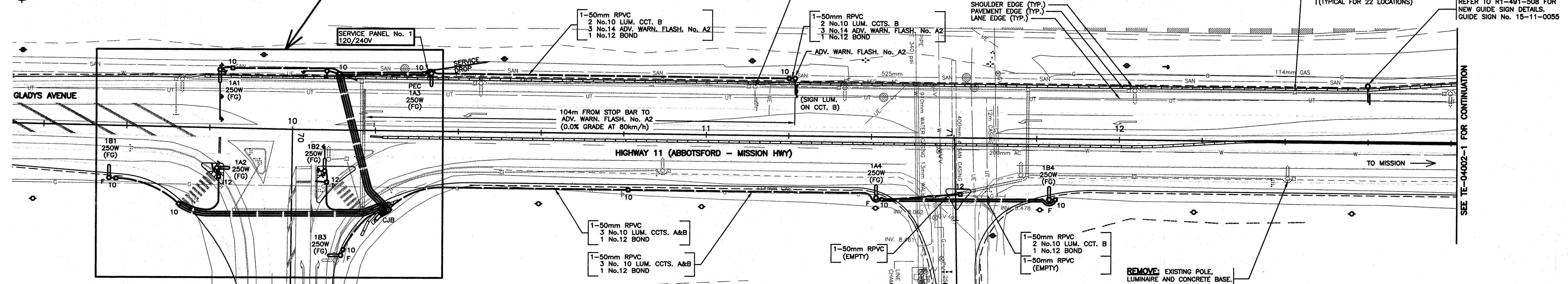


REFER TO SHEET 2 FOR SIGNAL ENLARGEMENT
REFER TO SHEET 3 FOR ELEVATIONS AND DETAILS



NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CURRENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND THE ELECTRICAL SPECIAL PROVISIONS ISSUED WITH THIS CONTRACT.
2. CONDUCTORS FROM JUNCTION BOX TO LUMINAIRE POLE SHALL BE:
2 No.10 RW90
1 No.12 RW90
3. ALL CONDUITS FROM JUNCTION BOXES TO BASES ARE TO BE 50mm RPVC.
4. JUNCTION BOXES SHALL BE POSITIONED BEHIND OR, AS AN ALTERNATIVE, TO THE SIDE, BUT NOT IN FRONT OF POLES.
5. EACH SHIELDED CABLE SHALL RUN CONTINUOUS WITH NO SPLICES, FROM THE CONTROLLER TO THE RESPECTIVE LOOP.
6. ALL SIGNAL HEAD SECTIONS SHALL BE WIRED SEPARATELY FROM THE HANDHOLE OF THE POLE TO EACH HEAD INCLUDING A SEPARATE NEUTRAL AND BONDING CONDUCTOR FOR EACH HEAD.
7. LUMINAIRE NUMBERING EXAMPLE: 1A2
SERVICE No. - 1 CCT. LETTER - A LUM. No. - 2
8. WHERE POSSIBLE, POLES SHALL BE POSITIONED WITH THE HANDHOLE IN THE BACK OR IF NOT POSSIBLE, ON THE DOWNSTREAM TRAFFIC SIDE.
9. ALL CONCRETE BASES AND JUNCTION BOX SYMBOLS ARE NOT TO SCALE.
10. THE CONTRACTOR SHALL NOT PRE-DRILL HOLES IN A SIGNAL POLE UNTIL AFTER THE BASE FOR THAT POLE HAS BEEN INSTALLED. THE CONTRACTOR SHALL ADVISE THE MINISTRY REPRESENTATIVE OF ANY ADJUSTMENTS MADE TO THE BASE LOCATION WHICH WILL EFFECT THE LOCATIONS OF HARDWARE TO BE MOUNTED ON THAT POLE PRIOR TO DRILLING.
11. WHERE THREE OR MORE SECONDARY/PEDESTRIAN HEADS ARE BEING MOUNTED ON THE POLE SHAFT, ORIENT THE PEDESTRIAN HEAD MOUNTING BRACKETS WITH THE WIREWAY ON TOP.
12. WHERE TWO OR MORE SECONDARY HEADS ARE BEING MOUNTED IN THE SAME SHAFT, ALL SECONDARY HEADS SHALL HAVE TUNNELS.
13. ALL NEW JUNCTION BOXES SHALL HAVE STEEL LIDS.
14. ALL CONDUCTORS SHALL BE RW90 STRANDED COPPER UNLESS SHOWN OTHERWISE.

DO NOT USE THIS DRAWING FOR PAVEMENT MARKINGS

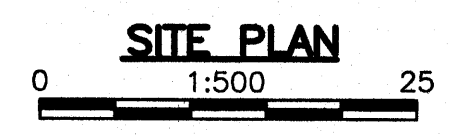
ALL DIMENSIONS ARE IN MILLIMETERS EXCEPT WHERE NOTED

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" FOR APPLICABLE STANDARD DRAWINGS

ALL EQUIPMENT IS NEW EXCEPT WHERE NOTED

FOR MINISTRY USE ONLY
THIS DRAWING SERIES SUPERSEDES
DRAWING SERIES DE-84050 SHEET 7

POSTED SPEED LIMIT 80 km/h ON HIGHWAY 11
POSTED SPEED LIMIT 50 km/h ON SUMAS WAY



COORDINATES FOR NEW HARDWARE		
ITEM	STA.	OFFSET
ADV. WARN. FLASH. No. A2	11+22	13.9
LUM 1A4	11+41.5	14.7
LUM 1B4	11+83.4	14.8

LEGEND

DMD & Associates Ltd.
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DMD PROJECT No. 802-03-01 of 17

DESIGNED BY DSM DATE APRIL/04 CHECKED BY DJW DATE OCT/05
M.O.T. ELECTRICAL DESIGN REVIEW *KH* DATE Feb 7/06

REV	DATE	DESCRIPTION	DRAWN
APR/04		NEW TE DRAWING SERIES; INTERSECTION UPGRADED TO TRAFFIC SIGNAL	JDM
DEC/04		EMERGENCY PRE-EMPTION ADDED TO SIGNAL DESIGN.	SJC
JAN/06		LANE USE SIGNS DELETED FROM DWG.	EIR

**MINISTRY OF TRANSPORTATION
ELECTRICAL ENGINEERING CENTRE**

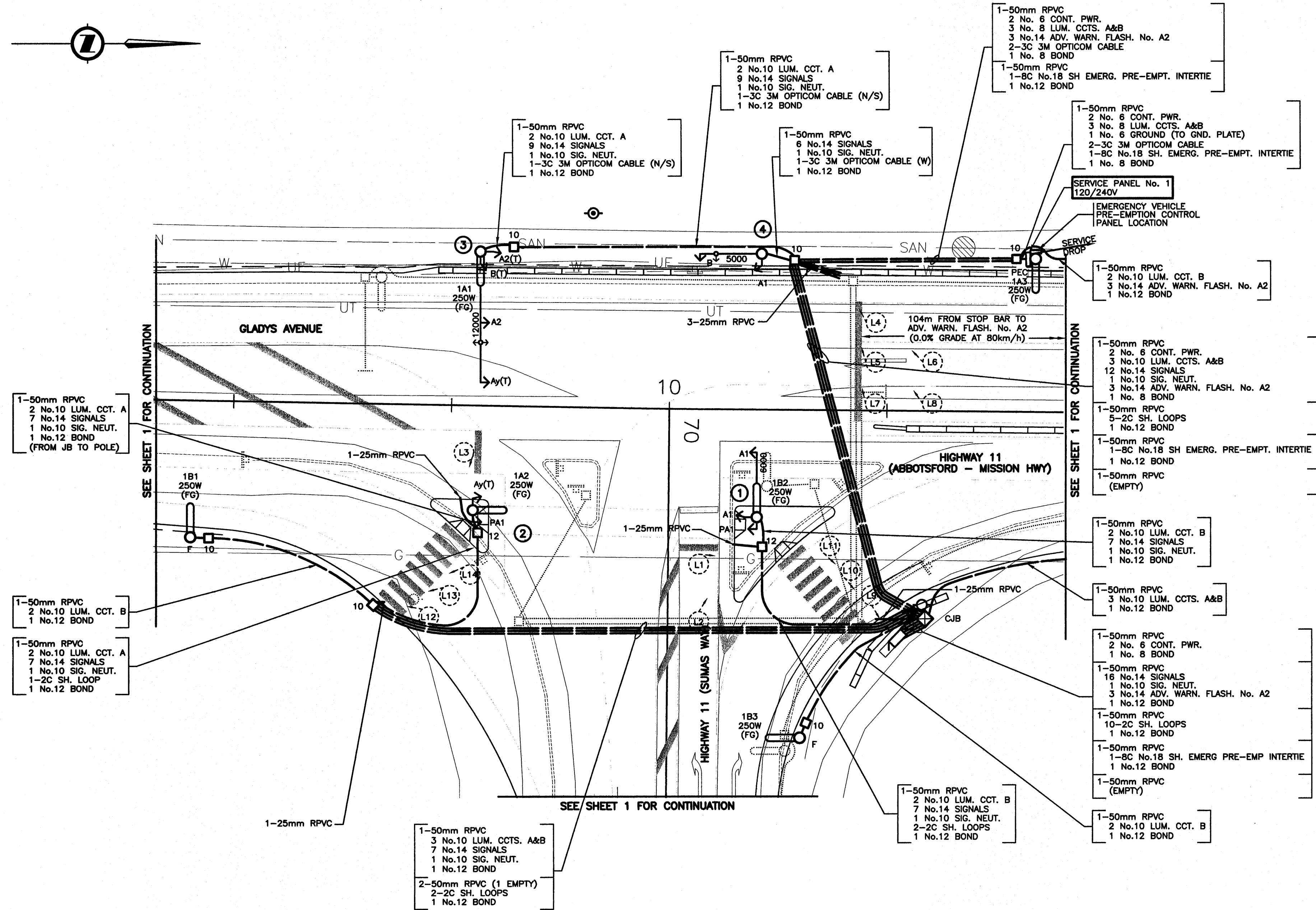
**SIGNAL AND LIGHTING INSTALLATION
HIGHWAY 11 (ABBOTSFORD - MISSION HWY)
AT SUMAS WAY/GLADYS AVENUE
ABBOTSFORD**

SITE PLAN - NOTES

ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)

[Signature] DATE JAN 24 2006

SHEET NUMBER	SITE CODE	HWY DIST	REGION	DRAWING NUMBER
SHEET 1 OF 3		1	1	TE-04001-1

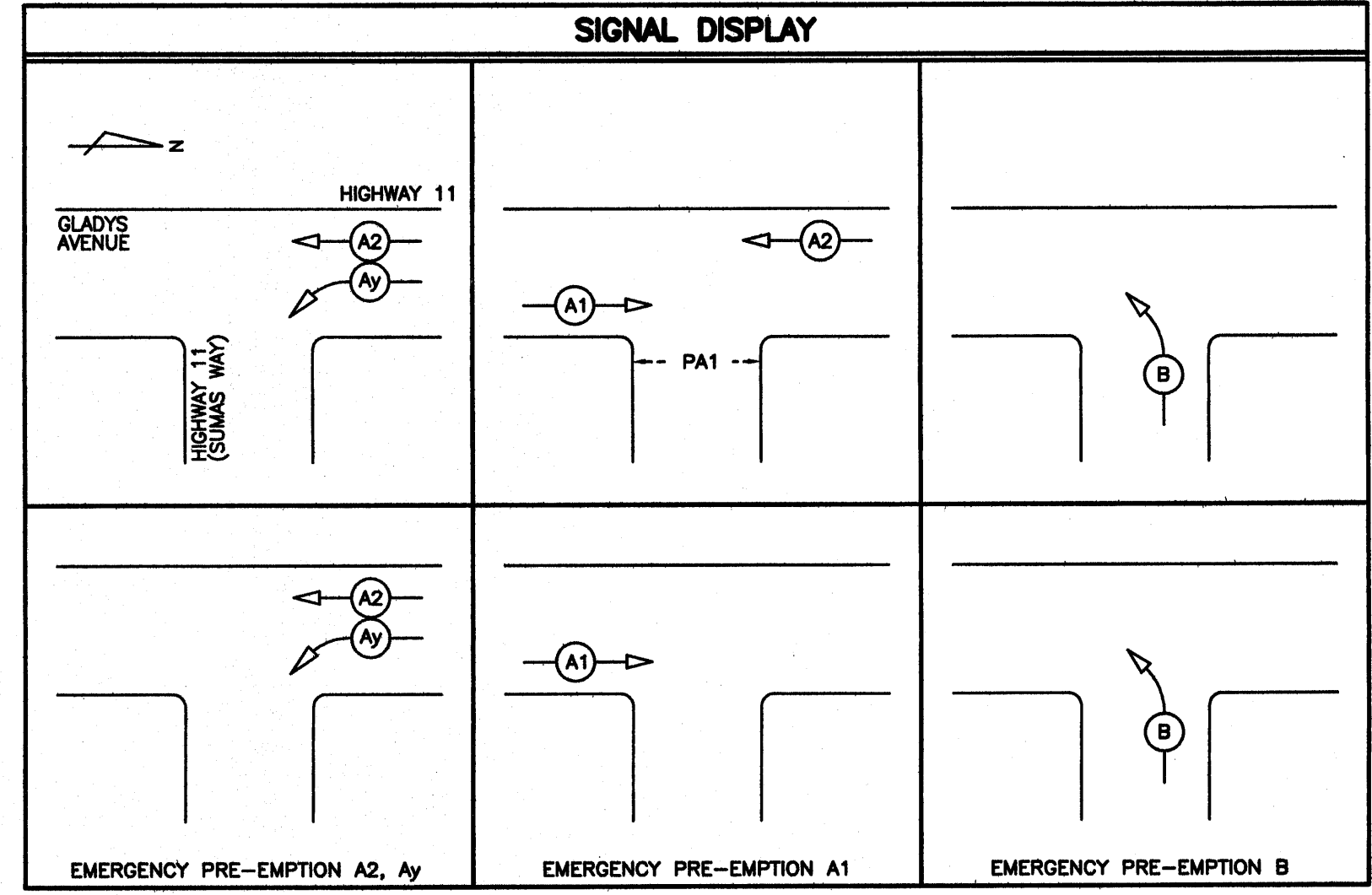


SEE SHEET 1 FOR CONTINUATION

SEE SHEET 1 FOR CONTINUATION

SEE SHEET 1 FOR CONTINUATION

SITE PLAN
1:250



CONDUCTOR COLOUR CODE		
ITEM	SIGNAL SECTION	CONDUCTOR COLOUR
A1	RED	RED
	YELLOW	YELLOW
A2	GREEN	GREEN
	BLUE	BLUE
Ay	RED	RED (RED T.T.)
	YELLOW	YELLOW (RED T.T.)
	GREEN ARROW	BLUE (WHITE T.T.)
B	RED	RED (BLUE T.T.)
	GREEN ARROW	YELLOW (RED T.T.)
PA1	DON'T WALK	RED (WHITE T.T.)
	WALK PUSH BUTTON	BLUE (WHITE T.T.)
CONTROLLER POWER		BLACK
LUMINAIRE OCT. A		RED
LUMINAIRE OCT. B		BLACK
NEUTRAL		WHITE
GROUND/BOND		GREEN
ADVANCE WARNING FLASHER No. A2		YELLOW (RED T.T.)
		BROWN

NOTE: T.T. DENOTES TAPE TRACER.

ALL EQUIPMENT IS NEW EXCEPT WHERE NOTED

REFER TO SHEET 1 FOR NOTES

DO NOT USE THIS DRAWING FOR PAVEMENT MARKINGS

ALL DIMENSIONS ARE IN MILLIMETERS EXCEPT WHERE NOTED

POSTED SPEED LIMIT 80 km/h ON HIGHWAY 11
POSTED SPEED LIMIT 50 km/h ON SUMAS WAY

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" FOR APPLICABLE STANDARD DRAWINGS

COORDINATES FOR NEW HARDWARE		
ITEM	STA.	OFFSET
SIGNAL POLE 1/LUM 1B2	10+8.1	9.9
SIGNAL POLE 2/LUM 1A2	9+82.6	9.7
SIGNAL POLE 3/LUM 1A1	9+82.6	14.1
SIGNAL POLE 4	10+8.4	14.2
SERVICE POLE/LUM 1A3	10+33.6	14.1
LUM 1B1	9+56.2	12.7
LUM 1B3	70+30.2	12.2
TRAFFIC CONTROLLER	70+20.9	21.2

DETECTOR LOOP TABLE						
LOOP No.	LOOP		INDUCTANCE			PHASE
	SIZE	TURNS	LOOP (μh)	LEAD (μh)	TOTAL (μh)	
L 1	1.8m DIA.	4	95	25	120	B
L 2	1.8m DIA.	4	95	25	120	B
L 3	1.8m DIA.	6	195	80	275	A1
L 4	1.8m DIA.	5	140	50	190	A2
L 5	1.8m DIA.	5	140	50	190	Ay
L 6	1.8m DIA.	5	140	50	190	Ay
L 7	1.8m DIA.	5	140	50	190	Ay
L 8	1.8m DIA.	5	140	50	190	Ay
L 9	1.8m DIA.	4	95			
L 10	1.8m DIA.	4	95	4	289	COUNT
L 11	1.8m DIA.	4	95			
L 12	1.8m DIA.	4	95			
L 13	1.8m DIA.	4	95	62	347	COUNT
L 14	1.8m DIA.	4	95			

EMERGENCY PRE-EMPTION CONDUCTOR LABELLING				
ITEM	LABEL	COLOUR	CONDUCTOR TYPE	
EMERG. PRE-EMPT. INTERTIE #A1	PE-A1-INT	N/A		BELDEN 9388
EMERG. PRE-EMPT. INTERTIE #A2	PE-A2-INT	N/A		
EMERG. PRE-EMPT. INTERTIE #B	PE-B-INT	N/A		

REFER TO SP635-2.5.7 FOR NOTES ON CONDUCTOR LABELLING.

DMD & Associates Ltd.
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DMD PROJECT No. 802-03-02 of 17

DESIGNED BY DSM DATE APRIL/04 CHECKED BY DJW DATE OCT/05
M.O.T. ELECTRICAL DESIGN REVIEW *KEH* DATE Feb 24/06

REV	DATE	DESCRIPTION	DRAWN
APR/04		NEW TE DRAWING SERIES; INTERSECTION UPGRADED TO TRAFFIC SIGNAL	JDM
NOV/04		EMERGENCY PRE-EMPTION ADDED TO SIGNAL DESIGN.	SJC

MINISTRY OF TRANSPORTATION
ELECTRICAL ENGINEERING CENTRE

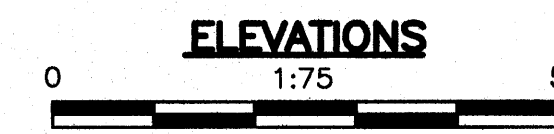
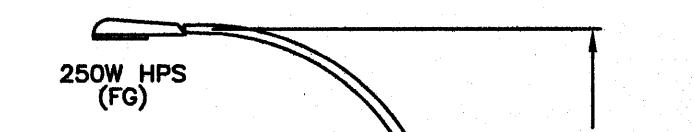
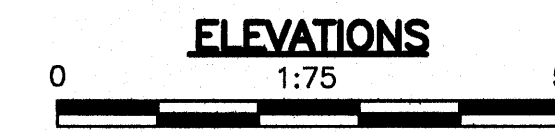
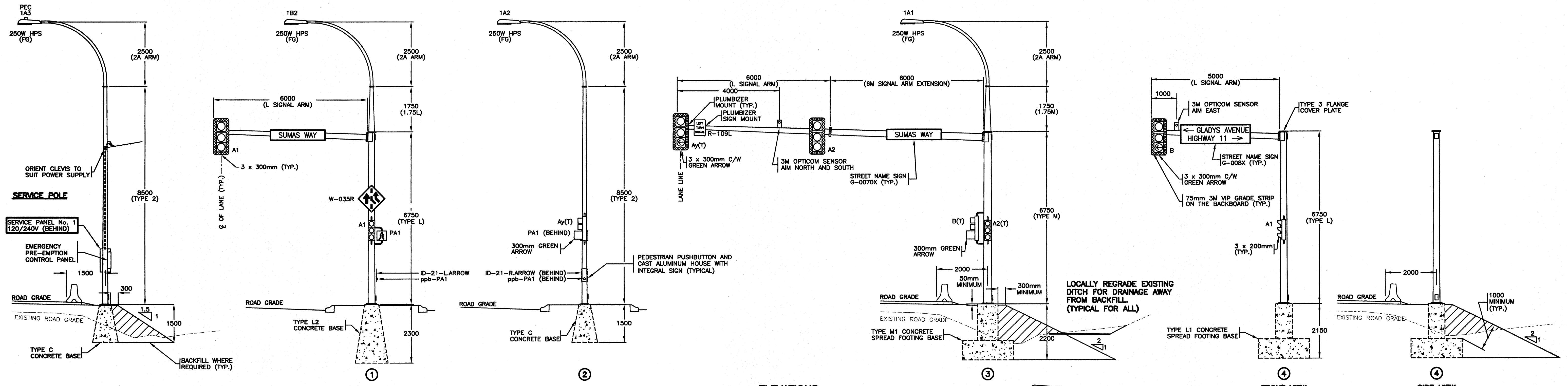
SIGNAL AND LIGHTING INSTALLATION
HIGHWAY 11 (ABBOTSFORD - MISSION HWY)
AT SUMAS WAY/GLADYS AVENUE
ABBOTSFORD

SITE PLAN ENLARGEMENT - SIGNAL DISPLAY - DETAILS
ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)

[Signature] DATE JAN 24 2006

SHEET NUMBER 2 OF 3 SITE CODE HWY DIST REGION DRAWING NUMBER
1 1 TE-04001-2 A

REV: A06/05



SERVICE POLE
SERVICE PANEL No. 1
120/240V (BEHIND)

EMERGENCY PRE-EMPTION CONTROL PANEL

TYPE C CONCRETE BASE

BACKFILL WHERE REQUIRED (TYP.)

W-035R

A1

PA1

ID-21-L ARROW ppb-PA1

TYPE L2 CONCRETE BASE

300mm GREEN ARROW

PA1 (BEHIND)

Ay(T)

ID-21-R ARROW (BEHIND) ppb-PA1

TYPE C CONCRETE BASE

PEDESTRIAN PUSHBUTTON AND CAST ALUMINUM HOUSE WITH INTEGRAL SIGN (TYPICAL)

300mm GREEN ARROW

Ay(T)

PA1 (BEHIND)

ID-21-R ARROW (BEHIND) ppb-PA1

TYPE C CONCRETE BASE

PEDESTRIAN PUSHBUTTON AND CAST ALUMINUM HOUSE WITH INTEGRAL SIGN (TYPICAL)

300mm GREEN ARROW

Ay(T)

PA1 (BEHIND)

ID-21-R ARROW (BEHIND) ppb-PA1

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PEDESTRIAN PUSHBUTTON AND CAST ALUMINUM HOUSE WITH INTEGRAL SIGN (TYPICAL)

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PEDESTRIAN PUSHBUTTON AND CAST ALUMINUM HOUSE WITH INTEGRAL SIGN (TYPICAL)

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Ay(T)

PA1 (BEHIND)

ID-21-R ARROW (BEHIND) ppb-PA1

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PEDESTRIAN PUSHBUTTON AND CAST ALUMINUM HOUSE WITH INTEGRAL SIGN (TYPICAL)

300mm GREEN ARROW

Ay(T)

PA1 (BEHIND)

ID-21-R ARROW (BEHIND) ppb-PA1

TYPE C CONCRETE BASE

PEDESTRIAN PUSHBUTTON AND CAST ALUMINUM HOUSE WITH INTEGRAL SIGN (TYPICAL)

300mm GREEN ARROW

Ay(T)

PA1 (BEHIND)

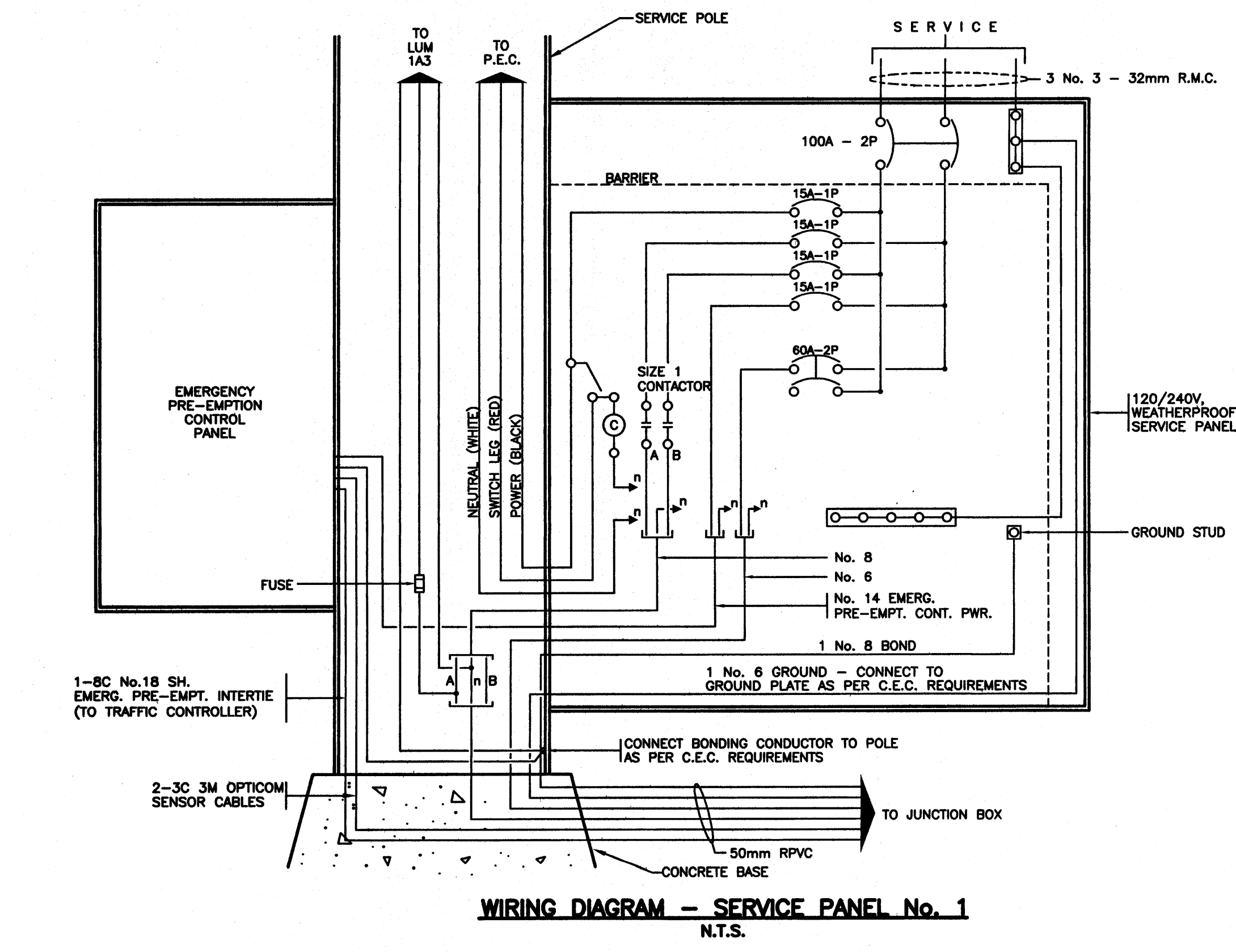
ID-21-R ARROW (BEHIND) ppb-PA1

TYPE C CONCRETE BASE

LOCALLY REGRADE EXISTING DITCH FOR DRAINAGE AWAY FROM BACKFILL (TYPICAL FOR ALL)

FRONT VIEW

SIDE VIEW



WIRING DIAGRAM - SERVICE PANEL No. 1
N.T.S.

ALL SIGNAL, PEDESTRIAN AND ADV. WARN. FLASHER DISPLAYS SHALL BE LED

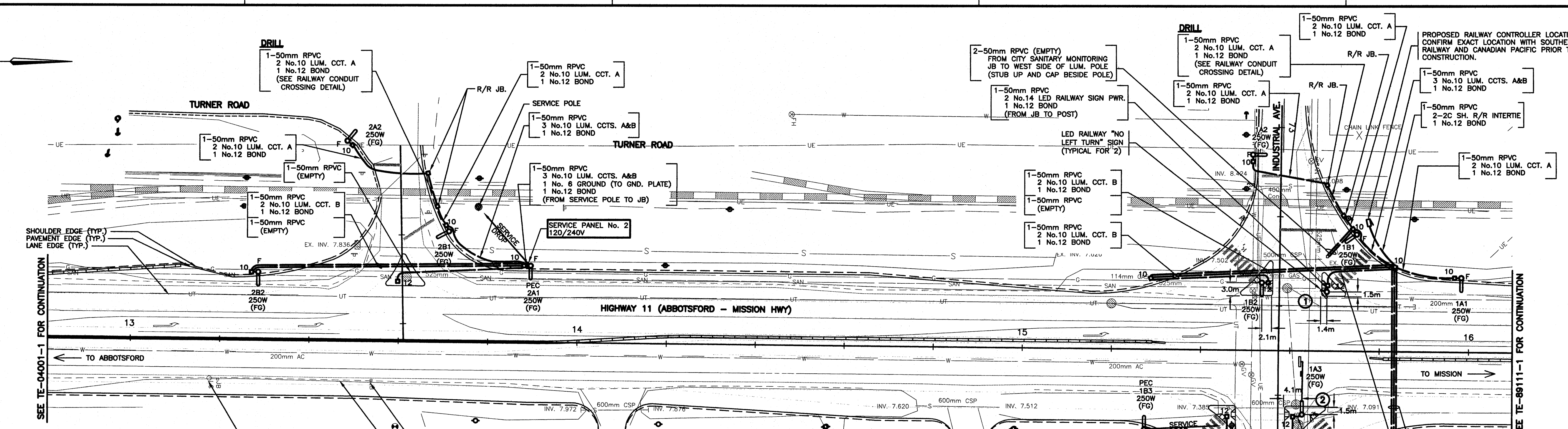
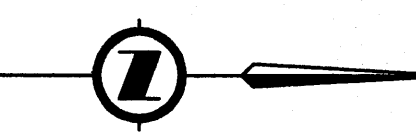
ALL EQUIPMENT IS NEW EXCEPT WHERE NOTED

(T) DENOTES TUNNEL VISORS
REFER TO SHEET 1 FOR NOTES

REFER TO SHEET 1 FOR NOTES
ALL DIMENSIONS ARE IN MILLIMETERS EXCEPT WHERE NOTED
SEE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION FOR APPLICABLE STANDARD DRAWINGS

DMD & Associates Ltd. 18 19044 95A Avenue, Surrey, BC, Canada V4N 4P2 www.dmdeng.com 604/888-9010 office@dmdeng.com Fax 604/888-9011 DMD PROJECT No. 802-03-03 of 17		MINISTRY OF TRANSPORTATION ELECTRICAL ENGINEERING CENTRE	
DESIGNED BY <u>DSM</u> DATE <u>APRIL/04</u> CHECKED BY <u>DJW</u> DATE <u>OCT/05</u> M.O.T. ELECTRICAL DESIGN REVIEW <u>KCA</u> DATE <u>Feb 24/06</u>		SIGNAL AND LIGHTING INSTALLATION HIGHWAY 11 (ABBOTSFORD - MISSION HWY) AT SUMAS WAY/GLADYS AVENUE ABBOTSFORD	
REVISIONS		WIRING DIAGRAM - ELEVATIONS - DETAILS	
REV	DATE	DESCRIPTION	DRAWN
	APR/04	NEW TE DRAWING SERIES; INTERSECTION UPGRADED TO TRAFFIC SIGNAL	JDM
A	DEC/04	EMERGENCY PRE-EMPTION SENSORS ADDED ON POLES 3 & 4, AND EMERGENCY PRE-EMPTION CABINET ADDED TO SERVICE POLE.	EYC
B	JAN/06	CAST IN PLACE CMB DETAIL DELETED	EIR
DATE <u>JAN 24 2006</u>			
SHEET NUMBER	SITE CODE	HWY DIST	REGION
SHEET 3 OF 3		1	1
DRAWING NUMBER		DRAWING NUMBER	
TE-04001-3		TE-04001-3	

REV. 06/03



ILLUMINANCE DESIGN CRITERIA AS PER RTD-10

RAILWAY CROSSING	DESIGN REQUIREMENTS	DESIGN ACHIEVED
LOCATION	TURNER ROAD	
ILLUMINATION TYPE	250W (11.0m POLE)	
ILLUMINATION LEVEL (VERTICAL AVG.)	10.0 LUX	11.0 LUX
UNIFORMITY RATIO (VERTICAL AVG./MIN.)	3.0:1	1.4:1

ILLUMINANCE DESIGN CRITERIA AS PER RTD-10

RAILWAY CROSSING	DESIGN REQUIREMENTS	DESIGN ACHIEVED
LOCATION	INDUSTRIAL AVE.	
ILLUMINATION TYPE	250W (11.0m POLE)	
ILLUMINATION LEVEL (VERTICAL AVG.)	10.0 LUX	17.5 LUX
UNIFORMITY RATIO (VERTICAL AVG./MIN.)	3.0:1	2.1:1

ILLUMINANCE DESIGN CRITERIA

STREET NAME(S)	HIGHWAY 11 / INDUSTRIAL AVE INTERSECTION
PEDESTRIAN CONFLICT AREA	LOW
INTERSECTION CLASSIFICATION	MAJOR/LOW
ILLUMINATION TYPE	250W (11.0m POLE)
ILLUMINATION LEVEL (AVG.)	13.0 LUX
UNIFORMITY RATIO (AVG./MIN.)	3.0:1
	21.9 LUX

NOTES

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CURRENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND THE ELECTRICAL SPECIAL PROVISIONS ISSUED WITH THIS CONTRACT.
- CONDUCTORS FROM JUNCTION BOX TO LUMINAIRE POLE SHALL BE: 2 No.10 RW90 - 50mm RPVC (UNLESS OTHERWISE NOTED) 1 No.12 RW90
- ALL CONDUITS FROM JUNCTION BOXES TO BASES ARE TO BE 50mm RPVC.
- JUNCTION BOXES SHALL BE POSITIONED BEHIND OR, AS AN ALTERNATIVE, TO THE SIDE, BUT NOT IN FRONT OF POLES.
- LUMINAIRE NUMBERING EXAMPLE: 1A2 SERVICE No. - 1 CCT. LETTER - A LUM. No. - 2
- WHERE POSSIBLE, POLES SHALL BE POSITIONED WITH THE HANDHOLE IN THE BACK OR IF NOT POSSIBLE, ON THE DOWNSTREAM TRAFFIC SIDE.
- ALL CONCRETE BASES AND JUNCTION BOX SYMBOLS ARE NOT TO SCALE.
- ALL NEW JUNCTION BOXES SHALL HAVE STEEL LIDS.
- ALL CONDUCTORS SHALL BE RW90 STRANDED COPPER UNLESS SHOWN OTHERWISE.

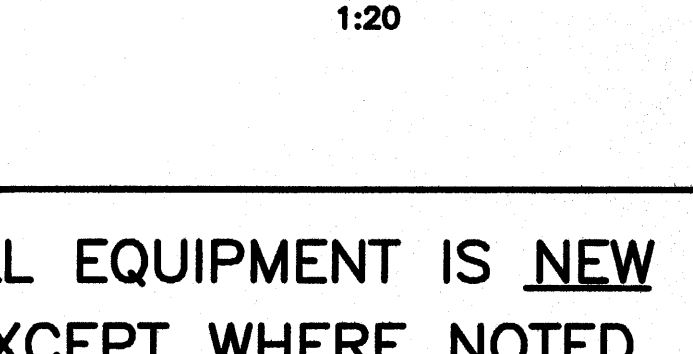
COORDINATES FOR NEW HARDWARE

ITEM	STA.
LUM 2A2	13+48.6
LUM 2B1	13+71.3
LUM 2B2	13+28.4
SERVICE POLE/LUM 2A1	13+89.7
SERVICE POLE/LUM 1B3	15+27.8
LUM 1A2	73+5.5
LUM 1B1	15+75.0
LUM 1A1	15+98.1

RAILWAY CONDUIT CROSSING DETAIL



R/R JUNCTION BOX DETAIL



ALL EQUIPMENT IS NEW EXCEPT WHERE NOTED

DO NOT USE THIS DRAWING FOR PAVEMENT MARKINGS

ALL DIMENSIONS ARE IN MILLIMETERS EXCEPT WHERE NOTED

FOR MINISTRY USE ONLY THIS DRAWING SERIES PARTIALLY SUPERSEDES DRAWING SERIES DE-84050 SHEET 8

POSTED SPEED LIMIT 80 km/h ON HIGHWAY 11

POSTED SPEED LIMIT 50 km/h ON TURNER ROAD

POSTED SPEED LIMIT 50 km/h ON INDUSTRIAL/HAZELWOOD AVE

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" FOR APPLICABLE STANDARD DRAWINGS

LEGEND

DMD & Associates Ltd.
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 604/888-9010
 www.dmdeng.com
 office@dmdeng.com
 DMD PROJECT No. 802-03-04 of 17

DESIGNED BY DSM DATE APRIL/04 CHECKED BY DJW DATE OCT/05
 M.O.T. ELECTRICAL DESIGN REVIEW KCH DATE Feb 24/06

REVISIONS

REV	DATE	DESCRIPTION	DRAWN
APR/04		NEW TE DRAWING SERIES; NEW GEOMETRICS AND NEW STREET LTG	JDM
NOV/04		NO LEFT TURN RAIL SIGNAL ADDED AT INDUSTRIAL AVE. AND LTG ADDED AT RAIL CROSSINGS.	SJC
JAN/06		SERVICE POLE LOCATION REVISED, CONDUCTORS AND SERVICE PANEL REVISED TO SUIT.	EIR

**MINISTRY OF TRANSPORTATION
ELECTRICAL ENGINEERING CENTRE**

**LIGHTING INSTALLATION
HIGHWAY 11 (ABBOTSFORD - MISSION HWY)
AT TURNER ROAD AND HAZELWOOD AVENUE/INDUSTRIAL AVENUE
ABBOTSFORD**

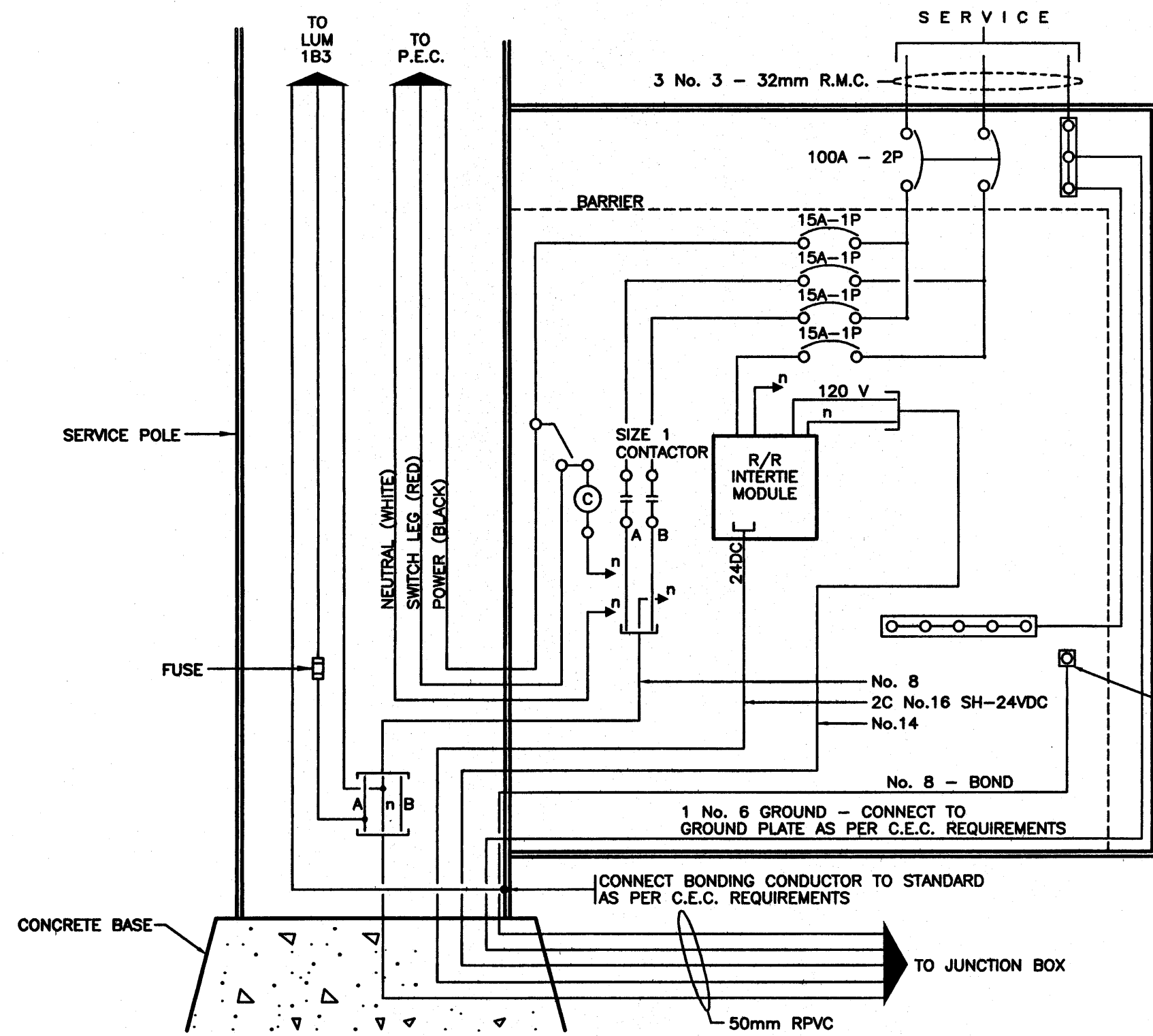
SITE PLAN - NOTES - DETAILS

ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)

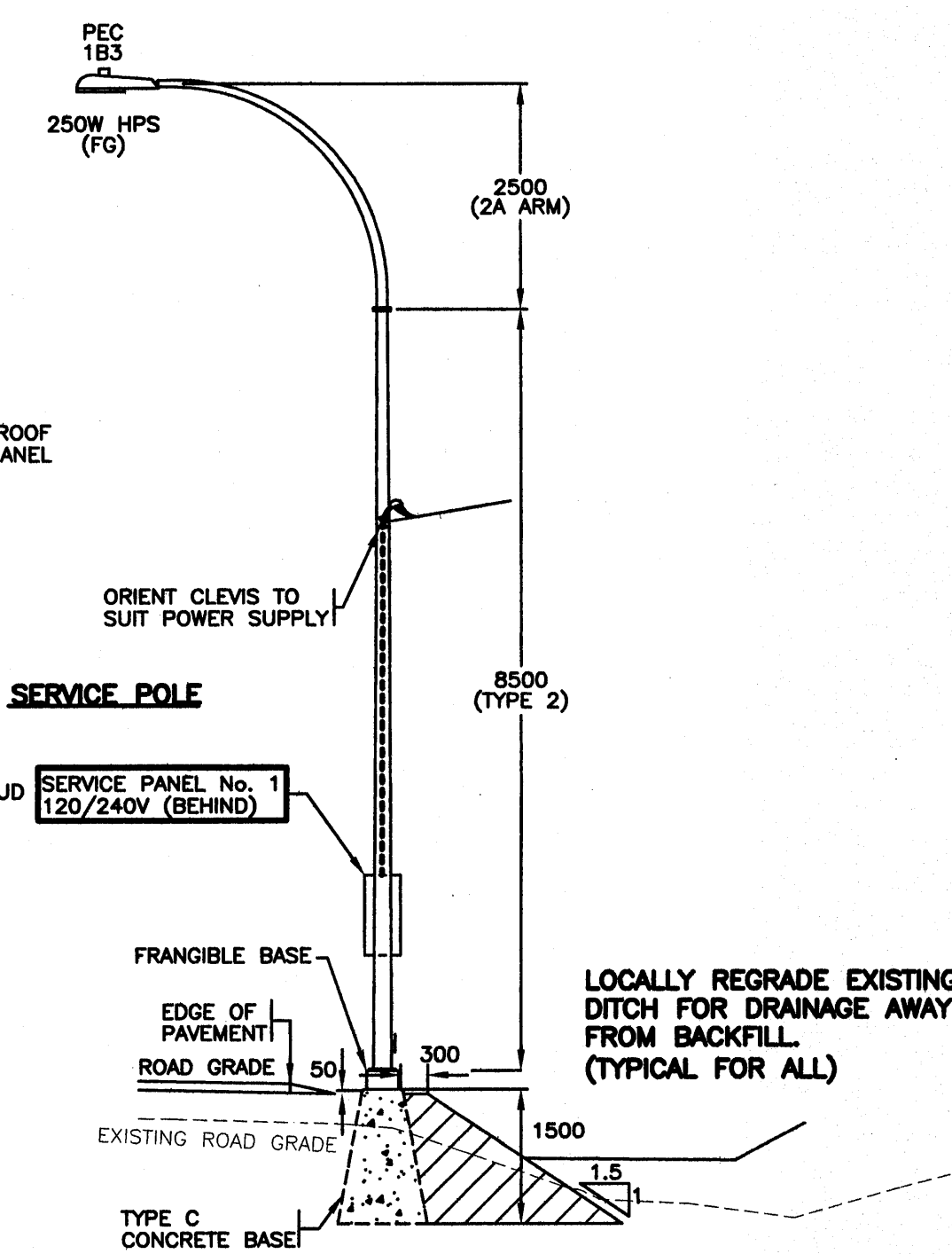
DATE JAN 24 2006

SHEET NUMBER 1 OF 2 SITE CODE HWY DIST REGION DRAWING NUMBER

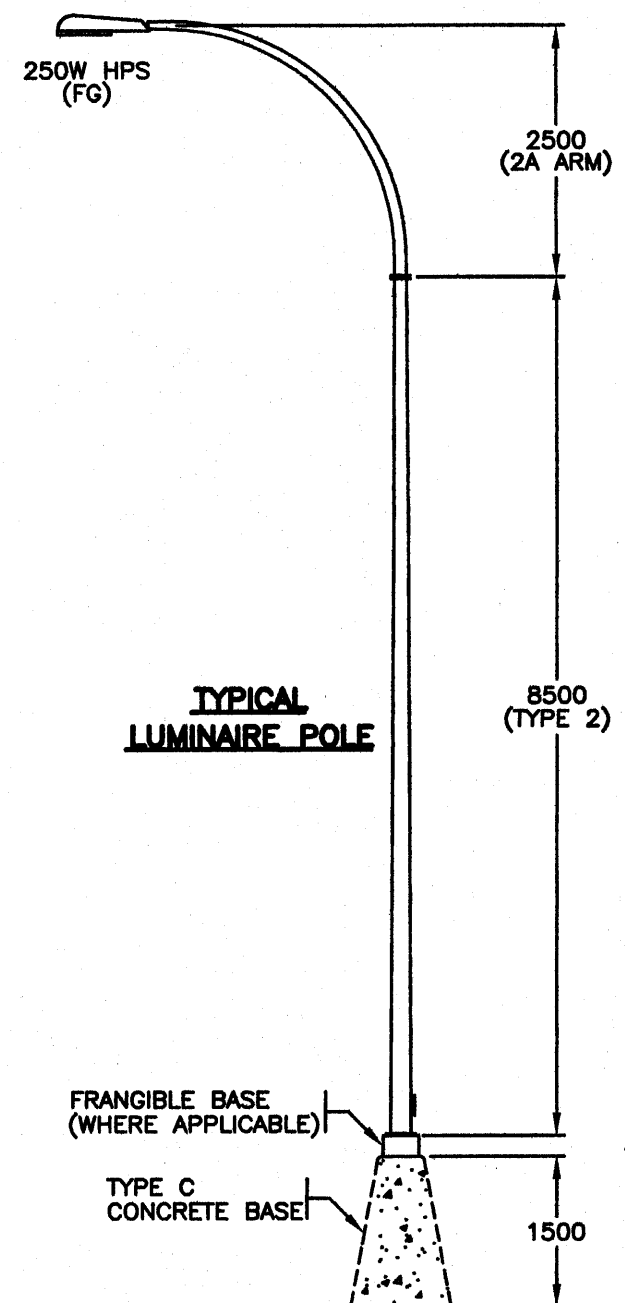
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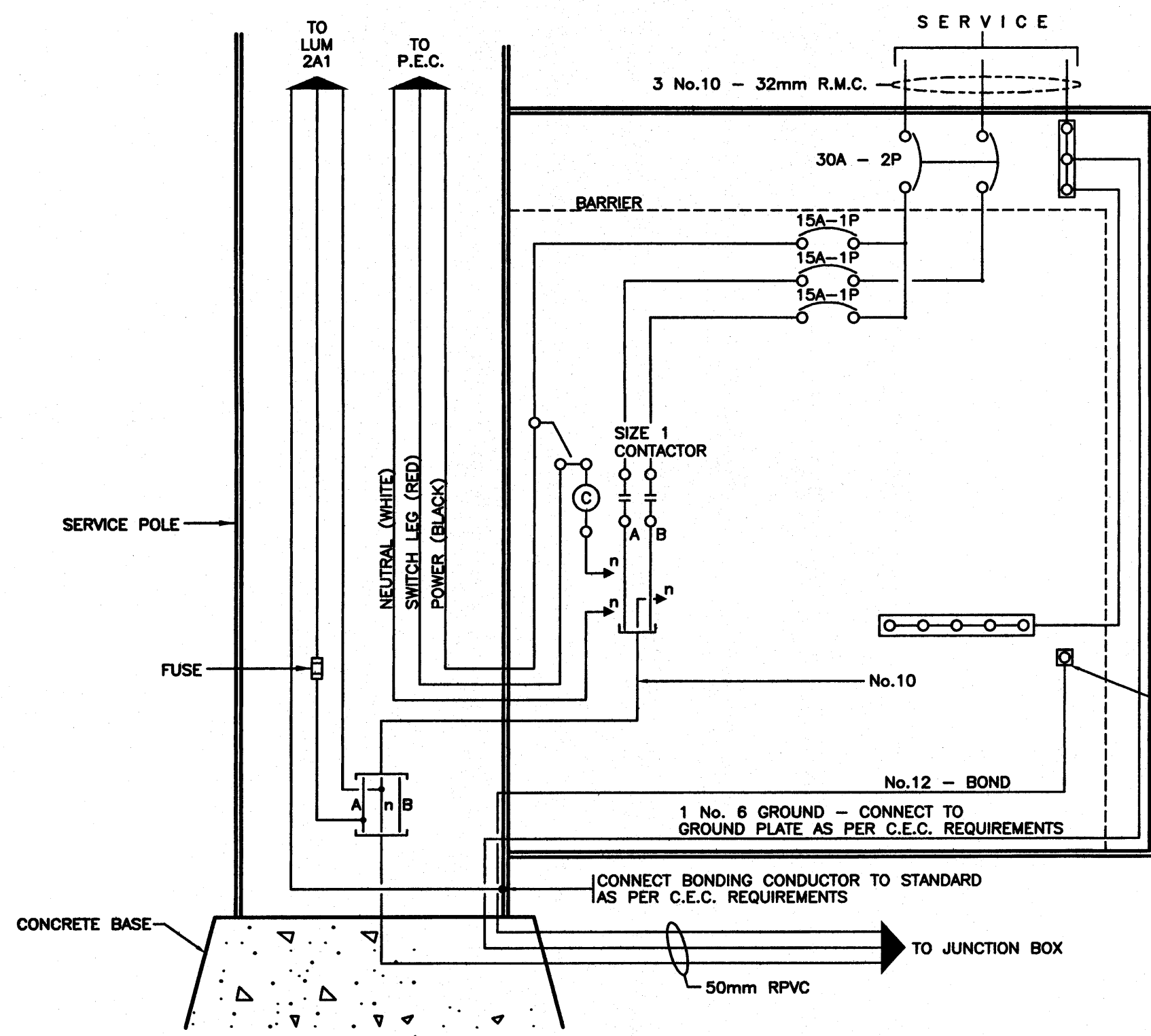
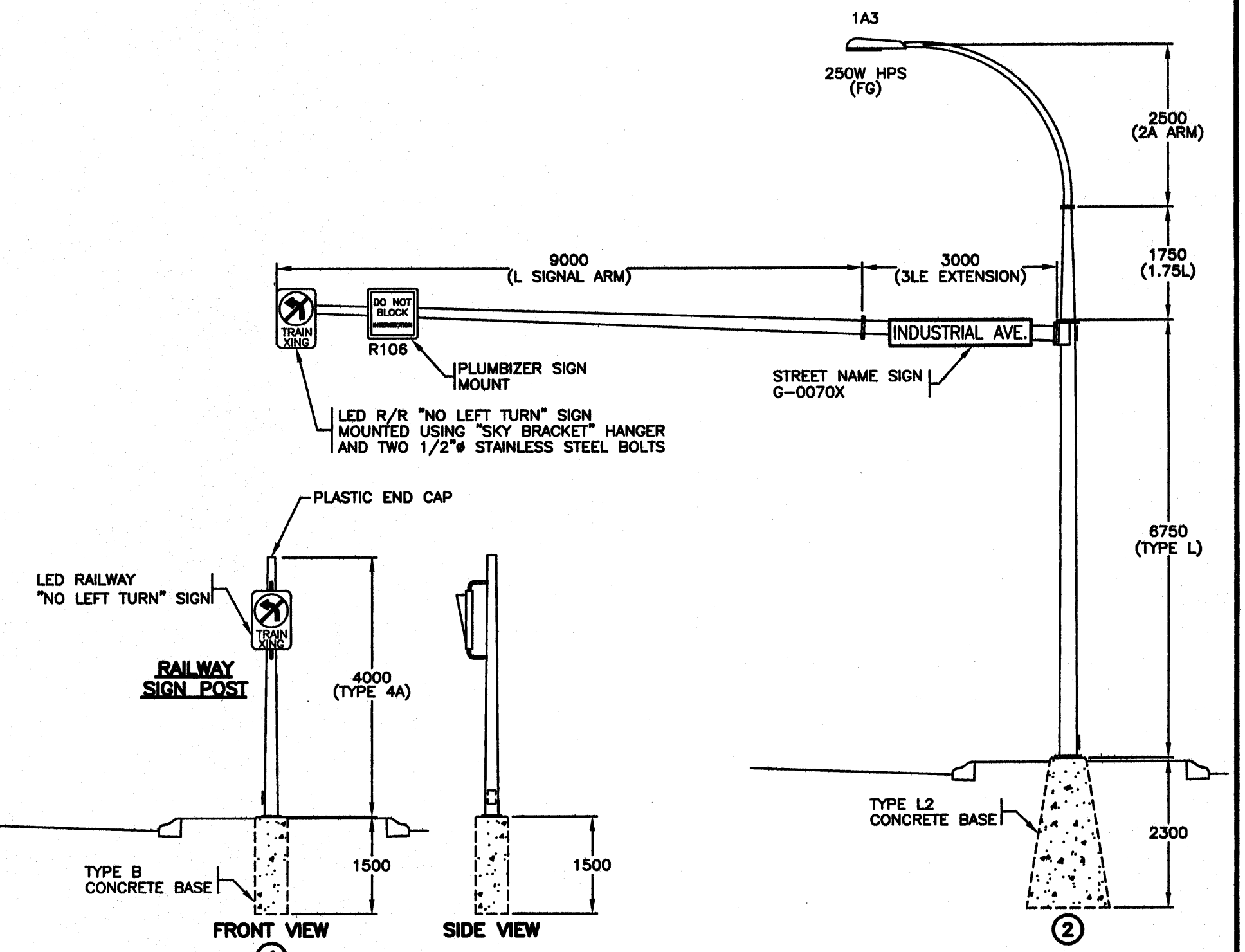
WIRING DIAGRAM - SERVICE PANEL No. 1
N.T.S.



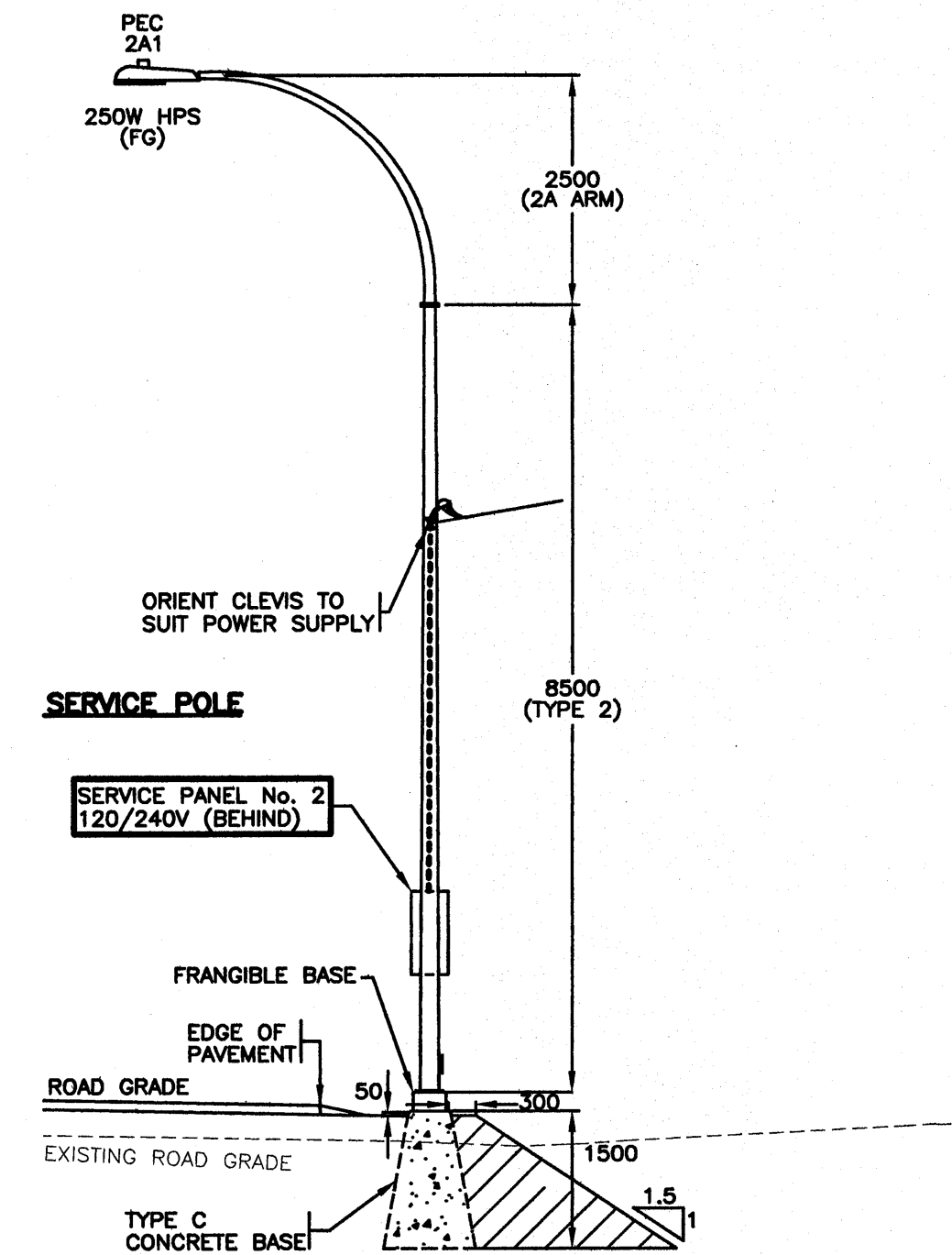
ELEVATION
0 1:75 5



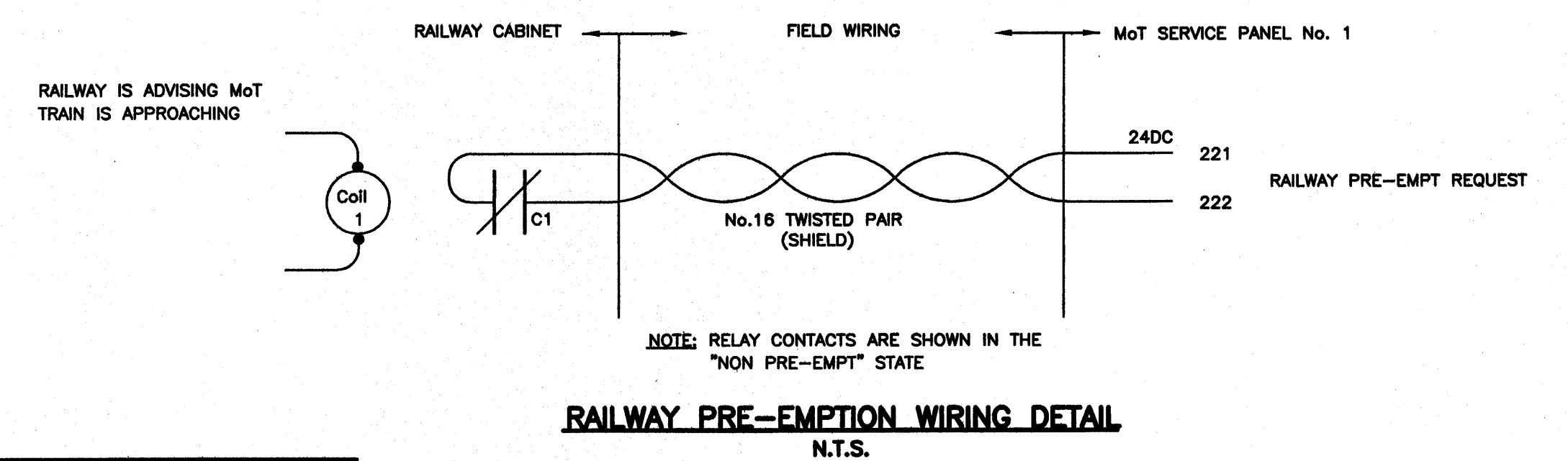
ELEVATIONS
0 1:75 5



WIRING DIAGRAM - SERVICE PANEL No. 2
N.T.S.



ELEVATION
0 1:75 5



CONDUCTOR COLOUR CODE	
ITEM	CONDUCTOR COLOUR
LUMINAIRE CCT. A	RED
LUMINAIRE CCT. B	BLACK
NEUTRAL	WHITE
GROUND/BOND	GREEN
LED SIGN PWR.	BLACK

ALL EQUIPMENT IS NEW EXCEPT WHERE NOTED

REFER TO SHEET 1 FOR NOTES

ALL DIMENSIONS ARE IN MILLIMETERS EXCEPT WHERE NOTED

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" FOR APPLICABLE STANDARD DRAWINGS

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office@dmdeng.com Fax 604/888-9011
DMD PROJECT No. 802-03-05 of 17

MINISTRY OF TRANSPORTATION
ELECTRICAL ENGINEERING CENTRE

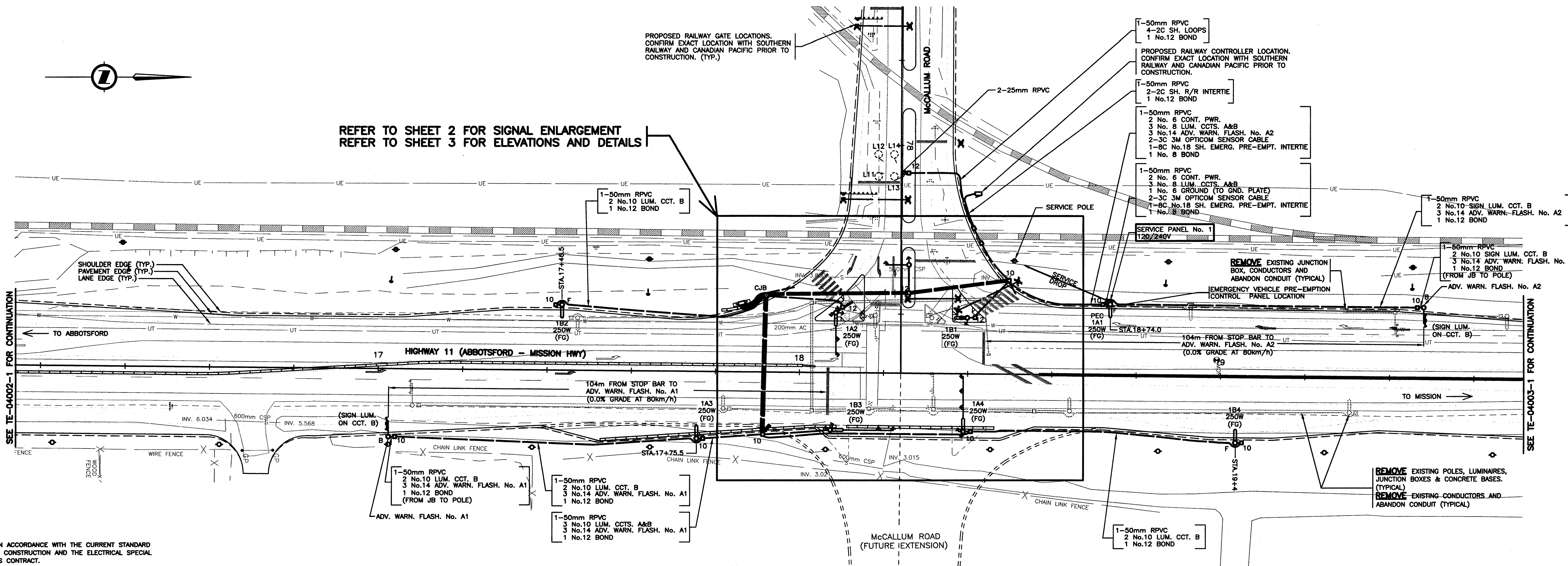
DESIGNED BY DSM DATE APRIL/04 CHECKED BY DJW DATE OCT/05
M.O.T. ELECTRICAL DESIGN REVIEW KCH DATE Feb 24/06

LIGHTING INSTALLATION
HIGHWAY 11 (ABBOTSFORD - MISSION HWY)
AT TURNER ROAD AND HAZELWOOD AVENUE/INDUSTRIAL AVENUE
ABBOTSFORD

REV	DATE	DESCRIPTION	DRAWN
APR/04		NEW TE DRAWING SERIES; NEW GEOMETRICS AND NEW STREET LTG	JDM
A	NOV/04	MODIFIED SERVICE PANEL No. 1, POLES 1 & 2 ADDED	SJC
B	JAN/06	SERVICE PANEL No. 1 / LUM. 1B3 MODIFIED	EIR

WIRING DIAGRAM - ELEVATIONS - DETAILS
ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)
[Signature]
DATE JAN 24 2006
SHEET NUMBER SHEET 2 OF 2 SITE CODE HWY DIST REGION DRAWING NUMBER
1 1 1 TE-04002-2 B

REC-06/01



- NOTES**
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CURRENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND THE ELECTRICAL SPECIAL PROVISIONS ISSUED WITH THIS CONTRACT.
 - CONDUCTORS FROM JUNCTION BOX TO LUMINAIRE POLE SHALL BE:
2 No.10 RW90
1 No.12 RW90
50mm RPVC (UNLESS OTHERWISE NOTED)
 - ALL CONDUITS FROM JUNCTION BOXES TO BASES ARE TO BE 50mm RPVC.
 - JUNCTION BOXES SHALL BE POSITIONED BEHIND OR, AS AN ALTERNATIVE, TO THE SIDE, BUT NOT IN FRONT OF POLES.
 - EACH SHIELDED CABLE SHALL RUN CONTINUOUS WITH NO SPLICES, FROM THE CONTROLLER TO THE RESPECTIVE LOOP.
 - ALL SIGNAL HEAD SECTIONS SHALL BE WIRED SEPARATELY FROM THE HANDHOLE OF THE POLE TO EACH HEAD INCLUDING A SEPARATE NEUTRAL AND BONDING CONDUCTOR FOR EACH HEAD.
 - LUMINAIRE NUMBERING EXAMPLE: 1A2
SERVICE No. - 1 CCT. LETTER - A LUM. No. - 2
 - WHERE POSSIBLE, POLES SHALL BE POSITIONED WITH THE HANDHOLE IN THE BACK OR IF NOT POSSIBLE, ON THE DOWNSTREAM TRAFFIC SIDE.
 - ALL CONCRETE BASES AND JUNCTION BOX SYMBOLS ARE NOT TO SCALE.
 - THE CONTRACTOR SHALL NOT PRE-DRILL HOLES IN A SIGNAL POLE UNTIL AFTER THE BASE FOR THAT POLE HAS BEEN INSTALLED. THE CONTRACTOR SHALL ADVISE THE MINISTRY REPRESENTATIVE OF ANY ADJUSTMENTS MADE TO THE BASE LOCATION WHICH WILL EFFECT THE LOCATIONS OF HARDWARE TO BE MOUNTED ON THAT POLE PRIOR TO DRILLING.
 - WHERE THREE OR MORE SECONDARY/PEDESTRIAN HEADS ARE BEING MOUNTED ON THE POLE SHAFT, ORIENT THE PEDESTRIAN HEAD MOUNTING BRACKETS WITH THE WIREWAY ON TOP.
 - WHERE TWO OR MORE SECONDARY HEADS ARE BEING MOUNTED IN THE SAME SHAFT, ALL SECONDARY HEADS SHALL HAVE TUNNELS.
 - ALL NEW JUNCTION BOXES SHALL HAVE STEEL LIDS.
 - ALL CONDUCTORS SHALL BE RW90 STRANDED COPPER UNLESS SHOWN OTHERWISE.

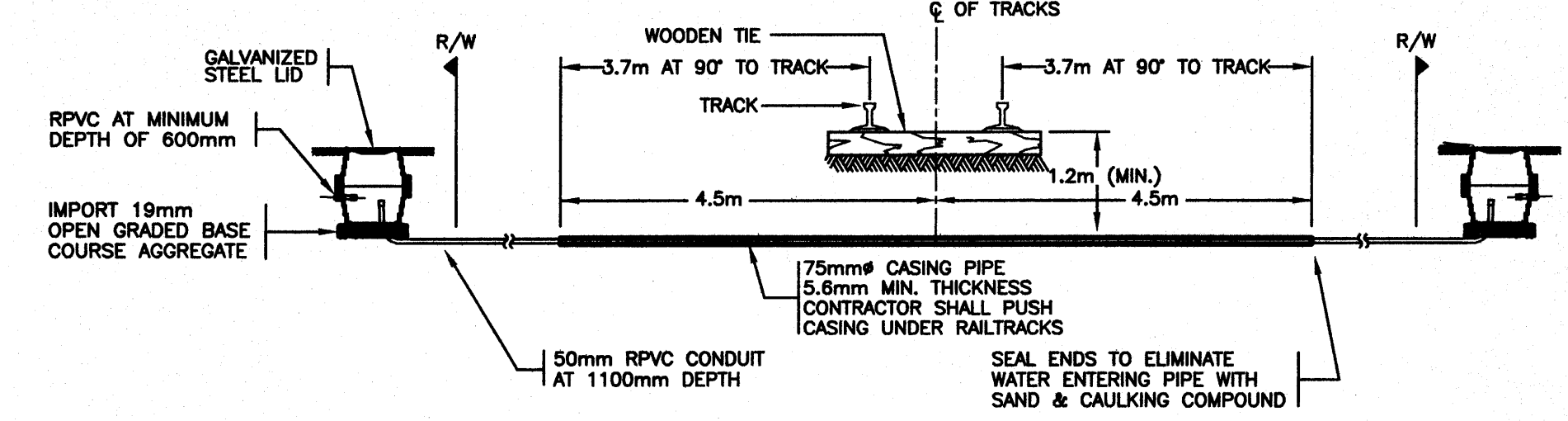
DO NOT USE THIS DRAWING FOR PAVEMENT MARKINGS

ALL DIMENSIONS ARE IN MILLIMETERS EXCEPT WHERE NOTED

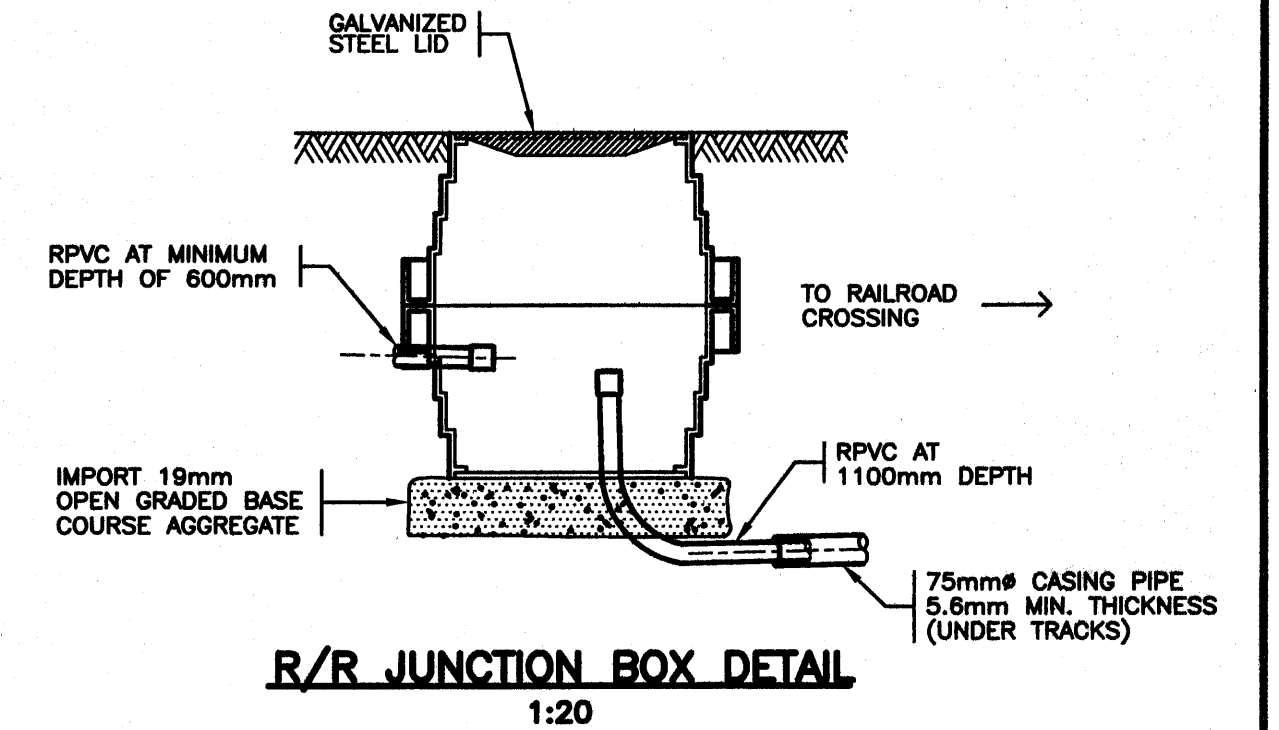
POSTED SPEED LIMIT 80 km/h ON HIGHWAY 11
POSTED SPEED LIMIT 50 km/h ON McCALLUM RD

SEE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION* FOR APPLICABLE STANDARD DRAWINGS

SITE PLAN
0 1:500 25



ALL EQUIPMENT IS NEW EXCEPT WHERE NOTED



LEGEND

<p>○ FUTURE CONCRETE BASE AND LUMINAIRE POLE (SINGLE)</p> <p>○ LUMINAIRE POLE (SINGLE) "F" DENOTES FRANGIBLE BASE</p> <p>○ LUMINAIRE POLE (DOUBLE)</p> <p>○ PRIVATE LUMINAIRE (BASE VARIABLE)</p> <p>○ POST TOP MOUNTED LUMINAIRE</p> <p>○ WALL MOUNTED LUMINAIRE</p> <p>○ 10 JUNCTION BOX - No. DENOTES TYPE</p> <p>○ CJB CONCRETE JUNCTION BOX OR VAULT</p>	<p>○ SIGNAL POLE WITH SIGNAL HEAD MOUNTED ON SIDE</p> <p>○ COMBINATION LUMINAIRE/TRAFFIC SIGNAL POLE</p> <p>○ ILLUMINATED SIGN WITH AMBER FLASHERS</p> <p>○ COMBINATION LUMINAIRE/ILLUMINATED SIGN WITH AMBER FLASHERS</p> <p>○ SIGN POLE (NON-ILLUMINATED)</p> <p>○ ILLUMINATED SIGN POLE</p> <p>○ COMBINATION LUMINAIRE/NON-ILLUMINATED SIGN</p> <p>○ COMBINATION LUMINAIRE/ILLUMINATED SIGN</p>	<p>PEC PHOTO ELECTRIC CELL</p> <p>RPVC RIGID P.V.C. CONDUIT</p> <p>R.C. RIGID STEEL CONDUIT</p> <p>F.C. FLEXIBLE CONDUIT (LIQUID TIGHT)</p> <p>○ OVERHEAD FLASHING BEACON</p> <p>○ POST MOUNTED FLASHER</p> <p>○ BACKGLUY</p> <p>○ POWER POLE</p> <p>○ TELEPHONE POLE</p> <p>○ POWER/TELEPHONE POLE</p> <p>A,B,A1, A2(T) SIGNAL HEAD VEHICLE PHASE (T) DENOTES TUNNEL VISOR</p> <p>PA,PB, PA1,PB2 SIGNAL HEAD PEDESTRIAN PHASE</p> <p>ppb PEDESTRIAN PUSHBUTTON</p>	<p>○ TEST SWITCH</p> <p>○ BREAKER</p> <p>○ NEUTRAL BAR</p> <p>○ DIAMOND DETECTOR LOOP (WITH LOOP LEADER)</p> <p>○ PRE-FORMED DETECTOR LOOP</p> <p>○ ROUND DETECTOR LOOP</p> <p>○ RECTANGULAR COUNT LOOP</p> <p>○ QUADRAPOLE DETECTOR LOOP</p>	<p>— RAISED CURB</p> <p>— PROPERTY LINE</p> <p>— EDGE OF GRAVEL SHOULDER</p> <p>— EDGE OF PAVEMENT</p> <p>— PAINT LINE</p> <p>— FUTURE ELECTRICAL AND GEOMETRICS</p> <p>— ELECTRICAL EQUIPMENT TO BE REMOVED</p> <p>— PROPOSED UNDERGROUND CONDUIT</p> <p>— EXISTING UNDERGROUND CONDUIT</p> <p>— FENCE</p> <p>— CORRUGATED METAL PIPE (CULVERT)</p> <p>— U/G UTILITY: "G" DENOTES GAS "S" DENOTES STORM DRAINS/SEWERS "W" DENOTES WATER "E" DENOTES ELECTRIC "UT" DENOTES TELEPHONE "SAN" DENOTES SANITARY SEWER</p>
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office@dmdeng.com Fax 604/888-9011
DMD PROJECT No. 802-03-06 of 17

DESIGNED BY DSM DATE APRIL/04 CHECKED BY DJW DATE OCT/05
M.O.T. ELECTRICAL DESIGN REVIEW KCA DATE Feb 24/06

REVISIONS

REV	DATE	DESCRIPTION	DRAWN	UNIQUE DRAFTING
FEB90		DRAWING ISSUED		
A	APR/04	GEOMETRICS MODIFIED AT INTERSECTION; NEW SIGNAL AND LIGHTING HARDWARE; ALL EXISTING HARDWARE REMOVED.	JDM	
B	DEC/04	GEOMETRICS MODIFIED AT INTERSECTION; EMERGENCY PRE-EMPTION ADDED TO SIGNAL DESIGN	SJC	
C	JAN/06	LANE USE SIGN DELETED FROM DWG. SERVICE POLE LOCATION REVISED.	EIR	

MINISTRY OF TRANSPORTATION
ELECTRICAL ENGINEERING CENTRE

SIGNAL AND LIGHTING INSTALLATION
HIGHWAY 11 (ABBOTSFORD - MISSION HWY) AT McCALLUM ROAD
ABBOTSFORD

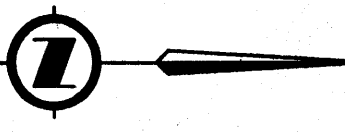
SITE PLAN - NOTES - DETAILS

ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)

[Signature]
DATE JAN 24 2006

SHEET NUMBER SHEET 1 OF 3
SITE CODE 00124
HWY DIST 1
REGION 1
DRAWING NUMBER TE-89111-1

ECL-06/01



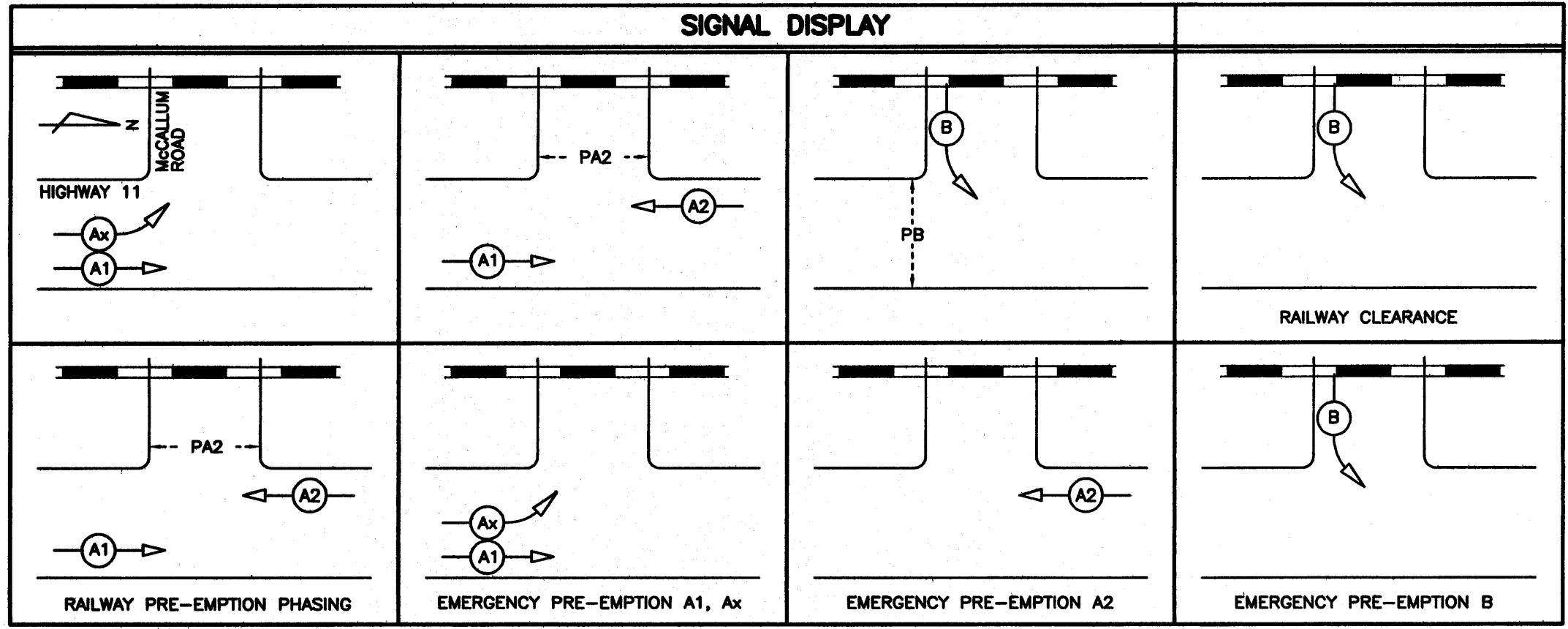
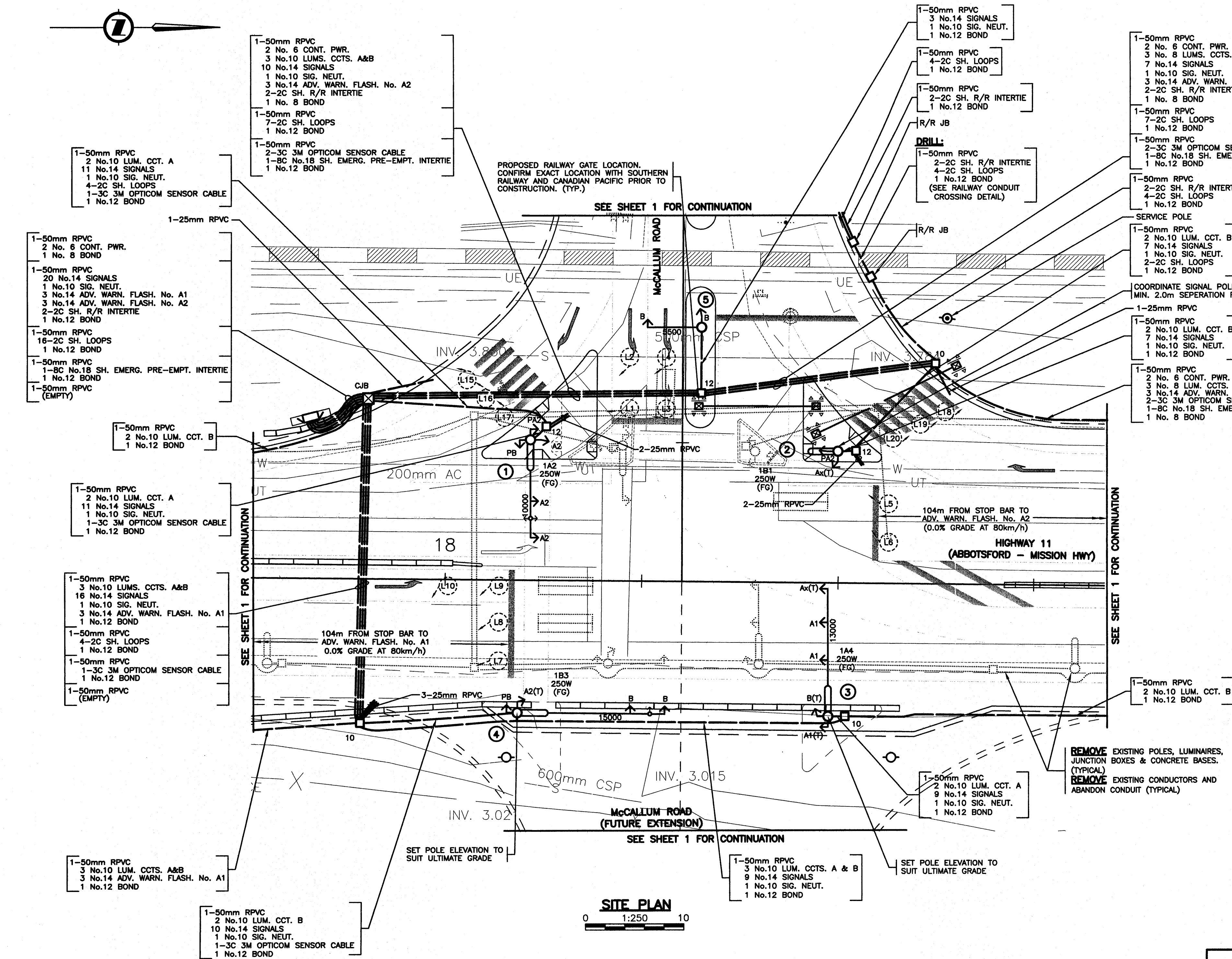
CONDUCTOR COLOUR CODE		
ITEM	SIGNAL SECTION	CONDUCTOR COLOUR
A1	RED	RED
	YELLOW GREEN	YELLOW BLUE
A2	RED	RED (RED T.T.)
	YELLOW GREEN	YELLOW BLUE
Ax	RED	RED (BLUE T.T.)
	YELLOW GREEN ARROW	YELLOW BLUE (WHITE T.T.)
B	RED	RED
	YELLOW GREEN ARROW	BROWN BLUE (WHITE T.T.)
PA2	DON'T WALK	YELLOW (RED T.T.)
	WALK PUSH BUTTON	BLUE PURPLE/PURPLE (RED T.T.)
PB	DON'T WALK	BROWN BLUE
	WALK PUSH BUTTON	PURPLE/PURPLE (BROWN T.T.)
CONTROLLER POWER		BLACK
LUMINAIRE CCT. A		RED
LUMINAIRE CCT. B		BLACK
NEUTRAL		WHITE
GROUND/BOND		GREEN
ADVANCE WARNING FLASHER No. A1		YELLOW BROWN
ADVANCE WARNING FLASHER No. A2		YELLOW (RED T.T.) BROWN

NOTE: T.T. DENOTES TAPE TRACER.

EMERGENCY PRE-EMPTION CONDUCTOR LABELLING			
ITEM	LABEL	COLOUR	CONDUCTOR TYPE
EMERG. PRE-EMPT. INTERTIE #A1	PE-A1-INT	N/A	BELDEN 9388
EMERG. PRE-EMPT. INTERTIE #A2	PE-A2-INT	N/A	
EMERG. PRE-EMPT. INTERTIE #B	PE-B-INT	N/A	

REFER TO SP635-2.5.7 FOR NOTES ON CONDUCTOR LABELLING.

DETECTOR LOOP TABLE						
LOOP No.	LOOP SIZE	TURNS	INDUCTANCE			PHASE
			LOOP (µH)	LEAD (µH)	TOTAL (µH)	
L 1	1.8m DIA.	4	95	22	117	B
L 2	1.8m DIA.	4	95	22	117	B
L 3	1.8m DIA.	4	95	22	117	B
L 4	1.8m DIA.	4	95	22	117	B
L 5	1.8m DIA.	5	140	47	187	A2
L 6	1.8m DIA.	5	140	47	187	A2
L 7	1.8m DIA.	4	95	28	123	A1
L 8	1.8m DIA.	4	95	28	123	A1
L 9	1.8m DIA.	4	95	28	123	Ax
L 10	1.8m DIA.	4	95	28	123	Ax
L 11	1.8m DIA.	5	140	61	201	B
L 12	1.8m DIA.	5	140	61	201	B
L 13	1.8m DIA.	5	140	61	201	B
L 14	1.8m DIA.	5	140	61	201	B
L 15	1.8m DIA.	4	95			
L 16	1.8m DIA.	4	95	7	292	COUNT
L 17	1.8m DIA.	4	95			
L 18	1.8m DIA.	4	95			
L 19	1.8m DIA.	4	95	40	325	COUNT
L 20	1.8m DIA.	4	95			



COORDINATES FOR NEW HARDWARE		
ITEM	STA.	OFFSET
SIGNAL POLE 1/LUM 1A2	18+8.6	14.4
SIGNAL POLE 2/LUM 1B1	18+40.0	13.5
SIGNAL POLE 3/LUM 1A4	18+39.1	13.6
SIGNAL POLE 4/LUM 1B3	18+7.4	13.5
SIGNAL POLE 5	18+25.8	26
TRAFFIC CONTROLLER	17+86.1	16.4

ALL EQUIPMENT IS NEW EXCEPT WHERE NOTED

REFER TO SHEET 1 FOR NOTES

DO NOT USE THIS DRAWING FOR PAVEMENT MARKINGS

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POSTED SPEED LIMIT 80 km/h ON HIGHWAY 11
POSTED SPEED LIMIT 50 km/h ON McCALLUM RD

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" FOR APPLICABLE STANDARD DRAWINGS

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office@dmdeng.com DMD PROJECT No. 802-03-07 of 17

DESIGNED BY DSM DATE APRIL/04 CHECKED BY DJW DATE OCT/05
M.O.T. ELECTRICAL DESIGN REVIEW KAH DATE February

REV	DATE	DESCRIPTION	DRAWN
FEB90		DRAWING ISSUED	JDM
A	APR/04	GEOMETRICS MODIFIED AT INTERSECTION; NEW SIGNAL AND LIGHTING HARDWARE; ALL EXISTING HARDWARE REMOVED.	JDM
B	DEC/04	GEOMETRICS MODIFIED AT INTERSECTION; EMERGENCY PRE-EMPTION ADDED TO SIGNAL DESIGN	SJC
C	JAN/06	SERVICE POLE LOCATION ADDED TO DWG.	EIR

**MINISTRY OF TRANSPORTATION
ELECTRICAL ENGINEERING CENTRE**

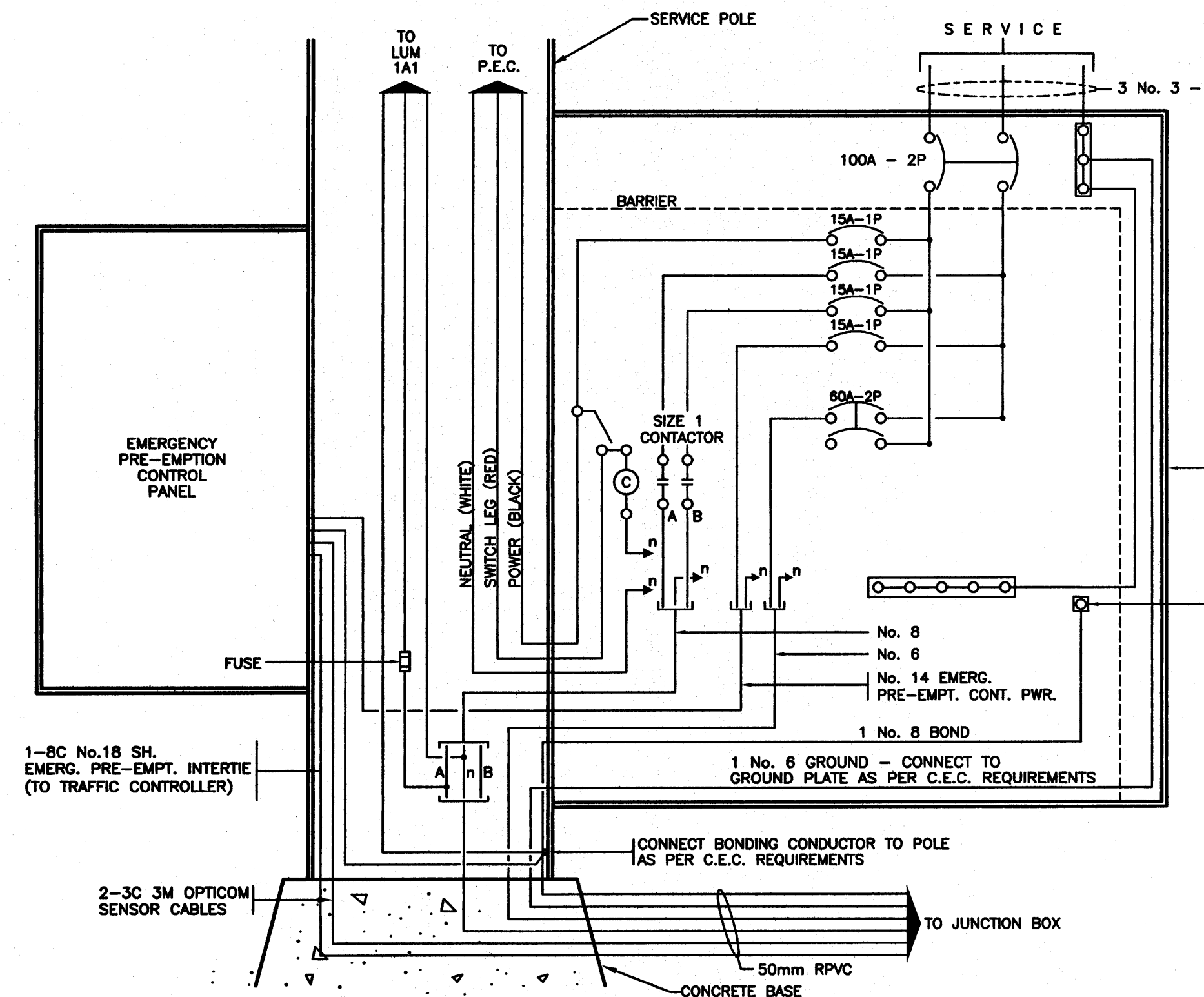
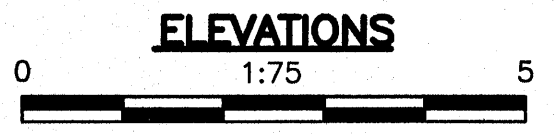
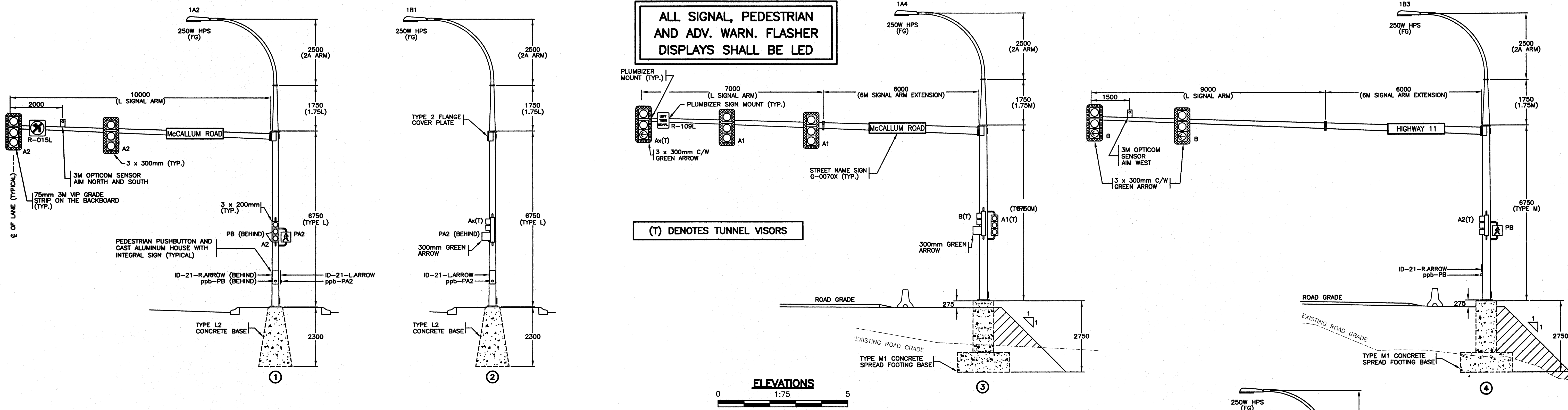
**SIGNAL AND LIGHTING INSTALLATION
HIGHWAY 11 (ABBOTSFORD - MISSION HWY) AT McCALLUM ROAD
ABBOTSFORD**

SITE PLAN ENLARGEMENT - SIGNAL DISPLAY
ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)

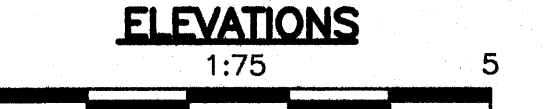
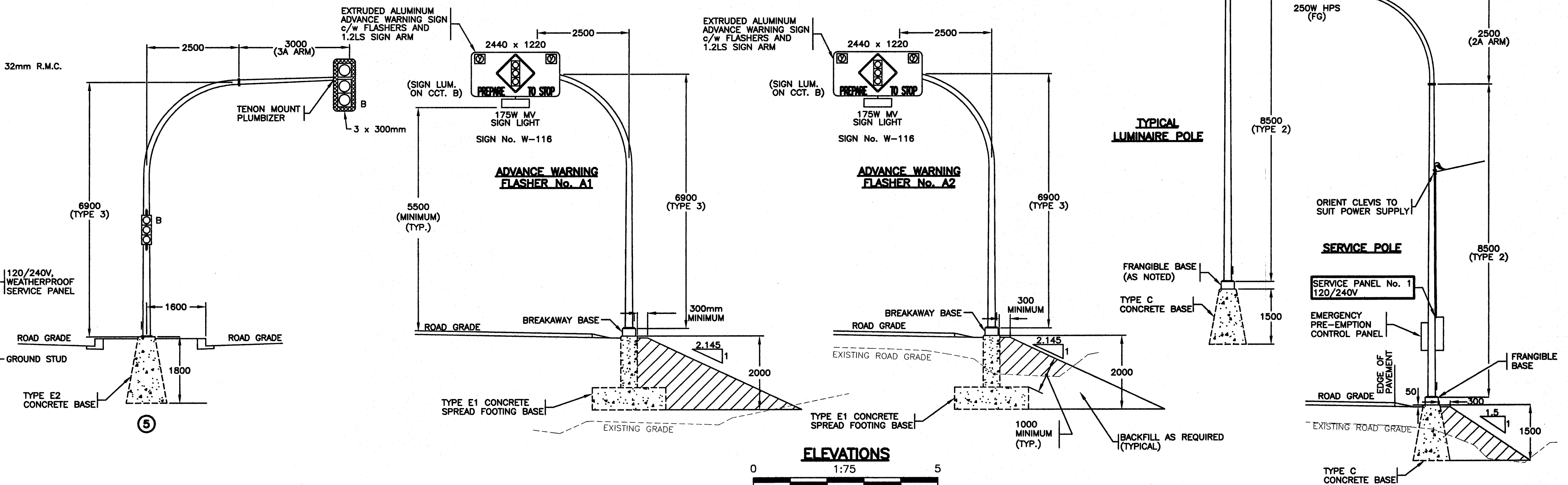
[Signature] DATE JAN 24 2006

SHEET NUMBER 2 OF 3 SITE CODE 00124 HWY DIST 1 REGION 1 DRAWING NUMBER TE-89111-2

REV. A06/07



WIRING DIAGRAM - SERVICE PANEL No. 1
N.T.S.



REFER TO SHEET 1 FOR NOTES

ALL DIMENSIONS ARE IN MILLIMETERS EXCEPT WHERE NOTED

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" FOR APPLICABLE STANDARD DRAWINGS

ALL EQUIPMENT IS NEW EXCEPT WHERE NOTED

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office@dmdeng.com Fax 604/888-9011
DMD PROJECT No. 802-03-08 of 17

MINISTRY OF TRANSPORTATION
ELECTRICAL ENGINEERING CENTRE

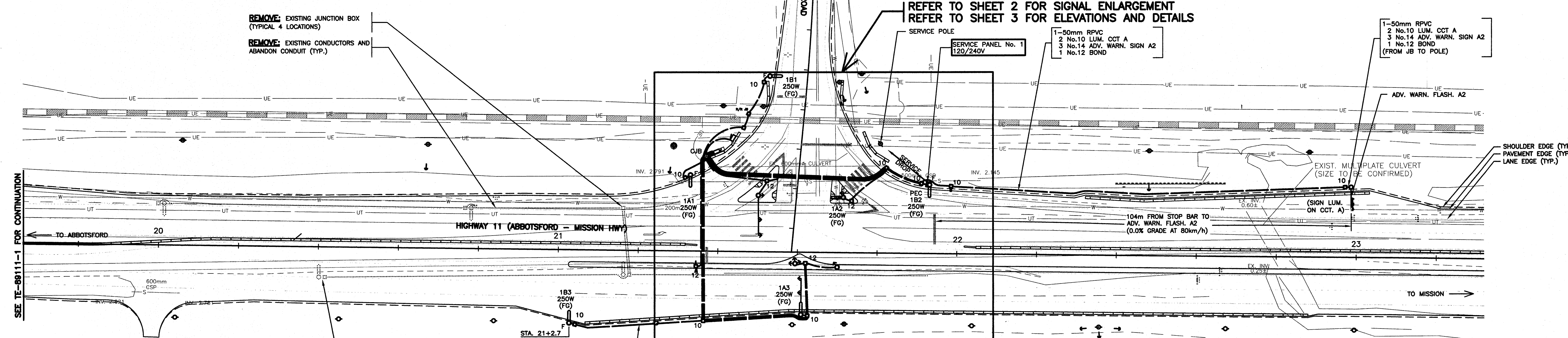
DESIGNED BY DSM DATE APRIL/04 CHECKED BY DJW DATE 06/2/05
M.O.T. ELECTRICAL DESIGN REVIEW KCH DATE Feb 24/06

SIGNAL AND LIGHTING INSTALLATION
HIGHWAY 11 (ABBOTSFORD - MISSION HWY) AT McCALLUM ROAD
ABBOTSFORD

REV	DATE	DESCRIPTION	DRAWN	UNIQUE DRAFTING
FEB90		DRAWING ISSUED	JDM	
A	APR/04	NEW SIGNAL AND LIGHTING HARDWARE, ALL EXIST. REMOVED TO SUIT GEOMETRIC MODIFICATIONS.	JDM	
B	DEC/04	EMERGENCY PRE-EMPTION SENSORS ADDED ON POLES 1 & 4, AND EMERGENCY PRE-EMPTION CABINET ADDED TO SERVICE POLE.	SJC	

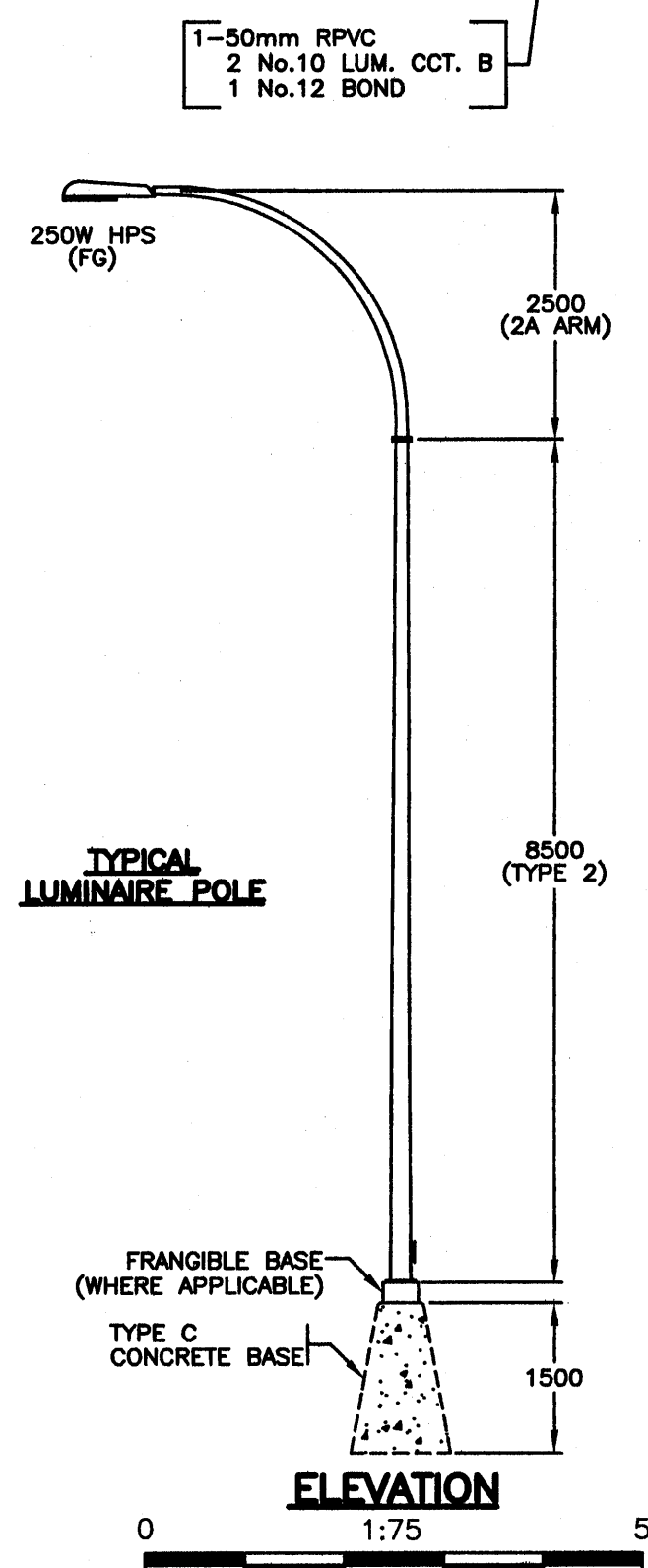
WIRING DIAGRAM - ELEVATIONS
ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)
[Signature]
DATE **JAN 24 2006**
SHEET NUMBER **3 OF 3** SITE CODE **00124** HWY DIST **1** REGION **1** DRAWING NUMBER **TE-89111-3**

REV. 02/05



NOTES

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CURRENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND THE ELECTRICAL SPECIAL PROVISIONS ISSUED WITH THIS CONTRACT.
- CONDUCTORS FROM JUNCTION BOX TO LUMINAIRE POLE SHALL BE:
2 No.10 RW90 — 50mm RPVC (UNLESS OTHERWISE NOTED)
1 No.12 RW90
- ALL CONDUITS FROM JUNCTION BOXES TO BASES ARE TO BE 50mm RPVC.
- JUNCTION BOXES SHALL BE POSITIONED BEHIND OR, AS AN ALTERNATIVE, TO THE SIDE, BUT NOT IN FRONT OF POLES.
- EACH SHIELDED CABLE SHALL RUN CONTINUOUS WITH NO SPLICES, FROM THE CONTROLLER TO THE RESPECTIVE LOOP.
- ALL SIGNAL HEAD SECTIONS SHALL BE WIRED SEPARATELY FROM THE HANDHOLE OF THE POLE TO EACH HEAD INCLUDING A SEPARATE NEUTRAL AND BONDING CONDUCTOR FOR EACH HEAD.
- LUMINAIRE NUMBERING EXAMPLE: 1A2
SERVICE No. - 1 OCT. LETTER - A LUM. No. - 2
- WHERE POSSIBLE, POLES SHALL BE POSITIONED WITH THE HANDHOLE IN THE BACK OR IF NOT POSSIBLE, ON THE DOWNSTREAM TRAFFIC SIDE.
- ALL CONCRETE BASES AND JUNCTION BOX SYMBOLS ARE NOT TO SCALE.
- THE CONTRACTOR SHALL NOT PRE-DRILL HOLES IN A SIGNAL POLE UNTIL AFTER THE BASE FOR THAT POLE HAS BEEN INSTALLED. THE CONTRACTOR SHALL ADVISE THE MINISTRY REPRESENTATIVE OF ANY ADJUSTMENTS MADE TO THE BASE LOCATION WHICH WILL EFFECT THE LOCATIONS OF HARDWARE TO BE MOUNTED ON THAT POLE PRIOR TO DRILLING.
- WHERE THREE OR MORE SECONDARY/PEDESTRIAN HEADS ARE BEING MOUNTED ON THE POLE SHAFT, ORIENT THE PEDESTRIAN HEAD MOUNTING BRACKETS WITH THE WIREWAY ON TOP.
- WHERE TWO OR MORE SECONDARY HEADS ARE BEING MOUNTED IN THE SAME SHAFT, ALL SECONDARY HEADS SHALL HAVE TUNNELS.
- ALL NEW JUNCTION BOXES SHALL HAVE STEEL LIDS.
- ALL CONDUCTORS SHALL BE RW90 STRANDED COPPER UNLESS SHOWN OTHERWISE.



ALL EQUIPMENT IS NEW EXCEPT WHERE NOTED

DO NOT USE THIS DRAWING FOR PAVEMENT MARKINGS

ALL DIMENSIONS ARE IN MILLIMETERS EXCEPT WHERE NOTED

FOR MINISTRY USE ONLY
THIS DRAWING SERIES PARTIALLY SUPERSEDES DRAWING SERIES DE-84050 SHEET 8

POSTED SPEED LIMIT 80 km/h ON HIGHWAY 11
POSTED SPEED LIMIT 50 km/h ON VALLEY ROAD

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" FOR APPLICABLE STANDARD DRAWINGS

LEGEND

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DMD PROJECT No. 802-03-09 of 17

DESIGNED BY DSM DATE APRIL/04 CHECKED BY DJW DATE OCT/05
M.O.T. ELECTRICAL DESIGN REVIEW JSJ DATE Feb 24/06

REV	DATE	DESCRIPTION	DRAWN
APR/04		NEW TE DRAWING SERIES; NEW GEOMETRICS AND NEW STREET LIGHTING ALONG HIGHWAY 11	JDM
A	NOV/04	COMPLETE RE-DESIGN FOR FULL INTERSECTION SIGNALIZATION	SJC
B	JAN/06	SERVICE POLE LOCATION ADDED TO DWG.	EIR

**MINISTRY OF TRANSPORTATION
ELECTRICAL ENGINEERING CENTRE**

**SIGNAL AND LIGHTING INSTALLATION
HIGHWAY 11 (ABBOTSFORD - MISSION HWY) AT VALLEY ROAD
ABBOTSFORD**

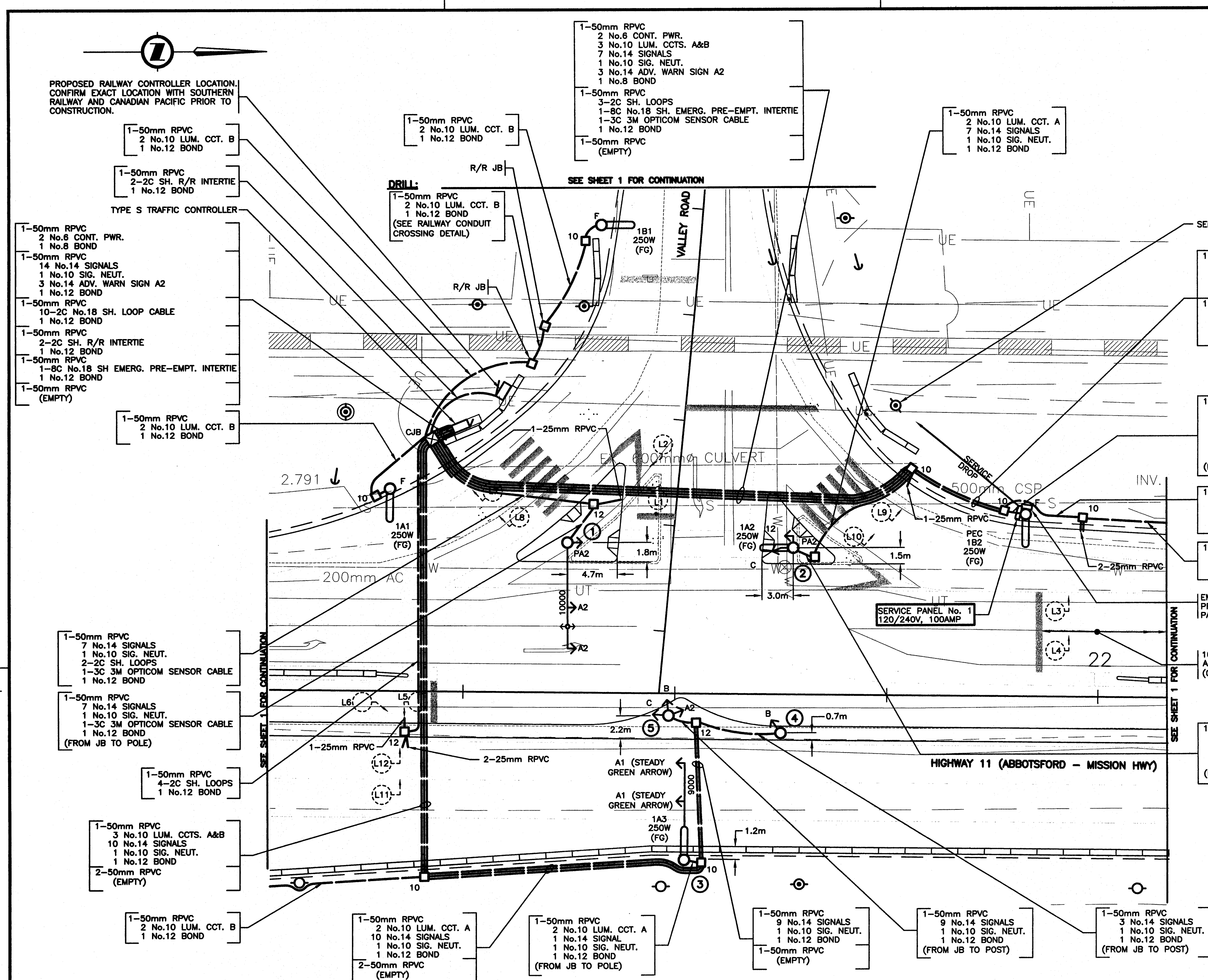
SITE PLAN - NOTES - ELEVATION

ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)

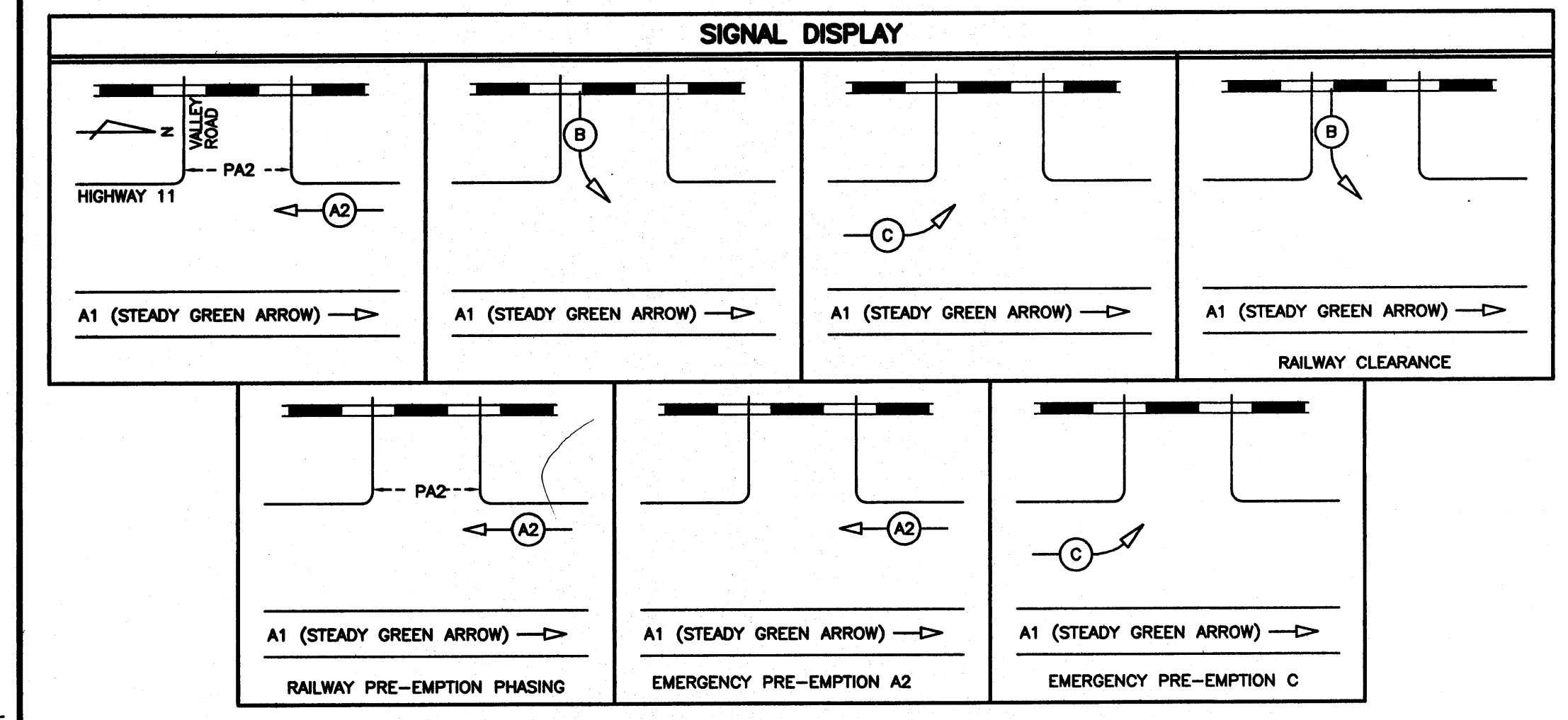
[Signature] DATE JAN 24 2006

SHEET NUMBER	SITE CODE	HWY DIST	REGION	DRAWING NUMBER
1 OF 3		1	1	TE-04003-1

EEC_06/01

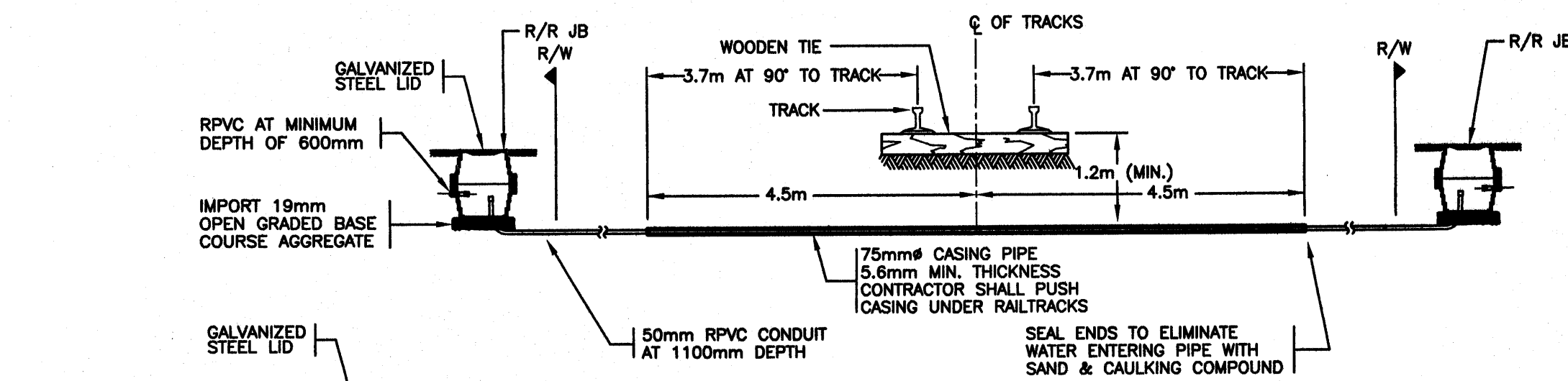


SITE PLAN
0 1:250 10

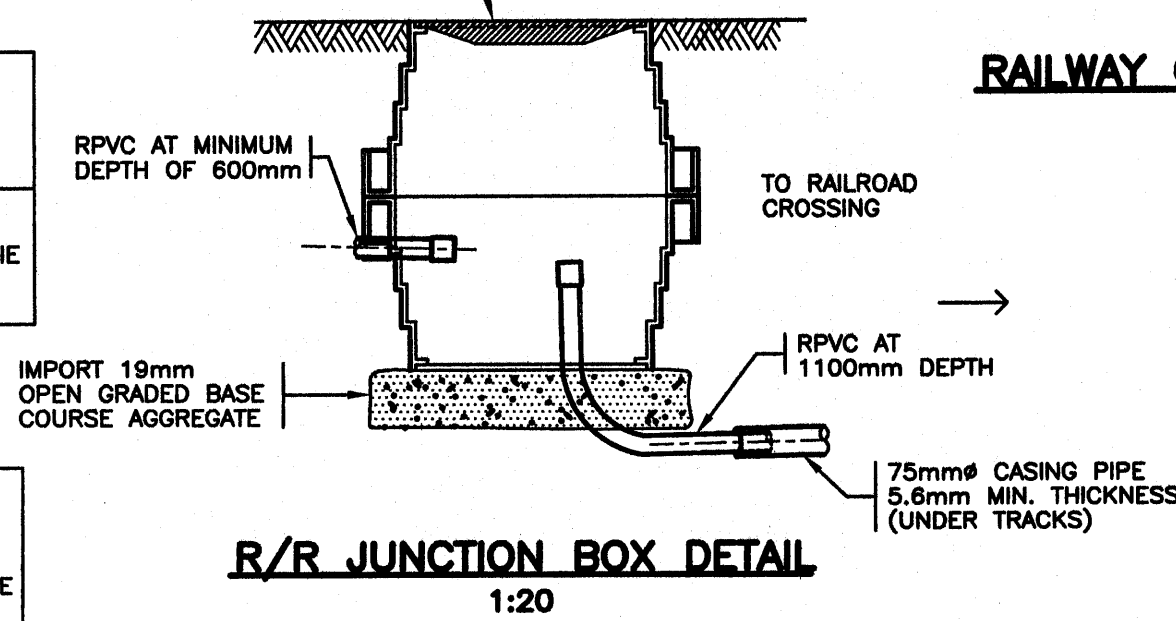


ILLUMINANCE DESIGN CRITERIA		
ITEM	DESIGN REQUIREMENTS	DESIGN ACHIEVED
STREET NAME(S)	HIGHWAY 11 / VALLEY ROAD INTERSECTION	
PEDESTRIAN CONFLICT AREA	LOW	
INTERSECTION CLASSIFICATION	MAJOR / LOCAL	
ILLUMINATION TYPE	250W (11.0m POLE) & 150W (9.0m POLE)	
ILLUMINATION LEVEL (AVG.)	13.0 LUX	18.5 LUX
UNIFORMITY RATIO (AVG.:MIN.)	3.0:1	1.9:1

ILLUMINANCE DESIGN CRITERIA AS PER RTD-10		
ITEM	DESIGN REQUIREMENTS	DESIGN ACHIEVED
LOCATION	VALLEY ROAD RAILWAY CROSSING	
ILLUMINATION TYPE	250W (11.0m POLE)	
ILLUMINATION LEVEL (VERTICAL AVG.)	10.0 LUX	15.2 LUX
UNIFORMITY RATIO (VERTICAL AVG.:MIN.)	3.0:1	2.9:1



RAILWAY CONDUIT CROSSING DETAIL
1:75



R/R JUNCTION BOX DETAIL
1:20

COORDINATES FOR NEW HARDWARE	
ITEM	STA.
SIGN POLE 3/LUM. 1A3	21+61
SIGNAL POST 4	21+70
SIGNAL POST 5	21+59.5
LUM 1A1	21+33
SERVICE POLE/LUM. 1B2	21+93
TYPE S TRAFFIC CONTROLLER	21+39
LUM. 1B1	81+22

DETECTOR LOOP TABLE						
LOOP No.	LOOP		INDUCTANCE		PHASE	
	SIZE	TURNS	LOOP (μh)	LEAD (μh) TOTAL (μh)		
L 1	1.8m	4	95	11	106	B
L 2	1.8m	4	95	11	106	B
L 3	1.8m	4	95	44	139	A2
L 4	1.8m	4	95	44	139	A2
L 5	1.8m	4	95	18	113	C
L 6	1.8m	4	95	18	113	C
L 7	1.8m	4	95			
L 8	1.8m	4	95	6	196	COUNT
L 9	1.8m	4	95			
L 10	1.8m	4	95	31	221	COUNT
L 11	1.8m	4	95	18	113	COUNT
L 12	1.8m	4	95	18	113	COUNT

EMERGENCY PRE-EMPTION CONDUCTOR LABELLING			
ITEM	LABEL	COLOUR	CONDUCTOR TYPE
EMERG. PRE-EMPT. INTERTIE #A1	PE-A2-INT	N/A	BELDEN 9388
EMERG. PRE-EMPT. INTERTIE #A2	PE-C-INT	N/A	

REFER TO SP635-2.5.7 FOR NOTES ON CONDUCTOR LABELLING.

CONDUCTOR COLOUR CODE		
ITEM	SIGNAL SECTION	CONDUCTOR COLOUR
A1	STEADY GREEN ARROW	BLUE (WHITE T.T.)
A2	RED	RED
	YELLOW GREEN	YELLOW BLUE
B	RED	RED
	YELLOW GREEN ARROW	BLUE (WHITE T.T.)
C	RED	RED
	YELLOW GREEN ARROW	BLUE (WHITE T.T.)
PA2	DON'T WALK WALK PUSH BUTTON	YELLOW BLUE PURPLE/PURPLE (YELLOW T.T.)
CONTROLLER POWER		BLACK
LUMINAIRE C.T. A		RED
LUMINAIRE C.T. B		BLACK
NEUTRAL		WHITE
GROUND/BOND		GREEN
ADVANCE WARNING FLASHER A2		YELLOW BROWN

NOTE: T.T. DENOTES TAPE TRACER.

ALL EQUIPMENT IS NEW EXCEPT WHERE NOTED

DO NOT USE THIS DRAWING FOR PAVEMENT MARKINGS

ALL DIMENSIONS ARE IN MILLIMETERS EXCEPT WHERE NOTED

FOR MINISTRY USE ONLY
THIS DRAWING SERIES PARTIALLY SUPERSEDES DRAWING SERIES DE-84050 SHEET 8

POSTED SPEED LIMIT 80 km/h ON HIGHWAY 11
POSTED SPEED LIMIT 50 km/h ON VALLEY ROAD

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" FOR APPLICABLE STANDARD DRAWINGS

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DMD PROJECT No. 802-03-10 of 17

DESIGNED BY SC DATE NOV/04 CHECKED BY DJW DATE NOV/04
M.O.T. ELECTRICAL DESIGN REVIEW JSH DATE 2/28/06

REVISIONS		
REV	DATE	DESCRIPTION
A	NOV/04	SHEET ADDED TO DRAWING SERIES - INTERSECTION SIGNALIZED
B	JAN/06	SERVICE POLE LOCATION REVISED, CONDUCTORS AND PRE-EMPT / SERVICE PANELS REVISED TO SUIT.

DRAWN JDM
EIR

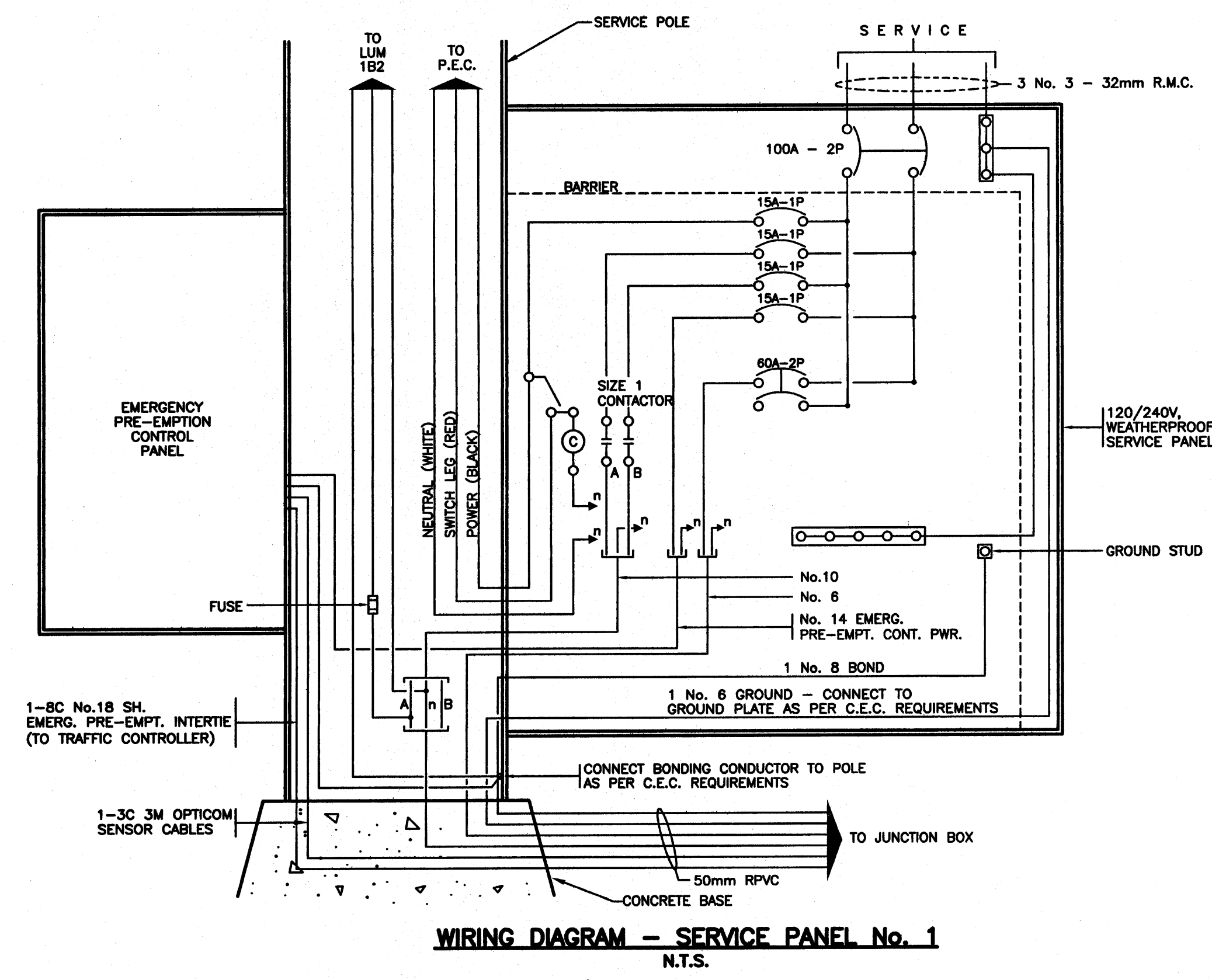
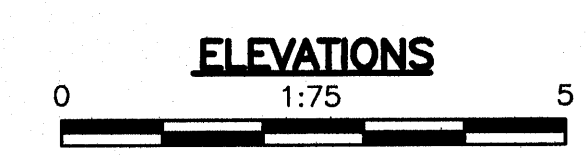
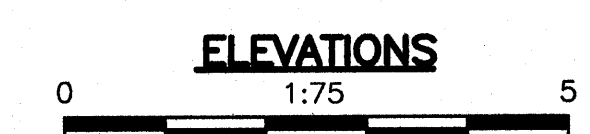
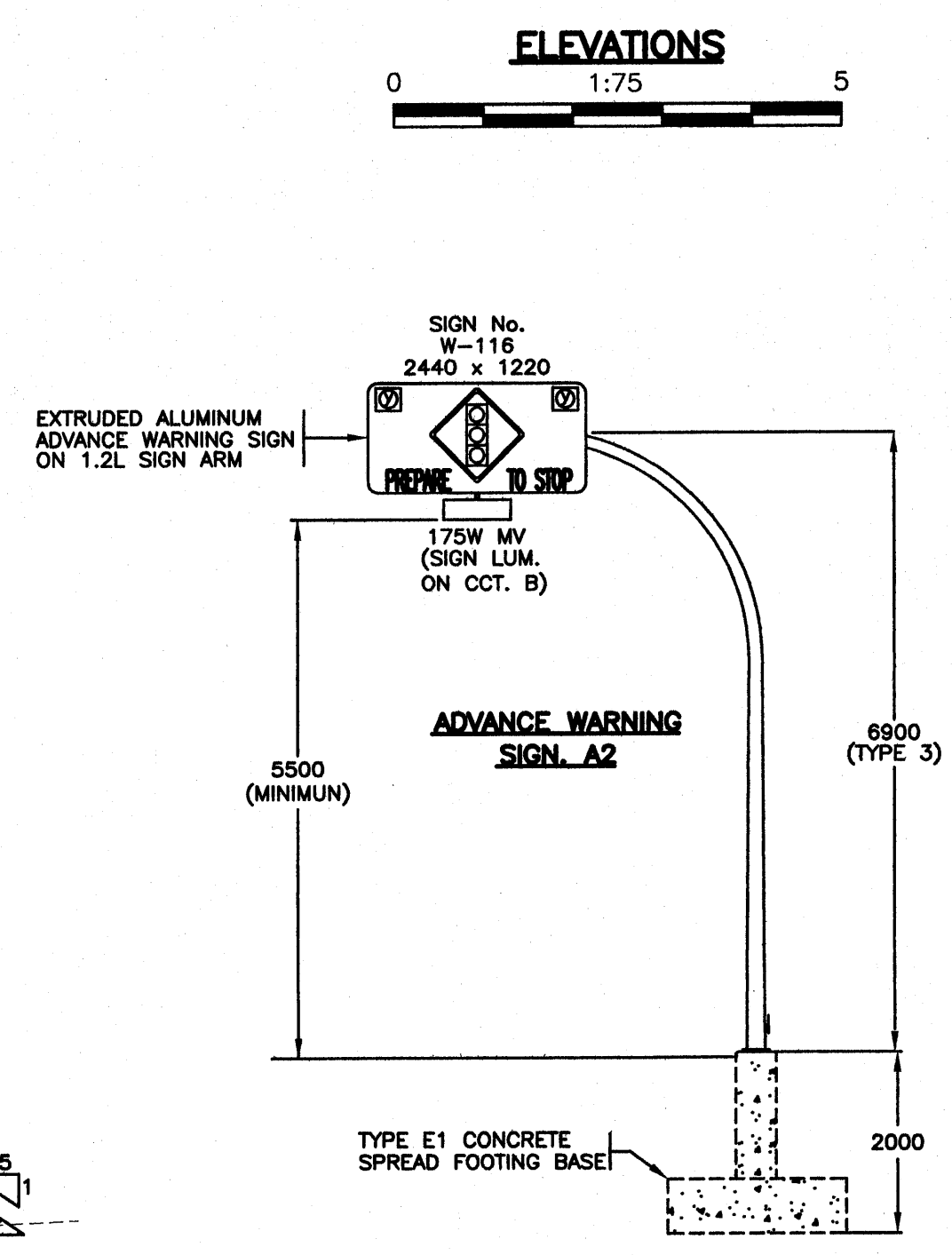
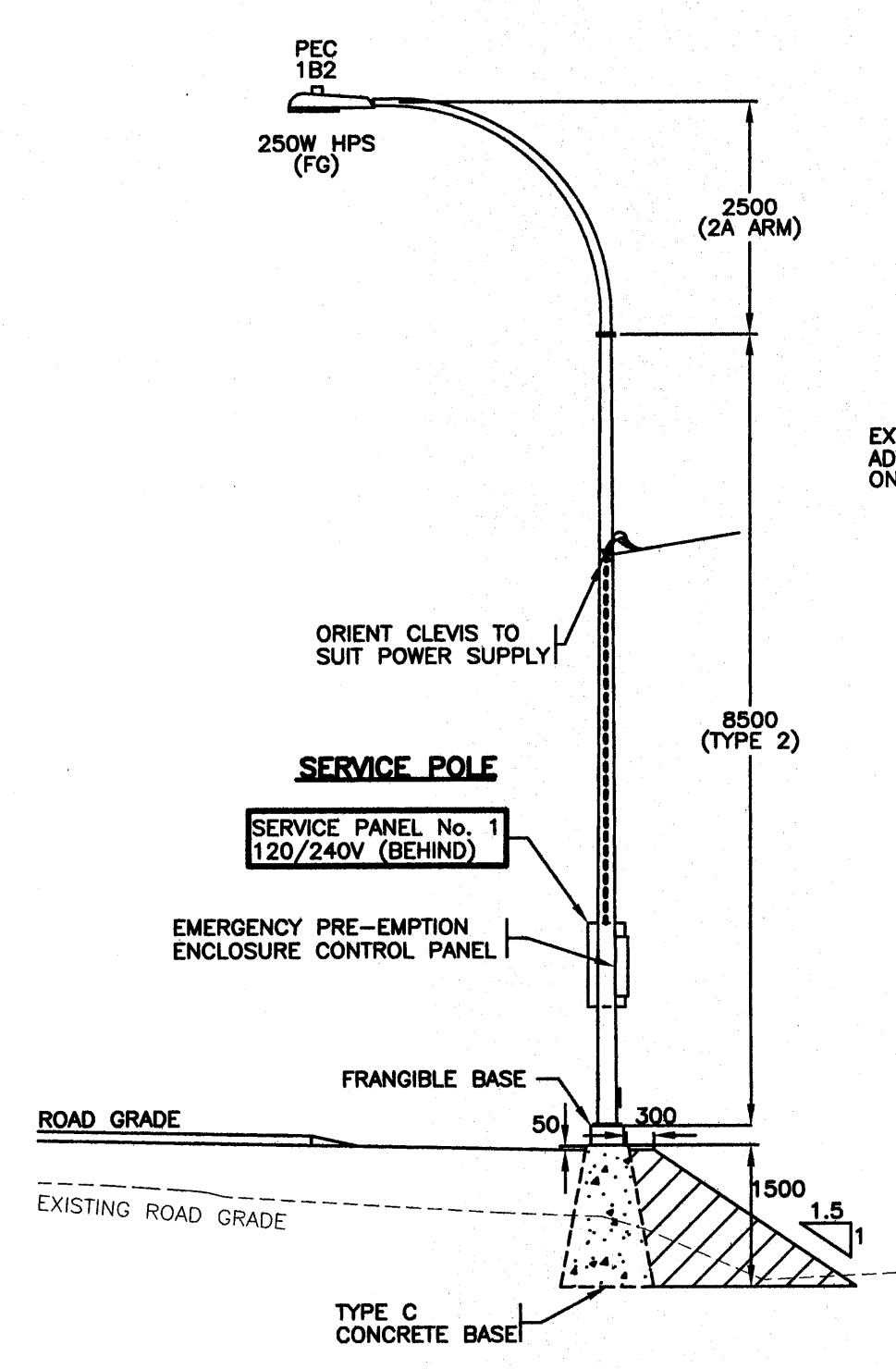
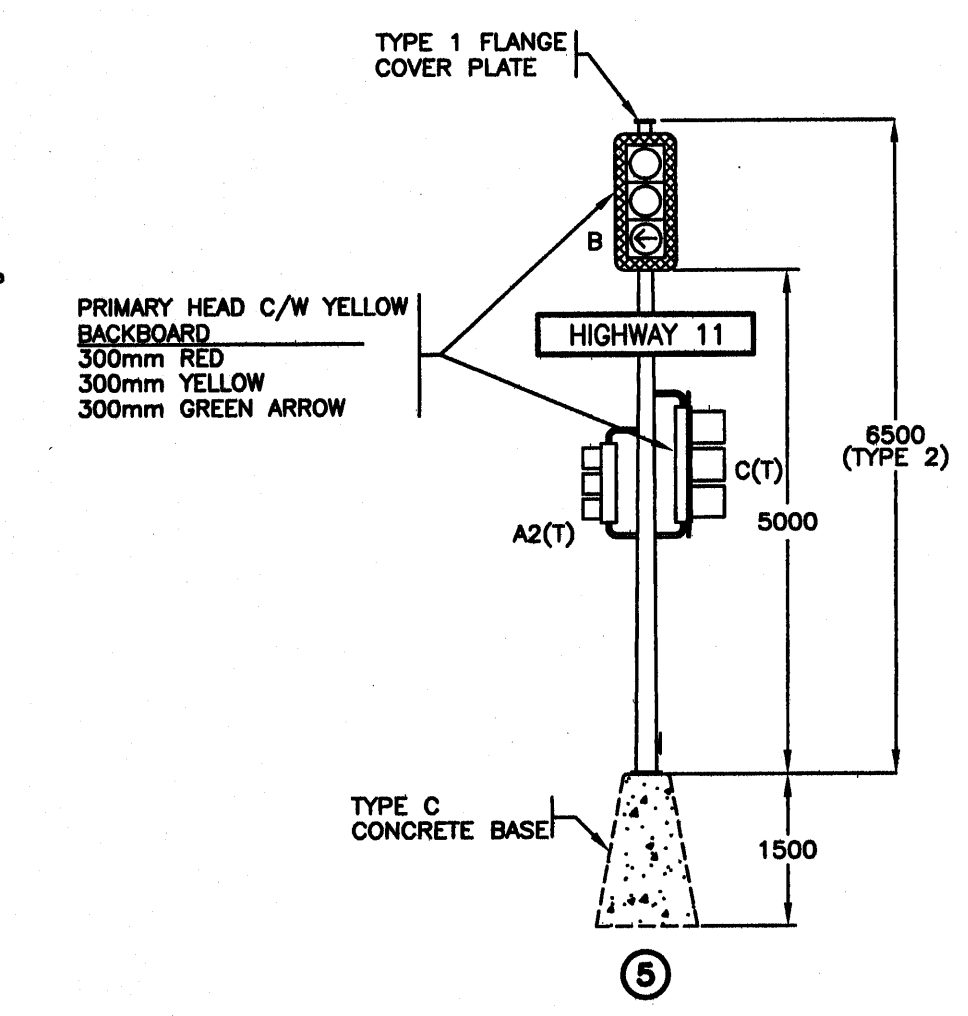
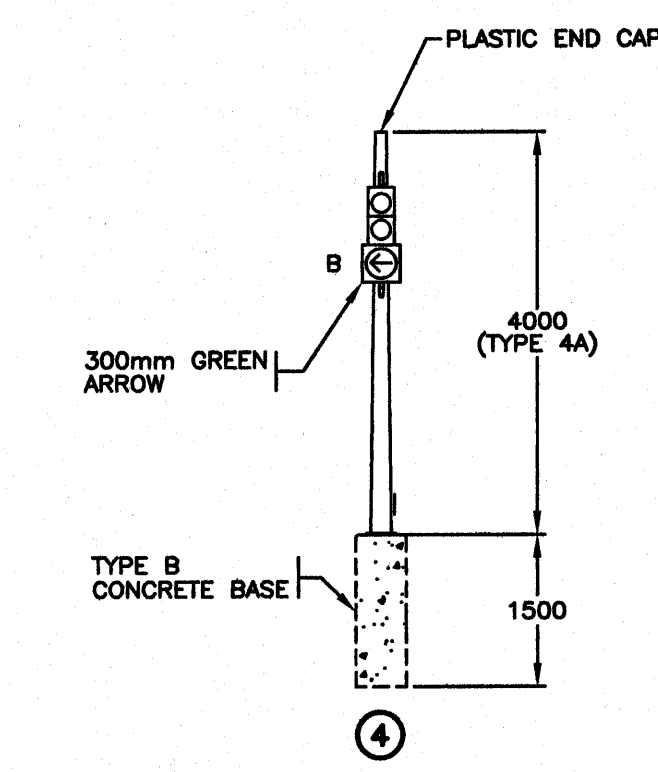
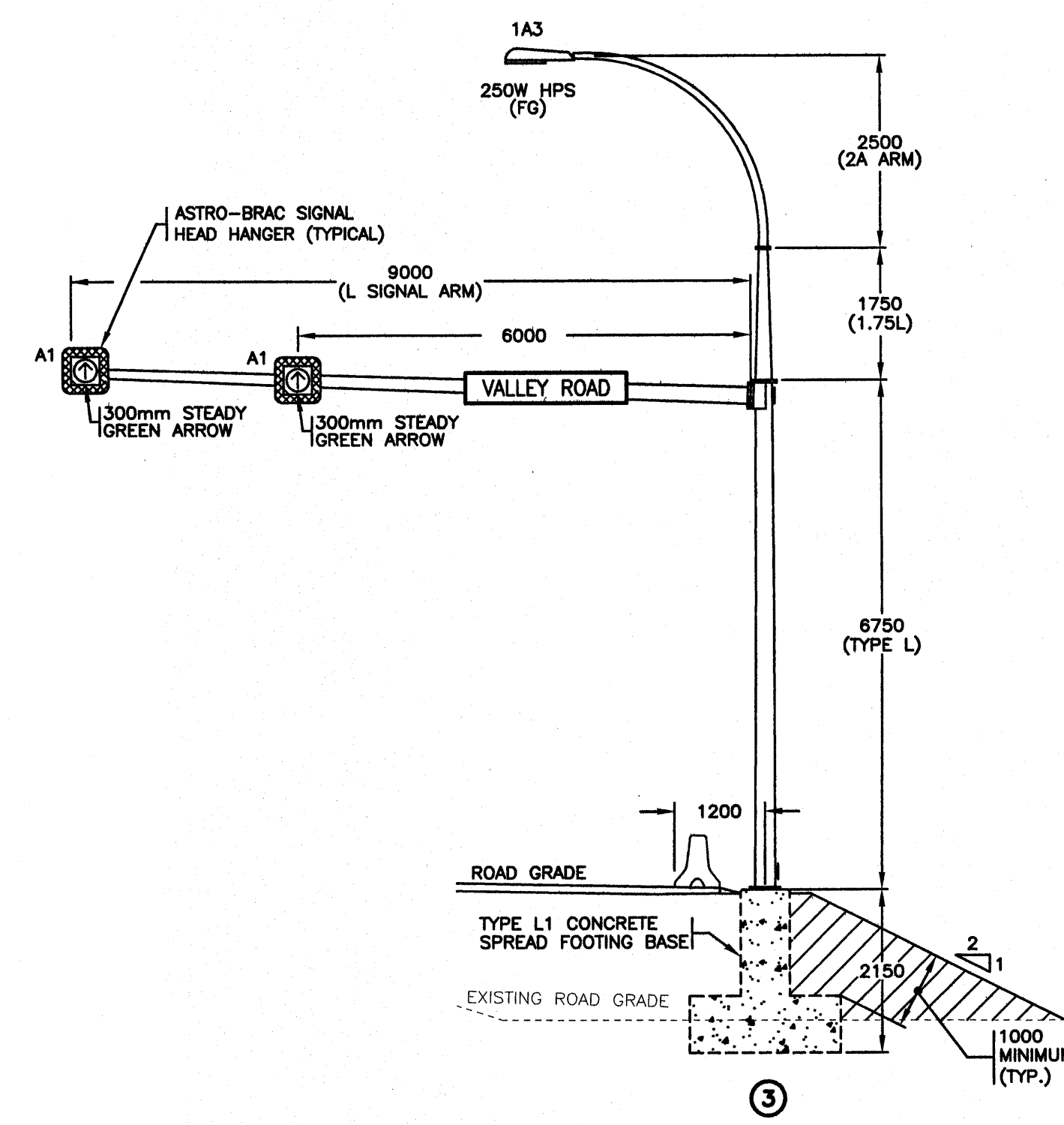
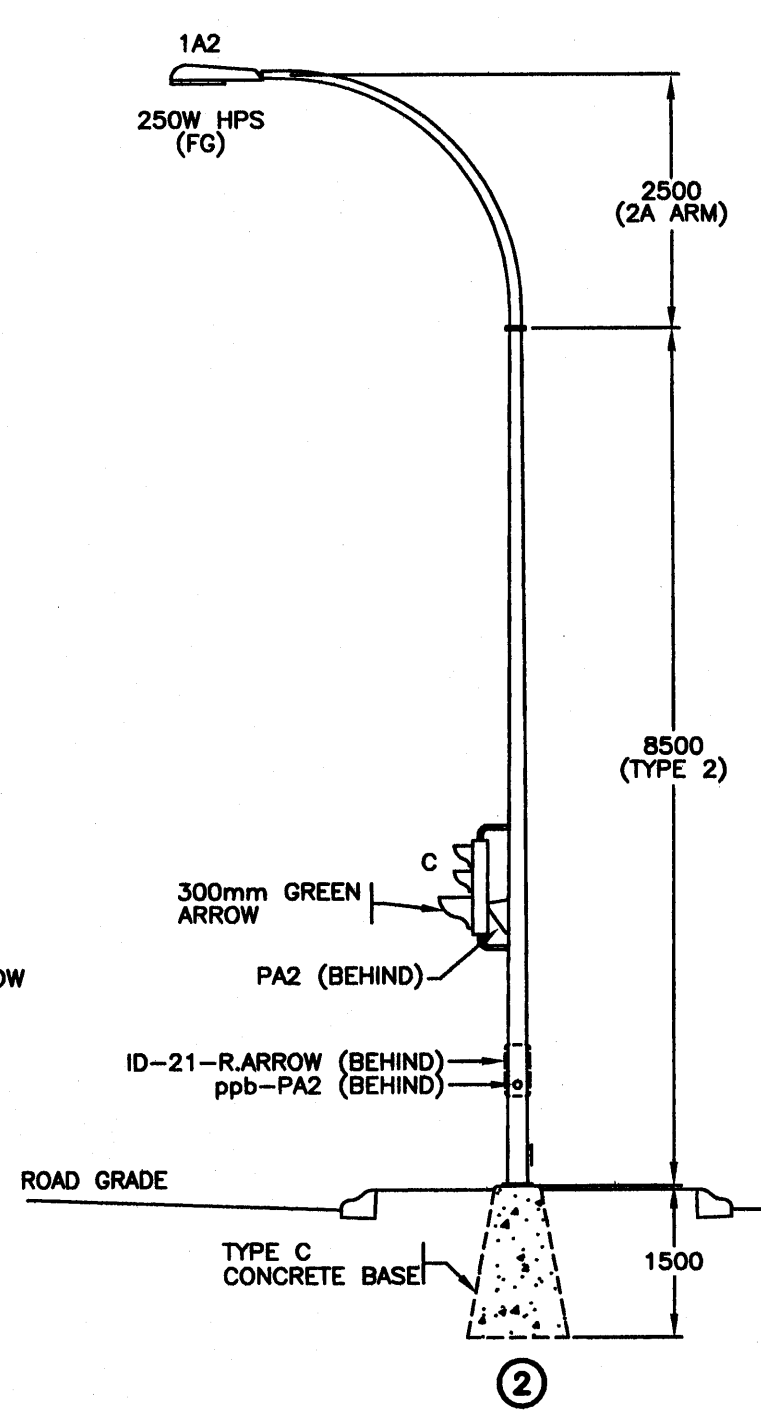
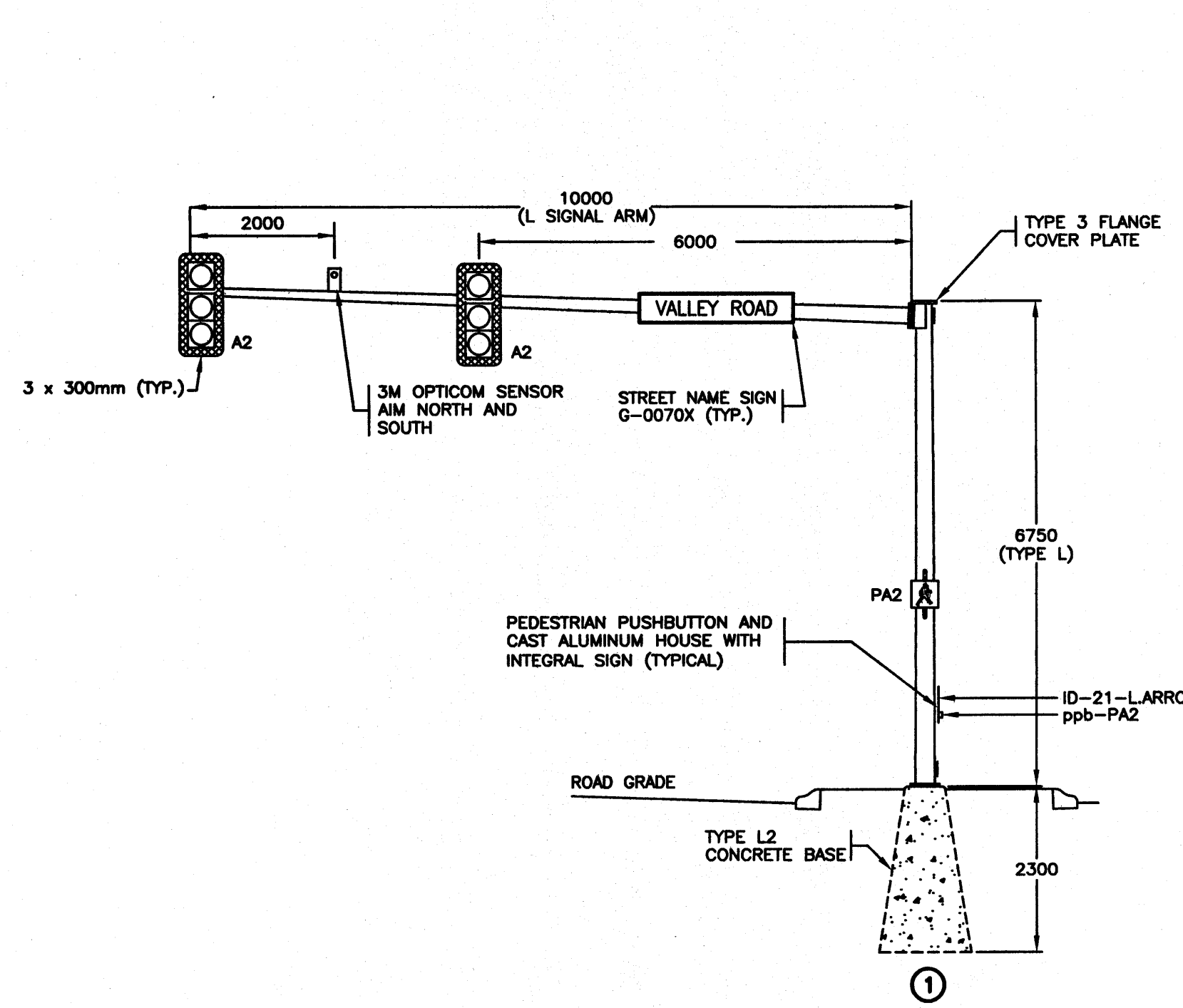
MINISTRY OF TRANSPORTATION
ELECTRICAL ENGINEERING CENTRE

SIGNAL AND LIGHTING INSTALLATION
HIGHWAY 11 (ABBOTSFORD - MISSION HWY) AT VALLEY ROAD
ABBOTSFORD

SITE PLAN ENLARGEMENT - SIGNAL DISPLAY - COLOUR CODE
ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)

DATE JAN 24 2006
D. J. WONG

SHEET NUMBER	SITE CODE	HWY DIST	REGION	DRAWING NUMBER
2 OF 3		1	1	TE-04003-2



WIRING DIAGRAM - SERVICE PANEL No. 1
N.T.S.

ALL EQUIPMENT IS NEW EXCEPT WHERE NOTED

ALL SIGNAL, PEDESTRIAN AND ADV. WARN. FLASHER DISPLAYS SHALL BE LED

(T) DENOTES TUNNEL VISORS

REFER TO SHEET 1 FOR NOTES

ALL DIMENSIONS ARE IN MILLIMETERS EXCEPT WHERE NOTED

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" FOR APPLICABLE STANDARD DRAWINGS

DMD & Associates Ltd.
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DMD PROJECT No. 802-03-11 of 17

MINISTRY OF TRANSPORTATION
ELECTRICAL ENGINEERING CENTRE

DESIGNED BY DSM DATE APRIL/04 CHECKED BY DJW DATE OCT/05
M.O.T. ELECTRICAL DESIGN REVIEW JSH DATE Feb 28/06

LIGHTING INSTALLATION
HIGHWAY 11 (ABBOTSFORD - MISSION HWY) AT VALLEY ROAD
ABBOTSFORD

REV	DATE	DESCRIPTION	DRAWN
	APR/04	NEW YE DRAWING SERIES; NEW GEOMETRICS AND NEW STREET LIGHTING ALONG HIGHWAY 11	JDM
A	DEC/04	INTERSECTION SIGNALIZED	SJC
B	JAN/06	SERVICE PANEL No. 1 / LUM. 1B2 MODIFIED	EIR

WIRING DIAGRAM - ELEVATIONS
ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)

[Signature] DATE **JAN 24 2006**

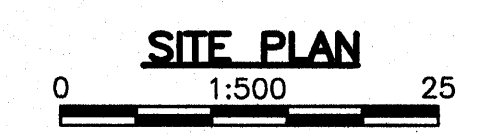
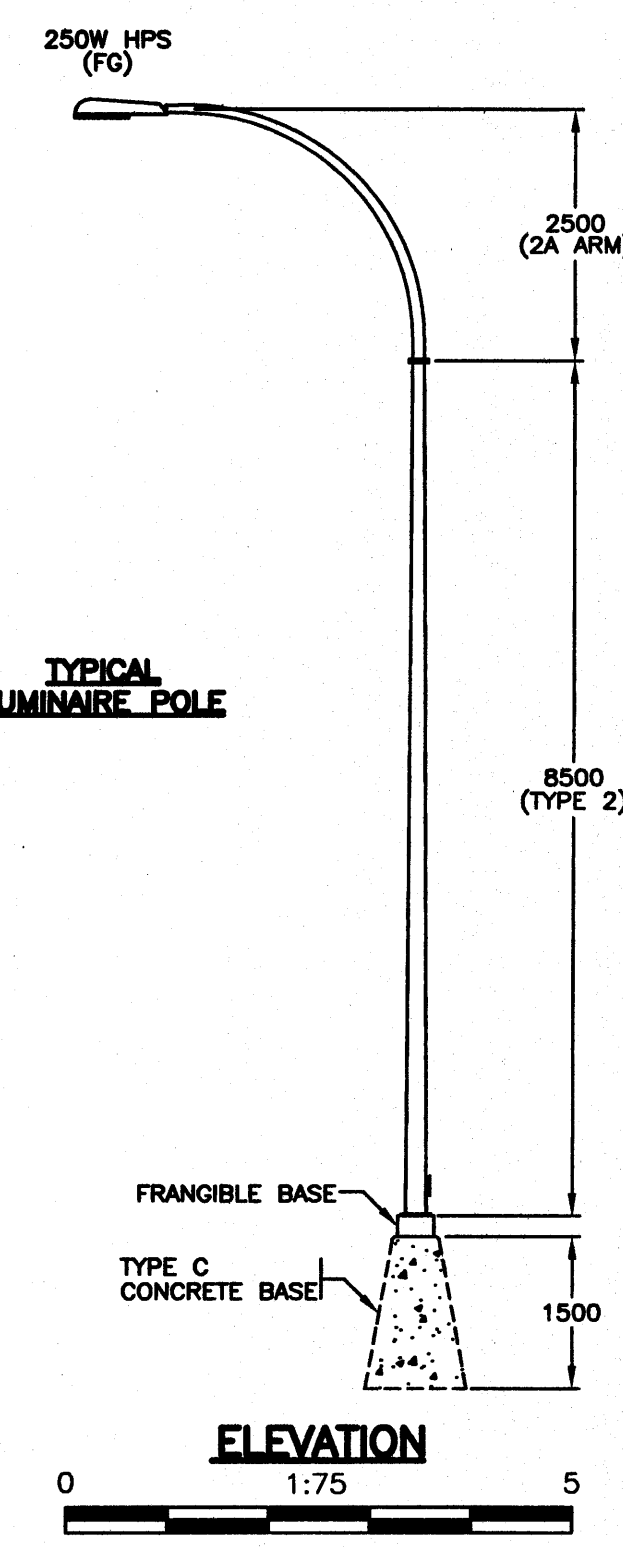
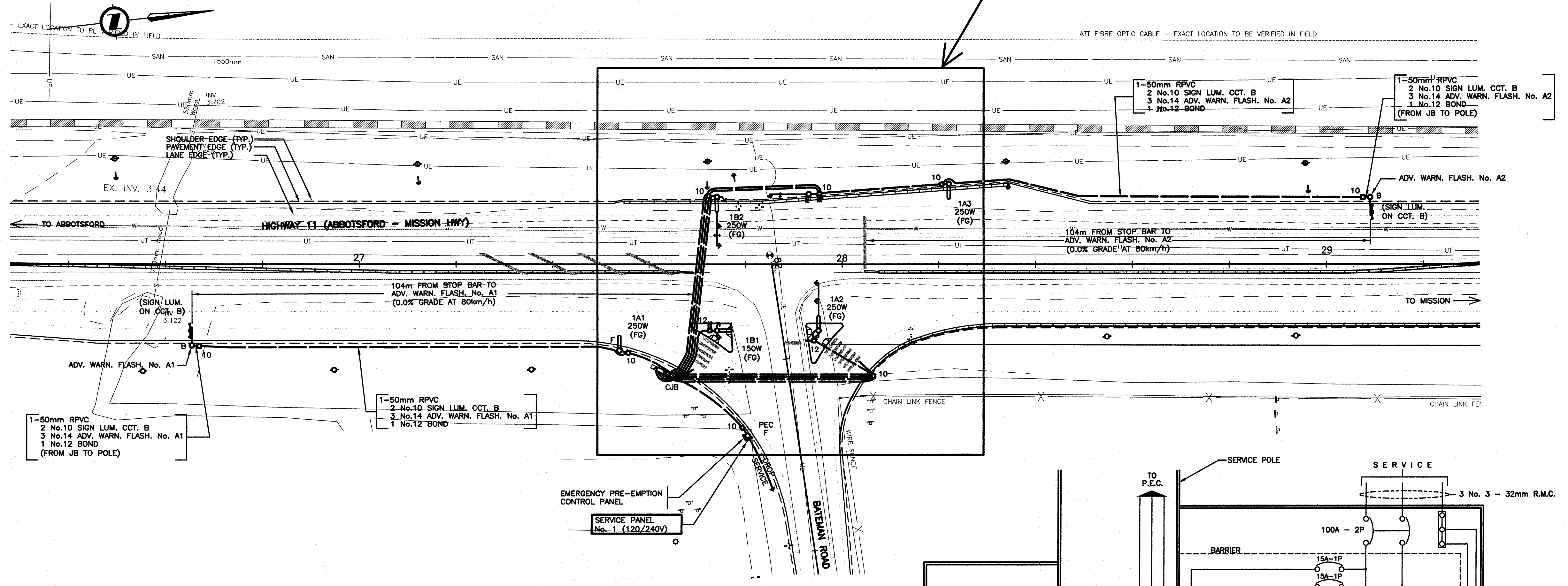
SHEET NUMBER **3 OF 3** SITE CODE **1** HWY DIST **1** REGION **1** DRAWING NUMBER **TE-04003-3**

ESC-406(01)

REFER TO SHEET 2 FOR SIGNAL ENLARGEMENT AND DETAILS
REFER TO SHEET 3 FOR ELEVATIONS

NOTES

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CURRENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND THE ELECTRICAL SPECIAL PROVISIONS ISSUED WITH THIS CONTRACT.
- CONDUCTORS FROM JUNCTION BOX TO LUMINAIRE POLE SHALL BE:
2 No.10 RW90
1 No.12 RW90
50mm RPVC (UNLESS OTHERWISE NOTED)
- ALL CONDUITS FROM JUNCTION BOXES TO BASES ARE TO BE 50mm RPVC.
- JUNCTION BOXES SHALL BE POSITIONED BEHIND OR, AS AN ALTERNATIVE, TO THE SIDE, BUT NOT IN FRONT OF POLES.
- EACH SHIELDED CABLE SHALL RUN CONTINUOUS WITH NO SPLICES, FROM THE CONTROLLER TO THE RESPECTIVE LOOP.
- ALL SIGNAL HEAD SECTIONS SHALL BE WIRED SEPARATELY FROM THE HANDHOLE OF THE POLE TO EACH HEAD INCLUDING A SEPARATE NEUTRAL AND BONDING CONDUCTOR FOR EACH HEAD.
- LUMINAIRE NUMBERING EXAMPLE: 1A2
SERVICE No. - 1 CCT. LETTER - A LUM. No. - 2
- WHERE POSSIBLE, POLES SHALL BE POSITIONED WITH THE HANDHOLE IN THE BACK OR IF NOT POSSIBLE, ON THE DOWNSTREAM TRAFFIC SIDE.
- ALL CONCRETE BASES AND JUNCTION BOX SYMBOLS ARE NOT TO SCALE.
- THE CONTRACTOR SHALL NOT PRE-DRILL HOLES IN A SIGNAL POLE UNTIL AFTER THE BASE FOR THAT POLE HAS BEEN INSTALLED. THE CONTRACTOR SHALL ADVISE THE MINISTRY REPRESENTATIVE OF ANY ADJUSTMENTS MADE TO THE BASE LOCATION WHICH WILL EFFECT THE LOCATIONS OF HARDWARE TO BE MOUNTED ON THAT POLE PRIOR TO DRILLING.
- WHERE THREE OR MORE SECONDARY/PEDESTRIAN HEADS ARE BEING MOUNTED ON THE POLE SHAFT, ORIENT THE PEDESTRIAN HEAD MOUNTING BRACKETS WITH THE WIREWAY ON TOP.
- WHERE TWO OR MORE SECONDARY HEADS ARE BEING MOUNTED IN THE SAME SHAFT, ALL SECONDARY HEADS SHALL HAVE TUNNELS.
- ALL NEW JUNCTION BOXES SHALL HAVE STEEL LIDS.
- ALL CONDUCTORS SHALL BE RW90 STRANDED COPPER UNLESS SHOWN OTHERWISE.



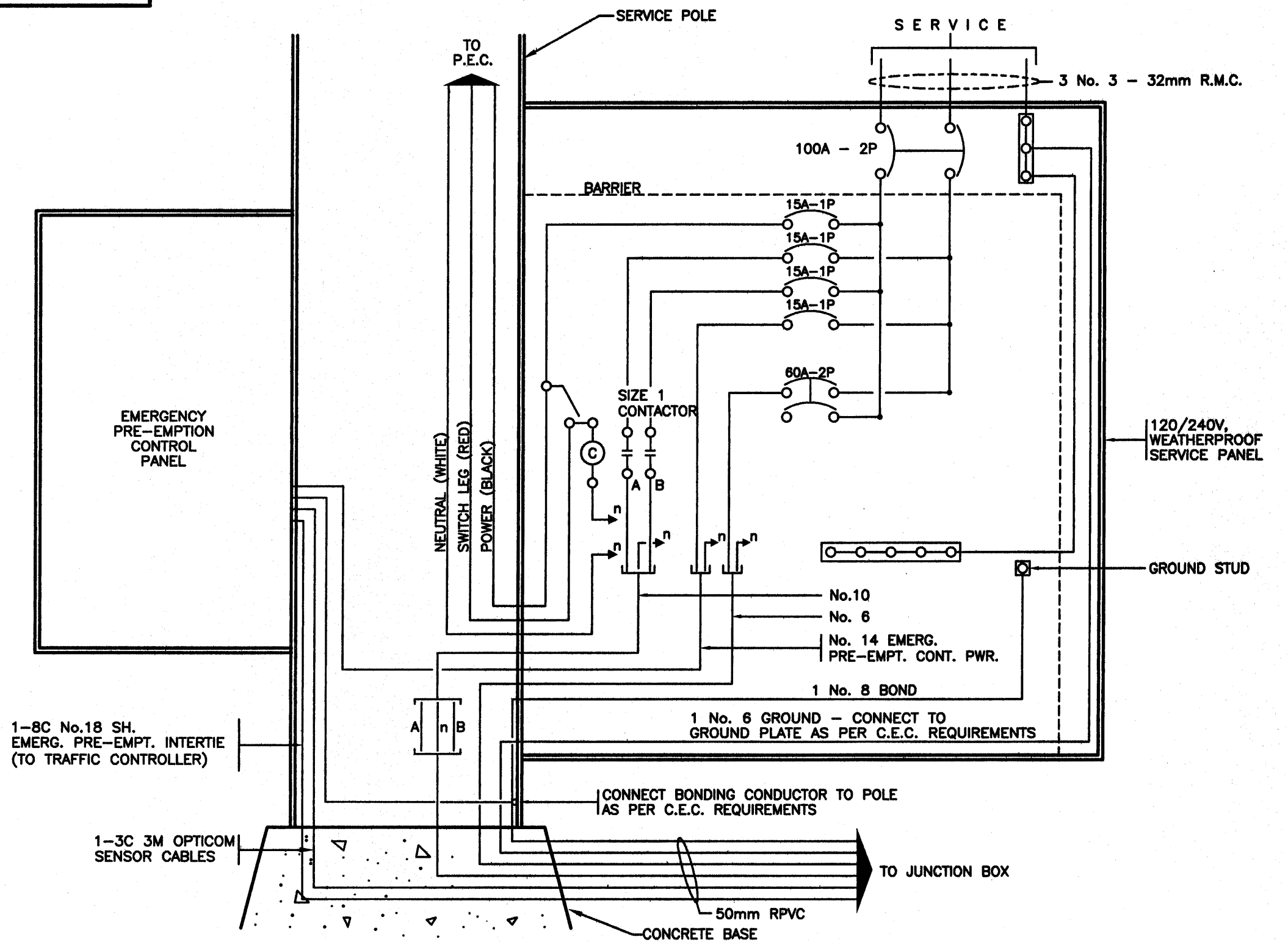
ALL EQUIPMENT IS NEW EXCEPT WHERE NOTED

DO NOT USE THIS DRAWING FOR PAVEMENT MARKINGS

ALL DIMENSIONS ARE IN MILLIMETERS EXCEPT WHERE NOTED

POSTED SPEED LIMIT 80 km/h ON HIGHWAY 11
POSTED SPEED LIMIT 50 km/h ON BATEMAN RD

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" FOR APPLICABLE STANDARD DRAWINGS



WIRING DIAGRAM - SERVICE PANEL No. 1
N.T.S.

LEGEND

	FUTURE CONCRETE BASE AND LUMINAIRE POLE (SINGLE)		PEC PHOTO ELECTRIC CELL		RAISED CURB
	LUMINAIRE POLE (SINGLE) 'F' DENOTES FRANGIBLE BASE		RPVC RIGID P.V.C. CONDUIT		PROPERTY LINE
	LUMINAIRE POLE (DOUBLE)		R.C. RIGID STEEL CONDUIT		EDGE OF GRAVEL SHOULDER
	PRIVATE LUMINAIRE (BASE VARIABLE)		F.C. FLEXIBLE CONDUIT (LIQUID TIGHT)		EDGE OF PAVEMENT
	POST TOP MOUNTED LUMINAIRE		OVERHEAD FLASHING BEACON		PAINT LINE
	WALL MOUNTED LUMINAIRE		POST MOUNTED FLASHER		FUTURE ELECTRICAL AND GEOMETRICS
	JUNCTION BOX - No. DENOTES TYPE		BACKGUY		ELECTRICAL EQUIPMENT TO BE REMOVED
	CONCRETE JUNCTION BOX OR VAULT		POWER POLE		PROPOSED UNDERGROUND CONDUIT
	SIGNAL POLE WITH SIGNAL HEAD MOUNTED ON SIDE		TELEPHONE POLE		EXISTING UNDERGROUND CONDUIT
	COMBINATION LUMINAIRE/TRAFFIC SIGNAL POLE		POWER/TELEPHONE POLE		FENCE
	ILLUMINATED SIGN WITH AMBER FLASHERS		SIGNAL HEAD VEHICLE PHASE A,B,A1,A2(T)		CORRUGATED METAL PIPE (CULVERT)
	COMBINATION LUMINAIRE/ILLUMINATED SIGN WITH AMBER FLASHERS		SIGNAL HEAD PEDESTRIAN PHASE PA,PB,PA1,PB2		U/G UTILITY:
	SIGN POLE (NON-ILLUMINATED)		PEDESTRIAN PUSHBUTTON		'G' DENOTES GAS
	ILLUMINATED SIGN POLE				'S' DENOTES STORM DRAINS/SEWERS
	COMBINATION LUMINAIRE/NON-ILLUMINATED SIGN				'W' DENOTES WATER
	COMBINATION LUMINAIRE/ILLUMINATED SIGN				'E' DENOTES ELECTRIC
					'T' DENOTES TELEPHONE
					'SAN' DENOTES SANITARY SEWER
					TEST SWITCH
					BREAKER
					NEUTRAL BAR
					DIAMOND DETECTOR LOOP (WITH LOOP LEADER)
					PRE-FORMED DETECTOR LOOP
					ROUND DETECTOR LOOP
					RECTANGULAR COUNT LOOP
					QUADRUPOLE DETECTOR LOOP

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DMD PROJECT No. 802-03-12 of 17

DESIGNED BY SJC DATE NOV/04 CHECKED BY DJW DATE OCT/05

M.O.T. ELECTRICAL DESIGN REVIEW *JSK* DATE Feb 24/06

REV	DATE	DESCRIPTION	DRAWN
APR/04		NEW TE DRAWING SERIES; NEW STREET LIGHTING ALONG HIGHWAY 11	JDM
A	NOV/04	COMPLETE RE-DESIGN FOR FULL INTERSECTION SIGNALIZATION	RF

MINISTRY OF TRANSPORTATION
ELECTRICAL ENGINEERING CENTRE

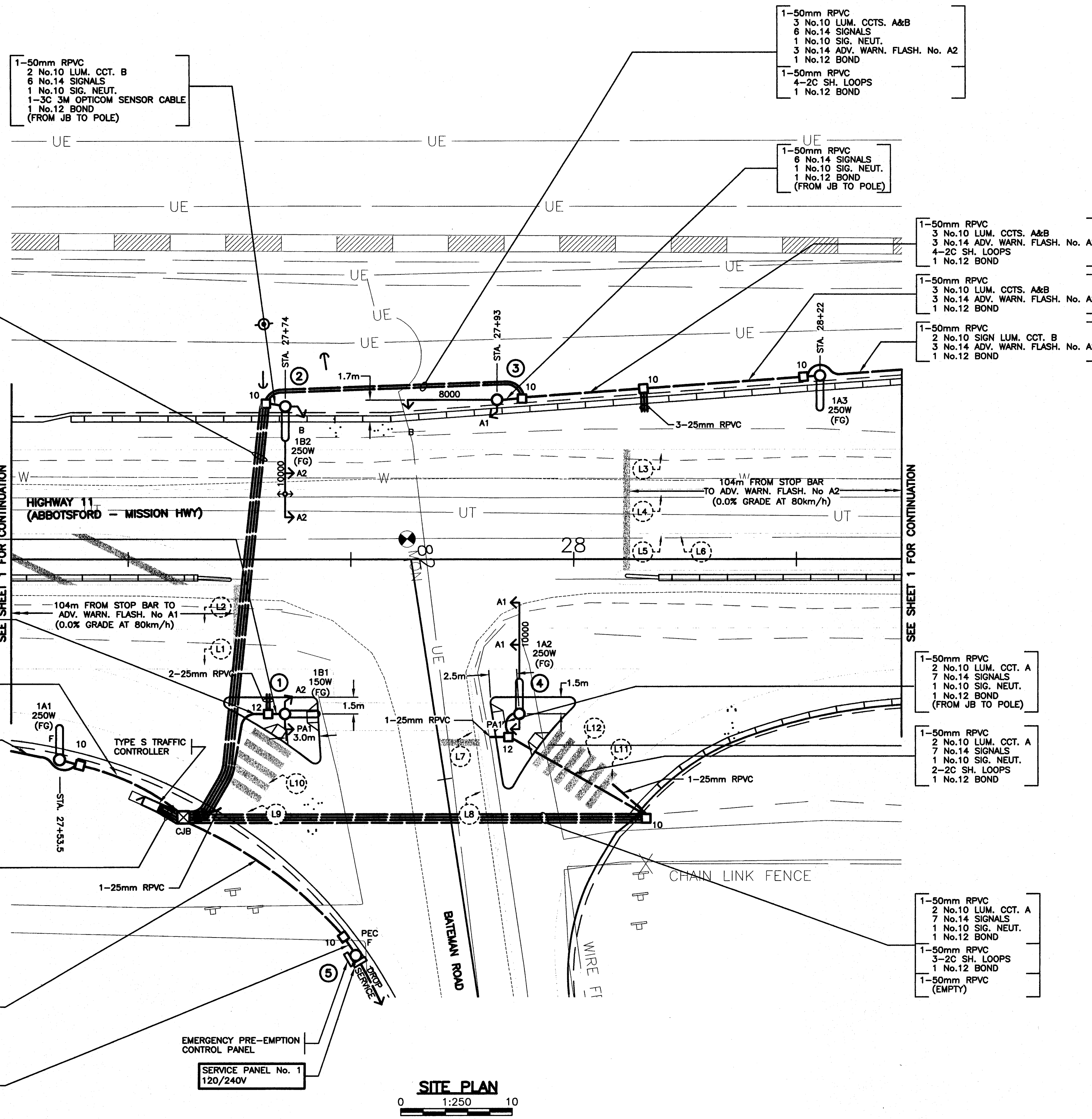
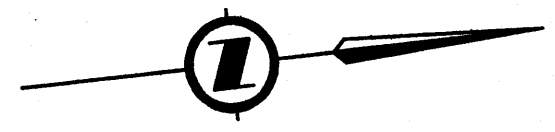
SIGNAL AND LIGHTING INSTALLATION
HIGHWAY 11 (ABBOTSFORD - MISSION HWY) AT BATEMAN ROAD
ABBOTSFORD

SITE PLAN - ELEVATION - WIRING DIAGRAM - NOTES
ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)

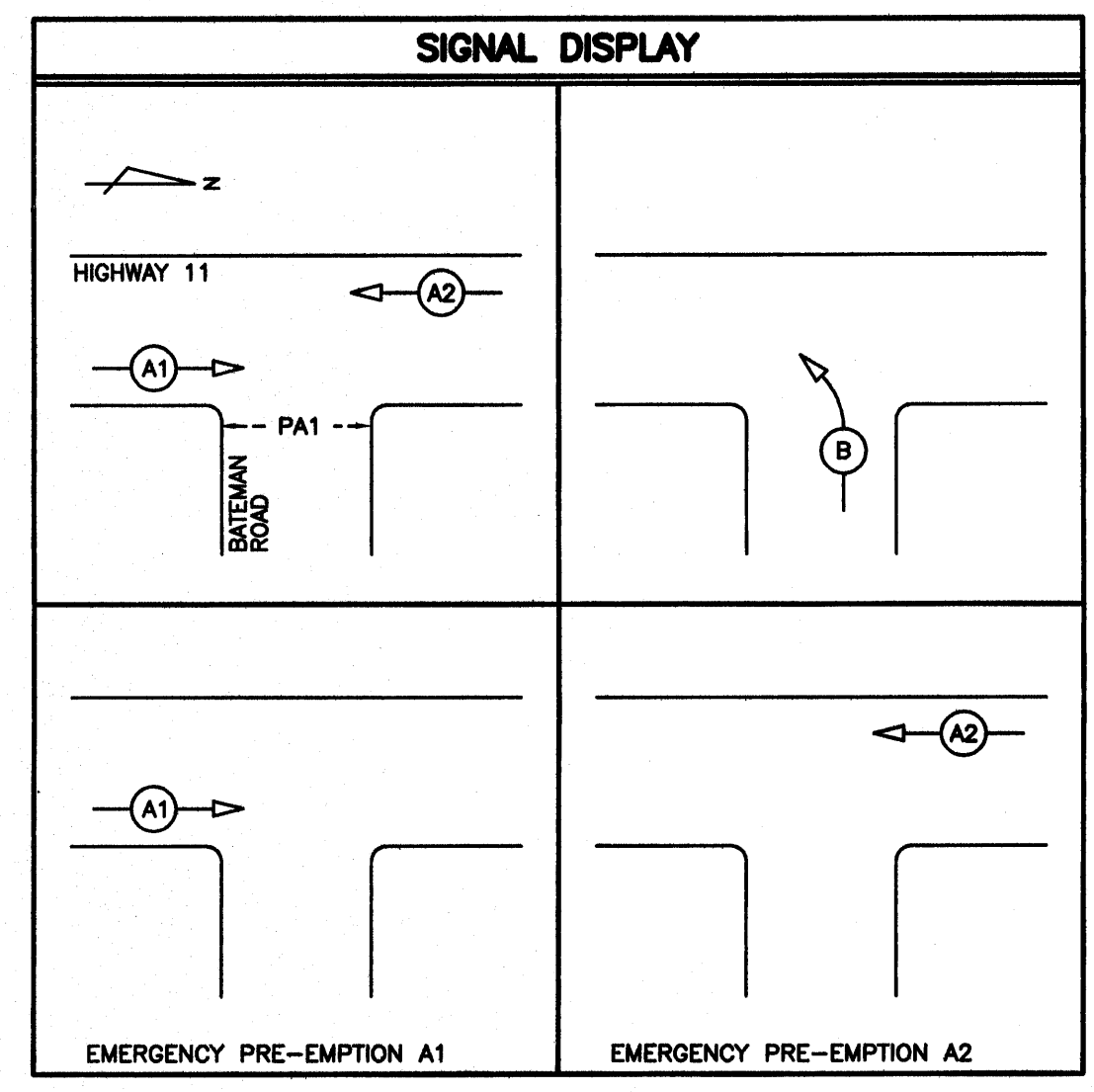
D. J. Wong
DATE JAN 24 2006

SHEET NUMBER	SITE CODE	HWY DIST	REGION	DRAWING NUMBER
SHEET 1 OF 3		1	1	TE-04004-1

SEL-06/01



- 1-50mm RPVC
3 No.10 LUM. CCTS. A&B
6 No.14 SIGNALS
1 No.10 SIG. NEUT.
3 No.14 ADV. WARN. FLASH. No. A2
1 No.12 BOND
- 1-50mm RPVC
4-2C SH. LOOPS
1 No.12 BOND
- 1-50mm RPVC
1-3C 3M OPTICOM SENSOR CABLE
1 No.12 BOND
- 1-50mm RPVC (EMPTY)
- 1-50mm RPVC
2 No.10 LUM. CCT. B
7 No.14 SIGNALS
1 No.10 SIG. NEUT.
1 No.12 BOND (FROM JB TO POLE)
- 1-50mm RPVC
2 No.10 LUM. CCT. B
7 No.14 SIGNALS
1 No.10 SIG. NEUT.
2-2C SH. LOOPS
1 No.12 BOND
- 1-50mm RPVC
2 No.10 LUM. CCT. B
7 No.14 SIGNALS
1 No.10 SIG. NEUT.
2-2C SH. LOOPS
1 No.12 BOND
- 1-50mm RPVC
2 No.6 CONT. PWR.
1 No.8 BOND
- 1-50mm RPVC
13 No.14 SIGNALS
1 No.10 SIG. NEUT.
3 No.14 ADV. WARN. FLASH. No. A1
3 No.14 ADV. WARN. FLASH. No. A2
1 No.12 BOND
- 1-50mm RPVC
10-2C SH. LOOPS
1 No.12 BOND
- 1-50mm RPVC
1-8C No.18 SH. EMERG. PRE-EMPT. INTERTIE
1 No.12 BOND
- 1-50mm RPVC (EMPTY)
- 1-50mm RPVC
2 No.6 CONT. PWR.
3 No.10 LUM. CCTS. A&B
1-3C 3M OPTICOM SENSOR CABLE
1-8C No.18 SH. EMERG. PRE-EMPT. INTERTIE
1 No.8 BOND
- 1-50mm RPVC
2 No.6 CONT. PWR.
3 No.10 LUM. CCTS. A&B
1-3C 3M OPTICOM SENSOR CABLE
1-8C No.18 SH. EMERG. PRE-EMPT. INTERTIE
1 No.8 BOND (FROM JB TO POLE)



CONDUCTOR COLOUR CODE		
ITEM	SIGNAL SECTION	CONDUCTOR COLOUR
A1	RED	RED
	YELLOW	YELLOW
	GREEN	BLUE
A2	RED	RED
	YELLOW	YELLOW (RED T.T.)
B	RED	RED
	BROWN	BLUE (WHITE T.T.)
PA1	DON'T WALK	YELLOW
	WALK PUSH BUTTON	BLUE
CONTROLLER POWER		PURPLE/PURPLE (YELLOW T.T.)
LUMINAIRE CCT. A		BLACK
LUMINAIRE CCT. B		RED
NEUTRAL		BLACK
GROUND/BOND		WHITE
ADVANCE WARNING FLASHER No. A1		GREEN
ADVANCE WARNING FLASHER No. A2		YELLOW
		BROWN
		YELLOW (RED T.T.)
		BROWN

NOTE: T.T. DENOTES TAPE TRACER.

EMERGENCY PRE-EMPTION CONDUCTOR LABELLING			
ITEM	LABEL	COLOUR	CONDUCTOR TYPE
EMERG. PRE-EMPT. INTERTIE #A1	PE-A1-INT	N/A	BELDEN 9388
EMERG. PRE-EMPT. INTERTIE #A2	PE-A2-INT	N/A	

REFER TO SP635-2.5.7 FOR NOTES ON CONDUCTOR LABELLING.

REFER TO SHEET 1 FOR NOTES

DO NOT USE THIS DRAWING FOR PAVEMENT MARKINGS

ALL DIMENSIONS ARE IN MILLIMETERS EXCEPT WHERE NOTED

POSTED SPEED LIMIT 80 km/h ON HIGHWAY 11
POSTED SPEED LIMIT 50 km/h ON BATEMAN RD

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" FOR APPLICABLE STANDARD DRAWINGS

ALL EQUIPMENT IS NEW EXCEPT WHERE NOTED

DETECTOR LOOP TABLE						
LOOP No.	LOOP		INDUCTANCE		PHASE	
	SIZE	TURNS	LOOP (µh)	LEAD (µh) TOTAL (µh)		
L 1	1.8m DIA.	4	95	10	105	A1
L 2	1.8m DIA.	4	95	10	105	A1
L 3	1.8m DIA.	4	95	40	135	A2
L 4	1.8m DIA.	4	95	40	135	A2
L 5	1.8m DIA.	4	95	40	135	A2
L 6	1.8m DIA.	4	95	40	135	A2
L 7	1.8m DIA.	4	95	35	130	B
L 8	1.8m DIA.	4	95	35	130	B
L 9	1.8m DIA.	4	95			COUNT
L 10	1.8m DIA.	4	95	6	196	COUNT
L 11	1.8m DIA.	4	95			COUNT
L 12	1.8m DIA.	4	95	26	216	COUNT

ILLUMINANCE DESIGN CRITERIA		
ITEM	DESIGN REQUIREMENTS	DESIGN ACHIEVED
STREET NAME(S)	HIGHWAY 11 / BATEMAN ROAD INTERSECTION	
PEDESTRIAN CONFLICT AREA	LOW	
INTERSECTION CLASSIFICATION	MAJOR / LOCAL	
ILLUMINATION TYPE	250W (11.0m POLE) & 150W (9.0m POLE)	
ILLUMINATION LEVEL (AVG.)	13.0 LUX	23.2 LUX
UNIFORMITY RATIO (AVG.:MIN.)	3.0:1	3.0:1

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DMD PROJECT No. 802-03-13 of 17

DESIGNED BY SJC DATE NOV/04 CHECKED BY DJW DATE OCT/05
M.O.T. ELECTRICAL DESIGN REVIEW JSB DATE FEB 24 2006

REV	DATE	DESCRIPTION	DRAWN
A	NOV/04	COMPLETE RE-DESIGN FOR FULL INTERSECTION SIGNALIZATION	RF

MINISTRY OF TRANSPORTATION
ELECTRICAL ENGINEERING CENTRE

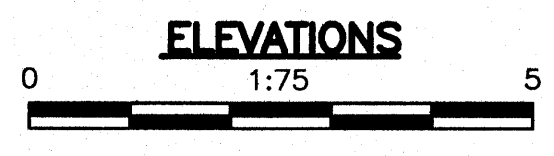
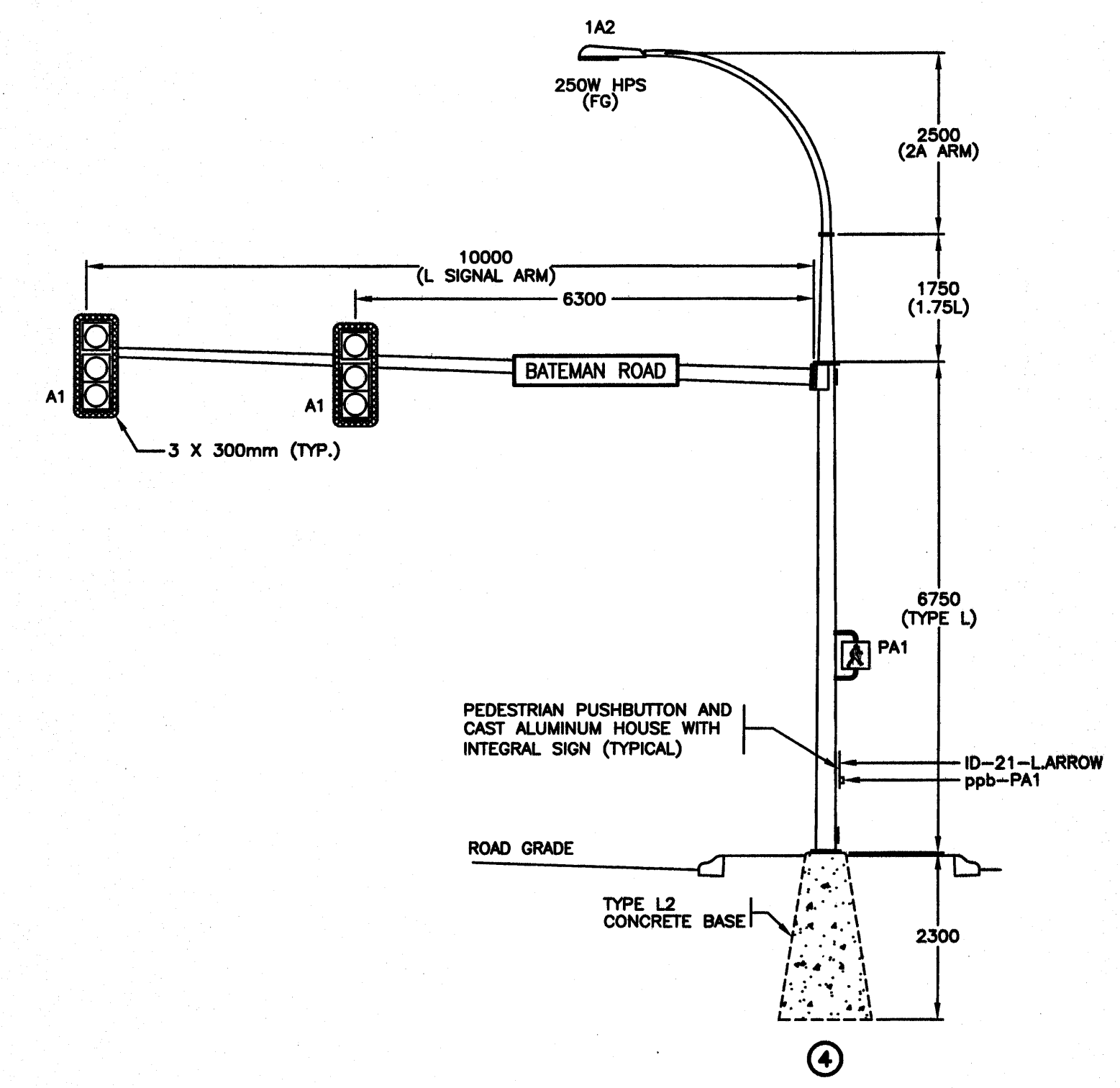
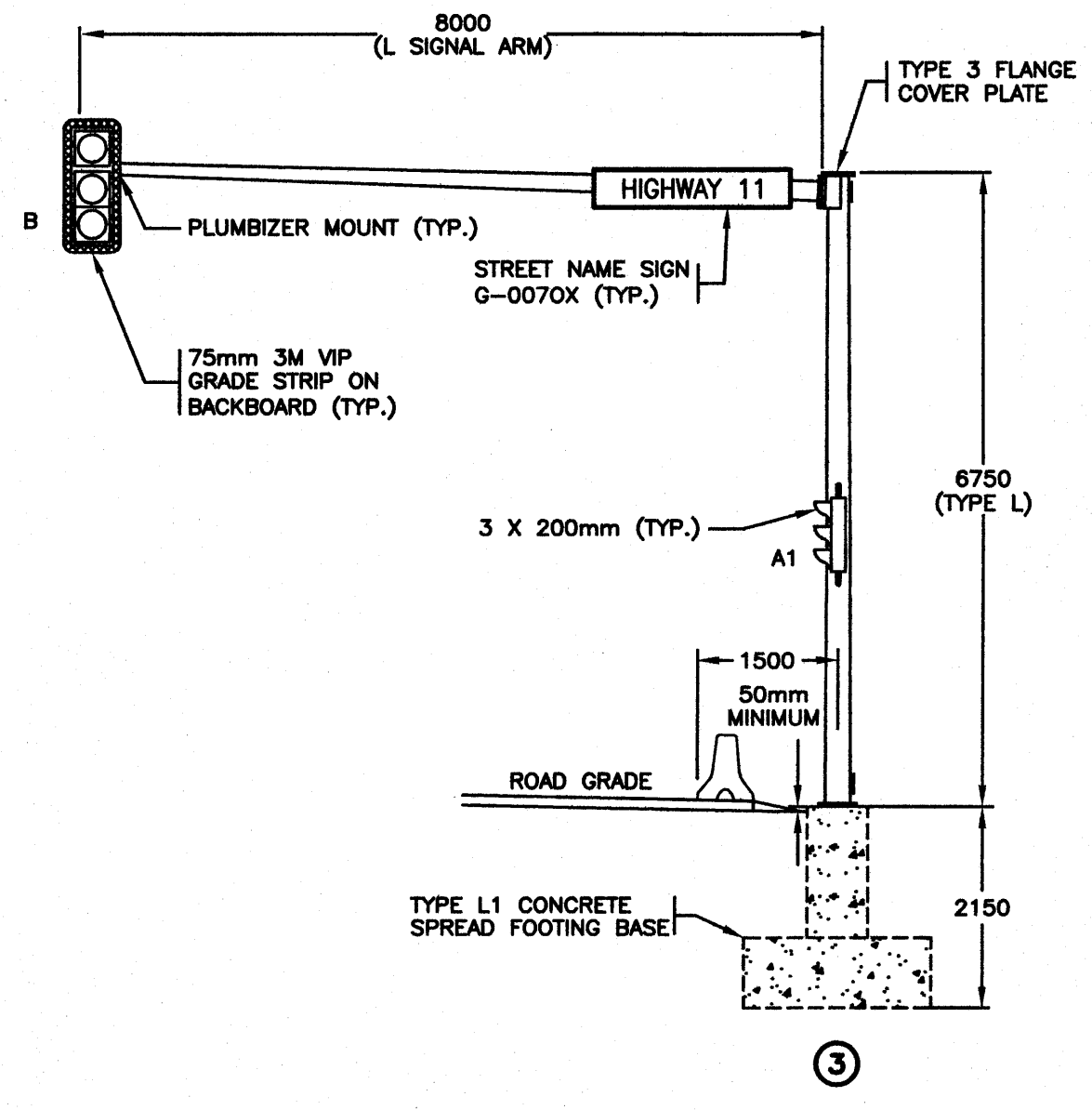
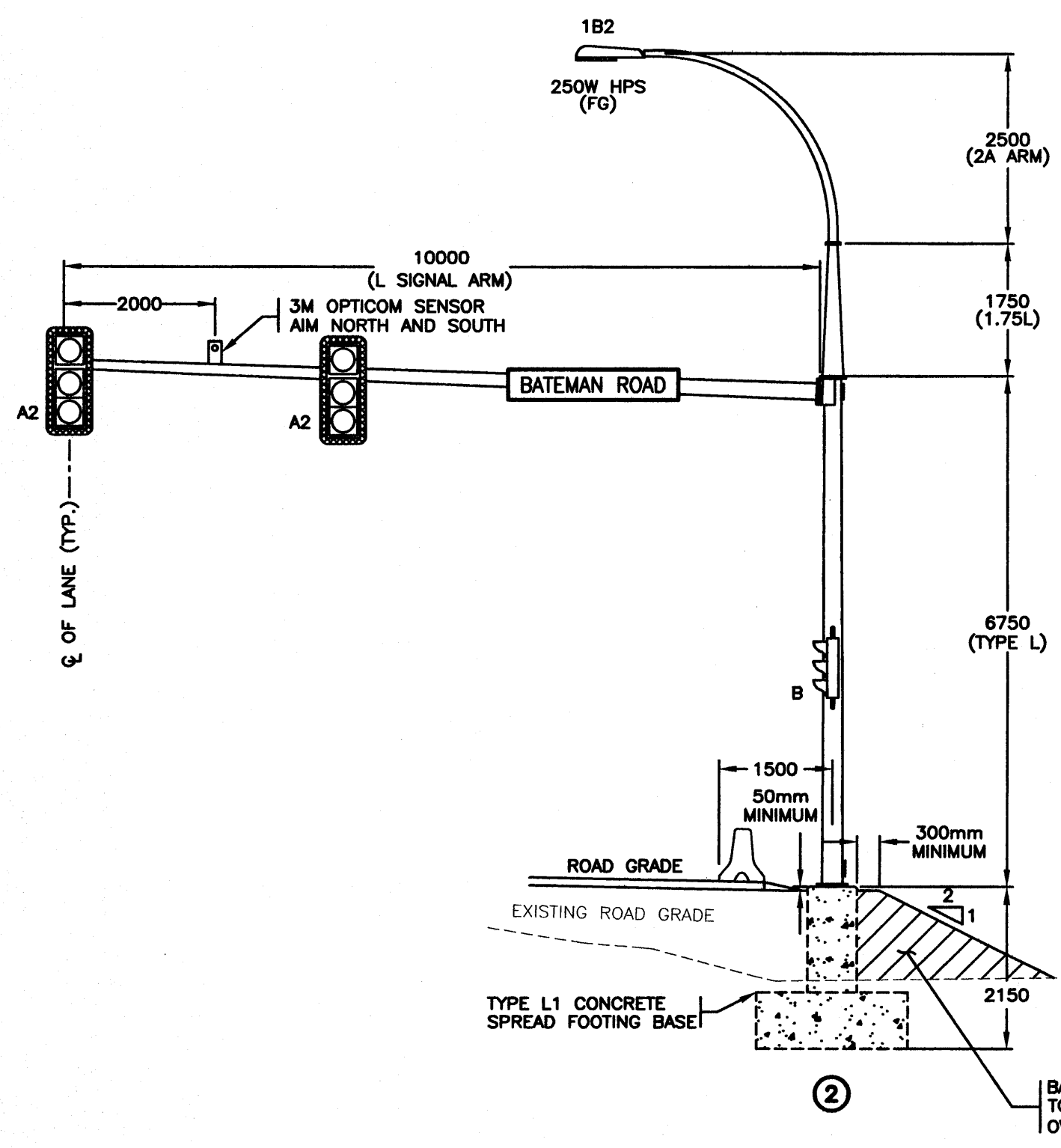
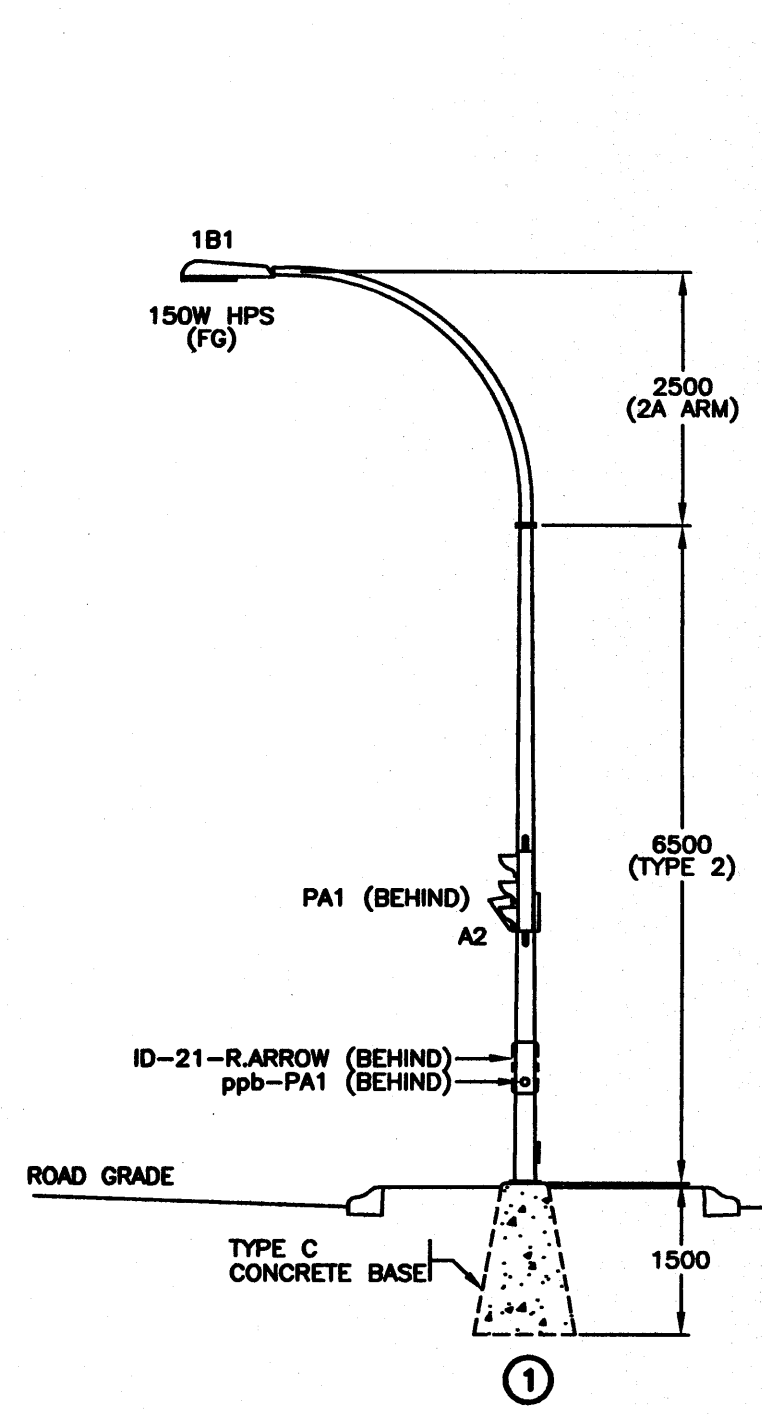
SIGNAL AND LIGHTING INSTALLATION
HIGHWAY 11 (ABBOTSFORD - MISSION HWY) AT BATEMAN ROAD
ABBOTSFORD

SITE PLAN ENLARGEMENT - SIGNAL DISPLAY - DETAILS
ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)

[Signature] DATE **JAN 24 2006**
D. J. WONG

SHEET 2 OF 3	SITE CODE	HWY DIST 1	REGION 1	DRAWING NUMBER TE-04004-2
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REC. 406/01

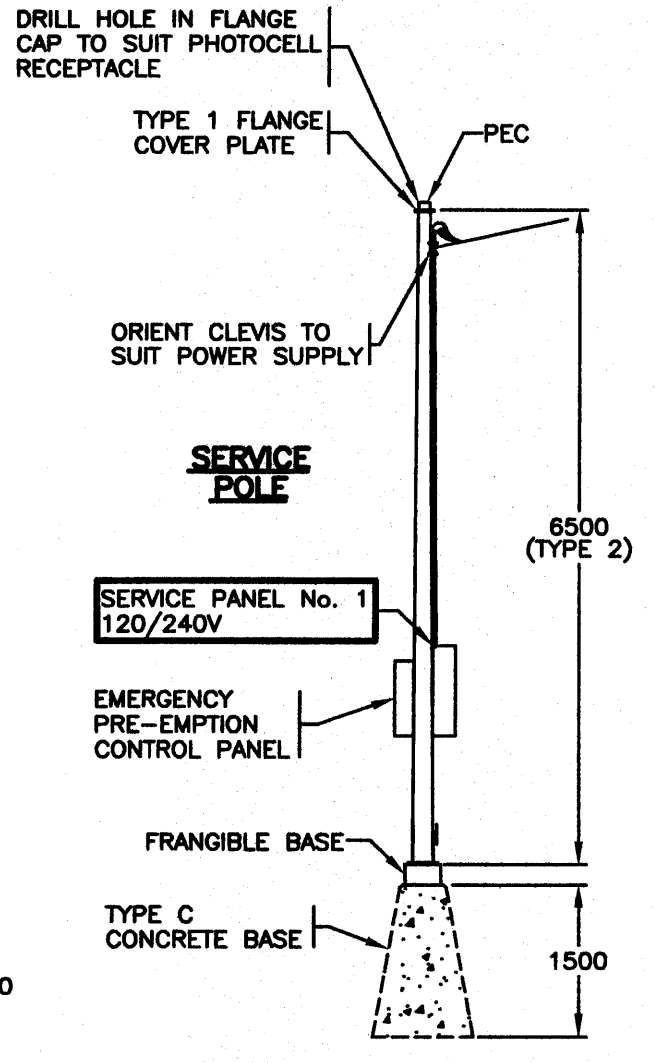
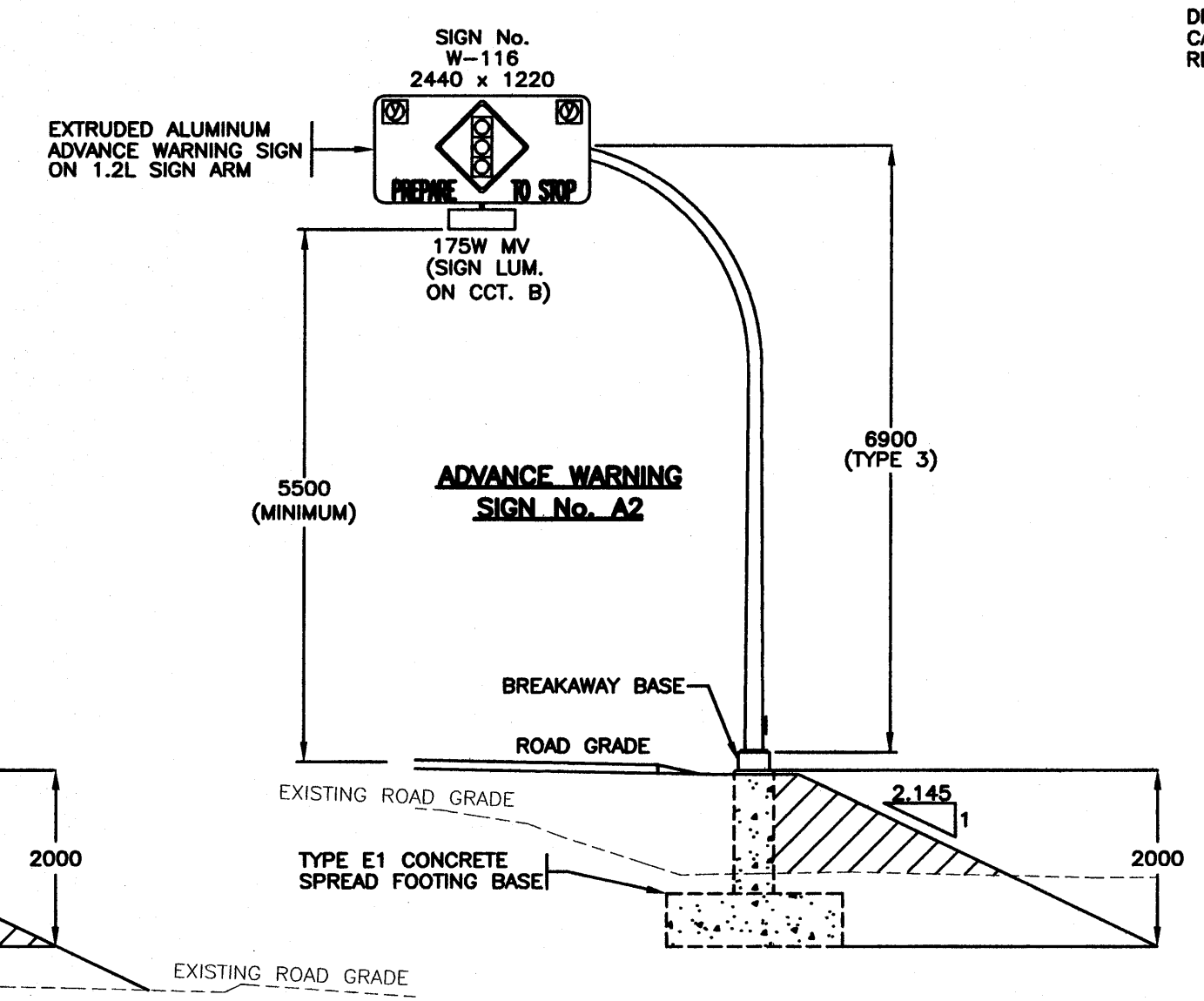
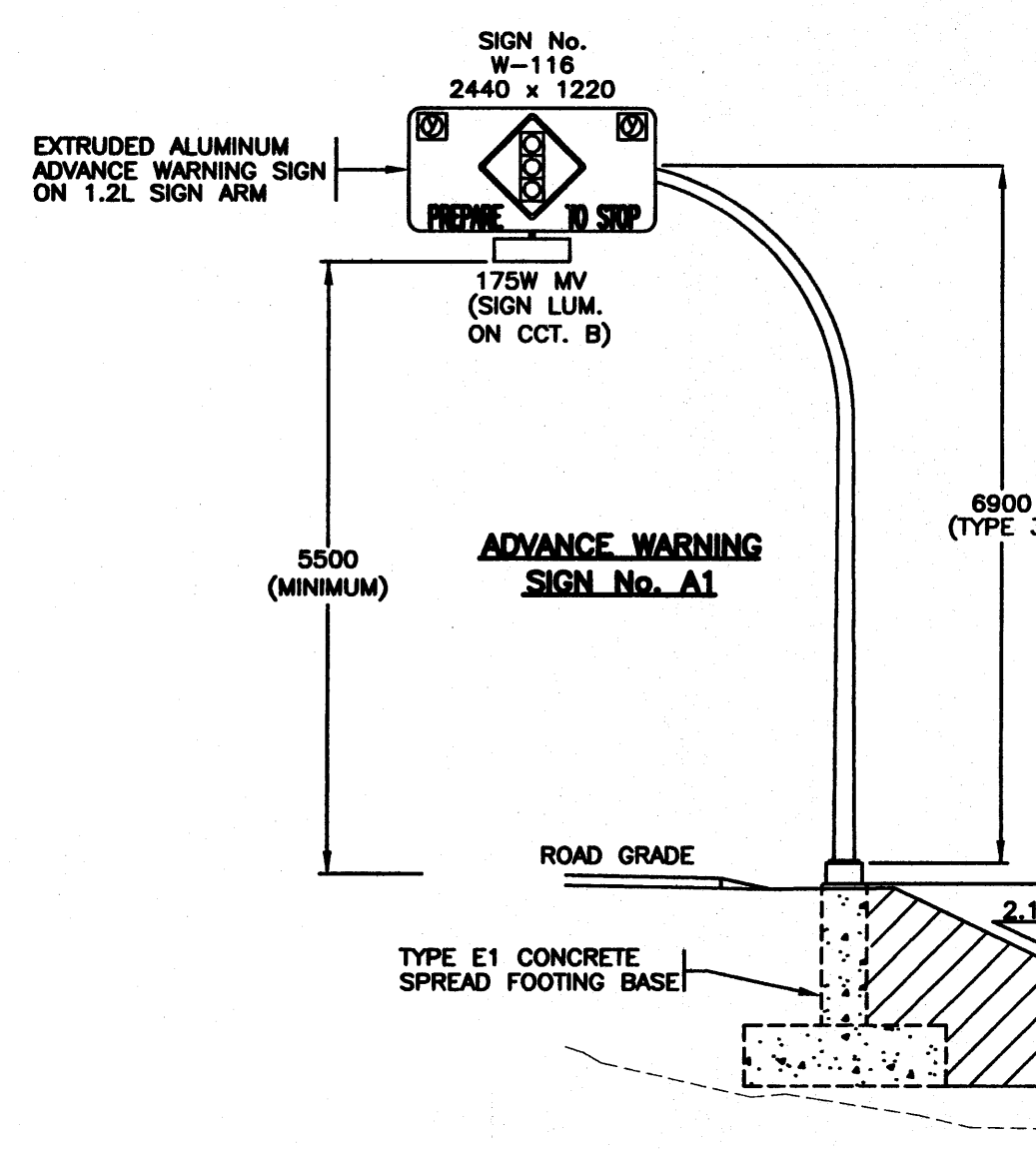


ALL EQUIPMENT IS NEW
EXCEPT WHERE NOTED

ALL SIGNAL, PEDESTRIAN
AND ADV. WARN. FLASHER
DISPLAYS SHALL BE LED

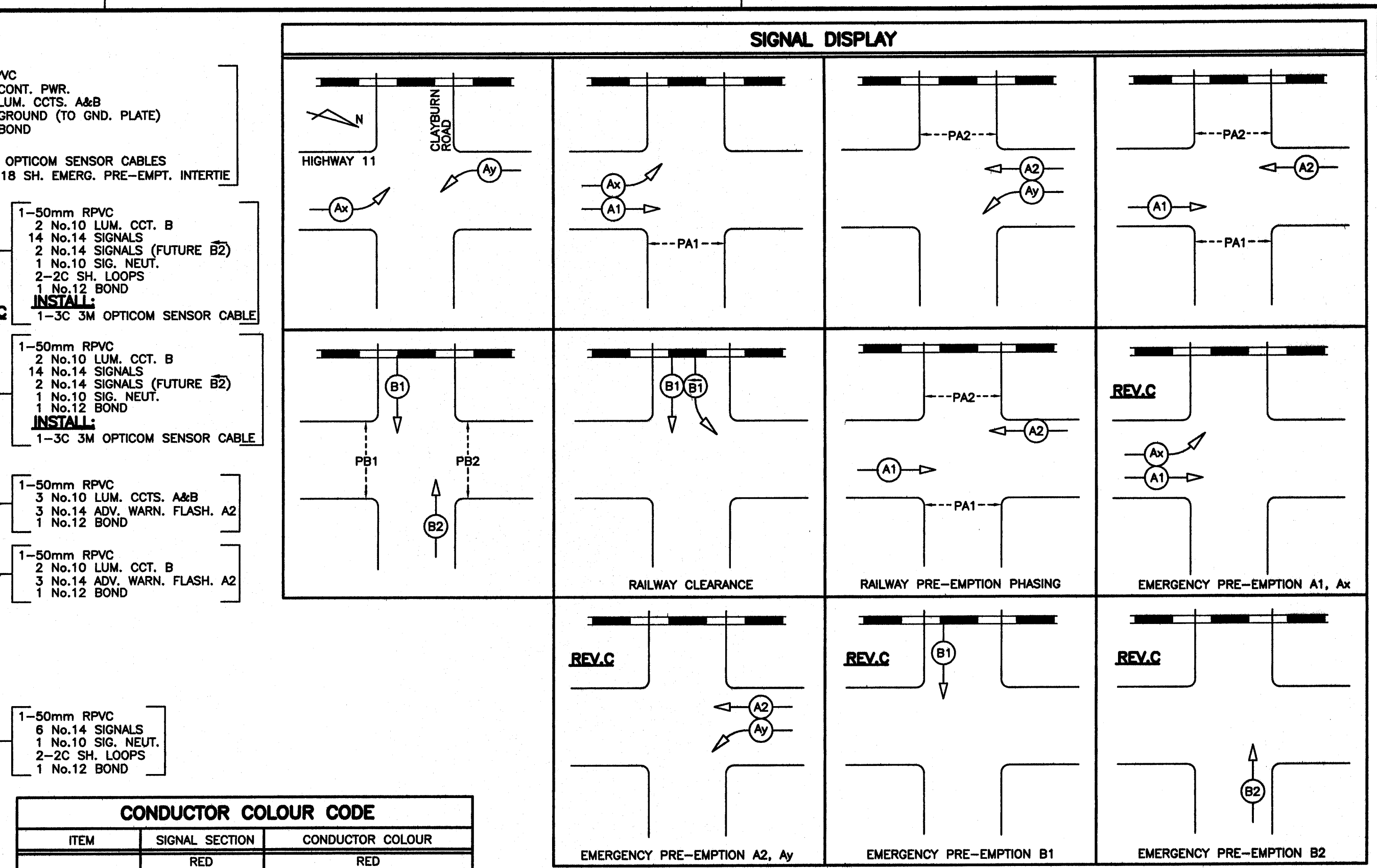
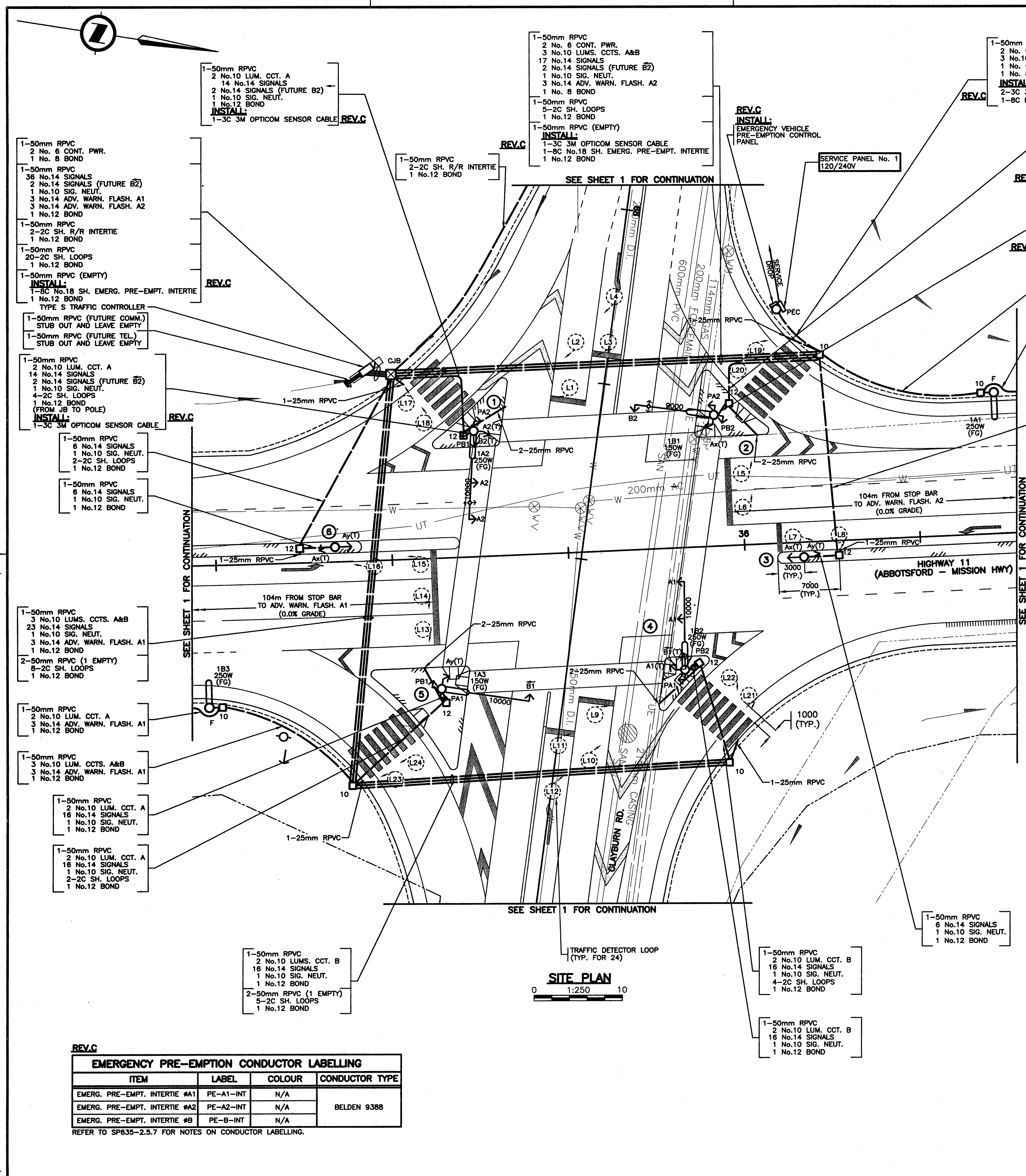
ALL DIMENSIONS ARE IN MILLIMETERS
EXCEPT WHERE NOTED

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION"
FOR APPLICABLE STANDARD DRAWINGS



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ELEVATIONS ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)	
DATE <u>JAN 24 2006</u>	
SHEET 3 OF 3	SITE CODE 1 HWY DIST 1 REGION 1 DRAWING NUMBER TE-04004-3

BB-408(01)



CONDUCTOR COLOUR CODE

ITEM	SIGNAL SECTION	CONDUCTOR COLOUR
A1	RED YELLOW GREEN	RED YELLOW BLUE
Ax	RED YELLOW GREEN ARROW	RED (BLUE T.T.) YELLOW BLUE (WHITE T.T.)
A2	RED YELLOW GREEN	RED YELLOW (RED T.T.) BLUE
Ay	RED YELLOW GREEN ARROW	RED (BLUE T.T.) YELLOW (RED T.T.) BLUE (WHITE T.T.)
B1	RED YELLOW GREEN YELLOW ARROW GREEN ARROW	RED BROWN BLUE ORANGE (WHITE T.T.) BLUE (WHITE T.T.)
B2	RED YELLOW GREEN YELLOW ARROW GREEN ARROW	RED BROWN (ORANGE T.T.) BLUE ORANGE (WHITE T.T.) BLUE (WHITE T.T.)
PA1	DON'T WALK WALK PUSH BUTTON	YELLOW BLUE PURPLE/PURPLE (YELLOW T.T.)
PA2	DON'T WALK WALK PUSH BUTTON	YELLOW (RED T.T.) BLUE PURPLE/PURPLE (RED T.T.)
PB1	DON'T WALK WALK PUSH BUTTON	BROWN BLUE PURPLE/PURPLE (BROWN T.T.)
PB2	DON'T WALK WALK PUSH BUTTON	BROWN (ORANGE T.T.) BLUE PURPLE/PURPLE (ORANGE T.T.)
CONTROLLER POWER		BLACK
LUMINAIRE CCT. A		RED
LUMINAIRE CCT. B		BLACK
NEUTRAL		WHITE
GROUND/BOND		GREEN
ADVANCE WARNING FLASHER A1		YELLOW BROWN
ADVANCE WARNING FLASHER A2		YELLOW (RED T.T.) BROWN

NOTE: T.T. DENOTES TAPE TRACER.

REV.C

ALL EQUIPMENT IS EXISTING
EXCEPT WHERE NOTED

FOR MINISTRY USE ONLY
THIS DRAWING SERIES SUPERSEDES
DRAWING SERIES TE-91082

REFER TO SHEET 1 FOR NOTES

DO NOT USE THIS DRAWING FOR
PAVEMENT MARKINGS

ALL DIMENSIONS ARE IN MILLIMETERS
EXCEPT WHERE NOTED

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION"
FOR APPLICABLE STANDARD DRAWINGS

SITE PLAN
0 1:250 10

EMERGENCY PRE-EMPTION CONDUCTOR LABELLING

ITEM	LABEL	COLOUR	CONDUCTOR TYPE
EMERG. PRE-EMPT. INTERTIE #A1	PE-A1-INT	N/A	BELDEN 9388
EMERG. PRE-EMPT. INTERTIE #A2	PE-A2-INT	N/A	
EMERG. PRE-EMPT. INTERTIE #B	PE-B-INT	N/A	

REFER TO SP635-2.5.7 FOR NOTES ON CONDUCTOR LABELLING.

DMD & ASSOCIATES LTD.
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DMD DRAWING No. 802-03-16 of 17

DESIGNED BY DSM DATE APRIL/04 CHECKED BY DJW DATE OCT/05
M.O.T. ELECTRICAL DESIGN REVIEW JSH DATE Feb 24/06

REVISIONS

REV	DATE	DESCRIPTION	DRAWN
MAR/02		DRAWING ISSUED	JDM
A	JUL/03	ISSUED FOR TENDER	JDM
B	FEB/04	GEOMETRICS UPDATED; RAILWAY INTERCONNECT CONDUIT RUN REVISED; ADDITION OF MEDIAN SIGNAL POSTS FOR PHASES Ax & Ay; FIBRE OPTIC "NO LEFT TURN" SIGN OMITTED; DRAWING RE-ISSUED	JDM
C	DEC/04	EMERG. PRE-EMPTION ADDED	SJC

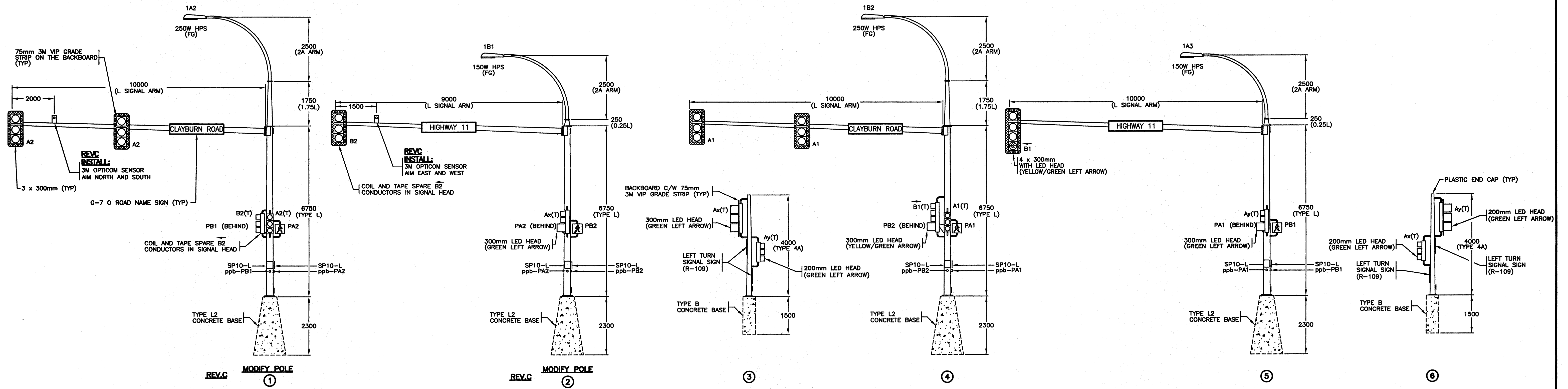
**MINISTRY OF TRANSPORTATION
ELECTRICAL ENGINEERING CENTRE**

**SIGNAL AND LIGHTING INSTALLATION
HIGHWAY 11 (ABBOTSFORD - MISSION HWY) AT CLAYBURN ROAD
ABBOTSFORD**

SITE PLAN ENLARGEMENT - SIGNAL DISPLAY - COLOUR CODE
ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)

[Signature] DATE JAN 24 2006

SHEET NUMBER	SITE CODE	HWY DIST	REGION	DRAWING NUMBER
SHEET 2 OF 3	069	1	1	TE-02020-2



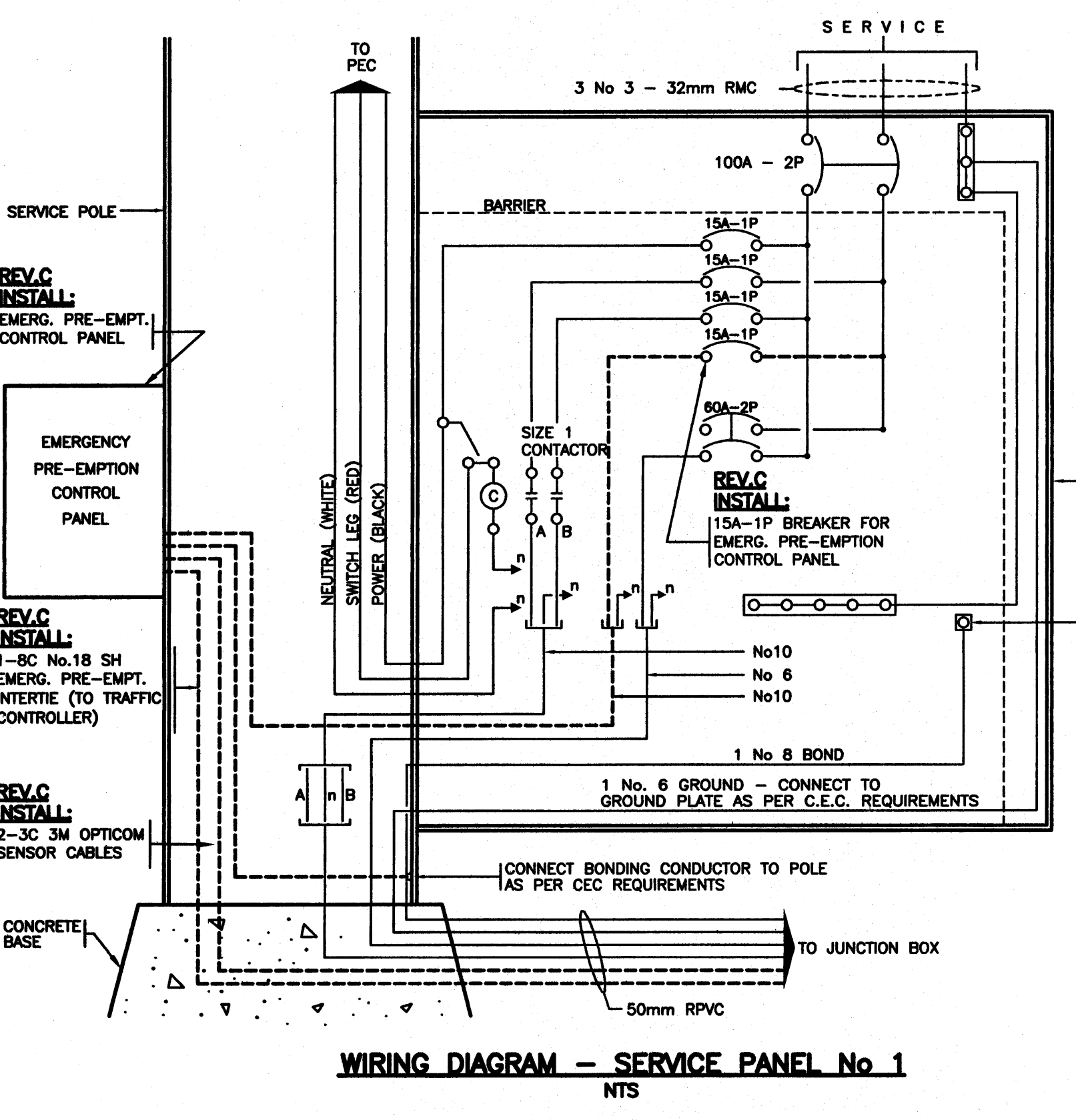
ELEVATIONS
0 1:75 5

REV.C
ALL EQUIPMENT IS EXISTING EXCEPT WHERE NOTED

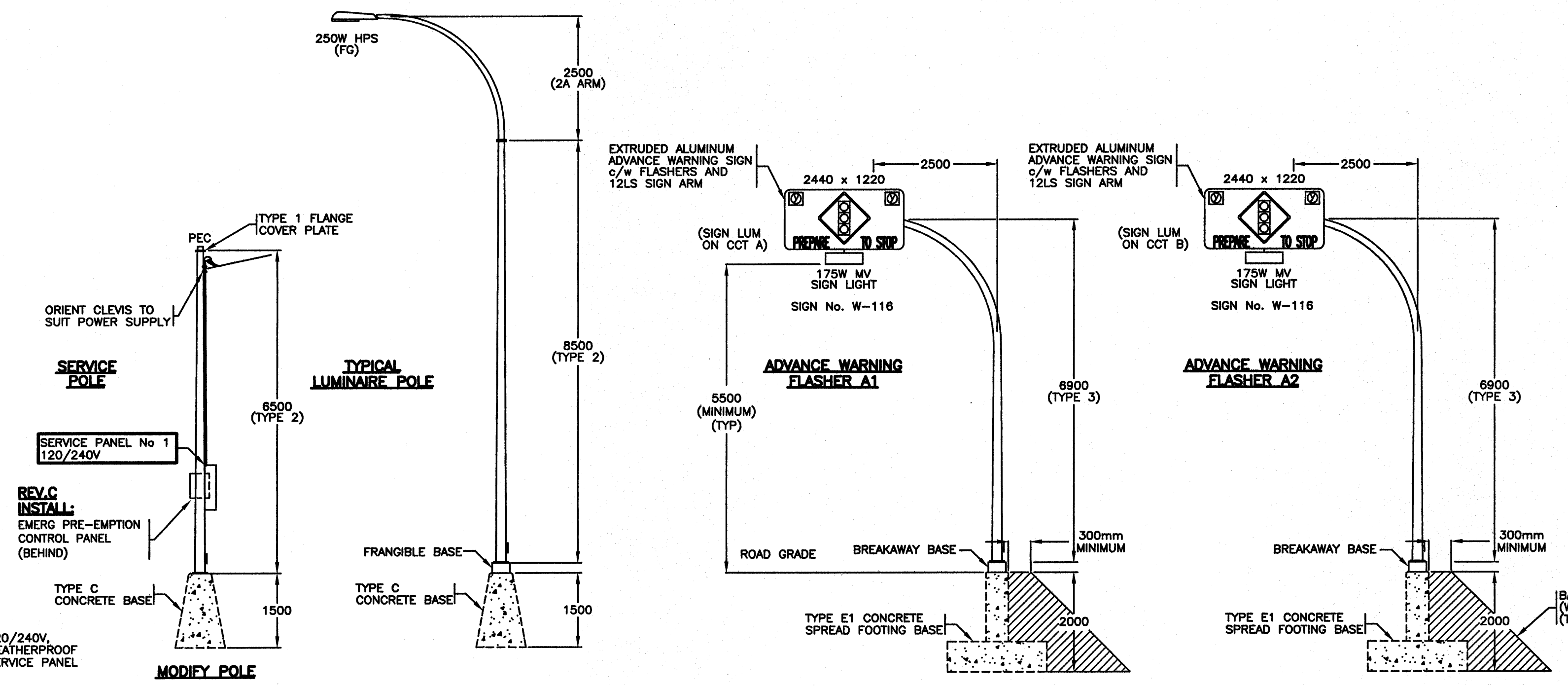
DETECTOR LOOP TABLE						
LOOP			INDUCTANCE		PHASE	
LOOP No	SIZE	TURNS	LOOP (μh)	LEAD (μh)		TOTAL (μh)
L 1	18m DIA	4	95	11	106	B1
L 2	18m DIA	4	95	11	106	B1
L 3	18m DIA	4	95	11	106	B1
L 4	18m DIA	4	95	11	106	B1
L 5	18m DIA	4	95	42	137	A2
L 6	18m DIA	4	95	42	137	A2
L 7	18m DIA	4	95	46	141	Ay
L 8	18m DIA	4	95	46	141	Ay
L 9	18m DIA	5	140	63	203	B2
L 10	18m DIA	5	140	63	203	B2
L 11	18m DIA	5	140	63	203	B2
L 12	18m DIA	5	140	63	203	B2
L 13	18m DIA	4	95	39	134	A1
L 14	18m DIA	4	95	39	134	A1
L 15	18m DIA	4	95	17	112	Ax
L 16	18m DIA	4	95	17	112	Ax
L 17	18m DIA	4	95			
L 18	18m DIA	4	95	3	193	COUNT
L 19	18m DIA	4	95			
L 20	18m DIA	4	95	33	223	COUNT
L 21	18m DIA	4	95			
L 22	18m DIA	4	95	56	246	COUNT
L 23	18m DIA	4	95			
L 24	18m DIA	4	95	31	221	COUNT

ALL DIMENSIONS ARE IN MILLIMETERS EXCEPT WHERE NOTED

SEE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" FOR APPLICABLE STANDARD DRAWINGS



WIRING DIAGRAM - SERVICE PANEL No. 1
NTS



ELEVATIONS
0 1:75 5

REV.C
NOTE: EQUIPMENT SHOWN: TO BE ADDED

ALL SIGNAL, PEDESTRIAN AND ADV WARM FLASHER DISPLAYS SHALL BE LED

REFER TO SHEET 1 FOR NOTES
FOR MINISTRY USE ONLY
THIS DRAWING SERIES SUPERSEDES DRAWING SERIES TE-91082

DMD & ASSOCIATES LTD
ELECTRICAL CONSULTANTS
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Phone: 604-880-0010 Fax: 604-880-0011
Web: www.dmdeng.com E-mail: office@dmdeng.com
DMD DRAWING No 802-03-17 of 17

DESIGNED BY DSM DATE APRIL/04 CHECKED BY DJW DATE OCT/05
M.O.T. ELECTRICAL DESIGN REVIEW JSH DATE Feb 24 06

REV	DATE	DESCRIPTION	DRAWN
MAR/02		DRAWING ISSUED	JDM
A	JUL/03	R/R CROSS SECTION ADDED TO DRAWING - ISSUED FOR TENDER	JDM
B	FEB/04	POLES 2 AND 4 REVISE TO SUIT PROPOSED GEOMETRICS; FLASHER CONTROL UNIT OMITTED; CROSS SECTION RAILWAY DETAIL OMITTED; SIGNAL POSTS 3 AND 6 FOR SIGNAL PHASES Ax AND Ay ADDED; FIBRE OPTIC "NO LEFT TURN" SIGN OMITTED; DRAWING RE-ISSUED EMERG. PRE-EMPTION SENSORS ADDED TO POLES 1 & 2 AND EMERG. PRE-EMPTION CONTROL CABINET ADDED TO SERVICE POLE	JDM
C	DEC/04		SJC

MINISTRY OF TRANSPORTATION
ELECTRICAL ENGINEERING CENTRE

SIGNAL AND LIGHTING INSTALLATION
HIGHWAY 11 (ABBOTSFORD - MISSION HWY) AT CLAYBURN ROAD ABBOTSFORD

WIRING DIAGRAM - ELEVATIONS - LOOP TABLE
ELECTRICAL ENGINEER OF RECORD (FOR CURRENT REVISION)

DATE: JAN 24 2006
D. J. WONG

SHEET NUMBER	SITE CODE	HWY DIST	REGION	DRAWING NUMBER
3 OF 3	069	1	1	TE-02020-3



**BRITISH
COLUMBIA**

PROJECT No. 11313-0001

MINISTRY OF TRANSPORTATION

MISSION—ABBOTSFORD

HIGHWAY No. 11

CITY OF ABBOTSFORD WATERMAIN RELOCATION

SUMAS WAY TO CLAYBURN ROAD

TRACY COOPER, REGIONAL DIRECTOR

RECEIVED

3 - APR 2006

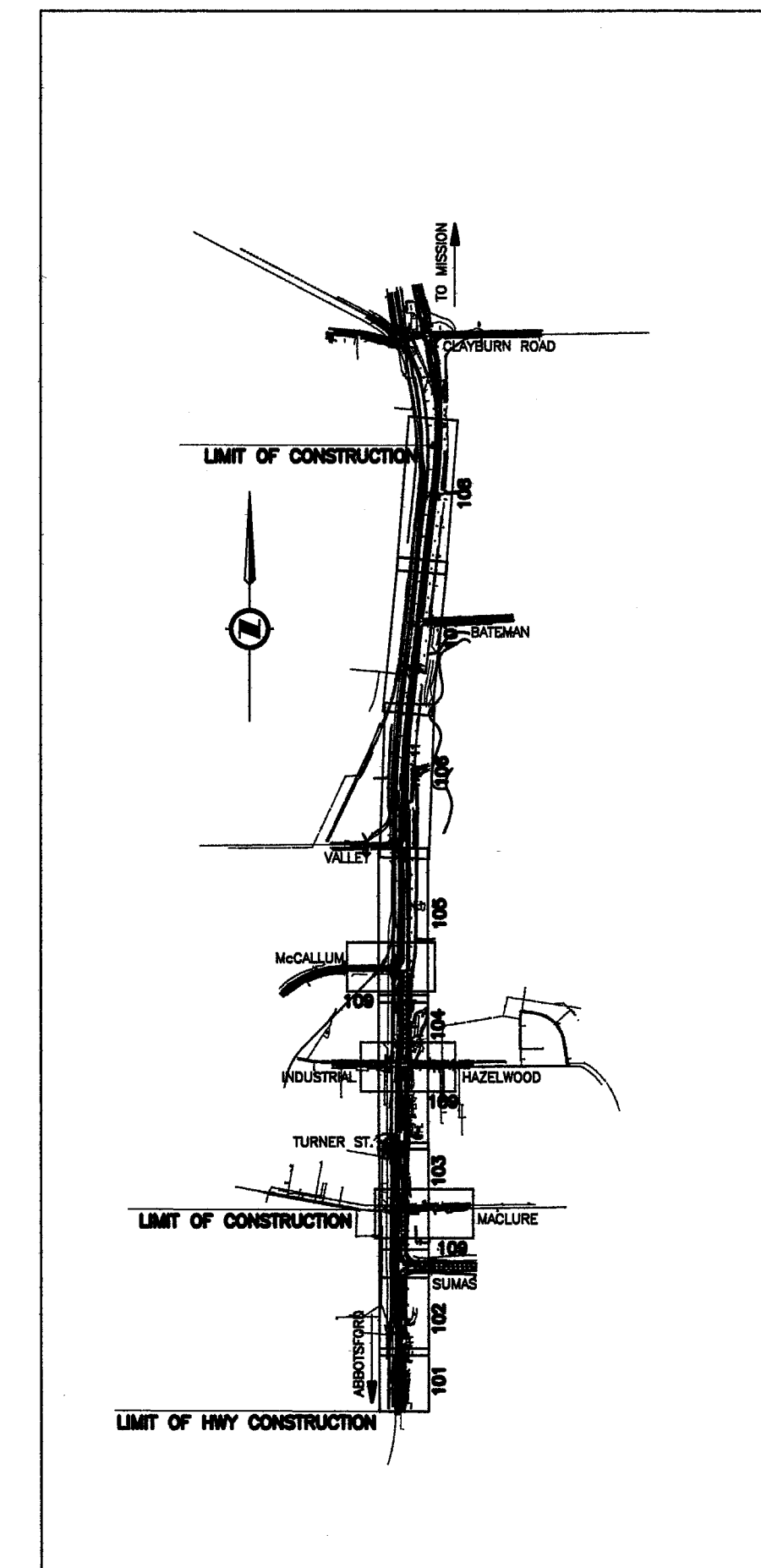
PROJECT MANAGEMENT
SOUTH COAST REGION

PROJECT No.
**MISSION-ABBOTSFORD
HIGHWAY No. 11**

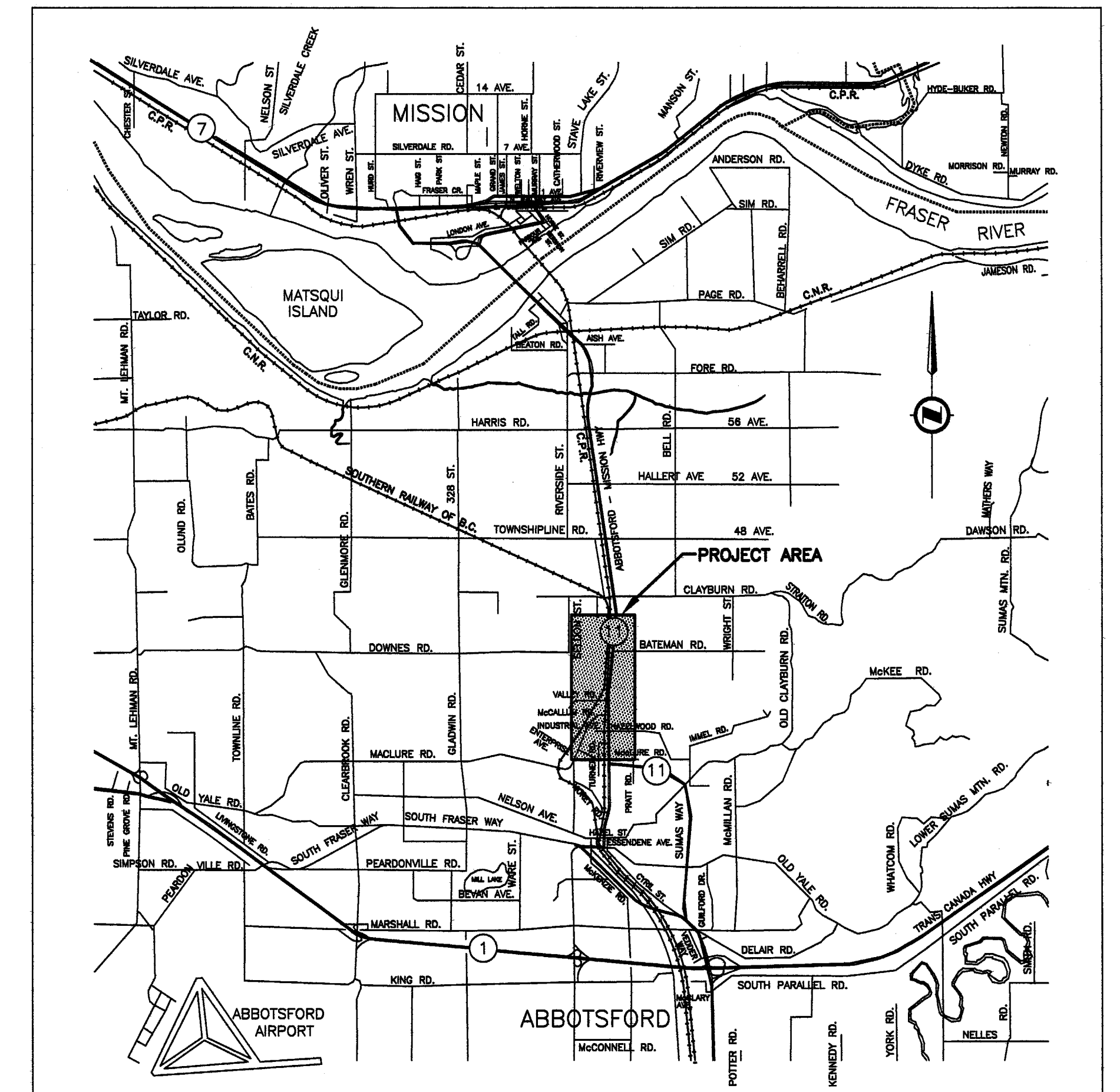
**MACLURE ROAD
TO
CLAYBURN ROAD
WATERMAIN RELOCATION**

LEGEND

TELEPHONE POLES		FIRE HYDRANT		SECTION LINES & DISTRICT LOT BDY.	
POWER POLES		GAS VALVE		EASEMENT	
POWER POLE WITH TRANSFORMER		WATER VALVE		COVENANT	
JUNCTION BOX		WATER METER		QUARTER SECTION LINE	
POWER POLE AND TELEPHONE COMBINED		CATCH BASIN - EXISTING		OLD ROAD R/W (SURVEYED)	
GUY WIRE AND ANCHOR		CATCH BASIN - PROPOSED		SUBDIVISION BOUNDARY	
LAMP STANDARD		MANHOLE - EXISTING		PROPOSED HIGHWAY R/W	
GREATER VANCOUVER WATER OR REGIONAL DISTRICT		MANHOLE - PROPOSED		PROPOSED EASEMENT	
EXISTING SPOT ELEVATIONS	3.56	TRAFFIC SIGNAL		PAVED ROAD	
IRON PIN		TRAFFIC SIGNAL CONTROL BOX		GRAVEL ROAD	
MONUMENT		ROAD SIGN - EXISTING		CONTROL LINES	
TEST HOLES		PROPOSED ROAD SIGN & POST		STORM DRAINS AND SEWERS	
PROPOSED PAVEMENT REMOVAL		PROPOSED ROAD SIGN (NO POST)		SANITARY SEWER	
PROPOSED PAVEMENT MILLING		ROADWAY DELINEATORS		CULVERT (WITH ENDWALL)	
PROPOSED SURCHARGE		KIOSK		WATER MAIN	
PROPOSED CUT AND FILL		BUILDINGS		GAS MAIN	
PROPOSED RETAINING WALL		TRAVERSE HUB		SIDEWALK	
PROPOSED SAWCUT LINE		STREET LIGHT POST TOP		CURBS	
DRAIN GRATE		POWER POLE WITH LIGHT FIXTURE		PAINTED MEDIAN	
FLAG POLE		POWER POLE U/GROUND ELECT		NO-POST CONCRETE BARRIER	
REFERENCE POINT		SERVICE POLE		FENCE	
MAIL BOX		GATE POST		DRAINAGE DITCH	
BREATHER / VENT PIPE		TREES		DRAINAGE SWALE	
LAWN BASIN		AIR VALVE		HEDGE	
CLEAN OUT		BLOW-OFF ASSEMBLY		OIL PIPE LINE	
CHECK VALVE				AT & T FIBRE OPTIC CABLE	
GATE VALVE				PROPOSED WATERMAIN	
UNDERGROUND ELECTRIC CABLE				TEE	
UNDERGROUND TELEPHONE CABLE				GATE VALVE	
EXISTING RAILWAY				REDUCER	
TOP OF EMBANKMENT				AIR VALVE ASSEMBLY	
				HYDRANT ASSEMBLY	



KEY PLAN
SCALE N.T.S.



LOCATION PLAN
SCALE 1:75000±

DRAWING INDEX

COVER W-804	DWG. No. 80074-000
KEY PLAN, INDEX AND LEGEND W-804	DWG. No. 80074-001
PLAN & PROFILE & GENERAL NOTES W-804	DWG. No. 80074-101
PLAN & PROFILE W-804	DWG. No. 80074-102
PLAN & PROFILE & SANITARY DETAILS W-804	DWG. No. 80074-103
PLAN & PROFILE W-804	DWG. No. 80074-104
PLAN & PROFILE W-804	DWG. No. 80075-105
PLAN & PROFILE W-804	DWG. No. 80074-106
PLAN & PROFILE W-804	DWG. No. 80075-107
PLAN & PROFILE W-804	DWG. No. 80074-108
PLAN & PROFILE & SANITARY DETAILS W-804	DWG. No. 80074-109
TYPICAL TRENCH SECTION & DETAIL W-804	DWG. No. 80074-110

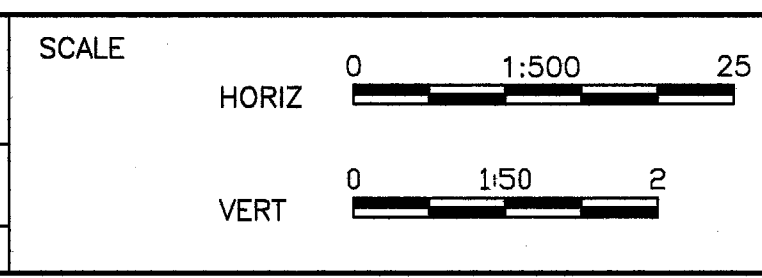
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NO.	DATE	BY	REVISIONS	TECH. ENG.
4	03/06/06	DH	100% SUBMISSION FOR REVIEW	PC RF
3	12/16/05	DH	95% SUBMISSION FOR REVIEW	PC RF
2	11/18/05	DH	80% SUBMISSION FOR REVIEW	PC RF
1	10/19/05	DH	50% SUBMISSION FOR REVIEW	PC RF

NDLEA
1455 WEST GEORGIA STREET, VANCOUVER, BC V6Z 2T3 TEL. (604) 685-9381

DESIGNED: PC DATE: NOV/05 DRAWN: DH DATE: NOV/05
CHECKED: RF DATE: NOV/05 REVIEWED: SW DATE: NOV/05

SENIOR DESIGNER	DATE
FILE No. 80074M100	PROJECT No.
REG.	DRAWING No. 80074-001
CANCEL PRINTS BEARING PREVIOUS LETTER	



SHEET NO. OF

DRWG. NO.

City of Abbotsford

HWY 11 - MACLURE RD. TO CLAYBURN RD.

PROPOSED WATERMAIN RELOCATION

W-804

Update: FEB. 23, 2006

GENERAL NOTES:

- ALL CONSTRUCTION MATERIALS AND WORKMANSHIP TO BE IN ACCORDANCE WITH CONTRACT DOCUMENTS AND YEAR 2000 GOLD EDITION OF THE MASTER MUNICIPAL CONSTRUCTION DOCUMENT (MMCD) INCLUDING ALL APPROVED ADDITIONS AND REVISIONS, IN CONJUNCTION WITH THE CITY OF ABBOTSFORD SUPPLEMENTARY SPECIFICATIONS, THE MINISTRY OF TRANSPORTATION SPECIFICATIONS AND MANUFACTURERS SPECIFICATIONS.
- ALL PAVEMENT CUTS TO BE SAWCUT TO FULL DEPTH.
- ALL WATERMAIN PIPES TO BE AS SPECIFIED ON THE DRAWINGS. ALL HDPE FABRICATED FITTINGS AND BENDS TO BE ENGINEERED AND ALL HDPE PIPE TO INCLUDE TRACER WIRE TERMINATING AT GROUND LEVEL IN VALVE BOXES AND RISERS.
- MINIMUM 1.2m COVER ON ALL WATERMANS.
- ALL WATERMANS TO BE CHLORINATED, COLIFORM TESTED AND FLUSHED BEFORE TIE INTO EXISTING WATERMANS, AS PER MMCD 200 SECTION 02666 AND CITY OF ABBOTSFORD SUPPLEMENTAL SPECIFICATIONS 3.19, 3.21 & 3.23.
- INSTALL THRUST BLOCKS WHERE NECESSARY PER CITY STD CS-W-8.
- DUCTILE IRON WATERMAIN TO BE CLASS 350 AND DEFLECTION OF DI WATERMANS TO BE NO MORE THAN HALF OF THE MANUFACTURERS RECOMMENDATION.
- ALL TIE-INS TO BE SUPERVISED BY THE CITY OF ABBOTSFORD. 72 HOURS NOTICE TO BE GIVEN TO WATERWORKS AND THE CITY INSPECTORS.
- FOR TRENCH DETAIL AND PAVEMENT RESTORATION DETAIL ON CITY OF ABBOTSFORD ROADS AND R/W'S SEE CITY DRAWING CS-R-9.
- UTILITY TRENCH DETAIL PER CITY DRAWING CS-R-9. ALL TRENCH RESTORATION COMPLETE WITH IMPORT GRANULAR PIPE BEDDING AND APPROVED NATIVE OR IMPORT GRANULAR BACKFILL COMPACTED TO 95% MODIFIED PROCTOR DENSITY. ALSO AS PER MOT SPECIFICATIONS AND GEOTECHNICAL SPECIFICATIONS.
- ALL JOINTS WITHIN 0.5m VERTICAL OR 3.0m HORIZONTAL OFFSET FROM EXISTING SANITARY OR STORM SEWERS ARE TO BE WRAPPED WITH HEAT SHRINK PLASTIC. ALL MATERIALS ARE TO HAVE ZERO HEALTH HAZARD. MATERIALS AND WORKMANSHIP ARE TO BE IN ACCORDANCE WITH ANSI/AWWA C214, ANSI/AWWA C209, AND ANSI/AWWA C217-90.
- ALL NON HDPE JOINTS ARE TO BE RESTRAINED. JOINT RESTRAINERS ARE TO BE AS PER CITY OF ABBOTSFORD SUPPLEMENTAL SPECIFICATIONS SECTION 02666, 2.2 INSTALLED PER MANUFACTURERS SPECIFICATIONS. ALL RESTRAINTS TO BE COMPLETE WITH CORTEN BOLTS AND WRAPPED WITH HIGH QUALITY PETROLATUM COATING SYSTEM. SEE CATHODIC PROTECTIONS NOTES FOR DETAILS.
- FLANGE ADAPTORS ARE TO BE AS PER CITY OF ABBOTSFORD SUPPLEMENTAL SPECIFICATIONS SECTION 02666, 2.2 AND INSTALLED MANUFACTURERS SPECIFICATIONS. ALL FLANGE ADAPTORS TO BE COMPLETE WITH CORTEN BOLTS AND WRAPPED WITH HIGH QUALITY PETROLATUM COATING SYSTEM. SEE CATHODIC PROTECTION NOTES FOR DETAILS.
- ALL GATE VALVES AND FITTINGS TO BE COMPLETE WITH ANODE CORROSION PROTECTION. SEE CATHODIC PROTECTION NOTES FOR DETAILS.
- FOR GROUNDWATER AND SOIL CONDITION, REFER TO MOT GEOTECHNICAL SUMMARY DESIGN REPORT DATED SEPT. 05, 2003 FOR DETAILS.
- CONTRACTOR IS RESPONSIBLE FOR ANY TRENCH DEWATERING WHERE REQUIRED. DEWATERING IS INCIDENTAL AND INCLUDED AS PART OF THE COST FOR WATERMAIN INSTALLATION.
- IT IS RESPONSIBILITY OF THE CONTRACTOR TO CONFIRM IN THE FIELD ALL OFFSETS AND LOCATIONS OF EXISTING UNDERGROUND SERVICES PRIOR TO CONSTRUCTION. TEST EXCAVATIONS ARE NECESSARY TO CONFIRM ELEVATION AND LOCATION OF ALL EXISTING UTILITIES AND AT TIE-INS AND CROSSINGS. THE ENGINEER IS TO BE NOTIFIED PRIOR TO START OF CONSTRUCTION OF ANY CONFLICTS. ALL UTILITIES SHOWN ON THE DRAWINGS ARE APPROXIMATE. THE MINISTRY ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE UTILITIES
- THE CONTRACTOR IS RESPONSIBLE TO FOLLOW THE FOLLOWING SPECIFICATIONS IN ADDITION TO THE 2000 GOLD EDITION AT MMCD FOR THE SUPPLY & INSTALLATION OF HDPE PIPE: REFERENCE SPECIFICATIONS ASTM F714, ASTM D3035, ASTM D3261, ASTM D2837, ASTM D1248, ASTM D3350, ASTM D2657, ISO 9002-94, CAN-2299.3, AWWA C906-99, NSF, & PPI.
- UTILITY RELOCATIONS DONE BY OTHERS. INCLUDING HYDRO, TELECOMMUNICATION, STREET LIGHTS AND GAS ETC.
- CONTRACTOR TO SUPPLY SHOP DRAWINGS OF ALL HDPE FABRICATED FITTINGS AND BENDS.
- CONTRACTOR TO SUPPLY SHOP DRAWINGS OF CASING SPACERS, END SEALS AND MANHOLE SEALING AND ANCHORING.
- ALL FUSERS MUST BE HDPE HEAT FUSION WELDING TRAINED AND CERTIFIED FOR 406mm SIZE HDPE FUSING.
- CONTRACTOR TO SUPPLY A DATA LOGGER TO PERMIT CONTINUOUS RECORDING OF AND DURING HDPE JOINT FUSING (McELROY DL2001,) OR APPROVED EQUIVALENT.
- VALVE BOXES AND RISERS TO BE REMOVED OFF ALL ABANDONED WATERMAIN VALVES BY THE CONTRACTOR UNDER SUPERVISION OF CITY WATERWORKS.
- EXCESS EXCAVATED ROAD BASE TO BE DEPOSITED TO A DESIGNATED LOCATION AS DIRECTED BY THE ENGINEER. (SUMAS WAY & MACCLURE ROAD?)

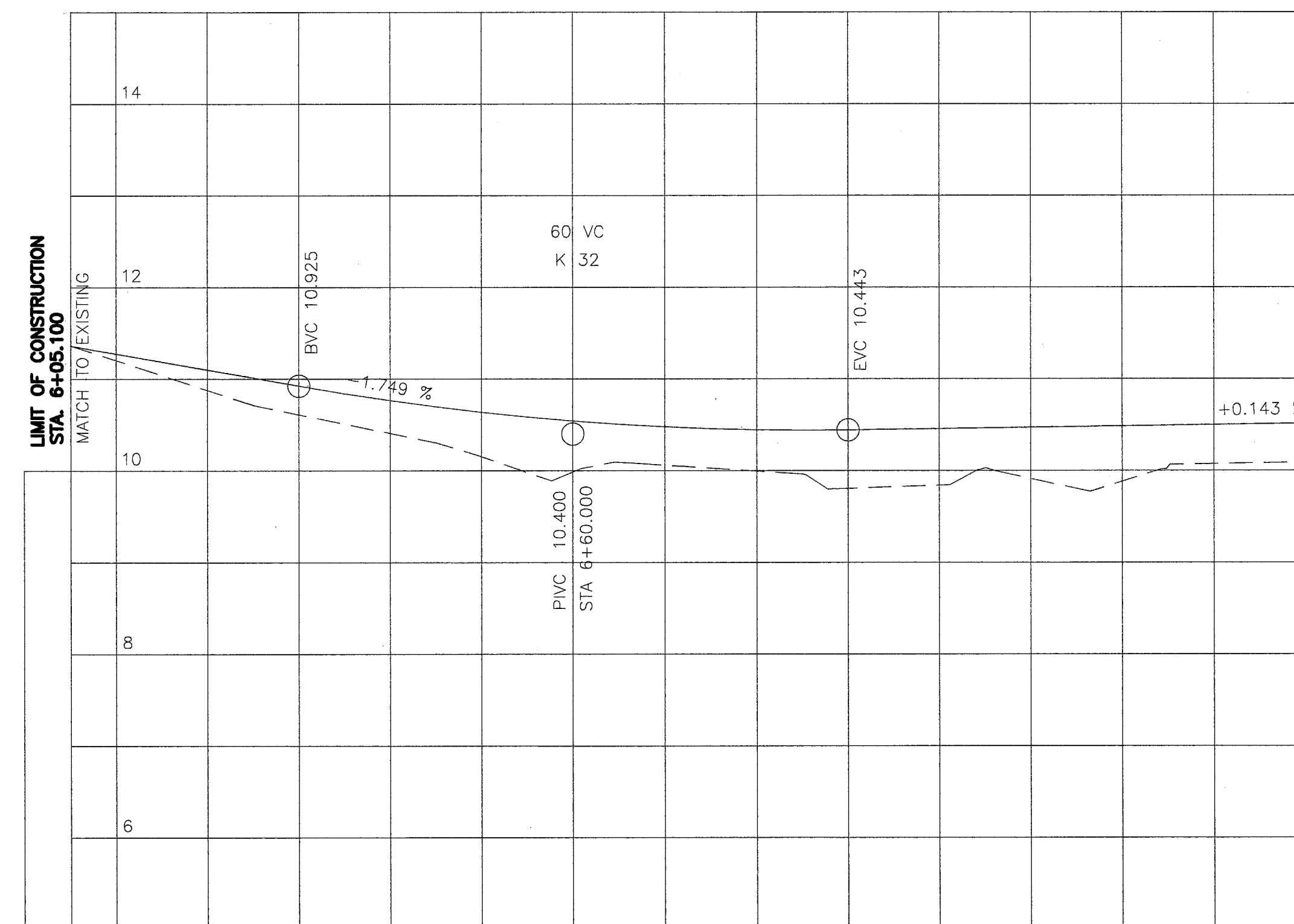
CATHODIC PROTECTION NOTES:

- FIELD-APPLIED COATING
 - ALL FITTINGS SUCH AS FUSION FLANGES, TEES, VALVES, BENDS, REDUCERS, ROBAR COUPLINGS, TIE-RODS, JOINT RESTRAINTS, DI MAKE-UP OR SPOOL PIECES AND OTHER BURIED METALLIC PIPING COMPONENTS, TO BE CLEANED, PRIMED, AND TAPE-WRAPPED WITH PETROLATUM TAPE AS PER AWWA STANDARD C217. PETROLATUM FILLER COMPOUND TO BE USED TO FILL VOIDS AND AREAS AROUND BOLTS AND TIE-RODS, PRIOR TO APPLYING THE TAPE.
- CATHODIC PROTECTION
 - ANODES SHALL BE 14.5kg HIGH-POTENTIAL MAGNESIUM, PACKAGED IN CARDBOARD TUBES OR COTTON BAGS WITH BACKFILL COMPOSED OF 20% BENTONITE, 75% GYPSUM, 5% SODIUM SULPHATE. THE ANODE WIRE IS #10 AWG RWU (BLUE) INSULATED COPPER.
 - THE ANODES TO BE INSTALLED HORIZONTALLY, AT FITTING DEPTH, APPROXIMATELY 1 METER AWAY FROM THE FITTING OR CLUSTER OF FITTINGS, ANODE CABLES ARE THERMITE WELDED DIRECTLY TO THE FITTING OR CLUSTER FITTINGS.
 - THE ANODES TO HAVE THE CARDBOARD TUBE PERFORATED AND ARE THOROUGHLY WETTED, THEN IMMEDIATELY BACKFILLED WITH NATIVE MATERIAL. BACKFILL MATERIAL TO BE FIRMLY COMPACTED AROUND THE ANODES.
 - THERMITE WELDS TO BE INSTALLED ON CLEAN, DRY BARE METAL AS PER MANUFACTURER'S INSTRUCTIONS. AFTER WELDING, SLAG IS TO BE REMOVED AND THE WELDS TO BE COATED WITH ROYSTON ROSKOTE A-51 COAL TAR MASTIC.
- BOND CABLES
 - #8 AWG RWU 7-STRAND INSULATED COPPER CABLE TO BE INSTALLED ACROSS ALL MECHANICAL CONNECTIONS BETWEEN FITTINGS THAT COULD ELECTRICALLY ISOLATE ONE FITTING FROM ANOTHER. TWO CABLES PER MECHANICAL CONNECTIONS TO BE PROVIDED.
 - CABLES SHALL BE THERMITE WELDED ACROSS EACH CONNECTION AND COATED AS PER NOTE 2.D ABOVE.
 - ON ALL ROBAR COUPLINGS, BOND CABLES TO BE INSTALLED BETWEEN EACH RING AND THE BODY INSURING ELECTRICAL CONTINUITY THROUGHOUT THE FITTING.
 - TWO BOND CABLES MUST ALSO BE INSTALLED ACROSS HUB CONNECTIONS FROM THE FITTING TO THE DI MAKE-UP OR SPOOL PIECES.
- ELECTRICAL ISOLATION
 - ELECTRICAL ISOLATION MUST BE INSTALLED IN THE FOLLOWING LOCATION TIE-IN TO EXISTING 200mm DI WATERMAIN ON VALLEY ROAD.
 - ISOLATION AT THE TIE-IN TO THE EXISTING 200mm DI WATERMAIN SHALL BE PROVIDED USING A MINIMUM 1m LENGTH OF PVC PIPE OR ROBAR 1519 COUPLING WITH A ROBAR 1180 ISOLATING BOOT.
 - ALL TRACER WIRE TO BE ISOLATED FROM CATHODIC PROTECTED FITTINGS.
- INSPECTION AND TESTING
 - CONTRACTOR TO ARRANGE FOR INSPECTION OF ANODES PRIOR TO BACKFILL. (INSPECTED BY THE CITY INSPECTOR).

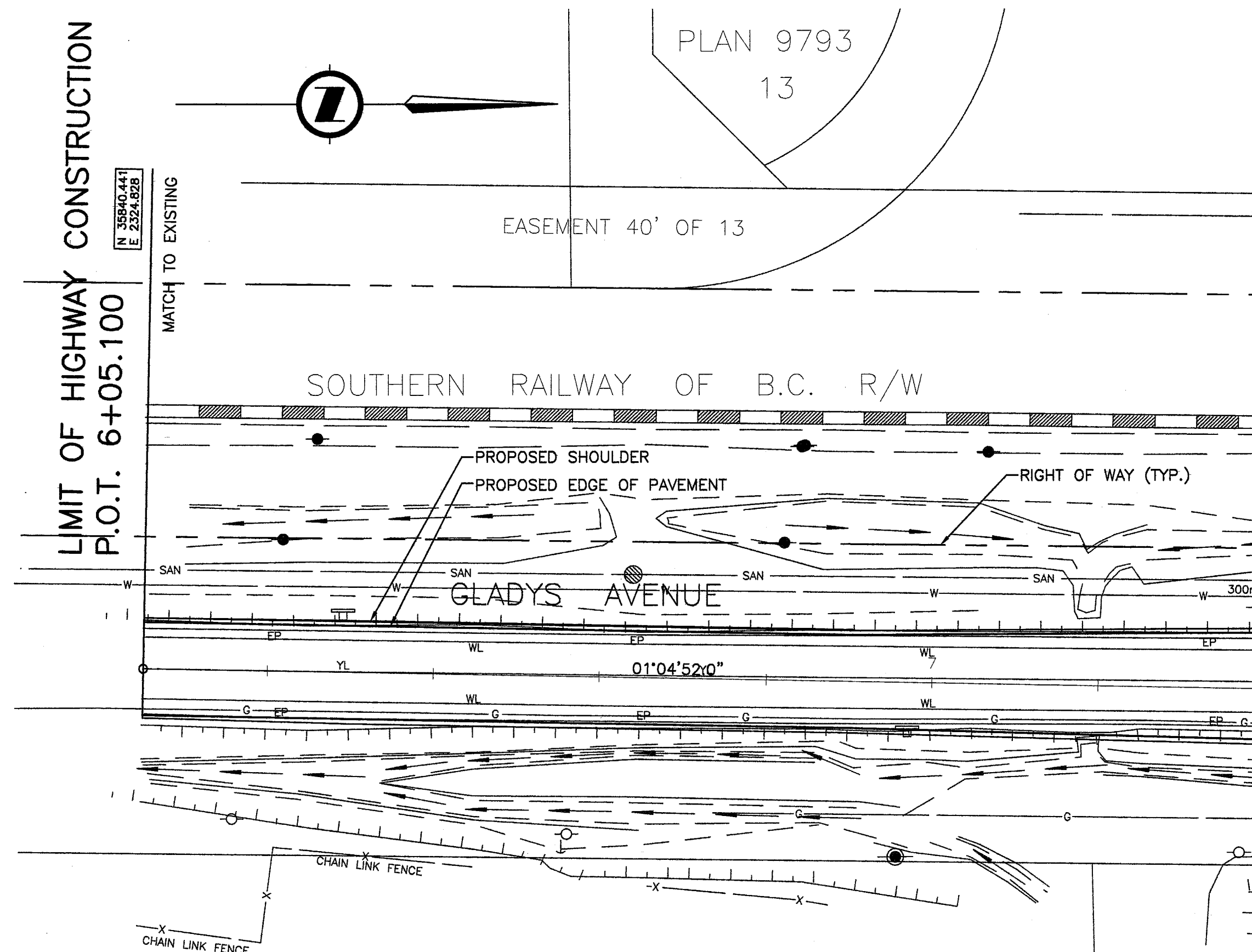
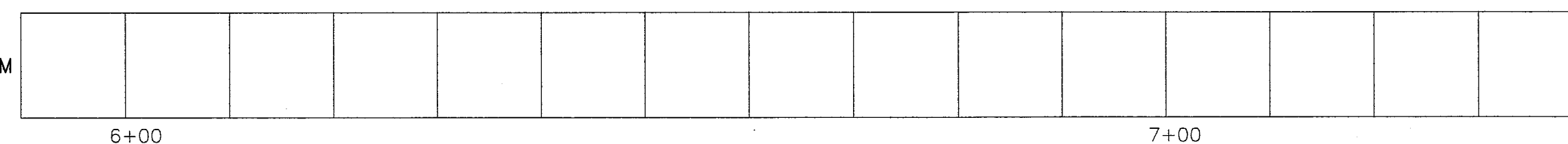
- CITY OF ABBOTSFORD MUNICIPAL WATER IS TREATED WITH CHLORAMINES. THIS COMPOUND IS EXTREMELY TOXIC TO FISH IF IT ENTERS THEIR HABITAT. THE CHLORAMINES IN THE WATER CAN BE NEUTRALIZED BY USING SODIUM THIOSULPHATE. THE RECOMMENDED RATIO (ABBOTSFORD WATERWORKS) IS 7 GRAMS OF SODIUM THIOSULPHATE PER 1000 LITERS OF CHLORAMINE TREATED WATER.
- AT LEAST ONE PERSON ON SITE DURING THE PROJECT MUST HAVE SPECIFIC TRAINING ON HOW TO DISTRIBUTE THE SODIUM THIOSULPHATE COMPOUND. THIS WILL ENSURE THE PROPER DISBURSAL OF THE COMPOUND SO THAT IT WILL EFFECTIVELY NEUTRALIZE ALL CHLORAMINATED WATERS.
- UNTREATED MUNICIPAL WATER IS NOT PERMITTED TO BE DISCHARGED INTO STORM SEWERS, CHANNELIZED WATERCOURSES, DRAINAGE DITCHES, STREAMS, AND OR FIELDS. IF REQUIRED, ALL UNTREATED WATER WILL BE DISCHARGED TO A SANITARY SEWER, TO BE COORDINATED AND APPROVED BY CITY OF ABBOTSFORD.
- ALL MATERIALS AND EQUIPMENT MUST BE CONTAINED WITHIN THE WORK SITE. THE CONTRACTOR IS RESPONSIBLE FOR ALL SEDIMENT CONTAINMENT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS FOR THE DURATION OF THE PROJECT.

THE CONTRACTOR SHALL CONFORM TO FISHERIES AND OCEANS CANADA (DFO) AUTHORIZATION No. HPAC PA2 000 000237 (SIGNED AND DATED; MARCH 6, 2005) AND AMENDMENT TO DFO AUTHORIZATION NO: 04 HPAC PA2 000 000237 (SIGNED AND DATED; OCTOBER 3, 2005). IT IS SOLE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THEIR ENVIRONMENTAL MONITOR TO ENSURE INSTREAM WORKS AND CONSTRUCTION OF THE HIGHWAY; INCLUDING FISH SALVAGES, WATERCOURSE DIVERSIONS/ISOLATION; AND, EROSION AND SEDIMENT CONTROL MEASURES ARE CARRIED OUT IN ACCORDANCE TO THE AFOREMENTIONED DFO AUTHORIZATIONS.

- REMOVAL OF 600mm CSP AT STATION 16+50
- FISH HABITAT IMPROVEMENT WORKS BETWEEN STATIONS 17+00 & 18+20
- REMOVAL OF 600mm CSP AT STATION 18+10
- CULVERT REPLACEMENT AT STATION 20+00
- WILBAND CREEK NEW CULVERT INSTALLATION AND ASSOCIATED UPSTREAM AND DOWNSTREAM WORKS
- WILBAND CREEK EXISTING CULVERT DEACTIVATION
- BATEMAN ROAD INSTREAM CULVERT WORKS
- CULVERT REPLACEMENTS AT STATIONS 26+60 & 31+40
- A FISH SALVAGE IS REQUIRED PRIOR TO ANY INSTREAM WORKS. THE FLOW OF WILBAND CREEK WILL BE ISOLATED FROM INSTREAM WORKS. THIS MAY REQUIRE A TEMPORARY FLOW DIVERSION BY PUMPS. IN THE EVENT OF PUMP FAILURE, EXTRA PUMPS SUFFICIENT TO HANDLE THE WATERCOURSE'S FLOW CAPACITY MUST BE ONSITE THROUGHOUT THE FLOW DIVERSION.
- ALL WORK INVOLVING THE USE OF CONCRETE, ASPHALT, CEMENT, MORTARS AND OTHER PORTLAND CEMENT OR LIME-CONTAINING CONSTRUCTION MATERIALS WILL BE CONDUCTED SO AS TO ENSURE THAT SEDIMENTS, CONCRETE AND CONCRETE FINES ARE NOT DEPOSITED, EITHER DIRECTLY OR INDIRECTLY INTO ANY WATERCOURSE OR STORM WATER COLLECTION SYSTEM. ANY WATER CONTAINING UNCURED OR PARTLY CURED CONCRETE OR PORTLAND CEMENT OR LIME-CONTAINING CONSTRUCTION MATERIALS, SUCH AS THE WATER THAT MAY BE USED FOR EXPOSED AGGREGATE WASH-OFF, WET CURING, EQUIPMENT WASHING, ETC., SHALL BE PREVENTED FROM ENTERING, DIRECTLY OR INDIRECTLY INTO THE WATERCOURSE OF STORMWATER COLLECTION SYSTEM.
- CONCRETE LEACHATE IS ALKALINE AND HIGHLY TOXIC TO FISH AND AQUATIC LIFE AND MEASUREMENTS MUST BE TAKEN TO PREVENT ANY INCIDENCE OF CONCRETE FROM ENTERING THE WATERCOURSE. A CO2 TANK AND DISPERSAL EQUIPMENT MUST BE ONSITE DURING ALL CONCRETE WORK AND BE READY FOR IMMEDIATE DEPLOYMENT SHOULD A CONCRETE SPILL OCCUR. TO ENSURE THAT NO CONCRETE OR CONCRETE LEACHATE IMPACTS DOWNSTREAM FISH OR FISH HABITAT, THE DOWNSTREAM pH MUST BE MONITORED REGULARLY UNTIL COMPLETION OF THE WORKS. IF A SIGNIFICANT CHANGE IN pH IS RECORDED (i.e. pH BELOW 5.0 OR ABOVE 9.0), THEN EMERGENCY MEASURES MUST BE IMPLEMENTED TO NEUTRALIZE pH LEVELS. IN ADDITION, ANY CONCRETE DOES NOT ESCAPE MUST BE CLEARED OUT OF ANY INSTREAM AREA IMMEDIATELY.
- ALL CONCRETE AND ASPHALT WORK, MUST BE UNDERTAKEN DURING PERIODS WHEN THE RISK OF PRECIPITATION IS LOW. SHOULD A PRECIPITATION EVENT OCCUR DURING ANY INSTREAM CONCRETE WORK, OPERATIONS SHOULD BE IMMEDIATELY CEASED AND MEASURES MUST BE TAKEN TO ENSURE THAT CONCRETE LEACHATE DOES NOT ENTER THE FISHERY SENSITIVE WATERCOURSE.
- FOR ANY INSTREAM OR NEAR STREAM CONCRETE/ASPHALT WORK, A MINIMUM OF 72 HOURS CURING TIME IS REQUIRED WITH COMPLETE ISOLATION OF THE CONCRETE FROM ANY DITCH, WATERCOURSE, SURFACE WATER DRAINAGE OR STORM SEWER SYSTEM.



PROP. W/M INVERTS

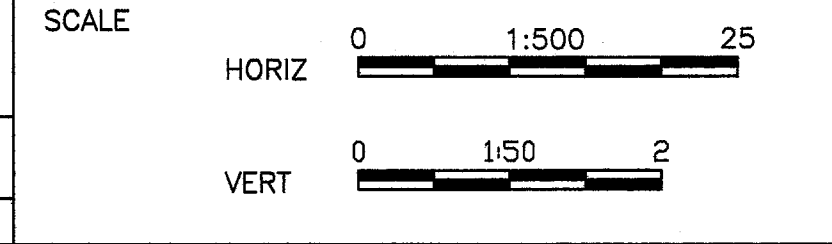


FILE: 80074-101

NO.	DATE	BY	REVISIONS	TECH/ENG.
4	03/06/06	DH	100% SUBMISSION FOR REVIEW	PC RF
3	12/16/05	DH	95% SUBMISSION FOR REVIEW	PC RF
2	11/18/05	DH	80% SUBMISSION FOR REVIEW	PC RF
1	10/19/05	DH	50% SUBMISSION FOR REVIEW	PC RF

DESIGNED		PC	DATE	NOV/05	DRAWN	DH	DATE	NOV/05
CHECKED		RF	DATE	NOV/05	REVIEWED	SW	DATE	NOV/05

SENIOR DESIGNER	DATE		
FILE No.	PROJECT No.	REG.	DRAWING No.
80074M101			80074-101
CANCEL PRINTS BEARING PREVIOUS LETTER			

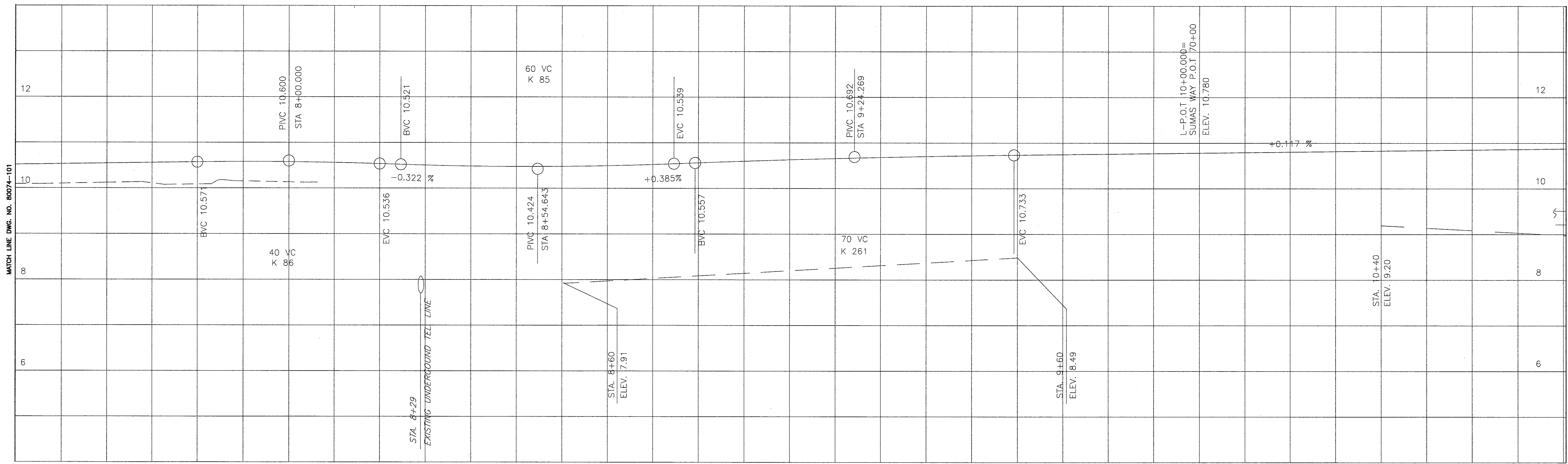


SHEET NO. ___ OF ___
DRWG. NO. *[Signature]*

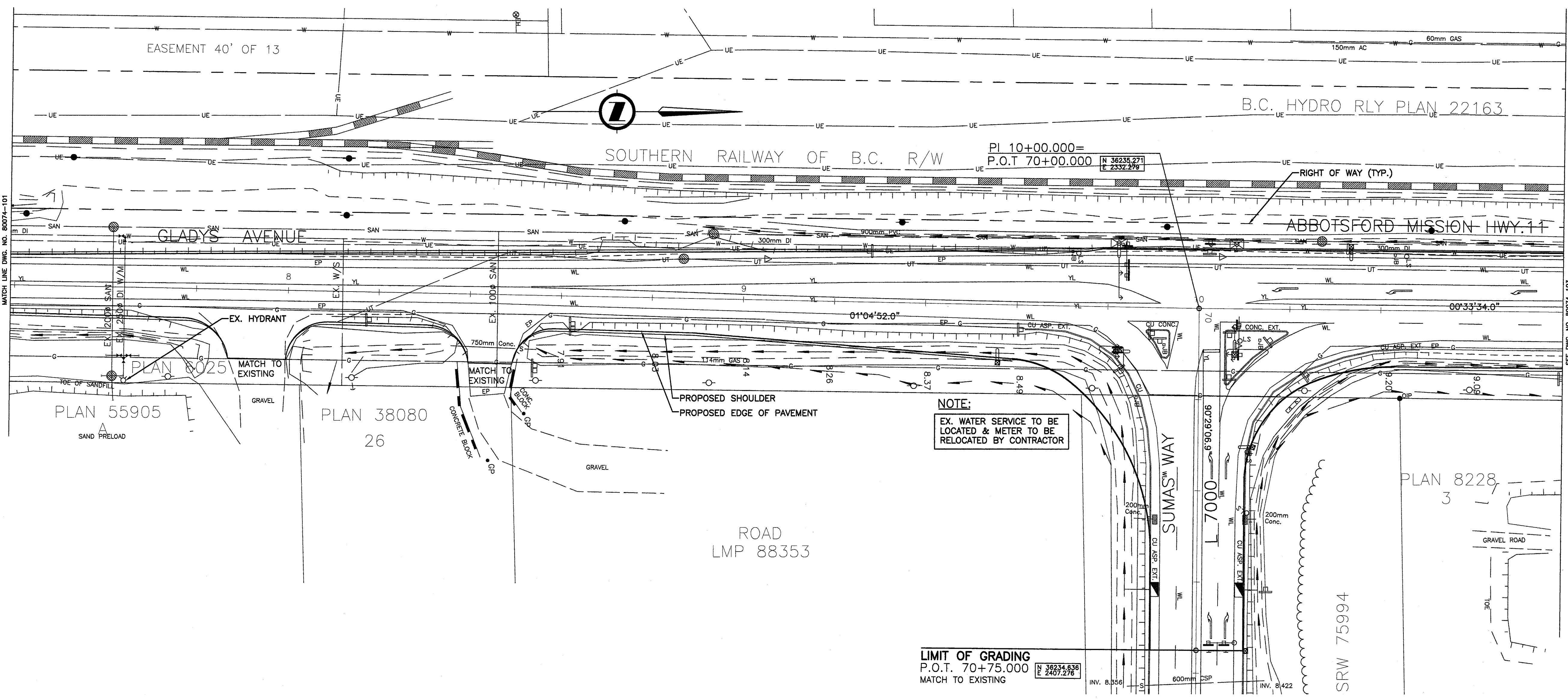
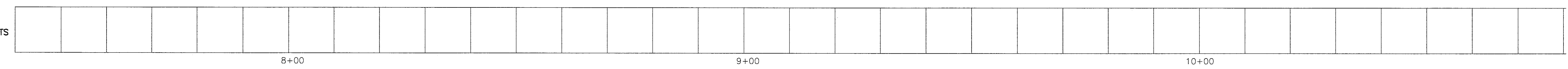
City of Abbotsford
HWY 11 - MACLURE RD. TO CLAYBURN RD.
PROPOSED WATERMAIN RELOCATION

W-804

Update : Mar. 06, 2006



PROP. W/M INVERTS



4	03/06/06	DH	100% SUBMISSION FOR REVIEW	PC	RF
3	12/16/05	DH	95% SUBMISSION FOR REVIEW	PC	RF
2	11/18/05	DH	80% SUBMISSION FOR REVIEW	PC	RF
1	10/19/05	DH	50% SUBMISSION FOR REVIEW	PC	RF
NO.	DATE	BY	REVISIONS	TECH.	ENG.

NOLEA
1455 WEST GEORGIA STREET, VANCOUVER, BC V6G 2T3 TEL. (604) 685-8381

SENIOR DESIGNER		DATE	
FILE No.	PROJECT No.	REG.	DRAWING No.
80074M102			80074-102
CANCEL PRINTS BEARING PREVIOUS LETTER			

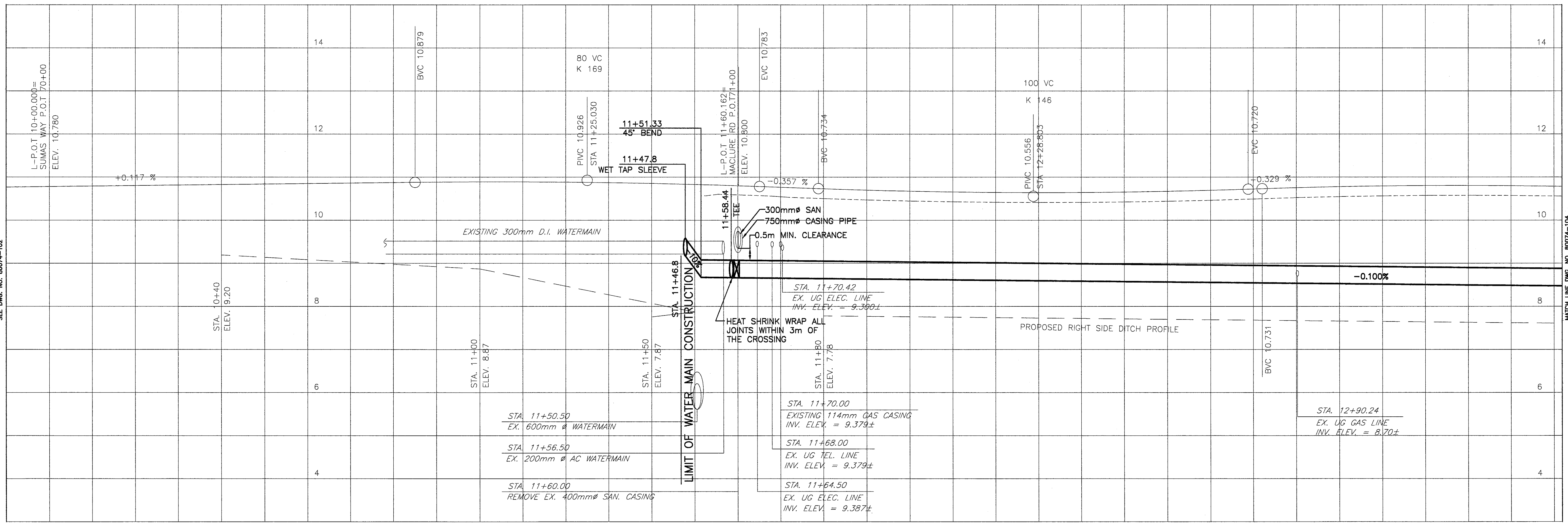


SHEET NO. ___ OF ___
DRWG. NO. *Alb*

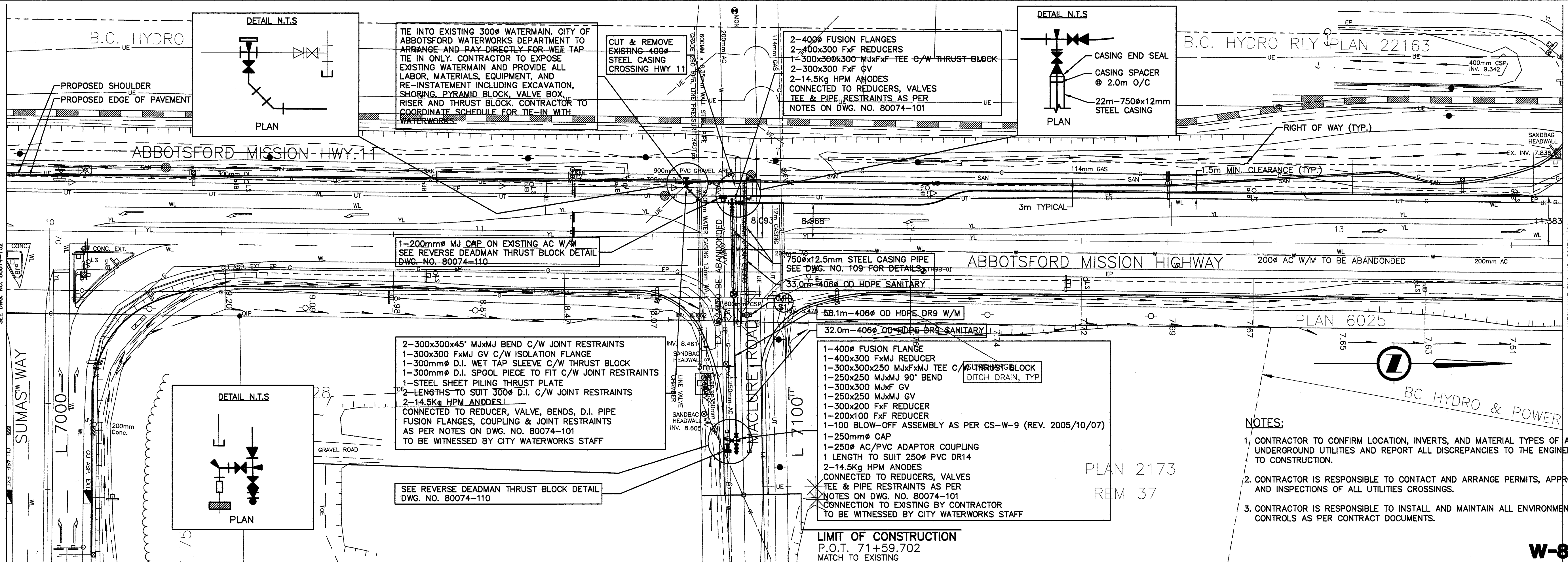
City of Abbotsford
HWY 11 - MACLURE RD. TO CLAYBURN RD.
PROPOSED WATERMAIN RELOCATION

W-804

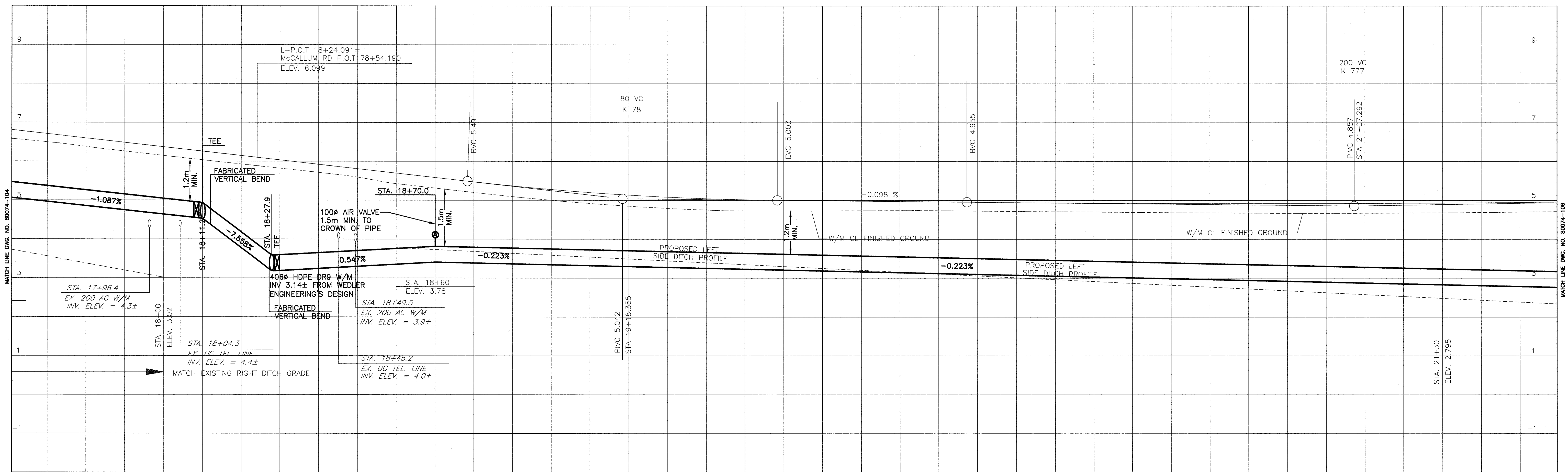
Update 1 FEB. 22, 2006



PROP. W/M LENGTH & TYPE	PROP. W/M INVERTS
11m of 300mm D.I. CL 350 WATERMAIN C/W JOINT RESTRAINTS	9.173
380m of 406mm OD, 300mm ID HDPE DR-9 WATERMAIN C/W FIELD BUTT FUSION JOINTS	8.663
	8.643
	8.623
	8.603
	8.583
	8.563
	8.543
	8.523
	8.503
	8.483

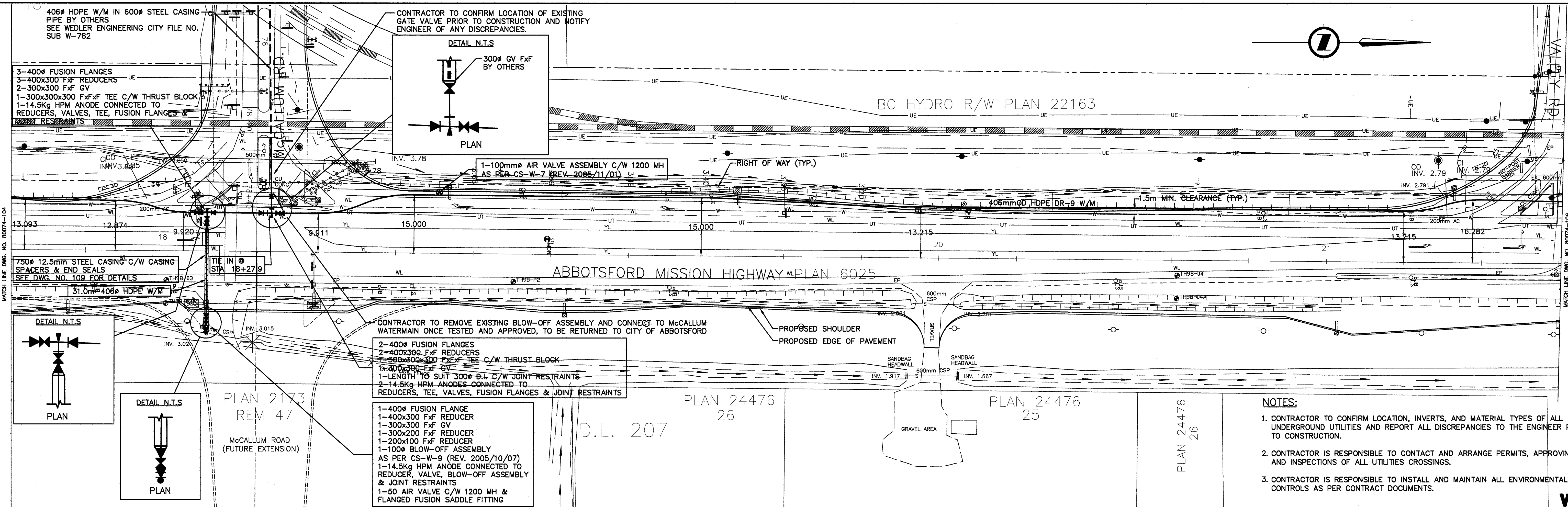


<p>4 03/06/06 DH 100% SUBMISSION FOR REVIEW PC RF</p> <p>3 12/16/05 DH 95% SUBMISSION FOR REVIEW PC RF</p> <p>2 11/18/05 DH 80% SUBMISSION FOR REVIEW PC RF</p> <p>1 10/19/05 DH 50% SUBMISSION FOR REVIEW PC RF</p> <p>NO. DATE BY REVISIONS TECH. ENG.</p>	<p>NLEA</p> <p>1455 WEST GEORGIA STREET, VANCOUVER, BC V6G 2T3 TEL: (604) 685-9381</p> <p>DESIGNED: PC DATE: NOV/05 DRAWN: DH DATE: NOV/05</p> <p>CHECKED: RF DATE: NOV/05 REVIEWED: SW DATE: NOV/05</p>	<p>SENIOR DESIGNER: _____ DATE: _____</p> <p>FILE No. 80074M103 PROJECT No. _____ REG. DRAWING No. 80074-103</p> <p>CANCEL PRINTS BEARING PREVIOUS LETTER</p>	<p>SCALE</p> <p>HORIZ 0 1:500 25</p> <p>VERT 0 1:50 2</p>	<p>SHEET NO. _____ OF _____</p> <p>DRWG. NO. _____</p>	<p>City of Abbotsford</p> <p>HWY 11 - MACLURE RD. TO CLAYBURN RD.</p> <p>PROPOSED WATERMAIN RELOCATION</p> <p>W-804</p>
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PROP. W/M LENGTH & TYPE
 17m OF 406mm OD, 300mm ID HDPE DR-9 WATERMAIN C/W FIELD BUTT FUSION JOINTS
 339m OF 406mm OD, 300mm ID HDPE DR-9 WATERMAIN C/W FIELD BUTT FUSION JOINTS

PROP. W/M INVERTS	4.855	4.637	4.516	3.773	3.189	3.242	3.351	3.406	3.384	3.340	3.295	3.250	3.206	3.161	3.117	3.072	3.027	2.983	2.938	2.893	2.849	2.804	
18+00																							
19+00																							
20+00																							
21+00																							



- NOTES:**
1. CONTRACTOR TO CONFIRM LOCATION, INVERTS, AND MATERIAL TYPES OF ALL UNDERGROUND UTILITIES AND REPORT ALL DISCREPANCIES TO THE ENGINEER PRIOR TO CONSTRUCTION.
 2. CONTRACTOR IS RESPONSIBLE TO CONTACT AND ARRANGE PERMITS, APPROVING AND INSPECTIONS OF ALL UTILITIES CROSSINGS.
 3. CONTRACTOR IS RESPONSIBLE TO INSTALL AND MAINTAIN ALL ENVIRONMENTAL CONTROLS AS PER CONTRACT DOCUMENTS.

W-804

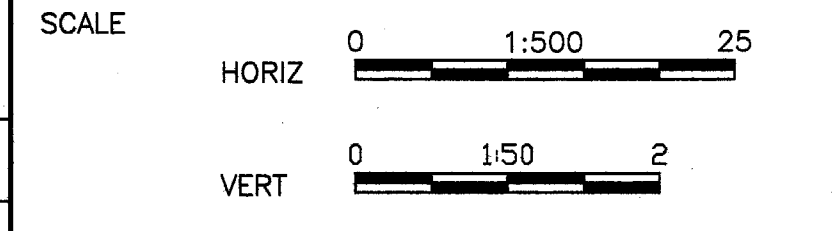
NO.	DATE	BY	REVISIONS	TECH. ENG.
4	03/06/06	DH	100% SUBMISSION FOR REVIEW	PC RF
3	12/16/05	DH	95% SUBMISSION FOR REVIEW	PC RF
2	11/18/05	DH	80% SUBMISSION FOR REVIEW	PC RF
1	10/19/05	DH	50% SUBMISSION FOR REVIEW	PC RF

NDLEA
 1455 WEST GEORGIA STREET, VANCOUVER, BC V6S 2T3 TEL: (604) 685-9381

DESIGNED: PC DATE: NOV/05 DRAWN: DH DATE: NOV/05
 CHECKED: RF DATE: NOV/05 REVIEWED: SW DATE: NOV/05

SENIOR DESIGNER	DATE
FILE No. 80074M105	PROJECT No. 80074-105
REG. 80074-105	DRAWING No. 80074-105

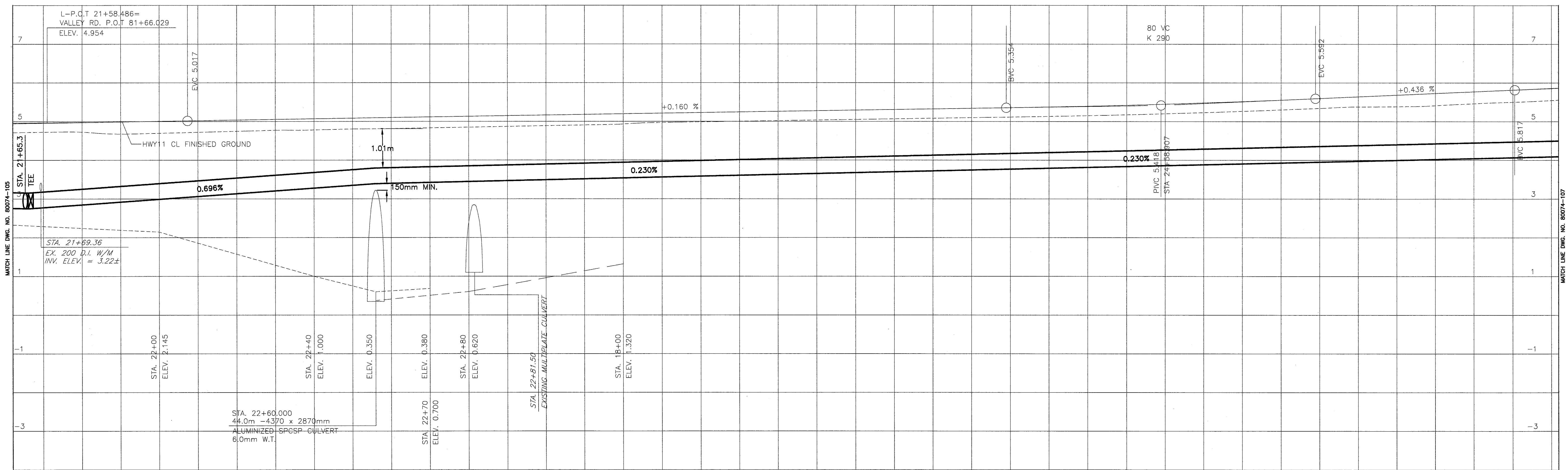
CANCEL PRINTS BEARING PREVIOUS LETTER



SHEET NO. OF
 DRWG. NO. *ABW*

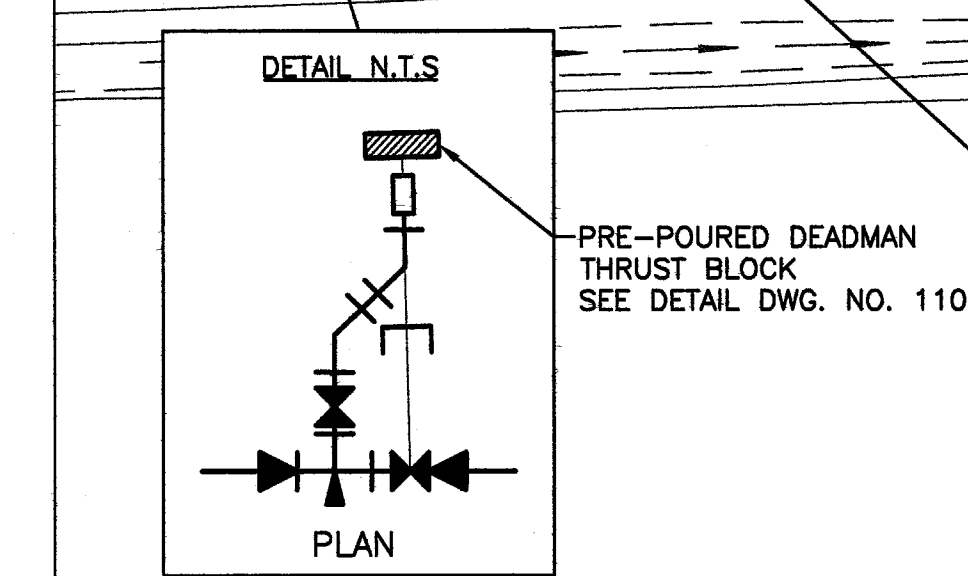
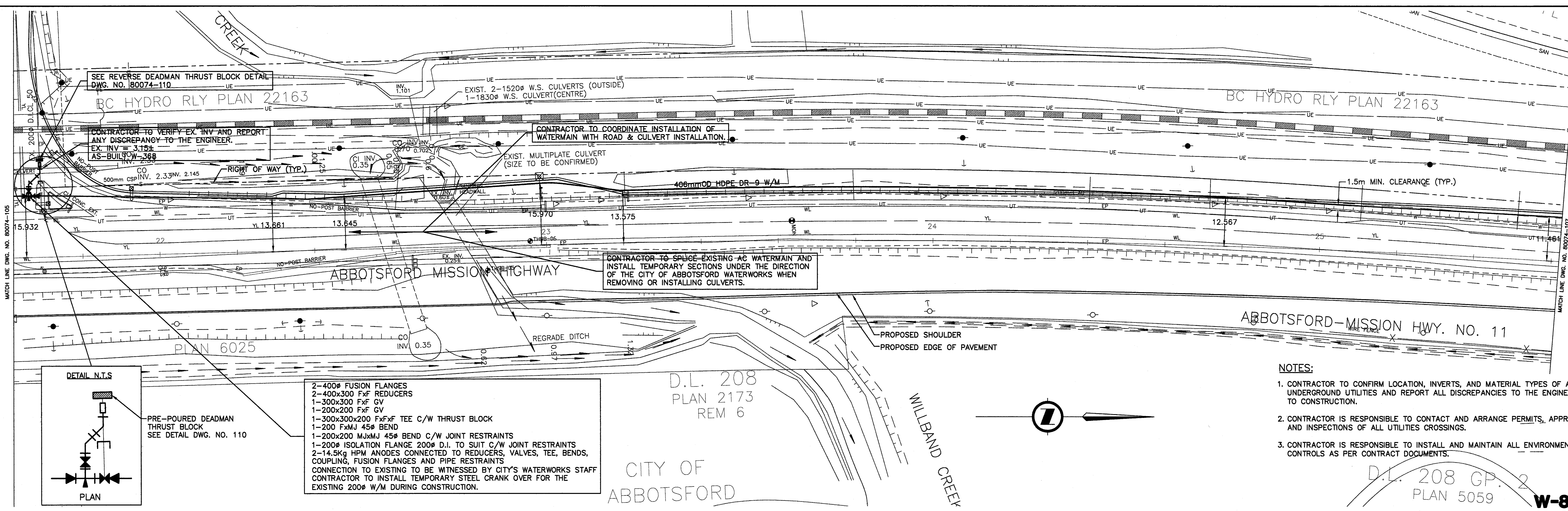
City of Abbotsford
 HWY 11 - MACLURE RD. TO CLAYBURN RD.
 PROPOSED WATERMAIN RELOCATION

Update: FEB. 24, 2006



621m OF 406mm OD, 300mm ID HDPE DR-9 WATERMAIN C/W FIELD BUTT FUSION JOINTS A

PROP. W/M LENGTH & TYPE	2.760	2.748	2.841	2.980	3.119	3.259	3.398	3.444	3.490	3.536	3.582	3.628	3.674	3.720	3.766	3.812	3.858	3.904	3.950	3.996	4.042	4.088	
PROP. W/M INVERTS	2.760	2.748	2.841	2.980	3.119	3.259	3.398	3.444	3.490	3.536	3.582	3.628	3.674	3.720	3.766	3.812	3.858	3.904	3.950	3.996	4.042	4.088	
				22+00					23+00					24+00					25+00				



- 2-400# FUSION FLANGES
- 2-400x300 FxF REDUCERS
- 1-300x300 FxF GV
- 1-200x200 FxF GV
- 1-300x300x200 FxF TEE C/W THRUST BLOCK
- 1-200 FxMJ 45# BEND
- 1-200x200 MxMJ 45# BEND C/W JOINT RESTRAINTS
- 1-200# ISOLATION FLANGE 200# D.I. TO SUIT C/W JOINT RESTRAINTS
- 2-14.5kg HPM ANODES CONNECTED TO REDUCERS, VALVES, TEE, BENDS, COUPLING, FUSION FLANGES AND PIPE RESTRAINTS
- CONNECTION TO EXISTING TO BE WITNESSED BY CITY'S WATERWORKS STAFF
- CONTRACTOR TO INSTALL TEMPORARY STEEL CRANK OVER FOR THE EXISTING 200# W/M DURING CONSTRUCTION.

- NOTES:
- CONTRACTOR TO CONFIRM LOCATION, INVERTS, AND MATERIAL TYPES OF ALL UNDERGROUND UTILITIES AND REPORT ALL DISCREPANCIES TO THE ENGINEER PRIOR TO CONSTRUCTION.
 - CONTRACTOR IS RESPONSIBLE TO CONTACT AND ARRANGE PERMITS, APPROVING AND INSPECTIONS OF ALL UTILITIES CROSSINGS.
 - CONTRACTOR IS RESPONSIBLE TO INSTALL AND MAINTAIN ALL ENVIRONMENTAL CONTROLS AS PER CONTRACT DOCUMENTS.

NO.	DATE	BY	REVISIONS	TECH. ENG.
4	03/06/06	DH	100% SUBMISSION FOR REVIEW	PC RF
3	12/16/05	DH	95% SUBMISSION FOR REVIEW	PC RF
2	11/18/05	DH	80% SUBMISSION FOR REVIEW	PC RF
1	10/19/05	DH	50% SUBMISSION FOR REVIEW	PC RF

NDLEA
1455 WEST GEORGIA STREET, VANCOUVER, BC V6G 2T3 TEL: (604) 685-9381

DESIGNED: PC DATE: NOV/05 DRAWN: DH DATE: NOV/05
 CHECKED: RF DATE: NOV/05 REVIEWED: SW DATE: NOV/05

SENIOR DESIGNER: _____ DATE: _____

FILE No. 80074M106 PROJECT No. _____ REG. DRAWING No. 80074-106

CANCEL PRINTS BEARING PREVIOUS LETTER

SCALE

HORIZ 0 1:500 25
 VERT 0 1:50 2

SHEET NO. _____ OF _____
 DRWG. NO. _____

City of Abbotsford

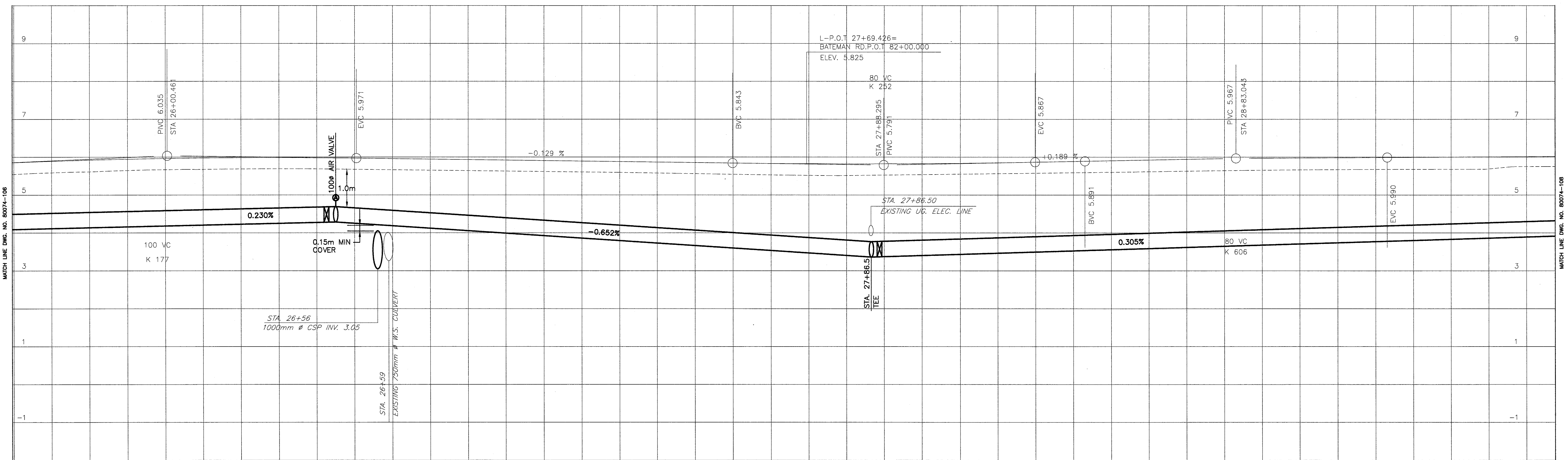
HWY 11 - MACLURE RD. TO CLAYBURN RD.
 PROPOSED WATERMAIN RELOCATION

D.L. 208 GP. 2
 PLAN 5059

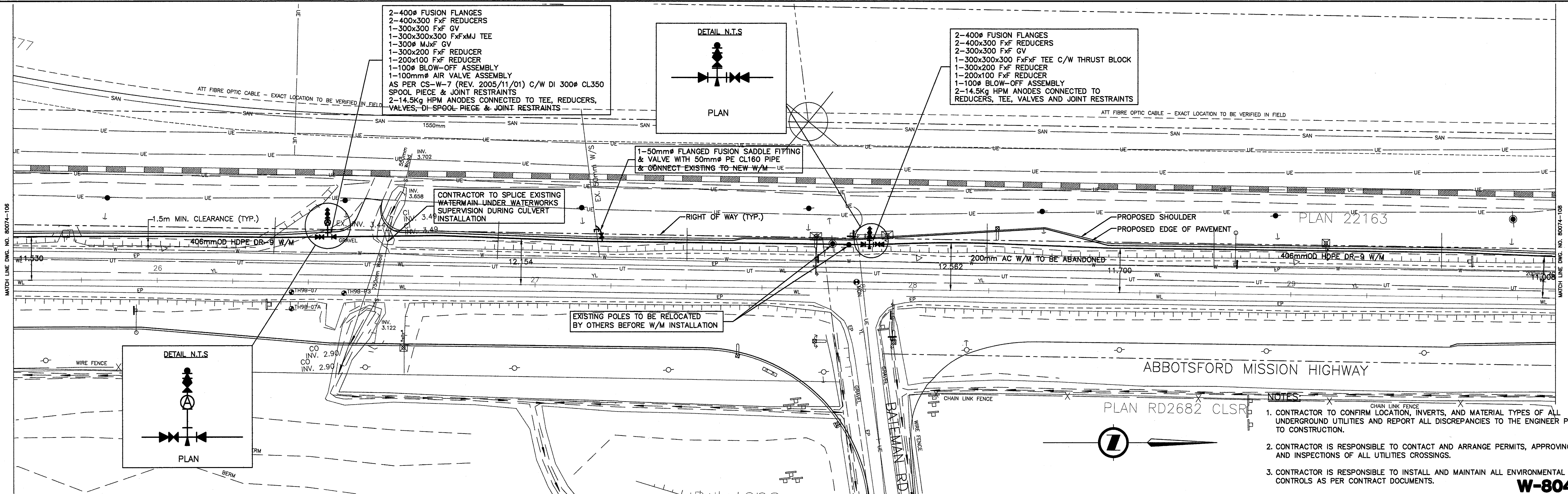
W-804

FILE: 80074-106

Update: MARCH 1, 2006



PROP. W/M LENGTH & TYPE	621m OF 406mm OD, 300mm ID HDPE DR-9 WATERMAIN C/W FIELD BUTT FUSION JOINTS										482m OF 406mm OD, 300mm ID HDPE DR-9 WATERMAIN C/W FIELD BUTT FUSION JOINTS												
PROP. W/M INVERTS	4.088	4.134	4.180	4.226	4.272	4.283	4.185	4.055	3.925	3.794	3.664	3.533	3.403	3.361	3.402	3.463	3.524	3.585	3.646	3.707	3.768	3.829	3.889
	26+00					27+00					28+00					29+00							



- NOTES**
- CONTRACTOR TO CONFIRM LOCATION, INVERTS, AND MATERIAL TYPES OF ALL UNDERGROUND UTILITIES AND REPORT ALL DISCREPANCIES TO THE ENGINEER PRIOR TO CONSTRUCTION.
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W-804

NO.	DATE	BY	REVISIONS	TECH. ENG.
4	03/06/08	DH	100% SUBMISSION FOR REVIEW	PC RF
3	12/16/05	DH	95% SUBMISSION FOR REVIEW	PC RF
2	11/18/05	DH	80% SUBMISSION FOR REVIEW	PC RF
1	10/19/05	DH	50% SUBMISSION FOR REVIEW	PC RF

NDLEA
1455 WEST GEORGIA STREET, VANCOUVER, BC V6G 2T3 TEL: (604) 685-9381

DESIGNED: PC DATE: NOV/05 DRAWN: DH DATE: NOV/05
 CHECKED: RF DATE: NOV/05 REVIEWED: SW DATE: NOV/05

SENIOR DESIGNER		DATE	
FILE No.	PROJECT No.	REG.	DRAWING No.
80074M107			80074-107
CANCEL PRINTS BEARING PREVIOUS LETTER			

SCALE

HORIZ 0 1:500 25

VERT 0 1:50 2

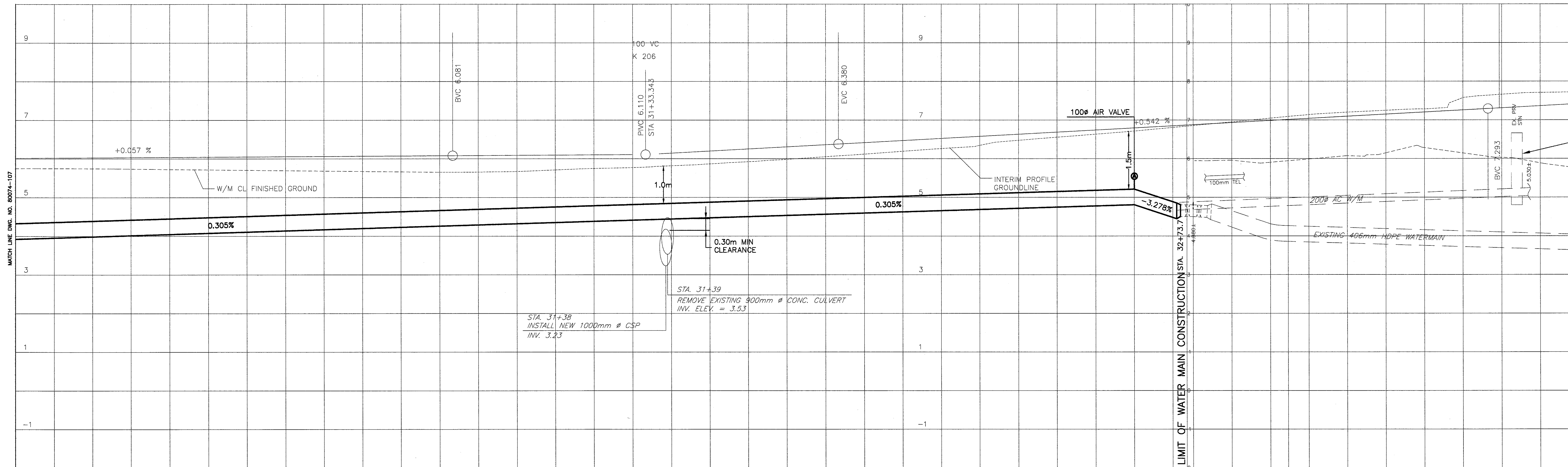
SHEET NO. ____ OF ____
 DRWG. NO. *Alb*

City of Abbotsford

HWY 11 - MACLURE RD. TO CLAYBURN RD.
 PROPOSED WATERMAIN RELOCATION

FILE: 80074-107

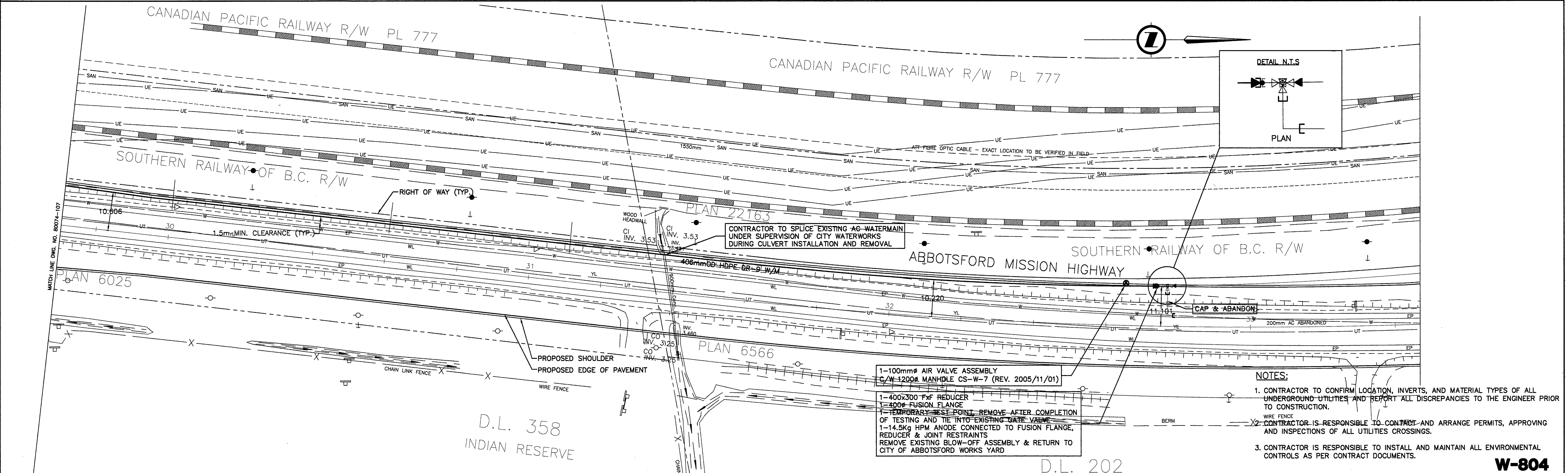
Update: FEB. 22, 2006



PROP. W/M LENGTH & TYPE

482m OF 406mm OD, 300mm ID HDPE DR-9 WATERMAIN C/W FEILD BUTT FUSION JOINTS

PROP. W/M INVERTS	3.950	4.011	4.072	4.133	4.194	4.255	4.316	4.377	4.438	4.499	4.560	4.621	4.682	4.743	4.804	4.444
	30+00						31+00					32+00				



NO.	DATE	BY	REVISIONS	TECH. ENG.
4	03/06/06	DH	100% SUBMISSION FOR REVIEW	PC RF
3	12/16/05	DH	95% SUBMISSION FOR REVIEW	PC RF
2	11/18/05	DH	80% SUBMISSION FOR REVIEW	PC RF
1	10/19/05	DH	50% SUBMISSION FOR REVIEW	PC RF

NDLEA
1455 WEST GEORGIA STREET, VANCOUVER, BC V6G 2T3 TEL. (604) 685-9381

DESIGNED: PC DATE: NOV/05 DRAWN: DH DATE: NOV/05
CHECKED: RF DATE: NOV/05 REVIEWED: SW DATE: NOV/05

SENIOR DESIGNER: _____ DATE: _____

FILE No. 80074M108 PROJECT No. _____ REG. _____ DRAWING No. 80074-108

CANCEL PRINTS BEARING PREVIOUS LETTER

SCALE

HORIZ 0 1:500 25
VERT 0 1:50 2

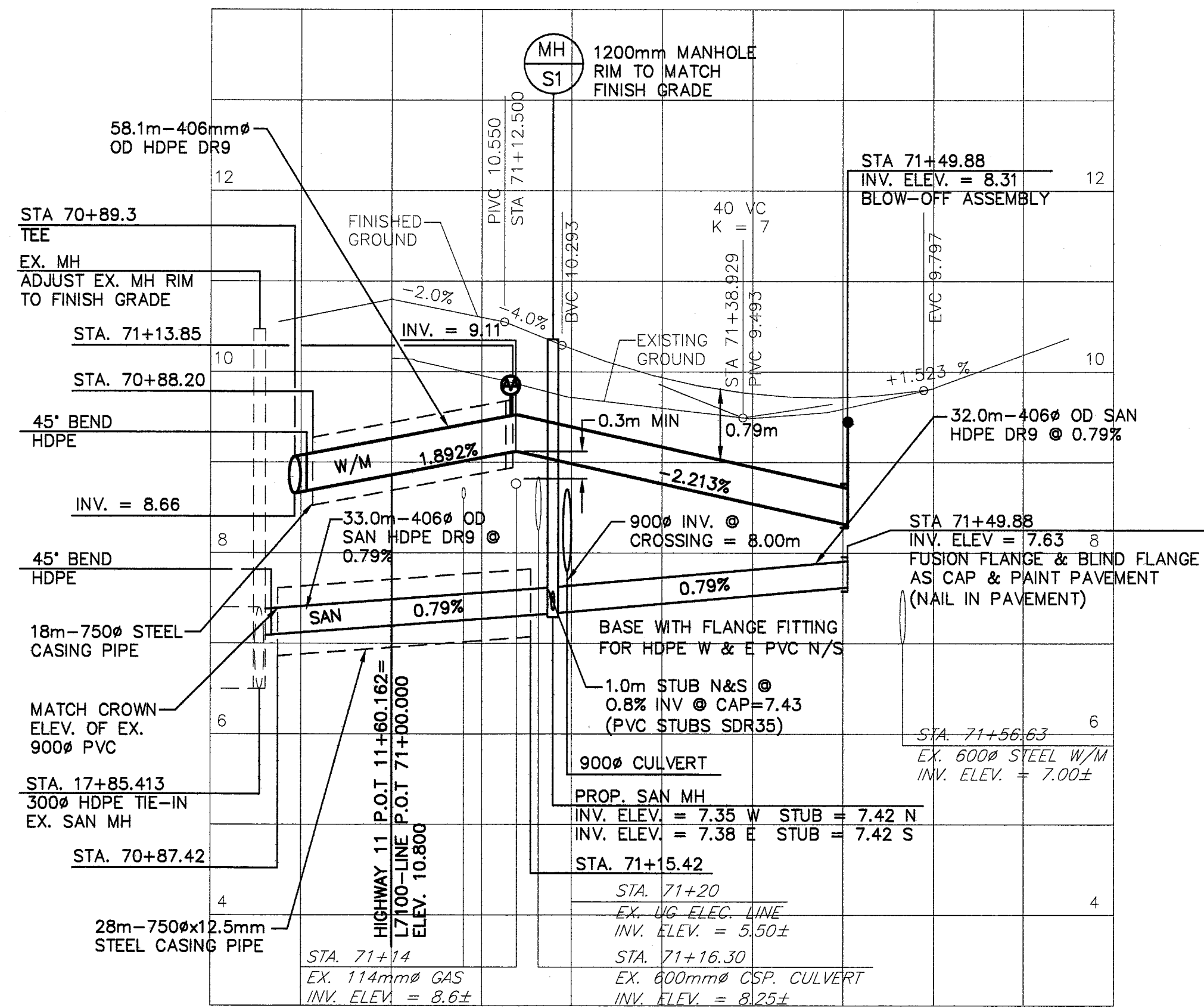
SHEET NO. _____ OF _____
DRWG. NO. _____

City of Abbotsford

HWY 11 - MACLURE RD. TO CLAYBURN RD.
PROPOSED WATERMAIN RELOCATION

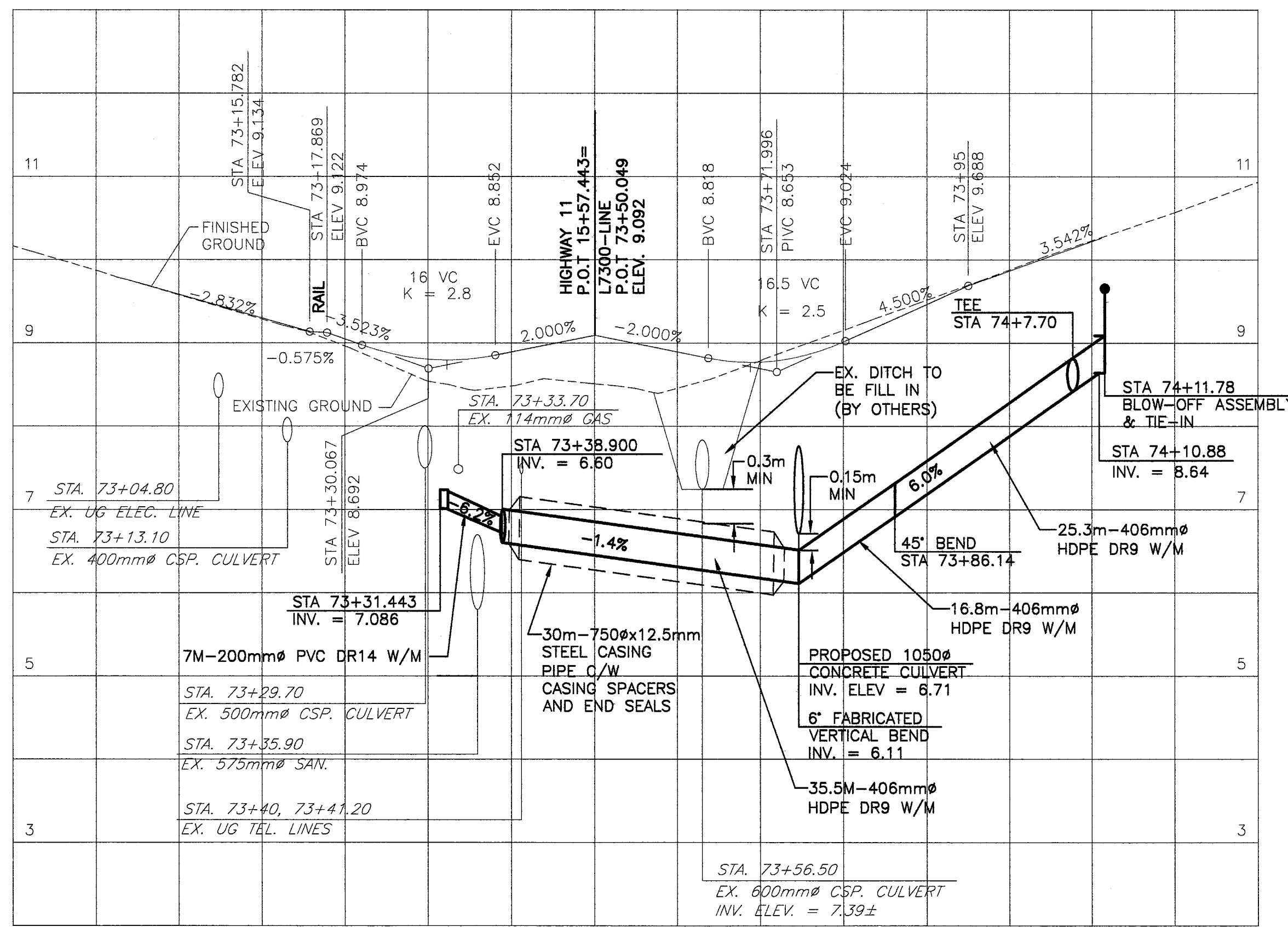
W-804

Update: FEB. 24, 2008

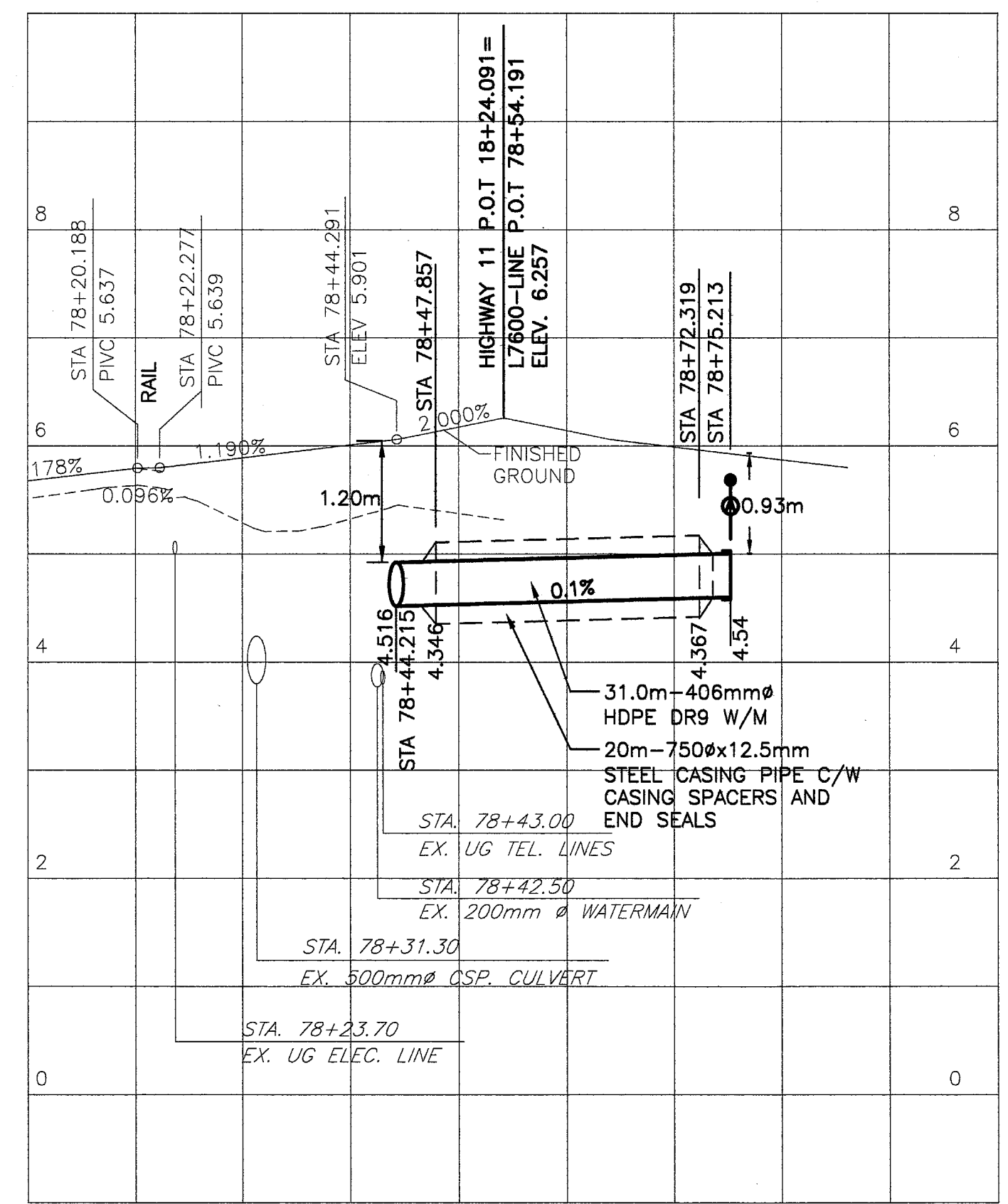


PROPOSED 300mm (ID) HDPE SANITARY SEWER & CASING CROSSING @ HWY 11 & MACLURE RD

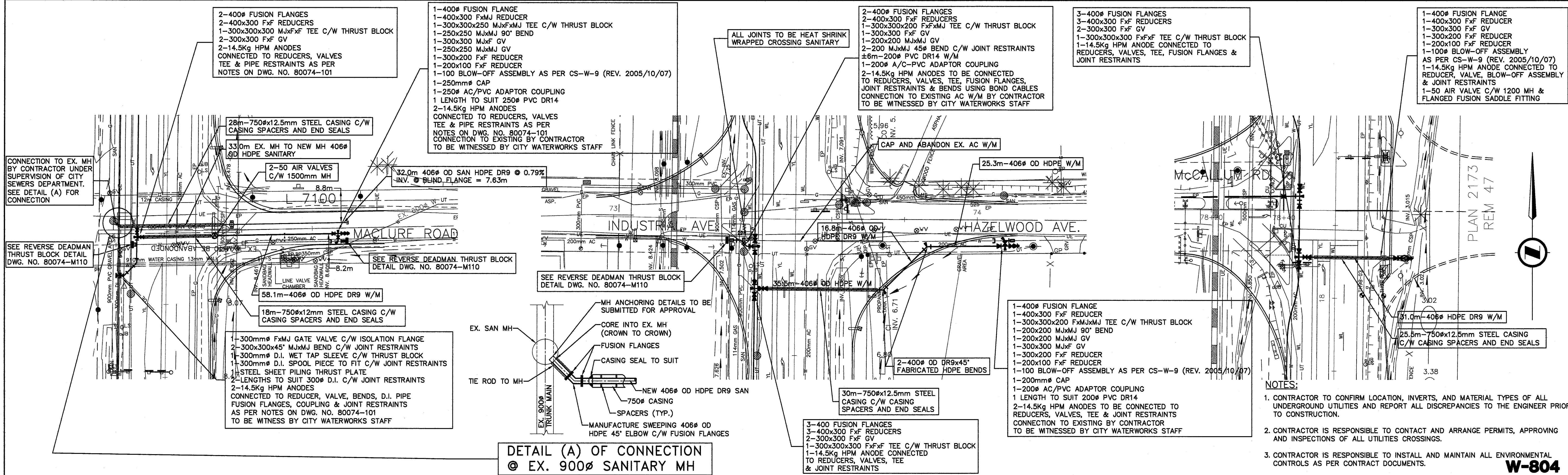
PROP. W/M	8.656	8.884	8.103
INVERTS			
	71+00		



PROP. W/M	7.034	6.530	6.286	7.106	6.699
INVERTS					
	73+00	73+50	74+00		



PROP. W/M	4.520	4.536
INVERTS		
	78+20	78+40



DETAIL (A) OF CONNECTION @ EX. 900mm SANITARY MH

- NOTES:
- CONTRACTOR TO CONFIRM LOCATION, INVERTS, AND MATERIAL TYPES OF ALL UNDERGROUND UTILITIES AND REPORT ALL DISCREPANCIES TO THE ENGINEER PRIOR TO CONSTRUCTION.
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FILE: 80074-109

NO.	DATE	BY	REVISIONS	TECH. ENG.
4	03/06/06	DH	100% SUBMISSION FOR REVIEW	PC RF
3	12/16/05	DH	95% SUBMISSION FOR REVIEW	PC RF
2	11/18/05	DH	80% SUBMISSION FOR REVIEW	PC RF
1	10/19/05	DH	50% SUBMISSION FOR REVIEW	PC RF

DESIGNED	PC	DATE	NOV/05	DRAWN	DH	DATE	NOV/05
CHECKED	RF	DATE	NOV/05	REVIEWED	SW	DATE	NOV/05

SENIOR DESIGNER	DATE		
FILE No.	PROJECT No.	REG.	DRAWING No.
80074M109			80074-109

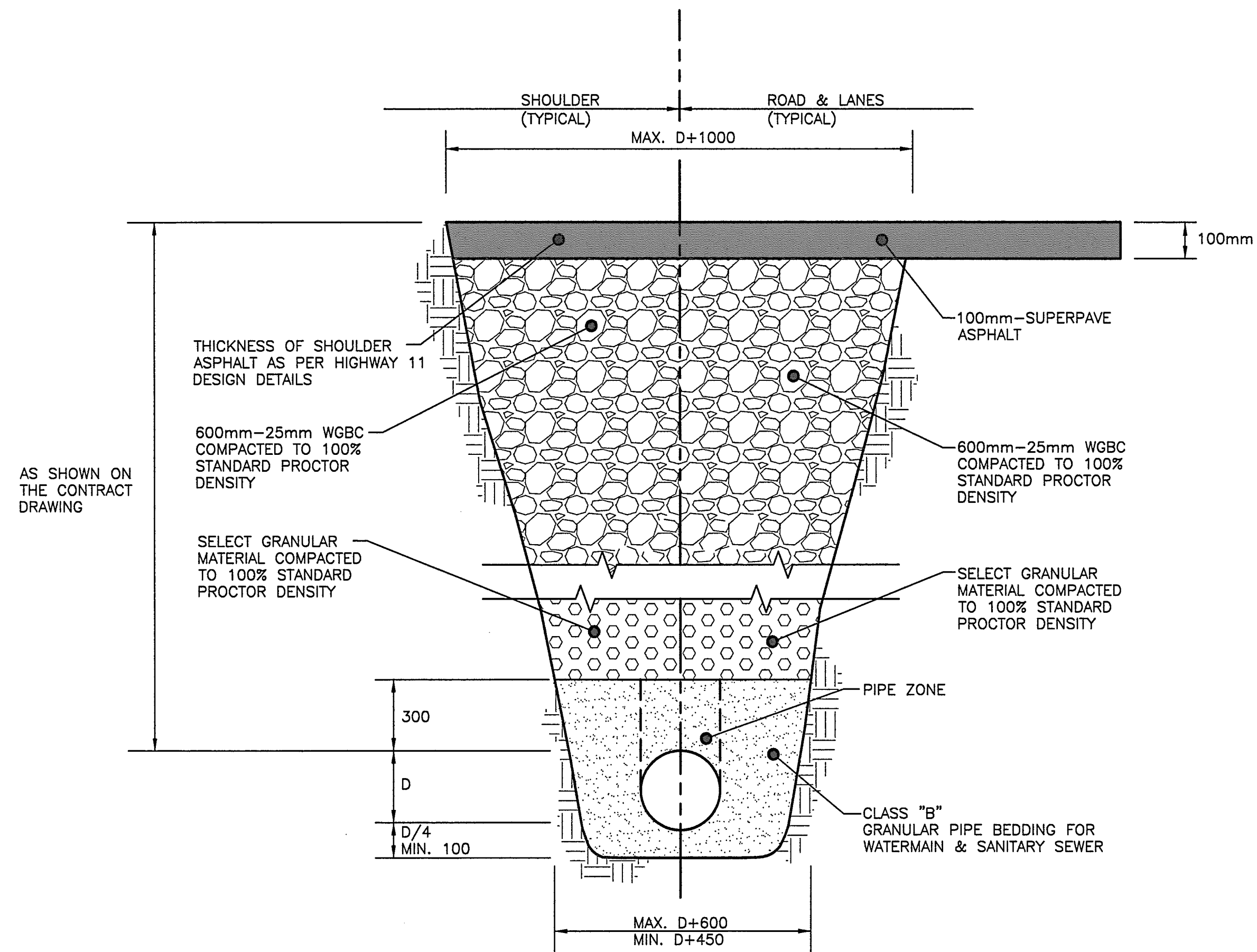
SCALE	HORIZ	0	1:500	25
	VERT	0	1:50	2

SHEET NO.	OF
DRWG. NO.	

City of Abbotsford
 HWY 11 - MACLURE RD. TO CLAYBURN RD.
 PROPOSED WATERMAIN RELOCATION

W-804

Update: FEB. 24, 2006

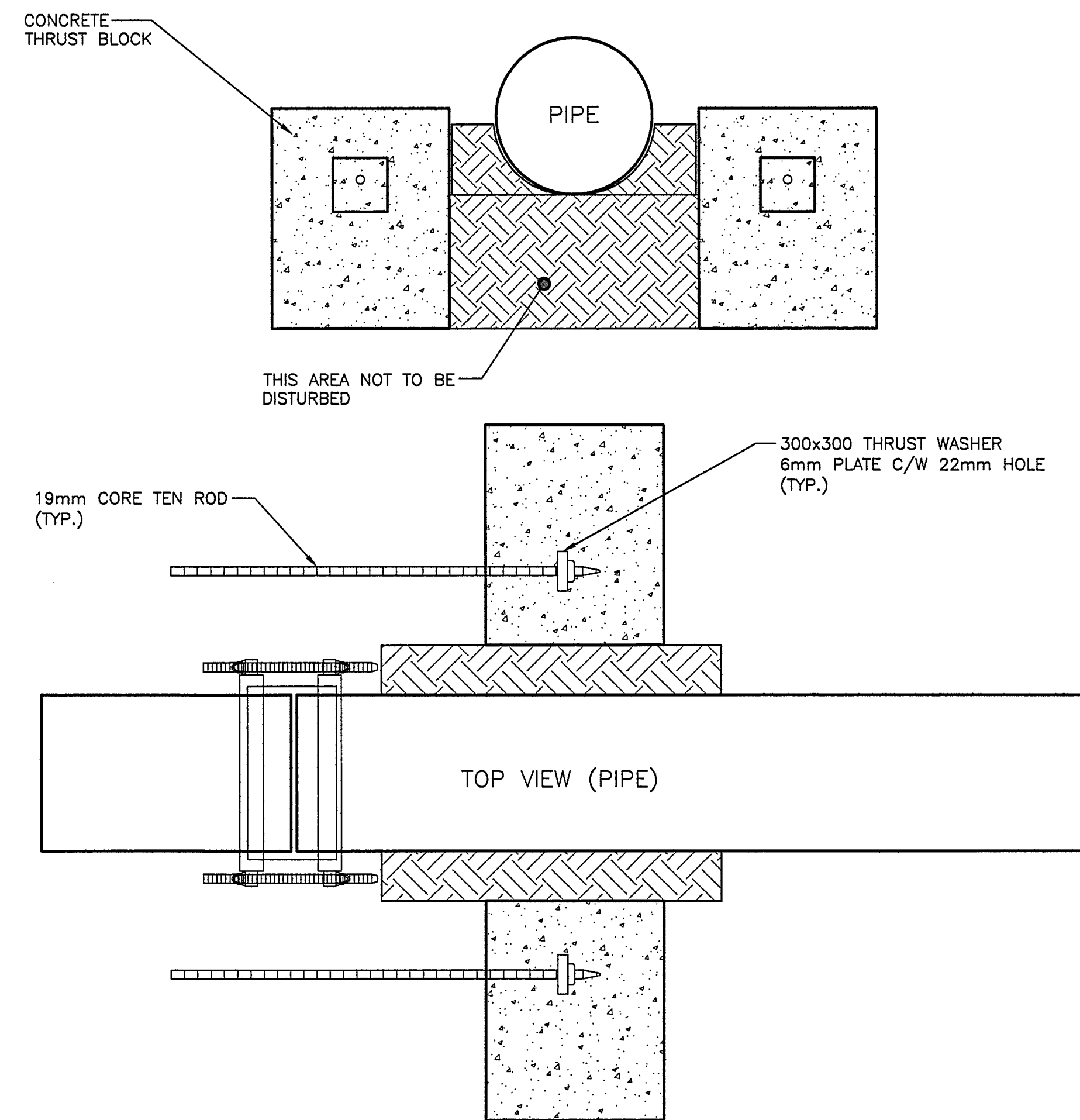


NOTES:

1. TRENCHING TO COMPLY WITH ALL REQUIREMENTS OF THE WORKER'S COMPENSATION BOARD.
2. REFER TO CONTRACT DRAWINGS AND MMCD SECTION 02233 FOR DETAILED SPECIFICATIONS & CS-R-9 FOR WORKS WITHIN CITY OF ABBOTSFORD RIGHT OF WAY.

TYPICAL WATERMAIN SANITARY SEWER TRENCH SECTION

NTS



REVERSE DEADMAN THRUST BLOCK

NTS

FILE: 80074-110

NO.	DATE	BY	REVISIONS	TECH. ENG.
4	03/06/06	DH	100% SUBMISSION FOR REVIEW	PC RF
3	12/16/05	DH	95% SUBMISSION FOR REVIEW	PC RF
2	11/18/05	DH	80% SUBMISSION FOR REVIEW	PC RF
1	10/19/05	DH	50% SUBMISSION FOR REVIEW	PC RF

NDLEA
1455 WEST GEORGIA STREET, VANCOUVER, BC V6G 2T3 TEL. (604) 685-9381

DESIGNED: PC DATE: NOV/05 DRAWN: DH DATE: NOV/05
CHECKED: RF DATE: NOV/05 REVIEWED: SW DATE: NOV/05

SENIOR DESIGNER: _____ DATE: _____
FILE No. 80074M110 PROJECT No. _____ REG. _____ DRAWING No. 80074-110
CANCEL PRINTS BEARING PREVIOUS LETTER

SCALE
HORIZ 0 1:500 25
VERT 0 1:50 2

SHEET NO. ____ OF ____
DRWG. NO. *ALW*

City of Abbotsford
HWY 11 - MACLURE RD. TO CLAYBURN RD.
PROPOSED WATERMAIN RELOCATION

W-804

Update: FEB 21, 2006