

**Legend :-**

- 1. Ground Level —
- 2. Rising Main —
- 3. Junction
- 4. Air Valve
- 5. Scour Valve

**Note:-**

- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
- 2 - Scour Valves are Provided at 2000 m c/c Distance.
- 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.



DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)  
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION-LIS BAIRI  
LOWER (NICHALI) BAIRI & UPPER BAIRI CLUSTER  
DHARAMPUR BLOCK, MANDI DISTRICT



**TATA CONSULTING ENGINEERS LIMITED**  
MUMBAI

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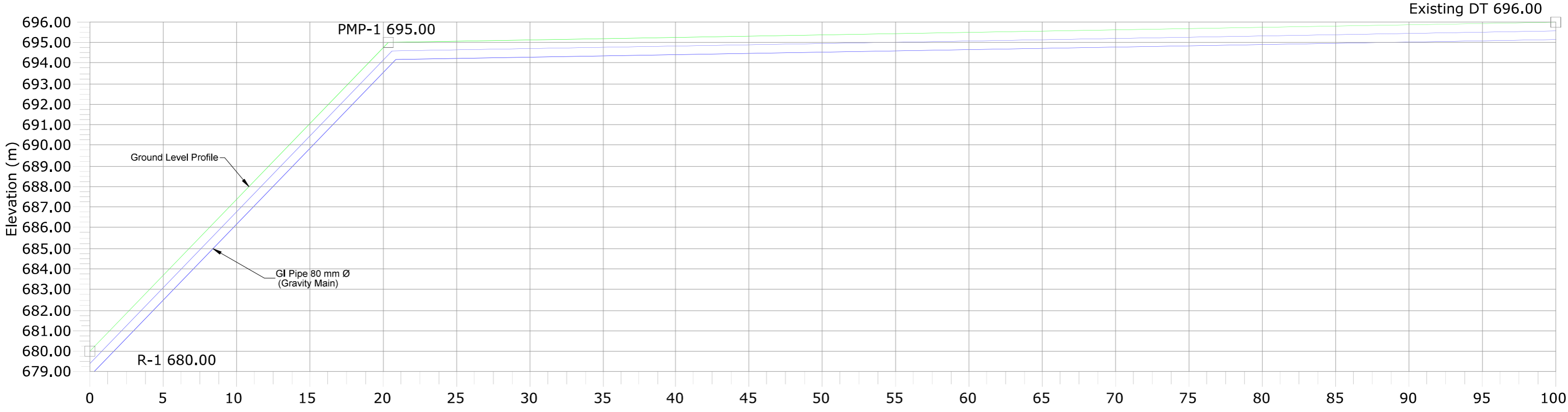
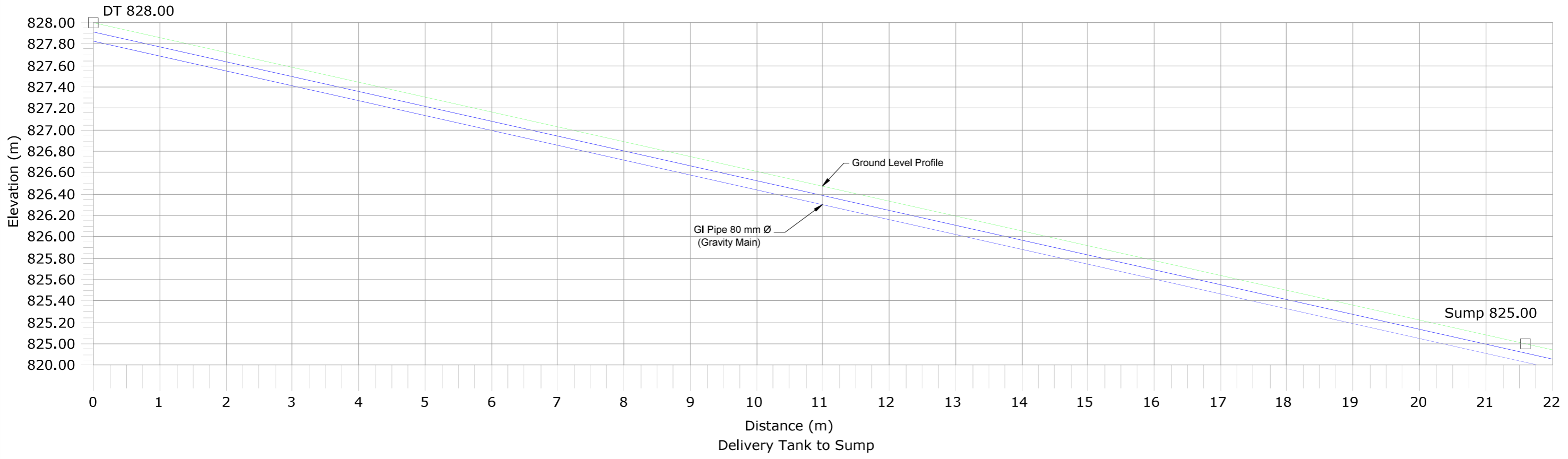
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FILE NAME 12503A-CV-32372-Rev-P1

SCALE : NTS	DWG NO. TCE.12503A-CV-3082-WS-32372	ISSUE P1
DC & DISC: DEL-CV		



- Legend :-**
- 1. Ground Level —
  - 2. Rising Main —
  - 3. Junction
  - 4. Air Valve
  - 5. Scour Valve

**Note:-**

- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
- 2 - Scour Valves are Provided at 2000 m c/c Distance.
- 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

**Distance (m)**  
Source to Desilting tank

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FILE NAME 12503A-CV-32373-Rev-PO			

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 IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

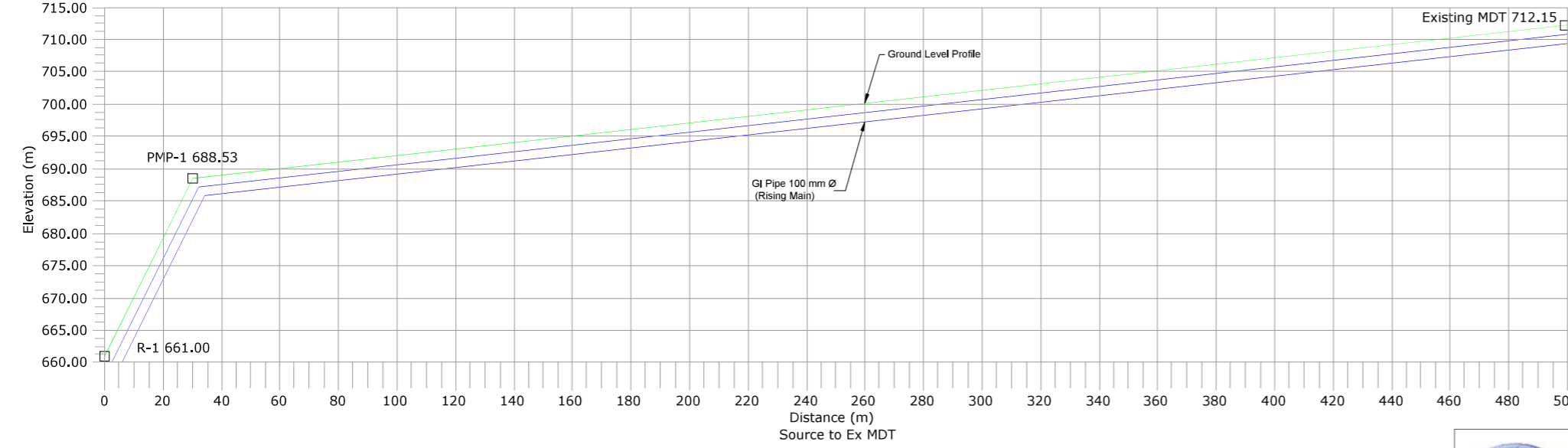
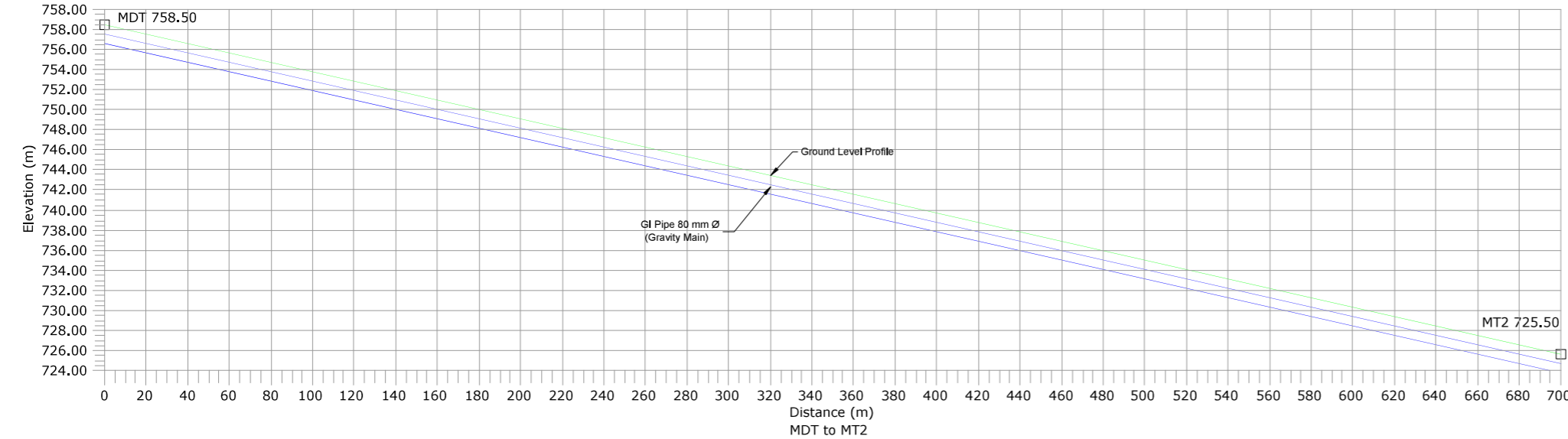
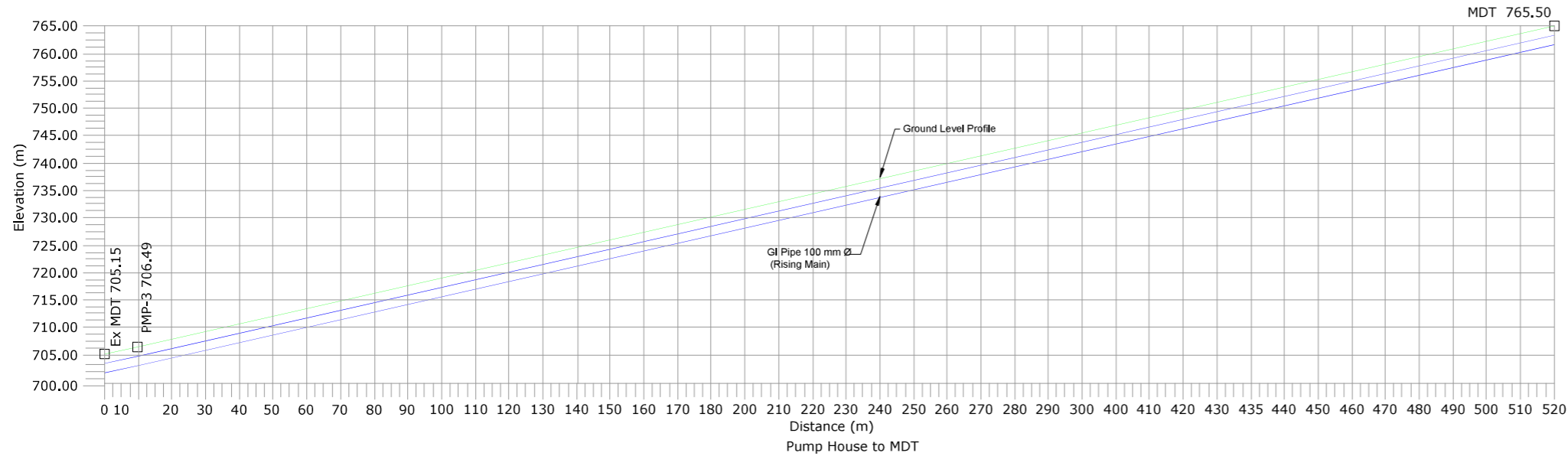
PROPOSED L-SECTION-LIS BRANG  
 (BAROTA CLUSTER)  
 DHARAMPUR BLOCK, MANDI DISTRICT

**TATA CONSULTING ENGINEERS LIMITED**  
 MUMBAI

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SCALE : NTS	DWG NO. TCE.12503A-CV-3082-WS-32373	ISSUE P0	DC & DISC: DEL-CV
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**Legend :-**

- 1. Ground Level —
- 2. Rising Main —
- 3. Junction
- 4. Air Valve
- 5. Scour Valve

**Note:-**

- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
- 2 - Scour Valves are Provided at 2000 m c/c Distance.
- 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.



DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)  
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

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PROPOSED L-SECTION-LIS CHURU BALH  
(CHURU RA BALH CLUSTER)  
DHARAMPUR BLOCK, MANDI DISTRICT

**TATA**

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	REVISIONS												
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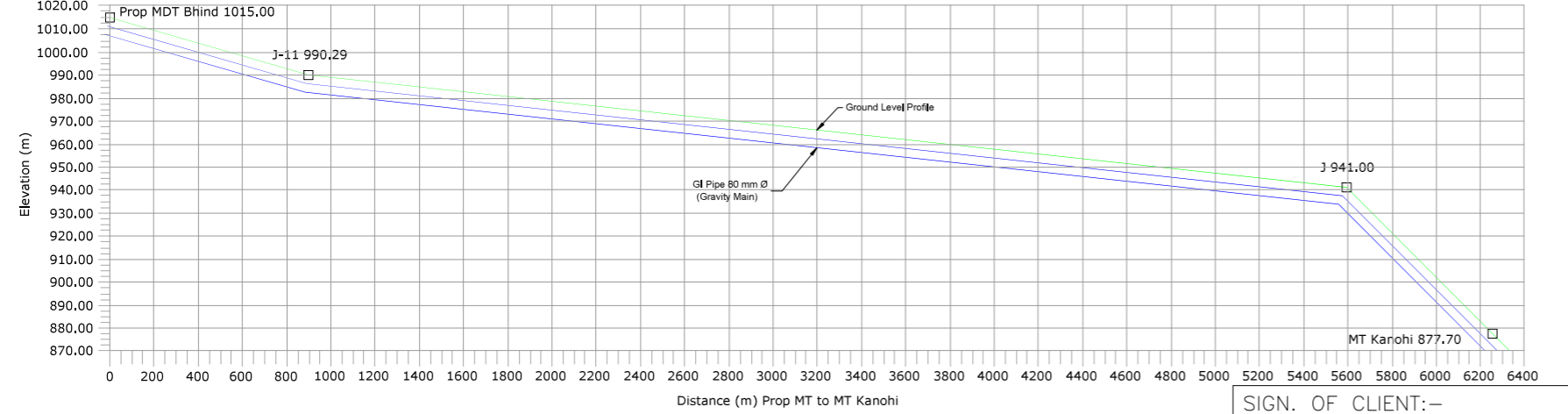
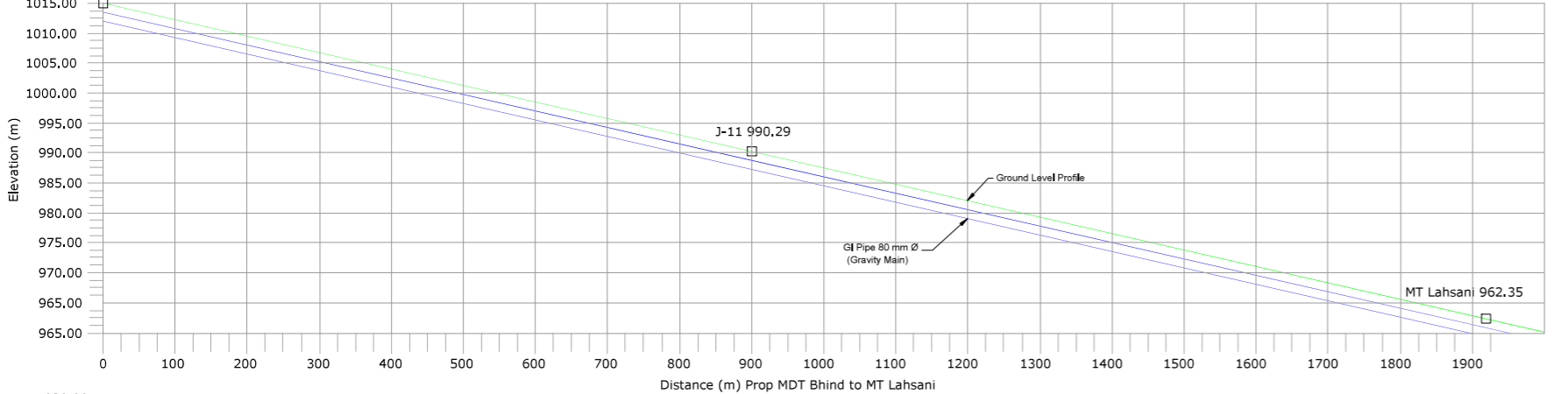
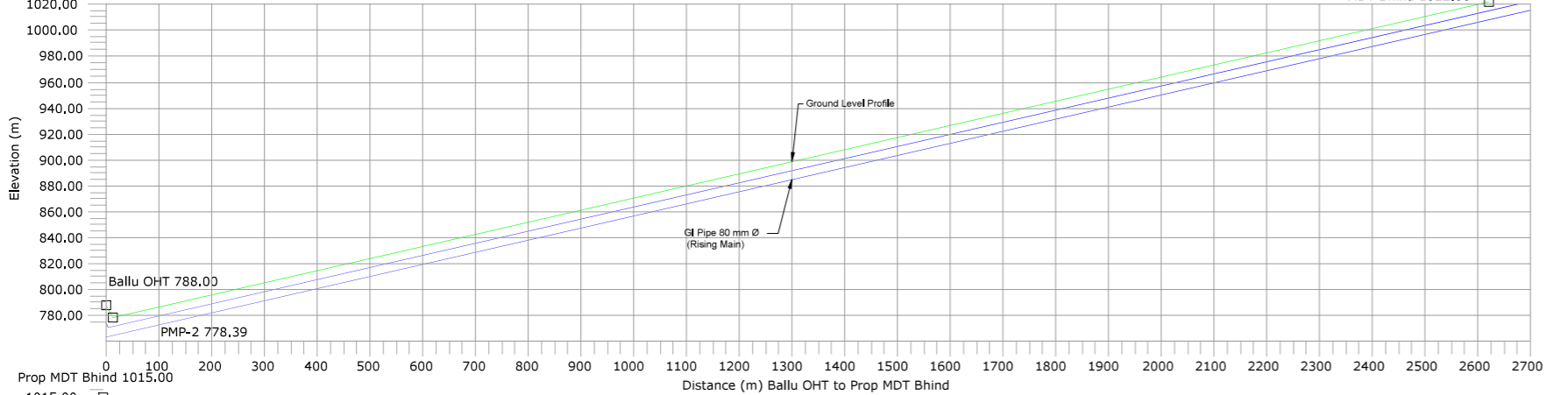
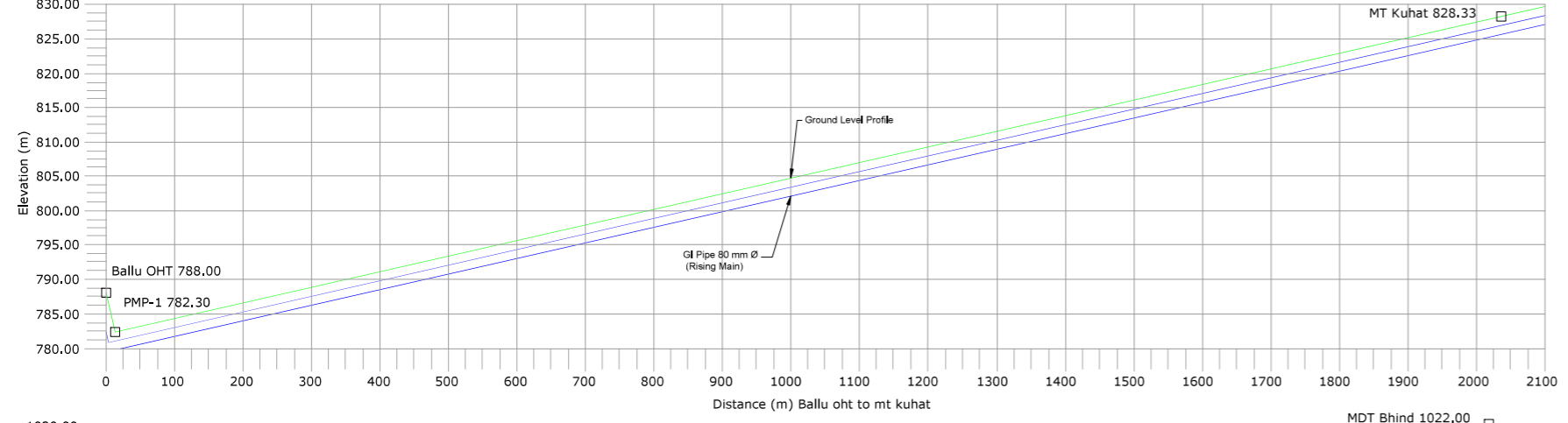
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FILE NAME 12503A-CV-32374-Rev-P1

SCALE : NTS	DWG NO. TCE.12503A-CV-3082-WS-32374	ISSUE P1	DC & DISC: DEL-CV
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**Legend :-**

- 1. Ground Level
- 2. Rising Main
- 3. Junction
- 4. Air Valve
- 5. Scour Valve

**Note:-**

- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
- 2 - Scour Valves are Provided at 2000 m c/c Distance.
- 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.



DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)  
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION-LIS SANDHOLE  
(SINGLE KUHAT, LAHSANI & KANOHI CLUSTER)  
DHARAMPUR BLOCK, MANDI DISTRICT



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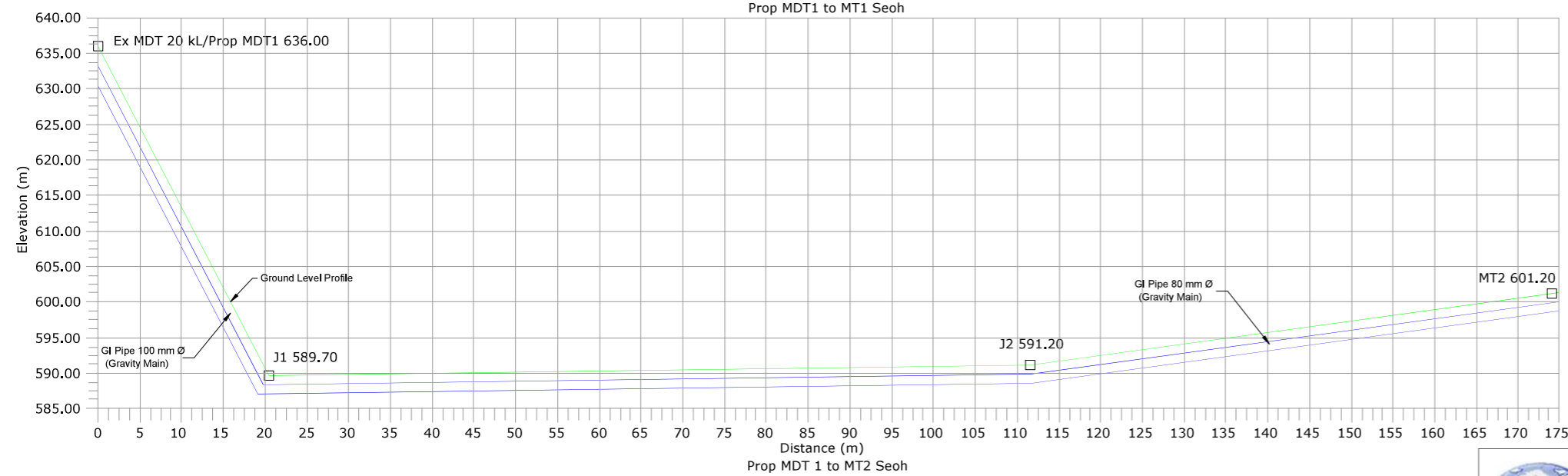
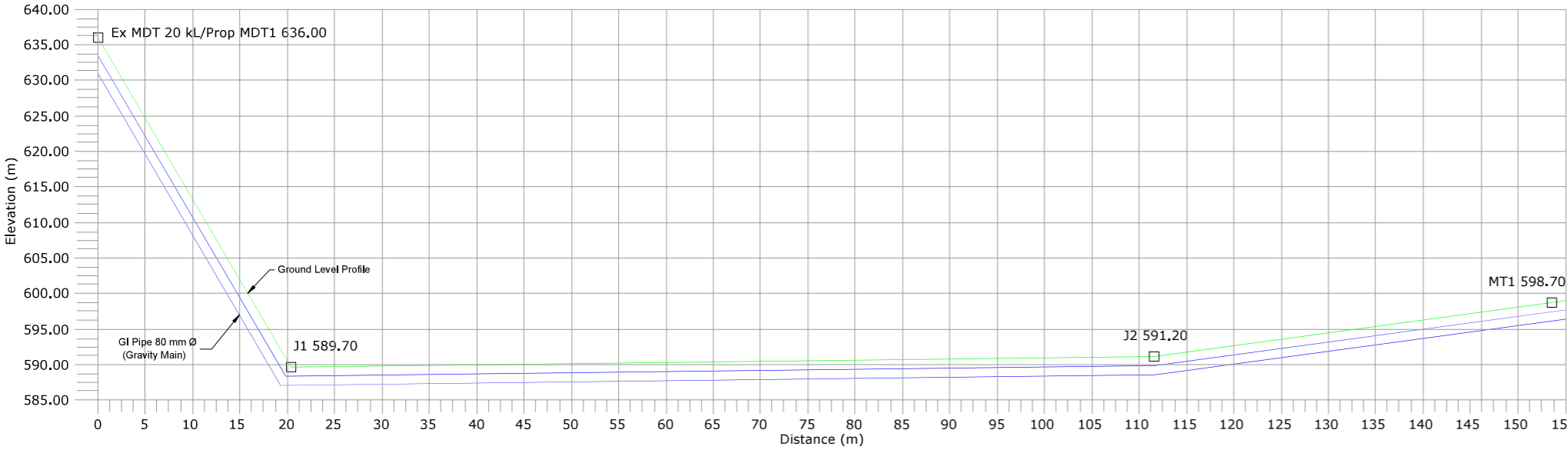
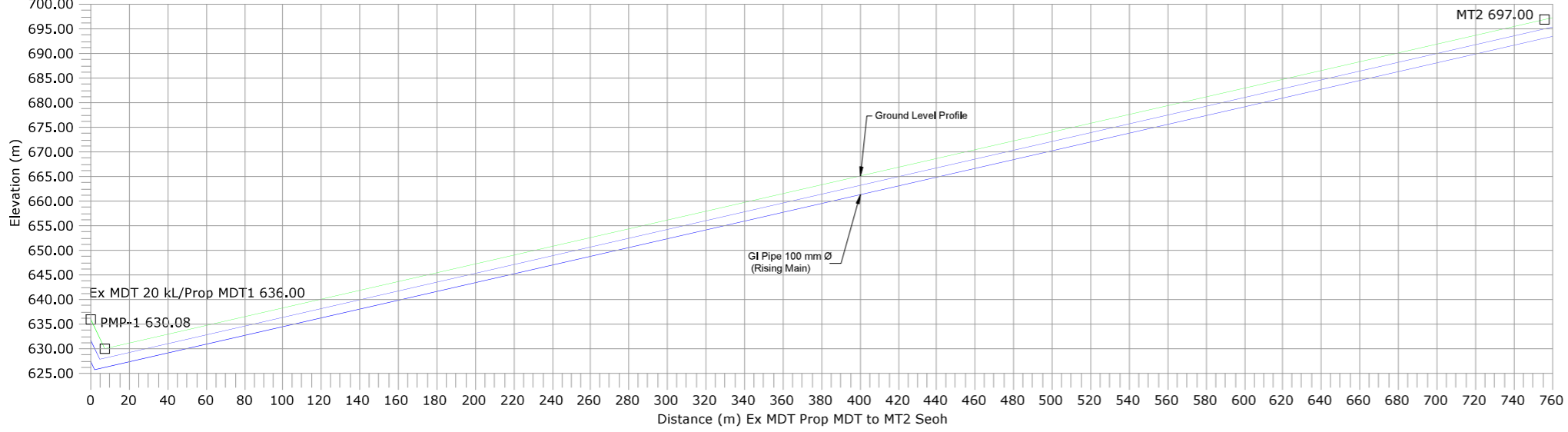
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SCALE : NTS	DWG NO. TCE.12503A-CV-3082-WS-32375	ISSUE P1
DC & DISC: DEL-CV		





**Legend :-**

- 1. Ground Level
- 2. Rising Main
- 3. Junction
- 4. Air Valve
- 5. Scour Valve

**Note:-**

- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
- 2 - Scour Valves are Provided at 2000 m c/c Distance.
- 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

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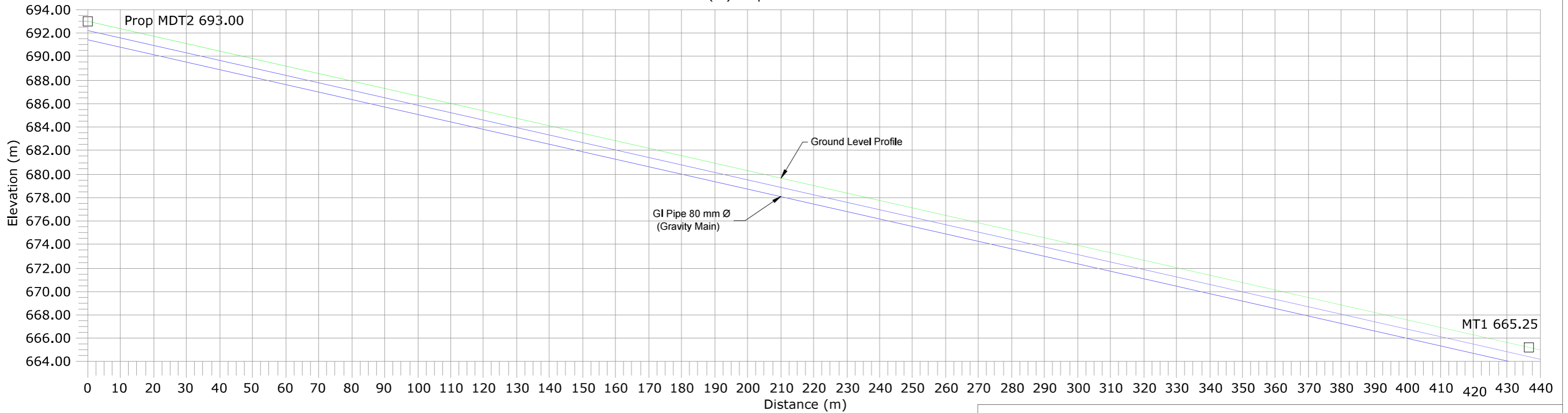
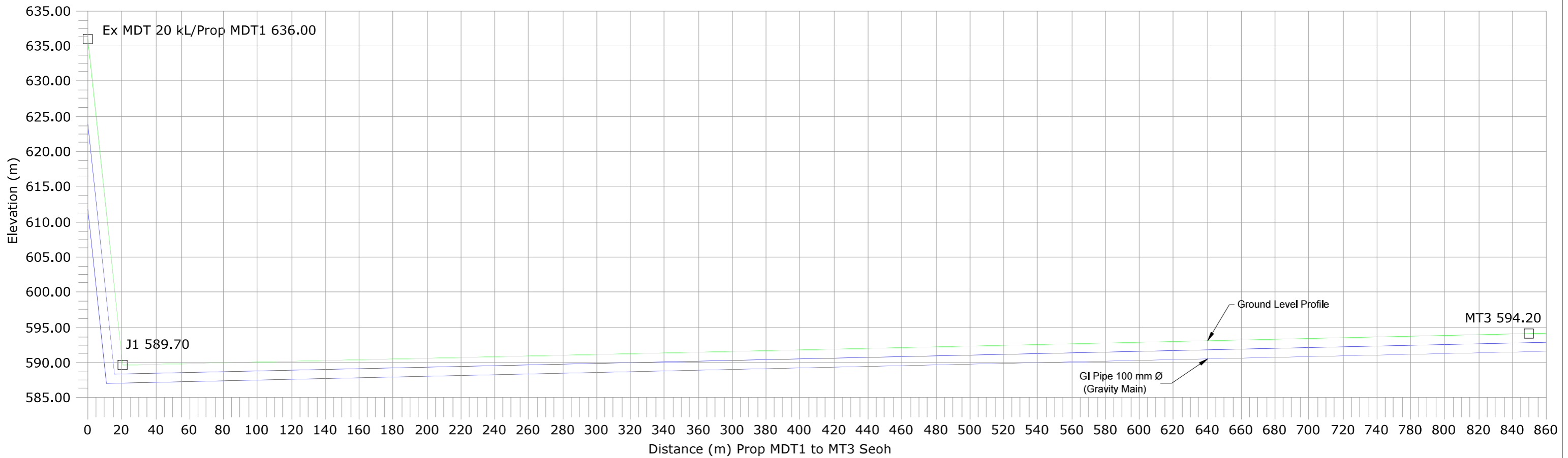
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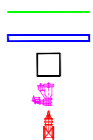
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IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION-LIS SEOH  
(SEOH-II CLUSTER)  
DHARAMPUR BLOCK, MANDI DISTRICT

SCALE : NTS	DWG NO. TCE.12503A-CV-3082-WS-32376	ISSUE P0
DC & DISC: DEL-CV		



- Legend :-
1. Ground Level
  2. Rising Main
  3. Junction
  4. Air Valve
  5. Scour Valve



- Note:-
- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
  - 2 - Scour Valves are Provided at 2000 m c/c Distance.
  - 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

Distance (m)  
Prop MDT2 to MT1 Seoh



DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)  
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

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MUMBAI

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DWG NO. TCE.12503A-CV-3082-WS-32377

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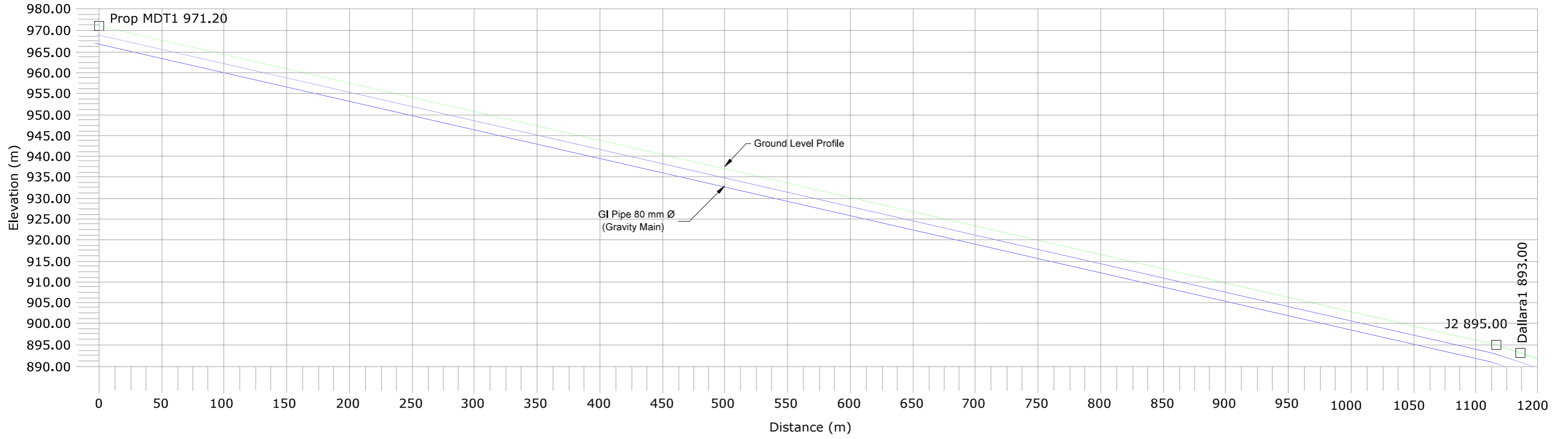
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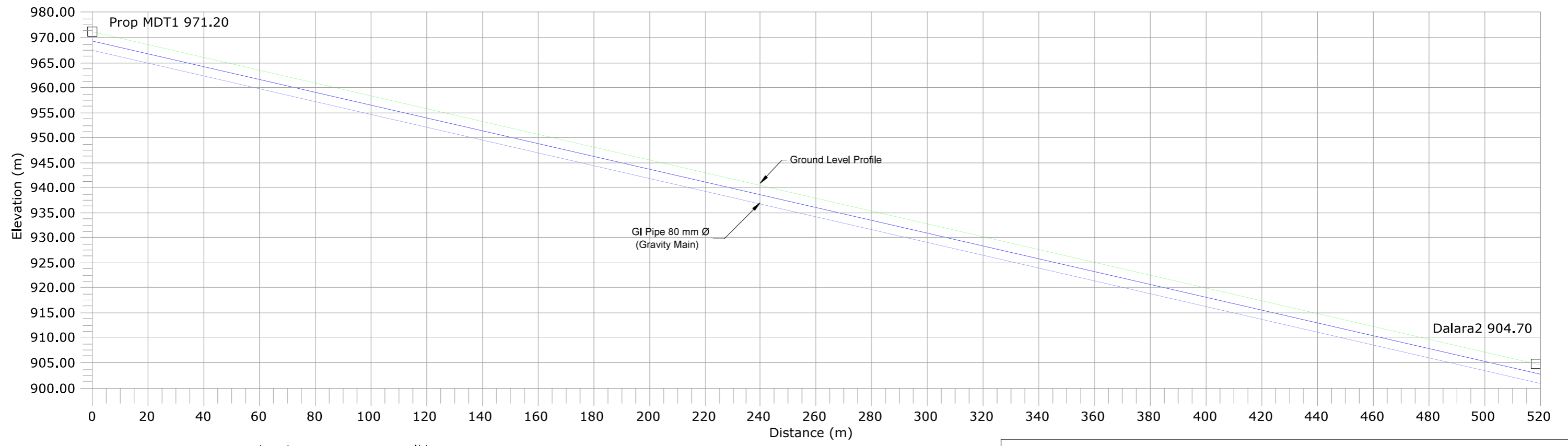
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FILE NAME 12503A-CV-32377-Rev-P0

DC & DISC: DEL-CV



Prop MDT1 to MT Dallara1



Prop MDT1 to MT Dhallara2

- Legend :-**
- 1. Ground Level —
  - 2. Rising Main —
  - 3. Junction
  - 4. Air Valve
  - 5. Scour Valve

**Note:-**

- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
- 2 - Scour Valves are Provided at 2000 m c/c Distance.
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**DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)**  
 IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION-LIS KOTHUA DALLARA  
 (DHALLARA-1 & DHALLARA-2 CLUSTER)  
 DHARAMPUR BLOCK, MANDI DISTRICT



**TATA CONSULTING ENGINEERS LIMITED**  
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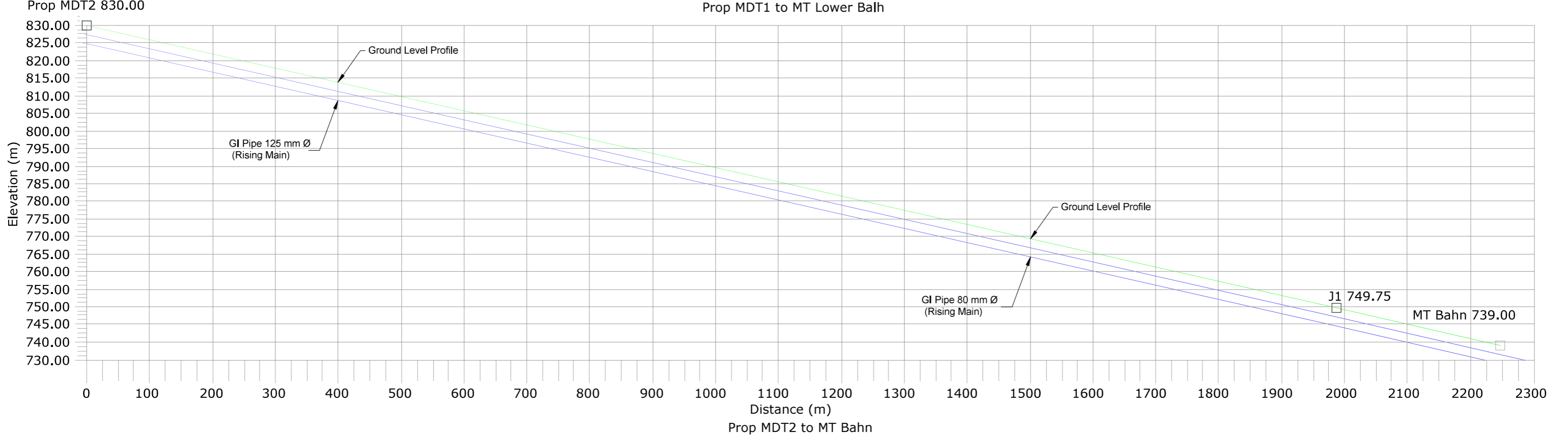
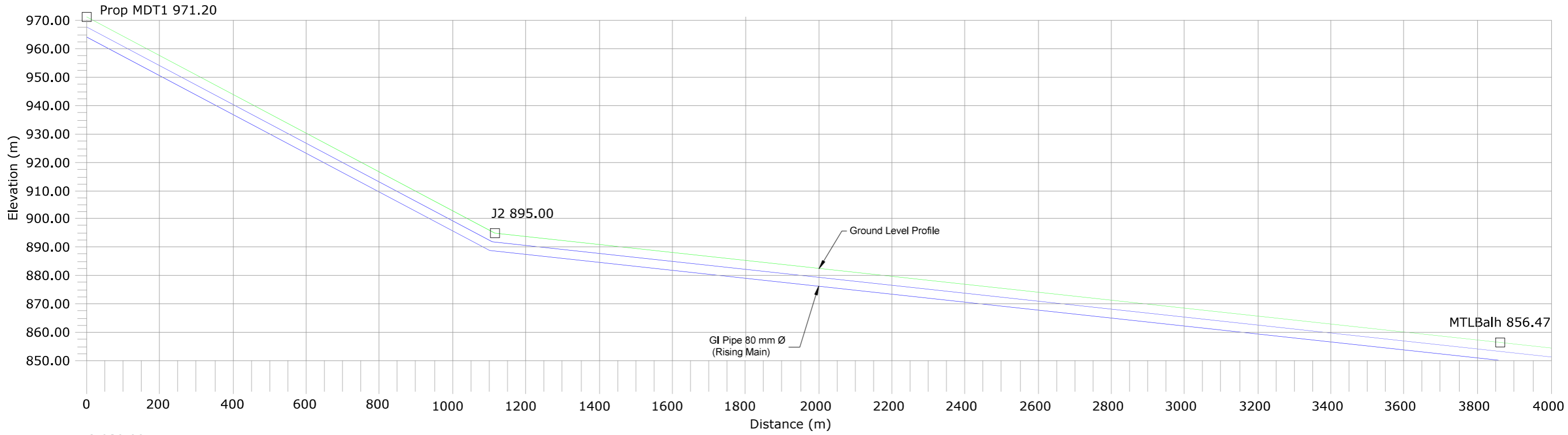
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FILE NAME 12503A-CV-32378-Rev-P0

SCALE : NTS	DWG NO. TCE.12503A-CV-3082-WS-32378	ISSUE P0
DC & DISC: DEL-CV		



- Legend :-**
- 1. Ground Level —
  - 2. Rising Main —
  - 3. Junction
  - 4. Air Valve
  - 5. Scour Valve

**Note:-**

- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
- 2 - Scour Valves are Provided at 2000 m c/c Distance.
- 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.



DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)  
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION-LIS KOTHUA DALLARA  
(BAHN CLUSTER)  
DHARAMPUR BLOCK, MANDI DISTRICT



**TATA CONSULTING ENGINEERS LIMITED**  
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					CLEARED			APPD

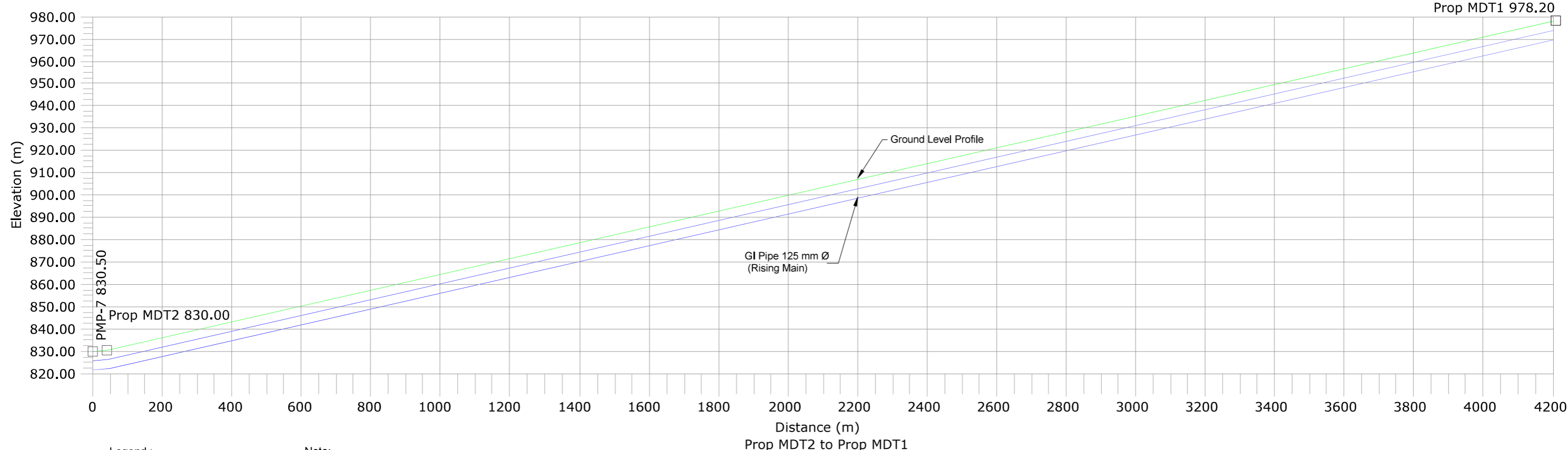
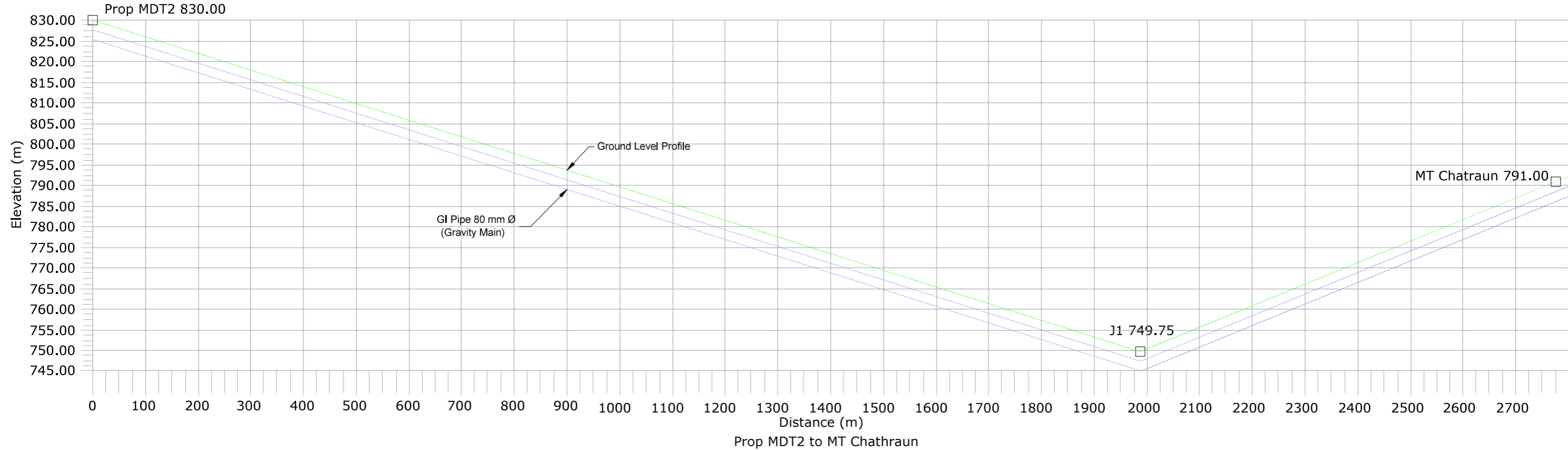
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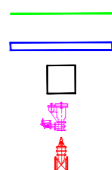
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FILE NAME 12503A-CV-32379-Rev-P0

SCALE : NTS	DWG NO. TCE.12503A-CV-3082-WS-32379	ISSUE P0
DC & DISC: DEL-CV		



- Legend :-**
- 1. Ground Level
  - 2. Rising Main
  - 3. Junction
  - 4. Air Valve
  - 5. Scour Valve



**Note:-**

- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
- 2 - Scour Valves are Provided at 2000 m c/c Distance.
- 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

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FILE NAME 12503A-CV-32380-Rev-P0



DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)  
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION-LIS KOTHUA DALLARA  
(CHATRAUN LOWER CLUSTER)  
DHARAMPUR BLOCK, MANDI DISTRICT



**TATA CONSULTING ENGINEERS LIMITED**  
MUMBAI

SCALE : NTS	DWG NO. TCE.12503A-CV-3082-WS-32380	ISSUE P0
DC & DISC: DEL-CV		

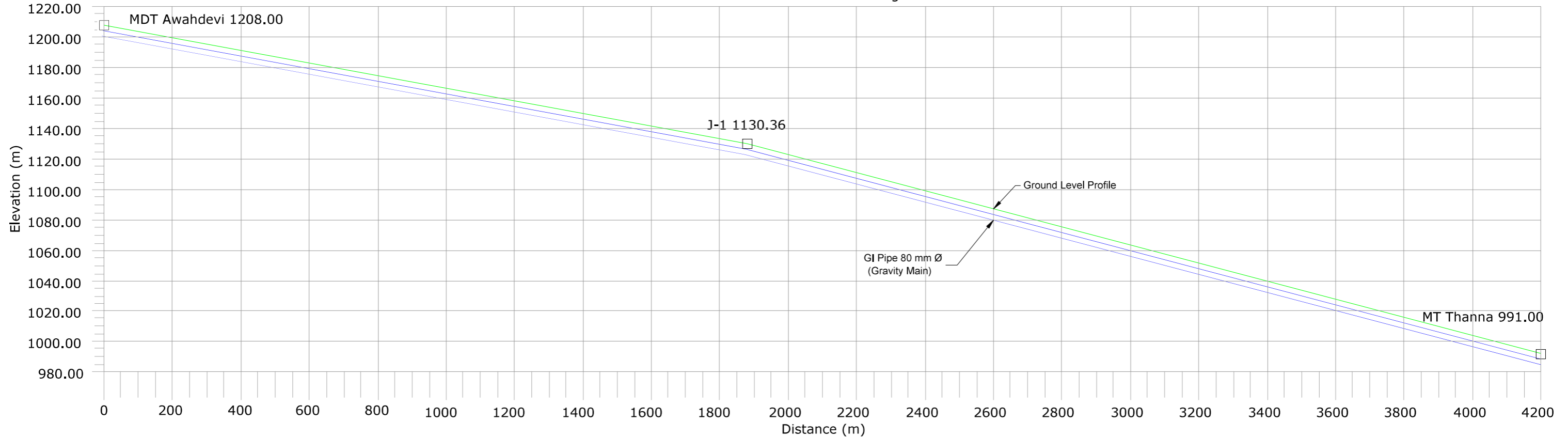
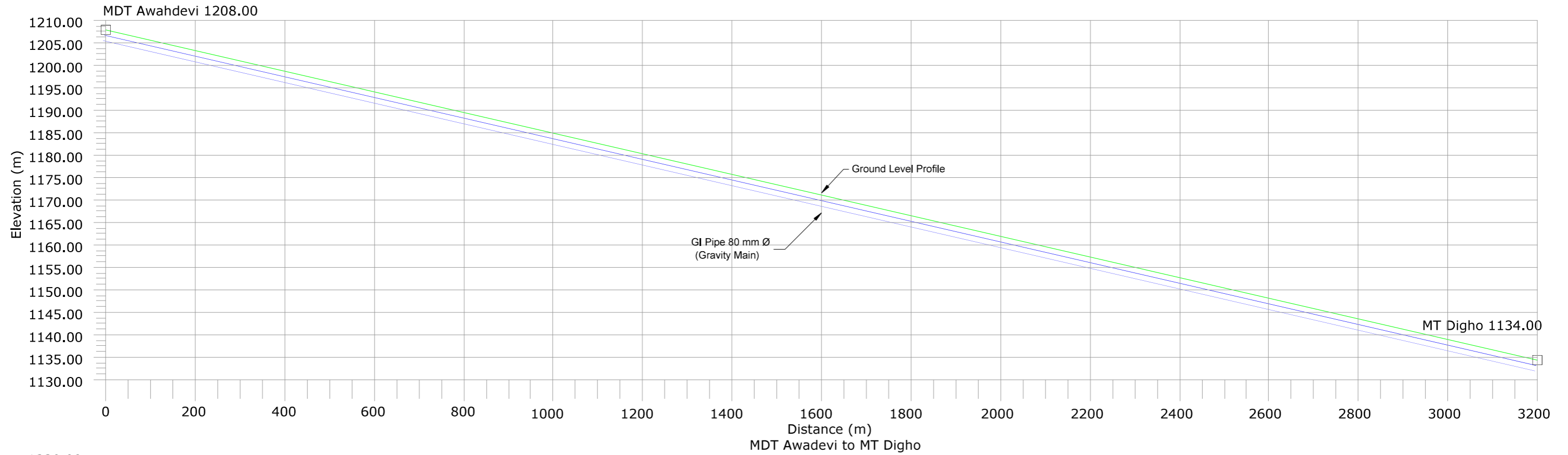
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ISSUE	DRN	DSN	CHD	CV	EL	IC	ME	PE/PM	APPD	DATE (dd-mm-yyyy)
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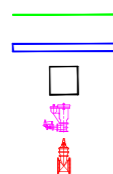
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- Legend :-
1. Ground Level
  2. Rising Main
  3. Junction
  4. Air Valve
  5. Scour Valve



Note:-

- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
- 2 - Scour Valves are Provided at 2000 m c/c Distance.
- 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

SIGN. OF CLIENT:-

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FILE NAME 12503A-CV-32381-Rev-P0



DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)  
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION-LIS TIHRA  
(DIGHO-BAGLANA KARYAL & THANNA ROPARI CLUSTER)  
DHARAMPUR BLOCK, MANDI DISTRICT



**TATA CONSULTING ENGINEERS LIMITED**  
MUMBAI

SCALE : NTS

DWG NO.

TCE.12503A-CV-3082-WS-32381

ISSUE

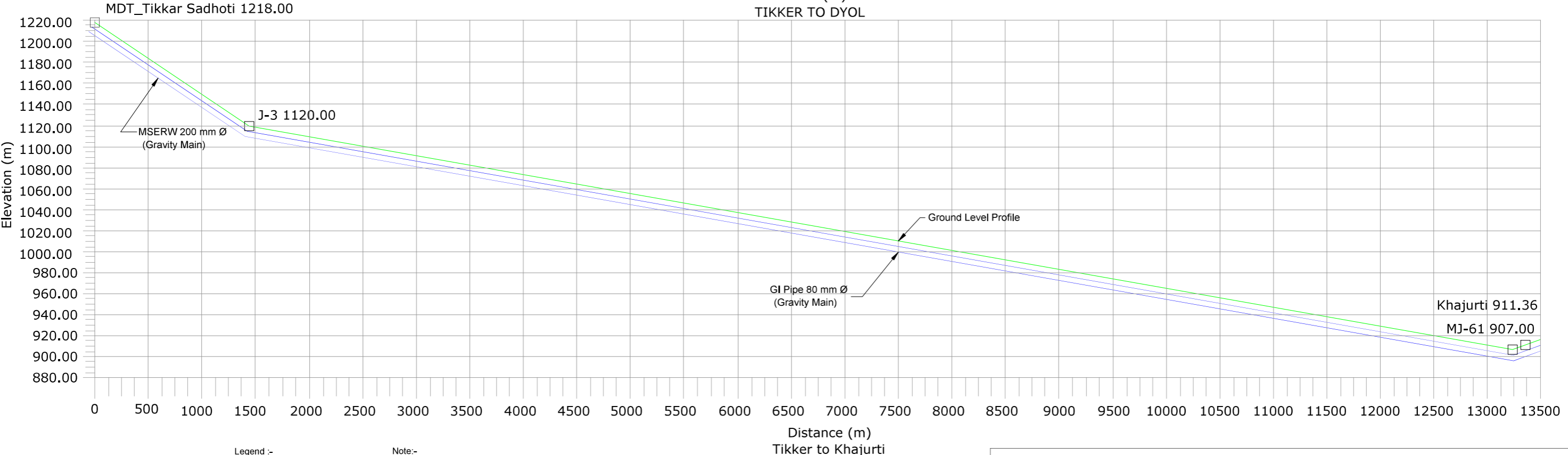
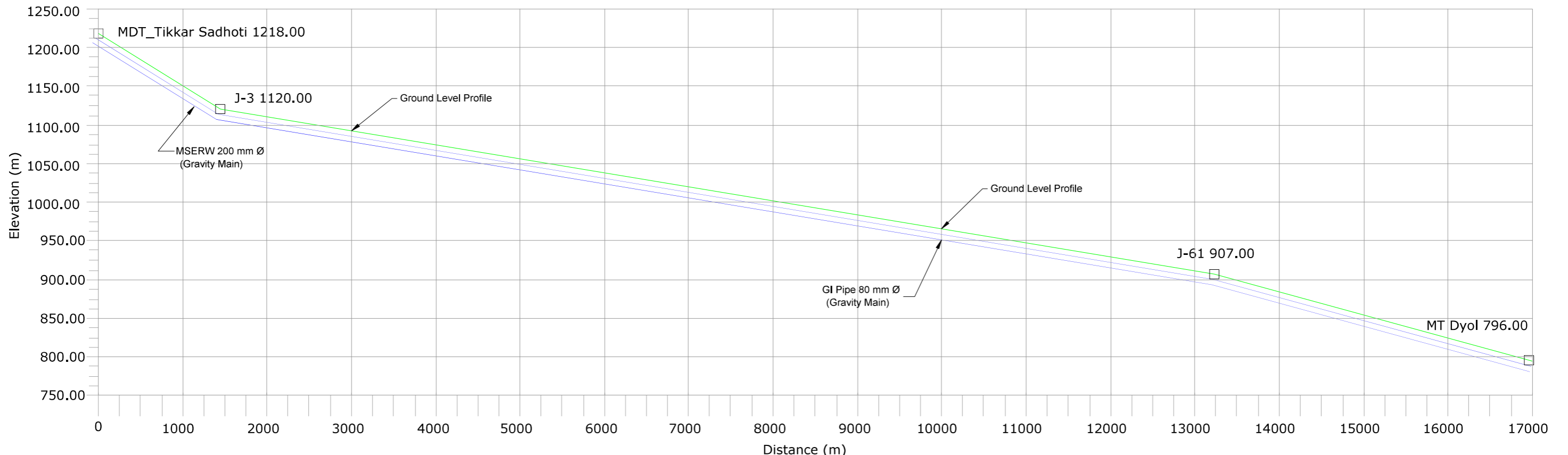
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	INITIALS	BSN	DVB	SGB							MK	DK	10-06-2022
	REVISIONS												
ISSUE	DRN	DSN	CHD	CV	EL	IC	ME				PE/PM	APPD	DATE (dd-mm-yyyy)
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- Legend :-**
- 1. Ground Level —
  - 2. Rising Main —
  - 3. Junction
  - 4. Air Valve ⚡
  - 5. Scour Valve ⚡

**Note:-**

- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
- 2 - Scour Valves are Provided at 2000 m c/c Distance.
- 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

SIGN. OF CLIENT:-

JE	AE	EE	SE
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**DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)**  
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION-LIS TIHRA  
(DYOL & KHAJURTI CLUSTER)  
DHARAMPUR BLOCK, MANDI DISTRICT

**TATA CONSULTING ENGINEERS LIMITED**  
MUMBAI

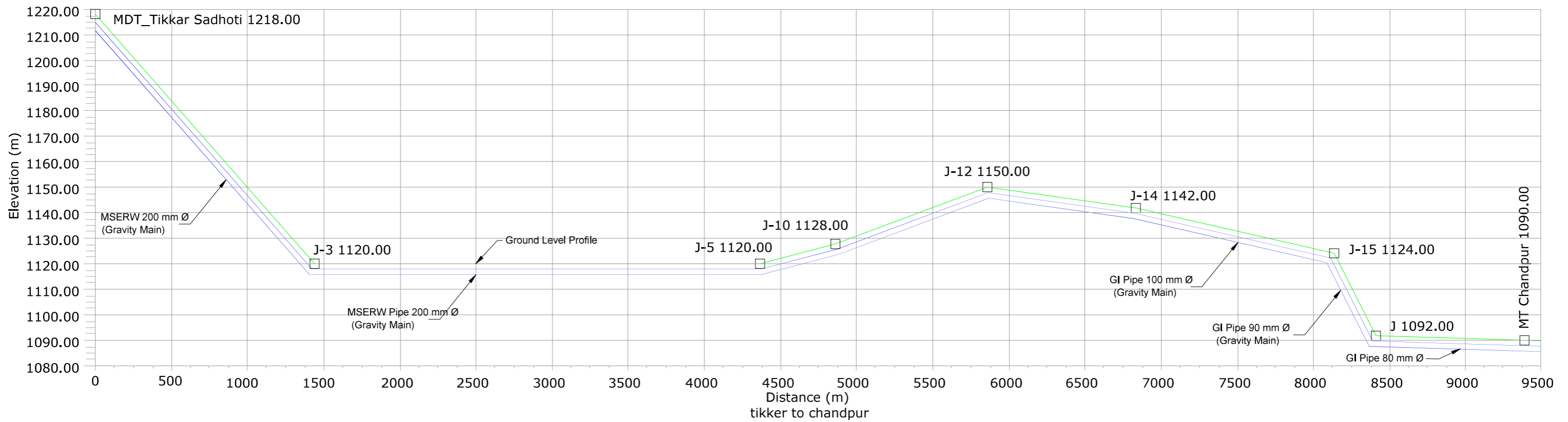
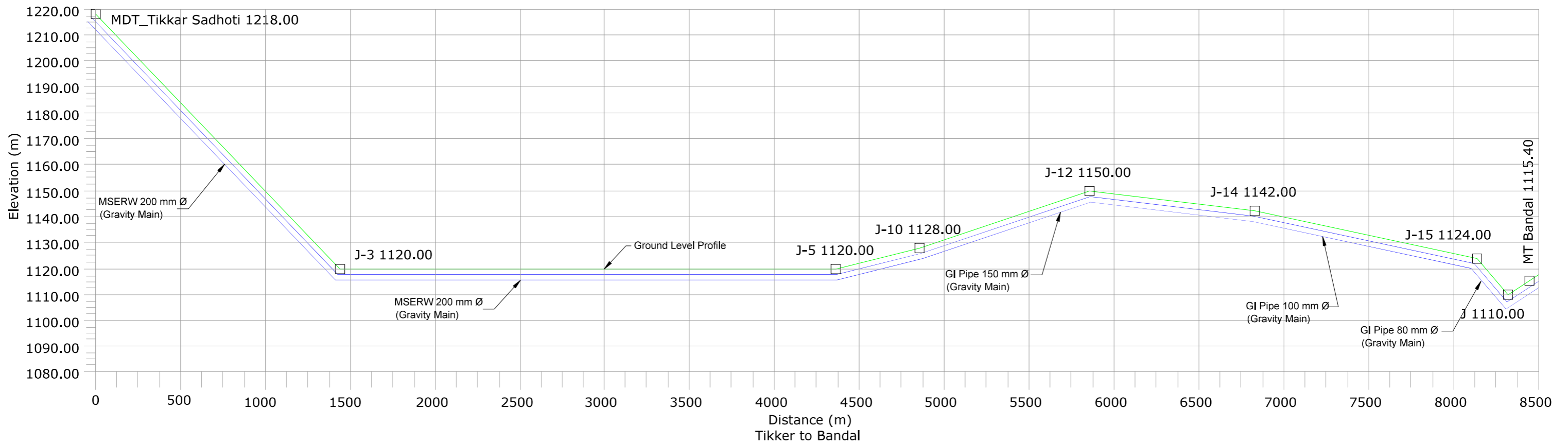
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ISSUE	DRN	DSN	CHD	CV	EL	IC	ME	PE/PM	APPD	DATE (dd-mm-yyyy)
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FILE NAME 12503A-CV-32382-Rev-P0	SCALE : NTS	DWG NO. TCE.12503A-CV-3082-WS-32382	ISSUE P0
DC & DISC: DEL-CV			



- Legend :-**
- 1. Ground Level
  - 2. Rising Main
  - 3. Junction
  - 4. Air Valve
  - 5. Scour Valve

**Note:-**

- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
- 2 - Scour Valves are Provided at 2000 m c/c Distance.
- 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

SIGN. OF CLIENT:-

JE	AE	EE	SE
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PURPOSE: FOR TENDER ONLY

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FILE NAME 12503A-CV-32383-Rev-P1

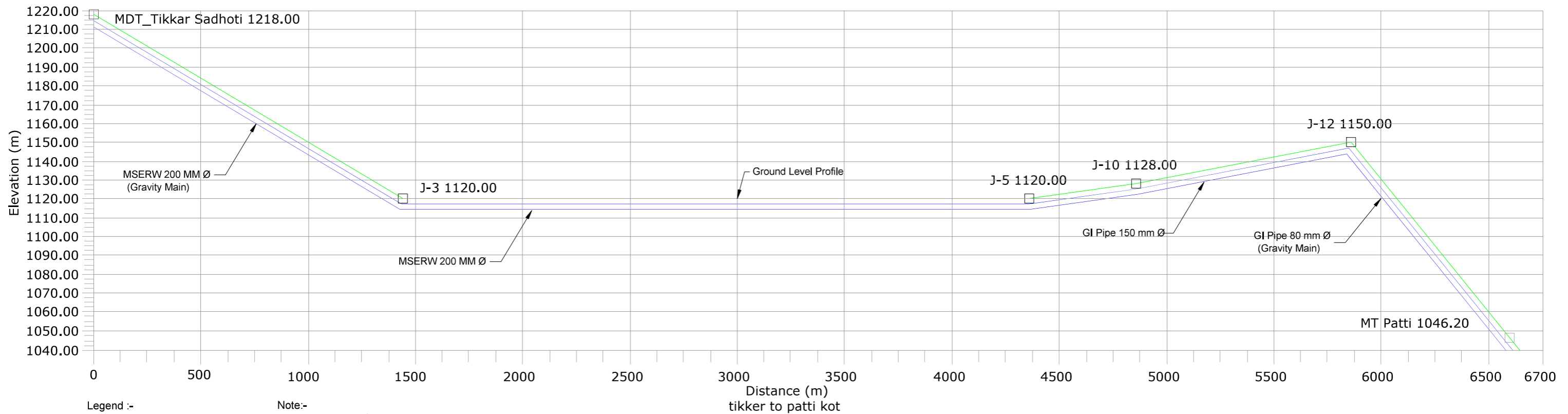
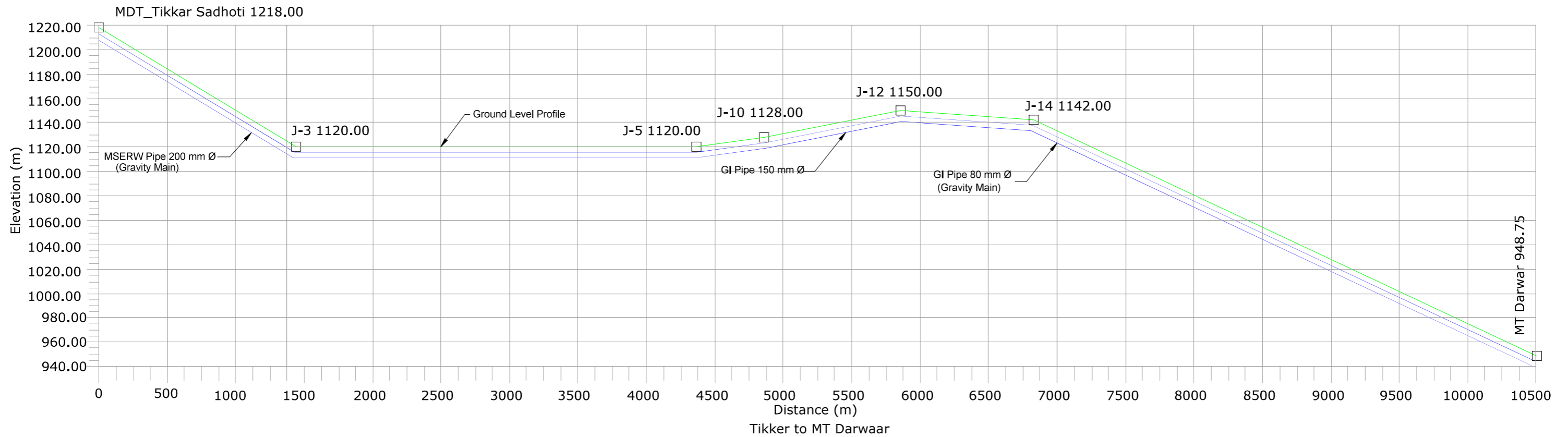
DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)  
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION-LIS TIHRA  
(BANDAL & CHANDPUR CLUSTER)  
DHARAMPUR BLOCK, MANDI DISTRICT

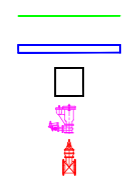
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MUMBAI

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ISSUE	DRN	DSN	CHD	CV	EL	IC	ME			PE/PM	APPD	DATE (dd-mm-yyyy)	INFORMATION CONTAINED WITHIN 'HOLD' IS NOT RELEASED FOR CONSTRUCTION / FABRICATION. FIELD MUST GET DESIGN OFFICE TO CLEAR 'HOLDS' IN TIME BEFORE PROCEEDING WITH ANY CONSTRUCTION/ FABRICATION WORK RELATED TO 'HOLDS'.	
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SCALE : NTS	DWG NO. TCE.12503A-CV-3082-WS-32383	ISSUE P1
DC & DISC: DEL-CV		



- Legend :-**
- 1. Ground Level
  - 2. Rising Main
  - 3. Junction
  - 4. Air Valve
  - 5. Scour Valve



- Note:-**
- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
  - 2 - Scour Valves are Provided at 2000 m c/c Distance.
  - 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

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FILE NAME 12503A-CV-32384-Rev-P1



DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)  
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION-LIS TIHRA  
(DARWAR & PATTI (KOT))  
DHARAMPUR BLOCK, MANDI DISTRICT



**TATA CONSULTING ENGINEERS LIMITED**  
MUMBAI

SCALE : NTS

DWG NO. TCE.12503A-CV-3082-WS-32384

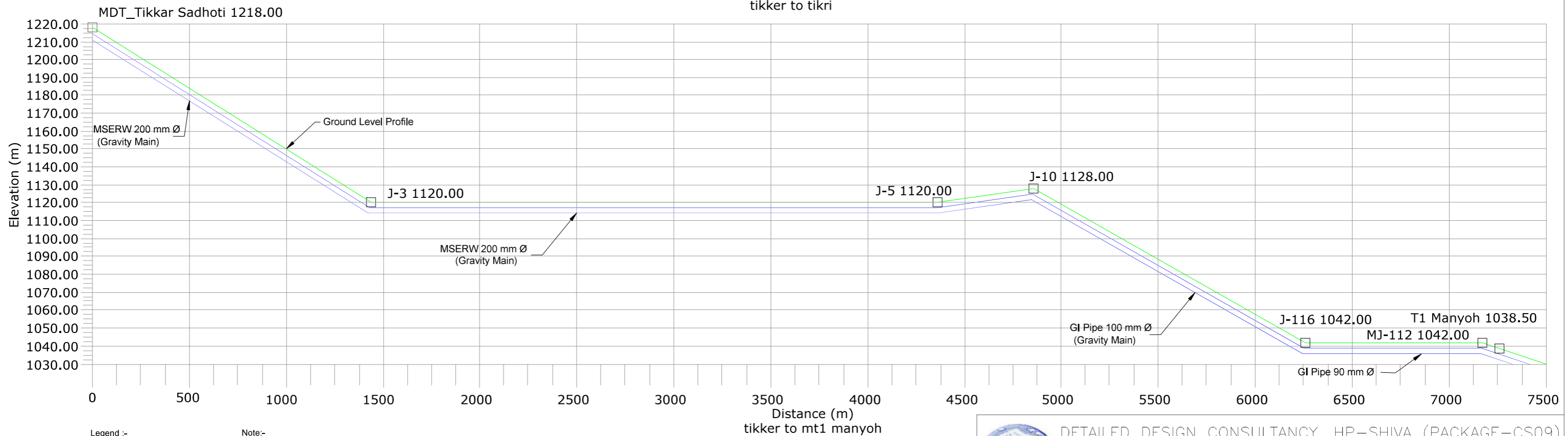
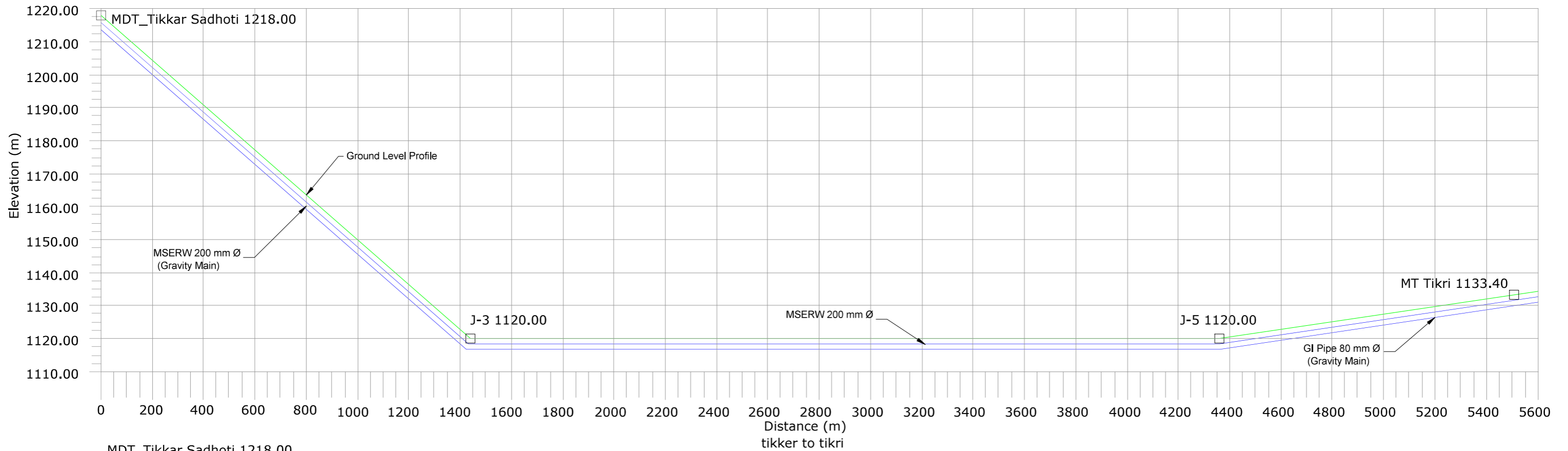
ISSUE P1

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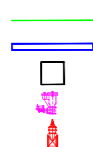
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- Legend :-
1. Ground Level
  2. Rising Main
  3. Junction
  4. Air Valve
  5. Scour Valve



- Note:-
- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
  - 2 - Scour Valves are Provided at 2000 m c/c Distance.
  - 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

SIGN. OF CLIENT:-

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FILE NAME 12503A-CV-32385-Rev-P1

DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)  
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

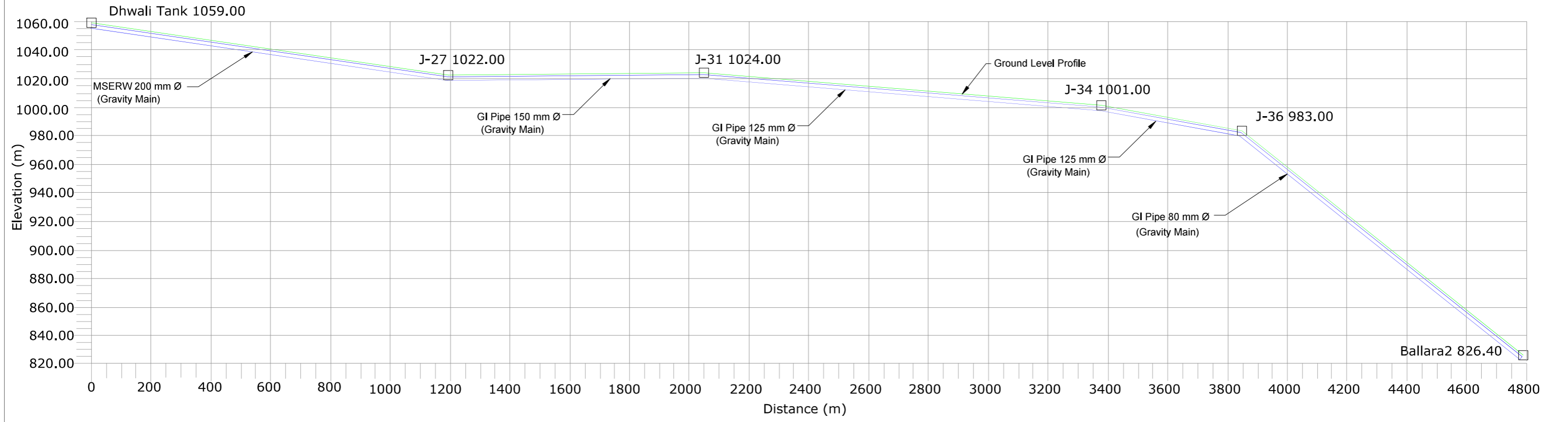
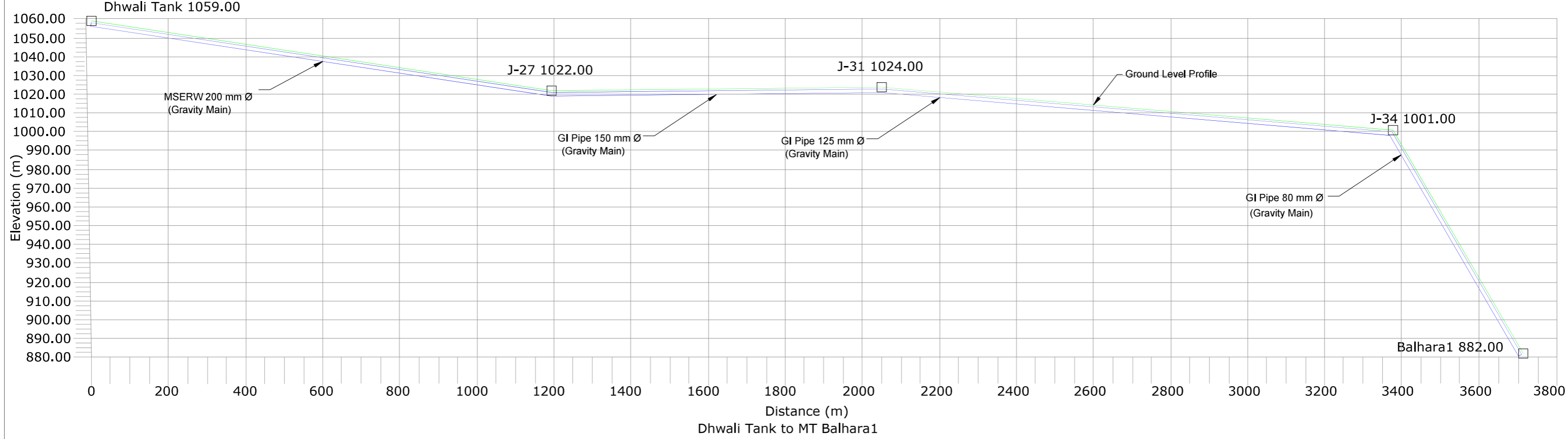
PROPOSED L-SECTION-LIS TIHRA  
(THIKKI & MANYOH-LAMBRI CLUSTER)  
DHARAMPUR BLOCK, MANDI DISTRICT



P1	SIGN.	SM	MJ	DVB							MK	DK	20-07-2022	'P' (PRELIMINARY) ISSUES ARE NOT TO BE USED FOR CONSTRUCTION / FABRICATION BUT ARE ISSUED FOR LIMITED PURPOSES ONLY AS INDICATED IN THE SMALL BLOCK ABOVE THIS BLOCK.
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PO	SIGN.												10-06-2022	CONSTRUCTION / FABRICATION WORK IS PERMITTED ON 'R' (RELEASED) ISSUES ONLY.
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ISSUE	DRN	DSN	CHD	CV	EL	IC	ME				PE/PM	APPD	DATE (dd-mm-yyyy)	INFORMATION CONTAINED WITHIN 'HOLD' IS NOT RELEASED FOR CONSTRUCTION / FABRICATION. FIELD MUST GET DESIGN OFFICE TO CLEAR 'HOLDS' IN TIME BEFORE PROCEEDING WITH ANY CONSTRUCTION/ FABRICATION WORK RELATED TO 'HOLDS'.
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SCALE : NTS	DWG NO. TCE.12503A-CV-3082-WS-32385	ISSUE P1
DC & DISC: DEL-CV		





- Legend :-**
- 1. Ground Level —
  - 2. Rising Main —
  - 3. Junction
  - 4. Air Valve
  - 5. Scour Valve

**Note:-**

- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
- 2 - Scour Valves are Provided at 2000 m c/c Distance.
- 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

Dhwali tank to MT Ballara2



DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)  
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION-LIS BARHI MARHI DHWALI  
(BALHARA-1 & BALHARA-2 CLUSTER)  
DHARAMPUR BLOCK, MANDI DISTRICT



**TATA CONSULTING ENGINEERS LIMITED**  
MUMBAI

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FILE NAME 12503A-CV-32386-Rev-P1			

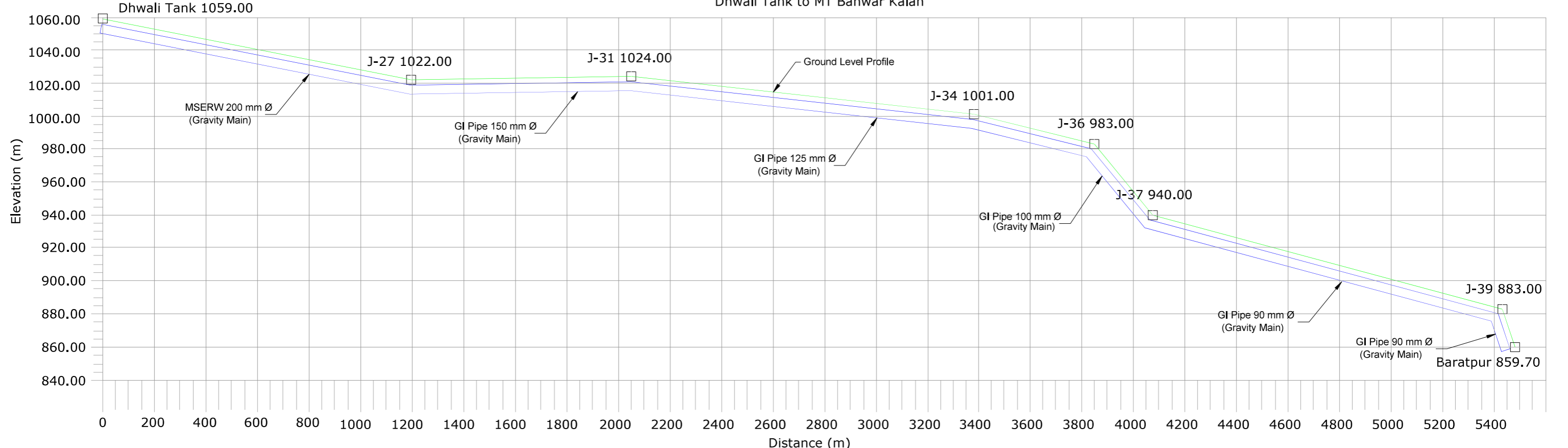
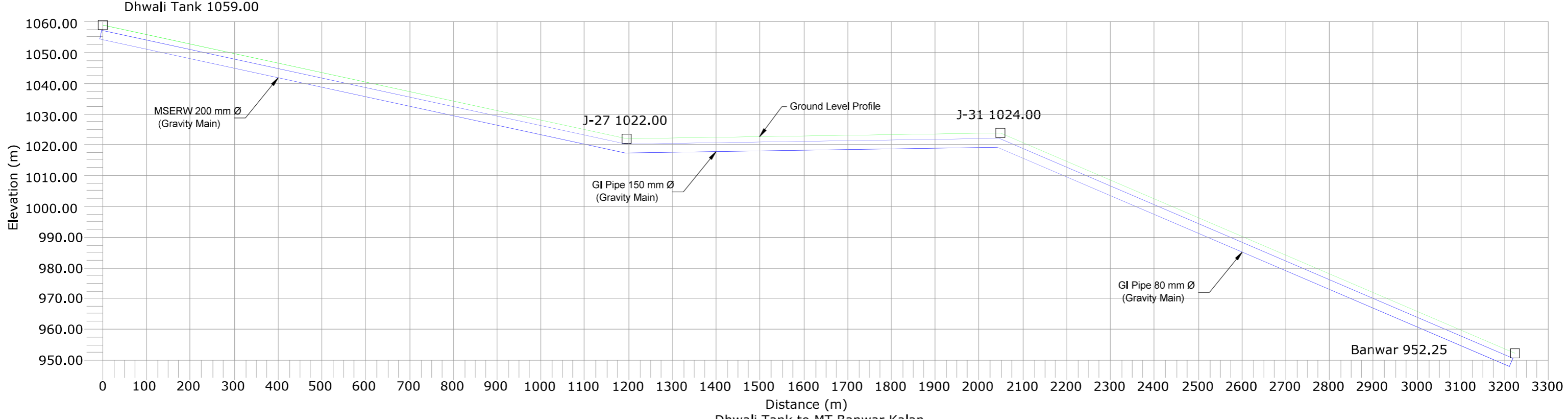
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ISSUE	DRN	DSN	CHD	CV	EL	IC	ME				PE/PM	APPD	DATE (dd-mm-yyyy)
	CLEARED												

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SCALE : NTS	DWG NO. TCE.12503A-CV-3082-WS-32386	ISSUE P1
DC & DISC: DEL-CV		



- Legend :-**
- 1. Ground Level —
  - 2. Rising Main —
  - 3. Junction
  - 4. Air Valve
  - 5. Scour Valve

**Note:-**

- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
- 2 - Scour Valves are Provided at 2000 m c/c Distance.
- 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

**Dhwali Tank to MT Baratpur**

SIGN. OF CLIENT:-

JE	AE	EE	SE
<b>PURPOSE: FOR TENDER ONLY</b>			
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FILE NAME 12503A-CV-32387-Rev-P1

DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)

IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

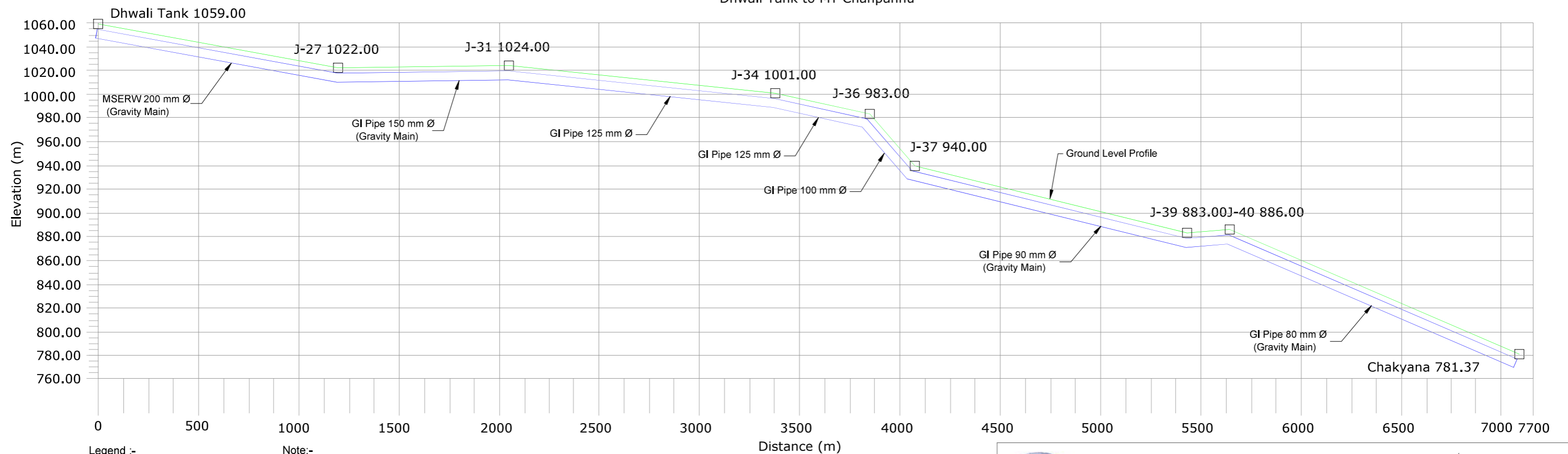
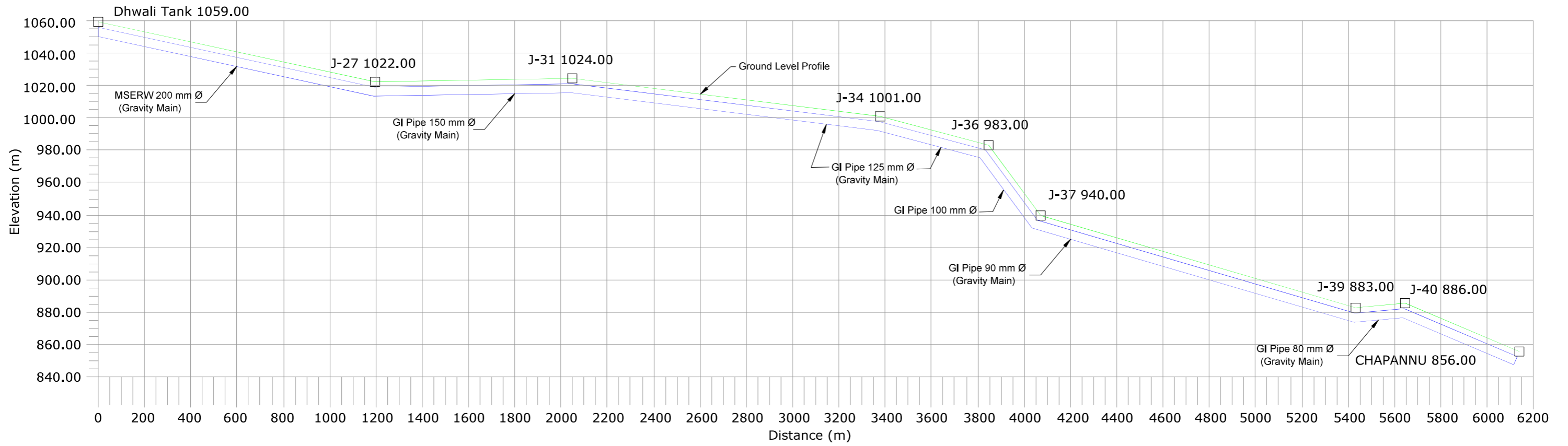
PROPOSED L-SECTION-LIS BARHI MARHI DHWALI  
(BANWAR KALAN & BARATPUR CLUSTER)  
DHARAMPUR BLOCK, MANDI DISTRICT

**TATA CONSULTING ENGINEERS LIMITED**

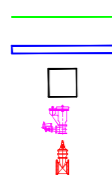
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P1	SIGN.	SM	MJ	DVB								MK	DK	20-07-2022	'P' (PRELIMINARY) ISSUES ARE NOT TO BE USED FOR CONSTRUCTION / FABRICATION BUT ARE ISSUED FOR LIMITED PURPOSES ONLY AS INDICATED IN THE SMALL BLOCK ABOVE THIS BLOCK.  CONSTRUCTION / FABRICATION WORK IS PERMITTED ON 'R' (RELEASED) ISSUES ONLY.
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	REVISIONS														
ISSUE	DRN	DSN	CHD	CV	EL	IC	ME	CLEARED			PE/PM	APPD	DATE (dd-mm-yyyy)		

SCALE : NTS	DWG NO. TCE.12503A-CV-3082-WS-32387	ISSUE P1	DC & DISC: DEL-CV
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- Legend :-
- 1. Ground Level
  - 2. Rising Main
  - 3. Junction
  - 4. Air Valve
  - 5. Scour Valve



- Note:-
- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
  - 2 - Scour Valves are Provided at 2000 m c/c Distance.
  - 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

Dhwali Tank to MT Chakyana

SIGN. OF CLIENT:-

JE	AE	EE	SE
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IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

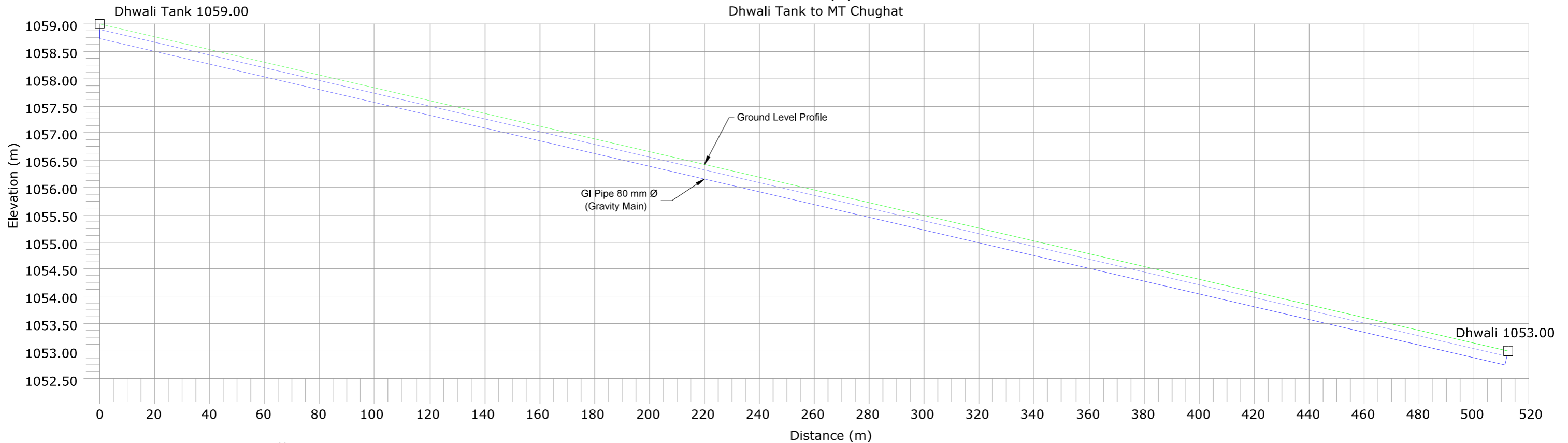
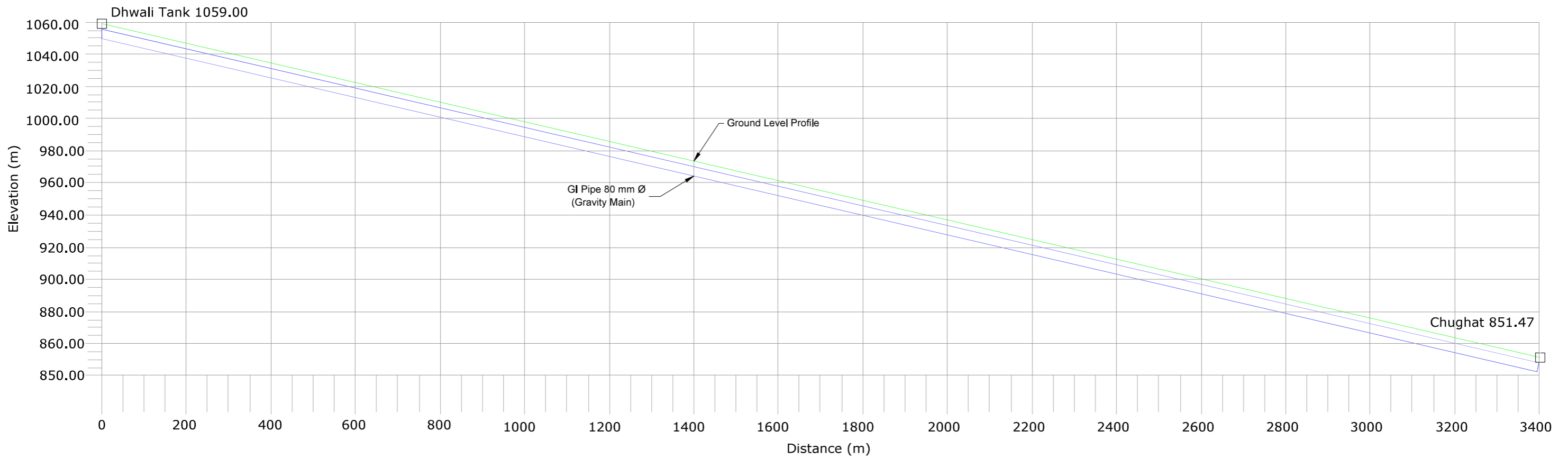
PROPOSED L-SECTION-LIS BARHI MARHI DHWALI  
(CHAHPANNU & CHAKYANA CLUSTER)  
DHARAMPUR BLOCK, MANDI DISTRICT



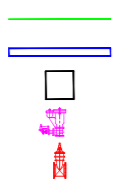
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ISSUE	DRN	DSN	CHD	CV	EL	IC	ME			PE/PM	APPD	DATE (dd-mm-yyyy)	
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SCALE : NTS	DWG NO. TCE.12503A-CV-3082-WS-32388	ISSUE P1
FILE NAME 12503A-CV-32388-Rev-P1	DC & DISC: DEL-CV	



- Legend :-**
- 1. Ground Level
  - 2. Rising Main
  - 3. Junction
  - 4. Air Valve
  - 5. Scour Valve



**Note:-**

- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
- 2 - Scour Valves are Provided at 2000 m c/c Distance.
- 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

Dhwali tank to MT Dhwali

SIGN. OF CLIENT:-

JE	AE	EE	SE
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DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)  
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION-LIS BARHI MARHI DHWALI  
(CHUGHAT & RICHALI/DHAWALI CLUSTER)  
DHARAMPUR BLOCK, MANDI DISTRICT

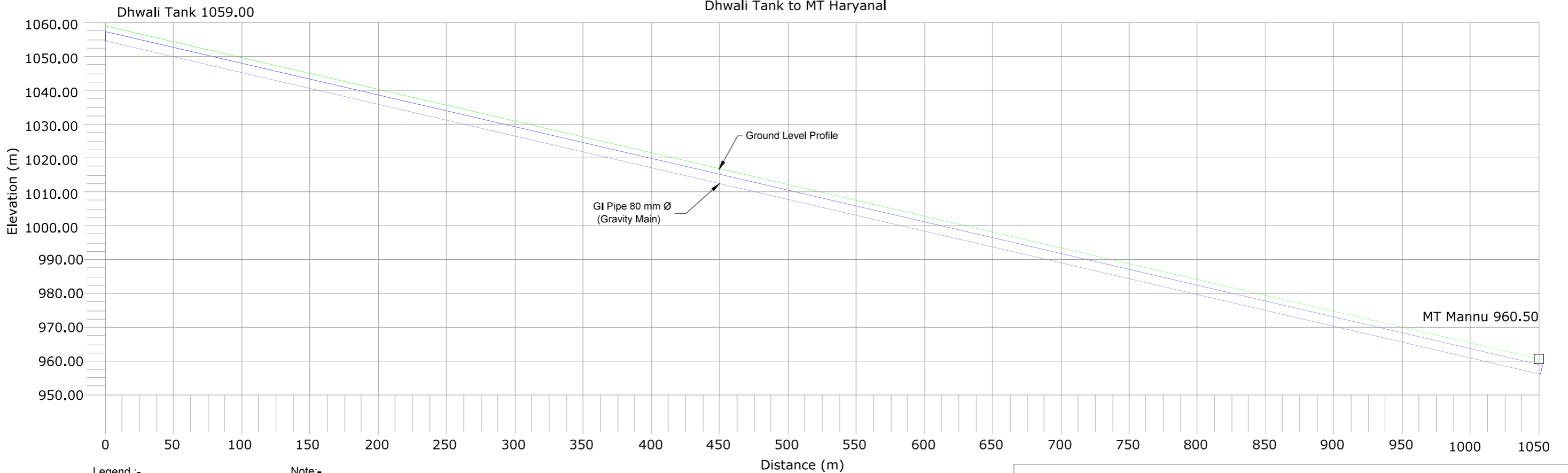
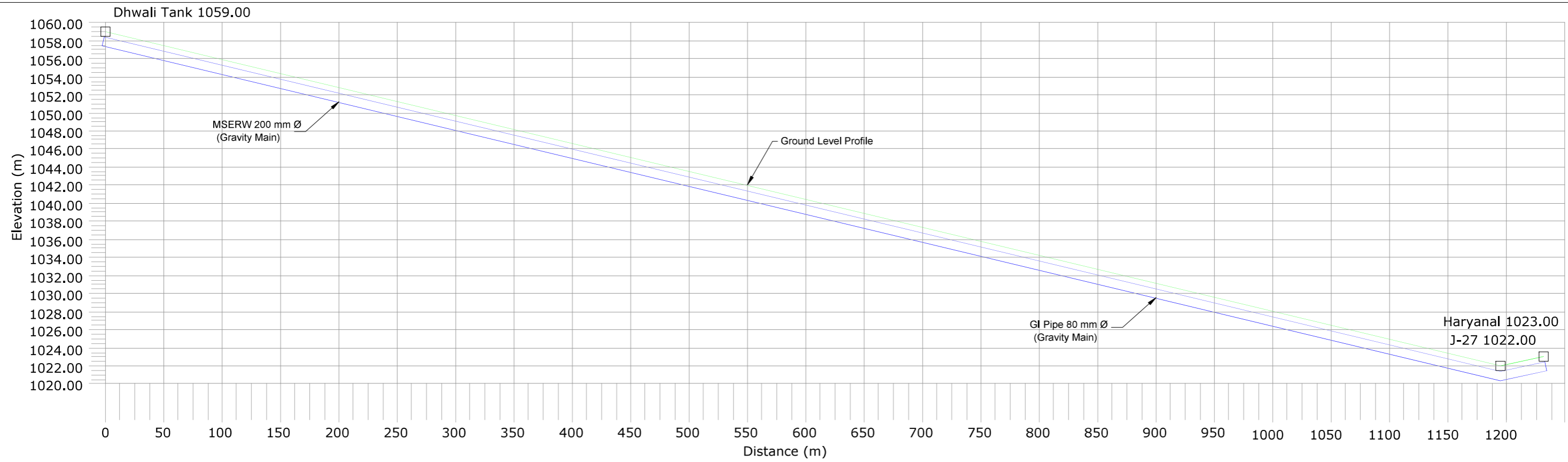
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INITIALS	BSN	DVB	SGB							MK	DK			10-06-2022
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**Legend :-**

- 1. Ground Level —
- 2. Rising Main —
- 3. Junction
- 4. Air Valve
- 5. Scour Valve

**Note:-**

- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
- 2 - Scour Valves are Provided at 2000 m c/c Distance.
- 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

**Dhwali Tank to MT Mannu Dhar**

SIGN. OF CLIENT:-

JE	AE	EE	SE
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FILE NAME 12503A-CV-32390-Rev-P0



DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)

IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION-LIS BARHI MARHI DHWALI  
(HARYANAL & MANNU DHAR CLUSTER)  
DHARAMPUR BLOCK, MANDI DISTRICT



**TATA CONSULTING ENGINEERS LIMITED**

MUMBAI

SCALE : NTS

DWG NO.

TCE.12503A-CV-3082-WS-32390

ISSUE

P0

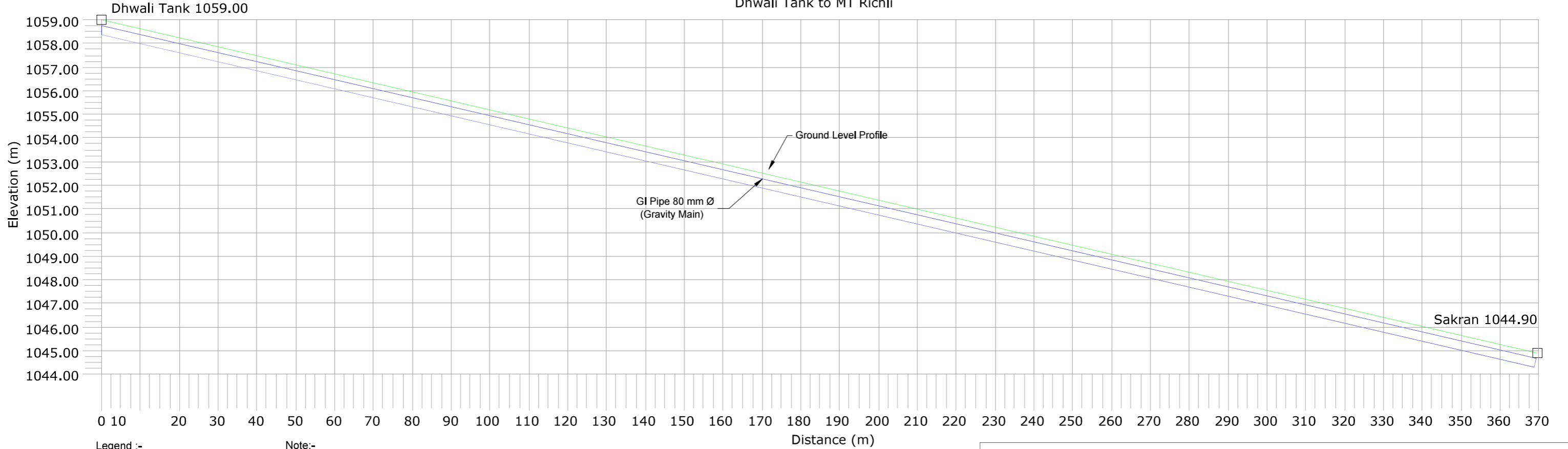
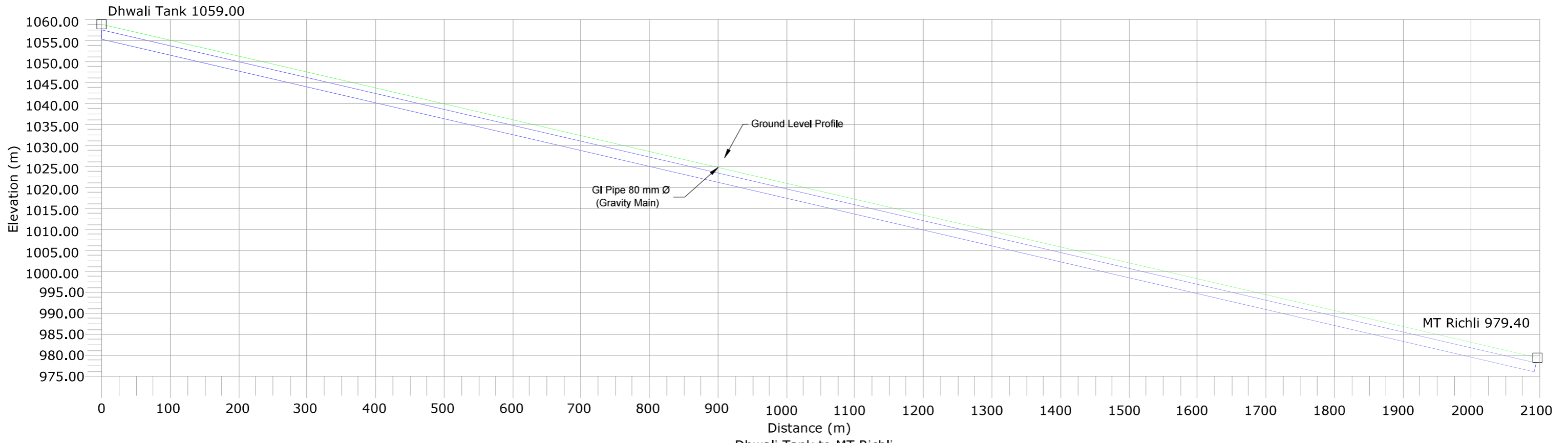
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ISSUE	DRN	DSN	CHD	CV	EL	IC	ME	PE/PM	APPD	DATE (dd-mm-yyyy)
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- Legend :-**
- 1. Ground Level —
  - 2. Rising Main —
  - 3. Junction
  - 4. Air Valve ✚
  - 5. Scour Valve ⚡

- Note:-**
- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
  - 2 - Scour Valves are Provided at 2000 m c/c Distance.
  - 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

**Dhwali Tank to MT Sakran Dhar**

SIGN. OF CLIENT:-

JE	AE	EE	SE
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**DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)**  
 IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

**PROPOSED L-SECTION-LIS BARHI MARHI DHWALI**  
 (RICHLI & SAKRAN DHAR CLUSTER)  
 DHARAMPUR BLOCK, MANDI DISTRICT

**TATA CONSULTING ENGINEERS LIMITED**  
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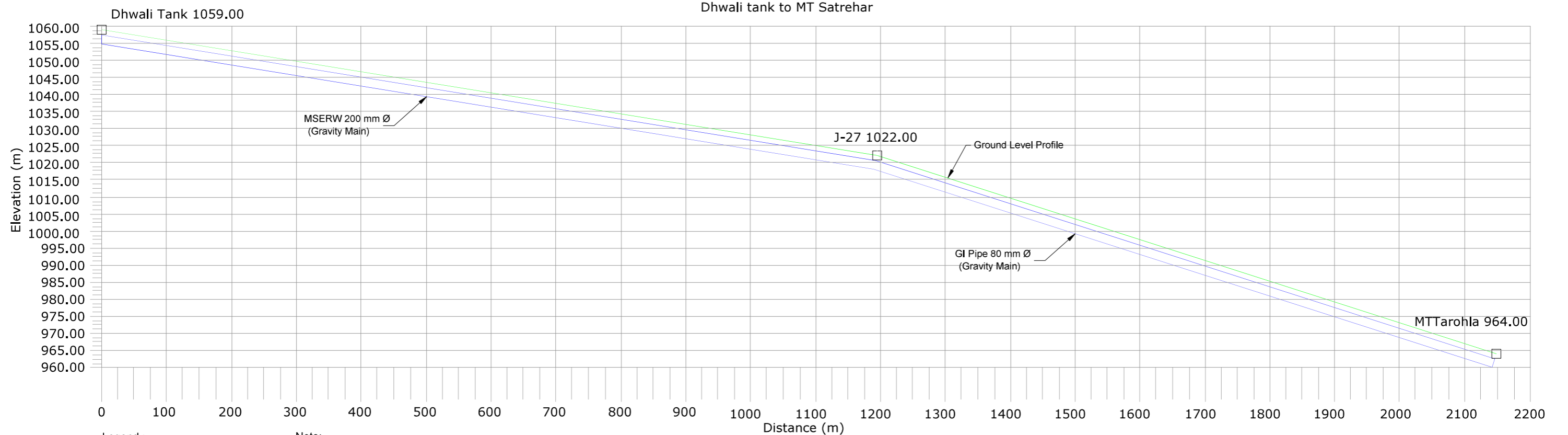
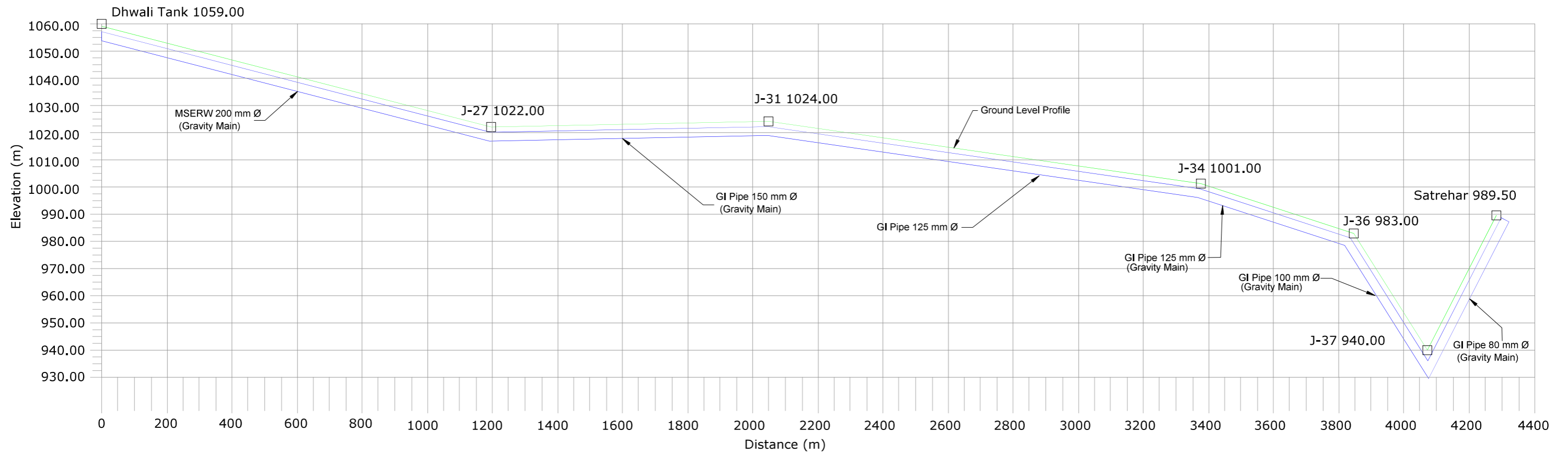
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FILE NAME 12503A-CV-32391-Rev-P0

SCALE : NTS      DWG NO. TCE.12503A-CV-3082-WS-32391      ISSUE P0

DC & DISC: DEL-CV



**Legend :-**

- 1. Ground Level
- 2. Rising Main
- 3. Junction
- 4. Air Valve
- 5. Scour Valve

**Note:-**

- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
- 2 - Scour Valves are Provided at 2000 m c/c Distance.
- 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

**Dhwali Tank to MT Tarohla**

SIGN. OF CLIENT:-			
JE	AE	EE	SE
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FILE NAME 12503A-CV-32392-Rev-P1

DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)  
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

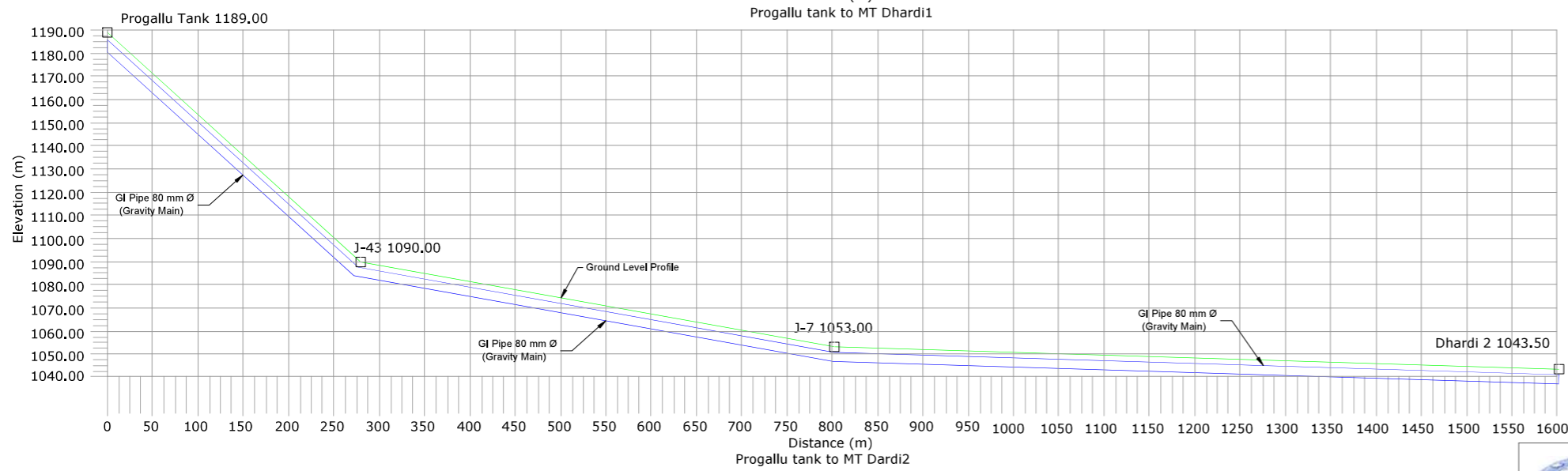
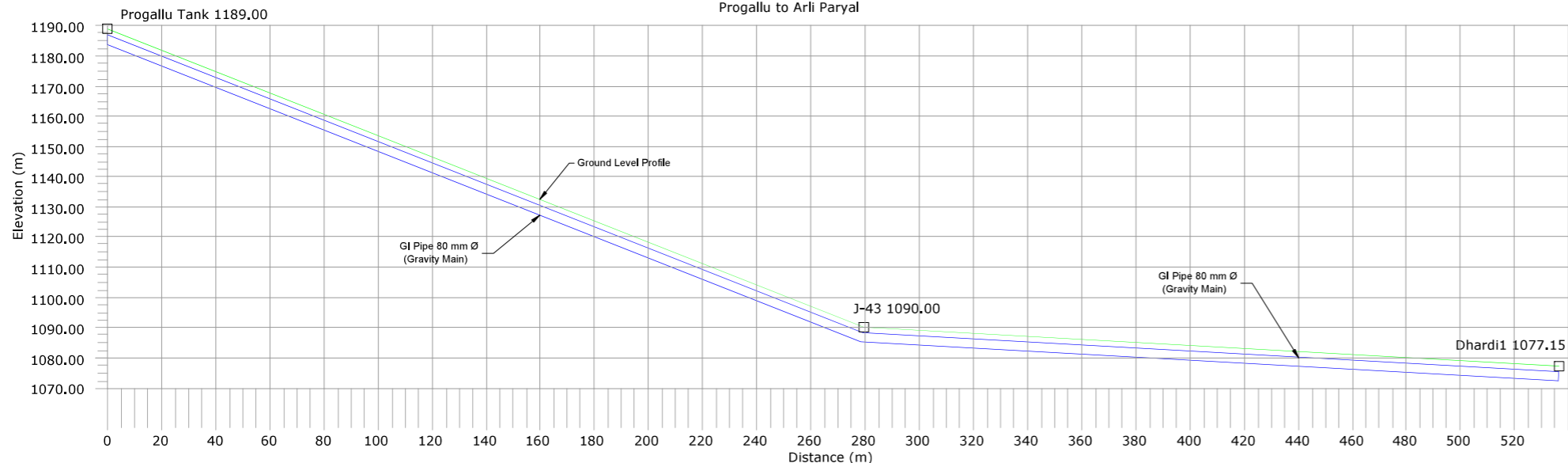
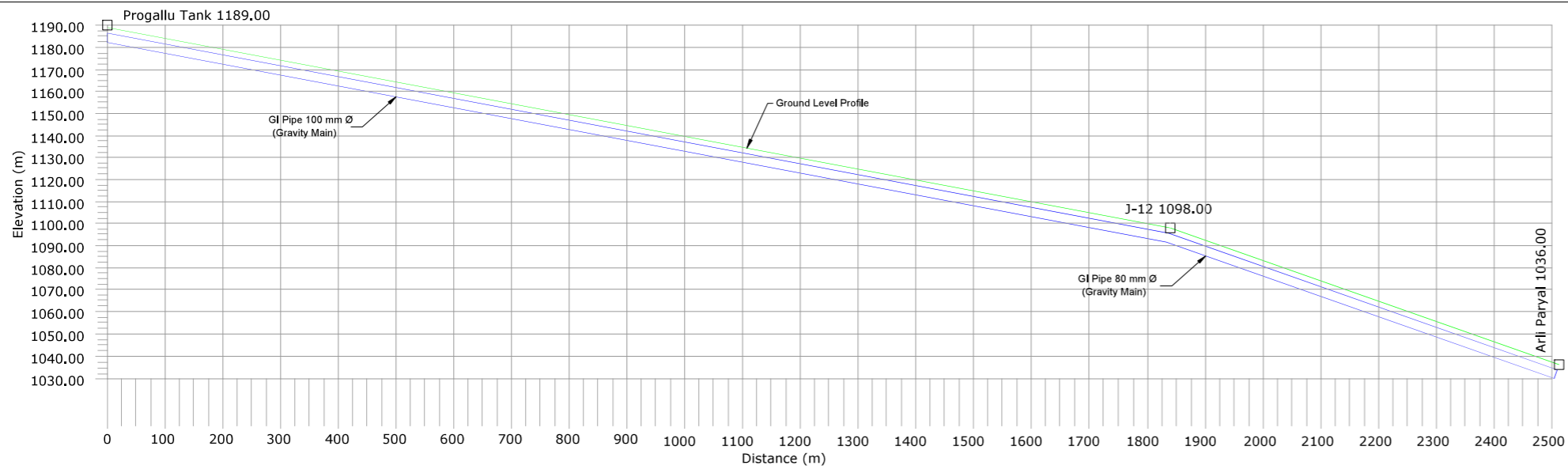
PROPOSED L-SECTION-LIS BARHI MARHI DHWALI  
(SATREHAR & TAROHLA CLUSTER)  
DHARAMPUR BLOCK, MANDI DISTRICT

**TATA CONSULTING ENGINEERS LIMITED**  
MUMBAI

SCALE : NTS      DWG NO. TCE.12503A-CV-3082-WS-32392      ISSUE P1

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	REVISIONS												
ISSUE	DRN	DSN	CHD	CV	EL	IC	ME			PE/PM	APPD	DATE (dd-mm-yyyy)	
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Legend :-

- 1. Ground Level
- 2. Rising Main
- 3. Junction
- 4. Air Valve
- 5. Scour Valve

Note:-

- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
- 2 - Scour Valves are Provided at 2000 m c/c Distance.
- 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.



DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)

IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION-LIS BARHI MARHI DHWALI  
(ARLI PARYAL, DHARDI-1 & DHARDI-2 CLUSTER)  
DHARAMPUR BLOCK, MANDI DISTRICT



**TATA CONSULTING ENGINEERS LIMITED**

MUMBAI

SIGN. OF CLIENT:-

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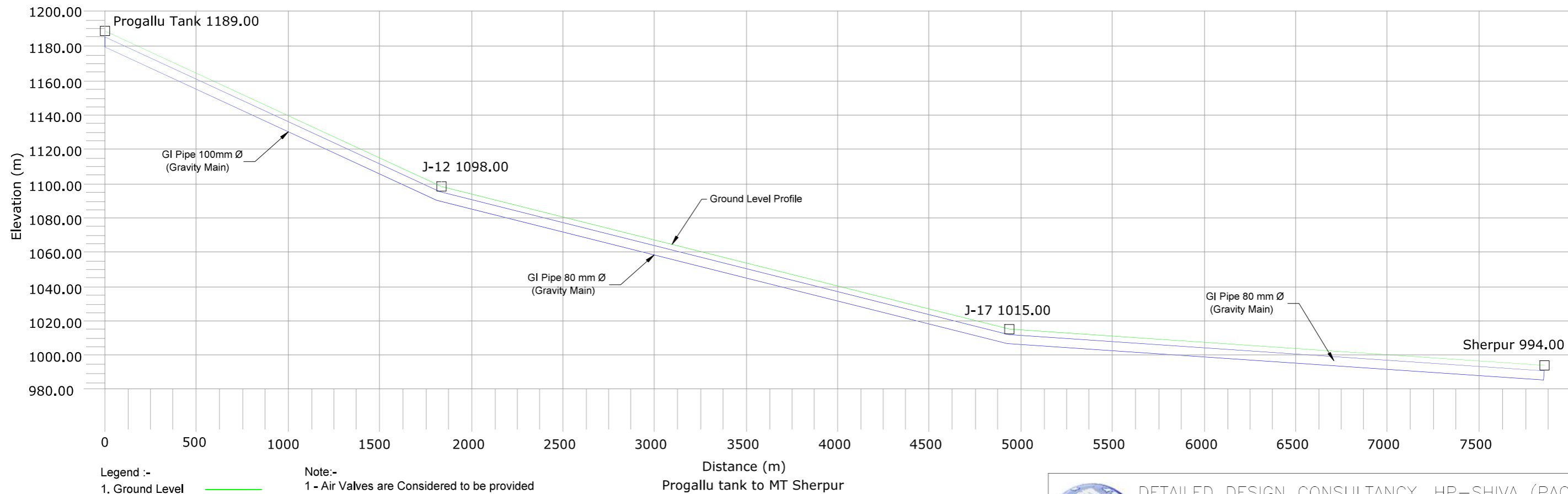
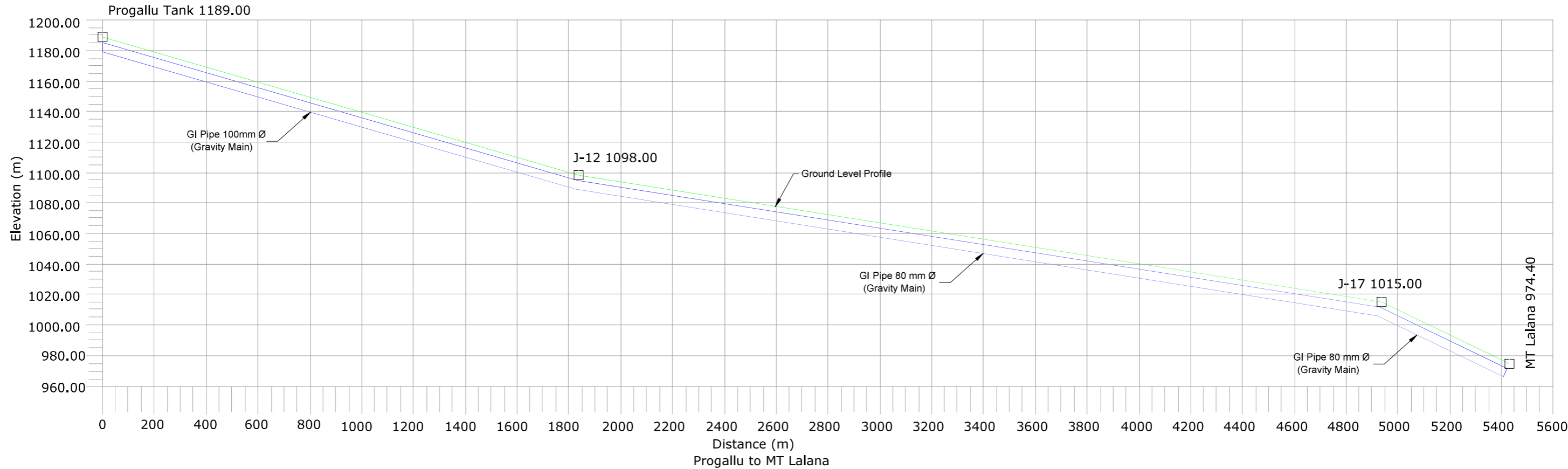
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ISSUE	DRN	DSN	CHD	CV	EL	IC	ME				PE/PM	APPD	DATE (dd-mm-yyyy)	INFORMATION CONTAINED WITHIN 'HOLD' IS NOT RELEASED FOR CONSTRUCTION / FABRICATION. FIELD MUST GET DESIGN OFFICE TO CLEAR 'HOLDS' IN TIME BEFORE PROCEEDING WITH ANY CONSTRUCTION/ FABRICATION WORK RELATED TO 'HOLDS'.
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FILE NAME 12503A-CV-32393-Rev-P1	DC & DISC: DEL-CV	



**Legend :-**

- 1. Ground Level
- 2. Rising Main
- 3. Junction
- 4. Air Valve
- 5. Scour Valve

**Note:-**

- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
  - 2 - Scour Valves are Provided at 2000 m c/c Distance.
  - 3 - Above is Tentative Arrangement.
- Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

SIGN. OF CLIENT:-

JE	AE	EE	SE
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PURPOSE: FOR TENDER ONLY

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DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)

IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION-LIS BARHI MARHI DHWALI  
(LALANA & SHERPUR CLUSTER)  
DHARAMPUR BLOCK, MANDI DISTRICT



**TATA CONSULTING ENGINEERS LIMITED**

MUMBAI

SCALE : NTS

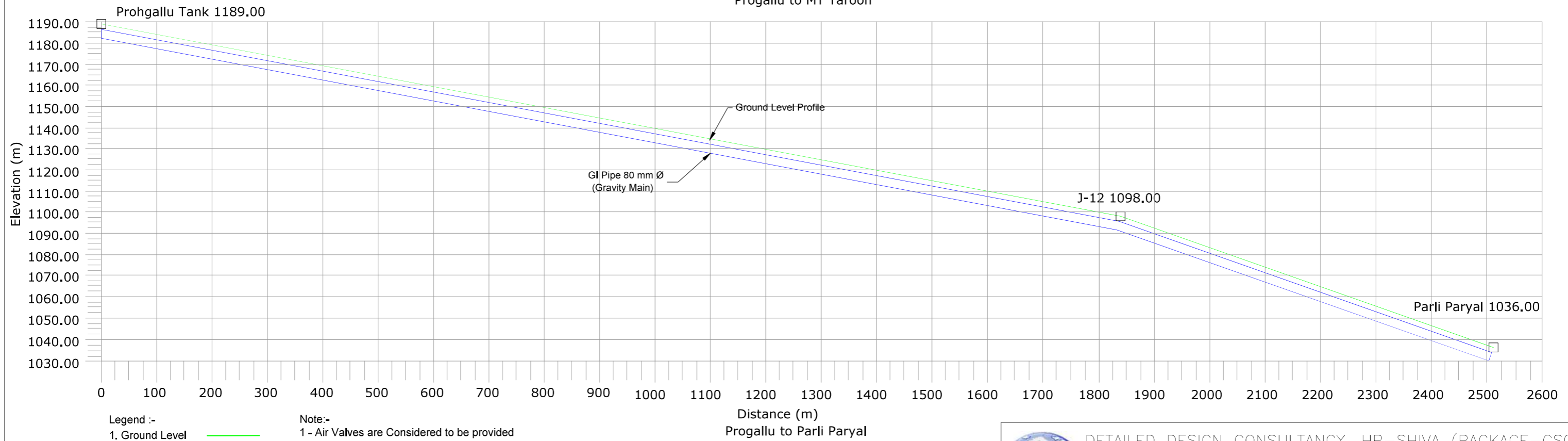
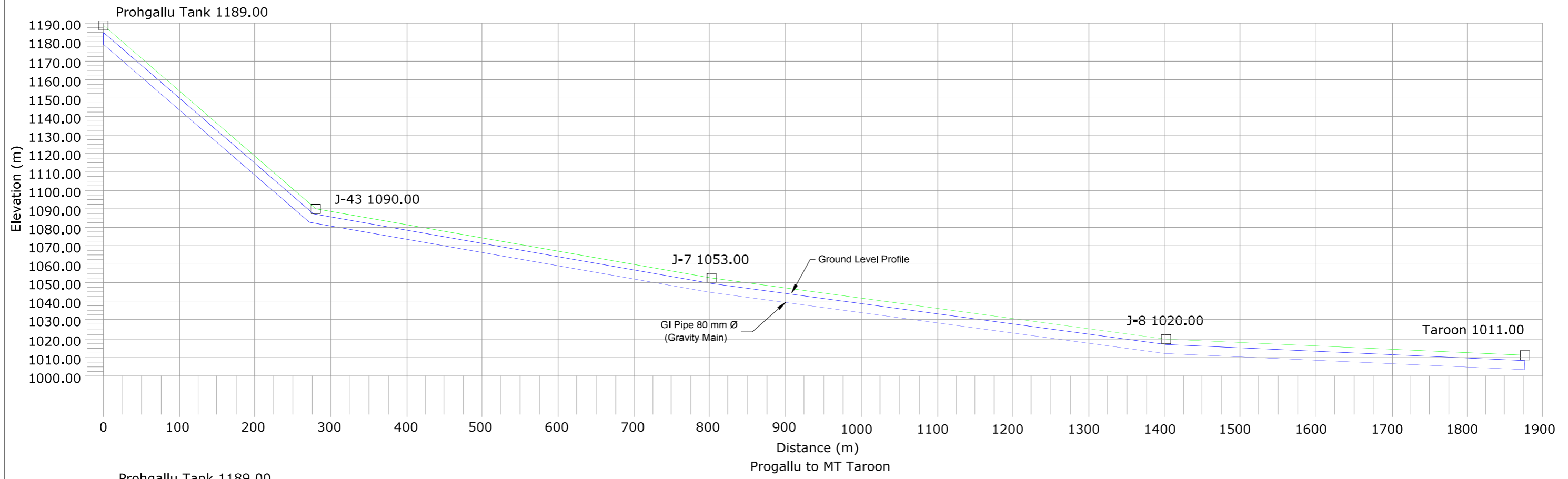
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ISSUE P1

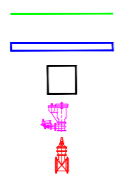
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PO	SIGN.	BSN	DVB	SGB						MK	DK	10-06-2022	CONSTRUCTION / FABRICATION WORK IS PERMITTED ON 'R' (RELEASED) ISSUES ONLY.
	INITIALS												
ISSUE	REVISIONS	AS PER CLIENT COMMENTS											
	REVISIONS												
DRN	DSN	CHD	CV	EL	IC	ME			PE/PM	APPD	DATE (dd-mm-yyyy)		
					CLEARED								



- Legend :-**
- 1. Ground Level
  - 2. Rising Main
  - 3. Junction
  - 4. Air Valve
  - 5. Scour Valve



- Note:-**
- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
  - 2 - Scour Valves are Provided at 2000 m c/c Distance.
  - 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

Distance (m)  
Prohgallu to Parli Paryal



DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)  
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION-LIS BARHI MARHI DHWALI  
(TAROON & PARLI PARYAL CLUSTER)  
DHARAMPUR BLOCK, MANDI DISTRICT



**TATA CONSULTING ENGINEERS LIMITED**  
MUMBAI

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FILE NAME 12503A-CV-32395-Rev-P0			

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SIGN.	INITIALS	REVISIONS	BSN	DVB	SGB					MK	DK	10-06-2022
ISSUE	DRN	DSN	CHD	CV	EL	IC	ME		PE/PM	APPD	DATE (dd-mm-yyyy)	
				CLEARED								

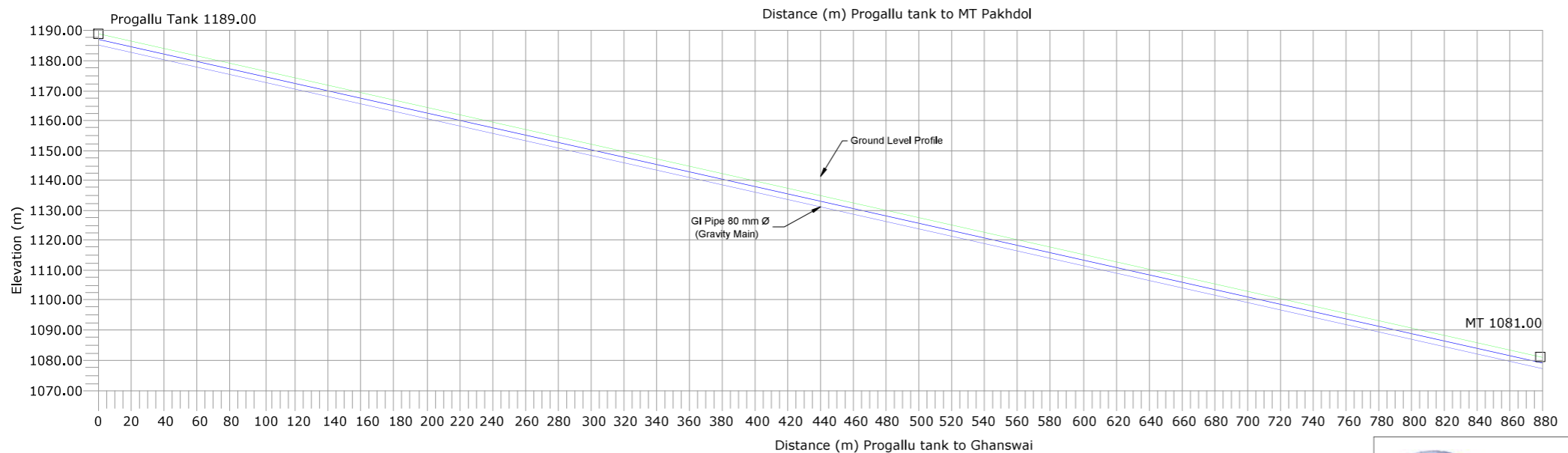
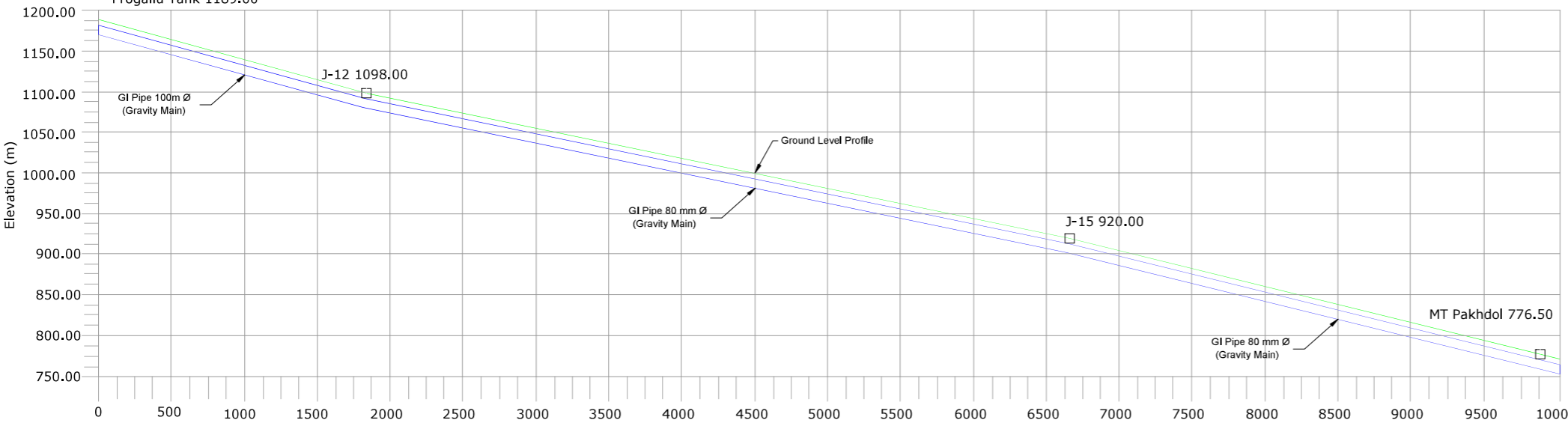
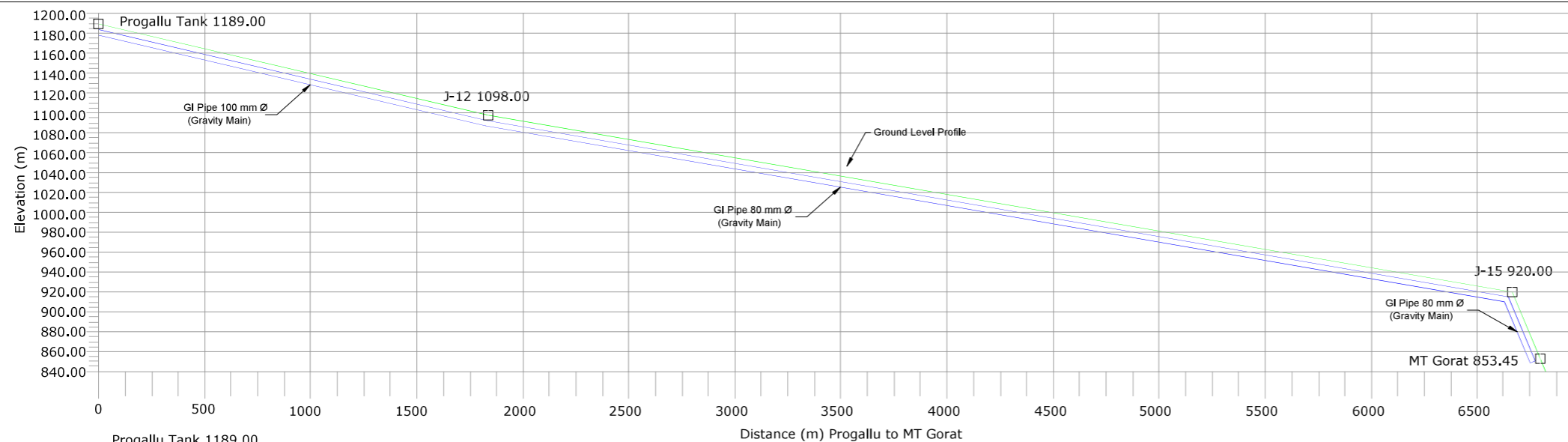
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SCALE : NTS	DWG NO. TCE.12503A-CV-3082-WS-32395	ISSUE P0
DC & DISC: DEL-CV		





Legend :-

- 1. Ground Level
- 2. Rising Main
- 3. Junction
- 4. Air Valve
- 5. Scour Valve

Note:-

- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
- 2 - Scour Valves are Provided at 2000 m c/c Distance.
- 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.



DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)

IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION-LIS BARHI MARHI DHWALI  
(GORAT, PAKHDOL & GHANSWANI CLUSTER)  
DHARAMPUR BLOCK, MANDI DISTRICT



**TATA CONSULTING ENGINEERS LIMITED**

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SCALE : NTS

DWG NO.

TCE.12503A-CV-3082-WS-32096

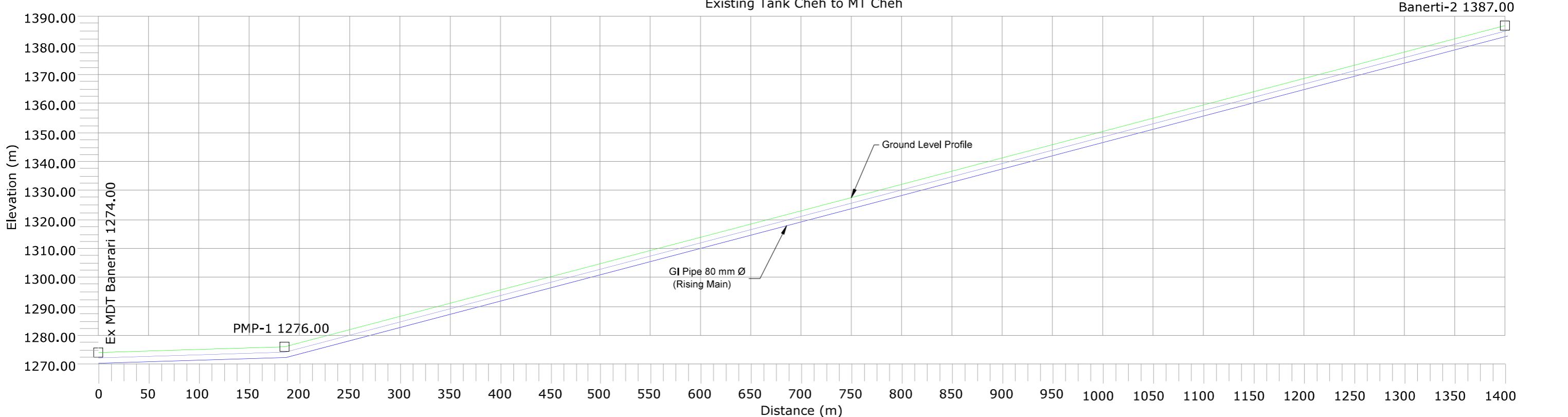
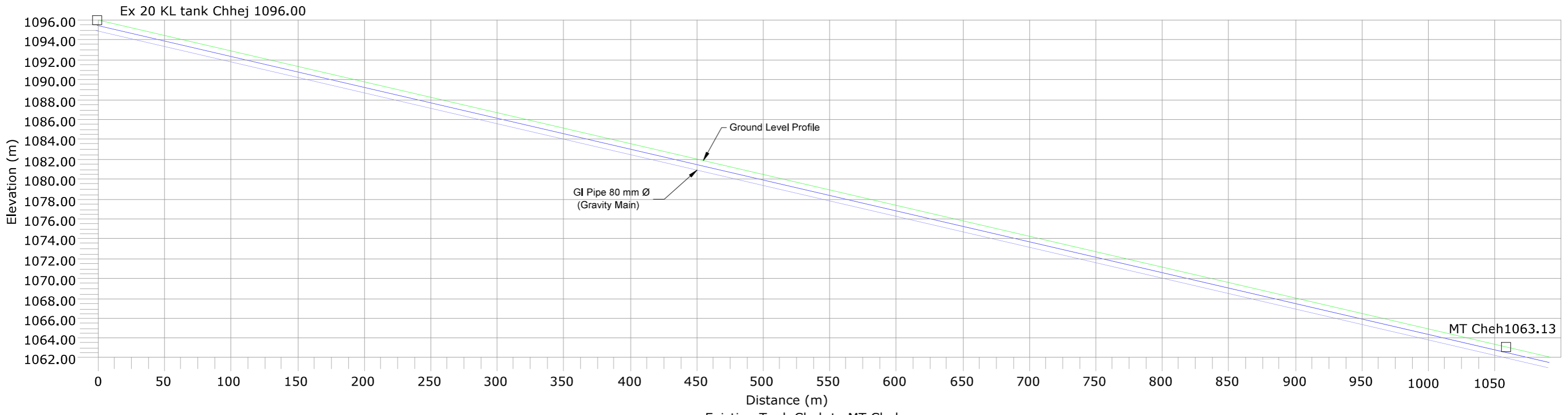
ISSUE P1

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	INITIALS													
ISSUE	REVISIONS	AS PER CLIENT COMMENTS											INFORMATION CONTAINED WITHIN 'HOLD' IS NOT RELEASED FOR CONSTRUCTION / FABRICATION. FIELD MUST GET DESIGN OFFICE TO CLEAR 'HOLDS' IN TIME BEFORE PROCEEDING WITH ANY CONSTRUCTION/ FABRICATION WORK RELATED TO 'HOLDS'.	
	REVISIONS	DRN	DSN	CHD	CV	EL	IC	ME			PE/PM	APPD		DATE (dd-mm-yyyy)

DRN	DSN	CHD	CV	EL	IC	ME	PE/PM	APPD	DATE (dd-mm-yyyy)
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FILE NAME 12503A-CV-32096-Rev-P1

DC & DISC: DEL-CV



- Legend :-**
- 1. Ground Level —
  - 2. Rising Main —
  - 3. Junction
  - 4. Air Valve
  - 5. Scour Valve

**Note:-**

- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
- 2 - Scour Valves are Provided at 2000 m c/c Distance.
- 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

Ex MDT to MT Banerti 2



DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)  
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION-LIS BAROTI MANDAP JODDAN  
(CHEH & BANERTI-2 CLUSTER)  
DHARAMPUR BLOCK, MANDI DISTRICT



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PO	SIGN.	BSN	DVB	SGB							MK	DK	10-06-2022
	INITIALS												
ISSUE	DRN	DSN	CHD	CV	EL	IC	ME				PE/PM	APPD	DATE (dd-mm-yyyy)
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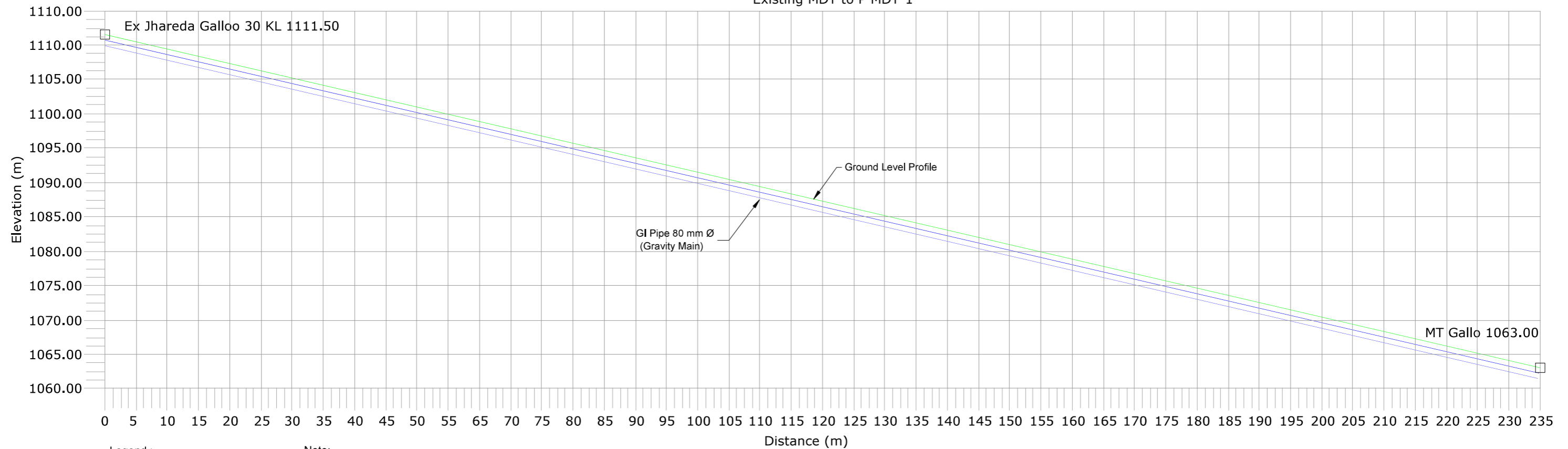
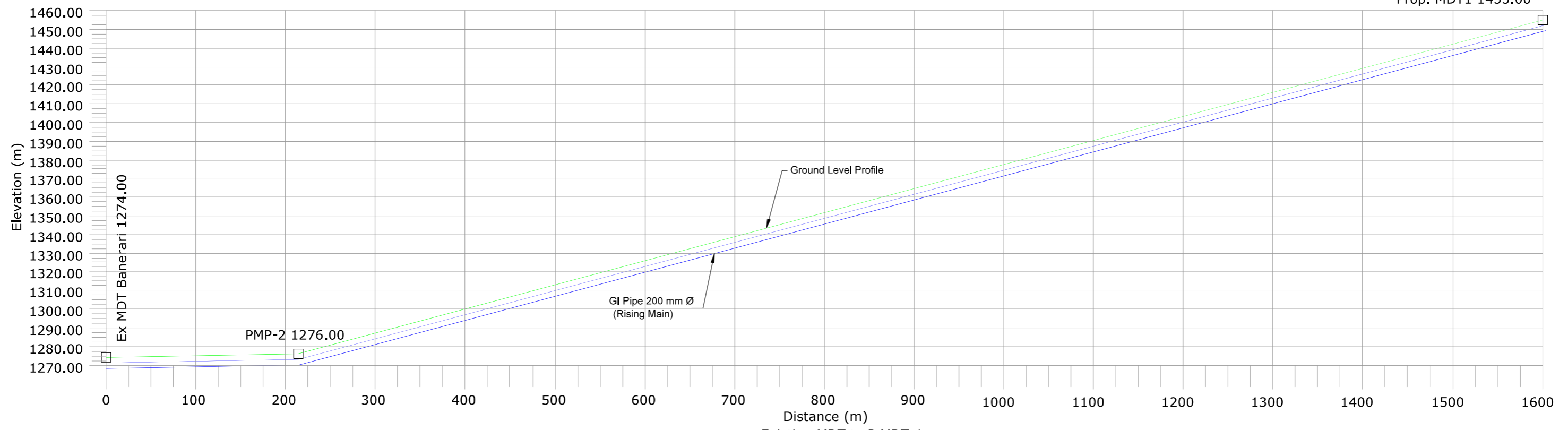
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FILE NAME 12503A-CV-32397-Rev-P1

SCALE : NTS	DWG NO. TCE.12503A-CV-3082-WS-32397	ISSUE P1
DC & DISC: DEL-CV		



- Legend :-**
- 1. Ground Level —
  - 2. Rising Main —
  - 3. Junction
  - 4. Air Valve
  - 5. Scour Valve

- Note:-**
- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
  - 2 - Scour Valves are Provided at 2000 m c/c Distance.
  - 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

Ex Jhareda Galloo to MT Galloo (Chanouta)

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FILE NAME 12503A-CV-32398-Rev-P0			

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IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION-LIS BAROTI MANDAP JODDAN  
GALLOO (CHANOUTA) CLUSTER  
DHARAMPUR BLOCK, MANDI DISTRICT

**TATA CONSULTING ENGINEERS LIMITED**  
MUMBAI

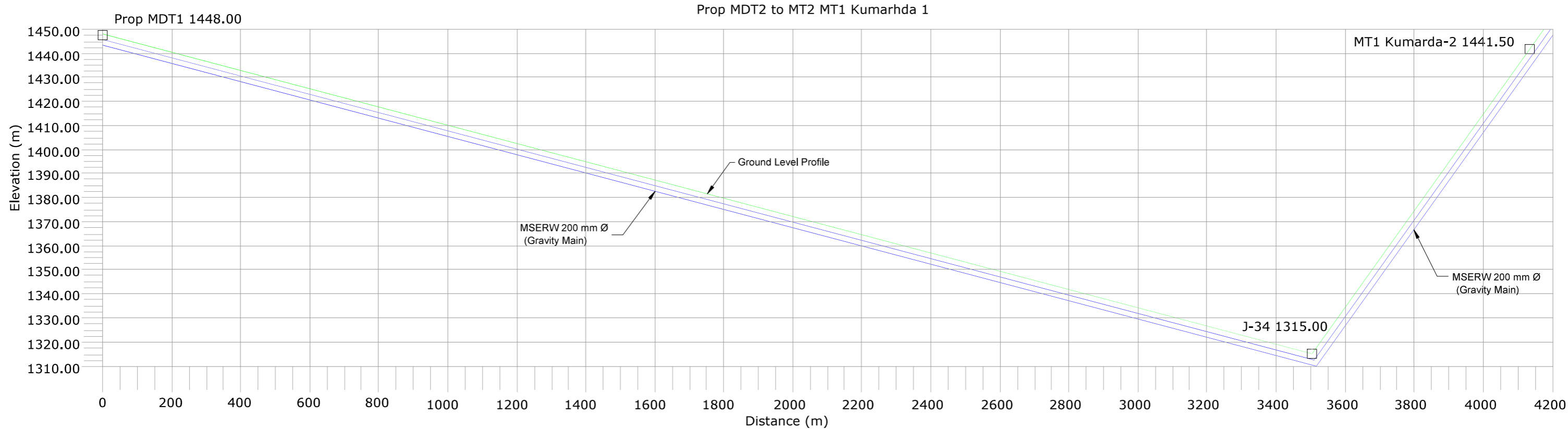
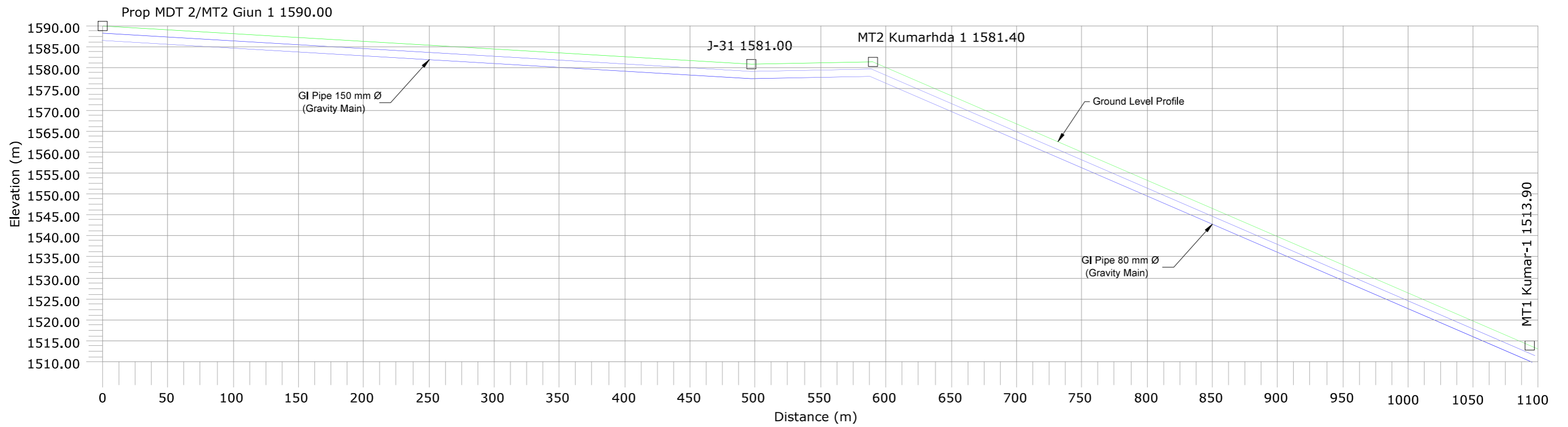
SCALE : NTS	DWG NO. TCE.12503A-CV-3082-WS-32398	ISSUE P0
DC & DISC: DEL-CV		

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- Legend :-**
- 1. Ground Level —
  - 2. Rising Main —
  - 3. Junction
  - 4. Air Valve ⚙️
  - 5. Scour Valve ⚙️

**Note:-**

- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
- 2 - Scour Valves are Provided at 2000 m c/c Distance.
- 3 - Above is Tentative Arrangement.

Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

Prop MDT1 to MT1 Kumarhda2

SIGN. OF CLIENT:-

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DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)  
 IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION-LIS BAROTI MANDAP JODDAN  
 (KUMARHDA-1 & KUMARHDA-2 CLUSTER)  
 DHARAMPUR BLOCK, MANDI DISTRICT



**TATA CONSULTING ENGINEERS LIMITED**  
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SCALE : NTS	DWG NO. TCE.12503A-CV-3082-WS-32399	ISSUE P0	DC & DISC: DEL-CV
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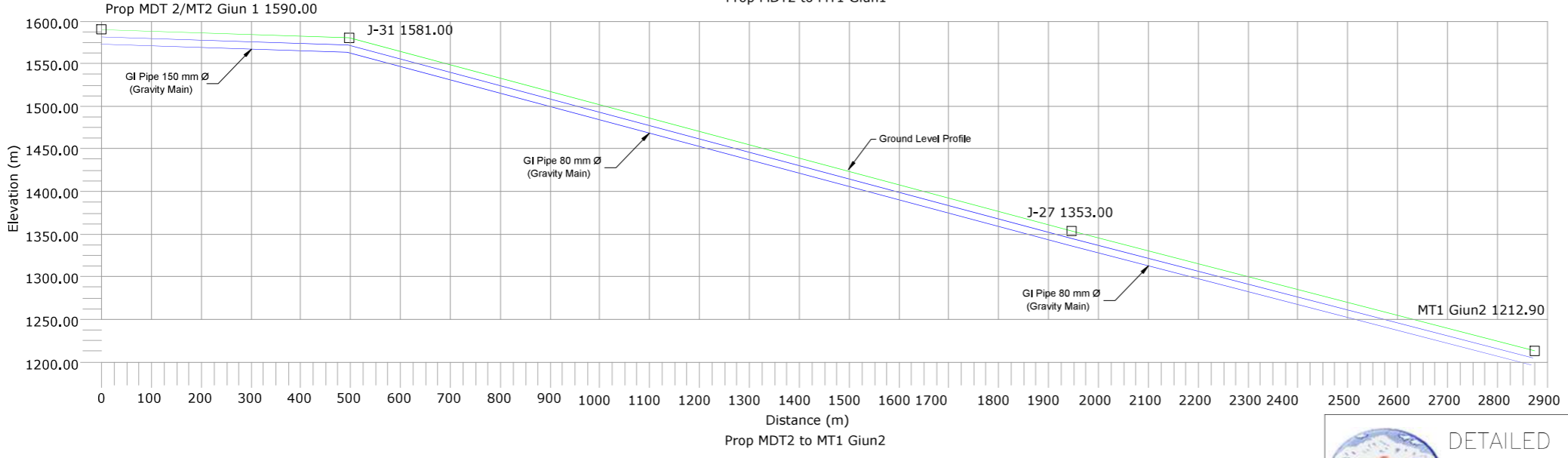
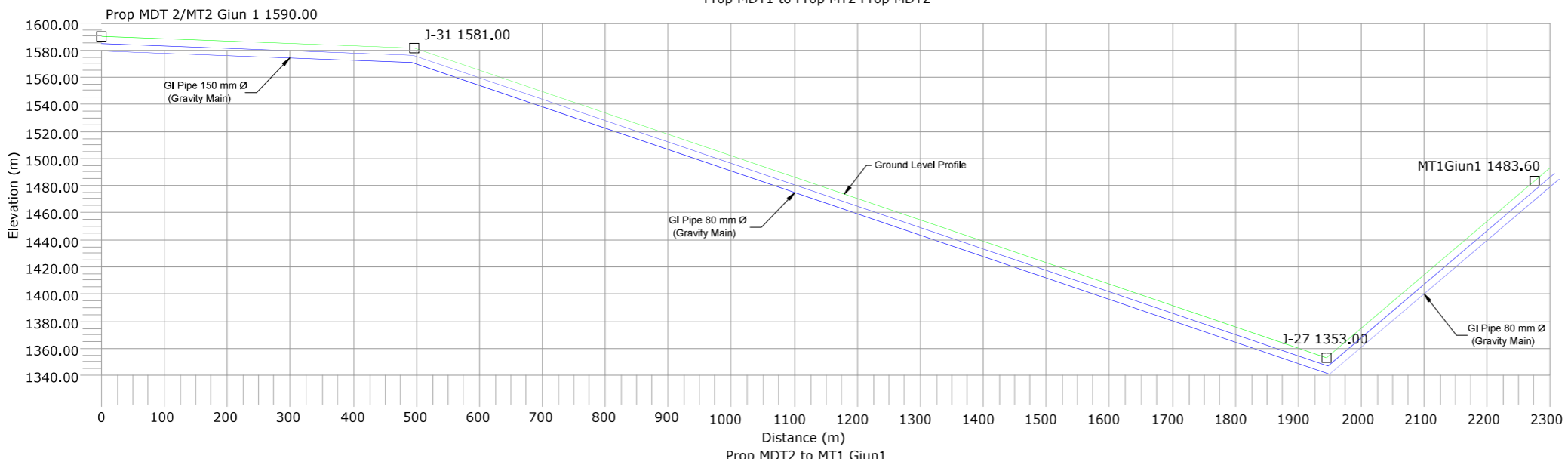
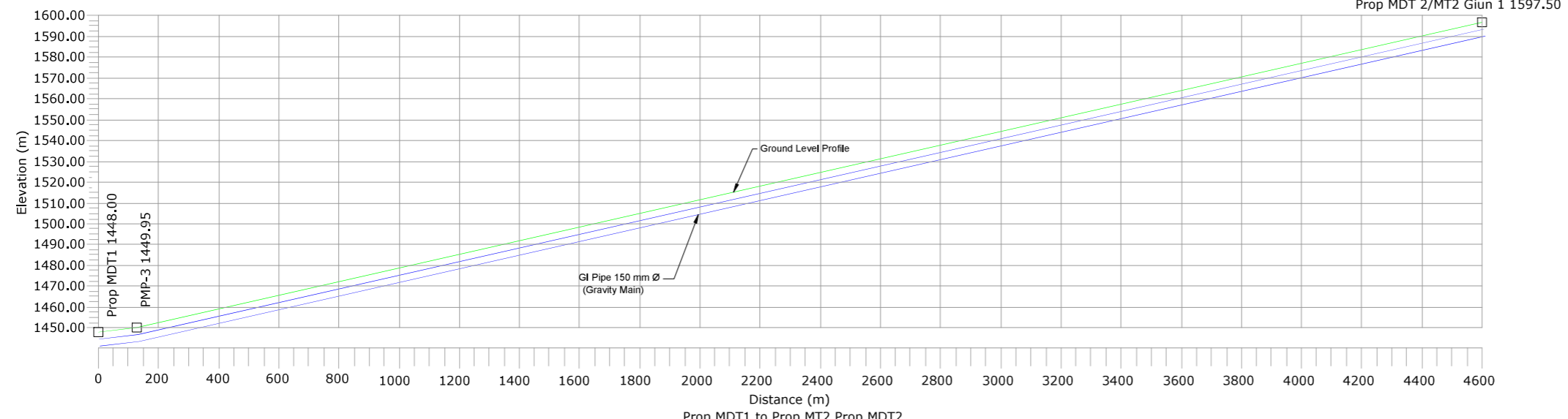
SIGN.	INITIALS	REVISIONS	SIGN.	INITIALS	BSN	DVB	SGB	MK	DK	10-06-2022
ISSUE	DRN	DSN	CHD	CV	EL	IC	ME	PE/PM	APPD	DATE (dd-mm-yyyy)
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FILE NAME 12503A-CV-32399-Rev-P0



- Legend :-**
- 1. Ground Level —
  - 2. Rising Main —
  - 3. Junction
  - 4. Air Valve
  - 5. Scour Valve

- Note:-**
- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
  - 2 - Scour Valves are Provided at 2000 m c/c Distance.
  - 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.



DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)  
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION-LIS BAROTI MANDAP JODDAN  
(GIUN-1 & GIUN-2 CLUSTER)  
DHARAMPUR BLOCK, MANDI DISTRICT



**TATA CONSULTING ENGINEERS LIMITED**  
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	BSN	DVB	SGB					MK	DK	10-06-2022	
REVISIONS											
ISSUE	DRN	DSN	CHD	CV	EL	IC	ME	PE/PM		APPD	DATE (dd-mm-yyyy)
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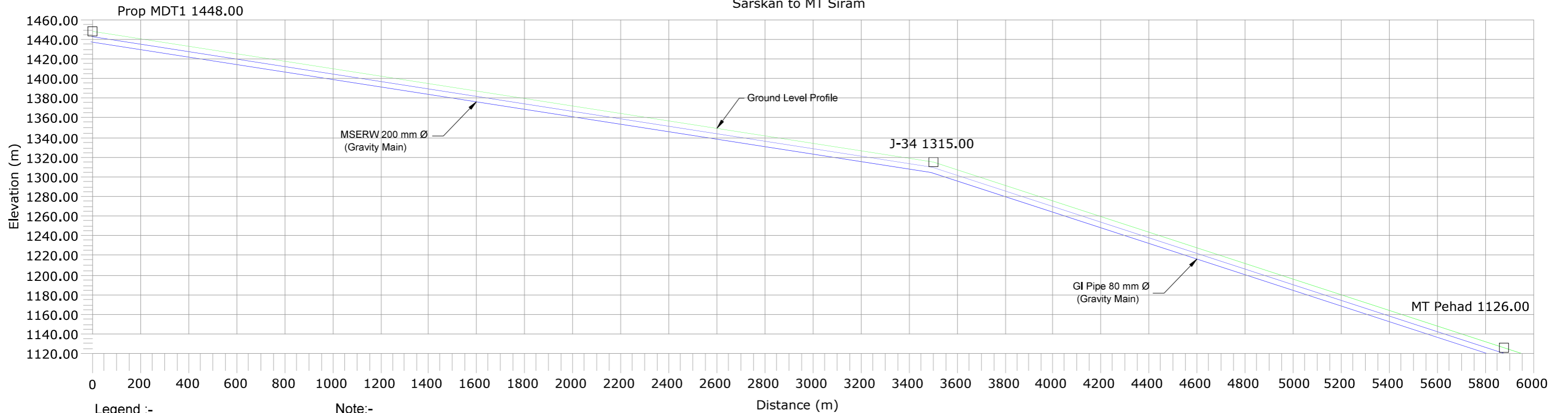
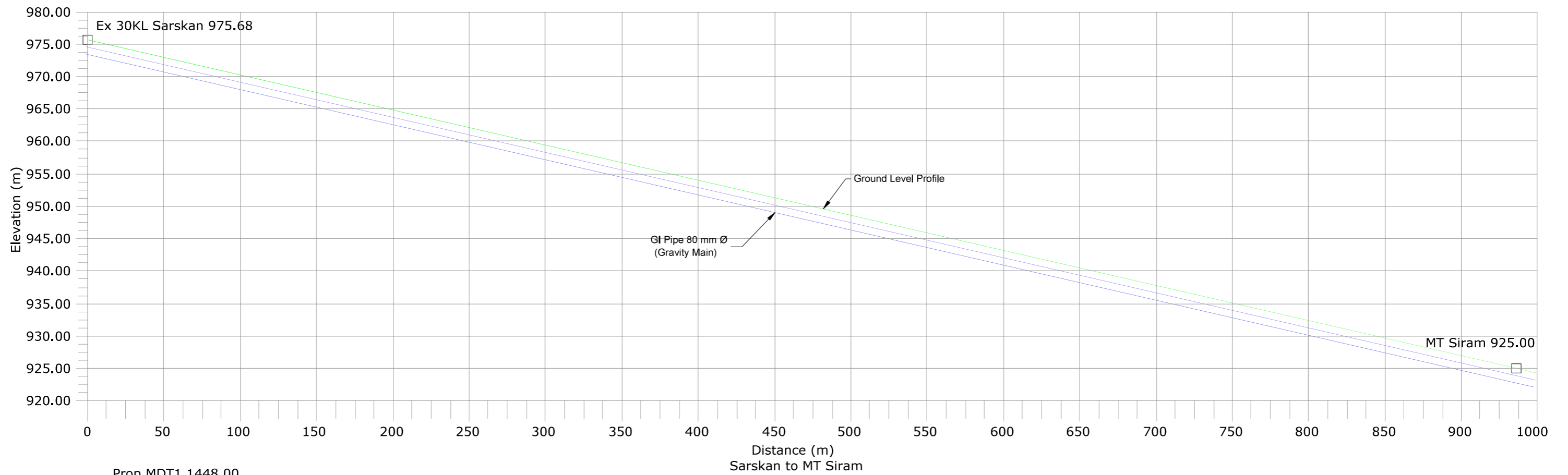
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DC & DISC: DEL-CV		





- Legend :-**
- 1. Ground Level —
  - 2. Rising Main —
  - 3. Junction
  - 4. Air Valve
  - 5. Scour Valve

**Note:-**

- 1 - Air Valves are Considered to be provided at 500 m c/c and at High Points.
- 2 - Scour Valves are Provided at 2000 m c/c Distance.
- 3 - Above is Tentative Arrangement. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

Distance (m)  
Prop MDT1 to MT Pehad

SIGN. OF CLIENT:-

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DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)  
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION-LIS BAROTI MANDAP JODDAN  
(SIRAM/SARSKAN & PEHAD-2 CLUSTER)  
DHARAMPUR BLOCK, MANDI DISTRICT



**TATA CONSULTING ENGINEERS LIMITED**  
MUMBAI

SCALE : NTS

DWG NO.

TCE.12503A-CV-3082-WS-32401

ISSUE

P0

SIGN.												
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	REVISIONS											
PO	SIGN.									10-06-2022		
	INITIALS	BSN	DVB	SGB					MK	DK		
	REVISIONS											
ISSUE	DRN	DSN	CHD	CV	EL	IC	ME			PE/PM	APPD	DATE (dd-mm-yyyy)
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FILE NAME 12503A-CV-32401-Rev-P0

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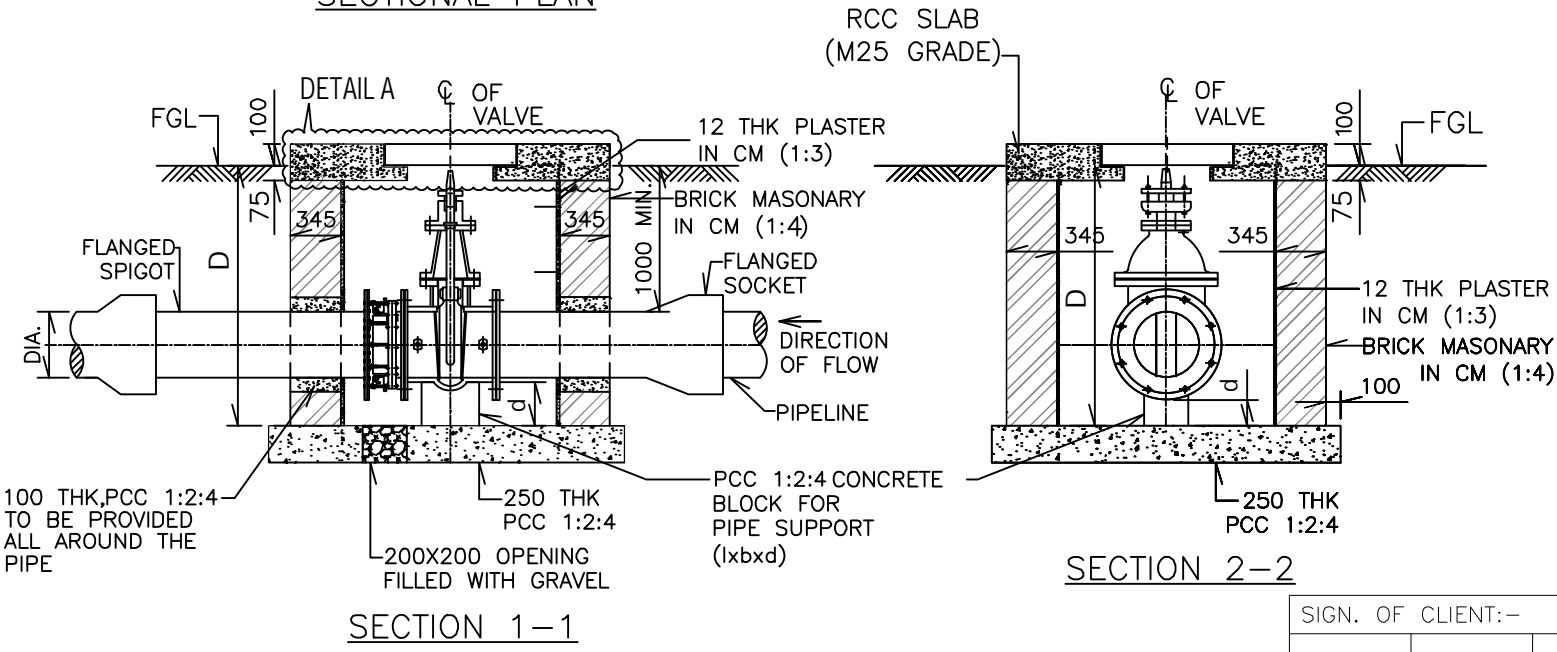
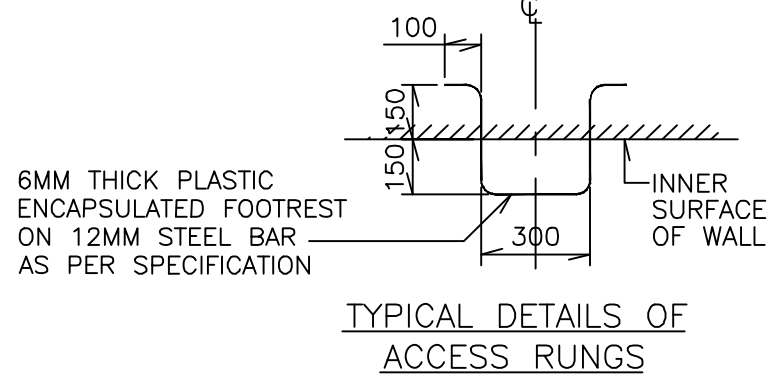
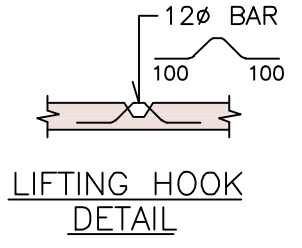
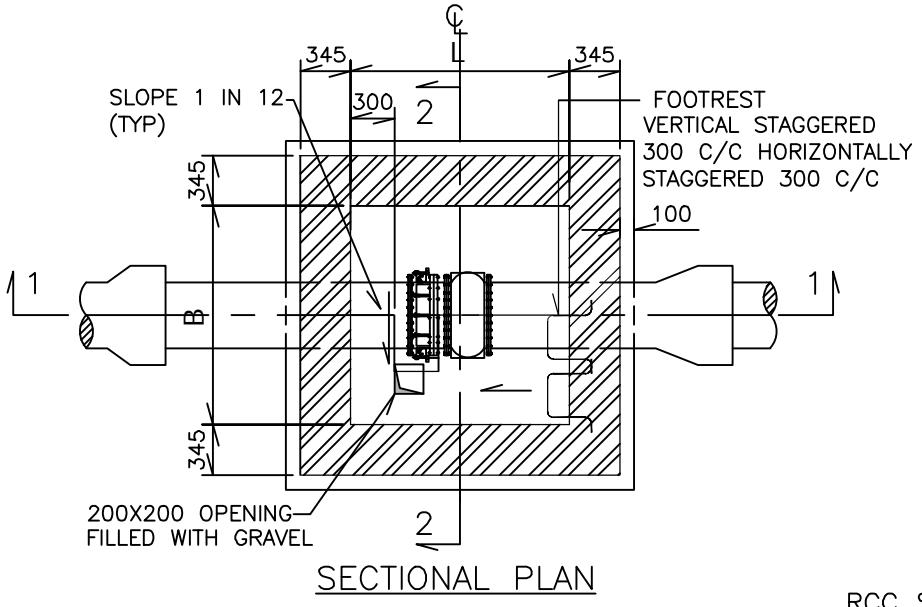
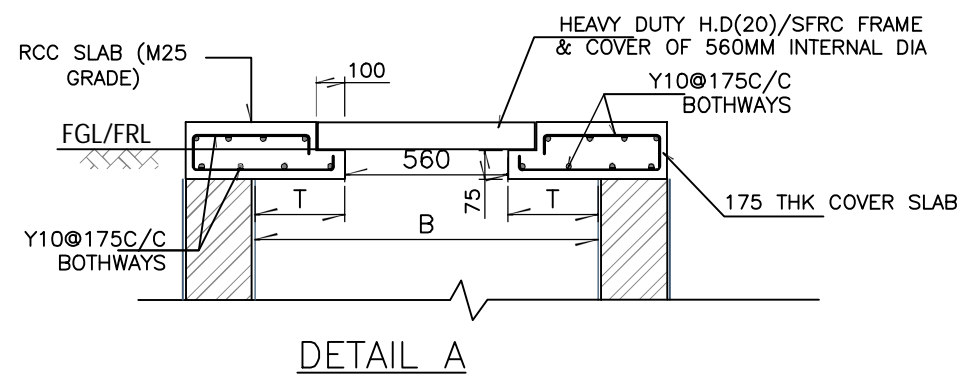
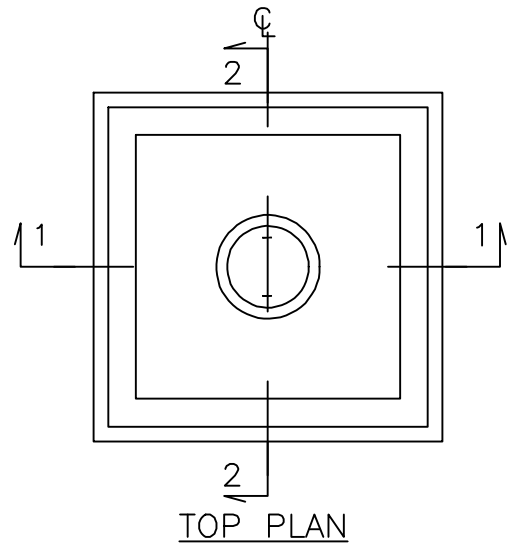


TABLE:

DIA. OF PIPE	CHAMBER SIZE			PEDESTAL		
	L	B	D	l	b	d (Min)
300	1200	1200	1600	150	250	100
200	1200	1200	1600	100	200	100
150	900	900	1600	100	150	100

- LEGEND**
- TYP --- TYPICAL
  - DIA --- DIAMETER
  - UN --- UNLESS NOTED
  - MS --- MILD STEEL
  - DI --- DUCTILE IRON
  - THK --- THICK
  - CL --- CENTER LINE
  - IL --- INVERT LEVEL
  - PCC --- PLAIN CEMENT CONCRETE
  - RC --- REINFORCED CONCRETE
  - EQ. --- EQUAL

- NOTES:**
1. ALL DIMENSIONS ARE IN MILLIMETRE AND LEVELS IN METRE UNLESS NOTED.
  2. GRADE OF PCC SHALL BE M15 WITH MAXIMUM 40mm DOWN GRADED AGGREGATES CONFORMING TO SPECIFICATION.
  3. REINFORCEMENT SHALL BE HIGH YIELD STRENGTH DEFORMED BARS TO GRADE Fe500 CONFORMING TO IS:1786 (LATEST ISSUE).
  4. CLEAR COVER TO MAIN REINFORCEMENT SHALL BE AS FOLLOWS.  
RC COVER-20mm TOP & BOTTOM
  5. SAFE BEARING CAPACITY OF SOIL IS CONSIDERED AS 15 T/Sqm. AT FOUNDING LEVEL.
  6. THE ARRANGEMENT RELATED TO VALVE AND FITTINGS SHOWN IN THE DRAWING ARE INDICATIVE ONLY. BEFORE CONSTRUCTION, ARRANGEMENT OF VALVE AND FITTINGS SHALL BE PROVIDED BY THE CONTRACTOR TO ENGINEER FOR APPROVAL.
  7. BRICK MASONRY SHALL BE IN CM (1:4).
  8. BRICKS SHALL BE OF MINIMUM 75 Kg/cm<sup>2</sup> COMPRESSIVE STRENGTH.
  9. THE TYPICAL DETAILS OF CHAMBER ARE APPLICABLE FOR 150mm TO 600mm DIA PIPELINE.
  10. VALVE CHAMBERS SHALL BE CONSTRUCTED IN RCC IN CASE HIGH WATER TABLE AND SPACE CONSTRAINT.
  11. THE FOOTREST SHALL BE PROVIDED FROM TOP COVER TO PIPE BARREL TOP AND THEN PIPE BARREL TOP UPTO 300mm ABOVE CHAMBER BOTTOM.
  12. VALVE SPINDLE EXTENSIONS TO BE FITTED TO BRING TOP OF VALVE SPINDLE TO WITHIN 100mm TO UNDERSIDE OF RC COVER.

DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE CS09)  
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

TYPICAL SLUICE VALVE CHAMBER DETAILS

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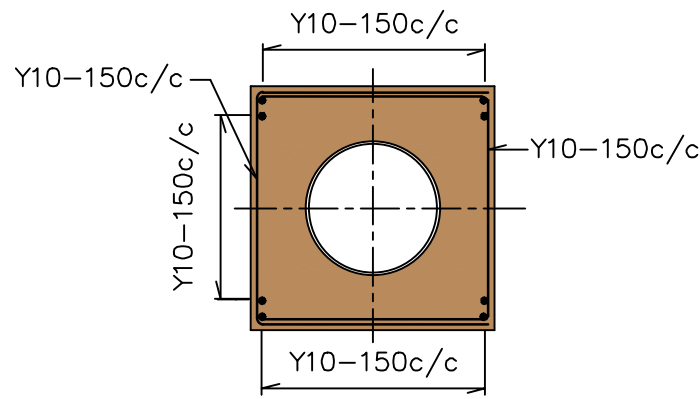
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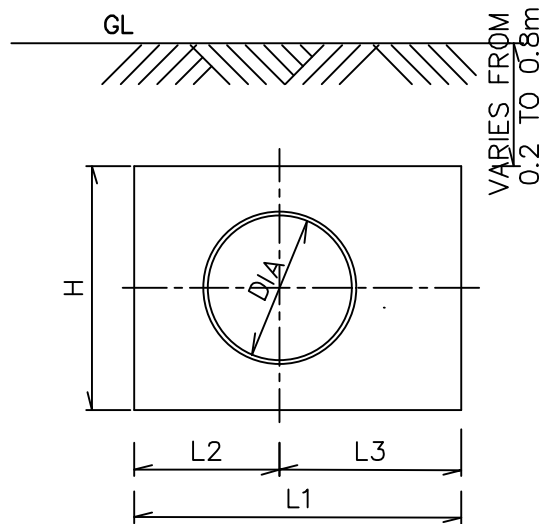
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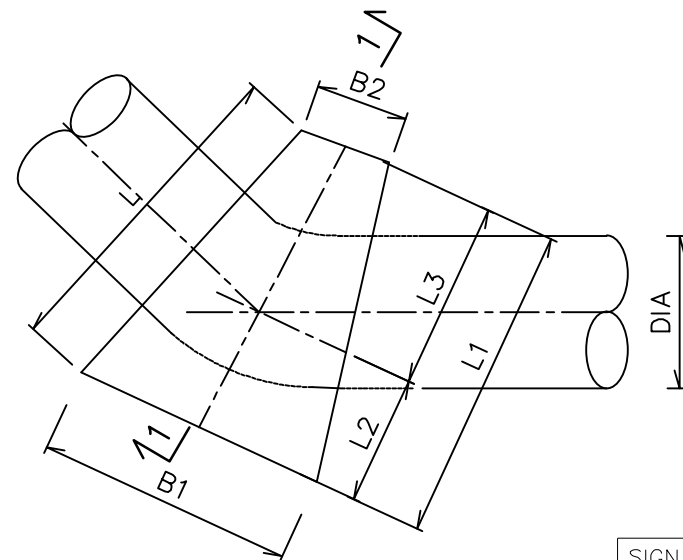
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**DETAILS OF CONCRETE BED & ENCASEMENT OF PIPE**



**SECTION 1-1**



**TYPICAL THRUST BLOCK**


TABLE											
INTERNAL DIAMETER OF PIPE (mm)	ANGLE OF BEND	DESIGN PRESSURE (kg/m <sup>2</sup> )	SOIL COVER OVER PIPE Ds (mm)	H (m)	L1 (m)	L2 (m)	L3 (m)	L (m)	B1 (m)	B2 (m)	
100	90°	4.35	1000	0.70	0.75	0.40	0.35	0.77	0.70	0.35	
100	45°	4.35	1000	0.60	0.55	0.30	0.25	0.57	0.60	0.30	
100	22.5°	4.35	1000	0.45	0.45	0.25	0.20	0.46	0.50	0.25	
100	90°	4.85	1000	0.70	0.80	0.45	0.35	0.82	0.70	0.35	
100	45°	4.85	1000	0.60	0.55	0.30	0.25	0.57	0.60	0.30	
100	22.5°	4.85	1000	0.50	0.45	0.25	0.20	0.47	0.50	0.25	
100	90°	5.93	1000	0.80	0.75	0.40	0.35	0.78	0.80	0.40	
100	45°	5.93	1000	0.65	0.65	0.35	0.30	0.67	0.70	0.35	
100	22.5°	5.93	1000	0.50	0.55	0.30	0.25	0.56	0.50	0.25	
150	90°	3.33	1000	0.85	0.85	0.45	0.40	0.88	0.90	0.45	
150	45°	3.33	1000	0.70	0.70	0.40	0.30	0.72	0.70	0.35	
150	22.5°	3.33	1000	0.55	0.55	0.30	0.25	0.57	0.50	0.25	
250	90°	3.75	1000	1.25	1.25	0.70	0.55	1.29	1.30	0.65	
250	45°	3.75	1000	1.00	1.05	0.60	0.45	1.08	1.00	0.50	
250	22.5°	3.75	1000	0.80	0.80	0.45	0.35	0.82	0.80	0.40	
250	90°	6.03	1000	1.45	1.45	0.80	0.65	1.49	1.50	0.75	
250	45°	6.03	1000	1.15	1.25	0.70	0.55	1.28	1.10	0.55	
250	22.5°	6.03	1000	0.95	0.90	0.50	0.40	0.93	0.90	0.45	
350	90°	5.93	1000	1.80	1.80	1.00	0.80	1.86	1.80	0.90	
350	45°	5.93	1000	1.45	1.55	0.85	0.70	1.59	1.50	0.75	
350	22.5°	5.93	1000	1.20	1.15	0.65	0.50	1.19	1.20	0.60	
500	90°	4.68	1000	2.15	2.05	1.15	0.90	2.12	2.20	1.10	
500	45°	4.68	1000	1.70	1.80	1.00	0.80	1.85	1.70	0.85	
500	22.5°	4.68	1000	1.40	1.35	0.75	0.60	1.39	1.40	0.70	

**LEGEND:**

- DIA ——— DIAMETER
- B ——— BREADTH
- L ——— LENGTH
- H ——— HEIGHT
- mm ——— MILLIMETERS

**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS IN METRES UNLESS NOTED.
2. INVERT LEVEL OF PIPES SHALL BE AS PER RELEVANT NETWORK DRAWINGS.
3. NO CONCRETE SHALL BE PLACED AROUND JOINTS OF PIPELINE, UNTIL THAT LENGTH OF PIPE HAS PASSED SECTIONAL HYDRAULIC TEST.
4. STEEL FOR REINFORCEMENT SHALL BE HIGH YIELD STRENGTH DEFORMED BARS OF GRADE Fe 500
5. REINFORCEMENT LAP LENGTHS SHALL BE 50xDIAMETER OF SMALLER BAR.
6. CONCRETE TO BE USED SHALL BE OF GRADE M20 WITH 20mm DOWN GRADED AGGRAGATES CONFORMING TO SPECIFICATIONS.
7. CLEAR COVER TO REINFORCEMENT  
BOTTOM AND SIDES – 30mm
8. DURING CONSTRUCTION, IF GROUND WATER TABLE IS MET WITH, IT SHALL BE BROUGHT TO THE NOTICE OF ENGINEER FOR MAKING NECESSARY CHANGES IN THE DESIGN.
9. SOIL BENEATH AND BY THE SIDE OF THE THRUST BLOCK, WHICH ULTIMATELY BEARS THRUST THROUGH CONCRETE MEDIUM, MUST REMAIN UNDISTURBED. IN CASE ANY EXTRA EXCAVATION IS DONE IN TRENCHES, WHERE THE THRUST BLOCK IS TO BE PROVIDED, THE SAME SHALL BE FILLED WITH 1:4:8 CONCRETE
10. PIPES AND SPECIALS SHALL BE SUITABLY SUPPORTED WHILE CONCRETING THE THRUST BLOCK AS DIRECTED BY ENGINEER.
11. TESTING OF MAINS SHALL BE DONE AFTER CASTING OF THRUST BLOCKS AND COMPACTION OF BACKFILLING.
12. AT THE TIME OF TESTING, COMPACTED SOIL SHALL BE PLACED ON THE THRUST BLOCK UP TO THE ROAD LEVEL.
13. THRUST BLOCKS NEED TO BE PLACED AS PER SITE CONDITION

 DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE CS09)  
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

TYPICAL DETAILS OF THRUST BLOCK

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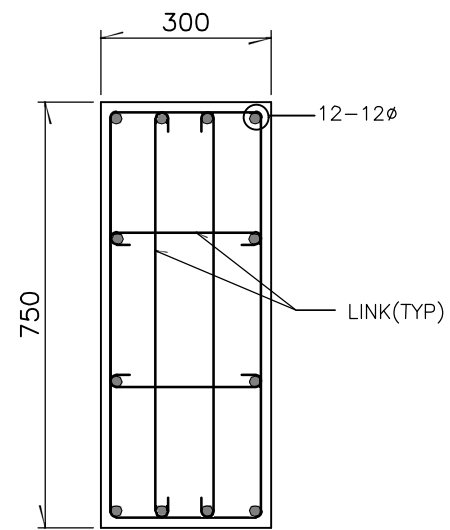
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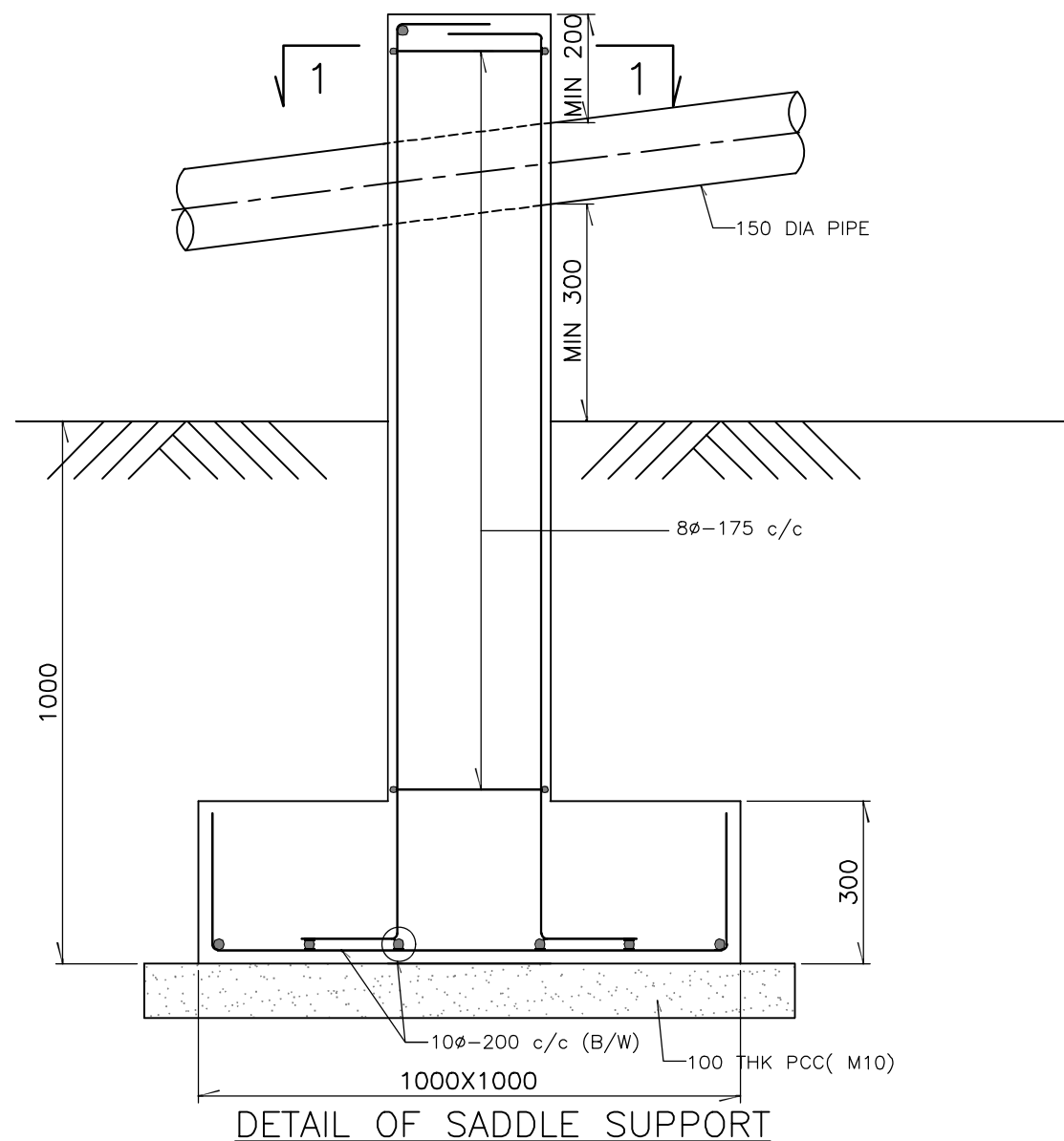
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SEC 1-1



DETAIL OF SADDLE SUPPORT

**LEGEND**

- DIA ---- DIAMETER
- C/C ---- CENTRE TO CENTRE
- THK ---- THICK
- B/W ---- BOTHWAYS
- PCC ---- PLAIN CEMENT CONCRETE
- TYP ---- TYPICAL

**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS IN METRES UNLESS NOTED.
2. DO NOT SCALE THE DRAWING. FOLLOW FIGURED DIMENSIONS ONLY.
3. GRADE OF CONCRETE SHALL BE M30 WITH MAXIMUM 20mm DOWNGRADED AGGREGATES CONFORMING TO IS 456.
4. STEEL FOR REINFORCEMENT SHALL BE HIGH YIELD STRENGTH DEFORMED BARS OF GRADE FE-500 CONFORMING TO IS:1786.
5. SAFE BEARING CAPACITY OF SOIL IS TAKEN AS 10T/Sq.m. AT FOUNDING LEVEL AND SAME IS TO BE CONFIRMED AT SITE BEFORE EXECUTION.
6. PLAIN CEMENT CONCRETE UNDER FOUNDATION SHALL BE OF GRADE M10 CONFORMING TO IS 456.
7. IF ANY LOOSE SOIL IS ENCOUNTERED AT FOUNDING LEVEL DURING CONSTRUCTION, IT SHOULD BE BROUGHT TO THE NOTICE OF THE ENGINEER.
8. IF GROUND WATER TABLE IS ENCOUNTERED DURING CONSTRUCTION, IT SHOULD BE BROUGHT TO THE NOTICE OF THE ENGINEER FOR MAKING APPROPRIATE CHANGES IN THE DESIGN.
9. THE SPACING OF CONSTRUCTION JOINT SHALL NOT BE MORE THAN 1.20M.

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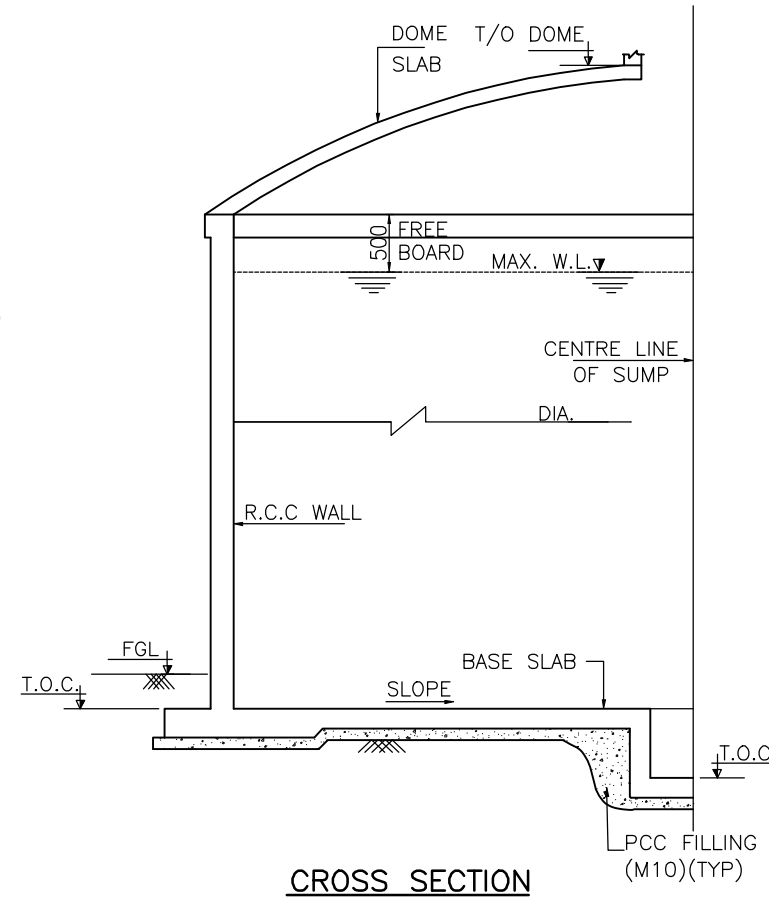
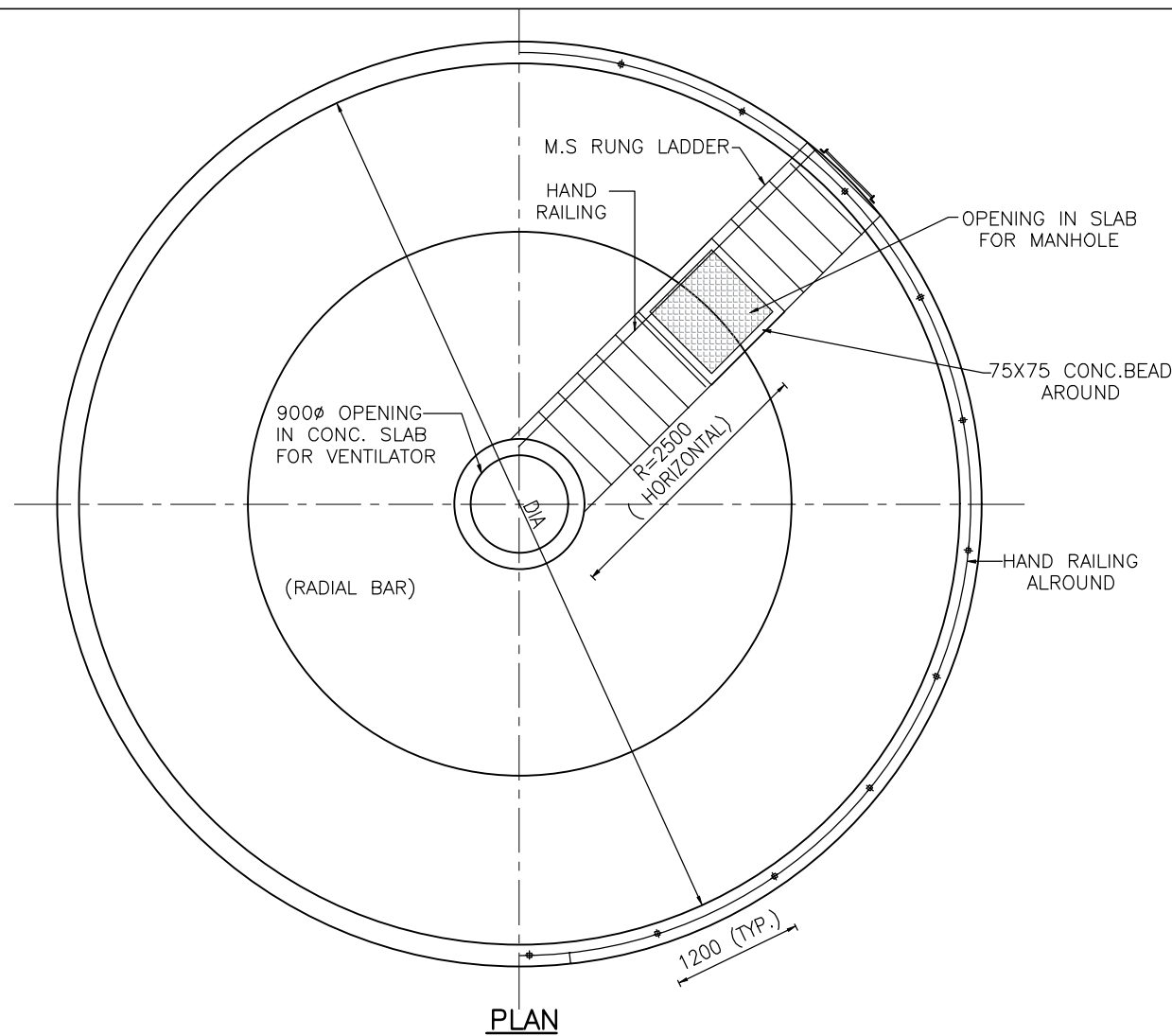

**DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE CS09)**  
 IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

TYPICAL DETAIL OF SADDLE SUPPORT


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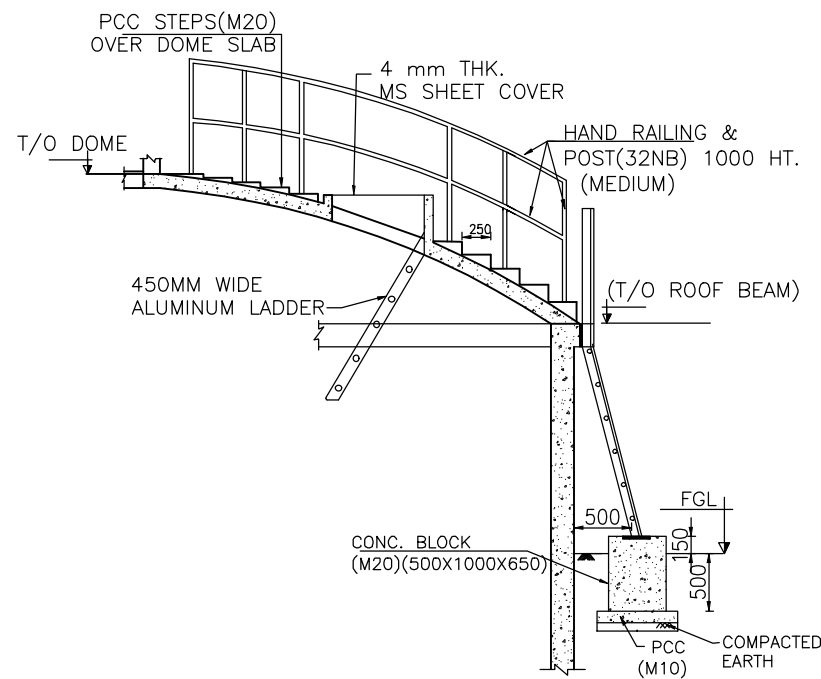


**LEGEND**

- DIA --- DIAMETER
- R --- RADIUS
- PCC --- PLAIN CEMENT CONCRETE
- TYP --- TYPICAL
- WL --- WATER LEVEL
- M.S. --- MILD STEEL
- T/O --- TOP OF

**NOTES**

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS IN METRES UNLESS NOTED.
2. DO NOT SCALE THE DRAWING. FOLLOW FIGURED DIMENSIONS ONLY.
3. GRADE OF CONCRETE SHALL BE M30 WITH MAXIMUM 20mm DOWNGRADED AGGREGATES CONFORMING TO IS 456.
4. STEEL FOR REINFORCEMENT SHALL BE HIGH YIELD STRENGTH DEFORMED BARS OF GRADE FE-500 CONFORMING TO IS:1786.
5. SAFE BEARING CAPACITY OF SOIL IS TAKEN AS 10T/Sq.m. AT FOUNDING LEVEL AND SAME IS TO BE CONFIRMED AT SITE BEFORE EXECUTION.
6. PLAIN CEMENT CONCRETE UNDER FOUNDATION SHALL BE OF GRADE M10 CONFORMING TO IS 456.
7. IF ANY LOOSE SOIL IS ENCOUNTERED AT FOUNDING LEVEL DURING CONSTRUCTION, IT SHOULD BE BROUGHT TO THE NOTICE OF THE ENGINEER.
8. IF GROUND WATER TABLE IS ENCOUNTERED DURING CONSTRUCTION, IT SHOULD BE BROUGHT TO THE NOTICE OF THE ENGINEER FOR MAKING APPROPRIATE CHANGES IN THE DESIGN.
9. THE SPACING OF CONSTRUCTION JOINT SHALL NOT BE MORE THAN 1.20M.



 DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE CS09)  
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

TYPICAL GLSR DETAILS  
(1,00,000,1,50,000, 2,00,000, 2,50,000 LITRE CAPACITY)


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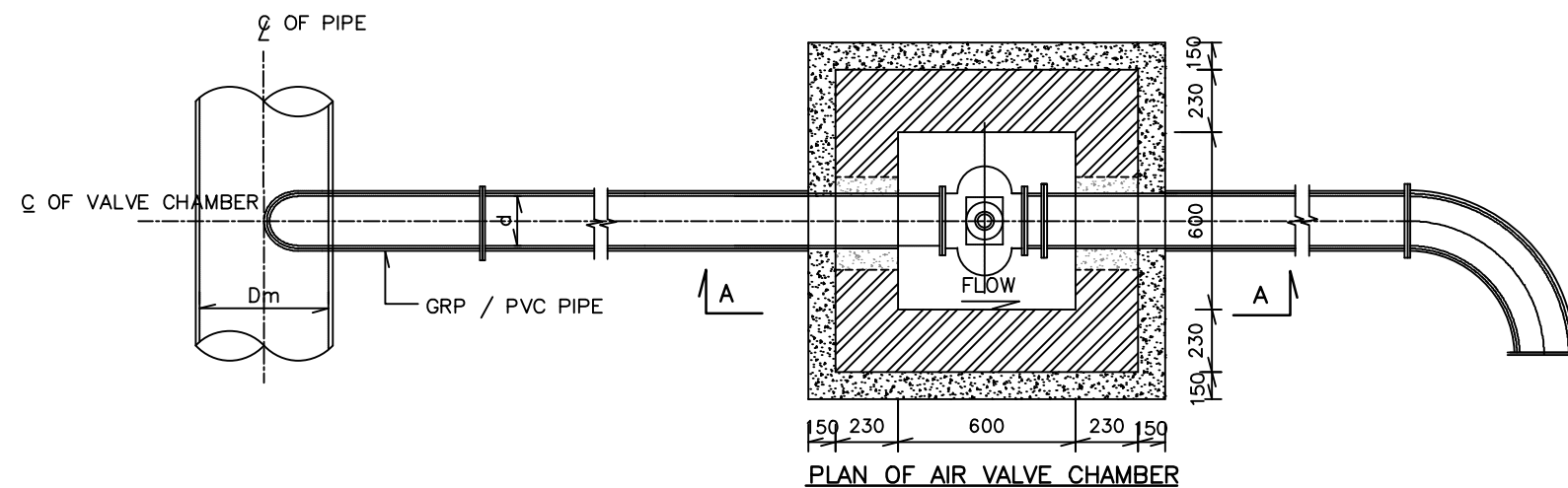
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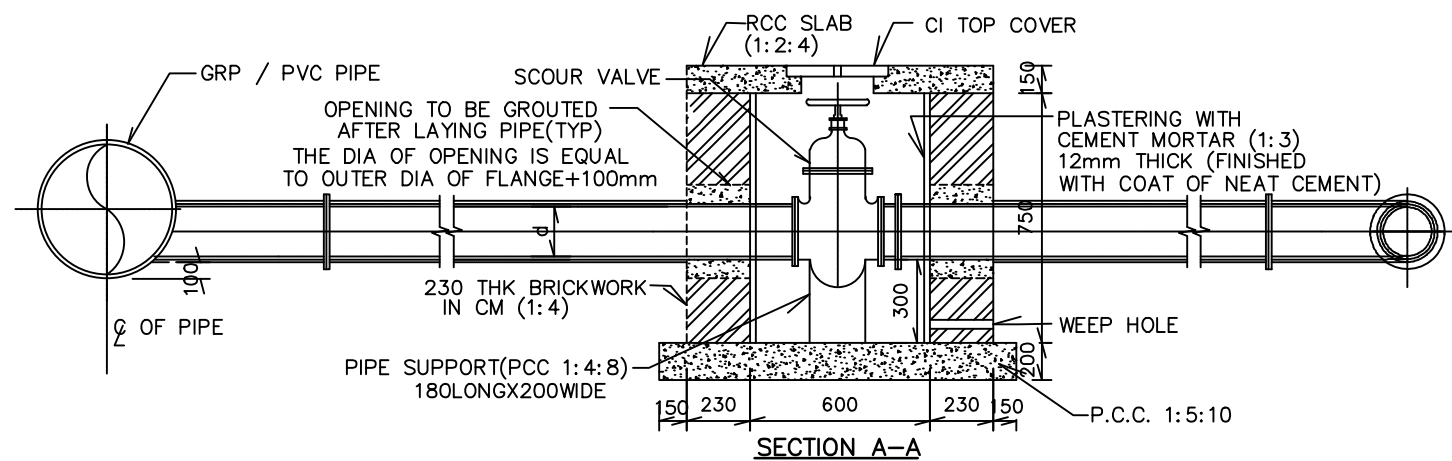
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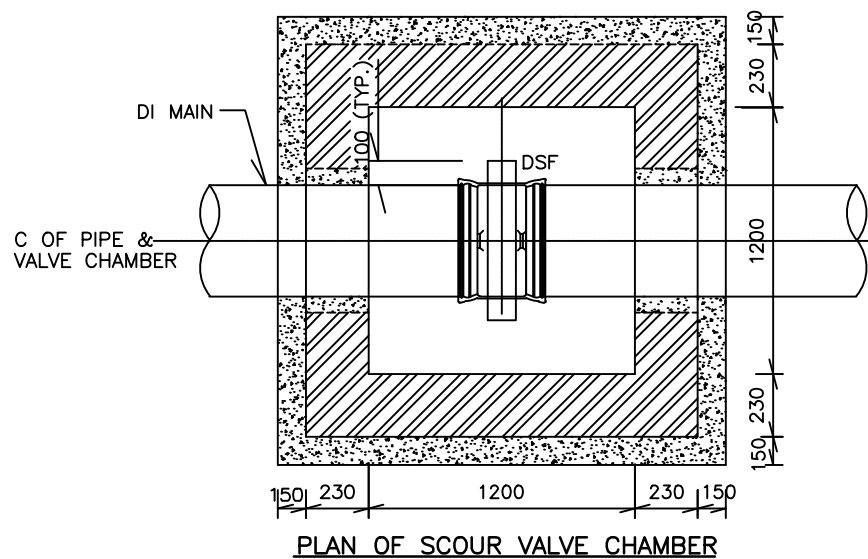




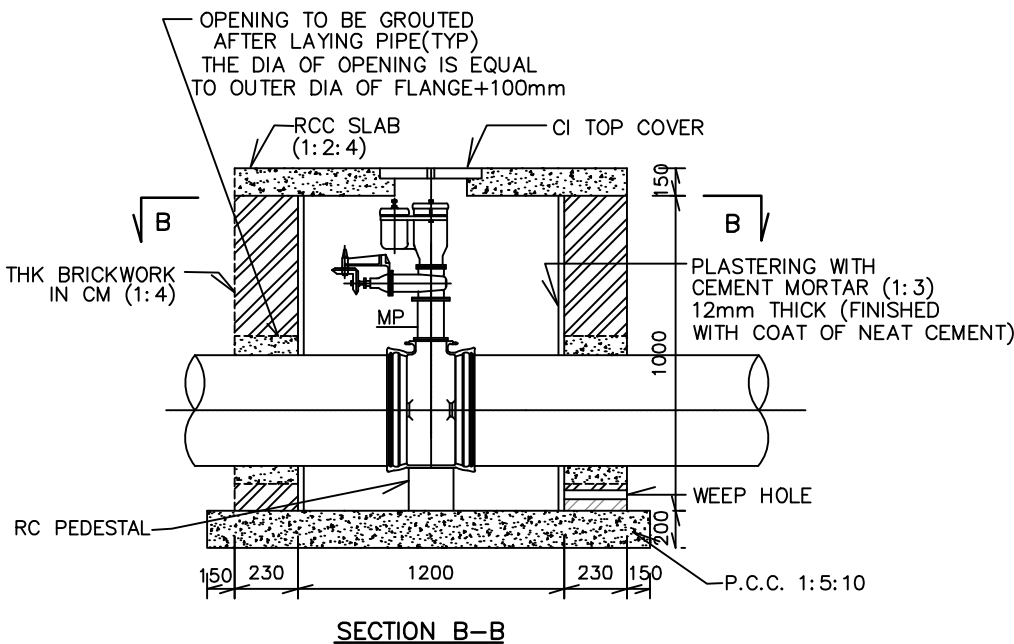
PLAN OF AIR VALVE CHAMBER



SECTION A-A



PLAN OF SCOUR VALVE CHAMBER



SECTION B-B

**LEGEND**

- RCC ——— REINFORCED CEMENT CONCRETE
- PCC ——— PLAIN CEMENT CONCRETE
- CI ——— CAST IRON
- CM ——— CEMENT MORTAR
- THK ——— THICK
- PVC ——— POLY VINYL CHLORIDE
- Dm/d ——— INTERNAL CLEAR DIAMETER OF PIPELINE
- DI ——— DUCTILE IRON
- DSF ——— DOUBLE SOCKET FLANGE
- Q ——— CENTER LINE
- MP ——— MAKEUP PIECE

**NOTES**

1. ALL DIMENSIONS ARE IN MM. & LEVELS ARE IN METRES.
2. GRADE OF REINFORCED CEMENT CONCRETE SHALL 1:2:4
3. THE ACTUAL GLS AND ILS OF ALL CHAMBERS SHALL BE FIXED BY THE CONTRACTOR IN CONSULTATION WITH THE ENGINEER-IN-CHARGE.
4. EXACT ORIENTATION AND LOCATION OF THE CHAMBERS SHALL BE DECIDED BY THE CONTRACTOR IN CONSULTATION WITH THE ENGINEER-IN-CHARGE.
5. CEMENT SHALL BE ORDINARY PORTLAND TYPE CONFORMING TO IS:269 UN,
6. MAXIMUM SIZE OF AGGREGATES SHALL BE 20mm DOWNGRADED FOR RAFT, WALLS, BEAMS AND SLABS.
7. BACKFILLING AROUND WALLS TO BE DONE UNIFORMLY ALL ROUND IN SUCCESSIVE LIFTS OF EQUAL HEIGHT AS PER SPECIFICATION BACKFILLING SHALL BE DONE ONLY WHEN DIRECTED BY ENGINEER.
8. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH TENDER SPECIFICATION.
9. CHAMBER TO BE PLASTERED INTERNALLY WITH CEMENT MORTAR 1:3 IN 12MM THICKNESS.
10. GRADE OF CONCRETE SHALL BE M20 WITH MAXIMUM 20mm DOWN GRADED AGGREGATES CONFORMING TO SPECIFICATION.
11. FOR LOCATION OF VALVE CHAMBERS REFER NETWORK DISTRIBUTION DRAWING. THE CONTRACTOR SHALL OBTAIN ENGINEER'S APPROVAL FOR ALL VALVE CHAMBER LOCATIONS AND LEVELS BEFORE EXECUTION.
12. THE ARRANGEMENT RELATED TO VALVE AND FITTINGS SHOWN IN THE DRAWING ARE INDICATIVE ONLY. BEFORE CONSTRUCTION, ARRANGEMENT OF VALVE & FITTINGS SHALL BE PROVIDED BY THE CONTRACTOR TO ENGINEER FOR APPROVAL.



DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE CS09)  
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

TYPICAL DETAILS OF SCOUR VALVE  
AND AIR VALVE CHAMBER

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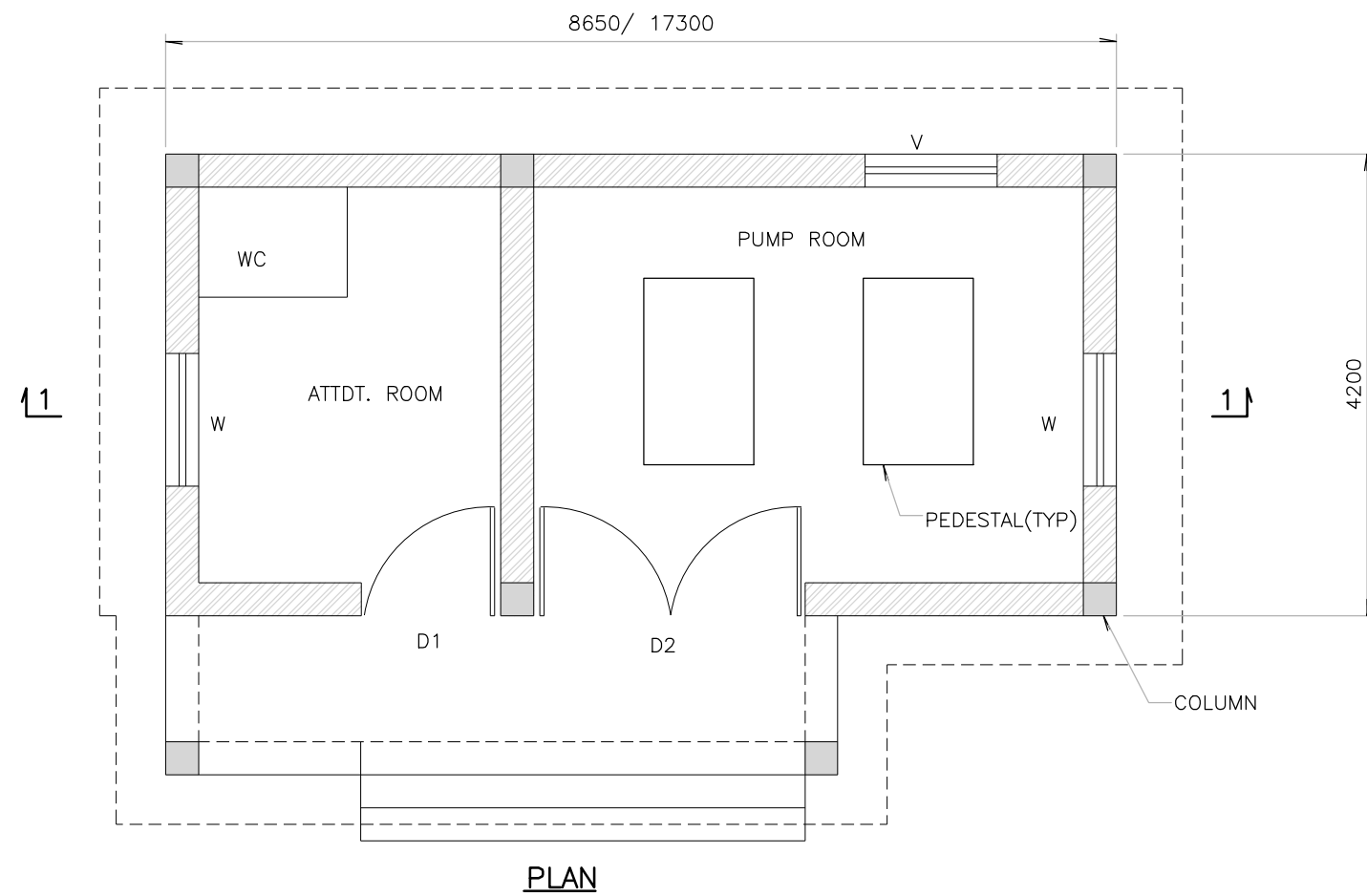
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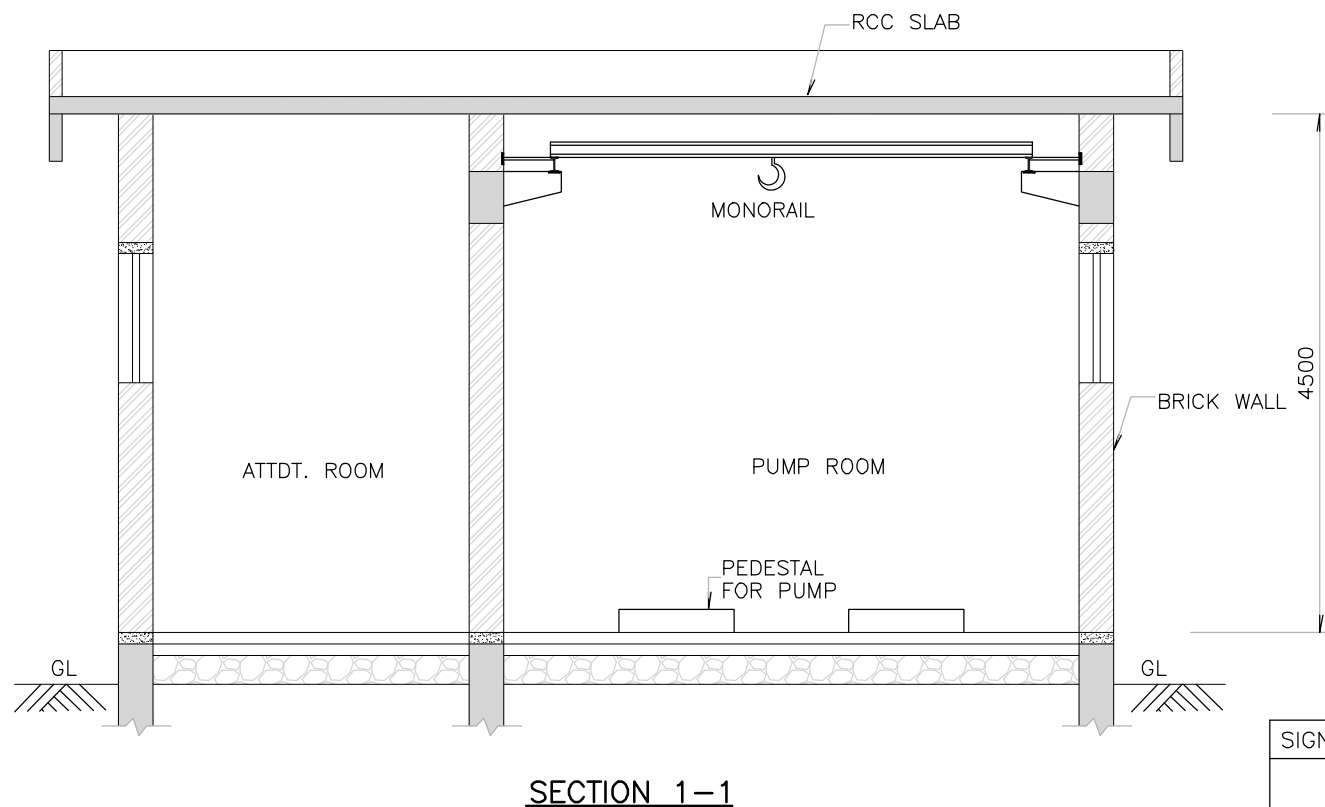


**LEGEND**

- ATTDT: --- ATTENDANT
- RCC --- REINFORCED CEMENT CONCRETE
- TYP --- TYPICAL
- GL --- GROUND LEVEL

**NOTES**

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS IN METRES UNLESS NOTED.
2. DO NOT SCALE THE DRAWING. FOLLOW FIGURED DIMENSIONS ONLY.
3. GRADE OF CONCRETE SHALL BE M20 WITH MAXIMUM 20mm DOWNGRADED AGGREGATES CONFORMING TO IS 456.
4. SAFE BEARING CAPACITY OF SOIL IS TAKEN AS 10T/Sq.m. AT FOUNDING LEVEL AND SAME IS TO BE CONFIRMED AT SITE BEFORE EXECUTION.
5. PLAIN CEMENT CONCRETE UNDER FOUNDATION SHALL BE OF GRADE M10 CONFORMING TO IS 456.
6. IF ANY LOOSE SOIL IS ENCOUNTERED AT FOUNDING LEVEL DURING CONSTRUCTION, IT SHOULD BE BROUGHT TO THE NOTICE OF THE ENGINEER.
7. IF GROUND WATER TABLE IS ENCOUNTERED DURING CONSTRUCTION, IT SHOULD BE BROUGHT TO THE NOTICE OF THE ENGINEER FOR MAKING APPROPRIATE CHANGES IN THE DESIGN.
8. THE SPACING OF CONSTRUCTION JOINT SHALL NOT BE MORE THAN 1.20M.

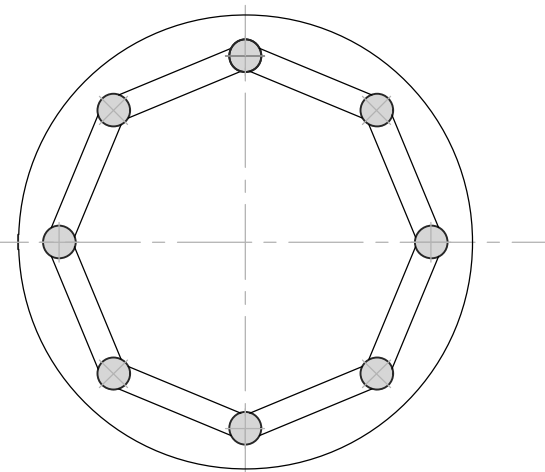
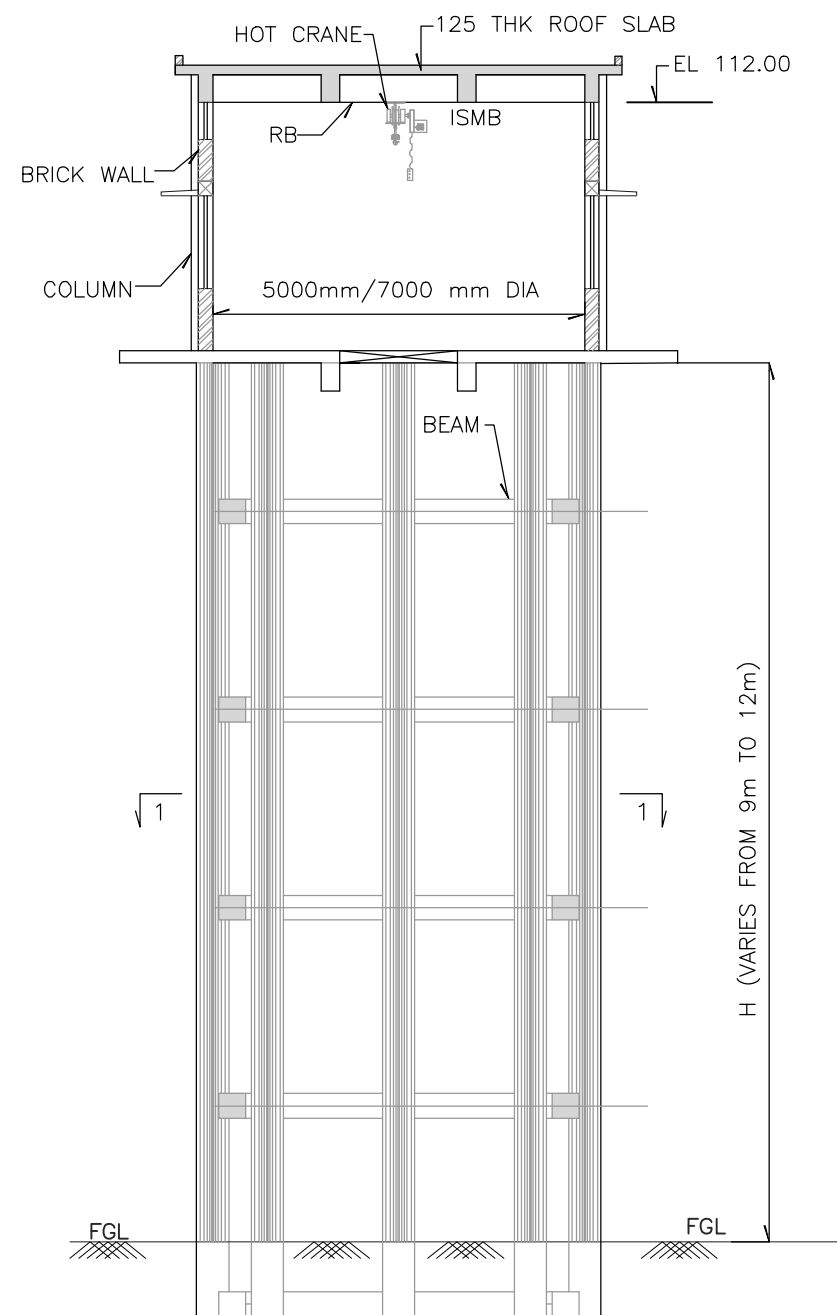


DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE CS09)  
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

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FILE NAME 12503A-CV-30586-Rev-P1		DC & DISC: DEL-CV	

<b>TYPICAL DETAILS OF PUMP HOUSE</b>			
<b>TATA CONSULTING ENGINEERS LIMITED</b>			
<b>MUMBAI</b>			
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ISSUE		P1	

P1	SIGN.	SM	AD	DVB						MK	DK	08-06-2022	*P* (PRELIMINARY) ISSUES ARE NOT TO BE USED FOR CONSTRUCTION / FABRICATION BUT ARE ISSUED FOR LIMITED PURPOSES ONLY AS INDICATED IN THE SMALL BLOCK ABOVE THIS BLOCK.  CONSTRUCTION / FABRICATION WORK IS PERMITTED ON 'R' (RELEASED) ISSUES ONLY.  INFORMATION CONTAINED WITHIN 'HOLD' IS NOT RELEASED FOR CONSTRUCTION / FABRICATION. FIELD MUST GET DESIGN OFFICE TO CLEAR 'HOLDS' IN TIME BEFORE PROCEEDING WITH ANY CONSTRUCTION/ FABRICATION WORK RELATED TO 'HOLDS'.
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P0	SIGN.	SM	LD/AD	DVB						MK	DK	15-04-2022	
	INITIALS												
ISSUE	DRN	DSN	CHD	CV	EL	IC	ME			PE/PM	APPD	DATE (dd-mm-yyyy)	
				CLEARED									



SECTIONAL PLAN  
SEC 1-1

**LEGEND:**

- DIA----- DIAMETER
- H----- STAGE HEIGHT
- THK----- THICKNESS
- FGL-----FINISHED GROUND LEVEL
- RB----- ROOF BEAM

**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS IN METRES UNLESS NOTED.
2. DO NOT SCALE THE DRAWING. FOLLOW FIGURED DIMENSIONS ONLY.
3. GRADE OF CONCRETE SHALL BE M30 WITH MAXIMUM 20mm DOWNGRADED AGGREGATES CONFORMING TO IS 456.
4. STEEL FOR REINFORCEMENT SHALL BE HIGH YIELD STRENGTH DEFORMED BARS OF GRADE FE-500 CONFORMING TO IS:1786.
5. SAFE BEARING CAPACITY OF SOIL IS TAKEN AS 10T/Sq.m. AT FOUNDING LEVEL AND SAME IS TO BE CONFIRMED AT SITE BEFORE EXECUTION.
6. PLAIN CEMENT CONCRETE UNDER FOUNDATION SHALL BE OF GRADE M10 CONFORMING TO IS 456.
7. IF ANY LOOSE SOIL IS ENCOUNTERED AT FOUNDING LEVEL DURING CONSTRUCTION, IT SHOULD BE BROUGHT TO THE NOTICE OF THE ENGINEER.
8. IF GROUND WATER TABLE IS ENCOUNTERED DURING CONSTRUCTION, IT SHOULD BE BROUGHT TO THE NOTICE OF THE ENGINEER FOR MAKING APPROPRIATE CHANGES IN THE DESIGN.
9. THE SPACING OF CONSTRUCTION JOINT SHALL NOT BE MORE THAN 1.20M.

SECTION ELEVATION


 DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE CS09)  
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

GENERAL ARRANGEMENT OF INTAKE WELL

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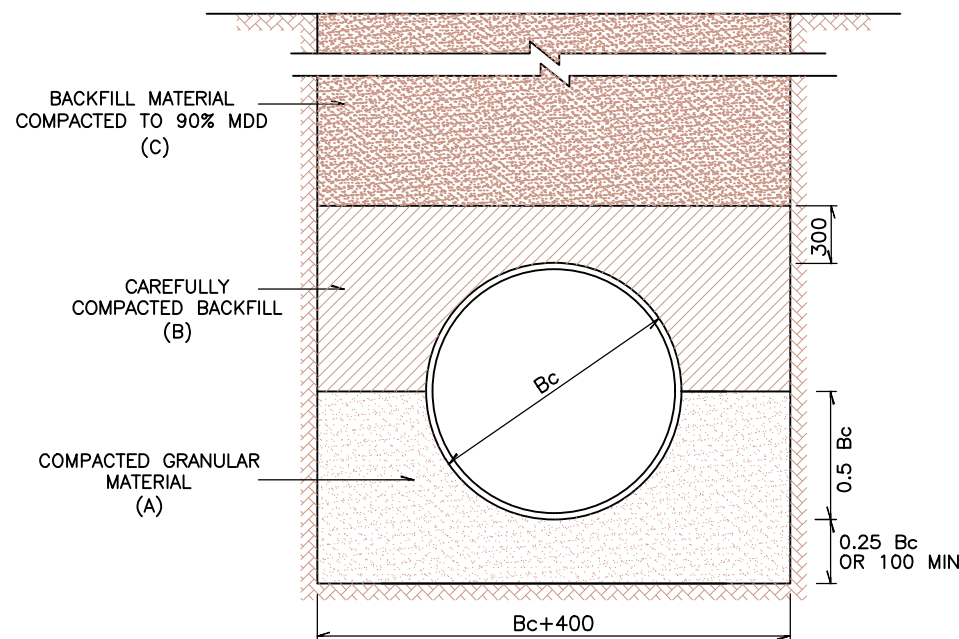
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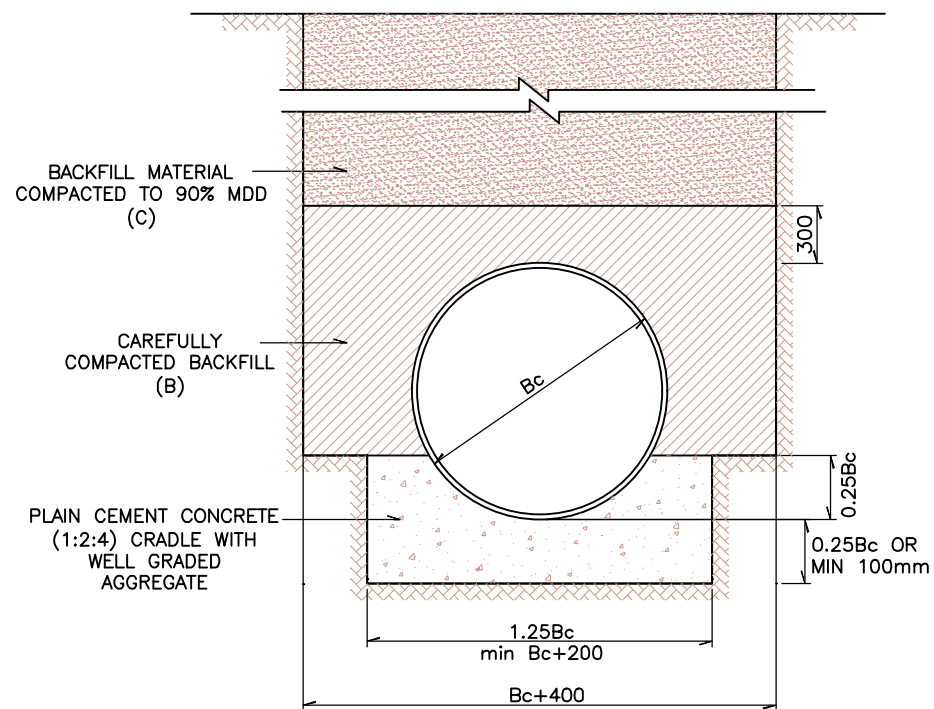
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	INITIALS	AS PER CLIENT OBSERVATION											
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**GRANULAR BEDDING (GRB)  
CLASS-B**



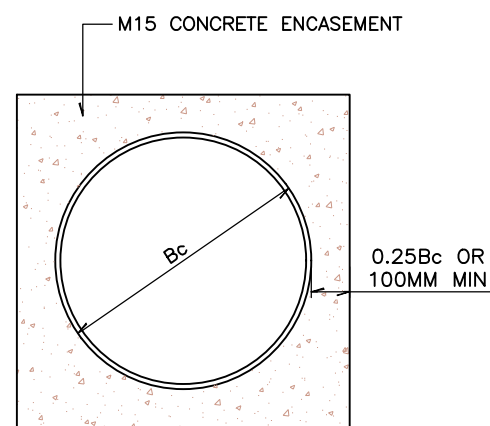
**PLAIN CEMENT CONCRETE BEDDING (PCCB)  
CLASS-Ab**

**LEGEND:**

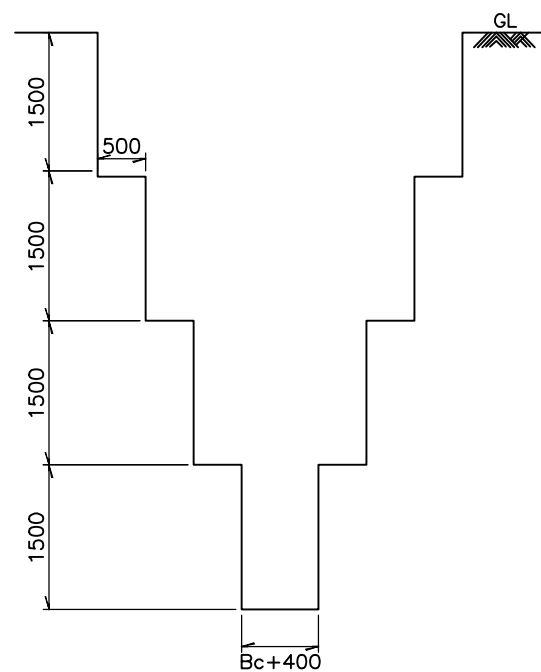
- GL GROUND LEVEL
- C.M. CEMENT MORTAR
- TYP TYPICAL
- MAX MAXIMUM
- DIA DIAMETER
- THK THICK
- MS MILD STEEL
- Bc OUTER DIAMETER OF PIPE
- d INTERNAL DIAMETER OF PIPE

**NOTES:**

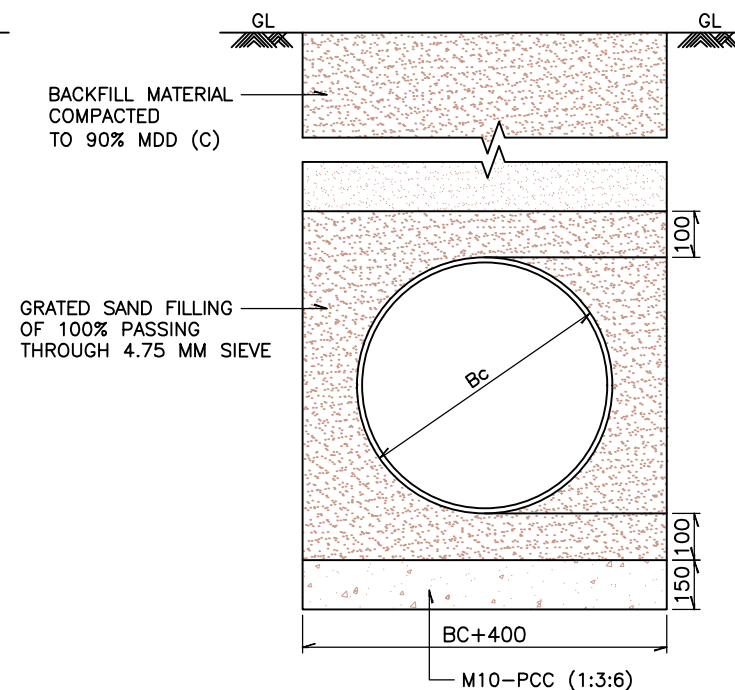
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.
2. INTERNAL DIAMETER OF PIPE = D
3. OUTER DIAMETER OF PIPE = Bc.
4. BACKFILLING WITH APPROVED SELECTED EXCAVATED MATERIAL AND COMPACTION SHALL BE DONE BY HAND OR APPROVED MECHANICAL METHODS IN LAYERS OF 150MM WITH SPECIAL CARE TO AVOID DAMAGE OF THE PIPE
5. BACKFILLING SHALL BE DONE WITH EXCAVATED MATERIAL BY HAND OR APPROVED MECHANICAL METHODS IN LAYERS NOT EXCEEDING 150 MM THICKNESS AFTER COMPACTION, WETTED AND COMPACTION TO A DENSITY OF NOT LESS THAN 90% OF MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT OF THE SURROUNDING MATERIAL.
6. LAYER A. COMPACTED GRANULAR MATERIAL
7. LAYER B. CAREFULLY COMPACTED BACKFILL
8. LAYER C. BACKFILL MATERIAL COMPACTED TO 90% M.D.D



**CONCRETE ENCASEMENT**



**TYPICAL SECTION OF TRENCH**



**SAND BEDDING (SB) CLASS-S**



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TYPICAL DETAILS OF BEDDING AND TRENCH

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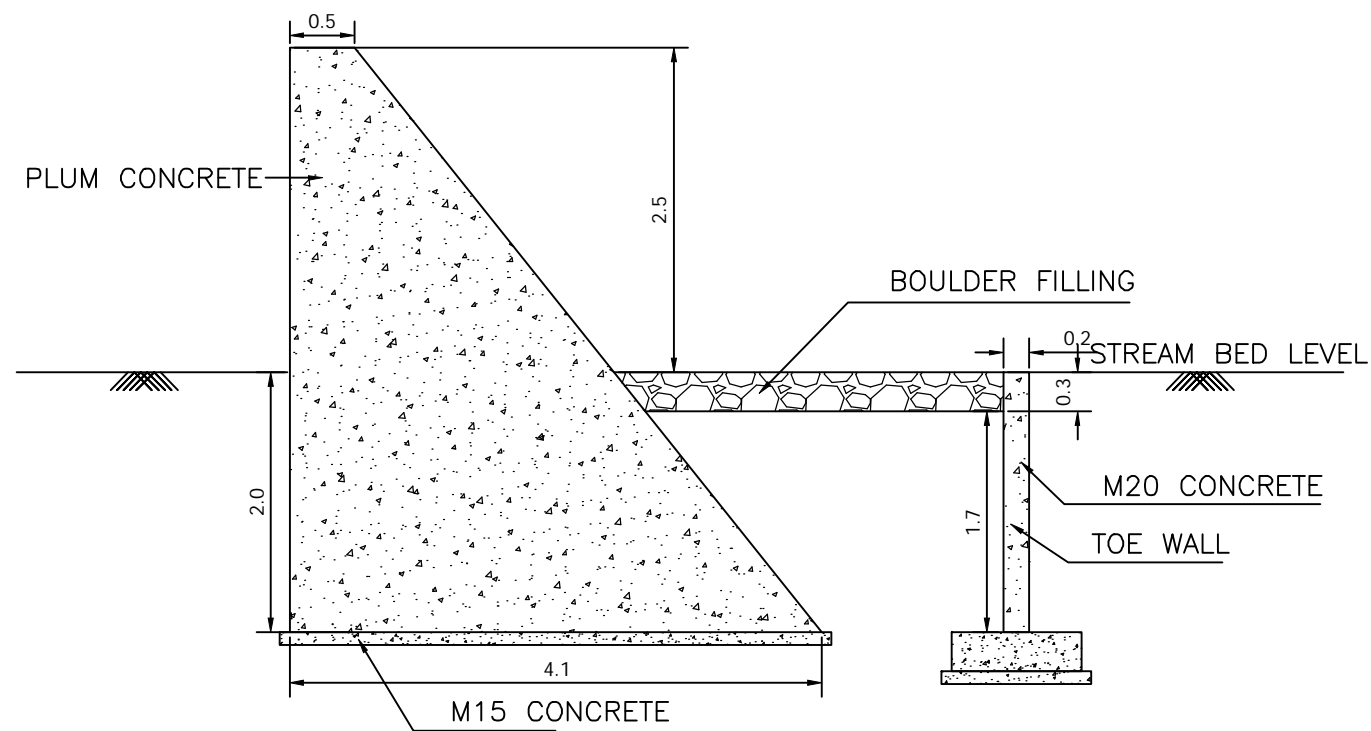
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PO	REVISIONS									
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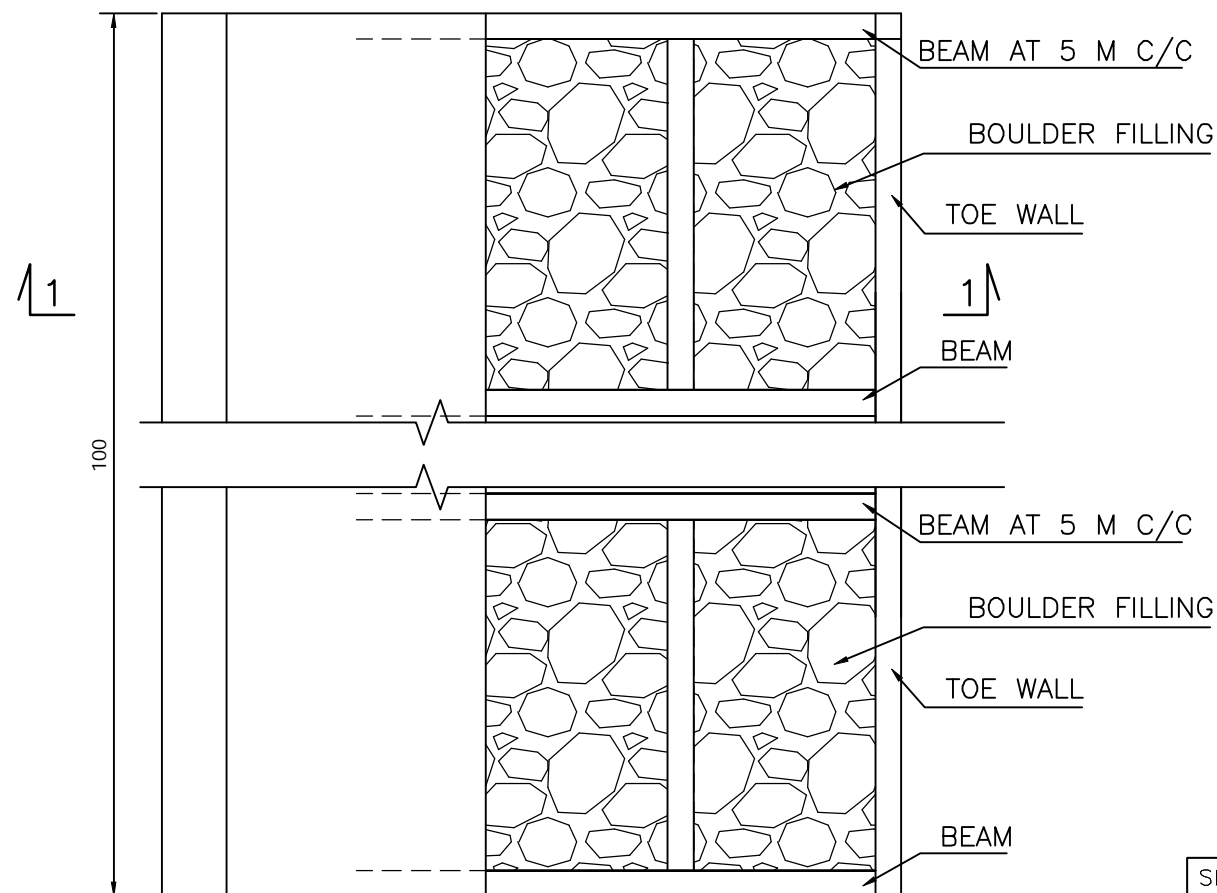
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FILE NAME 12503A-CV-30588-Rev-P0	DC & DISC: DEL-CV	



SECTION 1-1



PLAN

**NOTES**

1. ALL DIMENSIONS ARE IN METER.
2. THIS DRAWING HAS BEEN PREPARED IN ABSENCE OF DETAILED SURVEY AND GEOTECHNICAL INVESTIGATION WORKS. FOUNDATION IS ASSUMED AT 2M BELOW BED LEVEL



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IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

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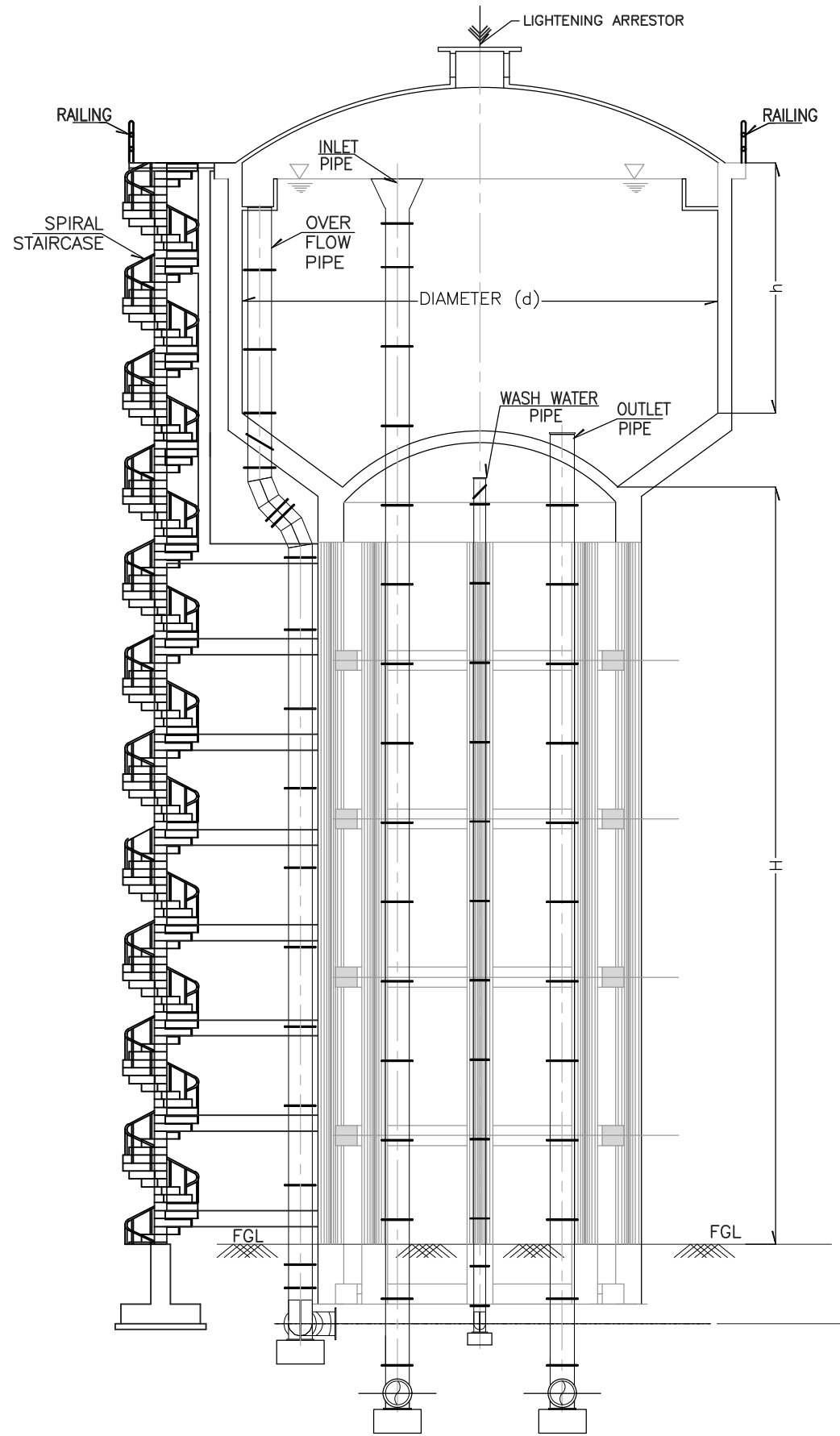
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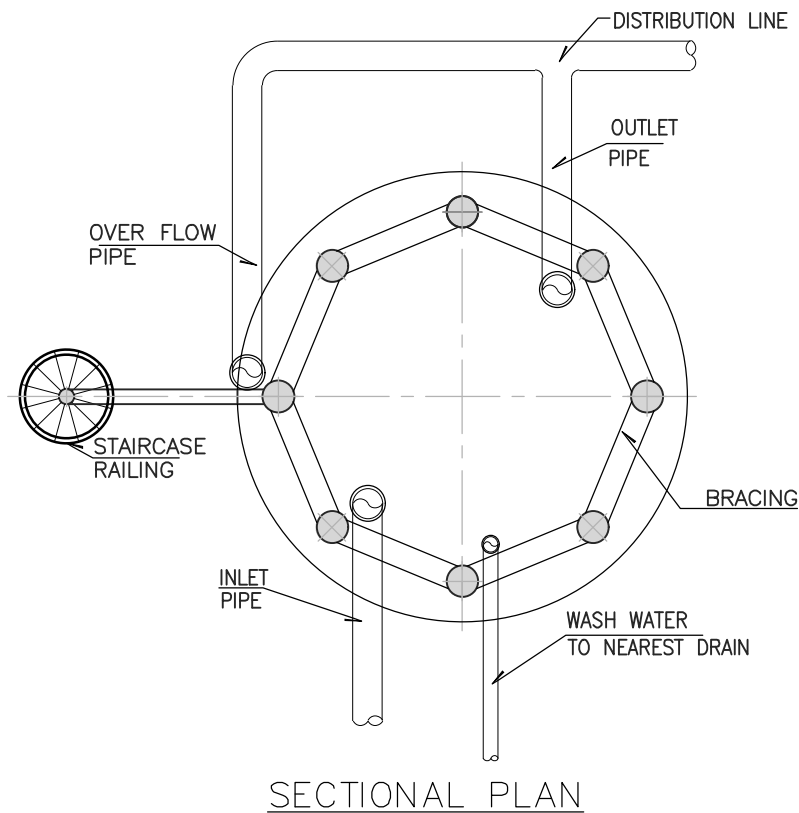
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SECTION ELEVATION



SECTIONAL PLAN

**LEGEND:**

- D-----DIAMETER
- H-----STAGE HEIGHT
- h-----HEIGHT OF CYLINDRICAL WALL
- FGL-----FINISHED GROUND LEVEL

**NOTES:**

1. ALL DIMENSIONS ARE IN MILLIMETRES. ELEVATIONS ARE IN METRES UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS INDICATED ARE CLEAR INSIDE DIMENSIONS.

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REVISIONS											
PO	SIGN.										
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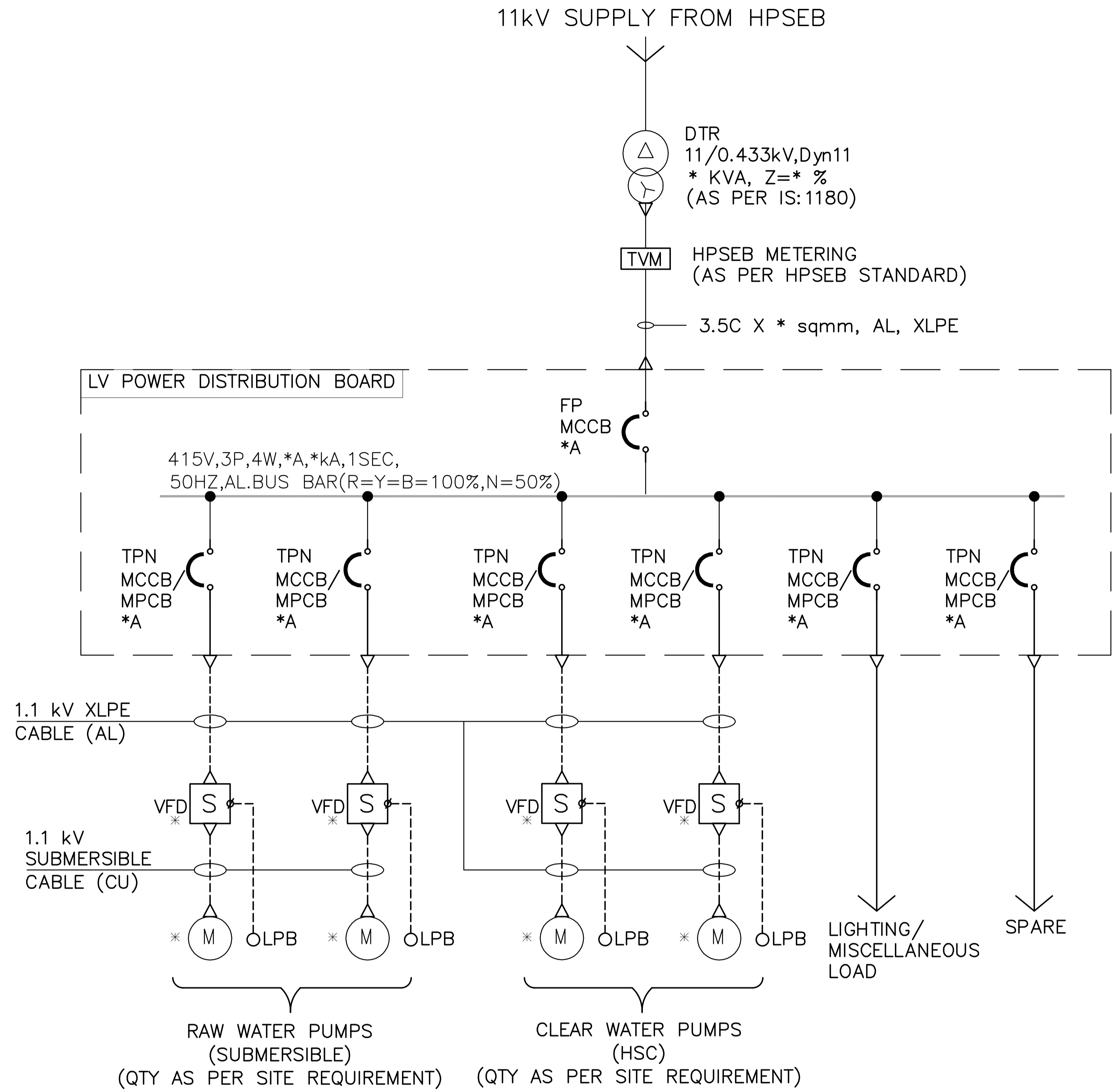
TYPICAL DETAILS OF ELSR	
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IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

TYPICAL SLD FOR LIS PUMPING STATION WITH 1W+1S UNITS & LT METERING

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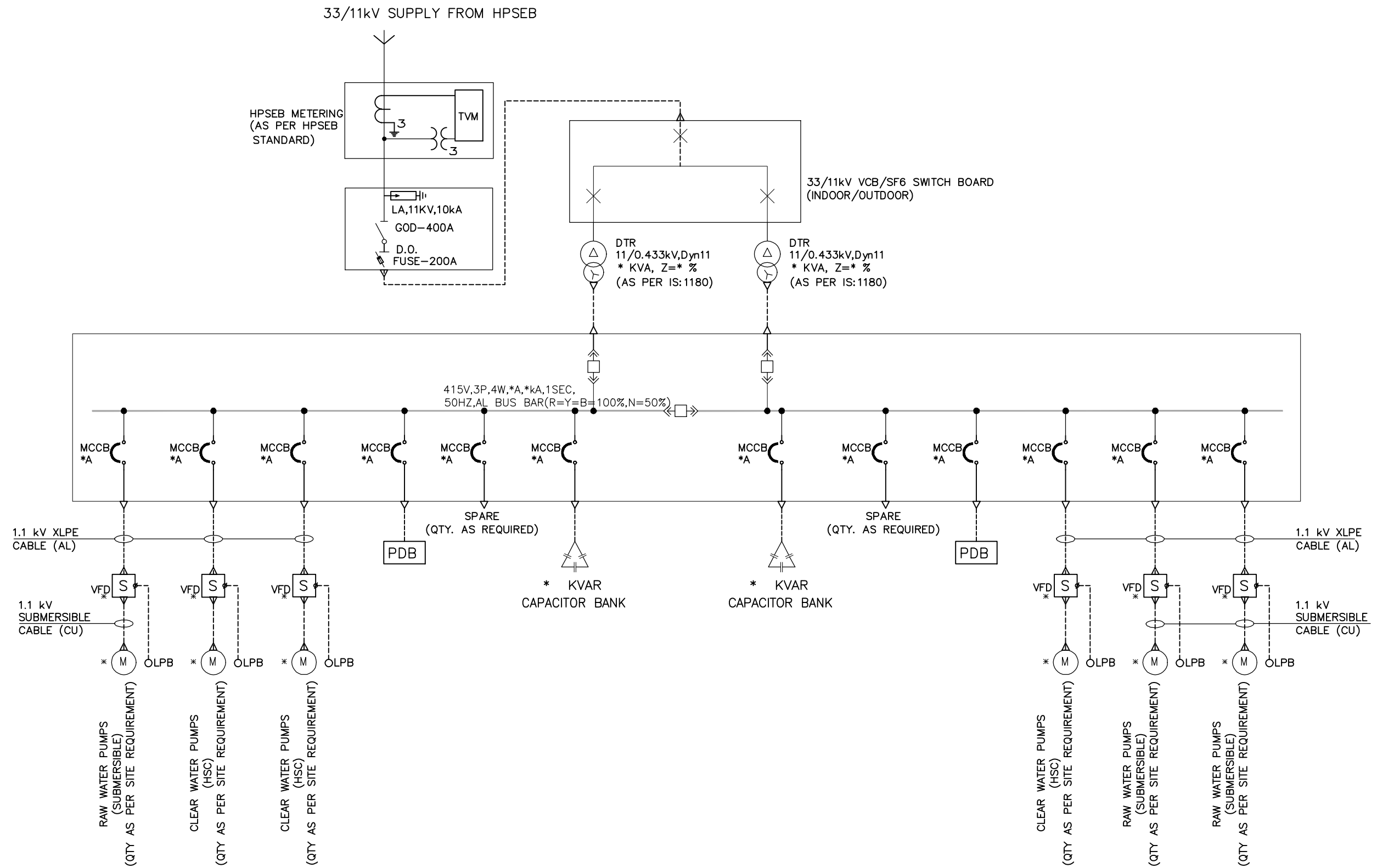
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DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE CS09)  
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

TYPICAL SLD FOR LIS PUMPING STATION WITH 2W+1S UNITS & HT METERING

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**GENERAL NOTES:**

- THIS SLD SHOWS THE SCHEME FOR DISTRIBUTION OF THE POWER WITHIN THE PROJECT BATTERY LIMIT & SHALL BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRGS. RATINGS, SIZES & QUANTITIES OF EQUIPMENTS MARKED AS '\*' NEED TO BE CALCULATED / PROVIDED BASED ON SYSTEM REQUIREMENT AS TENDER SPECIFICATIONS. CONTRACTOR SHALL SUBMIT THE EQUIPMENT SIZING CALCULATIONS & CORRESPONDING SWITCH GEAR RATING ALONG WITH THE BID.
- THE CONTRACTOR HAS TO DO DETAIL ENGINEERING OF HV & LV SYSTEM AND WORK OUT THE RATING OF EACH COMPONENT AS PER DESIGN CRITERIA GIVEN IN TENDER & EQUIPMENT SIZING CALCULATIONS AS APPROVED BY ENGINEER-IN -CHARGE.
- HV SYSTEM:**
  - INTER TRIPPING & CLOSING INTERLOCK SHALL BE PROVIDED BETWEEN TRANSFORMER FEEDER (11KV) AND LT PANEL INCOMER (0.415KV) SIDE.
  - CT /PT UNIT FOR HT METERING AND TVM SHALL BE AS PER DISCOM.
- LV SYSTEM:**
  - ACB**
    - 415V SWITCHBOARD INCOMER/ BUS COUPLER ACB SHALL BE FP, EDO TYPE WITH MICROPROCESSOR-BASED O/C, S/C & INBUILT E/F AND UV RELEASES.
    - ALL OUTGOING ACBS SHALL BE TP, EDO TYPE WITH MICROPROCESSOR-BASED O/C, S/C & INBUILT E/F RELEASES EXCEPT FOR APFC WHICH SHALL BE MDO TYPE WITH THERMAL MAGNETIC RELEASES.
    - IN ALL LT SWITCHBOARDS, CURRENT RATING ABOVE 630A SHALL HAVE ACBs.
    - ALL ACBS SHALL BE WITH ICS=ICU=ICW=100%.
  - MCCB**
    - 415V SWITCHBOARD INCOMER/ BUSCOUPLER MCCB (>=250A) SHALL BE FP FIXED TYPE WITH MICROPROCESSOR BASED O/C, S/C & E/F RELEASES AND OUTGOING MCCB (>=250A) SHALL BE TP FIXED TYPE WITH MICROPROCESSOR BASED O/C, S/C & E/F RELEASES EXCEPT FOR APFC AND WHICH SHALL HAVE TM BASED O/C, S/C & E/F RELEASES WITH EXTERNAL E/F MODULE. ALL INCOMER/ OUTGOING MCCB (<250A) SHALL HAVE TM BASED O/C, S/C & E/F RELEASES WITH EXTERNAL E/F MODULE.
    - ALL MCCB SHALL BE WITH Ics=Icu=100%.
- ALL INDICATIONS, SHUNT TRIP/CLOSING COILS OF HT/ LT BREAKERS (VCBS/ ACBS) WILL BE ON 30/110V DC CONTROL SUPPLY. SPRING CHARGING MOTORS OF ALL BREAKERS WILL BE ON 230V AC SUPPLY. IF, DC SUPPLY IS NOT AVAILABLE FROM EXTERNAL SOURCE, IT SHALL BE DERIVED FROM INBUILT DC POWER PACK SUITABLE FOR ACCEPTING 230V AC SUPPLY FROM EXTERNAL SOURCE.
- IN MCC, ALL MOTOR STARTER COMPONENTS RATING SHALL BE SELECTED AS PER MANUFACTURER'S TYPE-2 CO-ORDINATION CHART. MOTOR STARTERS SHALL BE COMPLETE WITH SINGLE PHASING PREVENTER. AMMETERS IN MOTOR FEEDERS SHALL BE PROVIDED WITH SUPPRESSED SCALE UP TO 6 TIMES FULL LOAD CURRENT FOR INDICATING STARTING CURRENT. ALL MOTOR FEEDERS UP TO OR EQUAL TO 5.5 KW SHALL HAVE DIRECT CONNECTED AMMETERS IN Y PHASE & MOTORS GREATER THAN 5.5KW WILL BE PROVIDED WITH ONE CT & AMMETER.
- THE ON, OFF AND TRIP POSITION OF MCCB/ MPCB SHALL BE CLEARLY INDICATED. ROTARY OPERATING HANDLE FOR MCCBs/ MPCBs WITH THE DOOR CLOSED INTERLOCK SHALL BE PROVIDED. ALL MCCB/ MPCB FEEDERS ON ALL PANELS SHALL BE PROVIDED WITH ON/OFF/TRIP INDICATING LAMPS THROUGH AUXILIARY CONTACTS. WHEREVER STARTER FEEDER PROVIDED WITH MPCB BUT WITHOUT OVERLOAD RELAY, MPCB SHALL HAVE INBUILT OVERLOAD PROTECTION FEATURE.
- 110 OR 220V AC CONTROL SUPPLY FOR LT PCC/ MCC SHALL BE DERIVED FROM CONTROL TRANSFORMER(S) OF ADEQUATE RATING. INTERLOCKING BETWEEN TWO CONTROL SUPPLIES SHALL BE PROVIDED SUCH THAT ENERGIZED SECTION CATERERS FOR THE NEED OF THE PCC/ MCC PANEL.
- MCCB & MPCB TERMINALS SHALL BE SHROUDED AND SHALL BE DESIGNED TO RECEIVE CABLE LUGS FOR RELEVANT CABLE SIZES.
- ALL INDICATING LAMPS SHALL BE MULTICHIP LED TYPE.
- MULTIFUNCTION METER FOR MEASURING ALL POWER & ENERGY PARAMETERS SHALL HAVE AN ACCURACY CLASS OF 1.0 OR BETTER, WITH RS 485 COMM PORT.
- ALL CONTACTORS / TIMERS SHALL BE DIN RAIL MOUNTED.
- UNDER STEADY STATE CONDITIONS, VOLTAGE DROP IN VARIOUS SECTIONS OF ELECTRICAL SYSTEM SHALL BE LIMITED TO A) CABLES BETWEEN TRANSFORMER SECONDARY TO PMCC - 2 % AND B) CABLES BETWEEN PMCC TO MOTOR- 3%. UNDER MOTOR STARTING CONDITIONS, THE CORRESPONDING VOLTAGE DROP SHALL NOT AFFECT THE OPERATION OF THE MOTOR CONTROLS OR THE ABILITY OF THE MOTOR TO START AND RUN EFFECTIVELY AND IN ANY EVENT SHALL NOT EXCEED 15%. FAULT CLEARING TIME TO BE CONSIDERED WHILE SIZING OF CABLES SHALL BE AS A) PCC INCOMER - 1 SEC AND B) TRANSFORMER PRIMARY: 0.16 SEC.
- UNLESS SPECIFIED, ALL SWITCHBOARDS SHALL BE FREE STANDING, COMPARTMENTALIZED, EXTENSIBLE ON BOTH SIDES WITH HEIGHT NOT EXCEEDING 2300MM. ENCLOSURE PROTECTION OF SWITCHBOARDS SHALL BE AS PER TENDER.
- WHEREVER APPLICABLE, SEPARATE PANEL FOR HVAC, FIRE AND PLUMPING PUMP WILL BE PART OF RESPECTIVE BOQ.
- WHEREVER APPLICABLE, PROVISION OF ONE-WAY NET METERING SHALL BE PROPOSED IN THE SLD FOR INTEGRATION OF THE SOLAR WITH THE DISTRIBUTION SYSTEM. THIS METHODOLOGY NEEDS TO BE VERIFIED WITH THE STATE ELECTRICITY BOARD AND THE SOLAR VENDORS. SOLAR POWER SUPPLY WILL NOT BE ON WHEN DG IS ON.
- WHEN TWO DG'S ARE OPERATING IN PARALLEL THEN PROVISION OF NEUTRAL CONTRACTOR INTERLOCKING SHOULD BE SUCH THAT ONLY ONE DG WILL BE EARTHED.
- MCCB USED FOR STANDARD NETWORK SHALL HAVE 'C' CHARACTERISTIC CURVE.
- EACH TYPE & RATING OF OUTGOING FEEDER SHALL HAVE 10% SPARE OR MINIMUM ONE NUMBER.

**LEGEND:**

	LIGHTNING ARRESTER	R	RELAYING
	ISOLATER WITH EARTH SWITCH	I	INSTRUMENTATION
	ISOLATER WITH D.O. FUSE	25	SYNCHRONIZING RELAY
		27/59	UNDER/OVER VOLTAGE RELAY
	CIRCUIT BREAKER(ACB/VCB) DRAW-OUT TYPE	81	UNDERFREQUENCY RELAY
		50	INST. O/C PROTECTION
	CIRCUIT BREAKER(ACB/VCB) NON DRAW-OUT TYPE	50N	INST. E/F PROTECTION
		51	IDMT. O/C PROTECTION
	MCCB	95	TRIP SUPERVISION RELAY
	MPCB	49W	WINDING TEMP. HIGH INDICATOR WITH ALARM & TRIP CONTACTS
	MCB	490	OIL TEMP. HIGH INDICATOR WITH ALARM & TRIP CONTACTS
	CABLE GLAND	63 X	PRESSURE RELIEF DEVICE
	INDICATING LAMP	63 T	BUCHHOLZ RELAY
	PUSH BUTTON	OSR	OIL SURGE RELAY
		MOG	MAGNETIC OIL GAUGE
	CURRENT TRANSFORMER (CT) (FIGURE INDICATES NO. OF CT'S)	86	LOCK OUT RELAY
		SC	SPRING CHARGED
	POTENTIAL TRANSFORMER	TCH	TRIP CIRCUIT HEALTHY
		SP	SERVICE POSITION
	TRANSFORMER	TP	TEST POSITION
		TVM	TRI VECTOR METER
	ELECTRICAL CABINET		
	CHOKE	MFM	MULTIFUNCTION METER
	AMMETER SELECTOR SWITCH		
	ANALOG AMMETER	NET METER	NET ENERGY METER
	VOLTMETER SELECTOR SWITCH		
	ANALOG VOLTMETER	TNC	TRIP-NEUTRAL-CLOSE SWITCH (KEY OPERATED)
	PUSH BUTTON STATION		
	ELECTRICAL- MECHANICAL INTERLOCK	ETPB	EMERGENCY TRIP PUSH BUTTON
	TWO MOMENTARY CONTACT PB WITH THREE INDICATING LAMPS (R = RED, G = GREEN, A = AMBER)		CONTACTOR
		NC	NORMALLY CLOSED
	LOCAL REMOTE SELECTOR SWITCH	NO	NORMALLY OPEN



DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE CS09)

IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

TYPICAL SLD FOR LIS PUMPING STATION WITH LT/HT METERING  
GENERAL NOTES & LEGENDS



**TATA CONSULTING ENGINEERS LIMITED**

MUMBAI

SCALE : NTS	DWG NO. TCE.12503A-EL-4002-AU-40004	ISSUE PO
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