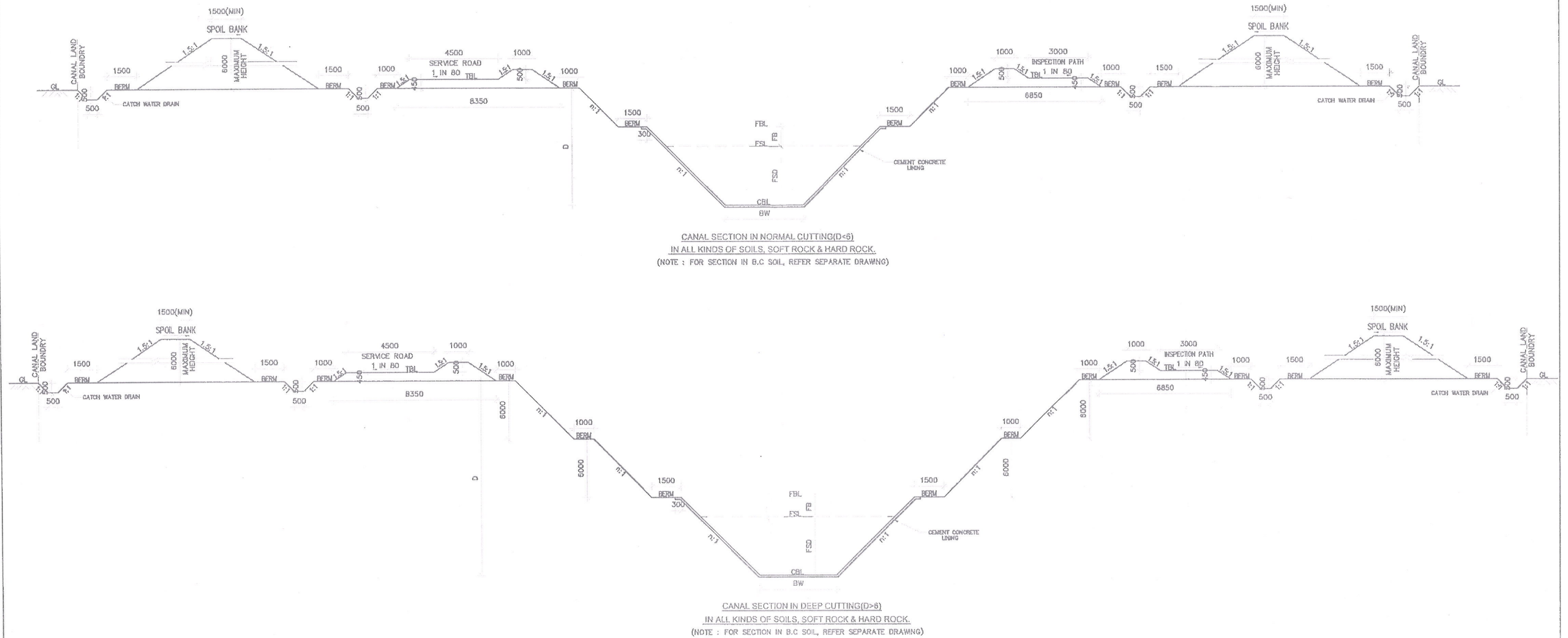




NOTES:-

- 1) ALL DIMENSIONS ARE IN MILLIMETERS.
- 2) DO NOT SCALE THE DRAWING. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- 3) FOR HYDRAULIC PARAMETERS REFER APPROVED REACH WISE STATEMENT.
- 4) FOR SERVICE ROAD AND INSPECTION PATH, SELECTED EXCAVATED EARTH MAY BE USED WITH THE APPROVAL OF THE ENGINEER IN CHARGE AND SHALL BE AS PER SPECIFICATIONS.
- 5) CATCH WATER DRAINS SHALL BE SUITABLY DRAINED TO THE NEAREST VALLEY.
- 6) WHERE GROUND WATER TABLE IS ABOVE C.B.L, UNDER DRAINAGE ARRANGEMENT WITH NR.V. SHALL BE PROVIDED AS SHOWN IN SEPARATE DRAWING.
- 7) CATCH WATER DRAINS ESPECIALLY ON U/S SIDE SHALL BE PROPERLY DESIGNED FOR INDIVIDUAL CATCHMENTS.

SIDE SLOPES:

- 1) IN WATER PRISM FOR CUTTING
 - a. IN HARD ROCK = 1:1
 - b. IN HARD ROCK WITH BOULDERS / SOIL POCKETS = 1:1
 - c. IN SOIL / SOFT ROCK, PARTIALLY IN HARD ROCK, PARTIALLY IN HARD ROCK WITH BOULDERS AND PARTIALLY IN LOOSE SOIL/SAND = 1:1
- 2) ABOVE WATER PRISM FOR NORMAL AND DEEP CUTTING
 - a. IN HARD ROCK = 0.25:1
 - b. IN SOFT ROCK = 0.5:1
 - c. IN A.K.S = 1:1
 - d. IN LOOSE SOIL / SAND = 1.5:1
- 3) IN PARTIAL BANKING/BANKING
 - a. INNER n=1.5
 - b. OUTER (H<6.0m) n=1.5

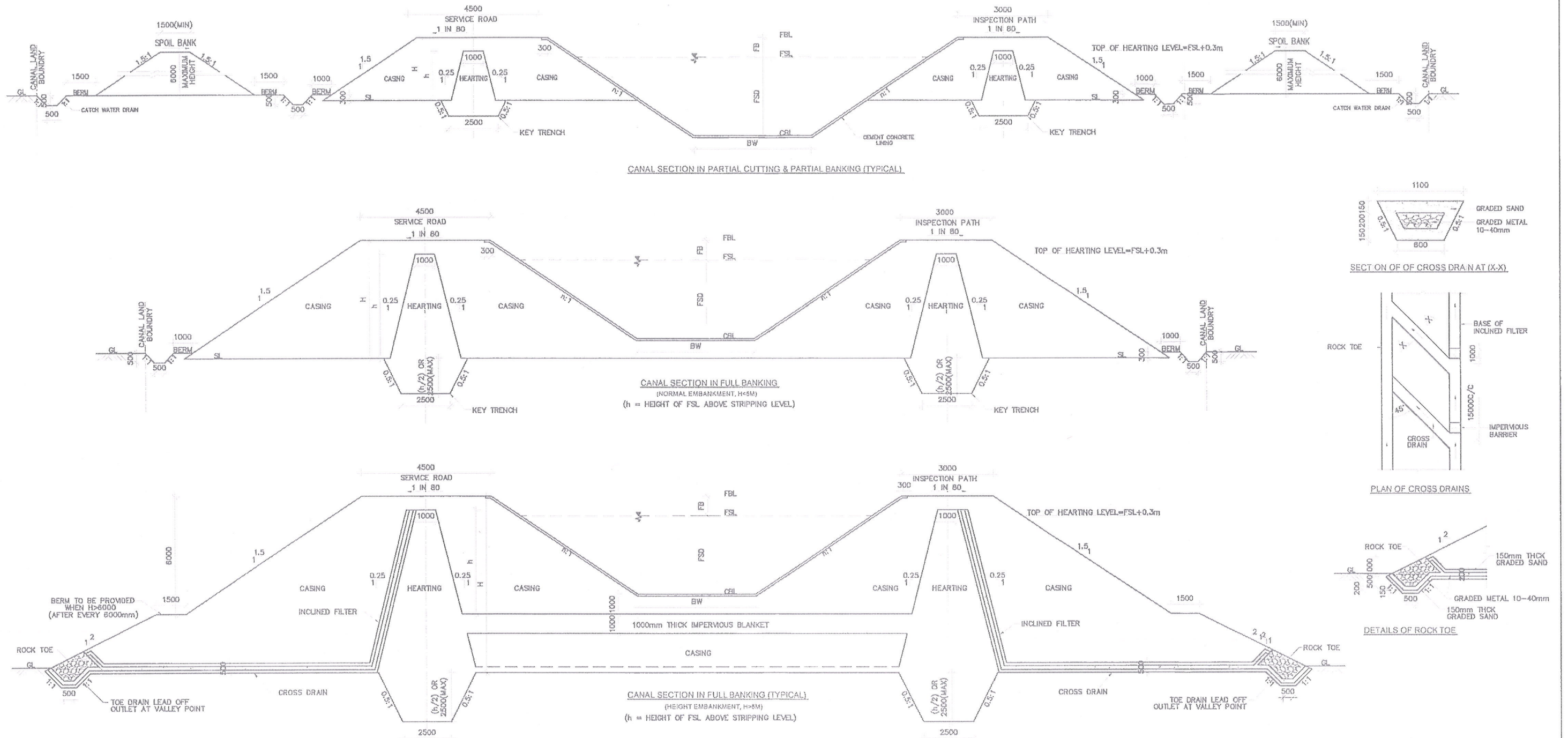
LEGEND:-

- a. CBL - CANAL BED LEVEL
- b. FSL - FULL SUPPLY LEVEL
- c. FBL - FREE BOARD LEVEL
- d. SL - STRIPPING LEVEL
- e. GL - GROUND LEVEL
- f. TBL - TOP BUND LEVEL
- g. BW - BED WIDTH
- h. FSD - FULL SUPPLY DEPTH
- i. FB - FREE BOARD
- j. CC - CEMENT CONCRETE
- k. M15 - GRADE OF CONCRETE

ಸಹಾಯಕ ಕಾರ್ಯಾಲಯ ಇಂಜಿನಿಯರ್
ಎ.ಜಿ.ನಿ.ನಿ., ಭ.ಮೇ.ಯೋ. ಉಪ ವಿಭಾಗ,
ಕ್ರ.24. ಕಳ್ಳಂಬೆಳ್ಳ ಕ್ಯಾಂಪ್, ಶಿರಾ.

Executive Engineer
Visvesvaraya Jala Nigama Limited.
Upper Bhadra Project Division No.9
Sira Tumkur Dist.

CLIENT	VISVESVARAYA JALA NIGAM LIMITED (A GOVT. OF KARNATAKA ENTERPRISE)	
PROJECT	UPPER BHADRA PROJECT TUMKUR BRANCH CANAL (FROM CH:30.00 Km TO 159.768 Km)	
TITLE	TYPICAL CROSS SECTION OF MAIN CANAL IN CUTTING REACHES	
CONSULTANT	SECON PRIVATE LIMITED BANGALORE-68	
ASSISTANT EXECUTIVE ENGINEER V.N.L. UBP DIVN NO-11, MADADHAKERE CAMP, HOSADURGA	EXECUTIVE ENGINEER V.N.L. UBP DIVN NO-4, HOSADURGA	
SUPERINTENDING ENGINEER V.N.L. UBP CIRCLE NO:2, CHITRADURGA	CHIEF ENGINEER V.N.L. UBP ZONE CHITRADURGA	
SCALE: N.T.S	DWG NO: SECON/V.N.L./UBP/TBC/MC/CS	SHEET:1 OF 4



NOTES:-

- 1) ALL DIMENSIONS ARE IN MILLIMETERS.
- 2) DO NOT SCALE THE DRAWING. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- 3) FOR HYDRAULIC PARAMETERS REFER APPROVED REACH WISE STATEMENT.
- 4) OUTER SIDE SLOPES SHOWN FOR HIGH EMBANKMENT CANAL SECTION ARE FOR ESTIMATE PURPOSE ONLY. BEFORE EXECUTION, DETAILED STABILITY ANALYSIS OF SLOPES SHALL BE CARRIED OUT DULY CONSIDERING ACTUAL PARAMETERS OF THE PROPOSED MATERIALS AND SIDE SLOPES SHALL BE GOT APPROVED FROM COMPETENT AUTHORITY.
- 5) CATCH WATER DRAINS SHALL BE SUITABLY DRAINED TO THE NEAREST VALLEY.
- 6) WHERE GROUND WATER TABLE IS ABOVE C.B.L. UNDER DRAINAGE ARRANGEMENT WITH NRV, SHALL BE PROVIDED AS SHOWN IN SEPARATE DRAWING.
- 7) CATCH WATER DRAINS ESPECIALLY ON U/S SIDE SHALL BE PROPERLY DESIGNED FOR INDIVIDUAL CATCHMENTS.
- 8) STRIPPING DEPTH SHALL BE 300mm.
- 9) TOP OF LINING LEVEL = FSL+0.3m
- 10) TOP OF HEARTING LEVEL = FSL+0.3m

SIDE SLOPES:

- I. IN PARTIAL BANKING/BANKING
- II. OUTER (H<6.0m) n=1.5

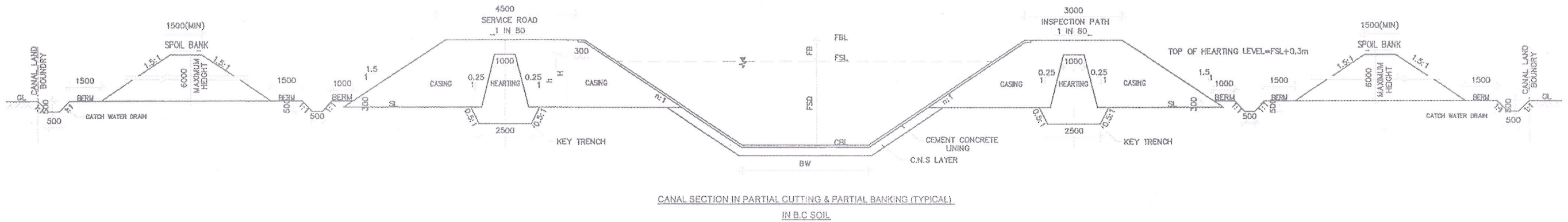
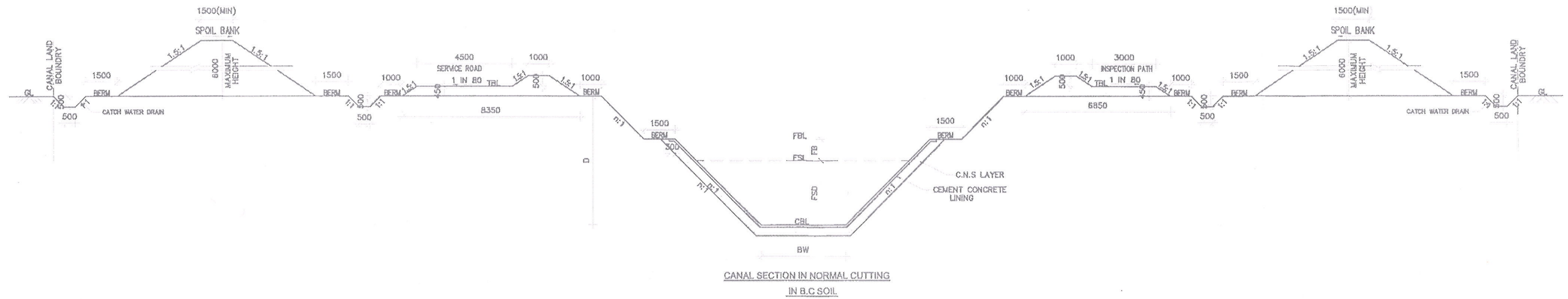
LEGEND:-

- a. CBL - CANAL BED LEVEL
- b. FSL - FULL SUPPLY LEVEL
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- i. FB - FREE BOARD
- j. CC - CEMENT CONCRETE
- k. M15 - GRADE OF CONCRETE

ಸಹಾಯಕ ಕಾರ್ಯದರ್ಶಿ
ವಿ.ಜ.ನಿ.ನಿ., ಭ.ಪೂ.ಯೋ. ಉಪ ವಿಭಾಗ,
ಕ್ರಮ.24. ಕಟ್ಟುಬೆಳ್ಳಿ ಕ್ಯಾಂಪ್, ಶಿರಾ.

Executive Engineer
Visvesvaraya Jala Nigama Limited,
Upper Bhadra Project Division No.9
Sira Tumkur Dist.

CUSTOMER	VISVESVARAYA JALA NIGAM LIMITED (A GOVT. OF KARNATAKA ENTERPRISE)
PROJECT	UPPER BHADRA PROJECT TUMKUR BRANCH CANAL (FROM CH:30.00 Km TO 159.788 Km)
TITLE	TYPICAL CROSS SECTION OF MAIN CANAL IN EMBANKMENT REACHES
CONSULTANT	SECON PRIVATE LIMITED BANGALORE-55
ASSISTANT EXECUTIVE ENGINEER V.N.L. UBP DIVN NO-11, MADADHAKERE CAMP, HOSADURGA	EXECUTIVE ENGINEER V.N.L. UBP DIVN NO-4, HOSADURGA
SUPERINTENDING ENGINEER V.N.L. UBP CIRCLE NO-2, CHITRADURGA	CHIEF ENGINEER V.N.L. UBP ZONE CHITRADURGA
SCALE: N.T.S	DWG NO: SECON/V.N.L./UBP/105/ALC/CS
SHEET: 2 OF 4	



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ಸಂ.24. ಕಳ್ಳಂಬೆಳ್ಳ ಕ್ಯಾಂಪ್, ಶಿರಾ.

Executive Engineer
Visvesvaraya Jala Nigam Limited.
Upper Bhadra Project Division No.9
Sira Tumkur Dist.

NOTES:-

- 1) ALL DIMENSIONS ARE IN MILLIMETERS.
- 2) DO NOT SCALE THE DRAWING. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- 3) FOR HYDRAULIC PARAMETERS REFER APPROVED REACH WISE STATEMENT.
- 4) CATCH WATER DRAINS SHALL BE SUITABLY DRAINED TO THE NEAREST VALLEY.
- 5) WHERE GROUND WATER TABLE IS ABOVE C.B.L., UNDER DRAINAGE ARRANGEMENT WITH NR.V. SHALL BE PROVIDED AS SHOWN IN SEPARATE DRAWING.
- 6) CATCH WATER DRAINS ESPECIALLY ON U/S SIDE SHALL BE PROPERLY DESIGNED FOR INDIVIDUAL CATCHMENTS.
- 7) STRIPPING DEPTH SHALL BE 300mm.
- 8) TOP OF LINING LEVEL = FSL+FB
- 9) TOP OF HEARTING LEVEL = FSL+0.3m

SIDE SLOPES:

- a. IN PARTIAL BANKING/BANKING
- i. INNER n=1.5
- ii. OUTER (H<6.0m) n=1.5

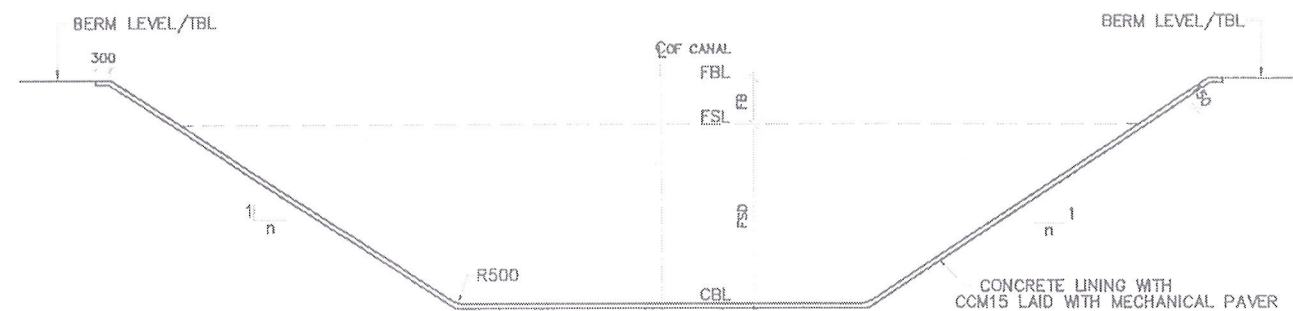
LEGEND:-

- a. CBL - CANAL BED LEVEL
- b. FSL - FULL SUPPLY LEVEL
- c. FBL - FREE BOARD LEVEL
- d. SL - STRIPPING LEVEL
- e. GL - GROUND LEVEL
- f. TBL - TOP BUND LEVEL
- g. BW - BED WIDTH
- h. FSD - FULL SUPPLY DEPTH
- i. FB - FREE BOARD
- j. CC - CEMENT CONCRETE
- k. M15 - GRADE OF CONCRETE

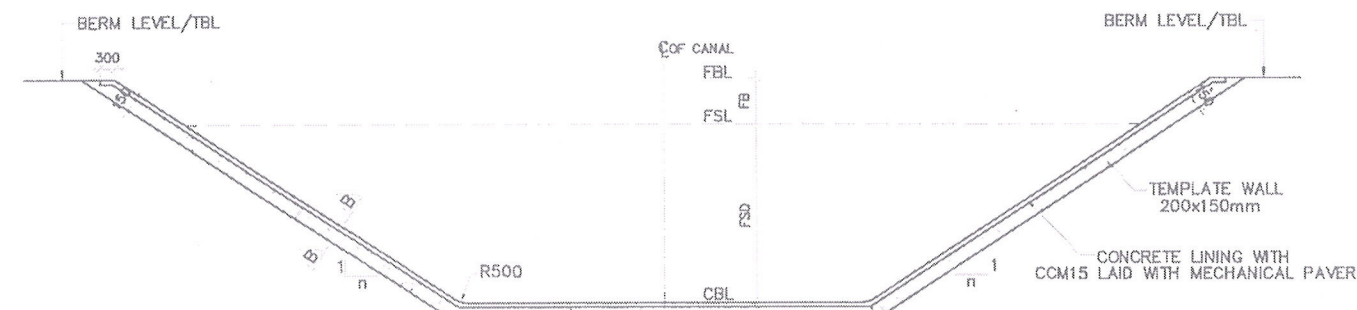
THICKNESS OF CNS LAYER:

SL. NO.	DISCHARGE IN CUSECS	THICKNESS OF C.N.S. LAYER IN CM (MIN)	
		SWELL PRESSURE OF EXPANSIVE SOIL 50-150KN/m ²	SWELL PRESSURE OF EXPANSIVE SOIL MORE THAN 150KN/m ²
1	1 TO 10	30	40
2	10 TO 25	40	50
3	25 TO 50	50	60
4	50 TO 75	60	75
5	MORE THAN 75	75	90

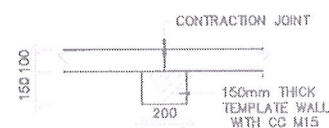
CUSTOMER	VISVESVARAYA JALA NIGAM LIMITED (A GOVT. OF KARNATAKA ENTERPRISE)		
PROJECT	UPPER BHADRA PROJECT TUMKUR BRANCH CANAL (FROM CH:30.00 Km TO 159.768 Km)		
TITLE	TYPICAL CROSS SECTION OF MAIN CANAL IN B.C. SOIL		
CONSULTANT	SECON PRIVATE LIMITED BANGALORE-68		
ASSISTANT EXECUTIVE ENGINEER V.N.L. UBP DIVN NO-11, MADADHAKERE CAMP, HOSADURGA		EXECUTIVE ENGINEER V.N.L. UBP DIVN NO-4, HOSADURGA	
SUPERINTENDING ENGINEER V.N.L. UBP ZONE NO:2, CHITRADURGA		CHIEF ENGINEER V.N.L. UBP ZONE CHITRADURGA	
SCALE: N.T.S	DWG NO: SECON/V.N.L./UBP/TBC/UC/CS		SHEET:3 OF 4



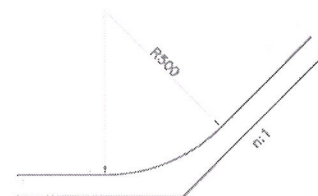
DETAILS OF LINING



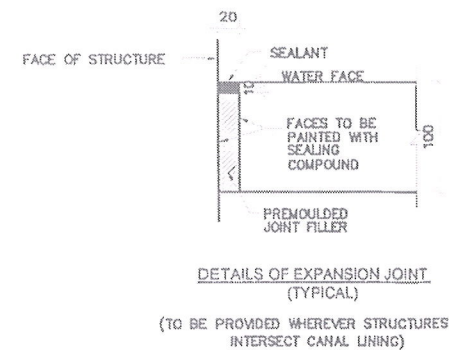
DETAILS OF TEMPLATE WALL



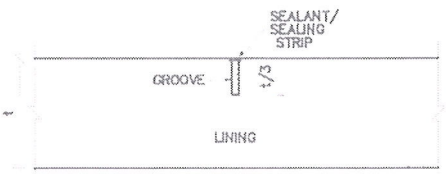
SECTION B-B
(AT EVERY 5.0m INTERVAL)



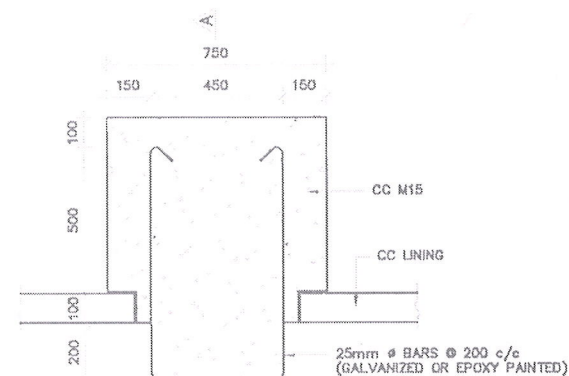
FILLET DETAILS



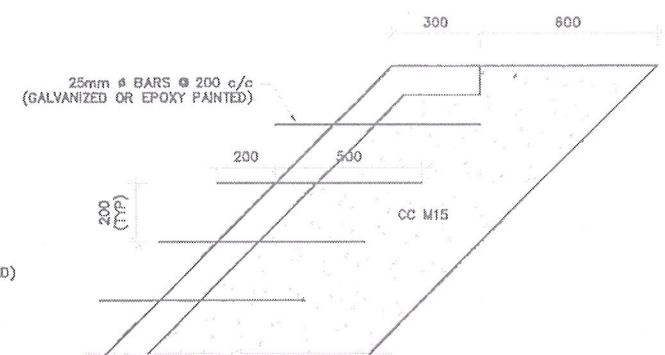
DETAILS OF EXPANSION JOINT
(TYPICAL)
(TO BE PROVIDED WHEREVER STRUCTURES INTERSECT CANAL LINING)



CONTRACTION JOINT AT EVERY 5.0m
(CONTRACTION JOINT SHALL BE PROVIDED IN BOTH BEND AND SIDES AND BOTH IN TRANSVERSE AND LONGITUDINAL DIRECTIONS)



DETAILS OF SAFETY LADDER
(TO BE PROVIDED AT EVERY 300m ALTERNATE ON EITHER SIDE)



SECTION AT A-A

- NOTES:-
- 1) ALL DIMENSIONS ARE IN MILLIMETRE
 - 2) DO NOT SCALE THE DRAWING. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 - 3) MATERIALS:
CONCRETE: GRADE AS SPECIFIED CONFIRMING TO IS:456
REINFORCEMENT: Fe 500.
 - 4) CLEAR COVER TO ANY REINFORCEMENT : 25mm.
 - 5) LAP LENGTH OF THE BARS SHALL BE 50x BAR DIA. NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT ONE LOCATION.
 - 6) WHEREVER TOTAL NO. OF BARS ARE SPECIFIED, THEY ARE TO BE SPACED UNIFORMLY UNLESS MENTIONED OTHERWISE.
 - 7) EXPANSION JOINT TO BE PROVIDED WHERE EVER LINING INTERSECTS STRUCTURES.
 - 8) ALL CONCRETE LINING WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH IS:3873 AND RELEVANT CODES.

- NOTES:-
- 1) ALL DIMENSIONS ARE IN MILLIMETERS.
 - 2) DO NOT SCALE THE DRAWING. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 - 3) FOR HYDRAULIC PARAMETERS REFER APPROVED REACH WISE STATEMENT.
 - 4) SPACING OF CONTRACTION JOINTS SHALL BE 5m C/C AND WHEREVER LINING IS CONTINUOUS.
 - 5) EXPANSION JOINT SHALL BE PROVIDED WHEREVER STRUCTURES INTERSECT CANAL LINING.
 - 6) ALL LINING WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH IS:3873

LINING FOR BED AND SIDES:
i) WATER PRISM - 100mm THICK M15, 20mm DSA PAVEMENT CONCRETE LINING FOR BED & SIDES UPTO FREE BOARD LEVEL

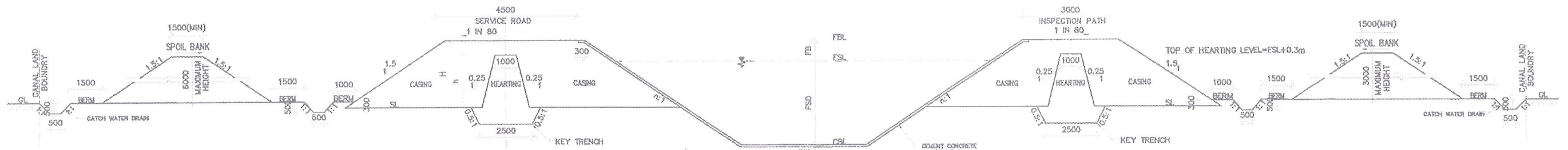
TEMPLATE WALLS:
i) IN CUTTING / PARTIAL BANKING - 200x150mm CC M15, 20mm DSA DOWNSIZE 15m C/C IN STRAIGHT REACHES AND 7.5m C/C IN CURVE REACHES.

- LEGEND:-
- a. CBL - CANAL BED LEVEL
 - b. FSL - FULL SUPPLY LEVEL
 - c. FBL - FREE BOARD LEVEL
 - d. SL - STRIPPING LEVEL
 - e. GL - GROUND LEVEL
 - f. TBL - TOP BUND LEVEL
 - g. BW - BED WIDTH
 - h. FSD - FULL SUPPLY DEPTH
 - i. FB - FREE BOARD
 - j. CC - CEMENT CONCRETE
 - k. M15 - GRADE OF CONCRETE

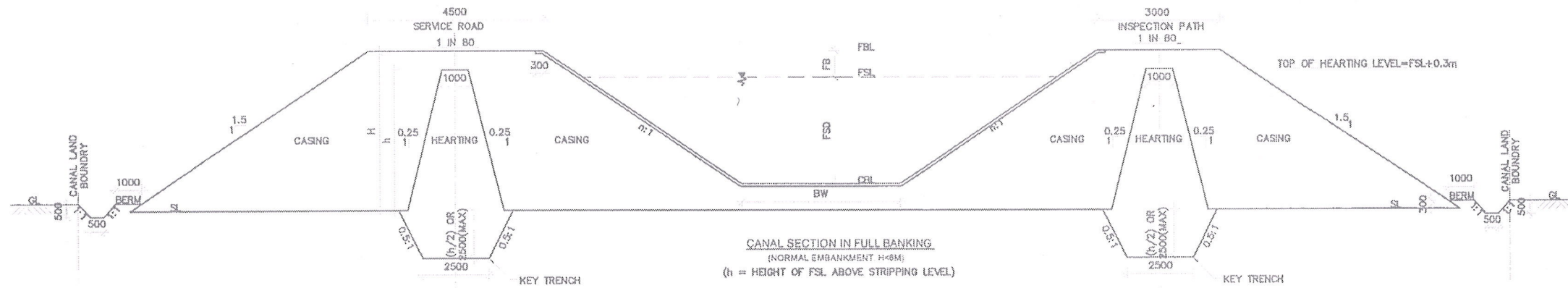
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ವಿ.ಜ.ನಿ.ನಿ., ಭ.ಮ.ಯೋ. ಉಪ ವಿಭಾಗ,
ನಂ.24, ಕಳ್ಳಂಬೆಳ್ಳಿ ಕ್ಯಾಂಪ್, ಶಿರಾ.

Executive Engineer
Visvesvaraya Jala Nigama Limited,
Upper Bhadra Project Division No.9
Sira Tumkur Dist

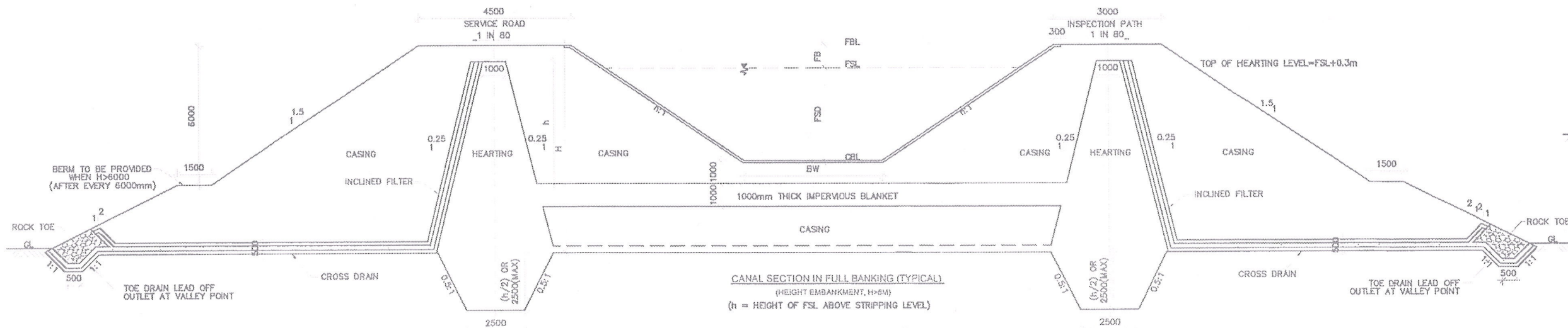
CLIENT	 VISVESVARAYA JALA NIGAM LIMITED (A GOVT. OF KARNATAKA ENTERPRISE)
PROJECT	UPPER BHADRA PROJECT TUMKUR BRANCH CANAL (FROM CH:30.00 Km TO 159.768 Km)
TITLE	TYPICAL CROSS SECTION OF MAIN CANAL - DETAILS OF LINING
CONSULTANT	 SECON PRIVATE LIMITED BANGALORE-66
ASSISTANT EXECUTIVE ENGINEER V.N.L. UBP DIVN NO-11, MADADHAKERE CAMP, HOSADURGA	EXECUTIVE ENGINEER V.N.L. UBP DIVN NO-4, HOSADURGA
SUPERINTENDING ENGINEER V.N.L. UBP CIRCLE NO.2, CHITRADURGA	CHIEF ENGINEER V.N.L. UBP ZONE CHITRADURGA
SCALE: N.T.S	DWG NO: SECON/V.N.L./UBP/100/MC/CS



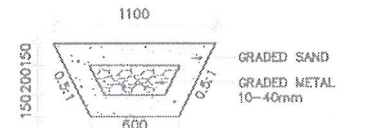
CANAL SECTION IN PARTIAL CUTTING & PARTIAL BANKING (TYPICAL)



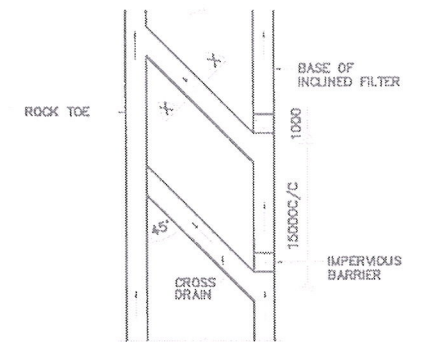
CANAL SECTION IN FULL BANKING
(NORMAL EMBANKMENT H < 8M)
(h = HEIGHT OF FSL ABOVE STRIPPING LEVEL)



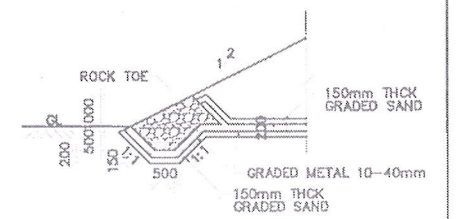
CANAL SECTION IN FULL BANKING (TYPICAL)
(HEIGHT EMBANKMENT, H > 8M)
(h = HEIGHT OF FSL ABOVE STRIPPING LEVEL)



SECTION OF OF OF CROSS DRAIN AT (X-X)



PLAN OF CROSS DRAINS



DETAILS OF ROCK TOE

NOTES:-

- 1) ALL DIMENSIONS ARE IN MILLIMETERS.
- 2) DO NOT SCALE THE DRAWING. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
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- 4) OUTER SIDE SLOPES SHOWN FOR HIGH EMBANKMENT CANAL SECTION ARE FOR ESTIMATE PURPOSE ONLY. BEFORE EXECUTION, DETAILED STABILITY ANALYSIS OF SLOPES SHALL BE CARRIED OUT DULY CONSIDERING ACTUAL PARAMETERS OF THE PROPOSED MATERIALS AND SIDE SLOPES SHALL BE GOT APPROVED FROM COMPETENT AUTHORITY.
- 5) CATCH WATER DRAINS SHALL BE SUITABLY DRAINED TO THE NEAREST VALLEY.
- 6) WHERE GROUND WATER TABLE IS ABOVE C.B.L. UNDER DRAINAGE ARRANGEMENT WITH HRV. SHALL BE PROVIDED AS SHOWN IN SEPARATE DRAWING.
- 7) CATCH WATER DRAINS ESPECIALLY ON U/S SIDE SHALL BE PROPERLY DESIGNED FOR INDIVIDUAL CATCHMENTS.
- 8) STRIPPING DEPTH SHALL BE 300mm.
- 9) TOP OF LINING LEVEL = FSL+0.3m
- 10) TOP OF HEARTING LEVEL = FSL+0.3m

SIDE SLOPES:

- a. IN PARTIAL BANKING/BANKING
- i. INNER $n=1.5$
- ii. OUTER ($H < 6.0m$) $n=1.5$

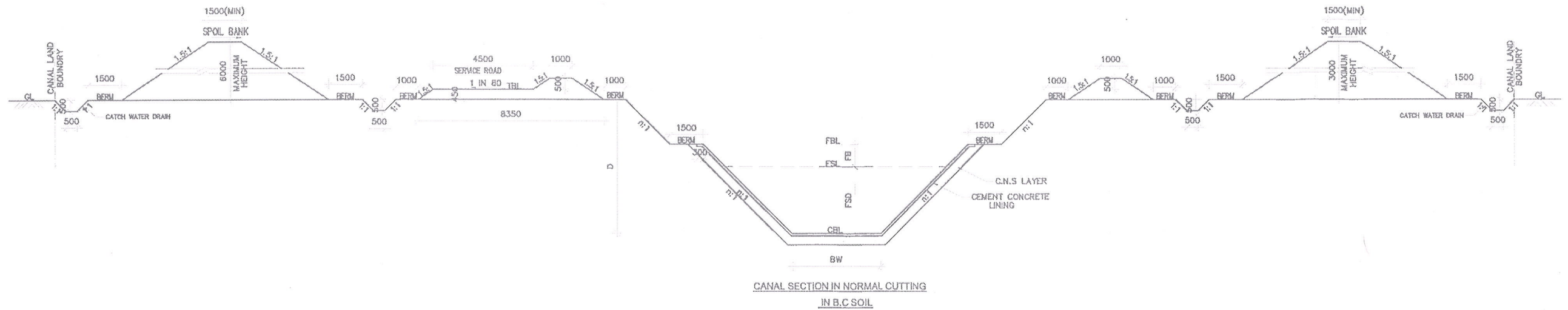
LEGEND:-

- a. C.B.L. - CANAL BED LEVEL
- b. F.S.L. - FULL SUPPLY LEVEL
- c. F.B.L. - FREE BOARD LEVEL
- d. S.L. - STRIPPING LEVEL
- e. G.L. - GROUND LEVEL
- f. T.B.L. - TOP BUND LEVEL
- g. B.W. - BED WIDTH
- h. F.S.D. - FULL SUPPLY DEPTH
- i. F.B. - FREE BOARD
- j. C.C. - CEMENT CONCRETE
- k. M15 - GRADE OF CONCRETE

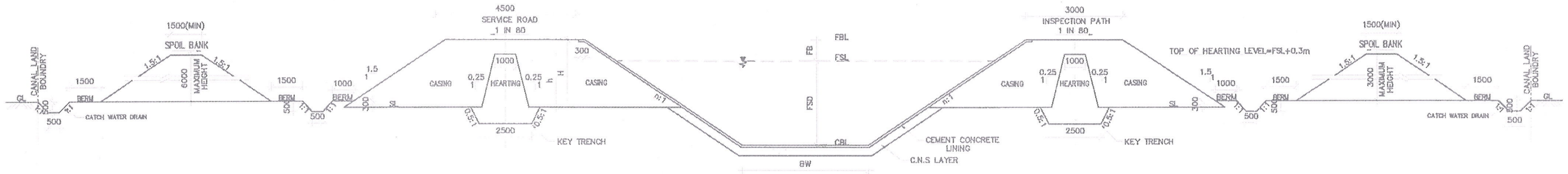
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Executive Engineer
Visvesvaraya Jala Nigama Limited,
Upper Bhadra Project Division No.9
Sira Tumkur Dist.

CLIENT	VISVESVARAYA JALA NIGAM LIMITED (A GOVT. OF KARNATAKA ENTERPRISE)		
PROJECT	UPPER BHADRA PROJECT		
	TUMKUR BRANCH CANAL (FROM CH:30.00 Km TO 159.768 Km)		
TITLE	TYPICAL CROSS SECTION OF MAIN CANAL IN EMBANKMENT REACHES		
CONSULTANT	SECON PRIVATE LIMITED BANGALORE-66		
	ASSISTANT EXECUTIVE ENGINEER V.N.L. UPB DIVN NO-24 KALAMBELLA CAMP SIRA	EXECUTIVE ENGINEER V.N.L. UPB DIVN NO-9, SIRA	
	SUPERINTENDING ENGINEER V.N.L. UPB CIRCLE NO:2, CHITRADURGA	CHIEF ENGINEER V.N.L. UPB ZONE CHITRADURGA	
SCALE: N.T.S	DWG NO: SECON/V.N.L./UPB/TBC/MC/CS		SHEET:2 OF 4



CANAL SECTION IN NORMAL CUTTING
IN B.C. SOIL



CANAL SECTION IN PARTIAL CUTTING & PARTIAL BANKING (TYP. CAL.)
IN B.C. SOIL

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ಪಿ.ಜಿ.ನಿ.ನಿ., ಭಿ.ಮೇ.ಯೋ. ಉಪ ವಿಭಾಗ,
ಸಂ.24. ಕಳ್ಳಂಬೆಳ್ಳಿ ಕ್ಯಾಂಪ್, ಶಿರಾ.

Executive Engineer
Visvesvaraya Jala Nigama Limited,
Upper Bhadra Project Division No.9
Sira Tumkur Dist.

NOTES:-

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- 2) DO NOT SCALE THE DRAWING. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- 3) FOR HYDRAULIC PARAMETERS REFER APPROVED REACH WISE STATEMENT.
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- 7) STRIPPING DEPTH SHALL BE 300mm.
- 8) TOP OF LINING LEVEL = FSL+FB
- 9) TOP OF HEARTING LEVEL = FSL+0.3m

SIDE SLOPES:

- a. IN PARTIAL BANKING/BANKING
1. INNER $n=1.5$
2. OUTER ($H<6.0m$) $n=1.5$

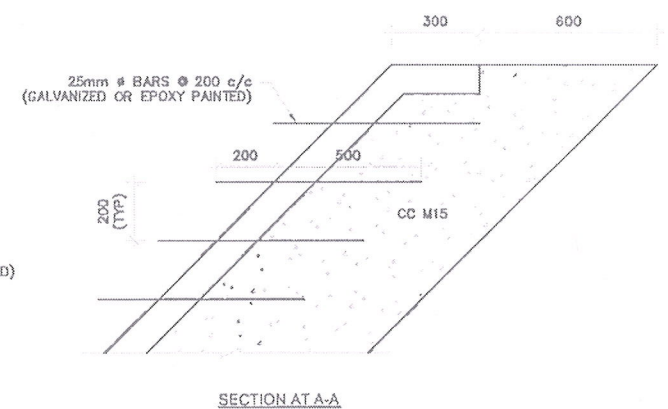
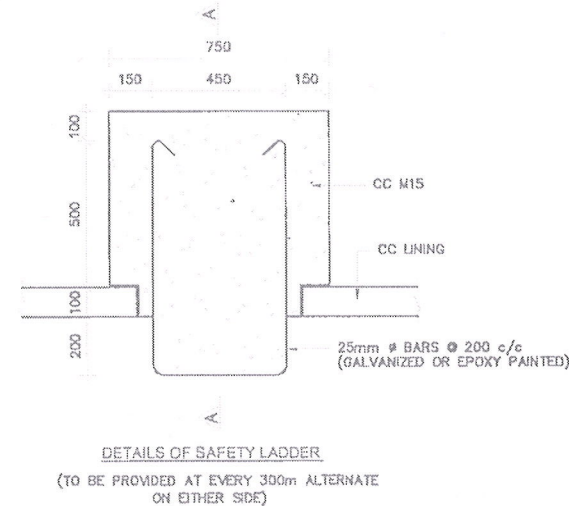
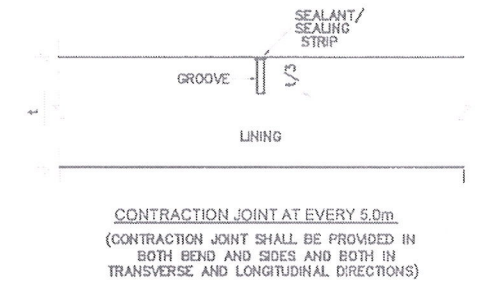
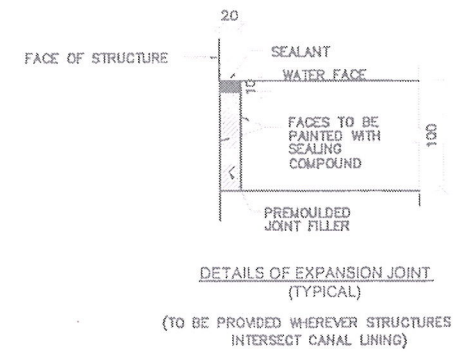
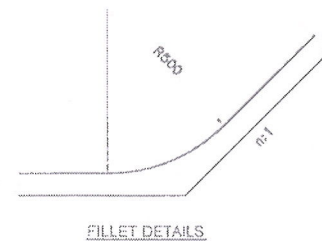
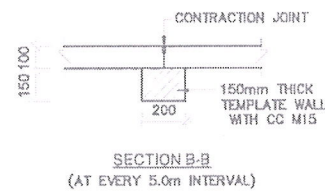
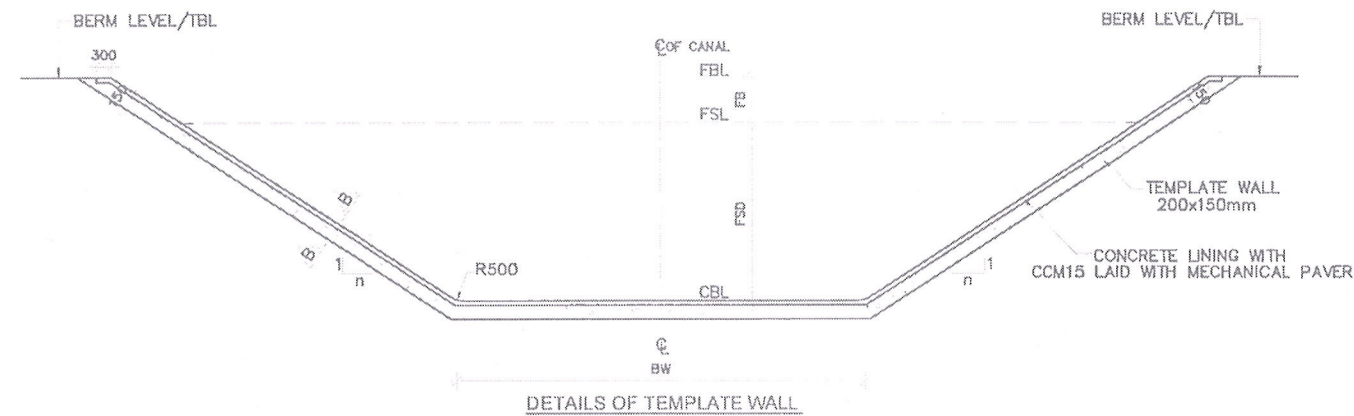
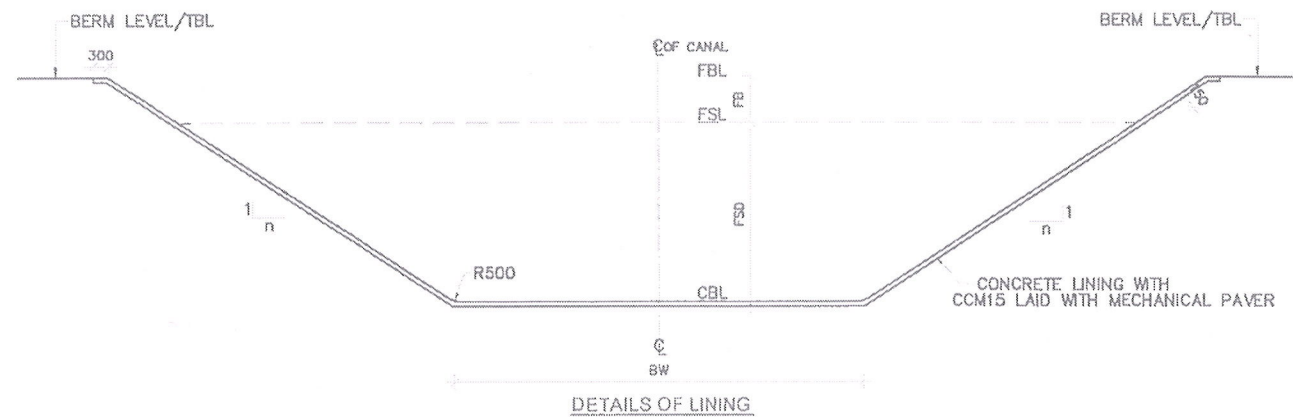
LEGEND:-

- a. C.B.L. - CANAL BED LEVEL
- b. FSL - FULL SUPPLY LEVEL
- c. F.B.L. - FREE BOARD LEVEL
- d. S.L. - STRIPPING LEVEL
- e. G.L. - GROUND LEVEL
- f. T.B.L. - TOP BUND LEVEL
- g. BW - BED WIDTH
- h. FSD - FULL SUPPLY DEPTH
- i. FB - FREE BOARD
- j. CC - CEMENT CONCRETE
- k. M15 - GRADE OF CONCRETE

THICKNESS OF CNS LAYER:

SL. NO.	DISCHARGE IN CUSECS	THICKNESS OF C.N.S. LAYER IN CM (MIN)	
		SWELL PRESSURE OF EXPANSIVE SOIL 50-150KN/m ²	SWELL PRESSURE OF EXPANSIVE SOIL MORE THAN 150KN/m ²
1	1 TO 10	30	40
2	10 TO 25	40	50
3	25 TO 50	50	60
4	50 TO 75	60	75
5	MORE THAN 75	75	90

CLIENT	VISVESVARAYA JALA NIGAM LIMITED (A GOVT. OF KARNATAKA ENTERPRISE)		
PROJECT	UPPER BHADRA PROJECT TUMKUR BRANCH CANAL (FROM CH:30.00 Km TO 159.768 Km)		
TITLE	TYPICAL CROSS SECTION OF MAIN CANAL IN B.C. SOIL		
CONSULTANT	SECON PRIVATE LIMITED BANGALORE-66		
ASSISTANT EXECUTIVE ENGINEER V.N.L. UBP DIVN NO-24 KALAMBELLA CAMP SIRA	EXECUTIVE ENGINEER V.N.L. UBP DIVN NO-9, SIRA		
SUPERINTENDING ENGINEER V.N.L. UBP CIRCLE NO:2, CHITRADURGA	CHIEF ENGINEER V.N.L. UBP ZONE CHITRADURGA		
SCALE: N.T.S	DWG NO: SECON/V.N.L./UBP/TBC/MC/CS	SHEET:3 OF 4	



- NOTES:-
- 1) ALL DIMENSIONS ARE IN MILLIMETRE
 - 2) DO NOT SCALE THE DRAWING. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 - 3) MATERIALS:
CONCRETE: GRADE AS SPECIFIED CONFIRMING TO IS: 456
REINFORCEMENT: Fe 500.
 - 4) CLEAR COVER TO ANY REINFORCEMENT : 25mm.
 - 5) LAP LENGTH OF THE BARS SHALL BE 50x BAR DIA. NOT MORE THAN 50% OF BARS SHALL BE LAPPED AT ONE LOCATION.
 - 6) WHEREVER TOTAL NO. OF BARS ARE SPECIFIED, THEY ARE TO BE SPACED UNIFORMLY UNLESS MENTIONED OTHERWISE.
 - 7) EXPANSION JOINT TO BE PROVIDED WHERE EVER LINING INTERSECTS STRUCTURES.
 - 8) ALL CONCRETE LINING WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH IS:3873 AND RELEVANT CODES.

- NOTES:-
- 1) ALL DIMENSIONS ARE IN MILLIMETERS.
 - 2) DO NOT SCALE THE DRAWING. ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
 - 3) FOR HYDRAULIC PARAMETERS REFER APPROVED REACH WISE STATEMENT.
 - 4) SPACING OF CONTRACTION JOINTS SHALL BE 5m C/C AND WHEREVER LINING IS CONTINUOUS.
 - 5) EXPANSION JOINT SHALL BE PROVIDED WHEREVER STRUCTURES INTERSECT CANAL LINING.
 - 6) ALL LINING WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH IS:3873

LINING FOR BED AND SIDES:

- 1) WATER PRISM - 100mm THICK M15, 20mm DSA PAVEMENT CONCRETE LINING FOR BED & SIDES UP TO FREE BOARD LEVEL.

TEMPLATE WALLS:

- 1) IN CUTTING / PARTIAL BANKING - 200x150mm CC M15, 20mm DOWNSIZE 15mm C/C IN STRAIGHT REACHES AND 7.5m C/C IN CURVE REACHES.

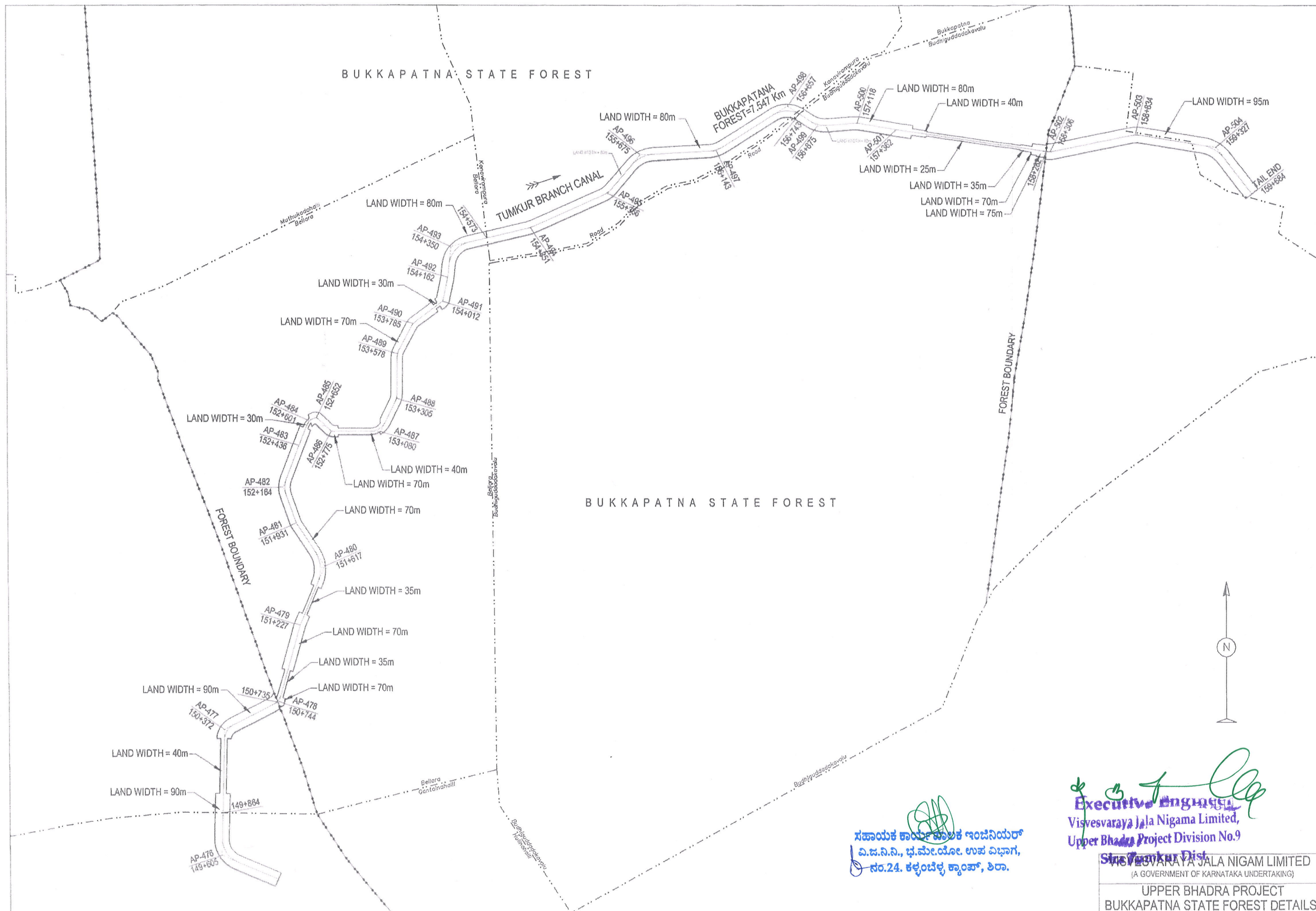
LEGEND:-

- a. CBL - CANAL BED LEVEL
- b. FSL - FULL SUPPLY LEVEL
- c. FBL - FREE BOARD LEVEL
- d. SL - STRIPPING LEVEL
- e. GL - GROUND LEVEL
- f. TBL - TOP BUND LEVEL
- g. BW - BED WIDTH
- h. FSD - FULL SUPPLY DEPTH
- i. FB - FREE BOARD
- j. CC - CEMENT CONCRETE
- k. M15 - GRADE OF CONCRETE

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Executive Engineer
Visvesvaraya Jala Nigama Limited,
Upper Bhadra Project Division No.9
Sira Tumkur Dist.

CLIENT	 VISVESVARAYA JALA NIGAM LIMITED (A GOVT. OF KARNATAKA ENTERPRISE)
PROJECT	UPPER BHADRA PROJECT TUMKUR BRANCH CANAL (FROM CH:30.00 Km TO 159.768 Km)
TITLE	TYPICAL CROSS SECTION OF MAIN CANAL - DETAILS OF LINING
CONSULTANT	 SECON PRIVATE LIMITED BANGALORE-66
ASSISTANT EXECUTIVE ENGINEER VJNL, UBP DIVN NO-24 KALAMBELLA CAMP SIRA	EXECUTIVE ENGINEER VJNL, UBP DIVN NO-9, SIRA
SUPERINTENDING ENGINEER VJNL, UBP ZONE CHITRADURGA	CHIEF ENGINEER VJNL, UBP ZONE CHITRADURGA
SCALE: N.T.S	DWG NO: SECON/VJNL/UBP/TBC/MC/CS



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Executive Engineer
 Visvesvaraya Jala Nigama Limited,
 Upper Bhadra Project Division No.9

Visvesvaraya Jala Nigam Limited
 (A GOVERNMENT OF KARNATAKA UNDERTAKING)
 UPPER BHADRA PROJECT
 BUKKAPATNA STATE FOREST DETAILS