Mine Plan and Mine Closure Plan

(First Modification/Revision)

For

Gondulpara Coal Mine

NORTH KARANPURA Coal Field
(Under Rule 22E of MCR 1960)
Hazaribag
Jharkhand

Project area 513.18 ha

Rated Capacity 4 MTPA

Peak Capacity -6.0000MTPA

Prepared By

Mining Tech Consultancy Services Ltd.

Contact No. - 9953598713
Email ID - vishvajeet.jha@adani.com

APPLICANT

Adani Enterprises Limited

Adani enterprises limited ,Adani Corporate House, Shantigram, Near Vaishnodevi circle, S G Highway.
Khodiyar, Ahmedabad, Gujarat -382421

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

INDEX

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

ANNEXURES

S.No	Parameters	Annexure No.	File Name	Page No.
1	Copy of allotment order /Vesting order.	Annexure-1A1	Annexure I Gondulpara- Vesting Order.pdf	44 - 49
2	Certificate of Qualified person (QP) / Accredited Mining Plan preparing agency (MPPA) and State Government And Geo-reference co-ordinates of the proposed mining lease area	Annexure-2A	Gondulpara_leaseboundary_CardinalPoint .xlsx	50 - 52
		Annexure-2B	Certificate_Annexure2B.pdf	53
		Annexure-2C	LOI_SGJ_Gondulpara-combined .pdf	54 - 58
3	Approval of the Company Board Approval	Annexure-3A1	Annexure-III_Board_resolution.pdf	59 - 60
4	Copy of earlier approval of mining plan.	Annexure-4	GondulparaapprovalLetter.pdf	61 - 62
5	Plan / chart showing schedule of Implementation of Mine closure activities (progressive and final closure) with duration of important activities	Annexure-5	Annexure-V_Closure_cost.pdf	63
6	Non-refundable Application Fee	Annexure-6	1743747651598bharatkosh_Gondulpara_ 2025_27.03.2025.pdf	64
7	Expert-Review Report Note: Not mandatory Document	Annexure-7	Annexure 7	65
8	Additional Annexures (if any)	Annexure-8	Annexure_10_PeerReviewComments_on Annexure9.pdf	66 - 67
		Annexure-9	Annexure_11_Reply__PeerReviewComm ents.pdf	68 - 70
		Annexure-10	ERA_Certificate.pdf	71
		Annexure-11	Water_requirement.pdf	72
		Annexure-12	Annexure-10A.pdf	73 - 74
		Annexure-13	Annexure_D_PAF.pdf	75
		Annexure-14	AnnexureVIIICMDPAAELGondulparaMinin gAgmt_Comp.pdf	76 - 108
		Annexure-15	20212107MoCtoAELFinalconfirmation409. 92Haland.pdf	109
		Annexure-16	AnnexureIIIA_Committment_letter.pdf	110
		Annexure-17	Compliance to first observation 11.05.2025.pdf	111 - 116
		Annexure-18	Compliance to MoM dated 12.06.2025.pdf	117 - 119
		Annexure-19	Land use table.pdf	120
		Annexure-20	Compliance to MoM dated 09.07.2025.pdf	121

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

PLANS / PLATES

S.No	Parameters	Plan/Plates No.	File Name	Page No.
1	Location plan	Plan/Plate 1	01 PLATE I Updated LOCATION PLAN1.pdf	122
2	Certified Plan of Project/Lease area	Plan/Plate 2A	Plate 2A_MPPA_certification.pdf	123
		Plan/Plate 2B	1750418943968Boundary_Certificate_non_encroachmentfromCMPDI_comp.pdf	124 - 125
3	KML file of the Proposed lease area, Project Area and geological block.	Plan/Plate 3A	03PLATEIIILease boundarySATELLITEIMAGERYMAP.pdf	126
		Plan/Plate 3B	03PLATEIIILease boundarySATELLITEIMAGERYMAP.pdf	127
		Plan/Plate 3C	03 PLATE IIIA SATELLITE IMAGERY MAP.pdf	128
4	Cadastral plan showing approved block boundary vis-à-vis proposed/existing mining lease & Mine boundary superimposed over it in distinct color, showing land use and infrastructure etc.	Plan/Plate 4	09 PLATE IX TENTATIVE LAND USE PLAN.pdf	129
5	Geological plan showing all the boreholes drilled and proposed to be drilled showing allotted block boundary and required lease area	Plan/Plate 5A1	05 PLATE V GEOLOGICAL PLAN1.pdf	130
6	Graphic Litholog	Plan/Plate 6A1	06 PLATE VI GRAPHIC LITHOLOG OF BOREHOLES1.pdf	131
7	Surface Plan showing drainage system, Contour, at minimum 3m interval, location of BH	Plan/Plate 7	07 PLATE VII - SURFACE PLAN-Model.pdf	132
8	Conceptual plan showing infrastructure facilities including colony, boundary of mining area, mine entries, roads including road diversion alignment etc.	Plan/Plate 8	_PLATE_VIII_-_CONCEPTUAL_PLAN-Model.pdf	133
9	Tentative land use plan showing land type (Govt., forest and tenancy land) with its data source	Plan/Plate 9	Plate-9	134
10	Floor contour plan and seam folio plan, ISO-grade plan	Plan/Plate 10A1	10 F PLATE XF SEAM II FLOOR CONTOUR.pdf	135
		Plan/Plate 10A2	10 G PLATE XG SEAM I FLOOR CONTOUR.pdf	136
		Plan/Plate 10A3	10 D PLATE XD SEAM IIIT FLOOR CONTOUR PLAN.pdf	137
		Plan/Plate 10A4	10 A PLATE XA SEAM V FLOOR CONTOUR.pdf	138
		Plan/Plate 10A5	10 B PLATE XB SEAM IVD FLOOR CONTOUR.pdf	139
		Plan/Plate 10A6	10 C PLATE XC SEAM IV FLOOR CONTOUR.pdf	140
		Plan/Plate 10A7	10 E PLATE XE SEAM IIIB FLOOR CONTOUR OF SEAM IIIB & IIICOMB.pdf	141
		Plan/Plate 10B1	10 F1 PLATE XF1 SEAM II ISOCHORE&FLOOR CONTOUR.pdf	142
		Plan/Plate 10B2	10 G 1PLATE XG1 SEAM I ISOCHORE&FLOOR CONTOUR.pdf	143
		Plan/Plate 10B3	10 D1 PLATE XD1 SEAM IIIT ISOCHORE &FLOOR CONTOUR.pdf	144
		Plan/Plate 10B4	10 A1 PLATE XA1 SEAM V ISOCHORE &FLOOR CONTOUR.pdf	145
		Plan/Plate 10B5	10 B1 PLATE XB1 SEAM IVD ISOCHORE& FLOOR CONTOUR.pdf	146
		Plan/Plate 10B6	10 C1 PLATE XC1 SEAM IV ISOCHORE&FLOOR CONTOUR.pdf	147
		Plan/Plate 10B7	10 E1 PLATE XE1 SEAM-IIIB ISOCHORE &FLOOR CONTOUROF SEAM IIIB & IIICOMBIsochore & Floor Counter Plan of Seam III Bottom & Seam III Comb.pdf	148
11	X-section showing coal/Lignite seams	Plan/Plate 11A1	11 PLATE XI GEOLOGICAL CROSS SECTIONS.pdf	149
12	Plan showing existing and proposed surface layout	Plan/Plate 12	_PLATE_XII_-_PLAN_SHOWING_EXISTING_AND_PROPOSED_SURFACE_LAYOUT-Model.pdf	150
13	Plan showing total coal thickness and overburden thickness and stripping ratio	OC Plan/Plate 13	_PLATE___XIII_TOTAL_EXCAVATION_PLAN.pdf	151
14	Final stage quarry plan showing haul road alignment	OC Plan/Plate 14	_PLATE_-_XIV_FINAL_STAGE_QUARRY_PLAN-Model.pdf	152
15	Plan showing mode and location of entries and surface layouts	UG Plan/Plate 15		-

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

16	Layout of the panel for each system (like Longwall, Continuous Miner, Bord & Pillar, road header etc.)	UG Plan/Plate 16		-
17	Layout of pillar extraction	UG Plan/Plate 17		-
18	Support system	UG Plan/Plate 18		-
19	Haulage and transport system	UG Plan/Plate 19		-
20	Post mining land use plan	Plan/Plate 20	20 PLATE - XX POST MINING LAND USE PLAN-Model.pdf	153
21	Progressive mine closure plan/ stage plan indicating stages at 1st,3rd, 5th, year of achieving rated capacity of the mine and end of life (showing area, volume, dump height etc. for OC and seam-wise layout projects and ventilation system in UG)	Plan/Plate 21A	21 A PLATE - XXIA 1ST YEAR STAGE PLAN-Model.pdf	154
		Plan/Plate 21B	21 B PLATE - XXIB 3RD YEAR STAGE PLAN-Model.pdf	155
		Plan/Plate 21C	21 D PLATE - XXI-D 5TH YEAR STAGE PLAN-Model.pdf	156
		Plan/Plate 21D	21 C PLATE - XXIC 4TH YEAR STAGE PLAN-Model.pdf	157
		Plan/Plate 21E	21 F PLATE - XXIF FINAL STAGE DUMP PLAN-Model.pdf	158
22	Reclamation plan	Plan/Plate 22	22 PLATE - XXII RECLAIMATION PLAN-Model.pdf	159
23	Additional Plan / Plates	Additonal Plates-23	26 PLATE - XXVI 5TH YEAR RECLAIMATION PLAN-Model.pdf	160
		Additonal Plates-24	27 PLATE - XXVII 10TH YEAR RECLAIMATION PLAN-Model.pdf	161
		Additonal Plates-25	28PLATEXXVIII30th_YearReclamationPlan-Model.pdf	162
		Additonal Plates-26	21 E PLATE - XXI-E 10TH YEAR STAGE PLAN-Model.pdf	163
		Additonal Plates-27	21GPLATEXXIG30th_YearStagePlan-Model.pdf	164

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

CHECKLIST

	Details	Status
Chapter-1	Project Information	✓
Chapter-2	Exploration,Geology, Seam Sequence, Coal Quality and Reserve	✓
Chapter-3	Mining	✓
Chapter-4	Safety Management	✓
Chapter-5	Infrastructure Facilities proposed and their Location	✓
Chapter-6	Land Requirement	✓
Chapter-7	Environment Management	✓
Chapter-8	Progressive & Final Mine Closure Plan	✓
Annexure	Copy of allotment order /Vesting order.	✓
Annexure	Certificate of Qualified person/ Accredited Mining Plan preparing agency (MPPA)if the project area is confined within the vested/allotted block boundary/existing mining lease and Where the project area extends beyond the block boundary, a certificate of Qualified person/ Accredited Mining Plan preparing agency (MPPA)should be supported with a certificate of State Government mines and Geology department must be attached, which should specify (a) intent of the state government for grant of lease beyond the vested geological boundary/existing mining lease (b)non-existence of Coal/ Lignite in the area beyond the vested/allotted geological block boundary/existing mining lease to rule out the issue of encroachment and use of coal bearing area (beyond the vested/allotted block boundary/existing mining lease) in the mining plan	✓
Annexure	Approval of the Company Board	✓
Annexure	Copy of earlier approval of mining plan.	✓
Annexure	Plan / chart showing schedule of Implementation of Mine closure activities (progressive and final closure) with duration of important activities	✓
Annexure	Expert-Review Report carried out be an Accredited Mining Plan Preparing Agency (MPPA)	✓
Annexure	Other document (if any)	✓
Plates	Location plan	✓
Plates	Plan certified by Qualified person/ Accredited Mining Plan preparing agency (MPPA)if the project area is confined within the vested/allotted block boundary/existing mining lease and where the project area extends beyond the block boundary, a Plan certified by Qualified person/ Accredited Mining Plan preparing agency (MPPA)should be supported with a plan with cardinal co-ordinates duly certified by theMines and Geology Department of the concerned State Government. Plan in support of Annexure - II	✓
Plates	Printed copy of the KML file superimposed in the recent (not older than one year from the base date) dated satellite Image duly certified by Accredited Agency should also be attached. Note: The soft copy of the KML file shall also be part of the Soft copy of the mining Plan.	✓
Plates	Cadastralplan showing approved block boundary vis-A-vis proposed/existing mining lease & Mine boundary superimposed over it in distinct color, showing land use and infrastructure etc.	✓
Plates	Geological plan showing all the boreholes drilled and proposed to be drilled showing allotted block boundary and required lease area.	✓
Plates	Representative Graphic Litholog	✓
Plates	Surface Plan showing drainage system, Contour, preferably at 3m interval, location of BH (borehole)	✓
Plates	Conceptual plan showing infrastructure facilities including colony, boundary of mining area, mine entries, roads including road diversion alignment etc.	✓

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Plates	Tentative land use plan showing land type (Govt., forest and tenancy land) with its data source.	✓
Plates	Floor contour plan and seam folio plan, iso-grade plan	✓
Plates	Cross-section showing coal/lignite seam(s)	✓
Plates	Plan showing existing and proposed surface layout(s)	✓
Plates	Plan showing total coal thickness and overburden thickness and stripping ratio (in case of opencast (OC) Mines)	✓
Plates	Final stage quarry plan showing haul road alignment (in case of OC Mines)	✓
Plates	Plan showing mode and location of entries and surface layouts (in case of underground (UG) Mines)	✗
Plates	Layout of the panel for each system (like Longwall, Continuous Miner, Bord & Pillar, road header etc.) should be given (in case of UG Mines)	✗
Plates	Layout of pillar extraction (in case of UG Mines)	✗
Plates	Support system (in case of UG Mines)	✗
Plates	Haulage and transport system (in case of UG Mines)	✗
Plates	Post mining land use plan	✓
Plates	Progressive mine closure plan/ stage plans	✓
Plates	Reclamation plan	✓

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Chapter-1: Project Information

1.1 Introduction

S.No	Parameters	Details
1.1.1	Name of Coal / Lignite mine or block	Gondulpara Coal Mine
1.1.2	Name of Coalfield/ Lignite field .	NORTH KARANPURA Coal Field
1.1.3	The base date of Mining Plan.	08/09/2025
1.1.4	Linked End Use Plant.	Sale of coal, including sale to affiliates and related parties , utilisation of coal for any purpose including but not limited to captive consumption, Coal Gasification , Coal Liquefaction and export of coal.
1.1.5	Distance of End use plant from the pit head of the project in "km"	Not Applicable
1.1.6	Mode of Coal Transport/Despatch	The closest railway station, Bes, is situated approximately 13 km to the north of the block along the Daltonganj-Barkakana-Dehri-On-Sone loop line of the Southeastern Railway. The Gondulpara coal block is surrounded by other coal blocks in a very challenging terrain, featuring an elevation difference of around 120-150 m with steep slopes. The alignment of the railway line from the coal block to the nearest connection point on the Daltonganj-Barkakana-Dehri-On-Sone loop rail corridor will be developed in collaboration with adjacent coal block owners and will adhere to the technical feasibility based on Indian Railway standards. Thus, after approximately 5 years from the opening of Gondulpara coal mine, First Mile Connectivity, either by rail or conveyor belt or other environment friendly mechanized method, will be implemented from the pit head to the nearest siding. Since the mine operates commercially, coal produced from it will be supplied to various nearby industries or buyers until the FMC is established. Consequently, buyers may choose any combination of transportation methods such as rail, conveyor, or road for coal transportation.

1.2 Location, Topography & Communication:

S.No	Parameters	Details
1.2.1	Location of coal mine/block.	The North Karanpura Coalfield is situated in the westernmost extremity of Damodar valley coal basins. It is bound by Latitude 2338'40" - 2358'40"N and Longitude 8446'20" - 8524'15"E and covers an area of 1230 Sq.Km. Administratively, the coalfield falls in Hazaribagh, Chatra, Latehar Ranchi districts of Jharkhand State. It is elliptical in shape having axis of 64 Km in east-west direction and 32 Km in north-south direction. The North Karanpura Coalfield forms a prominent east west trending valley between Hazaribagh plateau in the north and Ranchi plateau in the south. The North and South Karanpura coalfields are separated by an east-west elongated metamorphic patch in the south-east (ASWA PAHAR). They are interconnected near Bachra and Hindigir by a narrow tongue of Talchir outcrops. The Gondulpara Coal block covers an area of 4.09 sq.km and it is bounded by 2350'20" - 2351'20"N and Longitude 8518'20" - 8520'15"E. The block is located at about 35 km from Hazaribagh town. This area is a part of Survey of India Topo Sheet No.73 E/5 (on R.F.150000).
	State(s)	Jharkhand
	District(s)	Hazaribag
1.2.2	Communication: PWD roads, railway lines, Air	The gondulpara block is approachable from Badam village through a 3 Km Road. The Badam village in turn is connected by a fair-weather road to Barkagaon village located on Tandwa-Hazaribagh metalled road. The distance from the block to Hazaribagh town is about 35 Km. The nearest Railway Station is Bes at a distance of about 13 Km towards north from the block on Daltonganj-Barkakana-Dehri-On-Sone loop line of the Southeastern Railway. The nearest Airport is at Ranchi located at a distance of about 120 Km from the block.
1.2.3	Availability of power supply & water etc.	An overhead power line exists in the vicinity of Badam village adjoining the Gondulpara Block and this overhead transmission line may be strengthened for supply of power to Gondulpara Block. The existing capacity of the nearby 33 / 11 KV sub-station at Barkagaon is proposed to be augmented to meet the power requirement of Gondulpara Opencast Project. To meet the maximum demand for the project, one main substation of capacity 33/6.6 kV, 6.5 MVA has been envisaged for catering the power demand of Pumps, workshop, colony, Quarry and Haul Road lighting. The project sub-station shall feed power to pumping Workshop Colony substation through a 3.3kv overhead line and illumination shall be carried out as per requirement at 10kVA, 3.3/0.415 kV through lighting transformer. Any other alternate option for power source shall be explored. Jharkhand State Electricity Board shall be approached to provide required quantity and quality of power for the project.

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

1.2.4	Prominent physiographic features, drainage pattern, natural water courses, rainfall data, highest flood level.	The Gondulpara block represents a rugged topography with hills in the eastern part and river valley towards north. A hill range traverses along the eastern and southeastern parts covering substantial area of the block. Hills are steep with maximum elevation of over 516 m. southeast of borehole CMKB-144. The difference between foot hills and the highest peak is about 60m. The minimum elevation along the Badmahi river is about 417m.The Badmahi River, flowing southerly through the block in the northern and western parts controls the main drainage of the area. Many rivulets originate from the hill range and feed the Badmahi River. The Badmahi River in turn joins the Damodar river towards south. The Badmahi River is perennial water sources for the region. The climate is tropical with severe summer. The temperature during summer (March to June) goes as high as 45 C. Summer days are hot with dusty winds, but nights are generally pleasant. The minimum summer temperature is around 20C. The winters (November to February) are cold and the minimum temperature recorded is 1C. The rainy season is generally June to October. The total rainfall on an average is about1100mm, of which 69 precipitation is during rainy season only.
1.2.5	Important surface features within the project area and major diversion or shifting involved .	Human habitation five villages (Gali, Gondulpara , Hahe , Phulang and Balodar) are located in / immediate periphery of the block. Few Small ponds and dug wells in the area. These are utilized for irrigation and drinking water purpose. Nala/River Badmahi river flows from east to west, along the northern boundary of block. An embankment is planned along the Badmahi river. One nala flowing from south to north (tributary of Badmahi river) which will be diverted along the eastern boundary of block, bund is also proposed along the diverted route. All required precaution against inundation would be taken care of.

1.3 Details of the Allotment Agreement:

S.No	Parameters	Details
1.3.1	Name of the Allottee	Adani Enterprises Limited
1.3.2	Details of allotment/ vesting order.	NA104102020NA
1.3.3(1)	Regd. Office	Adani Corporate House , Shantigram , Near Vaishno Devi Circle , SG highway Khodiyar, Ahmedabad Gujarat 382421
1.3.3(2)	Principle Place Of Business	India
1.3.4	Name of the Previous Allottee of the Block.	Adani Enterprises Limited
1.3.5	Date of mining opening permission granted by CCO	08/09/2025
1.3.6	Rated capacity as per CMDPA	4.00
1.3.7	Production Schedule as per opening permission (meeting provisions of CMDPA, if any) .	CMDPA attached as an Annexure
1.3.8	nd Use of Coal/Lignite as per allotment order if any	Sale of coal, including sale to affiliates and related parties , utilisation of coal for any purpose including but not limited to captive consumption, Coal Gasification , Coal Liquefaction and export of coal.
1.3.9	Cardinal points coordinates (WGS84) of the Block Boundary	Cardinal Points files data shown below

Cardinal Points co-ordinates of the Block boundary :

S.NO	Latitude	Longitude
P-1	23°50'33.585"N	85°18'57.884"E
P-2	23°50'35.808"N	85°18'53.059"E
P-3	23°50'36.170"N	85°18'52.267"E
P-4	23°50'36.754"N	85°18'50.582"E
P-5	23°50'37.677"N	85°18'47.078"E
P-6	23°50'38.423"N	85°18'44.511"E
P-7	23°50'38.725"N	85°18'43.541"E
P-8	23°50'39.728"N	85°18'40.344"E
P-9	23°50'40.143"N	85°18'39.166"E
P-10	23°50'40.932"N	85°18'36.996"E
P-11	23°50'42.416"N	85°18'33.221"E
P-12	23°50'43.387"N	85°18'31.098"E
P-13	23°50'44.395"N	85°18'28.771"E
P-14	23°50'46.801"N	85°18'23.416"E
P-15	23°50'47.431"N	85°18'21.942"E
P-16	23°50'47.995"N	85°18'20.890"E
P-17	23°50'48.147"N	85°18'20.608"E
P-18	23°50'48.334"N	85°18'20.871"E
P-19	23°50'48.606"N	85°18'21.248"E
P-20	23°50'48.714"N	85°18'21.397"E
P-21	23°50'48.860"N	85°18'21.629"E
P-22	23°50'49.020"N	85°18'21.891"E
P-23	23°50'49.078"N	85°18'21.985"E
P-24	23°50'49.112"N	85°18'22.040"E
P-25	23°50'49.175"N	85°18'22.144"E

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

S.NO	Latitude	Longitude
P-26	23°50'49.282"N	85°18'22.344"E
P-27	23°50'49.354"N	85°18'22.479"E
P-28	23°50'49.500"N	85°18'22.763"E
P-29	23°50'49.652"N	85°18'23.059"E
P-30	23°50'49.806"N	85°18'23.358"E
P-31	23°50'49.962"N	85°18'23.918"E
P-32	23°50'50.088"N	85°18'24.366"E
P-33	23°50'50.501"N	85°18'25.594"E
P-34	23°50'50.660"N	85°18'26.001"E
P-35	23°50'50.980"N	85°18'26.775"E
P-36	23°50'51.336"N	85°18'27.546"E
P-37	23°50'51.542"N	85°18'27.936"E
P-38	23°50'51.974"N	85°18'28.440"E
P-39	23°50'52.243"N	85°18'28.623"E
P-40	23°50'52.522"N	85°18'28.814"E
P-41	23°50'52.937"N	85°18'28.969"E
P-42	23°50'53.102"N	85°18'29.031"E
P-43	23°50'53.399"N	85°18'29.058"E
P-44	23°50'53.750"N	85°18'29.090"E
P-45	23°50'54.250"N	85°18'29.163"E
P-46	23°50'54.695"N	85°18'29.263"E
P-47	23°50'55.267"N	85°18'29.391"E
P-48	23°50'56.015"N	85°18'29.569"E
P-49	23°50'56.478"N	85°18'29.686"E
P-50	23°50'57.303"N	85°18'29.896"E
P-51	23°50'58.006"N	85°18'30.074"E
P-52	23°50'58.468"N	85°18'30.244"E
P-53	23°50'59.091"N	85°18'30.474"E
P-54	23°50'59.871"N	85°18'30.761"E
P-55	23°51'0.192"N	85°18'30.930"E
P-56	23°51'0.711"N	85°18'31.204"E
P-57	23°51'1.079"N	85°18'31.398"E
P-58	23°51'1.576"N	85°18'31.660"E
P-59	23°51'2.031"N	85°18'31.900"E
P-60	23°51'2.902"N	85°18'32.467"E
P-61	23°51'3.930"N	85°18'33.283"E
P-62	23°51'4.677"N	85°18'33.876"E
P-63	23°51'5.572"N	85°18'34.586"E
P-64	23°51'6.093"N	85°18'35.000"E
P-65	23°51'6.461"N	85°18'35.361"E
P-66	23°51'7.269"N	85°18'36.154"E
P-67	23°51'8.232"N	85°18'37.099"E
P-68	23°51'8.919"N	85°18'37.772"E
P-69	23°51'9.536"N	85°18'38.378"E
P-70	23°51'10.347"N	85°18'39.333"E
P-71	23°51'10.817"N	85°18'39.888"E
P-72	23°51'11.279"N	85°18'40.432"E
P-73	23°51'11.767"N	85°18'41.144"E
P-74	23°51'12.133"N	85°18'41.678"E
P-75	23°51'12.461"N	85°18'42.157"E
P-76	23°51'12.765"N	85°18'42.601"E
P-77	23°51'13.204"N	85°18'43.374"E
P-78	23°51'13.744"N	85°18'44.324"E
P-79	23°51'14.326"N	85°18'45.349"E
P-80	23°51'14.906"N	85°18'46.340"E
P-81	23°51'15.226"N	85°18'46.886"E
P-82	23°51'15.465"N	85°18'47.351"E
P-83	23°51'15.733"N	85°18'47.916"E
P-84	23°51'15.998"N	85°18'48.476"E
P-85	23°51'16.307"N	85°18'49.298"E
P-86	23°51'16.584"N	85°18'50.201"E
P-87	23°51'16.893"N	85°18'51.342"E
P-88	23°51'16.947"N	85°18'51.610"E
P-89	23°51'17.069"N	85°18'52.214"E
P-90	23°51'17.111"N	85°18'52.805"E
P-91	23°51'17.154"N	85°18'53.703"E
P-92	23°51'17.195"N	85°18'54.954"E
P-93	23°51'17.207"N	85°18'55.985"E

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

S.NO	Latitude	Longitude
P-94	23°51'17.216"N	85°18'57.917"E
P-95	23°51'17.220"N	85°19'1.204"E
P-96	23°51'17.172"N	85°19'3.075"E
P-97	23°51'17.137"N	85°19'4.307"E
P-98	23°51'17.120"N	85°19'5.825"E
P-99	23°51'17.168"N	85°19'7.676"E
P-100	23°51'17.234"N	85°19'9.537"E
P-101	23°51'17.199"N	85°19'10.031"E
P-102	23°51'17.162"N	85°19'11.397"E
P-103	23°51'17.068"N	85°19'12.296"E
P-104	23°51'16.703"N	85°19'13.498"E
P-105	23°51'16.215"N	85°19'14.476"E
P-106	23°51'15.365"N	85°19'15.404"E
P-107	23°51'14.396"N	85°19'16.482"E
P-108	23°51'13.175"N	85°19'18.069"E
P-109	23°51'12.104"N	85°19'19.224"E
P-110	23°51'11.210"N	85°19'20.825"E
P-111	23°51'10.822"N	85°19'21.578"E
P-112	23°51'10.402"N	85°19'22.481"E
P-113	23°51'10.257"N	85°19'23.381"E
P-114	23°51'10.199"N	85°19'24.354"E
P-115	23°51'10.335"N	85°19'25.849"E
P-116	23°51'10.646"N	85°19'27.491"E
P-117	23°51'11.252"N	85°19'29.428"E
P-118	23°51'11.802"N	85°19'31.048"E
P-119	23°51'12.820"N	85°19'32.905"E
P-120	23°51'13.853"N	85°19'34.557"E
P-121	23°51'14.672"N	85°19'35.815"E
P-122	23°51'15.337"N	85°19'36.557"E
P-123	23°51'16.087"N	85°19'37.502"E
P-124	23°51'16.631"N	85°19'38.449"E
P-125	23°51'17.159"N	85°19'39.620"E
P-126	23°51'17.496"N	85°19'40.476"E
P-127	23°51'17.711"N	85°19'41.278"E
P-128	23°51'17.913"N	85°19'42.491"E
P-129	23°51'18.081"N	85°19'43.704"E
P-130	23°51'18.148"N	85°19'45.125"E
P-131	23°51'18.014"N	85°19'47.034"E
P-132	23°51'17.645"N	85°19'49.470"E
P-133	23°51'17.134"N	85°19'51.572"E
P-134	23°51'16.778"N	85°19'53.652"E
P-135	23°51'16.610"N	85°19'55.581"E
P-136	23°51'16.759"N	85°19'57.757"E
P-137	23°51'16.810"N	85°19'59.731"E
P-138	23°51'16.844"N	85°20'1.301"E
P-139	23°51'16.837"N	85°20'2.293"E
P-140	23°51'17.092"N	85°20'3.561"E
P-141	23°51'17.469"N	85°20'4.978"E
P-142	23°51'17.932"N	85°20'6.468"E
P-143	23°51'18.479"N	85°20'7.752"E
P-144	23°51'19.223"N	85°20'9.725"E
P-145	23°51'19.972"N	85°20'12.221"E
P-146	23°51'8.209"N	85°20'12.959"E
P-147	23°50'31.755"N	85°20'14.618"E
P-148	23°50'20.598"N	85°19'28.379"E
P-149	23°50'32.863"N	85°18'59.504"E

1.4 Details of the Previous Approval of Mining Plan:

S.No	Parameters	Details
1.4.1	Whether any mining plan has been previously approved	Yes
1.4.2	Title of the mining plan	Mining Plan for Gondulpara Block OCP
1.4.3	Base date	
1.4.4	Submitted By	Tenughat EMTA C[illegible] Mines Ltd
1.4.5	Approval reference with date:	24/06/2009

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

<table>
<tr><td>1.4.6</td><td>Condition, if any, and Compliance</td><td colspan="3"><table>
<tr><th>S.No.</th><th>Conditions</th><th>Compliance Status</th></tr>
<tr><td>1</td><td>Before placing any overburden dump outside the allotted block boundary the mining company shall ensure , by additional exploration , that the dump site is non coal bearing and also that the area is not a part of any other coal block.</td><td>Exploration for negative proving is done under supervision of CMPDI and certification for the same has been obtained from CMPDI. The certificate of negative proving has been attached as an annexture.</td></tr>
<tr><td>2</td><td>Mining Lease to be acquired shall not encroach into any other coal block</td><td>will be complied</td></tr>
<tr><td>3</td><td>The Mining company shall take all necessary precautions regarding safety of mine working , persons deployed therein</td><td>will be complied</td></tr>
<tr><td>4</td><td>The mining company to extract the coal blocked in batter barriers along the common boundary between the adjacent blocks</td><td>company shall put all efforts where ever it is possible.</td></tr>
<tr><td>5</td><td>The mining company to explore the possibility of diversion of Badmahi river to avoid coal sterilization</td><td>block boundary in norther side is passing from the center of Badmahi River Half of the River is outside of block boundary diversion out side of project area may not be possible</td></tr>
</table></td></tr>
<tr><td>1.4.7</td><td>Scheduled year of start of production</td><td colspan="3">2025-26</td></tr>
<tr><td>1.4.8</td><td>Proposed year of achieving the targeted production</td><td colspan="3">4th year</td></tr>
<tr><td>1.4.9</td><td>Date of actual commencement of mining operations, if operations already started</td><td colspan="3"></td></tr>
<tr><td>1.4.10</td><td>Likely date of mining operations, if operations not yet started & reasons for non-commencement of operations</td><td colspan="3">Non Operational

under development as per milestone.</td></tr>
<tr><td>1.4.12</td><td>Statutory obligations vis-à-vis compliance status in a tabular form</td><td colspan="3"><table>
<tr><th>S.No</th><th>Clearance Type (Mining Plan, Mining Lease Environment, Forest, CTO etc)</th><th>Conditions</th><th>Compliance Status</th></tr>
<tr><td>1</td><td>Mining Plan</td><td>Before placing any overburden dump outside the allotted block boundary the mining company shall ensure , by additional exploration , that the dumpsite is non coal bearing and also that the area is not a part of any other coal block.</td><td>Exploration for negative proving is done under supervision of CMPDI and certification for the same has been obtained from CMPDI The certificate of negative proving has been attached as an annexture</td></tr>
<tr><td>2</td><td>Mining Plan</td><td>Mining Lease to be acquired shall not encroach into any other coal block</td><td>will be complied</td></tr>
<tr><td>3</td><td>The Mining company shall take all necessary precautions precautions regarding safety of mine working persons deployed therein</td><td>Mining Lease to be acquired shall not encroach into any other coal block</td><td>will be complied</td></tr>
<tr><td>4</td><td>The mining company to extract the coal blocked in batter barriers along the common boundary between the adjacent blocks</td><td>company shall be put all efforts where ever it is possible.</td><td>will be complied</td></tr>
<tr><td>5</td><td>The mining company to explore the possibility of diversion of Badmahi river to avoid coal sterilization</td><td>block boundary in norther side is passing from the center of Badmahi river.half of the River is outside of block boundary ,diversion out side of project area may not be possible.</td><td>Block boundary in norther side is passing from the center of Badmahi River Half of the River is outside of block boundary diversion out side of project area may not be possible</td></tr>
</table></td></tr>
<tr><td>1.4.13</td><td>Reasons for difference between the planned and actual production levels</td><td colspan="3">The block was deallocated from prior allottee Tenughat EMTA , The block was allocated to AEL through commercial auction. AEL is working as per CMDPA.</td></tr>
</table>

1.5 PARAMETERS OF APPROVED MINING PLAN VIS-A-VIS PROPOSED MINING PLAN :

S.No	Block Area	Approved Mining Plan	Proposed Mining Plan
1.5.1	Allocated Block Area in "Ha"	400	409.9200
1.5.2	Allocated Block Area Projectised "Ha"	400	409.92

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

<table>
<tr><td>1.5.3</td><td>Proposed Mining Lease area "Ha" (Besides, Mineralised zone Lease area may encompass other areas under the definition of a mine)</td><td>520</td><td>513.1800</td></tr>
<tr><td>1.5.4</td><td>Project Area "Ha"</td><td>520</td><td>513.1800</td></tr>
<tr><td>1.5.5</td><td>Life of the Project "Yrs" .</td><td>32</td><td>32</td></tr>
<tr><td>1.5.6</td><td>Minimum and Maximum Depth of working "m"</td><td>10.28-320</td><td>10.28-300</td></tr>
<tr><td>1.5.7</td><td>Geological Block "Ha"</td><td>400</td><td>409.92</td></tr>
<tr><td>1.5.8</td><td>Production Target "MTPA"</td><td>4</td><td>4.0000</td></tr>
<tr><td>1.5.9</td><td>Seams Available "As per GR"</td><td>V, IVD, IVC, IVB, IVA, IV, III TOP, III BOT, III COM, II, I, K5, K4, K3, K2, K1</td><td>V,IVD,IVC,IVB,IVA,IV,III TOP,IIIBOT,IIICOM,II,I,K5,K4,K3,K2,K1</td></tr>
<tr><td>1.5.10</td><td>Seams not considered for Mining with Reasons</td><td><table><tr><th>S. No</th><th>Seams</th><th>Reason</th></tr><tr><td>1</td><td>IVC</td><td>Inconsistent and uneconomical coal seam</td></tr><tr><td>2</td><td>IVB</td><td>Inconsistent and uneconomical coal seam</td></tr><tr><td>3</td><td>IVA</td><td>Inconsistent and uneconomical coal seam</td></tr><tr><td>4</td><td>K5</td><td>Inconsistent and uneconomical coal seam</td></tr><tr><td>5</td><td>K4</td><td>Inconsistent and uneconomical coal seam</td></tr><tr><td>6</td><td>K3</td><td>Inconsistent and uneconomical coal seam</td></tr><tr><td>7</td><td>K2</td><td>Inconsistent and uneconomical coal seam</td></tr><tr><td>8</td><td>K1</td><td>Inconsistent and uneconomical coal seam</td></tr></table></td><td><table><tr><th>S. No</th><th>Seams</th><th>Reason</th></tr><tr><td>1</td><td>IVC</td><td>Inconsistent and uneconomical coal seam</td></tr><tr><td>2</td><td>IVB</td><td>Inconsistent and uneconomical coal seam</td></tr><tr><td>3</td><td>IVA</td><td>Inconsistent and uneconomical coal seam</td></tr><tr><td>4</td><td>K5</td><td>Inconsistent and uneconomical coal seam</td></tr><tr><td>5</td><td>K4</td><td>Inconsistent and uneconomical coal seam</td></tr><tr><td>6</td><td>K3</td><td>Inconsistent and uneconomical coal seam</td></tr><tr><td>7</td><td>K2</td><td>Inconsistent and uneconomical coal seam</td></tr><tr><td>8</td><td>K1</td><td>Inconsistent and uneconomical coal seam</td></tr></table></td></tr>
<tr><td>1.5.11</td><td>Gross Geological Reserve "Mt" (as per GR,)</td><td>184.65</td><td>184.65</td></tr>
<tr><td>1.5.12</td><td>Net Geological Reserve "Mt" (as per GR)</td><td>166.1860</td><td>166.1860</td></tr>
<tr><td>1.5.13</td><td>Blocked Reserve "Mt"</td><td>43.356</td><td>46.0900</td></tr>
<tr><td>1.5.14</td><td>Minable Reserve "Mt"</td><td>122.83</td><td>120.1100</td></tr>
<tr><td>1.5.15</td><td>Extractable Reserve "Mt"</td><td>116.68</td><td>116.6800</td></tr>
<tr><td>1.5.16</td><td>% of Extraction/ recovery</td><td>70.21%</td><td>70.2100%</td></tr>
<tr><td>1.5.17</td><td>Production till date (till the base date of the proposed Mining Plan) Reserve " Mt"</td><td>0</td><td>0.0000</td></tr>
<tr><td>1.5.18</td><td>Balance Extractable Reserve "Mt"</td><td>116.68</td><td>116.6800</td></tr>
<tr><td>1.5.19</td><td>Average Grade</td><td>D</td><td>4540.0000</td></tr>
<tr><td>1.5.20</td><td>OB in Mm3</td><td>212</td><td>279.4700</td></tr>
<tr><td>1.5.21</td><td>SR Mm3/t</td><td>1.90</td><td>2.3952</td></tr>
<tr><td>1.5.22</td><td>Mining Technology</td><td>For OB Drill and Blast with Diesel cum Hydraulic shovel and dumpers For Coal Combination of SM and FEL Truck and Drill and Blast with Diesel cum Hydraulic Backhoe Shovel Truck</td><td>For OB Diesel cum Hydraulic shovel and dumpers Drill and Blast For Coal Combination of SM and FEL Truck Drill and Blast Diesel cum Hydraulic Backhoe Shovel Dump Truck</td></tr>
<tr><td>1.5.23</td><td>Coal Beneficiation envisaged</td><td></td><td></td></tr>
<tr><td>1.5.24</td><td>Handling of Rejects</td><td>NA</td><td>NA</td></tr>
<tr><td>1.5.25</td><td colspan="2">Land use pattern " Ha"</td><td></td></tr>
<tr><td>i</td><td>Excavation Area</td><td>332.80</td><td>326.0100</td></tr>
<tr><td>ii</td><td>Top Soil Dump Area</td><td></td><td>0.0000</td></tr>
<tr><td>iii</td><td>External Dump Area</td><td>104</td><td>129.3500</td></tr>
<tr><td>iv</td><td>Safety Zone</td><td>7</td><td>6.5000</td></tr>
<tr><td>v</td><td>Other Use</td><td>62</td><td>27.8300</td></tr>
<tr><td>vi</td><td>Infrastructure area</td><td>14.2</td><td>12.8000</td></tr>
<tr><td>vii</td><td>Green Belt</td><td></td><td>10.6900</td></tr>
<tr><td>viii</td><td>Undisturbed Area</td><td></td><td>0.0000</td></tr>
<tr><td colspan="2">Total</td><td>520.0000</td><td>513.1800</td></tr>
<tr><td>1.5.26</td><td colspan="2">Reasons for revision</td><td>1.Block area increased from 400Ha to 409.92 Ha.
2. Approval of Mine closure plan, which can not be approved separately as per new guideline.</td></tr>
<tr><td>1.6</td><td colspan="2">Sustainablity(Indicative)</td><td></td></tr>
<tr><td>1.6.1</td><td colspan="2">No. of Project Affected People (PAPs)</td><td>4027</td></tr>
<tr><td>1.6.2</td><td colspan="2">No. of Working-aged pers</td><td>2262</td></tr>
</table>

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

1.6.3	No. of Skilled/Semi Skilled /Unskilled persons profession wise, gender wise, age wise and location wise	Attached as an annexture-D in tabulated format
1.6.4	No. of persons in Vulnerable Groups (Women, Children, Handicap etc.)	Women- 1828(Includes 670 female children), Children-1468 (670 female and 798 males), Handicap-39
1.6.5	Repurposing of land proposed	Post mining Majorly plantation and water body is proposed under project area
1.6.6	Assessment of possible GHG emissions	The Coal Mine during its operation is expected to emit GHGs due to fracture of coal seams, uses of vehicles and purchased electricity
1.6.7	Tentative measures to curtail GHG emissions	The project will implement mass-level afforestation, including biological reclamation and various types of plantations. Greener fuel and electricity alternatives will be explored, along with efforts to reduce electricity consumption by efficient practices
1.6.8	Efforts to achieve net zero, wherever applicable	The project aims for net-zero by using clean energy, reducing fossil fuel use, and offsetting emissions through continuous tree planting. Voluntary afforestation and cleaner mining technologies will help achieve long-term net-zero goals.

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Chapter-2: Exploration,Geology, Seam Sequence, Coal Quality and Reserve

2.1 Details of the block

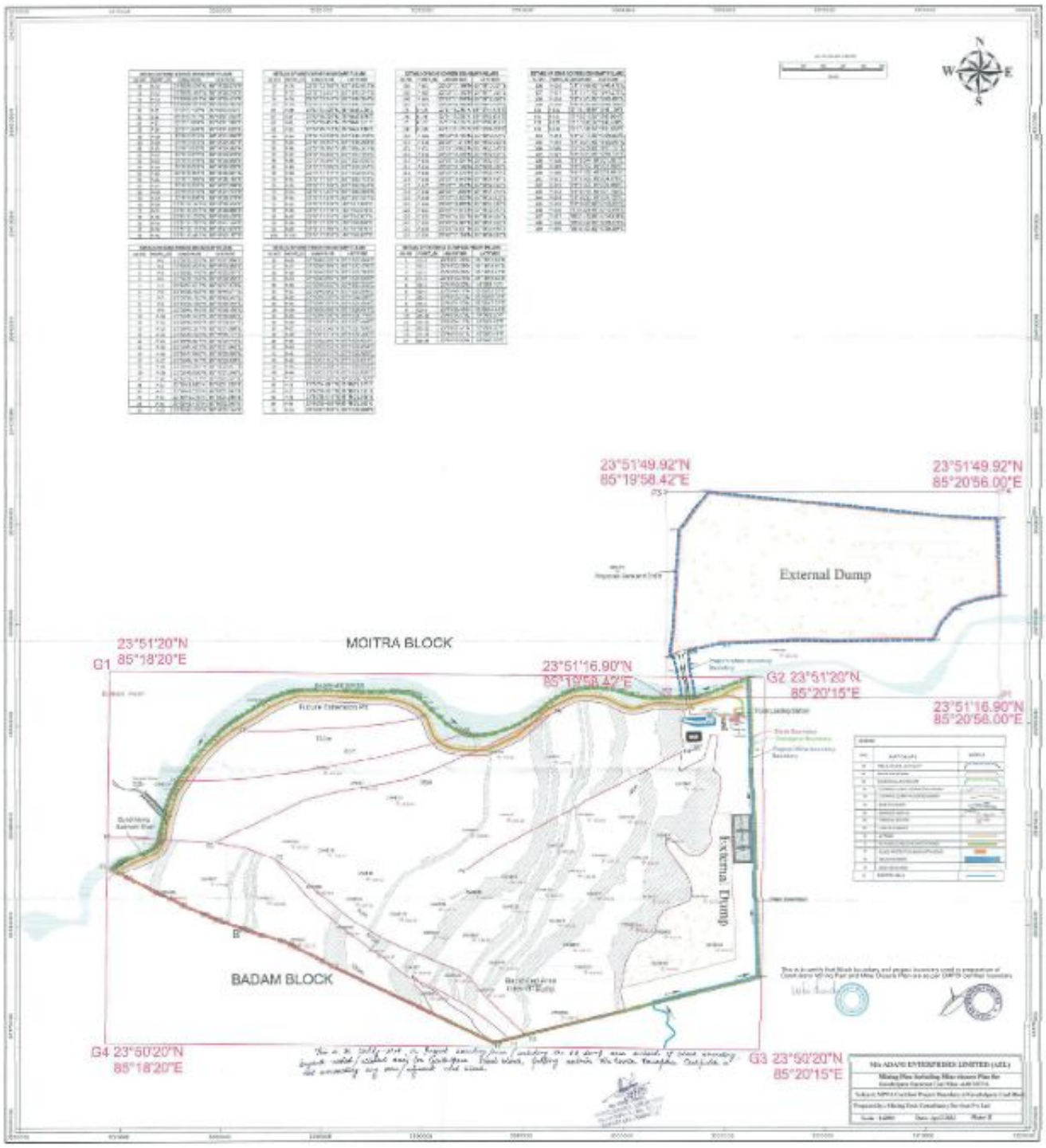
S.No	Parameters	Details	
2.1.1	Name of the Geological Report with month and year of preparation	Geological Report on Coal Exploration Gondulpara Block- March 2000	
2.1.2	Name of GR Preparing Agency	CMPDI	
2.1.3	Particulars of adjacent Ares/blocks: North, South, East, West	North	Northern boundary is marked by block boundary between Gondulpara and Moitra Block.
		East	Eastern boundary is marked by block boundary and virgin lower Barakar/ Kaharbari formation rocks.
		South	Southern boundary is marked by block boundary and virgin lower Barakar/ Kaharbari formation rocks.
		West	Western boundary is marked by block boundary between Gondulpara Badam Block.
2.1.4	Location of the Block	The Gondulpara Coal Block is located in the north eastern part of North Karanpuracoalfieldand falls within Hazaribagh District of Jharkhand State. The block is covered under Survey of India's Toposheet No. 73E/5 on RF 150,000 and special sheet No. 27 on RF110,000.Geographically, the coal block is bounded by latitude 23 50 20 to 23 51 20 N andLongitude85 18 20 E to 85 20 15 E. Gondulpara Coal block covers an area of 4.10 sq.km.Bes is the nearest railway station on Daltonganj-Barkakana-Dehri-On-Sone loop line of the North Eastern Railway and is located at a distance of about 13 Km from the area.	
	State(s)	Jharkhand	
	District(s)	Hazaribag	
2.1.5	Area of the Block "Ha"	409.92	
2.1.6	Area of the geological block projectised in "Ha" (Area of the geological block considered for liquidation of coal resource)	409.92	
2.1.7	Balance area yet to be projectised "Ha"	0	
2.1.8	Likely Geological Resource in the area yet to be projectised "MTPA"	0	
2.1.9	Cardinal Point Co-ordinates of the non- coal/lignite bearing area/ Coal/lignite bearing area within the existing mining lease outside the allotted Geological Coal/Lignite block. (Duly certified in line with Para 2.7 (c) of the Guideline, if fresh mining lease required)	Cardinal Points files data shown below	
	(Duly certified in line with para 1.9 of the Guideline, if fresh minning lease required)	Cardinal Points files data shown below	

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

2.1.10	Certificate of Qualified person/ Accredited Mining Plan preparing agency (MPPA) if the project area is confined within the vested/ allotted block boundary/ existing mining lease and Where the project area extends beyond the block boundary, a certificate of Qualified person/ Accredited Mining Plan preparing agency (MPPA) should be supported with a certificates i) As the State government is the custodian of exploration data under provisions of Rule 16 of MCR 1960, a No Objection Certificate from Mines and Geology Department of concerned State Government (ii) A certificate in proof of the non-existence of coal or lignite in the area beyond the vested or allocated boundary from CMPDIL (iii) In case of existence of coal or lignite, a certificate of technical-viability issued or certified by CMPDIL (iv) In case of Coal bearing area, an undertaking or Affidavit by the project proponent that they will rehandle the OB in a specified time period.	Annexure 2A	Document shown in annexure section.
		Annexure 2B	Document shown in annexure section.
		Annexure 2C	Document shown in annexure section.
		The Project area, Lease area and geological block area in Ha shall also be envisaged.	513.18
2.1.11	KML file of the Proposed lease area, Project Area and geological block.	File attached in Plates section below.	
2.1.12	Whether the proposed project area is confined within the allotted block boundary/existing mining lease, if not, the reason for deviation from allotted block boundary, may be given.	No, Project area is not confined within allotted boundary. 103.26 Ha land is required for OB dumping and access for dumping, outside of block boundary, This is inline with approved mining plan.	
2.1.13	If the project area extends outside the allotted block boundary/existing mining lease, confirmation about non-occurrence of coal/lignite in the area under reference needs to be furnished	Exploration done under supervision of CMPDI and certification of technical - viability issued by CMPDI has been attached as an annexure.	
2.1.14	Type of the Project./Year of Starting.	Non Operational / 2025	

Cardinal Point Co-ordinates of the non-coal/lignite bearing area/existing mining lease outside the allotted Geological Coal/Lignite block :

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.



(Duly certified in line with para 1.9 of the Guideline, if fresh minning lease required) :

S.NO	Latitude	Longitude
P-1	23°50'33.585"N	85°18'57.884"E
P-2	23°50'35.808"N	85°18'53.059"E
P-3	23°50'36.170"N	85°18'52.267"E
P-4	23°50'36.754"N	85°18'50.582"E
P-5	23°50'37.677"N	85°18'47.078"E
P-6	23°50'38.423"N	85°18'44.511"E
P-7	23°50'38.725"N	85°18'43.541"E
P-8	23°50'39.728"N	85°18'40.344"E
P-9	23°50'40.143"N	85°18'39.166"E
P-10	23°50'40.932"N	85°18'36.996"E
P-11	23°50'42.416"N	85°18'33.221"E
P-12	23°50'43.387"N	85°18'31.098"E
P-13	23°50'44.395"N	85°18'28.771"E
P-14	23°50'46.801"N	85°18'23.416"E
P-15	23°50'47.431"N	85°18'21.942"E

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

S.NO	Latitude	Longitude
P-16	23°50'47.995"N	85°18'20.890"E
P-17	23°50'48.147"N	85°18'20.608"E
P-18	23°50'48.334"N	85°18'20.871"E
P-19	23°50'48.606"N	85°18'21.248"E
P-20	23°50'48.714"N	85°18'21.397"E
P-21	23°50'48.860"N	85°18'21.629"E
P-22	23°50'49.020"N	85°18'21.891"E
P-23	23°50'49.078"N	85°18'21.985"E
P-24	23°50'49.112"N	85°18'22.040"E
P-25	23°50'49.175"N	85°18'22.144"E
P-26	23°50'49.282"N	85°18'22.344"E
P-27	23°50'49.354"N	85°18'22.479"E
P-28	23°50'49.500"N	85°18'22.763"E
P-29	23°50'49.652"N	85°18'23.059"E
P-30	23°50'49.806"N	85°18'23.358"E
P-31	23°50'49.962"N	85°18'23.918"E
P-32	23°50'50.088"N	85°18'24.366"E
P-33	23°50'50.501"N	85°18'25.594"E
P-34	23°50'50.660"N	85°18'26.001"E
P-35	23°50'50.980"N	85°18'26.775"E
P-36	23°50'51.336"N	85°18'27.546"E
P-37	23°50'51.542"N	85°18'27.936"E
P-38	23°50'51.974"N	85°18'28.440"E
P-39	23°50'52.243"N	85°18'28.623"E
P-40	23°50'52.522"N	85°18'28.814"E
P-41	23°50'52.937"N	85°18'28.969"E
P-42	23°50'53.102"N	85°18'29.031"E
P-43	23°50'53.399"N	85°18'29.058"E
P-44	23°50'53.750"N	85°18'29.090"E
P-45	23°50'54.250"N	85°18'29.163"E
P-46	23°50'54.695"N	85°18'29.263"E
P-47	23°50'55.267"N	85°18'29.391"E
P-48	23°50'56.015"N	85°18'29.569"E
P-49	23°50'56.478"N	85°18'29.686"E
P-50	23°50'57.303"N	85°18'29.896"E
P-51	23°50'58.006"N	85°18'30.074"E
P-52	23°50'58.468"N	85°18'30.244"E
P-53	23°50'59.091"N	85°18'30.474"E
P-54	23°50'59.871"N	85°18'30.761"E
P-55	23°51'0.192"N	85°18'30.930"E
P-56	23°51'0.711"N	85°18'31.204"E
P-57	23°51'1.079"N	85°18'31.398"E
P-58	23°51'1.576"N	85°18'31.660"E
P-59	23°51'2.031"N	85°18'31.900"E
P-60	23°51'2.902"N	85°18'32.467"E
P-61	23°51'3.930"N	85°18'33.283"E
P-62	23°51'4.677"N	85°18'33.876"E
P-63	23°51'5.572"N	85°18'34.586"E
P-64	23°51'6.093"N	85°18'35.000"E
P-65	23°51'6.461"N	85°18'35.361"E
P-66	23°51'7.269"N	85°18'36.154"E
P-67	23°51'8.232"N	85°18'37.099"E
P-68	23°51'8.919"N	85°18'37.772"E
P-69	23°51'9.536"N	85°18'38.378"E
P-70	23°51'10.347"N	85°18'39.333"E
P-71	23°51'10.817"N	85°18'39.888"E
P-72	23°51'11.279"N	85°18'40.432"E
P-73	23°51'11.767"N	85°18'41.144"E
P-74	23°51'12.133"N	85°18'41.678"E
P-75	23°51'12.461"N	85°18'42.157"E
P-76	23°51'12.765"N	85°18'42.601"E
P-77	23°51'13.204"N	85°18'43.374"E
P-78	23°51'13.744"N	85°18'44.324"E
P-79	23°51'14.326"N	85°18'45.349"E
P-80	23°51'14.906"N	85°18'46.340"E
P-81	23°51'15.226"N	85°18'46.886"E
P-82	23°51'15.465"N	85°18'47.351"E
P-83	23°51'15.733"N	85°18'47.916"E

PUNDRIK MISHRA
SITE HEAD
GORDHUPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

S.NO	Latitude	Longitude
P-84	23°51'15.998"N	85°18'48.476"E
P-85	23°51'16.307"N	85°18'49.298"E
P-86	23°51'16.584"N	85°18'50.201"E
P-87	23°51'16.893"N	85°18'51.342"E
P-88	23°51'16.947"N	85°18'51.610"E
P-89	23°51'17.069"N	85°18'52.214"E
P-90	23°51'17.111"N	85°18'52.805"E
P-91	23°51'17.154"N	85°18'53.703"E
P-92	23°51'17.195"N	85°18'54.954"E
P-93	23°51'17.207"N	85°18'55.985"E
P-94	23°51'17.216"N	85°18'57.917"E
P-95	23°51'17.220"N	85°19'1.204"E
P-96	23°51'17.172"N	85°19'3.075"E
P-97	23°51'17.137"N	85°19'4.307"E
P-98	23°51'17.120"N	85°19'5.825"E
P-99	23°51'17.168"N	85°19'7.676"E
P-100	23°51'17.234"N	85°19'9.537"E
P-101	23°51'17.199"N	85°19'10.031"E
P-102	23°51'17.162"N	85°19'11.397"E
P-103	23°51'17.068"N	85°19'12.296"E
P-104	23°51'16.703"N	85°19'13.498"E
P-105	23°51'16.215"N	85°19'14.476"E
P-106	23°51'15.365"N	85°19'15.404"E
P-107	23°51'14.396"N	85°19'16.482"E
P-108	23°51'13.175"N	85°19'18.069"E
P-109	23°51'12.104"N	85°19'19.224"E
P-110	23°51'11.210"N	85°19'20.825"E
P-111	23°51'10.822"N	85°19'21.578"E
P-112	23°51'10.402"N	85°19'22.481"E
P-113	23°51'10.257"N	85°19'23.381"E
P-114	23°51'10.199"N	85°19'24.354"E
P-115	23°51'10.335"N	85°19'25.849"E
P-116	23°51'10.646"N	85°19'27.491"E
P-117	23°51'11.252"N	85°19'29.428"E
P-118	23°51'11.802"N	85°19'31.048"E
P-119	23°51'12.820"N	85°19'32.905"E
P-120	23°51'13.853"N	85°19'34.557"E
P-121	23°51'14.672"N	85°19'35.815"E
P-122	23°51'15.337"N	85°19'36.557"E
P-123	23°51'16.087"N	85°19'37.502"E
P-124	23°51'16.631"N	85°19'38.449"E
P-125	23°51'17.159"N	85°19'39.620"E
P-126	23°51'17.496"N	85°19'40.476"E
P-127	23°51'17.711"N	85°19'41.278"E
P-128	23°51'17.913"N	85°19'42.491"E
P-129	23°51'18.081"N	85°19'43.704"E
P-130	23°51'18.148"N	85°19'45.125"E
P-131	23°51'18.014"N	85°19'47.034"E
P-132	23°51'17.645"N	85°19'49.470"E
P-133	23°51'17.134"N	85°19'51.572"E
P-134	23°51'16.778"N	85°19'53.652"E
P-135	23°51'16.610"N	85°19'55.581"E
P-136	23°51'16.759"N	85°19'57.757"E
P-137	23°51'16.810"N	85°19'59.731"E
P-138	23°51'16.844"N	85°20'1.301"E
P-139	23°51'16.837"N	85°20'2.293"E
P-140	23°51'17.092"N	85°20'3.561"E
P-141	23°51'17.469"N	85°20'4.978"E
P-142	23°51'17.932"N	85°20'6.468"E
P-143	23°51'18.479"N	85°20'7.752"E
P-144	23°51'19.223"N	85°20'9.725"E
P-145	23°51'19.972"N	85°20'12.221"E
P-146	23°51'8.209"N	85°20'12.959"E
P-147	23°50'31.755"N	85°20'14.618"E
P-148	23°50'20.598"N	85°19'28.379"E
P-149	23°50'32.863"N	85°18'59.504"E
ED-1	23°51'21.09"N	85°19'59.68"E
ED-2	23°51'23.39"N	85°19'58.94"E

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

S.NO	Latitude	Longitude
ED-3	23°51'23.26"N	85°19'58.42"E
ED-4	23°51'43.75"N	85°19'59.53"E
ED-5	23°51'49.92"N	85°20'4.79"E
ED-6	23°51'46.17"N	85°20'55.38"E
ED-7	23°51'33.73"N	85°20'56.00"E
ED-8	23°51'31.50"N	85°20'47.97"E
ED-9	23°51'26.45"N	85°20'44.43"E
ED-10	23°51'25.50"N	85°20'7.40"E
ED-11	23°51'24.17"N	85°20'1.62"E
ED-12	23°51'21.41"N	85°20'1.90"E
ED-13	23°51'16.81"N	85°20'0.41"E
ED-14	23°51'16.90"N	85°20'2.70"E

2.2 EXPLORATION, GEOLOGY AND ASSESSMENT OF RESERVE

S.No	Parameters	Details
2.2.1	Regional geological set up of the area, local geology, structure, stratigraphic sequence, characteristics of the litho-logical units (coal seams /partings/overburden).	

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

- **REGIONAL GEOLOGY**

The North Karanpura Coalfield forms a prominent east-west trending valley between Hazaribagh plateau in the north and Ranchi plateau in the south. The Aswa Pahar in the south east separates the north and south Karanpura Coalfields by an east-west elongated metamorphic patch. However, they are inter-connected near Bachra and Hindegir by a narrow tongue of Talchir outcrops. On the eastern side, North Karanpura Coalfield is separated from the West Bokaro coalfield by narrow stretch of metamorphic rocks having several outliers of Talchir Formation. In the west, it is separated by a stretch of about 20 kms wide metamorphic belt from the Auranga Coalfield. The North Karanpura Coalfield contains youngest Mahadeva Formation down to the older Talchir Formation of Gondwana succession.

The Barakar and Kaharbari Formations contain potential Coal seams within the coalfield. The Barakar coals are usually thick but highly inter-banded with high ash whereas Kaharbari seams are usually thin with low ash content.

- **Stratigraphy**

Thus, based on both the surface and subsurface data available, the following stratigraphic succession has been proposed as below.

Stratigraphic Succession of North Karanpura Coalfield

Period	Group	Sub-Group	Formation	Lithology
Recent	-	-	Alluvium	Detrital & Alluvium Soil and sub-soil
Jurassic	-	Co-evals of Rajmahal Trap	Igneous intrusive	Dolerite & Mica peridotite
Upper-Triassic	Upper Gondwana	-	Mahadeva	Massive Coarse to conglomeratic feldspathic ferruginous sandstone with shale intercalation
Lower-Triassic	Lower Gondwana	Damuda	Panchet	Yellowish to white coarse-grained sandstone, red, chocolate colored plastic clay, yellowish friable sandstone in the upper part whereas greenish yellow sandy shale in the lower part with sand dune structure
Upper Permian			Raniganj	Fine to medium grained quartz of eldspathic and quartzitic sandstone often micaceous and mature, inter-banded shale & sandstone, carbonaceous shale & this coal seams
			Barren Measure	Dark Shale, sandy micaceous shale with siderite, inter-banded shale and sandstones
			Barakar	Conglomerates, shale, greywackes, sandstones, inter-banded with shale, carbonaceous shale, fire clay & coal seams
Lower Permian			Kaharbari	Greywackes, dark mottled sandstone with occasional shale bands, fireclay, chocolate colored clays and Coal

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

				seams
Upper Carboni-ferous			Talchir	Rikba plant beds. Boulder, conglomerates, varvites, sandstone, tilloids and tillites
----------Unconformity----------				
Pre-Cambrian	-	-	Metamor-phics	Granite gneisses, pegmatites, phyllites, mica schist and limestones, chromite bearing rocks, amphibolites and quartzites

2.2.2	Local geology, Structure, Stratigraphic sequence, Characteristics of the litho-logical units (coal seams /partings/overburden)

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

• **GEOLOGICAL STRUCTURE**

The block appears to be moderately disturbed from geological structure point of view. Altogether, 7 numbers of faults F1 to F7 have been interpreted in the block. The Fault F7 shown largely beyond the northern boundary of the block. The description of the faults are given below:

Fault No.	Extent of the Fault	Trend of the Fault	Direction of Down Throw	Amount of Throw	Evidence of Faults	Remarks
F1	All along southern part of the block	WNW-ESE	NE	90 m to 100 m	Interpreted in Badam Block. Found correct considering FRC on either side of the fault	Corresponds to F5 of Badam Block
F2	All along South western boundary of the block	WNW-ESE	NE	90 m to 180 m	CMKB-115 seams II & I faulted	Corresponds to F6 of Badam Block & F11 of Moitra block
F3	Originate from F1 near borehole CMKB-104 and continues southern part beyond the block boundary	Almost parallel to F1	NE	Upto 30 m	CMKB-114 Seam II part & Seam-I faulted.\	Corresponds to F10 of Moitra block
F4	Originate near borehole CMKB-121 and extend NE beyond block boundary	ENE-WSW	S	Nil – 40 m	Stratum contours on either side of faults are not matching	
F5	About against F2 near borehole CMKB-104 in the west and extends beyond block boundary in east	Curvilinear with ENE-WSW	S	Upto 30 m	Stratum contours on either side are not matching	
F6	Towards the northern boundary with E-W direction	E-W	N	About 60 m	Continued form Moitra block and disposition of stratum contour	Corresponds to F9 of Moitra Block
F7	Largely beyond the northern boundary	E-W	S	About 100 m	Continued form Moitra block and disposition of stratum contour	Corresponds to F8 of Moitra Block

• **Strike and Dip**

The strike of the strata is generally NE-SW over major part which it changes almost N-S in the south-western part of the block with localized variation due to rolls of strike. The dip varies from 8 deg to 25 deg towards west & Northwest respectively. Fluctuations in dip and strike are mainly due to rolling and inter-seam parting variations.

• **Seam Correlation**

5 number of standard coal horizons viz. Seam-I to V in Barakar Formation and 5 numbers viz. Seam-K1 to K5 in Kaharbari Formation occur in this block. Few split sections/ local seams also occur in the block which are III Top, IVA, IVB, IVC and IVD. Altogether, 16 numbers of seams are available within Lower Permian strata. Of the 16 numbers of seams, 7 number of seams viz. I, II, III Top, III Bottom, IV, IVD and V are economically potential. Sequence of Coal Seams are given below:

Table: Sequence of Coal Seam- Gondulpara Block

Seam/ Parting	Thickness Range (m)		No. of Intersection
	Min	Max	
OB	10.28	134	
V	3.91	6.30	10
Parting	41.93	59.68	
IVD	4.31	15.44	17
)	1.67	3.97	

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

IVC	0.00	4.11	11
Parting	0.00	4.90	
IVB	0.00	2.53	2
Parting	0.00	10.63	
IVA	0.95	2.88	13
Parting	2.93	15.12	
IV	3.25	5.46	16
Parting	1.97	25.11	
III TOP	2.45	4.80	12
Parting	0.00	5.04	
III BOT	4.15	6.82	16
III COMB	8.67	11.34	6
Parting	2.87	32.24	
II	7.39	18.10	19
Parting	3.78	33.08	
I	11.07	20.43	29
Parting	20.43	29.46	
K5	0.00	2.07	33
Parting	7.70	8.43	
K4	0.00	0.54	2
Parting	-	-	
K3	0.00	1.42	9
Parting	4.99	17.20	
K2	0.00	2.70	15
Parting	2.68	10.28	
K1	0.00	3.40	13
K2 & k1 COMB	2.34	11.81	4

2.2.3	Geological Block Area “Ha”	409.92
2.2.4	Status of Exploration of the block	
Block is fully explored, total number of boreholes drilled by GSI and CMPDI is 59 with Total Meterage of 9867.25.		
2.2.5	Area covered by “detailed” exploration within the block (sq. km)	409.92
2.2.6	Whether entire area has been covered by a detailed exploration.	Yes, complete area has been covered by detailed exploration
2.2.7	No. of boreholes drilled within the block	59
2.2.8	Whether any further exploration/study is required or suggested and time frame in which it is to be completed	Block has been fully explored.
2.2.9	Year wise future programme of exploration	Years: 0 / No. of Bereholes: 0 / Meterage: 0
2.2.10	Overall borehole density within the block (no./ sq. km) approx	14.4
2.2.11	No of Seams available as per GR (Geological Report)	V,IVD,IVC,IVB,IVA,IV,III TOP,IIIBOT,IIICOM,II,I,K5,K4,K3,K2,K1
2.2.12	Seams not considered for Mining with Reasons	8 Seams not considered for mining due to inconsistent and less than a meter thickness (IVC,IVB and IVA and Karaharbari seams K-5 to K-1).
2.2.13	Dip of the Seam	Steep dipping (8 to 25 degree north-Westerly)

2.2.14 Seam wise thickness, depth and reserve

Seamm	Thickness Range 'm'	Depth Range 'm	Net Geological Res “Mte”	Block Reserve Below “Mte”					Min Res “Mte”		Mining Losses	Ext Res “Mte”			As on base date “Mte”							Reason (For seams not considered for mining)
				High wall/ Batter	Nala/ River /Road	Barrier	Un-economic	Total Blocked	UG	OC		UG	OC	High wall	Depletion of Reserve			Balance Reserve				
															UG	OC	High wall	UG	OC	High wall	Total	
V	3-6	10-135	10.378	3.22	0.09	1.55		4.8600	0	5.52	0.16	0	5.365	0	0	0	0	0.0000	5.3650		5.365	
Parting	42-60							0.0000										0.0000	0.0000			
IVD	4-15	10-196	20.192	1.91	0.16	2.98		5.0500	0	15.14	0.43	0	14.71	0	0		0	0.0000	14.7100		14.71	
Parting	2-4							0.0000										0.0000	0.0000			

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

IVC	0-4	26-160	0	0	0	0	0	0.0000	0	0	0	0	0	0	0		0	0.0000	0.0000			Inconsistent and uneconomical coal seam
Parting	0-4							0.0000										0.0000	0.0000			
IVB	0-2	30-170	0					0.0000										0.0000	0.0000			Inconsistent and uneconomical coal seam
Parting	0-10							0.0000										0.0000	0.0000			
IVA	1-2	15-167						0.0000										0.0000	0.0000			Inconsistent and uneconomical coal seam
Parting	3-15							0.0000										0.0000	0.0000			
IV	3-5	19-180	10.359	2.34	0.04	0.56	0	2.9400	0	7.42	0.21	0	7.21	0	0		0	0.0000	7.2100	0	7.21	
Parting	10-25							0.0000										0.0000	0.0000			
III TOP	2-5	22-221	4.835	0.16	0.07	0.5	0	0.7300	0	4.11	0.12	0	3.99	0	0		0	0.0000	3.9900		3.99	
Parting	0-5							0.0000										0.0000	0.0000			
IIIBOT	4-7	12-225	8.195	0.18	0.07	0.98	0	1.2300	0	6.97	0.20	0	6.766	0	0		0	0.0000	6.7660		6.766	
Parting	0							0.0000										0.0000	0.0000			
IIICOM	8-11	12-225	6.537	0.39	0.09	1.55	0	2.0300	0	4.51	0.13	0	4.38	0	0			0.0000	4.3800		4.38	
Parting	3-32							0.0000										0.0000	0.0000			
II	7-18	4-241	40.795	12.13	0.14	2.67	0	14.9400	0	25.85	0.74	0	25.114	0	0		0	0.0000	25.1140		25.114	
Parting	13-33							0.0000										0.0000	0.0000			
I	11-20	15-280	64.895	9.11	0.27	4.93	0	14.3100	0	50.59	1.44	0	49.145	0	0		0	0.0000	49.1450		49.145	
Parting	20-29							0.0000										0.0000	0.0000			
K5	0-2	41-280						0.0000										0.0000	0.0000			Inconsistent and uneconomical coal seam
Parting	7-9							0.0000										0.0000	0.0000			
K4	0-1	180-280						0.0000										0.0000	0.0000			Inconsistent and uneconomical coal seam
Parting	19-20							0.0000										0.0000	0.0000			

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

K3	0-1	83-142						0.0000										0.0000	0.0000			Inconsistent and uneconomical coal seam
Parting	5-17							0.0000										0.0000	0.0000			
K2	0-2	92-185						0.0000										0.0000	0.0000			Inconsistent and uneconomical coal seam
Parting	3-10							0.0000										0.0000	0.0000			
K1	0-3	47-152						0.0000										0.0000	0.0000			Inconsistent and uneconomical coal seam
Total			166.1860	29.400	0.9300	15.7200	0.0000	46.0900	0.0000	120.1100	3.4300	0.0000	116.6800	0.0000	0.0000	0.0000	0.0000	0.0000	116.6800	0.0000	116.6800	

S.No	Parameters	Details
2.2.15	Methodology of reserves estimation (also mention if any software package has been used).	

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Topography , Base of weathering, Seam folio plans, seam in-crop, isochore and iso-grade, parting, density grid are generated using Minex 6.5.5 version for the estimation of reserves. An overall deduction of 10% is applied to the gross tonnage from each seam to arrive at the net in-situ reserve of coal to account for data gaps, wash out zones, abrupt change in seam thickness.

- **Computation of Coal Reserves**

The reserves of coal seams are computed considering thickness, in-seam dirt bands, GCV bands with corresponding density and 0.9m thickness seam limit from MINEX 6.5.5. A deduction of 10% from 'Gross' reserves has been made to arrive at 'Net' reserves in order to account for unforeseen geological factors like abrupt change in seam thickness, structural disturbance etc.

- **Computation of Coal Quality**

Core samples have been analyzed for following parameters -

a. Band by band analysis

b. Proximate Analysis on equilibrated basis for all seams where it is not analyzed , determined value is used – Moisture %ASH%Volatile Matter %Fixed Carbon %Gross Calorific Value (GCV – KCL/KG)

c. Ultimate Analysis is done in selected boreholes for below radicals -

1. Carbon %
2. Hydrogen %
3. Nitrogen %
4. Total Sulfur %
5. Oxygen %

d. Density

Based on analyzed

Quality grid is prepared for proximate analysis and Density values to determine the weighted average value of each parameter.

- **Overburden**

The overburden consists of soil, weathered mantle, and argillaceous as well as arenaceous rocks. The parting between the two seams consists of argillaceous and arenaceous rocks with thin coal / carbonaceous bands. Overburden and parting up to Seam-I is considered as OB.

- **In-Seam Burden**

The in-seam dirt bands of combustible and / or non-combustible nature of more than one meter in thickness have been identified and volume of such in-seam burden have been added to the volume of parting lying above the seam and accounted under overburden.

- **Methodology of Overburden Estimation**

Methodology of overburden/parting volume estimate is similar to that of reserve estimation except it is restricted up to volume and not for tonnage. These assessments have been made using Minex 6.5.5 software.

- **Depth of Excavation**

The floor of Seam-I has been considered as the floor of the opencast mine. The maximum floor depth of this seams from surface is around 300 m in the block.

2.2.16	Average GCV "KCal/kg"	
4540		
2.2.17	Gross Geological Reserve of the block "Mt"	176.331
2.2.18	Net Geological Reserve of the block "Mt"	166.1860
2.2.19	Minable Reserve of the block "Mt"	120.11
2.2.20	Blocked Reserve "Mt"	46.0900
2.2.21	Corresponding extractable reserve of the block "Mt"	116.68
2.2.22	Percentage of Extraction	70.210
2.2.23	Resource already depleted (Base date of Mining Plan)	0
2.2.24	Balance Resource (as on Base Date))	116.6800

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Chapter-3: Mining

3.1 Mining Method

S.No	Parameters	Details
3.1.1	Existing method of mining if the mine is under operation	Not Applicable, Gondulpara is virgin coal block
3.1.2	Proposed method of mining with justification on suitability of method of mining	

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

• **Proposed Method of Mining**

Considering the geo-mining characteristics of the block and for conservation of resource, it is proposed to extract the coal reserves within the block using open cast mining method because of following reasons –

1. Occurrence of thick Seam-I (11.07m - 20.43m) and Seam-II (7.39m - 18.10m). Additionally, Other seams namely Seam V, IVD, IV and Scam III & its split seams have thicknesses averaging 4m to 9m. Coal loss in such thick seam conditions can be minimized by opencast mining method.
2. The depth of mining and good coal thickness contributes to a low average stripping ratio of 2.395 cum/t, which makes the opencast mining an obvious choice.
3. The existence of very low cover for entry to bottom-most seam (Seam-I) from its in-crop in the eastern part of the block makes opencast mining an obvious choice. The mine entry has been envisaged from eastern side of the block (in-crop of Seam-I) to reach seam I floor.

The deposit has therefore been proposed for mining by opencast method up to the Seam I Floor (Ultimate Pit Floor).

• **Opencast mining**

1. **Mine Boundaries**

It is proposed to mine maximum area of block boundary considering safety zone & embankment. Nala diversion is proposed in North East corner of block.

The mine boundary of the Gondulpara OCP have been fixed as per CMR 2017 regulations. The details of mine boundary is as below-

North: The surface limit of the mine has been drawn leaving a surface barrier of 45m form Badmahi River to accommodate safety zone and embankment.
South: The surface limit of the mine has been drawn leaving a surface barrier of 7.50 m to accommodate safety zone.
West: The surface limit of the mine has been drawn leaving a surface barrier of 7.50 m to accommodate safety zone.
East: The eastern pit boundary is along the trace of in-crop of Seam-I as indicated in the Geological Report prepared by CMPDI.

The geological structure and mine reserves of Gondulpara Block has been interpreted based on the geological report of CMPDI including sub-surface data of borehole, geological cross-sections, seam floor and seam folio plans.

The floor of Seam I is envisaged as the floor of the proposed quarry.

2. **Opening location**

Mine opening is planned from eastern side of block targeting incrop of seam I and further development is planned along strike of the seam. After developing the full face, mine will be advance to words dip direction. A patch of ~26.09 Ha in the eastern side (beyond the seam I incrop) has been proposed as external dump which will later merged with internal dump. Additional 103.26 ha land (outside of block boundary) shall be required to accommodate 50.20 MBCM.

3. **Mine Design**

• **Rated Capacity**

Mining Plan for Gondulpara Coal Block has been prepared for a rated capacity of 4.0 Mty of power grade ROM Coal from Opencast mine. This output is considered technically feasible considering of following conditions-

• Gradient of 8 degree -25 degree of the coal seams.
• Multiple coal seams including splits.
• strike length approx. 1.5 km.
• Variable thickness of OB/partings
• 7 number of Normal faults

With this rated capacity of 4.0 Mty of the mine, the annual rate of advance of the mine would be about 70-80m along the dip.

• **Design Criteria**

The design criteria adopted in this Mining plan is as follows: -

• Number of annual working days	---	330
• Number of daily shifts /day	---	3
• Duration of each shift (hours)	---	8

The opencast mine would be worked on the 3-shift/day and seven days/week round the year for coal extraction and overburden removal.

4. **Mining Scheme**

Based on the above geo-mining condition, Mining system has been worked out for achievement of rated capacity in shorter period i.e. low gestation period as well as reduction of Inter-mixing of Coal with stone bands and starting of internal dumping as soon as sufficient de-coaled area is created. The top OB benches above mining mass would be worked in horizontal slicing method.

• **Coal Winning & OB Removal**

Coal will be mined using combination of Surface Miner – FEL – Dumper and drill and blast method. Due to steep dipping of seam (8-25 Degree), Surface Miner will be used only in favorable areas. Drill and blast method shall be applied for all remaining area and for wedges of steeply dipping seam where deployment of surface miner may be restricted. The OB will be removed using conventional shovel dumper method with drill & blast. Drill & blast shall be conducted in scientific way using environment friendly techniques. The mining parameters for both coal & OB removal is given below

• **Bench Height**

OB Benches 6-12 m
Top Soil/ Intervening Parting : 3-6 m
Coal benches as per thickness
Usual height of the Hard Rock dump benches :30m

oposed Bench Width

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

1. Working Bench Width for OB 30-35M
2. Non-Working Bench Width for OB 15-20m
3. Width of the temporary transport ramp 20m

- **Bench Slope** OB Bench 70 degreeCoal Bench 70 degreeDump bench 37 degree Overall (Ultimate) pit slope 39 degree

5. **Sequence of Mining**

Gondulpara Coal mine is planned from eastern boundary of quarry targeting seam I incrop. Due to Steep dip and limited space of OB dumping, coal evacuation is planned from advancing face and no permanent haulage road is planned for quarry. The box cut is developed in such a manner so as to facilitate the proper drainage of water towards the sump. This would also facilitate extension of coal and OB bench for full development of mine. The mine will advance towards dip direction exposing the floor of Seam-I. After creation of sufficient de-coaled area of about 100m, internal backfilling of OB will be started in the 4th year of mining operation. The coal production will start from the 1st year of mine operation and the target coal production of 4.00 MTY will be achieved in the 4th year of mine operation. The alignment of the face has been so planned as to facilitate the drainage of water. Entire quarry has been planned for OB dumping by leaving lag distance of 100 meter from advancing benches (northern side).

Coal shall be transported from mine face to dump station by truck . A fixed dump station is planned near the access trench of pit. 1st year, 3rd year, 4th year (pick production year), 5th year,10th year,30th year and final year stage planes are given in Plate no. XVIA to XVI F.

6. **Overburden Removal and OB Dumps**

The opencast mine is planned upto 300 m depth on the floor of seam-I with overall average stripping ratio of 2.395 m3/te. The total volume of OB has been estimated as 279.47 Mcum. The OB removed during initial years will be placed on Additional land (103.26ha) proposed for external dump. The total volume of external dump has been estimated as 50.20 Mm3. The external OB dump has been planned towards the north-east beyond the Badmahi river and further east of Moitra Block Boundary on escarpments over exposures of Barren Measures rocks.
Another small patch of approx. ~ 26 ha noncoal bearing forest land (within block) is proposed as external dump which shall be merged with in-pit dump later.

Rest of the OB will be placed as internal dumps. The total volume of internal OB, i.e. the volume which will be accommodated internally by backfilling has been estimated as 229.27 Mm3 (including volume of merged external dump). The internal dumping will start when about 100 m internal space is available on quarry floor. By adopting the proposed sequence of mining, as the quarry advances, the amount of internal dump will increase as more space for the internal dumping is created.

It is proposed to start internal dumping from 4th year of mine operation along with external dumping to optimize lead. As the gradient of the seam is steep, which limits the internal dumping for initial years. After 15th year of mine operation, no external dumping will be required. Hence, OB will be accommodated as internal dump for rest of the mine life.

Height of external dump has been planned 120 m above the ground level and height of internal dump is planned upto 580 RL which is approx. 120 meter above the ground level.

Table 3-1 – Gondulpara Coal Block Solid Waste Management

Year	External Dump		Internal Dump		Total OB	
	Progressive (Mcum)	Cumulative (Mcum)	Progressive (Mcum)	Cumulative (Mcum)	Progressive (Mcum)	Cumulative (Mcum)
Yr-1	1.01	-	-	-	1.01	1.01
Yr-2	4.39	-	-	-	4.39	5.40
Yr-3	7.15	-	-	-	7.15	12.55
Yr-4	3.69	-	3.69	3.69	7.38	19.93
Yr-5	3.51	-	3.51	7.20	7.01	26.94
Yr-6	3.12	-	3.12	10.31	6.23	33.17
Yr-7	3.12	-	3.12	13.43	6.23	39.40
Yr-8	3.09	-	3.09	16.51	6.17	45.57
Yr-9	3.07	-	3.07	19.58	6.14	51.71
Yr-10	3.09	-	3.09	22.67	6.18	57.89
Yr-11	3.08	-	3.08	25.75	6.16	64.05
Yr-12	3.07	-	3.07	28.82	6.14	70.19
Yr-13	3.08	-	3.08	31.90	6.16	76.35
Yr-14	3.53	-	3.53	35.43	7.06	83.41
Yr-15	2.22	-	4.85	40.28	7.07	90.48
Yr-16	-	-	7.47	47.75	7.47	97.95
Yr-17	-	-	7.40	55.15	7.40	105.35
Yr-18	-	-	13.40	68.55	13.40	118.75
Yr-19	-	-	13.40	81.95	13.40	132.15
Yr-20	-	-	13.40	95.35	13.40	145.55
Yr-21	-	-	13.40	108.75	13.40	158.95
Yr-22	-	-	13.40	122.15	13.40	172.35
Yr-23	-	-	13.40	135.55	13.40	185.75
Yr-24	-	-	13.40	148.95	13.40	199.15
Yr-25	-	-	13.40	162.35	13.40	212.55
Yr-26	-	-	13.40	175.75	13.40	225.95
Yr-27	-	-	13.40	189.15	13.40	239.35
Yr-28	-	-	13.40	202.55	13.40	52.75
		-	13.40	215.95	13.40	66.15

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Yr-30	-	-	7.00	222.95	7.00	273.15
Yr-31	-	-	3.32	226.27	3.32	276.47
Yr-32	-	-	3.00	229.27	3.00	279.47
Total	**50.20**		**229.27**		**279.47**	

- **Top Soil Management**

  Topsoil is proposed to be removed separately and dumped outside the quarry in a manner so as not to loose its fertility. The top soil would be spread over the reclaimed land, afterward.

  Topsoil will be removed and dumped on the area shown on surface plan. Topsoil will be stored for initial four years and during subsequent years it will be directly spread over the reclaimed area.
  Topsoil details:

  1. Height of Topsoil dump : 3 meters.
  2. Year of reclamation : after 5th year of mine operation.

- **Variation from approved Mining Plan**

  There is mainly four changes in revision of Mining Plan as compared with approved Mining Plan

  1.External OB dumping area - in approved Mining Plan only one external dump was considered which was outside of block boundary whereas in revision of Mining Plan other than this one additional external dump within block boundary beyond the quarry limit has been considered.

  2.External OB dump outside of block boundary Elevation of external OB dump in approved mining plan was approx. 100m whereas in revision of mining plan 120 m elevation of OB dump has been considered.

  3.Estimated OB volume in approved mining plan was 221.28 whereas based on working of revision of mining plan same is estimated as 279.47.

  4. Distance between Badmahi River and quarry limit has been envisaged as 45m to accommodate embankment whereas in approved mining plan same has been considered 15m only.

3.1.3	Coal production capacity proposed MTPA	4.0000
3.1.4	Justification for optimization Coal production capacity	

Mining Plan for Gondulpara Coal Block has been prepared for a rated capacity of 4.0 Mty of power grade ROM Coal from Opencast mine. Considering following factors rated capacity has been arrived -

- Gradient of Coal Seams - 8 degree to 25 degree .
- Multiple coal seams (8) including its split sections
- Average strike length of approx. 1.5 km.
- Thickness of OB/partings
- 7 number of normal faults

With this rated capacity of 4.0 Mty of the mine, the annual rate of advancement will be about 70-80 m along the dip direction side.

3.1.5	Calendar year from which the production will start	2025-26
3.1.6	Year of Achieving rated production	2028-29

3.1.7 Tentative Coal production Plan Mt

Year		Coal Production Schedule			OB MM3	SR Cum/t
Year of Operation	Calendar Year	UG	OC	Total		
1	2025-26	0	0.56	0.5600	1.01	1.8036
2	2026-27	0	2.32	2.3200	4.39	1.8922
3	2027-28	0	3.32	3.3200	7.15	2.1536
4	2028-29	0	4.00	4.0000	7.38	1.8450
5	2029-30	0	4.00	4.0000	7.01	1.7525
6	2030-31	0	4.00	4.0000	6.23	1.5575
7	2031-32	0	4.00	4.0000	6.23	1.5575
8	2032-33	0	4.00	4.0000	6.17	1.5425
9	2033-34	0	4.00	4.0000	6.14	1.5350
10	2034-35	0	4.00	4.0000	6.18	1.5450
11	2035-36	0	4.00	4.0000	6.16	1.5400
12	2036-37	0	4.00	4.0000	6.14	1.5350
13	2037-38	0	4.00	4.0000	6.16	1.5400
14	2038-39	0		4.0000		1.7650

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

15	2039-40	0	4.00	4.0000	7.07	1.7675
16	2040-41	0	4.00	4.0000	7.47	1.8675
17	2041-42	0	4.00	4.0000	7.40	1.8500
18	2042-43	0	4.00	4.0000	13.40	3.3500
19	2043-44	0	4.00	4.0000	13.40	3.3500
20	2044-45	0	4.00	4.0000	13.40	3.3500
21	2045-46	0	4.00	4.0000	13.40	3.3500
22	2046-47	0	4.00	4.0000	13.40	3.3500
23	2047-48	0	4.00	4.0000	13.40	3.3500
24	2048-49	0	4.00	4.0000	13.40	3.3500
25	2049-50	0	4.00	4.0000	13.40	3.3500
26	2050-51	0	4.00	4.0000	13.40	3.3500
27	2051-52	0	4.00	4.0000	13.40	3.3500
28	2052-53	0	4.00	4.0000	13.40	3.3500
29	2053-54	0	4.00	4.0000	13.40	3.3500
30	2054-55	0	4.00	4.0000	7.00	1.7500
31	2055-56	0	1.58	1.5800	3.32	2.1013
32	2056-57	0	0.90	0.9000	3.00	3.3333
Note: Calendar Plan/Production Plan for the entire life of the mine.						

3.1.8	Rated Capacity Mtpa	By OC : 4.00 By UG : 0 Overall : 4.0000
3.1.9	Life of the mine: Years	By OC : 32 By UG : 32 Overall : 32
3.1.10	Whether the proposed external OB dump site is coal/ lignite bearing: If so, whether coal/lignite below the waste disposal area is extractable, If so, by OC or UG method.	Exploration done under supervision of CMPDI and certification of technical - viability issued by CMPDI has been attached as an annexure 2C
3.1.11	Whether negative proving for coal/lignite in the proposed site for OB dump/ infrastructure has been done.	Yes , Geological Report has been prepared by CMPDI after detail exploration , proposed infrastructure and OB dump (within block) are beyond the incrop limit (coal bearing) of Seam I.
3.1.12	Results of any investigation carried out for scientific mining, conservation of minerals and protection of environment; future proposals	It is proposed to undertake following studies/investigation 1.Slope stability study. 2.Geotechnical study. 3.Use of Technology for Environment, sustainability Governance in Mining operation.

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

3.1.13	Type of Equipment/ HEMM proposed	S.No.	Type of Equipment	Capacity	Unit	Population
		1	Diesel Hvd Shovel	10	Cubic Meter	1
		2	Diesel Hvd Excavator	3.8	Cubic Meter	9
		3	Rear Dumper	100	Tonnes	7
		4	Rear Dumper	30	Cubic Meter	40
		5	Blast Hole Diesel Drill	160	mm	8
		6	Dozer	410	Horsepower (HP)	4
		7	Surface Miner	3800.000	SM	1
		8	FE Loader	5	Cubic Meter	2
		9	Dozer Ripper Attachment	410	Horsepower (HP)	2
		10	Grader	280	Horsepower (HP)	4
		11	Crane	80	Tonnes	1
		12	Crane	40	Tonnes	1
		13	Crane	10	Tonnes	2
		14	Diesel Backhoe	1	Cubic Meter	1
		15	Dozer	165	Horsepower (HP)	1
		16	Grader	145	Horsepower (HP)	1
		17	Diesel bowser	10	KL	1
		18	Explosive Van	1	no	1
		19	Fire tender	1	no	1
		20	Boom truck	1	no	1
		21	Heavy duty toe truck	1	no	1
		22	Fork lift truck	1	no	1
		23	Tipping truck	10	Tonnes	1
		24	Vibratory compactor	1	no	1
		25	Tyre handler	1	no	1
		26	Water sprinkler	28	KL	2
		27	Maintenance Van	1	no	1
3.1.14	Upload Require Document	OC : NA UG : NA				

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Chapter-4: Safety and Health Management

4.1 Safety and Health Management System Audit

S.No	Parameters	Details
4.1.1	Important safety aspects:Major Risks and uncertainties to the project viz. Proximity to river, adjacent working, geo-mining disturbances, slope stability and remedial measures suggested. It should also include proposed overall slope of the quarry and OB dump, dump height, strata control, fire and spontaneous heating, gas monitoring, disaster management, danger from inrush of water etc.Every mine should conduct a safety audit based on Safety Health Management Audit Guidelines.	

To ensure safety in operating the mine, all provisions of Coal Mine Regulations 2017 along with Circulars issued by Director-General of Mines Safety from time to time shall be adhered to. In addition, related statues viz. Occupational Safety, Health and Working Condition Code, Mines Rules and others will also be complied. Some of the important statutory provisions relating to mechanized open cast mine which have been recently incorporated in the Regulation are reproduced below.

- **Statutory Aspects for Safety of Mechanised Opencast Mine**

Safety Management Plan :

For complying with Reg. 104 of CMR 2017, exercise shall be done to identify, assess and record the hazards of health and safety of the persons employed in the mine after consulting the Safety Committee and Internal Safety Organization (ISO). Based on the above, Safety Management Plan (SMP) shall be formulated for overall management for developing and implementing the safety policy of the company. SMP shall contain, inter alia, plan to implement the policy, principal hazard management, standard operating procedure (SOP), monitor, evaluate and review the plan.

Mechanized opencast working:

For complying with **Reg. 106 (2)**, before starting mining operation, it will be ensured that the mine including its method of working, ultimate pit slope, dump slope and monitoring of slope stability has been planned, designed and worked as determined by a scientific study, and a copy of the report of such study, shall be kept available in the office of the mine.

Mine Geometry:
(i) Reg. 106 shall be adhere .

Spoil banks and Dumps:

(i) **Reg108 (2)** stipulates that slope of spoil bank shall be determined by the natural angle of repose of the material being deposited , but in any case, shall not exceed 37°from horizontal , same will be adhere.

(ii) Any spoil bank exceeding 30 m in height shall be benched so that no bench exceeds 30 m in height and the overall slope shall not exceed 1 vertical to 1.5 horizontal.

(iii) The toe of a spoil-bank shall not be extended to any point within 100m of a mine bench and any public utilities.

Deployment of HEMM /Machinery:

i. Transport Rules will be framed as per **Reg.109** .
ii. Code of Practice shall be framed and enforced for all types of machinery.
iii. Conditions laid down in DGMS Circular No. 36 of 1972, relating to deep hole blasting shall be complied with.

In addition to the above, systematic maintenance of equipment, as laid down by OEM, shall be followed. All the machineries to be deployed shall be checked by competent authority before deployment in the mine. Proper record of repairs and maintenance (Logbook) along with inspections done by competent engineers shall be maintained.

- **Precautions against danger of inundation from surface water**

1. Badmahi river flows from east to west, along the northern boundary of coal block. An embankment is planned for construction with appropriate height and dimensions , based on the HFL line along the Badmahi rivers's periphery on the mine side. All safety parameters and requirements outlined under section 149 of CMR 2017 will be followed. One seasonal nala flowing from south to north and joining Badmahi river, will be diverted along the eastern boundary of the block. A bund is also proposed to be constructed all along the diverted route. All required precaution against inundation would be taken care of.

2. A careful assessment shall be made against the danger from surface water before the onset of rainy season. Garland drains shall be provided to drain away the surface rainwater from the mine excavated area. Adequate capacity of pumps will be installed. All pumps in designated sumps, will be mounted on floats to prevent drowning in case of unwarranted heavy rainfall. Inspection for any accumulation of water, obstruction in normal drainage and weakening of embankment shall be carried out regularly.

3. Standing order for withdrawal of persons in case of apprehended danger shall be framed and implemented.

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

4.1.2	A Commitment from the Company Board that entire mining operation will be carried out as per the Statutory provision given under Mines Act 1952, Coal Mine Regulation 2017 and & wherever specific permission will be required the company will approach the concerned authorities	furnished as annexure

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Chapter-5: Infrastructure Facilities

5. Infrastructure Facilities

<table>
<tr><td>S.No</td><td>Parameters</td><td colspan="3">Details</td></tr>
<tr><td rowspan="2">5.1.1</td><td rowspan="2">Mine infrastructurerequired e.g., Equipmentmaintenance planning,Office buildings,Workshop, Power supplyarrangement, Water supply etc.</td><td>S.No</td><td>Facilities/ infrastructure to be retained</td><td>Area in HA</td></tr>
<tr><td>1</td><td>Infrastructure to be retained are Settling pond , Embankment , Garland drain , Water pipe lines, Water tanks , Overhead Electrical Transmission Lines established for supply of power to these facilities. Roads constructed to serve these facilities. The above facilities shall be handed over to the concerned State Authority on closure of the mine for the best possible use by the local community.</td><td>22.27</td></tr>
<tr><td rowspan="2">5.1.2</td><td rowspan="2">Infrastructure to be dismantle</td><td>S.No</td><td>Facilities/ infrastructure to be Dismantled</td><td>Area in HA</td></tr>
<tr><td>1</td><td>Infrastructure (CHP and associated infra)</td><td>12.80</td></tr>
<tr><td>5.2</td><td colspan="4">Power supply & illumination</td></tr>
<tr><td colspan="5">The power is required at Gondulpara coal block for following main activities.
• Coal Handling plant
• Pit Water Pumping
• Mine Industrial Area
• MFA and Workshop
• Mine Illumination
Overall power demand will be approximate 2 MVA for initial year of operation and the same shall ramp up to 5 MVA for life of mine. Power will be received at Substation-1 at 33kV from nearby substation. Further reticulation shall be done at 415V for CHP load, pit water pumping load (for initial year) and for other mine infra. SS-1 will have transformer of 33kV/0.415 kV, 1 number of 2 MVA and feed it to 415V switchboard. Transformer rating sizing are done considering overall load requirement for mine infrastructure. One number 33/6.6kV, 5 MVA transformer will be installed in 5th year for pit water pumping. 6.6kV power will be distributed to mine area to cater load of HT motor of Pit pumping. Diesel generator sets are considered at substation.</td></tr>
<tr><td>5.3</td><td colspan="4">Drainage & Pumping : Assessment of Volume of Water for Pumping, Pumping Capacity and Pump Selection</td></tr>
</table>

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

5.3.1 Drainage and Pumping

The Gondulpara block represents a rugged topography with hills in the eastern part and river valley toward west and north. A hill range traverses along the eastern and southeastern parts covering substantial area of the block. Hills are steep with maximum elevation of over 516 m. southeast of borehole CMKB-144. The difference between foot hills and the highest peak is about 60m. The minimum elevation along the Badmahi river is about 417m.

The Badmahi River, flowing along Northern side of block boundary , controls the main drainage of the area. Many rivulets originate from the hill range and feed the Badmahi River. The Badmahi River in turn joins the Damodar river towards south. The Badmahi River is perennial water sources for the region.

- **Estimation of volume of water to be pumped**

Excavation operation of a quarry is a dynamic process. Gradually the depth of working increases. The duty of the pumps particularly the static head increases as the quarry goes deeper and deeper.

Q = A x H x m3 /day

where, A = Catchment area in m2

H = Maximum daily precipitation in m

= Run-off co-efficient

Run-off co-efficient () has been adopted as below:

1. For mined out area : 0.60
2. For area beyond excavation : 0.10
3. For internal dump area : 0.15

The value of maximum daily percolation is determined from probability curve plotted based on data received from meteorological station for some period of, say 15 or 20 years. Assessment is made for maximum daily precipitation at probabilities of 10% and 5% which corresponds to repetition once in every 10 years and 20 years. In the instant case no such data is available. As a result, make of water will be calculated from assumed maximum rainfall in the coalfield. Water ingress in the mine during rainy season is estimated, considering the stage of the mine when maximum void has been created.

- **Quarry Excavation**

Water ingress(A) = 0.20 m x [(max void area ha x 0.60) + (back-filled area ha x 0.15)] x 10^4

= 0.20 X [65 X 0.60 +268 X 0.15] X 10^4 m3 / day

= 158400 m3 / day

= 158400 m3/day/ 5 days/ 18 hours

= 1760 m3/hr

5.3.2 Selection of Pumps

Excavation operation of a quarry is a dynamic process. Gradually the depth of working increases. The duty of the pumps particularly the static head increases as the quarry goes deeper and deeper. Details of pumps are tabulated below-

Table 5-4.21 Details of Pumps

Quarry (Peak pumping duty ; stage pumping load assumed 50 % of max. pumping duty)	KW	Nos.
Slurry Pumps (Face) Pumps : 50 lps x 50 m	60	3
Main Pumps 80 lps x 110 m 6.6 KV electrical	160	6
160 lps x 240 m 6.6 KV electrical	600	6
160 lps x 300 m 6.6 KV electrical	750	6

Apart from the above main pumps, during heavy rainfall for pumping slurry/sludge containing large solid particles, portable pumps up to 55 kW equipped with one or two channel impellers with free flow passage varying from 40 mm to 190 mm in diameter are envisaged.
Additionally, self-priming pumps of 30 Cum/hr. capacity, 40 m head have been provided for priming. Face pumps of 30 Cum/hr. capacity, 40 m for carrying water from localized depression in the face area to main sumps. Diesel pumps as per capacity requirement will be provided for use in emergency during electrical power failure.

The delivery pipelines from the pumping station are proposed to be taken out through the side of haul road provided in the middle of the quarry. These pipes are eventually brought to the surface, from where the water will be discharged to the natural drainage system after passing through settling tanks and after proper chemical treatment.

The suction and delivery ranges have been selected on the basis of pumping capacity during probable maximum rainfall and velocity of flow within the reasonable limit. The ranges thus selected for pumps are of 300 mm, 250 mm, 150 mm, 100 mm and 80 mm nominal diameter.

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

5.4	Coal Handling Arrangement: Brief detail of the CHP/ Mode of Dispatch, Coal quality and Coal staking and handling arrangement	The total coal production from this mine has been proposed as 4 MTPA. Independent CHP-dump station/ truck loading stations have been proposed to handle the entire production of ROM coal from this mine. Coal extraction is proposed by drill blasting method and by Surface Miner. Two stage crushing will be done (Feeder breaker as primary crusher and secondary crusher /sizer as secondary crushing) for drilling and blasting while for coal being mined by surface miner crushing of coal will not be required. The coal handling plant shall have facilities for receiving coal from rear discharge dumpers via dump station, conveyor and loading into truck loading system. Enough ROM storage provision has been provided in the coal handling system to meet the eventualities of disrupted coal production in the mine or dispatch irregularities. The plant will be operated in synchronization with the production of the mine. The coal handling plant shall also be provided with suitable repair, communication, and other auxiliary facilities to meet the day-to-day requirement in the plant operation. The CHP has been planned to keep in view the rugged terrain. The following factors have been considered in finalizing the location of CHP a) Mine Lease Boundary b) Location of quarry c) Entry of quarry d)Topography e)Availability of free space f)External dumps of the mine g)Proposed Evacuation system System Description The handling capacity of the CHP has been designed to match the production capacity of 4 Mtpa from the mine during the mine production hours. The system capacity has been considered based on mines production and to meet any fluctuations of coal output from the mine or due to irregularities of dispatch / transport system and seasonal fluctuations., The scheme for coal handling plant facility has been described below, which meets the functional requirement of the coal handling facility. The facilities have been designed to consider regulation on environmental aspects so that the coal handling is possible in an environmentally acceptable manner. Safety devices have been provided to allow safe operation of all the facilities i.e. conveyors alarms, trip switches, interlocks, emergency trip system reclamation purposes. CHP has been designed with a capacity of 770 TPH keeping the peak production capacity in mind. Dump trucks will discharge ROM coal to coal receiving station which have adequate receiving and conveying equipment to handle and deliver the coal into truck loading for further transport. A brief description towards fulfilling the designed requirement of the CHP is as follows Coal handling system has been designed for a capacity of 770 TPH. Coal mining will be done by a combination of drilling, blasting and Surface Miner. Dumper of 35 T capacity will feed the ROM coal to ROM hopper of 100 T capacity at dump station. Dump station will have a provision of two dump hoppers of each 100 T capacity one for the coal mined through surface miner and the other through drilling and blasting respectively. Two stages of crushing (Feeder breaker as primary crusher and secondary crusher /sizer as secondary crushing) for coal mined by drilling and blasting will be carried out while no crushing has been envisaged for coal received from surface miner The coal from the mines after receiving from the dump hopper will pass through the vibrating screens for further crushing of oversized material. Conveyor belts with a capacity of 770 TPH will convey the (-) 100 mm lump size material to truck loading station. The truck loading systems will be equipped with one maintenance gate, one bottom discharge gate and one swing cum telescopic chute for each bottom opening. The entire system will be operated with hydraulic system comprising of shut off valves, solenoid controlled directional valves, flow control valves, piping etc. Proper water spraying / fogging arrangement will be installed at the required points to control emission of coal dust in the plant.
5.5	Coal washing and the proposed handling/ disposal of rejects	Not Applicable No coal washing is envisaged for Gondulpara coal block
5.6	Water Consumption and Wastewater generation (for coal handling/washing as applicable, manpower engaged, utilities, firefighting requirements, HEMM washing/maintenance, dust suppression as well as plantation, etc.)	Attached as an annexure in tabulated format
5.7	Other infrastructures for air pollution control (fog cannons, fixed water spraying systems, cold fog, Vertical Greenery System (VGS), wind barriers, or other relevant technologies)	Yes, wind barriers, Fog cannons and other relevant technologies has been planned as per air pollution control.

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Chapter-6: Land Requirement

6.1 Land requirement

S.No	Parameters	Details
6.1.1	Total Land requirement for the mine in "Ha". Indicative source of data.	
Tentative land use plan is based on Cadastral map of area.		
Break up of pre-mining land type (indicative) and source of data.		

S.No.	Land Type	Exisiting/pre-Mining Use	Area
1	Tenancy Land	Agriculture, township & Road	223.22
2	Govt Land	Grazing, Barren , Township and others	70.16
3	Forest Land	Rev Forest CJBJ	9.12
4	Forest Land	Protected forest land	210.68
5	Total	Land	513.18

6.1.2 During mining Land use details:

Type	Land use (Proposed)	Land Use (End of Life)	Land Use (Post Closure)						
			Agricultural land	Plantation	Water Body	Public/Company Use	Forest Land (Returned)	Undisturbed	Total
Excavation Area	326.01								
Backfilled Area		166.89		67.08			99.81		166.8900
Excavated Void		159.12			159.12				159.1200
Without Plantation									
Top Soil Dump									
External Dump	129.35	129.35		39.35			90		129.3500
Safety Zone	6.5	6.5					6.5		6.5000
Haul Road between quarries									
Road diversion									
Diversion Or Below River Or Nala Or Canal	5.56	5.56				5.56			5.5600
Settling Pond	2.2	2.2				2.2			2.2000
Road And Infrastructure Area	12.80	12.80					12.80		12.8000
Rationalization Area									
Garland Drains	1.53	1.53				1.53			1.5300
Embankment	18.54	18.54				18.54			18.5400
Green Belt	10.69	10.69					10.69		10.6900
Water Reservoir Near Pit									
UG Entry									
Undisturbed OR Mining Right For UG									

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Resettlement									
Pit Head Power Plant									
Water Harvesting									

S.No	Parameters	Details
6.1.3	Surface features over the block area	Human habitation Five villages (Gali, Gondulpara , Hahe , Phulang and Balodar) are located in / immediate periphery of the block Road Diversion of road is not required as there is only one road to connect the Gondulpara village which will be displaced during the miningoperation. Ponds Few Small ponds and dug wells in the area. These are utilized for irrigationand drinking water purpose. Nala/River Badmahi river flows from east to west, along thenorthern boundary block. An embankment is planned along the Badmahi river. One nala flowing from south to north (tributary of Badmahi river) which will be diverted along the eastern boundary of block a bund is also proposed along the diverted route. All required precaution against inundation would be taken care of.
6.1.4	No. of villages/Houses to be shifted	Five villages (Gali, Gondulpara , Hahe , Phulang and Balodar) are located in /immediate periphery of the block.. Number of houses to be shifted will be estimated after SES.
6.1.5	Population to be affected by the project	Project Affected Families (PAF) is 1116. Figure will be updated after socio-economic survey
6.1.6	Proposed Rehabilitation programme	Rehabilitation and Resettlement Policy is under approval ; Approved RR policy for the project will be implemented.

6.2 DETAILS OF LEASE

S.No	Parameters	Details
6.2.1	Status of Lease	
To be applied.		
6.2.2	Existing Lease Area “Ha”	NIL
6.2.3	Period for which Mining Lease has been granted/is to be renewed/ is to be applied. for.	Lease shall be proposed till life of mine (34 including 2 years of construction)
6.2.4	Date of expiry of earlier Mining Lease, if any .	not applicable
6.2.5	Whether the lease boundary/ required boundary is same as mentioned in the allotment order.	No, 103.26 Ha land area is additional to block boundary which will be part of lease boundary required for OB dumping.
6.2.6	Lease Area (applied/ required) as per the Mining Plan under consideration (Ha)	513.18 ha
6.2.7	Whether the applied lease area falls within the allotted block.	Additional 103.26 ha land for OB dumping falls beyond the allocated / vested block boundary.
6.2.8	Area (Ha) of lease which falls outside the delineated Block Boundary/Existing Mining Lease.	103.26 ha land for OB dumping falls beyond the allocated / vested block boundary.
6.2.8	Area (Ha) of lease which falls outside the delineated Block Boundary/Existing Mining Lease.	103.26 ha land for OB dumping falls beyond the allocated / vested block boundary.
6.2.9	Details of outside area	Not Applicable
	Whether forms part of any other coal block	No, Certificate from CMPDI has been obtained for the same and provided as annexure 2C
	Whether it contains any coal/lignite reserves.	Exploration done under supervision of CMPDI and certification of technical - viability issued by CMPDI has been attached as an annexure.
	Purpose for which it is required, e.g. roads/ OB dumps/ service buildings/ colony/ safety zone/ others (specify).	OB dumping and access to dumping area
6.2.10	Whether some part(s) of the allotted block has not been applied for mining lease	Not Applicable
	Total area in Ha of such part(s).	0
	Total resource in such part(s). (Mt).	0
	Brief reasoning for leaving such part(s).	Not applicable

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Chapter-7: Environment Mangement

7. Environment Mangement

S.No	Parameters	Details
7.1	The project proponent shall submit an undertaking that the mine shall be operated as per the Environment Clearance (EC) and Forestry Clearance (FC) for the project.	The Company will comply Environment and Forest Condition stipulated in the respective clearances. undertaking for the same has been provided as annexure.

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Chapter-8: Progressive & Final Mine Closure Plan

8.1 Land Degradation and restoration Schedule

8.1.1 Tentative Land Degradation and Technical Reclamation (Commutative Area "Ha")									
Year/Stage		Land Degraded				Technically Reclaimed Area			
Up to Base year		Excav	Dump (Extn + Top Soil)	Infra/others	Total	Backfill/Stowing	Dump (Extn + Top Soil)	Others	Total
	2025	0	0	0	0.0000	0	0	0	0.0000
Y-1	2025-26	10.50	10.47	29.82	50.7900	0	0	0	0.0000
Y-3	2027-28	60.10	80.45	54.32	194.8700	0	0	3.00	3.0000
Y-5	2029-30	99.11	113.02	57.82	269.9500	42.12	84.765	13.752	140.6370
Y-10	2034-35	141.36	121.10	57.82	320.2800	70.42	90.825	17.19	178.4350
Y-15	2039-40	174.45	129.35	57.82	361.6200	104.58	97.013	17.19	218.7830
Y-20	2044-45	221.28	129.35	57.82	408.4500	130.89	129.35	17.19	277.4300
Y-25	2049-50	270.38	129.35	57.82	457.5500	140.10	129.35	17.19	286.6400
Y-30	2054-55	326.01	129.35	57.82	513.1800	164.45	129.35	17.19	310.9900
Y-32	2056-57	326.01	129.35	57.82	513.1800	166.89	129.35	17.19	313.4300
Post Mining closure									
Y-33	2057-58	326.01	129.35	57.82	513.18	166.89	129.35	29.99	326.23
Post Closure Monitoring									
Y-35	2059-60	326.01	129.35	57.82	513.18	166.89	129.35	29.99	326.23

8.1.2 TentativeBiological Reclamation (Cumulative in "Ha")

Year/Stage		Biologically Reclaimed Area					Forest land (Return)	Un Disturbed/ To be left for Public/com Use	Total
Up to Base year		Agriculture	Plantation	Water Body	Public/ Company Use	Total			
Y-1	2025	0	0	0	0	0.0000	0	5.56	5.5600
Y-3	2025-26	0	0	2.20	5.56	7.7600	0	5.56	13.3200
Y-5	2029-30	0	22.65	2.20	5.56	30.4100	0	7.09	37.5000
Y-10	2034-35	0	30.30	2.20	7.09	39.5900	0	7.09	46.6800
Y-15	2039-40	0	48.30	2.20	7.09	57.5900	0	7.09	64.6800
Y-20	2044-45	0	88.77	2.20	7.09	98.0600	0	7.09	105.1500
Y-25	2049-50	0	129.24	2.20	7.09	138.5300	0	7.09	145.6200
Y-30	2054-55	0	169.70	2.20	7.09	178.9900	0	7.09	186.0800
Y-30	2054-55	0	169.70	2.20	7.09	178.9900	0	7.09	186.0800
Y-32	2056-57	0	210.17	2.20	7.09	219.4600	0	7.09	226.5500
Post Mining Closure									
	2057-58	0	326.23	159.12	27.83	513.18	2019.80	27.83	247.63
Post Closure Monitoring									
Y-35	2059-60	0	326.23	159.12	27.83	513.18	219.80	27.83	247.63

S.No	Parameters	Details

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

8.2	Post Closure Water Quality management (Existing water bodies available in the lease hold area; Measures to be taken for protection of the same including control of erosion, sedimentation, siltation, watertreatment, diversion of water course, if any; Measures for protection of contamination of ground water from leaching etc;)	1. Use of water at various mining operation, run-off water after precipitation on OB dumps, coal stockyard, over mined out areas and pumping discharge of percolated ground water in mine excavation, generate wastes of various quality and quantity, which need to be addressed to prevent pollution of surface water and contamination of groundwater system. The various source of waste water and the pollution control measures are elaborated in the following paragraphs. 2. Water used at various service facilities viz. office, canteen, etc. is likely to generate waste water with high suspended solids, BOD, etc. The waste generated from these units will be collected and treated in a Package Sewage Treatment Plant and the effluent will be chlorinated and used for plant greeneries and dust suppression. 3. Waste water / industrial effluent coming out of the HEMM washing in Base Workshop and other repair and maintenance shops will be collected in ETP. This effluent contains suspended solids, TSP, oil and grease and the same will be sent to a grease trap. After removal of grease, the effluent from the Grease Trap will be fed to a settling tank with oil skimming arrangement in the Effluent Treatment Plant (ETP). The effluent of the settling tank will be utilized in haul road dust suppression / forestation / green belt. 4. Waste water from CHP system which will contain fine coal dust as suspended solid. This will be routed through a settling tank to the Sedimentation Pond for treatment. Pyritic impurities in coal are a source of acid drainage. It is proposed that during the operation of the mine, effluent quality of CHP is to be sampled frequently to determine the pH and corrective action taken. 5. Water accumulates in course of mining and has to be constantly pumped out for safety of men and machines Mine water is generated from two sources (a) ground water as the quarry goes deeper, more and more aquifers are intercepted and volume of water increases, (b)rainwater direct precipitation over the excavated area and surface run-off flowing into the mine during rains. For reducing the run-off, garland drains will be constructed around the excavated area and the top of back-filled area will be given a grade, so that rainwater flows outwards. However, a portion of the rainwater will always find way in the quarry. The pumped-out water of the quarry generally contains high TSP and, in some cases, dissolved minerals making the water acidic. It has been proposed to collect the water to a Sedimentation Pond of 2.20 ha area from where the water will collect in clear water sump. 6. This topic has already been dealt in detail for external dump of OB. Broadly, the external dump will have garland drain all around. To arrest the sediments and prevent silting of the water courses by the run-off during rains, toe-walls / retaining walls with weepholes at strategic stretches will be constructed. The gullies will have check-dams to prevent erosion.7. From nearby wells located at appropriate locations ground level will be monitored 4 times in a year (i.e. May, August, November and January). Monitoring of quality of drinking water and effluent will be done as per the statute.
8.3	Post Closure Air Quality management.	The PM 2.5 PM10, CO, SO2 and NOx concentrations are within limits as already discussed earlier. The mining operations and related activities are anticipated to increase the levels of PM 2.5 PM10 and gaseous pollutants to a limited extent. The control measures to be adopted are mentioned in the following paragraphs. Controlling fugitive dust particles, which are normally generated during various mining and transportation deteriorate the ambient air quality. Adequate control measures are, therefore, proposed to be taken during mining operations, transportation and crushing/loading operations. These control measures are discussed as follows. Drilling operation in OB Drills will have dust extractors. Presently Blast- hole Drill manufacturers have provided for wet drilling arrangement, which will be used. Blasting in OB it is proposed to do blasting only once in a week for each excavator and only once in a day between shifts. Use of Raydet /Nolen and similar delay detonators and proper design of blast and using muffle, throwing up of blasted rock and consequent production of dust can be dramatically reduced.

8.4 Waste Management (Figures in MM3) (Tentative)

Year/Stage		OB Removal (Cumulative)			External Dump (Cumulative)		Internal Backfilling (Cumulative)		Embankment (Cumulative)	
Up to Base year		Top Soil	OB	Total	Top Soil	OB	Top Soil	OB	Top Soil	OB
	2025	0	0	0	0	0	0	0	0	0
Y-1	2025-26	0.12	0.90	1.01	0	1.01	0	0	0	0.30
Y-3	2027-28	0.45	12.10	12.55	0	12.55	0	0		0.30
Y-5	2029-30	0.65	26.29	26.94	0	19.75	0	7.20		0.30
Y-10	2034-35	1.41	56.48	57.89	1.41	33.52	0	22.67		0.30
Y-15	2039-40	1.74	88.74	90.48	1.41	48.49	0.33	39.95		0.30
Y-20	2044-45	2.21	143.34	145.55	1.41	48.49	0.80	94.55		0.30
Y-25	2049-50	2.70	209.85	212.55	1.41	48.49	1.29	161.06		0.30
Y-30	2054-55	3.26	269.89	273.15	1.41	48.49	1.85	221.10		0.30
Y-32	2056-57	3.26	276.21	279.47	1.41	48.49	1.85	227.42		
Post Mining Closure										
Y-33	2057-58	3.26	276.21	279.47	1.41	48.49	1.85	227.42		0.30
Post closure Monitoring										
Y-35	2059-60	3.26	276.21	279.47	1.41	48.49	1.85	227.42		0.30

8.5 Top Soil Management — (Including Action plan for Top Soil management) (Tentative)

(All Figures are Cumulative and in "MM3")

Year/Stage		Top Soil Removal Plan	Top Soil Used				
Up to Base year			Spreading Over Embankment	Spreading Over Backfill area	Spreading Over External OB Dump area	Used in Green Belt area	Total Utilised
	2025	0	0				
Y-1	2025-26	0.12	0				
Y-3	2027-28	0.45	0				
Y-5	2029-30	0.65	0				
Y-10	2034-35	1.41	0		1.41	0	1.41

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Y-15	2039-40	1.74	0	0.33	1.41	0	1.74
Y-20	2044-45	2.21	0	0.80	1.41	0	2.21
Y-25	2049-50	2.70	0	1.29	1.41	0	2.70
Y-30	2054-55	3.26	0	1.85	1.41	0	3.26
Y-32	2056-57	3.26	0	1.96	1.30	0	3.26
Post Mining Closure							
Y-33	2057-58	3.26	0	1.85	1.41		3.26
Post Closure Monitoring							
Y-35	2057-60	3.26	0	1.96	1.41	0	3.26

S.No	Parameters	Details
8.6	Management of Coal Rejects.	Not applicable
8.7	Restoration of Land used for Infrastructure.	i. Infrastructure to be retained - a. Water pipe lines b. Water tanks c. Overhead Electrical Transmission Lines established for supply of power to these facilities d. Roads constructed to serve these facilities. The above facilities shall be handed over to the concerned State Authority on closure of the mine for the best possible use by the local community. e. Settling pond , embankment and garland drains. ii. Infrastructure to be decommissioned - 1. All power lines, telephone lines, trestles, poles, cables and conductors, including Sub-Station, transformers, switchgears etc. not required for public use. 2. All buildings and their sewer system, other than those required for public use. 3. All structural sheds except workshop, store. 4. All surface haul roads and other roads except the roads to be used for society.
8.8	Disposal of Mining Machinery.	Disposal of scrap and such machineries which are not in use in O / C mines will be disposed of towards the end of the mine operation. The equipment including HEMM deployed by company will be taken back to other projects. Therefore. no equipment will left in the mine premises at the time of mine closure/after final mine closure. The disposal of the owner equipment will be completed within 5 years after mines life. No mining machinery will be permitted to remain in the lease area after completing the closure activities.
8.9	Safety & Security.	To ensure safety in operating the mine, all provisions of Coal Mine Regulations 2017 along with Circulars issued by Director-General of Mines Safety from time to time shall be adhered to. In addition, related statues viz. Mines Act 1952, Mines Rules 1955 and others shall also will be complied with. Some of the important statutory provisions relating to mechanized open cast mine which recently have been incorporated in Regulation are reiterated in the following paragraphs. Statutory Aspects for Safety of Mechanized Opencast - 1. Mine Safety Management Plan - For complying with Reg. 104 of CMR 2017, exercise shall be done to identify, assess and record the hazards of health and safety of the persons employed in the mine after consulting the Safety Committee and Internal Safety Organization (ISO). Based on the above, Safety Management Plan(SMP) shall be formulated for overall management for developing and implementing the safety policy of the company. SMP shall contain, inter alia, plan to implement the policy, principal hazard management, standard operating procedure (SOP), monitor, evaluate and review the plan.2.Mechanized opencast working For complying with Reg. 106 (2), before starting mining operation, it will be ensured that the mine including its method of working, ultimate pit slope, dump slope and monitoring of slope stability has been planned, designed and worked as determined by a scientific study, and a copy of the report of such study, shall be kept available in the office of the mine.3.Precautions against danger of inundation from surface waterbed river flows east to west direction along the northern boundary block. Embankment is proposed along the river. A tributary(Nala) of Badmahi river flows South to North direction which is proposed to divert along the eastern boundary of block. A bund is proposed along diverted nala as well. Complete northern and eastern boundary of block is protected by Embankment to protect against inundation from surface water

8.10 Mine Closure Cost and Financial Assurance

8.10.1 Mine Closure Cost

Cost of Activities to be taken up for closure of the mines					
Head	Particulars	Unit	Proposed Mine Closure Activities Cost		
			Quantity	Rs / Unit	"RS Cr"/
A. Progressive Mine Closure	Barbed wire fencing around the mine (Pit and Dump)	m	13850	1500	2.08
	Waste Management	MCum			
	Filing of Void - Rehandling of Dump (Not carried out as part of regular mining operation)	MM3			

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

	Top soil Management	MM3	3.26	50	16.30
	Technical and Biological Reclamation of mined out land and OB Dump.	Ha			
	Plantation over Virgin Area including green belt	Ha	10.69	350000	0.37
	Manpower Cost and supervision	MM3	384	100000	3.84
	Toe wall around the dump	m	4350	1500	0.65
	Garland Drain	m	13850	600	0.83
	Stowing	MONTH			
	Subsidence Monitoring and Management	m			
	Isolation Stoppings	m			
	Any other Activity	m	,,,	,,,	,,,
	Sub Total (A)	m	32447.95	453650.00	24.07
B. Post Closure Activities					
Dismantling of infrastructure & Disposal/ rehabilitation of mining Machinery	Dismantling of workshop	Ls			0.25
	Dismantling of CHP	Ls	,,,,,,,,,,,,,,,,	,,,,,,,,,,,,,,,,	0.50
	Dismantling of mine structures	Ls			
	Dismantling of Civil structures	Ls			0.25
	Rehabilitation of the dismantled facilities	Ls			0.20
	Dismantling of pump and pipes/ other facilities.	Ls	750	450	0.03
	Dismantling of stowing bunker, provisioning of pumps for borewell pumping arrangement.	Ls			
	Dismantling of UG equipment	Ls			
	Rearranging water pipeline to dump top park/Agriculture land	Ls			0.15
	Dismantling of power lines.	Ls			0.15
	Sub total	Ls	750.00	450.00	1.53
Safety and Security	Barbed wire fencing around mine (Pit and dumps)	m			
	Concrete wall with masonry / concrete pillars around the pit	m			
	Securing entries (shaft/inclines)	m			
	Securing of Inclines	m	7000	130	0.09
	Appropriate fencing around the water body	Ls			
	installation of bore well pump	Ls			
	Stabilisationl viz., benching, pitching et) of side walls of the water body	m	5819	1200	0.70
	Toe Wall around the dump	m			
	Garland drain	Ls	5819	750	0.44
	Drainage Channel from main OB dump	m			
	Sub total				
Technical and Biological Reclamation of mined out of land and OB Dump	Filling of Void	Mm3		350000	0
	OB Rehandling for backfilling	MM3	40	50	200
	Terracing, blanketing with soil and vegetation of External OB Dump	Ha	129.35	350000	4.53
	Paripharel road, gates, view point, cemented steps on bank	Ha			0.50
	Expenditure on development of Agriculture land	Ls			
	Landscaping and Plantation	Ls			0.20
	Sub total	Ls	169.35	116675.00	205.23

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

				Post Closure management and supervision	Power Cost
Ls	24	100000	0.24		Post mining water quality management
Ls	24	500000	1.20		Post mining air quality management
Ls	24	500000	1.20		Subsidence monitoring for 5 years
Ls	5	500000	0.25		Manpower Cost and supervision
Ls	60	100000	0.60		Sub total
	137.00	340000.00	3.49		
Sustainability	Skill Development and Trainings (Alternative Source of livelihood)		500	15000	0.75
	Fruit bearing, medicinal & local species plantation / Afforestation		785150	250	19.63
	Agriculture and other Allied Activities				1.00
	Eco-Tourism Development				10.00
	Flora and fauna Conservation/Wildlife conservation				10.00
	Water Resource Management/Conservation				5.00
	Clean Energy Projects	Ls (corpus fund for CSR and R&R Colony)			5.00
	Art and Culture				1.00
	Women Empowerment				3.07
	Welfare of aged and disabled people				0.84
	Sustainable Living				2.30
	Sanitation				1
	Sub total(B)		814844.35	475055.00	271.64
Grand Total(A+B)			847292.30	928705.00	295.71

8.10.2 Financial Assurance : Amount to be deposited in Escrow account as a security against the mine activities to be carried out for the closure of the mine

Latest WPI Available	December 2024	155.40
WPI as on base date	May-24	153.50
Escalation rate of Financial assurance	Escalation rate of Financial assurance	1.012
	UG	OC
The base Rate of Financial assurance amount " Crs./Ha"	0.015	0.14
Financial assurance amount ". Crs/Ha"	0.015	0.142
Project Area "Ha"	0	513.18
Amount to be depostied into Escrow Account " in Crs	0	72.872
Amount already deposited into Escrow Account " in Crs	0	0
Net Amount to be depositied into Escrow Account " in Crs	0	72.872
Rate of compounding of Annual Financial assurance amount		5.00%
Balance production Life of the project "in Yrs"	0	32
Annual Financial assurance amount	0	2.277
Amount to be deposited into Escrow Account after compounding @ of 5% " in Crs"		171.455

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Amount to be deposited into Escrow Account annually (" in Crs")

Year	OC	Year	UG	Total
1	2.277			2.277
2	2.391			2.391
	2.51			2.51

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

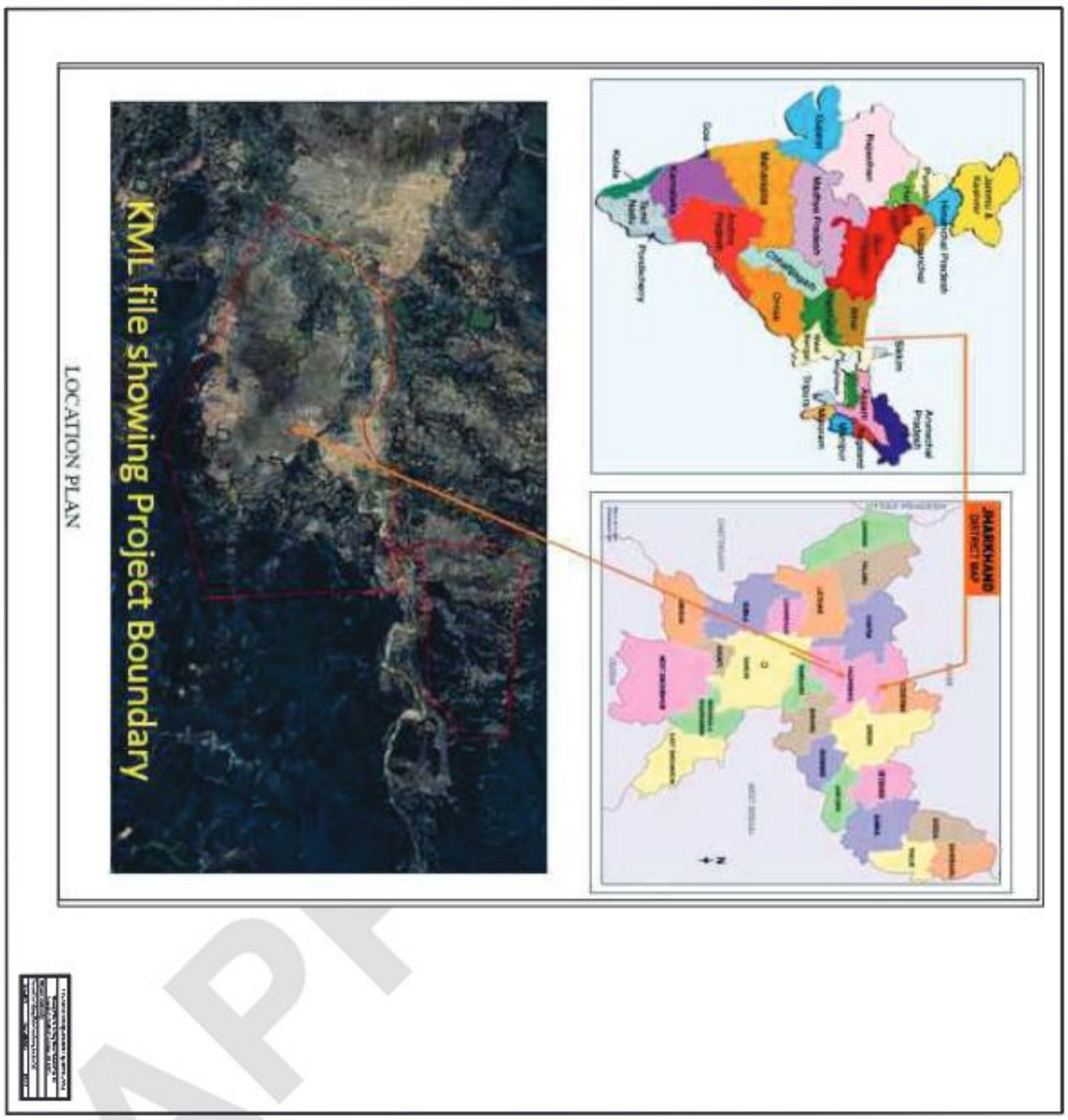
4	2.636			2.636
5	2.768			2.768
6	2.906			2.906
7	3.051			3.051
8	3.204			3.204
9	3.364			3.364
10	3.532			3.532
11	3.709			3.709
12	3.894			3.894
13	4.089			4.089
14	4.294			4.294
15	4.508			4.508
16	4.734			4.734
17	4.97			4.97
18	5.219			5.219
19	5.48			5.48
20	5.754			5.754
21	6.042			6.042
22	6.344			6.344
23	6.661			6.661
24	6.994			6.994
25	7.344			7.344
26	7.711			7.711
27	8.096			8.096
28	8.501			8.501
29	8.926			8.926
30	9.372			9.372
31	9.841			9.841
32	10.333			10.333
Total	171.455		0.000	171.455

PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

Plan/Plates

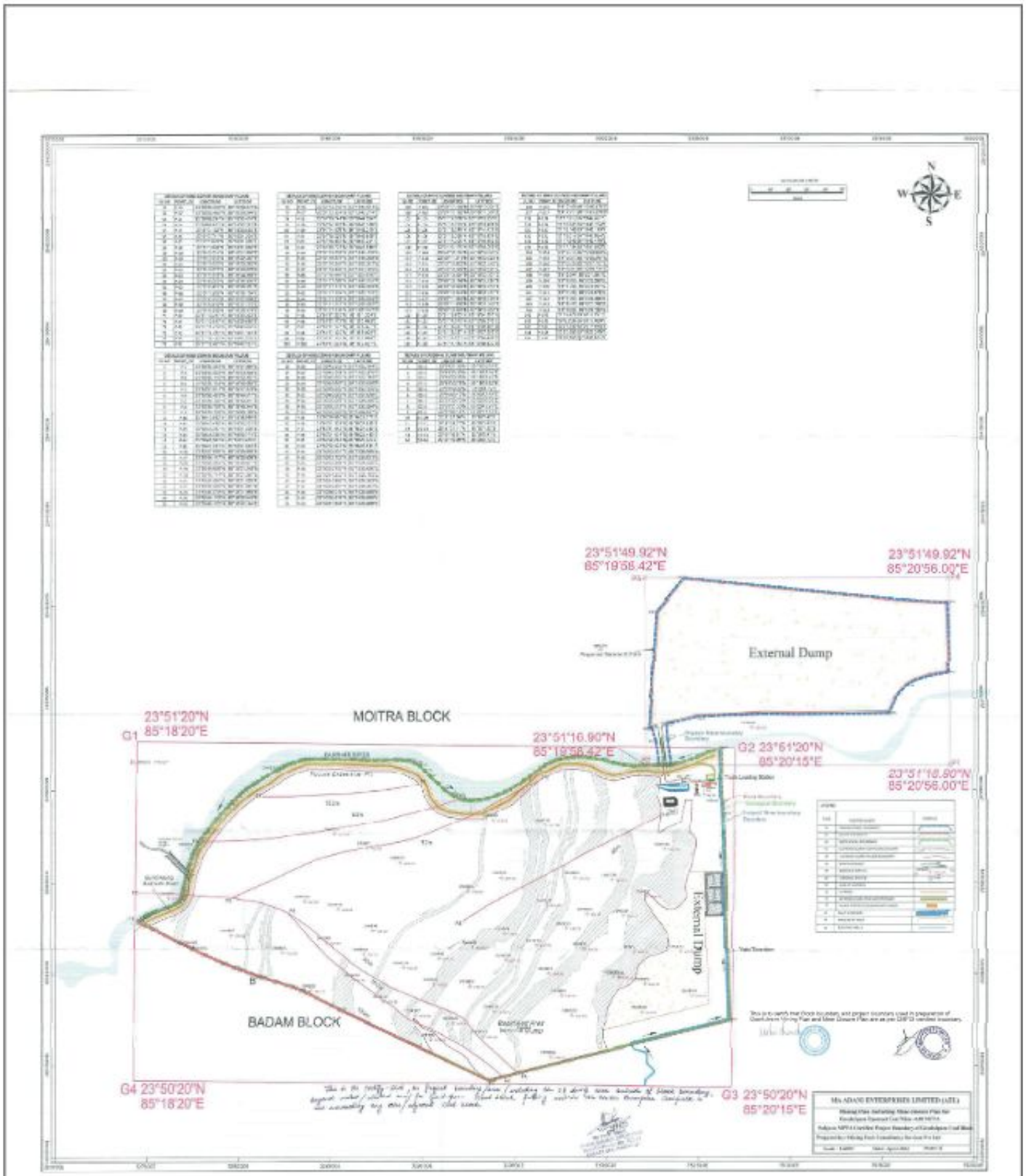
Plate 1



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

Plan / Plate 2A



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

Plan / Plate 2B

सेन्ट्रल माईन प्लानिंग एण्ड डिजाइन इन्स्टीच्यूट लिमिटेड
(कोल इण्डिया लिमिटेड की अनुषंगी कम्पनी / भारत सरकार का एक लोक उपक्रम)
गोण्डवाना पैलेस, काँके रोड, राँची - 834 031, झारखंड (भारत)
Central Mine Planning & Design Institute Limited
(A Subsidiary of Coal India Limited / Govt. of India Public Sector Undertaking)
Gondwana Place, Kanke Road, Ranchi - 834 031, Jharkhand (INDIA)
CORPORATE IDENTITY NUMBER - U14292JH1975GOI001223

By Speed post/e-Mail/e-office

पत्रांक : सीएमपीडीआई/बी.डी./ए (003)ऑफर/E869897/ I: 17529 दिनांक: 06.06.2023

सेवा में,

BHAGWATI PD. GOSWAMI
ADANI ENTERPRISES LIMITED-NATURAL RESOURCES
9th Floor, Commerce House 7,
Prahladnagar, S.G. Highway
Ahmedabad-380015
Gujarat
EMAIL: bhagwati.goswami@adani.com

विषय : **Certificate from CMPDI that Project boundary / area (including the OB dump area outside of block boundary) for not encroaching any other adjacent block for Gondulpara block of M/s Adani Enterprises Ltd. (M/s AEL) – Reg. Issue of certificate.**

Ref.:- **i. AEL/CMPD/002, 19.04.2023.**
ii. Offer letter No.CMPDI/BD/A(03)Offer)/E869897/ 1190000200/I- 17545, dated 02.05.2023.
iii. LOA No. AEL/HO/2022-23/001, dated 10.05.2023.

महोदय,

Hope, this letter finds you in the best of your spirit and long standing relationship with CMPDIL.

In reference to your LOA date 10.05.2023, referred above, the certificate (in original), for the subject assignment, is attached herewith for your needful please.

शीघ्र पत्रोत्तर के लिए धन्यवाद एवं सदैव अपनी सर्वोत्तम सेवाओं के आकांक्षण सहित ।

भवदीय,
06/06/2023
महाप्रबंधक (व्यवसाय विकास)
जनरल मैनेजर (बिजनेस डिवेलपमेंट)
सीएमपीडीआई (सेन्ट्रल माईन), राँची

स्पीड डाक/मेल/ई–ऑफिस द्वारा

फोन नम्बर/Phone No. :
फैक्स नम्बर/Fax No. :
ई-मेल/E-mail:
वेब साईट/Website:

सेन्ट्रल माईन प्लानिंग एण्ड डिजाइन इन्स्टीच्यूट लिमिटेड
(कोल इण्डिया लिमिटेड की अनुषंगी कम्पनी / भारत सरकार का एक लोक उपक्रम)
गोण्डवाना पैलेस, काँके रोड, राँची - 834 031, झारखंड (भारत)
Central Mine Planning & Design Institute Limited
(A Subsidiary of Coal India Limited / Govt. of India Public Sector Undertaking)
Gondwana Place, Kanke Road, Ranchi - 834 031, Jharkhand (INDIA)
CORPORATE IDENTITY NUMBER - U14292JH1975GOI001223

पत्रांक संख्या: सीएमपीडीआई/डीजी/केपटिव/378,E-12416/C दिनांक: 05.06.2023

TO WHOM IT MAY CONCERN

विषय: **Certification of Project boundary/area (including the OB dump area outside of block boundary) for not encroaching any other adjacent block.**

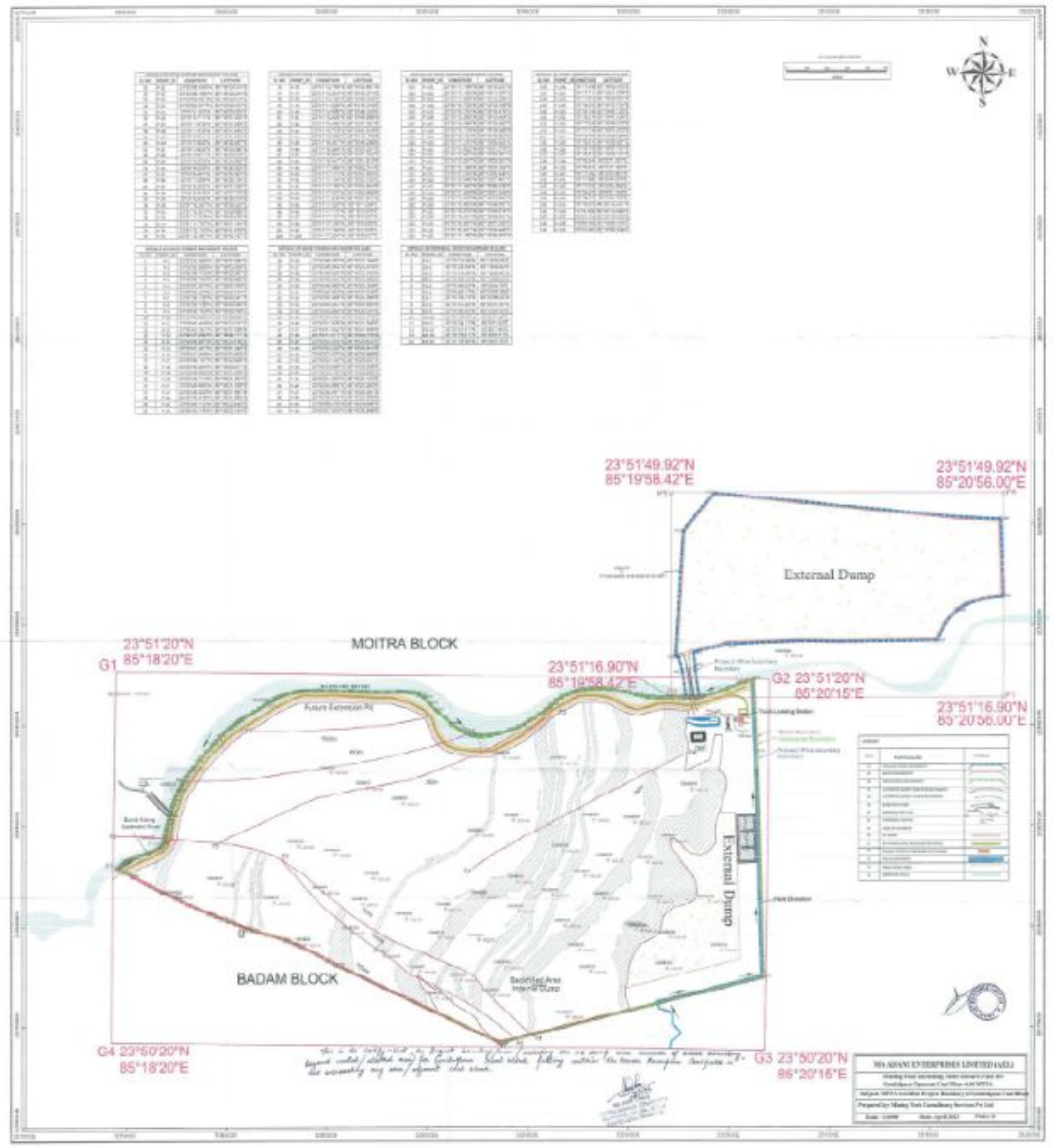
With reference to above subject this is to certify that, the Project boundary/area (including the OB dump area outside of block boundary, beyond vested/allotted area) for Gondulpara coal block falling within the North Karanpura Coalfield is not encroaching any other/adjacent coal block.

05/06/2023
महाप्रबंधक-प्रभारी (व्यवसाय)
GENERAL MANAGER (EXP')
सीएमपीडीआई लि, राँची-1
C.M.P.D.I. LTD., RANCHI - 1

फोन नम्बर/Phone No. :
फैक्स नम्बर/Fax No. :
ई-मेल/E-mail:
वेब साईट/Website:

PUNDRIK MISHRA
SITE HEAD MINING PROJECT
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

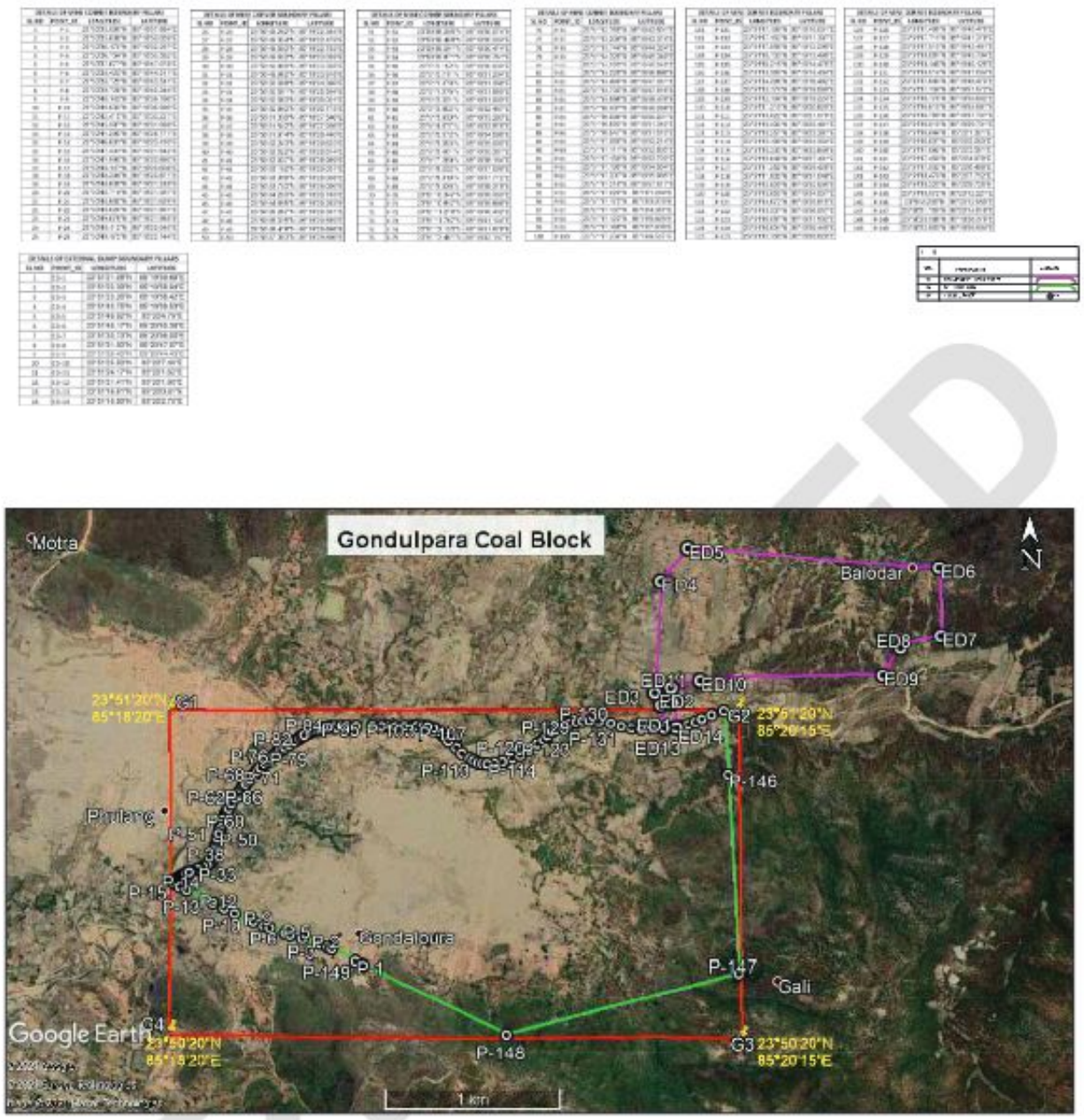
Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

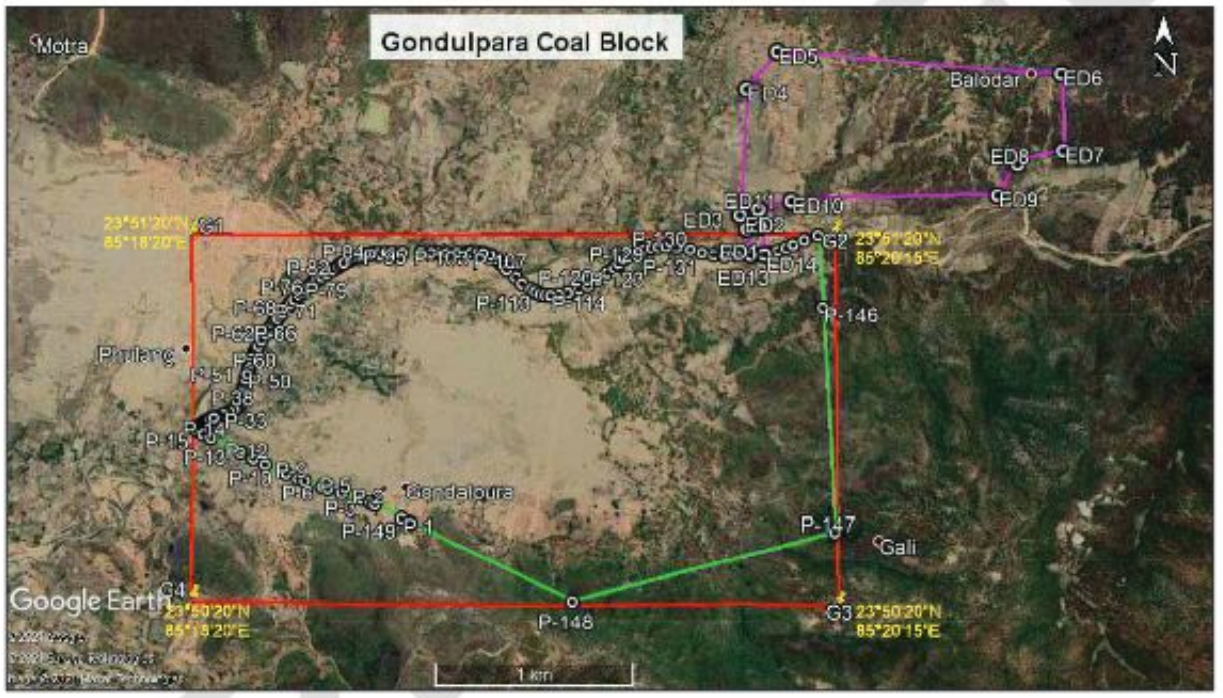
Plan / Plate 3A (Lease Area)



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

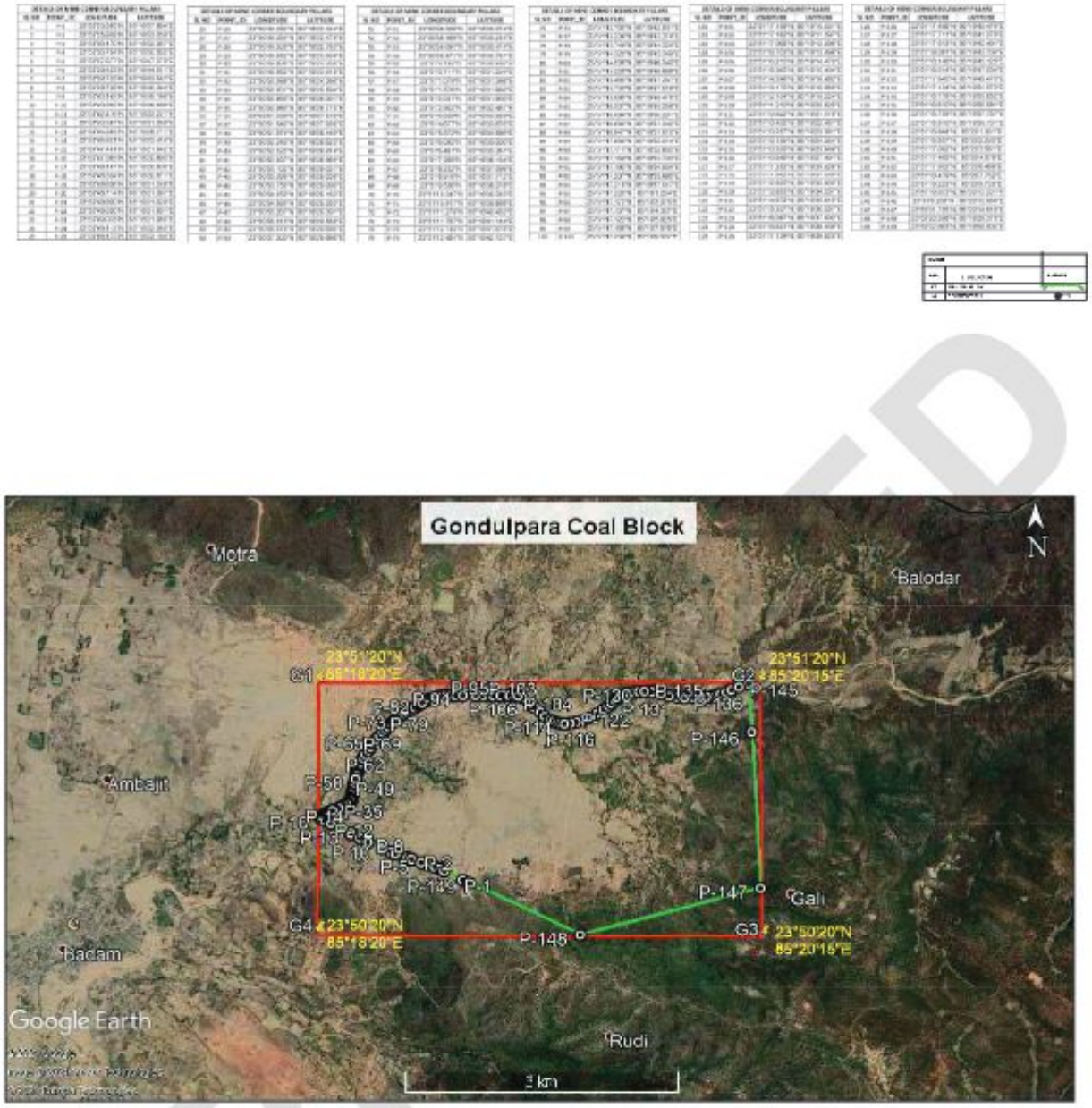
Plan / Plate 3B (Project Area))



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

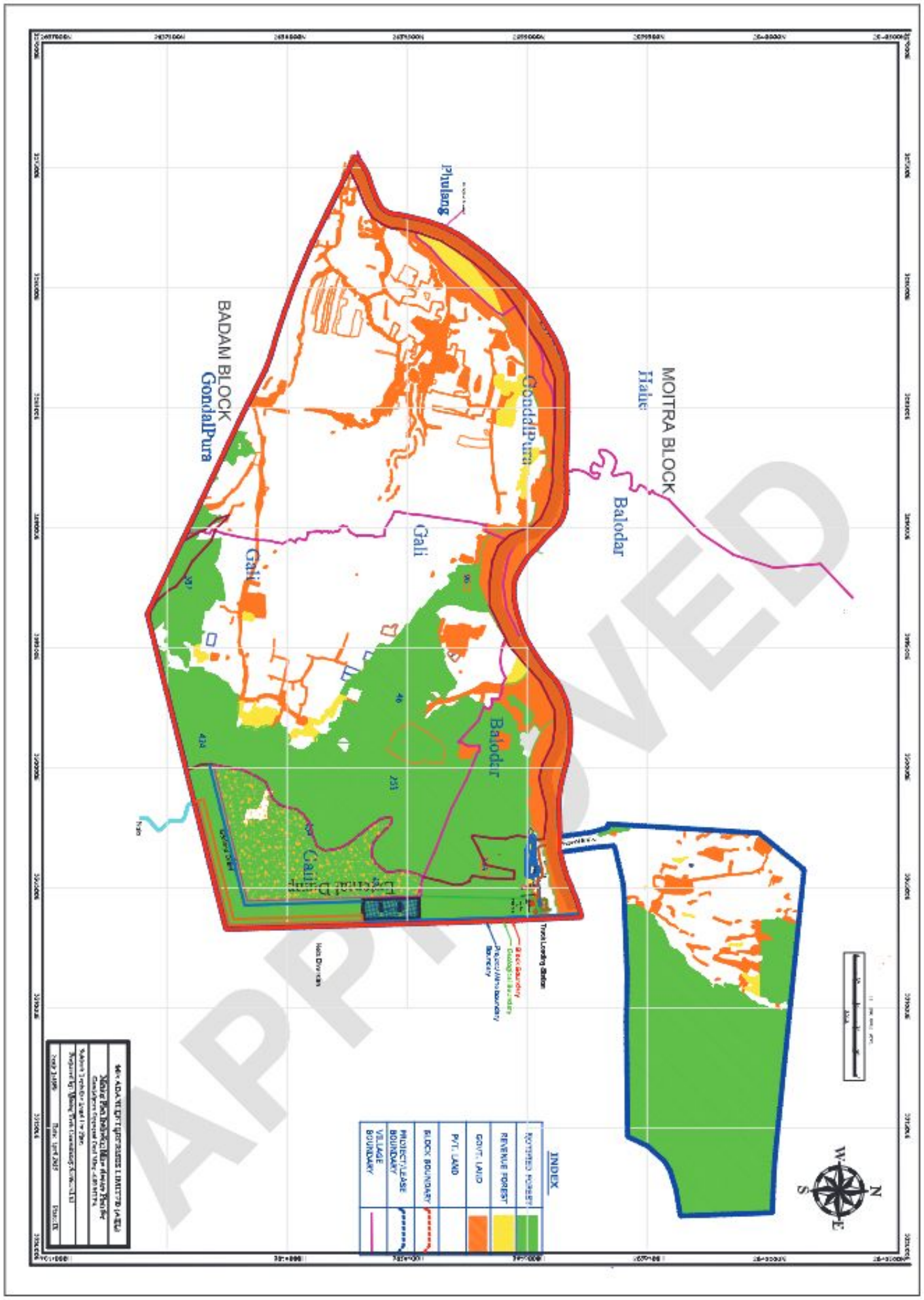
Plan / Plate 3C (Geological Block))



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

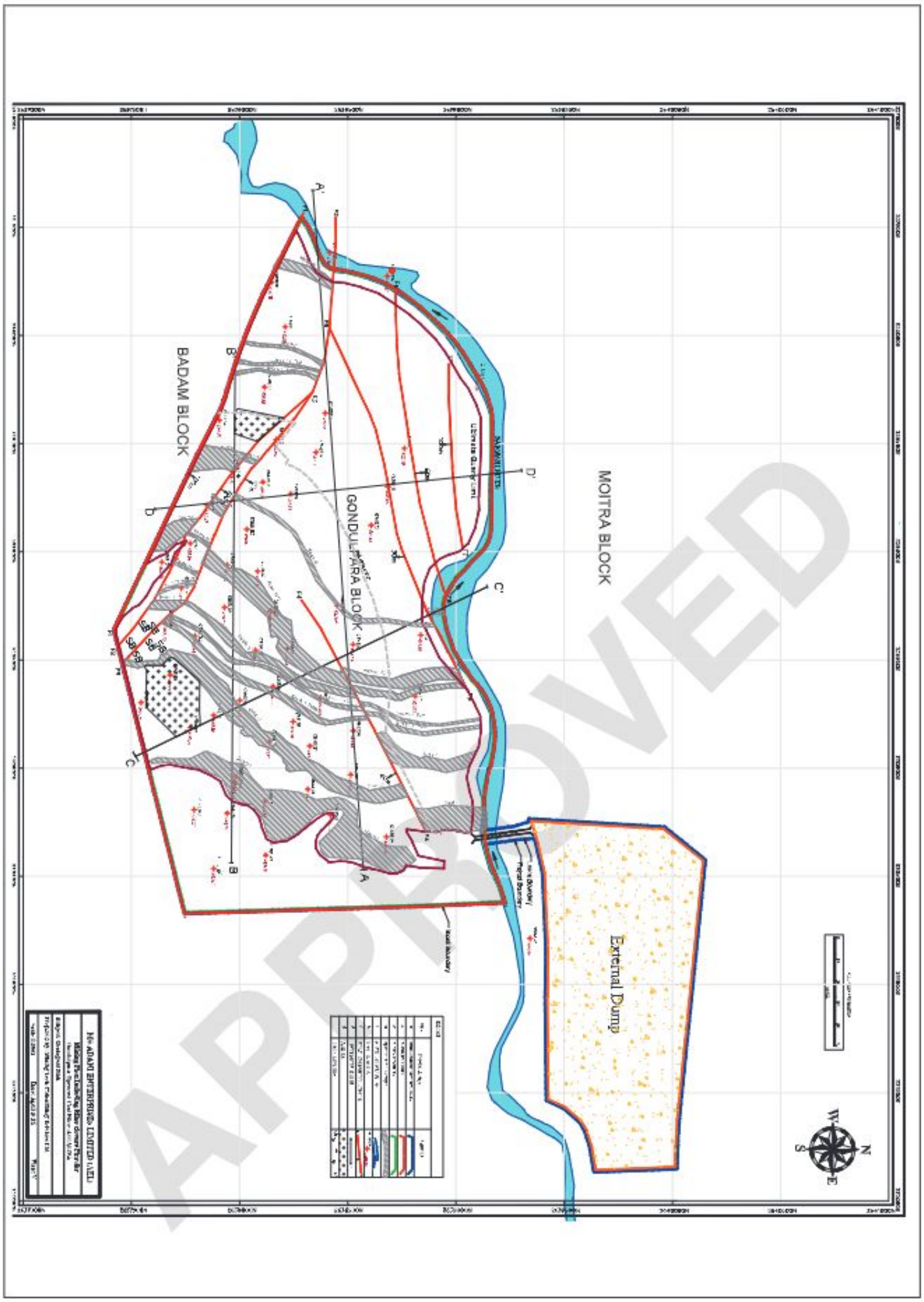
Plan / Plate 4



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

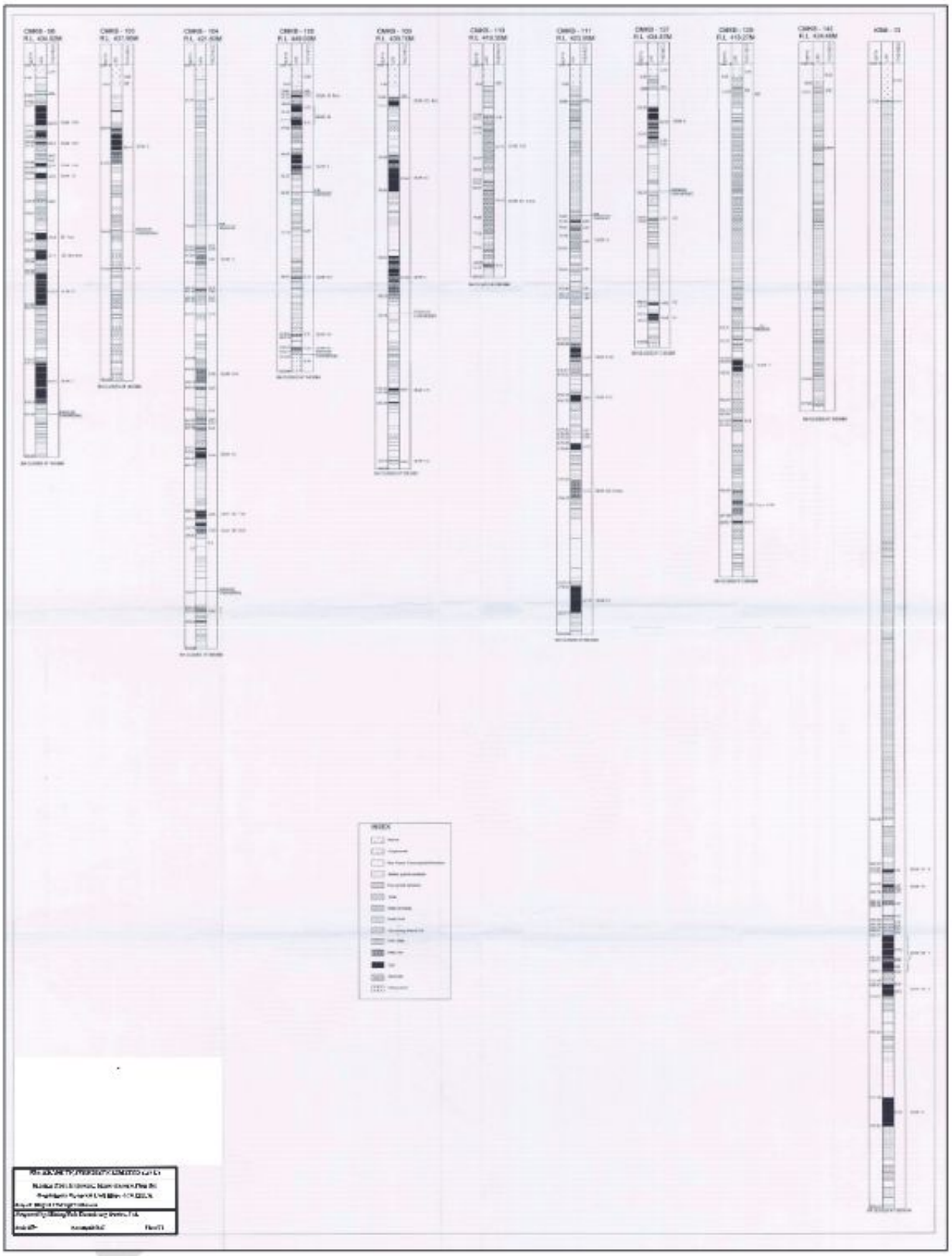
Plan / Plate 5A1



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

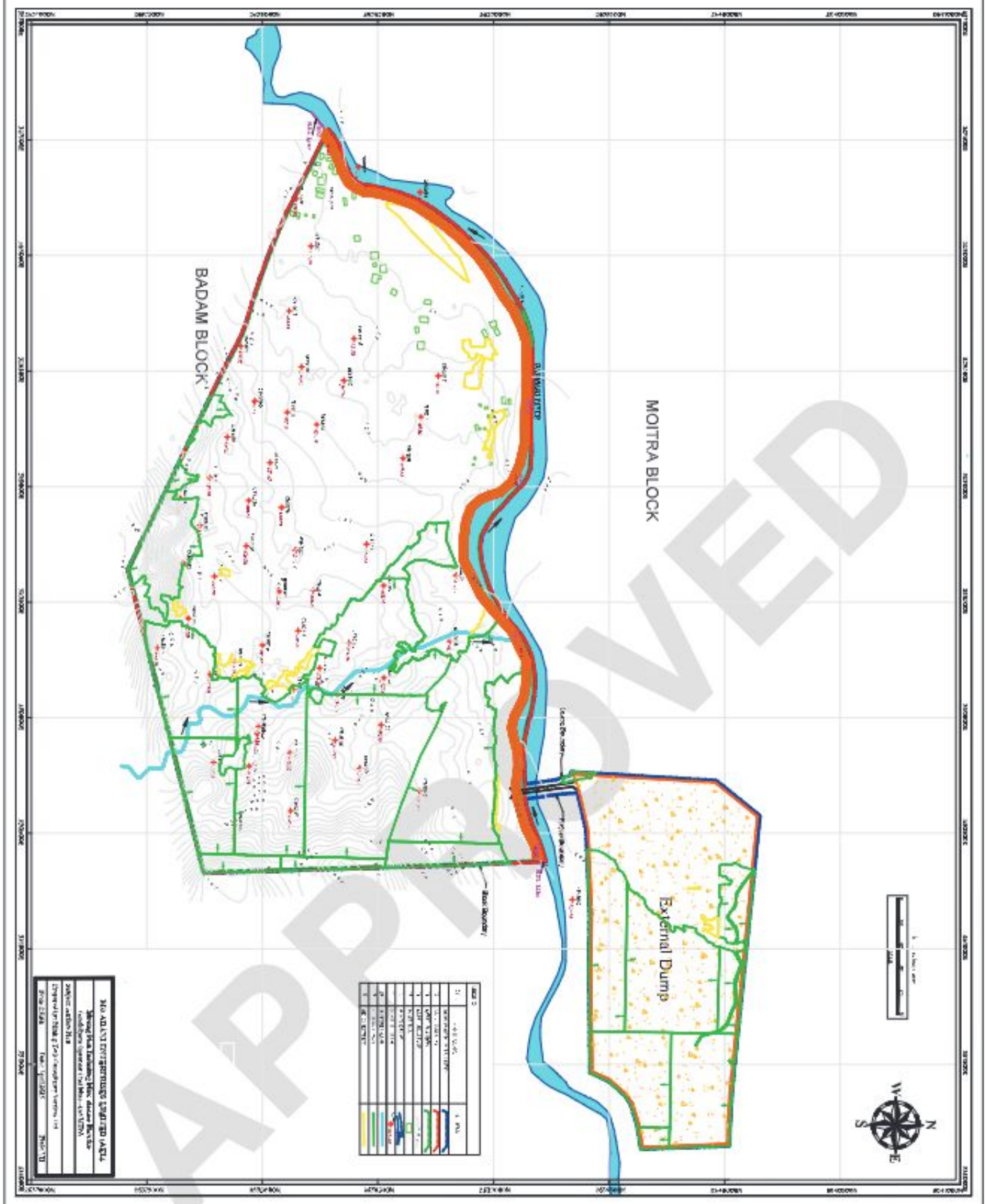
Plan / Plate 6A1



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

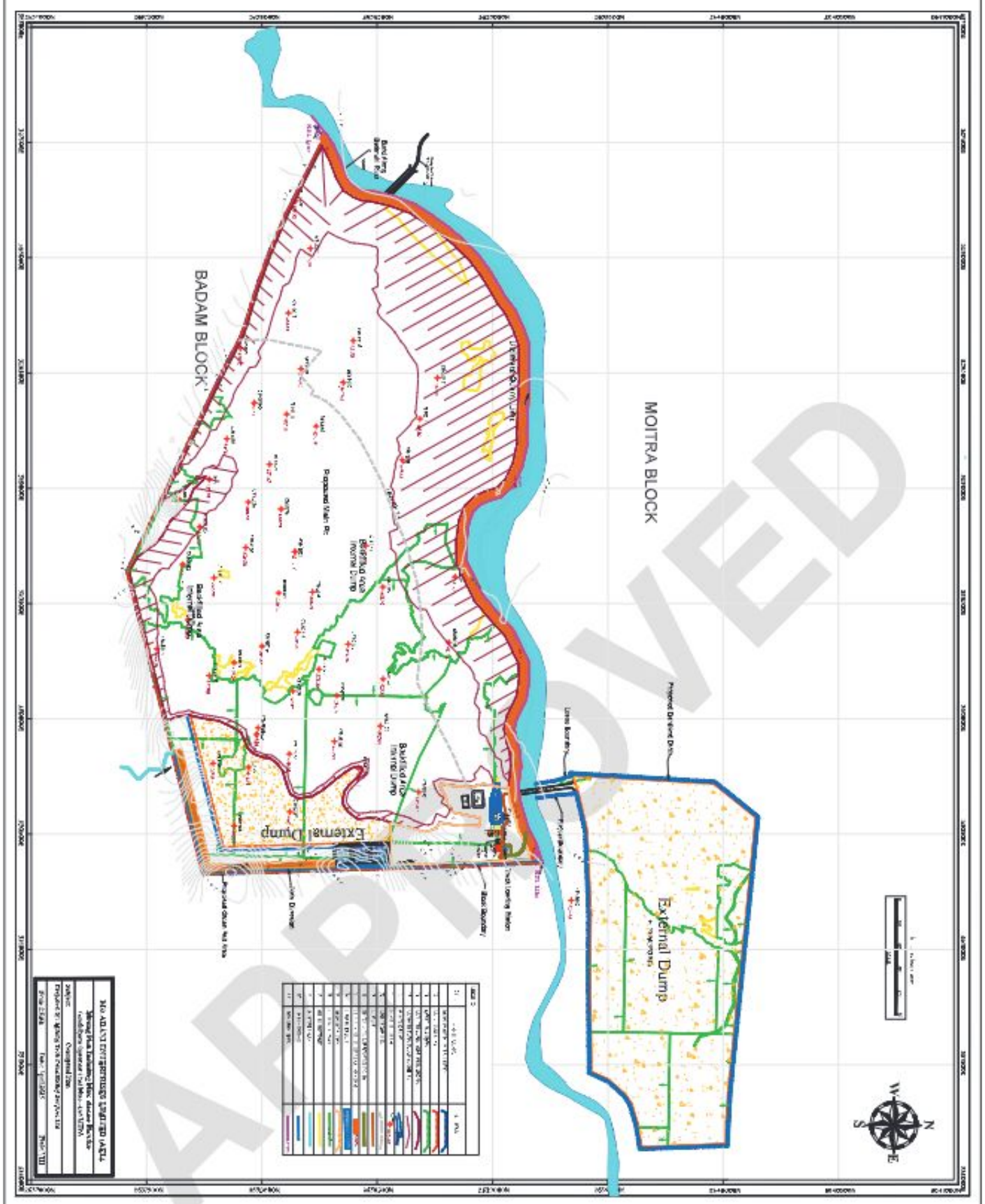
Plan / Plate 7



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

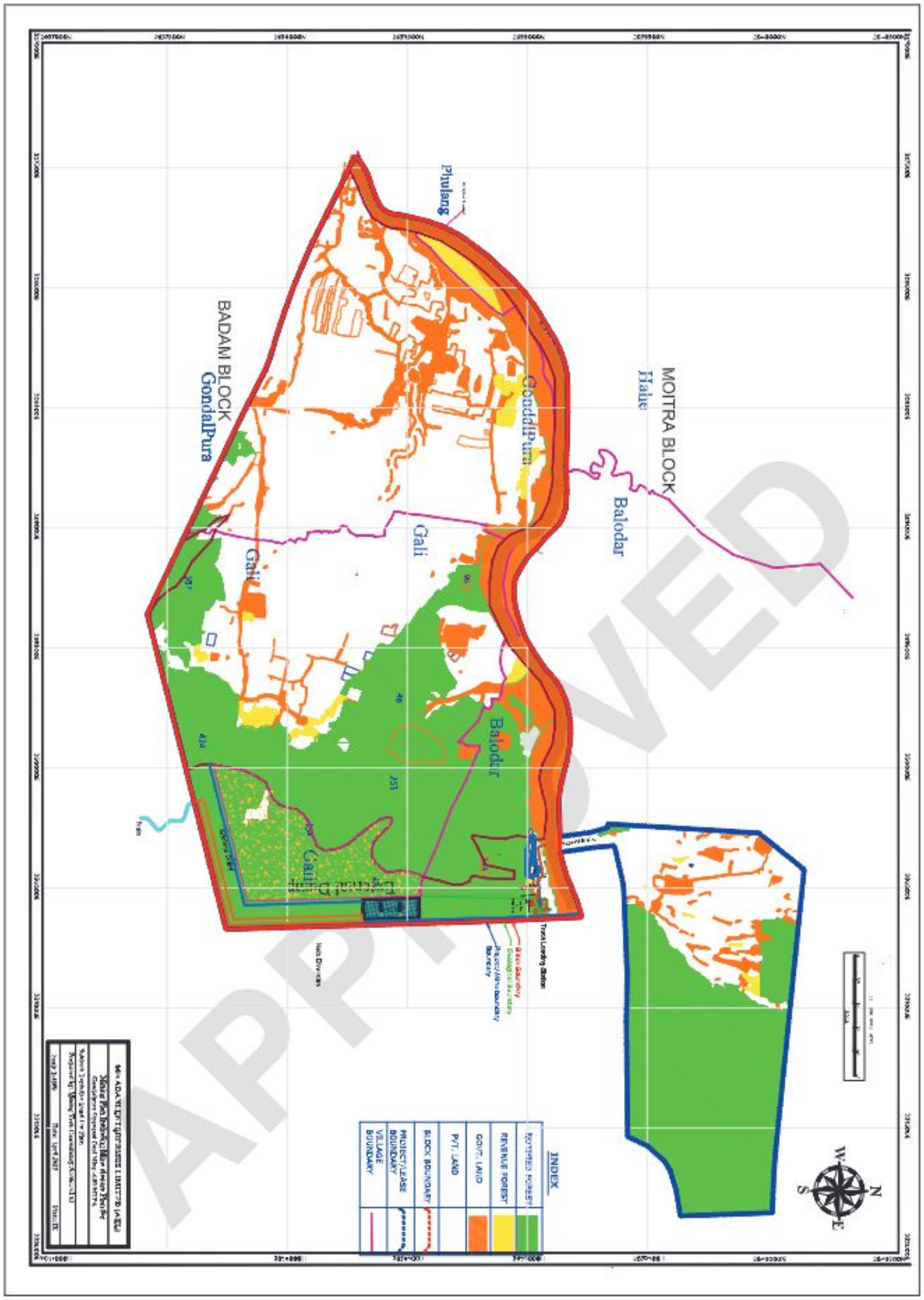
Plan / Plate 8



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

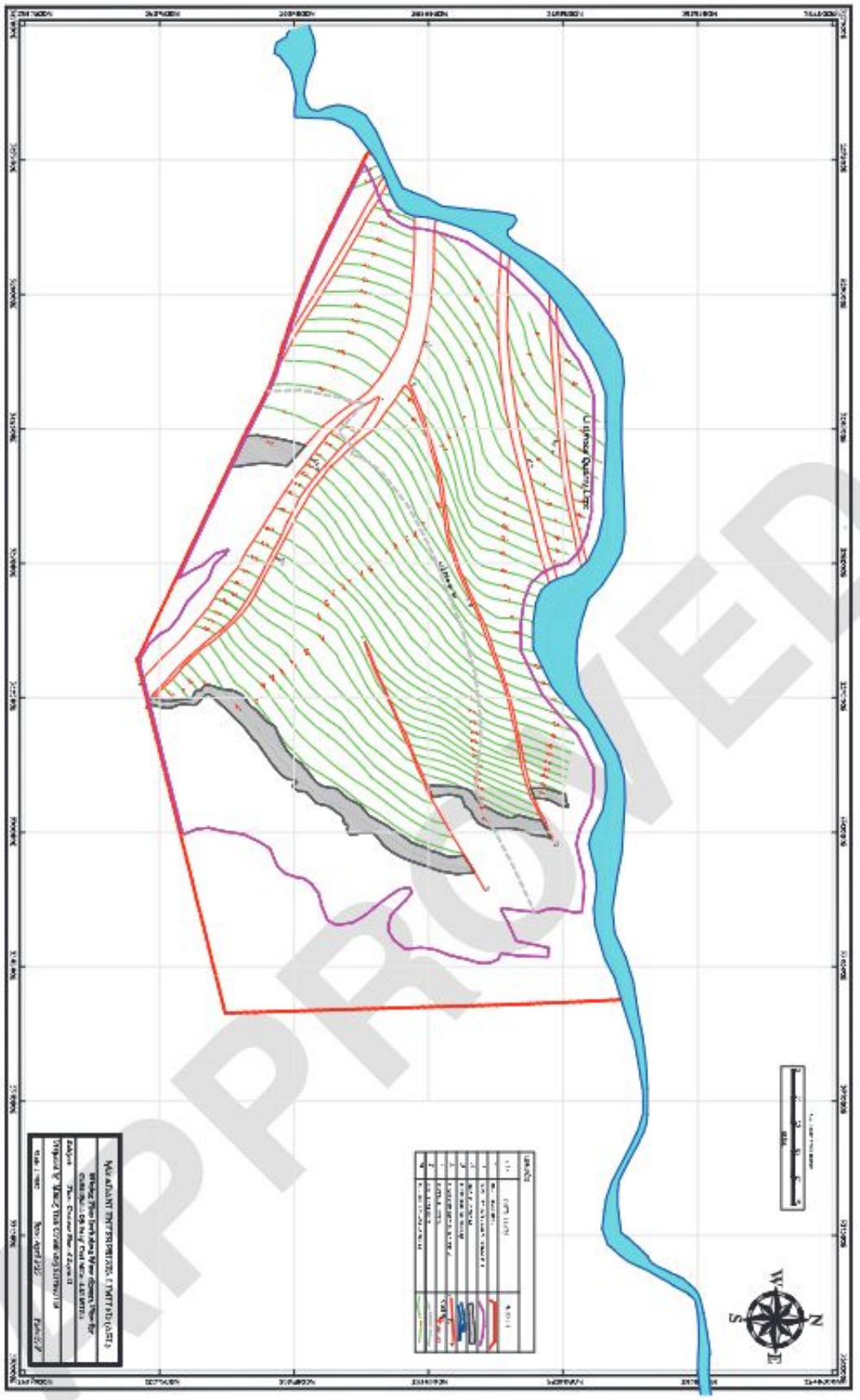
Plan / Plate 9



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

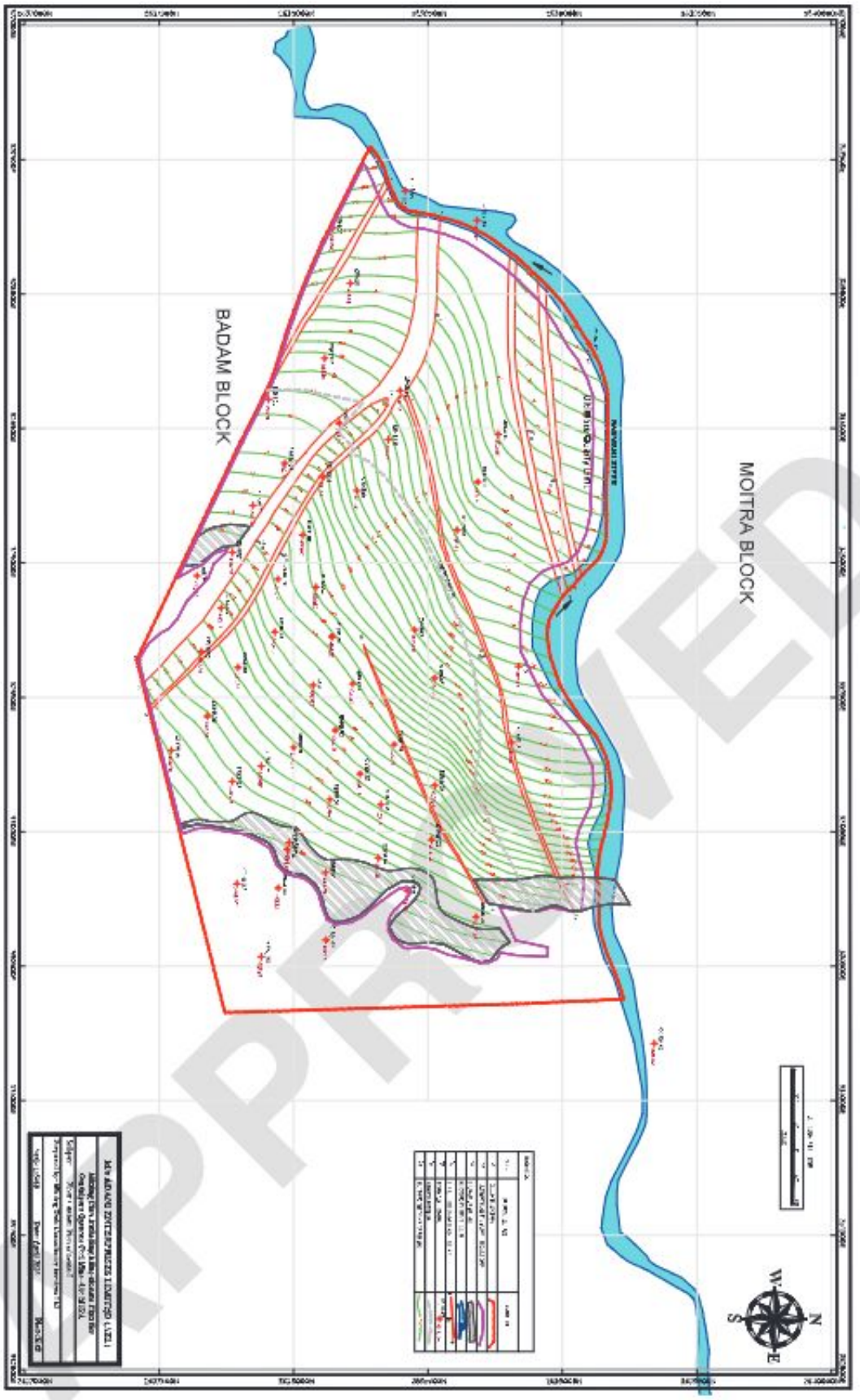
Plan / Plate 10A1



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

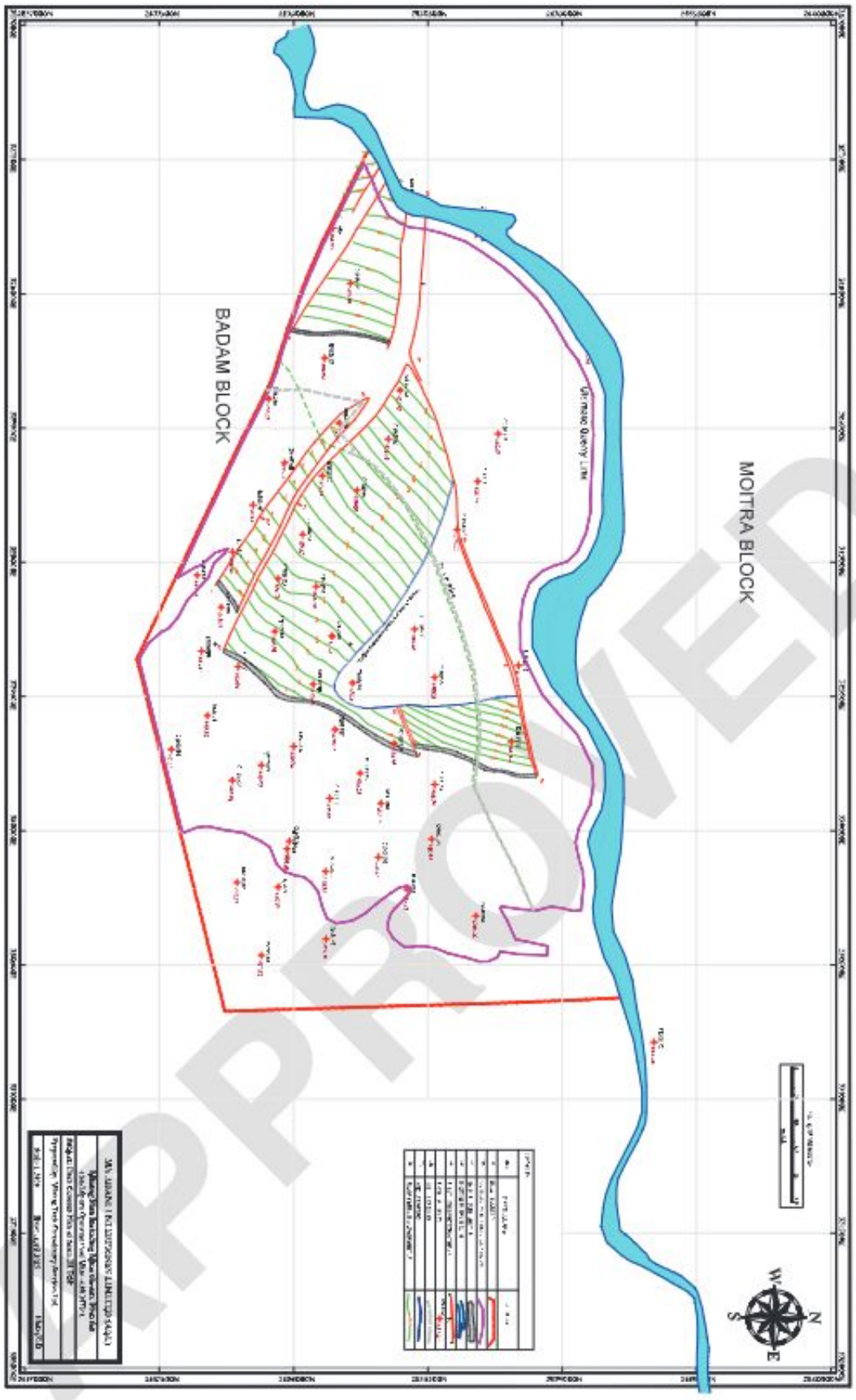
Plan / Plate 10A2



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

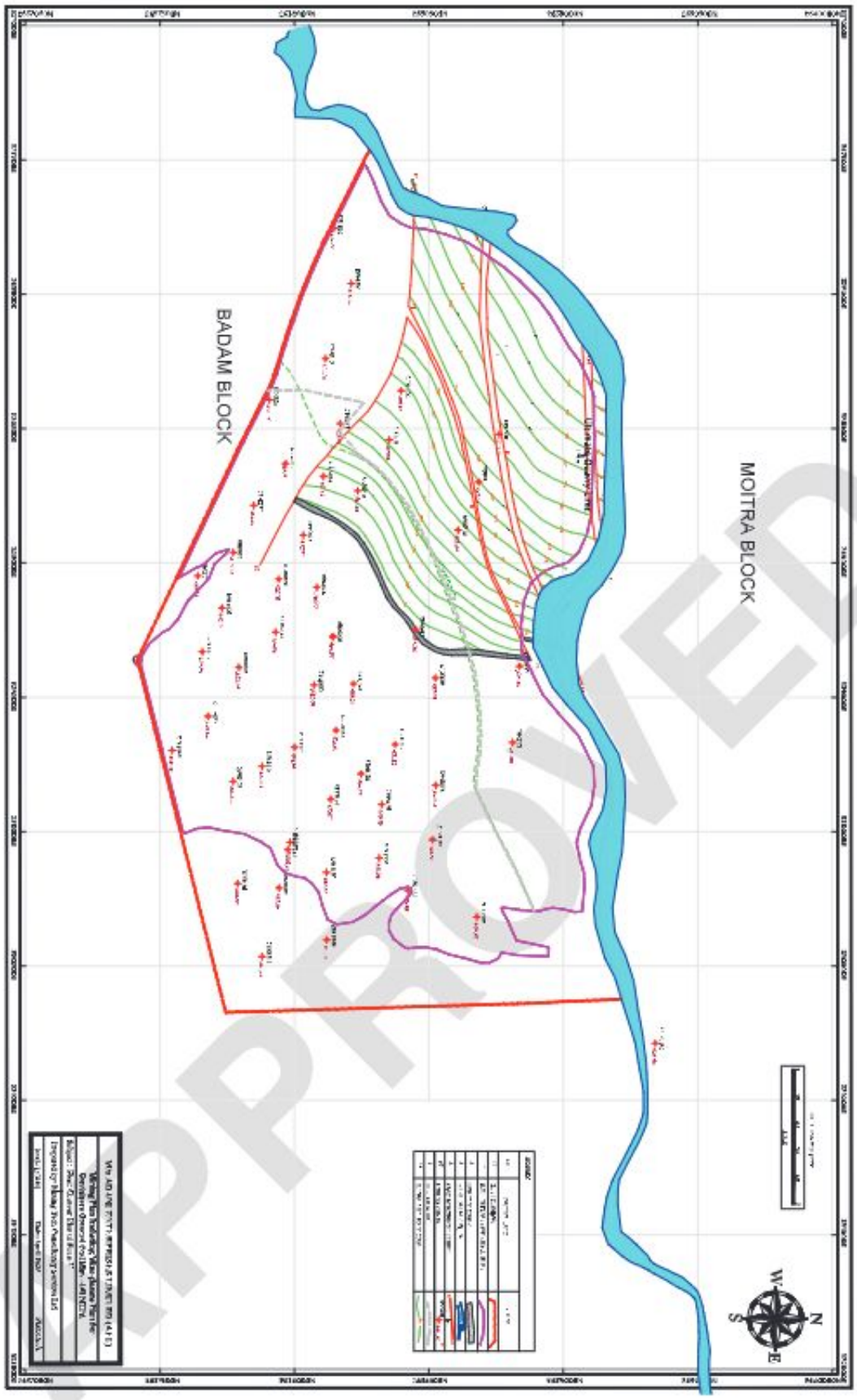
Plan / Plate 10A3



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

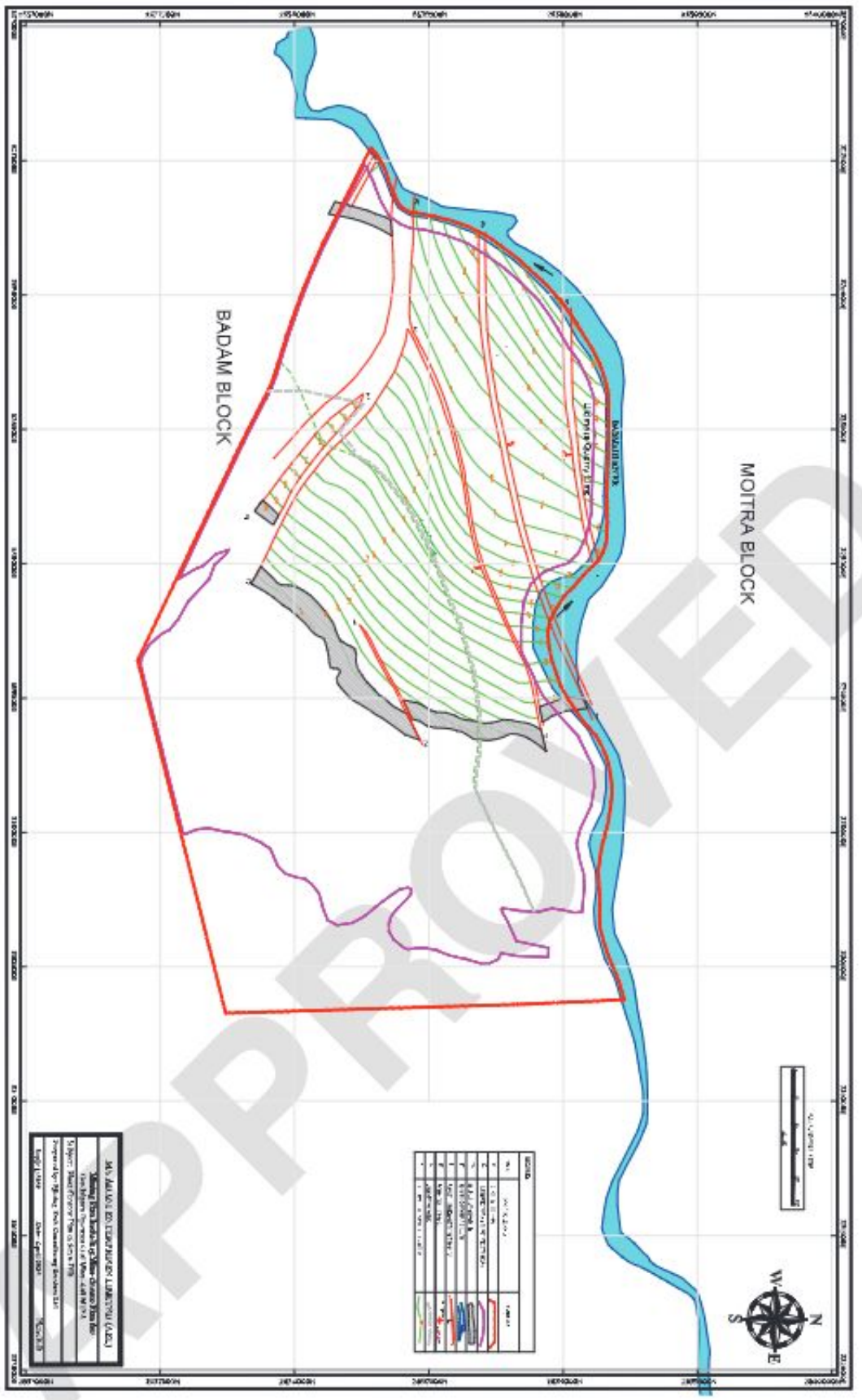
Plan / Plate 10A4



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

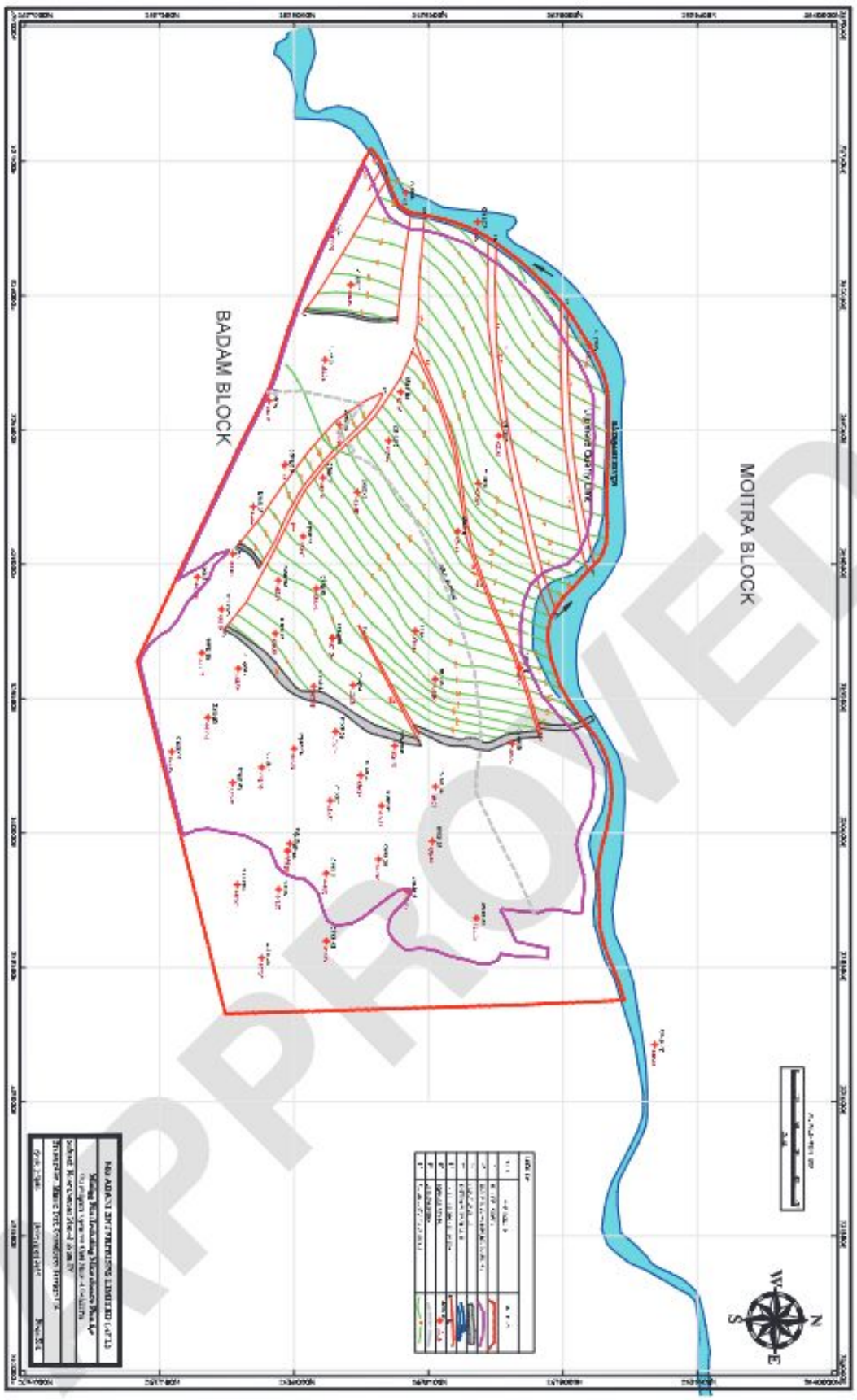
Plan / Plate 10A5



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

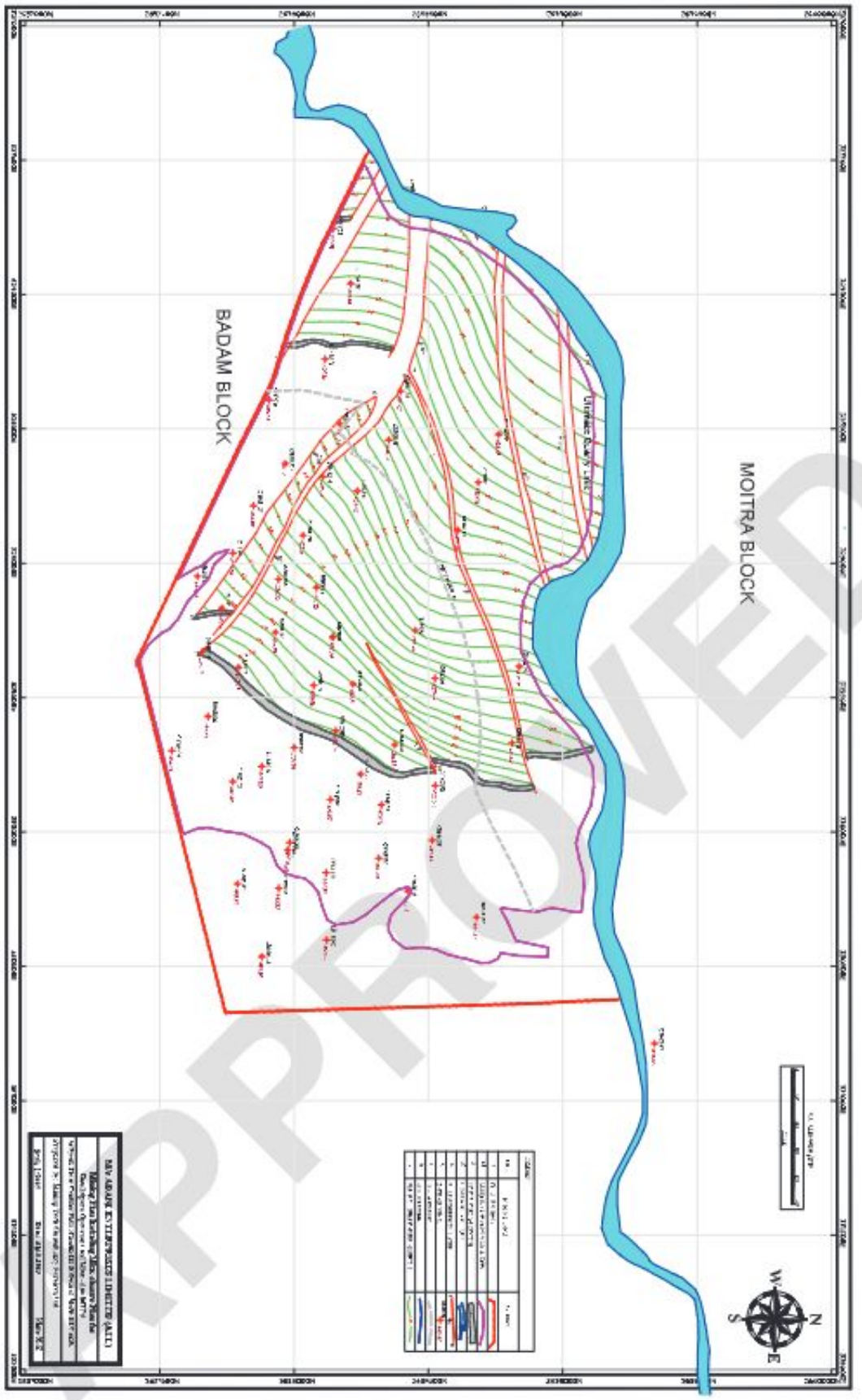
Plan / Plate 10A6



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

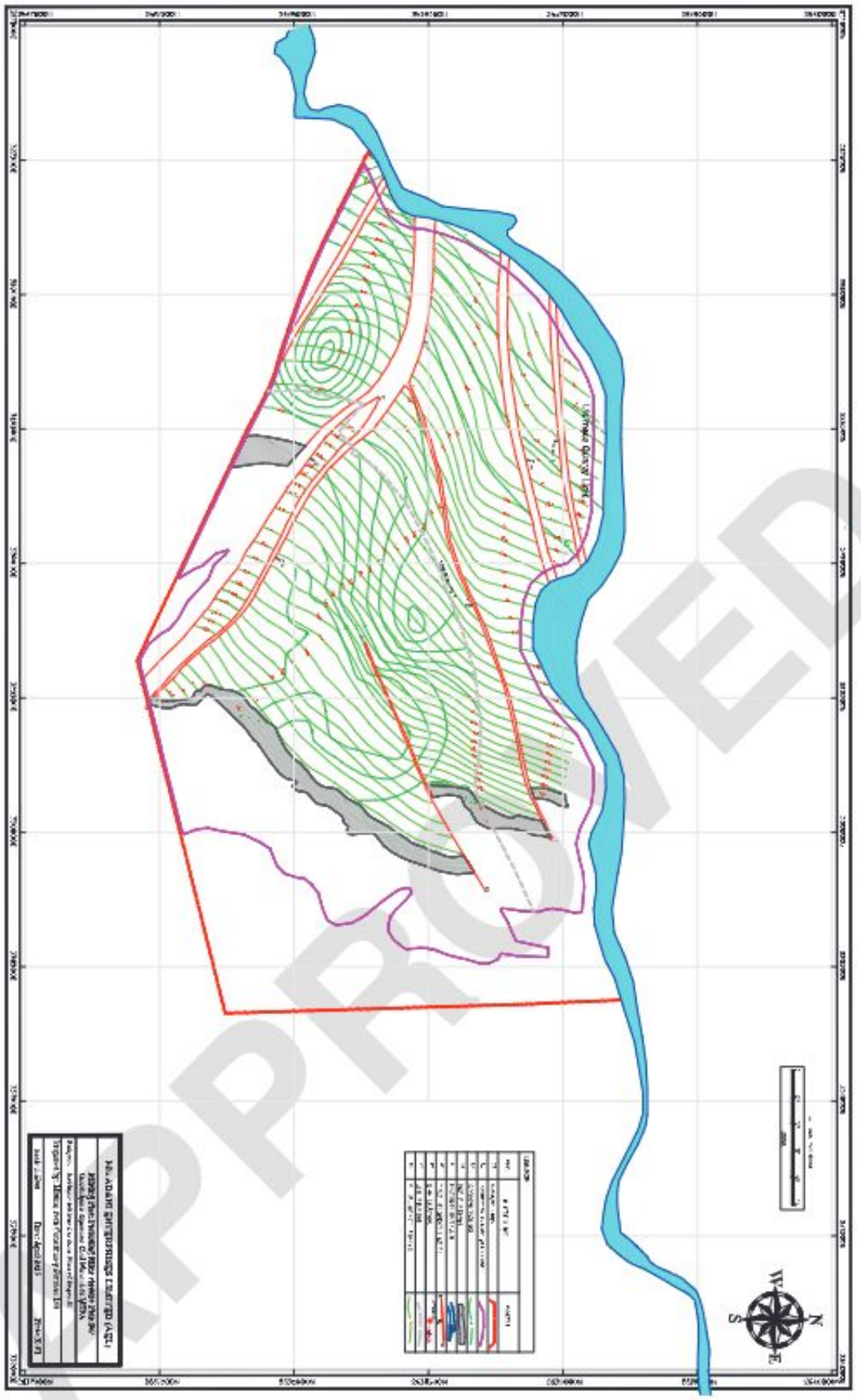
Plan / Plate 10A7



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

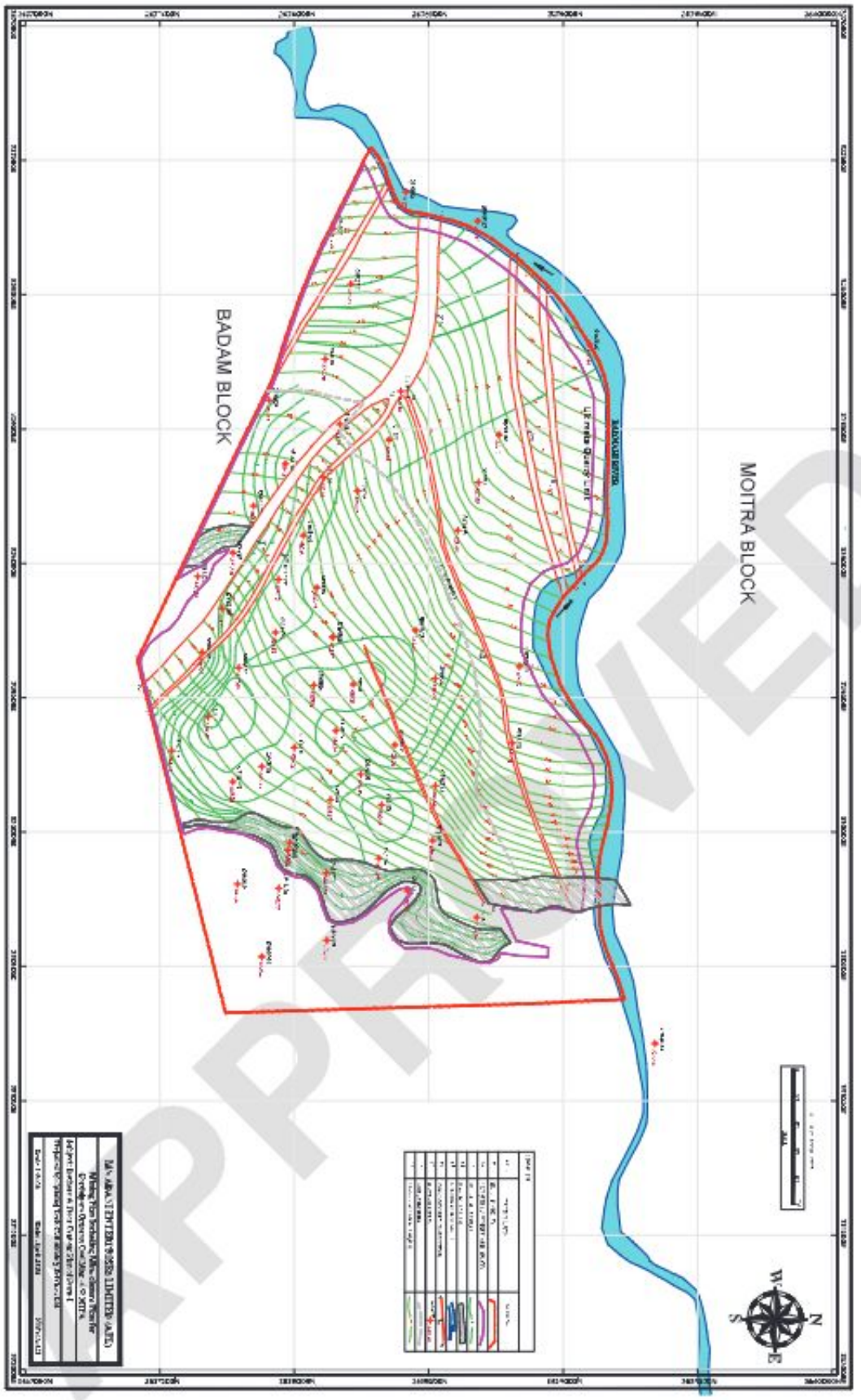
Plan / Plate 10B1



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

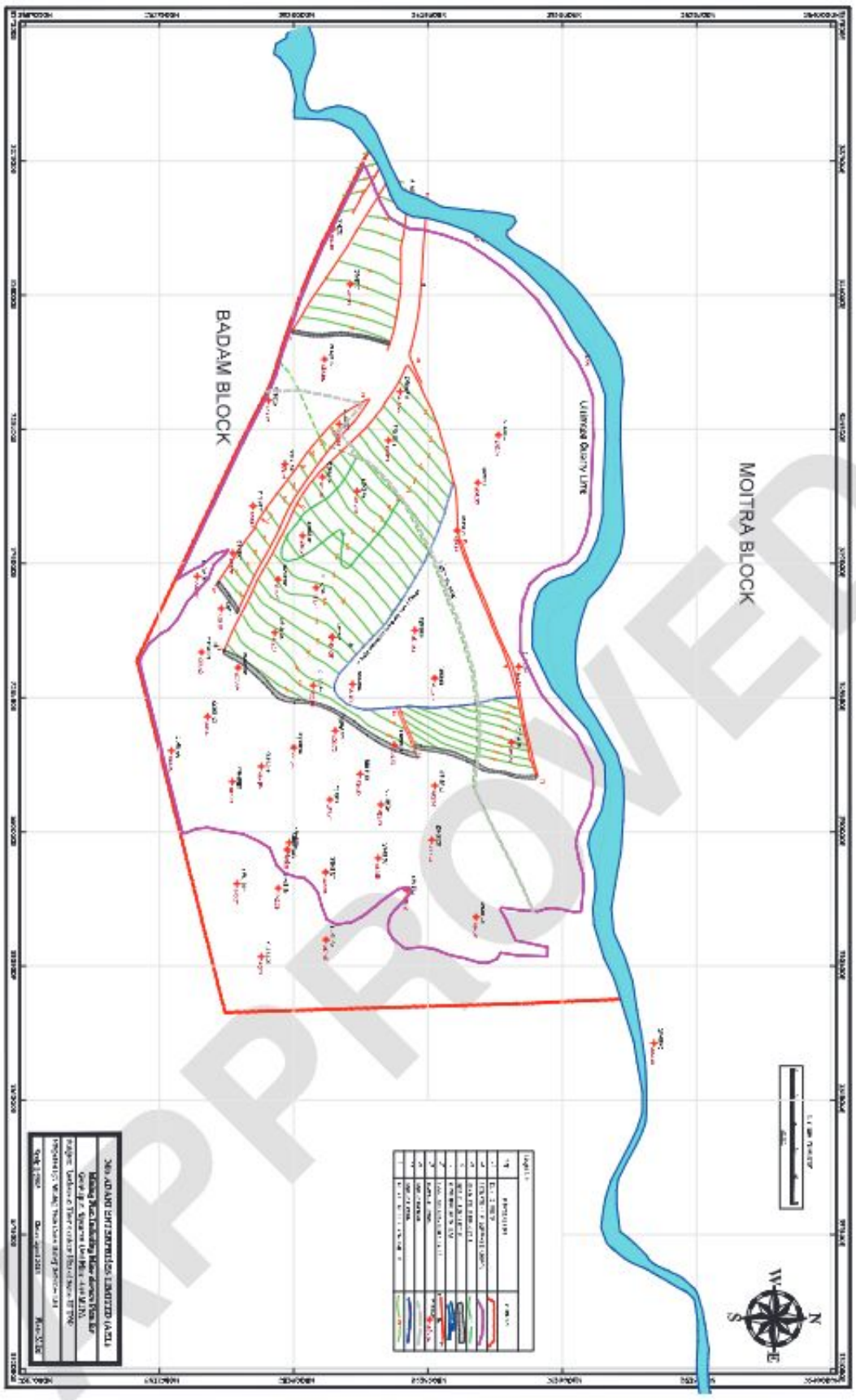
Plan / Plate 10B2



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

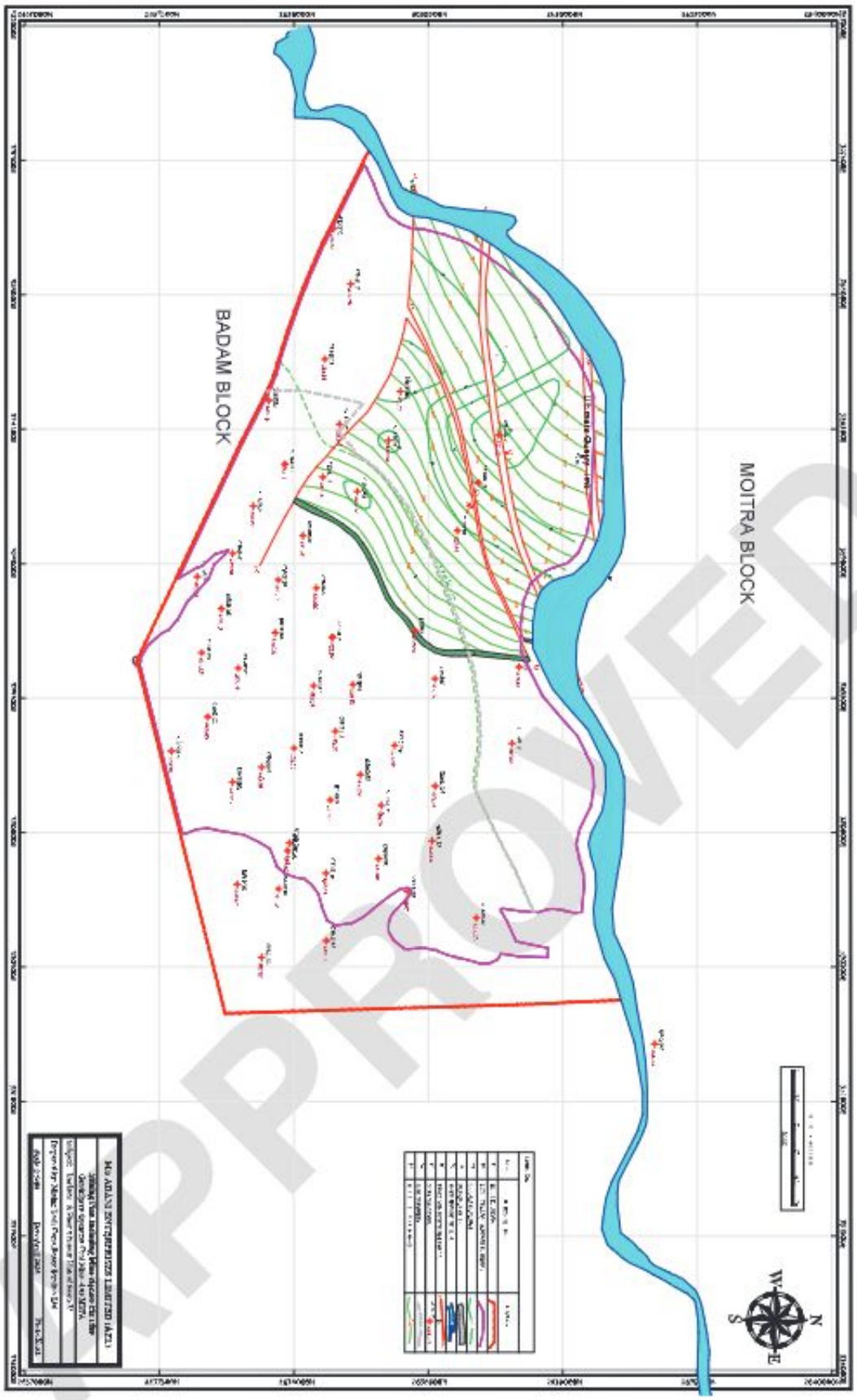
Plan / Plate 10B3



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

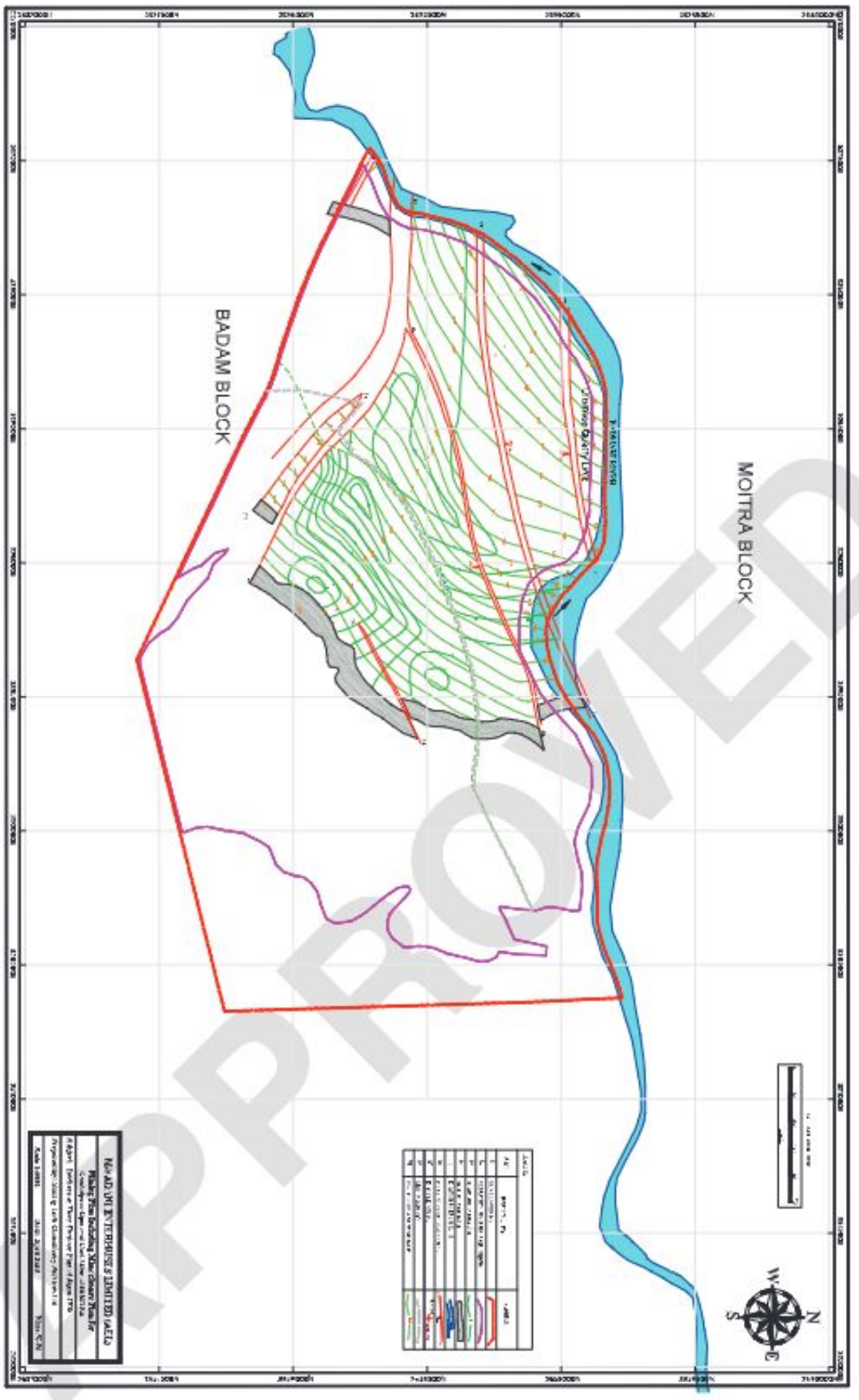
Plan / Plate 10B4



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

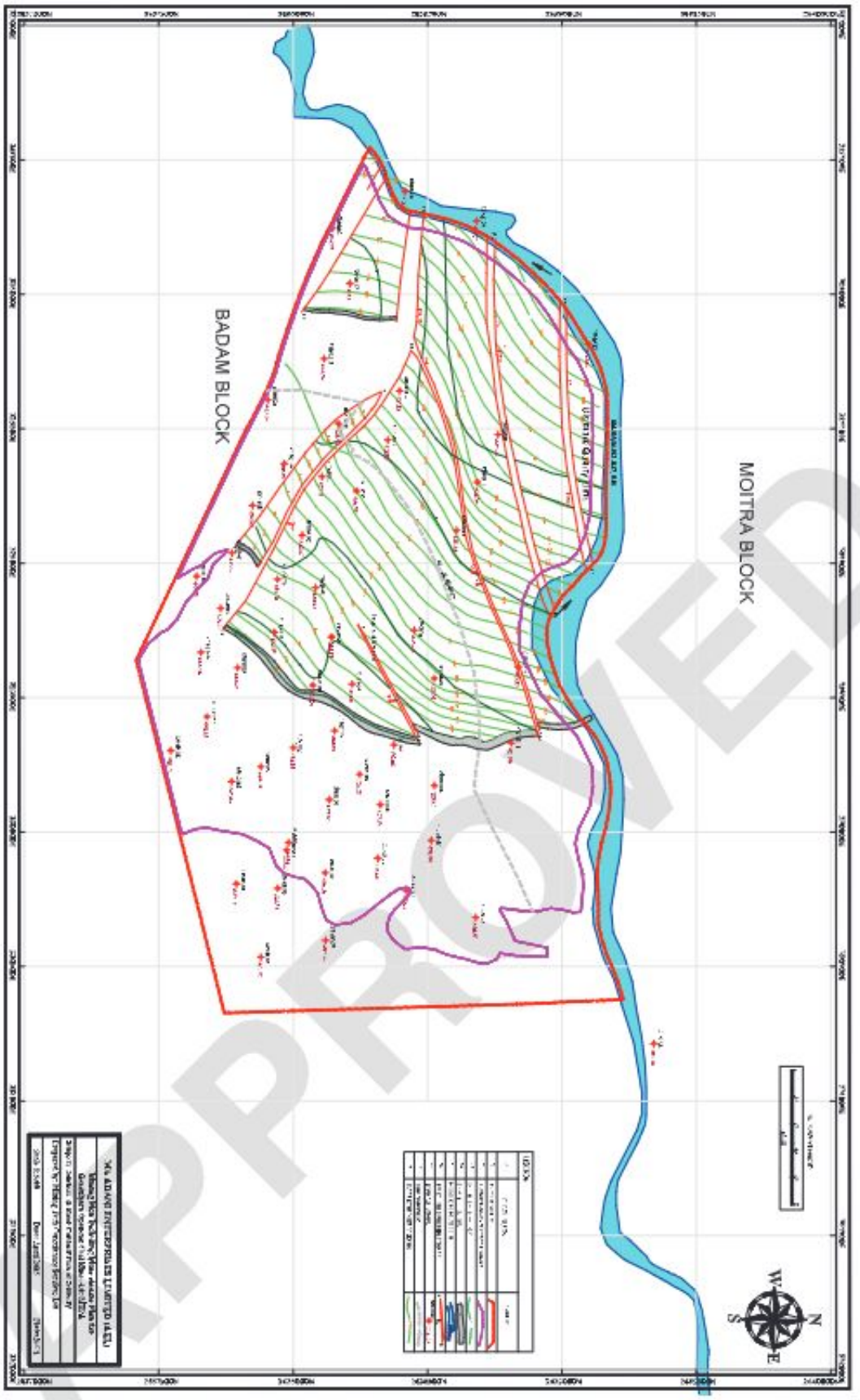
Plan / Plate 10B5



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

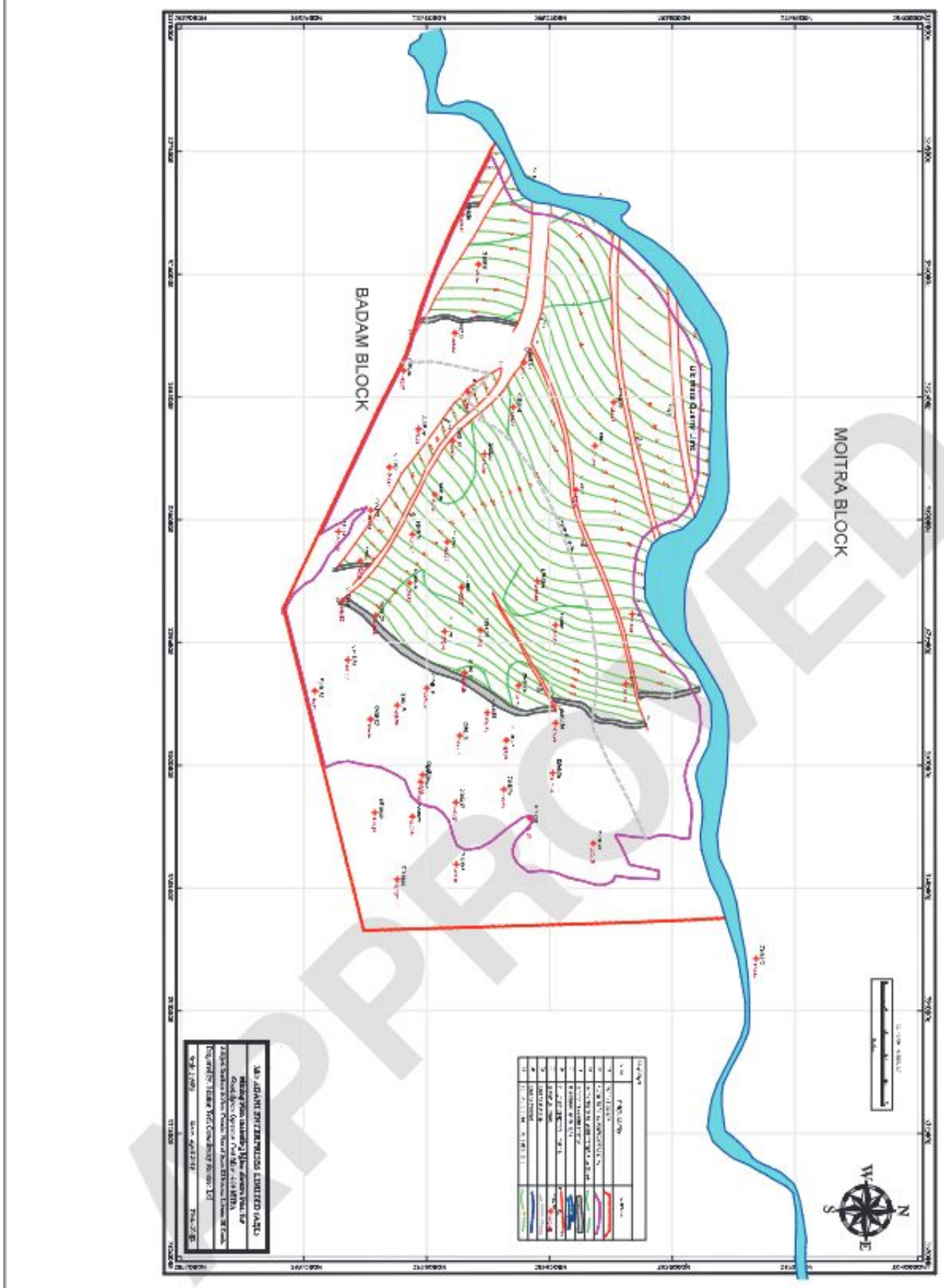
Plan / Plate 10B6



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

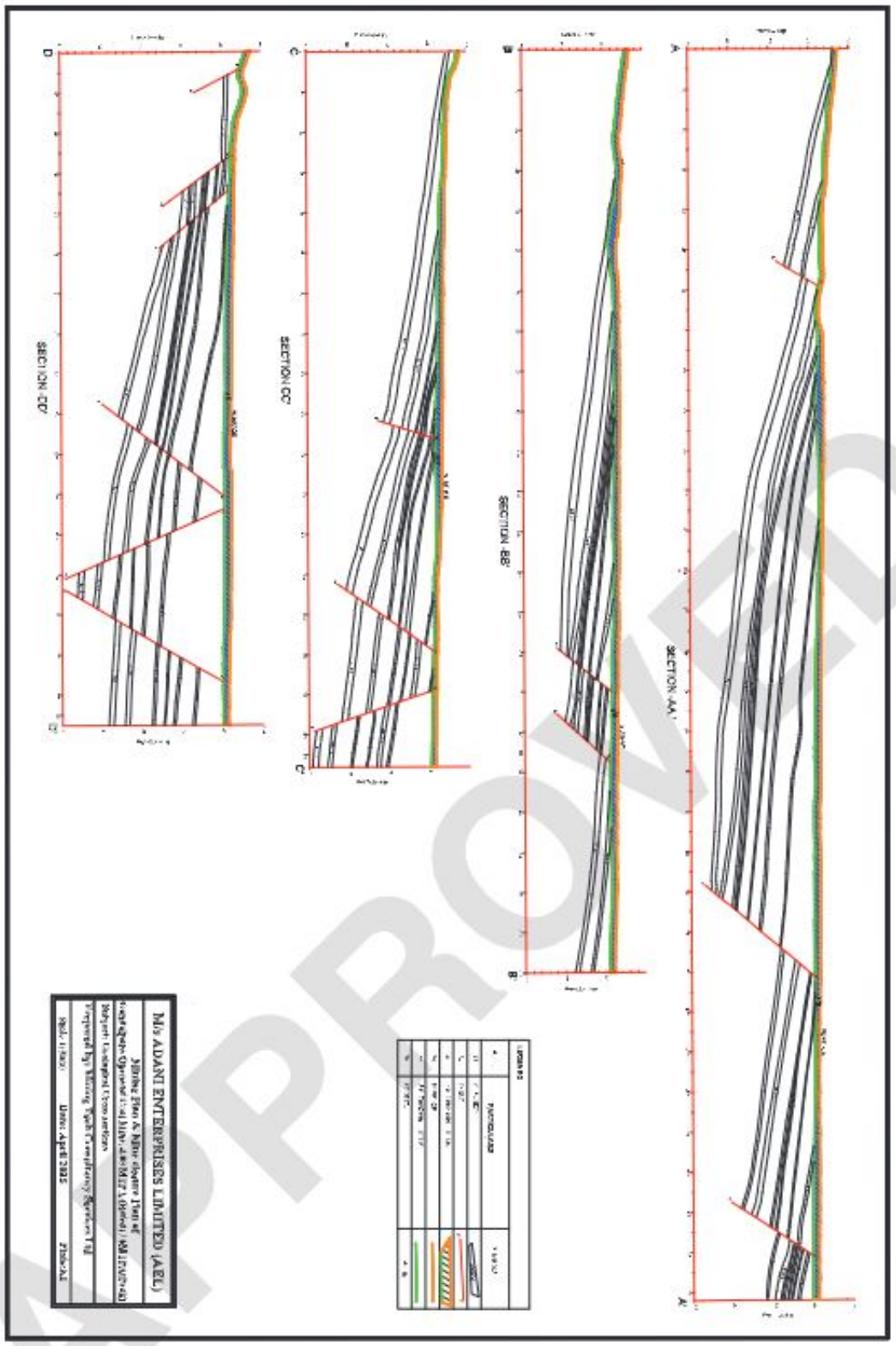
Plan / Plate 10B7



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

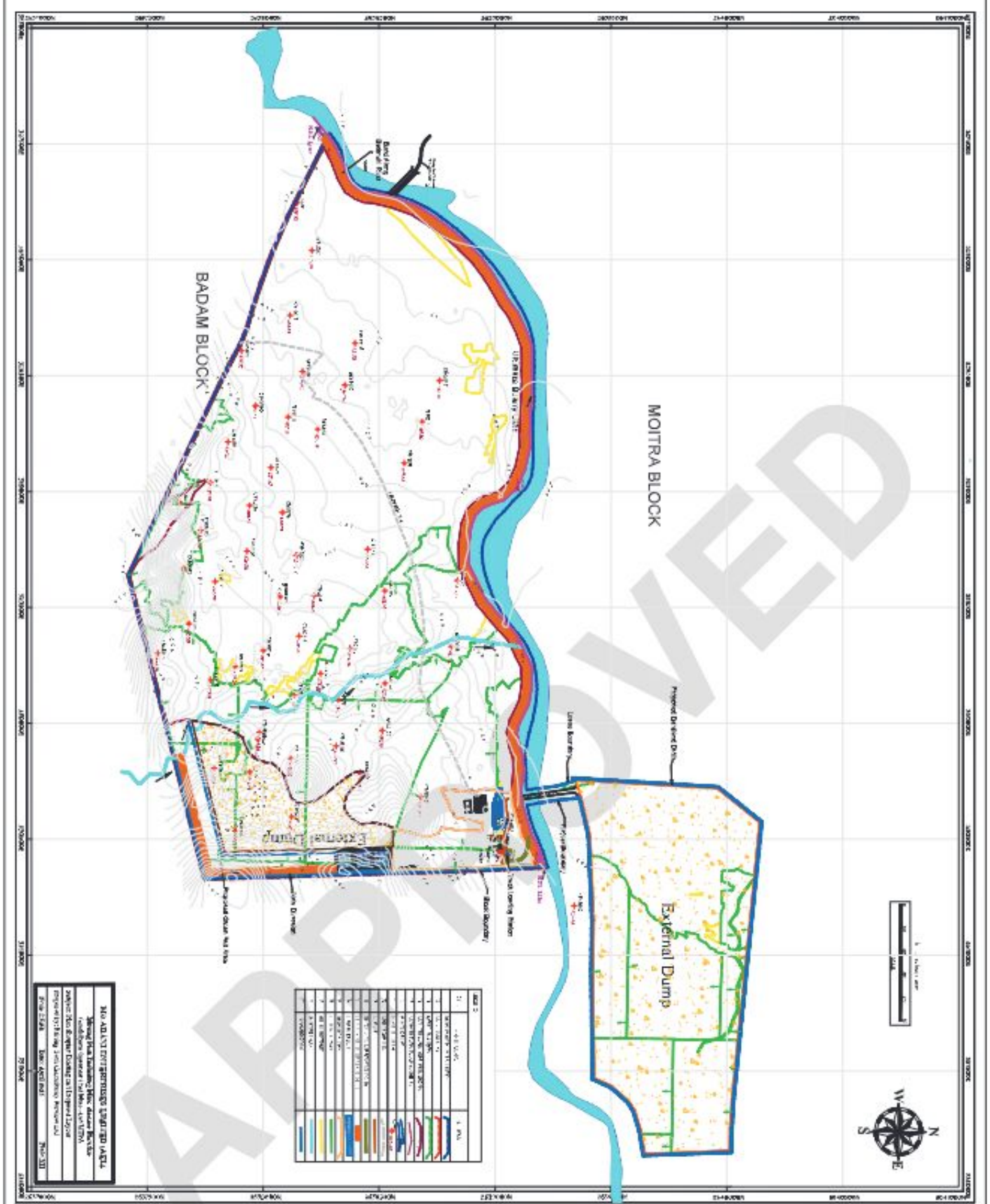
Plan / Plate 11A1



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

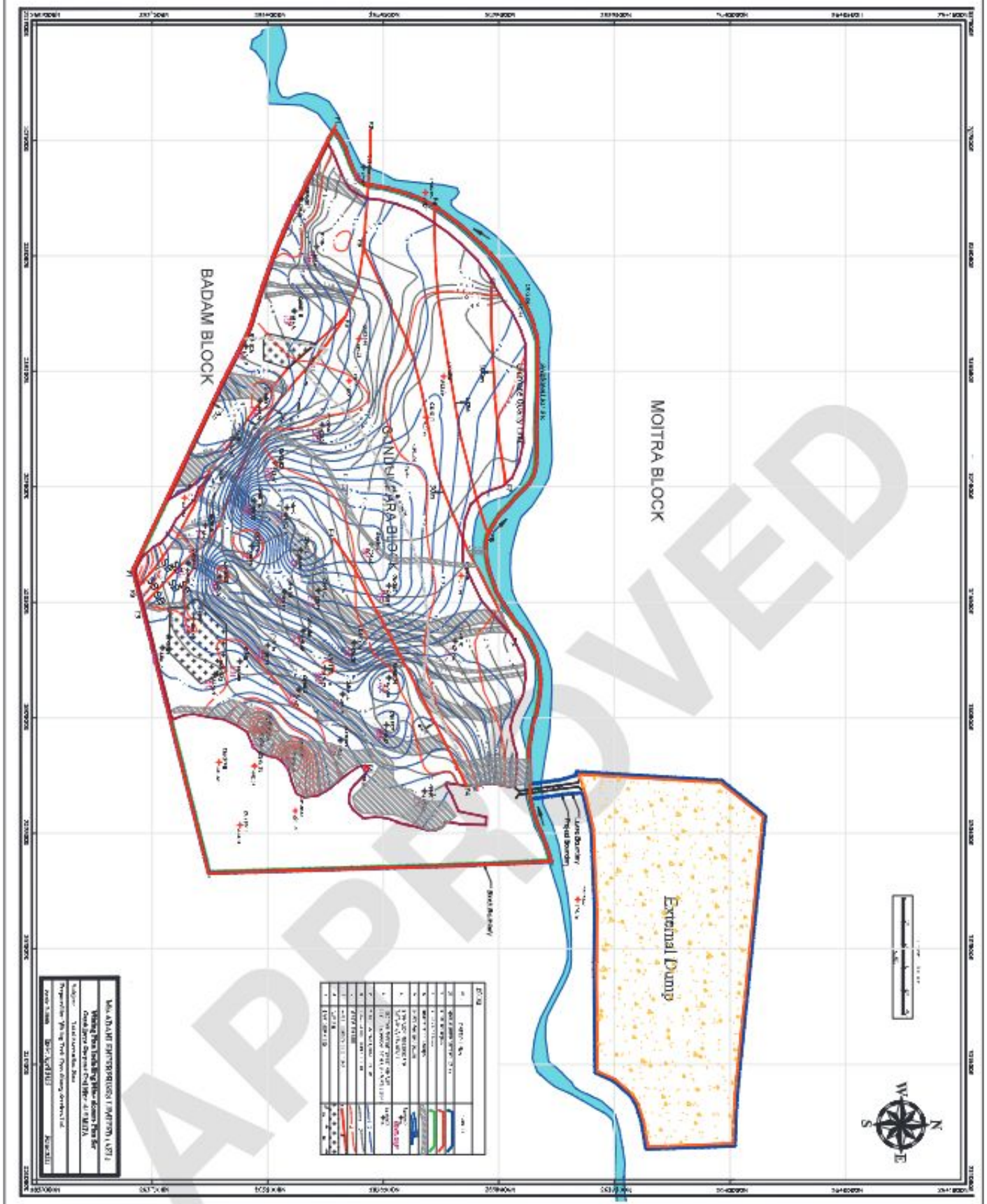
Plan / Plate 12



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

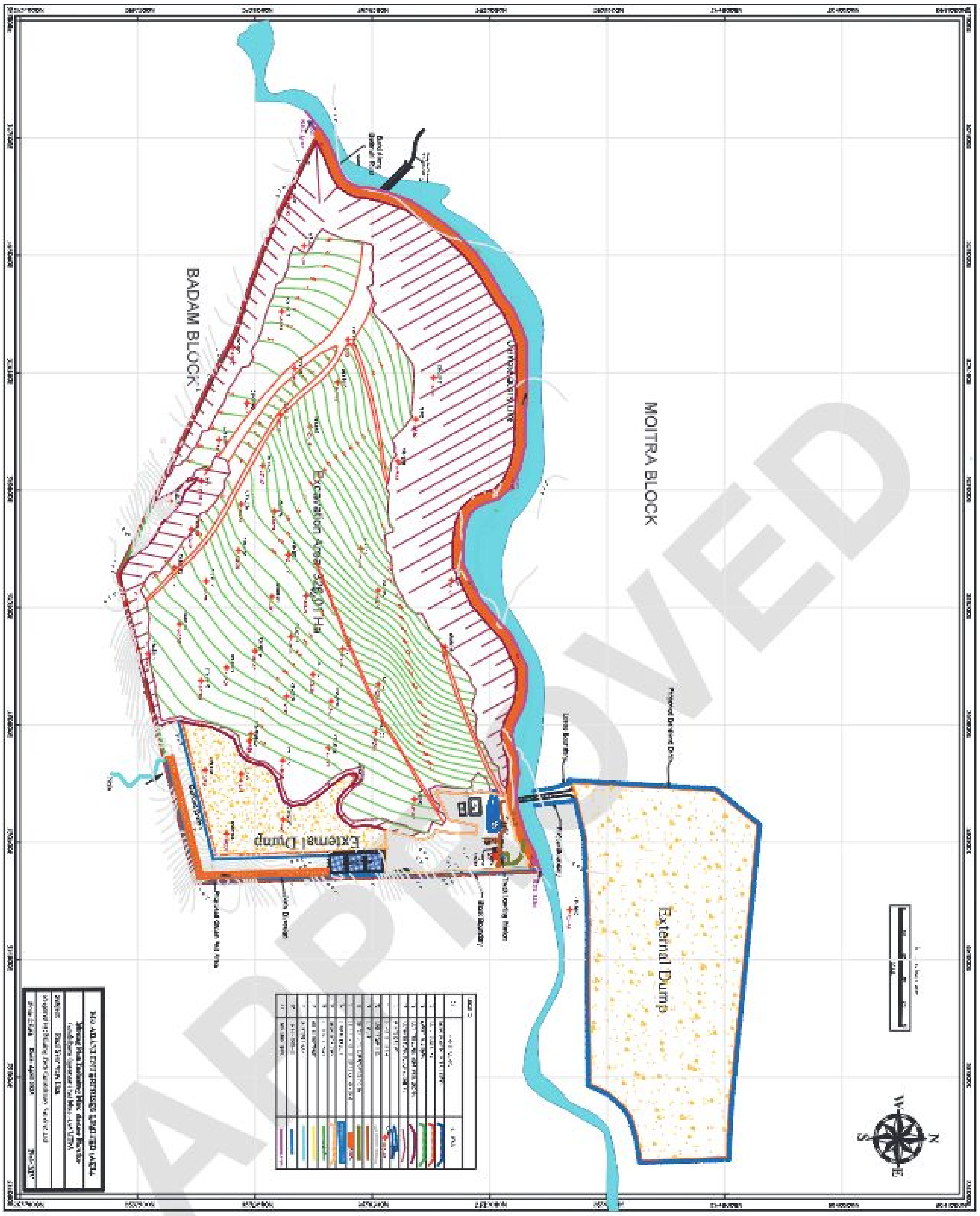
OC Plate-13



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

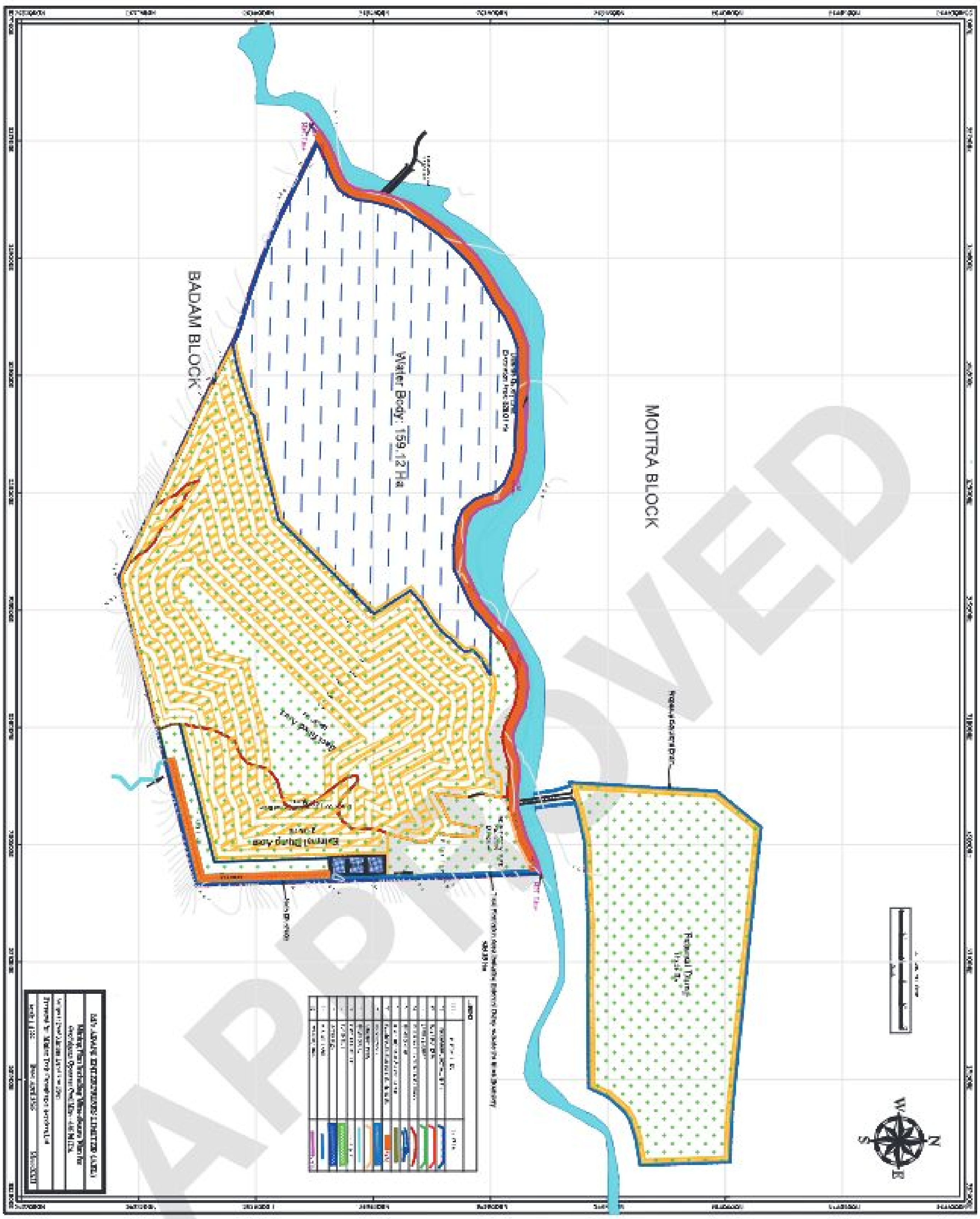
Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

OC Plate-14



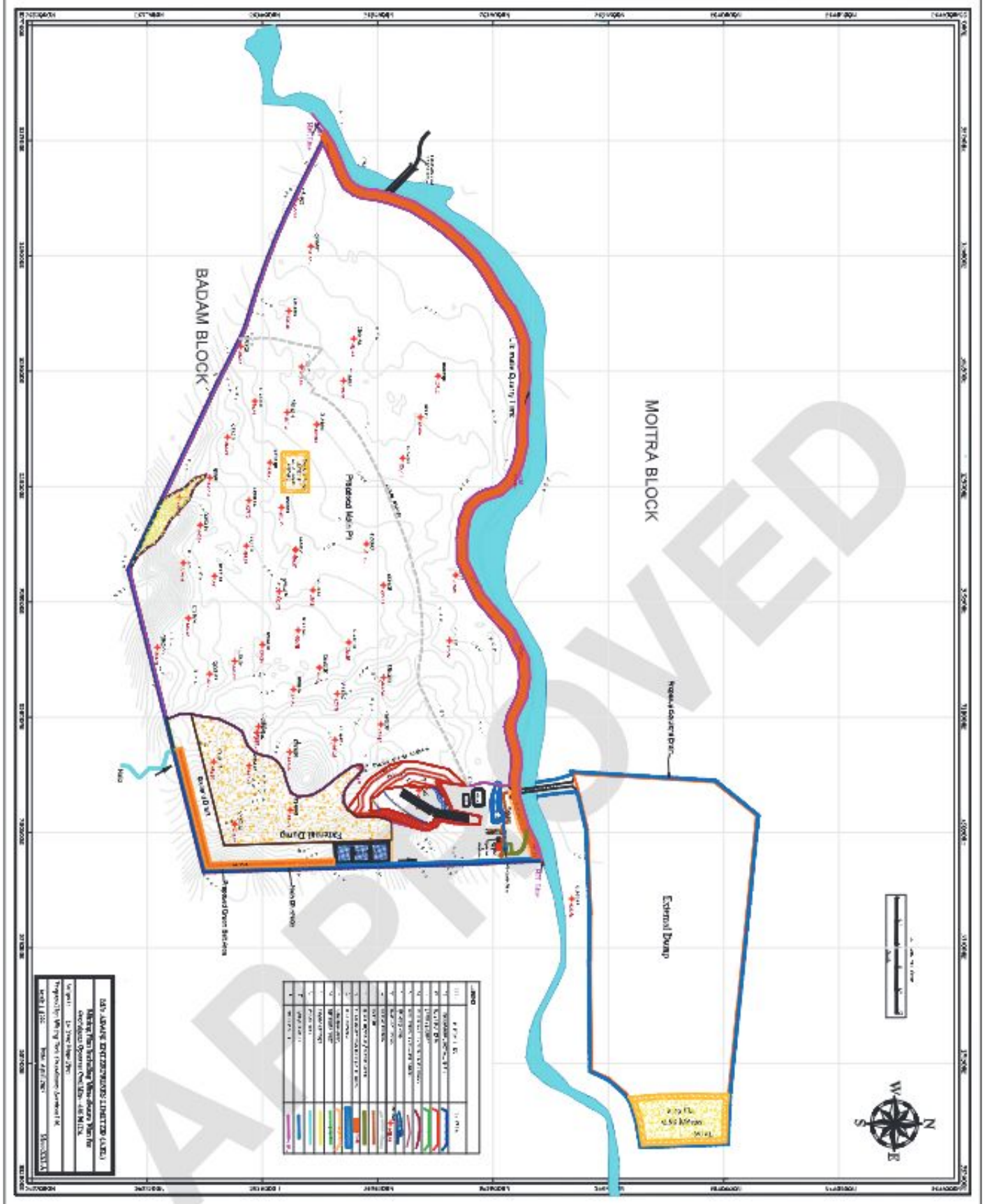
PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Plan / Plate 20



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

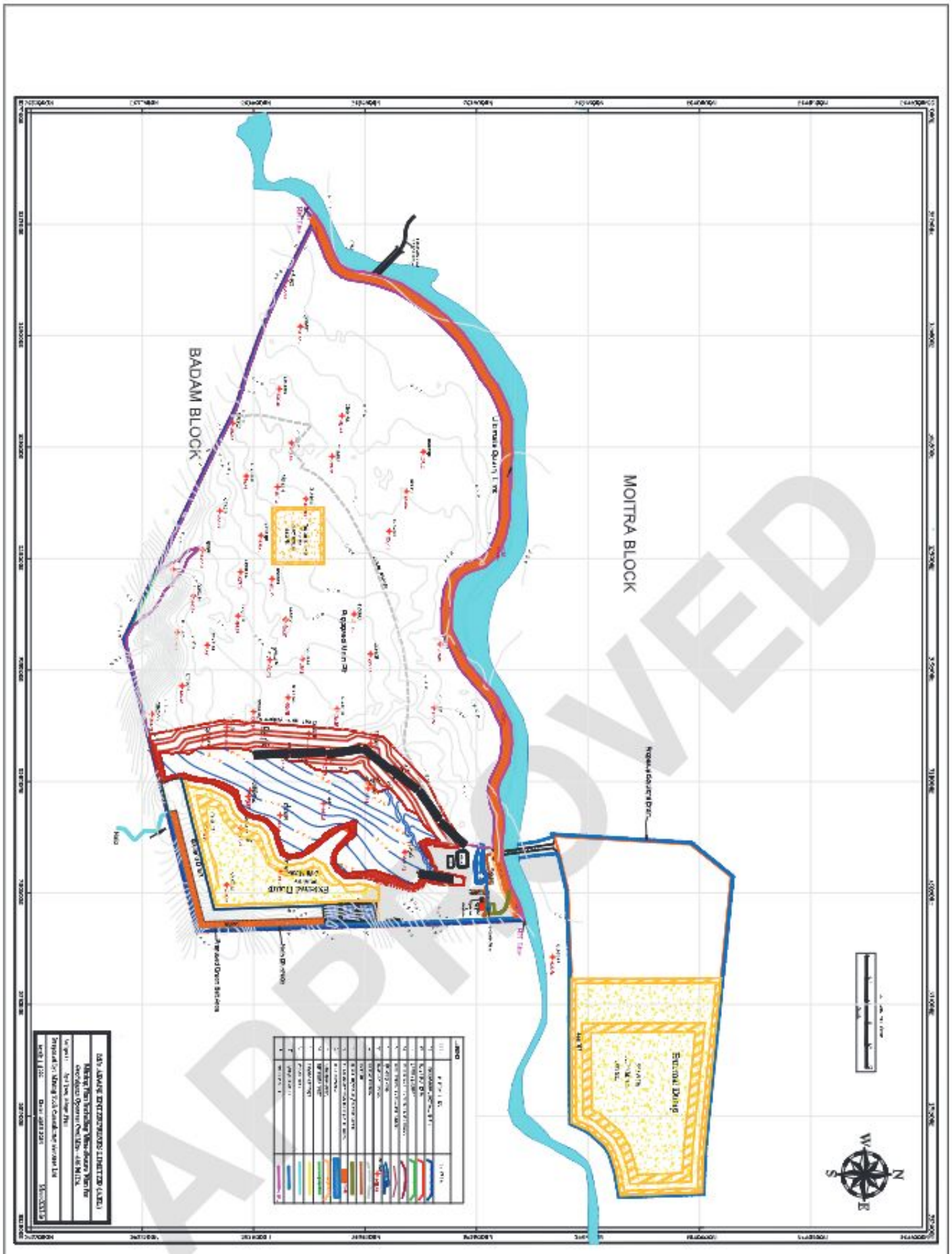
Plan / Plate 21A



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

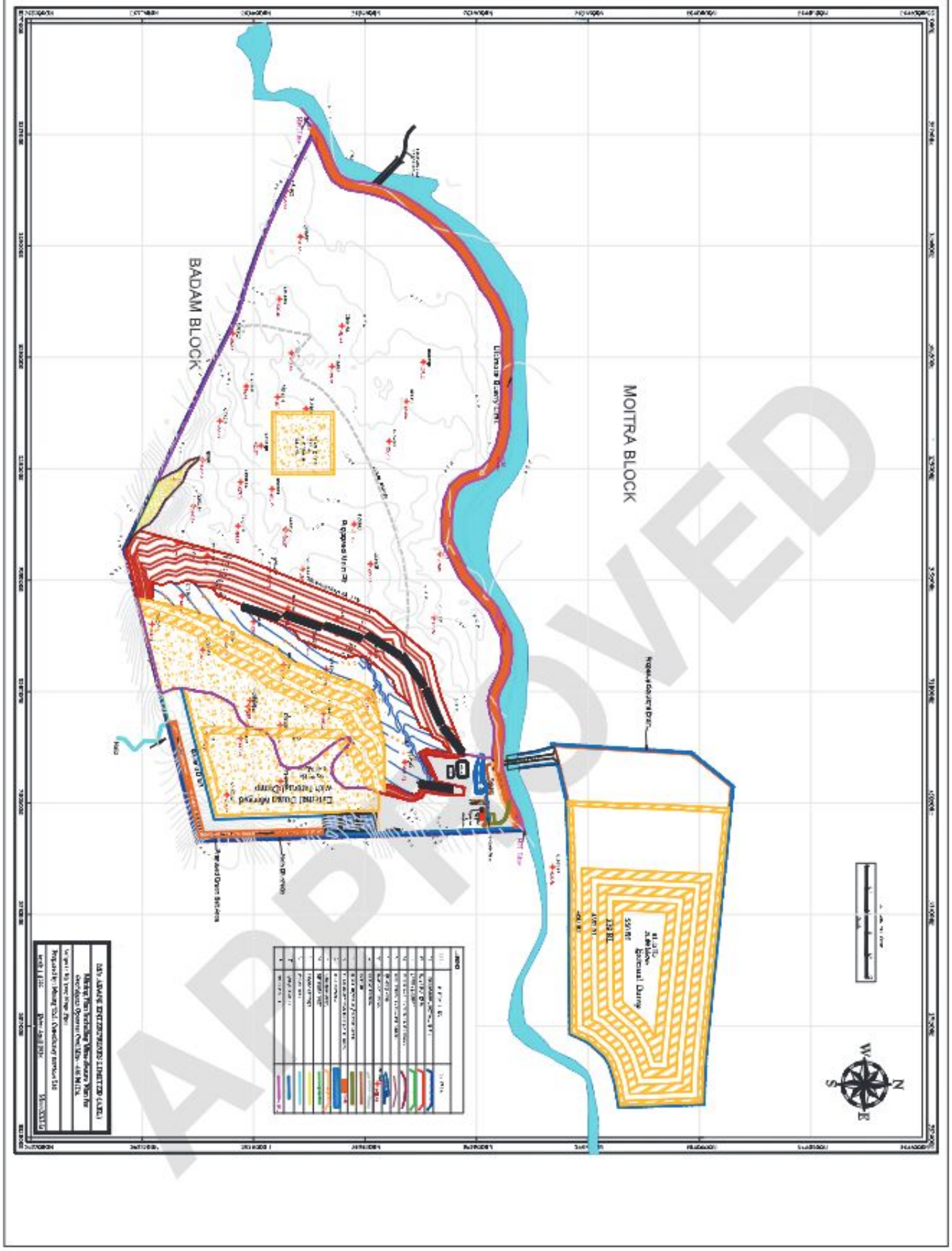
Plan / Plate 21B



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

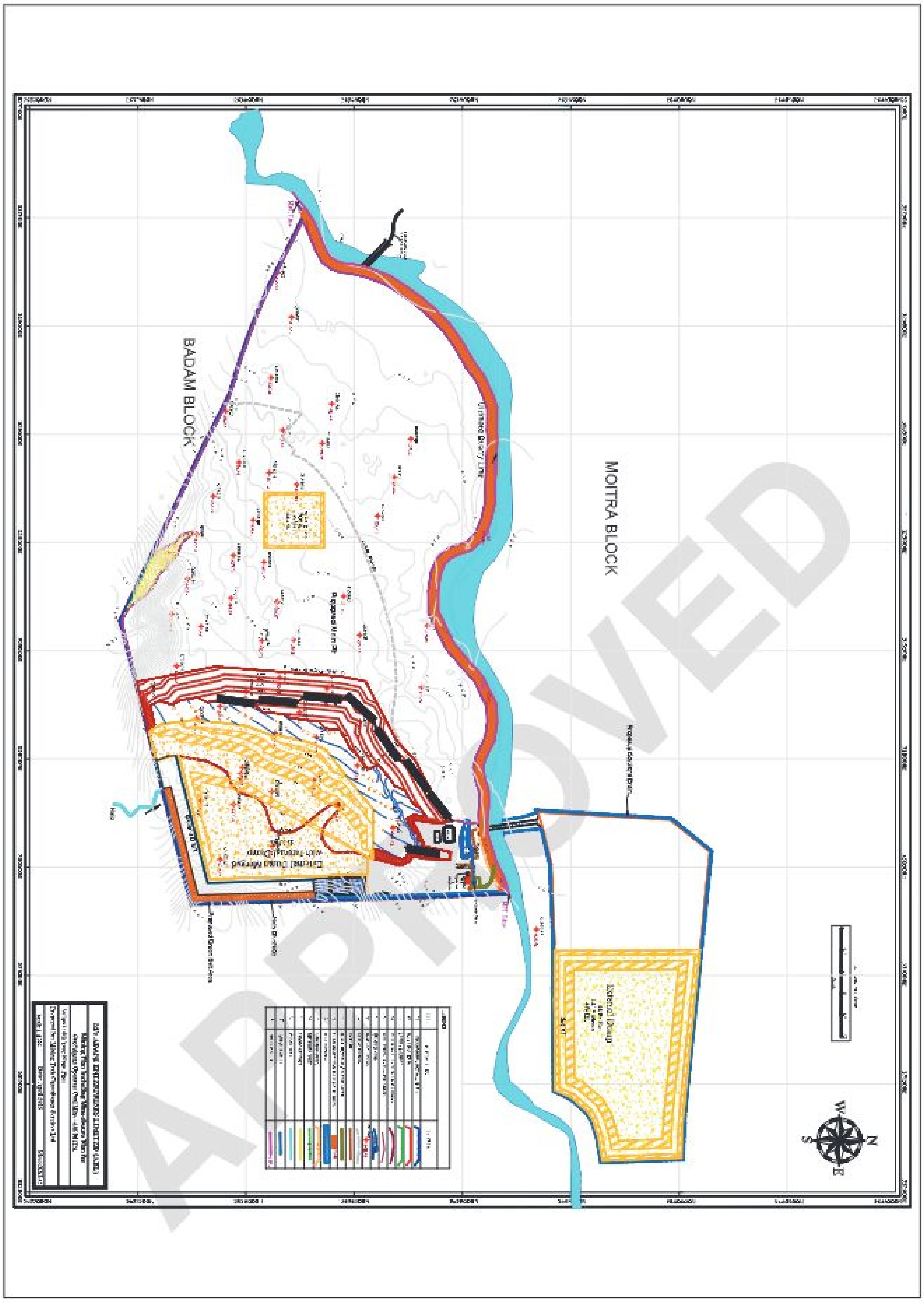
Plan / Plate 21C



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

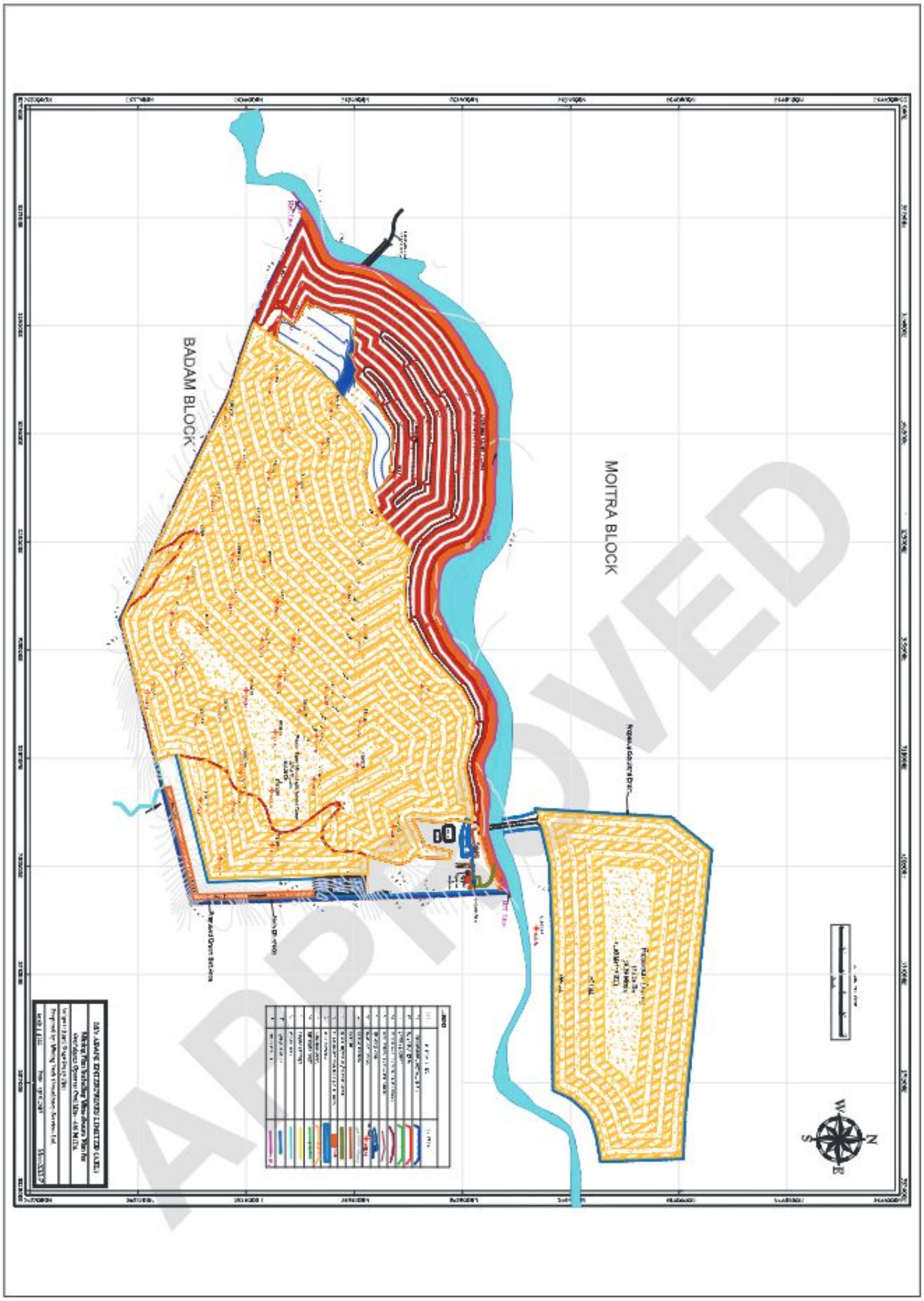
Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

Plan / Plate 21D



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

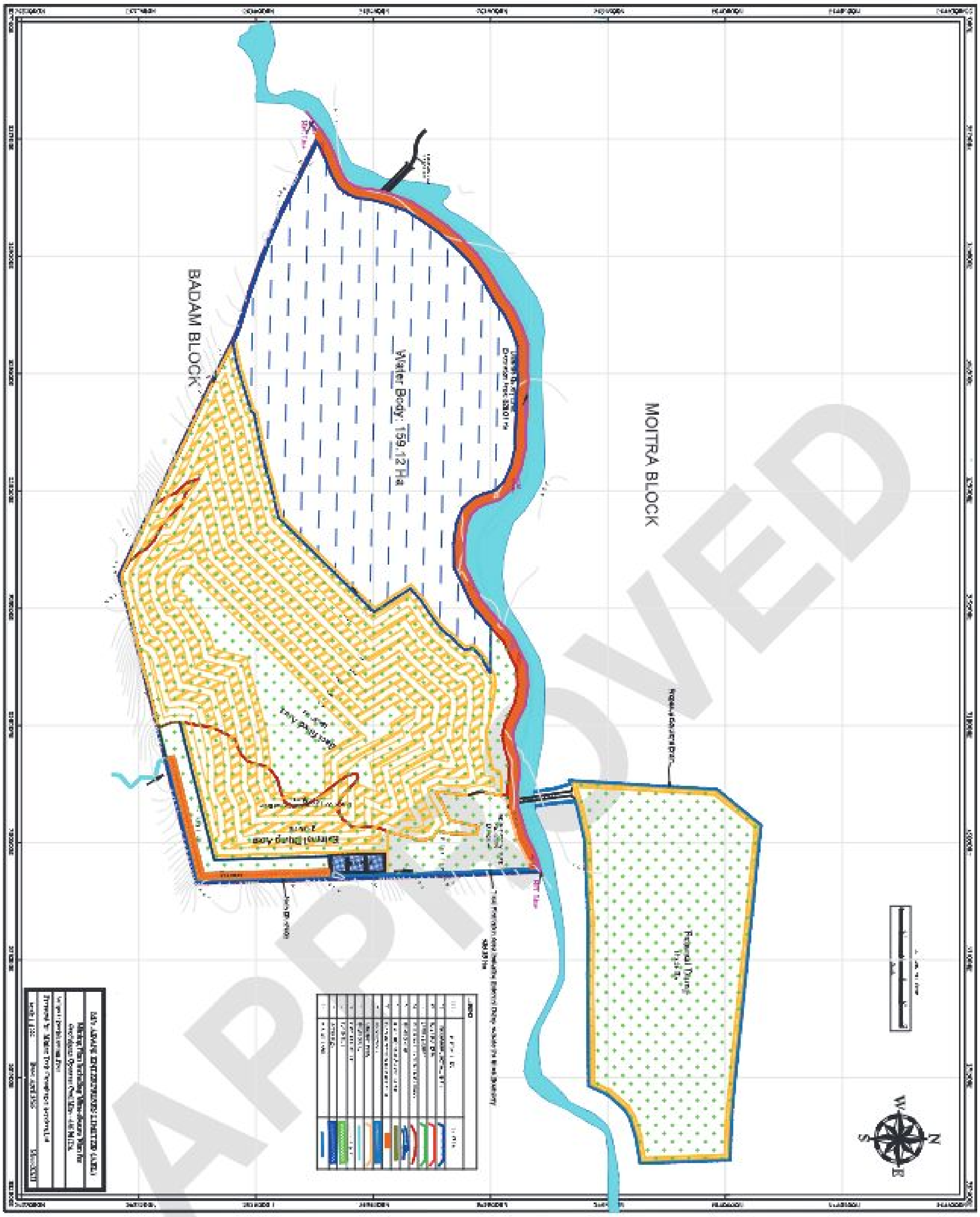
Plan / Plate 21E



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

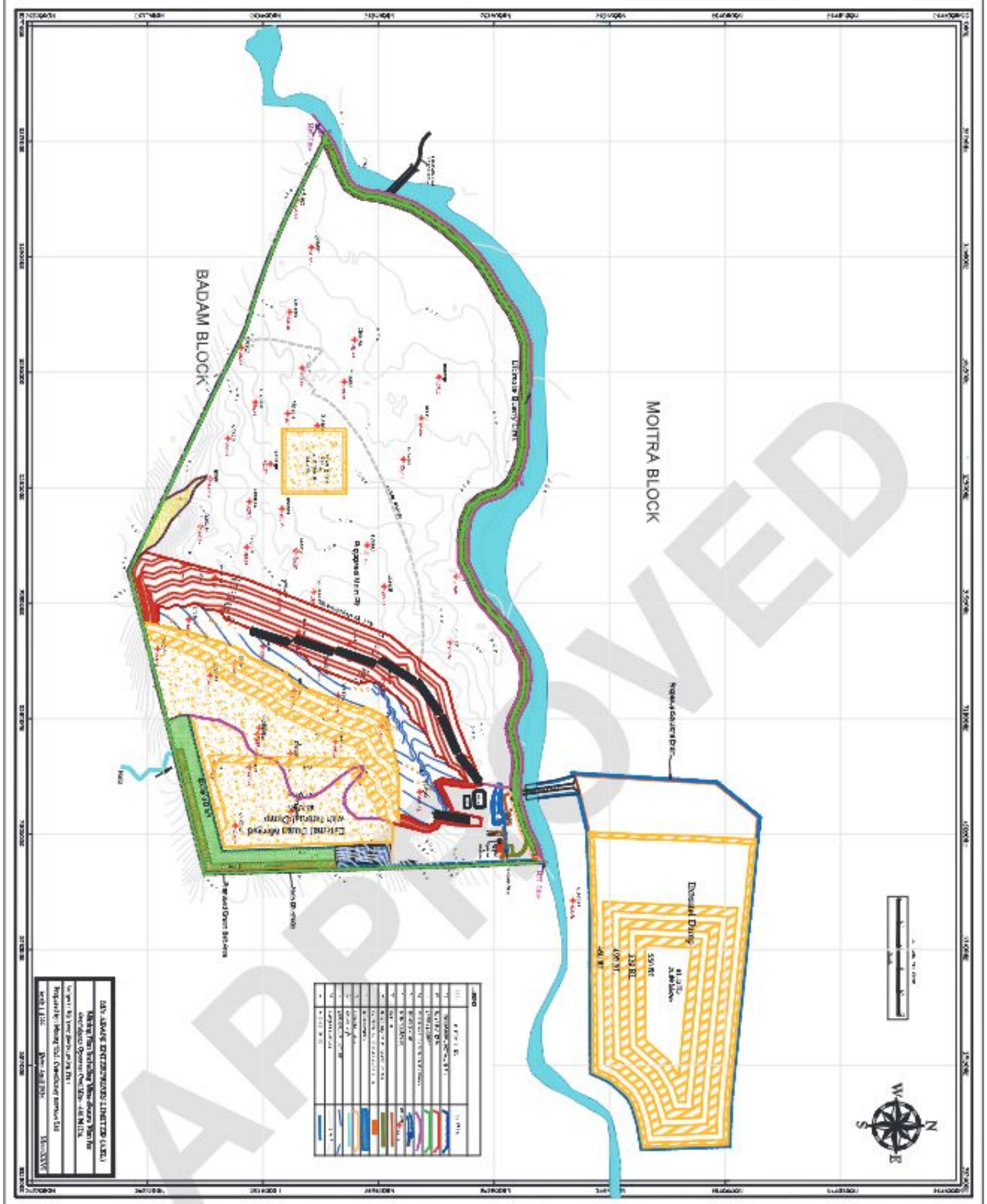
Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

Plan / Plate 22



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

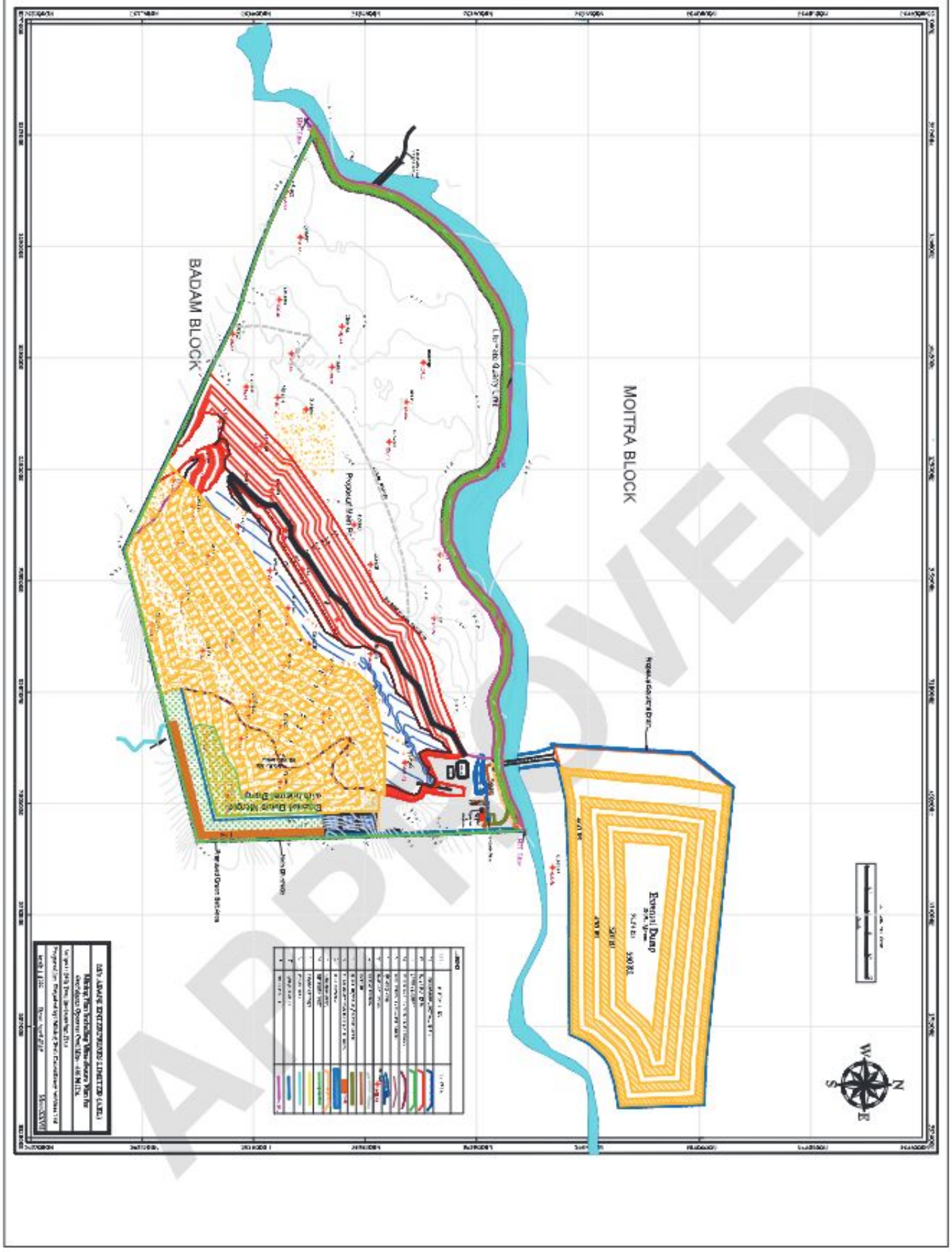
Additonal Plan / Plates-23



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

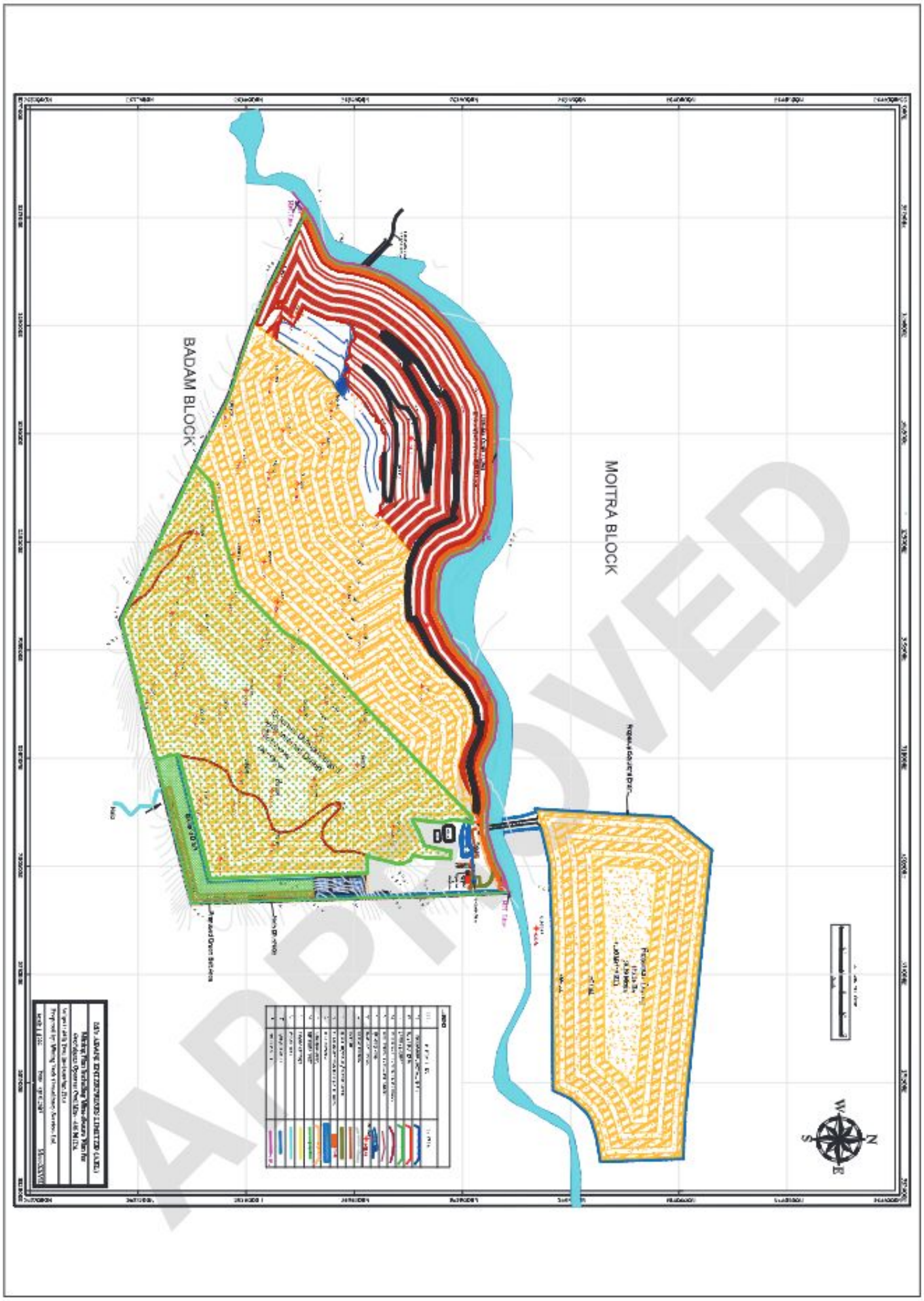
Additonal Plan / Plates-24



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

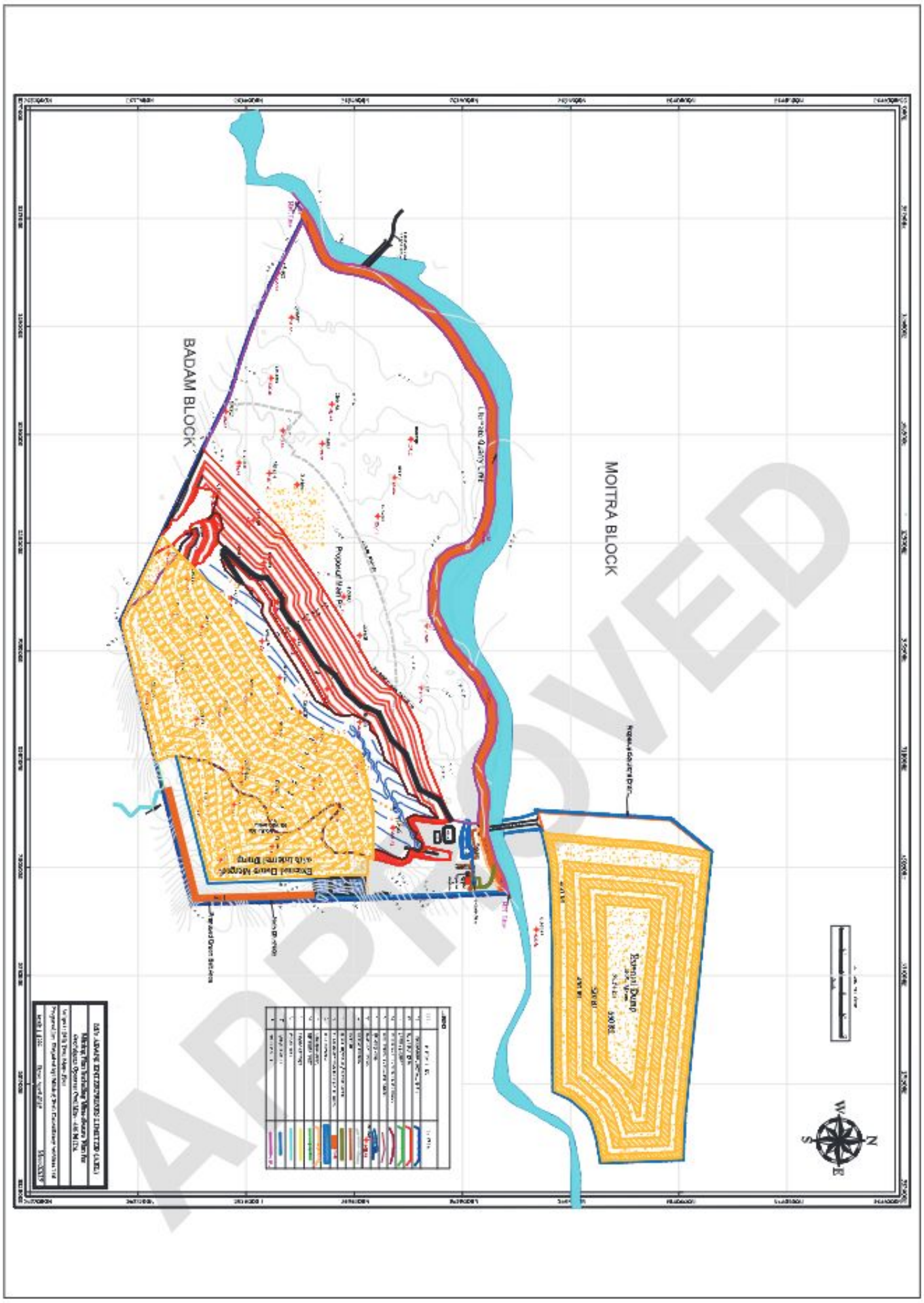
Additonal Plan / Plates-25



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

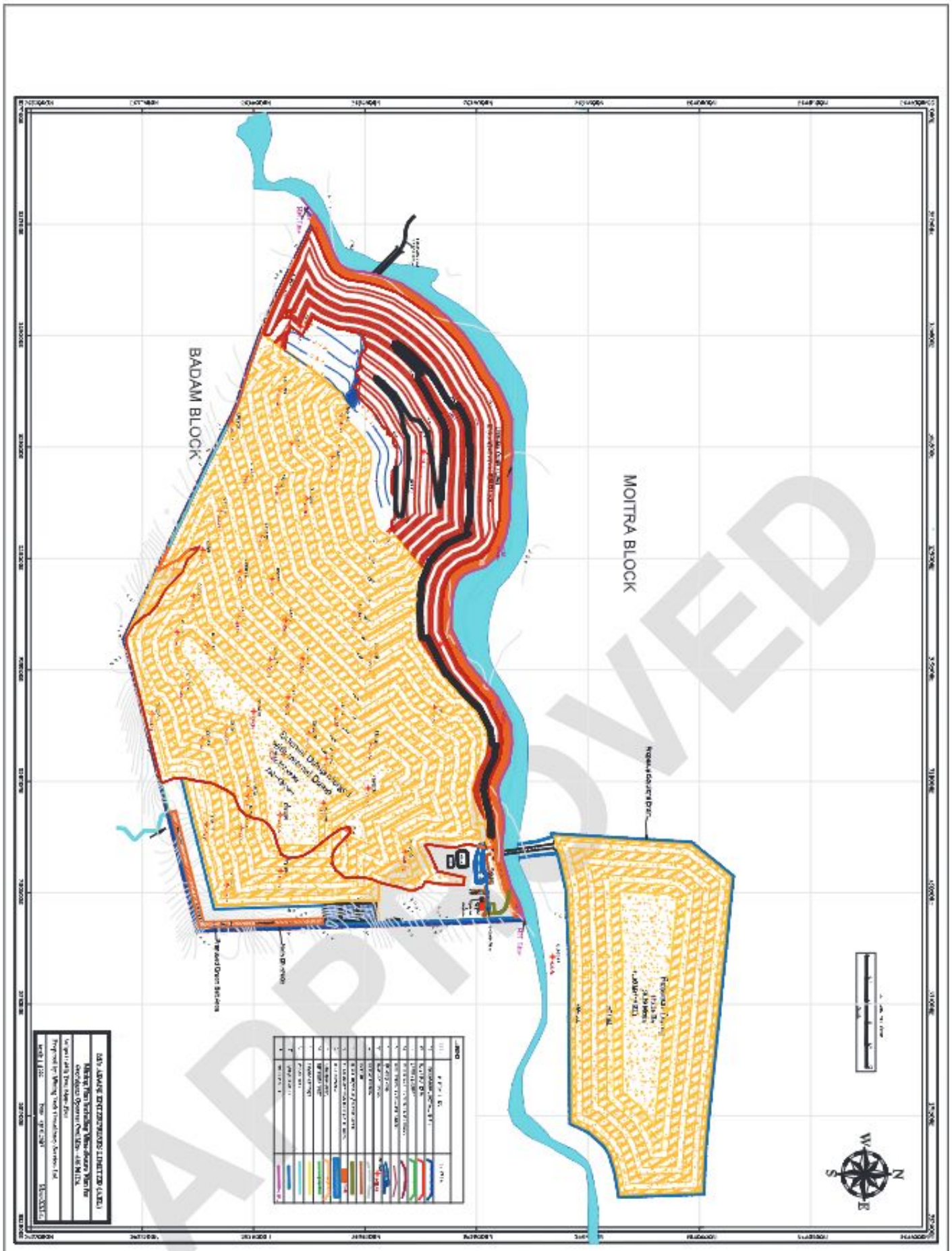
Additonal Plan / Plates-26



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024

Additonal Plan / Plates-27



PUNDRIK MISHRA
SITE HEAD
GONDULPARA COAL MINING PROJECT
ADANI ENTERPRISES LTD.

Prepared By Mining Tech Consultancy Services Ltd. On 22/06/2024