (Jointing shall be done by overlapping and with 2 sets of G.I. nut bolt & spring washer spaced at 50mm)				
44.01	25mm X 6mm GI	m	50.00	116.64	5832.00
44.02	3.15mm Cu (10 SWG)	m	25.00	82.83	2070.75
SUB TOTAL OF PART - F					68324.12
GRAND TOTAL					5146047.00

KITCO LTD
DEPARTMENT OF EDUCATION, GOVT. OF KERALA
Govt. Arts College Thripunithura
SH: ELECTRICAL WORKS
RATE ANALYSIS

SI.No	Description	Unit	Qty	Rate(Rs)	Amount (Rs)
1.0	METERING BOARD				
A	Materials				
1	100A HRC Fuse base	no	3	224.00	672.00
2	100A HRC Fuse link	no	3	283.50	850.50
3	Neutral link	no	1	113.00	113.00
4	100 A FP Isolator	no	1	763.00	763.00
5	TOD meter	No	1	13306.30	13306.30
6	CT 100/5A	no	1	860.00	860.00
	Total A				15704.80
B	Fabrication charges				9967.30
	TOTAL OF A + B				25672.10
C	Transportation (including loading, unloading, forwarding & packing, insurance charges), @ 1% on above				256.72
D	LABOUR for ITC				
	Wireman		1.5	613.51	920.26
	Painter		1	558.61	558.61
	Helper		1.5	505.08	757.62
	TOTAL OF D				2236.49
	TOTAL OF A + B + C + D				28165.31
E	Contractor O/H & Profit @ 15%				4224.80
	TOTAL OF A + B + C + D+E				32390.11
				SAY	32390.11
1.02	METERING BOARD				
	Materials				
1	63A HRC Fuse base	no	3	143.50	430.50
2	63A HRC Fuse link	no	3	324.61	973.82
3	Neutral link	no	1	113.00	113.00
4	63 A FP Isolator	no	1	637.00	637.00
5	TOD meter	No	1	860.00	860.00
	Total A				3014.32
B	Fabrication charges @ Rs. 20000 per SQM inclusive of VAT & ED.	Sq.M	0.3	20000.00	6000.00
	TOTAL OF A + B				9014.32
C	Transportation (including loading, unloading, forwarding & packing, insurance charges), @ 1% on above				90.14
D	LABOUR for ITC				
	Wireman		1.5	613.51	920.26
	Painter		1	558.61	558.61
	Helper		1.5	505.08	757.62
	TOTAL OF D				2236.49
	TOTAL OF A + B + C + D				11340.95
E	Contractor O/H & Profit @ 15%				1701.14
	TOTAL OF A + B + C + D+E				13042.10
				SAY	13042.10
2.00	10kVA UPS				
	Cost for each				
	Analysis of Rate				
	A1 Materials				
1	10kVA UPS	No	295000.00	1	295000.00

Sl.No	Description	Unit	Qty	Rate(Rs)	Amount (Rs)
	Total A1				295000.00
A2	Fright charges @ 1% of A1				2950
	Erection	LS			4500.00
	Total A2				7450.00
	Total of A = A1 + A2				302450.00
	B. Overhead & profit @ 15% of (A)				45367.50
	Total A + B				347817.50
	Rate for each				347817.50
	Say				347818.00
3.02	Supply of 3.5C x70 sqmm XLPE insulated armoured aluminium conductor power cable.				
	Cost for each				
	A1 Material				
	3.5c 70sqmm cable	No	1	300.35	300.35
	Total A1				300.35
	A2 Lumpsum item				
1	Cartage @ 1% of A1				3.00
	Total A2				
	Total of A = A1 + A2				303.36
	B. Overhead & profit @ 15% of (A)				45.50
	Total A + B				348.86
	Rate per each				348.86
	Say				349.00
3.03	Supply of 3.5C x50 sqmm XLPE insulated armoured aluminium conductor power cable.				
	Cost for each				
	A1 Material				
	3.5C x50 sqmm	No	1	221.31	221.31
	Total A1				221.31
	A2 Lumpsum item				
1	Cartage @ 1% of A1				2.21
	Total A2				
	Total of A = A1 + A2				223.53
	B. Overhead & profit @ 15% of (A)				33.53
	Total A + B				257.05
	Rate per each				257.05
	Say				257.00
3.04	Supply of 3.5C x35sqmm XLPE insulated armoured aluminium conductor power cable.				
	Cost for each				
	A1 Material				
	3.5c 35sqmm cable	No	1	170.56	170.56
	Total A1				170.56
	A2 Lumpsum item				

Sl.No	Description	Unit	Qty	Rate(Rs)	Amount (Rs)
1	Cartage @ 1% of A1				1.71
	Total A2				
	Total of A = A1 + A2				172.27
	B. Overhead & profit @ 15% of (A)				25.84
	Total A + B				198.11
	Rate per each				198.11
	Say				198.00
3.05	Supply of 4C x 16sqmm XLPE insulated armoured aluminium conductor power cable.				
	Cost for each				
	A1 Material				
	4c 16sqmm cable	No	1	113.15	113.15
	Total A1				113.15
	A2 Lumpsum item				
1	Cartage @ 1% of A1				1.13
	Total A2				
	Total of A = A1 + A2				114.28
	B. Overhead & profit @ 15% of (A)				17.14
	Total A + B				131.43
	Rate per each				131.43
	Say				131.00
3.06	Supply of 4C x 6sqmm XLPE insulated armoured aluminium conductor power cable.				
	Cost for each				
	A1 Material				
	4c 6sqmm cable	No	1	79.87	79.87
	Total A1				79.87
	A2 Lumpsum item				
1	Cartage @ 1% of A1				0.80
	Total A2				
	Total of A = A1 + A2				80.67
	B. Overhead & profit @ 15% of (A)				12.10
	Total A + B				92.77
	Rate per each				92.77
	Say				93.00
3.07	Supply of 4C x 4sqmm XLPE insulated armoured aluminium conductor power cable.				
	Cost for each				
	A1 Material				
	4c 6sqmm cable	No	1	69.89	69.89
	Total A1				69.89
	A2 Lumpsum item				
1	Cartage @ 1% of A1				0.70
	Total A2				
	Total of A = A1 + A2				70.59
	B. Overhead & profit @ 15% of (A)				10.59
	Total A + B				81.17

Sl.No	Description	Unit	Qty	Rate(Rs)	Amount (Rs)
	Rate per each				81.17
	Say				81.00
3.07	Supply of 4C x 2.5sqmm XLPE insulated armoured aluminium conductor power cable.				
	Cost for each				
	A1 Material				
	4c 2.5 sqmm cable	No	1	64.90	64.90
	Total A1				64.90
1	A2 Lumpsum item				
	Cartage @ 1% of A1				0.65
	Total A2				
	Total of A = A1 + A2				65.54
	B. Overhead & profit @ 15% of (A)				9.83
	Total A + B				75.38
	Rate per each				75.38
	Say				75.00
3.08	Supply of 2C x 6 sqmm XLPE insulated armoured aluminium conductor power cable.				
	Cost for each				
	A1 Material				
	2c 6 sqmm cable	No	1	64.06	64.06
	Total A1				64.06
1	A2 Lumpsum item				
	Cartage @ 1% of A1				0.64
	Total A2				
	Total of A = A1 + A2				64.70
	B. Overhead & profit @ 15% of (A)				9.71
	Total A + B				74.41
	Rate per each				74.41
	Say				74.00
4.0	Supply & making cable end termination for 4Cx6.sqmm XLPE insulated Aluminium conductor cable.				
	Cost for each				
	A1 Materials				
	Brass compression gland for 4Cx6 sqmm 1.1kV grade cable.	each	1	221.8872	221.89
	Cu. lug for 6 sqmm cable	each	4	1.296584	5.19
	Total A1				227.07
	A2 Lumpsum Items				
1	Cartage @ 1% of A1				2.27
	Total A2				2.27
	Total of A = A1 + A2				229.34
	B Labour				
1	Cable jointer	Day	0.10	613.51	61.35
2	Khallasi	Day	0.10	505.08	50.51
	Total B				111.86
	Total A + B				341.20
	C. Overhead & profit @ 15% of (A+B)				51.18
	Total A + B + C				392.38
	Cost per set				392.38
	Say				392.38
6.0	Supply & making cable end termination for 4Cx4.sqmm XLPE insulated Aluminium conductor cable.				
	Cost for each				
	A1 Materials				

Sl.No	Description	Unit	Qty	Rate(Rs)	Amount (Rs)
	Brass compression gland for 4Cx6 sqmm 1.1kV grade cable.	each	1	215.8692	215.87
	Cu. lug for 6 sqmm cable	each	4	1.296584	5.19
	Total A1				221.06
	A2 Lumpsum Items				
1	Cartage @ 1% of A1				2.21
	Total A2				2.21
	Total of A = A1 + A2				223.27
	B Labour				
1	Cable jointer	Day	0.10	613.51	61.35
2	Khallasi	Day	0.10	505.08	50.51
	Total B				111.86
	Total A + B				335.12
	C. Overhead & profit @ 15% of (A+B)				50.27
	Total A + B + C				385.39
	Cost per set				385.39
	Say				385.39
4.1	Supply & making cable end termination for 4Cx2.5.sqmm XLPE insulated Aluminium conductor cable.				
	Cost for each				
	A1 Materials				
	Brass compression gland for 3Cx2.5 sqmm 1.1kV grade cable.	each	1	221.8872	221.89
	Cu. lug for 2.5 sqmm cable	each	4	2.7671	11.07
	Total A1				232.96
	A2 Lumpsum Items				
1	Cartage @ 1% of A1				2.33
	Total A2				2.33
	Total of A = A1 + A2				235.29
	B Labour				
1	Cable jointer	Day	0.10	613.51	61.35
2	Khallasi	Day	0.10	505.08	50.51
	Total B				111.86
	Total A + B				347.14
	C. Overhead & profit @ 15% of (A+B)				52.07
	Total A + B + C				399.22
	Cost per set				399.22
	Say				399.22
8.01	Supply & laying 40mm dia GI earth pipe				
	Cost for 30 meter				
	A1 Materials				
1	40mm dia GI pipe	Mtr	30	285.41	8562.34
	Total A1				8562.34
	A2 Lumpsum Items				
2	Cartage @ 1% of A1				85.62
	Total A2				85.62
	Total of A = A1 + A2				8647.96
	B Labour				
1	Fitter	Day	0.33	613.51	202.46
2	Khallasi	Day	0.33	505.08	166.68
3	Coolie	Day	4	505.08	2020.32
	Total B				2389.45
	Total A + B				11037.42
	C. Overhead & profit @ 15% of (A+B)				1655.61
	Total A + B + C				12693.03
	Rate per meter				423.10
	Say				423.10
11.00	Supply & installing MS item.				
	Cost for each				
	A1 Materials				
	MS Item	Kg	1	51.811875	51.811875
	Total A1				51.81
	A2 Lumpsum Items				

Sl.No	Description	Unit	Qty	Rate(Rs)	Amount (Rs)
	Fabrication charges @ 10% of A1				5.18
	Cartage @ 1% of A1				0.52
	Wastage @ 5% of 1 of A1				2.59
	Painting with primer & finish paint @ 5% of A1				2.59
	Total A2				10.88
	Total of A = A1 + A2				62.69
	B Labour				
1	Fitter	0.0125	613.51	No	7.67
2	Painter	0.06	558.61	No	33.52
3	Helper	0.06	505.08	No	30.30
	Total B				71.49
	Total A + B				134.18
	C. Overhead & profit @ 15% of (A+B)				20.13
	Total A + B + C				154.31
	Cost per each				154.31
	Say				154.31
22.00	Computer point- 3 nos of 6 A socket & 2 nos of switch in GI box				
	A1 Materials				
1	4 module modular GI box	Nos	2.00	52.70	105.41
2	4 module base & cover plate	Nos	2.00	63.68	127.37
3	6 A socket	Nos	3.00	73.57	220.70
4	6 A SP switch one way	Nos	2.00	101.02	202.03
5	PVC Fasteners 40mm long	Nos.	4.00	0.38	1.54
6	Cement, paint, sand etc	LS	2.00	15.10	30.20
	Total A1				687.24
	A2 Lumpsum Items				
1	Cartage @ 1% of A1				6.87
	Total A2				6.87
	Total				694.11
	B Labour				
1	Wireman	Days	0.14	613.51	85.89
2	Mason	Days	0.08	558.61	44.69
3	Helper	Days	0.22	505.08	111.12
	Total B				241.70
	Total A + B				935.81
	C. Overhead & profit @ 15% of (A+B)				140.37
	Total A + B + C				1076.18
	Say				1076.18
23.00	RJ 45				
	Cost for 1 each				
	A1 Materials				
1	RJ 45 socket	Nos.	1.00	462	462.00
	Total A1				462.00
	A2 Lumpsum Items				
1	Cartage @ 1% of A1				4.62
	Total A2				4.62
	Total of A = A1 + A2				466.62
	B Labour				
1	Wireman	Days	0.04	613.51	24.54
3	Helper	Days	0.04	505.08	20.20
	Total B				44.74
	Total A + B				511.36
	C. Overhead & profit @ 15% of (A+B)				76.70
	Total A + B + C				588.07
	Rate per each				588.07
	Say				588.07
26.00	SITC of 8 WAY LB				
	A.1 Material				
1.00	8 WAY LB	No.	1.00	10381.00	10381.00

Sl.No	Description	Unit	Qty	Rate(Rs)	Amount (Rs)
2.00	Steel Fastener	No.	1.00	9.61	9.61
3.00	Cement,paint,sand etc	No.	1.00	15.10	15.10
	Total A1				10381.00
	A.2 Lump Sum Items				
1.00	Cartage @ 1% of A1				103.81
	Total A2				103.81
	Total of A = (A1+A2)				10484.81
	B. Labour				
1.00	Wireman, Grade 1	day	0.12	613.51	73.62
2.00	Mason	day	0.12	558.61	67.03
3.00	Khallasi	day	0.24	505.08	121.22
	Total B				261.87
	Total (A+B)				10746.68
	C Overheads & Profit @ 15% of (A+B)				1612.00
	Total (A+B+C)				12358.69
	Rate per Each				12358.69
	Say				12358.69
29.01	2 pole 25 amps. (215 Volts),30mA sensitivity.				
	A.1 Material				
1	2 pole 25 amps. (415 Volts), 100mA sensitivity	No.	1.00	2223.00	2223.00
2	2 pole 25A MCB	No.	1.00	540.40	540.40
	Total A1				2763.40
	A.2 Lump Sum Items				
1	Cartage @ 1% of A1				27.63
	Total A2				27.63
	Total of A = (A1+A2)				2791.03
	B. Labour				
1	Wireman, Grade 1	day	0.08	613.51	49.08
2	Khallasi	day	0.08	505.08	40.41
	Total B				89.49
	Total (A+B)				2880.52
	C Overheads & Profit @ 15% of (A+B)				432.08
	Total (A+B+C)				3312.60
	Rate per Each				3312.60
	Say				3312.60
29.02	Supply and fixing of following rating residual current circuit breaker with MCB having earth leakage and overload				
	A.1 Material				
1	4 pole 25 amps. (415 Volts), 100mA sensitivity	No.	1.00	2752.40	2752.40
2	4 pole 25A MCB	No.	1.00	1191.40	1191.40
	Total A1				3943.80
	A.2 Lump Sum Items				
1	Cartage @ 1% of A1				39.44
	Total A2				39.44
	Total of A = (A1+A2)				3983.24
	B. Labour				
1	Wireman, Grade 1	day	0.08	613.51	49.08
2	Khallasi	day	0.08	505.08	40.41
	Total B				89.49
	Total (A+B)				4072.73
	C Overheads & Profit @ 15% of (A+B)				610.91
	Total (A+B+C)				4683.63
	Rate per Each				4683.63
	Say				4683.63
29.03	Supply and fixing of following rating residual current circuit breaker with MCB having earth leakage and overload				
	A.1 Material				
1	4 pole 40amps. (415 Volts), 30mA sensitivity	No.	1.00	2622.20	2622.20
2	4 pole 40A MCB	No.	1.00	1717.80	1717.80
	Total A1				4340.00
	A.2 Lump Sum Items				

Sl.No	Description	Unit	Qty	Rate(Rs)	Amount (Rs)
1	Cartage @ 1% of A1				43.40
	Total A2				43.40
	Total of A = (A1+A2)				4383.40
	B. Labour				
1	Wireman, Grade 1	day	0.08	613.51	49.08
2	Khallasasi	day	0.08	505.08	40.41
	Total B				89.49
	Total (A+B)				4472.89
	C Overheads & Profit @ 15% of (A+B)				670.93
	Total (A+B+C)				5143.82
	Rate per Each				5143.82
	Say				5143.82
29.04	4 pole 63 amps. (415 Volts),30mA sensitivity.				
	A.1 Material				
1	4 pole 63amps. (415 Volts), 30mA sensitivity	No.	1.00	3040.80	3040.80
2	4 pole 63A MCB	No.	1.00	1717.80	1717.80
	Total A1				4758.60
	A.2 Lump Sum Items				
1	Cartage @ 1% of A1				47.59
	Total A2				47.59
	Total of A = (A1+A2)				4806.19
	B. Labour				
1	Wireman, Grade 1	day	0.08	613.51	49.08
2	Khallasasi	day	0.08	505.08	40.41
	Total B				89.49
	Total (A+B)				4895.67
	C Overheads & Profit @ 15% of (A+B)				734.35
	Total (A+B+C)				5630.02
	Rate per Each				5630.02
	Say				5630.02
30	40A to 63A,TP,C-Curve MCB				
	A1 Materials				
1	40A to 63A, TP,C-Curve MCB	No	1	1155.00	1155.00
	Total A1				1155.00
	A2 Lumpsum items				
1	Cartage @ 1% of A1				11.55
	Total A2				11.55
	Total of A= A1+A2				1166.55
	B. Labour				
1	Wireman	No	0.08	613.51	49.08
2	Wireman Helper	No	0.08	505.08	40.41
	Total B				89.49
	Total A+B				1256.04
	C. O.H & Profit @ 15 % of (A+B)				188.41
	Total = A+B+C				1444.44
	Say				1,444.44
31.0	S & F 32A DP isolator				
	A.1 Material				
1	32A DP isolator	No.	1.00	273.00	273.00
2	Enclosure	No.	1.00	408.80	408.80
	Total A1				681.80
	A.2 Lump Sum Items				
1	Cartage @ 1% of A1				6.82
	Total A2				6.82
	Total of A = (A1+A2)				688.62
	B. Labour				

Sl.No	Description	Unit	Qty	Rate(Rs)	Amount (Rs)
1	Wireman, Grade 1	day	0.1	613.51	61.35
2	Khallasi	day	0.1	505.08	50.51
	Total B				111.86
	Total (A+B)				800.48
	C Overheads & Profit @ 15% of (A+B)				120.07
	Total (A+B+C)				920.55
	Rate per Each				920.55
	Say				920.55
30	40A to 63A,FP,C-Curve MCB				
	A1. Materials				
1	40A to 63A, FP,C-CURVE MCB	No	1	1819.41	1819.41
	Total A1				1819.41
	A2. Lumpsum items				
1	Cartage @ 1% of A1				18.19
	Total A2				18.19
	Total of A=(A1+A2)				1837.60
	B. Labour				
1	Wireman	No	0.08	613.51	49.08
2	Wireman Helper	No	0.08	505.08	40.41
	Total B				89.49
	TOTAL A+B				1927.09
	C. O.H & Profit @ 15 % of (A+B)				289.06
	Total = A+B+C				2216.15
	Say				2,216.00
34	Supply of 20W LED industrial batten				
	A1 Material				
	20W LED	No	1	711.67	711.67
	Total A1				711.67
	A2 Lumpsum item				
	Cartage @ 2% of A1				14.23
	Total A2				14.23
	Total of A = A1 + A2				725.90
	B. Overhead & profit @ 15% of (A)				108.89
	Total A + B				834.79
	Rate per each				834.79
	Say				835.00
35	Supply of 10W LED batten				
	A1 Material				
	10W LED	No	1	431.67	431.67
	Total A1				431.67
	A2 Lumpsum item				
	Cartage @ 2% of A1				8.63
	Total A2				8.63
	Total of A = A1 + A2				440.30

Sl.No	Description	Unit	Qty	Rate(Rs)	Amount (Rs)
	B. Overhead & profit @ 15% of (A)				66.05
	Total A + B				506.35
	Rate per each				506.35
	Say				506.00
36	Supply of 40W LED industrial batten				
	TMS122				
	A1 Material				
	40W LED	No	1	1951.25	1951.25
	Total A1				1951.25
	A2 Lumpsum item				
	Cartage @ 2% of A1				39.03
	Total A2				39.03
	Total of A = A1 + A2				1990.28
	B. Overhead & profit @ 15% of (A)				298.54
	Total A + B				2288.82
	Rate per each				2288.82
	Say				2289.00
	Rate per each				1748.94
	Say				1749.00
0	Supply of EXHAUST FAN				
	CG				
	A1 Material				
	250 mm exhaust FAN	No	1	1110.00	1110.00
	Total A1				1110.00
	A2 Lumpsum item				
	Cartage @ 2% of A1				22.20
	Total A2				22.20
	Total of A = A1 + A2				1132.20
	B. Overhead & profit @ 15% of (A)				169.83
	Total A + B				1302.03
	Rate per each				1302.03
	Say				1302.00
39	Supply of WALL FAN				
	CG				
	A1 Material				
	WALL FAN	No	1	1799.00	1799.00
	Total A1				1799.00
	A2 Lumpsum item				
	Cartage @ 2% of A1				35.98
	Total A2				35.98
	Total of A = A1 + A2				1834.98
	B. Overhead & profit @ 15% of (A)				275.25
	Total A + B				2110.23
	Rate per each				2110.23
	Say				2110.00

Sl.No	Description	Unit	Qty	Rate(Rs)	Amount (Rs)
40	Supply of LD EXHAUST FAN CG A1 Material 250mm exhaust fan	No	1	931.00	931.00
	Total A1				931.00
	A2 Lumpsum item Cartage @ 2% of A1				18.62
	Total A2				18.62
	Total of A = A1 + A2				949.62
	B. Overhead & profit @ 15% of (A)				142.44
	Total A + B				1092.06
	Rate per each				1092.06
	Say				1092.00
41.03	ITC of Wall fan Cost for 1 fan A1 Materials				
1	1.5sqmm PVC insulated Cu conductor single core wire	Mtr	0.3	15.23	4.57
2	Al alloy/cadmium plated iron screw 20mm	Nos	2	0.55	1.10
	Total A1				5.67
	A2 Lumpsum Items Wastage @ 5% 1 of A1				0.23
1	Total A2				0.23
	Total of A = A1 + A2				5.90
	B Labour				
1	Wireman	Day	0.25	613.51	153.38
2	Helper	Day	1.5	505.08	757.62
	Total B				911.00
	Total A + B				916.89
	C. Overhead & profit @ 15% of (A+B)				137.53
	Total A + B + C				1054.43
	Rate per fan				131.80
	Rate per point				131.80
	Say				131.80
43.02	Supply & providing 10 SWG Cu wire Cost for 10 mtr A1 Materials				
	A2 Lumpsum Items Cartage @ 1% of A1				6.96
	Wastage @ 5% of 1 of A1				21.50
	Total A2				28.46
	Total of A = A1 + A2				724.42
	B Labour				
	Wireman	613.51	Day	0.75	460.13
	Mason	558.61	Day	0.5	279.30
	Helper	505.08	Day	1.25	631.35
	Total B				1370.78

Sl.No	Description	Unit	Qty	Rate(Rs)	Amount (Rs)
	Total A + B				2095.21
	C. Overhead & profit @ 15% of (A+B)				314.28
	Total A + B + C				2409.49
	Rate per meter				48.19
	Say				48.19
42	Supply 1st pipe earthing as per IS 3043 with 100mm dia B class CI pipe earth				
	A1 Materials				
1	100mm dia CI pipe B class	Mtr	4.00	1260.00	5040.00
2	100mm to 20mm CI reducer	Set	1.00	54.15	54.15
3	GI funnel with weld mesh on top	Each	1.00	57.22	57.22
4	GI strip 40x6mm, 200mm length	kg	0.50	65.55	32.77
	Charcol	kg	64.00	6.86	439.20
	salt	kg	5.00	11.25	56.27
5	Gully trap with covering box in CI (300x300x6mm)	Each	1.00	2743.65	2743.65
	TOTAL A1				8423.26
1	Cartage @ 1% of A1				84.23
2	Wastage @ 5% of 1 of A1				252.00
	TOTAL A2				336.23
	TOTAL OF A=(A1+A2)				8759.49
	(B) LABOUR				
1	Skilled	No	1.00	613.51	613.51
1	Helper	No	1.00	505.08	505.08
	Total B				1118.59
	TOTAL A+B				9878.08
D	(C)Excavation including refilling as required	Cu.m	2.50	179.92	449.80
E	(D)Brick work in cement mortar	Cu.m	0.30	3691.85	1107.55
F	(E)Plastering	Sq.M	1.20	143.65	172.38
	TOTAL = A+B+C+D+E				11607.82
	(F) O.H & Profit @ 15 % of (A+B+C+D+E)				1741.17
	TOTAL = A+B+C+D+E+F				13348.99
	Say			Rs	13348.99
43.01	Supply & providing 25x6mm GI strip				
	Cost for 10m				
	A1 Materials				
1	25mm x 6mm GI tape (1.2kg/ mtr)	Kg.	12	57.65	691.74
2	Saddles	Kg.	0.1955	36.03	7.04

44.01 Supply & providing 25x6mm GI strip

Sl.No	Description	Unit	Qty	Rate(Rs)	Amount (Rs)
	Cost for 30 mtr				
	A1 Materials				
1	25x3mm Cu strip (0.69kg/mtr)	Kg	21.735	603.75	13122.51
2	Solder jointing	each	5	16.47	82.35
	TOTAL A1				13204.86
	(A2)lumpsum items				
1	Cartage @ 1% of A1				132.05
	TOTAL A2				132.05
	TOTAL OF A=(A1+A2)				13336.90
	(B) LABOUR				
1	Wireman	Days	0.13	613.51	79.76
2	Khallasi	Days	0.13	505.08	65.66
3	Belder/Coolie	Days	1	505.08	505.08
	Total B				650.50
	TOTAL A+B				13987.40
	(C) O.H & Profit @ 15 % of (A+B)				2098.11
	TOTAL = A+B+C				16085.51
	rate per meter				536.18
	SAY			Rs	536.18
44.02	Supply & providing 10 SWG copper wire			SAY	Rs
#REF!	Installation of post top lamp- KLITE ID NO 5922				
	A1 Materials				
1	Cost of Luminaire	No	0	4960.00	0.00
2	GI pipe	No	2.5	#REF!	#REF!
	TOTAL A1				#REF!
	(A2)lumpsum items				
	Transportation Charges @ 1% of A1				#REF!
	TOTAL A2				#REF!
	TOTAL OF A=(A1+A2)				#REF!
	(B) LABOUR				
1.0	Wireman	No	0.25	613.51	153.38
	Khallasi	No	0.25	505.08	126.27
	Total B				279.65
1.0	TOTAL A+B				#REF!
	(C) O.H & Profit @ 15 % of (A+B)				#REF!
	TOTAL = A+B+C				#REF!
	TOTAL = A+B+C+D+E				#REF!
				SAY	Rs
					#REF!
45	G.I tape for horizational run				
	A1 Materials				
1	30 mm X3 mm (0.71kg/m) G.I tape=10+.5=10.50@.71kg/m=7.455kg	No	7.455	590.86	4404.87
2	GI saddle	No	10	1.17	11.67
3	PVC fastener	No	10	0.38	3.84
4	iron screws	No	10	1.30	13.04
	TOTAL A1				4433.42
	cartrage @1% of A1				44.33
	(B) LABOUR				
1.0	Wireman	DAY	0.25	613.51	153.38
	mason	DAY	0.13	558.61	72.62
	Khallasi	DAY	0.38	505.08	191.93
	Total B				417.93
1.0	TOTAL A+B				4895.68
	(C) O.H & Profit @ 15 % of (A+B)				734.35
	TOTAL = A+B+C				5630.03
	cost for 10m				5630.03
	rate per metre				563.00
				SAY	Rs
					563.00

Sl.No	Description	Unit	Qty	Rate(Rs)	Amount (Rs)
46	G.I tape for verticalal run				
	A1 Materials				
1	30 mm X3 mm (0.71kg/m) G.I tape=10+.5=10.50@.71kg/m=7.455kg	No	7.455	590.86	4404.87
2	GI saddle	No	11	1.17	12.83
3	PVC fastener	No	11	0.38	4.23
4	iron screws	No	11	1.30	14.34
	TOTAL A1				4436.27
	cartrage @1% of A1				44.36
	(B) LABOUR				
1.0	Wireman	DAY	0.5	613.51	306.75
	mason	DAY	0.25	558.61	139.65
	Khallasi	DAY	0.75	505.08	378.81
	Total B				825.22
1.0	TOTAL A+B				5305.85
	(C) O.H & Profit @ 15 % of (A+B)				795.88
	TOTAL = A+B+C				6101.73
	cost for 10m				6101.73
	rate per metre				610.17
			SAY	Rs	610.00
47	Test joint				
	A1 Materials				
1	30 mm X3 mm (0.71kg/m) G.I tape=.125+.006=0.131@.71kg/m=7.455kg	No	0.093	590.86	54.95
2	10mmx25mm long GI bolt with nut	No	4	12.35	49.41
	TOTAL A1				104.36
	cartrage @1% of A1				1.04
	(B) LABOUR				
1.0	Wireman	DAY	0.03	613.51	18.41
	Khallasi	DAY	0.03	505.08	15.15
	Total B				33.56
1.0	TOTAL A+B				138.96
	(C) O.H & Profit @ 15 % of (A+B)				20.84
	TOTAL = A+B+C				159.81
			SAY	Rs	160.00
9.00	Supply & installing of 200 mm wide ladder type cable tray.				
	Cost for 30 mtr				
	A1 Materials				
	200mm wide cable tray	m	30	444.26	13327.80
	Total A1				13327.80
	A2 Lumpsum Items				
	GI suspenders and accessories @ 2% of A1				266.56
	Cartage @ 1% of A1				133.28
	Accessories @ 2% of (1) of A1				266.56
	Total A2				666.39
	Total of A = A1 + A2				13994.19
	B Installation charges @ 10% of A				1399.42
	Total B				1399.42
	Total A + B				15393.61
	C. Overhead & profit @ 15% of (A+B)				2309.04
	Total A + B + C				17702.65
	Cost per m				590.09
	Add for labour welfare cess @ 1%				5.90
	Say				596.00
30	6A to 32A,SP,D-Curve MCB				
	A1 Materials				
1	6A to 32A,SP,D-Curve MCB	No	1	220.50	220.50
	Total A1				220.50
	A2 Lumpsum items				
1	Cartage @ 1% of A1				2.21
	Total A2				2.21
	Total of A= A1+A2				222.71

Sl.No	Description	Unit	Qty	Rate(Rs)	Amount (Rs)
B. Labour					
1	Wireman	day	0.08	613.51	49.08
2	Khallasi	day	0.08	505.08	40.41
	Total B				89.49
	Total A+B				312.19
	C. O.H & Profit @ 15 % of (A+B)				46.83
	Total = A+B+C				359.02
	Say				359.02
37.00	Supply of 40W flood light				
	A1 Material				
	40w flood light	No	1	5562.58	5562.58
	Total A1				5562.58
	A2 Lumpsum item				
	Cartage @ 2% of A1				111.25
	Total A2				111.25
	Total of A = A1 + A2				5673.83
	B. Overhead & profit @ 15% of (A)				851.07
	Total A + B				6524.90
	Rate per each				6524.90
	Say				6520.00
	ITC Industrial Mediumbay/ Highbay - CFL/ Metal Hallide fittings on Wall / Column etc.with copper wiring				
	A1 Materials				
	1.5sqmm ISI marked PVC insulated Cu conductor single core wire	mtr	0.00	0.00	0.00
	Supports	Kg	0.40	36.00	14.40
	Al. alloy/ cadmiun plated iron screw 20mm	No	6.00	0.55	3.29
	Clamps, bolts, nuts	No	1.00	127.64	127.64
	Total A1				145.34
	A2 Lumpsum items				
	Phil/raw plug, cement @ 200% of (3+4) of A1				185.36
	Cartage @ 1% of A1				1.07
	Total A2				186.43
	Total of A=(A1+A2)				331.77
	B Labour				
	Wireman	No	0.13	613.51	76.69
	Khallasi	No	0.13	505.08	63.14
	Total B				139.82
	Total A+B				471.59
	C. O.H & Profit @ 15 % of (A+B)				70.74
	TOTAL = A+B+C				542.33
	Say				542.00
3.01	Supply of 3.5C x120 sqmm XLPE insulated armoured aluminium conductor power cable.				
	Cost for each				
	A1 Material				
	3.5c 120sqmm cable	No	1	453.44	453.44
	Total A1				453.44
	A2 Lumpsum item				
1	Cartage @ 1% of A1				4.53
	Total A2				
	Total of A = A1 + A2				457.97
	B. Overhead & profit @ 15% of (A)				68.70
	Total A + B				526.67

Sl.No	Description	Unit	Qty	Rate(Rs)	Amount (Rs)
	Rate per each				526.67
	Say				527.00
32.0	63A FP isolator				
	A.1 Material				
1	63A FP isolator	No.	1.00	637.00	637.00
2	Enclosure	No.	1.00	353.50	353.50
	Total A1				990.50
	A.2 Lump Sum Items				
1	Cartage @ 1% of A1				9.91
	Total A2				9.91
	Total of A = (A1+A2)				1000.41
	B. Labour				
1	Wireman, Grade 1	day	0.1	613.51	61.35
2	Khallasi	day	0.1	505.08	50.51
	Total B				111.86
	Total (A+B)				1112.26
	C Overheads & Profit @ 15% of (A+B)				166.84
	Total (A+B+C)				1279.10
	Rate per Each				1279.10
	Say				1279.10

Annexure 7

Detailed Fire Fighting System Estimate

KITCO LTD
GOVERNMENT COLLEGE THRIPUNITHURA
PROPOSED ACADEMIC BUILDING
SH: FIRE PROTECTION SYSTEM WORKS
ABSTRACT OF COST

SL. NO.	DESCRIPTION OF ITEMS	AMOUNT (RS.)
1	FIRE HYDRANT SYSTEM	3,84,166.00
2	PORTABLE FIRE EXTINGUISHERS	18,432.00
3	SIGNAGE	21,852.00
	GRAND TOTAL	4,24,450.00

KITCO LTD					
GOVERNMENT COLLEGE THIRIPUNITHURA					
PROPOSED ACADEMIC BUILDING					
SH: FIRE PROTECTION SYSTEM WORKS					
SPECIFICATION AND SCHEDULE OF QUANTITIES					
SL. NO.	DESCRIPTION OF ITEMS	UNIT	QTY	RATE (Rs)	AMOUNT(Rs)
FIRE HYDRANT SYSTEM					
1.0	Supply, installation, testing and commissioning of electric driven pump set (terrace pump) and consisting of following: complete in all respect as required. Monoblock Pump rated for 450 lpm, 40m head C.I body, bronze/Gun metal impeller,SS shaft with mechanical seal, volute type with suitable HP SQ cage induction motor, suitable for operation on 415V, 3phase 50Hz, AC with IP 55 class of protection for enclosure, horizontal foot mounted type with class F insulation.M.S. fabricated common base plate, foundation bolts, anti vibration pads etc. as required. The cost shall include suitable capacity DOL or star delta starter and one isolator near the pump with required accessories.	set	1.00	53478.00	53478.00
2.0	Supply, installation, testing and commissioning of pressure gauge 0-200 PSI (0 - 14 Kg) range, 3/8" BSP bottom entry, 4" dial weather proof with stainless steel internals, siphon tube including all necessary fittings etc. complete as required.	no	1.00	2080.00	2080.00
3.0	Supply, installation, testing and commissioning of industrial type pressure switch having 1/4" BSP(F) connection IP:32 enclosure protection, phosphor bronze bellows as sensing element, SDPT contact system, switch rating 6A Inductive/IOA resistive 380 V AC, 0.2A Inductive/10A resistive 250V DC suit with ball valve etc. complete as required.	no	1.00	3284.00	3284.00
4.0	Supply, Installation, Testing and Commissioning of MS(Heavy C' Class) pipe IS:1239/ IS: 3589 marked including all fittings and accessories such as elbows, flanges, tees, reducers etc. conforming to IS standards complete including painting, welding, jointing and neoprene gaskets, nuts, bolts etc. as required. (for fire hydrant and sprinkler system). The pipe shall be painted with one coat of primer & two coats of post office red enamel paint. The pipe shall fixed on ceiling, walls, columns, truss etc for all heights with suitable hangers/ supports and fasteners etc including cutting the walls/means etc and making good the same complete as required.				
4.1	100 mm dia	m	90.00	1642.00	147780.00
4.2	80 mm dia	m	2.00	1314.00	2628.00

SL. NO.	DESCRIPTION OF ITEMS	UNIT	QTY	RATE (Rs)	AMOUNT(Rs)
5.0	Supply, laying, testing and commissioning of 'C' class heavy duty MS pipe of following size conforming to IS 1239 including fittings like elbows, tees, tapers, flanges, nuts/bolts, gaskets etc., in ground at a depth of 1m from ground level including excavation & providing cement concrete blocks as supports at 3m intervals, anticorrosive wrapping coating of 4mm thickness as per IS10221, refilling the trench etc. of following sizes complete as required.				
5.1	100 mm dia	m	9.00	2098.00	18882.00
5.2	80 mm dia	m	2.00	1586.00	3172.00
6.0	Supply, installation, testing and commissioning of dual plate non-return valve of following diameter, PN16 conforming to API 594 with Cast iron/Cast steel body complete with all accessories including flanges, rubber gasket, bolts, nuts, washers etc. complete as required.				
6.1	100 mm dia	no	2.00	6300.00	12600.00
7.0	Supply, installation, testing and commissioning of butterfly valve PN 16, with Cast iron/Carbon steel body complete with all accessories including flanges, rubber gasket, bolts, nuts, washers etc. complete as required and conforming to IS 13095.				
7.1	100 mm dia	no	4.00	6567.00	26268.00
8.0	Supply, installation, testing and commissioning of gun metal fire hydrant valve, single headed oblique type 63 mm instantaneous outlets with female socket for hose connection and inlet side with flange suitable for 80 mm pipe flange, valve conforming to 1S:5290 complete with blank cap chain, etc complete as required.	no	1.00	8209.00	8209.00
9.0	Supply, installation, testing and commissioning of First-aid Hose Reel with MS construction spray painted in Post office Red, conforming to IS 884 with up to date amendments, complete with the following as required. (a) 30 m. long 20 mm (nominal internal dia water hose Thermoplastic (Textile reinforced) Type-2 as per IS: 12585 (b) 20 mm (nominal internal) dia gun metal globe valve & nozzle. (c) Drum and brackets for fixing the equipments on wall. (d) Connections from riser with suitable dia stop valve (gun metal) & M.S. Pipe	set	8.00	9270.00	74160.00
10.0	Supply, installation, testing and commissioning of 63 mm dia, 15 mtr. Long RRL hose pipe with 63 mm dia Male and Female Gun metal couplings duly binded with wire, rivets etc. conforming to IS 636 (type-A) complete as required. (Note: the rate shall include cost of necessary supports for placing the hoses inside the shaft)	no	2.00	5476.00	10952.00
11.0	Supply, installation, testing and commissioning of 63 mm dia Gun metal branch pipe with 20 mm (nominal internal diameter) size Gun Metal nozzle conforming to IS 903, suitable for instantaneous connection to inter-connect hose pipe coupling complete as required.	no	1.00	2394.00	2394.00

SL. NO.	DESCRIPTION OF ITEMS	UNIT	QTY	RATE (Rs)	AMOUNT(Rs)
12.0	Supply, installation, testing and commissioning of hose boxes wall/pedestal type of size 750 x 250 x 600 mm made out of 16 SWG MS sheet steel with front side glass, locking arrangement and painted with approved colour completed as required and as per specifications. The pedestal shall be made of suitable channel with MS supports and mounted on a PCC foundation on ground.	no	1.00	4379.00	4379.00
13.0	Supply, installation, testing and commissioning of 2 way fire brigade collective breaching with 2 nos. gun metal male instantaneous inlet couplings complete with cap and chain as required for 100mm dia flanged out let connection and built in check valves complete in all respects as required by the standard specifications.	no	1.00	10398.00	10398.00
14.0	Supply, installation, testing and commissioning of 25mm air release valve with all the necessary accessories complete as required.	no	2.00	1751.00	3502.00
	PORTABLE FIRE EXTINGUISHERS				
15.0	Supply and installation of ISI marked ABC Stored pressure type Fire Extinguisher 6 Kgs Capacity Mono Ammonium Phosphate based Dry Chemical Powder for Fighting ABC Class of Fire, stored Pressure type of Mild steel body pressurized by Nitrogen Gas. The Extinguisher shall have pressure gauge for indicating inside pressure with opening and closing lever of squeeze grip type with tamper proof seal, complete with wall bracket.	no	8.00	2304.00	18432.00
	SIGNAGE				
16.0	Supply and installation of glow signage (photoluminescent)of "3M" Make such as Emergency Exit/Fire Exit signage etc. of standard size (500*200 MM) as per conventional design/ colour code on 4 mm thick foam sheet. The signage shall be either fixed on the wall with the help of screws/double tape or hanged from the false ceiling with the help of chain & screws etc. complete as required.	no	8.00	428.00	3424.00
17.0	Supply and fixing of Fire Emergency Evacuation Plan (Color) Printed in Photo Paper of Size A2 sandwiched in Clear acrylic sheets fixed using SS Studs and other accessories complete as required.	no	4.00	2810.00	11240.00
18.0	Supply and installation of glow signage (photoluminescent)of "3M" Make "FIRE ASSEMBLY POINT" of standard size (500*200 MM) as per conventional design/ colour code on 4 mm thick foam sheet. The signage shall be either fixed on the wall with the help of screws/double tape or hanged from the false ceiling with the help of chain & screws etc. complete as required.	no	2.00	428.00	856.00
19.0	Supply and installation of glow signage (photoluminescent)of "3M" Make such as FIRE ORDER signage of size 500*800 MM as per conventional design/ colour code on 4 mm thick foam sheet. The signage shall be either fixed on the wall with the help of screws/double tape or hanged from the false ceiling with the help of chain & screws etc. complete as required.	no	2.00	1454.00	2908.00

SL. NO.	DESCRIPTION OF ITEMS	UNIT	QTY	RATE (Rs)	AMOUNT(Rs)
20.0	Supply and installation of glow signage (photoluminescent)of "3M" Make "FIRE DUCT/ FIRE STAIR" of standard size (500*200 MM) as per conventional design/ colour code on 4 mm thick foam sheet. The signage shall be either fixed on the wall with the help of screws/double tape or hanged from the false ceiling with the help of chain & screws etc. complete as required.	no	8.00	428.00	3424.00
GRAND TOTAL					424450.00

KITCO LTD
GOVERNMENT COLLEGE THIRIPUNITHURA
PROPOSED ACADEMIC BUILDING
SH: FIRE PROTECTION SYSTEM WORKS
INVENTORY

SI.No	Description of items	QUANTITIES								Qty
		Unit	Ground	F1	F2	F3	Riser	Terrace	Yard area	
FIRE HYDRANT SYSTEM										
1.0	Terrace Pump	set						1		1
2.0	Pressure Guage	no						1		1
3.0	Pressure Switch	no						1		1
4.0	'C' class heavy duty MS pipes above ground									
4.1	100 mm dia	m								
	Terrace tank - pump connection							12		12
	pump to riser							10		10
	Riser interconnection							36		36
	Riser						20			20
	To FBI		8							8
	Total									86
	Total with 5% extra									90
4.2	80 mm dia	m								
	Internal Hydrant									0
	External hydrant								2	2
	Total									2
	Total with 5% extra									2
5.0	'C' class heavy duty MS pipes below ground									
5.1	100 mm dia	m								
	To FBI								9	9
	Total									9
	Total with 5% extra									9
5.2	80 mm dia	m								
	Yard hydrants								1.5	1.5
	Total with 5% extra									2
6.0	Non return valve									
6.1	100 mm dia	no								
	Fire briage inlet								1	1
	Terrace pump delivery							1		1
	Total									2
7.0	Butterfly Valve									
7.1	100 mm dia	no								
	Terrace pump - suction and delivery							2		2
	risers							2		2
	Total									4
8.0	GM fire hydrant valve	no							1	1

Sl.No	Description of items	QUANTITIES								Qty
		Unit	Ground	F1	F2	F3	Ris er	Terrac e	Yard area	
9.0	First aid hose reel	set	2	2	2	2				8
10.0	RRL hose pipe	no	0	0	0	0			2	2
11.0	GM branch pipe	no	0	0	0	0			1	1
12.0	Hose boxes	no	0	0	0	0			1	1
13.0	2 way Fire brigade collective point	no							1	1
14.0	Air release valve	no						2		2
	PORTABLE FIRE EXTINGUISHERS									
15.0	DCP 6kg extinguishers	no	2	2	2	2				8
	SIGNAGE									
16.0	Fire Exit	no	2	2	2	2				8
17.0	Fire Evacuation plan	no	1	1	1	1				4
18.0	Fire Assembly point	no	2							2
19.0	Fire Order	no			1	1				2
20.0	Fire duct	no	2	2	2	2				8

KITCO LTD
GOVERNMENT COLLEGE THIRPUNITHURA
PROPOSED ACADEMIC BUILDING
SH: FIRE PROTECTION SYSTEM WORKS
RATE ANALYSIS

HYDRANT SYSTEM

1.0	Terrace Pump				
	Description	Unit	Qty.	Rate	Amount
				(Rs)	(Rs)
	As per quote received				
	Basic Price - Pump set 450 lpm @ 40 m head	Each	1	51670	51670.000
	Consumables @ 1%				516.7
	Labour @ 2.5%				1291.75
	CP @ 15%				included
	Total				53478.45
	Say				53,478.00

2.0	PRESSURE GAUGE				
	Description	Unit	Qty.	Rate	Amount
				(Rs)	(Rs)
	As per PWD Rates				
59	Basic Price- Pressure Gauge	Each	1	1747	1747.000
	Consumables @ 1%				17.47
	Labour @ 2.5%				44.11
	CP @ 15%				271.29
	Total				2079.87
	Say				2,080.00
3.0	PRESSURE SWITCH				
	Description	Unit	Qty.	Rate	Amount
				(Rs)	(Rs)
	As per PWD Rates				
60	Basic Price - Pressure Switch	Each	1	2758	2758.000
	Consumables @ 1%				27.58
	Labour @ 2.5%				69.64
	CP @ 15%				428.28
	Total				3283.50
	Say				3,284.00

5.1	MS HEAVY DUTY PIPE C CLASS, 100 mm ABOVE GROUND				
	Description	Unit	Qty.	Rate	Amount
				(Rs)	(Rs)
	As per PWD Rates				
21	Basic Price M.S. C class Pipe- 100 mm dia.	Meter	1	1379	1379
	Consumables @ 1%				13.79
	Labour @ 2.5%				34.82
	CP @ 15%				214.14
	Total				1641.75
	Say				1,642.00
5.2	MS HEAVY DUTY PIPE C CLASS, 80 mm ABOVE GROUND				
	Description	Unit	Qty.	Rate	Amount
				(Rs)	(Rs)
	As per PWD Rates				
22	Basic Price M.S. C class Pipe- 80 mm dia.	Meter	1	1104	1104
	Consumables @ 1%				11.04
	Labour @ 2.5%				27.88
	CP @ 15%				171.44
	Total				1314.35
	Say				1,314.00
5.1	MS C CLASS HEAVY DUTY PIPE 100mm UG				
Sl. No.	Description	Unit	Qty.	Rate	Amount
				(Rs)	(Rs)
	DAR (E & M) 2016, 16.10 water piping of nominal size-100 mm dia. cost for 10 meters				
	A(MATERIALS)				
3008	A(1) Basic Price M.S. Pipe- 100 mm dia.	Meter	10	776.979	7769.79
	add for wastage@ 5%				388.4895
	Total of (A1)				8158.2795
	A(2) Add for necessary brackets,supports,saddles,clamps, hangers, vibration-isolators and fittings such as bends, tees, anti-corrosive wrapping etc. @ 15%				1223.74
	Total of (A1)+A(2))				9382.02
	Add for cartage etc. @ 1%of (A(1)+A(2))				93.82
	Total of A				9475.84
	B(LABOUR)				
	B For Piping work				
1004	Fitter	day	2.4	447	1072.8
1087	Welder	day	0.8	447	357.6
1006	Painter	day	0.52	407	211.64
1007	Helper	day	3.72	368	1368.96
	Total of B(1)				3011
	Total A+B				12486.84
	C Overhead and Profits @ 15% of (A+B)				1873.03
	Total				14359.87
	Rate for 1 meter				1435.99
	TOTAL				1435.99
	Considering cost index (1.4608)				2,097.69
	Say				2,098.00
5.2	MS C CLASS HEAVY DUTY PIPE 80mm UG				
Sl. No.	Description	Unit	Qty.	Rate	Amount
				(Rs)	(Rs)
	DAR (E & M) 2016, 16.10 water piping of nominal size-80 mm dia. cost for 10 meters				

	A(MATERIALS)				
3009	A(1) Basic Price M.S. Pipe- 80 mm dia.	Meter	10	527.4	5274
	add for wastage@ 5%				263.7
	Total of (A1)				5537.7
	A(2) Add for necessary brackets,supports,saddles,clamps, hangers, vibration-isolators and fittings such as bends, tees, anti-corrosive wrapping etc. @ 15%				830.66
	Total of (A1)+A(2))				6368.36
	Add for cartage etc. @ 1%of (A(1)+A(2))				63.68
	Total of A				6432.04
	B(LABOUR)				
	B For Piping work				
1004	Fitter	day	2.4	447	1072.8
1087	Welder	day	0.8	447	357.6
1006	Painter	day	0.52	407	211.64
1007	Helper	day	3.72	368	1368.96
	Total of B(1)				3011
	Total A+B				9443.04
	C Overhead and Profits @ 15% of (A+B)				1416.46
	Total				10859.49
	Rate for 1 meter				1085.95
	TOTAL				1085.95
	Considering cost index (1.4608)				1,586.35
	Say				1,586.00
6.1	NRV - 100mm				
	Description	Unit	Qty.	Rate	Amount
				(Rs)	(Rs)
	As per PWD Rates				
44	Basic Price NRV-100 mm	Each	1	5292	5292
	Consumables @ 1%				52.92
	Labour @ 2.5%				133.62
	CP @ 15%				821.78
	Total				6300.32
	Say				6,300.00
7.1	BUTTERFLY VALVE - 100mm				
	Description	Unit	Qty.	Rate	Amount
				(Rs)	(Rs)
	As per PWD Rates				
37	Basic Price Butterfly valve-100 mm	Each	1	5516	5516
	Consumables @ 1%				55.16
	Labour @ 2.5%				139.28
	CP @ 15%				856.57
	Total				6567.00
	Say				6,567.00
8.0	SINGLE HEADED HYDRANT VALVE				
	Description	Unit	Qty.	Rate	Amount
				(Rs)	(Rs)
	As per PWD Rates				
28	Basic Price Hydrant Valve- Single	Each	1	6895	6895
	Consumables @ 1%				68.95
	Labour @ 2.5%				174.10
	CP @ 15%				1070.71
	Total				8208.76
	Say				8,209.00

9.0	HOSE REEL				
	Description	Unit	Qty.	Rate	Amount
				(Rs)	(Rs)
	As per PWD Rates				
33	Basic Price Hose Reel	Each	1	7786	7786
	Consumables @ 1%				77.86
	Labour @ 2.5%				196.60
	CP @ 15%				1209.07
	Total				9269.52
	Say				9,270.00
10.0	RRL HOSE				
	Description	Unit	Qty.	Rate	Amount
				(Rs)	(Rs)
	As per PWD Rates				
32	Basic Price CP Hose	Each	1	4600	4600
	Consumables @ 1%				46
	Labour @ 2.5%				116.15
	CP @ 15%				714.32
	Total				5476.47
	Say				5,476.00
11.0	BRANCH PIPE				
	Description	Unit	Qty.	Rate	Amount
				(Rs)	(Rs)
	As per PWD Rates				
34	Basic Price Branch Pipe	Each	1	2011	2011
	Consumables @ 1%				20.11
	Labour @ 2.5%				50.78
	CP @ 15%				312.28
	Total				2394.17
	Say				2,394.00
12.0	FIRE HOSE CABINET				
	Description	Unit	Qty.	Rate	Amount
				(Rs)	(Rs)
	As per PWD Rates				
31	Basic Price Hose Cabinet-Double	Each	1	3678	3678
	Consumables @ 1%				36.78
	Labour @ 2.5%				92.87
	CP @ 15%				571.15
	Total				4378.80
	Say				4,379.00
13.0	2 WAY FIRE BRIGADE INLET				
	Description	Unit	Qty.	Rate	Amount
				(Rs)	(Rs)
	As per PWD Rates				
57	Basic Price Fire Brigade Inlet-2 way	Each	1	8734	8734
	Consumables @ 1%				87.34
	Labour @ 2.5%				220.53
	CP @ 15%				1356.28
	Total				10398.15
	Say				10,398.00
14.0	AIR RELEASE VALVE				
	Description	Unit	Qty.	Rate	Amount

				(Rs)	(Rs)
	As per PWD Rates				
61	Basic Price Air Release valve	Each	1	1471	1471
	Consumables @ 1%				14.71
	Labour @ 2.5%				37.14
	CP @ 15%				228.43
	Total				1751.28
	Say				1,751.00
	FIRE EXTINGUISHERS				
15.0	DCP FIRE EXTINGUISHER				
	Description	Unit	Qty.	Rate	Amount
				(Rs)	(Rs)
	As per PWD Rates				
82	Basic Price DCP Extinguisher 5 kg type	Each	1	1935	1935
	Consumables @ 1%				19.35
	Labour @ 2.5%				48.86
	CP @ 15%				300.48
	Total				2303.69
	Say				2,304.00
16.0	PHOTO LUMINESCENT SIGN BOARD- Fire Exit				
Sl. No.	Description	Unit	Qty	Rate	Amount
				(Rs)	(Rs)
	As per PWD Format- Quotation obtained				
	Cost of Sign board(500x200mm)(As per quote received)	No	1	413.00	413.00
	Consumables @ 1%				4.13
	Labour @ 2.5%				10.43
	CP @ 15%				included
	Total				427.56
	Say				428.00
17.0	EVACUATION PLAN BOARD				
	Description	Unit	Qty	Rate	Amount
				(Rs)	(Rs)
	As per PWD Format- Quotation obtained				
	Cost of Fire evacuation plan board(As per quote received)	No	1	2714.00	2714.00
	Consumables @ 1%				27.14
	Labour @ 2.5%				68.53
	CP @ 15%				included
	Total				2809.67
	Say				2,810.00
18.0	PHOTO LUMINESCENT SIGN BOARD- Fire assembly point				
	Description	Unit	Qty	Rate	Amount
				(Rs)	(Rs)
	As per PWD Format- Quotation obtained				
	Cost of Sign board(500x200mm)(As per quote received)	No	1	413.00	413.00
	Consumables @ 1%				4.13
	Labour @ 2.5%				10.43
	CP @ 15%				included
	Total				427.56
	Say				428.00
19.0	FIRE ORDER				
	Description	Unit	Qty	Rate	Amount

				(Rs)	(Rs)
	As per PWD Format- Quotation obtained				
	Cost of Fire Order Sign board(As per quote received)	No	1	1404.20	1404.20
	Consumables @ 1%				14.042
	Labour @ 2.5%				35.46
	CP @ 15%				included
	Total (Excluding GST @ 18 %)				1453.70
	Say				1,454.00
20.0	PHOTO LUMINESCENT SIGN BOARD- Fire Exit				
Sl. No.	Description	Unit	Qty	Rate	Amount
				(Rs)	(Rs)
	As per PWD Format- Quotation obtained				
	Cost of Sign board(500x200mm)(As per quote received)	No	1	413.00	413.00
	Consumables @ 1%				4.13
	Labour @ 2.5%				10.43
	CP @ 15%				included
	Total				427.56
	Say				428.00

Annexure 8

Rate Analysis

Data Analysis

ACADEMIC BLOCK

1 Specification Code: 2.32

2.32

Clearing grass and removal of the rubbish up to a distance of 50 m outside the periphery of the area cleared.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 100 sqm LABOUR:				
0114	Beldar	Day	0.6	368.00	220.80
0115	Coolie	Day	0.25	368.00	92.00
9999	Sundries-	L.S	1.82	1.73	3.15
TOTAL					315.95
Add Water Charges @ 1%					3.16
TOTAL					319.11
Add CPOH @ 15%					47.87
Cost of 100.0 sqm					366.98
Cost of 1 sqm					3.67
Say					3.65

	Cost index 46.08 %				1.68
	Total with Cost index				5.33

2 Specification Code: od39807/2017_2018

od39807/2017_2018 :Boring, providing and installing bored cast-in-situ reinforced cement concrete piles of grade M-25 of specified diameter and length below the pile cap to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring, with bentonite solution and temporary casing of appropriate length for setting out and removal of same and the length of the pile to be embedded in the pile cap etc. all complete, including removal of excavated earth with all lifts and leads (Length of pile for payment shall be measured upto bottom of pile cap).

700 mm dia piles

Details of cost for 15 m length of pile

MATERIAL:

Concrete 3.14/4x0.70x0.70x15 = 5.769 cum

Code	Description	Unit	Quantity	Rate	Amount
5.33.1	Rate as per item number 5.33.1 of SH: Reinforced Cement Concrete	cum	5.76900	5550.15	32018.82
7183	Bentonite	tonne	0.30000	3100.00	930.00
9999	Sundries MACHINERY	L.S	131.580 00	1.73	227.63
0015	Hire and running charges of Tripod and Mechanical Winch machine complete with power unit and accessories	Day	1.40000	2000.00	2800.00
0025	Hire and running charges of light crane	Day	0.06000	2500.00	150.00
0026	Hire and running charges of bentonite pump	Day	0.75000	4200.00	3150.00
0017	Hire and running charges of tipper	Day	0.30000	1800.00	540.00
0018	Hire and running charges of loader LABOUR: Work supervisor	Day	0.30000	6000.00	1800.00
0130	Mistry	Day	0.14000	487.00	68.18
0114	Beldar	Day	3.50000	368.00	1288.00
TOTAL					42972.63
	cost for 15.0 metre				42972.63
	cost for one metre				2864.84
	say				2864.84

	Add Water Charges @ 1.0%				28.64
	Add CPOH @ 15.0%				434.02
	Cost index 46.08 %				1533.31

	Total with Cost index				4860.83
	Say				4860.83

3 Specification Code: 20.6.2.2

20.6

Vertical load testing of piles in accordance with IS 2911(Part IV) including installation of loading platform and preparation of pile head or construction of test cap and dismantling of test cap after test etc. complete as per specification & the direction of engineer -in-Charge.

20.6.2

Single pile above 50 tonne and upto 100 tonne capacity

20.6.2.2

Routine test

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 1 test				
7250	Cyclic vertical load testing of piles in accordance with IS : 2911(Part-IV) including preparation of pile head etc. for Single pile above 50 tonne capacity pile and up to 100 tonne capacity pile	per test	1.0	23000.00	23000.00
TOTAL					23000.00
Add Water Charges @ 1%					230.00
TOTAL					23230.00
Add CPOH @ 15%					3484.50
Cost of 1.0 per test					26714.50
Say					26714.5

	Cost index 46.08 %				12310.04
	Total with Cost index				39024.54

4 Specification Code: 2.8.1

2.8 Earth work in excavation by mechanical means (Hydraulic excavator) /manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.

2.8.1 All kinds of soil

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 cum. MACHINERY:				
0020	Hydraulic Excavator (3D) with driver and fuel	Day	0.04125	6500.00	268.13
0018	Hire and running charges of loader LABOUR:	Day	0.04125	6000.00	247.50
0128	Mate	Day	0.4	407.00	162.80
0115	Coolie	Day	2.05	368.00	754.40
TOTAL					1432.83
Add Water Charges @ 1%					14.33
TOTAL					1447.16
Add CPOH @ 15%					217.07
Cost of 10.0 cum					1664.23
Cost per cum					166.42
Say					166.4

	Cost index 46.08 %				76.68
	Total with Cost index				243.08

5 Specification Code: 2.6.1

2.6

Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed.

2.6.1 All kinds of soil

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 cum. Average output of Hydraulic Excavator per hour = 30cum MACHINERY:				
0020	Hydraulic Excavator (3D) with driver and fuel	Day	0.041	6500.00	266.50
0018	Hire and running charges of loader LABOUR:	Day	0.041	6000.00	246.00
0128	Mate Beldar/	Day	0.32	407.00	130.24
0115	Coolie	Day	1.2	368.00	441.60
TOTAL					1084.34
Add Water Charges @ 1%					10.84
TOTAL					1095.18
Add CPOH @ 15%					164.28
Cost of 10.0 cum					1259.46
Cost of 1 cum					125.95
Say					125.95

	Cost index 46.08 %				58.04
	Total with Cost index				183.99

6 Specification Code: od39808/2017_2018

od39808/2017_2018 :Earth work in excavation by means (Hydraulic excavator)/manual means over areas (exceeding 30cm in depth.1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50 m disposed earth to be levelled and neatly dressed, as directed by the Engineer- in-Charge but for every additional lift of 1.5m to 3.00m or part there of : All kinds of soil

Details of cost for 10 cum.

Average output of Hydraulic Excavator per

hour = 30cum

MACHINERY:

Code	Description	Unit	Quantity	Rate	Amount
0020	Hydraulic Excavator (3D) with driver and fuel	Day	0.04100	6500.00	266.50
0018	Hire and running charges of loader LABOUR:	Day	0.04100	6000.00	246.00
0128	Mate Beldar/	Day	0.32000	407.00	130.24
0115	Coolie	Day	1.20000	368.00	441.60
2.8.1	Rate as per item number 2.8.1 of SH: Earth Work	cum	1.00000	143.26	143.26
TOTAL					1227.60
	cost for 10.0 cum				1227.60
	cost for one cum				122.76
	say				122.76

	Add Water Charges @ 1.0%				1.22
	Add CPOH @ 15.0%				18.59
	Cost index 46.08 %				65.70
	Total with Cost index				208.29
	Say				208.29

7 Specification Code: 2.25

2.25

Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 cum. LABOUR:				
0128	Mate	Day	0.2	407.00	81.40
0115	Coolie	Day	2.5	368.00	920.00
0101	Bhisti	Day	0.2	407.00	81.40
TOTAL					1082.80
Add Water Charges @ 1%					10.83
TOTAL					1093.63
Add CPOH @ 15%					164.04
Cost of 10.0 cum					1257.67
Other Engineering Organisations Cost per cum					125.77
Say					125.75
PRICE					
	Cost index	46.08 %			57.95
	Total with Cost index				183.70

8 Specification Code: 50.2.25.1

50.2.25.1

Filling with contractor's own earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m as per direction of site Engineer-in-charge

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for one each				
0979	Royalty for good earth	cum	1.0	30.00	30.00

2241	Carriage of Good earth	cum	1.0	129.71	129.71
0128	Mate	Day	0.02	407.00	8.14
0115	Coolie	Day	0.25	368.00	92.00
0101	Bhisti	Day	0.02	407.00	8.14

TOTAL					267.99
Add Water Charges @ 1%					2.68
TOTAL					270.67
Add CPOH @ 15%					40.60
Cost of 1.0 cum					311.27
Cost of 1 cum					311.27
Say					311.25

Cost index 46.08 %					143.43
Total with Cost index					454.68

Other Engineering Organisations

9 Specification Code: 50.2.26.1

50.2.26.1

Filling with contractor own earth (excluding rock) in open areas in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m as per direction of site Engineer-in-charge.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 1 each				
0979	Royalty for good earth	cum	1.0	30.00	30.00
2241	Carriage of Good earth	cum	1.0	129.71	129.71
0128	Mate	Day	0.01	407.00	4.07
0115	Coolie	Day	0.01	368.00	3.68
0101	Bhisti	Day	0.01	407.00	4.07
TOTAL					171.53

Add Water Charges @ 1%	1.72
TOTAL	173.25
Add CPOH @ 15%	25.99
Cost of 1.0 cum	199.24
Cost per cum	199.24
Say	199.25

Cost index 46.08 %	91.81
Total with Cost index	291.06

10 Specification Code: 4.1.8

4.1 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:

4.1.8 1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 nominal size)

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 1 cum MATERIAL:				
0293	Stone Aggregate(single size): 40 mm nominal size nominal size (0.70 cum -7.5% for voids i.e. 0.05 =0.65 cum)	cum	0.65	1250.00	812.50
0295	Stone Aggregate(single size):20 mm nominal size nominal size	cum	0.24	1300.00	312.00
2206	Carriage of Stone aggregate 40 mm nominal size and above	cum	0.65	112.79	73.31
2202	Carriage of Stone aggregate below 40 mm nominal size	cum	0.24	103.77	24.90
0982	Coarse sand (zone III)	cum	0.47	1200.00	564.00

2203	Carriage of Coarse sand	cum	0.47	103.77	48.77
0367	Portland Cement	tonne	0.17	5700.00	969.00
2209	Carriage of Cement LABOUR:	tonne	0.17	92.24	15.68
0155	Mason (average)	Day	0.1	467.00	46.70
0114	Beldar	Day	1.63	368.00	599.84
0101	Bhisti	Day	0.7	407.00	284.90
0002	Hire charges of Concrete Mixer 0.25 to 0.40 cum with Hopper	Day	0.07	800.00	56.00
0012	Vibrator (Needle type 40 mm)	Day	0.07	350.00	24.50
9999	Sundries-	L.S	13.52	1.73	23.39

TOTAL					3855.49
Add Water Charges @ 1%					38.55
TOTAL					3894.04
Add CPOH @ 15%					584.11
Cost of 1.0 cum					4478.15
Say					4478.15

Cost index 46.08 %					2063.53
Total with Cost index					6541.68

11 Specification Code: 4.11

SUBHEAD : 4.0

CONCRETE WORK

4.11

Providing and laying damp-proof course 50 mm thick with cement concrete 1:2:4(1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size).

Code	Description	Unit	Quantity	Rate	Amount
------	-------------	------	----------	------	--------

	Details of cost for 10 sqm MATERIAL: Cement concrete 1:2:4 = 10x0.05 = 0.50 cum				
4.1.3	Rate as per item Number 4.1.3 of SH: Concrete work Add for delay:	cum	0.5	5481.95	2740.98(A)
0123	Mason (brick layer) 1st class	Day	0.4	487.00	194.80
0124	Mason (brick layer) 2nd class	Day	0.4	448.00	179.20
9999	Sundries - (Form work etc.)	L.S	13.52	1.73	23.39

	Add Water Charges @ 1% except on A ie on (3138.37-2740.98=397.39)				3.97
				TOTAL	3142.34
	Add CPOH @ 15% except on A ie on (3142.34-2740.98=401.36002)				60.20
	Other Engineering Organisations Cost of 10.0 sqm				3202.50
	Cost of 1 sqm				320.25
	Say				320.25

	Cost index 46.08 %				147.57
	Total with Cost index				467.82

12 Specification Code: 4.13

4.13 Applying a coat of residual petroleum bitumen of grade of VG-10 of approved quality using 1.7 kg per square metre on damp proof course after cleaning the surface with brushes and finally with a piece of cloth lightly soaked in kerosene oil.

Code	Description	Unit	Quantity	Rate	Amount
------	-------------	------	----------	------	--------

	Details of cost for 10 sqm MATERIAL:				
0309	Paving bitumen of grade VG 10 of approved quality	tonne	0.017	29600.00	503.20
0771	Kerosene oil	Litre	1.23	45.00	55.35
0370	Coal (steam)	quintal	0.035	400.00	14.00
2211	Carriage of Tar bitumen	tonne	0.017	103.77	1.76
0114	Beldar	Day	0.12	368.00	44.16
0115	Coolie Spreading hot tar over damp proof course	Day	0.07	368.00	25.76
0131	Painter	Day	0.2	448.00	89.60
9988	Carriage and sundries (Carriage of Kerosene, steam coal, brushes, T&P etc.)	L.S	33.15	1.73	57.35

	TOTAL	791.18
	Add Water Charges @ 1%	7.91
	TOTAL	799.09
	Add CPOH @ 15%	119.86
	Cost of 10.0 sqm	918.95
	Cost of 1 sqm	91.90
	Say	91.9

	Cost index 46.08 %				42.35
	Total with Cost index				134.25

13 Specification Code: 5.33.1

5.33

Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement,

including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer - in-charge. Note:- Cement content considered in this item is @ 330 kg/ cum. Excess or less cement used as per design mix is payable or recoverable separately.

5.33.1 All work upto plinth level

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 1.00 cum MATERIAL:				
0295	Stone Aggregate(single size):20 mm nominal size	cum	0.57	1300.00	741.00
0297	Stone Aggregate(single size): 10 mm nominal size	cum	0.28	1300.00	364.00
2202	Carriage of Stone aggregate below 40 mm nominal size	cum	0.85	103.77	88.20
0982	Coarse sand (zone III)	cum	0.425	1200.00	510.00
2203	Carriage of Coarse sand	cum	0.425	103.77	44.10
0367	Portland Cement	tonne	0.33	5700.00	1881.00
2209	Carriage of Cement	tonne	0.33	92.24	30.44
7318	Plasticizer / super plasticizer 0.50% of cement Production cost, pumping to respective floors and laying in position	kilogram	1.65	38.00	62.70
0004	Production cost of concrete by batch mix plant	cum	1.0	400.00	400.00
0009	Pumping charges of concrete including Hire charges of pump, piping work & accessories etc. LABOUR:	cum	1.0	200.00	200.00

0155	Mason (average) Labour for pouring, consolidating &curing	Day	0.17	467.00	79.39
0114	Beldar	Day	2.0	368.00	736.00
0101	Bhisti	Day	0.9	407.00	366.30
0012	Vibrator (Needle type 40 mm)	Day	0.07	350.00	24.50
9999	Sundries-	L.S	13.0	1.73	22.49

TOTAL		5550.12
Add Water Charges @ 1%		55.50
TOTAL		5605.62
Add CPOH @ 15%		840.84
Cost of 1.0 cum		6446.46
Say		6446.45

Cost index 46.08 %		2970.55
Total with Cost index		9417.05

14 Specification Code: 5.33.2

5.33

Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer - in-charge. Note:- Cement content considered in this item is @ 330 kg/ cum. Excess or less cement used as per design mix is payable or recoverable separately.

5.33.2

All work above plinth level upto floor V level

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 1.00 cum MATERIAL:				

0295	Stone Aggregate(single size):20 mm nominal size	cum	0.57	1300.00	741.00
0297	Stone Aggregate(single size): 10 mm nominal size	cum	0.28	1300.00	364.00
2202	Carriage of Stone aggregate below 40 mm nominal size	cum	0.85	103.77	88.20
0982	Coarse sand (zone III)	cum	0.425	1200.00	510.00
2203	Carriage of Coarse sand	cum	0.425	103.77	44.10
0367	Portland Cement	tonne	0.33	5700.00	1881.00
2209	Carriage of Cement	tonne	0.33	92.24	30.44
7318	Plasticizer / super plasticizer 0.50% of cement Production cost, pumping to respective floors and laying in position	kilogram	1.65	38.00	62.70
0004	Production cost of concrete by batch mix plant	cum	1.0	400.00	400.00
0009	Pumping charges of concrete including Hire charges of pump, piping work & accessories etc. LABOUR: Labour for pouring, consolidation & curing	cum	1.0	200.00	200.00
0155	Mason (average)	Day	0.17	467.00	79.39
0114	Beldar	Day	2.0	368.00	736.00
0101	Bhisti	Day	0.9	407.00	366.30
0012	Vibrator (Needle type 40 mm)	Day	0.07	350.00	24.50
9999	Sundries-Extra labour for lifting up to floor five level 0.75 x 2.5 = 1.88	L.S	13.0	1.73	22.49
0115	Coolie	Day	1.88	368.00	691.84

TOTAL				6241.96
Add Water Charges @ 1%				62.42

	TOTAL	6304.38
	Add CPOH @ 15%	945.66
	Cost of 1.0 cum	7250.04
	Say	7250.05

	Cost index 46.08 %				3340.82
	Total with Cost index				10590.87

15 Specification Code: 5.22.6

5.22 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level

5.22.6 Thermo - Mechanically Treated bars of grade Fe-500D or more

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 1 quintal MATERIAL: Deformed twisted steel bars = 1.00 q Add 5% wastage = 0.05 Total = 1.05q				
1005	Twisted steel/deformed bars	quintal	1.05	3730.00	3916.50
2205	Carriage of Steel	tonne	0.105	92.24	9.69
9999	Sundries-Cover block LABOUR: For straightening, bending binding and placing in position	L.S	26.0	1.73	44.98
0102	Blacksmith 1st class	Day	1.0	487.00	487.00
0114	Beldar	Day	1.0	368.00	368.00
9999	Sundries-	L.S	26.91	1.73	46.55
TOTAL					4872.72

Add Water Charges @ 1%	48.73
TOTAL	4921.45
Add CPOH @ 15%	738.22
Cost of 100.0 kilogram	5659.67
Cost per kilogram	56.60
Say	56.6

Cost index 46.08 %	26.08
Total with Cost index	82.68

16 Specification Code: 5.9.1

5.9 Centering and shuttering including strutting, etc. and removal of form for:

5.9.1 Foundations, footings, bases of columns, etc for mass concrete

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for footing size 2.7mx2.7mx 1.00m Contact area = 10.8sqm MATERIAL: Assuming shuttering material will become unserviceable after use of 40 times Adding for maintenance @ 10% of cost Taking salvage value after full use of material @ 25% of cost				
7319	wall form panel 1250x500 mm Qty taken for cost of using once = $16 \times 0.85 / 40 = 0.34$	each	0.34	900.00	306.00
7326	Corner angle 45x45x5 mm 1.50 m long Qty taken for cost of using once = $4 \times 0.85 / 40 = 0.085$	each	0.085	250.00	21.25

7327	100 mm channel shoulder 2.5 m long Qty taken for cost of using once = $8 \times 0.85 / 40 = 0.17$	each	0.17	950.00	161.50
7328	Double clip (bridge clip) Qty taken for cost of using once = $16 \times 0.85 / 40 = 0.34$	each	0.34	80.00	27.20
7329	Single clip Qty taken for cost of using once = $8 \times 0.85 / 40$ $= 0.17$	each	0.17	62.00	10.54
7330	M.S. Tube 40 mm dia Qty taken for cost of using once = $10.8 \times 0.85 / 40 = 0.2295$	metre	0.2295	225.00	51.64
9999	Sundries-Assembly nuts 7 bolts Qty taken for cost of using once = $1040 \times 0.85 / 40 = 22.10$	L.S	22.1	1.73	38.23
9977	Carriage LABOUR	L.S	78.0	1.73	134.94
0116	Fitter(grade1)	Day	0.75	487.00	365.25
0114	Beldar	Day	1.5	368.00	552.00
9999	Sundries-Suttering oil	L.S	52.0	1.73	89.96
9999	Sundries-	L.S	26.0	1.73	44.98

TOTAL				1803.49
Add Water Charges @ 1%				18.03
TOTAL				1821.52
Add CPOH @ 15%				273.23
Cost of 10.8 sqm				2094.75
Cost of 1 sqm				193.96
Say				193.95

	Cost index 46.08 %				89.37
	Total with Cost index				283.32

17 Specification Code: 5.9.3

SUBHEAD : 5.0**REINFORCED CEMENT CONCRETE****5.9** Centering and shuttering including strutting, etc. and removal of form for:**5.9.3** Suspended floors, roofs, landings, balconies and access platform

Code	Description	Unit	Quantity	Rate	Amount
	<p>Details of cost for a room $4.5 \times 3 = 13.50$ sqm height 3.5 m MATERIAL: Adding for maintenance @ 10% of cost Taking salvage value after full use of material @ 25% of cost 1. Plates (size 0.75×0.60) Angle $40 \times 40 \times 5$ mm $2 \times 0.75 = 1.5$ m $2 \times 0.60 = 1.20$ m $= 2.70$ m @ 3.00 kg/m = 8.10 kg sheet 1.6 mm thick $0.75 \times 0.60 = 0.45$ sqm 0.45 sqm @ 12.55 kg/sqm = 5.65 kg Weight of one plate = 13.75 kg Add for wastage @ 5% = 0.69 kg Total = 14.44 kg Total weight of all plates = $5 \times 6 \times 14.44 = 433.20$ kg. Qty taken for cost using once = $433.2 \times 0.85 / 40 = 9.2055$ kg</p>				
10.1	Rate as per item Number 10.1 of SH: Steel Work	kilogram	9.2055	58.45	538.06(A)
7342	Adjustable span ESO+SI (2.35-3.40) Qty taken for cost using once = $5 \times 0.85 / 40 = 0.1063$	each	0.1063	1550.00	164.77

7343	Adjustable telescopic prop 3 m (2.02-3.75m) Qty taken for cost using once = $6 \times 0.85 / 40 = 0.1275$	each	0.1275	1000.00	127.50
9999	Sundries - Assembly nut & bolts etc. Qty taken for cost using once = $1040 \times 0.85 / 40 = 22.10$	L.S	22.1	1.73	38.23
9999	Sundries - Carriage LABOUR: Fitter (grade 1)	L.S	130.0	1.73	224.90
0116	Fitter(grade1)	Day	3.0	487.00	1461.00
0114	Beldar	Day	6.0	368.00	2208.00
9999	Sundries - Shuttering oil	L.S	78.0	1.73	134.94
9999	Sundries - paper tape etc	L.S	49.7	1.73	85.98

	Add Water Charges @ 1% except on A ie on (4983.38-538.06=4445.32)	44.45
	TOTAL	5027.83
	Add CPOH @ 15% except on A ie on (5027.83-538.06=4489.77)	673.47
	Cost of 13.5 sqm	5701.05
	Cost of 1 sqm	422.30
	Say	422.3

	Cost index 46.08 %				194.60
	Total with Cost index				616.90

18 Specification Code: 5.9.5

SUBHEAD : 5.0

REINFORCED CEMENT CONCRETE

5.9 Centering and shuttering including strutting, etc. and removal of form for:

5.9.5 Lintels, beams, plinth beams, girders bressumers and cantilevers

Code	Description	Unit	Quantity	Rate	Amount
	<p>Details of cost for a beam of 6 m clear span, 0.50 m deep 0.30 m wide and height 3.5 m from floor cubical contents $6.60 \times 0.5 \times 0.3 = 0.99 \text{ cum}$ $1 \times 1.30 \times 6.00 = 7.80 \text{ sqm}$ MATERIAL: Assuming shuttering will become unserviceable after use of 40 times Add maintenance charges @ 10% of cost of material Less salvage value of material after full use @25% of cost of material 1. Steel plats for side and bottom (plate size 1.20 x 0.50 m) Angle 40x40x5mm $2 \times 1.20 = 2.40 \text{ m}$ $3 \times 0.50 = 1.50 \text{ m}$ Total 3.90 m @ 3.00 kg/m = 11.70 kg sheet 1.6 mm thick 1.20 m x 0.50 m = 0.60 sqm 0.60 sqm @ 12.55 kg/sqm. = 7.53 kg. Weight of one plate = 19.23 kg. Add for wastage 5% 0.96 kg. Total = 20.19 kg Total weight of all plates $3 \times 5 \times 20.19 = 302.85 \text{ kg}$ Qty taken for cost of using once = $302.85 \times 85/40 = 6.4356 \text{ kg}$</p>				
10.1	Rate as per item Number 10.1 of SH: Steel Work	kilogram	6.4356	58.45	376.16(A)
7343	Adjustable telescopic prop 3 m (2.02-3.75m) Qty taken for using once = $6 \times 0.85/40 = 0.1275 \text{ m}$	each	0.1275	1000.00	127.50

7344	Beam clamp 300-380 mm (450-1070 mm) Qty taken for cost of using once = $5 \times 0.85 / 40$ = 0.1063 m	each set	0.1063	370.00	39.33
9999	Sundries - Assembly nut & bolts etc. Qty taken for cost of using once = $1040 \times 0.85 / 40 = 22.10$	L.S	22.1	1.73	38.23
9999	Sundries - Carriage LABOUR:	L.S	78.0	1.73	134.94
0116	Fitter(grade1)	Day	1.25	487.00	608.75
0114	Beldar	Day	2.5	368.00	920.00
9999	Sundries - Shuttering oil	L.S	39.0	1.73	67.47
9999	Sundries - paper tape etc	L.S	24.61	1.73	42.58

AddWater Charges @ 1% except on A ie on (2354.96-376.16=1978.8)		19.79
TOTAL		2374.75
AddCPOH @ 15% except on A ie on (2374.75-376.16=1998.59)		299.79
Cost of 7.8 sqm		2674.62
Cost of 1 sqm		342.90
Say		342.9

Cost index	46.08 %				158.01
Total with Cost index					500.91

19 Specification Code: 5.9.6

5.9 Centering and shuttering including strutting, etc. and removal of form for:

5.9.6 Columns, Pillars, Piers, Abutments, Posts and Struts

Code	Description	Unit	Quantity	Rate	Amount
------	-------------	------	----------	------	--------

	<p>Details of cost for 4.5 sqm. Size of column 450x450mm and 2.5 m high Area of contact = $4 \times 0.45 \times 2.5 = 4.5$ sqm MATERIAL: Assuming shuttering will become unserviceable after use of 40 times Add maintenance charges @ 10 % of cost of material Less salvage value of material after full use @ 25% of cost of material</p>				
7331	<p>Wall form panel 1250x450xmm Qty taken for cost of using once = $8 \times 0.85 / 40 = 0.17$</p>	each	0.17	900.00	153.00
7332	<p>Corner angle 45x45x5 mm 2.50 long Qty taken for cost of using once = $4 \times 0.85 / 40 = 0.085$</p>	each	0.085	265.00	22.53
7333	<p>Column clamp 450x1070 mm Qty taken for cost of using once = $5 \times 0.85 / 40 = 0.1063$</p>	each	0.1063	1010.00	107.36
7334	<p>Prop 2 m (2-3.5m) Qty taken for cost of using once = $4 \times 0.85 / 40 = 0.085$</p>	each	0.085	665.00	56.53
9999	<p>Sundries-Qty taken for cost of using once = $1300 \times 0.85 / 40 = 27.62$</p>	L.S	27.62	1.73	47.78
9977	<p>Carriage LABOUR</p>	L.S	52.0	1.73	89.96
0116	<p>Fitter(grade1)</p>	Day	1.0	487.00	487.00
0114	<p>Beldar</p>	Day	2.0	368.00	736.00
9999	<p>Sundries-Shuttering oil</p>	L.S	39.0	1.73	67.47
9999	<p>Sundries-Carriage</p>	L.S	26.0	1.73	44.98

TOTAL				1812.61
Add Water Charges @ 1%				18.13
TOTAL				1830.74

	Add CPOH @ 15%	274.61
	Cost of 4.5 sqm	2105.35
	Cost of 1 sqm	467.86
	Say	467.85

	Cost index 46.08 %				215.59
	Total with Cost index				683.44

20 Specification Code: 5.9.7

5.9 Centering and shuttering including strutting, etc. and removal of form for:

5.9.7 Stairs, (excluding landings) except spiral - staircases)

Code	Description	Unit	Quantity	Rate	Amount
	<p>Details of cost for 5.79 sqm. Details of staircase, 3.40 m clear span including 1 m landing MATERIAL: (i) Cost of plank 38 mm (2nd class kail wood) Waist $2.69 \times 1.30 = 3.50$ sqm. Side shuttering of steps and side of waist steps = $8 \times 1.30 \times 1.15 = 1.56$ sqm Face of landing $1 \times 1.30 \times 0.15 = 0.20$ sqm. Side of waist $2.69 \times 0.13 = 0.35$ sqm. Side of steps- $8 \times 0.50 \times 0.30 \times 0.15 = 0.18$ sqm. Total = 5.79 sqm. Wastage 5% = 0.29 sqm. Total = 6.08 sq. Cubical content - $6.08 \times 0.038 = 0.231$ cum = 231 cudm Qty taken for cost using once = $231/8 = 28.875$ cudm</p>				

1198	Second class kail wood in planks (ii) Batten 100mm x 75 mm $4 \times 1.30 \times 0.100 \times 0.075 = 0.039 \text{ cum} = 39 \text{ cudm}$ Qty taken for cost using once = $39/8 = 4.875 \text{ cudm}$	10 cud m	28.875	260.00	750.75
1197	Second class kail wood in scantling Second class kail wood in scantling $2 \times 4 \times 0.80 = 6.40 \text{ m}$ Qty taken for cost using once = $6.4/8 = 0.8 \text{ m}$	10 cud m	4.875	260.00	126.75
0302	Safeda ballies 125 mm diameter Planks = 0.231 cum. Battens = 0.039 cum. Bailies $6.4 \times 3.142/4 \times (0.125)^2 = 0.079 \text{ cum}$. Total = 0.349 cum. Qty taken for cost using once = $0.349/8 = 0.04363 \text{ cum}$	metre	0.8	35.00	28.00
2204	Carriage of Timber Carriage of timber LABOUR: For assembling, erection, dismantling and cleaning	cum	0.04363	118.59	5.17
0112	Carpenter 2nd class	Day	1.75	448.00	784.00
0114	Beldar	Day	1.0	368.00	368.00
9999	Sundries-	L.S	16.12	1.73	27.89

TOTAL		2090.56
Add Water Charges @ 1%		20.91
TOTAL		2111.47
Add CPOH @ 15%		316.72
Cost of 5.79 sqm		2428.19

	Cost per sqm	419.38
	Say	419.4

	Cost index 46.08 %				193.24
	Total with Cost index				612.59

21 Specification Code: 5.9.16.1

5.9 Centering and shuttering including strutting, etc. and removal of form for:

5.9.16 Edges of slabs and breaks in floors and walls

5.9.16.1 Under 20 cm wide

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for a 3mx3m slab 15cms thick 12m edge Length MATERIAL: Assuming that the timber will become unserviceable after being used 8 times				
1198	Second class kail wood in planks (i) Planks 30 mm thick (2nd class Kail wood or equivalent local soft wood) 4x3x0.15x0.030 = 0.54 cum Wastage @ 5% = 0.003 cum. Total = 0.57 cum Qty taken for cost of using once = 57/8 = 7.125 cum	10 cud m	7.125	260.00	185.25

1197	<p>Second class kail wood in scantling (ii) Battens 75 mm x 100 mm (2nd class Kail wood) Horizontal $2 \times 4 \times 0.075 \times 0.1 \times 0.5 = 0.030$ Horizontal $2 \times 4 \times 0.075 \times 0.1 \times 1.5 = 0.090$ (iii) Vertical battens $16 \times 0.15 \times 0.075 \times 0.030 \text{m} = 0.0054$ (iv) Struts $16 \times 0.25 \times 0.07 \times 0.075 = 0.0225$ Total = 0.1479 Wastage @ 5% = 0.0074 Total = 0.1553 cum = 155 cudm Qty taken for cost of using once = $155/8 = 19.375$ cudm</p>	10 cud m	19.375	260.00	503.75
2204	<p>Carriage of Timber Planks = 0.057 cum. Batte4ns = 0.057 cum. Total = 0.212 cum. Qty taken for cost of using once = $0.212/8 = 0.0265$ cum LABOUR: For assembling erection dismantling & cleaning</p>	cum	0.0265	118.59	3.14
0112	Carpenter 2nd class	Day	0.81	448.00	362.88
0114	Beldar	Day	0.54	368.00	198.72
9999	Sundries-	L.S	5.2	1.73	9.00

TOTAL		1262.74
Add Water Charges @ 1%		12.63
TOTAL		1275.37
Add CPOH @ 15%		191.31
Cost of 12.0 metre		1466.68
Cost per metre		122.22
Say		122.2

	Cost index 46.08 %				56.31
	Total with Cost index				178.51

22 Specification Code: 5.9.2

5.9 Centering and shuttering including strutting, etc. and removal of form for:

5.9.2 Walls (any thickness) including attached pilasters, butteresses, plinth and string courses etc.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 7.9m long and 1.00m high wall Area of contact $2 \times 7.9 \times 1.0 = 15.8$ sqm MATERIAL: Assuming shuttering material will become unserviceable after use of 40 times Adding for maintenance @ 10% of cost Taking salvage value after full use of material @ 25% of cost				
7319	wall form panel 1250x500 mm $2 \times 3 \times 2 \times 2 = 24$ Nos. Qty taken for cost of using once = $24 \times 0.85 / 40 = 0.51$	each	0.51	900.00	459.00
7327	100 mm channel shoulder 2.5 m long $4 \times 2 = 8$ Qty taken for cost of using once = $8 \times 0.85 / 40 = 0.17$	each	0.17	950.00	161.50
7328	Double clip (bridge clip) $2 \times 6 \times 2 = 24$ Qty taken for cost of using once = $24 \times 0.85 / 40 = 0.51$	each	0.51	80.00	40.80
7329	Single clip $2 \times 3 \times 2 = 12$ Qty taken for cost of using once = $12 \times 0.85 / 40 = 0.255$	each	0.255	62.00	15.81

7330	M.S. Tube 40 mm dia 2x2x8m = 32m Qty taken for cost of using once = $32 \times 0.85 / 40 = 0.68$	metre	0.68	225.00	153.00
9999	Sundries-Qty taken for cost of using once = $1300 \times 0.85 / 40 = 27.62$	L.S	27.62	1.73	47.78
9977	Carriage LABOUR	L.S	78.0	1.73	134.94
0116	Fitter(grade1)	Day	3.5	487.00	1704.50
0114	Beldar	Day	6.0	368.00	2208.00
9999	Sundries- shuttering oil	L.S	78.0	1.73	134.94
9999	Sundries-	L.S	52.0	1.73	89.96

				TOTAL	5150.23
				Add Water Charges @ 1%	51.50
				TOTAL	5201.73
				Add CPOH @ 15%	780.26
				Cost of 15.8 sqm	5981.99
				Cost of 1 sqm	378.61
				Say	378.6

	Cost index 46.08 %				174.46
	Total with Cost index				553.06

23 Specification Code: 5.9.19

5.9 Centering and shuttering including strutting, etc. and removal of form for:

5.9.19 Weather shade, Chajjas, corbels etc., including edges

Code	Description	Unit	Quantity	Rate	Amount
------	-------------	------	----------	------	--------

	<p>Details of cost for a weather shade</p> <p>Area of centering and shuttering = 0.954 sqm</p> <p>For a weather shade over a window of size 1.5x1.2m</p> <p>Size of weather shade 1.80x0.45m</p> <p>Thickness at front = 0.05 m</p> <p>Thickness at fixed edge = 0.07m</p> <p>Area in contact with concrete Bottom</p> <p>$1 \times 0.45 \times 1.80 = 0.810$</p> <p>$1 \times 0.05 \times 1.80 = 0.094$</p> <p>$2 \times 0.45 \times 0.06 = 0.027$</p> <p>Total = 0.954 sqm</p> <p>MATERIAL:</p> <p>Assuming that the timber will become unserviceable after being used 8 times</p>				
1198	<p>Second class kail wood in planks</p> <p>(i) Planking 38 mm thick.</p> <p>Bottom $1 \times 1.876 \times 0.488 = 0.915$ sqm.</p> <p>$1 \times 1.876 \times 0.05 = 0.94$ sqm.</p> <p>$2 \times 0.45 \times 0.06 = 0.27$ sqm.</p> <p>Total = 1.036 sqm</p> <p>Add 5% wastage = 0.052 sqm.</p> <p>Total = 1.088 sqm.</p> <p>Cubic contents $1.088 \times 0.038 = 0.041$ cum = 41 cudm</p> <p>Qty taken for cost using once = $41/8 = 5.125$ cudm</p>	10 cud m	5.125	260.00	133.25
1197	<p>Second class kail wood in scantling</p> <p>(ii) Battens</p> <p>$2 \times 0.60 \times 0.075 \times 0.10 = 0.009$</p> <p>Ends with bearing center</p> <p>$1 \times 0.45 \times 0.075 \times 0.10 = 0.003$</p> <p>Total = 0.012 cum = 12 cudm</p> <p>Qty taken for cost using once = $12/8 = 1.50$ cudm</p>	10 cud m	1.5	260.00	39.0

2447	Hollock ballies 125 mm diameter (iii) Bailies 125 mm dia. 2x2.1 = 4.2 m Wastage 5% = 0.21 m Total = 4.41 m Qty taken for cost using once = 4.41/8 = 0.5513 m	metre	0.5513	35.00	19.30
2204	Carriage of Timber Plank = 0.041 cum. Battens = 0.012 cum. Bailies $4.41 \times 22/7 \times (0.125)^2/4 = 0.054$ cum. Total = 0.107 cum Qty taken for cost using once = 0.107/8 = 0.01338 cum LABOUR: Labour for assembling, erection, dismantling & cleaning	cum	0.01338	118.59	1.59
0112	Carpenter 2nd class	Day	0.3	448.00	134.40
0114	Beldar	Day	0.25	368.00	92.00
9999	Sundries-	L.S	5.2	1.73	9.00

				TOTAL	428.54
				Add Water Charges @ 1%	4.29
				TOTAL	432.83
				Add CPOH @ 15%	64.92
				Cost of 0.954 sqm	497.75
				Cost per sqm	521.75
				Say	521.75

	Cost index 46.08 %				240.42
	Total with Cost index				762.17

24 Specification Code: 5.11.1

5.11 Extra additional height in centering, shuttering where ever required with adequate bracing, propping etc. including cost of de-shuttering and decentering at all levels, over a height of 3.5m, for every additional height of 1 metre or part thereof (Plan area to be measured).

5.11.1 Suspended floors, roofs, landing, beams and balconies (Plan area to be measured)

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for a room of size 6m x 4.8m = 28.8 sqm MATERIAL: Assuming that shuttering material will become unserviceable after use 40 times Less salvage value of material after full use @ 25% of cost material for maintenance				
7345	Prop 4 m Qty taken for cost using once = $21 \times 0.85/40$ = 0.4463 Deduct the rate of 3m prop	each	0.4463	950.00	423.99
7343	Adjustable telescopic prop 3 m (2.02-3.75m) Qty taken for cost using once = $21 \times 0.85/40$ = 0.4463 Difference of rate between 4m prop and 3m prop	each	-0.4463	1000.00	-446.30
7330	M.S. Tube 40 mm dia Bracing MS tube 40 mm 7x4.8m = 33.60m 3x6.0m = 18.00 m Total = 51.60 m Qty taken for cost using once = $51.6 \times 0.85/40$ = 1.0965	metre	1.0965	225.00	246.71

7346	Double coupler (40x4) Qty taken for cost using once = $21 \times 0.85/40$ = 0.4463	each	0.4463	48.00	21.42
9977	Carriage LABOUR	L.S	65.0	1.73	112.45
0116	Fitter(grade1)	Day	3.0	487.00	1461.00
0114	Beldar	Day	6.0	368.00	2208.00
9999	Sundries-	L.S	130.0	1.73	224.90

TOTAL					4252.17
Add Water Charges @ 1%					42.52
TOTAL					4294.69
Add CPOH @ 15%					644.20
Cost of 28.8 sqm					4938.89
Cost of 1 sqm					171.49
Other Engineering Organisations Say					171.5

PRICE					
Cost index 46.08 %					79.03
Total with Cost index					250.53

25 Specification Code: 50.6.1.4

50.6.1.4

Solid block masonry using pre cast solid blocks (Factory made) of size 30x20x20cm or nearest available size confirming to IS 2185 part I of 1979 for foundation and plinth with thickness 20cm and above in: CM 1:6 (1 cement : 6 coarse sand) etc complete

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for one cum. MATERIALS:				
MR2	Solid blocks of size 30x20x20cm	each	77.0	36.50	2810.50

3.11	Rate as per item Number3.11 of SH: Mortars	cum	0.09	3217.55	289.58
9999	Sundries-	L.S	2.73	1.73	4.72
0123	Mason (brick layer) 1st class	Day	0.36	487.00	175.32
0124	Mason (brick layer)2nd class	Day	0.36	448.00	161.28
0115	Coolie	Day	1.37	368.00	504.16
0101	Bhisti	Day	0.2	407.00	81.40

TOTAL		4026.96
Add Water Charges @ 1%		40.27
TOTAL		4067.23
Add CPOH @ 15%		610.08
Cost of 1.0 cum		4677.31
Cost per cum		4677.31
Say		4677.3

Other Engineering Organisations					
Cost index 46.08 %					651.07
Total with Cost index					5328.37

26 Specification Code: 50.6.1.5

50.6.1.5

Solid block masonry using pre cast solid blocks (Factory made) of size 30x20x20cm or nearest available size confirming to IS 2185 Part I of 1979 for super structure up to floor two level thickness 20cm and above in: CM 1:6 (1 cement : 6 coarse sand) etc complete

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for one cum MATERIALS:				
MR2	Solid blocks of size 30x20x20cm	each	77.0	36.50	2810.50
3.11	Rate as per item Number3.11 of SH: Mortars	cum	0.09	3217.55	289.58

9999	Sundries-	L.S	2.73	1.73	4.72
0123	Mason (brick layer) 1st class	Day	0.47	487.00	228.89
0124	Mason (brick layer)2nd class	Day	0.47	448.00	210.56
0115	Coolie	Day	1.8	368.00	662.40
0101	Bhisti	Day	0.2	407.00	81.40
9999	Sundries-	L.S	22.36	1.73	38.68

TOTAL					4326.73
Add Water Charges @ 1%					43.27
TOTAL					4370.00
Add CPOH @ 15%					655.50
Cost of 1.0 cum					5025.50
Cost per cum					5025.50
Say					5025.5

Cost index 46.08 %				811.51
Total with Cost index				5837.01

27 Specification Code: 50.6.1.6

50.6.1.6

Solid block masonry using pre cast solid blocks (Factory made) of size 30x20x20cm or nearest available size confirming to IS 2185 part I of 1979 for super structure above floor two level upto floor five level thickness 20cm and above in : CM 1:6 (1 cement : 6 coarse sand sand) etc complete

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for one cum MATERIALS:				
MR2	Solid blocks of size 30x20x20cm	each	77.0	36.50	2810.50
3.11	Rate as per item Number3.11 of SH: Mortars	cum	0.09	3217.55	289.58

9999	Sundries-	L.S	2.73	1.73	4.72
0123	Mason (brick layer) 1st class	Day	0.47	487.00	228.89
0124	Mason (brick layer)2nd class	Day	0.47	448.00	210.56
0115	Coolie	Day	1.8	368.00	662.40
0101	Bhisti	Day	0.2	407.00	81.40
9999	Sundries-Scaffolding Extra labour element required for lifting of materials (above floor two level upto floor five level)	L.S	22.36	1.73	38.68
0115	Coolie	Day	1.13	368.00	415.84

TOTAL					4742.57
Add Water Charges @ 1%					47.43
TOTAL					4790.00
Add CPOH @ 15%					718.50
Cost of 1.0 cum					5508.50
Other Engineering Organisations Cost per cum					5508.50
Say					5508.5

Cost index 46.08 %					1034.08
Total with Cost index					6542.58

28 Specification Code: 6.13.2

6.13

Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level.

6.13.2

Cement mortar 1:4 (1 cement : 4 coarse sand)(from floor 2 level up to floor 5 level)

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 sqm MATERIAL:				

2602	Common burnt clay F.P.S. (non modular) bricks class designation 7.5 Cement mortar 1:4	1000 nos	565.0	4500.00	2542.5
3.9	Rate as per item Number 3.9 of SH: Mortars	cum	0.28	3970.50	1111.74
2201	Carriage of Bricks	1000 nos	565.0	276.72	156.3468
9999	Sundries-& scaffolding LABOUR:	L.S	13.52	1.73	23.39
0123	Mason (brick layer) 1st class	Day	0.6	487.00	292.20
0124	Mason (brick layer)2nd class	Day	0.6	448.00	268.80
0115	Coolie	Day	2.0	368.00	736.00
0101	Bhisti Extra labour for lifting materials: 10 x 0.115 x 0.75 x 1.5	Day	0.7	407.00	284.90
0115	Coolie	Day	1.29	368.00	474.72

Other Engineering Organisations		TOTAL	5890.60
Add Water Charges @ 1%			58.91
TOTAL			5949.51
Add CPOH @ 15%			892.43
Cost of 10.0 sqm			6841.94
Cost per sqm			684.19
Say			684.2

	Cost index 46.08 %				315.28
	Total with Cost index				999.48

29 Specification Code: 6.15

6.15

Extra for providing and placing in position 2 Nos 6 mm dia M.S bars at every third course of half brick masonry.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 sqm 6mm dia. M.S. bars (round) 2 Nos. @ 30 meter /10sqm. = 60 metre @ 0.22kg/m = 13.2kg				
1002	Mild steel round bar 12 mm dia and below	quintal	0.132	3675.00	485.10
2205	Carriage of Steel	tonne	0.0132	92.24	1.22
9999	Sundries-	L.S	1.82	1.73	3.15
TOTAL					489.47
Add Water Charges @ 1%					4.89
TOTAL					494.36
Add CPOH @ 15%					74.15
Cost of 10.0 sqm					568.51
Cost per sqm					56.85
Say					56.85

Other Engineering Organisations

	Cost index 46.08 %				26.20
	Total with Cost index				83.05

30 Specification Code: 21.1.1.2

21.1

Providing and fixing aluminium work for doors, windows, ventilators and partitions with extruded built up standard tubular sections/ appropriate Z sections and other sections of approved make conforming to IS : 733 and IS: 1285, fixing with dash fasteners of required dia and size, including necessary filling up the gaps at junctions, i.e. at top, bottom and sides with required EPDM rubber/ neoprene gasket etc. Aluminium sections shall be smooth, rust free, straight, mitred and jointed mechanically wherever required including cleat angle, Aluminium snap beading for glazing /paneling, C.P. brass/ stainless steel screws, all complete as per architectural drawings and the directions of Engineer-in-charge.(Glazing, paneling and dash fasteners to be paid for separately):

21.1.1 For fixed portion

21.1.1.2 Powder coated aluminium (minimum thickness of powder coating 50 micron)

Code	Description	Unit	Quantity	Rate	Amount
	<p>Details of cost for 40.02 kg MATERIAL: Aluminium Section (i) External member of the frame (Jindal sections no 4605) $V = 2 \times 2.40 = 4.80$ m $H = 2 \times 3 \times 0.95 = 5.70$ m $= 10.50$ m @ 1.653 kg/m = 17.36 kg (ii) Internal member of the frame (Jindal section no 4604) $V = 2 \times 2.40 = 4.80$ m $H = 1 \times 3 \times 0.95 = 2.85$ m Total = 7.65 m @ 1.692 kg/m = 12.94 kg (iii) Aluminium snap beading on both side (Jindal section no 4407) $2 \times 6 \times 2 (1.14 + 0.95) = 50.16$ m Snap beading = 50.16 m @ 0.176 kg/m = 8.33 kg (iv) Angle cleat 38x38x4.8 mm 50 mm long $18 \times 0.05 = 0.900$ m @ 0.985 kg/m = 0.89 kg Sub total = 40.02 kg Add 5% wastage = 2.00 kg Total = 42.02 kg</p>				
7306	<p>Aluminium T or L Sections (v) C.P. brass / stainless steel screws 20 mm for cleat angle $18 \times 4 = 72$ Nos</p>	kilogram	42.02	200.00	8404.00
0589	<p>Chromium plated Brass screws 20 mm (vi) Epoxy</p>	100 nos	72.0	170.00	122.4
7392	<p>Powder coating 50 microns on aluminium sections (vii)</p>	kilogram	42.02	64.00	2689.28

9977	Carriage of material LABOUR:For fabrication of frame	L.S	52.0	1.73	89.96
0116	Fitter(grade1)	Day	2.0	487.00	974.00
0139	Skilled Beldar (for floor rubbing etc.)	Day	1.0	407.00	407.00
0114	Beldar	Day	1.0	368.00	368.00
0100	Bandhani	Day	0.05	407.00	20.35
9999	Sundries-Labour for drilling holes, hire charges of drill, electricity charges, carriage of dash hold fastners and sundries.	L.S	100.0	1.73	173.00

TOTAL		13247.99
Add Water Charges @ 1%		132.48
TOTAL		13380.47
Add CPOH @ 15%		2007.07
Cost of 40.02 kg		15387.54
Cost of 1 kg		384.50
Other Engineering Organisations Say		384.5

Cost index 46.08 %		177.18
Total with Cost index		561.68

31 Specification Code: 21.1.2.2

21.1.2 For shutters of doors, windows & ventilators including providing and fixing hinges / pivots and making provision for fixing of fittings wherever required including the cost of EPDM rubber/ neoprene gasket required (Fittings shall be paid for separately)

21.1.2.2 Powder coated aluminium (minimum thickness of powder coating 50 micron)

Code	Description	Unit	Quantity	Rate	Amount
------	-------------	------	----------	------	--------

	<p>Details of cost for 20.21 kg MATERIAL:</p> <p>(i) Hanging style (Jindal section no 4524) 1x2.35 = @ 2.35 kg/m = 5.95 kg</p> <p>(ii) Meeting style (Jindal section no 4526) 1x2.35 = 2.35 @ 2.465 kf/m = 5.79 kg</p> <p>(iii) Top & bottom rail (Jindal section no 4510) 2x0.75 = 1.50 m @ 2.48 kg/m = 3.72 kg</p> <p>(iv) Lock rail (Jindal section no 4524) 1x0.75 = 0.75 m @ 2.53 kg/m = 1.90kg</p> <p>(v) Glazing plate (Jindal section no 440) on one side of lock rail 1x0.75 = 0.75 m @ 0.459 kg/ m = 0.34 kg</p> <p>(vi) Aluminium snap beading (Jindal section no 4497) on both side 2x2 (0.75 +1.26) = 8.04 m 2x2 (0.75+0.81) = 6.24 m = 14.28 m @ 0.176 kg/m = 2.51 kg</p> <p>(vii) Aluminium angle cleat 38x38x4.8 mm 35 mm long 3x4x0.035 = 0.42 m @ 0.985 kg/m = 0.41 kg</p> <p>Sub total = 20.62 kg Add 5% wastage = 1.03 kg Total = 21.65 kg</p>				
7306	Aluminium T or L Sections (Viii)	kilogram	21.65	200.00	4330.00
0689	<p>Anodised Aluminium butt hinges 100x75x4 mm</p> <p>(ix) C.P. brass/ stainless steel screws 20 mm</p> <p>For cleat 12x4 = 48 For cleat 4x8 = 32 For glazing plate @ 15 cm centre to centre in 75 cm length 2x6 = 12 Total = 92 Nos.</p>	10 nos	4.0	400.00	160.0

0589	Chromium plated Brass screws 20 mm (x)	100 nos	92.0	170.00	156.4
7392	Powder coating 50 microns on aluminium sections (xi)	kilogram	21.65	64.00	1385.60
9977	Carriage of material(xii) Neoprene /EPDM gasket in groove of meeting style	L.S	31.2	1.73	53.98
7390	Neoprene / EPDM rubber gasket LABOUR:	metre	2.35	20.00	47.00
0116	Fitter(grade1)	Day	1.0	487.00	487.00
0139	Skilled Beldar (for floor rubbing etc.)	Day	1.0	407.00	407.00
0114	Beldar	Day	0.5	368.00	184.00
0100	Bandhani For fixing the shutter including hinges:	Day	0.4	407.00	162.80
0111	Carpender Ist Class	Day	0.2	487.00	97.40
0114	Beldar	Day	0.5	368.00	184.00
9999	Sundries-Labour for making provision for fittings and carriage of screws etc. including sundries	L.S	50.0	1.73	86.50

TOTAL				7741.68
Add Water Charges @ 1%				77.42
TOTAL				7819.10
Add CPOH @ 15%				1172.87
Cost of 20.21 kg				8991.97
Cost of 1 kg				444.93
Say				444.95

	Cost index 46.08 %				205.03
	Total with Cost index				649.98

32 Specification Code: 21.3.1

21.3

Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer - in -Charge. (Cost of aluminium snap beading shall be paid in basic item):

21.3.1

With float glass panes of 4.0 mm thickness

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 1 sqm MATERIAL: Float glass panes 4.00 mm thick = 1.00 sqm Add for wastage and breakage @ 10% = 0.10 sqm. Total = 1.10 sqm				
2406	Float glass sheet of nominal thickness 4 mm (weight not less than 10 kg/sqm)	sqm	1.1	286.00	314.60
9977	Carriage of glass	L.S	2.42	1.73	4.19
7390	Neoprene / EPDM rubber gasket LABOUR:	metre	6.0	20.00	120.00
0112	Carpenter 2nd class	Day	0.23	448.00	103.04
0114	Beldar	Day	0.23	368.00	84.64
9988	Carriage and sundries of gasket	L.S	6.89	1.73	11.92
TOTAL					638.39
Add Water Charges @ 1%					6.38
TOTAL					644.77
Add CPOH @ 15%					96.72
Cost of 1.0 sqm					741.49
Cost of 1 sqm					741.49

Say	741.5
-----	-------

	Cost index 46.08 %				341.68
	Total with Cost index				1083.18

33 Specification Code: od39812/2017_2018

od39812/2017_2018 :Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer - in -Charge. (Cost of aluminium snap beading shall be paid in basic item):

With pin headed glass panes of 4.0 mm thickness

Details of cost for 1 sqm

MATERIAL:

Float glass panes 4.00 mm thick = 1.00 sqm

Add for wastage and breakage @

10% = 0.10 sqm.

Total = 1.10 sqm

Code	Description	Unit	Quantity	Rate	Amount
2406	Float glass sheet of nominal thickness 4 mm (weight not less than 10 kg/sqm)	sqm	1.10000	286.00	314.60
9977	Carriage of glass	L.S	2.42000	1.73	4.19
7390	Neoprene / EPDM rubber gasket LABOUR:	metre	6.00000	20.00	120.00
0112	Carpenter 2nd class	Day	0.23000	448.00	103.04
0114	Beldar	Day	0.23000	368.00	84.64
9988	Carriage and sundries of gasket	L.S	6.89000	1.73	11.92
2406	Float glass sheet of nominal thickness 4 mm (weight not less than 10 kg/sqm)	sqm	-1.10000	286.00	-314.60
7451	Glass sheet (pin headed) 4 mm thick	sqm	1.10000	320.00	352.00
TOTAL					675.79

cost for one sqm					675.79
	say				675.79

	Add Water Charges @ 1.0%				6.75
	Add CPOH @ 15.0%				102.38
	Cost index 46.08 %				361.69
	Total with Cost index				1146.63
	Say				1146.63

34 Specification Code: 9.100.1

Providing and fixing aluminium handles, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour or shade, with necessary screws etc. complete:

9.100

9.100.1 125 mm

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 Nos. MATERIALS:				
0703	Anodised Aluminium handles 125 mm with plate 175 x 32 mm	10 nos	10.0	330.00	330.0
0588	Chromium plated Brass screws 25 mm	100 nos	40.0	190.00	76.0
9977	Carriage LABOUR	L.S	2.73	1.73	4.72
0111	Carpender Ist Class	Day	0.06	487.00	29.22
TOTAL					439.94
Add Water Charges @ 1%					4.40
TOTAL					444.34
Add CPOH @ 15%					66.65
Cost of 10.0 no					510.99

	Cost of each	51.10
	Say	51.1

	Cost index 46.08 %				23.55
	Total with Cost index				74.65

35 Specification Code: 9.97.3

9.97 Providing and fixing aluminium tower bolts, ISI marked, anodised(anodic coating not less than grade AC 10 as per : 1868), transparent or dyed to required colour or shade, with necessary screws complete:

9.97.3 200x10 mm

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 Nos. MATERIALS:				
0700	Anodised Aluminium tower bolt (barrel type) 200x10 mm	10 nos	10.0	390.00	390.0
0587	Chromium plated Brass screws 30 mm	100 nos	80.0	250.00	200.0
9977	Carriage LABOUR	L.S	2.73	1.73	4.72
0111	Carpender Ist Class	Day	0.125	487.00	60.88
TOTAL					655.60
Add Water Charges @ 1%					6.56
TOTAL					662.16
Add CPOH @ 15%					99.32
Cost of 10.0 no					761.48
Cost of each					76.15
Say					76.15

	Cost index 46.08 %				35.09
--	---------------------------	--	--	--	-------

	Total with Cost index				111.24
--	-----------------------	--	--	--	--------

36 Specification Code: 50.9.15.1

50.9.15.1 Supplying and fixing 200 mm Aluminium aldrops

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 no. MATERIALS:				
MR18	200 mm Aluminium aldrops	each	10.0	145.00	1450.00
9999	Sundries-Carriage of material and fixing charges	L.S	10.0	1.73	17.30
TOTAL					1467.30
Add Water Charges @ 1%					14.67
TOTAL					1481.97
Add CPOH @ 15%					222.30
Cost of 10.0 no					1704.27
Cost of each					170.43
Say					170.45

	Cost index 46.08 %				.93
	Total with Cost index				171.38

37 Specification Code: 9.102

9.102 Providing and fixing aluminium casement stays, ISI marked, anodised (anodic coating not less than grade AC 10 as per IS : 1868) transparent or dyed to required colour and shade, with necessary screws etc. complete.

Code	Description	Unit	Quantity	Rate	Amount
------	-------------	------	----------	------	--------

	Details of cost for 10 nos. MATERIAL:				
2465	Anodised Aluminium Casement stay 250 mm	each	10.0	30.00	300.00
0588	Chromium plated Brass screws 25 mm	100 nos	40.0	190.00	76.0
9977	Carriage LABOUR:	L.S	0.91	1.73	1.57
0111	Carpender Ist Class	Day	0.1	487.00	48.70

	TOTAL	426.27
	Add Water Charges @ 1%	4.26
	TOTAL	430.53
	Add CPOH @ 15%	64.58
	Cost of 10.0 no	495.11
	Cost of each	49.51
	Say	49.5

Other Engineering Organisations

	Cost index 46.08 %			22.81
	Total with Cost index			72.31

38 Specification Code: 9.1.1

9.1

Providing wood work in frames of doors, windows, clerestory windows and other frames, wrought framed and fixed in position with hold fast lugs or with dash fasteners of required dia & length (hold fast lugs or dash fastener shall be paid for separately).

9.1.1

Second class teak wood

Code	Description	Unit	Quantity	Rate	Amount
------	-------------	------	----------	------	--------

	Details of cost for chowkhat of a door 206.75x117.5 cm MATERIAL: Superior class teakwood such as Dandeli Balارشah or Malabar $2 \times 206.75 \times 9.5 \times 7.0 \text{ cm} = 0.028 \text{ cum} +$ $1 \times 117.5 \times 9.5 \times 7.0 \text{ cm} = 0.008 \text{ cum.}$ $= 0.036 \text{ cum} +$ Add for wastage @ 5% = 0.002 cum. Grand Total = 0.038 cum = 38 cudm				
1189	Second class teak wood in scantling	10 cud m	38.0	660.00	2508.0
2204	Carriage of Timber LABOUR:	cum	0.038	118.59	4.51
0156	Carpenter (average)	Day	0.72	467.00	336.24
0114	Beldar	Day	0.07	368.00	25.76

	TOTAL	2874.51
	Other Engineering Organisations Add Water Charges @ 1%	28.75
	TOTAL	2903.26
	Add CPOH @ 15%	435.49
	Cost of 0.036 cum	3338.75
	Cost per cum	92743.06
	Say	92743.05

	Cost index 46.08 %				42736.00
	Total with Cost index				135479.0 5

39 Specification Code: od39813/2017_2018

od39813/2017_2018 :Providing and fixing panelled or panelled and glazed shutters for shutters for doors, windows and clerestory windows, including ISI marked M.S. pressed butt hinges bright finished of required size with necessary screws, excluding panelling which will be paid for separately, all complete as per direction of Engineer - in-charge.

Second class teak wood

35 mm thick shutters

Details of cost for shutters of a Door (1/3rd glazed and 2/3rd panelled) 200x108cm = 2.16sqm)

MATERIAL:

Teak wood

Styles 4x200x10.0x3.5cm = 0.028 cum +

Rails

Top rails 1x110.5x3.5cm = 0.004 cum. +

Bottom rails 1x110.5x20x3.5cm = 0.008cum +

Lock rails 1x110.5x15x3.5cm = 0.006cum+

Beading 2x186. 1x1. 9x1.2cm = 0.001cum.

Total = 0.047 cum +

Add for wastage @ 10% = 0.005cum

Grand Total = 0.051 cum = 51 cudm

Code	Description	Unit	Quantity	Rate	Amount
1190	Second class teak wood in planks	10 cud m	51.00000	675.00	3442.50
2204	Timber	cum	0.05100	118.59	6.05
0595	Bright finished or black enameled mild steel butt hinges 100x58x1.90 mm	10 nos	6.00000	85.00	51.00
0597	Bright finished or black enameled mild steel butt hinges 50x37x1.50 mm	10 nos	2.00000	50.00	10.00
0637	Bright finished or black enameled mild steel screws 40 mm	100 nos	48.00000	63.00	30.24
0640	Bright finished or black enameled mild steel screws 20 mm	100 nos	8.00000	32.00	2.56
	LABOUR:				
0156	Carpenter (average)	Day	1.83000	467.00	854.61
0114	Beldar	Day	0.76000	368.00	279.68
9999	Sundries	L.S	35.88000	1.73	62.07
MR	DAR 9.14	sqm	1.00000	215.63	215.63
TOTAL					4954.34

	cost for 2.16 sqm				4954.34
	cost for one sqm				2293.68
	say				2293.68

	Add Water Charges @ 1.0%				22.93
	Add CPOH @ 15.0%				347.49
	Cost index 46.08 %				1174.19
	Total with Cost index				3838.30
	Say				3838.30

40 Specification Code: 9.7.1

9.7

Providing and fixing panelling or panelling and glazing in panelled or panelled and glazed shutters for doors, windows and clerestory windows (Area of opening for panel inserts excluding portion inside grooves or rebates to be measured), Panelling for panelled or panelled and glazed shutters 25 mm to 40 mm thick:

9.7.1

Second class teak wood

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for shutters of a door with 2/3rd panelling 200x108cm = 2.16 sqm Panel area = 4x45.1x36.55 cm = 0.66 sqm MATERIAL: Panels 4x47.2x38.65x1.6cm = 0.0117cum + Add for wastage @ 10% = 0.0012 cum. = 0.0129 cum				
1190	Second class teak wood in planks	10 cud m	12.9	675.00	870.75

2204	Carriage of Timber LABOUR	cum	0.0129	118.59	1.53
0111	Carpender Ist Class	Day	0.57	487.00	277.59
9999	Sundries-	L.S	4.42	1.73	7.65

TOTAL					1157.52
Add Water Charges @ 1%					11.58
TOTAL					1169.10
Add CPOH @ 15%					175.37
Cost of 0.66 sqm					1344.47
Cost per sqm					2037.08
Say					2037.1

Cost index 46.08 %					938.67
Total with Cost index					2975.72

Other Engineering Organisations

41 Specification Code: 9.53

PRICE

SUBHEAD : 9.0

WOOD AND PVC WORK

9.53

Providing 40x5 mm flat iron hold fast 40 cm long including fixing to frame with 10 mm diameter bolts, nuts and wooden plugs and embeddings in cement concrete block 30x10x15 cm 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size)

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 1 hold fast MATERIAL: M.S. flat 40x5mm 40cm long @ 1.68 kg/m = 0.672 kg =0.0067 qunital				

1008	Flats up to 10 mm in thickness	quintal	0.0067	3675.00	24.62
9977	Carriage of steelCement concrete 1:3:630x10x15cm = 0.0045 cum.+Add wastage @ 10% = 0.00045 cum.Total = 0.00495cum. Say 0.005cum	L.S	1.82	1.73	3.15
Tagged TOTAL			27.77(A)		
4.2.5	Rate as per item Number4.2.5 of SH: Concrete work	cum	0.005	5992.75	29.96(A)
9999	Sundries - LABOUR:	L.S	5.46	1.73	9.45
0103	Blacksmith 2nd class	Day	0.03	448.00	13.44
0123	Mason (brick layer) 1st class	Day	0.03	487.00	14.61
0114	Beldar	Day	0.03	368.00	11.04

AddWater Charges @ 1% except on A ie on (106.27-29.96=76.31)		.76
Other Engineering Organisations TOTAL		107.03
AddCPOH @ 15% except on A ie on (107.03-29.96=77.07)		11.56
Cost of 1.0 each		118.60
Cost of 1 each		118.60
Say		118.6

Cost index 46.08 %					54.65
Total with Cost index					173.25

42 Specification Code: 9.121

9.121

Providing and fixing Fiber Glass Reinforced plastic (FRP) Door Frames of cross-section 90 mm x 45 mm having single rebate of 32 mm x 15 mm to receive shutter of 30 mm thickness. The laminated shall be moulded with fire resistant grade unsaturated polyester resin and chopped mat. Door frame laminate shall

be 2 mm thick and shall be filled with suitable wooden block in all the three legs. The frame shall be covered with fiber glass from all sides. M.S. stay shall be provided at the bottom to steady the frame.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost fot one door frame of 5 metre MATERIAL:				
8707	Factory made glass reinforced plastic door frame 90x45 mm i/c carriage LABOUR:	metre	5.0	330.00	1650.00
0156	Carpenter (average)	Day	0.15	467.00	70.05
0114	Beldar	Day	0.15	368.00	55.20
9999	Sundries-	L.S	7.8	1.73	13.49
TOTAL					1788.74
Add Water Charges @ 1%					17.89
TOTAL					1806.63
Add CPOH @ 15%					270.99
Cost of 5.0 metre					2077.62
Cost per metre					415.52
Say					415.5

	Cost index 46.08 %				191.46
	Total with Cost index				606.96

43 Specification Code: 9.122.2

9.122 Providing and fixing to existing door frames.

9.122.2 30 mm thick Fiberglass Reinforced Plastic (F.R.P) flush door shutter in different plain and wood finish made with fire retardant grade unsaturated polyester resin, moulded to 3 mm thick FRP laminate all around, with suitable wooden blocks inside at required places for fixing of fittings and polyurethane foam (PUF) /

Polystyrene foam to be used all filler material throughout the hollow panel, casted monolithically with testing parameters of F.R.P. laminate conforming to table - 3 of IS : 14856, complete as per direction of Engineer-in-charge.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for one door shutter 2.20 x 1.08 m = 2.38 sqm MATERIAL:				
8730	30 mm thick factory made glass fiber reinforced p/lastic flush door shutte i/c carriage	sqm	2.38	2000.00	4760.00
8100	Powder coated M.S. butt hinges 100 mm X58 mm X 1.9 mm	10 nos	4.0	85.00	34.0
0637	Bright finished or black enameled mild steel screws 40 mm	100 nos	48.0	63.00	30.24
0640	Bright finished or black enameled mild steel screws 20 mm LABOUR:	100 nos	8.0	32.00	2.56
0156	Carpenter (average)	Day	0.4	467.00	186.80
0114	Beldar	Day	0.4	368.00	147.20
9999	Sundries-	L.S	20.36	1.73	35.22
TOTAL					5196.02
Add Water Charges @ 1%					51.96
TOTAL					5247.98
Add CPOH @ 15%					787.20
Cost of 2.38 sqm					6035.18
Cost per sqm					2535.79
Say					2535.8

	Cost index 46.08 %				1168.50
	Total with Cost index				3704.30

44 Specification Code: 9.103

9.103

Providing and fixing bright finished brass 100 mm mortice latch and lock, ISI marked, with six levers and a pair of anodised (anodic coating not less than grade AC 10 as per IS: 1868) aluminium lever handles of approved quality with necessary screws etc . complete.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 1 lock MATERIAL:				
7001	Brass 100 mm mortice latch and lock with 6 levers without pair of handles	each	1.0	220.00	220.00
7003	Pair Anodised Aluminium lever handles for 100 mm mortice latch and lock LABOUR:	each	1.0	225.00	225.00
0111	Carpender Ist Class	Day	0.17	487.00	82.79
9988	Carriage and sundries	L.S	4.55	1.73	7.87
TOTAL					535.66
Add Water Charges @ 1%					5.36
TOTAL					541.02
Add CPOH @ 15%					81.15
Cost of 1.0 each					622.17
Cost of 1 each					622.17
Say					622.15

	Cost index 46.08 %				286.69
	Total with Cost index				908.84

45 Specification Code: 9.48.2

SUBHEAD : 9.0

WOOD AND PVC WORK

9.48 Providing and fixing M.S. Grills of required pattern in frames of windows etc. with M.S. flats, square or round bars etc. including priming coat with approved steel primer all complete.

9.48.2 Fixed to openings/ wooden frames with rawl plugs screws etc

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for a grill 90x120 cm = 1.08sqm. MATERIAL: M.S. bar 16 mm dia. 11x86 cm = 9.46 m. @ 1.58kg/m = 14.95 kg+ Add wastage @ 10% = 1.50 kg. Total = 16.45 kg. Say 0.165 quintal				
1003	Mild Steel round bar above 12 mm dia M.S. bar M.S. flat 25x3.15 mm 2x120cm = 2.40 m+ 2x90cm = 1.80 m + 1x120cm = 1.20m+ 2x15cm = 0.30 m Total = 5.70m 5.70m @ 0.63kg/m = 3.59kg+	quintal	0.165	3575.00	589.88
1008	Flats up to 10 mm in thickness	quintal	0.04	3675.00	147.00
2205	Carriage of Steel Carriage of steel 0.165 + 0.04 = 0.205 q = 0.0205 t Say 0.02 tonne	tonne	0.02	92.24	1.84
9999	Sundries -	L.S	26.91	1.73	46.55
9999	Sundries - Welding charges Priming coat: Area = 1x0.9x1.2x1=1.08 sqm	L.S	19.76	1.73	34.18

13.50.3	Rate as per item Number13.50.3 of SH: Finishing LABOUR:	sqm	1.08	29.10	31.43(A)
0102	Blacksmith 1st class	Day	0.86	487.00	418.82
0114	Beldar	Day	1.1	368.00	404.80
7048	Rawl plug 50 mm (designation 10 nos)	each	8.0	10.00	80.00
9999	Sundries - Fixing of rawl plugs	L.S	26.0	1.73	44.98

AddWater Charges @ 1% except on A ie on (1799.48-31.43=1768.05)		17.68
TOTAL		1817.16
AddCPOH @ 15% except on A ie on (1817.16-31.43=1785.73)		267.86
Cost of 18.54 kg		2084.82
Cost of 1 kg		112.45
Say		112.45

Other Engineering Organisations

Cost index 46.08 %		51.82
Total with Cost index		164.27

46 Specification Code: od39814/2017_2018

od39814/2017_2018 :Providing and fixing S.S fan clamp of 16mm dia in RCC slabs, beams including cost and conveyance of all materials,labour charges etc complete as directed by the Engineer-in-Charge at all levels.

Code	Description	Unit	Quantity	Rate	Amount
MR	SS Fan clamp	each	1.00000	57.20	57.20
0103	Blacksmith 2nd class	Day	0.04000	448.00	17.92
0114	Beldar	Day	0.04000	368.00	14.72
9999	Sundries	L.S	1.82000	1.73	3.15
TOTAL					92.99

					cost for one each	92.99
	say					92.99

	Add Water Charges @ 1.0%				0.92
	Add CPOH @ 15.0%				14.08
	Cost index 46.08 %				19.15
	Total with Cost index				127.16
	Say				127.16

47 Specification Code: 10.28

10.28

Providing and fixing stainless steel (Grade 304) railing made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners, stainless steel bolts etc., of required size on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in-charge, (for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.)

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 2 kg (length approx. 1 feet) MATERIAL: Qty = 2 + Add wastage @ 5% = 0.10 Total = 2.1 kg				
4001	Stainless steel (Grade - 304) hollow section round/square tubes	kg	2.1	230.00	483.00
4002	Stainless steel bolts /square bar and plates LABOUR: for fabrication, assembling, erection, welding, curvating, grinding, buffing etc.	kg	1.0	120.00	120.00

0102	Blacksmith 1st class	Day	0.06	487.00	29.22
0114	Beldar	Day	0.2	368.00	73.60
0100	Bandhani	Day	0.02	407.00	8.14
9999	Sundries-Welding of stainless steel section	L.S	30.0	1.73	51.90
9999	Sundries-Curvaturing, grinding, finishing, buffing	L.S	20.0	1.73	34.60
9999	Sundries-for making good wall and floors	L.S	7.5	1.73	12.98

TOTAL		813.44
Add Water Charges @ 1%		8.13
TOTAL		821.57
Add CPOH @ 15%		123.24
Cost of 2.0 kg		944.81
Cost per kg		472.40
Say		472.4

Other Engineering Organisations				
Cost index 46.08 %				217.68
Total with Cost index				690.08

48 Specification Code: od39815/2017_2018

od39815/2017_2018 :Providing and fixing in position collapsible steel shutters with vertical channels 20x10x2mm and braced with flat iron diagonals 20x5mm size, with top and bottom rail of T-iron 40x40x6mm, with 40mm dia steel pulleys, complete with bolts, nuts, locking arrangement, stoppers, handles, including painting with two coats of approved make and colour synthetic enamel paint over two coats of approved make anticorrosive yellow zinc chromate primer, including cost and conveyance of all materials, labour charges,lead,lift etc complete as directed by Engineer-in-Charge

Details of cost for a gate 2.4m x1.5 m = 3.6 sqm.

MATERIAL:

M.S. channels 18 Nos. on both sides

20x10x2mm @ 0.56kg/m

2x18x2.4 = 86.40 m +

Add wastage @ 10% = 8.64

Total = 95.04 m

95.04 m @ 56 kg /m = 53.22kg = 0.53 q

Code	Description	Unit	Quantity	Rate	Amount
1007	Structural steel such as tees, angles, channels and R.S. joists M.S. Tee - 40x40x6 mm for bottom - 1.5 70 m + for top = 1.725 m = 3.295 m Say 3.3 m 3.3 @ 3.5kg/m = 11.55 kg+ Add wastage @ 10% = 1.155 kg Total = 12.705 kg. Say 0.13 qtl	quintal	0.53000	3775.00	2000.75
1007	Structural steel such as tees, angles, channels and R.S. joists 20mmx5mm flat iron diagonals 4 Nos. 4x32x0.5334= 68.275 m 68.275 m @ 0.8kg/m = 54.62 kg+ Add wastage @ 10% = 5.46 kg Total = 60.08kg = 0.60 qtl	quintal	0.13000	3775.00	490.75
1008	Flats up to 10 mm in thickness	quintal	0.60000	3675.00	2205.00
2205	Steel Carriage of steel (0.053+0.013+0.060= 0.126 tonne)	tonne	0.12600	92.24	11.62
9999	Sundries Cost of rivets fixing hooks and washers	L.S	269.100 00	1.73	465.54
9999	Sundries Cost of locking arrangements and handles.	L.S	67.3400 0	1.73	116.50
4013	Pulley 40 mm dia Priming coat- Channel-36x0.076x2.4 = 6.57 sqm.+ Tee 0.16x3.3 = 0.53 sqm. + Flats - 0.05x68 = 3.40 sqm. Total = 10.50sqm	each	10.0000 0	30.00	300.00
13.50.3	Rate as per item number13.50.3of	sqm	10.5000	25.05	263.07

	SH:Finishing LABOUR:		0		
--	-------------------------	--	---	--	--

0116	Fitter(grade1)	Day	3.00000	487.00	1461.00
0102	Blacksmith 1st class	Day	6.00000	487.00	2922.00
0103	Blacksmith 2nd class	Day	6.00000	448.00	2688.00
0123	Mason (brick layer) 1st class	Day	0.50000	487.00	243.50
0124	Mason (brick layer)2nd class	Day	0.50000	448.00	224.00
0114	Beldar	Day	8.00000	368.00	2944.00
9999	Sundries	L.S	161.460 00	1.73	279.33
13.50.4	Rate as per item number 13.50.4 of SH: Finishing	sqm	1.82200	13.43	24.47
13.61.1	Rate as per item number 13.61.1 of SH: Finishing	sqm	1.82200	67.50	122.98
				TOTAL	16762.51
	cost for 3.6 sqm				16762.51
	cost for one sqm				4656.25
	say				4656.25

	Add Water Charges @ 1.0%				46.56
	Add CPOH @ 15.0%				705.42
	Cost index 46.08 %				2492.11
	Total with Cost index				7900.35
	Say				7900.35

49 Specification Code: od39816/2017_2018

od39816/2017_2018 :Steel work in built up tubular sections YST 310 grade as per IS: 4923 including cutting, bending, hoisting, fixing in position, welded and bolted including special shaped washers etc. complete with electric resistance or induction butt welded tubes including painting with two coats of approved make and colour synthetic enamel paint over two coats of approved make anticorrosive yellow zinc chromate primer, closing all the open ends properly with same material cost and conveyance of all materials, labour, etc., complete as directed by the Engineer-in-Charge at all levels.

Code	Description	Unit	Quantity	Rate	Amount
10.16.3	Rate as per item number 10.16.3 of SH: Steel Work	kg	1.00000	96.60	96.60
13.50.4	Rate as per item number 13.50.4 of SH: Finishing	sqm	0.02240	13.43	0.30
13.61.1	Rate as per item number 13.61.1 of SH: Finishing	sqm	0.02240	67.50	1.51
TOTAL					98.41
cost for one per kg					98.41
	say				98.41

	Add Water Charges @ 1.0%				0.98
	Add CPOH @ 15.0%				14.90
	Cost index 46.08 %				52.67
	Total with Cost index				166.97
	Say				166.97

50 Specification Code: od39817/2017_2018

od39817/2017_2018 :Providing and laying MP hip & ridge tiles with class AA magalore pattern tile manufactured by M/s common wealth trust ltd or equivalent including fixing with cement mortar 1:2 as directed by Engineer-in-charge at all levels

Details of cost for 10 m

MATERIAL:

Code	Description	Unit	Quantity	Rate	Amount
MR	MP hip & ridge tile	1000 nos	30.00000	107750.00	3232.50
2207	Brick tiles	1000 nos	160.00000	166.03	26.56
3.2	Rate as per item number 3.2 of SH: Mortars	cum	0.00100	5133.75	5.13
0123	Mason (brick layer) 1st class	Day	0.24400	487.00	118.83
0114	Beldar	Day	1.05600	368.00	388.61
9999	Sundries	L.S	5.28100	1.73	9.14
TOTAL					3780.77
	cost for 10.0 metre				3780.77
	cost for one metre				378.08
	say				378.08

	Add Water Charges @ 1.0%				3.78
	Add CPOH @ 15.0%				57.27
	Cost index 46.08 %				29.34
	Total with Cost index				468.49
	Say				468.49

51 Specification Code: od39818/2017_2018

od39818/2017_2018 :Providing and laying MP tiles of size 320mm or nearest with class AA Mangalore pattern tiles (COMTRUST) manufactured by M/s Common wealth Trust Ltd. or equivalent over the cement mortar reeper bands already done to correct lines and levels including the cost, conveyance of all material, labour charges, led lift etc complete as directed by the Engineer-in-charge at all levels

Details of cost for 10 sqm

MATERIAL:

Code	Description	Unit	Quantity	Rate	Amount
MR	MP tiles 1st class 320mm or nearest	1000 nos	130.00000	48080.00	6250.40
2207	Brick tiles	1000 nos	160.00000	166.03	26.56
MR	reeper band with CM 1:3	metre	40.00000	20.00	800.00
0123	Mason (brick layer) 1st class	Day	0.60000	487.00	292.20
0114	Beldar	Day	2.11300	368.00	777.58
9999	Sundries	L.S	13.00000	1.73	22.49
TOTAL					8169.23
	cost for 10.0 sqm				8169.23
	cost for one sqm				816.92
	say				816.92

	Add Water Charges @ 1.0%				8.16
	Add CPOH @ 15.0%				123.76
	Cost index 46.08 %				59.88
	Total with Cost index				1008.73
	Say				1008.73

52 Specification Code: od39819/2017_2018

od39819/2017_2018 :Providing and laying Antiskid Ceramic floor tiles 300x300x7 mm of 1st quality conforming to IS : 15622 of approved make,shade,and pattern laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand) and jointed with grey cement slurry @ 3.3 kg/sqm including pointing the joints with white cement and matching pigment etc.including cost and conveyance of all materials,labour charges,lead,lift etc, complete as directed by the Engineer-in-Charge at all levels.

Details of cost for 1 sqm

MATERIAL:

Glazed Ceramic floor tiles 300x300 mm size = 1.00 sqm

Add for wastage & breakage @ 2.5 % =0.025 sqm

Total = 1.025 sqm

Code	Description	Unit	Quantity	Rate	Amount
7801	Ceramic Glazed Tiles 1st quality 300 x 300 mm in all shades and designs of White, Ivory, grey, Fume Red brown etc.	sqm	1.02500	210.00	215.25
9977	Carriage Carriage of tiles 20 mm thick cement mortar 1:4 (1 cement : 4 coarse sand)	L.S	6.24000	1.73	10.80
3.9	Rate as per item number 3.9 of SH: Mortars	cum	0.02400	3970.50	95.29
9999	Sundries Mortar for pointing in white cement Cement for slurry over bed @ 3.3 kg per sqm	L.S	20.2000 0	1.73	34.95
0367	Portland Cement LABOUR:	tonne	0.00330	5700.00	18.81
0123	Mason (brick layer) 1st class	Day	0.20000	487.00	97.40
0115	Coolie	Day	0.20000	368.00	73.60
9988	Carriage and sundries including carriage of cement etc.	L.S	26.9100 0	1.73	46.55
TOTAL					592.65
cost for one sqm					592.65
	say				592.65

	Add Water Charges @ 1.0%				5.92
	Add CPOH @ 15.0%				89.78
	Cost index 46.08 %				317.19
	Total with Cost index				1005.56
	Say				1005.56

53 Specification Code: 11.36**11.36**

Providing and fixing 1st quality ceramic glazed wall tiles conforming to IS : 15622 (thickness to be specified by the manufacturer), of approved make, in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer -in-Charge, in skirting, risers of steps and dados, over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3 kg per sqm, including pointing in white cement mixed with pigment of matching shade complete.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 1 sqm MATERIAL: Ceramic Glazed tiles = 1.00 sqm Add for wastage & breakage @ 2.5 % 0.025 sqm Total = 1.025 sqm				
7800	Ceramic Glazed Tiles 1st quality minimum thickness 5 mm in all colours shades and designs except burgundy, bottle green black	sqm	1.025	210.00	215.25
9977	Carriage of tiles 12 mm thick cement mortar 1:3 (1 cement : 3 coarse sand)	L.S	6.24	1.73	10.80
3.8	Rate as per item Number 3.8 of SH: Mortars	cum	0.014	4723.50	66.13
9999	Sundries-Mortar for pointing in white cement Cement for slurry over bed @ 3.3 kg per sqm	L.S	40.43	1.73	69.94
0367	Portland Cement LABOUR:	tonne	0.0033	5700.00	18.81
0123	Mason (brick layer) 1st class	Day	0.25	487.00	121.75
0115	Coolie	Day	0.25	368.00	92.00
9988	Carriage and sundries of cement etc.	L.S	26.91	1.73	46.55

TOTAL	641.23
Add Water Charges @ 1%	6.41
TOTAL	647.64
Add CPOH @ 15%	97.15
Cost of 1.0 sqm	744.79
Cost of 1 sqm	744.79
Say	744.8

Cost index 46.08 %	343.20
Total with Cost index	1088.00

54 Specification Code: 22.5

22.5

Providing and laying water proofing treatment in sunken portion of WCs, bathroom etc., by applying cement slurry mixed with water proofing cement compound consisting of applying : a) First layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. This layer will be allowed to air cure for 4 hours. b) Second layer of slurry of cement @ 0.242 kg /sqm mixed with water proofing cement compound @ 0.126 kg/ sqm. This layer will be allowed to air cure for 4 hours followed with water curing for 48 hours. The rate includes preparation of surface, treatment and sealing of all joints, corners, junctions of pipes and masonry with polymer mixed slurry.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 sqm MATERIAL: Cement $10 \times (0.488 + 0.242) = 7.30$ kg Sealing fillets 10×0.5 kg = 5.00 kg Total = 12.30 kg = 0.012 tonne				
0367	Portland Cement	tonne	0.012	5700.00	68.40

2209	Carriage of Cement Bonding material 1.6 kg x30x2 = 96 kg Bitumen (blown/residual type) 10x(0.25+0.126) = 3.79kg Sealing fillets 10x 0.10 kg/ sqm = 1.00 kg Wastage @ 5% on 4.79 kg = 0.24 kg Total = 5.03 kg Say 5.00 kg	tonne	0.012	92.24	1.11
8501	Polymer modified cementation coating LABOUR:	kilogram	5.0	140.00	700.00
0155	Mason (average)	Day	2.0	467.00	934.00
0114	Beldar	Day	2.0	368.00	736.00
0101	Bhisti	Day	0.25	407.00	101.75
9999	Sundries-brushes etc.	L.S	15.6	1.73	26.99

TOTAL		2568.25
Add Water Charges @ 1%		25.68
TOTAL		2593.93
Add CPOH @ 15%		389.09
Cost of 10.0 sqm		2983.02
Cost per sqm		298.30
Say		298.3

Cost index	46.08 %				137.46
Total with Cost index					435.76

55 Specification Code: 8.2.2.2

8.2

Providing and fixing 18 mm thick gang saw cut, mirror, polished, premoulded and prepolished, machine cut for kitchen platforms, vanity counters, window sills, facias and similar locations, of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edges to give high gloss

finish etc. complete at all levels.

8.2.2.2 Area of slab over 0.50 sqm

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 2.00 sqm Mirror polished granite = 2.00 sqm Wastage 5% = 0.10 sqm Total = 2.10 sqm				
7297	Granite of any colour, 18 mm thick (slab area above 0.50 sqm) Cement mortar 1:4 (1 cement : 4 coarse sand)	sqm	2.1	1800.00	3780.00
3.9	Rate as per item Number 3.9 of SH: Mortars LABOUR:	cum	0.048	3970.50	190.58
0123	Mason (brick layer) 1st class	Day	1.44	487.00	701.28
0114	Beldar	Day	0.6	368.00	220.80
0115	Coolie	Day	0.6	368.00	220.80
9999	Sundries-Moulding and edge polishing	L.S	78.0	1.73	134.94
9999	Sundries-apoxy resin & cutting machine etc.	L.S	65.0	1.73	112.45
TOTAL					5360.85
Add Water Charges @ 1%					53.61
TOTAL					5414.46
Add CPOH @ 15%					812.17
Cost of 2.0 sqm					6226.63
Cost of 1 sqm					3113.32
Say					3113.3

	Cost index 46.08 %				1434.61
	Total with Cost index				4547.91

56 Specification Code: 8.3.2

8.3 Providing edge moulding to 18 mm thick marble stone counters, vanities etc., including machine polishing to edge to give high gloss finish etc. complete as per design approved by Engineer -in-Charge.

8.3.2 Granite work

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10.00m LABOUR:				
0019	Hand Grinder for mirror polish	Day	2.5	250.00	625.00
0114	Beldar	Day	3.5	368.00	1288.00
9999	Sundries- Blades & Polish etc.	L.S	117.0	1.73	202.41
TOTAL					2115.41
Add Water Charges @ 1%					21.15
Other Engineering Organisations TOTAL					2136.56
Add CPOH @ 15%					320.48
Cost of 10.0 metre					2457.04
Cost of 1 metre					245.70
Say					245.7

	Cost index 46.08 %				113.22
	Total with Cost index				358.92

57 Specification Code: 8.5

8.5 Extra for providing opening or required size & shape for wash basin/kitchen sink in kitchen platform, vanity counter and similar location in marble/granite/ stone work, including necessary holes for pillar taps etc. including moulding, rubbing and polishing of cut edges etc. complete.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for providing one opening of required size LABOUR:				
0126	Mason (for Ornamental stone work) 1st class	Day	0.4	487.00	194.80
0114	Beldar	Day	0.4	368.00	147.20
9999	Sundries-	L.S	15.3	1.73	26.47
TOTAL					368.47
Add Water Charges @ 1%					3.68
TOTAL					372.15
Add CPOH @ 15%					55.82
Cost of 1.0 each					427.97
Say					427.95

	Cost index 46.08 %				197.22
	Total with Cost index				625.22

58 Specification Code: 11.20.3

11.20

Chequered precast cement concrete tiles 22 mm thick in footpath & courtyard, jointed with neat cement slurry mixed with pigment to match the shade of tiles, including rubbing and cleaning etc. complete on 20 mm thick bed of cement mortar 1:4 (1 cement : 4 coarse sand).

11.20.3

Dark shade pigment using ordinary cement

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 sqm MATERIAL:				
7236	Precast chequered cement tiles 22 mm thick Dark shade using ordinary cement including 10% wastage	sqm	11.0	235.00	2585.00

9977	Carriage of tiles Cement mortar 1:4 (1 Cement : 4 Coarse sand)	L.S	40.43	1.73	69.94
3.9	Rate as per item Number 3.9 of SH: Mortars Grey cement for slurry @ 4.4kg/sqm = 44 kg +For grouting = 48 kg. Total = 92 kg. say 0.092 tonne	cum	0.22	3970.50	873.51
0367	Portland Cement	tonne	0.092	5700.00	524.40
2209	Carriage of Cement	tonne	0.092	92.24	8.49
0874	Black colour dark shade pigment Carriage of cement Black colour dark shade pigment LABOUR:	kilogram	3.08	80.00	246.40
0124	Mason (brick layer)2nd class	Day	1.6	448.00	716.80
0115	Coolie	Day	2.0	368.00	736.00
0101	Bhisti	Day	1.0	407.00	407.00

Other Engineering Organisations

	TOTAL	6167.54
	Add Water Charges @ 1%	61.68
	TOTAL	6229.22
	Add CPOH @ 15%	934.38
	Cost of 10.0 sqm	7163.60
	Cost of 1 sqm	716.36
	Say	716.35

	Cost index 46.08 %				330.09
	Total with Cost index				1046.44

59 Specification Code: 11.26.1

11.26 Kota stone slab flooring over 20 mm (average) thick base laid over and jointed

with grey cement slurry mixed with pigment to match the shade of the slab, including rubbing and polishing complete with base of cement mortar 1:4 (1 cement : 4 coarse sand)

11.26.1 25 mm thick

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 sqm MATERIAL:				
1168	Kota stone slab 20 mm to 25 mm thick (semi-polished) including 15% wastage	sqm	11.5	280.00	3220.00
2216	Carriage of Stone blocks white & red sand stone & Kota stone slab Cement mortar 1:4 (Rate as per item No. 3.9	tonne	0.67	92.24	61.80
3.9	Rate as per item Number3.9 of SH: Mortars Cement for slurry- (i) for bedding = 44 kg+ (ii) for joints = 20 kg. Total = 64 kg. or 0.064 tonne	cum	0.224	3970.50	889.39
0367	Portland Cement	tonne	0.064	5700.00	364.80
2209	Carriage of Cement	tonne	0.064	92.24	5.90
0874	Black colour dark shade pigment LABOUR:	kilogram	4.5	80.00	360.00
0124	Mason (brick layer)2nd class	Day	1.2	448.00	537.60
0114	Beldar	Day	1.0	368.00	368.00
0115	Coolie	Day	1.0	368.00	368.00
0139	Skilled Beldar (for floor rubbing etc.)	Day	5.0	407.00	2035.00
0013	Machine for rubbing of floors	Day	4.0	350.00	1400.00
9999	Sundries-	L.S	208.13	1.73	360.06
TOTAL					9970.55

Add Water Charges @ 1%	99.71
TOTAL	10070.26
Add CPOH @ 15%	1510.54
Cost of 10.0 sqm	11580.80
Cost per sqm	1158.08
Say	1158.1

Cost index 46.08 %	533.65
Total with Cost index	1691.75

60 Specification Code: 11.27

11.27

Kota stone slab 20 mm thick in risers of steps, skirting, dado and pillars laid on 12 mm (average) thick cement mortar 1:3 (1 cement : 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing and polishing complete.

Other Engineering Organisations

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 sqm MATERIAL:				
1168	Kota stone slab 20 mm to 25 mm thick (semi-polished)	sqm	11.5	280.00	3220.00
2216	Carriage of Stone blocks white & red sand stone & Kota stone slab Cement mortar 1:3 (1 Cement : 3 Coarse sand)	tonne	0.67	92.24	61.80
3.8	Rate as per item Number 3.8 of SH: Mortars	cum	0.144	4723.50	680.18
0367	Portland Cement	tonne	0.064	5700.00	364.80
2209	Carriage of Cement	tonne	0.064	92.24	5.90

0874	Black colour dark shade pigment Black colour dark shade pigment LABOUR:	kilogram	4.5	80.00	360.00
0124	Mason (brick layer)2nd class	Day	3.0	448.00	1344.00
0114	Beldar	Day	3.0	368.00	1104.00
0115	Coolie	Day	1.0	368.00	368.00
0139	Skilled Beldar (for floor rubbing etc.)	Day	7.0	407.00	2849.00
9999	Sundries-	L.S	174.98	1.73	302.72

TOTAL					10660.40
Add Water Charges @ 1%					106.60
TOTAL					10767.00
Add CPOH @ 15%					1615.05
Cost of 10.0 sqm					12382.05
Cost per sqm					1238.20
Say					1238.2

Other Engineering Organisations					
PRICE					
Cost index 46.08 %					570.56
Total with Cost index					1808.76

61 Specification Code: od39820/2017_2018

od39820/2017_2018 :Providing and fixing PVC tile edging to match the wall tiles and finishing as directed by the Engineer-in-Charge at all levels.

Code	Description	Unit	Quantity	Rate	Amount
MR	Rate as per quotation	metre	1.00000	32.00	32.00
MR	Labour charge	Day	1.00000	10.00	10.00
TOTAL					42.00
cost for one metre					42.00

	say				42.00
--	-----	--	--	--	-------

	Add Water Charges @ 1.0%				0.42
	Add CPOH @ 15.0%				6.36
	Cost index 46.08 %				0.00
	Total with Cost index				48.78
	Say				48.78

62 Specification Code: 13.16.1

13.16 6 mm cement plaster of mix:

13.16.1 1:3 (1 cement : 3 fine sand)

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 sqm MATERIAL: Cement mortar 1:3 (1 cement : 3 fine sand)				
3.3	Rate as per item Number 3.3 of SH: Mortars LABOUR:	cum	0.072	4252.70	306.19
0155	Mason (average)	Day	0.51	467.00	238.17
0115	Coolie	Day	0.75	368.00	276.00
0101	Bhisti	Day	0.92	407.00	374.44
9999	Sundries-Extra for removing burrs, cleaning with wire brushes, pock making with pointed tool etc.	L.S	13.39	1.73	23.16
9999	Sundries-Scaffolding and sundries.	L.S	11.7	1.73	20.24
TOTAL					1238.20
Add Water Charges @ 1%					12.38
TOTAL					1250.58
Add CPOH @ 15%					187.59

	Cost of 10.0 sqm	1438.17
	Cost per sqm	143.82
	Say	143.8

	Cost index 46.08 %				66.26
	Total with Cost index				210.06

63 Specification Code: 13.1.1

13.1 12 mm cement plaster of mix:

13.1.1 1:4 (1 cement : 4 fine sand)

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 sqm MATERIAL: Cement mortar 1:4(1 cement: 4 fine sand)				
3.4	Rate as per item Number 3.4 of SH: Mortars	cum	0.144	3499.70	503.96
0155	Mason (average)	Day	0.67	467.00	312.89
0115	Coolie	Day	0.75	368.00	276.00
0101	Bhisti	Day	0.92	407.00	374.44
9999	Sundries-	L.S	12.61	1.73	21.82
TOTAL					1489.11
Add Water Charges @ 1%					14.89
TOTAL					1504.00
Add CPOH @ 15%					225.60
Cost of 10.0 sqm					1729.60
Cost per sqm					172.96
Say					172.95

	Cost index 46.08 %				79.70
	Total with Cost index				252.65

64 Specification Code: 13.2.1

13.2 15 mm cement plaster on the rough side of single or half brick wall of mix:

13.2.1 1:4 (1 cement :4 fine sand)

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 sqm MATERIAL: Cement mortar 1:4 (1 cement: 4 fine sand)				
3.4	Rate as per item Number3.4 of SH: Mortars LABOUR:	cum	0.172	3499.70	601.95
0155	Mason (average)	Day	0.8	467.00	373.60
0115	Coolie	Day	0.88	368.00	323.84
0101	Bhisti	Day	0.99	407.00	402.93
9999	Sundries-Scaffolding and sundries	L.S	12.61	1.73	21.82
TOTAL					1724.14
Add Water Charges @ 1%					17.24
TOTAL					1741.38
Add CPOH @ 15%					261.21
Cost of 10.0 sqm					2002.59
Cost per sqm					200.26
Say					200.25

	Cost index 46.08 %				92.28
	Total with Cost index				292.53

65 Specification Code: 13.10

13.10

15 mm cement plaster 1:3 (1 cement :3 coarse sand) finished with a floating coat of neat cement on the rough side of single or half brick wall.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 sqm MATERIAL: Cement mortar 1:3 (1 cement : 3 coarse sand)				
3.8	Rate as per item Number 3.8 of SH: Mortars LABOUR:	cum	0.172	4723.50	812.44
0155	Mason (average)	Day	0.8	467.00	373.60
0115	Coolie	Day	0.88	368.00	323.84
0101	Bhisti	Day	0.99	407.00	402.93
9999	Sundries-Scaffolding and sundries	L.S	12.61	1.73	21.82
0367	Portland Cement	tonne	0.02	5700.00	114.00
2209	Carriage of Cement	tonne	0.02	92.24	1.84
0155	Mason (average)	Day	0.27	467.00	126.09
0115	Coolie	Day	0.27	368.00	99.36
9999	Sundries-Scaffolding and sundries	L.S	8.06	1.73	13.94
TOTAL					2289.86
Add Water Charges @ 1%					22.90
TOTAL					2312.76
Add CPOH @ 15%					346.91
Cost of 10.0 sqm					2659.67
Cost per sqm					265.97
Say					265.95

	Cost index 46.08 %				122.55
	Total with Cost index				388.50

66 Specification Code: 13.22

13.22

Extra for plastering exterior walls of height more than 10 m from ground level for every additional height of 3 m or part thereof.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 sqm				
9999	Sundries-Scaffolding and sundries. LABOUR:	L.S	53.82	1.73	93.11
0155	Mason (average)	Day	0.2	467.00	93.40
0115	Coolie	Day	0.3	368.00	110.40
0101	Bhisti	Day	0.1	407.00	40.70
9999	Sundries-Sundries	L.S	7.15	1.73	12.37
TOTAL					349.98
Add Water Charges @ 1%					3.50
TOTAL					353.48
Add CPOH @ 15%					53.02
Cost of 10.0 sqm					406.50
Cost per sqm					40.65
Say					40.65

	Cost index 46.08 %				18.73
	Total with Cost index				59.38

67 Specification Code: 13.47.1

13.47 Finishing walls with Premium Acrylic Smooth exterior paint with Silicone additives of required shade:

13.47.1 New work (Two or more coats applied @ 1.43 ltr/ 10 sqm over and including priming coat of exterior primer applied @ 2.20 kg/ 10 sqm)

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 sqm MATERIAL:				
8506	Premium Arcylic exterior paint I	Litre	1.43	203.00	290.29
0809	Exterior primer	kilogram	2.2	52.00	114.40
9977	Carriage of materialLABOUR:	L.S	1.56	1.73	2.70
0131	Painter	Day	0.6	448.00	268.80
0115	Coolie	Day	0.3	368.00	110.40
0101	Bhisti	Day	0.05	407.00	20.35
9999	Sundries-Brushes, sand paper etc.	L.S	7.15	1.73	12.37
9999	Sundries-	L.S	8.06	1.73	13.94
TOTAL					833.25
Add Water Charges @ 1%					8.33
TOTAL					841.58
Add CPOH @ 15%					126.24
Cost of 10.0 sqm					967.82
Cost of 1 sqm					96.78
Say					96.8

	Cost index 46.08 %				44.61
	Total with Cost index				141.41

68 Specification Code: 13.43.1

13.43 Applying one coat of water thinnable cement primer of approved brand and manufacture on wall surface:

13.43.1 Water thinnable cement primer

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 sqm MATERIAL:				
0808	Water thinnable cement primer for interior wall surface, having VOC content less than 50 gms/litre	Litre	0.7	56.00	39.20
9999	Sundries-Brushes, putty etc. LABOUR:	L.S	7.15	1.73	12.37
0131	Painter	Day	0.4	448.00	179.20
0115	Coolie	Day	0.2	368.00	73.60
9988	Carriage and sundries	L.S	8.06	1.73	13.94
TOTAL					318.31
Add Water Charges @ 1%					3.18
TOTAL					321.49
Add CPOH @ 15%					48.22
Cost of 10.0 sqm					369.71
Cost of 1 sqm					36.97
Say					36.95

	Cost index 46.08 %				17.03
	Total with Cost index				53.98

69 Specification Code: 13.60.1

13.60 Wall painting with acrylic emulsion paint of approved brand and manufacture to give an even shade:

13.60.1 Two or more coats on new work

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 sqm MATERIAL:				
0835	Plastic emulsion paint	Litre	1.21	200.00	242.00
9999	Sundries-Materials for filling in holes and cracks (putty etc.)	L.S	6.76	1.73	11.69
9977	Carriage of material	L.S	1.43	1.73	2.47
	LABOUR:				
0131	Painter	Day	0.54	448.00	241.92
0115	Coolie	Day	0.54	368.00	198.72
9999	Sundries-Brushes, sand paper etc.	L.S	10.79	1.73	18.67
9999	Sundries-	L.S	6.76	1.73	11.69
TOTAL					727.16
Add Water Charges @ 1%					7.27
TOTAL					734.43
Add CPOH @ 15%					110.16
Cost of 10.0 sqm					844.59
Cost of 1 sqm					84.46
Say					84.45

	Cost index 46.08 %				38.91
	Total with Cost index				123.36

70 Specification Code: od39821/2017_2018

od39821/2017_2018 :Providing and applying melamine matt finish on wood work after scraping and cleaning the surface applying necessary coats of putty, filler and sealer, etc. Sanding shall be done along the grains using water paper/emery paper before applying filler, sealer and melamine to get a perfectly smooth and uniform finish. Melamine and sealer shall be applied using spary gun. The rate shall include cost and conveyance of all materials, lead lift, all labour

Code	Description	Unit	Quantity	Rate	Amount
MR	Rate as per quotation including material and labour charges	sqm	1.00000	645.60	645.60
TOTAL					645.60
cost for one sqm					645.60
	say				645.60

	Add Water Charges @ 1.0%				6.45
	Add CPOH @ 15.0%				97.80
	Cost index 46.08 %				0.00
	Total with Cost index				749.86
	Say				749.86

71 Specification Code: 2.34.1

2.34 Supplying chemical emulsion in sealed containers including delivery as specified.

2.34.1 Chlorpyriphos / Lindane emulsifiable concentrate of 20%

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 100 litres				
7022	Chlorpyriphos 20% E.C. / Lindane 20% E.C.	Litre	100.0	160.00	16000.00
2342	Carriage of Solvent/ Diesel	quintal	1.0	10.38	10.38
TOTAL					16010.38
Add Water Charges @ 1%					160.10
TOTAL					16170.48
Add CPOH @ 15%					2425.57
Cost of 100.0 Litre					18596.05
Cost per Litre					185.96
Say					185.95

	Cost index 46.08 %				85.69
	Total with Cost index				271.64

72 Specification Code: 2.35.3.1

2.35

Diluting and injecting chemical emulsion for POST -CONSTRUCTIONAL anti-termite treatment (excluding the cost of chemical emulsion):

2.35.3

Treatment of soil under existing floors using chemical emulsion @ one litre per hole, 300 mm apart including drilling 12 mm diameter holes and plugging with cement mortar 1:2 (1 cement : 2 coarse sand) to match the existing floor:

2.35.3.1

With Chlorpyrifos/Lindane E.C. 20% with 1% concentration

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 9 sqm (3 metre x 3 metre) No. of holes - 100 nos. MATERIAL: Chlorpyrifos 1% required 100x1 litre = 100 litres Chlorpyrifos 20% E.C. = $100/20 = 5.0$ litres Chlorpyrifos 20% E.C./Lindane 20% E.C. 5 Litres (to be supplied free of cost) LABOUR:				
0114	Beldar (For making holes & spraying)	Day	2.0	368.00	736.00
0124	Mason (brick layer)2nd class	Day	0.5	448.00	224.00
9999	Sundries-, rent of sprayer and motar.	L.S	35.88	1.73	62.07
TOTAL					1022.07
Add Water Charges @ 1%					10.22
TOTAL					1032.29
Add CPOH @ 15%					154.84
Cost of 9.0 sqm					1187.13

	Cost per sqm	131.90
	Say	131.9

	Cost index 46.08 %				60.78
	Total with Cost index				192.68

73 Specification Code: od39822/2017_2018

od39822/2017_2018 :Supplying and fixing of following sizes of Medium duty PVC conduits conforming to IS 9537/1983 Part III along with accessories in surface/ recess including cutting the wall and making good the same in case of recessed conduit as required. 20mm dia

Code	Description	Unit	Quantity	Rate	Amount
MR	Rate as per DSR Item no 1.21.2	metre	1.60000	57.00	91.20
TOTAL					91.20
cost for one metre					91.20
	say				91.20

	Add Water Charges @ 1.0%				0.91
	Add CPOH @ 15.0%				13.81
	Cost index 46.08 %				0.00
	Total with Cost index				105.93
	Say				105.93

74 Specification Code: od39823/2017_2018

od39823/2017_2018 :Supplying and fixing of following sizes of Medium duty PVC conduits conforming to IS 9537/1983 Part III along with accessories in surface/ recess including cutting the wall and making good the same in case of recessed conduit as required. 25mm dia

Code	Description	Unit	Quantity	Rate	Amount
MR	Rate as per DSR Item no 1.21.2	metre	1.60000	69.00	110.40
TOTAL					110.40
cost for one metre					110.40
	say				110.40

	Add Water Charges @ 1.0%				1.10
	Add CPOH @ 15.0%				16.72
	Cost index 46.08 %				0.00
	Total with Cost index				128.23
	Say				128.23

75 Specification Code: od39824/2017_2018

od39824/2017_2018 :Supplying and fixing of following sizes of Medium duty PVC conduits conforming to IS 9537/1983 Part III along with accessories in surface/ recess including cutting the wall and making good the same in case of recessed conduit as required. 32mm dia

Code	Description	Unit	Quantity	Rate	Amount
MR	Rate as per DSR Item no 1.21.3 including cost index	metre	1.60000	89.00	142.40
TOTAL					142.40
cost for one metre					142.40
	say				142.40

	Add Water Charges @ 1.0%				1.42
	Add CPOH @ 15.0%				21.57
	Cost index 46.08 %				0.00
	Total with Cost index				165.40
	Say				165.40

76 Specification Code: od39825/2017_2018

od39825/2017_2018 :Providing GI profiled sheet partition / screening of 2.5m height with vertical & horizontal bracing with 40mm dia GI pipe. The vertical member have 3.0m long, 50cm embeded into foundation concrete 1:3:6 using 20mm broken stone of size 30x30x60cm at 2m intervals and horizontal members braced at bottom, middle and top of partitions including all cost, and conveyance of materials and labour charges etc. including dismantling and removing the materials after use.

Details for 10m

GI profile sheet $10.50 \times 2.50 = 26.26$

40mm dia GI pipe $V 10. \times 3.0 / 2.0 = 15.0$

H $10.0 \times 3.0 = 30.0$

Earth work $5.0 \times 0.30 \times 0.3 \times 0.6 = 0.27 \text{m}^3$

PCC 1:3:6 20mm metal $5.0 \times 0.3 \times 0.3 \times 0.6 = 0.27$

Code	Description	Unit	Quantity	Rate	Amount
MR	GI Profile sheet	sqm	26.26000	790.00	20745.40
1549	G.I. pipes 40 mm dia	metre	45.00000	185.00	8325.00
2.8.1	Rate as per item number 2.8.1 of SH: Earth Work	cum	0.27000	143.26	38.68
4.1.5	Rate as per item number 4.1.5 of SH: Concrete work	cum	0.27000	4241.93	1145.32
0116	Fitter(grade1)	Day	1.32000	487.00	642.84
0114	Beldar	Day	1.32000	368.00	485.76
TOTAL					31383.00
	cost for 10.0 metre				31383.00
	cost for one metre				3138.30
	say				3138.30

	Add Water Charges @ 1.0%				31.38
--	--------------------------	--	--	--	--------------

	Add CPOH @ 15.0%				475.45
	Cost index 46.08 %				569.34
	Total with Cost index				4214.48
	Say				4214.48

77 Specification Code: 17.3.1

17.3 Providing and fixing white vitreous china pedestal type water closet (European type) with seat and lid, 10 litre low level white vitreous china flushing cistern & C.P. flush bend with fittings & C.I. brackets, 40 mm flush bend, overflow arrangement with specials of standard make and mosquito proof coupling of approved municipal design complete, including painting of fittings and brackets, cutting and making good the walls and floors wherever required :

17.3.1 W.C. pan with ISI marked white solid plastic seat and lid

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 1 pan MATERIAL:				
1875	White plastic seat (solid) with lid C.P. brass hinges and rubber buffers	each	1.0	330.00	330.00
1955	Vitreous china pedestal type wate closet	each	1.0	700.00	700.00
7006	Vitreous china 10 litres low level cistern with fittings	each	1.0	1300.00	1300.00
9999	Sundries-Overflow arrangement and specials for overflow pipe	L.S	62.79	1.73	108.63
1350	Mosquito proof coupling of approved design	each	1.0	30.00	30.00
9999	Sundries-Plugs, screws etc	L.S	13.52	1.73	23.39
9999	Sundries-Red lead, white lead and gasket	L.S	16.12	1.73	27.89
9999	Sundries-Cement, sand and grit etc.	L.S	26.91	1.73	46.55
9977	Carriage of materialsLABOUR:	L.S	26.91	1.73	46.55

0116	Fitter(grade1)	Day	1.0	487.00	487.00
0123	Mason (brick layer) 1st class	Day	1.0	487.00	487.00
0114	Beldar	Day	1.0	368.00	368.00

TOTAL					3955.01
Add Water Charges @ 1%					39.55
TOTAL					3994.56
Add CPOH @ 15%					599.18
Cost of 1.0 each					4593.74
Cost of 1 each					4593.74
Say					4593.75

Cost index 46.08 %					2116.80
Total with Cost index					6710.55

78 Specification Code: 50.17.1.5 **Other Engineering Organisations**

50.17.1.5

Supplying and fixing CP Health Faucet superior quality (Jagur or equivalent make) including cost of materials and labour charges etc complete as per the direction of site Engineer-in-charge.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10.00 Nos. MATERIALS:				
MR37	Health faucet superior quality	each	10.0	1100.00	11000.00
9999	Sundries-	L.S	10.0	1.73	17.30
TOTAL					11017.30
Add Water Charges @ 1%					110.17
TOTAL					11127.47
Add CPOH @ 15%					1669.12
Cost of 10.0 no					12796.59

Cost of each	1279.66
Say	1279.65

Cost index 46.08 %					.93
Total with Cost index					1280.58

79 Specification Code: 17.5.1

17.5

Providing and fixing white vitreous china flat back half stall urinal of size 580x380x350 mm with white PVC automatic flushing cistern, with fittings, standard size C.P. brass flush pipe, spreaders with unions and clamps (all in C.P. brass) with waste fitting as per IS : 2556, C.I. trap with outlet grating and other couplings in C.P. brass, including painting of fittings and cutting and making good the walls and floors wherever required:

17.5.1

Single half stall urinal with 5 litre PVC. automatic flushing cistern

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for one no. MATERIAL:				
7379	White vitreous china clay half stall urinal flat back 580x380x350 mm or angle back 450x375x350 mm with waste fittings as per IS: 2556	each	1.0	907.00	907.00
7359	P.V.C. automatic flushing cistern 5 lts capacity	each	1.0	490.00	490.00
1532	Flush pipe with union spreaders and clamps all in C.P. Brass for single stall	each	1.0	270.00	270.00
1891	C.I. trap for standard urinal with vent arm with operating and other couplings in C.P. brass: 50 mm dia	each	1.0	170.00	170.00
9999	Sundries-Red lead, white lead and gasket	L.S	17.55	1.73	30.36
9999	Sundries-Cement, sand and grit etc.	L.S	26.91	1.73	46.55

9999	Sundries-Painting of fittings etc.	L.S	26.0	1.73	44.98
9977	Carriage of materialsLABOUR:	L.S	40.43	1.73	69.94
0116	Fitter(grade1)	Day	1.75	487.00	852.25
0123	Mason (brick layer) 1st class	Day	2.0	487.00	974.00
0114	Beldar	Day	4.0	368.00	1472.00

TOTAL					5327.08
Add Water Charges @ 1%					53.27
TOTAL					5380.35
Add CPOH @ 15%					807.05
Cost of 1.0 each					6187.40
Cost of 1 each					6187.40
Say					6187.4

Cost index 46.08 %					2851.15
Total with Cost index					9038.55

80 Specification Code: od39826/2017_2018

od39826/2017_2018 :Providing and fixing coloured vitreous china under counter round wash basin 440 mm dia or nearest size of approved make including one CP brass pillar cock 15 mm NB including connecting pipes with all fittings 32 mm dia rubber plugs 32 mm dia CP brass waste coupling, 32 mm dia CP brass bottle trap, 15mm angle valve, etc. complete as directed by the Engineer-in-charge.

Details of cost for 1 pan

MATERIAL:

Code	Description	Unit	Quantity	Rate	Amount
MR	vitreous china countertop wash basin	each	1.00000	1254.00	1254.00
MR	15 mm C P brass pillar taps	each	1.00000	1357.00	1357.00
MR	32mm diaCP brass bottle trap	each	1.00000	996.15	996.15

MR	15mm diaCP brass angle valve	each	1.00000	316.00	316.00
1951	C.P. brass waste 32 mm	each	1.00000	80.00	80.00
1309	C.I. bracket for wash basin and sinks	pair	1.00000	65.00	65.00
9999	read led, white led & gasket	L.S	16.1200 0	1.73	27.89
9999	Sundries	L.S	13.3900 0	1.73	23.16
9999	Sundries	L.S	26.9100 0	1.73	46.55
9999	Sundries Cement , sand and grit etc.	L.S	26.9100 0	1.73	46.55
9977	Carriage of materials LABOUR:	L.S	13.5200 0	1.73	23.39
0116	Fitter(grade1)	Day	0.30000	487.00	146.10
0123	Mason (brick layer) 1st class	Day	0.33000	487.00	160.71
0114	Beldar	Day	0.63000	368.00	231.84
				TOTAL	4774.34
				cost for one each	4774.35
	say				4774.35

	Add Water Charges @ 1.0%				47.74
	Add CPOH @ 15.0%				723.31
	Cost index 46.08 %				455.57
	Total with Cost index				6000.99
	Say				6000.99

81 Specification Code: od39827/2017_2018

od39827/2017_2018 :Supplying and fixing approved quality white vitreous china urinal division plate 700 x 340 including cost and conveyance of all material, labour charge, lead, lift, all taxes etc. complete as directed by the Engineer-in-Charge.

Code	Description	Unit	Quantity	Rate	Amount
MR	Urinal division plate	no	1.00000	1449.00	1449.00
TOTAL					1449.00
cost for one no					1449.00
	say				1449.00

	Add Water Charges @ 1.0%				14.49
	Add CPOH @ 15.0%				219.52
	Cost index 46.08 %				0.00
	Total with Cost index				1683.01
	Say				1683.01

82 Specification Code: od39828/2017_2018

od39828/2017_2018 :Providing and fixing sanitary fixtures for handicapped toilet including one wash basin of size 65 x 35cm, one pair mounting brackets,one number pillar cock & all other related fittings like bottle trap ,angle cock,waste coupling etc,one number EWC & Cistern complete with fittings & seat cover, one no. hinged rail 76cm & 5 nos. of grab rails 60cm etc designed for people with special needs comes with as per manufactures specification including cutting and making good the walls and floors wherever required as directed by Engineer-in-Charge.

Code	Description	Unit	Quantity	Rate	Amount
MR	WB 65X35cm with one pair mounting brackets, EWC & cistern complete with fittings & seat cover, one no hinged rail 76cm & 5 nos of grab rails 60cm (Rate as per quotation)	no	1.00000	22696.00	22696.00
9999	Sundries Overflow arrangement and specials for overflow pipe	L.S	62.7900 0	1.73	108.63

1350	Mosquito proof coupling of approved design	each	1.00000	30.00	30.00
9999	Sundries Plugs, screws etc	L.S	13.5200 0	1.73	23.39
9999	Sundries Red lead, white lead and gasket	L.S	16.1200 0	1.73	27.89
9999	Sundries Cement, sand and grit etc.	L.S	26.9100 0	1.73	46.55
9977	Carriage of materials LABOUR:	L.S	26.9100 0	1.73	46.55
0116	Fitter(grade1)	Day	1.00000	487.00	487.00
0123	Mason (brick layer) 1st class	Day	1.00000	487.00	487.00
0114	Beldar	Day	1.00000	368.00	368.00
MR	Wash Basin 650x350mm 15mmCP brass pillar taps	no	1.00000	1357.00	1357.00
MR	32mm dia CP brass bottle trap	no	1.00000	996.15	996.15
MR	15mm dia CP brass angle valve	no	1.00000	316.00	316.00
9999	Sundries	L.S	16.1200 0	1.73	27.89
9999	Sundries	L.S	13.3900 0	1.73	23.16
9999	Sundries	L.S	26.9100 0	1.73	46.55
9999	Sundries	L.S	13.5200 0	1.73	23.39
0116	Fitter(grade1)	Day	0.30000	487.00	146.10
0123	Mason (brick layer) 1st class	Day	0.33000	487.00	160.71
0114	Beldar	Day	0.63000	368.00	231.84
9999	Sundries	L.S	20.2800 0	1.73	35.08
9999	Sundries	L.S	101.400	1.73	175.42

			00	
--	--	--	----	--

TOTAL					27860.30
cost for one set					27860.32
	say				27860.32

	Add Water Charges @ 1.0%				278.60
	Add CPOH @ 15.0%				4220.83
	Cost index 46.08 %				1335.46
	Total with Cost index				33695.22
	Say				33695.22

83 Specification Code: 18.51.1

18.51

Providing and fixing C.P. brass long body bib cock of approved quality conforming to IS standards and weighing not less than 690 gms.

18.51.1

15 mm nominal bore

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for one no. MATERIAL:				
7259	C.P. Brass long body bibcock 15 mm	each	1.0	400.00	400.00
9988	Carriage and sundries and fixing charges	L.S	13.91	1.73	24.06
TOTAL					424.06
Add Water Charges @ 1%					4.24
TOTAL					428.30
Add CPOH @ 15%					64.25
Cost of 1.0 each					492.55

	Cost of 1 each	492.55
	Say	492.55

	Cost index 46.08 %				226.97
	Total with Cost index				719.52

84 Specification Code: 18.52.1

18.52 Providing and fixing C.P brass stop cock (concealed) of standard design and of approved make conforming to IS: 8931

18.52.1 15 mm nominal bore

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for one no. MATERIAL:				
7260	C.P. Brass stop cock (concealed) 15 mm	each	1.0	450.00	450.00
9988	Carriage and sundries and fixing charges	L.S	11.57	1.73	20.02
TOTAL					470.02
Add Water Charges @ 1%					4.70
TOTAL					474.72
Add CPOH @ 15%					71.21
Cost of 1.0 each					545.93
Cost of 1 each					545.93
Say					545.95

	Cost index 46.08 %				251.57
	Total with Cost index				797.52

85 Specification Code: od39829/2017_2018

od39829/2017_2018 :Providing and fixing Cleanout with Spigot, with SS 304 Square Frame & Round Frame with Flat Round Cover with Rubber Seal & SS Screw including cost and conveyance of all materials, labour charges, sundries etc complete as directed by the Engineer in charge at all levels 75mm dia

Details of cost for one no

MATERIAL:

Code	Description	Unit	Quantity	Rate	Amount
MR	Clean out 75mm dia	each	1.00000	870.20	870.20
9988	Carriage and sundries of materials and fixing charge	L.S	13.9100 0	1.73	24.06
0116	Fitter(grade1)	Day	0.30000	487.00	146.10
0124	Mason (brick layer)2nd class	Day	0.30000	448.00	134.40
TOTAL					1174.76
cost for one each					1174.76
	say				1174.76

	Add Water Charges @ 1.0%				11.74
	Add CPOH @ 15.0%				177.97
	Cost index 46.08 %				163.00
	Total with Cost index				1527.49
	Say				1527.49

86 Specification Code: od39830/2017_2018

od39830/2017_2018 :Providing and fixing Cleanout with Spigot, with SS 304 Square Frame & Round Frame with Flat Round Cover with Rubber Seal & SS Screw including cost and conveyance of all materials, labour charges, sundries etc complete as directed by the Engineer in charge at all levels 110mm dia

Details of cost for one no

MATERIAL:

Code	Description	Unit	Quantity	Rate	Amount
------	-------------	------	----------	------	--------

MR	Clean out 110mm dia	each	1.00000	996.15	996.15
----	---------------------	------	---------	--------	--------

9988	Carriage and sundries of materials and fixing charge	L.S	13.9100 0	1.73	24.06
0116	Fitter(grade1)	Day	0.30000	487.00	146.10
0124	Mason (brick layer)2nd class	Day	0.30000	448.00	134.40
TOTAL					1300.71
cost for one each					1300.71
	say				1300.71

	Add Water Charges @ 1.0%				13.00
	Add CPOH @ 15.0%				197.05
	Cost index 46.08 %				163.00
	Total with Cost index				1673.78
	Say				1673.78

Other Engineering Organisations

87 Specification Code: od39831/2017_2018

od39831/2017_2018 :Providing and fixing frameless mirror, with all four edges machine polished and back side protected with safety film and 4 mm thick Plywood backing and fixed on walls with mirror screws. The rate includes lifting, cutting etc. as per design and drawing.

Code	Description	Unit	Quantity	Rate	Amount
MR	Mirror	sqm	1.00000	3200.00	3200.00
MR	Fixing charge	sqm	1.00000	150.00	150.00
TOTAL					3350.00
cost for one sqm					3350.00
	say				3350.00

	Add Water Charges @ 1.0%				33.50
--	--------------------------	--	--	--	--------------

	Add CPOH @ 15.0%				507.52
	Cost index 46.08 %				0.00
	Total with Cost index				3891.03
	Say				3891.03

88 Specification Code: od39832/2017_2018

od39832/2017_2018 :Providing and fixing floor trap of PVC,110 mm outer dia(multi trap) including CP cockroach free floor grating with cup etc including cost and conveyance of all materials, labour charges, sundries etc complete as directed by the Engineer-in-Charge at all levels

Code	Description	Unit	Quantity	Rate	Amount
MR	Cockroach trap	no	1.00000	368.17	368.17
TOTAL					368.17
cost for one no					368.17
	say				368.17

	Add Water Charges @ 1.0%				3.68
	Add CPOH @ 15.0%				55.77
	Cost index 46.08 %				0.00
	Total with Cost index				427.63
	Say				427.63

89 Specification Code: 50.18.8.6.2

SUBHEAD : 50.0

APPROVED OBSERVED DATA

50.18.8.6.2

Providing and fixing PVC pipes, fittings including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step PVC solvent cement and testing of joints complete as per direction of Engineer-in-Charge. Concealed work, including cutting chases and making good the wall etc.

50 mm pipe 6 kgf/cm2

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 metre MATERIALS				
MR49	PVC pipe 50 mm outer dia.6kgf/cm2 (Adding 30% forfittings and wastage) Making chases upto 7.5x7.5 cm in walls and making good the same	metre	13.0	60.00	780.00
18.78	Rate as per item Number18.78 of SH: Water Supply	metre	10.0	93.85	938.50(A)
0116	Fitter(grade1)	Day	0.33	487.00	160.71
0117	Assistant Fitter or 2nd class fitter	Day	0.66	448.00	295.68
0114	Beldar	Day	0.66	368.00	242.88
AddWater Charges @ 1% except on A ie on (2417.77-938.5=1479.27)					14.79
TOTAL					2432.56
AddCPOH @ 15% except on A ie on (2432.56-938.5=1494.06)					224.11
Cost of 10.0 metre					2656.50
Cost of 1 metre					265.65
Say					265.65

	Cost index 46.08 %				80.68
	Total with Cost index				346.33

90 Specification Code: 50.18.8.8.1

SUBHEAD : 50.0**APPROVED OBSERVED DATA**

Providing and fixing PVC pipes, fittings including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes with one step PVC solvent cement and testing of joints complete as per direction of Engineer-in-Charge. Concealed work, including cutting chases and making good the wall etc. 75 mm pipe 6 Kgf/cm²

50.18.8.8.1

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10.00metre MATERIALS:				
MR52	PVC pipe 75 mm outer dia 6kgf/cm ² (Adding 5% for wastage, etc) Making chases upto 12.5x12.5cm in walls and making good the same	metre	10.5	129.00	1354.50
50.18.78	Rate as per item Number50.18.78 of SH: Approved Observed data	metre	10.0	160.65	1606.50(A)
0116	Fitter(grade1)	Day	0.33	487.00	160.71
0117	Assistant Fitter or 2nd class fitter	Day	0.66	448.00	295.68
0114	Beldar	Day	0.66	368.00	242.88
AddWater Charges @ 1% except on A ie on (3660.27-1606.5=2053.77)					20.54
TOTAL					3680.81
AddCPOH @ 15% except on A ie on (3680.81-1606.5=2074.31)					311.15
Cost of 10.0 metre					3992.00
Cost of 1 metre					399.20
Say					399.2
	Cost index 46.08 %				111.45
	Total with Cost index				510.65

91 Specification Code: 50.18.8.9.1

SUBHEAD : 50.0**APPROVED OBSERVED DATA**

50.18.8.9.1 Providing and fixing PVC pipes, fittings including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes with one step PVC solvent cement and testing of joints complete as per direction of Engineer-in-Charge. Concealed work, including cutting chased and making good the wall etc. 110 mm pipe 6kgf/cm²

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10.00metre MATERIALS:				
MR54	PVC pipe 110 mm outer dia 6kgf/cm ² (Adding 5% for wastage, etc) Making chases upto 12.5x12.5 cm in walls and making good the same	metre	10.5	211.00	2215.50
50.18.78	Rate as per item Number 50.18.78 of SH: Approved Observed data	metre	10.0	160.65	1606.50(A)
0116	Fitter(grade1)	Day	0.33	487.00	160.71
0117	Assistant Fitter or 2nd class fitter	Day	0.66	448.00	295.68
0114	Beldar	Day	0.66	368.00	242.88
Add Water Charges @ 1% except on A ie on (4521.27-1606.5=2914.77)					29.15
TOTAL					4550.42
Add CPOH @ 15% except on A ie on (4550.42-1606.5=2943.92)					441.59
Cost of 10.0 metre					4992.00
Cost of 1 metre					499.20
Say					499.2

	Cost index 46.08 %				111.45
	Total with Cost index				610.65

92 Specification Code: od39833/2017_2018

od39833/2017_2018 :Providing and fixing PVC pipes, fittings including fixing the pipe with clamps at 1.00 m spacing . This includes jointing of pipes & fittings with one step PVC solvent cement and testing of joints complete as per direction of Engineer-in-Charge 75 mm dia 6 Kgf/cm2 - Internal work- Exposed on wall

Details of cost for 10 metre

MATERIALS:

Code	Description	Unit	Quantity	Rate	Amount
MR52	PVC pipe 75 mm outer dia 6kgf/cm2	metre	11.50000	129.00	1483.50
9999	Sundries Adhesive and sundries etc	L.S	5.33000	1.73	9.22
0116	Fitter(grade1)	Day	0.33000	487.00	160.71
0117	Assistant Fitter or 2nd class fitter	Day	1.31000	448.00	586.88
0114	Beldar	Day	1.31000	368.00	482.08
TOTAL					2722.39
	cost for 10.0 metre				2722.39
	cost for one metre				272.24
	say				272.24

	Add Water Charges @ 1.0%				2.72
	Add CPOH @ 15.0%				41.24
	Cost index 46.08 %				66.30
	Total with Cost index				382.52
	Say				382.52

93 Specification Code: od39834/2017_2018

od39834/2017_2018 :Providing and fixing PVC pipes, fittings including fixing the pipe with clamps at 1.00 m spacing . This includes jointing of pipes & fittings with one step PVC solvent cement and testing of joints complete as per direction of Engineer-in-Charge 110mm dia 6 Kgf/cm² - Internal work- Exposed on wall

Details of cost for 10 metre

MATERIALS:

Code	Description	Unit	Quantity	Rate	Amount
MR54	PVC pipe 110 mm outer dia 6kgf/cm ²	metre	11.50000	211.00	2426.50
9999	Sundries Adhesive and sundries etc	L.S	5.33000	1.73	9.22
0116	Fitter(grade1)	Day	0.33000	487.00	160.71
0117	Assistant Fitter or 2nd class fitter	Day	1.31000	448.00	586.88
0114	Beldar	Day	1.31000	368.00	482.08
TOTAL					3665.39
	cost for 10.0 metre				3665.39
	cost for one metre				366.54
	say				366.54

	Add Water Charges @ 1.0%				3.66
	Add CPOH @ 15.0%				55.53
	Cost index 46.08 %				66.30
	Total with Cost index				492.04
	Say				492.04

94 Specification Code: od39835/2017_2018

od39835/2017_2018 :Providing and fixing PVC pipes, fittings including fixing the pipe with clamps at 1.00 m spacing . This includes jointing of pipes & fittings with one step PVC solvent cement and testing of joints complete as per direction of Engineer-in-Charge 75 mm dia 4 Kg/cm² - Internal work- Exposed on wall

Details of cost for 10 metre

MATERIALS:

Code	Description	Unit	Quantity	Rate	Amount
MR53	PVC pipe 75 mm outer dia 4 kgf/cm ²	metre	11.50000	95.00	1092.50
9999	Sundries Adhesive and sundries etc	L.S	5.33000	1.73	9.22
0116	Fitter(grade1)	Day	0.33000	487.00	160.71
0117	Assistant Fitter or 2nd class fitter	Day	1.31000	448.00	586.88
0114	Beldar	Day	1.31000	368.00	482.08
TOTAL					2331.39
	cost for 10.0 metre				2331.39
	cost for one metre				233.14
	say				233.14

	Add Water Charges @ 1.0%				2.33
	Add CPOH @ 15.0%				35.32
	Cost index 46.08 %				66.30
	Total with Cost index				337.10
	Say				337.10

95 Specification Code: od39836/2017_2018

od39836/2017_2018 :Supplying approved make PVC gully trap of size 160 x 110mm and CI grating 150mmx150mm size and light duty C.I cover with frames 300mmx300mm size(inside) the weight of cover to be not less than4.5kg and frame to be not less than2.7kg (CI MH cover and frame as per IS:1726) single sealed of size conveying to size the above mentioned items and constructing 30cmx30cm internal size gully

trap chamber and depth upto 60cm,115 thk brick wall in CM 1:6 on a foundation of PCC 1:4:8.100mm thick plastering inside with CM 1:3,12mm thk with a neat cement flushing coat and conveying to site,cleaning ,installing and testing approved make PVC gully trap with 160mm outlet(Fabricated),surrounding with CC 1:1.5:3, 150x150mm, top with CI grating above the PVC gully trap and light duty CI cover and frame over the chamber including cost of all materials, etc complete as per approved drawing and as directed by Engineer-in- Charge.

Details of cost for one gully trap

Code	Description	Unit	Quantity	Rate	Amount
MR	160x110mm gully trap	each	1.00000	462.30	462.30
MR	C.I. grating 150X150MM	each	1.00000	39.95	39.95
1352	C.I. Cover and frame 300X300 mm inside	each	1.00000	300.00	300.00
9977	Carriage of materials Cement concrete 1:5:10 (1 cement : 5 fine sand: 10 graded stone aggregate 40 mm nominal size) $0.68 \times 0.68 \times 0.10 \text{ m} = 0.046 \text{ cum}$ Concrete around trap $0.30 \times 0.30 \times 0.675 \text{ m} = 0.061 \text{ cum}$ Total = 0.107 cum Deduct: $0.55/3 \times [0.09 + 0.032 + (0.09 \times 0.032)/2] = 0.008$ cum $3.14/4 \times (0.182)^2 \times 0.70 = 0.018 \text{ cum}$ Total = 0.026 cum Net quantity = 0.107 cum (-) 0.026 cum = 0.081 cum say 0.08 cum	L.S	4.50000	1.73	7.79
4.1.11	Rate as per item number 4.1.11 of SH:Concrete work Brick work with 75 class designation brick in cement mortar 1:4 (1 cement :4 coarse sand) $1.66 \times 0.115 \times 0.675 \text{ m} = 0.129 \text{ cum}$ say 0.13 cum	cum	0.08000	3409.13	272.73
6.1.1	Rate as per item number 6.1.1 of SH:Brick Work Cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone aggregate 20 mm nominal size)	cum	0.13000	4279.21	556.30

	1.66x0.11x0.04 m = 0.008cum				
4.2.3	Rate as per item number 4.2.3 of SH: Concrete work 12 mm cement plaster 1:3 (1 cement: 3 coarse sand) finished with floating coat of neat cement: [1/2x0.166x(1.20+0.72)] = 0.159 sqm say 0.16 sqm	cum	0.00800	5637.28	45.10
13.9.1	Rate as per item number 13.9.1 of SH: Finishing	sqm	0.30000	202.07	60.62
TOTAL					1744.79
cost for one each					1744.78
	say				1744.78

	Add Water Charges @ 1.0%				17.44
	Add CPOH @ 15.0%				264.33
	Cost index 46.08 %				665.02
	Total with Cost index				2691.59
	Say				2691.59

96 Specification Code: 19.7.1.1

SUBHEAD : 19.0

DRAINAGE

19.7

Constructing brick masonry manhole in cement mortar 1:4 (1 cement : 4 coarse sand) with R.C.C. top with 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size,) inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement and making channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement complete as per standard design:

19.7.1

Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions, total weight of cover and frame to be not less than 38 kg (weigh of cover 23 kg and weight of frame 15 kg):

19.7.1.1 With common burnt clay F.P.S. (non modular) bricks of class designation 7.5

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for one manhole MATERIAL:				
4.1.8	Rate as per item Number 4.1.8 of SH: Concrete work Rate as per item number 4.1.8 of SH: Concrete work Brick work with bricks of class designation 7.5 in foundation & plinth in cement mortar 1:4 (1 cement : 4 coarse sand) $4.32 \times 0.23 \times 0.35 \text{ m} = 0.348 \text{ cum}$ Less for pipe $2 \times 3.04 / 4 \times (0.15 \text{ m})^2 \times 0.23 \text{ m} = (-) 0.009 \text{ cum}$ Total = 0.340 cum	cum	0.43	4478.15	1925.60(A)
6.1.1	Rate as per item Number 6.1.1 of SH: Brick Work Cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 grades stone aggregate 20 mm nominal size) for benching $2 \times 0.90 \times (0.80 / 2) \times (0.30 + 0.20) / 2 = 0.18 \text{ cum}$ Less for pipe $1 \times 0.90 \times 3.14 / 4 \times (0.15 \text{ m})^2 = (-) 0.02 \text{ cum} = 0.16 \text{ cum}$	cum	0.34	4970.30	1689.90(A)
Tagged TOTAL					3615.5(A)
4.1.3	Rate as per item Number 4.1.3 of SH: Concrete work 12 mm cement plaster 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement $3.40 \text{ m} \times 0.05 \text{ m} = 0.17 \text{ sqm}$ $2 \times 21 / 2 \times 0.80 \times 0.10 \text{ m} = 0.08 \text{ sqm}$ Total = 0.25 sqm	cum	0.16	5481.95	877.11(A)

Tagged TOTAL			4492.61(A)		
13.9.1	Rate as per item Number13.9.1 of SH: Finishing Finishing Reinforced cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) For slab : 1.36x1.26x0.15 m = 0.257 cum Less for cover 0.61x0.455x0.15 m = (-) 0.042 cum = 0.215 cum Say 0.22 cum	sqm	0.25	234.70	58.68(A)
Tagged TOTAL			4551.29(A)		
5.3	Rate as per item Number5.3 of SH: Reinforced Cement Concrete work Less labour for not lifting the materials upto floor five level	cum	0.22	7390.80	1625.98(A)
0115	Coolie Mild steel reinforcement for slab: 0.22 cum @ 48.06 kg/cum = 10.57 kg	Day	-0.41	368.00	-150.88
5.22.1	Rate as per item Number5.22.1 of SH: Reinforced Cement Concrete work, Form work = 0.90x0.80 = 0.72 sqm Less cover = 0.61x0.45 m = (-) 0.278 sqm = 0.42 sqm. say 0.44 sqm	kg	10.57	55.30	584.52(A)
5.9.3	Rate as per item Number5.9.3 of SH: Reinforced Cement Concrete work LABOUR: Extra labour for making channel:	sqm	0.44	422.30	185.81(A)
0123	Mason (brick layer) 1st class	Day	0.06	487.00	29.22
0124	Mason (brick layer)2nd class	Day	0.06	448.00	26.88

1354	Rectangular cover 455x610 mm with frame (low duty) (inside)	each	1.0	1500.00	1500.00
9977	Carriage of C.I. cover & frame	L.S	6.76	1.73	11.69
9999	Sundries - Painting of C.I. cover & frame with coal tar	L.S	6.76	1.73	11.69
9999	Sundries -	L.S	13.52	1.73	23.39

AddWater Charges @ 1% except on A ie on (8399.59-6947.6=1451.9899)				14.52
TOTAL				8414.11
AddCPOH @ 15% except on A ie on (8414.11-6947.6=1466.5099)				219.98
Cost of 1.0 each				8634.10
Cost of 1 each				8634.10
Say				8634.1

Cost index 46.08 %				3978.59
Total with Cost index				12612.69

97 Specification Code: 19.33

SUBHEAD : 19.0

DRAINAGE

19.33

Constructing soak pit 1.20x1.20 m filled with brickbats including S.W. drain pipe 100 mm diameter and 1.20 m long complete as per standard design.

Code	Description	Unit	Quantity	Rate	Amount
------	-------------	------	----------	------	--------

	Details of cost for one soak pit Earth work in excavation including disposal of surplus earth 1.2x1.2x1.2 m = 173 cum				
2.8.1	Rate as per item Number 2.8.1 of SH: Earth Work	cum	1.73	166.40	287.87(A)
0362	Brick bats 1.2x1.2x1.2 = 1.73 cum	cum	1.73	500.00	865.00
2260	Carriage of Brick aggregate Carriage of	cum	1.73	112.79	195.13
16.8.1	Rate as per item Number 16.8.1 of SH: Road Work Second class brick edging laid length wise with half brick depth	metre	5.2	36.20	188.24(A)
1854	stoneware pipes grade A (60 cm long) 100 mm dia	each	2.0	50.00	100.00
9999	Sundries - LABOUR: For filling brick bats	L.S	25.84	1.73	44.70
0114	Beldar	Day	0.5	368.00	184.00
9999	Sundries -	L.S	13.52	1.73	23.39

	Add Water Charges @ 1% except on A ie on (1888.33-476.11=1412.22)	14.12
	TOTAL	1902.45
	Add CPOH @ 15% except on A ie on (1902.45-476.11=1426.34)	213.95
	Cost of 1.0 each	2116.40
	Say	2116.4

	Cost index 46.08 %				975.24
	Total with Cost index				3091.64

98 Specification Code: 50.18.9.21.7

50.18.9.21.7 Providing and fixing PVC moulded fittings/ accessories for Rigid PVC pipes, including jointing with PVC solvent cement - 75 mm dia Vent cowl

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for one no. MATERIALS:				
MR73	PVC vent cowl 75 mm dia	each	1.0	42.00	42.00
9999	Sundries-	L.S	2.73	1.73	4.72
9999	Sundries-	L.S	9.36	1.73	16.19
TOTAL					62.91
Add Water Charges @ 1%					.63
TOTAL					63.54
Add CPOH @ 15%					9.53
Cost of 1.0 no					73.07
Cost of each					73.07
Say					73.05

	Cost index 46.08 %				11.19
	Total with Cost index				84.29

99 Specification Code: 50.18.9.22.8

50.18.9.22.8 Providing and fixing PVC moulded fittings /accessories for Rigid PVC pipes, including jointing with PVC solvent cement -110 mm dia Vent cowl

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for one no. MATERIALS:				
MR84	PVC vent cowl 110 mm dia	each	1.0	70.00	70.00

9999	Sundries-Adhesive, and sundries etc.	L.S	2.73	1.73	4.72
9999	Sundries-Carriage and fixing charges	L.S	10.79	1.73	18.67

TOTAL					93.39
Add Water Charges @ 1%					.93
TOTAL					94.32
Add CPOH @ 15%					14.15
Cost of 1.0 no					108.47
Cost of each					108.47
Say					108.45

Cost index 46.08 %					12.52
Total with Cost index					120.97

100 Specification Code: od39837/2017_2018

Other Engineering Organisations

od39837/2017_2018 :Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes& fittings, with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer-in-Charge. Concealed work, including cutting chases and making good the wall etc.

40 mm nominal outer dia pipes

Details of cost for 10 meter

MATERIAL:

Code	Description	Unit	Quantity	Rate	Amount
8640	Chlorinated Polyvinyl - chloride (CPVC) pipe 40 mm outer dia	metre	10.00000	160.00	1600.00
18.78	Rate as per item number 18.78 of SH:Water Supply LABOUR:	metre	10.0000 0	80.80	808.01
0116	Fitter(grade1)	Day	0.33000	487.00	160.71
0117	Assistant Fitter or 2nd class fitter	Day	0.66000	448.00	295.68

0114	Beldar	Day	0.66000	368.00	242.88
------	--------	-----	---------	--------	--------

TOTAL					3107.28
	cost for 10.0 metre				3107.28
	cost for one metre				310.73
	say				310.73

	Add Water Charges @ 1.0%				3.10
	Add CPOH @ 15.0%				47.07
	Cost index 46.08 %				166.30
	Total with Cost index				527.22
	Say				527.22

101 Specification Code: 18.8.2

Other Engineering Organisations

SUBHEAD : 18.0

WATER SUPPLY

18.8

Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings, with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer-in-Charge. Concealed work, including cutting chases and making good the wall etc.

18.8.2

20 mm nominal outer dia pipes

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 metre MATERIAL:				

8637	Chlorinated Polyvinyl - Chloride (CPVC) pipe 20 mm outer dia Add 75% for fittings, clamps and wastage etc. on X = 75 x 630.00/100 making chases up to 7.5x7.5 cm in walls and making good the same	metre	10.0	54.00	540.00(X)
18.78	Rate as per item Number 18.78 of SH: Water Supply LABOUR:	metre	10.0	93.85	938.50(A)
0116	Fitter(grade1)	Day	0.33	487.00	160.71
0117	Assistant Fitter or 2nd class fitter	Day	0.66	448.00	295.68
0114	Beldar	Day	0.66	368.00	242.88
Tagged TOTAL			2177.77(Y)		

Add Water Charges @ 1% except on A ie on (2177.77-938.5=1239.27)	12.39
TOTAL	2190.16
Add CPOH @ 15% except on A ie on (2190.16-938.5=1251.66)	187.75

	Cost of 10.0 metre	2848.50
	Cost of 1 metre	284.85
	Say	284.85

	Cost index 46.08 %				131.26
	Total with Cost index				416.11

102 Specification Code: 18.8.3

SUBHEAD : 18.0

WATER SUPPLY

Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings, with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer-in-Charge. Concealed work, including cutting chases and making good the wall etc.

18.8

18.8.3

25 mm nominal outer dia pipes

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 meter MATERIAL:				

8638	Chlorinated Polyvinyl - Chloride (CPVC) pipe 25 mm outer dia Add 75% for fittings, clamps and wastage etc. on X = 75 X 900.00 /100 Making chases up to 7.5 x 7.5 cm in walls and making good the same	metre	10.0	78.00	780.00(X)
18.78	Rate as per item Number 18.78 of SH: Water Supply LABOUR:	metre	10.0	93.85	938.50(A)
0116	Fitter(grade1)	Day	0.33	487.00	160.71
0117	Assistant Fitter or 2nd class fitter	Day	0.66	448.00	295.68
0114	Beldar	Day	0.66	368.00	242.88
Tagged TOTAL			2417.77(Y)		

Add Water Charges @ 1% except on A ie on (2417.77-938.5=1479.27)	14.79
TOTAL	2432.56

AddCPOH @ 15% except on A ie on (2432.56-938.5=1494.06)	224.11
Cost of 10.0 metre	3336.00
Cost of 1 metre	333.60
Say	333.6

Cost index 46.08 %	153.72
Total with Cost index	487.32

103 Specification Code: 18.8.4

SUBHEAD : 18.0

WATER SUPPLY

18.8

Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings, with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer-in-Charge. Concealed work, including cutting chases and making good the wall etc.

18.8.4

32 mm nominal outer dia pipes

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 meter MATERIAL:				

8639	Chlorinated Polyvinyl - chloride (CPVC) pipe 32 mm outer dia Add 75% for fittings, clamps and wastage etc. on X = 75 X 1200.00 /100 Making chases up to 7.5 x 7.5 cm in walls and making good the same	metre	10.0	117.00	1170.00(X)
18.78	Rate as per item Number 18.78 of SH: Water Supply LABOUR:	metre	10.0	93.85	938.50(A)
0116	Fitter(grade1)	Day	0.33	487.00	160.71
0117	Assistant Fitter or 2nd class fitter	Day	0.66	448.00	295.68
0114	Beldar	Day	0.66	368.00	242.88
Tagged TOTAL			2807.77(Y)		

Add Water Charges @ 1% except on A ie on (2807.77-938.5=1869.27)	18.69
TOTAL	2826.46
Add CPOH @ 15% except on A ie on (2826.46-938.5=1887.96)	283.19

	Cost of 10.0 metre	4129.00
	Cost of 1 metre	412.90
	Say	412.9

	Cost index 46.08 %				190.26
	Total with Cost index				603.16

104 Specification Code: 18.9.5

SUBHEAD : 18.0

WATER SUPPLY

18.9 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings. This includes jointing of pipes & fittings with one step CPVC solvent cement, trenching , refilling & testing of joints complete as per direction of Engineer- in-Charge. External work

18.9.5 40 mm nominal outer dia pipes

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 meter MATERIAL:				

8640	Chlorinated Polyvinyl - chloride (CPVC) pipe 40 mm outer dia Add 30% for fittings and wastage etc. on X = 30 x 1700.00/100 LABOUR:	metre	10.0	160.00	1600.00(X)
0116	Fitter(grade1)	Day	0.16	487.00	77.92
0114	Beldar Trenching and refilling etc.	Day	0.33	368.00	121.44
0114	Beldar	Day	0.66	368.00	242.88
0115	Coolie	Day	0.66	368.00	242.88
Tagged TOTAL					2285.12(Y)

Add Water Charges @ 1%		22.85
TOTAL		2307.97
Add CPOH @ 15%		346.20
Cost of 10.0 metre		3211.50
Cost of 1 metre		321.15
Say		321.15

Cost index	46.08 %				147.99
Total with Cost index					469.14

105 Specification Code: 18.9.3

SUBHEAD : 18.0**WATER SUPPLY**

18.9 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings. This includes jointing of pipes & fittings with one step CPVC solvent cement, trenching , refilling & testing of joints complete as per direction of Engineer- in-Charge. External work

18.9.3 25 mm nominal outer dia pipes

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 meter MATERIAL:				
8638	Chlorinated Polyvinyl - Chloride (CPVC) pipe 25 mm outer dia Add 30% for fittings and wastage etc. on X = 30 x 1200.00/100 LABOUR:	metre	10.0	78.00	780.00(X)
0116	Fitter(grade1)	Day	0.12	487.00	58.44
0114	Beldar Trenching and refilling etc.	Day	0.25	368.00	92.00
0114	Beldar	Day	0.66	368.00	242.88
0115	Coolie	Day	0.66	368.00	242.88

Tagged TOTAL	1416.2(Y)
--------------	-----------

Add Water Charges @ 1%	14.16
TOTAL	1430.36
Add CPOH @ 15%	214.55
Cost of 10.0 metre	1916.50
Cost of 1 metre	191.65
Say	191.65

Cost index 46.08 %	88.31
Total with Cost index	279.96

106 Specification Code: 18.9.4

SUBHEAD : 18.0

WATER SUPPLY

18.9

Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings. This includes jointing of pipes & fittings with one step CPVC solvent cement, trenching , refilling & testing of joints complete as per direction of Engineer- in-Charge. External work

18.9.4

32 mm nominal outer dia pipes

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 meter MATERIAL:				

8639	Chlorinated Polyvinyl - chloride (CPVC) pipe 32 mm outer dia Add 30% for fittings and wastage etc. on X = 30 x1200.00/100 LABOUR:	metre	10.0	117.00	1170.00(X)
0116	Fitter(grade1)	Day	0.12	487.00	58.44
0114	Beldar Trenching and refilling etc.	Day	0.25	368.00	92.00
0114	Beldar	Day	0.66	368.00	242.88
0115	Coolie	Day	0.66	368.00	242.88
Tagged TOTAL					1806.2(Y)

Add Water Charges @ 1%		18.06
TOTAL		1824.26
Add CPOH @ 15%		273.64
Cost of 10.0 metre		2505.50
Cost of 1 metre		250.55
Say		250.55

Cost index	46.08 %				115.45
Total with Cost index					366.00

107 Specification Code: 18.9.6

SUBHEAD : 18.0**WATER SUPPLY**

18.9 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply including all CPVC plain & brass threaded fittings. This includes jointing of pipes & fittings with one step CPVC solvent cement, trenching , refilling & testing of joints complete as per direction of Engineer- in-Charge. External work

18.9.6 50 mm nominal outer dia pipes

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 meter MATERIAL:				
8641	Chlorinated Polyvinyl - chloride (CPVC) pipe 50 mm outer dia Add 30% for fittings and wastage etc. on X = 30 x 2800.00/100 LABOUR:	metre	10.0	268.00	2680.00(X)
0116	Fitter(grade1)	Day	0.16	487.00	77.92
0114	Beldar Trenching and refilling etc. LABOUR:	Day	0.33	368.00	121.44
0114	Beldar	Day	0.66	368.00	242.88
0115	Coolie	Day	0.66	368.00	242.88

Tagged TOTAL	3365.12(Y)
--------------	------------

Add Water Charges @ 1%	33.65
TOTAL	3398.77
Add CPOH @ 15%	509.82
Cost of 10.0 metre	4842.50
Cost of 1 metre	484.25
Say	484.25

Cost index 46.08 %	223.14
Total with Cost index	707.39

108 Specification Code: 18.7.3

SUBHEAD : 18.0

WATER SUPPLY

18.7

Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer -in-Charge. Internal work - Exposed on wall

18.7.3 25 mm nominal outer dia pipes

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 metre MATERIAL:				

8638	Chlorinated Polyvinyl - Chloride (CPVC) pipe 25 mm outer dia Add 30% for fittings and wastage etc. on X = 30 x 900.00/100	metre	10.0	78.00	780.00(X)
9999	Sundries - Cement, sand and grit etc. LABOUR:	L.S	2.73	1.73	4.72
0116	Fitter(grade1)	Day	0.33	487.00	160.71
0117	Assistant Fitter or 2nd class fitter	Day	0.98	448.00	439.04
0114	Beldar	Day	0.66	368.00	242.88
Tagged TOTAL					1627.35(Y)

Add Water Charges @ 1%	16.27
TOTAL	1643.62
Add CPOH @ 15%	246.54
Cost of 10.0 metre	2162.00
Cost of 1 metre	216.20
Say	216.2

Cost index	46.08 %				99.62
Total with Cost index					315.82

109 Specification Code: 18.7.4

SUBHEAD : 18.0**WATER SUPPLY****18.7**

Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer -in-Charge. Internal work - Exposed on wall

18.7.4 32 mm nominal outer dia pipes

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 meter MATERIAL:				
8639	Chlorinated Polyvinyl - chloride (CPVC) pipe 32 mm outer dia Add 30% for fittings and wastage etc. on X =30 X 1200.00/100	metre	10.0	117.00	1170.00(X)
9999	Sundries - Cement, Sand and grit etc. LABOUR:	L.S	4.16	1.73	7.20
0116	Fitter(grade1)	Day	0.33	487.00	160.71

0117	Assistant Fitter or 2nd class fitter	Day	0.98	448.00	439.04
0114	Beldar	Day	0.98	368.00	360.64
Tagged TOTAL					2137.59(Y)

Add Water Charges @ 1%		21.38
TOTAL		2158.97
Add CPOH @ 15%		323.84
Cost of 10.0 metre		2890.50
Cost of 1 metre		289.05
Say		289.05

Cost index 46.08 %		133.19
Total with Cost index		422.24

110 Specification Code: 18.7.5

Other Engineering Organisations

PRICE

SUBHEAD : 18.0
WATER SUPPLY

18.7

Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer -in-Charge. Internal work - Exposed on wall

18.7.5 40 mm nominal outer dia pipes

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 meter LABOUR:				

8640	Chlorinated Polyvinyl - chloride (CPVC) pipe 40 mm outer dia Add 30% for fittings and wastage etc. on X =30 X 1700.00/100	metre	10.0	160.00	1600.00(X)
9999	Sundries - Cement,sand and grit LABOUR:	L.S	5.33	1.73	9.22
0116	Fitter(grade1)	Day	0.33	487.00	160.71
0117	Assistant Fitter or 2nd class fitter	Day	1.31	448.00	586.88
0114	Beldar	Day	1.31	368.00	482.08
Tagged TOTAL					2838.89(Y)

	Add Water Charges @ 1%	28.39
	TOTAL	2867.28
	Add CPOH @ 15%	430.09
	Cost of 10.0 metre	3855.00
	Cost of 1 metre	385.50
	Say	385.5

	Cost index 46.08 %				177.64
	Total with Cost index				563.14

111 Specification Code: 18.7.6

SUBHEAD : 18.0**WATER SUPPLY**

18.7 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer -in-Charge. Internal work - Exposed on wall

18.7.6 50 mm nominal outer dia pipes

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 meter MATERIAL:				
8641	Chlorinated Polyvinyl - chloride (CPVC) pipe 50 mm outer dia Add 30% for fittings and wastage etc. on X =30 X 2800.00/100	metre	10.0	268.00	2680.00(X)
9999	Sundries - Cement, sand and grit etc LABOUR:	L.S	5.33	1.73	9.22
0116	Fitter(grade1)	Day	0.33	487.00	160.71

0117	Assistant Fitter or 2nd class fitter	Day	1.31	448.00	586.88
0114	Beldar	Day	1.31	368.00	482.08
Tagged TOTAL			3918.89(Y)		

Add Water Charges @ 1%		39.19
TOTAL		3958.08
Add CPOH @ 15%		593.71
Cost of 10.0 metre		5485.50
Cost of 1 metre		548.55
Say		548.55

Cost index 46.08 %		252.77
Total with Cost index		801.32

112 Specification Code: 18.17.1

18.17 Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :

18.17.1 25 mm nominal bore

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for one no. MATERIAL:				
1927	Brass full way valve with C.I. wheel (screwed end) 25 mm dia	each	1.0	350.00	350.00
9988	Carriage and sundries of materials and fixing charge	L.S	10.79	1.73	18.67
TOTAL					368.67
Add Water Charges @ 1%					3.69
TOTAL					372.36

	Add CPOH @ 15%	55.85
	Cost of 1.0 each	428.21
	Cost of 1 each	428.21
	Say	428.2

	Cost index 46.08 %				197.31
	Total with Cost index				625.51

113 Specification Code: 18.17.2

18.17 Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :

18.17.2 32 mm nominal bore

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for one no MATERIAL: Other Engineering Organisations				
1928	Brass full way valve with C.I. wheel (screwed end) 32 mm dia	each	1.0	410.00	410.00
9988	Carriage and sundries of materials and fixing charge	L.S	12.22	1.73	21.14
TOTAL					431.14
Add Water Charges @ 1%					4.31
TOTAL					435.45
Add CPOH @ 15%					65.32
Cost of 1.0 each					500.77
Cost of 1 each					500.77
Say					500.75

	Cost index 46.08 %				230.75
--	---------------------------	--	--	--	--------

	Total with Cost index				731.50
--	-----------------------	--	--	--	--------

114 Specification Code: 18.17.3

18.17 Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :

18.17.3 40 mm nominal bore

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for one no. MATERIAL:				
1929	Brass full way valve with C.I. wheel (screwed end) 40 mm dia	each	1.0	480.00	480.00
9988	Carriage and sundries of materials and fixing charge	L.S	13.52	1.73	23.39
TOTAL					503.39
Add Water Charges @ 1%					5.03
TOTAL					508.42
Add CPOH @ 15%					76.26
Cost of 1.0 each					584.68
Cost of 1 each					584.68
Say					584.7

	Cost index 46.08 %				269.43
	Total with Cost index				854.13

115 Specification Code: 18.17.4

18.17 Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :

18.17.4 50 mm nominal bore

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for one no MATERIAL:				
1930	Brass full way valve with C.I. wheel (screwed end) 50 mm dia	each	1.0	620.00	620.00
9988	Carriage and sundries of materials and fixing charge	L.S	14.82	1.73	25.64
TOTAL					645.64
Add Water Charges @ 1%					6.46
TOTAL					652.10
Add CPOH @ 15%					97.81
Cost of 1.0 each					749.91
Cost of 1 each					749.91
Say					749.9

	Cost index 46.08 %			345.55
	Total with Cost index			1095.45

116 Specification Code: 18.48

18.48

Providing and placing on terrace (at all floor levels) polyethylene water storage tank :ISI 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 500 litres tank one no. MATERIAL:				
1649	Polyethylene water storage tank with cover and suitable locking arrangemnet	per litre	500.0	5.30	2650.00
9977	Carriage	L.S	179.4	1.73	310.36

9999	Sundries-Placing at terrace	L.S	89.7	1.73	155.18
------	-----------------------------	-----	------	------	--------

TOTAL					3115.54
Add Water Charges @ 1%					31.16
TOTAL					3146.70
Add CPOH @ 15%					472.00
Cost of 500.0 Litre					3618.70
Cost of 1 Litre					7.24
Say					7.25

Cost index 46.08 %					3.34
Total with Cost index					10.59

117 Specification Code: od39838/2017_2018

od39838/2017_2018 :Supplying and fixing of centrifugal pump, with CI construction, CI impeller complete with motor, base plate, foundation bolts, nuts, pressure guage and all accessories. and working with 415V, 3ph and 50 Hz frequency capacity :17m3/hr head :21m

Code	Description	Unit	Quantity	Rate	Amount
MR	Cost of pump with all accessories	each	1.00000	7770.00	7770.00
0116	Fitter(grade1)	Day	1.50000	487.00	730.50
0114	Beldar	Day	1.00000	368.00	368.00
TOTAL					8868.50
cost for one each					8868.50
say					8868.50

Add Water Charges @ 1.0%					88.68
Add CPOH @ 15.0%					1343.57

	Cost index 46.08 %				587.93
	Total with Cost index				10888.70
	Say				10888.70

118 Specification Code: od39839/2017_2018

od39839/2017_2018 :Supplying and fixing of CI double flanged wall casting pipe with puddle, 0.6m length including cost and conveyance of all materials,labour charges,making good the walls etc complete as directed by the Engineer-in-Charge.: 80 mm

Code	Description	Unit	Quantity	Rate	Amount
MR	CI double flange	no	1.00000	3135.88	3135.88
TOTAL					3135.88
cost for one no					3135.88
	say				3135.88

	Add Water Charges @ 1.0%				31.35
	Add CPOH @ 15.0%				475.08
	Cost index 46.08 %				0.00
	Total with Cost index				3642.32
	Say				3642.32

119 Specification Code: od39840/2017_2018

od39840/2017_2018 :Supplying and fixing of CI double flanged wall casting pipe with puddle, 0.6m length including cost and conveyance of all materials,labour charges,making good the walls etc complete as directed by the Engineer-in-Charge. : 65 mm

Code	Description	Unit	Quantity	Rate	Amount
MR	CI double flange	no	1.00000	2948.05	2948.05

TOTAL					2948.05
cost for one no					2948.05
	say				2948.05

	Add Water Charges @ 1.0%				29.48
	Add CPOH @ 15.0%				446.62
	Cost index 46.08 %				0.00
	Total with Cost index				3424.16
	Say				3424.16

120 Specification Code: od39841/2017_2018

od39841/2017_2018 :Supplying and fixing of CI double flanged wall casting pipe with puddle, 0.6m length including cost and conveyance of all materials,labour charges,making good the walls etc complete as directed by the Engineer-in-Charge. : 150 mm

Code	Description	Unit	Quantity	Rate	Amount
MR	CI double flanged	no	1.00000	6111.63	6111.63
TOTAL					6111.63
cost for one no					6111.63
	say				6111.63

	Add Water Charges @ 1.0%				61.11
	Add CPOH @ 15.0%				925.91
	Cost index 46.08 %				-0.01
	Total with Cost index				7098.66
	Say				7098.66

121 Specification Code: od39842/2017_2018

od39842/2017_2018 :Supplying and fixing of CI double flanged wall casting pipe with puddle, 0.6m length including cost and conveyance of all materials,labour charges,making good the walls etc complete as directed by the Engineer-in-Charge. : 100 mm

Code	Description	Unit	Quantity	Rate	Amount
MR	CI double flanged	no	1.00000	4043.23	4043.23
TOTAL					4043.23
cost for one no					4043.23
	say				4043.23

	Add Water Charges @ 1.0%				40.43
	Add CPOH @ 15.0%				612.54
	Cost index 46.08 %				0.00
	Total with Cost index				4696.21
	Say				4696.21

122 Specification Code: od39843/2017_2018

od39843/2017_2018 :Providing and fixing C.I. basket type dirt box strainer 50mm dia for bulk type water meter with nuts, bolts, rubber etc. complete conforming to IS : 2373 : including cost and conveyance of all materials, labour etc. complete and as directed by Engineer-in-Charge

Code	Description	Unit	Quantity	Rate	Amount
MR	50 mm Water meter and dirt box strainer (including testing charges)	each	1.00000	5301.35	5301.35
9999	Sundries	L.S	25.0000 0	1.73	43.25
9999	Sundries	L.S	30.0000 0	1.73	51.90

18.30.1	Rate as per item number 18.30.1 of SH: Water Supply	no	2.00000	102.93	205.85
---------	---	----	---------	--------	--------

TOTAL					5602.35
cost for one each					5602.35
	say				5602.35

	Add Water Charges @ 1.0%				56.02
	Add CPOH @ 15.0%				848.75
	Cost index 46.08 %				161.10
	Total with Cost index				6668.23
	Say				6668.23

123 Specification Code: od39844/2017_2018

od39844/2017_2018 :Supplying and fixing of CI single flanged wall casting pipe with puddle, 0.6m length including cost and conveyance of all materials,labour charges,making good the walls etc complete as directed by the Engineer-in-Charge. 200mm

Code	Description	Unit	Quantity	Rate	Amount
MR	200mm single flanged	each	1.00000	5103.00	5103.00
0114	Beldar	Day	1.00000	368.00	368.00
TOTAL					5471.00
cost for one each					5471.00
	say				5471.00

	Add Water Charges @ 1.0%				54.71
	Add CPOH @ 15.0%				828.85
	Cost index 46.08 %				196.96
	Total with Cost index				6551.53
	Say				6551.53

124 Specification Code: od39845/2017_2018

od39845/2017_2018 :Supplying and fixing of CI single flanged wall casting pipe with puddle, 0.6m length including cost and conveyance of all materials,labour charges,making good the walls etc complete as directed by the Engineer-in-Charge. 150mm

Code	Description	Unit	Quantity	Rate	Amount
MR	150mm single flanged	each	1.00000	4399.50	4399.50
0114	Beldar	Day	1.00000	368.00	368.00
TOTAL					4767.50
cost for one each					4767.50
	say				4767.50

	Add Water Charges @ 1.0%				47.67
	Add CPOH @ 15.0%				722.27
	Cost index 46.08 %				196.96
	Total with Cost index				5734.41
	Say				5734.41

125 Specification Code: od39846/2017_2018

od39846/2017_2018 :Providing and fixing enclosed type water meter (bulk type) 50mm dia conforming to IS : 2373 and tested by Municipal Board complete with bolts, nuts, rubber etc. (The tail pieces if required will be paid separately) including cost and conveyance of all materials, labour etc. complete and as directed by Engineer-in-Charge

Code	Description	Unit	Quantity	Rate	Amount
MR	50mm Water meter	each	1.00000	6087.97	6087.97
9999	Sundries	L.S	130.000 00	1.73	224.90

9999	Sundries	L.S	26.0000 0	1.73	44.98
9999	Sundries	L.S	52.0000 0	1.73	89.96
18.30.2	Rate as per item number 18.30.2 of SH: Water Supply	no	2.00000	166.90	333.79
TOTAL					6781.60
cost for one each					6781.60
	say				6781.60

	Add Water Charges @ 1.0%				67.81
	Add CPOH @ 15.0%				1027.41
	Cost index 46.08 %				371.24
	Total with Cost index				8248.07
	Say				8248.07

Other Engineering Organisations

126 Specification Code: od39847/2017_2018

od39847/2017_2018 :Supplying and fixing CI foot valve with all accessories including cost and conveyance of all materials,labour charges etc complete as directed by the Engineer -in - charge at all levels. 50 mm dia

Code	Description	Unit	Quantity	Rate	Amount
MR	50mm foot valve	each	1.00000	2736.20	2736.20
9999	Sundries	L.S	14.8200 0	1.73	25.64
TOTAL					2761.84
cost for one each					2761.84
	say				2761.84

	Add Water Charges @ 1.0%				27.61
--	--------------------------	--	--	--	--------------

	Add CPOH @ 15.0%				418.41
	Cost index 46.08 %				13.72
	Total with Cost index				3221.60
	Say				3221.60

127 Specification Code: 18.19.3.1

18.19 Providing and fixing gun metal non-return valve of approved quality (screwed end):

18.19.3 40 mm nominal bore

18.19.3.1 Horizontal

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for one no MATERIAL:				
1935	Gunmetal non-return valve-horizontal (screwed end) 40 mm dia	each	1.0	560.00	560.00
9988	Carriage and sundries of materials and fixing charge	L.S	16.12	1.73	27.89
TOTAL					587.89
Add Water Charges @ 1%					5.88
TOTAL					593.77
Add CPOH @ 15%					89.07
Cost of 1.0 each					682.84
Cost of 1 each					682.84
Say					682.85

	Cost index 46.08 %				314.66
	Total with Cost index				997.51

128 Specification Code: 18.19.4.1

18.19 Providing and fixing gun metal non-return valve of approved quality (screwed end):

18.19.4 50 mm nominal bore

18.19.4.1 Horizontal

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for one no MATERIAL:				
1936	Gunmetal non-return valve-horizontal (screwed end) 50 mm dia	each	1.0	820.00	820.00
9988	Carriage and sundries of materials and fixing charge	L.S	17.55	1.73	30.36
TOTAL					850.36
Add Water Charges @ 1%					8.50
TOTAL					858.86
Add CPOH @ 15%					128.83
Cost of 1.0 each					987.69
Cost of 1 each					987.69
Say					987.7

	Cost index 46.08 %				455.13
	Total with Cost index				1442.83

129 Specification Code: 18.19.5.1

18.19 Providing and fixing gun metal non-return valve of approved quality (screwed end):

18.19.5 65 mm nominal bore

18.19.5.1 Horizontal

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for one no MATERIAL:				
1937	Gunmetal non-return valve-horizontal (screwed end) 65 mm dia	each	1.0	1490.00	1490.00
9988	Carriage and sundries of materials and fixing charge	L.S	18.85	1.73	32.61
TOTAL					1522.61
Add Water Charges @ 1%					15.23
TOTAL					1537.84
Add CPOH @ 15%					230.68
Cost of 1.0 each					1768.52
Cost of 1 each					1768.52
Say					1768.5

	Cost index 46.08 %			814.92
	Total with Cost index			2583.42

130 Specification Code: 19.6.2

19.6 Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete:

19.6.2 150 mm dia R.C.C. pipe

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 metre MATERIAL				
1701	R.C.C.pipes NP2 class 150 mm dia (in 2m. length = 5 nos.	metre	10.0	210.00	2100.00

1715	R.C.C. collars NP2 class 150 mm dia 5 Nos.	each	5.0	35.00	175.00
2281	Carriage of R.C.C.Pipes 150 mm dia Cement of 5 joints = 5x0.0008 = 0.004 cum = 0.006 tonne	100 meter	10.0	378.03	37.803
0367	Portland Cement	tonne	0.006	5700.00	34.20
2209	Carriage of Cement Fine sand for 5 joint = 0.0016x5 = 0.008 cum	tonne	0.006	92.24	0.55
0983	Fine sand (zone IV)	cum	0.008	760.00	6.08
2261	Carriage of Fine sand (1 part badarpur sand : 2 parts jamuna sand LABOUR:	cum	0.008	103.77	0.83
0123	Mason (brick layer) 1st class	Day	0.39	487.00	189.93
0124	Mason (brick layer)2nd class	Day	0.39	448.00	174.72
0114	Beldar	Day	0.78	368.00	287.04
0101	Bhisti	Day	0.16	407.00	65.12

TOTAL				3071.27
Add Water Charges @ 1%				30.71
TOTAL				3101.98
Add CPOH @ 15%				465.30
Cost of 10.0 metre				3567.28
Cost per metre				356.73
Say				356.75

	Cost index 46.08 %			164.39
	Total with Cost index			521.14

131 Specification Code: 19.6.4

19.6

Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete:

19.6.4 300 mm dia R.C.C. pipe

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 metre LABOUR:				
1703	R.C.C. pipes NP2 class 300 mm dia (in 2.5 m length = 4 Nos.)	metre	10.0	300.00	3000.00
1717	R.C.C. collars NP2 class 300 mm dia 4 Nos.	each	4.0	55.00	220.00
2290	Carriage of R.C.C. Pipes 300 mm dia Cement of 4 joint = 4x0.00185 = 0.0074 cum = 0.011 tonne	100 meter	10.0	1080.08	108.00799 6
0367	Portland Cement	tonne	0.011	5700.00	62.70
2209	Carriage of Cement Fine sand for 4 joint = 0.00374 x 4 = 0.0148 say 0.015 cum = 0.006 cum	tonne	0.011	92.24	1.01
0983	Fine sand (zone IV)	cum	0.015	760.00	11.40
2261	Carriage of Fine sand (1 part badarpur sand : 2 parts jamuna sand LABOUR:	cum	0.015	103.77	1.56
0123	Mason (brick layer) 1st class	Day	0.59	487.00	287.33
0124	Mason (brick layer)2nd class	Day	0.59	448.00	264.32
0114	Beldar	Day	1.16	368.00	426.88
0101	Bhisti	Day	0.2	407.00	81.40
TOTAL					4464.61
Add Water Charges @ 1%					44.65

	TOTAL	4509.26
	Add CPOH @ 15%	676.39
	Cost of 10.0 metre	5185.65
	Cost per metre	518.56
	Say	518.55

	Cost index 46.08 %				238.95
	Total with Cost index				757.50

132 Specification Code: 50.18.9.8.1

50.18.9.8.1 Providing and fixing PVC pipes including jointing of pipes with one step PVC solvent cement, trenching, refilling & testing of joints complete as per direction of Engineer in Charge. 75 mm dia 6 Kgf/ cm²

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10.00 meter MATERIALS:				
MR52	PVC pipe 75 mm outer dia 6kgf/cm ² Add 5% for wastage etc. on (A)	metre	10.5	129.00	1354.50
0116	Fitter(grade1)	Day	0.25	487.00	121.75
0114	Beldar Trenching and refilling etc.	Day	0.66	368.00	242.88
0114	Beldar	Day	0.66	368.00	242.88
0115	Coolie	Day	0.66	368.00	242.88
	TOTAL				2204.89
	Add Water Charges @ 1%				22.05
	TOTAL				2226.94
	Add CPOH @ 15%				334.04
	Cost of 10.0 metre				2560.98

	Cost per metre	256.10
	Say	256.1

	Cost index 46.08 %				45.51
	Total with Cost index				301.61

133 Specification Code: 50.18.9.9.1

50.18.9.9.1 Providing and fixing PVC pipes including jointing of pipes with one step PVC solvent cement, trenching, refilling & testing of Joints complete as per direction of engineer in charge. 110 mm dia 6Kgf/cm²

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10. meter MATERIALS:				
MR54	PVC pipe 110 mm outer dia 6kgf/cm ² Add 5% for wastage etc.on (A)	metre	10.5	211.00	2215.50
0116	Fitter(grade1)	Day	0.37	487.00	180.19
0114	Beldar Trenching and refilling etc.	Day	0.97	368.00	356.96
0114	Beldar	Day	0.8	368.00	294.40
0115	Coolie	Day	0.8	368.00	294.40
TOTAL					3341.45
Add Water Charges @ 1%					33.41
TOTAL					3374.86
Add CPOH @ 15%					506.23
Cost of 10.0 metre					3881.09
Cost per metre					388.11
Say					388.1

	Cost index 46.08 %				60.26
--	---------------------------	--	--	--	-------

	Total with Cost index				448.36
--	-----------------------	--	--	--	--------

134 Specification Code: 50.18.9.10.1

50.18.9.10.1 Providing and fixing PVC pipes including jointing of pipes with one step pvc solvent cement, trenching , refilling & testing of joints complete as per direction of Engineer in Charge. 150 mm dia 6 Kgf/cm2

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10.00 meter MATERIALS:				
MR56	PVC pipe 150 mm outer dia 6kgf/cm2 Add 5% for wastage etc. on (A)	metre	10.5	520.00	5460.00
0116	Fitter(grade1)	Day	0.37	487.00	180.19
0114	Beldar Trenching and refilling etc.	Day	0.97	368.00	356.96
0114	Beldar	Day	0.8	368.00	294.40
0115	Coolie	Day	0.8	368.00	294.40
TOTAL					6585.95
Add Water Charges @ 1%					65.86
TOTAL					6651.81
Add CPOH @ 15%					997.77
Cost of 10.0 metre					7649.58
Cost per metre					764.96
Say					764.95

	Cost index 46.08 %				60.26
	Total with Cost index				825.21

Sump & External water supply

1 Specification Code: 2.32

2.32 Clearing grass and removal of the rubbish up to a distance of 50 m outside the periphery of the area cleared.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 100 sqm LABOUR:				
0114	Beldar	Day	0.6	368.00	220.80
0115	Coolie	Day	0.25	368.00	92.00
9999	Sundries-	L.S	1.82	1.73	3.15
TOTAL					315.95
Add Water Charges @ 1%					3.16
TOTAL					319.11
Add CPOH @ 15%					47.87
Cost of 100.0 sqm					366.98
Other Engineering Organisations Cost of 1 sqm					3.67
Say					3.65
Cost index 46.08 %					1.68
Total with Cost index					5.33

2 Specification Code: 2.6.1

2.6 Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed.

2.6.1 All kinds of soil

Code	Description	Unit	Quantity	Rate	Amount
------	-------------	------	----------	------	--------

	Details of cost for 10 cum. Average output of Hydraulic Excavator per hour = 30cum MACHINERY:				
0020	Hydraulic Excavator (3D) with driver and fuel	Day	0.041	6500.00	266.50
0018	Hire and running charges of loader LABOUR:	Day	0.041	6000.00	246.00
0128	Mate Beldar/	Day	0.32	407.00	130.24
0115	Coolie	Day	1.2	368.00	441.60

	TOTAL	1084.34
	Add Water Charges @ 1%	10.84
	TOTAL	1095.18
	Add CPOH @ 15%	164.28
	Cost of 10.0 cum	1259.46
	Cost of 1 cum	125.95
	Say	125.95

	Cost index 46.08 %				58.04
	Total with Cost index				183.99

3 Specification Code: od39808/2017_2018

od39808/2017_2018 :Earth work in excavation by means (Hydraulic excavator)/manual means over areas (exceeding 30cm in depth.1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50 m disposed earth to be levelled and neatly dressed, as directed by the Engineer- in-Charge but for every additional lift of 1.5m to 3.00m or part there of : All kinds of soil

Details of cost for 10 cum.

Average output of Hydraulic Excavator per hour = 30cum

MACHINERY:

Code	Description	Unit	Quantity	Rate	Amount
0020	Hydraulic Excavator (3D) with driver and fuel	Day	0.04100	6500.00	266.50
0018	Hire and running charges of loader LABOUR:	Day	0.04100	6000.00	246.00
0128	Mate Beldar/	Day	0.32000	407.00	130.24
0115	Coolie	Day	1.20000	368.00	441.60
2.8.1	Rate as per item number 2.8.1 of SH: Earth Work	cum	1.00000	143.26	143.26
TOTAL					1227.60
	cost for 10.0 cum				1227.60
	cost for one cum				122.76
	say				122.76

	Add Water Charges @ 1.0%				1.22
	Add CPOH @ 15.0%				18.59
	Cost index 46.08 %				65.70
	Total with Cost index				208.29
	Say				208.29

4 Specification Code: 2.25

2.25 Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 cum. LABOUR:				

0128	Mate	Day	0.2	407.00	81.40
0115	Coolie	Day	2.5	368.00	920.00
0101	Bhisti	Day	0.2	407.00	81.40

TOTAL					1082.80
Add Water Charges @ 1%					10.83
TOTAL					1093.63
Add CPOH @ 15%					164.04
Cost of 10.0 cum					1257.67
Cost per cum					125.77
Say					125.75

Cost index 46.08 %					57.95
Total with Cost index					183.70

5 Specification Code: 4.1.8 **Other Engineering Organisations**

4.1 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:

4.1.8 1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 nominal size)

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 1 cum MATERIAL:				
0293	Stone Aggregate(single size): 40 mm nominal size nominal size (0.70 cum -7.5% for voids i.e. 0.05 =0.65 cum)	cum	0.65	1250.00	812.50
0295	Stone Aggregate(single size):20 mm nominal size nominal size	cum	0.24	1300.00	312.00

2206	Carriage of Stone aggregate 40 mm nominal size and above	cum	0.65	112.79	73.31
2202	Carriage of Stone aggregate below 40 mm nominal size	cum	0.24	103.77	24.90
0982	Coarse sand (zone III)	cum	0.47	1200.00	564.00
2203	Carriage of Coarse sand	cum	0.47	103.77	48.77
0367	Portland Cement	tonne	0.17	5700.00	969.00
2209	Carriage of Cement LABOUR:	tonne	0.17	92.24	15.68
0155	Mason (average)	Day	0.1	467.00	46.70
0114	Beldar	Day	1.63	368.00	599.84
0101	Bhisti	Day	0.7	407.00	284.90
0002	Hire charges of Concrete Mixer 0.25 to 0.40 cum with Hopper	Day	0.07	800.00	56.00
0012	Vibrator (Needle type 40 mm)	Day	0.07	350.00	24.50
9999	Sundries-	L.S	13.52	1.73	23.39

				TOTAL	3855.49
				Add Water Charges @ 1%	38.55
				TOTAL	3894.04
				Add CPOH @ 15%	584.11
				Cost of 1.0 cum	4478.15
				Say	4478.15

	Cost index 46.08 %				2063.53
	Total with Cost index				6541.68

6 Specification Code: od39809/2017_2018

od39809/2017_2018 :Providing and laying in position machine batched and machine mixed design mix M-25

grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, Providing and laying in position machine batched and machine mixed design mix M-30 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge.“(Note :- Cement content considered in this item is @ 340 kg/cum.“Excess/ less cement used as per design mix is payable/recoverable separately).

All work upto plinth level

Details of cost for 1. 00 cum

MATERIAL:

Code	Description	Unit	Quantity	Rate	Amount
5.33.1	Rate as per item number 5.33.1 of SH: Reinforced Cement Concrete	cum	1.00000	5550.15	5550.15
5.34.1	Rate as per item number 5.34.1 of SH: Reinforced Cement Concrete	cum	1.00000	59.84	59.84
TOTAL					5609.99
Other Engineering Organisations cost for one cum					5609.99
say					5609.99

	Add Water Charges @ 1.0%				56.09
	Add CPOH @ 15.0%				849.91
	Cost index 46.08 %				3002.57
	Total with Cost index				9518.58
	Say				9518.58

7 Specification Code: 5.22.6

5.22

Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level

5.22.6

Thermo - Mechanically Treated bars of grade Fe-500D or more

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 1 quintal MATERIAL: Deformed twisted steel bars = 1.00 q Add 5% wastage = 0.05 Total = 1.05q				
1005	Twisted steel/deformed bars	quintal	1.05	3730.00	3916.50
2205	Carriage of Steel	tonne	0.105	92.24	9.69
9999	Sundries-Cover block LABOUR: For straightening, bending binding and placing in postion	L.S	26.0	1.73	44.98
0102	Blacksmith 1st class	Day	1.0	487.00	487.00
0114	Beldar	Day	1.0	368.00	368.00
9999	Sundries-	L.S	26.91	1.73	46.55

	TOTAL	4872.72
	Other Engineering Organisations Add Water Charges @ 1%	48.73
	TOTAL	4921.45
	Add CPOH @ 15%	738.22
	Cost of 100.0 kilogram	5659.67
	Cost per kilogram	56.60
	Say	56.6

	Cost index 46.08 %				26.08
	Total with Cost index				82.68

8 Specification Code: 5.9.1

5.9 Centering and shuttering including strutting, etc. and removal of form for:

5.9.1 Foundations, footings, bases of columns, etc for mass concrete

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for footing size 2.7mx2.7mx 1.00m Contact area = 10.8sqm MATERIAL: Assuming shuttering material will become unserviceable after use of 40 times Adding for maintenance @ 10% of cost Taking salvage value after full use of material @ 25% of cost				
7319	wall form panel 1250x500 mm Qty taken for cost of using once = $16 \times 0.85 / 40 = 0.34$	each	0.34	900.00	306.00
7326	Corner angle 45x45x5 mm 1.50 m long Qty taken for cost of using once = $4 \times 0.85 / 40 = 0.085$	each	0.085	250.00	21.25
7327	100 mm channel shoulder 2.5 m long Qty taken for cost of using once = $8 \times 0.85 / 40 = 0.17$	each	0.17	950.00	161.50
7328	Double clip (bridge clip) Qty taken for cost of using once = $16 \times 0.85 / 40 = 0.34$	each	0.34	80.00	27.20
7329	Single clip Qty taken for cost of using once = $8 \times 0.85 / 40$ $= 0.17$	each	0.17	62.00	10.54
7330	M.S. Tube 40 mm dia Qty taken for cost of using once = $10.8 \times 0.85 / 40 = 0.2295$	metre	0.2295	225.00	51.64
9999	Sundries-Assembly nuts 7 bolts Qty taken for cost of using once = $1040 \times 0.85 / 40 = 22.10$	L.S	22.1	1.73	38.23
9977	Carriage LABOUR	L.S	78.0	1.73	134.94
0116	Fitter(grade1)	Day	0.75	487.00	365.25

0114	Beldar	Day	1.5	368.00	552.00
9999	Sundries-Suttering oil	L.S	52.0	1.73	89.96
9999	Sundries-	L.S	26.0	1.73	44.98

TOTAL					1803.49
Add Water Charges @ 1%					18.03
TOTAL					1821.52
Add CPOH @ 15%					273.23
Cost of 10.8 sqm					2094.75
Cost of 1 sqm					193.96
Say					193.95

Cost index 46.08 %					89.37
Total with Cost index					283.32

9	Specification Code: 5.9.3	Other Engineering Organisations			
---	---------------------------	---------------------------------	--	--	--

SUBHEAD : 5.0
REINFORCED CEMENT CONCRETE

5.9 Centering and shuttering including strutting, etc. and removal of form for:

5.9.3 Suspended floors, roofs, landings, balconies and access platform

Code	Description	Unit	Quantity	Rate	Amount
------	-------------	------	----------	------	--------

	<p>Details of cost for a room 4.5x3 = 13.50 sqm height 3.5 m MATERIAL: Adding for maintenance @ 10% of cost Taking salvage value after full use of material @ 25% of cost 1. Plates (size 0.75x0.60) Angle 40x40x5 mm 2x0.75 = 1.5 m 2x0.60 = 1.20 m = 2.70 m @ 3.00 kg/m = 8.10 kg sheet 1.6 mm thick 0.75x0.60 = 0.45 sqm 0.45 sqm @ 12.55 kg/sqm = 5.65 kg Weight of one plate = 13.75 kg Add for wastage @ 5% = 0.69 kg Total = 14.44 kg Total weight of all plates = 5x6x14.44= 433.20 kg. Qty taken for cost using once = 433.2x0.85/40 = 9.2055 kg</p>				
10.1	Rate as per item Number 10.1 of SH: Steel Work	kilogram	9.2055	58.45	538.06(A)
7342	Adjustable span ESO+SI (2.35-3.40) Qty taken for cost using once = 5x0.85/40 = 0.1063	each	0.1063	1550.00	164.77
7343	Adjustable telescopic prop 3 m (2.02-3.75m) Qty taken for cost using once = 6x0.85/40 = 0.1275	each	0.1275	1000.00	127.50
9999	Sundries - Assembly nut & bolts etc. Qty taken for cost using once = 1040x0.85/40 = 22.10	L.S	22.1	1.73	38.23
9999	Sundries - Carriage LABOUR: Fitter (grade 1)	L.S	130.0	1.73	224.90

0116	Fitter(grade1)	Day	3.0	487.00	1461.00
0114	Beldar	Day	6.0	368.00	2208.00
9999	Sundries - Shuttering oil	L.S	78.0	1.73	134.94
9999	Sundries - paper tape etc	L.S	49.7	1.73	85.98

AddWater Charges @ 1% except on A ie on (4983.38-538.06=4445.32)		44.45
TOTAL		5027.83
AddCPOH @ 15% except on A ie on (5027.83-538.06=4489.77)		673.47
Cost of 13.5 sqm		5701.05
Cost of 1 sqm		422.30
Say		422.3

Cost index	46.08 %			194.60
Total with Cost index				616.90

Other Engineering Organisations

PRICE**10** Specification Code: 5.9.2**5.9** Centering and shuttering including strutting, etc. and removal of form for:**5.9.2** Walls (any thickness) including attached pilasters, butteresses, plinth and string courses etc.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 7.9m long and 1.00m high wall Area of contact 2x7.9x1.0 = 15.8 sqm MATERIAL: Assuming shuttering material will become unserviceable after use of 40 times Adding for maintenance @ 10% of cost Taking salvage value after full use of material @ 25% of cost				

7319	wall form panel 1250x500 mm 2x3x2x2 = 24 Nos. Qty taken for cost of using once = $24 \times 0.85 / 40 = 0.51$	each	0.51	900.00	459.00
7327	100 mm channel shoulder 2.5 m long 4x2 = 8 Qty taken for cost of using once = $8 \times 0.85 / 40$ = 0.17	each	0.17	950.00	161.50
7328	Double clip (bridge clip) 2x6x2 = 24 Qty taken for cost of using once = $24 \times 0.85 / 40 = 0.51$	each	0.51	80.00	40.80
7329	Single clip 2x3x2 = 12 Qty taken for cost of using once = $12 \times 0.85 / 40 = 0.255$	each	0.255	62.00	15.81
7330	M.S. Tube 40 mm dia 2x2x8m = 32m Qty taken for cost of using once = $32 \times 0.85 / 40 = 0.68$	metre	0.68	225.00	153.00
9999	Sundries-Qty taken for cost of using once = $1300 \times 0.85 / 40 = 27.62$	L.S	27.62	1.73	47.78
9977	Carriage LABOUR	L.S	78.0	1.73	134.94
0116	Fitter(grade1)	Day	3.5	487.00	1704.50
0114	Beldar	Day	6.0	368.00	2208.00
9999	Sundries- shuttering oil	L.S	78.0	1.73	134.94
9999	Sundries-	L.S	52.0	1.73	89.96

TOTAL				5150.23
Add Water Charges @ 1%				51.50
TOTAL				5201.73

	Add CPOH @ 15%	780.26
	Cost of 15.8 sqm	5981.99
	Cost of 1 sqm	378.61
	Say	378.6

	Cost index 46.08 %				174.46
	Total with Cost index				553.06

11 Specification Code: 19.18.3

19.18 Supplying and fixing C.I with out frame for manholes:

19.18.3 560 mm diameter (heavy duty) the weight of the cover to be not less than 108 kg

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for one cover MATERIAL:				
3861	560 mm dia cover without frame (Heavy duty)	each	1.0	5000.00	5000.00
9977	Carriage of C.I manhole cover LABOUR:	L.S	16.12	1.73	27.89
0114	Beldar	Day	0.12	368.00	44.16
TOTAL					5072.05
Add Water Charges @ 1%					50.72
TOTAL					5122.77
Add CPOH @ 15%					768.42
Cost of 1.0 each					5891.19
Cost of 1 each					5891.19
Say					5891.2

	Cost index 46.08 %				2714.66
--	---------------------------	--	--	--	---------

	Total with Cost index				8605.86
--	-----------------------	--	--	--	---------

12 Specification Code: 13.10

13.10

15 mm cement plaster 1:3 (1 cement :3 coarse sand) finished with a floating coat of neat cement on the rough side of single or half brick wall.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 sqm MATERIAL: Cement mortar 1:3 (1 cement : 3 coarse sand)				
3.8	Rate as per item Number3.8 of SH: Mortars LABOUR:	cum	0.172	4723.50	812.44
0155	Mason (average)	Day	0.8	467.00	373.60
0115	Coolie	Day	0.88	368.00	323.84
0101	Bhisti	Day	0.99	407.00	402.93
9999	Sundries-Scaffolding and sundries	L.S	12.61	1.73	21.82
0367	Portland Cement	tonne	0.02	5700.00	114.00
2209	Carriage of Cement	tonne	0.02	92.24	1.84
0155	Mason (average)	Day	0.27	467.00	126.09
0115	Coolie	Day	0.27	368.00	99.36
9999	Sundries-Scaffolding and sundries	L.S	8.06	1.73	13.94
TOTAL					2289.86
Add Water Charges @ 1%					22.90
TOTAL					2312.76
Add CPOH @ 15%					346.91
Cost of 10.0 sqm					2659.67
Cost per sqm					265.97

Say	265.95
-----	--------

Cost index 46.08 %	122.55
Total with Cost index	388.50

13 Specification Code: od39811/2017_2018

od39811/2017_2018 :Providing and applying 2 coats an acrylic polymer modified elastomeric cementitious water proof coating on roof slab , gutter ,OHT,SUMP etc which shall be mixed as per manufacture's technical specification, after thoroughly cleaning the surface by mechanical means to making it free of any loose mortar,unsound substrate,"V" grooves cut along the construction joints, cracks and joints of slab/wall on the external face and the same shall be filled with polymermodified mortar(CM 1:3 mixed with approved water proofing compound in the proportion recommended by the manufacturers), cracks in the slab (if any), pressure grouting wherever necessary by injecting mixed with approved expanding agent using pressure grouting pump with a pressure of 3 to 4kg/sqm ,strictly maintaining the coverage specified by the manufacturer, including cost and conveyance of all materials,labour charges etc complete as directed by the Engineer-in-Charge .(The above work shall be carriedout by an agency having sufficient experience in membrane water proofing and should ensure a guarantee of 5 years. .Only skilled and experienced persons shall be employed for this purpose.)

Code	Description	Unit	Quantity	Rate	Amount
MR	Rate as per quotation including material and labour charges	sqm	1.00000	360.00	360.00
TOTAL					360.00
cost for one sqm					360.00
	say				360.00

Add Water Charges @ 1.0%	3.60
Add CPOH @ 15.0%	54.54
Cost index 46.08 %	0.00
Total with Cost index	418.14
Say	418.14

Rcc septic tank for 150 users 1 No.

1 Specification Code: 2.32

2.32

Clearing grass and removal of the rubbish up to a distance of 50 m outside the periphery of the area cleared.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 100 sqm LABOUR:				
0114	Beldar	Day	0.6	368.00	220.80
0115	Coolie	Day	0.25	368.00	92.00
9999	Sundries-	L.S	1.82	1.73	3.15
TOTAL					315.95
Add Water Charges @ 1%					3.16
TOTAL					319.11
Add CPOH @ 15%					47.87
Other Engineering Organisation Cost of 100.0 sqm					366.98
PRICE Cost of 1 sqm					3.67
Say					3.65

	Cost index 46.08 %				1.68
	Total with Cost index				5.33

2 Specification Code: 2.6.1

2.6

Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed.

2.6.1

All kinds of soil

Code	Description	Unit	Quantity	Rate	Amount
------	-------------	------	----------	------	--------

	Details of cost for 10 cum. Average output of Hydraulic Excavator per hour = 30cum MACHINERY:				
0020	Hydraulic Excavator (3D) with driver and fuel	Day	0.041	6500.00	266.50
0018	Hire and running charges of loader LABOUR:	Day	0.041	6000.00	246.00
0128	Mate Beldar/	Day	0.32	407.00	130.24
0115	Coolie	Day	1.2	368.00	441.60

	TOTAL	1084.34
	Add Water Charges @ 1%	10.84
	TOTAL	1095.18
	Add CPOH @ 15%	164.28
	Cost of 10.0 cum	1259.46
	Cost of 1 cum	125.95
	Say	125.95

	Cost index 46.08 %				58.04
	Total with Cost index				183.99

3 Specification Code: od39808/2017_2018

od39808/2017_2018 :Earth work in excavation by means (Hydraulic excavator)/manual means over areas (exceeding 30cm in depth.1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50 m disposed earth to be levelled and neatly dressed, as directed by the Engineer- in-Charge but for every additional lift of 1.5m to 3.00m or part there of : All kinds of soil

Details of cost for 10 cum.

Average output of Hydraulic Excavator per hour = 30cum

MACHINERY:

Code	Description	Unit	Quantity	Rate	Amount
0020	Hydraulic Excavator (3D) with driver and fuel	Day	0.04100	6500.00	266.50
0018	Hire and running charges of loader LABOUR:	Day	0.04100	6000.00	246.00
0128	Mate Beldar/	Day	0.32000	407.00	130.24
0115	Coolie	Day	1.20000	368.00	441.60
2.8.1	Rate as per item number 2.8.1 of SH: Earth Work	cum	1.00000	143.26	143.26
TOTAL					1227.60
	cost for 10.0 cum				1227.60
	cost for one cum				122.76
	say				122.76

	Add Water Charges @ 1.0%				1.22
	Add CPOH @ 15.0%				18.59
	Cost index 46.08 %				65.70
	Total with Cost index				208.29
	Say				208.29

4 Specification Code: 2.25

2.25 Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 cum. LABOUR:				

0128	Mate	Day	0.2	407.00	81.40
0115	Coolie	Day	2.5	368.00	920.00
0101	Bhisti	Day	0.2	407.00	81.40

TOTAL					1082.80
Add Water Charges @ 1%					10.83
TOTAL					1093.63
Add CPOH @ 15%					164.04
Cost of 10.0 cum					1257.67
Cost per cum					125.77
Say					125.75

Cost index 46.08 %					57.95
Total with Cost index					183.70

5 Specification Code: 4.1.8 **Other Engineering Organisations**

4.1 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:

4.1.8 1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 nominal size)

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 1 cum MATERIAL:				
0293	Stone Aggregate(single size): 40 mm nominal size nominal size (0.70 cum -7.5% for voids i.e. 0.05 =0.65 cum)	cum	0.65	1250.00	812.50
0295	Stone Aggregate(single size):20 mm nominal size nominal size	cum	0.24	1300.00	312.00

2206	Carriage of Stone aggregate 40 mm nominal size and above	cum	0.65	112.79	73.31
2202	Carriage of Stone aggregate below 40 mm nominal size	cum	0.24	103.77	24.90
0982	Coarse sand (zone III)	cum	0.47	1200.00	564.00
2203	Carriage of Coarse sand	cum	0.47	103.77	48.77
0367	Portland Cement	tonne	0.17	5700.00	969.00
2209	Carriage of Cement LABOUR:	tonne	0.17	92.24	15.68
0155	Mason (average)	Day	0.1	467.00	46.70
0114	Beldar	Day	1.63	368.00	599.84
0101	Bhisti	Day	0.7	407.00	284.90
0002	Hire charges of Concrete Mixer 0.25 to 0.40 cum with Hopper	Day	0.07	800.00	56.00
0012	Vibrator (Needle type 40 mm)	Day	0.07	350.00	24.50
9999	Sundries-	L.S	13.52	1.73	23.39

				TOTAL	3855.49
				Add Water Charges @ 1%	38.55
				TOTAL	3894.04
				Add CPOH @ 15%	584.11
				Cost of 1.0 cum	4478.15
				Say	4478.15

	Cost index 46.08 %				2063.53
	Total with Cost index				6541.68

6 Specification Code: 5.33.1

5.33

Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement

content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer - in-charge. Note:- Cement content considered in this item is @ 330 kg/ cum. Excess or less cement used as per design mix is payable or recoverable separately.

5.33.1 All work upto plinth level

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 1.00 cum MATERIAL:				
0295	Stone Aggregate(single size):20 mm nominal size	cum	0.57	1300.00	741.00
0297	Stone Aggregate(single size): 10 mm nominal size	cum	0.28	1300.00	364.00
2202	Carriage of Stone aggregate below 40 mm nominal size	cum	0.85	103.77	88.20
0982	Coarse sand (zone III)	cum	0.425	1200.00	510.00
2203	Carriage of Coarse sand	cum	0.425	103.77	44.10
0367	Portland Cement	tonne	0.33	5700.00	1881.00
2209	Carriage of Cement	tonne	0.33	92.24	30.44
7318	Plasticizer / super plasticizer 0.50% of cement Production cost, pumping to respective floors and laying in position	kilogram	1.65	38.00	62.70
0004	Production cost of concrete by batch mix plant	cum	1.0	400.00	400.00
0009	Pumping charges of concrete including Hire charges of pump, piping work & accessories etc. LABOUR:	cum	1.0	200.00	200.00

0155	Mason (average) Labour for pouring, consolidating &curing	Day	0.17	467.00	79.39
0114	Beldar	Day	2.0	368.00	736.00
0101	Bhisti	Day	0.9	407.00	366.30
0012	Vibrator (Needle type 40 mm)	Day	0.07	350.00	24.50
9999	Sundries-	L.S	13.0	1.73	22.49

TOTAL					5550.12
Add Water Charges @ 1%					55.50
TOTAL					5605.62
Add CPOH @ 15%					840.84
Cost of 1.0 cum					6446.46
Say					6446.45

Cost index 46.08 %					2970.55
Total with Costing index					9417.05

7	Specification Code: 5.12
---	--------------------------

SUBHEAD : 5.0

REINFORCED CEMENT CONCRETE

5.12

Providing, hoisting and fixing up to floor level precast reinforced cement concrete work in string courses, bands, copings, bed plates, anchor blocks, plain window sills and the like, including the cost of required centering, shuttering but excluding cost of reinforcement, with 1:1.5:3 (1 cement : 1.5 coarse sand (Zone - III) : 3 graded stone aggregate 20 mm nominal size)

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 1 cum MATERIAL: Cement concrete 1:1.5:3 in string or lacing course etc.				

4.5.1	Rate as per item Number 4.5.1 of SH: Concrete work (NB: Rate has been taken including cost of fixing in CM 11:2 as precast members are to be fixed in CM 1:2)(1 cement : 2 coarse sand) as per CPWD specifications LABOUR: Extra labour laying CC in RCC work	cum	1.0	6772.45	6772.45(A)
0114	Beldar	Day	0.1	368.00	36.80
0101	Bhisti	Day	0.2	407.00	81.40
0123	Mason (brick layer) 1st class	Day	0.04	487.00	19.48
0124	Mason (brick layer) 2nd class	Day	0.04	448.00	17.92
0128	Mate	Day	0.04	407.00	16.28

Add Water Charges @ 1% except on A ie on (6944.33-6772.45=171.8798)					1.72
Other Engineering Organisations TOTAL					6946.05
Add CPOH @ 15% except on A ie on (6946.05-6772.45=173.59981)					26.04
Cost of 1.0 cum					6972.10
Cost of 1 cum					6972.10
Say					6972.1

Cost index 46.08 %					3212.74
Total with Cost index					10184.84

8 Specification Code: 5.22.6

5.22 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level

5.22.6 Thermo - Mechanically Treated bars of grade Fe-500D or more

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 1 quintal MATERIAL: Deformed twisted steel bars = 1.00 q Add 5% wastage = 0.05 Total = 1.05q				
1005	Twisted steel/deformed bars	quintal	1.05	3730.00	3916.50
2205	Carriage of Steel	tonne	0.105	92.24	9.69
9999	Sundries-Cover block LABOUR: For straightening, bending binding and placing in position	L.S	26.0	1.73	44.98
0102	Blacksmith 1st class	Day	1.0	487.00	487.00
0114	Beldar	Day	1.0	368.00	368.00
9999	Sundries-	L.S	26.91	1.73	46.55
TOTAL					4872.72
Add Water Charges @ 1%					48.73
TOTAL					4921.45
Add CPOH @ 15%					738.22
Cost of 100.0 kilogram					5659.67
Cost per kilogram					56.60
Say					56.6

	Cost index 46.08 %				26.08
	Total with Cost index				82.68

9 Specification Code: 5.9.1

5.9 Centering and shuttering including strutting, etc. and removal of form for:

5.9.1 Foundations, footings, bases of columns, etc for mass concrete

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for footing size 2.7mx2.7mx 1.00m Contact area = 10.8sqm MATERIAL: Assuming shuttering material will become unserviceable after use of 40 times Adding for maintenance @ 10% of cost Taking salvage value after full use of material @ 25% of cost				
7319	wall form panel 1250x500 mm Qty taken for cost of using once = $16 \times 0.85 / 40 = 0.34$	each	0.34	900.00	306.00
7326	Corner angle 45x45x5 mm 1.50 m long Qty taken for cost of using once = $4 \times 0.85 / 40 = 0.085$	each	0.085	250.00	21.25
7327	100 mm channel shoulder 2.5 m long Qty taken for cost of using once = $8 \times 0.85 / 40 = 0.17$	each	0.17	950.00	161.50
7328	Double clip (bridge clip) Qty taken for cost of using once = $16 \times 0.85 / 40 = 0.34$	each	0.34	80.00	27.20
7329	Single clip Qty taken for cost of using once = $8 \times 0.85 / 40$ $= 0.17$	each	0.17	62.00	10.54
7330	M.S. Tube 40 mm dia Qty taken for cost of using once = $10.8 \times 0.85 / 40 = 0.2295$	metre	0.2295	225.00	51.64
9999	Sundries-Assembly nuts 7 bolts Qty taken for cost of using once = $1040 \times 0.85 / 40 = 22.10$	L.S	22.1	1.73	38.23
9977	Carriage LABOUR	L.S	78.0	1.73	134.94
0116	Fitter(grade1)	Day	0.75	487.00	365.25

0114	Beldar	Day	1.5	368.00	552.00
9999	Sundries-Suttering oil	L.S	52.0	1.73	89.96
9999	Sundries-	L.S	26.0	1.73	44.98

TOTAL					1803.49
Add Water Charges @ 1%					18.03
TOTAL					1821.52
Add CPOH @ 15%					273.23
Cost of 10.8 sqm					2094.75
Cost of 1 sqm					193.96
Say					193.95

Cost index 46.08 %					89.37
Total with Cost index					283.32

10 Specification Code: 5.9.3 **Other Engineering Organisations**

SUBHEAD : 5.0
REINFORCED CEMENT CONCRETE

5.9 Centering and shuttering including strutting, etc. and removal of form for:

5.9.3 Suspended floors, roofs, landings, balconies and access platform

Code	Description	Unit	Quantity	Rate	Amount
------	-------------	------	----------	------	--------

	<p>Details of cost for a room 4.5x3 = 13.50 sqm height 3.5 m</p> <p>MATERIAL:</p> <p>Adding for maintenance @ 10% of cost Taking salvage value after full use of material @ 25% of cost</p> <p>1. Plates (size 0.75x0.60) Angle 40x40x5 mm 2x0.75 = 1.5 m 2x0.60 = 1.20 m = 2.70 m @ 3.00 kg/m = 8.10 kg sheet 1.6 mm thick 0.75x0.60 = 0.45 sqm 0.45 sqm @ 12.55 kg/sqm = 5.65 kg Weight of one plate = 13.75 kg Add for wastage @ 5% = 0.69 kg Total = 14.44 kg Total weight of all plates = 5x6x14.44= 433.20 kg. Qty taken for cost using once = 433.2x0.85/40 = 9.2055 kg</p>				
10.1	Rate as per item Number 10.1 of SH: Steel Work	kilogram	9.2055	58.45	538.06(A)
7342	Adjustable span ESO+SI (2.35-3.40) Qty taken for cost using once = 5x0.85/40 = 0.1063	each	0.1063	1550.00	164.77
7343	Adjustable telescopic prop 3 m (2.02-3.75m) Qty taken for cost using once = 6x0.85/40 = 0.1275	each	0.1275	1000.00	127.50
9999	Sundries - Assembly nut & bolts etc. Qty taken for cost using once = 1040x0.85/40 = 22.10	L.S	22.1	1.73	38.23
9999	Sundries - Carriage LABOUR: Fitter (grade 1)	L.S	130.0	1.73	224.90

0116	Fitter(grade1)	Day	3.0	487.00	1461.00
0114	Beldar	Day	6.0	368.00	2208.00
9999	Sundries - Shuttering oil	L.S	78.0	1.73	134.94
9999	Sundries - paper tape etc	L.S	49.7	1.73	85.98

AddWater Charges @ 1% except on A ie on (4983.38-538.06=4445.32)		44.45
TOTAL		5027.83
AddCPOH @ 15% except on A ie on (5027.83-538.06=4489.77)		673.47
Cost of 13.5 sqm		5701.05
Cost of 1 sqm		422.30
Say		422.3

Cost index 46.08 %		194.60
Total with Cost index		616.90

Other Engineering Organisations

PRICE

11 Specification Code: 5.9.2

5.9 Centering and shuttering including strutting, etc. and removal of form for:**5.9.2** Walls (any thickness) including attached pilasters, butteresses, plinth and string courses etc.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 7.9m long and 1.00m high wall Area of contact 2x7.9x1.0 = 15.8 sqm MATERIAL: Assuming shuttering material will become unserviceable after use of 40 times Adding for maintenance @ 10% of cost Taking salvage value after full use of material @ 25% of cost				

7319	wall form panel 1250x500 mm 2x3x2x2 = 24 Nos. Qty taken for cost of using once = $24 \times 0.85 / 40 = 0.51$	each	0.51	900.00	459.00
7327	100 mm channel shoulder 2.5 m long 4x2 = 8 Qty taken for cost of using once = $8 \times 0.85 / 40$ = 0.17	each	0.17	950.00	161.50
7328	Double clip (bridge clip) 2x6x2 = 24 Qty taken for cost of using once = $24 \times 0.85 / 40 = 0.51$	each	0.51	80.00	40.80
7329	Single clip 2x3x2 = 12 Qty taken for cost of using once = $12 \times 0.85 / 40 = 0.255$	each	0.255	62.00	15.81
7330	M.S. Tube 40 mm dia 2x2x8m = 32m Qty taken for cost of using once = $32 \times 0.85 / 40 = 0.68$	metre	0.68	225.00	153.00
9999	Sundries-Qty taken for cost of using once = $1300 \times 0.85 / 40 = 27.62$	L.S	27.62	1.73	47.78
9977	Carriage LABOUR	L.S	78.0	1.73	134.94
0116	Fitter(grade1)	Day	3.5	487.00	1704.50
0114	Beldar	Day	6.0	368.00	2208.00
9999	Sundries- shuttering oil	L.S	78.0	1.73	134.94
9999	Sundries-	L.S	52.0	1.73	89.96

TOTAL				5150.23
Add Water Charges @ 1%				51.50
TOTAL				5201.73

	Add CPOH @ 15%	780.26
	Cost of 15.8 sqm	5981.99
	Cost of 1 sqm	378.61
	Say	378.6

	Cost index 46.08 %				174.46
	Total with Cost index				553.06

12 Specification Code: 5.9.16.1

5.9 Centering and shuttering including strutting, etc. and removal of form for:

5.9.16 Edges of slabs and breaks in floors and walls

5.9.16.1 Under 20 cm wide

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for a 3mx3m slab 15cms thick 12m edge Length MATERIAL: Assuming that the timber will become unserviceable after being used 8 times				
1198	Second class kail wood in planks (i) Planks 30 mm thick (2nd class Kail wood or equivalent local soft wood) 4x3x0.15x0.030 = 0.54 cum Wastage @ 5% = 0.003 cum. Total = 0.057 cum 57 cudm Qty taken for cost of using once = 57/8 = 7.125 cudm	10 cud m	7.125	260.00	185.25

1197	<p>Second class kail wood in scantling (ii) Battens 75 mm x 100 mm (2nd class Kail wood) Horizontal $2 \times 4 \times 0.075 \times 0.1 \times 0.5 = 0.030$ Horizontal $2 \times 4 \times 0.075 \times 0.1 \times 1.5 = 0.090$ (iii) Vertical battens $16 \times 0.15 \times 0.075 \times 0.030 \text{m} = 0.0054$ (iv) Struts $16 \times 0.25 \times 0.07 \times 0.075 = 0.0225$ Total = 0.1479 Wastage @ 5% = 0.0074 Total = 0.1553 cum = 155 cudm Qty taken for cost of using once = $155/8 = 19.375$ cudm</p>	10 cud m	19.375	260.00	503.75
2204	<p>Carriage of Timber Planks = 0.057 cum. Batte4ns = 0.057 cum. Total = 0.212 cum. Qty taken for cost of using once = $0.212/8 = 0.0265$ cum LABOUR: For assembling erection dismantling & cleaning</p>	cum	0.0265	118.59	3.14
0112	Carpenter 2nd class	Day	0.81	448.00	362.88
0114	Beldar	Day	0.54	368.00	198.72
9999	Sundries-	L.S	5.2	1.73	9.00

TOTAL		1262.74
Add Water Charges @ 1%		12.63
TOTAL		1275.37
Add CPOH @ 15%		191.31
Cost of 12.0 metre		1466.68
Cost per metre		122.22
Say		122.2

	Cost index 46.08 %				56.31
	Total with Cost index				178.51

13 Specification Code: 10.2

SUBHEAD : 10.0

STEEL WORK

10.2 Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for a truss 7.6 m clear span (weight = 3.95 quintal) MATERIAL: (i) Principal rafter (T-iron): 100x100x10 mm @ 15kg/m = 142.50kg+ Struts (angles) 40x40x6 mm: 2x1.35 = 2.70 m @ 3.5kg/m = 9.45 kg Total = 151.95 kg + Add wastage @ 5% = 7.60 kg Total = 159.55 kg. = 1.60 q				
1007	Structural steel such as tees, angles, channels and R.S. joists (ii) Tiles (flats) 50x12mm: 2x2.7 = 5.4 m @ 4.7 kg/m = 25.38kg+ Ties central (flats): 50x10mm 1x2.80 = 2.8 m @ 3.90 kg/m=10.92kg.+ Braces (flats)40x 10 mm: 2x1.84 = 3.68m @ 3.9 kg/m = 14.35 kg. Total = 50.65 kg+ Add wastage @ 5% = 2.53kg Total = 53.18kg. = 0.53 qtl	quintal	1.6	3775.00	6040.00

1009	<p>Flats exceeding 10 mm in thickness (iii) Gusset plates 10 mm thick: 1x0.74x0.35m = 0.259 sqm.+ Shone 4x0.46x0.46 = 0.845 sqm. Total = 1.104 sqm. 1.104 sqn @ 78.4 kg/m = 86.55 kg 12 mm plates at the point of principal rafter and strut: 2x0.3x0.2 = 0.12 sqm. + Tie beam. brace and strut: 2x0.5x0.3 = 0.30 sqm. + Sole plates:2X0.46X0.46 = 0.42 sqm.+ Anchor plate:2x0.46x0.1 = 0.09sqm. Total = 0.93 sqm. Say 1.00 sqm. 1.00 sqm. @ 94.4 kg/m = 94.40 kg. Total = 180.95 kg Add wastage @ 5% = 9.05 kg. Total = 190.00kg or 1.90 q</p>	quintal	0.53	3775.00	2000.75
1010	<p>Mild steel plates (iv) 16mm dia. 50 mm long rivets = 56 Nos.+ Add wastage @ 5 % = 2.8 Nos. Total = 58.8 Nos.</p>	quintal	1.9	3900.00	7410.00
1020	<p>Mild steel rivets (v) 20 mm dia. holding down bolts 4 Nos. x 460 mm = 1840mm + Add wastage @ 5% = 92 mm Total = 1932 mm</p>	quintal	0.0684	4500.00	307.80
1221	20 mm dia holding down bolts	quintal	0.0529	5500.00	290.95
2205	<p>Carriage of Steel Carriage of steel (0.160+0.053+0.091+0.099+0.007+0.005) = 0.415 tonne LABOUR:</p>	tonne	0.415	92.24	38.28
0116	Fitter(grade1)	Day	2.7	487.00	1314.90
0103	Blacksmith 2nd class	Day	3.6	448.00	1612.80

0139	Skilled Beldar (for floor rubbing etc.)	Day	5.4	407.00	2197.80
0114	Beldar	Day	3.6	368.00	1324.80
0100	Bandhani Applying priming coat: T Iron 9.5 x 0.4 = 3.80 sqm. + Struts 2.70 x 0.16 = 0.43 sqm.+ Ties 5.4x0.124 = 0.67 sqm.+ Braces 2 x 1.84 x 0.12 = 0.44 sqm. + Ties 2.8x0.12 = 0.34 sqm. Total = 5.68 sqm	Day	0.44	407.00	179.08
13.50.3	Rate as per item Number13.50.3 of SH: Finishing	sqm	5.68	29.10	165.29(A)
9999	Sundries -	L.S	80.73	1.73	139.66

AddWater Charges @ 1% except on A ie on (23022.11-165.29=22856.82)		228.57
TOTAL		23250.68
AddCPOH @ 15% except on A ie on (23250.68-165.29=23085.39)		3462.81
Cost of 395.0 kg		26721.75
Cost of 1 kg		67.65
Say		67.65

Cost index	46.08 %				31.17
Total with Cost index					98.82

14 Specification Code: 19.18.3

19.18 Supplying and fixing C.I with out frame for manholes:

19.18.3 560 mm diameter (heavy duty) the weight of the cover to be not less than 108 kg

Code	Description	Unit	Quantity	Rate	Amount
------	-------------	------	----------	------	--------

	Details of cost for one cover MATERIAL:				
3861	560 mm dia cover without frame (Heavy duty)	each	1.0	5000.00	5000.00
9977	Carriage of C.I manhole cover LABOUR:	L.S	16.12	1.73	27.89
0114	Beldar	Day	0.12	368.00	44.16

TOTAL					5072.05
Add Water Charges @ 1%					50.72
TOTAL					5122.77
Add CPOH @ 15%					768.42
Cost of 1.0 each					5891.19
Cost of 1 each					5891.19
Say					5891.2

	Cost index 46.08 %			2714.66
	Total with Cost index			8605.86

15 Specification Code: 13.10

13.10

15 mm cement plaster 1:3 (1 cement :3 coarse sand) finished with a floating coat of neat cement on the rough side of single or half brick wall.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 sqm MATERIAL: Cement mortar 1:3 (1 cement : 3 coarse sand)				
3.8	Rate as per item Number 3.8 of SH: Mortars LABOUR:	cum	0.172	4723.50	812.44

0155	Mason (average)	Day	0.8	467.00	373.60
0115	Coolie	Day	0.88	368.00	323.84
0101	Bhisti	Day	0.99	407.00	402.93
9999	Sundries-Scaffolding and sundries	L.S	12.61	1.73	21.82
0367	Portland Cement	tonne	0.02	5700.00	114.00
2209	Carriage of Cement	tonne	0.02	92.24	1.84
0155	Mason (average)	Day	0.27	467.00	126.09
0115	Coolie	Day	0.27	368.00	99.36
9999	Sundries-Scaffolding and sundries	L.S	8.06	1.73	13.94

TOTAL					2289.86
Add Water Charges @ 1%					22.90
TOTAL					2312.76
Add CPOH @ 15%					346.91
Cost of 10.0 sqm					2659.67
Other Engineering Organisations Cost per sqm					265.97
Say					265.95

Cost index 46.08 %					122.55
Total with Cost index					388.50

16 Specification Code: 50.18.9.10.1

50.18.9.10.1 Providing and fixing PVC pipes including jointing of pipes with one step pvc solvent cement, trenching , refilling & testing of joints complete as per direction of Engineer in Charge. 150 mm dia 6 Kgf/cm²

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10.00 meter MATERIALS:				

MR56	PVC pipe 150 mm outer dia 6kgf/cm2 Add 5% for wastage etc. on (A)	metre	10.5	520.00	5460.00
0116	Fitter(grade1)	Day	0.37	487.00	180.19
0114	Beldar Trenching and refilling etc.	Day	0.97	368.00	356.96
0114	Beldar	Day	0.8	368.00	294.40
0115	Coolie	Day	0.8	368.00	294.40

TOTAL					6585.95
Add Water Charges @ 1%					65.86
TOTAL					6651.81
Add CPOH @ 15%					997.77
Cost of 10.0 metre					7649.58
Cost per metre					764.96
Say					764.95

Other Engineering Organisations					60.26
Cost index 46.08 %					
Total with Cost index					825.21

17 Specification Code: 22.4.1

22.4 Providing and Placing in position suitable PVC water stops conforming to IS : 12200 for construction / expansion joints between two RCC members and fixed to the reinforcement with binding wire before pouring concrete etc. complete:

22.4.1 Serrated with central bulb (225 mm wide, 8-11 mm thick)

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 100 metres MATERIAL:				
7427	Water stops Serrated with central bulb (225 mm wide, 8-11 mm thick)	metre	100.0	211.00	21100.00
0114	Beldar	Day	2.0	368.00	736.00

9999	Sundries-& wire etc.	L.S	26.0	1.73	44.98
------	----------------------	-----	------	------	-------

		TOTAL	21880.98
		Add Water Charges @ 1%	218.81
		TOTAL	22099.79
		Add CPOH @ 15%	3314.97
		Cost of 100.0 metre	25414.76
		Cost per metre	254.15
		Say	254.15

	Cost index 46.08 %				117.11
	Total with Cost index				371.26

Other Engineering Organisations

PRICE

Data Analysis

Compound wall and Gate

1 Specification Code: 2.32

2.32

Clearing grass and removal of the rubbish up to a distance of 50 m outside the periphery of the area cleared.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 100 sqm LABOUR:				
0114	Beldar	Day	0.6	368.00	220.80
0115	Coolie	Day	0.25	368.00	92.00
9999	Sundries-	L.S	1.82	1.73	3.15
TOTAL					315.95
Add Water Charges @ 1%					3.16
TOTAL					319.11
Add CPOH @ 15%					47.87
Cost of 100.0 sqm					366.98
Cost of 1 sqm					3.67
Say					3.65

	Cost index 46.08 %				1.68
	Total with Cost index				5.33

2 Specification Code: 2.8.1

2.8

Earth work in excavation by mechanical means (Hydraulic excavator) /manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.

2.8.1

All kinds of soil

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 cum. MACHINERY:				
0020	Hydraulic Excavator (3D) with driver and fuel	Day	0.04125	6500.00	268.13
0018	Hire and running charges of loader LABOUR:	Day	0.04125	6000.00	247.50
0128	Mate	Day	0.4	407.00	162.80
0115	Coolie	Day	2.05	368.00	754.40

TOTAL					1432.83
Add Water Charges @ 1%					14.33
TOTAL					1447.16
Add CPOH @ 15%					217.07
Cost of 10.0 cum					1664.23
Other Engineering Organisations Cost per cum					166.42
Say					166.4

Cost index 46.08 %					76.68
Total with Cost index					243.08

3 Specification Code: od44936/2018_2019

od44936/2018_2019 :Earth work in excavation over areas (exceeding 30cms in depth, 1.50m in width as well as 10sqm on plan) including disposal of excavated earth lead upto 50ms and disposed earth to be levelled and neatly dressed - Extra for every additional lift of 1.50 m or part thereof in excavation / banking excavated or stacked materials. All kinds of soil upto 4.50m

Code	Description	Unit	Quantity	Rate	Amount
MR	Extra for every additional lift upto 6m	cum	1.00000	321.65	321.65

TOTAL					321.65
cost for one cum					321.65
	say				321.65

	Add Water Charges @ 1.0%				3.21
	Add CPOH @ 15.0%				48.72
	Cost index 46.08 %				0.00
	Total with Cost index				373.60
	Say				373.60

4 Specification Code: 4.1.8

4.1 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:

4.1.8 1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 nominal size)

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 1 cum MATERIAL:				
0293	Stone Aggregate(single size): 40 mm nominal size nominal size (0.70 cum -7.5% for voids i.e. 0.05 =0.65 cum)	cum	0.65	1250.00	812.50
0295	Stone Aggregate(single size):20 mm nominal size nominal size	cum	0.24	1300.00	312.00
2206	Carriage of Stone aggregate 40 mm nominal size and above	cum	0.65	112.79	73.31
2202	Carriage of Stone aggregate below 40 mm nominal size	cum	0.24	103.77	24.90
0982	Coarse sand (zone III)	cum	0.47	1200.00	564.00

2203	Carriage of Coarse sand	cum	0.47	103.77	48.77
0367	Portland Cement	tonne	0.17	5700.00	969.00
2209	Carriage of Cement LABOUR:	tonne	0.17	92.24	15.68
0155	Mason (average)	Day	0.1	467.00	46.70
0114	Beldar	Day	1.63	368.00	599.84
0101	Bhisti	Day	0.7	407.00	284.90
0002	Hire charges of Concrete Mixer 0.25 to 0.40 cum with Hopper	Day	0.07	800.00	56.00
0012	Vibrator (Needle type 40 mm)	Day	0.07	350.00	24.50
9999	Sundries-	L.S	13.52	1.73	23.39

TOTAL					3855.49
Add Water Charges @ 1%					38.55
TOTAL					3894.04
Add CPOH @ 15%					584.11
Cost of 1.0 cum					4478.15
Say					4478.15

Cost index 46.08 %					2063.53
Total with Cost index					6541.68

5 Specification Code: 5.33.1

5.33

Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer - in-charge. Note:- Cement content considered in this item is @ 330 kg/ cum. Excess or less cement used as per

design mix is payable or recoverable separately.

5.33.1 All work upto plinth level

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 1.00 cum MATERIAL:				
0295	Stone Aggregate(single size):20 mm nominal size	cum	0.57	1300.00	741.00
0297	Stone Aggregate(single size): 10 mm nominal size	cum	0.28	1300.00	364.00
2202	Carriage of Stone aggregate below 40 mm nominal size	cum	0.85	103.77	88.20
0982	Coarse sand (zone III)	cum	0.425	1200.00	510.00
2203	Carriage of Coarse sand	cum	0.425	103.77	44.10
0367	Portland Cement	tonne	0.33	5700.00	1881.00
2209	Carriage of Cement	tonne	0.33	92.24	30.44
7318	Plasticizer / super plasticizer 0.50% of cement Production cost, pumping to respective floors and laying in position	kilogram	1.65	38.00	62.70
0004	Production cost of concrete by batch mix plant	cum	1.0	400.00	400.00
0009	Pumping charges of concrete including Hire charges of pump, piping work & accessories etc. LABOUR:	cum	1.0	200.00	200.00
0155	Mason (average) Labour for pouring, consolidating & curing	Day	0.17	467.00	79.39
0114	Beldar	Day	2.0	368.00	736.00
0101	Bhisti	Day	0.9	407.00	366.30

0012	Vibrator (Needle type 40 mm)	Day	0.07	350.00	24.50
9999	Sundries-	L.S	13.0	1.73	22.49

TOTAL					5550.12
Add Water Charges @ 1%					55.50
TOTAL					5605.62
Add CPOH @ 15%					840.84
Cost of 1.0 cum					6446.46
Say					6446.45

Cost index 46.08 %					2970.55
Total with Cost index					9417.05

6 Specification Code: 5.33.2

5.33 Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer - in-charge. Note:- Cement content considered in this item is @ 330 kg/ cum. Excess or less cement used as per design mix is payable or recoverable separately.

5.33.2 All work above plinth level upto floor V level

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 1.00 cum MATERIAL:				
0295	Stone Aggregate(single size):20 mm nominal size	cum	0.57	1300.00	741.00
0297	Stone Aggregate(single size): 10 mm nominal size	cum	0.28	1300.00	364.00

2202	Carriage of Stone aggregate below 40 mm nominal size	cum	0.85	103.77	88.20
0982	Coarse sand (zone III)	cum	0.425	1200.00	510.00
2203	Carriage of Coarse sand	cum	0.425	103.77	44.10
0367	Portland Cement	tonne	0.33	5700.00	1881.00
2209	Carriage of Cement	tonne	0.33	92.24	30.44
7318	Plasticizer / super plasticizer 0.50% of cement Production cost, pumping to respective floors and laying in position	kilogram	1.65	38.00	62.70
0004	Production cost of concrete by batch mix plant	cum	1.0	400.00	400.00
0009	Pumping charges of concrete including Hire charges of pump, piping work & accessories etc. LABOUR: Labour for pouring, consolidation & curing	cum	1.0	200.00	200.00
0155	Mason (average)	Day	0.17	467.00	79.39
0114	Beldar	Day	2.0	368.00	736.00
0101	Bhisti	Day	0.9	407.00	366.30
0012	Vibrator (Needle type 40 mm)	Day	0.07	350.00	24.50
9999	Sundries-Extra labour for lifting up to floor five level $0.75 \times 2.5 = 1.88$	L.S	13.0	1.73	22.49
0115	Coolie	Day	1.88	368.00	691.84

TOTAL			6241.96
Add Water Charges @ 1%			62.42
TOTAL			6304.38
Add CPOH @ 15%			945.66
Cost of 1.0 cum			7250.04

Say	7250.05
-----	---------

Cost index 46.08 %	3340.82
Total with Cost index	10590.87

7 Specification Code: 5.22.6

5.22 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level

5.22.6 Thermo - Mechanically Treated bars of grade Fe-500D or more

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 1 quintal MATERIAL: Deformed twisted steel bars = 1.00 q Add 5% wastage = 0.05 Total = 1.05q				
1005	Twisted steel/deformed bars	quintal	1.05	3730.00	3916.50
2205	Carriage of Steel	tonne	0.105	92.24	9.69
9999	Sundries-Cover block LABOUR: For straightening, bending binding and placing in postion	L.S	26.0	1.73	44.98
0102	Blacksmith 1st class	Day	1.0	487.00	487.00
0114	Beldar	Day	1.0	368.00	368.00
9999	Sundries-	L.S	26.91	1.73	46.55
TOTAL					4872.72
Add Water Charges @ 1%					48.73
TOTAL					4921.45
Add CPOH @ 15%					738.22

	Cost of 100.0 kilogram	5659.67
	Cost per kilogram	56.60
	Say	56.6

	Cost index 46.08 %				26.08
	Total with Cost index				82.68

8 Specification Code: 5.9.1

5.9 Centering and shuttering including strutting, etc. and removal of form for:

5.9.1 Foundations, footings, bases of columns, etc for mass concrete

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for footing size 2.7mx2.7mx 1.00m Contact area = 10.8sqm MATERIAL: Other Engineering Organisations Assuming shuttering material will become unserviceable after use of 40 times Adding for maintenance @ 10% of cost Taking salvage value after full use of material @ 25% of cost				
7319	wall form panel 1250x500 mm Qty taken for cost of using once = $16 \times 0.85 / 40 = 0.34$	each	0.34	900.00	306.00
7326	Corner angle 45x45x5 mm 1.50 m long Qty taken for cost of using once = $4 \times 0.85 / 40 = 0.085$	each	0.085	250.00	21.25
7327	100 mm channel shoulder 2.5 m long Qty taken for cost of using once = $8 \times 0.85 / 40 = 0.17$	each	0.17	950.00	161.50

7328	Double clip (bridge clip) Qty taken for cost of using once = $16 \times 0.85 / 40 = 0.34$	each	0.34	80.00	27.20
7329	Single clip Qty taken for cost of using once = $8 \times 0.85 / 40$ $= 0.17$	each	0.17	62.00	10.54
7330	M.S. Tube 40 mm dia Qty taken for cost of using once = $10.8 \times 0.85 / 40 = 0.2295$	metre	0.2295	225.00	51.64
9999	Sundries-Assembly nuts 7 bolts Qty taken for cost of using once = $1040 \times 0.85 / 40 = 22.10$	L.S	22.1	1.73	38.23
9977	Carriage LABOUR	L.S	78.0	1.73	134.94
0116	Fitter(grade1)	Day	0.75	487.00	365.25
0114	Beldar	Day	1.5	368.00	552.00
9999	Sundries-Suttering oil	L.S	52.0	1.73	89.96
9999	Sundries- Other Engineering Organisation	L.S	26.0	1.73	44.98

TOTAL				1803.49
Add Water Charges @ 1%				18.03
TOTAL				1821.52
Add CPOH @ 15%				273.23
Cost of 10.8 sqm				2094.75
Cost of 1 sqm				193.96
Say				193.95

	Cost index 46.08 %				89.37
	Total with Cost index				283.32

9 Specification Code: 5.9.3

SUBHEAD : 5.0**REINFORCED CEMENT CONCRETE**

5.9 Centering and shuttering including strutting, etc. and removal of form for:

5.9.3 Suspended floors, roofs, landings, balconies and access platform

Code	Description	Unit	Quantity	Rate	Amount
	<p>Details of cost for a room 4.5x3 = 13.50 sqm height 3.5 m MATERIAL: Adding for maintenance @ 10% of cost Taking salvage value after full use of material @ 25% of cost 1. Plates (size 0.75x0.60) Angle 40x40x5 mm 2x0.75 = 1.5 m 2x0.60 = 1.20 m = 2.70 m @ 3.00 kg/m = 8.10 kg sheet 1.6 mm thick 0.75x0.60 = 0.45 sqm 0.45 sqm @ 12.55 kg/sqm = 5.65 kg Weight of one plate = 13.75 kg Add for wastage @ 5% = 0.69 kg Total = 14.44 kg Total weight of all plates = 5x6x14.44= 433.20 kg. Qty taken for cost using once = 433.2x0.85/40 = 9.2055 kg</p>				
10.1	Rate as per item Number10.1 of SH: Steel Work	kilogram	9.2055	58.45	538.06(A)
7342	Adjustable span ESO+SI (2.35-3.40) Qty taken for cost using once = 5x0.85/40 =0.1063	each	0.1063	1550.00	164.77

7343	Adjustable telescopic prop 3 m (2.02-3.75m) Qty taken for cost using once = $6 \times 0.85 / 40 = 0.1275$	each	0.1275	1000.00	127.50
9999	Sundries - Assembly nut & bolts etc. Qty taken for cost using once = $1040 \times 0.85 / 40 = 22.10$	L.S	22.1	1.73	38.23
9999	Sundries - Carriage LABOUR: Fitter (grade 1)	L.S	130.0	1.73	224.90
0116	Fitter(grade1)	Day	3.0	487.00	1461.00
0114	Beldar	Day	6.0	368.00	2208.00
9999	Sundries - Shuttering oil	L.S	78.0	1.73	134.94
9999	Sundries - paper tape etc	L.S	49.7	1.73	85.98

	AddWater Charges @ 1% except on A ie on (4983.38-538.06=4445.32)	44.45
	TOTAL	5027.83
	AddCPOH @ 15% except on A ie on (5027.83-538.06=4489.77)	673.47
	Cost of 13.5 sqm	5701.05
	Cost of 1 sqm	422.30
	Say	422.3

	Cost index 46.08 %				194.60
	Total with Cost index				616.90

10 Specification Code: 5.9.5

SUBHEAD : 5.0

REINFORCED CEMENT CONCRETE

5.9 Centering and shuttering including strutting, etc. and removal of form for:

5.9.5 Lintels, beams, plinth beams, girders bressumers and cantilevers

Code	Description	Unit	Quantity	Rate	Amount
	<p>Details of cost for a beam of 6 m clear span, 0.50 m deep 0.30 m wide and height 3.5 m from floor cubical contents $6.60 \times 0.5 \times 0.3 = 0.99$ cum $1 \times 1.30 \times 6.00 = 7.80$ sqm MATERIAL: Assuming shuttering will become unserviceable after use of 40 times Add maintenance charges @ 10% of cost of material Less salvage value of material after full use @25% of cost of material 1. Steel plats for side and bottom (plate size 1.20 x 0.50 m) Angle 40x40x5mm $2 \times 1.20 = 2.40$ m $3 \times 0.50 = 1.50$ m Total 3.90 m @ 3.00 kg/m = 11.70 kg sheet 1.6 mm thick 1.20 m x 0.50 m = 0.60 sqm 0.60 sqm @ 12.55 kg/sqm. = 7.53 kg. Weight of one plate = 19.23 kg. Add for wastage 5% 0.96 kg. Total = 20.19 kg Total weight of all plates $3 \times 5 \times 20.19 = 302.85$ kg Qty taken for cost of using once = $302.85 \times 85/40 = 6.4356$ kg</p>				
10.1	Rate as per item Number 10.1 of SH: Steel Work	kilogram	6.4356	58.45	376.16(A)
7343	Adjustable telescopic prop 3 m (2.02-3.75m) Qty taken for using once = $6 \times 0.85/40 = 0.1275$ m	each	0.1275	1000.00	127.50

7344	Beam clamp 300-380 mm (450-1070 mm) Qty taken for cost of using once = $5 \times 0.85 / 40$ = 0.1063 m	each set	0.1063	370.00	39.33
9999	Sundries - Assembly nut & bolts etc. Qty taken for cost of using once = $1040 \times 0.85 / 40 = 22.10$	L.S	22.1	1.73	38.23
9999	Sundries - Carriage LABOUR:	L.S	78.0	1.73	134.94
0116	Fitter(grade1)	Day	1.25	487.00	608.75
0114	Beldar	Day	2.5	368.00	920.00
9999	Sundries - Shuttering oil	L.S	39.0	1.73	67.47
9999	Sundries - paper tape etc	L.S	24.61	1.73	42.58

AddWater Charges @ 1% except on A ie on (2354.96-376.16=1978.8)		19.79
TOTAL		2374.75
AddCPOH @ 15% except on A ie on (2374.75-376.16=1998.59)		299.79
Cost of 7.8 sqm		2674.62
Cost of 1 sqm		342.90
Say		342.9

Cost index 46.08 %		158.01
Total with Cost index		500.91

11 Specification Code: 5.9.6

5.9 Centering and shuttering including strutting, etc. and removal of form for:

5.9.6 Columns, Pillars, Piers, Abutments, Posts and Struts

Code	Description	Unit	Quantity	Rate	Amount
------	-------------	------	----------	------	--------

	<p>Details of cost for 4.5 sqm. Size of column 450x450mm and 2.5 m high Area of contact = $4 \times 0.45 \times 2.5 = 4.5$ sqm MATERIAL: Assuming shuttering will become unserviceable after use of 40 times Add maintenance charges @ 10 % of cost of material Less salvage value of material after full use @ 25% of cost of material</p>				
7331	<p>Wall form panel 1250x450xmm Qty taken for cost of using once = $8 \times 0.85 / 40 = 0.17$</p>	each	0.17	900.00	153.00
7332	<p>Corner angle 45x45x5 mm 2.50 long Qty taken for cost of using once = $4 \times 0.85 / 40 = 0.085$</p>	each	0.085	265.00	22.53
7333	<p>Column clamp 450x1070 mm Qty taken for cost of using once = $5 \times 0.85 / 40 = 0.1063$</p>	each	0.1063	1010.00	107.36
7334	<p>Prop 2 m (2-3.5m) Qty taken for cost of using once = $4 \times 0.85 / 40 = 0.085$</p>	each	0.085	665.00	56.53
9999	<p>Sundries-Qty taken for cost of using once = $1300 \times 0.85 / 40 = 27.62$</p>	L.S	27.62	1.73	47.78
9977	<p>Carriage LABOUR</p>	L.S	52.0	1.73	89.96
0116	<p>Fitter(grade1)</p>	Day	1.0	487.00	487.00
0114	<p>Beldar</p>	Day	2.0	368.00	736.00
9999	<p>Sundries-Shuttering oil</p>	L.S	39.0	1.73	67.47
9999	<p>Sundries-Carriage</p>	L.S	26.0	1.73	44.98

TOTAL				1812.61
Add Water Charges @ 1%				18.13
TOTAL				1830.74

	Add CPOH @ 15%	274.61
	Cost of 4.5 sqm	2105.35
	Cost of 1 sqm	467.86
	Say	467.85

	Cost index 46.08 %				215.59
	Total with Cost index				683.44

12 Specification Code: 5.9.13

5.9 Centering and shuttering including strutting, etc. and removal of form for:

5.9.13 Vertical and horizontal fins individually for forming box louvers band, fascias and eaves boards

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for fins 4 vertical fins 4 metre high and at 1 metre centres, with two horizontal fins all projecting 60cm from face of wall and 5cm thick. e. $4 \times 4 \times 1.215 + 2 \times 3 \times 0.65 = 23.90$ sqm MATERIAL:				
1198	Second class kail wood in planks 38 mm thick - $4 \times 4 \times 1.25 = 20.00$ $2 \times 3 \times 0.65 = 3.90$ Total = 23.90 Wastage @ 5% = 1.20 Total 25.10sqm. $25.10 \times 0.038 = .954$ cum or 954 cudm Qty taken for cost using once = $954/8 = 119.25$ cudm	10 cud m	119.25	260.00	3100.5

1197	Second class kail wood in scantling 4x2x5x0.60x0.075x0.050 =0.090 3x2x5x1.00x0.075x0.050 = 0.112 2x6x0.60x0.075x0.100=0.054 = 0.256 cum Wastage (R) 5% = 0.013 cum = 0.269 cum = 269 cum Qty taken for cost of using once = 269/8 = 33.625 cudm	10 cud m	33.625	260.00	874.25
0302	Safeda ballies 125 mm diameter 2x2x6x4.00 =96m Wastage @5% = 4.8m Total= 100.8 m Qty for cost using once = 100.8/8 = 12.6 m	metre	12.6	35.00	441.00
2204	Carriage of Timber Planks = 0.954 Battens = 0.269 Bailies $100.8 \times (.125)^2 / 4 \times 3.142 = 1.238 \text{ cum.}$ Total = 2.461 cum Qty for cost using once = $2.461/8 = 0.3076$ cum LABOUR: For assembling, erection, dismantling and cleaning	cum	0.3076	118.59	36.48
0112	Carpenter 2nd class	Day	11.0	448.00	4928.00
0114	Beldar	Day	11.0	368.00	4048.00
9999	Sundries-	L.S	80.73	1.73	139.66

TOTAL	13567.89
Add Water Charges @ 1%	135.68
TOTAL	13703.57
Add CPOH @ 15%	2055.54
Cost of 25.1 sqm	15759.11
Cost per sqm	627.85

Say	627.85
-----	--------

	Cost index 46.08 %				289.31
	Total with Cost index				917.16

13 Specification Code: 5.9.16.1

5.9 Centering and shuttering including strutting, etc. and removal of form for:

5.9.16 Edges of slabs and breaks in floors and walls

5.9.16.1 Under 20 cm wide

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for a 3mx3m slab 15cms thick 12m edge Length MATERIAL: Assuming that the timber will become unserviceable after being used 8 times				
1198	Second class kail wood in planks (i) Planks 30 mm thick (2nd class Kail wood or equivalent local soft wood) 4x3x0.15x0.030 = 0.54 cum Wastage @ 5% = 0.003 cum. Total = 0.057 cum 57 cum Qty taken for cost of using once = 57/8 = 7.125 cum	10 cum m	7.125	260.00	185.25

1197	<p>Second class kail wood in scantling (ii) Battens 75 mm x 100 mm (2nd class Kail wood) Horizontal $2 \times 4 \times 0.075 \times 0.1 \times 0.5 = 0.030$ Horizontal $2 \times 4 \times 0.075 \times 0.1 \times 1.5 = 0.090$ (iii) Vertical battens $16 \times 0.15 \times 0.075 \times 0.030 \text{m} = 0.0054$ (iv) Struts $16 \times 0.25 \times 0.07 \times 0.075 = 0.0225$ Total = 0.1479 Wastage @ 5% = 0.0074 Total = 0.1553 cum = 155 cudm Qty taken for cost of using once = $155/8 = 19.375$ cudm</p>	10 cud m	19.375	260.00	503.75
2204	<p>Carriage of Timber Planks = 0.057 cum. Batte4ns = 0.057 cum. Total = 0.212 cum. Qty taken for cost of using once = $0.212/8 = 0.0265$ cum LABOUR: For assembling erection dismantling & cleaning</p>	cum	0.0265	118.59	3.14
0112	Carpenter 2nd class	Day	0.81	448.00	362.88
0114	Beldar	Day	0.54	368.00	198.72
9999	Sundries-	L.S	5.2	1.73	9.00

TOTAL		1262.74
Add Water Charges @ 1%		12.63
TOTAL		1275.37
Add CPOH @ 15%		191.31
Cost of 12.0 metre		1466.68
Cost per metre		122.22
Say		122.2

	Cost index 46.08 %				56.31
	Total with Cost index				178.51

14 Specification Code: 5.11.1

5.11 Extra additional height in centering, shuttering where ever required with adequate bracing, propping etc. including cost of de-shuttering and decentering at all levels, over a height of 3.5m, for every additional height of 1 metre or part thereof (Plan area to be measured).

5.11.1 Suspended floors, roofs, landing, beams and balconies (Plan area to be measured)

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for a room of size 6m x 4.8m = 28.8 sqm MATERIAL: Assuming that shuttering material will become unserviceable after use 40 times Less salvage value of material after full use @ 25% of cost material for maintenance				
7345	Prop 4 m Qty taken for cost using once = $21 \times 0.85/40$ = 0.4463 Deduct the rate of 3m prop	each	0.4463	950.00	423.99
7343	Adjustable telescopic prop 3 m (2.02-3.75m) Qty taken for cost using once = $21 \times 0.85/40$ = 0.4463 Difference of rate between 4m prop and 3m prop	each	-0.4463	1000.00	-446.30

7330	M.S. Tube 40 mm dia Bracing MS tube 40 mm 7x4.8m = 33.60m 3x6.0m= 18.00 m Total = 51.60 m Qty taken for cost using once = $51.6 \times 0.85 / 40$ = 1.0965	metre	1.0965	225.00	246.71
7346	Double coupler (40x4) Qty taken for cost using once = $21 \times 0.85 / 40$ = 0.4463	each	0.4463	48.00	21.42
9977	Carriage LABOUR	L.S	65.0	1.73	112.45
0116	Fitter(grade1)	Day	3.0	487.00	1461.00
0114	Beldar	Day	6.0	368.00	2208.00
9999	Sundries-	L.S	130.0	1.73	224.90

Other Engineering Organisations

TOTAL		4252.17
Add Water Charges @ 1%		42.52
TOTAL		4294.69
Add CPOH @ 15%		644.20
Cost of 28.8 sqm		4938.89
Cost of 1 sqm		171.49
Say		171.5

Cost index	46.08 %				79.03
Total with Cost index					250.53

15 Specification Code: 2.25

2.25 Filling available excavated earth (excluding rock) in trenches, plinth, sides of

foundations etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 cum. LABOUR:				
0128	Mate	Day	0.2	407.00	81.40
0115	Coolie	Day	2.5	368.00	920.00
0101	Bhisti	Day	0.2	407.00	81.40
TOTAL					1082.80
Add Water Charges @ 1%					10.83
TOTAL					1093.63
Add CPOH @ 15%					164.04
Cost of 10.0 cum					1257.67
Cost per cum					125.77
Other Engineering Organisations Say					125.75
PRICE					
	Cost index	46.08 %			57.95
	Total with Cost index				183.70

16 Specification Code: 50.6.1.4

50.6.1.4

Solid block masonry using pre cast solid blocks (Factory made) of size 30x20x20cm or nearest available size confirming to IS 2185 part I of 1979 for foundation and plinth with thickness 20cm and above in: CM 1:6 (1 cement : 6 coarse sand) etc complete

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for one cum. MATERIALS:				
MR2	Solid blocks of size 30x20x20cm	each	77.0	36.50	2810.50

3.11	Rate as per item Number3.11 of SH: Mortars	cum	0.09	3217.55	289.58
9999	Sundries-	L.S	2.73	1.73	4.72
0123	Mason (brick layer) 1st class	Day	0.36	487.00	175.32
0124	Mason (brick layer)2nd class	Day	0.36	448.00	161.28
0115	Coolie	Day	1.37	368.00	504.16
0101	Bhisti	Day	0.2	407.00	81.40

TOTAL		4026.96
Add Water Charges @ 1%		40.27
TOTAL		4067.23
Add CPOH @ 15%		610.08
Cost of 1.0 cum		4677.31
Cost per cum		4677.31
Say		4677.3

Cost index 46.08 %		651.07
Total with Cost index		5328.37

17 Specification Code: 50.6.1.5

50.6.1.5

Solid block masonry using pre cast solid blocks (Factory made) of size 30x20x20cm or nearest available size confirming to IS 2185 Part I of 1979 for super structure up to floor two level thickness 20cm and above in: CM 1:6 (1 cement : 6 coarse sand) etc complete

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for one cum MATERIALS:				
MR2	Solid blocks of size 30x20x20cm	each	77.0	36.50	2810.50
3.11	Rate as per item Number3.11 of SH: Mortars	cum	0.09	3217.55	289.58

9999	Sundries-	L.S	2.73	1.73	4.72
0123	Mason (brick layer) 1st class	Day	0.47	487.00	228.89
0124	Mason (brick layer)2nd class	Day	0.47	448.00	210.56
0115	Coolie	Day	1.8	368.00	662.40
0101	Bhisti	Day	0.2	407.00	81.40
9999	Sundries-	L.S	22.36	1.73	38.68

TOTAL					4326.73
Add Water Charges @ 1%					43.27
TOTAL					4370.00
Add CPOH @ 15%					655.50
Cost of 1.0 cum					5025.50
Cost per cum					5025.50
Say					5025.5

Cost index 46.08 %				811.51
Total with Cost index				5837.01

18 Specification Code: 7.1.1

7.1 Random rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) up to plinth level with:

7.1.1 Cement mortar 1:6 (1 cement : 6 coarse sand)

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 1 cum MATERIAL				
1157	Stone for masonry work	cum	1.0	865.00	865.00

1154	Through and bond stone size 24 x 24 x 39cm CARRIAGE:	100 nos	7.0	1260.00	88.2
2215	Carriage of Soling stone & masonry stone 7.00x24cmx39cm = 0.16 cum 1.00 cum + 0.16 cum. = 1.16 cum Cement mortar 1:6 (1 cement : 6 Coarse sand)	cum	1.16	122.08	141.61
3.11	Rate as per item Number 3.11 of SH: Mortars LABOUR:	cum	0.33	3217.55	1061.79
0125	Mason (for plain stone work) 2nd class	Day	1.07	448.00	479.36
0114	Beldar	Day	1.07	368.00	393.76
0115	Coolie	Day	0.71	368.00	261.28
0101	Bhisti	Day	0.09	407.00	36.63
9999	Sundries-Cement concrete 1:6:12	L.S	45.76	1.73	79.16
9999	Sundries-	L.S	4.42	1.73	7.65

Other Engineering Organisations

				TOTAL	3414.44
				Add Water Charges @ 1%	34.14
				TOTAL	3448.58
				Add CPOH @ 15%	517.29
				Cost of 1.0 cum	3965.87
				Cost of 1 cum	3965.87
				Say	3965.85

	Cost index 46.08 %				1827.46
	Total with Cost index				5793.31

19 Specification Code: 13.16.1

13.16 6 mm cement plaster of mix:

13.16.1 1:3 (1 cement : 3 fine sand)

Code	Description	Unit	Quantity	Rate	Amount	
	Details of cost for 10 sqm MATERIAL: Cement mortar 1:3 (1 cement : 3 fine sand)					
3.3	Rate as per item Number 3.3 of SH: Mortars LABOUR:	cum	0.072	4252.70	306.19	
0155	Mason (average)	Day	0.51	467.00	238.17	
0115	Coolie	Day	0.75	368.00	276.00	
0101	Bhisti	Day	0.92	407.00	374.44	
9999	Sundries-Extra for removing burrs, cleaning with wire brushes, pock making with pointed tool etc.	L.S	13.39	1.73	23.16	
9999	Sundries-Scaffolding and sundries.	L.S	11.7	1.73	20.24	
Other Engineering Organisations					TOTAL	1238.20
Add Water Charges @ 1%						12.38
TOTAL						1250.58
Add CPOH @ 15%						187.59
Cost of 10.0 sqm						1438.17
Cost per sqm						143.82
Say						143.8

	Cost index 46.08 %				66.26
	Total with Cost index				210.06

20 Specification Code: 13.1.1

13.1 12 mm cement plaster of mix:

13.1.1 1:4 (1 cement : 4 fine sand)

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 sqm MATERIAL: Cement mortar 1:4(1 cement: 4 fine sand)				
3.4	Rate as per item Number3.4 of SH: Mortars	cum	0.144	3499.70	503.96
0155	Mason (average)	Day	0.67	467.00	312.89
0115	Coolie	Day	0.75	368.00	276.00
0101	Bhisti	Day	0.92	407.00	374.44
9999	Sundries-	L.S	12.61	1.73	21.82
TOTAL					1489.11
Add Water Charges @ 1%					14.89
TOTAL					1504.00
Add CPOH @ 15%					225.60
Cost of 10.0 sqm					1729.60
Other Engineering Organisations Cost per sqm					172.96
Say					172.95
PRICE					
	Cost index 46.08 %				79.70
	Total with Cost index				252.65

21 Specification Code: 13.2.1

13.2 15 mm cement plaster on the rough side of single or half brick wall of mix:

13.2.1 1:4 (1 cement :4 fine sand)

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 sqm MATERIAL: Cement mortar 1:4 (1 cement: 4 fine sand)				

3.4	Rate as per item Number 3.4 of SH: Mortars LABOUR:	cum	0.172	3499.70	601.95
0155	Mason (average)	Day	0.8	467.00	373.60
0115	Coolie	Day	0.88	368.00	323.84
0101	Bhisti	Day	0.99	407.00	402.93
9999	Sundries-Scaffolding and sundries	L.S	12.61	1.73	21.82

TOTAL					1724.14
Add Water Charges @ 1%					17.24
TOTAL					1741.38
Add CPOH @ 15%					261.21
Cost of 10.0 sqm					2002.59
Cost per sqm					200.26
Say					200.25

Other Engineering Organisations				92.28
Cost index 46.08 %				
Total with Cost index				292.53

22 Specification Code: 13.45.1

13.45 Finishing walls with textured exterior pint of required shade:

13.45.1 New work (Two or more coats applied @ 3.28 ltr/ 10 sqm) over and including priming coat of exterior primer applied @ 2.20 kg/ 10 sqm

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 sqm MATERIAL:				
8507	Textured exterior paint	Litre	3.28	230.00	754.40
0809	Exterior primer	kilogram	2.2	52.00	114.40

9977	Carriage of materialLABOUR:	L.S	1.56	1.73	2.70
0131	Painter	Day	0.6	448.00	268.80
0115	Coolie	Day	0.3	368.00	110.40
0101	Bhisti	Day	0.05	407.00	20.35
9999	Sundries-Brushes, sand paper etc.	L.S	7.02	1.73	12.14
9999	Sundries-	L.S	8.06	1.73	13.94

TOTAL					1297.13
Add Water Charges @ 1%					12.97
TOTAL					1310.10
Add CPOH @ 15%					196.52
Cost of 10.0 sqm					1506.62
Cost of 1 sqm					150.66
Say					150.65

Other Engineering Organisations				
PRICE				
Cost index 46.08 %				
Total with Cost index				
69.42				
220.07				

23 Specification Code: 13.46.1

13.46 Finishing walls with Acrylic Smooth exterior paint of required shade:

13.46.1 New work (Two or more coat applied @ 1.67 ltr/10 sqm over and including priming coat of exterior primer applied @ 2.20 kg/10 sqm)

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 10 sqm MATERIAL:				
8505	Acrylic exterior paint	Litre	1.67	170.00	283.90
0809	Exterior primer	kilogram	2.2	52.00	114.40

9977	Carriage of materialLABOUR:	L.S	1.56	1.73	2.70
0131	Painter	Day	0.6	448.00	268.80
0115	Coolie	Day	0.3	368.00	110.40
0101	Bhisti	Day	0.05	407.00	20.35
9999	Sundries-Brushes, sand paper etc.	L.S	7.15	1.73	12.37
9999	Sundries-	L.S	8.06	1.73	13.94

TOTAL					826.86
Add Water Charges @ 1%					8.27
TOTAL					835.13
Add CPOH @ 15%					125.27
Cost of 10.0 sqm					960.40
Cost of 1 sqm					96.04
Say					96.05

Other Engineering Organisations				
Cost index 46.08 %				
Total with Cost index				
44.26				
140.31				

Internal Roads and Pathways				
1 Specification Code: 16.78.2				

SUBHEAD : 16.0**ROAD WORK****16.78**

Construction of granular sub- base by Providing close graded Material conforming to specifications, mixing in a mechanical mix plant at OMC, Carriage of mixed material by tippers to work site, for all leads & lifts, spreading in uniform layers of specified thickness with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per specifications and directions of Engineer-in- Charge.

16.78.2

With material conforming to Grade-II (size range 53 mm to 0.075 mm) having CBRValue-25

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 225 cum (450 tonnes). (A) Material Close graded graunlar sub-base material as per Grading-II of specifications 26.5mm to 9.5mm @ 35% = 100.80 cum 9.5 mm to 2.36mm @ 25% = 72 cum 2.36mm below @ 40% = 115.20 cum				
0294	Stone Aggregate(single size):25 mm nominal size	cum	50.4	1250.00	63000.00
0297	Stone Aggregate(single size): 10 mm nominal size	cum	50.4	1300.00	65520.00
2202	Carriage of Stone aggregate below 40 mm nominal size	cum	100.8	103.77	10460.02

1179	Crushed stone 2.36 mm to 12.5 mm size	cum	72.0	900.00	64800.00
2202	Carriage of Stone aggregate below 40 mm nominal size	cum	72.0	103.77	7471.44
2903	Stone chippings/ screenings 4.75 mm nominla size	cum	57.6	1150.00	66240.00
2904	Stone chippings/ screenings 150 micron nominal size	cum	57.6	1150.00	66240.00
2203	Carriage of Coarse sand (B) Machinery	cum	115.2	103.77	11954.30
0059	Wet Mix Plant 60 TPH 75 tonne capacity	hour	6.0	750.00	4500.00
0070	Generator 100 KVA/125	hour	6.0	300.00	1800.00
0057	Water Tanker 5 to 6 KL Capacity 5 km lead with one trip per hour	hour	4.5	200.00	900.00

0052	Front end loader 1 cum bucket capacity (incl POL) Tipper 10 tonne capacity (taking lead= 10 Km) =450x10 =4500 t.Km	hour	6.0	800.00	4800.00
0053	Tipper -5 cum Add 10% of cost of carriage to cover d loading an unloading $X \times 10 / 100 = 13500.00 \times 10 / 100$ 110 HP	tonne km	4500.0	3.00	13500.00(X)
0050	Motor Grade 3.35 meter blade	hour	6.0	2100.00	12600.00
0054	Vibratory roller 8 to 10 tonne (C) Labour	hour	6.0	650.00	3900.00
0128	Mate	Day	0.4	407.00	162.80
0139	Skilled Beldar (for floor rubbing etc.)	Day	2.0	407.00	814.00
0114	Beldar	Day	8.0	368.00	2944.00
Tagged TOTAL			401606.56(Y)		

Add Water Charges @ 1%	4016.07
TOTAL	405622.63

	Add CPOH @ 15%	60843.39
	Cost of 225.0 cum	468033.75
	Cost of 1 cum	2080.15
	Say	2080.15

	Cost index 46.08 %				958.53
	Total with Cost index				3038.68

2 Specification Code: 16.68

16.68

Providing and laying 60 mm thick factory made cement concrete interlocking paver block of M - 30 grade made by block making machine with strong vibratory compaction, of approved size, design & shape, laid in required colour and pattern over and including 50 mm thick compacted bed of coarse sand, filling the joints with fine sand etc. all complete as per the direction of Engineer-in-charge.

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost of 10 sqm MATERIAL:				
8689	Interlocking C.C. paver block (60 mm thick, M-30) Beading Layer 50 mm thick	sqm	10.0	350.00	3500.00
0982	Coarse sand (zone III) = 10x0.050 = 0.50 cum	cum	0.5	1200.00	600.00
2203	Carriage of Coarse sand	cum	0.5	103.77	51.89
0983	Fine sand (zone IV)	cum	0.15	760.00	114.00
2261	Carriage of Fine sand (1 part badarpur sand : 2 parts jamuna sand Laying charges (Based on actual observation)	cum	0.15	103.77	15.57
0123	Mason (brick layer) 1st class	Day	0.5	487.00	243.50
0124	Mason (brick layer)2nd class	Day	0.5	448.00	224.00

0114	Beldar	Day	1.0	368.00	368.00
0115	Coolie	Day	0.5	368.00	184.00

TOTAL					5300.96
Add Water Charges @ 1%					53.01
TOTAL					5353.97
Add CPOH @ 15%					803.10
Cost of 10.0 sqm					6157.07
Cost per sqm					615.71
Say					615.7

Cost index 46.08 %					283.71
Total with Cost index					899.41

3 Specification Code: 16.69

16.69

Providing and laying at or near ground level factory made kerb stone of M-25 grade cement concrete in position to the required line, level and curvature jointed with cement mortar 1:3 (1 cement : 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5 mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-Charge)

Code	Description	Unit	Quantity	Rate	Amount
	Details of cost for 100 metre i.e MATERIAL: 100x0.375x0.20 = 7.50 cum No. of kerb stones = 100/0.405 = 247 Nos Precast C.C. Kerb stone M-25 = 247 x 0.40x0.375x0.20 = 7.41 cum				

8686	Precast C.C. Kerb stone M-25 Mortar 1:3 for fixing joints = $246 \times [(0.115 + 0.20) / 2] \times 0.375 \times 0.005 =$ 0.073 cum CM 1:3 (1 cement : 3 coarse sand)	cum	7.41	3800.00	28158.00
3.8	Rate as per item Number 3.8 of SH: Mortars Labour for fixing of kerb stone	cum	0.073	4723.50	344.82
0123	Mason (brick layer) 1st class	Day	2.5	487.00	1217.50
0124	Mason (brick layer)2nd class	Day	2.5	448.00	1120.00
0114	Beldar	Day	2.5	368.00	920.00
0115	Coolie	Day	1.65	368.00	607.20

TOTAL					32367.52
Add Water Charges @ 1%					323.68
TOTAL					32691.20
Add CPOH @ 15%					4903.68
Cost of 7.5 cum					37594.88
Cost per cum					5012.65
Say					5012.65

Cost index 46.08 %					2309.83
Total with Cost index					7322.48

Annexure 9

Observed data's and justification

Data Analysis

ACADEMIC BLOCK

1 Specification Code: od39807/2017_2018

od39807/2017_2018 :Boring, providing and installing bored cast-in-situ reinforced cement concrete piles of grade M-25 of specified diameter and length below the pile cap to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring, with bentonite solution and temporary casing of appropriate length for setting out and removal of same and the length of the pile to be embedded in the pile cap etc. all complete, including removal of excavated earth with all lifts and leads (Length of pile for payment shall be measured upto bottom of pile cap).

700 mm dia piles

Details of cost for 15 m length of pile

MATERIAL:

Concrete 3.14/4x0.70x0.70x15 = 5.769 cum

Code	Description	Unit	Quantity	Rate	Amount
5.33.1	Rate as per item number 5.33.1 of SH: Reinforced Cement Concrete	cum	5.76900	5550.15	32018.82
7183	Bentonite	tonne	0.30000	3100.00	930.00
9999	Sundries MACHINERY	L.S	131.580 00	1.73	227.63
0015	Hire and running charges of Tripod and Mechanical Winch machine complete with power unit and accessories	Day	1.40000	2000.00	2800.00
0025	Hire and running charges of light crane	Day	0.06000	2500.00	150.00
0026	Hire and running charges of bentonite pump	Day	0.75000	4200.00	3150.00
0017	Hire and running charges of tipper	Day	0.30000	1800.00	540.00
0018	Hire and running charges of loader LABOUR: Work supervisor	Day	0.30000	6000.00	1800.00
0130	Mistry	Day	0.14000	487.00	68.18
0114	Beldar	Day	3.50000	368.00	1288.00
TOTAL					42972.63

	cost for 15.0 metre				42972.63
	cost for one metre				2864.84
	say				2864.84

	Add Water Charges @ 1.0%				28.64
	Add CPOH @ 15.0%				434.02
	Cost index 46.08 %				1533.31
	Total with Cost index				4860.83
	Say				4860.83

2 Specification Code: od39808/2017_2018

od39808/2017_2018 :Earth work in excavation by means (Hydraulic excavator)/manual means over areas (exceeding 30cm in depth.1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50 m disposed earth to be levelled and neatly dressed, as directed by the Engineer- in-Charge but for every additional lift of 1.5m to 3.00m or part there of : All kinds of soil

Details of cost for 10 cum.

Average output of Hydraulic Excavator per

hour = 30cum

MACHINERY:

Code	Description	Unit	Quantity	Rate	Amount
0020	Hydraulic Excavator (3D) with driver and fuel	Day	0.04100	6500.00	266.50
0018	Hire and running charges of loader LABOUR:	Day	0.04100	6000.00	246.00
0128	Mate Beldar/	Day	0.32000	407.00	130.24
0115	Coolie	Day	1.20000	368.00	441.60
2.8.1	Rate as per item number 2.8.1 of SH: Earth Work	cum	1.00000	143.26	143.26

TOTAL					1227.60
	cost for 10.0 cum				1227.60
	cost for one cum				122.76
	say				122.76

	Add Water Charges @ 1.0%				1.22
	Add CPOH @ 15.0%				18.59
	Cost index 46.08 %				65.70
	Total with Cost index				208.29
	Say				208.29

3 Specification Code: od39812/2017_2018

Other Engineering Organisations

**od39812/2017_2018 :Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer - in -Charge. (Cost of aluminium snap beading shall be paid in basic item):
With pin headed glass panes of 4.0 mm thickness**

Details of cost for 1 sqm

MATERIAL:

Float glass panes 4.00 mm thick = 1.00 sqm

Add for wastage and breakage @

10% = 0.10 sqm.

Total = 1.10 sqm

Code	Description	Unit	Quantity	Rate	Amount
2406	Float glass sheet of nominal thickness 4 mm (weight not less than 10 kg/sqm)	sqm	1.10000	286.00	314.60
9977	Carriage of glass	L.S	2.42000	1.73	4.19
7390	Neoprene / EPDM rubber gasket LABOUR:	metre	6.00000	20.00	120.00

0112	Carpenter 2nd class	Day	0.23000	448.00	103.04
0114	Beldar	Day	0.23000	368.00	84.64
9988	Carriage and sundries of gasket	L.S	6.89000	1.73	11.92
2406	Float glass sheet of nominal thickness 4 mm (weight not less than 10 kg/sqm)	sqm	-1.10000	286.00	-314.60
7451	Glass sheet (pin headed) 4 mm thick	sqm	1.10000	320.00	352.00
				TOTAL	675.79
				cost for one sqm	675.79
	say				675.79

	Add Water Charges @ 1.0%				6.75
	Add CPOH @ 15.0%				102.38
	Cost index 46.08 %				361.69
	Total with Cost index				1146.63
	Other Engineering Organisations Say				1146.63

4 Specification Code: od39813/2017_2018

od39813/2017_2018 :Providing and fixing panelled or panelled and glazed shutters for shutters for doors, windows and clerestory windows, including ISI marked M.S. pressed butt hinges bright finished of required size with necessary screws, excluding panelling which will be paid for separately, all complete as per direction of Engineer - in-charge.

Second class teak wood

35 mm thick shutters

Details of cost for shutters of a Door (1/3rd glazed and 2/3rd panelled) 200x108cm = 2.16sqm)

MATERIAL:

Teak wood

Styles 4x200x10.0x3.5cm = 0.028 cum +

Rails

Top rails 1x110.5x3.5cm = 0.004 cum. +

Bottom rails 1x110.5x20x3.5cm = 0.008cum +

Lock rails 1x110.5x15x3.5cm = 0.006cum+

Beading 2x186. 1x1. 9x1.2cm = 0.001cum.

Total = 0.047 cum +
 Add for wastage @ 10% = 0.005cum
 Grand Total = 0.051 cum = 51 cudm

Code	Description	Unit	Quantity	Rate	Amount
1190	Second class teak wood in planks	10 cud m	51.00000	675.00	3442.50
2204	Timber	cum	0.05100	118.59	6.05
0595	Bright finished or black enameled mild steel butt hinges 100x58x1.90 mm	10 nos	6.00000	85.00	51.00
0597	Bright finished or black enameled mild steel butt hinges 50x37x1.50 mm	10 nos	2.00000	50.00	10.00
0637	Bright finished or black enameled mild steel screws 40 mm	100 nos	48.0000 0	63.00	30.24
0640	Bright finished or black enameled mild steel screws 20 mm LABOUR:	100 nos	8.00000	32.00	2.56
0156	Carpenter (average)	Day	1.83000	467.00	854.61
0114	Beldar	Day	0.76000	368.00	279.68
9999	Sundries	L.S	35.8800 0	1.73	62.07
MR	DAR 9.14	sqm	1.00000	215.63	215.63
TOTAL					4954.34
	cost for 2.16 sqm				4954.34
	cost for one sqm				2293.68
	say				2293.68

	Add Water Charges @ 1.0%				22.93
	Add CPOH @ 15.0%				347.49
	Cost index 46.08 %				1174.19
	Total with Cost index				3838.30

	Say				3838.30
--	-----	--	--	--	---------

5 Specification Code: od39814/2017_2018

od39814/2017_2018 :Providing and fixing S.S fan clamp of 16mm dia in RCC slabs, beams including cost and conveyance of all materials,labour charges etc complete as directed by the Engineer-in-Charge at all levels.

Code	Description	Unit	Quantity	Rate	Amount
MR	SS Fan clamp	each	1.00000	57.20	57.20
0103	Blacksmith 2nd class	Day	0.04000	448.00	17.92
0114	Beldar	Day	0.04000	368.00	14.72
9999	Sundries	L.S	1.82000	1.73	3.15
TOTAL					92.99
cost for one each					92.99
	say				92.99

	Add Water Charges @ 1.0%				0.92
	Add CPOH @ 15.0%				14.08
	Cost index 46.08 %				19.15
	Total with Cost index				127.16
	Say				127.16

6 Specification Code: od39815/2017_2018

od39815/2017_2018 :Providing and fixing in position collapsible steel shutters with vertical channels 20x10x2mm and braced with flat iron diagonals 20x5mm size, with top and bottom rail of T-iron 40x40x6mm, with 40mm dia steel pulleys, complete with bolts, nuts, locking arrangement, stoppers, handles, including painting with two coats of approved make and colour synthetic enamel paint over two coats of approved make anticorrosive yellow zinc chromate primer, including cost and conveyance of all materials, labour charges,lead,lift etc complete as directed by Engineer-in-Charge

Details of cost for a gate 2.4m x1.5 m = 3.6 sqm.

MATERIAL:

M.S. channels 18 Nos. on both sides
 20x10x2mm @ 0.56kg/m
 2x18x2.4 = 86.40 m +
 Add wastage @ 10% = 8.64
 Total = 95.04 m
 95.04 m @ 56 kg /m = 53.22kg = 0.53 q

Code	Description	Unit	Quantity	Rate	Amount
1007	Structural steel such as tees, angles, channels and R.S. joists M.S. Tee - 40x40x6 mm for bottom - 1.5 70 m + for top = 1.725 m = 3.295 m Say 3.3 m 3.3 @ 3.5kg/m = 11.55 kg+ Add wastage @ 10% = 1.155 kg Total = 12.705 kg. Say 0.13 qtl	quintal	0.53000	3775.00	2000.75
1007	Structural steel such as tees, angles, channels and R.S. joists 20mmx5mm flat iron diagonals 4 Nos. 4x32x0.5334= 68.275 m 68.275 m @ 0.8kg/m = 54.62 kg+ Add wastage @ 10% = 5.46 kg Total = 60.08kg = 0.60 qtl	quintal	0.13000	3775.00	490.75
1008	Flats up to 10 mm in thickness	quintal	0.60000	3675.00	2205.00
2205	Steel Carriage of steel (0.053+0.013+0.060= 0.126 tonne)	tonne	0.12600	92.24	11.62
9999	Sundries Cost of rivets fixing hooks and washers	L.S	269.100 00	1.73	465.54
9999	Sundries Cost of locking arrangements and handles.	L.S	67.3400 0	1.73	116.50
4013	Pulley 40 mm dia Priming coat- Channel-36x0.076x2.4 = 6.57 sqm.+ Tee 0.16x3.3 = 0.53 sqm. +	each	10.0000 0	30.00	300.00

	Flats - 0.05x68 = 3.40 sqm. Total = 10.50sqm				
--	---	--	--	--	--

13.50.3	Rate as per item number 13.50.3 of SH: Finishing LABOUR:	sqm	10.5000 0	25.05	263.07
0116	Fitter(grade1)	Day	3.00000	487.00	1461.00
0102	Blacksmith 1st class	Day	6.00000	487.00	2922.00
0103	Blacksmith 2nd class	Day	6.00000	448.00	2688.00
0123	Mason (brick layer) 1st class	Day	0.50000	487.00	243.50
0124	Mason (brick layer)2nd class	Day	0.50000	448.00	224.00
0114	Beldar	Day	8.00000	368.00	2944.00
9999	Sundries	L.S	161.460 00	1.73	279.33
13.50.4	Rate as per item number 13.50.4 of SH: Finishing	sqm	1.82200	13.43	24.47
13.61.1	Rate as per item number 13.61.1 of SH: Finishing	sqm	1.82200	67.50	122.98
				TOTAL	16762.51
	cost for 3.6 sqm				16762.51
	cost for one sqm				4656.25
	say				4656.25

	Add Water Charges @ 1.0%				46.56
	Add CPOH @ 15.0%				705.42
	Cost index 46.08 %				2492.11

	Total with Cost index				7900.35
	Say				7900.35

7 Specification Code: od39816/2017_2018

od39816/2017_2018 :Steel work in built up tubular sections YST 310 grade as per IS: 4923 including cutting, bending, hoisting, fixing in position, welded and bolted including special shaped washers etc. complete with electric resistance or induction butt welded tubes including painting with two coats of approved make and colour synthetic enamel paint over two coats of approved make anticorrosive yellow zinc chromate primer, closing all the open ends properly with same material cost and conveyance of all materials, labour, etc., complete as directed by the Engineer-in-Charge at all levels.

Code	Description	Unit	Quantity	Rate	Amount
10.16.3	Rate as per item number 10.16.3 of SH: Steel Work	kg	1.00000	96.60	96.60
13.50.4	Rate as per item number 13.50.4 of SH: Finishing	sqm	0.02240	13.43	0.30
13.61.1	Rate as per item number 13.61.1 of SH: Finishing	sqm	0.02240	67.50	1.51
				TOTAL	98.41
				cost for one per kg	98.41
	say				98.41

	Add Water Charges @ 1.0%				0.98
	Add CPOH @ 15.0%				14.90
	Cost index 46.08 %				52.67
	Total with Cost index				166.97
	Say				166.97

8 Specification Code: od39817/2017_2018

od39817/2017_2018 :Providing and laying MP hip & ridge tiles with class AA magalore pattern tile manufactured by M/s common wealth trust ltd or equivalent including fixing with cement mortar 1:2 as directed by Engineer-in-charge at all levels

Details of cost for 10 m

MATERIAL:

Code	Description	Unit	Quantity	Rate	Amount
MR	MP hip & ridge tile	1000 nos	30.00000	107750.00	3232.50
2207	Brick tiles	1000 nos	160.00000	166.03	26.56
3.2	Rate as per item number 3.2 of SH: Mortars	cum	0.00100	5133.75	5.13
0123	Mason (brick layer) 1st class	Day	0.24400	487.00	118.83
0114	Beldar	Day	1.05600	368.00	388.61
9999	Sundries	L.S	5.28100	1.73	9.14
TOTAL					3780.77
	cost for 10.0 metre				3780.77
	cost for one metre				378.08
	say				378.08

	Add Water Charges @ 1.0%				3.78
	Add CPOH @ 15.0%				57.27
	Cost index 46.08 %				29.34
	Total with Cost index				468.49
	Say				468.49

9 Specification Code: od39818/2017_2018

od39818/2017_2018 :Providing and laying MP tiles of size 320mm or nearest with class AA Mangalore pattern

tiles (COMTRUST) manufactured by M/s Common wealth Trust Ltd. or equivalent over the cement mortar reeper bands already done to correct lines and levels including the cost, conveyance of all material, labour charges, led lift etc complete as directed by the Engineer-in-charge at all levels

Details of cost for 10 sqm

MATERIAL:

Code	Description	Unit	Quantity	Rate	Amount
MR	MP tiles 1st class 320mm or nearest	1000 nos	130.00000	48080.00	6250.40
2207	Brick tiles	1000 nos	160.00000	166.03	26.56
MR	reeper band with CM 1:3	metre	40.00000	20.00	800.00
0123	Mason (brick layer) 1st class	Day	0.60000	487.00	292.20
0114	Beldar	Day	2.11300	368.00	777.58
9999	Sundries	L.S	13.00000	1.73	22.49
TOTAL					8169.23
	cost for 10.0 sqm				8169.23
	cost for one sqm				816.92
	say				816.92

	Add Water Charges @ 1.0%				8.16
	Add CPOH @ 15.0%				123.76
	Cost index 46.08 %				59.88
	Total with Cost index				1008.73
	Say				1008.73

10 Specification Code: od39819/2017_2018

od39819/2017_2018 :Providing and laying Antiskid Ceramic floor tiles 300x300x7 mm of 1st quality conforming to IS : 15622 of approved make,shade,and pattern laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand) and jointed with grey cement slurry @ 3.3 kg/sqm including pointing the joints with white cement and matching pigment etc.including cost and conveyance of all materials,labour charges,lead,lift etc, complete as directed by the Engineer-in-Charge at all levels.

Details of cost for 1 sqm

MATERIAL:

Glazed Ceramic floor tiles 300x300 mm size = 1.00 sqm

Add for wastage & breakage @ 2.5 % =0.025 sqm

Total = 1.025 sqm

Code	Description	Unit	Quantity	Rate	Amount
7801	Ceramic Glazed Tiles 1st quality 300 x 300 mm in all shades and designs of White, Ivory, grey, Fume Red brown etc.	sqm	1.02500	210.00	215.25
9977	Carriage Carriage of tiles 20 mm thick cement mortar 1:4 (1 cement : 4 coarse sand)	L.S	6.24000	1.73	10.80
3.9	Rate as per item number 3.9 of SH: Mortars	cum	0.02400	3970.50	95.29
9999	Sundries Mortar for pointing in white cement Cement for slurry over bed @ 3.3 kg per sqm	L.S	20.2000 0	1.73	34.95
0367	Portland Cement LABOUR:	tonne	0.00330	5700.00	18.81
0123	Mason (brick layer) 1st class	Day	0.20000	487.00	97.40
0115	Coolie	Day	0.20000	368.00	73.60
9988	Carriage and sundries including carriage of cement etc.	L.S	26.9100 0	1.73	46.55
TOTAL					592.65
cost for one sqm					592.65
	say				592.65

	Add Water Charges @ 1.0%				5.92
--	--------------------------	--	--	--	-------------

	Add CPOH @ 15.0%				89.78
	Cost index 46.08 %				317.19
	Total with Cost index				1005.56
	Say				1005.56

11 Specification Code: od39820/2017_2018

od39820/2017_2018 :Providing and fixing PVC tile edging to match the wall tiles and finishing as directed by the Engineer-in-Charge at all levels.

Code	Description	Unit	Quantity	Rate	Amount
MR	Rate as per quotation	metre	1.00000	32.00	32.00
MR	Labour charge	Day	1.00000	10.00	10.00
TOTAL					42.00
cost for one metre					42.00
	say				42.00

	Add Water Charges @ 1.0%				0.42
	Add CPOH @ 15.0%				6.36
	Cost index 46.08 %				0.00
	Total with Cost index				48.78
	Say				48.78

12 Specification Code: od39821/2017_2018

od39821/2017_2018 :Providing and applying melamine matt finish on wood work after scraping and cleaning the surface applying necessary coats of putty, filler and sealer, etc. Sanding shall be done along the grains using water paper/emery paper before applying filler, sealer and melamine to get a perfectly smooth and uniform finish. Melamine and sealer shall be applied using spary gun. The rate shall include cost and conveyance of all materials, lead lift, all labour

Code	Description	Unit	Quantity	Rate	Amount
MR	Rate as per quotation including material and labour charges	sqm	1.00000	645.60	645.60
TOTAL					645.60
cost for one sqm					645.60
	say				645.60

	Add Water Charges @ 1.0%				6.45
	Add CPOH @ 15.0%				97.80
	Cost index 46.08 %				0.00
	Total with Cost index				749.86
	Say				749.86

13 Specification Code: od39822/2017_2018

od39822/2017_2018 :Supplying and fixing of following sizes of Medium duty PVC conduits conforming to IS 9537/1983 Part III along with accessories in surface/ recess including cutting the wall and making good the same in case of recessed conduit as required. 20mm dia

Code	Description	Unit	Quantity	Rate	Amount
MR	Rate as per DSR Item no 1.21.2	metre	1.60000	57.00	91.20
TOTAL					91.20
cost for one metre					91.20
	say				91.20

	Add Water Charges @ 1.0%				0.91
	Add CPOH @ 15.0%				13.81
	Cost index 46.08 %				0.00
	Total with Cost index				105.93
	Say				105.93

14 Specification Code: od39823/2017_2018

od39823/2017_2018 :Supplying and fixing of following sizes of Medium duty PVC conduits conforming to IS 9537/1983 Part III along with accessories in surface/ recess including cutting the wall and making good the same in case of recessed conduit as required. 25mm dia

Code	Description	Unit	Quantity	Rate	Amount
MR	Rate as per DSR Item no 1.21.2	metre	1.60000	69.00	110.40
TOTAL					110.40
cost for one metre					110.40
	say				110.40

	Add Water Charges @ 1.0%				1.10
	Add CPOH @ 15.0%				16.72
	Cost index 46.08 %				0.00
	Total with Cost index				128.23
	Say				128.23

15 Specification Code: od39824/2017_2018

od39824/2017_2018 :Supplying and fixing of following sizes of Medium duty PVC conduits conforming to IS 9537/1983 Part III along with accessories in surface/ recess including cutting the wall and making good the same in case of recessed conduit as required. 32mm dia

Code	Description	Unit	Quantity	Rate	Amount
MR	Rate as per DSR Item no 1.21.3 including cost index	metre	1.60000	89.00	142.40
TOTAL					142.40
cost for one metre					142.40
	say				142.40

	Add Water Charges @ 1.0%				1.42
	Add CPOH @ 15.0%				21.57
	Cost index 46.08 %				0.00
	Total with Cost index				165.40
	Say				165.40

16 Specification Code: od39825/2017_2018

od39825/2017_2018 :Providing GI profiled sheet partition / screening of 2.5m height with vertical & horizontal bracing with 40mm dia GI pipe. The vertical member have 3.0m long, 50cm embeded into foundation concrete 1:3:6 using 20mm broken stone of size 30x30x60cm at 2m intervvels and horizontal members braced at bottom, middle and top of partitions including all cost, and conveyance of materials and labour charges etc. including dismatling and removing the materials after use.

Details for 10m

GI profile sheet $10.50 \times 2.50 = 26.26$

40mm dia GI pipe V $10. \times 3.0 / 2.0 = 15.0$

H $10.0 \times 3.0 = 30.0$

Earth work $5.0 \times 0.30 \times 0.3 \times 0.6 = 0.27 \text{m}^3$

PCC 1:3:6 20mm metal $5.0 \times 0.3 \times 0.3 \times 0.6 = 0.27$

Code	Description	Unit	Quantity	Rate	Amount
MR	GI Proilfe sheet	sqm	26.26000	790.00	20745.40
1549	G.I. pipes 40 mm dia	metre	45.0000 0	185.00	8325.00
2.8.1	Rate as per item number 2.8.1 of SH: Earth Work	cum	0.27000	143.26	38.68
4.1.5	Rate as per item number 4.1.5 of SH: Concrete work	cum	0.27000	4241.93	1145.32
0116	Fitter(grade1)	Day	1.32000	487.00	642.84
0114	Beldar	Day	1.32000	368.00	485.76
TOTAL					31383.00

	cost for 10.0 metre				31383.00
	cost for one metre				3138.30
	say				3138.30

	Add Water Charges @ 1.0%				31.38
	Add CPOH @ 15.0%				475.45
	Cost index 46.08 %				569.34
	Total with Cost index				4214.48
	Say				4214.48

17 Specification Code: od39826/2017_2018

od39826/2017_2018 :Providing and fixing coloured vitreous china under counter round wash basin 440 mm dia or nearest size of approved make including one CP brass pillar cock 15 mm NB including connecting pipes with all fittings 32 mm dia rubber plugs 32 mm dia CP brass waste coupling, 32 mm dia CP brass bottle trap, 15mm angle valve, etc. complete as directed by the Engineer-in-charge.

Details of cost for 1 pan

MATERIAL:

Code	Description	Unit	Quantity	Rate	Amount
MR	vitreous china countertop wash basin	each	1.00000	1254.00	1254.00
MR	15 mm C P brass pillar taps	each	1.00000	1357.00	1357.00
MR	32mm diaCP brass bottle trap	each	1.00000	996.15	996.15
MR	15mm diaCP brass angle valve	each	1.00000	316.00	316.00
1951	C.P. brass waste 32 mm	each	1.00000	80.00	80.00
1309	C.I. bracket for wash basin and sinks	pair	1.00000	65.00	65.00
9999	read led, white led & gasket	L.S	16.1200 0	1.73	27.89

9999	Sundries	L.S	13.3900 0	1.73	23.16
9999	Sundries	L.S	26.9100 0	1.73	46.55
9999	Sundries Cement , sand and grit etc.	L.S	26.9100 0	1.73	46.55
9977	Carriage of materials LABOUR:	L.S	13.5200 0	1.73	23.39
0116	Fitter(grade1)	Day	0.30000	487.00	146.10
0123	Mason (brick layer) 1st class	Day	0.33000	487.00	160.71
0114	Beldar	Day	0.63000	368.00	231.84
				TOTAL	4774.34
				cost for one each	4774.35
	say				4774.35

	Add Water Charges @ 1.0%				47.74
	Add CPOH @ 15.0%				723.31
	Cost index 46.08 %				455.57
	Total with Cost index				6000.99
	Say				6000.99

18 Specification Code: od39827/2017_2018

od39827/2017_2018 :Supplying and fixing approved quality white vitreous china urinal division plate 700 x 340 including cost and conveyance of all material, labour charge, lead, lift, all taxes etc. complete as directed by the Engineer-in-Charge.

Code	Description	Unit	Quantity	Rate	Amount
MR	Urinal division plate	no	1.00000	1449.00	1449.00

TOTAL					1449.00
cost for one no					1449.00
	say				1449.00

	Add Water Charges @ 1.0%				14.49
	Add CPOH @ 15.0%				219.52
	Cost index 46.08 %				0.00
	Total with Cost index				1683.01
	Say				1683.01

19 Specification Code: od39828/2017_2018

od39828/2017_2018 :Providing and fixing sanitary fixtures for handicaped toilet including one wash basin of size 65 x 35cm, one pair mounting brackets,one number pillar cock & all other related fittings like bottle trap ,angle cock,waste coupling etc,one number EWC & Cistern complete with fittings & seat cover, one no. hinged rail 76cm & 5 nos. of grab rails 60cm etc designed for people with special needs comes with as per manufactures specification including cutting and making good the walls and floors wherever required as directed by Engineer-in-Charge.

Code	Description	Unit	Quantity	Rate	Amount
MR	WB 65X35cm with one pair mounting brackets, EWC & cistern complete with fittings & seat cover, one no hinged rail 76cm & 5 nos of grab rails 60cm (Rate as per quotation)	no	1.00000	22696.00	22696.00
9999	Sundries Overflow arrangement and specials for overflow pipe	L.S	62.7900 0	1.73	108.63
1350	Mosquito proof coupling of approved design	each	1.00000	30.00	30.00
9999	Sundries Plugs, screws etc	L.S	13.5200 0	1.73	23.39
9999	Sundries Red lead, white lead and gasket	L.S	16.1200 0	1.73	27.89

9999	Sundries Cement, sand and grit etc.	L.S	26.9100 0	1.73	46.55
9977	Carriage of materials LABOUR:	L.S	26.9100 0	1.73	46.55
0116	Fitter(grade1)	Day	1.00000	487.00	487.00
0123	Mason (brick layer) 1st class	Day	1.00000	487.00	487.00
0114	Beldar	Day	1.00000	368.00	368.00
MR	Wash Basin 650x350mm 15mmCP brass pillar taps	no	1.00000	1357.00	1357.00
MR	32mm dia CP brass bottle trap	no	1.00000	996.15	996.15
MR	15mm dia CP brass angle valve	no	1.00000	316.00	316.00
9999	Sundries	L.S	16.1200 0	1.73	27.89
9999	Sundries	L.S	13.3900 0	1.73	23.16
9999	Sundries	L.S	26.9100 0	1.73	46.55
9999	Sundries	L.S	13.5200 0	1.73	23.39
0116	Fitter(grade1)	Day	0.30000	487.00	146.10
0123	Mason (brick layer) 1st class	Day	0.33000	487.00	160.71
0114	Beldar	Day	0.63000	368.00	231.84
9999	Sundries	L.S	20.2800 0	1.73	35.08
9999	Sundries	L.S	101.400 00	1.73	175.42
				TOTAL	27860.30
				cost for one set	27860.32
	say				27860.32

	Add Water Charges @ 1.0%				278.60
	Add CPOH @ 15.0%				4220.83
	Cost index 46.08 %				1335.46
	Total with Cost index				33695.22
	Say				33695.22

20 Specification Code: od39829/2017_2018

od39829/2017_2018 :Providing and fixing Cleanout with Spigot, with SS 304 Square Frame & Round Frame with Flat Round Cover with Rubber Seal & SS Screw including cost and conveyance of all materials, labour charges, sundries etc complete as directed by the Engineer in charge at all levels 75mm dia

Details of cost for one no

MATERIAL:

Code	Description	Unit	Quantity	Rate	Amount
MR	Clean out 75mm dia	each	1.00000	870.20	870.20
9988	Carriage and sundries of materials and fixing charge	L.S	13.91000	1.73	24.06
0116	Fitter(grade1)	Day	0.30000	487.00	146.10
0124	Mason (brick layer)2nd class	Day	0.30000	448.00	134.40
				TOTAL	1174.76
				cost for one each	1174.76
	say				1174.76

	Add Water Charges @ 1.0%				11.74
	Add CPOH @ 15.0%				177.97
	Cost index 46.08 %				163.00
	Total with Cost index				1527.49

		Say				1527.49
--	--	-----	--	--	--	---------

21 Specification Code: od39830/2017_2018

od39830/2017_2018 :Providing and fixing Cleanout with Spigot, with SS 304 Square Frame & Round Frame with Flat Round Cover with Rubber Seal & SS Screw including cost and conveyance of all materials, labour charges, sundries etc complete as directed by the Engineer in charge at all levels 110mm dia

Details of cost for one no

MATERIAL:

Code	Description	Unit	Quantity	Rate	Amount
MR	Clean out 110mm dia	each	1.00000	996.15	996.15
9988	Carriage and sundries of materials and fixing charge	L.S	13.9100 0	1.73	24.06
0116	Fitter(grade1)	Day	0.30000	487.00	146.10
0124	Mason (brick layer)2nd class	Day	0.30000	448.00	134.40
TOTAL					1300.71
cost for one each					1300.71
		Say			1300.71

	Add Water Charges @ 1.0%				13.00
	Add CPOH @ 15.0%				197.05
	Cost index 46.08 %				163.00
	Total with Cost index				1673.78
	Say				1673.78

22 Specification Code: od39831/2017_2018

od39831/2017_2018 :Providing and fixing frameless mirror, with all four edges machine polished and back

side protected with safety film and 4 mm thick Plywood backing and fixed on walls with mirror screws. The rate includes lifting, cutting etc. as per design and drawing.

Code	Description	Unit	Quantity	Rate	Amount
MR	Mirror	sqm	1.00000	3200.00	3200.00
MR	Fixing charge	sqm	1.00000	150.00	150.00
TOTAL					3350.00
cost for one sqm					3350.00
	say				3350.00

	Add Water Charges @ 1.0%				33.50
	Add CPOH @ 15.0%				507.52
	Cost index 46.08 %				0.00
	Total with Cost index				3891.03
	Say				3891.03

Other Engineering Organisations

23 Specification Code: od39832/2017_2018

PRICE

od39832/2017_2018 :Providing and fixing floor trap of PVC,110 mm outer dia(multi trap) including CP cockroach free floor grating with cup etc including cost and conveyance of all materials, labour charges, sundries etc complete as directed by the Engineer-in-Charge at all levels

Code	Description	Unit	Quantity	Rate	Amount
MR	Cockroach trap	no	1.00000	368.17	368.17
TOTAL					368.17
cost for one no					368.17
	say				368.17

	Add Water Charges @ 1.0%				3.68
	Add CPOH @ 15.0%				55.77

	Cost index 46.08 %				0.00
	Total with Cost index				427.63
	Say				427.63

24 Specification Code: od39833/2017_2018

od39833/2017_2018 :Providing and fixing PVC pipes, fittings including fixing the pipe with clamps at 1.00 m spacing . This includes jointing of pipes & fittings with one step PVC solvent cement and testing of joints complete as per direction of Engineer-in-Charge 75 mm dia 6 Kgf/cm2 - Internal work- Exposed on wall

Details of cost for 10 metre

MATERIALS:

Code	Description	Unit	Quantity	Rate	Amount
MR52	PVC pipe 75 mm outer dia 6kgf/cm2	metre	11.50000	129.00	1483.50
9999	Sundries Adhesive and sundries etc	L.S	5.33000	1.73	9.22
0116	Fitter(grade1)	Day	0.33000	487.00	160.71
0117	Assistant Fitter or 2nd class fitter	Day	1.31000	448.00	586.88
0114	Beldar	Day	1.31000	368.00	482.08
TOTAL					2722.39
	cost for 10.0 metre				2722.39
	cost for one metre				272.24
	say				272.24

	Add Water Charges @ 1.0%				2.72
	Add CPOH @ 15.0%				41.24
	Cost index 46.08 %				66.30
	Total with Cost index				382.52

	Say				382.52
--	-----	--	--	--	--------

25 Specification Code: od39834/2017_2018

od39834/2017_2018 :Providing and fixing PVC pipes, fittings including fixing the pipe with clamps at 1.00 m spacing . This includes jointing of pipes & fittings with one step PVC solvent cement and testing of joints complete as per direction of Engineer-in-Charge 110mm dia 6 Kgf/cm2 - Internal work- Exposed on wall

Details of cost for 10 metre

MATERIALS:

Code	Description	Unit	Quantity	Rate	Amount
MR54	PVC pipe 110 mm outer dia 6kgf/cm2	metre	11.50000	211.00	2426.50
9999	Sundries Adhesive and sundries etc	L.S	5.33000	1.73	9.22
0116	Fitter(grade1)	Day	0.33000	487.00	160.71
0117	Assistant Fitter or 2nd class fitter	Day	1.31000	448.00	586.88
0114	Beldar	Day	1.31000	368.00	482.08
TOTAL					3665.39
	cost for 10.0 metre				3665.39
	cost for one metre				366.54
	say				366.54

	Add Water Charges @ 1.0%				3.66
	Add CPOH @ 15.0%				55.53
	Cost index 46.08 %				66.30
	Total with Cost index				492.04
	Say				492.04

26 Specification Code: od39835/2017_2018

od39835/2017_2018 :Providing and fixing PVC pipes, fittings including fixing the pipe with clamps at 1.00 m spacing . This includes jointing of pipes & fittings with one step PVC solvent cement and testing of joints complete as per direction of Engineer-in-Charge 75 mm dia 4 Kg/cm² - Internal work- Exposed on wall

Details of cost for 10 metre

MATERIALS:

Code	Description	Unit	Quantity	Rate	Amount
MR53	PVC pipe 75 mm outer dia 4 kg/cm ²	metre	11.50000	95.00	1092.50
9999	Sundries Adhesive and sundries etc	L.S	5.33000	1.73	9.22
0116	Fitter(grade1)	Day	0.33000	487.00	160.71
0117	Assistant Fitter or 2nd class fitter	Day	1.31000	448.00	586.88
0114	Beldar	Day	1.31000	368.00	482.08
TOTAL					2331.39
	cost for 10.0 metre				2331.39
	cost for one metre				233.14
	say				233.14

	Add Water Charges @ 1.0%				2.33
	Add CPOH @ 15.0%				35.32
	Cost index 46.08 %				66.30
	Total with Cost index				337.10
	Say				337.10

27 Specification Code: od39836/2017_2018

od39836/2017_2018 :Supplying approved make PVC gully trap of size 160 x 110mm and CI grating

150mmx150mm size and light duty C.I cover with frames 300mmx300mm size(inside) the weight of cover to be not less than4.5kg and frame to be not less than2.7kg (CI MH cover and frame as per IS:1726) single sealed of size conveying to size the above mentioned items and constructing 30cmx30cm internal size gully trap chamber and depth upto 60cm,115 thk brick wall in CM 1:6 on a foundation of PCC 1:4:8.100mm thick plastering inside with CM 1:3,12mm thk with a neat cement flushing coat and conveying to site,cleaning ,installing and testing approved make PVC gully trap with 160mm outlet(Fabricated),surrounding with CC 1:1.5:3, 150x150mm,top with CI grating above the PVC gulley trap and light duty CI cover and frame over the chamber including cost of all materials, etc complete as per approved drawing and as directed by Engineer-in- Charge.

Details of cost for one gully trap

Code	Description	Unit	Quantity	Rate	Amount
MR	160x110mm gully trap	each	1.00000	462.30	462.30
MR	C.I. grating 150X150MM	each	1.00000	39.95	39.95
1352	C.I. Cover and frame 300X300 mm inside	each	1.00000	300.00	300.00
9977	Carriage of materials Cement concrete 1:5:10 (1 cement : 5 fine sand: 10 graded stone aggregate 40 mm nominal size) $0.68 \times 0.68 \times 0.10 \text{ m} = 0.046 \text{ cum}$ Concrete around trap $0.30 \times 0.30 \times 0.675 \text{ m} = 0.061 \text{ cum}$ Total = 0.107 cum Deduct: $0.55/3 \times [0.09 + 0.032 + (0.09 \times 0.032)/2] = 0.008$ cum $3.14/4 \times (0.182)^2 \times 0.70 = 0.018 \text{ cum}$ Total = 0.026 cum Net quantity = 0.107 cum (-) 0.026 cum = 0.081 cum say 0.08 cum	L.S	4.50000	1.73	7.79
4.1.11	Rate as per item number4.1.11of SH:Concrete work Brick work with 75 class designation brick in cement mortar 1:4 (1 cement :4 coarse sand) $1.66 \times 0.115 \times 0.675 \text{ m} = 0.129 \text{ cum}$ say 0.13 cum	cum	0.08000	3409.13	272.73
6.1.1	Rate as per item number6.1.1of SH:Brick Work	cum	0.13000	4279.21	556.30

	Cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) 1.66x0.11x0.04 m = 0.008cum				
4.2.3	Rate as per item number 4.2.3 of SH: Concrete work 12 mm cement plaster 1:3 (1 cement: 3 coarse sand) finished with floating coat of neat cement: [1/2x0.166x(1.20+0.72)] = 0.159 sqm say 0.16 sqm	cum	0.00800	5637.28	45.10
13.9.1	Rate as per item number 13.9.1 of SH: Finishing	sqm	0.30000	202.07	60.62
TOTAL					1744.79
cost for one each					1744.78
	say				1744.78

	Add Water Charges @ 1.0%				17.44
	Add CPOH @ 15.0%				264.33
	Cost index 46.08 %				665.02
	Total with Cost index				2691.59
	Say				2691.59

28 Specification Code: od39837/2017_2018

od39837/2017_2018 :Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes& fittings, with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer-in-Charge. Concealed work, including cutting chases and making good the wall etc.

40 mm nominal outer dia pipes

Details of cost for 10 meter

MATERIAL:

Code	Description	Unit	Quantity	Rate	Amount
------	-------------	------	----------	------	--------

8640	Chlorinated Polyvinyl - chloride (CPVC) pipe 40 mm outer dia	metre	10.00000	160.00	1600.00
------	--	-------	----------	--------	---------

18.78	Rate as per item number 18.78 of SH:Water Supply LABOUR:	metre	10.0000 0	80.80	808.01
0116	Fitter(grade1)	Day	0.33000	487.00	160.71
0117	Assistant Fitter or 2nd class fitter	Day	0.66000	448.00	295.68
0114	Beldar	Day	0.66000	368.00	242.88
TOTAL					3107.28
	cost for 10.0 metre				3107.28
	cost for one metre				310.73
	say				310.73

	Add Water Charges @ 1.0%				3.10
	Add CPOH @ 15.0%				47.07
	Cost index 46.08 %				166.30
	Total with Cost index				527.22
	Say				527.22

29 Specification Code: od39838/2017_2018

**od39838/2017_2018 :Supplying and fixing of centrifugal pump, with CI construction, CI impeller complete with motor, base plate, foundation bolts, nuts, pressure guage and all accessories. and working with 415V, 3ph and 50 Hz frequency
capacity :17m³/hr
head :21m**

Code	Description	Unit	Quantity	Rate	Amount
MR	Cost of pump with all accessories	each	1.00000	7770.00	7770.00

0116	Fitter(grade1)	Day	1.50000	487.00	730.50
0114	Beldar	Day	1.00000	368.00	368.00
				TOTAL	8868.50
				cost for one each	8868.50
	say				8868.50

	Add Water Charges @ 1.0%				88.68
	Add CPOH @ 15.0%				1343.57
	Cost index 46.08 %				587.93
	Total with Cost index				10888.70
	Say				10888.70

30 Specification Code: od39839/2017_2018

od39839/2017_2018 :Supplying and fixing of CI double flanged wall casting pipe with puddle, 0.6m length including cost and conveyance of all materials,labour charges,making good the walls etc complete as directed by the Engineer-in-Charge.: 80 mm

Code	Description	Unit	Quantity	Rate	Amount
MR	CI double flange	no	1.00000	3135.88	3135.88
				TOTAL	3135.88
				cost for one no	3135.88
	say				3135.88

	Add Water Charges @ 1.0%				31.35
	Add CPOH @ 15.0%				475.08
	Cost index 46.08 %				0.00
	Total with Cost index				3642.32

	Say				3642.32
--	-----	--	--	--	---------

31 Specification Code: od39840/2017_2018

od39840/2017_2018 :Supplying and fixing of CI double flanged wall casting pipe with puddle, 0.6m length including cost and conveyance of all materials,labour charges,making good the walls etc complete as directed by the Engineer-in-Charge. : 65 mm

Code	Description	Unit	Quantity	Rate	Amount
MR	CI double flange	no	1.00000	2948.05	2948.05
TOTAL					2948.05
cost for one no					2948.05
	say				2948.05

	Add Water Charges @ 1.0%				29.48
	Add CPOH @ 15.0%				446.62
	Cost index 46.08 %				0.00
	Total with Cost index				3424.16
	Say				3424.16

32 Specification Code: od39841/2017_2018

od39841/2017_2018 :Supplying and fixing of CI double flanged wall casting pipe with puddle, 0.6m length including cost and conveyance of all materials,labour charges,making good the walls etc complete as directed by the Engineer-in-Charge. : 150 mm

Code	Description	Unit	Quantity	Rate	Amount
MR	CI double flanged	no	1.00000	6111.63	6111.63
TOTAL					6111.63
cost for one no					6111.63

	say				6111.63
--	-----	--	--	--	---------

	Add Water Charges @ 1.0%				61.11
	Add CPOH @ 15.0%				925.91
	Cost index 46.08 %				-0.01
	Total with Cost index				7098.66
	Say				7098.66

33 Specification Code: od39842/2017_2018

od39842/2017_2018 :Supplying and fixing of CI double flanged wall casting pipe with puddle, 0.6m length including cost and conveyance of all materials,labour charges,making good the walls etc complete as directed by the Engineer-in-Charge. : 100 mm

Code	Description	Unit	Quantity	Rate	Amount
MR	CI double flanged	no	1.00000	4043.23	4043.23
				TOTAL	4043.23
				cost for one no	4043.23
	say				4043.23

	Add Water Charges @ 1.0%				40.43
	Add CPOH @ 15.0%				612.54
	Cost index 46.08 %				0.00
	Total with Cost index				4696.21
	Say				4696.21

34 Specification Code: od39843/2017_2018

od39843/2017_2018 :Providing and fixing C.I. basket type dirt box strainer 50mm dia for bulk type water

meter with nuts, bolts, rubber etc. complete conforming to IS : 2373 : including cost and conveyance of all materials, labour etc. complete and as directed by Engineer-in-Charge

Code	Description	Unit	Quantity	Rate	Amount
MR	50 mm Water meter and dirt box strainer (including testing charges)	each	1.00000	5301.35	5301.35
9999	Sundries	L.S	25.0000 0	1.73	43.25
9999	Sundries	L.S	30.0000 0	1.73	51.90
18.30.1	Rate as per item number 18.30.1 of SH: Water Supply	no	2.00000	102.93	205.85
TOTAL					5602.35
cost for one each					5602.35
	say				5602.35

	Add Water Charges @ 1.0%				56.02
	Add CPOH @ 15.0%				848.75
	Cost index 46.08 %				161.10
	Total with Cost index				6668.23
	Say				6668.23

35 Specification Code: od39844/2017_2018

od39844/2017_2018 :Supplying and fixing of CI single flanged wall casting pipe with puddle, 0.6m length including cost and conveyance of all materials,labour charges,making good the walls etc complete as directed by the Engineer-in-Charge. 200mm

Code	Description	Unit	Quantity	Rate	Amount
MR	200mm single flanged	each	1.00000	5103.00	5103.00
0114	Beldar	Day	1.00000	368.00	368.00

TOTAL					5471.00
cost for one each					5471.00
	say				5471.00

	Add Water Charges @ 1.0%				54.71
	Add CPOH @ 15.0%				828.85
	Cost index 46.08 %				196.96
	Total with Cost index				6551.53
	Say				6551.53

36 Specification Code: od39845/2017_2018

od39845/2017_2018 :Supplying and fixing of CI single flanged wall casting pipe with puddle, 0.6m length including cost and conveyance of all materials,labour charges,making good the walls etc complete as directed by the Engineer-in-Charge. 150mm

Code	Description	Unit	Quantity	Rate	Amount
MR	150mm single flanged	each	1.00000	4399.50	4399.50
0114	Beldar	Day	1.00000	368.00	368.00
TOTAL					4767.50
cost for one each					4767.50
	say				4767.50

	Add Water Charges @ 1.0%				47.67
	Add CPOH @ 15.0%				722.27
	Cost index 46.08 %				196.96
	Total with Cost index				5734.41
	Say				5734.41

37 Specification Code: od39846/2017_2018

od39846/2017_2018 :Providing and fixing enclosed type water meter (bulk type) 50mm dia conforming to IS : 2373 and tested by Municipal Board complete with bolts, nuts, rubber etc. (The tail pieces if required will be paid separately) including cost and conveyance of all materials, labour etc. complete and as directed by Engineer-in-Charge

Code	Description	Unit	Quantity	Rate	Amount
MR	50mm Water meter	each	1.00000	6087.97	6087.97
9999	Sundries	L.S	130.000 00	1.73	224.90
9999	Sundries	L.S	26.0000 0	1.73	44.98
9999	Sundries	L.S	52.0000 0	1.73	89.96
18.30.2	Rate as per item number 18.30.2 of SH: Water Supply	no	2.00000	166.90	333.79
Other Engineering Organisations TOTAL					6781.60
cost for one each					6781.60
say					6781.60

	Add Water Charges @ 1.0%				67.81
	Add CPOH @ 15.0%				1027.41
	Cost index 46.08 %				371.24
	Total with Cost index				8248.07
	Say				8248.07

38 Specification Code: od39847/2017_2018

od39847/2017_2018 :Supplying and fixing CI foot valve with all accessories including cost and conveyance of all materials,labour charges etc complete as directed by the Engineer -in - charge at all levels. 50 mm dia

Code	Description	Unit	Quantity	Rate	Amount
MR	50mm foot valve	each	1.00000	2736.20	2736.20
9999	Sundries	L.S	14.8200 0	1.73	25.64
TOTAL					2761.84
cost for one each					2761.84
	say				2761.84

	Add Water Charges @ 1.0%				27.61
	Add CPOH @ 15.0%				418.41
	Cost index 46.08 %				13.72
	Total with Cost index				3221.60
	Say				3221.60

Sump & & & External water supply

1 Specification Code: od39808/2017_2018

od39808/2017_2018 :Earth work in excavation by means (Hydraulic excavator)/manual means over areas (exceeding 30cm in depth.1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50 m disposed earth to be levelled and neatly dressed, as directed by the Engineer- in-Charge but for every additional lift of 1.5m to 3.00m or part there of : All kinds of soil

Details of cost for 10 cum.

Average output of Hydraulic Excavator per

hour = 30cum

MACHINERY:

Code	Description	Unit	Quantity	Rate	Amount
0020	Hydraulic Excavator (3D) with driver and fuel	Day	0.04100	6500.00	266.50
0018	Hire and running charges of loader LABOUR:	Day	0.04100	6000.00	246.00
0128	Mate Beldar/	Day	0.32000	407.00	130.24

0115	Coolie	Day	1.20000	368.00	441.60
------	--------	-----	---------	--------	--------

2.8.1	Rate as per item number 2.8.1 of SH: Earth Work	cum	1.00000	143.26	143.26
-------	---	-----	---------	--------	--------

TOTAL					1227.60
	cost for 10.0 cum				1227.60
	cost for one cum				122.76
	say				122.76

	Add Water Charges @ 1.0%				1.22
	Add CPOH @ 15.0%				18.59
	Cost index 46.08 %				65.70
	Total with Cost index				208.29
	Say				208.29

Other Engineering Organisations

2 Specification Code: od39809/2017_2018

od39809/2017_2018 :Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, Providing and laying in position machine batched and machine mixed design mix M-30 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge.“(Note :- Cement content considered in this item is @ 340 kg/cum. “Excess/ less cement used as per design mix is payable/recoverable separately).

All work upto plinth level

Details of cost for 1.00 cum

MATERIAL:

Code	Description	Unit	Quantity	Rate	Amount
------	-------------	------	----------	------	--------

5.33.1	Rate as per item number 5.33.1 of SH: Reinforced Cement Concrete	cum	1.00000	5550.15	5550.15
--------	--	-----	---------	---------	---------

5.34.1	Rate as per item number 5.34.1 of SH: Reinforced Cement Concrete	cum	1.00000	59.84	59.84
TOTAL				5609.99	
cost for one cum				5609.99	
	say			5609.99	

	Add Water Charges @ 1.0%				56.09
	Add CPOH @ 15.0%				849.91
	Cost index 46.08 %				3002.57
	Total with Cost index				9518.58
	Say				9518.58

3 Specification Code: od39811/2017_2018

Other Engineering Organisations

od39811/2017_2018 :Providing and applying 2 coats an acrylic polymer modified elastomeric cementitious water proof coating on roof slab , gutter ,OHT,SUMP etc which shall be mixed as per manufacture's technical specification, after thoroughly cleaning the surface by mechanical means to making it free of any loose mortar,unsound substrate,"V" grooves cut along the construction joints, cracks and joints of slab/wall on the external face and the same shall be filled with polymermodified mortar(CM 1:3 mixed with approved water proofing compound in the proportion recommended by the manufacturers), cracks in the slab (if any), pressure grouting wherever necessary by injecting mixed with approved expanding agent using pressure grouting pump with a pressure of 3 to 4kg/sqm ,strictly maintaining the coverage specified by the manufacturer, including cost and conveyance of all materials,labour charges etc complete as directed by the Engineer-in-Charge .(The above work shall be carriedout by an agency having sufficient experience in membrane water proofing and should ensure a guarantee of 5 years. .Only skilled and experienced persons shall be employed for this purpose.)

Code	Description	Unit	Quantity	Rate	Amount
MR	Rate as per quotation including material and labour charges	sqm	1.00000	360.00	360.00
TOTAL				360.00	
cost for one sqm				360.00	

	say				360.00
--	-----	--	--	--	--------

	Add Water Charges @ 1.0%				3.60
	Add CPOH @ 15.0%				54.54
	Cost index 46.08 %				0.00
	Total with Cost index				418.14
	Say				418.14

Rcc septic tank for 150 users 1 No.

1 Specification Code: od39808/2017_2018

od39808/2017_2018 :Earth work in excavation by means (Hydraulic excavator)/manual means over areas (exceeding 30cm in depth.1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50 m disposed earth to be levelled and neatly dressed, as directed by the Engineer- in-Charge but for every additional lift of 1.5m to 3.00m or part there of : All kinds of soil

Details of cost for 10 cum.

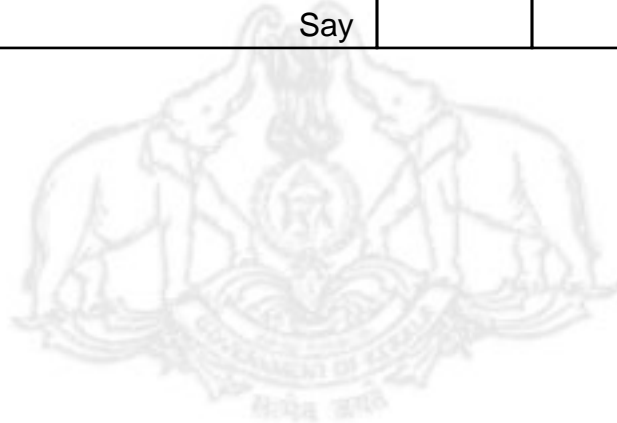
Average output of Hydraulic Excavator per hour = 30cum

MACHINERY:

Code	Description	Unit	Quantity	Rate	Amount
0020	Hydraulic Excavator (3D) with driver and fuel	Day	0.04100	6500.00	266.50
0018	Hire and running charges of loader LABOUR:	Day	0.04100	6000.00	246.00
0128	Mate Beldar/	Day	0.32000	407.00	130.24
0115	Coolie	Day	1.20000	368.00	441.60
2.8.1	Rate as per item number 2.8.1 of SH: Earth Work	cum	1.00000	143.26	143.26
TOTAL					1227.60
	cost for 10.0 cum				1227.60

	cost for one cum				122.76
	say				122.76

	Add Water Charges @ 1.0%				1.22
	Add CPOH @ 15.0%				18.59
	Cost index 46.08 %				65.70
	Total with Cost index				208.29
	Say				208.29



Other Engineering Organisations

PRICE

Data Analysis

Compound wall and Gate

1 Specification Code: od44936/2018_2019

od44936/2018_2019 :Earth work in excavation over areas (exceeding 30cms in depth, 1.50m in width as well as 10sqm on plan) including disposal of excavated earth lead upto 50ms and disposed earth to be levelled and neatly dressed - Extra for every additional lift of 1.50 m or part thereof in excavation / banking excavated or stacked materials. All kinds of soil upto 4.50m

Code	Description	Unit	Quantity	Rate	Amount
MR	Extra for every additional lift upto 6m	cum	1.00000	321.65	321.65
TOTAL					321.65
cost for one cum					321.65
	say				321.65

	Add Water Charges @ 1.0%				3.21
	Add CPOH @ 15.0%				48.72
	Cost index 46.08 %				0.00
	Total with Cost index				373.60
	Say				373.60

JUSTIFICATION FOR OBSERVED DATA ITEMS.

Sl no.	Specification	Justification
1.	Earth work in excavation by means (Hydraulic excavator)/manual means over areas (exceeding 30cm in depth.1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50 m disposed earth to be levelled and neatly dressed, as directed by the Engineer- in-Charge but for every additional lift of 1.5m to 3.00m or part there of : ordinary rock	Rate derived from DSR item no. 2.7.1 and 2.26.2. Extra for additional lift item have been combined with the basic excavation item in order to obtain rate for excavation of earth for lift of 1.5 to 3m.(For ordinary rock)
2.	Providing and fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with EPDM rubber / neoprene gasket etc. complete as per the architectural drawings and the direction of Engineer - in -Charge. (Cost of aluminium snap beading shall be paid in basic item):With pin headed glass panes of 4.0 mm thickness	Pin headed glass is considered for ventilator glazing. In DSR pin headed glass item is not available as such. Hence item is derived considering basic rate of pin headed glass and applying the same in glazing with float glass Item in DSR.
3.	Providing and fixing in position collapsible steel shutters with vertical channels 20x10x2mm and braced with flat iron diagonals 20x5mm size, with top and bottom rail of T-iron 40x40x6mm, with 40mm dia steel pulleys, complete with bolts, nuts, locking arrangement, stoppers, handles, including painting with two coats of approved make and colour synthetic enamel paint over two coats of approved make anticorrosive yellow zinc chromate primer, including cost and conveyance of all materials, labour charges, lead, lift etc complete as directed by Engineer-in-Charge	Synthetic enamel paint over two coats of approved make anticorrosive yellow zinc chromate primer have been proposed where as basic DSR item comprises of applying a single coat of primer only.
4.	Providing and laying Antiskid Ceramic floor tiles 300x300x7 mm of Ist quality conforming to IS : 15622 of approved make, shade, and pattern laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand) and jointed with grey cement slurry @ 3.3 kg/sqm including pointing the joints with white cement and matching pigment etc.including cost and conveyance of all materials,labour charges,lead,lift etc, complete as directed by the Engineer-in-Charge at all levels.	In DSR Glazed ceramic floor tile is present but considering safety and durability the specification was suitably modified to anti-skid ceramic tiles. The same is proposed in toilet areas.
5.	Providing and fixing PVC tile edging to match the wall tiles and finishing as directed by the Engineer-in-Charge at all levels.	PVC tile edging is considered in toilet areas and market rate is considered for the same

6.	<p><i>Providing and applying 2 coats an acrylic polymer modified elastomeric cementitious water proof coating on roof slab , gutter ,OHT,SUMP etc which shall be mixed as per manufacture's technical specification, after thoroughly cleaning the surface by mechanical means to making it free of any loose mortar,unsound substrate,"V" grooves cut along the construction joints, cracks and joints of slab/wall on the external face and the same shall be filled with polymermodified mortar(CM 1:3 mixed with approved water proofing compound in the proportion recommended by the manufacturers), cracks in the slab (if any), pressure grouting wherever necessary by injecting mixed with approved expanding agent using pressure grouting pump with a pressure of 3 to 4kg/sqm ,strictly maintaining the coverage specified by the manufacturer, including cost and conveyance of all materials,labour charges etc complete as directed by the Engineer-in-Charge .(The above work shall be carriedout by an agency having sufficient experience in membrane water proofing and should ensure a guarantee of 5 years. .Only skilled and experienced persons shall be employed for this purpose.)</i></p>	<p><i>In DSR, separate waterproofing applications are available for sumps, roofs etc . We have proposed a cost effective waterproofing method that can be applied for roofs, sumps, OHT etc.</i></p>
7.	<p><i>Providing and applying melamine matt finish on wood work after scraping and cleaning the surface applying necessary coats of putty, filler and sealer, etc. Sanding shall be done along the grains using water paper/emery paper before applying filler, sealer and melamine to get a perfectly smooth and uniform finish. Melamine and sealer shall be applied using spary gun. The rate shall include cost and conveyance of all materials, lead lift, all labour</i></p>	<p><i>In DSR melamine matt finish item is present. However sanding along the grains using emery paper, filling voids and deformities if any using filler/sealant etc are not considered. Hence the specification was suitably modified.</i></p>
8.	<p><i>Supplying and fixing of following sizes of Medium duty PVC conduits conforming to IS 9537/1983 Part III along with accessories in surface/ recess including cutting the wall and making good the same in case of recessed conduit as required. 20mm dia</i></p>	<p><i>Rate is derived from electrical DSR item for electrical conduits. As electrical items were not available in PRICE software, it was taken as observed data.</i></p>
9.	<p><i>Supplying and fixing of following sizes of Medium duty PVC conduits conforming to IS 9537/1983 Part III along with accessories in surface/ recess including cutting the wall and making good the same in case of recessed conduit as required. 25mm dia</i></p>	<p><i>Rate is derived from electrical DSR item for electrical conduits. As electrical items were not available in PRICE software, it was taken as observed data.</i></p>

10.	<i>Supplying and fixing of following sizes of Medium duty PVC conduits conforming to IS 9537/1983 Part III along with accessories in surface/ recess including cutting the wall and making good the same in case of recessed conduit as required. 32mm dia</i>	<i>Rate is derived from electrical DSR item for electrical conduits. As electrical items were not available in PRICE software, it was taken as observed data.</i>
11.	<i>Providing GI profiled sheet partition / screening of 2.5m height with vertical & horizontal bracing with 40mm dia GI pipe. The vertical member have 3.0m long, 50cm embeded into foundation concrete 1:3:6 using 20mm broken stone of size 30x30x60cm at 2m intervals and horizontal members braced at bottom, middle and top of partitions including all cost, and conveyance of materials and labour charges etc. including dismantling and removing the materials after use.</i>	<i>In DSR barricading item for a height of 2m is present. A barricading of 2.5m was proposed and the specification was modified accordingly.</i>
12.	<i>Supplying and fixing approved quality white vitreous china urinal division plate 700 x 340 including cost and conveyance of all material, labour charge, lead, lift, all taxes etc. complete as directed by the Engineer-in-Charge.</i>	<i>White vitreous Urinal division plate was not available in DSR, hence observed data was taken.</i>
13.	<i>Providing and fixing Cleanout with Spigot, with SS 304 Square Frame & Round Frame with Flat Round Cover with Rubber Seal & SS Screw including cost and conveyance of all materials, labour charges, sundries etc complete as directed by the Engineer in charge at all levels 75mm dia</i>	<i>Cleanout with spigot is not available in DSR</i>
14.	<i>Providing and fixing Cleanout with Spigot, with SS 304 Square Frame & Round Frame with Flat Round Cover with Rubber Seal & SS Screw including cost and conveyance of all materials, labour charges, sundries etc complete as directed by the Engineer in charge at all levels 110mm dia</i>	<i>Cleanout with spigot is not available in DSR</i>
15.	<i>Providing and fixing frameless mirror, with all four edges machine polished and back side protected with safety film and 4 mm thick Plywood backing and fixed on walls with mirror screws. The rate includes lifting, cutting etc. as per design and drawing</i>	<i>Frameless mirror is not available in DSR. Beveled edge mirror that too of dimension (600x450mm) is only available.</i>

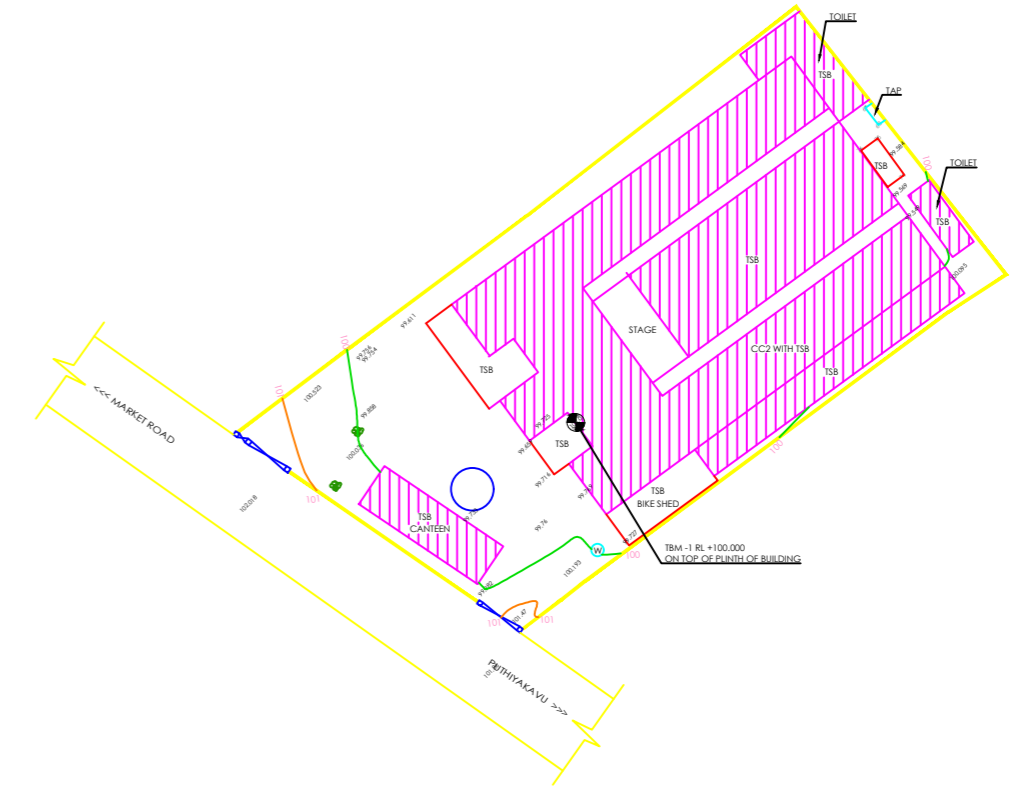
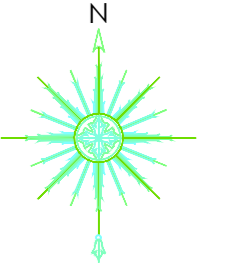
16.	<p><i>Providing and fixing floor trap of PVC,110 mm outer dia(multi trap) including CP cockroach free floor grating with cup etc including cost and conveyance of all materials, labour charges, sundries etc complete as directed by the Engineer-in- Charge at all levels</i></p>	<p><i>PVC floor trap item is not present in DSR, hence taken as extra item.</i></p>
17.	<p><i>Providing and fixing PVC pipes, fittings including fixing the pipe with clamps at 1.00 m spacing . This includes jointing of pipes & fittings with one step PVC solvent cement and testing of joints complete as per direction of Engineer-in-Charge 75 mm dia 6 Kgf/cm2 - Internal work- Exposed on wall</i></p>	<p><i>75mm dia 6kg/cm2-- Internal work- Exposed on wall is not available in DSR. Pipe dia upto 50mm is available in DSR.</i></p>
18.	<p><i>Providing and fixing PVC pipes, fittings including fixing the pipe with clamps at 1.00 m spacing . This includes jointing of pipes & fittings with one step PVC solvent cement and testing of joints complete as per direction of Engineer-in-Charge 110mm dia 6 Kgf/cm2 - Internal work- Exposed on wall</i></p>	<p><i>110mm dia 6 Kgf/cm2 - Internal work- Exposed on wall is not available in DSR. Pipe dia upto 50mm is available in DSR.</i></p>
19.	<p><i>Providing and fixing PVC pipes, fittings including fixing the pipe with clamps at 1.00 m spacing . This includes jointing of pipes & fittings with one step PVC solvent cement and testing of joints complete as per direction of Engineer-in-Charge 75 mm dia 4 Kgf/cm2 - Internal work- Exposed on wall</i></p>	<p><i>75 mm dia 4 Kgf/cm2 - Internal work- Exposed on wall is not available in DSR. Pipe dia upto 50mm is available in DSR.</i></p>

20.	<p>Supplying approved make PVC gully trap of size 160 x 110mm and CI grating 150mmx150mm size and light duty C.I cover with frames 300mmx300mm size(inside) the weight of cover to be not less than4.5kg and frame to be not less than2.7kg (CI MH cover and frame as per IS:1726) single sealed of size conveying to size the above mentioned items and constructing 30cmx30cm internal size gully trap chamber and depth upto 60cm,115 thk brick wall in CM 1:6 on a foundation of PCC 1:4:8.100mm thick plastering inside with CM 1:3,12mm thk with a neat cement flushing coat and conveying to site,cleaning ,installing and testing approved make PVC gully trap with 160mm outlet(Fabricated),surrounding with CC 1:1.5:3, 150x150mmm,top with CI grating above the PVC gulley trap and light duty CI cover and frame over the chamber including cost of all materials, etc complete as per approved drawing and as directed by Engineer-in- Charge.</p>	<p>PVC Gully trap item is not available in DSR. Only SW gully trap item is present.</p>
21.	<p>Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings i/c fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes& fittings, with one step CPVC solvent cement and the cost of cutting chases and making good the same including testing of joints complete as per direction of Engineer-in-Charge. Concealed work, including cutting chases and making good the wall etc. 40 mm nominal outer dia pipes</p>	<p>CPVC 40 mm nominal outer dia pipes: concealed work, including cutting chases and making good the wall item is not available in DSR. In DSR in the same specification, pipes upto dia 32mm is available.</p>
22.	<p>Supplying and fixing of centrifugal pump, with CI construction, CI impeller complete with motor, base plate, foundation bolts, nuts, pressure guage and all accessories. and working with 415V, 3ph and 50 Hz frequency capacity :17m³/hr head :21m</p>	<p>Centrifugal pump as per requirement is proposed and market rate for the same is taken.</p>

23.	<i>Providing and fixing C.I. basket type dirt box strainer 50mm dia for bulk type water meter with nuts, bolts, rubber etc. complete conforming to IS : 2373 : including cost and conveyance of all materials, labour etc. complete and as directed by Engineer-in-Charge</i>	<i>50mm dia water meter dirt box strainer not available in DSR.</i>
24.	<i>Providing and fixing enclosed type water meter (bulk type) 50mm dia conforming to IS : 2373 and tested by Municipal Board complete with bolts, nuts, rubber etc. (The tail pieces if required will be paid separately) including cost and conveyance of all materials, labour etc. complete and as directed by Engineer-in-Charge</i>	<i>50mm dia water meter is not available in DSR hence it was required to take the same as observed data item.</i>
25.	<i>Supplying and fixing CI foot valve with all accessories including cost and conveyance of all materials,labour charges etc complete as directed by the Engineer -in - charge at all levels. 50 mm dia</i>	<i>CI foot valve 50mm dia was not available in DSR, hence the necessity for taking the same as observed data item.</i>
26.	<i>Providing and laying in position machine batched and machine mixed design mix M-30 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge.?(Note :- Cement content considered in this item is @ 340 kg/cum.?(Excess/ less cement used as per design mix is payable/recoverable separately). All work upto plinth level</i>	<i>Rate for M30 concrete is derived from DSR item no.s 5.33.1 and 5.34.1. In DSR, rate for M25 concrete is readily available. For M30 rate extra over M25 item rate is present. So the same was compiled into a single observed data item.</i>

Annexure 10


Topographical survey



LEGEND(GENERAL)

	BUILDING
	LIGHT POST
	ELECTRIC POLE
	MAN HOLE
	TREE
	RETAINING WALL
	PLOT BOUNDARY
	COMPOUND WALL
	ROAD
	BENCH MARKS
	CULVERT
	DRAIN

CC1	CONCRETE BUILDING SINGLE STORED
CC2	CONCRETE BUILDING DOUBLE STORED
CC3	CONCRETE BUILDING THREE STORED
TSB	AC / TIN SHEET BUILDING
TAB	TATCHED BUILDING
TDB	TILED BUILDING
SKD	SHED
BUC	BUILDING UNDER CONSTRUCTION
PUC	PLANT UNDER CONSTRUCTION

NAME OF WORK:-	SURVEYED BY	CLIENT:-	DRG. No.	DATE	SCALE	SHEET No. & SIZE	AREA.
TOPOGRAPHIC DETAILS OF PLOT WITH SPOT LEVELS AND CONTOUR (GOVT. ARTS, COLLEGE, THRIPUNITHURA, ERANAKULAM)	 PMC/XVI, Room No. 244-M, 1st Floor Sri Ram Mansion, MC Road Perumbavoor, Kerala- 683 542 Ph. 0484 2812221, 94 47 07 05 21 surveyorstge@gmail.com		SR/11/01	10.11.2017	1 : 1000	1 OF 1 A 3	AREA = 43899.220 M ² (10.845) ACRES

Annexure 11

Geotechnical survey

SOIL INVESTIGATION REPORT

CLIENT

**GOVT. ARTS & SCIENCE COLLEGE
THRIPUNITHURA**

**SITE
THRIPUNITHURA**

Period of Investigation : 12/10/2017 to 11/11/2017



CGL complex, 51/937 B, Paradise Road, Vyttila P.O Ernakulam-682019

Phone: 0484-2301049, 2389017
mail@cochingeotech.com

**REPORT ON SUB SOIL EXPLORATION FOR THE PROPOSED COLLEGE
BUILDING (G+7) FOR GOVT.ARTS &SCIENCE COLLEGE AT
THRIPUNITHURA**

No: CGL/RT/102/17

1. INTRODUCTION

There is a proposal to construct a college building (G+7) at Thripunithura for Govt.Arts &Science College. It is decided to carry out a detailed sub soil investigation to find out Safe bearing capacity and selection of appropriate foundation for the building.

The work was awarded to M/s CGL Geoinformatics, 51/937 B, Paradise Road, Vytilla P.O, Ernakulam 682019. A detailed investigation and laboratory studies were carried out from 12/10/2017 to 11/11/2017.

This report summarizes the subsoil investigations and furnishes the recommendation on the type of the foundation to be provided.

2. SCOPE OF WORK

The scope of work at this site, entrusted with us comprised of

- 2.1 Mobilization of boring rigs with all necessary equipments and skilled/unskilled personals for the field work.
- 2.2 Boring three bore holes of diameter 150 mm, with drilling equipments in sand, silt, clay and gravel to a maximum depth of 38.0 m or till the spoon rebound whichever is earlier at the selected location fixed by the client.
- 2.3 Conduction of Standard Penetration tests in bore holes at every 1.0 m upto 6m depth and at every 1.5m after that depth or change of strata and prepare bore log showing details.
- 2.4 Collection of disturbed samples in air tight polythene bags with proper labelling and transportation to laboratory.
- 2.5 Conducting the laboratory tests on the disturbed samples as per Indian Standards and furnishing the results.
- 2.6 Preparation and submission of the detailed report with field and laboratory results.

3. PROGRAMME OF INVESTIGATION

3.1 FIELD INVESTIGATION

- 3.1.1 One boring unit with all necessary equipment along with a team of technical personal with skilled labourers were mobilised at the work site.
- 3.1.2 Three bore holes of 150mm were bored to a depth suggested by client, below the existing ground level. Bore holes were made as per IS: 1892-1979, using rotary drilling.
- 3.1.3 Representative samples were collected at every 1.0m / 1.5 m depth interval or change of strata, whichever is earlier.

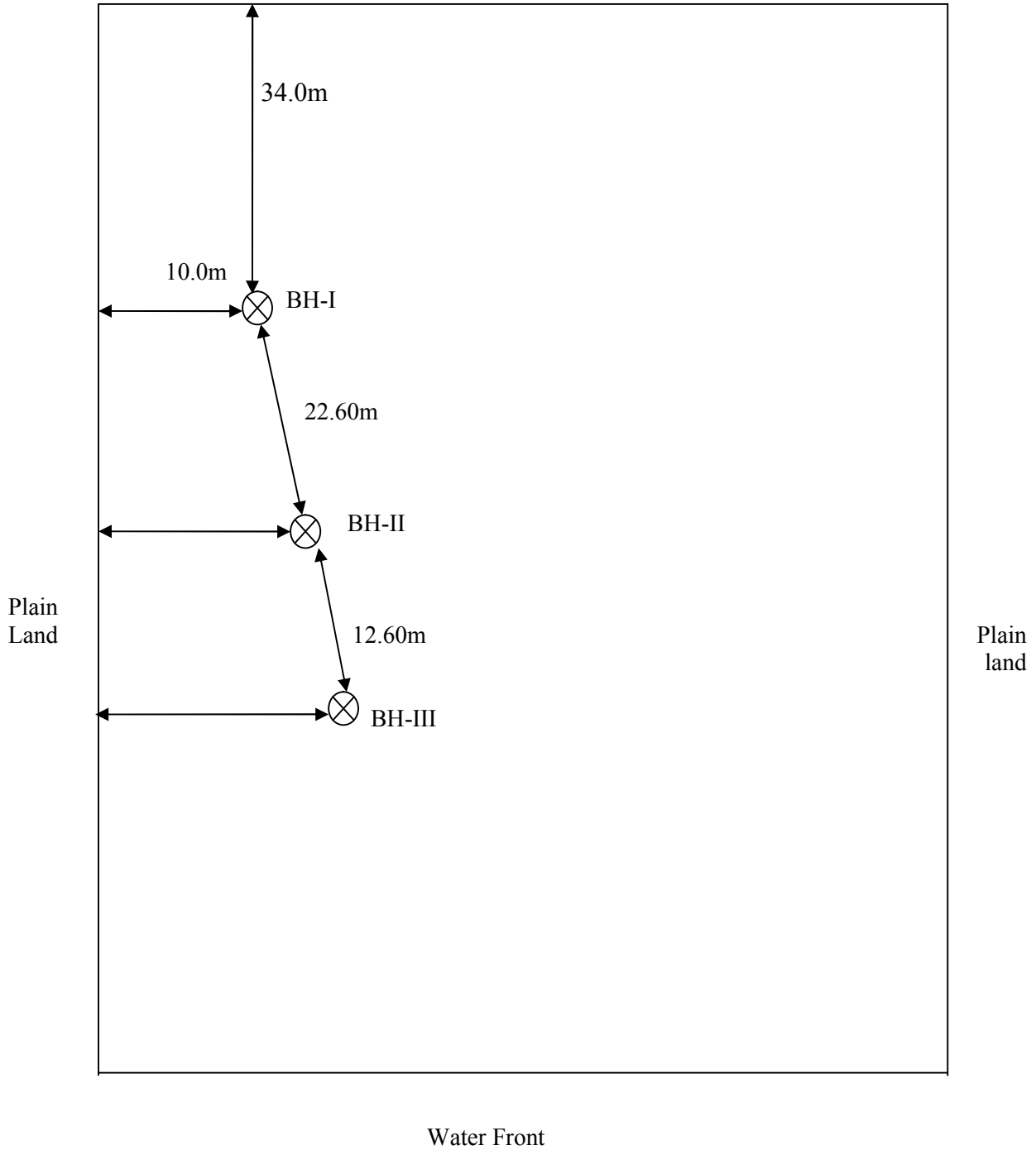
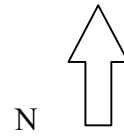
- 3.1.4 The samples collected were carefully sealed and transported to laboratory for tests.
- 3.1.5 Standard Penetration Tests were conducted at every 1.0 m depth till 6m and at every 1.5m intervals after that, as per IS: 2131-1981. Before testing borehole was cleaned properly and Split Spoon Sampler is placed centrally in bore holes. A standard hammer of 63.5 kg is dropped from a height of 75 cm and number of blows for penetration of sampler for 0-15 cm, 15-30 cm and 30-45 cm were noted. Number of blows required for 15-45 cm penetration is reported as N value.
- 3.1.6 Bore holes were terminated after the investigation.

3.2 *LABORATORY INVESTIGATION*

- 3.2.1 The following laboratory tests were conducted on the selected samples as relevant IS codes.
- a) Particle size Analysis (IS .2720-Part 4-1985)
 - b) Water content (IS .2720-Part 2-1973)
 - c) Bulk density (IS .2720-Part 9-1992)
 - d) Specific Gravity (IS .2720-Part 3-1980)
 - e) Direct Shear Test (IS .2720-Part 13-1986)
 - f) Triaxial Test (IS.2720(Part-11)-1971)
 - g) Liquid Limit & Plastic Limit (.2720-Part 5-1985)
 - h) Unconfined Compression Test (IS .2720-Part 10-1975)

Best regards,

For CGL Geoinformatics.



BOREHOLE DETAILS

CLIENT		GOVT. ARTS & SCIENCE COLLEGE															
PROJECT:		PROPOSED COLLEGE BUILDING(G+7)															
SITE:		THRIPUNITHURA															
BORE HOLE NO. : BH-I				Date of start:12/10/2017													
				Date of completion:15/10/2017													
TYPE OF BORING: Rotary Drilling				Ground water table:2.0m below GL													
Description of soil	Thickness of layer m	Depth in m below GL	Bore log	Standard Penetration Test				Graph of 'N' value						Remarks			
				depth (m)	15 cm	30 cm	45 cm	N Value	10	20	30	40	50		>50		
Filling Plastic Waste	5.00	5.00															
Clay with Organic matters(Black)	3.10	8.10		6.00	1	0	0	0									
				7.50	1	0	0	0									
Lateritic Clay(White)	3.90	12.00		9.00	3	3	5	8									
				10.50	3	4	6	10									
Lateritic Sand(White)	1.50	13.50		12.00	4	7	11	18									
Lateritic Clay(White)	7.50	21.00		13.50	4	5	9	14									
				15.00	3	3	8	11									
				18.00	3	4	8	12									
Silty Weathered Rock	9.25	30.25		21.00	5	8	12	20									
				24.00	21	50	-	>50								21cm balance	
				24.80												No Recovery	
				30.00	50	-	-	>50								20cm balance	
Soft Rock	3.75	34.00														Recovery=2% ROD=Nil	
Soft Rock	1.00	35.00														Recovery=34% ROD=11%	
Medium Hard Rock	2.00	37.00														Recovery=27% ROD=5%	
Medium Hard Rock	1.00	38.00														Recovery=60% ROD=11%	
Bore hole terminated at 38.0m depth																	
Basil E J, B.Tech (Engineer In Charge)																	

CLIENT		GOVT.ARTS &SCIENCE COLLEGE															
PROJECT:		PROPOSED COLLEGE BUILDING(G+7)															
SITE:		THRIPUNITHURA															
BORE HOLE NO. : BH-II						Date of start:17/10/2017											
						Date of completion:18/10/2017											
TYPE OF BORING: Rotary Drilling						Ground water table:2.0m below GL											
Description of soil	Thickness of layer m	Depth in m below GL	Bore log	Standard Penetration Test				Graph of 'N' value						Remarks			
				depth (m)	15 cm	30 cm	45 cm	N Value	10	20	30	40	50		>50		
Filling Plastic Waste	5.00	5.00															
Lateritic Sand	2.50	7.50		6.00	1	0	3	3									
Lateritic Clay	10.50	18.00		7.50	1	1	2	3									
				9.00	2	3	5	8									
				10.50	1	2	3	5									
				12.00	1	4	5	9									
				13.50	2	3	5	8									
				15.00	5	8	9	17									
Silty Weathered	12.00	30.00		18.00	6	8	12	20									
				21.00	21	24	26	50									
				23.00													SPT Rebounded W/O sample
				24.00	18	32	18	>50									4cm balance
				27.00	13	30	20	>50									7cm balance
Soft Rock	2.00	32.00		30.00	50	-	-	>50								Recovery =Nil	
Soft Rock	1.00	33.00		32.00												Recovery =10% RQD=10%	
Bore hole terminated at 33.0m depth																	
													Basil E J, B.Tech (Engineer In Charge)				

CLIENT		GOVT.COLLEGE THRIPIUNITHURA															
PROJECT:		PROPOSED COLLEGE BUILDING(G+7)															
SITE:		THRIPIUNITHURA															
BORE HOLE NO. : BH-III					Date of start:19/10/2017												
					Date of completion:20/10/2017												
TYPE OF BORING: Rotary Drilling					Ground water table:2.0m below GL												
Description of soil	Thickness of layer m	Depth in m below GL	Bore log	Standard Penetration Test				Graph of 'N' value						Remarks			
				depth (m)	15 cm	30 cm	45 cm	N Value	10	20	30	40	50		>50		
Filling Plastic Waste	6.00	6.00															
Lateritic Clay	6.00	12.00		7.50	1	2	4	6									
				9.00	2	3	5	8									
				10.50	1	2	5	7									
Lateritic Sand	6.00	18.00		12.00	2	4	6	10									
				13.50	8	18	23	41									
				15.00	10	21	29	50									
Lateritic Clay	9.00	27.00		18.00	12	18	23	41									
				21.00	18	14	19	33									
				24.00	15	20	24	44									
Weathered Rock	0.03	27.03		27.00	50	-	-	>50								42cm balance	
Soft Rock	2.97	30.00														Recovery Nil	
Soft Rock	2.00	32.00														Recovery Nil	
Soft Rock	1.50	33.50														Recovery =30% RQD=9%	
Bore hole terminated at 33.5m depth																	
Basil E J, B.Tech (Engineer In Charge)																	



COCHIN GEOTECHNICAL LABORATORY

51/937 A, Paradise Road, Vyttila P.O Ernakulam-682019
CENTER FOR ULTIMATE GEOTECHNICAL SOLUTIONS

mail@cochingeotech.com

Phone: 0484-2389017, 2301049

TEST RESULTS

CLIENT: Govt. Arts & Science College (C/o CGL Geoinformatics, Kochi-19) Report. No. CGL/C/371/17

SITE: Thripunithura

Bore hole No.	Depth m	Description of soil	Natural water content (%)	Bulk density g/cc	LL %	PL %	Grain size distribution %				Type of Sample	Type of test	Specific gravity	Cohesion c kg/cm ²	Angle of internal friction ϕ °	
							Silt & Clay	Sand								Gravel
								Fine	Medium	Coarse						
I	6.0	Clay(CH)	127.24	1.344	141.4	84.6	96	4	0	0	0	ds	UCC	2.53	0.06	0
I	9.0	Sandy Clay(CH-SC)	32.37	1.732	59.7	32.6	89	5	6	0	0	ds	Triaxial	-	0.24	3
I	12.0	Clayey Sand(SC)	29.47	1.843	36.0	21.6	42	12	42	4	0	ds	Direct shear	2.66	0.22	23
I	15.0	Clay(CH)	46.66	1.689	67.6	40.2	94	6	0	0	0	ds	Triaxial	-	0.28	3
I	21.0	Sandy Clay(CH-SP)	28.82	1.733	57.6	26.5	56	23	13	2	6	ds	Triaxial	2.64	0.27	22
I	30.0	Clayey Sand(SC)	26.45	1.832	-	-	32	34	27	3	4	ds	Direct shear		0.10	34
I	30.25-34.0	Very poor very weak soft rock (Rock Mass Rating No. =34)		2.254								uds	Uniaxial compressive strength = nil			
I	34.0-35.0	Very poor very weak soft rock (Rock Mass Rating No. =34)		2.377								uds	Uniaxial compressive strength = 0.4 N/mm ²			

(All the tests are done on remoulded sample collected from SPT spoon)



COCHIN GEOTECHNICAL LABORATORY

51/937 A, Paradise Road, Vyttila P.O Ernakulam-682019
CENTER FOR ULTIMATE GEOTECHNICAL SOLUTIONS

mail@cochingeotech.com

Phone: 0484-2389017, 2301049

I	35.0-37.0	Very poor very weak medium hard rock(Rock Mass Rating No. =41)		2.503									uds	Uniaxial compressive strength = 0.9 N/mm ²			
I	37.0-38.0	Very poor very weak medium hard rock(Rock Mass Rating No. =41)		2.537									uds	Uniaxial compressive strength = 0.9 N/mm ²			
II	6.0	Clayey Sand(SC)	25.95	1.732	38.5	24.2	47	23	22	3	5		ds	Direct shear	2.62	0.10	4
II	9.0	Sandy Clay(CH-SP)	27.73	1.754	56.8	30.6	57	18	23	2	0		ds	Triaxial	-	0.21	7
II	12.0	Sandy Clay(CH-SP)	43.98	1.560	90.1	40.5	81	15	4	0	0		ds	Triaxial	2.60	0.25	6
II	15.0	Sandy Clay(CH-SP)	52.26	1.707	64.3	33.6	60	17	21	2	0		ds	Triaxial	-	0.23	8
II	21.0	Sandy Clay(CH-SP)	30.46	1.830	68.5	33.5	66	27	7	0	0		ds	Triaxial	2.65	0.20	29
II	32.0-33.0	Very poor very weak soft rock (Rock Mass Rating No. =34)		2.336									uds	Uniaxial compressive strength = 0.4 N/mm ²			
III	7.5	Sandy Clay(CH-SC)	29.26	1.729	55.8	28.1	80	12	8	0	0		ds	Triaxial	-	0.23	2
III	9.0	Sandy Clay(CH-SC)	29.38	1.728	62.3	31.7	76	14	10	0	0		ds	Triaxial	2.62	0.28	6

(All the tests are done on remoulded sample collected from SPT spoon)



COCHIN GEOTECHNICAL LABORATORY

51/937 A, Paradise Road, Vyttila P.O Ernakulam-682019
CENTER FOR ULTIMATE GEOTECHNICAL SOLUTIONS

mail@cochingeotech.com

Phone: 0484-2389017,2301049

III	12.0	Clayey Sand(SC)	26.79	1.699	41.0	24.1	48	12	40	0	0	ds	Direct shear	-	0.17	21
III	15.0	Clayey Sand(SC)	25.10	1.796	22.1	22.9	33	24	43	0	0	ds	Direct shear	2.65	0.12	32
III	21.0	Sandy Clay(CH-SP)	27.98	1.811	50.7	26.0	58	37	5	0	0	ds	Triaxial	-	0.23	23
III	27.0	Clayey Sand(SC)	22.89	1.815	-	-	19	44	34	2	1	ds	-	Not sufficient sample for strength test		
III	32.0-33.5	Very poor very weak soft rock (Rock Mass Rating No. =34)	2.445									uds	Uniaxial compressive strength = 0.4 N/mm ²			

Vyttila
31/10/2017

Linish Varghese, B.Tech
Senior Engineer

RECOMMENDATIONS

INTRODUCTION

M/s CGL Geoinformatics, 51/937 B, Paradise Road, Vyttila P. O, Kochi 682019 had conducted site investigation for the proposed college building (G+7) of M/s Govt. Arts and Science College at Thripunithura. Three boreholes were taken up to a depth of 38.0 m using rotary drilling. Standard Penetration Tests were conducted at regular vertical intervals and the samples taken during the investigation were tested in the laboratory.

DATA AND DISCUSSIONS

The soil profile in the BH-1 location shows that the topsoil is of filled plastic waste up to 5.0 m depth. This is followed by clay with organic content up to 8.1 m depth having N value of zero. After that it is lateritic clay up to 12.0 m depth having N value of 8 and 10, followed by lateritic sand up to 13.5m depth having N value of 18. Below that, there is lateritic clay up to 21.0 m depth having N value varying between 11 and 14. It is followed by weathered rock up to 30.25 m depth having N value of 20 and >50. After that there is very poor very weak soft rock up to 35.0 m depth having core recovery=2 % and 34% and RQD=0% and 11 %. Below that it is very poor very weak medium hard rock up to the bored depth 38.0 m having core recovery=27 % and 60 % and RQD= 5 % and 11 %. Ground water table is located at 2.0 m below the ground level.

The soil profile in the BH-2 location shows that the topsoil is of filled plastic waste up to 5.0 m depth. This is followed by lateritic sand up to 7.5 m depth having N value of 3. After that it is lateritic clay up to 18.0 m depth having N value varying between 3 and 17. Below that, there is silty weathered rock up to 30.0 m depth having N value of 20 and >50. It is followed by very poor very weak soft rock up to bored depth 33.0 m depth having core recovery=0 % and 10 % and RQD=0 % and 10 %. Ground water table is located at 2.0 m below the ground level.

The soil profile in the BH-3 location shows that the topsoil is of filled plastic waste up to 6.0 m depth. This is followed by lateritic clay up to 12.0 m depth having N value ranging from 6 to 8. After that it is lateritic sand up to 18.0 m depth having N value varying between 10 and 50. Below that, there is lateritic clay up to 27.0 m depth having N value ranging from 33 to 44. It is followed by weathered rock up to 27.03 m having N value >50. After that it is very poor very weak soft rock up to bored depth 33.5 m depth having core recovery=0 % and 30 % and RQD=0 % and 9 %. Ground water table is located at 2.0 m below the ground level.

Soil profiles in the boreholes show slight variations. At the top, there is plastic waste filling up to around 5.0 m depth. Soil below that has low shear strength. So, shallow foundation is not advisable for the proposed structure. Soil becomes stiffer around 21.0 m depth, 18.0 m depth and 13.5 m depth in BH-1, BH-2 and BH-3 locations, respectively. Soft rock is available after around 30.0 m depth in BH-1 and BH-2 locations and around 27.0 m depth in BH-3 location. In BH-1 location medium hard rock layer is available after 5.0 m soft rock layer. So foundation can be rested on medium hard rock with proper embedment. Uniaxial compressive strength of rock samples given lower values. So proper embedment is necessary for the generation of good axial capacity.

RECOMMENDATIONS

- i) It is recommended to provide DMC/drilling concrete pile foundation to support column loads. Each pile should have a length of around 36.0 m depending on the availability of medium hard rock layer. Pile should pass through the soft rock layer and should be rested in medium hard rock and sufficient embedment length (approximately equal to two times diameter of pile) should be provided into medium hard rock layer. Based on the above, following recommendations are made;

Sl no	Pile Diameter mm	Tip resistance kN	Side friction kN	Safe axial load kN	Uplift load kN	Lateral load kN
1	500	400	500	900	320	25
2	600	570	600	1170	400	35
3	700	780	700	1480	480	45
4	800	1020	800	1820	570	60
5	900	1300	900	2100	670	75

- ii) Alternately for lighter loads, it is recommended to provide DMC/drilling concrete pile foundation to support column loads. Each pile should have a length of around 29.0 m to 32.0 m depending on the availability of soft rock layer. Pile should be rested in soft rock and sufficient embedment length (approximately equal to two times diameter of pile) should be provided into soft rock layer. Based on the above, following recommendations are made;

Sl no	Pile Diameter mm	Tip resistance kN	Side friction kN	Safe axial load kN	Uplift load kN	Lateral load kN
1	500	260	230	490	180	25
2	600	370	280	650	230	35
3	700	510	330	840	290	45
4	800	670	380	1050	350	60
5	900	850	430	1280	420	75

- iii) For arriving the frictional force, top 7.0 m of soil is discarded. Side friction for 5.0 m length of soft rock is considered for arriving frictional resistance of pile. Factor of safety of 2.5 for side friction and 2.5 for end bearing are taken for the design. Factor of safety of 3 is taken for arriving lateral load.
- iv) The sub structure should to be constructed as per latest IS code and it should be certified by a qualified engineer.
- v) The load carrying capacity of pile should be ensured by conducting initial pile load test as per IS.2911 (Part IV) for finding axial load capacity, lateral load capacity and uplift load capacity. Routine pile load test should also be conducted as per I.S specification.
- vi) Quality of piling like concreting, diameter of pile, depth of pile, etc. should be ensured by sonic pile integrity test.
- vii) These recommendations are based on three bore hole data obtained. If any variation in the soil profile is observed during the construction it should be referred to a Geotechnical Engineer.

Kottayam
11/11/2017

Prof (Dr.). Hari. G, *M. Tech, Ph.D.*
Professor in Civil Engineering
Saintgits College of Engineering, Kottayam
(Mobile No.94470-97042)

Annexure 12

Minutes of Meeting

Public Education Rejuvenation Mission of Government
of Kerala under Kerala Infrastructure Investment Funding
Board - MAM -

Venue :- Govt. College Sheikunthara.

Time :- 11am., 20.07.2017.

- 1) ~~Initial report~~ ^{Initial report} ~~has been~~ ^{will be} prepared By KIT and DRR by KITCO
- 2) Requirements from college has been discussed with KIT team.
- 3) Existing condition survey and soil investigation to be provided for future action.
- 4) Present ~~AAAC~~ accreditation is 'B' grade and they aim an improvement as per the remarks (SWOT analysis) given.
- 5) A total new campus has been proposed by the college in a ~~different~~ plot of area 8.22 acres which was accepted by the KIT team
- 6) New campus ~~the college envisage an area~~ of 2500m² with detailed room requirements in the 8 acre.
- 7) ~~Presently~~ ^{The} site needs soil investigation as from ocular survey
- 8) Presently 4 UG and 2 PG courses are present and the college envisage a development of total ~~4~~ 10 UG and 5 PG classes, with all facilities as per space available with hostel facility in master plan.

Attendees

1) Jasmine Vaeghux

KITCO

Jasmine
Khavde

2) Asha-S-Dev

UC, JARA

3 C. C. Rammohan

PRL

Shash
20/7/17

Govt. College Shripunthasa

Public education Rejuvenation Mission of Govt. of India under

KIPB — Attendees (20.07.2017).

<u>Name</u>	<u>Organisation</u>	<u>Designation</u>	<u>Phone No.</u>
①. Jasmine Vaeghere	KITCO Ltd	Architect	8547977066.
②. Asha. S. Dev	GC, DPRA	SR. Superf.	9446013205
③. Jyothi. C. Nair	GC, DPRA	Librarian	9567209988.
④. Gopakumar L	KITCO	Architect	9447167706
5. C.C. Ram Mohan	Govt colleges	Principal	9446307/3
6. Dr. MAKESH. K.G	"	IGAC	9846737030. 2
7. Sumy Bhatwanshiyan.	"	HOD Dept of Eco	9605195051.
8. Santhosh Kurriakosek	"	HOD Phy. Education	9447325567
9. Ashok Kumar. D	" =	History Dept	9495904092
10. Asha. M	"	Asst. Prof. Commerce	9947010268
11. Dr. Sindhu. G. Nair	"	Hindi Dept	7495382602
12. Dr. Meslyamala Josephk	"	Asst professor, Statistics	9495983467
13. Dr. Rekha Karim	"	Asst Prof of English	9048913911

Annexure 13

Cost Benefit Analysis

COST - BENEFIT SHEET (QUICK SHEET)

	NET PRESENT VALUE (NPV) of COSTS NET PRESENT VALUE (NPV) of BENEFITS	1406 1467 1.043		
DEPARTMENT:	HIGHER EDUCATION DEPARTMENT	NAME OF SPV:	KERALA INFRASTRUCTURE AND TECHNOLOGY FOR EDUCATION (KITE)	PROJECT NAME: Augmentation of Infrastructural Facilities at Govt. College Thrissur
		PROJECT ID:		
COST ANALYSIS				
Period for which costs will be incurred: (in years from commencement of incurring costs)				

Remarks: Enter an approximate figure for the other years as percentage of cost for the first year for each item.
 Exclude Recurring costs like Annual Maintenance Costs if known.
 Reasonable degree of accuracy, please enter the Units as '1' and then the total Amount in the Rate column.
 Items into not more than 10 sets of COSTS for simplicity of computation.
 Enter value of year from the ticklist given by the side of the cell.

Item	Year 1 = 2019				Year 2 = 2020				Year 3 = 2021				Year 4 = 2022				Year 5 = 2023				Year 6 and beyond
	Units	Description/Remarks	Rate (Rs. Lakh/Unit)	Amount	Units	Description/Remarks	Rate (Rs. Lakh/Unit)	Amount	Units	Description/Remarks	Rate (Rs. Lakh/Unit)	Amount	Units	Description/Remarks	Rate (Rs. Lakh/Unit)	Amount	Units	Description/Remarks	Rate (Rs. Lakh/Unit)	Amount	(Enter as approximate percentage of cost for that item to the average cost incurred in the FIRST five years)
1	1	Cost of construction	1547	1547			0	0			0	0			0	0			0	0	
2			0	0			0	0			0	0			0	0			0	0	
3			0	0			0	0			0	0			0	0			0	0	
4			0	0			0	0			0	0			0	0			0	0	
5			0	0			0	0			0	0			0	0			0	0	
6			0	0			0	0			0	0			0	0			0	0	
7			0	0			0	0			0	0			0	0			0	0	
8			0	0			0	0			0	0			0	0			0	0	
9			0	0			0	0			0	0			0	0			0	0	
10			0	0			0	0			0	0			0	0			0	0	
	TOTAL FOR YEAR 1 =				TOTAL FOR YEAR 2 =				TOTAL FOR YEAR 3 =				TOTAL FOR YEAR 4 =				TOTAL FOR YEAR 5 =				

BENEFIT ANALYSIS				
Period for which BENEFITS will be derived: (in years from first year of start of getting benefits of the project)				

Remarks: Enter an approximate figure for the other years as percentage of benefits for the first year for each item.
 Reasonable degree of accuracy, please enter the Units as '1' and then the total Amount in the Rate column.
 Items into not more than 10 sets of BENEFITS for simplicity of computation.
 Enter value of year from the ticklist given by the side of the cell.

Item	Year 1 = 2021				Year 2 = 2022				Year 3 = 2023				Year 4 = 2024				Year 5 = 2025				Year 6 and beyond
	Units	Description/Remarks	Rate (Rs. Lakh/Unit)	Amount	Units	Description/Remarks	Rate (Rs. Lakh/Unit)	Amount	Units	Description/Remarks	Rate (Rs. Lakh/Unit)	Amount	Units	Description/Remarks	Rate (Rs. Lakh/Unit)	Amount	Units	Description/Remarks	Rate (Rs. Lakh/Unit)	Amount	(Enter as approximate percentage of benefit for that item to the benefit derived in the FIRST five years)
1	1	Value of increased revenue generation by improved human capital	50	50	1	Value of increased revenue generation by improved human capital	75	75	1	Value of increased revenue generation by improved human capital	125	125	1	Value of increased revenue generation by improved human capital	150	150	1	Value of increased revenue generation by improved human capital	300	300	100
2	1	Gain on opportunity cost	20	20	1	Gain on opportunity cost	20	20	1	Gain on opportunity cost	20	20	1	Gain on opportunity cost	20	20	1	Gain on opportunity cost	20	20	100
4	1	Incremental Earnings for students upon employment	40	40	1	Incremental Earnings for students upon employment	40	40	1	Incremental Earnings for students upon employment	40	40	1	Incremental Earnings for students upon employment	40	40	1	Incremental Earnings for students upon employment	40	40	100
5	1	Project Related New Employment	15	15	1	Project Related New Employment	20	20	1	Project Related New Employment	30	30	1	Project Related New Employment	50	50	1	Project Related New Employment	60	60	100
7	1	Incremental Benefits to Industry	15	15	1	Incremental Benefits to Industry	30	30	1	Incremental Benefits to Industry	45	45	1	Incremental Benefits to Industry	75	75	1	Incremental Benefits to Industry	100	100	100
8	1	Gain on account of R&D Center	30	30	1	Gain on account of R&D Center	40	40	1	Gain on account of R&D Center	60	60	1	Gain on account of R&D Center	80	80	1	Gain on account of R&D Center	100	100	100
9			0	0			0	0			0	0			0	0			0	0	
10			0	0			0	0			0	0			0	0			0	0	
	TOTAL FOR YEAR 1 =				TOTAL FOR YEAR 2 =				TOTAL FOR YEAR 3 =				TOTAL FOR YEAR 4 =				TOTAL FOR YEAR 5 =				

KITCO Ltd.
Femith's, P. B. No:4407,
Puthiya Road, NH Bypass Vennala,
Kochi – 682 028, Kerala, India.
e-mail: mail@kitco.in

New Delhi :-
KITCO Ltd., F2-205,
NSIC Software Technology- cum-Business Park,
Okhla Industrial Estate,
New Delhi – 110020, India. Phone: +91-9891016590
e-mail: modassarkhan@kitco.in

Chennai :-
KITCO Ltd.,
1st Main Road, MEPZ-SEZ,
GST Road, Tambaram Sanatorium, Chennai – 600 045, India.
Phone: +91-044-45118383/84
e-mail: kitco_mepz@yahoo.com

Thiruvananthapuram :-
KITCO Ltd.,
House No 42, TC4/1687, Belhaven Garden, Kowdiar P.O.,
Thiruvananthapuram - 695 033, Kerala, India.
Phone /Fax: +91-471-2728543
e-mail: kitcotvm@gmail.com

Reply to the TAR comments

Govt. College Thripunithura

TAR Comment	Incorporations	Remarks
<ul style="list-style-type: none"> No KIIFB Logo in the front page of DPR 	Incorporated in the front page of the revised DPR.	
1. Salient Features		
<ul style="list-style-type: none"> The name of work should be mentioned by – “for KIIFB funding” 	Incorporated in the front page of the revised DPR.	
<ul style="list-style-type: none"> Salient features component should come in the beginning of DPR (In the submitted DPR it is provided as chapter 17 in page number 102) 	The salient features are incorporated at the initial part of the DPR	
<ul style="list-style-type: none"> AS number not mentioned in Salient Features 	Mentioned in the Chapter 1: Salient features	
<ul style="list-style-type: none"> Nature of project mentioned in the salient features (Item no.10) says that there is renovation of existing building – no such renovation details are provided in estimate. 	Corrected in the DPR chapter 1: Salient features	

<ul style="list-style-type: none"> • Whether demolition of existing structures to be done should also be included in this section. 	<p>As per the instructions from KITE, Higher Education will carry out the demolition works. No major demolition is proposed as part of the first phase proposal.</p>	
<p>2. Executive Summary</p>		
<ul style="list-style-type: none"> • Executive Summary in the DPR provides general details of colleges in Kerala and many other facility upgradations to be done at the campus. Such details may be avoided, only details regarding the work to be done using KIIFB funding may be mentioned. (The report is not work specific). 	<p>Make necessary corrections.</p>	
<ul style="list-style-type: none"> • In page no.9 and 97 duration of work is mentioned as 9 months. The same should be verified. 	<p>The same is changed as 12 months</p>	
<p>3. Project Background</p>		
<ul style="list-style-type: none"> • Same is the case with Project background, Project objective- Not work specific. 	<p>Make necessary corrections.</p>	

<ul style="list-style-type: none"> Population details and rainfall data provided in the DPR does not match with census data and rainfall data available in internet. 	<p>The same was based on the datas available from the Census report 2011 Part A</p>	
<p>4. Project Feasibility Studies</p>		
<ul style="list-style-type: none"> In page no.53 and 54 demolition details are mentioned. There is no demolition required for the work, unnecessary details should be avoided. 	<p>Demolition required, mentioned in the DPR</p>	<ul style="list-style-type: none">
<ul style="list-style-type: none"> Requirement and Demand Analysis are not proper, details and present condition of existing facilities- infrastructure wise, (mentioning area of the plot, area of existing structures, vacant plots if any etc.) requirements mentioned by the college authorities etc. should be analysed and hence the result should be mentioned considering all these facts. 	<p>Incorporated as part of Chapter 3</p>	
<p>5. Site Surveys & Investigations</p>		
<ul style="list-style-type: none"> Site surveys and investigations are improper 	<p>Topographic survey is attached at annexure.</p>	

<ul style="list-style-type: none"> • <i>Site drawings provided in pgno.42 is a coloured sketch without orientation, also without proper dimensions/area of plot, existing structures, location of proposed building with dimensions and its necessary offsets to existing structures.</i> 	<p><i>Revisions are incorporated in chapter 4 and chapter 5</i></p>	
<ul style="list-style-type: none"> • <i>The proposed building is in a nearby plot 1.5km away the approach road to the plot is not mentioned correctly. Presently there is no approach road to proposed plot, hence new Municipal road details and right of way details has to be verified and should be documented. This detail is very crucial for envisaging the above project.</i> 	<p><i>Provisions for internal roads are included in the estimate. The college will have to take necessary steps to develop approach road to site</i></p>	
<ul style="list-style-type: none"> • <i>No dimensioned site plan available which is a primary requirement.</i> 	<p><i>Revised drawings are incorporated in the DPR</i></p>	
<ul style="list-style-type: none"> • <i>Total station survey details are improper</i> 	<p><i>Necessary details are incorporated in the DPR</i></p>	
<ul style="list-style-type: none"> • <i>Details regarding availability of water, ground</i> 	<p><i>The same will be examined by the implementation</i></p>	

<i>water details etc. are not mentioned in the DPR.</i>	<i>agency during the time of implementation.</i>	
6. Functional Design		
<ul style="list-style-type: none"> <i>Analysis of existing structures and its deficiency demanding new proposed building has not been substantiated.</i> 	<i>Description about the analysis has been carried out and incorporated in chapter 5 of the revised DPR.</i>	
<ul style="list-style-type: none"> <i>In page no.71, 1st phase and 2nd phase development is mentioned, the content need to be work specific. The work to be executed using KIIFB fund must be mentioned separately otherwise it creates confusion while appraisal.</i> 	<i>Since the DPR should be work specific, the same need to be include as part of the master plan proposal.</i>	
<ul style="list-style-type: none"> <i>In page no.76 -Third floor plan is shown, the same hasn't been incorporated in the estimate.</i> 	<i>Necessary corrections are incorporated in the DPR</i>	
<ul style="list-style-type: none"> <i>In page no.s 80 and 81 various other 3D pictures of buildings are shown which is not included in the estimate. The details provided should be work specific.</i> 	<i>The same are required for an tentative overall view of the campus after development</i>	
<ul style="list-style-type: none"> <i>In page no. 67 an image is shown regarding campus aesthetic uplift- no provision</i> 	<i>Changes have been incorporated in the revised DPR.</i>	

<p><i>for this is seen in the estimate or any other sections in the DPR, such unnecessary details which is not work specific must be avoided.</i></p>		
<p>7. Engineering Design</p>		
<ul style="list-style-type: none"> • <i>It says proposed block is for two or more floors- work specific details are not mentioned which creates uncertainty.</i> 	<p><i>Necessary details are incorporated in the DPR</i></p>	
<ul style="list-style-type: none"> • <i>In this section, the DPR elaborates about the soil report details but the foundation adopted is not mentioned with respect to the project.</i> 	<p><i>Necessary details are incorporated in the DPR</i></p>	
<ul style="list-style-type: none"> • <i>General structural details are mentioned in the DPR, this must be accompanied with work specific details. General data's are irrelevant if the details regarding the work are not mentioned.</i> 	<p><i>Necessary details are incorporated in the DPR</i></p>	
<ul style="list-style-type: none"> • <i>No proper Engineering drawings and structural drawings are provided in the DPR. The provided drawings in other sections are either incomplete, not properly dimensioned or not legible.</i> 	<p><i>Drawings are attached as annexure</i></p>	

<ul style="list-style-type: none"> <i>In page no.74, demolition details are mentioned. The same also is not work specific, if demolition is required the details of building to be demolished, mode of execution etc. should be mentioned in detail.</i> 	<p><i>Necessary details are incorporated in the DPR</i></p>	
<ul style="list-style-type: none"> <i>LIFT – provision as per KPBR/ KMBR should be verified</i> 	<p><i>Necessary details are incorporated in the DPR</i></p>	<p><i>Provisions are included. Can be installed through another fund</i></p>
<ul style="list-style-type: none"> <i>Fire fighting details not provided- provision as per KPBR/ KMBR should be verified.</i> 	<p><i>Necessary details are incorporated in the DPR</i></p>	<p><i>As per KMBR rule, no fire escape facility need to be provided.</i></p>
<ul style="list-style-type: none"> <i>As the project is a waste land for past 35years and as per soil report about 5m from ground level is plastic waste, design criteria does not seem sufficient to match these conditions.</i> 	<p><i>No change in the structural aspects due to this</i></p>	
<ul style="list-style-type: none"> <i>As per soil report it is recommended to provide 36m DMC pile foundation at which soft rock has to be drilled and seated on medium hard rock but in the estimate normal DMC pile at a depth of 32m is provided- the same has to be clarified.</i> 	<p><i>Necessary changes are made</i></p>	

<ul style="list-style-type: none"> As the proposed plot is beside to a river tributary-pollution control board sanction has to be taken, also provision for sewage treatment plant will have to be incorporated. 	<p>No sanction required. The same is outside CSR zone. The building is proposed at a 100m distance from the river side.</p>	
<ul style="list-style-type: none"> As the plot is full of undulations and low lying, additional provision for filling will have to be incorporated in the estimate 	<p>Necessary details included in the estimate</p>	
<ul style="list-style-type: none"> Provision for compound wall not seen in the estimate as this an open plot, these criteria's are to be verified. 	<p>Necessary details included in the estimate</p>	
<p>8. Financial Estimates & Cost Projections</p>		
<ul style="list-style-type: none"> O/M details are not mentioned. If any the same has to be mentioned in the MOM. 		<p>O/M cost has not been estimated presently. The same will be met by the College Development Council through the plan fund from Higher Education Department.</p>
<p>9. Revenue Streams</p>		

<ul style="list-style-type: none"> The details provided in this section are not substantiated, incoming revenue in amount etc. Only then cost for recovery can be analysed. 		<p>Since the project is part of social infrastructure, the social benefits are calculated in the project and elaborated in chapter 10 (Cost Benefit Analysis).</p>
<p>10. Cost Benefit Analysis & Investment Criteria</p>		
<ul style="list-style-type: none"> In the cost benefit analysis, amount projected in each should be explained in detail. 	<p>Necessary details are incorporated in the DPR</p>	
<ul style="list-style-type: none"> The attached document details in the annexure has very small font size and hence very difficult to decode the details. Any detail provided in the DPR should be legible. 	<p>Incorporated CBA of the revised DPR.</p>	
<p>11. Risk Assessment & Mitigation Measures</p>		
<ul style="list-style-type: none"> The proposed building is in a nearby plot 1.5km away the approach road to the plot is not mentioned correctly. Presently there is no approach road to proposed plot, hence new Municipal road details and right of way details has to 	<p>Internal road are included in the estimate. The approach road to be developed by College</p>	

<p><i>be verified and should be documented. This detail is very crucial for envisaging the above project.</i></p>		
<ul style="list-style-type: none"> <i>The plot appears to be a wet land with waste dumped for 5m depth, getting sanction for the construction is to be ascertained before kickstarting the project.</i> 		<p><i>Will be undertaken by the PMC consultants before commencement of work.</i></p>
<p>12. Project Management Organisation</p>		
<ul style="list-style-type: none"> <i>The details mentioned in this section are general details, work specific details regarding the SPV, agencies involved in the work are not mentioned.</i> 		<p><i>The implementation mechanism is under finalisation and the same will be intimated to KIIFB after finalisation.</i></p>
<ul style="list-style-type: none"> <i>In page no. 113 details regarding college development committee is mentioned. It should also be noted that this committee will monitor the O/M of the work after completion. This should also be mentioned in the MOM.</i> 		<p><i>Towards the operation & maintenance, the required procedures will be prepared by Higher Education Department in consultation with the implementing agency and the same will be issued as a GO.</i></p>
<p>13. Contract Management Strategy</p>		

<ul style="list-style-type: none"> <i>In page no.117 it says PWD rates and procedures will be adopted, but during the scrutiny of the estimate it was found that some rates in the DPR are provided with observed data which is already there in PWD rates.</i> 	<p><i>Justification is incorporated in DPR</i></p>	
<p>14. Implementation Schedule & WBS</p>		
<ul style="list-style-type: none"> <i>In page no.120 a bar chart is shown, it says the project will be completed within 9 months (including tendering) and in which the civil works completion takes only 6months for completion. Are these details properly analysed. The same should be verified.</i> 	<p><i>Changed as 12 months</i></p>	
<ul style="list-style-type: none"> <i>Detailed WBS not provided.</i> 		<p><i>This will be taken care of by the implementing agency in consultation with KIIFB.</i></p>
<p>15. Statutory Clearances</p>		
<ul style="list-style-type: none"> <i>The proposed building is in a nearby plot 1.5km away the approach road to the plot is not mentioned correctly. Presently there is no approach</i> 	<p><i>The same was verified by the College authorities.</i></p>	

<p>road to proposed plot, hence new Municipal road details and right of way details has to be verified and should be documented. This detail is very crucial for envisaging the above project.</p>		
<ul style="list-style-type: none"> In page no.94 it says KPBR strictly need to be followed. Work specific details are not mentioned. Drawings with necessary dimensions and area are not provided in the floor plans and also no proper site plan with necessary offsets. As this is a new building, rainwater harvesting will be required. Provision for same not provided in the estimate and drawings. 		<p>All statutory clearances for Government projects have to be taken by the implementation agency at the time of execution.</p>
<ul style="list-style-type: none"> Fire and safety details are not mentioned in the DPR. Provision as per KPBR/KMBR should be verified. 	<p>Detailed in chapter 7</p>	<p>All statutory clearances for Government projects have to be taken by the implementation agency at the time of execution.</p>
<p>16. Quality Management Plan</p>		
<ul style="list-style-type: none"> All the Kerala PWD quality norms should be 		<p>All required procedures for an</p>

<p><i>followed. Details regarding the same not mentioned.</i></p>		<p><i>infrastructure project (as per the Kerala PWD norms) has been listed. Detailed QA/QC plan will be prepared and issued by the implementing agency at the time of implementation.</i></p>
<ul style="list-style-type: none"> • <i>General Quality management plan is mentioned. Work specific details not mentioned.</i> 		<p><i>All required procedures for an infrastructure project (as per the Kerala PWD norms) has been listed. Detailed QA/QC plan will be prepared and issued by the implementing agency at the time of implementation</i></p>
<p>17. Operations & Maintenance Plan</p>		
<ul style="list-style-type: none"> • <i>In page no. 124 details regarding college resource management committee is mentioned. It should also be noted that this committee will monitor the O/M of the work after completion. This should also be mentioned in the MOM.</i> 		<p><i>Towards the operation & maintenance, the required procedures will be prepared by Higher Education Department in consultation with the</i></p>

		<i>implementing agency and the same will be issued as a GO.</i>
<ul style="list-style-type: none"> <i>Details of funds required for O/M and its usage etc. not analysed, this is an important criteria. The building should be properly maintained in coming years after handing over of project. Hence these details have to be properly analysed and documented.</i> 		<i>Towards the operation & maintenance, the required procedures will be prepared by Higher Education Department in consultation with the implementing agency and the same will be issued as a GO.</i>
18. Annexures		
<ul style="list-style-type: none"> <i>Attached drawings are from google earth without any proper dimensions are not acceptable. Proper engineering architectural and structural drawing are necessary.</i> 	<i>Incorporated in annexure of the revised DPR.</i>	
<ul style="list-style-type: none"> <i>In architectural drawings- Third floor plan is shown which is not incorporated in the estimate.</i> 	<i>First phase proposal is for a 3 storied academic block</i>	
<ul style="list-style-type: none"> <i>Sectional drawing shows footing foundation, estimate and soil report indicates pile foundation which has to be verified.</i> 	<i>The detailed drawings are attached as annexure</i>	

<ul style="list-style-type: none"> • <i>Electrical, plumbing, fire fighting drawings etc. are not provided in the DPR.</i> 		<i>Electrical & Plumbing drawings will provided prior to the TS.</i>
<ul style="list-style-type: none"> • <i>Abstract of estimate provided just before detailed estimate has only one page, balance sheets not furnished</i> • 	<i>Necessary details provided</i>	
<ul style="list-style-type: none"> • <i>Detailed estimate name of work should be mentioned correctly- it should be work specific.</i> 	<i>Incorporated in the revised estimate.</i>	
<ul style="list-style-type: none"> • <i>Many observed data's are seen in the detailed estimate are already there in the PWD PRICE- Justification for same is required. Eg: item 32 in estimate.</i> 	<i>Justification is incorporated in DPR</i>	
<ul style="list-style-type: none"> • <i>Full set architectural and structural drawing s are required for scrutiny of detailed estimate.</i> 	<i>Incorporated in the DPR</i>	
<ul style="list-style-type: none"> • <i>Item no. 4 in civil works- initial load testing is provided, is this item required- clarify</i> 	<i>Deleted from estimate</i>	
<ul style="list-style-type: none"> • <i>Item no.7-earth work excavation- three items for earthwork- clarification required</i> 	<i>Make necessary corrections in the estimate</i>	

<ul style="list-style-type: none"> Item 14 column RCC- column height should be less than 3.75m after deduction of beams- What is the reason for 3.75m room height provided for all the floors-clarification required. 	<p>The same is provided as per rules.</p>	
<ul style="list-style-type: none"> In detailed estimate provision is only for G+2, but the drawing shows G+3, clarification required. Also as per the attached soil report, the foundation details are provided for G+7, the drawings show sloped roof at G+3, which restricts future expansion. This is a serious mistake in the planning phase of DPR. 	<p>The design is for a 4 storied block, where first phase construction restricted to 3 storied.</p>	
<ul style="list-style-type: none"> Since there is no full set of structural drawings verification of the estimate is difficult. 	<p>Incorporated in the DPR</p>	
<ul style="list-style-type: none"> For how many floors Structural design criteria is taken 	<p>Design is for 4 floors</p>	
<ul style="list-style-type: none"> Item no. 102 to 113- CPVC pipes- why CPVC pipes provided- clarification required. 	<p>Generally CPVC pipes are providing</p>	<p>CPVC has been provided since it is the DSR item for PVC & is considered more durable.</p>

<ul style="list-style-type: none"> Item no. 132 and 133- Non pressure NP2 RCC pipes- why provided- clarification required. 		<p>Lump sum provision has been given for underground works.</p>
<ul style="list-style-type: none"> Sump works and septic tank works are mentioned separately, then it should be given in different Appendixes with proper name of work. 	<p>Since the same is included in a single estimate, separate naming is not required</p>	
<ul style="list-style-type: none"> More than Rs12 lakhs provision for Landscaping are provided in the DPR with no proper explanation, drawings, how its maintenance are planned etc. Hence this huge amount for Landscaping may be deleted. 	<p>Item deleted</p>	
<ul style="list-style-type: none"> Data for the estimate are not attached with the detailed estimate 	<p>Attached along with the DPR</p>	
<ul style="list-style-type: none"> All the approved data as per PWD PRICE(Data subhead-50) mentioned in the detailed estimate is incorrect- clarify 	<p>Justification provided</p>	
<ul style="list-style-type: none"> MOM attached in the annexure does not provide any details regarding new academic block components- the work details has to be as per the requirements mentioned by the concerned department and college 	<p>Attached along with the DPR</p>	

<i>authorities which is not properly mentioned in MOM. Also O/M details not provided.</i>		
---	--	--



Defining the Future

Template for Preparation of Detailed Project Report (DPR) in r/o Buildings for KIIFB Assistance

Guidelines for preparing Detailed project Report

A detailed Project Report is an essential component of the project. It should be prepared carefully. Before finalizing the DPR, importance should be given to carry out proper surveys, investigations and designs. Sufficient details should be included to ensure proper appraisal, approval and implementation of the project in time. Considering the importance of DPR preparation, a document intended for reference is detailed along with. The guidelines provided in this document shall be adhered to strictly. In addition, SPV can incorporate specific additional relevant details to supplement the base data.

1.SALIENT FEATURES	
2.EXECUTIVE SUMMARY	
3.PROJECT BACKGROUND	
3.1Introduction	
3.2 Project Objective	
3.3Methodology	
3.4Overview of the Project Area	
4. PROJECT FEASIBILITY STUDIES	
4.1Requirement/ Demand Analysis	
4.2 Existing SituationAssessment	
4.3 Stakeholders Consultation	
4.4 Environmental & Sustainability Aspects	
5. SITE SURVEYS AND INVESTIGATIONS	
5.1 Ocular/Reconnaissance Survey	
5.2 Topographical Survey	
5.3 Soil Investigation	
5.4 Hydro-Geological Study	
5.5 Primary Surveys	
6. FUNCTIONAL DESIGN	
7. ENGINEERING DESIGN	
8. FINANCIAL ESTIMATES & COST PROJECTIONS	
9. REVENUE STREAMS	
10. COST BENEFIT ANALYSIS& INVESTMENT CRITERIA	
11. RISK ASSESSMENT AND MITIGATION MEASURES	
12. PROJECT MANAGEMENT ORGANISATION	
13. CONTRACT MANAGEMENT STRATEGY	
14. IMPLEMENTATION SCHEDULE & WBS	
15. STATUTORY CLEARANCES	
16. QUALITY MANAGEMENT PLAN	
17. OPERATIONS &MAINTENANCEPLAN	
18. ANNEXURES	

1. SALIENT FEATURES

(Buildings)

1.	Title of the project	
2.	Department	
3.	District	
	Thaluk	
	Corporation/Municipality/Panchayath	
	Legislative Assembly Constituency	
4.	Implementing agency/SPV	
5.	DPR prepared by	
6.	Project outlay	
7.	Budget provision	
8.	Budget speech reference	
9.	Administrative sanction	
10.	Nature of the project (New building/Renovation of existing building)	
11.	Present status of existing building	
12.	Need for the project	
13.	Details of investigations/surveys conducted	
	i. Topographical	
	ii. Geotechnical	
	iii. Hydrological	
	iv. Others	
14.	Whether Land Acquisition involved?	
	If yes, furnish details	
15.	Total estimated cost and item wise cost break up and details of Schedule of Rates	
	Whether detailed estimate attached?	
16.	Details of revenue streams, if any	
17.	Details of Cost Benefit Analysis (CBR value)	
18.	Details of project risks	
19.	Details of project management organisation strategy	
20.	Details of contract management strategy	
21.	Details of Project Implementation Schedule (PIS) & Work Breakdown	

	Schedule(WBS) - Proposed duration to complete the project	
22.	Details of statutory clearances	
23.	Quality Control infrastructure and Mechanism	
24.	Operations & Maintenance(O&M) arrangements of the project after Completion	
25.	Details of attached drawings	
26.	Other attachments	

2. EXECUTIVE SUMMARY

This section should contain brief of all the relevant details discussed in the following chapters as a brief info about the need , salient features of the Project proposal , Project components , estimated cost , mile stones/Timelines and final objectives/benefits of the Project .

3. PROJECT BACKGROUND

3.1 Introduction

- This section should provide a general introduction of the project being submitted.
- General introduction shall include write up on: type of the building project, location of the project area, general description of topography, physiography and geology of the project area, historical background of the project, need for the project, etc.
- Aims and objectives of the project shall also be briefed in the section.

3.2 Project Objective

Desired outcome of the Project to be described in this section.

3.3 Methodology

Brief description of the methodology adopted by the consultant to prepare the DPR. This section can include a flow diagram to describe the methodology with the input, output and the process.

3.4 Overview of the Project Area

Overview should cover aspects as location of the site and connectivity with other regions, accessibility to the site by various modes of transport, identification of the population under the direct and indirect impact of the DPR, existing ecological and environmental conditions, soil and terrain condition etc.

4. PROJECT FEASIBILITY STUDIES

4.1 Requirement/ Demand Analysis

In this section, the project proposed should be described in terms of the rationale behind the project, clearly focusing on the existing condition (how it will help in improving the situation and bring benefits to the stakeholders as citizens, businesses or Government).

4.2 Existing Situation Assessment

Assessment report of the existing condition of infrastructure/facilities of the study area with respect to the prevailing norms, standards or regulations.

4.3 Stakeholders Consultation

Identification and focused discussion with the Target Beneficiaries / Stake-holders. The outcomes of the stakeholder consultation should be formally documented in the DPR. An assessment in respect of the Infrastructure gaps within the Project area shall also be made.

4.4 Environmental & Sustainability Aspects

- An Environmental Management Plan (EMP) is to be developed explaining the possible environmental issues which may arise during the construction and operation of the infrastructure and associated facilities depending upon the size of the project.
- Environmental impact assessment study if mandatory and measures identified to mitigate the adverse impact, if any shall be conducted and documented in detail.
- Issues relating to land acquisition, diversion of forest land, wildlife clearances, rehabilitation and resettlement, if any, should be addressed in this section.
- Inclusion of international best practices in sustainable infrastructure management including potential low carbon emission, low energy, zero pollution etc. is desirable.

4.5 Description of any feasibility study conducted earlier and their outcome shall be discussed in this section.

5 SITE SURVEYS AND INVESTIGATIONS

5.1 Ocular/Reconnaissance Survey

The consultant shall carry out an ocular/reconnaissance survey of the project site and the surrounding to understand the presence of various physical features, external and internal infrastructure facilities available at site and off site, and all shall be documented in this section.

5.2 Topographical Survey

Analysis of the topographical survey of the entire site area. Level of detailing for the survey work will depend on the type of the project and site condition.

5.3 Soil Investigation

Analysis of soil investigation/soil test report for all architectural and detailed engineering works

5.4 Hydro-Geological Study

Analysis of hydro geological survey report of the project area, as required for engineering design calculations

5.5 Primary Surveys

Analysis of the data from primary survey(s) depending upon the need of the project.

6. FUNCTIONAL DESIGN

- This section should present an analysis of different options available to achieve the objective and the reasons for selecting the proposed option should be substantiated.

- The functional design of the project is mainly achieved through field study and documentation using existing information and specifications from various standards
- The building shall be designed with a view to achieve maximum utility. The building shall preferably be one which demands minimum land acquisition.
- The field study shall also include demand surveys and it should be prepared based on the relevant guidelines of The National Building Code of India (NBC) 2016.

7. ENGINEERING DESIGN

This section should elaborate the technology choices, structural aspects, substructure options and evaluation of the technology option.

- This section should elaborate the technology choices, structural aspects, foundation options and evaluation of the technology option, as well as the basis for the technology for the proposed project.
- Detailed description of site including topographical and geotechnical investigations adequate to choose the suitable foundation shall be furnished.
- The structural layout shall be so planned that the viability of adopting state of the art large span arrangements like flat slab, grid floor slab, ribbed slab, pre-stressed panels etc. shall be explored with a view to bring in maximum utility, aesthetics, economy etc.
- The preliminary design for a typical building project shall consist of architectural drawings of the proposed buildings, including floor plans, elevations, sections, site plans etc. conforming to the guidelines laid down in the relevant building bye laws and manuals.
- New innovations like green building concept may be incorporated in the design of the buildings.

8. FINANCIAL ESTIMATES & COST PROJECTIONS

- This section should focus on the cost estimates, budget for the project, means of financing and phasing of expenditure.

- Cost estimates have to be worked out on the basis of detailed bill of quantities (with detailed measurements of length, breadth, and depth / height for each item), using the current Schedule of Rates of the State Government (PRICE) or relevant SOR as applicable.
- Applicable taxes, contingencies, investigation charges including any O&M cost for a specific period shall be clearly specified.
- Lump sum provisions for land acquisition , if any, shall be explained in detail.

9. REVENUE STREAMS

- Options for cost recovery, if any, should be explored
- Innovative ideas for additional revenue generation may be indicated.

10. COST BENEFIT ANALYSIS& INVESTMENT CRITERIA

- Cost Benefit Analysis (CBA) is a technique whereby the costs of and benefits from a scheme are quantified over a selected time horizon and evaluated by a common yardstick.
- Cost Benefit Ratio (CBR - benefit to cost ratio), EIRR (Economic Internal Rate of Return) etc. shall be worked out in detail with all supporting data
- The project cash flow projections for the life cycle along with underlying assumptions have to be presented.

11. RISK ASSESSMENT AND MITIGATION MEASURES

- For those projects which involve large capital outlay and various issues relating to land acquisition, environmental aspects, a detailed and systematic risk analysis may be resorted.
- Identification and assessment of implementation risks which can lead to time overrun, cost escalation, scope reduction etc. is the primary stage in risk assessment.
- Risk analysis could include legal/contractual risks, environmental risks, revenue risks, project management risks, regulatory risks etc.
- The mitigation plans including risk avoidance, risk transfer, and risk elimination are to be well analysed and documented.

- For complex projects with multiple risk profiles, numerical modeling and simulation may be adopted.

12. PROJECT MANAGEMENT ORGANISATION

- Responsibilities of different agencies for project management of the said project should be elaborated. The organization structure at various levels, human resource requirements, as well as monitoring arrangements should be clearly spelt out.
- Management arrangements refer to the institutional structures and mechanisms that would be set up for ensuring effective project management.
- The involvement of external consultant if any shall be documented.

13. CONTRACT MANAGEMENT STRATEGY

- Contracting methodology for the execution of the project should be specified in detail. (item rate, lump sum, design and execute , EPC etc.)
- The system followed in the bidding document and manuals of reference etc. shall be explained (PWD/CPWD/ FIDIC) etc.
- Any variation proposed from the current practices acceptable under govt of Kerala (Arbitration, escalation etc.) in the system due to any specific technical aspects associated with the project need to be explained with justification.
- Any contract clause which may likely to lead to additional financial liability shall be identified and reported with suggestions to overcome such issues.

14. IMPLEMENTATION SCHEDULE & WBS

- The time bound work schedule is an important part of every project because it helps in better handling of projects in planning, implementation etc.
- This section should indicate the proposed zero date of commencement and also provide a Bar chart / Project Schedule, wherever relevant.

- Phasing of project activities, proposed contract packages and schedule of implementation for each phase.
- Identify critical dependencies in the project and expected timelines for completion of key milestones and associated process indicators for the same.
- The DPR should provide a time-bound action plan including tendering, appointment of contractors, construction schedule,, quality assurance & quality control and post-construction activities, including project delivery.

15. STATUTORY CLEARANCES

- This section should elaborate the statutory clearances to be obtained from the various authorities.
- Statutory approvals as per bye laws, master plan, fire safety norms, environmental clearance etc. as applicable for the project are to be taken.

16. QUALITY MANAGEMENT PLAN

- The DPR shall include information relating to the institution to be engaged in the quality assurance & quality control of the project execution.
- Methodology to be adopted to ensure the quality of construction should be clearly mentioned in the report.
- Quality management plan including the internal inspection and testing procedure shall be documented.
- Third party quality control mechanism , if adopted , its structure and plan shall be specified in detail.

17. OPERATIONS & MAINTENANCE PLAN

- The DPR shall incorporate/include information relating to the institution to be engaged in the O&M of the created infrastructure assets/enhanced infrastructure assets.

- Brief description/analysis of the key issues and obstacles in regard to O&M (including billing/collection issues) and proposed counter measures to overcome them for the project should be contained.
- Periodical requirement of funds for operation and maintenance of assets should also be included in the report.

18. ANNEXURES

- I. KEY MAP OF THE PROJECT LOCATION
- II. APPROVED ARCHITECTURAL DRAWING
- III. DETAILED ESTIMATE
- IV. GEO-TECHNICAL INVESTIGATION REPORT
- V. HYDROLOGICAL INVESTIGATION REPORT
- VI. TOPOGRAPHICAL INVESTIGATION REPORT
- VII. COPIES OF STATUTORY APPROVALS