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O/C

SHREE CEMENT LTD.

An ISO 9001, 14001, 45001 & 50001 Certified Company

Regd. Office:
BANGUR NAGAR, POST BOX NO.33, BEAWAR 305901, RAJASTHAN, INDIA

SCL/AP/ENV/MOEF&CC/2021-22/3861 **Date: 25/05/2021**

To,
Inspector General of Forests
Integrated Regional Office,
Vijayawada Green House Complex,
Vijayawada – 520010, Andhra Pradesh

Sub: - Six monthly Compliance report of environmental clearance for proposed clinker (2.4 MTPA), Cement (4 MTPA), Captive Power Plant (25 MW) and Waste heat recovery power generation (15 MW) by M/s Shree Cement Limited situated near Village-Pedagarlapadu, Mandal Karempudi, District-Guntur, Andhra Pradesh

Ref: - EC letter No. letter no. J-11011/165/2014-IA. II (I) dated: 20th May 2019

Dear Sir,

Kindly refer to the above subject matter and referred EC letter. We are submitting herewith the compliance report for the period from **October-2020 to March-2021.**

This is for your necessary submission please.

Thanking you,

Yours faithfully,

For Shree Cement Ltd.

(Dr. Anil Kumar Trivedi)
Sr. General Manager (Environment)

Copy to:

1) Zonal Officer, CPCB, 1st & 2nd Floors, NisargaBhavan, A-Block, Thimmaiah Main Road, 7th D Cross, Shivanagar, Opp-Pushpanjali Theatre, Bengaluru-560079

2) The Member Secretary, Andhra Pradesh Pollution Control Board, D. No. 33-26-14 D/2, Near Sunrise Hospital, Pushpa Hotel Centre, Chalamavari Street, Kasturibaipet, Vijaywada-520010

O/C

Compliance Status of Environment Clearance
EC letter NO.: J-11011/165/2014-IA. II (I) dated: 20thMay 2019
September-2020 to March-2021

S. No	Specific Conditions	Compliances status
CTE obtained vide order no. 465/APPCB/CFE/RO-GNT/HO/2019 **Andhra Pradesh Ground Water and Water Audit Department vide letter no.** 992/Hg-II/2018 dated 18/02/2020 Erection and commissioning of the plant is not started.		
(i)	The water requirement for the Plant shall be limited to 850 KLD of Ground Water and RO Reject generation shall be 80 KLD and Sewage Generation shall be 75 KLD. The water requirement for the Colony shall be restricted 500 KLD of Ground Water and the Sewage Generation shall be not be more than 300 KLD.	Noted & will be complied. Erection and commissioning of the plant is not started yet. The unit has obtained the ground water withdrawal permission of 1500 KLD from Andhra Pradesh Ground Water and Water Audit Department vide letter no.992/Hg-II/2018 dated 18/02/2020 is enclosed as **Annexure-2**.
(ii)	The project proponent shall use at least 2% of alternate fuel (waste) in the co-incineration.	Noted & will be complied. Erection and commissioning of the plant is not started yet.
(iii)	Existing one-lane road stretch from plant to nearest rural road shall be developed to two-lane road.	Noted and will be complied.
A	**Statutory compliance:**	
(i)	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.	Noted and we will follow the stipulations made by the State Pollution Control Board and the state government.
(ii)	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).	Noted and No further expansion or modifications in the plant will be carried out without prior approval of the competent authority.
(iii)	The waste oil, grease and other hazardous shall be disposed of as per the Hazardous & Other waste (Management & Transboundary Movement) Rules,2016.	Noted and Used/spent oil (Cat. 5.1) will be disposed of as per the Hazardous & Other waste(Management & Transboundary Movement) Rules, 2016.
(iv)	The storage of NH_3 and other hazardous chemicals at the site shall be as per the provisions of Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 as amended from time to time.	Noted and will be complied.
B	**Monitoring of compliance**	
i	The project proponent shall send a copy of environmental clearance letter to the heads of Local Bodies, Panchayat, Municipal bodies and relevant offices of the Government.	Submitted a copy of environmental clearance to the heads of local bodies, panchayat, municipal bodies and relevant offices of government on dated 03/06/2019.
ii	The project proponent shall put on the clearance letter on the web site of the company for access to the public.	Environment clearance letter available at the website of the Company at www.shreecement.in
iii	The project proponent shall inform the public through advertisement within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language that the project has been accorded environmental clearance by the Ministry and copies of the clearance	Advertised in two newspapers widely circulated in the region namely, The Sakshi and Deccan Chronicle on dated 27/05/2019.

	letter are available with the SPCB and may also be seen at Website of the Ministry of Environment, Forests and Climate Change (MoEF&CC)at http://envfor.nic.in	
iv	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same periodically.	Noted & EC compliance reports is being uploaded in company website.
V	The project proponent shall monitor the criteria pollutants level namely; PM1o, S02, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects' and display the same at a convenient location for disclosure to the public and put on the website of the company.	Agreed, the ambient air quality & stack emissions will be monitored and monitoring reports will be submitted.
vi	The project proponent shall submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MoEF&CC the respective Zonal Office of CPCB and the SPCB.	Noted and six monthly compliance report (both in hard copies as well as by e-mail) will be submitted to the Regional Office of MoEF&CC the respective Zonal Office of CPCB and the SPCB.
vii	The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.	Noted and Form-V will be submitted to the State Pollution Control Board as well as put on the website of the company.
viii	The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	Noted and will be informed.
ix	The project proponent shall adhere to the corporate environmental policy and system of the reporting of any infringements/ non-compliance of EC conditions at least once in a year to the Board of Directors and the copy of the board resolution shall be submitted to the MoEF&CC as a part of six-monthly report.	Noted and will be complied.
x	A dedicated environmental cell with qualified personnel shall be established. The head of the environment cell shall report directly to the head of the organization.	Environment Management Cell with qualified staff will be establish.
C	**Air quality monitoring and preservation**	
i	The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission with respect to standards prescribed in Environment (Protection) Rules 1986 (G.S.R. No. 612 (E) dated 25th August, 2014 (Cement) and subsequent amendment dated 9th May,2016 (Cement) and 10th May, 2016 (Co-processing Cement); S.O. 3305 (E) dated 7th December 2015 (Thermal Power Plants) as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.	Continuous emission monitoring system will be installed at process stacks to monitor stack emission parameters i.e. PM, SO2 & NOx in Raw mill & Kiln and CPP stacks and PM in Cooler. Coal mill & Cement stacks.

ii	The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through labs recognized under Environment (Protection) Act, 1986.	Fugitive emission will be monitor in the plant premises once in every quarter through labs recognized under Environment (Protection) Act, 1986.
iii	The project proponent shall install system carryout to Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g. PM_{10} and $PM_{2.5}$ in reference to PM emission, and SO_2 and NOx in reference to SO_2 and NOx emissions) within and outside the plant area at least at four locations (one within and three outside the plant area at an angle of 120^0 each), covering upwind and downwind directions.	Noted and Continuous Ambient Air Quality monitoring system will be installed at four locations (one within and three outside the plant area at an angle of 120^0 each), covering upwind and downwind directions.
iv	The project proponent shall submit monthly summary report of continuous stack emission and air quality monitoring and results of manual stack monitoring and manual monitoring of air quality /fugitive emissions to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.	Monthly summary report of continuous stack emission and air quality monitoring and results of manual stack monitoring and manual monitoring of air quality /fugitive emission will be submit with six-monthly monitoring report.
v	Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.	Noted and Air Pollution Control (APC) system will be provided for all transfer points, dust generating points including fugitive dust from all vulnerable sources for the compliance of prescribed stack emission and fugitive emission standards.
vi	The project proponent shall provide leakage detection and mechanized bag cleaning facilities for better maintenance of bags.	Noted and leakage detection and mechanized bag cleaning facilities will be provided for better maintenance of bags.
vii	Pollution control system in the cement plant shall be provided as per the CREP guidelines of CPCB.	All CREP recommendation shall be implemented.
viii	Sufficient number of mobile or stationery vacuum cleaners shall be provided to clean plant roads, shop floors, roofs, regularly.	Vacuum cleaners will be provided for better housekeeping.
ix	Recycle and reuse lime fines, coal fines and such other fines collected in the pollution control devices and vacuum cleaning devices in the process after agglomeration.	Noted and all fines materials will be recycled and reuse in the process.
x	Ensure covered transportation and conveying of ore, coal and other raw material to prevent spillage and dust generation; Use closed bulkers for carrying fly ash;	Fly ash will be transported in closed trucks & bulkers. Cement, clinker and other raw material will be transported in covered trucks.
xi	Provide wind shelter fence and chemical spraying on the raw material stock piles; and	Wind shelter fence and dust suppression system will be provided for the control of fugitive emissions.
xii	Provide Low NOx burners as primary measures and SCR /NSCR technologies as secondary measure to control NOx emissions. Have separate truck parking area and monitor vehicular emissions at regular interval.	NOx control measures and Separate truck parking will be made and only PUC certified vehicle will be allowed in the premises.
xiii	Efforts shall be made to reduce impact of the transport of the raw materials and end products on the surrounding environment including agricultural land by the use of covered conveyor belts/railways as a mode of transport	Covered conveyor belts with the provision of bag filters at transfer points will be used for the transport of the raw materials and end product to reduce the impact on surrounding environment.
xiv	Ventilation system shall be designed for adequate air changes as per ACGIH document for all tunnels, motor houses, cement bagging plants.	Noted and Ventilation system will be provided for adequate air changes as per ACGIH guidelines.

D	**Water quality monitoring and preservation**	
i	The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 vide G.S.R. No. 612(E) dated 25th August, 2014 (Cement)and subsequent amendment dated 9th May, 2016 (Cement) and 10th May, 2016 (in case of Co-processing Cement) as amended from time to time; S.O. 3305 (E) dated 7th December 2015 (Thermal Power Plants)as amended from time to time) and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act, 1986 or NABL Accredited laboratories.	No industrial waste water will be generated from Cement Plant as cement manufacturing is a dry process. However, RO reject waste water will be generated and the same will be used in mill spray. No waste water will be discharge outside the plant. Domestic waste water will be treated in STP and will be recycled for plantation and Green Belt development. Continuous Emission monitoring system will be installed in raw mill & kiln, cooler, coal mill, cement mill and CPP stacks and data will be connected to SPCB and CPCB server.
ii	The project proponent shall monitor regularly ground water at least twice a year (pre and post monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs recognized under Environment (Protection) Act, 1986 and NABL accredited laboratories.	Ground water quality will be monitored twice a year (pre and post monsoon) through recognized labs by establishing network of piezometer/sampling wells.
iii	The project proponent shall submit monthly summary report of continuous effluent monitoring and results of manual effluent testing and manual monitoring of ground water quality to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.	Noted. Six monthly report will be submitted to the regional office of MoEF&CC, Zonal office of CPCB and Regional office of SPCB.
iv	Adhere to 'Zero Liquid Discharge'.	Zero liquid discharge will be complied.
v	Sewage Treatment Plant shall be provided for treatment of domestic wastewater to meet the prescribed standards.	Domestic waste water will be treated in STP and will be recycled for plantation and Green Belt development.
vi	Garland drains and collection pits shall be provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off.	Noted and Garland drains and collection pits will be provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off.
vii	The project proponent shall practice rainwater harvesting to maximum possible extent.	Rainwater harvesting practice will be adopt to recharge the ground water.
viii	Water meters shall be provided at the inlet to all unit processes in the cement plant.	Water metres will be provided at the inlet to all processes in the cement plant.
ix	The project proponent shall make efforts to minimise water consumption in the steel plant complex by segregation of used water, practicing cascade use and by recycling treated water.	Efforts will be made to minimize water consumption. Domestic effluent will be treated in STP and treated water will be used for gardening.
E	**Noise monitoring and prevention**	
i	The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time.	Acoustic hoods, silencers, enclosures will be provided for meeting the ambient noise standards.
F	**Energy Conservation measures**	
i	Waste heat recovery system shall be provided for kiln and cooler.	Noted and Waste heat recovery system will be provided for kiln and cooler.
ii	The project proponent make efforts to achieve power consumption less than 65 units/tonne for Portland Pozzolona Cemen (PPC) and 85 units/tonne for Ordinary Portland Cement (OPC) production and thermal energy consumption of 670 Kcal/Kg of clinker.	Noted and effort will be made to achieve power consumption as prescribed.

iii	Provide solar power generation on roof tops of buildings, for solar light system for all common areas, street lights, parking around project area and maintain the same regularly.	Solar power generation arrangements will be provided on roof tops of buildings, for solar light system at all common areas, street lights, parking area and will maintain the same regularly.
iv	Provide the project proponent for LED lights in their offices and residential areas.	LED lights will be provided in offices and residential areas.
v	Maximize utilization of fly ash, slag and sweetener in cement blend as per standards.	Fly ash will be used in cement manufacturing as per BIS standards
vi	Maximize utilization of alternate fuels and Co-processing to achieve best practice norms	Noted and alternate fuels will be used in Co-processing as per best practice norms.
G	**Waste Management**	
i	Used refractories shall be recycled as far as possible.	Noted and used refractories will be recycled as far as possible.
ii	Kitchen waste shall be composted or converted to biogas for further use.(to be decided on case to case basis depending on type and size of plant)	Noted and will be complied.
H	**Green Belt and EMP**	
i	Green belt shall be developed in an area equal to 33% of the plant area with a native tree species in accordance with CPCB guidelines. The greenbelt shall inter alia cover the entire periphery of the plant	Green Belt will be developed as per CPCB guidelines.
ii	The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration including plantation.	Company will follow the Cement Sustainability Initiative (CSI) CO2 and "Energy Accounting and Reporting Standard for the Cement Industry" for the calculation of the GHG emissions.
iii	The Capital cost Rs. 50 crore and annual recurring cost Rs. 1.0 Crore towards the environmental protection measures shall be earmarked separately. The funds so provided shall not be diverted for any other purpose.	Noted and will be complied.
iv	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report and that during their presentation to the EAC	Noted and will be complied.
I	**Public hearing and Human health issues**	
i	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan will be implemented.
ii	The PP shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms of Factory Act.	Noted and will be complied.
iii	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Provision will be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, Medical Health Care, creche etc.
iv	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	Occupational health programmes will be organized on a regular basis and records will be maintained.

v	The commitment made by the project proponent to the issues raised during Public Hearing shall be implemented by the proponent	Noted and will be complied.
J	**Corporate Environment Responsibility**	
i	An amount of' Rs14.17 proposed towards Corporate Social Responsibility (CER) shall be utilized as capital expenditure in project mode as per the provisions of Office Memorandum vide F.No. 22-65/2017-IA.III dated 1st May 2018. The project shall be completed in concurrence with the implementation of the expansion and estimated on the basis of Scheduled Rates.	Noted and will be complied.
ii	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the cement plants shall be implemented.	Status of CREP conditions is enclosed as **Annexure-1**.

Annexure-1

Status of CREP conditions

S.No.	Corporate Responsibility for Environmental Protection (CREP)	Compliance to CREP
1	Cement Plants, which are not complying with notified standards, shall do the following to meet the standards; Augmentation of existing Air Pollution Control Devices-by July 2003 Replacement of existing Air Pollution Control Devices-by July 2004	Erection and commissioning of the plant is not started. The new emission standards for PM, SO2 & NOx notified by MOEF&CC as per G.S.R 612 (E) dated 25.08.2014 will be Complied
2	Cement Plants located in critically polluted or urban areas (including 5 km distance outside urban boundary) will meet 100 mg/Nm3 limit or particulate matter by December 2004 and continue working to reduce the emission of particulate matter to 50 mg/Nm3.	Not applicable-Our cement plant is not located in critically polluted or urban areas.
3	The new cement kilns to be accorded NOC/Environmental Clearance w.e.f 01.04.2003 will meet the limit of 30 mg/Nm3 by particulate matter emissions.	Erection and commissioning of the plant is not started. All Pollution Control equipment will be installed for meeting the particulate matter emission level < 30 mg/Nm3.
4	CPCB will evolve load based standards by December 2003.	Not applicable.
5	CPCB and NCBM will evolve SO2 and NOx emission standards by June 2004.	Erection and commissioning of the plant is not started. All the necessary measure will be taken to meet the SO2 and NOx emission standards by June 2004.
6	The cement industries will control fugitive emissions from all the raw material and products storage and transfer points by December 2003. However, the feasibility for control of fugitive emissions from limestone and coal storage areas will be decided by the National Task Force (NTF). The NTF shall submit its recommendations within three months.	CPCB Environmental Guidelines for Prevention and Control of Fugitive emissions will be followed by Cement Plant. Covered storages / silos will beprovided for Clinker, Fly Ash, Gypsum and Cement storage. Closed unloading hoppers with water spraying arrangement will be provided for unloading of limestone and coal & pet coke. Bag filters will be provided at all material transfer points. All transfer points and storage silos will be provided with dust extraction system for effective control of fugitive dust emissions. The dust collected from the pollution control equipment will be recycled back into the process. All raw material transfer conveyor will be covered. Truck mounted vacuum cleaner and road sweeper are deployed and good housekeeping will be maintain for controlling secondary fugitive dust emissions. All conveyor belts will be covered.

		All movement area is cemented and sweeping will be done by vacuum sweeping machine. Circular stock piles will be provided for covered storage for coal and pet coke.
7	CPCB, NCBM, BIS and Oil refineries will jointly prepare the policy on use of petroleum cokes as fuel in cement kiln by July 2003.	Not applicable.
8	After performance evaluation of various types of continuous monitoring equipment and feedback from the industries and equipment manufacturers, NTF will decide feasible unit operations/ sections for installation of continuous monitoring equipment. The industry will install the continuous monitoring systems (CMS) by December 2003	Continuous emission monitoring system (CEMS) will be installed at all the stacks for measure emission levels and data will be continuously uploading to CPCB and RSPCB Server.
9	Tripping in kiln ESP to be minimized by July 2003 as per the recommendations of NTF.	Conditions of ESP tripping will be minimized as per given recommendations of NTF.
10	Industries will submit the target date to enhance the utilization of waste material by April 2003.	Applicable CPCB & RSPCB permissions have been obtained for use of waste material in cement kilns. Fly ash, pond ash will be being utilized in cement manufacturing process. Hazardous waste i.e. paint sludge, phosphate sludge, CETP sludge, oily rags, used, waste mix solid and waste mix liquids, oil etc. will be Co-processed in cement kiln as AFR.
11	NCBM will carry out a study on hazardous waste utilization in cement kiln by December 2003.	CPCB & RSPCB permissions will be obtained for use of paint sludge, ETP sludge and phosphate sludge of automobile industries, CETP Sludgei, Chemical Gypsum, Tyre chips, Solid mix waste and liquid mix waste, oil soaked cotton and grinding waste, Oily rags etc. for utilization as AFR.
12	Cement industries will carry out feasibility study and submit target dates to CPCB for co-generation of power by July 2003.	WHR systems will be installed in all the units.

Annexure-2

GOVERNMENT OF ANDHRA PRADESH
GROUND WATER ANDWATER AUDIT DEPARTMENT

From:
Sri P.Purushothama Reddy,
M.Sc.,
Director [FAC],
Ground Water and Water Audit Department,
Vysya Bhavan, Namboori vari Veedhi,
Hanumanpet, Near Railway Station,
Beside Government Hospital,
Vijayawada-520 003.
E-Mail:director_apsgwd@rediffmail.com.

To:
The Managing Director,
M/s Shree Cement Limited,
Pedagarlapadu, Kachavaram &
Inaparajupally Villages,
Dachepalli Mandal,
Guntur District.

Letter No:992 /Hg-II/2018 **Dated:18.02.2020**

Sir,

Sub:- Andhra Pradesh Ground Water and Water Audit Department –Single Desk Policy - M/s Shree Cement Limited, Pedagarlapadu, Kachavaram & Inaparajupally Villages, Dachepalli Mandal, Guntur District. – Communicating the approval - Regarding.

Ref:- 1. Online application ID: CAE1903053.
2.Lr.Rc.No.531/T/SDP/GNT/2019-20, Dated:17.02.2020 of Deputy Director, Ground Water and Water Audit Department, Guntur District.

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With reference to the subject and reference 2nd cited, I am here with furnishing the "Report on the integrated Hydrogeological and Geophysical surveys conducted in the proposed plant area of "M/s Shree Cement Limited, Pedagarlapadu, Kachavaram & Inaparajupally Villages, Dachepalli Mandal, Guntur District".

The firm is permitted to withdrawal of 1500 KLD Ground water from existing thirteen (13) Bore wells @ 10 hours of pumping in a day duly following the terms and conditions as mentioned in the report.

Encl: Report

Yours faithfully,
Sd/-P.Purushothama Reddy
DIRECTOR.

Copy submitted to Commissioner PR &RD, and Administrator, APWALTA Vijayawada, for information
Copy to Deputy Director, Ground Water and Water Audit Department, Guntur District for information and communicate the same with approved report to concerned Chairman, Mandal WALTA Authority (Tahsildar)

///truc copy///

For DIRECTOR

Single Desk Approval Ref ID : SDDGW024190144

PERMITTING WITHDRAWAL OF GROUND WATER FROM THE EXISTING BORE WELLS IN THE LANDS OF M/S SHREE CEMENTS LIMITED LOCATED AT PEDAGARLAPADU, KACHAVARAM & INAPARAJUPALLI VILLAGES OF DACHEPALLI MANDAL, GUNTUR DISTRICT.

I.	**GENERAL**		Application ID: CAE1903053.
1	Investigations Conducted by	:	Kum. K. Bindu Sree A.Hg, Smt. A. Uma Devi, T.A.(Gp).
2	Date and Duration of Investigation	:	04.02.2020 – 11.02.2020 (8 Days)
3	Name of the Industrial Organization	:	**M/S SHREE CEMENTS LIMITED.**
4	Purpose of Investigation and requirement of water	:	Drinking and Industrial purposes. 1500 KL/Day.
5	Location of site		
	a)District	:	Guntur
	b)Mandal	:	Dachepalli
	c) Village	:	Pedagarlapadu, Kachavaram & Inaparajupalli
	d)Distance and bearing to nearest village	:	Study area is located at the outskirts of Peda garlapadu, Kachavaram, Inaparajupalli villages.
	e) RS. No.	:	622,624,633,634,644,645,646,647,648,650,651,652,653,654,655,657,658,898,899,900,901,902,910,911,912,913,914,915,916,917,918,919,920,921,922,923,924,925,930,931,932,933,934,935,936,937,938,939,940,941,942,943,944,945,946,963.
	f) Extent of the area	:	352.84 AC.
II	**PHYSIOGRAPHY AND DRAINAGE**		
1	Topography	:	Undulating to flat topography.
2	Soil type and thickness	:	Loamy, clayey, red and black soils , 1 – 2 m.
3	Drainage Pattern	:	Sub - Dendritic drainage pattern.
4	Elevation (MSL) in m.	:	80 mts.
5	Sub-basin name, Categorization and stage of development in the basin	:	GNT-D-50-Julakallu- Kesanupalli, Safe and 64%.
6	Average annual rainfall in mm.	:	Normal – 714.0, Actual – 414.0 (2018-19)
7	Nearest Surface water bodies (tanks, reservoirs, canals etc)	:	NSR right bank canal runs through Mining lease area.
8	Proximity to the surface water bodies	:	Water bodies exists in study area.
9	Stream/River (Specify the nature influent/effluent)	:	Water bodies existed 50 – 100 mts South, Western sides of the study area.
10	Command / Non –Command	:	NSR Command.

1	**Geology of the area (Rock type and texture)**	:	Lime stones of Upper proterozoic age, Medium grained texture.
2	**Average thickness of weathered zone**	:	10 – 12 M
3	**Structural controls if any**	:	Bedding Plains, Joints,Caverns.
IV	**HYDROGEOLOGICAL CONDITIONS** : The investigated area is covered with loamy clayey, red and black soils followed by the Narji Lime stones of Upper proterozoic age with general strike of NE – SW. Ground Water in general occurs in joints , bedding planes and weathered portions of the limestones. Wherever these rocks are cavernous and fractured they hold good amount of ground water. There are 27 bore wells that are existed in the study area and 13 Bore wells were inventoried around the study area. The depths these Bore wells are varying from 65 to 145 m and fitted with 5 HP , 7.5 HP submersible motors with yields ranging from 4000 – 24,750 lph. A pump test was conducted at a bore well that was existed at the colony area in the industrial premises. Static water level in the bore well just before pumping started was noted as 6.34 M and with continuous pumping of 190 minutes water level was decreased down to a depth of 7.01 M and drawdown recorded during pump test was 0.67M. Water column was recuperated to the initial pumping level i.e. 6.34 M within 50 Minutes. An Yield test was conducted at 3 existing Bore wells in the study area and the Yields given by the bore wells was measured as 24,750 LPH,17,000 LPH,15,110 LPH respectively.		
V	**LOCATION OF THE NEAREST PIEZOMETER, DEPTH TO WATER LEVEL IN THE PIEZOMETER AND WATER LEVEL TREND**	:	The depth to water level recorded from Dachepalli Piezometer in January-2019 was 5.06 m and the water level trend is neither rising nor falling.

VI	**WELL INVENTORY**						
Sl. No.	**Well details**	**Total depth (m.)**	**Dia (mm)**	**DTW (m.) (as inferred)**	**Yield (lph)**	**Geo-Coordinates**	**Remarks**
1	Existing bore well located at survey no 665 in the premises of the colony area.	90-100	165	6.34	24,750 (Measured value)	N16^0 31' 10.7" E 79^0 44' 34.2 "	-
2	Existing bore well located at survey no 703 in the premises of the colony area.	90-100	165	1.67	17,000 (Measured value)	N16^0 31' 03.7" E 79^0 44' 52.5 "	-
3	Existing bore well located at survey no 660 in the premises of the colony area.	90-100	165	3.24	10000-12000	N16^0 30' 59.4" E 79^0 44' 35.5 "	-
4	Existing bore well located at survey no 661–A in the premises of the colony area.	90-100	165	3.17	15,100 (Measured value)	N16^0 31' 00.4" E 79^0 44' 35.5 "	-

5	654–A in the premises of the Plant area.	90-100	165	-	-	-	well.
6	Existing bore well located at survey no902 in the premises of the plant area.	90-100	165	11.96	10000-12000	N 16^0 30' 56.5" E 79^0 44' 15.6 "	-
7	Existing bore well located at survey no 655 in the premises of the plant area.	90-100	165	11.42	10000-12000	N 16^0 31' 06.3" E 79^0 44' 16.2 "	-
8	Existing bore well located at survey no 915 in the premises of the plant area.	90-100	165	9-10	10000-12000	N 16^0 31' 05.6" E 79^0 44' 13.4 "	-
9	Existing bore well located at survey no 943 in the premises of the plant area.	90-100	165	13.58	10000-12000	N 16^0 31' 04.1" E 79^0 43' 48.5"	-
10	Existing bore well located survey no 650 in the premises of the plant area.	90-100	165	9-10	10000-12000	N 16^0 31' 19.5" E 79^0 44' 13.9"	-
11	Existing bore well located at survey no 925 in the premises of the Plant area.	90-100	165	9-10	10000-12000	N 16^0 31' 20.6" E 79^0 43' 54.9"	-
12	Existing bore well located at survey no 650 in the premises of the plant area.	90-100	165	6-7	10000-12000	N 16^0 31' 25.1" E 79^0 44' 14.5"	-
13	Existing bore well located at survey no 911 in the premises of the plant area.	90-100	165	-	-	N 16^0 31' 25.1" E 79^0 44' 14.5"	Dry well
14	Existing bore well located at survey no 940 in the premises of the plant area.	90-100	165	10.45	10000-12000	N 16^0 31' 11.9" E 79^0 43' 49.7"	-
15	Existing bore well located at survey no 939 in the premises of the plant area.	90-100	165	7-8	10000-12000	N 16^0 31' 11.3" E 79^0 43' 53.8"	-
16	Existing bore well located at survey no 932 in the premises of the plant area.	90-100	165	-	-	-	-
17	Existing bore well located at survey no 660 in the premises of the plant area.	90-100	165	7-8	10000-12000	N 16^0 30' 58.8" E 79^0 44' 29.7"	-
18	Existing bore well located at survey no 996 in the premises of the Mining lease area.	90-100	165	10 -11	7000-8000	N 16^0 32' 21.9" E 79^0 43' 40.0"	-
19	Existing bore well located at survey no 996 in the premises of Mining lease area.	140	165	15-16	12000-13000	N 16^0 32' 19.8" E 79^0 43' 42.0"	-
20	Existing bore well located at survey no 997 in the premises of Mining lease area.	85	165	6-7	12000-13000	N 16^0 32' 20.4" E 79^0 43' 44.7"	-

21	997 in the premises of Mining lease area.	145	165	20-25	4000 – 5000	N 16^0 32' 20.4" E 79^0 43' 44.7"	-
22	Existing bore well located at survey no 988 in the premises of Mining lease area.	90	165	10-12	7000-8000	N 16^0 32' 15.8" E 79^0 43' 39.0"	-
23	Existing bore well located at survey no 701 in the premises of Mining lease area.	70	165	6-7	10000-12000	N 16^0 31' 20.8" E 79^0 43' 08.1"	-
24	Existing bore well located at survey no 753 in the premises of Mining lease area.	75	165	7-8	10000-12000	N 16^0 31' 24.5" E 79^0 43' 11.4"	-
25	Existing bore well located at survey no 741 in the premises of Mining lease area.	120	165	8-9	5000-6000	N 16^0 31' 24.5" E 79^0 43' 30.3"	-
26	Existing bore well located at survey no 726 in the premises of Mining lease area.	65	165	6-7	5000-6000	N 16^0 31' 19.0" E 79^0 43' 37.5"	-
27	Existing bore well located at survey no 714 in the premises of Mining lease area.	70	165	6-7	7000 – 8000	N 16^0 31' 13.5" E 79^0 43' 37.0"	-
28	Bore well in the Agricultural land of Gurram Venkateswara reddy.	90	165	7-8	10000-11000	N 16^0 31' 21.5" E 79^0 43' 8.8"	-
29	Bore well in the Agricultural land of Gurramsetti Yedukondalu.	100	165	8-9	8000-9000	N 16^0 31' 22.9" E 79^0 44' 58.6"	-
30	Bore well in the Agricultural land of Perumalla Vijayalakshmi.	90	165	6-7	5000-6000	N 16^0 31' 24.3" E 79^0 44' 58.3"	-
31	Bore well in the Agricultural land of Gurram Venkateswara rao.	110	165	7-8	13000-14000	N 16^0 31' 24.3" E 79^0 44' 58.3"	-
32	Bore well in the Agricultural land of Yadlapalli brammaiah.	90	165	6-7	10000-12000	N16^0 30' 56.4" E 79^0 44' 51.4"	-
33	Bore well in the Agricultural land of S. Gopi reddy.	70	165	7-8	8000 – 9000	N 16^0 30' 52.9" E 79^0 44' 32.6"	-
34	Bore well in the Agricultural land of Ch. Satyanarayana reddy.	65	165	4-5	12000-13000	N 16^0 30' 54.4" E 79^0 44' 33.7"	-
35	Bore well in the Agricultural land of Sunka reddy Venkata reddy.	60	165	3-4	12000-13000	N 16^0 30' 58.0" E 79^0 44' 43.8"	-
36	Bore well in the premises of Primary School , Kachavaram.	90	165	3-4	4000-5000	N 16^0 30' 58.0" E 79^0 43' 07.4"	-
37	Bore well in the premises of Kachavaram church.	110	165	6-7	4000-5000	N 16^0 32' 18.3" E 79^0 37' 02.8"	-

	well , Inaparajupalli.					N 16° 31' 28.4" E 79° 42' 50.1"	-
39	Gram panchayath bore well, Pedagarlapadu.	90	165	3-4	5000-6000	N 16° 31' 38.3" E 79° 45' 03.6"	-
40	Bore well in the Agricultural land of Chikkala Saida reddy.	75	165	10-11	6000-7000	N 16° 30' 44.2" E 79° 44' 53.0"	-

GEOPHYSICAL INVESTIGATIONS:

Geoelectrical soundings (4 VES) were conducted in plant area, Colony area and Mining areas. Schlumberger electrode configuration adopted to assess the thickness of weathered and fractured zones in limestone formation, which are feasible for tapping ground water.

The apparent resistivity curves obtained in the field were interpreted and the results are expressed in terms of resistivity (ohm-m) and thickness (m) of different sub surface layers and present in **Table –VII.**

Two vertical electrical soundings were conducted in Plant and Colony area. The interpreted data of VES indicates that the thickness of surface soil covers in areas the resistivity of the top soil 56-84 Ω.m indicating Black and loamy red soils and its thickness is around 1.5-1.6m. Top soil is underlain by a second layer represented by the resistivity value is 196-210 Ω.m with thickness of 3.0-3.2m. This layer may be attributed to weathered limestone formation. The weathered limestone is underlined by Semi weathered lime stone represented by the resistivity is varied from 950-2310 Ω.m and its thickness from 10- 18 m. This layer is underlined by fractured limestone represented by the resistivity value is 2400Ω.m and the thickness is 24 m which is a good aquifer and fractured Limestone followed by massive lime stone which can be treated as a basement. The basement depth varies from 22.0 to 59.0 m from bgl.

Two vertical electrical soundings were conducted in mining areas. The interpreted data of VES indicates that the thickness of surface soil covers in areas the resistivity of the top soil which is black cotton soil 2-4 Ω.m and the thickness ranging from 1.5 to 2m. Top soils underlined by second layer represented by the resistivity values varies from 10 to 28 Ω.m, this layer is weathered limestone the thickness from 3.8-4.7m , the resistivity values varies from 208 to 480 Ω.m the second layer followed by semi weathered lime stone and the thickness from 3-4m . Semi weathered followed by fractured lime stone the resistivity value is 51 Ω.m and the thickness is 15m. Fractured lime stone is followed by massive lime stone which can be treated as a basement. The basement depth varies from 8.3 to 25.2m from bgl.

From Geophysical investigations data it is concluded that the plant area & colony Mining areas are feasible for construction of bore wells.

TABLE: VII

RESULTS OF GEOPHYSICAL INVESTIGATION													
VES NO	ρ1 ohm. m	h1 in m	ρ2 ohm. m	h2 in m	ρ3 ohm. M	h3 in m	ρ4 ohm. M	h4 in m	ρ5 ohm. M	h5 in m	ρ6 ohm . m	h6 in m	H in m
1	56	1.6	196	3.2	1200	7.2	2310	10.0	α	-	-	-	22.0
2	84	1.5	210	3.0	910	9.5	950	18.0	2400	24.0	α	-	59.0
3	2	1.5	10	3.8	208	3.0	α	-	-	-	-	-	8.3
4	4	1.5	28	4.7	480	4.0	51	15.0	α	-	-	-	25.2

VIII. STATUS OF GROUND WATER DEVELOPMENT:

The ground water department was carried out estimation of ground water resource of the Guntur district 2012-13 as base year for assessment. The stage of development in basin, mandal and villages under study falls in safe category. The status of ground water development of the study area is shown in below table.

Item	2012-13 Estimates				
	GNT-D-50-Julakallu – Kesanupalli	Dachepalli Mandal	Pedagarlapadu Village	Kachavaram Village	Inaparajupalli Village
Ground Water Availability in ha.m	744	3937	511	384	284
Ground Water Utilization in ha.m	476	417	39	25	52
Ground Water Balance in ha.m	268	3520	472	359	232
Stage of development (%)	64%	11%	64%	6%	18%
Category	Safe	Safe	Safe	safe	Safe

IX	**QUALITY OF GROUND WATER**	:	Quality of ground water is suitable for drinking and industrial purposes.
X	**SUGGESTIONS FOR IMPROVING GROUND WATER REPLINISHMENT**	:	There are no Artificial recharge structures existed in the premises of the Industry , hence 5 recharge structures are proposed in the industrial area. By these recommended structures 534450 cu.m of water will be added to the ground water table. The details of the recommended Artificial recharge structures is given below in Table - 1.

Sl. No	Type of Structure	Table-1			
		Dimensions of the structure (L*B*H).	No of fillings	Gross storage (cu.m)	Recharge to ground water (50% of Gross storage).
1	**Recharge component from the recommended recharge pit in the SW corner of the Colony area.**	N- 16^0 30'51.4'' E- 79^0 44'31.0'' 15*15*5	8	9000	4500
2	**Recharge component from the recommended recharge pit in the NE corner of the Colony area.**	N- 16^0 31'5.5'' E- 79^0 44'54.8'' 15*15*5	8	9000	4500
3	**Recharge component from the recommended recharge pit in the SW corner of the Plant area.**	N- 16^0 33'56.5'' E- 79^0 44'10.2'' 15*15*5	8	9000	4500
4	**Recharge component from the recommended recharge pit in the NE corner of the Plant area.**	N- 16^0 31'24.1'' E- 79^0 44'23.7'' 15*15*5	8	9000	4500
5	**Recharge component from the recommended recharge pit in the NE corner of the Mining Lease area.**	N- 16^0 32'31.6'' E- 79^0 43'82.1'' 15*15*5	8	9000	4500
					22,500
6	**As per the plan submitted by the industrial authorities, Roof top harvesting will be available from the third year of construction of supposed project and total rain water harvesting in the plant area, colony area, green field area will be 1,81,234 Cu.m.**				1,81,234
7	**Run off from the open land, green belt, plantation, back field, roads and paved area in the mining lease area is to be divested in to the recharge ponds to be constructed in the mining lease area by the fifth year of project operation. As per the plan submitted by the industrial authorities artificial recharge in mining lease area will be 3,30,716 Cu.m.**				3,30,716
Total contribution to Ground Water through the artificial ground water harvesting structures					**5,34,450**

Narji limestones of upper proterozoic age pertaining medium grained texture. The total depths of the inventoried Bore wells varying from 65-145 M , fitted with 5 HP and 7.5 HP submersible motors and Yields of these bore wells were varying from 4000 – 24,750 Lph. Based on the integrated ground water surveys, the area is feasible for Bore wells. As per 2012 – 13 Ground water resource estimation, the GNT-D-50-JULAKALLU-KESANUPALLI basin , Dachepalli mandal and Pedagarlapadu, Kachavaram, Inaparajupalli villages falls under safe category. As per the Application submitted by the industrial authorities , The requirement of Ground water withdrawal is 1500 KL / Day. Out of 40 bore wells 27 Bore wells were existed in the proposed industrial area. Among the existing wells 14 wells were exempted from the recommendations duly following the spacing norms of the **GO.Ms.No.227,PR&RD(RD. III)DEPT** Dated: 08-04-2013. Hence 13 bore wells satisfying all the terms were selected for giving recommendations in the aim of permitting ground water withdrawal. A pump test was conducted at an existing bore well in the study area and as per the data that was obtained during pump test, it is concluded that the aquifer is a high potential aquifer and capable of giving good yields. An Yield test was conducted at three existing bore wells in the study area and yields given by the bore wells were measured as 24,750 LPH,17000LPH,15100 LPH respectively. Expected yields of the remaining 10bore wells were 10000-12000 lph The requirement of 1500 KL/Day may be met with 10 hours of pumping from the 13 existing Bore wells in the industrial area. The details of the recommendations are given below and shown in the location map.

REOMENDATIONS

S. No.	Location of Recommended Filter Point	Dia in mm	Depth in m	Yield in LPH	Yield in with 10 hour pumping in LPH	Remarks
1	Existing bore well located at survey no 665 in the premises of the colony area. (N16^0 31' 10.7'' E 79^0 44' 34.2 '')	165	90-100	24,750 (Tested value)	2,47,500	–
2	Existing bore well located at survey no 703 in the premises of the colony area. (N16^0 31' 03.7'' - E 79^0 44' 52.5 '')	165	90-100	17,000 (Tested value)	1,17,000	–
3	Existing bore well located at survey no 660 in the premises of the colony area. (N16^0 30' 59.4'' - E 79^0 44' 35.5 '')	165	90-100	10000	1,00,000	–
4	Existing bore well located at survey no 661–A in the premises of the colony area. (N16^0 31' 00.4'' - E 79^0 44' 35.5 ''	165	90-100	15100 (Tested value)	151000	–
5	Existing bore well located at survey no 655 in the premises of the plant area. (N 16^0 31' 06.3''- E 79^0 44' 16.2 '')	165	90-100	10000	1,00,000	–
6	Existing bore well located at survey no902 in the premises of the plant area. (N 16^0 30' 56.5''- E 79^0 44' 15.6 '')	165	90-100	10000	1,00,000	–
7	Existing bore well located at survey no 915 in the premises of the plant area. (N 16^0 31' 05.6''- E 79^0 44' 13.4 '')	165	90-100	10000	1,00,000	–
8	Existing bore well located at survey no 943 in the premises of the plant area. (N 16^0 31' 04.1''- E 79^0 43' 48.5'')	165	90-100	10000	1,00,000	–
9	Existing bore well located at survey no 650 in the premises of the plant area. (N 16^0 31' 25.1''- E 79^0 44' 14.5'')	165	90-100	10000	1,00,000	–
10	Existing bore well located at survey no 925 in the premises of the Plant area. (N 16^0 31' 20.6''- E 79^0 43' 54.9'')	165	90-100	10000	1,00,000	–

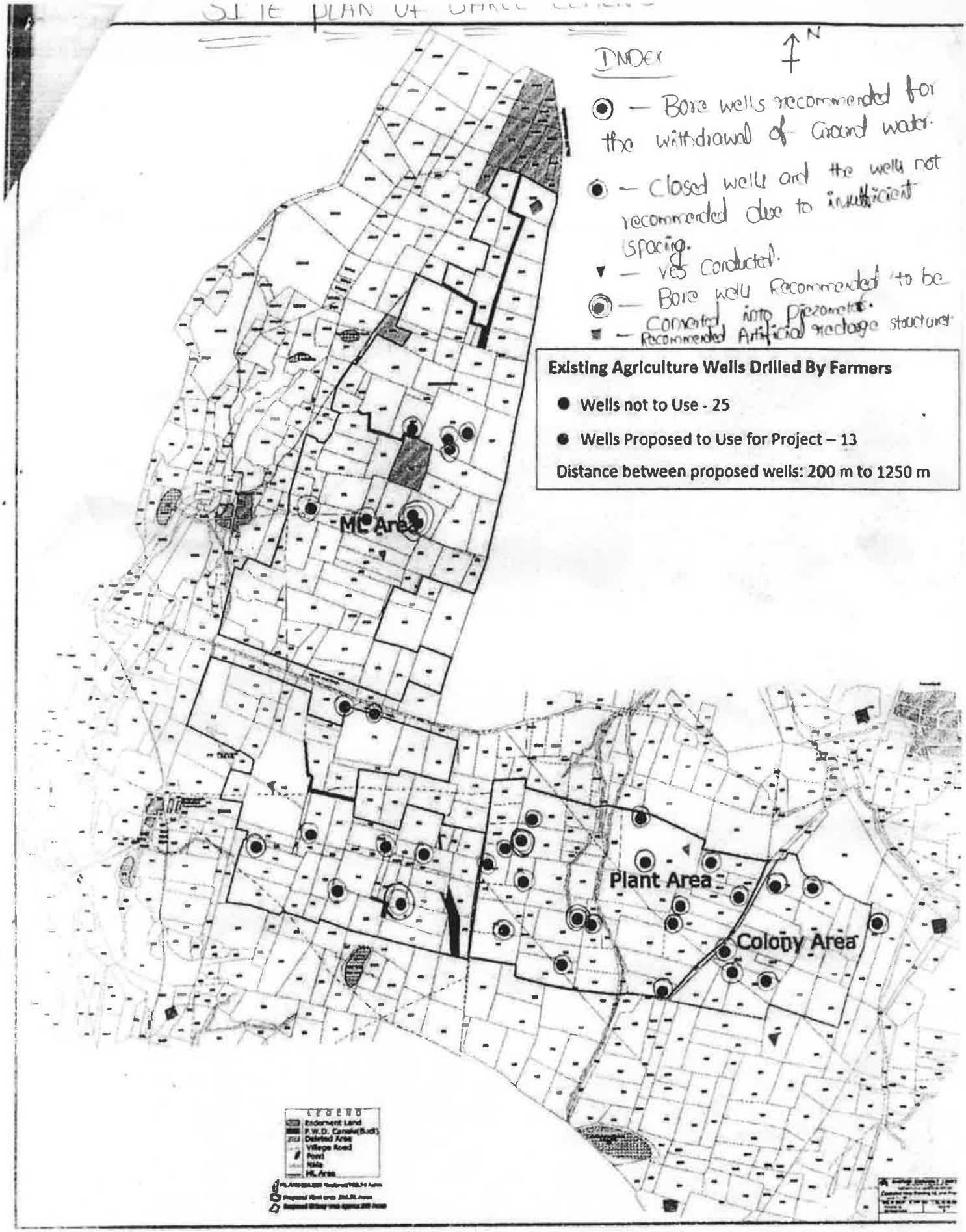
11	lease area. (N 16^0 32' 21.9'' - E 79^0 43' 40.0'')	165	90-100	10000	1,00,000	-
12	Existing bore well located at survey no 741 in the premises of Mining lease area. (N 16^0 31' 24.5''- E 79^0 43' 30.3'')	165	120	10000	1,00,000	-
13	Existing bore well located at survey no 701 in the premises of Mining lease area. (N 16^0 31' 20.8''- E 79^0 43' 08.1'')	165	70	10000	1,00,000	-
	Total amount of ground water is permitted to be withdrawn from the recommended 13 bore wells.				**15,15,500 Lr/Day.**	

Before going to commission, the management shall be abided by the following terms and conditions and submit their consent to the department within one month. And "**the recommendations hold good only subject to the rainfall conditions and stage of development of the area in and around in the long run**".

- 13 existing bore wells in the industrial area are recommended for the industrial use and is permitted to draw a total quantity of 1500 KL/day with 10 hours pumping on each bore well.
- The agency shall equip the water meter for measuring the daily utilization of groundwater. It is obligatory to maintain a daily drawl register.
- Bore wells that were existed in survey number 932 is recommended to be converted into piezometer for regular monitoring of water levels in Plant, colony, mining lease areas.
- The quality of Ground water should be ascertained twice in a year i.e., May & November and submit the chemical analysis data to Ground Water and Water Audit Department and also maintain the register of water quality.
- The water level data and quality data must be submitted to the Deputy Director, Ground Water and Water Audit Department concerned.
- The information on the effluents treated properly and should be free from all toxic materials, colour, odour and turbidity which are harmful to human beings, plants, animals. Hence, the effluents treated before and must not be let out into any surface and groundwater bodies. And treated water must be recycled. The recorded information must be provided to the APPCB.
- The officials of the Ground Water and Water Audit Department must be allowed to inspect the unit area whenever necessary.
- The Govt. of Andhra Pradesh/ Ground Water and Water Audit Department reserve the right to stop the unit from using Ground water during the emergencies or whenever the unit deviates from the terms and conditions.

XI SITE PLAN: Enclosed herewith

Surveyed by	**Surveyed by**	**Scrutinized by**	//Approved by//
Sd/- A. Umadevi	**Sd/- K. Bindu Sree**	**Sd/- D. Vandanam**	DEPUTY DIRECTOR
Technical Asst. (GP)	**Asst. HydroGeologist**	**Assistant Director**	


SITE PLAN OF
INDEX
N
— Bore wells recommended for the withdrawal of Ground water.
— Closed wells and the wells not recommended due to insufficient spacing.
— VES Conducted.
— Bore well Recommended to be converted into Piezometer.
— Recommended Artificial recharge structures
Existing Agriculture Wells Drilled By Farmers
Wells not to Use - 25
Wells Proposed to Use for Project – 13
Distance between proposed wells: 200 m to 1250 m
ML Area
Plant Area
Colony Area
LEGEND
Endorment Land
P.W.D. Canals(Both)
Deleted Area
Village Road
Pond
Nala
ML Area