Detailed Project Report: Bagru

Part C: Additional Supporting Documents

कार्यालय नगर पालिका बगरू, (जयपुर)

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क्रमांक : 17/1937 दिनांक 11/9/17

श्रीमान् निदेशक एवं संयुक्त सचिव महोदय,

निदेशालय स्थानीय निकाय राजस्थान,

जयपुर।

विषय - एफएसटीपी के सर्वेक्षण एवं निर्माण कार्य के लिए अनापत्ति बाबत्।

महोदय,

उपरोक्त विषयान्तर्गत निवेदन है कि आपके प्रॉजेक्ट सलाहकार द्वारा एफएसटीपी के लिए लगभग 1 एकड अविवादित सरकारी भूमि पर सर्वेक्षण एवं निर्माण कार्य करने की माँग की गयी है। पालिका के नाम खसरा नं 4157, 4158 में 22250 वर्गमीटर ज़मीन मौजूद है। पालिका इसमे से 1 एकड भूखंड पर एफएसटीपी परियोजना के सर्वेक्षण एवं निर्माण कार्य के लिए एतद द्वारा अनापत्ति दी जाती है।

उपरोक्तानुसार आप द्वारा किए जा रहे कार्य का पालिका के कनिष्ठ अभियंता एवं एसआई (स्वास्थ्य निरीक्षक) के निर्देशानुसार किया जाएगा। साथ ही आप द्वारा उक्त निर्माण किया जाकर पालिका को सूचित करना होगा एवं उक्त संपूर्ण 22250 वर्गमीटर भूमि का स्वामित्व नगर पालिका बगरू का ही रहेगा। भूखंड का खसरा जमाबंदी संलग्न है।

Santosh Chauhan

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अध्यक्ष
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हम, बगरू नगरपालिका के सदस्य निम्नलिखित का पालन करने का संकल्प लेते है :–

1. बगरू, जिसकी आबादी 2016 में 38,914 थी, एक शहर के तौर पे उन्नत हो रही है। बढ़ती आबादी को ध्यान में रखते हुए, ना सिर्फ स्वच्छता को लेकर बल्कि सुधार कि आवश्यकता है। आने वाले दिनों में स्वच्छता के लिए हमें ऐसी नई प्रणाली लानी होगी जो छोटे शहरों में कम लागत में हि लागू हो सकें, जिसका परिचालन भी किफायती हो और जिससे नगर निवासियों को आपत्ति भी नहीं होगी। विकेंद्रित प्रदूषित जल प्रबंधन और मल गाद प्रबंधन ऐसी कुछ प्रणालियाँ हैं।
2. मल गाद प्रणाली के तहत, हम निम्नलिखित का पालन करेंगे :-
   - 2.1 बगरू को खुले में शौच से मुक्त घोषित किया जा चुका हैं।
   - 2.2 यह सुनिश्चित किया जाएगा कि हर नए शौचालय का सेप्टिक टैंक SBM में लिखित प्रणाली से बनाया जाए
   - 2.3 हर शौचालय का सेप्टिक टैंक या पिट कम से कम पांच साल में एक बार खाली कराया जाए
   - 2.4 यह सुनिश्चित किया जाएगा कि वैक्यूम ट्रक से खाली किया गया मल गाद केवल उपचार संयत्र में डाला जाएगा
   - 2.5 बगरू के लिए एक मल गाद उपचार संयत्र स्थापित किया जावेगा।
   - 2.6 हम प्रत्येक वार्षिक बजट में यूजर फीस के लिए प्रावधान और उपयुक्त आवंटन के जरिए उपचार प्रणाली की स्थिरता सुनिश्चित करेंगे।
3. एक मल गाद उपचार संयंत्र स्थापित करने के उद्देश्य के लिए, हम वार्ड संख्या 02 में 1 एकड़ भूमि चिन्हित कि है। इस संयंत्र का संचालन और रखरखाव जिम्मेदारी और लागत होगा, जिसके अतिरिक्त उपचार संयत्र दुर्गंध मुक्त और सौंदर्यशास्त्रिक रूप से आकर्षक होगा।
4. हम DPR तैयार करने के लिए डेटा प्रदान करने के लिए आवश्यक सभी प्रक्रियाएं करेंगे और पीएमसी को DPR को तैयारी के लिए समर्थन करेंगे।
5. राज्य वित्त आयोग से मल गाद उपचार संयंत्र के निर्माण के लिए राशि आवंटित की जावेगी।
6. इस तथ्य के बारे में जागरूकता रखते हुए, कि शहर के अपशिष्ट जल खुले नालों में शहर से से गुजरते हुए बगरू बीड मिलता में है, इस मुद्दे को हल करने के लिए हम एक व्यवहार्यता अध्ययन करने और उचित समाधान तलाशने का संकल्प करते हैं।
7. हम मल गाद और अपशिष्ट जल प्रबंधन के बारे में समुदाय में जागरूकता फैलाने के लिए आईईसी अभियानों को पूरा करने का संकल्प लें।

उपरोक्त प्रस्ताव नगरपालिका पालिका बगरू के अध्यक्ष, उपाध्यक्ष एवं सभी वार्ड पार्षद और अधिशाषी अधिकारी की उपस्थिति में लिया गया है और तत्काल प्रभाव से इसकी पुष्टि की जाती है।

Santosh Chaudhary
अध्यक्ष
नगर पालिका बगरू

अधिशाषी अधिकारी
नगर पालिका बगरू

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क्र.स.	नाम	अध्यक्ष / उपाध्यक्ष / पार्षद	हस्ताक्षर
1	श्रीमती संतोष चौहान	अध्यक्ष	Santosh Chouhan
2	श्री शंकर चौधरी	उपाध्यक्ष	शंकर चौधरी
3	श्रीमती मंजू सैनी	पार्षद	मंजू देवी
4	श्रीमती सुप्रिया देवी कुमावत	पार्षद	सुप्रिया कुमावत
5	श्रीमती रतीष चौधरी	पार्षद	
6	श्री राजेन्द्र सिंह चौधरी	पार्षद	
7	श्रीमती गायत्री कँवर	पार्षद	गायत्री कँवर
8	श्री जगदीश प्रसाद जमो	पार्षद	जगदीश प्रसाद
9	श्री अकबर खट शेखो	पार्षद	अकबर
10	श्री मोहम्मद रफीक	पार्षद	
11	श्री अनिल कुमार संदधना	पार्षद	Anil Kumar
12	श्री भगवान सहाय टेपण	पार्षद	Bhagwan
13	श्रीमती कान्ता सोनवाल	पार्षद	
14	श्री ओमप्रकाश कुमावत	पार्षद	Omprakash
15	श्रीमती [illegible]	पार्षद	
16	श्रीमती ममता देवी कुमावत	पार्षद	ममता कुमावत
17	श्री विजय जांजपुरा	पार्षद	
18	श्री पुरुषोत्तम दीपा	पार्षद	पुरुषोत्तम दीपा
19	श्रीमती अनीता कासोटिया	पार्षद	अनीता कासोटिया
20	श्री रामावतार शर्मा	पार्षद	Ramavtar Sharma
21	श्रीमती आरती देवी नागर	पार्षद	आरती
22	श्री महेश कुमार रैगर	पार्षद	
23	श्रीमती सुमन चौधरी	पार्षद	Suman Choudhary
24	श्री अनिल कुमार मीना	पार्षद	
25	श्री हनुमान बुरी	पार्षद	हनुमान सहाय बुरी

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TEST REPORT

Booking Advice No:-8575241207 -1 **Dated: - 20.12.2017**

Geotechnical Investigation Report

(Geotechnical survey of Land)

Project:

SSCP BAGRU

Submitted To:

M/S CDD Society

Survey no.205, Ground Floor,
KomaghattaRd., Bandemath,
Kengri Satelite Town, Bangalore- 56060.

Submitted By:

E.T.T.L. Jaipur

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Authorized Signatory

1.0 Introduction

The main function of a foundation is to distribute or transmit all loads coming over it to the soil or ground upon which it rests. The knowledge of the characteristics of underlying soil is therefore very essential for safe & economical design of foundations. The performance of supporting stratum depends upon the physical properties of soil type & shape of footing & structure, water table depth etc.

Soil has different meanings depending upon the area of interest of the professional to an agriculturist, soil means top earth's surface which supports plant life. To a geologist it is thin top crust of earth formed by disintegration of rocks. To an engineer it is uncemented loose cohesive or cohesion less material. Soil may have particles ranging from fraction of micron to large boulder.

Soil is a complex material which contains inorganic non cohesive material in various percentages. It may also contain chemicals. Study of soil and its behavior is important for design of foundations, pavements, underground and earth retaining structures, embankments and earth dams.

Geology is a science which deals with behavior and application of soil as engineering material. Terzaghi defined soil mechanics as the application of laws of mechanics and hydraulics to engineering problems dealing with sediments and other unconsolidated accumulations of solid particles produced by mechanical and chemical disintegration of rocks regardless of that these contain an admixture of organic constituent.

Soil is produced by disintegration of solid rocks. The production of soil is cyclic and soil cycle consists of weathering, denudation, transportation and deposition. All the planes and vallies are formed by this procedure. Inorganic soils get organic material from decaying vegetation.

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Soil in its natural state is a three phase system, it contains solids, water and air, in dry mass of soil, the voids contain air and hygroscopic moisture surrounding and adhering to surface of soil particles. When all the voids are filled with water it is saturated mass of soil. To assess the suitability of a soil with respect to a desired purpose all or a few of following properties are required to be known.

- Specific gravity
- Bulk density
- Porosity.
- Void ratio.
- Water content.
- Water absorption.
- Particle size distribution.
- Liquid limit.
- Plastic limit and plasticity index.
- Coefficient of friction.
- Compressive strength.
- Permeability.
- Salt content.
- Shrinkage limit.
- Swell index.
- Direct shear test.
- Total Soluble Solids.

In addition to this chemical characteristics of soil may also interest an agriculturist. The knowledge of properties of soil is important for –

- Foundation design.
- Pavement design.
- Design of underground and earth retaining structures.
- Design of embankments.
- Design of earth dams.

The performance of soil in the designs cited above depends upon the characteristics of soil. It necessitates testing of soil to determine its physical properties.

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2.0 Project

SSCP Bagru

3.0 Location of Site

BH-1
BH-2
BH-3

4.0 Scope of Work

Field investigation at the site are planned to determine the required characteristics of underlying soil to design the foundations of the proposed structure, the data obtained from these investigations have been analyzed to arrive at the required parameters, mainly the safe bearing capacity of the soil at various depth with respect to the existing ground level. In order to achieve the stated objectives, the stipulated scope of work included following operations

- Transportation of the personnel, plant and equipment to the site of work and withdrawing the same on completion of work.
- Drilling Three Boreholes of 100 mm diameter from the ground level to 6 meter depth or up to refusal strata.
- Conducting Standard Penetration Test in borehole as per Indian standard specification (IS-2131)
- Extracting undisturbed soil samples and sealing, numbering and preserving them as per (IS-2132)
- Carrying out following necessary test on the soil samples to establish its characteristics.
  - Sieve analysis
  - Bulk density
  - Specific gravity
  - Atterberg limits
  - Shear Strength Parameters
  - Consolidation Properties

Authorized Signatory

5.0 Field Investigation

The standard penetration test was conducted in bore hole in soils following the Standard procedure as per Indian standard IS: 2131, which specifies the procedure for conducting SPT for soil. This test is carried out using the standard split spoon sampler to measure the number of blows called 'N' Value. Standard split spoon sampler was attached to an 'A' rod. It was driven into the soil to a distance of 45 cm using a standard hammer falling freely from a height of 75 cm while driving, the number of blows required to penetrate the last 30 cm is taken as 'N' value at that particular depth of the bore hole. This value is then used for calculating the bearing capacity of the soil. (Table 5 to 10)

The subsurface investigations in the field involve three basic operations:-

- Drilling
- Sampling
- Conducting the required field test. This is followed by operations in the Laboratory for conducting prescribed laboratory tests.

6.0 Laboratory Tests

All test were conducted in accordance with the procedure laid down in Indian Standard IS: 2720, results obtained are presented in Table 4 and bearing capacity results Based on IS: 6403-1981 are presented in Table-11 and Table-5 to 10

The safe Bearing capacity at depth is presented in Table1to3 and is based on shear failure criteria.

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7.0 Results and Analysis

The field investigation and laboratory tests conducted over the soil revealed the following Conclusions

Table –1(For BH-1)
Safe Bearing Capacity

Depth (meter)	Settlement Criteria (Table -11)	Lab Findings			Recommended Safe Bearing Capacity (T / m²) (Lower of columns 2 & 5 & rounded down)
		Local Shear Failure Criteria (Table -5)	General Shear Failure Criteria (Table-8)	Interpolated Value from Column 3 & 4 (As per IS 6403-1981)	
1	2	3	4	5	6
1.50	38.69	7.65	16.25	13.67	13.50
3.00	19.42	13.09	29.04	24.26	15.00*
4.50	16.79	20.36	45.17	37.73	15.00*
6.00	42.31	26.57	58.17	48.69	15.00*
7.50	43.69	35.35	64.57	55.80	15.00*

Table – 2(For BH-2)
Safe Bearing Capacity

Depth (meter)	Settlement Criteria (Table 11)	Lab Findings			Recommended Safe Bearing Capacity (T / m²) (Lower of columns 2 & 5 & rounded down)
		Local Shear Failure Criteria (Table -6)	General Shear Failure Criteria Table-9)	Interpolated Value from Column 3 & 4 (As per IS 6403-1981)	
1	2	3	4	5	6
1.50	51.71	7.61	16.16	13.59	13.50
3.00	22.40	14.24	32.37	26.93	15.00*
4.50	39.79	20.48	45.44	37.95	15.00*
6.00	46.34	28.84	64.71	53.95	15.00*
7.50	42.66	35.55	85.80	70.73	15.00*

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Table – 3
(For BH-3)
Safe Bearing Capacity

Depth (meter)	Settlement Criteria (Table 11)	Lab Findings			Recommended Safe Bearing Capacity (T / m²) (Lower of columns 2 & 5 & rounded down)
		Local Shear Failure Criteria (Table 7)	General Shear Failure Criteria (Table10)	Interpolated Value from Column 3 & 4 (As per IS 6403-1981)	
1	2	3	4	5	6
1.50	53.68	7.02	14.57	12.31	12.00
3.00	26.32	13.09	29.04	24.26	15.00*
4.50	39.75	18.87	40.89	34.28	15.00*
6.00	39.00	28.68	64.33	53.63	15.00*
7.50	41.57	35.35	78.63	65.64	15.00*

(*) Limiting Value as per NBC 1983

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RESULTS OF LABORATORY TEST

Table No: 4 (BH- 1,2&3)

B.H. No.	Depth (m)	Type of Sample	Field Density (gm/cc)	Natural Moisture Content (%)	Void Ratio	Specific Gravity	Grain Size Analysis					Consistency limits			Soil Classification	Shear Parameter		SPT N Value
							Gravel (%)	Coarse Sand (%)	Medium Sand (%)	Fine Sand (%)	Silt & Clay (%)	Liquid Limits (%)	Plastic Limits (%)	Plasticity Index (%)		C (Kg/cm^2)	φ (Degree)	
BH-1	1.50	SPT	1.78	5.01	0.61	2.62	0.73	2.37	1.70	81.79	13.41	24.15	19.84	4.31	SC	0.02	25	22
	3.00	SPT	1.71	5.62	0.61	2.63	0.00	0.30	0.67	89.21	9.82	22.81	NPL	NPI	SM	0.00	26	12
	4.50	SPT	1.71	5.89	0.61	2.63	4.90	0.70	0.73	84.06	9.61	22.64	NPL	NPI	SM	0.00	27	10
	6.00	SPT	1.71	5.95	0.61	2.63	0.63	1.87	1.60	87.45	8.45	22.50	NPL	NPI	SM	0.00	27	29
	7.50	SPT	1.71	5.80	0.61	2.63	2.47	1.73	2.57	85.02	8.21	22.41	NPL	NPI	SM	0.00	28	31
BH-2	1.50	SPT	1.77	5.21	0.61	2.62	1.43	1.67	1.70	80.37	14.83	24.50	19.85	4.65	SC	0.02	25	32
	3.00	SPT	1.72	5.97	0.61	2.63	0.37	0.20	0.17	89.26	10.00	22.89	NPL	NPI	SM	0.00	27	15
	4.50	SPT	1.72	5.88	0.61	2.63	0.00	0.76	0.63	89.16	9.45	22.59	NPL	NPI	SM	0.00	27	27
	6.00	SPT	1.72	6.02	0.61	2.63	0.60	0.50	0.83	88.67	9.40	22.54	NPL	NPI	SM	0.00	28	32
	7.50	SPT	1.72	5.49	0.61	2.63	1.23	0.80	1.70	87.98	8.29	22.41	NPL	NPI	SM	0.00	29	30
BH-3	1.50	SPT	1.77	5.11	0.61	2.62	0.47	1.29	2.43	82.31	13.50	24.20	19.88	4.32	CS	0.02	24	33
	3.00	SPT	1.71	5.49	0.61	2.63	0.37	0.33	0.97	89.75	8.58	22.40	NPL	NPI	SM	0.00	26	17
	4.50	SPT	1.71	5.62	0.61	2.63	0.00	0.45	2.68	88.59	8.28	22.32	NPL	NPI	SM	0.00	24	27
	6.00	SPT	1.71	5.98	0.61	2.63	0.00	0.13	3.83	87.79	8.25	22.25	NPL	NPI	SM	0.00	28	26
	7.50	SPT	1.71	5.81	0.61	2.63	0.47	0.80	1.29	89.27	8.17	22.20	NPL	NPI	SM	0.00	28	28

Authorized Signatory

E.T.T.L.
Engineering Training Testing and Calibration Laboratory
Plot No. 78, Basement, Indraprastha Colony, Vaishali Nagar, Jaipur - 302 021
Tel.: 0141-2357206 M: 7891927777, 7737832647, 9468749577
Email : ETTL@YMAIL.COM, ETTLJPR@GMAIL.COM • Website : WWW.ETTLJPR.COM

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NABL ACCREDITED LABORATORY
CHEMICAL, NDT, MECHANICAL TESTING & CALIBRATION

TABLE No:5
For Continuous Strip/Raft Footing

Calculation of Net Safe Bearing Capacity Based on Shear Parameters C-Φ For BH- 1 (For Local Shear)
Qns=1/FS[2/3*C*Nc + γd(Nq-1) + 0.5*B*γ*Nγ*Wq] ; Qs=Qns+γd
FS=3.0, Water Table Not Encounterd

S.NO	Size of Foundation		Depth of Foundation m	Shear Parameter			Bearing Capacity Factors			Unit Weight		Water Table Correction		Net Safe Bearing Capacity t/m2 (Qns)	Safe Bearing Capacity t/m2 (Qs)
	Length m	Width m		C (kg/cm^2)	Φ	Φ'	N_c	N_q	N_γ	γ	0.5γ	Wq	Wγ		
1	1.50	1.50	1.50	0.02	25	17	12.34	4.77	3.53	1.78	0.89	1.00	0.50	4.98	7.65
2	1.50	1.50	3.00	0.00	26	17	12.34	4.77	3.53	1.71	0.86	1.00	0.50	7.96	13.09
3	1.50	1.50	4.50	0.00	27	18	13.10	5.26	4.07	1.71	0.86	1.00	0.50	12.67	20.36
4	1.50	1.50	6.00	0.00	27	18	13.10	5.26	4.07	1.71	0.86	1.00	0.50	16.31	26.57
5	1.50	1.50	7.50	0.00	28	19	13.93	5.80	4.68	1.71	0.86	1.00	0.50	22.52	35.35

TABLE No:6
For Continuous Strip/Raft Footing

Calculation of Net Safe Bearing Capacity Based on Shear Parameters C-Φ For BH-2 (For Local Shear)
Qns=1/FS[2/3*C*Nc + γd(Nq-1) + 0.5*B*γ*Nγ*Wq] ; Qs=Qns+γd
FS=3.0, Water Table Not Encountered

S.NO	Size of Foundation		Depth of Foundation m	Shear Parameter			Bearing Capacity Factors			Unit Weight		Water Table Correction		Net Safe Bearing Capacity t/m2 (Qns)	Safe Bearing Capacity t/m2 (Qs)
	Length m	Width m		C (kg/cm^2)	Φ	Φ'	N_c	N_q	N_γ	γ	0.5γ	Wq	Wγ		
1	1.50	1.50	1.50	0.02	25	17	12.34	4.77	3.53	1.77	0.89	1.00	0.50	4.95	7.61
2	1.50	1.50	3.00	0.00	27	18	13.10	5.26	4.07	1.72	0.86	1.00	0.50	9.08	14.24
3	1.50	1.50	4.50	0.00	27	18	13.10	5.26	4.07	1.72	0.86	1.00	0.50	12.74	20.48
4	1.50	1.50	6.00	0.00	28	19	13.93	5.80	4.68	1.72	0.86	1.00	0.50	18.52	28.84
5	1.50	1.50	7.50	0.00	29	19	13.93	5.80	4.68	1.72	0.86	1.00	0.50	22.65	35.55

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TABLE No: 7
For Continuous Strip/Raft Footing

Calculation of Net Safe Bearing Capacity Based on Shear Parameters C-Φ For BH – 3(For Local Shear)
Qns=1/FS[C*Nc + γd(Nq-1) + 0.5*B*γ*Nγ*Wq] ; Qs=Qns+γd
FS=3.0, Water Table Not Encountered

S.NO	Size of Foundation		Depth of Foundation m	Shear Parameter			Bearing Capacity Factors			Unit Weight		Water Table Correction		Net Safe Bearing Capacity t/m2 (Qns)	Safe Bearing Capacity t/m2 (Qs)
	Length m	Width m		C (kg/cm$^{2)}$	Φ	Φ'	N_c	N_q	N_γ	γ	0.5γ	Wq	Wγ		
1	1.50	1.50	1.50	0.02	24	16	11.63	4.34	3.06	1.77	0.89	1.00	0.50	4.36	7.02
2	1.50	1.50	3.00	0.00	26	17	12.34	4.77	3.53	1.71	0.86	1.00	0.50	7.96	13.09
3	1.50	1.50	4.50	0.00	24	16	12.34	4.77	3.53	1.71	0.86	1.00	0.50	11.18	18.87
4	1.50	1.50	6.00	0.00	28	19	13.93	5.80	4.68	1.71	0.86	1.00	0.50	18.42	28.68
5	1.50	1.50	7.50	0.00	28	19	13.93	5.80	4.68	1.71	0.86	1.00	0.50	22.52	35.35

TABLE No: 8
For Continuous Strip/Raft Footing

Calculation of Net Safe Bearing Capacity Based on Shear Parameters C-Φ For BH-1 (For General Shear)
Qns=1/FS[C*Nc + γd(Nq-1) + 0.5*B*γ*Nγ*Wq] ; Qs=Qns+γd
FS=3.0, Water Table Not Encountered

S.NO	Size of Foundation		Depth of Foundation m	Shear Parameter		Bearing Capacity Factors			Unit Weight		Water Table Correction		Net Safe Bearing Capacity t/m2 (Qns)	Safe Bearing Capacity t/m2 (Qs)
	Length m	Width m		C (kg/cm$^{2)}$	Φ	N_c	N_q	N_γ	γ	0.5γ	Wq	Wγ		
1	1.50	1.50	1.50	0.02	25	20.72	10.66	10.88	1.78	0.89	1	0.5	13.58	16.25
2	1.50	1.50	3.00	0.00	26	22.25	11.85	12.54	1.71	0.855	1	0.5	23.91	29.04
3	1.50	1.50	4.50	0.00	27	23.94	13.20	14.47	1.71	0.855	1	0.5	37.48	45.17
4	1.50	1.50	6.00	0.00	27	23.94	13.20	14.47	1.71	0.855	1	0.5	47.91	58.17
5	1.50	1.50	7.50	0.00	28	22.25	11.85	12.54	1.71	0.855	1	0.5	51.74	64.57

Authorized Signatory

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TABLE No: 9
For Continuous Strip/Raft Footing

Calculation of Net Safe Bearing Capacity Based on Shear Parameters C-Φ For BH-2 (For General Shear)
Qns=i/FS[C*Nc + γd(Nq-1) + 0.5*B*γ*Nγ*Wq] ; Qs=Qns+γd
FS=3.0, Water Table Not Encounterd

S.NO	Size of Foundation		Depth of Foundation m	Shear Parameter		Bearing Capacity Factors			Unit Weight		Water Table Correction		Net Safe Bearing Capacity t/m2 (Qns)	Safe Bearing Capacity t/m2 (Qs)
	Length m	Width m		C (kg/cm$^{2)}$	Φ	N_c	N_q	N_y	γ	0.5γ	Wq	Wγ		
1	1.50	1.50	1.50	0.02	25	20.72	10.66	10.88	1.77	0.885	1	0.5	13.50	16.16
2	1.50	1.50	3.00	0.00	27	23.94	13.20	14.47	1.72	0.860	1	0.5	27.21	32.37
3	1.50	1.50	4.50	0.00	27	23.94	13.20	14.47	1.72	0.860	1	0.5	37.70	45.44
4	1.50	1.50	6.00	0.00	28	25.80	14.72	16.72	1.72	0.860	1	0.5	54.39	64.71
5	1.50	1.50	7.50	0.00	29	27.86	16.02	19.34	1.72	0.860	1	0.5	72.90	85.80

TABLE No:10
For Continuous Strip/Raft Footing

Calculation of Net Safe Bearing Capacity Based on Shear Parameters C-Φ For BH-3 (For General Shear)
Qns=i/FS[C*Nc + γd(Nq-1) + 0.5*B*γ*Nγ*Wq] ; Qs=Qns+γd
FS=3.0, Water Table Not Encounterd

S.NO	Size of Foundation		Depth of Foundation m	Shear Parameter		Bearing Capacity Factors			Unit Weight		Water Table Correction		Net Safe Bearing Capacity t/m2 (Qns)	Safe Bearing Capacity t/m2 (Qs)
	Length m	Width m		C (kg/cm$^{2)}$	Φ	N_c	N_q	N_y	γ	0.5γ	Wq	Wγ		
1	1.50	1.50	1.50	0.02	24	19.32	9.60	9.44	1.77	0.885	1	0.5	11.92	14.57
2	1.50	1.50	3.00	0.00	26	22.25	11.85	12.54	1.71	0.855	1	0.5	23.91	29.04
3	1.50	1.50	4.50	0.00	24	22.25	11.85	12.54	1.71	0.855	1	0.5	33.19	40.89
4	1.50	1.50	6.00	0.00	28	25.80	14.72	16.72	1.71	0.855	1	0.5	54.07	64.33
5	1.50	1.50	7.50	0.00	28	25.80	14.72	16.72	1.71	0.855	1	0.5	65.80	78.63

Authorized Signatory

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Table No: 11

Safe Bearing Capacity by Standard Penetration Test based on IS- 2131
(Width = 1.5 m)
Qns, Corrected N- From IS Code 8009, Qs= Qns+ γd

B.H.	Depth (meter)	Avg. Bulk density (gm/cc)	'N'	Corrected 'N''	Corrected N Due To Dalatancy	Qns (T/m²)	Qs (T/m²)
BH-1	1.50	1.78	22	32	-	36.02	38.69
	3.00	1.71	12	15	-	14.29	19.42
	4.50	1.71	10	11	-	9.09	16.79
	6.00	1.71	29	29	-	32.05	42.31
	7.50	1.71	31	28	-	30.86	43.69
BH-2	1.50	1.77	32	46	-	49.05	51.71
	3.00	1.72	15	18	-	17.24	22.40
	4.50	1.72	27	29	-	32.05	39.79
	6.00	1.72	32	32	-	36.02	46.34
	7.50	1.72	30	27	-	29.76	42.66
BH-3	1.50	1.77	33	48	-	51.02	53.68
	3.00	1.71	17	21	-	21.19	26.32
	4.50	1.71	27	29	-	32.05	39.75
	6.00	1.71	26	26	-	28.74	39.00
	7.50	1.71	28	26	-	28.74	41.57

8.0 Allowable Bearing Capacity

Considering the proposed structure and taking in to account the 'N' value an allowable settlement of 25 mm has been adopted for evaluating the net allowable bearing capacity based on the settlement criterion.
Average shear strength parameters have been used for calculating safe bearing capacity from shear failure criterion, lower of the two values obtained from settlement and shear failure criteria is used in arriving at net allowable bearing capacity of the soil, as shown in Table -1 to 3.

9.0 Conclusions:

* The soil stratum consists of, sand with silt (SM), Sand with clay(SC) .
* The SPT 'N' value indicates that soil stratum is medium loose.
* Water table was not encountered.
* Low plasticity Present in Soil at Depth 1.5 Mtr and Bellow 2.0 mtr sany Soil
* The recommended values of SBC are as per Table 1 to 3.

Remarks: -

1. Samples will be preserved in our laboratory for a period of 30 days only, from the date of issue of this report.

For E.T.T.L

*******END OF REPORT*******

E.T.T.L.
Engineering Training Testing and Calibration Laboratory
Plot No. 78, Basement, Indraprastha Colony, Vaishali Nagar, Jaipur - 302021
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CHEMICAL, NDT, MECHANICAL TESTING & CALIBRATION

A Govt. Approved Laboratory

TEST REPORT

Report No. JP/ETTL/ 17-18/TE- 8575241207-1

Issued To: M/S CDD Society
Survey no.205, Ground Floor,
Komaghatta Rd., Bandemath,
Kengri Satelite Town, Bangalore- 56060.

Name of Work SSCP Bagru.

Booking Advice No. : 8575241207
Date of Receiving : 07.12.2017
Date of Report : 20.12.2017

Sample Particulars : A sample of Soil-Sub Base Material was received.

Results

S.No.	NAME OF THE TEST	OBSERVATION
1	**CBR value** ,as per **IS 2720 Pt - 16** ,Value in **%**	**12.46**

*********End of Result *********

Checked By

Authorized Signatory

QTN	GMTQN201883
Date	8/3/2018
Payment Terms	100% Advance
Delivery	Depend upon quantity
Shipping Terms	As per Agreed
Sales Person	Ms. bhavna
Order No	
Currency Code	INR

QUOTATION

Greenmax Technology

Plot No. 8 Amaltas Colony
Chunabhatti Kolar Road
Bhopal, Madhya Pradesh
462016 India
Ph: 0755-4277168,
Mob: 8827375648
http://www.solarpumpindia.net
Email:sales04@greenmaxtechnology.co.in

Ship To…

Model	Description	MOQ Qty	Per Unit Price	Amount
GMTSS-1/2.3/100	**1hp 48v Dc Pump** **Max Head = 12 M** **Max Flow =90000.LPD** **Panel = 900w** **MPPT Controller 48v** **Outlet = 1.5”** **Transportation and installation charges are excluded**	**1pcs**	**Rs.1,40,000/-**	**Rs.1,40,000/-**

Sub Total	
GST	5 %
Freight	
Grand Total	

DESIRE
Complete Energy Solutions
ESCO : SOLAR : LED

An ISO 9001:2008 Certified Company

Ref No. : DESPL/SP/16022018 Date: 16-02-2018

To,
Jyoti Prasad ji
CCD Society
Bangalore,india
Subject : Techno commercial proposal for the Solar based water pumping system

Dear Sir,
We are pleased to represent our self one of Leading ESCO Company and MNRE Approved channel partner for solar systems. We are having experience of supply and Installation of more than 1000 Nos. Solar pumping systems. Please find herewith our best competitive Quotation for the required pumping system, based on the details provided by you.

Sr. No.	Product	Qty.	BOM	Specifications	TotalPrice (INR)
1	2 HP Bore-well solar pump SYSTEM	1	1200 Wp Solar Module	300Wp , 6 Nos. MNRE Approved Solar PV Modules, With 25 Years performance warranty	
			2 HP SOLAR Drive	2 HP Drive with inbuilt MPPT System, and IP 52 Protection	
			2 HP AC Solar Pump	Energy Efficient Solar Pump and Motor (As per site requirement H&Q)	
			Structure for Module Mounting	1 Nos. Galvanized (0.8 µm) Structure with Manual Tracking and seasonal tilt of 190kg. total weight.	
			Delivery Pipe	HDPE 6kg pressure 50MM Delivery pipe based on required head of pump	
			AC Cable	2.5 SQ MM 3 core efficient Flat cable	
			Other accessories	Rope, Conduit Pipe, Knots, connection wire etc. Installation and transportation	
				Total Price	1,87,500.00

Sr. No.	Product	Qty.	BOM	Specifications	Total Price (INR)
1	1HP Sewage Sludge SOLAR PUMPING SYSTEM	1	1200 Wp Solar Module	300Wp , 4 Nos. MNRE Approved Solar PV Modules, With 25 Years performance warranty	
			HP SOLAR Drive	1 HP Drive with inbuilt MPPT System, and IP 52 Protection	
			1 HP AC Solar Pump	Energy Efficient Solar Pump and Motor (As per site requirement H&Q)	
			Structure for Module Mounting	1 Nos. Galvanized (0.8 µm) Structure with Manual Tracking and seasonal tilt of 190kg. total weight.	
			Delivery Pipe	HDPE 6kg pressure 50MM Delivery pipe based on required head of pump	
			AC Cable	2.5 SQ MM 3 core efficient Flat cable	
			Other accessories	Rope, Conduit Pipe, Knots, connection wire etc. installation and transportation	
				Total Price	1,50,000.00

Sr. No.	Product	Qty.	BOM	Specifications	Total Price (INR)
1	1HP Sump SOLAR PUMPING SYSTEM	1	1200 Wp Solar Module	300Wp , 4 Nos. MNRE Approved Solar PV Modules, With 25 Years performance warranty	
			HP SOLAR Drive	1 HP Drive with inbuilt MPPT System, and IP 52 Protection	
			1 HP AC Solar Pump	Energy Efficient Solar Pump and Motor (As per site requirement H&Q)	
			Structure for Module Mounting	1 Nos. Galvanized (0.8 µm) Structure with Manual Tracking and seasonal tilt of 190kg. total weight.	
			Delivery Pipe	HDPE 6kg pressure 50MM Delivery pipe based on required head of pump	
			AC Cable	2.5 SQ MM 3 core efficient Flat cable	
			Other accessories	Rope, Conduit Pipe, Knots, connection wire etc. installation and transportation	
				Total Price	1,50,000.00

Sr. No.	Product	Qty.	BOM	Specifications	Total Price (INR)
1	1HP Sewage Sludge SOLAR PUMPING SYSTEM	1	1200 Wp Solar Module	300Wp , 4 Nos. MNRE Approved Solar PV Modules, With 25 Years performance warranty	
			HP SOLAR Drive	1 HP Drive with inbuilt MPPT System, and IP 52 Protection	
			1 HP AC Solar Pump	Energy Efficient Solar Pump and Motor (As per site requirement H&Q)	
			Structure for Module Mounting	1 Nos. Galvanized (0.8 µm) Structure with Manual Tracking and seasonal tilt of 190kg. total weight.	
			Delivery Pipe	HDPE 6kg pressure 50MM Delivery pipe based on required head of pump	
			AC Cable	2.5 SQ MM 3 core efficient Flat cable	
			Other accessories	Rope, Conduit Pipe, Knots, connection wire etc. installation and transportation	
				Total Price	1,50,000.00

Terms and Conditions

1. Payment: 100% payment along with purchase order
2. Tax & Duties: 5% GST extra
3. Delivery Time: Material will be supplied with in 5-7 working days after confirmation of order and advance payment.
4. Warranty: as per MNRE Guidelines controller 5year and pumps warranted for 2 year.
5. Quotation valid for a Period of 15 Days only.
6. Civil work will be customer scope.
7. We are looking forward for your valuable order.

For,

Desire Energy Solutions Pvt.

Ltd. Devendra kaushik

Executive (Marketing)
7340661015

Jaipur (Raj.)

DESIRE
Complete Energy Solutions
ESCO : SOLAR : LED

An ISO 9001:2008 Certified Company

Ref. No. DESPL/SOLAR/16/02/2018 Date : 16-02-2018

Quotation for Solar Street lighting

Dear Sir,
Greetings From Desire Energy Solutions Pvt. Ltd.,

Please find our lowest quotation for Solar Street Lighting to your requirement.

Sr. No.	Product Group	Product Name/Watt	No.	Our Price Per Pc.
1	Solar Street Light	50 Watt Panel	1	**2,050.00**
2		40 Ah Bettery	1	**5,000.00**
3		12 Watt LED	1	**2,250.00**
4		Pole 5 Meter	1	**3,650.00**
5		Installation & Transportation	1	**2,000.00**
			Total	**14,950.00**
		With GST 5%	Total	**15,698.00**

Looking forward for your response , please feel free to contact undersign at any time for any detail and clarification .

Terms & Conditions :

1. 1 YEAR Warranty on manufacturing defect of electronics or non functioning of system.
2. Delivery time will be minimum 3 days from the order acceptance.
3. 100% Advance shall be paid before delivery of goods.
4. Freight : Will be charged extra as actual
5. Quotation valid for a Period of 15 Days only.

All civil work required at site will be in customer scope, however we will provide the required drawings for the same

Desire Energy Solutions Pvt. Ltd.
Corp. Off. : 401, Man Upasna Tower, C-Scheme, Jaipur (Raj.) INDIA
Sales Off. : LG-29, Mayank Trade Centre, Station Road, Jaipur (Raj.) INDIA
Phone : 0141-6550855, 4050855 • E-mail : info@desireenergy.com • Visit us :www.desireenergy.com
CIN No. U40106RJ2011PTC034878

HYDROGEOLOGICAL FIELD INVESTIGATION
WORK ESTIMATE

Date : 13. 01. 2017
Place : Tiruchirappalli

SERVICE PROVIDER	CUSTOMER
S. SIVAKUMAR **ASSOCIATE PROFESSOR** **DEPARTMENT OF GEOLOGY** **NATIONAL COLLEGE** **TIRUCHIRAPPALLI - 620001** **Phone: (0431) 2482422, Cell: 8220669750** **email: ostrasiva@gmail.com**	**Mr. SANTOSH RAGAVAN** **INDIAN INSTITUTE FOR** **HUMAN SETTLEMENTS (IIhs)** **WORKFELLA BUSINESS CENTER,** **1 ST FLOOR, 37 TTK ROAD,** **ALWARPET,** **CHENNAI - 18**

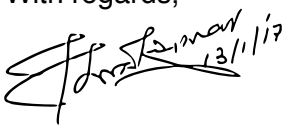
Work Description: Hydrogeodynamics of the subsurface in favour of good ground water potential required for your sanitation plant could be predicted by conducting Geophysical Vertical Electrical Sounding Technique usually at four points with in the entire site. The thickness, gradient and resistance of every layer is compared after acquiring all data through resistivity meter for a potential point to be bored for ground water extraction.

Sl.N	Description	Sites	Per site Rs.	Total Rs.
1	To measure the Electrical Resistance of every layer at a site to the required depth.	3	4700	14100.00
		No. of NMRs	Labour/ NMR Rs.	Total Rs.
2	NMRs required to carry out the whole survey	4	500.00	2000.00
3	Accessories like Batteries, porous pot $CuSO_4$ solution			1000.00
4	To and fro transport expenses for all equipments and NMRs			2000.00
			Sub Total	19100.00
			Tax Rate	5730.00
			Total Estimated Job Cost	**24830.00**

Note:

- This is an estimation, not a contract for services. This estimate is for completing the job as described above.It is based on our usual evaluation procedure and the number of sites may be increased if no suitable site is found causing additional charges to you.
- Final report will be given with in a week time after the survey.
- 20 litres of ordinary plain water is needed before commencing the survey.
- An advance sum of Rs. 10,000/- is required to arrange and fix up a date for the Geophysical survey.

With regards,



MOB: 9844042669
9844836118
9620836118

V.CHANDRASHEKAR
PROPRIETER:

SARAVANA ENTERPRISES

LIGHT WEIGHT CINDER SUPPLIERS

ADDRESS: # 49, MEC Road, Next To Ullas Theatre, Yeshwantpur Bangalore-560022

DATE: 06 Mar 2018

REF:

Quotation For cinder

Dear Sir,

Supplying of light weight cinder at Bangalore Location. Prices quoted below

10/20 MM and 40mm + cinder Rs 2200 per Ton. (Approx for 10 tons)

+18% GST

Terms and conditions,

The Above rate includes Transport, loading, Unloading charges

Additional charges for transportation and Unloading shall be paid if needed i.e. for small quantity

Payment Terms: Against the Delivery

Regards,

V. Chandrashekar