

BIO – DATA



Prof. (Dr) Keshav Shreeniwas Wagh

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Vishrambag – Sangli.

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Date of Birth	01-02-1955 (First February Nineteen Fifty Five)
Qualifications	<p>Bachelor of Engineering - (Civil Engineering)</p> <ul style="list-style-type: none"> • Awarded in 1976 • Walchand College of Engineering, Sangli • Shivaji University, Kolhapur • Percentage -- 63.93 <hr/> <p>M. Tech. in Civil Engineering (Specialization-Geotechnical Engineering)</p> <ul style="list-style-type: none"> • Awarded in Year: 1979 • Indian Institute of Technology – Bombay, Mumbai • Dissertation Topic: <i>“Analysis of Circular Tunnel In a Non-linear Elastic Medium Using Finite Element Method”.</i> • Course Work CPI = 8.05 and Project CPI =8.24 <p>Analysis for sequential excavation of a tunnel in an elastic medium has been carried out. The excavation for the circular tunnel has been considered to be carried out in three stages in sequence, first as three vertical cuts and alternative as three horizontal cuts. The behavior of soil is considered to be non-linear elastic. Stress-dependent modulus proposed by <i>Duncan & Chang</i> has been used for modeling the soil behavior. Finite element method has been used with incremental loading / unloading procedure. Eight-noded isoparametric elements have been used to discretize the soil-medium. Concrete lining for the tunnel has been used. Procedure suggested by <i>Chandrasekaran & King</i> to simulate the excavation has been used. Displacements and stresses in soil as an effect of tunnel excavation are evaluated . Moments and thrust in the concrete-lining are also studied and presented.</p>

Ph.D. in Civil Engineering (Specialization-Geotechnical Engineering)

- Indian Institute of Technology – Bombay, Mumbai
- Awarded in Year: 1994
- Dissertation Topic:

“Finite Element Studies On Mechanics of Geotextile Reinforced Earth Below Shallow Foundations”.

Finite element method has been used for the analysis of strip and circular footings resting on surface of clayey -soil reinforced with flexible geotextile-fabric. Clayey-soil foundation strata has been discretized using four-noded isoparametric elements. Behavior of this foundation strata has been considered initially as nonlinear elastic. Further Gibson medium (soil modulus linearly increasing downwards with depth) has been considered as foundation strata. Stress-dependent modulus proposed by Duncan & Chang has been used in the analysis with the incremental loading procedure. Pure elastic behavior of rigid concrete footings (strip and circular) is considered.

Geotextile is a fabric flexible in nature and it can not take in-plane compression. This behavior is incorporated in the analysis. Two-noded line elements are used to discretize the geotextile in plane-strain condition. Sector element is developed and used for the discretization of geotextile in axi-symmetric analysis. Iterative procedure has been used to remove the in-plane compression that may develop in geotextile-fabric.

Interface between geotextile fabric and soil is represented with the use of zero-thickness friction elements. Non-linear stress-dependent behavior at the interface has been considered and procedure suggested by Duncan & Clough has been used. Perfect rough (no slip), perfect smooth (total slip) and desired degree of roughness has been considered at the interface between geotextile and soil.

Small scale model footing tests with and without geotextile reinforcement were carried out . The observations and results from these model tests have been used for validation of computer-program developed for the analysis.

Optimum width / diameter as well as optimum depth for placement of flexible geotextile reinforcement has been determined by considering results from various cases / combinations

	<p>depth and dimensions for geotextile reinforcement. Influence of modular ratio (modulus of reinforcement to modulus of soil) on bearing capacity and settlements has also been studied. The results are presented using non-dimensional quantities. Immediate behavior (undrained loading of clay) as well as long term behavior (drained conditions) has been considered in analysis to assess effect on bearing capacity and settlements.</p>			
Industrial Experience		Designation	Employer / Organization	Duration
	1	Trainee Civil Engineer	Consulting & Construction Company, Pune.	(Sept.1979 to Dec.1980)
	2	Assistant Engineer (Group –B, Gazetted)	Govt. of Goa, Daman & Diu., Panaji. (Through UPSC)	(December 1980 to July 1982)
Teaching Experience	<p>Department of Civil Engineering, Walchand College of Engineering, Sangli, Maharashtra, India</p>			
	No.	Designation	Period	
	1	Lecturer in Civil Engineering	01-07-1982 To 01-07-1988	
	2	Lecturer in Civil Engineering (Senior Scale)	01-07-1988 To 01-07-1994	
	3	Asstt. Prof. Civil Engineering (Against Reserved Post)	17-02-1990 To 30-06-1990	
	4	Lecturer in Civil Engineering. (Selection Grade)	01-07-1994 to 18-07-2005	
5	Professor in Civil Engineering	19-07-2005 to 31-01-2017		
Subjects Taught:	<ul style="list-style-type: none"> • Soil Mechanics • Foundation Engineering • Fluid Mechanics-I and Fluid Mechanics-II • Roads , Highways & Bridge Engineering • Basic Civil Engineering 			

Research Interests	<p>Theoretical & Experimental approaches inclusive of Numerical / analytical / modeling technics & analysis in following areas:</p> <ul style="list-style-type: none"> • Geotechnical Engineering (Soil Mechanics & Foundation Engineering) • Environmental Geo-technics • Geo-synthetics – Applications in Civil Engineering.
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Final Year Projects (B. E.) Projects :

<u>Sr. No.</u>	<u>Academic Year</u>	<u>Project Title</u>
1	1996 – 1997	Design considerations of Compacted Clay Liner.
2	1997 – 1998	Model Footing Tests (Reinforced Soil Bed Below Footings)
3	1998 – 1999	Seepage Analysis By Finite Difference Method.
4	1998 – 1999	Characterization of White Soil and Stabilization of Black Cotton Soil.
5	1999 – 2000	Expansive Soil – Industrial waste Interaction.
6	2000 - 2001	Studies on Effect of Rubber Strips in Bituminous concrete.
7	2000 – 2001	Development of Computer Program for Evaluation of Earth – Pressure.
8	2001 – 2002	Development of Large Size Permeability Set up and Studies on Permeability.
9	2002 - 2003	Development of Computer Program for Evaluation of Bearing Capacity of Shallow Footings.
10	2003 - 2004	Analysis and Design of R.C.C. Framed Structure with Seismic Loading.
11	2004-2005	Design and Cost Analysis of Flexible Pavement on Black Cotton Soil Sub grade with Improvement
12	2005-2006	Earth Pressure Analysis and Stability of Retaining Wall with & without Counter fort &/or Pressure Relieving Shelf

13	2007-2008	Influence of Fly Ash and Artificial Sand (Grit) on Flexural Strength of R.C.C. Beams
14	2008-2009	Study of Earth-Pressure behind retaining wall with use of Lofts.
15	2009-2010	Effect of Textile Effluent on Soil Properties.
16	2010-2011	Application of Genetic Algorithm For Slope Stability Analysis.
17	2011-2012	Industrial Waste – Expansive soil Interaction study.
18	2012-2013	Landslide Hazard zonation & Mitigative Recommendation using RS & GIS Technology.
19	2013-2014	Landslide Hazard Zonation Using Remote Sensing & GIS Technology.
20	2014-2015	Stabilization of Black Cotton Soil.
21	2015-2016	Geo-informatics Application In Flood-Hazard Zonation Mapping & Mitigative Recommendations Along Koyana RiverBank Near Patan, District Satara.

(B.Tech. Projects at Serial Numbers 18,19 and 21 with Co-Guide Shri P. K. Deshpande)

Activities relevant to Post Graduate Study In Geotechnical Engineering

Recognized P.G. teacher in Civil Engineering :

Recognized P. G. Teacher (Ref. Letter From Shivaji University , Kolhapur).

No. / SU / PG / AFFL / 3245 dated 02 - 07 –1991.

Geotechnical Engg. (All Subjects)

Project Guided for PG Degree:

Dissertation – “ **Design of Retaining Wall with Relief Shelves / Lofts** ” for M.E. (CIVIL) by Research with Geotechnical Engineering Specialization, completed and submitted by Shri S.M.Patil (Lecturer PVPIT Budhagaon) during 2009-2010 to Shivaji University Kolhapur.

External Examiner for following M.E. (Geotech.) Dissertations :

No.	Title / Topic of Study.	Institute/University.	Guide	Date
1	Study of Eccentric Loaded Footing With A Pile.	SGSITS, Indore.	Prof. Dr. A. N. Patel.	06-02-1999
2	Settlement Analysis of Tank Foundation By Numerical Technique.	COEP , Pune , Pune University.	Shri B. B. Sonawane.	March - 2001
3	Estimation of Phreatic Line Using Dimensional Analysis.	COEP , Pune, Pune University.	Prof. (Mrs.) S.R.Pathak.	13-07- 2001
4	Evaluation of Triggering Acceleration For Initiation of Liquefaction.	COEP , Pune, Pune University.	Prof. (Mrs.) S.R.Pathak.	01-12- 2001
5	Settlement Prediction of Pile - Groups.	COEP, Pune,Pune University.	Prof. D.R. Phatak.	08-12- 2001

<p>Administrative Experience</p>	<ol style="list-style-type: none"> 1. Staff Adviser Civil Engineering <i>Students Chapter</i> 1984 -1987(<i>Institution of Engineers, India, Kolkata</i>) 2. In-Charge Time Tables (Civil Engineering Deptt) 1991 - 1999. 3. Member for First year Engineering Admission Program for Years 1998, 1999, 2000 and 2001. 4. Committee Member for Vision -1999 , Vision -2000 and Vision 2001, Vision -2002.
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	<p>5. In - Charge Training and Placement Officer- First Term of Academic Year 2000-01.</p> <p>6. Member, Library Committee, W. C.E. Sangli, (2002 to 2007).</p> <p>7. Controller of Examination W.C.E., Sangli – from July 2005 to April 06</p> <p>8. Head of Civil Engineering Department, December. 2005 to February 2012.</p> <p>9. Member Academic Council</p> <p>10. Coordinator 'Assets Verification Committee'- TEQIP – years 2005 / 2006 / 2007.</p> <p>11. Member Purchase – Committee –WCE , 2009 to August 2013</p> <p>12. Chairman- Library Committee-WCE, 2011 onwards Jan. 2015.</p> <p>13. Dean Faculty – WCE from August 2013 onwards till December 2016</p> <p>14. Invited Member from 2014 – Administrative Council / B.O.G., WCE Sangli.</p> <p>15. Member – TEQIP Implementation Unit.</p> <p>16. Member nominated by S.U. Kolhapur on Ph.D. Synopsis Scrutiny Committee. (2011-12, 2012-13)</p>
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CONTRIBUTIONS AS HEAD OF CIVIL ENGINEERING DEPARTMENT AND AS DEAN FACULTY

a) With responsibility as Head of Civil Engineering Department (Dec.2005 to Jan.2012)–

- Transition from Shivaji University Pattern Academics to Autonomous state Academics at WCE for Civil Engineering Discipline.
- First Batches of Both UG & PG Programs in Civil Engineering (Autonomous Status) completed academics and passed out in May2011.
- Participation and Contribution in TEQIP Phase-I as Head of Civil Engineering Department

Reports related to N.B.A. proposals submitted for UG and PG Programs as Co-ordinator & Head of Civil Engineering Department : -

- UG-NBA Part-I..Institute Summary ..19/03/09-SAR
- UG-NBA Part-II..Program summary..19/03/09-SAR
- PG-NBA- Proforma –I.. (B/W..210 pages) -29/11/10
- PG-NBA- Proforma –I.. (Colour Print) – Civil/Envi.
submitted on 30/11/10
- PG-NBA- Proforma II.. (Colour Print-47 pages) –
Civil/Envi. submitted on 30/11/10

b) With responsibility as Dean Faculty- WCE Sangli (July 2013 to December 2015)

- Implementing the Process of Recruitment for Faculty on Regular Basis for both Degree and Diploma wings.
- Implementing the Process of Recruitment for Faculty on Post-Graduate wing (Contractual / Ad-hoc Basis).

<u>Technical Speeches as Resource Person</u>				
Sr.	Year	Topic	Date	Institute
1	1982-83	Construction Aspects for Embankments	1982	Environment Protection & Research Foundation (EPRF) Vishrambag - Sangli
2	1993-94	Finite Element Analysis of Reinforced Earth Applications	12 th May 1994	Sardar Patel College of Engineering (SPCE), Andheri Bombay.
3	1998-99	Environmental Geotechnics	06 th Feb. 1999	IGS – Indore Chapter, Shri Govindram Seksaria Institute of Technology & Science (SGSITS), Indore.
4	2004-05	Rock Mass Classification	1 st Dec. 2004	Rajarambapu Institute of Technology –RIT Sakharale
<i>MEMBERSHIP OF ACADEMIC AND PROFESSIONAL SOCIETIES:</i>				
1. Life member , Indian Geotechnical Society (IGS)1994 2. Life member, Indian Society for Rock - Mechanics and Tunneling Technology. (ISRM-TT) ...2002 3. Life member, Indian Society of Technical Education (I S T E)...1990 4. Life Member, Marathi Vidnyan Prabodhini Sangli.....1982				
<i>PARTICIPATION IN ABOUT 37 NATIONAL or INTERNATIONAL CONFERENCES / WORKSHOPS / SEMINARS.</i>				
<i>Sponsored Projects</i>	<ul style="list-style-type: none"> • AICTE Seminar Grant Rs. One Lakh was received and Two Days National Seminar (“Recent Practices and Applications in Civil Engineering”) was organized on 30th June – 01st July 2013 (Jointly with Dr. G.R. Munavalli). 			

	<ul style="list-style-type: none"> • AICTE Grant under Modernization and Removal of Obsolescence Scheme (MODROBS) Rs. Eleven Lakh Ninety Seven Thousand Three Hundred was received in year 2011-12. (Chief Coordinator: Dr. K.S. Wagh and Lab. I/C: Shri C. H. Wagh).
Publications	<ul style="list-style-type: none"> • International Conférence – 01 • National Conference - 15
International Conference Proceedings	<p>P.K. Deshapande, R.D. Padhye and K.S. Wagh, 2007, "Study of landslide in Laterite and Saprolite hilly terrain of western Maharashtra - A case study" International conference on Civil Engineering in New Millennium : Opportunities and Challenges.... CENeM-2007, Jan. 11-14, 2007, Bengal Engineering College Howrah, Kolkata -West Bengal, India.</p>
National Conference Proceedings	<p>i) K. S. Wagh and Prof. V.S. Chandrasekaran, 1995, "Non-linear analysis of reinforced clays below shallow foundation" Indian Geotechnical Conference- 1995, Dec-19 to 22,1995 , U. V. C. E. Banglore , pp. 101 to106.</p> <p>ii) K.S.Wagh., 1996 , " Storage tank wall failure - - a case study " Indian Geotechnical Conference – 1996 , Dec. 11 to 14 , 1996 , Anna University Madras , pp - 669 to 672.</p> <p>iii) K.S. Wagh , 1997, " Finite element analysis of reinforced soil below shallow foundation " , Indian Geotechnical. Conference – 1997 , Dec. 17 to 20 , 1997 , M. S. University , Baroda , pp –193 , 194.</p> <p>iv)) K. S. Wagh , 1998 , " Effect of contamination by Sugar Industry waste on black cotton soil " , Indian National Conference on Geo-environment - Analysis , Design and Practice , MNREC , Allahabad , 9th and 10th April 1998 , pp – 85 to 90.</p> <p>v) K.S. Wagh, 1998 , "Rehabilitation aspects of storage – tank " - National Seminar on Geotechnical Problems and Case Studies , 9th Oct 1998 , S.G.S.I.T.S. Indore .</p> <p>vi)) K.S. Wagh , 1999 , "Feasibility and potential of Calcium Chloride for stabilization of expansive soil " , Indian Geotechnical Conference – 1999 , Dec 17 to 19, 1999 , Calcutta pp –172 , 173.</p> <p>vii) K.S. Wagh, 2000 ,"Foundation considerations for a hill- service –reservoir " Indian Geotechnical Conference- 2000 , Dec. 13-15 , 2000 , I. I. T. Bombay ,Mumbai , pp- 399 , 400.</p> <p>viii) K.S. Wagh , 2001 , " Road construction over expansive soil – subgrade " Indian Geotechnical Conference – 2001 , 14th to 16th Dec. 2001, S.G.S.I.T.S. Indore, pp – 375 –377.</p> <p>ix) K. S. Wagh, 2002 , " Effect of distillery-waste contamination on shear-strength and compressibility of Black-Cotton soil" , Indian Geotechnical Conference - 2002, 20th to22nd Dec. 2002, M.N.N.I.T. Allahabad , pp - 311 to 313.</p> <p>x) K. S. Wagh., P. K. Deshapande and D.B. Mahajan 2003 , " Geotechnical investigations for a minor bridge across a creek. " , Indian Geotechnical Conference - 2003, 18th to 20th Dec. 2003, I.I.T. Roorkee, pp- 35 to 38.</p> <p>xi) K. S. Wagh., 2004 , "Improvement in Soil Properties using Industrial Wastes" , Indian Geotechnical Conference- 2004, Dec. 17-19 , 2004, N.I.T.W., Warangal, Andhra Pradesh, pp-553 to 556.</p> <p>xii) K.S. Wagh , 2006 , "Pavement thickness reduction by improving subgrade with use of additives" , Indian Geotechnical Conference- 2006 , Dec.14-16 , 2006 , I. I. T. Madras , Chennai , pp- 399 , 400.</p>

- xiii) S. M. Patil and K. S. Wagh., "Relief in earth-Pressure behind retaining wall by use of Lofts", Indian Geotechnical Conference- 2008, Dec.2008,, Indian Institute of Science - IISc, Bangalore, pp- 571-574.
- xiv) S. M. Patil and K. S. Wagh., "Reduction in Construction Material : Effect of Provision of the Lloft behind Cantilever Retaining Wall" Indian Geotechnical Conference- 2010, Dec.2008, Dec. 16 –18,2010, Indian Institute of Technology Bombay - IITB, Powai – Mumbai, pp- 227-230.

Consultancy Assignments and Soil / Rock Testing Assignments :

Completed about fifty numbers of Consultancy and Testing assignments in the area of Geotechnical Engineering through WCE-Sangli. (Bearing Capacity & Settlement Analysis, Stability computation and Analysis of slopes, Soil Stabilization, Earth-Pressure & Retaining Structures, Earthen Embankments & Compaction Control, Analysis and Design of Flexible Pavement, Geosynthetics Applications in Civil Engineering Problems etc.)

One of the consultancy activity involved design of Flexible Pavement for the road passing over new bridge at Sangli across river Krishna. This road connecting S.H.-10 to S.H.-38 passes over Black-Cotton soil / Expansive soil subgrade. Partially the zone is also water-logged. Assignment included suggestions for the construction of road at this site. Use of CNS (Cohesive Non-swelling Soil) material in construction of this road, so as to take care of harmful effect of expansive / swelling subgrade soil, was recommended with necessary details. This road was constructed by Ashoka Infra. Pvt. Ltd. Pune and is in very good condition even after use for more than even ten years.

This case and the details have been included as an example of successful application/use of CNS technology in construction of road with flexible pavement by late Dr. R. K. Katti (Professor Emirates I.I.T.Bombay.) in the revised edition of following book :

Title of book : "BEHAVIOUR OF SATURATED EXPANSIVE SOIL AND CONTROL METHODS "

Author: Dr. R.K. Katti and Dr. A. R. Katti.

Publisher: Oxford & IBH Publications Co. Pvt. Ltd.

List of Consultancy Assignments (KSW)

<u>Sr. No.</u>	<u>Organisation</u>	<u>Details about Consultancy Assignment</u>
1	Ajara S.S.S.K., Gavase , Ajara, Dist. Kolhapur.	Estimation of SBC / ABP for site of proposed Sugar factory.
2	Late Vasantrya Naik S.S.K., Sonawade-Bambawade, District Kolhapur	Estimation of SBC / ABP for site of proposed Sugar factory.
3	U.E.M. India Pvt. Limited, New Delhi.	Assessment and Investigation of failure of storage tank at sugar factory - VSSSK Sangli.
4	Envi. Engg. Sub Dn. 1 , Maharashtra Jeevan Pradhikaran , Ichalkaranji	Estimation of SBC for site of Twin Jackwell on bank of River Krishna ,Bastwade.,Kurundwad
5	Krishna Sahakari Sakkare Karkhana Niyamit, Athani, Dist. Belgaum, Karnataka.	Estimation of SBC/ABP for site of proposed Sugar factory.
6	Ichalkaranji Municipal Corporation, Ichalkaranji.	Estimation of SBC / ABP for site of proposed Stadium at Vyankoba Maidan , Ichalkaranji.
7	P.W.D. Sub Dn.1 , Sawantwadi , District Sindhudurg.	Estimation of SBC / ABP for site of proposed bridge across river Kapai (MDR 32) , Sawantwadi.
8	Rotract Club , Sangli.	Soil profiling and Estimation of SBC / ABP for site of proposed swimming pool at Amrai Club Sangli.
9	Public Works Department , Satara.	Estimation of SBC / ABP for site of proposed quarters at rural hospital , Somardi, Taluka. Wai ,District Satara.
10	P.W.D. Sub Dn.1 , Sawantwadi , District Sindhudurg .	Choice of type of foundations for proposed bridge across river Kapai (MDR 32) , Sawantwadi.
11	Maharashtra Industrial Development Corporation (M. I. D. C.) Kolhapur.	Estimation of SBC / ABP for site of proposed Industrial Growth Centre (Kagal Hatakanangale Water Supply Scheme).
12	M/s. Parikh and Associates , Engineers , Contractor, Sangli.	Estimation of SBC / ABP for site of proposed Sugar factory at Bagani , Ashta ,(Sarvodaya Sahakari Sakhar Karkhana).

13	S. P. S.W. L. (Sugar Factory), Mudhol Road, Jamakhandi., Karnataka.	Estimation of SBC / ABP for site of proposed Sugar factory at Mudhol Road , Jamakhandi. (S. P. S. W. L., Jamakhandi).
14	Maharashtra Jeevan Pradhikaran , Works Division, Sangli.	Estimation of SBC / ABP for site of proposed Master Balancing Reservoir, Tanang ,Dist. Sangli.
15	M.P.H.D. No.2,Sub Dn. III, K.K.L.I.P., Sangli.	Estimation of SBC / ABP for site of proposed Village Road Bridge , Kalambi , Dist. Sangli.
16	M.P.H.D. No.2,Sub Dn. IV, K.K.L.I.P., Sangli.	Estimation of SBC / ABP for site of proposed Superpassage near Kalambi , Dist. Sangli
17	Mehata & Associates , Engineers & Contractors , Sangli.	Compaction Control & Verification of Fill (Show-room for Auto India , Sangli).
18	Skyline Constructions Ltd., Banglore , Karnataka.	Rock Classification & Feasibility of Rock Excavation at S.P.S.W.L., Jamakhandi.
19	Ashoka Infra Private Limited , Pune.	Analysis,Design & Construction of Flexible Pavement / Road Connecting S.H.10 to S.H.138.
20	M/s. Pratibha Constructions, Kolhapur.	Estimation of SBC / ABP for site of proposed Hill - Service - Reservoir near Kolhapur.
21	Vishwas Vidya Niketan , Chikhali, Shirala Dist. Sangli.	Estimation of SBC / ABP for site of proposed Swimming Pool at Sports Complex, Chikhali.
22	K.K.L.I.P. Devarashtre Sub Division, Devarashtre.	Estimation of SBC / ABP for site of proposed Pump - House , Stage III, Takari Scheme., Devarashtre.
23	Maharashtra Industrial Development Corporation (M. I. D. C.) Kolhapur.	Estimation of SBC / ABP for site of proposed Information - Technology Park at Kolhapur.
24	P.W.D. Sub Division - I, P.W.D. Sawantawadi, District Sindhudurg.	Estimation of SBC / ABP for site of proposed bridge across Talawane Creek near Welwewadi, Dist. Sindhudurg.
25	M/s. Pratibha Constructions, Kolhapur.	Wet Mix Design for W.B.M. Road in an Industrial Growth Centre .

List of Soil / Rock Testing Assignments (KSW)

<u>Sr. No.</u>	<u>Organisation</u>	<u>Details about Testing work Assignment</u>
1	Minor Irrign. Circle, Irrign. Deptt. Kolhapur.	Minor Irrigation Tank at Manoli, Manoli , District Kolhapur.
2	P.W.D. Miraj Sub Division, Miraj.	Earth-fill ..Abutments of Bridge at Ankali Across River Krishna.
3	Road Projects Sub Division, P.W.D. Kolhapur.	Proposed Chikotra Bridge , District Kolhapur.
4	Road Projects Sub Division, P.W.D. Kolhapur.	Earth-fill ..Abutments of Bridge at Shinganapur Across River Panchaganga
5	P.W.D. Miraj Sub Division, Miraj .	Soil for banking ... approaches for railway overbridge across Miraj Mhaisal road.
6	Road Projects Sub Division, P.W.D. Sangli.	Silt factor Morana river bank near bridge at Mangale.
7	DESICON , Architects & Engineers , Kolhapur.	Suitability of Soil for production of burnt bricks.
8	Ugar Sugar Works , Ugar Khurd , District Belgaum , Karnataka.	Construction of Digester Units and Gas Holding Units
9	Tembhu Lift Irrigation Sub Divn., Irrign. Deptt., Khanapur.	Ghanand - Hiwathad Main canal Km. 22 .
10	BSES Pvt. Ltd., EPC Group of Business, Mumbai.	Earthen Embankment for Reservoir at Sameerwadi , Karnataka.
11	Godavari Sugar Mills , Sameerwadi, Karnataka.	Earthwork - Construction of Embankment at GSML, Sameerwadi, Karnataka.
12	Minor Irrigation Sub Division , Panchayat Samitee , Jath.	Repairs for Percolation Tank , Waiphad, Tal. Jath , Dist. Sangli..
13	Minor Irrigation Sub Division , Panchayat Samitee , Tasgaon .	Repairs for Percolation Tank , No.2 , Hatnoor, Tal. Tasgaon.
14	Aakar Enterprises, Vashi, Navi - Mumbai.	Soil-Survey for Pune -Kagal Stretch (N.H.-4) near Kolhapur.
15	Ratnagiri South Division, Irrigation Department , Ratnagiri.	Minor Irrigation tank at Kadawai, Taluka Sangameshwar, District Ratnagiri.
16	P.W.D. Islampur Sub Division, Islampur.	Proposed Bridge Across river Warana at Chikurde, District Sangli.
17	Chiplun Sub Division , Irrigation Department , Chiplun , Dist. Ratnagiri.	Minor irrigation Tank at Shirawali, Taluka Khed , District Ratnagiri.

