कार्यालय प्रमुख अभियंता
लोक स्वास्थ्य यांत्रिकी विभाग
सतपुडा भवन भोपाल

क्रमांक 80 /स्था/राज/प्र.अ./लो.स्वा.यां.वि./2013 भोपाल,दिनांक 20/3/2013

//परिपत्र//

लोक स्वास्थ्य यात्रिकी विभाग मध्यप्रदेश के अंतर्गत नलकूप खनन एवं हैण्डपंप स्थापना संबंधी कार्यो के लिये एकीकृत दर सूची का प्रकाशन किया जा रहा है। यह दर सूची दिनांक 20.03.2013 से प्रभावशील होगी।

(एन.के.सेहरा)
प्रमुख अभियंता

पृ.क्रमांक 3009 /स्था/राज/प्र.अ./लो.स्वा.यां.वि./2013 भोपाल,दिनांक 20/3/13
प्रतिलिपिः–

1. निज सचिव, माननीय मंत्री महोदय, लोक स्वास्थ्य यात्रिकी विभाग, मंत्रालय भोपाल।
2. सचिव, मध्यप्रदेश शासन, लोक स्वास्थ्य यांत्रिकी विभाग मंत्रालय भोपाल।
3 प्रबंधक संचालक, मध्यप्रदेश जलनिगम, मर्यादित विभाग भोपाल।
4. प्रमुख अभियंता, लोक निर्माण विभाग भोपाल।
5 प्रमुख अभियंता,जल संसाधन विभाग, भोपाल।
6 प्रमुख अभियंता ग्रामीण यांत्रिकी सेवा, भोपाल।
7. मुख्य अभियंता, नगरीय प्रशासन, एवं विकास विभाग भोपाल।
8. समस्त मुख्य अभियंता, लोक स्वास्थय यात्रिकी परिक्षेत्र– भोपाल/ ग्वालियर/इंदौर/जबलपुर/(वि./यॉ)परिक्षेत्र भोपाल।
9. समस्त अधीक्षण यंत्री, लोक स्वास्थ्य यांत्रिकी विभाग मण्डल/ परियोजना मण्डल.....
10. कार्यपालन यंत्री, लोक स्वास्थ्य यांत्रिकी खण्ड/परियोजना खण्ड.म.प्र.. .....
11. समस्त सहायक यंत्री, लोक स्वास्थ्य यांत्रिकी उपखण्ड..... .. की ओर सूचनार्थ।.

प्रमुख अभियंता

LETTERS-Dictation

GOVERNMENT OF MADHYA PREDESH
PUBLIC HEALTH ENGINEERING DEPARTMENT

मध्यप्रदेश शासन

UNIFIED SCHEDULE OF RATES
FOR
CONSTRUCTION OF TUBE WELLS
&
ALLIED WORKS

WITH EFFECT FROM 20 MARCH 2013

Issued by

Engineer –In- Chief
Public Health Engineering Department
Madhya Pradesh, Bhopal

PREFACE

The Unified Schedule of Rates for construction of tube wells was made applicable from **5th April, 2012** in the Public Health Engineering Department of Madhya Pradesh. Increase in the rates of various items related with the drilling of tubewells since the earlier USoR, has made it necessary to update and revise this Schedule of Rates to make it more realistic and appropriate. It was also emphasized during "Manthan-2007" by the participants that all such Schedule of rates should be regularly revised and updated. We hope that this USoR will serve the purpose more appropriately now.

The undersigned gratefully acknowledges the initiative and inspiration of Shri S. K. Mishra, Secretary, P.H.E.D. without which it could not have been possible to bring this unified schedule of rates.

I extend my thanks to Shri A.K. Saxena Chief Engineer (E&M), Shri. C.S. Sankule Chief Engineer Bhopal Zone, Shri H.S. Gond and Shri S. A. Khan, Superintending Engineer,who made sincere efforts in preparing this schedule of rates.

The work done by Shri Anurag Shrivastav, Smt Smriti Babulkar, Executive Engineer, and Shri Sunil Shakargaye A.E. (E&M) in the preparation of this schedule of rates is also acknowledged and commended.

This Unified Schedule of Rates (USOR) for construction of tube wells shall come in force in the P.H.E.Department, M.P. from **20th March2013.**

(**N.K. Sehra)**
Engineer In Chief
Public Health Engineering Department
M.P. Bhopal

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GENERAL NOTES AND DIRECTIONS

1. The rates for various items of works given in this unified schedule of rates are based on average rates for whole of the Madhya Pradesh State. The market rates may vary from place to place in the state depending upon the local conditions. No contract shall, therefore be awarded directly at the rates given in this unified schedule of rates without inviting tenders as per rules.

2. Tube wells drilled shall be perfectly vertical. The rates for drilling are inclusive of the verticality test required to be conducted. All the relevant Indian standards specifications of the B.I.S. shall also be applicable.

3. The rates for drilling provided in the Unified Schedule of Rates are inclusive of depreciation charges of all the machinery, tools & plants required for drilling operation, transportation of drilling machine, erection of machine at site, removal of machine from site after completion, cost of water, cost of drilling mud, fuel, labour and all other unforeseen items for drilling work and clearance of site after completion of work.

4. For locating the proper site for tube well construction within the selected habitation, if resistivity survey is required then the resistivity survey shall be carried out by a well qualified and experienced geohydrologist using his own suitable resistivity meter.

5. In the ordinary tube wells the casing pipe of specified diameter shall be lowered up to a minimum depth of 9 meters below ground level. If the collapsible strata in overburden continues beyond 9 meters depth then the casing pipe shall be lowered up to rock level and embedded in rock in a depth of 0.15 meter. The casing pipe shall also be extended above ground level in a height of about 0.3 meter.

6. The diameter of ordinary tube wells constructed for installation of hand pumps shall be 125 mm up to bottom level of the casing pipe and 115 mm in the rock below the casing. Such tube wells shall be designated as 125/115 mm dia ordinary tube wells.

7. The ordinary tube wells constructed for installation of hand pumps in the basaltic rock area where intertrappean formation (collapsible strata between the rocks) is present. The nominal diameter of the tube well

up to the level of intertrappean formation shall be 150 mm. The intertrappean formation shall be encased by 125 mm dia G.I. casing pipe. Therefore, the finished nominal diameter of tube well in the intertrappean formation shall be 125 mm but in the rock below the intertrappean formation, the nominal diameter of tube well shall be 115 mm. Such tube wells shall be designated as 150/125/115 mm dia ordinary tube wells.

8. The nominal diameter of ordinary tube wells constructed for installation of power pumps shall be 150 mm or 200 mm for the entire depth depending upon the type and size of pump to be installed in the tube well. Such tube wells shall be designated as 150 mm dia ordinary tube well & 200 mm dia ordinary tube wells.

9. The gravel packed tube wells shall be constructed in alluvial formations, suitable for such tube wells, in which the fine and uniform sand is present in the water bearing aquifer. Such tube wells shall be constructed by direct circulation rotary drilling method or reverse circulation rotary drilling method using suitable rotary drilling machine.

10. The diameters of boreholes for construction of 100 mm, 150 mm & 200 mm finished nominal diameter gravel packed tube wells shall be 300 mm, 350 mm and 400 mm respectively exclusive of pipe wall thickness. The thickness of the gravel shroud around the screen shall generally be not less than 10 cm. Such tube wells shall be designated as 300(100) mm dia, 350(150) mm dia, 400(200) mm dia gravel packed tube wells.

11. The gravel packed tube wells shall be constructed only after obtaining the technical clearance of drawing & design of gravel packed tube well from the concerned Chief Engineer.

12. The rates for drilling work are inclusive of the collection of samples of soil/rock cuttings not less than 100 grams from different strata to be collected at every 3 meter depth for initial 15 meters depth and at each 10 meters depth after 15 meter and at the change of strata also and depositing the same with the Engineer in charge, duly marked and packed in polythene bags.

13. The rates are inclusive of the preparation and submission of strata chart of the tube well constructed in the prescribed proforma.

14. It shall be the responsibility of the contractor to collect the water sample from completed tube well and send it to departmental laboratory for chemical and bacteriological analysis. The water sample for chemical analysis shall be collected in 2 liters plastic bottle and samples for bacteriological analysis shall be collected in 300 ml sterilized bottle as per the direction of Engineer in charge. Only testing charges will be borne by the department.

15. All risks of accidents and Jamming and breaking of drilling tools etc. shall be contractor's liability. No extra charges shall be payable to the contractor on this account.

16. Contractor shall also make arrangements of first aid facilities for any accident .All care and precautions shall be taken and it shall be ensured that there shall be no accidents while drilling the borehole. Proper dress and equipments like gumboots, helmets etc. shall be provided by the contractor to the workmen at site.

17. During any operation carried out for construction of tube well, if any tool, pipe etc. falls down in the tube well then the contractor shall carry out the necessary fishing operation at his own cost. The contractor shall use his own equipment for such operation. If the tube well becomes useless due to any reason, it shall be treated as abandoned tube well and no payment shall be made for such abandoned tube well.

    The contractor shall be fully responsible to fill up the abandoned bore hole with hard soil including compaction and watering so as to make top surface as good as original soil immediately and before shifting the drilling machine to prevent any accident. No payment would be made to the contractor on account of this.

18. If a tube well is found dry or with less yield and if it is not to be used for water supply due to any reason, the tube well shall be fitted with MS cap securely and a concrete block of 0.45m X 0.45m X 0.45m with M15 cement concrete would be constructed on it to prevent any accident or damage to the tube well and also to use the bore at any later stage for recharging or for any other purpose.

19. The Lowering and fixing of casing pipe in ordinary tube well and lowering of casing assembly in the gravel packed tube wells shall be done in the presence of authorised representative of the Engineer in Charge of work. The G.I. casing pipe to be lowered and fixed in

intertrappean formation shall be jointed by welding only. In the case of gravel packed tube well it shall be ensured by the contractor that the slotted pipes or screened pipes shall be lowered in the tube well at the locations of water bearing aquifers as per design. The contractor shall also ensure that joints of the pipes in casing assembly are rigid and water tight and a bail plug is properly fixed in the bottom of casing assembly.

20. All the gravel to be used, as pack in gravel packed tube wells shall be as specified in IS 4097: 1988 (Reaffirmed - 1993).

21. The development of tube well shall be continued during drilling operation. At the time of flushing by compressor the discharge from tube well during the development process shall also be measured by 'V' notch for yield and shall be recorded on regular intervals for which no separate payment shall be made. In case of gravel packed tube wells, development by compressor for minimum eight hours after completion of drilling of tube well shall be done and paid as per item number 4 of chapter 5. The development of ordinary tubewells (other than gravel packed tubewells) shall be done by the drilling machines during the drilling operations and no separate payment for development of such ordinary tubewells shall be made. The development of all type of the tubewells shall be done as per IS specifications (IS11189 – 1985)

22. In case of ordinary tubewells (other than gravel packed tubewells) where power pump is to be installed, the yield test of tube well shall be conducted by suitable capacity single phase or three phase submersible pumping set to be operated by generator set or by taking temporary electric connection at site. It shall be the responsibility of the contractor to arrange for suitable capacity submersible pumping set, generator set, or temporary electrical connection, suitable measuring equipments for measuring the discharge and draw down of the tube well. The rates for item of yield test given in this unified schedule of rates include all such arrangements. The maximum duration of yield test shall be eight hours.

23. The tube well shall be disinfected after completion of yield test using bleaching powder solution as per the direction of Engineer in charge, and paid as per provision in the USoR.

24. The installation of hand pump over the tube well shall be carried out as per IS specifications (IS15500 PART 1 to 8– 2004). All the exterior

parts of pump coming in contact with the water shall be thoroughly cleaned and dusted with bleaching powder. The hand pump after installation shall be tested for its proper installation by operating it continuously at least for four hour and measuring the rate of discharge from hand pump. The rates for the item of installation of hand pump and yield test by hand pump given in this unified schedule of rates shall be applicable.

25. For construction of platform and drain for the hand pump, the contractor shall use only steel plate frame shuttering designed as per the dimensional requirement of platform and drain. This shuttering shall be got approved from the Engineer-in-Charge.
In case of construction of platforms in areas having black cotton soil, the top thirty centimeters of the black cotton soil shall be excavated and replaced with morrum boulder, duly rammed and watered in layers, prior to the construction of such platforms including drain, pedestal and washing platform. Rates for these works have been provided for in the USoR.

26. All contracts based on this unified schedule of rates shall be governed by the directions and other notes and conditions given in this unified schedule of rates, in addition to all the other conditions of the agreement. As the rates in this unified schedule of rates are linked to these conditions and directions, it shall not be necessary to attach the copies of these conditions to the contract agreement.

27. In the interpretation of description of items or rates of this unified schedule of rates and specifications, the decision of the Engineer-In-Chief shall be final.

28. The issue rates of casing pipes, hand pumps and other material given in Annexure-1 of this unified schedule rates are only for the purpose of preparing realistic estimates. These rates are not given for making purchases or for entering into any contracts.

29. The rates for various items of works given in this unified schedule of rates includes for 1% overhead and 10% contractor's profit. If the work is carried out departmentally then the rates applicable for departmental works shall be at-least 9.09% less than the rates of various items given in this unified schedule of rates.

30. The following Indian standard shall be referred to:-

(1) I.S.2800 (Part-I) :1991 (Reaffirmed 2001)- Code of practice for construction & testing of tube wells/Bore wells.
(2) I.S. 2800(Part-II):1979 (Reaffirmed 1999)- Code of practice for construction & testing of tube wells/Bore wells.
(3) I.S. 4097-1988(Reaffirmed 1999): Specification for Gravel for use as pack in tube wells
(4) I.S. 11189-1985(Reaffirmed 1999): Methods of tubewell development.
(5) I.S.1239 (Part-I) 1990 Mild steel tubes, tubular & other wrought steel fittings-specifications.
(6) I.S. 12818: 1992 Unplasticized PVC screen and casing pipes for bore/tube well- specification.
(7) I.S. 15500(Parts 1 to 8) Deep well hand pumps, components and special tools- specifications.
(8) The issue rates for various items like Hand pump, Casing pipes etc. has been arrived after adding 3% storage and handling charges and these rates are to be considered for preparation of estimates only and no payment of material shall be made on the basis of these issue rates.
(9) Rate for hand pump is taken as per LUN Contract Ref. No. RC/2011-2012/0156 dt. 28 Mar 2012, MPLUN Service Commission @2% Service Tax on MPLUN @ 10.30%
(10) Rate for G.I. Pipe medium class is taken as per LUN R/L No. LUN/MKT/Coord/PS-XY 2010-11/2181/R.II dated 26.02.11 & i/c of third party inspection charges @0.5% & CST /VAT etc. @ 4%.
(11) Rates for UPVC casing pipe are taken as per LUN RC/LUN/MKT /2010-11/0128-2 dated 4.03.11, & i/c of third party inspection charges @0.5% & CST /VAT etc. @ 4%.

CHAPTER - 1

Resistivity Survey

S.No.	Description of item	Unit	Rate in Rupees
1	Carrying out the resistivity survey by VES method using Schlumberger configuration for locating the proper spot with three soundings for drilling of tube well within the selected habitation, including photography, interpretation of resistivity data and submission of report in the desired format along with resistivity readings, necessary graph and photographs.	Per successful point	1460

CHAPTER - 2

Construction of Ordinary Tubewell

S.No	Description of Item	Unit	Rate in Rupees
1	Drilling of perfectly vertical bore hole of a diameter suitable to receive 125 mm nominal diameter casing pipe upto desired depth below ground level inclusive of the labour charges for transporting, lowering and fixing of 125 mm nominal diameter M.S/ G.I / U.P.V.C casing pipe inside the bore hole including all works pertaining to drilling such as transportation, installation and removal of drilling machine etc. complete.		
(a)	in all types of collapsible strata consisting of soils, clays, sand, moorum, gravel, boulders etc.	Meter	500
(b)	in all types of rocks.	Meter	591
2	Drilling of perfectly vertical bore hole of 115 m.m. diameter up to desired depth below ground level in all types of rocks including all works pertaining to drilling such as transportation, installation and removal of drilling machine etc. complete.	Meter	554
3	Drilling of perfectly vertical bore hole of a diameter suitable to receive 150 mm nominal diameter casing pipe upto desired depth below ground level inclusive of the labour charges for transporting, lowering and fixing of 150 mm nominal diameter M.S/ G.I / U.P.V.C casing pipe inside the bore hole		

S.No	Description of Item	Unit	Rate in Rupees
	including all works pertaining to drilling such as transportation, installation and removal of drilling machine etc. complete.		
(a)	in all types of collapsible strata consisting of soils, clays, sand, moorum, gravel, boulders etc.	Meter	521
(b)	in all types of rocks.	Meter	626
4	Drilling of perfectly vertical bore hole of 150 mm diameter up to desired depth below ground level in all types of rock including all works pertaining to drilling such as transportation, installation and removal of drilling machine etc. complete.	Meter	551
5	Drilling of perfectly vertical bore hole of a diameter suitable to receive 200 mm nominal diameter casing pipe upto desired depth below ground level inclusive of the labour charges for transporting, lowering and fixing of 200m.m. nominal diameter M.S/ G.I / U.P.V.C casing pipe inside the bore hole including all works pertaining to drilling such as transportation, installation and removal of drilling machine etc. complete.		
(a)	in all types of collapsible strata consisting of soils, clays, sand, moorum, gravel, boulders etc.	Meter	536
(b)	in all types of rocks.	Meter	738

S.No	Description of Item	Unit	Rate in Rupees
6	Drilling of perfectly vertical bore hole of 200 mm diameter up to desired depth below ground level including all works pertaining to drilling such as transportation, installation and removal of drilling machine etc. complete		
(a)	In all types of collapsible strata (intertrappean formation) including charges for transportation, lowering and fixing of 150 mm nominal diameter GI casing pipe, welded joints only.	Meter	570
(b)	in all types of rocks	Meter	659
7	Drilling of perfectly vertical bore hole of 150 mm diameter up to desired depth below ground level in all types of strata including all works pertaining to drilling such as transportation, installation and removal of drilling machine etc. complete in intertrappean formations (collapsible strata between rocks) including charges for transportation and making all necessary arrangements etc, including lowering and fixing of 125 mm nominal diameter (G.I. or U.P.V.C.) Casing pipe.	Meter	599
8	Providing and fixing of well cap on top of the tube well for protection		
	M.S. Caps -		
(a)	100 mm dia.	each	152
(b)	125 mm dia.	each	172
(c)	150 mm dia.	each	205
(d)	200 mm dia.	each	248
9	Construction of concrete block over dry tube wells for protection of size 0.45m x 0.45m x 0.45m in M-15 cement concrete mix.	each	305

CHAPTER - 3

Construction of Gravel Packed Tubewell

S.No	Description of Item	Unit	Rate in Rupees
1	Drilling of perfectly vertical bore hole of following diameters for construction of Gravel Packed tubewell up to desired depth in alluvial formation consisting of Soils, Clays, Sand, Gravel, Moorum, Boulders etc. and retaining the bore hole by using suitable drilling mud or foam or temporary housing pipe including all works pertaining to drilling such as transportation, installation and removal of drilling machine etc. complete		
(a)	300 m.m. diameter	Meter	708
(b)	350 m.m. diameter	Meter	730
(c)	400 m.m. diameter	Meter	753
2	Labour charges for assembling, centering and lowering of properly designed casing pipe assembly inside the bore hole drilled for construction of Gravel Packed tube well including the cost of providing and fixing of centraliser, and transportation of casing assembly etc. complete		
(a)	Casing assembly composed of 100 m.m. diameter blank and slotted G.I. Casing pipes.	Meter	38
(b)	Casing assembly composed of 150 m.m. diameter blank and slotted G.I. Casing pipes.	Meter	49
(c)	Casing assembly composed of 200 m.m. diameter blank and slotted G.I. Casing pipes.	Meter	60
(d)	Casing assembly composed of 100 m.m.	Meter	24

S.No	Description of Item	Unit	Rate in Rupees
	dia. UPVC blank and screened pipes.		
(e)	Casing assembly composed of 150 m.m. dia.UPVC blank and screened pipes.	Meter	32
(f)	Casing assembly composed of 200 m.m. dia. UPVC blank and screened pipes.	Meter	44
3	Providing and fixing of M.S. bail plug as per I.S.2800(PART-I) 1991 in the bottom of casing assembly		
(a)	100 m.m. dia.	each	265
(b)	150 m.m. dia.	each	340
(c)	200 m.m. dia.	each	415
4	Providing gravel packing with uniformly graded gravel as per I.S.4097 of 1967 (revised up to date) in the annular space between outer wall of casing pipe assembly and inner wall of bore hole including cost of gravel, transportation, stacking , washing and packing in layers of suitable thickness including all lead and lifts complete.	Cu.m	1500
5	Providing and fixing of well cap on top of the tube well for protection		
	M.S. Caps -		
	(a) 100 mm dia.	each	152
	(b) 125 mm dia.	each	172
	(c) 150 mm dia.	each	205
	(d) 200 mm dia.	each	248
6	Construction of concrete block over dry tube wells for protection of size 0.45m x 0.45m x 0.45m in M-15 cement concrete mix.	each	305

CHAPTER - 4

Installation of Hand Pump and Construction of Platform, Drain and Sokage pit

S.No	Description of Item	Unit	Rate in Rupees
1	Labour charges for installation of India Mark II Hand Pump with 30 meter long 32 mm dia. riser pipe assembly and all other accessories including transportation of Hand Pump from specified departmental stores to site.	Each	540
2	Add to item No.1 above for fixing the extra length of riser pipe assembly beyond 30 meters	meter	15
3	Construction of 76 cm x 76 cm x 40 cm foundation block in 1:2:4 cement concrete for fixing the pedestal of Hand Pump including excavation, cost of material and labours etc. complete.	Each	702
4	Construction of cement concrete platform as per design around the hand pump in 1:2:4 cement concrete including excavation, centering, shuttering, cost of all the materials and labour and curing etc complete.	Each	3383
5	Construction of cement concrete platform as per design around the hand pump in 1:2:4 cement concrete including excavation, centering, shuttering, cost of all the materials and labour and curing etc complete. Including filling in 30 cm depth after removing Black cotton soil including ramming, watering etc. complete in areas of Black cotton soils.	Each	3600

S.No	Description of Item	Unit	Rate in Rupees
6	Construction of cement concrete drain as per design in 1:2:4 cement concrete including excavation, centering, shuttering, cost of all the materials and labour and curing etc complete.	meter	270
7	Construction of cement concrete drain as per design in 1:2:4 cement concrete including excavation, centering, shuttering, cost of all the materials and labour and curing etc complete. Including filling in 30 cm depth after removing Black cotton soil including ramming, watering etc. complete in areas of Black cotton soils.	meter	424
8	Construction of 1.20 m x 1.20 m x 0.20 m cement concrete washing platform in cement concrete 1:2:4 including excavation, centering, shuttering, cost of all the materials and labour and curing etc. complete.	Each	1353
9	Construction of 1.20 m x 1.20 m x 0.20 m cement concrete washing platform in cement concrete 1:2:4 including excavation, centering, shuttering, cost of all the materials and labour and curing etc. complete. Including filling in 30 cm depth after removing Black cotton soil including ramming, watering etc. complete in areas of Black cotton soils.	Each	1523
10	Construction of sokage pit of 70 cm dia. and 1.0 m deep including excavation, brick lining at top in 1:4 cement mortar, filling of broken bricks etc. and cost of all the materials and labour and curing etc complete.	Each	419

CHAPTER - 5

Development, yield test and disinfection of Tubewell

S.No	Description of Item	Unit	Rate in Rupees
1	Labour charges for installation of submersible pumping sets at 50 m or more depth temporarily in the tubewell for a maximum of eight hours for the purpose of conducting yield test of tubewell.(Any one of the below depending on the approximate yield observed during drilling operations.)		
	(a) Submersible pumping sets upto 2.2 kW	Each	923
	(b) Submersible pumping set above 2.2 kW to 7.5 kW	Each	1018
	(c) Submersible pumping set above 7.5 kW	Each	1114
2	Conducting the yield test of tubewell by operating the pumping set continuously for a desired time period and measuring the discharge and drawdown of tubewell at a suitable time interval as per the direction of Engineer in Charge including cost of energy, cost of installation of suitable measuring device and hire charges of pumping set etc. complete		
(a)	Submersible pumping set upto 2.2 kW	Per hour	416
(b)	Submersible pumping set above 2.2 kW to 7.5 kW	Per hour	434
(c)	Submersible pumping set above 7.5 kW	Per hour	524
3	Labour charges for taking out the submersible pumping set for tubewell after completion of yield test or development of tubewell.		

S.No	Description of Item	Unit	Rate in Rupees
(a)	Submersible pumping sets upto 2.2 kW	Each	737
(b)	Submersible pumping set above 2.2 kW and upto 7.5 kW	Each	925
(c)	Submersible pumping set above 7.5 kW	Each	1019
4	Development of gravel packed tube well by Air Compressor of suitable capacity including hire charges for all the required tools and plants etc. complete, for maximum duration of eight hours.	per hour	655
5	Measurement of yield of tube well by operating hand pump continuously for four hours manually.	Each	450
6	Disinfection of tube well using bleaching powder solution as per the direction of the Engineer in Charge including the cost of bleaching powder and labour etc. complete.	Each bore	40

Annexure-1

ISSUE RATES OF ISI MARK HAND PUMPS. G.I.RISER, G.I.CASING & UPVC CASING PIPES FOR PREPARATION OF ESTIMATES ONLY.

S. No	Description	Unit	Rate (Rs.)
1	ISI mark India mark-II deep well hand pump complete with 10 Nos. MS connecting rods. (12 mm x 3M long) Normal stand assembly.	Each	6120.00
2	ISI mark India mark-II deep well hand pump complete with 10 Nos. MS connecting rods. (12 mm x 3M long) telescopic stand assembly.	Each	6173.00
3	ISI mark India mark-II extra deep well hand pump complete with 20 Nos. MS connecting rods (12mm x 3M) 2 counter weight electro galvanized & passivated normal stand assembly	Each	9088.00
4	ISI mark India mark-II extra deep well hand pump complete with 20 Nos. MS connecting rods (12mm x 3M) 2 counter weight electro galvanized & passivated telescopic stand assembly	Each	9148.00
5	ISI Mark 32 mm. dia. G.I. riser pipe in 3 meter length socketed on one end as per I.S. 1239 (Part I) 1990 up-to-date amendments and socket as per I.S. 2062/1990 up-to-date amendment.	Meter	175.00

S. No	Description	Unit	Rate (Rs.)
6	I.S.I. marked G.I. casing pipe (Plain) medium class in 4 to 7 meters length one end fitted with socket as per I.S.: 1239(Part-2) 1992 with IVth revision (Up-to-date amendments).		
	100 mm dia	Meter	679.00
	125mm dia	Meter	899.00
	150mm dia	Meter	1083.00
7	I.S.I. marked UPVC casing Pipe Confirming to IS 12818/92 (with up-to-date amendments)		
	Screen pipes with ribs 100 mm dia	Meter	301.00
	Screen pipes with ribs 125 mm dia	Meter	471.00
	Screen pipes with ribs 150 mm dia	Meter	627.00
	Screen pipes with ribs 200 mm dia	Meter	1107.00
	CM casing pipes 100 mm dia	Meter	229.00
	CM casing pipes 125 mm dia	Meter	366.00
	CM casing pipes 150 mm dia	Meter	454.00
	CM casing pipes 200 mm dia	Meter	936.00
	CS casing pipes 150 mm dia	Meter	394.00
	CS casing pipes 200 mm dia	Meter	747.00

ANNEXURE-2

STRATA - CHART

District ..... Block .....Panchayat……

Name of Revenue village..... Name of habitation .....

Name of Contractor ..... …… Registration no. of machine

Agreement No. .....Work Order No.....

Date of starting of Tube well construction .....

Date of completion of tube well construction .....

Name of Sub-Engineer in charge of work .....

Measurement Book Number.....

Exact location of drilling ……..

G		L
Depth		Strata

Details

1. Type of tube well----------
2 .Diameter of tube well ----------mm
3. Total depth of tube well ----------mt.
4. Details of casing pipe

Type (G.I/ UPVC/ BLANK/SLOTTED)

Diameter …….mm

Length ……meter

5. Static water level in the tube well -------mt.
6. Type of pump installed ----------
7. Length of riser pipe installed

Type (G.I / UPVC) ----------mt.

8. Yield of tube well ----------
9. Draw down at above yield ----------mt.

Signature of contractor

Signature of Sub-Engineer Office ……

Signature of Assistant Engineer Office…….

ANNEXURE-3

RESISTIVITY SURVEY REPORT

District ..... Block .....Panchayat……

Name of Revenue village..... Name of habitation .....

Name of Contractor ..... …… Registration no. of machine

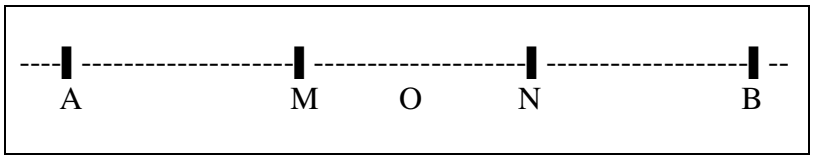
Agreement No. .....Work Order No.....

Date of Survey .....

Name of Geohydrologist .....

Model No & Make of Resistivity meter used for sounding.....

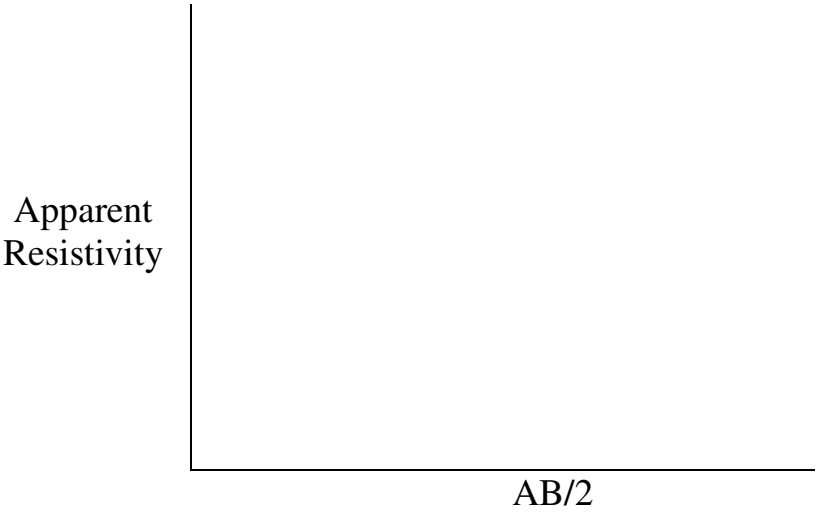
Maps (Not to scale) Showing the location of survey point (To be attached separately in A-4 size sheet.



DATA SHEET OF FIELD MEASUREMENTS

S.No	AB/2 Meters	MN/2 Meters	Spacing factor K K=3.14 (AM/AN)/MN	Measured resistance (OHMS)	Resistivity OHM-M

Plot



Interpretation Report.

Possible Strata expected at the spot

S.No	Possible Strata	Depth below Ground Level		Remark
		From	To	

Recommendation :-

Signature of Geo-hydrologist

ANNEXURE-4

YIELD TEST OF TUBE WELLS.

District ..... Block .....Panchayat……

Name of Revenue village..... Name of habitation .....

Name of contractor .....

Agreement No. ..... Work order No.....

Date of yield test .....

Diameter of tube well ..... Depth of tube well .....

Static water level in tube well .....

Type and K.W. of pumping set used for yield test .....

Type of measuring device used for measurement of discharge .....

Depth at which the pumping set installed.....

Time at which the yield test started .....

Data sheet of field measurements

S.N.	Time	Water level in the tube well measured from top of casing pipe	Discharge of tube well
1. 2. 3.			

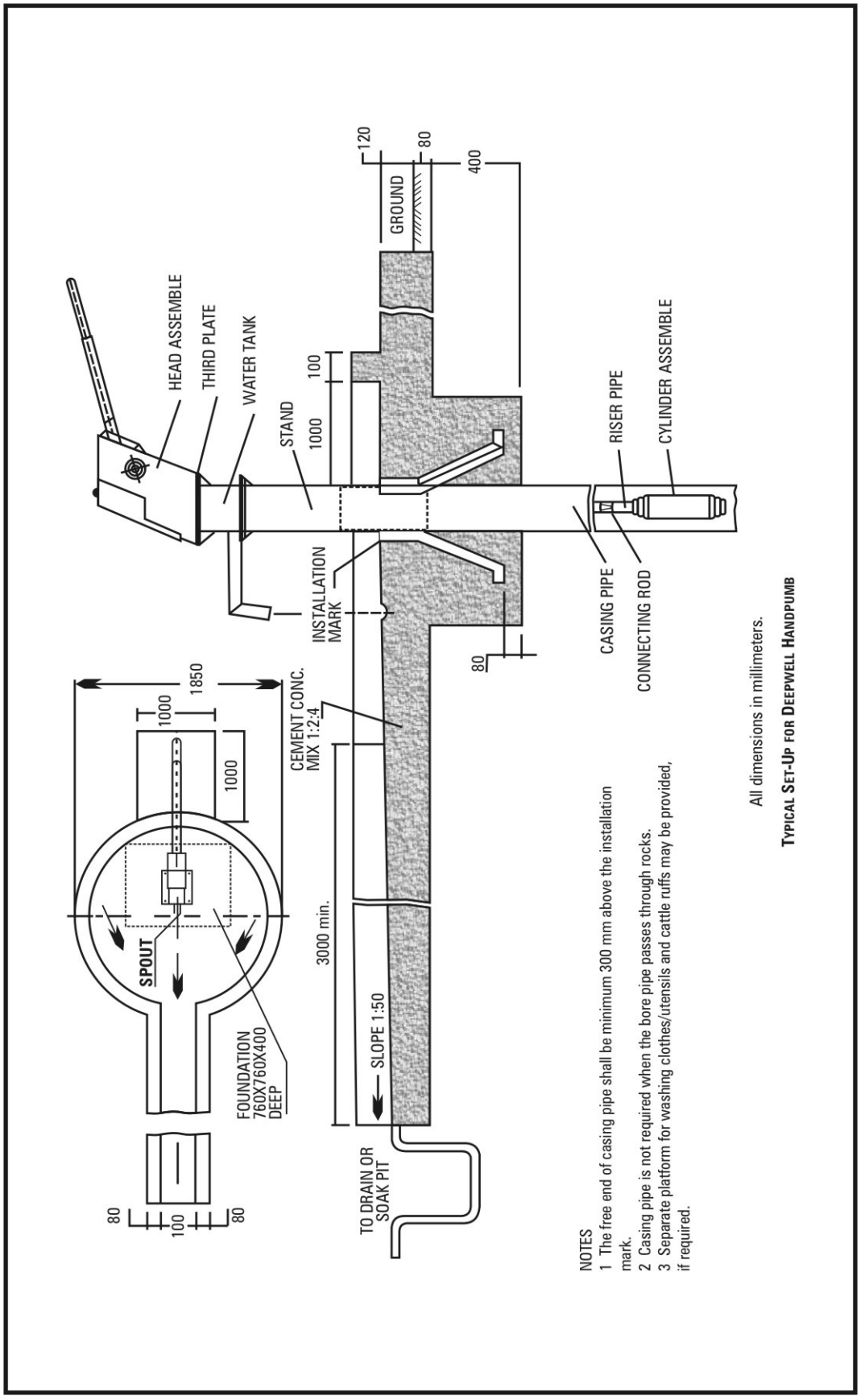
Signature of Contractor

Signature of Sub-Engineer

Signature of Assistant Engineer

ANNEXURE-5

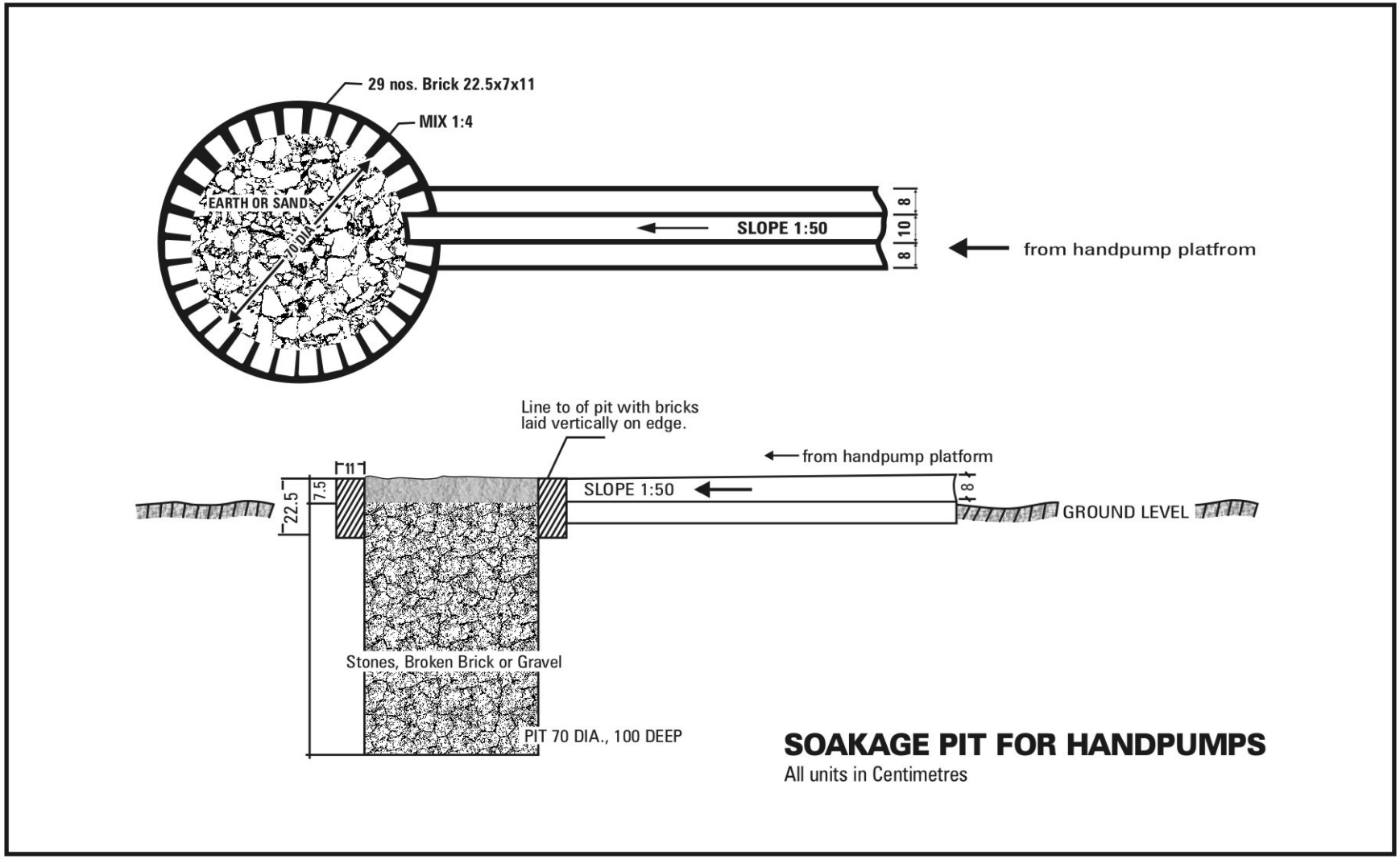
DRAWINGS



NOTES
1 The free end of casing pipe shall be minimum 300 mm above the installation mark.
2 Casing pipe is not required when the bore pipe passes through rocks.
3 Separate platform for washing clothes/utensils and cattle ruffs may be provided, if required.

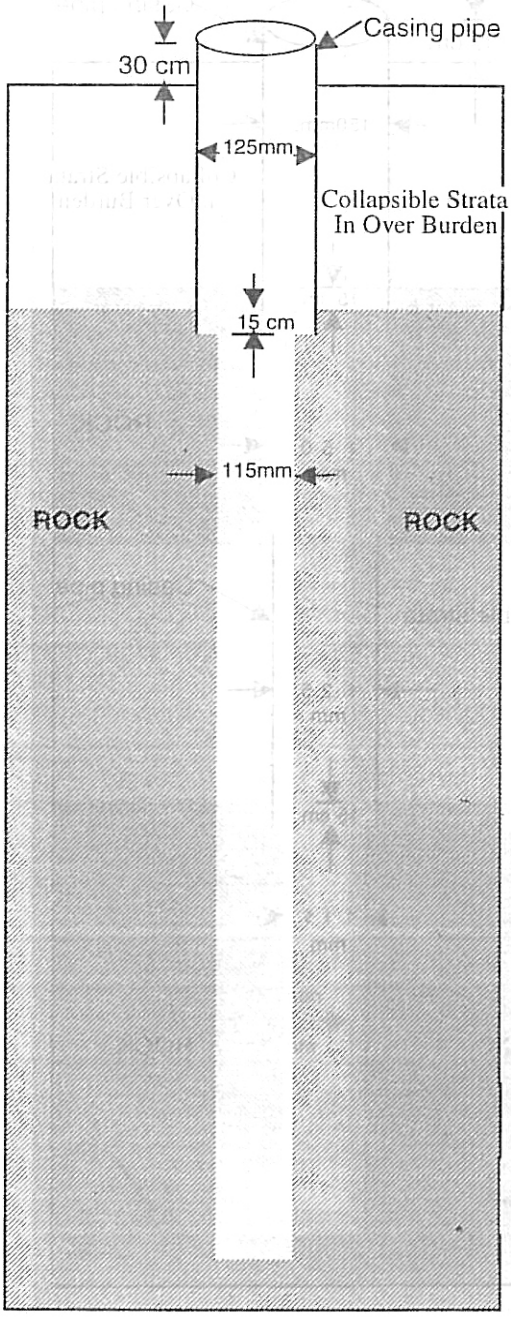
All dimensions in millimeters.

TYPICAL SET-UP FOR DEEPWELL HANDPUMB

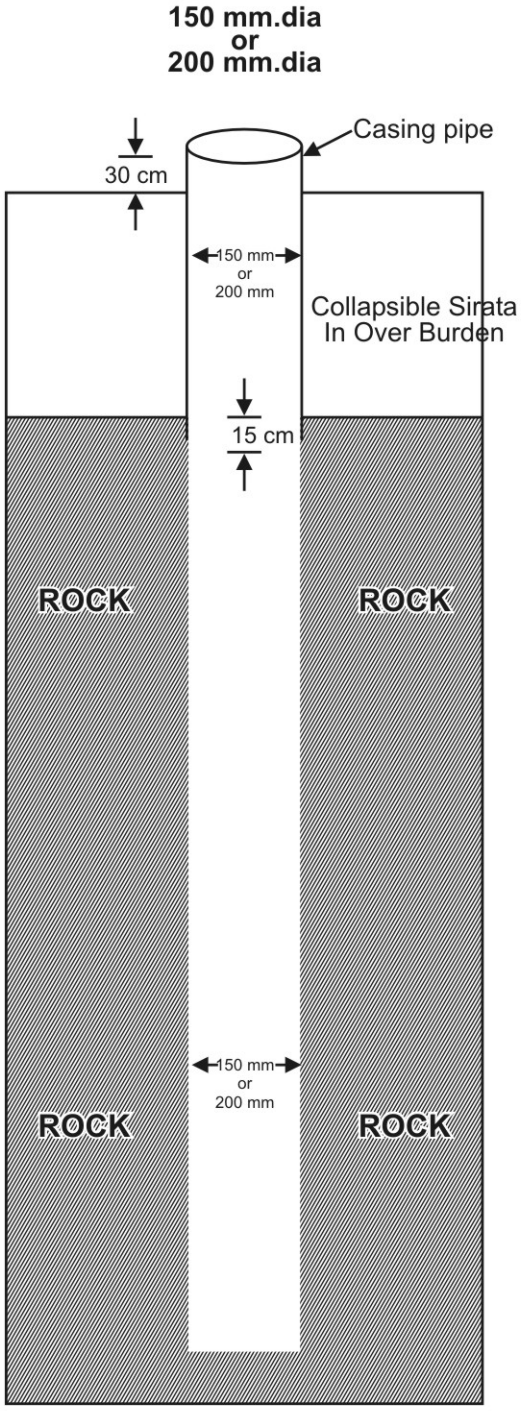

29 nos. Brick 22.5x7x11
MIX 1:4
EARTH OR SAND
70 DIA
SLOPE 1:50
8
10
8
from handpump platfrom
Line to of pit with bricks
laid vertically on edge.
from handpump platform
11
7.5
22.5
SLOPE 1:50
8
GROUND LEVEL
Stones, Broken Brick or Gravel
PIT 70 DIA., 100 DEEP
SOAKAGE PIT FOR HANDPUMPS
All units in Centimetres

ORDINARY TUBEWELL

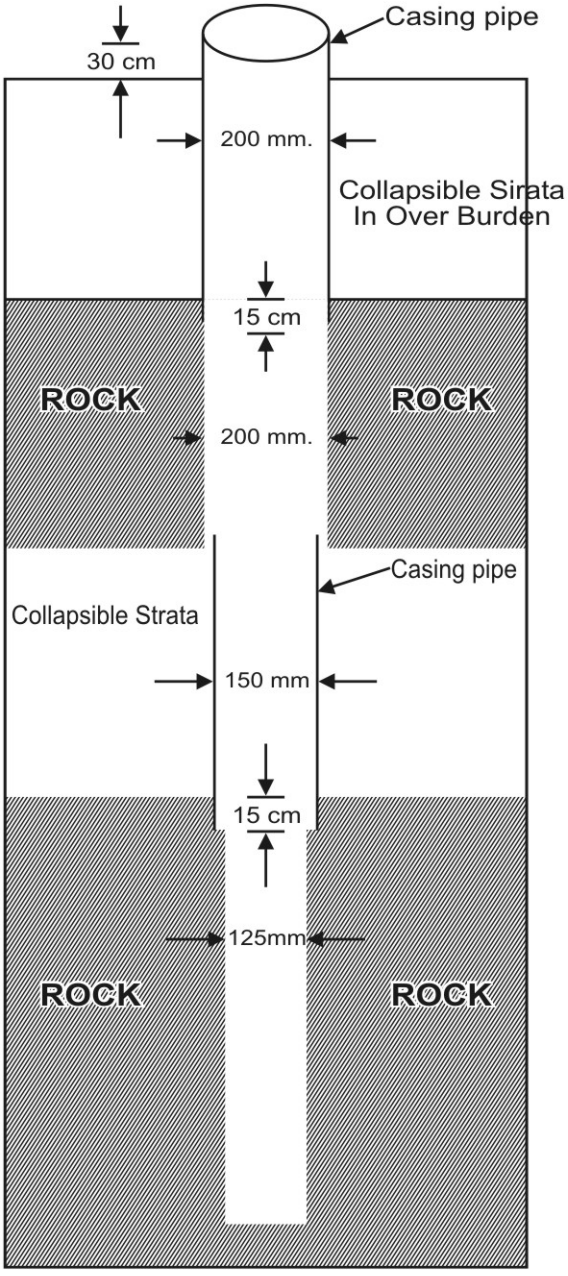
125 /115 mm.dia



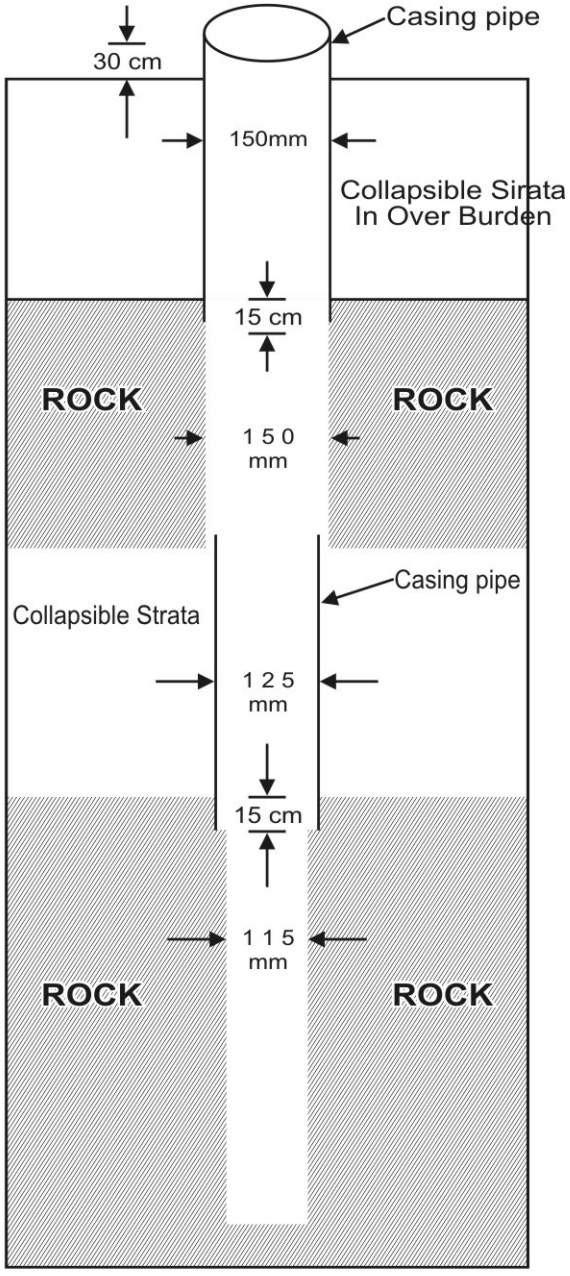
ORDINARY TUBEWELL

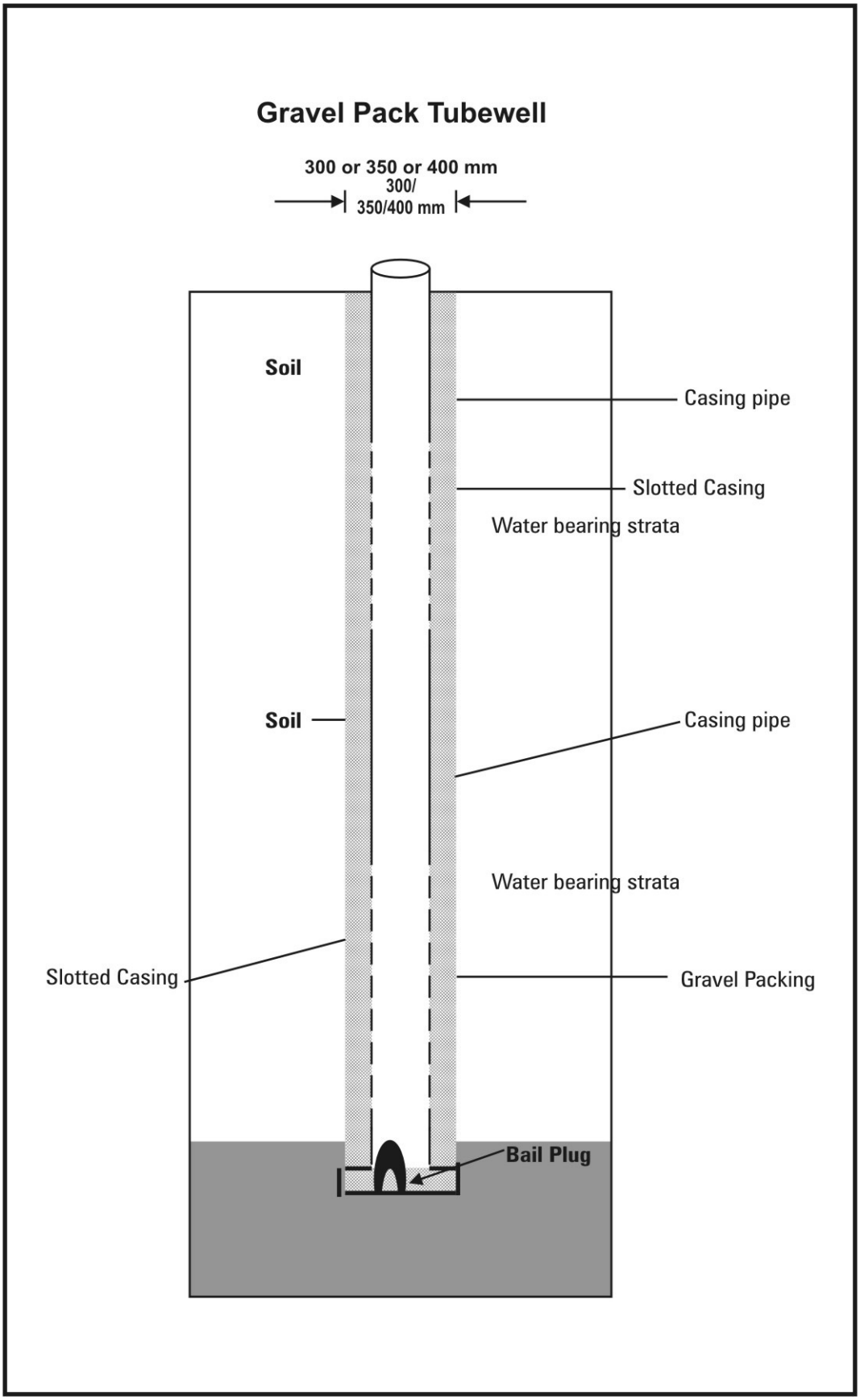


200/150/125 mm dia. TUBEWELL



150 / 125 115 mm dia. TUBEWELL




Gravel Pack Tubewell
300 or 350 or 400 mm
300/
350/400 mm
Soil
Casing pipe
Slotted Casing
Water bearing strata
Soil
Casing pipe
Water bearing strata
Slotted Casing
Gravel Packing
Bail Plug