Appendix D: Lift Station Evaluation sheets

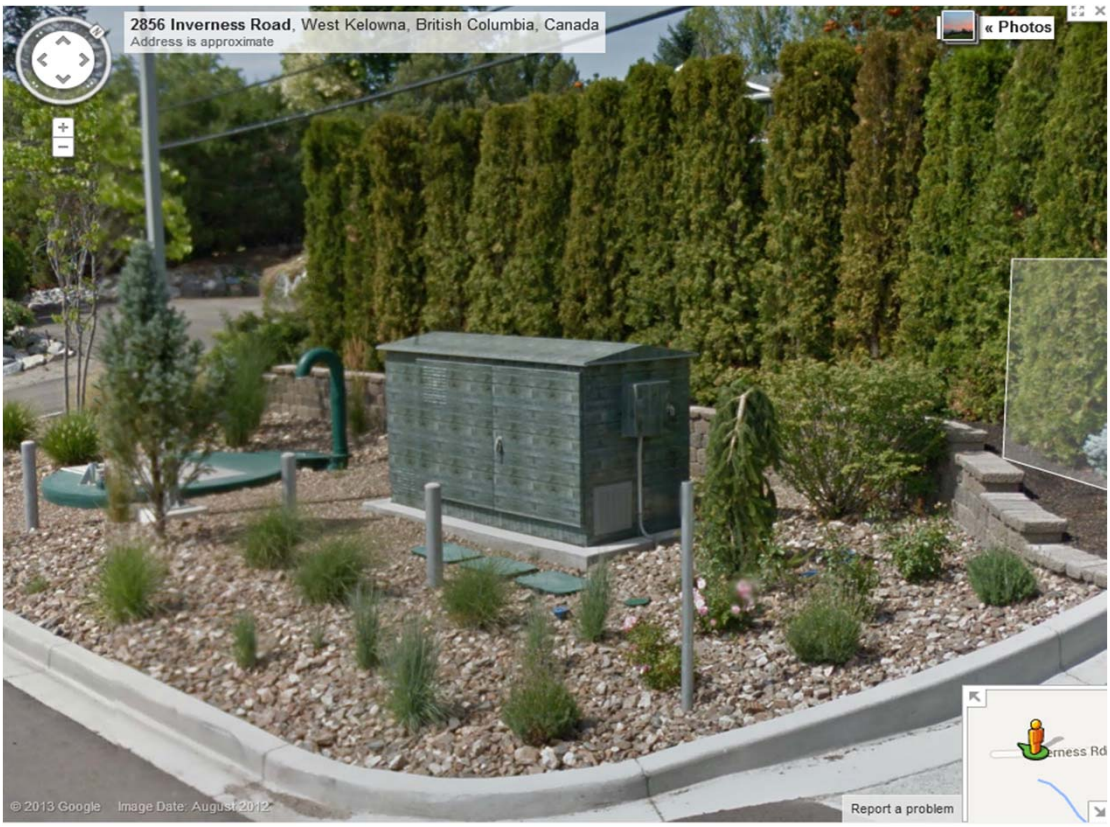
District of West Kelowna

Sanitary Lift Station Evaluation

Station: Inverness LS 1
Reviewed By: Jim Kentel

Year Constructed: 8/1/2011
Year Upgraded:

Matrix Rating			
(10 - highest rating)	Civil	35	
(1 - lowest rating)	Process Mechanical	152	
	Electrical Instrumentation	142	
	Total Station Rating	329	(max. rating 370 points)



Civil:

		Matrix Rating
Parking Area:	Yes	n/a
Drainage:	Good	10
Influent sewer:	Good 200mm Gravity PVC	10
Site access:	Good	10
Water service:	Irrigation service only	5
		35

Process Mechanical:

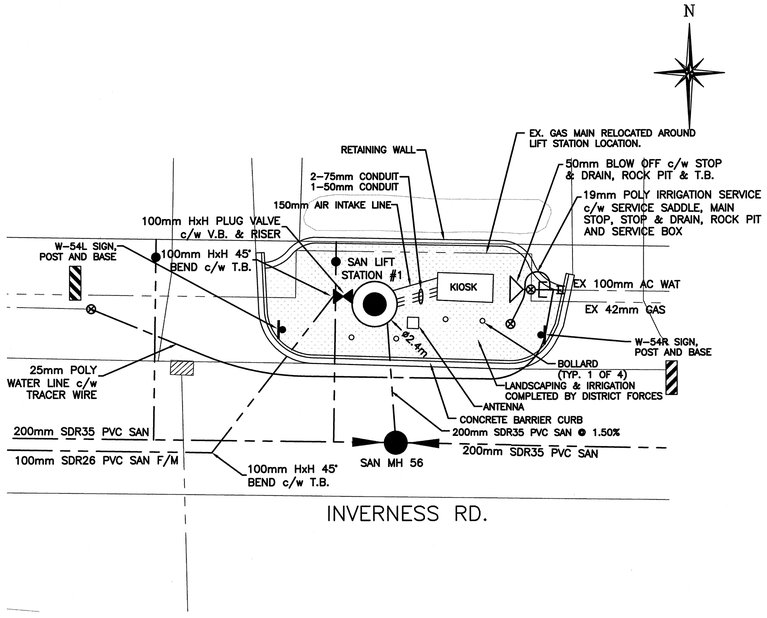
Station type:	FRP 2.44m diameter	n/a
Number of pumps:	2	n/a
Pump Redundancy:	Yes	n/a
Pump Manufacturer / Type:	FLYGT	10
Pump Model:	NP 3085MT	n/a
Rated Capacity:	10.2L/S @ 5.9m TDH	n/a
Capacity Confirmation:		n/a
Forcemain pipe type / diameter:	PVC/100mm	10
Header pipe type / diameter:	FRP/100	10
Check valve type / diameter:	Sinking Ball HOL5087/100	10
Isolation valve type / diameter:	Valmatic Camcentric 5804N	10
Piping Condition:	NEW	10
Emergency pumpout connection:	Yes	10
Pressure gauges:	Yes	10
Inlet bar screen:	No	1
Wetwell condition:	Good	10
Access Hatches:	MSU	10
Ladder / Platform:	Alum/FRP	10
Wetwell benching:	Top base	10
Odour Control:	Carbon	10
Ventilation:	Yes	10
Water washdown:	No	1
Confined Space Entry Requirements	Yes Davit	10
		152

Electrical / Instrumentation:

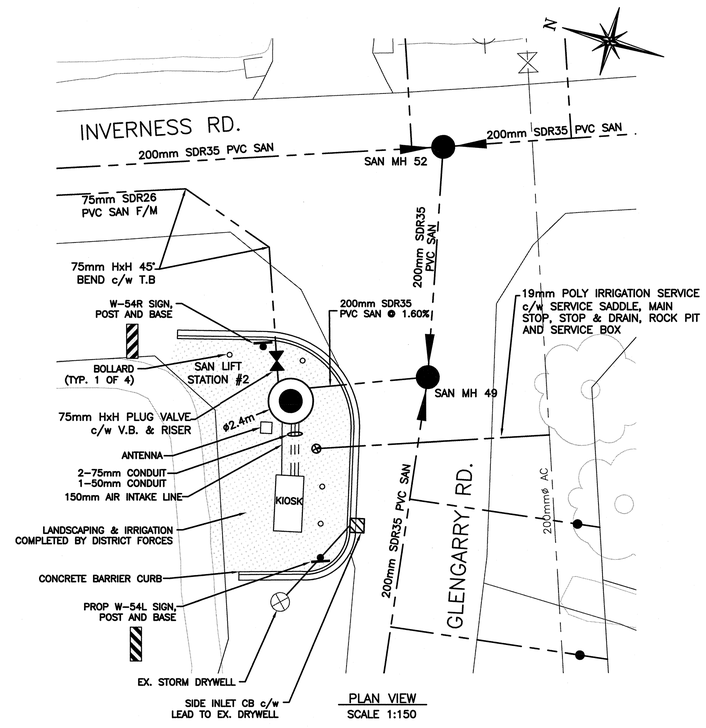
			Matrix Rating
Service Type	V / A / Phase / Wire		n/a
Pump 1 :	HP 3.0		n/a
	Volts/600	Rpm/1695	n/a
	FLA 3.3A		n/a
Starting Current	17A		n/a
Pump 2 :	HP 3.0		n/a
	Volts/600	Rpm/1695	n/a
	FLA 3.3		n/a
Starting Current	17A		n/a
Control System:	Yes		10
Alarm Functions:	Yes		10
			n/a
			n/a
			n/a
Receptacles:	Yes		10
Interior Lighting:	Yes		10
Exterior Lighting:	No		1
SCADA / Telemetry:	Yes		10
Main Breaker:	100A		10
Control Panel:	Yes		10
Lighting Panel:	Yes		10
Flowmeter:	Siemons FM 5100W		10
Grounding:	Yes		10
Surge Protection:	Yes		10
UPS:	Yes		10
PLC:	Yes		10
Level Control:	Milltronics/Bulbs		10
Standby Generator:	No		1
			142

Comments: New Station

"Please note that it is the user's responsibility to confirm the accuracy of the as-constructed information shown on this drawing before proceeding with any work (i.e. design or construction) that is based on that information."



PLAN VIEW
SCALE 1:150



PLAN VIEW
SCALE 1:150

LEGEND

CABLE TV	CAP	SAN #	SANITARY MH (EXISTING OR FUTURE)
GAS	CATCH BASIN	SAN #	SANITARY MH
SAN. SEWER	ELECTRICAL BOX	STM #	STORM MH (EXISTING OR FUTURE)
STORM SEWER	HYDRANT	STM #	STORM MH
U.G. ELECTRICAL	VALVE		TRANSFORMER
U.G. TELEPHONE	LAMP STANDARD		UTILITY JUNCTION BOX
WATER			

No.	DATE	BY	REVISION	Chk'd
5				
4	04.03.2012	CLS	PLAN OF RECORD	SPB
3	05.31.2011	CLS	ISSUED FOR CONSTRUCTION	SPB
2	05.02.2011	CLS	ISSUED FOR TENDER	SPB
1	03.11.2011	CLS	ISSUED FOR TENDER REVIEW	SPB

No.	DATE	BY	STATUS	Chk'd
5			PLAN OF RECORD	
4			APPROVAL FOR CONSTRUCTION	
3			FOR TENDER	
2			FOR APPROVAL	
1			PRELIMINARY	

DISTRICT OF WEST KELOWNA

P.ENG. PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA S. P. BURNS # 34778 ENGINEER

DRAWN	CLS
DESIGN	SPB
APPROVED	SPB
DATE	JANUARY 2011
SCALE	AS NOTED

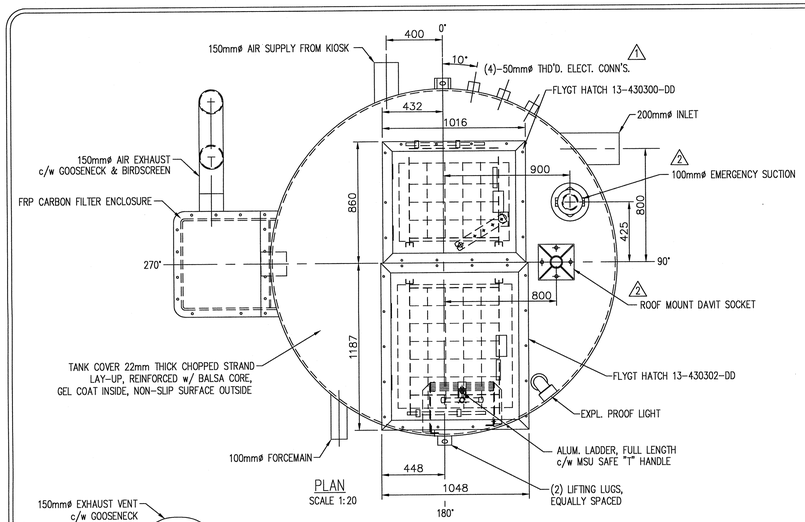
Stantec Consulting Ltd.
400-1620 Dickson Avenue,
Kelowna, B.C. V1Y 9Y2
Tel. (250) 860-3225
Fax. (250) 860-3367

GLENROSA SEWER - PHASE 3
INVERNESS RD. & GLENGARRY RD.
SANITARY LIFT STATION DETAILS

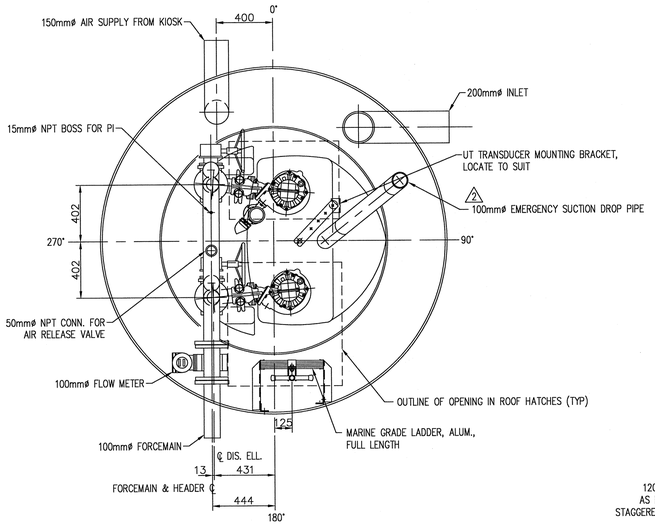
DRAWING NO. S01

REV. NO. 4

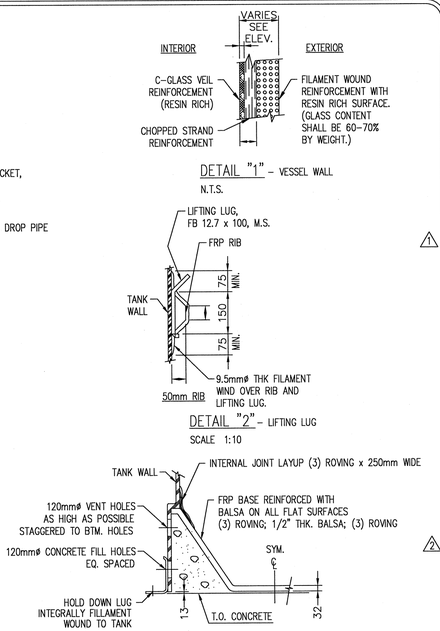
112720220

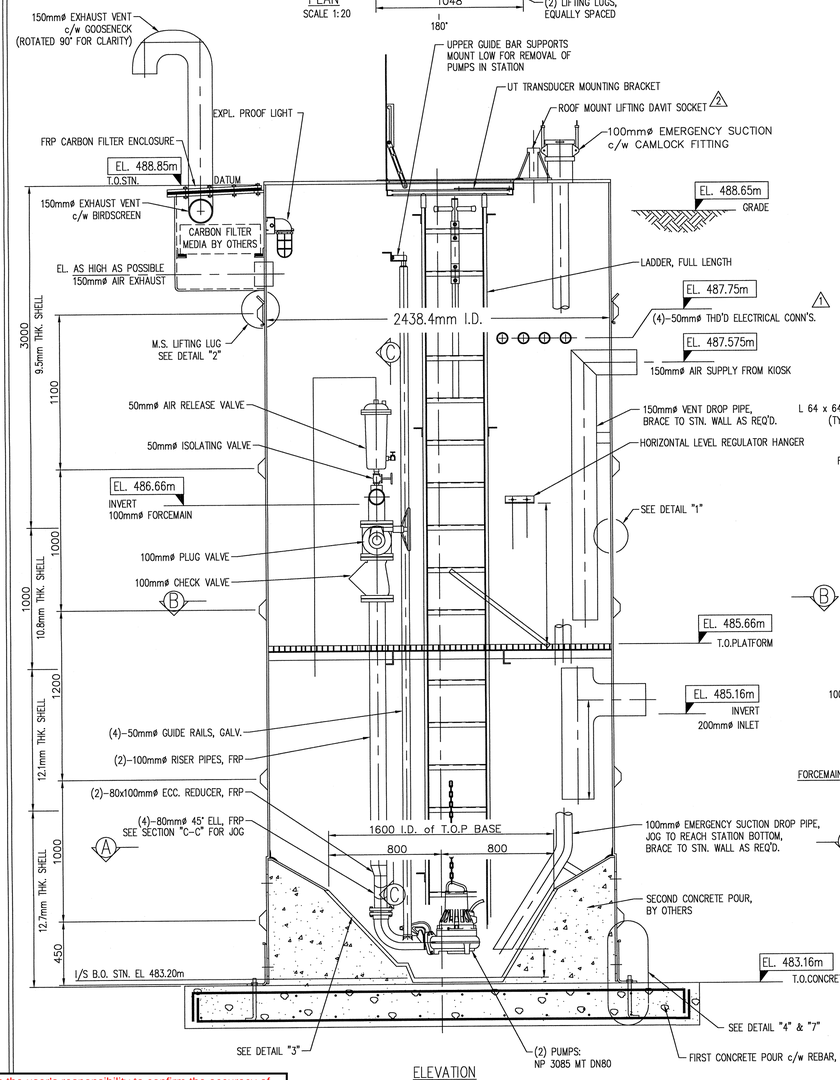


PLAN
SCALE 1:20



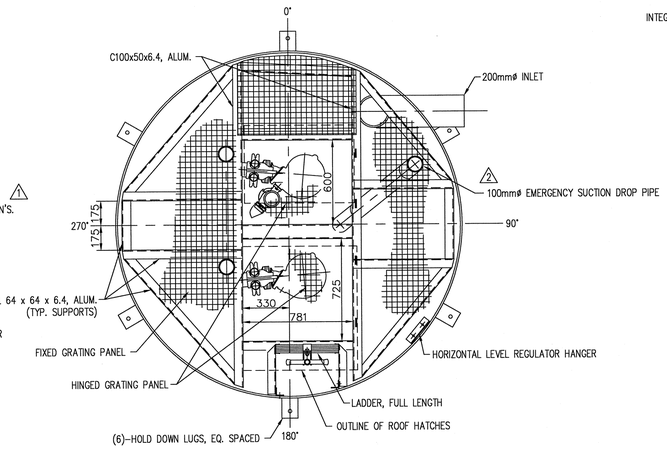
SECTION "A–A" – PUMPS LAYOUT
SCALE 1:20





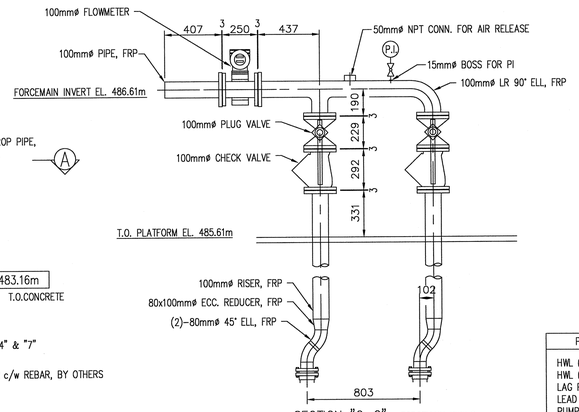
ELEVATION
SCALE 1:20

NOTE: SEE PLAN VIEW FOR TRUE ORIENTATION



NOTES:
1. ALL GRATING PANELS TO BE 38 x 38 x 38 HIGH FRP
2. ALL SUPPORTS TO BE ALUMINUM

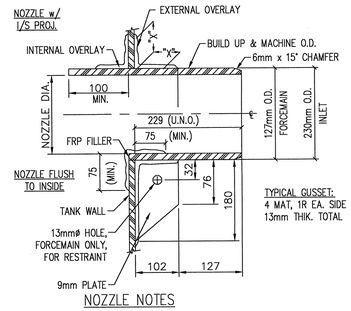
SECTION "B–B" – PLATFORM LAYOUT
SCALE 1:20



SECTION "C–C" – FORCEMAIN PIPING
SCALE 1:20

PROPOSED OPERATING LEVELS	
HWL (MILLTRONICS)	485.16m
HWL (FLOAT)	485.06m
LAG PUMP START	484.96m
LEAD PUMP START	484.76m
PUMP STOP	484.00m
LWL (FLOAT)	483.70m

NOTE:
CONCRETE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. FOUNDATION TO BE DESIGNED & SUPPLIED BY OTHERS.



NOZZLE NOTES

A MINIMUM OF 2 LAYERS OF WOVEN ROVING IS REQUIRED FOR NOZZLE PORTION OF OVERLAY. TANK PORTION OF OVERLAY SHALL BE SAME THICKNESS AS TANK WALL. DIMENSION "X" SHALL BE GREATER THAN ONE HALF THE NOZZLE DIAMETER. INTERNAL OVERLAY TO HAVE A MINIMUM OF 2 LAYERS MATT. FRP REINFORCING MATERIAL TO BE CUT TO A SHAPE TO ENSURE A SMOOTH LAMINATE.

O.D.'s REPRESENT THICKNESSES REQUIRED FOR ADEQUATE NOZZLE STRENGTH.
TO BE CONNECTED TO EXTERIOR PIPING WITH A ROBAR TRANSITION COUPLER OR EQUAL.

DETAIL "5" – TYPICAL NOZZLE, MACHINED
N.T.S.

BILL OF MATERIALS

QTY	DESCRIPTION	
6	HOLD DOWN LUGS, EPOXY COATED MS	
2	LIFTING LUGS, EPOXY COATED MS.	
1	MARINE GRADE SAFETY LADDER, ALUMINUM, FULL LENGTH c/w MSU SAFE "T" HANDLE	
1	200mmø INLET, FRP, MACHINED c/w INTERNAL TEE & DROP PIPE	
1	100mmø FORCEMAIN, FRP, MACHINED c/w (2)–100mmø RISERS, FRP x FL; (4)–80mmø 45°	
	ELL, FRP; (2)–80x100mmø ECC. REDUCER, FRP; (1)–100mmø LR 90° ELL, FLxFRP;	
	(1)–100mmø STR. TEE, FRPxFRPxFL; (2)–100mm–150# FF FLANGE, FRP;	
	(1)–15mmø NPT BOSS FOR P.I.; (1)–50mmø NPT CONN. FOR AIR RELEASE	
1	100mmø EMERGENCY SUCTION , FRP, c/w DROP PIPE & 100mmø CAMLOCK FITTING	
1	150mmø AIR SUPPLY, FRP, c/w DROP PIPE	
1	150mmø AIR EXHAUST, FRP c/w CARBON FILTER ENCLOSURE (FILTER MEDIA BY OTHERS)	
4	50mmø THD'D. ELECTRICAL CONNECTION	
8	20mmø PUMP BASE BOLTS, 304 SS	
4	20mmø GUIDE BARS, GALV.	
1	INTERMEDIATE PLATFORM, c/w ALUMINUM SUPPORT MEMBERS & FRP GRATING PANELS	
1	UT TRANSDUCER MOUNTING BRACKET, ALUM.	
1	EXPLOSION PROOF LIGHT, COOPER CROUSE–HINDS HAZGUARD EXACTA MODEL IPEH, WALL	
	MOUNT, 150W, 120V/60Hz, CLEAR GLASS GLOBE, SS GUARD	
1	FLYGT ALUMINUM ACCESS HATCH, 13–430302–DD, GAS ASSIST	(BY FLYGT)
1	FLYGT ALUMINUM ACCESS HATCH, 13–430300–DD, GAS ASSIST	(BY FLYGT)
2	UPPER GUIDE BAR SUPPORTS	(BY FLYGT)
2	PUMP NP 3085 MT DN80 c/w DISCHARGE ELBOW FOR T.O.P. BASE	(BY FLYGT)
2	100mmø FLG'D. SINKING BALL CHECK VALVE, HDL 5087	(BY FLYGT)
2	100mmø FLG'D PLUG VALVE, VALMATIC CAMCENTRIC, 5808N	(BY FLYGT)
1	HORIZONTAL LEVEL REGULATOR HANGER & (2) ENM BULBS	(BY FLYGT)
1	AIR RELEASE VALVE c/w ISO VALVE	(BY FLYGT)
1	100mmø FLG'D MAGFLOW METER, SIEMENS SITRANS FM3 5100W OR EQUAL	(BY FLYGT)
1	PRESSURE GAUGE & STOP COCK	(BY FLYGT)
1	ROOF MOUNT LIFTING DAVIT SOCKET (810mm REACH)	(BY FLYGT)
6	22mmø ANCHOR BOLTS, MS	(BY OTHERS)

FABRICATION DESIGN STANDARDS

1. FLYGT SPECIFICATION GE–1008–04, REVISION MAY 2002
2. AMEC 4S–10.01 MANUFACTURE AND INSTALLATION FOR FRP STRUCTURES
3. AMEC 4S–10.02 FRP PRESSURE PIPE, FITTINGS AND FLANGES

GENERAL NOTES

1. WINDING ANGLE – 75°
2. TANK WALL – VARIES, SEE ELEVATION VIEW
3. LINER – C–GLASS VEIL AND (2)–1 1/2 oz. MATT
4. RESIN – ISOPHTHALIC
5. EXTERIOR (ABOVE GRADE) TO HAVE DARK GREEN GELCOAT
6. INTERIOR FINISH: WHITE ISOPHTHALIC NPG GELCOAT
7. DIMENSIONS ARE IN MILLIMETERS U.N.O.
8. SHIPPING WEIGHT: 2910 kg (6400 LBS)

INSTALLATION PROCEDURES

THE FOLLOWING RECOMMENDATIONS ARE BASED ON FLYGT EXPERIENCE AND ARE IN NO WAY MEANT TO REPLACE THE ENGINEERS INSTRUCTIONS OR SPECIFICATIONS AND MUST BE USED IN CONJUNCTION WITH THE EXISTING AND ANTICIPATED CONDITIONS AT THE JOBSITE.

1. USE THE LIFTING LUGS PROVIDED FOR VERTICAL HANDLING.
2. USE SLINGS AROUND THE MAIN TANK FOR HORIZONTAL HANDLING.
3. ENSURE UNIT IS STANDING VERTICAL ON CONCRETE PAD.
4. BOLT UNIT FIRMLY AND SQUARELY IN PLACE, SHIM WHERE NECESSARY.
5. FILL ANNULUS BETWEEN THE TANK SHELL AND OUTSIDE OF THE "T.O.P." SUMP WITH CONCRETE. AT THE SAME TIME ENCASE LOWER RIB IN CONCRETE TO A MINIMUM HEIGHT OF 150mm ABOVE RIB TO PROVIDE ANCHORAGE. REBAR TO CONNECT SECOND POUR TO CONCRETE BASE PAD.
6. WHEN EXTERNAL VALVES ARE MOUNTED, SUPPORT PIPING CONNECTIONS DIRECT TO CONCRETE PAD.
7. MAINTAIN A DRY SITE UNTIL BACKFILLING OPERATIONS COMMENCE.
8. USE A GOOD QUALITY SCREENING OR SAND AS BACKFILL MATERIAL TO 90% COMPACTION.
9. PLACE THE BACKFILL IN EQUAL INCREMENTS NOT EXCEEDING 300mm THICK AROUND THE STATION TO PREVENT UNBALANCED LOADS BEING IMPOSED DURING BACKFILLING OPERATIONS. PROGRESSIVELY TAMP BACKFILL AROUND STATION TO FULL HEIGHT TO REDUCE SETTLEMENT TO AN ABSOLUTE MINIMUM.

REV	DATE	DESCRIPTION	BY
3	2012/04/03	PLAN OF RECORD	
2	2011/07/29	CHANGED DAVIT SOCKET; MOVED EMERGENCY SUCTION ON ROOF	LMc
1	2011/07/15	ADDED (1) ELECTRICAL CONNECTION	LMc
0	2011/06/21	ISSUED FOR APPROVAL	LMc

TOLERANCES (U.N.O.)

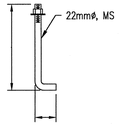
LINEAR	ANGULAR
X ± 1.5	X.X ± 1/2°

BARSKI INDUSTRIES (1985) LTD.
2378 WESTLAKE RD.
KELOWNA, B.C.
V1Z 2V2

CLIENT	ITT W&WW COQUITLAM, B.C.
ENGINEER	STANTEC CONSULTING LTD.
PROJECT	GLENROSA SEWER – PHASE 3 INVERNESS ROAD SANITARY LIFT STATION
TITLE	2438.4mm I.D. INVERNESS ROAD LIFT STATION

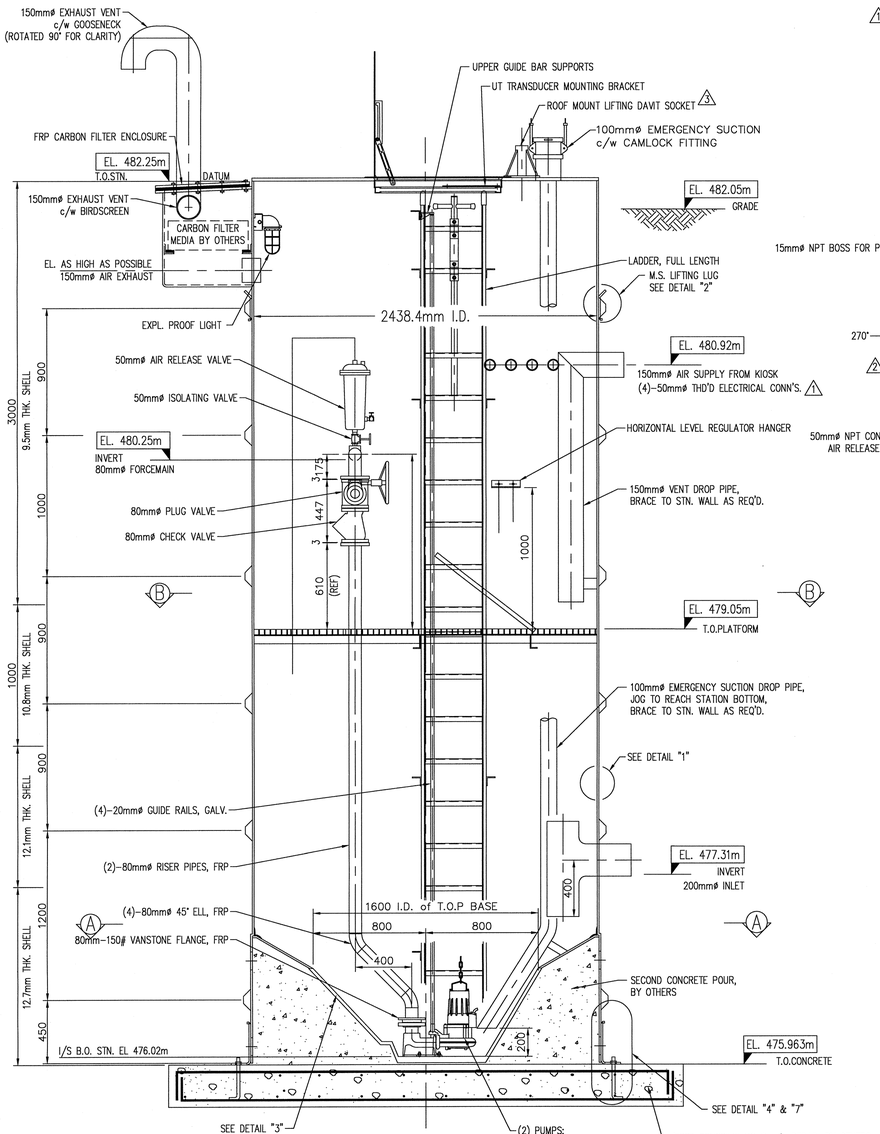
ENG BY:		DATE:	CAD FILE: Inverness
CAD BY:	LMc	DATE: 2011/06/20	SCALE: AS SHOWN
APP BY:		DATE:	DRAWING NUMBER 11–122
ISSUED BY:		DATE:	REV 3

PROPOSED OPERATING LEVELS	
HWL (MILLTRONICS)	477.31m
HWL (FLOAT)	477.21m
LAG PUMP START	477.11m
LEAD PUMP START	476.91m
PUMP STOP	476.72m
LWL (FLOAT)	476.42m



DETAIL "7" – ANCHOR BOLT
SCALE 1:10 (BY OTHERS)

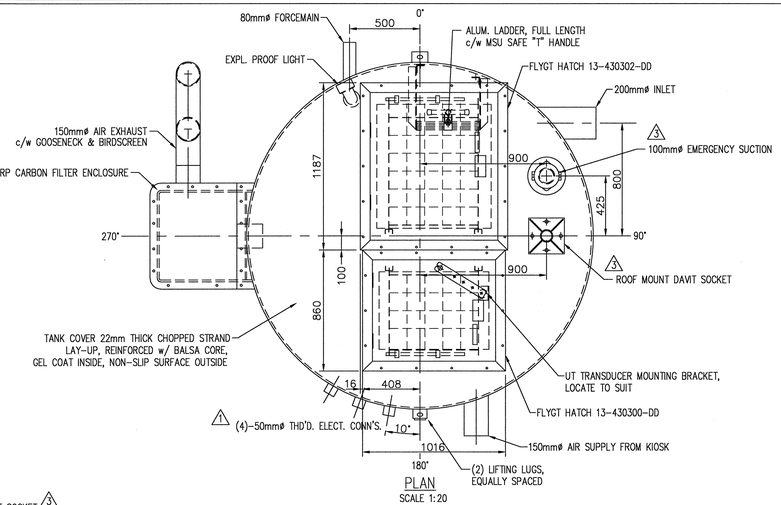
"Please note that it is the user's responsibility to confirm the accuracy of the as-constructed information shown on this drawing before proceeding with any work (i.e. design or construction) that is based on that information."



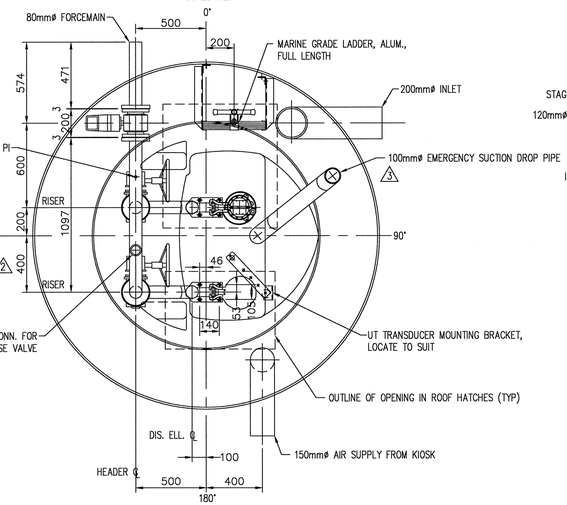
ELEVATION
SCALE 1:20

NOTE: SEE PLAN VIEW FOR TRUE ORIENTATION

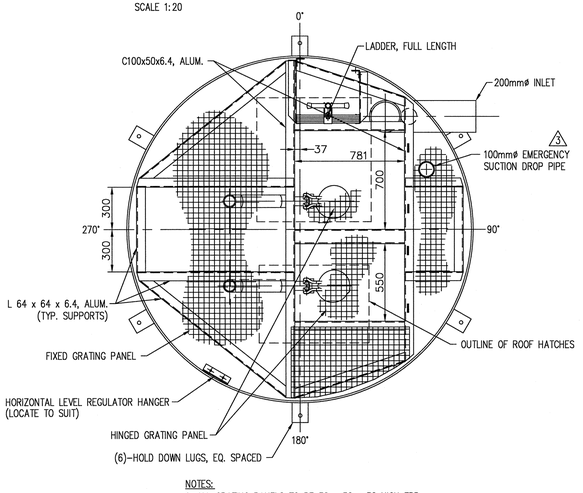
NOTE:
CONCRETE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. FOUNDATION TO BE DESIGNED & SUPPLIED BY OTHERS.



PLAN
SCALE 1:20

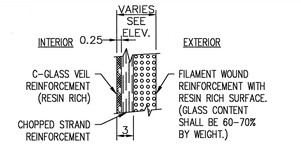


SECTION "A-A" – PUMPS LAYOUT
SCALE 1:20

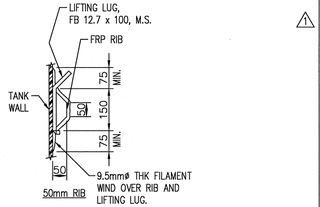


NOTES:
1. ALL GRATING PANELS TO BE 38 x 38 x 38 HIGH FRP
2. ALL SUPPORTS TO BE ALUMINUM

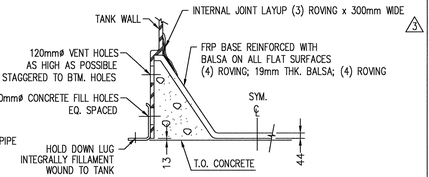
SECTION "B-B" – PLATFORM LAYOUT
SCALE 1:20



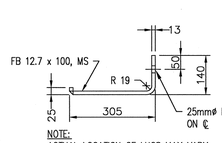
DETAIL "1" – VESSEL WALL
N.T.S.



DETAIL "2" – LIFTING LUG
SCALE 1:10

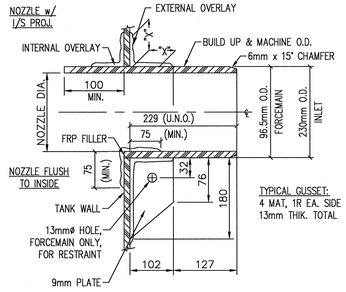


DETAIL "3" – BOTTOM BASE
N.T.S.



NOTE:
ACTUAL LOCATION OF LUGS MAY VARY. DO NOT LOCATE ANCHOR BOLTS UNTIL RECEIPT OF COMPLETED STATION OR TEMPLATE OF HOLD DOWN LUG LOCATIONS.

DETAIL "4" – HOLD DOWN LUG
SCALE 1:10



NOZZLE NOTES

A MINIMUM OF 2 LAYERS OF WOVEN ROVING IS REQUIRED FOR NOZZLE PORTION OF OVERLAY. TANK PORTION OF OVERLAY SHALL BE SAME THICKNESS AS TANK WALL. DIMENSION "X" SHALL BE GREATER THAN ONE HALF THE NOZZLE DIAMETER. INTERNAL OVERLAY TO HAVE A MINIMUM OF 2 LAYERS MATT. FRP REINFORCING MATERIAL TO BE CUT TO A SHAPE TO ENSURE A SMOOTH LAMINATE.

O.D.'s REPRESENT THICKNESSES REQUIRED FOR ADEQUATE NOZZLE STRENGTH. TO BE CONNECTED TO EXTERIOR PIPING WITH A ROBAR TRANSITION COUPLER OR EQUAL.

DETAIL "5" – TYPICAL NOZZLE, MACHINED
N.T.S.

BILL OF MATERIALS

QTY	DESCRIPTION	
6	HOLD DOWN LUGS, EPOXY COATED MS	
2	LIFTING LUGS, EPOXY COATED MS.	
1	MARINE GRADE SAFETY LADDER, ALUMINUM, FULL LENGTH c/w MSU SAFE "T" HANDLE	
1	200mmø INLET, FRP, MACHINED c/w INTERNAL TEE & DROP PIPE	
1	80mmø FORCEMAIN, FRP, MACHINED c/w (2)-80mmø RISERS, VAN x FL; (2)-80mmø THD'D	
	NIPPLE; (2)-80mmø-150# THD'D FLG, CS; (2)-80mmø 45° ELL, FRP; (1)-80mmø LR 90°	
	ELL, FLx FRP; (1)-80mmø STR. TEE, FRP; (4)-80mm-150# FF FLG, FRP;	
	(1)-15mmø NPT BOSS FOR P.I.; (1)-50mmø NPT CONN. FOR AIR RELEASE	
1	100mmø EMERGENCY SUCTION , FRP, c/w DROP PIPE & 100mmø CAMLOCK FITTING	
1	150mmø AIR SUPPLY, FRP, c/w DROP PIPE	
1	150mmø AIR EXHAUST, FRP c/w CARBON FILTER ENCLOSURE (FILTER MEDIA BY OTHERS)	
4	50mmø THD'D. ELECTRICAL CONNECTION	
8	12mmø PUMP BASE BOLTS, 304 SS	
4	20mmø GUIDE BARS, GALV.	
1	INTERMEDIATE PLATFORM, c/w ALUMINUM SUPPORT MEMBERS & FRP GRATING PANELS	
1	UT TRANSDUCER MOUNTING BRACKET, ALUM.	
1	EXPLOSION PROOF LIGHT, COOPER CROUSE-HINDS HAZGUARD EXACTA MODEL IPEH, WALL	
	MOUNT, 150W, 120V/60Hz, CLEAR GLASS GLOBE, SS GUARD	
1	FLYGT ALUMINUM ACCESS HATCH, 13-430302-DD, GAS ASSIST	(BY FLYGT)
1	FLYGT ALUMINUM ACCESS HATCH, 13-430300-DD, GAS ASSIST	(BY FLYGT)
2	UPPER GUIDE BAR SUPPORTS	(BY FLYGT)
2	PUMP CP 3057 HT DN80 c/w DISCHARGE ELBOW FOR T.O.P. BASE	(BY FLYGT)
2	80mmø FLG'D. SINKING BALL CHECK VALVE, HDL 5087	(BY FLYGT)
2	80mmø FLG'D PLUG VALVE, VALMATIC CAMCENTRIC, 5808N	(BY FLYGT)
1	HORIZONTAL LEVEL REGULATOR HANGER & (2) ENM BULBS	(BY FLYGT)
1	AIR RELEASE VALVE c/w ISO VALVE	(BY FLYGT)
1	80mmø FLG'D MAGFLOW METER, SIEMENS SITRANS FM3 5100W OR EQUAL	(BY FLYGT)
1	PRESSURE GAUGE & STOP COCK	(BY FLYGT)
1	ROOF MOUNT LIFTING DAVIT SOCKET (810mm REACH)	(BY FLYGT)
6	22mmø ANCHOR BOLTS, MS	(BY OTHERS)

FABRICATION DESIGN STANDARDS

1. FLYGT SPECIFICATION GE-1008-04, REVISION MAY 2002
2. AMEC 4S-10.01 MANUFACTURE AND INSTALLATION FOR FRP STRUCTURES
3. AMEC 4S-10.02 FRP PRESSURE PIPE, FITTINGS AND FLANGES

GENERAL NOTES

1. WINDING ANGLE – 75°
2. TANK WALL – VARIES, SEE ELEVATION VIEW
3. LINER – C-GLASS VEIL AND (2)-1 1/2 oz. MATT
4. RESIN – ISOPHTHALIC
5. EXTERIOR (ABOVE GRADE) TO HAVE DARK GREEN GELCOAT
6. INTERIOR FINISH: WHITE ISOPHTHALIC NPG GELCOAT
7. DIMENSIONS ARE IN MILLIMETERS U.N.O.
8. SHIPPING WEIGHT: 3045 kg (6700 LBS)

INSTALLATION PROCEDURES

THE FOLLOWING RECOMMENDATIONS ARE BASED ON FLYGT EXPERIENCE AND ARE IN NO WAY MEANT TO REPLACE THE ENGINEERS INSTRUCTIONS OR SPECIFICATIONS AND MUST BE USED IN CONJUNCTION WITH THE EXISTING AND ANTICIPATED CONDITIONS AT THE JOBSITE.

1. USE THE LIFTING LUGS PROVIDED FOR VERTICAL HANDLING.
2. USE SLINGS AROUND THE MAIN TANK FOR HORIZONTAL HANDLING.
3. ENSURE UNIT IS STANDING VERTICAL ON CONCRETE PAD.
4. BOLT UNIT FIRMLY AND SQUARELY IN PLACE, SHIM WHERE NECESSARY.
5. FILL ANNULUS BETWEEN THE TANK SHELL AND OUTSIDE OF THE "T.O.P." SUMP WITH CONCRETE. AT THE SAME TIME ENCASE LOWER RIB IN CONCRETE TO A MINIMUM HEIGHT OF 150mm ABOVE RIB TO PROVIDE ANCHORAGE. REBAR TO CONNECT SECOND POUR TO CONCRETE BASE PAD.
6. WHEN EXTERNAL VALVES ARE MOUNTED, SUPPORT PIPING CONNECTIONS DIRECT TO CONCRETE PAD.
7. MAINTAIN A DRY SITE UNTIL BACKFILLING OPERATIONS COMMENCE.
8. USE A GOOD QUALITY SCREENING OR SAND AS BACKFILL MATERIAL TO 90% COMPACTION.
9. PLACE THE BACKFILL IN EQUAL INCREMENTS NOT EXCEEDING 300mm THICK AROUND THE STATION TO PREVENT UNBALANCED LOADS BEING IMPOSED DURING BACKFILLING OPERATIONS. PROGRESSIVELY TAMP BACKFILL AROUND STATION TO FULL HEIGHT TO REDUCE SETTLEMENT TO AN ABSOLUTE MINIMUM.

REV	DATE	DESCRIPTION	BY
4	2012/04/03	PLAN OF RECORD	
3	2011/07/29	CHANGED DAVIT SOCKET; MOVED EMERGENCY SUCTION ON ROOF	LMc
2	2011/07/27	PUMP RELOCATION	LMc
1	2011/07/15	ADDED (1) ELECTRICAL CONNECTION	LMc
0	2011/06/21	ISSUED FOR APPROVAL	LMc

TOLERANCES (U.N.O.)

LINEAR	ANGULAR
X ± 1.5	X.X ± 1/2°

BARSKI INDUSTRIES (1985) LTD.
2378 WESTLAKE RD.
KELOWNA, B.C.
V1Z 2V2

CLIENT	ITT W&WW COQUITLAM, B.C.
ENGINEER	STANTEC CONSULTING LTD.
PROJECT	GLENROSA SEWER – PHASE 3 GLENGARRY ROAD SANITARY LIFT STATION
TITLE	2438.4mm I.D. GLENGARRY ROAD LIFT STATION

ENG BY:	DATE:	CAD FILE: Glengarry	PROJECT:
CAD BY: LMc	DATE: 2011/06/15	SCALE: AS SHOWN	
APP BY:	DATE:	DRAWING NUMBER 11-121	REV 4
ISSUED BY:	DATE:		

PERFORMANCE CURVE

PRODUCT	TYPE
NP3085.183	MT

DATE	PROJECT	CURVE NO	ISSUE
2013-08-27	INVERNESS LS 1	63-463-00-3806	4

	1/1-LOAD	3/4-LOAD	1/2-LOAD
MOTOR COS PHI	0.84	0.79	0.68
MOTOR EFFICIENCY	77.0 %	78.5 %	77.0 %
GEAR EFFICIENCY	—	—	—

MOTOR SHAFT POWER	3	hp
STARTING CURRENT ...	17	A
RATED CURRENT ...	3.3	A
RATED SPEED	1695	rpm
TOT.MOM.OF INERTIA ...	0.018	kgm2
NO. OF BLADES	2	

IMPELLER DIAMETER: 135 mm

MOTORTYPE	STATOR	REV
15-10-4AL	51Y	12

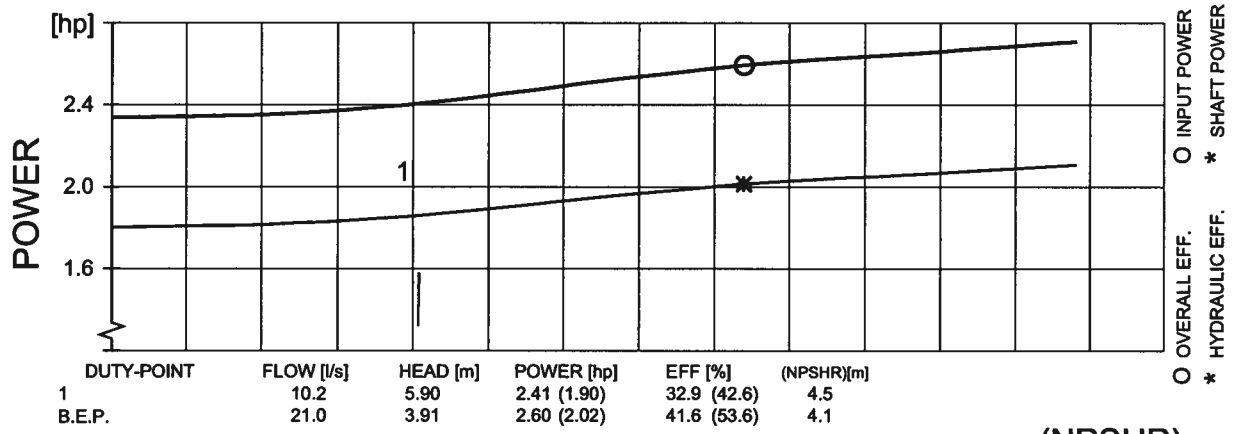
FREQ.	PHASES	VOLTAGE	POLES
60 Hz	3	600 V	4

GEARTYPE: --- RATIO: ---

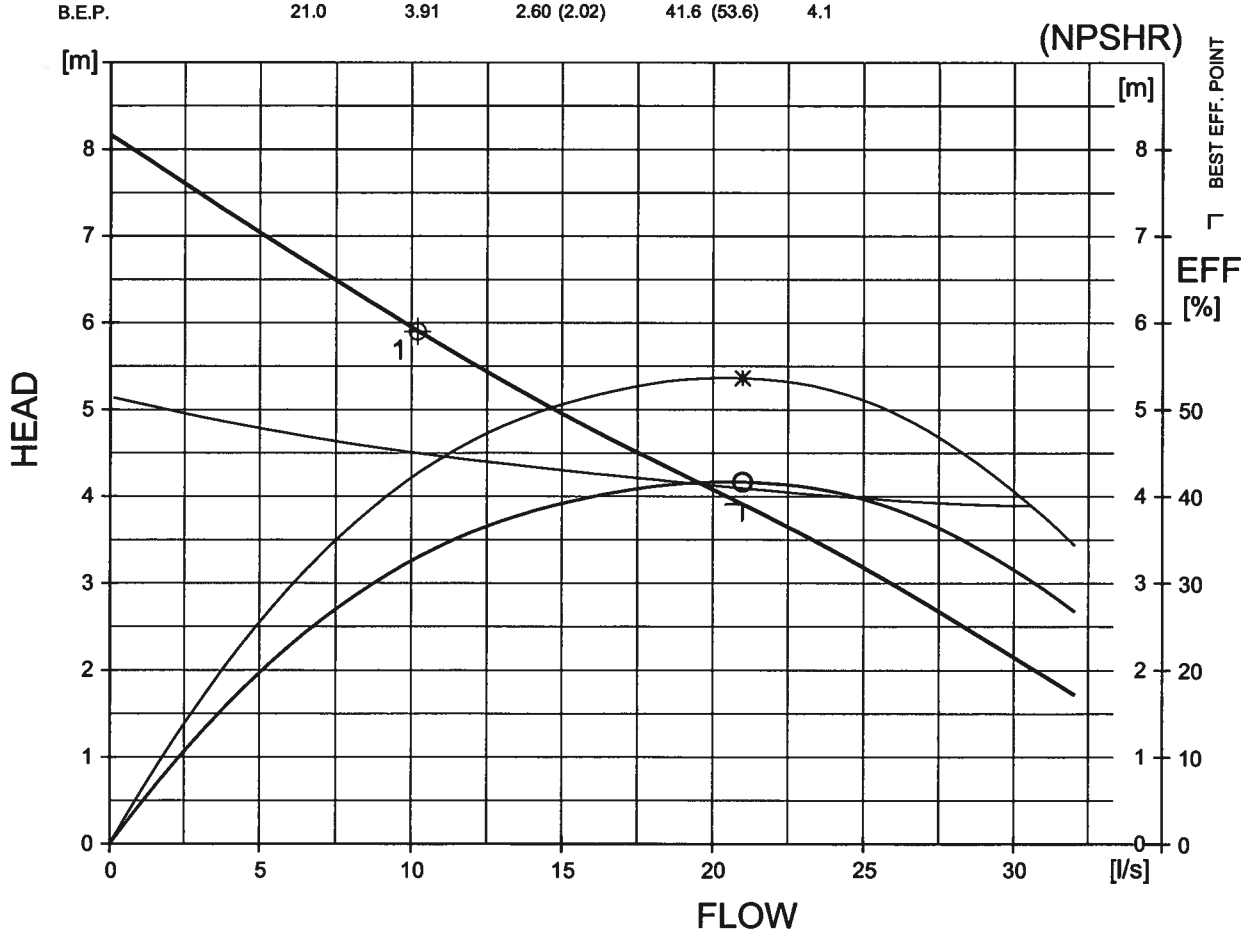
COMMENTS

INLET/OUTLET: -/ 80 mm

IMP. THROUGHLET: ---



DUTY-POINT	FLOW [l/s]	HEAD [m]	POWER [hp]	EFF [%]	(NPSHR)[m]
1	10.2	5.90	2.41 (1.90)	32.9 (42.6)	4.5
B.E.P.	21.0	3.91	2.60 (2.02)	41.6 (53.6)	4.1



FLYPS3.1.5.7 (20060531)

(NPSHR) = (NPSH3) + margins

Performance with clear water and rating data at 40 °C

CURVE

District of West Kelowna

Sanitary Lift Station Evaluation

Station: Glengary LS2

Reviewed By: Jim Kentel

Year Constructed: 8/1/2011

Year Upgraded:

Matrix Rating			
(10 - highest rating)	Civil	35	
(1 - lowest rating)	Process Mechanical	161	
	Electrical Instrumentation	132	
	Total Station Rating	328	(max. rating 370 points)

Civil:

		Matrix Rating
Parking Area:	Yes	n/a
Drainage:	Good	10
Influent sewer:	Good 200 Gavity PVC	10
Site access:	Good	10
Water service:	Irrigation service only	5
		35

Process Mechanical:

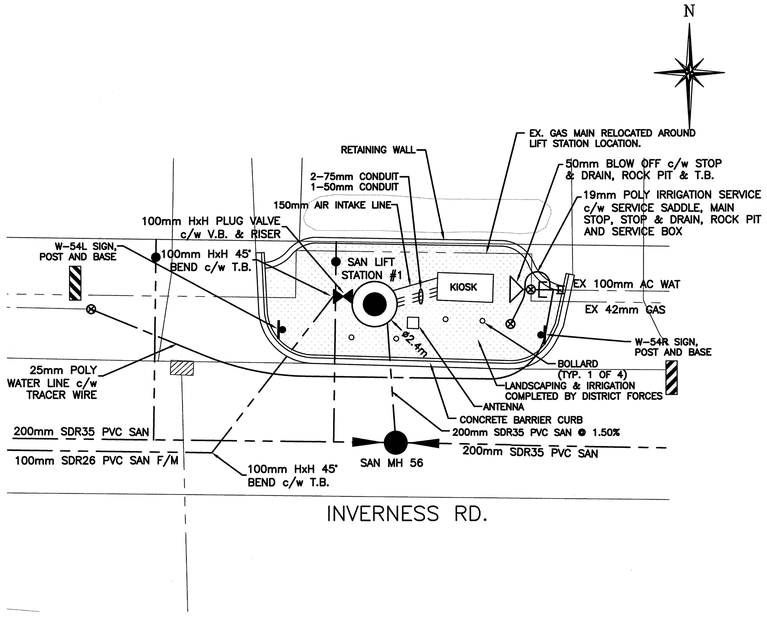
Station type:	Submorsible	n/a
Number of pumps:	2	n/a
Pump Redundancy:	Yes	n/a
Pump Manufacturer / Type:	FLYGT	10
Pump Model:	CP3057 .181 HT	n/a
Rated Capacity:	9.4L/S @ 7.5m TDH	n/a
Capacity Confirmation:		n/a
Forcemain pipe type / diameter:	PVC/100mm	10
Header pipe type / diameter:	FRP/80	10
Check valve type / diameter:	Sinking Ball HDL 5087/80	10
Isolation valve type / diameter:	Plug Valmatic /80	10
Piping Condition:	FRP	10
Emergency pumpout connection:	Yes	10
Pressure gauges:	Yes	10
Inlet bar screen:	No	1
Wetwell condition:	Good	10
Access Hatches:	Alum	10
Ladder / Platform:	Alum/FRP	10
Wetwell benching:	T.O.P. base	10
Odour Control:	Carbon	10
Ventilation:	Yes	10
Water washdown:	Yes/19mm	10
nfined Space Entry Requirements	Davit	10
		161

Electrical / Instrumentation:

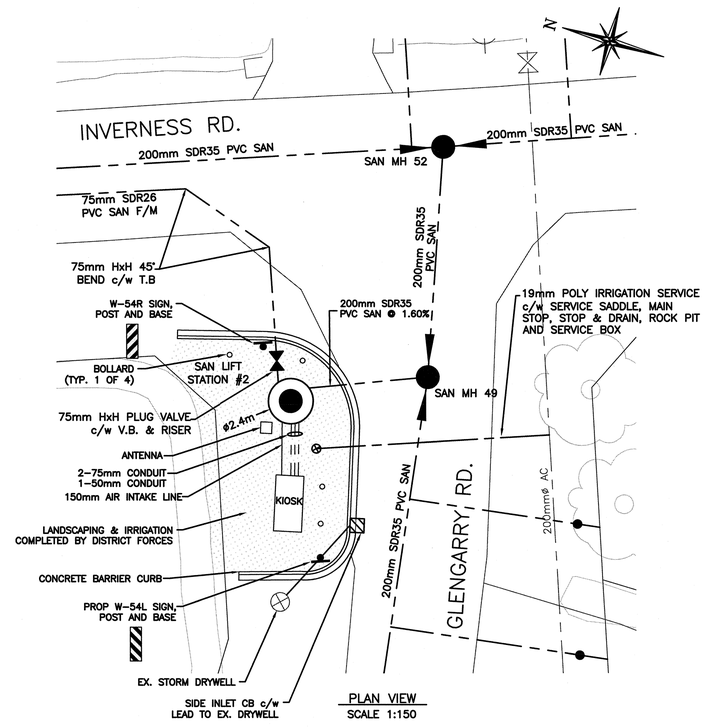
			Matrix Rating
Service Type	V / A / Phase / Wire		n/a
Pump 1 :	HP 2.3		n/a
	Volts/400	Rpm 2700	n/a
	FLA 3.8A		n/a
Starting Current	17A		n/a
Pump 2 :	HP 2.3		n/a
	Volts/400	Rpm 2700	n/a
	FLA 3.8A		n/a
Starting Current	17A		n/a
Alarm Functions:	Yes		10
			n/a
			n/a
			n/a
Receptacle	Yes		10
Interior Lighting:	Yes		10
Exterior Lighting:	No		1
SCADA / Telemetry:	Yes		10
Main Breaker:	100A		10
Control Panel:	Yes		10
Lighting Panel:	Yes		10
Flowmeter:	Siemens Sitrans FM3 5100W		10
Grounding:	Yes		10
Surge Protection:	Yes		10
UPS:	Yes		10
PLC:	Yes		10
Level Control:	Yes Milltronics/Bulbs		10
Standby Generator:	No		1
			132

Comments: New Station

"Please note that it is the user's responsibility to confirm the accuracy of the as-constructed information shown on this drawing before proceeding with any work (i.e. design or construction) that is based on that information."



PLAN VIEW
SCALE 1:150



PLAN VIEW
SCALE 1:150

LEGEND

CABLE TV	CAP	SAN #	SANITARY MH (EXISTING OR FUTURE)
GAS	CATCH BASIN	SAN #	SANITARY MH
SAN. SEWER	ELECTRICAL BOX	STM #	STORM MH (EXISTING OR FUTURE)
STORM SEWER	HYDRANT	STM #	STORM MH
U.G. ELECTRICAL	VALVE		TRANSFORMER
U.G. TELEPHONE	LAMP STANDARD		UTILITY JUNCTION BOX
WATER			

No.	DATE	BY	REVISION	Chk'd
5				
4	04.03.2012	CLS	PLAN OF RECORD	SPB
3	05.31.2011	CLS	ISSUED FOR CONSTRUCTION	SPB
2	05.02.2011	CLS	ISSUED FOR TENDER	SPB
1	03.11.2011	CLS	ISSUED FOR TENDER REVIEW	SPB

No.	DATE	BY	STATUS	Chk'd
5			PLAN OF RECORD	
4			APPROVAL FOR CONSTRUCTION	
3			FOR TENDER	
2			FOR APPROVAL	
1			PRELIMINARY	

DISTRICT OF WEST KELOWNA

P.ENG. PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA S. P. BURNS # 34778 ENGINEER

DRAWN	CLS
DESIGN	SPB
APPROVED	SPB
DATE	JANUARY 2011
SCALE	AS NOTED

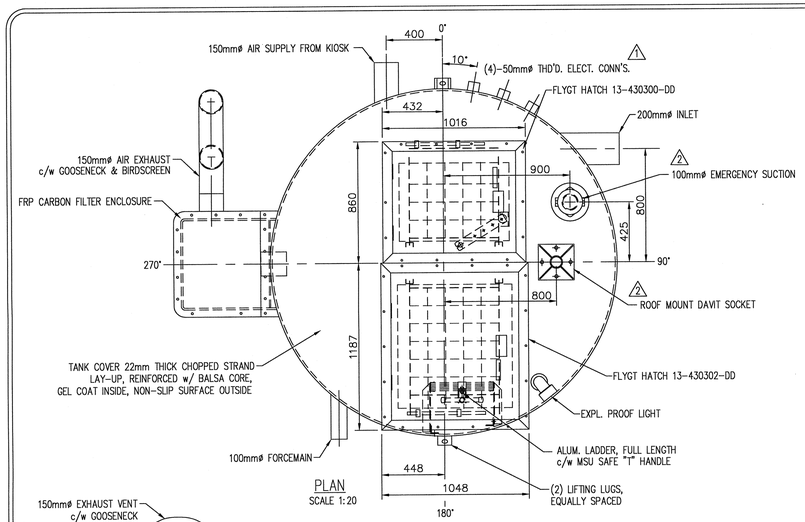
Stantec Consulting Ltd.
400-1620 Dickson Avenue,
Kelowna, B.C. V1Y 9Y2
Tel. (250) 860-3225
Fax. (250) 860-3367

GLENROSA SEWER - PHASE 3
INVERNESS RD. & GLENGARRY RD.
SANITARY LIFT STATION DETAILS

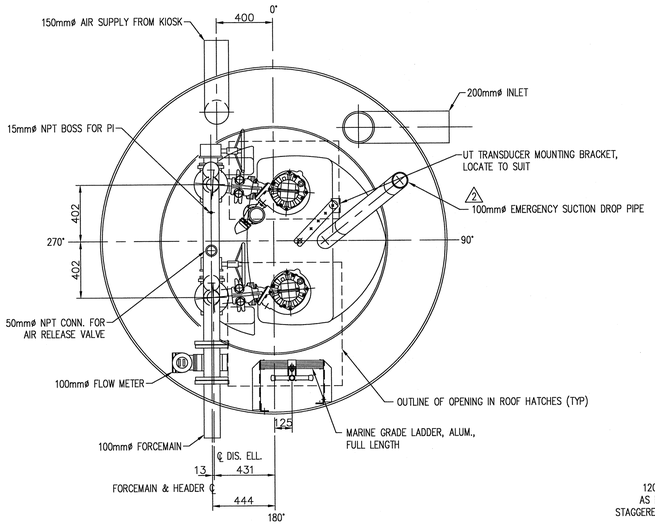
DRAWING NO. S01

REV. NO. 4

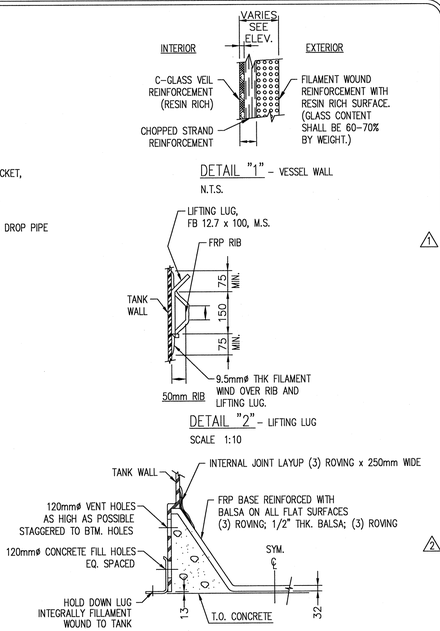
112720220

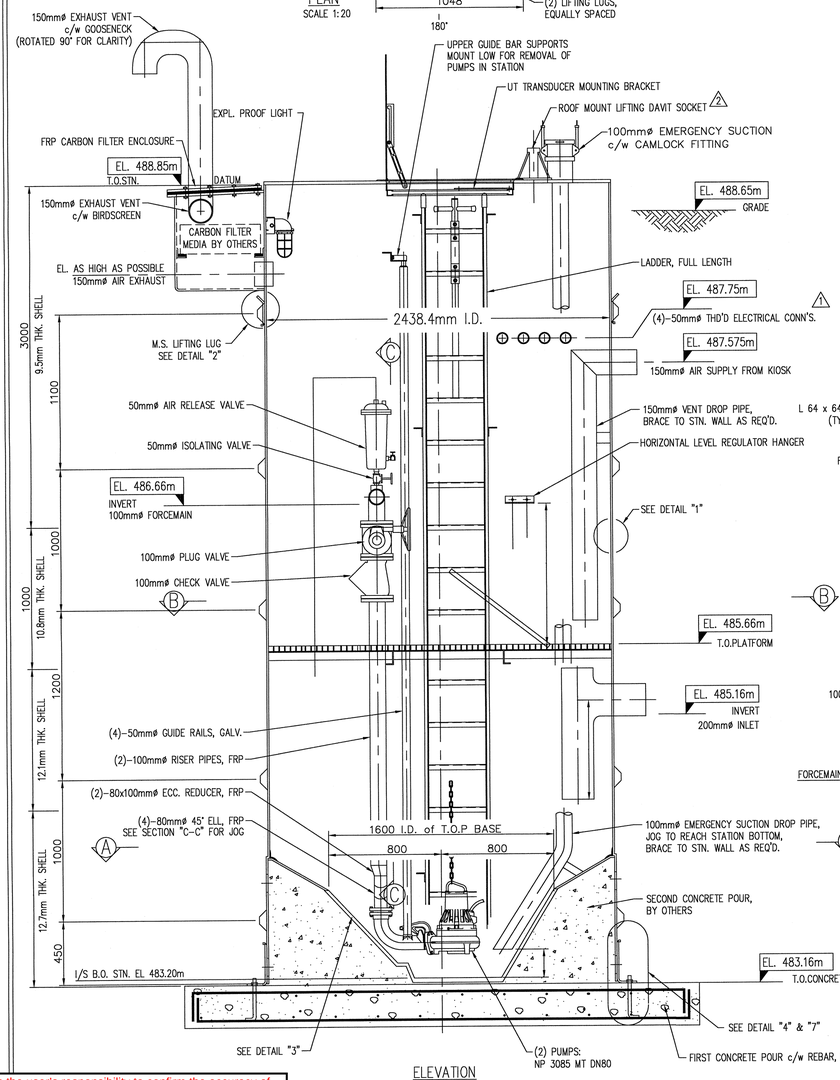


PLAN
SCALE 1:20



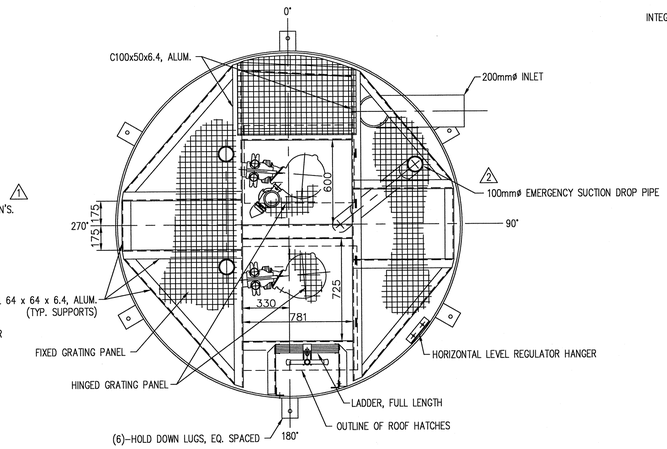
SECTION "A–A" – PUMPS LAYOUT
SCALE 1:20





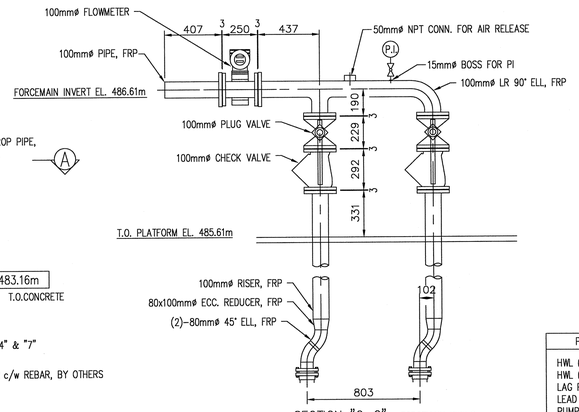
ELEVATION
SCALE 1:20

NOTE: SEE PLAN VIEW FOR TRUE ORIENTATION



NOTES:
1. ALL GRATING PANELS TO BE 38 x 38 x 38 HIGH FRP
2. ALL SUPPORTS TO BE ALUMINUM

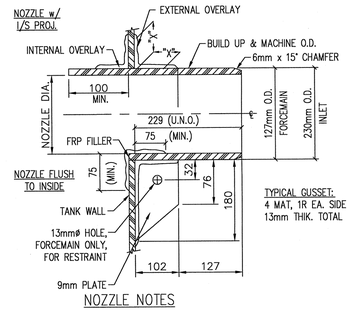
SECTION "B–B" – PLATFORM LAYOUT
SCALE 1:20



SECTION "C–C" – FORCEMAIN PIPING
SCALE 1:20

PROPOSED OPERATING LEVELS	
HWL (MILLTRONICS)	485.16m
HWL (FLOAT)	485.06m
LAG PUMP START	484.96m
LEAD PUMP START	484.76m
PUMP STOP	484.00m
LWL (FLOAT)	483.70m

NOTE:
CONCRETE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. FOUNDATION TO BE DESIGNED & SUPPLIED BY OTHERS.



NOZZLE NOTES

A MINIMUM OF 2 LAYERS OF WOVEN ROVING IS REQUIRED FOR NOZZLE PORTION OF OVERLAY. TANK PORTION OF OVERLAY SHALL BE SAME THICKNESS AS TANK WALL. DIMENSION "X" SHALL BE GREATER THAN ONE HALF THE NOZZLE DIAMETER. INTERNAL OVERLAY TO HAVE A MINIMUM OF 2 LAYERS MATT. FRP REINFORCING MATERIAL TO BE CUT TO A SHAPE TO ENSURE A SMOOTH LAMINATE.

O.D.'s REPRESENT THICKNESSES REQUIRED FOR ADEQUATE NOZZLE STRENGTH.
TO BE CONNECTED TO EXTERIOR PIPING WITH A ROBAR TRANSITION COUPLER OR EQUAL.

DETAIL "5" – TYPICAL NOZZLE, MACHINED
N.T.S.

BILL OF MATERIALS

QTY	DESCRIPTION	
6	HOLD DOWN LUGS, EPOXY COATED MS	
2	LIFTING LUGS, EPOXY COATED MS.	
1	MARINE GRADE SAFETY LADDER, ALUMINUM, FULL LENGTH c/w MSU SAFE "T" HANDLE	
1	200mmø INLET, FRP, MACHINED c/w INTERNAL TEE & DROP PIPE	
1	100mmø FORCEMAIN, FRP, MACHINED c/w (2)–100mmø RISERS, FRP x FL; (4)–80mmø 45°	
	ELL, FRP; (2)–80x100mmø ECC. REDUCER, FRP; (1)–100mmø LR 90° ELL, FLxFRP;	
	(1)–100mmø STR. TEE, FRPxFRPxFL; (2)–100mm–150# FF FLANGE, FRP;	
	(1)–15mmø NPT BOSS FOR P.I.; (1)–50mmø NPT CONN. FOR AIR RELEASE	
1	100mmø EMERGENCY SUCTION , FRP, c/w DROP PIPE & 100mmø CAMLOCK FITTING	
1	150mmø AIR SUPPLY, FRP, c/w DROP PIPE	
1	150mmø AIR EXHAUST, FRP c/w CARBON FILTER ENCLOSURE (FILTER MEDIA BY OTHERS)	
4	50mmø THD'D. ELECTRICAL CONNECTION	
8	20mmø PUMP BASE BOLTS, 304 SS	
4	20mmø GUIDE BARS, GALV.	
1	INTERMEDIATE PLATFORM, c/w ALUMINUM SUPPORT MEMBERS & FRP GRATING PANELS	
1	UT TRANSDUCER MOUNTING BRACKET, ALUM.	
1	EXPLOSION PROOF LIGHT, COOPER CROUSE–HINDS HAZGUARD EXACTA MODEL IPEH, WALL	
	MOUNT, 150W, 120V/60Hz, CLEAR GLASS GLOBE, SS GUARD	
1	FLYGT ALUMINUM ACCESS HATCH, 13–430302–DD, GAS ASSIST	(BY FLYGT)
1	FLYGT ALUMINUM ACCESS HATCH, 13–430300–DD, GAS ASSIST	(BY FLYGT)
2	UPPER GUIDE BAR SUPPORTS	(BY FLYGT)
2	PUMP NP 3085 MT DN80 c/w DISCHARGE ELBOW FOR T.O.P. BASE	(BY FLYGT)
2	100mmø FLG'D. SINKING BALL CHECK VALVE, HDL 5087	(BY FLYGT)
2	100mmø FLG'D PLUG VALVE, VALMATIC CAMCENTRIC, 5808N	(BY FLYGT)
1	HORIZONTAL LEVEL REGULATOR HANGER & (2) ENM BULBS	(BY FLYGT)
1	AIR RELEASE VALVE c/w ISO VALVE	(BY FLYGT)
1	100mmø FLG'D MAGFLOW METER, SIEMENS SITRANS FM3 5100W OR EQUAL	(BY FLYGT)
1	PRESSURE GAUGE & STOP COCK	(BY FLYGT)
1	ROOF MOUNT LIFTING DAVIT SOCKET (810mm REACH)	(BY FLYGT)
6	22mmø ANCHOR BOLTS, MS	(BY OTHERS)

FABRICATION DESIGN STANDARDS

1. FLYGT SPECIFICATION GE–1008–04, REVISION MAY 2002
2. AMEC 4S–10.01 MANUFACTURE AND INSTALLATION FOR FRP STRUCTURES
3. AMEC 4S–10.02 FRP PRESSURE PIPE, FITTINGS AND FLANGES

GENERAL NOTES

1. WINDING ANGLE – 75°
2. TANK WALL – VARIES, SEE ELEVATION VIEW
3. LINER – C–GLASS VEIL AND (2)–1 1/2 oz. MATT
4. RESIN – ISOPHTHALIC
5. EXTERIOR (ABOVE GRADE) TO HAVE DARK GREEN GELCOAT
6. INTERIOR FINISH: WHITE ISOPHTHALIC NPG GELCOAT
7. DIMENSIONS ARE IN MILLIMETERS U.N.O.
8. SHIPPING WEIGHT: 2910 kg (6400 LBS)

INSTALLATION PROCEDURES

THE FOLLOWING RECOMMENDATIONS ARE BASED ON FLYGT EXPERIENCE AND ARE IN NO WAY MEANT TO REPLACE THE ENGINEERS INSTRUCTIONS OR SPECIFICATIONS AND MUST BE USED IN CONJUNCTION WITH THE EXISTING AND ANTICIPATED CONDITIONS AT THE JOBSITE.

1. USE THE LIFTING LUGS PROVIDED FOR VERTICAL HANDLING.
2. USE SLINGS AROUND THE MAIN TANK FOR HORIZONTAL HANDLING.
3. ENSURE UNIT IS STANDING VERTICAL ON CONCRETE PAD.
4. BOLT UNIT FIRMLY AND SQUARELY IN PLACE, SHIM WHERE NECESSARY.
5. FILL ANNULUS BETWEEN THE TANK SHELL AND OUTSIDE OF THE "T.O.P." SUMP WITH CONCRETE. AT THE SAME TIME ENCASE LOWER RIB IN CONCRETE TO A MINIMUM HEIGHT OF 150mm ABOVE RIB TO PROVIDE ANCHORAGE. REBAR TO CONNECT SECOND POUR TO CONCRETE BASE PAD.
6. WHEN EXTERNAL VALVES ARE MOUNTED, SUPPORT PIPING CONNECTIONS DIRECT TO CONCRETE PAD.
7. MAINTAIN A DRY SITE UNTIL BACKFILLING OPERATIONS COMMENCE.
8. USE A GOOD QUALITY SCREENING OR SAND AS BACKFILL MATERIAL TO 90% COMPACTION.
9. PLACE THE BACKFILL IN EQUAL INCREMENTS NOT EXCEEDING 300mm THICK AROUND THE STATION TO PREVENT UNBALANCED LOADS BEING IMPOSED DURING BACKFILLING OPERATIONS. PROGRESSIVELY TAMP BACKFILL AROUND STATION TO FULL HEIGHT TO REDUCE SETTLEMENT TO AN ABSOLUTE MINIMUM.

REV	DATE	DESCRIPTION	BY
3	2012/04/03	PLAN OF RECORD	
2	2011/07/29	CHANGED DAVIT SOCKET; MOVED EMERGENCY SUCTION ON ROOF	LMc
1	2011/07/15	ADDED (1) ELECTRICAL CONNECTION	LMc
0	2011/06/21	ISSUED FOR APPROVAL	LMc

TOLERANCES (U.N.O.)

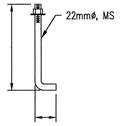
LINEAR	ANGULAR
X ± 1.5	X.X ± 1/2°

BARSKI INDUSTRIES (1985) LTD.
2378 WESTLAKE RD.
KELOWNA, B.C.
V1Z 2V2

CLIENT	ITT W&WW COQUITLAM, B.C.
ENGINEER	STANTEC CONSULTING LTD.
PROJECT	GLENROSA SEWER – PHASE 3 INVERNESS ROAD SANITARY LIFT STATION
TITLE	2438.4mm I.D. INVERNESS ROAD LIFT STATION

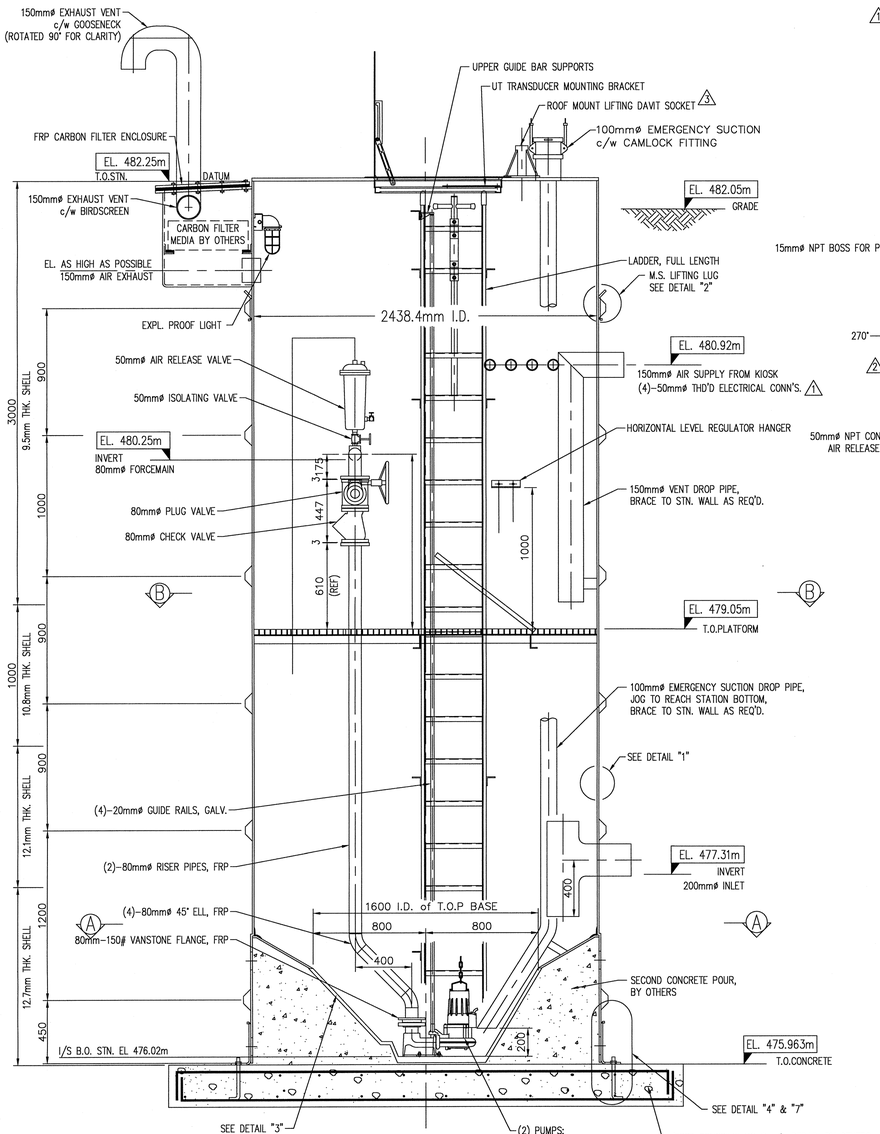
ENG BY:		DATE:	CAD FILE: Inverness
CAD BY:	LMc	DATE: 2011/06/20	SCALE: AS SHOWN
APP BY:		DATE:	DRAWING NUMBER 11–122
ISSUED BY:		DATE:	REV 3

PROPOSED OPERATING LEVELS	
HWL (MILLTRONICS)	477.31m
HWL (FLOAT)	477.21m
LAG PUMP START	477.11m
LEAD PUMP START	476.91m
PUMP STOP	476.72m
LWL (FLOAT)	476.42m



DETAIL "7" – ANCHOR BOLT
SCALE 1:10 (BY OTHERS)

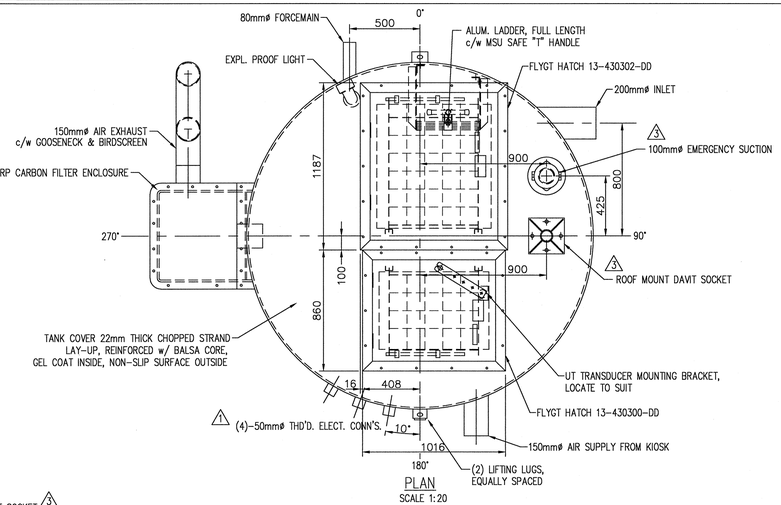
"Please note that it is the user's responsibility to confirm the accuracy of the as-constructed information shown on this drawing before proceeding with any work (i.e. design or construction) that is based on that information."



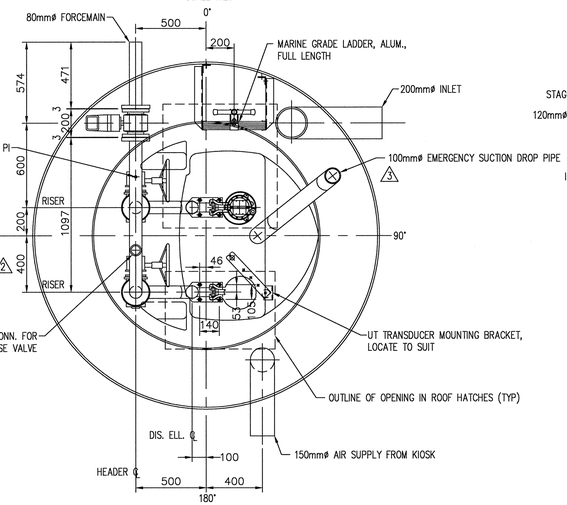
ELEVATION
SCALE 1:20

NOTE: SEE PLAN VIEW FOR TRUE ORIENTATION

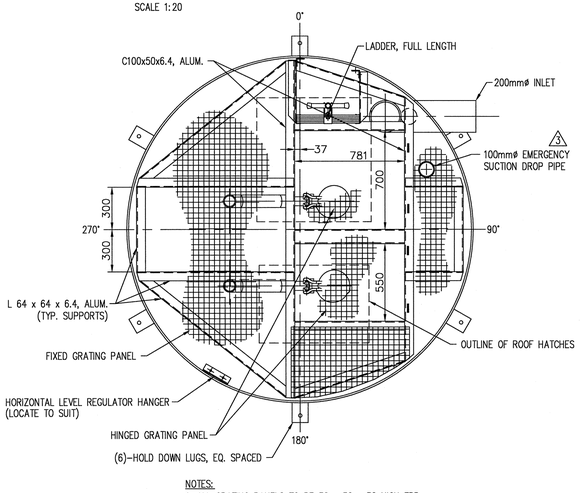
NOTE:
CONCRETE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. FOUNDATION TO BE DESIGNED & SUPPLIED BY OTHERS.



PLAN
SCALE 1:20

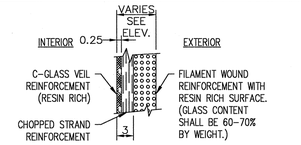


SECTION "A-A" – PUMPS LAYOUT
SCALE 1:20

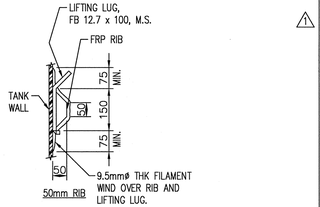


NOTES:
1. ALL GRATING PANELS TO BE 38 x 38 x 38 HIGH FRP
2. ALL SUPPORTS TO BE ALUMINUM

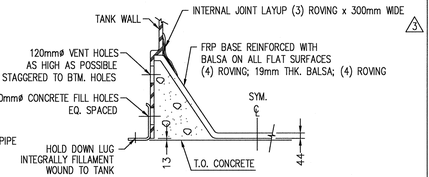
SECTION "B-B" – PLATFORM LAYOUT
SCALE 1:20



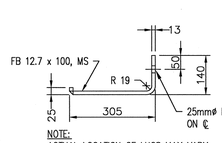
DETAIL "1" – VESSEL WALL
N.T.S.



DETAIL "2" – LIFTING LUG
SCALE 1:10

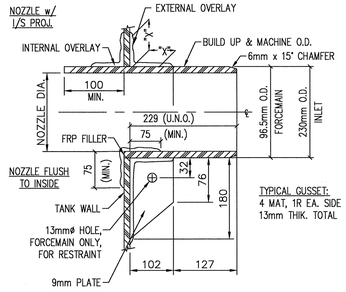


DETAIL "3" – BOTTOM BASE
N.T.S.



NOTE:
ACTUAL LOCATION OF LUGS MAY VARY. DO NOT LOCATE ANCHOR BOLTS UNTIL RECEIPT OF COMPLETED STATION OR TEMPLATE OF HOLD DOWN LUG LOCATIONS.

DETAIL "4" – HOLD DOWN LUG
SCALE 1:10



NOZZLE NOTES

A MINIMUM OF 2 LAYERS OF WOVEN ROVING IS REQUIRED FOR NOZZLE PORTION OF OVERLAY. TANK PORTION OF OVERLAY SHALL BE SAME THICKNESS AS TANK WALL. DIMENSION "X" SHALL BE GREATER THAN ONE HALF THE NOZZLE DIAMETER. INTERNAL OVERLAY TO HAVE A MINIMUM OF 2 LAYERS MATT. FRP REINFORCING MATERIAL TO BE CUT TO A SHAPE TO ENSURE A SMOOTH LAMINATE.

O.D.'s REPRESENT THICKNESSES REQUIRED FOR ADEQUATE NOZZLE STRENGTH. TO BE CONNECTED TO EXTERIOR PIPING WITH A ROBAR TRANSITION COUPLER OR EQUAL.

DETAIL "5" – TYPICAL NOZZLE, MACHINED
N.T.S.

BILL OF MATERIALS

QTY	DESCRIPTION	
6	HOLD DOWN LUGS, EPOXY COATED MS	
2	LIFTING LUGS, EPOXY COATED MS.	
1	MARINE GRADE SAFETY LADDER, ALUMINUM, FULL LENGTH c/w MSU SAFE "T" HANDLE	
1	200mmø INLET, FRP, MACHINED c/w INTERNAL TEE & DROP PIPE	
1	80mmø FORCEMAIN, FRP, MACHINED c/w (2)-80mmø RISERS, VAN x FL; (2)-80mmø THD'D	
	NIPPLE; (2)-80mmø-150# THD'D FLG, CS; (2)-80mmø 45° ELL, FRP; (1)-80mmø LR 90°	
	ELL, FLx FRP; (1)-80mmø STR. TEE, FRP; (4)-80mm-150# FF FLG, FRP;	
	(1)-15mmø NPT BOSS FOR P.I.; (1)-50mmø NPT CONN. FOR AIR RELEASE	
1	100mmø EMERGENCY SUCTION , FRP, c/w DROP PIPE & 100mmø CAMLOCK FITTING	
1	150mmø AIR SUPPLY, FRP, c/w DROP PIPE	
1	150mmø AIR EXHAUST, FRP c/w CARBON FILTER ENCLOSURE (FILTER MEDIA BY OTHERS)	
4	50mmø THD'D. ELECTRICAL CONNECTION	
8	12mmø PUMP BASE BOLTS, 304 SS	
4	20mmø GUIDE BARS, GALV.	
1	INTERMEDIATE PLATFORM, c/w ALUMINUM SUPPORT MEMBERS & FRP GRATING PANELS	
1	UT TRANSDUCER MOUNTING BRACKET, ALUM.	
1	EXPLOSION PROOF LIGHT, COOPER CROUSE-HINDS HAZGUARD EXACTA MODEL IPEH, WALL	
	MOUNT, 150W, 120V/60Hz, CLEAR GLASS GLOBE, SS GUARD	
1	FLYGT ALUMINUM ACCESS HATCH, 13-430302-DD, GAS ASSIST	(BY FLYGT)
1	FLYGT ALUMINUM ACCESS HATCH, 13-430300-DD, GAS ASSIST	(BY FLYGT)
2	UPPER GUIDE BAR SUPPORTS	(BY FLYGT)
2	PUMP CP 3057 HT DN80 c/w DISCHARGE ELBOW FOR T.O.P. BASE	(BY FLYGT)
2	80mmø FLG'D. SINKING BALL CHECK VALVE, HDL 5087	(BY FLYGT)
2	80mmø FLG'D PLUG VALVE, VALMATIC CAMCENTRIC, 5808N	(BY FLYGT)
1	HORIZONTAL LEVEL REGULATOR HANGER & (2) ENM BULBS	(BY FLYGT)
1	AIR RELEASE VALVE c/w ISO VALVE	(BY FLYGT)
1	80mmø FLG'D MAGFLOW METER, SIEMENS SITRANS FM3 5100W OR EQUAL	(BY FLYGT)
1	PRESSURE GAUGE & STOP COCK	(BY FLYGT)
1	ROOF MOUNT LIFTING DAVIT SOCKET (810mm REACH)	(BY FLYGT)
6	22mmø ANCHOR BOLTS, MS	(BY OTHERS)

FABRICATION DESIGN STANDARDS

1. FLYGT SPECIFICATION GE-1008-04, REVISION MAY 2002
2. AMEC 4S-10.01 MANUFACTURE AND INSTALLATION FOR FRP STRUCTURES
3. AMEC 4S-10.02 FRP PRESSURE PIPE, FITTINGS AND FLANGES

GENERAL NOTES

1. WINDING ANGLE – 75°
2. TANK WALL – VARIES, SEE ELEVATION VIEW
3. LINER – C-GLASS VEIL AND (2)-1 1/2 oz. MATT
4. RESIN – ISOPHTHALIC
5. EXTERIOR (ABOVE GRADE) TO HAVE DARK GREEN GELCOAT
6. INTERIOR FINISH: WHITE ISOPHTHALIC NPG GELCOAT
7. DIMENSIONS ARE IN MILLIMETERS U.N.O.
8. SHIPPING WEIGHT: 3045 kg (6700 LBS)

INSTALLATION PROCEDURES

THE FOLLOWING RECOMMENDATIONS ARE BASED ON FLYGT EXPERIENCE AND ARE IN NO WAY MEANT TO REPLACE THE ENGINEERS INSTRUCTIONS OR SPECIFICATIONS AND MUST BE USED IN CONJUNCTION WITH THE EXISTING AND ANTICIPATED CONDITIONS AT THE JOBSITE.

1. USE THE LIFTING LUGS PROVIDED FOR VERTICAL HANDLING.
2. USE SLINGS AROUND THE MAIN TANK FOR HORIZONTAL HANDLING.
3. ENSURE UNIT IS STANDING VERTICAL ON CONCRETE PAD.
4. BOLT UNIT FIRMLY AND SQUARELY IN PLACE, SHIM WHERE NECESSARY.
5. FILL ANNULUS BETWEEN THE TANK SHELL AND OUTSIDE OF THE "T.O.P." SUMP WITH CONCRETE. AT THE SAME TIME ENCASE LOWER RIB IN CONCRETE TO A MINIMUM HEIGHT OF 150mm ABOVE RIB TO PROVIDE ANCHORAGE. REBAR TO CONNECT SECOND POUR TO CONCRETE BASE PAD.
6. WHEN EXTERNAL VALVES ARE MOUNTED, SUPPORT PIPING CONNECTIONS DIRECT TO CONCRETE PAD.
7. MAINTAIN A DRY SITE UNTIL BACKFILLING OPERATIONS COMMENCE.
8. USE A GOOD QUALITY SCREENING OR SAND AS BACKFILL MATERIAL TO 90% COMPACTION.
9. PLACE THE BACKFILL IN EQUAL INCREMENTS NOT EXCEEDING 300mm THICK AROUND THE STATION TO PREVENT UNBALANCED LOADS BEING IMPOSED DURING BACKFILLING OPERATIONS. PROGRESSIVELY TAMP BACKFILL AROUND STATION TO FULL HEIGHT TO REDUCE SETTLEMENT TO AN ABSOLUTE MINIMUM.

REV	DATE	DESCRIPTION	BY
4	2012/04/03	PLAN OF RECORD	
3	2011/07/29	CHANGED DAVIT SOCKET; MOVED EMERGENCY SUCTION ON ROOF	LMc
2	2011/07/27	PUMP RELOCATION	LMc
1	2011/07/15	ADDED (1) ELECTRICAL CONNECTION	LMc
0	2011/06/21	ISSUED FOR APPROVAL	LMc

TOLERANCES (U.N.O.)

LINEAR	ANGULAR
X ± 1.5	X.X ± 1/2°

BARSKI INDUSTRIES (1985) LTD.
2378 WESTLAKE RD.
KELOWNA, B.C.
V1Z 2V2

CLIENT	ITT W&WW COQUITLAM, B.C.
ENGINEER	STANTEC CONSULTING LTD.
PROJECT	GLENROSA SEWER – PHASE 3 GLENGARRY ROAD SANITARY LIFT STATION
TITLE	2438.4mm I.D. GLENGARRY ROAD LIFT STATION

ENG BY:	DATE:	CAD FILE: Glengarry	PROJECT:
CAD BY: LMc	DATE: 2011/06/15	SCALE: AS SHOWN	
APP BY:	DATE:	DRAWING NUMBER 11-121	REV 4
ISSUED BY:	DATE:		

PERFORMANCE CURVE

PRODUCT	TYPE
CP3057.181	HT

DATE	PROJECT	CURVE NO	ISSUE
2011-06-13	GLENGARY LS 2	53-266-00-0164	2

	1/1-LOAD	3/4-LOAD	1/2-LOAD
MOTOR COS PHI	0.87	0.81	0.70
MOTOR EFFICIENCY	75.0 %	78.5 %	79.5 %
GEAR EFFICIENCY	—	—	—

MOTOR SHAFT POWER	2.3	hp
STARTING CURRENT ...	17	A
RATED CURRENT ...	3.8	A
RATED SPEED	2700	rpm
TOT.MOM.OF INERTIA ...	---	
NO. OF BLADES	1	

IMPELLER DIAMETER: 104 mm

MOTORTYPE	STATOR	REV
13-08-2BB	01Y	10

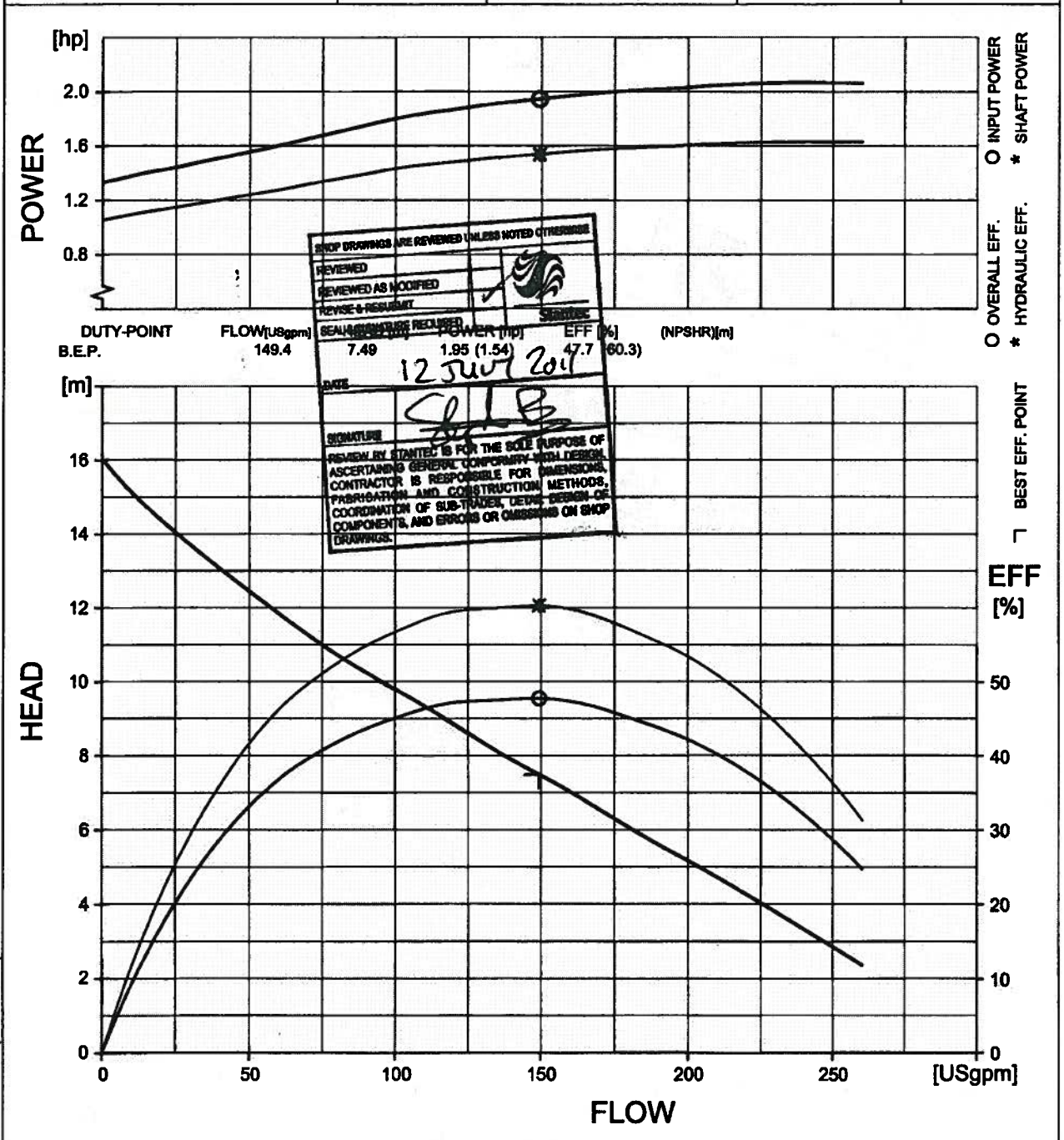
FREQ.	PHASES	VOLTAGE	POLES
50 Hz	3	400 V	2

GEARTYPE: — RATIO: —

COMMENTS: NEVACLOG

INLET/OUTLET: -/ 50 mm

IMP. THROUGHLET: 48 mm



DUTY-POINT	FLOW[USgpm]	HEAD[m]	POWER [hp]	EFF [%]	(NPSHR)[m]
B.E.P.	149.4	7.49	1.95 (1.54)	47.7	(60.3)

SHOP DRAWINGS ARE REVIEWED UNLESS NOTED OTHERWISE
REVIEWED
REVIEWED AS MODIFIED
REVISE & RESUBMIT
SEAL/SIGNATURE REQUIRED
DATE 12 JUN 2011
SIGNATURE
REVIEW BY STANTEC IS FOR THE SOLE PURPOSE OF ASCERTAINING GENERAL CONFORMITY WITH DESIGN. CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS, FABRICATION AND CONSTRUCTION METHODS, COORDINATION OF SUB-TRADES, DETAIL DESIGN OF COMPONENTS, AND ERRORS OR OMISSIONS ON SHOP DRAWINGS.

FLYPS3.1.6.6 (20090313)

Performance with clear water and rating data at 40 °C

CURVE

District of West Kelowna

Sanitary Lift Station Evaluation

Station: Whitworth LS 3
Reviewed By: Jim Kentel

Year Constructed: 2000
Year Upgraded:

Matrix Rating			
(10 - highest rating)	Civil	31	
(1 - lowest rating)	Process Mechanical	149	
	Electrical Instrumentation	104	
	Total Station Rating	284	(max. rating 370 points)

Civil:

		Matrix Rating
Parking Area:		n/a
Drainage:	Good	10
Influent sewer:	Gravity 200	10
Site access:	Good	10
Water service:	No	1
		31

Process Mechanical:

Station type:	FRP 2.44m diameter	n/a
Number of pumps:	2	n/a
Pump Redundancy:	Yes	n/a
Pump Manufacturer / Type:	FLYGT Grinder	5
MP Pump Model:	3102HT	n/a
Rated Capacity:	4.0L/S @ 35.7m TDH	n/a
Capacity Confirmation:		n/a
Forcemain pipe type / diameter:	PVC SDR26/100	10
Header pipe type / diameter:	75	18
Check valve type / diameter:	Sinking Ball HDL/75	18
Isolation valve type / diameter:	CI Plug Valve /75	18
Piping Condition:		8
Emergency pumpout connection:	Yes/100	10
Pressure gauges:	No	1
Inlet bar screen:	No	1
Wetwell condition:	Good	8
Access Hatches:	MSU type M	10
Ladder / Platform:	Yes/FRP Grating	10
Wetwell benching:	Yes	10
Odour Control:	No	1
Ventilation:	Yes	10
Water washdown:		1
nfined Space Entry Requirements	Davit	10
		149

Electrical / Instrumentation:

			Matrix Rating
Service Type	V / A / Phase / Wire		n/a
Pump 1 :	HP 6.0		n/a
	Volts/600	Rpm 3475	n/a
	FLA 5.7A		n/a
Starting Current	44.0A		n/a
Pump 2 :	HP 6.0		n/a
	Volts/600	Rpm 3475	n/a
	FLA 5.7A		n/a
Starting Current	44.0A		n/a
Alarm Functions:	Yes		10
			n/a
			n/a
			n/a
Receptacle	Yes		10
Interior Lighting:	Yes		10
Exterior Lighting:			1
SCADA / Telemetry:			5
Main Breaker:			10
Control Panel:			10
Lighting Panel:			10
Flowmeter:	No		1
Grounding:			10
Surge Protection:			10
UPS:	Yes		10
PLC:			1
Level Control:	FLYGT Bulbs Milltronics		5
Standby Generator:	No		1
			104

Comments:

"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."

LEGEND: WATER, SAN, STORM, GAS, UGTEL, UGELEC, CENTER; HYDRANT, MANHOLE, CATCH BASIN, POWER POLE (PP), LAMP STANDARD (LS)

No.	Date	By	Revision	Ch'd
6	15.05.00		RECORD DRAWING	
5	MAR16/00		RE-ISSUED FOR CONSTRUCTION	
4	FEB11/00		ISSUED FOR CONSTRUCTION	
3	NOV17'99		REISSUED FOR BID	
2	DEC.2/98		ISSUED FOR BID	
1	JUL'97		ISSUED FOR APPROVAL	

ASSOCIATED ENGINEERING

Drawn:
Design: AA
Approved:
Date: APR' 1997
Scale: H= 1:500 V= 1:50

00/09/27

REGIONAL DISTRICT CENTRAL OKANAGAN

WESTSIDE SANITARY SEWER PROJECT
WHITWORTH ROAD
SEWAGE PUMP STATION DETAILS

Drawing No. 2621-3-107R

Rev.No 6

PERFORMANCE CURVE

PRODUCT: MP3102.170	TYPE: HT		
DATE: 2013-08-27	PROJECT: WHITWORTH LS 3	CURVE NO: 63-263-00-5260	ISSUE: 6

	1/1-LOAD	3/4-LOAD	1/2-LOAD
MOTOR COS PHI	0.93	0.91	0.87
MOTOR EFFICIENCY	80.5 %	80.5 %	78.5 %
GEAR EFFICIENCY	---	---	---

MOTOR SHAFT POWER	6	hp
STARTING CURRENT ...	44	A
RATED CURRENT ...	5.7	A
RATED SPEED	3475	rpm
TOT.MOM.OF INERTIA ...	---	
NO. OF BLADES	6	

IMPELLER DIAMETER: 155 mm

MOTORTYPE	STATOR	REV
18-10-2AL	52D	11

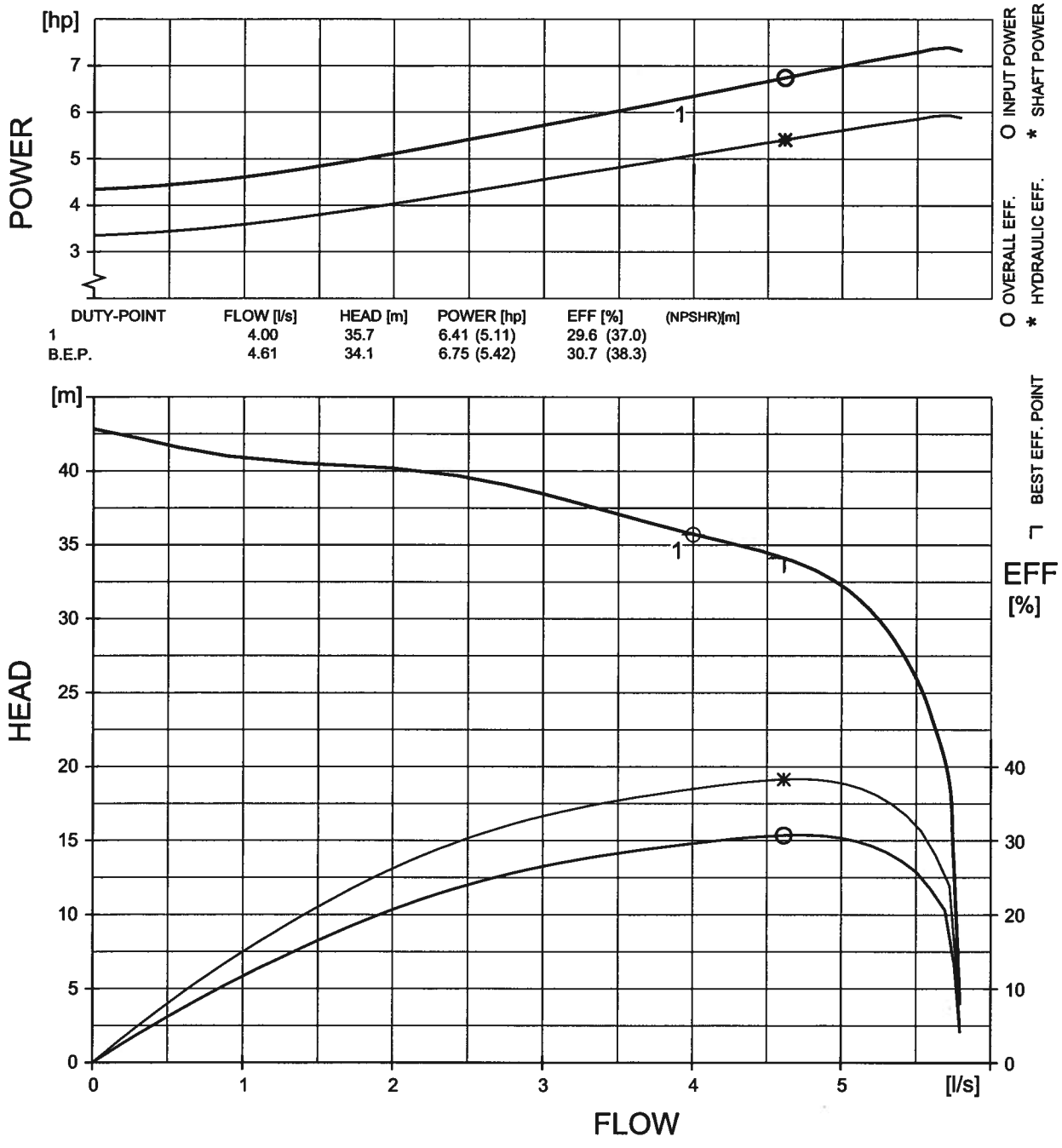
FREQ.	PHASES	VOLTAGE	POLES
60 Hz	3	600 V	2

GEARTYPE: --- RATIO: ---

COMMENTS

INLET/OUTLET: -/ 40 mm

IMP. THROUGHLET: ---



DUTY-POINT	FLOW [l/s]	HEAD [m]	POWER [hp]	EFF [%]	(NPSHR)[m]
1	4.00	35.7	6.41 (5.11)	29.6 (37.0)	
B.E.P.	4.61	34.1	6.75 (5.42)	30.7 (38.3)	

Performance with clear water and rating data at 40 °C

FLYPS3.1.5.7 (20060531)

CURVE

District of West Kelowna

Sanitary Lift Station Evaluation

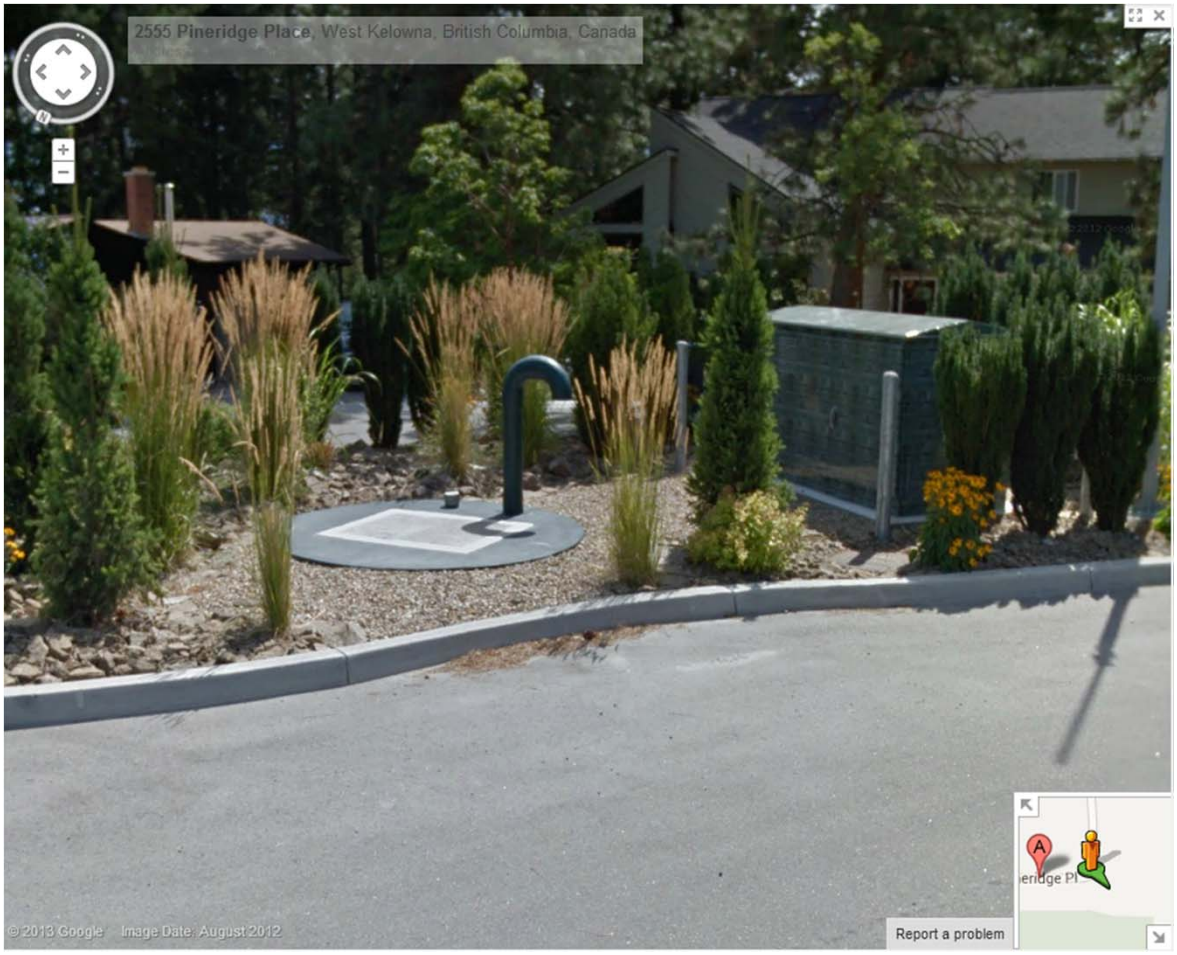
Station: Pineridge LS4

Reviewed By: Jim Kentel

Year Constructed: 8/1/2010

Year Upgraded:

Matrix Rating			
(10 - highest rating)	Civil	40	
(1 - lowest rating)	Process Mechanical	151	
	Electrical Instrumentation	141	
	Total Station Rating	332	(max. rating 370 points)



Civil:

		Matrix Rating
Parking Area:		n/a
Drainage:	Good	10
Influent sewer:	Gravity 200	10
Site access:	Landscaped boulevard	10
Water service:	Yes	10
		40

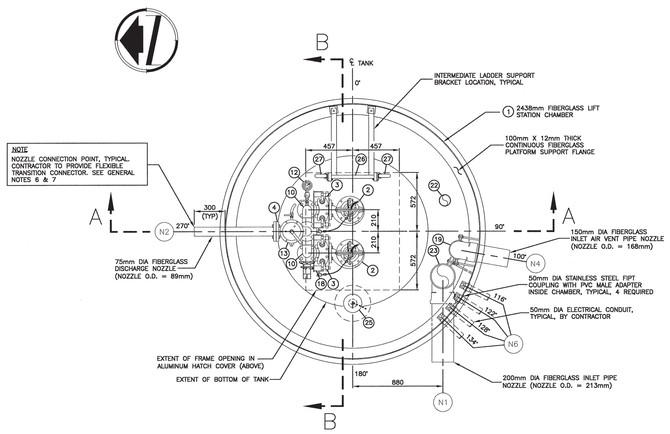
Process Mechanical:

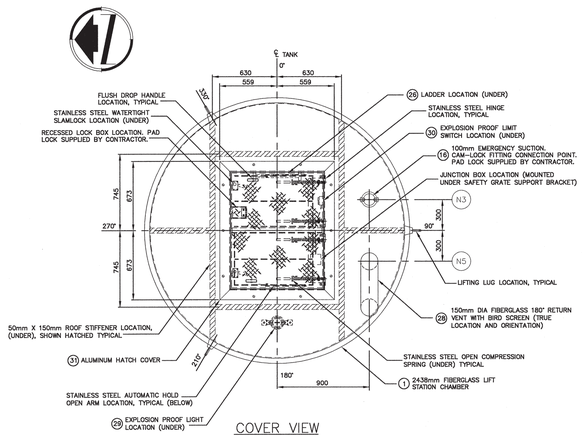
Station type:	FRP 2.44m diameter	n/a
Number of pumps:	2	n/a
Pump Redundancy:	Yes Engineered pumps	n/a
Pump Manufacturer / Type:	Myers	9
Pump Model:	3VX20M4-21-50	n/a
Rated Capacity:	4.7 L/S @ 9.1m TDH	n/a
Capacity Confirmation:		n/a
Discharge pipe type / diameter:	PVC Senes 160/75	10
Header pipe type / diameter:	Sch 40 Steel Epoxy Coated /75	10
Check valve type / diameter:	C1 swing flomatic 745/75	10
Isolation valve type / diameter:	Plug Valve homestead /75	10
Piping Condition:	Good	10
Emergency pumpout connection:	Yes	10
Pressure gauges:	Yes	10
Inlet bar screen:	No	1
Wetwell condition:	Good	10
Access Hatches:	Alum	10
Ladder / Platform:	Alum/FRP	10
Wetwell benching:	Yes/FRP	10
Odour Control:	No	1
Ventilation:	Yes	10
Water washdown:	Yes	10
nfined Space Entry Requirements	Davit	10
		151

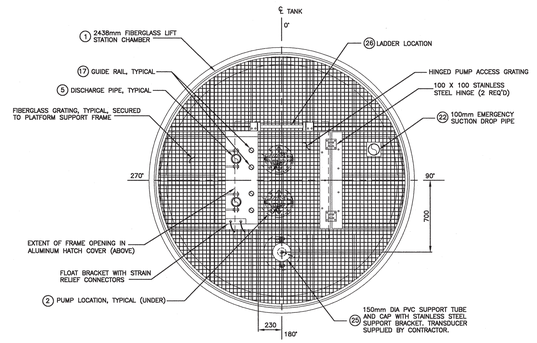
Electrical / Instrumentation:

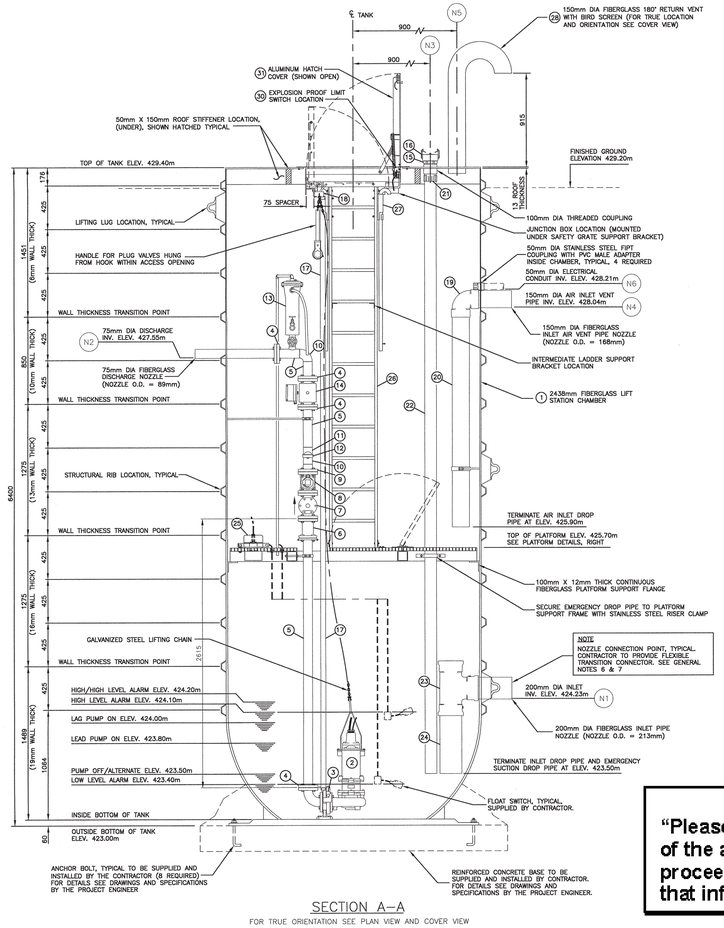
		Matrix Rating
Service Type	V / A / Phase / Wire	n/a
Pump 1 :	HP 2	n/a
	Volts 230 Rpm 1750	n/a
	FLA	n/a
	Starting Current	n/a
Pump 2 :	HP 2	n/a
	Volts 230 Rpm 1750	n/a
	FLA	n/a
	Starting Current	n/a
Alarm Functions:	Yes	10
		n/a
		n/a
		n/a
Receptacle	Yes	10
Interior Lighting:	Yes	10
Exterior Lighting:	Yes	10
SCADA / Telemetry:	Yes	10
Main Breaker:	100A	10
Control Panel:	Yes	10
Lighting Panel:	Yes	10
Flowmeter:	Siemens Sitrans FM3 3100W	10
Grounding:	Yes	10
Surge Protection:	Yes	10
UPS:	Yes	10
PLC:	Yes	10
Level Control:	Yes Milltronics/Bulbs	10
Standby Generator:	No	1
		141

Comments: New Station









PLAN VIEW

FIBERGLASS ROOF, HATCH COVER AND PLATFORM ASSEMBLY REMOVED FOR CLARITY

COVER VIEW

PLATFORM ASSEMBLY DETAIL

FIBERGLASS ROOF AND INTERNAL PIPING REMOVED FOR CLARITY

SECTION A–A

FOR TRUE ORIENTATION SEE PLAN VIEW AND COVER VIEW

SECTION B–B

PLATFORM SUPPORT FRAME DETAIL

BASE PLATE DETAILS

“Please note that it is the user’s responsibility to confirm the accuracy of the as-constructed information shown on this drawing before proceeding with any work (i.e. design or construction) that is based on that information.”

MARK UP	NOM. SIZE	# REQ.	TYPE	SCH	O.D.	END TYPE	HEIGHT FROM DATUM TO NOZZLE INVERT	PROJ. FROM TANK TO NOZZLE INVERT	DESCRIPTION
N6	50	4	S.S.	40	N/A	FIPT	5210	50	ELECTRICAL
N5	150	1	FRP	150 psi	N/A	180° RETURN	N/A	N/A	EXHAUST AIR VENT
N4	150	1	FRP	150 psi	168	PLN.END	5040	300	INLET AIR VENT
N3	100	1	ALUM.	40	N/A	CAM LOCK	N/A	N/A	EMERGENCY SUCTION
N2	75	1	FRP	150 psi	89	PLAIN END	4550	300	DISCHARGE
N1	200	1	FRP	150 psi	213	PLAIN END	1230	300	INLET

NOZZLE SCHEDULE

FRP TANK CERTIFIED FOR STRUCTURAL ADEQUACY

engineered pump systems ltd.
1635 INDUSTRIAL AVENUE, PORT COQUITLAM, B.C. V3C 6M9 TEL (604)552-7900 FAX (604)552-7901
115, 9920 – 63rd AVENUE, EDMONTON, ALBERTA T6E 0G9 TEL (780)439-7800 FAX (780)439-7840

NUMBER	DESCRIPTION
10-314	DISTRICT OF WEST KELOWNA PINERIDGE PLACE

EQUIPMENT SPECIFICATION

ITEM	QTY.	DESCRIPTION
1.	1	FIBERGLASS PREFABRICATED TANK, 2438mm DIA X 6400mm DEEP WITH FRP ROOF AND ALUMINUM HATCH COVER AND ANTI-FLOATATION FLANGE (DIMENSIONS AS SHOWN)
2.	2	MYERS MODEL 3VX20M4-21-50, 1.49 kW (2 HP) SOLIDS HANDLING SEWAGE PUMP, 230/1/60Hz WITH A CAPACITY OF 4.7 L/S (75 USGPM) AT 9.14m (30') TDH AT 1750 RPM WITH 15.24m (50') LONG POWER & CONTROL CABLES (PUMPS SHIPPED LOOSE)
3.	2	MYERS MODEL SRA33 LIFT-OUT RAIL ASSEMBLY WITH 75mm FLANGED DISCHARGE ELBOW
4.	5	75mm SCH 40 STEEL SLIP-ON WELD FLANGE, CLASS 150
5.	5	75mm SCH 40 STEEL SCH 40 STEEL DISCHARGE PIPE, BLAST CLEANED, COAL TAR EPOXY COATED
6.	2	75mm ROMAC MODEL RFCA RESTRAINED FLANGED COUPLING ADAPTOR WITH STAINLESS STEEL TRIM
7.	2	75mm FLOMATIC MODEL 745, CAST IRON, FLANGED, SWING CHECK VALVE
8.	2	75mm HOMESTEAD SERIES 120 ECCENTRIC PLUG VALVE, CAST IRON, FLANGED WITH LEVER OPERATOR
9.	2	75mm SCH 40 STEEL WELD NECK FLANGE, CLASS 150
10.	3	75mm SCH 40 STEEL SHORT RADIUS 90° ELBOW, WELD FITTING
11.	1	75mm SCH 40 STEEL STRAIGHT TEE, WELD FITTING
12.	1	PRESSURE GAUGE, 0-30 psi, LIQUID FILLED WITH 100mm STAINLESS STEEL CASE, STAINLESS STEEL DIAPHRAGM SEAL & 13mm WELDOLET, NIPPLE AND BRASS BALL VALVE, THREADED (PRESSURE GAUGE SHIPPED LOOSE)
13.	1	FLOMATIC MODEL SEWAIR – MINI PRESSURE SEWAGE AIR RELEASE VALVE WITH BACKFLUSH ATTACHMENTS AND 25mm PVC PIPE AND FITTINGS TO BELOW PLATFORM ELEVATION (SHIPPED LOOSE)
14.	1	75mm SIEMENS SITRANS FLOW METER MODEL FM3 MAG 3100W WITH REMOTE MOUNTED TOTALIZER AND 20m OF CABLE. FLOW METER RATED FOR CLASS 1, DIVISION 2 LOCATIONS.
15.	1	75mm ALUMINUM CAM-LOCK FITTING, PART F – ADAPTOR MALE THREAD
16.	1	75mm ALUMINUM CAM-LOCK FITTING, PART DC – DUST CAP
17.	4	38mm SCH 40 GALVANIZED STEEL GUIDE RAIL PIPES
18.	2	MYERS TRA15 UPPER GUIDE RAIL SUPPORT WITH CHAIN HOOK AND 75mm SPACER
19.	1	150mm SCH 40 PVC 90° ELBOW
20.	1	150mm SCH 40 PVC PIPE
21.	1	100mm PVC MALE ADAPTOR
22.	1	100mm SCH 40 PVC PIPE
23.	1	200mm SDR35 PVC TEE
24.	1	200mm SDR 35 PVC PIPE
25.	1	150mm DIA. PVC TRANSDUCER STILLING TUBE WITH REMOVABLE CAP AND STAINLESS STEEL SUPPORT CLAMP (TRANSDUCER SUPPLIED BY CONTRACTOR)
26.	1	FEATHERLITE SERIES 4000 EXTRA-HEAVY DUTY ALUMINUM LADDER
27.	2	STAINLESS STEEL RETRACTABLE HAND GRAB ASSEMBLY
28.	1	150mm FIBERGLASS 180° RETURN EXHAUST VENT WITH BIRD SCREEN
29.	1	SEPTALIGHT MODEL LVPF150HRC-HAZ, 150 Watt EXPLOSION PROOF LIGHT WITH MOUNTING BRACKET AND WITH 9.1m (30') LONG POWER CORD
30.	1	EXPLOSION PROOF LIMIT SWITCH WITH CORD AND JUNCTION BOX
31.	1	USF FABRICATION MODEL APD300 36 X 45 ALUMINUM HATCH COVER. FOR DETAILS SEE DRAWING 10-314-H1

GENERAL NOTES:

1. FIBERGLASS TANK TO BE A CROSS STRAND MOLDED FIBERGLASS BASIN WITH TRAPEZOIDAL RIBS FABRICATED WITH 100% PREMIUM RESIN AND GLASS-FIBRE REINFORCEMENT. NO SAND FILLERS. ALL CUT EDGES SHALL BE COATED WITH RESIN SO THAT NO GLASS FIBRES ARE EXPOSED AND ALL VOIDS FILLED. INTERIOR TO BE WHITE, EXTERIOR TOP 0.9m (3') TO BE DARK GREEN WITH U.V. INHIBITORS. ALL WALL PENETRATIONS FOR BRACKETS AND COUPLINGS TO BE FIBERGLASSED OVER TO PROVIDE A LEAK PROOF SEAL.
2. THE FIBERGLASS TANK SHALL BE DESIGNED AND CONSTRUCTED TO WITHSTAND OR EXCEED WALL COLLAPSE AND BUCKLING AT FULL DEPTH OF EXTERNAL HYDROSTATIC FORCES WITH A 3:1 SAFETY FACTOR, BASED ON THE FOLLOWING LOADING CONDITIONS:
   a. UNIT WEIGHT OF WATER IS 62.4 lbs. PER CUBIC FOOT
   b. SATURATED SOIL UNIT WEIGHT OF 120 lbs. PER CUBIC FOOT
   c. MODULUS OF SOIL REACTION OF 700 lbs. PER SQUARE INCH
3. THE FIBERGLASS TANK SHALL BE TESTED BY THE MANUFACTURER TO A BARCOL HARDNESS OF AT LEAST 80% OF THE RESIN MANUFACTURER'S SPECIFIC HARDNESS FOR FULLY CURED RESIN. THE FOLLOWING PERTINENT AVERAGE MATERIALS PROPERTIES SHALL BE USED IN ANALYSIS FOR FIBERGLASS COMPOSITE IN THE FIBERGLASS TANK:

a.	TENSILE MODULUS	900,000 psi
b.	FLEXURAL MODULUS	900,000 psi
c.	TENSILE STRENGTH	10,000 psi
d.	COMPRESSIVE STRENGTH	20,000 psi
e.	POISSON'S RATIO	0.3

4. ALL F.R.P. WORK SHALL MEET OR EXCEED:

CAN/CGSB	– 41.GP-22
A.S.T.M.	– D833
A.S.T.M.	– D3753

5. NOZZLES TO BE LOCATED AS SHOWN ON THIS DRAWING. NOZZLES SHALL BE FRP PIPE ATTACHED BY FIBERGLASS ROVING TO THE OUTER SHELL.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUPPLY AND INSTALLATION OF FLEXIBLE TRANSITION CONNECTIONS TO THE PUMP STATION NOZZLES. THIS CONNECTOR MUST BE SUITABLE TO COMPENSATE FOR STRESSES IMPOSED ON THE CONNECTION CAUSED BY GROUND SETTLEMENT, COMPACTION AND ANY OTHER EXTERNAL FORCES.
7. ALL PIPING AND OTHER ATTACHMENTS SHALL BE INSTALLED IN SUCH A WAY TO PREVENT STRESSES BEING INDUCED ON THE TANK.
8. PIPING TO BE SCH 40 STEEL, BLAST CLEANED TO SSPC-SP-10, AND COATED WITH COAL TAR EPOXY TO AWWA STANDARDS, BY EPSL.
9. ALL NUTS, BOLTS AND WASHERS TO BE 300 SERIES STAINLESS STEEL.
10. ELEVATIONS ARE LISTED IN METERS.
11. PUMPS, SEWAGE AIR RELEASE VALVE ASSEMBLY AND PRESSURE GAUGE SHIPPED LOOSE FOR INSTALLATION, ON SITE, BY THE CONTRACTOR.
12. THE SUPPLIER RESERVES THE RIGHT TO OBSERVE THE TANK INSTALLATION.
13. ALL ELECTRICAL WORK TO BE CARRIED OUT BY THE CONTRACTOR, INCLUDING THE INSTALLATION OF THE PUMPS AND THE SUPPLY AND INSTALLATION OF ANY ELECTRICAL CONDUITS AND COUPLINGS, FLOAT SWITCHES, ULTRASONIC TRANSDUCER, THE WIRING OF THE EXPLOSION PROOF LIGHT AND LIMIT SWITCH AND THE SUPPLY AND INSTALLATION OF ALL CONTROLS INCLUDING THE PUMP CONTROL KIOSK.
14. ALL COUPLINGS, CONNECTIONS AND PIPING EXTERIOR TO THE TANK WALL TO BE SUPPLIED AND INSTALLED BY THE CONTRACTOR.
15. ALL PAD LOCKS TO BE SUPPLIED BY THE CONTRACTOR.
16. REINFORCED CONCRETE SUPPORT BASE AND ANCHORING SYSTEM FOR THE PUMP STATION TO BE SUPPLIED AND FULLY INSTALLED BY THE CONTRACTOR. FOR DETAILS, SEE DRAWINGS AND SPECIFICATIONS BY THE PROJECT ENGINEER.
17. THE MANUFACTURER RESERVES THE RIGHT TO MODIFY THE DESIGN AT ANY TIME WITHOUT PRIOR NOTICE.
18. FORCEMAIN TRANSIENT PRESSURE ANALYSIS BY OTHERS.
19. NO ASSESSMENT HAS BEEN MADE OF GROUND CONDITIONS OR SUITABILITY OF THE SITE FOR THE CONSTRUCTION OF THE PUMP STATION SHOWN ON THIS DRAWING. IT IS THE RESPONSIBILITY OF THE OWNER AND HIS AGENTS TO ASSESS THE GROUND CONDITIONS AND TO SPECIFY THE WORK REQUIRED FOR EXCAVATION, BACKFILLING AND STABILITY.
20. SOILS ENGINEERING TO BE SUPPLIED BY OTHERS. PUMP STATION CONCRETE BASE AND BACKFILL SHALL BE DESIGNED BY OTHERS TO RESIST FLOATATION.
21. FOR TANK INSTALLATION INSTRUCTIONS AND AND BACKFILL GUIDELINES SEE DOCUMENTS BY XERXES CORPORATION.
22. FOR ADDITIONAL INFORMATION CONCERNING THIS PUMP STATION INCLUDING INSTALLATION AND CONSTRUCTION NOTES, PUMP STATION LOCATION, SITE AND GRADING PLANS, SEE DRAWINGS AND SPECIFICATIONS BY PROJECT ENGINEER.

ISSUE NO.	D/M/Y DATE	DESCRIPTION	DR	CH	APP
2	25/08/10	AS BUILT	JB	AKP	EM
1	30/06/10	AS ISSUED FOR APPROVAL	JB	AKP	EM

DISTRICT OF WEST KELOWNA
PINERIDGE PLACE
SEWAGE LIFT STATION

SCALE 1:25	APPROVED BY	DRAWN	JB
DATE JUNE/10		PROJECT	10-314

TITLE
GENERAL ARRANGEMENT

engineered pump systems ltd.
DRAWING NO.
10-314-M1

MYERS ALTERNATIVE INSTALLED

PERFORMANCE CURVE

PRODUCT	TYPE
CP3045.181	HT

DATE	PROJECT	CURVE NO	ISSUE
2010-02-22	Pineridge DWK 75mm FM LS4	63-252-00-3164	1

	1/1-LOAD	3/4-LOAD	1/2-LOAD
MOTOR COS PHI	0.84	0.77	0.65
MOTOR EFFICIENCY	77.5 %	77.5 %	74.0 %
GEAR EFFICIENCY	---	---	---

MOTOR SHAFT POWER	1.8	hp
STARTING CURRENT ...	15	A
RATED CURRENT ...	2.0	A
RATED SPEED	3390	rpm
TOT.MOM.OF INERTIA ...	---	
NO. OF BLADES	1	

IMPELLER DIAMETER: 90 mm

MOTORTYPE	STATOR	REV
12-08-2BB	05Y	10

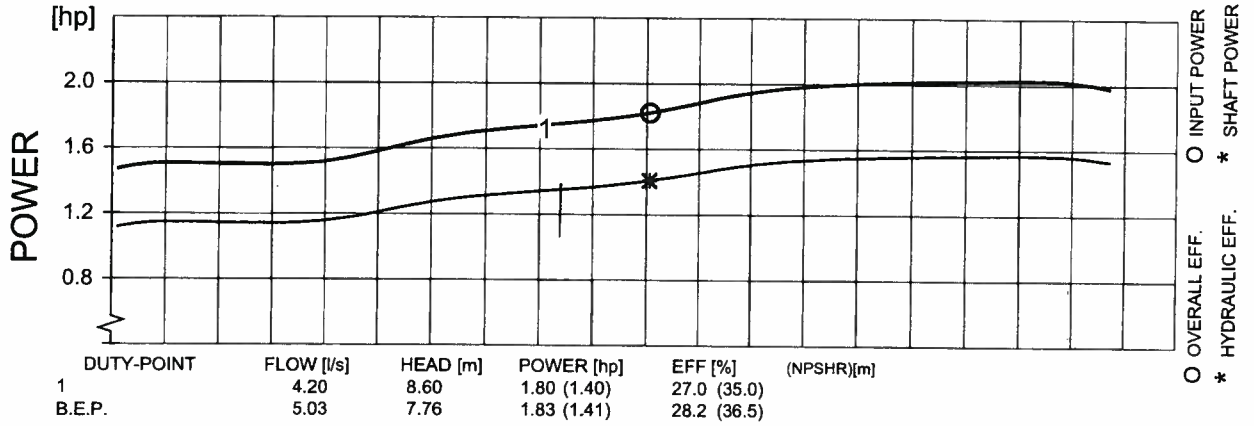
FREQ.	PHASES	VOLTAGE	POLES
60 Hz	3	600 V	2

GEARTYPE	RATIO
---	---

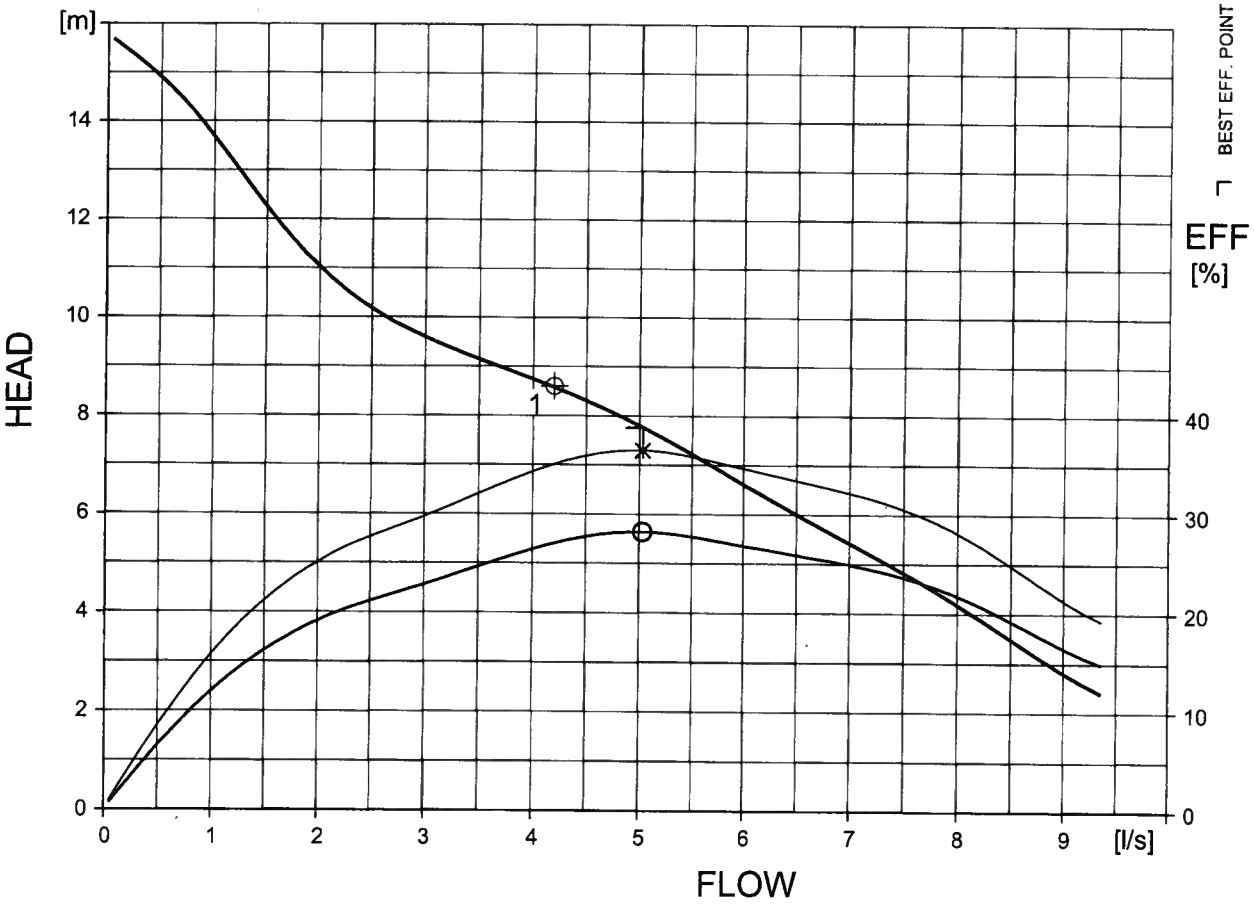
COMMENTS: NEVACLOG

INLET/OUTLET: -/ 50 mm

IMP. THROUGHLET: 44 mm



DUTY-POINT	FLOW [l/s]	HEAD [m]	POWER [hp]	EFF [%]	(NPSHR)[m]
1	4.20	8.60	1.80 (1.40)	27.0 (35.0)	
B.E.P.	5.03	7.76	1.83 (1.41)	28.2 (36.5)	



FLYPS3.1.5.7 (20060531)

Performance with clear water and rating data at 40 °C

CURVE

engineered pump systems ltd.

1635 INDUSTRIAL AVENUE, PORT COQUITLAM, BC V3C 6M9
PHONE: (604) 552-7900 FAX: (604) 552-7901
TOLL FREE: 1-800-668-4533 E-MAIL: epsl@telus.net

TO:

DATE: May 10, 2010
QUOTATION NO: 10-314

ATTENTION:

REFERENCE: **District of West Kelowna**
Pineridge Sanitary Sewer
Lift Station
"Myers Pump Alternate"

WE ARE PLEASED TO QUOTE AS FOLLOWS:-

QUANTITY	DESCRIPTION	UNIT PRICE	PRICE
1	***We are pleased to propose the following equipment as an alternate to the specified system for installation by others.*** **General:** Factory built, wet well mounted, two (2) pump automatic underground pump station model EPS96.252.AF3V. The pump station chamber shall be fiberglass construction furnished in one (1) main section, 2.4 meters diameter, 6.4 meters deep. The pump station will be furnished with pumps, lift-out slide rail, piping, valves, ladder and platform landing. **Pumps – Two (2) Required:** Pumps to be Myers model 3VX20M4-21-50 heavy duty cast iron submersible solids handling type sewage pumps factory tested, each with a capacity of 3.4 LPS (54 USGPM) against a total dynamic head of 8.2 meters (27 ft.) operating at a maximum speed of 1750 RPM. Pump motors to be 2 HP, 230 volt, single phase, 60 cycle, supplied with 50 ft. power and control cable. Pump motors to be CSA listed for Class 1, Division 1, Hazardous locations and supplied with heat sensor and seal leak features. **Pump Slide Rail:** Each pump shall be assembled complete with a lift-out slide rail system. Each rail system shall include a 75mm (3") flanged cast iron discharge assembly, upper and lower guide rail supports, pump carrier and galvanized pump lifting chains. Four (4) lengths 38mm (1 1/2") galvanized steel guide rails shall be factory installed. **Piping and Valves:** A 75mm (3") cast iron swing check valve Flomatic Flow Flex model 745 and a 75mm (3") plug valve with lever operator shall be factory installed on the discharge of each pump. .../2		

Piping and Valves continued...

Piping shall be schedule 40 steel, fabricated to suit the installation. Two (2) 75mm (3") discharge risers shall be furnished for connection to a common 3" discharge. Header supplied with 12mm (1/2") gauge coupling, ball valve and 4" ENFM liquid filled pressure gauge with stainless steel diaphragm seal and 2" coupling, ball valve and Flomatic Sewair – mini air release valve with back flush attachments. Flange adapters shall be installed at each check valve for ease of service. After fabrication all piping to be blast cleaned and epoxy coated to AWWA standards. All nuts, bolts and washers to be 300 Series stainless steel. Discharge nozzles shall terminate with plain ends. A 4" PVC emergency suction line with camlock fitting and drop pipe shall be installed with stainless steel support clamps.

Fiberglass Chamber:

The pump chamber shall be spray and chop FRP construction, manufactured in accordance with ASTM D883, ASTM-D3753 and CGS41.GP.22 standards for underground fiberglass tanks. The chamber shall be furnished in one (1) main section, 2.4 meters diameter, 6.4 meters deep. The tank sidewall shall be reinforced with sufficient structural ribs to withstand loading. The bottom shall have a reinforced fiberglass anti-floatation flange on the exterior and cone type benching on the interior. An aluminum platform landing with hinged pump access hatches shall be installed at an intermediate elevation. An aluminum ladder to ANSI and CSA standards shall be installed terminating at the platform level. Two (2) stainless steel retractable hand grabs shall be provided.

Inlets, discharge, vent and electrical nozzles shall be furnished where necessary. To include 1-200mm (8") inlet, 1-75mm (3") discharge, 4-50mm (2") electrical and 1-150mm (6") FRP roof mounted vent. A float and transducer support shall be factory installed. An FRP station roof shall be furnished with double leaf retrofit type aluminum hatch with hatch stay, oversized recessed lockbox, stainless steel compression spring lift assist, slamlock, hinged safety grate, and upper rail supports. An explosion proof 100w light fixture shall be roof mounted inside the wet well. Fiberglass tank structural design drawings to be certified by a Professional Engineer registered in B.C.

Flow Meter

A Siemens Sitrans Flow Meter model FM3 MAG 5100W shall be supplied with remote totalizer and 20m of cable. Flow meter rated Class 1, Division 2 locations.

2 Myers seal leak heat sensor alarm control units. Supplied loose for panel mounting by others.

.../3

District of West Kelowna

Sanitary Lift Station Evaluation

Station: Hitchner-Jennens LS 5

Inspection By: Jim Kentel

Year Constructed: 5/1/2000

Year Upgraded:

Matrix Rating			
(10 - highest rating)	Civil	40	
(1 - lowest rating)	Process Mechanical	150	
	Electrical Instrumentation	104	
	Total Station Rating	294	(max. rating 370 points)

Civil:

		Matrix Rating
Parking Area:		n/a
Drainage:	Good	10
Influent sewer:	Gravity 200 PVC	10
Site access:	Good	10
Water service:	Yes Yard Hydrant	10
		40

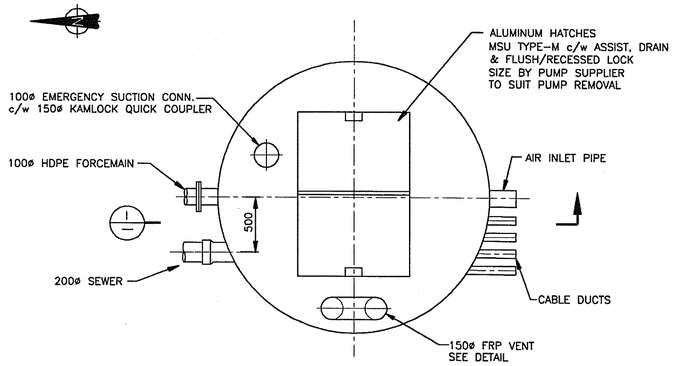
Process Mechanical:

		Matrix Rating
Station type:	Submersible FRP 2.44m tank	n/a
Number of pumps:	2	n/a
Pump Redundancy:	Yes	n/a
Pump Manufacturer / Type:	FLYGT Grinder	10
Pump Model:	MP3102 LT	n/a
Rated Capacity:		n/a
Capacity Confirmation:		n/a
Forcemain pipe type / diameter:	PVC/100	10
Header pipe type / diameter:	75 FRP	10
Check valve type / diameter:	HDL / 75	10
Isolation valve type / diameter:	CI Plug Valve/75	10
Piping Condition:	Good	8
Emergency pumpout connection:	Yes	10
Pressure gauges:	No	1
Inlet bar screen:	No	1
Wetwell condition:	Good	10
Access Hatches:	Alum MSU	10
Ladder / Platform:	Alum/FRP	10
Wetwell benching:	Yes FRP	10
Odour Control:	Yes chemical feed from May to June by RDCO	10
Ventilation:	Yes	10
Water washdown:	Yes	10
nfined Space Entry Requirements	Davit	10
		150

Electrical / Instrumentation:

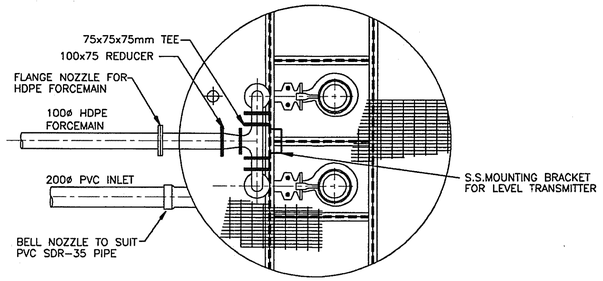
			Matrix Rating
Service Type	V / A / Phase / Wire		n/a
Pump 1 :	HP 6.0		n/a
	Volts 600	Rpm 3500	n/a
	FLA 5.7A		n/a
Starting Current	44.0A		n/a
Pump 2 :	HP 6.0		n/a
	Volts 600	Rpm 3500	n/a
	FLA 5.7A		n/a
Starting Current	44.0A		n/a
Alarm Functions:	Yes		10
			n/a
			n/a
			n/a
Receptacle	Yes		10
Interior Lighting:	Yes		10
Exterior Lighting:	No		1
SCADA / Telemetry:			5
Main Breaker:			10
Control Panel:	Yes		10
Lighting Panel:	Yes		10
Flowmeter:	No		1
Grounding:	Yes		10
Surge Protection:	Yes		10
UPS:	Yes		10
PLC:	Yes		1
Level Control:	Yes Milltronic bulb		5
Standby Generator:	No		1
			104

Comments:



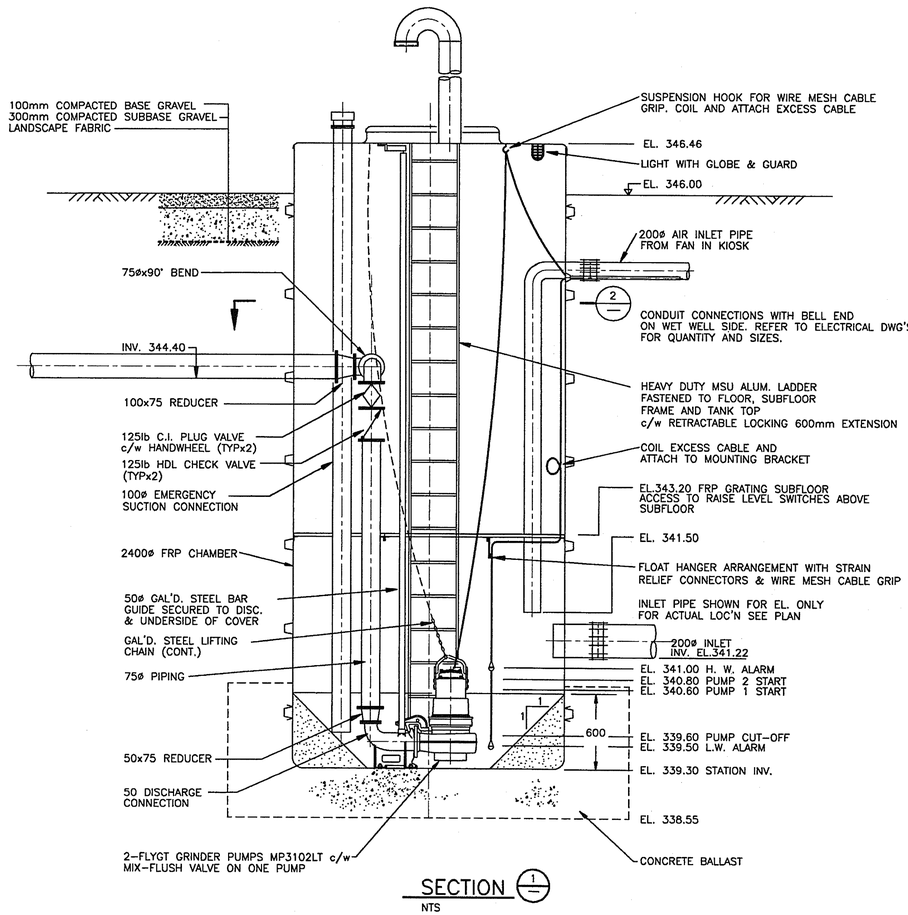
PLAN

NTS



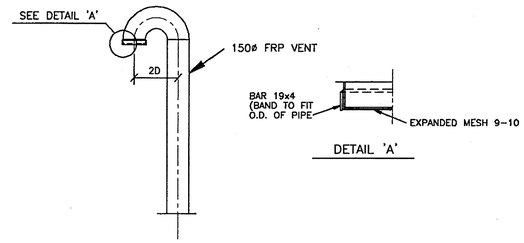
SECTION (2)

NTS



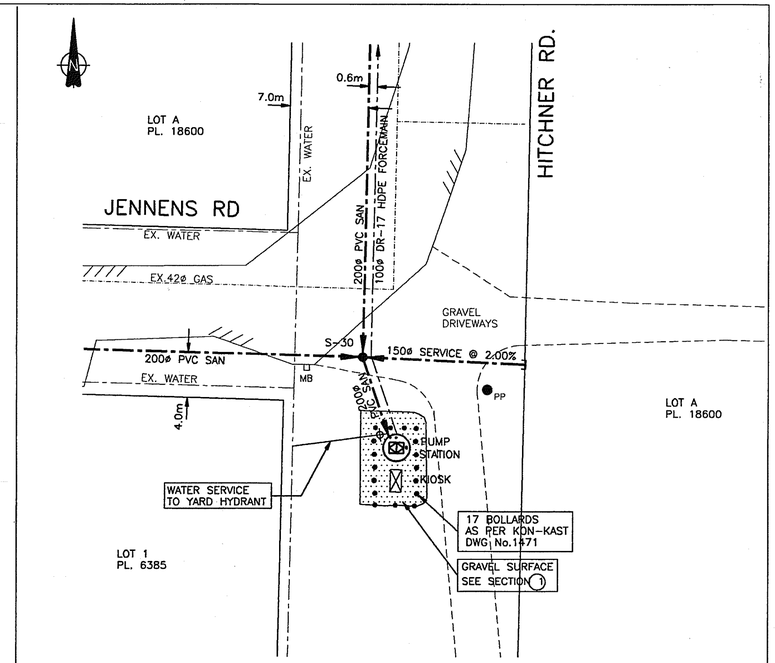
SECTION (1)

NTS



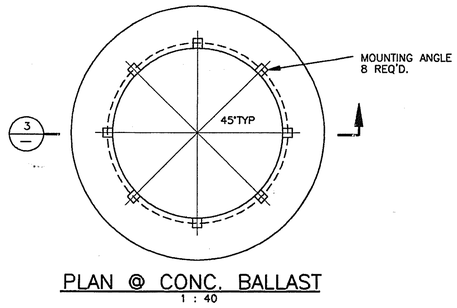
VENT DETAIL

NTS



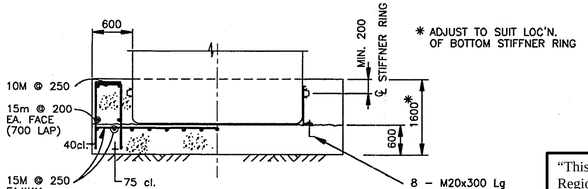
SITE PLAN

NTS



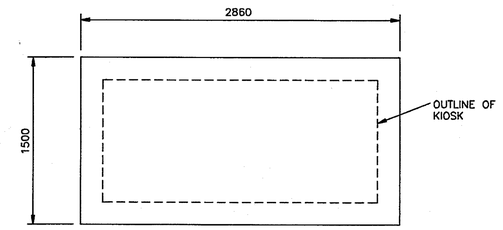
PLAN @ CONC. BALLAST

1 : 40

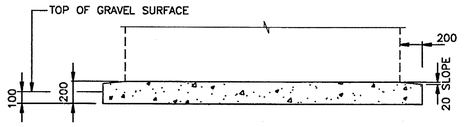


SECTION (3)

1 : 40



PLAN



ELEVATION

CONCRETE KIOSK PAD

NTS

"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."

NOTE:
FOR CONDUIT CONFIGURATION AND KIOSK PAD BLOCKOUT LOCATIONS REFER TO INTERIOR INSTRUMENT TECH SERVICES LTD. DRAWING HIT-E-106

LEGEND

WATER		HYDRANT	✦
SAN		MANHOLE	○
STORM		CATCH BASIN	▨
GAS		POWER POLE	● PP
UGTEL		LAMP STANDARD	□ LS
UGELEC			
CENTER			

No.	Date	By	Revision	Ch'd
4	15.05.00		RECORD DRAWING	
3	31/01/00		ISSUED FOR CONSTRUCTION	
2	DEC.2/98		ISSUED FOR BID	
1	JUL'97		ISSUED FOR APPROVAL	

ASSOCIATED ENGINEERING

REGIONAL DISTRICT OF CENTRAL OKANAGAN

Drawn	KR
Design	AA
Approved	
Date	APR' 1997
Scale	H= 1:500 V= 1:50

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — A.W. AMBROZY — 00/12/19

REGIONAL DISTRICT CENTRAL OKANAGAN

WESTSIDE SANITARY SEWER PROJECT JENNENS & HITCHNER ROADS SEWAGE PUMP STATION DETAILS

Drawing No. 2621-R-105

Rev.No 4

FLYGT

PERFORMANCE CURVE

PRODUCT	TYPE
MP3102.170	LT

DATE	PROJECT	CURVE NO	ISSUE
2013-10-25	HITCHNER - JENNENS LS 5	63-212-00-5210	6

	1/1-LOAD	3/4-LOAD	1/2-LOAD
MOTOR COS PHI	0.93	0.91	0.87
MOTOR EFFICIENCY	80.5 %	80.5 %	78.5 %
GEAR EFFICIENCY	—	—	—

MOTOR SHAFT POWER	6	hp
STARTING CURRENT ...	44	A
RATED CURRENT ...	5.7	A
RATED SPEED	3475	rpm
TOT.MOM.OF INERTIA ...	---	
NO. OF BLADES	6	

IMPELLER DIAMETER: 149 mm

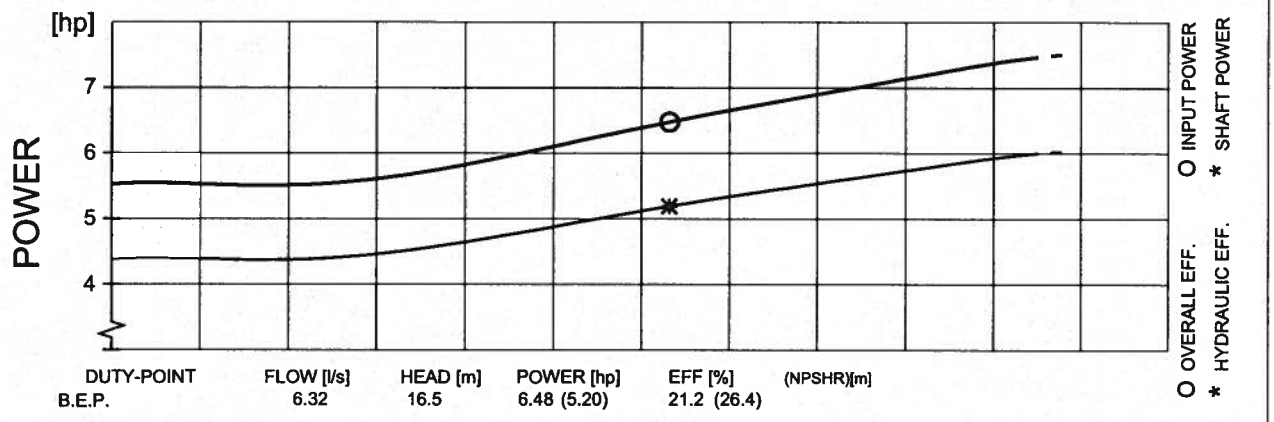
MOTORTYPE	STATOR	REV
18-10-2AL	52D	11

FREQ.	PHASES	VOLTAGE	POLES
60 Hz	3	600 V	2

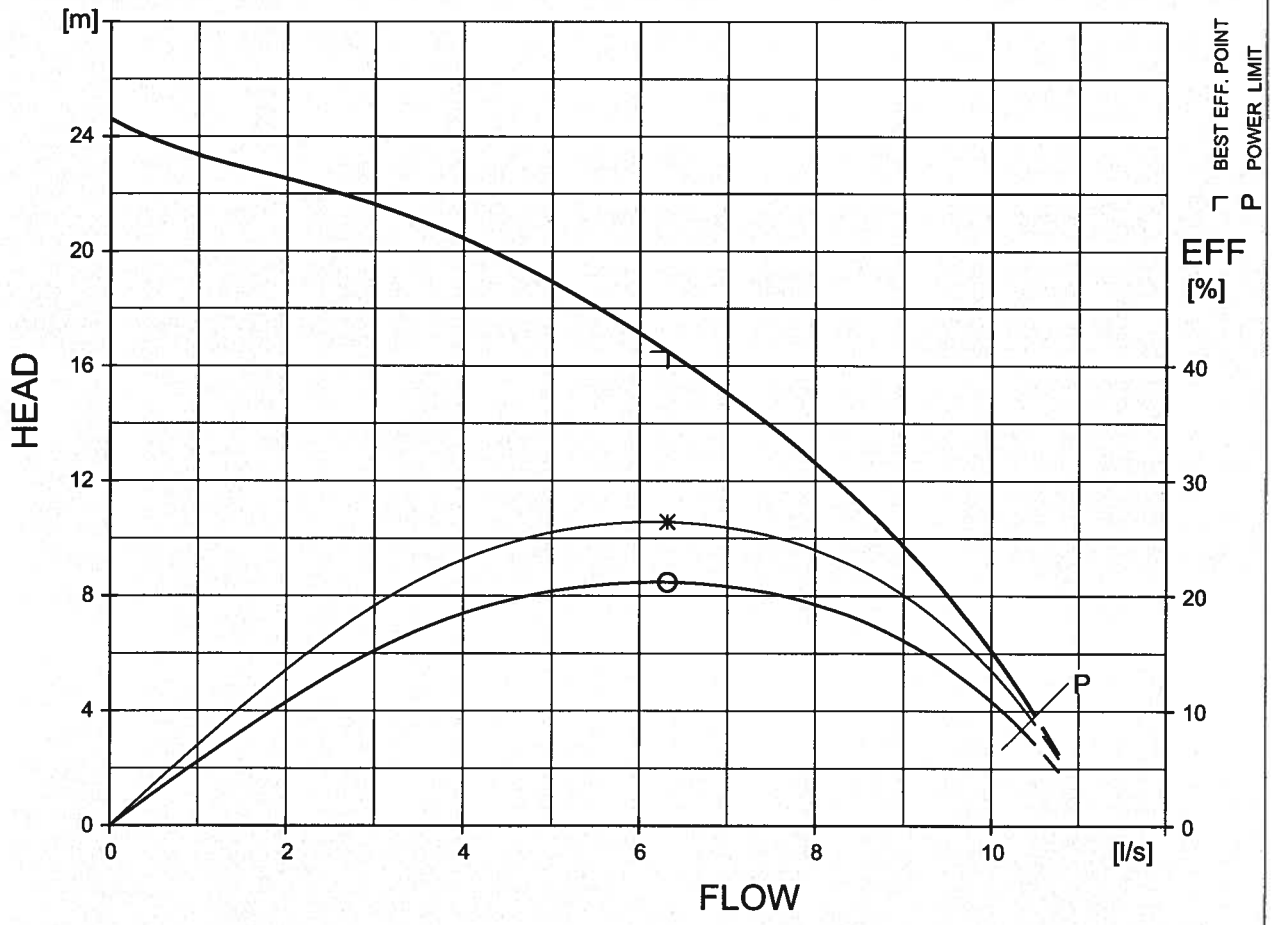
GEARTYPE	RATIO
---	---

COMMENTS

INLET/OUTLET	IMP. THROUGHLET
-/ 50 mm	---



DUTY-POINT	FLOW [l/s]	HEAD [m]	POWER [hp]	EFF [%]	(NPSHR)[m]
B.E.P.	6.32	16.5	6.48 (5.20)	21.2 (26.4)	



FLYPS3.1.5.7 (20060531)

Performance with clear water and rating data at 40 °C

FLYGT CURVE

District of West Kelowna

Sanitary Lift Station Evaluation

Station: Newport Road LS 6

Inspection By: Jim Kentel

Year Constructed: 1993

Year Upgraded:

Matrix Rating			
(10 - highest rating)	Civil	5	
(1 - lowest rating)	Process Mechanical	20	
	Electrical Instrumentation	25	
	Total Station Rating	50	(max. rating 370 points)

Civil:

		Matrix Rating
Parking Area:		n/a
Drainage:		1
Influent sewer:		1
Site access:		1
Water service:		1
Gas service:		1

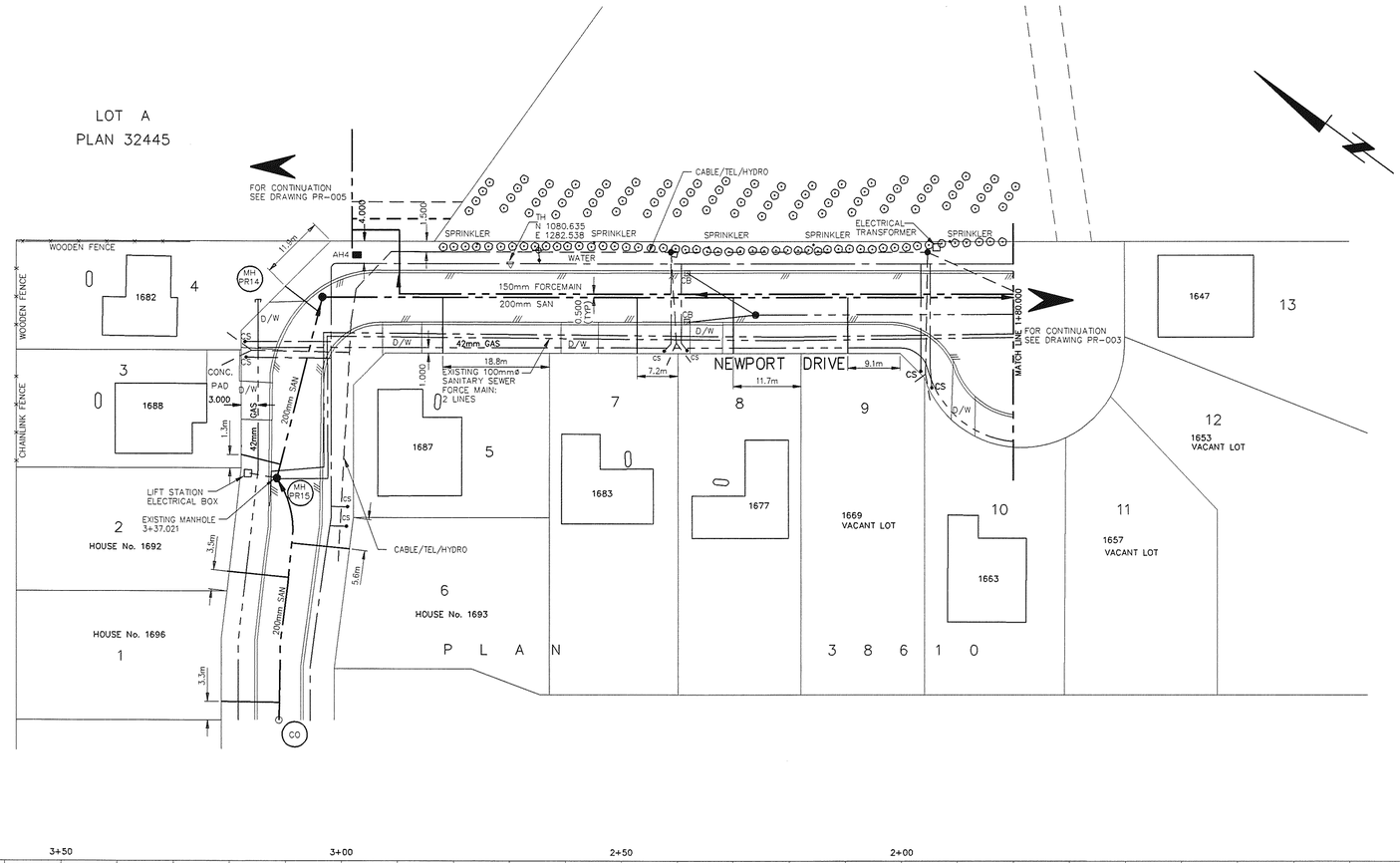
Process Mechanical:

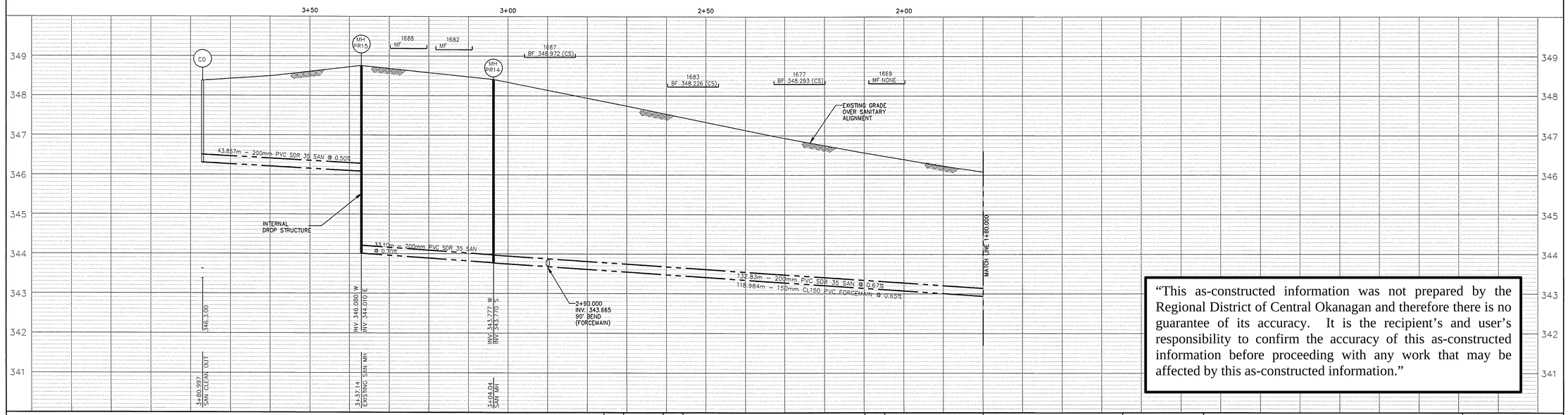
		Matrix Rating
Station type:		n/a
Number of pumps:		n/a
Pump Redundancy:		n/a
Pump Manufacturer / Type:		1
Pump Model:		n/a
Rated Capacity:		n/a
Capacity Confirmation:		n/a
Discharge pipe type / diameter:		1
Header pipe type / diameter:		1
Check valve type / diameter:		1
Isolation valve type / diameter:		1
Piping Condition:		1
Emergency pumpout connection:		1
Pressure gauges:		1
Inlet bar screen:		1
Wetwell condition:		1
Access Hatches:		1
Ladder / Platform:		1
Wetwell benching:		1
Odour Control:		1
Ventilation:		1
umidity Control / Dehumidification:		1
Grease / Debris Accumulation:		1
Water washdown:		1
Sump pump:		1
nfined Space Entry Requirements		1

Electrical / Instrumentation:

			Matrix Rating
Service Type	V / A / Phase / Wire		1
Pump 1 :	HP		1
	Volts	Rpm	n/a
	FLA		n/a
	Starter		n/a
Pump 2 :	HP		1
	Volts	Rpm	n/a
	FLA		n/a
	Starter		n/a
Pump 3 :	HP		1
	Volts	Rpm	n/a
	FLA		n/a
	Starter		n/a
Control Voltage:			1
Control System:			1
			n/a
Alarm Functions:			1
			n/a
			n/a
			n/a
Receptacles:			1
Interior Lighting:			1
Exterior Lighting:			1
SCADA / Telemetry:			1
Main Breaker:			1
Metering:			1
MCC:			1
Control Panel:			1
Lighting Panel:			1
Flowmeter:			1
Ampmeters:			1
TVSS:			1
Grounding:			1
Lighting Protection:			1
UPS:			1
PLC:			1
Level Control:			1
Standby Generator:			1

Comments:





Legend

Water	U.G. Electrical	Auger Hole	AH 12	Power Pole	P.P.
San. Sewer/ Forcemain	Prop. San. Service	Lamp Standard	L.S.	Water Service	
Storm Sewer	Proposed Sewer	Catch Basin	C.B.	Hydrant	
Gas	Edge of Asphalt	Proposed M.H.	MH	Culvert	
U.G. Telephone	Ex. Ground Profile	Trees		Walls	
Cable T.V.	Known Septic Tank	Ditch		Traverse Hub	
	Assumed Septic Tank	Gravel/Concrete/Asphalt	G/C/A	Control Mon.	
				Max. service elev. at P.L.	578.81

No.	Date	By	Revision	Ch'kd
E	JULY/93	DOC	AS-CONSTRUCTED	DP
D	NOV /92	JR	FOR CONSTRUCTION	DP
C	OCT 26 1992	JR	RE-ISSUED FOR TENDER	KGO
B	FEB. 19/92	JR	ISSUED FOR TENDER	KGO
A	FEB. 17/92	WWB	ISSUED FOR APPROVAL	KGO

"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."

USL urban systems ltd. consulting planners and engineers

Drawn	WWB
Design	KGO/WWB
Approved	KGO
Date	JAN. 28/92
Scale	1:500 HORIZ. 1:50 VERT.

REGIONAL DISTRICT OF CENTRAL OKANAGAN
ENGINEERING DEPARTMENT

PRITCHARD DRIVE SEWER SYSTEM
NEWPORT DRIVE
STA. 1+80.000 TO 3+37.021

Division SANITARY SEWER
File: 1117902.2
Drawing No. PR-004
Rev. No. E

District of West Kelowna

Sanitary Lift Station Evaluation

Station: Pritchard Drive LS 7

Inspection By: Jim Kentel

Year Constructed: 4/1/1993

Year Upgraded:

Matrix Rating			
(10 - highest rating)	Civil	29	
(1 - lowest rating)	Process Mechanical	123	
	Electrical Instrumentation	108	
	Total Station Rating	260	(max. rating 370 points)

Civil:

		Matrix Rating
Parking Area:		n/a
Drainage:		10
Influent sewer:	PVC 200 Gravity	10
Site access:	in park behind fence	8
Water service:	No	1
		29

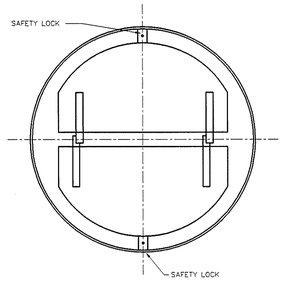
Process Mechanical:

		Matrix Rating
Station type:	FRP 2.4m diameter	n/a
Number of pumps:	2	n/a
Pump Redundancy:	Yes	n/a
Pump Manufacturer / Type:	FLYGT	10
Pump Model:	CP3127 HT Imp. 483	n/a
Rated Capacity:	15L/S @ 20m TDH	n/a
Capacity Confirmation:		n/a
Discharge pipe type / diameter:	PVC 150	10
Header pipe type / diameter:	FRP 100	10
Check valve type / diameter:	FLYGT Ball HDL/100	10
Isolation valve type / diameter:	Dezurik Plug Valve / 100	10
Piping Condition:	Good	8
Emergency pumpout connection:	No	1
Pressure gauges:	Yes	10
Inlet bar screen:	No	1
Wetwell condition:	Good	10
Access Hatches:	Alum	10
Ladder / Platform:	Alum/FRP	10
Wetwell benching:	Yes	10
Odour Control:	No	1
Ventilation:	Heater/Blower	10
Water washdown:	No	1
nfined Space Entry Requirements	No	1
		123

Electrical / Instrumentation:

			Matrix Rating
Service Type	V / A / Phase / Wire		n/a
Pump 1 :	HP 10		n/a
	Volts 600	Rpm 1735	n/a
	FLA 9.7A		n/a
Starting Current	55.0A		n/a
Pump 2 :	HP 10		n/a
	Volts 600	Rpm 1735	n/a
	FLA 9.7A		n/a
Starting Current	55.0A		n/a
Alarm Functions:			5
	Level only		n/a
			n/a
			n/a
Receptacle	Yes		10
Interior Lighting:	Yes		10
Exterior Lighting:	No		1
SCADA / Telemetry:			5
Main Breaker:			10
Control Panel:			10
Lighting Panel:			10
Flowmeter:	Fisher&Porter	no	10
Grounding:			10
Surge Protection:			10
UPS:			10
PLC:			1
Level Control:	FLYGT Bulb		5
Standby Generator:	No		1
			108

Comments:

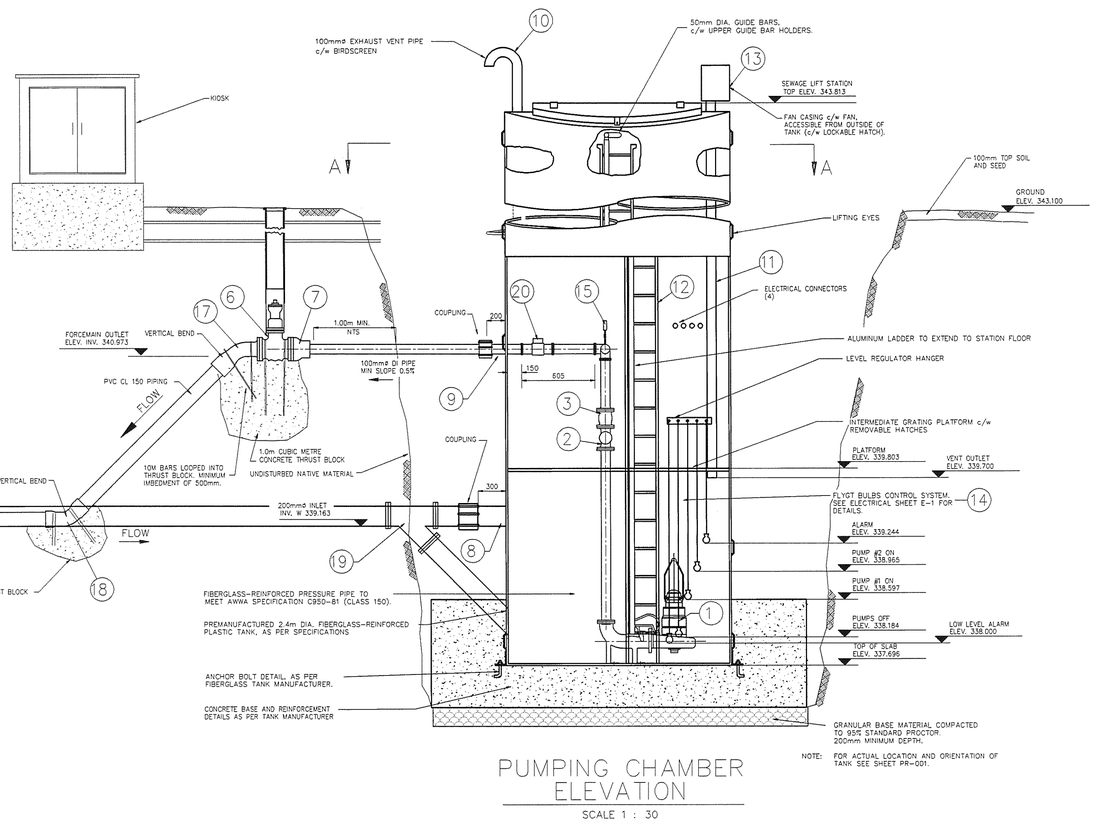


HATCH—PLAN

SCALE 1 : 30

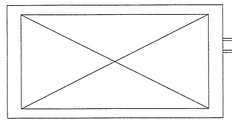
BILL OF MATERIALS		
ITEM	DESCRIPTION	No. REQ'D.
1	FLYGT PUMP MODEL – C 3127HT IMP. 483 c/w 100mm 125# ANSI FLANGE OR EQUAL	2 *
2	FLYGT HDL BALL CHECK VALVE	2
3	DEZURIK PLUG VALVE 100mm c/w LEVER	2
4	100mm FRP TEE	1
5	100mm FRP 90° BEND WITH FLANGE	2
6	150mm FxF GATE VALVE c/w VALVE BOX	1
7	100 x 150mm HxF INCREASER	2
8	213mm O.D. FRP INLET PIPE WITH MACHINED END	1
9	122mm O.D. FRP OUTLET PIPE WITH MACHINED END	1
10	100mm ø EXHAUST VENT PIPE	1
11	150mm ø INLET AIRDUCT	1
12	ALUMINUM LADDER	1
13	FAN	1
14	FLYGT BULB CONTROL SYSTEM	1
15	100mm ø PRESSURE GUAGE c/w ISOLATING VALVE	1
16	VALMATIC MODEL 48 50mm ø NPT AIR RELEASE VALVE	1
17	150mm HxF 45° BEND	1
18	150mm HxH 45° BEND	1
19	200mm PVC WYE	1
20	MAG FLOW METER	1

* ONE PUMP MUST BE SUPPLIED WITH HYDRAULIC FLUSH VALVE.

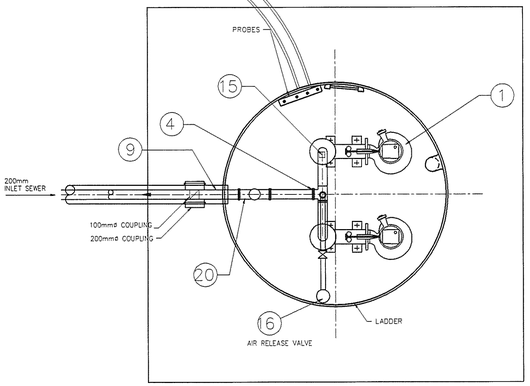


PUMPING CHAMBER ELEVATION

SCALE 1 : 30



CONTROL KIOSK



SECTION A—A

SCALE 1 : 30

PUMP SPECIFICATIONS :

THE PUMPS ARE FLYGT MODEL C 3127 HT IMPELLER #483 ELECTRIC SUBMERSIBLE SEWAGE PUMPS.

DESIGN CRITERIA :

MAXIMUM SEWAGE FLOWS : 15 lps.

TOTAL FLOW :
USING A PEAKING FACTOR OF 2.84 AND A 24 HOUR TIME PERIOD
MAXIMUM FLOW = 15.5 lps.

TOTAL PUMP HEAD : (m) STATIC HEAD = 15
MAXIMUM PIPING LOSS = 5
TOTAL HEAD = 20

MAXIMUM PUMP CYCLE TIME = 4.0 MINUTES = 15 STARTS PER HOUR

NOTES :

1. FOR SITE LOCATION DETAILS SEE SHEET PR001.
2. ALL FLANGE CONNECTIONS SHALL BE TO ANSI CLASS 125 STANDARDS.
3. FOR DETAILED SPECIFICATIONS SEE CONTRACT DOCUMENTS.

"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."

DSK.002

Legend

Water	U.G. Electrical	AUGER HOLE ■ AH 12	Power Pole ○P.P.
San. Sewer	Prop. San. Service	Lamp Standard ○L.S.	Water Service
Storm Sewer	Proposed Sewer	Catch Basin ⊡C.B.	Hydrant
Gas	Edge of Asphalt	Proposed M.H. ●MH	Culvert
U.G. Telephone	Ex. Ground Profile	Trees	Walls
Cable T.V.	Known Septic Tank	Ditch	Control Mon.
	Assumed Septic Tank	Gravel/Concrete/Asphalt G/C/A	Max. service elev. 578.81 @ at P.L.

No.	Date	By	Revision	Ch'ko
E	JULY/93	DOC	AS CONSTRUCTED	DP
D	NOV. 17/92	DOC	FOR CONSTRUCTION	KGO
C	OCT. 26/92	JR	RE-ISSUED FOR TENDER	KGO
B	FEB. 19/92	JR	ISSUED FOR TENDER	KGO
A	FEB. 17/92	RH	ISSUED FOR APPROVAL	KGO

USL urban systems ltd. consulting planners and engineers

Drawn	RH
Design	KGO
Approved	KGO
Date	FEB. /92
Scale	AS SHOWN

REGIONAL DISTRICT OF CENTRAL OKANAGAN
ENGINEERING DEPARTMENT

PRITCHARD DRIVE SEWER SYSTEM
MAIN SEWAGE
LIFT STATION

Division SANITARY SEWER
File: 1117902.2
Drawing No. L-007
Rev. No. E

FLYGT

PERFORMANCE CURVE

PRODUCT	CP3127.180	TYPE	HT
DATE	92-12-09	PROJECT	PRITCHARD DRIVE LS 7
CURVE NO	63-483-00-3755	ISSUE	3

	1/1-LOAD	3/4-LOAD	1/2-LOAD
MOTOR COS FI	---	---	---
MOTOR EFFICIENCY	---	---	---
GEAR EFFICIENCY	---	---	---

MAX POWER	8.69 KW
STARTING CURRENT ...	---- A
RATED CURRENT ...	.000 A
RATED SPEED	1740 RPM
TOT.MOM.OF INERTIA ...	----- KG*M^2
NO. OF BLADES	1

IMPELLER DIAMETER: --- MM

MOTORTYPE	STATOR	REV
---	---	---

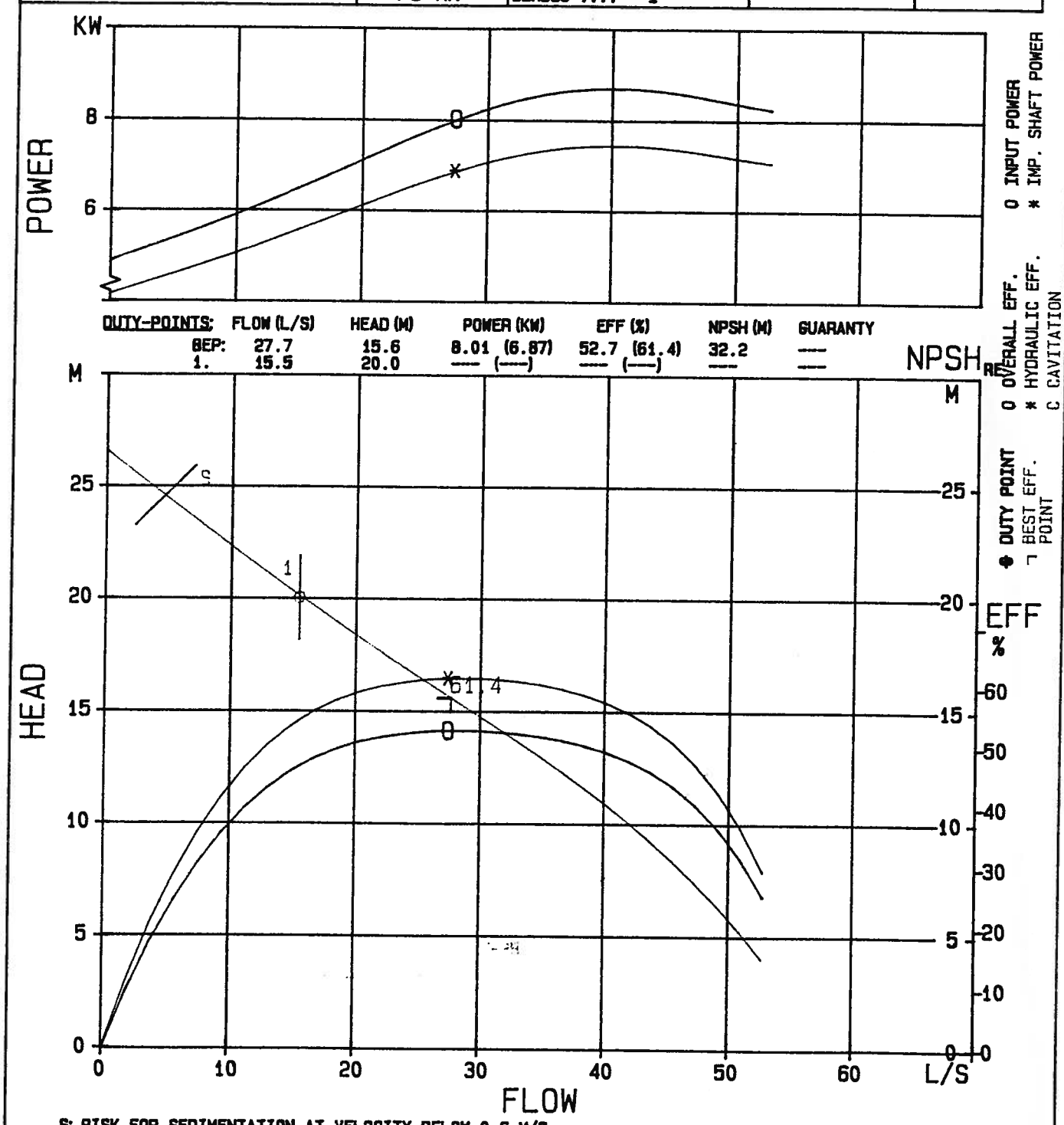
FREQ	PHASES	VOLTAGE	POLES
60 HZ	3	460 V	4

GEARTYPE: --- RATIO: ---

COMMENTS: NEVA CLOG

INLET/OUTLET: ---/100 MM

IMP. THROUGHLET: 76 MM



DUTY-POINTS:	FLOW (L/S)	HEAD (M)	POWER (KW)	EFF (%)	NPSH (M)	GUARANTY
BEP:	27.7	15.6	8.01 (6.87)	52.7 (61.4)	32.2	---
1.	15.5	20.0	---- (----)	---- (----)	---	---

◆ DUTY POINT
┐ BEST EFF. POINT

S: RISK FOR SEDIMENTATION AT VELOCITY BELOW 0.6 M/S (STANDARD DIAM. 100 MM)

CURVES SHOW PERFORMANCE WITH CLEAR WATER

FLYGT HI- CURVE

District of West Kelowna

Sanitary Lift Station Evaluation

Station: Green Bay LS 8

Inspection By: Jim Kentel

Year Constructed: 7/1/1992

Year Upgraded:

Matrix Rating			
(10 - highest rating)	Civil	62	
(1 - lowest rating)	Process Mechanical	105	
	Electrical Instrumentation	112	
	Total Station Rating	279	(max. rating 370 points)

Civil:

		Matrix Rating
Parking Area:		n/a
Drainage:		10
Influent sewer:		10
Site access:		10
Water service:		1
		31

Process Mechanical:

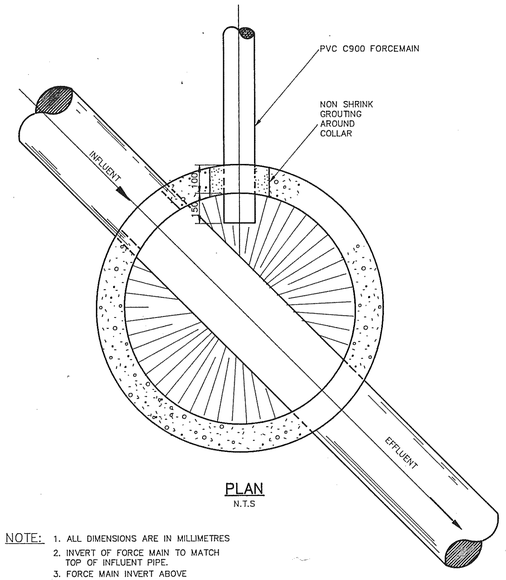
		Matrix Rating
Station type:	FRP 2.4m diameter	n/a
Number of pumps:	2	n/a
Pump Redundancy:	Yes	n/a
Pump Manufacturer / Type:	FLYGT	10
Pump Model:	CP 3152 HT Imp 454	n/a
Rated Capacity:	50 L/S @ 20.1 TDH	n/a
Capacity Confirmation:		n/a
Discharge pipe type / diameter:	PVC/150	10
Header pipe type / diameter:	50 FRP	10
Check valve type / diameter:	Weight&Lever /150	8
Isolation valve type / diameter:	Dezurik /150	10
Piping Condition:	Good	6
Emergency pumpout connection:	No	1
Pressure gauges:		1
Inlet bar screen:	No	1
Wetwell condition:		10
Access Hatches:		10
Ladder / Platform:	Yes	10
Wetwell benching:		10
Odour Control:	No	1
Ventilation:	Goose Neck Only	5
Water washdown:		1
nfined Space Entry Requirements		1
		105

Electrical / Instrumentation:

			Matrix Rating
Service Type	V / A / Phase / Wire		n/a
Pump 1 :	HP 20.0		n/a
	Volts 600	Rpm 1755	n/a
	FLA 20.0A		n/a
Starting Current	121.0A		n/a
Pump 2 :	HP 14.9 KW		n/a
	Volts 600	Rpm 1755	n/a
	FLA 20.0A		n/a
Starting Current	121.0A		n/a
Alarm Functions:			5
			n/a
			n/a
			n/a
Receptacles:			10
Interior Lighting:			10
Exterior Lighting:			1
SCADA / Telemetry:			5
Main Breaker:			10
Control Panel:			10
Lighting Panel:			10
Flowmeter:	Fischer and Porter IOD14658		10
Grounding:			10
Surge Protection:			10
UPS:			10
PLC:	Yes		5
Level Control:	FLYGT Bulbs		5
Standby Generator:			1
			112

Comments:

"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."



PLAN
N.T.S

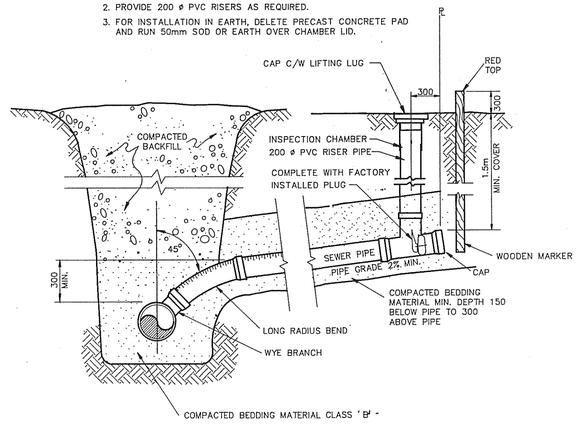
NOTE:
1. ALL DIMENSIONS ARE IN MILLIMETRES
2. INVERT OF FORCE MAIN TO MATCH TOP OF INFLUENT PIPE.
3. FORCE MAIN INVERT ABOVE BENCHIHG OF MANHOLE

SPECIAL FITTING (FORCEMAIN) DETAIL

NOTE:

INSPECTION CHAMBER

1. INSPECTION CHAMBERS INSTALLED IN DRIVEWAYS SHALL BE PROTECTED BY 450 x 450 x 75 CONCRETE PAD COMPLETE WITH LIFTING LUG.
2. PROVIDE 200 ø PVC RISERS AS REQUIRED.
3. FOR INSTALLATION IN EARTH, DELETE PRECAST CONCRETE PAD AND RUN 50mm SOD OR EARTH OVER CHAMBER LID.

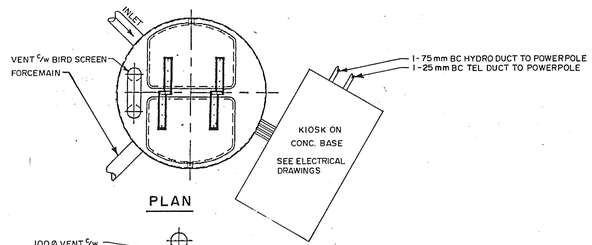


NOTE:
1. COMPACTION REQUIREMENTS AS PER DETAILED SPECIFICATIONS
2. 38x90 MARKER TO EXTEND TO INVERT OF SERVICE

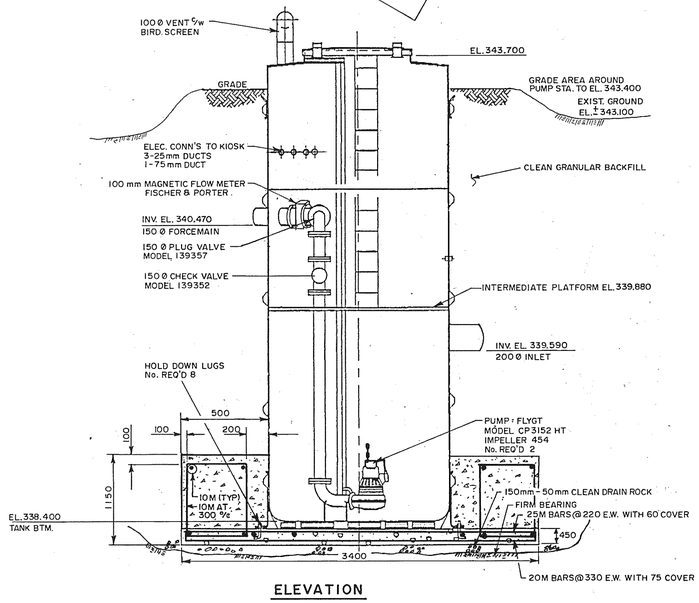
SANITARY SEWER SERVICE CONNECTION C/W 200 ø INSPECTION CHAMBER

BILL OF MATERIAL

ITEM	QTY	DESCRIPTION
		THE FOLLOWING ITEMS ARE SUPPLIED BY FLYGT
1	2	MODEL CP 3152 FLYGT ELECTRIC SUBMERSIBLE SEWAGE PUMPS, 150mm, 20 HP, IMPELLER #454, 600/3/60
2	20m	No. 4/10 CABTIRE CABLE
3	14m	GALVANIZED LIFTING CHAIN
4	2	SHACKLES
5	2	150mm DISCHARGE CONNECTIONS
6	1	VERTICAL REGULATOR HANGER
7	4	LEVEL REGULATORS C/W 13m CABLE
8	2	UPPER GUIDE HOLDERS
9	1	LIFTING DAVIT
10	1	HOIST
11	2	150mm OUTSIDE LEVER & WEIGHT CHECK VALVE
12	2	150mm DEZURIK PLUG VALVES
13	1	FIBERGLASS TANK, 2400ø x 5.3m LONG, C/W 150mm DUPLEX PIPING, INTERMEDIATE PLATFORM, LADDER,VENT, COMPLETE LID
		THE FOLLOWING ITEMS TO BE SUPPLIED BY CONTRACTOR
14	1	100mm MAGNETIC FLOW METER FISCHER & PORTER MOD. 10D1465B
15	1	CONCRETE BASE
16	1	KIOSK AND PAD AS ELECTRICAL DRAWINGS



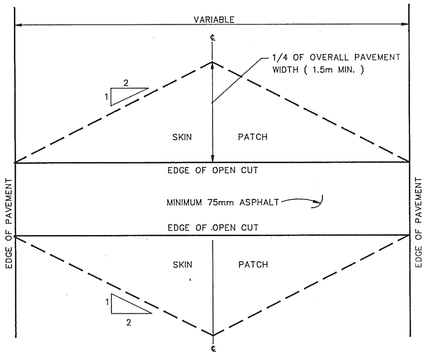
PLAN



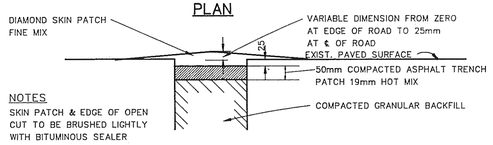
ELEVATION

NOTE
FLOATS TO BE SET IN FIELD AFTER NUMBER OF CONNECTIONS ARE DETERMINED

2400 ø LIFT STATION DETAIL



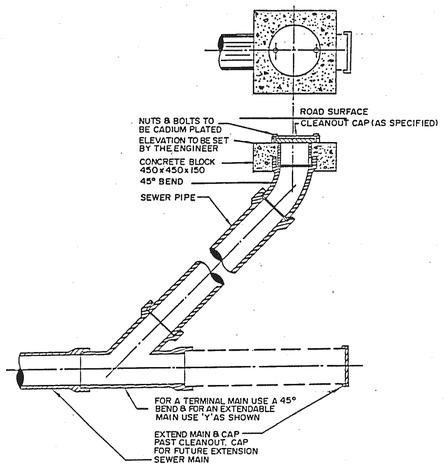
PLAN



NOTES
SKIN PATCH & EDGE OF OPEN CUT TO BE BRUSHED LIGHTLY WITH BITUMINOUS SEALER

TYPICAL SECTION

TYPICAL DIAMOND PATCH



SANITARY SEWER CLEANOUT

3	92	07	30	RECORD OF CONSTRUCTION	DEW				WT	
2	92	01	13	ISSUED FOR TENDER	DEW				WT	
1	91	09	25	ISSUED FOR TENDER	DEW				WT	
0	91	05	31	FOR APPROVAL	DEW				WT	
REV	Y	M	D	REVISION DESCRIPTION	DRN	SUP	DES	CHK	ENG	

PERMIT

UMA Engineering Ltd.
Engineers & Planners
British Columbia Alberta Saskatchewan Manitoba Ontario Yukon Territory Northwest Territories

ENGINEER

REGIONAL DISTRICT OF CENTRAL OKANAGAN

GREEN BAY SANITARY SEWER
LIFT STATION AND STANDARD DETAILS

SCALE: NTS	JOB NO.	DWG. NO.	REV
	1698-026	5	3

MIDVALLEY

FLYGT

PERFORMANCE CURVE

PRODUCT	TYPE
CP3152.181	HT

DATE	PROJECT	CURVE NO	ISSUE
2013-10-25	GREEN BAY LS 8	63-454-00-5360	4

	1/1-LOAD	3/4-LOAD	1/2-LOAD
MOTOR COS PHI	0.83	0.79	0.68
MOTOR EFFICIENCY	87.0 %	87.5 %	86.0 %
GEAR EFFICIENCY	—	—	—

MOTOR SHAFT POWER	20	hp
STARTING CURRENT ...	121	A
RATED CURRENT ...	20	A
RATED SPEED	1755	rpm
TOT.MOM.OF INERTIA ...	0.24	kgm2
NO. OF BLADES	1	

IMPELLER DIAMETER: 275 mm

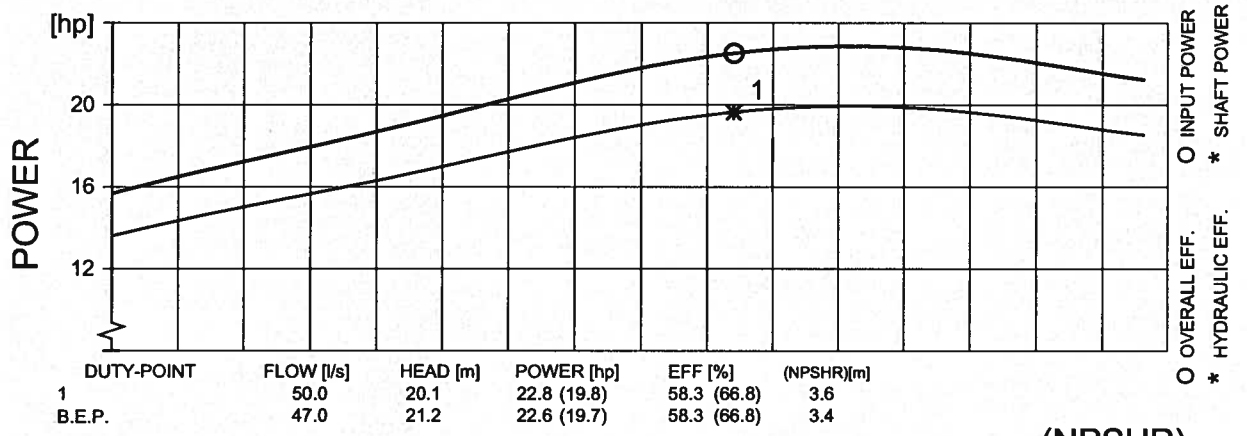
MOTORTYPE	STATOR	REV
25-15-4AA	52D	11

FREQ.	PHASES	VOLTAGE	POLES
60 Hz	3	600 V	4

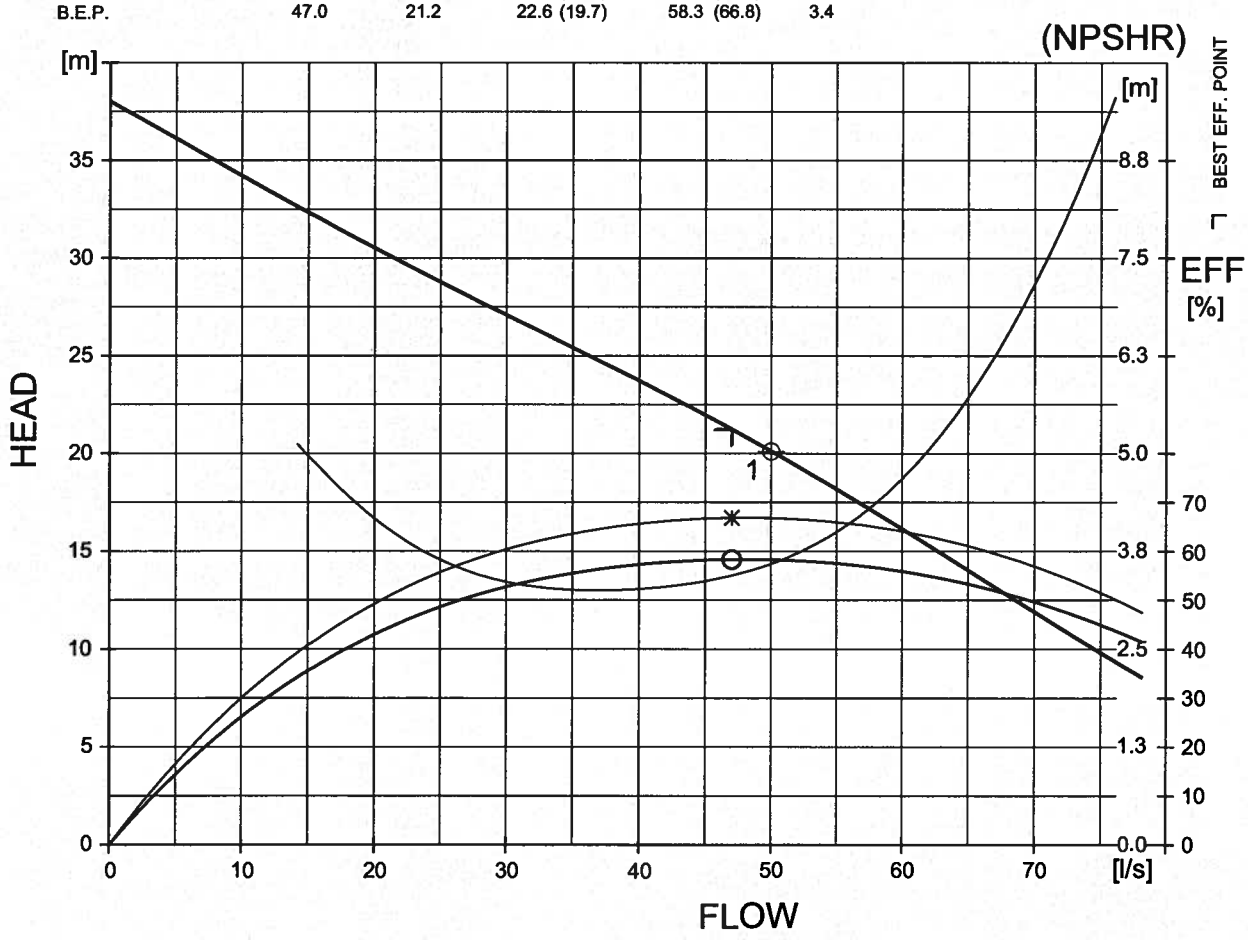
GEARTYPE	RATIO
---	---

COMMENTS

INLET/OUTLET	IMP. THROUGHLET
-/100 mm	76 mm



DUTY-POINT	FLOW [l/s]	HEAD [m]	POWER [hp]	EFF [%]	(NPSHR)[m]
1	50.0	20.1	22.8 (19.8)	58.3 (66.8)	3.6
B.E.P.	47.0	21.2	22.6 (19.7)	58.3 (66.8)	3.4



FLYPS3.1.5.7 (20060531)

(NPSHR) = (NPSH3) + margins

Performance with clear water and rating data at 40 °C

FLYGT CURVE

District of West Kelowna

Sanitary Lift Station Evaluation

Station: Boucherie Road LS-9

Inspection By: Jim Kentel

Year Constructed: RDCO OPERATED

Year Upgraded:

Matrix Rating			
(10 - highest rating)	Civil	5	
(1 - lowest rating)	Process Mechanical	20	
	Electrical Instrumentation	25	
	Total Station Rating	50	(max. rating 650 points)

Civil:

		Matrix Rating
Parking Area:		n/a
Drainage:		1
Influent sewer:		1
Site access:		1
Water service:		1
Gas service:		1

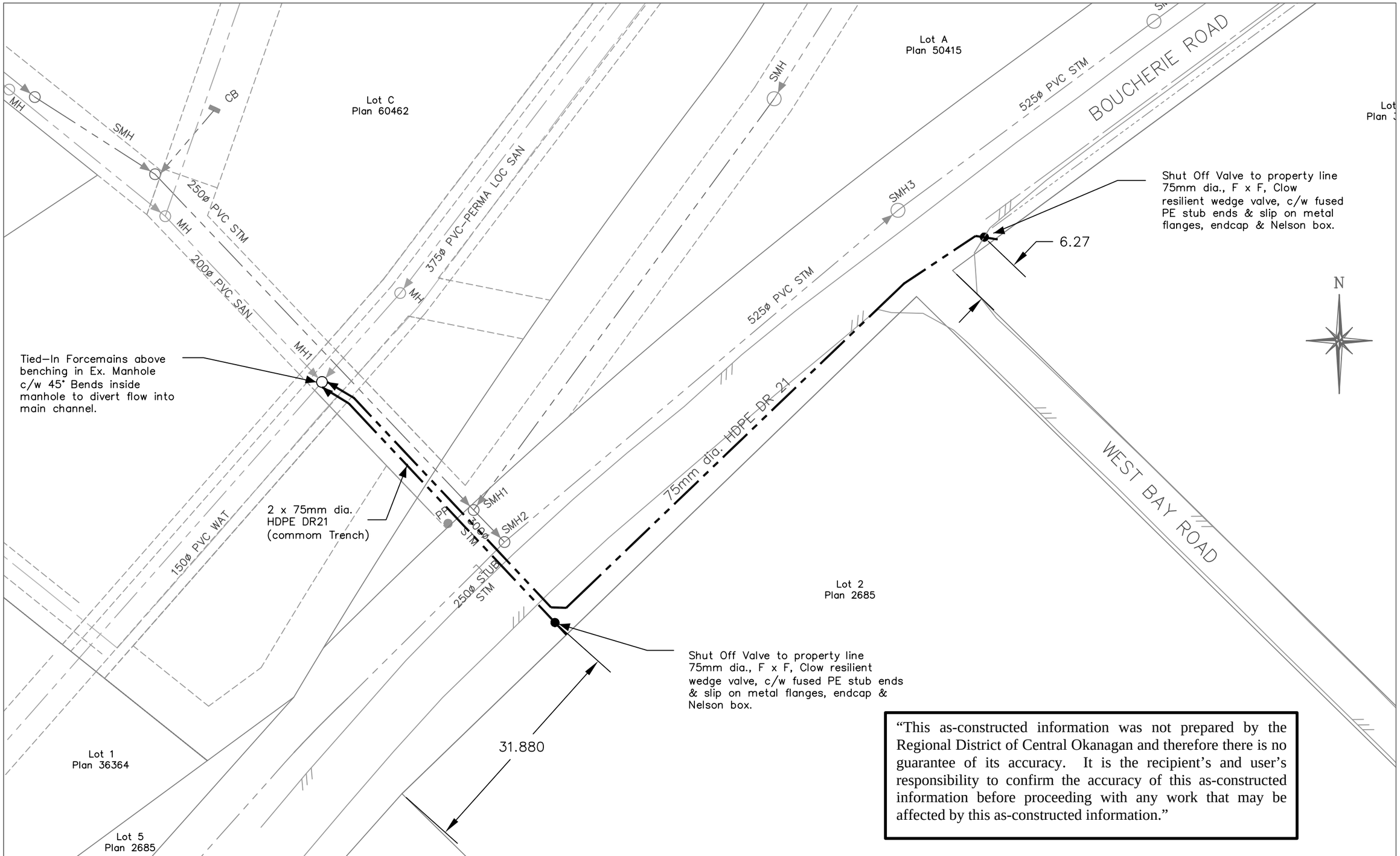
Process Mechanical:

		Matrix Rating
Station type:		n/a
Number of pumps:		n/a
Pump Redundancy:		n/a
Pump Manufacturer / Type:		1
Pump Model:		n/a
Rated Capacity:		n/a
Capacity Confirmation:		n/a
Discharge pipe type / diameter:		1
Header pipe type / diameter:		1
Check valve type / diameter:		1
Isolation valve type / diameter:		1
Piping Condition:		1
Emergency pumpout connection:		1
Pressure gauges:		1
Inlet bar screen:		1
Wetwell condition:		1
Access Hatches:		1
Ladder / Platform:		1
Wetwell benching:		1
Odour Control:		1
Ventilation:		1
umidity Control / Dehumidification:		1
Grease / Debris Accumulation:		1
Water washdown:		1
Sump pump:		1
nfined Space Entry Requirements		1

Electrical / Instrumentation:

			Matrix Rating
Service Type	V / A / Phase / Wire		1
Pump 1 :	HP		1
	Volts	Rpm	n/a
	FLA		n/a
	Starter		n/a
Pump 2 :	HP		1
	Volts	Rpm	n/a
	FLA		n/a
	Starter		n/a
Pump 3 :	HP		1
	Volts	Rpm	n/a
	FLA		n/a
	Starter		n/a
Control Voltage:			1
Control System:			1
			n/a
Alarm Functions:			1
			n/a
			n/a
			n/a
Receptacles:			1
Interior Lighting:			1
Exterior Lighting:			1
SCADA / Telemetry:			1
Main Breaker:			1
Metering:			1
MCC:			1
Control Panel:			1
Lighting Panel:			1
Flowmeter:			1
Ampmeters:			1
TVSS:			1
Grounding:			1
Lighting Protection:			1
UPS:			1
PLC:			1
Level Control:			1
Standby Generator:			1

Comments:



"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."

LEGEND

CABLE TV	CAP
GAS	CATCH BASIN
SAN. SEWER	ELECTRICAL BOX
STORM SEWER	HYDRANT
U.G. ELECTRICAL	VALVE
U.G. TELEPHONE	LAMP STANDARD
WATER	

SAN # SANITARY MH (EXISTING OR FUTURE)
SAN # SANITARY MH (PROPOSED)
STM # STORM MH (EXISTING OR FUTURE)
STM # STORM MH (PROPOSED)
TRANSFORMER
UTILITY JUNCTION BOX

No.	DATE (MM/DD/YY)	BY	REVISION	Chk'd
1	09/09/04	V.F	AS CONSTRUCTED	

H:\ADMIN\Logos\RDCO%20logo%20(bw).jpg

DRAWN	VF
DESIGN	
APPROVED	
DATE	SEPT. 9, 2004
SCALE	1:500

ABC LOGO
RDCO
1430 K.L.O. Kelowna
TELEPHONE
FAX

Boucherie Rd Low Pressure Forcemain
RDCO File: 5340-70-646
PLAN

DRAWING NO. 01
REV. NO. 01

District of West Kelowna

Sanitary Lift Station Evaluation

Station: Boucherie Road LS-B LS-10

Inspection By: Jim Kentel

Year Constructed: RDCO OPERATED

Year Upgraded:

Matrix Rating				
(10 - highest rating)	Civil	5		
(1 - lowest rating)	Process Mechanical	20		
	Electrical Instrumentation	25		
	Total Station Rating	50	(max. rating 650 points)	Matrix

Civil:

		Rating
Parking Area:		n/a
Drainage:		1
Influent sewer:		1
Site access:		1
Water service:		1
Gas service:		1

Process Mechanical:

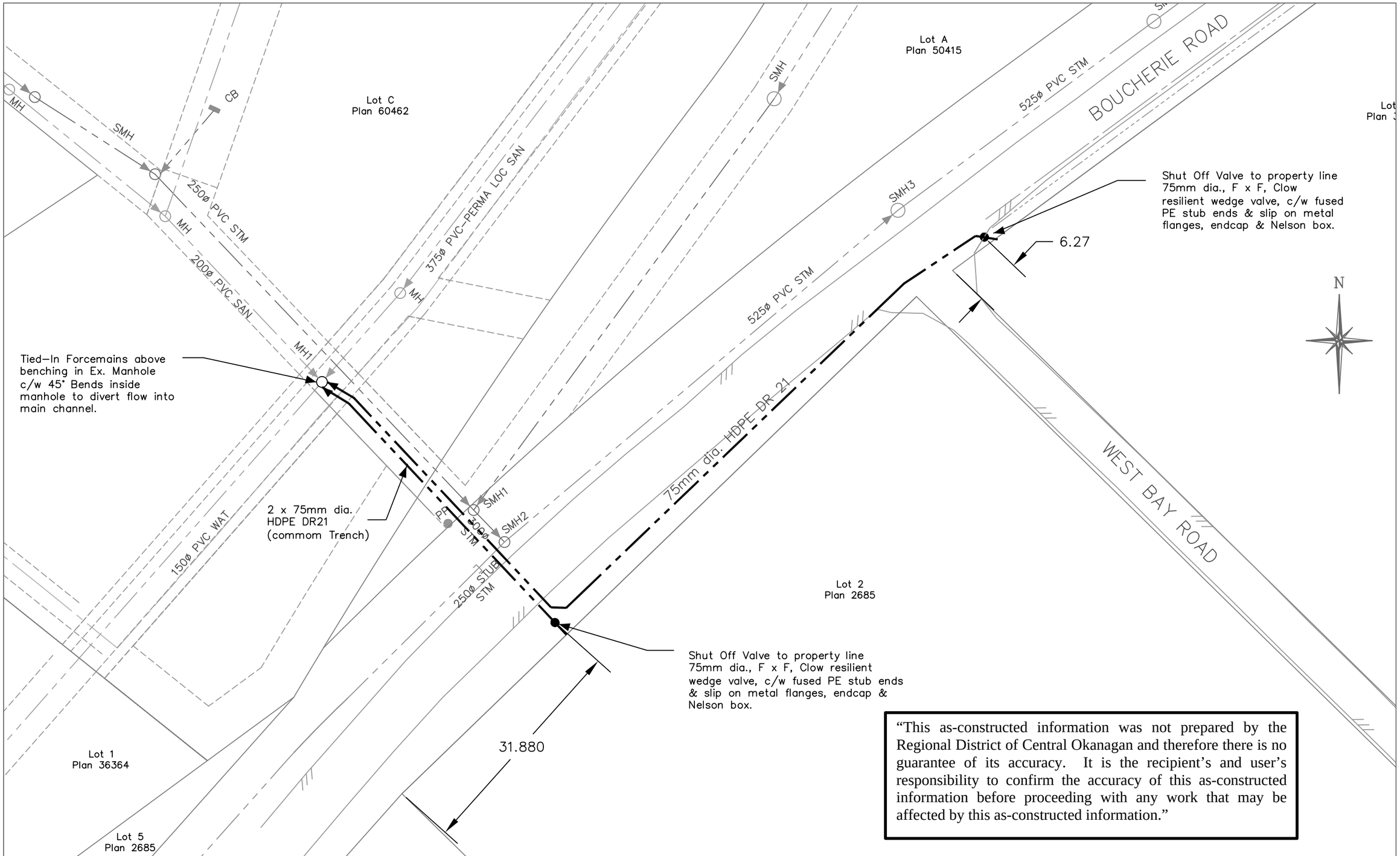
		Matrix Rating
Station type:		n/a
Number of pumps:		n/a
Pump Redundancy:		n/a
Pump Manufacturer / Type:		1
Pump Model:		n/a
Rated Capacity:		n/a
Capacity Confirmation:		n/a
Discharge pipe type / diameter:		1
Header pipe type / diameter:		1
Check valve type / diameter:		1
Isolation valve type / diameter:		1
Piping Condition:		1
Emergency pumpout connection:		1
Pressure gauges:		1
Inlet bar screen:		1
Wetwell condition:		1
Access Hatches:		1
Ladder / Platform:		1
Wetwell benching:		1
Odour Control:		1
Ventilation:		1
umidity Control / Dehumidification:		1
Grease / Debris Accumulation:		1
Water washdown:		1
Sump pump:		1
nfined Space Entry Requirements		1

Comments:

Electrical / Instrumentation:

			Matrix Rating
Service Type	V / A / Phase / Wire		1
Pump 1 :	HP		1
	Volts	Rpm	n/a
	FLA		n/a
	Starter		n/a
Pump 2 :	HP		1
	Volts	Rpm	n/a
	FLA		n/a
	Starter		n/a
Pump 3 :	HP		1
	Volts	Rpm	n/a
	FLA		n/a
	Starter		n/a
Control Voltage:			1
Control System:			1
			n/a
Alarm Functions:			1
			n/a
			n/a
			n/a
Receptacles:			1
Interior Lighting:			1
Exterior Lighting:			1
SCADA / Telemetry:			1
Main Breaker:			1
Metering:			1
MCC:			1
Control Panel:			1
Lighting Panel:			1
Flowmeter:			1
Ampmeters:			1
TVSS:			1
Grounding:			1
Lighting Protection:			1
UPS:			1
PLC:			1
Level Control:			1
Standby Generator:			1

Comments:



"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."

LEGEND

CABLE TV	CAP
GAS	CATCH BASIN
SAN. SEWER	ELECTRICAL BOX
STORM SEWER	HYDRANT
U.G. ELECTRICAL	VALVE
U.G. TELEPHONE	LAMP STANDARD
WATER	

SAN # SANITARY MH (EXISTING OR FUTURE)
SAN # SANITARY MH (PROPOSED)
STM # STORM MH (EXISTING OR FUTURE)
STM # STORM MH (PROPOSED)
TRANSFORMER
UTILITY JUNCTION BOX

No.	DATE (MM/DD/YY)	BY	REVISION	Chk'd
1	09/09/04	V.F	AS CONSTRUCTED	

H:\ADMIN\Logos\RDCO%20logo%20(bw).jpg

DRAWN	VF
DESIGN	
APPROVED	
DATE	SEPT. 9, 2004
SCALE	1:500

ABC LOGO
RDCO
1430 K.L.O. Kelowna
TELEPHONE
FAX

Boucherie Rd Low Pressure Forcemain
RDCO File: 5340-70-646
PLAN

DRAWING NO. 01
REV. NO. 01

District of West Kelowna

Sanitary Lift Station Evaluation

Station: Sunnyside LS 11

Inspection By: Jim Kentel

Year Constructed: 10/1/2001

Year Upgraded:

Matrix Rating			
(10 - highest rating)	Civil	31	
(1 - lowest rating)	Process Mechanical	93	
	Electrical Instrumentation	117	
	Total Station Rating	241	(max. rating 370 points)

Civil:

		Matrix Rating
Parking Area:		n/a
Drainage:	Good	10
Influent sewer:	200 Gravity PVC	10
Site access:	Good	10
Water service:		1
		31

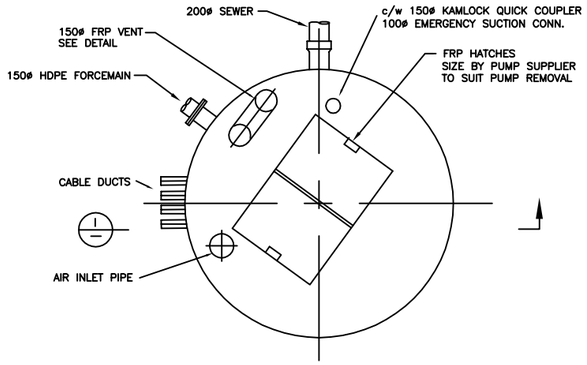
Process Mechanical:

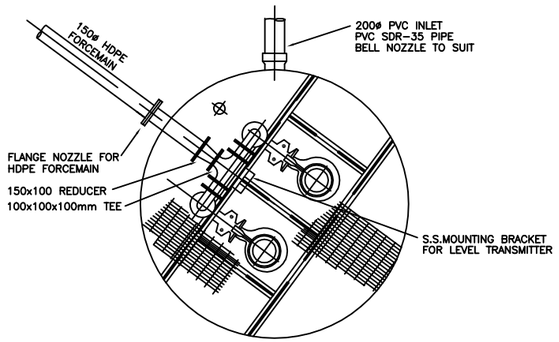
		Matrix Rating
Station type:	FRP 2.44m diameter	n/a
Number of pumps:	2	n/a
Pump Redundancy:	Yes	n/a
Pump Manufacturer / Type:	Myers	5
Pump Model:		n/a
Rated Capacity:		n/a
Capacity Confirmation:		n/a
Forcemain pipe type / diameter:	HDPE / 150	8
Header pipe type / diameter:	/100 FRP	8
Check valve type / diameter:	FLYGT Ball HDL / 100	8
Isolation valve type / diameter:	Plug Valve / 100	8
Piping Condition:	Good	
Emergency pumpout connection:	Yes	10
Pressure gauges:		
Inlet bar screen:	No	1
Wetwell condition:	Good	8
Access Hatches:	Alum	8
Ladder / Platform:	alum/FRP	8
Wetwell benching:		10
Odour Control:	No	1
Ventilation:	Yes	8
Water washdown:		1
nfined Space Entry Requirements	Davit	1
		93

Electrical / Instrumentation:

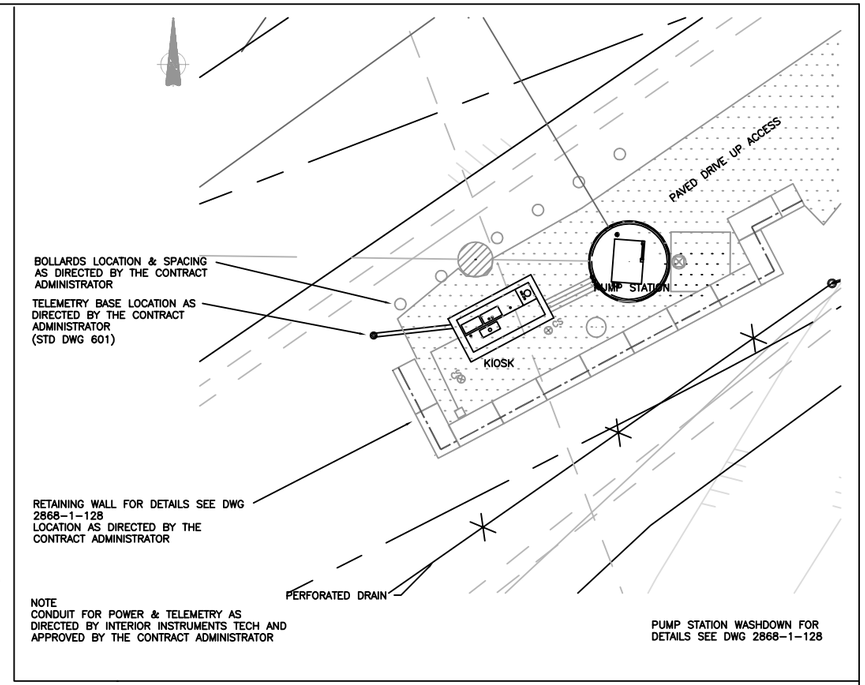
			Matrix Rating
Service Type	V / A / Phase / Wire		n/a
Pump 1 :	HP 40		n/a
	Volts 600	Rpm 3475	n/a
	FLA 47.2A		n/a
Starting Current			n/a
Pump 2 :	HP 40		n/a
	Volts 600	Rpm 3475	n/a
	FLA 47.2A		n/a
Starting Current			n/a
Alarm Functions:	Yes		10
			n/a
			n/a
			n/a
Receptacle	Yes		10
Interior Lighting:	Yes		10
Exterior Lighting:	No		1
SCADA / Telemetry:	Provision		5
Main Breaker:	200A		10
Control Panel:	Yes		8
Lighting Panel:	Yes		8
Flowmeter:	Chamber yes		10
Grounding:	Yes		10
Surge Protection:	Yes		10
UPS:	Yes		8
PLC:	Yes		8
Level Control:	Milltronics/Bulb backup		8
Standby Generator:	No		1
			117

Comments:



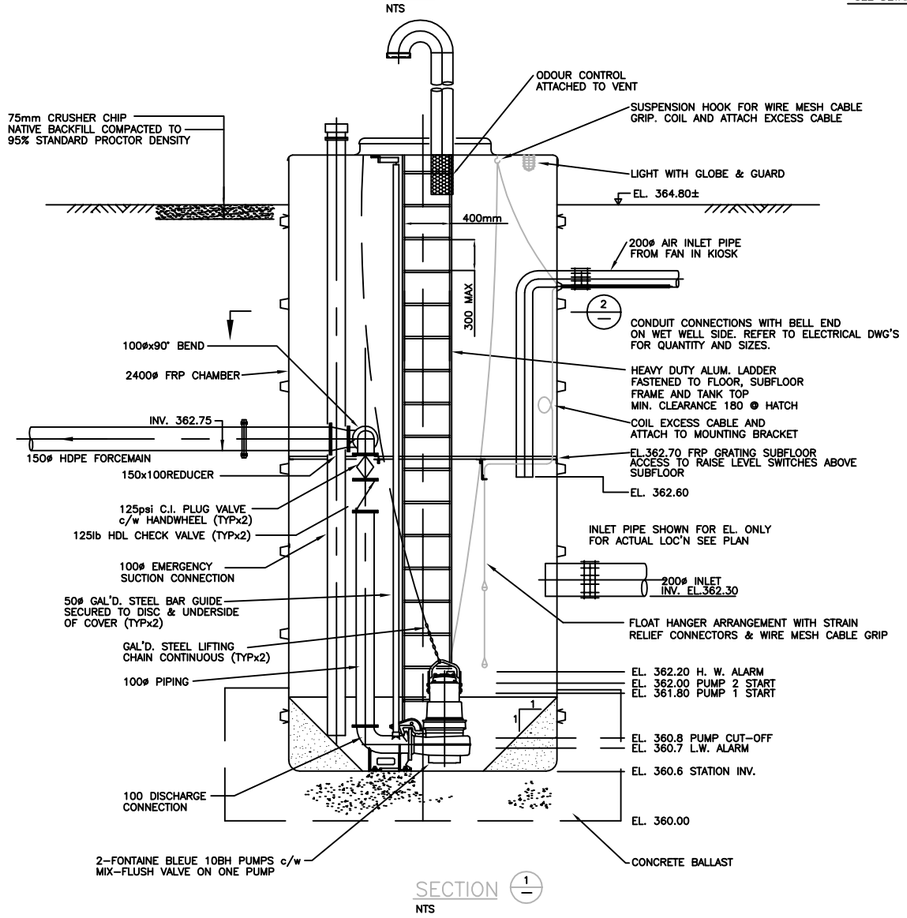


SECTION 2
NTS

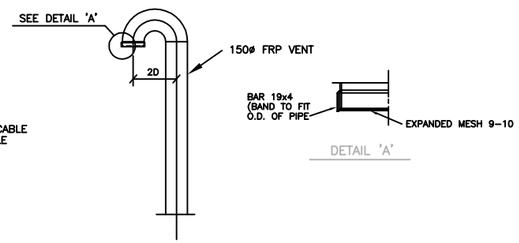


SITE PLAN
NTS

PLAN
NTS

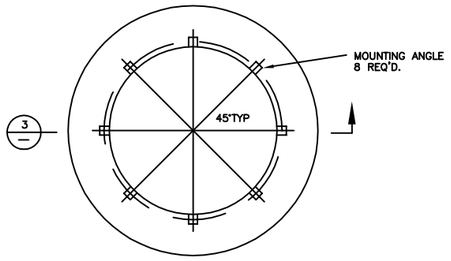


SECTION 1
NTS

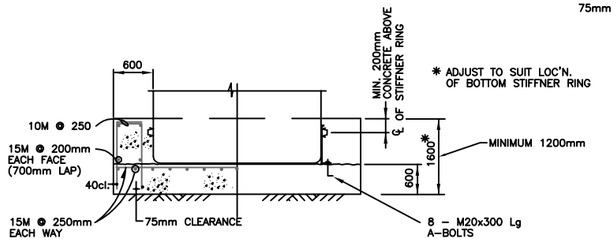


DETAIL 'A'

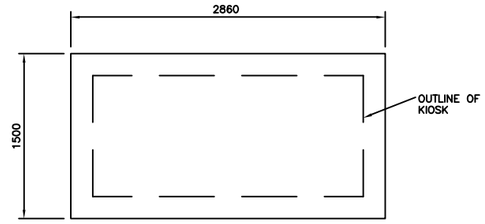
VENT DETAIL
NTS



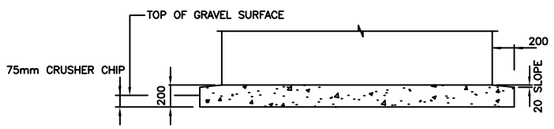
PLAN @ CONC. BALLAST
1 : 40



SECTION 3
1 : 40



PLAN



ELEVATION

CONCRETE KIOSK PAD
NTS

NOTE:

REFER TO ENGINEERED PUMPS DWG. 01-063-M1 FOR PUMP STATION DETAILS

"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."

No.	Date	By	Revision	Ch'd
2	12/01/01		ISSUED FOR TENDER	

ASSOCIATED ENGINEERING

Drawn	KR
Design	AA
Approved	
Date	SEPT.00
Scale	AS NOTED

REGIONAL DISTRICT OF CENTRAL OKANAGAN

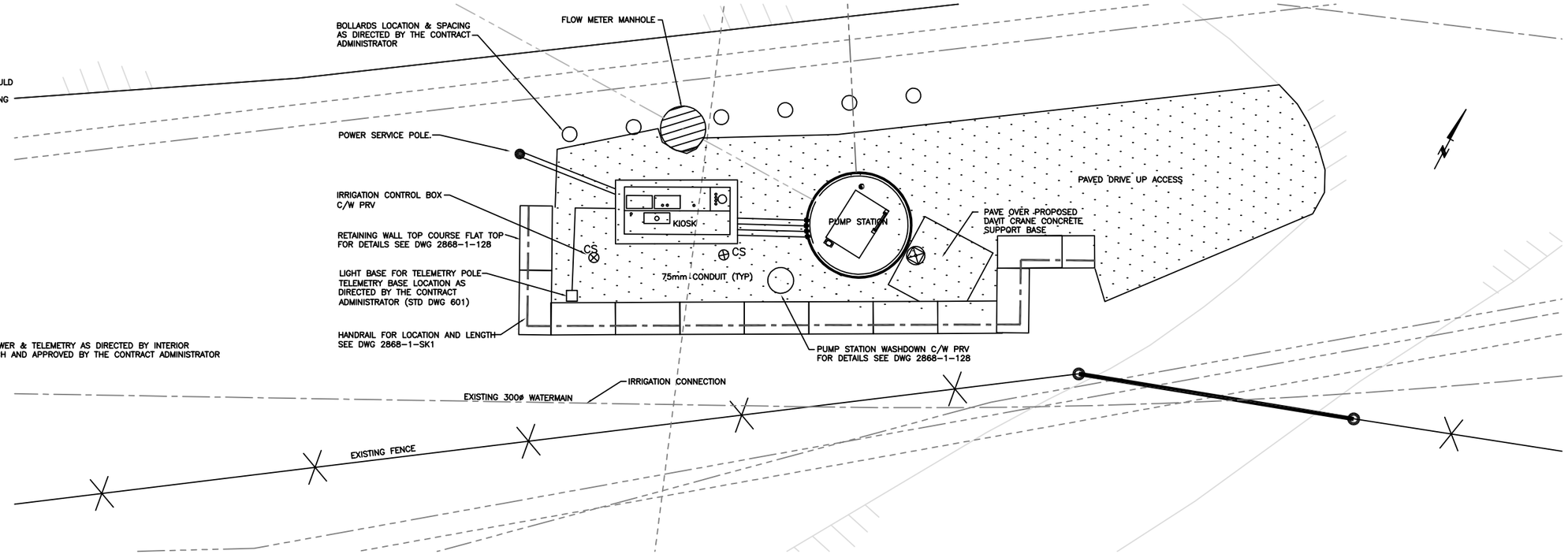
SUNNYSIDE SEWER PROJECT
SUNNYSIDE ROAD
SEWAGE PUMP STATION DETAILS

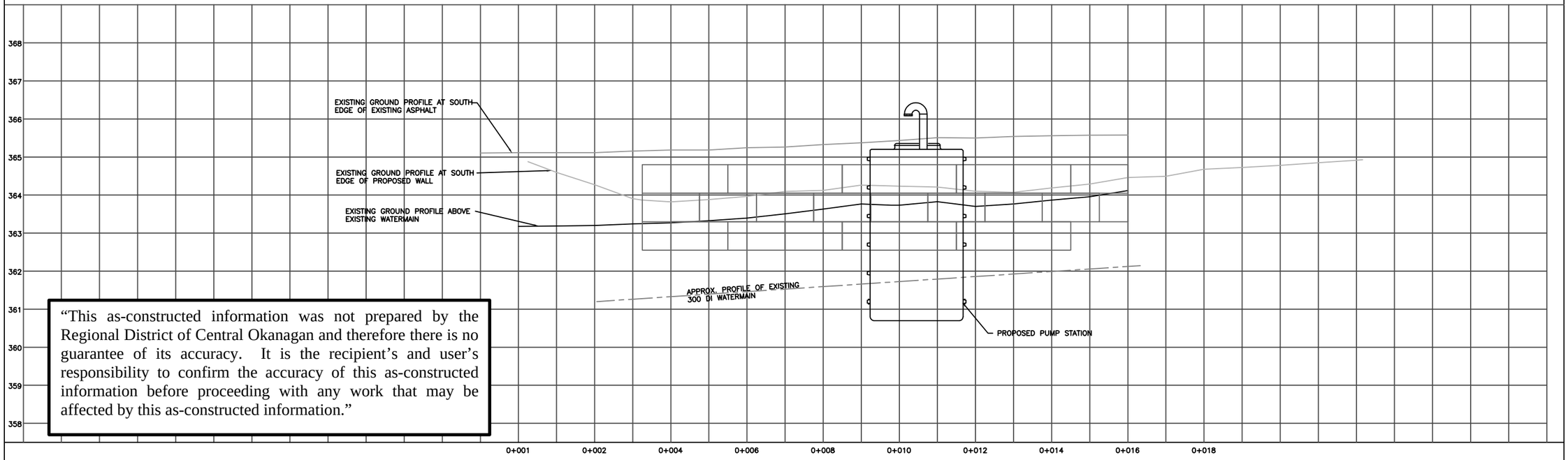
Drawing No. 2868-1-501

Rev.No 0

NOTE
ALL LOCATIONS OF EXISTING UTILITIES SHOWN ARE APPROXIMATE ONLY AND SHOULD BE CONFIRMED BY USE OF PIPE LOCATOR AND MANUAL DIGGING. ALL OR ANY EXISTING STRUCTURES NOT NECESSARILY SHOWN.
ELEVATIONS ARE TO GEODETIC DATUM.
ALL SERVICES 100ø U.N.O.

NOTE
CONDUIT FOR POWER & TELEMETRY AS DIRECTED BY INTERIOR INSTRUMENTS TECH AND APPROVED BY THE CONTRACT ADMINISTRATOR





"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."

LEGEND
WATER — HYDRANT
SAN — MANHOLE
STORM — CATCH BASIN
GAS — POWER POLE
UGTEL
UGELEC

No.	Date	By	Revision	Ch'd
0	22/05/01		FOR APPROVAL	

ASSOCIATED ENGINEERING

REGIONAL DISTRICT OF CENTRAL OKANAGAN

Drawn	DD
Design	DD
Approved	
Date	SEPT 99
Scale	H= 1:50 V= 1:50

REGIONAL DISTRICT OF CENTRAL OKANAGAN

SUNNYSIDE SEWER PROJECT
SUNNYSIDE ROAD PUMP STATION WALL

Drawing No. 2868-1-502
Rev.No 0

District of West Kelowna

Sanitary Lift Station Evaluation

Station: King Road LS 12

Inspection By: Jim Kentel

Year Constructed: 9/1/2006

Year Upgraded:

Matrix Rating			
(10 - highest rating)	Civil	5	
(1 - lowest rating)	Process Mechanical	47	
	Electrical Instrumentation	99	
	Total Station Rating	151	(max. rating 370 points)

Civil:

		Matrix Rating
Parking Area:		n/a
Drainage:		1
Influent sewer:		1
Site access:		1
Water service:		1
Gas service:		1
		5

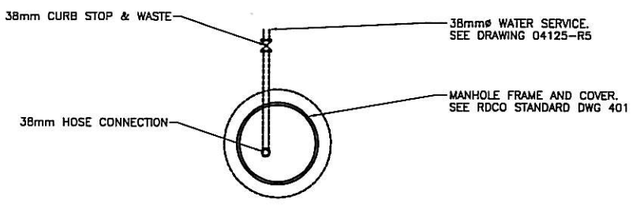
Process Mechanical:

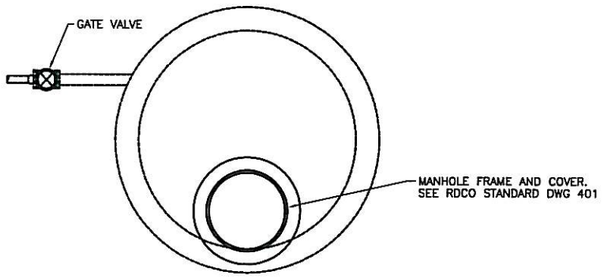
		Matrix Rating
Station type:	Concrete 1.8m Manhole	n/a
Number of pumps:	2	n/a
Pump Redundancy:	Yes	n/a
Pump Manufacturer / Type:	FLYGT Submersible	1
Pump Model:	CP 3102.170	n/a
Rated Capacity:	5.5 L/S @ 17.9m TDH	n/a
Capacity Confirmation:		n/a
Discharge pipe type / diameter:	PVC /50	10
Header pipe type / diameter:	Rubber Hose / 50 SS	1
Check valve type / diameter:	/50	1
Isolation valve type / diameter:	SS Ball Valve /50	1
Piping Condition:		1
Emergency pumpout connection:	No flush but hose connection	1
Pressure gauges:	No	1
Inlet bar screen:	No	1
Wetwell condition:		1
Access Hatches:	MH Frame	5
Ladder / Platform:	Rungs/no platform	3
Wetwell benching:	Sulplants resistant concrete	5
Odour Control:	No	1
Ventilation:	Goose Neck	3
Water washdown:	38mm Service	10
nfined Space Entry Requirements	No	1
		47

Electrical / Instrumentation:

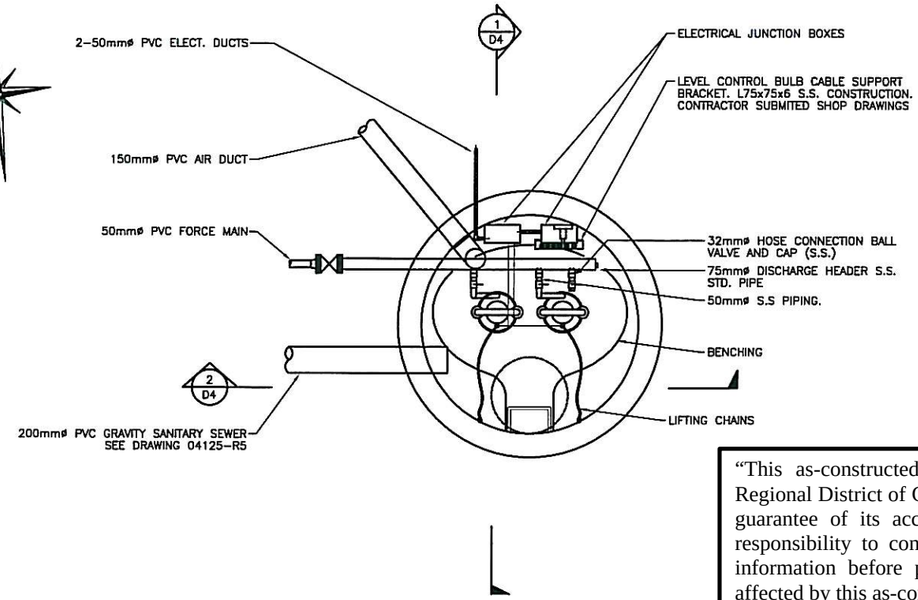
			Matrix Rating
Service Type	V / A / Phase / Wire		n/a
Pump 1 :	HP 5.4		n/a
	Volts 230	Rpm	n/a
	FLA		n/a
Starting Current			n/a
Pump 2 :	HP 5.4		n/a
	Volts 230	Rpm	n/a
	FLA		n/a
Starting Current			n/a
Alarm Functions:			5
			n/a
			n/a
			n/a
Receptacle	Yes		10
Interior Lighting:	No		10
Exterior Lighting:	No		1
SCADA / Telemetry:	Yes		5
Main Breaker:			10
Control Panel:			10
Lighting Panel:			10
Flowmeter:	No		1
Grounding:			10
Surge Protection:			10
UPS:			10
PLC:			1
Level Control:	Bulbs Milltronics		5
Standby Generator:	No		1
			99

Comments:





S.L.S. – TOP PLAN
SCALE: 1:25



S.L.S. – WETWELL PLAN
SCALE: 1:25

NOTES:

ALL LOCATIONS OF EXISTING UTILITIES SHOWN ARE APPROXIMATE ONLY. ALL OR ANY EXISTING STRUCTURES NOT NECESSARILY SHOWN.

ELEVATIONS ARE TO GEODETIC DATUM.

CONDUIT FOR POWER & TELEMETRY AS DIRECTED BY RDCO PUBLIC WORKS, B.C. HYDRO AND APPROVED BY THE CONTRACT ADMINISTRATOR.

RECEIVED AND INSTALLED 2 PRE-PURCHASED FLYGT PUMPS c/w HOSES, CHAINS AND POWER CABLES.

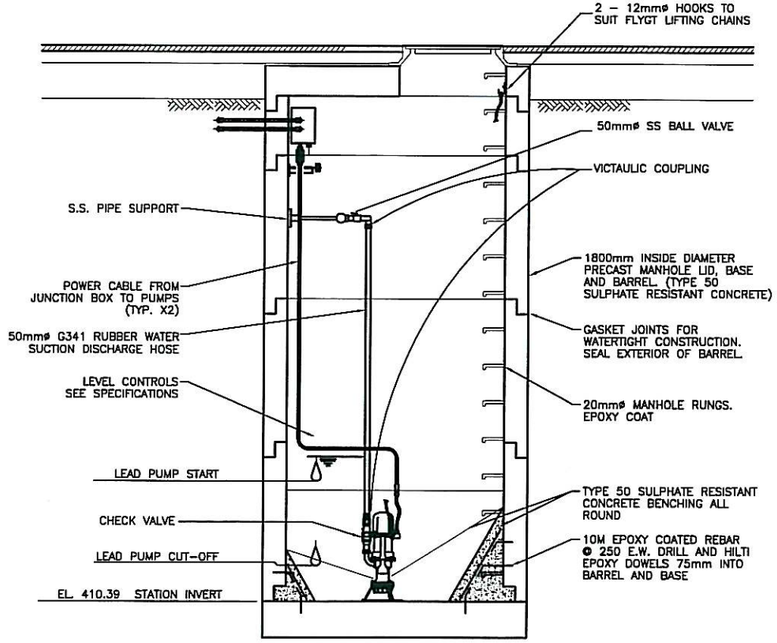
COORDINATED SUPPLY AND INSTALLATION OF ALL ELECTRICAL/CONTROLS EQUIPMENT WITH RDCO PUBLIC WORKS.

ALL STAINLESS STEEL (S.S.) CALLED TO BE 316L GRADE.

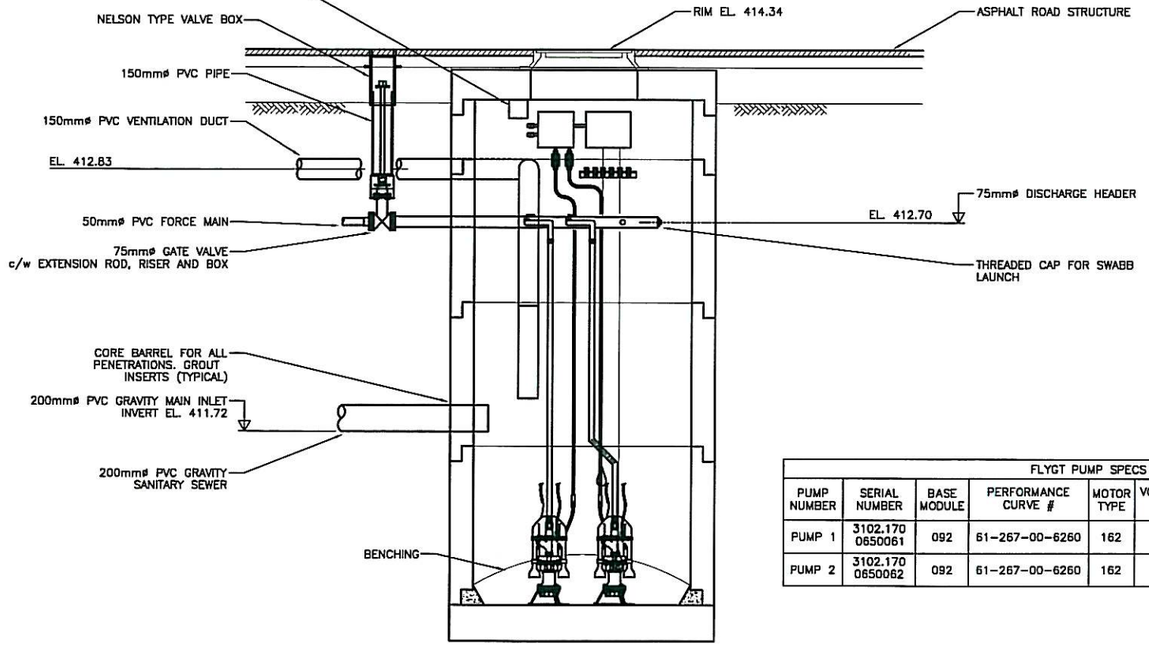
REFER TO APPENDIX E FOR FURTHER ELECTRICAL DETAILS.

"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."

RECORD DRAWING



SECTION 1 D4
SCALE: NTS



SECTION 2 D4
SCALE: NTS

FLYGT PUMP SPECS								
PUMP NUMBER	SERIAL NUMBER	BASE MODULE	PERFORMANCE CURVE #	MOTOR TYPE	VOLTAGE (V)	IMPELLER NUMBER	CIMP. DIA	POWER
PUMP 1	3102.170 0650061	092	61-267-00-6260	162	230	486 54 08	142	4kW (5.4hp)
PUMP 2	3102.170 0650062	092	61-267-00-6260	162	230	486 64 08	142	4kW (5.4hp)

LEGEND

CABLE TV, GAS, SAN. SEWER, STORM SEWER, U.G. ELECTRICAL, U.G. TELEPHONE, WATER

CAP, CATCH BASIN, ELECTRICAL BOX, HYDRANT, VALVE, LAMP STANDARD

SANITARY MH (EXISTING OR FUTURE), SANITARY MH (PROPOSED), STORM MH (EXISTING OR FUTURE), STORM MH (PROPOSED), TRANSFORMER, UTILITY JUNCTION BOX

No.	DATE (MM/DD/YY)	BY	ISSUED	Chk'd
1	01/25/07	HK	FOR RECORD	MHC

No.	DATE (MM/DD/YY)	BY	REVISION	Chk'd
1	01/25/07	HK	STATION DETAILS	MHC

RDCO REGIONAL DISTRICT of CENTRAL OKANAGAN

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA M. H. CAMERON

DRAWN
DESIGN
APPROVED
DATE SEPT, 2006
SCALE AS NOTED

205-1726 DOLPHIN AVE KELOWNA BC V1Y 9R9
CTQ Consultants Ltd
PRO TEL 250 979-1221 FAX 250 979-1232

AREA 701– LAKEVIEW PHASE 5
SANITARY SEWER
KING RD S.L.S. PLANS AND SECTIONS

DRAWING NO. D4
REV. NO. 1

FLYGT

TEST REPORT

PRODUCT

KING ROAD LS 12

Serial No.		Performance curve No.	Motor module/type	Voltage (V)
3102.170	0650061	61- 267-00-6260	162	230

Base module	Impeller No.	Gear type	Gear ratio	Imp.diam/Blade angle	Water temp °C
092	486 54 08			142	23

TEST RESULTS

Pump total head H (m)	Volume rate of flow Q (l /s)	Motor input power P (kW)	Voltage U (V)	Current I (A)	Overall efficiency η (%)
36.19	0.38	2.99	230	13.6	4.54
35.82	0.66	3.07	234	13.9	7.55
34.98	1.36	3.14	232	14.2	14.87
33.25	2.35	3.49	233	13.6	21.97
30.13	3.69	4.04	229	18.4	27.02
28.12	4.24	4.25	229	19.3	27.56
21.80	5.34	4.77	233	21.5	23.95
17.91	5.51	4.81	234	21.7	20.12

Accepted after	Test facility	Test date	Time	Chief tester
HI/B	Lindas LCU Sweden	06-07-10	08:20	5191

ORDERNR 171572 POS 2

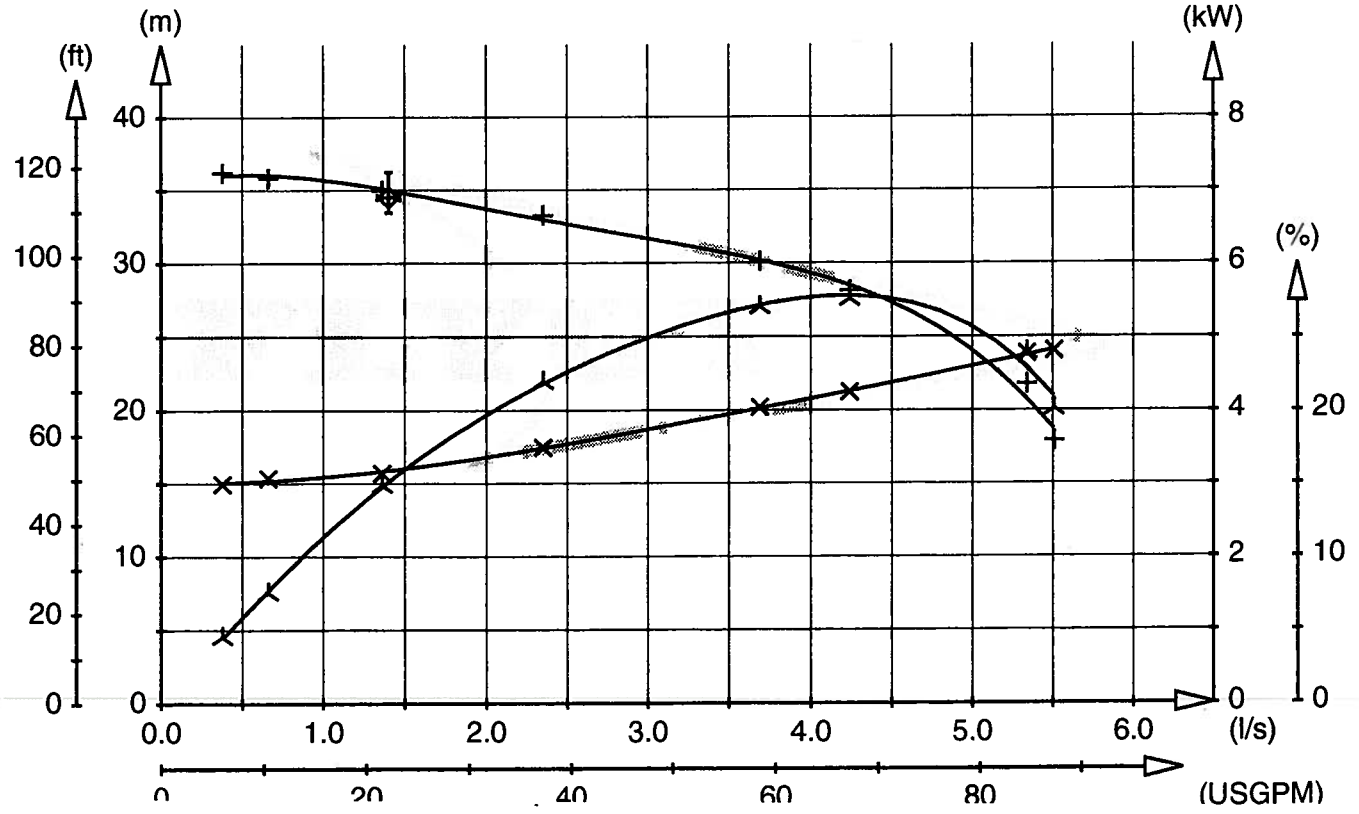
PLOTTED TEST RESULTS

Measured point : + = Q/H, × = Q/P Duty point : ◇ = Q/H, □ = Q/P, △ = Q/ETA overall Calculated point : 人 = Q/ETA overall

1

TOTAL HEAD

INPUT POWER



FLYGT

TEST REPORT

PRODUCT

Serial No.		Performance curve No.		Motor module/type	Voltage (V)
3102.170	0650062	61- 267-00-6260		162	230
Base module	**Impeller No.**	**Gear type**	**Gear ratio**	**Imp.diam/Blade angle**	**Water temp °C**
092	486 54 08			142	23

TEST RESULTS

Pump total head H (m)	Volume rate of flow Q (l /s)	Motor input power P (kW)	Voltage U (V)	Current I (A)	Overall efficiency η (%)
34.08	0.62	2.76	234	12.6	7.53
33.94	0.68	2.79	232	12.7	8.06
32.52	1.75	3.16	232	14.3	17.70
30.58	3.01	3.68	233	16.6	24.52
29.37	3.55	3.91	233	17.5	26.19
27.58	4.10	4.12	233	18.5	26.95
22.51	5.08	4.53	233	20.3	24.77
15.17	5.45	4.58	233	20.5	17.70

Accepted after	Test facility	Test date	Time	Chief tester
HI/B	Lindas Sweden LCU	06-07-10	09:29	5176

ORDERNR 171572 POS 2

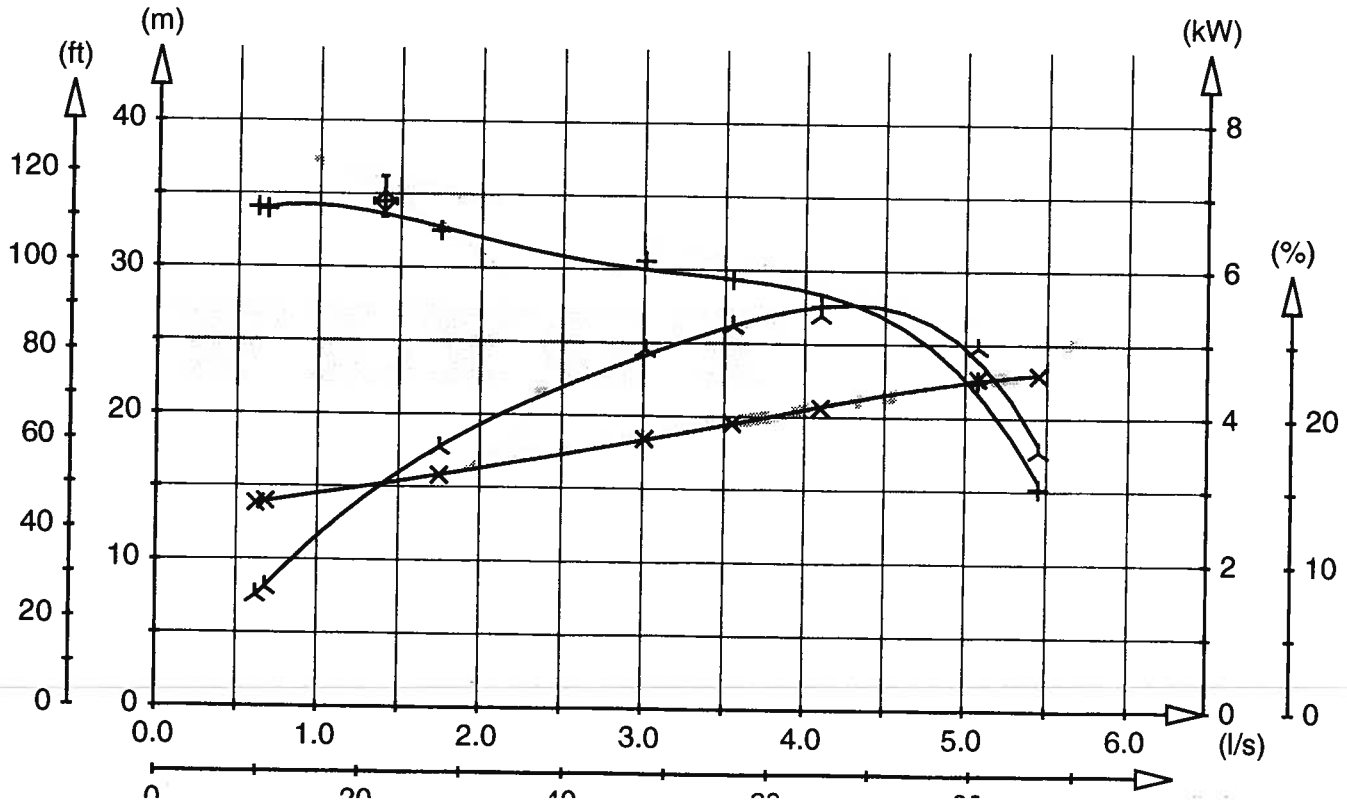
PLOTTED TEST RESULTS

Measured point : + = Q/H, × = Q/P Duty point : ◇ = Q/H, □ = Q/P, △ = Q/ETA overall Calculated point : 人 = Q/ETA overall

1

TOTAL HEAD

INPUT POWER



District of West Kelowna

Sanitary Lift Station Evaluation

Station: Thacker Road LS 13

Inspection By: Jim Kentel

Year Constructed: 9/1/2006

Year Upgraded:

Matrix Rating			
(10 - highest rating)	Civil	40	
(1 - lowest rating)	Process Mechanical	100	
	Electrical Instrumentation	22	
	Total Station Rating	162	(max. rating 370 points)

Civil:

		Matrix Rating
Parking Area:		n/a
Drainage:	Good	10
Influent sewer:	Gravity 200	10
Site access:	Good	10
Water service:	38mm Water Service	10
		40

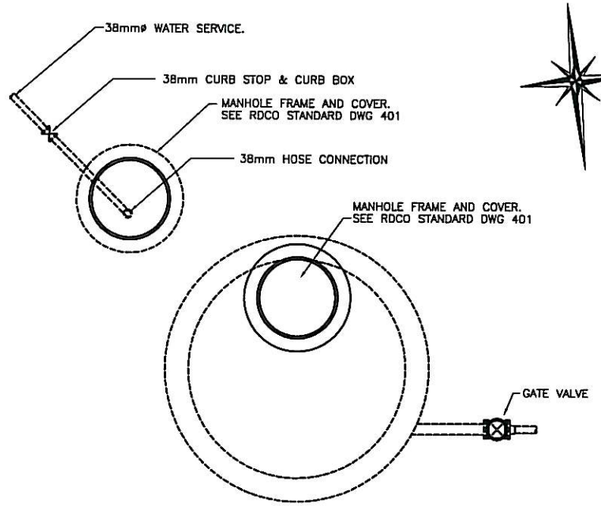
Process Mechanical:

		Matrix Rating
Station type:	Concrete 1.8m MH	n/a
Number of pumps:	2	n/a
Pump Redundancy:	Yes	n/a
Pump Manufacturer / Type:	FLYGT Submersible Grinder	8
Pump Model:	CP 3085.192	n/a
Rated Capacity:	3L/S @ 21.2 TDH	n/a
Capacity Confirmation:		n/a
Discharge pipe type / diameter:	PVC/50	10
Header pipe type / diameter:	Rubber horse / 50	1
Check valve type / diameter:	/50	10
Isolation valve type / diameter:	SS Ball / 50	10
Piping Condition:		9
Emergency pumpout connection:	Flush out hose connection	10
Pressure gauges:	No	1
Inlet bar screen:	No	1
Wetwell condition:		7
Access Hatches:	MH Frame and Cover	5
Ladder / Platform:	Rungs / no platform	3
Wetwell benching:	Sulphate resistant concrete	5
Odour Control:	No	1
Ventilation:	Yes	8
Water washdown:	38mm Water Service	10
nfined Space Entry Requirements	No	1
		100

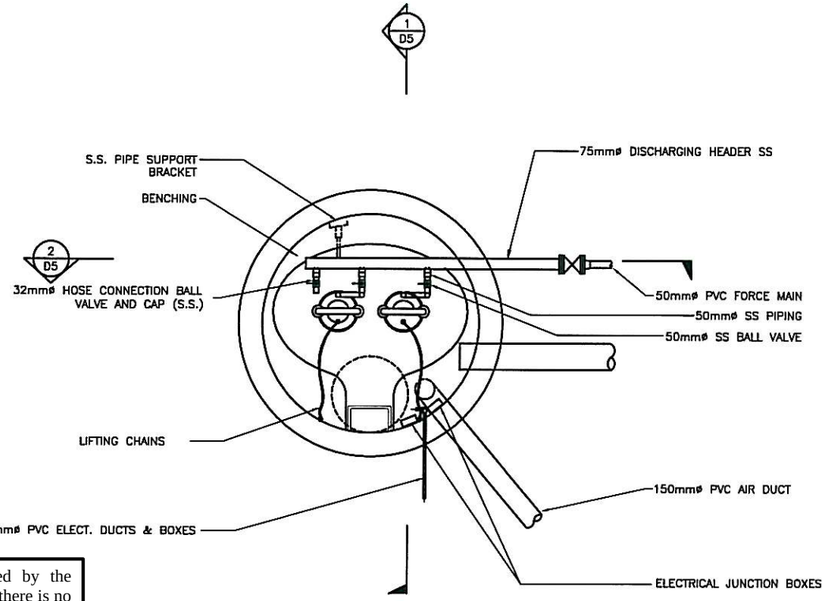
Electrical / Instrumentation:

				Matrix Rating
Service Type	V / A / Phase / Wire			1
Pump 1 :	HP	3.0 hp/2.3 Kw		1
	Volts	230	Rpm 3520	n/a
	FLA			n/a
Starting Current	A			n/a
Pump 2 :	HP 3.0hp			1
	Volts 230		Rpm 3520	n/a
	FLA			n/a
Starting Current				n/a
Alarm Functions:	Ultrasonic			1
	level control			n/a
				n/a
				n/a
Receptacles:				1
Interior Lighting:				1
Exterior Lighting:				1
SCADA / Telemetry:				1
Main Breaker:				1
Metering:				1
MCC:				1
Control Panel:				1
Lighting Panel:				1
Flowmeter:				1
Ampmeters:				1
TVSS:				1
Grounding:				1
Lighting Protection:				1
UPS:				1
PLC:				1
Level Control:	Ultrasnoic FLYGT Bulb level			1
Standby Generator:				1
				22

Comments:



S.L.S. – TOP PLAN
SCALE: 1:25



S.L.S. – WETWELL PLAN
SCALE: 1:25

NOTES:

ALL LOCATIONS OF EXISTING UTILITIES SHOWN ARE APPROXIMATE ONLY. ALL OR ANY EXISTING STRUCTURES NOT NECESSARILY SHOWN.

ELEVATIONS ARE TO GEODETIC DATUM.

CONDUIT FOR POWER & TELEMETRY AS DIRECTED BY RDCO PUBLIC WORKS, B.C. HYDRO AND APPROVED BY THE CONTRACT ADMINISTRATOR.

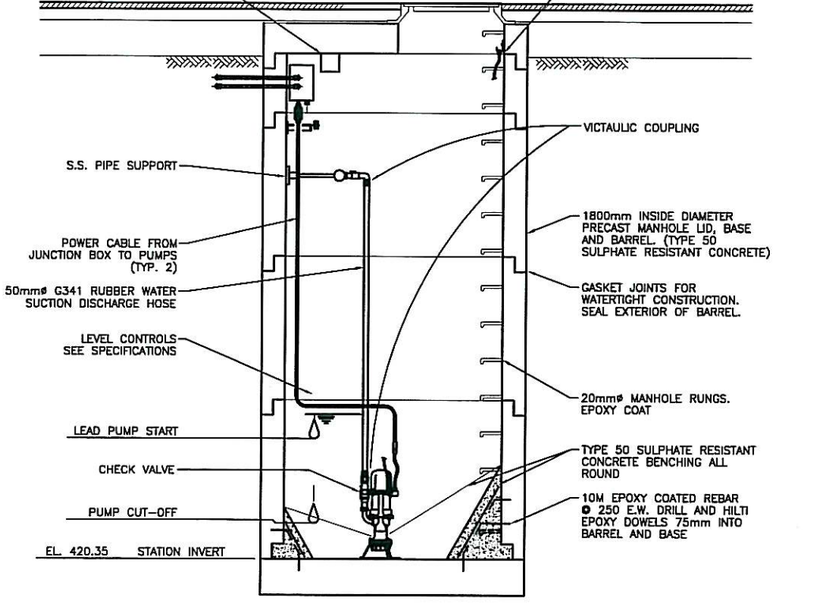
RECEIVED AND INSTALLED 2 PRE–PURCHASED FLYGT PUMPS c/w HOSES, CHAINS AND POWER CABLES.

COORDINATED SUPPLY AND INSTALLATION OF ALL ELECTRICAL/CONTROLS EQUIPMENT WITH RDCO PUBLIC WORKS.

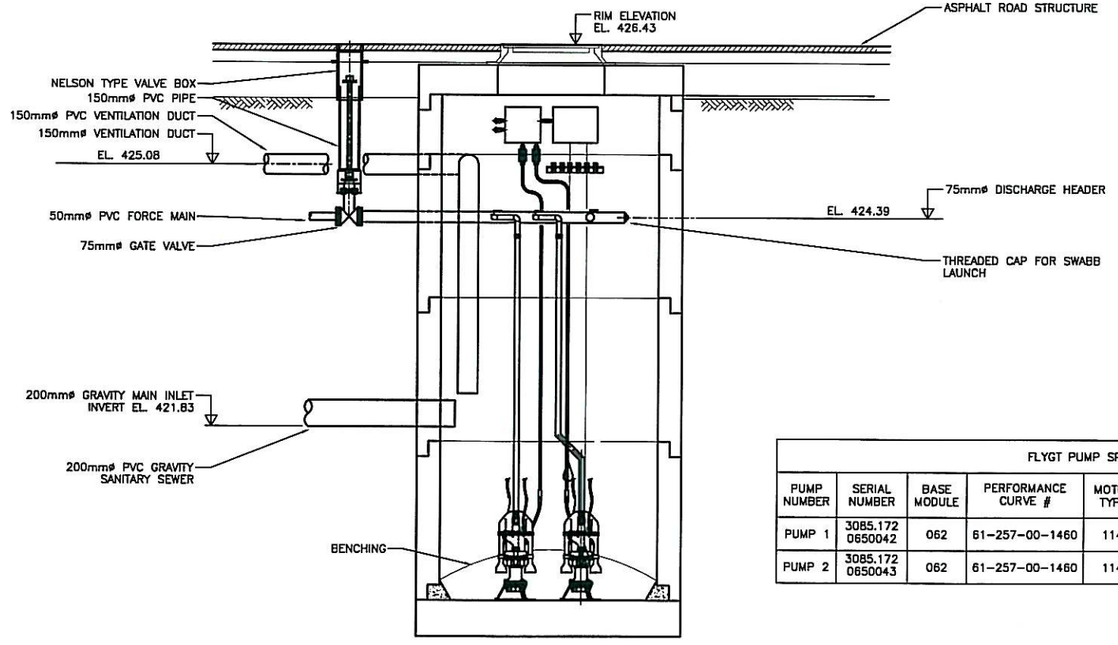
ALL STAINLESS STEEL (S.S.) CALLED TO BE 316L GRADE.

REFER TO APPENDIX E FOR FURTHER ELECTRICAL DETAILS.

"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."



SECTION 1/D5
SCALE: NTS



SECTION 2/D3
SCALE: NTS

FLYGT PUMP SPECS								
PUMP NUMBER	SERIAL NUMBER	BASE MODULE	PERFORMANCE CURVE #	MOTOR TYPE	VOLTAGE (V)	IMPELLER NUMBER	IMP. DIA	POWER
PUMP 1	3085.172 0650042	062	61–257–00–1460	114	230	444 84 13	143	2.3kW (3.0hp)
PUMP 2	3085.172 0650043	062	61–257–00–1460	114	230	444 84 13	143	2.3kW (3.0hp)

RECORD DRAWING

LEGEND

CABLE TV	CAP	SAN	SANITARY MH (EXISTING OR FUTURE)
GAS	CATCH BASIN	SAN	SANITARY MH (PROPOSED)
SAN. SEWER	ELECTRICAL BOX	STM	STORM MH (EXISTING OR FUTURE)
STORM SEWER	HYDRANT	STM	STORM MH (PROPOSED)
U.G. ELECTRICAL	VALVE		TRANSFORMER
U.G. TELEPHONE	LAMP STANDARD		UTILITY JUNCTION BOX
WATER			

No.	DATE	BY		Chk'd
1	01/25/07	HK	FOR RECORD	MHC
No.	MM/DD/YY DATE	BY	ISSUED	Chk'd

No.	DATE	BY		Chk'd
1	01/25/07	HK	STATION DETAILS	MHC
No.	MM/DD/YY DATE	BY	REVISION	Chk'd

RDCO REGIONAL DISTRICT of CENTRAL OKANAGAN

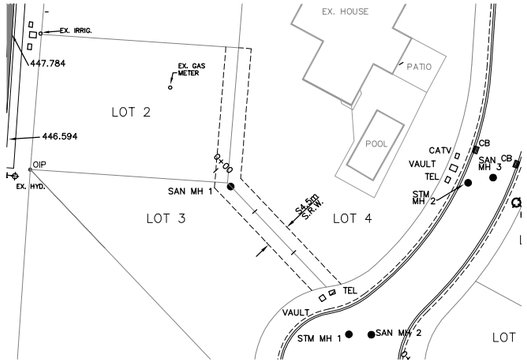
PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA
M. H. CAMERON

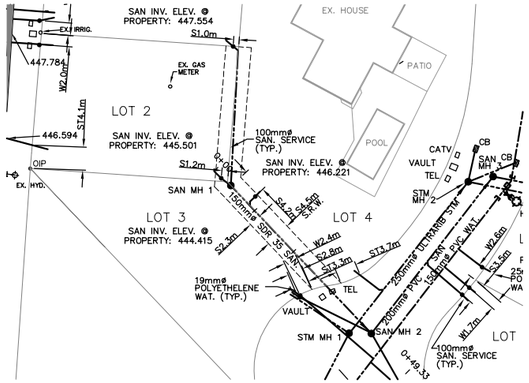
DRAWN
DESIGN
APPROVED
DATE SEPT, 2006
SCALE AS NOTED

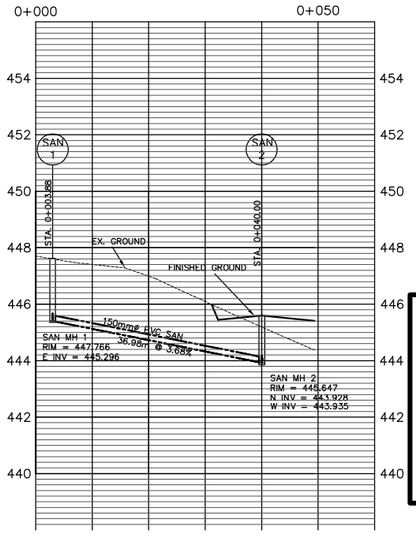
205–1726 DOLPHIN AVE
KELOWNA BC V1Y 9R9
CTQ Consultants Ltd
PRO
TEL 250 979–1221
FAX 250 979–1232

AREA 701– LAKEVIEW PHASE 5
SANITARY SEWER
THACKER S.L.S. PLANS AND SECTIONS

DRAWING NO. D5
REV. NO. 1

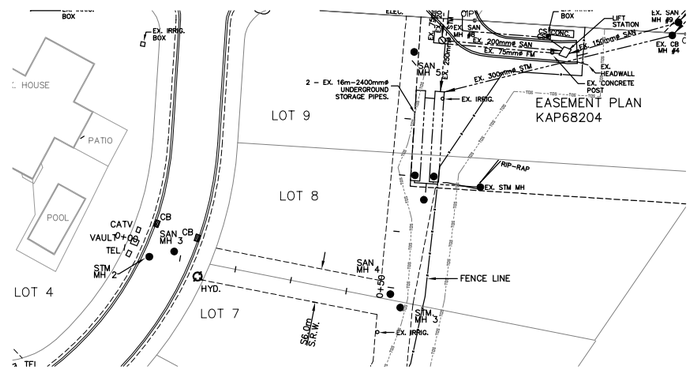


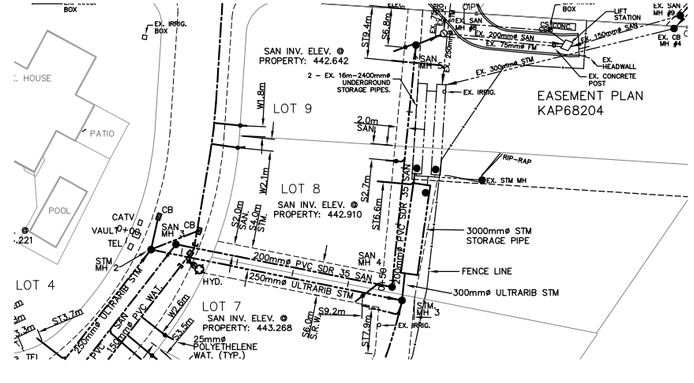


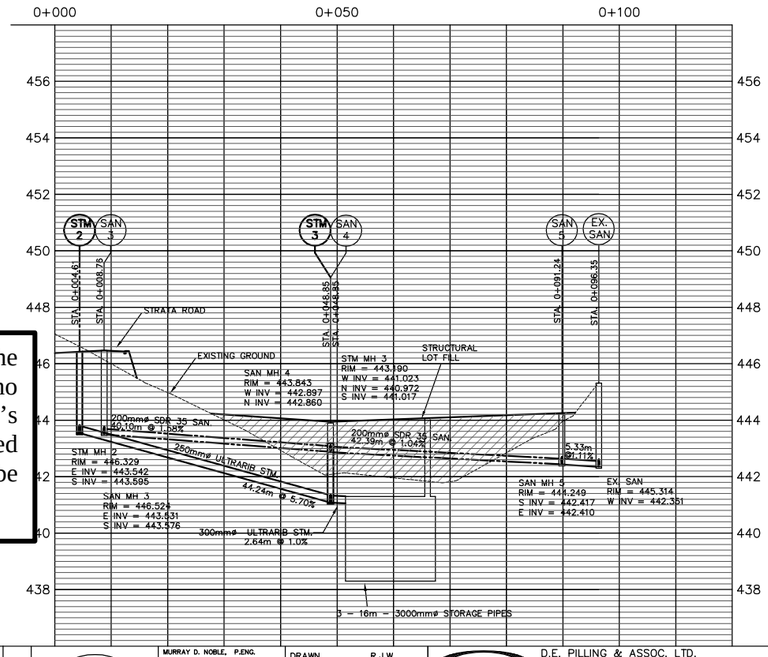


"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."

"AS CONSTRUCTED"
O.B.P., JULY 28, 2003







LEGEND

CABLE TV	CAP	SAN #	SANITARY MH (EXISTING OR FUTURE)
GAS	CATCH BASIN	SAN #	SANITARY MH (PROPOSED)
SAN. SEWER	ELECTRICAL BOX	STM #	STORM MH (EXISTING OR FUTURE)
STORM SEWER	HYDRANT	STM #	STORM MH (PROPOSED)
U.G. ELECTRICAL	VALVE		TRANSFORMER
U.G. TELEPHONE	LAMP STANDARD		UTILITY JUNCTION BOX
WATER			

No.	MM/DD/YY DATE	BY	REVISION	Chk'd
3	09/04/03	RW	REVISED AS PER R.D.C.O.	MDN
2	07/28/03	OP	AS CONSTRUCTED	DEP
1	03/28/03	RW	GENERAL REVISIONS	DEP

REGIONAL DISTRICT OF CENTRAL OKANAGAN

MURRAY D. NOBLE, P.ENG.

DRAWN	R.J.W.
DESIGN	P.A.C.E.
APPROVED	D.E.P.
DATE	FEB 2003
SCALE	H = 1:500 V = 1:100

PACE
D.E. PILLING & ASSOC. LTD.
CONSULTING ENGINEERING
#200, 540 GROVES AVE., KELOWNA, B.C. V1Y 4Y7
TEL: 1-250-763-2315
FAX: 1-250-763-8559
EMAIL: engineering@pilling.ca

9 LOT STRATA SUBDIVISION
THACKER DRIVE
645135 B.C. LTD.
EASEMENT PLAN/PROFILE

DRAWING NO. 1556-R2
REV. NO. 3

TEST REPORT

PRODUCT

THACKER DRIVE LS 13

Serial No.		Performance curve No.	Motor module/type	Voltage (V)
3085.172	0650042	61- 257-00-1460	114	230

Base module	Impeller No.	Gear type	Gear ratio	Imp.diam/Blade angle	Water temp °C
062	444 84 13			143	20

TEST RESULTS

Pump total head H (m)	Volume rate of flow Q (l /s)	Motor input power P (kW)	Voltage U (V)	Current I (A)	Overall efficiency η (%)
34.53	0.03	2.85	219	21.3	0.35
33.47	0.41	2.88	219	21.4	4.73
31.44	1.18	3.10	221	22.2	11.78
31.43	1.19	3.10	221	22.3	11.81
31.07	1.30	3.15	222	22.4	12.56
28.07	2.13	3.38	221	22.7	17.30
21.25	3.10	3.72	222	23.3	17.35
21.24	3.11	3.71	222	23.2	17.46

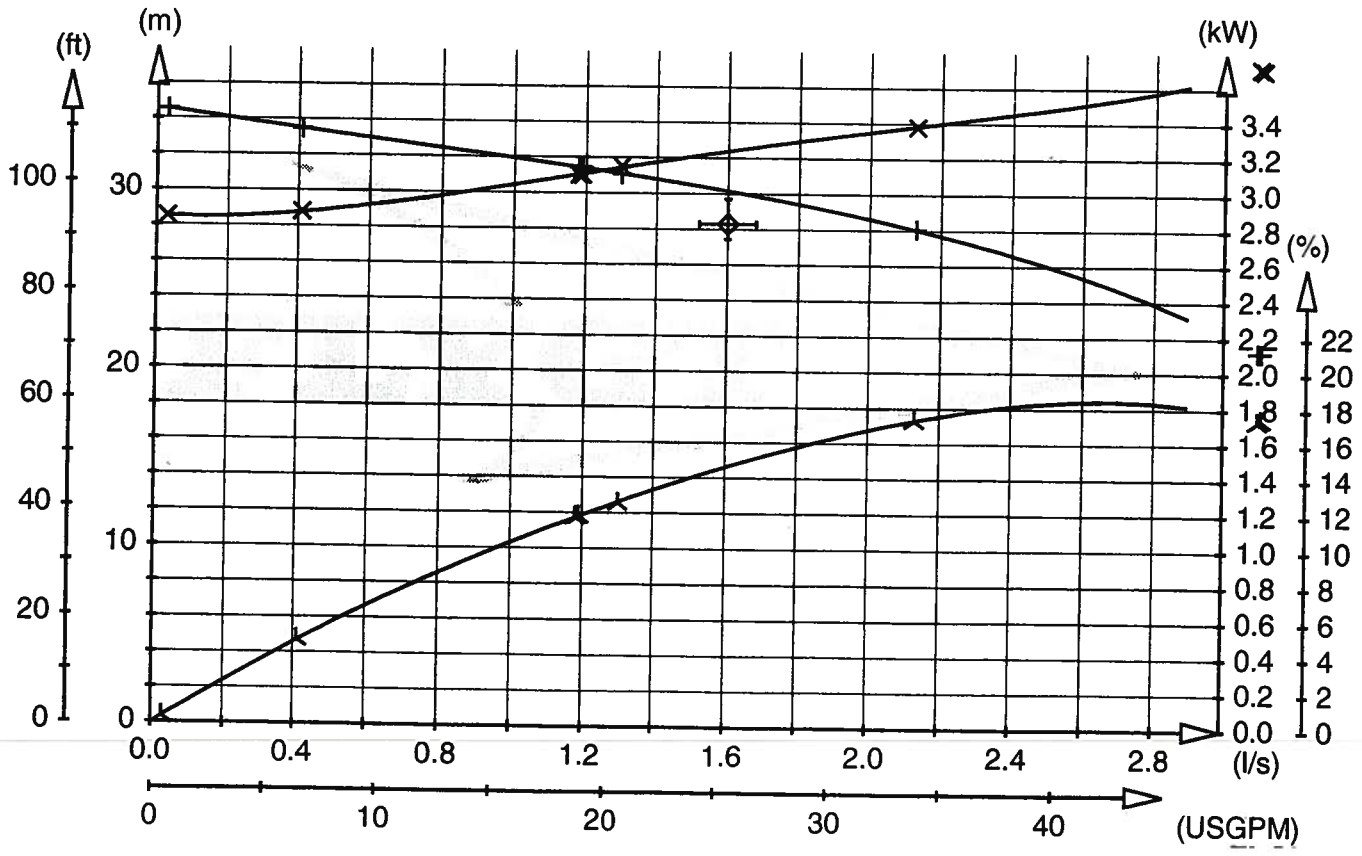
Accepted after	Test facility	Test date	Time	Chief tester
HI/B	Lindas Sweden LC4	06-07-05	07:42	0300

ORDERNR 171572 POS 1

PLOTTED TEST RESULTS

Measured point : + = Q/H, × = Q/P Duty point : ◇ = Q/H, □ = Q/P, △ = Q/ETA overall Calculated point : 人 = Q/ETA overall

6



FLYGT

TEST REPORT

PRODUCT

Serial No.		Performance curve No.	Motor module/type	Voltage (V)
3085.172	0650043	61- 257-00-1460	114	230

Base module	Impeller No.	Gear type	Gear ratio	Imp.diam/Blade angle	Water temp °C
062	444 84 13			143	20

TEST RESULTS

Pump total head H (m)	Volume rate of flow Q (l /s)	Motor input power P (kW)	Voltage U (V)	Current I (A)	Overall efficiency η (%)
34.73	0.03	2.91	221	22.0	0.38
33.63	0.42	2.96	222	22.1	4.66
31.78	1.13	3.17	224	23.1	11.07
31.53	1.20	3.20	224	23.1	11.63
31.22	1.29	3.16	222	22.4	12.50
28.17	2.12	3.48	225	23.5	16.81
20.92	3.10	3.69	220	22.9	17.23
20.90	3.10	3.71	220	23.0	17.14

Accepted after	Test facility	Test date	Time	Chief tester
HI/B	Lindas Sweden LC4	06-07-05	07:33	0300

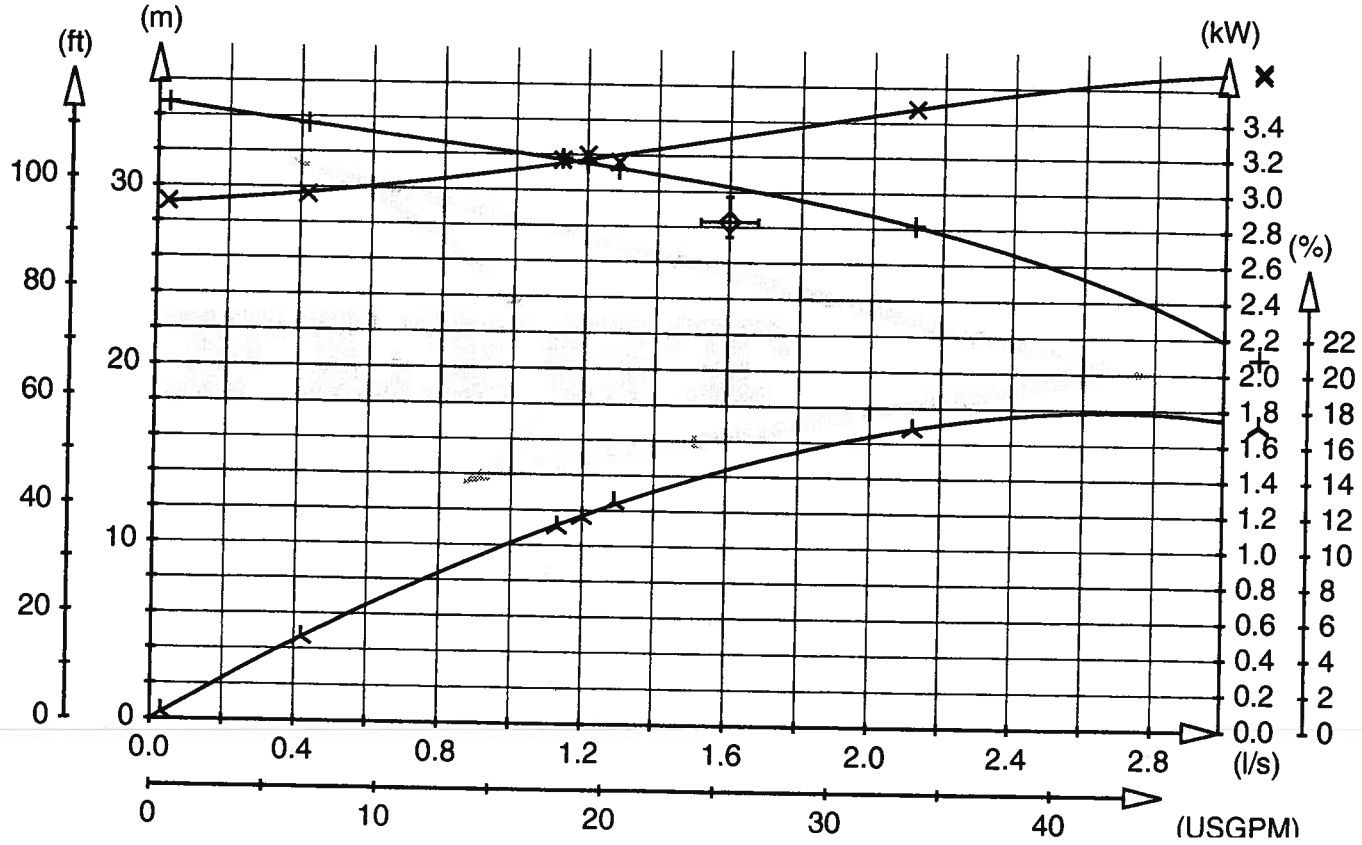
ORDERNR 171572 POS 1

PLOTTED TEST RESULTS

Measured point : + = Q/H, × = Q/P Duty point : ◇ = Q/H, □ = Q/P, △ = Q/ETA overall Calculated point : 人 = Q/ETA overall

TOTAL HEAD

INPUT POWER



District of West Kelowna

Sanitary Lift Station Evaluation

Station: Collens Hill LS 14

Inspection By: Jim Kentel

Year Constructed: 9/1/2004

Year Upgraded:

Matrix Rating			
(10 - highest rating)	Civil	40	
(1 - lowest rating)	Process Mechanical	153	
	Electrical Instrumentation	132	
	Total Station Rating	325	(max. rating 370 points)

Civil:

		Matrix Rating
Parking Area:		n/a
Drainage:	Good	10
Influent sewer:	Gravity 200	10
Site access:	Good	10
Water service:	Yes	10
		40

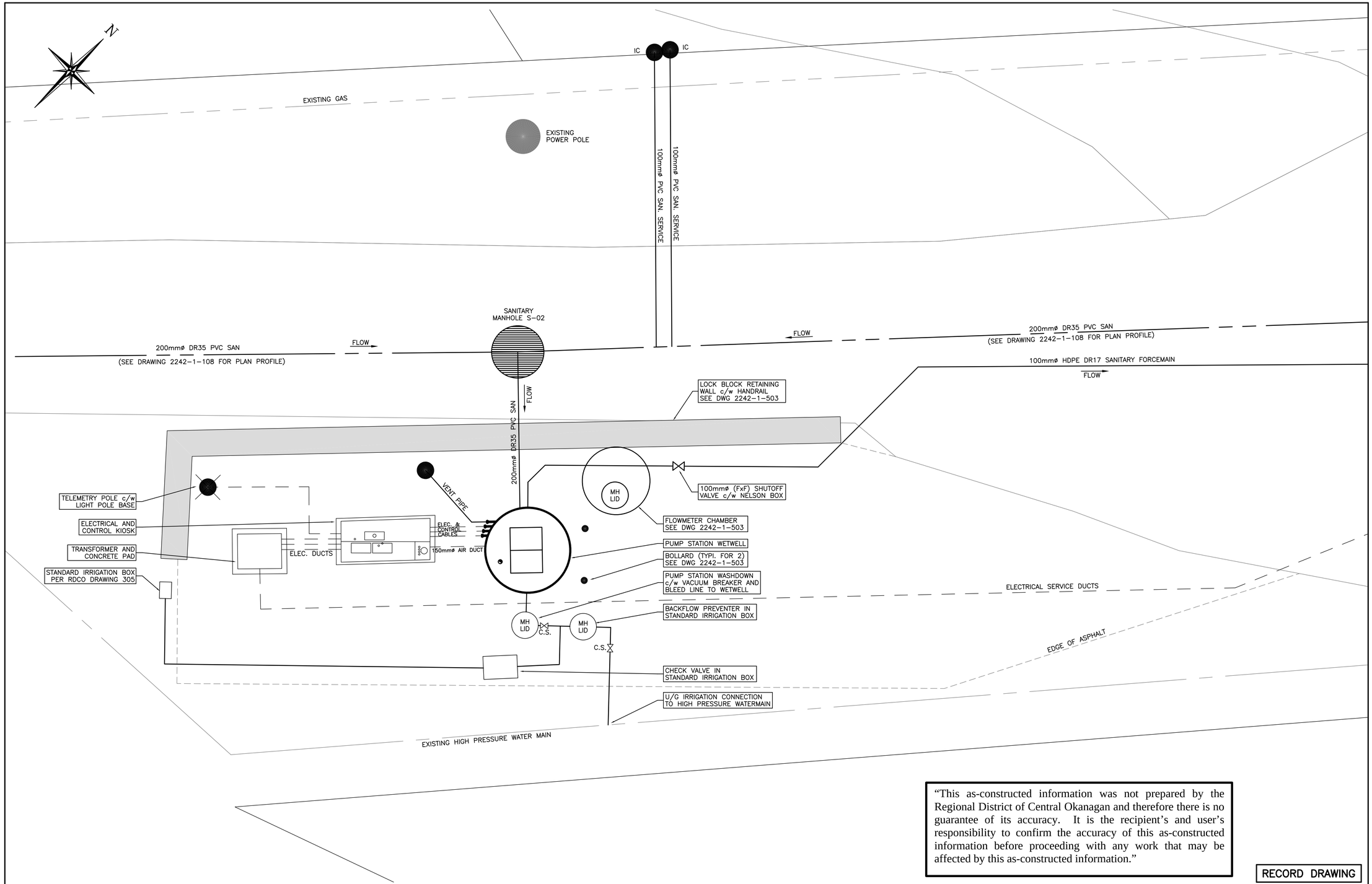
Process Mechanical:

		Matrix Rating
Station type:	FRP 2.4m	n/a
Number of pumps:	2	n/a
Pump Redundancy:	Yes	n/a
Pump Manufacturer / Type:	FLYGT/Sumbersible	7
Pump Model:	NP3171.180HT	n/a
Rated Capacity:		n/a
Capacity Confirmation:		n/a
Discharge pipe type / diameter:	HPPE DR 17/100	10
Header pipe type / diameter:	EPOXY Steel /100	8
Check valve type / diameter:	FLYGT #5087 HDL/100	10
Isolation valve type / diameter:	CI Plug/100	10
Piping Condition:		9
Emergency pumpout connection:	100	10
Pressure gauges:	Yes	10
Inlet bar screen:	No	1
Wetwell condition:		10
Access Hatches:	Alum	10
Ladder / Platform:	Yes	10
Wetwell benching:	Yes	10
Odour Control:	Carbon Filter to Vent	8
Ventilation:	Yes	10
Water washdown:	Yes	10
nfined Space Entry Requirements	Davit	10
		153

Electrical / Instrumentation:

					Matrix Rating
Service Type	V / A / Phase / Wire				n/a
Pump 1 :	HP		25		n/a
	Volts	600	Rpm	1760	n/a
	FLA		32		n/a
Starting Current	228				n/a
Pump 2 :	HP		25		n/a
	Volts	600	Rpm	1760	n/a
	FLA		32		n/a
Starting Current	228				n/a
Alarm Functions:	Yes				10
					n/a
					n/a
					n/a
Receptacles:	Yes				10
Interior Lighting:	Yes				10
Exterior Lighting:					1
SCADA / Telemetry:	Yes				10
Main Breaker:					10
Control Panel:					10
Lighting Panel:					10
Flowmeter:	Chamber, ABB P/50844/1/1				10
Grounding:					10
Surge Protection:	Yes				10
UPS:					10
PLC:					10
Level Control:	Ultrasonic/FLYGT Bulbs				10
Standby Generator:					1
					132

Comments:



"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."

RECORD DRAWING

LEGEND

WATER	CAP	SAN#	SAN MANHOLE (EXISTING OR FUTURE)
SAN. SEWER	CATCH BASIN	STM#	STORM MANHOLE (EXISTING OR FUTURE)
STORM SEWER	ELECTRICAL BOX	MH#	MANHOLE (PROPOSED)
GAS	HYDRANT	170	DRAWING REFERENCE NUMBER
U.G. TELEPHONE	VALVE	25	MANHOLE NUMBER
U.G. ELECTRICAL	LAMP STANDARD	CO	CLEAN-OUT
CABLE TV	EXISTING SEPTIC TANK	IC	INSPECTION CHAMBER

No.	MM/DD/YY DATE	BY	REVISION	Chk'd
5	09/13/04	BC	PUMP STATION REVISION	BC
4	08/04/04	JB	C.C.N. #2	BC
3	06/28/04	KR	C.C.N. #1	BC
2	04/29/04	PM	CONSTRUCTION ISSUE	BC
1	01/30/04		TENDER ISSUE	BC

No.	MM/DD/YY DATE	BY	REVISION	Chk'd
7	01/19/07	JB	REVISIONS PER RDCO COMMENTS	DRG
6	01/12/07	JB	RECORD DRAWING	DRG

REGIONAL DISTRICT of CENTRAL OKANAGAN

P.ENG.

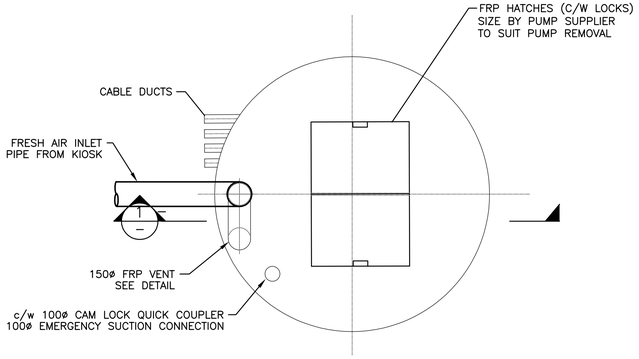
DRAWN:	KR/BC
DESIGN:	BC
APPROVED:	RAV
DATE:	OCT 03
SCALE:	1:50

Associated Engineering
Suite 420
1628 Dickson Avenue
Kelowna, B.C. V1Y 9X1
Tel: (250) 763-3638
Fax: (250) 763-8880

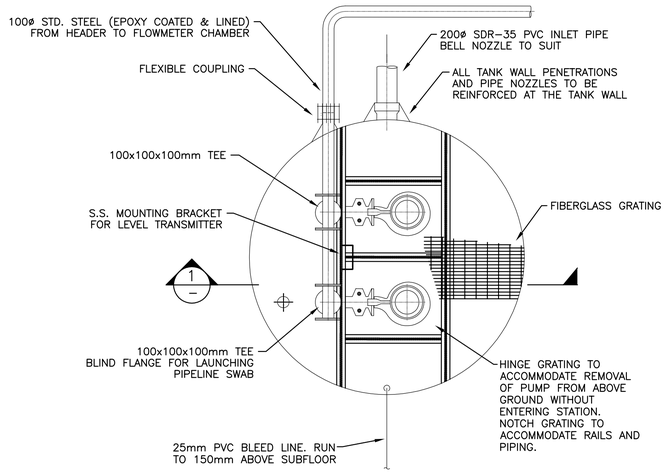
LAKEVIEW PHASE ONE
SANITARY SEWER
SANITARY LIFT STATION SITE PLAN

DRAWING NO. 2242-1-501

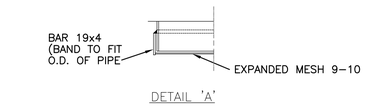
REV. NO. 7



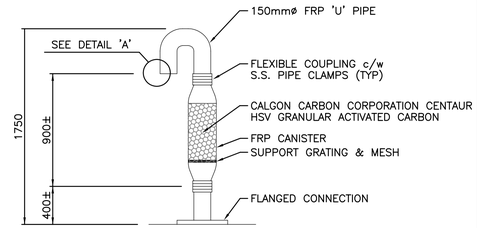
PLAN
NTS



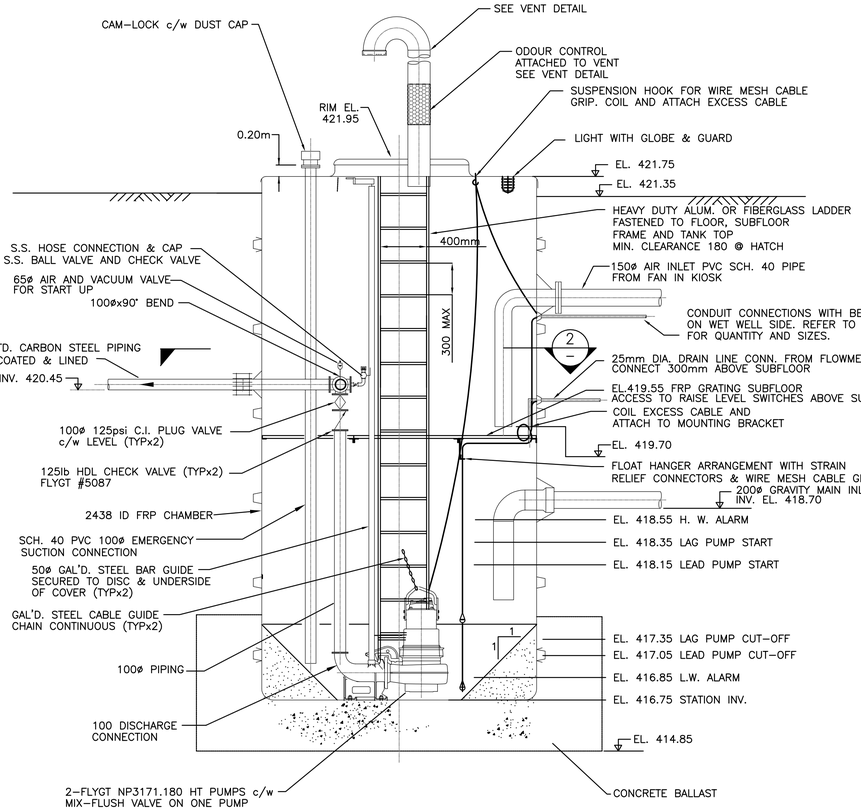
SECTION (2)
NTS



DETAIL 'A'

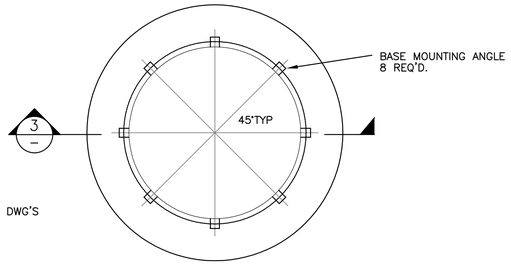


VENT DETAIL
NTS

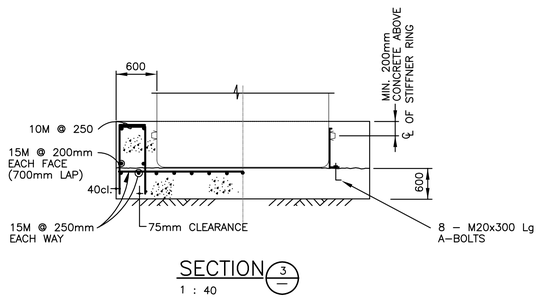


SECTION (1)
NTS

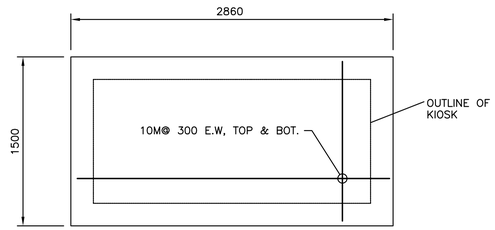
NOTE: FOR TRUE ORIENTATION OF STATION EQUIPMENT SEE PLAN AND SECTION



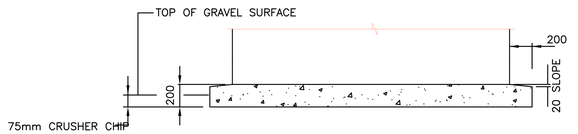
PLAN @ CONC. BALLAST
1 : 40



SECTION (3)
1 : 40



PLAN



ELEVATION

CONCRETE KIOSK PAD
NTS

"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."

RECORD DRAWING

LEGEND

WATER	CAP	SAN#	SAN MANHOLE (EXISTING OR FUTURE)
SAN. SEWER	CATCH BASIN	STM#	STORM MANHOLE (EXISTING OR FUTURE)
STORM SEWER	ELECTRICAL BOX	MH#	MANHOLE (PROPOSED)
GAS	HYDRANT	(110)	DRAWING REFERENCE NUMBER
U.G. TELEPHONE	VALVE	(25)	MANHOLE NUMBER
U.G. ELECTRICAL	LAMP STANDARD	CO	CLEAN-OUT
CABLE TV	EXISTING SEPTIC TANK	IC	INSPECTION CHAMBER

No.	DATE	BY	REVISION	Chk'd
5	09/13/04	BC	PUMP STATION REVISION	BC
4	08/04/04	JB	C.C.N. #2	BC
3	06/28/04	JB	C.C.N. #1	BC
2	04/29/04	BC	CONSTRUCTION ISSUE	BC
1	01/30/04	CB	ISSUED FOR TENDER	BC

No.	DATE	BY	REVISION	Chk'd
7	01/19/07	JB	REVISIONS PER RDCO COMMENTS	DRG
6	01/12/07	JB	RECORD DRAWING	DRG

REGIONAL DISTRICT of CENTRAL OKANAGAN

P.ENG.

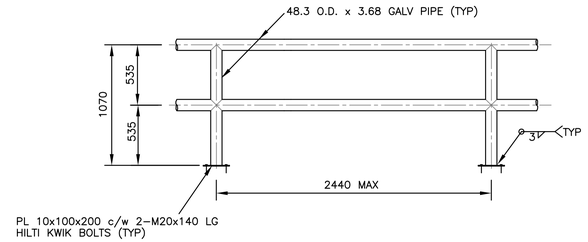
DRAWN:	MB/KR
DESIGN:	BC
APPROVED:	RAV
DATE:	OCT 03
SCALE:	AS NOTED

Associated Engineering
Suite 420
1628 Dickson Avenue
Kelowna, B.C., V1Y 9X1
Tel: (250) 763-3638
Fax: (250) 763-8880

LAKEVIEW PHASE ONE
SANITARY SEWER
SANITARY LIFT STATION DETAILS

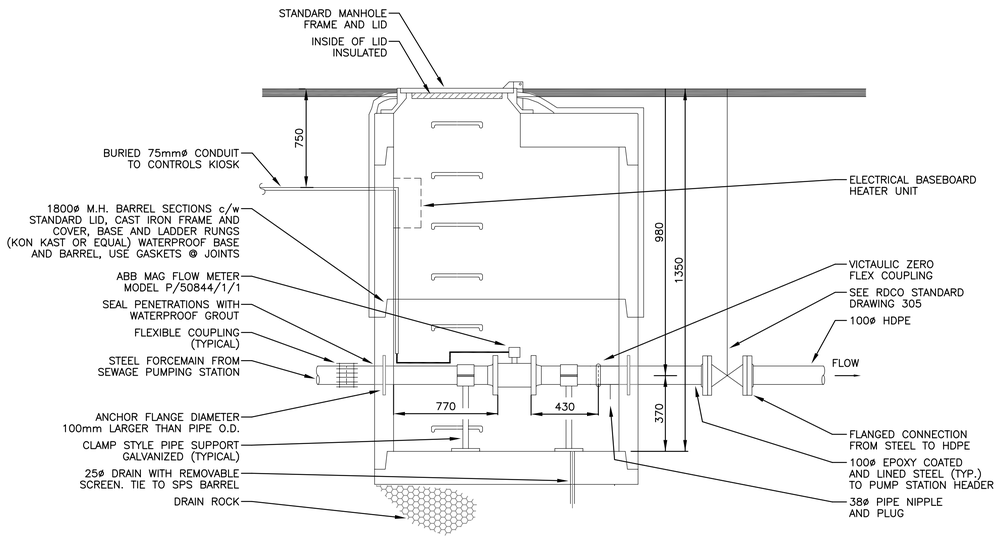
DRAWING NO. 2242-1-502

REV. NO. 7



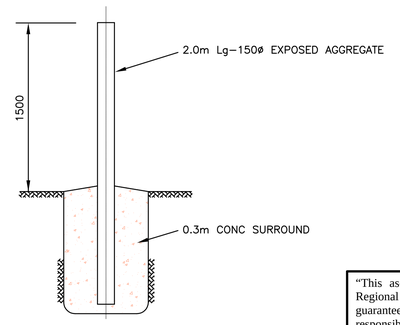
TYPICAL HANDRAIL DETAIL

NOT TO SCALE



FLOWMETER CHAMBER

NOT TO SCALE



BOLLARD DETAIL

NOT TO SCALE

RECORD DRAWING

LEGEND

WATER	CAP	SAN#	SAN MANHOLE (EXISTING OR FUTURE)
SAN. SEWER	CATCH BASIN	STM#	STORM MANHOLE (EXISTING OR FUTURE)
STORM SEWER	ELECTRICAL BOX	MH#	MANHOLE (PROPOSED)
GAS	HYDRANT	(110)	DRAWING REFERENCE NUMBER
U.G. TELEPHONE	VALVE	(25)	MANHOLE NUMBER
U.G. ELECTRICAL	LAMP STANDARD	CO	CLEAN-OUT
CABLE TV	EXISTING SEPTIC TANK	IC	INSPECTION CHAMBER

No.	MM/DD/YY DATE	BY	REVISION	Chk'd
4	08/04/04	BC	C.C.N. #1	BC
3	06/28/04	BC	C.C.N. #1	BC
2	04/29/04	PM	CONSTRUCTION ISSUE	BC
1	01/30/04	BC	ISSUED FOR TENDER	BC
0	10/30/03	BC	RECO REVIEW	BC

No.	MM/DD/YY DATE	BY	REVISION	Chk'd
7	01/19/07	JB	REVISIONS PER RDCO COMMENTS	DRG
6	01/12/07	JB	RECORD DRAWING	DRG
5	09/13/04	BC	PUMP STATION DESIGN	BC

REGIONAL DISTRICT of CENTRAL OKANAGAN

P.ENG.

DRAWN:	MB/KR
DESIGN:	BC
APPROVED:	RAV
DATE:	OCT 03
SCALE:	AS NOTED

Associated Engineering
Suite 420
1628 Dickson Avenue
Kelowna, B.C. V1Y 9X1
Tel: (250) 763-3638
Fax: (250) 763-8880

LAKEVIEW PHASE ONE SANITARY SEWER CONSTRUCTION DETAILS

DRAWING NO. 2242-1-503

REV. NO. 7

* Assumed Model Number.

FLYGT

PERFORMANCE CURVE

PRODUCT	TYPE
NP3171.181	HT

DATE	PROJECT	CURVE NO	ISSUE
2013-10-23	Collens Hill LS 14*	63-452-00-6050	1

	1/1-LOAD	3/4-LOAD	1/2-LOAD
MOTOR COS PHI	0.86	0.81	0.70
MOTOR EFFICIENCY	89.5 %	90.5 %	90.0 %
GEAR EFFICIENCY	---	---	---

MOTOR SHAFT POWER	25	kW
STARTING CURRENT ...	228	A
RATED CURRENT ...	32	A
RATED SPEED	1765	rpm
TOT.MOM.OF INERTIA ...	0.19	kgm2
NO. OF BLADES	2	

IMPELLER DIAMETER: 303 mm

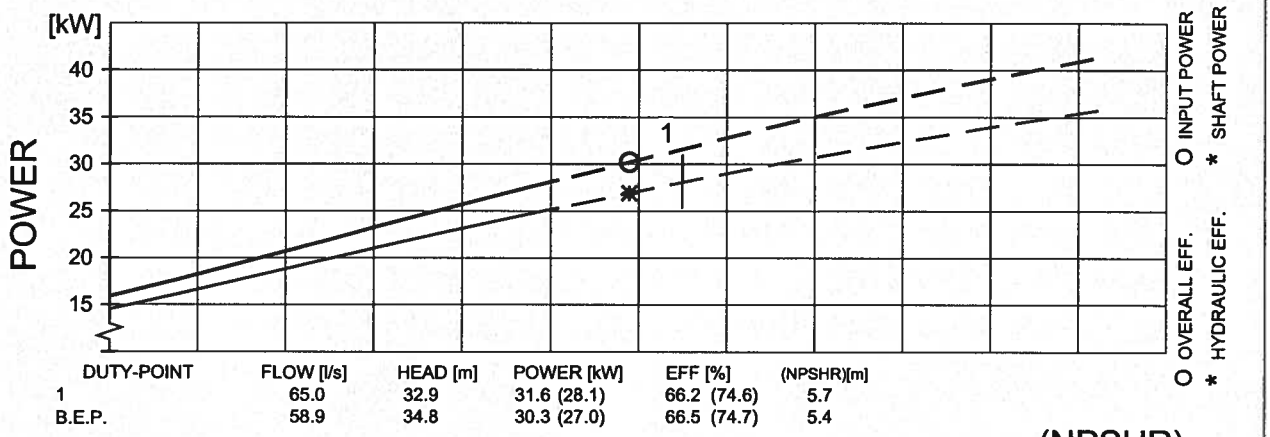
MOTORTYPE	STATOR	REV
25-19-4AA	06D	10

FREQ.	PHASES	VOLTAGE	POLES
60 Hz	3	600 V	4

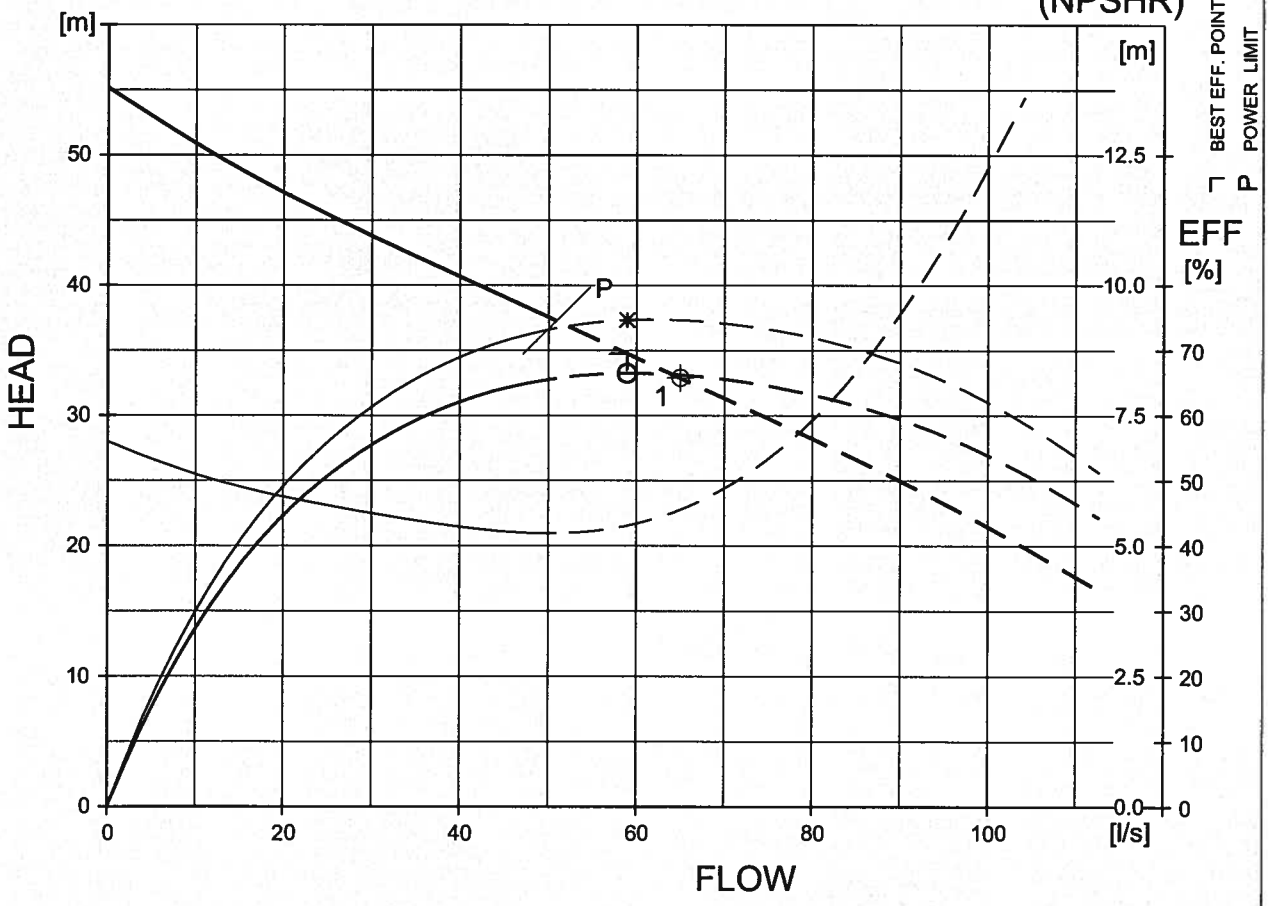
GEARTYPE	RATIO
---	---

COMMENTS

INLET/OUTLET	IMP. THROUGHLET
-/100 mm	---



DUTY-POINT	FLOW [l/s]	HEAD [m]	POWER [kW]	EFF [%]	(NPSHR)[m]
1	65.0	32.9	31.6 (28.1)	66.2 (74.6)	5.7
B.E.P.	58.9	34.8	30.3 (27.0)	66.5 (74.7)	5.4



FLYPS3.1.5.7 (20060531)

(NPSHR) = (NPSH3) + margins

Performance with clear water and rating data at 40 °C

FLYGT CURVE

FLYGT

Rating

Frequency	**60** Hz	Product	**3171 . 181**	Issue	**1**
Phases	**3**	Motor	**25-19-4AA**	Start max	**30**
Poles	**4**	Output power	**25.0** kW	Issue date	
Approval		Installations	**PSTZ**	Valid from	**6/8/2005**
Cooling		Type of duty	**S1**	Status	**APPR**

Max temperature **40** ° C / **104** ° F

	Alternative 1	*Alternative 2*		
Voltage	**600** V	V	Stator variant	**06**
Connection	**D**		Speed	**1765** r/min
Current	**32.0** A	A	Module number	**165**
Starting	**228.0** A	A	Motor issue	**10**
Power factor	**0.86**			
Locked rotor code	**H**			

Warm liquid data Note! Reduced rated output power

Max temperature	**70** ° C / **158** ° F	° C /	° F
Current (1)	**29.0** A	A	
Current (2)	A	A	
Max input power	**25.0** kW	kW	

District of West Kelowna

Sanitary Lift Station Evaluation

Station: Casa Rio Ls 15
Inspection By: Jim Kentel

Year Constructed:
Year Upgraded:

Matrix Rating			
(10 - highest rating)	Civil	23	
(1 - lowest rating)	Process Mechanical	17	
	Electrical Instrumentation	17	
	Total Station Rating	57	(max. rating 370 points)

Civil:

		Matrix Rating
Parking Area:		n/a
Drainage:	Good	10
Influent sewer:	Good	10
Site access:	Poor in park by lake	2
Water service:	No	1
		23

Process Mechanical:

		Matrix Rating
Station type:	Concrete Manhole	n/a
Number of pumps:		n/a
Pump Redundancy:		n/a
Pump Manufacturer / Type:	Goulds	1
Pump Model:		n/a
Rated Capacity:		n/a
Capacity Confirmation:		n/a
Discharge pipe type / diameter:		1
Header pipe type / diameter:		1
Check valve type / diameter:		1
Isolation valve type / diameter:		1
Piping Condition:		1
Emergency pumpout connection:		1
Pressure gauges:		1
Inlet bar screen:		1
Wetwell condition:		1
Access Hatches:	MH frame and cover	1
Ladder / Platform:	rungs	1
Wetwell benching:		1
Odour Control:		1
Ventilation:		1
Water washdown:		1
nfined Space Entry Requirements		1
		17

Electrical / Instrumentation:

				Matrix Rating
Service Type	V / A / Phase / Wire			n/a
Pump 1 :	HP	1.5		n/a
	Volts		Rpm	n/a
	FLA			n/a
	Starter			n/a
Pump 2 :	HP	1.5		n/a
	Volts		Rpm	n/a
	FLA			n/a
	Starter			n/a
				n/a
Alarm Functions:				1
				n/a
				n/a
				n/a
Receptacles:				1
Interior Lighting:				1
Exterior Lighting:				1
SCADA / Telemetry:				1
Main Breaker:				1
Metering:				1
MCC:				1
Control Panel:				1
Lighting Panel:				1
Flowmeter:	No			1
Grounding:				1
Surge Protection:				1
UPS:				1
PLC:				1
Level Control:				1
Standby Generator:				1
				17

Comments:

District of West Kelowna

Sanitary Lift Station Evaluation

Station: Stevens Road LS 16

Inspection By: Jim Kentel

Year Constructed: 10/1/1996

Year Upgraded:

Matrix Rating			
(10 - highest rating)	Civil	30	
(1 - lowest rating)	Process Mechanical	123	
	Electrical Instrumentation	103	
	Total Station Rating	256	(max. rating 370 points)

Civil:

		Matrix Rating
Parking Area:		n/a
Drainage:	Private property drainage	5
Influent sewer:	Gravity 200 PVC	10
Site access:	off side walk	5
Water service:	25mm	10
		30

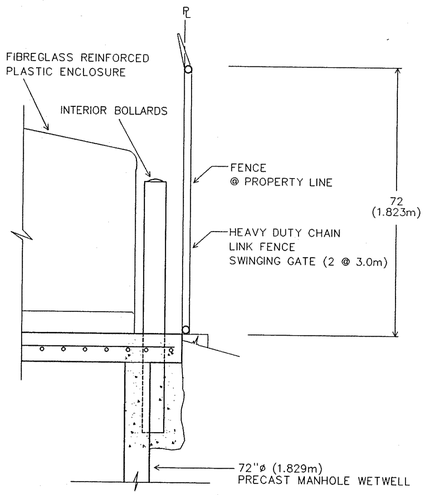
Process Mechanical:

		Matrix Rating
Station type:	Above Ground self priming	n/a
Number of pumps:	2	n/a
Pump Redundancy:	Yes	n/a
Pump Manufacturer / Type:	Gorman Pump	5
Pump Model:	T3A3-13	n/a
Rated Capacity:	20.5 L/S @ 29.3m TDH	n/a
Capacity Confirmation:		n/a
Discharge pipe type / diameter:	PVC/150	10
Header pipe type / diameter:	CI/100	10
Check valve type / diameter:	CI Check/100	10
Isolation valve type / diameter:	CI Plug/100	10
Piping Condition:	Good	7
Emergency pumpout connection:	Yes	10
Pressure gauges:	Yes	10
Inlet bar screen:	No	1
Wetwell condition:		5
Access Hatches:	Yes	10
Ladder / Platform:	Yes/NA	5
Wetwell benching:	Concrete	8
Odour Control:	No	1
Ventilation:	No	1
Water washdown:	25 - 50 Yard Hydrant	10
nfined Space Entry Requirements	N/A	10
		123

Electrical / Instrumentation:

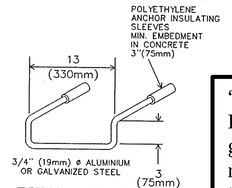
					Matrix Rating
Service Type	V / A / Phase / Wire				n/a
Pump 1 :	HP 20				n/a
	Volts	575	Rpm	2150	n/a
	FLA				n/a
Starting Current					n/a
Pump 2 :	HP 20				n/a
	Volts 575		Rpm 2150		n/a
	FLA				n/a
Starting Current					n/a
Alarm Functions:					10
					n/a
					n/a
					n/a
Receptacle	Yes				10
Interior Lighting:	No				1
Exterior Lighting:	No				1
SCADA / Telemetry:					10
Control Panel:					10
Lighting Panel:					10
Flowmeter:	Grey line				10
Grounding:					10
UPS:					10
PLC:					10
Level Control:	Millitronics				10
Standby Generator:	No				1
					103

Comments:



FENCE DETAIL (EAST)

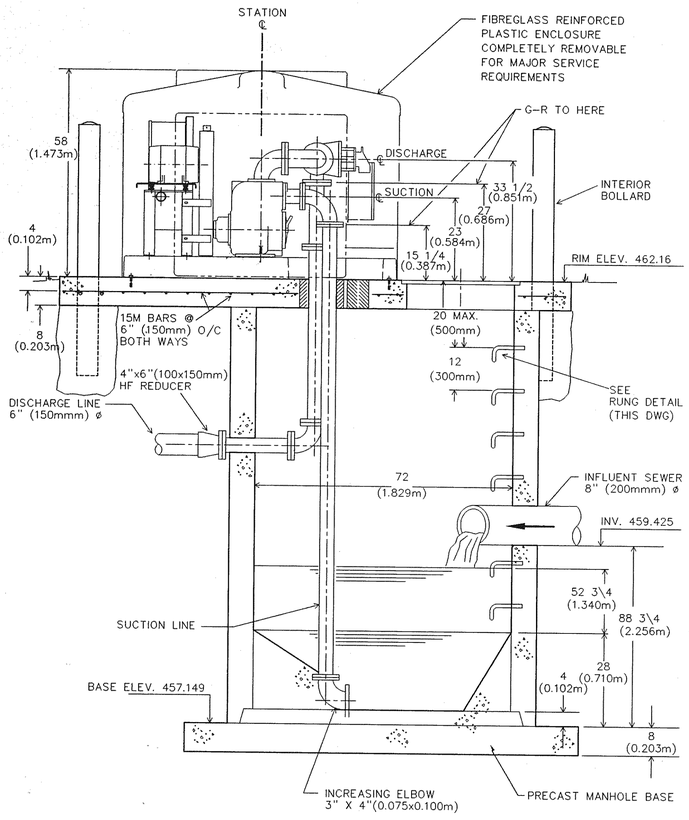
N.T.S.



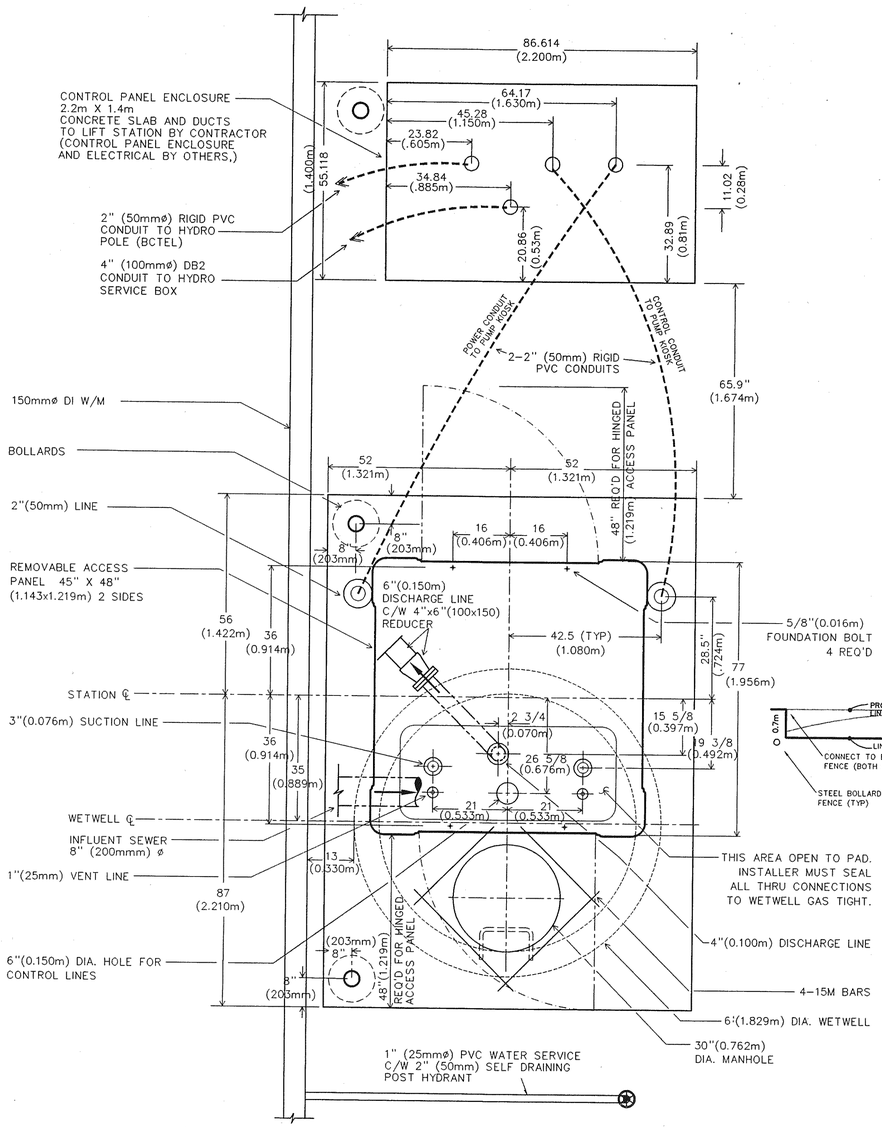
RUNG DETAIL

N.T.S.

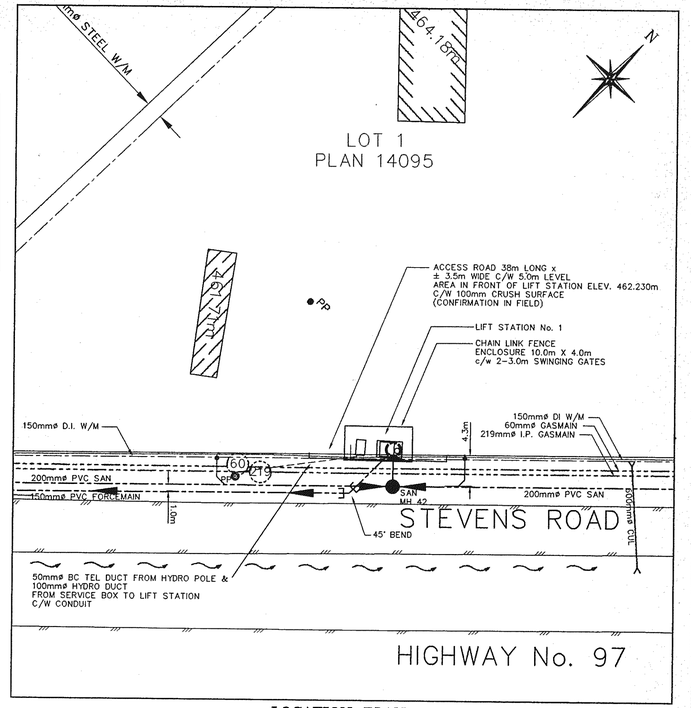
"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."



ELEVATION

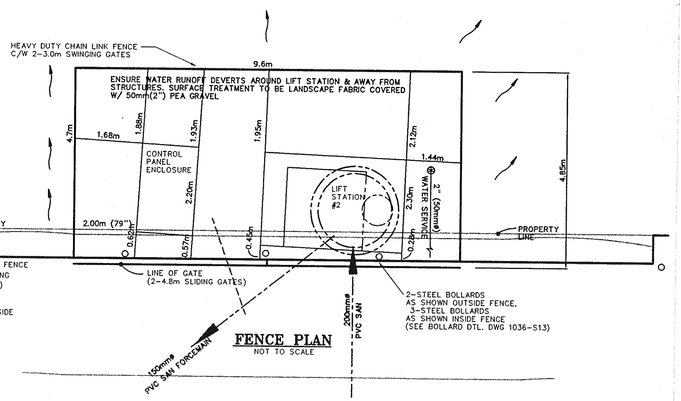


PLAN



LOCATION PLAN

NOT TO SCALE



FENCE PLAN

NOT TO SCALE

T3A3-B 3 X 4 X 4
OR
3 X 4 X 6

39511003.DGN

GORMAN-RUPP

THE GORMAN-RUPP CO.
MANSFIELD, OHIO ST. THOMAS, ONTARIO

NAME: 6' X 6' ABOVEGROUND SEWAGE LIFT STATION W/DUPLEX T3A3-B PUMPS

DRN.	CHK.	APP.	DATE
BM	KEH	PFB	5/2/75

WL-02988 D 39511-003 SERIAL NO.

LEGEND

WATER	HYDRANT	PERC. HOLE	
SAN. SEWER	WATER VALVE	POWER POLE	
STORM SEWER	REDUCER	LAMP STD.	
GAS	SANITARY MH	TRAFFIC LIGHT	
U.G. TELEPHONE	STORM MH	TRANSFORMER	
U.G. ELECTRICAL	CATCH BASIN	TEL. SB	
	DRYWELL	ELECT. SB	

No.	MM/DD/YY DATE	BY	REVISION	Chk'd
6	MAY. 97	E.B.B.	AS CONSTRUCTED RIM AND INVERTS ONLY	D.E.P.
5	MAR. 10, 97	E.B.B.	REVISED LIFT STA. INV. / W/M / MISC.	D.E.P.
4	FEB. 23, 97	E.B.B.	REVISED LIFT STA. LOC'N & ELEV'S	D.E.P.
3	NOV. 27, 96	E.B.B.	REVISED LIFT STA. LOC'N, WETWELL SIZE, MISC.	D.E.P.
2	SEPT. 7, 96	E.B.B.	REVISED LIFT STATION WATER SERVICE & HYDRANT	D.E.P.
1	SEPT. 1, 96	E.B.B.	REVISED LIFT STATION FENCE & LOCATION	D.E.P.

REGIONAL DISTRICT OF CENTRAL OKANAGAN

DALE EDWARD PILLING PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA

DRAWN	R.H.
DESIGN	P.A.C.E.
APPROVED	D.E.P.
DATE	MAY, 1996
SCALE	1 : 20 IMPERIAL

PACE

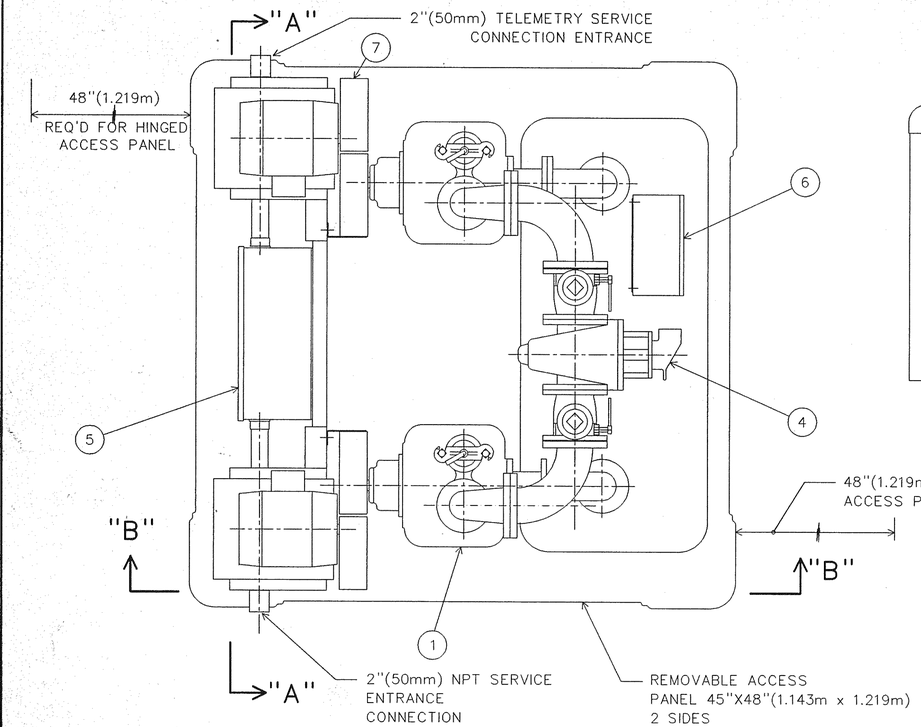
D. E. PILLING and ASSOCIATES CONSULTING ENGINEERING Ltd.
#200, 540 GROVES AVENUE, KELOWNA, B.C. V1Y-4Y7 TEL: 763-2315 FAX: 763-6559

WESTSIDE INDUSTRIAL PARK
REG. DIST. OF CENTRAL OKANAGAN
1450 K.L.O. ROAD KELOWNA, B.C. V1W-3Z4
LIFT STATION #1 -
CONSTRUCTION SPECIFICATIONS

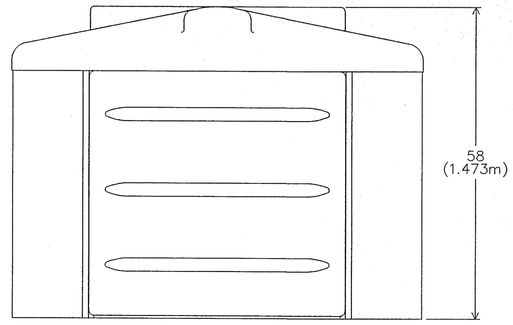
DRAWING NO.	1036-S11
R.D.C.O. No.	100.303
REV. NO.	6
PLOT DATE:	06-13-97 09:57 (MM-DD-YY HH:MM)

ITEM	DESCRIPTION	MAT'L & SIZE	
1	PUMP	CAST IRON	T3A3-B
2	MOTOR	CAST IRON	
3	CHECK VALVE	CAST IRON	4"(100mm)
4	PLUG VALVE	CAST IRON	4"(100mm)
5	MOTOR CONTROL PANEL	STEEL	
6	LIQUID LEVEL PANEL	STEEL	
7	BELTGUARD	STEEL	

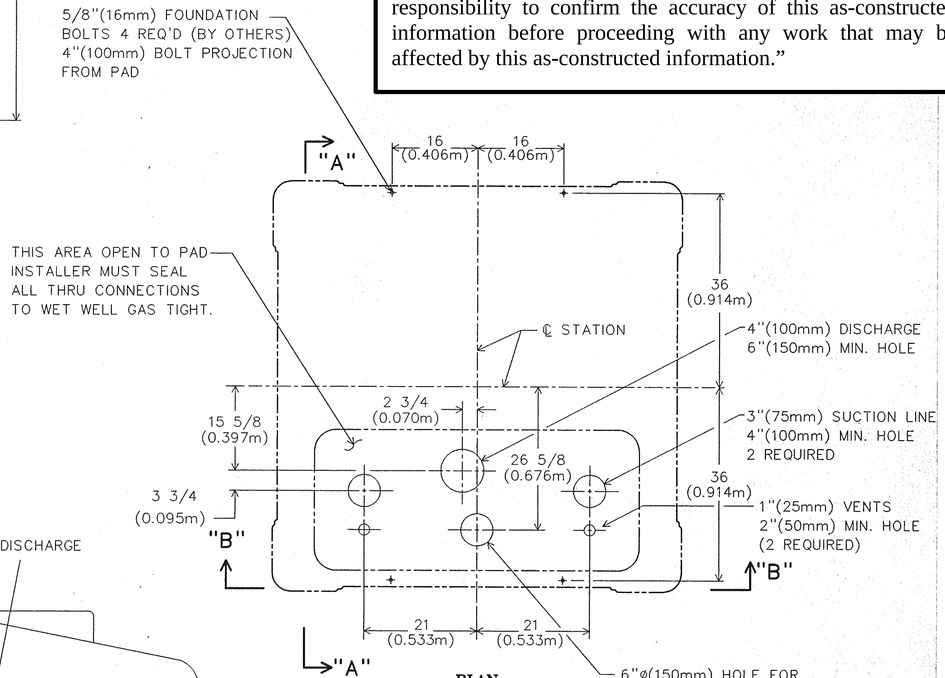
"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."



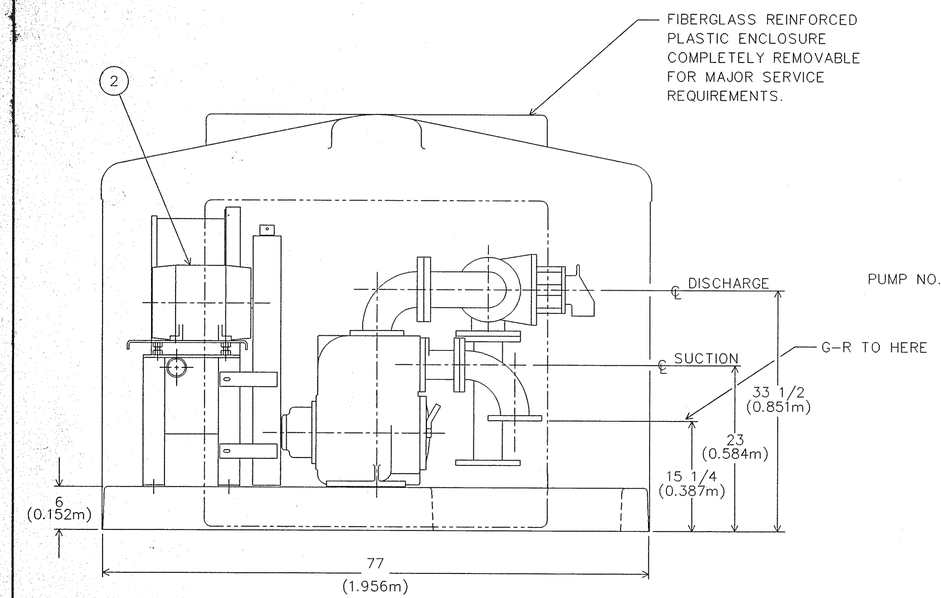
PLAN



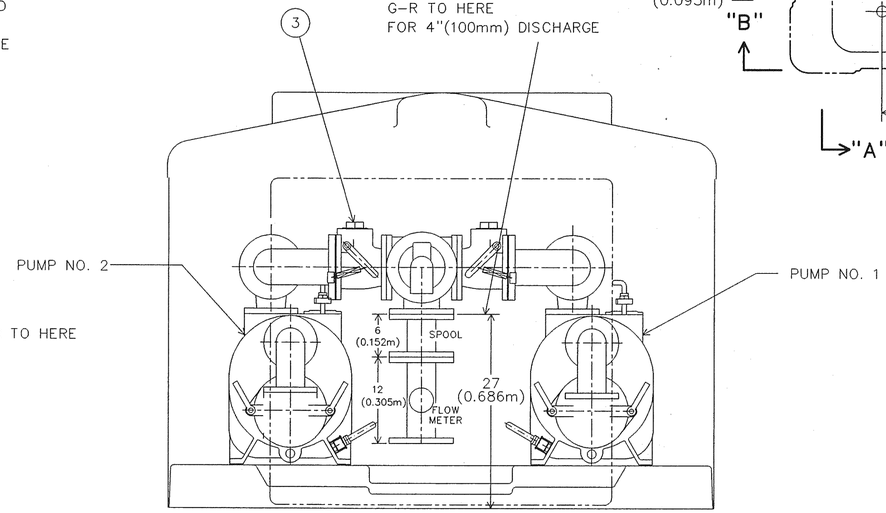
ELEVATION



PLAN



SECTION "A"



NOTE: CUSTOMER SUCTION AND DISCHARGE CONNECTIONS ARE 125# FLANGE

SECTION "A"

3 X 4 X 4 AS SHOWN
3 X 4 X 6 WITH INCREASER

45113013.DGN

WL-02989

GORMAN-RUPP — THE GORMAN-RUPP CO. MANSFIELD, OHIO ST. THOMAS, ONTARIO

NAME: 6' X 6' ABOVEGROUND SEWAGE LIFT STATION W/DUPLEX T3A3-B PUMPS

DRN.	CHK.	APP.	DATE
BM	KEH	PFB	3/18/75

D 45113-013 SERIAL NO.

LEGEND

WATER	HYD HYDRANT	PERC PERC. HOLE	
SAN. SEWER	WV WATER VALVE	PP POWER POLE	
STORM SEWER	REDUCER	LS LAMP STD.	
GAS	SAN SANITARY MH	TL TRAFFIC LIGHT	
U.G. TELEPHONE	STM STORM MH	TR TRANSFORMER	
U.G. ELECTRICAL	CB CATCH BASIN	TEL TEL. SB	
	DW DRYWELL	ELECT. SB	

No.	MM/DD/YY DATE	BY	REVISION	Chk'd
1	09/13/96	R.H.	FLOW METER ADDED TO STATION	D.E.P.
2	11/21/96	E.B.B.	REVISED FLOW METER, MOVED REDUCER	D.E.P.

No.	MM/DD/YY DATE	BY	REVISION	Chk'd

REGIONAL DISTRICT OF CENTRAL OKANAGAN

DALE E. PILLING — PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA

DRAWN	R.H.
DESIGN	P.A.C.E.
APPROVED	D.E.P.
DATE	MAY, 1996
SCALE	1 : 10 IMPERIAL

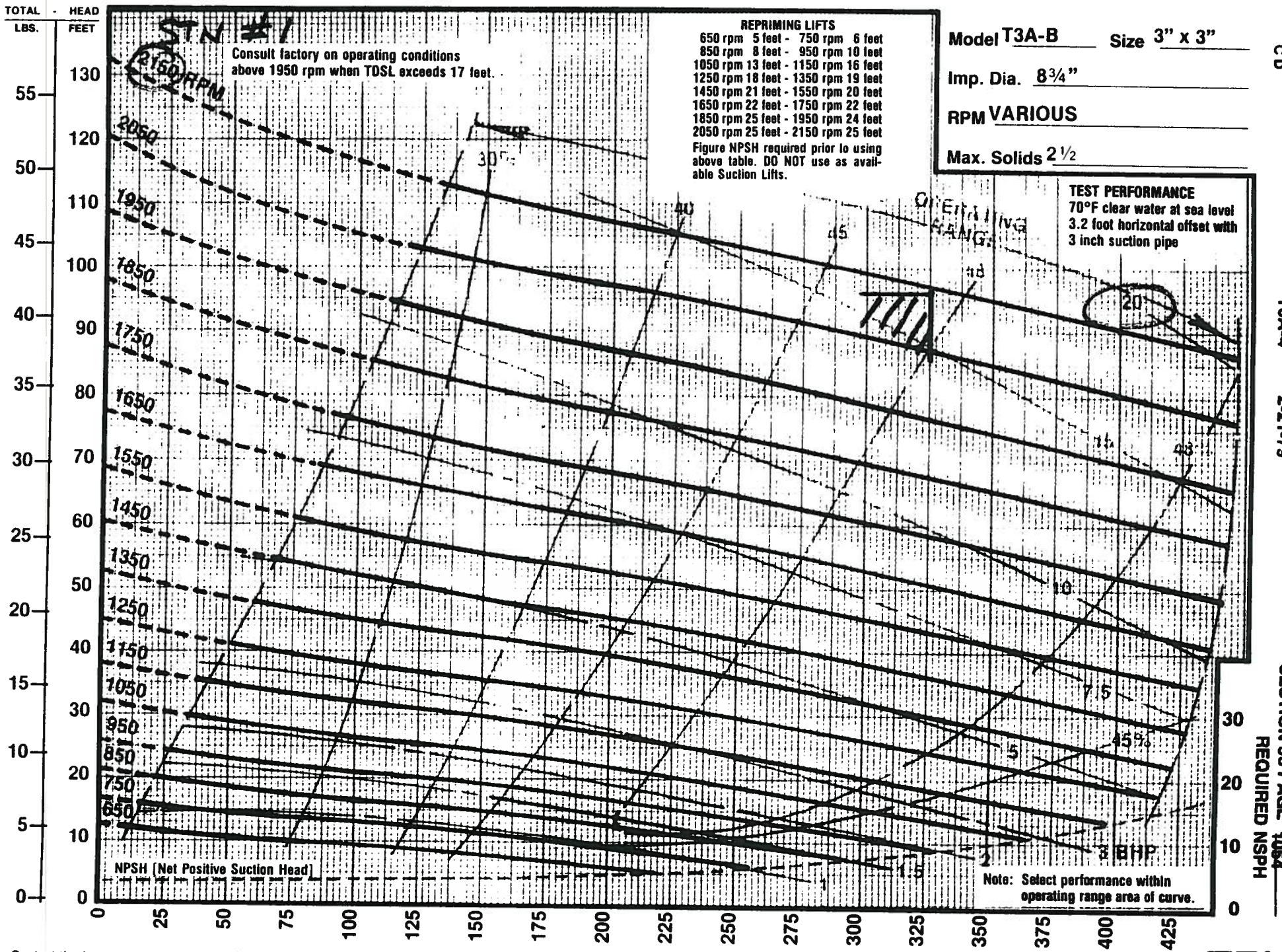
PACE — D. E. PILLING and ASSOCIATES CONSULTING ENGINEERING Ltd. #200, 540 GROVES AVENUE, KELOWNA, B.C. V1Y-4Y7 TEL: 763-2315 FAX: 763-6559

WESTSIDE INDUSTRIAL PARK
REG. DIST. OF CENTRAL OKANAGAN
1450 K.L.O. ROAD KELOWNA, B.C. V1W-3Z4

LIFT STATION #1 - DETAILS

DRAWING NO. 1036-S12
R.D.C.O. No. 100.303
REV. NO. 2
PLOT DATE: 11-21-96 12:14 pm MM-DD-YY HH:MM

STEVENS ROAD LS 16



PERFORMANCE CHART NO. T3A-4 2-21-79
CD

SECTION 55 PAGE 1064

Contact the factory on special applications or applications exceeding priming or other performance limitations indicated

GR GORMAN-RUPP

District of West Kelowna

Sanitary Lift Station Evaluation

Station: Somerset Court LS 17
Inspection By: Jim Kentel

Year Constructed: 11/1/2006
Year Upgraded:

Matrix Rating			
(10 - highest rating)	Civil	31	
(1 - lowest rating)	Process Mechanical	84	
	Electrical Instrumentation	85	
	Total Station Rating	200	(max. rating 370 points)

Civil:

		Matrix Rating
Parking Area:		n/a
Drainage:		10
Influent sewer:	2-200; 150; 4-100	10
Site access:		10
Water service:		1
		31

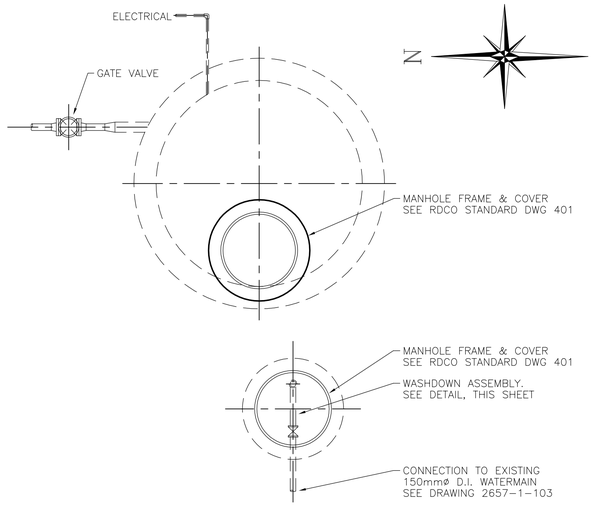
Process Mechanical:

		Matrix Rating
Station type:	Concrete MH - 1.8m Submersible	n/a
Number of pumps:	2	n/a
Pump Redundancy:	Yes	n/a
Pump Manufacturer / Type:	FLYGT-Grinder	8
Pump Model:	MF 3085	n/a
Rated Capacity:	2.7 L/S @ 19.0m TDH	n/a
Capacity Confirmation:		n/a
Forcemain pipe type / diameter:	PVC SDR 26 / 50	10
Header pipe type / diameter:	Rubber Hose / 50	1
Check valve type / diameter:	SS Check / 38	10
Isolation valve type / diameter:	SS Ball / 38	10
Piping Condition:	Good	8
Emergency pumpout connection:	No Flush out connection	1
Pressure gauges:	No	1
Inlet bar screen:	No	1
Wetwell condition:		5
Access Hatches:	MH Frame and Cover	5
Ladder / Platform:	Rungs / no platform	3
Wetwell benching:	Sulfate resistant concrete	8
Odour Control:	No	1
Ventilation:	No	1
Water washdown:	38mm	10
nfined Space Entry Requirements	No	1
		84

Electrical / Instrumentation:

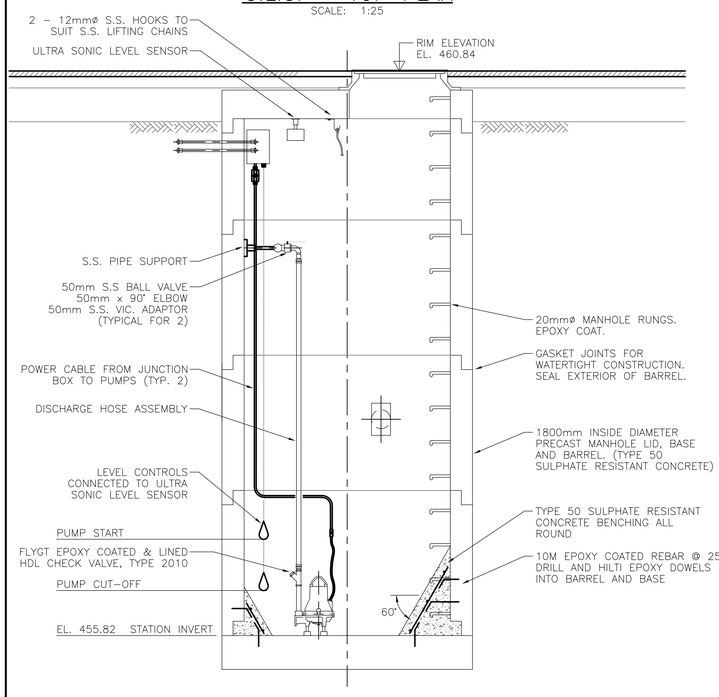
					Matrix Rating
Service Type	V / A / Phase / Wire				n/a
Pump 1 :	HP 3.0				n/a
	Volts	230	Rpm	3520	n/a
	FLA 13.0A				n/a
Starting Current					n/a
Pump 2 :	HP 3.0				n/a
	Volts	230	Rpm	3520	n/a
	FLA 13.0A				n/a
Starting Current					n/a
Alarm Functions:	Level control				5
					n/a
					n/a
					n/a
Receptacle	No				1
Interior Lighting:	No				1
Exterior Lighting:	No				1
SCADA / Telemetry:					5
Main Breaker:					10
Control Panel:					10
Lighting Panel:					10
Flowmeter:	No				1
Grounding:					10
UPS:					10
PLC:					10
Level Control:	Milltronics/Float Bulbs				10
Standby Generator:	No				1
					85

Comments:

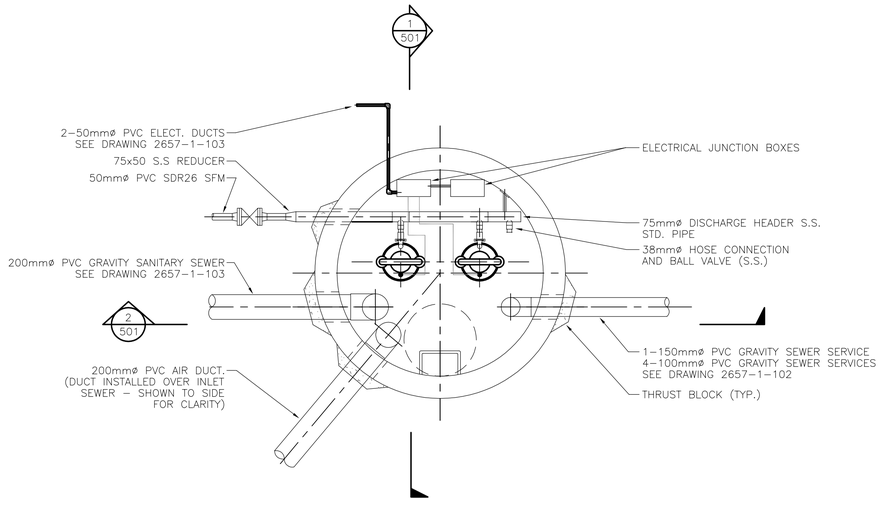


S.L.S. – TOP PLAN

SCALE: 1:25

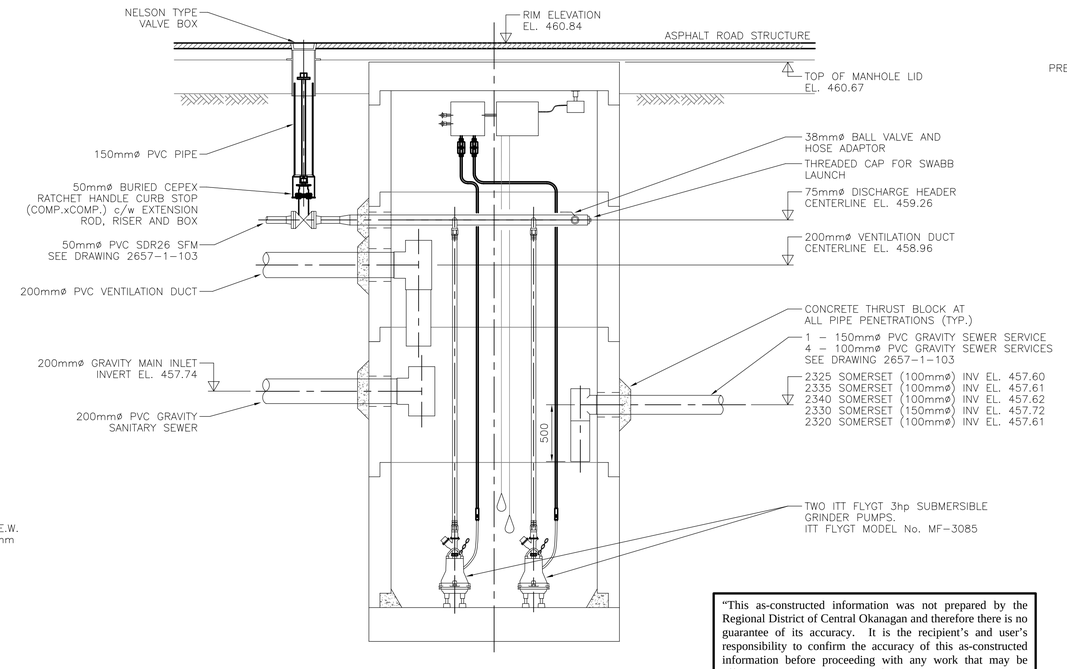


SECTION 1/501
SCALE: 1:25

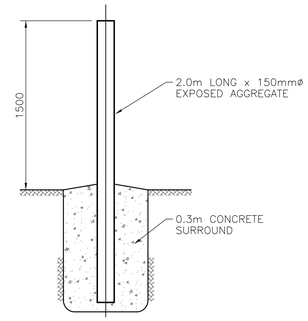


S.L.S. – WETWELL PLAN

SCALE: 1:25

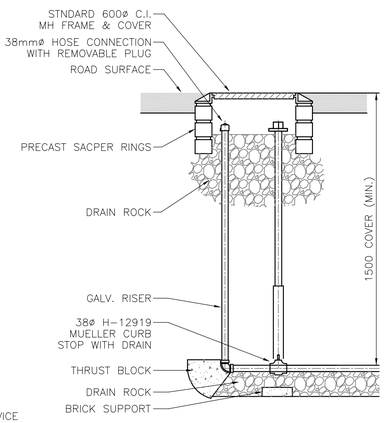


SECTION 2/501
SCALE: 1:25



TYPICAL BOLLARD DETAIL

SCALE: N.T.S. 4/501



WASHDOWN STATION DETAIL

SCALE: N.T.S. 3/501

"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."

NOTES:

ALL LOCATIONS OF EXISTING UTILITIES SHOWN ARE APPROXIMATE ONLY. ALL OR ANY EXISTING STRUCTURES NOT NECESSARILY SHOWN.

ELEVATIONS ARE TO GEODETIC DATUM.

CONDUIT FOR POWER & TELEMETRY AS DIRECTED BY R.D.C.O. PUBLIC WORKS, B.C. HYDRO AND APPROVED BY THE CONTRACT ADMINISTRATOR

COORDINATED SUPPLY AND INSTALLATION OF ALL ELECTRICAL/CONTROLS EQUIPMENT WITH R.D.C.O. PUBLIC WORKS.

No.	MM/DD/YY DATE	BY	REVISION	Chk'd	No.	MM/DD/YY DATE	BY	REVISION	Chk'd
D	02/12/07	JB	REVISIONS PER RDCO COMMENTS	DRG					
C	01/05/07	JB	RECORD DRAWING	DRG					
B	05/05/06	JB	ISSUED FOR CONSTRUCTION	DRG					
A	02/24/06	BC	ISSUED FOR TENDER	DRG					

REGIONAL DISTRICT of CENTRAL OKANAGAN

P.ENG.

DRAWN: B. CRANNA
DESIGN: B. CRANNA
APPROVED: D. GREER
DATE: 02/24/06
SCALE: AS NOTED

Associated Engineering
Suite 420
1628 Dickson Avenue
Kelowna, B.C. V1Y 9X1
Tel: (250) 763-3638
Fax: (250) 763-8880

AREA 701 – STAGE 3, LAKEVIEW PHASE 4
SANITARY SEWER PROJECT
SOMERSET CT. S.L.S. PLANS AND SECTIONS

DRAWING NO. 2657–1–501
REV. NO. D

FLYGT

TEST REPORT

Somerset Court LS 17

PRODUCT

Serial No.		Performance curve No.		Motor module/type	Voltage (V)
3085.172	0650390	61- 257-00-1460		114	230
Base module	**Impeller No.**	**Gear type**	**Gear ratio**	**Imp.diam/Blade angle**	**Water temp° C**
062	444 84 13			143	20

TEST RESULTS

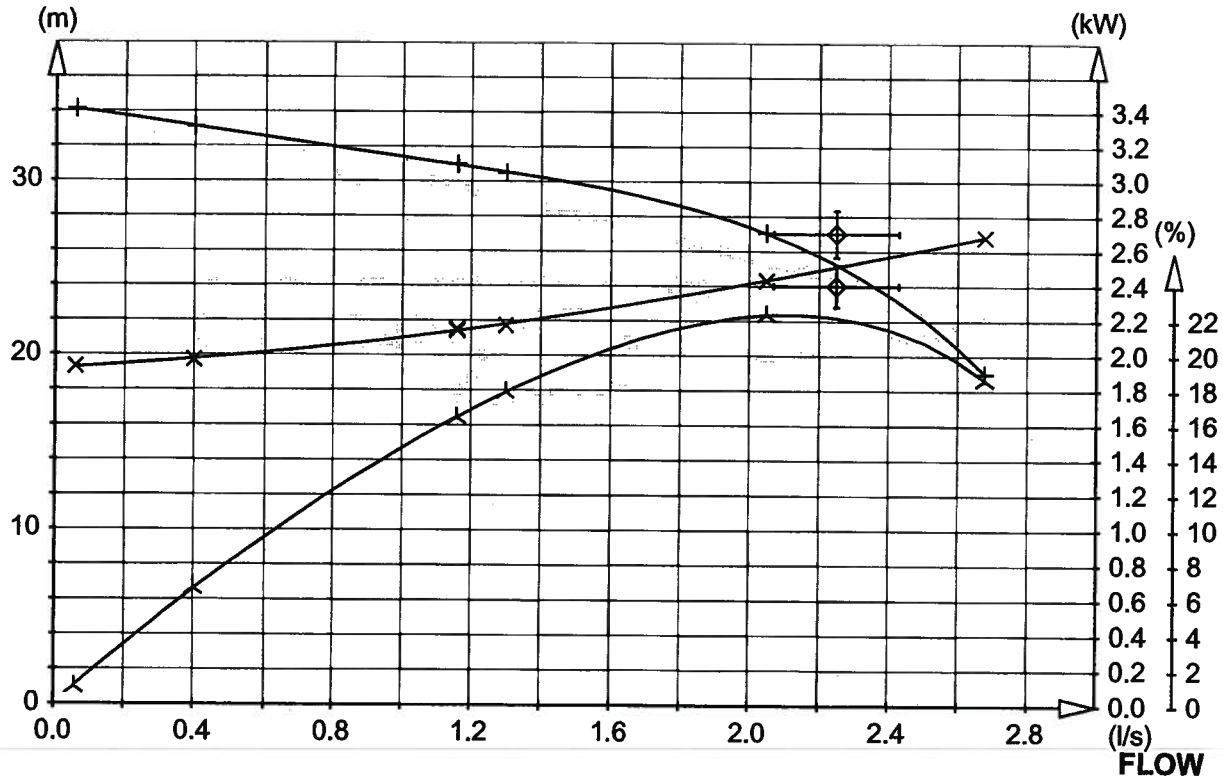
Pump total head H (m)	Volume rate of flow Q (l/s)	Motor input power P (kW)	Voltage U (V)	Current I (A)	Overall efficiency η(%)
34.12	0.06	1.93	224	8.8	0.98
33.11	0.40	1.97	225	9.0	6.64
30.97	1.16	2.14	224	9.8	16.42
30.97	1.16	2.15	224	9.8	16.43
30.47	1.30	2.17	224	9.9	17.90
27.04	2.05	2.43	224	11.1	22.33
18.98	2.68	2.68	223	12.3	18.60
18.96	2.68	2.68	223	12.3	18.62

Accepted after	Test facility	Test date	Time	Chief tester
ISO9906/2	Lindas Sweden LC4	06-08-29	10:22	2055

ORDERNR 175834 POS 1

PLOTTED TEST RESULTS

Measured point : + = Q/H, × = Q/P Duty point : ◇ = Q/H, □ = Q/P, △ = Q/ETA overall Calculated point : 人 = Q/ETA overall



FLYGT

TEST REPORT

PRODUCT

Serial No.		Performance curve No.		Motor module/type	Voltage (V)
3085.172	0650391	61- 257-00-1460		114	230
Base module	**Impeller No.**	**Gear type**	**Gear ratio**	**Imp.diam/Blade angle**	**Water temp °C**
062	444 84 13			143	20

TEST RESULTS

Pump total head H (m)	Volume rate of flow Q (l /s)	Motor input power P (kW)	Voltage U (V)	Current I (A)	Overall efficiency η(%)
33.69	0.04	2.19	223	10.0	0.66
32.54	0.41	2.24	223	10.2	5.86
30.21	1.18	2.40	224	10.9	14.56
30.21	1.18	2.40	224	11.0	14.54
29.67	1.31	2.42	224	11.0	15.73
26.56	2.04	2.70	223	12.4	19.72
18.44	2.68	2.97	222	13.6	16.30
18.40	2.68	2.97	222	13.6	16.30

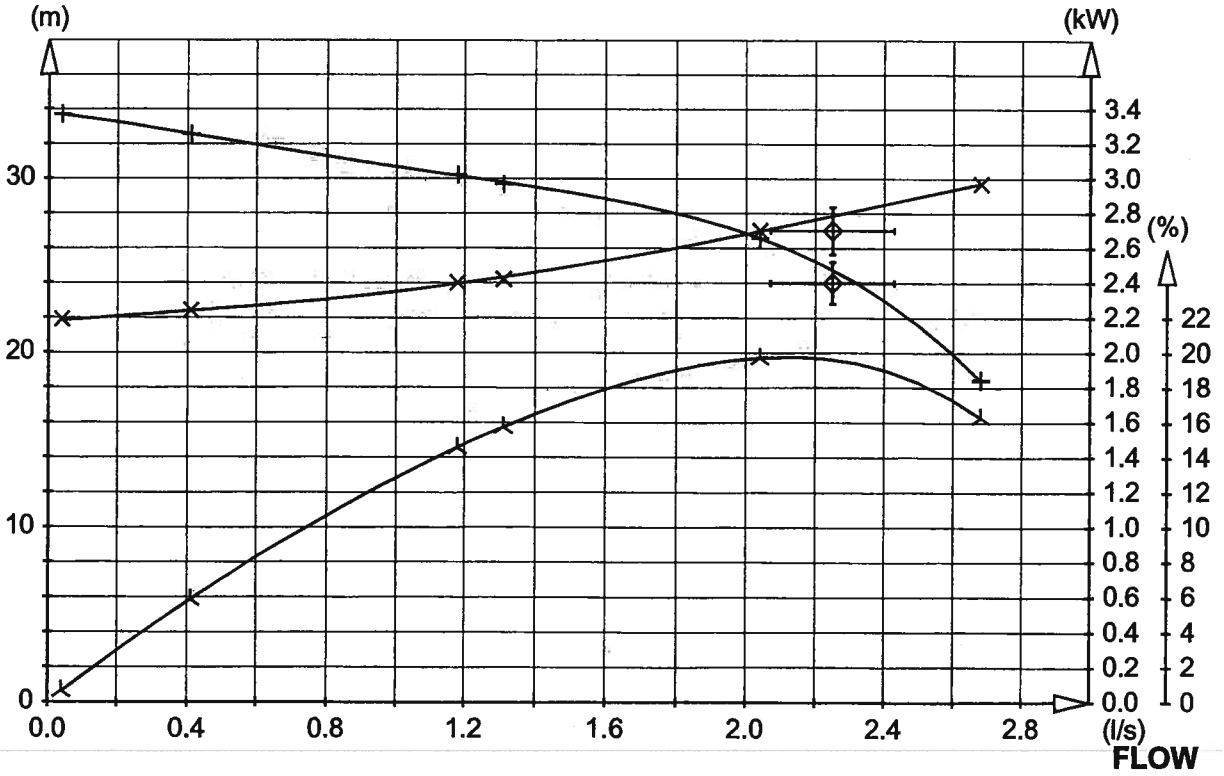
Accepted after	Test facility	Test date	Time	Chief tester
ISO9906/2	Lindas LC4 Sweden	06-08-29	10:34	2055

ORDERNR 175834 POS 1

PLOTTED TEST RESULTS

Measured point : + = Q/H, × = Q/P Duty point : ◇ = Q/H, □ = Q/P, △ = Q/ETA overall Calculated point : 人 = Q/ETA overall

TOTAL HEAD **INPUT POWER**



District of West Kelowna

Sanitary Lift Station Evaluation

Station: Devon Court LS 18

Inspection By: Jim Kentel

Year Constructed: 10/1/2006

Year Upgraded:

Matrix Rating
(10 - highest rating)
(1 - lowest rating)

Civil	40	
Process Mechanical	84	
Electrical Instrumentation	103	
Total Station Rating	227	(max. rating 370 points)

Civil:

		Matrix Rating
Parking Area:		n/a
Drainage:	Good	10
Influent sewer:	2-150mm, 2-100mm, 1-200mm	10
Site access:	Off road	10
Water service:	Yes	10
		40

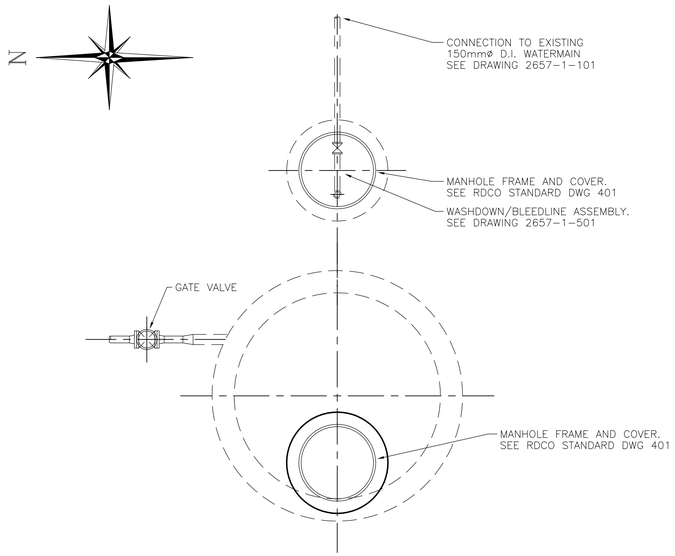
Process Mechanical:

		Matrix Rating
Station type:	Concrete 1.8 MH	n/a
Number of pumps:	2	n/a
Pump Redundancy:	Yes	n/a
Pump Manufacturer / Type:	FLYGT Grinder	5
Pump Model:	MF 3085	n/a
Rated Capacity:	2.7m L/S @ 19.3m TDH	n/a
Capacity Confirmation:		n/a
Discharge pipe type / diameter:	PVC SDR 26 / 50	10
Header pipe type / diameter:	Rubber Hose/50	1
Check valve type / diameter:	/50	1
Isolation valve type / diameter:	SS Ball / 50	10
Piping Condition:		1
Emergency pumpout connection:	No	1
Pressure gauges:	No	1
Inlet bar screen:	No	1
Wetwell condition:	Good	10
Access Hatches:	MH Frame and cover	8
Ladder / Platform:	Rungs/ No Platform	5
Wetwell benching:	Sulphate resistant concrete	8
Odour Control:	No	1
Ventilation:	Yes	10
Water washdown:	Yes	10
Confined Space Entry Requirements	No	1
		84

Electrical / Instrumentation:

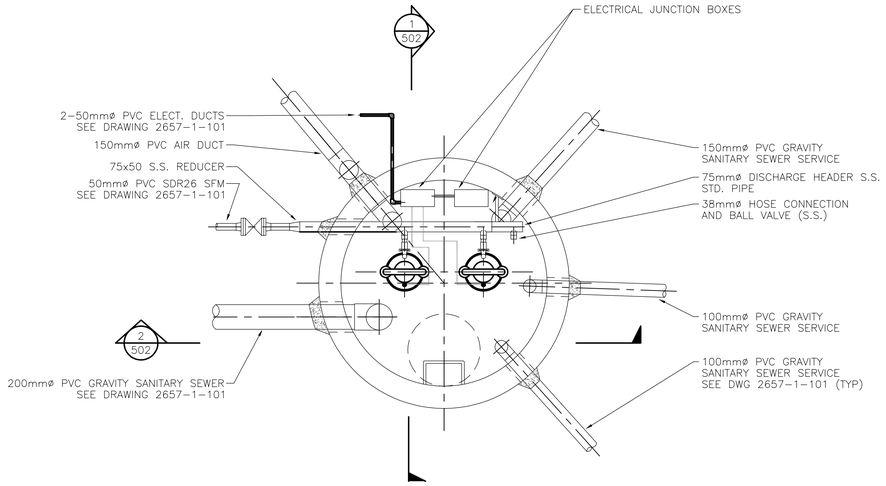
					Matrix Rating
Service Type	V / A / Phase / Wire				n/a
Pump 1 :	HP 3.0				n/a
	Volts	230	Rpm	3520	n/a
	FLA 13.0A				n/a
Starting Current					n/a
Pump 2 :	HP 3.0				n/a
	Volts	230	Rpm	3520	n/a
	FLA 13.0A				n/a
Starting Current					n/a
					n/a
Alarm Functions:					5
					n/a
					n/a
					n/a
Receptacles:	Yes				10
Interior Lighting:	Yes				10
Exterior Lighting:	No				1
SCADA / Telemetry:					5
Main Breaker:	100A				10
Control Panel:					10
Lighting Panel:					10
Flowmeter:	No				1
Grounding:					10
UPS:					10
PLC:					10
Level Control:	Ultrasonic/ Float Bulbs				10
Standby Generator:	No				1
					103

Comments:



S.L.S. – TOP PLAN

SCALE: 1:25



S.L.S. – WETWELL PLAN

SCALE: 1:25

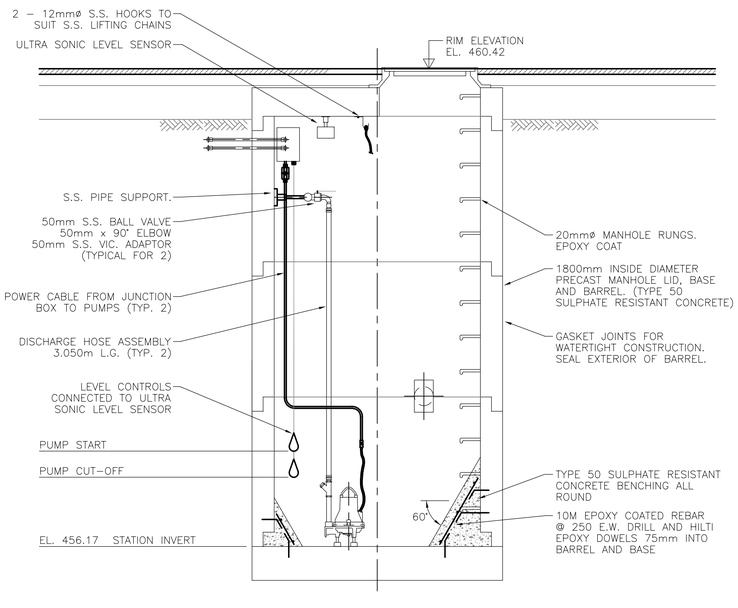
NOTES:

ALL LOCATIONS OF EXISTING UTILITIES SHOWN ARE APPROXIMATE ONLY. ALL OR ANY EXISTING STRUCTURES NOT NECESSARILY SHOWN.

ELEVATIONS ARE TO GEODETIC DATUM.

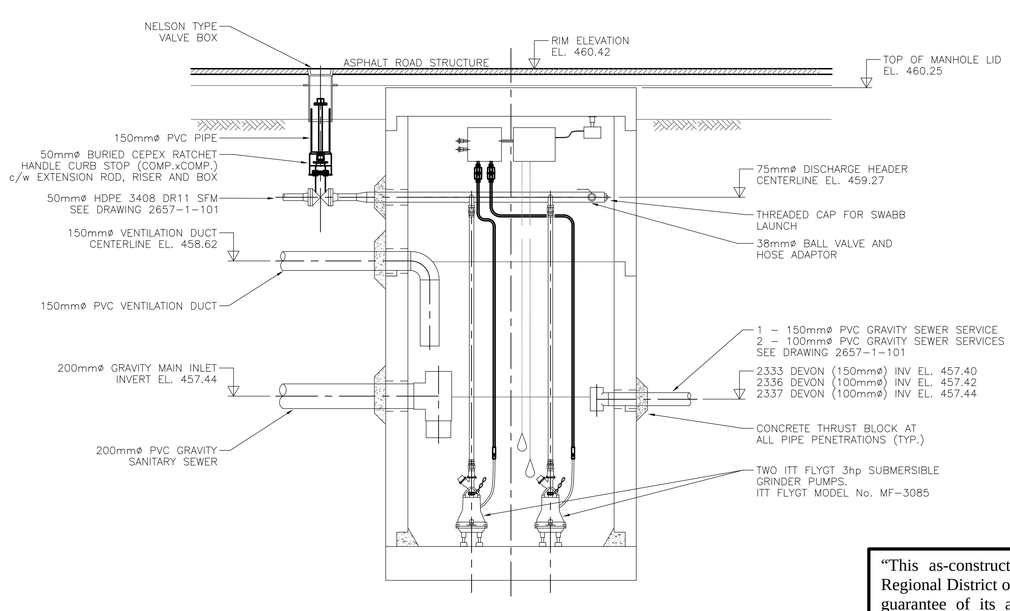
CONDUIT FOR POWER & TELEMETRY AS DIRECTED BY R.D.C.O. PUBLIC WORKS, B.C. HYDRO AND APPROVED BY THE CONTRACT ADMINISTRATOR

COORDINATED SUPPLY AND INSTALLATION OF ALL ELECTRICAL/CONTROLS EQUIPMENT WITH R.D.C.O. PUBLIC WORKS.



SECTION 1/502

SCALE: 1:25



SECTION 2/502

SCALE: 1:25

"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."

No.	MM/DD/YY DATE	BY	REVISION	Chk'd	No.	MM/DD/YY DATE	BY	REVISION	Chk'd
D	02/12/07	JB	REVISIONS PER RDCO COMMENTS	DRG					
C	01/05/07	JB	RECORD DRAWING	DRG					
B	05/05/06	JB	ISSUED FOR CONSTRUCTION	DRG					
A	02/24/06	BC	ISSUED FOR TENDER	DRG					

RDCO REGIONAL DISTRICT of CENTRAL OKANAGAN

P.ENG.

DRAWN: B. CRANNA
DESIGN: B. CRANNA
APPROVED: D. GREER
DATE: 02/24/06
SCALE: AS NOTED

Associated Engineering
Suite 420
1628 Dickson Avenue
Kelowna, B.C., V1Y 9X1
Tel: (250) 763-3638
Fax: (250) 763-8880

AREA 701 – STAGE 3, LAKEVIEW PHASE 4
SANITARY SEWER PROJECT
DEVON CT. S.L.S. PLANS AND SECTIONS

DRAWING NO. 2657-1-502

REV. NO. D

FLYGT

TEST REPORT

PRODUCT

DEVON COURT LS 18

Serial No.		Performance curve No.	Motor module/type	Voltage (V)
3085.172	0650392	61- 257-00-1460	114	230

Base module	Impeller No.	Gear type	Gear ratio	Imp.diam/Blade angle	Water temp °C
062	444 84 13			143	20

TEST RESULTS

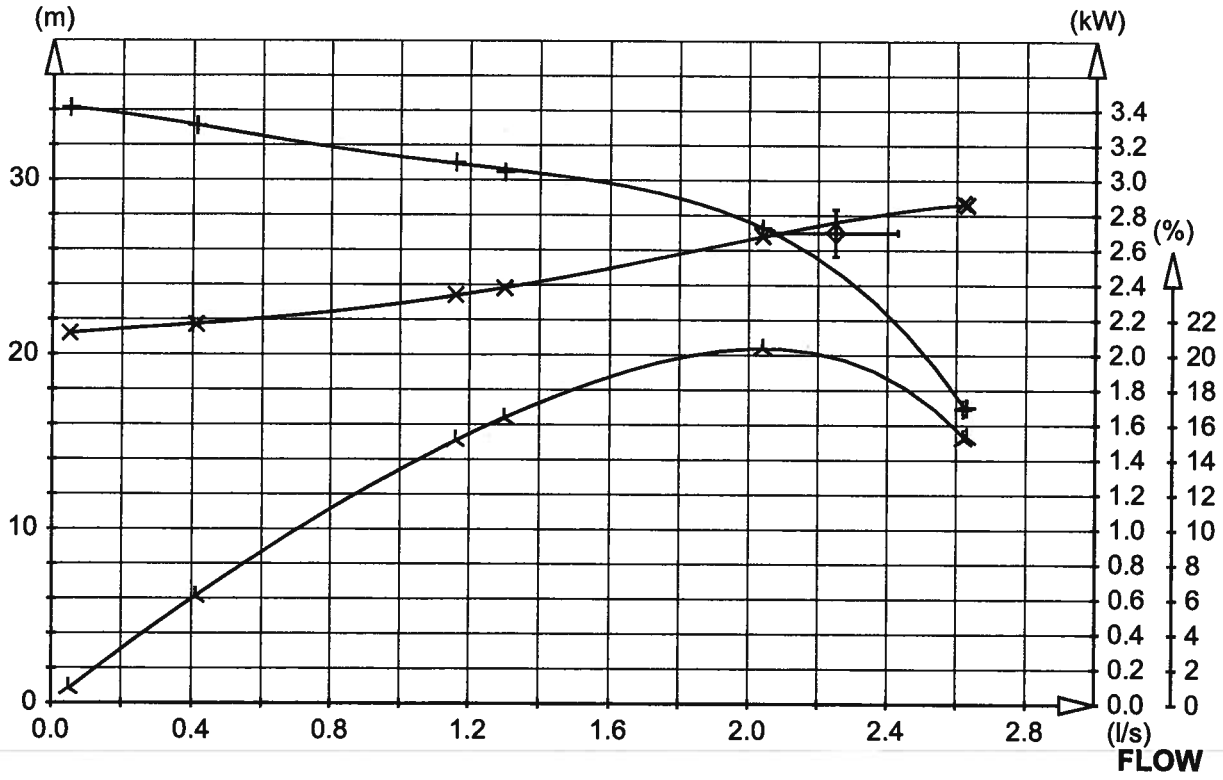
Pump total head H (m)	Volume rate of flow Q (l /s)	Motor input power P (kW)	Voltage U (V)	Current I (A)	Overall efficiency η(%)
34.14	0.05	2.12	231	9.3	0.86
33.11	0.41	2.17	230	9.6	6.12
31.02	1.16	2.34	230	10.3	15.10
31.01	1.16	2.34	230	10.3	15.11
30.46	1.30	2.38	228	10.5	16.37
27.27	2.04	2.68	230	11.8	20.39
16.92	2.62	2.87	230	12.7	15.21
17.00	2.63	2.86	230	12.7	15.30

Accepted after	Test facility	Test date	Time	Chief tester
ISO9906/2	Lindas Sweden LC4	06-08-29	14:25	5324

ORDERNR 175834 POS 2

PLOTTED TEST RESULTS

Measured point : + = Q/H, × = Q/P Duty point : ◇ = Q/H, □ = Q/P, △ = Q/ETA overall Calculated point : 人 = Q/ETA overall



FLYGT

TEST REPORT

PRODUCT

Serial No.		Performance curve No.	Motor module/type	Voltage (V)
3085.172	0650393	61- 257-00-1460	114	230

Base module	Impeller No.	Gear type	Gear ratio	Imp.diam/Blade angle	Water temp °C
062	444 84 13			143	20

TEST RESULTS

Pump total head H (m)	Volume rate of flow Q (l /s)	Motor input power P (kW)	Voltage U (V)	Current I (A)	Overall efficiency η(%)
34.32	0.03	2.08	229	9.2	0.46
33.24	0.42	2.15	229	9.5	6.34
31.11	1.18	2.33	229	10.3	15.46
31.11	1.18	2.33	229	10.3	15.49
30.75	1.27	2.34	229	10.4	16.43
27.62	2.04	2.61	228	11.6	21.26
19.41	2.71	2.86	228	12.7	18.01
19.38	2.71	2.87	228	12.8	17.94

Accepted after	Test facility	Test date	Time	Chief tester 5324
ISO9906/2	Lindas LC4 Sweden	06-08-29	14:35	

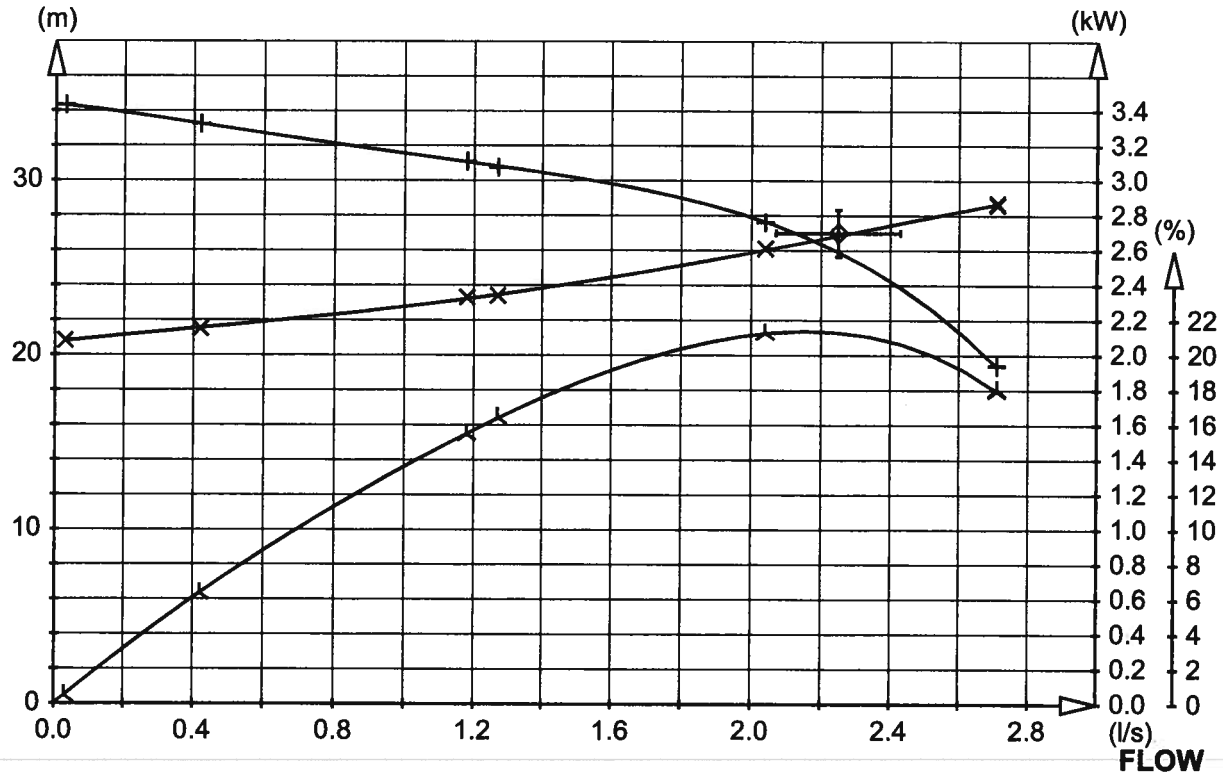
ORDERNR 175834 POS 2

PLOTTED TEST RESULTS

Measured point : + = Q/H, × = Q/P Duty point : ◇ = Q/H, □ = Q/P, △ = Q/ETA overall Calculated point : 人 = Q/ETA overall

6

TOTAL HEAD **INPUT POWER**



District of West Kelowna

Sanitary Lift Station Evaluation

Station: Faulkner Creek Ls 19

Inspection By: Jim Kentel

Year Constructed: 1994

Year Upgraded: 2013

Matrix Rating

(10 - highest rating)

(1 - lowest rating)

Civil	40	
Process Mechanical	115	
Electrical Instrumentation	149	
Total Station Rating	304	(max. rating 370 points)

Civil:

		Matrix Rating
Parking Area:		n/a
Drainage:	Good	10
Influent sewer:	Gravity 200	10
Site access:	Good	10
Water service:	Yes	10
		40

Process Mechanical:

		Matrix Rating
Station type:	Concrete/Sumbersible	n/a
Number of pumps:	2	n/a
Pump Redundancy:	Yes	n/a
Pump Manufacturer / Type:	Fontaine - Bleue	5
Pump Model:	10BH-SU31	n/a
Rated Capacity:	39 L/S @ 62m TDH	n/a
Capacity Confirmation:		n/a
Forcemain pipe type / diameter:	PVC/200	8
Header pipe type / diameter:	Steel/150	8
Check valve type / diameter:	Val-matic Plug Swing Flex /150	8
Isolation valve type / diameter:	Val-matic Plug / 1501	8
Piping Condition:	Good	8
Emergency pumpout connection:		1
Pressure gauges:	Yes	8
Inlet bar screen:	Comminitor	8
Wetwell condition:	Good	8
Access Hatches:	Yes	10
Ladder / Platform:	Yes/No	5
Wetwell benching:	Concrete	8
Odour Control:	No	1
Ventilation:	Yes	10
Water washdown:		1
nfined Space Entry Requirements	Davit and Hoist	10
		115

Electrical / Instrumentation:

			Matrix Rating
Service Type	V / A / Phase / Wire		1
Pump 1 :	HP 60		1
	Volts 575	Rpm 3600	n/a
	FLA 62A		n/a
Starting Current			n/a
Pump 2 :	HP 60		1
	Volts 575	Rpm 3600	n/a
	FLA 62A		n/a
Starting Current			n/a
Pump 3 :	HP		1
Future Pump	Volts	Rpm	n/a
	FLA		n/a
Starting Current			n/a
			n/a
Alarm Functions:	Yes		10
			n/a
			n/a
			n/a
Receptacle	Yes		10
Interior Lighting:	Yes		10
Exterior Lighting:	Yes		10
SCADA / Telemetry:	Yes		10
Main Breaker:	225A		10
Control Panel:	Yes		10
Lighting Panel:	Yes		10
Flowmeter:	Fisher & Porter COPa-X/150mm		10
Grounding:	Yes		10
Surge Protection:	Yes		10
UPS:	Yes		10
PLC:	Yes		10
Level Control:	Ultrasonic		10
Standby Generator:	No/genset/storage tank receptacle		5
			149

Comments:

48

FAULKNER CRESENT

EX. 600ø STM

25ø SERVICE TAP AT LEAST 2m FROM EX. SERVICE CONN.

23 LIN–M –25ø HDPE SERVICE TUBE SER 160 INSTALLED THROUGH EX. 100ø COVER PIPE. INCL. 25ø CURB STOP AT P/L

EX. COVER PIPE

EX. 250ø SAN

MAINTAIN EX. GRADE

RAISE MH RIM AND SLOPE TO MATCH FINAL GRADE

EX 250ø SAN

TOP OF BANK

67

68

69

70

71

72

1.0m EX. WATER

1.0m EX. WATER

1.0m EX. WATER

EX. 200ø SAN

1.5m EASEMENT

4.5m EASEMENT

EX. 600ø STM

0.75m EX. TEL

PULL BOX

J

3.0m

IP

IP

TIE INTO EX. SAN MH #S11 S. INV=460.25

4.5m EX. STM

3.0m SAN.

6.0m R.O.W

0.5m

250ø PVC SDR 35 AT 35.0% WITH CONNECTION TO EX. MH

2–50ø PUMP CONTROL DUCTS

1200ø MH RIM ELEV=453.43
N. INV = 450.87
S. INV = 450.85

11.5m LIN–M –250ø PVC SDR 35 AT 15.80%

IP

MH S1

PUMP SUMP 2.4x2.4 (SEE DETAIL)

RIM ELEV. =452.80
OR TO SUIT
INVERT =449.80

EX. OUTLET STRUCTURE INVERT = 450.10

5.0m

MH S2

1200ø MH RIM 450.4
N. INV. =447.93
W. IWV. = 447.93
E. INV. = 447.96

3.0m LIN–M –250ø PVC SDR 35 AT 1.0% TO PUMPHOUSE

HORIZ. DRIVE EAST

TOE OF BANK

TOP OF BANK

NOTE:
LIMIT OF CLEARING NOT TO EXCEED 2.0m EITHER SIDE OF SANITARY SEWER(C/L RD.)

1.5m

186 LIN–M –38ø HDPE SERVICE TUBE SER160 INCLUDES FITTINGS SHOWN, ALONG WITH 2–25ø YARD HYDRANTS NEAR LIFT STATION

CURB STOP

38ø HDPE W/M 200ø HDPE SANITARY SEWER

PVC ELECTRICAL CONDUIT

1.5m C/L C/L SAN. ELEC. TO

DUPLEX LIFT STATION AND EMERGENCY STORAGE SUMP SEE DETAILS THIS AREA

GRAVEL TURN AROUND AREA TO ACCOMODATE SINGLE UNIT TRUCK AND TO SLOPE AWAY FROM LIFT STATION AT 2.0% (MINIMUM)

"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."

No.	DATE:	REVISION:	ENG.
1	APRIL 97	AS BUILT	F.T

LEGAL DESCRIPTION:

BENCHMARK DATA:
CANADIAN GEODETIC SURVEY BM# 83–C–162
DATUM NAD 27 ELEV. =471.722m
LOCATED 30m S. OF HWY 97 AT McDOUGAL CR.
ELEVATIONS WERE CONFIRMED BY TIE TO C.G.S
BM# 83–C–163 AT S.E. CORNER KAL TIRE

NOTES:

WATER
SANITARY SEWER
STORM SEWER
GAS
U.G. TELEPHONE
U.G. ELECTRICAL

ENGINEER:

DESIGN: D.M
DRAWN: MW/TT
TRACED:
CHECKED: J.J.L
DATE: JANUARY 94'

SCALE: 1 : 250

CLIENT:
PREMIER PACIFIC DEVELOPMENTS
#101–33119 S.FRASER WAY
ABBOTSFORD, B.C.
PHONE 850–9680

PROJECT:
WEST KELOWNA TRUNK SEWER

DUNCAN & ASSOCIATES ENGINEERING LTD.
200–653 HARVEY AVENUE
KELOWNA, B.C.
V1Y 6CY
(604) 868–8037

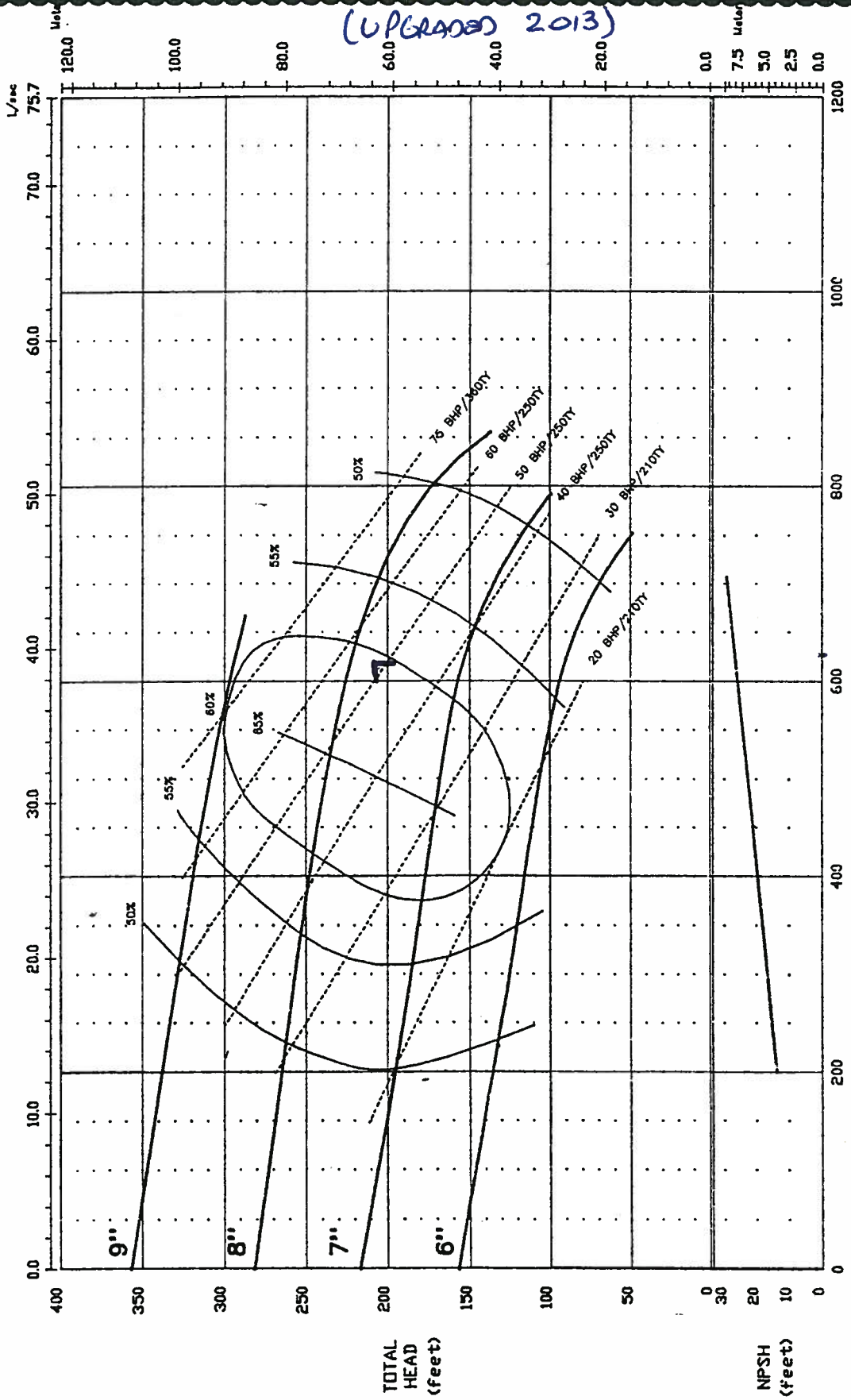
DWG.: K1758–09–S12 REV. No. 1

TITLE:
LIFT STA. SITE ACCESS AND UTILITY SERVICES

CHECKED:

Fontaine-bleue

FAULKNER CREEK PARK LS. 19
(UPGRADED 2013)



SPEED: 3600 RPM
FREQUENCY: 60 Hz

OPERATING PT. 618 USGPM @ 203'

IMPELLER: CA8-8

Vanes:	2
Eye diameter:	3 in (76 mm)
Solid:	3 in (76 mm)
Eye area:	7.07 in² (45 cm²)

Suction size: 3 in (76 mm)
Discharge: 4 in (101 mm)

PUMP: 10BH

In effect:	Supersedes:	Section:	Page:

District of West Kelowna

Sanitary Lift Station Evaluation

Station: Horizon Village LS 20

Inspection By: Jim Kentel

Year Constructed: 11/1/1998

Year Upgraded: Plan to be replaced in 2014

Matrix Rating			
(10 - highest rating)	Civil	40	
(1 - lowest rating)	Process Mechanical	79	
	Electrical Instrumentation	114	
	Total Station Rating	233	(max. rating 370 points)

Civil:

		Matrix Rating
Parking Area:		n/a
Drainage:	Good	10
Influent sewer:	Gravity 200	10
Site access:	Good	10
Water service:	Yes	10
		40

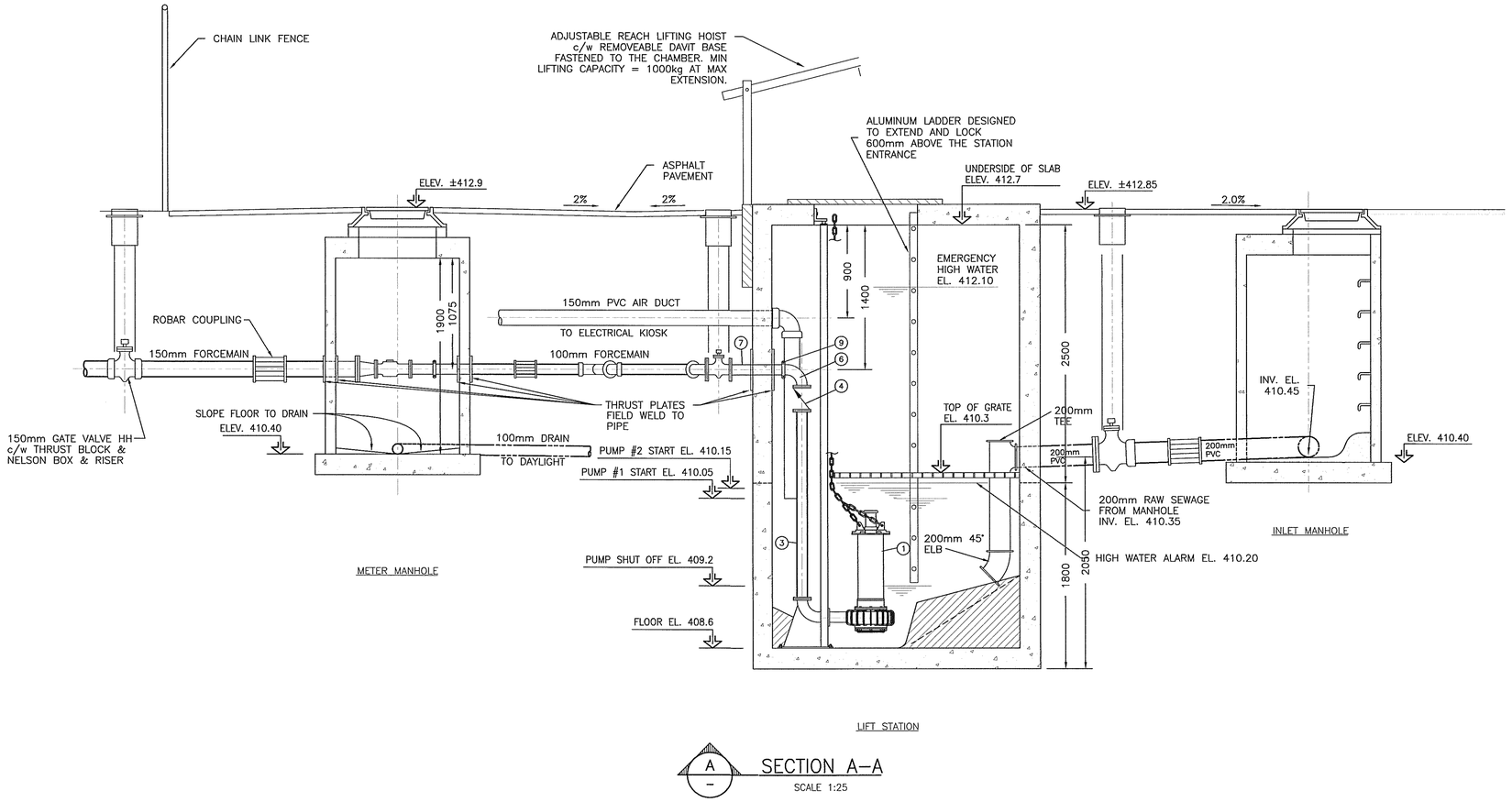
Process Mechanical:

		Matrix Rating
Station type:	Concrete/Sumbersible	n/a
Number of pumps:	2	n/a
Pump Redundancy:	Yes	n/a
Pump Manufacturer / Type:	Fontaine-Bleue	5
Pump Model:	10BH-SU31	n/a
Rated Capacity:	20-5 L/S @ 62.5m TDH	n/a
Capacity Confirmation:		n/a
Forcemain pipe type / diameter:	PVC/150	8
Header pipe type / diameter:	Steel/100	5
Check valve type / diameter:	/100	5
Isolation valve type / diameter:	/100	5
Piping Condition:		5
Emergency pumpout connection:	No	1
Pressure gauges:	Yes	5
Inlet bar screen:	No	1
Wetwell condition:		8
Access Hatches:	Yes	8
Ladder / Platform:	Yes	5
Wetwell benching:	Concrete	5
Odour Control:	No	1
Ventilation:	No	1
Water washdown:		1
nfined Space Entry Requirements	Davit and Hoist	10
		79

Electrical / Instrumentation:

			Matrix Rating
Service Type	V / A / Phase / Wire		1
Pump 1 :	HP 60		5
	Volts 575	Rpm	n/a
	FLA 62A		n/a
Starting Current			n/a
Pump 2 :	HP 60		5
	Volts 575	Rpm	n/a
	FLA 62A		n/a
Starting Current			n/a
			n/a
Alarm Functions:	Yes		1
			n/a
			n/a
			n/a
Receptacle	Yes		10
Interior Lighting:	Yes		10
Exterior Lighting:	No		1
SCADA / Telemetry:	Yes		10
Main Breaker:	200A		10
Control Panel:	Yes		8
Lighting Panel:	Yes		8
Flowmeter:	Fischer & Porter		1
Grounding:	Yes		10
Surge Protection:	Yes		10
UPS:	Yes		10
PLC:	Yes		8
Level Control:	Milltronics/bulbs		1
Standby Generator:	No/Genset receptacle		5
			114

Comments:



A — SECTION A–A

SCALE 1:25

"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."

'AS CONSTRUCTED'

LEGEND

CABLE TV	CAP	SAN #	SANITARY MH (EXISTING OR FUTURE)
GAS	CATCH BASIN	SAN #	SANITARY MH (PROPOSED)
SAN. SEWER	ELECTRICAL BOX	STM #	STORM MH (EXISTING OR FUTURE)
STORM SEWER	HYDRANT	STM #	STORM MH (PROPOSED)
U.G. ELECTRICAL	VALVE		TRANSFORMER
U.G. TELEPHONE	LAMP STANDARD		UTILITY JUNCTION BOX
WATER			

No.	MM/DD/YY DATE	BY	REVISION	Chk'd
1	01/13/99	SH	AS CONSTRUCTED	

P.ENG.

DRAWN	JRB
DESIGN	DLB
APPROVED	
DATE	APRIL 10/98
SCALE	1:25

PROTECH
CONSULTANTS 1989 LTD.
202 – 815 Hwy. 97 S. Kelowna B.C.
Phone 769-6411 FAX 769-3377

HORIZON VILLAGE
BARE LAND STRATA SUBDIVISION
LIFT STATION SECTION A–A

DRAWING NO. 9728–LS2

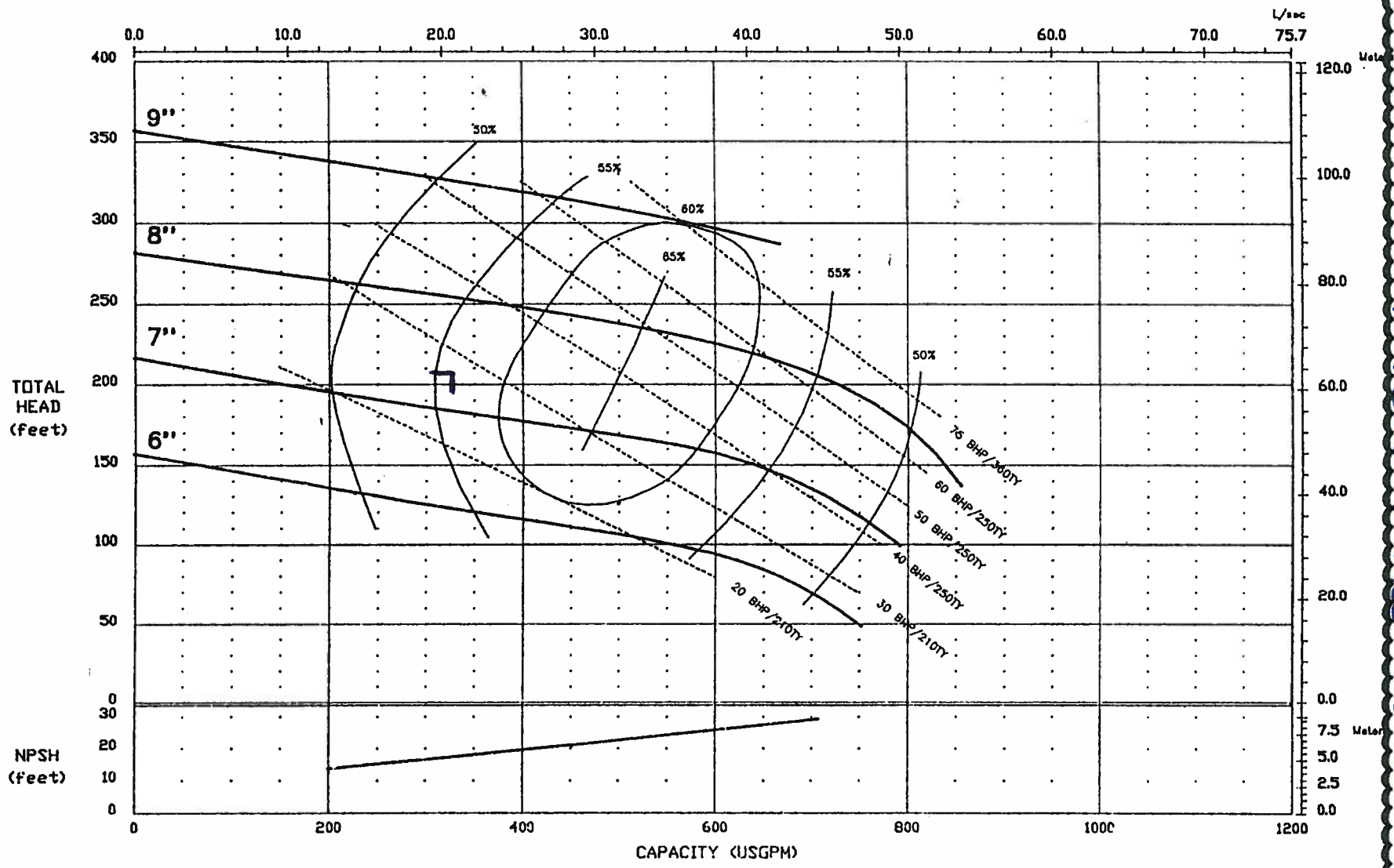
REV. NO. 1

In effect:

Supersedes:

Section:

Page:



Suction size: 3 in (76 mm)
Discharge: 4 in (101 mm)

PUMP: 10BH

IMPELLER: CA8–8
Vanes: 2
Eye diameter: 3 in (76 mm)
Solid: 3 in (76 mm)
Eye area: 7.07 in² (45 cm²)

SPEED: 3600 RPM
FREQUENCY: 60 Hz

OPERATING POINT 325 USGAM @ 205'

Fontaine-bleue

HORIZON VILLAGE LS 20

District of West Kelowna

Sanitary Lift Station Evaluation

Station: Kelkoa Drive LS 21

Inspection By: Jim Kentel

Year Constructed: 8/1/2000

Year Upgraded:

Matrix Rating
(10 - highest rating)
(1 - lowest rating)

Civil	22	
Process Mechanical	86	
Electrical Instrumentation	19	
Total Station Rating	127	(max. rating 370 points)

Civil:

		Matrix Rating
Parking Area:		n/a
Drainage:	Good	10
Influent sewer:	1-200; 1-150	10
Site access:	Easement poor	1
Water service:	No	1
		22

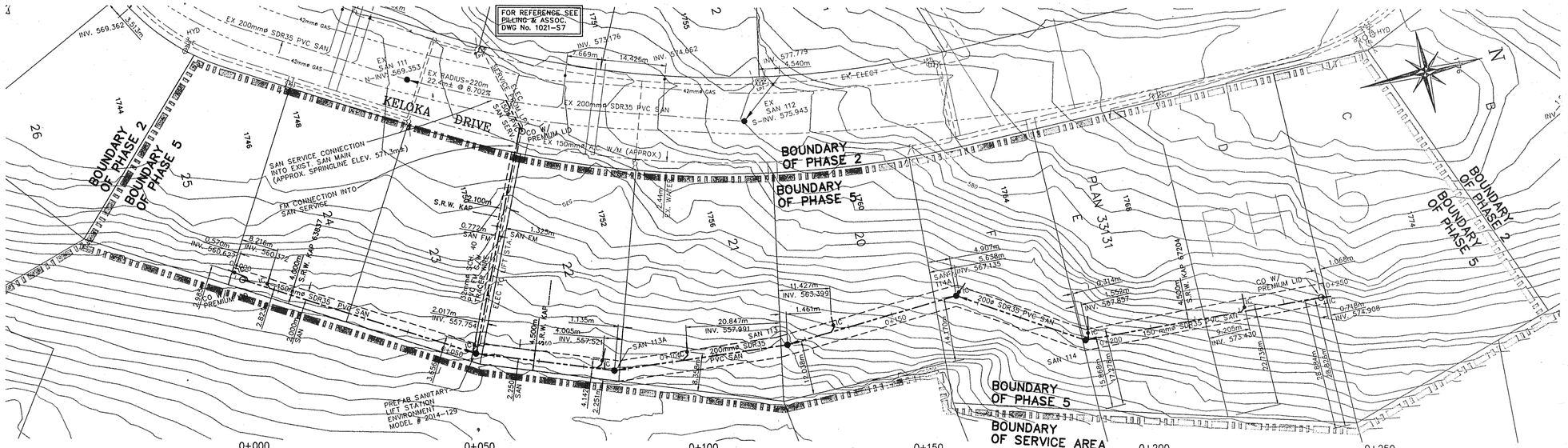
Process Mechanical:

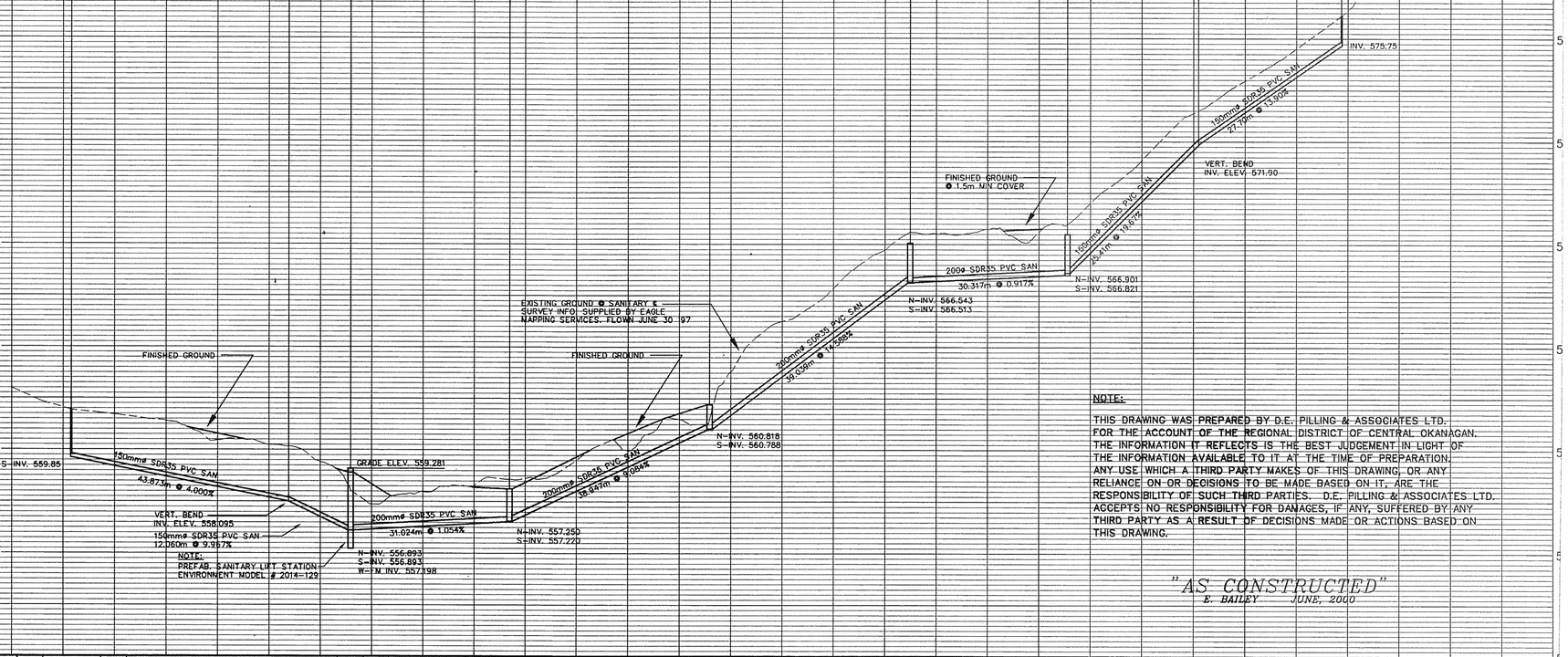
		Matrix Rating
Station type:	Pre Fab Semi-Positive Displacement	n/a
Number of pumps:	2	n/a
Pump Redundancy:	Yes	n/a
Pump Manufacturer / Type:	Environment/one/grinder	7
Pump Model:	2014-129	n/a
Rated Capacity:	0.7 L/S @ 28m TDH	n/a
Capacity Confirmation:		n/a
Forcemain pipe type / diameter:	PVC Sch 40/38mm	10
Header pipe type / diameter:	SS/38mm	10
Check valve type / diameter:	Glass lined PVC/38mm	10
Isolation valve type / diameter:	SS ball/38mm	10
Piping Condition:	Good	10
Emergency pumpout connection:	No	1
Pressure gauges:	No	1
Inlet bar screen:	No	1
Wetwell condition:	Good	10
Access Hatches:	FRP	10
Ladder / Platform:	No	1
Wetwell benching:	No	1
Odour Control:	No	1
Ventilation:	No	1
Water washdown:	No	1
Confined Space Entry Requirements	No	1
		86

Electrical / Instrumentation:

			Matrix Rating
Service Type	V / A / Phase / Wire		n/a
Pump 1 :	HP 1		n/a
	Volts 240	Rpm 1725	n/a
	FLA		n/a
Starting Current			n/a
Pump 2 :	HP 1		n/a
	Volts 240	Rpm 1725	n/a
	FLA		n/a
Starting Current			n/a
			n/a
Alarm Functions:	None Buzzer		2
			n/a
			n/a
			n/a
Receptacles:	No		1
Interior Lighting:	No		1
Exterior Lighting:	No		1
SCADA / Telemetry:			1
Main Breaker:			1
Control Panel:			1
Lighting Panel:	No		1
Flowmeter:	No		1
Grounding:			1
UPS:			1
PLC:			1
Level Control:	Yes		5
Standby Generator:	No		1
			19

Comments:





"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."

NOTE:

THIS DRAWING WAS PREPARED BY D.E. PILLING & ASSOCIATES LTD. FOR THE ACCOUNT OF THE REGIONAL DISTRICT OF CENTRAL OKANAGAN. THE INFORMATION IT REFLECTS IS THE BEST JUDGEMENT IN LIGHT OF THE INFORMATION AVAILABLE TO IT AT THE TIME OF PREPARATION. ANY USE WHICH A THIRD PARTY MAKES OF THIS DRAWING, OR ANY RELIANCE ON OR DECISIONS TO BE MADE BASED ON IT, ARE THE RESPONSIBILITY OF SUCH THIRD PARTIES. D.E. PILLING & ASSOCIATES LTD. ACCEPTS NO RESPONSIBILITY FOR DAMAGES, IF ANY, SUFFERED BY ANY THIRD PARTY AS A RESULT OF DECISIONS MADE OR ACTIONS BASED ON THIS DRAWING.

"AS CONSTRUCTED"
E. BAILEY JUNE, 2000

LEGEND

CABLE TV	CAP	SAN#	SANITARY MH (EXISTING OR FUTURE)
GAS	CATCH BASIN	SAN#	SANITARY MH (PROPOSED)
SAN. SEWER	ELECTRICAL BOX	STM#	STORM MH (EXISTING OR FUTURE)
STORM SEWER	HYDRANT	STM#	STORM MH (PROPOSED)
U.G. ELECTRICAL	VALVE		TRANSFORMER
U.G. TELEPHONE	LAMP STANDARD		UTILITY JUNCTION BOX
WATER			

No.	MM/DD/YY DATE	BY	REVISION	Chk'd
2	08/08/00	CMW	REVISED AS PER R.D.C.O.	DEP
1	06/14/00	EBB	AS CONSTRUCTED	DEP

DALE E. PILLING, P.ENG.

DRAWN	EBB
DESIGN	P.A.C.E.
APPROVED	D.E.P.
DATE	MAR 2000
SCALE	H 1:500 V 1:100

PACE
D. E. PILLING and ASSOCIATES
CONSULTING ENGINEERING Ltd.
#200, 540 GROVES AVENUE, KELOWNA, B.C. V1Y 4Y7
TEL: 1-250-763-2315
FAX: 1-250-763-6559

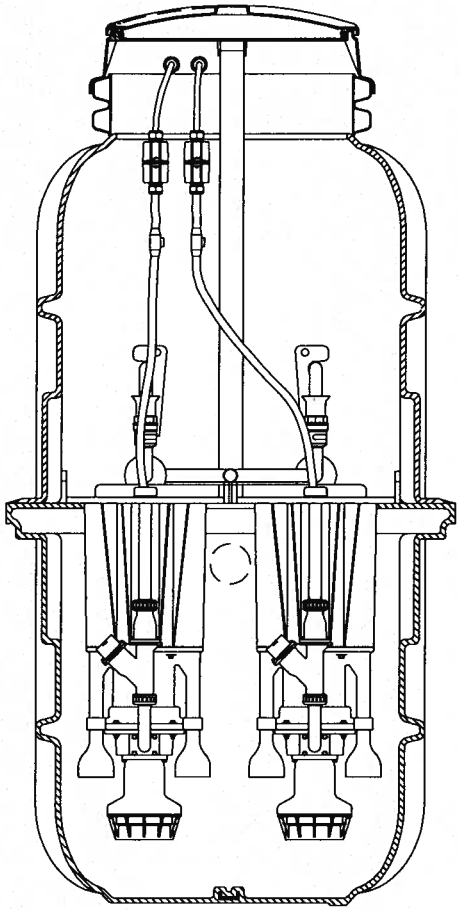
R.D.C.O. SANITARY SEWER EXTENSION WEST KELOWNA ESTATES
KELOKA DRIVE LOWER EASEMENT

DRAWING NO. 1379-S1
REV. NO. 2

C:\Land Projects\1021new\dwg\1379S01A.dwg 08/08/2000 11:45:47 AM PDT

GP2014

NO BAFFLE



Patent Numbers: 5,752,315 5,562,254
5,439,180

* Discharge data includes loss through check valve, which is minimal

PA1348P02 Rev. -, 3/03

General Applications

The size, efficiency and operating economy of the GP 2014 make it an ideal choice for multiple dwellings, waterfront property, subdivision developments and marinas. The GP 2014 is ideally suited for both new and existing communities.

General Features

The GP 2014 Grinder Pump is a complete unit that includes: two grinder pumps with check valves, HDPE (high density polyethylene) tank and controls. The GP 2014 is packaged into a single complete unit, ready for installation.

All solids are ground into fine particles, allowing them to pass easily through the pump, check valve and small-diameter pipelines. Even objects that are not normally found in sewage, such as plastic, rubber, fiber, wood, etc., are ground into fine particles.

The 1 1/4-inch discharge connection is adaptable to any piping materials, thereby allowing it to meet local code requirements.

The tank is made of tough corrosion-resistant HDPE. The optimum tank capacity of 150 gallons is based on computer studies of water usage patterns. A single GP 2014 is ideal for up to four average, single-family homes, and can also be used for up to 12 average, single-family homes with the consent of the factory. This model can accommodate flows of 3000 GPD.

The internal check valve assembly, located in each grinder pump, is custom-designed for non-clog, trouble-free operation.

The grinder pump is automatically activated and runs infrequently for very short periods. The annual energy consumption is typically that of a 40-watt light bulb.

Units are available for indoor and outdoor installations. Outdoor units are designed to accommodate a wide range of burial depths.

Operational Information

Motor

1 hp, 1,725 rpm, high torque, capacitor start, thermally protected, 120/240V, 60 Hz, 1 phase

Inlet Connections

4-inch inlet grommet standard for DWV pipe. Other inlet configurations available from the factory.

Discharge Connections

Pump discharge terminates in 1 1/4-inch NPT female thread. Can easily be adapted to 1 1/4-inch PVC pipe or any other material required by local codes.

*Discharge**

15 gpm at 0 psig (per pump)

11 gpm at 40 psig (per pump)

9 gpm at 60 psig (per pump)

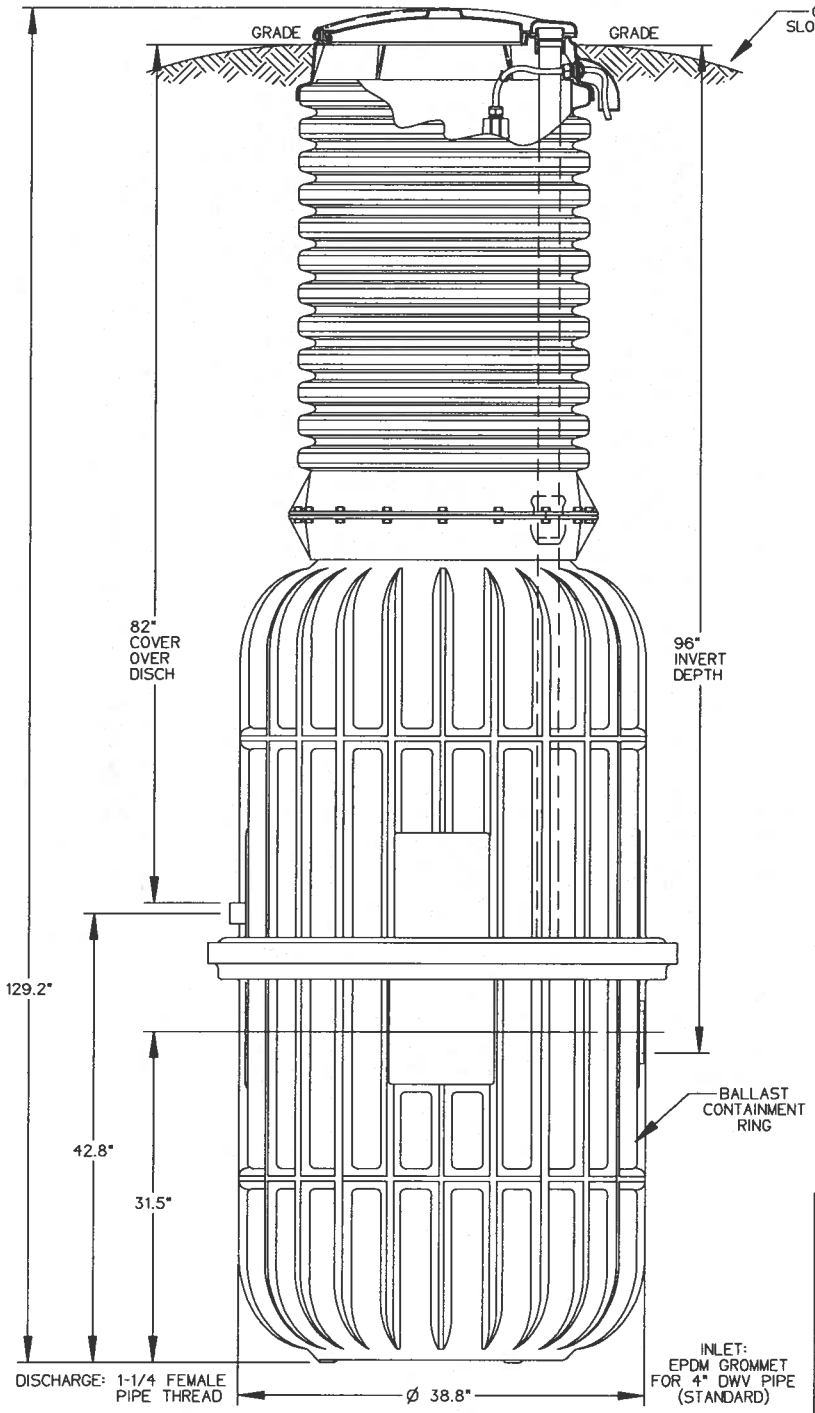
Control Panel

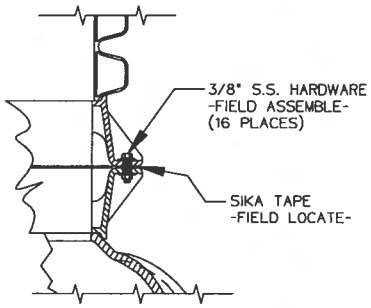
This station is designed to use the Alternating Control Panel, MOD T260.

Overload Capacity

The maximum pressure that the pump can generate is limited by the motor characteristics. The motor generates a pressure well below the rating of the piping and appurtenances. The automatic reset feature does not require manual operation following overload.

2014 -129
NO BAFFLE





DETAIL, FIELD JOINT

SEE INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS

BALLAST REQUIREMENTS

A CONCRETE ANCHOR IS REQUIRED ON ALL MODEL 2014-129 STATIONS

SPECIFIC CONCRETE DIMENSIONS ARE REQUIRED TO ACHIEVE NECESSARY BALLAST EFFECT

SEE INSTALLATION INSTRUCTIONS FOR BALLAST DETAILS

SGS	CAH	3-25-03	-	1/16
DR BY	CHK'D	DATE	ISSUE	SCALE

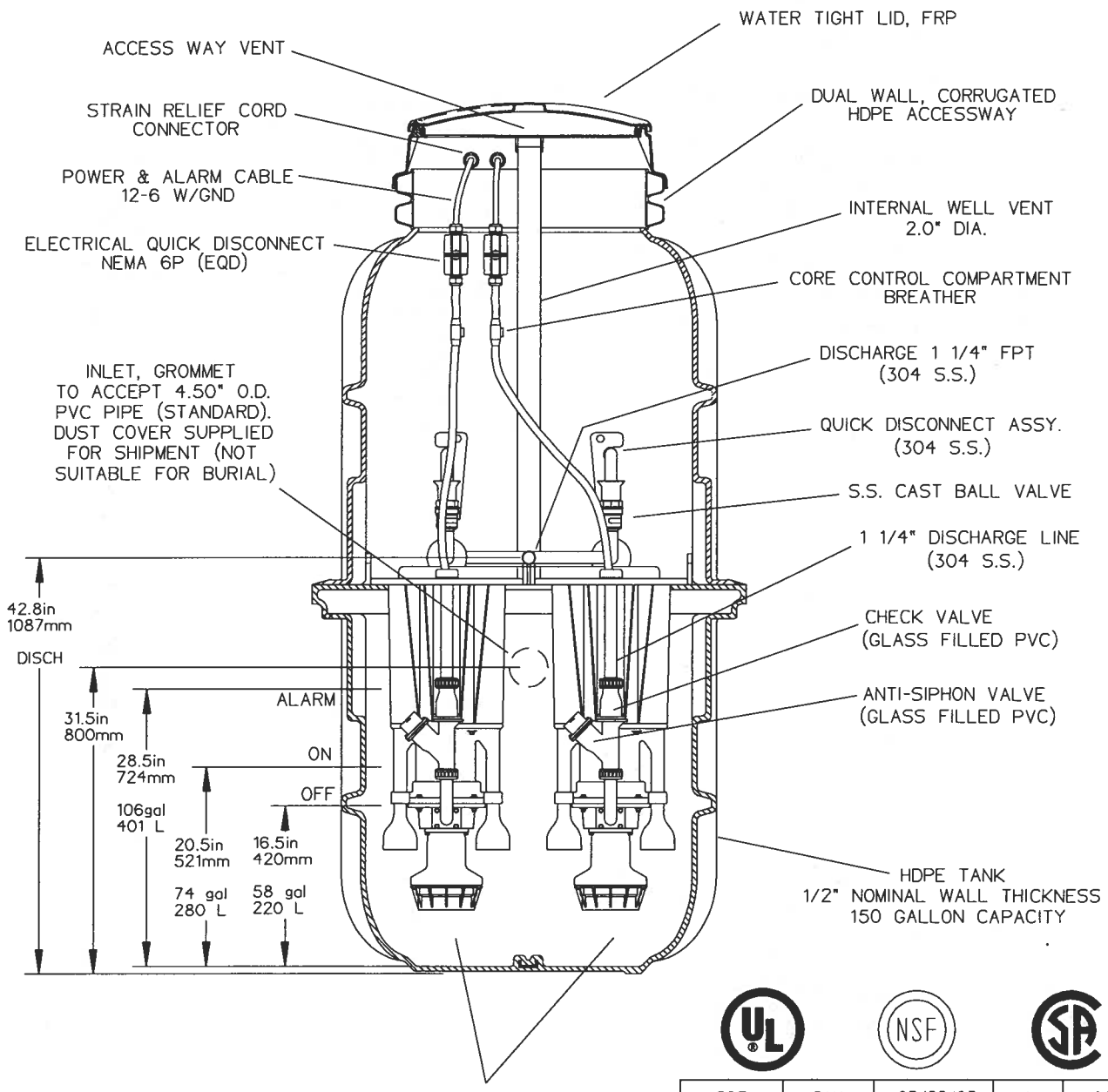
e one SEWER SYSTEMS

MODEL 2014-129, NO BAFFLE

PA1337P14

2014
NO BAFFLE

FIELD JOINT REQUIRED
FOR MODELS
2014-129 & 2014-160



SEMI-POSITIVE DISPLACEMENT TYPE PUMP
EACH DIRECTLY DRIVEN BY A 1 HP MOTOR
CAPABLE OF DELIVERING 9 gpm AT 138' T.D.H.
(34 lpm AT 42m T.D.H.)

BALLAST REQUIREMENTS

A CONCRETE ANCHOR IS REQUIRED
ON ALL OUTDOOR MODEL 2014 STATIONS

SPECIFIC CONCRETE DIMENSIONS ARE REQUIRED
TO ACHIEVE NECESSARY BALLAST EFFECT

SEE INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS

SGS	CAH	03/22/03	A	1/16
DR BY	CHK'D	DATE	ISSUE	SCALE

SEWER SYSTEMS

MODEL 2014, NO BAFFLE, DETAIL SHEET

PA0910P02

District of West Kelowna

Sanitary Lift Station Evaluation

Station: Ross Road LS 22

Inspection By: Jim Kentel

Year Constructed: 10/1/1996

Year Upgraded:

Matrix Rating			
(10 - highest rating)	Civil	40	
(1 - lowest rating)	Process Mechanical	112	
	Electrical Instrumentation	108	
	Total Station Rating	260	(max. rating 370 points)

Civil:

		Matrix Rating
Parking Area:		n/a
Drainage:	Good	10
Influent sewer:	Gravity 200	10
Site access:	Good	10
Water service:	50 Yard Hydrant	10
		40

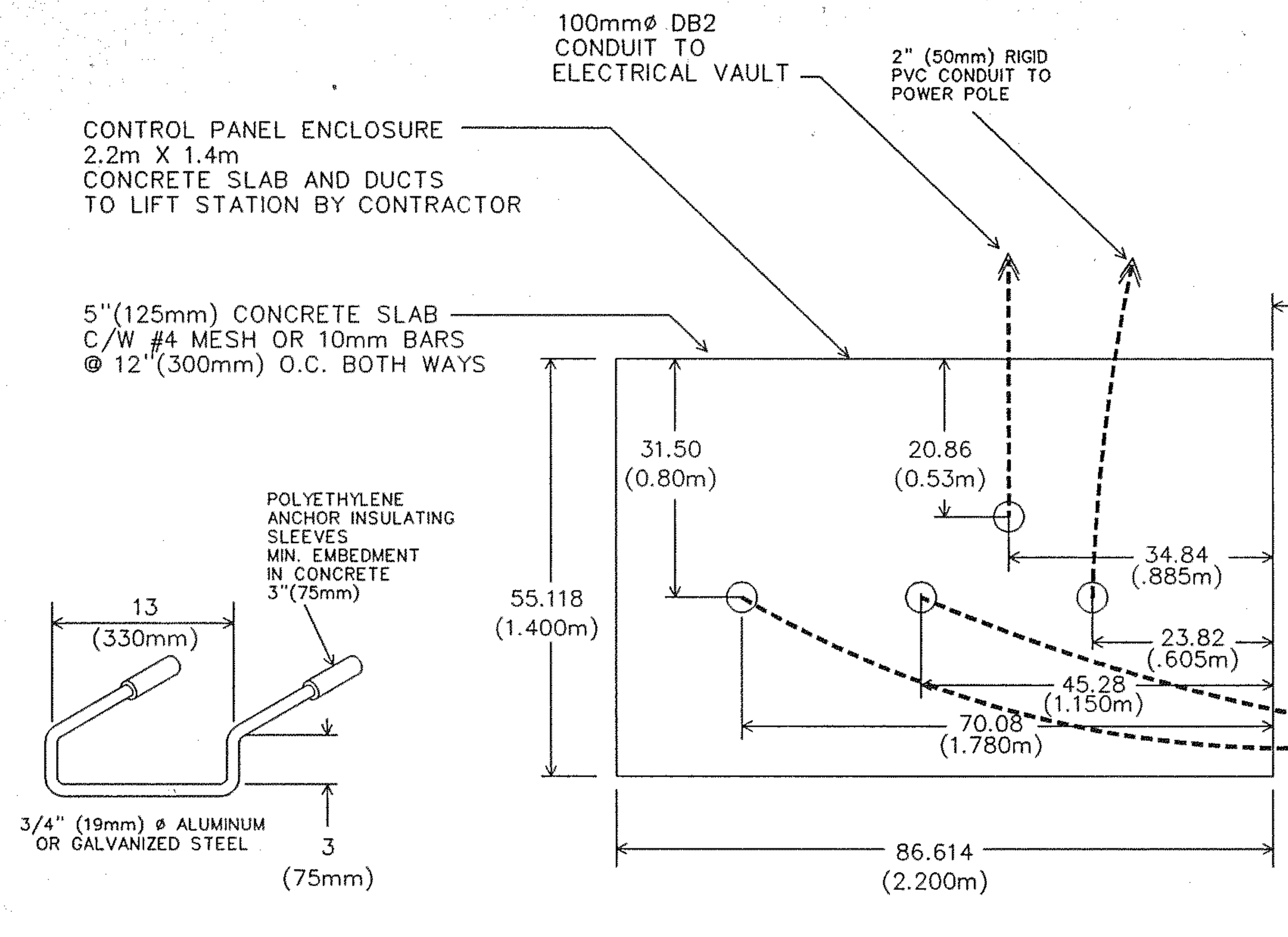
Process Mechanical:

		Matrix Rating
Station type:	Above Ground Self Priming	n/a
Number of pumps:	2	n/a
Pump Redundancy:	Yes	n/a
Pump Manufacturer / Type:	Gorman Rupp	8
Pump Model:	T4A3-B	n/a
Rated Capacity:	33.2 L/S @ 18.9m TDH	n/a
Capacity Confirmation:		n/a
Discharge pipe type / diameter:	PVC/150m	10
Header pipe type / diameter:	CI/100mm	8
Check valve type / diameter:	CI/100	8
Isolation valve type / diameter:	CI Plug / 100	8
Piping Condition:	Good	8
Emergency pumpout connection:	No	1
Pressure gauges:	Yes	10
Inlet bar screen:	No	1
Wetwell condition:	Conc Box Culvert 2.4x2.4	8
Access Hatches:	MH Frames and Covers	5
Ladder / Platform:	Rungs/No	5
Wetwell benching:	Concrete	8
Odour Control:	No	1
Ventilation:	Yes	8
Water washdown:	Yes	10
nfined Space Entry Requirements	N/A	5
		112

Electrical / Instrumentation:

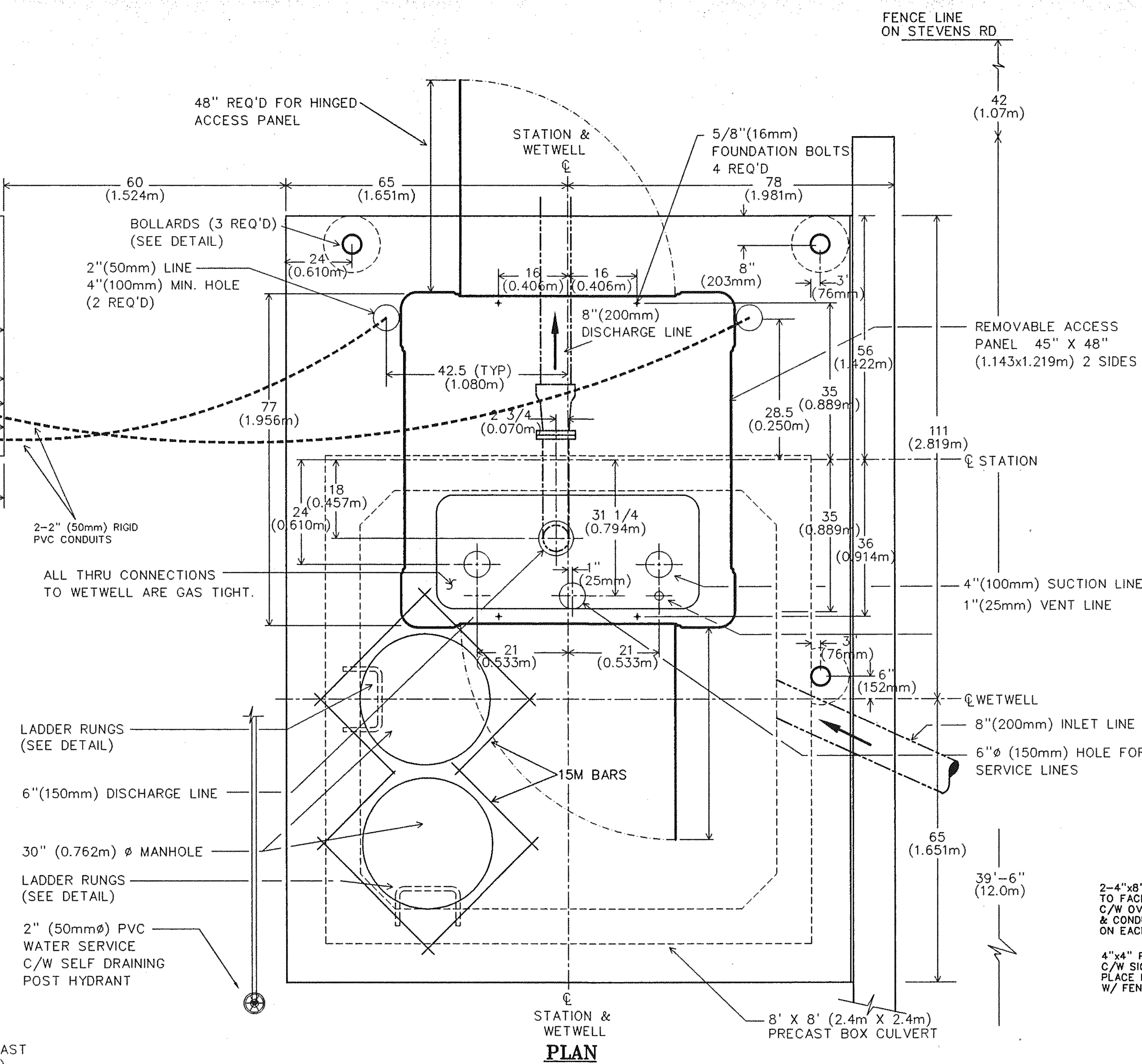
			Matrix Rating
Service Type	V / A / Phase / Wire		n/a
Pump 1 :	HP 20		n/a
	Volts 575	Rpm 1550	n/a
	FLA		n/a
Starting Current			n/a
Pump 2 :	HP 20		n/a
	Volts 575	Rpm 1550	n/a
	FLA		n/a
Starting Current			n/a
			n/a
Alarm Functions:	Yes		10
			n/a
			n/a
			n/a
Receptacle	No		1
Interior Lighting:	No		1
Exterior Lighting:	No		1
SCADA / Telemetry:	Yes		10
Main Breaker:	Yes		10
Control Panel:			10
Lighting Panel:			10
Flowmeter:	Grey line		10
Grounding:	Yes		10
UPS:	Yes		10
PLC:	Yes		10
Level Control:	Milltronics		10
Standby Generator:	standy motor		5
			108

Comments:

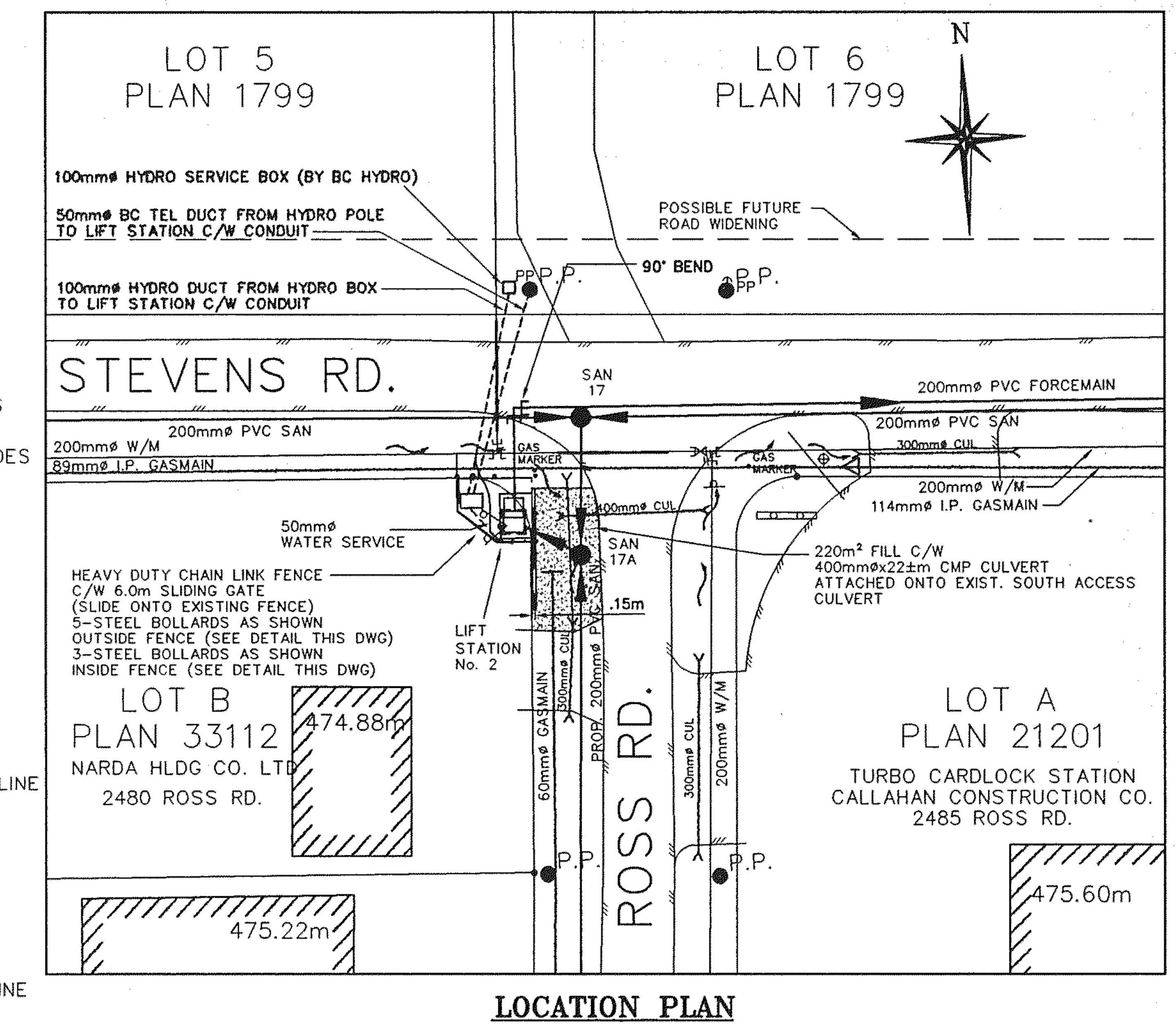


RUNG DETAIL

"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."

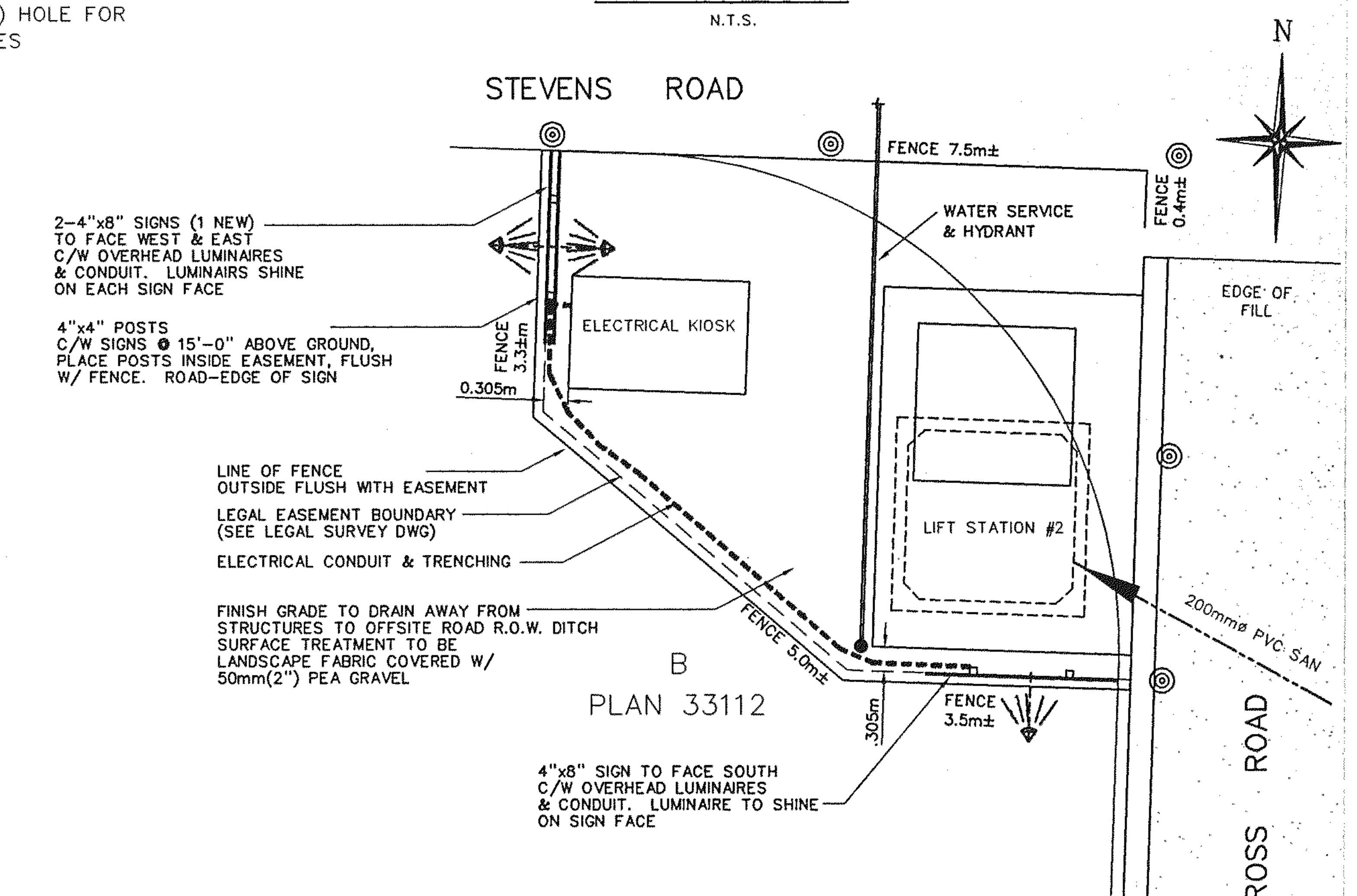


PLAN



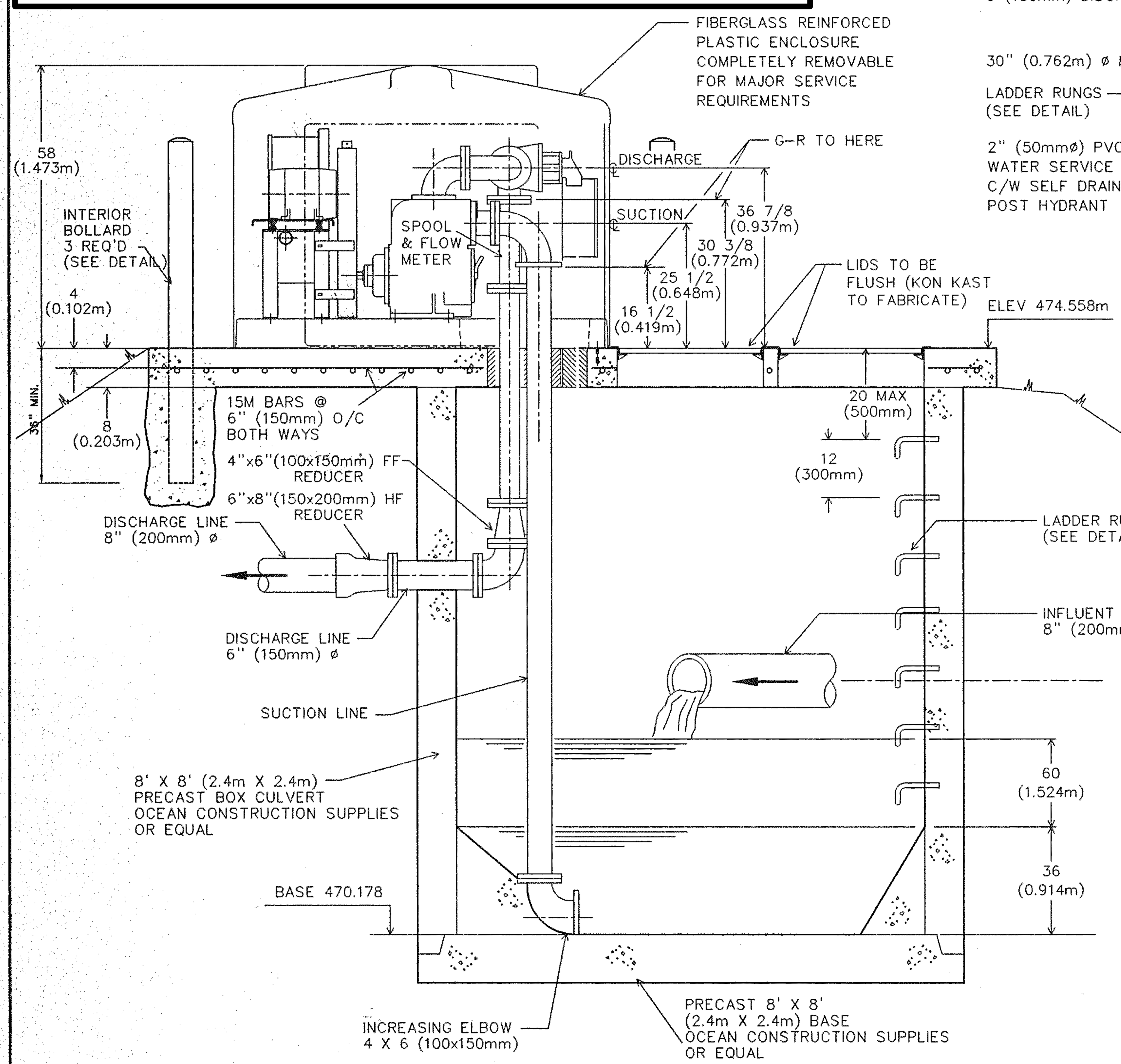
LOCATION PLAN

N.T.S.

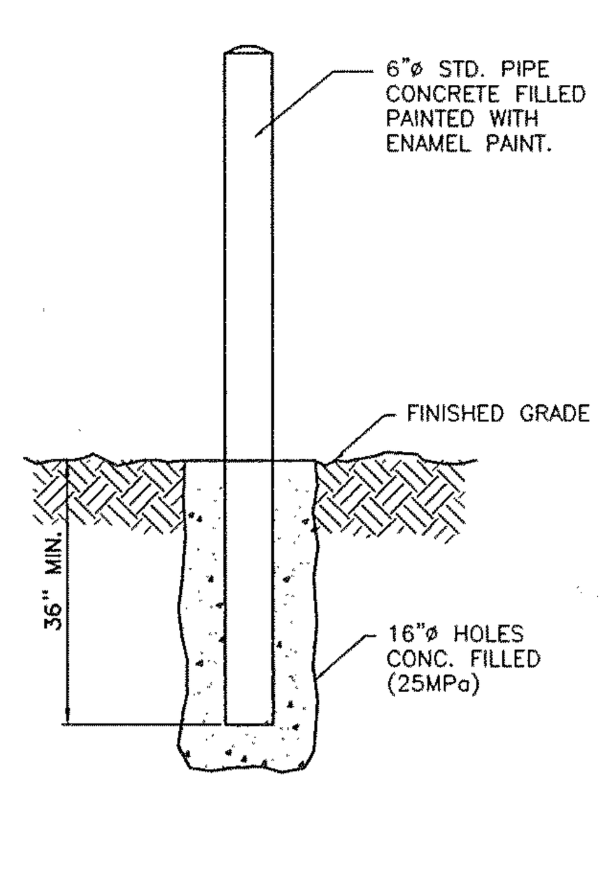


LIFT STATION #2 DETAIL

N.T.S.

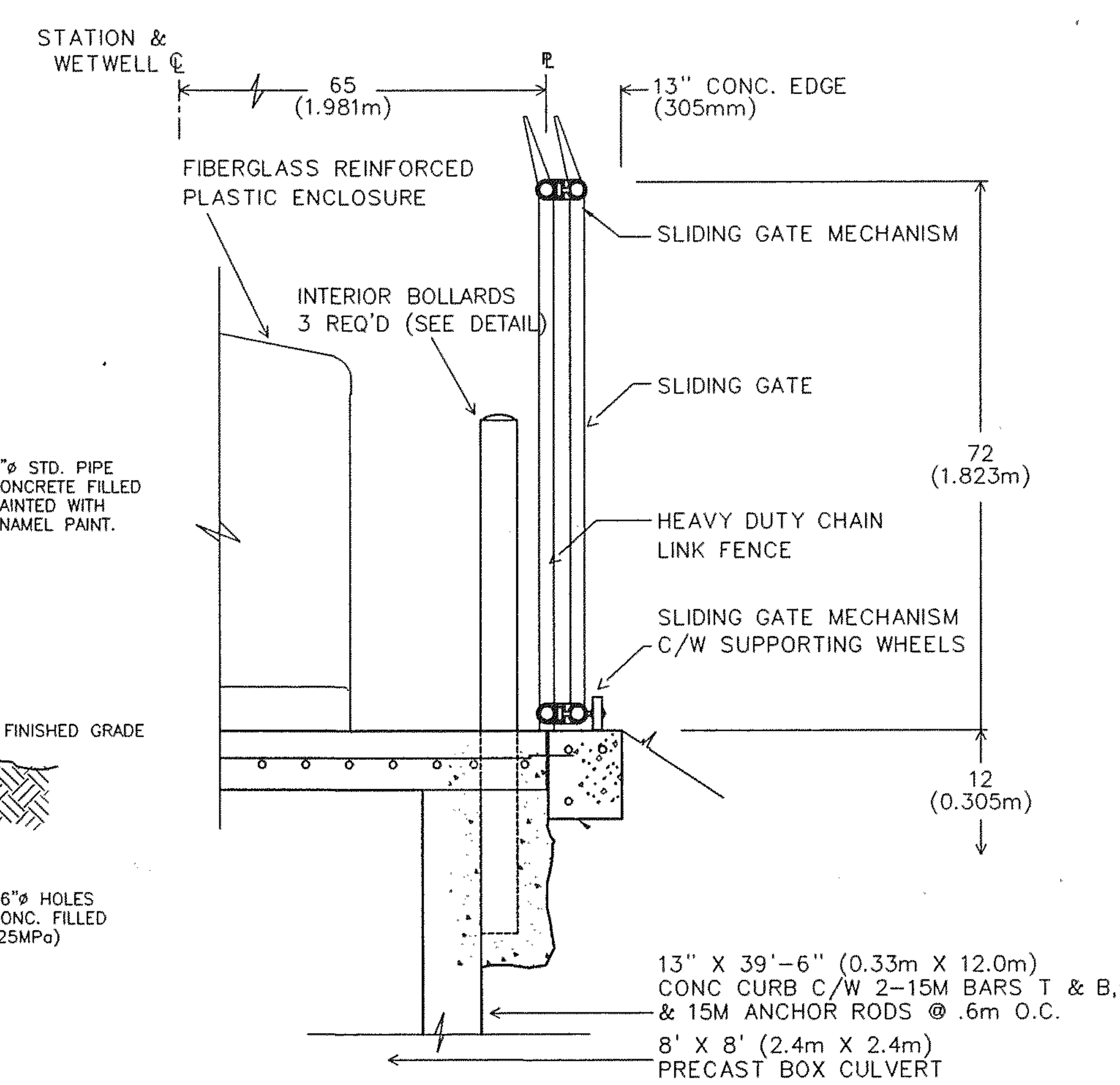


ELEVATION



BOLLARD DETAIL

N.T.S.



GATE DETAIL (EAST)

N.T.S.

T4A3-B 4 X 4 X 4 OR 4 X 4 X 6

39512003.DGN

WL-02990

THE GORMAN-RUPP CO.

MANSFIELD, OHIO ST. THOMAS, ONTARIO

NAME: 6' X 6' ABOVEGROUND SEWAGE LIFT STATION W/DUPLEX T4A3-B PUMPS

DRN.	CHK.	APP.	DATE
BM	KEH	PFB	3/26/75

D 39512-003 SERIAL NO.

LEGEND				
WATER	HYDRANT	PERC. HOLE		
SAN. SEWER	WATER VALVE	POWER POLE		
STORM SEWER	REDUCER	LAMP STD.		
GAS	SANITARY MH	TRAFFIC LIGHT		
U.G. TELEPHONE	STORM MH	TRANSFORMER		
U.G. ELECTRICAL	CATCH BASIN	TEL. SB		
	DRYWELL	ELECT. SB		

No.	DATE (MM/DD/YY)	BY	REVISION	Chk'd
9	MAY, 97	R.H.	AS CONSTRUCTED RIM AND INVERT ONLY	D.E.P.
8	JAN. 16, 97	E.B.B.	REVISED LAYOUT OF EASEMENT/FENCE & ADDED ACCESS	D.E.P.
7	NOV. 27, 96	E.B.B.	MOVED REDUCER, REVISED CONTROL PANNEL SLAB	D.E.P.
6	NOV. 22, 96	E.B.B.	REVISED SLAB HOLES FOR ELECT. & TELEMETRY	D.E.P.
5	NOV. 18, 96	E.B.B.	REVISED CONTROL PANNEL ENCLOSURE SLAB	D.E.P.
4	SEPT. 28, 96	E.B.B.	REVISED LIFT STATION SLAB, FENCE, GATE, FLOW METER	D.E.P.
3	SEPT. 14, 96	E.B.B.	REVISED LIFT STATION 2 LOCATION, ELEVATION & FENCE	D.E.P.
2	SEPT. 7, 96	E.B.B.	REVISED LIFT STATION 2 LOCATION, LAYOUT & ELEVATION	D.E.P.
1	SEPT. 1, 96	E.B.B.	REVISED LIFT STATION 2 LOCATION, LAYOUT & ELEVATION	D.E.P.

REGIONAL DISTRICT OF CENTRAL OKANAGAN

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA D.E. PILLING

DRAWN	R.H.
DESIGN	P.A.C.E.
APPROVED	D.E.P.
DATE	AUGUST, 1996
SCALE	1 : 20 IMPERIAL

PACE

D. E. PILLING and ASSOCIATES CONSULTING ENGINEERING Ltd.
#200, 540 GROVES AVENUE, KELOWNA, B.C. V1Y-4Y7 TEL: 763-2315 FAX: 763-6559

WESTSIDE INDUSTRIAL PARK

REG. DIST. OF CENTRAL OKANAGAN

1450 K.L.O. ROAD KELOWNA, B.C. V1W-3Z4

LIFT STATION #2 – CONSTRUCTION SPECIFICATIONS

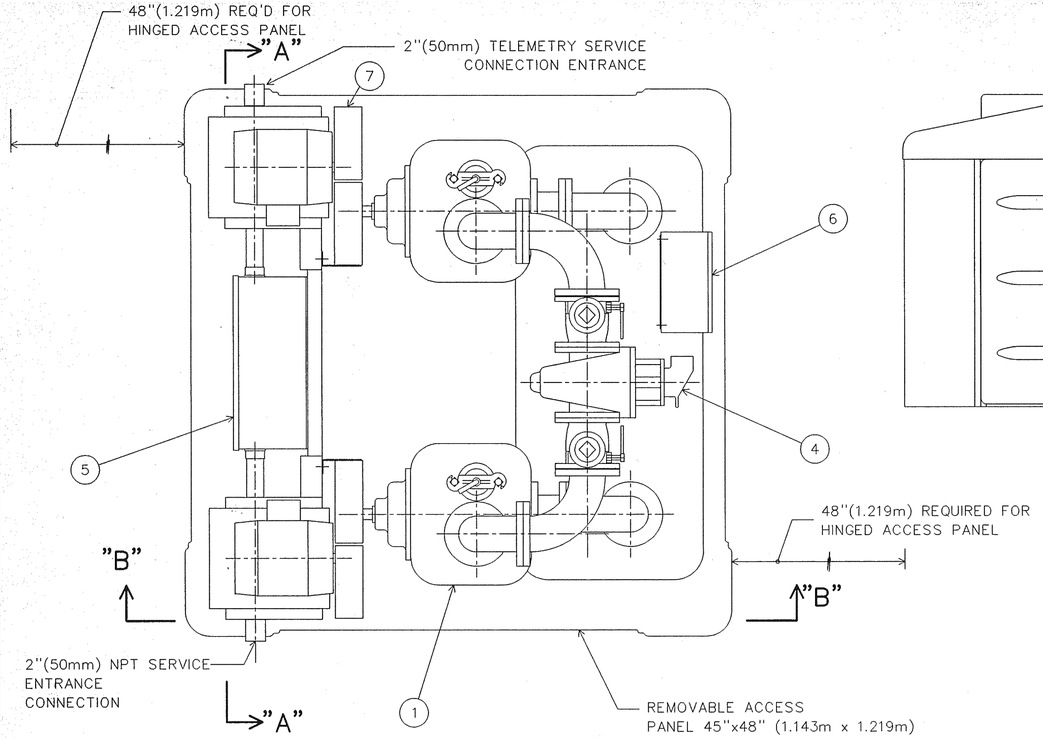
DRAWING NO. 1036-S13

R.D.C.O. No. 100.303

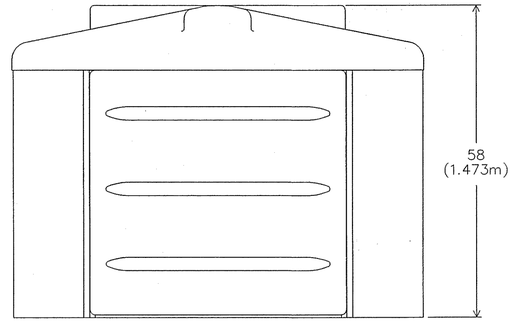
REV. NO. 9

PLOT DATE: 06-13-97 11:35

ITEM	DESCRIPTION	MAT'L & SIZE
1	PUMP	CAST IRON T4A3-B
2	MOTOR	CAST IRON
3	CHECK VALVE	CAST IRON 4"
4	PLUG VALVE	CAST IRON 4"
5	MOTOR CONTROL PANEL	STEEL
6	LIQUID LEVEL PANEL	STEEL
7	BELTGUARD	STEEL

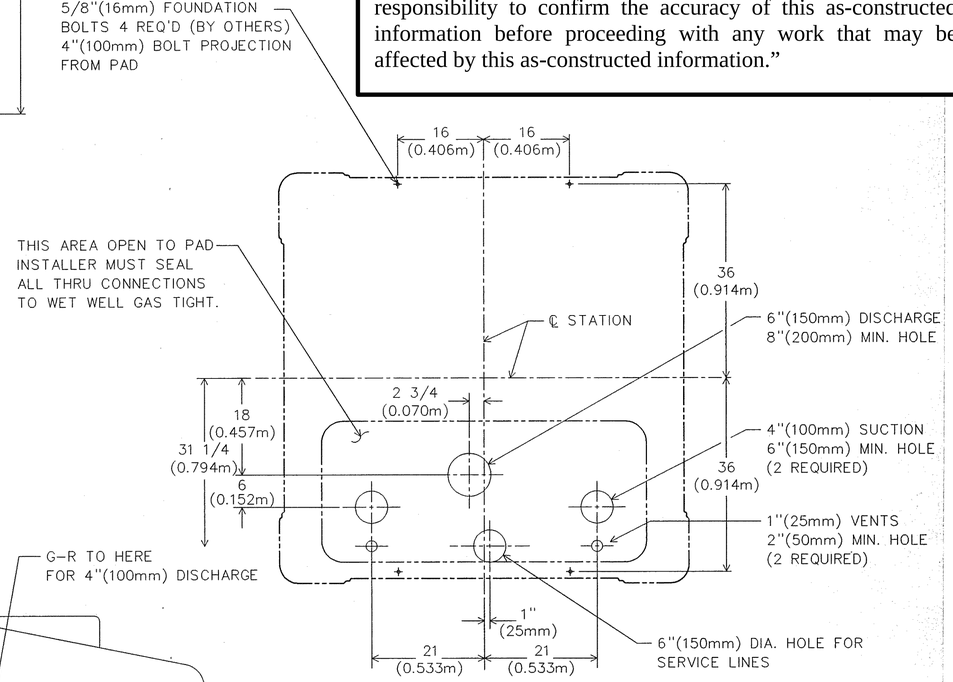


PLAN

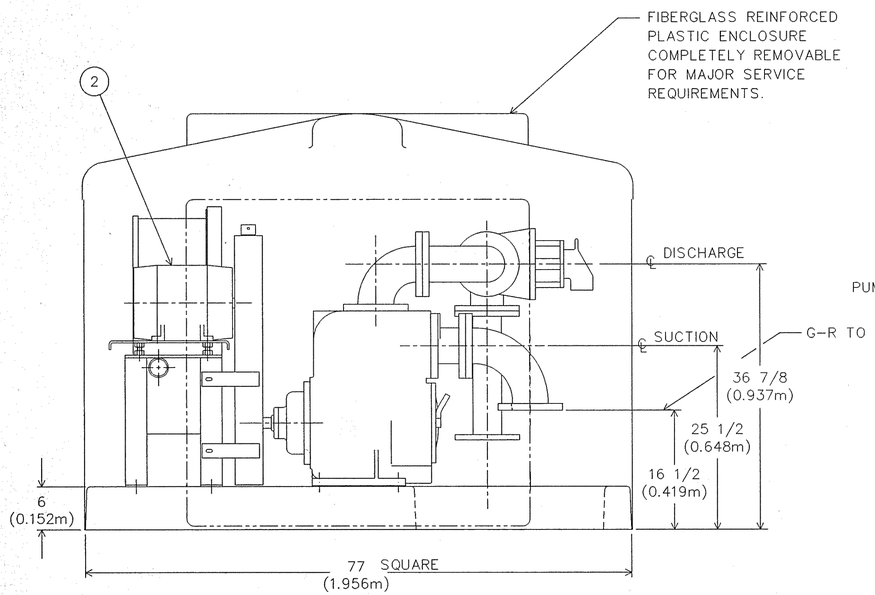


ELEVATION

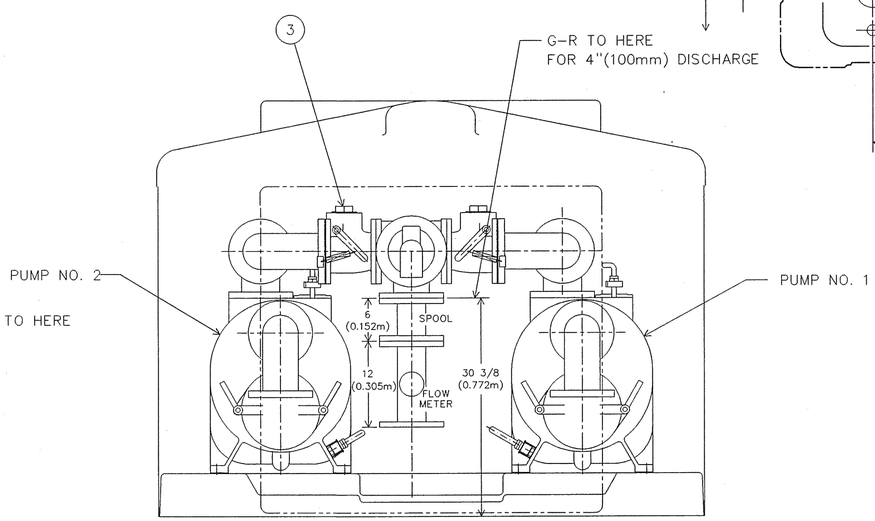
"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."



PLAN



SECTION "A"



NOTE: CUSTOMER SUCTION AND DISCHARGE CONNECTIONS ARE 125# FLANGE

SECTION "A"

4 X 4 X 4 AS SHOWN
4 X 4 X 6 WITH INCREASER

45121007.DGN

GORMAN-RUPP — THE GORMAN-RUPP CO.
MANSFIELD, OHIO ST. THOMAS, ONTARIO

NAME: 6' X 6' ABOVEGROUND SEWAGE LIFT STATION W/DUPLEX T4A3-B PUMPS

DRN.	CHK.	APP.	DATE
BM	KEH	PFB	3/24/7[illegible]

D 45121-007 — SERIAL NO.

WL-02991

LEGEND

WATER	HYD HYDRANT	PERC PERC. HOLE	
SAN. SEWER	WV WATER VALVE	PP POWER POLE	
STORM SEWER	REDUCER	LS LAMP STD.	
GAS	SAN SANITARY MH	TL TRAFFIC LIGHT	
U.G. TELEPHONE	STM STORM MH	TR TRANSFORMER	
U.G. ELECTRICAL	CB CATCH BASIN	TEL TEL. SB	
	DW DRYWELL	ELECT. SB	

No.	MM/DD/YY DATE	BY	REVISION	Chk'd
1	09/13/96	R.H.	FLOW METER ADDED TO STATION	D.E.P.
2	11/01/96	E.B.B.	FLOW METER RELOCATED, VENT PIPES ADDED	D.E.P.
3	11/15/96	E.B.B.	FLOW METER RELOCATED, SPOOL ADDED	D.E.P.

REGIONAL DISTRICT OF CENTRAL OKANAGAN

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — DALE E. PILLING

DRAWN	R.H.
DESIGN	P.A.C.E.
APPROVED	D.E.P.
DATE	AUGUST, 1996
SCALE	1 : 10 IMPERIAL

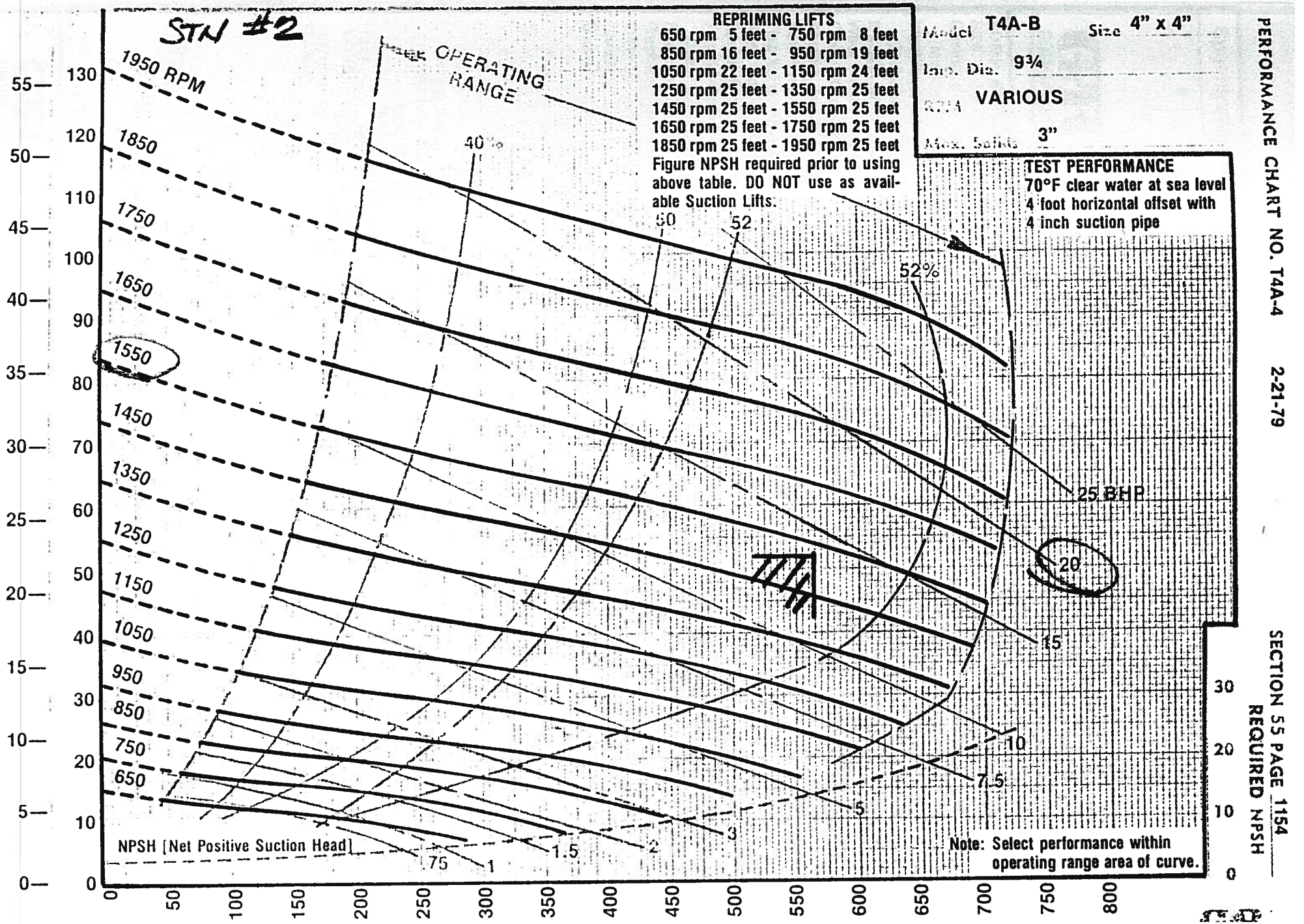
PACE
D. E. PILLING and ASSOCIATES CONSULTING ENGINEERING Ltd.
#200, 540 GROVES AVENUE, KELOWNA, B.C. V1Y-4Y7
TEL: 763-2315 FAX: 763-6559

WESTSIDE INDUSTRIAL PARK
REG. DIST. OF CENTRAL OKANAGAN
1450 K.L.O. ROAD KELOWNA, B.C. V1W-3Z4

LIFT STATION #2 - DETAILS

DRAWING NO. 1036-S14
REV. NO. 100.303
REV. NO. 3
PLOT DATE: 11-15-96 05:15 pm (MM-DD-YY HH:MM)

Ross Road LS 22



District of West Kelowna

Sanitary Lift Station Evaluation

Station: Brentwood Road LS 23

Inspection By: Jim Kentel

Year Constructed: 10/1/1997

Year Upgraded:

Matrix Rating				
(10 - highest rating)	Civil	40		
(1 - lowest rating)	Process Mechanical	86		
	Electrical Instrumentation	125		
	Total Station Rating	251	(max. rating 370 points)	Matrix

Civil:

		Matrix Rating
Parking Area:		n/a
Drainage:	Good	10
Influent sewer:	200	10
Site access:	Good	10
Water service:	Yes	10
		40

Process Mechanical:

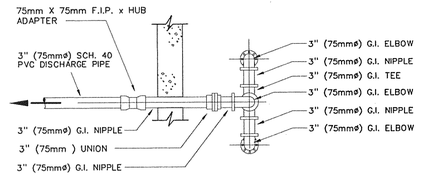
		Matrix Rating
Station type:	Concrete / 1.8m MH	n/a
Number of pumps:	2	n/a
Pump Redundancy:	Yes	n/a
Pump Manufacturer / Type:	FLYGT	5
Pump Model:	CP 3102 MT	n/a
Rated Capacity:	9.0 L/S @ 10.1m TDH	n/a
Capacity Confirmation:		n/a
Discharge pipe type / diameter:	PVC Sch 40/75	9
Header pipe type / diameter:	CI/75	5
Check valve type / diameter:	FLYGT HDL / 75mm	5
Isolation valve type / diameter:	Plug / 75mm	5
Piping Condition:	Poor	5
Emergency pumpout connection:	No	1
Pressure gauges:	No	1
Inlet bar screen:	No	1
Wetwell condition:	Good	8
Access Hatches:	Alum checker plate/ no good	8
Ladder / Platform:	/No	3
Wetwell benching:	concrete	8
Odour Control:	No	1
Ventilation:	No	1
Water washdown:	50mm yard hydrant	10
nfined Space Entry Requirements	Davit	10
		86

Electrical / Instrumentation:

			Matrix Rating
Service Type	V / A / Phase / Wire		n/a
Pump 1 :	HP 3.9		n/a
	Volts 230	Rpm 1730	n/a
	FLA 16A		n/a
Starting Current	45A		n/a
Pump 2 :	HP 3.9		n/a
	Volts 230	Rpm 1730	n/a
	FLA 16A		n/a
Starting Current	45A		n/a
			n/a
Alarm Functions:	Yes		8
			n/a
			n/a
			n/a
Receptacle	Yes		10
Interior Lighting:			10
Exterior Lighting:			1
SCADA / Telemetry:			10
Main Breaker:			10
Control Panel:			10
Lighting Panel:			10
Flowmeter:	Yes not working		5
Grounding:			10
Surge Protection:			10
UPS:			10
PLC:			10
Level Control:	/Bulbs Milltronics level control		10
Standby Generator:	No		1
			125

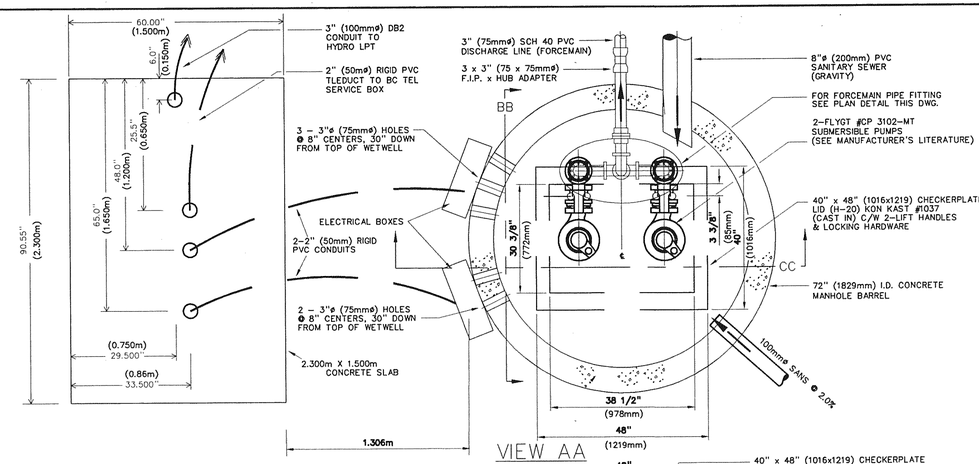
Comments:

"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."

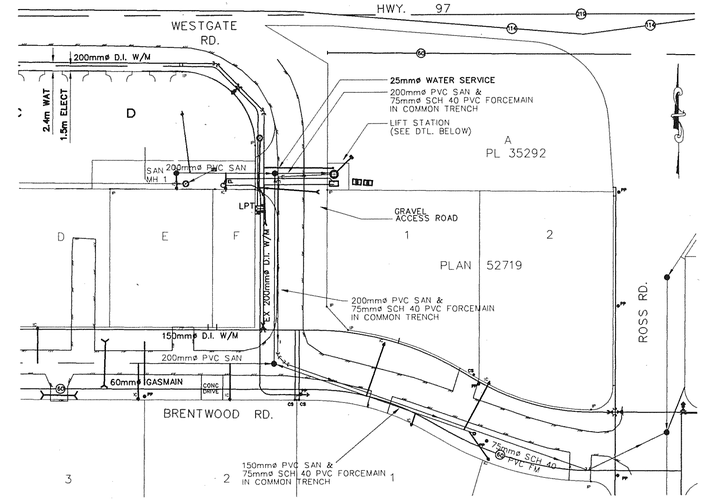


FORCEMAIN PIPEFITTING PLAN DETAIL

N.T.S.

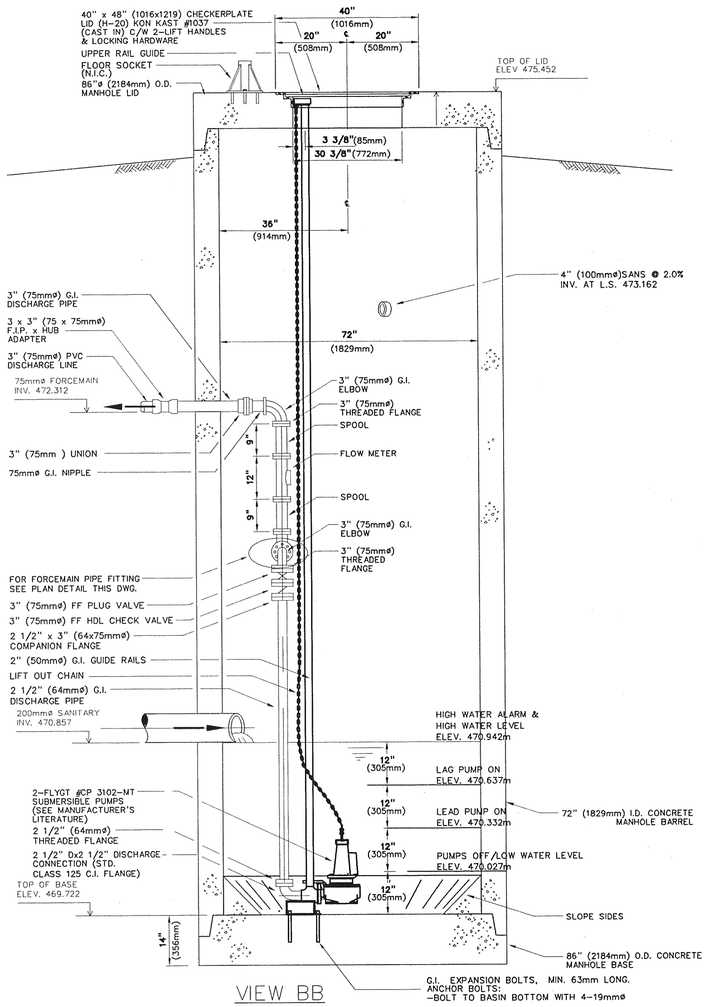


VIEW AA

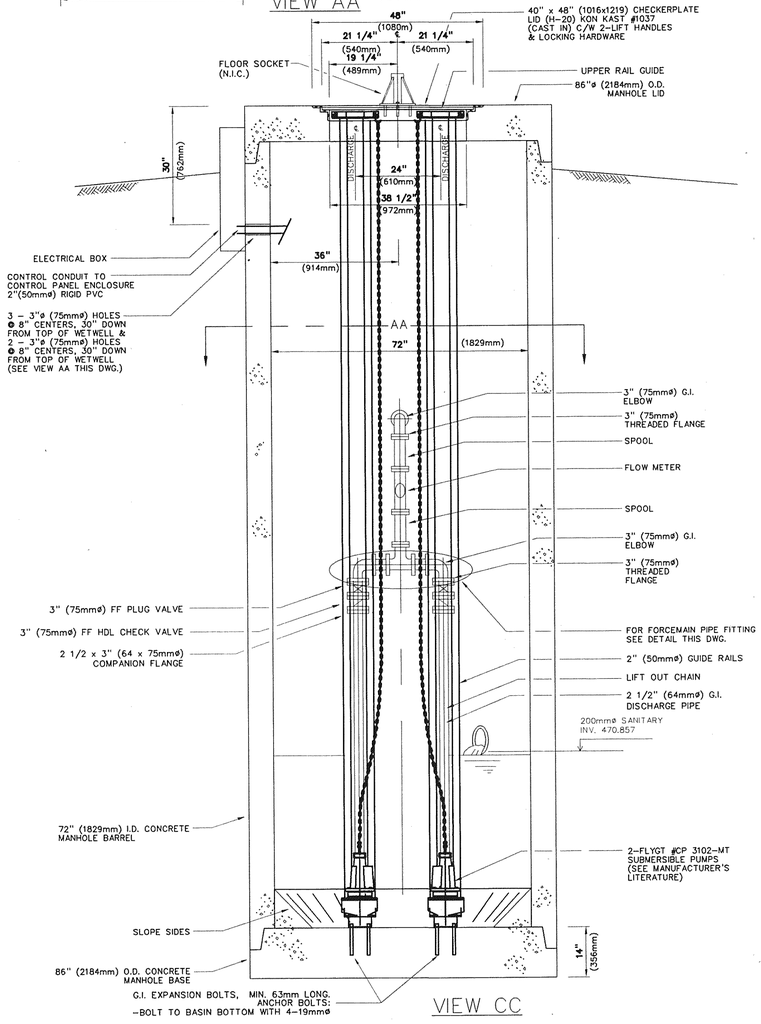


LOCATION PLAN

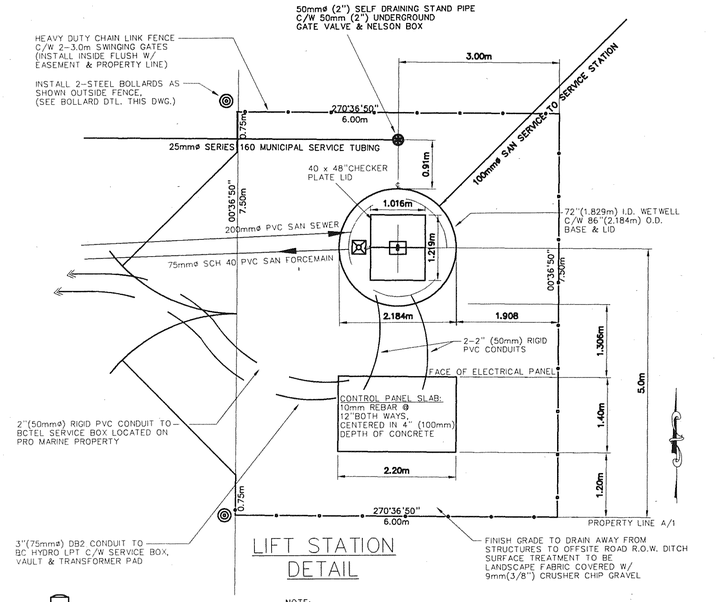
N.T.S.



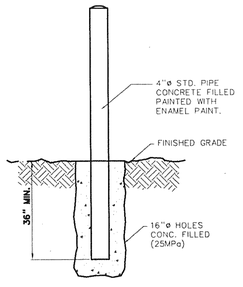
VIEW BB



VIEW CC



LIFT STATION DETAIL



BOLLARD DETAIL

NOTE:

1. THE CONTRACTOR MUST GIVE 24 HR NOTICE TO THE ELECTRICAL CONTRACTOR PRIOR TO INSTALLATION OF ANY ELECTRICAL & TELEPHONE WORKS.

WORKS REQUIRED OF CONTRACTOR

1. ARRANGE FOR SHIPMENT AND DELIVERY OF ALL PUMPS, ELECTRICAL EQUIPMENT, ACCESS HATCHS, AND ANY OTHER ITEMS LISTED AS BEING SUPPLIED BY OWNER. CHECK FOR ANY DAMAGE OR DEFICIENCIES, AND ARRANGE FOR DELIVERY TO SITE FOR INSTALLATION.
2. OTHER THAN PROVIDED FOR IN THE SUPPLEMENTARY CONDITIONS OF THE AGREEMENT, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE ALL PIPING, VALVES, AND SUPPORTS INCLUDING THOSE NOT SPECIFICALLY LISTED AS BEING SUPPLIED BY OWNER.
3. PLACE EFFLUENT PUMPS INTO OPERATION.
4. PROVIDE OWNER WITH COMPLETE SET OF OPERATING AND MAINTENANCE INSTRUCTIONS FOR PUMPS AND ELECTRICAL EQUIPMENT.
5. PROVIDE AND PLACE ALL CONDUIT

CONCRETE NOTES

1. THE SAFETY OF ALL CONSTRUCTION WORK IN OR ABOUT THE SITE INCLUDING ALL FORMWORK & SUPPORT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. ALL RULES & REGULATIONS OF THE W.C.B. SHALL BE STRICTLY ADHERED TO.
2. MINIMUM CONCRETE STRENGTH f'c TO BE 30 Mpa AFTER 28 DAYS. ALL FOUNDATION & FOOTING SECTIONS SHALL BE AS INDICATED. PLAIN & REINFORCED CONCRETE TESTING, MATERIALS, CONSTRUCTION AND DESIGN TO CONFORM TO C.S.A. B23 1973.

LEGEND

WATER	HYD HYDRANT	PERC PERC. HOLE	
SAN. SEWER	WV WATER VALVE	PP POWER POLE	
STORM SEWER	REDUCER	LS LAMP STD.	
GAS	SAN SANITARY MH	TL TRAFFIC LIGHT	
U.G. TELEPHONE	STM STORM MH	TR TRANSFORMER	
U.G. ELECTRICAL	CB CATCH BASIN	TEL TEL. SB	
	DW DRYWELL	ELECT. SB	

No.	MM/DD/YY DATE	BY	REVISION	Chk'd
C	OCT. 29, 97	R.H.	AS CONSTRUCTED	D.E.P.
B	JULY 30, 97	R.H.	ADDED FLOOR SOCKET, SPECIFIED LADDER RUNGS	D.E.P.
A	JULY 27, 97	E.B.B.	REVISED SAN SERVICES, MH 1 & 4, ADDED SER. TO LOT 3	D.E.P.

REGIONAL DISTRICT OF CENTRAL OKANAGAN

DALE E. PILLING, P.ENG. PROFESSIONAL ENGINEER

DRAWN	E.B.B.
DESIGN	P.A.C.E.
APPROVED	D.E.P.
DATE	JUNE, 1997
SCALE	1 : 20 IMPERIAL

PACE
D. E. PILLING and ASSOCIATES
CONSULTING ENGINEERING Ltd.
#200, 540 GROVES AVENUE, KELOWNA, B.C. V1Y-4Y7
TEL: 763-2315
FAX: 763-6559

WESTGATE-BRENTWOOD RD SANITARY
REG. DIST. of CENTRAL OKANAGAN
1450 K.L.O. ROAD, KELOWNA, B.C. V1W-3Z4

SANITARY LIFT STATION DETAILS

DRAWING NO. 1147-S3
MUNICIPAL No. —
REV. NO. C

C:\r13\dwgs\1147\1147s03c 2-4-1998 9:29:33
MM-DD-YYYY HH:MM

PERFORMANCE CURVE

PRODUCT	TYPE
CP3102.180	MT

DATE	PROJECT	CURVE NO	ISSUE
97-07-28	Westgate- Brentwood Pumps LS 23	61-433-00-3030	2

	1/1-LOAD	3/4-LOAD	1/2-LOAD
MOTOR COS FI	0.93	—	—
MOTOR EFFICIENCY	78.5 %	—	—
GEAR EFFICIENCY	—	—	—

MOTOR SHAFT POWER	3.9	HP
STARTING CURRENT ...	16	A
RATED CURRENT ...		A
RATED SPEED	1730	RPM
TOT.MOM.OF INERTIA ...	0.030	KG*M2
NO. OF BLADES	1	

IMPELLER DIAMETER — MM

MOTORTYPE	STATOR	REV
—	—	—

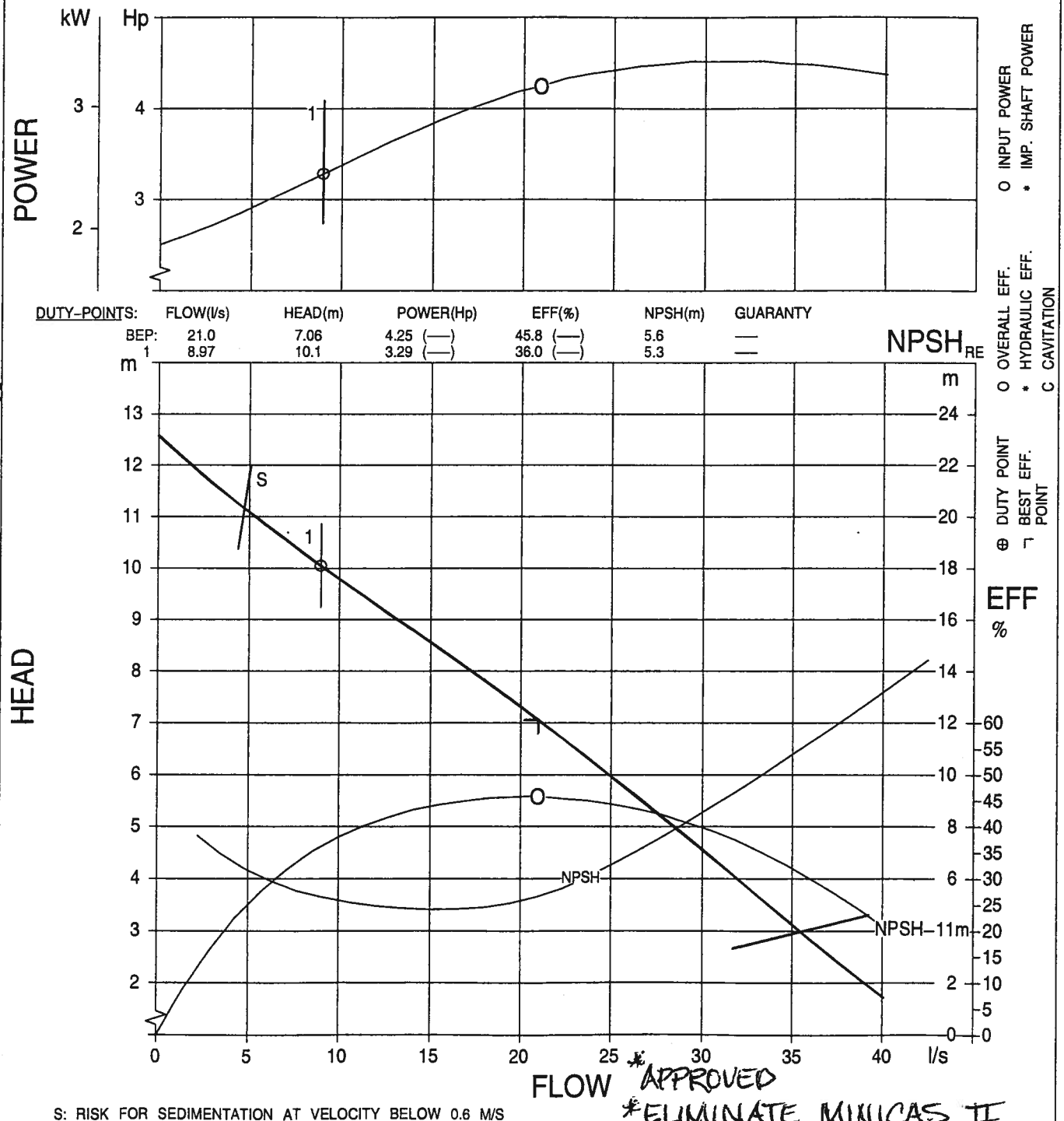
FREQ	PHASES	VOLTAGE	POLES
60 HZ	1	230 V	4

GEARTYPE	RATIO
—	—

COMMENTS: NEVA CLOG

OUTLET: 100 MM

IMP. THROUGHLET: 76 MM



DUTY-POINTS:

	FLOW(l/s)	HEAD(m)	POWER(Hp)	EFF(%)	NPSH(m)	GUARANTY
BEP:	21.0	7.06	4.25 (—)	45.8 (—)	5.6	—
1	8.97	10.1	3.29 (—)	36.0 (—)	5.3	—

S: RISK FOR SEDIMENTATION AT VELOCITY BELOW 0.6 M/S (STANDARD DIAM. 100 MM)

CURVES SHOW PERFORMANCE WITH CLEAR WATER

*APPROVED
*ELIMINATE MINICAS II

FLYGT

HI- CURVE

Nov 13/97

Pre-release 3 ITT Flygt

FLYPS 1.2

District of West Kelowna

Sanitary Lift Station Evaluation

Station: Sunnybrae Road 24

Inspection By: Jim Kentel

Year Constructed: 2001

Year Upgraded:

Matrix Rating			
(10 - highest rating)	Civil	31	
(1 - lowest rating)	Process Mechanical	20	
	Electrical Instrumentation	15	
	Total Station Rating	66	(max. rating 370 points)

Civil:

		Matrix Rating
Parking Area:		n/a
Drainage:	Good	10
Influent sewer:	Good	10
Site access:	Good	10
Water service:		1
		31

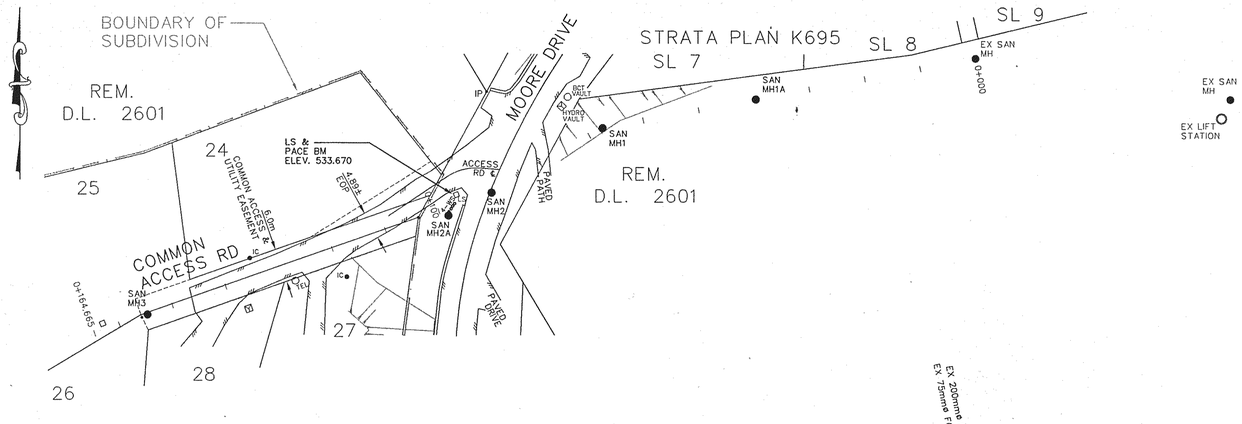
Process Mechanical:

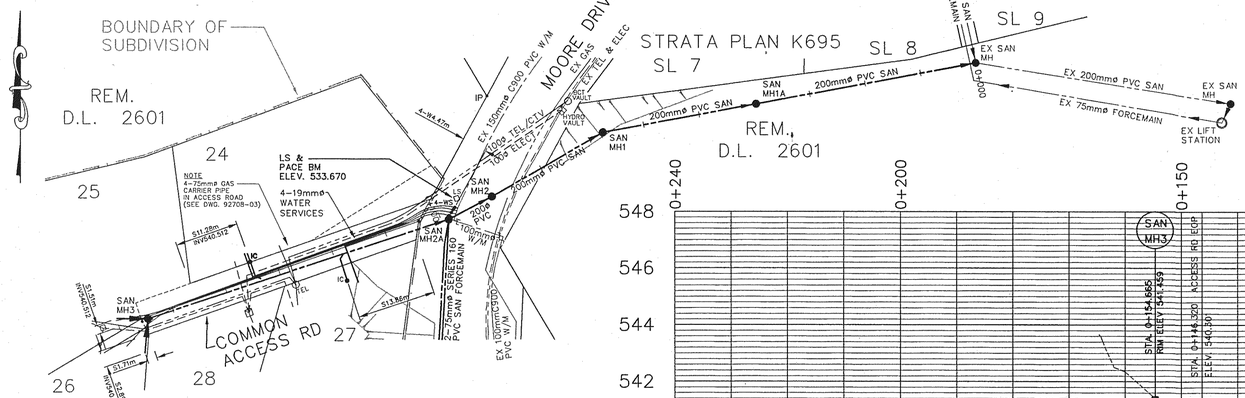
		Matrix Rating
Station type:		n/a
Number of pumps:		n/a
Pump Redundancy:		n/a
Pump Manufacturer / Type:		1
Pump Model:		n/a
Rated Capacity:		n/a
Capacity Confirmation:		n/a
Discharge pipe type / diameter:		1
Header pipe type / diameter:		1
Check valve type / diameter:		1
Isolation valve type / diameter:		1
Piping Condition:		1
Emergency pumpout connection:		1
Pressure gauges:		1
Inlet bar screen:		1
Wetwell condition:		1
Access Hatches:		1
Ladder / Platform:		1
Wetwell benching:		1
Odour Control:		1
Ventilation:		1
umidity Control / Dehumidification:		1
Grease / Debris Accumulation:		1
Water washdown:		1
Sump pump:		1
nfined Space Entry Requirements		1
		20

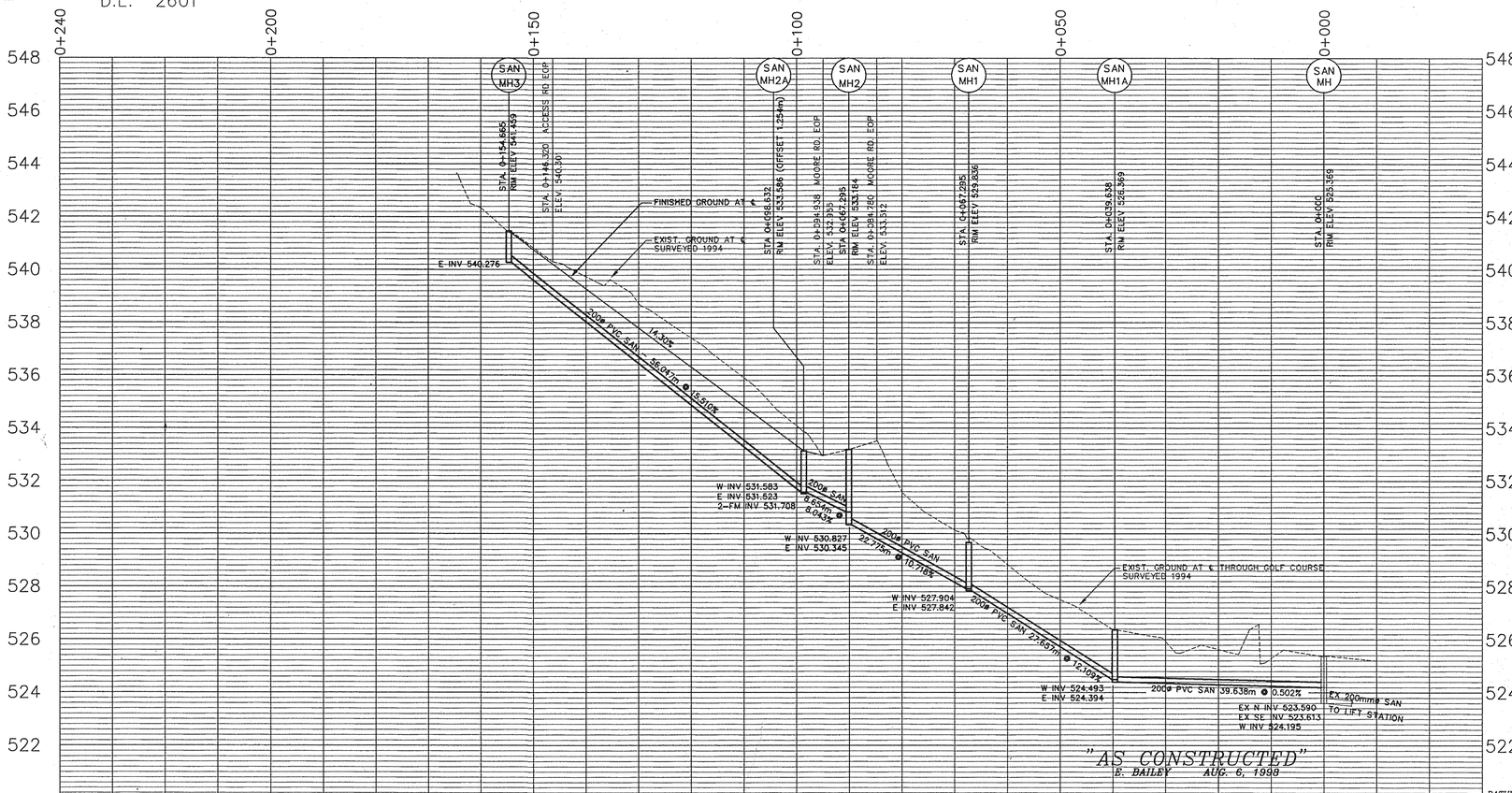
Electrical / Instrumentation:

			Matrix Rating
Service Type	V / A / Phase / Wire		n/a
Pump 1 :	HP		n/a
	Volts	Rpm	n/a
	FLA		n/a
	Starter		n/a
Pump 2 :	HP		n/a
	Volts	Rpm	n/a
	FLA		n/a
	Starter		n/a
Alarm Functions:			1
			n/a
			n/a
			n/a
Receptacles:			1
Interior Lighting:			1
Exterior Lighting:			1
SCADA / Telemetry:			1
Main Breaker:			1
Control Panel:			1
Lighting Panel:			1
Flowmeter:			1
Grounding:			1
Surge Protection:			1
UPS:			1
PLC:			1
Level Control:			1
Standby Generator:			1
			15

Comments:







"AS CONSTRUCTED"
E. BAILEY AUG. 6, 1998

DATUM ELEV 520.000

"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."

LEGEND

WATER	MANHOLE	● M.H.
SAN. SEWER	POWER POLE	◦ P.P.
STORM SEWER	LAMP STANDARD	¤ L.S.
GAS	CATCH BASIN	⊡ C.B.
U/G TELEPHONE	HYDRANT	HYD
U/G ELECTRICAL	TREES	⊙ T

NO.	DATE	BY	REVISION	CH'KD
1	NOV.15,'94	EBB	REVISED SANITARY MAIN ACROSS GOLF COURSE	D.E.P.
2	NOV.22,'94	EBB	REVISED WATER AS PER LAKEVIEW IRRIGATION	D.E.P.
3	DEC,16,'94	EBB	REVISED WATER AS PER LAKEVIEW IRRIGATION	D.E.P.
4	AUG 6,'98	EBB	AS CONSTRUCTED	D.E.P.

DRAWN BY: E.B.B.
DESIGN BY: P.A.C.E.
APPROVED BY: D.E.P.
DATE: NOV., 1994
SCALE: Horz. 1:500 Vert. 1:100

D.E. PILLING, P.ENG. PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA

PACE
D.E. PILLING and ASSOCIATES
CONSULTING ENGINEERING Ltd.
200, 540 GROVES AVENUE, KELOWNA, B.C. V1Y 4Y7
TEL. 763-2315
FAX. 763-6509

DRAWING NO. 92708-0

REV. NO. 4

MOORE DRIVE SUBDIVISION- STRATA
JOHN MOORE
2671 MOORE DRIVE, WESTBANK, B.C. V0H 2A0
PLAN & PROFILE "ACCESS RD" & SANITARY

D:\r13\dwgs\708\708-05 8-18-98 1:59:28 pm

District of West Kelowna

Sanitary Lift Station Evaluation

Station: Ensign Way LS 25

Inspection By: Jim Kentel

Year Constructed: 1990

Year Upgraded:

Matrix Rating			
(10 - highest rating)		Civil	26
(1 - lowest rating)		Process Mechanical	20
		Electrical Instrumentation	15
		Total Station Rating	61 (max. rating 370 points)

Civil:

		Matrix Rating
Parking Area:		n/a
Drainage:		10
Influent sewer:		10
Site access:		5
Water service:		1
		26

Process Mechanical:

		Matrix Rating
Station type:	MH Concrete Barrell	n/a
Number of pumps:	Flygt	n/a
Pump Redundancy:		n/a
Pump Manufacturer / Type:		1
Pump Model:		n/a
Rated Capacity:		n/a
Capacity Confirmation:	D.I.	n/a
Discharge pipe type / diameter:		1
Header pipe type / diameter:		1
Check valve type / diameter:		1
Isolation valve type / diameter:		1
Piping Condition:		1
Emergency pumpout connection:		1
Pressure gauges:		1
Inlet bar screen:		1
Wetwell condition:		1
Access Hatches:		1
Ladder / Platform:		1
Wetwell benching:		1
Odour Control:		1
Ventilation:		1
umidity Control / Dehumidification:		1
Grease / Debris Accumulation:		1
Water washdown:		1
Sump pump:		1
nfined Space Entry Requirements		1
		20

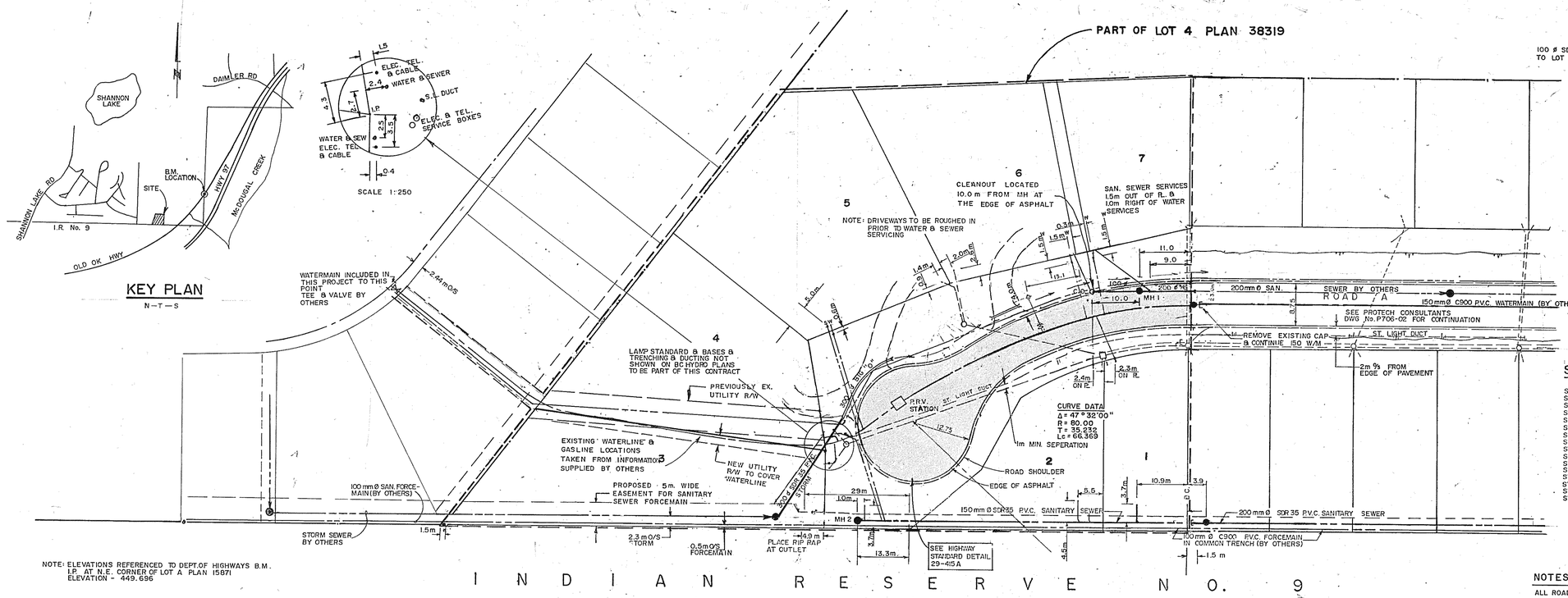
Electrical / Instrumentation:

			Matrix Rating
Service Type	V / A / Phase / Wire		n/a
Pump 1 :	HP		n/a
	Volts	Rpm	n/a
	FLA		n/a
	Starter		n/a
Pump 2 :	HP		n/a
	Volts	Rpm	n/a
	FLA		n/a
	Starter		n/a
Alarm Functions:			1
			n/a
			n/a
			n/a
Receptacles:			1
Interior Lighting:			1
Exterior Lighting:			1
SCADA / Telemetry:			1
Main Breaker:			1
Control Panel:			1
Lighting Panel:			1
Flowmeter:			1
Grounding:			1
Surge Protection:			1
UPS:			1
PLC:			1
Level Control:			1
Standby Generator:			1
			15

Comments:

KEY PLAN
N-T-S

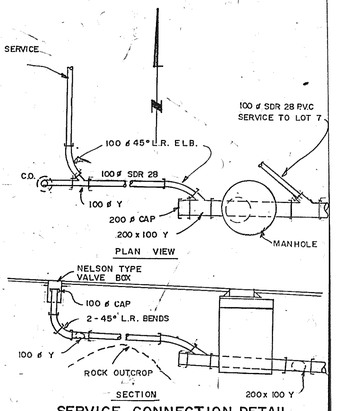
SCALE 1:250



NOTE: ELEVATIONS REFERENCED TO DEPT. OF HIGHWAYS B.M. I.P. AT N.E. CORNER OF LOT A PLAN 15871 ELEVATION - 449.696

I N D I A N R E S E R V E N O. 9

NOTE: LOCATION & SIZING OF DUCTING FOR STREET LAMPS TO BE CONFIRMED BY THE DEVELOPERS ELECTRICIAN PRIOR TO INSTALLATION OF B.C. HYDRO DUCTING. STREET LIGHT DUCTING SHALL BE PLACED IN A COMMON TRENCH WITH B.C. HYDRO DUCTING & SHALL CONFORM TO B.C. HYDRO & LOCAL ELECTRICAL CODES AND SPECIFICATIONS.



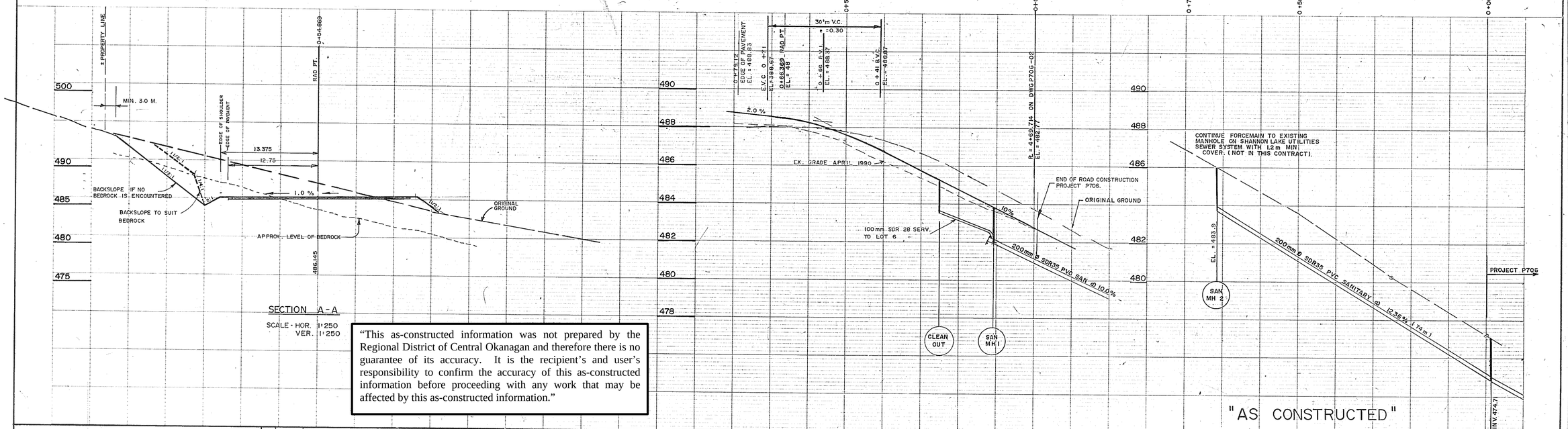
SERVICE CONNECTION DETAIL
N.T.S.

STANDARD DETAILS

STD - 120	STANDARD BEDDING CLASSIFICATION
STD - 122	TRENCH BACKFILL & SURFACE RESTORATION - COMMON TRENCH
STD - 123	TRENCH BACKFILL & SURFACE RESTORATION - GRAVELLED SURFACE
STD - 124	TRENCH BACKFILL & SURFACE RESTORATION - SHOULDER
STD - 200	TYPICAL REINFORCED MANHOLE
STD - 203	MANHOLE DROP STRUCTURE
STD - 204	INVERT CHANNELLING IN MANHOLE
STD - 206	MANHOLE COVER DETAIL
STD - 207	MANHOLE FRAME DETAIL
STD - 208	TYPICAL SEWER SERVICE
STD - 209	TYPICAL CLEAN-OUT DETAIL
STD - 300	HYDRANT DETAIL
STD - 301	TYPICAL VALVE BOX DETAIL
STD - 302	THRUST BLOCK DETAILS
STD - 305	TYPICAL WATER SERVICE
STD - 501	TYPICAL ROAD SECTION

NOTES:

ALL ROAD CONSTRUCTION IS TO BE TO MINISTRY OF HIGHWAYS STANDARDS FOR OPEN SHOULDERED, PAVED SUBDIVISION ROADS.
ROADS (INCLUDING CULDESAC) TO HAVE 1% CROSSFALL TO DITCH ON THE HIGH SIDE. SEE SECTION A-A.
ROADS TO HAVE 1.0m DEEP.
RIM ELEV. SHOWN ON PLAN ARE APPROX. ONLY. EXACT RIM EL. TO BE SET TO MATCH FINISHED GRADES & CROSS SLOPES.
MANHOLES SET IN ASPHALT TO HAVE RIM ELEV. TO MATCH ROAD GRADE PRIOR TO PAVING.



"This as-constructed information was not prepared by the Regional District of Central Okanagan and therefore there is no guarantee of its accuracy. It is the recipient's and user's responsibility to confirm the accuracy of this as-constructed information before proceeding with any work that may be affected by this as-constructed information."

"AS CONSTRUCTED"

Legend

Water		Manhole	Ⓜ
San Sewer		Power Pole	●PP
Storm Sewer		Lamp Standard	○LS
Gas		Catch Basin	▨CB
U.G. Telephone		Hydrant	⊕HYD
U.G. Electrical		Trees	

No.	Date	Revision
11	JULY17/90	DETAILS OF SERVICES ADDED
10	JUNE9/90	AS CONSTRUCTED
9	APR.2/90	ROAD GRADE
8	MAR20/90	GENERAL REVISIONS
7	JAN18,88	ADD GAS

PROTECH CONSULTANTS LTD.
200-1449 St. Paul St., Kelowna, B.C. V1Y 2E4 • (604)860-1771

No.	Date	By	Revision	Ch'kd
6	OCT 13/1987	DB	ADD NOTE RE STREET LIGHT	
5	OCT.8/1987	JB	ADD HYDRO, REVISE WATER SERVICES, ISSUED FOR TENDER	
4	OCT.1/1987	JB	ADD PRV, STORM, & WATER SERVICES	
3	SEPT.17/1987	JB	REVISE	
2	AUG. 4, 1987	JB	REVISE LOTS, DESIGN GRADE, ADD SANITARY & ELECTRICAL	
1	JULY 17/1987	D.B.	PLAN NO. & LOT LAYOUT	

Drawn	D.A. PEROZAK, A.Sc.T.
Design	D.A. PEROZAK, A.Sc.T.
Approved	
Date	JUNE, 1987
Scale	HOR 1:500 VER 1:100

C. ENSIGN — RESIDENTIAL SUBDIVISION

PROPOSED

EXTENSION OF ROAD "A" FOR 7 RESIDENTIAL LOTS

Division

Drawing No.	Rev. No
P739-02	11

SHAMROCK 2

District of West Kelowna

Sanitary Lift Station Evaluation

Station: Hayman Road LS 26

Inspection By: Jim Kentel

Year Constructed: 8/1/2012

Year Upgraded:

(10 - highest rating)	Civil	35	
(1 - lowest rating)	Process Mechanical	163	
	Electrical Instrumentation	122	
	Total Station Rating	320	(max. rating 370 points)

Civil:

		Matrix Rating
Parking Area:	Paved/Gravel	n/a
Drainage:	Good	10
Influent sewer:	200mm Gravity	10
Site access:	Good	10
Water service:	Irrigation service only	5
		35

Process Mechanical:

		Matrix Rating
Station type:	FRP 2.44m diameter	n/a
Number of pumps:	2	n/a
Pump Redundancy:	Yes	n/a
Pump Manufacturer / Type:	Flygt	10
Pump Model:	C/D1 3057.181HT	n/a
Rated Capacity:	8.4 L/S @ 12.4m TDH	n/a
Capacity Confirmation:		n/a
Forcemain pipe type / diameter:	FRP/50 to PVC / 75mm	10
Header pipe type / diameter:	FRP/ 50 to 80 mm	10
Check valve type / diameter:	80mm Flygy Sinking ball HDL 5087	10
Isolation valve type / diameter:	80mm Keystone Plug	10
Piping Condition:	New	10
Emergency pumpout connection:	Yes	10
Pressure gauges:	Yes	10
Inlet bar screen:	No	1
Wetwell condition:	New	10
Access Hatches:	Flygt	10
Ladder / Platform:	Yes/FRP	18
Wetwell benching:	T.O.P. Base	18
Odour Control:	Carbon Provision	5
Ventilation:	Fan	10
Water washdown:	No	1
nfined Space Entry Requirements	Davit	10
		163

Electrical / Instrumentation:

			Matrix Rating
Service Type	V / A / Phase / Wire		n/a
Pump 1 :	HP 2.3		n/a
	Volts 2330	Rpm 3325	n/a
	FLA 10A		n/a
Starting Current	35A		n/a
Pump 2 :	HP 2.3		n/a
	Volts 2330	Rpm 3325	n/a
	FLA 10A		n/a
Starting Current	35A		n/a
			n/a
Alarm Functions:	Yes		10
			n/a
			n/a
			n/a
Receptacle	Yes GFI		10
Interior Lighting:	Yes		10
Exterior Lighting:	No		1
SCADA / Telemetry:	Yes		10
Control Panel:	Yes		10
Lighting Panel:	Yes		10
Flowmeter:	Siemens SiTrans FM35100W		10
Grounding:	Yes		10
Lighting Protection:	Yes		10
UPS:	Yes		10
PLC:	Yes		10
Level Control:	Milltronics/bulb backup		10
Standby Generator:	No		1
			122

Comments:

PERFORMANCE CURVE

PRODUCT	TYPE
CP3057.181	HT

DATE	PROJECT	CURVE NO	ISSUE
2011-05-24	Hayman Road PS - single phase/option b	61-266-00-2364	1

	1/1-LOAD	3/4-LOAD	1/2-LOAD
MOTOR COS PHI	0.97	0.97	0.96
MOTOR EFFICIENCY	74.5 %	76.0 %	73.0 %
GEAR EFFICIENCY	—	—	—

MOTOR SHAFT POWER	2.3	hp
STARTING CURRENT ...	35	A
RATED CURRENT ...	10	A
RATED SPEED	3325	rpm
TOT.MOM.OF INERTIA ...	---	
NO. OF BLADES	1	

IMPELLER DIAMETER: 104 mm

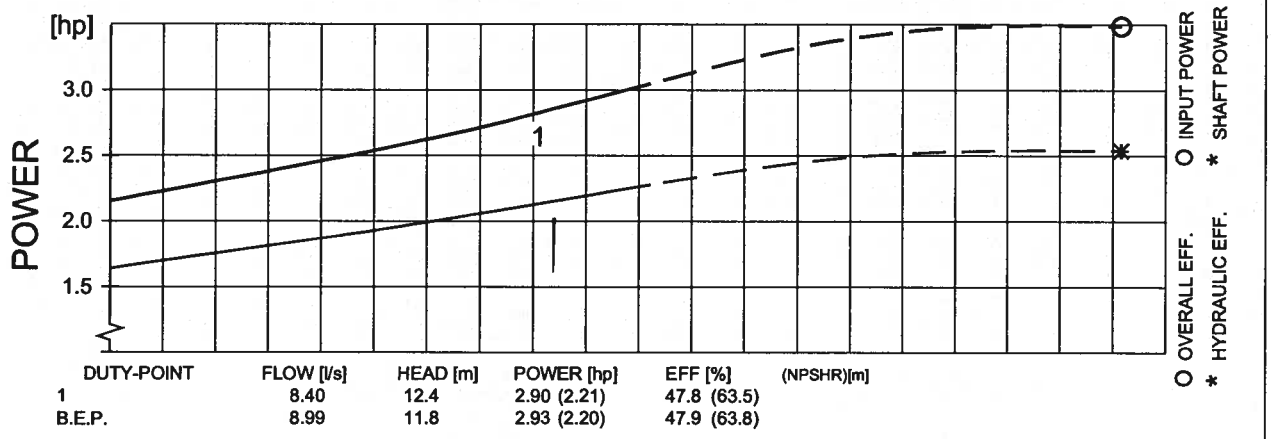
MOTORTYPE	STATOR	REV
13-10-2BZ	03-	10

FREQ.	PHASES	VOLTAGE	POLES
60 Hz	1	230 V	2

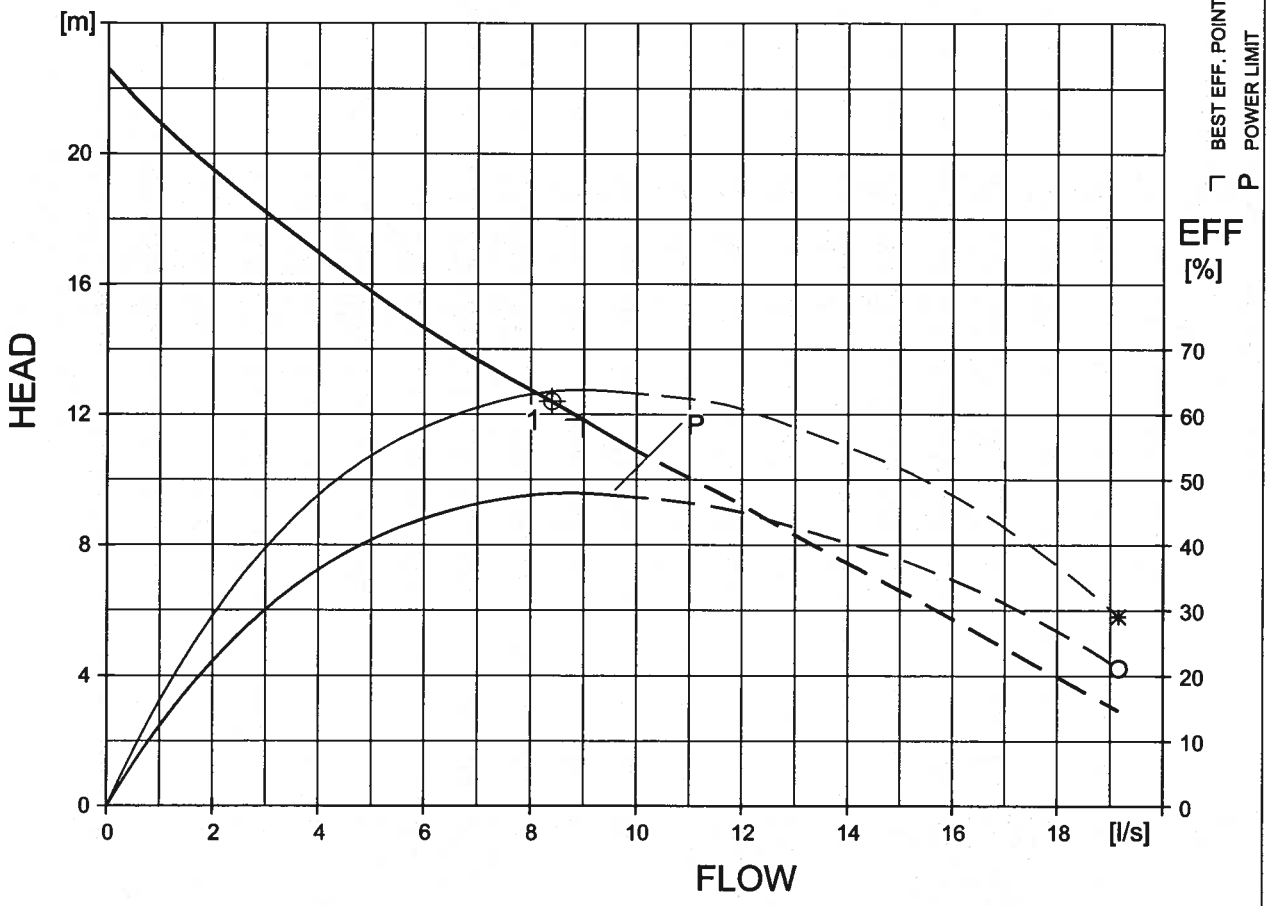
GEARTYPE	RATIO
---	---

COMMENTS: NEVACLOG

INLET/OUTLET	IMP. THROUGHLET
-/ 50 mm	48 mm



DUTY-POINT	FLOW [l/s]	HEAD [m]	POWER [hp]	EFF [%]	(NPSHR)[m]
1	8.40	12.4	2.90 (2.21)	47.8 (63.5)	
B.E.P.	8.99	11.8	2.93 (2.20)	47.9 (63.8)	



FLYPS3.1.6.6 (20090313)

Performance with clear water and rating data at 40 °C

CURVE

District of West Kelowna

Sanitary Lift Station Evaluation

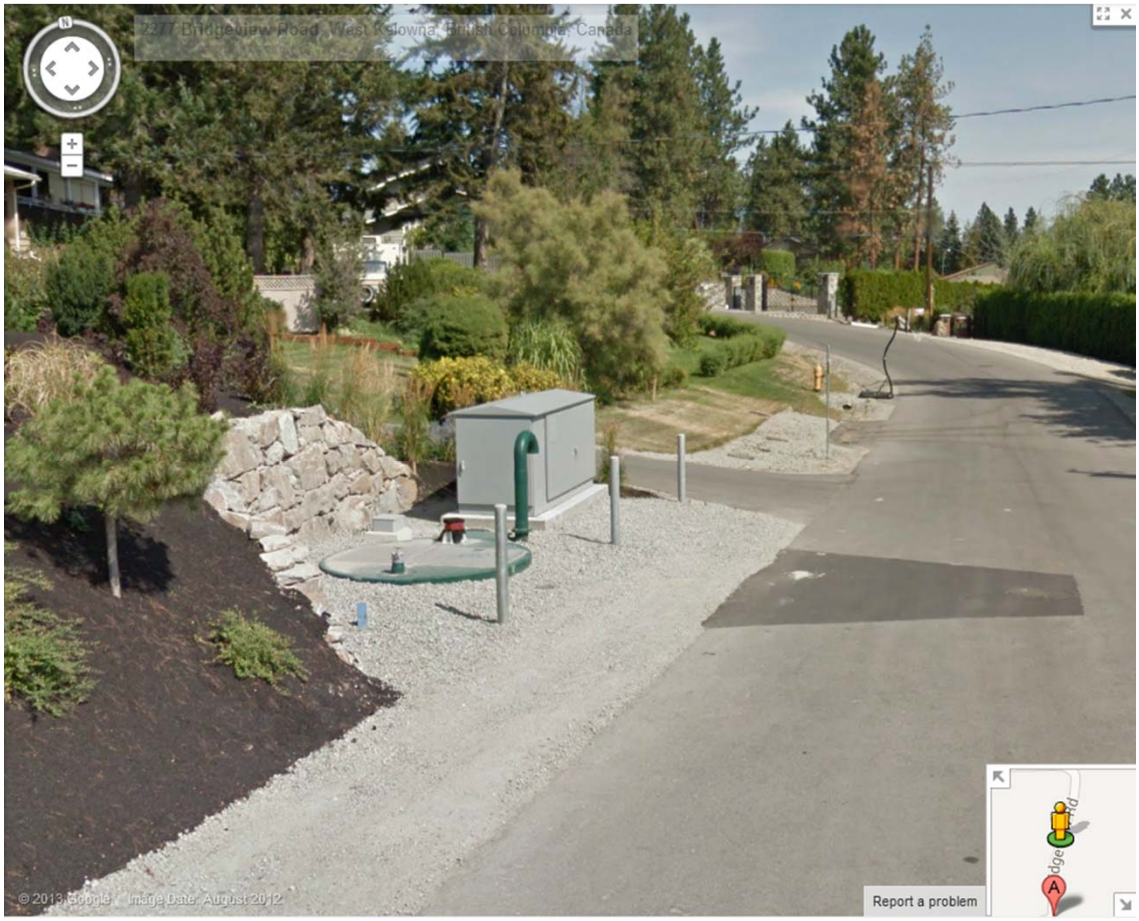
Station: Bridgeview Road LS 27

Inspection By: Jim Kentel

Year Constructed: 8/1/2012

Year Upgraded: No Info

(10 - highest rating)	Civil	31	
(1 - lowest rating)	Process Mechanical	152	
	Electrical Instrumentation	132	
	Total Station Rating	315	(max. rating 370 points)



Civil:

		Matrix Rating
Parking Area:	Paved/Gravel	n/a
Drainage:	Good	10
Influent sewer:	200mm Gravity PVC	10
Site access:	Good	10
Water service:	No	1
		31

Process Mechanical:

		Matrix Rating
Station type:	FRP 2.44m Diameter	n/a
Number of pumps:	2	n/a
Pump Redundancy:	Yes	n/a
Pump Manufacturer / Type:	Flygt NP 3153	10
Pump Model:	HT . 181	n/a
Rated Capacity:	11.1 L/S @ 25.4m TDH	n/a
Capacity Confirmation:		n/a
Forcemain pipe type / diameter:	100mm PVC	10
Header pipe type / diameter:	FRP/100	10
Check valve type / diameter:	Flygt Sinking Ball HDL 5087/100	10
Isolation valve type / diameter:	Keystone Plug / 100	10
Piping Condition:	New	10
Emergency pumpout connection:	Yes	10
Pressure gauges:	Yes	10
Inlet bar screen:	No	1
Wetwell condition:	New	10
Access Hatches:	Flygt	10
Ladder / Platform:	Yes/FRP	10
Wetwell benching:	Top base	10
Odour Control:	Carbon Filter	10
Ventilation:	Fan	10
Water washdown:	No	1
nfined Space Entry Requirements	Davit	10
		152

Electrical / Instrumentation:

			Matrix Rating
Service Type	V / A / Phase / Wire		n/a
Pump 1 :	HP 15		n/a
	Volts 600	Rpm 1760	n/a
	FLA 15A		n/a
Starting Current	95A		n/a
Pump 2 :	HP 15		n/a
	Volts 600	Rpm 1760	n/a
	FLA 15A		n/a
Starting Current	95A		n/a
Alarm Functions:	Yes		10
	Phase inverter		n/a
			n/a
			n/a
Receptacle	Yes		10
Interior Lighting:	Yes		10
Exterior Lighting:	No		1
SCADA / Telemetry:	Yes		10
Main Breaker:	Yes		10
Control Panel:	Yes		10
Lighting Panel:	Yes		10
Flowmeter:	Yes		10
Grounding:	Yes		10
Lighting Protection:	Yes		10
UPS:	Yes		10
PLC:	Yes		10
Level Control:	Milltronics/bulbs		10
Standby Generator:	No		1
			132

Comments: New Station

PERFORMANCE CURVE

PRODUCT	TYPE
NP3153.181	HT

DATE	PROJECT	CURVE NO	ISSUE
2011-07-22	BRIDGEVIEW	63-465-00-3050	6

	1/1-LOAD	3/4-LOAD	1/2-LOAD
MOTOR COS PHI	0.78	0.71	0.58
MOTOR EFFICIENCY	88.5 %	88.5 %	87.0 %
GEAR EFFICIENCY	---	---	---

MOTOR SHAFT POWER	12	hp
STARTING CURRENT ...	228	A
RATED CURRENT ...	32	A
RATED SPEED	1765	rpm
TOT.MOM.OF INERTIA ...	0.082	kgm2
NO. OF BLADES	2	

IMPELLER DIAMETER: 239 mm

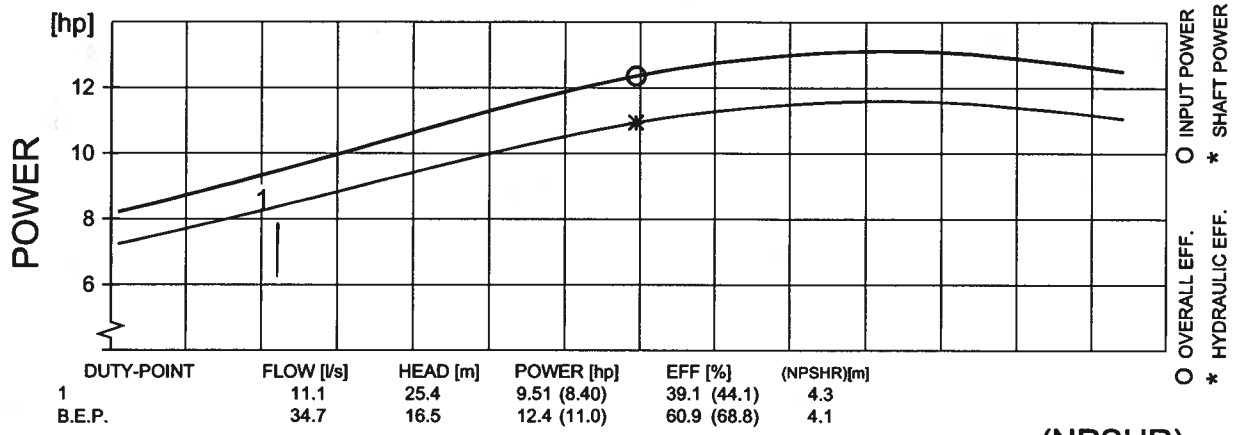
MOTORTYPE	STATOR	REV
21-15-4AA	05Y//	11

FREQ.	PHASES	VOLTAGE	POLES
60 Hz	3	230 V	4

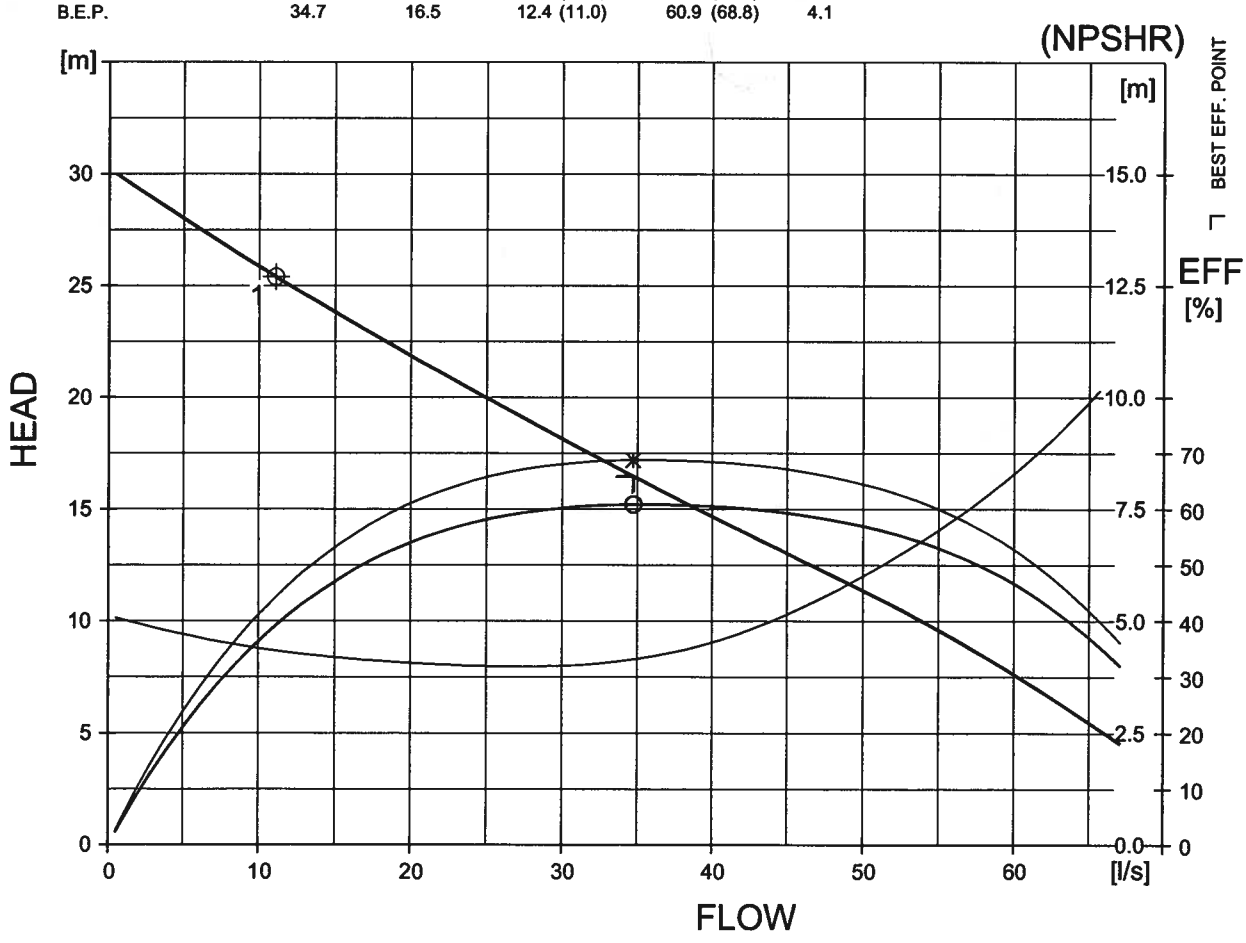
GEARTYPE	RATIO
---	---

COMMENTS

INLET/OUTLET	IMP. THROUGHLET
-/100 mm	---



DUTY-POINT	FLOW [l/s]	HEAD [m]	POWER [hp]	EFF [%]	(NPSHR)[m]
1	11.1	25.4	9.51 (8.40)	39.1 (44.1)	4.3
B.E.P.	34.7	16.5	12.4 (11.0)	60.9 (68.8)	4.1



(NPSHR) = (NPSH3) + margins

Performance with clear water and rating data at 40 °C

FLYPS3.1.6.6 (20090313)

CURVE

District of West Kelowna

Sanitary Lift Station Evaluation

Station: East Boundary Road LS 28
Reviewed By: Jim Kentel

Year Constructed: 10/1/1993
Year Upgraded: No Info

Matrix Rating			
(10 - highest rating)	Civil	50	
(1 - lowest rating)	Process Mechanical	110	
	Electrical Instrumentation	140	
	Total Station Rating	300	(max. rating 380 points)

Civil:

		Matrix Rating
Parking Area:		n/a
Drainage:	Good	10
Influent sewer:	375 PVC	10
Site access:	Good	10
Water service:		10
Gas service:	Yes	10
		50

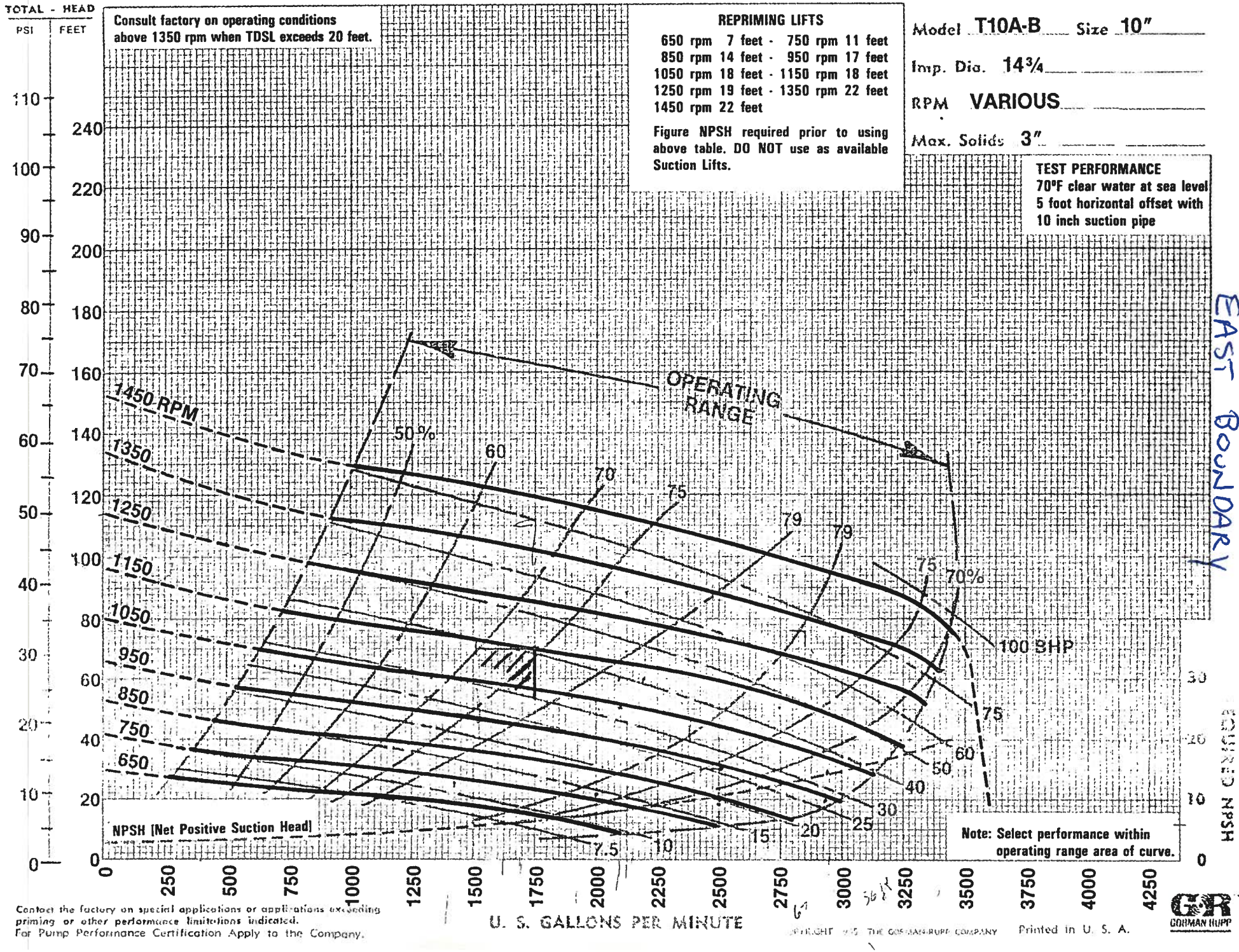
Process Mechanical:

		Matrix Rating
Station type:	Above ground	n/a
Number of pumps:	2	n/a
Pump Redundancy:	Yes	n/a
Pump Manufacturer / Type:	Gorman Rupp	7
Pump Model:	T10A3-B	n/a
Rated Capacity:	110 L/S @ 21.3m TDH	n/a
Capacity Confirmation:		n/a
Discharge pipe type / diameter:	/350	9
Header pipe type / diameter:	DI / 250	9
Check valve type / diameter:	Swing check / 250	8
Isolation valve type / diameter:	Plug / 250	8
Piping Condition:	Good	7
Emergency pumpout connection:		1
Pressure gauges:	Yes	10
Inlet bar screen:	No	1
Wetwell condition:	Good	10
Access Hatches:		5
Ladder / Platform:	No	1
Wetwell benching:	Good	8
Odour Control:	No	1
Ventilation:	Yes	10
Water washdown:		10
nfined Space Entry Requirements		5
		110

Electrical / Instrumentation:

					Matrix Rating
Service Type	V / A / Phase / Wire				n/a
Pump 1 :	HP 50				n/a
	Volts 575		Rpm 1150		n/a
	FLA				n/a
	Starter				n/a
Pump 2 :	HP	50			n/a
	Volts	575	Rpm	1150	n/a
	FLA				n/a
	Starter				n/a
					n/a
Alarm Functions:	Yes				10
					n/a
					n/a
					n/a
Receptacle	Yes				10
Interior Lighting:	Yes				10
Exterior Lighting:	Yes				10
SCADA / Telemetry:	Yes				10
Main Breaker:					10
Control Panel:	Yes				10
Lighting Panel:	Yes				10
Flowmeter:	Yes				10
Grounding:	Yes				10
UPS:	Yes				10
PLC:	Yes				10
Level Control:	Milltronics/ Bulb				10
Standby Generator:	Natural gas engine				10
					140

Comments: Wetwell capacity is limited
limited pump removal options



EAST BOUNDARY

Appendix E: Opinion of Probable Costs

OPINION OF PROBABLE COST - RECOMMENDED BACKUP GENERATOR LOCATIONS ONLY
DISTRICT OF WEST KELOWNA
SANITARY SEWER LIFT STATIONS

Stn No	Site Name	Pump HP	Site Power	Comment	Electrical Material Cost	Electrical Labour Cost	Telemetry Upgrade Cost	Civil	Pumping Station	Contingency & Engineering (40%)	Total	Year of Upgrade
1	Inverness	3	600V				$ 5,000.00			$ 2,000.00	$ 7,000.00	2028
2	Glengary	2.3	240V				$ 5,000.00			$ 2,000.00	$ 7,000.00	2030
3	Whitworth	6	600V	Needs new Kiosk and flowmeter	$ 10,000.00	$ 10,000.00	$ 5,000.00	$ 5,000.00		$ 12,000.00	$ 42,000.00	2025
4	Pineridge	2	240V	upgrade pumps to grinders			$ 5,000.00		$ 10,000.00	$ 6,000.00	$ 21,000.00	2031
5	Hitchner Jennings	6	600V	Needs new Kiosk and flowmeter	$ 10,000.00	$ 10,000.00	$ 5,000.00	$ 5,000.00		$ 12,000.00	$ 42,000.00	2024
6	Newport			Not in operation Puumped periodically				$ 100,000.00		$ 40,000.00	$ 140,000.00	2018
7	Pritchard	10	600V	Needs new Kiosk and Genset for Backup Power	$ 80,000.00	$ 25,000.00	$ 5,000.00	$ 20,000.00		$ 52,000.00	$ 182,000.00	2020
8	Greenbay	20	600V	Needs new Kiosk and Genset for Backup Power	$ 100,000.00	$ 25,000.00	$ 5,000.00	$ 25,000.00		$ 62,000.00	$ 217,000.00	2019
9	Boucherie A			RDCO operated						$ -	$ -	
10	Boucherie B			RDCO operated						$ -	$ -	
11	Sunnyside	40	600V	Needs new Kiosk and Genset for Backup Power	$ 120,000.00	$ 25,000.00	$ 5,000.00	$ 30,000.00		$ 72,000.00	$ 252,000.00	2026
12	King	5.4	240V	Complete station c/w flowmeter	$ 10,000.00	$ 10,000.00	$ 5,000.00	$ 100,000.00	$ 80,000.00	$ 82,000.00	$ 287,000.00	2022
13	Thacker	3	240V	Complete station c/w flowmeter	$ 10,000.00	$ 10,000.00	$ 5,000.00	$ 100,000.00	$ 75,000.00	$ 80,000.00	$ 280,000.00	2023
14	Collins Hill	25	600V	Genset for Backup Power	$ 35,000.00	$ 10,000.00	$ 5,000.00	$ 20,000.00		$ 28,000.00	$ 98,000.00	2028
15	Casa Rio	1	240V	Complete station c/w flowmeter	$ 10,000.00	$ 10,000.00	$ 5,000.00	$ 110,000.00	$ 75,000.00	$ 84,000.00	$ 294,000.00	2016
16	Stevens	20	600V	Needs Genset for Backup Power	$ 35,000.00	$ 10,000.00	$ 5,000.00	$ 20,000.00		$ 28,000.00	$ 98,000.00	2021
17	Somerset	3	240V	Complete station c/w flowmeter	$ 10,000.00	$ 10,000.00	$ 5,000.00	$ 100,000.00	$ 75,000.00	$ 80,000.00	$ 280,000.00	2027
18	Devon Court	3	240V	Complete station c/w flowmeter	$ 10,000.00	$ 10,000.00	$ 5,000.00	$ 100,000.00	$ 75,000.00	$ 80,000.00	$ 280,000.00	2026
19	Faulkner	75	600V	Upgraded in 2013						$ -	$ -	2013
20	Horizon		600V	Being Upgraded in 2015					$ 930,000.00	$ 372,000.00	$ 1,302,000.00	2015
21	Kelokoa	1	240V	Station could be removed by gravity if SRW could be acquired				$ 100,000.00		$ 40,000.00	$ 140,000.00	2015
22	Ross Road	20	600V	Needs Genset for Backup Power	$ 35,000.00	$ 10,000.00	$ 5,000.00	$ 20,000.00		$ 28,000.00	$ 98,000.00	2021
23	Brentwood	3.9	240V	Complete station	$ 5,000.00	$ 5,000.00	$ 5,000.00	$ 110,000.00	$ 85,000.00	$ 84,000.00	$ 294,000.00	2020
24	Sunnybrae		240V	Complete station c/w flowmeter	$ 10,000.00	$ 10,000.00	$ 5,000.00	$ 100,000.00	$ 80,000.00	$ 82,000.00	$ 287,000.00	2017
25	Ensign			Complete station c/w flowmeter	$ 10,000.00	$ 10,000.00	$ 5,000.00	$ 100,000.00	$ 75,000.00	$ 80,000.00	$ 280,000.00	2015
26	Hayman	2.3	240V				$ 5,000.00			$ 2,000.00	$ 7,000.00	2032
27	Bridgeview	15	600V	Needs Genset for Backup Power	$ 40,000.00	$ 10,000.00	$ 5,000.00	$ 20,000.00		$ 30,000.00	$ 105,000.00	2032
28	East Boundary	50	600V	Upgrade VFD's, PLCs and Radio Telemetry Upsize wetwell	$ 50,000.00	$ 25,000.00	$ 5,000.00	$ 100,000.00	$ 75,000.00	$ 102,000.00	$ 357,000.00	2016
	Total				$ 590,000.00	$ 235,000.00	$ 110,000.00	$ 1,285,000.00	$ 1,635,000.00	$ 1,542,000.00	$ 5,397,000.00	
Less projects elgible for DCC funding (LS#8 and LS#20)											$ 1,519,000.00	
Total costs for capital work projects											$ 3,878,000.00	