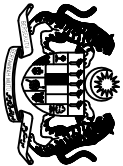


NOTA PENENTUAN

1. This is tender drawing and should not be taken as a working drawing.
2. For other notes, refer to the specifications.

LEGEND :-



KERAJAAN MALAYSIA



JASA KEPADA RAKYAT

CAWANGAN KEJURUTERAAN MEKANIKAL
IBU PEJABAT JKR MALAYSIA

DISAHKAN

PENGARAH KAJIAN	I. RAZUWAN BIN KASIM	034
PENGARAH BERAHTUTUK	I. IMAHAT FOUZIAN BIN ABDULLAH	FLA 343
JURUTERA MEKANIKAL PENGUSASA KAJIAN	I. AZIZAH BINTI KASSIM	034
JURUTERA MEKANIKAL PENGUSASA	I. IZROL BIN IDRIS	PENG. MEK. 1

PROJEK

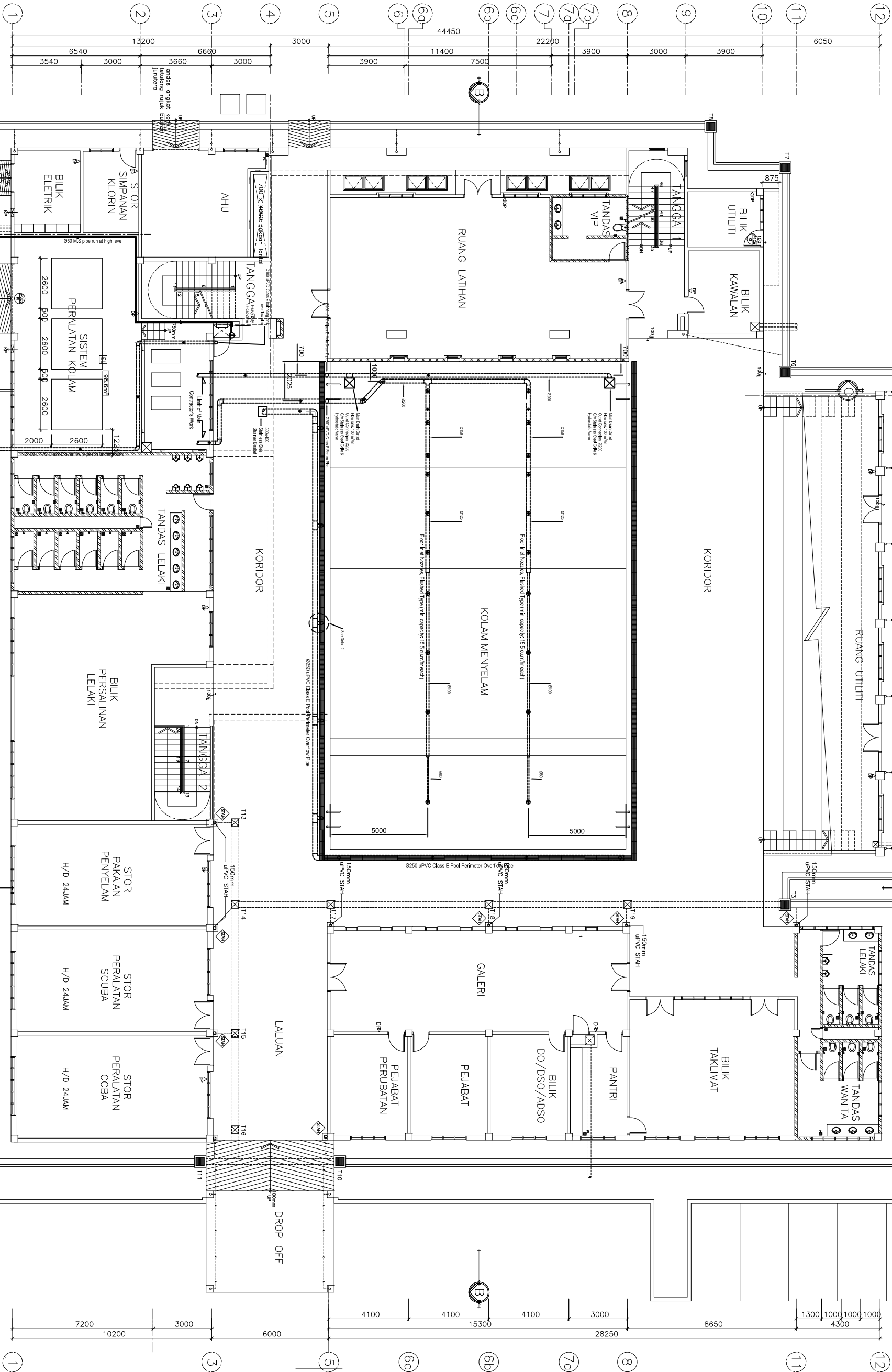
PENYALINAN KOLAM MENYELAM TEMPUR
KEM 21 GKG, MERSING, JOHOR

TAJUK

SISTEM BEKALAN AIR DALAMAN /
SISTEM PERPAIPAN KOLAM
PELAN LANTAI ARAS BAWAH

DIREKABENTUK	MUHAMMAD AFIQ BIN ZAMUDDIN
BUKUS	MUHAMMAD AFIQ
TARIKH	OKTOBER 2019
NO. LUKSIAN	MEK/K/CW/4A(12)/2019

(A)	(B)	(B1)	(C)	(C1)	(D)	(D1)	(E)	(F)	(F1)	(G)	(G1)	(H)	(H1)	(J)	(J1)	(K)	(L)	(L1)	(M)	(N)	(P)	(Q)																																		
BLOK KAPAL MOCK-UP																	BLOK ASTAKA										BLOK PENTADBIRAN																													
2100																	1800										3900					3600					10800					2850					4850									
3000																	4500										1200					3900					3900					3900					3900					3900				
300																																																								
T5																																																								
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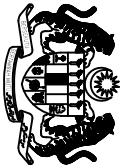
PELAN LANTAI ARAS BAWAH

BLOK MENYELAM

NOTA PENENTUAN

1. This is tender drawing and should not be taken as a working drawing.
2. For other notes, refer to the specifications.

LEGEND :-



KERAJAAN MALAYSIA



JASA KEPADA RAKYAT

**CAWANGAN KEJURUTERAAN MEKANIKAL
IBU PEJABAT JKR MALAYSIA**

SIAHKAN

NGARAH KANAN CAWANGAN KEJURUTERAAN MEKANIKA

Eng, A.C.P.E.

MAMAT BOHIZAN BIN ABDULLAH

Eng. M.I.E.M., A.C.P.E.

AZIZAH BINTI KASSIM

BITTERA MERAKAI PENGILASAN

IZRUL BIN IDRIS

ROJEK

**PEMBINAAN KOLAM
MENYELAM TEMPUR KEM 21
GKG, MERSING, JOHOR**

TAJUK

SISTEM BEKALAN AIR DALAMAN

KERATAN B-B (PERPAIPAN KOLAM)

DIREKABENTUK

MUHAMMAD AFIFI BIN ZAINUDIN

DILUKIS

MUHAMMAD AFIFI 1:100

NOV 2013

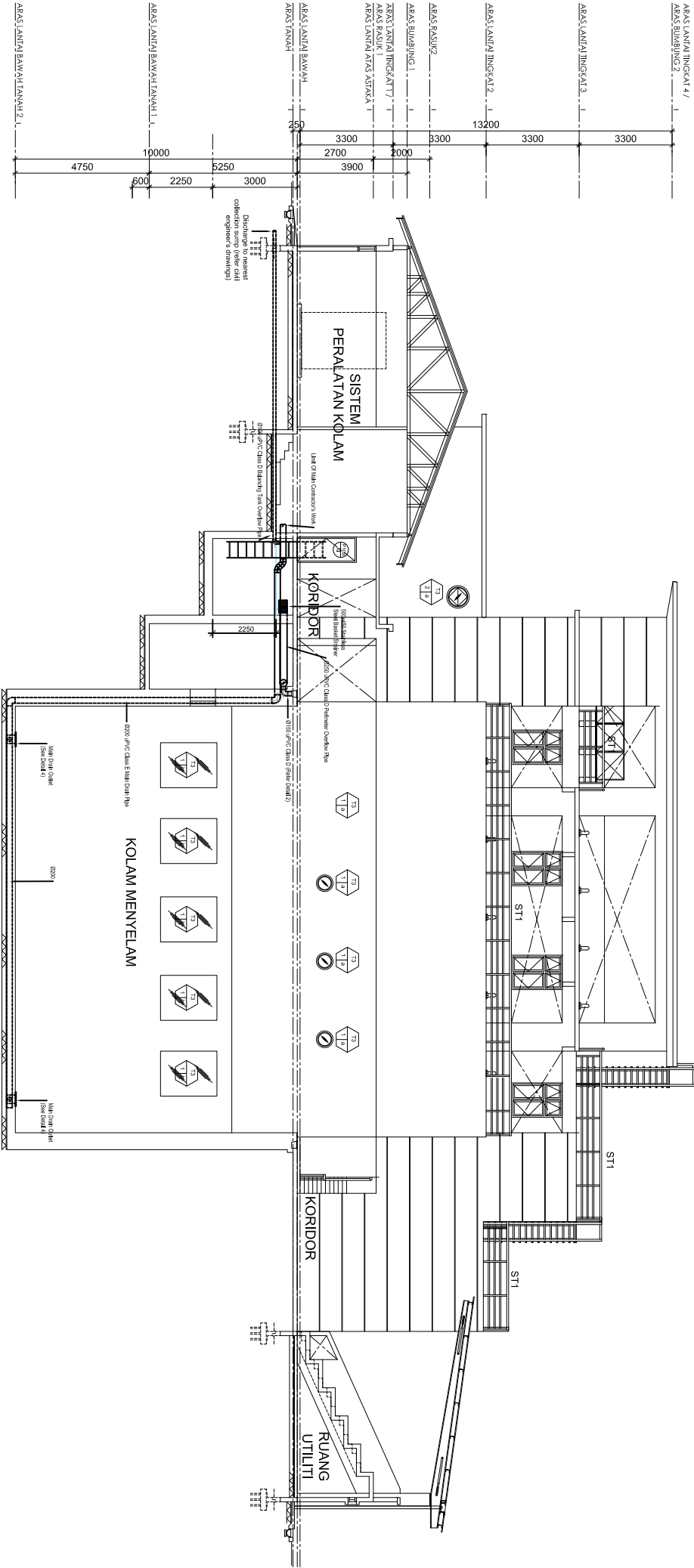
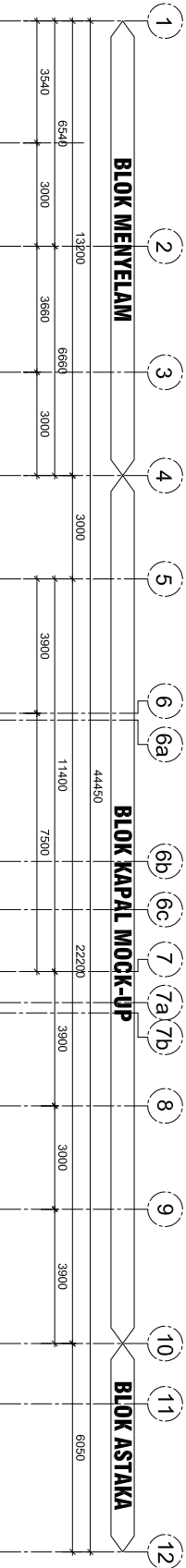
NO. LUKIS,

MEK/K/CW/4A(9)/2019

NOTA PENENTUAN

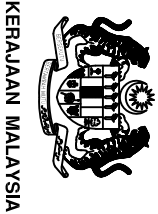
1. This is tender drawing and should not be taken as a working drawing.
2. For other notes, refer to the specifications.

LEGEND :-



KERATAN C-C

SKALA 1:100



KERAJAAN MALAYSIA



JASA KEPADA RAKYAT

CAWANGAN KEJURUTERAAN MEKANIKAL
IBU PEJABAT JKR MALAYSIA

DISAHKAN

PENGARAH KAJIAN	IR. RAZDWAN BIN KASIM	CSM
PENGARAH BEKABENTUK	IR. YAMAT ROHIZAN BIN ABDULLAH	PAK FAK
PEMERIKSA MEKANIKAL PENGUASA KAJIAN	IR. AZIZAH BINTI KASSIM	CSM
JURUTERA MEKANIKAL PENGUASA	IR. IZROL BIN IDRIS	PENG. MEK. M

PROJEK

PEMBINAAN KOLAM MENYELAM TEMPUR
KEM 21 GKG, MERSING, JOHOR

TAJUK

SISTEM BEKALAN AIR DALAMAN /
SISTEM PERPAIPAN KOLAM
KERATAN C-C

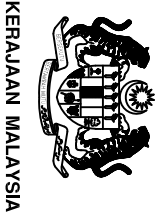
DIREKABENTUK	MUHAMMAD AFIQ BIN ZAMUDDIN	SKALA
DILUKIS	MUHAMMAD AFIQ	1:100
TARIKH	OCTOBER 2019	KOD FAL KOMPUTER

MEK/K/CW/4A(14)/2019

NOTA PENENTUAN

1. This is tender drawing and should not be taken as a working drawing.
2. For other notes, refer to the specifications.

LEGEND :-



KERAJAAN MALAYSIA



JASA KEPADA RAKYAT

CAWANGAN KEJURUTERAAN MEKANIKAL
IBU PEJABAT JKR MALAYSIA

DISAHKAN

PENGARAH KAJIAN	I. RAZDWAN BIN KASIM	024
PENG. A.C.P.E		
PENGARAH REKA BENTUK	I. NAIMAT ROHIZAN BIN ABDULLAH	044
PENG. A.C.P.E		
IBU UTERA MEKANIKAL PENGUSASA KAJIAN	I. AZIZAH BINTI KASSIM	044
PENG. UTILIA		
JUJUTERA MEKANIKAL PENGUSASA	I. IZROL BIN IDRIS	
PENG. UTILIA		

PROJEK

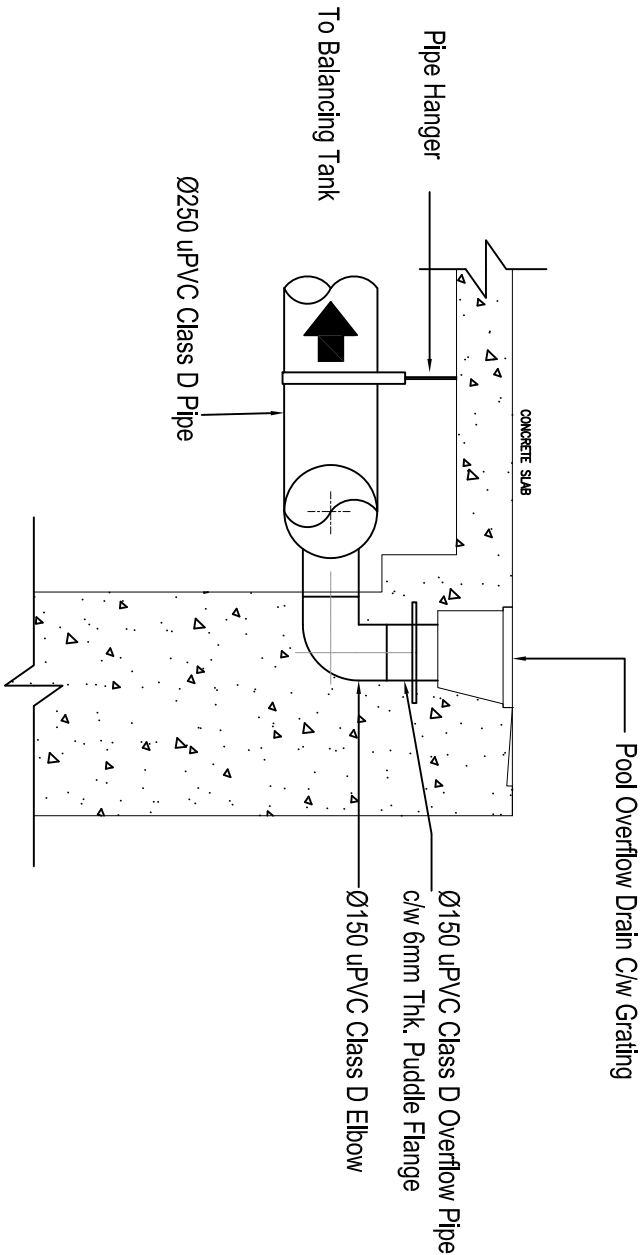
PEMBINAAN KOLAM MENYELAM TEMPUR
KEM 21 GKG, MERSING, JOHOR

TAJUK

SISTEM BEKALAN AIR DALAMAN -
SISTEM PERPAIPAN KOLAM
LUKISAN PERINCIAN 4

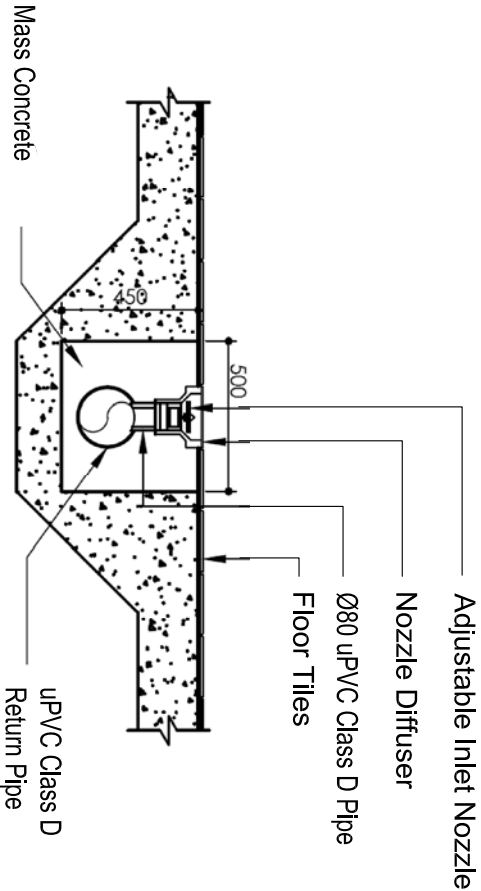
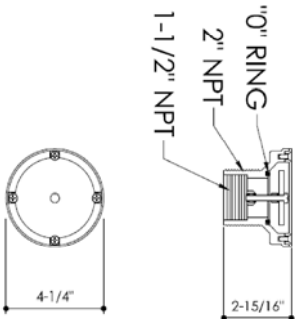
DIREKABENTUK	MUHAMMAD AFIQ BIN ZANUDDIN
DILUKIS	SKALA
MUHAMMAD AFIQ	NTS
TARIKH	KOD FAL KOMPUTER
OCTOBER 2019	

MEK/K/CW/4A(15)/2019



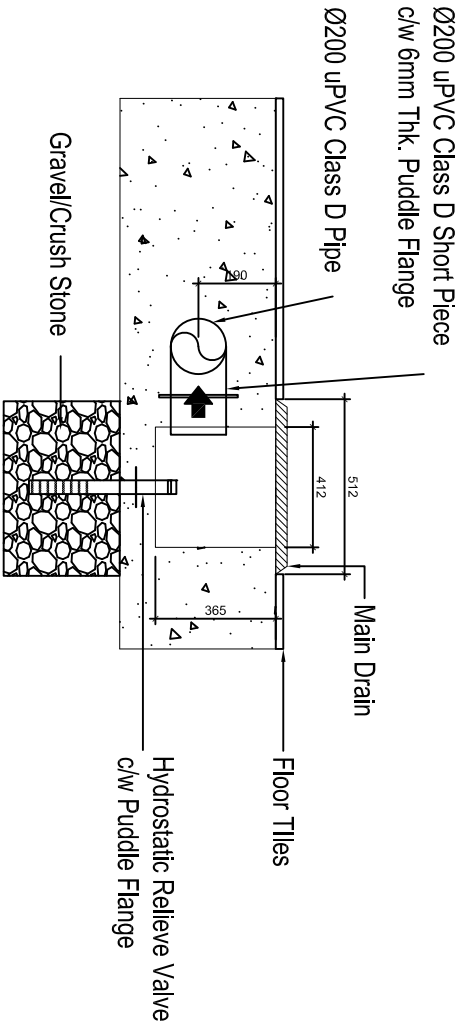
DETAIL 1 : TYPICAL NOZZLE INLET

NTS



DETAIL 3 : TYPICAL FLOOR INLET NOZZLE

NTS

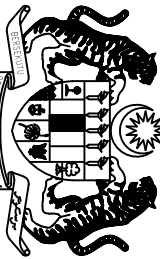


DETAIL 4 : TYPICAL MAIN DRAIN PIPE INSTALLATION

NTS

NOTA PENENTUAN

1. This is tender drawing and should not be taken as a working drawing.
2. For other notes, refer to the specifications.



KERAJAAN MALAYSIA



PEJABAT PENGARAH KAWAN
CAWANGAN KEJURUTERAAN MEKANIKAL
IBU PEJABAT JKR MALAYSIA
TINGKAT 24/28, BLOK G,
NO. 6, JALAN SULTAN SALAHUDDIN,
50480 KUALA LUMPUR

CAWANGAN KEJURUTERAAN
MEKANIKAL

DISAHKAN

PENGARAH KAWAN CAWANGAN KEJURUTERAAN MEKANIKAL
Ic. RAZDWAN BIN KASIM O.S.M
P.ENG. AC.P.E
PENGARAH REKABENTUK CAWANGAN KEJURUTERAAN MEKANIKAL
Ic. MAHAFT ROHIZAN BIN ABDULLAH P.A.K.P.A.K
P.ENG. M.A.E.M
PENGARAH REKABENTUK CAWANGAN KEJURUTERAAN MEKANIKAL
Ic. AZIZAH BINTI KASSIM
P.ENG. M.A.E.M
JURUTERA MEKANIKAL, PENGUSASA
Ic. IZRUL BIN IDRIS
P.ENG. M.A.E.M

PROJEK:

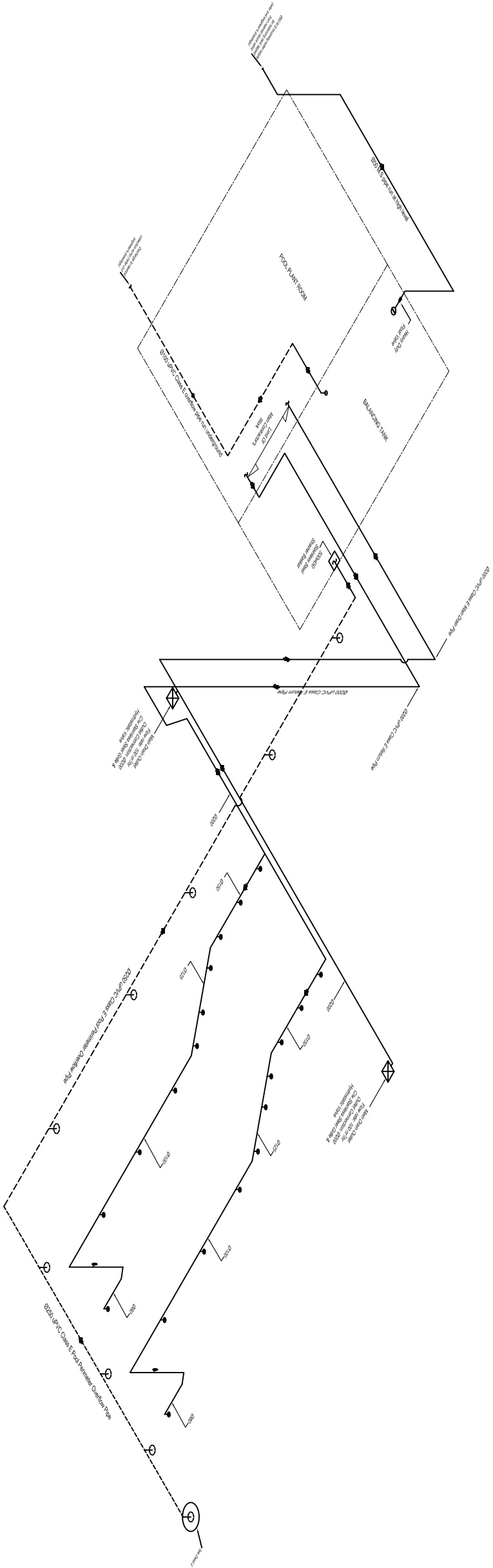
PEMBINAAN KOLAM
MENYELAM TEMPUR
KEM 21 GKG, MERSING,
JOHOR

TAJUK:

SISTEM BEKALAN AIR DALAMAN
LUKISAN SKEMATIK PERPAIPAN KOLAM

Schedule Of Pool Shell Equipment

No.	Item	Quantity (nos)	Capacity (m ³ /hr)	Outlet Connection (mm)	Material	Remark
1	Main Drain	2	100	200	Polyester/Fibreglass c/w Stainless Steel Grille	C/w hydrostatic Valve
2	Floor Return Inlet	22	15.5	80	ABS	Adjustable type

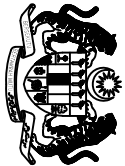


SKALA:	DIREKABENTUK OLEH:
NTS	MUHAMMAD AFFI BIN ZAINUDDIN
DILUKIS:	DISEMAK OLEH:
AHMAD KHARUDDIN BIN ISMAIL	MUHAMMAD AFFI BIN ZAINUDDIN
TARIKH:	PAL KOMPUTER:
NOV 2019	
BL. LUKISAN:	MEK/KCW/4A(11)/2019

NOTA PENENTUAN

1. This is tender drawing and should not be taken as a working drawing.
2. For other notes, refer to the specifications.

LEGEND :-



KERAJAAN MALAYSIA



JASA KEPADA RAKYAT

CAWANGAN KEJURUTERAAN MEKANIKAL
IBU PEJABAT JKR MALAYSIA

DISAHKAN

PENGARAH KAJIAN

PENGARAH BEKABENTUK
I. JAMALI KOHLIZAN BIN ABDULLAH P.Eng. FALK
JURUTERA MEKANIKAL PERUSAHA KAJIAN
I. AZIZAH BINTI KASSIM C.Eng.
P.Eng. UTILITI
JURUTERA MEKANIKAL PENGUSAHA
I. IZROL BIN IDRIS P.Eng. UTILITI

PROJEK

PENBINAAN KOLAM MENYELAM TEMPUR
KEM 21 GKG DI MERSING, JOHOR

TAJUK

SISTEM PERALATAN KOLAM
PELAN LANTAI ARAS BAWAH

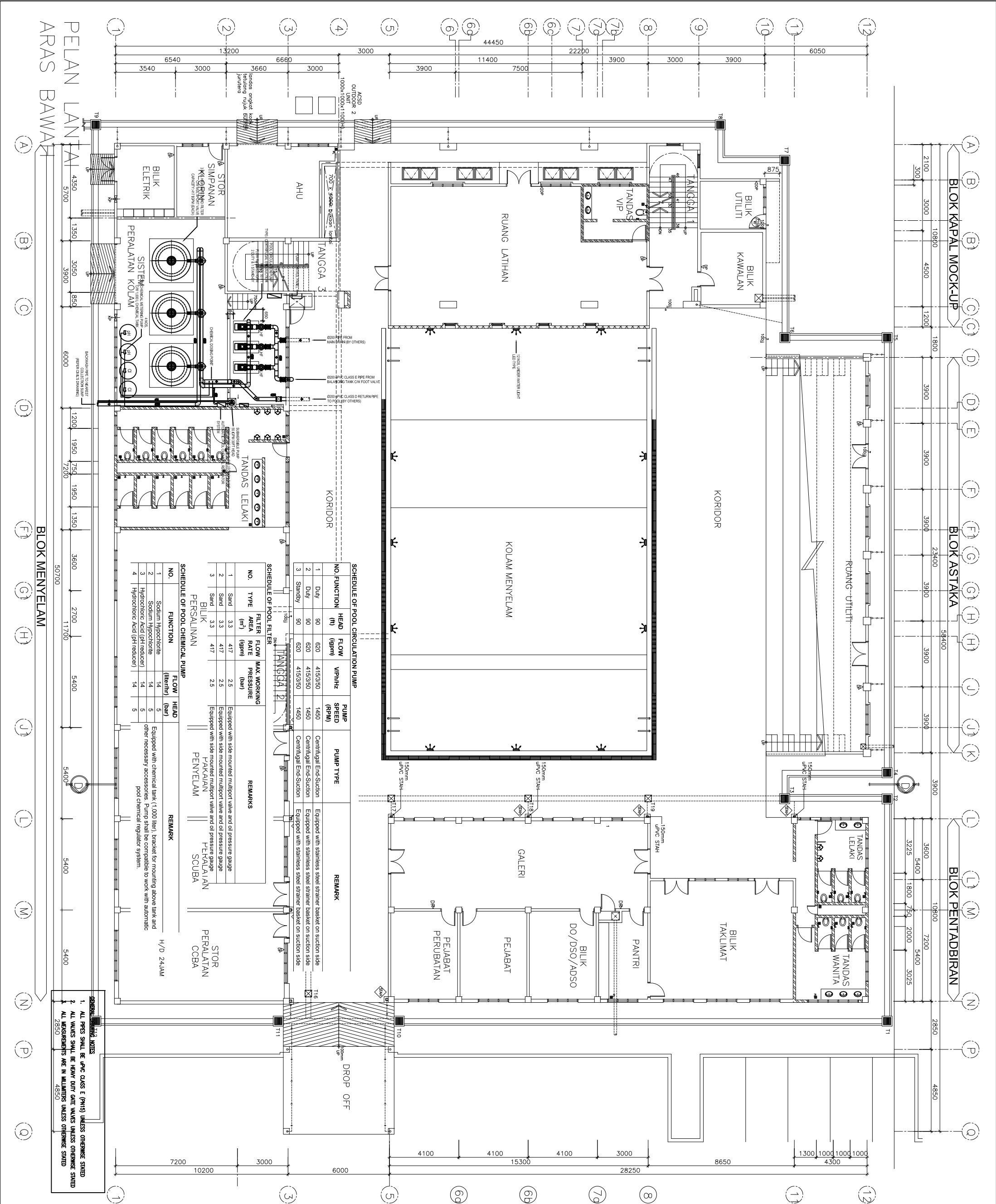
DIREKABENTUK
MUHAMMAD AFIQ BIN ZAMUDDIN

BUKAS
AFIFI / KHAIRULDDIN

TARIKH
JANUARI 2020

NO. LUKSARI
MEK/K/SWP/1(2)/2020

REV. NO

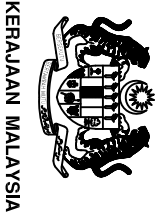


NOTA PENENTUAN

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LEGEND :-

- ⌘ BUTTERFLY VALVE
⌘ GATE VALVE
⌘ ELECTROMAGNETIC FLOW METER
⌘ LINT & HAIR STRAINER



KERAJAAN MALAYSIA



JASA KEPADA RAKYAT

CAWANGAN KEJURUTERAAN MEKANIKAL
IBU PEJABAT JKR MALAYSIA

DISAHKAN

PENGARAH KAJIAN

PENGARAH BEKABENTUK
I. YAMMART ROHIZAN BIN ABDULLAH P.Eng. F.A.S. F.A.S.
IBU PEJABAT MEKANIKAL PENGUSAHA KAJIAN
I. AZIZAH BINTI KASSIM P.Eng. M.A.S. M.A.S.
JURUTERA MEKANIKAL PENGUSAHA
I. IZROL BIN IDRIS P.Eng. M.A.S. M.A.S.

PROJEK

PEMBINAAN KOLAM MENYELAM TEMPUR
KEM 21 GKG DI MERSING, JOHOR

TAJUK

SISTEM PERALATAN KOLAM

DIAGRAM SKEMATIK

DIREKABENTUK	MUHAMMAD AFIQ BIN ZAMUDDIN
DALUAS	SKALA
AFAFI / KHAIRULDDIN	N.T.S
TARIKH	KOD FAL KOMPUTER
JANUARI 2020	
NO. LUKSANA	REV. NO
MEK/K/SWP/1(3)/2020	

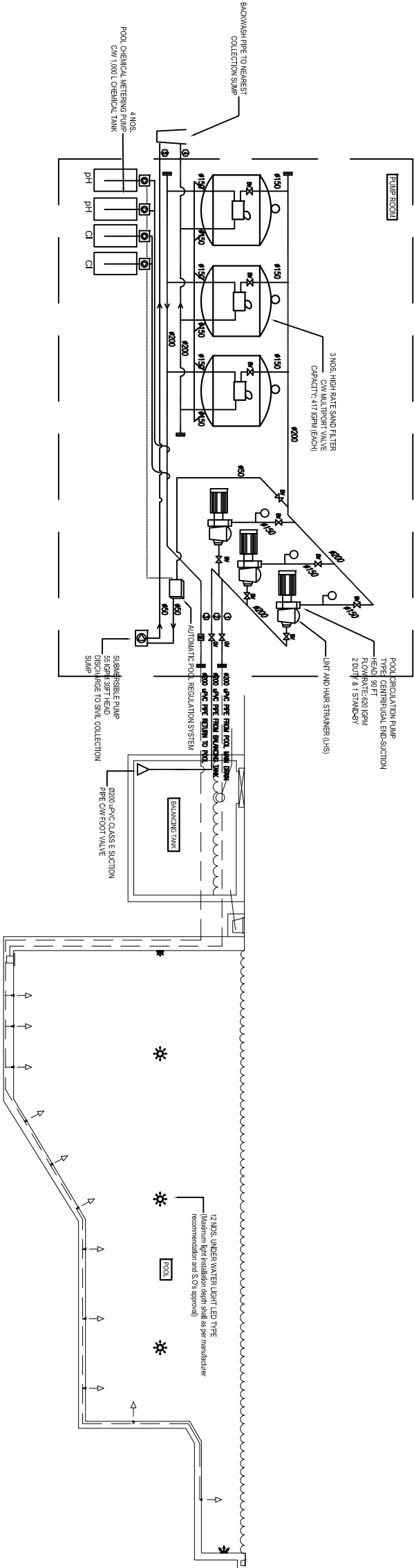
SCHEDULE OF POOL CIRCULATION PUMP				
NO. /FUNCTION	HEAD (ft)	FLOW (gpm)	V/PHz (KPM)	PUMP SPEED (RPM)
1 Duty	90	620	415/250	1450
2 Duty	90	620	415/250	1450
3 Standby	90	620	415/250	1450

SCHEDULE OF POOL FILTER

NO.	TYPE	FILTER AREA (m²)	FLOW RATE (gpm)	MAX. WORKING PRESSURE (bar)	REMARKS
1	Sand	3.3	417	2.5	Equipped with side mounted multiport valve and oil pressure gauge
2	Sand	3.3	417	2.5	Equipped with side mounted multiport valve and oil pressure gauge
3	Sand	3.3	417	2.5	Equipped with side mounted multiport valve and oil pressure gauge

SCHEDULE OF POOL CHEMICAL PUMP

NO.	FUNCTION	FLOW (liter/hr)	HEAD (bar)	REMARK
1	Sodium Hypochlorite	14	5	Equipped with chemical tank (1,000 liter), bracket for mounting above tank and other necessary accessories. Pump shall be compatible to work with automatic pool chemical regulator system.
2	Sodium Hypochlorite	14	5	
3	Hydrochloric Acid (pH reducer)	14	5	
4	Hydrochloric Acid (pH reducer)	14	5	



SCHEMATIC DIAGRAM OF SWIMMING POOL

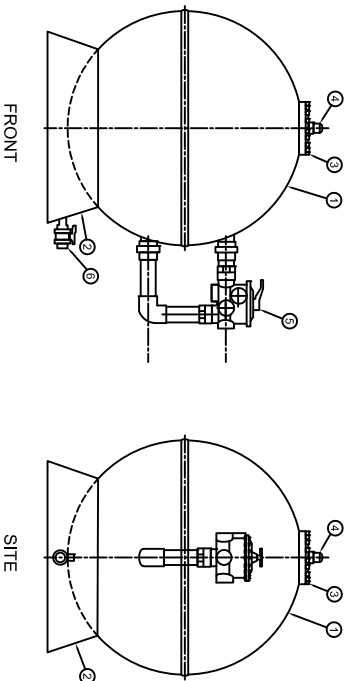
PIPING WORKS DEMARCATION		
No.	PIPINGS	LIMIT OF WORKS
①	MAIN DRAIN PIPING	Within plant room only
②	CIRCULATION PUMP SUCTION PIPING	From foot valve to pumps
③	RETURN PIPING	Within plant room only
④	BACKWASH PIPING	Within plant room (after sand filter) until collection sump
⑤	SUBMERSIBLE PUMP PIPING	Within plant room until collection sump

GENERAL DRAWING NOTES

1. ALL PIPES SHALL BE UPVC CLASS E (PN10) UNLESS OTHERWISE STATED
2. ALL WAIVES SHALL BE HEAVY DUTY GATE WAIVES UNLESS OTHERWISE STATED
3. ALL MEASUREMENTS ARE IN MILLIMETERS UNLESS OTHERWISE STATED

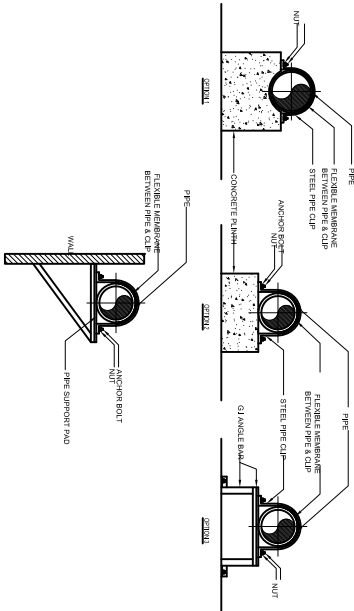
1. This is tender drawing and should not be taken as a working drawing.
2. For other notes, refer to the specifications.

1100

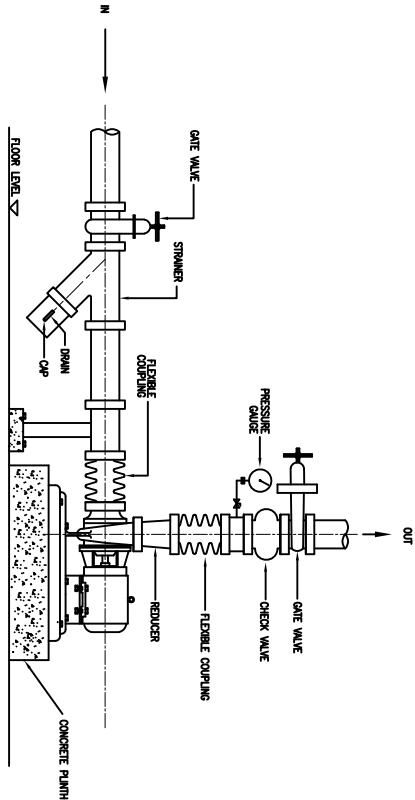


LIST OF EQUIPMENT			
MARK	QTY	MATERIAL	DESCRIPTION
1	1	FRP	FILTER BODY
2	1	FRP	SUPPORT LEG
3	1	FRP	NECK RING
4	1	GRS	AUTO AIR RELEASE VALVE
5	1	ABS	FW THROAT VALVE

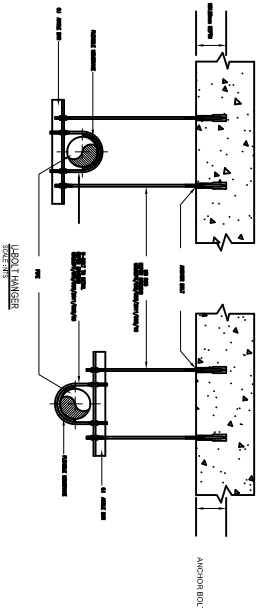
TYPICAL INSTALLATION OF SAND FILTER WITH SIDE MOUNTED MULTI-PORT VALVE



RECOMMENDED INSTALLATION FOR HORIZONTAL PIPE CLIPS SUPPORT

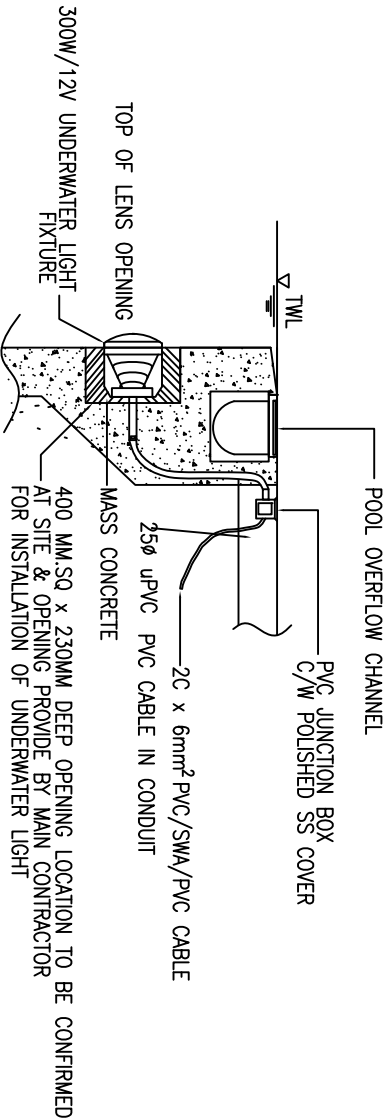


TYPICAL VALVES ARRANGEMENT FOR END SUCTION PUMP

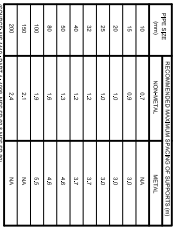


PPV RATE (%)	RECOMMENDED MAXIMUM SPACING OF SPACERS (mm)	NO. OF SPACERS	METHOD
15	62.5	1.5	
15	62.5	1.5	
20	62.5	1.5	
21	67.5	1.8	
32	1.0	2.1	
40	1.0	2.4	
50	1.0	2.4	
60	1.2	2.0	
100	1.4	3.2	
150	1.8	4.8	
200	1.8	4.8	

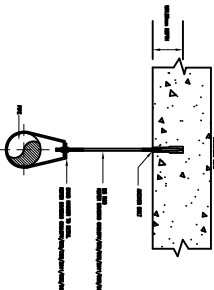
NOTE: Water temperature should not exceed 60°C



TYPICAL INSTALLATION OF UNDERWATER LIGHT FIXTURE



NOTE: Water temperature should not exceed 60°C

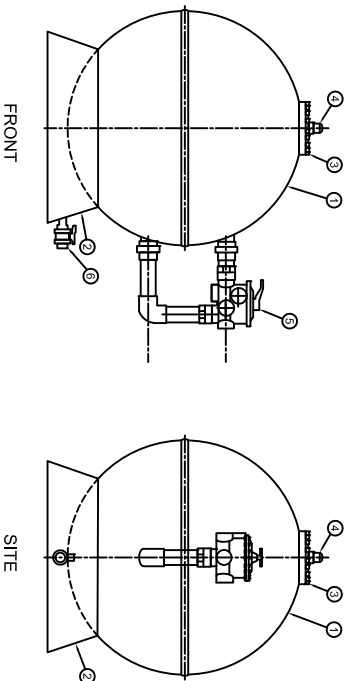


Age group (years)	Recommended maximum weight (kg)	Recommended maximum height (cm)
10	30	145
11	32	150
12	35	155
13	38	160
14	40	165
15	42	170
16	45	175
17	48	180
18	50	185
19	52	190
20	55	195

NOTE: Water temperature should not exceed 67°C

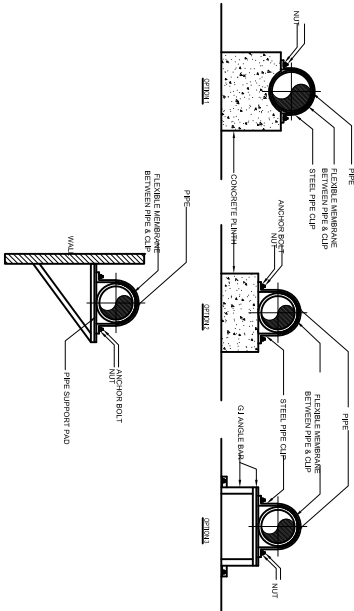
1. This is tender drawing and should not be taken as a working drawing.
2. For other notes, refer to the specifications.

1100

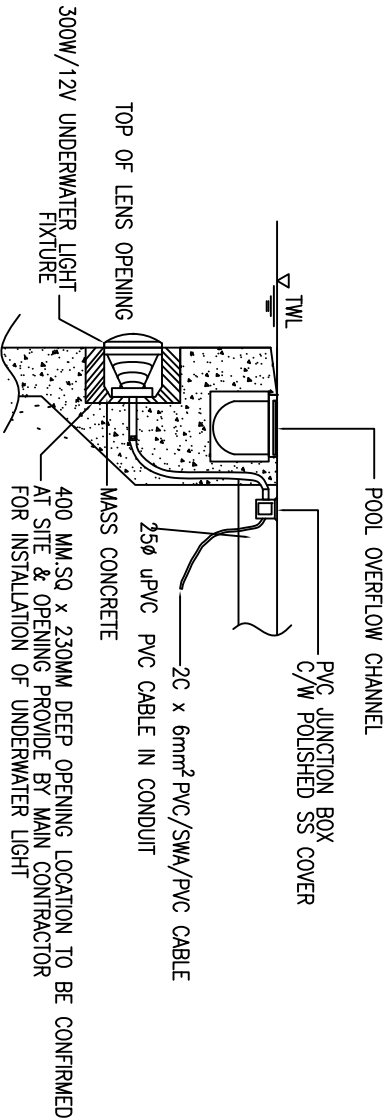


LIST OF EQUIPMENT			
MARK	QTY	MATERIAL	DESCRIPTION
1	1	FRP	FILTER BODY
2	1	FRP	SUPPORT LEG
3	1	FRP	NECK RING
4	1	GRS	AUTO AIR RELEASE VALVE
5	1	ABS	FW THROAT VALVE

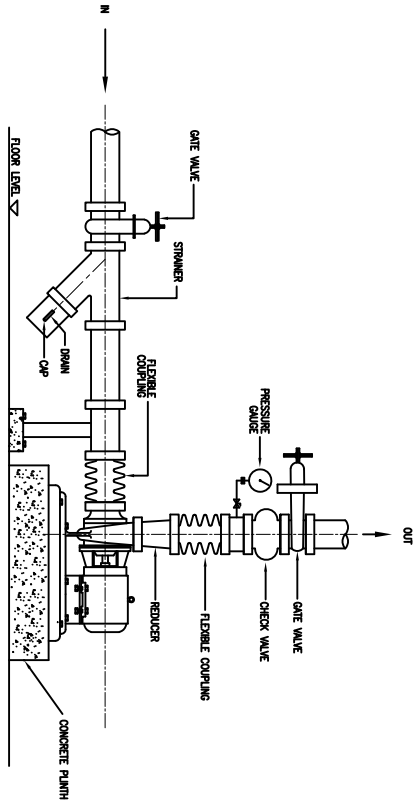
TYPICAL INSTALLATION OF SAND FILTER WITH SIDE MOUNTED MULTI-PORT VALVE



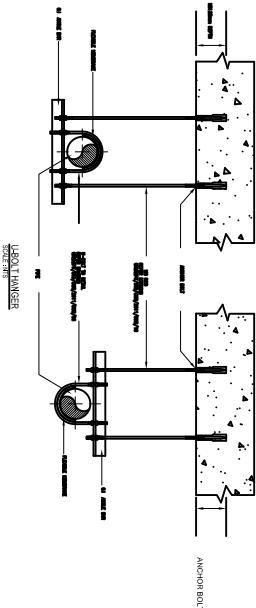
RECOMMENDED INSTALLATION FOR HORIZONTAL PIPE CLIPS SUPPORT



TYPICAL INSTALLATION OF UNDERWATER LIGHT FIXTURE

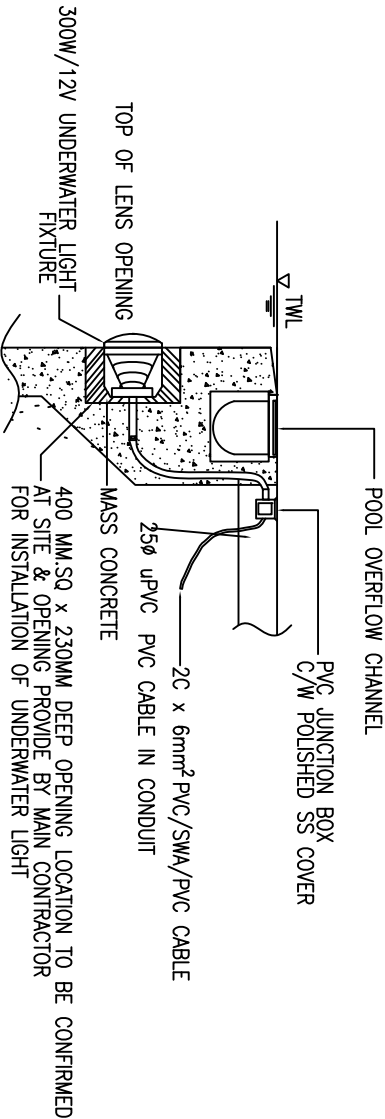


TYPICAL VALVES ARRANGEMENT FOR END SUCTION PUMP

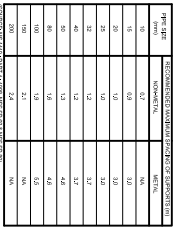


PPH (mm)	RECOMMENDED MAXIMUM SPACING OF SPACERS (mm)	Non-hatched	Hatched
15	50		15
15	62		15
20	62		15
25	62		15
30	62		15
35	62		15
40	62		15
45	62		15
50	62		15
55	62		15
60	62		15
65	62		15
70	62		15
75	62		15
80	62		15
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95	62		15
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110	62		15
115	62		15
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135	62		15
140	62		15
145	62		15
150	62		15
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165	62		15
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175	62		15
180	62		15
185	62		15
190	62		15
195	62		15
200	62		15

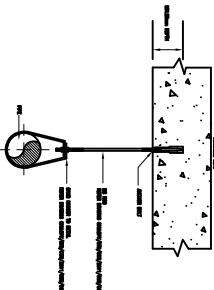
NOTE: Water temperature should not exceed 60°C



TYPICAL INSTALLATION OF UNDERWATER LIGHT FIXTURE



NOTE: Water temperature should not exceed 60°C



Age (years)	Recommended maximum weight (kg)	Maximum weight (kg)	Ratio
10	0.8	1.5	
15	0.7	1.5	
20	0.7	1.5	
25	0.75	1.6	
30	1.0	2.1	
40	1.0	2.4	
50	1.0	2.4	
60	1.0	3.0	
100	1.5	3.7	
150	1.8	4.3	
200	1.9	4.9	

NOTE: Water temperature should not exceed 67°C

 KERAJAAN MALAYSIA	
 JUSA KEPADA BAKYAT	
CAWANGAN KEJURUTERAAN MEKANIKAL IBU PEJABAT JKR MALAYSIA	
DISAHKAN	
PEROGAAN KAJIAN	
PENGARAH BEKALANTUK I. MAAMAT ROHIZAN BIN ABDULLAH PAK. KAK PENG. MUEM. A.C.P.E.	
KEJURUTERAAN MEKANIKAL I. AZIZAH BINTI KASSIM KAN PENG. MUEM.	
KEJURUTERAAN MEKANIKAL K. IZULU BINIDRIS PENG. MUEM.	
PROJEK	
PEMBINAAN KOLAM MENYELAM TEMPUR KEM 21 GKG DI MERSING, JOHOR	
TAJUK	
SISTEM PERALATAN KOLAM PERINCANGAN PEMASANGAN TP/KAL	
ORKEBAEBENTUK MUHAMMAD AFIQ BIN ZAMUDIN	
DILUKIS	SKALA
AFIYI KHAIRULUDIN	N.T.S
TARIKH JANUARI 2020	KOD FAIL KOMPUTER
NO. LUKISAN	REV. NO
MEK/K/SWP/14/2020	