

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

RECEIVED

MAY 31 2017

DEPARTMENT OF
WATER RESOURCES

A Beneficial Use Field Report is prepared by a water right examiner as the result of an examination to clearly confirm and establish the extent of the beneficial use of water established in connection with a permit during the development period authorized by the permit and any extensions of time previously approved.

A. GENERAL INFORMATIONPermit No. 63-338451. Owner City of Boise, Department of Parks and RecreationPhone No. 208-608-7600Current address 1104 Royal Boulevard, Boise, ID 837062. Examiner's name Terry Scanlan, P.E., P.G.EXAM DATE 5/24/20173. Accompanied by Mike WoodwardEmail mwoodward@cityofboise.orgAddress 1104 Royal Boulevard, Boise, ID 83706Relationship to permit holder Horticulture Manager, BPRDPhone No. 608-71894. Source Ground Water

tributary to _____

B. OVERLAP REVIEW1. Other water rights with the same place of use 63-342402. Other water rights with the same source and point of diversion 63-34240**C. DIVERSION AND DELIVERY SYSTEM**

1. Point(s) of Diversion:

Ident. No.	Gov't Lot	¼	¼	¼	Sec	Twp	Rge	County	Method of Determination/Remarks
	2		NW	NE	2	3N	2E	Ada	Exam, Aerial Photo

2. Place(s) of Use:

Method of determination Exam, aerial photo

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
3N	2E	2		M															
				L2															

3. **Delivery System Diagram:** Indicate all major components and distances between components. Indicate weir size/ditch size/pipe diameter (inside), as applicable. Use the space provided or ☒ see attached.

Scale: 1" = _____

- ☒ Copy of USGS Quadrangle attached showing location(s) of point(s) of diversion and place(s) of use (**required**)
☒ Aerial photo attached (required for irrigation of 10+ acres)
☒ Photo of diversion and system attached

4.

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
Well Pump	Grundfos	20	Submersible	Grundfos	3-inch, model 150S200-10

*Code to correspond with no. on map and aerial photo

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
Flowmeter	Ultra Mag	McCromet	MX03-W	MX16-0137	3-inch	new in 2016

2. Measurements: _____

160 gpm (0.36 cfs) @ 64 psi

E. NARRATIVE/REMARKS/COMMENTS

A 8-inch well equipped with a 20-hp submersible pump provides ground water to a pressurized irrigation system for Boise Hills Park. The well was completed with 8-inch diameter steel casing from +2 to 316 feet and from 336 to 342 feet, with a .030 slot well screen from 316 feet to 336 feet. The surface seal extends from ground surface to 285 feet. Water temperature is 81F.

The nominal capacity of the 20-hp well pump is 150 gpm. The flowmeter measured 160 gpm at the time of the field exam or 0.36 cfs.

This permit is limited to 63 gpm or 0.14 cfs. The City filed permit 63-34240 for additional flow rate to allow irrigation within a short time window when the park is not in use. All the flow rate authorized under this permit has been recommended for licensing with an additional 0.22 cfs recommended under permit 63-34240. This will allow irrigation during nighttime hours when the park is not in use. When combined, the rights are limited to 0.36 cfs and 14.9 afa. See accompanying licensing exam for permit 63-34240.

Exam Attachments

Attachment A: Field Exam Map

Attachment B: System Components and Diagrams

Attachment C: Flow Rate and Volume Calculations

Attachment D: Exam Photos

Attachment E: Proof of Beneficial Use

Has the permit holder met all conditions of permit approval, including any mitigation requirements and/or measuring device installation requirements? ☒ Yes ☐ No If no, what must be done to meet the permit requirements?

F. FLOW CALCULATIONS☒ Additional computation sheets attached

Measured Method:

McCrometer Ultra Mag Flowmeter: 160 gpm @ 64 psi = 0.36 cfs

G. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 3.3 \times 4.5 = 14.9$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation Season}) \times 1.9835 = 0.14 \times 260 \times 1.9835 = 72.2$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 14.9$$

2. Volume Calculations for Other Uses:

Although water use is municipal, volume is calculated above based on irrigation use.

H. RECOMMENDATIONS

1. Recommended Amounts

Beneficial Use	Period of Use		Rate of Diversion Q (cfs)	Annual Volume V (afa)
	From	To		
Municipal	3/15	11/15	0.14	14.9
Totals:			0.14	14.9

2. Recommended Amendments

- ☐ Change P.D. as reflected on page 1 ☐ Add P.D. as reflected on page 1 ☒ None
☐ Change P.U. as reflected on page 1 ☐ Add P.U. as reflected on page 1 ☐ Other

I. AUTHENTICATION

Field Examiner's Signature

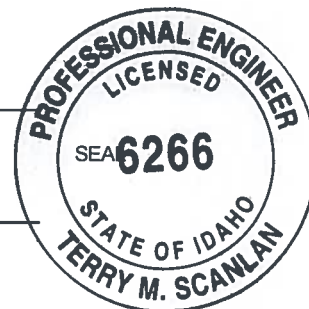


Date

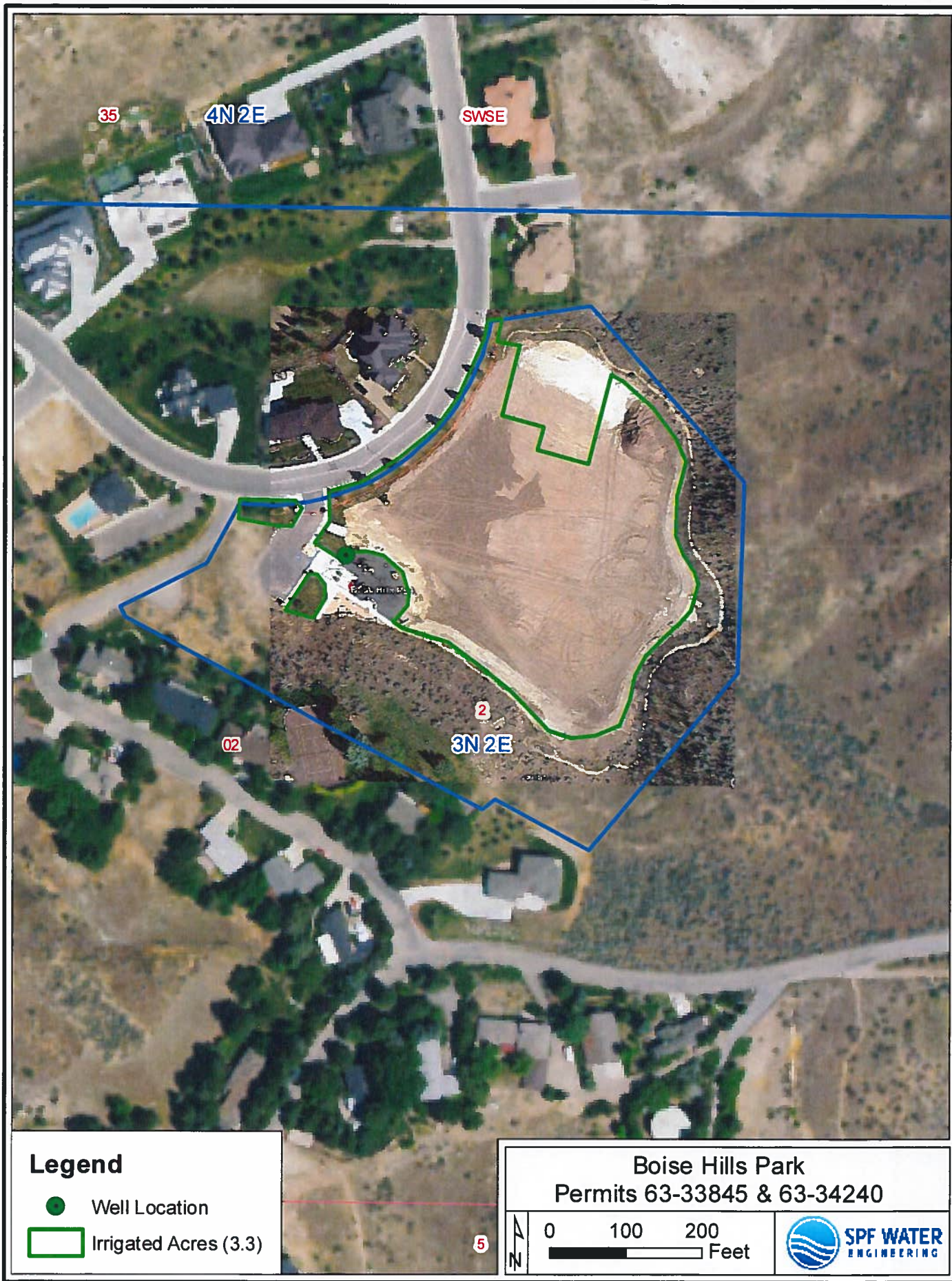
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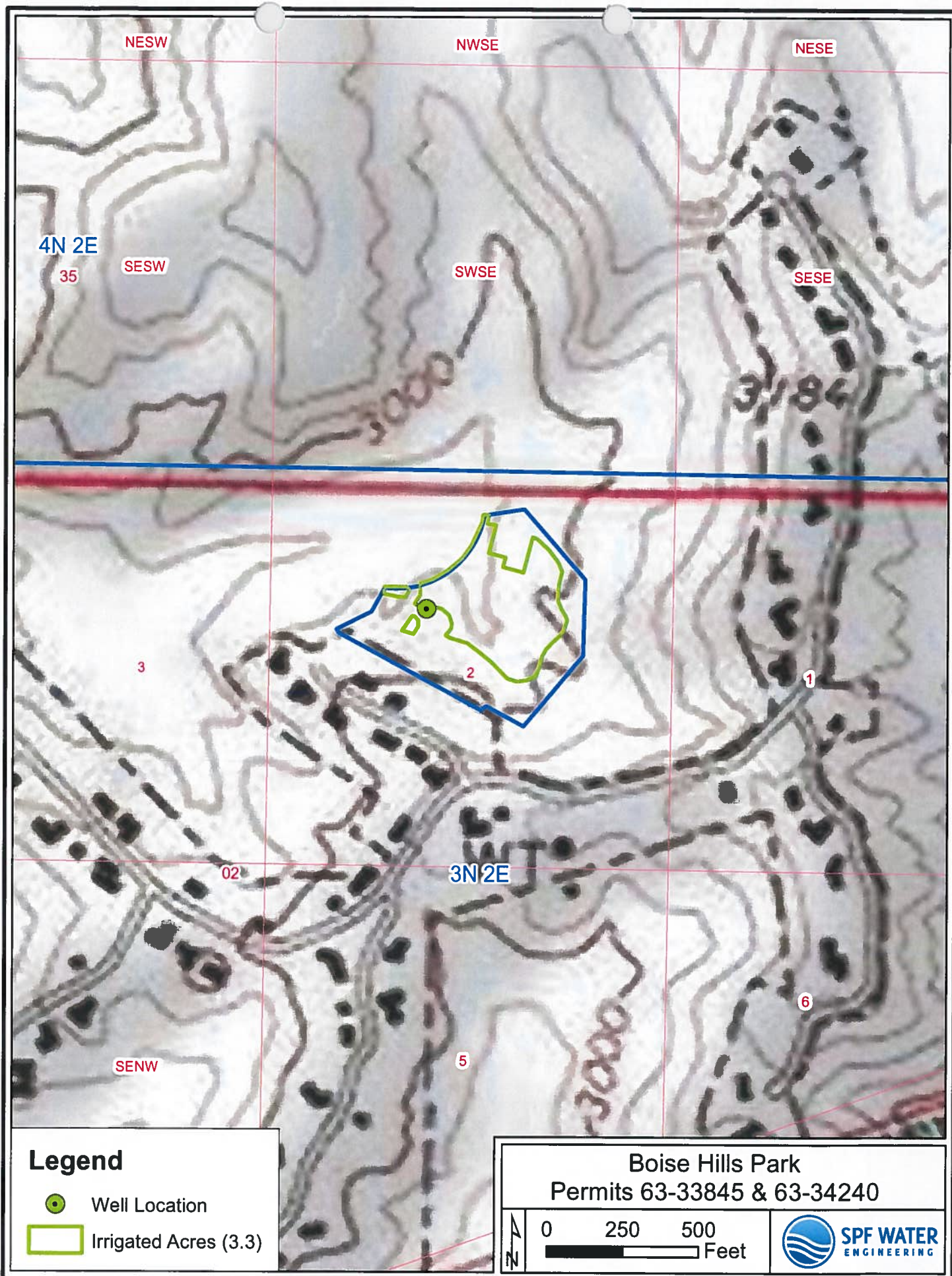
Reviewer

Date



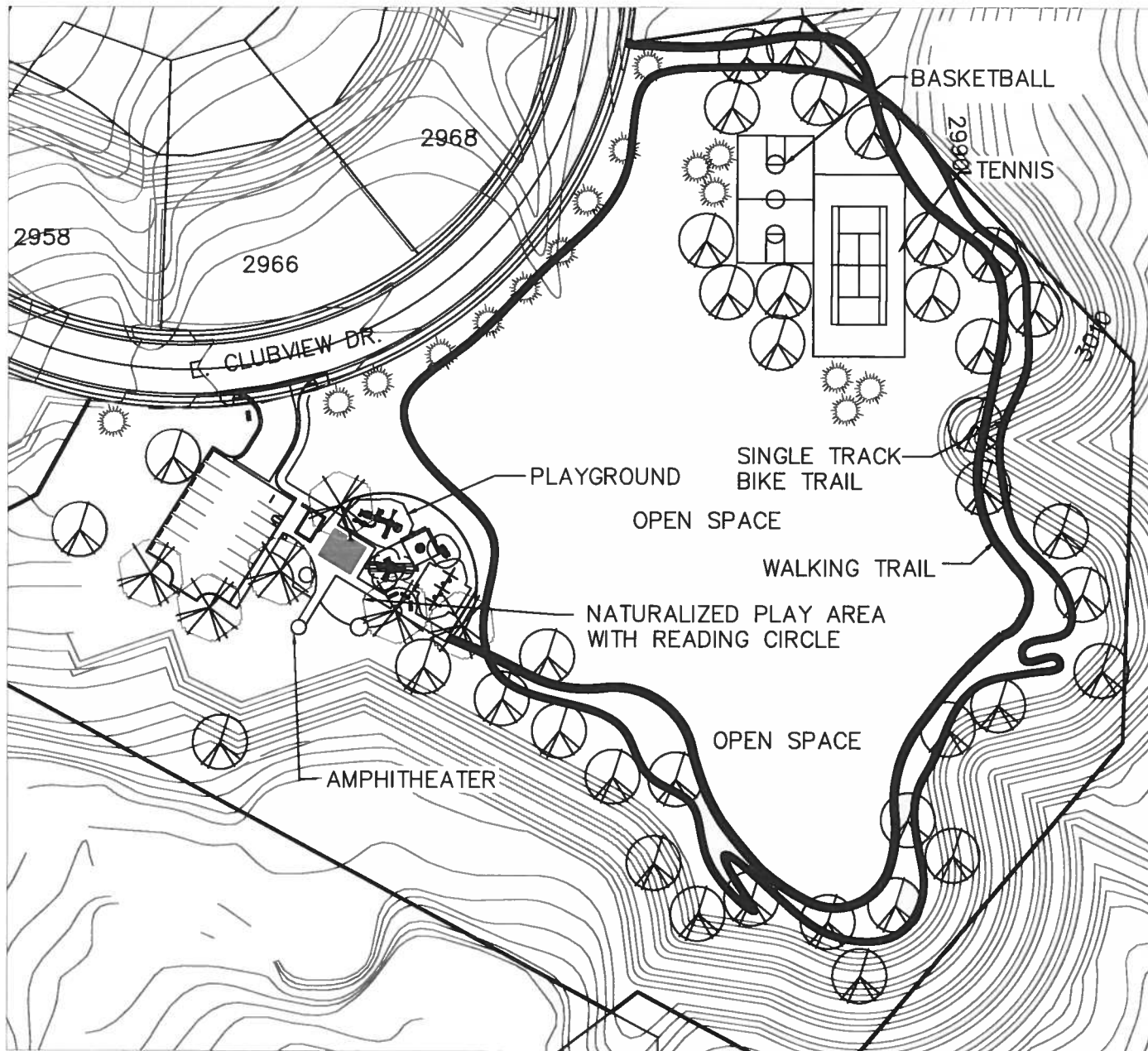
ATTACHMENT A
FIELD EXAM MAP





ATTACHMENT B

SYSTEM COMPONENTS AND DIAGRAMS



<u>ACTIVITIES</u>	
PLAYGROUND	8
BASKETBALL	8
TREES	7
AMPHITHEATER	6
WALKING TRAILS	6
TENNIS COURTS	6
SPRAY PARK	5
OPEN PLAY AREAS	4
NATURALIZED PLAYGROUND	3

<u>AMENITIES</u>	
SHELTER	
PICNIC AREA	
REST ROOM	
DRINKABLE WATER	
BIKE RACKS	
PUBLIC ART	
CHILDREN'S BIKE TRAIL	

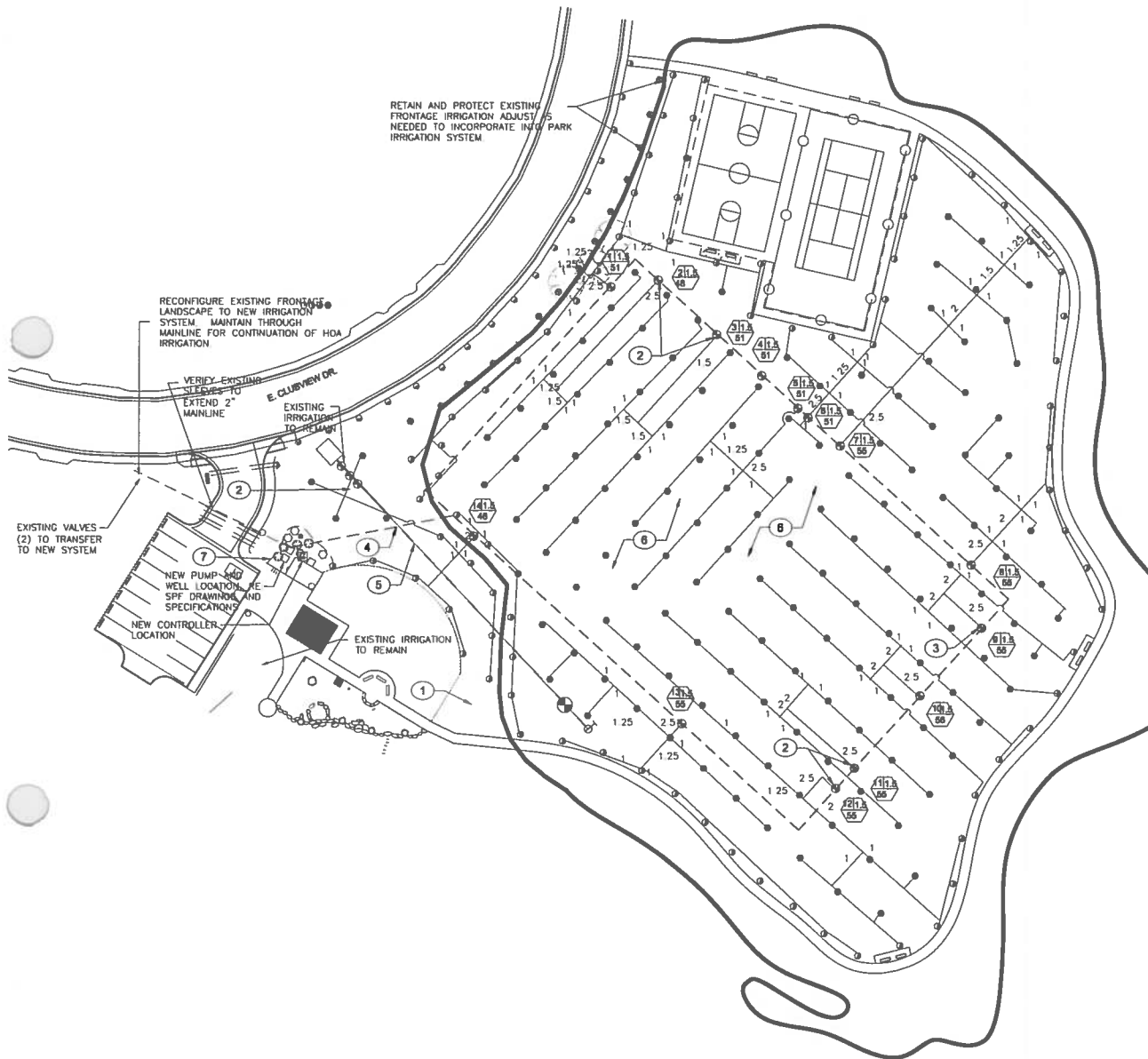
<u>SITE SPECIFIC</u>	
FLAT PLAYING AREAS	
OFF-STREET PARKING	
NATIVE PLANTINGS WITH XERIC TURF GRASS	

BOISE HILLS NEIGHBORHOOD PARK

Master Plan



APPROVED 2.18.10 Revised 11.15.12 Single Track addition



2 IRRIGATION LEGEND

EQUIPMENT LEGEND						
Symbol	Manufacturer/Model #			Size	Detail	
	BASLINE BL-3200S-CH3G CONTROLLER WITH CETK MODEM					
	Rainbird BPEB Remote Control Electric Valve or approved equal			Per Plan	Rac. L-300-6	
	Isolation Valve			As needed		
	PVC Irrigation Mainline - per specifications			4"	Rac. L-300-3	
	PVC Non-Pressure Lateral Line - per specifications			per drawing	Rac. L-300-3	
Symbol	Manufacturer/Model #	Nozzle	Rad.	Pd.	Flow (GPM)	Detail
	Rainbird 5000 Rotar	PCF	20	48	1.00	Rac. L-300-4
	Hunter MP 3000 with rainbird 1804 pop-up body	PCF	30'	48	1.82 3.84	Rac. L-300-4

Notes:

1. Sprinkles to be made to irrigation boxes.
2. Mainline 4" and larger to be gasketed with mechanical ductile iron fittings.

Notes:
1. Splices to be made in irrigation boxes.
2. Mainline 4" and larger to be gasketed with mechanical ductile iron fittings.

3 IRRIGATION NOTES

- ALL WORK SHALL CONFORM TO ALL CITY AND OTHER GOVERNING AGENCIES' REGULATIONS.
- SPECIFICATIONS TAKE PRECEDENCE OVER DRAWINGS AND DETAILS AND SHOULD BE ADHERED TO IN ALL CONSTRUCTION.
- THE SPRINKLER SYSTEM DESIGN IS BASED ON A MINIMUM OPERATING PRESSURE OF 80 PSI AND A MAXIMUM DEMAND OF 80 GPM AT THE POINT OF CONNECTION (P.O.C.). IRRIGATION CONTRACTOR SHALL VERIFY WATER PRESSURE ON SITE PRIOR TO CONSTRUCTION. ANY DIFFERENCE BETWEEN THE WATER PRESSURE INDICATED ON THE DRAWINGS AND THE ACTUAL PRESSURE READINGS AT THE P.O.C. SHALL BE REPORTED TO BOISE PARKS & RECREATION DEPARTMENT.
- CONTROL SYSTEM SHALL BE FROM BASLINE SYSTEMS CONTACT BUDDY BOYD AT 208.639-8743 FOR INFORMATION. MINIMUM BASLINE PRODUCT REQUIREMENTS TO CONTROLLER ARE: BASLINE BL-3200S-CH3G CONTROLLER, BL-5200P-R12 CONTROLLER, RAINBIRD 12 GAUGE MAIN CABLE 2-WIRE, B-CODERS (1, 2 AND 4 VALVES MODELS AS NEEDED), 2 MOISTURE SENSORS, (COORDINATE WITH BPR REPRESENTATIVE FOR LOCATIONS) BASLINE BL-3000 MASTER VALVE, BL-3000 BROADCASTER CONNECTED TO PUMP FLOW METER DBH/SPURCE KITS, LIGHTNING ARRESTORS, AND GROUNDING AS REQUIRED.
- THIS DESIGN DRAWING IS DIAGRAMMATIC. ALL PIPING, VALVES, ETC. SHOWN UPON PAVED AREAS IS FOR CLARIFICATION ONLY AND SHALL BE INSTALLED IN PLANTING AREAS AS ADVISED. AVOID ANY CONFLICTS BETWEEN THE SPRINKLER SYSTEM, PLANTING AND ARCHITECTURAL FEATURES. ALL HEADS SHALL BE PLACED AT 2' FROM ANY ADJACENT CURBS, SIDEWALKS OR BUILDINGS. CONTRACTOR MUST ACHIEVE BOISE PARKS & RECREATION DEPARTMENT APPROVAL OF HEAD LAYOUT PRIOR TO TRENCHING OR INSTALLATION. ANY CHANGES TO EXISTING PLANS WILL BE SHOWN ON REQUIRED AS-BUILT DRAWINGS.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BECOME FAMILIAR WITH ALL GRADE DIFFERENCES, LOCATIONS OF WALLS, ETC. HE SHALL COORDINATE HIS WORK WITH BOISE PARKS & RECREATION DEPARTMENT FOR THE CORRECT SIZING OF SLEEVING THROUGH WALLS, UNDER ROADS AND WALKS, ETC., TO ENSURE A WORKABLE SYSTEM AS PER PLANS.
- WHEN FIELD OBSTRUCTIONS, GRADE DIFFERENCES OR OBSCURANCE IMPAIR AREA DIMENSIONS, THEY SHOULD BE REPORTED TO BOISE PARKS & RECREATION DEPARTMENT FOR RESOLUTION. IF SUCH NOTIFICATION IS NOT GIVEN, THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY NECESSARY REPAIRS AND/OR REVISIONS.
- INSTALL ALL MATERIALS AND EQUIPMENT AS SHOWN IN THE DETAILS. MINIMUM DEPTH TO RIV. MAINLINE IS 24". TO RIV. LATERAL IS 18". ALL VALVE CONNECTIONS TO MAINLINES SHALL BE SADDLED, WITH SADDLE IN VERTICAL POSITION. ALL VALVES SHALL HAVE GALVANIZED UNIONS AS PER DETAIL. A COMMON TRENCH SHALL BE USED FOR TWO OR MORE ADJACENT LINES, ALLOWING A MINIMUM 4" CLEARANCE BETWEEN EACH. USE TEFLON TAPE ON ALL PIPE THREADS, SWAG JOINTS, AND VALVE ASSEMBLIES.
- CONTRACTOR SHALL INSTALL JOINT RESTRAINTS ON MAINLINE, AND SHALL HAVE RESPONSIBILITY FOR INSTALLATION OF SUCH ELSEWHERE AS NECESSARY ON THE MAINLINE AND/OR LATERAL LINES TO PROTECT THE LINE FROM WATER SURGING.
- CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL HOOK-UP OF ELECTRICAL CABLE TO AUTOMATIC CONTROLLER AND UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL FLUSH AND ADJUST ALL SPRINKLER HEADS FOR OPTIMUM PERFORMANCE AND TO PREVENT OVER SPRAY ONTO WALKS, ROADWAYS AND/OR BUILDINGS AS MUCH AS POSSIBLE. THIS SHALL INCLUDE THE SELECTION OF OPTIMUM ARC DEGREE TO FIT THE EXISTING SITE CONDITIONS, AND TO THROTTLE THE FLOW CONTROL SYSTEM AT EACH VALVE TO OBTAIN OPTIMUM OPERATING PRESSURE FOR EACH SYSTEM, IN ACCORDANCE TO MANUFACTURER'S RECOMMENDATIONS.
- CONTRACTOR SHALL TAKE RESPONSIBILITY FOR THE PROTECTION OF ALL PLANT MATERIALS DESIGNATED TO REMAIN ON SITE. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO ENSURE PROTECTION FROM EQUIPMENT AND WORKER DAMAGE.
- CONTRACTOR SHALL BACKFILL, WATER SETTLE AS PER SPECIFICATIONS, AND REGRADE SITE TO FINISHED GRADE CONDITION, SMOOTH AND PREPARED FOR SEEDING, SOODING, OR PLANTING.
- NO 4-WAY FITTINGS.
- LOCATE IRRIGATION HEADS A MINIMUM OF 12" FROM TREES.
- HEADS ADJACENT TO SIDEWALKS SHALL BE A MINIMUM OF 3" AWAY.
- AS-BUILTS SHALL BE PROVIDED PRIOR TO SUBSTANTIAL COMPLETION.
- CONTRACTOR SHALL UTILIZE EXISTING IRRIGATION AS NEEDED. DISCONNECT AND REMOVE ALL EXISTING COMPONENTS NO LONGER VISIBLE. RE-USE AS NECESSARY. RETURN TOOLS INCLUDING LATCHING, SOLDIERS, AND DEEP-ROOT WATERERS TO BOISE PARKS & RECREATION.

4 VALVE INFORMATION

VALVE NUMBER VALVE SIZE
GALLONS PER MINUTE

SCH 40 PIPE SIZING CHART	
1-12 GPM	1" Pipe
13-20 GPM	1 1/2" Pipe
21-28 GPM	1 3/4" Pipe
29-45 GPM	2" Pipe
46-70 GPM	2 1/2" Pipe
71-110 GPM	3" Pipe
111-190 GPM	4" Pipe

5 SHEET NOTES

- EXISTING TREES IN NEW TURF SHALL BE REMOVED FROM DRIP SYSTEM. MAINTAIN EXISTING DRIP SYSTEM FOR TREES NOT LOCATED WITHIN TURF AREAS.
- GROUP CONTROL VALVES FOR TRANSMITTER FOR 2-WIRE SYSTEM.
- INSTALL VALVES IN 'JUMBO' VALVE BOXES RE.
- "T" EXISTING 2" MAINLINE FOR 3 EXISTING VALVES. DISCONNECT FROM DOUBLE CHECK AND PROVIDE SHUT-OFF AT DOUBLE CHECK.
- ABANDON EXISTING 2" MAINLINE. REUSE EXISTING VALVE AND SHUT-OFF.
- SPACE MP ROTATOR AT 80% MAX RADIUS APPROXIMATELY 25' O.C.
- PROVIDE AND INSTALL NETAFAIM DRIP SYSTEM, OR APPROVED EQUAL, FOR PLANT MATERIALS AROUND NEW RESTROOM. UTILIZE EXISTING DRIP VALVE. RE: L-300-8, 10.

Date	Review
1.1.18	New irrigation location, per drawing, for BOISE PARKS & RECREATION
9.25.18	



Parks & Recreation

BOISE HILLS
NEIGHBORHOOD PARK
GREEN-UP

IRRIGATION
PLAN

Survey By: DMM/ML	Checked By:
Drawn By: ML	Date: October 2015
Scale: 1"=30' (SHEET)	Job No.

L-200
REV 2

ATTACHMENT C

FLOW RATE AND VOLUME CALCULATIONS

Description	Value
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General information:

Product name:	150S200-10
Product No.:	13B63610
EAN:	5700391427701
Price:	On request

Technical:

Speed for pump data:	3450 rpm
Rated flow:	159 US gpm
Rated head:	354.3 ft
Impeller reduc:	NONE
Shaft seal for motor:	SIC/SICNBR
Curve tolerance:	ISO9906.2012 3B
Stages:	10
Model:	B
Valve:	YES
Motor version:	T40

Materials:

Pump:	Stainless steel EN 1.4301 AISI 304
Impeller:	Stainless steel EN 1.4301 AISI 304
Motor:	Stainless steel DIN W.-Nr. 1.4301 AISI 304

Installation:

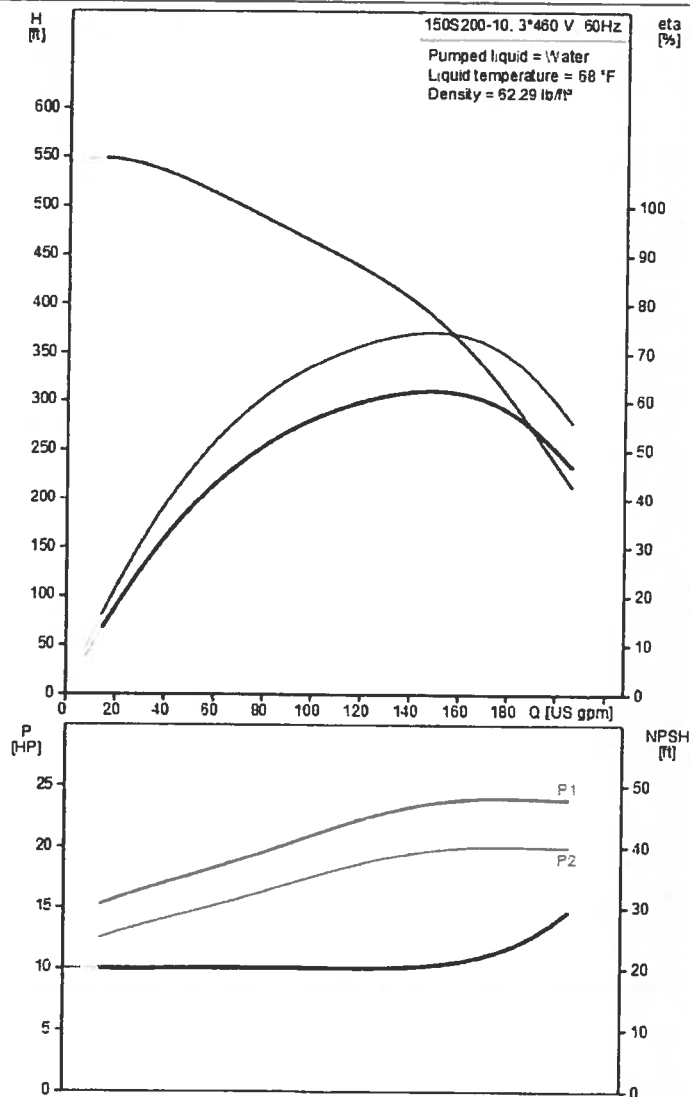
Maximum ambient pressure:	870 psi
Pump outlet:	3"NPT
Motor diameter:	6 inch

Liquid:

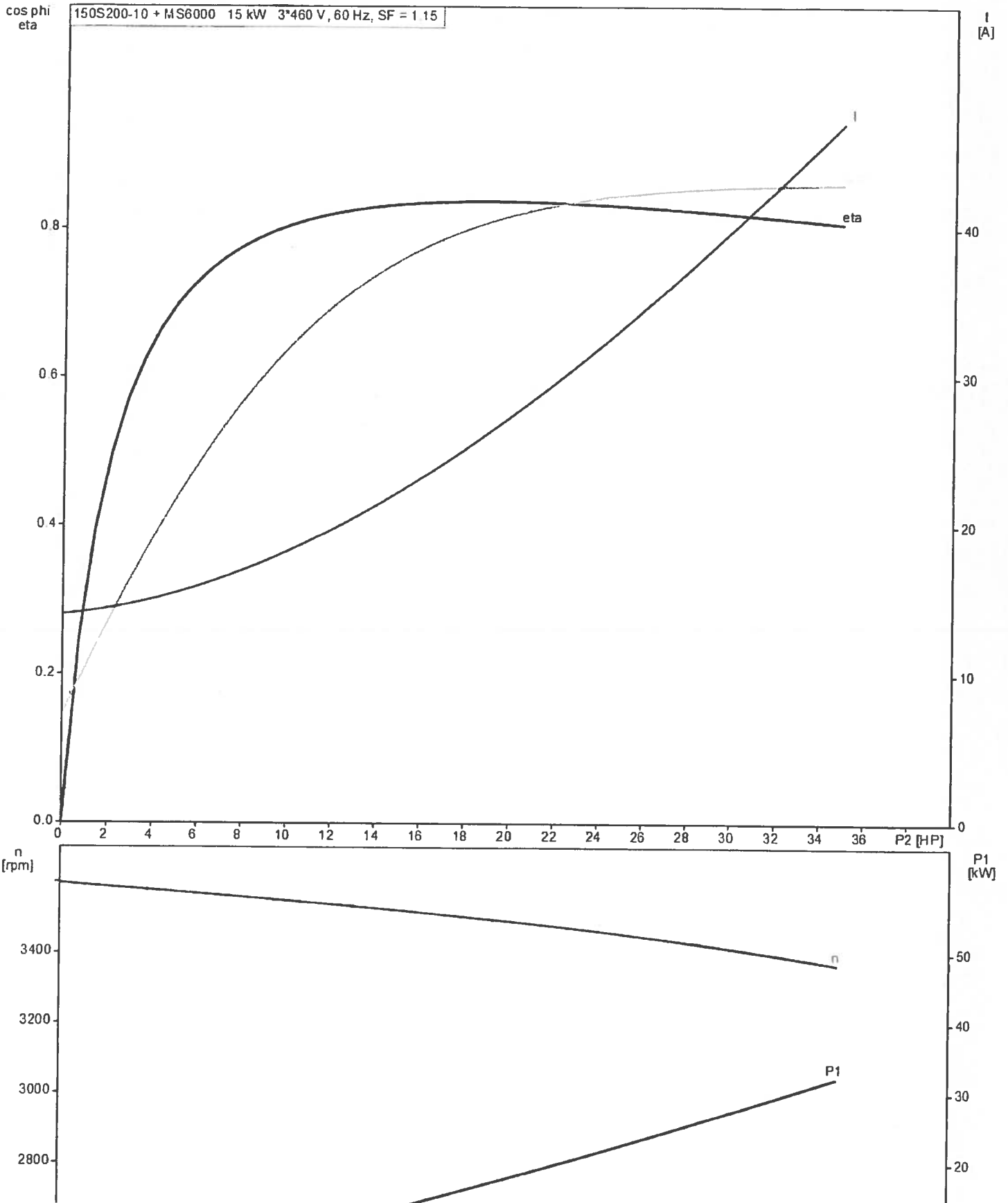
Pumped liquid:	Water
Maximum liquid temperature:	104 °F
Max liquid temperature at 0.15 m/sec:	104 °F
Liquid temp:	68 °F
Density:	62.29 lb/ft³

Electrical data:

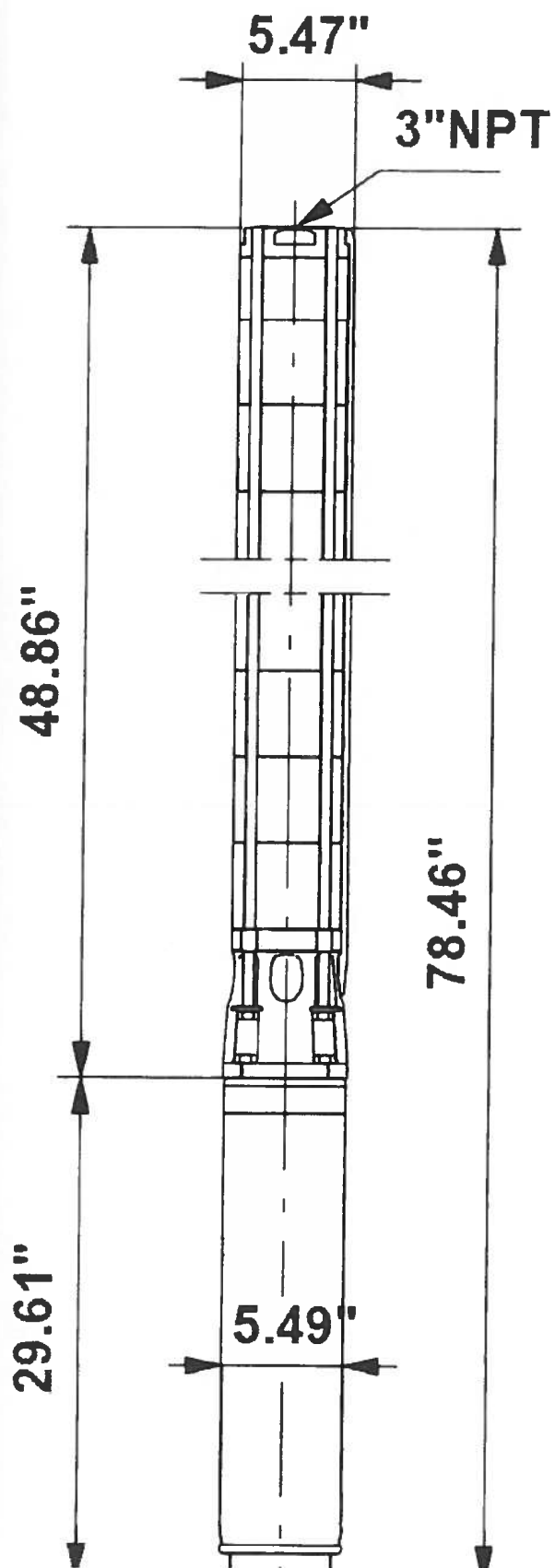
Motor type:	MS6000
Applic. motor:	GRUNDFOS
Rated power - P2:	20 HP 20 HP
KVA code:	J
Main frequency:	60 Hz
Rated voltage:	3 x 440-460-480 V
Starter:	2
Service factor:	1.15
Rated current:	33.5-32.5-32.0 A
Starting current:	520-570-610 % 172 A
Cos phi - power factor:	0.85-0.84-0.81
Rated speed:	3450-3470-3480 rpm
Axial load max:	59.5 lb
Motor efficiency at full load:	84.0 %
Start. method:	direct-on-line
Enclosure class (IEC 34-5):	IP68
Insulation class (IEC 85):	F



13B63610 150S200-10 60 Hz



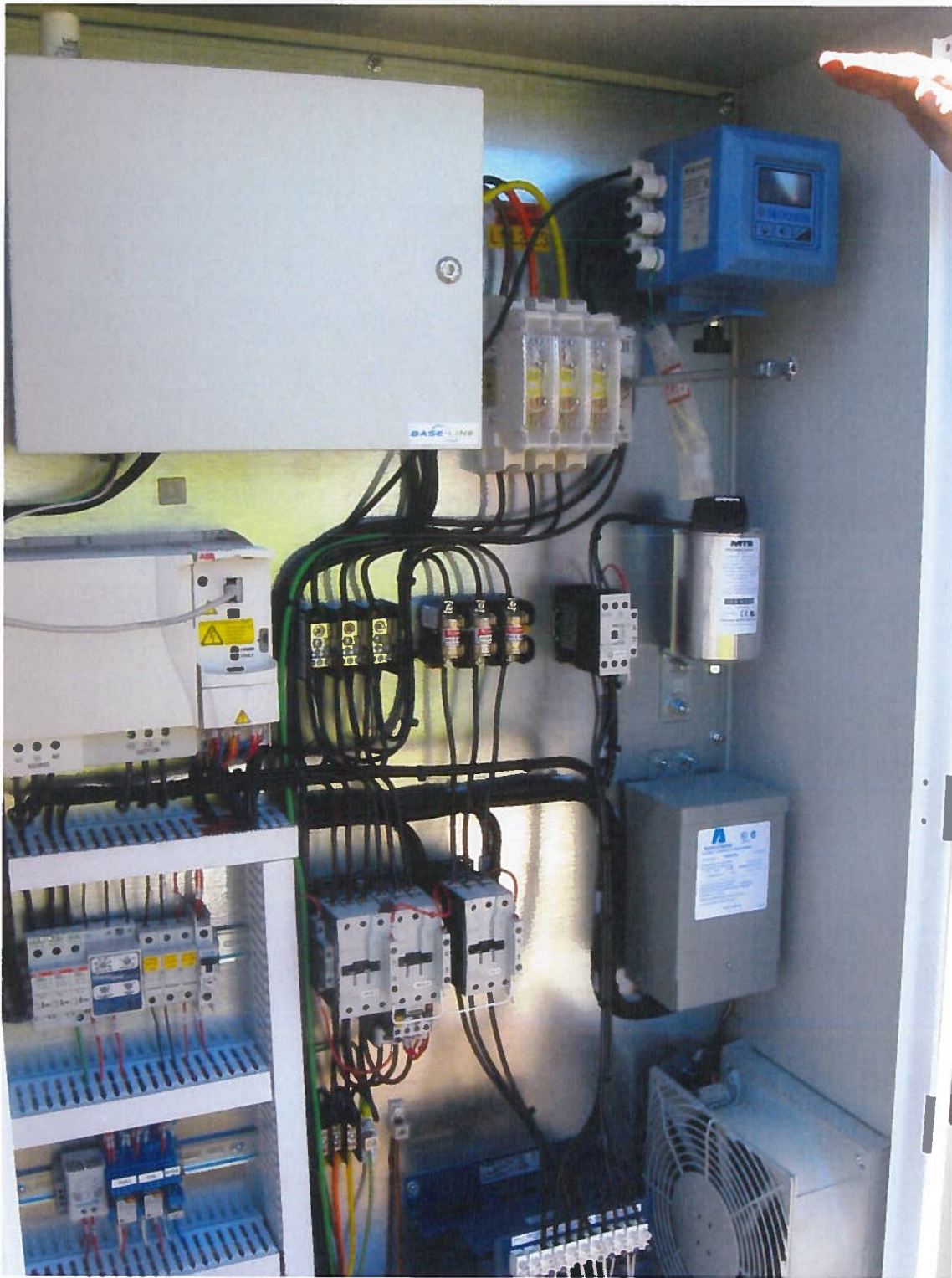
13B63610 150S200-10 60 Hz



ATTACHMENT D
PHOTOS



Irrigation well head with adjacent vault containing flow meter and pressure transducer. Submersible well pump discharges through a pitless adapter to the vault.



Inside of pump control panel with flow meter display.



Flow rate 160.83 gpm



Door of pump control panel.



Vault with isolation valve, flush to waste valve, and pressure relief valve.



Place of use with sprinklers operating during exam.



Place of use.

ATTACHMENT E
PROOF OF BENEFICIAL USE