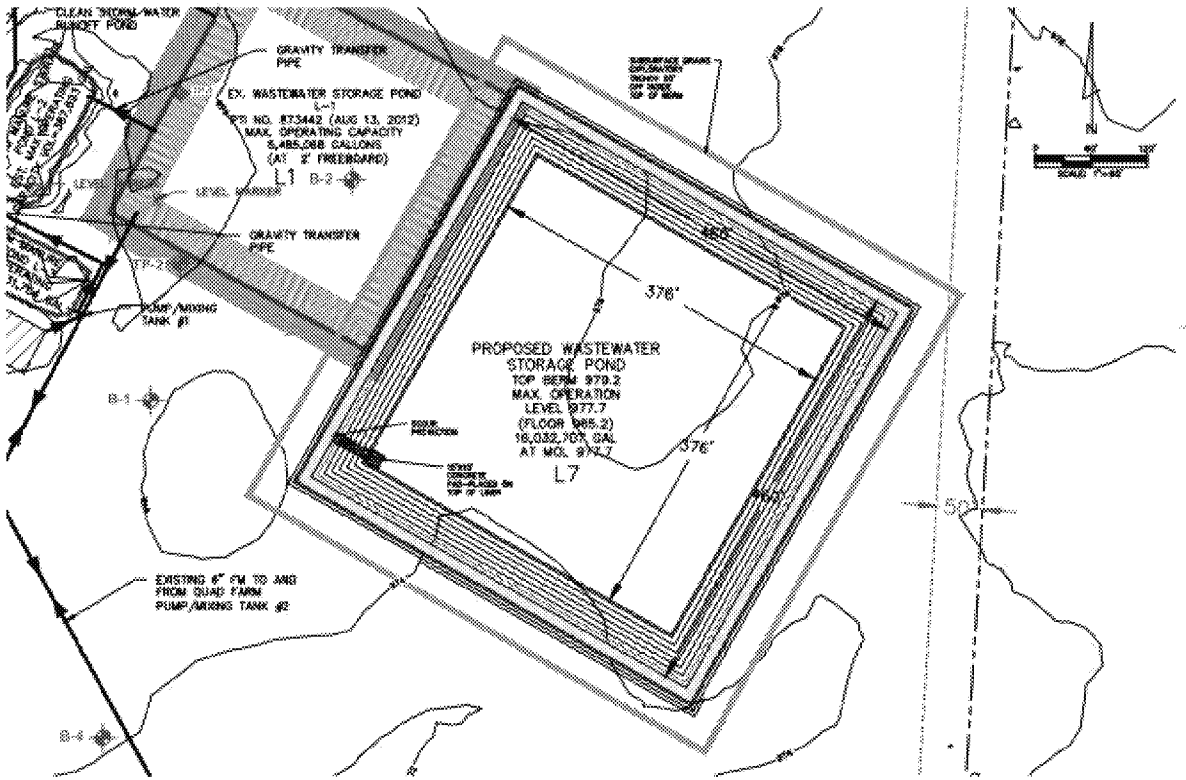

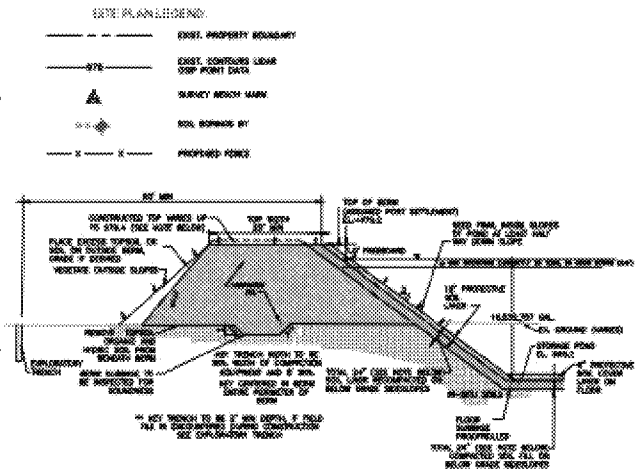

POND SECTION A (TYPICAL)

NOTE:

CONSTRUCTED BERM TOP WIDES THE BERM WILL BE OVER CONSTRUCTED 25 OF THE BERM HEIGHT BERM EXCESS SOIL FINAL HEIGHT WILL VARY FROM 979.2 TO 979.2

VOLUME TABLE

(THIS TABLE WILL BE REVISED WITH FINAL AS BUILT INFORMATION)

EXCAVATION CONTOUR	ELEVATION (MSL)	AREA (SF)	AREA (ACRES)	INCREMENTAL VOLUME (CY)	CUMULATIVE VOLUME (CY)	CUMULATIVE VOLUME (GALLONS)
1	965.2	16,000	0.37	0	0	0
2	966.2	17,000	0.39	5,900	5,900	44,100
3	967.2	18,000	0.41	6,500	12,400	92,700
4	968.2	19,000	0.44	7,100	19,500	145,800
5	969.2	20,000	0.46	7,800	27,300	204,200
6	970.2	21,000	0.48	8,500	35,800	267,800
7	971.2	22,000	0.51	9,200	45,000	336,600
8	972.2	23,000	0.53	9,900	54,900	410,600
9	973.2	24,000	0.55	10,600	65,500	489,800
10	974.2	25,000	0.57	11,300	76,800	574,200
11	975.2	26,000	0.60	12,000	88,800	663,800
12	976.2	27,000	0.62	12,700	101,500	758,600
13	977.2	28,000	0.64	13,400	114,900	858,600

DESIGN NOTE:

THE BERM SLOPE FOR EXISTING POND WITHIN THE LIMIT OF THE PROPOSED WASTEWATER STORAGE POND L-7, REGARDING BORINGS FOR THIS NEW POND WERE BEING CONDUCTED AND WILL BE USED TO UPDATE THESE DESIGN PLANS AS NEEDED.

WASTEWATER STORAGE POND DESIGN NOTES AND CONSTRUCTION SPECIFICATIONS

COMPACTED ENGINEERED SOIL FILL

1. SUBJECT TO THE ENGINEER'S APPROVAL, AREAS TO RECEIVE FILL SHALL BE STRIPPED TO REMOVE ALL VEGETATION, TOPSOIL, ORGANIC MATTER, OVERLY SOFT SEDIMENT, AND OTHER UNSUITABLE MATERIALS PRIOR TO THE PLACEMENT OF FILL MATERIALS. UNDERDRAINAGE MUST BE REPLACED WITH COMPACTED FILL.

FILL SHALL CONSIST OF SM-SW EXCAVATED, SOIL MATERIALS FREE OF FOREIGN MATERIALS, REFUSE, WASTE OR OTHER DELETERIOUS SUBSTANCES.

IF ENCOUNTERED, THE CONTRACTOR SHOULD BE PREPARED TO REMOVE SURFACE AND GROUND WATER FROM THE CONSTRUCTION AREA.

PLACEMENT OF FILL MATERIALS SHALL BE APPROVED BY THE ENGINEER AND INSPECTED WHEN REQUIRED. WHEN TESTING IS REQUIRED, ALLOW THE ENGINEER'S REPRESENTATIVE TIME TO PERFORM TESTING/INSPECTION AFTER COMPLETION OF EACH LAYER OF FILL IN THE EXPANDED AREA.

- THE FILL LIFT LAYER SHOULD BE RE-COMPACTED TO A MINIMUM 95% OF MAXIMUM DRY DENSITY AND +-2% TO +-4% OF OPTIMUM MOISTURE PRIOR TO ADDING BARS.
- RECOMPACTED LIFT THICKNESS: THE LIFT THICKNESS SHALL BE EQUIVALENT TO THE LENGTH OF THE FEET OF THE COMPACTOR ROLLER PLUS 2 INCHES, BUT NO EXCEED 6 INCHES IN TOTAL LOOSE LIFT THICKNESS.
- MINIMUM ROCK DIMENSIONS: 3 INCHES.
- MINIMUM MOISTURE CONTENT: THE SOIL MATERIAL SHALL BE OF SUFFICIENT MOISTURE TO EASILY FORM IT INTO A HOMOGENEOUS MASS, BUT SHALL BY HAND AND DRY CRUMBLE AND CRACKS. THE MOISTURE CONTENT APPROXIMATES OPTIMUM PLUS 2%.
- COMPACTION EQUIPMENT: SHEEPSFOOT ROLLER WITH A MINIMUM 200-PSI FOOT CONTACT PRESSURE, AND FEET A MINIMUM OF 7 IN LENGTH.
- COMPACTION CONTROL: A MINIMUM OF 4 PASSES OF THE ROLLER OVER ALL POINTS OF EACH LIFT, WHEN THE MOISTURE CONTENT IS ADEQUATE, THE SHEEPSFOOT ROLLER WILL PULVERIZE THE SOIL.
- ANY ADDITIONAL WATER NEEDED FOR PROPER COMPACTION SHALL BE PERSONALLY ADDED IN WITH A HOSE PRIOR TO COMPACTION.
- THE SURFACE OF A COMPACTED LIFT MUST BE SUFFICIENTLY ROUGH TO ALLOW BONDING WITH THE NEXT LIFT. SHEEPSFOOT THE SURFACE NEEDED TO BE SCARIFIED, RETREAT TO THE MINIMUM MOISTURE CONTENT, AND RECOMPACTION PRIOR TO PLACEMENT OF THE NEXT LIFT.

UNCOMPACTED SOIL LINER

IN ADDITION TO THE MINIMUM UNDERLAYING FOR ENGINEERED COMPACTED SOIL, THE 24" RECOMPACTED SOIL LINER WILL BE COMPACTED AT A MINIMUM DENSITY OF MOISTURE CONTENT AS NEEDED TO ACHIEVE A MINIMUM HYDRAULIC TIME DENSITY AND MOISTURE CONTENT WILL BE CONFIRMED IN THE FIELD USING THE MINIMUM GRADE METHOD AT A RATE OF 1 TEST PER LIFT, MINIMUM 1 TEST PER PROJECTION. LIFT SHALL BE ONE FOOT THICK.

AGITATION PUMP OUT PAD

BOOM PROTECTION WILL BE A LINE OF LARGE OF CONCRETE PLACED ON TOP OF THE SOIL, PUMPED SLOW, AS TO CONTROL FLOW TO THE BOTTOM OF POND. THE CHANNEL WILL BE AT LEVEL OF BERM AND CONTOURED TO CONTROL FLOW WITH 10" WIDE CHANNEL.

MEASURING DEVICE

FOR THE PROPOSED WASTEWATER POND, THE CONTRACTOR WILL INSTALL ONE LEVEL MEASURING DEVICE. THE MEASURING DEVICE WILL BE A 12" PIPE CUT TWO SHAPE FOR BOTTOM UNDERFOOT WITH THE CONCRETE SHAPE PORTION OF THE BOLT BOLTS PROTECTION AS NEEDED IN THE PLANS. A DIFFERENT SIZE WILL BE SET FOR EACH ELEVATION STARTING AT THE MAXIMUM OPERATING ELEVATION AND EVERY EVEN ONE FOOT INCREMENT BELOW THAT LEVEL TO 12" LARGE DIAMETER. AS DETAILED IN THE PLANS, THE PIPE SHALL BE SET AT THE 965 FULL MARK. THE ACTUAL FINAL ELEVATIONS TO BE USED WILL BE DETERMINED AT COMPLETION OF CONSTRUCTION BASED UPON AS-BUILT DIMENSIONS.

SUBMERGE BOOM BOLLING

THE SUBMERGE BOOM ON BOTH THE BOTTOM OF THE POND AND BELOW WHERE PORTIONS OF THE EXCAVATION OF THE POND BEGIN TO THE BOTTOM OF THE COMPACTED SOIL LINER SHALL BE PROVIDED IN THE PROCESS OF A BOLTED BOOM WITH A LARGE BOTTOM PIPE BELOW THE BOOM FLOATING TYPE FLOATING BOOM THE BOTTOM WILL, IF CONNECTED ON UNDERLAIN EXPLORATION CONTRACTOR AS A CHOICE OF 3 BOXES AND PROPERLY AND SUBMERGE THE SEDIMENTS WITH BOOM WILL BE FROM EXCAVATED TO A MINIMUM OF 20 BOXES AND INSPECTED FOR SAND OR PERMEABLE SOILS. IF PRESENT, FINE SAND AND NON-LOW PERMEABLE SOILS WILL BE OVEREXCAVATED AND REPLACED TO A VERTICAL AND HORIZONTAL DISTANCE OF AT LEAST 2' BELOW THE RECOMPACTED CLAY LINER AND REPLACED WITH ENGINEERED FILL AS DIRECTED BY THE ENGINEER.

FENCING

PROVIDE THE POND AND PROTECTIVE FLOTATION BOOMS FOR PUBLIC SAFETY IS REQUIRED. MAINTAIN BOOM WITH A BOOM AND SAFETY FLOTATION BOOKS SHALL BE PLACED ON AT LEAST TWO SIDES OF AN POND. LOCATE THE PERMANENT FENCE AS THAT EVEN MOVING AS POSSIBLE FOR THE HEATING AND PUMPING EQUIPMENT. A 6' HIGH WIRE MESH FENCE PER WIRE STANDARD 202 OR EQUAL SHALL BE INSTALLED.

EXPLORATORY TRENCH

AT THE BEGINNING OF CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE A 36" DEEP FIELD TEST EXPLORATORY TRENCH AS NEAR OUTSIDE THE PROPOSED POND AS NEEDED IN THE DRAWING. THE CONTRACTOR SHALL PERMEABILITY FIELD ALL ENCOUNTERED FIELD TEST TRENCH. IF REQUIRED WITH A PLASTIC CAP IF THE PIPE IS NOT IN CONTACT OR NOT PROTECTED CLEARLY SOILS OR ACCEPTABLE WITH DIAMETER OF THE PIPE IS BROKEN, OF DRAINING ABOVE AND/OR REMOVE THE ENCOUNTERED TILE STRAIGHT UNDER SAME TYPE/SIZE TILE WITH FITTINGS IN A MANNER ACCEPTABLE TO THE OWNER. ALL TILES UNDER OF THE 36" RETRACH SHALL BE COMPLETELY REMOVED. DISCONNECTION MUST BE DETERMINED BY CONTRACTOR AND INCLUDED IN THE FIELD DETERMINED.

AGITATION PUMPS AT FLOOR PAD

BOOM PUMP AT BOMBS WILL BE CONSTRUCTED ON TOP OF THE PROPER CLAY LINER. SAME BOOM WILL BE USED TO FORM THE PADS AT BOMBS OF THE CONTRACTOR SHALL FILL ANY HOLES IN THE LINER BASE BY THE POND PADS WITH PROPERLY COMPACTED.

OVEREXCAVATION

ANY SOIL, ORGANIC, OR MUCK SOILS ENCOUNTERED DURING EXCAVATION OF THE POND SHALL BE OVER-EXCAVATED AS DIRECTED BY THE CONTRACTOR ENGINEER AND REPLACED WITH COMPACTED SOIL FILL. OVEREXCAVATION DEPTH SHALL BE A MINIMUM OF 3' BELOW THE BASE OF THE 24" COMPACTED CLAY LINER.

NORTHSTAR

VENERGY, INC.

EMERALD BIOENERGY
WASTEWATER POND PLAN AND DETAILS
WESTFIELD TOWNSHIP, MARION COUNTY, OHIO

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