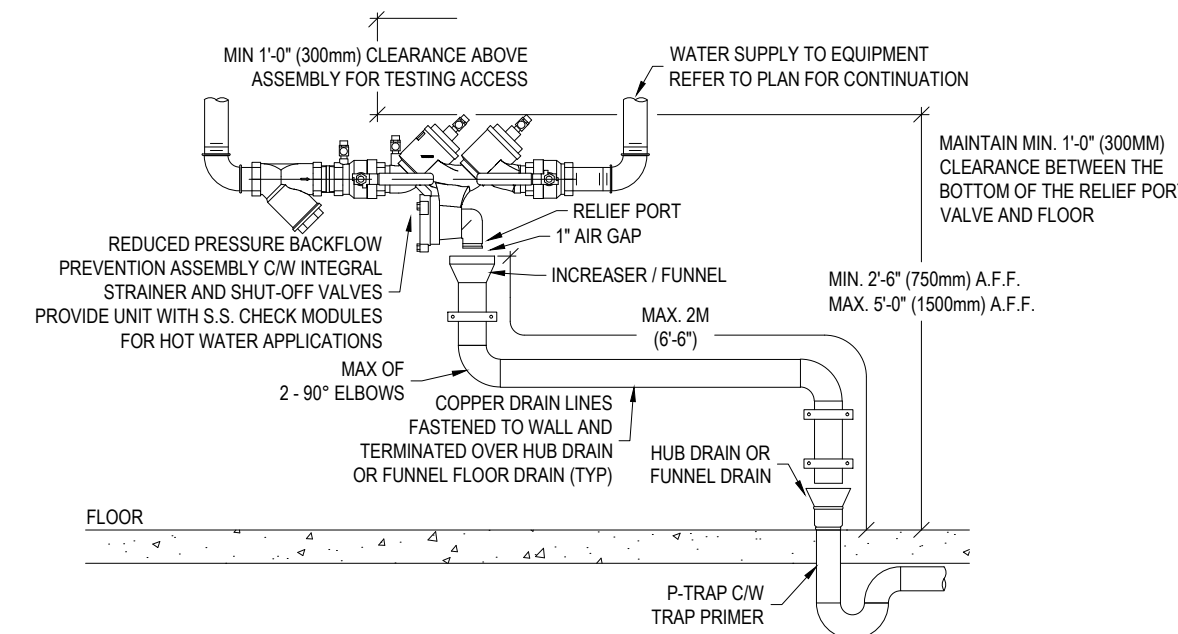


FIRE PROTECTION HYDRAULIC CALCULATION			
1. AVAILABLE PRESSURE AT THE MANFOLD			
FLOW REQUIRED FOR HOSE BIBBS	220	USGPM	
FLOW REQUIRED FOR FIRE PROTECTION (2 HOSE STATIONS)	100	USGPM	
TOTAL REQUIRED FLOW	220	USGPM	
PRESSURE AVAILABLE AT CITY CONNECTION	110	PSI	
CITY CONNECTION ELEVATION (DATUM: FLOAT LEVEL)	15	FT	6.5 PSI
PRESSURE DROP IN PIPE RUN TO MANFOLD FOR 4" HDPE			
PIPE (C FACTOR = 150)	14.58	PSI	
PRESSURE DROP IN THE DOUBLE CHECK VALVE	5	PSI	
PRESSURE AVAILABLE AT THE MANFOLD	96.92	PSI	
MINIMUM RESIDUAL PRESSURE REQUIRED AT THE MOST REMOTE HOSE STATION	65	PSI	
PRESSURE DROP IN THE FIRE WATER LINE DOUBLE CHECK VALVE	5	PSI	
AVAILABLE PRESSURE DROP	26.9	PSI	
2. PIPE SIZING (GALVANIZED SCH40 STAINLESS STEEL C=120)			
SEGMENT	1-2		
PIPE DIAMETER	4	INCH	
ADJUSTED PIPE RUN	135	FT	
FLOW	100	USGPM	
PRESSURE DROP	0.327	PSI	
SEGMENT	2-3		
PIPE DIAMETER	3	INCH	
FLOW	100	USGPM	
ADJUSTED PIPE RUN	330	FT	
PRESSURE DROP	3	PSI	
SEGMENT	3-4		
PIPE DIAMETER	3	INCH	
FLOW	100	USGPM	
ADJUSTED PIPE RUN	100	FT	
PRESSURE DROP	0.91	PSI	
SEGMENT	4-5		
PIPE DIAMETER	3	INCH	
FLOW	100	USGPM	
ADJUSTED PIPE RUN	231	FT	
PRESSURE DROP	14.36	PSI	
SEGMENT	5-6		
PIPE DIAMETER	3	INCH	
FLOW	50	USGPM	
ADJUSTED PIPE RUN	105	FT	
PRESSURE DROP	1.8	PSI	
3. SYSTEM VERIFICATION			
TOTAL PRESSURE DROP	20.4	PSI	
AVAILABLE PRESSURE DROP	26.9	PSI	

LEGEND	
---	EXISTING SANITARY LINE
---	EXISTING COMBINED FIRE & WATER LINE
---	NEW DOMESTIC WATER LINE
---	NEW FIRE PROTECTION LINE
---	DOUBLE HOSE BIB RISER
▲	FIRE HYDRANT STATION
▬	REDUCED PRESSURE BACK FLOW PREVENTER
▬	ISOLATION + BLOW OUT VALVES
DRAWING LIST	
M-100	SITE PLAN
M-200	EXISTING PLUMBING AND FIRE PROTECTION LAYOUT
M-300	PLUMBING AND FIRE PROTECTION LAYOUT



SITE PLAN 1
SCALE: 1/8" = 1'-0" M-100



REDUCED PRESSURE DEVICE SIZE	FLOOR DRAIN GRATE OPENING AND OUTLET	DRAIN LINE SIZE HUB DRAIN C/W 24" INLET STANDPIPE & FUNNEL	OPEN PIPE TO OUTSIDE C/W 24" OF VERTICAL DROP AT DEVICE PRIOR TO 90° CHANGE OF DIRECTION
1/2"	2"	1 1/2"	2"
3/4"	3"	2"	2"
1"	3"	2"	2"
1 1/2"	4"	3"	3"
1 3/4"	6"	3"	3"
2"	6"	3"	3"
2 1/2"	6"	4"	4"
3"	6"	4"	4"
4"	8"	6"	4"
6"	8"	6"	4"

- NOTES:
1. THE INSTALLATION FOR ALL THE TESTABLE CROSS CONNECTION DEVICES TO CONFORM WITH THE CAN/CSA-B64 10 01 STANDARD.
 2. ALL THE PIPING ON THE DISCHARGE SIDE OF A TESTABLE CROSS CONNECTION CONTROL DEVICE TO BE LABELED TO CAN/CSA-B64 3-92 STANDARD FOR IDENTIFICATION OF PIPING SYSTEMS.
 3. ALL THE TESTABLE CROSS CONNECTION CONTROL DEVICES REQUIRE THE PERMANENT LAMACOID IDENTIFICATION TAGS (IE: RPBA-PREMISE ISOLATION, DCVA-LAWN IRRIGATION, ETC).
 4. THE INSTALLATION OF AN INLINE STRAINER SHALL BE REQUIRED WHERE WATER CONTAINS FOREIGN MATERIAL THAT COULD LODGE ON OR ERODE SEATING SURFACES.
 5. PROVIDE C.P. ESCUTCHEONS WHERE PIPING ENTERS/ EXITS WALL (TYP).

REDUCED PRESSURE BACKFLOW ASSEMBLY 2
SCALE: NOT TO SCALE M-100

<p>1 MAR 09, 2018 ISSUED FOR REVIEW</p> <p>No. DATE DESCRIPTION</p> <p>DESTROY ALL PRINTS DATED PREVIOUS TO FINAL DATE ABOVE.</p> <p>REVISIONS</p> <p>THIS DRAWING SHALL ONLY BE USED WHEN SIGNED FOR THE PURPOSE SPECIFIED BELOW.</p> <p>THE SPECIFICATIONS ARE TO BE CONSIDERED AS AN INTEGRAL PART OF THESE DRAWINGS AND NEITHER THE DRAWINGS NOR THE SPECIFICATIONS SHALL BE USED ALONE. REFER TO ARCHITECTURAL, CIVIL AND STRUCTURAL DRAWINGS FOR DIMENSIONS. DO NOT SCALE. THIS DOCUMENT IS PROVIDED FOR THE SOLE USE OF OUR CLIENT UNDER THE CONDITIONS AND TERMS OF OUR AGREEMENT. PUBLICATION, REPRODUCTION, OR TRANSLATION IN WHOLE OR IN PART, OF THIS DOCUMENT WITHOUT THE PRIOR WRITTEN PERMISSION OF TAG ENGINEERING INC. IS STRICTLY PROHIBITED.</p> <p>THESE DRAWINGS ARE THE PROPERTY OF THE ENGINEER AND MUST BE RETURNED AT COMPLETION OF WORK OR UPON REQUEST.</p>		
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<p>21 Mar, 2018</p>		
<p>PROJECT</p> <p>ROYAL VANCOUVER YACHT CLUB</p>		
<p>950 STANLEY PARK DRIVE VANCOUVER, BC</p>		
<p>TITLE</p> <p>SITE PLAN AND LEGEND</p>		
DRAWN	CHECKED	PROJECT No.
MLC	SS	13225
SCALE	DRAWING No.	
AS NOTED		M-100
DATE		
21 Mar, 2018		

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LEGEND	
---	COMBINED DOMESTIC WATER AND FIRE WATER LINE
---	SANITARY LINE
●	DOUBLE HOSE BIBB RISER
▲	FIRE HYDRANT STATION
⊠	REDUCED PRESSURE BACKFLOW PREVENTER

EXISTING WATER SUPPLY AND FIRE PROTECTION PLAN 1
SCALE: 1/48" = 1'-0" (M-700)

No.	DATE	DESCRIPTION
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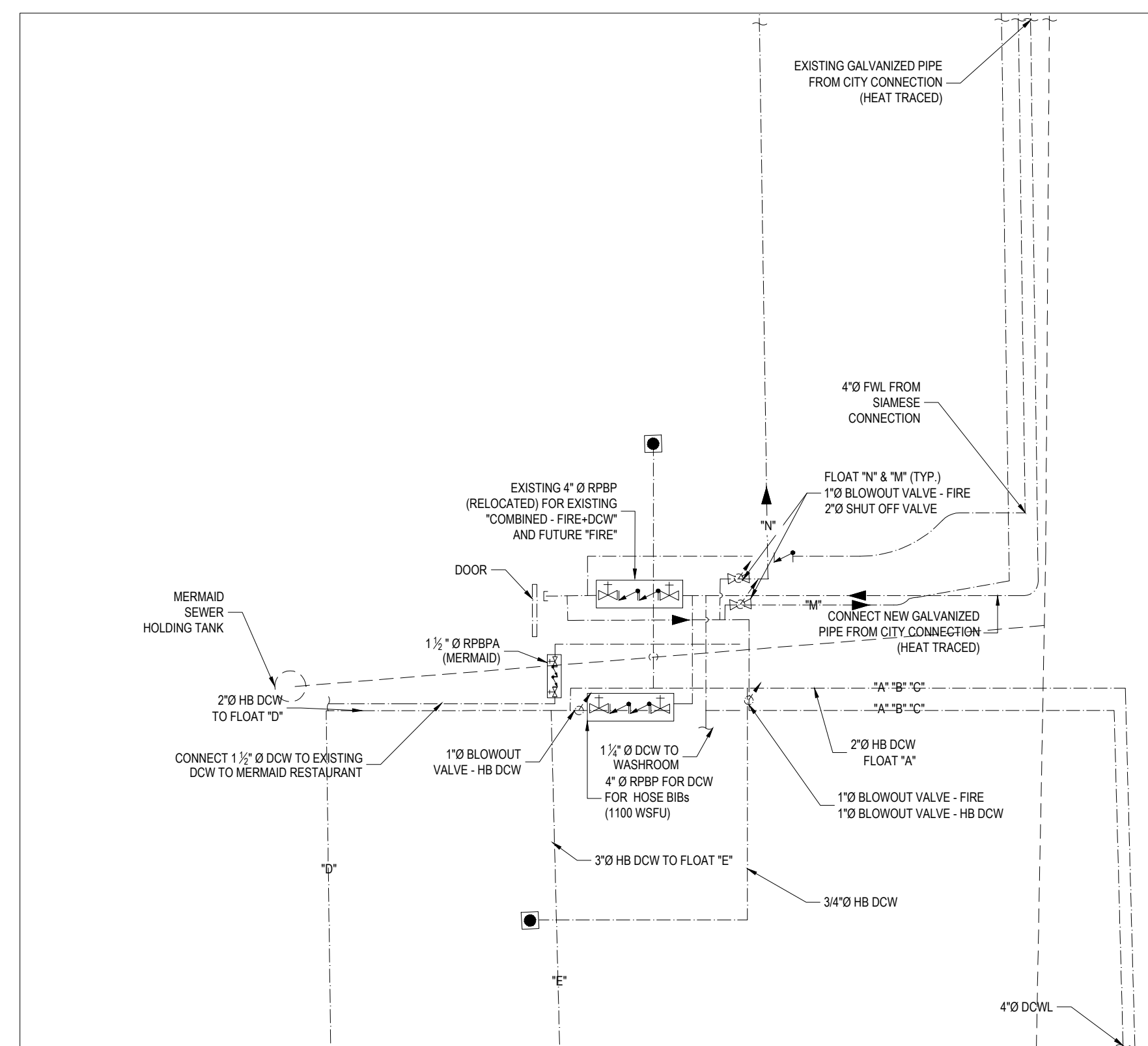
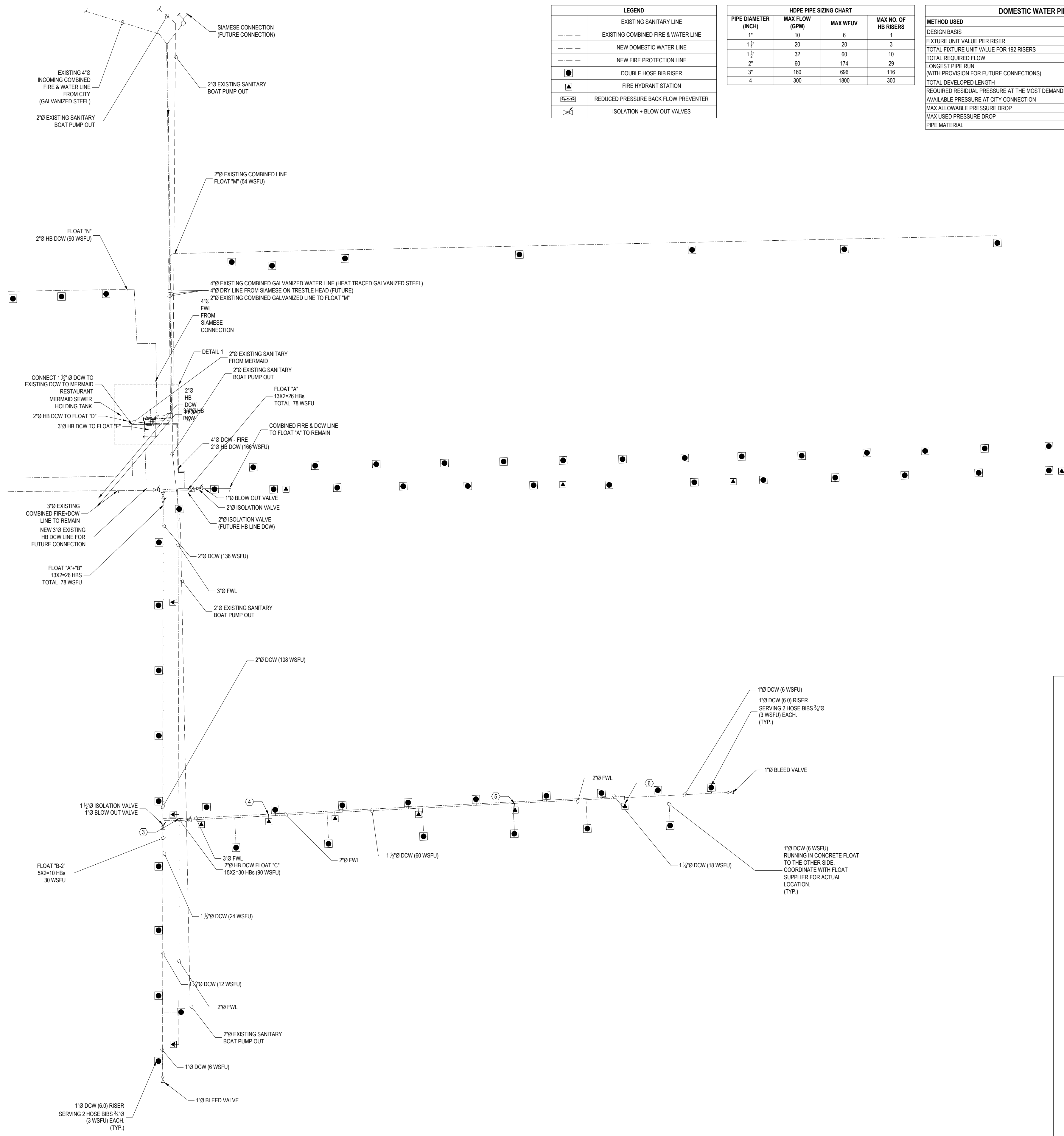
21 Mar, 2018

PROJECT
ROYAL VANCOUVER YACHT CLUB
 950 STANLEY PARK DRIVE
 VANCOUVER, BC

TITLE
EXISTING WATER SUPPLY AND FIRE PROTECTION PLAN

DRAWN MLC	CHECKED SS	PROJECT No. 13225
SCALE 1/48" = 1'-0"	DRAWING No. M-200	
DATE 21 Mar, 2018		

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21 Mar, 2018		
PROJECT		
ROYAL VANCOUVER YACHT CLUB		
950 STANLEY PARK DRIVE VANCOUVER, BC		
TITLE		
PLUMBING AND FIRE PROTECTION LAYOUT		
DRAWN	CHECKED	PROJECT No.
MLC	SS	13225
SCALE	DRAWING No.	
AS NOTED		
DATE		
21 Mar, 2018		

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DOMESTIC WATER - FIXTURE COUNT TABLE

$\frac{3}{4}$ " HOSE BIBB FIXTURE UNIT VALUE = 3 FU








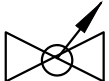
NO. OF HB PER RISER = 2

WSFU PER RISER = 3 FU

FLOAT	NO. OF RISERS	WSFU
FLOAT "A"	27	162
FLOAT "B"	10	60
FLOAT "C"	15	90
FLOAT "D"	8	48
FLOAT "E"	22	132
FLOAT "F"	6	36
FLOAT "G" - NORTH	4	24
FLOAT "G" - SOUTH	19	114
FLOAT "H"	13	78
FLOAT "I"	5	30
FLOAT "K"	26	156
FLOAT "M"	20	120
FLOAT "N"	15	90
MAIN FLOAT	2	12
TOTAL	192	1152

HDPE PIPE SIZING CHART

PIPE DIAMETER (INCH)	MAX FLOW (GPM)	MAX WFUV	MAX NO. OF HB RISERS
1"	10	6	1
1 $\frac{1}{4}$ "	20	20	3
1 $\frac{1}{2}$ "	32	60	10
2"	60	174	29
3"	160	696	116
4	300	1800	300

LEGEND	
	EXISTING SANITARY LINE
	EXISTING COMBINED FIRE & WATER LINE
	NEW DOMESTIC WATER LINE
	NEW FIRE PROTECTION LINE
	DOUBLE HOSE BIB RISER
	FIRE HYDRANT STATION
	REDUCED PRESSURE BACK FLOW PREVENTER
	ISOLATION + BLOW OUT VALVES

GENERAL NOTES

1. ALL PIPING MATERIALS SHALL CONFORM TO THE B.C.B.C. 2012 EDITION.
2. ALL SANITARY AND DOMESTIC WATER SHOWN AGAINST EXTERIOR AND DEMISING WALLS SHALL BE FURRED IN AND INSTALLED ON WARM SIDE OF INSULATION AND VAPOR BARRIER. WHERE FURRING IS NOT PRESENT, PROVIDE CAVITY WITHIN BATT-INSULATED WALL FORMED FROM RIGID FOAM INSULATION AND SEAL AIRTIGHT AROUND INSULATED PIPE.
3. PRIOR TO COMMENCING ANY PIPING INSTALLATION WITHIN THE BUILDING, THE MECHANICAL CONTRACTOR MUST CHECK THE SIZES, LOCATION, AND INVERT ELEVATIONS OF ALL CAPPED SERVICES, INCLUDING SANITARY SEWER, STORM SEWER, WATER MAINS, AND GAS MAINS WITH THE CIVIL RECORD DRAWINGS TO ENSURE THAT THESE BUILDING SERVICES CAN BE INSTALLED AS SHOWN.
4. COORDINATE ALL PIPE SLEEVE PLACEMENT WITH GENERAL CONTRACTOR.
5. FIRE STOP ANY PIPES THAT PENETRATE FIRE SEPARATIONS AND SLAB. FIRESTOPPING SHALL COMPLY WITH CAN4-S115-M85 STANDARD.
6. ALL DHW AND DCW FIXTURES AND BRANCH LINES TO BE COMPLETE WITH ISOLATION VALVES.

SEISMIC NOTES

1. MECHANICAL CONTRACTOR TO PROVIDE STRUCTURAL SEISMIC RESTRAINTS FOR ALL MECHANICAL AND PLUMBING EQUIPMENT TO THE SATISFACTION OF THE SEISMIC ENGINEER. COORDINATE MOUNTING TO BUILDING STRUCTURE WITH THE BUILDING STRUCTURAL ENGINEER.
2. ENGAGE THE SERVICES OF A SEISMIC RESTRAINT ENGINEER TO PROVIDE DETAILS, FIELD REVIEWS AND LETTER OF ASSURANCE AND COMPLIANCE FOR MECHANICAL RELATED EQUIPMENT AND CONNECTED SERVICES. LETTER OF ASSURANCE AND COMPLIANCE TO BE PROVIDED PRIOR TO OCCUPANCY AND SUBSTANTIAL COMPLETION. ALSO, REFER TO SPECIFICATIONS.

DOMESTIC WATER PIPE SIZING

METHOD USED	DETAILED ENGINEERING	
DESIGN BASIS		
FIXTURE UNIT VALUE PER RISER	6	FU
TOTAL FIXTURE UNIT VALUE FOR 192 RISERS	1152	WFUV
TOTAL REQUIRED FLOW	227	GPM
LONGEST PIPE RUN (WITH PROVISION FOR FUTURE CONNECTIONS)	2000	FT
TOTAL DEVELOPED LENGTH	3000	FT
REQUIRED RESIDUAL PRESSURE AT THE MOST DEMANDING HB	15	PSI
AVAILABLE PRESSURE AT CITY CONNECTION	110	PSI
MAX ALLOWABLE PRESSURE DROP	3.17	PSI/100 FT
MAX USED PRESSURE DROP	3	PSI/100 FT
PIPE MATERIAL	HDPE	