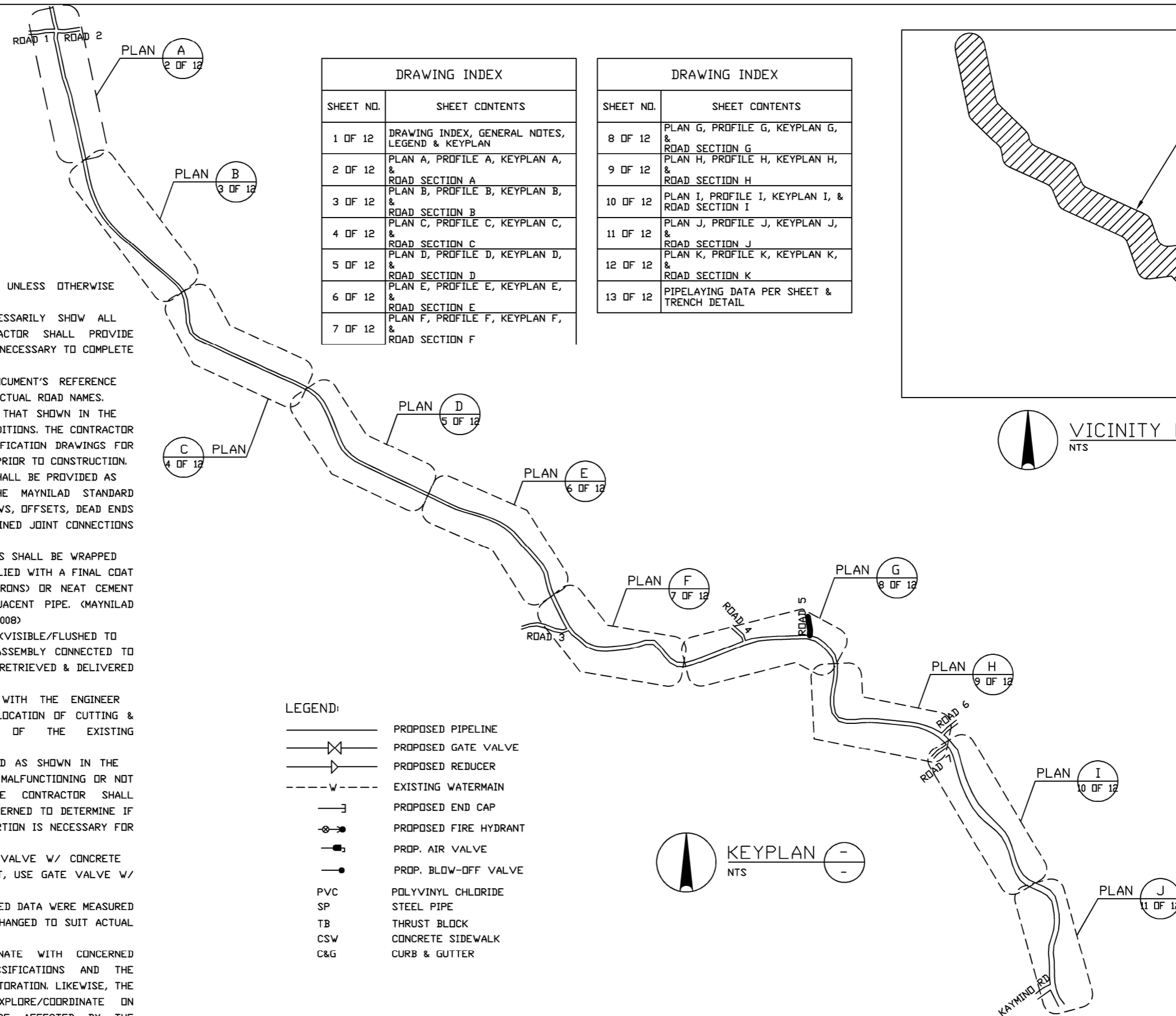


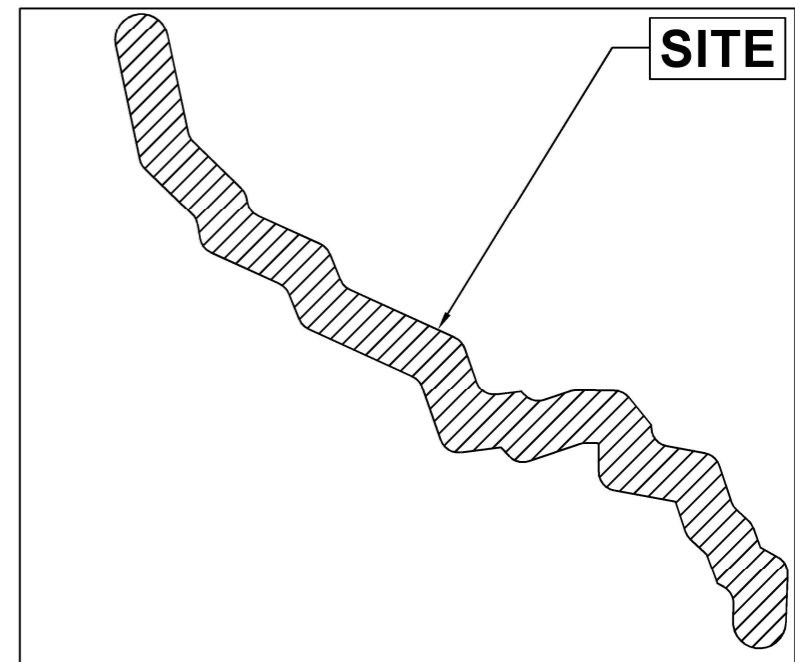
- NOTES:**
1. ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE INDICATED.
 3. PIPE LAYOUT DRAWINGS DO NOT NECESSARILY SHOW ALL FITTINGS AND BENDS. THE CONTRACTOR SHALL PROVIDE ADDITIONAL FITTINGS AND BENDS AS NECESSARY TO COMPLETE THE SYSTEM.
 5. ROAD NUMBERING IS FOR CONTRACT DOCUMENT'S REFERENCE ONLY AND DOES NOT REPRESENT THE ACTUAL ROAD NAMES.
 6. PIPE ALIGNMENT MAY BE CHANGED FROM THAT SHOWN IN THE DRAWINGS TO SUIT ACTUAL FIELD CONDITIONS. THE CONTRACTOR SHALL PREPARE THE NECESSARY MODIFICATION DRAWINGS FOR REVIEW/APPROVAL BY THE ENGINEER PRIOR TO CONSTRUCTION.
 7. CONCRETE THRUST AND ANCHOR BLOCKS SHALL BE PROVIDED AS REQUIRED IN ACCORDANCE WITH THE MAYNILAD STANDARD DRAWINGS AT ALL BENDS, TEES, ELBOWS, OFFSETS, DEAD ENDS AND REDUCERS EXCEPT WHERE RESTRAINED JOINT CONNECTIONS ARE SPECIFIED.
 8. ALL BURIED FLANGE & MECHANICAL JOINTS SHALL BE WRAPPED W/ PETROLATUM TAPE OR CAN BE APPLIED WITH A FINAL COAT OF COAL TAR ENAMEL (t_{min}=1000MICRONS) OR NEAT CEMENT DEPENDING ON THE COATING OF ADJACENT PIPE. (MAYNILAD TECHNICAL SPECS. VOL. 3 SECTION 31008)
 9. ALL VALVE BOX/MH/DM FRAME & COVER (VISIBLE/FLUSHED TO PAVEMENT) & FIRE HYDRANT RISER ASSEMBLY CONNECTED TO DECOMMISSIONED PIPELINE SHOULD BE RETRIEVED & DELIVERED TO DESIGNATED STOCKYARD.
 10. THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER CONCERNED REGARDING THE ACTUAL LOCATION OF CUTTING & PLUGGING/DECOMMISSIONING POINTS OF THE EXISTING WATERMAIN.
 11. IF THE EXISTING VALVE TO BE CLOSED AS SHOWN IN THE CONTRACT DRAWING IS FOUND TO BE MALFUNCTIONING OR NOT EASILY IDENTIFIED ON SITE, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER CONCERNED TO DETERMINE IF CUTTING & PLUGGING OR VALVE INSERTION IS NECESSARY FOR THE AFFECTED EXISTING WATERMAIN.
 12. FOR 400Ø WATERMAIN USE BUTTERFLY VALVE W/ CONCRETE VAULT. FOR 200Ø AND 250Ø STUB-OUT, USE GATE VALVE W/ MANHOLE.
 13. PIPE LENGTHS SHOWN IN THE TABULATED DATA WERE MEASURED & VALIDATED ON SITE AND MAY BE CHANGED TO SUIT ACTUAL FIELD CONDITIONS.
 16. THE CONTRACTOR SHALL COORDINATE WITH CONCERNED AGENCIES TO VERIFY ROAD CLASSIFICATIONS AND THE CORRESPONDING REQUIREMENTS ON RESTORATION. LIKEWISE, THE CONTRACTOR SHALL INVESTIGATE/EXPLORE/COORDINATE ON EXISTING UTILITIES THAT MIGHT BE AFFECTED BY THE



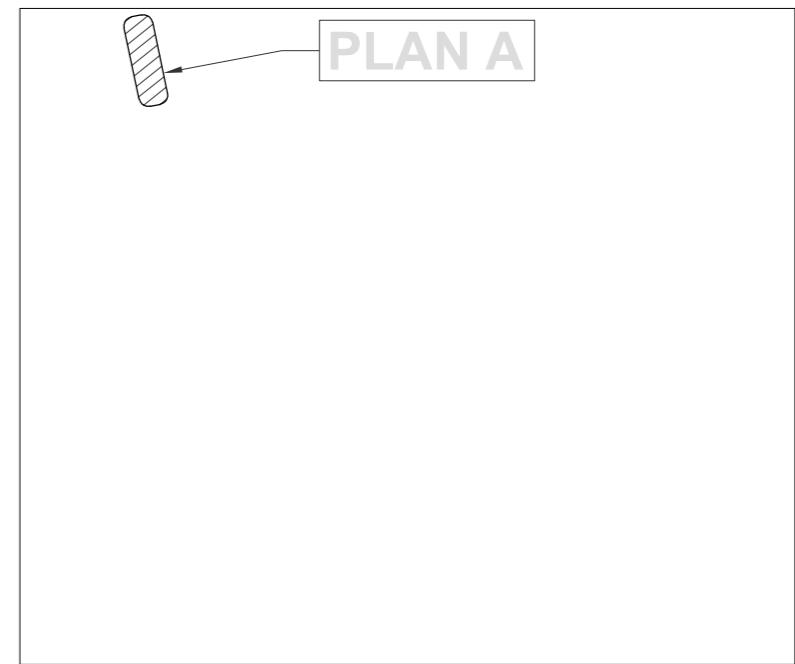
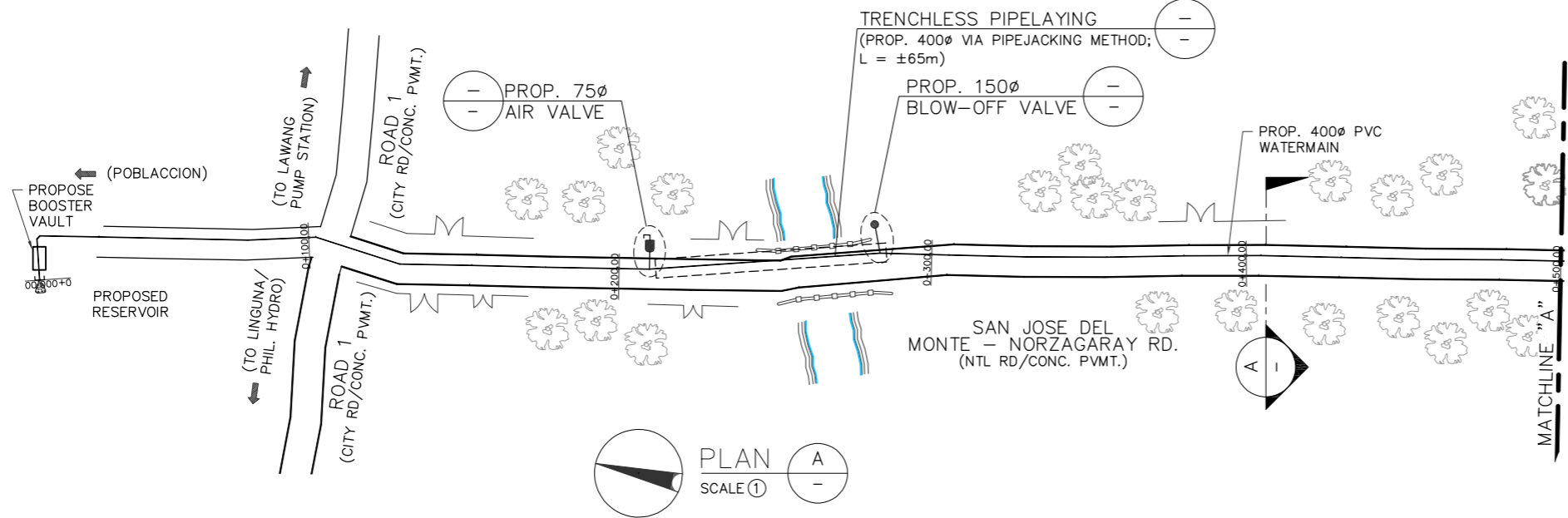
- LEGEND:**
- PROPOSED PIPELINE
 - X— PROPOSED GATE VALVE
 - >— PROPOSED REDUCER
 - - - - - EXISTING WATERMAIN
 -]— PROPOSED END CAP
 - PROPOSED FIRE HYDRANT
 - PROP. AIR VALVE
 - PROP. BLOW-OFF VALVE
 - PVC POLYVINYL CHLORIDE
 - SP STEEL PIPE
 - TB THRUST BLOCK
 - CSW CONCRETE SIDEWALK
 - C&G CURB & GUTTER

DRAWING INDEX	
SHEET NO.	SHEET CONTENTS
1 OF 12	DRAWING INDEX, GENERAL NOTES, LEGEND & KEYPLAN
2 OF 12	PLAN A, PROFILE A, KEYPLAN A, & ROAD SECTION A
3 OF 12	PLAN B, PROFILE B, KEYPLAN B, & ROAD SECTION B
4 OF 12	PLAN C, PROFILE C, KEYPLAN C, & ROAD SECTION C
5 OF 12	PLAN D, PROFILE D, KEYPLAN D, & ROAD SECTION D
6 OF 12	PLAN E, PROFILE E, KEYPLAN E, & ROAD SECTION E
7 OF 12	PLAN F, PROFILE F, KEYPLAN F, & ROAD SECTION F

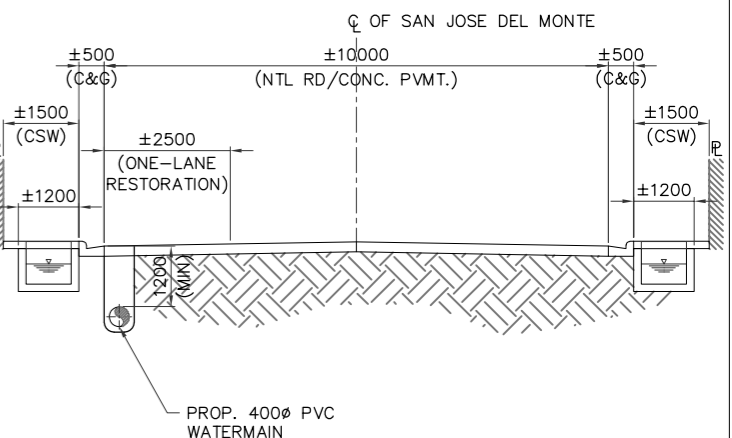
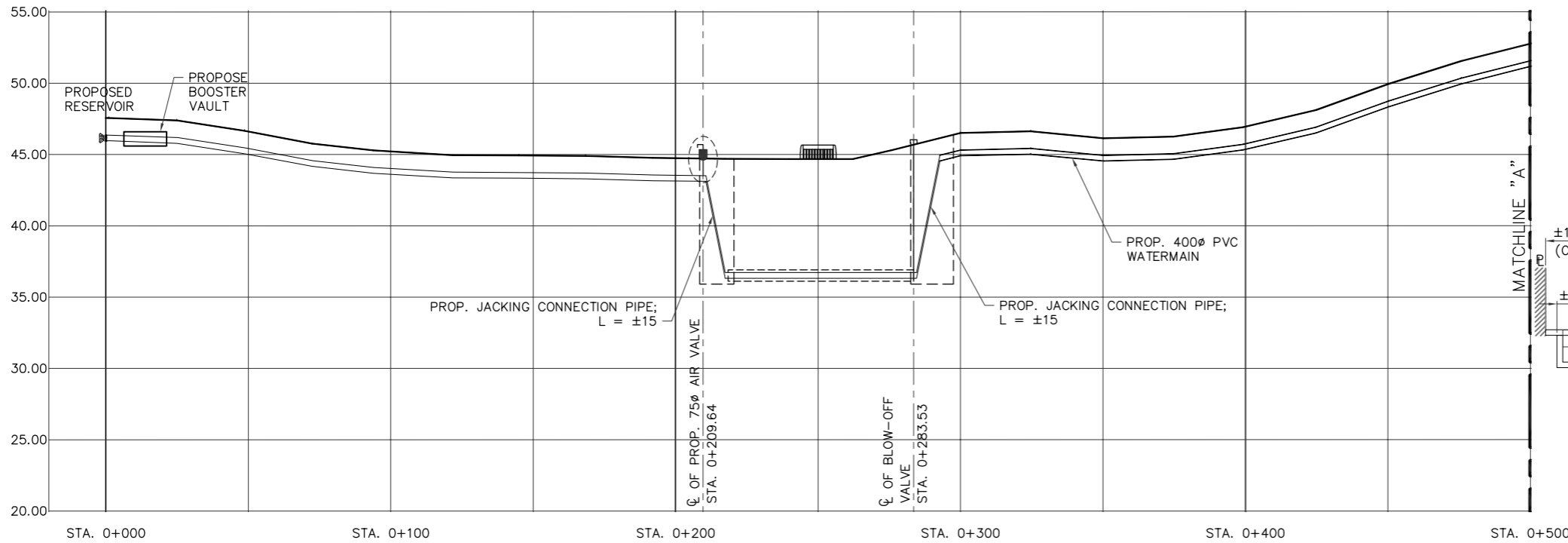
DRAWING INDEX	
SHEET NO.	SHEET CONTENTS
8 OF 12	PLAN G, PROFILE G, KEYPLAN G, & ROAD SECTION G
9 OF 12	PLAN H, PROFILE H, KEYPLAN H, & ROAD SECTION H
10 OF 12	PLAN I, PROFILE I, KEYPLAN I, & ROAD SECTION I
11 OF 12	PLAN J, PROFILE J, KEYPLAN J, & ROAD SECTION J
12 OF 12	PLAN K, PROFILE K, KEYPLAN K, & ROAD SECTION K
13 OF 12	PIPELAYING DATA PER SHEET & TRENCH DETAIL



DRAWN IN THE DRAWINGS		PROPOSED WORK SURVEYED		DESIGNED		MAY NOT BE SHOWN NECESSARILY BE SHOWN CHECKED & CERTIFIED				1639 P. DELA MERCED ST. POBLACION, NORZAGARAY, BULACAN				CONTRACT DRAWING	
REVISION REV. DATE BY APPROVED BY								Architect/Professional Engineer		Approved:		CGR GJG JCDC		PROJECT TITLE: PROP. 400Ø SUPPLY LINE FOR NORZAGARAY WATER DISTRICT	
								PROFESSION:		PTR:		MIRA M. DE LEON General Manager		LOCATION: DEL MONTE-NORZAGARAY RD., NORZAGARAY, BULACAN	
								REGISTRATION NO.:		DATE ISSUED:		AS SHOWN		SHEET NO. 1 OF 12	
								TIN:		PLACE ISSUED:		CONTRACT NO.		REV.	

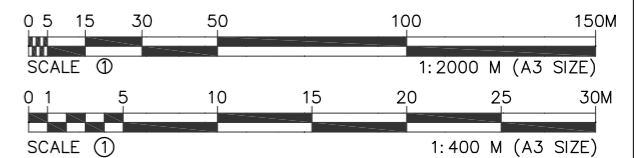


PLAN A
SCALE ①

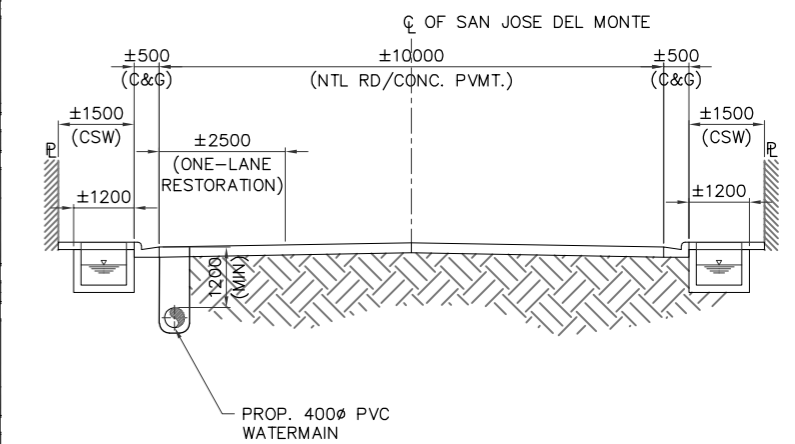
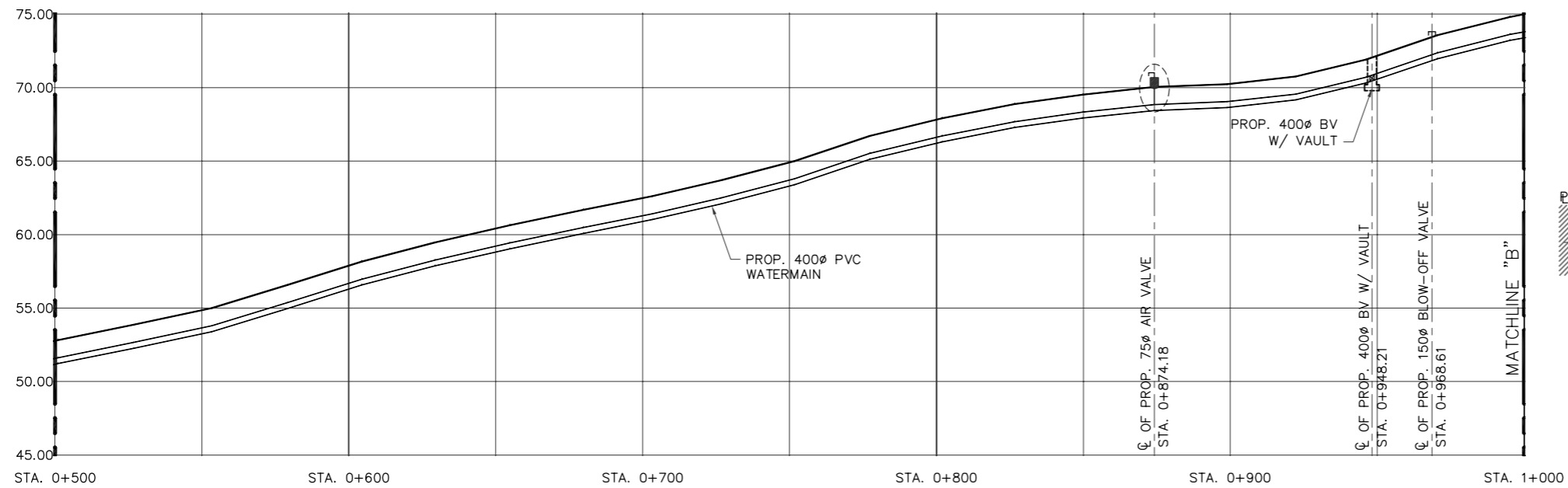
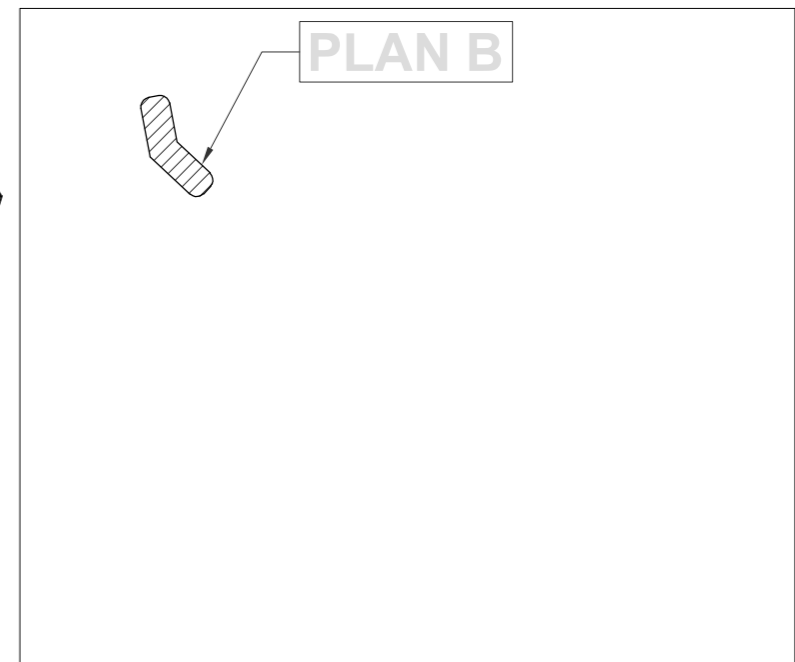
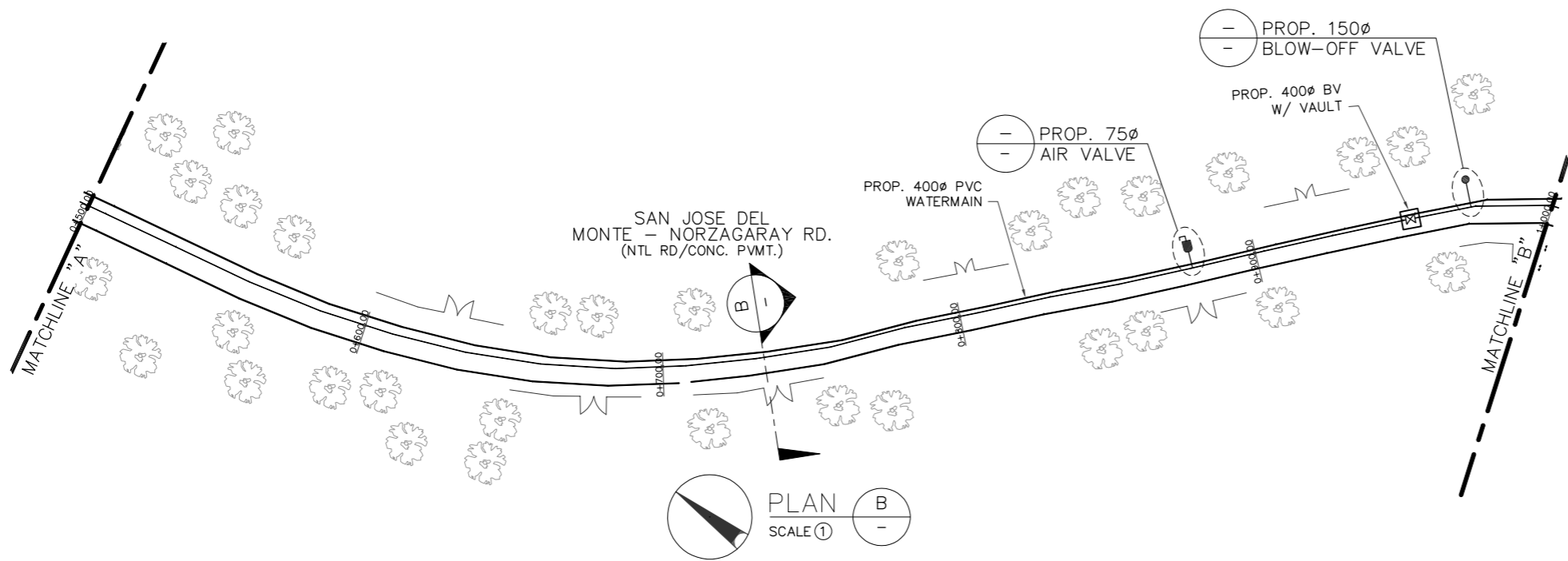


PROFILE (STA. 0+000 - 0+500) A
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VER. SCALE 1:400

ROAD SECTION A
NTS

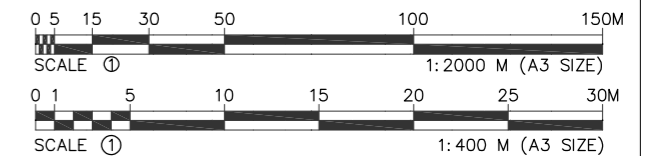


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-	-	-	-	Architect/Professional Engineer			PROJECT TITLE: PROP. 400Ø SUPPLY LINE FOR NORZAGARAY WATER DISTRICT			
REVISION				PROFESSION :	Approved : AIMER B. CRUZ General Manager	MIRA M. DE LEON General Manager	LOCATION:	DEL MONTE-NORZAGARAY RD., NORZAGARAY, BULACAN		
REV	DATE	BY	APPROVED BY	REGISTRATION NO. :			DATE ISSUED :	SHEET CONTENT:	PLAN A, PROFILE A, VICINITY MAP A & ROAD SECTION A	
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								AS SHOWN	-	2 OF 12

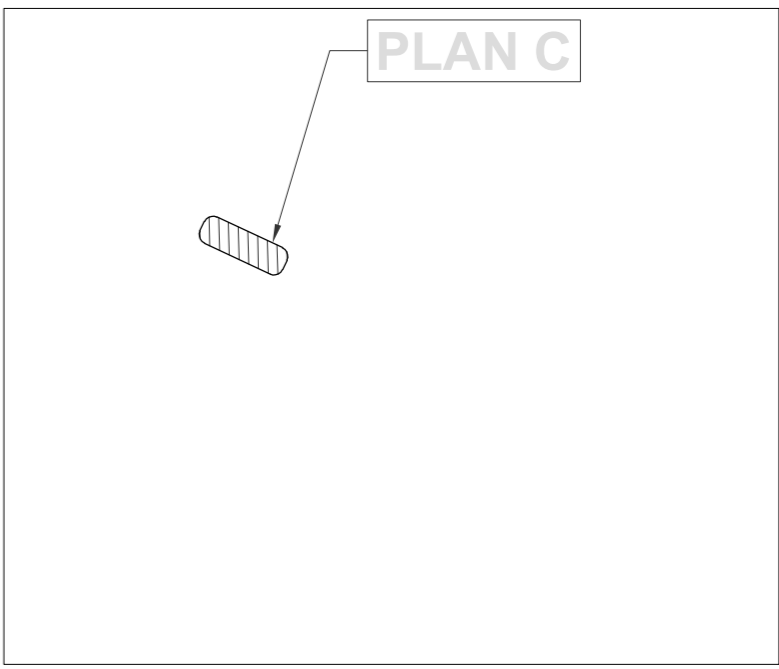
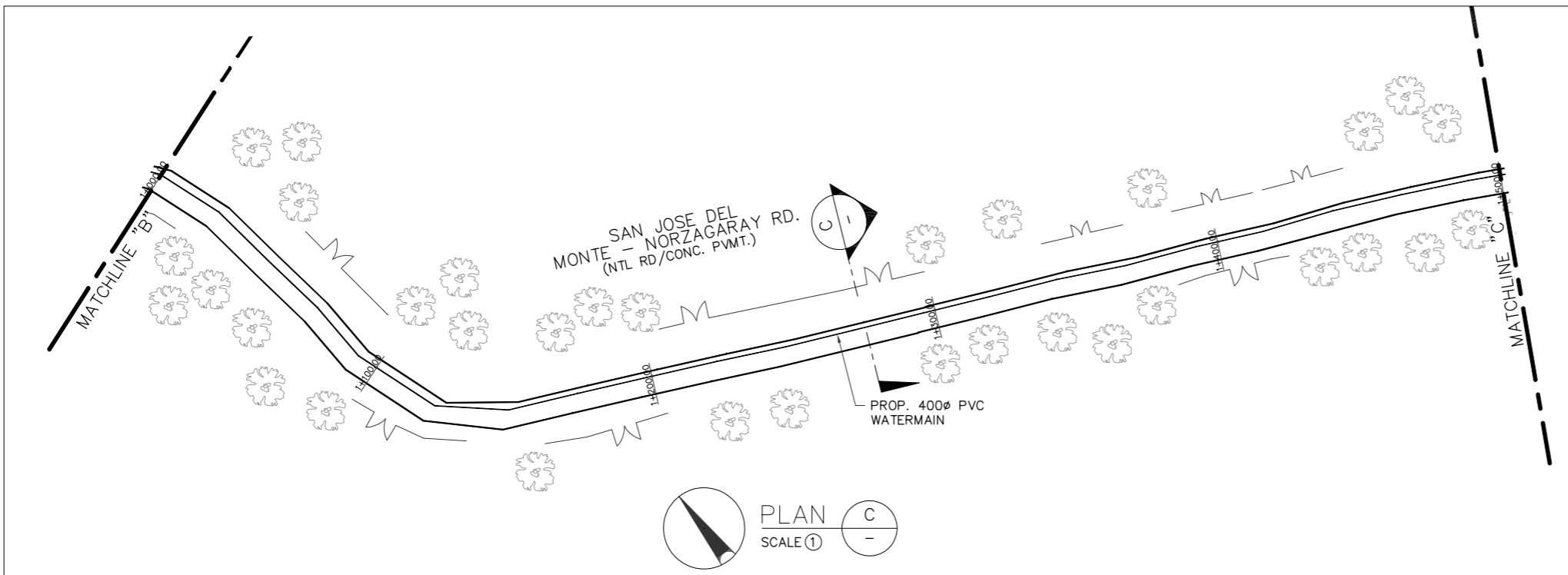


ROAD SECTION B
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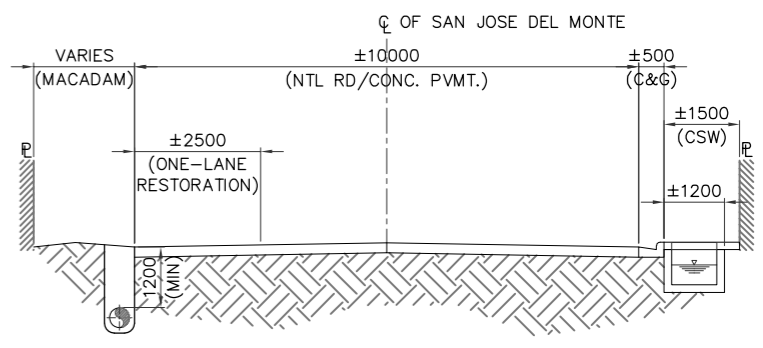
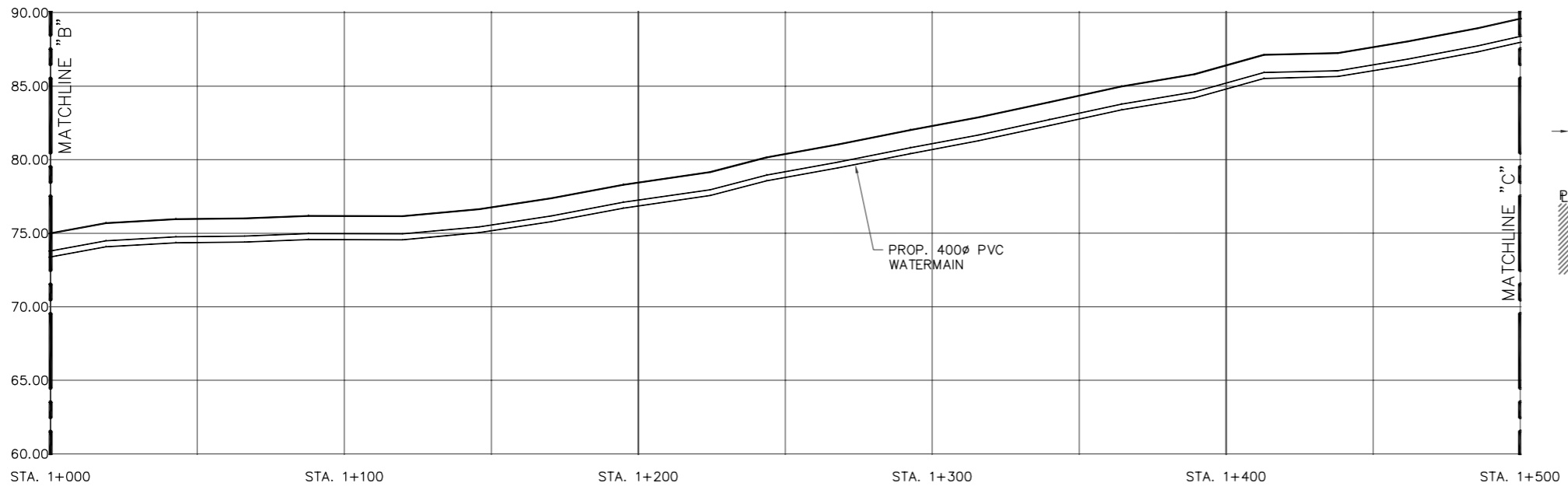
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HOR. SCALE 1:2000
VER. SCALE 1:400



DRAWN	SURVEYED	DESIGNED	CHECKED	Checked & Certified :		1639 P. DELA MERCED ST. POBLACION, NORZAGARAY, BULACAN DISCLAIMER: <i>Owner's issuance and conformance of this drawing shall not relieve the consultant and its designer of their design responsibilities & liabilities.</i>		CONTRACT DRAWING		
-	-	-	-	Architect/Professional Engineer				PROJECT TITLE: PROP. 400Ø SUPPLY LINE FOR NORZAGARAY WATER DISTRICT		
REVISION				PROFESSION :	Approved :	CGR	MIRLA M. DE LEON General Manager	LOCATION: DEL MONTE-NORZAGARAY RD., NORZAGARAY, BULACAN		
REV	DATE	BY	APPROVED BY	REGISTRATION NO. :	DATE ISSUED :	GJG		SHEET CONTENT: PLAN B, PROFILE B, VICINITY MAP B & ROAD SECTION B		
				TIN :	PLACE ISSUED :	JCDC		SCALE: AS SHOWN		
					AIMER B. CRUZ General Manager			CONTRACT NO. : -	SHEET NO. : 3 OF 12	REV. : -

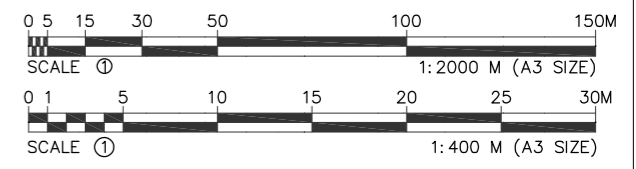


VICINITY MAP
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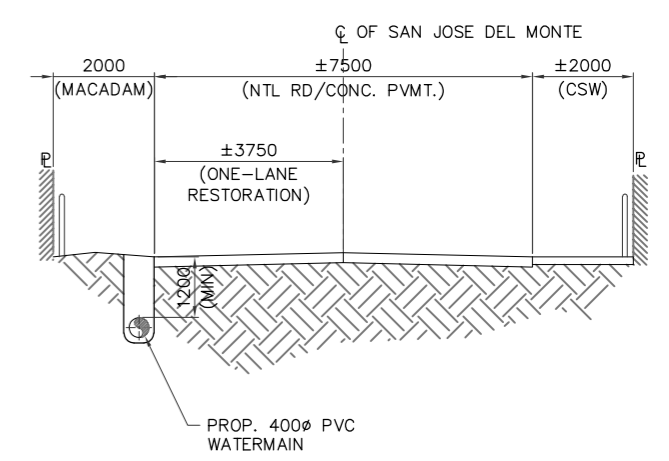
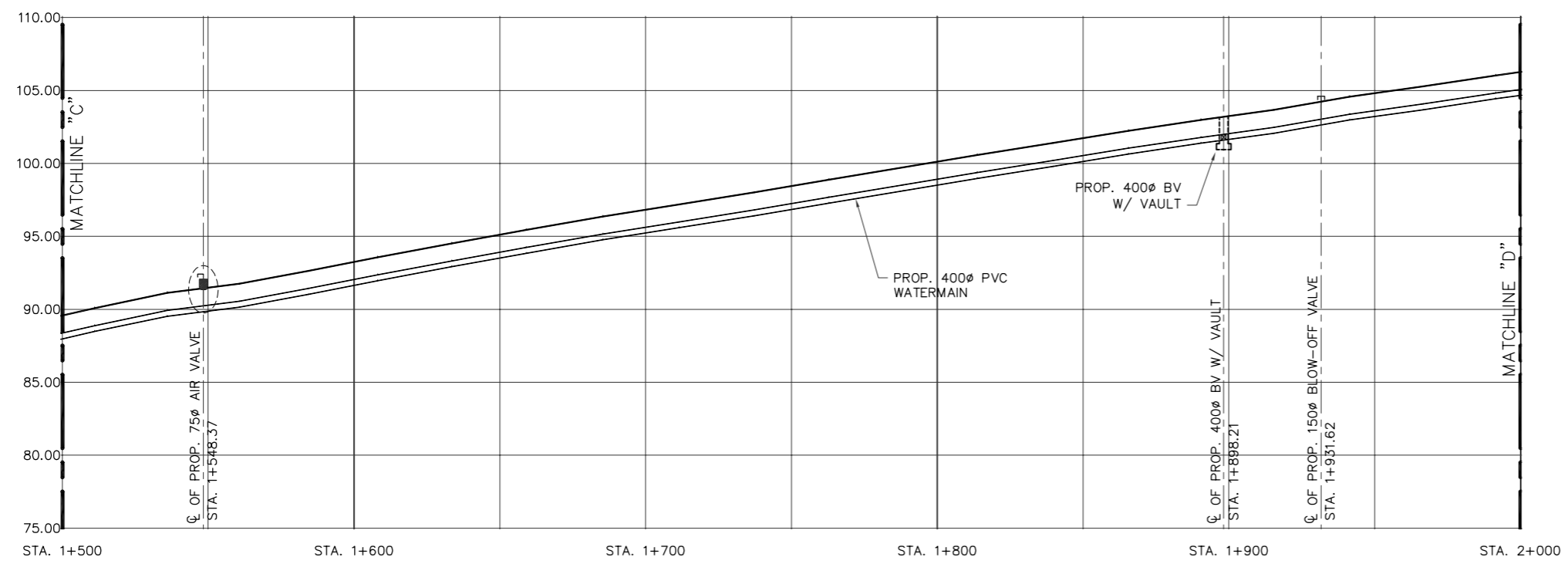
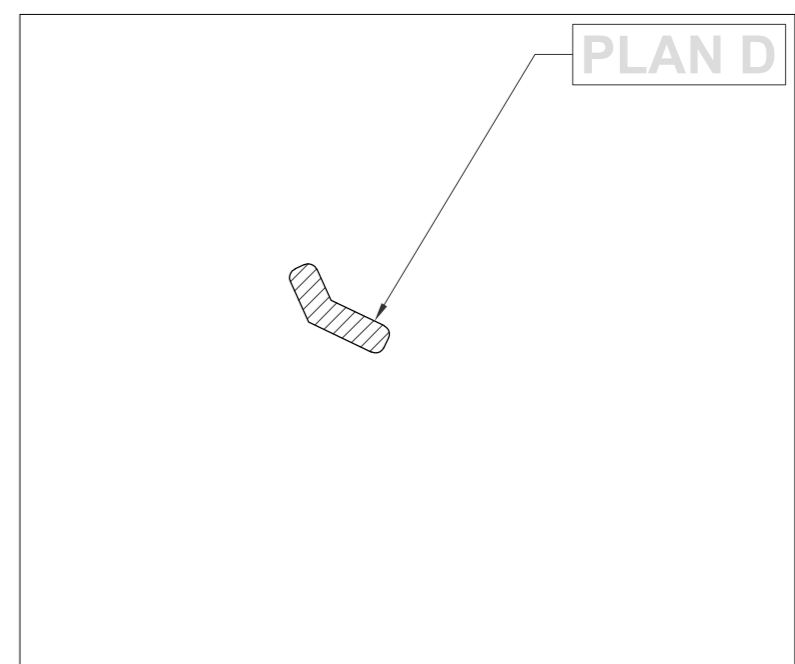
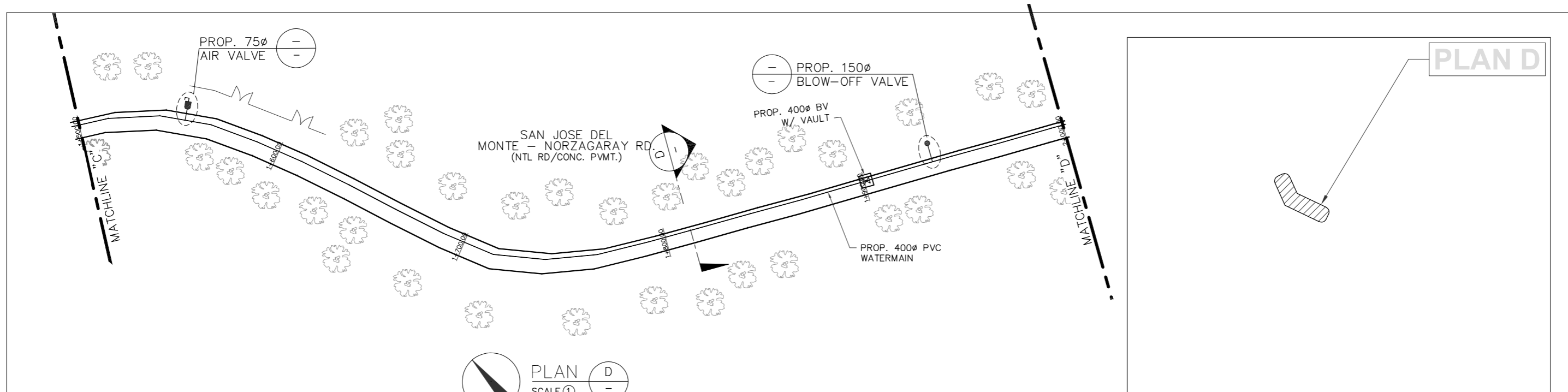


ROAD SECTION
NTS

PROFILE (STA. 1+000 - 1+500)
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VER. SCALE 1:400

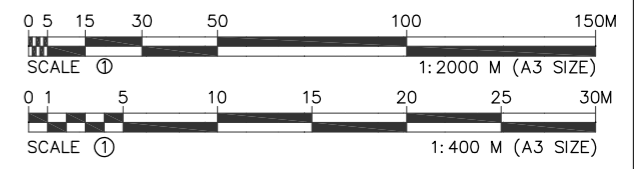


DRAWN	SURVEYED	DESIGNED	CHECKED	Checked & Certified :	NORZAGARAY WATER DISTRICT 1639 P. DELA MERCED ST. POBLACION, NORZAGARAY, BULACAN	philHydro	CONTRACT DRAWING			
-	-	-	-	Architect/Professional Engineer			DISCLAIMER: Owner's issuance and conformance of this drawing shall not relieve the consultant and its designer of their design responsibilities & liabilities.	PROJECT TITLE: PROP. 400Ø SUPPLY LINE FOR NORZAGARAY WATER DISTRICT		
REVISION				PROFESSION :	Approved :	CGR GJG JCDC	MIRLA M. DE LEON General Manager	LOCATION: DEL MONTE-NORZAGARAY RD., NORZAGARAY, BULACAN		
REV	DATE	BY	APPROVED BY	REGISTRATION NO. :	DATE ISSUED :			SHEET CONTENT: PLAN C, PROFILE C, VICINITY MAP C & ROAD SECTION C		
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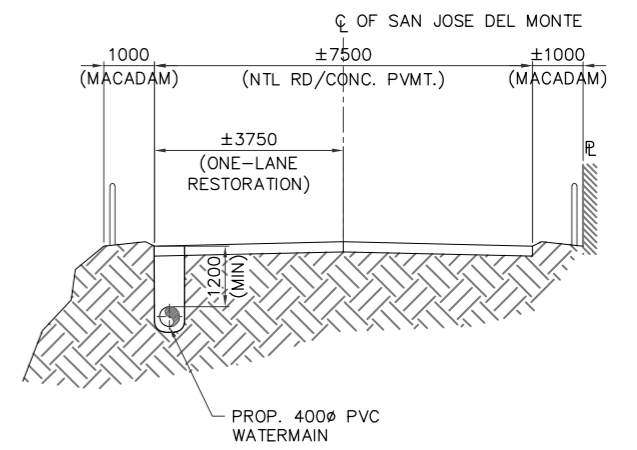
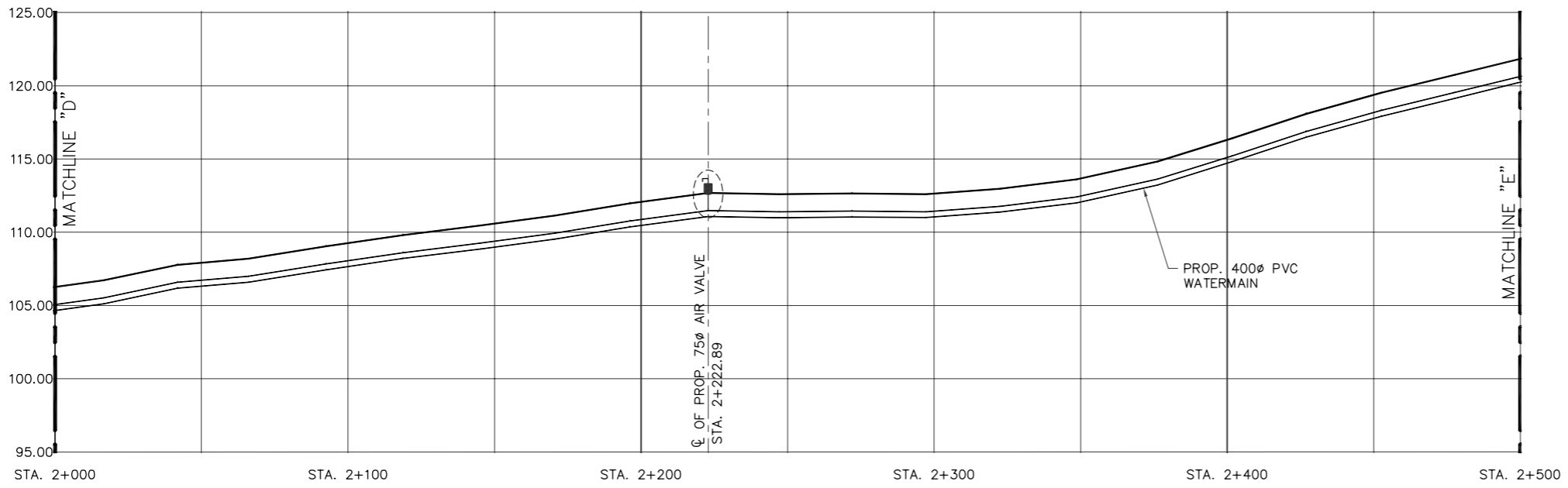
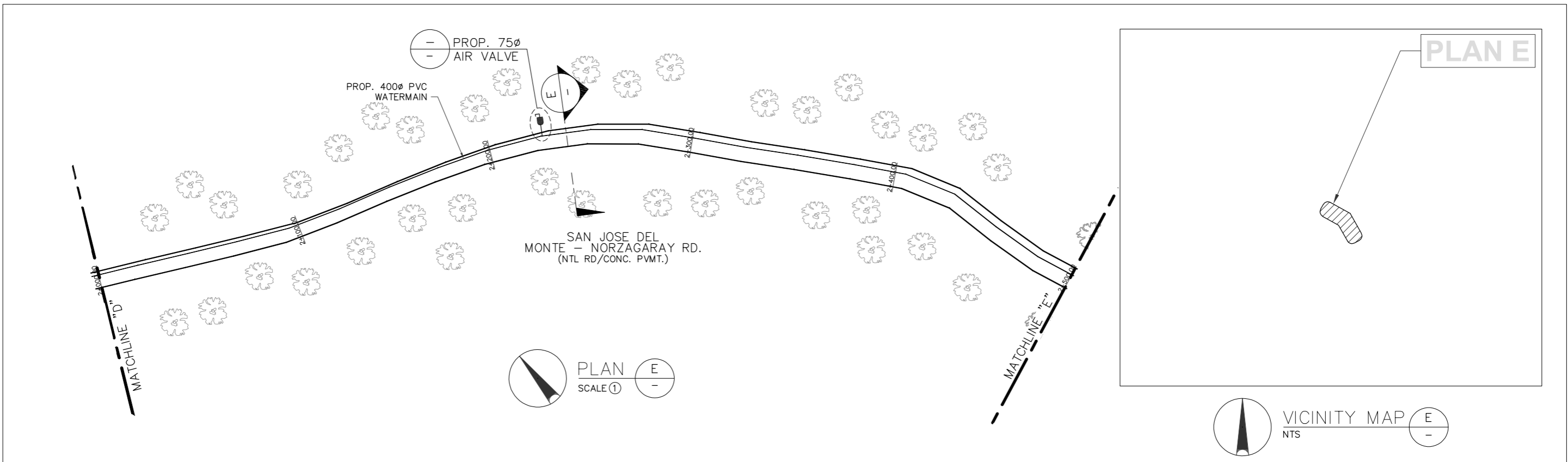


PROFILE (STA. 1+500 - 2+000) D
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ROAD SECTION D
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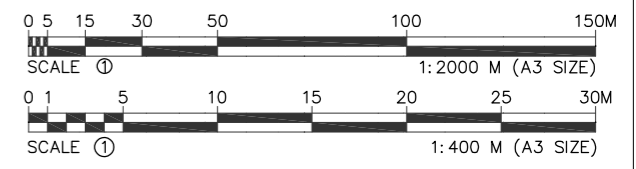


DRAWN	SURVEYED	DESIGNED	CHECKED	Checked & Certified : _____ Architect/Professional Engineer	 NORZAGARAY WATER DISTRICT	1639 P. DELA MERCED ST. POBLACION, NORZAGARAY, BULACAN <small>DISCLAIMER: Owner's issuance and conformance of this drawing shall not relieve the consultant and its designer of their design responsibilities & liabilities.</small>	 philHydro	CONTRACT DRAWING PROJECT TITLE: PROP. 400Ø SUPPLY LINE FOR NORZAGARAY WATER DISTRICT LOCATION: DEL MONTE-NORZAGARAY RD., NORZAGARAY, BULACAN SHEET CONTENT: PLAN D, PROFILE D, VICINITY MAP D & ROAD SECTION D SCALE: AS SHOWN	
REVISION				Approved : _____ AIMER B. CRUZ General Manager	CGR GJG JCDC	MIRLA M. DE LEON General Manager	CONTRACT NO.	SHEET NO.	REV.
REV	DATE	BY	APPROVED BY				AS SHOWN	-	5 OF 12

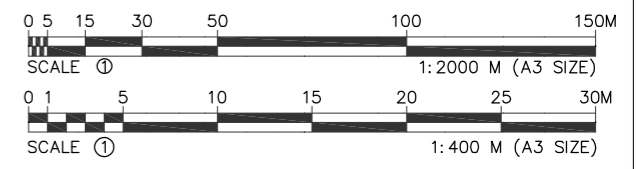
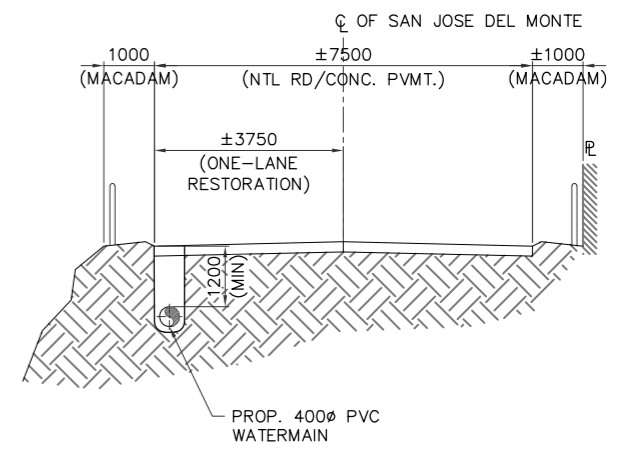
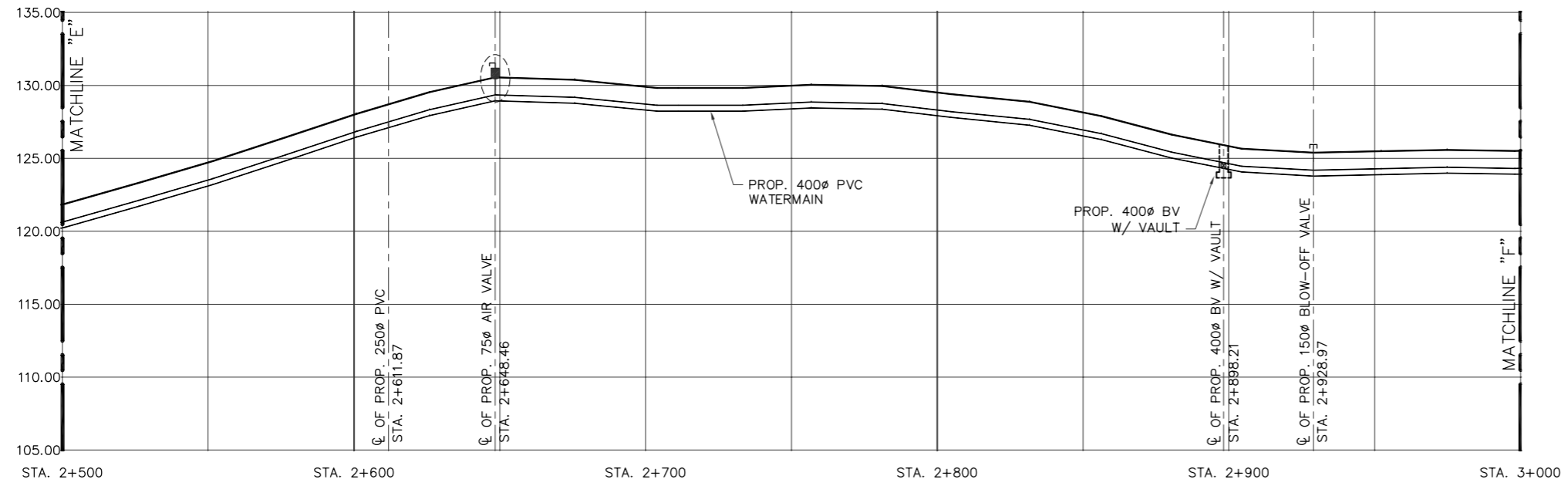
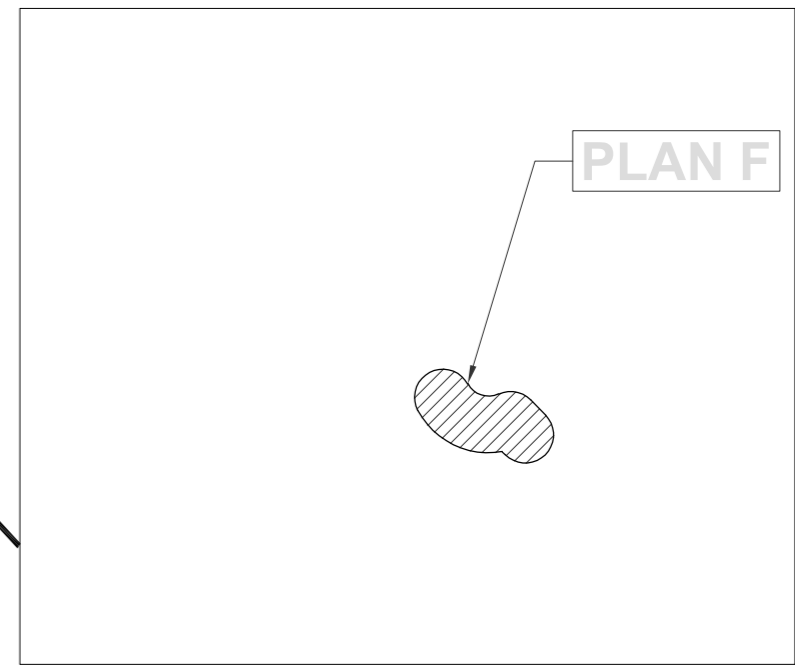
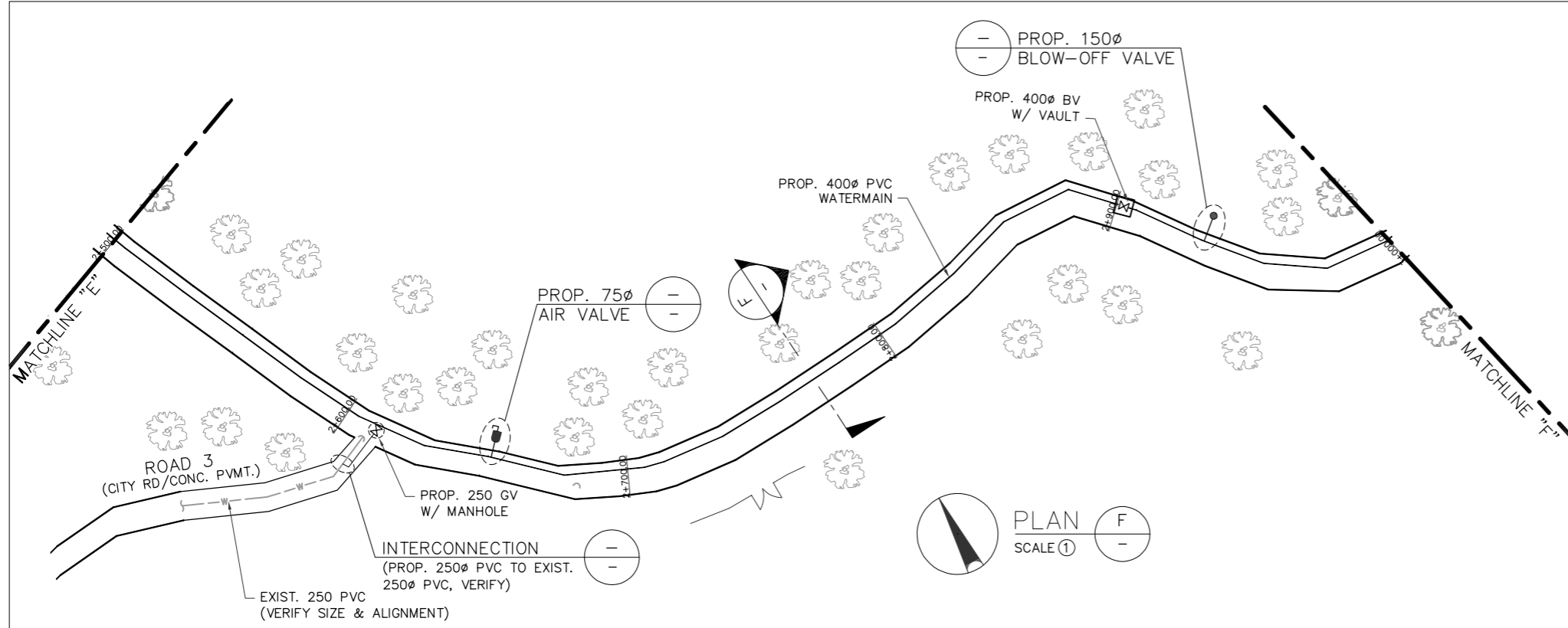


PROFILE (STA. 2+000 - 2+500) E
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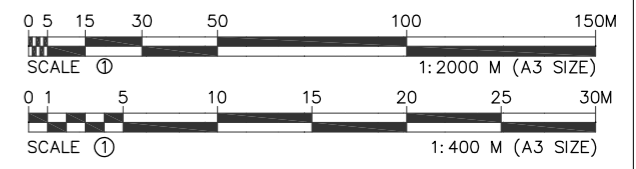
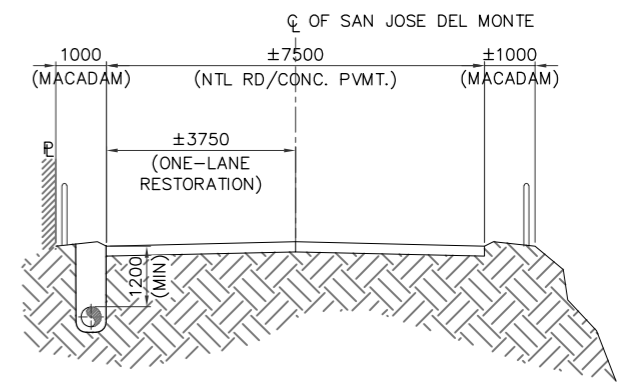
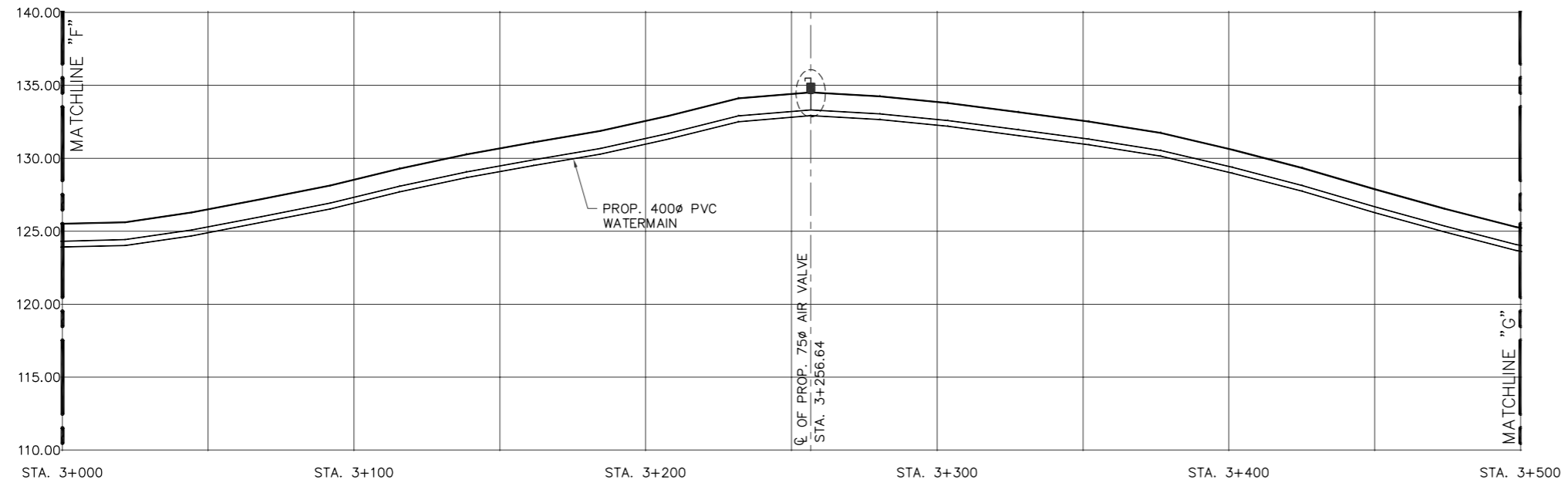
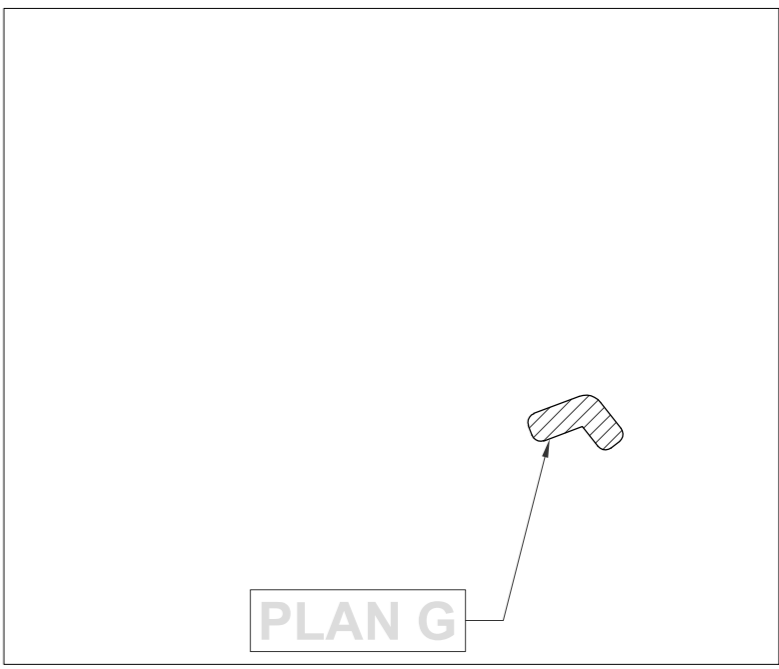
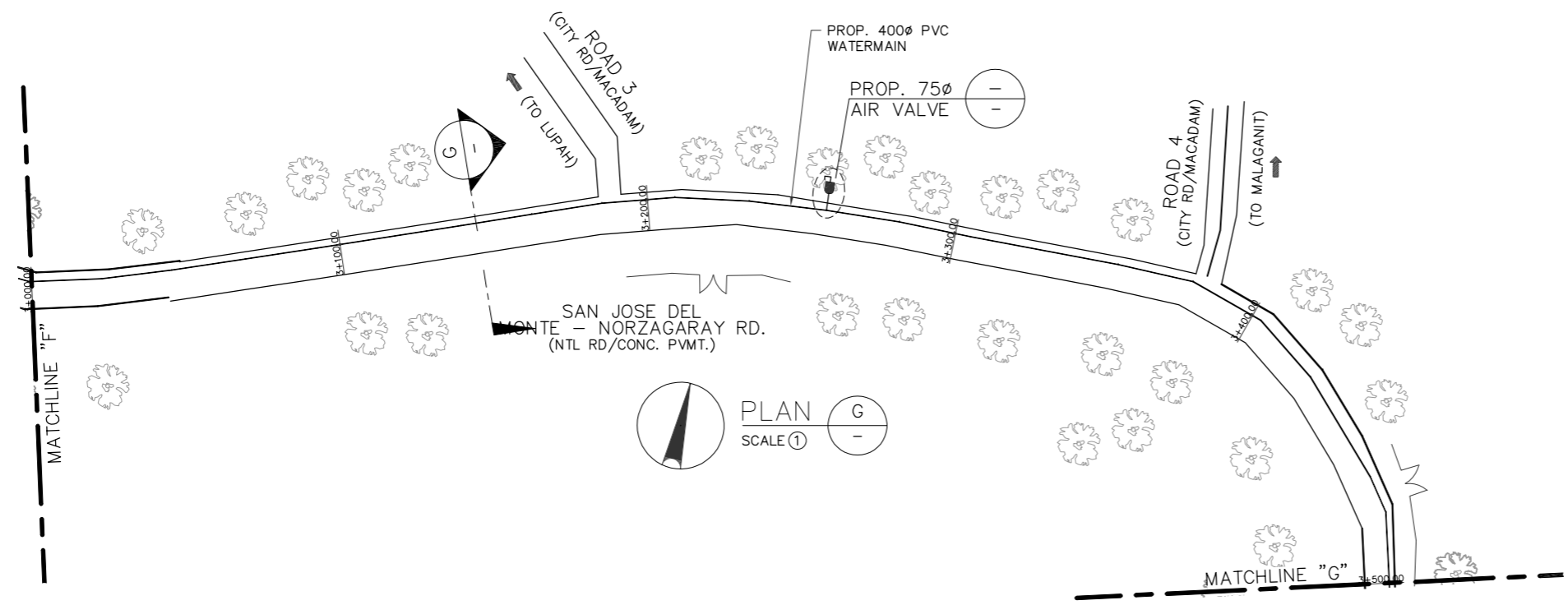
ROAD SECTION E
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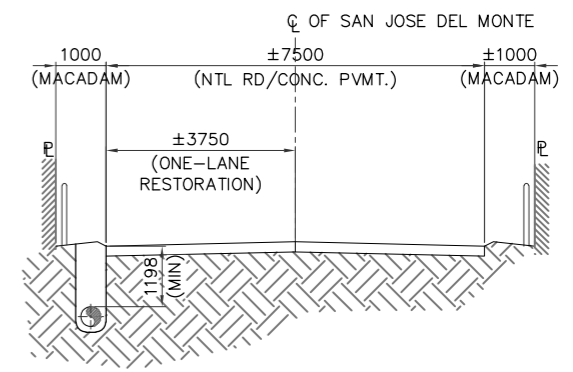
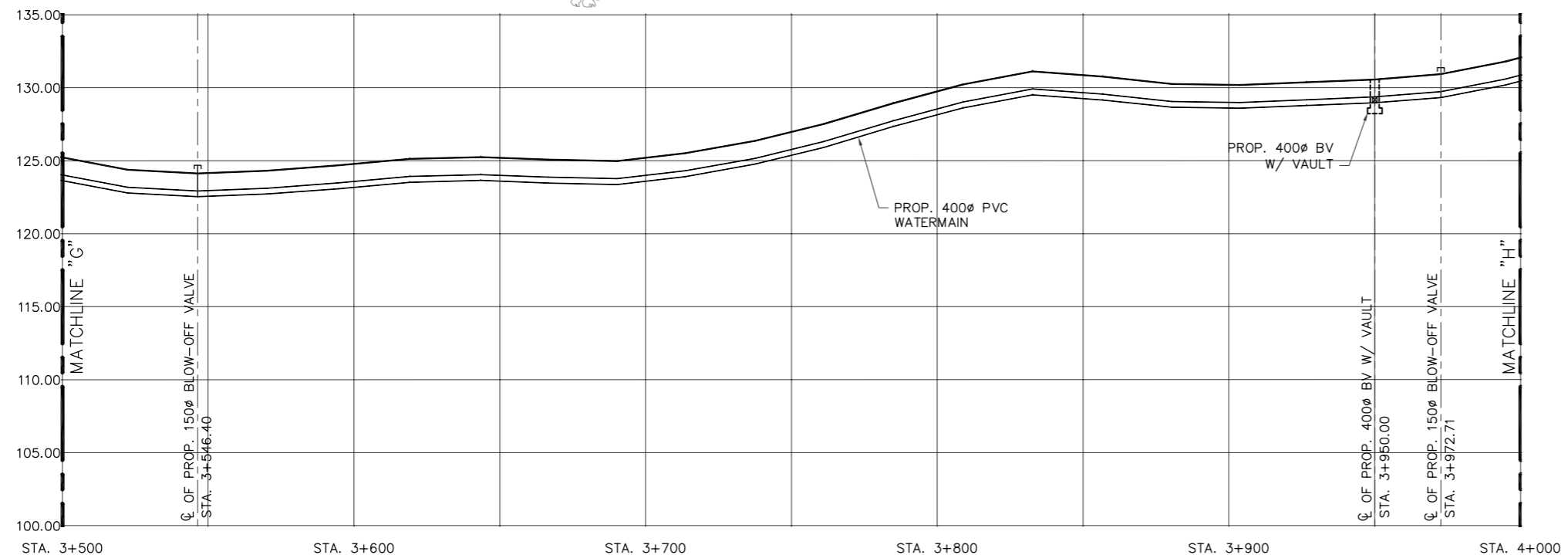
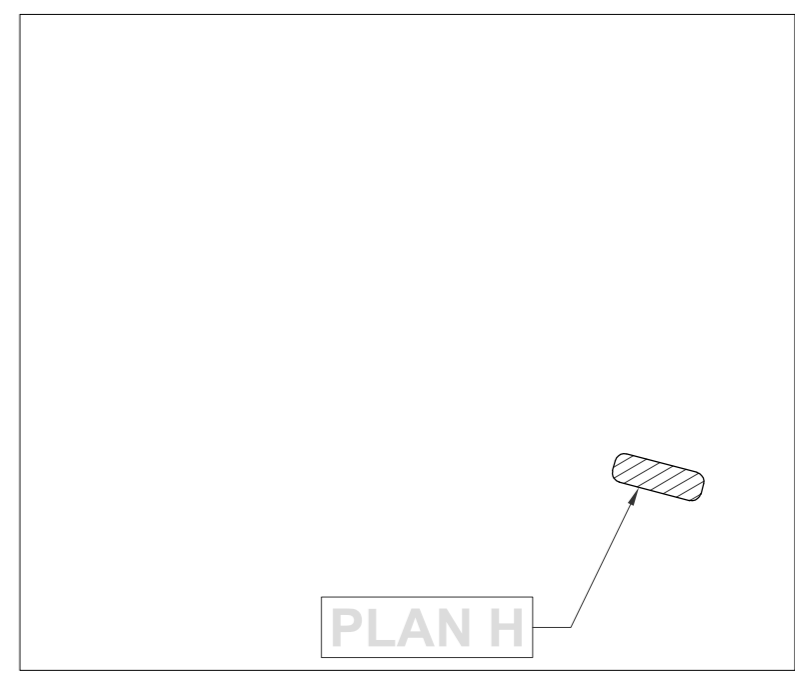
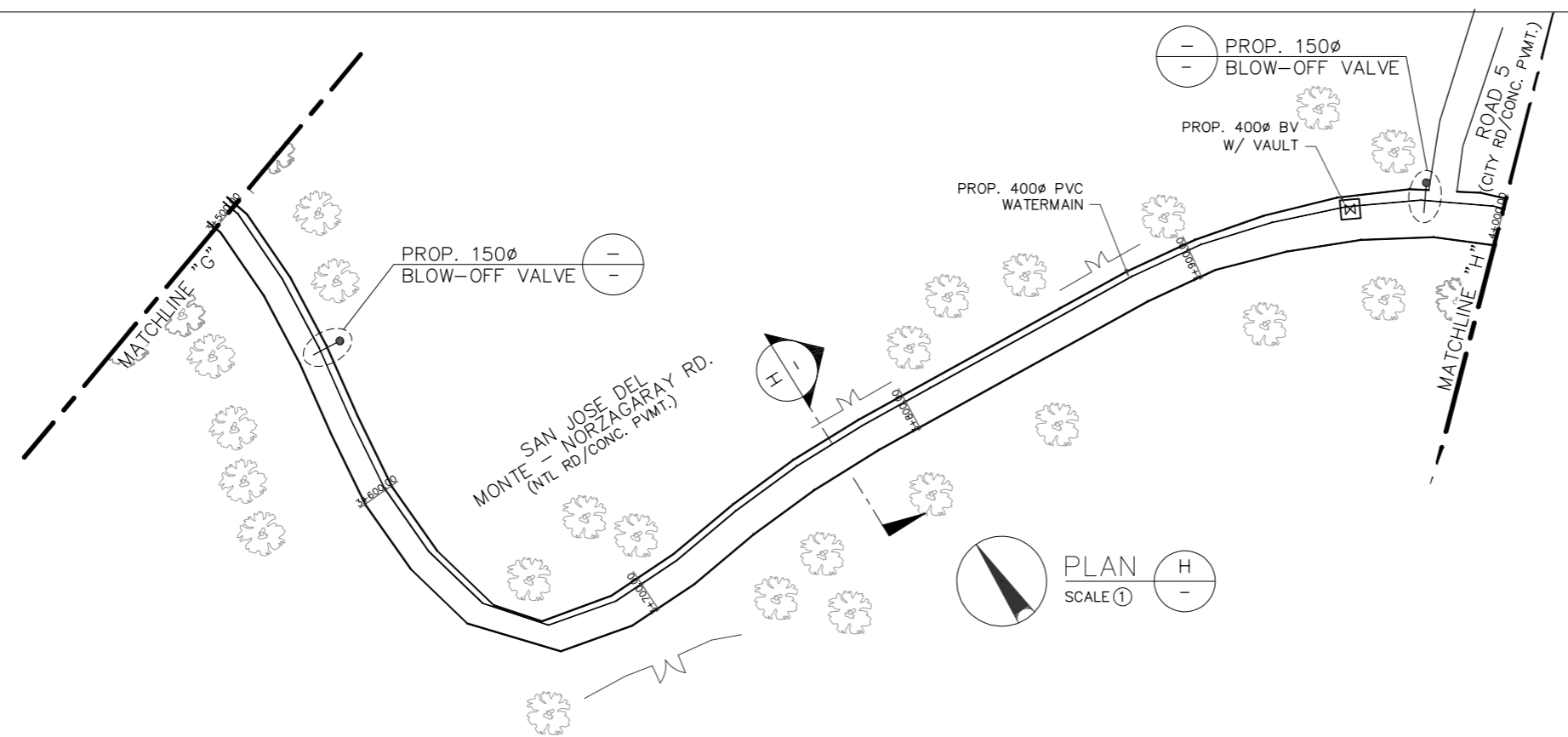
DRAWN	SURVEYED	DESIGNED	CHECKED	Checked & Certified :	 NORZAGARAY WATER DISTRICT	1639 P. DELA MERCED ST. POBLACION, NORZAGARAY, BULACAN DISCLAIMER: <i>Owner's issuance and conformance of this drawing shall not relieve the consultant and its designer of their design responsibilities & liabilities.</i>	 philHydro	CONTRACT DRAWING		
REVISION				Architect/Professional Engineer				Approved :	CGR GJG JCDC	MIRLA M. DE LEON General Manager
REV	DATE	BY	APPROVED BY	PROFESSION :	PTR :				LOCATION: DEL MONTE-NORZAGARAY RD., NORZAGARAY, BULACAN	
				REGISTRATION NO. :	DATE ISSUED :				SHEET CONTENT: PLAN E, PROFILE E, VICINITY MAP E & ROAD SECTION E	
				TIN :	PLACE ISSUED :	AIMER B. CRUZ General Manager			SCALE: AS SHOWN	
									CONTRACT NO. : -	
									SHEET NO. : 6 OF 12	
									REV. : -	



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-	-	-	-	Architect/Professional Engineer			DISCLAIMER: Owner's issuance and conformance of this drawing shall not relieve the consultant and its designer of their design responsibilities & liabilities.	PROJECT TITLE: PROP. 400 ϕ SUPPLY LINE FOR NORZAGARAY WATER DISTRICT	LOCATION: DEL MONTE-NORZAGARAY RD., NORZAGARAY, BULACAN
REVISION				PROFESSION :	PTR :	CGR	SHEET CONTENT: PLAN F, PROFILE F, VICINITY MAP F & ROAD SECTION F		
REV	DATE	BY	APPROVED BY	REGISTRATION NO. :	DATE ISSUED :	GJG	SCALE: AS SHOWN		
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				Approved : AIMER B. CRUZ General Manager		MIRLA M. DE LEON General Manager		REV. : -	

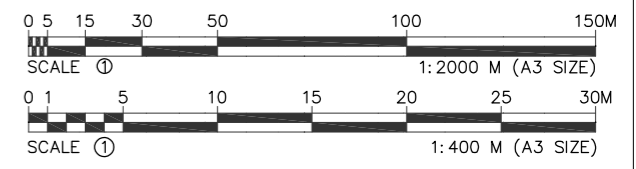


DRAWN	SURVEYED	DESIGNED	CHECKED	Checked & Certified :	NORZAGARAY WATER DISTRICT 1639 P. DELA MERCED ST. POBLACION, NORZAGARAY, BULACAN		CONTRACT DRAWING				
REVISION				Architect/Professional Engineer			DISCLAIMER: Owner's issuance and conformance of this drawing shall not relieve the consultant and its designer of their design responsibilities & liabilities.	PROJECT TITLE: PROP. 400Ø SUPPLY LINE FOR NORZAGARAY WATER DISTRICT			
REV	DATE	BY	APPROVED BY	PROFESSION :	PTR :	Approved :	CGR	LOCATION: DEL MONTE-NORZAGARAY RD., NORZAGARAY, BULACAN			
				REGISTRATION NO. :	DATE ISSUED :	AIMER B. CRUZ General Manager	GJG	SHEET CONTENT: PLAN G, PROFILE G, VICINITY MAP G & ROAD SECTION G			
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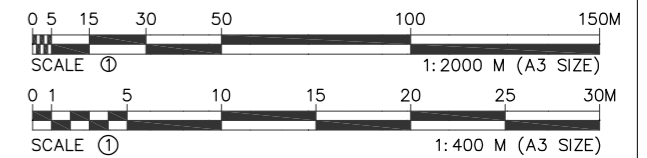
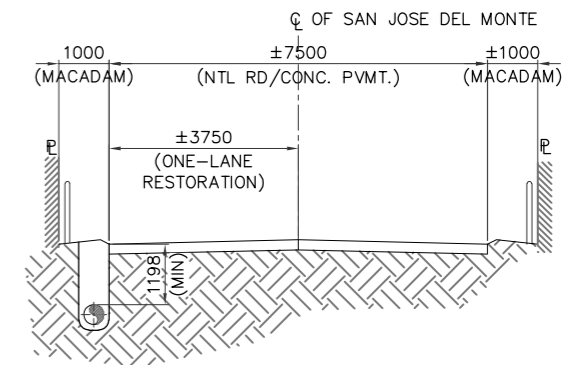
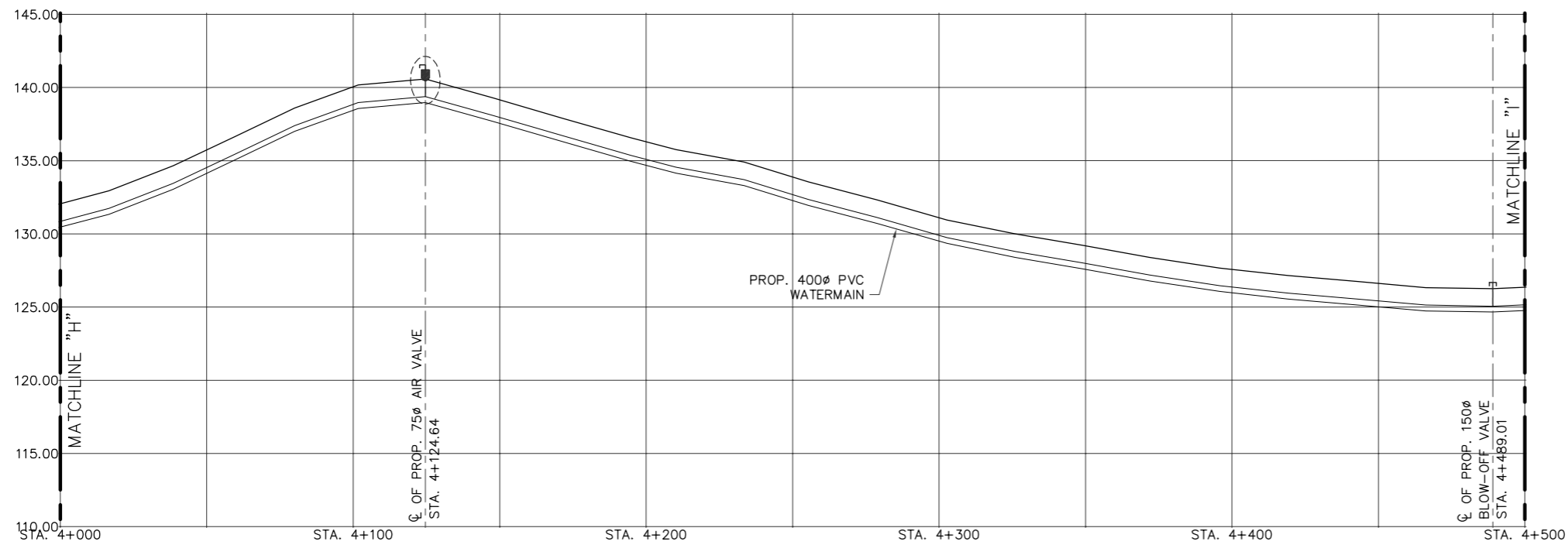
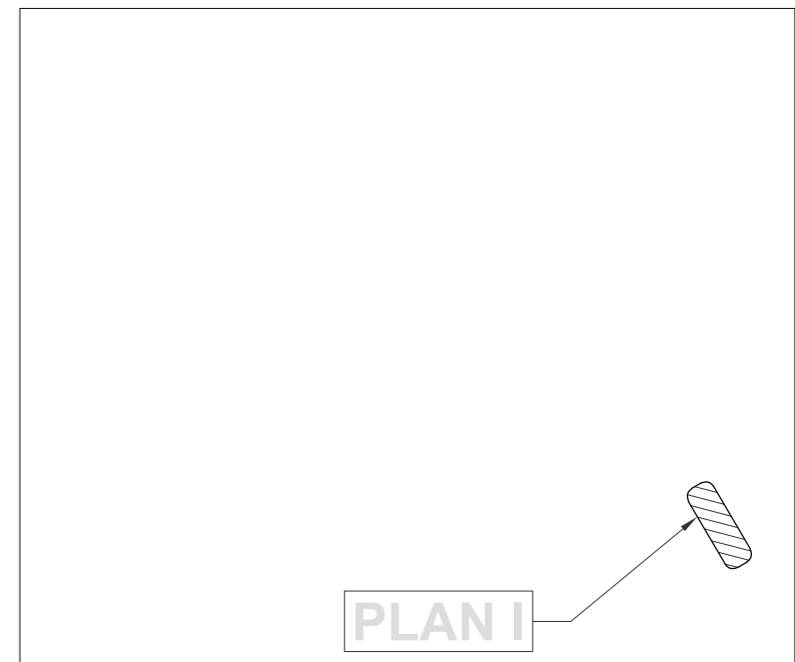
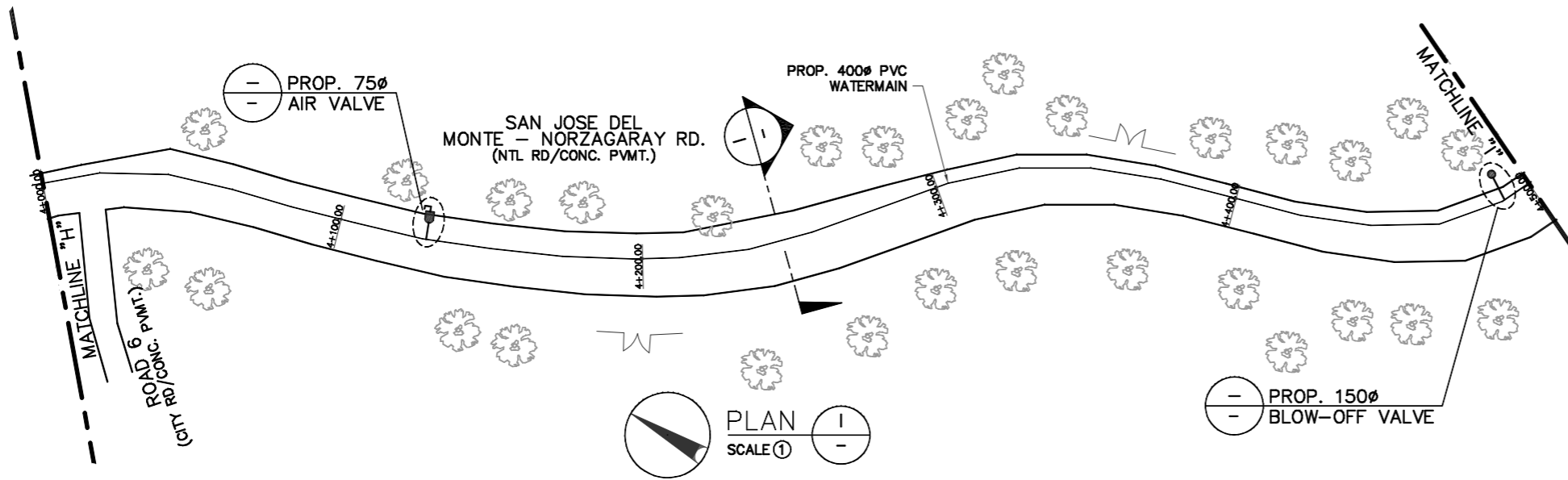


PROFILE (STA. 3+500 - 4+000) H
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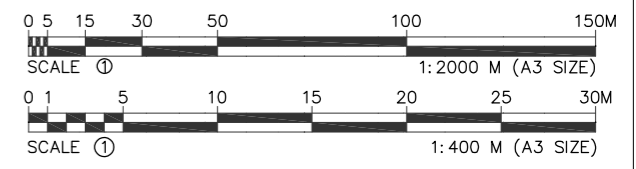
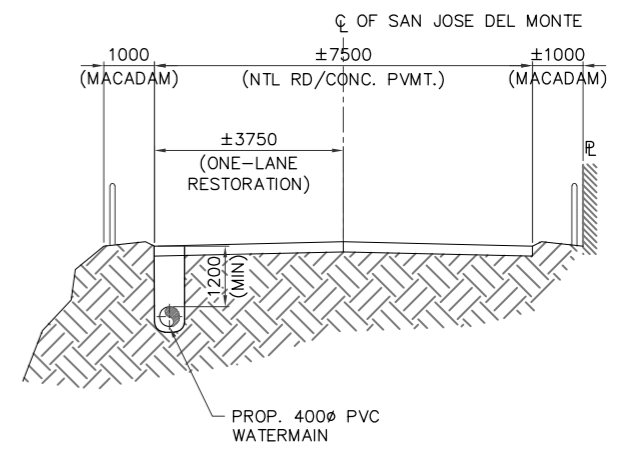
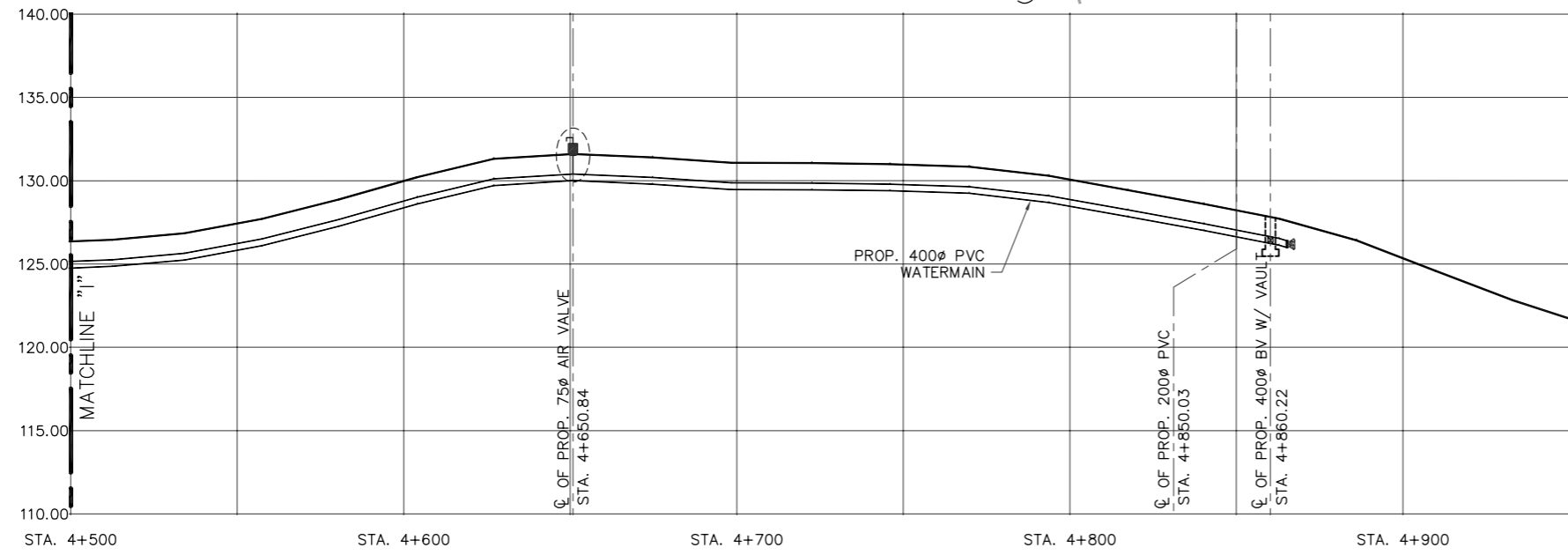
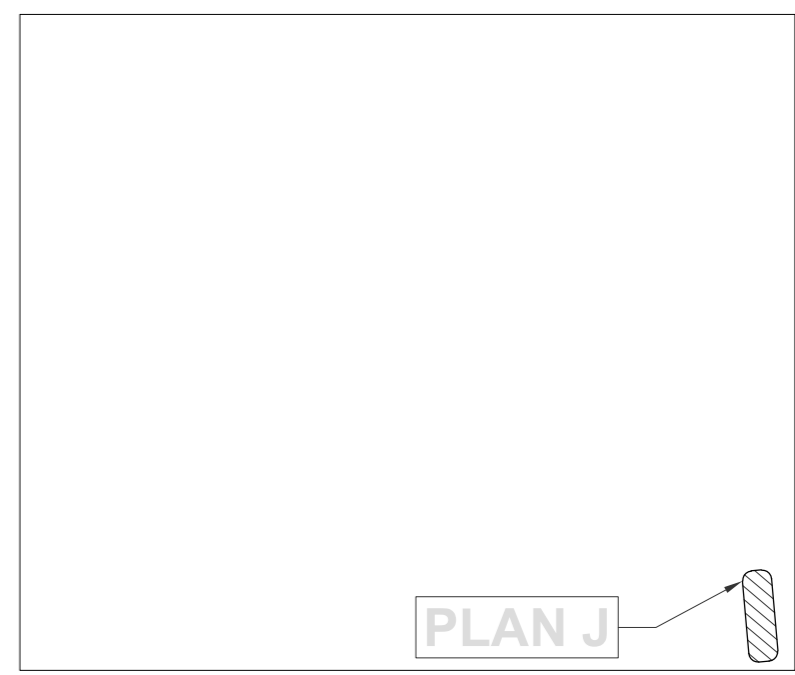
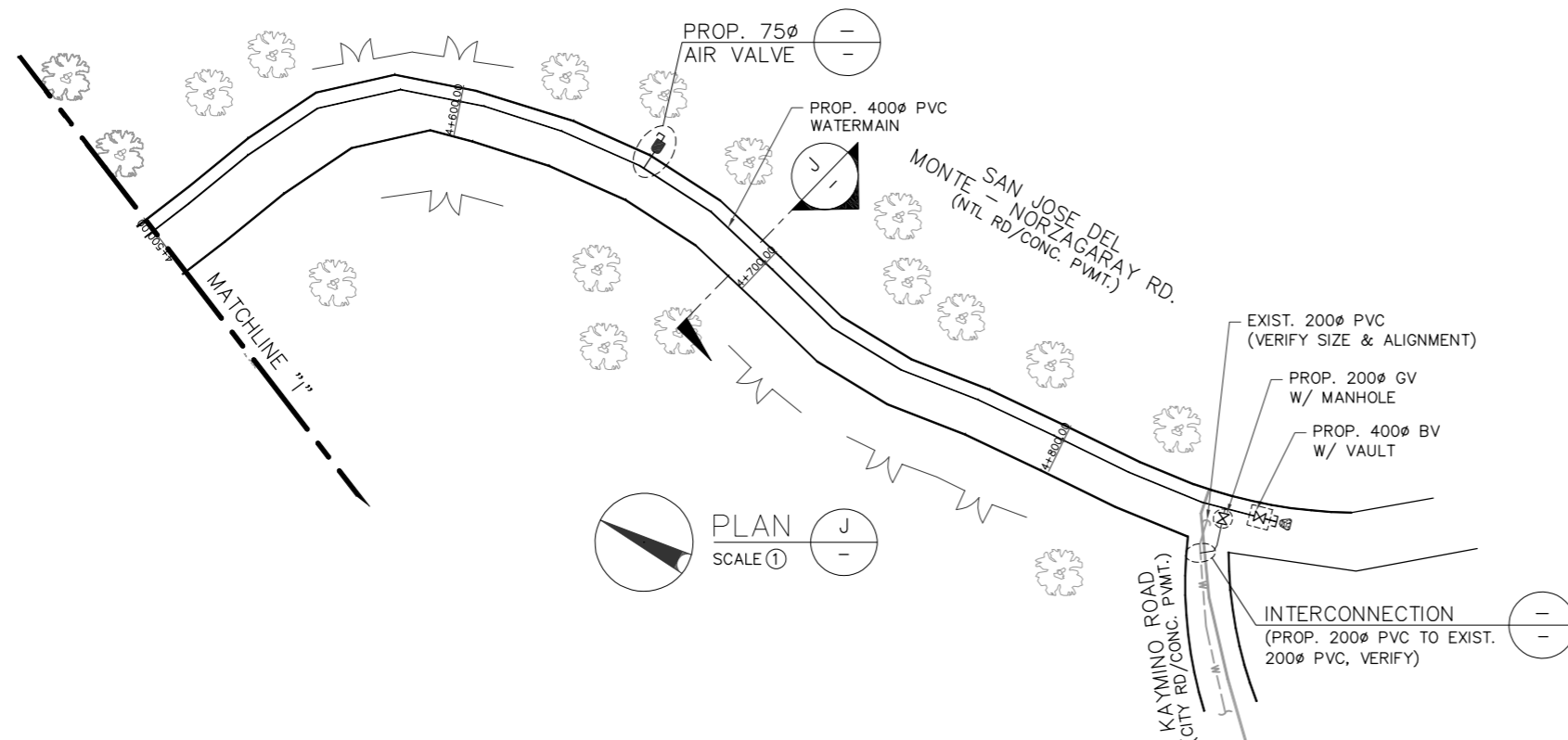
ROAD SECTION H
 NTS



DRAWN	SURVEYED	DESIGNED	CHECKED	Checked & Certified :		1639 P. DELA MERCED ST. POBLACION, NORZAGARAY, BULACAN		CONTRACT DRAWING
-	-	-	-	Architect/Professional Engineer	DISCLAIMER: Owner's issuance and conformance of this drawing shall not relieve the consultant and its designer of their design responsibilities & liabilities.		CGR GJG JCDC	PROJECT TITLE: PROP. 400Ø SUPPLY LINE FOR NORZAGARAY WATER DISTRICT
REVISION				Approved :	MIRLA M. DE LEON General Manager		LOCATION: DEL MONTE-NORZAGARAY RD., NORZAGARAY, BULACAN	SHEET CONTENT: PLAN H, PROFILE H, VICINITY MAP H & ROAD SECTION H
REV	DATE	BY	APPROVED BY	PROFESSION :	PTR :	AIMER B. CRUZ General Manager		SCALE: AS SHOWN
				REGISTRATION NO. :	DATE ISSUED :	CONTRACT NO. SHEET NO. REV.		9 OF 12 -
				TIN :	PLACE ISSUED :	1:2000 M (A3 SIZE) 1:400 M (A3 SIZE)		-



DRAWN	SURVEYED	DESIGNED	CHECKED	Checked & Certified :	<p>NORZAGARAY WATER DISTRICT</p>	<p>1639 P. DELA MERCED ST. POBLACION, NORZAGARAY, BULACAN</p> <p>DISCLAIMER: Owner's issuance and conformance of this drawing shall not relieve the consultant and its designer of their design responsibilities & liabilities.</p>	<p>philHydro</p>	CONTRACT DRAWING			
-	-	-	-	Architect/Professional Engineer				Project Title: PROP. 400 ϕ SUPPLY LINE FOR NORZAGARAY WATER DISTRICT			
REVISION				PROFESSION :	PTR :	Approved :	CGR	LOCATION: DEL MONTE-NORZAGARAY RD., NORZAGARAY, BULACAN			
REV	DATE	BY	APPROVED BY	REGISTRATION NO. :	DATE ISSUED :	<p>AIMER B. CRUZ General Manager</p>	GJG	SHEET CONTENT: PLAN I, PROFILE I, VICINITY MAP I & ROAD SECTION I			
				TIN :	PLACE ISSUED :		JCDC	MIRLA M. DE LEON General Manager	SCALE: AS SHOWN	CONTRACT NO. :-	SHEET NO. 10 OF 12



DRAWN	SURVEYED	DESIGNED	CHECKED	Checked & Certified :	<p>NORZAGARAY WATER DISTRICT</p>	<p>1639 P. DELA MERCED ST. POBLACION, NORZAGARAY, BULACAN</p> <p>DISCLAIMER: Owner's issuance and conformance of this drawing shall not relieve the consultant and its designer of their design responsibilities & liabilities.</p>	<p>philHydro</p>	CONTRACT DRAWING			
REVISION				Architect/Professional Engineer				Approved :	CGR	PROJECT TITLE: PROP. 400 ϕ SUPPLY LINE FOR NORZAGARAY WATER DISTRICT	
REV	DATE	BY	APPROVED BY	PROFESSION :	PTR :	GJG	LOCATION: DEL MONTE-NORZAGARAY RD., NORZAGARAY, BULACAN				
				REGISTRATION NO. :	DATE ISSUED :	JCDC	SHEET CONTENT: PLAN J, PROFILE J, VICINITY MAP J & ROAD SECTION J				
				TIN :	PLACE ISSUED :	MIRLA M. DE LEON General Manager		SCALE: AS SHOWN	CONTRACT NO. :-	SHEET NO. 11 OF 12	REV. -
					AIMER B. CRUZ General Manager						

PIPELAYING DATA PER STREET (VIA STANDARD PIPELAYING)

ITEM NO.	STREET NAME			PROPOSED PIPE		
	ALONG	FROM	TO	MATERIAL	SIZE (mm ϕ)	LENGTH (m)
1	SAN JOSE DELMONTE-NORZAGARAY ROAD	PROPOSED RESERVOIR	KAYMINO ROAD	PVC	400	± 4880
	SUB-TOTAL (800mm ϕ)					± 4880
2	ROAD 3	PROP. 400mm ϕ ALONG SAN JOSE DEL MONTE-NORZAGARAY RD.	EXIST. 250mm ϕ ALONG ROAD 3	PVC	250	± 10
	SUB-TOTAL (500mm ϕ)					± 10
3	KAYMINO ROAD	PROP. 400mm ϕ ALONG SAN JOSE DEL MONTE-NORZAGARAY RD.	EXISTING 200mm ϕ ALONG KAYMINO ROAD	PVC	200	± 10
	SUB-TOTAL (200mm ϕ)					± 10
	GRAND TOTAL					± 4900

PIPELAYING DATA PER STREET (VIA PIPE JACKING METHOD)

ITEM NO.	STREET NAME			PROPOSED PIPE		
	ALONG	FROM	TO	MATERIAL	SIZE (mm ϕ)	LENGTH (m)
1	TRENCHLESS PIPELAYING VIA PIPE JACKING ALONG SAN JOSE DEL MONTE-NORZAGARAY ROAD CROSSING UP-DOWN BRIDGE			SP	400	± 65
2	JACKING CONNECTOR PIPE ALONG SAN JOSE DEL MONTE-NORZAGARAY ROAD CROSSING UP-DOWN BRIDGE			SP	400	± 27
	SUB-TOTAL (400mm ϕ)					± 92
	GRAND TOTAL					± 92

PIPELAYING DATA PER STREET (VIA HDD)

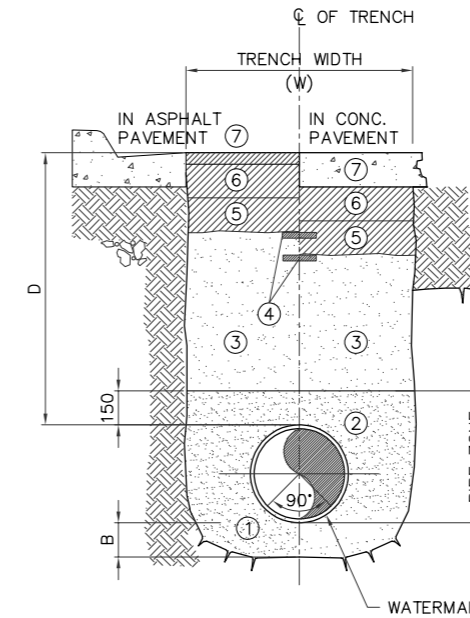
ITEM NO.	STREET NAME			PROPOSED PIPE		
	ALONG	FROM	TO	MATERIAL	SIZE (mm ϕ)	LENGTH (m)
1	TRENCHLESS PIPELAYING VIA HDD ALONG SAN JOSE DEL MONTE-NORZAGARAY ROAD CROSSING UP-DOWN BRIDGE			HDPE	400	± 125
	SUB-TOTAL (400mm ϕ)					± 125
	GRAND TOTAL					± 125

TRENCH WIDTH PER PIPE SIZE			
PIPE SIZE (mm ϕ)	TRENCH WIDTH, (W) (m)	BEDDING, (B) (m)	DEPTH OF COVER, (D) (m)
400	0.7	0.15	1.20
300	0.6	0.15	1.20
250	0.55	0.15	0.90
200	0.5	0.15	0.90
150	0.45	0.10	0.90
100	0.4	0.10	0.75
75	0.38	0.06	0.75
50	0.35	0.05	0.75

LEGEND

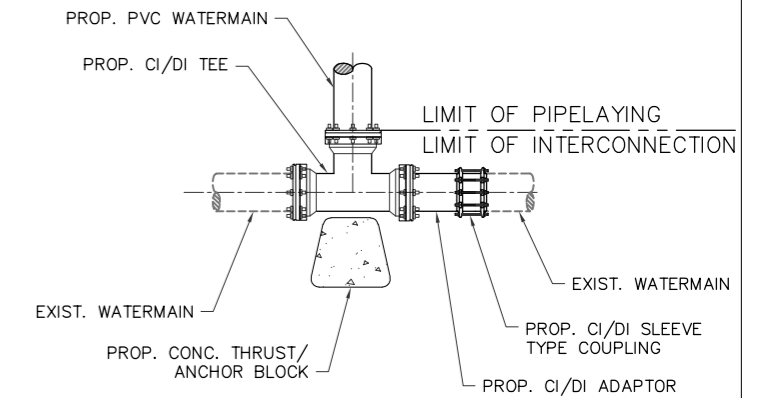
①	BEDDING - SAND
②	PIPE ZONE - SAND
③	SANDFILL
④	MARKER TAPE
⑤	SUB BASE COURSE (MIN t = 150)
⑥	BASE COURSE (MIN t = 150)
⑦	EXIST ROAD PAVEMENT

NOTES:
 1. ALL DIMENSIONS ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
 2. MARKER TAPE SHOULD BE DETECTABLE UP TO DEPTH OF 600mm, WITH MARKING "CAUTION WATER LINE BURIED BELOW" & TENSILE STRENGTH OF 6 kg/cm MIN.

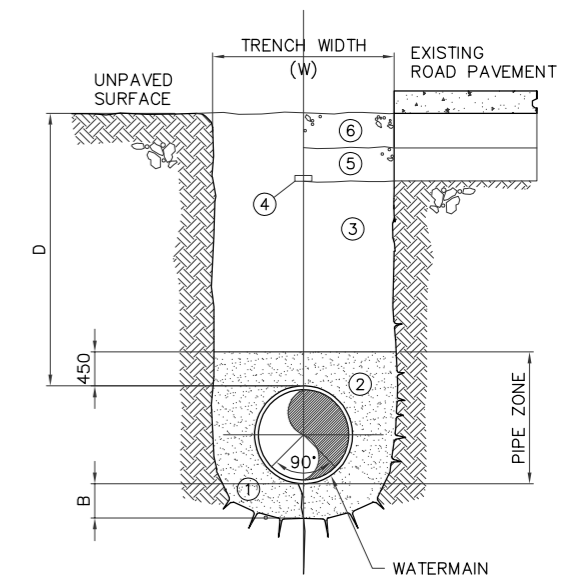


IN EARTH/SANDY SOIL, ADOBE, HARD PAN OR SHALE / HARD CLAY

TRENCH DETAIL ①
(PIPELAYING ON ROADWAY)



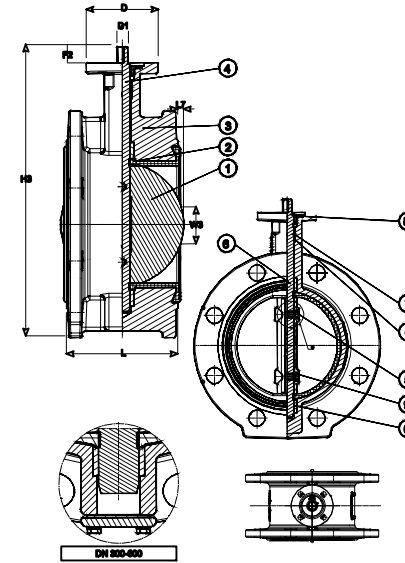
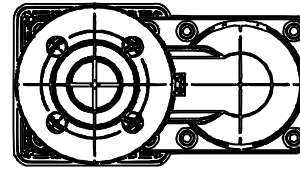
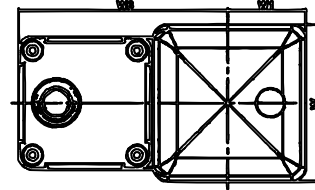
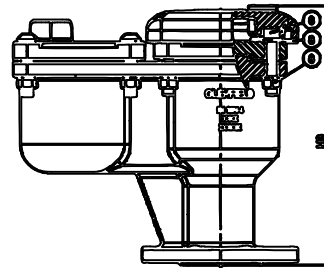
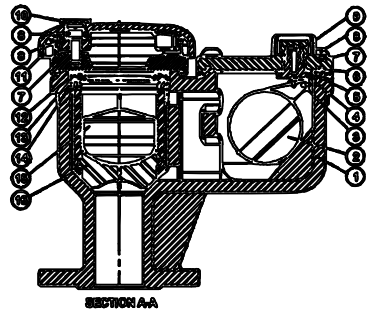
INTERCONNECTION DETAIL ③
NTS



IN EARTH/SANDY SOIL, ADOBE, HARD PAN OR SHALE / HARD CLAY

TRENCH DETAIL ②
(PIPELAYING ON MACADAM SHOULDER OR UNPAVED ROAD)

DRAWN	SURVEYED	DESIGNED	CHECKED	Checked & Certified :	1639 P. DELA MERCED ST. POBLACION, NORZAGARAY, BULACAN	philHydro	CONTRACT DRAWING			
-	-	-	-	Architect/Professional Engineer	DISCLAIMER: Owner's issuance and conformance of this drawing shall not relieve the consultant and its designer of their design responsibilities & liabilities.		PROJECT TITLE: PROP. 400 ϕ SUPPLY LINE FOR NORZAGARAY WATER DISTRICT			
REVISION				PROFESSION :	Approved :	CGR	LOCATION: DEL MONTE-NORZAGARAY RD., NORZAGARAY, BULACAN			
REV DATE BY APPROVED BY				REGISTRATION NO. :	DATE ISSUED :	GJG	SHEET CONTENT: PIPELAYING DATA PER SHEET & TRENCH DETAIL			
				TIN :	PLACE ISSUED :	JCDC	SCALE: AS SHOWN	CONTRACT NO. -	SHEET NO. 12 OF 12	REV. -
							MIRLA M. DE LEON General Manager			
							AIMER B. CRUZ General Manager			



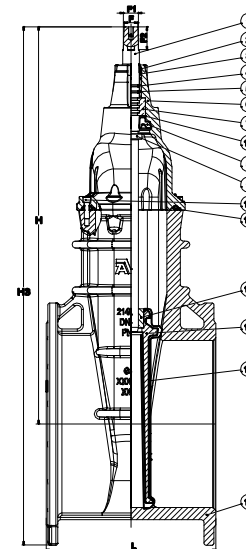
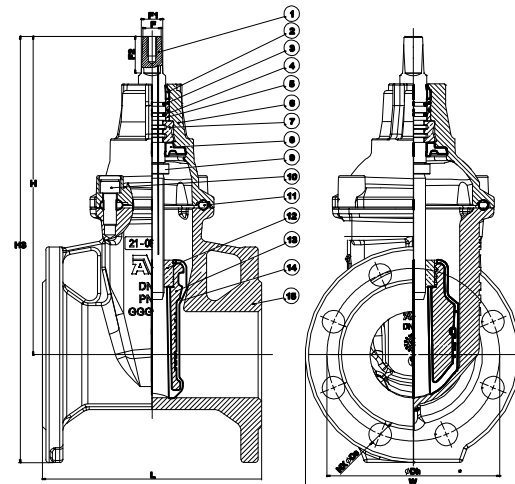
Component list:

1. Disc
2. Liner
3. Body
4. Stem
5. Pin
6. Bushing
7. O-ring
8. Wiper ring
9. O-ring

Component list:

- | | |
|-------------------------|---------------------------------|
| 1. Body | Ductile iron GJS-500-7 (GGG-50) |
| 2. Small orifice float | ABS |
| 3. Split pin | Stainless steel 1.4307 |
| 4. Orifice bracket | Polyamide |
| 5. Gasket | EPDM rubber |
| 6. O-ring | EPDM rubber |
| 7. Bonnet | Ductile iron GJS-500-7 (GGG-50) |
| 8. Bolt/nut/washer | Stainless steel |
| 9. Orifice cover | Polyamide |
| 10. Plug | Plastic |
| 11. Cowl | Ductile iron GJS-500-7 (GGG-50) |
| 12. Seat ring | ABS |
| 13. Seal ring | EPDM rubber |
| 14. Guide ring | ABS |
| 15. Large orifice float | ABS |
| 16. Float guide | ABS |


Components may be substituted with equivalent or higher class materials without prior notification.

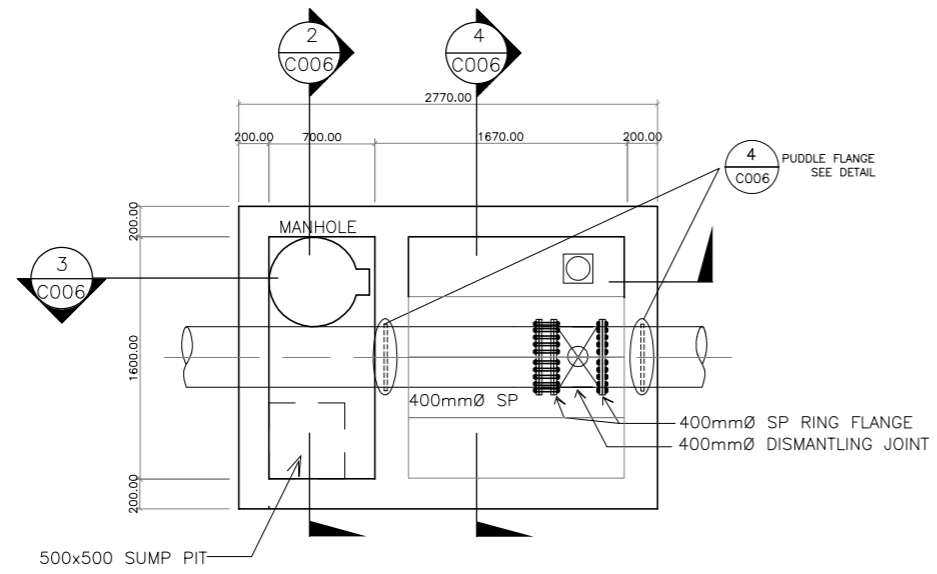


Component list:

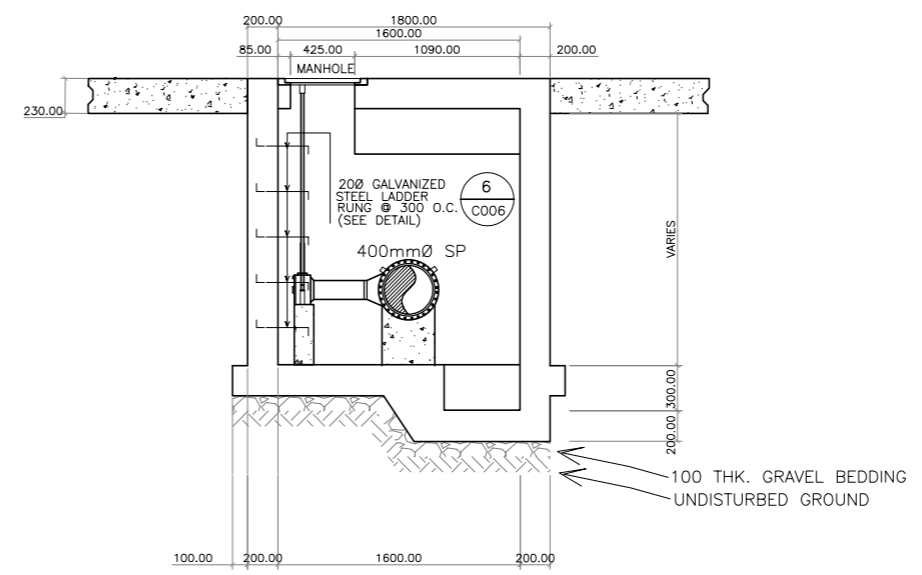
- | | |
|-----------------------------|--|
| 1. Stem | Stainless steel 1.4104 |
| 2. Wiper ring | NBR rubber |
| 3. O-ring | NBR rubber |
| 4. O-ring | NBR rubber |
| 5. Bearing | Polyamide |
| 6. Bonnet | Ductile iron, EN-GJS-500-7(GGG-50) |
| 7. Thrust collar | Dezincification resistant brass |
| 8. Manchette | EPDM rubber |
| 9. Stop ring | Stainless steel |
| 10. Bonnet bolt | Stainless steel A2, sealed with hot melt |
| 11. Bonnet gasket | EPDM rubber |
| 12. Wedge nut | Dezincification resistant brass |
| 13. Wedge core | Ductile iron |
| 14. Wedge rubber | EPDM rubber |
| 15. Body | Ductile iron, EN-GJS-500-7(GGG-50) |
| 16. Circlip ring(DN350-400) | Stainless steel |

Components may be substituted with equivalent or higher class materials without prior notification.

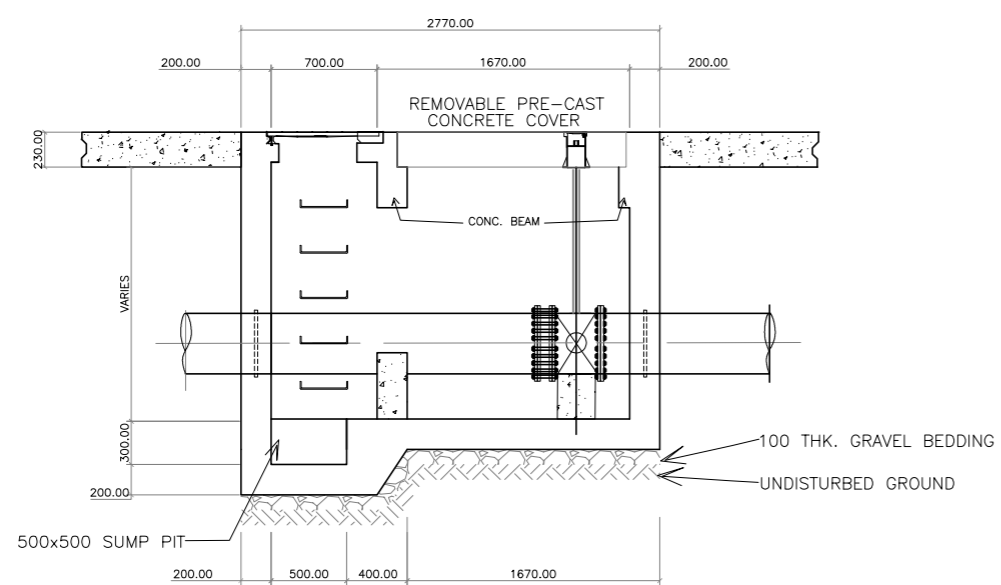
DRAWN:	SURVEYED:	DESIGNED:	CHECKED:	CHECKED & CERTIFIED:	 <p>NORZAGARAY WATER DISTRICT 1639 P. DELA MERCED ST., POBLACION, NORZAGARAY, BULACAN</p> <p>DISCLAIMER: OWNER'S ISSUANCE AND CONFORMANCE OF THIS DRAWING SHALL NOT RELIEVE THE CONSULTANT AND ITS DESIGNER OF THEIR DESIGN RESPONSIBILITIES & LIABILITIES.</p>	CONTRACT DRAWING
—	—	—	—	_____ ARCHITECT/ENGINEER		PROJECT TITLE: PROP. 400Ø SUPPLY LINE FOR NORZAGARAY WATER DISTRICT
REVISION				PROFESSION:	PTR:	LOCATION: DEL MONTE-NORZAGARAY ROAD, NORZAGARAY, BULACAN
REV	DATE	BY	APPROVED BY:	REGISTRATION NO:	DATE ISSUED:	SHEET CONTENT: AIR RELIEF VALVE, BUTTERFLY VALVE, GATE VALVE
				TIN:	PLACE ISSUED:	SCALE: AS SHOWN
<p>AIMER B. CRUZ GENERAL MANAGER</p>						CONTACT NO. ---
						SHEET NO: 1 OF 1
						REV: ---



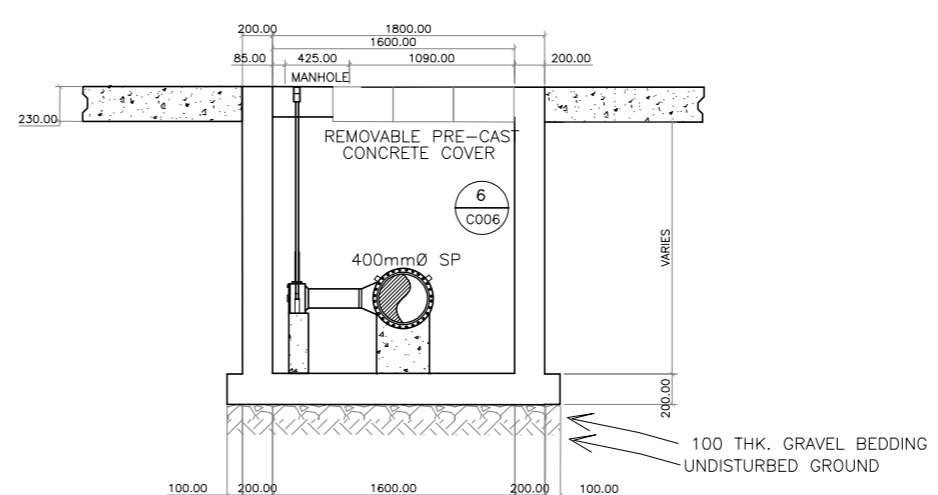
PLAN (1)
SCALE: A1=1:25
A3=1:50
C006



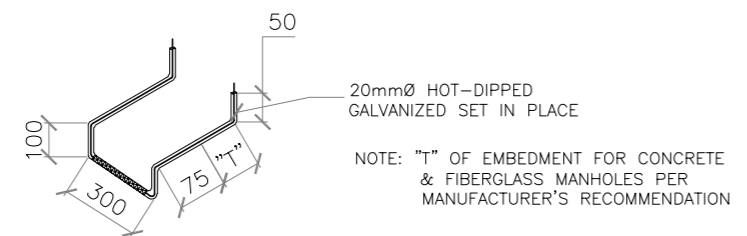
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A3=1:50
C006



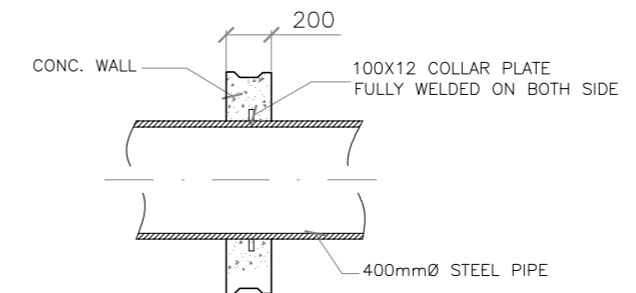
SECTION 2 (2)
SCALE: A1=1:25
A3=1:50
C006



SECTION 4 (4)
SCALE: A1=1:25
A3=1:50
C006



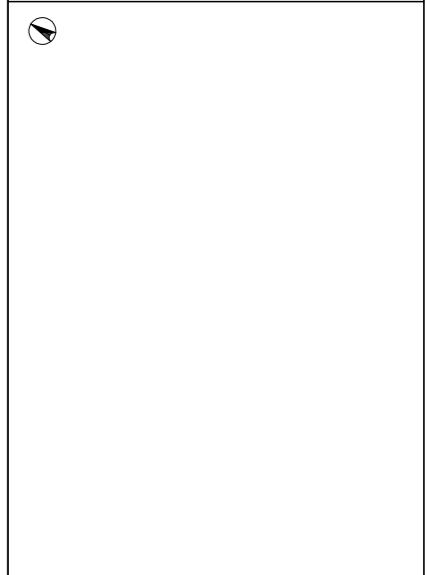
LADDER RUNG DETAIL (5)
SCALE: NTS
C005



(TYP.) PUDDLE FLANGE DETAIL (4)
SCALE: NTS
C006

DETAIL (E)
SCALE: AS-SHOWN
C001

VICINITY MAP



VICINITY MAP (1)
SCALE: 1:10000
C001

NOTES:

1. ALL WORK SHALL CONFORMED TO MWC TECHNICAL SPECIFICATION VERSION 4.
2. PROVIDE THRUST BLOCK ON TEES, BENDS AND END CAPS.
3. SPLIT TEE SHALL BE SUBJECTED TO AIR LEAK TEST BEFORE TAPPING IS MADE.
4. THE MAXIMUM ALLOWABLE DEFLECTION FOR FLEXIBLE JOINTS IS 2'.

LEGEND:

- o EP ELECTRIC POST
- o LP/SL LIGHT POST/STREET LIGHT
- o EPw ELECTRIC POST WOOD
- o SP SIGN POST
- ⊕ FIRE HYDRANT
- WM WATER METER
- EXISTING WATERMAIN
- NEW WATERMAIN
- BLOW-OFF
- NEWLY INSTALLED MSA

TABLE OF CONTENTS

SHEET NO.	SHEET CONTENTS
COVER PAGE	-

SHOP DRAWING

APPROVED: _____
ENGR. AIMER CRUZ
PROJECT MANAGER
DATE _____

REV.	DATE	BY	DESCRIPTION	DFT.	ENGR.	P.E.	CLIENT

ENGINEER:
ENGR. AIMER CRUZ
GENERAL MANAGER

PTR. NO. _____ PRC REG. NO. _____
ISSUED ON _____ ISSUED AT _____



Name	Sign	Date
DRAWN		
DRAFTING		
ENGINEERING		
P. ENGR.		
CLIENT		

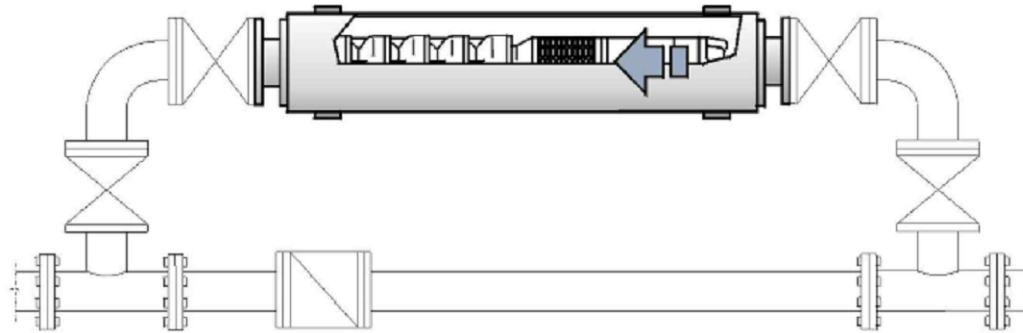
NORZAGARAY WATER DISTRICT

TITLE:
**VALVE VAULT (STRUCTURAL DETAIL)
INTERCONNECTION
NORZAGARAY PIPELAYING PROJECT**


SCALE: AS SHOWN A1 MWC DRG No. _____ REV. 0
DATE OF LAST EDIT= _____ CAD FILE :

Booster Sets

Example of installations

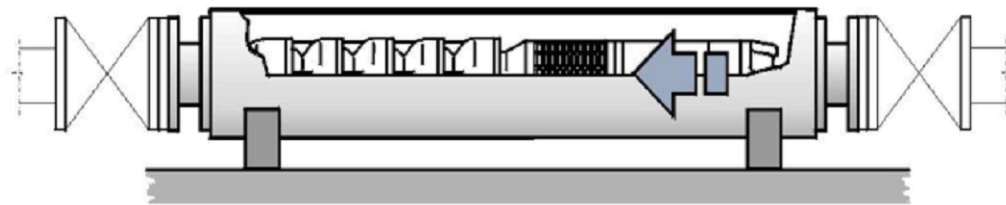


**Horizontal
with by-pass**


	NORZAGARAY WATER DISTRICT <small>1639 P. DELA MERCED ST., POBLACION, NORZAGARAY, BULACAN TEL/FAX: (044) 815-3964, E-MAIL: norzagaray_wd@yahoo.com</small>	PROJECT	CONSTRUCTION OF NORZAGARAY WATER SUPPLY SYSTEM IMPROVEMENT PROJECT	PREPARED BY		APPROVED BY		SCALE	AS SHOWN (ACTUAL SIZE)		
		LOCATION	VILLARAMA ROAD TO BRGY. BITUNGOL NORZAGARAY BULACAN	ENGR. MICHAEL ANGELO BERNABE		ENGR. AIMER B. CRUZ		SHEET NO.	14	OF	21
		DESCRIPTION	PIPELAYING OF 3.25 KM uPVC PIPES								
		SHT CONTENT	BOOSTER PUMP VAULT (STRUCTURAL DETAIL) INTERCONNECTION								

Booster Sets

Example of installations



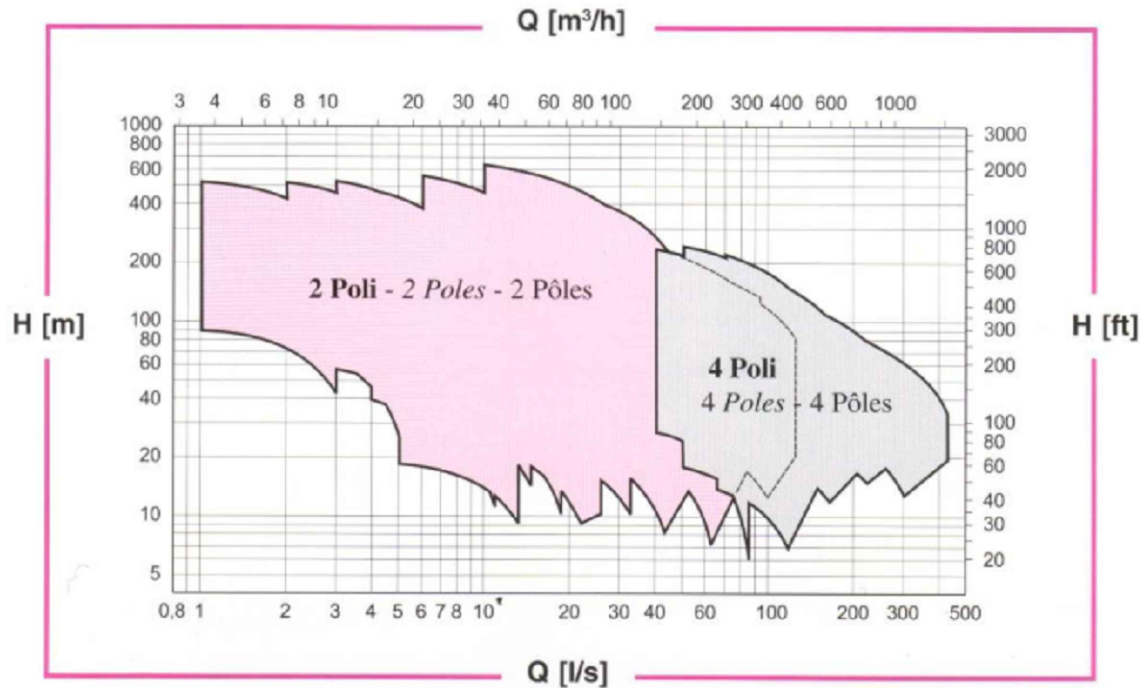
**Horizontal
direct
mounting**

	NORZAGARAY WATER DISTRICT <small>1639 P. DELA MERCED ST., POBLACION, NORZAGARAY, BULACAN TEL/FAX: (044) 815-3964, E-MAIL: norzagaray_wd@yahoo.com</small>	PROJECT	CONSTRUCTION OF NORZAGARAY WATER SUPPLY SYSTEM IMPROVEMENT PROJECT	PREPARED BY		APPROVED BY		SCALE	AS SHOWN (ACTUAL SIZE)		
		LOCATION	VILLARAMA ROAD TO BRGY. BITUNGOL NORZAGARAY BULACAN	ENGR. MICHAEL ANGELO BERNABE		ENGR. AIMER B. CRUZ		SHEET NO.	15	OF	21
		DESCRIPTION	PIPELAYING OF 3.25 KM uPVC PIPES								
		SHT CONTENT	BOOSTER PUMP VAULT (STRUCTURAL DETAIL) INTERCONNECTION								

Booster Sets

60 Hz

Performance ranges



NORZAGARAY WATER DISTRICT
1639 P. DELA MERCED ST., POBLACION, NORZAGARAY, BULACAN
TEL/FAX: (044) 815-3964, E-MAIL: norzagaray_wd@yahoo.com

PROJECT CONSTRUCTION OF NORZAGARAY WATER SUPPLY SYSTEM IMPROVEMENT PROJECT
LOCATION VILLARAMA ROAD TO BRGY. BITUNGOL NORZAGARAY BULACAN
DESCRIPTION PIPELAYING OF 3.25 KM uPVC PIPES
SHT CONTENT BOOSTER PUMP VAULT (STRUCTURAL DETAIL) INTERCONNECTION

PREPARED BY
ENGR. MICHAEL ANGELO BERNABE

APPROVED BY
ENGR. AIMER B. CRUZ

SCALE AS SHOWN (ACTUAL SIZE)

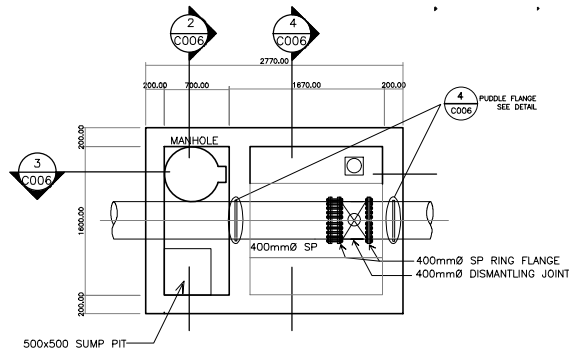
SHEET NO. 16 OF 21

NOTES:

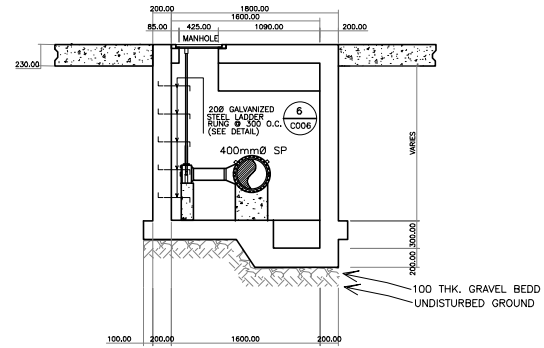
1. ALL WORK SHALL CONFORMED TO MWC TEC SPECIFICATION VERSION 4.
2. PROVIDE THRUST BLOCK ON TEES, BENDS AND END CAPS.
3. SPLIT TEE SHALL BE SUBJECTED TO AIR LE TEST BEFORE TAPPING IS MADE.
4. THE MAXIMUM ALLOWABLE DEFLECTION FOR FLEXIBLE JOINTS IS 2".

LEGEND:

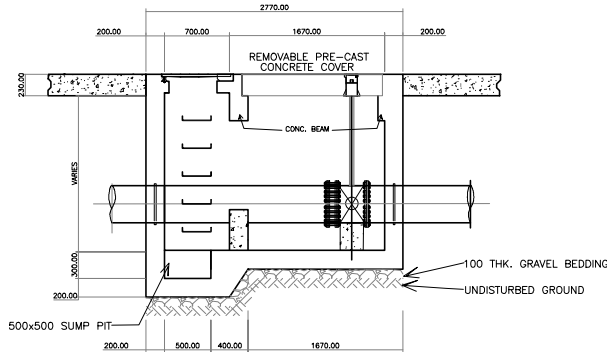
- EP ELECTRIC POST
- LP/SL LIGHT POST/STREET LIGHT
- EPw ELECTRIC POST WOOD
- SP SIGN POST
- ⊕ FIRE HYDRANT
- WM WATER METER
- EXISTING WATERMAIN
- NEW WATERMAIN
- BLOW-OFF
- NEWLY INSTALLED MSA



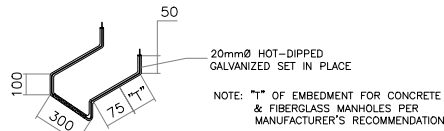
PLAN
SCALE: A1=1:25
A3=1:50
C006



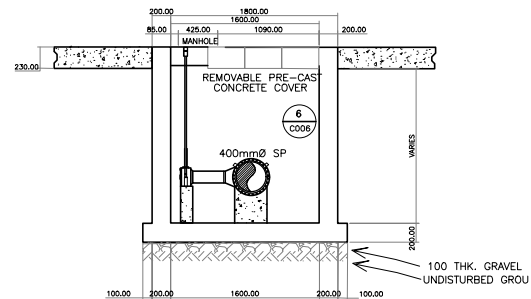
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A3=1:50
C006



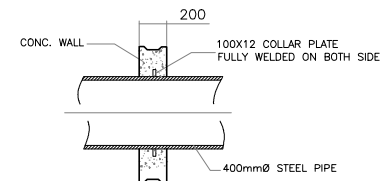
SECTION 2
SCALE: A1=1:25
A3=1:50
C006



LADDER RUNG DETAIL
SCALE: NTS
C005



SECTION 4
SCALE: A1=1:25
A3=1:50
C006



(TYP.) PUDDLE FLANGE DETAIL
SCALE: NTS
C006



NORZAGARAY WATER DISTRICT

1639 P. DELA MERCED ST., POBLACION, NORZAGARAY, BULACAN
TEL: FAX: (044) 815-3964, E-MAIL: norzagaray_wd@yahoo.com

PROJECT
LOCATION
DESCRIPTION
SHT CONTENT

CONSTRUCTION OF NORZAGARAY WATER SUPPLY SYSTEM IMPROVEMENT PROJECT
VILLARAMA ROAD TO BRGY. BITUNGOL
NORZAGARAY BULACAN
PIPELAYING OF 3.25 KM gPVC PIPES
NAIVE VAULT (STRUCTURAL DETAIL)
INTERCONNECTION.

PREPARED BY

ENGR. MICHAEL ANGELO BERNABE

APPROVED BY

ENGR. AIMER B. CRUZ

SCALE

AS SHOWN (ACTUAL SIZE)

SHEET NO.

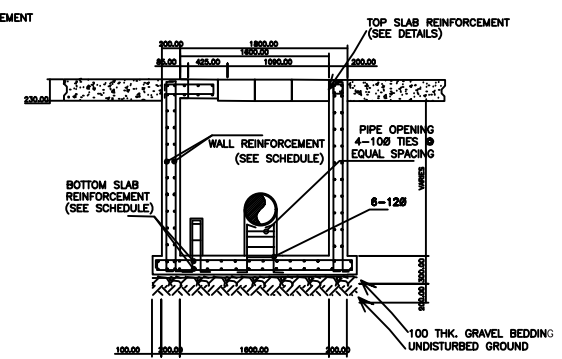
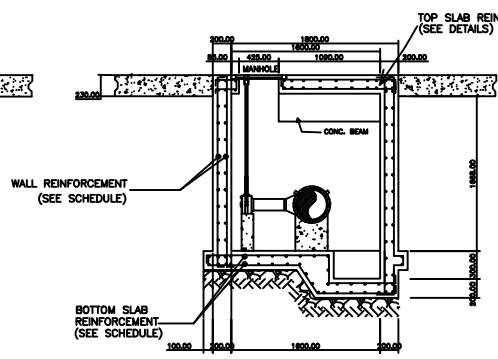
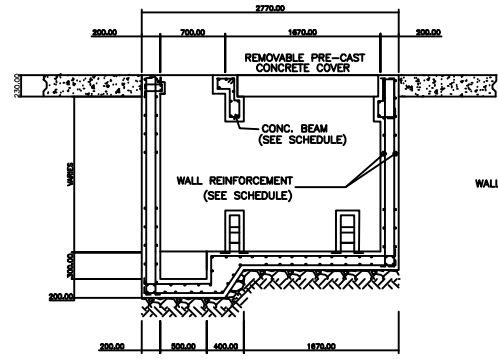
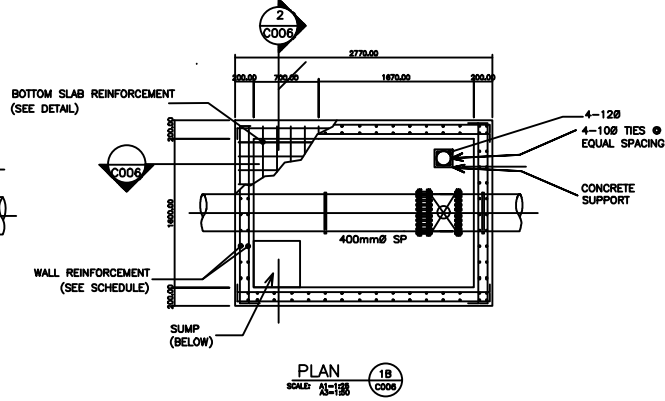
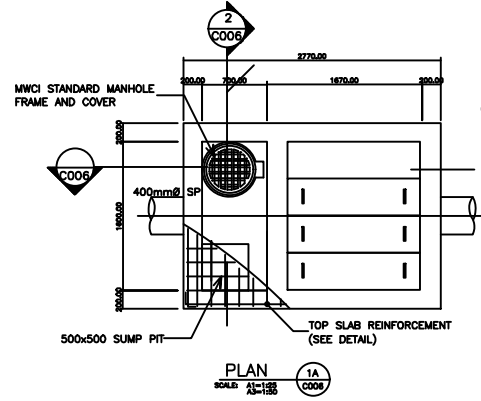
17 OF 21

NOTES:

1. ALL WORK SHALL CONFORMED TO MWC TEC SPECIFICATION VERSION 4.
2. PROVIDE THRUST BLOCK ON TEES, BENDS AND END CAPS.
3. SPLIT TEE SHALL BE SUBJECTED TO AIR LE TEST BEFORE TAPPING IS MADE.
4. THE MAXIMUM ALLOWABLE DEFLECTION FOR FLEXIBLE JOINTS IS 2".

LEGEND:

- EP ELECTRIC POST
- LP/SL LIGHT POST/STREET LIGHT
- EPw ELECTRIC POST WOOD
- SP SIGN POST
- ⊕ FIRE HYDRANT
- WM WATER METER
- EXISTING WATERMAIN
- NEW WATERMAIN
- BLOW-OFF
- NEWLY INSTALLED MSA



SECTION 2
SCALE: A1=1:50
A2=1:50

SECTION 3
SCALE: A1=1:50
A2=1:50

SECTION 4
SCALE: A1=1:50
A2=1:50

PIPE SIZE NORMAL	STEEL REINFORCEMENT SCHEDULE					
	TOP SLAB	BOTTOM SLAB	TOP BARS	WEB BARS	BOTTOM BARS	BEAM REINFORCING BARS
400	16mm# @ 150 O. C. EACHWAY; EACH FACE	16mm# @ 150 O. C. EACHWAY; EACH FACE	3-25mm#	2-20mm#	2-25mm#	2 @ 50; 2 @ 75; 3 @ 100; REST @ 250 O.C. FROM FACE OF THE SUPPORT TO MID SPAN

PIPE SIZE NORMAL	STEEL REINF. SCHEDULE	
	PRECAST CONC. COVER TOP BARS	BOT. BARS
400	4-25mm#	7-25mm#

DEPTH (H)	THICKNESS (tw)	WALL REINFORCEMENT SCHEDULE
		REINFORCING BARS
1500 to 2500	200	16# VERTICAL BARS @ 180 O.C. EACH FACE 16# HORIZONTAL BARS @ 200 O.C. EACH FACE



NORZAGARAY WATER DISTRICT
1639 P. DELA MERCED ST., POBLACION, NORZAGARAY, BULACAN
TEL: (044) 815-3964, E-MAIL: norzagaray_wd@yahoo.com

PROJECT LOCATION DESCRIPTION SHI CONTENT

CONSTRUCTION OF NORZAGARAY WATER SUPPLY SYSTEM IMPROVEMENT PROJECT
VILLARAMA ROAD TO BRGY. BITUNGOL NORZAGARAY BULACAN
PIPELAYING OF 3.25 KM uPVC PIPES
NAIVE VAULT (STRUCTURAL DETAIL) INTERCONNECTION.

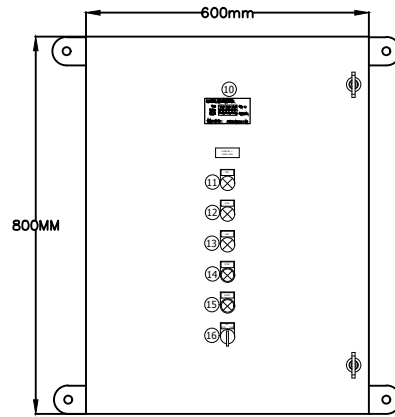
PREPARED BY
ENGR. MICHAEL ANGELO BERNABE

APPROVED BY
ENGR. AIMER B. CRUZ

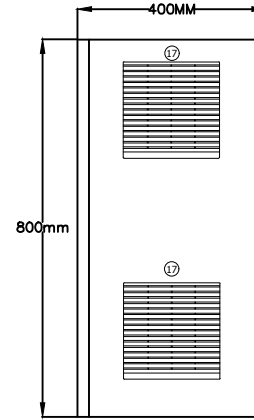
SCALE AS SHOWN (ACTUAL SIZE)

SHEET NO. 18 OF 21


SHOP DRAWING FOR MCC PANEL



DOOR PANEL LAYOUT

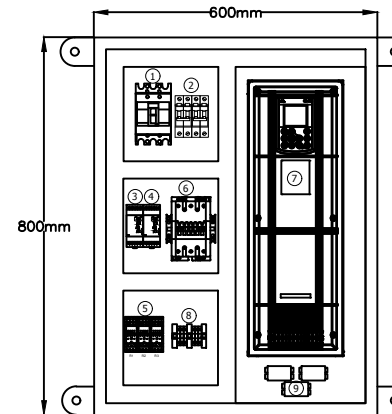


SIDE VIEW


	NORZAGARAY WATER DISTRICT <small>1639 P. DELA MERCED ST., POBLACION, NORZAGARAY, BULACAN TEL: FAX: (044) 815-3964, E-MAIL: norzagaray_wd@yahoo.com</small>	PROJECT	<small>CONSTRUCTION OF NORZAGARAY WATER SUPPLY SYSTEM IMPROVEMENT PROJECT</small>	PREPARED BY	APPROVED BY	SCALE	<small>AS SHOWN (ACTUAL SIZE)</small>	
		LOCATION	<small>VILLARAMA ROAD TO BRGY. BITUNGOL</small>	DESCRIPTION	<small>NORZAGARAY BULACAN</small>	<small>ENGR. MICHAEL ANGELO BERNABE</small>	<small>ENGR. AIMER B. CRUZ</small>	MOTOR CONTROL CENTER
		SHT CONTENT	<small>MOTOR CONTROL CENTER</small>			SHEET NO.	<small>19</small>	OF

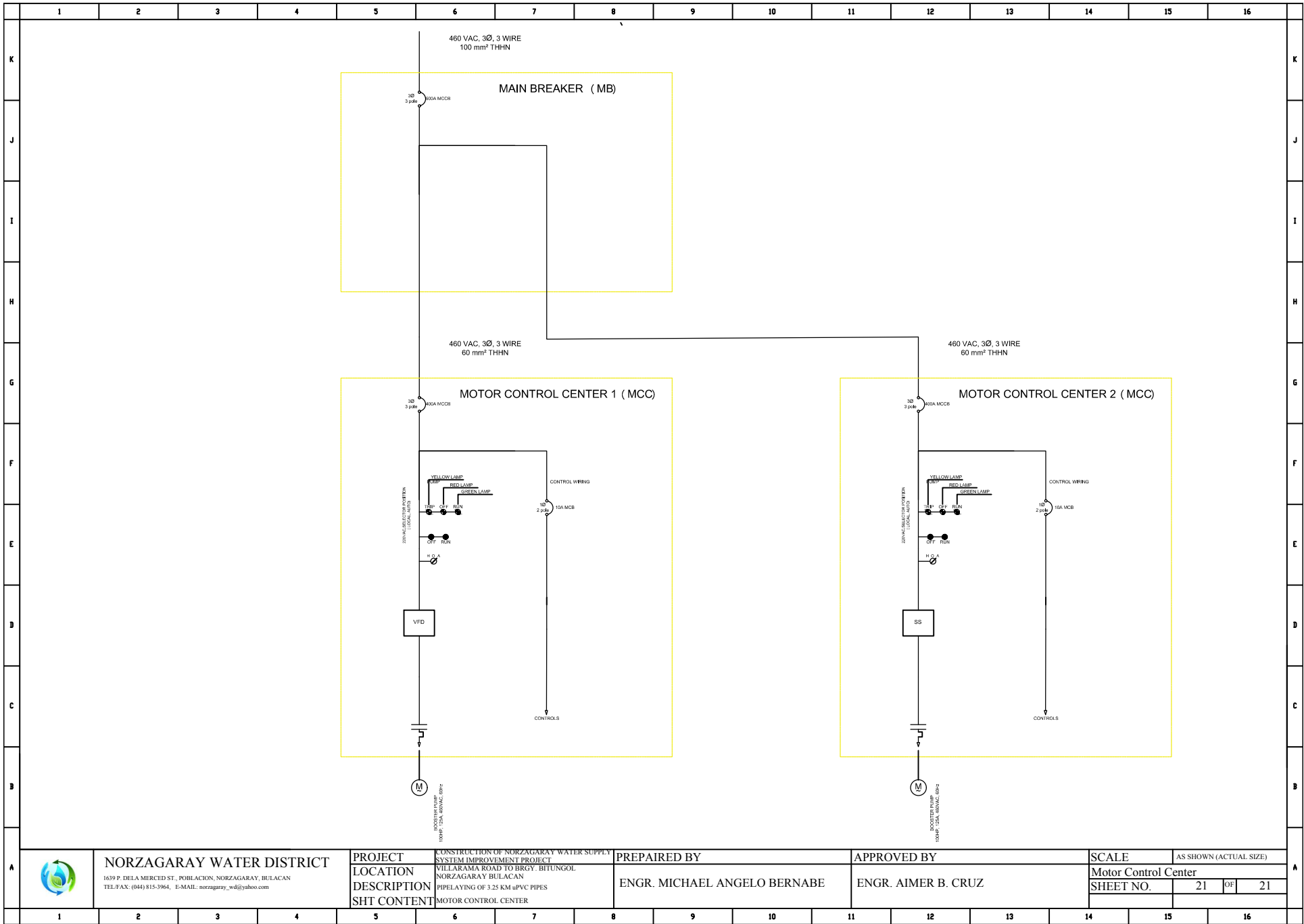
SHOP DRAWING FOR MCC PANEL

ITEM	DESCRIPTION
1	MOLDED CASE CIRCUIT BREAKER
2	MINIATURE CIRCUIT BREAKER
3	UNDER/OVER VOLTAGE RELAY
4	LIQUID LEVEL RELAY
5	MINIATURE CONTROL RELAY COIL 220
6	CONTACTOR 3P, 50A, 220V COIL
7	VARIABLE FREQUENCY DRIVE
8	TERMINAL BLOCK
9	CURRENT TRANSFORMER
10	DIGITAL MULTIMETER
11	PILOT LIGHT AMBER 220V
12	PILOT LIGHT GREEN 220V
13	PILOT LIGHT RED 220V
14	PUSH BUTTON GREEN
15	PUSH BUTTON RED
16	SELECTOR SWITCH 3-POSITION
17	EXHAUST FAN WITH FILTER



COMPONENTS LAYOUT

	NORZAGARAY WATER DISTRICT <small>1639 P. DELA MERCED ST., POBLACION, NORZAGARAY, BULACAN TEL/FAX: (044) 815-3964, E-MAIL: norzagaray_wd@yahoo.com</small>	PROJECT	CONSTRUCTION OF NORZAGARAY WATER SUPPLY SYSTEM IMPROVEMENT PROJECT	PREPARED BY	APPROVED BY	SCALE	AS SHOWN (ACTUAL SIZE)	
		LOCATION	VILLARAMA ROAD TO BRGY. BITUNGOL	ENGR. MICHAEL ANGELO BERNABE	ENGR. AIMER B. CRUZ	MOTOR CONTROL CENTER		
		DESCRIPTION	NORZAGARAY BULACAN			SHEET NO.	20	OF
SHI CONTENT	PIPELAYING OF 3.25 KM of PVC PIPES	MOTOR CONTROL CENTER						



NORZAGARAY WATER DISTRICT
 1639 P. DELA MERCED ST., POBLACION, NORZAGARAY, BULACAN
 TEL: FAX: (044) 815-3964, E-MAIL: norzagaray_wd@yahoo.com

PROJECT CONSTRUCTION OF NORZAGARAY WATER SUPPLY SYSTEM IMPROVEMENT PROJECT
LOCATION VILLARAMA ROAD TO BRGY. BITUNGOL, NORZAGARAY BULACAN
DESCRIPTION PIPELAYING OF 3.25 KM uPVC PIPES
SHI CONTENT MOTOR CONTROL CENTER

PREPARED BY
 ENGR. MICHAEL ANGELO BERNABE

APPROVED BY
 ENGR. AIMER B. CRUZ

SCALE AS SHOWN (ACTUAL SIZE)
Motor Control Center

SHEET NO. 21 OF 21