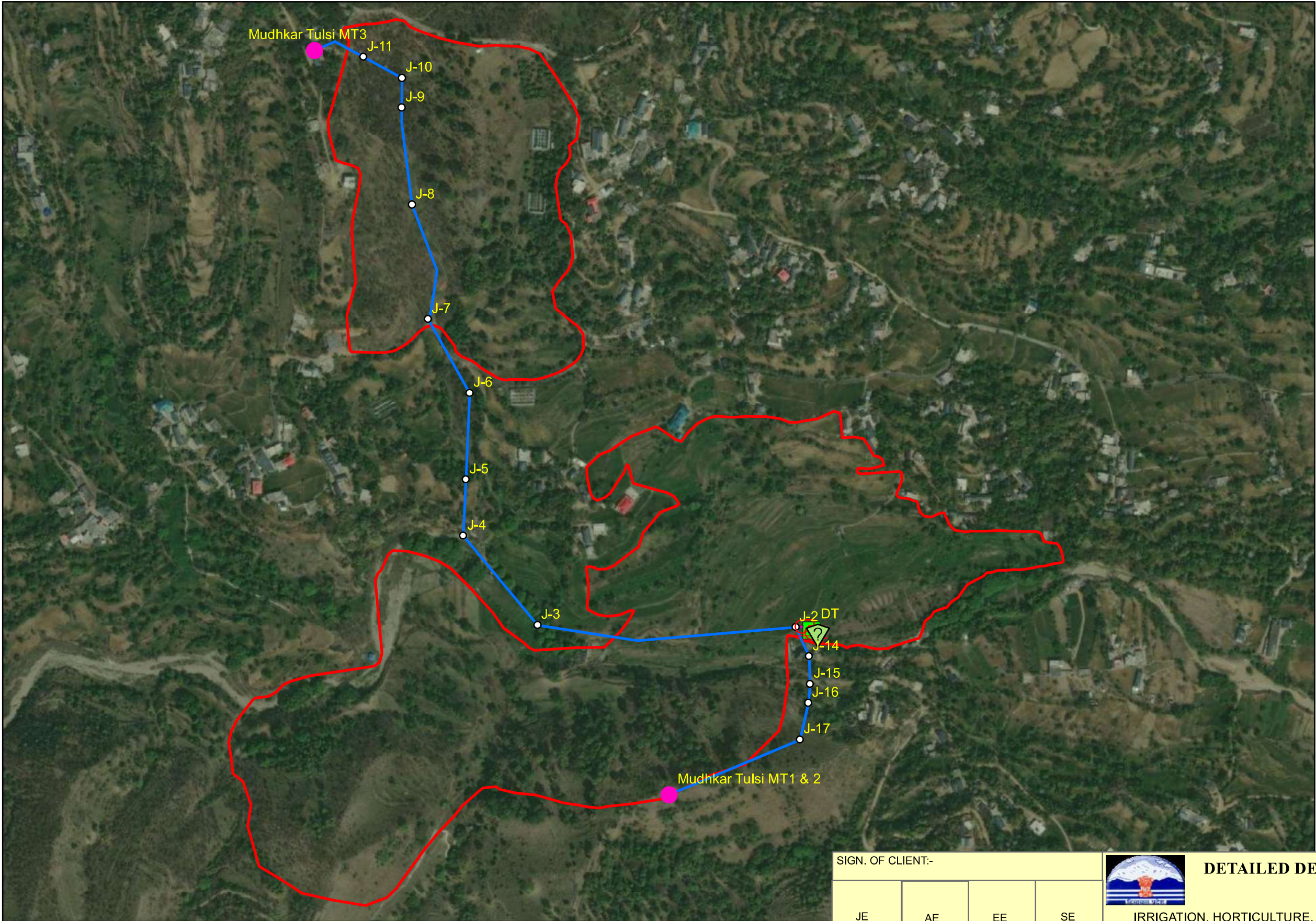


Legend

-  Intake
-  Pump
-  Junction
-  MT
-  Tank
-  Rising Main 80mm Dia GI Pipe
-  Rising Main 100mm Dia GI Pipe
-  Mudhkar_Tulsi

	SIGN.												
	INITIALS												
	REVISIONS												
P0	SIGN.												14-07-2022
	INITIALS	GKJ	ES	DVB							MK	DK	
	REVISIONS												
ISSUE		DRN	DSN	CHD	CV	EL	IC	ME			PE/PM	APPD.	DATE
					CLEARED								

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

PURPOSE : FOR TENDER ONLY

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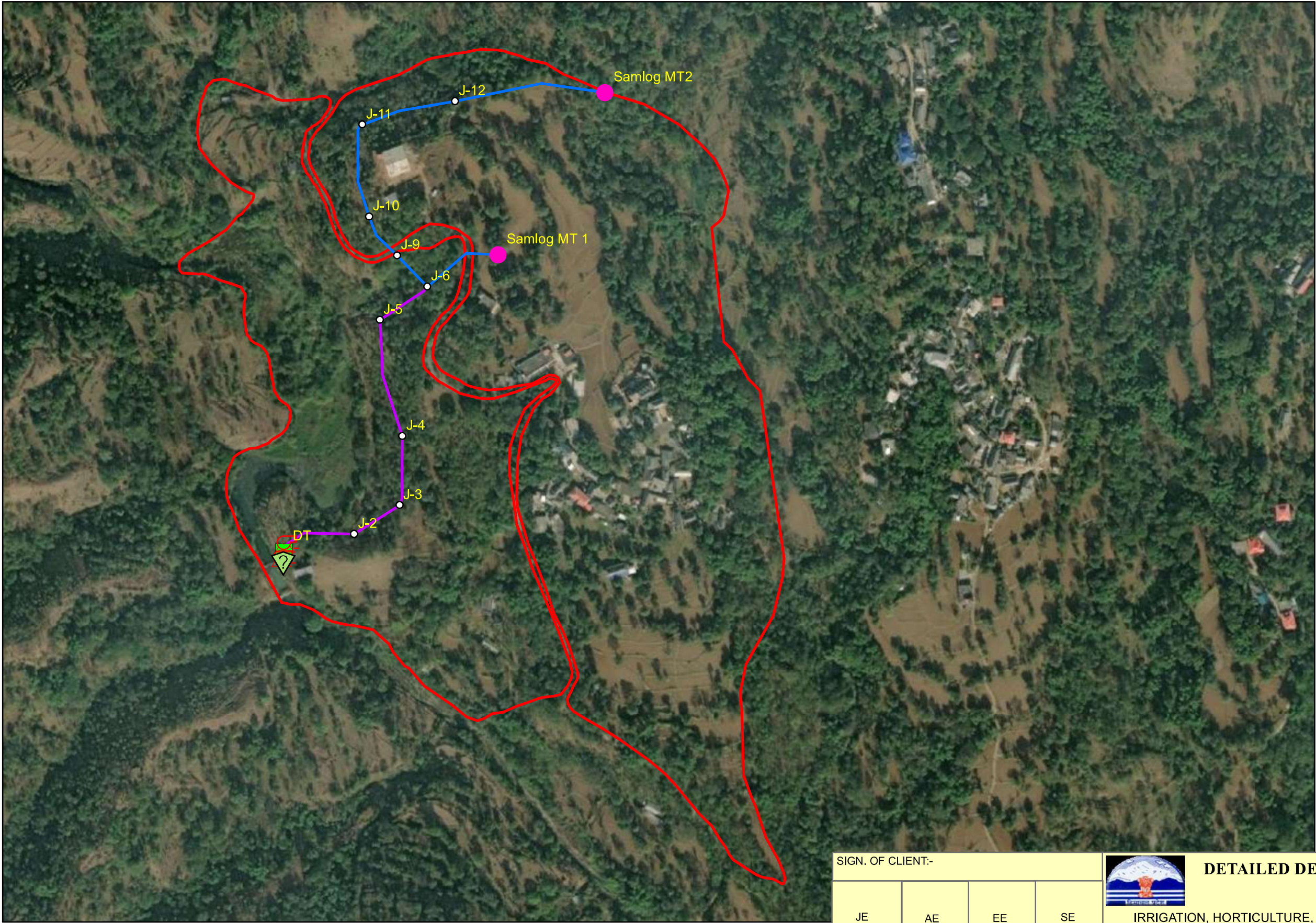


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MUMBAI**

SCALE:- 1:5,000
DL.CEN:- DEL-CV

DWG. No:-
TCE.12503A-CV-3082-WS-37207

ISSUE:-
P0



Legend

- Intake
- Pump
- Junction
- MT
- Tank
- Rising Main 80mm Dia GI Pipe
- Rising Main 100mm Dia GI Pipe
- Samlog

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	INITIALS												
	REVISIONS												
P0	SIGN.											14-07-2022	
	INITIALS	GKJ	ES	DVB						MK	DK		
	REVISIONS												
ISSUE		DRN	DSN	CHD	CV	EL	IC	ME			PE/PM	APPD.	DATE
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File Name: 12503A-CV-37208-Rev-P0



DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE CS09)

IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

TITLE:-

NETWORK DRAWING OF LIS SAMLOG FOR BHORANJ BLOCK, HAMIRPUR DISTRICT.



TATACONSULTING ENGINEERS LIMITED. MUMBAI

SCALE:- 1:4,000

DWG. No:-

TCE.12503A-CV-3082-WS-37208

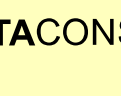
ISSUE:-

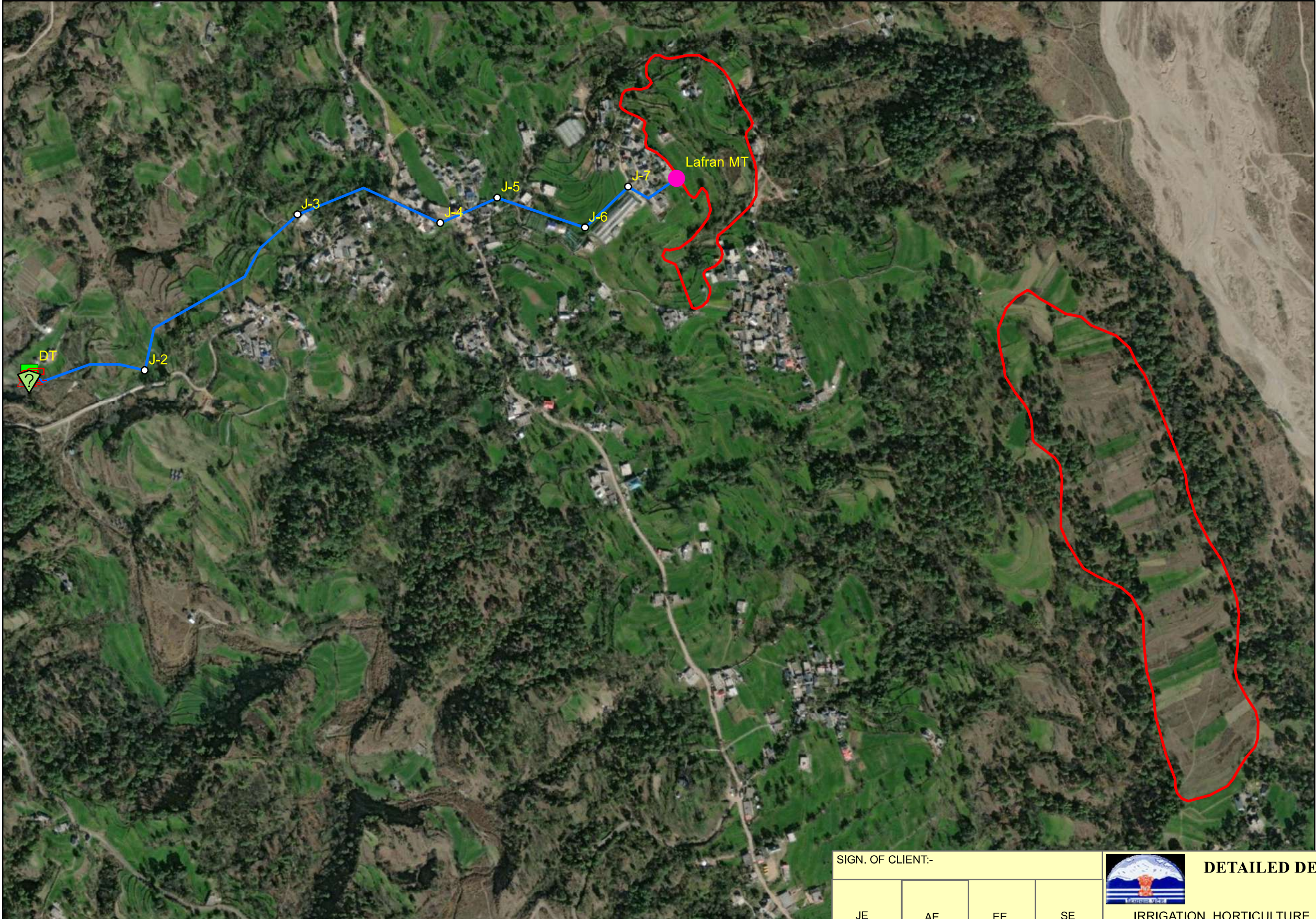
P0



Legend

- Check Dam
- Pump
- Junction
- MT
- Tank
- Rising Main 80mm Dia GI Pipe
- BHALAT

P0	SIGN.									14-07-2022	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'.	PURPOSE : FOR TENDER ONLY	Proprietary Notice and Version Control This document contains confidential information for use only by the " Client " ; for the Project under consideration, which is provided for the sole purpose of permitting the recipient to evaluate the information submitted here within consideration of receipt of this document; unless agreed to in contrary in the Contract; the recipient agrees to maintain such information in confidence and to not reproduce or otherwise disclose this information to any person outside the recipient's organisation; except that there is no obligation to maintain the confidentiality of any information which was known to the recipient prior to receipt of such information from Tata Consulting Engineers Limited, or becomes publicly known through no fault of recipient, or Tata Consulting Engineers Limited, or is received without obligation of confidentiality from a third party owing no obligation of confidentiality to Tata Consulting Engineers Limited. All information given under this version over rides all and any kind of offers, assumptions, deliverables and contracts submitted verbally (and subsequently communicated in writing) or in writing or otherwise given under any and all previous version/s.	TITLE:-				
	INITIALS														NETWORK DRAWING OF LIS BHALAT FOR BIJHAR BLOCK, HAMIRPUR DISTRICT.				
	REVISIONS														 TATACONSULTING ENGINEERS LIMITED. MUMBAI				
	SIGN.																		
	INITIALS	GKJ	ES	DVB			MK	DK											
	REVISIONS																		
ISSUE		DRN	DSN	CHD	CV	EL	IC	ME			PE/PM	APPD.	DATE	File Name: 12503A-CV-37209-Rev-P0	SCALE:- 1:5,000	DWG. No:-	ISSUE:-		
					CLEARED									DL.CEN:- DEL-CV	TCE.12503A-CV-3082-WS-37209	P0			



Legend

- Check Dam
- Pump
- Junction
- MT
- Tank
- Rising Main 80mm Dia GI Pipe
- LAFRAN

	SIGN.												
	INITIALS												
	REVISIONS												
P0	SIGN.												14-07-2022
	INITIALS	GKJ	ES	DVB							MK	DK	
	REVISIONS												
ISSUE		DRN	DSN	CHD	CV	EL	IC	ME			PE/PM	APPD.	DATE
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DETAILED DESIGN CONSULTANCY, HP-SHIVA
(PACKAGE CS09)

IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

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TITLE:-

NETWORK DRAWING OF LIS LAFRAN FOR BIJHAR BLOCK, HAMIRPUR DISTRICT.

TATACONSULTING ENGINEERS LIMITED.
MUMBAI

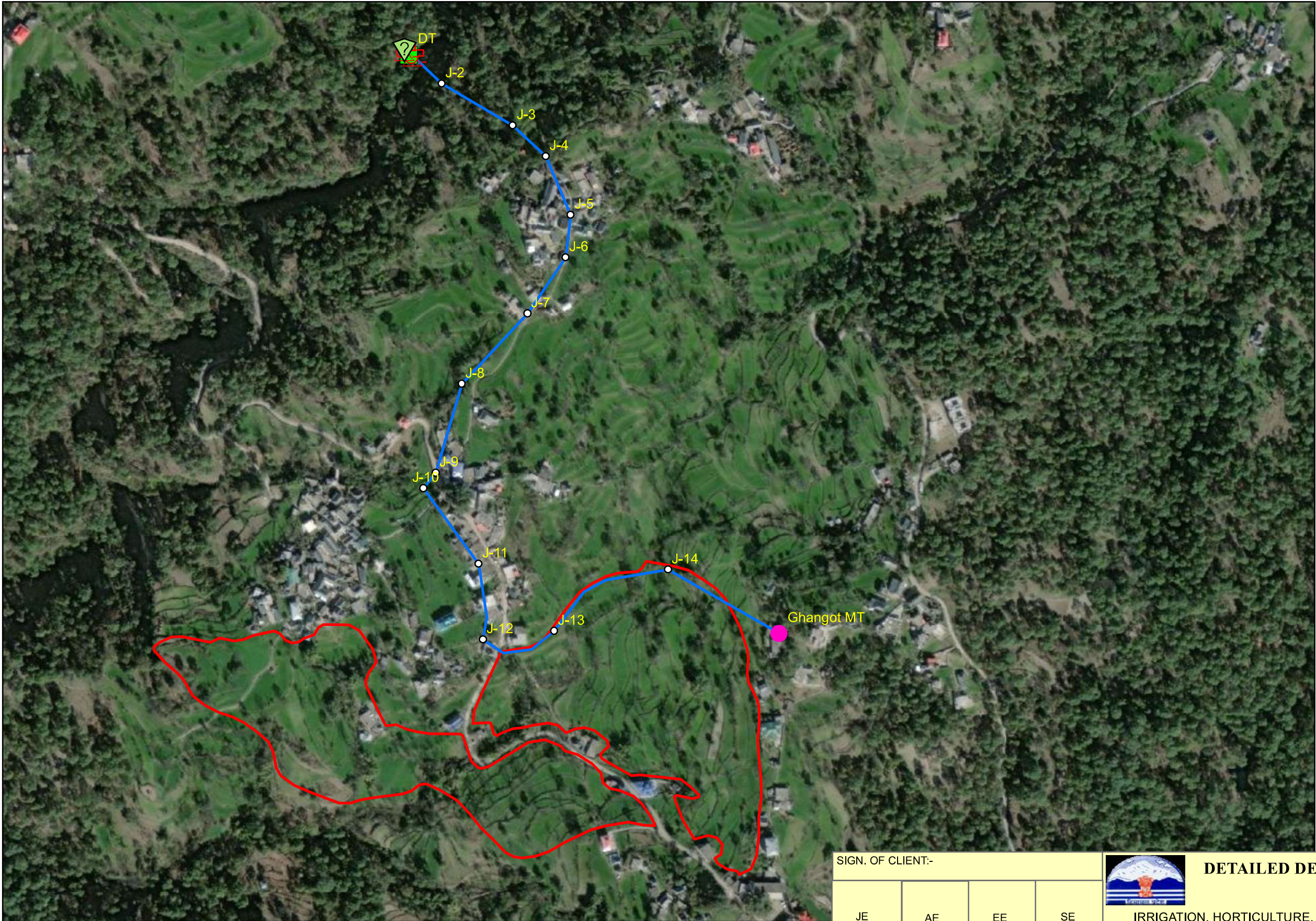
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DWG. No:- TCE.12503A-CV-3082-WS-37210

ISSUE:- P0

File Name: 12503A-CV-37210-Rev-P0

DL.CEN:- DEL-CV



Legend

- Intake well
- Pump
- Junction
- MT
- Tank
- Rising Main 80mm Dia GI Pipe
- GHANGOT

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	REVISIONS												
P0	SIGN.											14-07-2022	
	INITIALS	GKJ	ES	DVB						MK	DK		
	REVISIONS												
ISSUE		DRN	DSN	CHD	CV	EL	IC	ME			PE/PM	APPD.	DATE
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File Name: 12503A-CV-37211-Rev-P0



DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE CS09)

IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

TITLE:-

NETWORK DRAWING OF LIS GHANGOT FOR BIJHAR BLOCK, HAMIRPUR DISTRICT.



TATACONSULTING ENGINEERS LIMITED. MUMBAI

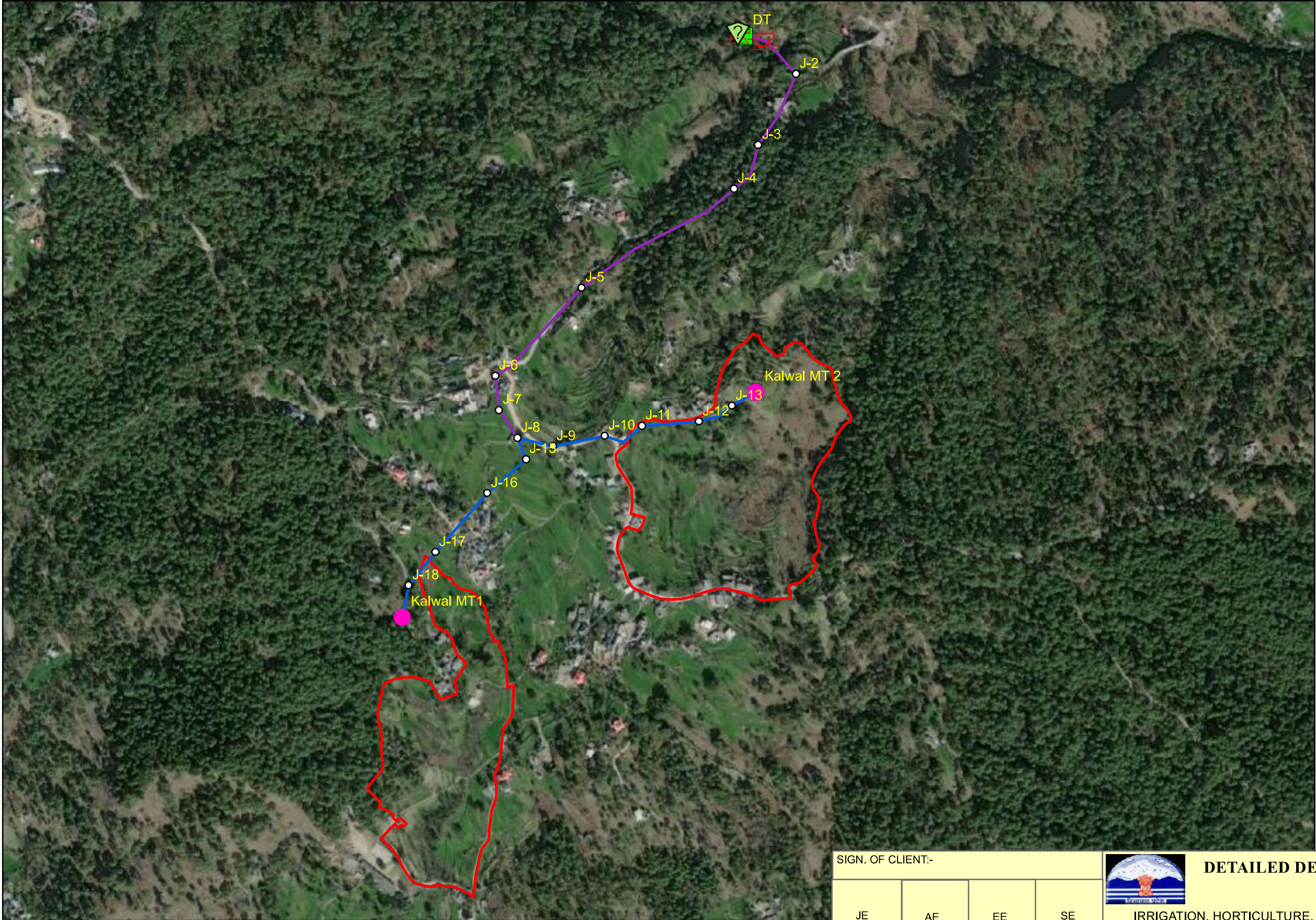
SCALE:- 1:4,500

DWG. No:-

TCE.12503A-CV-3082-WS-37211

ISSUE:-

P0



- Intake
- Pump
- Junction
- MT
- Tank
- Rising M
- Rising M
- KALWAL

	SIGN.												
	INITIALS												
	REVISIONS												
P0	SIGN.												14-07-2022
	INITIALS	GKJ	ES	DVB							MK	DK	
	REVISIONS												
ISSUE		DRN	DSN	CHD	CV	EL	IC	ME			PE/PM	APPD.	DATE
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File Name: 12503A-CV-37212-Rev-P0



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(PACKAGE CS09)**

IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

TITLE:-

NETWORK DRAWING OF LIS KALWAL FOR
BIJHAR BLOCK, HAMIRPUR DISTRICT.



TATACONSULTING ENGINEERS LIMITED.
MUMBAI

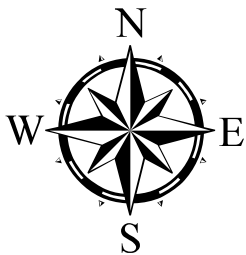
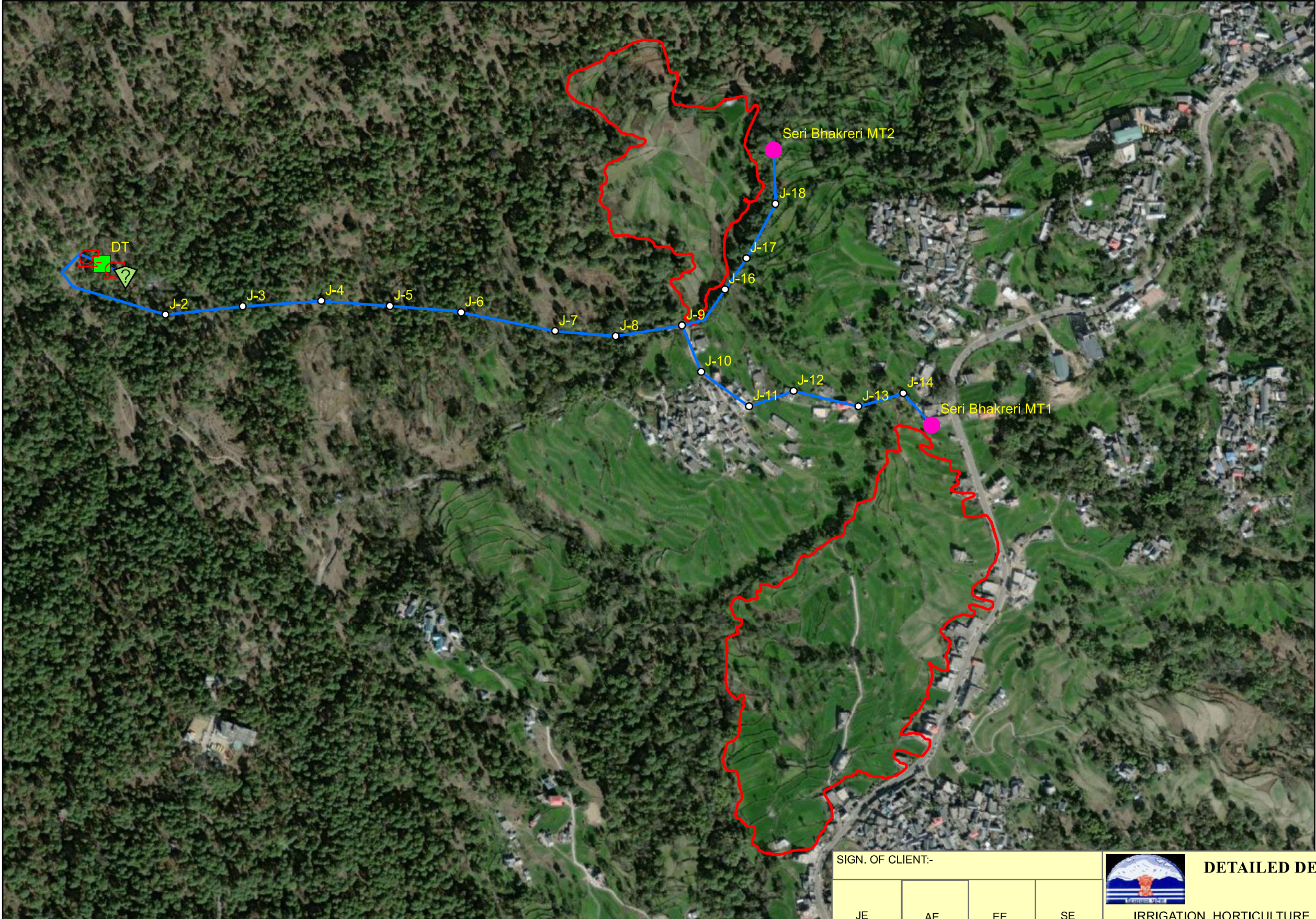
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TCE.12503A-CV-3082-WS-37212

ISSUE:-

P0



Legend

-  Intake
-  Pump
-  Junction
-  MT
-  Tank
-  Rising Main 80mm Dia GI Pipe
-  Seri_Bhakreri

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	INITIALS												
	REVISIONS												
P0	SIGN.												14-07-2022
	INITIALS	GKJ	ES	DVB							MK	DK	
	REVISIONS												
ISSUE		DRN	DSN	CHD	CV	EL	IC	ME			PE/PM	APPD.	DATE
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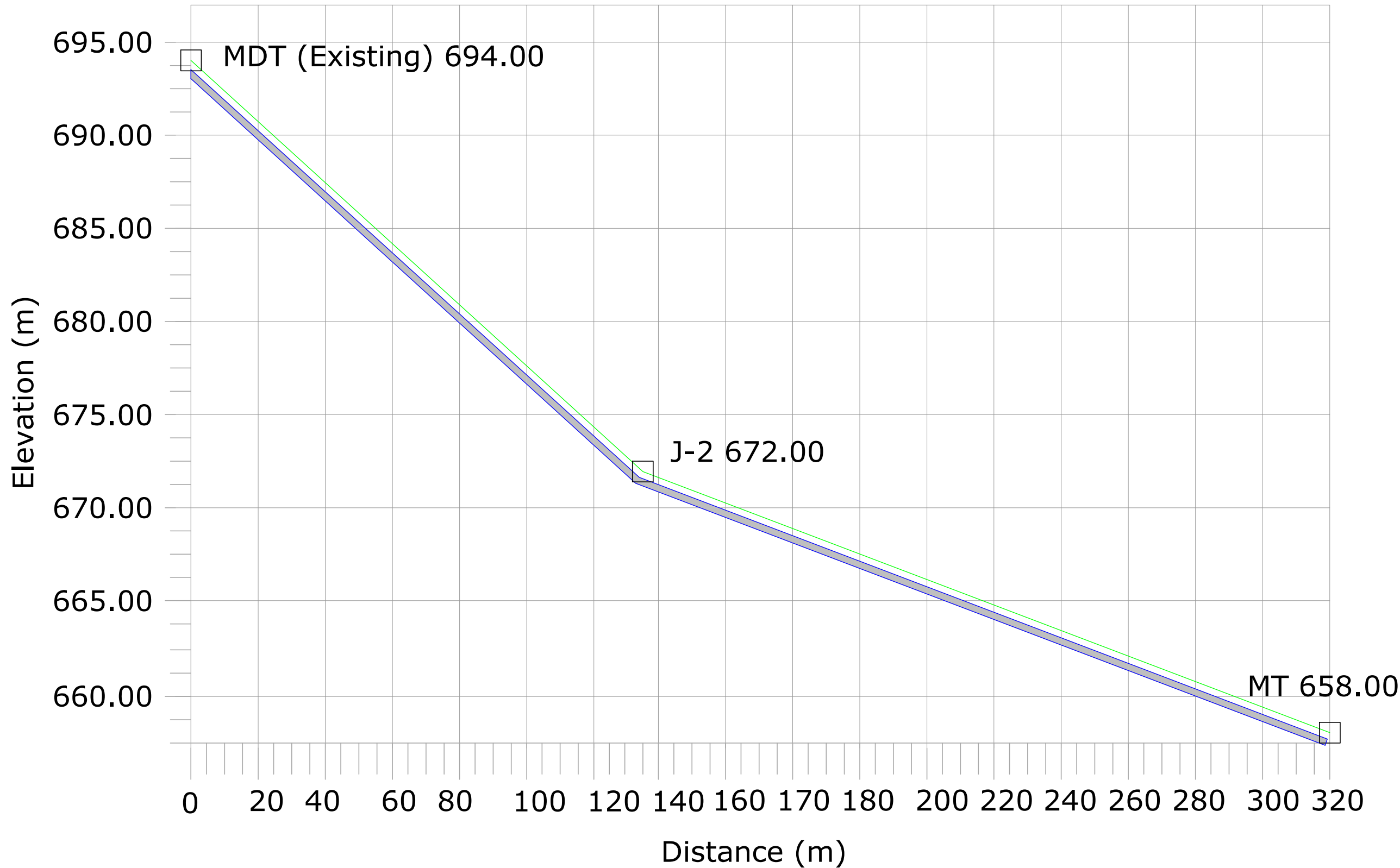
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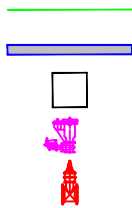
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File Name: 12503A-CV-37213-Rev-P0			

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IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT			
TITLE:- NETWORK DRAWING OF LIS SERI BHAKREDI FOR BIJHAR BLOCK, HAMIRPUR DISTRICT.			
	TATACONSULTING ENGINEERS LIMITED. MUMBAI		
SCALE:- 1:6,000	DWG. No:- TCE.12503A-CV-3082-WS-37213		ISSUE:- P0
DL.CEN:- 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. The Arrangement shown is Tentative. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

	SIGN.												
	INITIALS												
	REVISIONS												
P0	SIGN.												13-07-2022
	INITIALS	BSN	ES	DVB							MK	DK	
	REVISIONS												
ISSUE		DRN	DSN	CHD	CV	EL	IC	ME			PE/PM	APPD	DATE (dd-mm-yyyy)
					CLEARED								

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FILE NAME: 12503A-CV-37351-Rev-P0			



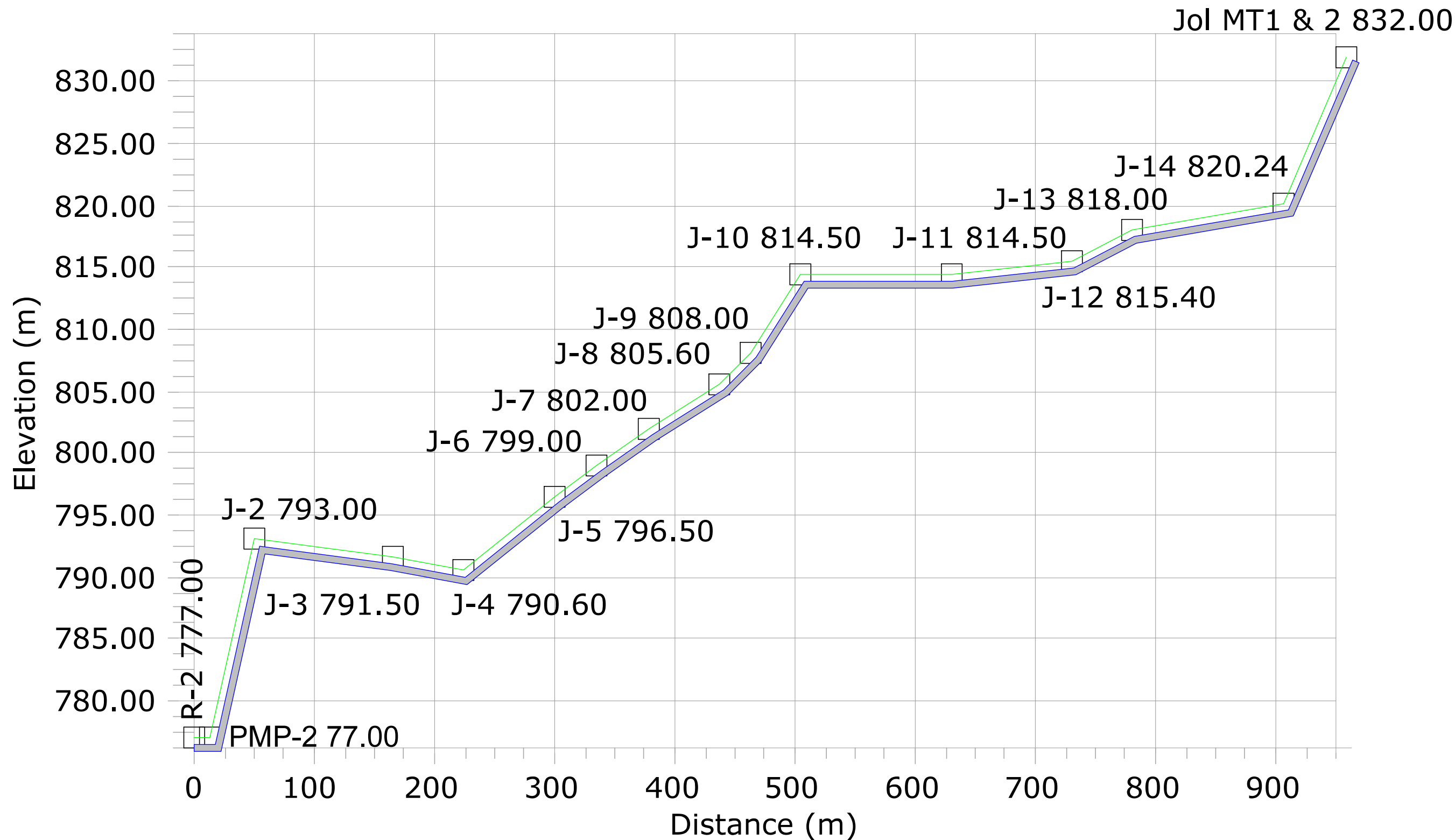
DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION – LIS SACHUIN
BAMSAN BLOCK, HAMIRPUR DISTRICT



TATA CONSULTING ENGINEERS LIMITED
MUMBAI

SCALE : NTS	DWG NO. TCE.12503A-CV-3082-WS-37351	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. The Arrangement shown is Tentative. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

SIGN.											
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ISSUE											

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FILE NAME: 12503A-CV-37354-Rev-P0			



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

PROPOSED L-SECTION - LIS JOL
BHORANJ BLOCK, HAMIRPUR DISTRICT

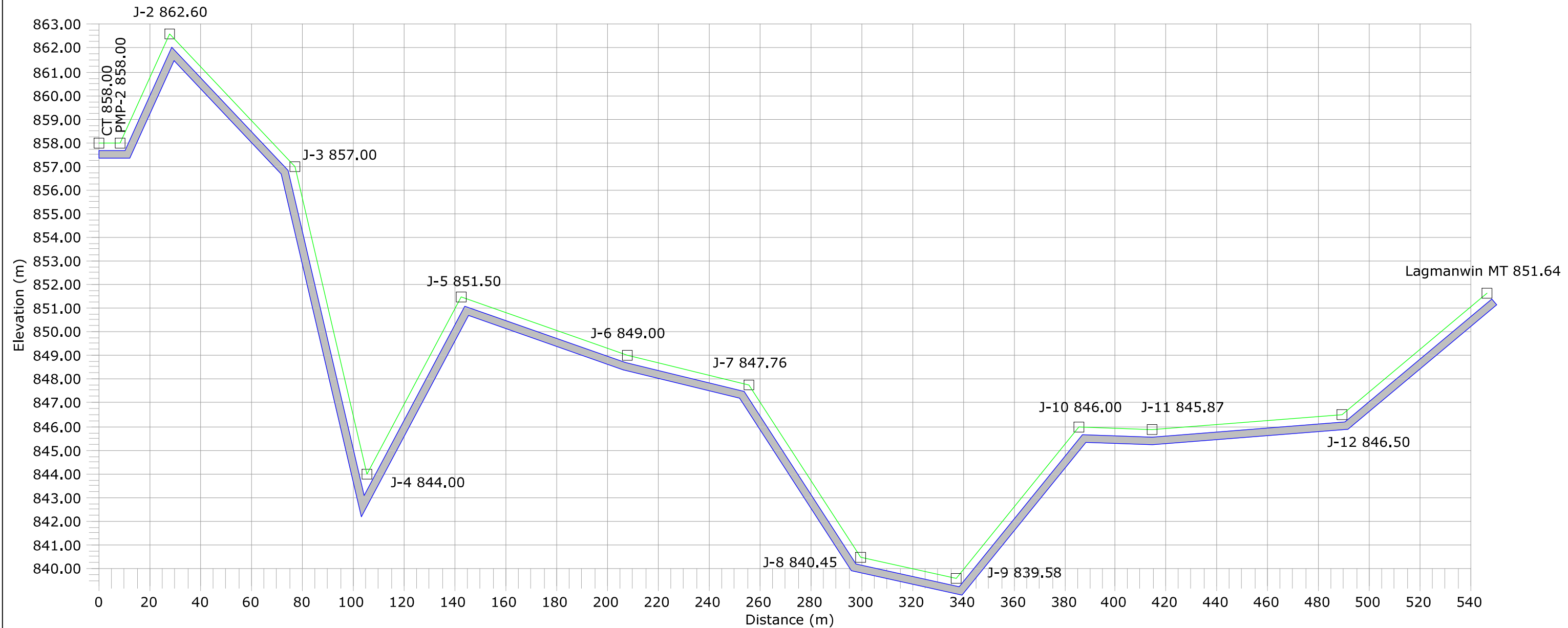


TATA CONSULTING ENGINEERS LIMITED
MUMBAI

SCALE : NTS
DC & DISC: DEL-CV

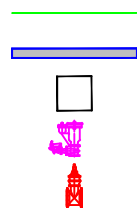
DWG NO. TCE.12503A-CV-3082-WS-37354

ISSUE 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. The Arrangement shown is Tentative. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

	SIGN.												
	INITIALS												
	REVISIONS												
PO	SIGN.												
	INITIALS	BSN	ES	DVB							MK	DK	13-07-2022
	REVISIONS												
ISSUE		DRN	DSN	CHD	CV	EL	IC	ME			PE/PM	APPD	DATE (dd-mm-yyyy)
					CLEARED								

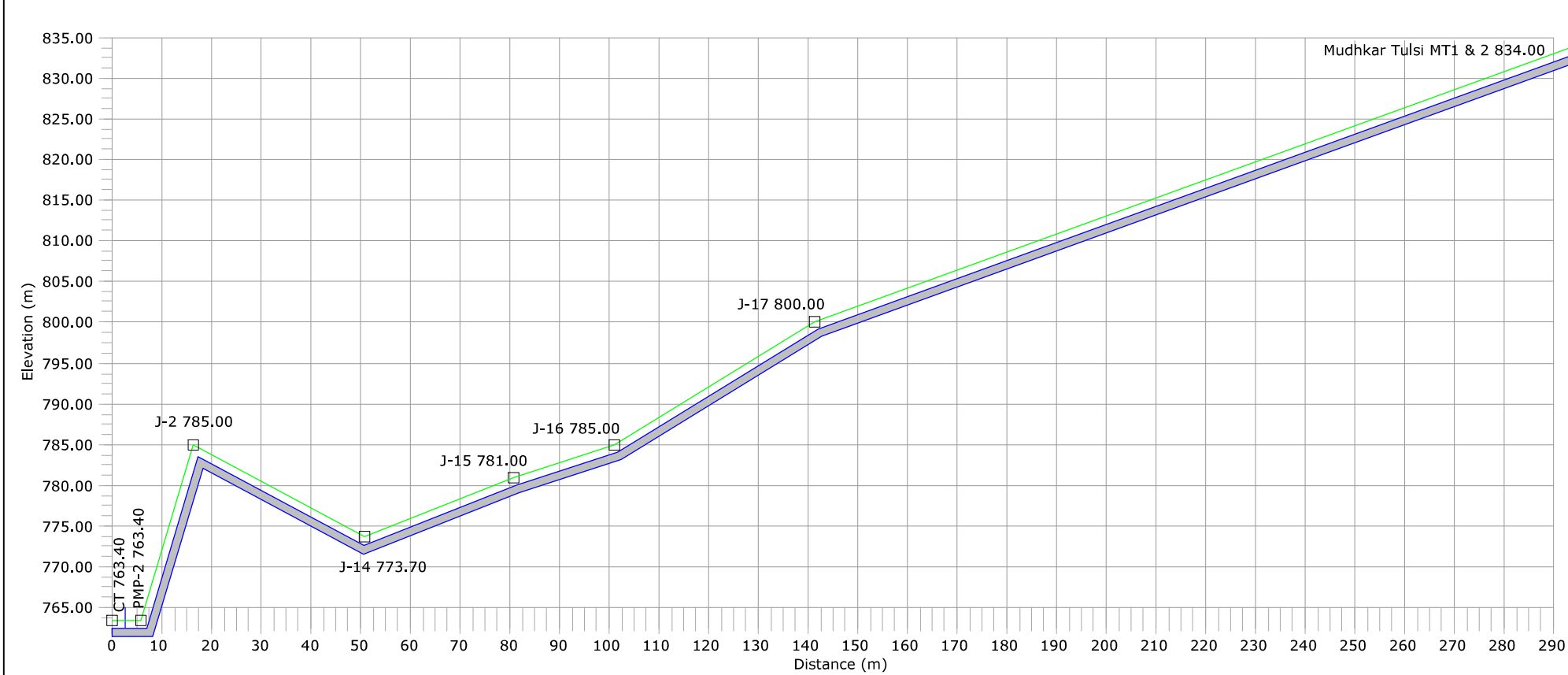
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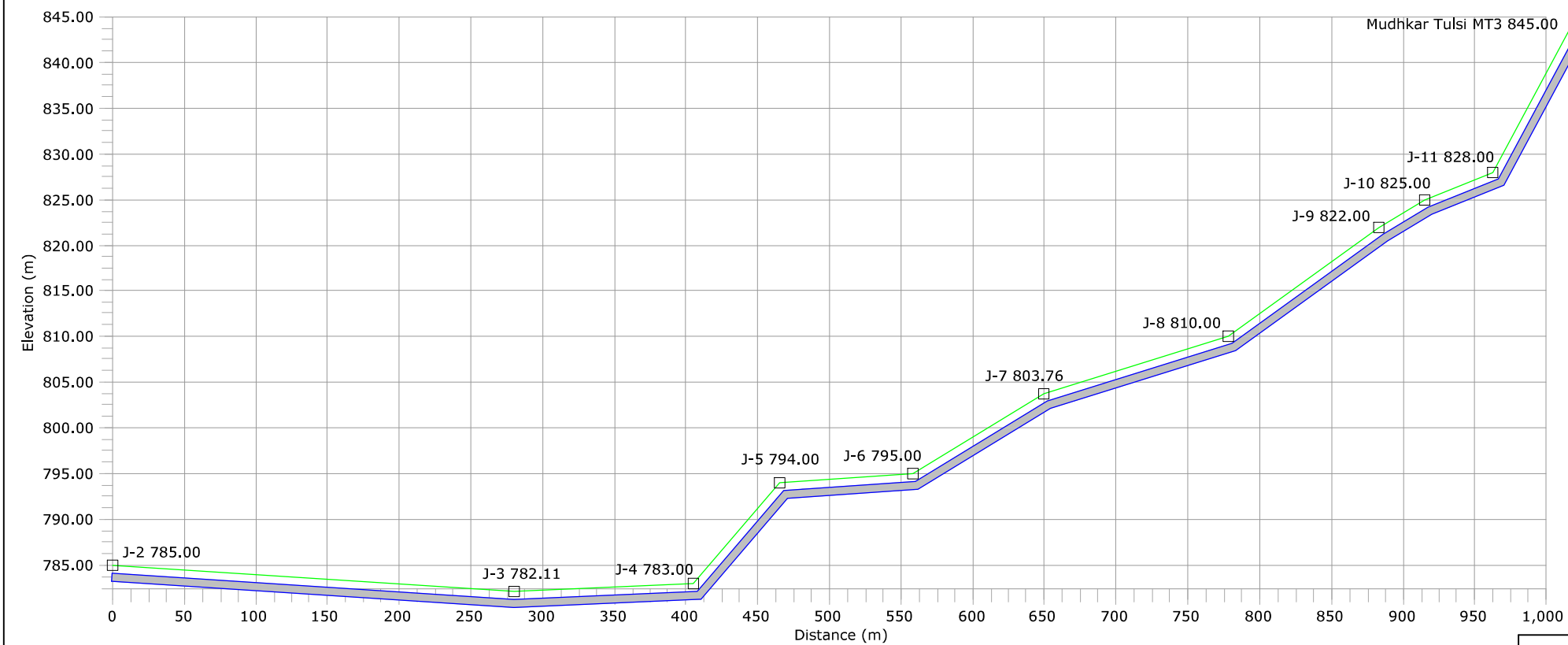
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FILE NAME: 12503A-CV-37355-Rev-P0			

	DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)		
	IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT		
PROPOSED L-SECTION - LIS LAGMANWIN BHORANJ BLOCK, HAMIRPUR DISTRICT			
	TATA CONSULTING ENGINEERS LIMITED MUMBAI		
SCALE : NTS		DWG NO. TCE.12503A-CV-3082-WS-37355	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. The Arrangement shown is Tentative. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.



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FILE NAME: 12503A-CV-37357-Rev-P0

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

IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

PROPOSED L-SECTION – LIS MUNDKHAD TULSI
BHORANJ BLOCK, HAMIRPUR DISTRICT

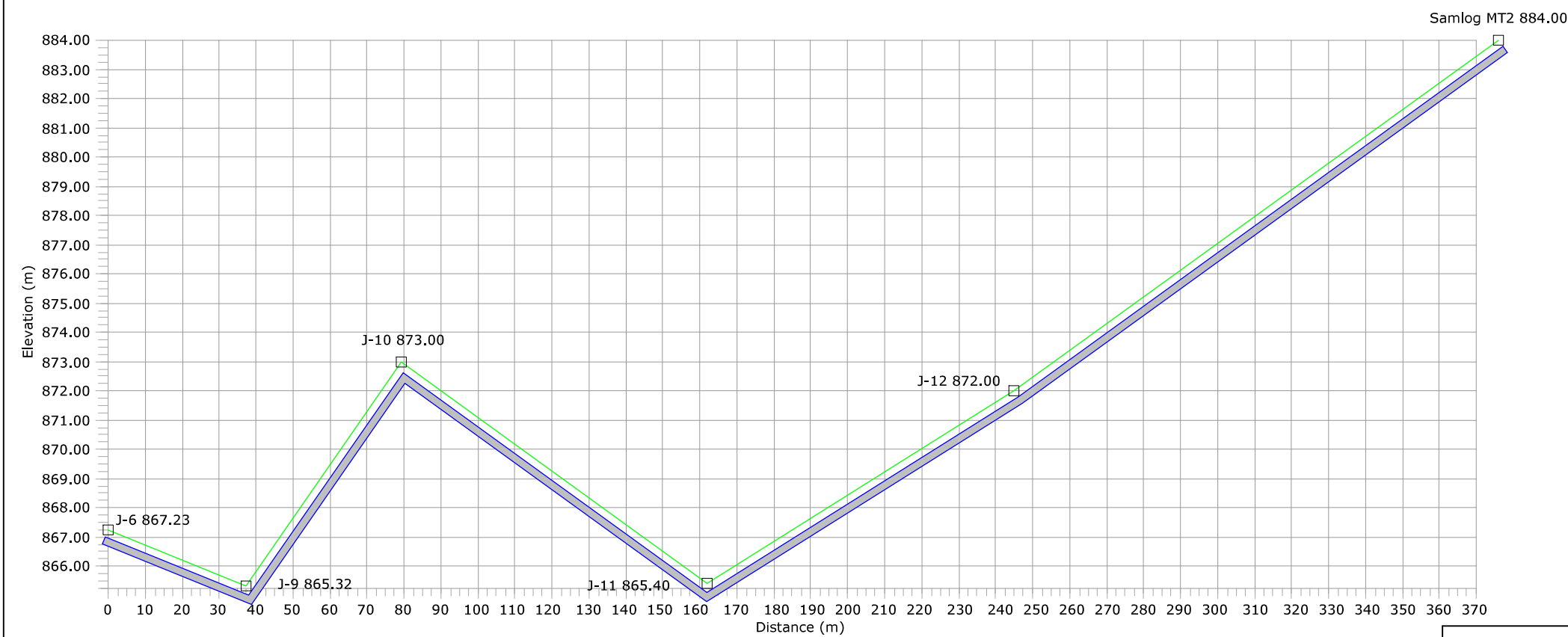
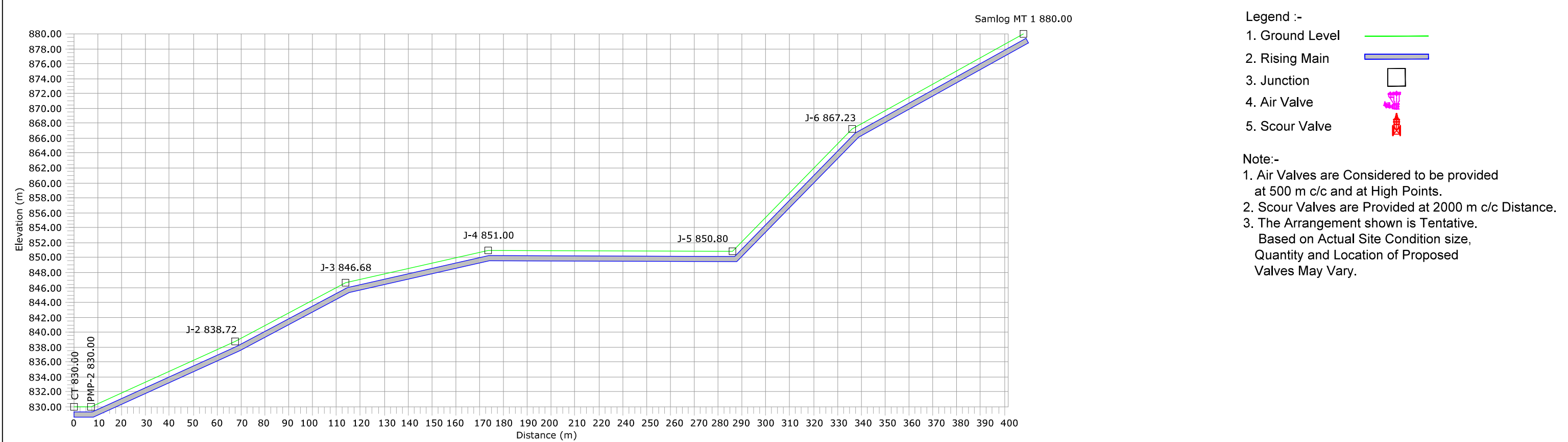
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SCALE : NTS

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FILE NAME: 12503A-CV-37358-Rev-P0			



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

PROPOSED L-SECTION – LIS SAMLOG
BHORANJ BLOCK, HAMIRPUR DISTRICT

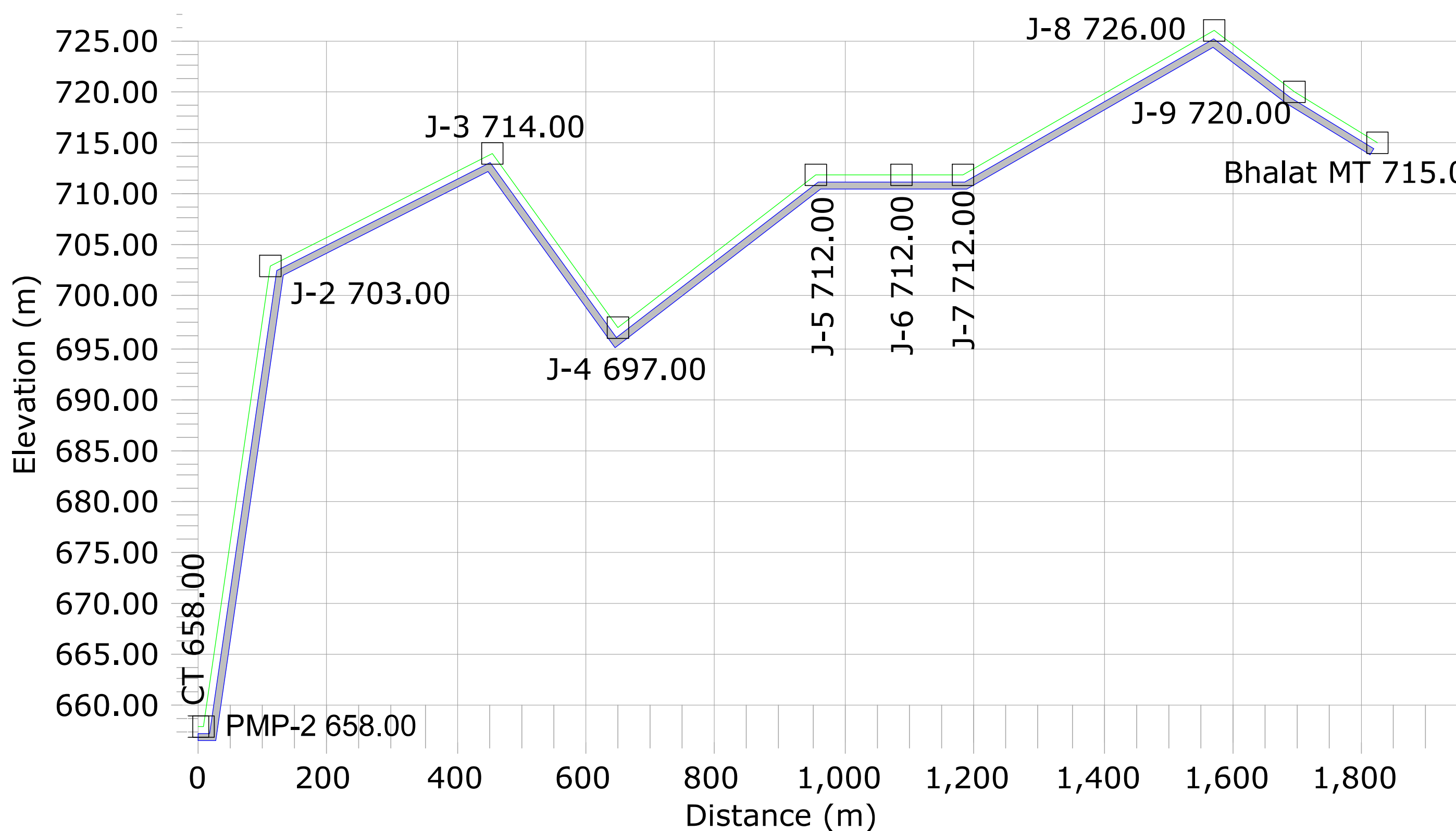


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SCALE : NTS
DC & DISC: DEL-CV

DWG NO. TCE.12503A-CV-3082-WS-37358

ISSUE 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. The Arrangement shown is Tentative. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

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FILE NAME: 12503A-CV-37359-Rev-P0			



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

PROPOSED L-SECTION – LIS BHALAT
BIJHAR BLOCK, HAMIRPUR DISTRICT

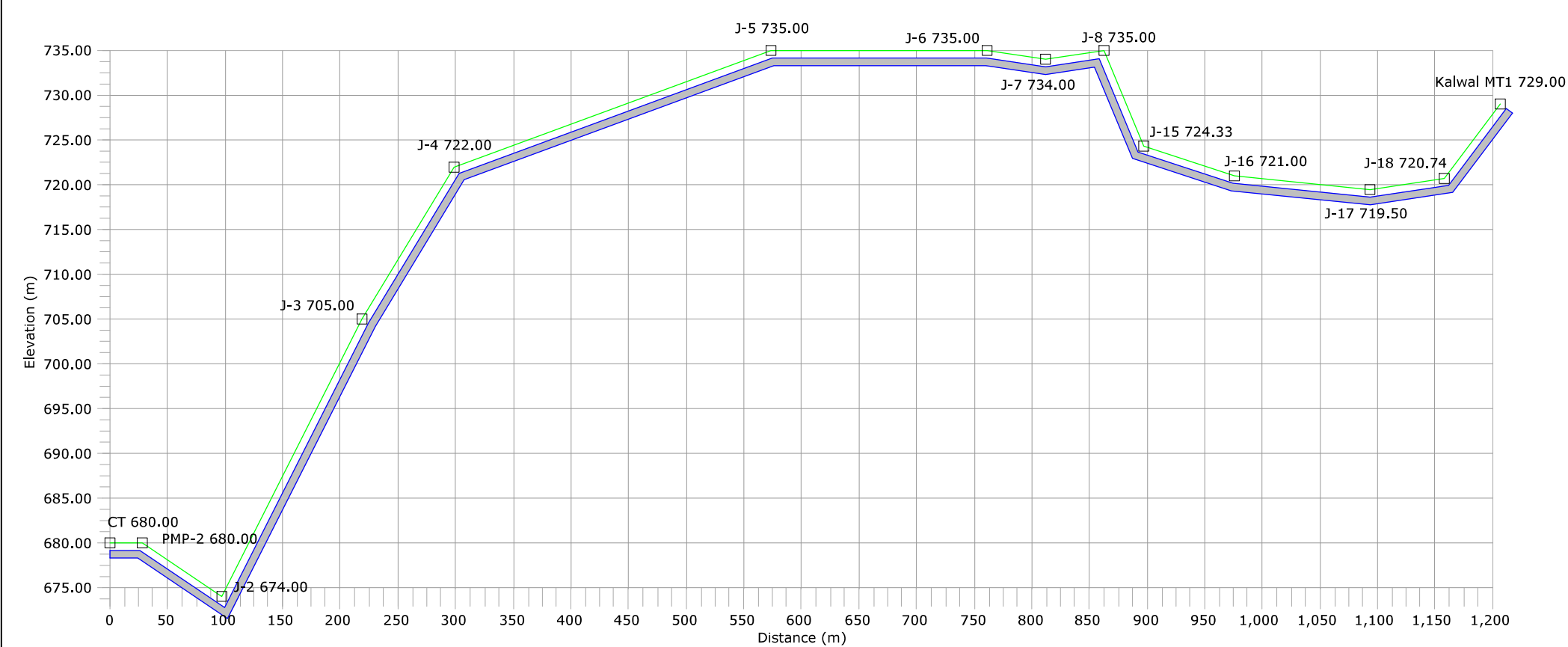


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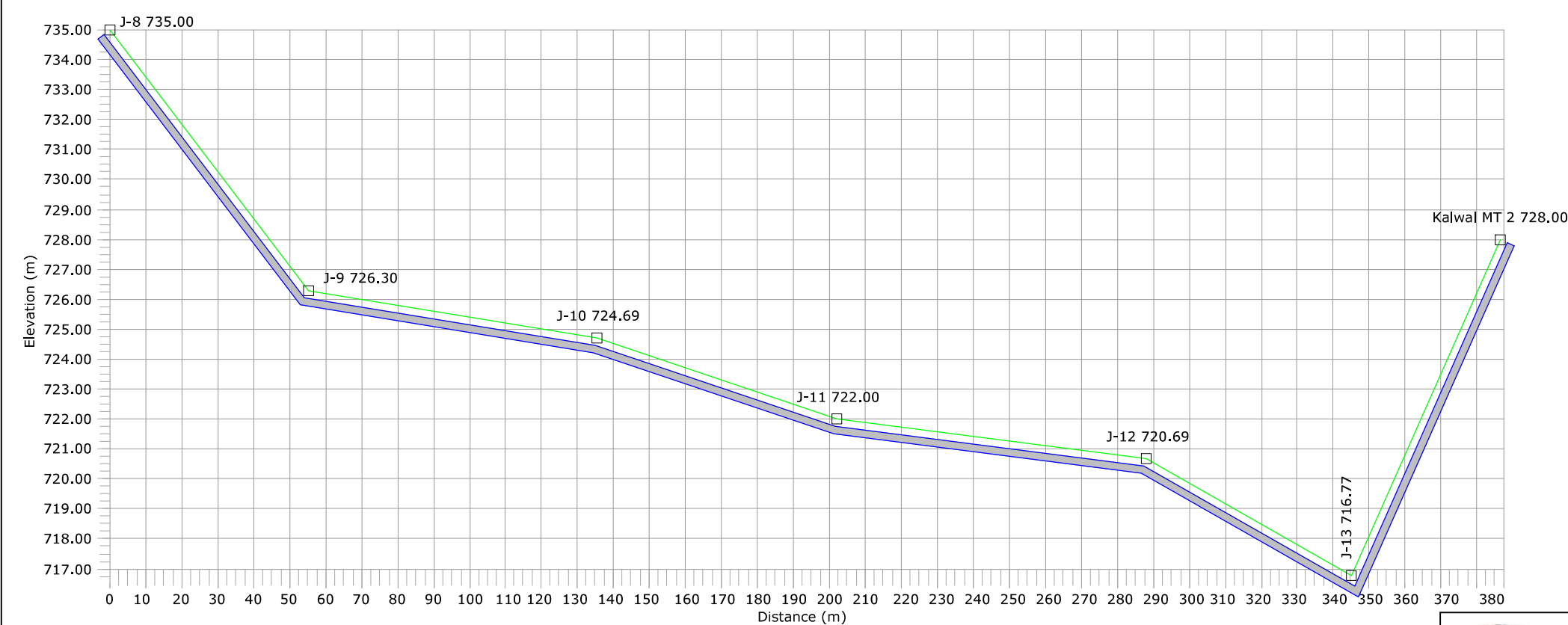
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DWG NO. TCE.12503A-CV-3082-WS-37359

ISSUE 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. The Arrangement shown is Tentative. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.



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FILE NAME: 12503A-CV-37362-Rev-P0			



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

PROPOSED L-SECTION – LIS KALWAL
BIJHAR BLOCK, HAMIRPUR DISTRICT

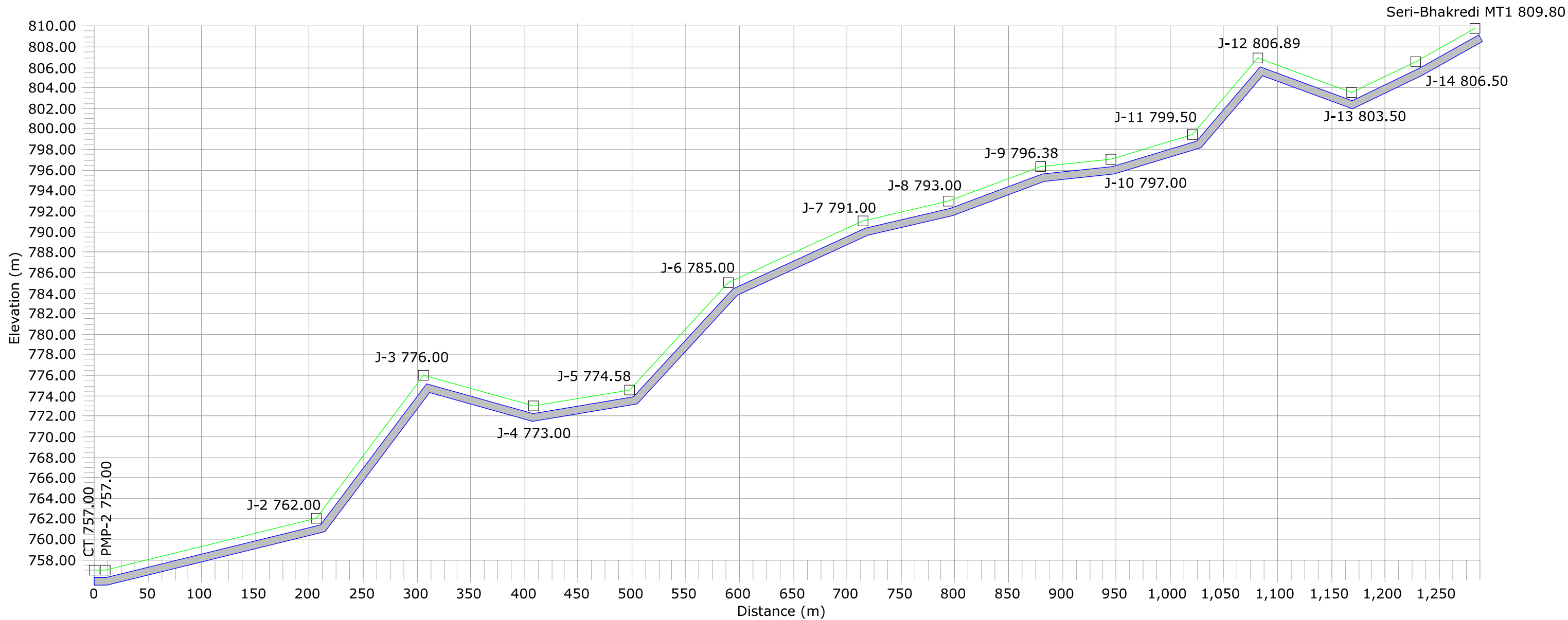


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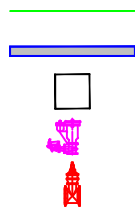
DWG NO. TCE.12503A-CV-3082-WS-37362

ISSUE 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. The Arrangement shown is Tentative. Based on Actual Site Condition size, Quantity and Location of Proposed Valves May Vary.

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FILE NAME: 12503A-CV-37363-Rev-P0

	DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE-CS09)
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT	
PROPOSED L-SECTION - LIS SERI-BHAKREDI BIJHAR BLOCK, HAMIRPUR DISTRICT	
	TATA CONSULTING ENGINEERS LIMITED MUMBAI
SCALE : NTS	DWG NO. TCE.12503A-CV-3082-WS-37363
DC & DISC: DEL-CV	ISSUE P0



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

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/cm² 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.

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			DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE CS09) IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT		
TYPICAL SLUICE VALVE CHAMBER DETAILS					
 TATA CONSULTING ENGINEERS LIMITED MUMBAI					
SCALE : NTS		DWG NO. TCE.12503A-CV-3082-WS-30581			ISSUE P0
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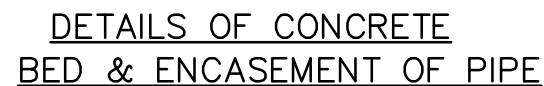


TABLE										
INTERNAL DIAMETER OF PIPE (mm)	ANGLE OF BEND	DESIGN PRESSURE (kg/m ²)	SOIL COVER OVER PIPE Ds (mm)	H (m)	L1 (m)	L2 (m)	L3 (m)	L (m)	B1 (m)	B2 (m)
100	90°	4.35	1000	0.70	0.75	0.40	0.35	0.77	0.70	0.35
100	45°	4.35	1000	0.60	0.55	0.30	0.25	0.57	0.60	0.30
100	22.5°	4.35	1000	0.45	0.45	0.25	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 AGGREGATES 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

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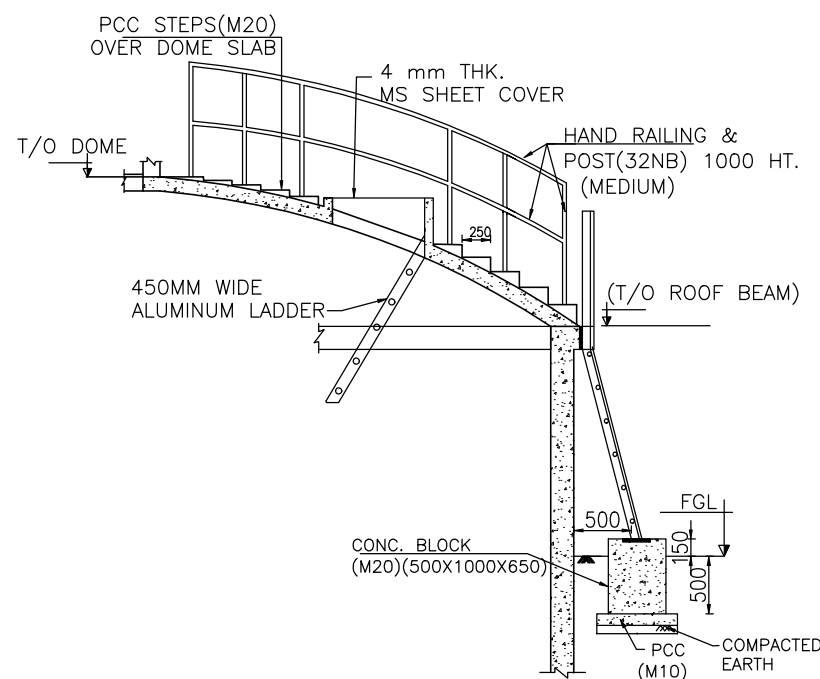
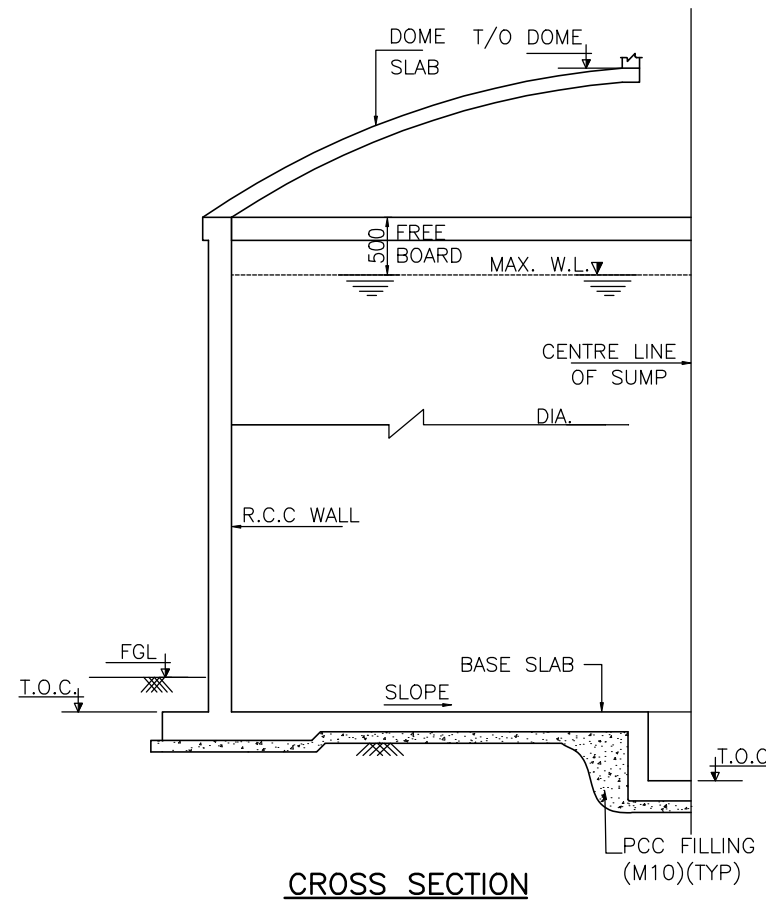
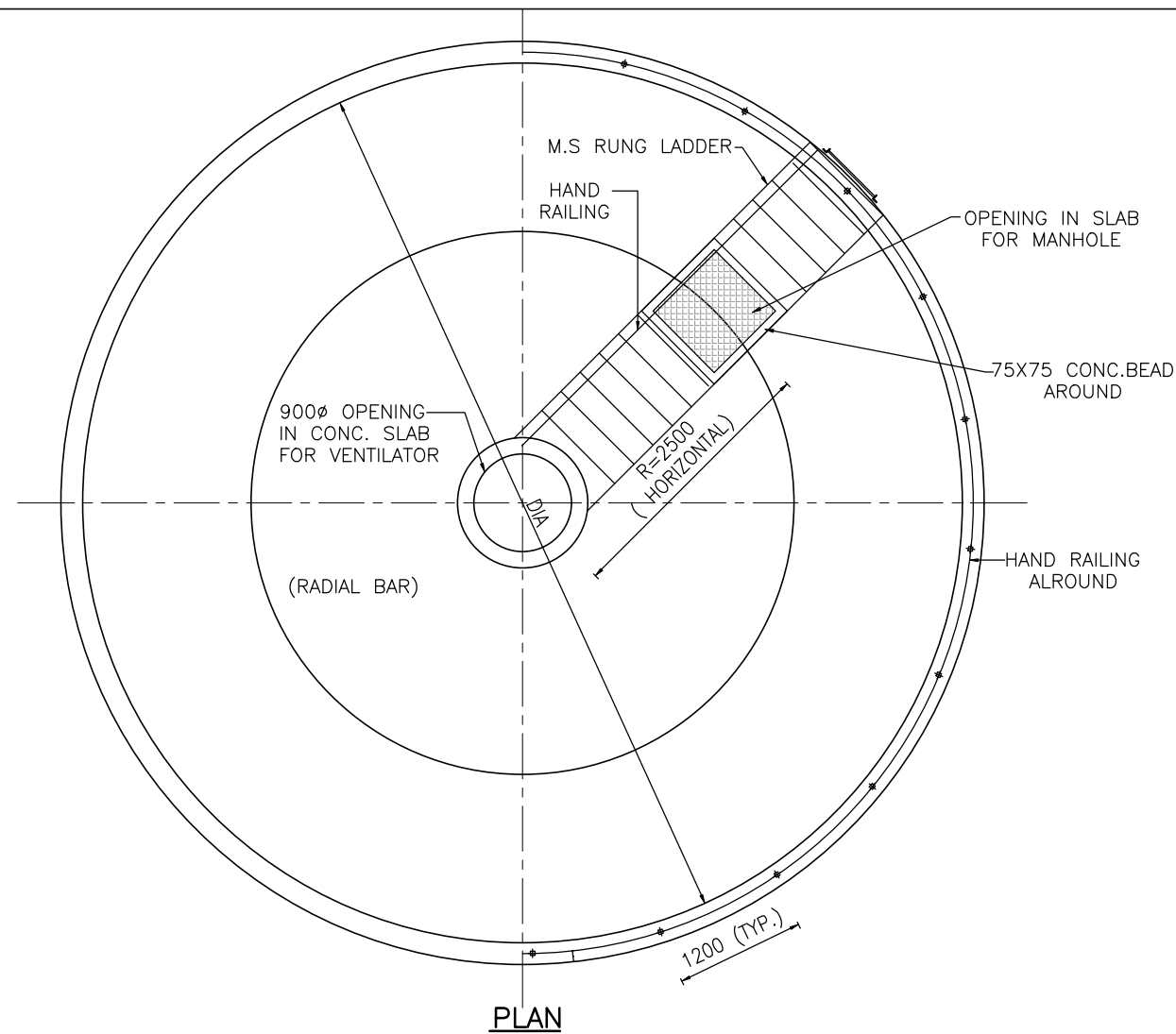
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			DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE CS09) IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT		
TYPICAL DETAILS OF THRUST BLOCK					
		TATA CONSULTING ENGINEERS LIMITED MUMBAI			
SCALE : NTS		DWG NO. TCE.12503A-CV-3082-WS-30582			ISSUE P0
DC & DISC: DEL-CV					



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FILE NAME	12503A-CV-30584-Rev-P0
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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)



TATA CONSULTING ENGINEERS LIMITED
MUMBAI

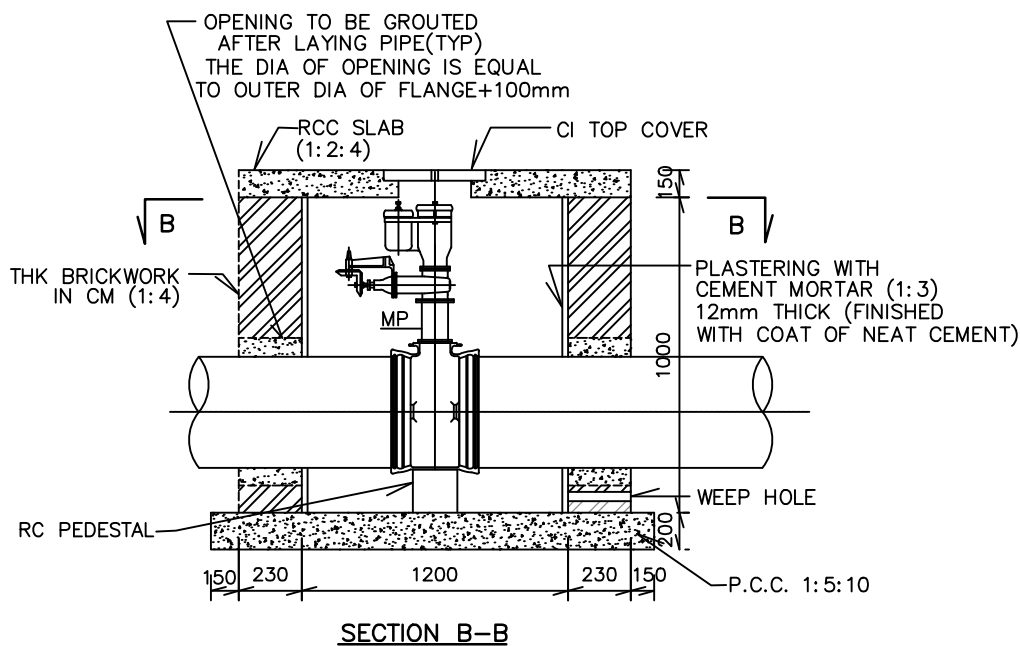
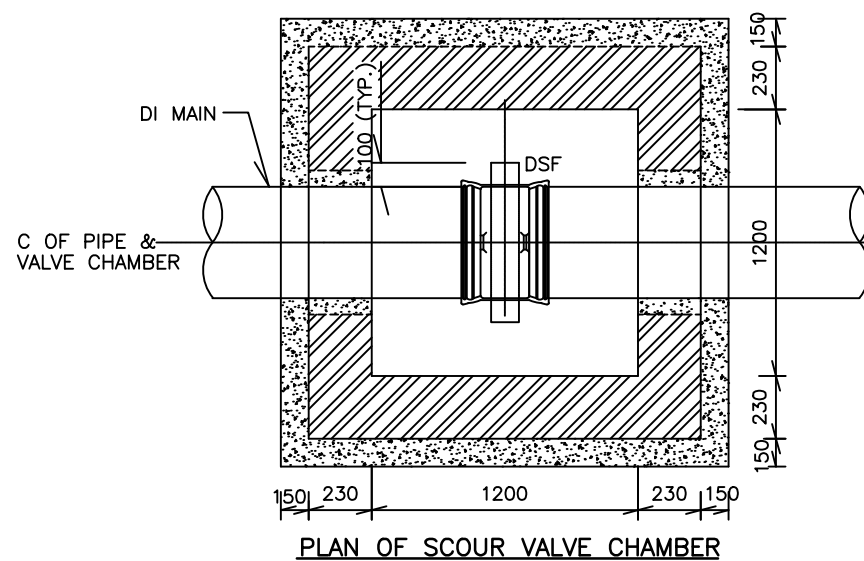
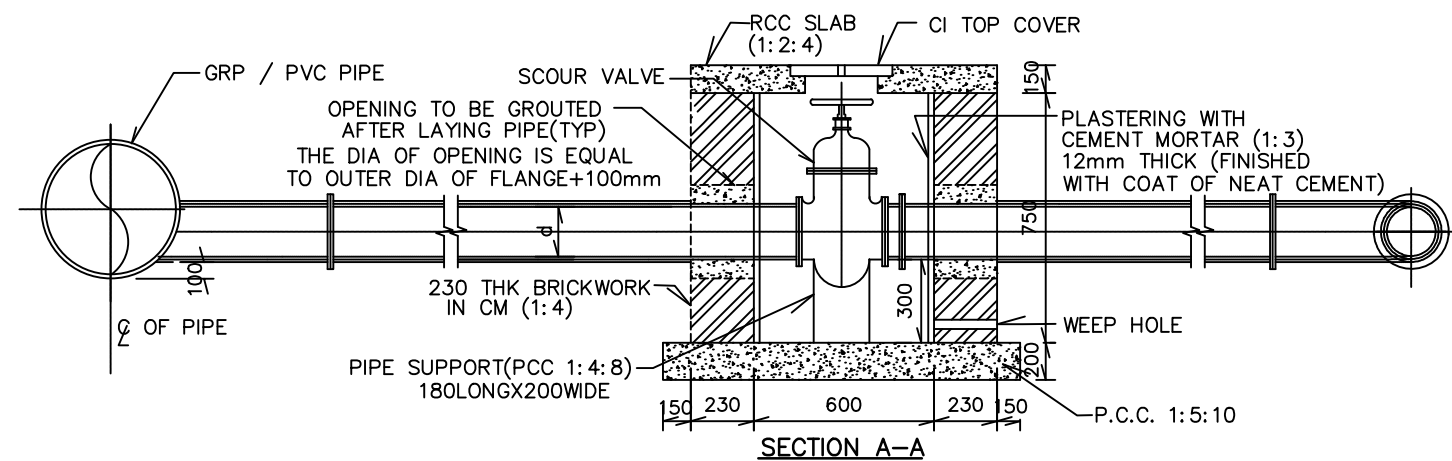
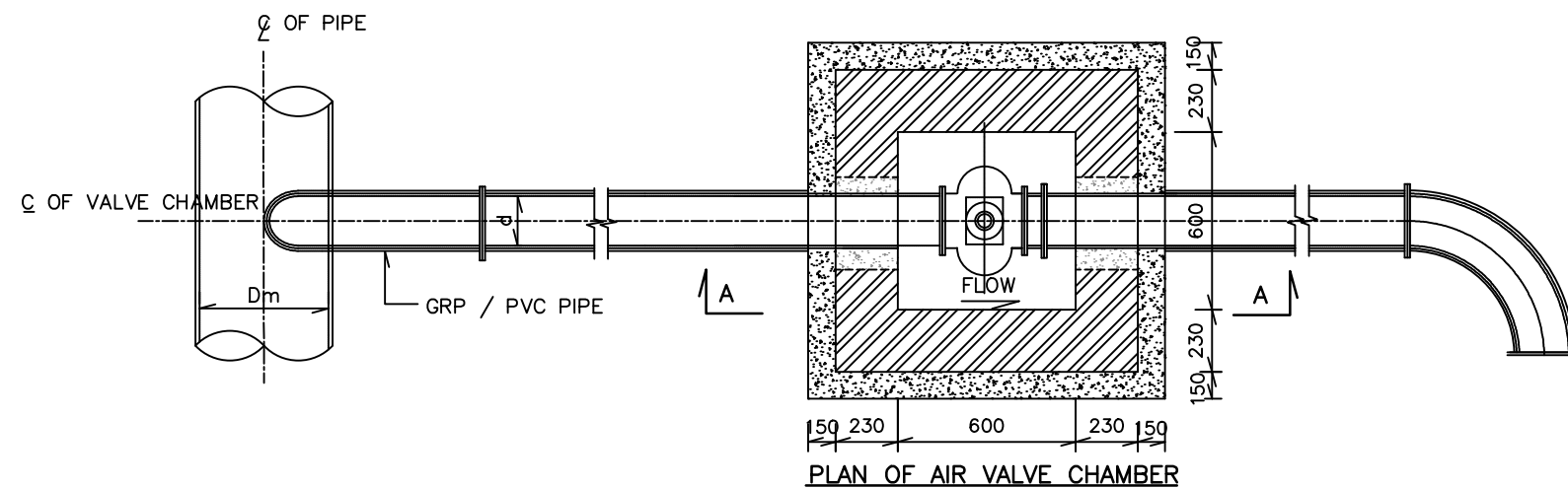
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DC & DISC: DEL-CV

DWG NO.

NO. TCE.12503A-CV-3082-GA-30584

ISSUE 50



- 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
CL	————	CENTER LINE
MP	————	MAKEUP PIECE

- NOTES

1. ALL DIMENSIONS ARE IN MM. & LEVELS ARE IN METRES.
2. GRADE OF REINFORCEMENT 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 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.

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FILE NAME 12503A-CV-30585-Rev-P0



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

TYPICAL DETAILS OF SCOUR VALVE
AND AIR VALVE CHAMBER

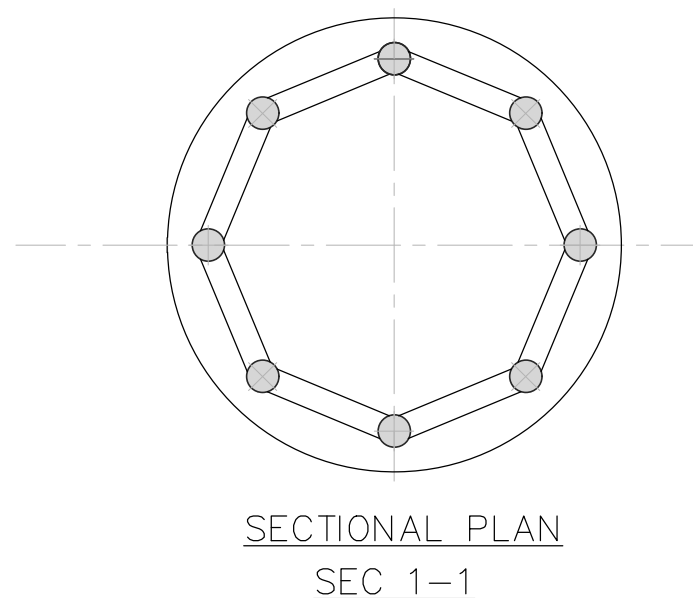


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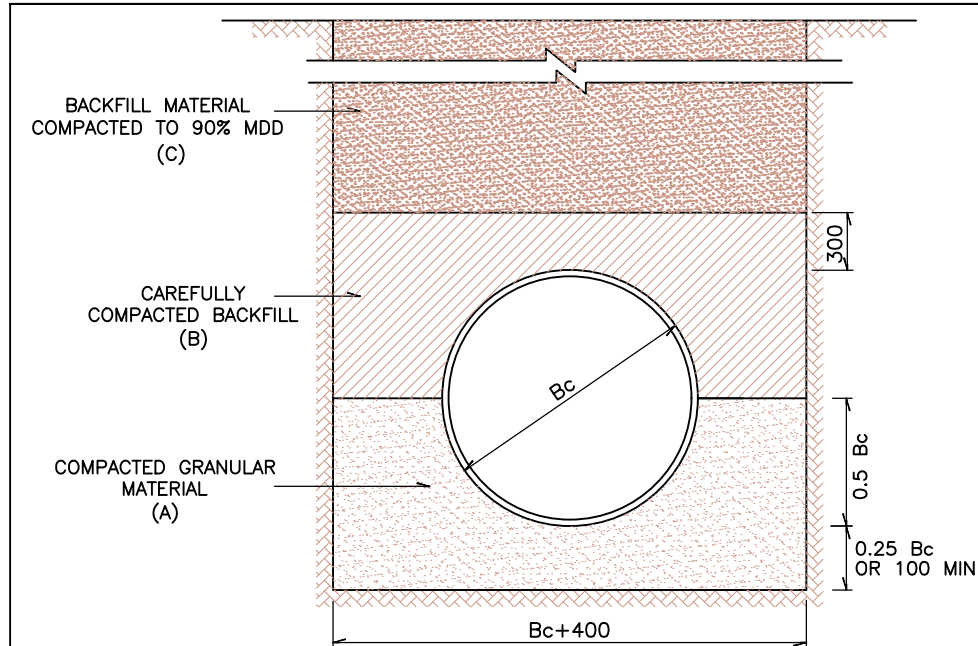
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ISSUE P0

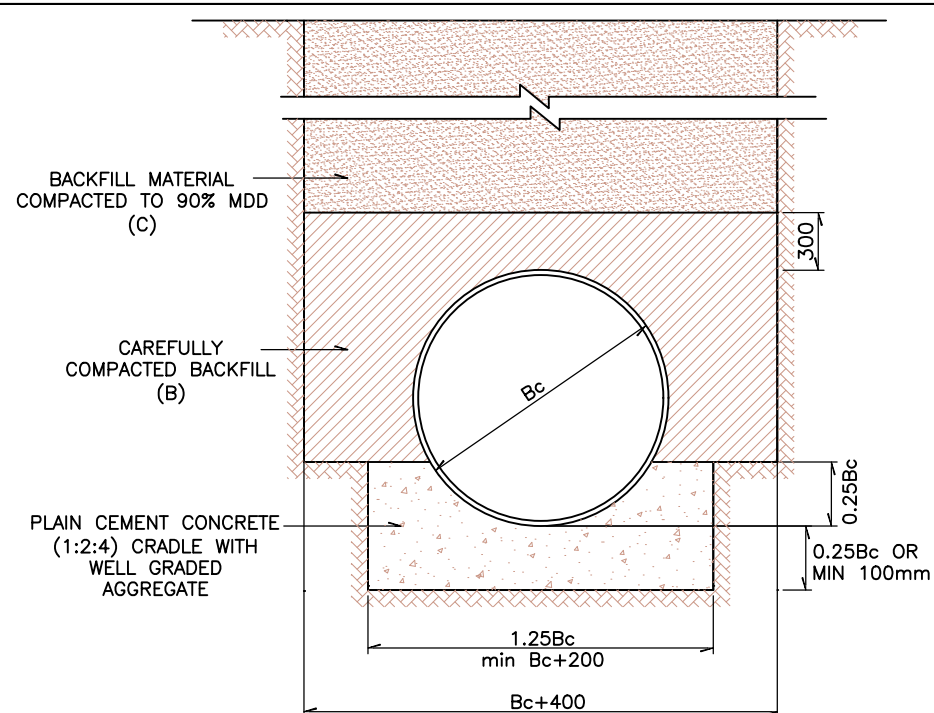


1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS IN METRES UNLESS NOTED.
2. DO NOT SCALE THE DRAWING. FOLLOW FIGURED DIMENSIONS ONLY.
3. GRADE OF CONCRETE SHALL BE M30 WITH MAXIMUM 20mm DOWNGRADED AGGREGATES CONFORMING TO IS 456.
4. STEEL FOR REINFORCEMENT SHALL BE HIGH YIELD STRENGTH DEFORMED BARS OF 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		
GENERAL ARRANGEMENT OF INTAKE WELL					
 TATA CONSULTING ENGINEERS LIMITED MUMBAI					
SCALE : NTS DC & DISC : DEL-CV		DWG NO. TCE.12503A-CV-3082-GA-30587		ISSUE P1	



GRANULAR BEDDING (GRB)
CLASS-B



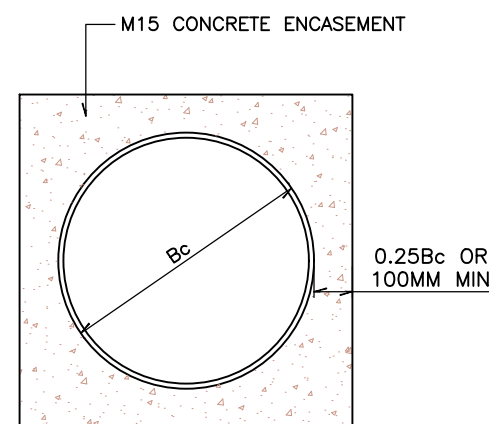
PLAIN CEMENT CONCRETE BEDDING (PCCB)
CLASS-Ab

LEGEND:

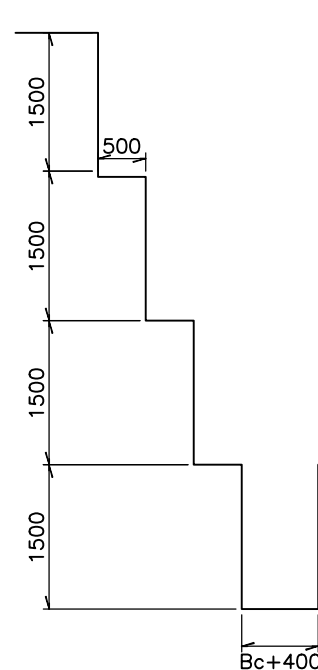
- GL GROUND LEVEL
- C.M. CEMENT MORTAR
- TYP TYPICAL
- MAX MAXIMUM
- DIA DIAMETER
- THK THICK
- MS MILD STEEL
- Bc OUTER DIAMETER OF PIPE
- d INTERNAL DIAMETER OF PIPE

NOTES:

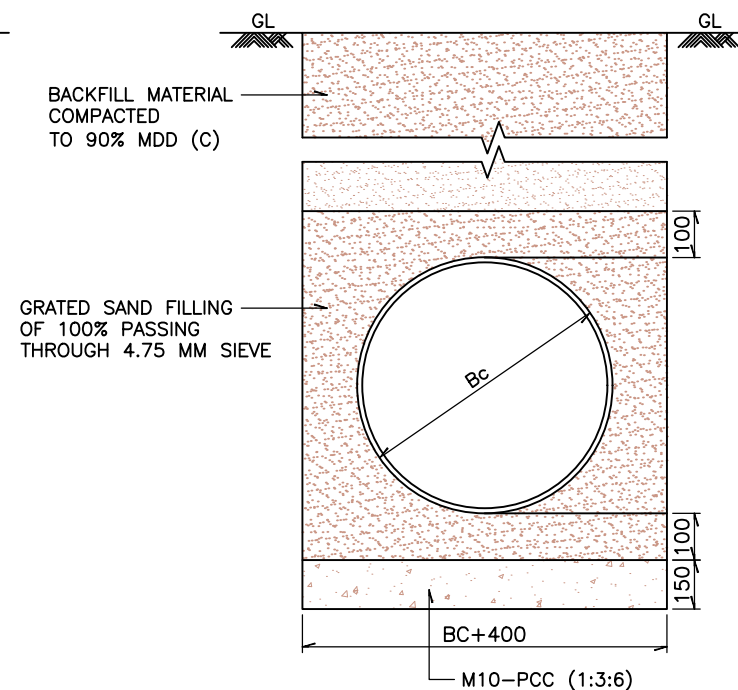
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.
2. INTERNAL DIAMETER OF PIPE = D
3. OUTER DIAMETER OF PIPE = Bc.
4. BACKFILLING WITH APPROVED SELECTED EXCAVATED MATERIAL AND COMPACTION SHALL BE DONE BY HAND OR APPROVED MECHANICAL METHODS IN LAYERS OF 150mm WITH SPECIAL CARE TO AVOID 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 COMPACTIONED 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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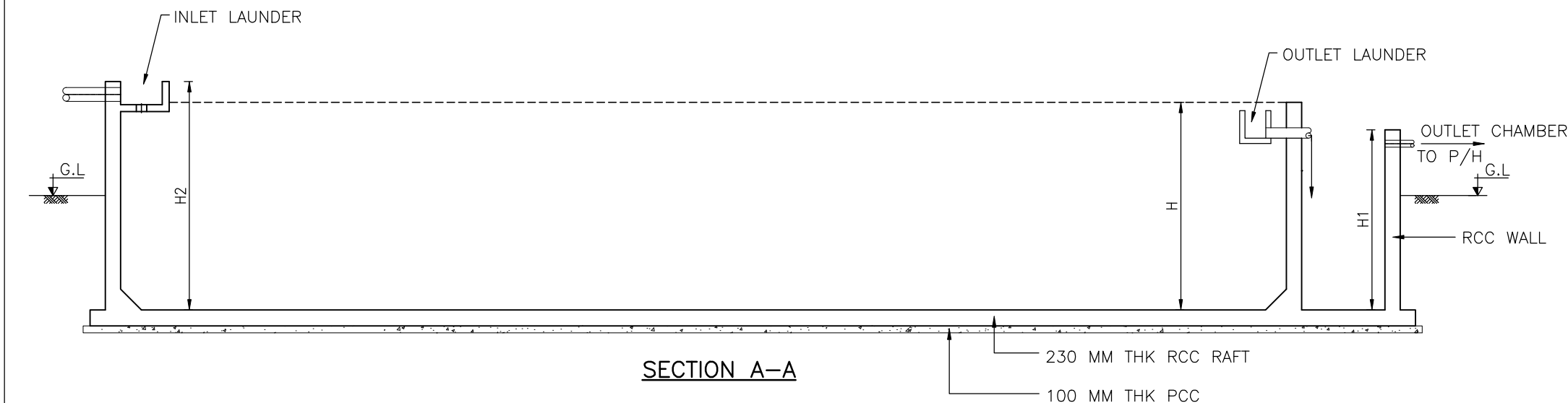
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TYPICAL DETAILS OF BEDDING AND TRENCH

TATA CONSULTING ENGINEERS LIMITED

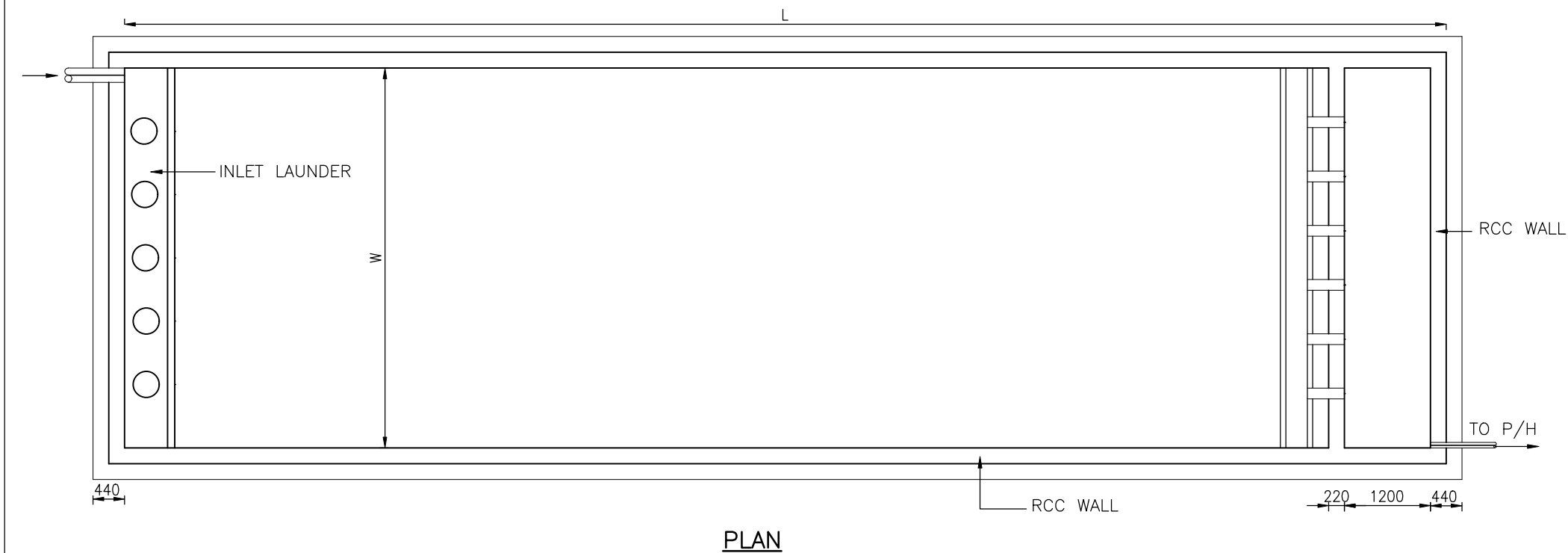
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LEGEND

P/H --- PUMP HOUSE
THK --- THICK
PCC --- PLAIN CEMENT CONCRETE
RCC --- REINFORCED CEMENT CONCRETE
G.L. --- GROUND LEVEL
L --- LENGTH OF TANK
W --- WIDTH OF TANK
H --- HEIGHT OF TANK



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9. THE SPACING OF CONSTRUCTION JOINT SHALL NOT BE MORE THAN 1.20M.

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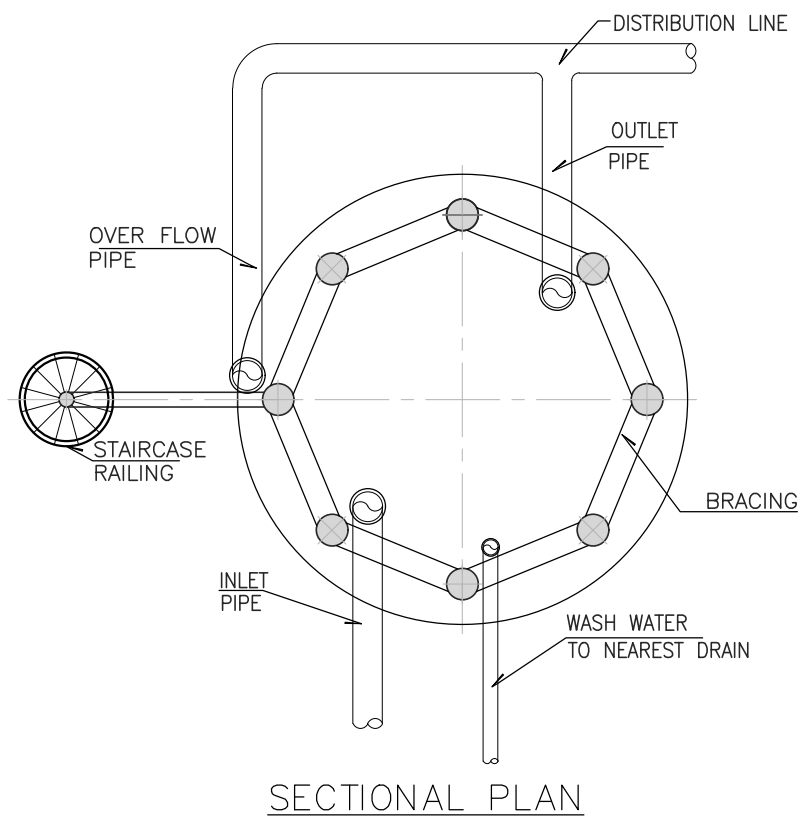
DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE CS09)
IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

TYPICAL DETAILS OF DESILTING TANK



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SECTION ELEVATION

SECTIONAL PLAN

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IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

TYPICAL DETAILS OF ELSR



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					CLEARED								(dd-mm-yyyy)

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```
CC-----CEMENT CONCRETE
RCC-----REINFORCED CEMENT CONCRETE
LVL-----LEVEL
GL-----GROUND LEVEL
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2. ALL DIMENSIONS INDICATED ARE CLEAR INSIDE DIMENSIONS.



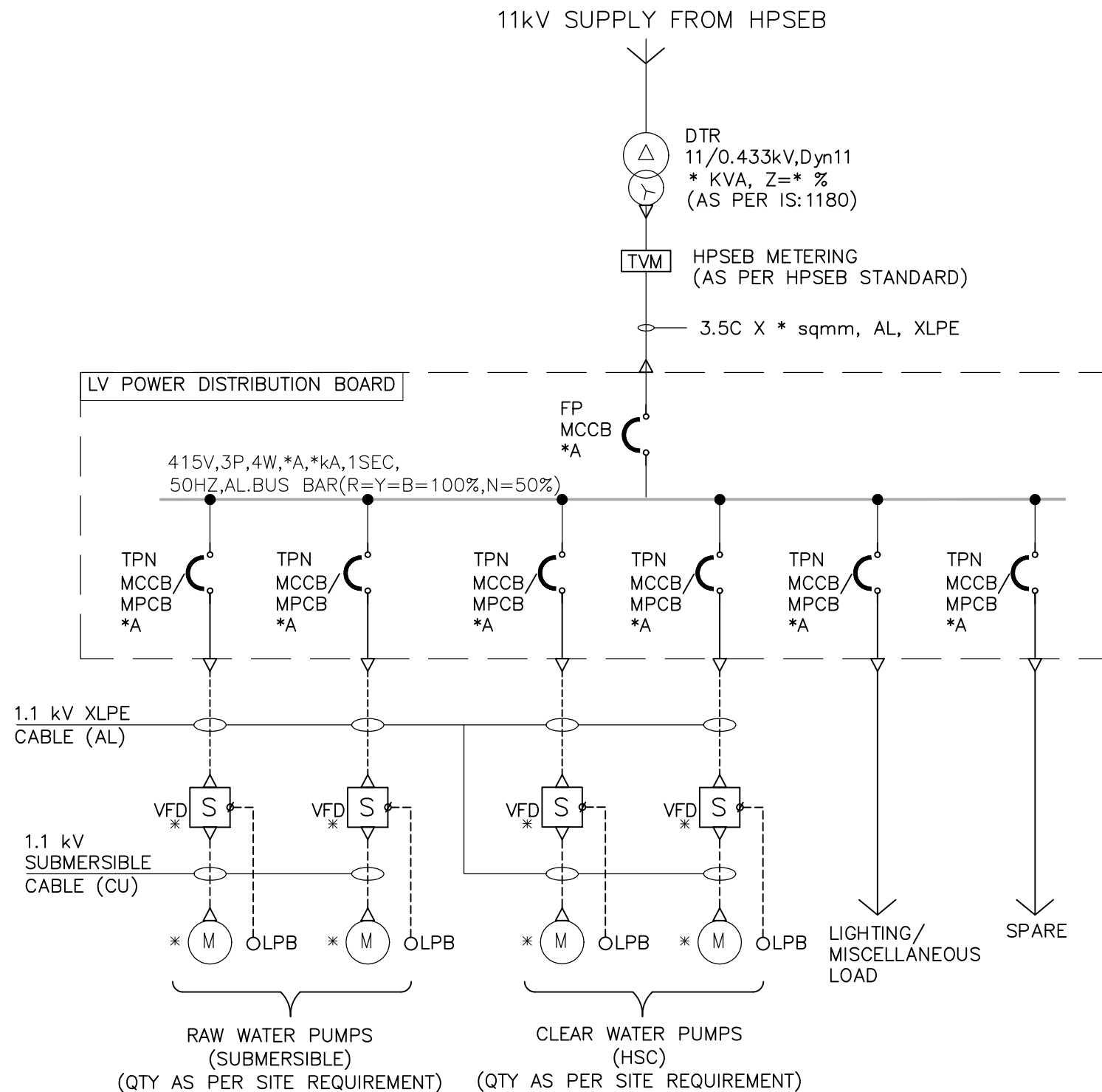
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TYPICAL DETAILS OF PERCOLATION WELL			
		TATA CONSULTING ENGINEERS LIMITED MUMBAI	
SCALE : NTS	DWG NO.	TCE.12503A-CV-3082-GA-30592	ISSUE PO



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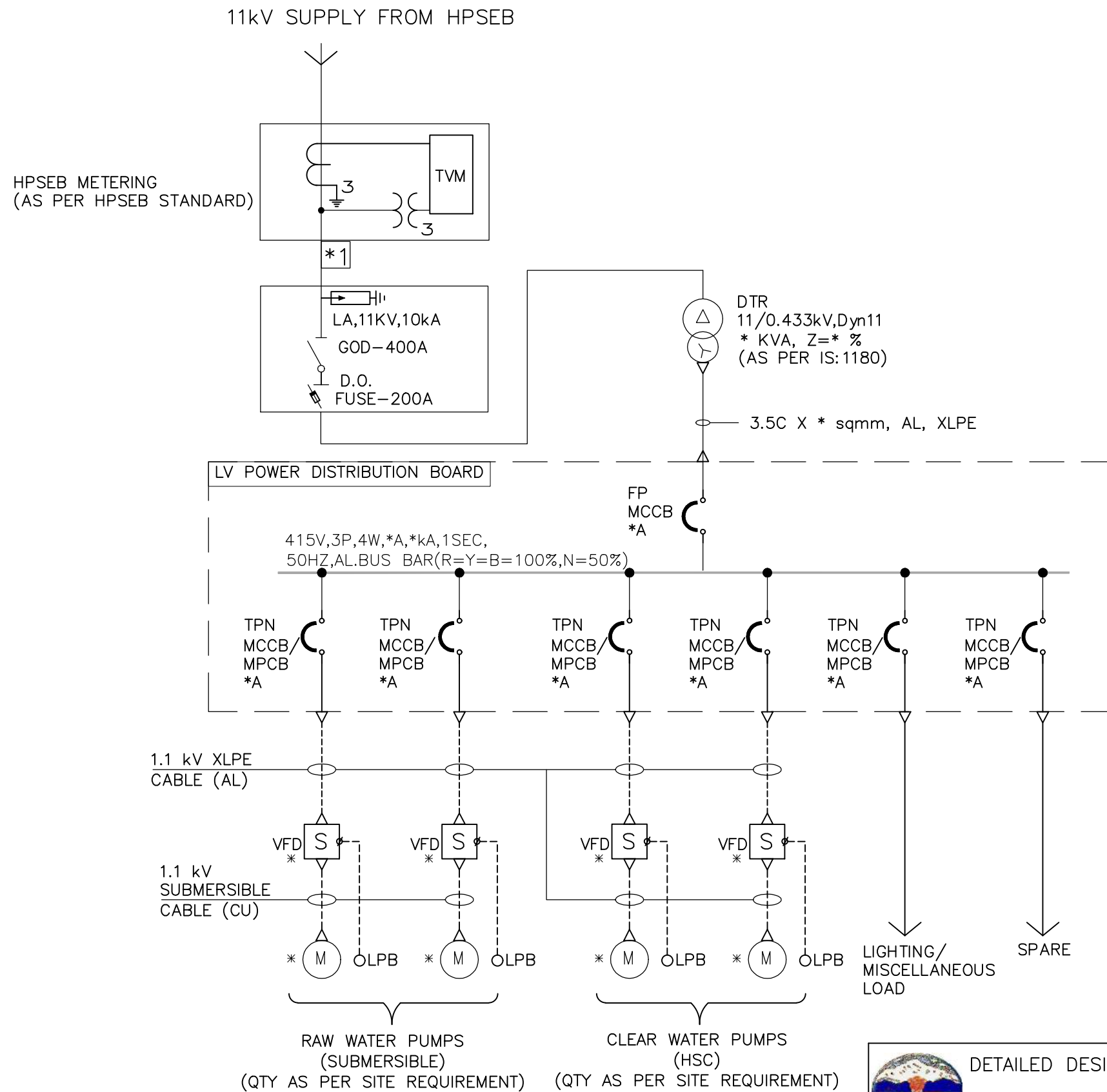
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	DETAILED DESIGN CONSULTANCY, HP-SHIVA (PACKAGE CS09) IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT	
	TYPICAL SLD FOR LIS PUMPING STATION WITH 1W+1S UNITS & LT METERING	
 TATA CONSULTING ENGINEERS LIMITED MUMBAI		
SCALE : NTS DC & DISC: DEL-CV	DWG NO. TCE.12503A-EL-4002-AU-40001	ISSUE P0



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IRRIGATION, HORTICULTURE, ORCHARDS AND VALUE CHAIN DEVELOPMENT

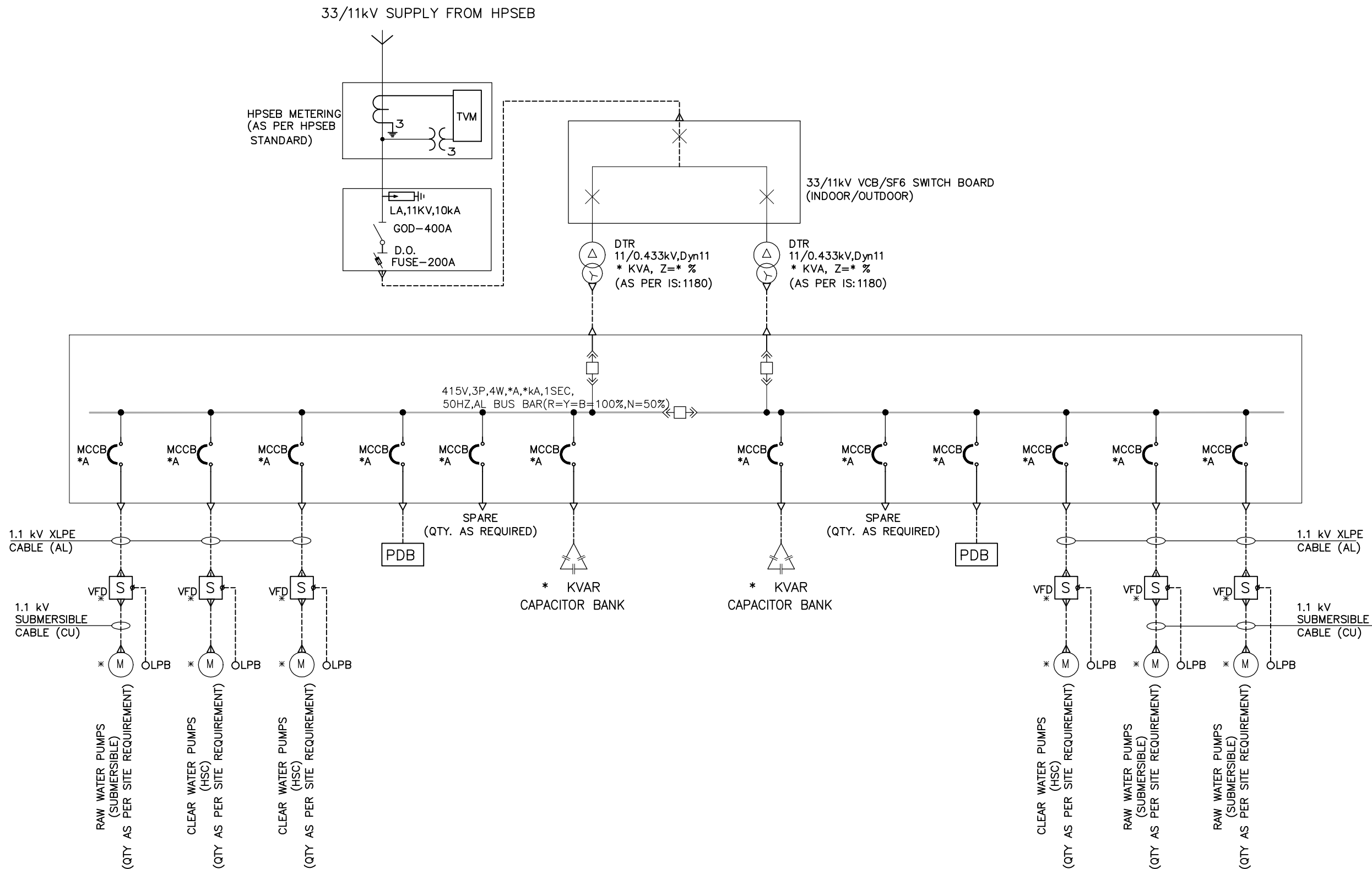
TYPICAL SLD FOR LIS PUMPING STATION WITH 1W+1S UNITS & HT METERING



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MUMBAI

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



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1. THIS SLD SHOWS THE SCHEME FOR DISTRIBUTION 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.
2. 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.
3. HV SYSTEM:
 - a) INTER TRIPPING & CLOSING INTERLOCK SHALL BE PROVIDED BETWEEN TRANSFORMER FEEDER (11KV) AND LT PANEL INCOMER (0.415KV) SIDE.
 - b) CT /PT UNIT FOR HT METERING AND TVM SHALL BE AS PER DISCOM.
4. LV SYSTEM:
 - a) 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%.
 - b) 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%.
5. 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.
6. 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.
7. 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.
8. 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 CATER FOR THE NEED OF THE PCC/ MCC PANEL.
9. MCCB & MPCB TERMINALS SHALL BE SHROUDED AND SHALL BE DESIGNED TO RECEIVE CABLE LUGS FOR RELEVANT CABLE SIZES.
10. ALL INDICATING LAMPS SHALL BE MULTICHIP LED TYPE.
11. MULTIFUNCTION METER FOR MEASURING ALL POWER & ENERGY PARAMETERS SHALL HAVE AN ACCURACY CLASS OF 1.0 OR BETTER, WITH RS 485 COMM PORT.
12. ALL CONTACTORS / TIMERS SHALL BE DIN RAIL MOUNTED.
13. 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.
14. 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.
15. WHEREVER APPLICABLE, SEPARATE PANEL FOR HVAC, FIRE AND PLUMPING PUMP WILL BE PART OF RESPECTIVE BOQ.
16. 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.
17. WHEN TWO DG'S ARE OPERATING IN PARALLEL THEN PROVISION OF NEUTRAL CONTRACTOR INTERLOCKING SHOULD BE SUCH THAT ONLY ONE DG WILL BE EARTHED.
18. MCB USED FOR STANDARD NETWORK SHALL HAVE 'C' CHARACTERISTIC CURVE.
19. EACH TYPE & RATING OF OUTGOING FEEDER SHALL HAVE 10% SPARE OR MINIMUM ONE NUMBER.

	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
	CURRENT TRANSFORMER (CT) (FIGURE INDICATES NO. OF CT's)	MOG	MAGNETIC OIL GAUGE
		86	LOCK OUT RELAY
	POTENTIAL TRANSFORMER	SC	SPRING CHARGED
		TCH	TRIP CIRCUIT HEALTHY
	TRANSFORMER	SP	SERVICE POSITION
		TP	TEST POSITION
	TRI VECTOR METER		ELECTRICAL CABINET
	CHOKE	(MFM)	MULTIFUNCTION METER
(AS)	AMMETER SELECTOR SWITCH		
(A)	ANALOG AMMETER		NET ENERGY METER
(VS)	VOLTMETER SELECTOR SWITCH		
(V)	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

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