



Letter of Transmittal

TO: Mr. Geoffrey Spain
Iowa Department of Natural Resources
502 East 9th Street
Des Moines, Iowa 50319

DATE: November 22, 2024	JOB ID NO. 60699034
ATTENTION:	
RE: Black Hawk County Sanitary Landfill	
IDNR #07-SDP-01-75P	

WE ARE SENDING YOU:

- Attached Prints Under Separate Cover Via _____ the following items:
- Shop Drawings Change Order Plans Samples Specifications
- Copy of Letter _____

COPIES	DATE	NO.	DESCRIPTION
PDF			Cell W-3, Phase 2 – Part 2 Quality Assurance/Quality Control Report – 2024 TDA

THESE ARE TRANSMITTED AS CHECKED BELOW:

- For Approval Approved as Submitted Resubmit _____ Copies for Approval
- For Your Use Approved as Noted Submit _____ Copies for Distribution
- As Requested Returned for Corrections Return _____ Corrected Prints
- For Review and Comment _____
- For Bids Due _____ 20 _____ Prints Returned After Loan to Us

REMARKS: - REQUESTING APPROVAL TO FILL
Cell W-1, Phase 2 – Part 2 at the Black Hawk Sanitary Landfill.
Layer Thickness survey shots of the TDA placed on the Abutment Liner Slope in 2024 – Purple Shade on DWG 12.
Thank you.

COPY TO: John Foster - BHCSWMC
CGO:blc

SIGNED: 
Christopher G. Oelkers, PE

If enclosures are not as noted, kindly notify us at once.



Cell W-3, Phase 1 – Part 2
Quality Assurance/Quality Control Report
Black Hawk County Sanitary Landfill
Waterloo, Iowa

IDNR # 07-SDP-01-75P

AECOM #60699034

Prepared For:
Black Hawk County Solid Waste Management Commission
229 East Park Avenue
Waterloo, IA 50703

Prepared By:
AECOM
501 Sycamore Street, Suite 222
P.O. Box 1497
Waterloo, Iowa 50704-1497

November 2024

CELL W-3, PHASE 1 – PART 2
QUALITY ASSURANCE/QUALITY CONTROL REPORT
Black Hawk County Sanitary Landfill
Waterloo, Iowa



IDNR # 07-SDP-01-75P

AECOM #60699034

Prepared For:
Black Hawk County Solid Waste Management Commission

Prepared By:
AECOM

November 22, 2024

	<p>I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the state of Iowa.</p>
	<p></p> <p>CHRISTOPHER G. OELKERS, PE</p> <p>License No. <u>22053</u></p> <p>My license renewal date is December 31, 2025.</p> <p>Pages or sheets covered by this seal:</p> <p>_____</p> <p>Date Issued:</p> <p>_____</p>

11/22/2024

Date

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**CELL W-3, PHASE 2 – PART 2
QUALITY ASSURANCE/QUALITY CONTROL REPORT
BLACK HAWK COUNTY SANITARY LANDFILL
IDNR #07-SDP-01-75P**

PROJECT DESCRIPTION

The Cell W-3, Phase 2 project at the Black Hawk County Sanitary Landfill is a cell consisting of approximately 19.6 acres.

All the work constructing this cell as approved by IDNR on January 16, 2024 (IDNR Doc #108588) except for the TDA Leachate Drainage Layer placement on the abutment liner slope.

Attached is Part 2 of QAQC Report Appendix E. Part 2 contains the continuation of the table verifying the layer thickness of the TDA. Also attached is DWG 12. This drawing shows the TDA Leachate Drainage Layer installed in 2023 (blue) and 2024 (purple). The clay and HDPE liner has already been approved by IDNR for the entire cell.

PCI began placing the TDA Leachate Drainage Layer over the purple area once the remaining TDA was delivered to the site in late summer 2024. PCI completed the placement in September 2024. The TDA Leachate Drainage Layer thickness has been verified by survey as shown in Part 2 of the attached Appendix E.

The Black Hawk County Solid Waste Management Commission (BHCSWMC) is requesting to begin the filling of W3P2 from the first TDA Diversion Berm to the south cell boundary.

APPENDIX E - PART 2

Composite Liner Layer Thickness

W-3, Phase 2 QA/QC Report

Black Hawk County Landfill

Tuesday, September 17, 2024



PT	CLAY			TDA			TDA - FT	1.50 Min
	Northing	Easting	Elevation	Northing	Easting	Elevation		
176	3617644.131	5236529.958	954.55	3617644.131	5236529.958	956.616	2.07	YES
177	3617644.197	5236582.238	954.419	3617644.197	5236582.238	956.538	2.12	YES
178	3617644.26	5236632.24	954.34	3617644.26	5236632.24	956.252	1.91	YES
179	3617644.324	5236682.243	954.261	3617644.324	5236682.243	956.464	2.20	YES
180	3617644.387	5236732.246	954.194	3617644.387	5236732.246	955.793	1.60	YES
181	3617644.45	5236782.249	954.076	3617644.45	5236782.249	955.75	1.67	YES
182	3617644.513	5236832.251	953.97	3617644.513	5236832.251	955.609	1.64	YES
183	3617644.576	5236882.254	954.034	3617644.576	5236882.254	956.079	2.04	YES
184	3617644.639	5236932.257	953.952	3617644.639	5236932.257	956.841	2.89	YES
185	3617644.703	5236982.259	954.037	3617644.703	5236982.259	957.677	3.64	YES
186	3617644.766	5237032.262	954.143	3617644.766	5237032.262	957.126	2.98	YES
187	3617644.829	5237082.265	954.249	3617644.829	5237082.265	956.531	2.28	YES
188	3617644.892	5237132.268	954.366	3617644.892	5237132.268	955.993	1.63	YES
189	3617644.955	5237182.27	954.48	3617644.955	5237182.27	956.218	1.74	YES
190	3617645.019	5237232.273	953.738	3617645.019	5237232.273	955.904	2.17	YES
191	3617645.082	5237282.276	953.674	3617645.082	5237282.276	955.789	2.12	YES
192	3617645.145	5237332.278	953.568	3617645.145	5237332.278	955.763	2.20	YES
193	3617645.208	5237382.281	953.353	3617645.208	5237382.281	955.562	2.21	YES
194	3617645.271	5237432.284	953.361	3617645.271	5237432.284	955.553	2.19	YES
195	3617645.334	5237482.287	953.092	3617645.334	5237482.287	955.305	2.21	YES
196	3617645.398	5237532.289	952.99	3617645.398	5237532.289	955.137	2.15	YES
197	3617645.461	5237582.292	952.831	3617645.461	5237582.292	954.847	2.02	YES
198	3617645.524	5237632.295	952.668	3617645.524	5237632.295	954.827	2.16	YES
199	3617645.587	5237682.297	952.333	3617645.587	5237682.297	954.795	2.46	YES
200	3617645.65	5237732.3	949.005	3617645.65	5237732.3	953.284	4.28	YES
201	3617595.648	5237730.276	962.822	3617595.648	5237730.276	965.295	2.47	YES
202	3617595.585	5237680.275	963.744	3617595.585	5237680.275	966.851	3.11	YES
203	3617595.521	5237630.274	964.31	3617595.521	5237630.274	966.154	1.84	YES
204	3617595.458	5237580.274	964.469	3617595.458	5237580.274	966.168	1.70	YES
205	3617595.395	5237530.273	964.629	3617595.395	5237530.273	966.49	1.86	YES
206	3617595.332	5237480.273	964.788	3617595.332	5237480.273	966.756	1.97	YES
207	3617595.269	5237430.272	964.936	3617595.269	5237430.272	966.663	1.73	YES
208	3617595.205	5237380.272	965.078	3617595.205	5237380.272	967.002	1.92	YES
209	3617595.142	5237330.271	965.254	3617595.142	5237330.271	967.272	2.02	YES
210	3617595.079	5237280.271	965.41	3617595.079	5237280.271	967.335	1.93	YES
211	3617595.016	5237230.27	965.54	3617595.016	5237230.27	967.479	1.94	YES
212	3617594.953	5237180.27	967.613	3617594.953	5237180.27	969.779	2.17	YES
213	3617594.89	5237130.269	967.652	3617594.89	5237130.269	969.587	1.93	YES
214	3617594.826	5237080.269	967.527	3617594.826	5237080.269	969.579	2.05	YES
215	3617594.763	5237030.268	967.403	3617594.763	5237030.268	969.44	2.04	YES

APPENDIX E - PART 2

Composite Liner Layer Thickness

W-3, Phase 2 QA/QC Report

Black Hawk County Landfill

Tuesday, September 17, 2024



PT	CLAY			TDA			TDA - FT	1.50 Min
	Northing	Easting	Elevation	Northing	Easting	Elevation		
216	3617594.7	5236980.267	967.278	3617594.7	5236980.267	969.327	2.05	YES
217	3617594.637	5236930.267	967.189	3617594.637	5236930.267	969.419	2.23	YES
218	3617594.574	5236880.266	967.067	3617594.574	5236880.266	969.1	2.03	YES
219	3617594.511	5236830.266	966.981	3617594.511	5236830.266	969.172	2.19	YES
220	3617594.447	5236780.265	966.907	3617594.447	5236780.265	969.036	2.13	YES
221	3617594.384	5236730.265	966.859	3617594.384	5236730.265	968.895	2.04	YES
222	3617594.321	5236680.264	966.834	3617594.321	5236680.264	968.893	2.06	YES
223	3617594.258	5236630.264	966.779	3617594.258	5236630.264	968.989	2.21	YES
224	3617594.195	5236580.263	966.733	3617594.195	5236580.263	969.107	2.37	YES
225	3617594.131	5236530.263	966.711	3617594.131	5236530.263	969.555	2.84	YES
226	3617544.132	5236530.567	972.541	3617544.132	5236530.567	975.752	3.21	YES
227	3617544.195	5236580.567	972.469	3617544.195	5236580.567	974.425	1.96	YES
228	3617544.258	5236630.568	972.378	3617544.258	5236630.568	975.183	2.80	YES
229	3617544.321	5236680.568	972.205	3617544.321	5236680.568	974.297	2.09	YES
230	3617544.385	5236730.569	972.264	3617544.385	5236730.569	974.299	2.03	YES
231	3617544.448	5236780.57	972.286	3617544.448	5236780.57	974.298	2.01	YES
232	3617544.927	5236835.993	972.279	3617544.927	5236835.993	974.299	2.02	YES
233	3617544.574	5236880.571	972.54	3617544.574	5236880.571	974.66	2.12	YES
234	3617544.637	5236930.571	972.579	3617544.637	5236930.571	974.467	1.89	YES
235	3617544.7	5236980.572	972.661	3617544.7	5236980.572	974.661	2.00	YES
236	3617544.764	5237030.572	972.719	3617544.764	5237030.572	974.767	2.05	YES
237	3617543.353	5237086.087	972.888	3617543.353	5237086.087	975.016	2.13	YES
238	3617544.89	5237130.573	972.798	3617544.89	5237130.573	974.795	2.00	YES
239	3617544.953	5237180.574	972.755	3617544.953	5237180.574	974.854	2.10	YES
240	3617545.016	5237230.574	972.598	3617545.016	5237230.574	974.705	2.11	YES
241	3617545.079	5237280.575	971.455	3617545.079	5237280.575	973.474	2.02	YES
242	3617545.143	5237330.575	971.376	3617545.143	5237330.575	973.547	2.17	YES
243	3617545.206	5237380.576	971.386	3617545.206	5237380.576	973.513	2.13	YES
244	3617545.269	5237430.577	971.402	3617545.269	5237430.577	973.455	2.05	YES
245	3617545.332	5237480.577	971.328	3617545.332	5237480.577	973.303	1.98	YES
246	3617495.269	5237430.881	975.056	3617495.269	5237430.881	977.005	1.95	YES
247	3617495.206	5237380.88	974.975	3617495.206	5237380.88	977.148	2.17	YES
248	3617495.143	5237330.88	974.757	3617495.143	5237330.88	976.829	2.07	YES
249	3617495.08	5237280.879	974.905	3617495.08	5237280.879	976.987	2.08	YES
250	3617495.017	5237230.879	976.76	3617495.017	5237230.879	978.723	1.96	YES
251	3617494.953	5237180.878	977.041	3617494.953	5237180.878	978.945	1.90	YES
252	3617494.89	5237130.878	977.025	3617494.89	5237130.878	978.817	1.79	YES
253	3617494.827	5237080.877	976.985	3617494.827	5237080.877	978.74	1.76	YES
254	3617494.764	5237030.877	976.908	3617494.764	5237030.877	979.038	2.13	YES
255	3617494.701	5236980.876	976.818	3617494.701	5236980.876	978.8	1.98	YES

APPENDIX E - PART 2

Composite Liner Layer Thickness

W-3, Phase 2 QA/QC Report

Black Hawk County Landfill

Tuesday, September 17, 2024



PT	CLAY			TDA			TDA - FT	1.50 Min
	Northing	Easting	Elevation	Northing	Easting	Elevation		
256	3617494.638	5236930.875	976.735	3617494.638	5236930.875	978.942	2.21	YES
257	3617494.574	5236880.875	976.653	3617494.574	5236880.875	979.722	3.07	YES
258	3617494.511	5236830.874	976.275	3617494.511	5236830.874	977.88	1.61	YES
259	3617494.448	5236780.874	976.202	3617494.448	5236780.874	977.702	1.50	YES
260	3617494.385	5236730.873	976.179	3617494.385	5236730.873	978.225	2.05	YES
261	3617494.322	5236680.873	976.069	3617494.322	5236680.873	978.093	2.02	YES
262	3617494.259	5236630.872	976.438	3617494.259	5236630.872	978.538	2.10	YES
263	3617494.195	5236580.872	976.717	3617494.195	5236580.872	979.814	3.10	YES
264	3617494.132	5236530.871	976.909	3617494.132	5236530.871	982.038	5.13	YES
265	3617444.133	5236531.175	981.277	3617444.133	5236531.175	985.21	3.93	YES
266	3617444.196	5236581.176	981.068	3617444.196	5236581.176	985.247	4.18	YES
267	3617444.259	5236631.176	980.571	3617444.259	5236631.176	983.538	2.97	YES
268	3617444.322	5236681.177	979.933	3617444.322	5236681.177	981.981	2.05	YES
269	3617444.385	5236731.178	980.095	3617444.385	5236731.178	981.706	1.61	YES
270	3617444.448	5236781.178	980.117	3617444.448	5236781.178	981.654	1.54	YES
271	3617444.512	5236831.179	980.351	3617444.512	5236831.179	982.154	1.80	YES
272	3617444.575	5236881.179	980.729	3617444.575	5236881.179	982.507	1.78	YES
273	3617444.638	5236931.18	980.892	3617444.638	5236931.18	982.88	1.99	YES
274	3617444.701	5236981.18	980.974	3617444.701	5236981.18	983.058	2.08	YES
275	3617444.764	5237031.181	981.064	3617444.764	5237031.181	983.155	2.09	YES
276	3617444.827	5237081.181	981.155	3617444.827	5237081.181	983.288	2.13	YES
277	3617444.891	5237131.182	981.246	3617444.891	5237131.182	983.235	1.99	YES
278	3617444.954	5237181.182	981.358	3617444.954	5237181.182	982.946	1.59	YES
279	3617445.017	5237231.183	980.553	3617445.017	5237231.183	982.665	2.11	YES
280	3617445.08	5237281.183	978.318	3617445.08	5237281.183	980.397	2.08	YES
281	3617445.143	5237331.184	978.118	3617445.143	5237331.184	980.21	2.09	YES
282	3617445.207	5237381.185	978.519	3617445.207	5237381.185	980.604	2.09	YES
283	3617445.27	5237431.185	978.706	3617445.27	5237431.185	980.697	1.99	YES
284	3617395.27	5237431.489	982.356	3617395.27	5237431.489	984.143	1.79	YES
285	3617395.207	5237381.489	981.912	3617395.207	5237381.489	984.139	2.23	YES
286	3617395.144	5237331.488	981.199	3617395.144	5237331.488	983.313	2.11	YES
287	3617395.081	5237281.488	981.363	3617395.081	5237281.488	983.438	2.07	YES
288	3617395.017	5237231.487	984.447	3617395.017	5237231.487	986.64	2.19	YES
289	3617394.954	5237181.487	985.616	3617394.954	5237181.487	987.59	1.97	YES
290	3617394.891	5237131.486	985.412	3617394.891	5237131.486	987.356	1.94	YES
291	3617394.828	5237081.486	985.311	3617394.828	5237081.486	987.411	2.10	YES
292	3617394.765	5237031.485	985.221	3617394.765	5237031.485	987.281	2.06	YES
293	3617394.701	5236981.485	985.13	3617394.701	5236981.485	987.183	2.05	YES
294	3617394.638	5236931.484	985.048	3617394.638	5236931.484	987.018	1.97	YES
295	3617394.575	5236881.483	984.806	3617394.575	5236881.483	986.607	1.80	YES

APPENDIX E - PART 2

Composite Liner Layer Thickness

W-3, Phase 2 QA/QC Report

Black Hawk County Landfill

Tuesday, September 17, 2024



PT	CLAY			TDA			TDA - FT	1.50 Min
	Northing	Easting	Elevation	Northing	Easting	Elevation		
296	3617394.512	5236831.483	984.428	3617394.512	5236831.483	985.989	1.56	YES
297	3617394.449	5236781.482	984.05	3617394.449	5236781.482	985.565	1.52	YES
298	3617394.386	5236731.482	984.011	3617394.386	5236731.482	985.672	1.66	YES
299	3617394.322	5236681.481	983.797	3617394.322	5236681.481	986.765	2.97	YES
300	3617394.259	5236631.481	984.716	3617394.259	5236631.481	991.473	6.76	YES
301	3617394.196	5236581.48	985.436	3617394.196	5236581.48	991.304	5.87	YES
302	3617394.133	5236531.48	985.645	3617394.133	5236531.48	991.368	5.72	YES
303	3617344.133	5236531.784	989.894	3617344.133	5236531.784	997.37	7.48	YES
304	3617344.196	5236581.784	989.755	3617344.196	5236581.784	996.121	6.37	YES
305	3617344.26	5236631.785	988.851	3617344.26	5236631.785	994.485	5.63	YES
306	3617344.323	5236681.786	987.701	3617344.323	5236681.786	991.747	4.05	YES
307	3617344.386	5236731.786	987.926	3617344.386	5236731.786	989.548	1.62	YES
308	3617344.449	5236781.787	988.126	3617344.449	5236781.787	989.638	1.51	YES
309	3617344.512	5236831.787	988.504	3617344.512	5236831.787	990.355	1.85	YES
310	3617344.575	5236881.788	988.882	3617344.575	5236881.788	990.671	1.79	YES
311	3617344.639	5236931.788	989.205	3617344.639	5236931.788	991.267	2.06	YES
312	3617344.702	5236981.789	989.286	3617344.702	5236981.789	991.379	2.09	YES
313	3617344.765	5237031.789	989.377	3617344.765	5237031.789	991.412	2.04	YES
314	3617344.828	5237081.79	989.502	3617344.828	5237081.79	991.539	2.04	YES
315	3617344.891	5237131.79	989.646	3617344.891	5237131.79	991.732	2.09	YES
316	3617344.954	5237181.791	989.899	3617344.954	5237181.791	991.984	2.09	YES
317	3617345.018	5237231.791	988.683	3617345.018	5237231.791	990.534	1.85	YES
318	3617345.081	5237281.792	985.431	3617345.081	5237281.792	987.637	2.21	YES
319	3617345.144	5237331.793	985.206	3617345.144	5237331.793	987.068	1.86	YES
320	3617345.207	5237381.793	985.728	3617345.207	5237381.793	987.607	1.88	YES
321	3617345.27	5237431.794	986.007	3617345.27	5237431.794	987.801	1.79	YES
322	3617295.271	5237432.098	989.501	3617295.271	5237432.098	991.744	2.24	YES
323	3617295.208	5237382.097	989.598	3617295.208	5237382.097	991.105	1.51	YES
324	3617295.144	5237332.097	989.597	3617295.144	5237332.097	991.784	2.19	YES
325	3617295.081	5237282.096	990.528	3617295.081	5237282.096	992.412	1.88	YES
326	3617295.018	5237232.096	993.577	3617295.018	5237232.096	995.429	1.85	YES
327	3617294.955	5237182.095	994.176	3617294.955	5237182.095	996.1	1.92	YES
328	3617294.892	5237132.095	993.88	3617294.892	5237132.095	995.884	2.00	YES
329	3617294.828	5237082.094	993.736	3617294.828	5237082.094	995.772	2.04	YES
330	3617294.765	5237032.094	993.592	3617294.765	5237032.094	995.618	2.03	YES
331	3617294.702	5236982.093	993.448	3617294.702	5236982.093	995.492	2.04	YES
332	3617294.639	5236932.092	993.337	3617294.639	5236932.092	995.378	2.04	YES
333	3617294.576	5236882.092	992.959	3617294.576	5236882.092	994.551	1.59	YES
334	3617294.513	5236832.091	992.581	3617294.513	5236832.091	994.815	2.23	YES
335	3617294.449	5236782.091	992.203	3617294.449	5236782.091	993.758	1.56	YES

APPENDIX E - PART 2

Composite Liner Layer Thickness

W-3, Phase 2 QA/QC Report

Black Hawk County Landfill

Tuesday, September 17, 2024



PT	CLAY			TDA			TDA - FT	1.50 Min
	Northing	Easting	Elevation	Northing	Easting	Elevation		
336	3617294.386	5236732.09	991.842	3617294.386	5236732.09	993.963	2.12	YES
337	3617294.323	5236682.09	991.601	3617294.323	5236682.09	995.123	3.52	YES
338	3617294.26	5236632.089	993.006	3617294.26	5236632.089	997.831	4.83	YES
339	3617294.197	5236582.089	994.004	3617294.197	5236582.089	1000.607	6.60	YES
340	3617294.134	5236532.088	994.101	3617294.134	5236532.088	1001.903	7.80	YES

