

CONSTRUCTION NOTES

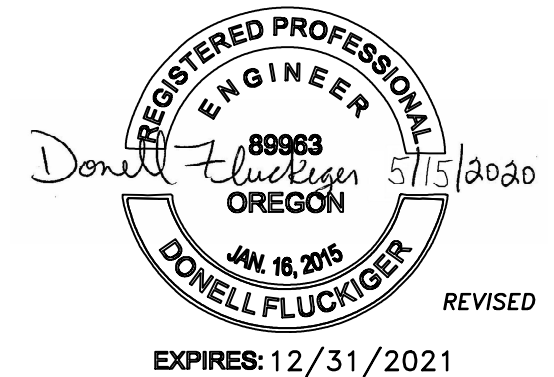
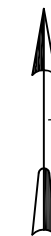
1. Installation shall be in accordance with these plans. Details of construction shown on the drawings, but not included herein, shall be considered as part of these specifications. Construction activities shall be in accordance with Department of Labor, Occupational Safety and Health Administration (OSHA) regulations.
2. The foundation area will be cleared of all roots, brush, sod and debris. Any over-excavation will be backfilled with select material and compacted to the density of the surrounding material. Structures shall be placed on a firm foundation. Unsuitable materials shall be removed.
3. Pipe shall be of the type, size and pressure rating shown on the drawings and shall meet the requirements of the appropriate material specifications.
4. Installation shall be in accordance with manufacturer's recommendations unless otherwise specified.
5. The pressure rating of fittings shall meet or exceed the strength requirements of the pipe. All fittings shall be of a material that is recommended for use with the type of pipe that is specified in D 1785, D 2241, D 2672 or D 2740 for Polyvinyl Chloride (PVC).
6. Solvents for solvent-welded plastic pipe joints shall conform to one of the following ASTM specifications as appropriate: D 2235, D 2564, or D 2855. Rubber joints for pipe joints shall conform to ASTM F 477, Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
7. The pipe trench shall be excavated at the required location and depth as shown on the drawings and/or staked in the field. The bottom of the trench shall be reasonably smooth so that pipe will be properly supported.
8. Trenches for pipelines shall be free of rocks and other sharp edged materials. Plastic pipe shall be placed in a "snake" like position. Semi-rigid pipe may require expansion joint couplers.
9. Pipelines shall be placed so they are protected against hazards imposed by traffic, farm operations, freezing temperatures or soil cracking.
10. Tracer wire shall be a single continuous wire with no looping or coiling of wire. The tracer wire is to be placed approximately 6" above pipe. Protect wire and wire insulation from damage during installation and backfill.

OPERATION AND MAINTENANCE

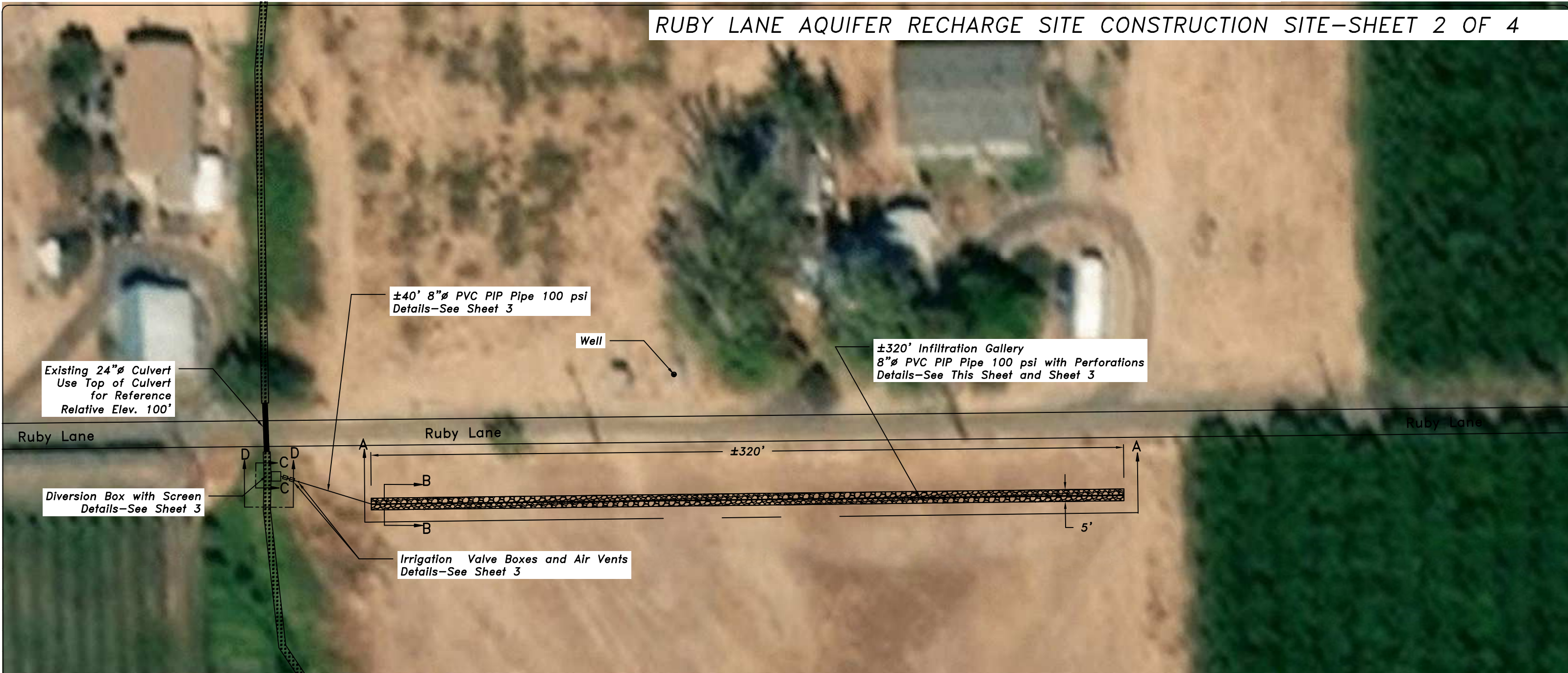
The life of the structure can be assured and usually increased by developing and carrying out a good operation and maintenance program. Observation of the system should be made periodically (monthly suggested) and the pipeline should be flushed as need. Also good operation and maintenance includes:

- Promptly repair or replace damaged components.
- Eradicate or otherwise remove all rodents or burrowing animals. Immediately repair any damage caused by their activity.
- Remove all foreign debris and trash that hinders system operation.
- Make sure all structure drains are functional and soil is not being transported through the drainage system. The screens and/or rodent guards shall also be kept in place.
- If settlement is present, investigate the cause and design repairs accordingly.
- Avoid travel by heavy equipment over pipelines when the soil is saturated except at designed crossings. Avoid travel over pipelines by tillage equipment when the soil is saturated. Limit traffic to sections that were designed for traffic loads.
- Avoid any subsoiling operation that may disturb the pipe.
- Use butterfly valve downstream from flow meter to adjust flow as needed.
- Periodically clean out the gallery pipe by using the flush chamber.

RUBY LANE AQUIFER RECHARGE SITE



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Water Recharge Estimated Flow

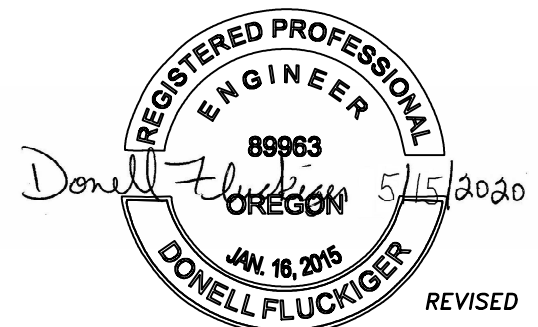
(Assumes pipe is level)

Lateral Perforated Pipe Size (in)	8	8	8	8	8
Lateral Perforated Length (ft)	320	320	320	320	320
Orifice Spacing (in)	24	24	24	24	24
Orifices	160	160	160	160	160
Orifice Diameter (in)	0.4375	0.438	0.438	0.4375	0.4375
Head (ft)	4	4.5	5	5.5	6
Average Orifice Flowrate (gpm)	4.14	4.39	4.62	4.85	5.07
Variation (gpm)	0.40	0.42	0.44	0.46	0.48
Total Discharge (gpm)	662	702	740	776	811
Total Discharge (cfs)	1.5	1.6	1.6	1.7	1.8

*Typical Cd value of 0.61 reduced to 0.55 assuming 10% hole plug factor

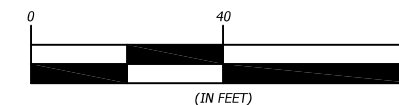
Recharge Cross-Section Sizing

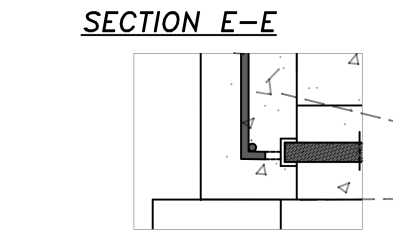
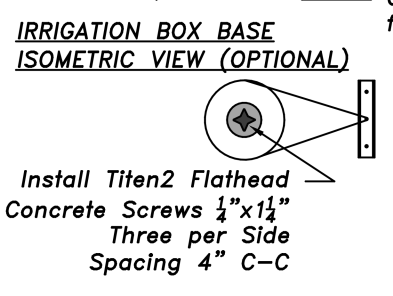
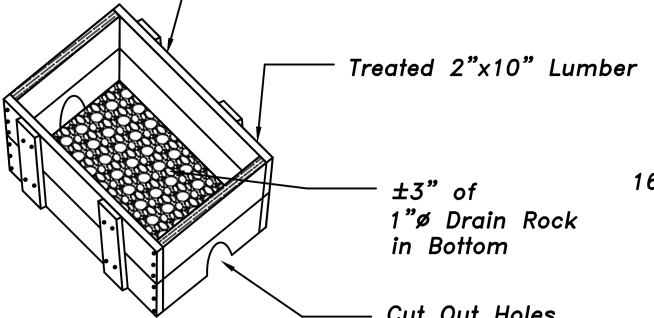
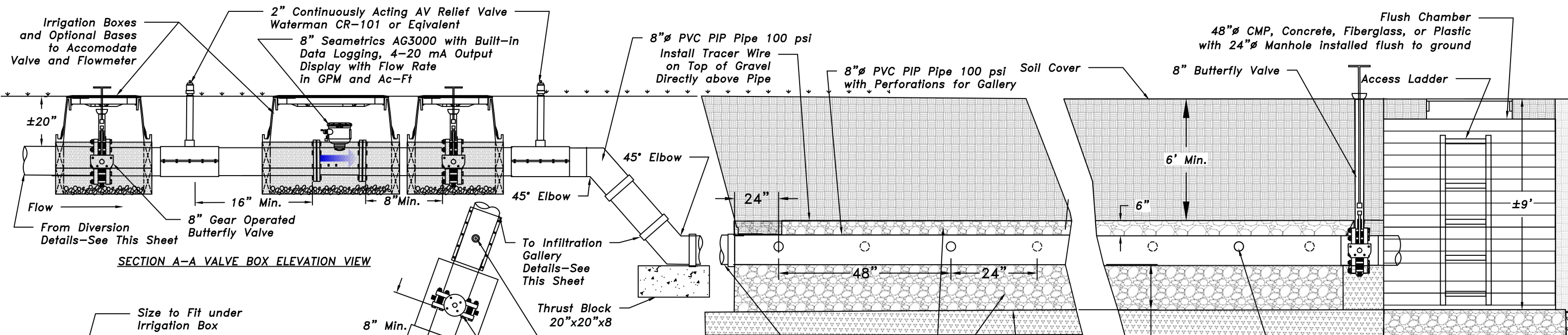
saturated hydraulic conductivity	300	µm/s
saturated hydraulic conductivity	85.0	fpd
saturated hydraulic conductivity	0.001	fps
recharge flow	1.5	cfs
recharge flow	673	gpm
recharge length	320	ft
minimum cross-section width	5	ft



EXPIRES: 12/31/2021

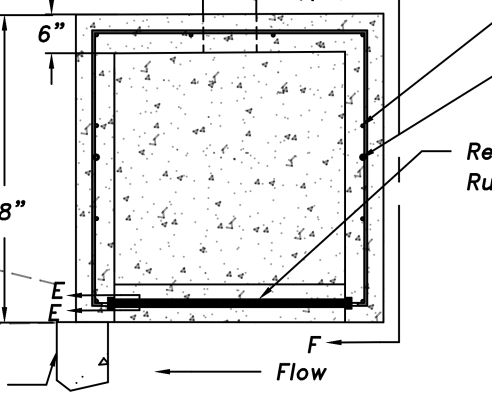
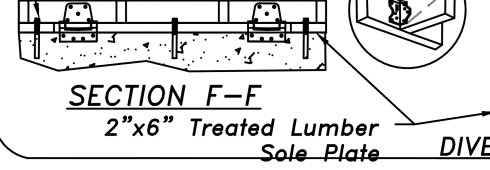
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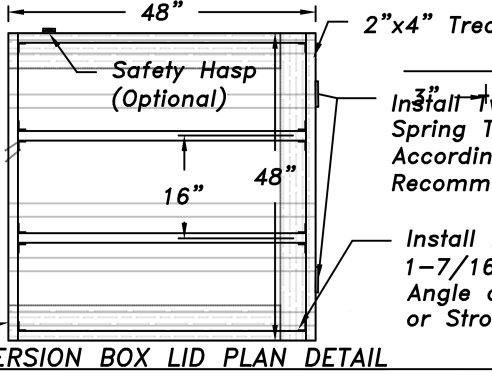


Concrete Blocks to be Placed Ditch Bottom on Downstream Side of Diversion to Backup Water as Needed

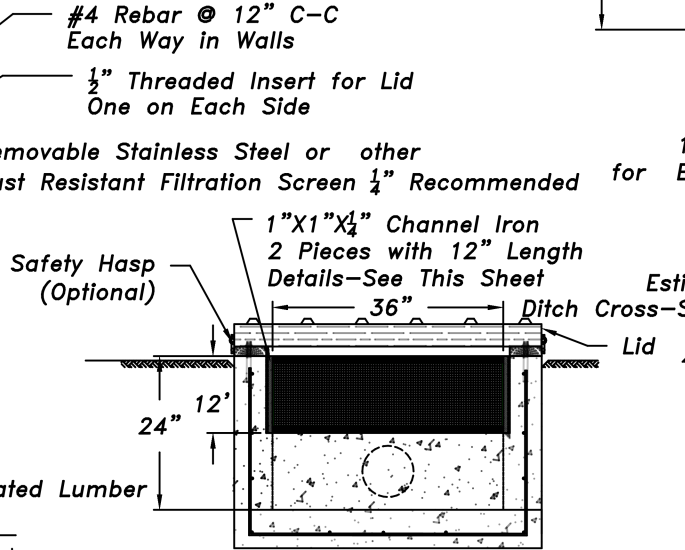
Install Metal Roofing with 12\"/>



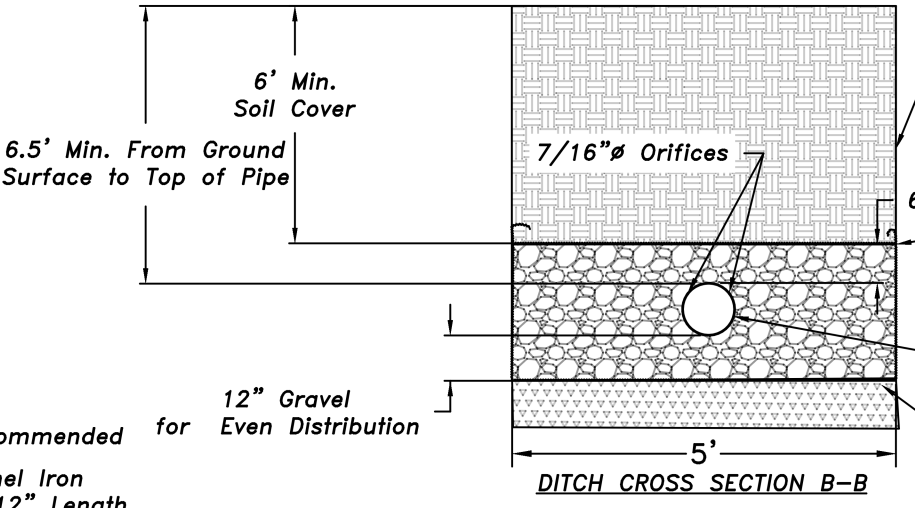
DIVERSION BOX TOP VIEW



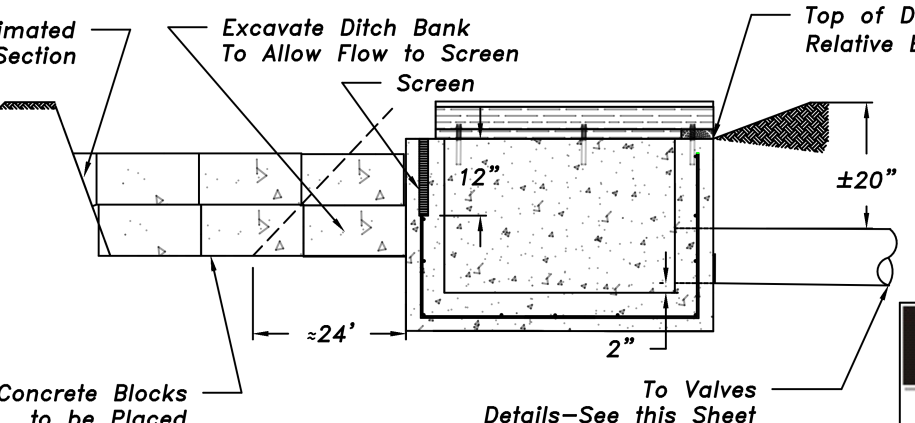
DIVERSION BOX LID PLAN DETAIL



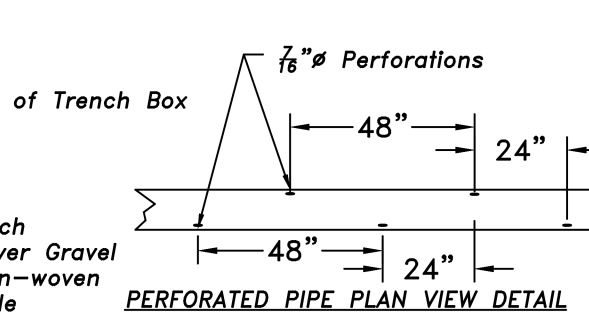
DIVERSION BOX SECTION C-C VIEW



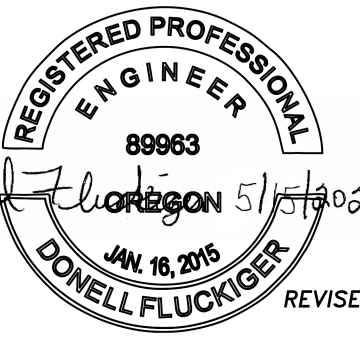
DITCH CROSS SECTION B-B



DIVERSION BOX SECTION D-D SIDE VIEW



PERFORATED PIPE PLAN VIEW DETAIL

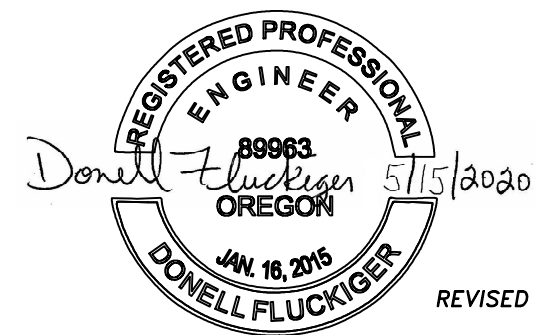


NO SCALE EXPIRES: 12/31/2021

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RUBY LANE AQUIFER RECHARGE SITE –MATERIALS ESTIMATE SHEET 4 OF 4

Materials Estimate			
Item	Size	Quantity	Description
Perforated Pipe	8 in diameter	320 ft	PVC 100 psi with 7/16" perforations as shown on drawings
Pipe	8 in diameter	40 ft	PVC 100 psi as shown on drawings (non-perforated)
AV Valves and Saddles	2 in	2	Continuously Acting AV Relief Valve and saddle assembly as shown on drawings
Elbow	8 in	3	45° PVC
Thrust Block	20 in x 20 in x 8 in	1	Concrete
Geotextile		8,960 sq. ft	Non-woven Meeting AASHTO M288
Drain Gravel	1 in diameter	126 cu. yds	drain gravel
Excavation		505 cu. yds	earth removal
*Diversion Box Concrete	4'x4'x2' Box	21 cf/0.8 cy	Diversion Box
*Diversion Box Rebar	#4 Rebar	±180 ft	
Screen	36"x12"	1	Stainless Steel Screen with 1/4" Openings
Channel Steel	1"x1"x1/4"	2	Galvanized or Zinc-Coated Channel Steel with 12" Length
Screws	1/4" x 1 1/4"	6	Titen2 Concrete Screws
Inserts and Bolts with Washers	1/2" Threaded Concrete Anchors	9	1/2" Concrete Anchors with 4" Embedment
Lid Roofing	48"x45"	1	Metal Roofing – one 36" x 8' sheet and screws
Corner Brackets and Nails	1 7/16 in. x 2 1/2in	12	Metal Brackets Simpson Strong Tie 1-7/16 in. x 2-1/2in. ZMAX Galvanized Framing Angle on all Inside Corners with 8d common Nails or Strong Drive Screws
Hinges	3 1/2"	2	3 1/2" Spring Tree Hinges
Safety Hasp		2	Optional Safety Hasp
Sole Plate	2"x6'	11 ft	2"x6" Treated Lumber
Lumber	2"x4"	24 ft	2"x4" Treated Lumber
Butterfly Valve and Mounting Kit	8 in	3	Gear Operated with Extension Rod
Flow Meter and Mounting Kit	8 in	1	8" Seametrics AG3000 with Built-in Data Logging, 4-20 mA Output Display with Flow Rate in GPM and Ac-Ft or equivalent
**Irrigation Boxes	29 in x 16 in x 18 in	1	For Flow Meter: Or equivalent box
Flush Chamber with Manhole	48" diameter	1	CMP, Concrete or Fiberglass with 24" diameter manhole
**Irrigation Boxes	23 in x 13 in x 15 in	2	For Butterfly Valve: Or equivalent box
**Lumber and Deck Screws (Optional)	2 in x 10 in	±48 ft	Treated Lumber and Deck Screws as shown on drawings
*Concrete Diversion Box may be substituted with Equivalent Size Pre-Fabricated Diversion Box **The irrigation boxes and lumber may be substituted with equivalent items meeting the same function			



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GPS: 45°58'16" N 118°24'03" W | UMATILLA COUNTY-OREGON
 LEGAL DESCRIPTION: T06N R35E SEC. 26
 DWG: RUBY LANE AQUIFER RECHARGE.DWG SHEET: 4 OF 4