

## MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (MOU) is made at Bilaspur, Chhattisgarh on this DD/MM/YY

Between

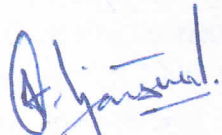
EcoPulse Power and Environment Solutions Power and Environment Solutions (hereinafter referred to as "EcoPulse Power and Environment Solutions", which expression shall unless repugnant to the context or meaning thereof, include its successor-in-interest and permitted assigns);

AND

Chouksey Engineering College Bilaspur, Chhattisgarh, 495004 (hereinafter referred to as "Chouksey Engineering College-Bilaspur", which expression shall unless repugnant to the context or meaning thereof, include its successor-in-interest and permitted assigns);

For

CEC-Bilaspur

  
Managing Director  
Chouksey Group of Colleges  
Bilaspur (C.G.)

For

EcoPulse Power and Environment Solutions

EcoPulse Power & Environment Solutions

  
Partner

05/11/2024



## INTRODUCTION

**EcoPulse Power and Environment Solutions** is a consultancy firm specialising in providing technical and advisory services across various aspects of the power industry. EcoPulse brings together a team of industry professionals with nearly 40 years of experience in the power sector.

**EcoPulse's** key service areas include:

**Grid Connectivity:** Assistance in necessary approvals, technical service and regular site monitoring to ensure seamless grid integration of plant/unit

**Surveying and Consultancy:** Thorough assessments to support projects from start to finish

**Ash Utilisation:** Custom solutions for handling ash per Government of India notifications

**Power Generation and Transmission:** Expert guidance in improving and optimizing power systems for uninterrupted power and enhancing efficiency.

**Chouksey Engineering College, Bilaspur** was established under the aegis of the H. K. Kalchuri Educational Trust, Bhopal, known as LNCT GROUP, started with the aim of providing educational opportunities to the deserving and under-privileged section of the society. It was established in the year 2001 with the motto of 'Working towards being the Best'

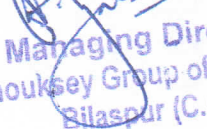
It has achieved commendable progress in attracting and retaining highly qualified and experienced faculty, developing high profile academic infrastructure including various well established laboratories, a team of well trained teachers who have created conducive atmosphere for learning and research.

With an aim to remain quality conscious, efficient and responsive to current rapid changing economic and technological developments, **Chouksey Engineering College Bilaspur** has taken up the challenge not only to give technical and corporate training to the students but also to make them self-confident and better human being with leadership qualities.

**Department of Civil Engineering at Chouksey Engineering College:**

Since its establishment in 2005, the Civil Engineering department at Chouksey Engineering College has experienced rapid growth and garnered a reputation for excellence. We are proud to be the only institution in the region with **NBA accreditation**, solidifying our position as a leader in Civil Engineering education. Our department has become one of the most prominent in the region, highly regarded in the state. Our faculty team, comprising 12 members, offers exceptional teaching and research experiences. We provide a supportive environment and state-of-the-art facilities, making our department an attractive choice for faculty and students alike.

As a leading player in the field, we engage in cutting-edge research, consultancy, and development projects, offering high-quality technical advisory support to various organizations. Recently, we have secured significant government funding for sponsored research, yielding outstanding results with practical applications. Civil Engineering is the foundation of development, applying scientific principles, mathematical theories, and computer applications to plan, analyze, design, and construct infrastructure projects. Our department embodies this spirit, driving innovation and excellence in education and research.

  
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**NOW THIS MEMORANDUM OF UNDERSTANDING (MOU WITNESSETH AND IT IS HEREBY AGREED BY AND BETWEEN THE PARTIES HERETO AS FOLLOWS:**

The **CEC - Bilaspur**: Civil Department shall use the assistance provided by **EcoPulse Power and Environment Solutions** only for the purpose expressly stated in the MOU and not for any other purpose, unless otherwise agreed upon by the parties. Further, EcoPulse Power and Environment Solutions may conduct symposiums, workshops, etc., at the college at its own discretion.

For CEC – Bilaspur

For **EcoPulse Power and Environment Solutions**

### OBJECTIVES

This MOU is signed with the objectives of furthering industry-academic relationship for mutual benefit, building fruitful and mutual relations, and of proposing to offer programs of mutual interest as agreed by the parties.

**1. Access to Laboratory Facilities:** Chouksey Engineering College's Civil Engineering Department will grant EcoPulse Power and Environment Solutions access to its laboratory facilities for the purposes of testing engineering projects.

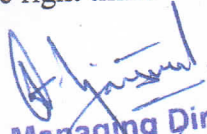
**2. Fee Structure Agreement:** The Parties agree to establish a clear and mutually agreed-upon fee structure for the utilisation of the laboratory facilities, equipment, and resources provided by the Civil Engineering Department of Chouksey Engineering College, Bilaspur. The agreed upon rate list, subject to 30% discount across items, is enclosed with this MOU.

**3. Knowledge Sharing on Specific Projects:** EcoPulse Power and Environment Solutions will aim to share practical insights and findings from specific projects with Chouksey Engineering College that may or may not be related to this collaboration. This could involve sharing results from relevant projects that EcoPulse Power and Environment Solutions undertakes.

**4. Facilitation to Provide Other Training Opportunities:** Based on nature of requests, EcoPulse Power and Environment Solutions will work on facilitation with concerned authorities for practical training and real-world project experience for students.

**5. Academic Collaboration:** Facilitating interactions between industry professionals and students/faculty for knowledge exchange. This could involve guest lectures and classroom discussions with students stemming from field experience.

**6. Potential Internship Opportunities:** EcoPulse Power and Environment Solutions is open to exploring providing internship opportunities as projects develop in the future and will maintain close collaboration with Chouksey Engineering College so that students gain meaningful, hands-on experience at the right time.

  
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7. **Curriculum Enhancement:** EcoPulse may help in suggestions regarding civil engineering curriculum at Chouksey Engineering College to include modern practices, technologies, and trends from relevant projects.

## 10. VALIDITY

The agreement is valid for a period of 24 months with effect from the date of signing of the agreement and may be renewed after that period. MOU may be brought to an end during period of validity by either party agreeing to do so with prior notice of 2 months and in writing.

## 11. TERMS

The MOU does not restrict EcoPulse Power and Environment Solutions or Chouksey Engineering College from collaborating with other parties/firms for any of the objectives as mentioned in the agreement.

## 11. DISPUTE RESOLUTION

Any dispute arising will be settled by mutual negotiation between the two parties.

IN WITNESS WHEREOF the authorized signatories of Civil Engineering Department, Chouksey Engineering College & EcoPulse Power and Environment Solutions has signed this Memorandum of Understanding on 05/11/2024 first above written.

### Authorized Signatory:

For  
CEC – Bilaspur

For  
EcoPulse Power and Environment Solutions

Signature

Signature

Name:

Name:

Designation:

Designation:

Witness:

Witness:

1. *SM*  
Dr. Shubh Lakshmi Prasad

1. *Himanshu Namdeo* (Himanshu Namdeo)

*[Signature]*  
Managing Director  
Chouksey Group of Colleges  
Bilaspur (C.G.)

EcoPulse Power & Environment Solutions  
*[Signature]*  
Partner





**Testing and Consultancy Rate list**

S.No.	NAME OF TEST	Rates (Rs)
<b>A</b>	<b>PHYSICAL AND MECHANICAL PROPERTIES OF BUILDING STONE</b>	
1	True specific Gravity	1020
2	Apparent specific gravity	1020
3	Absorption	840
4	Porosity	1020
5	Toughness by Impact	1680
6	Wearing resistance by Abrasion	2340
7	Hardness by Attrition	2340
8	Compressive Strength	1680
9	Transverse Strength	1680
10	Weathering Test (20 cycles)	3960
11	Durability Test (20 cycle)	3960
12	Preparation of sample for test on serial no 5,6,7:	660
<b>B</b>	<b>CEMENT CONCRETE TILES ( TERRAZZO OR MOSAIC &amp; OTHER)</b>	
1	Transverse Strength ( for one set of minimum 6 pieces)	1020
2	Resistance to wear (for one set of minimum 6 pieces) on 50x50 test pieces	1020
3	Absorption	840
4	Warpage	1020
5	Impact Strength (for one set of minimum 3 pieces)	1680
6	Crazing test (for set of 3 pieces)	2340
	NOTE-Preparation of 3 sample for test on serial no -2	2340
<b>C</b>	<b>HOLLOW CEMENT CONCRETE BLOCK</b>	1680
1	Compressive strength	1680
2	Determination of Bulk Density	3960
<b>D</b>	<b>TIMBERS</b>	3960
1	Determination of Moisture content	660
2	Static Bending test	1020
<b>E</b>	<b>TESTING OF BRICKS</b>	
1	Crushing strength (for one set of minimum 3 pieces)	1500
2	Absorption (for one set of minimum 3 pieces)	1500
3	Moisture content (for one set of minimum 3 pieces)	1500
4	Dimension (for one set of minimum 3 pieces)	1500
5	Efflorescence (for one set of minimum 3 pieces)	1500
<b>F</b>	<b>TESTING OF BUILDING LIMES</b>	
1	Fineness Test	1020
2	Soundness test	1680
3	Compressive strength	2340
4	Transverse Strength	1020
5	Setting Time Test	1680
<b>(G)</b>	<b>TESTING OF CEMENT</b>	
1	Fineness Test (By Sieve)	1020

*(Signature)*  
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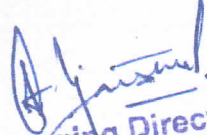




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2	Setting Time Test	2640
3	Soundness test	2640
4	Compressive Strength	3300
5	Tensile Strength	1980
6	Fineness Test (By Air- Permeability)	2340
7	Specific Gravity	1680
<b>(H) TESTING OF CEMENT CONCRETE</b>		
1	Flexural Strength (10 x 10 x 50 cm Beam )	1980
2	Compressive strength (for one set of minimum 3 Pieces)	1500
3	Workability (Compaction Factor & Slump)	2340
4	Absorption (for one set of minimum 3 pieces)	1500
5	Concrete Mix Design (Including the test of Materials )	27000
<b>(I) TESTING OF AGGREGATES</b>		
1	Shape Test (Elongation Index, Flakiness Index Angularity Number) Each	1980
2	Surface Area Test	1500
3	Fineness Modulus	1500
4	Grading Analysis	1500
5	Bulk Density	1020
6	Absorption Test	840
7	Los Angeles Abrasion Test	2340
8	Impact Test	1500
9	Crushing Value	1500
10	Bitumen adhesion test for aggregates (Stripping Test)	3000
11	Silt Content test of sand	1020
12	Deleterious Materials of Aggregate	1500
13	Moisture content of Aggregate	1020
14	Specific Gravity	1020
15	Bulk Density	1020
16	Soundness test	3960
NOTE-Preparation of sample for test if required		
<b>(J) BITUMEN AND BITUMINOUS CONCRETE</b>		
1	Specific Gravity	1020
2	Penetration Value	1500
3	Viscosity	1500
4	Softening Point	1500
5	Density	1500
6	Design of Bituminous Concrete by Marshal Method for one Set of Conditions	27000
<b>(K) TESTING OF CONCRETE PILES</b>		
1	Straightness Test	1020
2	Load Bearing Test	3300
3	Absorption (for one set of minimum 3 pieces)	1680

  
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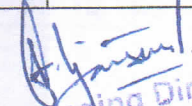




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4	Hydraulic Test	6600
	NOTE: For piles above 200 mm diameter, the rate shall be 50% higher	
(L)	<b>TEST ON WATER SAMPLE</b>	
1	Determination of total solids, suspended solids, volatile and non-volatile	2640
2	Determination of pH by Meter	1320
3	Determination of colour units by Cinto meter	1020
4	Sieve analysis for sand sample	1680
5	Determination of mineral and non mineral acidity	1500
6	Determination of alkalinity (OH,HCO <sub>3</sub> ,CO <sub>3</sub> ,alkalinity	1500
7	Determination of chloride	1500
8	Determination of chloride demand	1980
9	Determination of Break point chlorination dose	3300
10	Determination of residual chlorine	1680
11	Determination of Hardness by EDTA Method	1500
12	Determination of Ca	1020
13	Determination of Mg	1020
14	Determination of SO <sub>4</sub>	1320
15	Determination of NO <sub>3</sub>	1320
16	Determination of Dissolved Oxygen (D.O.)	1680
17	M.P.N. Test	3300
18	Plate Count Method	3300
19	Determination of Turbidity	1020
	<b>Test on Sewage &amp; Industrial Waste</b>	
20	Determination of different solids	2640
21	Determination of Sludge Volume Index (S.V.I.)	1680
22	Determination of pH	1320
23	B.O.D Test	4980
24	C.O.D Test	2640
25	Oxygen absorption Test	1680
26	Determination of NH <sub>3</sub> -Nitrogen	1680
27	Determination of NO <sub>y</sub> -Nitrogen	1680
28	Determination of NO <sub>3</sub> -Nitrogen	1680
29	Determination of oil & Grease	1680
30	Acidity solubility test; for cement concrete, asbestos-Cement, Stone ware & glazed pipe and fitting	2640
31	Water absorption Test for asbestos cement pipe.	1320
32	Test for resistance to action of Magnesium Sulphate for glazed Stone Ware pipes. Gutters and fittings.	2640
33	Test of leakage of pipes. Gutters and fittings.	1680
34	Visiting site, for investigation and collection of samples.	3300
(M)	<b>TEST OF SHUTTERS AND DOORS</b>	
1	End Immersion Test	3960
2	Glue Adhesion Test	2340
3	Knife Test	1320

  
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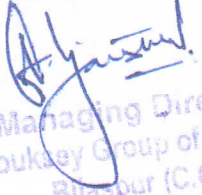




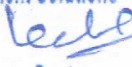
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(N)	SURVEYING	
1	Topography of area (Contour Map) Minimum of Rs. 1000/- per site generally Rs. 5000/- Per acre, but actual rate may be more or less and shall be decided for each individually.	
2	Detailing and fixing of boundaries. 2500/- acre.	
(O)	TESTING OF F.R.P. SHEETS	
1	Bending Test	3000
2	Thickness Test	1020
3	Bolt - Shear Test	1020
(P)	TEST ON SOILS	
1	Inspection and advice for soil investigation	3300
2	Water Content and Bulk Density	1680
3	Atterberg's Limit	
	(i) Liquid Limit	1980
	(ii) Plastic Limit	1500
	(iii) Shrinkage Limit	1980
4	Linear Shrinkage Limit	1500
5	Particle Size Analysis of Soil	
	(i) Sieve Analysis	1500
	(ii) Hydrometer Analysis	3960
6	Specific Gravity of Soil	1500
7	Density Index (Relative Density) swelling index-500	3960
8	Classification of soil as per I.S. code	3300
9	Percentage gravel content	1020
10	Unconfined compression Test on cohesive soil	3300
11	Tri-axial compression test on 38 mm diameter undisturbed sample:	
	i) Un-consolidated un-drained Test	6600
	ii) Consolidated Un-Drained Test without pore water pressure	8280
	iii) Consolidated Un-drained Test without pore water pressure	11580
	iv) Consolidated-Drained Test on a) Sand & b) for Clays	14880
12	Direct shear test on 6 cm x 6cm specimen	
	i) Quick Share Test	4980
	ii) Consolidated Share Test	6600
13	SBC by Plate Load Test	32400
14	SBC by Triaxial /Direct shear Lab Test	19800
15	C.B.R. Test at a specified water content & dry density	8280
16	Consolidation Test on 65 mm dia specimen	16500
17	Allowable Bearing Pressure of soil ( i.e. safe value based on share on as well as settlement criteria); Test conducted on undisturbed soil S.P.T.	24300
18	Permeability Test on undisturbed sample	
	a) Course grained soil (constant head)	4980
	b) Fine grained soil (Falling head)	4980
19	Compaction Test	
	a) Standard proctor	3300

  
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	b) Modified proctor	3300
	c) Harvard moisture compaction Test	3300
20	In situ sub grade bearing value by North Dakota Cone	3300
21	Visiting site, collection of sample from open pit ( Max. size of sample 100 mm dia & 450 mm long	3960
22	Proctor penetration resistance test conducted to supplement with compaction Test vide S.No. 20 (a) & ( b)	1500
23	Total soluble solids determination	1320
24	Calcium carbonate determination vide IS 2720-1972	1320
25	Calcium carbonate determination vide IS 2720-1966	1320
26	A) Exchangeable metallic anions	1980
	B) Exchangeable Hydrogen anions	1980
27	Silica sesquioxide ration determination	1980
28	pH value determination	1500
29	Total soluble sulphates determination	1980
30	Textural classification	1500
31	Static cone penetration test	1500
32	Dynamic cone penetration	19800
<b>New Tests/Consultancy work</b>		
1	Free Swelling Index	1500
2	Preparation of soil sample for Triaxial Test	3300
3	Pile Load Test	32400
4	Swelling Pressure Test	7500
5	Field CBR Test (Minimum charge)	30000
6	Resilient Modulus Test (Minimum charge)	30000
7	Tensile strength test of Geosynthetics/Geogrid	2700
8	Puncture test of Geosynthetics/Geogrid	2700
9	Weight per meter length	1350
10	Diameter of deformed bars	1350
11	Bend test	1350
12	Rebound Test	1350
13	Ultimate Tensile strength	2700
14	Percentage elongation	2700
15	0.2% proof stress	7200
16	Strength of Weld joint	2700
17	Rebound Hammer test on Concrete (Minimum charge)	30000
18	Ultrasonic Pulse Velocity (Minimum charge)	30000
19	Half cell potentiometer (Minimum charge)	30000
20	Electrical Resistivity (Minimum charge)	30000
21	Determination of Rheological parameters (Minimum charge)	30000
22	Shrinkage of cementation material (Minimum charge)	30000

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