


Project 468-06

Book

**SITE ASSESSMENT REVIEW
OF PROPOSED BENEFICIAL USE
OF FOUNDRY SAND
ODOT PROJECT #468-06
WICKLIFFE, OHIO
PROJECT NO.: 07231E
AUGUST 15, 2007**

Prepared at the request of:

Mr. Jason Tucker
Great Lakes Construction Co.
2608 Great Lakes Way
Hinkley, OH 44233

 **EDP Consultants, Inc.**
9375 Chillicothe Road
Kirtland, Ohio 44094-8501
Phone: 440-256-6500
Fax: 440-256-6507
www.edpconsultants.com



OHIO DEPARTMENT OF TRANSPORTATION

DISTRICT 12 * 5500 TRANSPORTATION BLVD * GARFIELD HEIGHTS, OH 44125 * (216) 581-2100
TED STRICKLAND, GOVERNOR * JAMES G. BEASLEY P.E., P.S. DIRECTOR * BONITA G. TEEUWEN, P.E. DISTRICT DEPUTY DIRECTOR

February 24, 2009

The Shelly Company
8920 Canyon Falls Blvd. – Suite 120
Twinsburg, Ohio 44087

Dear Sir/Madam:

Enclosed please find the Final Quantity Listing taken from the ODOT Construction Management System (CMS) for Project No. 468-06.

The following pages list the final quantities for the subject project, as calculated from the original contract quantities, prior payments and all approved change orders. As stated within, this information is being provided for your review and may be subject to change pending District audit review. It is the policy of the Department to allow the Prime Contractor thirty (30) days to review and respond to this Final Quantity Report. The approved report or documentation justifying any differences should be submitted to this office by **March 24, 2009.**

Please sign the original copy of this form and return to the District 12 Office for further processing no later than the date stated above. Please be advised that if a signed copy is not returned or any written objections are not received by the date stated, these quantities will be considered approved.

NOTE: References 37, 39, 41, 43, 44 & 45 have final quantities to date – these will be adjusted to final measurements for work to be completed in Spring 2009.

Respectfully,

A handwritten signature in black ink, appearing to read "Jeffery A. Hebebrand".

Jeffery A. Hebebrand, P.E.
Construction Area Engineer

JAH:js

enclosures:

c: M. Piascik
file

Final Quantities

Project: 06-0468
SHELLY COMPANY

80 PARK DR BOX 266

THORNVILLE OH 43076-

(Project Engineer / Supervisor)

The following pages list the final quantities of project 06-0468 in LAKE county along route SR 2 section 000.00. These quantities have been calculated from the original contract quantities, the prior payments and all approved change orders.

The quantities have been provided for your review. They are currently under review by the auditors, and are subject to change. Please contact me promptly if you have any questions.

In compliance with the director's latest instructions concerning payment of current and final estimates, I ask that you return a signed copy of this form to me no later than 3/24/2009, for further processing. If a signed copy is not returned - or written objections are not received - by the above date, these quantities will be considered approved.

(signature, officer of company)

Date

(District Reviewer)

Date

Ref. Nbr	Extra Work	Part Code	Adj. Nbr	Unit	Final QTY/AMT	Contractor Comments
1	0	1	0	LS	\$100,000.00	
2	0	1	0	SY	3,076.000	
3	0	1	0	SF	767.000	
4	0	1	0	FT	2,660.000	
5	0	1	0	FT	655.000	
6	0	1	0	FT	409.000	
7	0	1	0	FT	25,549.000	
8	0	1	0	EACH	1.000	
9	0	1	0	EACH	3.000	
10	0	1	0	FT	0.000	
11	0	1	0	FT	35,349.000	
12	0	1	0	CY	36,596.000	
12	0	1	1	LS	\$24,428.00	
13	0	1	0	CY	14,200.000	
14	0	1	0	SY	82,471.000	
15	0	1	0	HOUR	1.000	
16	0	1	0	STA	199.000	
17	0	1	0	CY	450.000	
18	0	1	0	SF	95,267.000	
18	0	1	1	LS	\$42,775.35	
18	0	2	0	SF	61,197.000	
19	0	1	0	SF	104,162.000	
19	0	2	0	SF	1,062.000	

20	0	1	0	EACH	0.000	
21	0	1	0	EACH	3.000	
22	0	1	0	FT	37,015.000	
23	0	1	0	FT	387.500	
24	0	1	0	EACH	16.000	
25	0	1	0	EACH	17.000	
26	0	1	0	EACH	30.000	
27	0	1	0	EACH	28.000	
28	0	1	0	EACH	1.000	
29	0	1	0	FT	35,349.000	
30	0	1	0	FT	1,288.000	
31	0	1	0	EACH	21.000	
32	0	1	0	FT	1,099.000	
33	0	1	0	EACH	2.000	
34	0	1	0	EACH	28.000	
35	0	1	0	EACH	38.000	
36	0	1	0	EACH	1.000	
37	0	1	0	CY	1,685.000	
38	0	1	0	SY	14,593.000	
39	0	1	0	SY	0.000	
41	0	1	0	SY	0.000	
42	0	1	0	SY	0.000	
43	0	1	0	TON	1.365	
44	0	1	0	ACRE	0.000	
45	0	1	0	MGAL	0.000	
46	0	1	0	MSF	0.000	
47	0	1	0	LS	\$40,375.00	
48	0	1	0	EACH	40,668.350	
49	0	1	0	FT	1,492.000	
50	0	1	0	FT	1,209.000	
51	0	1	0	FT	0.000	
52	0	1	0	FT	263.000	
53	0	1	0	FT	300.000	
54	0	1	0	FT	73.000	
55	0	1	0	FT	507.000	
56	0	1	0	EACH	3.000	
57	0	1	0	EACH	4.000	
58	0	1	0	EACH	331.000	
59	0	1	0	LB	1,881.000	
60	0	1	0	FT	57,555.000	
61	0	1	0	FT	2,462.000	
62	0	1	0	SY	4,403.000	
62	0	1	1	LS	\$-489.24	
63	0	1	0	FT	14,735.000	
64	0	1	0	SY	252,890.000	
65	0	1	0	SY	0.000	
66	0	1	0	CY	19,907.000	
66	0	1	1	LS	\$-13,614.59	

66	0	1	2	LS	\$133,672.00	
67	0	1	0	CY	13,850.000	
68	0	1	0	GAL	21,011.000	
69	0	1	0	GAL	19,045.000	
70	0	1	0	FT	0.000	
71	0	1	0	CY	9,288.000	
71	0	1	1	LS	\$-25,775.91	
71	0	1	2	LS	\$35,036.41	
71	0	1	3	LS	\$3,127.36	
72	0	1	0	CY	26,126.000	
72	0	1	1	LS	\$-4,911.29	
72	0	1	2	LS	\$-2,862.30	
73	0	1	0	CY	1,051.000	
73	0	1	1	LS	\$-1,379.48	
74	0	1	0	FT	0.000	
75	0	1	0	SF	250.000	
76	0	1	0	SF	671.000	
77	0	1	0	FT	2,191.000	
78	0	1	0	CY	481.000	
79	0	1	0	FT	67,503.000	
80	0	1	0	EACH	48.000	
81	0	1	0	EACH	43.000	
82	0	1	0	LS	\$100.00	
83	0	1	0	EACH	4.000	
84	0	1	0	EACH	330.000	
85	0	1	0	EACH	0.000	
86	0	1	0	EACH	140.000	
87	0	1	0	EACH	140.000	
88	0	1	0	EACH	8.000	
89	0	1	0	EACH	9.000	
90	0	1	0	EACH	5.000	
91	0	1	0	EACH	2.000	
92	0	1	0	EACH	142.000	
93	0	1	0	EACH	8.000	
94	0	1	0	EACH	16.000	
95	0	1	0	FT	3,643.000	
96	0	1	0	FT	3,071.000	
97	0	1	0	FT	4,550.000	
98	0	1	0	FT	13,610.000	
99	0	1	0	FT	19,186.000	
100	0	1	0	FT	7,321.000	
101	0	1	0	FT	1,383.000	
102	0	1	0	FT	840.000	
103	0	1	0	FT	1,338.000	
104	0	1	0	EACH	3.000	
105	0	1	0	EACH	3.000	
106	0	1	0	EACH	158.000	
107	0	1	0	EACH	42.000	

108	0	1	0	FT	24,688.000	
109	0	1	0	FT	69.000	
110	0	1	0	EACH	63.000	
111	0	1	0	EACH	40.000	
112	0	1	0	EACH	166.000	
113	0	1	0	EACH	2.000	
114	0	1	0	EACH	3.000	
115	0	1	0	EACH	4.000	
116	0	1	0	LS	\$5,000.00	
117	0	1	0	EACH	0.000	
118	0	1	0	EACH	0.000	
119	0	1	0	EACH	710.000	
120	0	1	0	EACH	195.000	
121	0	1	0	EACH	30.000	
122	0	1	0	EACH	1,155.000	
123	0	1	0	EACH	0.000	
124	0	1	0	EACH	433.000	
125	0	1	0	FT	930.500	
126	0	1	0	FT	802.500	
127	0	1	0	FT	123.000	
128	0	1	0	FT	584.000	
129	0	1	0	FT	0.000	
130	0	1	0	FT	45.000	
131	0	1	0	FT	127.600	
132	0	1	0	FT	146.500	
133	0	1	0	EACH	40.000	
134	0	1	0	EACH	83.000	
135	0	1	0	EACH	3.000	
136	0	1	0	SF	1,001.400	
137	0	1	0	SF	706.000	
138	0	1	0	SF	3,379.000	
139	0	1	0	EACH	40.000	
140	0	1	0	EACH	131.000	
141	0	1	0	EACH	8.000	
142	0	1	0	EACH	12.000	
143	0	1	0	EACH	137.000	
144	0	1	0	EACH	30.000	
145	0	1	0	EACH	31.000	
146	0	1	0	EACH	36.000	
147	0	1	0	EACH	12.000	
148	0	1	0	EACH	21.000	
149	0	1	0	EACH	12.000	
150	0	1	0	EACH	11.000	
157	0	1	0	MILE	18.010	
158	0	1	0	MILE	13.950	
159	0	1	0	FT	5,745.000	
160	0	1	0	FT	210.000	
161	0	1	0	EACH	21.000	

162	0	1	0	EACH	6.000	
163	0	1	0	HOUR	2,134.000	
164	0	1	0	MNTH	15.500	
165	0	1	0	FT	27,052.000	
166	0	1	0	FT	1,380.000	
167	0	1	0	EACH	16.000	
168	0	1	0	LS	\$700.00	
169	0	1	0	EACH	17.000	
170	0	1	0	EACH	10.000	
171	0	1	0	SF	0.000	
172	0	1	0	EACH	0.000	
173	0	1	0	CY	68.400	
174	0	1	0	EACH	121.000	
175	0	1	0	EACH	280.000	
176	0	1	0	EACH	95.000	
177	0	1	0	SNMT	9.500	
178	0	1	0	MILE	67.300	
179	0	1	0	MILE	89.860	
180	0	1	0	FT	19,416.000	
181	0	1	0	FT	357.000	
182	0	1	0	MGAL	0.000	
183	0	1	0	TON	0.000	
184	0	1	0	FT	4,152.000	
185	0	1	0	FT	900.000	
186	0	1	0	CY	1,418.000	
188	0	1	0	SY	864.000	
189	0	1	0	SF	5.000	
192	0	1	0	CY	3.000	
193	0	1	0	FT	402.000	
200	0	1	0	LS	\$35,000.00	
201	0	1	0	LB	8,609.000	
202	0	1	0	EACH	674.000	
203	0	1	0	CY	61.600	
204	0	1	0	EACH	0.000	
205	0	1	0	SY	685.000	
206	0	1	0	SF	30.000	
207	0	1	0	SF	176.000	
208	0	1	0	SF	307.000	
209	0	1	0	SY	127.000	
210	0	1	0	SY	1,549.000	
211	0	1	0	SY	1,049.000	
212	0	1	0	SY	268.000	
213	0	1	0	SY	1,316.000	
214	0	1	0	CY	91.000	
215	0	1	0	SY	160.000	
216	0	1	0	LS	\$0.00	
217	0	1	0	CY	0.000	
218	0	1	0	SY	268.000	

219	0	1	0	SY	113.000	
220	0	3	0	LS	\$35,000.00	
221	0	3	0	LB	8,625.000	
222	0	3	0	EACH	676.000	
223	0	3	0	CY	61.600	
224	0	3	0	EACH	0.000	
225	0	3	0	SY	680.000	
226	0	3	0	SF	30.000	
227	0	3	0	SF	167.000	
228	0	3	0	SF	375.000	
229	0	3	0	SY	134.000	
230	0	3	0	SY	1,351.000	
231	0	3	0	SY	851.000	
232	0	3	0	SY	200.000	
233	0	3	0	SY	1,051.000	
234	0	3	0	CY	74.000	
235	0	3	0	SY	74.000	
236	0	3	0	LS	\$0.00	
237	0	3	0	CY	0.000	
238	0	3	0	SY	200.000	
239	0	3	0	SY	124.000	
240	0	1	0	SY	930.000	
241	0	1	0	SY	1,193.000	
242	0	1	0	SF	0.000	
243	0	1	0	SF	0.000	
244	0	1	0	SF	0.000	
245	0	1	0	SF	0.000	
246	0	1	0	EACH	0.000	
247	0	1	0	SF	85.000	
248	0	1	0	SY	0.000	
249	0	3	0	SY	842.000	
250	0	3	0	SY	972.000	
251	0	3	0	SF	0.000	
252	0	3	0	SF	0.000	
253	0	3	0	SF	0.000	
254	0	3	0	SF	0.000	
255	0	3	0	EACH	0.000	
256	0	3	0	SF	89.000	
257	0	3	0	SY	0.000	
258	0	3	0	LS	\$34,000.00	
259	0	3	0	LB	7,849.000	
260	0	3	0	EACH	638.000	
261	0	3	0	CY	52.700	
262	0	3	0	EACH	0.000	
263	0	3	0	SY	621.000	
264	0	3	0	SF	25.000	
265	0	3	0	SF	332.000	
266	0	3	0	SF	515.000	

267	0	3	0	SY	118.000
268	0	3	0	SY	1,177.000
269	0	3	0	SY	777.000
270	0	3	0	SY	197.000
271	0	3	0	SY	974.000
272	0	3	0	CY	66.000
273	0	3	0	SY	83.000
274	0	3	0	LS	\$0.00
275	0	3	0	CY	0.000
276	0	3	0	SY	197.000
277	0	3	0	SY	107.000
278	0	3	0	LS	\$34,000.00
279	0	3	0	LB	7,898.000
280	0	3	0	EACH	644.000
281	0	3	0	CY	52.600
282	0	3	0	EACH	0.000
283	0	3	0	SY	631.000
284	0	3	0	SF	25.000
285	0	3	0	SF	474.000
286	0	3	0	SF	722.000
287	0	3	0	SY	173.000
288	0	3	0	SY	1,175.000
289	0	3	0	SY	775.000
290	0	3	0	SY	200.000
291	0	3	0	SY	975.000
292	0	3	0	CY	67.000
293	0	3	0	SY	51.000
294	0	3	0	LS	\$0.00
295	0	3	0	CY	0.000
296	0	3	0	SY	200.000
297	0	3	0	SY	210.000
298	0	3	0	SY	842.000
299	0	3	0	SY	969.000
300	0	3	0	SF	1,860.000
301	0	3	0	SF	1,860.000
302	0	3	0	SF	1,860.000
303	0	3	0	SF	1,860.000
304	0	3	0	EACH	2.000
305	0	3	0	SF	105.000
306	0	3	0	SY	134.000
307	0	3	0	SY	835.000
308	0	3	0	SY	969.000
309	0	3	0	SF	1,861.000
310	0	3	0	SF	1,861.000
311	0	3	0	SF	1,861.000
312	0	3	0	SF	1,861.000
313	0	3	0	EACH	3.000
314	0	3	0	SF	91.000

315	0	3	0	SY	146.000	
316	0	3	0	LS	\$46,000.00	
317	0	3	0	LB	8,619.000	
318	0	3	0	EACH	714.000	
319	0	3	0	CY	59.800	
320	0	3	0	EACH	763.000	
321	0	3	0	SY	929.000	
322	0	3	0	SF	1,861.000	
323	0	3	0	SF	1,861.000	
324	0	3	0	SF	1,861.000	
325	0	3	0	SF	1,861.000	
326	0	3	0	EACH	3.000	
327	0	3	0	FT	2.700	
328	0	3	0	FT	129.000	
329	0	3	0	SF	478.000	
330	0	3	0	SY	263.000	
331	0	3	0	SY	1,274.000	
332	0	3	0	SY	874.000	
333	0	3	0	SY	200.000	
334	0	3	0	SY	874.000	
335	0	3	0	SY	200.000	
336	0	3	0	CY	58.000	
337	0	3	0	SY	65.000	
338	0	3	0	LS	\$0.00	
339	0	3	0	CY	0.000	
340	0	3	0	SY	200.000	
341	0	3	0	SY	78.000	
342	0	3	0	LS	\$46,000.00	
343	0	3	0	LB	8,604.000	
344	0	3	0	EACH	712.000	
345	0	3	0	CY	59.800	
346	0	3	0	EACH	0.000	
347	0	3	0	SY	893.000	
348	0	3	0	SF	1,860.000	
349	0	3	0	SF	1,860.000	
350	0	3	0	SF	1,860.000	
351	0	3	0	SF	1,860.000	
352	0	3	0	EACH	2.000	
353	0	3	0	FT	2.700	
354	0	3	0	FT	128.000	
355	0	3	0	SF	434.000	
356	0	3	0	SY	188.000	
357	0	3	0	SY	1,274.000	
358	0	3	0	SY	874.000	
359	0	3	0	SY	203.000	
360	0	3	0	SY	874.000	
361	0	3	0	SY	203.000	
362	0	3	0	CY	62.000	

363	0	3	0	SY	53.000
364	0	3	0	LS	\$0.00
365	0	3	0	SY	203.000
366	0	3	0	SY	88.000
367	0	1	0	LS	\$12,000.00
368	0	1	0	LB	2,276.000
369	0	1	0	EACH	310.000
370	0	1	0	CY	16.600
371	0	1	0	EACH	200.000
372	0	1	0	SY	295.000
373	0	1	0	SF	304.000
374	0	1	0	SY	613.000
375	0	1	0	SY	213.000
376	0	1	0	SY	297.000
377	0	1	0	SY	213.000
378	0	1	0	SY	297.000
379	0	1	0	CY	31.000
380	0	1	0	SY	7.000
381	0	1	0	LS	\$0.00
382	0	1	0	SY	297.000
383	0	1	0	SY	13.000
384	0	1	0	LS	\$12,000.00
385	0	1	0	LB	2,222.000
386	0	1	0	EACH	302.000
387	0	1	0	CY	16.400
388	0	1	0	EACH	208.000
389	0	1	0	SY	292.000
390	0	1	0	SF	320.000
391	0	1	0	SY	457.000
392	0	1	0	SY	240.000
393	0	1	0	SY	346.000
394	0	1	0	SY	240.000
395	0	1	0	SY	346.000
396	0	1	0	CY	30.000
397	0	1	0	SY	15.000
398	0	1	0	LS	\$0.00
399	0	1	0	SY	346.000
400	0	1	0	SY	62.000
401	0	1	0	LS	\$125,830.27
401	0	2	0	LS	\$9,967.39
401	0	3	0	LS	\$14,202.34
402	0	1	0	LS	\$2,097.17
402	0	2	0	LS	\$166.12
402	0	3	0	LS	\$236.71
403	0	1	0	LS	\$1,124,670.24
403	0	2	0	LS	\$89,088.99
403	0	3	0	LS	\$126,940.77
404	0	1	0	MNTH	20.130

404	0	2	0	MNTH	1.600
404	0	3	0	MNTH	2.270
405	0	1	0	LS	\$41,943.40
405	0	2	0	LS	\$3,322.48
405	0	3	0	LS	\$4,734.12
406	0	1	0	LS	\$671,094.38
406	0	2	0	LS	\$53,159.70
406	0	3	0	LS	\$75,745.92
500	0	1	0	CY	1,546.000
500	0	1	1	LS	\$-3,265.94
500	0	1	2	LS	\$5,076.72
501	0	1	0	LS	\$0.00
502	0	1	0	SF	9,273.000
503	0	1	0	CY	3,217.000
504	0	1	0	SY	1,002.000
505	0	1	0	CY	6,055.000
506	0	1	0	CY	33.000
507	0	1	0	FT	874.000
508	0	1	0	FT	402.000
509	0	1	0	DAY	4.000
510	0	1	0	LS	\$6,500.00
511	0	1	0	STA	381.000
512	0	1	0	LS	\$4,100.00
513	0	1	0	EACH	0.000
514	0	3	0	EACH	0.000
515	0	3	0	EACH	0.000
516	0	3	0	EACH	0.000
517	0	3	0	EACH	0.000
518	0	3	0	EACH	0.000
519	0	1	0	EACH	0.000
520	0	1	0	EACH	0.000
521	0	1	0	FT	108.000
522	0	3	0	FT	72.000
523	0	3	0	FT	72.000
524	0	3	0	FT	72.000
525	0	1	0	FT	133.000
526	0	1	0	FT	152.000
527	2	1	0	LS	\$1,575.00
528	3	1	0	FT	1,007.000
529	4	2	0	LS	\$59,068.75
530	6	1	0	EACH	2.000
531	7	1	0	SY	510.000
532	7	1	0	SY	950.000
533	9	1	0	LS	\$14,291.65
534	10	1	0	LS	\$3,531.29
535	11	3	0	LS	\$3,004.83
536	12	1	0	LS	\$11,037.71
537	13	1	0	LS	\$16,176.39

538	15	1	0	LS	\$9,170.39	
539	18	1	0	LS	\$1,278.07	
540	19	1	0	MNHR	0.000	
540	19	3	0	MNHR	15.000	
541	20	2	0	LS	\$16,102.96	
542	28	1	0	EACH	2.000	
543	29	1	0	LS	\$619.45	
544	30	1	0	LS	\$33,870.25	
545	32	1	0	EACH	14.000	

Contents

1	BACKGROUND	1
2	PURPOSE OF THE SITE ASSESSMENT REVIEW.....	1
3	DESCRIPTION OF BENEFICIAL USE OF FOUNDRY SAND IN THIS PROJECT.....	2
4	SITE REVIEW OF ISOLATION DISTANCES	2
4.1	Streams	3
4.2	Wetlands	3
4.3	Regulatory Floodplains.....	3
4.4	Drinking Water Wells.....	3
4.5	Drinking Water Source Protection Area	4
5	ANLYTICAL TESTING	4
6	ANALYTICAL TESTING RESULTS & COMPARISON TO STANDARDS.....	4
7	GENERAL REQUIREMENTS.....	5
8	OTHER CRITERIA	5
	CONCLUSIONS & RECOMMENDATIONS.....	5
9	QUALIFYING REMARKS.....	6
10	SIGNATURES	6

Tables

Table 1: Analytical Results for Fords Mold Foundry Sand (mg/l)	4
--	---

Figures

Figure 1: Approximate location of the placement of foundry sand taken from the 7.5' USGS Topographic Map of the Mayfield Heights, Ohio Quadrangle.	7
Figure 2: Approximate location of placement of foundry sand taken from the USDA Soil Conservation Service Soil Survey of Lake County, Ohio.	8
Figure 3: Approximate location of placement of foundry sand taken from the National Wetlands Inventory Map of the Mayfield Heights quadrangle.	9
Figure 4: Approximate location of the placement of foundry sand taken from the U.S. Department of Housing and Urban Development Flood Insurance Rate Map of the City of Wickliffe, Cuyahoga County, Ohio.	10
Figure 5: Approximate location of the placement of foundry sand taken from the ODNR map entitled Ground Water Resources of Lake County, Ohio.	11

Photographs

Photographs 1 and 2.	12
---------------------------	----

Appendices

Appendix A: Engineered Plans for the MSE Wall & Storm Water Pollution Prevention Plan	
Appendix B: Drinking Water Source Protection Area-OEPA Correspondence	
Appendix C: Analytical Results for Ford's Mold Foundry Sands	

**SITE ASSESSMENT REVIEW OF PROPOSED
BENEFICIAL USE OF FOUNDRY SAND
ODOT PROJECT #468-06
CLEVELAND, OHIO
AUGUST 15, 2007**

This report describes the procedures and presents the findings for a Site Assessment Review of Proposed Beneficial Use of Foundry Sand supplied by Kurtz Brothers, Inc. (Kurtz) for engineered fill in a planned retaining wall along the westbound lane of State Route 2 in Wickliffe, Lake County, Ohio.

1 BACKGROUND

Great Lakes Construction Co. (Great Lakes) has been contracted by the Ohio Department of Transportation (ODOT) to upgrade State Route 2 in Lake County from the western county line to State Route 91. This work includes road resurfacing, shoulder replacement, guardrail replacement, installation of lighting, noise barriers and a retaining wall. The planned retaining wall, a mechanically stabilized earth (MSE) wall, will be installed along the north side of the westbound lane just west of the Lloyd Road exit. The Location of the planned MSE Wall is shown on the attached USGS Topographic Map (Figure 1). Great Lakes plans to use foundry sand supplied by Kurtz for engineered fill in the MSE wall.

According to Kurtz, the foundry sand they supply consists sand that has been used to create molds to cast engine blocks at Ford Motor Companies (Ford) Motor Assembly Plant in Cleveland, Ohio. The Foundry sand that Ford uses consists of approximately 97% silica sand from the Upper Peninsula of Michigan, 10% bentonite clay, and 3% seacoal (pulverized bituminous coal).

2 PURPOSE OF THE SITE ASSESSMENT REVIEW

The purpose of this Site Assessment Review is to evaluate if the planned use of the foundry sand supplied by Kurtz for engineered fill in the MSE wall along the westbound lane of State Route 2 is consistent with Ohio EPA Policy 400.007 entitled *Beneficial Use of Nontoxic Bottom Ash, Fly Ash, and Spent Foundry Sand, and Other Exempt Waste*. Ohio EPA Policy 400.007 was issued on November 7, 1995, but was later rescinded by the Ohio EPA on April 30, 2003. Although this policy was rescinded, ODOT uses criteria in Policy 400.007 as a material specification.

According ODOT Construction and Material Specification 703.11 for Structural Backfill for 603 Bedding and Backfill (issued January 1, 2005):

Use of foundry sand if the material meets these requirements and meets the requirements of the Ohio EPA, Division of Surface Water, Policy 400.007 "Beneficial use of Non-Toxic Bottom Ash, Fly Ash and Spent Foundry Sand and Other Exempt Waste," and all other regulations. Ten

days before using foundry sand on the project, submit written permission from the Ohio EPA to the Engineer. Instead of written permission from the Ohio EPA, the contractor may elect to have an independent consultant pre-qualified by ODOT in remedial design environmental site assessment review the proposed usage. The consultant will provide all documentation utilized to ensure that the proposed usage is according to all Ohio EPA regulations. Ensure that the consultant coordinates all EPA required meetings, documentation, and testing requirements. Ensure that the Consultant certifies this to the Department.

3 DESCRIPTION OF BENEFICIAL USE OF FOUNDRY SAND IN THIS PROJECT

An approximately 400 foot long MSE wall will be installed along the north side of the westbound lane just west of the Lloyd Road exit. The Location of the planned MSE Wall is shown in the attached Photographs 1 and 2. The planned MSE wall will have a maximum high of about 30 feet. Great Lakes plans to use about 8,000 cubic yards (about 12,000 to 14,000 tons) of foundry sand supplied by Kurtz for engineered fill in the MSE wall.. The foundry sand will be placed behind the full height of the MSE Wall. The top of the MSE wall will be covered by approximately two feet of 203 embankment material. The design of the MSE wall includes two plastic drain pipes located interior to the MSE wall near its base. The drain pipes will be wrapped in filter fabric and bedded in 304 aggregate approximately three feet below the foundry sand. The drain pipes discharge to a storm sewer. Engineered plans and drawings for the MSE wall are included in Appendix A.

According to Mr. Jason Tucker, Great Lake's Project Manager for ODOT Project #458-06, the construction of the MSE wall is scheduled to start about August 15, 2007, and is scheduled to be completed about September 15, 2007.

Policy 400.007 categorizes Beneficial Use of waste materials by the quantity of material used and the way in which it is used. The use of foundry sand in this project would be classified in Policy 400.007 as a Category 2 use, "Structural fill"/600 to 30,000 tons. Foundry Sand beneficially used for Category 2 use must have chemical testing results for leaching below the standards stated in Policy 400.007. According to Policy 400.007 foundry sand used for a Category 2 project must not be placed near a stream, wetland, floodplain, drinking water well, or Drinking Water Source Protection Area within the isolation distances cited in the policy, must meet criteria cited in the policy to prevent erosion and meet the general requirements applicable to all beneficial use projects cited in the policy. Under Policy 400.007, a Category 2 use project would not require prior notification to OEPA for approval.

4 SITE REVIEW OF ISOLATION DISTANCES

On August 14, 2007, Mr. Al Muller of EDP Consultants accompanied by Mr. Ryan Baltes, Great Lakes Project Engineer, visited the project site to determine if there was evidence of streams, wetlands, or drinking water wells within the isolation distances cited in Policy 400.007. We also reviewed the USGS 7.5 Minute Topographic Map, National Wetlands Inventory (NWI)

Map, The Lake County Soils Map, FEMA Flood Insurance Map of the vicinity of the project site for evidence of intermittent or perennial streams, wetlands, and floodplains within the isolation distances cited in Policy 400.007. These maps are attached as Figures 1 through 4. We reviewed ODNR well logs and the ODNR Ground Water Resource Map Of Cuyahoga County (Figure 5) for evidence of drinking water wells within 300 feet of the planned placement of the foundry sand. We also contact the Ohio EPA to determine if the placement limits of foundry sand were within 2,500 feet of Drinking Water Source Protection Area.

4.1 Streams

Policy 400.007 states that foundry sand for all uses in Category 2 may not be placed within 100 feet of any of an intermittent or perennial stream. During our site visit, we observed no evidence of intermittent or perennial streams within a 100-foot radius of the planned limits of the placement of foundry sand. The USGS 7.5 Minute Topographic Map of the Mayfield Heights Quadrangle Map indicates that the closest stream to the planned MSE wall is an unnamed intermittent stream located over 200 feet to the northwest (Figure 1). The Lake County Soil and Water Conservation Service Soil Survey does not show any streams within a 1,500 ft radius of the planned limits of placement of foundry sand for the MSE wall (Figure 2).

4.2 Wetlands

Policy 400.007 states that foundry sand for all uses in Category 2 may not be placed within 100 feet of any wetland. During our site visit, we observed no evidence of wetlands within a 100-foot radius of the planned limits of the placement of foundry sand. The NWI map of the project area shows no wetlands within a 100-foot radius of the planned limits of the placement of foundry sand for this project (Figure 3).

4.3 Regulatory Floodplains

Policy 400.007 states that foundry sand for all uses in Category 2 may not be placed within a regulatory floodplain unless a properly engineered dike, levee or other structure that can protect the structural fill from a 100-year flood is constructed. Review of the HUD/FEMA Flood Insurance Rate Map of the project area indicated that the planned limits of the placement of foundry sand are outside of regulatory floodplains (Figure 4).

4.4 Drinking Water Wells

Policy 400.007 states that foundry sand for all uses in Category 2 may not be placed within 300 feet of any of a drinking water well, including a well used for livestock watering. During our site visit, we observed no evidence of drinking water wells within a 300-foot radius of the planned limits of the placement of foundry sand. Review of ODNR water well logs and Ground Water Resource Map of Lake County (Figure 5) indicates the presence of no water wells within a 300-foot radius of the planned limits of the placement of foundry sand.

The project area is supplied with water from the Lake County Department of Utilities supply that is obtained from Lake Erie.

4.5 Drinking Water Source Protection Area

On August 8, 2007, the Ohio EPA informed us that the project site is not within 2,500 feet of a Drinking Water Source Protection Area. A copy of the correspondence of the Ohio EPA is attached in Appendix B.

5 ANALYTICAL TESTING

According to Kurtz, Ford samples and tests composite samples of the engine mold foundry sands that are received by Kurtz for resale. Ford samples and tests the engine mold sands according to the methods specified by Policy 400.007. Ford's foundry sand samples have been analyzed using a modified Toxicity Characteristic Leaching Procedure (TCLP) by using the water solution specified in ASTM D 3987-85 for arsenic, barium, cadmium, chromium, lead, mercury, and selenium by USEPA Methods SW 846 7470A, fluoride by USEPA Method 300A, cyanide by USEPA Method SW 846 9012A SW 846 6010B, and phenols by USEPA Method SW 846 9065. Ford had the foundry sand samples tested by Severn Trent Laboratories, Inc.

6 ANALYTICAL TESTING RESULTS & COMPARISON TO STANDARDS

Kurtz supplied us with analytical results for samples of Ford's mold foundry sands from 2004, 2005 and 2007. Copies of these analytical results are attached in Appendix C and summarized in Table 1. Sample results were compared to the OEPA Policy 400.007's Standard for Category 2 Projects involving 600-30,000 tons of foundry sand as structural fill. The standards that are applied to the foundry sand used in this project are the most conservative of the standards in Policy 400.007, and are the same as the Ohio Drinking Water Standard Maximum Contaminant Levels (MCLs) at the time the Policy was active. Note: In 2006 the Ohio MCL for arsenic was lowered from 0.05 mg/l to 0.01mg/l. The other MCLs cited in Policy 400.007 remain current. The analytical results for the Ford mold Foundry sands from 2004, 2005, and 2007 are below the Standards cited in Policy 400.007 and the current Ohio MCLs. Testing results from this year are comparable to previous years.

Table 1: Analytical Results for Fords Mold Foundry Sand (mg/l)

Analyte	2004	2005	2007	Applicable Standard Cite in OEPA Policy 400.007
Arsenic	0.0031	<0.010	<0.010	0.05 0.01*
Barium	0.0045	0.0039	0.0063	2.00
Cadmium	NT	<0.0050	<0.0050	0.005
Chromium	NT	<0.010	<0.010	0.10
Lead	NT	<0.0030	<0.0030	0.05**
Mercury	0.000082	<0.0020	<0.0020	0.002
Selenium	NT	<0.0050	0.0031	0.05
Fluoride	0.17	0.18	0.15	4.0
Cyanide	0.006	0.0049	0.0089	0.2
Phenol	0.62	0.37	0.92	3.5

NT=Not Tested *Current Ohio MCL for Arsenic **This is not an MCL.

7 GENERAL REQUIREMENTS

As part of Ohio EPA Policy 400.007, general requirements apply to all categories of beneficial use of foundry sand. General requirements include that the use of the foundry sand shall not create nuisance condition or be used in a manner that is likely to cause an adverse impact to public health or the environment. Storage piles, if any, shall be managed in a fashion as to prevent erosion and storm water runoff. Runoff must be handled pursuant to a general or individual NPDES permit.

According to Mr. Ryan Baltes Great Lakes Project Engineer for this project, it is planned that the foundry sand will be placed directly behind the retaining wall and there will be no storage of foundry sand at the project site. Planned construction at the project site is subject to the projects Storm Water Pollution Prevention Plan that includes the installation of perimeter filter fabric fences. A copy of the projects Storm Water Pollution Prevention Plan is included in Appendix A.

It is our opinion that the planned use of the foundry sand in this project complies with the General Requirements of Ohio EPA Policy 400.007.

8 OTHER CRITERIA

According to Ohio EPA Policy 400.007 other Criteria that apply to Beneficial Use of foundry Sand in Category 2 include:

1. Surface runoff from the fill in the area is minimized during filling and construction activity. Erosion and sediment control measures are implemented in accordance with sound engineering practices. Run-on from adjacent areas must be diverted around the site.
2. Structural fill shall be covered with a minimum of 12 inches of compacted soil or an unspecified thickness of asphalt or concrete.

Planned construction at the project site is subject to the projects Storm Water Pollution Prevention Plan that includes the installation of perimeter filter fabric fences. A copy of the projects Storm Water Pollution Prevention Plan is included in Appendix A. Plans for the MSE wall indicate that foundry sand used in this project will be covered by approximately two feet of 203 embankment material. Plans for the MSE wall are included in Appendix A.

CONCLUSIONS & RECOMMENDATIONS

Based on our review of the plans for this project provided by Great Lakes, the analytical testing of Ford's mold foundry sand provided by Kurts, the other information including our site visit, we conclude that the use of foundry sand at this project is consistent with Ohio EPA Policy 400.007.

9 QUALIFYING REMARKS

The work that we performed is outlined in the enclosed report. We did not perform a complete assessment of all possible conditions or circumstances that may exist at the subject property. If a service is not expressly indicated, do not assume that it has been provided.

We recognize that the passage of time affects the information provided in Site Assessment Review of Proposed Beneficial Use of Foundry Sand. Our opinions relating to site conditions are based upon information that existed at the time our conclusions were formulated. This report was prepared in accordance with currently accepted engineering practices and is limited to the scope of study completed at this time as presented in this report. This is a report of our findings and should not be considered legal advice. We recommend that you consult an environmental attorney before making any decisions based on the findings of this report.

10 SIGNATURES

SIGNATURES

Report Prepared By:



Albert J. Muller, C.P., P.G.
Senior Environmental Geologist

Report Reviewed By:



Robert D. Lingswiler, P.G.
Environmental Manager

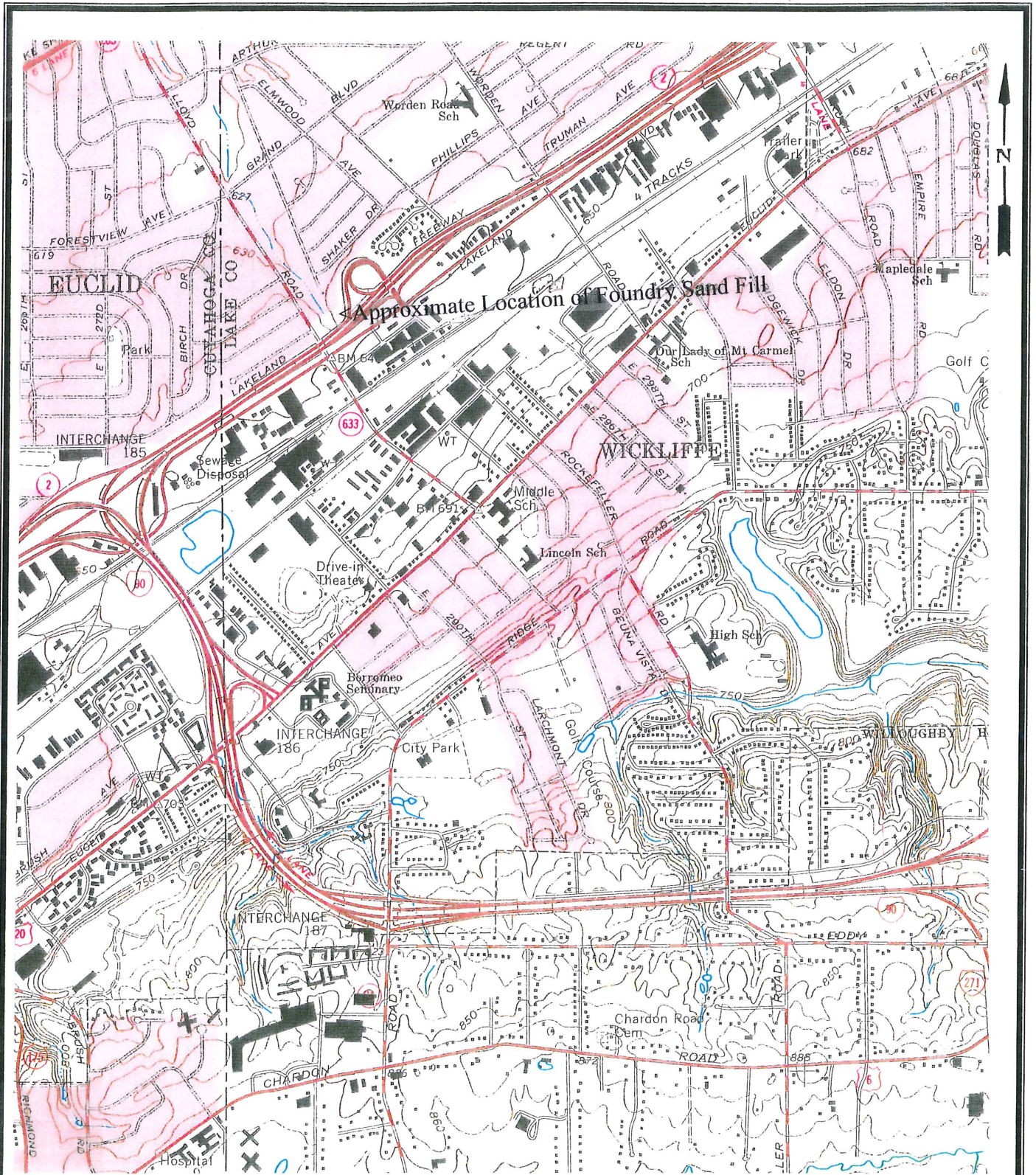


Figure 1: Approximate location of foundry sand fill taken from the 7.5' USGS Topographic Map of the Mayfield Heights, Ohio quadrangle (1963, photorevised 1992).

Contour Interval: 10 feet
 Scale: 1"=2,000'

EDP Consultants, Inc.
 August 8, 2007

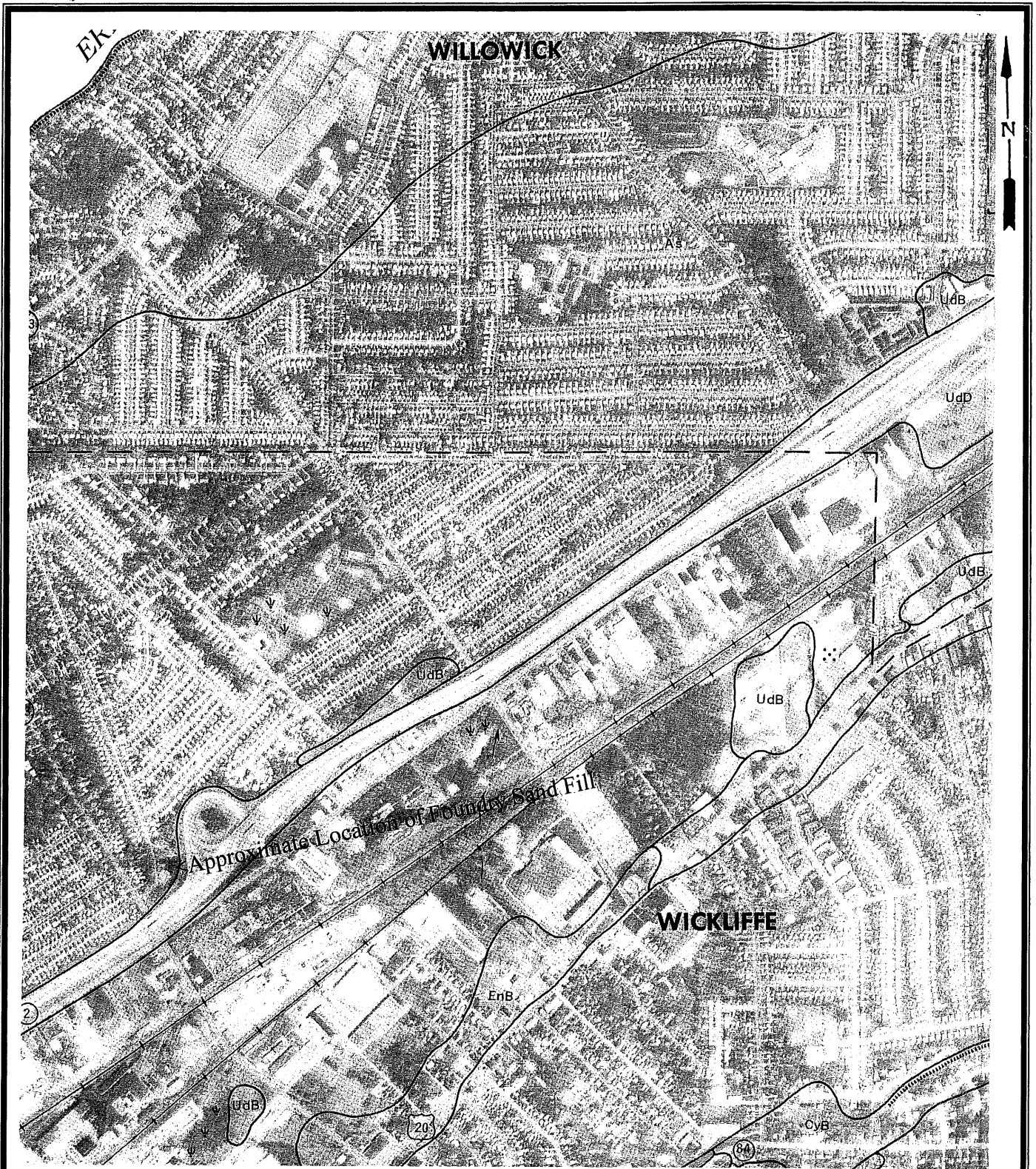


Figure 2: Approximate location of foundry sand fill taken from the USDA Soil Conservation Service Soil Survey of Lake County, Ohio (1991).

Scale: 1"= 1320'

EDP Consultants, Inc.
August 8, 2007

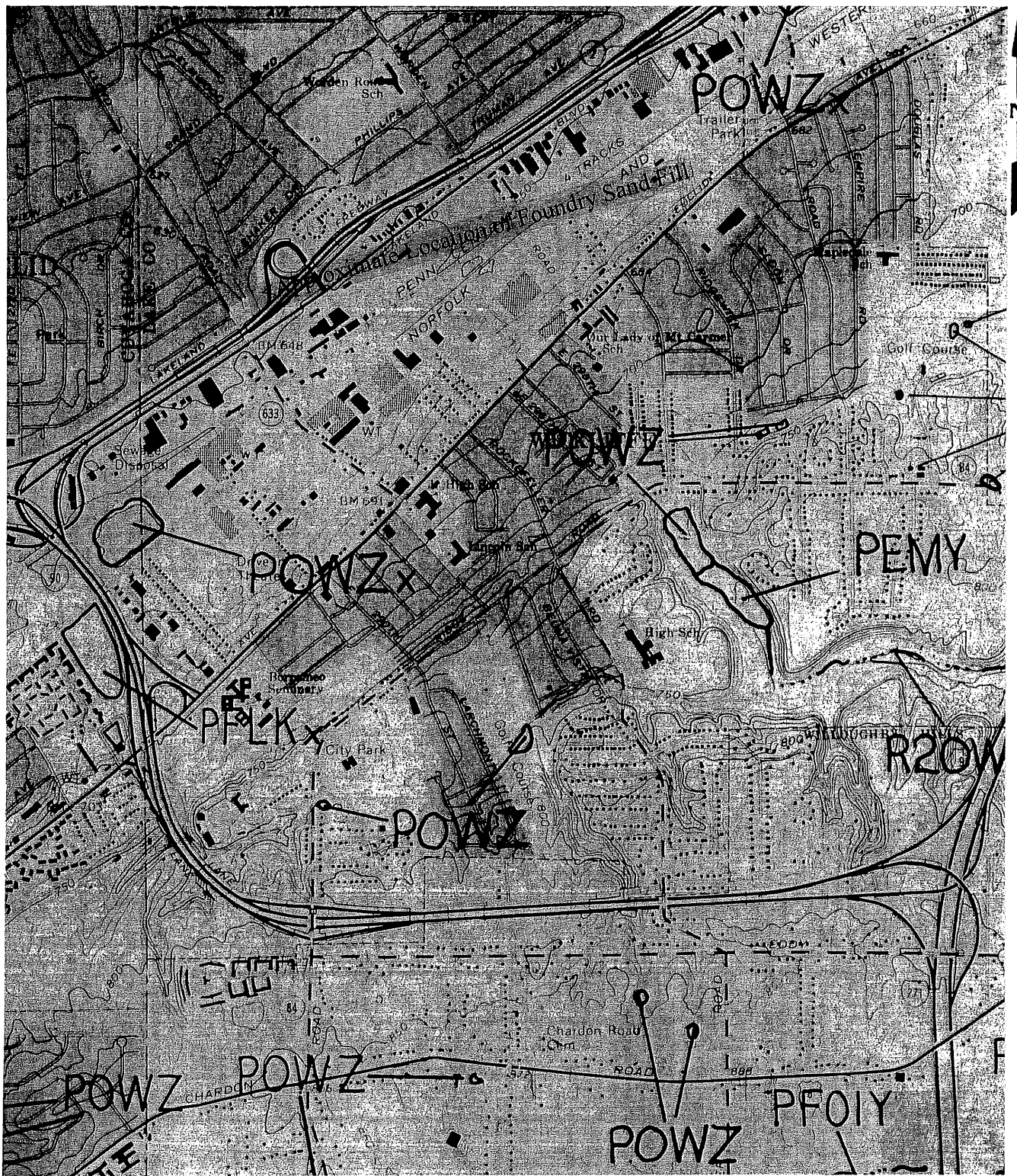


Figure 3: Approximate location of foundry sand fill taken from the National Wetlands Inventory Map of the Mayfield Heights, Ohio quadrangle (1977).

Scale: 1"= 2000'

EDP Consultants, Inc.
August 8, 2007

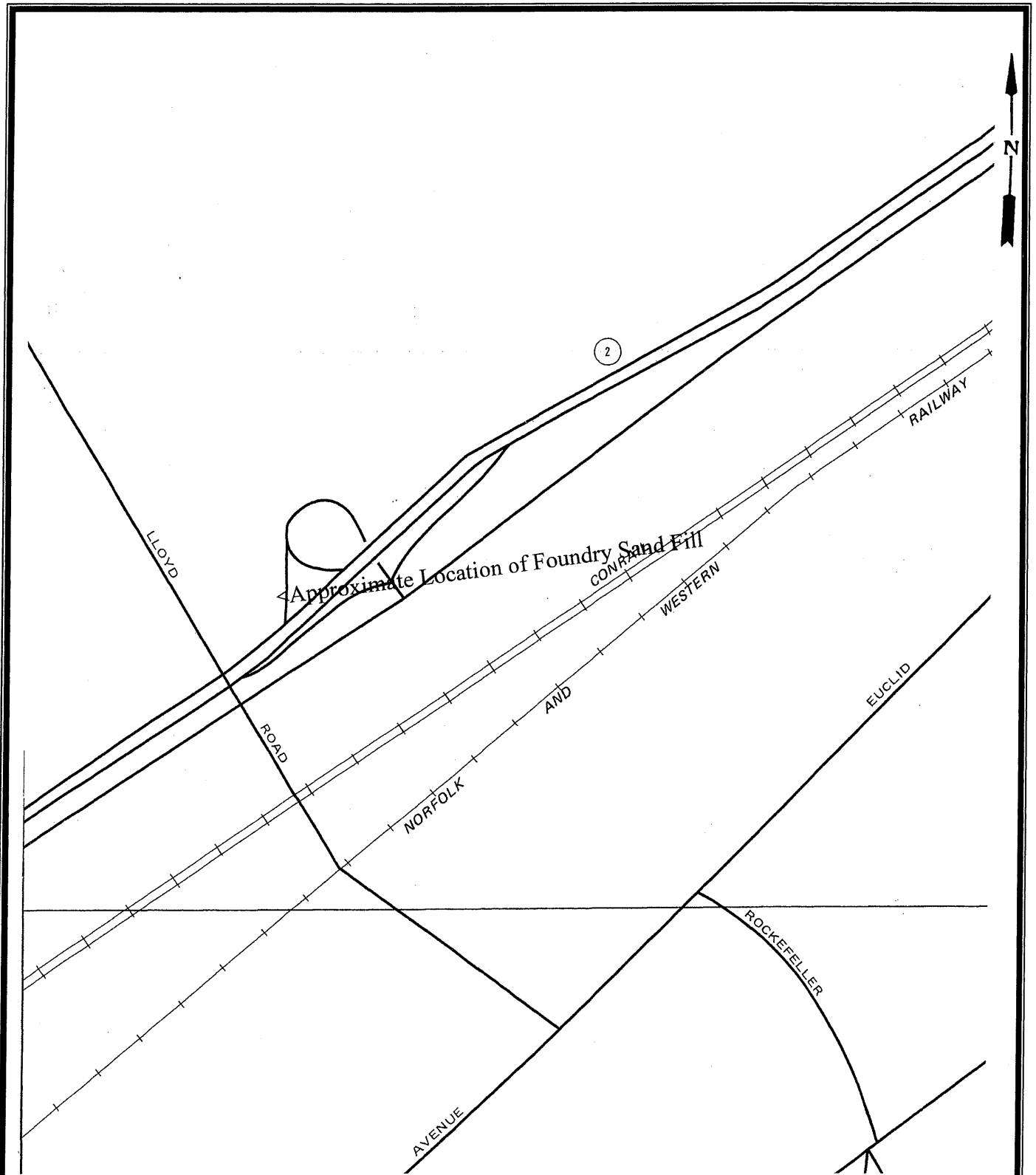


Figure 4: Approximate location of foundry sand fill taken from the U.S. Department of Housing and Urban Development Flood Insurance Rate Map of the City of Wickliffe, Lake County, Ohio (1980).

Scale: 1"= 2000'

EDP Consultants, Inc.
August 8, 2007

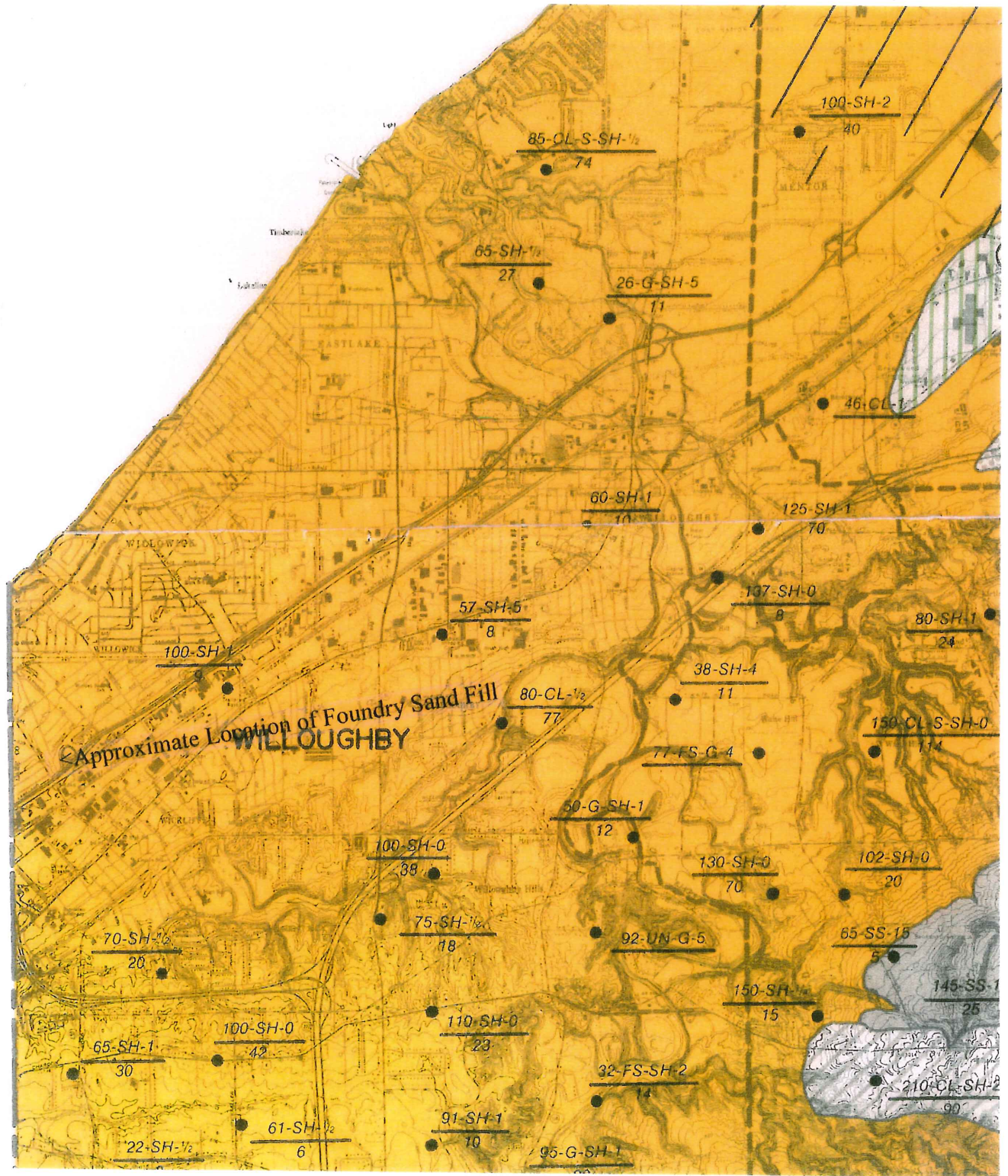


Figure 5: Approximate location of foundry sand fill taken from the ODNR map entitled *Ground Water Resources of Lake County, Ohio* (1979).

Scale: 1"= 1 mile

EDP Consultants, Inc.
August 8, 2007



Photograph 1: View looking east along the proposed location of MSE wall.



Photograph 2: View looking west along the proposed location of the MSE wall.

EDP Consultants, Inc.
August 14, 2007

APPENDIX A

Engineered Plans for the MSE Wall & Storm Water Pollution Prevention Plan

STATE OF OHIO
 DEPARTMENT OF TRANSPORTATION
LAK-2-0.00
 REHABILITATION OF EXISTING
 PAVEMENT FROM
 COUNTY LINE WEST TO SR 91
 CITIES OF WICKLIFFE,
 WILLOWICK, AND EASTLAKE
 LAKE COUNTY

PROJECT DESCRIPTION
 THE PROJECT CONSISTS OF THE REHABILITATION AND SAFETY UPGRADES TO STATE ROUTE 2 IN LAKE COUNTY FROM THE WESTERN COUNTY LINE TO S. R. 91 INCLUDING: RESURFACING, SHOULDER REPLACEMENT, GUARDRAIL REPLACEMENT, & LIGHTING. IN ADDITION, NOISE BARRIERS WILL BE INSTALLED FROM E. 260TH ST. IN CUYAHOGA COUNTY TO JUST EAST OF E. 337TH ST. IN LAKE COUNTY ON THE NORTH SIDE OF THE PROJECT.

LIMITED ACCESS

THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE OHIO REVISED CODE.

2005 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY EXCEPT AS NOTED ON SHEET 32, AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

EARTH DISTURBED AREA

1. PROJECT EARTH DISTURBED AREA 134.0 Ac
2. ESTIMATED CONTRACTOR EARTH DISTURBED AREA 2.60 Ac
3. NOTICE OF INTENT EARTH DISTURBED AREA 136.6 Ac

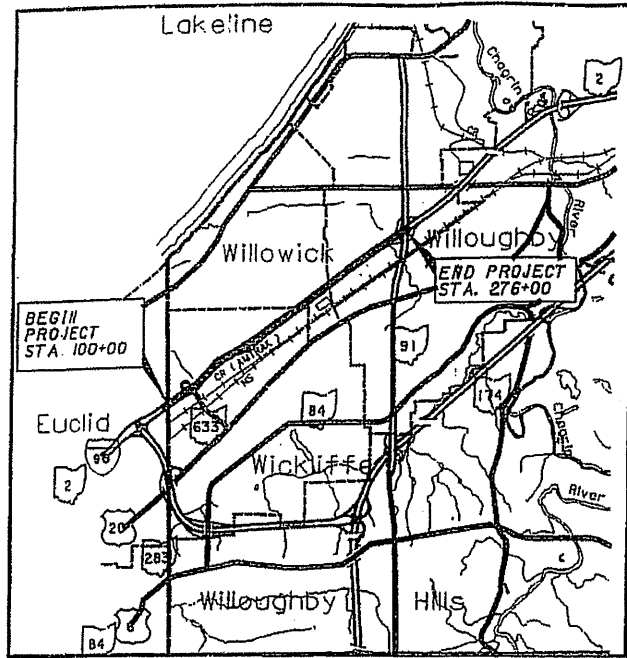
FEDERAL PROJECT NO.
E050(564)

PID NO.
21778

CONSTRUCTION PROJECT NO.

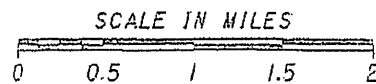
LAK-2-0.00

524



LOCATION MAP

LATITUDE: 41°36'32" LONGITUDE: 81°29'18"



PORTION TO BE IMPROVED	-----
INTERSTATE & DIVIDED HIGHWAY	=====
UNDIVIDED STATE & FEDERAL ROUTES	-----
RAILROADS	-----
OTHER ROADS	-----

DESIGN DESIGNATION

CURRENT ADT (2006)	90600
DESIGN YEAR ADT (2026)	93500
DESIGN HOURLY VOLUME	7200
DIRECTIONAL DISTRIBUTION	65/35
TRUCKS (24 HOUR B & C)	3%
DESIGN SPEED	60
LEGAL SPEED	60
DESIGN FUNCTIONAL CLASSIFICATION	
- URBAN INTERSTATE	

DESIGN EXCEPTIONS

SHOULDER WIDTH 02/15/06

UNDERGROUND UTILITIES
 TWO WORKING DAYS
BEFORE YOU DIG
 CALL 1-800-362-2764 (TOLL FREE)
 OHIO UTILITIES PROTECTION SERVICE
 NON-MEMBERS
 MUST BE CALLED DIRECTLY

TITLE SHEET	INDEX OF SHEETS:	
SCHMATIC PLAN	1	NOISE BARRIER PROFILES 320-342, 344-356
CENTERLINE REFERENCES	2-3	STORM PROFILES 357
RAMP GEOMETRICS	4-6	RETAINING WALL PLANS 358-360
TYPICAL SECTIONS	7-11	TRAFFIC CONTROL SUMMARY 361-366
GENERAL NOTES	12-22	TRAFFIC CONTROL 367-391, 381A,B, 391A,B
PROJECT SITE PLAN	23-25	LIGHTING NOTES AND SUMMARY 392-407
MAINTENANCE OF TRAFFIC NOTES	27-29	LIGHTING 408-428
MAINTENANCE OF TRAFFIC	30-39, 31A,32A	GALVANIC PROTECTION DETAIL 428A, 428B
GENERAL SUMMARY	40-85, 79A	STRUCTURES (OVER 20')
SUB-SUMMARIES	86-88	LAK-2-0031 429-451
PLAN AND PROFILE - MAINLINE	89-100, 90A	LAK-2-0055 452-459
PLAN AND PROFILE - RAMPS	101-177	LAK-2-0105 460-480
CROSS SECTIONS - MAINLINE	178-213	LAK-2-0181 481-491
CROSS SECTIONS - RAMPS	214-271, 271A	LAK-2-0255 492-510
MISCELLANEOUS DETAILS	272-285	LAK-2-0303 511-524
NOISE BARRIER NOTES/DETAILS	286-293,	SOIL PROFILES (RETAINING WALL) 1-3 SOIL BORINGS
	303-311, 306A	SOIL PROFILES (NOISE BARRIERS) 1-89 1-13
	312-319, 318A	NOT USED 294-302, 343,448, 449, 477,478, 505, 506, 521

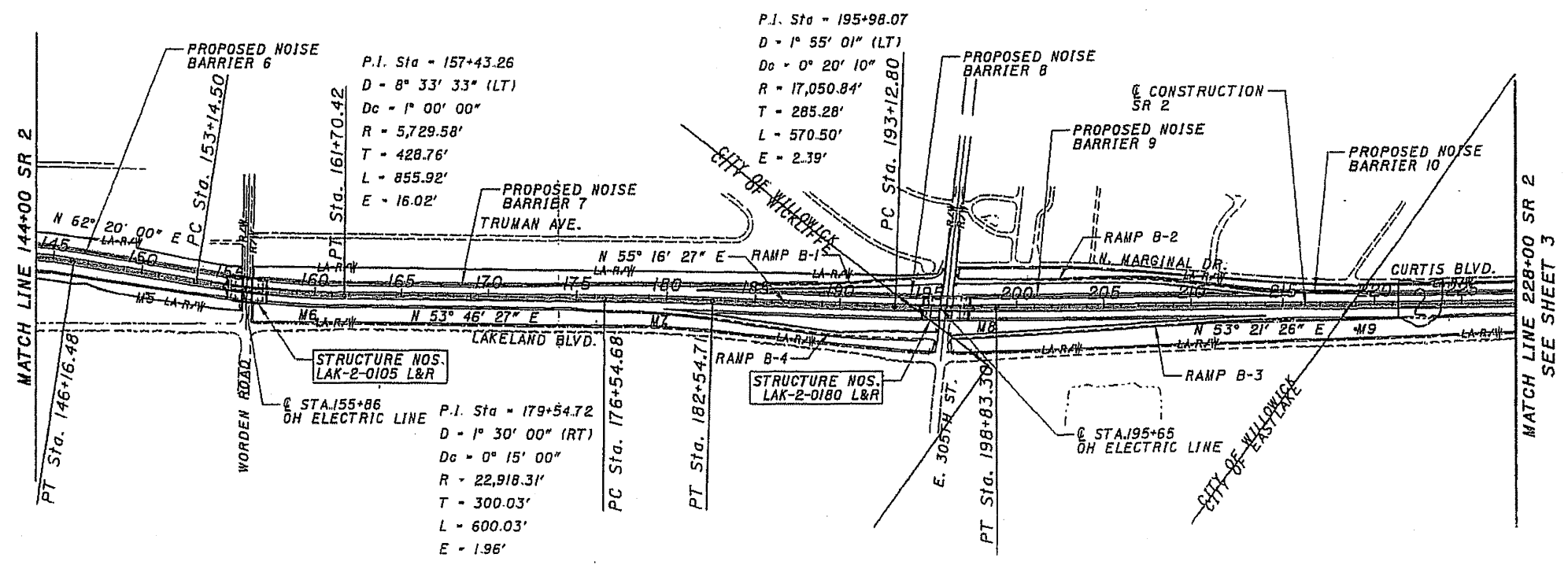
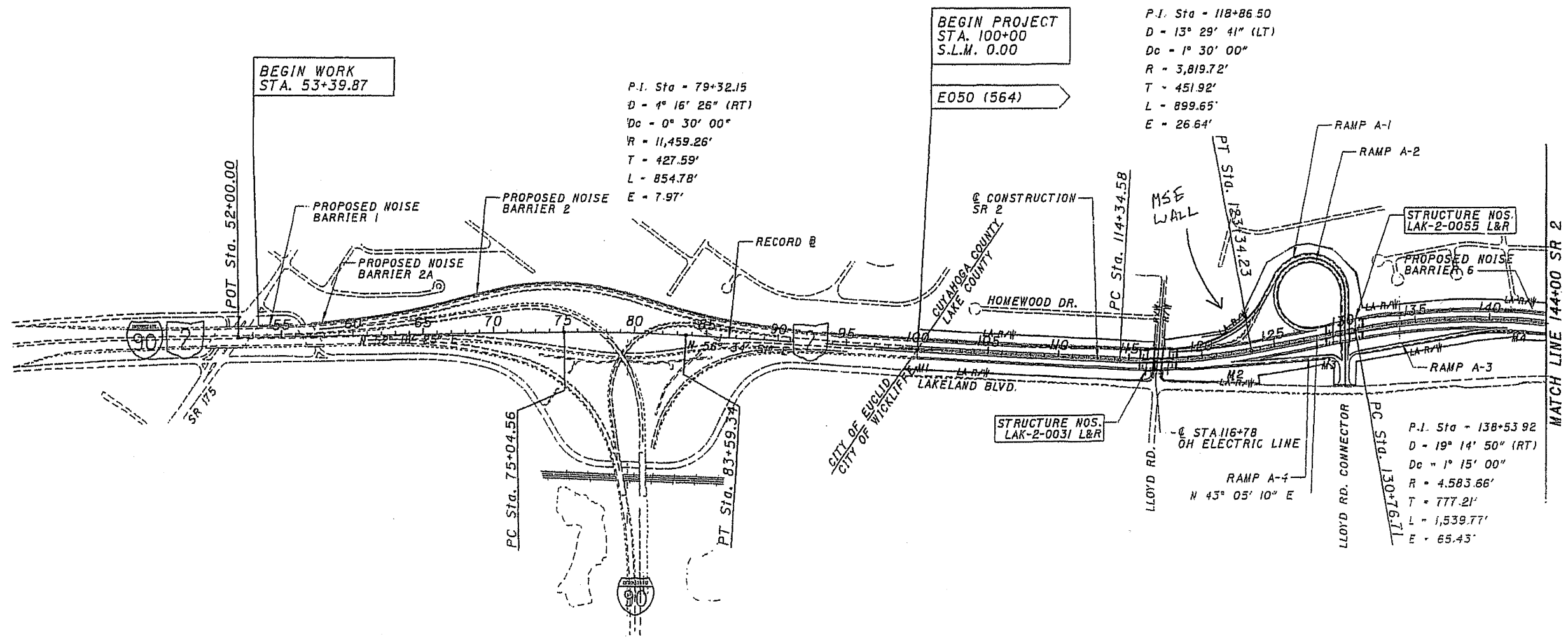
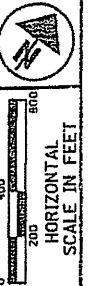
<p>ENGINEERS SEAL:</p> <p>KIRSTEN NICOLE BOWER E-66051 REGISTERED PROFESSIONAL ENGINEER</p> <p>SIGNED: <i>Kirsten Bower</i> DATE: 05-03-06</p>	<p>ENGINEERS SEAL:</p> <p>S. JOSEPH STOODLAK E-57830 REGISTERED PROFESSIONAL ENGINEER</p> <p>SIGNED: <i>S. Joseph Stoodlak</i> DATE: 05-03-06</p>
---	--

STANDARD CONSTRUCTION DRAWINGS										SUPPLEMENTAL SPECIFICATIONS	
BP-2.2	7-16-04	GR-3.2	4-18-03	MT-35.10	4-20-01	HL-10.11	1-16-04	TC-41.20	1-19-01	B00	7-21-06
BP-2.3	7-16-04	GR-3.5	4-18-03	MT-95.30	7-16-04	HL-10.12	1-21-05	TC-41.40	7-16-04		
BP-3.1	7-16-04	GR-4.2	4-15-05	MT-98.12	4-19-02	HL-10.13	1-17-03	TC-41.41	1-19-01	B02	4-15-05
BP-5.1	7-28-00	GR-5.3	1-16-04	MT-98.13	4-19-02	HL-20.11	4-19-02	TC-41.50	7-16-04	B32	4-25-06
BP-9.1	4-15-05	GR-6.1	4-18-03	MT-98.14	4-19-02	HL-30.11	1-21-05	TC-42.10	1-19-01		
CB-4.1	7-19-02	GR-6.2	4-18-03	MT-98.15	7-16-04	HL-30.21	4-19-02	TC-42.20	7-16-04	B47	4-15-05
DM-1.1	4-21-06	F-1.1	7-16-04	MT-98.18	10-18-02	HL-30.22	1-21-05	TC-51.11	4-20-01	B48	4-15-05
DM-1.2	10-20-05	F-3.1	7-28-00	MT-98.19	10-18-02	HL-40.20	1-16-04	TC-51.12	4-20-01		
DM-1.4	4-21-06	I-2.3	7-15-05	MT-99.20M	1-30-95	HL-50.21	1-21-05	TC-52.10	4-20-01		
DM-2.1	7-20-01	MH-1.2	1-20-06	MT-101.70	10-18-02	HL-60.11	1-16-04	TC-52.20	4-20-01		
DM-4.1	7-19-02	RM-3.1	4-18-03	MT-102.10	10-18-02	HL-60.12	1-21-05	TC-61.10	1-19-01		
DM-4.3	7-19-02	RM-4.3	4-18-03	MT-105.10	10-18-02	HL-60.31	7-20-01	TC-65.10	1-21-05		
DM-4.4	7-19-02	RM-4.4	4-18-03	MT-105.11	10-18-02	HL-60.32	7-20-01	TC-65.11	1-21-05		
GR-1.1	7-16-04	RM-4.5	4-18-03	PCB-91	7-19-02	TC-21.20	1-19-01	TC-71.10	1-21-05		
GR-2.1	1-16-04	RM-4.6	1-16-04	AS-1.81	7-19-02	TC-22.20	1-19-01	TC-72.20	1-21-05		
GR-3.1	4-18-03	SBR-1.99	7-19-02			TC-41.10	1-19-01	TC-82.10	4-19-02		

SPECIAL PROVISIONS

APPROVED: *Alfred J. [Signature]*
 DATE: 5-23-06 DISTRICT DEPUTY DIRECTOR

APPROVED: *Jordan Foster [Signature]*
 DATE: 5-23-06 DIRECTOR, DEPARTMENT OF TRANSPORTATION



SCHEMATIC PLAN

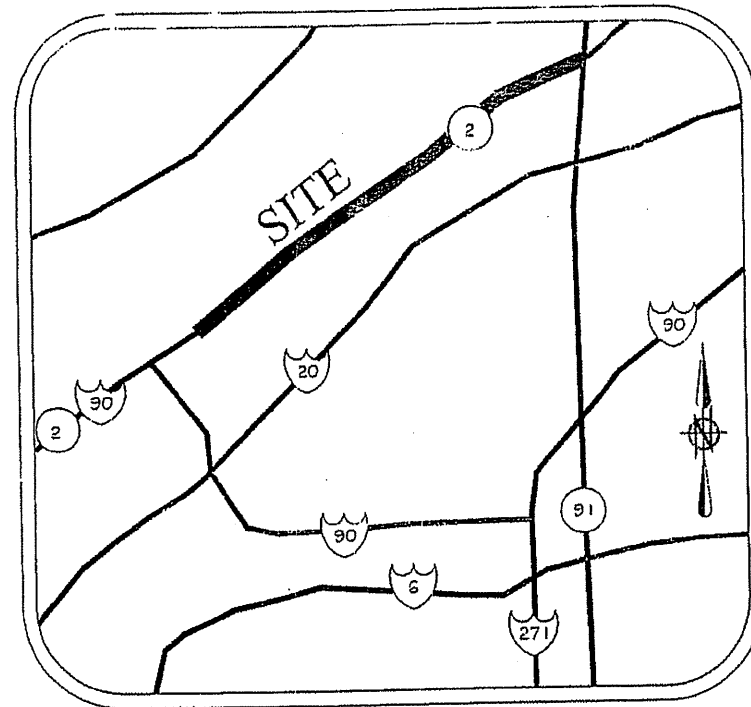
LAK-2-0.00

FOR RAMP GEOMETRY, SEE SHEETS T-11

LAK - 2 - 0.00

STORM WATER POLLUTION PREVENTION PLAN

CITY OF WICKLIFFE, WILLOWICK, AND EASTLAKE, COUNTY OF LAKE, STATE OF OHIO



Vicinity Map
N T S

STANDARD CONSTRUCTION NOTES:

- 1.) ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE TEMPORARILY SEEDED AND (ITEM B.2) PER ODOT'S "HANDBOOK OF SEDIMENT AND EROSION CONTROL."
- 2.) ALL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED PRIOR TO ANY EARTH OR ACTIVITIES
- 3.) ANY SPOIL FROM THE PROJECT SHALL BE PLACED WITHIN THE AREAS COVERED BY PLAN
- 4.) ALL BEST MANAGEMENT PRACTICES SHALL BE FURNISHED, INSTALLED, AND MAINTAINED ODOT'S "HANDBOOK OF SEDIMENT AND EROSION CONTROL"
- 5.) CONSTRUCTION ENTRANCES SHALL BE COORDINATED WITH THE MAINTENANCE OF TRAFFIC SECTION OF THE PROPOSED PLAN SET
- 6.) SITE CONTACT: MIKE ABRAHAM (216) 308-7910
- 7.) ALL BEST MANAGEMENT PRACTICES SHALL CONFORM TO SUPPLEMENTAL SPECIFICATION AND 833
- 8.) MAINTAIN POSITIVE DRAINAGE AT ALL TIMES

STORM WATER POLLUTION PREVENTION PLAN

- 1.) THE PROPOSED CONSTRUCTION ACTIVITY COMPRISES OF A ROADWAY REPAIR EXISTING PAVEMENT FROM THE LAKE COUNTY LINE (WEST) TO SR 91
- 2.) PRIOR LAND USE CONSISTS OF A LIMITED ACCESS DIVIDED HIGHWAY AND AREA
- 3.) THE IMMEDIATE RECEIVING BODY OF WATER FOR THE PROPOSED PROJECT
- 4.) REFUSE AND DEBRIS GENERATED DURING THE CONSTRUCTION PROCESS SHALL BE STORED IN AN ACCEPTABLE TRASH RECEPTACLE AND/OR OTHER ACCEPTABLE MANNERS
- 5.) ANY SEDIMENT LADEN GROUND WATER ENCOUNTERED DURING TRENCHING SHALL BE TREATED PRIOR TO DISCHARGE FROM THE SITE IN A MANNER ACCEPTABLE TO THE UPLAND AREAS HAS BEEN ESTABLISHED
- 6.) ANY PROPOSED CATCH BASIN GRATE LOCATED IN THE PROPOSED PAVEMENT SHALL BE PROTECTED WITH FILTER FABRIC PROTECTION, A SILTSACK, OR APPROVED EQUIPMENT. WATER POLLUTION PREVENTION CONTROL SHALL REMAIN IN EFFECT UNTIL THE UPLAND AREAS HAS BEEN ESTABLISHED
- 7.) NO TOXIC OR HAZARDOUS WASTES SHALL BE DISPOSED INTO STORM DRAINAGE OR BY BURYING, BURNING, OR MIXING THE WASTES
- 8.) CONSTRUCTION DEBRIS MAY BE DISPOSED OF ON-SITE, BUT DEMOLITION MATERIALS SHALL BE DISPOSED INTO AN OHIO EPA APPROVED LANDFILL. MATERIALS WHICH DO NOT COMPLY WITH AIR POLLUTION REGULATIONS AS PER OHIO ADMINISTRATIVE CODE

PREDEVELOPMENT:

TOTAL SITE AREA 136.6 ACRES
EXISTING CONDITIONS
PRE-DEV RUNOFF COEF 0.73

POST DEVELOPMENT:

TOTAL AREA DEVELOPED 136.6 ACRES
IMPERVIOUS AREA (PERCENT) 59.1 ACRES (43.3%)
TOPSOIL STOCKPILE
POST DEV RUNOFF COEFF 0.73

THESE PLANS ARE BASED UPON DIGITAL DRAWINGS PROVIDED BY THE OHIO DEPARTMENT OF TRANSPORTATION AND ORIGINALLY DESIGNED BY MICHAEL BAKER JR., INC. AND BURGESS AND NIPLE, INC. THESE PLANS ARE TO BE USED FOR THE STORM WATER POLLUTION PREVENTION WORK ONLY. ALL OTHER INFORMATION SHOWN HEREIN IS FOR REFERENCE ONLY.

SITE LOCATION INFORMATION

WICKLIFFE, WILLOWICK, AND EASTLAKE LAKE COUNTY OHIO
Name of Watershed/Immediate Receiving Water(s)
UNAMED TRIBUTARIES OF LAKE ERIE
STATE ROUTE 2, CUYAHOGA COUNTY AND LAKE COUNTY
Site Address
THE SHELLY COMPANY
Contractor
8920 CANYON FALLS BLVD - SUITE 120
TWINSBURG, OHIO 44087

SIGNATURE LIST

SIGNATURE LIST OF ALL CONTRACTORS AND SUBCONTRACTORS INVOLVED IN TEMPORARY SEDIMENT AND EROSION CONTROL PRACTICES PER APPENDIX B OF SUPPLEMENTAL SPECIFICATION 832 - TEMPORARY SEDIMENT AND EROSION CONTROL

Clarence Warren
 12/20/17

SIGNATURE	PRINTED NAME	TITLE	COMPANY	DATE

PREPARED FOR:
THE SHELLY COMPANY
8920 CANYON FALLS BLVD. - SUITE 120

LAK-2-0.00
TITLE SHEET

MBC/DRAWING/ENGINEERING

DATE	BY	DESCRIPTION
02/28/2017	ASW	ISSUED FOR REVIEW

DRAWN BY:
ASW

BRAMHALL

TEMPORARY SEEDING:

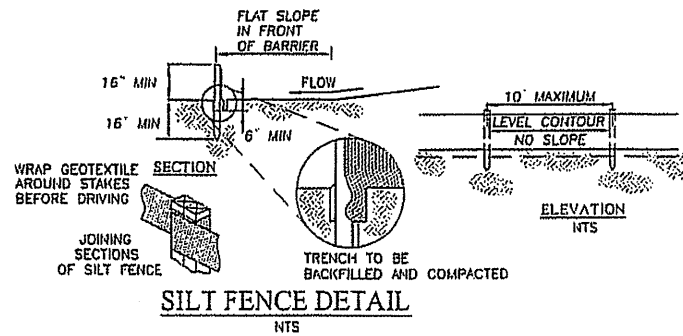
TEMPORARY SEEDING SPECIES SELECTION			
SEEDING DATES	SPECIES	LB / 1,000 SF	PER ACRE
MARCH 1 TO AUGUST 15	OATS	3	4 BUSHEL
	TALL FESCUE	1	40 LBS
	ANNUAL RYEGRASS	1	40 LBS
MARCH 1 TO AUGUST 15	PERENNIAL RYEGRASS	1	40 LBS
	TALL FESCUE	1	40 LBS
	ANNUAL RYEGRASS	1	40 LBS
AUGUST 16 TO NOVEMBER 1	RYE	3	2 BUSHEL
	TALL FESCUE	1	40 LBS
	ANNUAL RYEGRASS	1	40 LBS
AUGUST 16 TO NOVEMBER 1	WHEAT	3	2 BUSHEL
	TALL FESCUE	1	40 LBS
	ANNUAL RYEGRASS	1	40 LBS
AUGUST 16 TO NOVEMBER 1	PERENNIAL RYEGRASS	1	40 LBS
	TALL FESCUE	1	40 LBS
	ANNUAL RYEGRASS	1	40 LBS
NOVEMBER 1 TO SPRING SEEDING	USE MULCH ONLY. SODDING PRACTICES OR DORMANT SEEDING		

TEMPORARY SEEDING CONTINUED:

ASPHALT EMULSION - ASPHALT SHALL BE APPLIED AS RECOMMENDED BY THE MANUFACTURER OR AT THE RATE OF ONE HUNDRED SIXTY (160) GALLONS PER ONE (1) ACRE

SYNTHETIC BINDERS - SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (ACRI-TAC), DCA-70, PETROSET, TERRA TACK OR EQUAL MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER

WOOD-CELLULOSE FIBER - WOOD-CELLULOSE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF SEVEN HUNDRED FIFTY (750) POUNDS PER ONE (1) ACRE. THE WOOD-CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF FIFTY (5) POUNDS PER ONE HUNDRED (100) GALLONS



SPECIFICATIONS FOR SILT FENCE

- SILT FENCE SHALL BE CONSTRUCTED BEFORE UPSLOPE LAND DISTURBANCE BEGINS
- ALL SILT FENCE SHALL BE PLACED AS CLOSE TO THE CONTOUR AS POSSIBLE SO THAT WATER WILL NOT CONCENTRATE AT LOW POINTS IN THE FENCE AND SO THAT SMALL SWALES OR DEPRESSIONS WHICH MAY CARRY SMALL CONCENTRATED FLOWS TO THE SILT FENCE ARE DISSIPATED ALONG ITS LENGTH
- TO PREVENT WATER PONDED BY THE SILT FENCE FROM FLOWING AROUND THE ENDS, EACH END SHALL BE CONSTRUCTED UPSLOPE SO THAT THE ENDS ARE AT A HIGHER ELEVATION
- WHERE POSSIBLE, SILT FENCE SHALL BE PLACED ON THE FLATTEST AREA AVAILABLE
- WHERE POSSIBLE, VEGETATION SHALL BE PRESERVED FOR 5 FT (OR AS MUCH AS POSSIBLE) UPSLOPE FROM THE SILT FENCE. IF VEGETATION IS REMOVED, IT SHALL BE REESTABLISHED WITHIN 7 DAYS FROM THE INSTALLATION OF THE SILT FENCE.
- THE HEIGHT OF THE FENCE SHALL BE A MINIMUM OF 16 IN ABOVE THE ORIGINAL GROUND SURFACE
- THE SILT FENCE SHALL BE PLACED IN A TRENCH CUT A MINIMUM OF 6 IN DEEP
- SILT FENCE FABRIC:

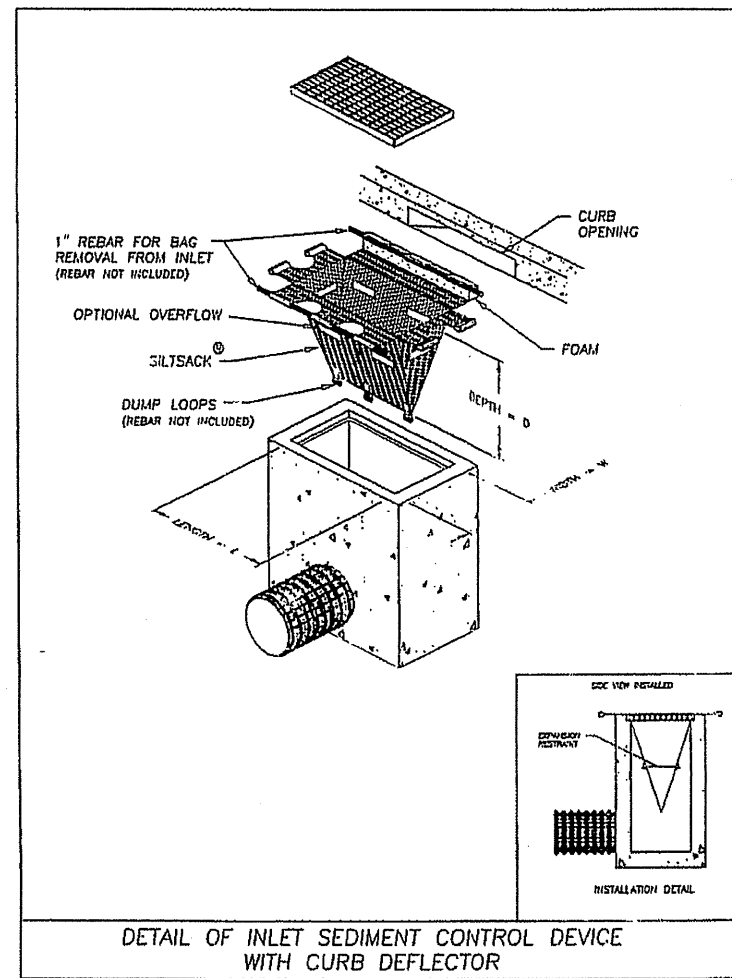
FABRIC PROPERTY	VALUE	TEST METHOD
GRAB TENSILE STRENGTH	90 LB MINIMUM	ASTM D 1682
MULLEN BURST STRENGTH	190 PSI MINIMUM	ASTM D 3786
SQUIRY FLOW RATE	0.3 GAL./MIN./FT MAXIMUM	
EQUIVALENT OPENING SIZE	40-80	US STD SIEVE CW-02215
ULTRAVIOLET RADIATION STABILITY	90% MINIMUM	ASTM G-26
- SEAMS BETWEEN SECTIONS OF SILT FENCE SHALL BE OVERLAPPED WITH THE END STAKES OF EACH SECTION WRAPPED TOGETHER BEFORE DRIVING INTO THE GROUND
- MAINTENANCE--SILT FENCE SHALL ALLOW RUNOFF TO PASS ONLY AS DIFFUSE FLOW THROUGH THE GEOTEXTILE. IF RUNOFF OVERTOPS THE SILT FENCE, FLOWS UNDER OR AROUND THE ENDS, OR IN ANY OTHER WAY BECOMES A CONCENTRATED FLOW, ONE OF THE FOLLOWING SHALL BE PERFORMED, AS APPROPRIATE: 1) THE LAYOUT OF THE SILT FENCE SHALL BE CHANGED, 2) ACCUMULATED SEDIMENT SHALL BE REMOVED, OR 3) OTHER PRACTICES SHALL BE INSTALLED
- FENCE POSTS - THE LENGTH SHALL BE A MINIMUM OF 32" LONG. WOOD POSTS SHALL BE 2"x2" HARDWOOD OF SOUND QUALITY. THE MAXIMUM POST SPACING SHALL BE 10'

- STRUCTURAL EROSION - AND SEDIMENT-CONTROL PRACTICES SUCH AS DIVERSIONS AND SEDIMENT TRAPS SHALL BE INSTALLED AND STABILIZED WITH TEMPORARY SEEDING PRIOR TO GRADING THE REST OF THE CONSTRUCTION-SITE
- TEMPORARY SEED SHALL BE APPLIED BETWEEN CONSTRUCTION OPERATIONS ON SOIL THAT WILL NOT BE GRADED OR REWORKED FOR TWENTY-ONE (21) DAYS OR MORE. THESE IDLE AREAS SHOULD BE SEED AS SOON AS POSSIBLE AFTER GRADING OR SHALL BE SEED WITHIN SEVEN (7) DAYS. SEVERAL APPLICATIONS OF TEMPORARY SEEDING ARE NECESSARY ON TYPICAL CONSTRUCTION PROJECTS
- THE SEEDBED SHOULD BE PULVERIZED AND LOOSE TO ENSURE THE SUCCESS OF ESTABLISHED VEGETATION. HOWEVER, TEMPORARY SEEDING SHALL NOT BE POSTPONED IF IDEAL SEEDBED PREPARATION IS NOT POSSIBLE
- SOIL AMENDMENTS - APPLICATIONS OF TEMPORARY VEGETATION SHALL ESTABLISHED ADEQUATE STANDS OF VEGETATION WHICH MAY REQUIRE THE USE OF SOIL AMENDMENTS. SOIL TESTS SHOULD BE TAKEN ON THE SITE TO PREDICT THE NEED FOR LIME AND FERTILIZER
- SEEDING METHOD - SEED SHALL BE APPLIED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, MULTIPACKER SEEDER, OR HYDROSEEDER. WHEN FEASIBLE, SEED THAT HAS BEEN BROADCAST SHALL BE COVERED BY RAKING OR DRAGGING AND THEN LIGHTLY TAMPED INTO PLACE USING A ROLLER OR MULTIPACKER. IF HYDROSEEDING IS USED, THE SEED AND FERTILIZER WILL BE MIXED ON-SITE AND THE SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION

MULCHING TEMPORARY SEEDING

- APPLICATIONS OF TEMPORARY SEEDING SHALL INCLUDE MULCH WHICH SHALL BE APPLIED DURING OR IMMEDIATELY AFTER SEEDING. SEEDINGS MADE DURING OPTIMUM SEEDING DATES AND WITH FAVORABLE SOIL CONDITIONS AND ON VERY FLAT AREAS MAY NOT NEED MULCH TO ACHIEVE ADEQUATE STABILIZATION
- MATERIALS:
 - STRAW - IF STRAW IS USED, IT SHALL BE UN-ROTTED SMALL-GRAIN STRAW APPLIED AT THE RATE OF TWO (2) TONS PER ONE (1) ACRE OR NINETY (90) POUNDS PER ONE THOUSAND (1,000) SQUARE FEET (TWO (2) TO THREE (3) BALES). THE MULCH SHALL BE SPREAD UNIFORMLY BY HAND OR MECHANICALLY SO THE SOIL SURFACE IS COVERED FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH. DIVIDE AREA INTO APPROXIMATELY ONE THOUSAND (1,000) SQUARE FEET SECTION AND SPREAD TWO FORTY-FIVE (45) POUND HALES OF STRAW IN EACH SECTION
 - HYDROSEEDERS - IF WOOD CELLULOSE FIBER IS USED, IT SHALL BE USED AT TWO THOUSAND (2,000) POUNDS PER ONE (1) ACRE OR FORTY-FIX (46) POUNDS PER ONE THOUSAND (1,000) SQUARE FEET
 - OTHER - OTHER ACCEPTABLE MULCHES INCLUDE MULCH MATTINGS APPLIED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS OR WOOD CHIPS APPLIED AT SIX (6) TONS PER ONE (1) ACRE

- STRAW MULCH SHALL BE ANCHORED IMMEDIATELY TO MINIMIZE LOSS BY WIND OR WATER ANCHORING METHODS:
 - MECHANICAL - A DISK, CRIMPER, OR SIMILAR TYPE TOOL SHALL BE SET STRAIGHT TO PUNCH OR ANCHOR THE MULCH MATERIAL INTO THE SOIL. STRAW MECHANICALLY ANCHORED SHALL NOT BE FINELY CHOPPED BUT, GENERALLY, BE LIFT LONGER THAN SIX (6) INCHES
 - MULCH NETTINGS - NETTINGS SHALL BE USED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. NETTING MAY BE NECESSARY TO HOLD MULCH IN PLACE IN AREAS OF CONCENTRATION RUNOFF AND ON CRITICAL SLOPES



SILTSACK® SPECIFICATIONS

NOTE: THE SILTSACK® WILL BE MANUFACTURED FROM A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS

REGULAR FLOW SILTSACK®
(FOR AREAS OF LOW TO MODERATE PRECIPITATION AND RUN-OFF)

PROPERTIES	TEST METHOD	UNITS	VALUES
GRAB TENSILE STRENGTH	ASTM D-4632		300 LBS
GRAB TENSILE ELONGATION	ASTM D-4632		20 %
PUNCTURE	ASTM D-4633		120 LBS
MULLEN BURST	ASTM D-3786		800 PSI
TRAPEZOID TEAR	ASTM D-4533		120 LBS
UV RESISTANCE	ASTM D-4355		80 %
APPEARANT OPENING SIZE	ASTM D-4751		40 US SIEVE
FLOW RATE	ASTM D-4491		40 GAL./MIN./50 FT
PERMEABILITY	ASTM D-4491		0.55 SEC -1

HI-FLOW SILTSACK®
(FOR AREAS OF MODERATE TO HEAVY PRECIPITATION AND RUN-OFF)

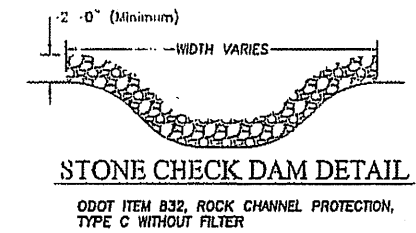
PROPERTIES	TEST METHOD	UNITS	VALUES
GRAB TENSILE STRENGTH	ASTM D-4632		265 LBS
GRAB TENSILE ELONGATION	ASTM D-4632		25 %
PUNCTURE	ASTM D-4633		115 LBS
MULLEN BURST	ASTM D-3786		420 PSI
TRAPEZOID TEAR	ASTM D-4533		45 LBS
UV RESISTANCE	ASTM D-4355		90 %
APPEARANT OPENING SIZE	ASTM D-4761		20 US SIEVE
FLOW RATE	ASTM D-4491		200 GAL./MIN/50 FT
PERMEABILITY	ASTM D-4491		1.5 SEC -1

OIL-ABSORBANT SILTSACK®
(FOR AREAS WHERE THERE IS A CONCERN FOR OIL RUN-OFF OR SPILLS)

DEPENDENT ON YOUR PARTICULAR APPLICATION, THE SILTSACK® CAN BE MADE FROM EITHER ONE OF THE ABOVE FABRICS WITH AN OIL-ABSORBANT PILLOW INSERT OR MADE COMPLETELY FROM AN OIL-ABSORBANT SILTSACK® WITH A WOVEN PILLOW INSERT

TOTAL ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION
B32	70,372	S.Y.	CONSTRUCTION SEEDING AND MULCHING
B32	0	L.F.	PERIMETER FILTER FABRIC FENCE
B32	800	L.F.	INLET PROTECTION
B32	0	L.F.	FILTER FABRIC DITCH CHECK
B32	0.00	C.Y.	STONE CHECK DAM
			TYPE C WITHOUT FILTER



REV	DESCRIPTION	DRAWN BY:
ASW	ISSUED FOR APPROVAL	ASW
ASW	REVISED PER CLIENT COMMENTS	
		CHECKED BY:

BRAMHALL
ENGINEERING AND SURVEYING CO., INC
37307 HARVEST DRIVE AVON, OHIO 44011
(440) 934-7878 (440) 934-7879 FAX

PREPARED FOR:
THE SHELLY COMPANY
8920 CANYON FALLS BLVD. - SUITE 120
TWINSPRING, OHIO 44087
(330) 475-7861

LAK-2-0.00
SWP3 NOTES
CITY OF WICKLIFFE, WILLOWICK, AND EASTLAKE,

SHEET	3 of 82
JOB NO	

STORM WATER POLLUTION PREVENTION PLAN NOTES:

- 1.) ALL EROSION AND SEDIMENT CONTROL PRACTICES MUST CONFORM TO THE LATEST EDITION OF RAINWATER AND LAND DEVELOPMENT, OHIO'S STANDARDS FOR STORM WATER MANAGEMENT, LAND DEVELOPMENT AND URBAN STREAM PROTECTION
- 2.) SOIL EROSION AND SEDIMENTATION CONTROL MEASURES MUST BE IMPLEMENTED AS A FIRST STEP OF GRADING AND WITHIN SEVEN (7) DAYS FROM THE START OF CLEARING AND GRUBBING. THESE MEASURES AND PROCEDURES SHALL CONTINUE TO FUNCTION UNTIL THE ENTIRE PROJECT SITE IS STABILIZED
- 3.) DISTURBED AREAS WHICH WILL REMAIN UNWORKED FOR A PERIOD OF TWENTY-ONE (21) DAYS OR MORE, SHALL BE STABILIZED WITH TEMPORARY AND/OR PERMANENT SEEDING AND MULCHING OR OTHER APPROVED MEANS WITHIN SEVEN (7) DAYS
- 4.) DITCHES WITH GRADES GREATER THAN 1.5% SHALL HAVE EROSION CONTROL BLANKETS/MATTING INSTALLED AS PART OF STABILIZATION MEASURES
- 5.) NO SOLID OR LIQUID WASTE SHALL BE DISCHARGED INTO STORM WATER RUNOFF
- 6.) REGULAR INSPECTION AND MAINTENANCE SHALL BE PROVIDED FOR ALL EROSION AND SEDIMENT CONTROL PRACTICES. PERMANENT RECORDS OF MAINTENANCE AND INSPECTIONS MUST BE KEPT THROUGHOUT THE CONSTRUCTION PERIOD. INSPECTIONS MUST BE MADE A MINIMUM OF ONCE EVERY 7 DAYS AND IMMEDIATELY AFTER STORM EVENTS GREATER THAN 0.5 INCHES OF RAIN IN A 24 HOUR PERIOD, PROVIDED WILL BE: NAME OF INSPECTOR, MAJOR OBSERVATIONS, DATE OF INSPECTION AND CORRECTIVE MEASURE TAKEN.

PERMANENT SEEDING AND MULCHING NOTES:

SITE PREPARATION

- 1.) A SUBSOILER, PLOW OR OTHER IMPLEMENT SHALL BE USED TO REDUCE SOIL COMPACTION AND ALLOW MAXIMUM INFILTRATION (MAXIMIZING INFILTRATION WILL HELP CONTROL BOTH RUNOFF RATE AND WATER QUALITY) SUBSOILING SHOULD BE DONE WHEN THE SOIL MOISTURE IS LOW ENOUGH TO ALLOW THE SOIL TO CRACK OR FRACTURE SUBSOILING SHALL NOT BE DONE ON SLIP-PRONE AREAS WHERE SOIL PREPARATION SHOULD BE LIMITED TO WHAT IS NECESSARY FOR ESTABLISHING VEGETATION
- 2.) THE SITE PLAN SHALL BE GRADED AS NEEDED TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION AND SEEDING
- 3.) RESOIL SHALL BE APPLIED WHERE NEEDED TO ESTABLISH VEGETATION

SEEDBED PREPARATION

- 1.) LIME - AGRICULTURAL GROUND LIMESTONE SHALL BE APPLIED TO ACID SOIL AS RECOMMENDED BY A SOIL TEST. IN LIEU OF A SOIL TEST, LIME SHALL BE APPLIED AT THE RATE OF ONE HUNDRED (100) POUNDS PER ONE THOUSAND (1,000) SQUARE FEET OR TWO (2) TONS PER ONE (1) ACRE
- 2.) FERTILIZER - FERTILIZER SHALL BE APPLIED AS RECOMMENDED BY A SOIL TEST IN LIEU OF A SOIL TEST, FERTILIZER SHALL BE APPLIED AT A RATE OF TWELVE (12) POUNDS PER ONE THOUSAND (1,000) SQUARE FEET OR FIVE HUNDRED (500) POUNDS PER ONE (1) ACRE OF 10-10-10 OR 12-12-12 ANALYSIS
- 3.) THE LIME AND FERTILIZER SHALL BE WORKED INTO THE SOIL WITH A DISK HARROW, SPRING-TOOTH HARROW, OR OTHER SUITABLE FIELD IMPROVEMENT TO A DEPTH OF THREE (3) INCHES ON SLOPING LAND THE SOIL SHALL BE WORKED ON THE CONTOUR

SEEDING DATES AND SOIL CONDITIONS

SEEDING SHOULD BE DONE FROM MARCH 1ST THROUGH MAY 31ST OR FROM AUGUST 1ST THROUGH SEPTEMBER 30TH. THESE SEEDING DATES ARE IDEAL BUT, WITH THE USE OF ADDITIONAL MULCH AND IRRIGATION, SEEDINGS MAY BE MADE ANY TIME THROUGHOUT THE GROWING SEASON. TILLAGE/SEEDBED PREPARATION SHOULD BE DONE WHEN THE SOIL IS DRY ENOUGH TO CRUMBLE AND NOT FORM RIBBONS WHEN COMPRESSED BY HAND. FOR WINTER SEEDING, SEE THE FOLLOWING SECTION ON DORMANT SEEDING

DORMANT SEEDINGS

- 1.) SEEDINGS SHALL NOT BE PLANTED FROM OCTOBER 1ST THROUGH NOVEMBER 20TH. DURING THIS PERIOD THE SEEDS ARE LIKELY TO GERMINATE BUT PROBABLY WILL NOT BE ABLE TO SURVIVE THE WINTER
- 2.) THE FOLLOWING METHODS MAY BE USED FOR "DORMANT SEEDING":
FROM OCTOBER 1ST THROUGH NOVEMBER 20TH, PREPARE THE SEEDBED, ADD THE REQUIRED AMOUNTS OF LIME AND FERTILIZER, THEN MULCH AND ANCHOR. AFTER NOVEMBER 20TH, AND BEFORE MARCH 15TH, BROADCAST THE SELECTED MIXTURE. INCREASE THE SEEDING RATES BY FIFTY (50%) PERCENT FOR THIS TYPE OF SEEDING

FROM NOVEMBER 20TH THROUGH MARCH 15TH, WHEN SOIL CONDITIONS PERMIT, PREPARE THE SEEDBED, LIME AND FERTILIZE, APPLY THE SELECTED SEED MIXTURE, MULCH AND ANCHOR INCREASE THE SEEDING RATES BY FIFTY (50%) PERCENT FOR THIS TYPE OF SEEDING

APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL, CULTIPACKER SEEDER, OR HYDRO-SEEDER (SLURRY MAY INCLUDE SEED AND FERTILIZER) ON A FIRM, MOIST SEEDBED

WHERE FEASIBLE, EXCEPT WHEN A CULTIPACKER TYPE SEEDER IS USED THE SEEDBED SHOULD BE FIRMED FOLLOWING SEEDING OPERATIONS WITH A CULTIPACKER, ROLLER, OR LIGHT DRAG ON SLOPING LAND, SEEDING OPERATIONS SHOULD BE ON THE CONTOUR WHERE FEASIBLE

MULCHING

- 1.) MULCH MATERIAL SHALL BE APPLIED IMMEDIATELY AFTER SEEDING. SEEDINGS MADE DURING OPTIMUM SEEDING DATES AND WITH FAVORABLE SOIL CONDITIONS AND ON VERY FLAT AREAS MAY NOT NEED MULCH TO ACHIEVE ADEQUATE STABILIZATION DORMANT SEEDING SHALL BE MULCHED

PERMANENT SEEDING AND MULCHING NOTES CONTINUED:

2) MATERIALS

STRAW - IF STRAW IS USED IT SHALL BE UNROTTED SMALL-GRAIN STRAW APPLIED AT THE RATE OF TWO (2) TONS PER ONE (1) ACRE OR NINETY (90) POUNDS PER ONE THOUSAND (1,000) SQUARE FEET (TWO (2) TO THREE (3) BALES). THE MULCH SHALL BE SPREAD UNIFORMLY BY HAND OR MECHANICALLY SO THE SOIL SURFACE IS COVERED. FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY ONE THOUSAND (1,000) SQUARE FEET SECTIONS AND SPREAD TWO (2) FORTY-FIVE (45) POUND BALES OF STRAW IN EACH SECTION

HYDROSEEDERS - IF WOOD CELLULOSE FIBER IS USED, IT SHALL BE USED AT TWO THOUSAND (2,000) POUNDS PER ONE (1) ACRE OR FORTY-SIX (46) POUNDS PER ONE THOUSAND (1,000) SQUARE FEET

OTHER - OTHER ACCEPTABLE MULCHES INCLUDE MULCH MATTINGS APPLIED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS OR WOOD CHIPS APPLIED AT SIX (6) TONS PER ONE (1) ACRE

3.) STRAW MULCH ANCHORING METHODS

MECHANICAL - A DISK, CRIMPER, OR SIMILAR TYPE TOOL SHALL BE SET STRAIGHT TO PUNCH OR ANCHOR THE MULCH MATERIAL INTO THE SOIL. STRAW MECHANICALLY ANCHORED SHALL NOT BE FINELY CHOPPED BUT, GENERALLY, BE LEFT LONGER THAN SIX (6) INCHES

MULCH NETTINGS - NETTINGS SHALL BE USED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. NETTING MAY BE NECESSARY TO HOLD MULCH IN PLACE IN AREAS OF CONCENTRATED RUNOFF AND ON CRITICAL SLOPES

ASPHALT EMULSION - ASPHALT SHALL BE APPLIED AS RECOMMENDED BY THE MANUFACTURER OR AT THE RATE OF ONE HUNDRED SIXTY (160) GALLONS PER ONE (1) ACRE

SYNTHETIC BINDERS - SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRI-TAC), DCA-70, PETROSET, TERRA TACK OR EQUAL MAY BE USED AT RATES RECOMMEND BY THE MANUFACTURER

WOOD CELLULOSE FIBER - WOOD CELLULOSE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF SEVEN HUNDRED FIFTY (750) POUNDS PER ONE (1) ACRE THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF FIFTY (50) POUNDS PER ONE HUNDRED (100) GALLONS OF WOOD CELLULOSE FIBER

IRRIGATION

- 1.) PERMANENT SEEDING SHALL INCLUDE IRRIGATION TO ESTABLISH VEGETATION DURING DRY OR HOT WEATHER OR ON ADVERSE SITE CONDITIONS AS NEEDED FOR ADEQUATE MOISTURE FOR SEED GERMINATION AND PLANT GROWTH
- 2.) EXCESSIVE IRRIGATION RATES SHALL BE AVOIDED AND IRRIGATION MONITORED TO PREVENT EROSION AND DAMAGE FROM RUNOFF

PERMANENT SEEDING			
SEED MIX	SEEDING RATE		NOTES
	LB./AC	LB/1,000 S F	
GENERAL USE			
CREeping RED FESCUE	20 - 40	1/2 - 1	
DOMESTIC RYEGRASS	10 - 20	1/4 - 1/2	
KENTUCKY BLUEGRASS	10 - 20	1/4 - 1/2	
TALL FESCUE	40	1	
DWARF FESCUE	40	1	
STEEP BANKS OR CUT SLOPES			
TALL FESCUE	40	1	
CROWN VETCH	10	1/4	DO NOT SEED LATER THAN AUGUST
TALL FESCUE	20	1/2	
FLAT PEA FESCUE	20	1/2	DO NOT SEED LATER THAN AUGUST
TALL FESCUE	20	1/2	
STEEP BANKS OR CUT SLOPES			
TALL FESCUE	40	1	
DWARF FESCUE	90	2-1/4	
KENTUCKY BLUEGRASS	5		
LAWNS			
KENTUCKY BLUEGRASS	60	1-1/2	
PERENNIAL RYEGRASS	60	1-1/2	
KENTUCKY BLUEGRASS	60	1-1/2	
CREeping RED FESCUE	60	1-1/2	FOR SHADED AREAS

NOTE: OTHER APPROVED SEED SPECIES MAY BE SUBSTITUTED.

MAINTENANCE OF PERMANENT SEEDING:

- 1.) PERMANENT SEEDING SHALL NOT BE CONSIDERED ESTABLISHED FOR AT LEAST ONE (1) FULL YEAR FROM THE TIME OF PLANTING. SEEDING AREAS SHALL BE INSPECTED FOR FAILURE AND VEGETATION RE-ESTABLISHED AS NEEDED. DEPENDING ON-SITE CONDITIONS, IT MAY BE NECESSARY TO IRRIGATE, FERTILIZE, OVERSEED, OR RE-ESTABLISH PLANTINGS IN ORDER TO PROVIDE PERMANENT VEGETATION FOR ADEQUATE EROSION CONTROL
- 2.) MAINTENANCE FERTILIZATION RATES SHALL BE ESTABLISHED BY SOIL TEST RECOMMENDATIONS OR BY USING THE RATES SHOWN IN THE FOLLOWING TABLE

MAINTENANCE OF PERMANENT SEEDINGS, FERTILIZATION, AND MOWING					
MIXTURE	FORMULA	LB/AC	LB/1,000 S F	TIME	MOWING
CREeping RED FESCUE RYEGRASS KENTUCKY BLUE GRASS	10-10-10	500	12	FALL YEARLY OR AS NEEDED	NOT CLOSER THAN THREE (3) INCHES
TALL FESCUE	10-10-10	500	12		NOT CLOSER THAN FOUR (4) INCHES
DWARF FESCUE	10-10-10	500	12		NOT CLOSER THAN TWO (2) INCHES
CROWN VETCH FESCUE	0-20-20	400	10	SPRING, YEARLY FOLLOWING ESTABLISH- MENT AND EVERY 4-7 YEAR, THEREAFTER	DO NOT MOW
FLAT PEA FESCUE	0-20-20	400	10		DO NOT MOW

SEQUENCE OF CONSTRUCTION:

1. PRE-CONSTRUCTION MEETING
2. INSTALL STONE CONSTRUCTION DRIVE FOR ACCESS TO THE SITE
3. DELIVER CONSTRUCTION TRAILER TO SITE, ESTABLISH TEMPORARY POWER AND TELEPHONE SERVICE ALL TEMPORARY UTILITY SERVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR
4. STAKEOUT LIMITS OF DISTURBANCE
5. INSTALL TEMPORARY PROTECTION ON ANY EXISTING CATCH BASINS
6. INSTALL SILT FENCE AND STONE CHECK DAMS WHERE INDICATED ON THE PLANS
7. BEGIN EARTH MOVING OPERATIONS. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE COUNTY CONSERVATION DISTRICT OF THE LOCATION OF ANY AND ALL EROSION AND SEDIMENTATION CONTROL MEASURES IMPLEMENTED AT ANY BORROW OR SPOIL SITE OF IMPORT/EXPORT MATERIAL
8. STORM SEWER AND UTILITY LINE CONSTRUCTION MAY BEGIN IMMEDIATELY FOLLOWING ESTABLISHMENT OF GRADE AND PERMISSION OF THE OWNER
9. STABILIZE ALL UTILITY TRENCHES AT THE END OF EACH WORKDAY BY MEANS OF GRAVEL BACKFILL TO SURFACE, REPAVING, OR MULCHING
10. REPLACE TOPSOIL, FINE GRADE AND SEED AREAS AS REQUIRED
11. STABILIZE ALL DISTURBED AREAS WITH PERMANENT SEED AND MULCHING OR CROWN VETCH SEEDING IMMEDIATELY UPON REACHING FINAL GRADE
12. INSTALL PAVEMENT SUB-BASE
13. BEGIN PAVING, REMOVE STONE CONSTRUCTION ENTRANCE ONLY WHEN NECESSARY
14. COMPLETE SITE WORK, PAVEMENT MARKING, FINAL LANDSCAPING AND CLEAN UP
15. RESEED AND REDRESS ANY AREAS THAT MAY REQUIRE ATTENTION IMMEDIATELY. NOTE THAT LAWN AREAS WILL NOT BE DEEMED STABLE UNTIL A UNIFORM SEVENTY (70%) PERCENT SHALL BE CONSIDERED TO BE IN PLACE AND FUNCTIONAL WHEN THE REQUIRED UNIFORM RATE OF COVERAGE (70%) IS OBTAINED
16. IF FOR ANY REASON THE PROJECT IS SUSPENDED, THE CONTRACTOR SHALL INSURE THAT ALL INSTALLED EROSION MEASURES ARE FUNCTIONING AND PROPERLY MAINTAINED DURING THE PERIOD ALL BARE SOILS ARE TO BE SEEDING AND MULCHED WITH THE TEMPORARY SEED MIXTURE
17. THE ABOVE DESCRIBED SEQUENCE OF CONSTRUCTION SHALL BE REPEATED FOR EACH PHASE OF CONSTRUCTION IN CONJUNCTION WITH THE MAINTENANCE OF TRAFFIC PLANS

BY:	DESCRIPTION:
ASW	ISSUED FOR APPROVAL

DRAWN BY:
ASW

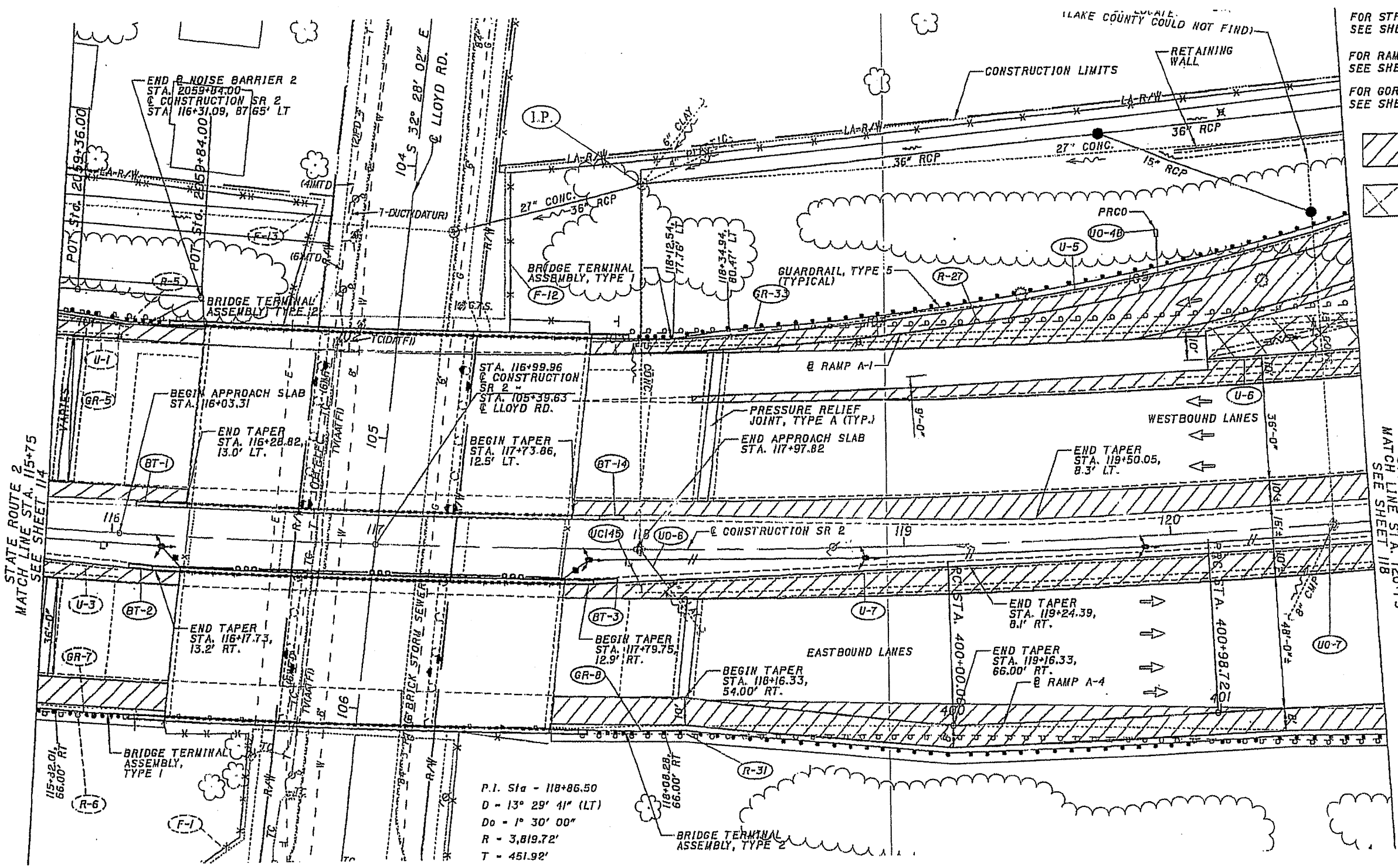
CHECKED BY:
CDW

BRAMHALL
ENGINEERING AND SURVEYING CO., INC
37307 HARVEST DRIVE AVON, OHIO 44011
(410) 934 - 7878 (410) 934 - 7879 FAX

PREPARED FOR:
THE SHELLY COMPANY
8920 CANYON FALLS BLVD - SUITE 120
TWINSBURG, OHIO 44087
(330) 425-7861

LAK-2-0.00
SWP3 NOTES
CITY OF WICKLIFFE, WILLOWICK, AND EASTLAKE,
COUNTY OF LAKE, STATE OF OHIO

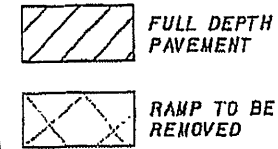
SHEET
2 OF 82
JOB NO
07-2470



FOR STRUCTURE DATA,
SEE SHEET 117

FOR RAMP INFORMATION
SEE SHEETS 178-182

FOR GORE DETAIL,
SEE SHEET 293



STATE ROUTE 2
MATCH LINE STA. 115+75
SEE SHEET 114

STATE ROUTE 2
MATCH LINE STA. 120+75
SEE SHEET 118

P.I. Sta - 118+86.50
D - 13° 29' 41" (LT)
D_o - 1° 30' 00"
R - 3,819.72'
T - 451.92'

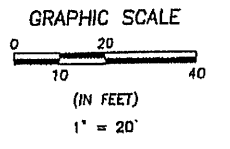
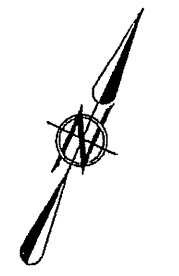
LEGEND OF SYMBOLS AND LINETYPES

- (I.P.) INLET PROTECTION
- SF-SF- SILT FENCE
- [Hatched Box] AREAS OF TEMPORARY AND PERMANENT STABILIZATION

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION
832	2,217	S.Y.	CONSTRUCTION SEEDING AND MULCHING
832	0	L.F.	PERIMETER FILTER FABRIC FENCE
832	20	L.F.	INLET PROTECTION
832	0	L.F.	FILTER FABRIC DITCH CHECK
832	0 00	C.Y.	STONE CHECK DAM TYPE C WITHOUT FILTER

- NOTES:
- 1) THE PROPOSED PERIMETER FILTER FABRIC FENCE SHALL BE PLACED AT A MINIMUM OF TEN (10) FEET FROM THE TOE OF THE SLOPE IN FILL SITUATIONS REFER TO THE CROSS SECTION DRAWINGS 214 TO 285 FOR THE FILL SECTION LOCATIONS
 - 2) REFER TO THE OHIO DEPARTMENT OF TRANSPORTATION STANDARD CONSTRUCTION DRAWINGS DM-4.2, DM-4.3, AND DM-4.4 AS WELL AS THE SUPPLEMENTAL SPECIFICATION NO. 832 AND NO. 833 FOR MORE INFORMATION.



NOTES ARE BASED UPON DIGITAL DRAWINGS BY THE OHIO DEPARTMENT OF TRANSPORTATION AND ORIGINALLY DESIGNED BY MICHAEL J. BURKE AND BURGESS AND NIPLE. THESE DRAWINGS ARE TO BE USED FOR THE STORM WATER PREVENTION WORK ONLY. ALL OTHER WORK SHOWN HEREIN IS FOR REFERENCE ONLY.

BY:	DESCRIPTION:

DRAWN BY: WTB

CHECKED BY:

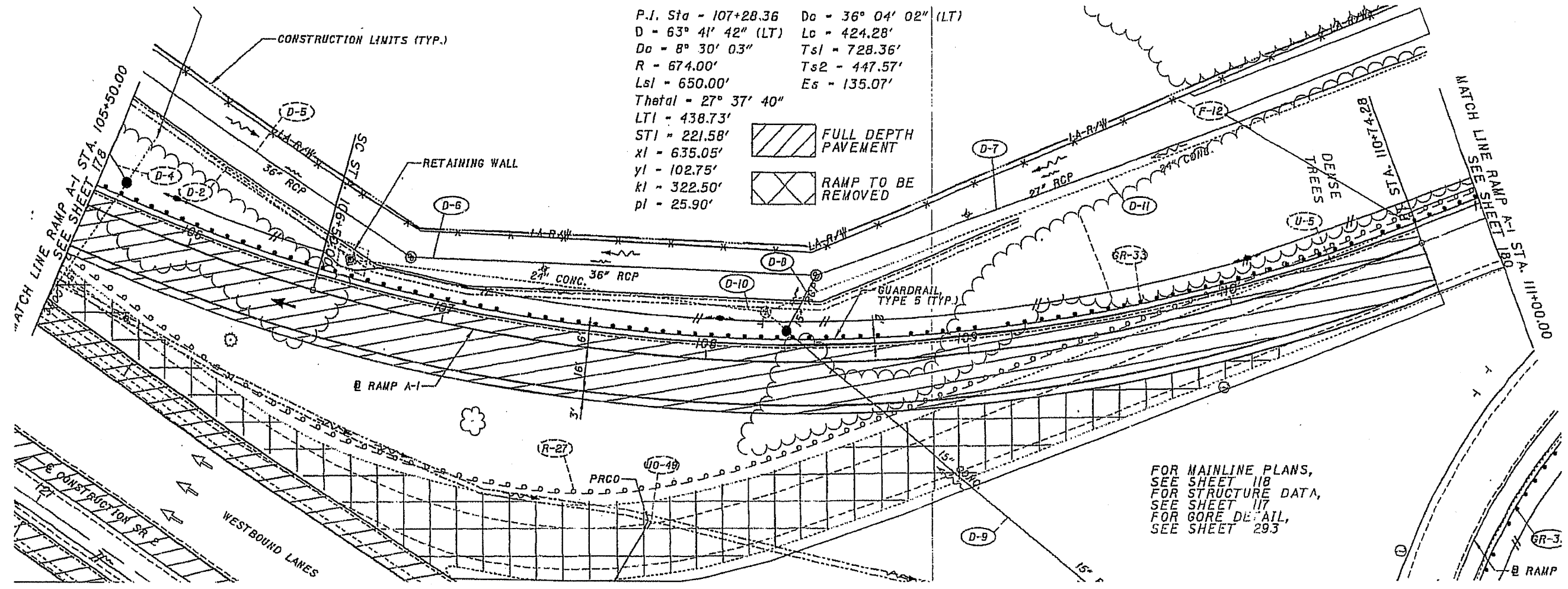
BRAMHALL
ENGINEERING AND SURVEYING CO., INC
801 MOORE ROAD, AVON, OHIO 44011
(440) 934 - 7878 (440) 934 - 7879 FAX

PREPARED FOR:

THE SHELLY COMPANY
8920 CANYON FALLS BLVD. - SUITE 120
TWINSBURG, OHIO 44087
(330) 425-7861

LAK-2-0.00
115+75 TO 120+75
CITY OF WICKLIFFE, COUNTY OF LAKE
STATE OF OHIO

SHEET
16 OF 82
JOB NO.
07-7470



P.I. Sta - 107+28.36 Do - 36° 04' 02" (LT)
 D - 63° 41' 42" (LT) Lc - 424.28'
 Do - 8° 30' 03" Ts1 - 728.36'
 R - 674.00' Ts2 - 447.57'
 Ls1 - 650.00' Es - 135.07'
 Theta1 - 27° 37' 40"
 LTI - 438.73'
 STI - 221.58'
 xl - 635.05'
 yl - 102.75'
 kl - 322.50'
 pl - 25.90'

FULL DEPTH PAVEMENT
 RAMP TO BE REMOVED

FOR MAINLINE PLANS,
 SEE SHEET 118
 FOR STRUCTURE DATA,
 SEE SHEET 117
 FOR GORE DETAIL,
 SEE SHEET 293

IS ARE BASED UPON DIGITAL DRAWINGS
 BY THE OHIO DEPARTMENT OF
 TRANSPORTATION AND ORIGINALLY DESIGNED BY MICHAEL
 BURKE AND BURGESS AND NIPLE THESE
 DRAWINGS TO BE USED FOR THE STORM WATER
 PREVENTION WORK ONLY. ALL OTHER
 INFORMATION SHOWN HEREIN IS FOR REFERENCE ONLY

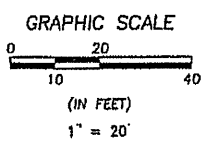
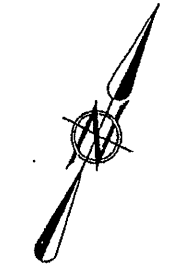
LEGEND OF SYMBOLS AND LINETYPES

- INLET PROTECTION
- SILT FENCE
- AREAS OF TEMPORARY AND PERMANENT STABILIZATION

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION
832	4,114	S.Y.	CONSTRUCTION SEEDING AND MULCHING
832	0	L.F.	PERIMETER FILTER FABRIC FENCE
832	0	L.F.	INLET PROTECTION
832	0	L.F.	FILTER FABRIC DITCH CHECK
832	0.00	CY	STONE CHECK DAM TYPE C WITHOUT FILTER

- NOTES:
- THE PROPOSED PERIMETER FILTER FABRIC FENCE SHALL BE PLACED AT A MINIMUM OF TEN (10) FEET FROM THE TOE OF THE SLOPE IN FILL SITUATIONS REFER TO THE CROSS SECTION DRAWINGS 214 TO 283 FOR THE FILL SECTION LOCATIONS.
 - REFER TO THE OHIO DEPARTMENT OF TRANSPORTATION STANDARD CONSTRUCTION DRAWINGS DM-4.2, DM-4.3, AND DM-4.4 AS WELL AS THE SUPPLEMENTAL SPECIFICATION NO. 832 AND NO. 833 FOR MORE INFORMATION



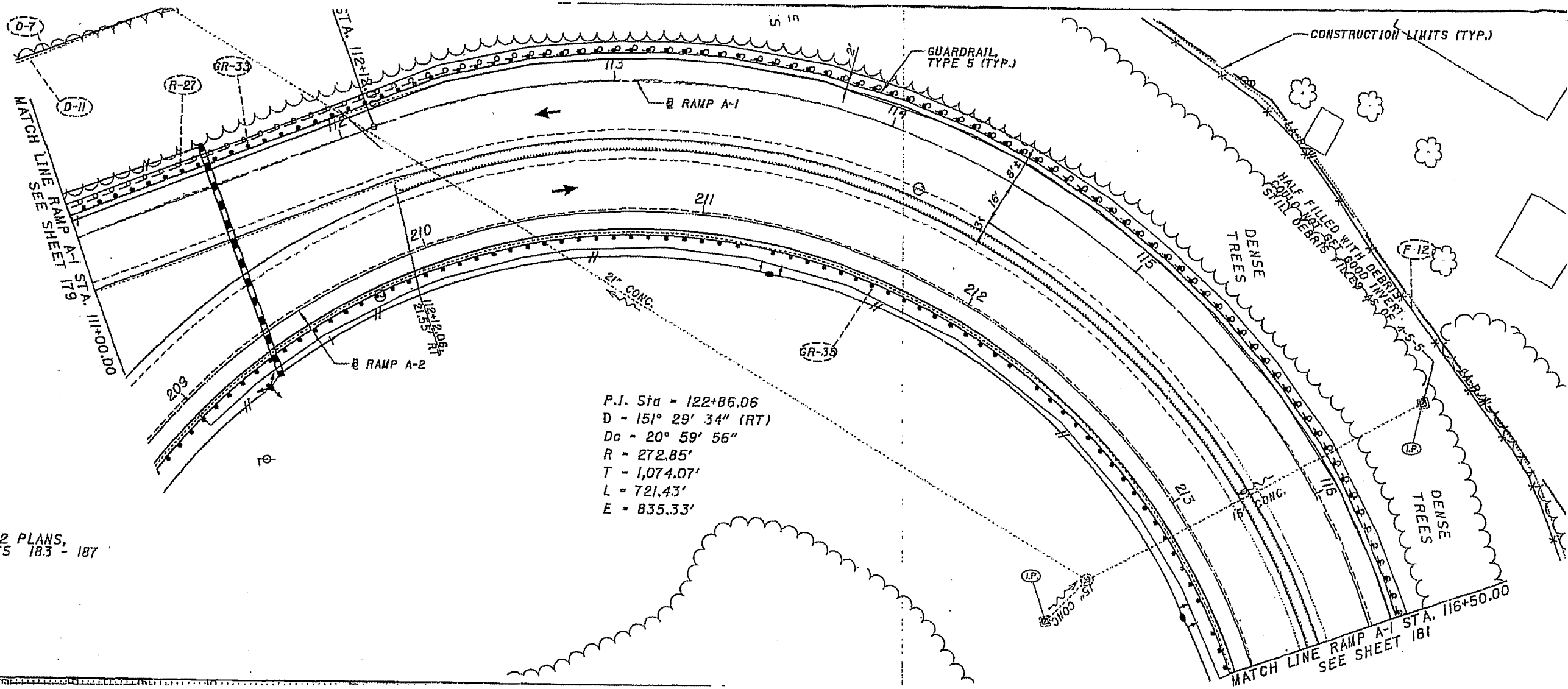
BY:	DESCRIPTION:

DRAWN BY: WTB
 CHECKED BY: CDW
BRAMHALL
 ENGINEERING AND SURVEYING CO., INC
 801 MOORE ROAD, AVON, OHIO 44011
 (440) 934 - 7878 (440) 934 - 7879 FAX

PREPARED FOR:
 THE SHELLY COMPANY
 8920 CANYON FALLS BLVD - SUITE 120
 TWINSBURG, OHIO 44087
 (330) 425-7861

LAK-2-0.00
 RAMP A-1, 100+00 TO 111+00.00
 CITY OF WICKLIFFE, COUNTY OF LAKE

SHEET
 48 OF 82
 JOB NO.



FOR RAMP 2 PLANS,
SEE SHEETS 183 - 187

LEGEND OF SYMBOLS AND LINETYPES

- (LP) INLET PROTECTION
- SF- SF- SILT FENCE
- [] AREAS OF TEMPORARY AND PERMANENT STABILIZATION

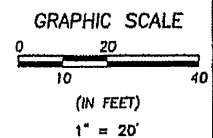
ALL DIMENSIONS ARE BASED UPON DIGITAL DRAWINGS BY THE OHIO DEPARTMENT OF TRANSPORTATION AND ORIGINALLY DESIGNED BY MICHAEL J. BURKE AND BURGESS AND NIPLE. THESE DIMENSIONS ARE TO BE USED FOR THE STORM WATER PREVENTION WORK ONLY. ALL OTHER DIMENSIONS SHOWN HEREIN IS FOR REFERENCE ONLY.

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION
832	712	S.Y.	CONSTRUCTION SEEDING AND MULCHING
832	0	L.F.	PERIMETER FILTER FABRIC FENCE
832	0	L.F.	INLET PROTECTION
832	0	L.F.	FILTER FABRIC DITCH CHECK
832	0 00	CY	STONE CHECK DAM TYPE C WITHOUT FILTER

NOTES:

- 1) THE PROPOSED PERIMETER FILTER FABRIC FENCE SHALL BE PLACED AT A MINIMUM OF TEN (10) FEET FROM THE TOE OF THE SLOPE IN FILL SITUATIONS REFER TO THE CROSS SECTION DRAWINGS 214 TO 285 FOR THE FILL SECTION LOCATIONS
- 2) REFER TO THE OHIO DEPARTMENT OF TRANSPORTATION STANDARD CONSTRUCTION DRAWINGS DM-4.2, DM-4.3, AND DM-4.4 AS WELL AS THE SUPPLEMENTAL SPECIFICATION NO 832 AND NO 833 FOR MORE INFORMATION.



BY:	DESCRIPTION:

DRAWN BY:
WTB

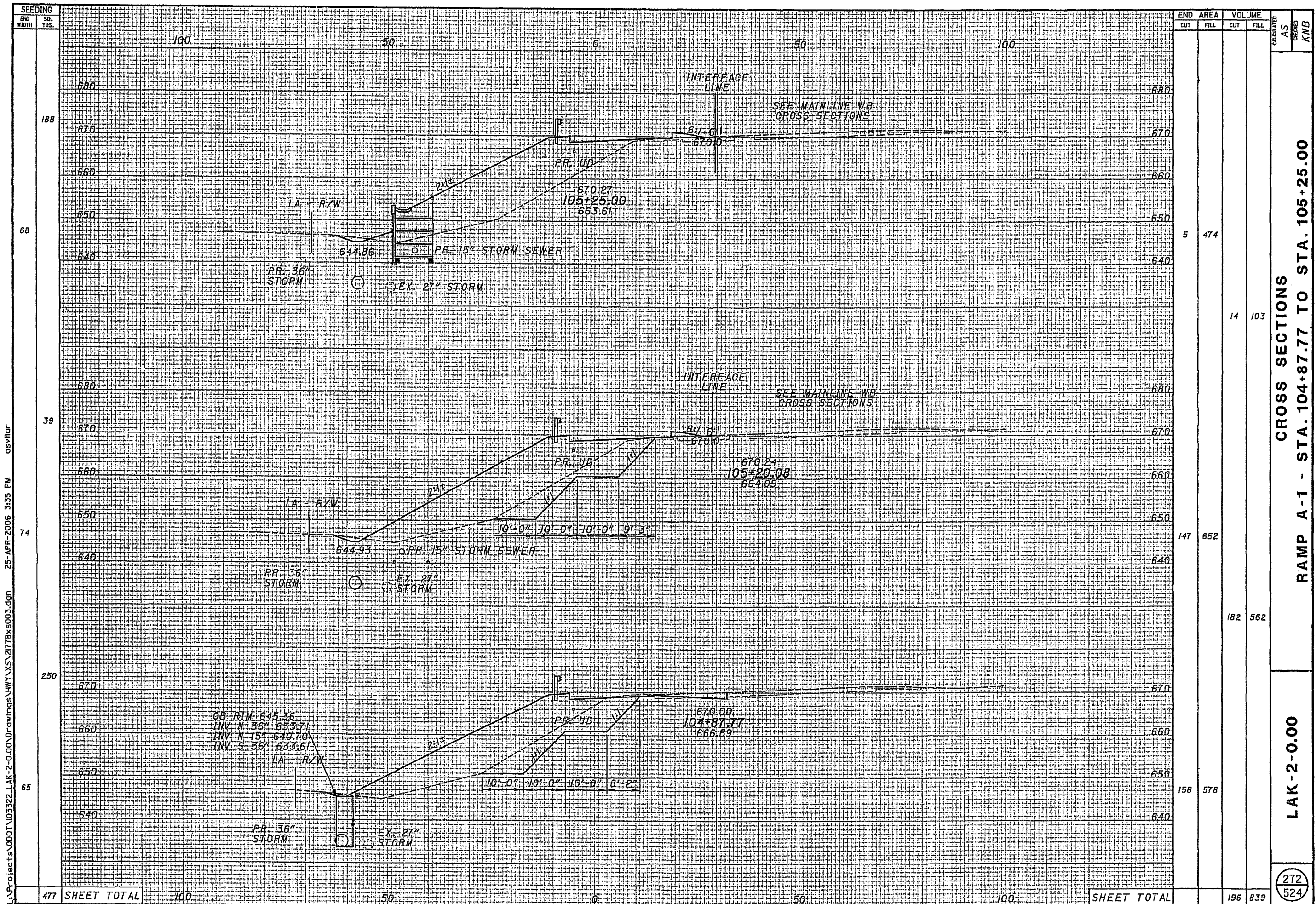
CHECKED BY:
CDW

BRAMHALL
ENGINEERING AND SURVEYING CO., INC.
801 MOORE ROAD, AVON, OHIO 44011
(440) 934 - 7878 (440) 934 - 7879 FAX

PREPARED FOR:
THE SHELLY COMPANY
8920 CANYON FALLS BLVD - SUITE 120
TWINSBURG, OHIO 44087
(330) 425-7861

LAK-2-0.00
RAMP A-1, 111+00 TO 1160+50
CITY OF WICKLIFFE, COUNTY OF LAKE
STATE OF OHIO

SHEET
49 OF 82
JOB NO
07-2470



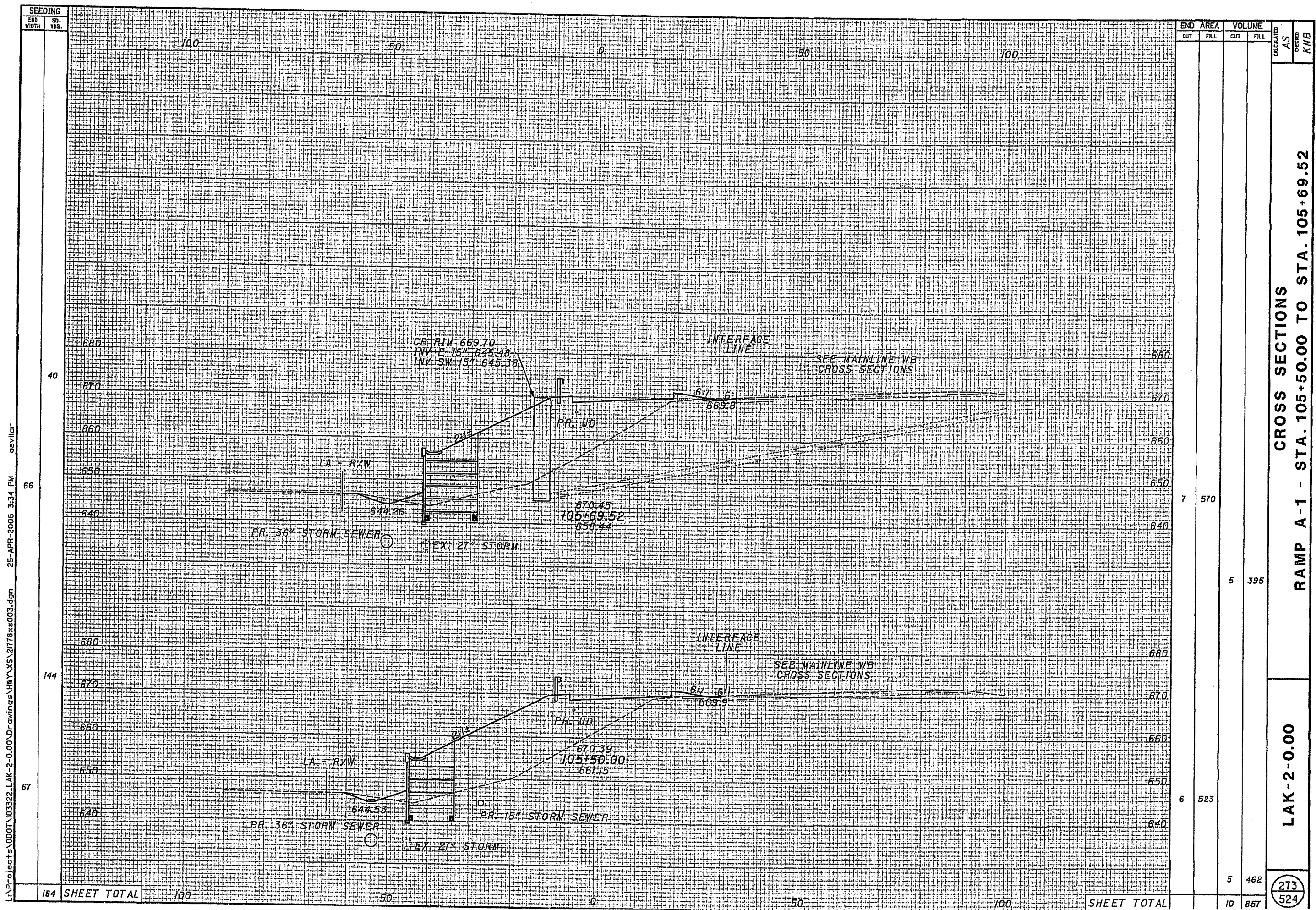
L:\Projects\0001\03322_LAK-2-0.00\Drawings\HWY\XS\21778x6003.dgn 25-APR-2006 3:35 PM asvllar

END STA.	AREA		VOLUME		CALCULATED AS BUILT	CHECKED KWB
	CUT	FILL	CUT	FILL		
105+25.00	5	474				
105+20.08	14	103				
104+87.77	147	652				
	182	562				
104+87.77	158	578				
SHEET TOTAL	196	839				

CROSS SECTIONS
RAMP A-1 - STA. 104+87.77 TO STA. 105+25.00

LAK-2-0.00

272
 524



END AREA	VOLUME		CALCULATED AS CHECKED	KMB
	CUT	FILL		
7	570			
5		395		
6	523			
5		462		
10	857			

CROSS SECTIONS
 RAMP A-1 - STA. 105+50.00 TO STA. 105+69.52

LAK-2-0.00

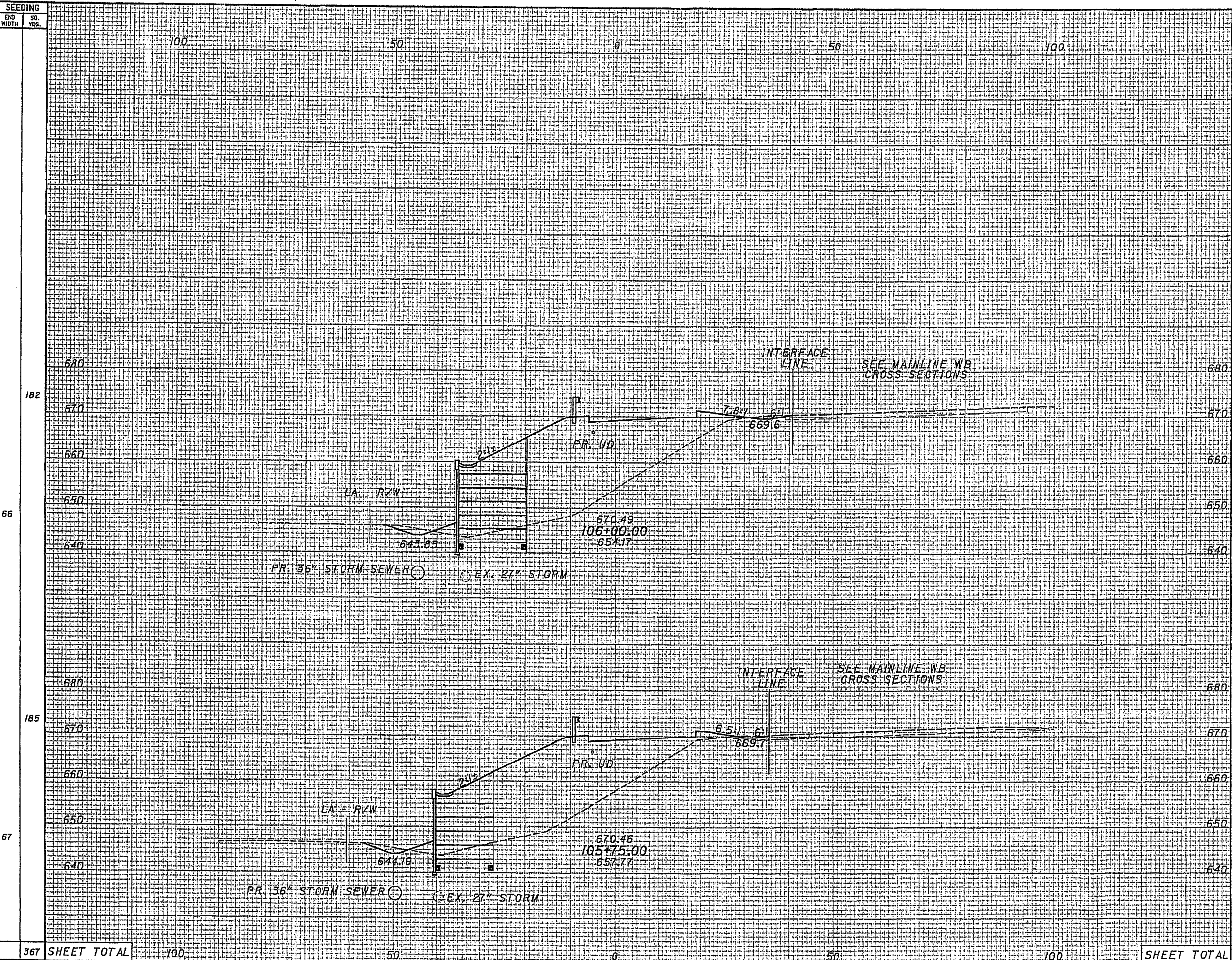
273
 524

L:\Projects\0001\03322_LAK-2-0.00\Drawings\HWY\XS\2178xs003.dgn 25-APR-2006 3:34 PM asvllar

184 SHEET TOTAL

SHEET TOTAL

L:\Projects\0001\03322_LAK-2-0.00\Drawings\HWY\XS\21778xs003.dgn 25-APR-2006 3:35 PM asvilar

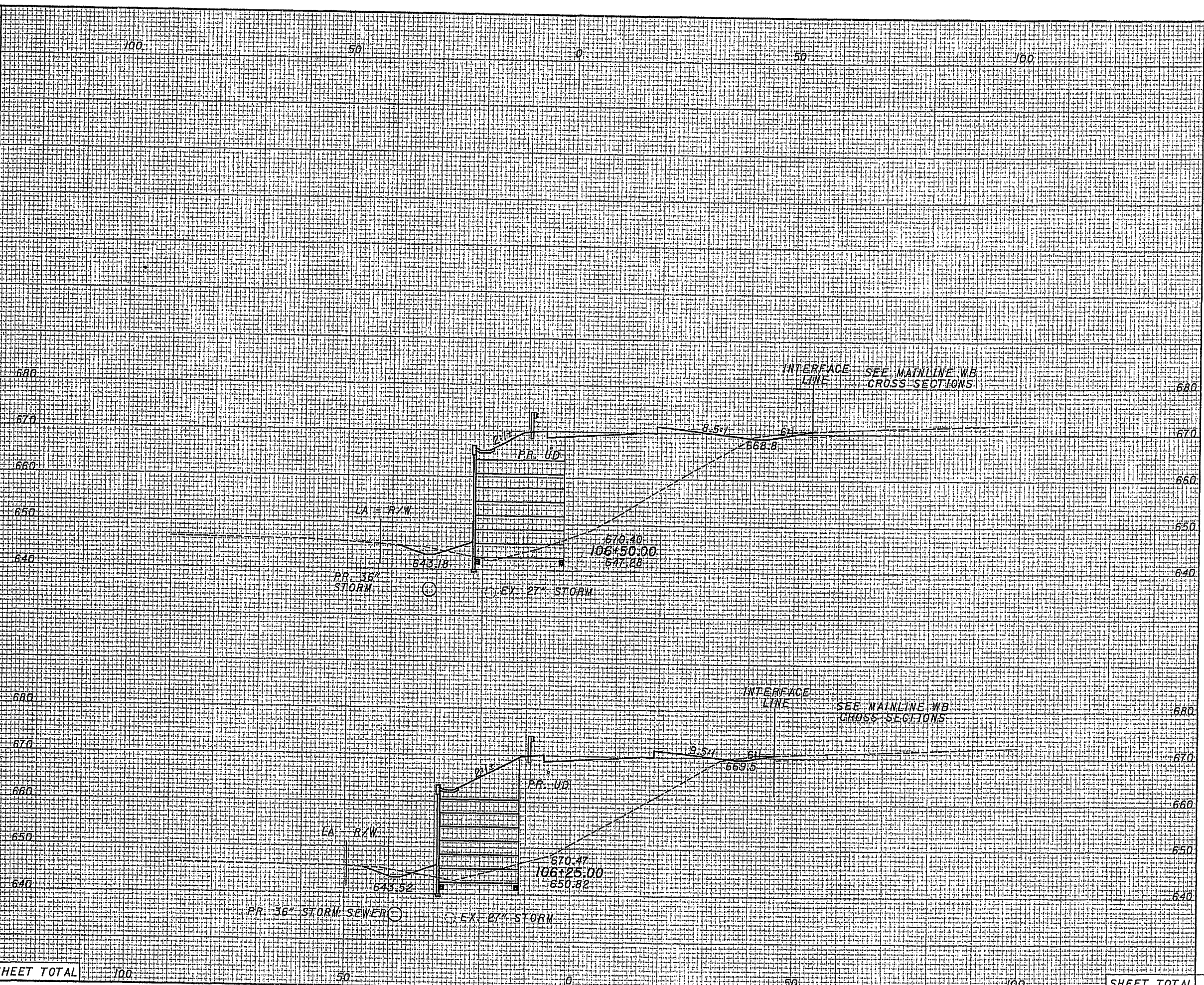


END	AREA		VOLUME		CALCULATED AS CHECKED	K/W
	CUT	FILL	CUT	FILL		
182						
185						
66	11	610	9	551		
67	8	581				
367	11	668	2	117		
SHEET TOTAL		100				

CROSS SECTIONS
RAMP A-1 - STA. 105+75.00 TO STA. 106+00.00
LAK-2-0.00

274
524

SEEDING
 END SO. NO. YRS.
 100 50 0 50 100
 176
 65
 181
 65
 357 SHEET TOTAL
 100 50 0 50 100
 SHEET TOTAL

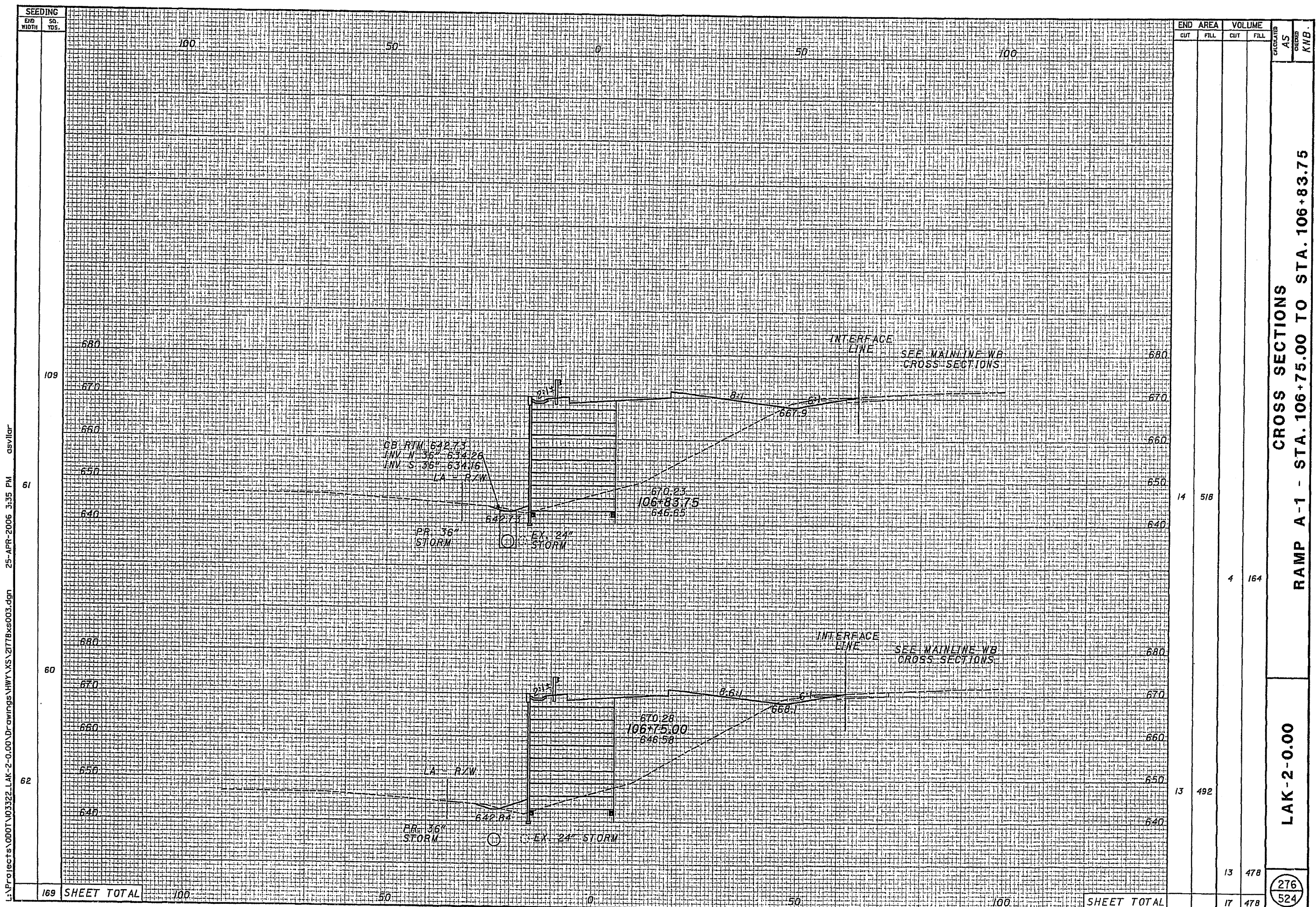


END AREA	VOLUME		CALCULATED AS CREATED	KWB
	CUT	FILL		
15	540			
13		522		
13	587			
11		554		
24	1075			

CROSS SECTIONS
 RAMP A-1 - STA. 106+25.00 TO STA. 106+50.00
 LAK-2-0.00

275
524

L:\Projects\1000T\103322.LAK-2-0.00\Drawings\HWY\X5\2178x003.dgn 25-APR-2006 3:35 PM cswilar

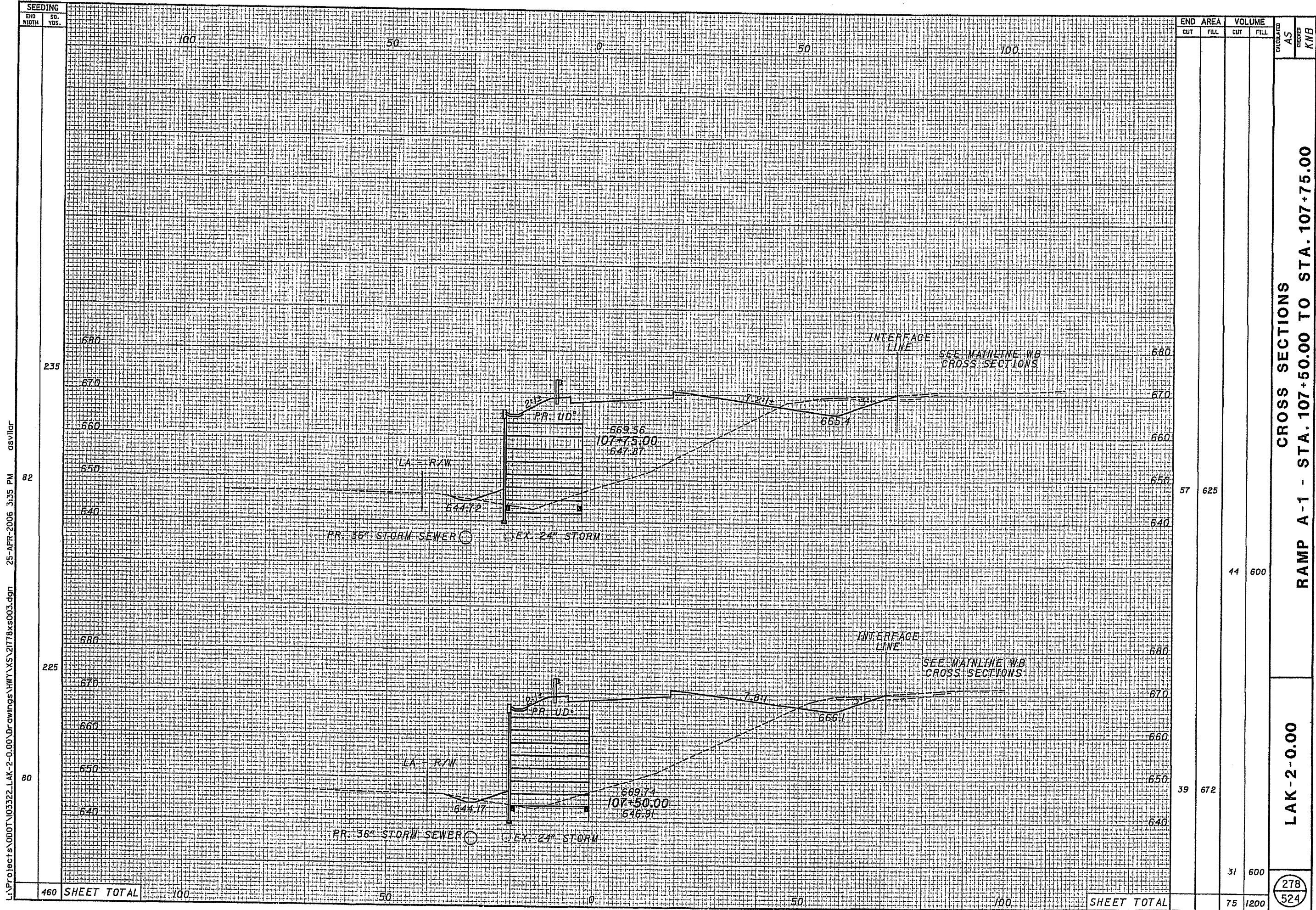


L:\Projects\0001\03322_LAK-2-0-00\Drawings\HWY\X5\2177Bxs003.dgn 25-APR-2006 3:35 PM casvlar

STATION	END AREA		VOLUME		CUMULATIVE AS OBSERVED KWB.
	CUT	FILL	CUT	FILL	
109					
61	14	518			
60			4	164	
62	13	492			
169	13	478			
SHEET TOTAL	17	478			

CROSS SECTIONS
RAMP A-1 - STA. 106+75.00 TO STA. 106+83.75
LAK-2-0-00

276
 524



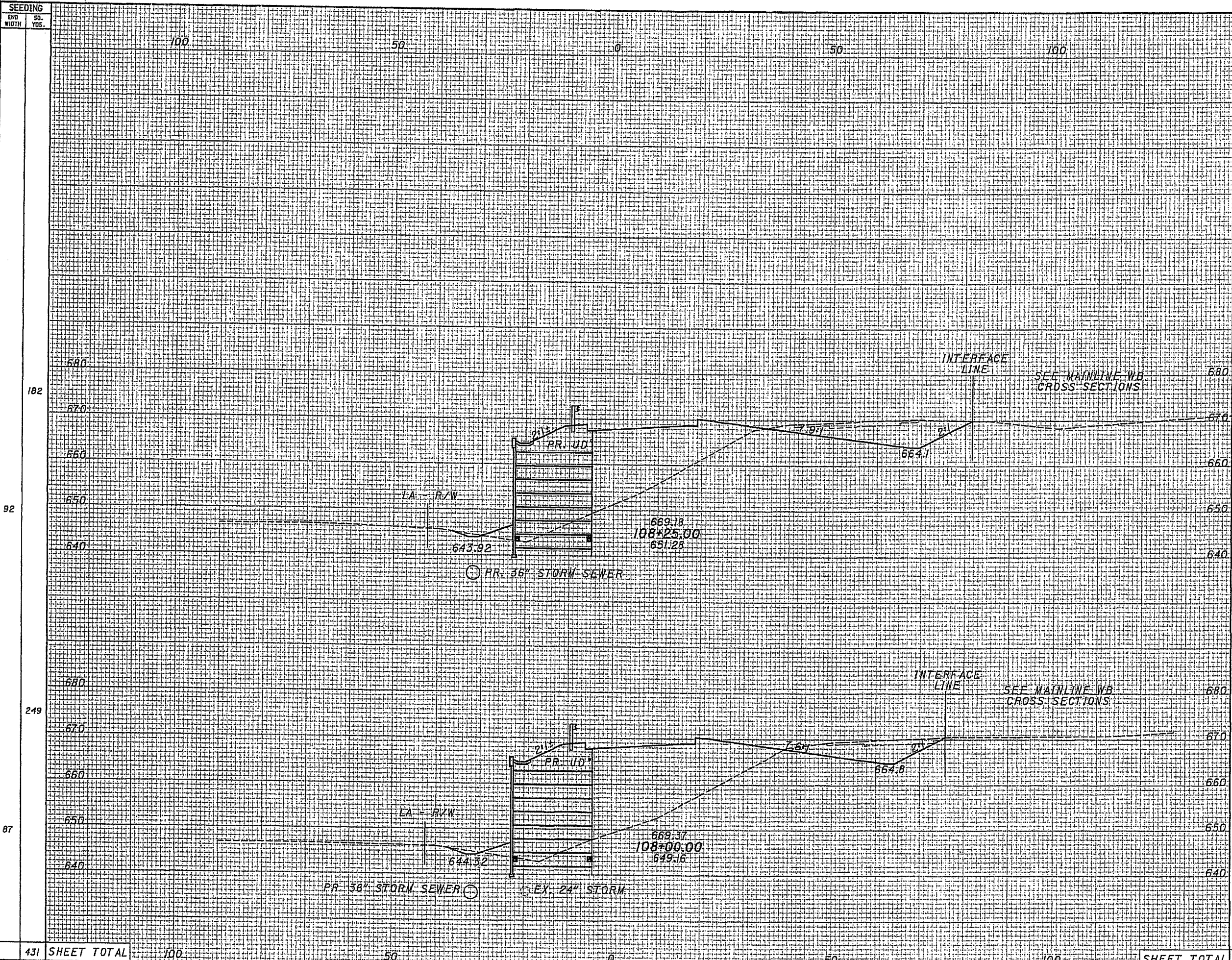
END STA.	AREA		VOLUME		CALCULATED AS BUILT	KWB
	CUT	FILL	CUT	FILL		
107+50.00	57	625	44	600		
107+75.00	39	672	31	600		
SHEET TOTAL	75	1200	75	1200	278	524

CROSS SECTIONS
 RAMP A-1 - STA. 107+50.00 TO STA. 107+75.00

LAK-2-0.00

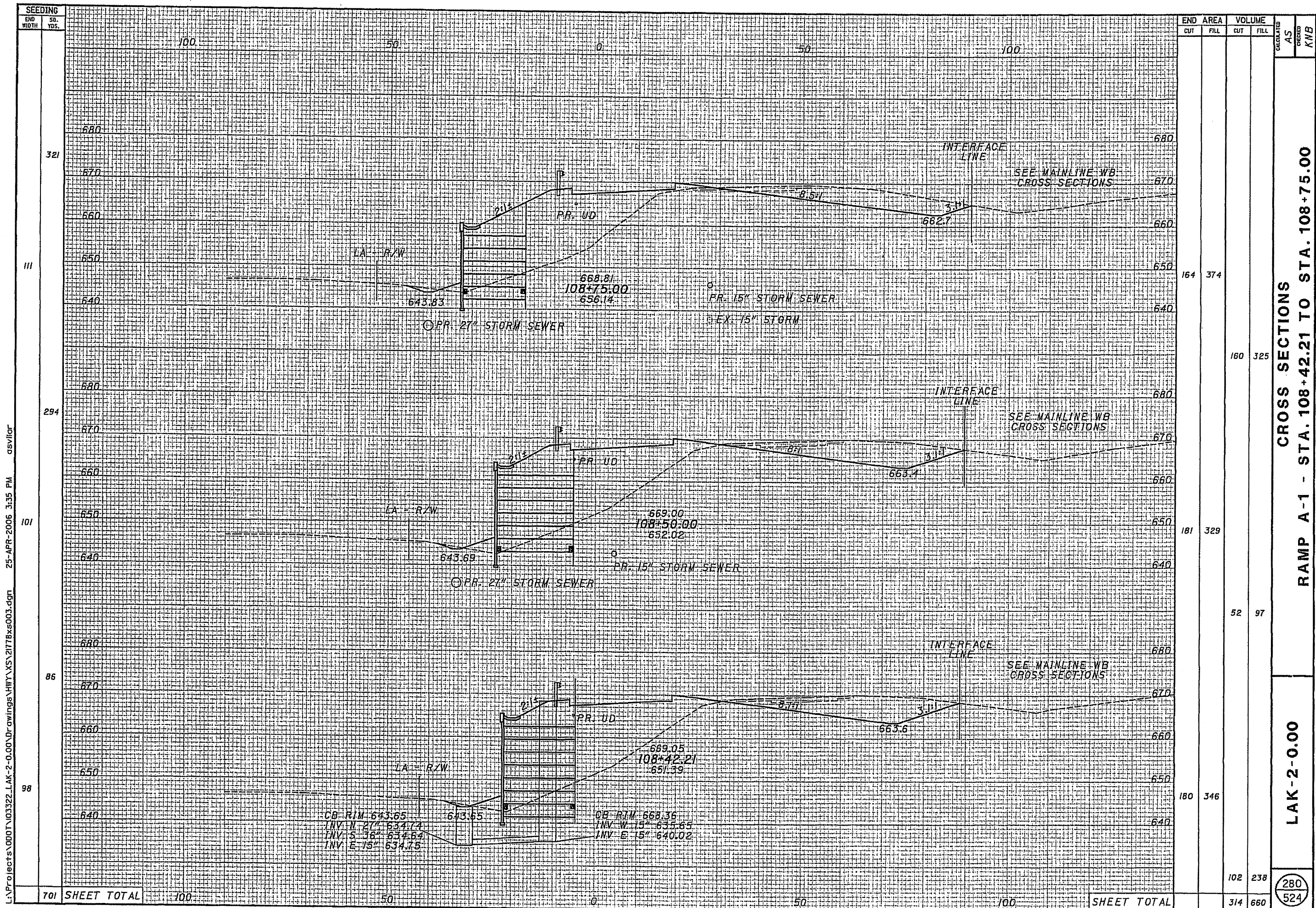
L:\Projects\0001\03322.LAK-2-0.00\Drawings\HWY\XS\21778s003.dgn 25-APR-2006 3:35 PM asvilar

L:\Projects\0001\03322_LAK-2-0-00\Drawings\HWY\XS\21778xs003.dgn 25-APR-2006 3:35 PM asvljar



END STA.	AREA		VOLUME	
	CUT	FILL	CUT	FILL
182				
92	139	403		
249			106	433
87	89	532		
431	68	536		
SHEET TOTAL	174	939		

CROSS SECTIONS
 RAMP A-1 - STA. 108+00.00 TO STA. 108+25.00
 LAK-2-0.00
 CALCULATED AS RECORDED KWB
 279
 524



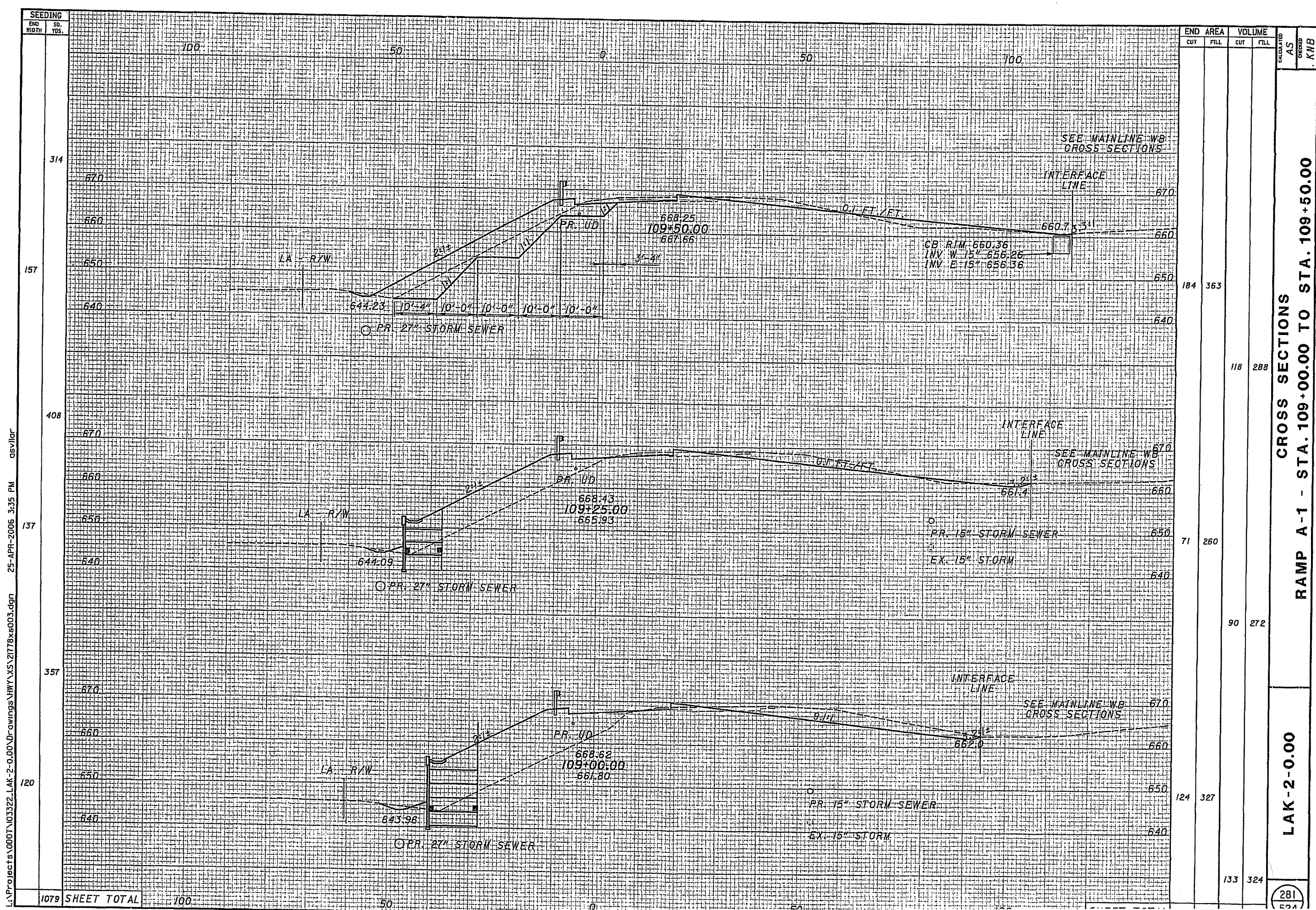
END WIDTH	SO. YDS.	END AREA		VOLUME		CALCULATED AS CREATED	KWB
		CUT	FILL	CUT	FILL		
100	50	0	0	0	0		
321		164	374				
101				160	325		
86				52	97		
98		180	346				
701		102	238				
		314	660				

CROSS SECTIONS
 RAMP A-1 - STA. 108+42.21 TO STA. 108+75.00

LAK-2-0.00

280
524

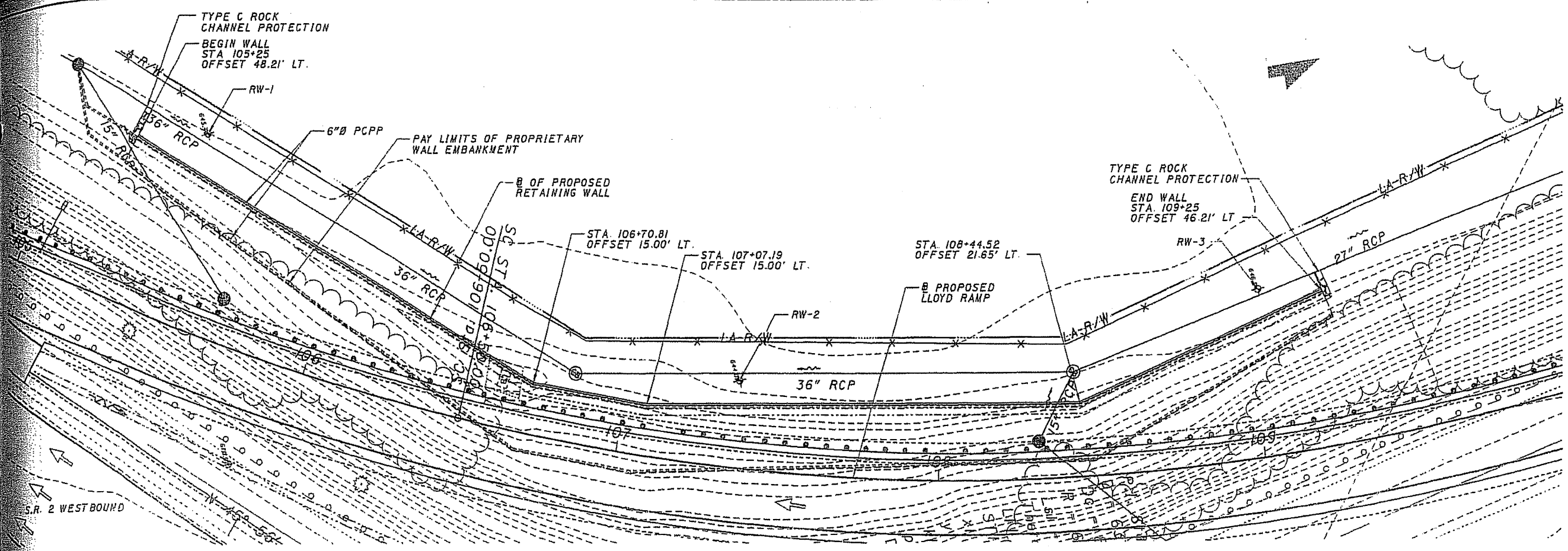
L:\Projects\0001\03322_LAK-2-0.00\Drawings\HWY\XS\21778xs003.dgn 25-APR-2006 3:35 PM asvlfar



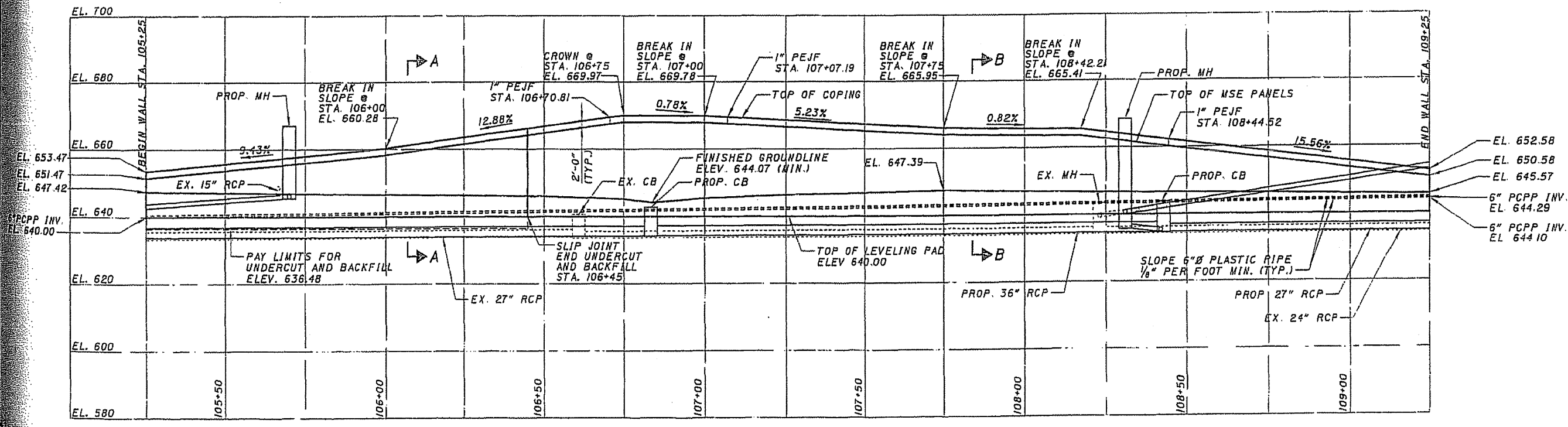
L:\Projects\0001\03322_LAK-2-0-00\Drawings\HWY\XS\21778x003.dgn 25-APR-2006 3:35 PM gsvllor

SEEDING	END WIDTH	SO. YDS.	END AREA		VOLUME		CALCULATED AS CHECKED . KNB
			CUT	FILL	CUT	FILL	
	100	50					
314	670						
157	650		184	363			
	640						
408	670						
137	650		71	260			
	640						
357	670						
120	650		90	272			
	640						
1079	SHEET TOTAL	100	133	324			

CROSS SECTIONS
RAMP A-1 - STA. 109+00.00 TO STA. 109+50.00
LAK-2-0-00



PLAN

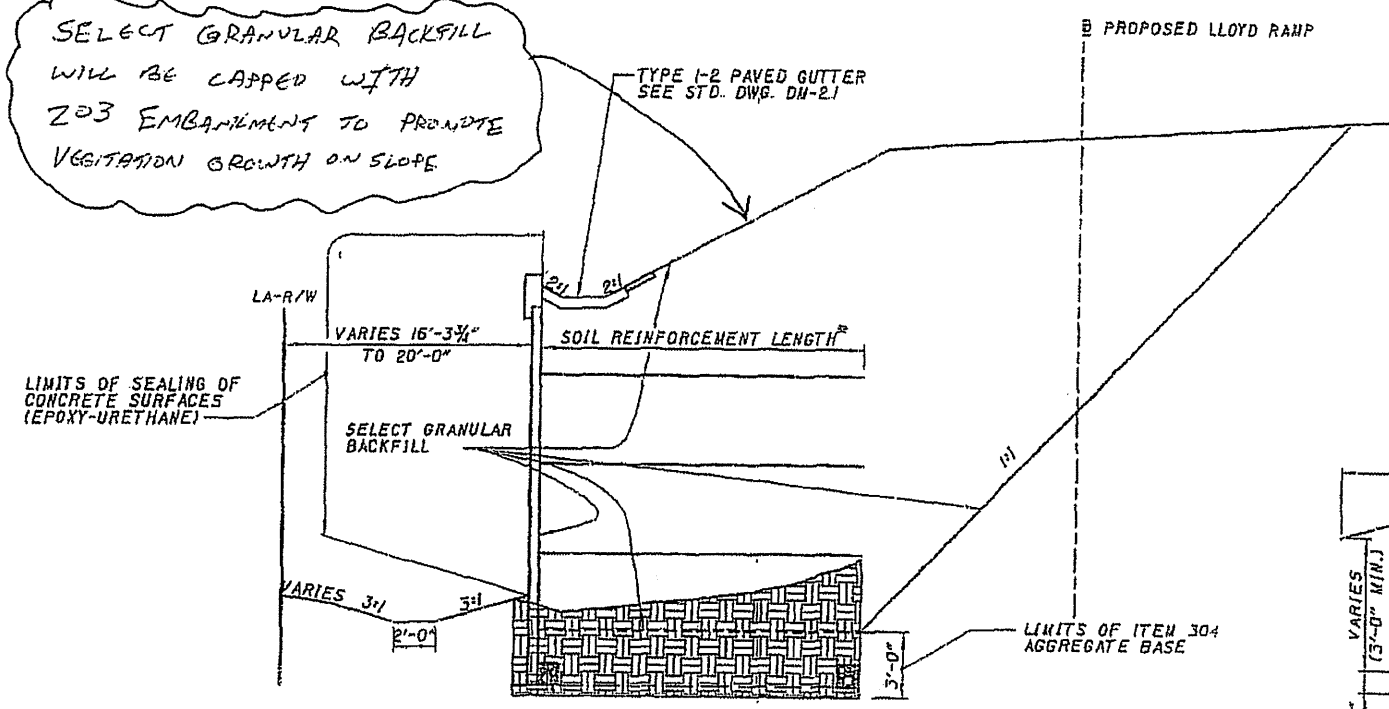


ELEVATION

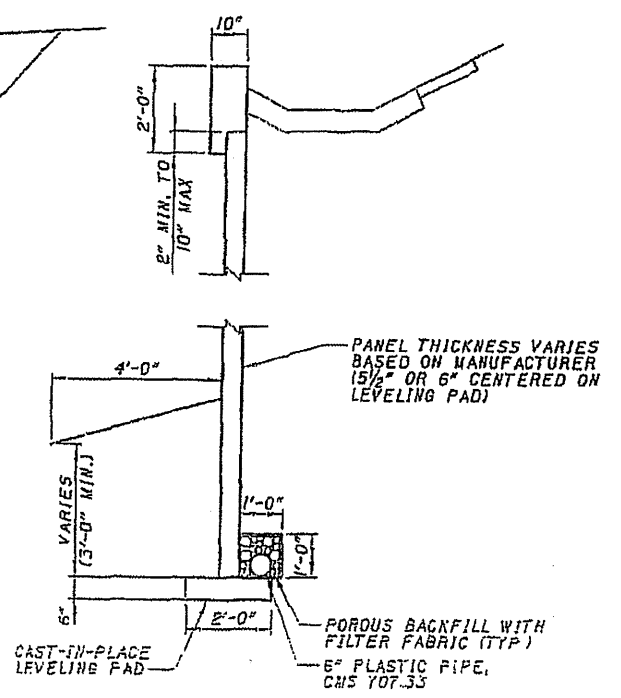
LEGEND
 EL - ELEVATION
 STA. - STATION
 ⊙ - SOIL TEST BORING LOCATIONS

MSE WALL

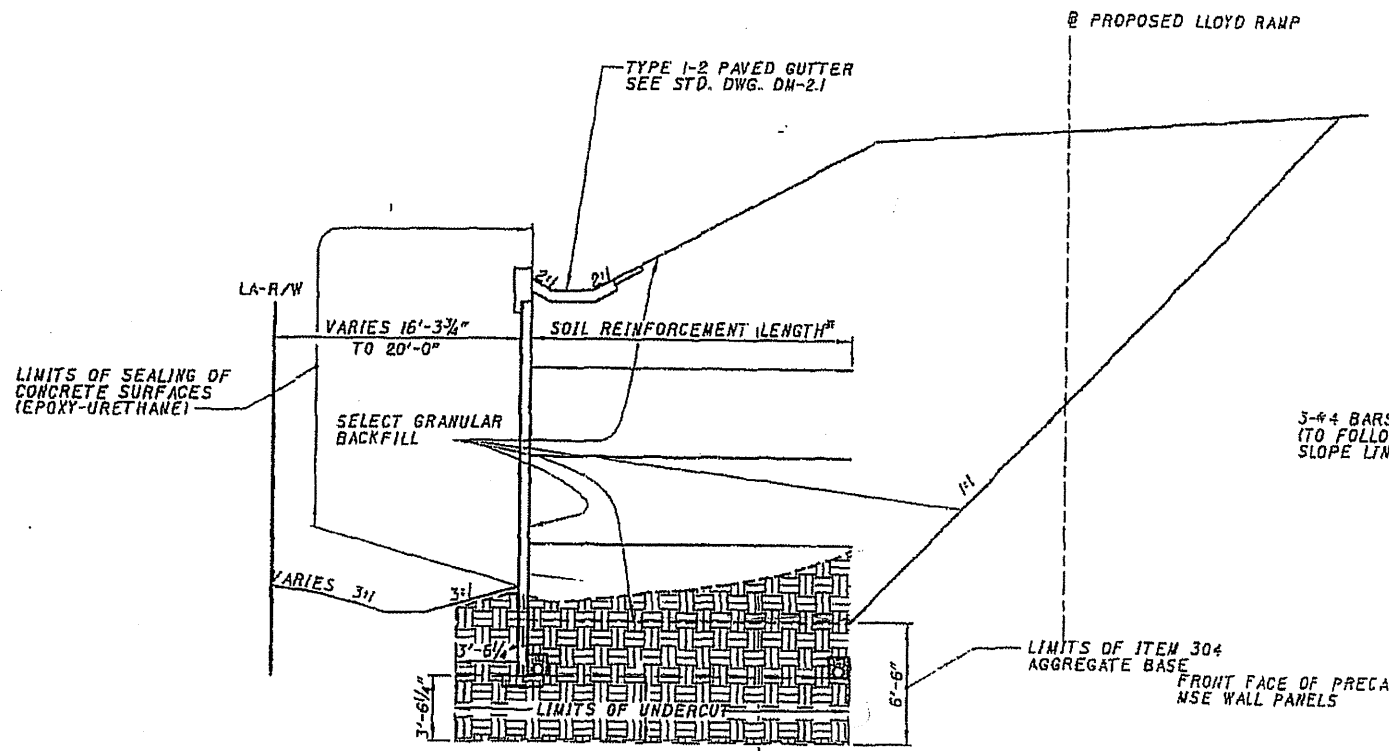
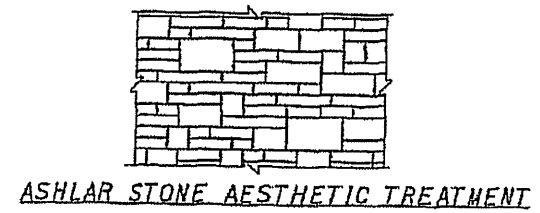
SELECT GRANULAR BACKFILL
WILL BE CAPPED WITH
Z03 EMBANKMENT TO PROMOTE
VEGETATION GROWTH ON SLOPE.



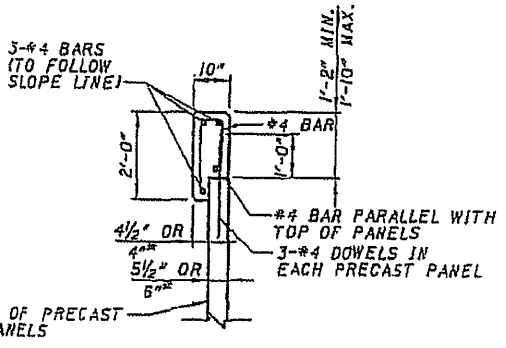
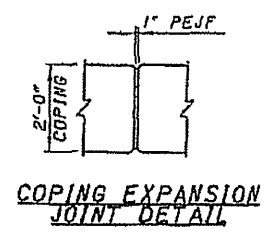
TYPICAL RETAINING WALL SECTION B-B
STA. 106+45 TO 109+25
HEIGHT VARIES
(ALL DIMENSIONS PERPENDICULAR TO MSE WALL)
*NUMBER AND LENGTH OF SOIL REINFORCEMENT
STRIPS DETERMINED BY WALL SUPPLIER



MSE RETAINING WALL DETAIL

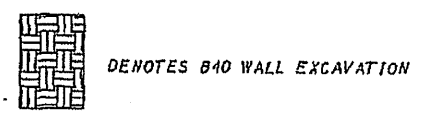


TYPICAL RETAINING WALL SECTION A-A
STA. 105+25 TO 106+45
HEIGHT VARIES
(ALL DIMENSIONS PERPENDICULAR TO MSE WALL)
*NUMBER AND LENGTH OF SOIL REINFORCEMENT
STRIPS DETERMINED BY WALL SUPPLIER



COPING DETAIL
*DEPENDS ON THE
APPROVED WALL SYSTEM
(REINFORCING STEEL IS INCLUDED
WITH CONCRETE COPING FOR FAYRENT.)

LEGEND



- NOTES:**
1. ALL REINFORCING STEEL TO BE EPOXY COATED.
 2. FOR UTILITIES INFORMATION AND LOCATIONS, SEE ROADWAY CROSS SECTIONS.
 3. PAY LIMITS OF PROPRIETARY WALL EMBANKMENT ARE ESTIMATED. EXACT LENGTHS ARE TO BE DESIGNED BY THE MSE WALL DESIGNER.
 4. ALLOWABLE BEARING PRESSURE: THE ALLOWABLE BEARING PRESSURE FOR THE SOIL MATERIAL LOCATED BELOW THE WALL IS RECOMMENDED TO BE 6.2 KSF.

DESIGN AGENT	DATE	7-26-2005
DESIGNER	WDA	7-26-2005
STRUCTURE FILE NUMBER		430012L/430002R
CHECKER	KAS	SCJ
REVISION	KAS	REVISED
DATE		
MSE RETAINING WALL DETAILS		
STA. 105+25 TO STA. 109+25		
LAK-2-0.00		
3/3		
360		
524		

APPENDIX B

Drinking Water Source protection Area-OEPA Correspondence



EDP

August 8, 2007

Ohio Environmental Protection Agency
Source Water Assessment and Protection Program
Division of Drinking and Ground Waters
122 South Front Street
Columbus, Ohio 43215
Attn: Ms. Linda Slattery

via fax: 614-644-2909

Dear Ms. Slattery:

I'm requesting information to determine if our site is within 2,500 feet of a Drinking Water Source Protection Area or Public Water System Drinking Water Supply Well. The site location is shown on the attached portion of the USGS 7.5' Mayfield Heights, Ohio quadrangle. The site is a 400 foot long MSE wall located off State Route 2 in the City of Wickliffe, Lake County, Ohio. The purpose of this request is to voluntarily comply with OEPA Beneficial Use of Foundry Sand Policy 400.007. Please let me know if you have any questions concerning this request. An electronic response can be sent to lmazzei@edpconsultants.com. Thank you.

Very truly yours,

EDP CONSULTANTS INC.

Lindsey R. Mazzei

Lindsey R. Mazzei
Environmental Geologist

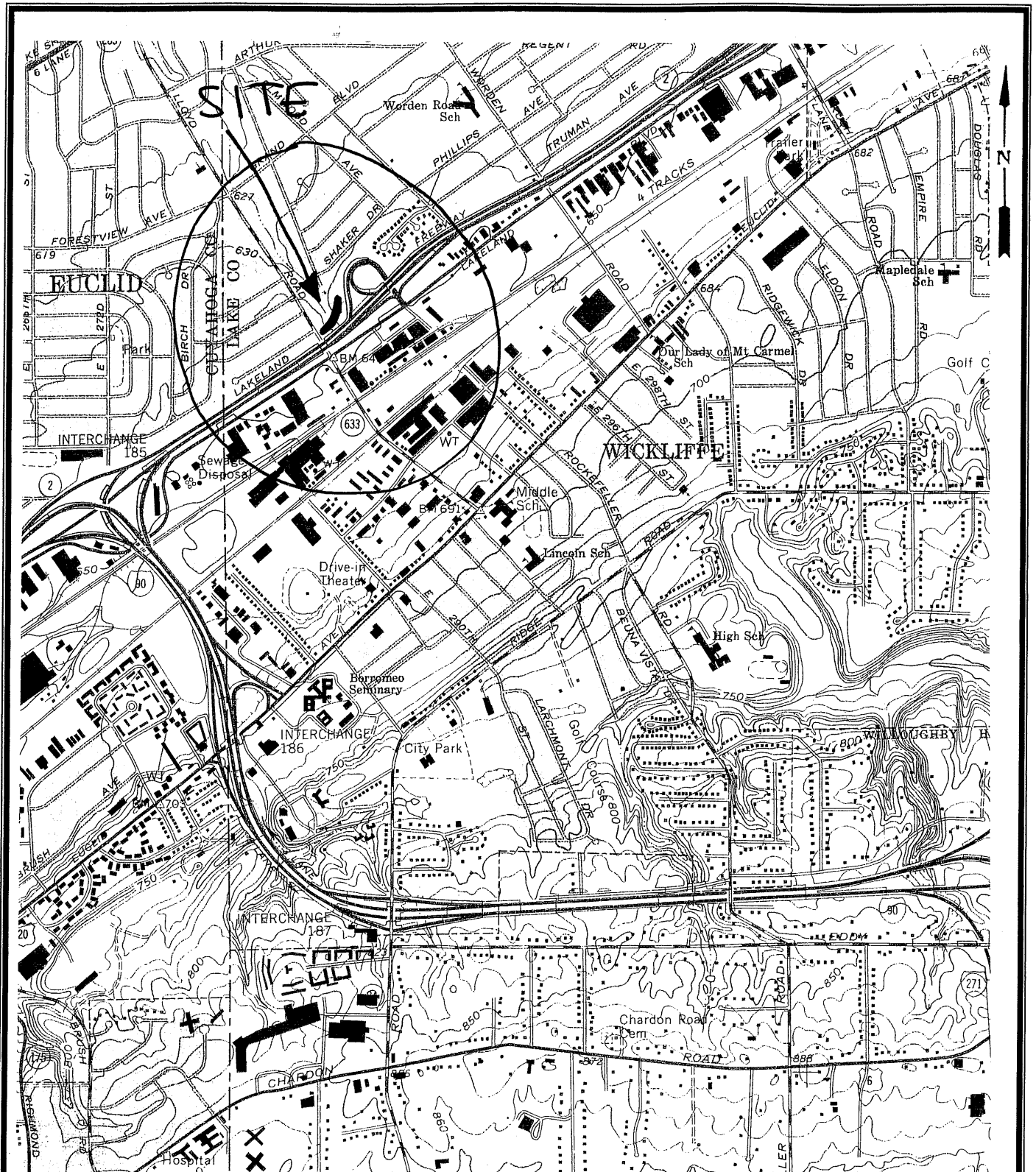


Figure 1: Approximate location of foundry sand fill taken from the 7.5' USGS Topographic Map of the Mayfield Heights, Ohio quadrangle (1963, photorevised 1992).

Contour Interval: 10 feet
 Scale: 1"=2,000'

EDP Consultants, Inc.
 August 8, 2007

Lindsey Mazzei

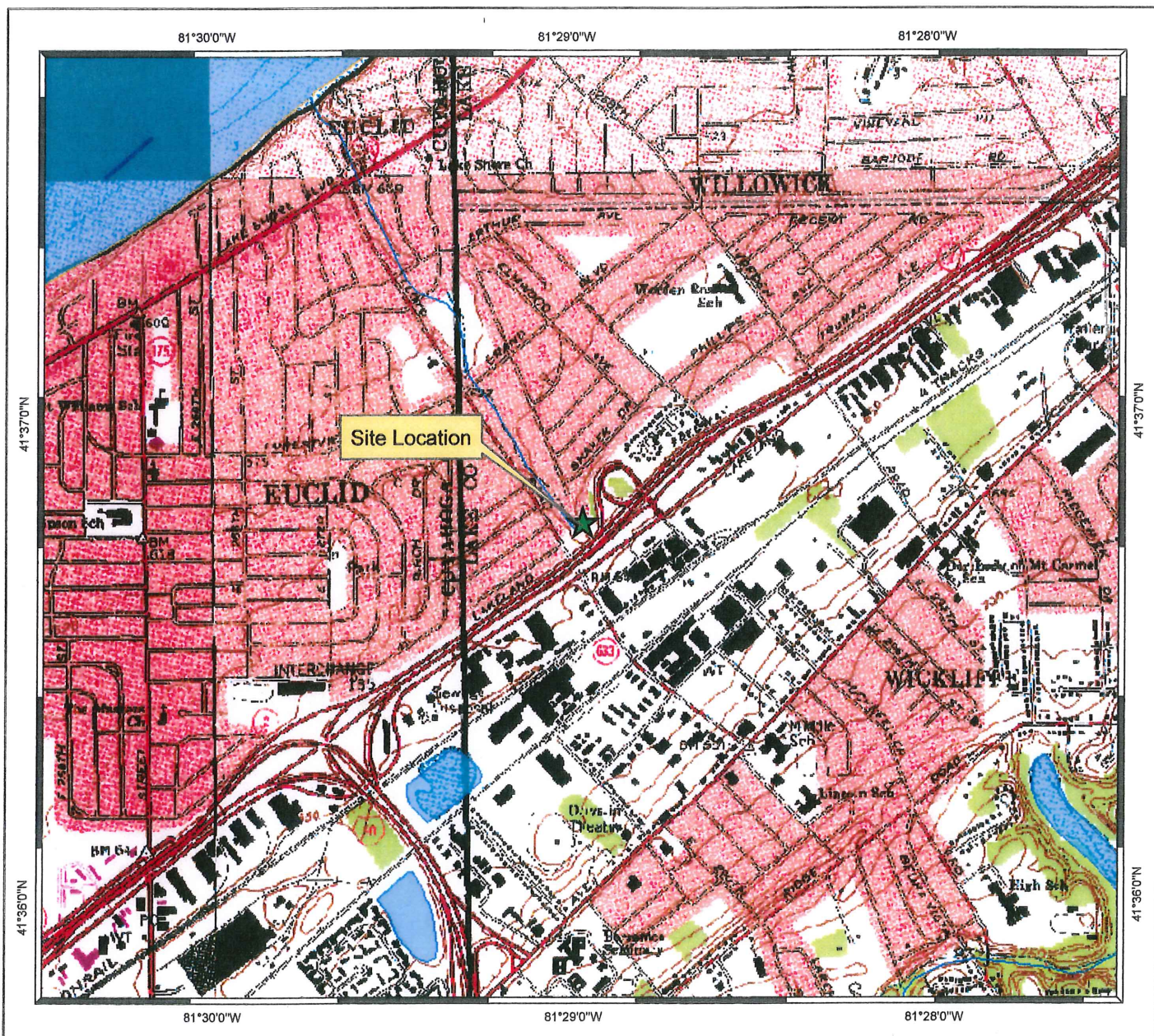
From: Internet.WHP@epa.state.oh.us
Sent: Wednesday, August 08, 2007 4:01 PM
To: Lindsey Mazzei
Subject: Drinking Water Source Protection Areas

Lindsey,

Attached is a map showing the information you requested. There are no drinking water source protection areas, public water system wells, or sole source aquifers near your site. if you have any questions or need additional information, please let me know.

Sincerely,

Linda Slattery
Geologist
Ohio EPA, Division of Drinking and Ground Waters
(614) 644-2752



Legend

- Public Water System Wells
 - Public Water System Surface Intakes
- Source Water Protection Areas (ground water)**
- Community Public Water Systems (inner and outer protection zones)
 - Nontransient Noncommunity Public Water Systems
 - Transient Noncommunity Public Water Systems
- Source Water Protection Areas (surface water)**
- Emergency Management Zone
 - Corridor Management Zone
 - Source Water Area
 - Zone of Critical Concern - Ohio River
 - Sole Source Aquifer
 - Zone of High Concern - Ohio River
 - Source Water Area - Ohio River
 - Critical Area Zone - Lake Erie
 - Potential Influence Zone - Lake Erie

Project Request

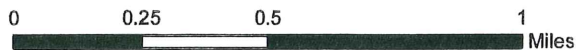
Drinking Water Source Protection Areas, Public Water System wells, and Sole Source Aquifers near a 400 ft MSE wall off State Route 2 in Wickliffe, Lake County, Ohio, for a study on the beneficial use of foundry sand (OEPA policy 400.007).

The Site Location was provided by Lindsey Mazzei, EDP Consultants.

Requested by: Lindsey Mazzei, EDP Consultants
 Map completed by: Linda Slattery, Ohio EPA-DDAGW

Date: August 8, 2007

Disclaimer: Delineation of source water protection areas are ongoing. As a result, this map may not include all source water protection areas for public water systems in the area depicted.



APPENDIX C

Analytical Results for Ford's Mold Foundry Sands

2004 LABORATORY REPORT

EXECUTIVE SUMMARY - Detection Highlights

A4K110159

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
MOLD SAND 11/10/04 10:05 001				
Mercury	0.000082	0.0020	mg/L	SW846 7470A
	Qualifiers: B,J			
Arsenic	0.0031 B	0.010	mg/L	SW846 6010B
Aluminum	0.49 J	0.20	mg/L	SW846 6010B
Barium	0.0045 B	2.0	mg/L	SW846 6010B
Beryllium	0.00050	0.0050	mg/L	SW846 6010B
	Qualifiers: B,J			
Iron	0.059 B	0.10	mg/L	SW846 6010B
Manganese	0.0013 B	0.015	mg/L	SW846 6010B
Vanadium	0.0021 B	0.050	mg/L	SW846 6010B
DI Leachable Conductivity	74	1	umhos/cm	MCAWW 120.1
DI Leachable Dissolved Solids	60	10	mg/L	MCAWW 160.1
DI Leachable Chloride	1.3	1.0	mg/L	MCAWW 300.0A
DI Leachable Sulfate	5.9	1.0	mg/L	MCAWW 300.0A
DI Leachable Fluoride	0.17 B	1.0	mg/L	MCAWW 300.0A
DI Leachable pH	9.8		No Units	SW846 9040B
DI Leachable Cyanide	0.0060 B	0.010	mg/L	SW846 9012A
DI Leachable Phenols	0.62	0.20	mg/L	SW846 9065
DI Leachable Alkalinity	21	5.0	mg/L	MCAWW 310.1

DEWATERING TANK SLAG 11/10/04 10:10 002

Mercury	0.000076	0.0020	mg/L	SW846 7470A
	Qualifiers: B,J			
Lead	0.0043	0.0030	mg/L	SW846 6010B
Aluminum	0.31 J	0.20	mg/L	SW846 6010B
Barium	0.0019 B	2.0	mg/L	SW846 6010B
Beryllium	0.00050	0.0050	mg/L	SW846 6010B
	Qualifiers: B,J			
Iron	0.091 B	0.10	mg/L	SW846 6010B
Manganese	0.0096 B	0.015	mg/L	SW846 6010B
Zinc	0.041	0.020	mg/L	SW846 6010B
DI Leachable Conductivity	49	1	umhos/cm	MCAWW 120.1
DI Leachable Dissolved Solids	35	10	mg/L	MCAWW 160.1
DI Leachable Chloride	0.56 B	1.0	mg/L	MCAWW 300.0A

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

A4K110159

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
DEWATERING TANK SLAG 11/10/04 10:10 002				
DI Leachable Sulfate	3.1	1.0	mg/L	MCAWW 300.0A
DI Leachable Fluoride	0.11 B	1.0	mg/L	MCAWW 300.0A
DI Leachable pH	9.2		No Units	SW846 9040B
DI Leachable Alkalinity	20	5.0	mg/L	MCAWW 310.1
CLEANING ROOM SAND 11/10/04 10:20 003				
Mercury	0.00012	0.0020	mg/L	SW846 7470A
	Qualifiers: B,J			
Aluminum	0.87 J	0.20	mg/L	SW846 6010B
Barium	0.00089 B	2.0	mg/L	SW846 6010B
Beryllium	0.00052	0.0050	mg/L	SW846 6010B
	Qualifiers: B,J			
Vanadium	0.0021 B	0.050	mg/L	SW846 6010B
DI Leachable Conductivity	130	1	umhos/cm	MCAWW 120.1
DI Leachable Dissolved Solids	60	10	mg/L	MCAWW 160.1
DI Leachable Chloride	1.0	1.0	mg/L	MCAWW 300.0A
DI Leachable Sulfate	4.4	1.0	mg/L	MCAWW 300.0A
DI Leachable Fluoride	0.17 B	1.0	mg/L	MCAWW 300.0A
DI Leachable pH	10.6		No Units	SW846 9040B
DI Leachable Phenols	0.034 B	0.040	mg/L	SW846 9065
DI Leachable Alkalinity	36	5.0	mg/L	MCAWW 310.1
COOLING GALLERY SAND 11/10/04 10:28 004				
Mercury	0.000062	0.0020	mg/L	SW846 7470A
	Qualifiers: B,J			
Aluminum	0.55 J	0.20	mg/L	SW846 6010B
Beryllium	0.00052	0.0050	mg/L	SW846 6010B
	Qualifiers: B,J			
Vanadium	0.0019 B	0.050	mg/L	SW846 6010B
DI Leachable Conductivity	38	1	umhos/cm	MCAWW 120.1
DI Leachable Dissolved Solids	28	10	mg/L	MCAWW 160.1
DI Leachable Chloride	0.45 B	1.0	mg/L	MCAWW 300.0A

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

A4KL10159

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
COOLING GALLERY SAND 11/10/04 10:28 004				
DI Leachable Sulfate	0.78 B	1.0	mg/L	MCAWW 300.0A
DI Leachable Fluoride	0.056 B	1.0	mg/L	MCAWW 300.0A
DI Leachable pH	9.7		No Units	SW846 9040B
DI Leachable Phenols	0.014 B	0.040	mg/L	SW846 9065
DI Leachable Alkalinity	15	5.0	mg/L	MCAWW 310.1
CORE SCRAP 11/10/04 10:51 005				
Mercury	0.000092	0.0020	mg/L	SW846 7470A
	Qualifiers: B, J			
Aluminum	0.15 B, J	0.20	mg/L	SW846 6010B
Barium	0.0037 B	2.0	mg/L	SW846 6010B
Beryllium	0.00056	0.0050	mg/L	SW846 6010B
	Qualifiers: B, J			
Copper	0.0079 B	0.025	mg/L	SW846 6010B
Iron	0.20	0.10	mg/L	SW846 6010B
Manganese	0.038	0.015	mg/L	SW846 6010B
Nickel	0.0037 B	0.040	mg/L	SW846 6010B
Vanadium	0.0026 B	0.050	mg/L	SW846 6010B
DI Leachable Conductivity	65	1	umhos/cm	MCAWW 120.1
DI Leachable Dissolved Solids	150	10	mg/L	MCAWW 160.1
DI Leachable Chloride	1.6	1.0	mg/L	MCAWW 300.0A
DI Leachable Sulfate	8.6	1.0	mg/L	MCAWW 300.0A
DI Leachable Fluoride	0.18 B	1.0	mg/L	MCAWW 300.0A
DI Leachable pH	7.0		No Units	SW846 9040B
DI Leachable Phenols	2.9	2.0	mg/L	SW846 9065
DI Leachable Alkalinity	14	5.0	mg/L	MCAWW 310.1
IMS DEBRIS 11/10/04 11:02 006				
Aluminum	0.13 B, J	0.20	mg/L	SW846 6010B
Barium	0.0010 B	2.0	mg/L	SW846 6010B
Beryllium	0.00055	0.0050	mg/L	SW846 6010B
	Qualifiers: B, J			
DI Leachable Conductivity	24	1	umhos/cm	MCAWW 120.1

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

AAK110159

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
IMS DEBRIS 11/10/04 11:02 006				
DI Leachable Dissolved Solids	26	10	mg/L	MCAWW 160.1
DI Leachable Chloride	0.36 B	1.0	mg/L	MCAWW 300.0A
DI Leachable Sulfate	0.53 B	1.0	mg/L	MCAWW 300.0A
DI Leachable pH	9.1		No Units	SWB46 9040B
DI Leachable Phenols	0.19	0.040	mg/L	SWB46 9065
DI Leachable Alkalinity	12	5.0	mg/L	MCAWW 310.1
IMS SAND 11/10/04 11:05 007				
Mercury	0.000082	0.0020	mg/L	SWB46 7470A
	Qualifiers: B, J			
Aluminum	0.19 B, J	0.20	mg/L	SWB46 6010B
Barium	0.0031 B	2.0	mg/L	SWB46 6010B
Beryllium	0.00054	0.0050	mg/L	SWB46 6010B
	Qualifiers: B, J			
Zinc	0.014 B	0.020	mg/L	SWB46 6010B
DI Leachable Conductivity	42	1	umhos/cm	MCAWW 120.1
DI Leachable Dissolved Solids	25	10	mg/L	MCAWW 160.1
DI Leachable Sulfate	0.77 B	1.0	mg/L	MCAWW 300.0A
DI Leachable Fluoride	0.060 B	1.0	mg/L	MCAWW 300.0A
DI Leachable pH	9.3		No Units	SWB46 9040B
DI Leachable Alkalinity	23	5.0	mg/L	MCAWW 310.1
SAND COMPOSITE (IMS, MOLD, CLEANING ROOM) 11/10/04 11:08 008				
Mercury	0.000057	0.0020	mg/L	SWB46 7470A
	Qualifiers: B, J			
Lead	0.0021 B	0.0030	mg/L	SWB46 6010B
Aluminum	0.39 J	0.20	mg/L	SWB46 6010B
Barium	0.0036 B	2.0	mg/L	SWB46 6010B
Beryllium	0.00057	0.0050	mg/L	SWB46 6010B
	Qualifiers: B, J			
Chromium	0.0049 B	0.010	mg/L	SWB46 6010B
Vanadium	0.0011 B	0.050	mg/L	SWB46 6010B
DI Leachable Conductivity	79	1	umhos/cm	MCAWW 120.1

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

A4K110159

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
SAND COMPOSITE (JMS, MOLD, CLEANING ROOM) 11/10/04 11:08 008				
DI Leachable Dissolved Solids	48	10	mg/L	MCAWW 160.1
DI Leachable Chloride	1.1	1.0	mg/L	MCAWW 300.0A
DI Leachable Sulfate	4.7	1.0	mg/L	MCAWW 300.0A
DI Leachable Fluoride	0.16 B	1.0	mg/L	MCAWW 300.0A
DI Leachable pH	10.1		No Units	SW846 9040B
DI Leachable Phenols	0.19	0.040	mg/L	SW846 9065
DI Leachable Alkalinity	25	5.0	mg/L	MCAWW 310.1

2007 LABORATORY REPORT



STL

Date: 02/06/07
Time: 19:55:11
(Mountain Time)

From: William Cordell
STL North Canton
4101 Shuffel Drive NW
North Canton, OH 44720

To: Dan Lyons
MPS Group
216-6767455

voice: 330-497-9396
fax: 330-497-0772

Number of Pages
Including Cover Sheet: 08

The information contained in this facsimile transmission is privileged and confidential information, intended only for the use of the individual or entity named above. If the reader of this message is not the intended recipient, you are hereby notified that any dissemination, distribution, or copy of this communication is strictly prohibited. If you have received this communication in error, please notify us by telephone. Thank you.

Message Number :28066
Object Number :
Object Name/Site :FORD CASTING PLANT NON-TOXIC

This is an automated feature provided by Severn Trent Laboratories, Inc.

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: A7A240192 MPS Group Inc. FORD CASTING PLANT NON-TOXIC Date Reported: 2/06/07 PAGE 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: MOLD SAND					
Sample #: 001 Date Sampled: 01/24/07 09:33 Date Received: 01/24/07 Matrix: SOLID					
Inductively Coupled Plasma (ICP) Metals					Reviewed
Barium	0.0063 B	2.0	mg/L	SW846 6010B	
Cadmium	ND	0.0050	mg/L	SW846 6010B	
Chromium	ND	0.010	mg/L	SW846 6010B	
Mercury in Liquid Waste (Manual Cold-Vapor)					Reviewed
Mercury	ND	0.0020	mg/L	SW846 7470A	
Trace Inductively Coupled Plasma (ICP) Metals					Reviewed
Arsenic	ND	0.010	mg/L	SW846 6010B	
Lead	ND	0.0030	mg/L	SW846 6010B	
Selenium	0.0031 B	0.0050	mg/L	SW846 6010B	

B Estimated result. Result is less than RL.

Inorganic Analysis					Reviewed
DI Leachable Cyanide	0.0089 B	0.010	mg/L	SW846 9012A	
DI Leachable Fluoride	0.15 B	1.0	mg/L	MCAWW 300.0A	
DI Leachable Phenols	0.92	0.080	mg/L	SW846 9065	

B Estimated result. Result is less than RL.

Client Sample ID: COOLING GALLERY SAND
Sample #: 002 Date Sampled: 01/24/07 10:15 Date Received: 01/24/07 Matrix: SOLID

Inductively Coupled Plasma (ICP) Metals					Reviewed
Barium	ND	2.0	mg/L	SW846 6010B	
Cadmium	ND	0.0050	mg/L	SW846 6010B	
Chromium	0.0017 B	0.010	mg/L	SW846 6010B	
Mercury in Liquid Waste (Manual Cold-Vapor)					Reviewed
Mercury	ND	0.0020	mg/L	SW846 7470A	
Trace Inductively Coupled Plasma (ICP) Metals					Reviewed
Arsenic	ND	0.010	mg/L	SW846 6010B	

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: A7A240192 MPS Group Inc. PAGE 2
 FORD CASTING PLANT NON-TOXIC Date Reported: 2/06/07

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
-----------	--------	-----------------	-------	-------------------

Client Sample ID: COOLING GALLERY SAND

Sample #: 002 Date Sampled: 01/24/07 10:15 Date Received: 01/24/07 Matrix: SOLID

Lead	ND	0.0030	mg/L	SW846 6010B
Selenium	0.0041 B	0.0050	mg/L	SW846 6010B

B Estimated result. Result is less than RL.

Inorganic Analysis

Reviewed

DI Leachable Cyanide	ND	0.010	mg/L	SW846 9012A
DI Leachable Fluoride	0.050 B	1.0	mg/L	MCAWW 300.0A
DI Leachable Phenols	ND	0.040	mg/L	SW846 9065

B Estimated result. Result is less than RL.

Client Sample ID: DEWATERING TANK SLAG

Sample #: 003 Date Sampled: 01/24/07 09:15 Date Received: 01/24/07 Matrix: SOLID

Inductively Coupled Plasma (ICP) Metals

Reviewed

Barium	ND	2.0	mg/L	SW846 6010B
Cadmium	ND	0.0050	mg/L	SW846 6010B
Chromium	ND	0.010	mg/L	SW846 6010B

Mercury in Liquid Waste (Manual Cold-Vapor)

Reviewed

Mercury	ND	0.0020	mg/L	SW846 7470A
---------	----	--------	------	-------------

Trace Inductively Coupled Plasma (ICP) Metals

Reviewed

Arsenic	ND	0.010	mg/L	SW846 6010B
Lead	ND	0.0030	mg/L	SW846 6010B
Selenium	0.0036 B	0.0050	mg/L	SW846 6010B

B Estimated result. Result is less than RL.

Inorganic Analysis

Reviewed

DI Leachable Cyanide	ND	0.010	mg/L	SW846 9012A
DI Leachable Fluoride	0.10 B	1.0	mg/L	MCAWW 300.0A
DI Leachable Phenols	ND	0.040	mg/L	SW846 9065

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

MPB Group Inc. PAGE 3
 t #: A7A240192 FORD CASTING PLANT NON-TOXIC Date Reported: 2/06/07

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: DEWATERING TANK SLAG					
Sample #: 003 Date Sampled: 01/24/07 09:15 Date Received: 01/24/07 Matrix: SOLID					
Phenolics					Reviewed
B Estimated result. Result is less than RL.					

Client Sample ID: CLEANING ROOM SAND
 Sample #: 004 Date Sampled: 01/24/07 09:40 Date Received: 01/24/07 Matrix: SOLID

Inductively Coupled Plasma (ICP) Metals					Reviewed
Barium	ND	2.0	mg/L	SW846 6010B	
Cadmium	ND	0.0050	mg/L	SW846 6010B	
Chromium	ND	0.010	mg/L	SW846 6010B	

Mercury in Liquid Waste (Manual Cold-Vapor)					Reviewed
Mercury	0.000093 B	0.0020	mg/L	SW846 7470A	

Trace Inductively Coupled Plasma (ICP) Metals					Reviewed
Arsenic	ND	0.010	mg/L	SW846 6010B	
Lead	ND	0.0030	mg/L	SW846 6010B	
Selenium	0.0050	0.0050	mg/L	SW846 6010B	

B Estimated result. Result is less than RL.

Inorganic Analysis					Reviewed
DI Leachable Cyanide	ND	0.010	mg/L	SW846 9012A	
DI Leachable Fluoride	0.34 B	1.0	mg/L	MCAWW 300.0A	
DI Leachable Phenols	ND	0.040	mg/L	SW846 9065	

B Estimated result. Result is less than RL.

Client Sample ID: CORE SCRAP
 Sample #: 005 Date Sampled: 01/24/07 09:50 Date Received: 01/24/07 Matrix: SOLID

Inductively Coupled Plasma (ICP) Metals					Reviewed
Barium	ND	2.0	mg/L	SW846 6010B	

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: A7A240192 MPS Group Inc. PAGE 4
 FORD CASTING PLANT NON-TOXIC Date Reported: 2/06/07

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: CORE SCRAP					
Sample #: 005 Date Sampled: 01/24/07 09:50 Date Received: 01/24/07 Matrix: SOLID					
Cadmium	ND	0.0050	mg/L	SW846 6010B	
Chromium	0.0018 B	0.010	mg/L	SW846 6010B	
Mercury in Liquid Waste (Manual Cold-Vapor)					Reviewed
Mercury	ND	0.0020	mg/L	SW846 7470A	
Trace Inductively Coupled Plasma (ICP) Metals					Reviewed
Arsenic	ND	0.010	mg/L	SW846 6010B	
Lead	ND	0.0030	mg/L	SW846 6010B	
Selenium	0.0034 B	0.0050	mg/L	SW846 6010B	

B Estimated result. Result is less than RL.

Inorganic Analysis					Reviewed
DI Leachable Cyanide	ND	0.010	mg/L	SW846 9012A	
DI Leachable Fluoride	0.24 B	1.0	mg/L	MCAWW 300.0A	
DI Leachable Phenols	7.8	0.80	mg/L	SW846 9065	

B Estimated result. Result is less than RL.

Client Sample ID: IMS DEBRIS
 Sample #: 006 Date Sampled: 01/24/07 10:05 Date Received: 01/24/07 Matrix: SOLID

Inductively Coupled Plasma (ICP) Metals					Reviewed
Barium	ND	2.0	mg/L	SW846 6010B	
Cadmium	ND	0.0050	mg/L	SW846 6010B	
Chromium	ND	0.010	mg/L	SW846 6010B	
Mercury in Liquid Waste (Manual Cold-Vapor)					Reviewed
Mercury	0.00012 B	0.0020	mg/L	SW846 7470A	
Trace Inductively Coupled Plasma (ICP) Metals					Reviewed
Arsenic	ND	0.010	mg/L	SW846 6010B	
Lead	ND	0.0030	mg/L	SW846 6010B	

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: A7A240192 MPS Group Inc. FORD CASTING PLANT NON-TOXIC Date Reported: 2/06/07 PAGE 5

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
Client Sample ID: IMS-DEBRIS				
Sample #: 006 Date Sampled: 01/24/07 10:05 Date Received: 01/24/07 Matrix: SOLID				
Selenium	0.0044 B	0.0050	mg/L	SW846 6010B
B Estimated result. Result is less than RL.				

Inorganic Analysis				Reviewed
DI Leachable Cyanide	ND	0.010	mg/L	SW846 9012A
DI Leachable Fluoride	0.040 B	1.0	mg/L	MCAWW 300.0A
DI Leachable Phenols	0.021 B	0.040	mg/L	SW846 9065
B Estimated result. Result is less than RL.				

Client Sample ID: <u>IMS SAND</u>				
Sample #: 007 Date Sampled: 01/24/07 10:00 Date Received: 01/24/07 Matrix: SOLID				
Inductively Coupled Plasma (ICP) Metals				Reviewed
Barium	ND	2.0	mg/L	SW846 6010B
Cadmium	ND	0.0050	mg/L	SW846 6010B
Chromium	ND	0.010	mg/L	SW846 6010B
Mercury in Liquid Waste (Manual Cold-Vapor)				Reviewed
Mercury	ND	0.0020	mg/L	SW846 7470A
Trace Inductively Coupled Plasma (ICP) Metals				Reviewed
Arsenic	ND	0.010	mg/L	SW846 6010B
Lead	ND	0.0030	mg/L	SW846 6010B
Selenium	0.0037 B	0.0050	mg/L	SW846 6010B
B Estimated result. Result is less than RL.				

Inorganic Analysis				Reviewed
DI Leachable Cyanide	ND	0.010	mg/L	SW846 9012A
DI Leachable Fluoride	0.20 B	1.0	mg/L	MCAWW 300.0A
DI Leachable Phenols	0.054	0.040	mg/L	SW846 9065
B Estimated result. Result is less than RL.				

(Continued on next page)



Kurtz Bros., Inc.

We make the good earth better!™

fax transmission

DATE: 8/1/07 # OF PAGES INCLUDING COVER: 8

TO: Al Muller

COMPANY: EDP

FAX: 440-256-6507

PHONE: _____

FROM: Debbie M.

FAX: 216-986-7001

PHONE: 216-986-7007

MESSAGE:

The following are test results, from all of the streams, for this year.

I'll find those previous and forward to you.

Debbie

soils

mulches

composts

plant material

pond supplies

fertilizers

hardscapes

pavers

lighting & more!

AVON
1180 Miller Road
440-934-5832

GARFIELD
13532 Broadway Ave.
216-581-5533

VALLEY VIEW
5915 Canal Road
216-573-9930

WILLOWICK
32800 Lakeland Blvd.
440-944-4000





STL

Date: 02/06/07
Time: 19:55:11
(Mountain Time)

From: William Cordell
STL North Canton
4101 Shuffel Drive NW
North Canton, OH 44720

To: Dan Lyons
MPS Group
216-6767455

voice: 330-497-9396
fax: 330-497-0772

Number of Pages
Including Cover Sheet: 08

The information contained in this facsimile transmission is privileged and confidential information, intended only for the use of the individual or entity named above. If the reader of this message is not the intended recipient, you are hereby notified that any dissemination, distribution, or copy of this communication is strictly prohibited. If you have received this communication in error, please notify us by telephone. Thank you.

ote Number :28066
ject Number :
ject Name/Site :FORD CASTING PLANT NON-TOXIC

is is an automated feature provided by Severn Trent Laboratories, Inc.

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

 The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Client #: A7A240192 MPB Group Inc. PAGE 1
 FORD CASTING PLANT NON-TOXIC Date Reported: 2/06/07

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: MOLD SAND					
Sample #: 001 Date Sampled: 01/24/07 09:33 Date Received: 01/24/07 Matrix: SOLID					
Inductively Coupled Plasma (ICP) Metals					Reviewed
Barium	0.0063 B	2.0	mg/L	SW846 6010B	
Cadmium	ND	0.0050	mg/L	SW846 6010B	
Chromium	ND	0.010	mg/L	SW846 6010B	
Mercury in Liquid Waste (Manual Cold-Vapor)					Reviewed
Mercury	ND	0.0020	mg/L	SW846 7470A	
Trace Inductively Coupled Plasma (ICP) Metals					Reviewed
Arsenic	ND	0.010	mg/L	SW846 6010B	
Lead	ND	0.0030	mg/L	SW846 6010B	
Selenium	0.0031 B	0.0050	mg/L	SW846 6010B	

B Estimated result. Result is less than RL.

Inorganic Analysis					Reviewed
DI Leachable Cyanide	0.0089 B	0.010	mg/L	SW846 9012A	
DI Leachable Fluoride	0.15 B	1.0	mg/L	MCAWV 300.0A	
DI Leachable Phenols	0.92	0.080	mg/L	SW846 9065	

B Estimated result. Result is less than RL.

Client Sample ID: COOLING GALLERY SAND
 Sample #: 002 Date Sampled: 01/24/07 10:15 Date Received: 01/24/07 Matrix: SOLID

Inductively Coupled Plasma (ICP) Metals					Reviewed
Barium	ND	2.0	mg/L	SW846 6010B	
Cadmium	ND	0.0050	mg/L	SW846 6010B	
Chromium	0.0017 B	0.010	mg/L	SW846 6010B	
Mercury in Liquid Waste (Manual Cold-Vapor)					Reviewed
Mercury	ND	0.0020	mg/L	SW846 7470A	
Trace Inductively Coupled Plasma (ICP) Metals					Reviewed
Arsenic	ND	0.010	mg/L	SW846 6010B	

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

 The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Site #: A7A240192 MPS Group Inc. PAGE 2
 FORD CASTING PLANT NON-TOXIC Date Reported: 2/06/07

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: COOLING GALLERY SAND					
Sample #: 002 Date Sampled: 01/24/07 10:15 Date Received: 01/24/07 Matrix: SOLID					
Lead	ND	0.0030	mg/L	SW846 6010B	
Selenium	0.0041 B	0.0050	mg/L	SW846 6010B	
B Estimated result. Result is less than RL.					
Inorganic Analysis					
DI Leachable Cyanide	ND	0.010	mg/L	SW846 9012A	Reviewed
DI Leachable Fluoride	0.050 B	1.0	mg/L	MCAWW 300.0A	
DI Leachable Phenols	ND	0.040	mg/L	SW846 9065	
B Estimated result. Result is less than RL.					

Client Sample ID: DEWATERING TANK SLAG
 Sample #: 003 Date Sampled: 01/24/07 09:15 Date Received: 01/24/07 Matrix: SOLID

Inductively Coupled Plasma (ICP) Metals					
Barium	ND	2.0	mg/L	SW846 6010B	Reviewed
Cadmium	ND	0.0050	mg/L	SW846 6010B	
Chromium	ND	0.010	mg/L	SW846 6010B	
Mercury in Liquid Waste (Manual Cold-Vapor)					
Mercury	ND	0.0020	mg/L	SW846 7470A	Reviewed
Trace Inductively Coupled Plasma (ICP) Metals					
Arsenic	ND	0.010	mg/L	SW846 6010B	Reviewed
Lead	ND	0.0030	mg/L	SW846 6010B	
Selenium	0.0036 B	0.0050	mg/L	SW846 6010B	
B Estimated result. Result is less than RL.					

Inorganic Analysis					
DI Leachable Cyanide	ND	0.010	mg/L	SW846 9012A	Reviewed
DI Leachable Fluoride	0.10 B	1.0	mg/L	MCAWW 300.0A	
DI Leachable Phenols	ND	0.040	mg/L	SW846 9065	

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

 The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: A7A240192 MP8 Group Inc. PAGE 3
 FORD CASTING PLANT NON-TOXIC Date Reported: 2/06/07

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: DEWATERING TANK SLAG					
Sample #: 003	Date Sampled: 01/24/07 09:15	Date Received: 01/24/07	Matrix: SOLID		
Phenolics					Reviewed
B Estimated result. Result is less than RL.					

Client Sample ID: CLEANING ROOM SAND					
Sample #: 004	Date Sampled: 01/24/07 09:40	Date Received: 01/24/07	Matrix: SOLID		
Inductively Coupled Plasma (ICP) Metals					
Barium	ND	2.0	mg/L	SW846 6010B	Reviewed
Cadmium	ND	0.0050	mg/L	SW846 6010B	
Chromium	ND	0.010	mg/L	SW846 6010B	
Mercury in Liquid Waste (Manual Cold-Vapor)					
Mercury	0.000093 B	0.0020	mg/L	SW846 7470A	Reviewed
Trace Inductively Coupled Plasma (ICP) Metals					
Arsenic	ND	0.010	mg/L	SW846 6010B	Reviewed
Lead	ND	0.0030	mg/L	SW846 6010B	
Selenium	0.0050	0.0050	mg/L	SW846 6010B	
B Estimated result. Result is less than RL.					

Inorganic Analysis					
DI Leachable Cyanide	ND	0.010	mg/L	SW846 9012A	Reviewed
DI Leachable Fluoride	0.34 B	1.0	mg/L	MCAWW 300.0A	
DI Leachable Phenols	ND	0.040	mg/L	SW846 9065	
B Estimated result. Result is less than RL.					

Client Sample ID: CORE SCRAP					
Sample #: 005	Date Sampled: 01/24/07 09:50	Date Received: 01/24/07	Matrix: SOLID		
Inductively Coupled Plasma (ICP) Metals					
Barium	ND	2.0	mg/L	SW846 6010B	Reviewed

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

 The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Client #: A7A240192 MPS Group Inc. PAGE 4
 FORD CASTING PLANT NON-TOXIC Date Reported: 2/06/07

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: CORE SCRAP					
Sample #: 005 Date Sampled: 01/24/07 09:50 Date Received: 01/24/07 Matrix: SOLID					
Cadmium	ND	0.0050	mg/L	SW846 6010B	
Chromium	0.0018 B	0.010	mg/L	SW846 6010B	
Mercury in Liquid Waste (Manual Cold-Vapor)					
Mercury	ND	0.0020	mg/L	SW846 7470A	Reviewed
Trace Inductively Coupled Plasma (ICP) Metals					
Arsenic	ND	0.010	mg/L	SW846 6010B	Reviewed
Lead	ND	0.0030	mg/L	SW846 6010B	
Selenium	0.0034 B	0.0050	mg/L	SW846 6010B	

B Estimated result. Result is less than RL.

Inorganic Analysis					
DI Leachable Cyanide	ND	0.010	mg/L	SW846 9012A	Reviewed
DI Leachable Fluoride	0.24 B	1.0	mg/L	MCAWW 300.0A	
DI Leachable Phenols	7.8	0.80	mg/L	SW846 9065	

B Estimated result. Result is less than RL.

Client Sample ID: IMS DEBRIS
 Sample #: 006 Date Sampled: 01/24/07 10:05 Date Received: 01/24/07 Matrix: SOLID

Inductively Coupled Plasma (ICP) Metals					
Barium	ND	2.0	mg/L	SW846 6010B	Reviewed
Cadmium	ND	0.0050	mg/L	SW846 6010B	
Chromium	ND	0.010	mg/L	SW846 6010B	
Mercury in Liquid Waste (Manual Cold-Vapor)					
Mercury	0.00012 B	0.0020	mg/L	SW846 7470A	Reviewed
Trace Inductively Coupled Plasma (ICP) Metals					
Arsenic	ND	0.010	mg/L	SW846 6010B	Reviewed
Lead	ND	0.0030	mg/L	SW846 6010B	

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

 The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: A7A240192 MPE Group Inc. FORD CASTING PLANT NON-TOXIC Date Reported: 2/06/07 PAGE 5

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
-----------	--------	-----------------	-------	-------------------

Client Sample ID: IMS DEBRIS
 Sample #: 006 Date Sampled: 01/24/07 10:05 Date Received: 01/24/07 Matrix: SOLID

Selenium	0.0044 B	0.0050	mg/L	SW846 6010B
----------	----------	--------	------	-------------

B Estimated result. Result is less than RL.

Inorganic Analysis

Reviewed

DI Leachable Cyanide	ND	0.010	mg/L	SW846 9012A
DI Leachable Fluoride	0.040 B	1.0	mg/L	MCAWW 300.0A
DI Leachable Phenols	0.021 B	0.040	mg/L	SW846 9065

B Estimated result. Result is less than RL.

Client Sample ID: IMS SAND
 Sample #: 007 Date Sampled: 01/24/07 10:00 Date Received: 01/24/07 Matrix: SOLID

Inductively Coupled Plasma (ICP) Metals

Reviewed

Barium	ND	2.0	mg/L	SW846 6010B
Cadmium	ND	0.0050	mg/L	SW846 6010B
Chromium	ND	0.010	mg/L	SW846 6010B

Mercury in Liquid Waste (Manual Cold-Vapor)

Reviewed

Mercury	ND	0.0020	mg/L	SW846 7470A
---------	----	--------	------	-------------

Trace Inductively Coupled Plasma (ICP) Metals

Reviewed

Arsenic	ND	0.010	mg/L	SW846 6010B
Lead	ND	0.0030	mg/L	SW846 6010B
Selenium	0.0037 B	0.0050	mg/L	SW846 6010B

B Estimated result. Result is less than RL.

Inorganic Analysis

Reviewed

DI Leachable Cyanide	ND	0.010	mg/L	SW846 9012A
DI Leachable Fluoride	0.20 B	1.0	mg/L	MCAWW 300.0A
DI Leachable Phenols	0.054	0.040	mg/L	SW846 9065

B Estimated result. Result is less than RL.

(Continued on next page)

2005 LABORATORY REPORT

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: A5L130238 MPS Group Ford MPS Waste Charact Date Reported: 12/27/05 PAGE 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: <u>MOLD SAND</u> <u>TANK</u>					
Sample #: 001 Date Sampled: 12/12/05 12:30 Date Received: 12/13/05 Matrix: SOLID					
Trace Inductively Coupled Plasma (ICP) Metals					Reviewed
Arsenic	ND	<	0.010	mg/L	SW846 6010B
Lead	ND	<	0.0030	mg/L	SW846 6010B
Selenium	ND	<	0.0050	mg/L	SW846 6010B
Inductively Coupled Plasma (ICP) Metals					Reviewed
Aluminum	0.45		0.20	mg/L	SW846 6010B
Barium	0.0039 B		2.0	mg/L	SW846 6010B
Beryllium	ND		0.0050	mg/L	SW846 6010B
Cadmium	ND		0.0050	mg/L	SW846 6010B
Chromium	ND		0.010	mg/L	SW846 6010B
Copper	0.0045 B		0.025	mg/L	SW846 6010B
Iron	0.059 B		0.10	mg/L	SW846 6010B
Manganese	0.0027 B		0.015	mg/L	SW846 6010B
Nickel	ND		0.040	mg/L	SW846 6010B
Vanadium	0.0037 B		0.050	mg/L	SW846 6010B
Zinc	ND		0.020	mg/L	SW846 6010B
Mercury in Liquid Waste (Manual Cold-Vapor)					Reviewed
Mercury	ND		0.0020	mg/L	SW846 7470A

B Estimated result. Result is less than RL.

Inorganic Analysis					Reviewed
DI Leachable Acidity	ND		5.0	mg/L	MCAWW 305.1
DI Leachable Alkalinity	28		5.0	mg/L	MCAWW 310.1
DI Leachable Cyanide	0.0049 B		0.010	mg/L	SW846 9012A
Specific Conductance	21		1	umhos/cm	MCAWW 120.1
DI Leachable Chloride	1.2		1.0	mg/L	MCAWW 300.0A
DI Leachable Fluoride	0.18 B		1.0	mg/L	MCAWW 300.0A
DI Leachable Sulfate	5.4		1.0	mg/L	MCAWW 300.0A
DI Leachable Phenols	0.37		0.040	mg/L	SW846 9065
DI Leachable Diss. Solids	39		10	mg/L	MCAWW 160.1
DI Leachable pH	9.6			No Units	SW846 9040B

B Estimated result. Result is less than RL.

(Continued on next page)

Mold = Tank
Cleaning Room = Tank

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: A5L130238 MPS Group Ford MPS Waste Charact Date Reported: 12/27/05 PAGE 2

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: COOLING GALLERY SAND					
Sample #: 002 Date Sampled: 12/12/05 12:40 Date Received: 12/13/05 Matrix: SOLID					
Trace Inductively Coupled Plasma (ICP) Metals					Reviewed
Arsenic	ND	0.010	mg/L	SW846 6010B	
Lead	ND	0.0030	mg/L	SW846 6010B	
Selenium	ND	0.0050	mg/L	SW846 6010B	
Inductively Coupled Plasma (ICP) Metals					Reviewed
Aluminum	0.85	0.20	mg/L	SW846 6010B	
Barium	0.0065 B	2.0	mg/L	SW846 6010B	
Beryllium	ND	0.0050	mg/L	SW846 6010B	
Cadmium	ND	0.0050	mg/L	SW846 6010B	
Chromium	0.0021 B	0.010	mg/L	SW846 6010B	
Copper	0.0035 B	0.025	mg/L	SW846 6010B	
Iron	0.042 B	0.10	mg/L	SW846 6010B	
Manganese	0.00077 B	0.015	mg/L	SW846 6010B	
Nickel	0.0029 B	0.040	mg/L	SW846 6010B	
Vanadium	0.0046 B	0.050	mg/L	SW846 6010B	
Zinc	ND	0.020	mg/L	SW846 6010B	
Mercury in Liquid Waste (Manual Cold-Vapor)					Reviewed
Mercury	ND	0.0020	mg/L	SW846 7470A	

B Estimated result. Result is less than RL.

Inorganic Analysis					Reviewed
DI Leachable Acidity	ND	5.0	mg/L	MCAWW 305.1	
DI Leachable Alkalinity	25	5.0	mg/L	MCAWW 310.1	
DI Leachable Cyanide	0.0071 B	0.010	mg/L	SW846 9012A	
Specific Conductance	18	1	umhos/cm	MCAWW 120.1	
DI Leachable Chloride	0.83 B	1.0	mg/L	MCAWW 300.0A	
DI Leachable Fluoride	0.12 B	1.0	mg/L	MCAWW 300.0A	
DI Leachable Sulfate	1.7	1.0	mg/L	MCAWW 300.0A	
DI Leachable Phenols	0.015 B	0.040	mg/L	SW846 9065	
DI Leachable Diss. Solids	36	10	mg/L	MCAWW 160.1	
DI Leachable pH	9.9		No Units	SW846 9040B	

B Estimated result. Result is less than RL.

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: ASL130238 MPS Group Ford MPS Waste Charact Date Reported: 12/27/05 PAGE 3

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: DEWATERING TANK SLAG					
Sample #: 003 Date Sampled: 12/12/05 12:48 Date Received: 12/13/05 Matrix: SOLID					
Trace Inductively Coupled Plasma (ICP) Metals					Reviewed
Arsenic	ND	0.010	mg/L	SW846 6010B	
Lead	ND	0.0030	mg/L	SW846 6010B	
Selenium	ND	0.0050	mg/L	SW846 6010B	
Inductively Coupled Plasma (ICP) Metals					Reviewed
Aluminum	0.32	0.20	mg/L	SW846 6010B	
Barium	0.0066 B	2.0	mg/L	SW846 6010B	
Beryllium	ND	0.0050	mg/L	SW846 6010B	
Cadmium	ND	0.0050	mg/L	SW846 6010B	
Chromium	ND	0.010	mg/L	SW846 6010B	
Copper	ND	0.025	mg/L	SW846 6010B	
Iron	0.10	0.10	mg/L	SW846 6010B	
Manganese	0.0020 B	0.015	mg/L	SW846 6010B	
Nickel	ND	0.040	mg/L	SW846 6010B	
Vanadium	ND	0.050	mg/L	SW846 6010B	
Zinc	ND	0.020	mg/L	SW846 6010B	
Mercury in Liquid Waste (Manual Cold-Vapor)					Reviewed
Mercury	ND	0.0020	mg/L	SW846 7470A	

B Estimated result. Result is less than RL.

Inorganic Analysis					Reviewed
DI Leachable Acidity	ND	5.0	mg/L	MCAWW 305.1	
DI Leachable Alkalinity	23	5.0	mg/L	MCAWW 310.1	
DI Leachable Cyanide	0.0023 B	0.010	mg/L	SW846 9012A	
Specific Conductance	13	1	umhos/cm	MCAWW 120.1	
DI Leachable Chloride	0.38 B	1.0	mg/L	MCAWW 300.0A	
DI Leachable Fluoride	0.16 B	1.0	mg/L	MCAWW 300.0A	
DI Leachable Sulfate	1.9	1.0	mg/L	MCAWW 300.0A	
DI Leachable Phenols	0.014 B	0.040	mg/L	SW846 9065	
DI Leachable Diss. Solids	20	10	mg/L	MCAWW 160.1	
DI Leachable pH	9.0		No Units	SW846 9040B	

B Estimated result. Result is less than RL.

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

 The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Job #: A5L130238 MFS Group Ford MPS Waste Charact PAGE 4
 Date Reported: 12/27/05

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: <u>CLEANING ROOM SAND</u> - <u>FAIL</u>					
Sample #: 004 Date Sampled: 12/12/05 12:55 Date Received: 12/13/05 Matrix: SOLID					
Trace Inductively Coupled Plasma (ICP) Metals					Reviewed
Arsenic	ND	0.010	mg/L	SW846 6010B	
Lead	ND	0.0030	mg/L	SW846 6010B	
Selenium	ND	0.0050	mg/L	SW846 6010B	
Inductively Coupled Plasma (ICP) Metals					Reviewed
Aluminum	0.39	0.20	mg/L	SW846 6010B	
Barium	ND	2.0	mg/L	SW846 6010B	
Beryllium	ND	0.0050	mg/L	SW846 6010B	
Cadmium	ND	0.0050	mg/L	SW846 6010B	
Chromium	ND	0.010	mg/L	SW846 6010B	
Copper	ND	0.025	mg/L	SW846 6010B	
Iron	ND	0.10	mg/L	SW846 6010B	
Manganese	0.00071 B	0.015	mg/L	SW846 6010B	
Nickel	0.0022 B	0.040	mg/L	SW846 6010B	
Vanadium	ND	0.050	mg/L	SW846 6010B	
Zinc	ND	0.020	mg/L	SW846 6010B	
Mercury in Liquid Waste (Manual Cold-Vapor)					Reviewed
Mercury	ND	0.0020	mg/L	SW846 7470A	

B Estimated result. Result is less than RL.

Inorganic Analysis					Reviewed
DI Leachable Acidity	ND	5.0	mg/L	MCAWW 305.1	
DI Leachable Alkalinity	26	5.0	mg/L	MCAWW 310.1	
DI Leachable Cyanide	0.0032 B	0.010	mg/L	SW846 9012A	
Specific Conductance	29	1	umhos/cm	MCAWW 120.1	
DI Leachable Chloride	9.1	1.0	mg/L	MCAWW 300.0A	
DI Leachable Fluoride	0.26 B	1.0	mg/L	MCAWW 300.0A	
DI Leachable Sulfate	3.4	1.0	mg/L	MCAWW 300.0A	
DI Leachable Phenols	ND	0.040	mg/L	SW846 9065	
DI Leachable Diss. Solids	37	10	mg/L	MCAWW 160.1	
DI Leachable pH	9.8		No Units	SW846 9040B	

B Estimated result. Result is less than RL.

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Job #: A5L130238 MPS Group Ford MPS Waste Charact Date Reported: 12/27/05 PAGE 5

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>ANALYTICAL METHOD</u>	
Client Sample ID: CORE SCRAP					
Sample #: 005 Date Sampled: 12/12/05 13:05 Date Received: 12/13/05 Matrix: SOLID					
Trace Inductively Coupled Plasma (ICP) Metals					Reviewed
Arsenic	ND	0.010	mg/L	SW846 6010B	
Lead	ND	0.0030	mg/L	SW846 6010B	
Selenium	ND	0.0050	mg/L	SW846 6010B	
Inductively Coupled Plasma (ICP) Metals					Reviewed
Aluminum	0.14 B	0.20	mg/L	SW846 6010B	
Barium	ND	2.0	mg/L	SW846 6010B	
Beryllium	ND	0.0050	mg/L	SW846 6010B	
Cadmium	ND	0.0050	mg/L	SW846 6010B	
Chromium	ND	0.010	mg/L	SW846 6010B	
Copper	ND	0.025	mg/L	SW846 6010B	
Iron	ND	0.10	mg/L	SW846 6010B	
Manganese	0.0045 B	0.015	mg/L	SW846 6010B	
Nickel	ND	0.040	mg/L	SW846 6010B	
Vanadium	ND	0.050	mg/L	SW846 6010B	
Zinc	ND	0.020	mg/L	SW846 6010B	
Mercury in Liquid Waste (Manual Cold-Vapor)					Reviewed
Mercury	ND	0.0020	mg/L	SW846 7470A	

B Estimated result. Result is less than RL.

Inorganic Analysis					Reviewed
DI Leachable Acidity	ND	5.0	mg/L	MCAWW 305.1	
DI Leachable Alkalinity	20	5.0	mg/L	MCAWW 310.1	
DI Leachable Cyanide	0.0049 B	0.010	mg/L	SW846 9012A	
Specific Conductance	16	1	umhos/cm	MCAWW 120.1	
DI Leachable Chloride	3.6	1.0	mg/L	MCAWW 300.0A	
DI Leachable Fluoride	ND	1.0	mg/L	MCAWW 300.0A	
DI Leachable Sulfate	1.7	1.0	mg/L	MCAWW 300.0A	
DI Leachable Phenols	2.9	0.40	mg/L	SW846 9065	
DI Leachable Diss. Solids	36	10	mg/L	MCAWW 160.1	
DI Leachable pH	8.5		No Units	SW846 9040B	

B Estimated result. Result is less than RL.

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

 The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: A5L130238 MPS Group Ford MPS Waste Charact Date Reported: 12/27/05 PAGE 6

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: IMS DEBRIS					
Sample #: 006 Date Sampled: 12/12/05 13:22 Date Received: 12/13/05 Matrix: SOLID					
Trace Inductively Coupled Plasma (ICP) Metals					Reviewed
Arsenic	ND	0.010	mg/L	SW846 6010B	
Lead	ND	0.0030	mg/L	SW846 6010B	
Selenium	ND	0.0050	mg/L	SW846 6010B	
Inductively Coupled Plasma (ICP) Metals					Reviewed
Aluminum	0.10 B	0.20	mg/L	SW846 6010B	
Barium	ND	2.0	mg/L	SW846 6010B	
Beryllium	ND	0.0050	mg/L	SW846 6010B	
Cadmium	ND	0.0050	mg/L	SW846 6010B	
Chromium	ND	0.010	mg/L	SW846 6010B	
Copper	ND	0.025	mg/L	SW846 6010B	
Iron	ND	0.10	mg/L	SW846 6010B	
Manganese	0.00084 B	0.015	mg/L	SW846 6010B	
Nickel	0.0015 B	0.040	mg/L	SW846 6010B	
Vanadium	ND	0.050	mg/L	SW846 6010B	
Zinc	ND	0.020	mg/L	SW846 6010B	
Mercury in Liquid Waste (Manual Cold-Vapor)					Reviewed
Mercury	ND	0.0020	mg/L	SW846 7470A	

B Estimated result. Result is less than RL.

Inorganic Analysis					Reviewed
DI Leachable Acidity	ND	5.0	mg/L	MCAWW 305.1	
DI Leachable Alkalinity	25	5.0	mg/L	MCAWW 310.1	
DI Leachable Cyanide	0.0027 B	0.010	mg/L	SW846 9012A	
Specific Conductance	16	1	umhos/cm	MCAWW 120.1	
DI Leachable Chloride	1.5	1.0	mg/L	MCAWW 300.0A	
DI Leachable Fluoride	0.11 B	1.0	mg/L	MCAWW 300.0A	
DI Leachable Sulfate	2.9	1.0	mg/L	MCAWW 300.0A	
DI Leachable Phenols	0.48	0.040	mg/L	SW846 9065	
DI Leachable Diss. Solids	28	10	mg/L	MCAWW 160.1	
DI Leachable pH	8.8		No Units	SW846 9040B	

B Estimated result. Result is less than RL.

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

 The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: A5L130238 MPS Group Ford MPS Waste Charact Date Reported: 12/27/05 PAGE 7

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: IMS SAND					
Sample #: 007 Date Sampled: 12/12/05 13:30 Date Received: 12/13/05 Matrix: SOLID					
Trace Inductively Coupled Plasma (ICP) Metals					Reviewed
Arsenic	ND	0.010	mg/L	SW846 6010B	
Lead	ND	0.0030	mg/L	SW846 6010B	
Selenium	ND	0.0050	mg/L	SW846 6010B	
Inductively Coupled Plasma (ICP) Metals					Reviewed
Aluminum	0.26	0.20	mg/L	SW846 6010B	
Barium	0.0038 B	2.0	mg/L	SW846 6010B	
Beryllium	ND	0.0050	mg/L	SW846 6010B	
Cadmium	ND	0.0050	mg/L	SW846 6010B	
Chromium	ND	0.010	mg/L	SW846 6010B	
Copper	ND	0.025	mg/L	SW846 6010B	
Iron	ND	0.10	mg/L	SW846 6010B	
Manganese	0.0010 B	0.015	mg/L	SW846 6010B	
Nickel	ND	0.040	mg/L	SW846 6010B	
Vanadium	ND	0.050	mg/L	SW846 6010B	
Zinc	ND	0.020	mg/L	SW846 6010B	
Mercury in Liquid Waste (Manual Cold-Vapor)					Reviewed
Mercury	ND	0.0020	mg/L	SW846 7470A	

B Estimated result. Result is less than RL.

Inorganic Analysis					Reviewed
DI Leachable Acidity	ND	5.0	mg/L	MCAWW 305.1	
DI Leachable Alkalinity	33	5.0	mg/L	MCAWW 310.1	
DI Leachable Cyanide	0.0053 B	0.010	mg/L	SW846 9012A	
Specific Conductance	23	1	umhos/cm	MCAWW 120.1	
DI Leachable Chloride	1.7	1.0	mg/L	MCAWW 300.0A	
DI Leachable Fluoride	0.18 B	1.0	mg/L	MCAWW 300.0A	
DI Leachable Sulfate	4.8	1.0	mg/L	MCAWW 300.0A	
DI Leachable Phenols	0.051	0.040	mg/L	SW846 9065	
DI Leachable Diss. Solids	36	10	mg/L	MCAWW 160.1	
DI Leachable pH	9.5		No Units	SW846 9040B	

B Estimated result. Result is less than RL.

(Continued on next page)

SEVERN TRENT LABORATORIES, INC.

PRELIMINARY DATA SUMMARY

 The results shown below may still require additional laboratory review and are subject to change. Actions taken based on these results are the responsibility of the data user.

Lot #: A5L130238 MPS Group Ford MPS Waste Charact Date Reported: 12/27/05 PAGE 8

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD	
Client Sample ID: SAND COMPOSITE (IMS, MOLD, CLEANING ROOM)					
Sample #: 008 Date Sampled: 12/12/05 13:35 Date Received: 12/13/05 Matrix: SOLID					
Trace Inductively Coupled Plasma (ICP) Metals					Reviewed
Arsenic	ND	0.010	mg/L	SW846 6010B	
Lead	ND	0.0030	mg/L	SW846 6010B	
Selenium	ND	0.0050	mg/L	SW846 6010B	
Inductively Coupled Plasma (ICP) Metals					Reviewed
Aluminum	0.39	0.20	mg/L	SW846 6010B	
Barium	ND	2.0	mg/L	SW846 6010B	
Beryllium	ND	0.0050	mg/L	SW846 6010B	
Cadmium	ND	0.0050	mg/L	SW846 6010B	
Chromium	ND	0.010	mg/L	SW846 6010B	
Copper	ND	0.025	mg/L	SW846 6010B	
Iron	ND	0.10	mg/L	SW846 6010B	
Manganese	0.00087 B	0.015	mg/L	SW846 6010B	
Nickel	ND	0.040	mg/L	SW846 6010B	
Vanadium	ND	0.050	mg/L	SW846 6010B	
Zinc	ND	0.020	mg/L	SW846 6010B	
Mercury in Liquid Waste (Manual Cold-Vapor)					Reviewed
Mercury	ND	0.0020	mg/L	SW846 7470A	

B Estimated result. Result is less than RL.

Inorganic Analysis					Reviewed
DI Leachable Acidity	ND	5.0	mg/L	MCAWW 305.1	
DI Leachable Alkalinity	28	5.0	mg/L	MCAWW 310.1	
DI Leachable Cyanide	0.0044 B	0.010	mg/L	SW846 9012A	
Specific Conductance	23	1	umhos/cm	MCAWW 120.1	
DI Leachable Chloride	3.6	1.0	mg/L	MCAWW 300.0A	
DI Leachable Fluoride	0.21 B	1.0	mg/L	MCAWW 300.0A	
DI Leachable Sulfate	3.6	1.0	mg/L	MCAWW 300.0A	
DI Leachable Phenols	0.095	0.040	mg/L	SW846 9065	
DI Leachable Diss. Solids	25	10	mg/L	MCAWW 160.1	
DI Leachable pH	9.6		No Units	SW846 9040B	

B Estimated result. Result is less than RL.

(Continued on next page)