

FEASIBILITY STUDY REPOR

FOR

**Remodelling of Ukai Thermal Power Station
Railway In-Plant Yard and the GSECL yard at
Songadh station, as well as the approx. 9 Km
connectivity from Ukai -Songadh Railway
Station**



JULY 2025

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CHAPTER: 1 INTRODUCTION

1.1. Introduction

The Ukai Thermal Power Station, which is Coal, based Thermal Plant is located near Ukai Dam on Tapi River in Tapi District Plant is located at a distance of 9 Kms from Ukai-Songadh Railway Station and is connected by private siding with a take-off from Ukai-Songadh station. The transportation of coal to the plant is facilitated by rail and in plant Railway Yard, crucial infrastructure to cater the end-to-end logistics requirements of the coal.

This report outlines the detail assessment of the proposed work to address the key infrastructure issues identified in the existing yard. The proposed work aims to re-model the yard at both ends, renew the tracks, and optimize rail handling systems to improve operational efficiency, capacity, and safety. The focus will be on upgrading the yard to handle the required number of wagons, reducing detention times, and providing the necessary infrastructure for future expansion (specifically catering to the upcoming Unit 7).

The proposed works, including complete track renewal, curve realignment, gradient easing, rail replacement, and drainage improvements, are essential to modernizing and improving the infrastructure of the track section. These improvements will lead to increased operational efficiency, enhanced safety, and lower long-term maintenance costs.

By addressing the challenges of sharp curves, steep gradients, outdated rail infrastructure, and inadequate drainage, these upgrades will not only improve the current operational capacity but also future proof the track for increased traffic and heavier trains.

As part of this initiative, GSECL has mandated Gujarat Rail Infrastructure Development Limited (G-RIDE), a joint venture between the Government of Gujarat and the Ministry of Railways, to prepare the Detailed Project Report for the development of Rail Infrastructure Planning for Coal Transportation & Coal Handling for GSECL Ukai Thermal Power Station (TPHS).

1.2. Gujarat State Electricity Corporation Limited (GSECL)

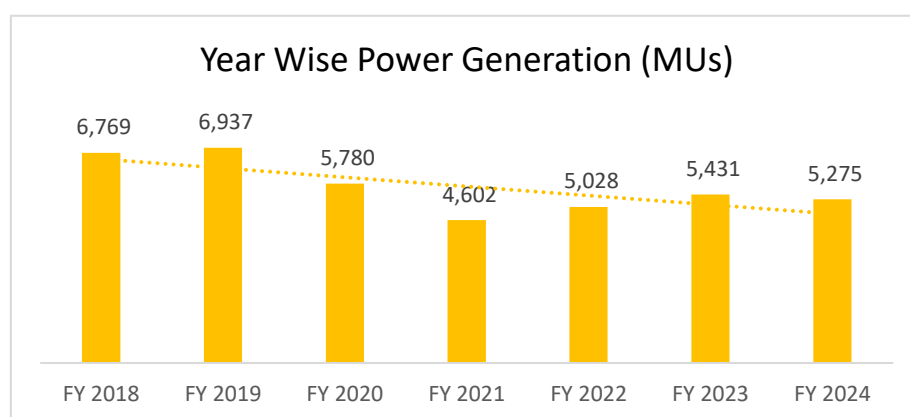
GSECL is the leading State-Owned Power Generating Company in Gujarat, incorporated in August 1993 with the objectives to initiate a process of restructuring of Power Sector and to mobilize resources from the market for adding to the generating capacity of the State and improving the quality and cost of existing generation.

The company owns and operates total installed capacity (conventional) of 6,677 MW comprising 6130 MW Thermal and 547 MW Hydro. The Thermal capacity comprises of 4,510 MW Coal Based, 650 MW Lignite based, and 970 MW Gas based Power Stations. Currently GSECL operates Eight Thermal plants across the state of Gujarat with a total Power generation of 23,543 MU in FY 23. GSECL's total power generation in FY 23, including renewables reached 25,547 MU fulfilling 22% of Gujarat's total electricity demand.

1.3. Ukai Thermal Power Station

The Ukai Thermal Power Station, which is Coal, based Thermal Plant is located near Ukai Dam on Tapi River in Tapi District. The installed capacity of station as on 30 September 2024 is 1350 MW. There are two units of 120 MW each (Unit no. 1 & 2), two units of 200 MW each (Unit no. 3 & 4), one unit of 210 MW (Unit no. 5) and one unit of 500 MW (Unit no 6). The Unit no. 1 & 2 each of 120 MW have been retired from service w.e.f 01.04.2017 & the station capacity has reduced to 1110 MW. The plant generated 5,431 MU of electricity in FY 23 catering to the total 5% of the total Gujarat's electricity demand. Year wise power generated by Ukai Thermal Power plant is depicted below:

Figure 1: Year Wise Power Generation at Ukai Thermal Power Plant (MUs)



Source: GSECL

It is observed from the table that the power generation of Ukai Thermal Power Plant is on declining trend from FY 2017-18 on account of retiring of 2 Units and lesser power requirement during Covid time. Further it is observed that from FY 2022 onwards, power generation is steady and running at an average of 5,245 MU with a PLF of 55% in FY 2022-23.

1.4. Ukai Thermal Power Station Railway Infrastructure

Plant is located at a distance of approx. 9 Kms from Ukai-Songadh Railway Station and is connected by private siding with a take-off from Ukai-Songadh station. The transportation of coal to the plant is facilitated by rail and in plant Railway Yard, crucial infrastructure to cater the end-to-end logistics requirements of the coal. Below image depicts Rail Connectivity from Ukai-Songadh Station to Ukai Thermal Power Station Rail Siding (TPHS)

Figure 2: Google Earth image depicting GSECL 9 Km Rail line connecting Ukai Songadh Station to TPHS

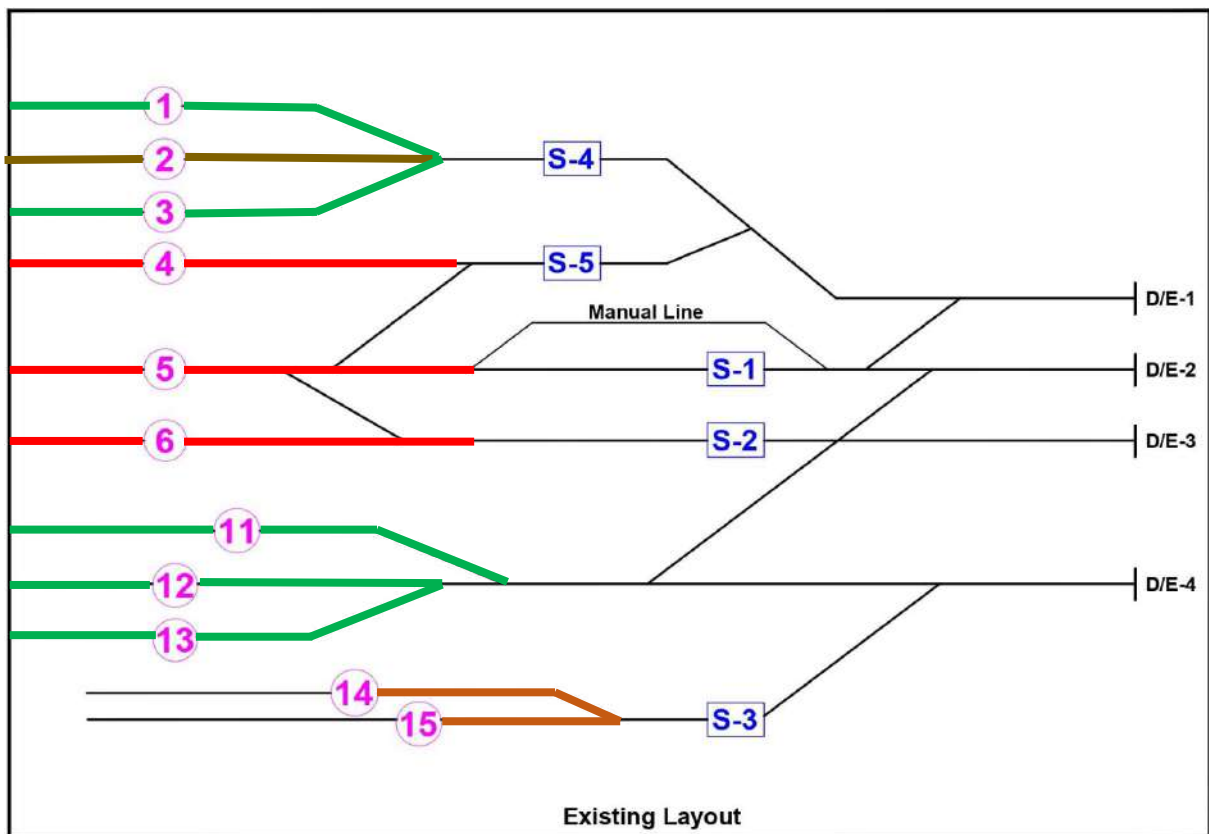


Source: Google Earth

I. In – Plant Railway Yard (TPHS)

A. Infrastructure Details

The private siding of the Ukai Thermal Power Station, primarily for coal handling, is located next to Thermal Power Station and approx. 9 Km from the Ukai Songadh Railway Station. The marshalling yard currently features a siding line converted into 15 tributaries rail lines, comprising total railway network of 19 Km. The yard is equipped with 5 Wagon Tippers synchronized with hoppers for unloading coal from wagons to the Conveyor belt. WT-1, WT-2 and WT-3 have capacity of handling 500 tonnes/hr whereas WT-4 & WT-5 are newly equipped Tipplers which can handle at a rate of 1000 tonnes/hr. Below image depicts the line diagram for the 15 tributaries lines connected with respective Wagon tipplers.



NOTE:-

- **RECEPTION LINE :- 1,3,11,12,13**
- **EMPTY LINE :- 5,6,4**
- **FO AND LOCO SHUNTING LINE :- 2**
- **WAGON PULLING LINE :- 14,15**

Figure 3: Existing Layout of TPHS

Source: GSECL, G-RIDE's Analysis

The image illustrates that only 11 out of the 15 rail lines are currently operational, and these are connected to various wagon tipplers. Currently TPHS is handling average 03 to 05 rakes per day to cater the coal requirement of Unit 3, 4, 5 & 6. It is known that line 1,3,11,12 & 13 are reception line for the loaded coal rake whereas line 4,5,6 are used for empty formation. Line 2 is used only for Fuel Oil and Loco Shunting whereas Line 14 & Line 15 are used only for wagon pulling. Further it is known that Wagon Tippler, i.e. S-4 and S-5 are also equipped with side arm charger but not in operation due to space constraint. Wagon tippler, S-1 & S-2 caters coal supply to all units whereas Tippler S-3 caters to unit -3, 4 & 5. Further Wagon tippler, S-4 & S-5 caters to only Unit-6 (500 MW) plant.

Discussions with GSECL officials have revealed that Wagon Tippler S1 & S2 is aging, currently used only to meet peak power demand, and is set to replace with a new unit. Infrastructure details of Tippler in used and to be used in future are as follows:

Table 1: Infrastructure Details of Tippler (Current and Future Provision)

S.No.	Name of Tippler	Tippler Capacity (TPH)	Hopper Capacity (tonnes)	Pre-tippler length of Lines	Post-Tippler Length of Lines
i.	WT-1 (To be replaced)	500	200	1,158.76	531.95
ii.	WT-2 (To be replaced)	500	200	1109.42	531.95
iii.	WT-3	500	200	1100.64	568.40
iv.	WT-4	1000	250	1235.79	623.95
v.	WT-5	1000	250	1133.28	630.99
vi.	WT-6 (Future)	1680	252	-	-
vii.	WT-7 (Future)	1680	252	-	-

Source: GSECL

I. Connectivity Section to Serving Station, i.e. Ukai-Songadh Railway Station (9 Km Rail Line)

The current infrastructure presents several challenges that limit the efficiency, safety, and sustainability of the railway network. The sharp curves, steep gradients, worn-out rails, inadequate drainage, and outdated level crossings all contribute to reduced operational performance and increased maintenance costs.

II. GEB Yard of Songadh

The existing GEB yard of Songadh is currently facing significant limitations due to sharp curves, steep gradients, limited capacity, and the absence of an interlocking system. These issues result in operational inefficiencies, increased wear and tear, safety risks, and higher maintenance costs.

1.5. Location of Rail Connectivity Songadh to Ukai TPHS



CHAPTER: 2 TRAFFIC PROJECTION

2.1. Existing Traffic Assessment and Future traffic Projections

This chapter provides a comprehensive analysis of the traffic metrics for the year, focusing on parameters like rake numbers, weight transported and average demurrage hours across each month. The data spans from January to December and serves as a valuable tool for understanding traffic patterns, identifying bottlenecks, and evaluating the efficiency of the operations throughout the year.

The primary objective of this assessment is to gain insights into:

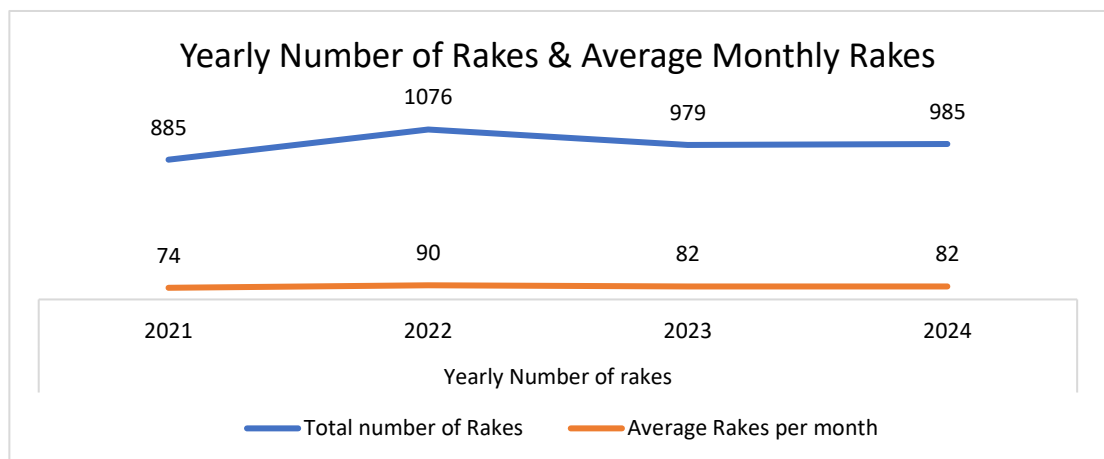
- **Traffic Volume Trends:** Understanding the fluctuations in the number of rakes and total net weight each month.
- **Demurrage Analysis:** Investigating delays in the system, as reflected by demurrage hours, and determining their correlation with traffic volume.
- **Operational Efficiency:** Identifying key months with significant operational challenges, particularly those that resulted in high demurrage, and assessing potential causes.

Through this analysis, the report aims to provide actionable insights for optimizing the operations, reducing delays, and improving the efficiency of transportation and logistics processes moving forward.

2.2. Historical Traffic trend of GSECL Ukai Plant.

This section presents an analysis of the number of rakes deployed each month over the four-year period (2021-2024). The provided data allows us to identify trends, compare traffic across years, and assess seasonal variations and yearly fluctuations.

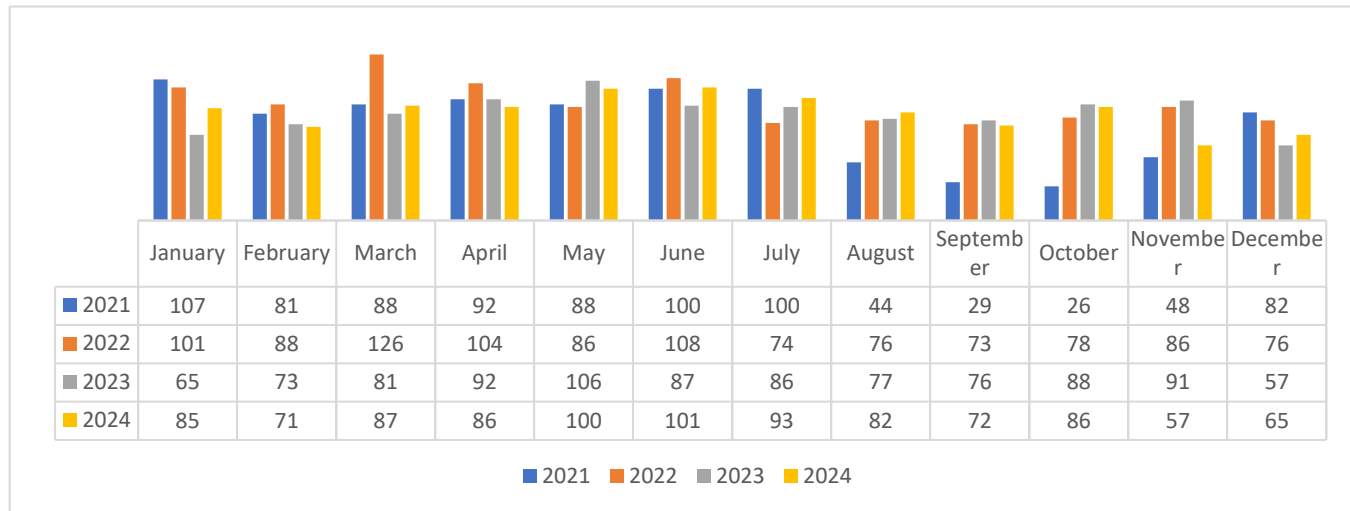
Figure 4: Year -wise Coal Rake at GSECL Ukai Plant



Source: GSECL

Below graph depicts the month wise historical trend of the coal rakes unloaded at GSECL Ukai Plant:

Figure 5: Month-wise



2.3. Existing Wagon Pulling Route and Empty formation Route

This Section examines the scenarios for wagon pulling from the designated line to assigned wagon tippler, highlighting challenges arising from bottlenecks caused by the existing track change arrangement and limitations on the number of wagons handled at a time. Further due to space limitation as detailed out in Section 2, currently only the part of the rake (divided into 4-5 parts comprising of 12-15 wagons) is being handled at a time. These constraints contribute to increased detention time and demurrage hours.

The diagram is color-coded with different line types to indicate specific movements within the yard. The following are the main elements:

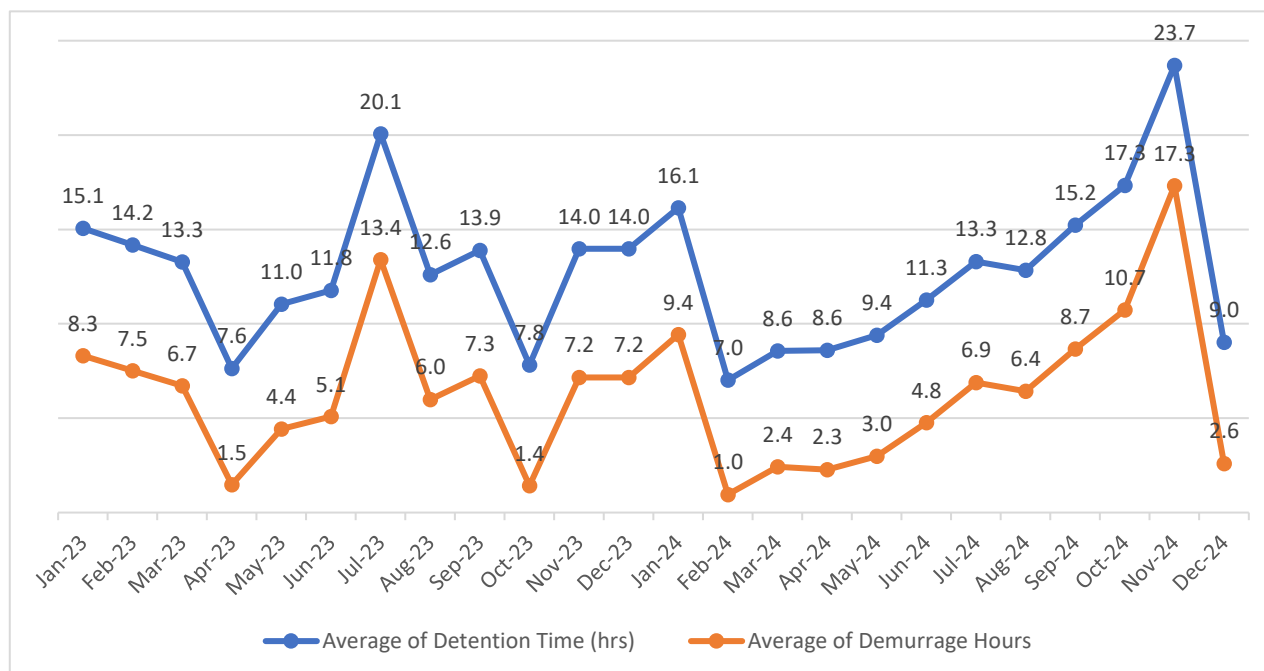
A. Track Layout and Labels

- Multiple Tracks:** The diagram consists of interconnected tracks allowing for wagon movements with the assigned wagon tippler.
- Wagon Tippler (Numbered Boxes):** These indicate Wagon Tippler location where Wagons are unloaded.
- Manual Line:** A section marked as “Manual Line” suggests that certain operations are manually controlled.

2.4. Detention Time and Demurrage hours on account Existing Wagon Pulling Route and Empty formation Route

This section analyses unloading time, detention time, and demurrage hours from January 2023 to December 2024, identifying trends, seasonal impacts, and correlations in logistics performance.

Figure 6: Graphical indicators for average detention time and demurrage hours per rake basis



Source: GSECL, G-RIDE Analysis

A. Trend Analysis:

- Detention Time generally fluctuates between 7 to 23.7 hours, with a peak in Nov 2024. Average
- Demurrage Time follows similar pattern between 1 hour to 17.3 hours, with a peak in November 2024.
- It is observed that in last 2 years, entire free time allotted by Railways is utilized in unloading of wagons due to formation of Vand W shape movement of wagons.

B. Overview of total Cumulative Hours for Demurrage and Detention Time:

Metric	2023 Demurrage & Detention (hours)	2024 Demurrage & Detention (Hours)	% Change
Detention Time	12,190	12232	0.34% 
Demurrage Hours	5774	5926	2.63% 

The data highlights significant inefficiencies in the movement of both loaded and empty wagons, leading to high demurrage hours. Below is a deeper breakdown of the issue and actionable recommendations.

2.5. Future Traffic Projections

This section outlines the methodology for assessing the future coal rakes requirement for both the existing operating units and the upcoming unit 7. It presents the projected annual coal demand for next 30 years for the operating unit 3 to Unit 7. Additionally, the section accounts seasonality factor and provides a detail assessment of the per rake requirement based on the historical traffic data.

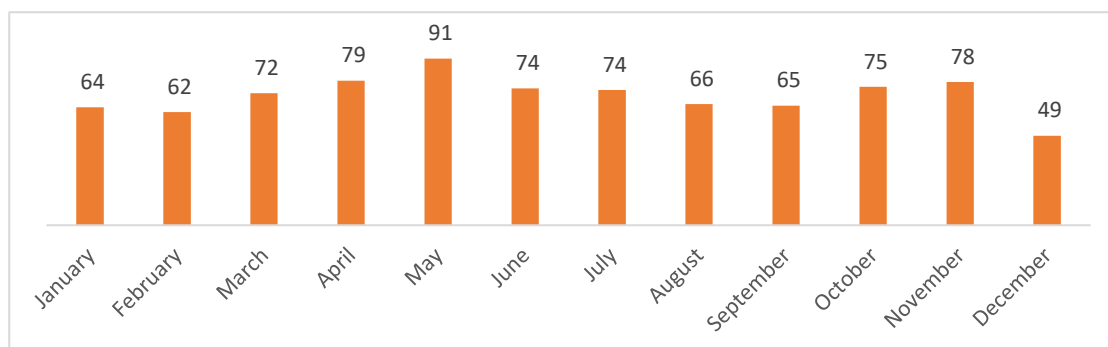
I. Traffic potential for the unit VII 800 MW Coal based Thermal Plant

The Proposed Project which is being developed will consist of one (1) 800 MW supercritical unit based on domestic coal. The Project will be located within the GSECL premises of UTPS at Ukai, Distt. Tapi, Gujarat. The geographical location of UTPS is at Latitude 21° 12' 36.5" North and Longitude 73° 33' 26.3" East. The project site is located at a distance of about 10 km from Songadh Railway Station.

Unit-7 has been designed for domestic coal with design gross calorific value assumed to be 3831 Kcal/kg and 35.84% Ash Content. It is proposed that domestic coal to be brought by Rail movement through BOXN Wagons similar to other operating units. For unloading the domestic coal carrying rakes, two new tippler WT-6 and Wt-7 shall be added to the Railway Yard adjacent to the current yard facility. Unit would require 33,40,000 tonnes of coal annually, which translates monthly requirement of around 2,78,333. The below section evaluates the future potential of the Coal and Rake requirement.

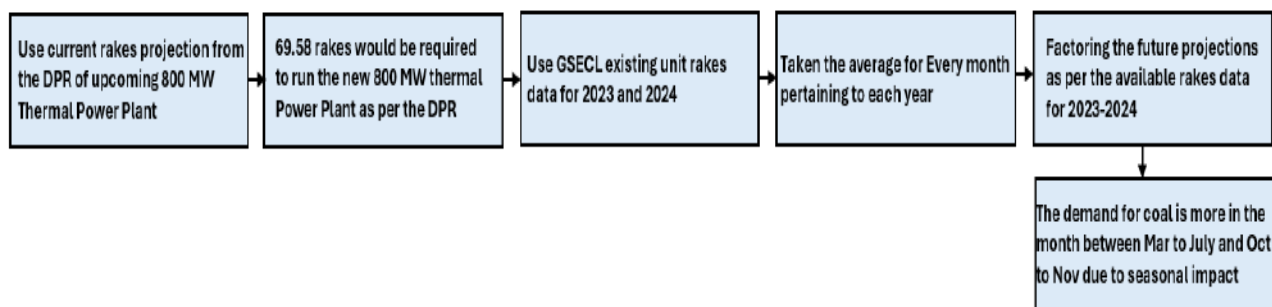
Below graph represent the cumulative month wise rakes require for UNIT VII in future to understand seasonal variation.

Figure 20: Rake requirement on monthly basis for upcoming 800 MW Thermal Plant



Source: GSECL, G-RIDE Analysis

The above requirement of the rakes has been calculated as per the previous rakes data given by GSECL and the below methodology.



- As per the graph it is clearly visible that the requirement of the coal for the new 800 MW plant is more during March to July due to power demand is high because of summer season and Oct to November due to winter season and high appliances usage during the period.
- As per the projection based on factoring of the previous rakes data the demand for 800MW thermal power plant would be around 848 Rakes.

II. Future Traffic potential for the existing 1110 MW Coal based Thermal Plant

Future potential rake requirement for coal of the Existing thermal Power Plants shall follow similar pattern as per the historical trend. Due to COVID impact, only CY 2023 and CY 2024 are taken into consideration to understand the seasonal impact and month-based requirement of the coal rakes. Based on last two CY, the month wise factors were assessed based on average monthly rakes to average yearly rakes required.

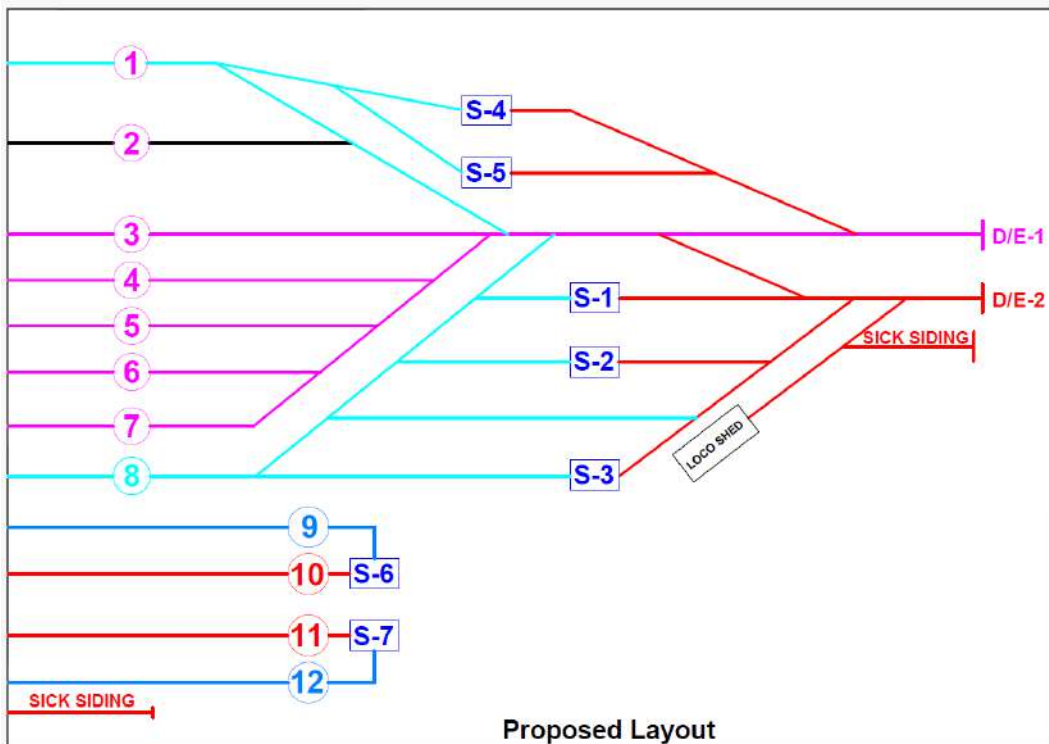
CHAPTER: 3 TRAIN OPERATIONS PLAN

3.1. Train Operations

I. TPHS Yard

- i. **Reception and Dispatch Procedures:** The procedure for reception and dispatch of trains will continue as per the existing system.
- ii. **Line No. 2:** Nominated for the unloading of Fuel Oil (FO).
- iii. **Reception Yard:** Consists of Lines 3, 4, 5, 6, and 7, which will be used for the reception of trains.
- iv. **Formation and Dispatch of Rakes:** Line No. 1 and Line No. 8 are designated for the formation and dispatch of rakes.
- v. **New Proposed Wagon Tippler to cater Unit 7:** Lines 9 and 12 will be used for the formation and dispatch of rakes, while Lines 10 and 11 will be used for reception. These lines are connected to the new proposed Wagon Tippler to cater the proposed upcoming unit of 700 MW.
- vi. **Pathways** will be provided along the sides of the dispatch lines for the General Duty Road (GDR) of outgoing trains.
- vii. **Train engines** will be utilized for inward and outward operations but will not be allowed to move over the wagon tipplers.

Figure 7: Proposed Layout



Source: G-RIDE Analysis

II. GEB Yard Songadh

The GEB Yard at Songadh will be upgraded with Electronic Interlocking, and the following changes will be implemented:

- i. **Train Reception:** Trains from either Jalgaon or Udhana will be directly received at the proposed GEB Lines 1, 2, 3, or 4 based on the availability of space.
- ii. **Dispatch Process:** The current process for dispatching trains from USD to TPHS will remain unchanged, both from the GEB Yard and the existing USD Yard.
- iii. **Reception from TPHS to GEB Yard:** Reception of trains from TPHS to GEB Yard will be interlocked, and trains will be directly received with a signal at Trap Point 105.
- iv. **USD Yard Reception:** No changes will be made to the existing process of reception of trains at USD Yard from TPHS.

III. System Provisions for Loading/Unloading of Wagons

The unloading of rakes at TPHS in the plant yard will be mechanized and handled by Wagon Tippers, as follows:

- i. **Wagon Tippers:**
 - o Mechanized unloading will be done using the Wagon Tippler facilities in the plant yard.
 - o A group of three Wagon Tippers will be provided, consisting of Tippers 1 & 2, 4 & 5, and 3
- ii. **Capacity and Process:**
 - o The remodeling of the plant yard will provide facilities capable of unloading 20 wagons in one go on each tippler.
 - o The unloading process is designed to ensure that the tippers do not infringe upon each other during shunt movements and do not interfere with the reception yard.
- iii. **Defective Wagon Siding:**
 - o A separate defective wagon siding will be provided for each tippler. This will allow defective wagons, identified during the unloading process, to be parked separately without disrupting the unloading operations.

CHAPTER: 4 S&T ARRANGEMENTS

4.1. Signalling & Telecommunication details as under:-

The following enhancements are proposed to support the rail connectivity between Ukai Songadh station and the Thermal Powerhouse siding:

- i. **Communication Infrastructure:** Installation of Optical Fibre and Quad Cable communication systems at Ukai Songadh Station, the Weighbridge, and the Goods Office at the Thermal Powerhouse siding.
- ii. **Train Control Circuits:** Provision of Auto and BSNL communication lines to ensure connectivity between the station, Weighbridge, and Goods Office at TPHS.
- iii. **Operational Communication Systems**
 - Integration of Railway Auto Telephone systems.
 - Deployment of the Freight Operation Information System (FOIS) network at Ukai Songadh station, Weighbridge, and the Goods Office at TPHS
- iv. **VHF Communication**
 - Installation of 25-watt VHF radio systems at Ukai Songadh station, Weigh Bridge & Goods office Thermal Powerhouse siding.
- v. **Isolation Trap Point Communication**

A walkie-talkie set will be assigned to personnel in charge of the operation and locking of isolation trap points between the entry gate and the Goods Office at TPHS

The Estimate cost of S&T work is **26.00 Cr.**

CHAPTER: 5 GENERAL ELECTRIFICATION

5.1. OHE Requirement

Ukai Songadh station (USD) is a B-class electrified station operating under the jurisdiction of the Mumbai Division of Western Railway. Located on the Udhana–Jalgaon double line section, it lies 75.64 km from Udhana Station (UDN). The station is part of an electrified broad-gauge route, and the existing overhead equipment (OHE) at Ukai Songadh is of the conventional type.

5.2. General Electrification

The work has been executed in compliance with the following governing specifications and statutory regulations, prioritized as detailed below:

- a. The Indian Electricity Rules, 1956; the National Building Code, 1994 and 1985 editions, or the latest versions issued by the Central Electricity Authority with all applicable amendments; and the Indian Electricity Act, 2003 with its latest amendments.
- b. Regulations stipulated by the Chief Electrical Inspector.
- c. Rules and regulations prescribed by relevant local authorities, as applicable.
- d. Relevant Indian Standards, including but not limited to:
- e. IS 694:1990 – 1100 V grade FRLS PVC insulated wires (ISI Mark)
- f. MS conduits for electrical wiring; IS 9537: 1980 – ISI Mark
- g. Switch socket outlets; IS 4615:1990 – ISI Mark
- h. pin plugs and socket outlets up to 250 V; IS 11293:1988 – ISI Mark
- i. 1100 V XLPE insulated Armored Cables; IS 7098: Part1 – ISI Mark
- j. Glossary of items for electrical cable; IS1885:1971 – ISI Mark
- k. Switches for domestic and similar purposes; IS 3854:1997
- l. Boxes for enclosure of electrical accessories; IS 5133:1969 – ISI Mark
- m. Code of practice for electrical wiring installations; IS 732:1089
- n. Guide for safety procedure and practice in electrical works; IS 5216:1982

5.3. TERMS OF REFERENCE (ELECTRICAL)

1. Yard Area Lighting: 30 meter long with 16 nos led light fittings are to be installed at suitable locations. Average illumination level may be improved up to 40 lux, which is sufficient for safe working.
2. Road Lighting: -Proposed 7 Mtr octagonal poles are to be installed at suitable locations. Average illumination level may be improved up to 40 lux, which is sufficient for safe working.
3. To examine Power supply for siding: - Power supply shall be received from proposed substation. one no LT panel having 250Amp MCCB as incomer is proposed to be installed to feed required power supply.
4. The proposed High mast shall be of three sections hot-dipped galvanized and suitable for wind velocity as per IS 875 PART 3 and having an integral power tool installed inside the base compartment for its operation. Siding & entrance area is to be illuminated with high mast.
5. To examine and consider the installation of high mast with power supply arrangements. Different sizes of 4 corex25 SQMM LT power cables are taken in estimate to neutralized voltage drop in long distances.

6. To examine electrification of any additional structure, like FOIS room, Weigh Bridge, OPTG room, Record room, TRD room, LT panel room, Store with staff room, Station building, LC Gates etc. Concealed type wiring in PVC pipes is taken in the estimate.
7. Crossings of tracks & bridges are to be done with HDPE pipes of 160 mm nominal dia. material grade and class, PE-80 & PN-4 as per IS 4984-1995, wall thickness of pipes 6.2 to 7.1 mm with accessories only. NP-4 Pipes along with the provision of RCC chambers at suitable distances will be used for cable laying works. Cables are laid easily in these suitable dia pipes and can be repaired/ replaced in case of failure.
8. The GI Octagonal pole mast of 7 (Seven) mtr height made with 3 mm thick GI sheet with single /double arm 0.5 mtr. Long with inside cable termination & earth connection with weather proof flush door and locking facility (in built junction box).
9. The earthing shall be done with 3 mtr long 50mm B class GI pipe earth electrode with 12mm dia holes around the pipe at a distance of 30cms each with at least 50 kg charcoal and 10 kg salt (alternate layer of salt and charcoal).
10. The cable laying trench shall be 45 cm. wide and 150 cm (under the track/road) 100 mm in other places. deep and the cable shall be covered with good quality /RCC half round pipe cover of 150 mm, 50 mm thick of ratio 1: 3:6. The trench shall be refilled with soil available. Wherever the cable emerges out of the ground at least two loops of sufficient radius should be laid. Installation of cable along with wall/pole/roof top/underneath sheds wherever required shall be done with support of GI saddles /clamp of proper size GI/UPVC pipe.

Estimated Cost of Electrical Works: **Rs.4.28+21.27=25.55cr**

CHAPTER: 6 ABSTRACT COST AND TIMELINES

The cost of railway facilities has been worked out based on DSR/Railway SOR/RVNL USSOR and Last Accepted Rates (LARs) of similar items.

Lumpsum Cost of Redevelopment of Siding from Songadh Station to Gujarat State Electricity Corporation Limited Yard, GSECL Yard at Songadh and GSECL Inplant Yard PHASE - I+II+III			
S.No.	Description	Percentages	Cost (Rs) in Crores
I	Land Acquisition including environmental charges		0.00
II	Civil Works		267.83
III	S&T		26.00
IV	Genl Electrification (Incl. Overhead Crossing)		4.28
V	TRD		21.27
VI	Mechanical Works		0.00
A	Basic Cost:		319.38
VII	Preliminary expenses @ 0.5 % of Total Project Cost Including Land	0.5%	1.60
VIII	Escalation during Construction @ 5% over 70% of Basic cost for 1 year (Excluding Land Acquisition)	5%	11.18
IX	PMC @ 5.5 % over Basic Cost +2.3 Cr (As per MOU)	5.5%	19.87
X	Legal and Insurance Charges @ 0.5% percentage on Basic Cost (Excluding Land Acquisition)	0.5%	1.60
XI	Contingency @ 1%	1%	3.19
B	Total Cost Rounded Off:		356.81
TOTAL PROJECT COST			356.81

Snapshot of estimated project timelines

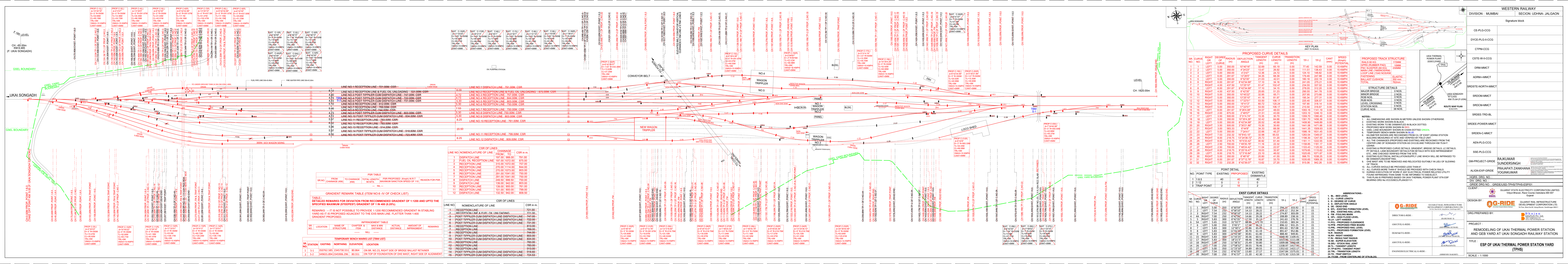
No	Details	
1	Total Project Cost	356.81 Cr
2	Project Construction Start date	September 2025
3	Commercial Operations Date	September 2027

CHAPTER: 7 CONNECTIVITY AND LAYOUT

The proposed layout and connectivity of the terminal is shown below: -

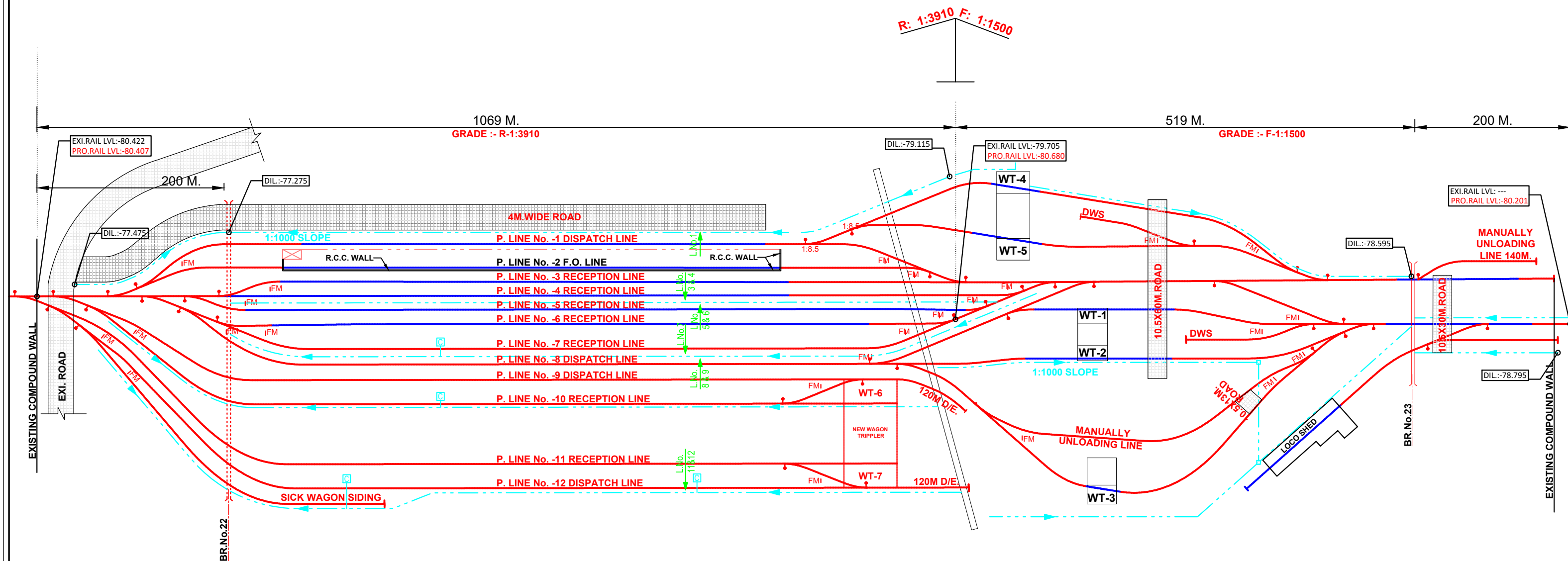
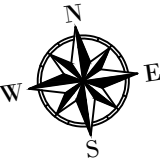
Annexure-1: - Concept Plan

Annexure-2:- ESP



GEB YARD

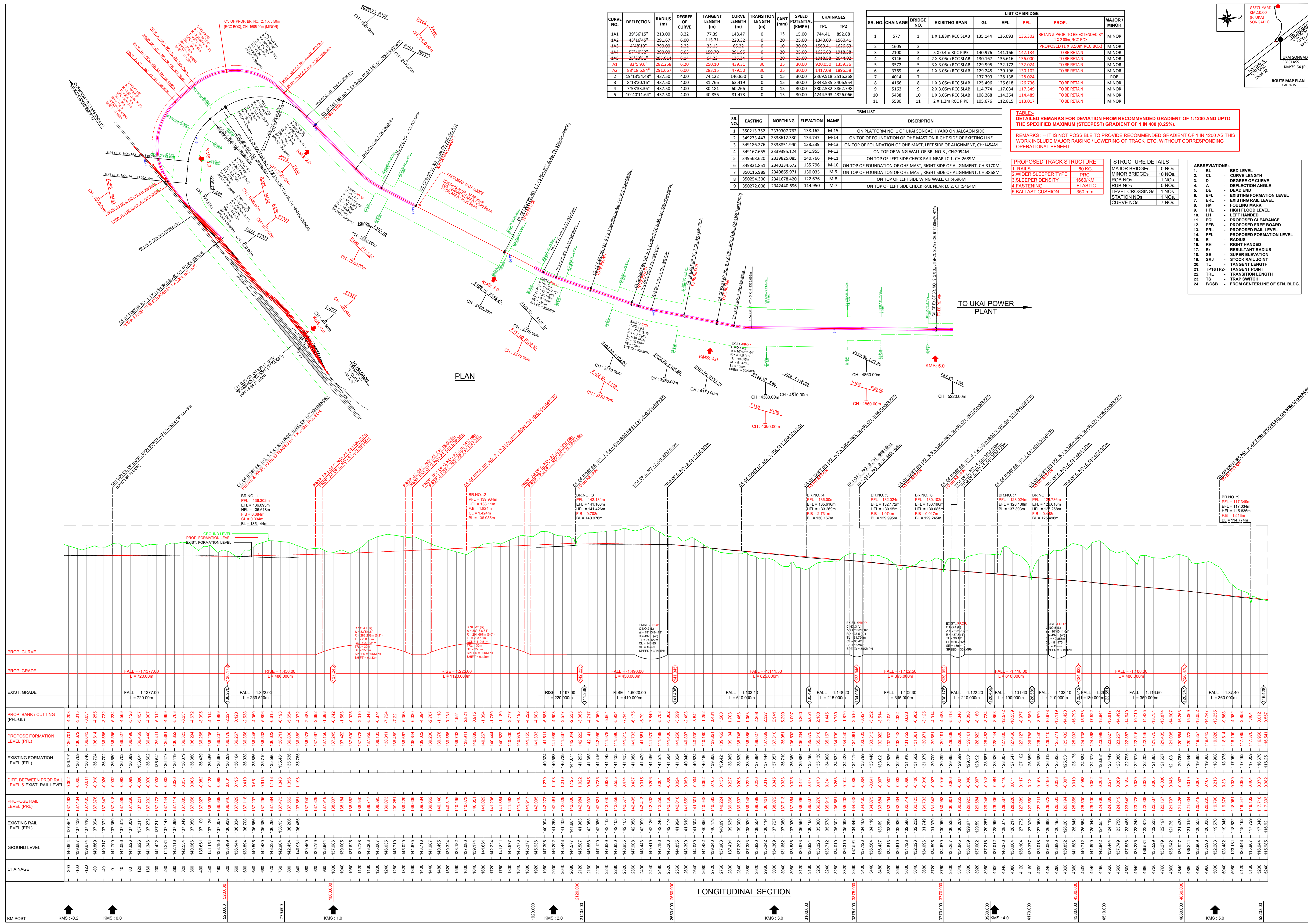
TPHS CONCEPTUAL PLAN FOR FLOW DIRECTION & PROPOSED LEVEL



ABBREVIATIONS	
E. :-	EXISTING
P. :-	PROPOSED
F.O. :-	FUEL OIL
DWS :-	DEFECTIVE WAGON SIDING
WT :-	WAGON TRIPPLER

DESCRIPTION			
	PROPOSED TRACK		DRAIN INVERT LEVEL
	REMODELING TRACK		F.O. DRAIN
	PROPOSED DRAIN		U.G.TANK 40KL
	HORIZONTAL SLOPE IN BLANKETING 1.5%		CULVERT
	CHMBER @ 100M. C/C.		PROPOSED PINT (1:8.5)
	FLOW DIRECTION		

WESTERN RAILWAY	
DIVISION:- MUMBAI	SECTION:- SONGADH - UKAI
DESIGNED BY :-	
	GUJARAT RAIL INFRASTRUCTURE DEVELOPMENT CORPORATION LTD. 7th Floor, Block No-06, Udyog Bhavan, Gandhinagar-382011
CLIENT :-	
	GUJARAT STATE ELECTRICITY CORPORATION LTD UKAI THERMAL POWER STATION PO. : UKAI, TALUKA : SONGADH FORT, DISTRICT : TAPI - 394680
TITLE :-	
CONCEPTUAL PLAN FOR TPHS UKAI	
DRG. NO. : GRIDE/UKAI/PHASE-I/TPHS/C.P./01	



SHEET NO :- 01 OF 02
PINK BOOK ITEM NO. :- OF 2023-2024

NOTES :

1. ALL DIMENSIONS ARE IN METERS.

2. EXIST. WORK SHOWN IN BLACK. PROPOSED WORK SHOWN IN RED.

3. GROUND PROFILE SHOWN IN GREEN.

4. RAILWAY BOUNDARY IS SHOWN IN GREEN CHAIN DOTTED.

5. OPEN DRAIN SHOWN IN MAGENTA.

6. CHAINAGES SHOWN ARE RECKONED FROM UKAI SONGADH STATION BUILDING.

7. KILOMETRES SHOWN ARE RECKONED FROM UKAI SONGADH STATION BUILDING.

8. NOS. OF BRIDGES, L-XINGS AND CURVES ARE RECKONED FROM UKAI SONGADH STATION BUILDING.

9. THE EXISTING LEVELS & GRADES ARE AS PER SITE SURVEY RECORDED BY BHAIJAN INFRA TECH PVT. LTD. AND VERIFIED BY FIELD UNIT.

10. EXISTING LAND BOUNDARY SHOWN IN REFER APPROVED LAND PLAN DWG No. DRMB/1648983-F.

11. SIZE OF BRIDGES SHOWN IN L-SECTION IS AS PER SITE SURVEY RECORDED BY BHAIJAN INFRA TECH PVT. LTD. AND VERIFIED BY FIELD UNIT.

12. DESIGN SPEED OF SECTION IS 300KPH.

13. THIS WORK WILL BE CARRIED OUT AS PER "COMPREHENSIVE GUIDELINES AND SPECIFICATIONS FOR RAILWAY FORMATION SPECIFICATION NO. RDSO/2020/GE-IRS-0004, SEPT-2020".

WESTERN RAILWAY

DIVISION : MMCT

SECTION : UDN-NDB

HQRS. DRG. NO. :

DIV. DRG. NO. :

GRIDE DRG NO. : GRIDE/UKAI/PHASE-II/TPHS/L501

CLIENT :

GUJARAT STATE ELECTRICITY CORPORATION LIMITED.
Vidyal Bhavan, Race Course Vadodra-390 007
Gujarat

DESIGNED BY :-

G-RIDE

GUJARAT RAIL INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.

7th Floor, Bhau-Nr-06, Lohang Bhavan, Gandhinagar-380011

DIRECTOR/G-RIDE :

(RAJ KUMAR S)

GM/CIVIL/G-RIDE :

(SHIVENDRA KUMAR)

AM/CIVIL/G-RIDE :

(K.M.PRAJAPATI)

DRG PREPARED BY :

Bhajan

GUJARAT RAIL INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.

7th Floor, Bhau-Nr-06, Lohang Bhavan, Gandhinagar-380011

PROJECT :

REGRAIDING & REFORM EXISTING TRACK STRUCTURE TO CONNECTIVITY FROM UKAI - SONGADH STATION (USD) TO GSECL INPLANT YARD (TPHS)

TITLE :-

LONGITUDINAL SECTION & PLAN FROM CH. 00.00 TO CH. 5000.00 M FROM KM. 0.00 TO KM. 5.000

SCALE :- HOR : 1CM=50M, VER 1CM=5.00M

SR. NO.		CHAINAGE	BRIDGE NO.	EXISTING SPAN	GL	EFL	PFL	PROP.	MAJOR / MINOR
1	577	1	1	1 X 1.83m RCC SLAB	135.144	136.093	136.302	RETAIN & PROP. TO BE EXTENDED BY 1.220m. RCC BOX	MINOR
2	1605	2						PROPOSED 1 X 3.50m RCC BOX	MINOR
3	2100	3	5	5 X 0.4m RCC PIPE	140.976	141.166	142.134	TO BE RETAIN	MINOR
4	3146	4	2	2 X 3.05m RCC SLAB	130.167	135.616	136.000	TO BE RETAIN	MINOR
5	3572	5	3	3 X 3.05m RCC SLAB	129.995	132.172	132.024	TO BE RETAIN	MINOR
6	3769	6	1	1 X 3.05m RCC SLAB	129.245	130.196	130.102	TO BE RETAIN	MINOR
7	4014	7							ROB
8	4166	8	1	1 X 3.05m RCC SLAB	125.496	126.618	126.736	TO BE RETAIN	MINOR
9	5162	9	2	2 X 3.05m RCC SLAB	114.774	117.034	117.349	TO BE RETAIN	MINOR
10	5438	10	1	1 X 3.05m RCC SLAB	108.268	114.364	114.489	TO BE RETAIN	MINOR
11	5580	11	2	2 X 1.2m RCC PIPE	105.676	112.815	113.017	TO BE RETAIN	MINOR

TABLE : DETAILED REMARKS FOR DEVIATION FROM RECOMMENDED GRADIENT OF 1:1200 AND UPTO THE SPECIFIED MAXIMUM (STEEPEST) GRADIENT OF 1 IN 400 (0.25%).

REMARKS :- IT IS NOT POSSIBLE TO PROVIDE RECOMMENDED GRADIENT OF 1 IN 1200 AS THIS WORK INCLUDE MAJOR RAISING / LOWERING OF TRACK. ETC. WITHOUT OPERATIONAL BENEFIT.

PROPOSED TRACK STRUCTURE	
1. RAIL S	80 KG
2. WIDER SLEEPER TYPE	PSG
3. SLEEPER DENSITY	1660/KM
4. FASTENING	ELASTIC
5. BALLAST CUSHION	350 mm

STRUCTURE DETAILS	
MAJOR BRIDGES	0 NOS.
MINOR BRIDGES	10 NOS.
ROB NOS.	1 NOS.
RUB NOS.	0 NOS.
LEVEL CROSSINGS	1 NOS.
STATION NOS.	1 NOS.
CURVE NOS.	7 NOS.

ABBREVIATIONS:-	
1. BL	BED LEVEL
2. CL	CURVE LENGTH
3. D	DEGREE OF CURVE
4. A	DEFLECTION ANGLE
5. DE	DEAD END
6. EFL	EXISTING FORMATION LEVEL
7. ERL	EXISTING RAIL LEVEL
8. FM	FOLLING MARK
9. HFL	HIGH FLOOD LEVEL
10. LH	LEFT HANDED
11. PCL	PROPOSED CLEARANCE
12. PFB	PROPOSED FREE BOARD
13. PRL	PROPOSED RAIL LEVEL
14. R	PROPOSED FORMATION LEVEL
15. RH	RIGHT HANDED
16. Rr	RESULTANT RADIUS
17. SE	SUPER ELEVATION
18. SRJ	STOCK RAIL JOINT
19. TL	TANGENT LENGTH
20. TPT	TANGENT POINT
21. TPT2	TANGENT POINT
22. TRL	TRANSITION LENGTH
23. TS	TRAP SWITCH
24. FICSB	FROM CENTRELINE OF STN. BLDG.

CURVE NO.	DEFLECTION	RADIUS (m)	DEGREE OF CURVE	TANGENT LENGTH (m)	CURVE LENGTH (m)	TRANSITION LENGTH (m)	CANT (mm)	SPEED POTENTIAL (KMPH)	CHAINAGES
1A1	39°56'15"	213.00	6.22	77.39	146.47	0	15	15.00	744.41 - 892.88
1A2	42°04'45"	291.67	6.00	115.74	230.32	0	20	25.00	1340.09 - 1569.44
1A3	4°48'10"	790.00	2.22	33.13	66.22	0	10	30.00	1560.41 - 1626.63
1A4	57°40'52"	290.00	6.03	150.70	291.95	0	20	25.00	1626.63 - 1918.58
1A5	25°32'51"	285.04	6.14	64.32	126.34	0	20	25.00	1918.58 - 2044.92
A1	82°53'6"	282.258	6.20	250.10	439.31	30	25	30.00	920.050 - 1359.36
A2	88°18'6.84"	291.667	6.00	283.15	479.50	30	25	30.00	1417.08 - 1896.58
2	19°13'54.48"	437.50	4.00	74.122	146.850	0	15	30.00	2369.518 - 2516.368
3	8°18'20.16"	437.50	4.00	31.766	63.419	0	15	30.00	3343.535 - 3406.954
4	7°53'33.36"	437.50	4.00	30.181	60.266	0	15	30.00	3802.532 - 3862.798
5	10°40'11.64"	437.50	4.00	40.855	81.473	0	15	30.00	4244.593 - 4326.066

SR. NO.	EASTING	NORTHING	ELEVATION	NAME	DISCRIPTION
1	350213.352	2339307.762	138.162	M-15	ON PLATFORM NO. 1 OF UKAI SONGADH YARD ON JALGAON SIDE
2	349273.443	2338612.330	134.747	M-14	ON TOP OF FOUNDATION OF OHE MAST ON RIGHT SIDE OF EXISTING LINE
3	349186.276	2338851.990	138.239	M-13	ON TOP OF FOUNDATION OF OHE MAST, LEFT SIDE OF ALIGNMENT, CH-1454M
4	349167.655	2339395.124	141.955	M-12	ON TOP OF WING WALL OF BR. NO. 3, CH-2094M
5	349568.620	2338825.685	140.766	M-11	ON TOP OF LEFT SIDE CHECK RAIL NEAR LC 1, CH-2689M
6	349821.851	2340234.672	135.796	M-10	ON TOP OF FOUNDATION OF OHE MAST, RIGHT SIDE OF ALIGNMENT, CH-3170M
7	350116.989	2340865.971	130.035	M-9	ON TOP OF FOUNDATION OF OHE MAST, RIGHT SIDE OF ALIGNMENT, CH-3888M
8	350254.300	2341678.420	122.676	M-8	ON TOP OF LEFT SIDE WING WALL, CH-4696M
9	350272.008	2342440.696	114.950	M-7	ON TOP OF LEFT SIDE CHECK RAIL NEAR LC 2, CH-5464M

LIST OF BRIDGE

SR. NO.	CHANGE NO.	BRIDGE NO.	EXISTING SPAN	GL	EFL	PFL	PROP. SPAN	MAJOR / MINOR
9	5162	9	2 X 3.05m RCC SLAB	114.774	117.034	117.349	TO BE RETAINED	MINOR
10	5438	10	1 X 3.05m RCC SLAB	108.268	114.364	114.489	TO BE RETAINED	MINOR
11	5580	11	2 X 1.2m RCC PIPE	105.076	112.815	113.017	TO BE RETAINED	MINOR
12	5848	12	2 X 1.2m RCC PIPE	103.637	110.409	110.240	TO BE RETAINED	MINOR
13	6076	13	2 X 1.2m RCC PIPE	103.815	107.972	107.877	TO BE RETAINED	MINOR
14	6502	14	2 X 3.05m RCC SLAB	100.642	104.843	104.778	TO BE RETAINED	MINOR
15	6718	15	1 X 1.2m RCC PIPE	99.874	103.139	103.213	TO BE RETAINED EXTENDED BY 1 X 2.00m RCC BOX	MINOR
16	6896	16	2 X 1.2m RCC PIPE	98.960	101.953	101.973	PROPOSED 1 X 2.50m RCC BOX	MINOR
17	7234	17	1 X 3.05m RCC SLAB	96.571	98.925	98.929	TO BE RETAINED	MINOR
18	7617	18	1 X 3.05m RCC SLAB	94.578	95.995	95.966	TO BE RETAINED	MINOR
19	8045	18A	2 X 3.05m RCC SLAB	86.365	91.598	92.708	TO BE RETAINED	MINOR
20	8547	19	2 X 1.2m RCC PIPE	85.482	87.211	87.921	TO BE RETAINED	MINOR
21	9027	20	1 X 3.05m RCC SLAB	79.809	83.681	83.743	TO BE RETAINED	MINOR
22	9563	21	3 X 6.1m RCC SLAB	73.053	80.461	80.415	TO BE RETAINED	MINOR

TABLE:
DETAILED REMARKS FOR DEVIATION FROM RECOMMENDED GRADIENT OF 1:1200 AND UPTO THE SPECIFIED MAXIMUM (STEEPEST) GRADIENT OF 1 IN 400 (0.25%).

REMARKS -- IT IS NOT POSSIBLE TO PROVIDE RECOMMENDED GRADIENT OF 1 IN 1200 AS THIS WORK INCLUDE MAJOR RAISING / LOWERING OF TRACK ETC. WITHOUT CORRESPONDING OPERATIONAL BENEFIT.

PROPOSED TRACK STRUCTURE

1. RAILS	60 KG
2. WIDER SLEEPER TYPE	FAC
3. SLEEPER DENSITY	1600/KM
4. FASTENING	ELASTIC
5. BALLAST CUSHION	350 mm

ABBREVIATIONS:-

1. BL - BED LEVEL
2. CL - CURVE LENGTH
3. D - DEGREE OF CURVE
4. A - DEFLECTION ANGLE
5. DE - DEAD END
6. EFPL - EXISTING FORMATION LEVEL
7. ERL - EXISTING RAIL LEVEL
8. FM - FOULING MARK
9. HFL - HIGH FLOOD LEVEL
10. LH - LEFT HAND
11. PCL - PROPOSED CLEARANCE
12. PFB - PROPOSED FREE BOARD
13. PRL - PROPOSED RAIL LEVEL
14. PFI - PROPOSED FORMATION LEVEL
15. R - RADIUS
16. RH - RIGHT HAND
17. RL - RESULTANT RADII
18. SE - SUPER ELEVATION
19. SRJ - STOCK RAIL JOINT
20. TL - TANGENT LENGTH
21. TP&T2 - TANGENT POINT
22. TR - TRANSITION LENGTH
23. TS - TRAP SWITCH
24. FCBS - FROM CENTERLINE OF STN. BLDG.

PROPOSED TRACK STRUCTURE	
1. RAILS	60 KG.
2. WIDER SLEEPER TYPE	PRC
3. SLEEPER DENSITY	1660/KM
4. FASTENING	ELASTIC
5. BALLAST CUSHION	350 mm

ABBREVIATIONS:-	
1. BL	- BED LEVEL
2. CL	- CURVE LENGTH
3. D	- DEGREE OF CURVE
4. A	- DEFLECTION ANGLE
5. DE	- DEAD END

ABBREVIATIONS:

1. BL	BED LEVEL
2. CL	CURVE LENGTH
3. CD	DEGREE OF CURVE
4. DE	DEFLECTION ANGLE
5. DA	DEAD END
6. EFL	EXISTING FORMATION LEVEL
7. ERL	EXISTING RAIL LEVEL
8. FM	FOLLING MARK
9. HFL	HIGH FLOOD LEVEL
10. LH	LEFT HANDED
11. PCL	PROPOSED CLEARANCE
12. PFL	PROPOSED FREE BOARD
13. PRL	PROPOSED RAIL LEVEL
14. PRL	PROPOSED FORMATION LEVEL
15. R	RADIUS
16. RH	RIGHT HANDED
17. Rr	RESULTANT RADIUS
18. SE	SUPER ELEVATION
19. SRJ	STOCK RAIL JOINT
20. TL	TANGENT LENGTH
21. TP1&TP2	TANGENT POINT
22. TRL	TRANSITION LENGTH
23. TS	TRAP SWITCH
24. F/C&B	FROM CENTERLINE OF STN. BLDG.

STRUCTURE DETAILS	
MAJOR BRIDGES	0 NOS.
MINOR BRIDGES	14 NOS.
ROB NOS.	0 NOS.
RUB NOS.	0 NOS.
LEVEL CROSSINGS	3 NOS.
STATION NOS.	0 NOS.
CURVE NOS.	8 NOS.

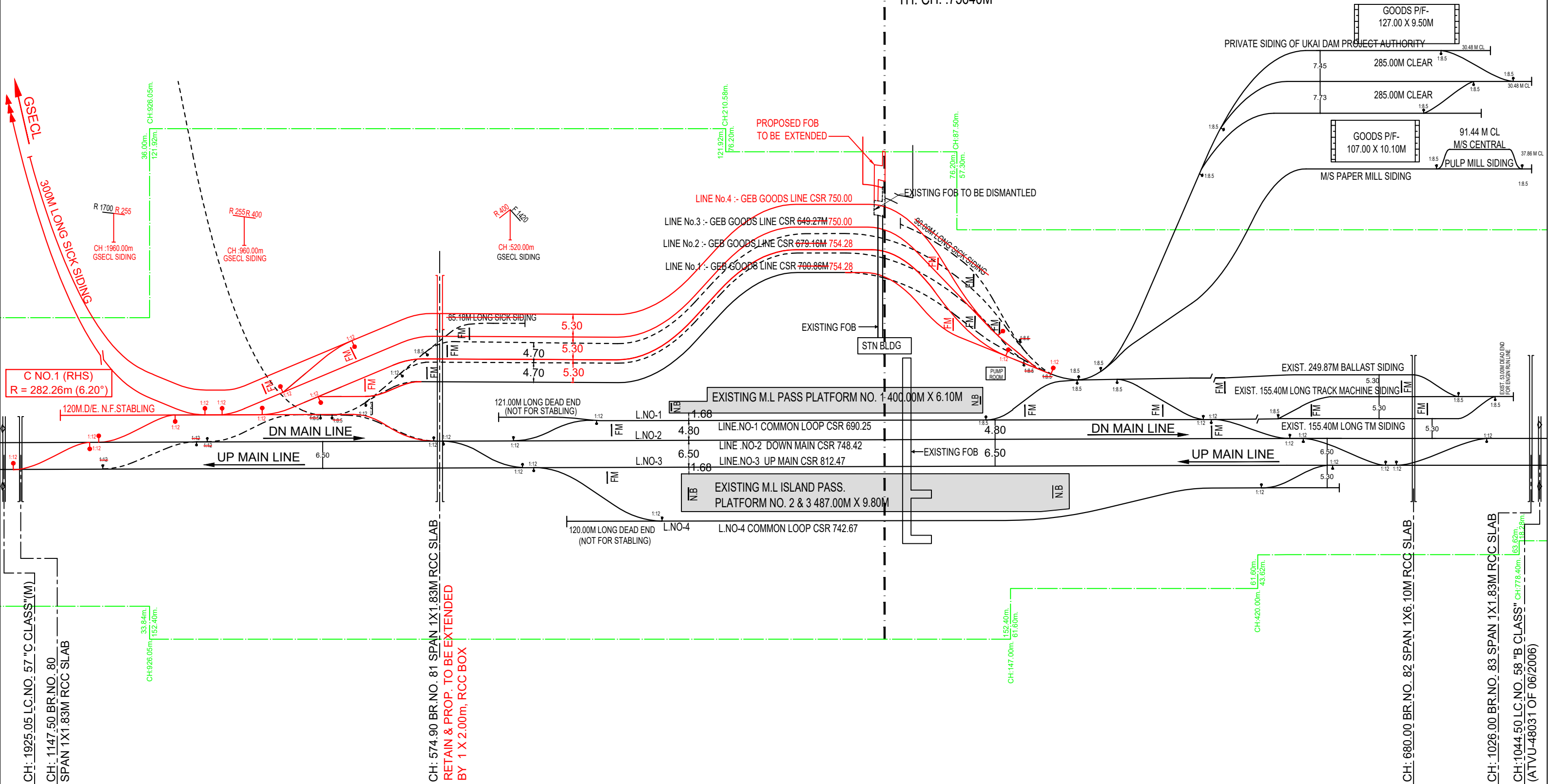


UKAI SONGADH CONCEPTUAL PLAN

TO UDHNA "B" CLASS
DOSWADA "D" CLASS KM:4.92

TO JALGAON "A" CLASS
LAKKADKOT "B" CLASS
KM:5.48

C/L OF UKAI SONGHAD STATION
BUILDING ("B" CLASS)
CH:0.00 (KM:75.64 F: UDN)
TH. CH. :75640M





No. : W.221/1/GEB/TPH

From,
SSE (P.WAY) VYA
DATE: 22.07.2025

TO,
DEN/Central/MMCT
Through ADEN-VYA

Sub. :- Regarding Joint feasibility survey report for remodelling of Ukai Thermal Power Station, connectivity from Ukai Songadh station & Remodeling of GEB Yard at Songadh station in Mumbai Division, Western Railway.

Ref. :- 1) DEN/C/MMCT letter No. W619/03/USD/GSECL/01 dtd. 21.07.2025
2) GRIDE letter No. GRIDE/GSECL/Ukai/2024/01/01227 dtd. 03.07.2025
3) CB No. 629 dtd. 15.07.2025
4) Joint feasibility survey report dtd. 16.07.2025
5) ADEN-VYA letter No. W/22.1/VYA/1

Respected Sir,

With reference to the above cited subject, joint feasibility survey carried out by participating all concern railway department, GRIDE & GSECL-TPH authority on date 16.07.2025 & duly sign by all concern officials. The FSR Report examine and as per FSR Joint feasibility survey carried out in which all technical observation covering all relevant aspect track, yard layout, gradient, land availability and land acquisition, drainage, curve, cutting has been observed. The technical observation mentioned in FSR & plan are as under.

1. In GEB Yard remodeling all non-interlocked 1 in 8.5 P&C converted in 1in12 interlocked P&C at both end.
2. Cutting widening north side will be done for 1 more extra GEB Line, D-End, Sick line and X-Over 103-104.
3. TPH Entry 8° sharp curve will realign and converted in 6° curve for this TPH Pvt. Siding authority planned & proceed for land acquisition.
4. All 3 non-interlocked Unmanned LC will be converted in Manned mechanical gate & Manned LC-3 non-interlocked will be converted into interlock gate.
5. ML Point No 101,102,103 will be shifted and re located at new location with same angle (1in12).
6. In remodeling of GEB & TPH Yard and USD-TPH section will be CTR with new track structure (60Kg Rail on 60Kg rail)
7. Other technical observation mentioned in Joint feasibility report Same is enclosed herewith.

This is for your kind information & further n/action please.


SSE (P.WAY) VYA
Senior Section Engineer (P.W.)
पश्चिम रेल्वे, वयारा.
Western Railway, Vyara

Encl. 1) Joint feasibility survey report dtd. 16.07.2025

Joint Survey report for Remodelling of Ukai Thermal Power Station Railway In-Plant Yard and the GSECL yard at Songadh station, as well as the approx. 9 km connectivity from Ukai-Songadh Railway Station on Dtd. 16/07/2025

Ref No. CB No. 629 Dtd.15/07/25

Proposal from G-RIDE/GSECL

Phase-I

TPHS Yard

- Reception and Dispatch procedure will continue as per the existing system
- Yard will remain Non-Interlocked with Essential Communication Facilities
- Line No.2 Nominated for RFO as usual
- Line No.3,4,5,6 & 7 Nominated for Reception of Trains connecting all existing triplers
- Line No.1 & 8 nominated for dispatch of Trains connecting all existing triplers
- New Triplers 6&7 are proposed separately with Line No.9,10,11& 12.
- Existing line number 13, 14,and 15 will be dismantled.
- Unloading section proposed with 20 Wagons in One Hook at every existing Tripler without infringing to reception & formation of Racks.
- Provision of sufficient Lighting arrangements with High Mast

Phase-II

- Realignment of connectivity portion of approximately 9 Kms from USD-TPHS by easing curves & gradients reroute by shifting existing curve from takeoff point of 8.5 degree to 6 degree.
- Four number of LC Gate in the section will be connected for communication with SM TPHS provision of all required facilities, LC 3 is proposed interlocked and other gates will remain non interlocked with lifting barrier.
- Sectional speed is proposed with SR 60 KMPH.

Phase-III

- Remodeling of GEB Yard with provision of 4 number of Lines with minimum CSR
- To fulfill required CSR of 750 meters,cross over 101/102 and 103/104 has to be shifted towards UDN end.
- Provision of new Sick Wagon siding with CSR 300 Meters.
- All turnouts are proposed of 1 in 12
- GEB Yard is proposed with Interlocking of points and signals for reception and dispatch for TPHS.

Suggestions and remarks from IR representatives

Operating Remarks :

- Presently EWMB (motion bridge) is planned in block section near LC-4 which will effect sectional speed So it must be shifted to Entrance area of TPHS Siding.
- All LC Gates (LC-1,2,3 & 4) between USD station to TPHS Siding must be Interlocked & provided with all facilities & must be connected from on duty station master in TPHS Siding
- Proper drainage system must be provided to overcome waterlogging
- Pathway should be provided for all lines at USD yard,TPHS Siding for smooth shunting movements
- Control Telephone, TPC, Auto telephone, BSNL, VHFCommunication,Railnet must be provided inside TPHS Siding. e
- Proper Lighting facilities to be provided in USD Yard, TPHS Siding.

Commercial Remarks :

- Requirement of CGS Office:
A Cargo Goods Shed (CGS) office is required with modular type construction, including an attached toilet and bathing facility, to meet the operational needs of staff. The office should be equipped with the following:
 - Cupboards for record and file storage.
 - Supervisor chair and visitor chairs.
 - Office table.
 - All-in-one computer system.
 - LaserJet printer for handling daily documentation and operational work.
- FOIS System Installation:
Provision of FOIS (Freight Operations Information System) setup with complete allied connectivity for real-time monitoring, goods tracking, and efficient handling of freight operations.
- CCTV Surveillance System:
Installation of CCTV cameras with AI-based monitoring capabilities is necessary for supervision of unloading activities carried out through the tripler machine. Monitoring and control access should be provided in the CGS TPHS office for real-time operational oversight.

TRD Remarks:

- At GEB yard new line-4 is proposed, adequate distance may be maintained as per SOD.
- At the time of new lines construction, safety precautions may be followed, as existing lines should not effected.
- Inside TPHS new lines L7 to L12 proposed, SOD must be followed.
- From line No-1 to 6 not have proper implantation as TC not maintained to increase speed TC and implantation of OHE masts may be increase.
- Separate CB and BM arrangement at USD SSP may be taken up to deal as separate entity.
- Separate OHE lay out plane may be prepared before commence of work.

Electrical Power Remarks:

- General lighting facilities, for all proposed buildings like EI etc as required.
 - Standby power supply system, Diesel generator-as required.
 - 30 no's of high masts (20mtrs).
- Detailed estimate will be given as required

Signal Remarks:

- At USD yard Remodeling involves major alterations, hence New E.I is proposed.
- New Integrated Power Supply (IPS) is proposed as Signaling Gears Load will be increased.
- New E.I and IPS Building is proposed as No space available in existing building.
- As Goods GEB lines in yard are proposed for interlocking, hence Dual detection of Track are proposed that is D.C track ckt along with MSDAC.
- As Pt 101/102 & 103/104 & 105 are planned to be shifted, thus Home Signal S-5, S-2, both Up/Dn BPAC required to be shifted.
- Proposed GEB Line 4 land required infringes existing Cable Path, thus all Main Cables in North side required to be shifted.
- As per proposed ESP – 09 nos of Electrical operated Points, related Track circuits and Axle counters and Signals will be increased as per further SIP, hence maintenance staff required to be increased at USD.
- Detailed estimate and alterations will be followed after finalization of ESP and SIP.

Engineering Remarks:

- As per propose ESP all PMC Aryan straight so during exhibition of work on field at should be as per in straight line.
- All Sharp curve to be provided with effective check rail.
- No layout should be forced layout as per ESP, all turnout are 1 in 12.
- All bridge of USD TPH line to be strengthen during remodeling work.
- All for LC should be interlocked manned Gate and manning of LC responsibility should be of GSECL.
- As per railway provision new lines and conversion of existing line to be open with LWR. So, plan to make LWR in USD GEB yard and USD-TPH section by provision of SEJ.
- Track structure of the remodelling yard and section should be 60 kg sleeper with 60 kg rail.
- Location of ROB should be wire created and upto 200 m at both approach.
- Incomplete section and TPH yard drainage arrangement to be proper and there is water logging in every monsoon in USD yard.
- All cutting tool protected by retaining wall and catch water drain to be constructed at top level of all cuttings & side drain in cutting as per IRPWM Drawing.
- If possible arrange to eliminate all LC by provision of RUB/ROB.
- For East Out GEB Yard Lines Curve, Plan To Remove The Cutting Between Existing Platform Number 1 & GEB Yard Line Number 1.
- Gradient should be ruling gradient. So, arrange to ease out and smooth the steepest existing gradient.
- During execution of work by using machinery railway "safety at work sites" instructions to be followed. Please follow SOD for execution of work.

Telecom Remarks:

- Auto Telephone, BSNL/Airtel/Jio/Vi FCT phones, and Magneto Phones to be provided
- Optical Fibre Cable (OFC) system & 6-Quad cable to be laid to connect TPHS Siding from USD Station.
- Control Communication setup over OFC
- Portable control telephones
- FOIS network at key operational locations
- Rail Net and Intranet connectivity
- Fixed 25-watt VHF sets and mobile 5-watt walkie-talkies
- Telecom Equipment Room to be provided at TPHS siding

C&W Remarks

- In the condition of any New installation of Tippler at TPHS siding. At least 02 Nos CCTV camera installation required per wagon tipple for close monitoring of Wagon Tripper operation at USD TPHS siding.


TI/VYA


SSE/PWAY/VYA


SSE/SIG/VYA


SSE/OHE/MID


SSE/Telecom/VYA

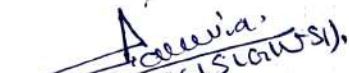

SSE/POWER/VYA


SS/USD


AM Traffic/G-RIDE


DE/Civil/GSECL/TPHS

SSE/C&W/UDN


SSE/SLWSI


16/7/25
CCW/VYA

● **GRIDE : USD TPHS ESP Observations : 27.06.2025**

1. Duly signed checklist shall be placed in attachment.
2. As mentioned in the Project title of ESP, GEB siding is not shown on plan. The same is required to be incorporated.
3. Drainage plan to be submitted in line with latest clauses as stipulated in ACS-12 of IRWM. Drainage plan should have ,
 - A. Cross drains & chambers are not shown as per IRWM ACS-12.
 - B. Longitudinal drain for Proposed Line to be shown.
 - C. Pl. show cross section of a typical drain as per IRWM-ACS-12
 - D. Invert level of drain at every 20m to be shown with formation level.
 - E. Bed Gradient of longitudinal drain is not shown.
4. The Gradients shall be updated at least once in five years as per para 657-IRPWM. Hence site survey report/L section should be prepared and submitted after verification at site.
5. Formation level to be mentioned clearly at respective GP as per above Site survey report.
6. Pl mention line no. with all FMs in chainage line.
7. KM post to be shown & its chainage to be mentioned.
8. Chainage of TBM also to be mentioned in the table.
9. SrDEN-C-MMCT please be replaced with DEN-C-MMCT. SrDEN-CO-MMCT also to be added in the signature block.
10. Since tipplers will be used for handling of wagons, review & approval of Railway C&W authorities will also be required. Please add SrDME-CO-MMCT in the block and process accordingly.
11. Distance of structures & drains from the nearest proposed track to be clearly marked.
12. Trap points indicated with a continuous line. Same please be rectified.
13. Lineweight of tracks should be the same throughout the ESP.
14. Work sanctioned detail i.e. PB/ LB Item No. should be mentioned in the Top right corner.
15. Whether Fire pipe line & Fuel pipe line are existing. Please clarify/rectify.
16. Deflection angle calculations may please be checked & corrected.
17. Curve details for C-15 mentioned as C-17 in Chainage line. Please rectify.
18. Curve C-23 details to be checked & corrected.
19. TP2 for Curve C-24 is mentioned as TP2 for Curve C-31. Please rectify.
20. Curve C-25 details to be checked & corrected.
21. Curve C-25 TP1 chainage line not matching with its location. Please rectify.
22. As per ESP Checklist, centre to centre of track distance, especially at crossover location should be shown to check cross over length.
23. Crossover Over length as per chainage not matching with Calculated length. Please clarify.
24. Number of New Wagon Tipplers is required to be mentioned on the ESP plan.
25. ESP to be verified at site jointly with Railway supervisors and report to be placed in attachment.
26. ESP DRG No.VCC/GSECL/PLAN/2011/1 shall be placed in attachment on EDAS.
27. CSR of line no. 12 to be checked and corrected.
28. CSR of all Sidings to be mentioned in the CSR table.
29. CSR of all sidings to be mentioned above respective sidings.
30. LC 1-4 shall be shown in the Route map.

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● **GRIDE : USD TPHS ESP Observations : 17.07.2025**

1. Compliance of item no. 2 of the previous observations dtd: 27.06.2025 were not satisfactory. As mentioned in the Project title of ESP, GEB siding is not shown on plan. Please clarify.
2. Compliance of Item no. 3 of the previous observations dtd: 27.06.2025 were not satisfactory. Drainage plan need not be shown in the ESP. The drainage plan should be prepared and approved separately and placed in attachment on EDAS. An approved Drainage plan is placed in attachment for ready reference.
4. Compliance of Item no. 6 of the previous observations dtd: 27.06.2025 were not satisfactory. FM not shown for Defective Wagon sidings, Loco shed siding. Same is to be incorporated in the chainage line. Please rectify accordingly.
5. Compliance of item no. 7 of the previous observations dtd: 27.06.2025 not satisfactory. As per regular practice of ESP approval Chainage of KM post should be mentioned wrt CH:0.00. Chainage also to be mentioned in the chainage line.
6. Compliance of item no. 8 of the previous observations dtd: 27.06.2025 not satisfactory. As per regular practice of ESP approval Chainage of TBM should be mentioned wrt CH:0.00.
7. Item no. 11 of the previous observations dtd: 27.06.2025 not complied. Distance of structures & drains from the nearest proposed track to be clearly marked.
8. Trap point indicated at CH:1378.35 with a continuous line. Same please be rectified.
9. Item no. 29 of the previous observations dtd: 27.06.2025 not complied. ESP to be verified at site jointly with Railway supervisors and report to be placed in attachment.
10. CSR of Lines at Sr. No.14&15 to be checked & corrected.
11. Loco shed siding siding chainage shown in Green Color. Please correct.
12. Existing Gradient Post please be shown as dismantled since there is change in gradients.
13. Chainage shall be marked in increasing order. Same shall be rectified in the complete ESP. Accordingly, respective assets to be placed at exact location.
14. Item no. 29 of the previous observations dtd: 27.06.2025 partly complied. Length not mentioned above the Locoshed siding. Please incorporate.
15. Curve details C-5 to be checked & corrected.
16. Two chainage lines have been shown for Prop. Dead end at Ch: 1213.75. Please rectify.
17. Tippler no. 6 & 7 are coming over line no. 9&12. Please clarify. Whether it indicates a covershed. If yes then there will be infringement to SOD.

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