

NYADI PHIDI HYDROPOWER PROJECT (21.4 MW)

MONTHLY PROGRESS REPORT



Construction of Nyadi Phidi Hydropower Project (21.4 MW)

Prepared By:

North Summit Hydro Ltd.

Babarmahal, Kathmandu



DECEMBER 2025

General Information

Project Name	Nyadi Phidi Hydropower Project (21.4 MW)
Project Number	
Client's Name	North Summit Hydropower Limited
Report	Monthly Progress Report
Remarks	

Preparation, Review and Authorization

Date	Prepared by	Reviewed by	Approved for Issue by
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Institutional Arrangement

Client	North Summit Hydro Limited
Design Consultant	Hydro-Consult Engineering Limited (HCE) and Innovative Engineering Services Pvt. Ltd (IES) JV
Civil Contractor	Kalika-SAI-Karna JV
HM Contractor	Machchhapuchhre Metals and Machinery Pvt. Ltd.



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1 Introduction

1.1 Project Description

Nyadi-Phidi Hydropower Project (NPHPP) is located in Lamjung district of Gandaki Province. The project site is located in Marshyangdi Rural Municipality. Geographically, the project area is located in between latitudes 28°24'27" - 28°26'12" N and longitudes 84°30'10" - 84°31'43" E.

The project site can be reached from Kathmandu via a 189 km paved road to Besisahar, the district headquarters of Lamjung. From Besisahar, the site is approximately 52 km further, mostly along an earthen road.

The hydropower scheme includes a 15m length boulder lined weir with a crest elevation of 2950.6 masl. The intake is located on Nyadi River near Jaluchhe village at an elevation of 2950.1 masl, capturing flow from a catchment area of 54.03 km². The project utilizes flow of Nyadi and two downstream Kholsis during dry months and the head created by tunnel and penstock between headworks and powerhouse site to generate power.

1.2 Accessibility to Project Site

The Project site is accessible from Kathmandu by a 189 km long asphalt road up to Besisahar, the district headquarters of Lamjung. The site is approximately 52 Km from Besisahar. The access road follows the alignment through Naiche, Kafaldada, and Dahare before reaching the project location. Besisahar is the nearest town to the site, while the closest Indo-Nepal border point is Raxaul.

Kathmandu – Besisahar – Nyadi – Thulibeshi – Naiche- Kafaldanda – Dahare- Project Site

1.3 Salient Features of the Project

The salient features of the project are presented in Table 1.

Table 1: Salient features of the project

S. N	Description	Detail Design Report
1	Project Location	
	Province	Gandaki Province
	District	Lamjung
	Intake Site	Jaluchhe Village, Marsyangdi Rural Municipality, Ward No-7
	Powerhouse Site	Confluence of Nyadi and Phidi River, Marshyangdi Rural Municipality, Ward no. 7
	Geographical Co-ordinates	
	Latitude	28° 24' 27" N- 28° 26' 12" N
	Longitude	84° 30' 10" E- 84° 31' 43" E
2	General	
	Name of River	Nyadi River



S. N	Description	Detail Design Report
	Nearest Town	Besisahar
	Type of Scheme	Run-of-River
	Gross Head	690.10 m
	Head loss at Design Discharge	10.18 m
	Net Head at Design Discharge	679.92 m
	Installed Capacity	21.40 MW
	Average Annual Energy after Outage	122.94 GWh
3	Hydrology	
	Catchment Area (Nyadi)	54.03 Km ²
	Mean Annual Discharge (Nyadi)	4.66 m ³ /sec
	Design Discharge	3.60 m ³ /sec
	Riparian Release (Nyadi River)	0.11 m ³ /sec
	Design Flood Discharge (100 years flood)	123.45 m ³ /sec at Intake site
	Design Flood Discharge (100 years flood)	188.42 m ³ /sec at Powerhouse site
	Average Annual Precipitation	3316 mm
4	Diversion Weir & Undersluice	
	Type of Weir	Boulder Lined Weir
	Length of Weir	15 m
	Crest Elevation	2950.60 masl
	Spillway type	Free overflow
	Undersluice Opening (W X H)	2.50 m x 2.50 m
	Undersluice Invert Level	2946.49 masl
5	Trash passage	
	Size of trash passage (W x H)	1.5 m x 2.5 m
	Invert level of opening	2950.10 masl
	Length of trash passage	12.0 m
6	Intake and Gravel Trap	
	Type of Intake	Side Intake-Submerged orifice type
	No. of Openings	2 nos.
	Size of Intake (W x H)	2.0 m x 1.6 m
	Intake Sill Level	El. 2950.10 masl
	Intake Invert Level	El. 2948.50 masl
	Length of Gravel Trap	4.0 m
	Width of Gravel Trap	4.8 m
	Particle size to be trapped	5 mm
	Flushing Orifice size (W x H)	0.8 m x 0.8 m
	Flushing Culvert size (W x H)	0.8 m x 1.0 m

S. N	Description	Detail Design Report
7	Approach Culvert	
	Type	RCC Culvert
	No. of culverts	1 no.
	Length	105.0 m
	Bed slope	1 in 400
	Size (W x H)	1.6 m x 1.5 m
8	Approach Culvert (Diverged)	
	Type	RCC Culvert
	No. of culverts	2
	Length of each culvert	25.0 m
	Bed slope	1 in 600
	Size (W x H)	1.1 m x 1.5 m
9	Settling Basin	
	Type	Concrete, Double Bay Dufour
	Dimension (L x B x H)	35.0 m x 6.5 m x 4.1 m
	Inlet Transition Length	12.70 m
	Particle Size to be settled	0.15 mm
	Trapping Efficiency	80% (Vetter's Method)-100 % (Camp's method)
	Sediment Flushing Orifice size (W x H)	1.0 m x 1.2 m
10	Headrace culvert	
	Type	RCC box
	Culvert size (W x H)	2.2 m x 2.2 m
	Length	59.5 m
11	Headrace Tunnel	
	Type	Inverted D-shaped
	Excavation Size (W x H)	2.5 m x 2.9 m
	Minimum Finished Size (W x H)	2.2 m x 2.5 m
	Length	2020 m
	Type of Lining	Shotcrete/concrete lined as per rock class
12	Surge Shaft	
	Type	Simple Cylindrical
	Total Height	25 m
	Finished Diameter	4.5 m
	Up Surge Level	2956.73 masl
	Down Surge Level	2941.88 masl
	Normal Operation Level	2950.60 masl
13	Drop Shaft	

S. N	Description	Detail Design Report
	Type / Pipe Material	Circular / Steel pipe
	Internal Diameter-Steel Pipe	1.2 m
	Minimum Finished Diameter	2.2 m
	Excavation Diameter	2.4 m
	Backfill Concrete (M15 Self compacting concrete)	50 cm (Varying)
	Length	255 m
14	Penstock Tunnel	
	Type	Inverted D-shaped
	Excavation Size (W x H)	2.9 m x 3.1 m
	Length	253 m
	Type of Lining	Shotcrete/concrete lined as per rock class
15	Steel Penstock Pipe	
	Type	Steel Pipe
	Internal Diameter	1.2 m
	Length (Before bifurcation)	1490 m
	Diameter-Length (After bifurcation)	0.85 m dia. of 15 m each
	Steel Thickness	8 mm to 40 mm (IS 2062 E350B0 or Equivalent)
16	Powerhouse	
	Type	Surface
	Size (L x W)	28.85 m x 19.50 m
	Height	14.65 m
	Powerhouse Machine Floor Level	El. 2259.00 masl
17	17 Tailrace Culvert	
	Type	RCC Box
	Size (W x H)	1.50 m x 1.50 m
	Maximum Tailwater Level (Considering 10% COL)	2256.78 masl
	Minimum Tailwater Level (Considering 20% of design discharge on each unit)	2256.31 masl
	Tailrace Water Level	NA
18	Turbine	
	Type	Pelton-Horizontal Axis
	Number	2 nos.
	Rated Output Capacity per unit	11.05 MW + 10 % COL
	Turbine Axis Level	2260.50 masl
	Net Head	679.92 m
	Discharge per Unit	1.8 m ³ /sec

S. N	Description	Detail Design Report
	Efficiency	91.5%
19	Governor	
	Type	Digital Electronic Governor with PID
	Adjustment for Speed Drop	Up to 10 %
20	Generator	
	Type	Three phases, Synchronous
	Rated Output Capacity per Unit	12.60 MVA + 10 % COL
	Power Factor	0.85
	Voltage	11 kV
	Frequency	50 Hz
	No of Units	2 nos.
	Excitation System	Brushless Excitation
	Efficiency	97.5%
21	Transformer	
	Type	Three phase-Oil Immersed, Outdoor
	Rated Capacity	13.9 MVA
	Voltage Ratio	132/11 kV
	No of Units	2 nos
	Vector Group	YNd11
	Efficiency	99%
22	Transmission Line	
	Voltage level	132 kV
	Length	13.5 Km
	Conductor Type	BEAR
	From	Nyad- Phidi HPP's Switchyard
	To	Nyadi HPP'S Switchyard (Connection Point)
23	Access Road	
	Naiche to Kharka (Zero Point)	15 Km
	Kharka to Powerhouse	11 Km

2 Resources and Facilities

The project is supported by essential resources and facilities required for its successful implementation. Key infrastructure including access roads and communication systems is in place. Necessary construction equipment, materials and storage areas are being arranged near the site, with provisions for worker accommodations and site offices. Detailed information regarding the available resources and supporting facilities is presented in the sections below.

2.1 Resources from Client

The resources provided by the client under various categories are described below.

2.1.1 Human Resources

Human resources available are listed below.

Table 2: Human resources of Client

S. N	Designation	Nos	Remarks
1	Resident Engineer	1	
2	Sr. Mechanical Engineer	1	
3	Project Engineer	1	
4	Geologist	1	
5	Sub Engineer	1	
6	Site Supervisor	1	
7	Driver	1	
8	Cook	1	

2.1.2 Facilities

The facilities of the client are listed in the table below.

Table 3: Facilities of Client

S. N	Description	Nos	Remarks
1	Vehicle	1	
2	Printer	1	
3	Office building	1	
4	Staff quarter	2	
5	Guest house	1	
6	Kitchen building	1	

2.2 Explosive

Table 4: Stock of Blasting materials

S. N	Description	Unit	Quantity	Remarks
1	Emulsion	Kg	54.80	Remaining
2	Detonator	Nos	5264	Remaining

2.3 Resources from Contractor

2.3.1 Human Resources

Human resources available are listed below

Table 5: Human Resources of Civil Contractor

S. N	Designation	Nos	Remarks
1	Project Manager	1	
2	Site In-charge	1	
3	Geologist	1	
4	Surveyor	2	
5	Sub Engineer	2	
6	Supervisor	2	
7	Accountant	1	
8	Blaster	2	
9	Electrician	2	
10	Welder	1	
11	Drilling Supervisor	1	
12	Driller	8	
13	Driller Helper	5	
14	Driver	2	
15	Operator	6	
16	Helper	4	
17	Skilled Manpower	6	
18	Unskilled Manpower	8	
19	Cook	2	

Table 6: Human Resources of HM Contractor

S. N	Designation	Nos	Remarks
1	Site In-charge	1	
2	Supervisor	1	
3	Operator	1	
4	Driver	1	



5	Welder	11	
6	Electrician	1	
7	Storekeeper	1	
8	Cook	1	

2.3.2 Equipment

The equipments of the contractor are listed in the table below.

Table 7: Equipment of Civil Contractor

S. N	Description	Nos	Remarks
1	Excavator	4	
2	Backhoe loader	2	
3	Bolero	2	
4	Muck Loader	1	
5	Tractor	2	
6	Diesel generator	3	
7	Compressor	3	
8	Shotcrete machine	1	
9	Grouting machine	1	
10	6-Wheeler Tipper	1	
11	4-Wheeler Tipper	1	
12	Jack Hammer	4	
13	Welding Machine	2	
14	Chainsaw Machine	2	
15	Motercycle	1	
16	Water Pump	2	

Table 8: Equipment of HM Contractor

S. N	Description	Nos	Remarks
1	Excavator	1	
2	Welding Machine	4	
3	Tractor	1	

2.3.3 Material

Table 9: Material Stock of Civil Contractor

S. N	Description	Unit	Quantity	Remarks
1	Diesel	Ltr	4200	
2	Cement	Bag	160	

3 Activities at Site in December 2025

Activities carried out during this period are briefly described hereunder:

3.1 Infrastructure Development

For the success of the project, most of the required infrastructures are been constructed and few are been ongoing.

3.1.1 Internal Approach Road

To Headworks:

Towards the headworks, excavation of new track has been started just below the previous alignment and continued through bucket and breaker. Till this month, internal approach road excavation is completed up to chainage 4+120.00 m which equals to almost 90 % of the total road. Almost 440 m of road excavation is remaining towards the headworks.

To Powerhouse:

No work in this month. Upto the date, excavation of the internal approach road to powerhouse is completed up to 0+680 m chainage and about 220 m of the road section is remaining for excavation.

Dahare – Kharka road

Road upgrading works is been completed from Dahare to Kharka road by maintaining radius in loops and gradient for the smooth movement of Heavy vehicle. Furthermore, road upgrading works at zero section is been started.

3.1.2 Ropeway Construction

All the equipment for the construction of the ropeway has arrived at the project site. The accessories for tower erection have been shifted to Tower 2 and 3 from the base location and shifting to Tower 3 is completed. The erection of the Tower 2 is completed and the main track rope is been shifting from base location to the Tower 3.

3.1.3 Construction Power

Construction power from NEA has been made available at the project site. Currently, power is being supplied to the penstock tunnel and powerhouse areas, while the supply line towards the headworks is still under progress.

3.2 Civil Works

The civil works of this project involve the construction of key infrastructure components such as the headworks, diversion weir, intake, approach culvert, settling basin, headrace tunnel, surge shaft, penstock alignment and powerhouse. These works are essential for guiding and controlling the flow of water to generate electricity efficiently. Activities under the civil works include excavation, concreting, tunnelling, slope stabilization and construction of hydraulic structures.

3.2.1 Penstock Tunnel Construction

The penstock tunnel is a component that conveys pressurized water through penstock pipe from surge shaft to the powerhouse turbines. The tunnel alignment is carefully selected to minimize hydraulic losses while ensuring structural stability. The penstock tunnel has a total designed length of 253 meters.

As of now, 210.70 meters equals to 83 % of the tunnel excavation has been completed. The excavation is being carried out with a strong emphasis on ensuring safety and maintaining structural integrity throughout the process.

3.2.2 Penstock Alignment

The site clearance and excavation for track opening from AB 9 to AB 12 have been completed and excavation for Anchor Block 12 has been started.

3.3 Hydromechanical Works

The hydromechanical works for the project are progressing now. A total of 208 steel plates, equivalent to approximately 1,180 tons have been arrived and stored at the mechanical yard in Pokhara for further fabrication and assembly. These materials are a key component for the hydromechanical works, including penstock and associated structures. The construction of three staff camps at the project site to accommodate personnel for the ongoing and upcoming works has been completed.

A team from the hydromechanical contractor has been mobilized to the site, the construction of the workshop is underway. Also, pipe transportation to the site is ongoing and almost 40 m of the pipe is transported.

3.4 Electromechanical Works

The electromechanical works for the project are in the preliminary phase. The process for selecting a qualified company for the supply and installation of electromechanical equipment has been completed which includes evaluation of proposals from potential contractors to ensure compliance with technical specifications, quality standards and project timelines. Currently, the bid submission phase is complete and the evaluation of bidders is now in progress. The selected company will be responsible for the procurement, delivery, installation, testing and commissioning of key components such as turbines, generators, control systems and auxiliary equipment essential for the successful operation of the hydropower plant.

3.5 Transmission Line Works

For the transmission line works, the Initial Environmental Examination (IEE) has been completed and the survey license has been obtained. The bidder pre-qualification process has been successfully completed and the tendering process is currently underway.

3.6 Other Works

3.6.1 Laboratory Setup

The construction of the on-site laboratory and the installation of the Los Angeles Abrasion testing machine and the Compressive Strength testing machine (CTM) has been completed. The calibration of CTM has been also completed and the mix design process is ongoing.

3.6.2 Health and Safety

Health and safety measures have been implemented to ensure the safe execution of project activities. Personal Protective Equipment (PPE) has been provided to all the staff and workers in road construction and tunnel excavation and its use is strictly enforced on site. Additionally, instruction signboards have been installed at both the construction and project areas to promote awareness and compliance with safety protocols.

3.6.3 Quality Control

Quality control at the project site is being closely monitored to ensure all construction activities meet the required standards. Site engineer and supervisor are observing the quality of work on a regular basis, with particular attention to material handling and workmanship. Material testing is planned to commence as soon as the on-site laboratory setup is completed and the testing machines are properly calibrated. This will enable systematic verification of construction materials, further strengthening the overall quality assurance process.

3.6.4 Regular Meeting

Regular meetings are held once a week following the submission of the weekly progress report. These meetings serve as a platform to review the current status of work, discuss challenges, and plan upcoming activities. Participation from key personnel ensures effective coordination, timely decision-making and smooth progress at the project site.

3.7 Project Progress

A summary of the project's progress is presented in the table below.

S. N.	Description	Unit	Total Qty	Till Previous Month	This Week Progress	Completed Till Date	% Completed
A	Infrastructure Development						
1	Internal Approach Road						
	To Headworks	Km	4.56	3.565	0.555	4.120	90.35%
	To Powerhouse	Km	0.90	0.68	0	0.68	75.56%
2	Ropeway						
	Supply and delivery of equipment and accessories	LS	1	1	0	1	100%



	Shifting of equipment and accessories	LS	1	0.90	0.00	0.90	90%
	Tower erection, testing and commissioning	LS	1	0.1	0.2	0.3	30%
3	Construction power						
	Up to Powerhouse	LS	1	1	0	1	100%
	Up to Headworks	LS	1	0	0	0	
4	Army Camp						
	Foundation work	LS	1	0.8	0.2	1.0	100%
	Superstructure	LS	1	0.2	0.4	0.6	60%
B	Civil Work						
1	Mobilization	%	100%	25%	0%	25%	25%
2	Penstock tunnel	m	253	184.7	26.0	210.7	83.28%
3	Penstock Alignment						
	Excavation CAB-8 to CAB-12	m	0+560 to 0+800	140	0	140	
C	Hydromechanical Work						
1	Mobilization	%	100%	25%	25%	50%	50%
2	Steel plate reached at Pokhara shop	Ton	1080	1080	0	1080	100%
3	Fabrication of pipe						
	Pipe thickness	mm			32		
	Edge Preparation	Nos			69		
	Rolling	Nos			56		
	Welding	Nos			14		
D	Electromechanical Work						
1	Bid Submission	LS	1	1	0	1	100%
2	Evaluation of Bidders	LS	1	Ongoing			
E	Transmission Line Work						
1	PQ process	LS	1	1	0	1	100%
2	Tender Process	LS		Ongoing			



4 Expected Progress for January 2026

The work throughout the all fronts will be continued and the expected progress for the month of December is hereunder.

4.1 Internal approach road to Headworks

Excavation of internal approach road to Headworks will be continued through bucket and breaker fixed excavators. If needed, blasting will be done for the smooth progress. And the approach road will be completed within the 1st week of January.

4.2 Internal approach to Powerhouse

Track Excavation of the internal access road to top of powerhouse is almost completed. Furthermore, layout of the powerhouse area and excavation is expected to start at the month end.

4.3 Ropeway Construction

Erection of Ropeway towers has been started and expected to complete and handover in the month of January.

4.4 Penstock Tunnel Construction

Construction of penstock tunnel is halted due to shortage of explosive and once the explosive arrives, at least 2 blast per day is continued and 3 blast per day is expected in the month of January.

4.5 Hydromechanical works

Hydromechanical team has started to transport the fabricated pipe to site and welding works will continue after the approval on site.

4.6 Penstock Alignment

Excavation of Anchor Block in the penstock alignment will be continued.

5 Appendices

5.1 Appendix 1: Photographs



Figure 1: Excavation of access road towards Headworks at CH 3+650.00m.



Figure 2: Excavation of access road towards Headworks at CH 3+750m.



Figure 3: Excavation of access road towards Headworks at CH 3+805m.



Figure 4: Construction of Army Camp buildings.



Figure 5: Construction of Emulsion Bunker.



Figure 6: Overview of Army Camp.



Figure 7: Discharge measurement of Nyadi River near crusher area.



Figure 8: Discharge measurement of Kholsi near Army camp.



Figure 9: Installation of Crusher Plant.



Figure 10: Fitting of roller of Crusher Plant.



Figure 11: Mix design of concrete for strength estimation.



Figure 12: Testing of Compressive strength of mix design concrete.



Figure 13: Road upgrading works in Dahare – Kharka section.



Figure 14: Penstock Tunnel Face at CH 0+186.00m.



Figure 15: Penstock Tunnel Face at CH 0+210.75m.



Figure 16: Rockbolt installation at Penstock Tunnel.



Figure 17: Rolling of steel plate (32 mm)



Figure 18: Nondestructive test of welding (32 mm).

5.2 Appendix 2: Site Visitors

The list of visitors who visited the site in December 2025 are listed below.

Table 10: List of Visitors of this month

S. No.	Name of Visitor	Designation	Remarks
A	North Summit Hydro Ltd. (Client)		
1			
B	Kalika-SAI-Karn JV (Contractor)		
1			