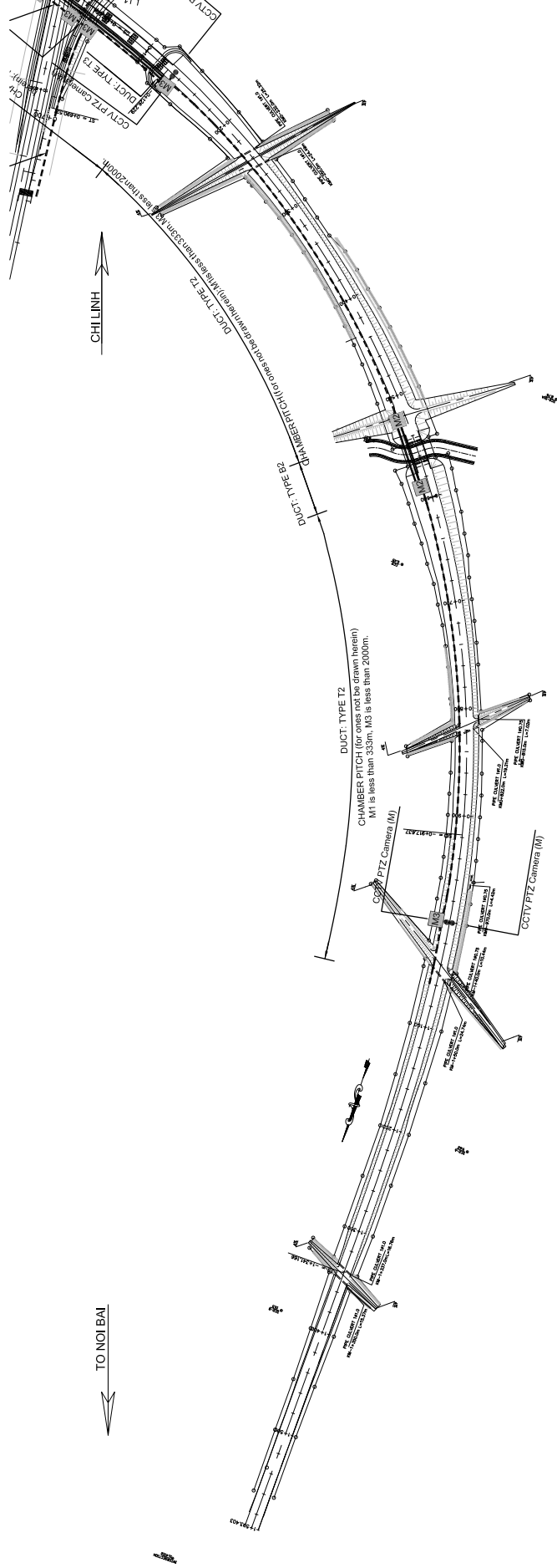
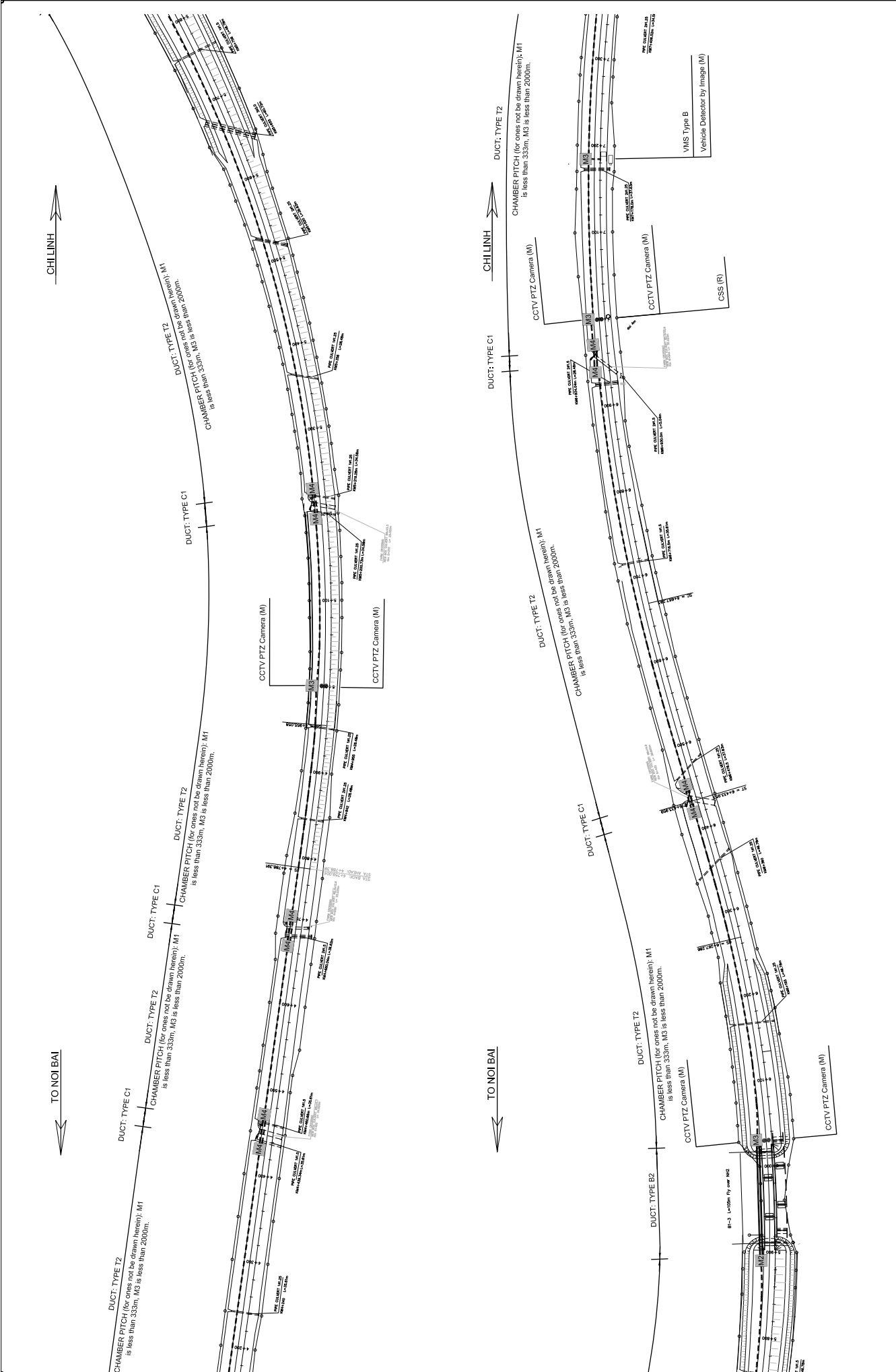


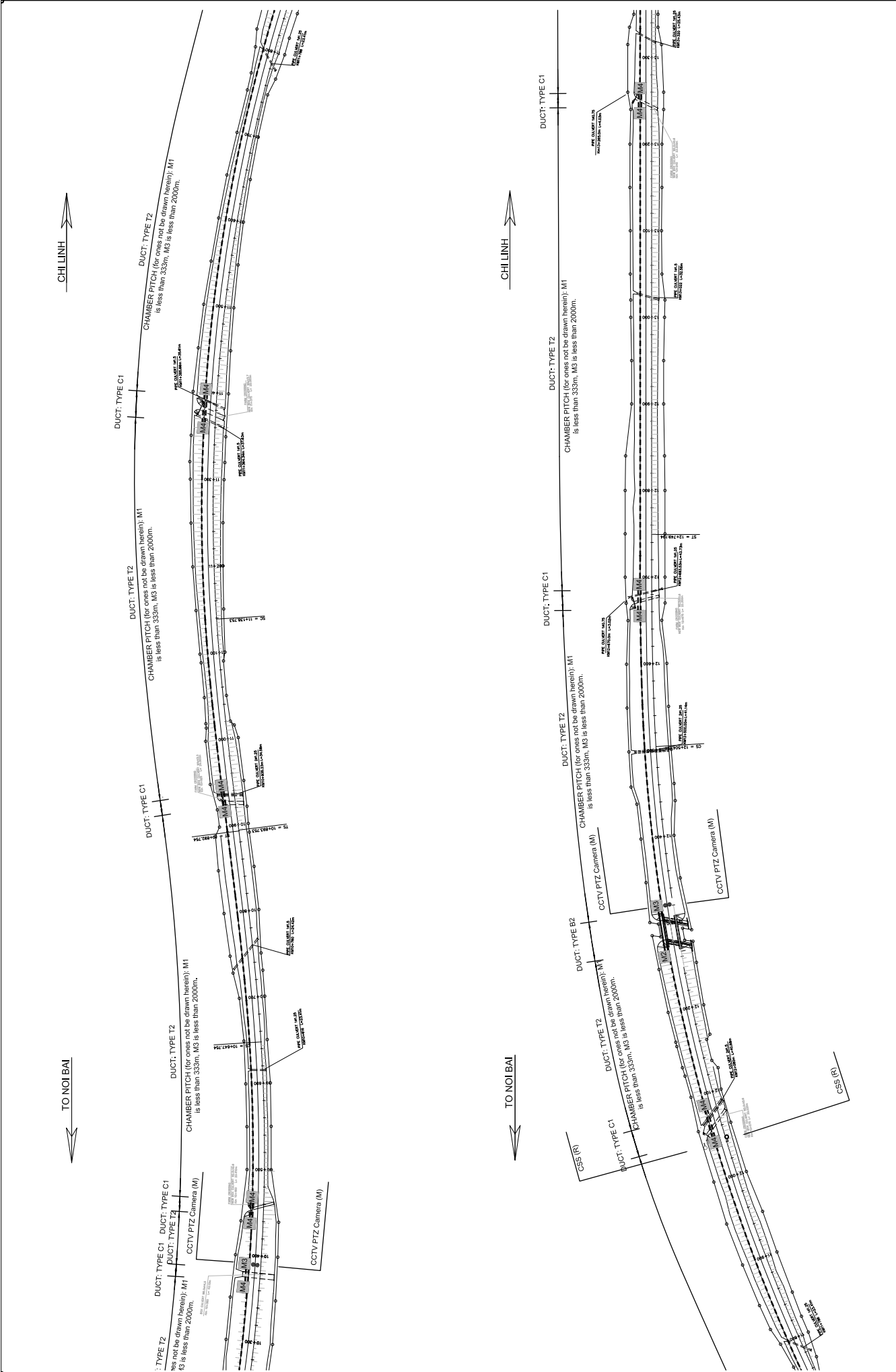
NOI BAI - BAC NINH EXPRESSWAY



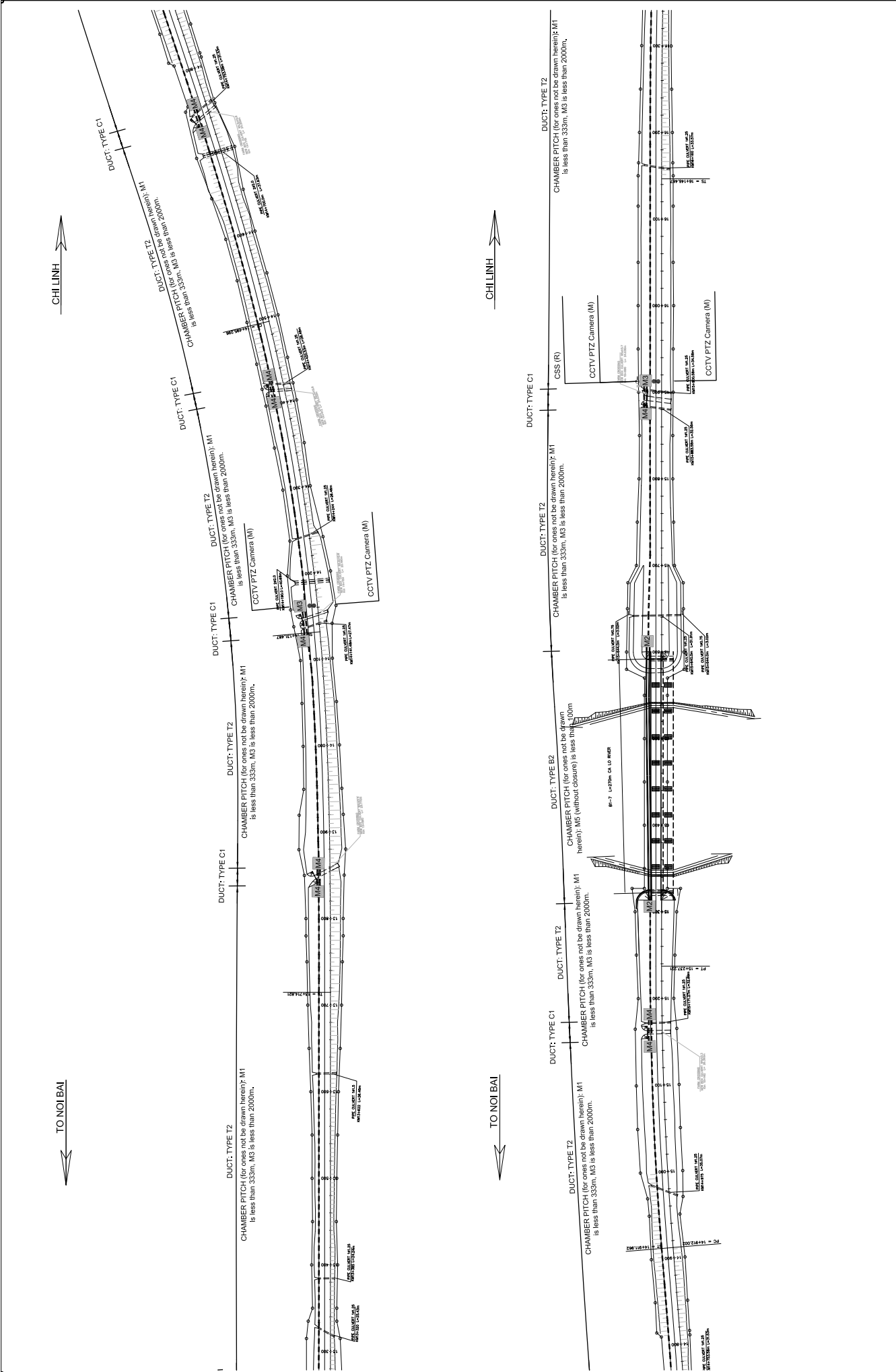
CONSULTANT ORIENTAL CONSULTANTS CO., LTD NEXCO EAST ENGINEERING CO., LTD NIPPON KOEI CO., LTD TRANSPORTATION RESEARCH INSTITUTE CO., LTD LANDTEC-JAPAN INC.		TITLE PREPARED BY CHECKED BY APPROVED BY		NAME SIGNATURE DATE	SOCIALIST REPUBLIC OF VIETNAM MINISTRY OF TRANSPORT	ITS INTEGRATION PROJECT ON NEW NATIONAL HIGHWAY NO.3 & NORTHERN AREA OF VIETNAM LAYOUT PLAN OF ROADSIDE EQUIPMENT & COMMUNICATION DUCT (Km -1-593 --: KM -0-100, NOI BAI - BAC NINH EXP.)	PACKAGE: DRAWING NO.: X.1 - 01 SHEET NO.: Sheet of
		SCALE: 1:14000					



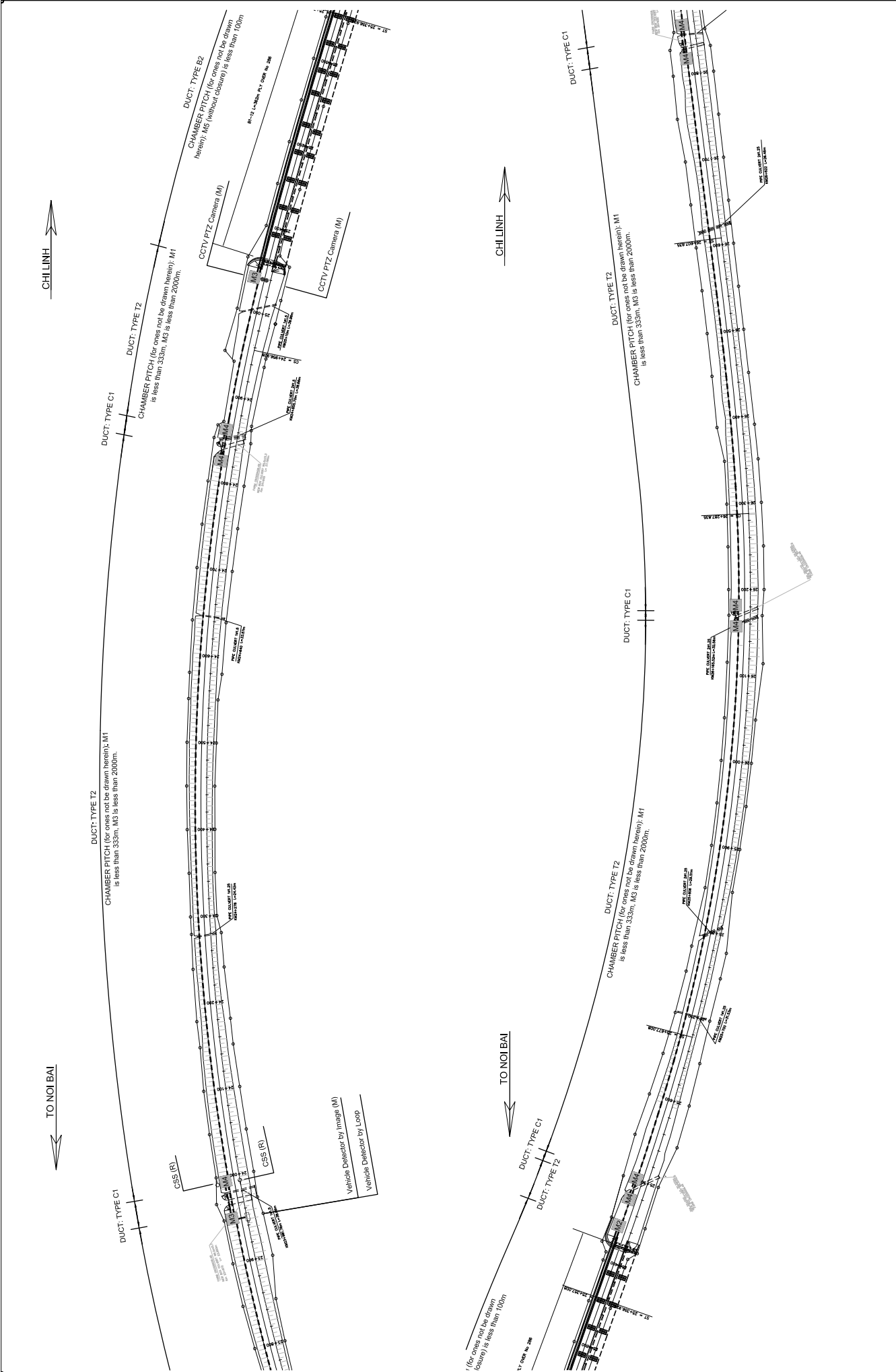
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		SOCIALIST REPUBLIC OF VIETNAM MINISTRY OF TRANSPORT		ITS INTEGRATION PROJECT ON NEW NATIONAL HIGHWAY NO.3 & NORTHERN AREA OF VIETNAM DRAWING TITLE LAYOUT PLAN OF ROADSIDE EQUIPMENT & COMMUNICATION DUCT (Km 4+200 -> Km 7+300, NOI BAI - BAC NINH EXP.)	
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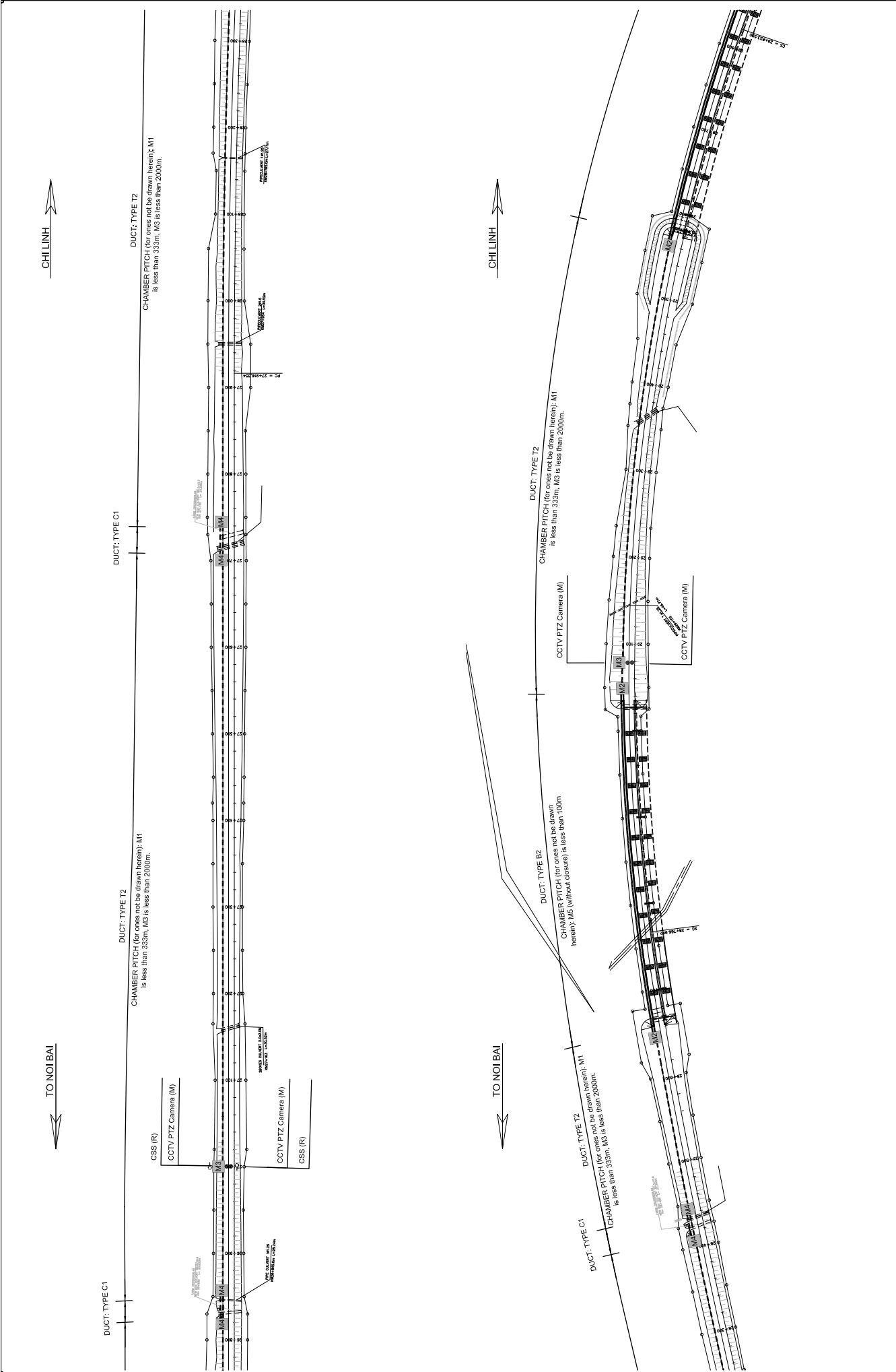
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CHECKED BY				DRAWING TITLE:			
APPROVED BY				LAYOUT PLAN OF ROADSIDE EQUIPMENT & COMMUNICATION DUCT			
ORIENTAL CONSULTANTS CO., LTD				DRAWING NO.:			
NEXCO EAST ENGINEERING CO., LTD				X.1 - 07			
TRANSPORTATION RESEARCH INSTITUTE CO., LTD				SHEET NO.:			
LANDTEC-JAPAN INC.				Sheet of			
				SCALE: 1:4000			



CONSULTANT ORIENTAL CONSULTANTS CO., LTD NEXCO EAST ENGINEERING CO., LTD NIPPON KOEI CO., LTD TRANSPORTATION RESEARCH INSTITUTE CO., LTD LANDTEC-JAPAN INC.		TITLE	NAME	SIGNATURE	DATE
		PREPARED BY	CHECKED BY	APPROVED BY	
SOCIALIST REPUBLIC OF VIETNAM MINISTRY OF TRANSPORT		ITS INTEGRATION PROJECT ON NEW NATIONAL HIGHWAY NO.3 & NORTHERN AREA OF VIETNAM LAYOUT PLAN OF ROADSIDE EQUIPMENT & COMMUNICATION DUCT (Km 13+300 -> Km 16+300, NOI BAI - BAC NINH EXP.)			
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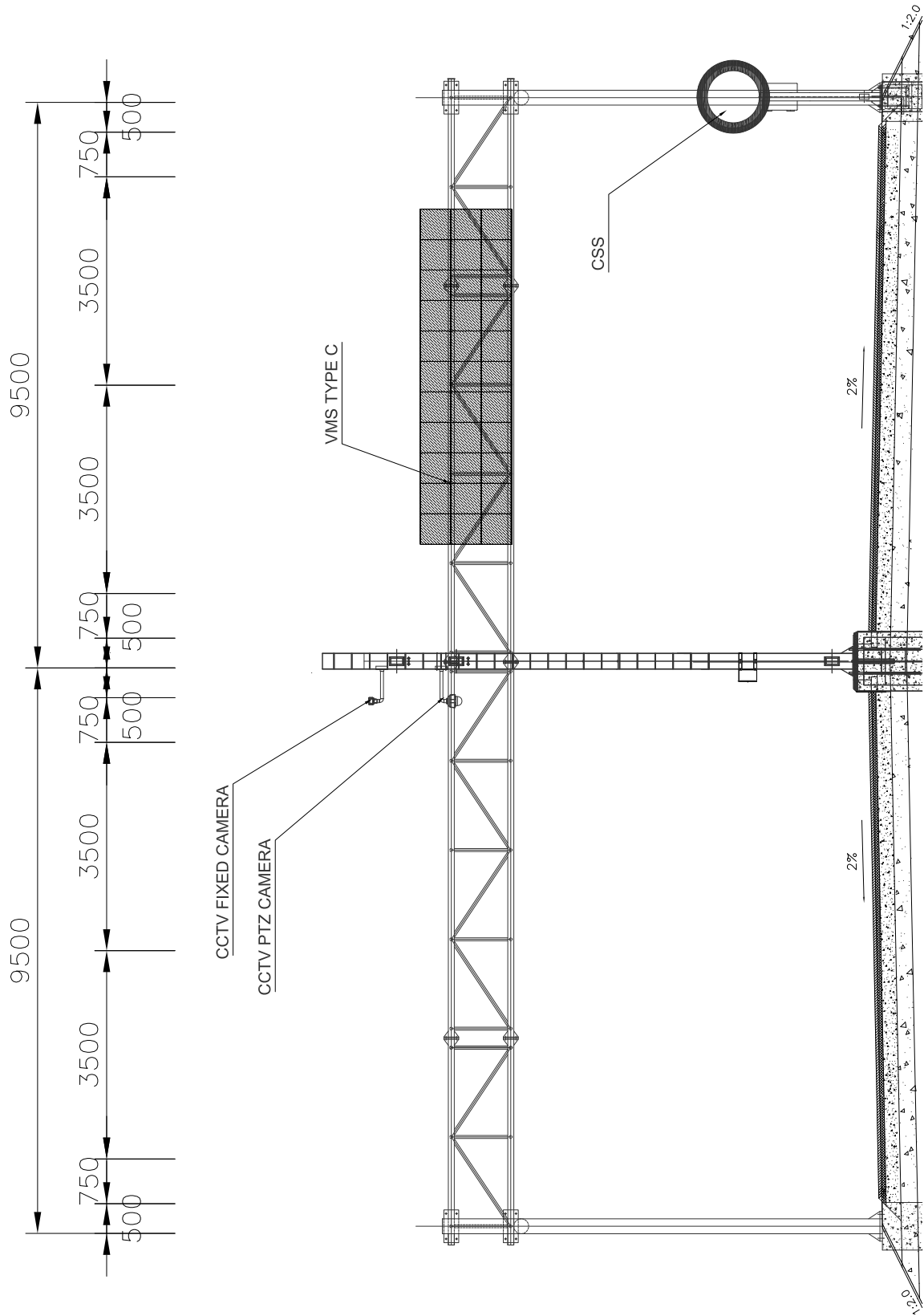


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TITLE		NAME		SIGNATURE		DRAWING NO.:	
PREPARED BY						X.1 - 12	
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APPROVED BY						Sheet of	
						Scale: 1:4000	



CONSULTANT		TITLE		NAME		SIGNATURE		DATE	
		ORIENTAL CONSULTANTS CO., LTD	PREPARED BY						
ORIENTAL CONSULTANTS CO., LTD NEXCO EAST ENGINEERING CO., LTD NIPPON KOEI CO., LTD TRANSPORTATION RESEARCH INSTITUTE CO., LTD LANDTEC-JAPAN INC.		CHECKED BY		CHECKED BY		CHECKED BY		CHECKED BY	
SOCIALIST REPUBLIC OF VIETNAM		PACKAGE:		DRAWING NO.:		DRAWING INCH:		SHEET NO.:	
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MINISTRY OF TRANSPORT		DRAWING TITLE:		SCALE:		REVISION:		DATE:	
		LAYOUT PLAN OF ROADSIDE EQUIPMENT & COMMUNICATION DUCT (Km 26+800 -- Km 29+800, NOI BAI - BAC NINH EXP.)		1:4000					

TYPICAL CROSS SECTION

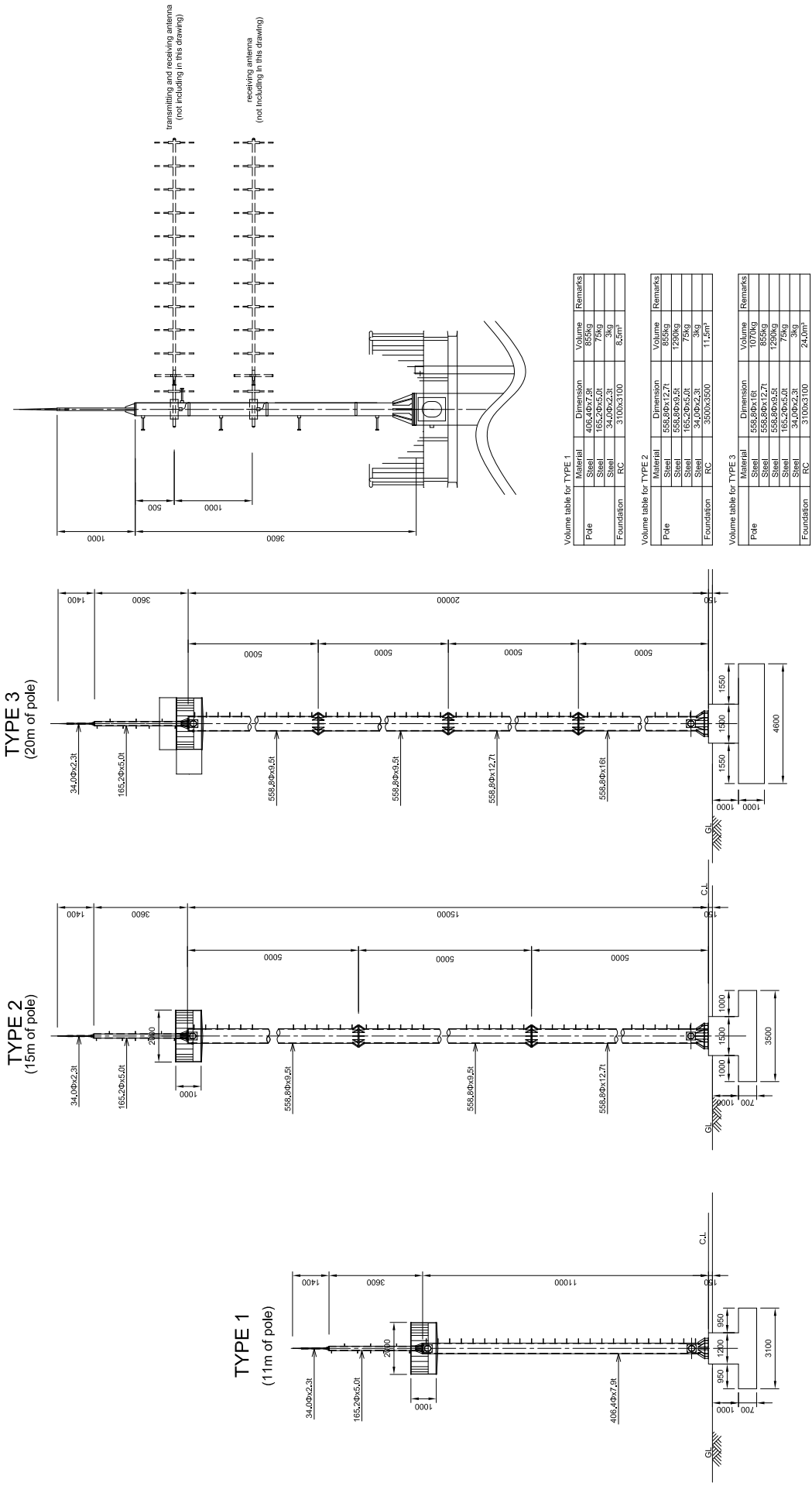


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NEXCO EAST ENGINEERING CO., LTD	PREPARED BY	TYPICAL CROSS SECTION OF EQUIPMENT ARRANGEMENT		SHEET No. of	
NIPPON KOEI CO., LTD	CHECKED BY	OF NOI BAI - BAC NINH EXP.		Rev:	
TRANSPORTATION RESEARCH INSTITUTE CO., LTD	APPROVED BY	SCALE: 1:100			
LANDTEC JAPAN INC.					

RADIO COMMUNICATION ANTENNA TOWER

RADIO COMMUNICATION TOWER scale: 1/150

SUPPORT FOR ANTENNA scale: 1/150



Volume table for TYPE 1

Pole	Material	Dimension	Volume	Remarks
	Steel	408.40x7.9t	855kg	
	Steel	165.20x5.0t	75kg	
	Steel	34.00x2.3t	3kg	
Foundation	RC	3100x3100	8.5m ³	

Volume table for TYPE 2

Pole	Material	Dimension	Volume	Remarks
	Steel	558.90x9.5t	1070kg	
	Steel	165.20x5.0t	125kg	
	Steel	34.00x2.3t	3kg	
Foundation	RC	3500x3500	11.5m ³	

Volume table for TYPE 3

Pole	Material	Dimension	Volume	Remarks
	Steel	558.90x11.8t	1070kg	
	Steel	165.20x5.0t	125kg	
	Steel	34.00x2.3t	3kg	
Foundation	RC	3100x3100	24.0m ³	

*1 Structural steel conforms ASTM A-709M Grade 250 or equivalence with:
Yield strength: Fy = 250 MPa
Tensile strength: Fu = 400 MPa
*2 Corrosion protection with:
Coarse sand blasting with:
Reinforcing Bar (CB300-II) ; Yield strength: Fy = 300 MPa
Tensile strength: Fu = 450 MPa
*3 In case without any recommendation about zincing in details, all metal members exposed to weather or soil must be zinced with amount of 550g/m².
*4 This drawing be based on NEXCO(Japan) drawings.
*5 These structures should be redesigned to meet site condition.

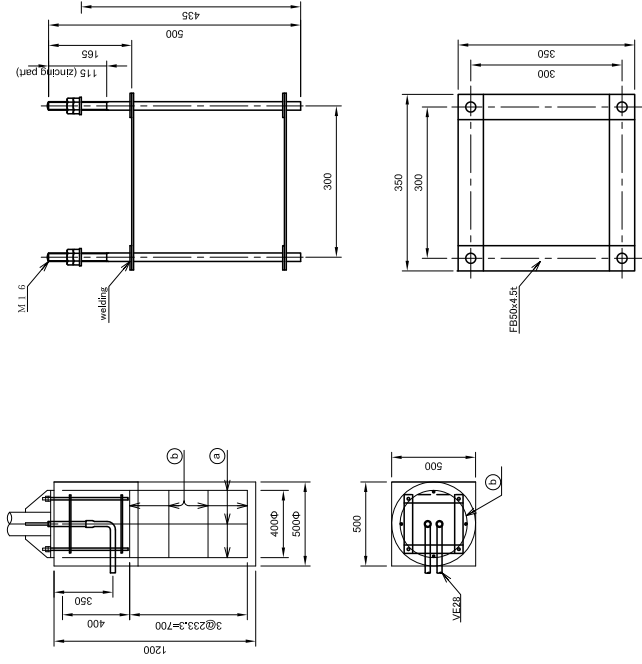
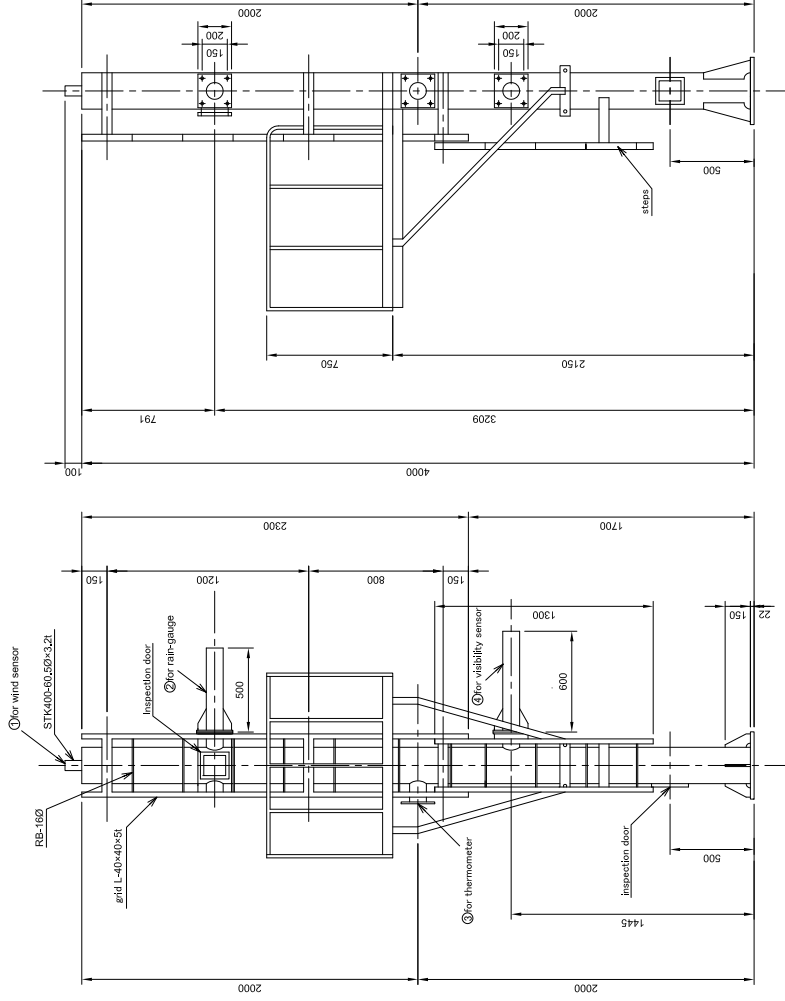
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ORIENTAL CONSULTANTS CO., LTD				LANG - HOA LAC EXP.	VI.2-06		of
NEXCO EAST ENGINEERING CO., LTD				RADIO COMMUNICATION ANTENNA TOWER			
NIPPON KOEI CO., LTD				SCALE: Various			
TRANSPORTATION RESEARCH INSTITUTE CO., LTD							
LANDTEC JAPAN INC.							

SUPPORT POLE FOR WEATHER SENSOR

SUPPORT POLE FOR WEATHER SENSOR scale:1/30

FOUNDATION scale:1/30

ANCHOR BOLT scale:1/10



Rebar processing table of foundation

type	shape	volume in flat part
a	D13	4
b	D10	4

Volume table of foundation

items	class	unit	volume
concrete		m ³	0.282
rebar	D13	kg	4.378
formwork	D10	m ²	3.907
disposal of waste soil		m ³	0.235
anchor bolt	160x500x4	set	1
normal bend	VE28	pile	2

Volume table of support pole

No.	Material	Dimension	Volume	Weight (kg)	Remarks
①	Steel	215.50x3.2L	0.1	0.452	
	Steel	60.50x3.2L	0.384	4.708	
	Steel	114.50x4.5L	0.160	27.632	
	Steel	121	0.205	25.727	
	Steel	121	0.028	2.713	
	Steel	60.50x3.2L	0.484	5.995	
	Steel	114.50x4.5L	0.040	5.020	
	Steel	121	0.035	3.297	
	Steel	114.50x4.5L	0.584	7.125	
	Steel	121	0.040	5.020	
②	Steel	50x50x6R	9.100	40.313	
	Steel	50x50x6R	3.500	4.9842	
stage	XG-21	1.000	13.70		
	SGP-20A	14.0	25.52		
steps	40x40x51	7.2	2.720		
	RS-100	3.64	3.680		
			Total weight	369kg	

- *1 Structural steel conforms ASTM A-709M Grade 250 or equivalence with:
Yield strength: Fy = 250 MPa
Tensile strength: Fu = 400 MPa
- *2 Reinforcing steel conforms with:
Yield strength: Fy = 180 MPa
Tensile strength: Fu = 180 MPa
Reinforcing Bar (CB300-II); Yield strength: Fy = 300 MPa
Tensile strength: Fu = 450 MPa
- *3 In case without any recommendation about zincing in details, all metal members exposed to weather or soil must be zinced with amount of 550g/m².
- *4 This drawing be based on NEXCO (Japan) drawings.
- *5 These structures should be redesigned to meet site condition.

SOCIALIST REPUBLIC OF VIETNAM
MINISTRY OF TRANSPORT

ITS INTEGRATION PROJECT ON
NEW NATIONAL HIGHWAY NO.3 & NORTHERN AREA OF VIETNAM
LANG - HOA LAC EXP.
SUPPORT POLE FOR WEATHER SENSOR

PACKAGE:
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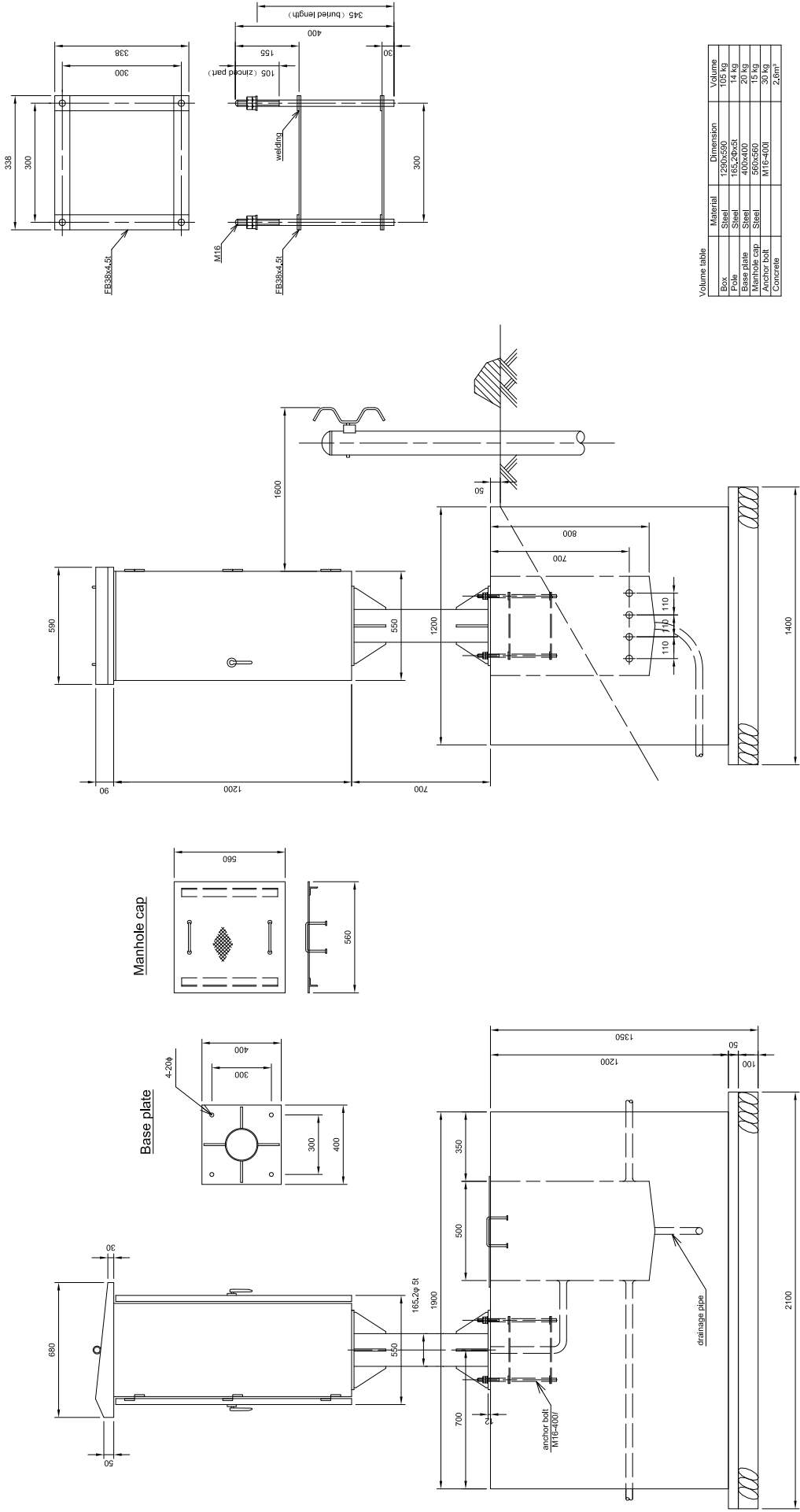
TITLE: _____ DATE: _____
PREPARED BY: _____
CHECKED BY: _____
APPROVED BY: _____

NAME: _____ SIGNATURE: _____

HOUSING BOX FOR WEATHER SENSOR

STANCE FIGURE scale: 1/20.

ANCHOR BOLT scale: 1/10.



*1 Structural steel conforms ASTM A-709M Grade 250 or equivalence with:
 Yield strength: $F_y = 250$ MPa
 Tensile strength: $F_u = 400$ MPa

*2 Concrete conforms with:
 Compressive strength: $F_c = 18$ MPa
 Reinforcing Bar (CB300-II) : Yield strength: $F_y = 300$ MPa
 Tensile strength: $F_u = 450$ MPa

*3 In case without any recommendation about zincing in details, all metal members exposed to weather or soil must be zinced with amount of 550g/m².

*4 This drawing is based on NEXCO (Japan) drawings.

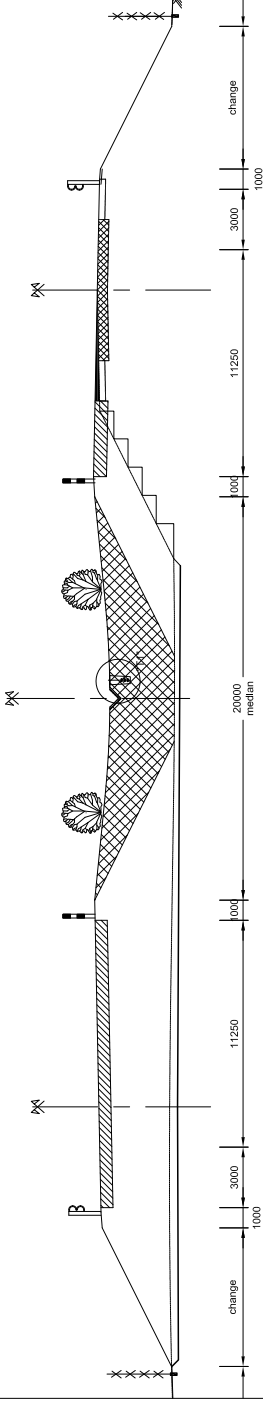
*5 These structures should be redesigned to meet site condition.

CONSULTANT		SOCIALIST REPUBLIC OF VIETNAM		ITS INTEGRATION PROJECT ON NEW NATIONAL HIGHWAY NO.3 & NORTHERN AREA OF VIETNAM	
TITLE	NAME	SIGNATURE	DATE	DRAWING NO.	VI-2-08
PREPARED BY				LANG - HOA LAC EXP	
CHECKED BY				HOUSING BOX FOR WEATHER SENSOR	
APPROVED BY				SHEET No.	Sheet of
ORIENTAL CONSULTANTS CO., LTD NEXCO EAST ENGINEERING CO., LTD NIPPON KOEI CO., LTD TRANSPORTATION RESEARCH INSTITUTE CO., LTD LANDTEC JAPAN INC.			SCALE: Various		

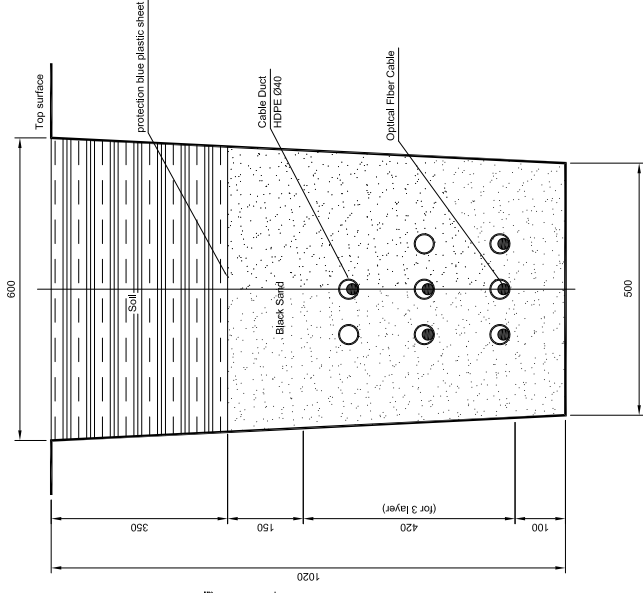
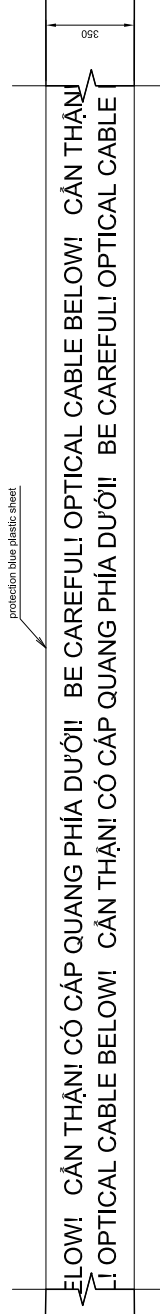
TYPICAL CROSS SECTION OF COMMUNICATION DUCT(TYPE T1) IN EARTHWORK SECTION

T1 DETAIL scale:1/10

ARRANGEMENT OF COMMUNICATION DUCT IN MEDIAN (T1 TYPE)



PROTECTION BLUE PLASTIC SHEET scale:1/20



Volume table of T1 Duct (for 1 kilometer in length)

Material	Volume
Disposal soil	561 m ³
Black sand	357 m ³
Backfill soil	204 m ³
Protection blue plastic sheet	500 m ²

CONSULTANT		TITLE	NAME	SIGNATURE	DATE
ORIENTAL CONSULTANTS CO., LTD					
NEXO EAST ENGINEERING CO., LTD					
NIPPON KOEI CO., LTD					
TRANSPORTATION RESEARCH INSTITUTE CO., LTD					
LANDTEC JAPAN INC.					

SOCIALIST REPUBLIC OF VIETNAM
MINISTRY OF TRANSPORT

ITS INTEGRATION PROJECT ON
NEW NATIONAL HIGHWAY NO.3 & NORTHERN AREA OF VIETNAM
DRAWING TITLE:
LANG - HOA LAC EXPRESSWAY
TYPICAL CROSS SECTION OF COMMUNICATION DUCT(TYPE T1)
IN EARTHWORK SECTION

PACKAGE:

WORKING NO.:

SHEET NO.:

Rec

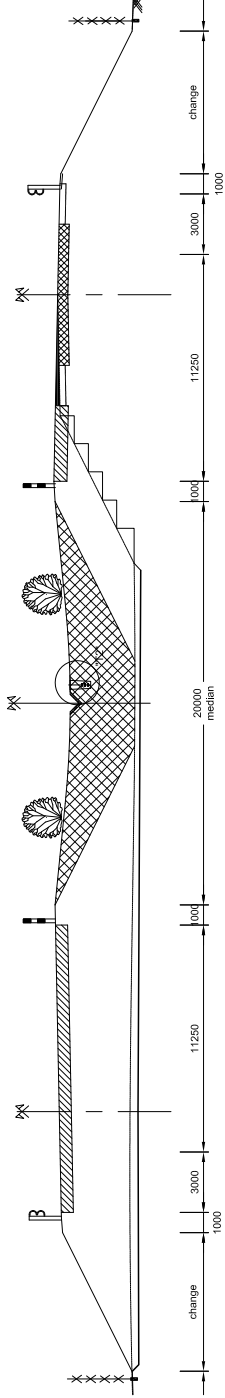
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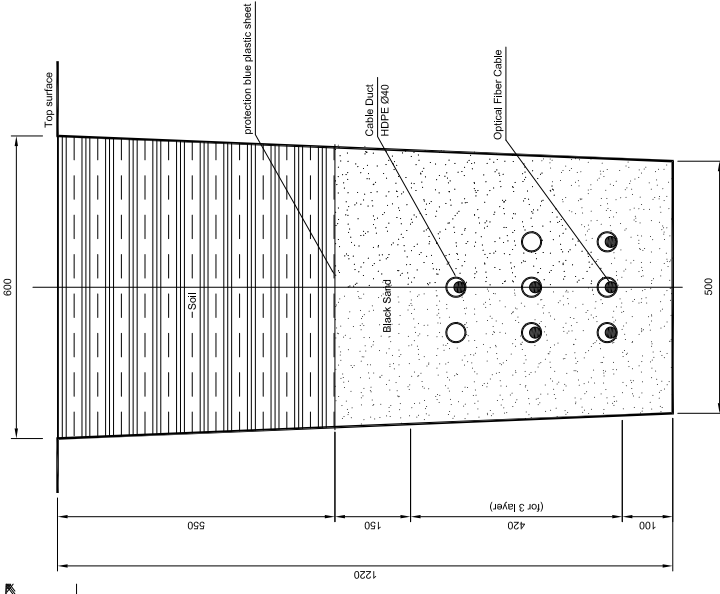
SCALE: various

TYPICAL CROSS SECTION OF COMMUNICATION DUCT(TYPE T2,T3) IN EARTHWORK SECTION

ARRANGEMENT OF COMMUNICATION DUCT CROSSING INTERCHANGE (T2 TYPE)



T2 DETAIL scale:1/10



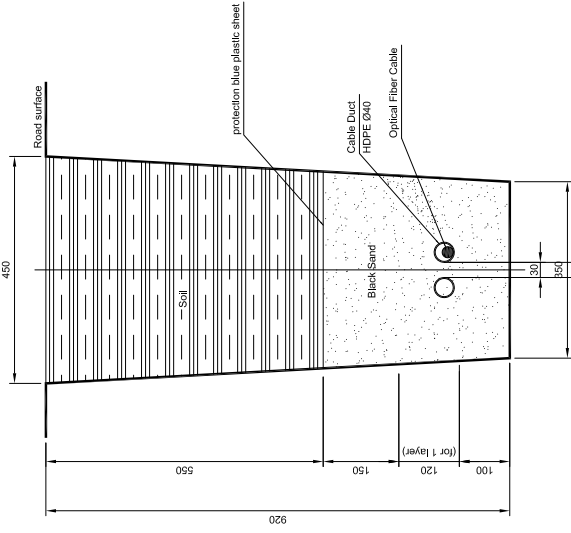
Volume table of T2 Duct (for 1 kilometer in length)

Material	Volume
Disposal soil	671 m³
Black sand	353 m³
Backfill soil	318 m³
Protection blue plastic sheet	500 m³

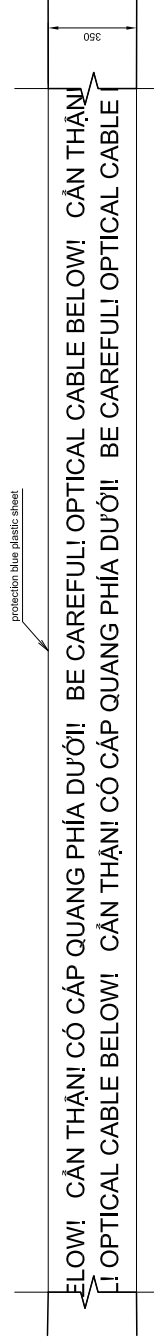
Volume table of T3 Duct (for 1 kilometer in length)

Material	Volume
Disposal soil	388 m³
Black sand	137 m³
Backfill soil	231 m³
Protection blue plastic sheet	350 m³

COMMUNICATION DUCT TYPE T3 DETAIL scale:1/10
(USE FOR COMMUNICATION DUCT SPREAD FOR ROADSIDE EQUIPMENT)



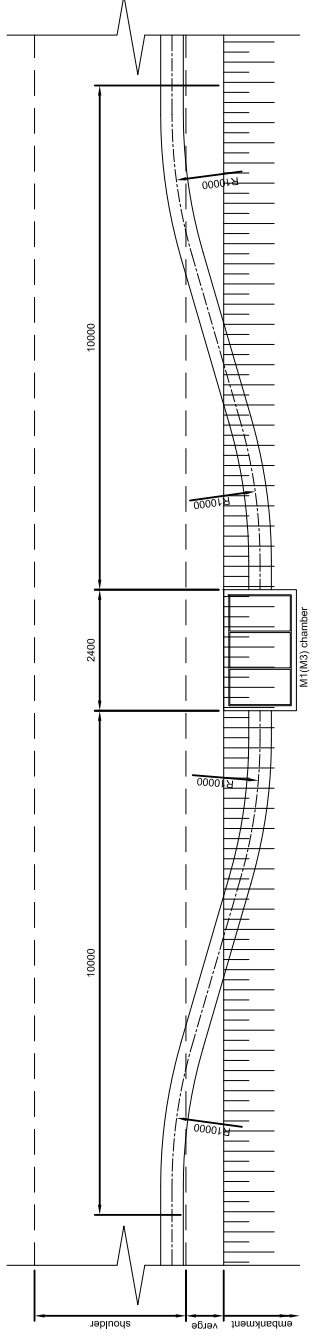
PROTECTION BLUE PLASTIC SHEET scale:1/20



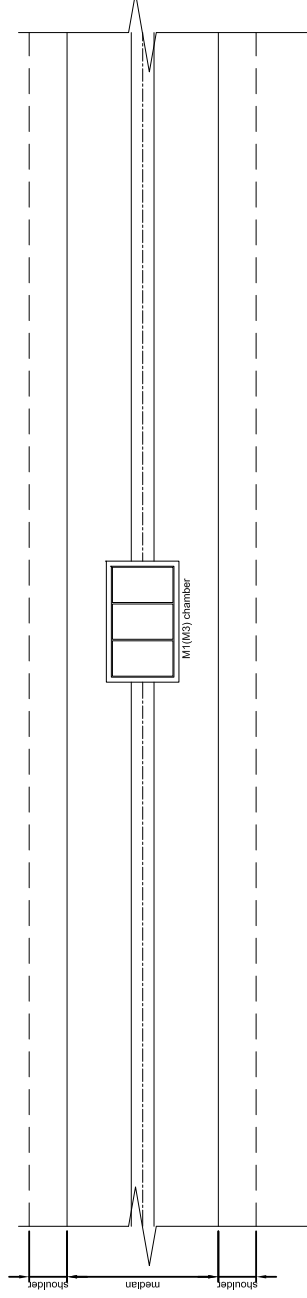
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NEXCO EAST ENGINEERING CO., LTD				PACKAGE: VI-3-02			
TRANSPORTATION RESEARCH INSTITUTE CO., LTD				DRAWING No.:			
LANDTEC JAPAN INC.				SHEET No.:			
				SCALE: varies			
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				Rev			

ARRANGEMENT OF COMMUNICATION DUCT AT CHAMBER (1)

CHAMBER FOR COMMUNICATION DUCT ON ROAD scale: 1/100



CHAMBER FOR COMMUNICATION DUCT ON MEDIAN scale: 1/100



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 NIPPON KOEI CO., LTD
 TRANSPORTATION RESEARCH INSTITUTE CO., LTD
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TITLE	NAME	SIGNATURE	DATE
PREPARED BY			
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 MINISTRY OF TRANSPORT

ITS INTEGRATION PROJECT ON
 NEW NATIONAL HIGHWAY NO.3 & NORTHERN AREA OF VIETNAM
 DRAWING TITLE:
 LANG - HOA LAC EXPRESSWAY
 ARRANGEMENT OF COMMUNICATION DUCT AT CHAMBER (1)

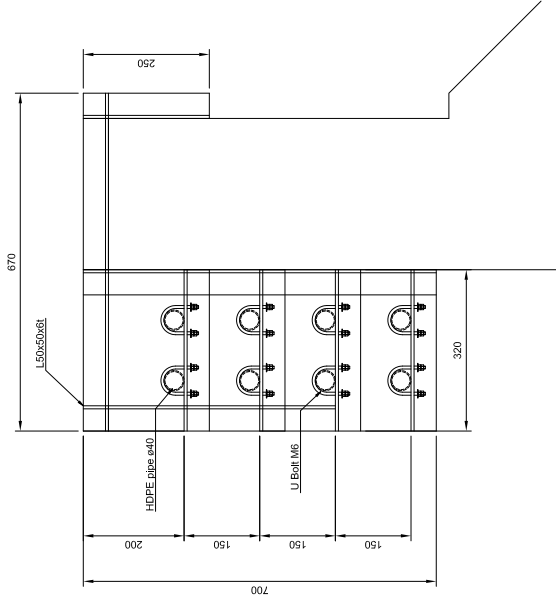
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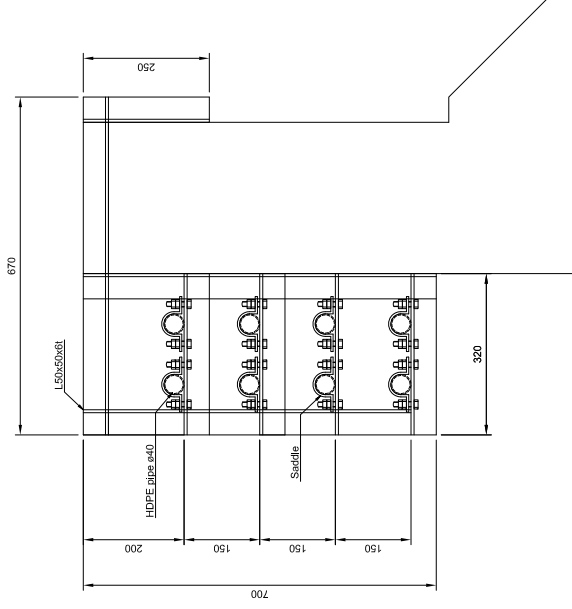
DETAIL OF COMMUNICATION DUCT (TYPE B1) ON BRIDGE

ARRANGEMENT OF COMMUNICATION DUCT ON BRIDGE (CROSS SECTION VIEW) scale:1/10

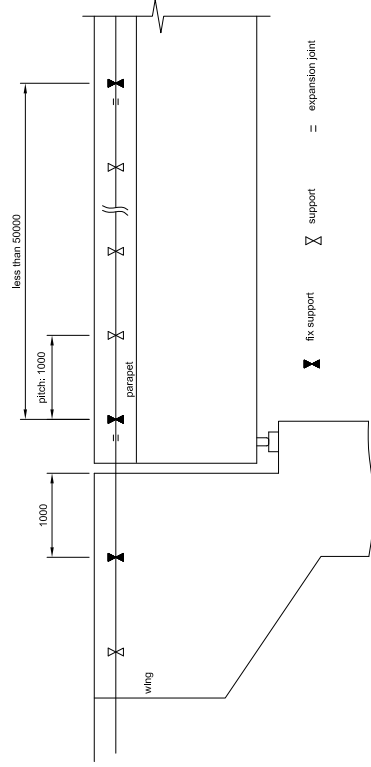
Support



Fix Support



ARRANGEMENT OF COMMUNICATION DUCT ON BRIDGE (SIDE VIEW)



Volume table of supporting rack (for 1 place)

L50x50x6.8	Weight(kg)
	16

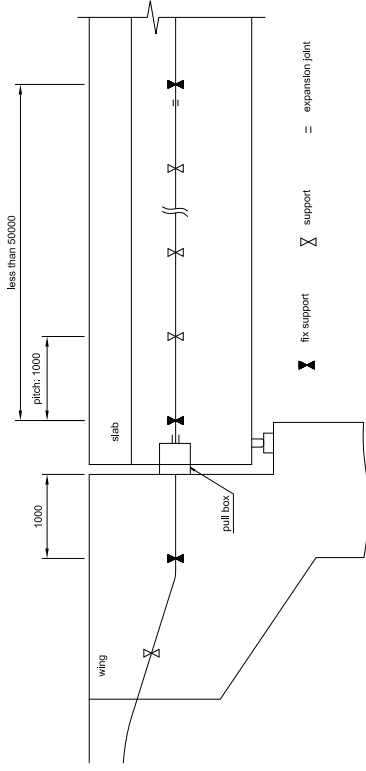
- *1 Structural steel conforms ASTM A-709M Grade 250 or equivalents with:
Yield strength: $F_y = 250$ MPa
Tensile strength: $F_u = 400$ MPa
- *2 Concrete structure equivalents with:
Concrete strength: $f'_c = 16$ MPa
Reinforcing Bar (GB300-1): Yield strength: $F_y = 300$ MPa; Tensile strength: $F_u = 450$ MPa;
- *3 In case without any recommendation about zincing in details, all metal members be exposed to weather or soil must be zinced with amount of $550g/m^2$.
- *4 This drawing has been prepared by computer software.
- *5 These structures should be redesigned to meet site condition.

CONSULTANT		SOCIALIST REPUBLIC OF VIETNAM		ITS INTEGRATION PROJECT ON NEW NATIONAL HIGHWAY NO.3 & NORTHERN AREA OF VIETNAM	
TITLE	NAME	SIGNATURE	DATE	DRAWING TITLE: LANG - HOA LAC EXPRESSWAY ARRANGEMENT OF COMMUNICATION DUCT ON BRIDGE (TYPE B1)	
PREPARED BY				PACKAGE:	NUMBER:
CHECKED BY				VI.3-05	
APPROVED BY				SHEET No.:	Sheet
ORIENTAL CONSULTANTS CO., LTD NEXCO EAST ENGINEERING CO., LTD NIPPON KOEI CO., LTD TRANSPORTATION RESEARCH INSTITUTE CO., LTD LANDTEC JAPAN INC.			SCALE: varies		

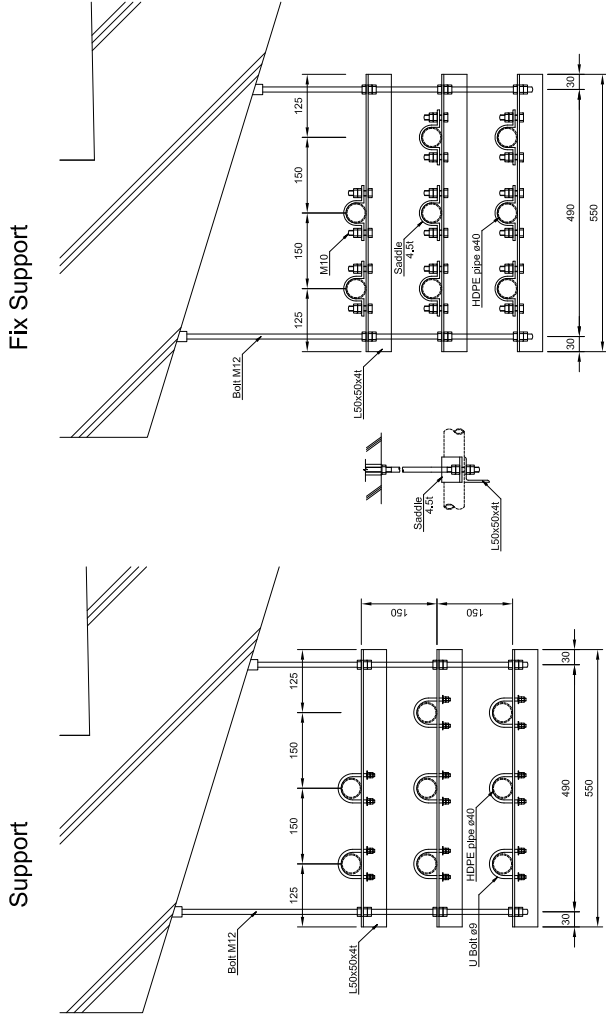
DETAIL OF COMMUNICATION DUCT (TYPE B2) ON BRIDGE (1)

ARRANGEMENT OF COMMUNICATION DUCT ON BRIDGE (SIDE VIEW)

"A" DETAIL scale: 1/10



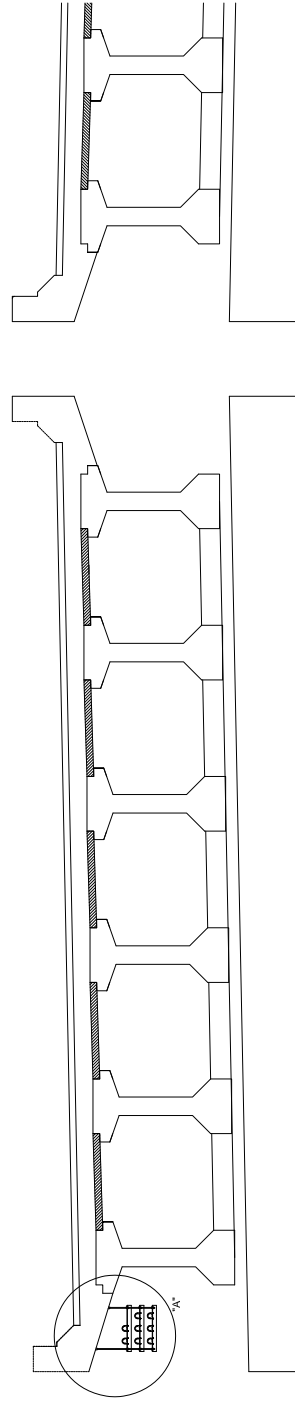
ARRANGEMENT OF COMMUNICATION DUCT AT JOINT AREA (PLAN VIEW)



Volume table of supporting rack B2 (for 1 place)

L50x50x4	Weight(kg)
Anchor bolt M12	1.3

ARRANGEMENT OF COMMUNICATION DUCT ON BRIDGE (CROSS SECTION VIEW)

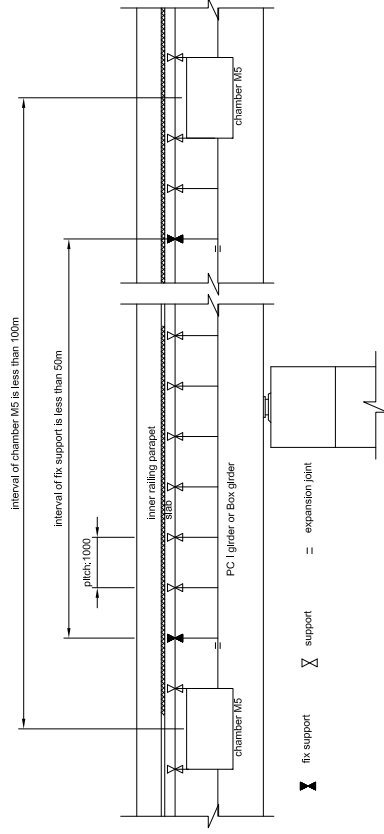


- *1 Structural steel conforms ASTM A-709M Grade 250 or equivalence with:
Yield strength: $F_y = 250$ MPa
Tensile strength: $F_u = 400$ MPa
- *2 Concrete structure equivalence with:
Concrete strength (C30): $f_{ck} = 30$ MPa
Reinforcing Bar (RB300-1): Yield strength: $F_y = 300$ MPa;
Tensile strength: $F_u = 450$ MPa;
- *3 In case without any recommendation about zincing in details, all metal members be exposed to weather or soil must be zinced with amount of $550g/m^2$.
- *4 These drawing be used for construction of the structure.
- *5 These structures should be redesigned to meet life condition.

CONSULTANT		SOCIALIST REPUBLIC OF VIETNAM		ITS INTEGRATION PROJECT ON	
TITLE	NAME	NAME	NAME	NAME	NAME
ORIENTAL CONSULTANTS CO., LTD				NEW NATIONAL HIGHWAY NO.3 & NORTHERN AREA OF VIETNAM	
PREPARED BY	SIGNATURE	SIGNATURE	SIGNATURE	DRAWING TITLE:	DRAWING NO.:
NEXCO EAST ENGINEERING CO., LTD				LANG - HOA LAC EXPRESSWAY	V13-06
CHECKED BY				DETAIL OF COMMUNICATION DUCT (TYPE B2) ON BRIDGE (1)	SHEET No.:
TRANSPORTATION RESEARCH INSTITUTE CO., LTD					of
LANDTEC JAPAN INC.					Rec
	APPROVED BY		APPROVED BY	SCALE:	
				varies	

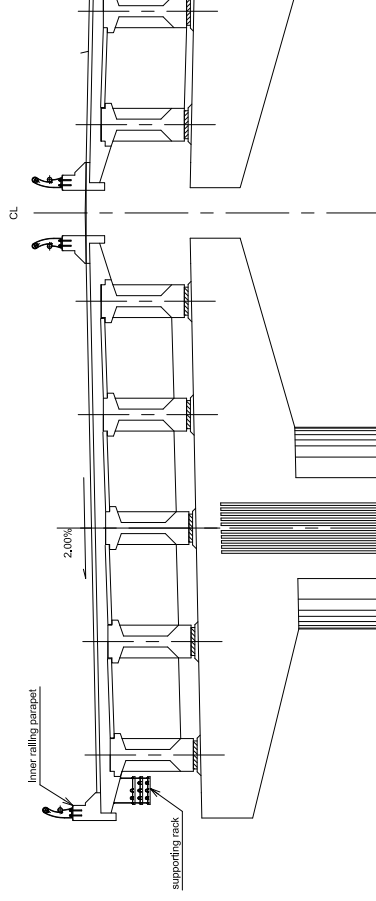
DETAIL OF COMMUNICATION DUCT (TYPE B2) ON BRIDGE(2)

SIDE VIEW



CROSS SECTION VIEW

(PC I girder section)

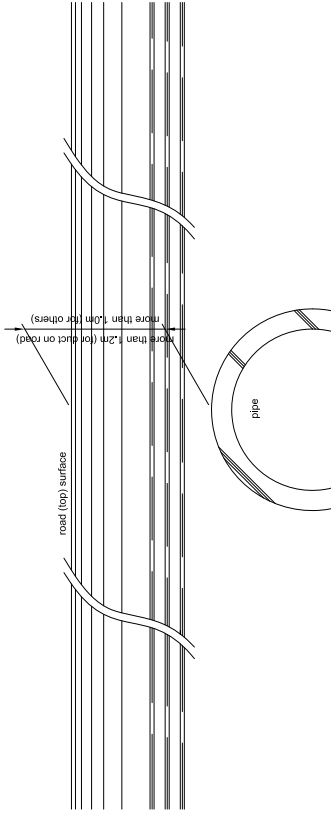


- *1 Structural steel conforms ASTM A-709M Grade 250 or equivalents with:
Yield strength: $F_y = 250$ MPa
Tensile strength: $F_u = 400$ MPa
- *2 Concrete structure equivalents with:
Concrete strength (G3000): Yield strength: $F_y = 300$ MPa;
Tensile strength: $F_u = 450$ MPa;
Reinforcing Bar (G5300-1): Yield strength: $F_y = 300$ MPa;
Tensile strength: $F_u = 450$ MPa;
- *3 In case without any recommendation about zincing in details, all metal members be exposed to weather or soil must be zincing with amount of $550g/m^2$.
- *4 This drawing has been prepared by computer using AutoCAD.
- *5 These structures should be redesigned to meet life condition.

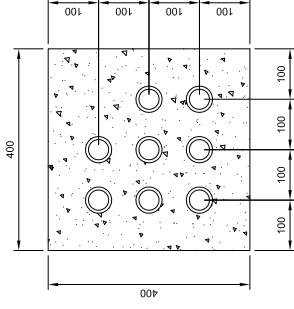
CONSULTANT		SOCIALIST REPUBLIC OF VIETNAM		ITS INTEGRATION PROJECT ON	
		NEW NATIONAL HIGHWAY NO.3 & NORTHERN AREA OF VIETNAM		LANG - HOA LAC EXPRESSWAY	
ORIENTAL CONSULTANTS CO., LTD		MINISTRY OF TRANSPORT		DETAIL OF COMMUNICATION DUCT (TYPE B2) ON BRIDGE(2)	
NEXCO EAST ENGINEERING CO., LTD				DRAWING TITLE:	
TRANSPORTATION RESEARCH INSTITUTE CO., LTD				PACKAGE:	
LANDTEC JAPAN INC.				DRAWING NO.:	
				VI-3-07	
				SHEET No.:	
				Sheet	
				of	
				SCALE: 1/100	
				Rec	

ARRANGEMENT OF COMMUNICATION DUCT IN BURIED OBJECT AREAS

ARRANGEMENT OF COMMUNICATION DUCT IN BURIED OBJECT AREA scale: 1/50
(WHEN EARTH COVERING LESS THAN 1.2M)

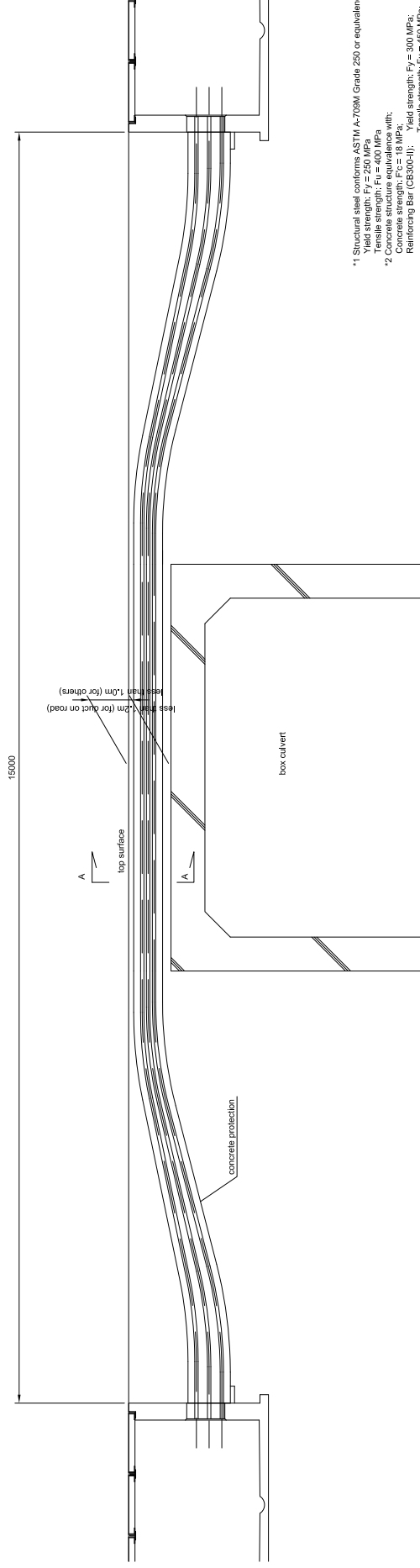


A-A SECTION scale: 1/10



Volume table of TYPE C1 (for 15 meters in length)	
Concrete	Volume 3.0 m ³

ARRANGEMENT OF COMMUNICATION DUCT IN BURIED OBJECT AREA (TYPE C1) scale: 1/50
(WHEN EARTH COVERING MORE THAN 1.2M)

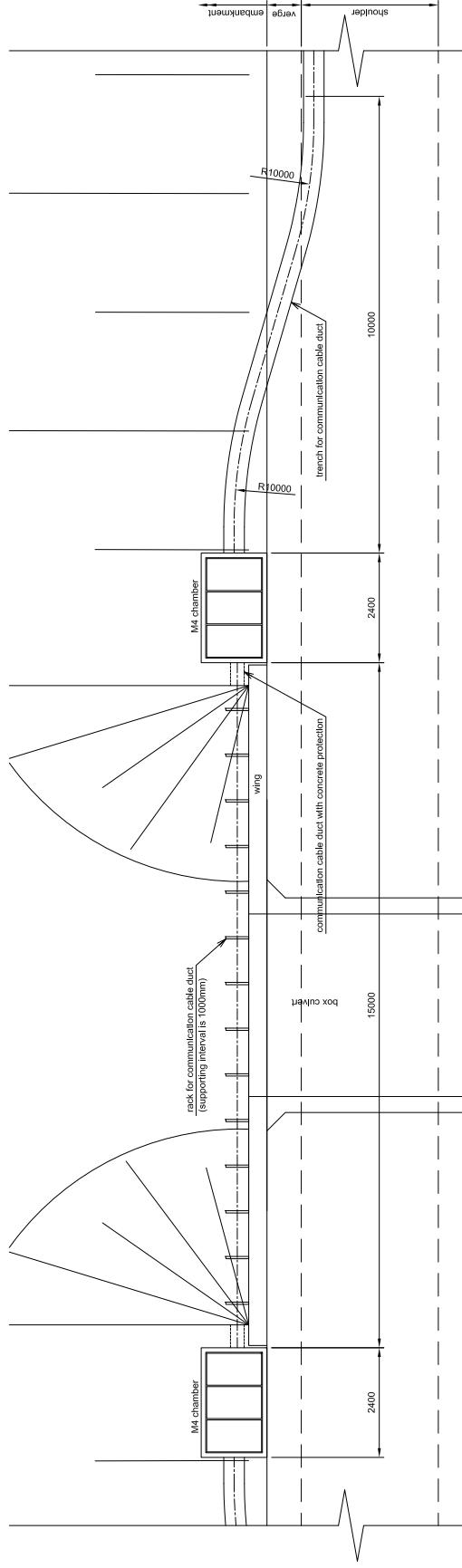


- *1 Structural steel conforms ASTM A-700M Grade 250 or equivalents with:
Yield strength: $F_y = 250$ MPa
Tensile strength: $F_u = 400$ MPa
- *2 Concrete structure equivalents with:
Concrete strength (MPa): $f'_c = 25$
Reinforcing Bar (GB3091): Yield strength: $F_y = 300$ MPa;
Tensile strength: $F_u = 450$ MPa;
*3 In case without any recommendation about zincing in details, all metal members be exposed to weather or soil must be zinced with amount of 550g/m^2 .
- *4 This drawing has been approved by the design authority.
- *5 These structures should be redesigned to meet site condition.

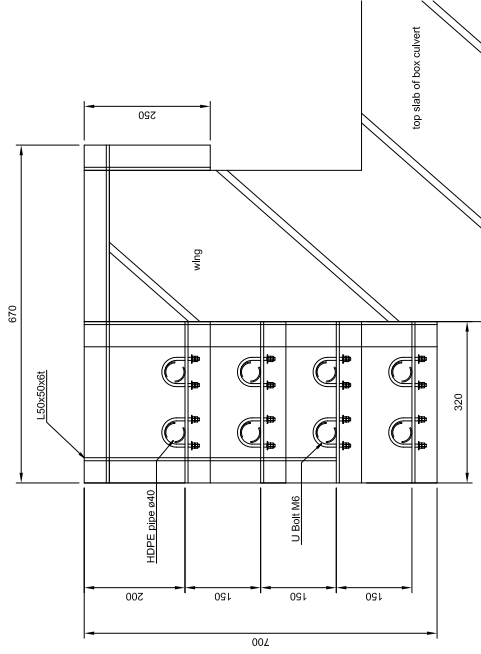
CONSULTANT				SOCIALIST REPUBLIC OF VIETNAM				ITS INTEGRATION PROJECT ON			
TITLE	NAME	SIGNATURE	DATE	NEW NATIONAL HIGHWAY NO.3 & NORTHERN AREA OF VIETNAM				PACKAGE:			
PREPARED BY				DRAWING TITLE: LANG - HOA LAC EXPRESSWAY				DRAWING NO.: VI.3-08			
CHECKED BY				ARRANGEMENT OF COMMUNICATION DUCT IN BURIED OBJECT AREAS				SHEET NO.: Sheet of			
APPROVED BY				MINISTRY OF TRANSPORT				SCALE: varies			
ORIENTAL CONSULTANTS CO., LTD NEXCO EAST ENGINEERING CO., LTD NIPPON KOEI CO., LTD TRANSPORTATION RESEARCH INSTITUTE CO., LTD LANDTEC JAPAN INC.											

ARRANGEMENT OF COMMUNICATION DUCT ON WING OF BOX CULVERT

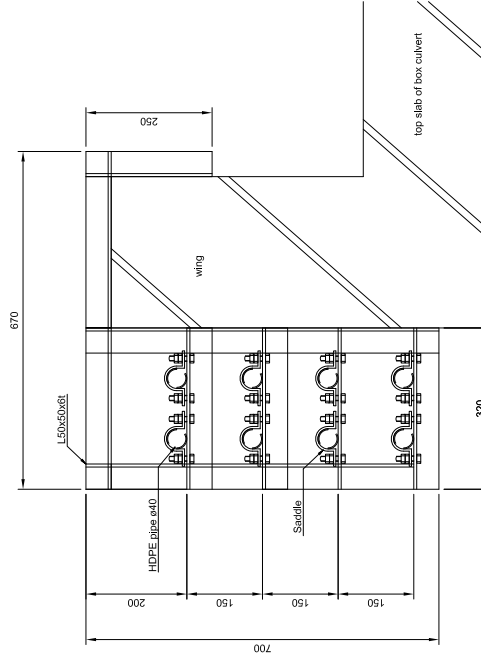
PLAN VIEW scale: 1/100



SUPPORT RACK SCALE: 1/10



FIX SUPPORT RACK SCALE: 1/10
(2 points on wing)

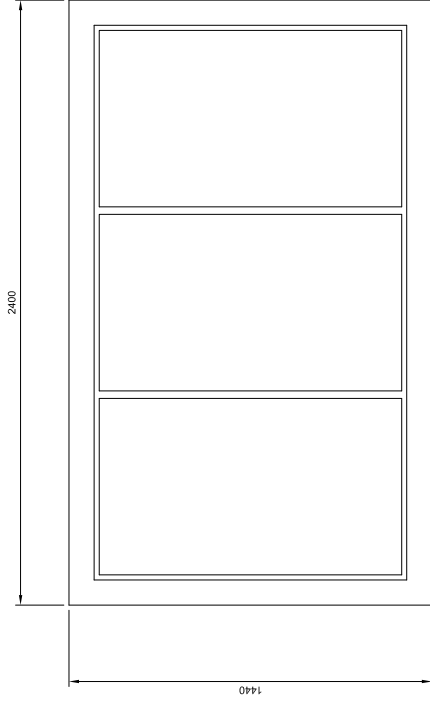


- *1 Structural steel conforms ASTM A-700M Grade 250 or equivalents with:
Yield strength: $F_y = 250$ MPa
Tensile strength: $F_u = 400$ MPa
- *2 Concrete structure equvalences with:
Concrete strength (GBC300-1): Yield strength: $F_y = 300$ MPa;
Tensile strength: $F_u = 450$ MPa;
Reinforcing Bar (GB300-1): Yield strength: $F_y = 300$ MPa;
Tensile strength: $F_u = 450$ MPa;
- *3 In case without any recommendation about zincing in details, all metal members be exposed to weather or soil must be zinced with amount of $550g/m^2$.
- *4 If the drawing has been approved by the client, it shall be binding.
- *5 These structures should be redesigned to meet life condition.

CONSULTANT		SOCIALIST REPUBLIC OF VIETNAM		ITS INTEGRATION PROJECT ON	
ORIENTAL CONSULTANTS CO., LTD		NEW NATIONAL HIGHWAY NO.3 & NORTHERN AREA OF VIETNAM		PACKAGE:	
NEXCO EAST ENGINEERING CO., LTD		LANG - HOA LAC EXPRESSWAY		DRAWING NO: VI.3-09	
TRANSPORTATION RESEARCH INSTITUTE CO., LTD		ARRANGEMENT OF COMMUNICATION DUCT ON WING OF BOX CULVERT		SHEET NO: 1 of 1	
LANDTEC JAPAN INC.		MINISTRY OF TRANSPORT		SCALE: 1/100	
TITLE	NAME	SIGNATURE	DATE		
PREPARED BY					
CHECKED BY					
APPROVED BY					

DETAIL OF COMMUNICATION DUCT CHAMBER (TYPE M1)

(INSTALL AT MEDIAN or ON EMBANKMENT; WITH PITCH LESS THAN 333m)

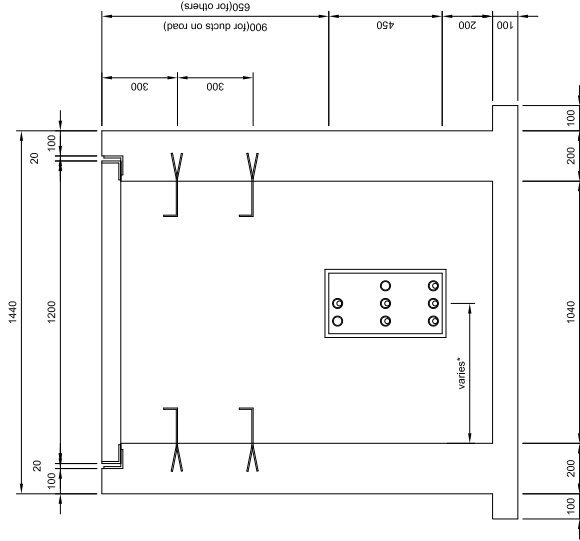
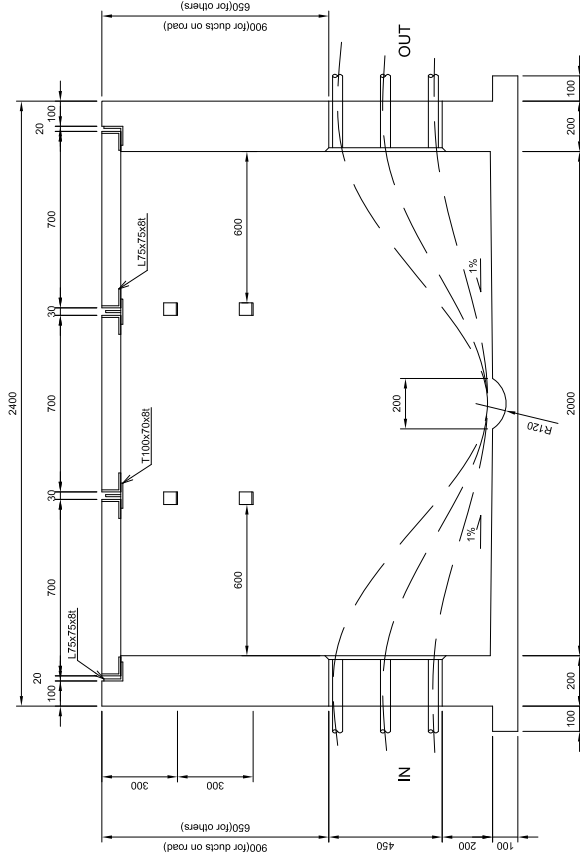


Volume table of chamber for ducts on road

Volume
L75x75x8t
183 kg
PLB0x8t
10 kg
T100x70x8t
26 kg
Concrete M300
1,9 m ³

Volume table of chamber for others

Volume
L75x75x8t
183 kg
PLB0x8t
10 kg
T100x70x8t
26 kg
Concrete M300
1,7 m ³

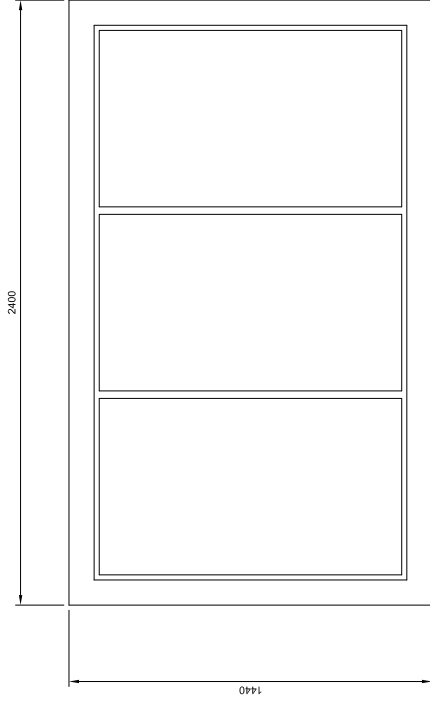


* Depending to duct arrangement.

*1 Concrete structure equivalence with:
 Concrete strength: F_c = 18 MPa;
 Yield strength: F_y = 300 MPa;
 Reinforcing Bar (CB300-1):
 Tensile strength: F_t = 450 MPa;

CONSULTANT		SOCIALIST REPUBLIC OF VIETNAM		ITS INTEGRATION PROJECT ON NEW NATIONAL HIGHWAY NO.3 & NORTHERN AREA OF VIETNAM	
TITLE	NAME	SIGNATURE	DATE		
ORIENTAL CONSULTANTS CO., LTD					
NEXCO EAST ENGINEERING CO., LTD					
TRANSPORTATION RESEARCH INSTITUTE CO., LTD					
LANDTEC JAPAN INC.					
PREPARED BY					
CHECKED BY					
APPROVED BY					
				DRAWING TITLE: LANG - HOA LAC EXPRESSWAY DETAIL OF COMMUNICATION DUCT CHAMBER (TYPE M1)	
				PACKAGE: DRAWING NO: V1.3-10	
				SHEET NO.: Sheet of	
				SCALE: 1/20	

DETAIL OF COMMUNICATION DUCT CHAMBER (TYPE M3) (INSTALL AT MEDIAN or EMBANKMENT; WITH PITCH LESS THAN 2000M)

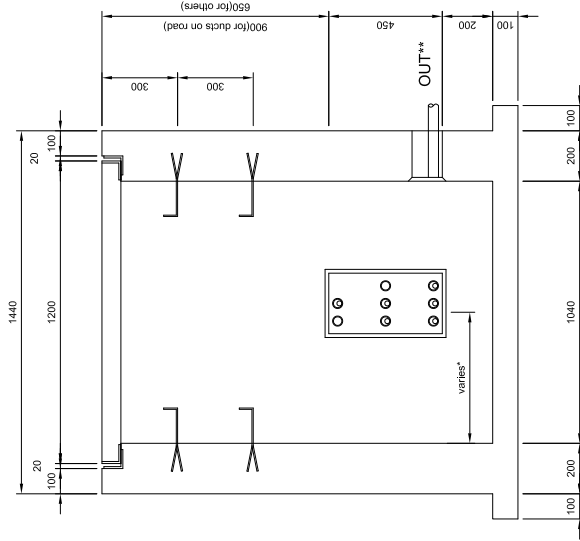
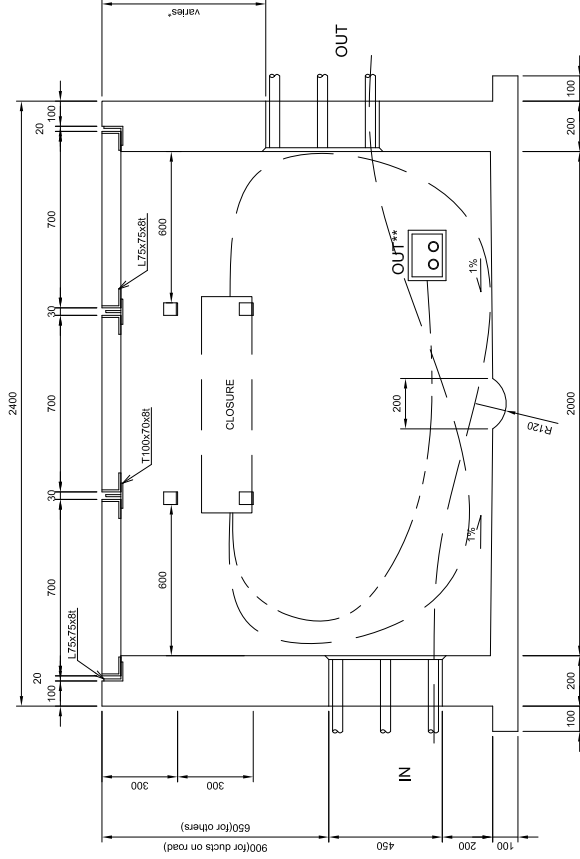


Volume table of chamber for ducts on road

	Volume
L75x75x8t	183 kg
PLB0x8t	10 kg
T100x70x8t	26 kg
Concrete M300	1.9 m ³

Volume table of chamber for others

	Volume
L75x75x8t	183 kg
PLB0x8t	10 kg
T100x70x8t	26 kg
Concrete M300	1.7 m ³

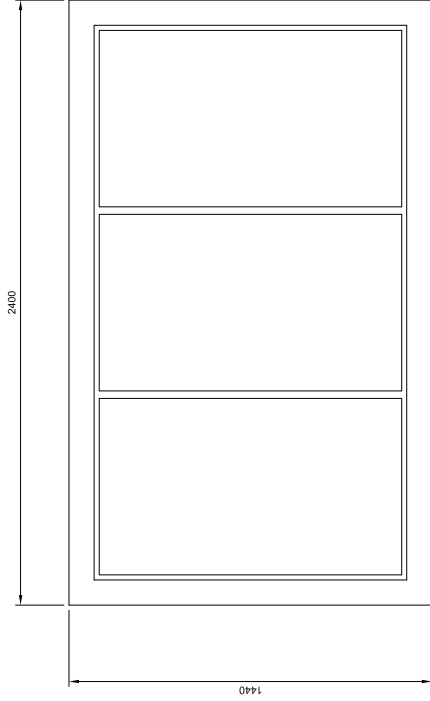


*1 Concrete structure equivalence with:
Concrete strength: F_c = 18 MPa;
Yield strength: F_y = 300 MPa;
Reinforcing Bar (CB300-0):
Tensile strength: F_t = 450 MPa;

* Depending to duct arrangement.
** Divergence exits be used for roadside equipments.

CONSULTANT		SOCIALIST REPUBLIC OF VIETNAM		ITS INTEGRATION PROJECT ON NEW NATIONAL HIGHWAY NO.3 & NORTHERN AREA OF VIETNAM	
TITLE	NAME	SIGNATURE	DATE	DRAWING TITLE: LANG - HOA LAC EXPRESSWAY DETAIL OF COMMUNICATION DUCT CHAMBER (TYPE M3)	
PREPARED BY					
CHECKED BY					
APPROVED BY					
ORIENTAL CONSULTANTS CO., LTD NEXCO EAST ENGINEERING CO., LTD NIPPON KOEI CO., LTD TRANSPORTATION RESEARCH INSTITUTE CO., LTD LANDTEC JAPAN INC.				SCALE: 1/20	Sheet of
				PACKAGE:	VI-3-12
				DRAWING NO.:	Rec
				SHEET NO.:	of

DETAIL OF COMMUNICATION DUCT CHAMBER (TYPE M4) (INSTALL AT MEDIAN or EMBANKMENT; FOR CHANGING DUCT DIRECTION)

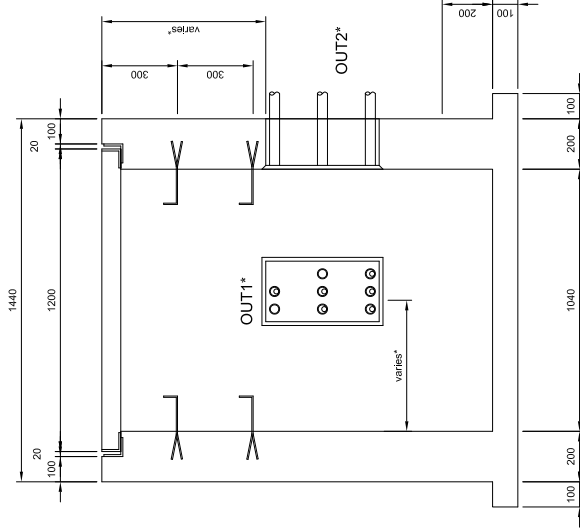
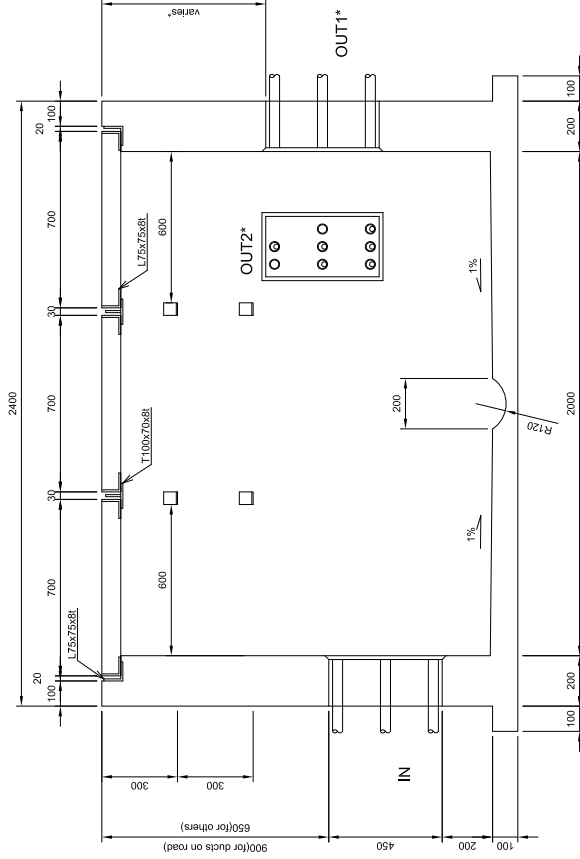


Volume table of chamber for ducts on road

Volume
L75x75x81
183 kg
PLB0x81
10 kg
T100x70x81
26 kg
Concrete M300
1,9 m ³

Volume table of chamber for others

Volume
L75x75x81
183 kg
PLB0x81
10 kg
T100x70x81
26 kg
Concrete M300
1,7 m ³

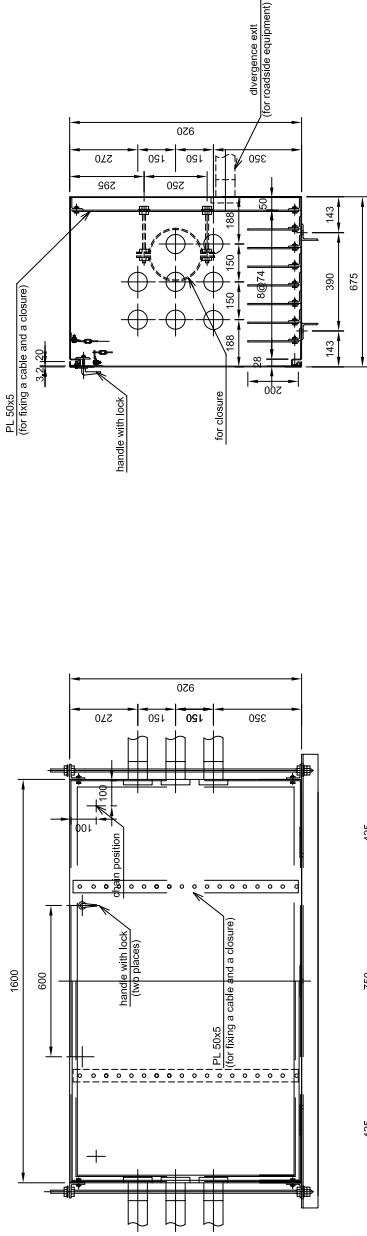


* Depending to duct arrangement.

*1 Concrete structure equivalence with:
 Concrete strength: F_c = 18 MPa;
 Yield strength: F_y = 300 MPa;
 Reinforcing Bar (CB300-01):
 Tensile strength: F_t = 450 MPa;

CONSULTANT		SOCIALIST REPUBLIC OF VIETNAM		ITS INTEGRATION PROJECT ON NEW NATIONAL HIGHWAY NO.3 & NORTHERN AREA OF VIETNAM	
TITLE	NAME	SIGNATURE	DATE	DRAWING NO.:	VI-3-13
PREPARED BY				PROJECT TITLE: LANG - HOA LAC EXPRESSWAY	
CHECKED BY				DETAIL OF COMMUNICATION DUCT CHAMBER (TYPE M4)	
APPROVED BY				SHEET No.:	Sheet
ORIENTAL CONSULTANTS CO., LTD NEXCO EAST ENGINEERING CO., LTD NIPPON KOEI CO., LTD TRANSPORTATION RESEARCH INSTITUTE CO., LTD LANDTEC JAPAN INC.		MINISTRY OF TRANSPORT		SCALE: 1/20	of

DETAIL OF COMMUNICATION DUCT CHAMBER (TYPE M5) (INSTALL AT BRIDGE SECTION IN WHICH DUCT IS HUNG ON CANTILEVER SLAB)



Volume table

	Length(mm)	Volume	Weight(kg)
L 65x65x6t	1800	2	22.0
L 65x65x6t	60	4	2.0
L 50x60x6t	50	18	4.0
PL 50x5	750	2	3.0
PL 50x5	200	14	6.0
PL 675x3,2	1600	2	74.0
PL 675x3,2	1600	2	55.0
PL 675x3,2	920	2	32.0

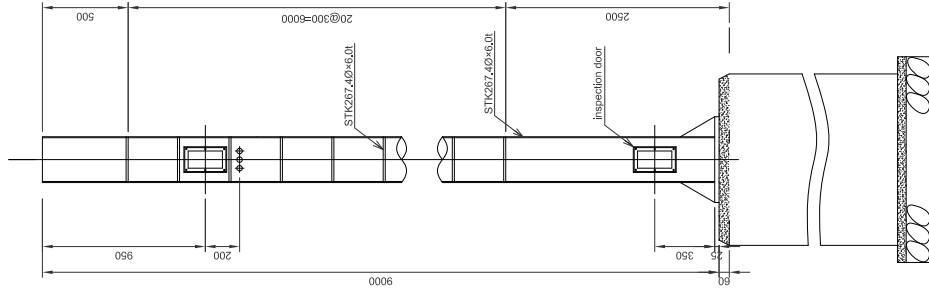
- *1 Structural steel conforms ASTM A-700M Grade 250 or equivalents with:
Yield strength: $F_y = 250$ MPa
Tensile strength: $F_u = 400$ MPa
- *2 Concrete structure equivalents with:
Concrete strength (MPa): 20
Reinforcing Bar (GB300-1): Yield strength: $F_y = 300$ MPa;
Tensile strength: $F_u = 450$ MPa;
*3 In case without any recommendation about zincing in details, all metal members be exposed to weather or soil must be zinced with amount of $550g/m^2$.
- *4 The drawing has been prepared by computer using AutoCAD.
- *5 These structures should be redesigned to meet site condition.

CONSULTANT		SOCIALIST REPUBLIC OF VIETNAM		ITS INTEGRATION PROJECT ON NEW NATIONAL HIGHWAY NO.3 & NORTHERN AREA OF VIETNAM	
TITLE	NAME	SIGNATURE	DATE	DRAWING TITLE: LANG - HOA LAC EXPRESSWAY DETAIL OF COMMUNICATION DUCT CHAMBER (TYPE M5)	
PREPARED BY					
CHECKED BY					
APPROVED BY					
ORIENTAL CONSULTANTS CO., LTD NEXCO EAST ENGINEERING CO., LTD NIPPON KOEI CO., LTD TRANSPORTATION RESEARCH INSTITUTE CO., LTD LANDTEC JAPAN INC.				PACKAGE: DRAWING NO.: SHEET NO.: Sheet	VL3-14 of
				SCALE: 1/20	

SUPPORT POLE FOR CAMERA

SUPPORT POLE FOR CAMERA scale:1/30

FOUNDATION scale:1/30

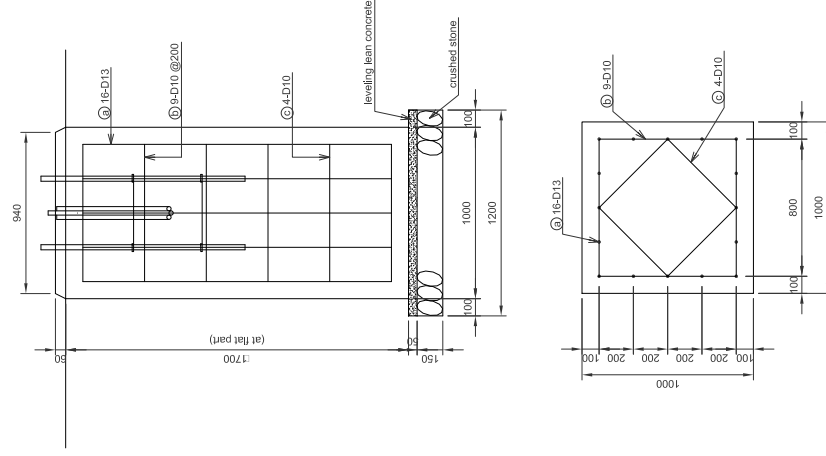


Volume table of support pole

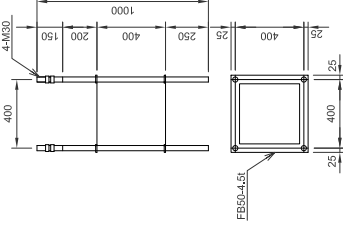
Material	Dimension	Weight (kg)
Steel	267.40x6.0t	346.3
Steel	R51.30	9.4
Steel	Z8t	46.2
Steel	T2t	9.0
Total weight		416

Volume table of foundation

Items	class	unit	volume at flat part	volume at embankment	remarks
concrete	M200	m ³	1,700	2,200	
formwork		m ²	6,800	8,600	
rebar	D13	kg	26,66	36,62	
rebar	D10	kg	22,87	26,71	
anchor bolt	M30x1000x4	set	1	1	
normal bend	VEZ28	m	4.5	4.5	1.5mx3
crushed stone		m ³	0,216	0,216	
leveling lean concrete		m ²	0,072	0,072	
excavation		m ²	7,600	8,491	
backfill		m ³	5,612	6,220	
disposal of waste soil		m ³	1,388	2,272	



ANCHOR BOLT scale:1/30



Volume table of rebar at flat part

type	shape	length (m)	volume	weight (kg)
a	D13	1,50	16	28,66
b	D10	3,43	9	17,29
c	D10	2,49	4	5,58

Volume table of rebar at embankment part

type	shape	length (m)	volume	weight (kg)
a	D13	2,30	16	36,62
b	D10	3,43	11	21,13
c	D10	2,49	4	5,58

*1 Structural steel conforms ASTM A-709M Grade 250 or equivalence with:
Yield strength: F_y = 250 MPa
Tensile strength: F_t = 420 MPa
*2 Concrete structure equivalence with:
Concrete strength: F_c = 18MPa
Reinforcing Bar (GB300-11): Yield strength: F_y = 300 MPa
Tensile strength: F_t = 450 MPa
*3 In case without any recommendation about zhuichu in details, all metal members exposed to weather or soil must be zhuichu with amount of 550g/m².
*4 This drawing be based on NEXCO(Japan) drawings.
*5 These structures should be redesigned to meet site condition.

SOCIALIST REPUBLIC OF VIETNAM

ITS INTEGRATION PROJECT ON
NEW NATIONAL HIGHWAY NO.3 & NORTHERN AREA OF VIETNAM

MINISTRY OF TRANSPORT

X.2-03

CONSULTANT

ORIENTAL CONSULTANTS CO., LTD
NEXCO EAST ENGINEERING CO., LTD
NIPPON KOEI CO., LTD
TRANSPORTATION RESEARCH INSTITUTE CO., LTD
LANDTEC JAPAN INC.

TITLE

NAME

SIGNATURE

DATE

PREPARED BY

CHECKED BY

APPROVED BY

Rev:

Sheet

of

SCALE: 1/30

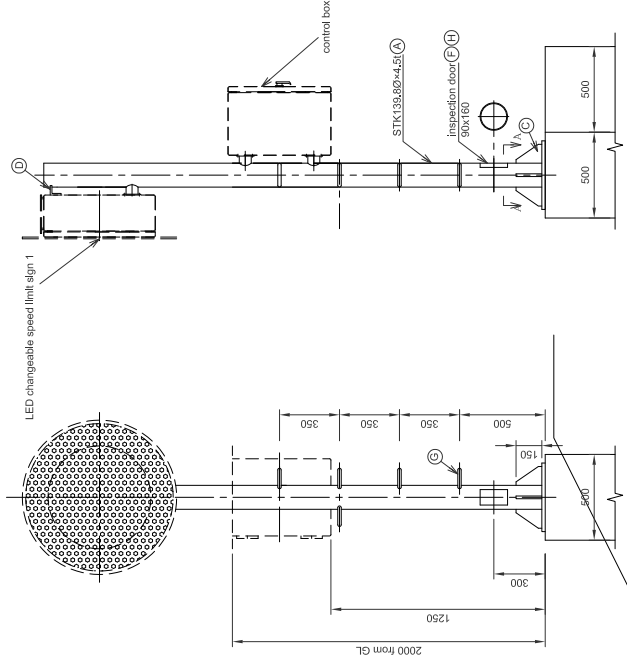
SUPPORT POLE FOR CHANGEABLE SPEED LIMIT SIGN

SUPPORT POLE FOR CHANGEABLE SPEED LIMIT SIGN scale:1/30

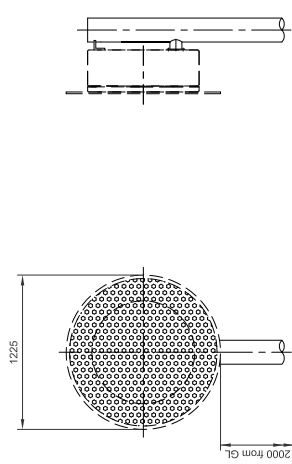
FOUNDATION scale:1/30

ANCHOR BOLT scale:1/10

(AT ENDS)



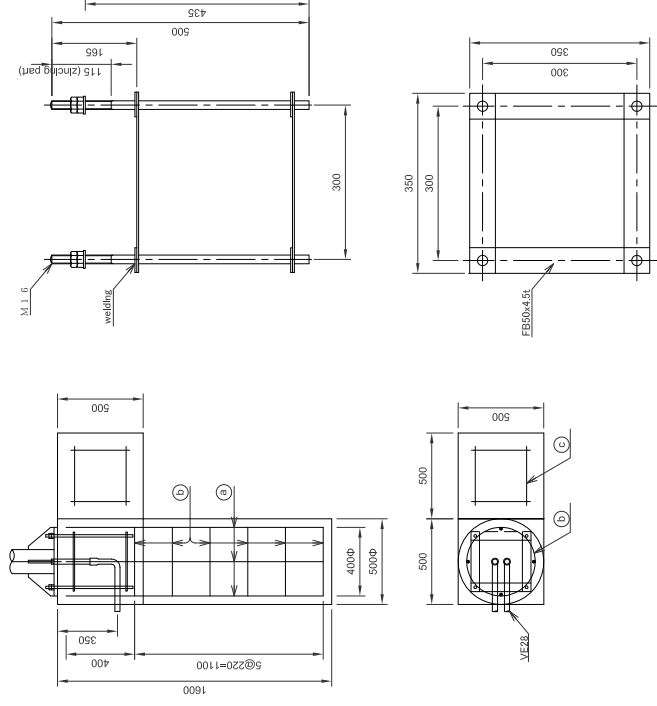
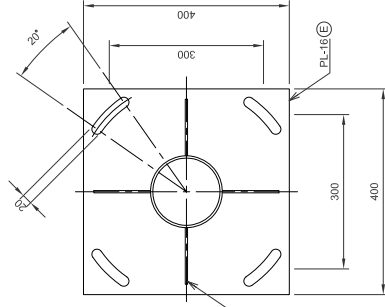
(AT MIDDLE)



Volume table of support pole

Material	Dimension	Weight (kg) at ends	Weight (kg) at middle
(A) Steel	138.820x4.51	47.0	42.0
(C) Steel	91	16.0	16.0
(D) Steel	61	1.4	1.4
(E) Steel	161	20.0	20.0
(F) Steel	3.21	1.4	1.4
(G) Steel	RB130D	4.0	4.0
(H) Steel	FB50X61	1.0	1.0
Total weight		95	87

BASE PLATE SCALE:1/10



Volume table of foundation

items	class	unit	volume at embankment
concrete	D13	m ³	0.406
rebar	D13	kg	8.779
rebar	D10	kg	1.260
formwork		m ²	0.3
disposal of waste soil		m ³	0.316
anchor Bolt	160x50/10x4	set	2
Normal Bend	VE28	pipe	2

Rebar processing table of foundation

type	shape	volume at embankment
a	D13	4
b	D10	6
c	D13	12

* is used for maintenance.

- *1 Structural steel conforms ASTM A-709M Grade 250 or equivalence with: Yield strength Fy = 250 MPa
- *2 Concrete structure equivalence with: Concrete strength Fc = 18MPa
- Reinforcing Bar (GB300-11): Yield strength Fy = 300 MPa Tensile strength Fu = 450 MPa
- *3 In case without any recommendation about zhuichu details, all metal members exposed to weather or soil must be zinc-coated with amount of 550g/m².
- *4 This drawing be based on NEXCO(Japan) drawings.
- *5 These structures should be redesigned to meet site condition.

CONSULTANT

ORIENTAL CONSULTANTS CO., LTD
NEXCO EAST ENGINEERING CO., LTD
NIPPON KOEI CO., LTD
TRANSPORTATION RESEARCH INSTITUTE CO., LTD
LANDTEC JAPAN INC.

TITLE	NAME	SIGNATURE	DATE
PREPARED BY			
CHECKED BY			
APPROVED BY			

SOCIALIST REPUBLIC OF VIETNAM

MINISTRY OF TRANSPORT

ITS INTEGRATION PROJECT ON
NEW NATIONAL HIGHWAY NO.3 & NORTHERN AREA OF VIETNAM

DRAWING TITLE
NOI BAI - BAC MINH EXPRESSWAY
SUPPORT POLE FOR CHANGEABLE SPEED LIMIT SIGN

PACKAGE:

DRAWING NO.:

X.2-04

SHEET No.:

Sheet

SCALE: Various

Rev:

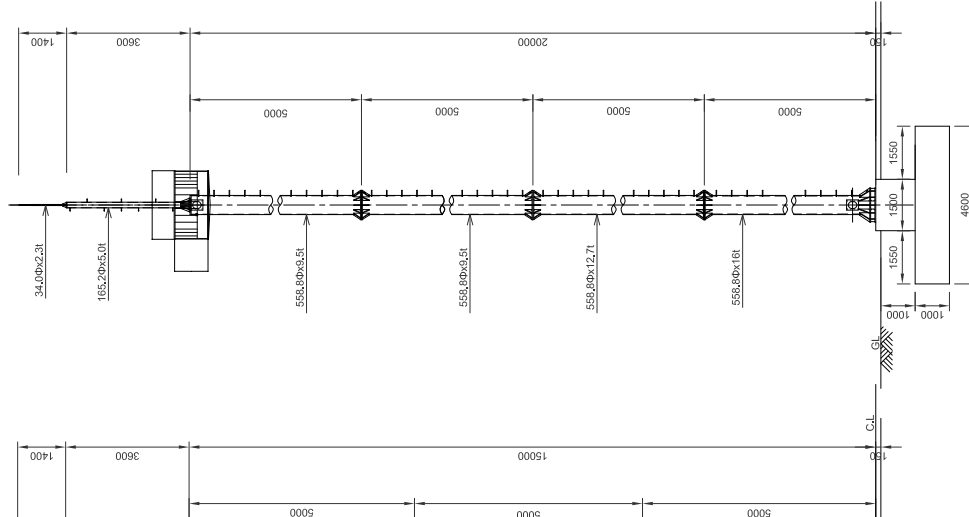
of

RADIO COMMUNICATION ANTENNA TOWER

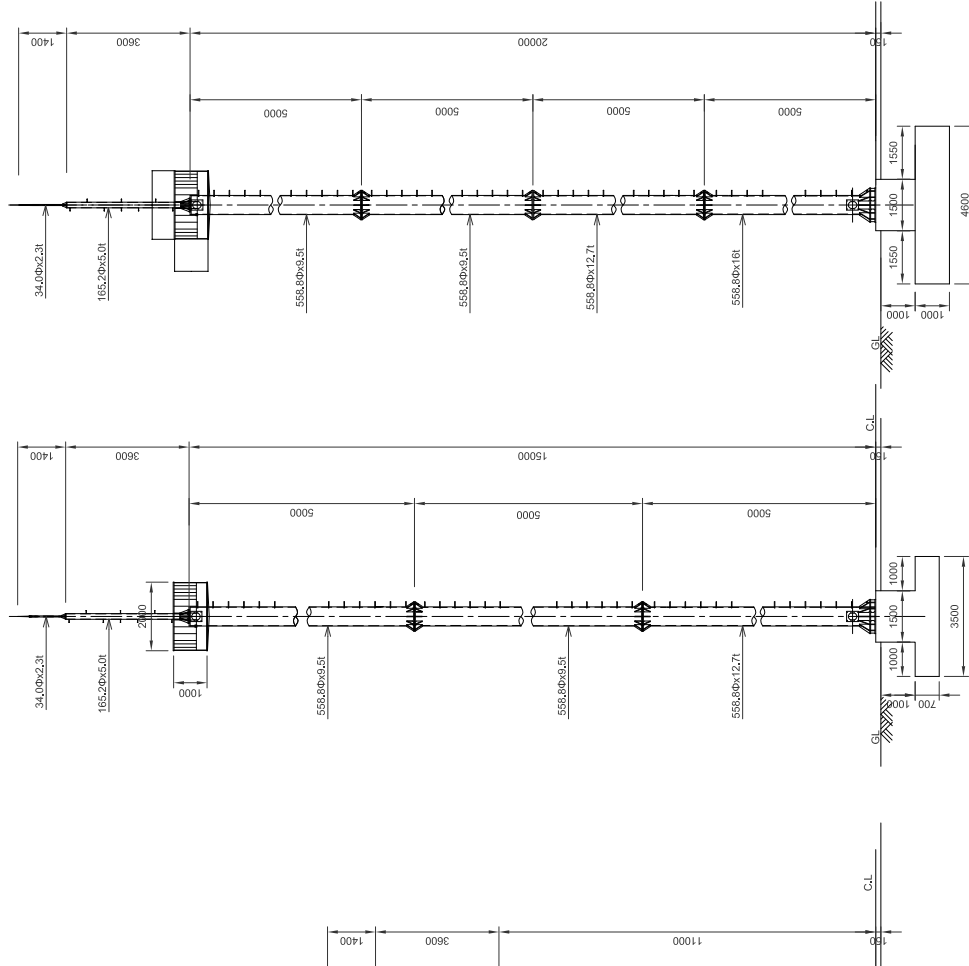
RADIO COMMUNICATION TOWER scale:1/150

SUPPORT FOR ANTENNA scale:1/150

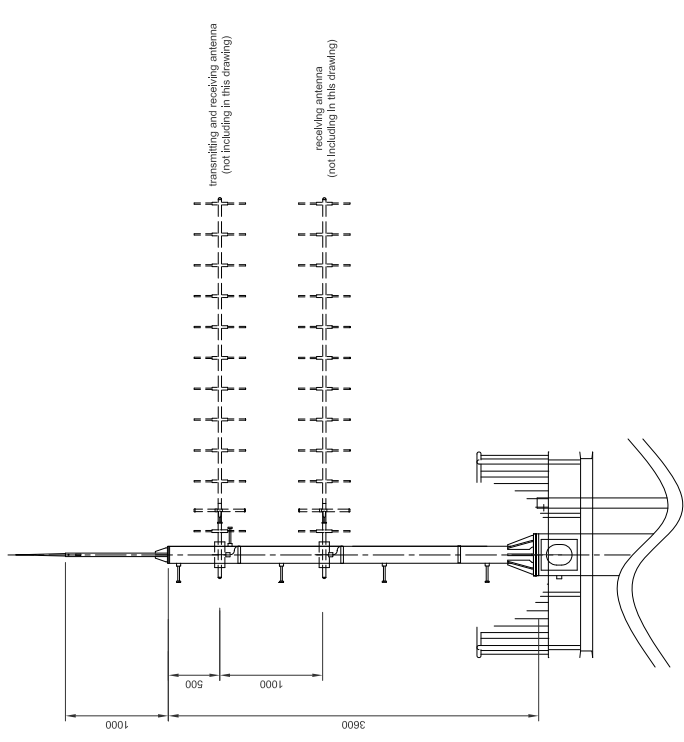
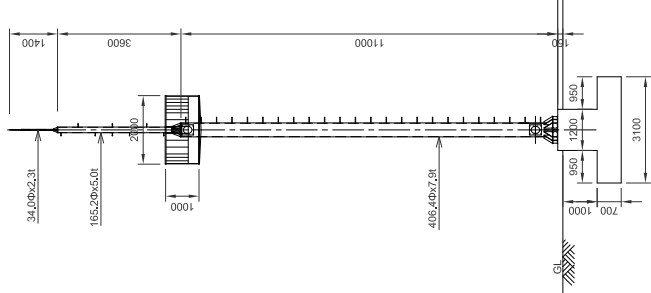
TYPE 2
(15m of pole)



TYPE 3
(20m of pole)



TYPE 1
(11m of pole)



transmitting and receiving antenna
(not including in this drawing)

receiving antenna
(not including in this drawing)

Volume table for TYPE 1

Material	Dimension	Volume	Remarks
STK400	408.40x7.91	855kg	
STK400	165.20x5.01	3kg	
STK400	34.00x2.31	3kg	
RC	3100x3100	8.2m ³	

Volume table for TYPE 2

Material	Dimension	Volume	Remarks
STK400	558.80x12.71	855kg	
STK400	558.80x9.51	1290kg	
STK400	165.20x5.01	7kg	
STK400	34.00x2.31	3kg	
RC	3500x3500	11.2m ³	

Volume table for TYPE 3

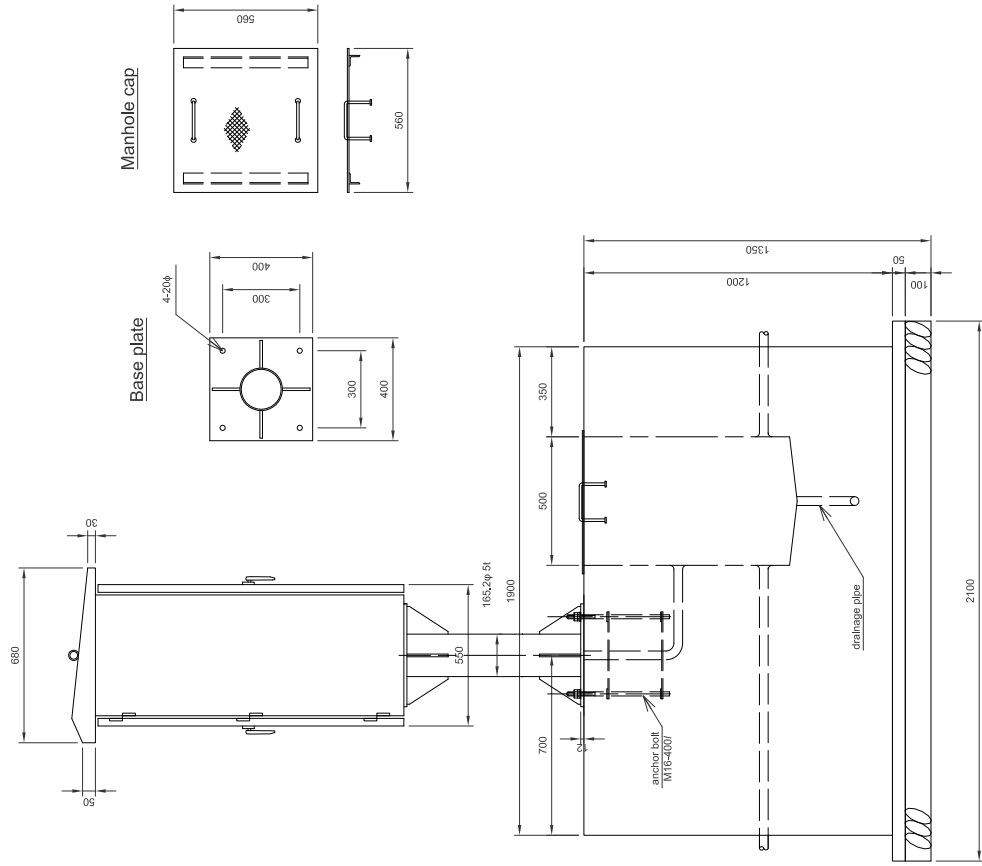
Material	Dimension	Volume	Remarks
STK400	558.80x12.71	1070kg	
STK400	558.80x9.51	1653kg	
STK400	165.20x5.01	1290kg	
STK400	34.00x2.31	3kg	
RC	3100x3100	24.0m ³	

*1 Structural steel conforms ASTM A-709M Grade 250 or equivalence with:
Yield strength $F_y = 250$ MPa
Tensile strength $F_u = 450$ MPa
*2 Concrete structure equivalence with:
Concrete strength $F_c = 18$ MPa
Reinforcing Bar (CB300-1) : Yield strength $F_y = 300$ MPa
Tensile strength $F_u = 450$ MPa
*3 In case without any recommendation about zhuang in details, all metal members exposed to weather or soil must be zinc-coated with amount of 550g/m².
*4 This drawing be based on NEXCO(Japan) drawings.
*5 These structures should be redesigned to meet site condition.

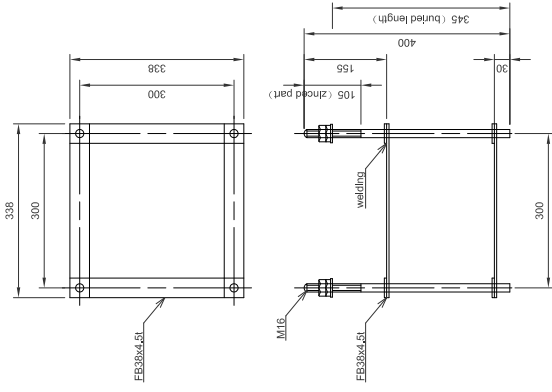
CONSULTANT		SOCIALIST REPUBLIC OF VIETNAM		ITS INTEGRATION PROJECT ON NEW NATIONAL HIGHWAY NO.3 & NORTHERN AREA OF VIETNAM	
ORIENTAL CONSULTANTS CO., LTD	TITLE	NAME	SIGNATURE	DRAWING NO.:	X.2-05
NEXCO EAST ENGINEERING CO., LTD	PREPARED BY			NOI BAI - BAC NINH EXPRESSWAY	
TRANSPORTATION RESEARCH INSTITUTE CO., LTD	CHECKED BY			RADIO COMMUNICATION ANTENNA TOWER	
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SCALE: Various					

HOUSING BOX FOR WEATHER SENSOR

STANCE FIGURE scale: 1/20



ANCHOR BOLT scale: 1/10



Volume table

Material	Dimension	Volume
Box	1900x1200x680	1536 kg
Steel	165.2x4.51	14 kg
Plate	400x400	20 kg
Manhole cap	560x560	15 kg
Anchor bolt	M16-400	30 kg
Concrete		2.6m ³

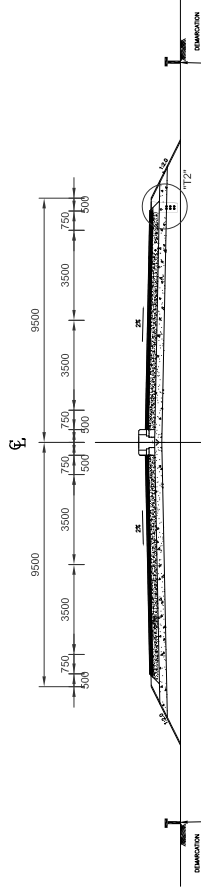
- *1 Structural steel conforms ASTM A-709M Grade 250 or equivalence with:
Yield strength $F_y = 250$ MPa
Tensile strength $F_u = 450$ MPa
- *2 Concrete structure equivalence with:
Concrete strength $F_c = 18$ MPa
Reinforcing Bar (GB3000-1): Yield strength $F_y = 300$ MPa
Tensile strength $F_u = 450$ MPa
- *3 In case without any recommendation about zhuohu in details, all metal members exposed to weather or soil must be zhuohu with amount of 550g/m².
- *4 This drawing be based on NEXCO(Japan) drawings.
- *5 These structures should be redesigned to meet site condition.

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TYPICAL CROSS SECTION OF COMMUNICATION DUCT(TYPE T2,T3) IN EARTHWORK SECTION

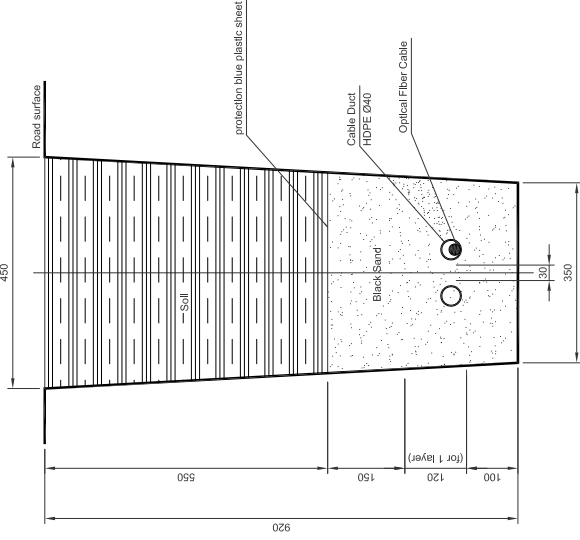
ARRANGEMENT OF COMMUNICATION DUCT IN SHOULDER (T2 TYPE)

(WHEN MEDIAN WIDTH BE LESS THAN 2.0M)



COMMUNICATION DUCT TYPE T3 DETAIL scale:1/10

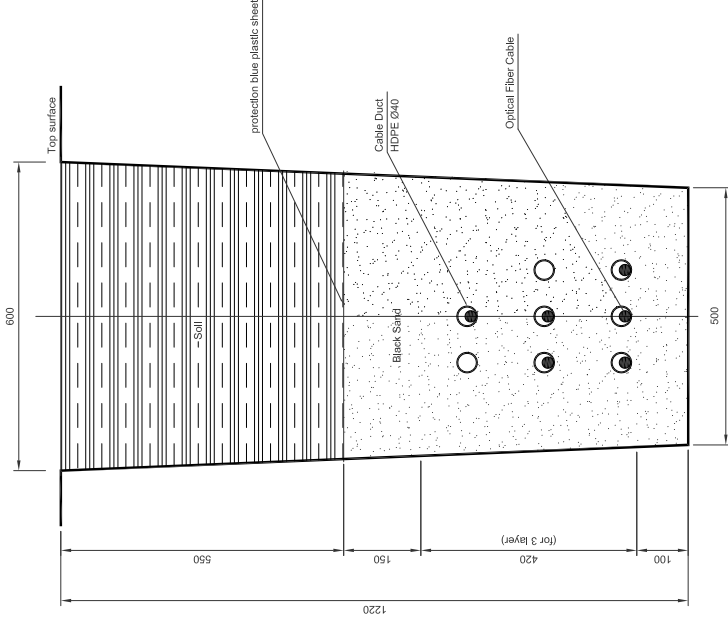
(USE FOR COMMUNICATION DUCT SPREAD FOR ROADSIDE EQUIPMENT)



PROTECTION BLUE PLASTIC SHEET scale:1/20

protection blue plastic sheet

CAUTION! CẢN THẬN! CÓ CÁP QUANG PHÍA DƯỚI! BE CAREFUL! OPTICAL CABLE BELOW! CẢN THẬN!
CAUTION! OPTICAL CABLE BELOW! CẢN THẬN! CÓ CÁP QUANG PHÍA DƯỚI! BE CAREFUL! OPTICAL CABLE



Volume table of T2 Duct (for 1 kilometer in length)

	Volume
Disposal soil	671 m³
Black sand	353 m³
Backfill soil	318 m³
Protection blue plastic sheet	500 m²

Volume table of T3 Duct (for 1 kilometer in length)

	Volume
Disposal soil	388 m³
Black sand	137 m³
Backfill soil	231 m³
Protection blue plastic sheet	350 m²

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ITS INTEGRATION PROJECT ON
 NEW NATIONAL HIGHWAY NO.3 & NORTHERN AREA OF VIETNAM
 DRAWING TITLE
 NO1 BAI - BAC NINH EXPRESSWAY
 TYPICAL CROSS SECTION OF COMMUNICATION DUCT(TYPE T2,T3)
 IN EARTHWORK SECTION

PACKAGE:

DRAWING NO.:

X-3-01

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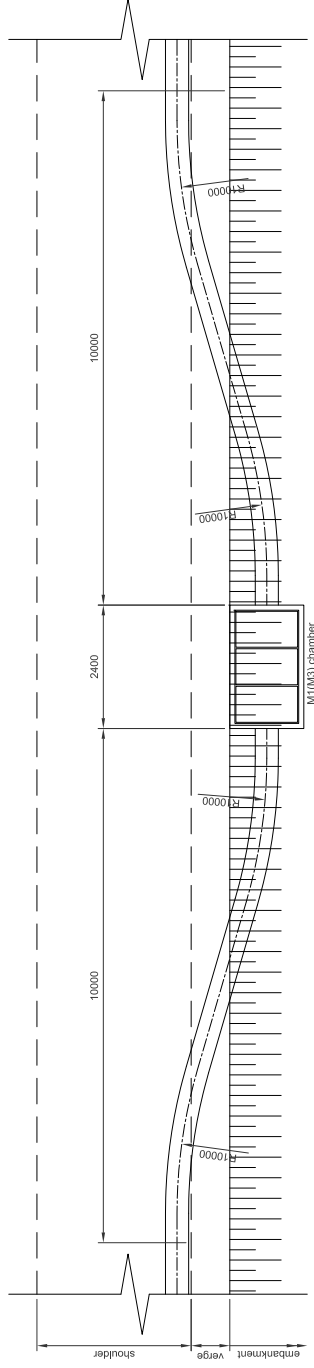
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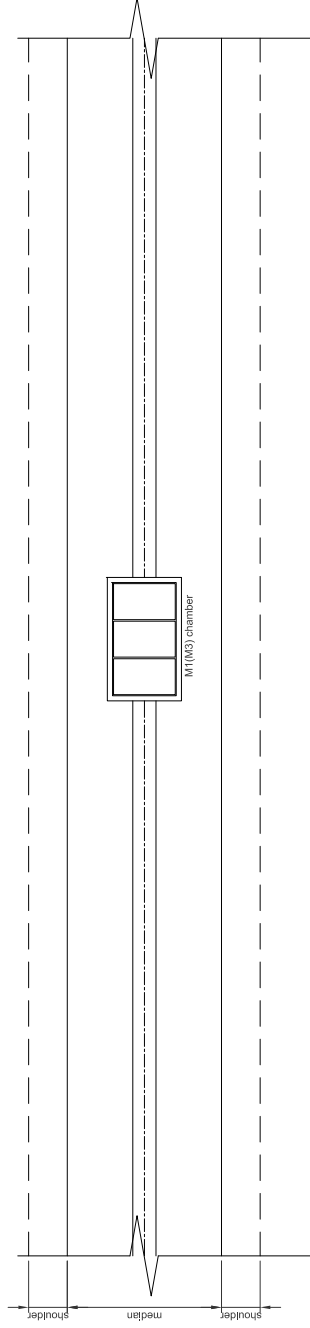
SCALE: Various

ARRANGEMENT OF COMMUNICATION DUCT AT CHAMBER (1)

CHAMBER FOR COMMUNICATION DUCT ON ROAD scale: 1/100



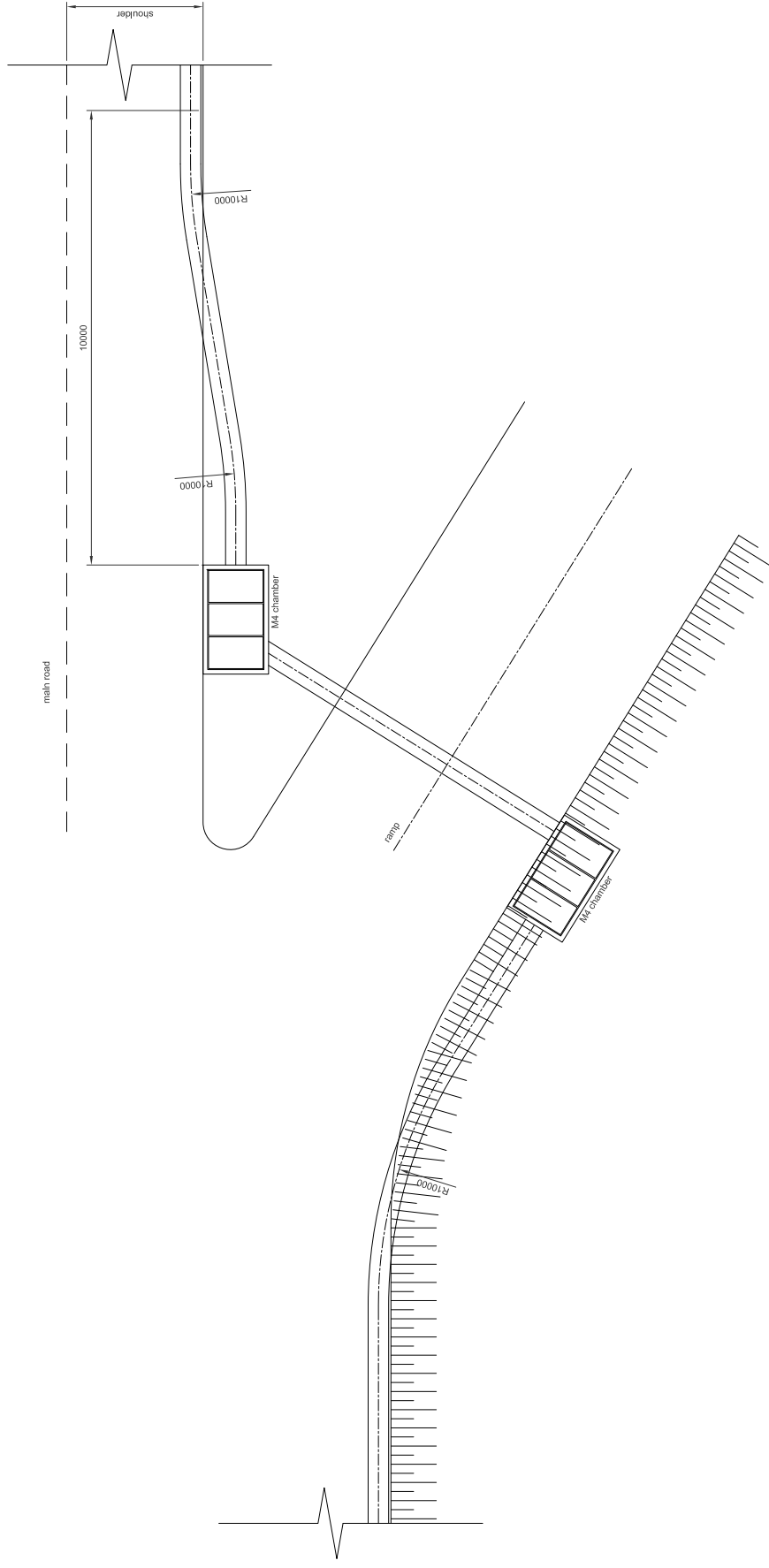
CHAMBER FOR COMMUNICATION DUCT ON MEDIAN scale: 1/100



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		MINISTRY OF TRANSPORT		DRAWING TITLE NOI BAI - BAC MINH EXPRESSWAY ARRANGEMENT OF COMMUNICATION DUCT AT CHAMBER (1)		DRAWING NO.: X-3-02
TITLE PREPARED BY	NAME	SIGNATURE	DATE	SHEET No.: of		
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ARRANGEMENT OF COMMUNICATION DUCT AT CHAMBER (2)

CHAMBER FOR CHANGING DIRECTION OF COMMUNICATION DUCT ON ROAD scale: 1/100

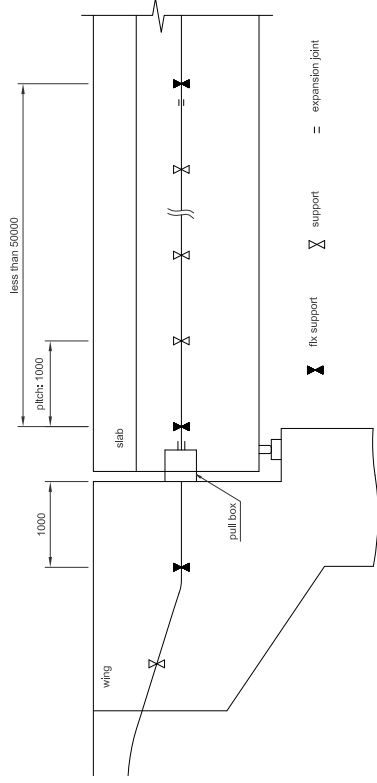


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					ARRANGEMENT OF COMMUNICATION DUCT AT CHAMBER (2)		
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					SCALE: 1/100		

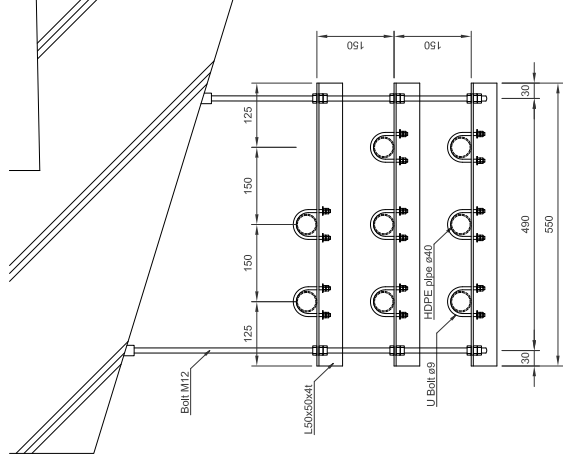
DETAIL OF COMMUNICATION DUCT (TYPE B2) ON BRIDGE (1)

ARRANGEMENT OF COMMUNICATION DUCT ON BRIDGE (SIDE VIEW)

"A" DETAIL scale: 1/10

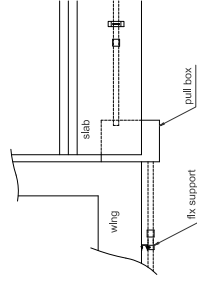
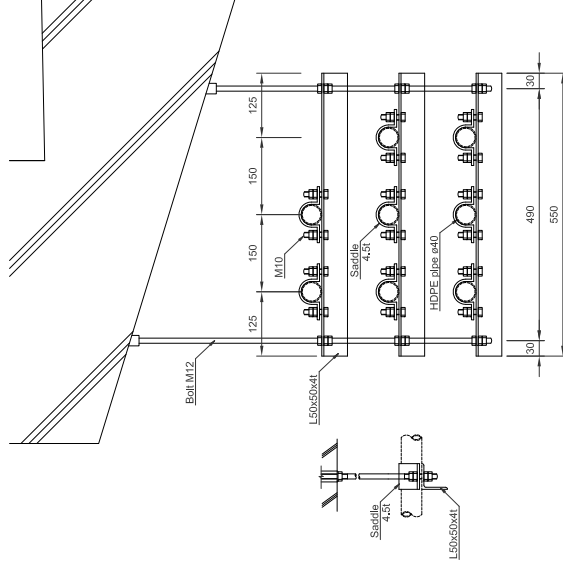


Support

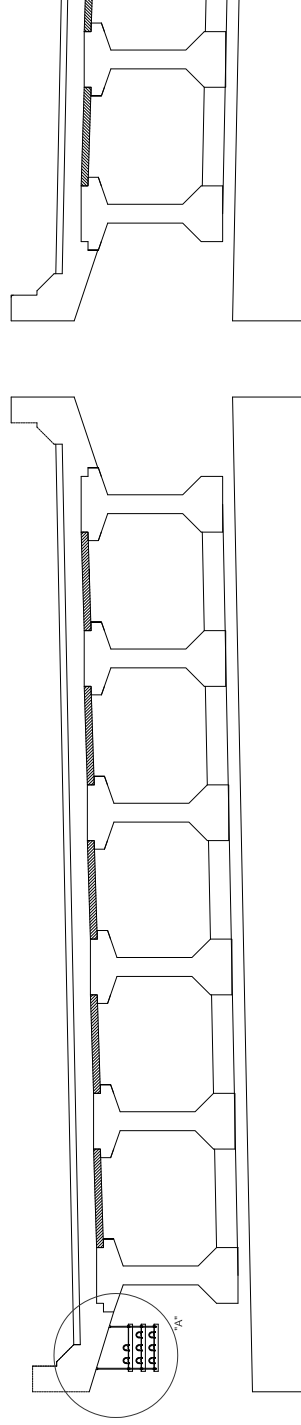


ARRANGEMENT OF COMMUNICATION DUCT AT JOINT AREA (PLAN VIEW)

Fix Support



ARRANGEMENT OF COMMUNICATION DUCT ON BRIDGE (CROSS SECTION VIEW)



Volume table of supporting rack B2 (for 1 piece)

L50x50x4t	Weight(kg)
Anchor bolt M12	6
	1.3

- *1 Structural steel conforms ASTM A-708M Grade 250 or equivalence with:
Yield strength: $F_y = 250$ MPa
Tensile strength: $F_t = 400$ MPa
- *2 Concrete structure equivalence with:
Concrete strength $F_{cc} = 18$ MPa
Reinforcing Bar (GB500-11): Tensile strength $F_t = 300$ MPa
Tensile strength $F_t = 460$ MPa
- *3 In case without any recommendation about zincing in details, all metal members be exposed to weather or soil must be zinced with amount of 550g/m².
- *4 This drawing be based on NEXCO(Japan) drawings.
- *5 These structures should be redesigned to meet site condition.

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MINISTRY OF TRANSPORT

NEW NATIONAL HIGHWAY NO.3 & NORTHERN AREA OF VIETNAM
NOI BAI - BAC NINH EXPRESSWAY
DETAIL OF COMMUNICATION DUCT (TYPE B2) ON BRIDGE (1)

DRAWING NO.:

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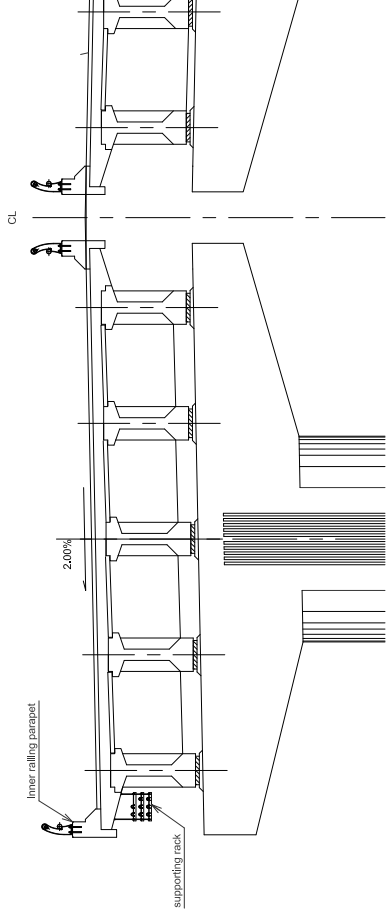
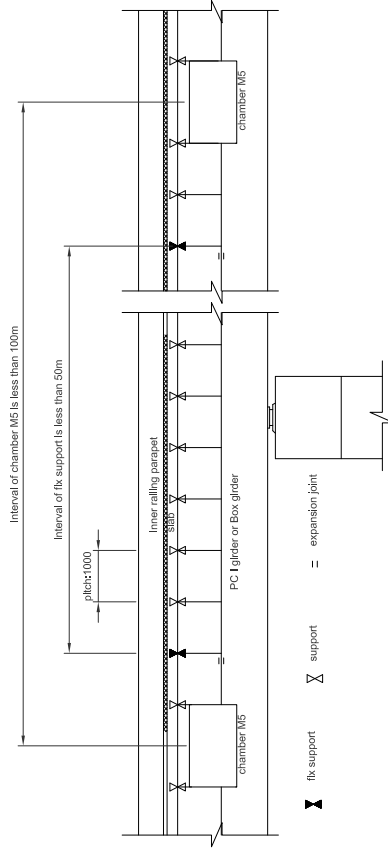
SCALE: Various

DETAIL OF COMMUNICATION DUCT (TYPE B2) ON BRIDGE(2)

SIDE VIEW

CROSS SECTION VIEW

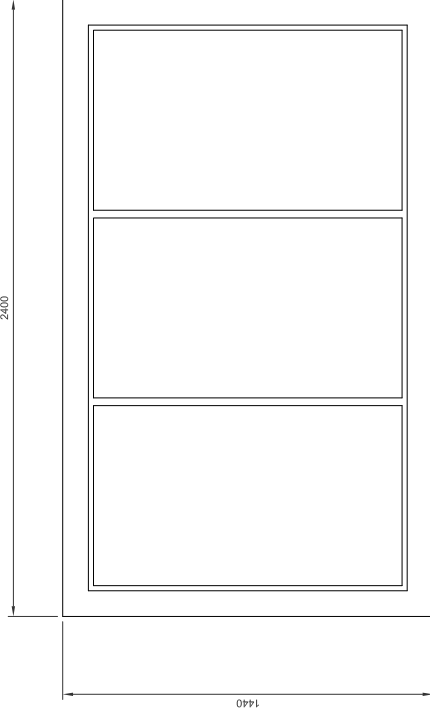
(PC I girder section)



- *1 Structural steel conforms ASTM A-708M Grade 250 or equivalence with:
Yield strength: $F_y = 250$ MPa
Tensile strength: $F_u = 400$ MPa
- *2 Concrete structure equivalence with:
Concrete strength: $F_c = 18$ MPa
Reinforcing Bar (GB500-11):
Yield strength: $F_y = 300$ MPa
Tensile strength: $F_u = 460$ MPa
- *3 In case without any recommendation about zincing in details, all metal members be exposed to weather or soil must be zinced with amount of 550g/m^2 .
- *4 This drawing be based on NEXCO(Japan) drawings.
- *5 These structures should be redesigned to meet site condition.

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				SCALE: 1/100	

DETAIL OF COMMUNICATION DUCT CHAMBER (TYPE M1) (INSTALL AT MEDIAN or ON EMBANKMENT; WITH PITCH LESS THAN 333m)

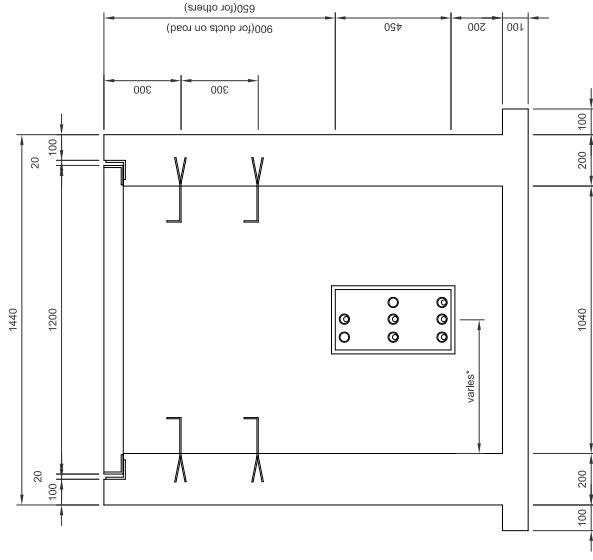
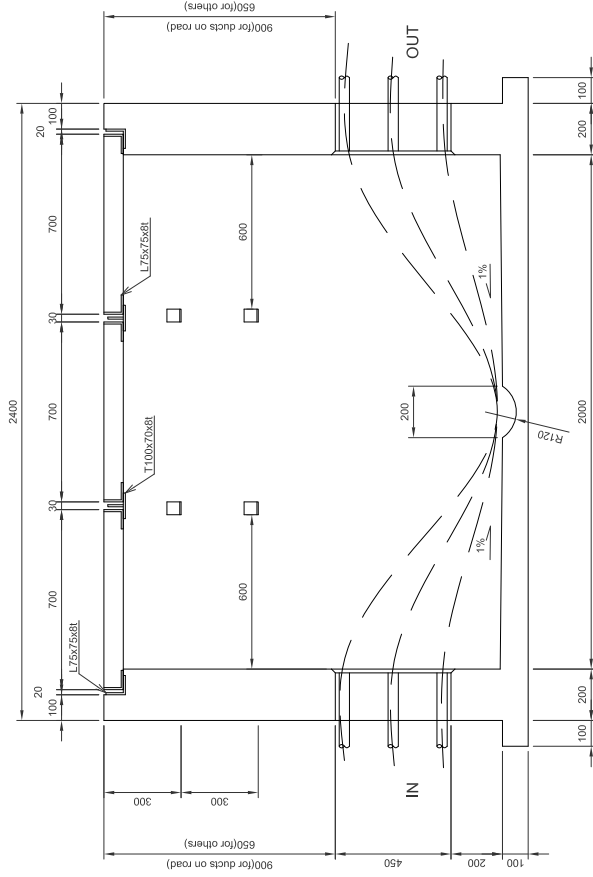


Volume table of chamber for ducts on road

Volume	Weight
L75x75x8L	183 kg
PL80x8L	10 kg
T100x70x8L	26 kg
Concrete M300	1.9 m ³

Volume table of chamber for others

Volume	Weight
L75x75x8L	183 kg
PL80x8L	10 kg
T100x70x8L	26 kg
Concrete M300	1.7 m ³

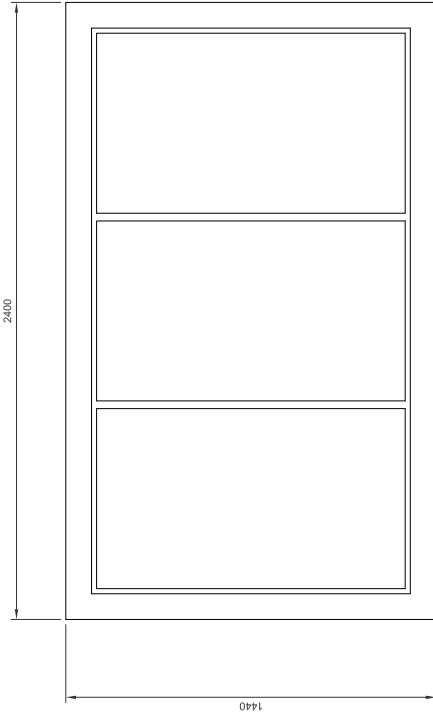


* Depending to duct arrangement.

*1 Concrete structure equivalence with:
Concrete strength: F_c = 300 MPa;
Yield strength: F_y = 490 MPa;
Reinforcing Bar (GB3000-II):
Tensile strength: F_t = 490 MPa;

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		NAME		SIGNATURE		DATE	
		LANDTEC JAPAN INC.					
SOCIALIST REPUBLIC OF VIETNAM				ITS INTEGRATION PROJECT ON			
MINISTRY OF TRANSPORT				NEW NATIONAL HIGHWAY NO.3 & NORTHERN AREA OF VIETNAM			
				DRAWING TITLE			
				NOI BAI - BAC MINH EXPRESSWAY			
				DETAIL OF COMMUNICATION DUCT CHAMBER (TYPE M1)			
				DRAWING NO. X.3-08			
				SHEET No. _____			
				Sheet _____ of _____			
				SCALE: 1:20			

DETAIL OF COMMUNICATION DUCT CHAMBER (TYPE M2) (INSTALL AT BACK OF ABUTMENT)

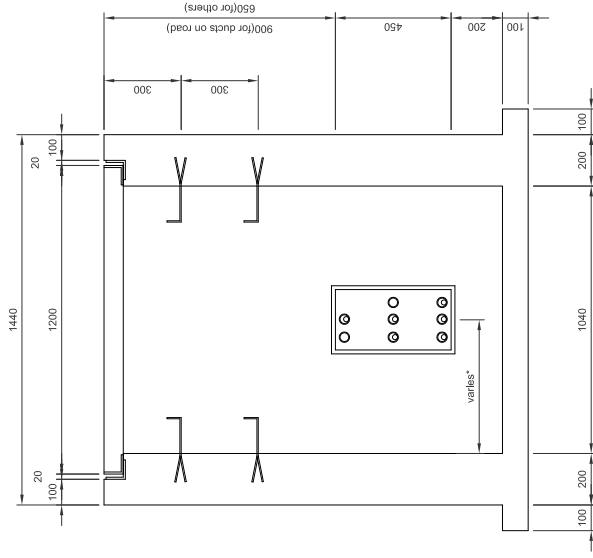
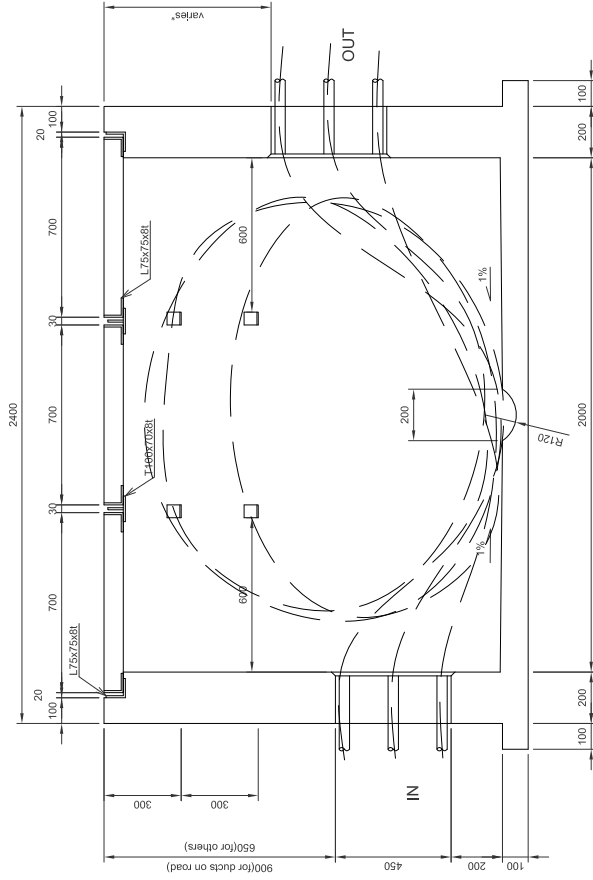


Volume table of chamber for ducts on road

Volume	Weight
L75x75x8L	183 kg
PL80x8L	10 kg
T100x70x8L	26 kg
Concrete M300	1.9 m ³

Volume table of chamber for others

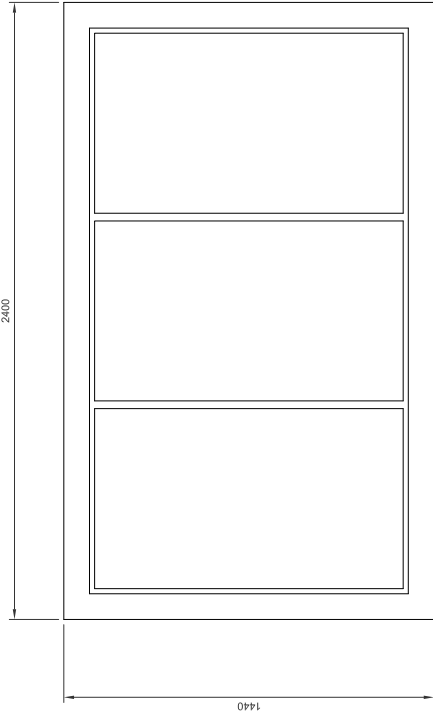
Volume	Weight
L75x75x8L	183 kg
PL80x8L	10 kg
T100x70x8L	26 kg
Concrete M300	1.7 m ³



* Depending to duct arrangement,
 *1 Concrete structure equivalence with:
 Concrete strength: F_c = 18 MPa;
 Reinforcing Bar (CB300-UP):
 Yield strength: F_y = 300 MPa;
 Tensile strength: F_t = 450 MPa;

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DETAIL OF COMMUNICATION DUCT CHAMBER (TYPE M3) (INSTALL AT MEDIAN or EMBANKMENT; WITH PITCH LESS THAN 2000M)

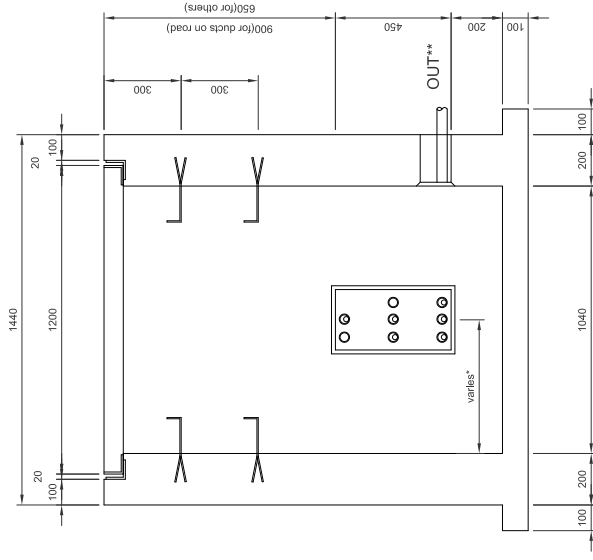
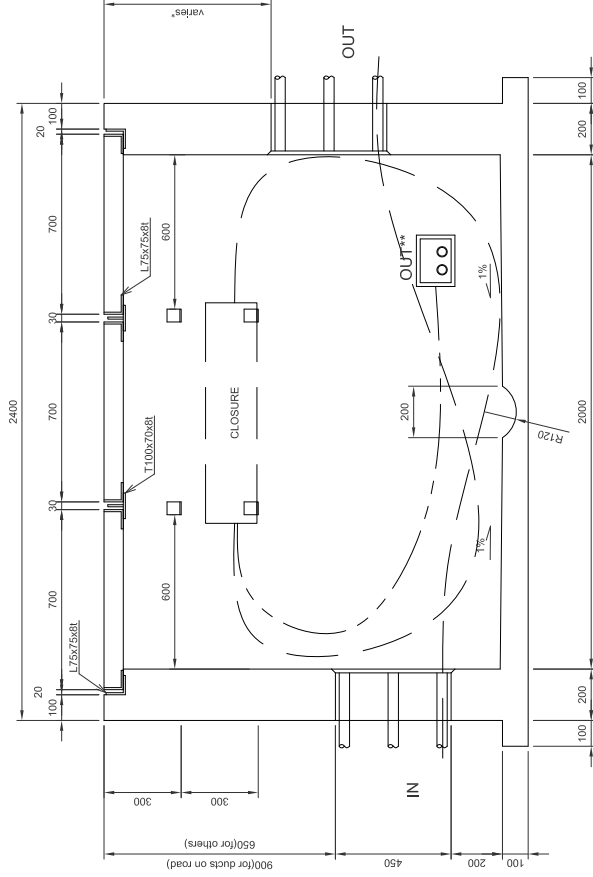


Volume table of chamber for ducts on road

Volume	Weight
L75x75x8L	183 kg
PL80x8L	10 kg
T100x70x8L	26 kg
Concrete M300	1.9 m ³

Volume table of chamber for others

Volume	Weight
L75x75x8L	183 kg
PL80x8L	10 kg
T100x70x8L	26 kg
Concrete M300	1.7 m ³



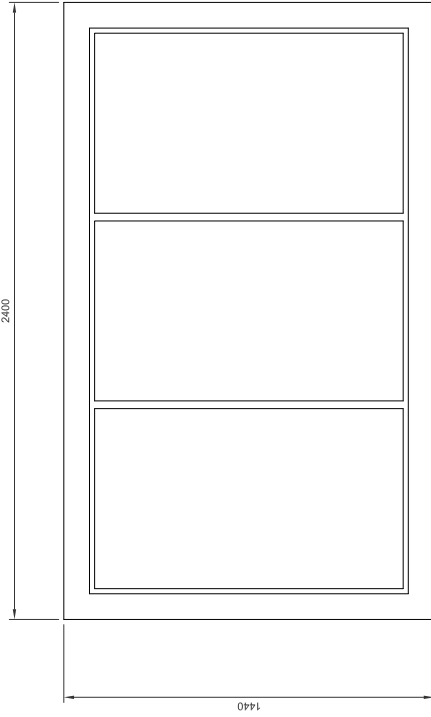
* Depending to duct arrangement,
 ** Divergence exits be used for roadside equipments.

*1 Concrete structure equivalence with:
 Concrete strength: F_c = 18 MPa;
 Yield strength: F_y = 300 MPa;
 Reinforcing Bar (CB300-UP):
 Tensile strength: F_t = 450 MPa;

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DETAIL OF COMMUNICATION DUCT CHAMBER (TYPE M3)			NOI BAI - BAC NINH EXPRESSWAY		
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PACKAGE			SHEET No. of		
SCALE: 1:20			Rev		

DETAIL OF COMMUNICATION DUCT CHAMBER (TYPE M4)

(INSTALL AT MEDIAN or EMBANKMENT; FOR CHANGING DUCT DIRECTION)

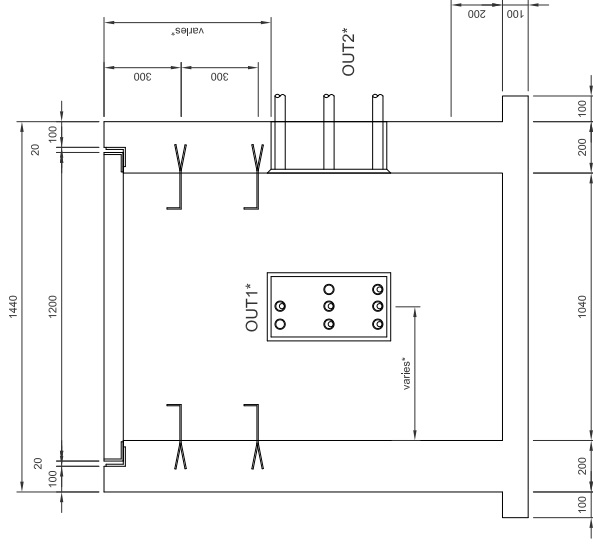
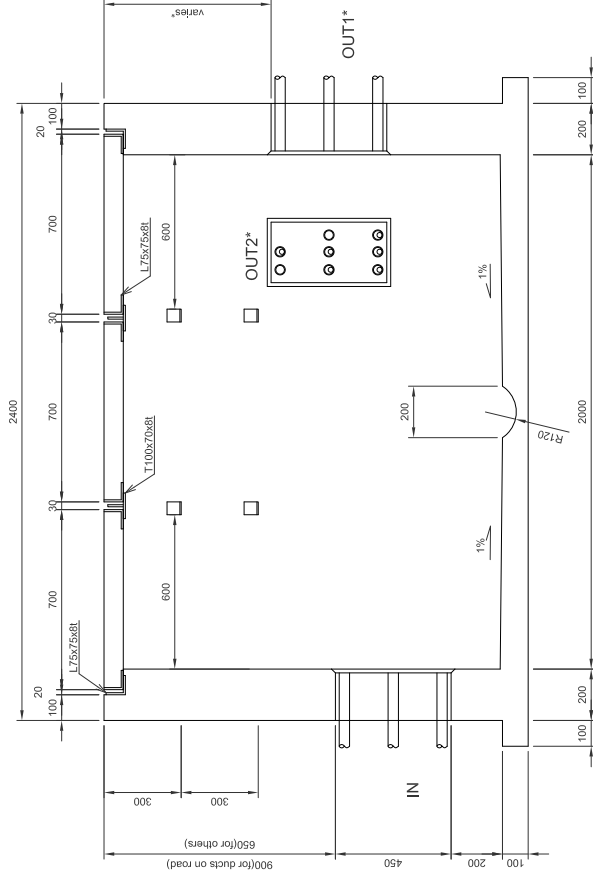


Volume table of chamber for ducts on road

Volume	Weight
L75x75x8L	183 kg
PL80x8L	10 kg
T100x70x8L	26 kg
Concrete M300	1.9 m ³

Volume table of chamber for others

Volume	Weight
L75x75x8L	183 kg
PL80x8L	10 kg
T100x70x8L	26 kg
Concrete M300	1.7 m ³

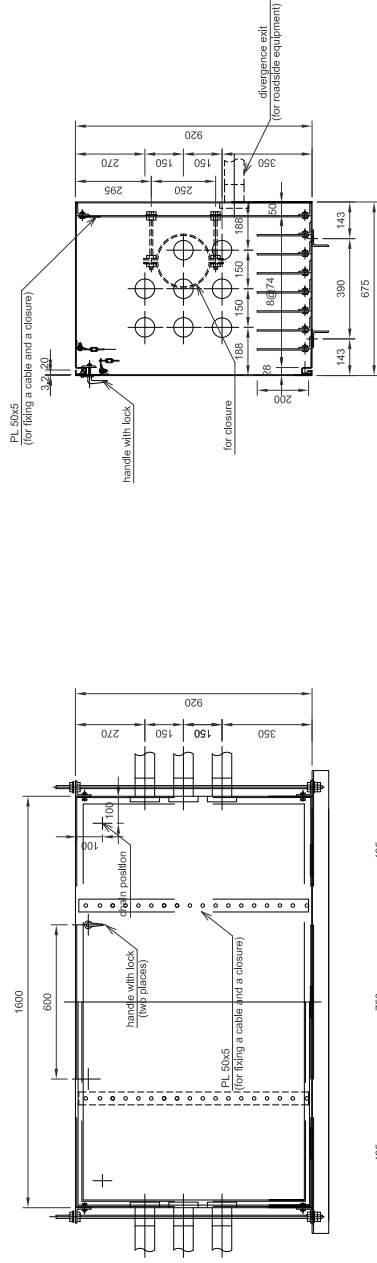


* Depending to duct arrangement.

*1 Concrete structure equivalence with:
 Concrete strength: $F_c = 18 \text{ MPa}$;
 Reinforcing Bar (CB300-UP):
 Yield strength: $F_y = 300 \text{ MPa}$;
 Tensile strength: $F_u = 450 \text{ MPa}$;

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DETAIL OF COMMUNICATION DUCT CHAMBER (TYPE M5) (INSTALL AT BRIDGE SECTION IN WHICH DUCT IS HUNG ON CANTILEVER SLAB)



Volume table

Length(mm)	Volume	Weight (kg)
L 65x65x6t	2	22,0
L 65x65x6t	4	2,0
L 50x50x6t	18	4,0
PL 50x5	2	3,0
PL 50x5	200	14
PL 675x3,2	1600	2
PL 675x3,2	1600	2
PL 675x3,2	920	2

- *1 Structural steel conforms ASTM A-708M Grade 250 or equivalence with:
Yield strength: $F_y = 250$ MPa
Tensile strength: $F_t = 400$ MPa
- *2 Concrete structure equivalence with:
Concrete strength: $F_c = 18$ MPa
Reinforcing Bar (GB50061):
Yield strength: $F_y = 300$ MPa
Tensile strength: $F_t = 460$ MPa
- *3 In case without any recommendation about zincing in details, all metal members be exposed to weather or soil must be zinced with amount of $550g/m^2$.
- *4 This drawing be based on NEXCO(Japan) drawings.
- *5 These structures should be redesigned to meet site condition.

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NEW NATIONAL HIGHWAY NO.3 & NORTHERN AREA OF VIETNAM
NOI BAI - BAC NINH EXPRESSWAY
DETAIL OF COMMUNICATION DUCT CHAMBER (TYPE M5)

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DRAWING NO.:

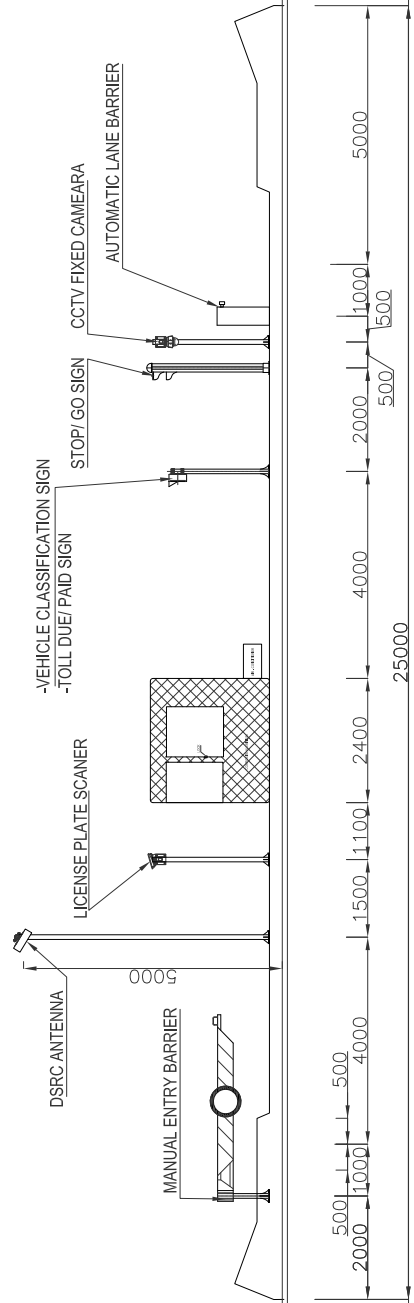
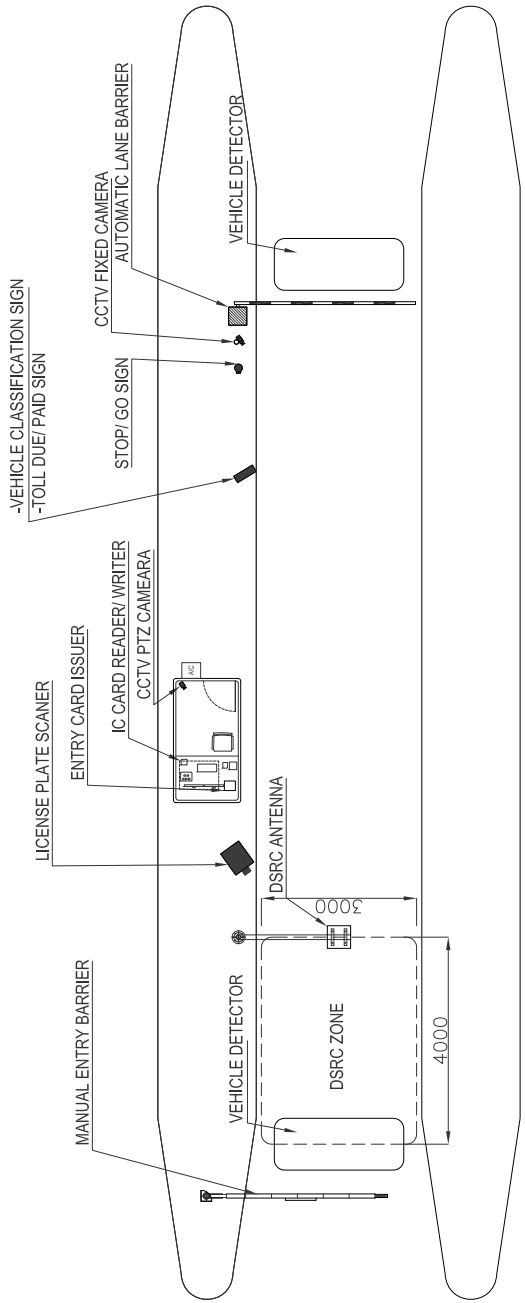
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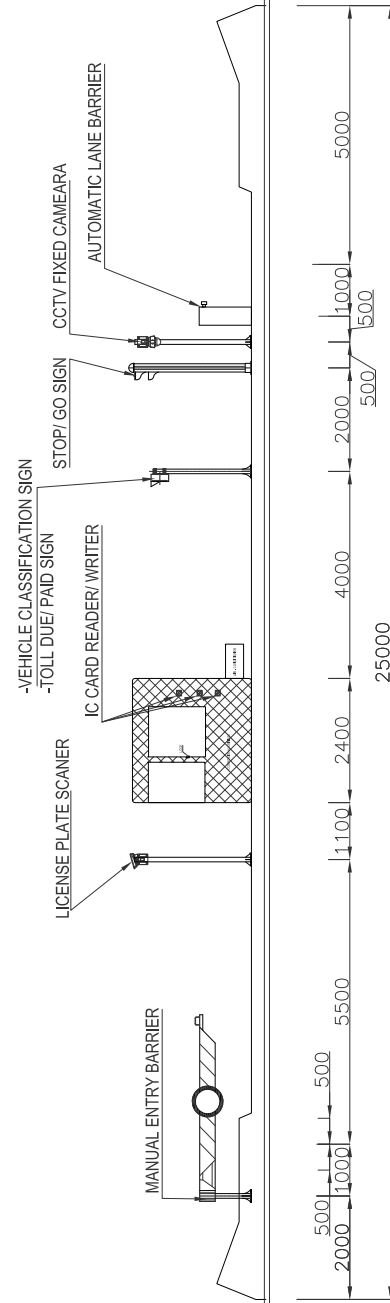
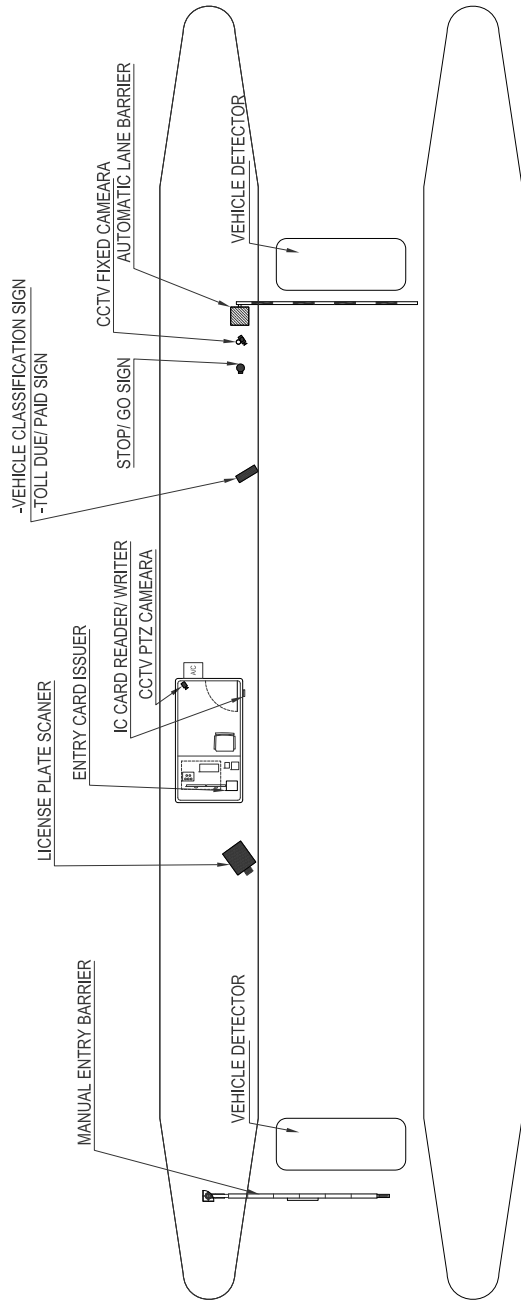
Rev:

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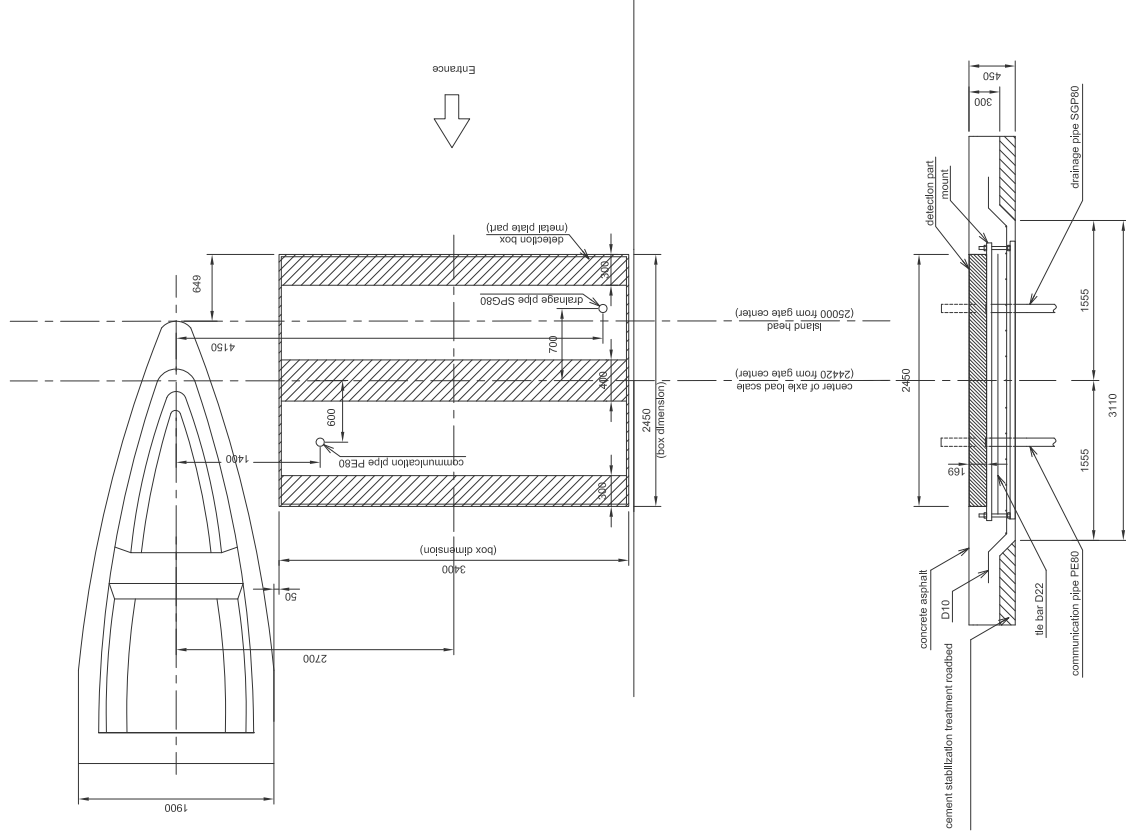


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ORIENTAL CONSULTANTS CO., LTD				DRAWING TITLE		DRAWING NO.
NEXCO EAST ENGINEERING CO., LTD		MINISTRY OF TRANSPORT		EQPT. ARRANGEMENT PROFILE		X-4-02
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CONSULTANT		SOCIALIST REPUBLIC OF VIETNAM		ITS INTEGRATION PROJECT ON NEW NATIONAL HIGHWAY NO.3 & NORTHERN AREA OF VIETNAM		PACKAGE
ORIENTAL CONSULTANTS CO., LTD				DRAWING TITLE		DRAWING NO.
NEXCO EAST ENGINEERING CO., LTD		MINISTRY OF TRANSPORT		EQPT. ARRANGEMENT PROFILE AT CA LO		X-4-03
TRANSPORTATION RESEARCH INSTITUTE CO., LTD				TOLLGATE FOR TOUCH&GO/MANUAL LANE		SHEET NO.
LANDTEC JAPAN INC.						Sheet of
TITLE	NAME	SIGNATURE	DATE	SCALE: 1/100		
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BASE STRUCTURE FOR AXLE LOAD SCALE (for reference)



CONSULTANT		SOCIALIST REPUBLIC OF VIETNAM		NEW NATIONAL HIGHWAY NO.3 & NORTHERN AREA OF VIETNAM		PACKAGE:
ORIENTAL CONSULTANTS CO., LTD				DRAWING TITLE		DRAWING NO.:
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