

SANIMA MAI HYDROPOWER LIMITED

Narayanchour, Naxal, G. P. O. Box. 19737 Kathmandu, Nepal
Site office, Gunmune, Ilam

MAI HYDROPOWER PROJECT

(22 MW)



MONTHLY PROGRESS REPORT

OCTOBER, 2014

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Month: October, 2014

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1. PROJECT OVERVIEW AND INSTITUTIONAL ARRANGEMENT

The 22 MW installed capacity Mai Hydropower Project (MHP) is a run-of-river project located in Chisapani, Danabari and Soyak Village Development Committees (VDCs) of Ilam district and utilizes the water from Mai Khola. The project comprises diversion weir with under-sluice, intake arrangements followed by inlet canal, settling basin, headrace culvert, headrace tunnel, surge-shaft followed by penstock pipe and powerhouse followed by tailrace canal. The generated power is evacuated through 132 kV transmission lines of 10.6 km and connected with the Integrated Nepal Power System (INPS) at Nepal Electricity Authority (NEA)'s proposed Godak substation in Ilam district.

The project's headworks site can be reached from East-West Highway at Birtamode of Jhapa district via a 25 km road of which 9 km is black topped and rest is earthen/gravel type. A project road of 5 km length has been constructed to connect the headworks with the powerhouse.

- The Employer/Owner: Sanima Mai Hydropower Ltd. (SMHL)
- The Engineer/Consultant: Sanima Hydro and Engineering (P.) Ltd. (SHE)
- The Contractor (Civil Construction): Himal Hydro and General Construction Limited, Kathmandu, Nepal
- The Contractor (Hydro-Mechanical): Structo- Udeco JV
- The Contractor (Generating Equipment): Asia Pacific Power Tech.
- The Contractor (Power evacuation line): Aster Tele Service Nepal Pvt. Ltd.

1. KEY DATES

- PPA signed on 8th Baishakh 2067 (21st April 2010),
- Generation License obtained on 13th Bhadra 2067 (29th Aug 2010) (valid till 28th Aug 2045),
- Main Civil Construction Contract awarded to Himal Hydro and General Construction Limited on 3rd October 2010 with a target completion date of 18th May 2014 (Required Commercial Operation Date as per PPA is ~14th July 2014, i.e. end of Ashad 2071),
- Facility Agreement (Financial Closing) signed on 18th November 2010 (2nd Mangsir 2067).
- Up-gradation of project capacity to 22 MW on 6th July 2012 (22nd Asar 2069).

2. CONTRACT PACKAGES AND IMPLEMENTATION

- Main Civil construction works: Civil Contractor → CONTRACT Package 1
- Hydro-mechanical and Penstock: HM Contractor → CONTRACT Package 2
- Equipment (Electromechanical): EM Supplier → CONTRACT Package 3
- Power evacuation Transmission: TL Contractor → CONTRACT Package 4
- Preparatory works, Owner's housing, Socio-environmental: Employer → Direct

3. FINANCING

- **Equity:** Promoters (SMHL) → 25% of the total Project Cost
- **Debt:** Consortium of Local Banks → 75% of the total Project Cost: Lead- Laxmi Bank, Co-lead- Nabil Bank, Members: Kumari Bank, Bank of Kathmandu, Siddhartha Bank, Machhapuchhre Bank, Janata Bank Nepal, NIC Asia Bank, Grand Bank, Nepal SBI Bank, Ace Development Bank.

4. RESOURCES AT SITE

EMPLOYER:

Description	Number
Resident Engineer	1
Electrical Engineer	2
Mechanical Engineer	1
Site Engineer	4
Engineering Geologist	1
Admin/Account	2
Sub-Engineer(Overseer)	10
Surveyor	1
Social and Environment Unit	4
Site supervisor	8
Driver	3
Office assistant	4
Cook	4
Mechanical	18
Total:	59

CIVIL CONTRACTOR:

Description	Number
Project Manager	1
Admin/ finance	21
Contract /HSE	4
Store	21
Civil	129
Electrical	6
Electromechanical	59
Security	13
Total:	254

HYDROMECHANICAL CONTRACTOR:

Description	Number
Site in-charge	1
Civil Engineer	1
Mechanical Supervisor(MS)	3
QA/QC	1
NDT technician	5
Electrician	2
Store In-charge	0
Welder	17
Gas-cutter	3
Fitter	4
Helper	25
Painter	4
Total	66

5. CIVIL CONSTRUCTION PROGRESS AT SITE

5.1 HEADWORKS

5.1.1 CUTOFF WALL, FLOOD WALL U/S OF WEIR

- All the major works including floodwall and cutoff wall has been completed.



Figure 1: U/S of weir and intake

Table 1: Cut-off wall, flood wall (u/s of weir)

S No	Description of works	Unit	Total Quantity	Remark
1	Earthwork	m ³		
1.1	Excavation work in boulder and gravel mixed soil with lead up to 50 m	m ³	2612	100% Completed
2	Concrete Work	m ³		
2.1	Placing of 75 mm thick C15 blinding concrete	m ³	53.295	
2.2	Placing of C25 concrete	m ³	653.361	
2.3	Placing of C25 plum concrete	m ³	137.556	
2.4	Placing of C15 plum concrete	m ³	140.855	
3	Formwork	m ²	1383.266	
4	Rebar	ton	32.210	

5.1.2 WEIR BODY AND GUIDE WALL

- All concrete work on weir body has been completed.



Figure 2: Upstream view of weir, intake and settling basin

Table2: Weir progress work

S. No	Description of work	Unit	Quantity		Remark
			Completed	Remaining	
1	Earthwork	m ³		0	100% completed
1.1	Excavation work in boulder and gravel mixed soil with lead up to 50 m	m ³	9587.803	0	
2	Concrete Work				
2.1	Placing of 75 mm thick C15 blinding concrete	m ³	127.145	0	
2.2	Placing of C25 concrete	m ³	4673.276	0	
2.3	Placing of C35 concrete	m ³	828.346	0	
2.4	Placing of C25 Plum	m ³	2332.848	0	
3	Formwork	m ²	4881.143	0	
4	Reinforcement	ton	119.649	0	

5.1.3 STILLING BASIN AND FLOODWALL (D/S OF WEIR)

- All concrete work on stilling basin has been completed.

Table 3: Stilling basin work progress

S. No	Description	Unit	Quantity		Remarks
			Completed	Remaining	
1	Earthwork				100% Completed
1.1	Excavation work in boulder and gravel mixed soil with lead upto 200 m	m ³	35052.382	0	
2	Concrete Work				
2.1	Placing of 75 mm thick C15 blinding concrete	m ³	730.362	0	
2.2	Placing of C25 concrete	m ³	2120.669	0	
2.3	C15 Plum concrete	m ³	55.00	0	
2.3	C25 Plum Concrete	m ³	3133.561	0	
3	Formwork	m ²	5406.29	0	
4	Reinforcement	ton	120.666	0	

5.1.4 INTAKE, UNDERSLUICE AND INLET CANAL AND GRAVEL TRAP.

- All the major civil work has been completed.



Figure 3: Intake overflow slab, hydraulic room, stop-logs parking and gravel trap

Table 4: Intake, Under-sluice and Inlet canal progress work

S. No	Description of Work	Unit	Quantity			Remarks
			Completed	Remaining	Total	
1	Earthwork					100% Civil works completed
1.1	Excavation work in boulder and gravel mixed soil with lead up to 50 m	m ³	9120.96	0	9120.96	
2	Concrete Work					
2.1	Placing of 75 mm thick C15 blinding concrete	m ³	163.323	0	163.323	
2.2	C25 (40%) Plum concrete		254.521	0	254.521	
2.3	Placing of C25 concrete	m ³	55749.418	0	55749.418	
2.4	C35 Concrete	m ³	85.257	0	85.257	
3	Formwork	m ²	9190.250	0	9190.250	
4	Reinforcement	ton	319.313	0	319.313	

5.1.5 APPROACH CULVERT, SETTLING BASIN AND FLUSHING CULVERT



Figure 4: Settling basin inlet gate, completion of railing work of settling basin

Completed Work:

- ✓ All major works on waterway along approach culvert, settling basin, conveyance tank and sediment flushing top slab
- ✓ Settling basin inspection platform
- ✓ Settling basin inlet gate
- ✓ 100% civil work completed

Table 5: Approach culvert and settling basin and sediment flushing canal work progress

S. No	Description of Work	Unit	Quantity			Remarks
			Completed	remaining	Total	
1	Earthwork					100% concrete completed
1.1	Excavation work in boulder and gravel mixed soil with lead up to 50 m	m ³	2655.633	0	2655.633	
1.2	Compacted backfill	m ³	6737.655	4525.33	11262.985	
2	Concrete Work					
2.1	Placing of 75 mm thick C15 blinding concrete	m ³	386.900	0	386.900	
2.2	Placing of C25 concrete	m ³	6020.406	0	6020.406	
2.3	C25 plum concrete	m ³	390.128		390.128	
3	Formwork	m ²	11906.655	0	11906.655	
4	Reinforcement	ton	426.565	0	426.565	

5.1.6 HEADRACE CULVERT:



Figure 5: Grating on HRC transition top slab

- 99.9% civil work completed.

Table 6: Headrace culvert work progress

S. No	Description of Work	Unit	Quantity			Remarks
			Completed	Remaining	Total	
1	Earthwork					99.9% civil work completed
1.1	Excavation work in boulder and gravel mixed soil with lead up to 50 m	m ³	45601.124	0	45601.124	
2	Concrete Work					
2.1	Placing of 75 mm thick C15 blinding concrete	m ³	360.130	0	360.130	
2.2	Placing of C25 concrete	m ³	4912.885	0	4912.885	
2.3	C35 Concrete	m ³	69.3	0	69.3	
3	Formwork	m ²	19248.404	0	19248.404	
4	Reinforcement	ton	488.852	0	488.852	

5.2 HEADRACE TUNNEL



Figure 6: Air vent pipe installation at inlet portal and repairing of valve gate

- All the civil works on headrace tunnel have been completed.

Table 7: Headrace tunnel work progress

S. No	Description of Work	Unit	Quantity			Remarks
			Completed	Remaining	Total	
1	Invert lining length	m	2197	0	2197	100% works completed
2	Length of lining in crown and wall	m	1338	0	1338	
3	Length of 1m wall only	m	799		799	
4	Placing of C25 concrete	m ³	8308.830	0	8308.830	
5	Shotcrete	m	816	0	816	
6	Grouting	m	1338	0	1338	
7.	Grouting Quantity	m ³	220.6	0	220.6	
7	Formwork	m ²	14085.430	0	14085.430	
8	Reinforcement	ton	259.28	0	259.28	

Table 8: Valve gate and bell mouth status

S. No	Description of Work	Unit	Quantity			Remarks
			Completed	Remaining	Total	
1	C15 Blinding concrete	m ³	2.104	0	2.104	100% completed
2	C25 Concrete	m ³	123.046	0	123.046	
3	Formwork	m ²	102.952	0	102.952	
4	Reinforcement	ton	8.364	0	8.364	

5.3 SURGE SHAFT:

Completed works:

- All works civil works completed.
- Plain and fiber reinforced shotcrete.
- C25 Concrete lining.
- Monkey ladder.
- Roofing
- Fencing
- Surface catch drain.
- Level marking.

Table 9: Quantity records of surge shaft

S. No	Description of Work	Unit	Quantity			Remarks
			Completed	Remaining	Total	
1.	Excavation work below 321.5	m ³	2006.8	0	2006.8	100% works completed
2.	Plain shotcrete	m ³	33.81	0	33.81	
3.	Fiber reinforced shotcrete	m ³	54.33	0	54.33	
4.	C15 Concrete	m ³	8.790	0	8.790	
4.	C25 Concrete	m ³	6185.30	0	6185.30	
5.	Formwork	m ²	15108.58	0	15108.58	
4	Reinforcement	ton	259.28	0	259.28	

5.4 PENSTOCK, SADDLE SUPPORT AND ANCHOR BLOCK



Figure 7: Penstock alignment

COMPLETED WORK

- All the concrete work and slope stabilization.

REMAINING WORK

- Sand filling below wye1.
- Backfilling from VB01 to valve gate.

Table 10: Quantity records of penstock saddle support and anchor block

Description of Work	Unit	Quantity			Remarks
		completed	Remaining	Total	
Earthwork			0		100% concrete work completed
Excavation work in boulder and gravel mixed soil with lead up to 50 m	m ³	18157.416	0	18157.416	
Concrete Work	m ³		0		
Placing of 75 mm thick C15 blinding concrete		129.542	0	129.542	
Placing of C25 concrete		982.927	0	982.927	
Placing of C25 Plum Concrete		2065.301	0	2065.301	
Rebar	Ton	72.365	0	72.365	
Formwork	m ²	1861.801	0	1861.801	
1:4 Stone masonry work	m ³	4470.989	0	4470.989	

5.5 POWERHOUSE



Figure 8: Powerhouse superstructure

Completed work:

- All the major works of powerhouse has been completed.

Ongoing work:

- Protection work (Gabion box and stone masonry)
- Backfilling
- Marble finishing.

- Fencing work on powerhouse and switchyard area.

Table 11: Quantity record of powerhouse

Description of Work	Unit	Quantity			Remark
		Previous month	This Month	Total	
Earthwork					All major works completed
Excavation work in boulder and gravel mixed soil with lead up to 50 m	m ³	13,042.273	0	13042.273	
Hard rock excavation	m ³	1434.96	0	1434.96	
Concrete Work	m ³	4566.20	0	4566.20	
Placing of 75 mm thick C15 blinding concrete	m ³	105.180	0	105.180	
Placing of C25 concrete	m ³	4635.774	0	4635.774	
Placing of C15 plum (40%) concrete		155.807	0	155.807	
Formwork	m ²	9584.618	0	9584.618	
Reinforcement	ton	500.389	0	500.389	

5.6 TAILRACE AND TAILRACE EXTENSION



Figure 9: Tailrace extension works

Completed work:

- All the concrete work of tailrace canal and gate area.

Remaining work:

- Protection work on tailrace canal.
- Backfilling on gate area and side of canal.

Table 12: Quantity records of tailrace canal and tailrace extension:

S. No	Description of Work	Unit	Quantity			Remarks
			Completed	Remaining	Total	
1.	Earthwork in Excavation	m ³	12119.75	0	12119.75	100% concrete work completed
2.	C15 Concrete	m ³	105.98	0	105.98	
3.	C25 Concrete	m ³	1737.524	0	1737.524	
4.	Formwork	m ²	5794.69	0	5794.69	
5.	Reinforcement	ton	111.75	0	111.75	

6. HYDROMECHANICAL PROGRESS

Completed Work:

- Under-sluice stop-logs frame installation.
- Overflow stop logs: frame installation.
- Radial gate: Commissioning.
- Settling basin outlet gate: Commissioning with manual operation of hoisting.
- Sediment flushing gates/Stop-logs: Commissioning with manual operation of hoisting.
- Settling basin inlet gate: completed installation of all four nos. of gate.
- HRC Culvert Access gate: Leaf installation completed.
- Gravel flushing gate: Commissioning with manual operation of hoisting
- Bell mouth.
- Penstock pipe installation, welding, cleaning and painting from inner and outer side
- Permanent manhole of penstock.
- Fine and coarse trash racks painting.
- Gratings of gravel trap and HRC entrance.
- Railing works on settling basin.
- I beam installation for hoisting mechanism on Intake and gravel trap.

Ongoing work:

- Draft tube gate.
- Tailrace gate installation.
- Hoisting mechanism of intake and gravel trap.
- Repairing of the gates.

Remaining work:

- Hydro-Mechanical part of stop log parking area.
- Electric operation installation of gate-settling basin inlet and sediment flushing gates, gravel flushing gate/stop log.
- Gratings on stop logs parking.



Figure 10: Penstock alignment

6.1 HM PROGRESS CHART

WELDING STATUS

Location	Inside Welding			Outside welding		
	Completed	Remaining	ongoing	Completed	Remaining	ongoing
Powerhouse	9	0	0	9	0	0
VB-08 to Wye-01	22	0	0	20	2	0
Wye-01 to Wye-02	17	0	0	17	0	0
Wye-02 to VB-03	52	0	0	52	0	0
VB-03 to VB-02	51	0	0	51	0	0
VB-02 to VB-01	30	0	0	30	0	0
VB-01 to Gate valve	9	0	0	9	0	0
Gate Valve to Bell mouth	28	0	0	28	0	0
Total Remaining Joints		0	0		0	0

EXPANSION JOINT

S. No	Diameter (mm)	Thickness (mm)	Length (m)				
			As per Drawing	Fabricated	Erected	Fabricated %	Erection %
1	2600	10	0.6	0.6	0.6	100	100
2	2600	12	0.6	0.6	0.6	100	100
3	2600	20	0.6	0.6	0.6	100	100

ACCESS GATE AND VENTILATION

S. No	Location	Status			
		Block out	frame	Fabrication	Installation
1	Inlet Portal	Completed	Completed	Completed	Completed
2	300mm dia ventilation pipe	-	-	completed	completed

GATE AND STOPLOGS

S. No	Name of structure	Type of gates/stop-logs	Status			
			Block out	Frame Erection	Leaf Erection	Hoisting Arrangement
1	Under-sluice					
1.1		Under-sluice stop-log	Completed	Completed	Remaining	Remaining
1.2		Overflow stop-log	Completed	Completed	Remaining	Remaining
1.3		Overflow stop-log d/s	Completed	Completed	Remaining	Remaining
2	Gravel Trap	gate	Completed	Completed	Completed	Remaining
3	Gravel flushing	Stop-log	Completed	Completed	Completed	Remaining
		Gate	Completed	Completed	Completed	Partially Completed
4	Inlet of Settling Basin	Gate	Completed	Completed	Completed	On progress
5	Outlet gate of Settling Basin	Gate	Completed	Completed	Completed	Partially completed
6	Sediment Flushing gate/Stop-logs	Gate	Completed	Completed	Completed	Partially completed
		Stop-log	Completed	Completed	Completed	Partially completed
7	Outlet draft tube gate	Gate	Completed	Completed	On progress	Remaining

RADIAL GATE

S. No.	Gate No	Progress status						
		Block-out	Frame	Trunion box	Gate installation	Hydraulic Cylinder	Hydraulic pipe/cables	Hydraulic Control Equipment
1	1	Completed Including hydraulic arrangement, electrical wiring and limit switch provision						
2	2							
3	3							

GRAVEL FLUSHING PIPE

S. No.	Dia (m)	Length (m)		
		Fabricated	Erected	Remaining
1	1.2	45.88	45.88	0

TRASH RACK

S. No.	Location	Type	Status		
			Block-out	Frame	Installation
1	Intake	Coarse	Completed	Completed	Completed
2	Settling basin	Fine	Completed	Completed	Completed

7. ELECTROMECHANICAL PROGRESS:



Figure 11: Electro Mechanical installation

- All the EM works of powerhouse has been completed.
- Communication system to communicate with LDC is remaining.



Figure 12: Powerhouse turbine floor

8. POWER EVACUATION LINE

Summary

S. No.	Tower Range	Length (m)
1	Foundation status (% Completion)	100%
2	Tower Erection (Numbers)	36
3	Stringing Length (Km)	7.7
4	% of Stringing completed	70.3
5	% of Tower Erection Completed	100%
6	% of Earthing Completed	100%
7	Protection structure Completed (Numbers)	8



Figure 13 T#36, Type DD near Substation at Godak

SUBSTATION AT GODAK

Completed Work:

- Testing of Godak Switchyard equipment has been completed.

Remaining work:

- Due to change of Godak substation layout according to request of NEA there is some EM remaining works which will start after construction of foundation.



Figure 14: Substation at Godak

SUBSTATION AT POWERHOUSE:

Completed work

- All the major works of switchyard has been completed.

Ongoing work:

- Backfilling and leveling work
- Earthing work.



Figure 15: Substation at powerhouse

TRANSMISSION LINE

- The entire tower, stringing of conductor and jumpering work has been completed.
- OPG stringing work is on progress.
- Tower protection work is on progress.

Table 13: Status of transmission line

Tower No	Tower Type	Foundation Status	Erection	Stringing		Earthing	Protection Requirement	Tower Protection
				Tower Range	Stringing Length			
1	DD-0	COMPLETED		Gantry-T1	Completed	COMPLETED	Y	Stone Masonry + Gabion
2	B+0			T1-T2	180.01		N	
3	B+3			T2-T3	302.34		N	
4	B-3			T3-T4	182.61		Y	
5	C+12			T4-T5	83.43		Y	
6A	B+12			T5-6A	501.16		N	
6	C-0			T6A-T6	342.82		N	
7	M+3			T6A-7	342.61		Y	
8	B+3			T7-T8	157.89		Y	
9	B+0			T8-T9	130.89		Y	
10	C+0			T9-T10	241.94		N	
11	B+0			T10-T11	292.48		N	
12	B+0			T11-T12	326.91		N	
13	C+3			T12-T13	318.48		Y	Gabion work
14	B-3			T13-T14	357.69		Y	
15	C-3			T14-T15	236.31		Y	
16	C-3			T15-T16	380.45		N	
17	C-3			T16-T17	371.12		N	
18	C+12			T17-T18	466.1		N	
19	B+0			T18-T19	563.82		N	
20	B+6			T19-T20	475.49		Y	Gabion Work
21	DM+6			T20-T21	599.12		Y	
22	B-3			T21-T22	77.97		Y	
23	B+0			T22-T23	827.19		Y	Gabion Work
24	DM+0			T23-T24	351.91		Y	Stone Masonry
25	B+0			T24-T25	151.26		Y	Stone Masonry
26	B-3			T25-T26	168.18		Y	
27	C+0			T26-T27	262.44		N	
28	C-3			T27-T28	273.19		Y	Stone Masonry
29	B-3			T28-T29	347.7		Y	
30	C+0			T29-T30	88.71		Y	Gabion work
31	DM+0			T30-T31	144.01		Y	Gabion work
32	C-3			T31-T32	445.5		Y	
33	DM+3			T32-T33	154.94		N	
34	B+6			T33-T34	249.06		Y	
35	DM-3			T34-T35	457.83		Y	
36	DD-3		T35-T36	156.28	Y			



Figure 16: Transmission line progress

9. EIA PROGRESSES:

- EIA section is doing considerable work on support to accelerate NEA Kabeli- Damak (first section- Damak to Godak) corridor transmission line work.
- Regular community help is continuing.
- Regular monitoring, cleaning of bushes and watering ongoing around plantation area.
- Regular Maintenance of road from PH to HW and PH to Surge shaft is continuing.

10. VISITORS OF THE MONTH:

Nobody visited site during this month.

11. NOTES:

- **Almost 100%** civil work completed.
- Construction all major structures have been completed.
- All work on headrace tunnel including HRC-HRT transition panel and outlet valve gate has been completed.
- Major concrete work on PH has been completed.
- Activities on switchyard at powerhouse and Godak have been completed.
- Almost all gates are completed except their respective hoisting arrangements.
- All the penstock work has been completed.
- Railing work on headwork has been completed
- The concrete work of tailrace has been completed.
- The construction of bridge has been completed.
- 99% of Pipe work on access headrace culvert has been completed and concrete work is under progress.
- Repairing of manhole seal of HRC is remaining.
- Repairing of bell-mouth and drain pipe of valve gate is under progress.

- Land leveling near army camp (Mai Khola side) and on inlet portal area is remaining.

12. PHOTOS



Intake from downstream



Settling basin area



Gravel trap area



Hydraulic room and stoplog parking area



HRC access during pipe work.



Hoisting EOT Crane on intake-undersluice delivered to site



Control Panel PH



After EM installation and whitewash painting



Construction of bridge and cable duct/front view



Construction of New Quarter at PH site.



Draft tube gate area



Transformer

13. EQUIPMENT OF CIVIL CONTRACTOR AT SITE

S.No	Equipment Name	Registration No	Equipment Capacity	HH No	Location	Condition	Remarks
1	Electric Compressor Chinese						
2	Air Compressor GA 110			321 03 01	PH		
3	Air Compressor XA140			321 03 23	FB		Demo Ktm
4	Air Compressor XA280			321 03 24	HW	Working.	
5	Air Compressor XA 280			321 03 25	PH	Working.	
6	Air Compressor XA280			321 03 27	FB	Working.	
7	Air Compressor(Mini)			321 03 36	HW		Demo Ktm
8	Air Compressor Chinese			321 03 37	HW	Working.	
9	Generator 125 KVA			321 03 43	HW	Working.	
10	Generator 250 KVA			321 07 17	PH	Working.	
11	Generator 125 KVA			321 07 27	PH	Working.	
12	Generator 380 KVA			321 07 33	HW	Working.	
13	Generator 62.5 KVA(Bhaskar)			321 07 40	HW	Working.	
14	Finlay HydraScreen			321 07 45	HW	Working.	
15	Rock Cruiser Machine Old			321 10 05	HW	Working.	
16	Rock Crusher Machine New			321 10 07	HW	Working.	
17	Winget Mixer 500R			321 10 09	HW	Noworking.	
18	Winget Mixer 500R			321 13 00	HW		Demo Ktm
19	Winget Mixer 500R			321 13 29	HW	Working.	
20	Winget Mixer 500R			321 13 30	PH	Working.	
21	Winget Mixer 500R			321 13 31	PH	Working.	
22	Winget Mixer 500R			321 13 32	PH	Working.	
23	Winget Mixer 500R			321 13 33	PH	Working.	
24	Winget Mixer 500R			321 13 35	FB	Working.	
25	Putzmeister			321 13 37	FB	Working.	
26	Shotcrete Robot			321 19 23	HW	Working.	
27	Shotcrete Robot		12M3/Hr	321 19 38	HW		Demo Ktm
28	Concrete Pump Chinese		12M3/Hr	321 19 39	HW		Demo Ktm
29	Concrete Pump Chinese			321 19 40	HW	Working.	
30	shortcrete machine Chinese			321 19 41	HW	Breakdown	Flood
31	Concrete Pump Zoomlion			321 19 42	Tunnel		
32	Concrete Pump Zoomlion			321 19 50	PH		
33	Dynapac Roller (Compactor)			321 19 54	FB		
34	Dynapac Roller (Compactor)			321 22 01	PH		
35	Plate Compacter EM 12 ROBIN			321 22 01	PH		
36	Plate Compacter EM 12 ROBIN			321 22 78	PH		
37	Tractor Ford			321 22 78	PH		
38	Tractor Belarus	Lu 1 Ta 1813		321 38 03	HW	Working.	
39	Tractor MF 245	Lu 1 ta 1120		321 38 05	HW	Working.	
40	Tractor Valmet	Na 1 Ta 4314		321 38 08	HW	Working.	
41	Tractor MF 245	Lu 1 ta		321 38 11	HW	Working.	
42	Agitator ISUZU	Lu 1 Ta 4800		321 38 15	FB	Working.	
43	Agitator Scania	Na.1 Ka 1073	2.5 M3	321 39 40	PH		
44	Agitator Scania	Ba.1 Ka. 3315	6 M3	321 39 41	PH		
45	Car Mix	Ba.1 Ka. 3864	6 M3	321 39 42	PH		
46	Car Mix	Ba 1 ka 3799	1.5 M3	321 39 43	PH		
47	Car Mix	Ba 1 ka 3841	1.5 M3	321 39 44	FB		Accident
48	Tata Truck	Ba 1 Ka 3844	1.5 M3	321 39 45	HW		Demo Ktm
49	Volvo A20 Tipper	Lu 1 ka 69		321 39 51	FB		Demo Ktm
50	Volvo A20 Tipper	Lu 1 Ka 155		321 39 53	HW	Working.	
51	Volvo A20 Tipper	Lu 1 Ka 156		321 39 54	HW	Working.	
52	Tipper Scania	Ba 1 Ka 3175		321 39 56	HW		Breakdown
53	Tipper Scania	Ba 1 Ka. 3876		321 39 57	HW		Breakdown
54	Agitator ISUZU	Ba 1 Ka. 3877		321 39 58	HW	Working.	
55	Agitator Astra	Ga 1 Ka 291	2.5 M3	321 39 59	PH	Working.	
56	Batching Plant Universal	Ba 1 Ka 4412	7 M3	321 39 63	HW	Working.	
				321 43 13	HW	Working.	

57	Mobile Crane ONEGA	Ba 1 Ka 3228		321 43 13	HW	Working.	
58	Tower Crane Kroll			321 43 14	PH	Working.	
59	Excort Crane K10	Na 1 Ka 2899		321 43 16	HW	Working.	
60	Tower Crane Zoomlion			321 43 17	HW	Working.	
61	Wheel Loader 926E	Ga 1 Ka280		321 44 03	HW	Working.	
62	Wheel Loader WA 320 (Komatsu)	Ga.1 Ka 281		321 44 04	FB	Working.	
63	JCB 3CX Backhoe	Ba 1 ka 1420		321 44 10	HW	Working.	Demo Ktm.
64	Wheel Loader 966D	Lu.1 Ka 139		321 44 11	HW		
65	Excavator TATA Hitachi EX60			321 45 02	PH	Working.	Demo Ktm.
66	Excavator 235 C	Ba 1 ka 3346		321 45 06	HW		
67	Excavator 320D	Ba 1 ka 6128		321 45 08	HW		
68	Royal Grader	Lu 1 Ka 154		321 46 01	HW		Demo Ktm.
69	Sakai Roller			321 46 02	PH		
70	Tata Truck # 3118C	Na 1 ka 3083		321 48 03	HW		
71	Wagner ST 3.5			321 49 05	HW		Demo Ktm
72	Wagner ST 3.5			321 49 03	Hw	Noworking.	Demo Ktm.
73	Wagner ST 3.5			321 49 04	HW		Breakdown
74	Volvo A20 Tipper	Ba 1 Ka 3174		321 59 55	HW		Breakdown
75	Wheel Loader 950F	Na 1 Ka 1084		322 44 01	PH		Breakdown
76	Wagner ST 3.5			322 49 04	FB		Demo Ktm
77	Tata Truck	Na 1 Ka 781		341 02 01	PH		
78	Tata Truck	Na 1 ka 845		341 02 02	HW		Demo Ktm.
79	Toyota Hilux	Ba 1 Cha 9633		341 03 02	HW		
80	Toyota Hilux	Ba 1 Cha 9302		341 03 05	PH		
81	Toyata Hilux	Ba 1 Ka 9303		341 03 06	HW		
82	Motorbike Honda Shine	Ja 2 Pa 7486		341 04 24	HW		
83	Motor Bike YBR125	Ba 44 pa 1713		341 04 26	FB		
84	Motor Bike Hartford	Ba 44 Pa 9161		341 04 28	HW		
85	Motor Bike YBR125	Ba 45 pa 5266		341 04 29	PH		Breakdown
86	Motorbike Discover150	Me 3 Pa 9235		341 04 30	HW		Back to ktm
87	Dynapac Compactor(LP6500)				HW	Working.	
88	Plate Compactor				HW	Working.	
89	Plate Compactor				PH	Working.	
90	Dynapac Compactor (LP6500)				HW	Working.	
91	Plate Compactor				HW	Working.	