Oregon

John A. Kitzhaber, MD, Governor

Department of Environmental Quality
Western Region Eugene Office
165 East 7th Avenue, Suite 100
Eugene, OR 97401
(541) 686-7838
FAX (541) 686-7551
TTY 711

August 8, 2012

Keith Wright
A-1 Redi-Mix
P.O. Box 891
Illwaco, WA 98624

Dear Mr. Wright:

The Oregon Department of Environmental Quality (Department) has received the plans, specifications and other associated materials you provided for proposed septic tank configurations to be manufactured by A-1 Redi-Mix. This letter is to inform you the following tanks can be installed in the State of Oregon, based on your certification that the tanks comply will all applicable Department rules and regulations:

- 1000 gallon concrete septic tank
- 1500 gallon concrete septic tank
- 1500 gallon partitioned dosing septic tank

Parkin Engineering Inc. was the engineering firm for all plans submitted. These plans were stamped by Jacob Christensen, P.E. Copies of the Department-approved plans, dated July 30, 2012, specifications and the approved installation manual are enclosed with this letter. A-1 Redi Mix, is authorized to manufacture and distribute the above-mentioned tanks for use in onsite wastewater treatment systems in Oregon until further notice, provided the following conditions are met:

1. The tanks must be manufactured in compliance with the Department's rules and the plans and design specifications provided. Any deviations from the plans and specifications are not permitted unless authorized in writing by the Department.

2. The concrete mix must be in accordance with the mix description on the plans prepared by your engineer. A twenty-eight (28) day compressive strength of 4,000PSI, as specified in the plans must be achieved. Samples must be tested for compressive strength. Three (3) concrete sample cylinders must be taken and tested for each tank manufactured until the minimum compressive strength is obtained. Thereafter, at least one (1) concrete sample cylinder for each five (5) tanks produced must be taken. Samples must be

alternately broken at twenty-eight (28) days. All tanks must be field-cured where the tanks are stored. Laboratory curing of additional samples may be done at the discretion of A-1 Redi Mix. Upon request, all test results must be made available to the Department for review.

3. The tank(s) shall not be moved from the manufacturing site to the job site until they have cured for seven (7) days and the concrete strength has reached 2500 PSI. Proper curing techniques must be used to ensure watertight tanks.

4. Your business is responsible to ensure that each assembled tank delivered to a construction site is water-tight. It is expected that A-1 Redi- mix will pre-test some percentage of the tanks at the plant to verify they are water-tight.

5. The riser and lid must be constructed of ribbed Poly Vynil Chloride (PVC).

6. The minimum burial depth, over the lid of each tank is twelve (12) inches. The maximum burial depth, over the lid of each tank is thirty six (36) inches.

7. Septic tanks located where groundwater is likely to rise more than 3 feet from the bottom of the tank shall have at least 30 inches of soil cover or 1 ¾ yards of concrete placed over the tank lid.

8. Each septic tank must be installed with a minimum twenty four (24) inch diameter water-tight riser, at the inlet and outlet side of the tank extending to the ground surface. All risers must be installed in accordance with Oregon Administrative Rule 340-071-0220(3)(b)(C).

9. Specific effluent filter details were identified in your submittal. The effluent filter(s) compatible with the tank are described in the plans.

10. Each tank must be delivered with the installation guide. The guide must be printed on water proof paper or an equivalent method of keeping the guide legible in adverse weather conditions.

11. Each tank is only acceptable for use at locations where the top loading will not exceed the engineering design parameters. Tanks proposed for use at other locations require an engineering analysis of the potential top loading, and may require the preparation of site-specific plans and specifications.

12. Each tank must be marked on the uppermost tank surface over the outlet with the liquid capacity, date of manufacture, burial depth limit and either the full business name or the assigned number 1840.

This determination should not be construed in any way as the Department's endorsement of this product or any advertising. Moreover, the Department is not responsible for any situation which may result from use or mis-application of your product.

If you have any questions about this letter, please feel free to contact Daniel Wiltse at (541) 687-7436, toll free in Oregon at (800) 844-8467, or by email at wiltse.daniel@deq.state.or.us .

Sincerely,

Michael E. Kucinski, Manager
Water Quality/Onsite

Enc: Approved Plans
Installation Manual

Ec: All Contract County offices (w/enclosures)
DEQ Direct Service Offices (w/ enclosures)
Jacob Christensen P.E., S.E. Parkin Engineering, 14014 NE Salmon Creek Ave. Vancouver, WA 98686 (w/o enclosures).

GENERAL NOTES

TANK VOLUME: 1304 GAL., 22.3 GAL/IN AVERAGE

OPERATING TANK VOLUME: 1056 GAL., 22.0 GAL/IN AVERAGE
SCUM STORAGE: 248 GAL., 19% VOLUME

DESIGN LOADS:

TANK LID: 400 PSF OR 2500 WHEEL
TANK WALLS AND BOTTOM: 62.4 PCF HYDROSTATIC
SOIL BEARING: 1500 PSF CAPACITY REQUIRED
STRUCTURAL CODE: IBC 2009

CONCRETE:

CONCRETE SHALL DEVELOP f'c = 4000 PSI AT 28 DAYS. CEMENT SHALL BE ASTM C-150 TYPE 2. MINIMUM CEMENT CONTENT SHALL BE 6.5 SACKS PER CUBIC YARD. MAXIMUM AGGREGATE SIZE SHELL BE 3/4". AIR ENTRAINING AGENTS AND FIBER REINFORCING MAY BE INCLUDED.

REINFORCING STEEL:

REINFORCING STEEL SHALL CONFORM TO ASTM A-615 GRADE 60. DETAILS AND PLACEMENT SHALL BE IN ACCORDANCE WITH ACI 315, AND ACI 318.

CONSTRUCTION NOTES:

THE TANK BOTTOM AND WALLS SHALL BE POURED MONOLITHICALLY. TANKS SHALL NOT BE MOVED FROM THE CASTING SITE UNTIL 7 DAYS HAVE ELAPSED AFTER POURING, AND THE CONCRETE STRENGTH HAS REACHED 2500 PSI. CURING SHALL BE CONTROLLED TO ENSURE WATERTIGHTNESS.

TANK IDENTIFICATION MARKINGS:

MARK ON EACH TANK LID OVER THE OUTLET:
LIQUID CAPACITY: 1000 GALLONS
MAXIMUM SOIL COVER: 3 FEET
MAXIMUM WHEEL LOAD: 2500 POUNDS
DATE OF MANUFACTURE: _____
MFG. NUMBER: _____

INSTALLATION:

INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS AND THE STATE OF OREGON ONSITE WASTEWATER TREATMENT SYSTEM RULES (OAR CHAPTER 340, DIVISIONS 071 AND 073). TANKS SHALL BE SET LEVEL ON 3 INCHES MINIMUM SCREEDED AND COMPACTED SAND OR GRANULAR BEDDING ABOVE FIRM NATIVE SOIL. SEE THE MANUFACTURER'S INSTALLATION MANUAL FOR BUOYANCY COUNTER MEASURES AND WATERTIGHT TESTING PROCEDURES. A MINIMUM COVER OF 12 INCHES IS NECESSARY IF THERE IS ANY POSSIBILITY OF WHEEL LOADS.

RISER INSTALLATION - MFG. BY ORENCO

TANK INSTALLER PLACES RISER OVER ADAPTER RING AND SEALS WITH ADH 100 ADHESIVE (ON INSIDE). RISER LID IS SECURED AND TIGHTENED ON TO GASKET WITH FOUR 5/16" DIAMETER STAINLESS STEEL ALLEN BOLTS.

4" POLYLOK CAST-A-SEAL INSTALLATION

1. ATTACH MANDREL TO OUTSIDE FORM WALL.
2. FOLD SEAL INTO CASTING POSITION.
3. PLACE GASKET ON MANDREL.
4. POUR CONCRETE INTO FORM.
5. STRIP FORM.
6. INSERT 4" PIPE AND TIGHTEN TAKE-UP CLAMP.

REINFORCING SCHEDULE

MARK	SIZE	SHAPE	NO. OF PIECES
402	#4	58 / 24	20
404	#4	94	6
405	#4	12 / 1 3/8 / 12 / 39	11
406	#4	58 / 58	16
301	#3	88	13
303	#3	6 / 57	-
304	#3	18 / 18	20
305	#3	6 / 18	-
306	#3	58	8

A-1 REDI-MIX, INC.
INSTALLATION INSTRUCTION

GENERAL NOTES
SEPTIC TANKS SHALL BE INSTALLED IN A LOCATION THAT PROVIDES ACCESS FOR SERVICING AND PUMPING. VEHICULAR TRAFFIC SHALL NO BE ALLOWED OVER THE SEPTIC TANK. MAXIMUM BURIAL DEPTH IS 36 INCHES.

TANK EXCAVATION
EXCAVATE TANK HOLE AT LEAST 12 INCHES LONGER AND WIDER THAN THE SIZE OF THE TANK. EXCAVATE TO APPROPRIATE DEPTH AS PROJECT REQUIRES. SET TANK TO LEVEL AND UNIFORM BEARING ON 4-6 INCHES OF THICK SAND OR GRANULAR BED OVERLYING A FIRM AND UNIFORM BASE. TANK SHOULD NOT BEAR DIRECTLY ON LARGE BOULDERS OR MASSIVE ROCK EDGES. UNSTABLE OR WET FOUNDATIONS SHOULD BE STABILIZED AND CARED FOR BY OVER EXCAVATION AND BACKFILLING WITH SELECT MATERIALS OR OTHER MEANS AS REQUIRED ENSURING A STABLE AND UNIFORM BEARING FOUNDATION FOR THE TANK. BACKFILL SHOULD BE PLACED IN UNIFORM COMPACTED LAYERS NO GREATER THAN 24" THICK AND OF NEARLY EQUAL HEIGHT ON EACH SIDE OF THE TANK TO MINIMIZE SETTLEMENT AND TO PROVIDE SUPPORT FOR THE TANK WALL. BACKFILL SHOULD BE OF PROPER SIZE AND GRADATION (AND FREE OF STONES OVER 4" IN DIAMETER AND ANY OTHER DELETERIOUS MATERIALS). EACH LAYER SHOULD CONTAIN SUFFICIENT MOISTURE TO ALLOW FOR PROPER COMPACTIONS. JETTING OR FLOODING SHOULD NOT BE USED TO SETTLE BACKFILL.

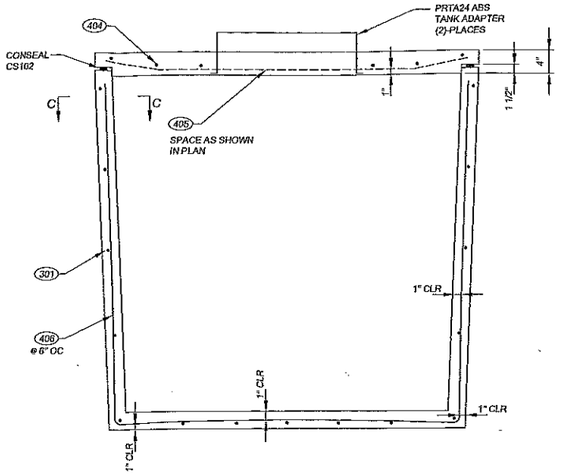
BUOYANCY COUNTERMEASURES
SEPTIC TANKS LOCATED WHERE GROUNDWATER IS LIKELY TO RISE MORE THAN 3 FEET FROM THE BOTTOM OF THE TANK SHALL HAVE AT LEAST 36 INCHES OF SOIL COVER OR 1-½ YARDS OF CONCRETE PLACED OVER THE TANK LID. MAXIMUM BURIAL DEPTH IS 36 INCHES.

PIPE CONNECTIONS
ALL INLET AND OUTLET CONNECTIONS SHALL BE 4" CAST A SEAL WITH STAINLESS CLAMPS TO MAKE WATERTIGHT CONNECTIONS. CONNECTIONS ARE TO BE CLEAN AND FREE OF DIRT. INSERT 4" PIPE AND TIGHTEN STAINLESS STEEL CLAMP.

RISERS AND LIDS
SEPTIC TANK RISERS ARE PLACED OVER AN ABS ADAPTER RING, (PART# PRTA24). THE ABS ADAPTER RINGS ARE CAST INTO THE SEPTIC TANK LID. SEAL THE RISER TO THE ADAPTER RING USING ADHESIVE GLUE, (PART# ADH100). THE FIBERGLASS SEPTIC TANK LID, (PART# FL24G-4B), IS ATTACHED TO THE RISER WITH STAINLESS STEEL BOLTS.

WATERTIGHT TESTING PROCEDURES
ENSURE ALL TESTS ARE DONE BEFORE BACKFILLING IS 100% COMPLETE. (TEMPORARY BRACING OF THE TANK WALLS AND/OR PARTIAL/TEMPORARY BACKFILLING IS ACCEPTABLE DURING TESTING.) MAKE SURE THE INLET AND OUTLET ARE SEALED TO AVOID ANY INFILTRATION OR EX-FILTRATION. BRING THE WATER LEVEL TO A POINT 2" ABOVE THE POINT OF RISER CONNECTION TO THE TOP OF THE TANK. DO NOT PUT MORE THAN 2 INCHES OF WATER INTO THE RISER. MEASURE THE WATER LOSS; IF THERE IS NO WATER LOSS DURING THE FIRST 24 HOURS, THE WATER TEST IS COMPLETE. SOME WATER ABSORPTION AND EVAPORATION MAY OCCUR DURING THE FIRST 24 HOUR PERIOD, IF SO REFILL THE TANKS AND DETERMINE THE ABSORPTION BY MEASURING THE WATER LOSS OVER THE NEXT 24 HOURS. THE TANKS SHALL NOT LOSE MORE THAN 1 GALLON OF WATER IN A 24 HOUR PERIOD.

WARRANTY:
FAILURE TO ABIDE BY THE INSTALLATION INSTRUCTIONS AND FAILURE TO PERFORM PROPER WATER TESTING PROCEDURES MAY CAUSE THE MANUFACTURER'S WARRANTY TO BECOME NULL AND VOID.



SECTION A-A
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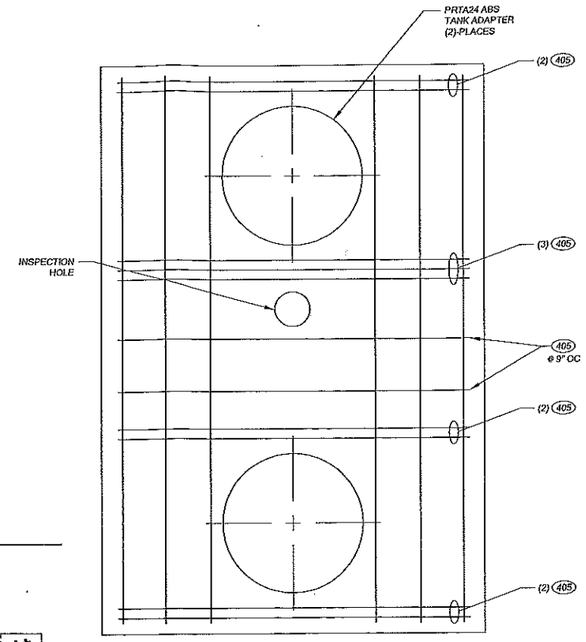
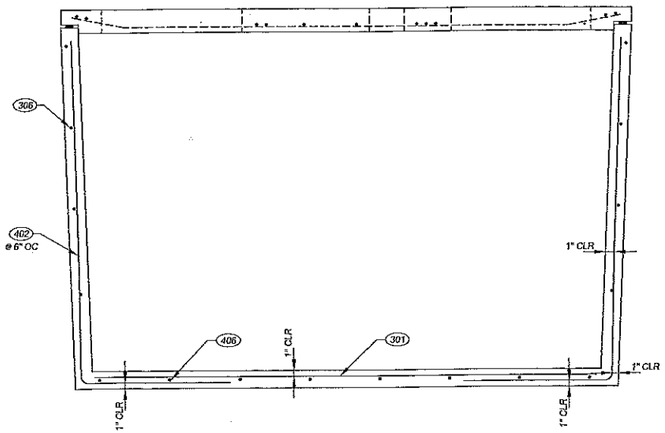
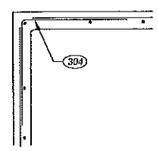


PLAN

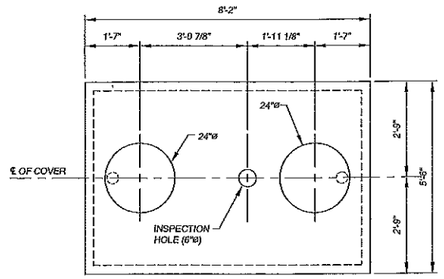
COVER
SCALE: 1" = 1'-0"



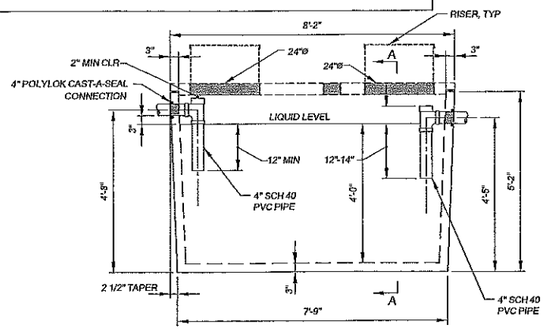
SECTION B-B
SCALE: 1" = 1'-0"



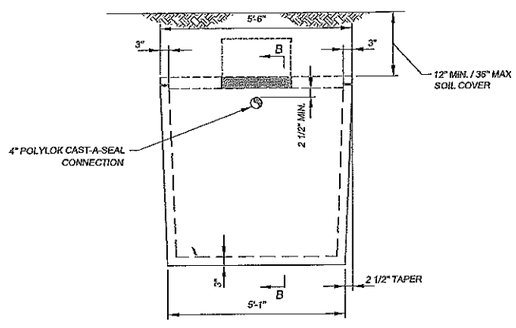
SECTION C-C (@ CORNERS)
SCALE: 1" = 1'-0"



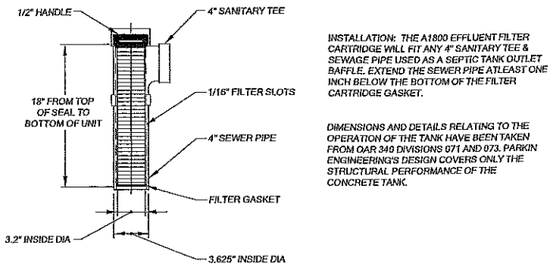
COVER VIEW
SCALE: 1/2" = 1'-0"



SIDE VIEW
SCALE: 1/2" = 1'-0"



INLET END VIEW
SCALE: 1/2" = 1'-0"



INSTALLATION: THE A1800 EFFLUENT FILTER CARTRIDGE WILL FIT ANY 4" SANITARY TEE & SEWAGE PIPE USED AS A SEPTIC TANK OUTLET BAFFLE. EXTEND THE SEWER PIPE AT LEAST ONE INCH BELOW THE BOTTOM OF THE FILTER CARTRIDGE GASKET.

DIMENSIONS AND DETAILS RELATING TO THE OPERATION OF THE TANK HAVE BEEN TAKEN FROM OAR 340 DIVISIONS 071 AND 073. PARKIN ENGINEERING'S DESIGN COVERS ONLY THE STRUCTURAL PERFORMANCE OF THE CONCRETE TANK.

SEPTIC TANK EFFLUENT FILTER
SCALE: 1 1/2" = 1'-0"

Date 7/30/12 Signed DW

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER 86641PE OREGON MAY 08, 2012 JACOB CHRISTENSEN
RENEWAL DATE: 12/31/2013

PARKIN ENGINEERING INC.
CONSULTING AND STRUCTURAL ENGINEERING
WWW.JOHNWPARKIN.COM
14014 NE SALMON CREEK AVE.
VANCOUVER, WA. 98686
(360) 694-8378
FAX (360) 694-3378

DATE: 02/15/2012
SCALE: FOR 24"X36"
ENGINEER: JC
DRAFTER: SLM/CJC
CHECK: BK
FILE: 11D16519-S2.x (R2)

REVISIONS
1 JC 5/17/12
2 JC 7/24/12

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER 86641PE OREGON MAY 8, 2012 JACOB CHRISTENSEN 7/24/12

RENEWAL DATE: 12/31/2013

PLAN APPROVED

A-1 REDI-MIX
P.O. BOX 891
ILWACO, WA 98624

CLIENT

PROJECT: 1,000 GALLON SEPTIC TANK

SHEET TITLE: PLAN ELEVATION & NOTES

S2.0

GENERAL NOTES

TANK VOLUME:	2061 GAL., 35.1 GAL/IN AVERAGE
OPERATING TANK VOLUME:	1670 GAL., 34.8 GAL/IN AVERAGE
SCUM STORAGE:	391 GAL., 19% VOLUME

DESIGN LOADS:

TANK LID:	400 PSF OR 2500 WHEEL
TANK WALLS AND BOTTOM:	62.4 PCF HYDROSTATIC
SOIL BEARING:	1500 PSF CAPACITY REQUIRED
STRUCTURAL CODE:	IBC 2009

CONCRETE:

CONCRETE SHALL DEVELOP $F'c$ = 4000 PSI AT 28 DAYS. CEMENT SHALL BE ASTM C-150 TYPE 2. MINIMUM CEMENT CONTENT SHALL BE 6.5 SACKS PER CUBIC YARD. MAXIMUM AGGREGATE SIZE SHELL BE 3/4". AIR ENTRAINING AGENTS AND FIBER REINFORCING MAY BE INCLUDED.

REINFORCING STEEL:

REINFORCING STEEL SHALL CONFORM TO ASTM A-615 GRADE 60. DETAILS AND PLACEMENT SHALL BE IN ACCORDANCE WITH ACI 315, AND ACI 318.

CONSTRUCTION NOTES:

THE TANK BOTTOM AND WALLS SHALL BE POURED MONOLITHICALLY. TANKS SHALL NOT BE MOVED FROM THE CASTING SITE UNTIL 7 DAYS HAVE ELAPSED AFTER POURING, AND THE CONCRETE STRENGTH HAS REACHED 2500 PSI. CURING SHALL BE CONTROLLED TO ENSURE WATERTIGHTNESS.

TANK IDENTIFICATION MARKINGS:

MARK ON EACH TANK LID OVER THE OUTLET:

LIQUID CAPACITY:	1500 GALLONS
MAXIMUM SOIL COVER:	3 FEET
MAXIMUM WHEEL LOAD:	2500 POUNDS
DATE OF MANUFACTURE:	_____
MFG. NUMBER:	_____

INSTALLATION:

INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS AND THE STATE OF OREGON ONSITE WASTEWATER TREATMENT SYSTEM RULES (OAR CHAPTER 340, DIVISIONS 071 AND 073). TANKS SHALL BE SET LEVEL ON 3 INCHES MINIMUM SCREEDED AND COMPACTED SAND OR GRANULAR BEDDING ABOVE FIRM NATIVE SOIL. SEE THE MANUFACTURER'S INSTALLATION MANUAL FOR BUOYANCY COUNTER MEASURES AND WATERTIGHT TESTING PROCEDURES. A MINIMUM COVER OF 12 INCHES IS NECESSARY IF THERE IS ANY POSSIBILITY OF WHEEL LOADS.

RISER INSTALLATION - MFG. BY ORENCO

TANK INSTALLER PLACES RISER OVER ADAPTER RING AND SEALS WITH ADH 100 ADHESIVE (ON INSIDE). RISER LID IS SECURED AND TIGHTENED ON TO GASKET WITH FOUR 5/16" DIAMETER STAINLESS STEEL ALLEN BOLTS.

4" POLYLOK CAST-A-SEAL INSTALLATION

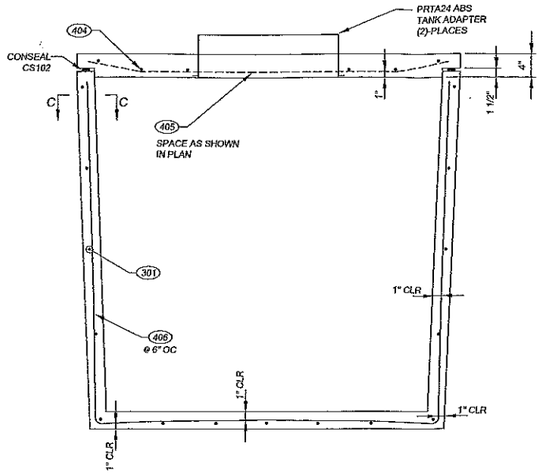
1. ATTACH MANDREL TO OUTSIDE FORM WALL.
2. FOLD SEAL INTO CASTING POSITION.
3. PLACE GASKET ON MANDREL.
4. POUR CONCRETE INTO FORM.
5. STRIP FORM.
6. INSERT 4" PIPE AND TIGHTEN TAKE-UP CLAMP.

REINFORCING SCHEDULE

MARK	SIZE	SHAPE	NO. OF PIECES
402	#4	58 / 24	20
404	#4	94	6
405	#4	12 / 12 / 1 3/8 / 12 / 39	16
406	#4	58 / 58	23
301	#3	114	13
303	#3	6 / 57	-
304	#3	18 / 18	20
305	#3	6 / 18	-
306	#3	58	8

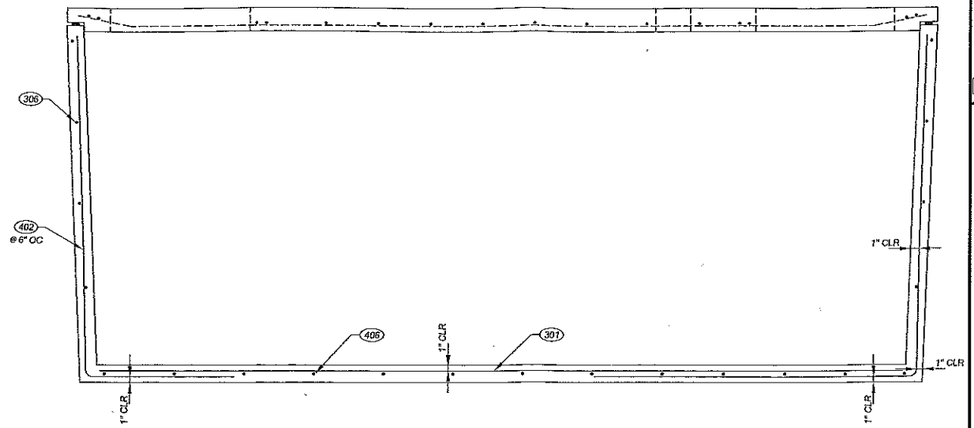
PLAN APPROVED

Date 7/30/12 Signed DW



SECTION A-A

SCALE: 1" = 1'-0"



SECTION B-B

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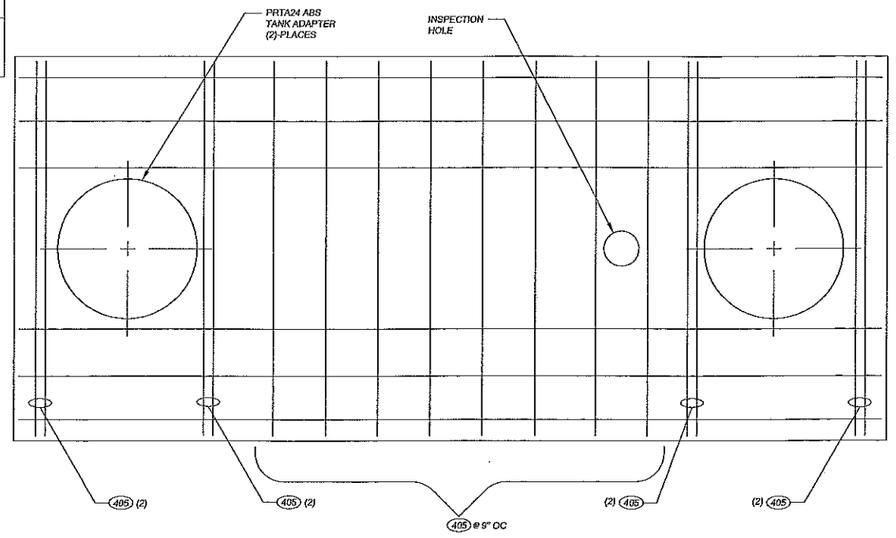
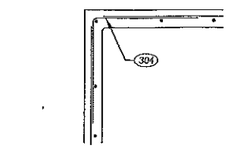
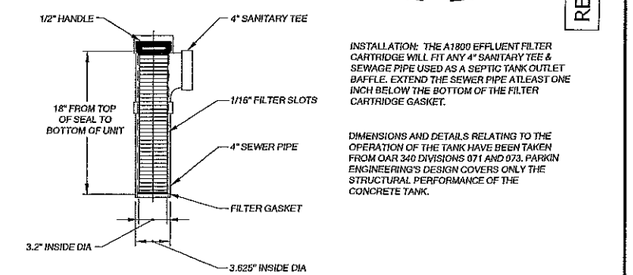


PLAN



SECTION C-C (@ CORNERS)

SCALE: 1" = 1'-0"



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DIMENSIONS AND DETAILS RELATING TO THE OPERATION OF THE TANK HAVE BEEN TAKEN FROM OAR 340 DIVISIONS 071 AND 073. PARKIN ENGINEERING'S DESIGN COVERS ONLY THE STRUCTURAL PERFORMANCE OF THE CONCRETE TANK.

SEPTIC TANK EFFLUENT FILTER

SCALE: 1 1/2" = 1'-0"

A-1 REDI-MIX, INC.
INSTALLATION INSTRUCTION

GENERAL NOTES
SEPTIC TANKS SHALL BE INSTALLED IN A LOCATION THAT PROVIDES ACCESS FOR SERVICING AND PUMPING. VEHICULAR TRAFFIC SHALL NO BE ALLOWED OVER THE SEPTIC TANK. MAXIMUM BURIAL DEPTH IS 36 INCHES.

TANK EXCAVATION
EXCAVATE TANK HOLE AT LEAST 12 INCHES LONGER AND WIDER THAN THE SIZE OF THE TANK. EXCAVATE TO APPROPRIATE DEPTH AS PROJECT REQUIRES. SET TANK TO LEVEL AND UNIFORM BEARING ON 4-6 INCHES OF THICK SAND OR GRANULAR BED OVERLYING A FIRM AND UNIFORM BASE. TANK SHOULD NOT BEAR DIRECTLY ON LARGE BOULDERS OR MASSIVE ROCK EDGES. UNSTABLE OR WET FOUNDATIONS SHOULD BE STABILIZED AND CARED FOR BY OVER EXCAVATION AND BACKFILLING WITH SELECT MATERIALS OR OTHER MEANS AS REQUIRED ENSURING A STABLE AND UNIFORM BEARING FOUNDATION FOR THE TANK. BACKFILL SHOULD BE PLACED IN UNIFORM COMPACTED LAYERS NO GREATER THAN 24" THICK AND OF NEARLY EQUAL HEIGHT ON EACH SIDE OF THE TANK TO MINIMIZE SETTLEMENT AND TO PROVIDE SUPPORT FOR THE TANK WALL. BACKFILL SHOULD BE OF PROPER SIZE AND GRADATION (AND FREE OF STONES OVER 4" IN DIAMETER AND ANY OTHER DELETERIOUS MATERIALS). EACH LAYER SHOULD CONTAIN SUFFICIENT MOISTURE TO ALLOW FOR PROPER COMPACTIONS. JETTING OR FLOODING SHOULD NOT BE USED TO SETTLE BACKFILL.

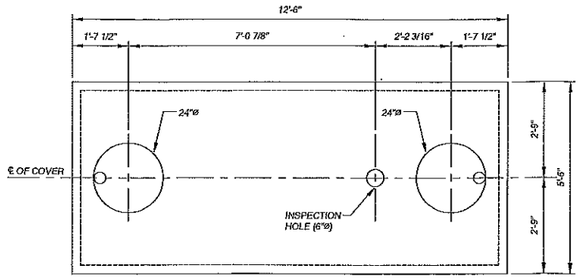
BUOYANCY COUNTERMEASURES
SEPTIC TANKS LOCATED WHERE GROUNDWATER IS LIKELY TO RISE MORE THAN 3 FEET FROM THE BOTTOM OF THE TANK SHALL HAVE AT LEAST 30 INCHES OF SOIL COVER OR 1-½ YARDS OF CONCRETE PLACED OVER THE TANK LID. MAXIMUM BURIAL DEPTH IS 36 INCHES.

PIPE CONNECTIONS
ALL INLET AND OUTLET CONNECTIONS SHALL BE 4" CAST A SEAL WITH STAINLESS CLAMPS TO MAKE WATERTIGHT CONNECTIONS. CONNECTIONS ARE TO BE CLEAN AND FREE OF DIRT. INSERT 4" PIPE AND TIGHTEN STAINLESS STEEL CLAMP.

RISERS AND LIDS
SEPTIC TANK RISERS ARE PLACED OVER AN ABS ADAPTER RING, (PART# PRTA24). THE ABS ADAPTER RINGS ARE CAST INTO THE SEPTIC TANK LID. SEAL THE RISER TO THE ADAPTER RING USING ADHESIVE GLUE, (PART# ADH100). THE FIBERGLASS SEPTIC TANK LID, (PART# FL24G-4B), IS ATTACHED TO THE RISER WITH STAINLESS STEEL BOLTS.

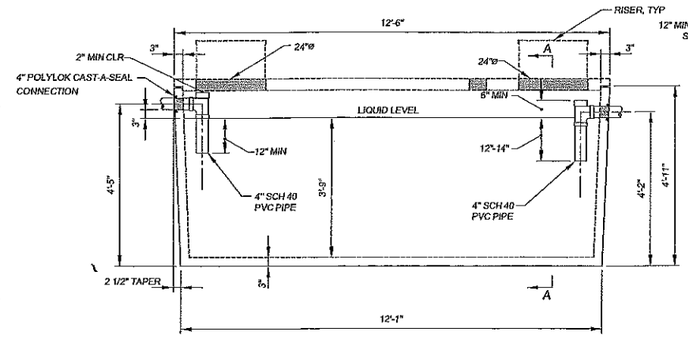
WATERTIGHT TESTING PROCEDURES
ENSURE ALL TESTS ARE DONE BEFORE BACKFILLING IS 100% COMPLETE. (TEMPORARY BRACING OF THE TANK WALLS AND/OR PARTIAL/TEMPORARY BACKFILLING IS ACCEPTABLE DURING TESTING.) MAKE SURE THE INLET AND OUTLET ARE SEALED TO AVOID ANY INFILTRATION OR EX-FILTRATION. BRING THE WATER LEVEL TO A POINT 2" ABOVE THE POINT OF RISER CONNECTION TO THE TOP OF THE TANK. DO NOT PUT MORE THAN 2 INCHES OF WATER INTO THE RISER. MEASURE THE WATER LOSS; IF THERE IS NO WATER LOSS DURING THE FIRST 24 HOURS, THE WATER TEST IS COMPLETE. SOME WATER ABSORPTION AND EVAPORATION MAY OCCUR DURING THE FIRST 24 HOUR PERIOD, IF SO REFILL THE TANKS AND DETERMINE THE ABSORPTION BY MEASURING THE WATER LOSS OVER THE NEXT 24 HOURS. THE TANKS SHALL NOT LOSE MORE THAN 1 GALLON OF WATER IN A 24 HOUR PERIOD.

WARRANTY:
FAILURE TO ABIDE BY THE INSTALLATION INSTRUCTIONS AND FAILURE TO PERFORM PROPER WATER TESTING PROCEDURES MAY CAUSE THE MANUFACTURER'S WARRANTY TO BECOME NULL AND VOID.



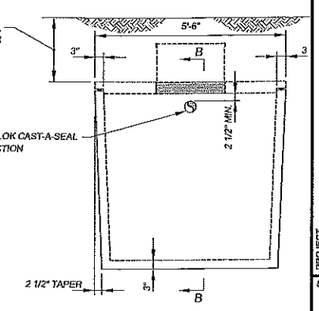
COVER VIEW

SCALE: 1/2" = 1'-0"



SIDE VIEW

SCALE: 1/2" = 1'-0"



INLET END VIEW

SCALE: 1/2" = 1'-0"

PARKIN ENGINEERING INC.
CONSULTING AND STRUCTURAL ENGINEERING
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14014 NE SALMON CREEK AVE.
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(360) 694-8378
FAX (360) 694-3376

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER 86641PE OREGON MAY 08, 2012 JACOB CHRISTENSEN

RENEWAL DATE: 12/31/2013

REVISIONS			
1	JC	5/17/12	FOR 24"X36"
2	JC	7/24/12	

DATE: 02/15/2012
SCALE:
ENGINEER: JC
DRAFTER: SLMc/JC
CHECK: BK
FILE: 11D16519-S2.x (R2)

CLIENT: A-1 REDI-MIX P.O. BOX 891 ILWACO, WA 98624

PROJECT: 1,500 GALLON SEPTIC TANK

SHEET TITLE: PLAN ELEVATION & NOTES

S4.0

GENERAL NOTES

TANK VOLUME:
- CHAMBER 1: 1258 GAL., 23.3 GAL/IN AVERAGE
- CHAMBER 2: 610 GAL., 11.3 GAL/IN AVERAGE

OPERATING TANK VOLUME:
- CHAMBER 1: 1086 GAL., 23.1 GAL/IN AVERAGE
- CHAMBER 2: 526 GAL., 11.2 GAL/IN AVERAGE

SCUM STORAGE: 256 GAL., 14% VOLUME

DESIGN LOADS:

TANK LID: 400 PSF OR 2500 WHEEL
TANK WALLS AND BOTTOM: 62.4 PCF HYDROSTATIC
SOIL BEARING: 1500 PSF CAPACITY REQUIRED
STRUCTURAL CODE: IBC 2009

CONCRETE:

CONCRETE SHALL DEVELOP f'c = 4000 PSI AT 28 DAYS. CEMENT SHALL BE ASTM C-150 TYPE 2. MINIMUM CEMENT CONTENT SHALL BE 6.5 SACKS PER CUBIC YARD. MAXIMUM AGGREGATE SIZE SHELL BE 3/4". AIR ENTRAINING AGENTS AND FIBER REINFORCING MAY BE INCLUDED.

REINFORCING STEEL:

REINFORCING STEEL SHALL CONFORM TO ASTM A-615 GRADE 60. DETAILS AND PLACEMENT SHALL BE IN ACCORDANCE WITH ACI 315, AND ACI 318.

CONSTRUCTION NOTES:

THE TANK BOTTOM AND WALLS SHALL BE POURED MONOLITHICALLY. TANKS SHALL NOT BE MOVED FROM THE CASTING SITE UNTIL 7 DAYS HAVE ELAPSED AFTER POURING, AND THE CONCRETE STRENGTH HAS REACHED 2500 PSI. CURING SHALL BE CONTROLLED TO ENSURE WATERTIGHTNESS.

TANK IDENTIFICATION MARKINGS:

MARK ON EACH TANK LID OVER THE OUTLET:
- LIQUID CAPACITY: 1500 GALLONS
- MAXIMUM SOIL COVER: 3 FEET
- MAXIMUM WHEEL LOAD: 2500 POUNDS
- DATE OF MANUFACTURE: _____
- MFG. NUMBER: _____

INSTALLATION:

INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS AND THE STATE OF OREGON ONSITE WASTEWATER TREATMENT SYSTEM RULES (OAR CHAPTER 340, DIVISIONS 071 AND 073). TANKS SHALL BE SET LEVEL ON 3 INCHES MINIMUM SCREEDED AND COMPACTED SAND OR GRANULAR BEDDING ABOVE FIRM NATIVE SOIL. SEE THE MANUFACTURER'S INSTALLATION MANUAL FOR BUOYANCY COUNTER MEASURES AND WATERTIGHT TESTING PROCEDURES. A MINIMUM COVER OF 12 INCHES IS NECESSARY IF THERE IS ANY POSSIBILITY OF WHEEL LOADS.

RISER INSTALLATION - MFG. BY ORENCO

TANK INSTALLER PLACES RISER OVER ADAPTER RING AND SEALS WITH ADH 100 ADHESIVE (ON INSIDE). RISER LID IS SECURED AND TIGHTENED ON TO GASKET WITH FOUR 5/16" DIAMETER STAINLESS STEEL ALLEN BOLTS.

4" POLYLOK CAST-A-SEAL INSTALLATION

1. ATTACH MANDREL TO OUTSIDE FORM WALL.
2. FOLD SEAL INTO CASTING POSITION.
3. PLACE GASKET ON MANDREL.
4. POUR CONCRETE INTO FORM.
5. STRIP FORM.
6. INSERT 4" PIPE AND TIGHTEN TAKE-UP CLAMP.

REINFORCING SCHEDULE

MARK	SIZE	SHAPE	NO. OF PIECES
402	#4	58 / 24	20
404	#4	94	6
405	#4	12 / 12 / 1 3/8 / 12 / 39	16
406	#4	58 / 58	23
301	#3	114	13
303	#3	6 / 57	5
304	#3	18 / 18	20
305	#3	6 / 18	10
306	#3	58	12

PLAN APPROVED

Date 7/30/12 Signed DW

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER 86641PE OREGON MAY 8, 2012 JACOB CHRISTENSEN

7/24/12

RENEWAL DATE: 12/31/2013

A-1 REDI-MIX, INC. INSTALLATION INSTRUCTION

GENERAL NOTES
SEPTIC TANKS SHALL BE INSTALLED IN A LOCATION THAT PROVIDES ACCESS FOR SERVICING AND PUMPING. VEHICULAR TRAFFIC SHALL NO BE ALLOWED OVER THE SEPTIC TANK. MAXIMUM BURIAL DEPTH IS 36 INCHES.

TANK EXCAVATION
EXCAVATE TANK HOLE AT LEAST 12 INCHES LONGER AND WIDER THAN THE SIZE OF THE TANK. EXCAVATE TO APPROPRIATE DEPTH AS PROJECT REQUIRES. SET TANK TO LEVEL AND UNIFORM BEARING ON 4-6 INCHES OF THICK SAND OR GRANULAR BED OVERLYING A FIRM AND UNIFORM BASE. TANK SHOULD NOT BEAR DIRECTLY ON LARGE BOULDERS OR MASSIVE ROCK EDGES. UNSTABLE OR WET FOUNDATIONS SHOULD BE STABILIZED AND CARED FOR BY OVER EXCAVATION AND BACKFILLING WITH SELECT MATERIALS OR OTHER MEANS AS REQUIRED ENSURING A STABLE AND UNIFORM BEARING FOUNDATION FOR THE TANK. BACKFILL SHOULD BE PLACED IN UNIFORM COMPACTED LAYERS NO GREATER THAN 24" THICK AND OF NEARLY EQUAL HEIGHT ON EACH SIDE OF THE TANK TO MINIMIZE SETTLEMENT AND TO PROVIDE SUPPORT FOR THE TANK WALL. BACKFILL SHOULD BE OF PROPER SIZE AND GRADATION (AND FREE OF STONES OVER 4" IN DIAMETER AND ANY OTHER DELETERIOUS MATERIALS). EACH LAYER SHOULD CONTAIN SUFFICIENT MOISTURE TO ALLOW FOR PROPER COMPACTIONS. JETTING OR FLOODING SHOULD NOT BE USED TO SETTLE BACKFILL.

BUOYANCY COUNTERMEASURES
SEPTIC TANKS LOCATED WHERE GROUNDWATER IS LIKELY TO RISE MORE THAN 3 FEET FROM THE BOTTOM OF THE TANK SHALL HAVE AT LEAST 36 INCHES OF SOIL COVER OR 1-¼ YARDS OF CONCRETE PLACED OVER THE TANK LID. MAXIMUM BURIAL DEPTH IS 36 INCHES.

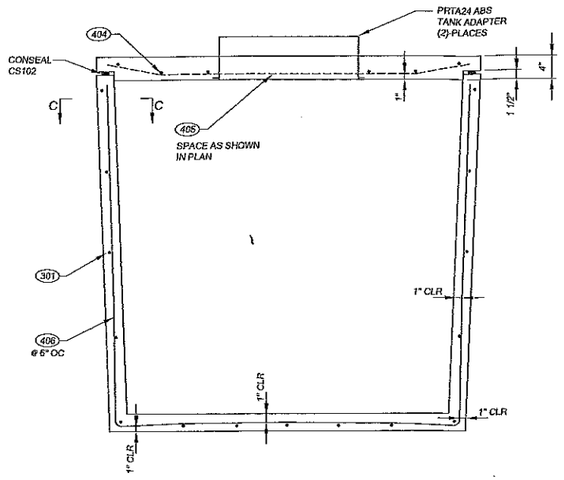
PIPE CONNECTIONS
ALL INLET AND OUTLET CONNECTIONS SHALL BE 4" CAST A SEAL WITH STAINLESS CLAMPS TO MAKE WATERTIGHT CONNECTIONS. CONNECTIONS ARE TO BE CLEAN AND FREE OF DIRT. INSERT 4" PIPE AND TIGHTEN STAINLESS STEEL CLAMP.

RISERS AND LIDS
SEPTIC TANK RISERS ARE PLACED OVER AN ABS ADAPTER RING, (PART# PRTA24). THE ABS ADAPTER RINGS ARE CAST INTO THE SEPTIC TANK LID. SEAL THE RISER TO THE ADAPTER RING USING ADHESIVE GLUE, (PART# ADH100). THE FIBERGLASS SEPTIC TANK LID, (PART# FL24G-4B), IS ATTACHED TO THE RISER WITH STAINLESS STEEL BOLTS.

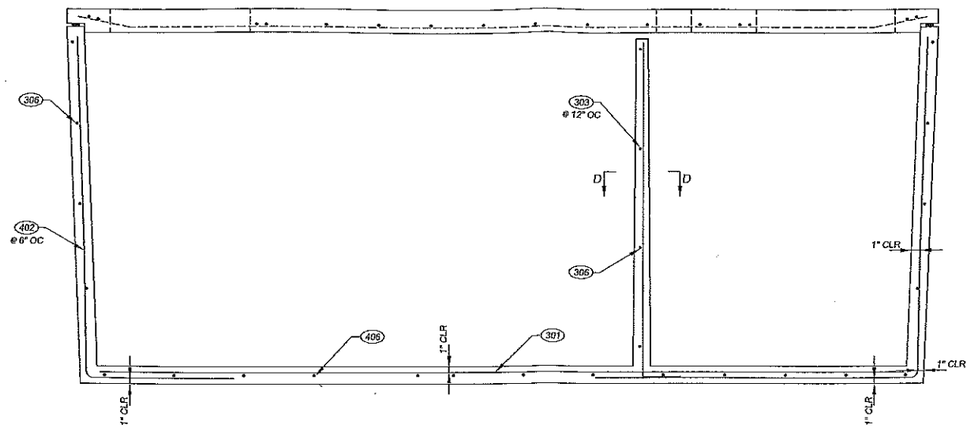
EFFLUENT PUMPING SYSTEM
ALL EFFLUENT PUMPING SYSTEM COMPONENTS MUST BE ACCESSIBLE AND EASILY REMOVED FOR MAINTENANCE AND SERVICE.

WATERTIGHT TESTING PROCEDURES
ENSURE ALL TESTS ARE DONE BEFORE BACKFILLING IS 100% COMPLETE. (TEMPORARY BRACING OF THE TANK WALLS AND/OR PARTIAL/TEMPORARY BACKFILLING IS ACCEPTABLE DURING TESTING.) MAKE SURE THE INLET AND OUTLET ARE SEALED TO AVOID ANY INFILTRATION OR EX-FILTRATION. BRING THE WATER LEVEL TO A POINT 2" ABOVE THE POINT OF RISER CONNECTION TO THE TOP OF THE TANK. DO NOT PUT MORE THAN 2 INCHES OF WATER INTO THE RISER. MEASURE THE WATER LOSS; IF THERE IS NO WATER LOSS DURING THE FIRST 24 HOURS, THE WATER TEST IS COMPLETE. SOME WATER ABSORPTION AND EVAPORATION MAY OCCUR DURING THE FIRST 24 HOUR PERIOD, IF SO REFILL THE TANKS AND DETERMINE THE ABSORPTION BY MEASURING THE WATER LOSS OVER THE NEXT 24 HOURS. THE TANKS SHALL NOT LOSE MORE THAN 1 GALLON OF WATER IN A 24 HOUR PERIOD.

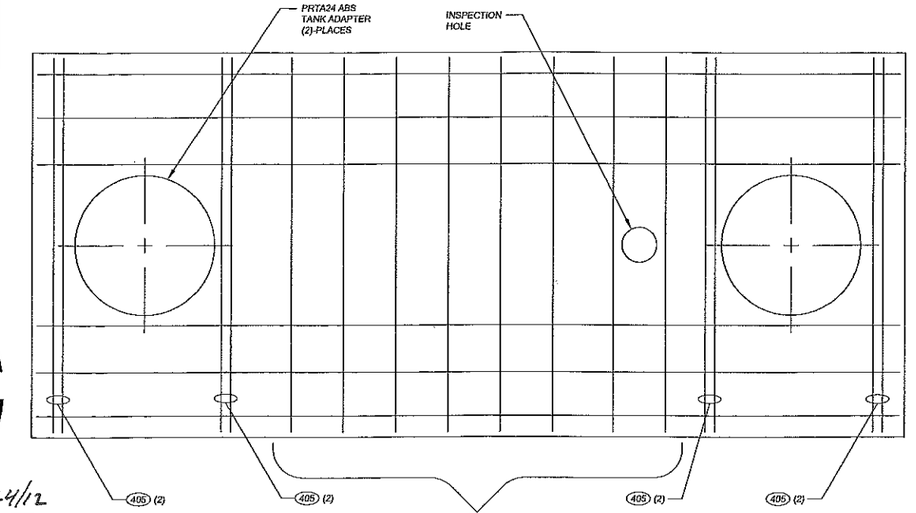
WARRANTY:
FAILURE TO ABIDE BY THE INSTALLATION INSTRUCTIONS AND FAILURE TO PERFORM PROPER WATER TESTING PROCEDURES MAY CAUSE THE MANUFACTURER'S WARRANTY TO BECOME NULL AND VOID.



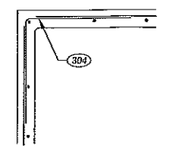
SECTION A-A
SCALE: 1" = 1'-0"



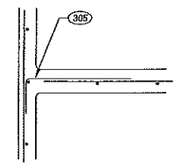
SECTION B-B
SCALE: 1" = 1'-0"



PLAN



SECTION C-C (@ CORNERS)
SCALE: 1" = 1'-0"



SECTION D-D
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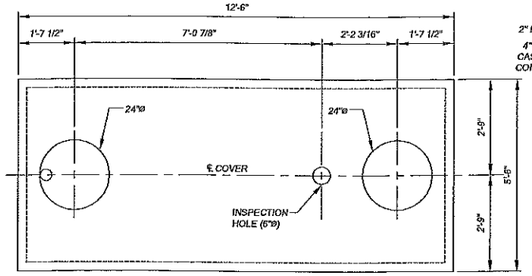
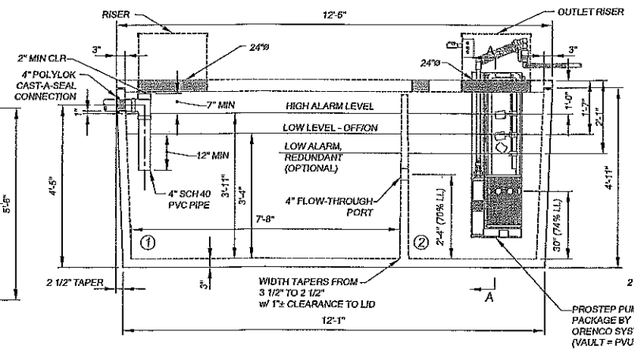
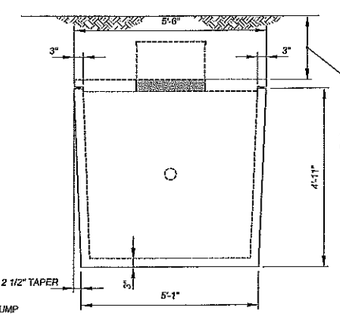
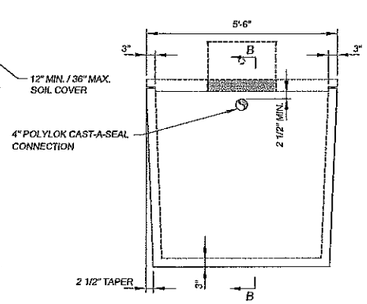
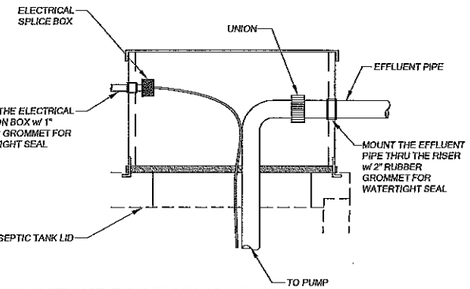


COVER
SCALE: 1" = 1'-0"









DIMENSIONS AND DETAILS RELATING TO THE OPERATION OF THE TANK HAVE BEEN TAKEN FROM OAR 340 DIVISIONS 071 AND 073. PARKIN ENGINEERING'S DESIGN COVERS ONLY THE STRUCTURAL PERFORMANCE OF THE CONCRETE TANK.

24" RISER PIPE METHOD FOR WATER TIGHT CONNECTIONS
SCALE: 1 1/2" = 1'-0"

COVER VIEW
SCALE: 1/2" = 1'-0"

SIDE VIEW
SCALE: 1/2" = 1'-0"

PARTITION END VIEW
SCALE: 1/2" = 1'-0"

INLET END VIEW
SCALE: 1/2" = 1'-0"

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER 86641PE OREGON MAY 08, 2012 JACOB CHRISTENSEN
RENEWAL DATE: 12/31/2013

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DATE: 02/15/2012
SCALE: FOR 24"X36"
ENGINEER: JC
DRAFTER: SLM/JC
CHECK: BK
FILE: 11D16519-S2.x (R2)

REVISIONS
A 5/17/12 JC
B 7/24/12 JC

CLIENT
A-1 REDI-MIX
P.O. BOX 891
ILWACO, WA 98624

PROJECT
1,500 GALLON PARTITIONED DOSING / SEPTIC TANK

SHEET TITLE: PLAN ELEVATION & NOTES

S3.0

A-1 REDI-MIX, INC.
SEPTIC/PUMP TANK
INSTALLATION INSTRUCTIONS

7/30/12 DW

6) Effluent Pumping System

All effluent pumping system components including but not limited to, filters, vaults, splice boxes, valves, control and alarm floats must be accessible and easily removed for maintenance and service. Control and alarm floats must be set to accommodate design flows and operating levels for the tank. Approved electrical splice boxes and pump discharge pipes enter and exit the riser material via an approved water tight seal. Electric cords for the floats and pump must meet OEC code. The effluent should pass through a filter retaining all mater of 1/8" or greater prior to discharge from the tank.

7) Watertight Testing Procedures

Ensure all tests are done before backfilling is complete. Make sure the inlet and outlet are sealed to avoid any infiltration or ex-filtration. Bring the water level to a point 2" above the point of riser connection to the top of the tank. **DO NOT PUT MORE THAN 2 INCHES OF WATER INTO THE RISER.** Measure the water loss; if there is no water loss during the first 24 hours, the water test is complete. Some water absorption and evaporation may occur during the first 24 hour period, if so refill the tanks and determine the absorption by measuring the water loss over the next 24 hours. The tanks shall not lose more than 1 gallon of water in a 24 hour period.

WARRANTY: FAILURE TO ABIDE BY THE INSTALLATION INSTRUCTIONS AND FAILURE TO PERFORM PROPER WATER TESTING PROCEDURES MAY CAUSE THE MANUFACTURER'S WARRANTY TO BECOME NULL AND VOID.