GROUND WATER PROSPECTS MAP

(PREPARED FROM SATELLITE IMAGE INTERPRETATION WITH LIMITED FIELD CHECKS)

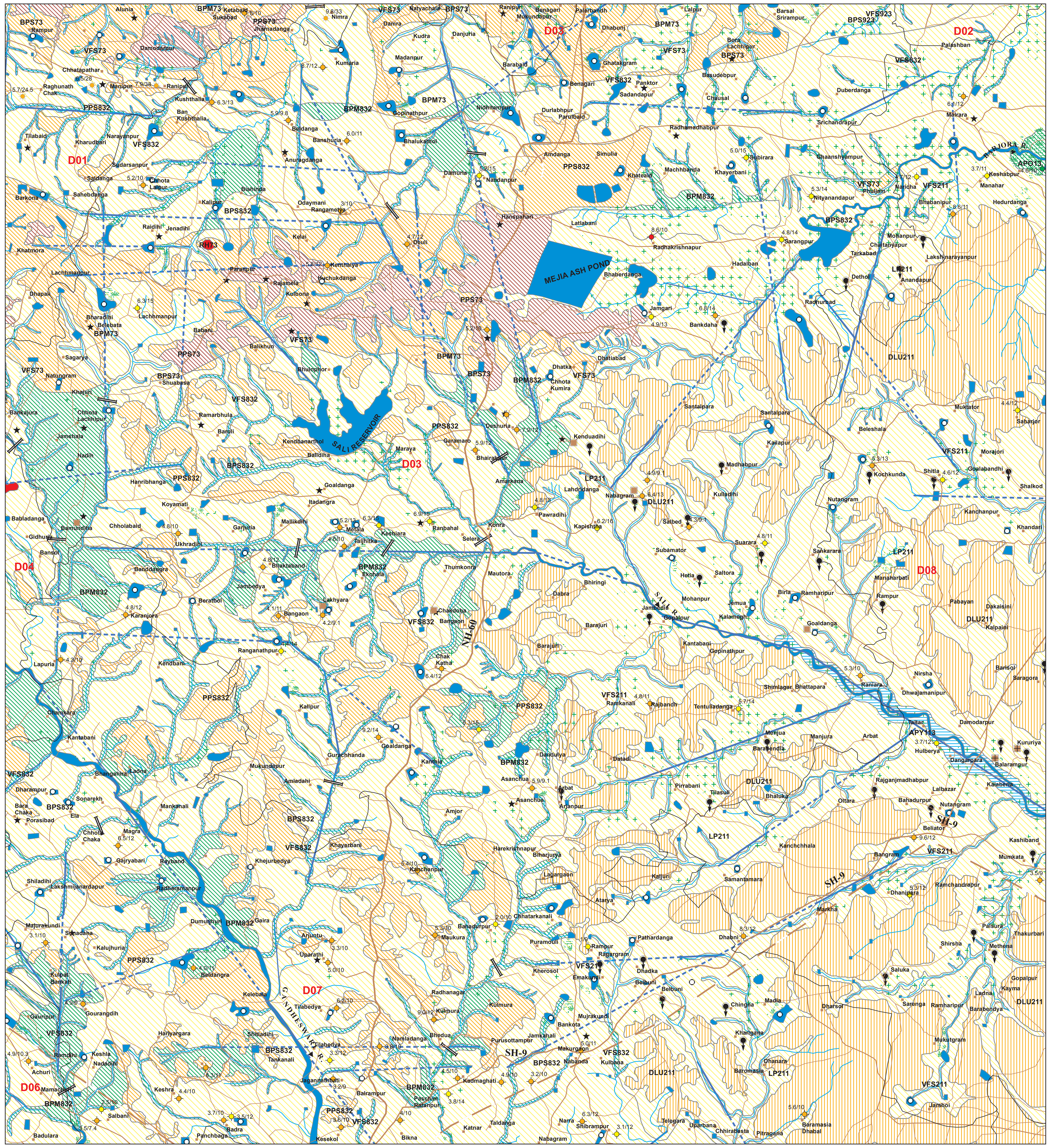
Kilometers 0 1 2 3 4 5

SCALE - 1 : 50,000

N W E S

MAP SHEET NO. 73M/3

BANKURA DISTRICT, WEST BENGAL



DATA USED : IRS - P6 LISS III FCC dated February 2006, GROUND TRUTH & WELL OBSERVATION during April-May, 2009 & Jan-Feb, 2010, Published Geological maps & Literatures.

Designed & Developed by Hydrogeology Division, NRSC, ISRO

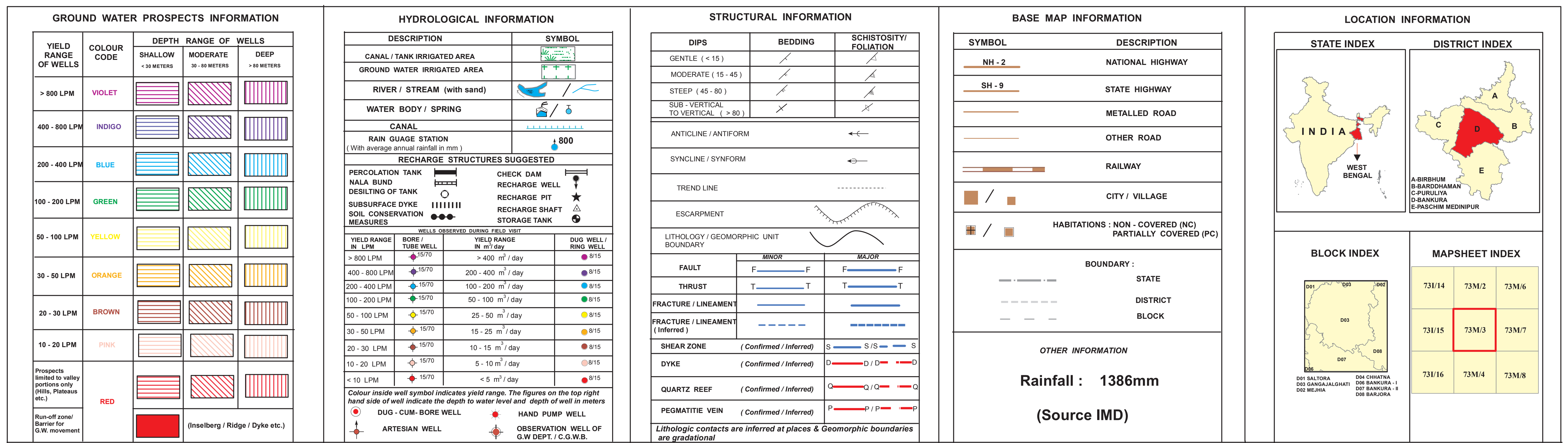
L E G E N D

MAP UNIT (HYDROGEOMORPHIC UNIT) REPRESENTED IN THE MAP WITH ALPHANUMERIC CODE (COLOUR INDICATES YIELD RANGE AND HATCHING INDICATE DEPTH RANGE)	GEOLOGICAL SEQUENCE / ROCK TYPE (REPRESENTED IN THE MAP WITH NUMERIC CODE)		GEOMORPHIC UNIT / LANDFORM (REPRESENTED IN THE MAP WITH ALPHABETIC CODE)	DEPTH TO WATER LEVEL PRE /POST - MONSOON (AVERAGE IN METERS) / NO. OF WELLS OBSERVED	RECHARGE CONDITIONS BASED ON AVAILABILITY OF WATER (RAINFALL & OTHER SOURCES)	GROUND WATER PROSPECTS: AQUIFER MATERIAL (LS = LOOSE SEDIMENTS, PR = PERMEABLE ROCK, FIR = FISSURED ROCK, FR = FRACTURED ROCK, WR /= WEATHERED ROCK / WM WEATHERED MATERIAL, IR = IMPERVIOUS ROCK, IM = IMPERVIOUS MATERIAL)	TYPE OF WELLS SUITABLE (DW = DUG WELL, RW = RING WELL, BW = BORE WELL, TW = TUBE WELL, DBW / = DUG CUM-BORE WELL / DTW DUG CUM-TUBE WELL)	DEPTH RANGE OF WELLS (SUGGESTED) MIN - MAX (IN METERS)	YIELD RANGE OF WELLS (EXPECTED) (in LPM or m^3 / day)	HOMOGENEITY IN THE UNIT & SUCCESS RATE OF WELLS (PROBABILITY) VERY HIGH HIGH MODERATE LOW	QUALITY OF WATER POTABLE (P) NON - POTABLE (NP) (INDICATE REASONS IF NON POTABLE)	GROUND WATER IRRIGATED AREA (APPROX . RANGE IN PERCENTAGE)	RECHARGE STRUCTURES SUITABLE & PRIORITY (PT = PERCOLATION TANK, CD = CHECK DAM, NB = NALA BUND, RW = RECHARGE WELL, DT = DESILTING OF TANK, RP = RECHARGE PIT, SD = SUBSURFACE DYKE, RS = RECHARGE SHAFT, ST = STORAGE TANK, SCM = SOIL CONSERVATION MEASURES)	REMARKS (PROBLEMS / LIMITATIONS)
APY113	Panskura fm (Ur. Holocene) (Present Day)	Alluvium (Sand Dominant) (113)	Alluvial Plain Younger (APY)	3.7 / DW - 1	Very Good	LS	DW TW	10 - 12 m 20 - 30 m	125 - 150 m^3/day 200 - 250 LPM	Very High	P	60%	Not Required	Aquifer is formed of sandy part of alluvium. Recharge structures are not required as good recharge conditions prevail.
APO13	Sijua fm (Lr. Holocene)	Alluvium (Sand, Silt and Clay) (13)	Alluvial Plain Older -Moderate (AOM)	4.62 / DW - 1	Good	LS	DW TW	10 - 15 m 40 - 60 m	75 - 100 m^3/day 150 - 200 LPM	High	P	Nil	Not Required	Aquifer is formed of sandy part of alluvium. Recharge structures are not required as good recharge conditions prevail.
VFS211	Lalgarh/Illambazar Formation (Middle to Upper Pleistocene)	Laterite (Ferricrete-hard crust, lateritic nodules and lithomarge clay) (211)	Valley Fill Shallow (VFS)	No wells observed	Moderate	LS Underlain by WM + FR	TW / BW	50 - 60 m	75 - 100 LPM	Moderate	P	30%	DT Moderate	Recharge structure will increase the sustainability of ground water
LP211			Lateritic Plain (LP) (Lithomarge Clay)	1.0 - 9.65 / DW - 20	Limited	WM + FR	DW TW / BW	15 - 20 m 50 - 60 m	25 - 50 m^3/day 50 - 100 LPM	Moderate	P	20%	RW / DT High	Areas of exposed lithomarge clay. Fracture zones form the aquifer, recharge structure will enhance ground water developement
DLU211			Dissected Lateritic Upland (DLU) (Hard crust and lateritic nodules)	4.46 - 5.75 / DW - 3	Poor to limited	WM + IR (Impervious material)	TW / BW	80 - 100 m	30 - 50 LPM	Low	P	Nil	Not required	Essentially Run-off zone where hard capping is present.Areas of nodular laterites are recharge zones with deep water table conditions.Primarily forest areas with sparse settlements. Not suitable for large scale development of ground water
VFS73	Mafic Intrusives (Lr. Proterozoic -1470 mill.yrs)	Anorthosite and Grabbroic Anorthosite (73)	Valley Fill Shallow (VFS)	No wells observed	Moderate	LS Underlain by WM + FR	TW / BW	30 - 50 m	50 - 75 LPM	Moderate	P	80%	DT Moderate	Prospect inferred as no wells observed.Recharge structure will improve ground water prospects.
BPM73			Buried Pediplain Moderate (BPM)	6.38 - 9.86 / DW - 2 HP - 1	Moderate	WM + FR	DW TW/ BW	5 - 10 m 40 - 50 m	5 - 10m^3/day 50 -75 LPM	Moderate	P	30%	RP Moderate	Weathered material and underlying fracture rock form the aquifer.Sustainability of ground water yield can be increased with recharge structure.
BPS73			Buried Pediplain Shallow (BPS)	4.75 - 8.63 / DW - 7	Limited	WM + FR	DW TW/ BW	5 -10 m 40 - 60 m	< 5 m^3/day 30 - 50 LPM	Low	P	25%	RP High	Limited ground water resources. Priority of recharge structures is high.
PPS73			Weathered Pediplain Shallow (PPS)	No wells observed	Poor	FR	DW TW/ BW	5 -10 m 40 - 60 m	< 5 m^3/day 20 - 30 LPM	Low	P	Nil	RP High	Essentially run-off zone.Recharge structure may help in limited ground water development.
RH73			Residual Hill (RH)	No wells observed	—	—	—	—	—	—	—	—	—	Run-off zone.Not suitable for ground water development.
VFS832	Chhotanagpur Gniessic Complex (Lower Proterozoic-2300 - 2400 mill.yrs)	Granitoid Gneiss (832)	Valley Fill Shallow (VFS)	No wells observed	Moderate	LS Underlain by WM + FR	TW / BW	30 - 50 m	150 - 175 LPM	Moderate	P	10%	CD Moderate	Prospects inferred as no wells observed. Recharge condition is moderate with moderate ground water prospects.
BPM832			Buried Pediplain Moderate (BPM)	4.05 - 6.38 / DW - 2	Moderate	WM + FR	DW TW / BW	5 - 10 m 40 - 50 m	15 - 25 m^3/day 150 - 175 LPM	Moderate	P	30%	RP Moderate	Recharge structure will improve ground water prospects.
BPS832			Buried Pediplain Shallow (BPS)	2.02 - 9.2 / DW - 48 HP - 3	Limited	WM + FR	DW TW / BW	5 - 10 m 40 - 60 m	10 - 15 m^3/day 75 - 100 LPM	Low	P	40%	RP High	Recharge structures will improve sustainability of ground water sources.
PPS832			Weathered Pediplain Shallow (PPS)	3.81 - 9.02 / DW - 6	Poor	FR	DW TW / BW	5 - 10 m 40 - 60 m	5 - 10 m^3/day 30 - 50 LPM	Low	P	5%	RP High	Due to high run off and poor infiltration, recharge structures are required to maintain sustainability of ground water sources.
VFS923	Unclassified Metamorphics (Older Metamorphics) (Archaean)	Mica Schist (923)	Valley Fill Shallow (VFS)	No wells observed	Moderate	LS Underlain by WM + FR	TW / BW	30 - 50 m	100 - 125 LPM	Moderate	P	50%	Not required	Very small unit,few settlement,recharge structures not required
BPS923			Buried Pediplain Shallow (BPS)	No wells observed	Limited	WM + FR	DW TW / BW	5 - 10 m 40 - 60 m	3 - 10 m^3/day 50 - 75 LPM	Low	P	10%	Not required	Very small unit,few settlement,recharge structures not required
RH923			Residual Hill (RH)	No wells observed	—	—	—	—	—	—	—	—	Not required	Run-off zone, not suitable for ground water development.

F——F / —— / — — — *These are fault / fracture zones, which generally act as conduits for movement of ground water in hard rocks. Along these zones, the yields are significantly higher and wells are likely to be sustainable for longer duration. However, the inferred fractures need to be confirmed by detailed ground surveys.*

D——D / Q——Q / P——P These are dykes, quartz reefs and pegmatite veins, which generally act as barriers for ground water movement.

N.B.-The depth range and yield range of wells may vary within the unit because of certain inhomogeneities. Fractures/Lineaments which are clearly observed / inferred from the satellite image are indicated on the map. There could be some obscured fractures which also influence the ground water prospects. Locations of the recharge structures shown in the map are tentative. This map is useful for narrowing down the target zones,and exact location on the ground for wells and recharge structures should be identified based on follow-up ground hydrogeological/geophysical surveys.



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