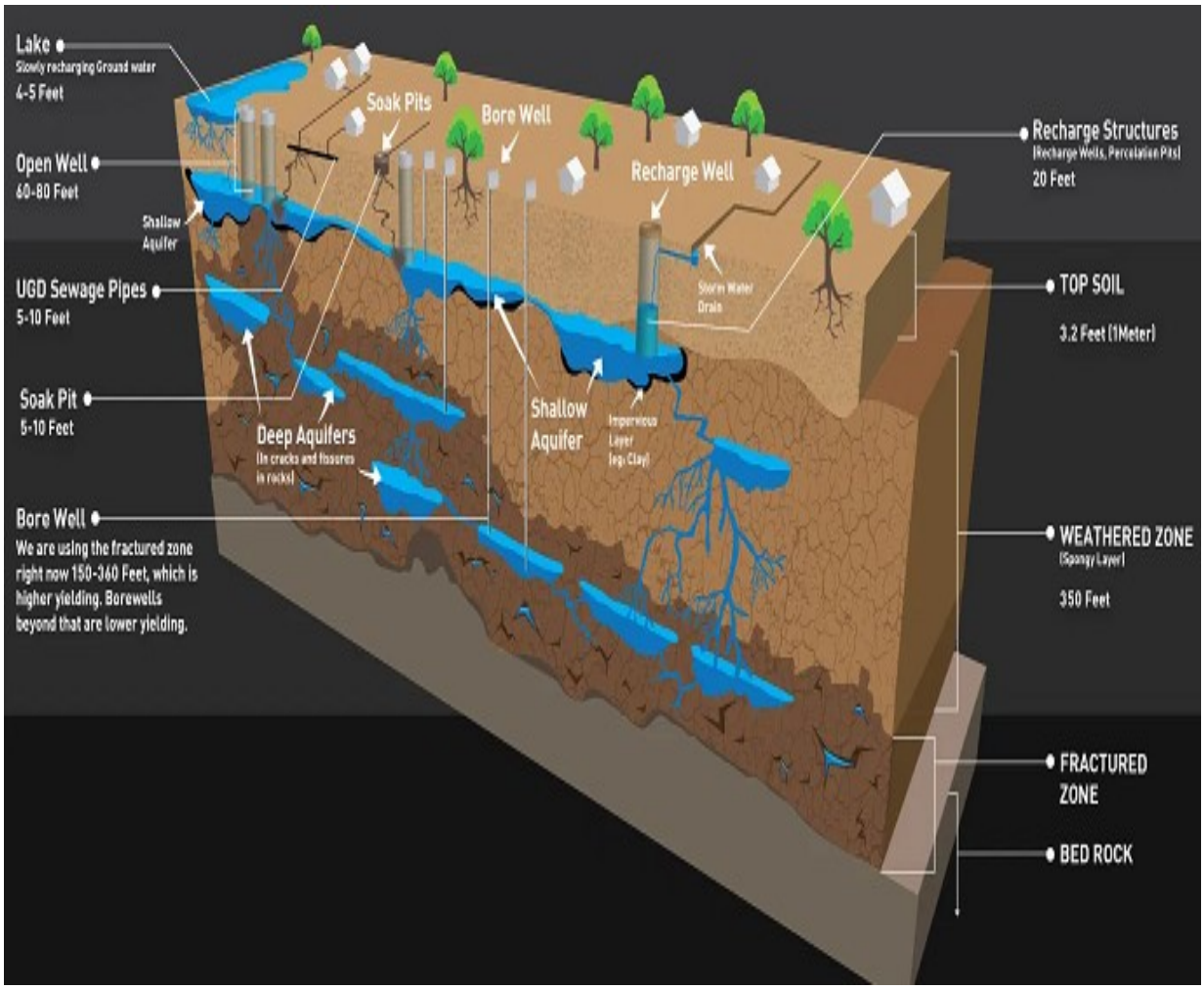


Modern techniques of Ground Water recharge- Save water, allow water to percolate

----if not now then never

CIVIL ENGINEERING DEPARTMENT
NEWS LETTER
2020-2021|JULY–DECEMBER2020|

HOD s Message:

Thisnewsletterpublishedfortheyear2020-2021 is dedicated to structures built and to be built by civil Engineers by solving ground water problems. Current issue deals with structures to be constructed in future by the civil engineering till present where ground water problems that are upcoming in future.

DEPARTMENT MISSION

"An integrated development of Civil Engineering Professionals with technological knowledge and managerial skills; possessing environmental,ethical and human values".

DEPARTMENT VISION

"To enrich the society through Civil Engineering education for socio-economic development and welfare of the people."

PROGRAM EDUCATIONAL OBJECTIVES

I. To provide basic scientific training to the students so as to solve Civil Engineering problems with scientific outlook rather than mere continuationof traditionalpractices.

II. To provide training in basic engineering sciences so that students apply the concepts of basic engineering sciences to the solution of Civil Engineeringproblems.

III. Totrainthestudentsinthebroadareasof Civil Engineering and inter-disciplinary areas.

IV. To mould the students professionally competent with managerial and communicationskills.

V. To train the students to mitigate natural/ environmentaldisasters and to inculcate professional ethics and human values.

PROGRAM OUTCOMES

- Graduates will have an ability to apply the knowledge of basic sciences like Physics, Mathematics and Chemistry for the solution of Civil EngineeringProblems.
- Graduates will have sound knowledge in basic engineering sciences like Engineering Mechanics, Solid Mechanics, and Fluid Mechanics to solve Civil Engineering problems.
- Graduates will have generalized knowledge in Civil Engineering and inter-disciplinary knowledge to design and execute Civil EngineeringProjects.
- Graduates will have an ability to design and conduct experiments as well as to analyse and interpretdata.
- Graduates will have an ability to demonstrate knowledge and understanding of engineering and management principles and apply these principles in theirprofession.
- Graduates will have an ability to identify, formulate and solve engineeringproblems.
- Graduates will have requisite knowledge to pursue Post- graduate / Research Programmes and for life-long learning.
- Graduates will have computational and draftingskills.
- Graduates will be professionally competent with managerial and communicationskills.
- Graduates mitigate environmental problems and natural disasters like earthquakes, cyclones andfloods.
- Graduates perform professional duties with environmental, ethical and humanvalues.
- Graduates will have broad education necessary to understand the impact of Civil Engineering solutions in global societalcontext.

WE THE CIVIL ENGINEERS

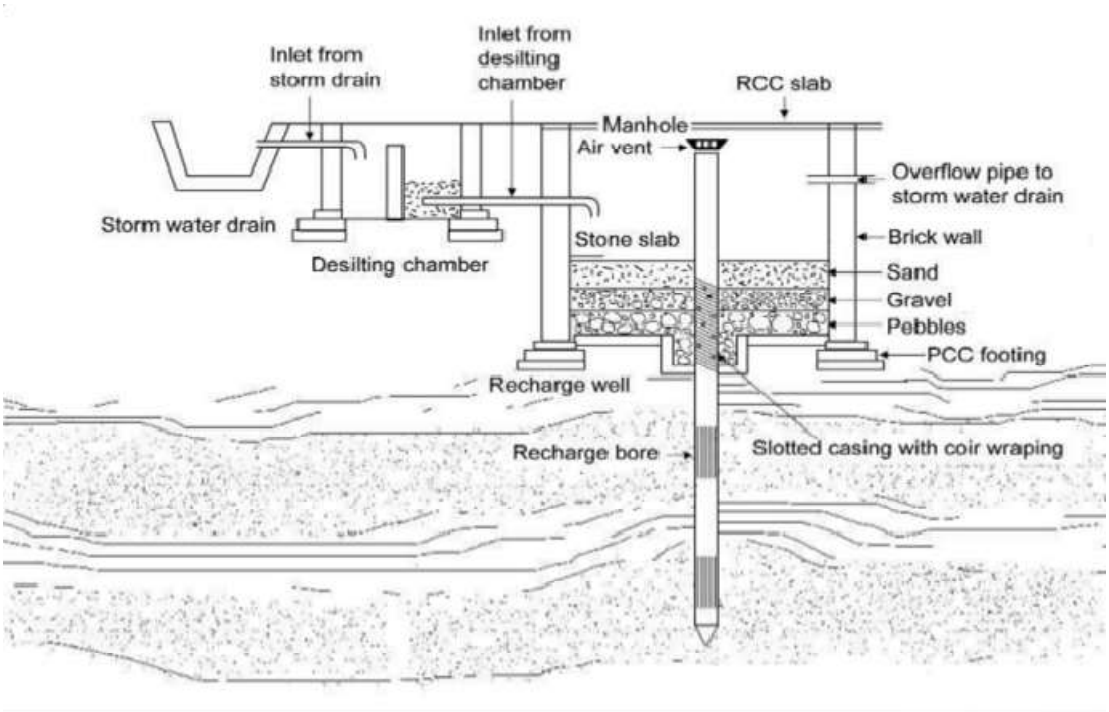
IDENTIFY THE NEED

TO RECHARGE

WATER

!!!!!!!!!!!!

Recharge Pit Method:-



- *suitable for such alluvial areas (plains) where permeable strata are not below than 2 to 2.5 meter deeper from the ground surface.*
- *considered suitable for the roof having 100 SQM areas constructed to recharge shallow aquifers.*
- *filled with layers in graded form with the boulders of 5-20mm, gravels of 5– 10mm, thick sand/Morang (1.5 to 2mm).*
- *Boulders are placed on bed of the pit, gravels in middle and thick sand is filled on top so that the silt coming in with run off is deposited above thick sand or Morang which can be removed later. Recharge/percolations pits for the grooves comparatively of smaller size can be filled in with brick pieces or pebbles etc. A collection chamber can also be constructed on the surface to stop silt which can further prevent the flow of small molecules towards the pit. "Over Flow" system should be integrated for each recharge pit to counter the situations of heavy rains. Upper layer of sand/Morang should be cleaned time to time to maintain the recharge rate.*

Foot steps taken
to learn
and gain knowledge
to solve future problems

Conferences/ Workshops/Webinars/FDPs Attended

- *G. Sanijya, webinar 'Computer application in structural engineering' Department of Civil Engineering, NRI Institute of technology, Guntur, June 05, 2020.*
- *G. Sanijya,webinar 'Future trends and technologies in the higher education in context of covid 19'Swarnandhra College of Engineering &Technology, Narsapur, June08, 2020.*
- *Syed SyedAhammedand R. Chandramohan, FDP 'Building information modeling' Andhra Pradesh State Skill Development Corporation, Jun. 29–Jul. 03, 2020.*
- *N. VenkataSairam Kumar, webinar 'Sustainable materials and construction technologies' Department of Civil Engineering, B. V. Raju Institute of Technology, NarsapurandTheRamco Cements Limited, July 06–10, 2020.*
- *P.V.S. Maruthi Krishna, A. Srinivasa Prasad and K. Leela Krishna, International webinar, 'Climate change impact on water resources and environment', Department of civil Engineering, Andhra University, Visakhapatnam, July 15–19, 2020.*
- *M. Srikanth Kumar, A. Srinivasa Prasad, P.V.S. MaruthiKrishna,K. Leela Krishna and Syed SyedAhammed, online STTP 'Soft computing techniques in civil engineering: water resources, structures & transportation applications' AICTE, Department of Civil Engineering, Shri Vishnu Engineering College for Women, Bhimavaram, July 20–25, 2020.*
- *S.V. Satyanarayana, M. L. N. Krishna Sai and N.VenkataSairam Kumar, online FDP'Recent trends and innovations in civil engineering', Department of Civil Engineering, DrLanakapalliBullayyaCollegeof Engineering for Women, Visakhapatnam.July 27–31, 2020.*
- *N. VenkataSairam Kumar, web lecture on 'Decoding the structural code part II-IS 13920-2016' Ductile Design & Detailing of Reinforced Concrete Structures, STEEL XLS TMT Bars. Aug. 02, 2020.*
- *N.VenkataSairam Kumar, AICTE sponsoredonline STTP 'Computational intelligence in earthquake resistant design'Department of Civil Engineering, Prof Ram Meghe College of Engineering &Management, Badnera, Amaravati,Maharashtra, Aug.03–08, 2020.*
- *N.VenkataSairam Kumar, FDP 'Author's Conclave'Department of Civil Engineering,SRM Institute of Science &Technology, Ramapuram, Chennai, Aug.11–17, 2020.*
- *N.VenkataSairam Kumar, AICTE sponsored online STTP Phase II 'Soft computing techniques in civil engineering' Department of Civil Engineering, ShriVishnu Engineering College for Women, Bhimavaram, Andhra Pradesh, Aug. 17–22, 2020.*
- *R. Chandramohan, FDP 'Cyber Security' AICTE Training and Learning (ATAL) Academy, St.Joseph's College of Engineering, Chennai,Aug. 24–28, 2020.*
- *N.VenkataSairam Kumar, TEQIP-III sponsored FDP'Latest advances in concrete technology & construction management (LACTCM 2020)'Departmentof Civil*

Engineering, College of Engineering and Technology, Bhubaneswar, Odisha, Sep. 01–05, 2020.

- *N. VenkataSairam Kumar, webinar 'Case studies related to structures' ICI Vizagcentre and Ultra Tech Cement Limited, Sep. 07, 2020.*
- *R. Chandramohan,FDP 'Geospatial Technologies for Smart Cities Development' ATAL Academy, Kumaraguru College of Technology, Coimbatore, Oct. 19–23, 2020.*
- *A. Srinivasa Prasad, P.V.S. Maruthi Krishna, K. Leela Krishna and M. Srikanth Kumar, online FDP 'Applications of remote sensing & GIS in water resources', Department of Civil Engineering, N.I.T. Andhra Pradesh, Oct. 19–23, 2020.*
- *N. VenkataSairam Kumar, webinar 'Repair and rehabilitation of structures' ICI Vizagcentre and UltraTechCementLimited, Oct. 22, 2020*
- *P.SamathaChowdary, AICTE sponsored STTP'Advances in construction and project management' M. S Department of Civil Engineering, Chandubhai S. Patel Institute of Technology, Charotar University of Science and Technology (CHARUSAT), Changa, Gujarat, Oct. 26–31, 2020.*
- *N. Tejaswini, A. Naga Sai and G. Sanijya, FDP'Recent advancements in special concretes' Department of Civil Engineering, Gudlavalleru Engineering College, Gudlavalleru, Oct. 26–31, 2020.*
- *A. Naga Sai, STTP 'Advance construction technics in low-cost civil structures for modern living' Department of Civil Engineering, KKR & KSR Institute of Technology & Sciences, Guntur,Nov.05–10,2020.*
- *N. VenkataSairam Kumar, webinar 'Plagiarism in research'Anjuman Institute of Management and Technology,Belagavi, Nov. 10, 2020.*
- *Y. Madhavi, G. Naga Venkat, B. Krishna Chaitanya, N.VenkataSairamKumar,A. Naga Sai,G. Sanijya and Syed SyedAhammed, STTPPHASE-I 'Repair & rehabilitation of structures' Department of Civil Engineering, RVR & JC EngineeringCollege, Guntur, Nov. 16–21,2020.*
- *N.VenkataSairam Kumar, International webinar'Structural retrofitting refurbishment and rehabilitation' Departmentof Civil Engineering, Jaypee University of Engineering and Technology, Guna. Nov. 28,2020.*
- *N. Tejaswini, B. Krishna Chaitanya,N.VenkataSairam Kumar, G. Sanijya and Syed SyedAhammed, STTPPHASE-II'Repair& rehabilitation of structures' Department of Civil Engineering, RVR & JC EngineeringCollege, Guntur, Nov.30–Dec. 05,2020.*
- *B. Yellamanda Rao, online FDP 'Role of structural engineers towards sustainable structures' Department of Civil Engineering, Shri Vishnu College ofEngineering for Women, Bhimavaram, Dec. 11–12, 2020.*
- *B. Kesava Rao, FDP 'Finite element analysis using MATLAB &Abaqus' Departments of Mechanical and Civil Engineering, IIT Jammu, Dec. 27–29, 2020.*

Student Activities/Chapters

- *Indian Geotechnical Society (IGS) student chapter conducted the following webinar lectures*
  - *Webinar lecture on 'Improving geotechnical investigation reliability by logging through borelog app' Mr. Ashish D Gharpure, Managing Director, GENSTRU Consultants Pvt. Ltd, Pune, India, July 06, 2020*
  - *Webinar lecture on 'Design and construction of railway formations'Mr.RajeshKumarShekhawat,Senior Professor (Projects), Indian Railway Institute of Civil Engg., Pune, July16, 2020*

Courses Completed

- *J. UshaKranti, 'Pre-Commissioned Course (PRCN Course SW-106 & DC SW-77) at Officers TrainingAcademy (OTA), Gwalior, MadhyaPradesh and commissioned as LIEUTENANT, Sep. 14–Dec. 12, 2020.*

Attempts made by faculty to solve future problems

Research Paper Publications

- *S. Srikanth, Sd. O.Ballari, U. M. Shree Raksha, Ch.Bala Rama Krishna and B. Krishna Chaitanya,''Road crossing behaviour of pedestrians at uncontrolled intersections''International Journal of Future Generation Communication and Networking, Vol. 13(3),2990–3001, 2020.*
- *R.Chandramohan, B.Kesava Rao and G. Sanijya,'Spatial - Temporal analysis on land use and land cover changes in Amaravathi, Andhra Pradesh using GIS' International Journal of Advanced Research in Engineering and Technology, Vol. 11(7), 150–156, 2020.*
- *J. UshaKranti and K ChanakyaSrinivas, 'A comparative study of compressive strength and split tensile strength on effect of size of coarse aggregate in hybrid fiber reinforcedconcrete with different grades' International Journal of Advanced Engineering and Technology, 4(2), 32–35, 2020.*
- *J. UshaKranti and N VenkataSaiManikanta, 'Experimental analysis of steel slag concreteunder the influence of micro silica and determination of strength characteristics' International Journal of Advanced Engineering and Technology, 4(2),27–31, 2020.*
- *G. Naga Venkat, K. Chandramouli, Ezazahmed and V. NagendraBabu,'Comparative study on mechanical properties and quality of concrete by part replacement of cement with silica fume, metakaolin and GGBS by using M Sand as fine aggregate' Materials Today Proceedings doi:https://doi.org/10.1016/j.matpr.2020.10.819*
- *A. Naga Sai and Ravi Ramadoss,'A review on role of additives and pozzolanic materials in ancient structures' Materials Today: Proceedings. https://doi.org/10.1016/j.matpr.2020.09.173.*
- *J. UshaKranti, A. Naga Sai, A. Rama Krishna and K. Srinivasu,'An experimental investigation on effect of durability on strength properties of M40 grade concrete with partial replacement of sand with copper slag' Materials Today: Proceedings, Nov. 9, 2020. https://doi.org/10.1016/j.matpr.2020.09.767.*
- *N.VenkataSairam Kumar, 'Performance of crushed rock dust concrete exposed to sulphuric and hydrochloric acid solutions', IOP Conference Series, Materials Science and Engineering, Vol. 988,Dec. 2020. https://doi.org/10.1088/1757-899X/988/1/012021 (Scopus; Web of Science indexed).*
- *N.VenkataSairam Kumar, 'Flexural strength of crushed rock dust concrete at elevated temperatures', IOP Conference Series, Materials Science and Engineering, Vol: 988, Dec. 2020. https://doi.org/10.1088/1757-899X/988/1/012016 (Scopus; Web ofScience indexed).*
- *N.VenkataSairam Kumar, 'Crushed rock dust as filler material in concrete', Materials Today: Proceedings, Nov. 2020. https://doi.org/10.1016/j.matpr.2020.10.256 (Scopus; Web of Science indexed).*
- *N. VenkataSairam Kumar, 'Effect of sulfuric and hydrochloric acid solutions on crushed rock dust concrete' Dec. 2020. https://doi.org/10.1016/j.matpr.2020.10.691 (Scopus; Web of Science indexed).*

- *M.L.N.KrishnaSai and K.S.SaiRam,'Performance of axially loaded reinforced concrete rectangular columns strengthened with GFRP strips' Materials Today:Proceedings, Dec. 4, 2020. https://doi.org/10.1016/j.matpr.2020.10.454 (Scopus indexed)*

Paper Presentations in Conferences

- *VenkataSairam Kumar, 'Sustainable use of waste crushed rock dust as filler material in concrete' International conference on Advanced Materials Behaviour and Characterization, Mattest Research Academy, Chennai, July18–23, 2020.*
- *M.L.N.KrishnaSai and K.S. SaiRam,'Performance of axially loaded reinforced concrete rectangular columns strengthened with GFRP strips' International Conference on Advanced Materials Behaviour and Characterization, MattestResearchAcademy, Chennai, July 18–23, 2020.*
- *N. VenkataSairam Kumar, 'Performance of crushed rock dust concrete exposed to sulphuric and hydrochloric acid solutions' International Concrete on Recent Developments in Material Science and Applications, Department of Mechanical Engineering, Chennai Institute of Technology, Chennai,Sep. 25–26, 2020.*
- *N. VenkataSairam Kumar, 'Flexural strength of crushed rock dust concrete at elevated temperatures' International Concrete on Recent Developments in Material Science and Applications,Department of Mechanical Engineering, Chennai Institute of Technology, Chennai,Sep. 25–26, 2020.*
- *K. Leela Krishna and A. Srinivasa Prasad, 'Best compromised multi-purpose reservoir operating policy under conflicting objectives by fuzzy linear programming'National Conference on Emerging Practices and Innovations in Civil Engineering (EPIC 2020), S.R.K.R. Engineering College, Bhimavaram, Oct. 26–27, 2020.*
- *N.VenkataSairam Kumar and S.V. Satyanarayana, 'Effect of elevated temperatures on the flexural strength of crushed rock dust concrete'2ndInternational Conference on Recent Advances in Materials and Manufacturing (ICRAMM 2020), Department of Mechanical Engineering, Velalar College of Engineering and Technology, Erode, Tamil Nadu, India, Nov. 20–21, 2020.*
- *B. Krishna Chaitanya and IlangoSivakumar,'Influence of waste copper slag on flexuralstrength properties of self-compacting concrete'' 2ndInternational Conference on Recent Advances in Materials and Manufacturing (ICRAMM 2020), Department of Mechanical Engineering, Velalar College of Engineering and Technology, Erode, Tamil Nadu, India, Nov. 20–21, 2020.*
- *G. Sridevi, A. Shivaraj, G. Sudarshan and M. Rama Rao, 'Effects of soil structure interaction on the embankment resting on different soils subjected to strong earthquake ground motions' Indian Geotechnical Conference (IGS-2020), Andhra University College of Engineering, Visakhapatnam, Dec. 17–19, 2020.*
- *N.VenkataSairam Kumar, 'Effect of sulfuric and hydrochloric acid solutions on crushed rock dust concrete'2ndInternational Conference on Manufacturing, Material Science and*

Engineering, Department of Mechanical Engineering, CMR Institute of Technology, Hyderabad, Dec.18–19, 2020

- *J. UshaKranti and P.Ch.SanjeevaRao, 'Study on strength of concrete by partial replacement of fine aggregate by copper slag' International Conference on Recent Development in Sustainable Infrastructures: Research and Practices (ICRDSI-2020), School of Civil Engineering, Kalinga Institute of Industrial Technology (KIIT),Deemed to be University,Bhubaneswar, Odisha, India, Dec. 19–21, 2020.*

Conferences Proceedings

- *K.Leela Krishna and A. Srinivas Prasad 'Best compromised multi-purpose reservoir operating policy under conflicting objectives by fuzzy linear programming' Pandit Publications, ISBN: 978-93-89044-24-9.*

Guest Lectures Delivered

- *N. VenkataSairam Kumar, 'Fire and concrete structures: part I' AICTE sponsored online STTP phase-II on 'Repair and rehabilitation of structures', Department of Civil Engineering, RVR & JC College of Engineering, Guntur, Nov. 30–Dec. 05, 2020.*

Research Projects in Progress

- *Srikanth Kumar and P.V.S. MaruthiKrishnawere sanctioned Rs. 40,000/- for their research project proposal on 'Removal of dyes from textile wastewater by water hyacinth: batch and columnstudies'.*
- *B. Krishna Chaitanya and M. L. N. Krishna Sai were sanctioned Rs. 40,000/- for their research project on 'Study on flow properties of fiber-reinforced self-compacting concrete'.*

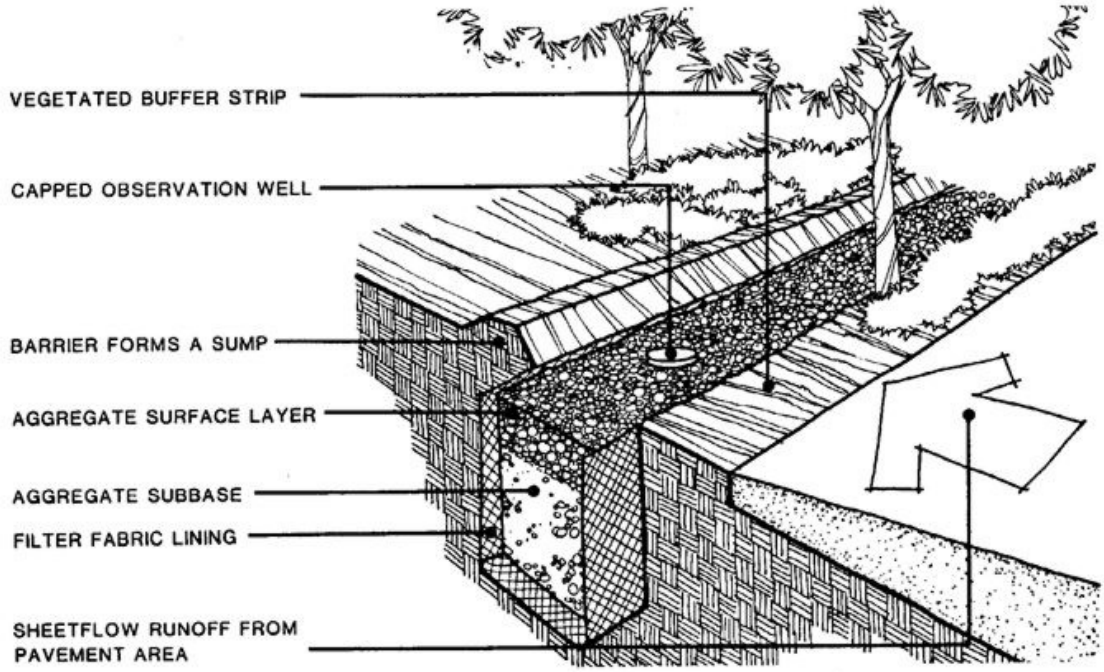
Patient filed

- *N.VenkataSairam Kumar, 'Method for Compressive Strength Determination of Crushed Rock Concrete' Application No.202041057020 A, Dec. 29, 2020.*

Awards/Appreciations

- *M. Rama Rao (LF-0547), was elected as 'Individual Member'in IGS – Executive Committee Elections for the term 2021–2022, which was held on Oct. 22, 2020.*
- *IGS- Guntur chapter has been awarded the IGS-Appreciation certificate in recognition of their outstanding contribution for conducting numerous online technical activities for the benefit of students and the work related to student's chapters*

Recharge Trench Method:-



- *suitable for the buildings having roof size from 200-300 SQM. This method will also suit those areas where permeable strata are available on shallow depth.*
- *Measurement of trench may be according to the availability of water that can be recharged, it may 0.5-1M wider, 1 – 1.5M deeper and 8-10M longer or it may be variable according to local needs. Recharge trench is filled with boulder (5 to 20 C.M.), Gravel (5-10M.M.) and thick sand/Morang (1.5 – 2 M.M.) in sequence. Filling of recharge trench is also like the pit as boulders on bed, gravels in middle portion and thick sand/Morang on the top so that silt coming with run-off is deposited on very upper layer and can be removed easily.*
- *A wire mesh should be put on the on drainage point on roof to avoid entrance of leaves and other material into the trench. A desilting or collection chamber should also be constructed on ground surface to stop entry of smaller materials into the trench. A by-pass system should be there to prevent entry of very first rain water before it enters water collection chamber.*
- *A separate by-pass system should be there to allow over flowing the very first rain water before it enters water collection chamber. Upper layer of thick sand/Morang should be cleaned before every monsoon season to maintain recharge rate. To counter the heavy rain, an "over flow" system should be integrated with recharge trenches.*

Civil Engineering magnificent structures solving future problems:

EDITORS:Dr. M. Rama Rao

CO-EDITOR: Mrs.

P.SamathaChowdaryDEVELOPERS:

N.Mahesh (Y17CE109)

P.Jayram(Y17CE063)

COMMITTEE MEMBERS:

K.Jagdeesh (Y17CE069)

K.Nagendra Reddy (y17 CE 090)

J.Upendra (y17 CE 062)

M.Neeharika (y17CE 098)