Deloitte & Touche

2007 Annual Inspection
Waste and Water Management Facilities
Vangorda Mine, Yukon Territory

Prepared for:

Deloitte & Touche Inc.

Interim Receiver of Anvil
Range Mining Corporation
Suite 1900, 79 Wellington Street West
Toronto, Ontario M5K 1B9

Prepared by:

SRK Consulting
Engineers and Scientists

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January 2008

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Interim Receiver of Anvil Range Mining Corporation
Suite 1900, 79 Wellington Street West
Toronto, ON M5K 1B9

SRK Consulting (Canada) Inc.
Suite 2200, 1066 West Hastings Street
Vancouver, B.C. V6E 3X2

Tel: 604.681.4196 Fax: 604.687.5532
E-mail: vancouver@srk.com Web site: www.srk.com

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Prepared by
Peter Healey, P.Eng.

Table of Contents

List of Tables

List of Figures

List of Appendices

1 Introduction

At the request of Deloitte and Touche Inc. (DTI), Mr. Peter Healey of SRK Consulting (Canada) Inc. (SRK) completed an inspection of the waste and water management facilities at Vangorda Plateau Mine on June 18 through 20, 2007. The Vangorda mine is located 16 km south of the Faro Mine, Yukon Territory as shown on Figure 1. The annual inspection of the Vangorda mine site focuses on the geotechnical performance and stability of the following structures:

- Vangorda Waste Rock Containment Facility including the seepage collection system ;
- Little Creek Dam;
- Vangorda Creek Diversion;
- Sludge Pond Embankments at the Water Treatment Plant;
- Grum Settling Pond;
- The Grum Interceptor Ditch; and
- The Sheep Pad Sediment Ponds below the Overburden Stockpile.

A plan of the Vangorda Plateau area and the above components are shown in Figure 2 and on the aerial mosaic on Figure 3.

This report presents our observations and comments on the performance and stability of the structures and provides recommendations for any remediation, where appropriate.

2 Vangorda Waste Rock Pile

2.1 Observations

2.1.1 Seepage Collection System

Transverse Drains and Weirs

During construction of the original till starter dyke, six transverse drains were installed beneath the dyke to allow seepage to drain from the waste dump. These drains were connected to the seepage collection channel during the 1994 upgrading. V-Notch weirs were installed in four of the drains to monitor the flow.

During this year's inspection, seepage flow was observed at Drain #6 (Photo 1), Drain #5 (Photo 2), and Drain #3 (Photo 3). The flow in each of these drains varied from a trace to less than 0.5L/min. Drain #2 (Photos 7 and 8) and Drain #4 (Photo 6) were dry.

The resloping work that was carried out on the till starter dyke above Drains 5 and 6 shows no signs of excessive erosion or instability (Photo 4).

Seepage Collection Channel

The seepage collection channel along the toe of the Vangorda Waste dump (Photo 5) shows no sign of instability. In the lower reaches of the channel, no measurable flow was observed in the ditch during the inspection.

2.1.2 Starter Dyke and Till Cover

In 2006, DTI resloped sections of the till dyke at the western end of the waste rock dump. The remaining unresloped sideslopes of the till dykes around the perimeter of the dump continue to experience some erosion (Photo 9). However, there are no signs of major instability. DTI continues to maintain the integrity of the upper reaches of the ditch by regular removal of sediment both above and within the channel.

2.1.3 Instrumentation

In accordance with SRK's recommendations, DTI has been taking water level readings twice a year from the piezometers that were installed in the till starter Dyke in 1994. A summary of the water level readings taken to date in the piezometers are presented in Table 1. Water levels, as recorded on August 27, 2007 in Piezometers P94-01A, 01B, 02A and 02B, are shown in Figures 4 and 5.

The levels in these piezometers are consistent with levels recorded since 1994 and do not indicate any potential instability. One of the piezometers (P94-04A) is broken and no readings have been reported from this piezometer since July, 2001.

Table 1: Water Levels in Piezometers and Groundwater Wells – Vangorda Rock Pile

Measured Static Water Level (meters)

underlined readings (begin in 1998) indicate that no water was identified (hole was dry or frozen).
readings post Sep/98 given as metres below top of plastic piezometer pipe.
readings prior to Nov/98 could be metres below to top of piezo. pipe or steel casing.

Date	V34	V35	V36	V37	V38	V39	V40	V41	V42	V43	V44	V45	V46	V47
	GW-94-01	GW-94-02	GW-94-03	GW-94-04	GW-94-05*	P-94-01A	P-94-01B	P-94-02A	P-94-02B	P-94-02C	P-94-03A	P-94-03B	P-94-04A	P-94-04B
3-May-94	8.28	14.33	11.28	14.33	11.56	12.37	6.05	10.57	6.12	13.08	14.10	9.80	12.17	8.99
21-Jun-94	7.45	8.65	9.15	9.65		NR	NR	NR	NR	NR	NR	NR	NR	NR
30-Jun-95						7.79	5.62	8.02	6.11	9.02	13.91	9.80	11.35	8.99
13-Jul-95						7.80	5.59	NR	NR	NR	NR	NR	NR	NR
30-Jul-95						7.86	5.48	7.99	6.12	8.81	13.68	9.80	11.83	8.99
26-Aug-95	6.89	8.47		9.05		NR	NR	NR	NR	NR	NR	NR	NR	NR
31-Aug-95	7.36					7.93	4.85	7.97	6.06	8.66	13.62	NR	12.60	NR
17-Oct-95	7.14	8.26		9.37		7.90	4.23	8.70	5.76	8.54	13.41	NR	11.88	NR
20-Nov-95	7.10	8.18		9.19		NR	NR	NR	NR	NR	NR	NR	NR	NR
13-Mar-96	7.44	9.23		9.39		NR	NR	NR	NR	NR	NR	NR	NR	NR
28-May-96	7.50	9.34	10.00	10.25		8.34	5.38	9.94	6.12	9.37	14.12	NR	12.77	NR
24-Sep-96	7.50	7.43	7.95	9.17		10.40	5.30	8.30	6.12	8.66	13.68	9.88	12.80	8.99
13-May-97	6.84	9.42	9.96	9.53		9.17	5.67	7.74	6.40	9.51	12.78	9.96	12.78	9.62
11-Jul-97						9.80	5.90	7.92	6.12	8.97	14.10	9.80	9.97	9.00
11-Aug-97	6.75	8.38	8.41	8.81	1.99	9.59	5.25	8.10	6.25	8.77	12.84	9.96	12.62	9.21
14-Oct-97	6.76	8.58	9.15	8.99		9.51	4.96	7.99	6.23	8.94	12.96	9.96	12.73	9.21
23-Dec-97	6.70	9.05	9.53	9.13		9.25	4.76	7.68	6.07	8.95	12.70	9.81	12.66	9.02
31-May-98	6.72	8.60	9.73	9.59	1.86	9.52	5.25	8.05	6.24	9.20	12.87	9.95	12.77	9.20
25-Jul-98						10.20	5.22	8.04	6.20	9.11	12.58	9.92	12.79	9.18
15-Sep-98	6.67	8.85	9.52	9.10	2.40	10.02	5.22	7.98	6.20	9.22	12.54	9.92	12.83	9.19
16-Nov-98						10.32	5.11	7.93	6.11	9.06	12.45	9.78	12.70	8.99
31-Dec-98	6.70	9.06	9.91	9.23		NR	NR	NR	NR	NR	NR	NR	NR	NR
18-Jun-99	6.88	9.24	10.24	10.18		9.96	5.09	8.35	6.11	9.48	12.48	9.77	12.70	8.99
12-Oct-99	6.61	7.58	8.81	8.79		10.01	5.10	8.16	5.73	8.82	12.49	9.78	12.71	8.97
31-May-00	5.75	8.68	8.26	9.33	1.84	10.20	5.10	7.85	5.93	8.97	12.48	9.78	12.66	8.88
5-Sep-00	6.66					NR	NR	NR	NR	NR	NR	NR	NR	NR
9-Oct-00	4.98	3.96	6.90	8.35	0.93	NR	NR	NR	NR	NR	NR	NR	NR	NR
9-Jul-01						10.42	4.84	8.86	7.72	5.46	12.84	9.78	10.84	8.88
4-Sep-02						10.75	5.30	7.99	6.02	9.33	13.53	9.78	NR	8.91
27-May-03						10.57	5.06	7.82	5.87	9.20	14.08	9.78	NR	8.93
9-Sep-03						10.65	5.04	7.84	5.87	9.15	13.86	9.78	NR	8.93
8-May-04						10.61	5.26	8.03	5.94	9.21	14.08	9.78	NR	8.98
8-Sep-04						10.72	5.20	7.79	5.77	9.44	14.08	9.78	NR	8.99
19-May-05						10.27	5.08	7.48	5.62	8.88	12.85	9.78	NR	8.99
9-Sep-05						10.37	4.88	7.44	5.45	8.91	13.28	9.78	NR	8.99
16-May-06						10.70	5.39	8.09	6.11	9.35	14.08	9.78	NR	NR
11-Sep-06						11.04	5.54	7.99	5.84	9.17	13.89	9.78	NR	NR
10-May-07						10.62	5.89	7.95	6.12	9.57	14.07	9.77	NR	8.99
27-Aug-07						10.94	6.04	8.21	6.12	8.88	14.04	9.78	NR	8.99

NR Not recorded
*: depth to bottom of hole GW-94-05 (V38) checked as 14.7m on Sep 15/98.

Table 1 Cont'd: Water Levels in Piezometers and Groundwater Wells – Vangorda Rock Pile

Top of Pipe Elevations (masl)

V34	V35	V36	V37	V38	V39	V40	V41	V42	V43	V44	V45	V46	V47
GW-94-01	GW-94-02	GW-94-03	GW-94-04	GW-94-05	P-94-01A	P-94-01B	P-94-02A	P-94-02B	P-94-02C	P-94-03A	P-94-03B	P-94-04A	P-94-04B
1117.445	1117.405	1118.431	1116.165	1101.673	1136.555	1136.493	1138.41	1138.332	1129.84	1134.373	1134.459	1134.609	1134.327

Piezometric Elevation (masl)

Date	V34	V35	V36	V37	V38	V39	V40	V41	V42	V43	V44	V45	V46	V47
	GW-94-01	GW-94-02	GW-94-03	GW-94-04	GW-94-05	P-94-01A	P-94-01B	P-94-02A	P-94-02B	P-94-02C	P-94-03A	P-94-03B	P-94-04A	P-94-04B
3-May-94	1109.165	1103.075	1107.151	1101.835	1090.113	1124.185	1130.443	1127.84	1132.212	1116.76	1120.273	1124.659	1122.439	1125.337
21-Jun-94	1109.995	1108.755	1109.281	1106.515										
30-Jun-95						1128.765	1130.873	1130.39	1132.222	1120.82	1120.463	1124.659	1123.259	1125.337
13-Jul-95						1128.755	1130.903							
30-Jul-95						1128.695	1131.013	1130.42	1132.212	1121.03	1120.693	1124.659	1122.779	1125.337
26-Aug-95	1110.555	1108.935		1107.115										
31-Aug-95	1110.085					1128.625	1131.643	1130.44	1132.272	1121.18	1120.753		1122.009	
17-Oct-95	1110.305	1109.145		1106.795		1128.655	1132.263	1129.71	1132.572	1121.3	1120.963		1122.729	
20-Nov-95	1110.345	1109.225		1106.975										
13-Mar-96	1110.005	1108.175		1106.775										
28-May-96	1109.945	1108.065	1108.431	1105.915		1128.215	1131.113	1128.47	1132.212	1120.47	1120.253		1121.839	
24-Sep-96	1109.945	1109.975	1110.481	1106.995		1126.155	1131.193	1130.11	1132.212	1121.18	1120.693	1124.579	1121.809	1125.337
13-May-97	1110.605	1107.99	1108.476	1106.635		1127.385	1130.823	1130.67	1131.932	1120.33	1121.593	1124.499	1121.829	1124.707
11-Jul-97						1126.755	1130.593	1130.49	1132.212	1120.87	1120.273	1124.659	1124.639	1125.327
11-Aug-97	1110.695	1109.025	1110.021	1107.355	1099.683	1126.965	1131.243	1130.31	1132.082	1121.07	1121.533	1124.499	1121.989	1125.117
14-Oct-97	1110.685	1108.825	1109.281	1107.175		1127.045	1131.533	1130.42	1132.102	1120.9	1121.413	1124.499	1121.879	1125.117
23-Dec-97	1110.745	1108.355	1108.901	1107.035		1127.305	1131.733	1130.73	1132.262	1120.89	1121.673	1124.649	1121.949	1125.307
31-May-98	1110.725	1108.805	1108.701	1106.575	1099.813	1127.035		1130.36		1120.64		1124.509	1121.839	1125.127
25-Jul-98						1126.355		1130.37		1120.73			1121.819	
15-Sep-98	1110.775	1108.555	1108.911	1107.065	1099.273	1126.535		1130.43		1120.62			1121.779	
16-Nov-98						1126.235		1130.48		1120.78				
31-Dec-98	1110.745	1108.345	1108.521	1106.935										
18-Jun-99	1110.565	1108.165	1108.191	1105.985		1126.595		1130.06		1120.36				
12-Oct-99	1110.835	1109.825	1109.621	1107.375		1126.545		1130.25		1121.02				
31-May-00	1111.695	1108.725	1110.171	1106.835	1099.833	1126.355		1130.56	1132.402	1120.87			1121.949	1125.447
5-Sep-00	1110.785													
9-Oct-00	1112.465	1113.445	1111.531	1107.815	1100.743									
9-Jul-01						1126.135	1131.653	1129.55	1130.612	1124.38	1121.533	1124.679	1123.769	1125.447
4-Sep-02						1125.81	1131.19	1130.42	1132.31	1120.52	1120.85	1124.68	NR	1125.42
27-May-03						1125.99	1131.43	1130.59	1132.46	1120.64	1120.30	1124.68	NR	1125.40
9-Sep-03						1125.91	1131.45	1130.57	1132.46	1120.69	1120.51	1124.68	NR	1125.40
8-May-04						1125.945	1131.233	1130.380	1132.397	1120.635	1120.298	1124.679	NR	1125.352
8-Sep-04						1125.835	1131.293	1130.620	1132.562	1120.400	1120.293	1124.679	NR	1125.337
19-May-05						1126.290	1131.412	1130.930	1132.712	1120.959	1121.528	1124.679	NR	1125.337
9-Sep-05						1126.185	1131.609	1130.970	1132.887	1120.930	1121.098	1124.679	NR	1125.337
16-May-06						1125.855	1131.103	1130.320	1132.222	1120.490	1120.293	1124.679	NR	NR
11-Sep-06						1125.515	1130.953	1130.420	1132.492	1120.670	1120.483	1124.679	NR	NR
10-May-07						1125.940	1130.603	1130.465	1132.212	1120.270	1120.303	1124.689	NR	1125.337
27-Aug-07						1125.615	1130.458	1130.200	1132.212	1120.960	1120.333	1124.679	NR	1125.337

2.1.4 Rock Pile

Old tension cracks are still evident in places along the crest at the northeast end of the dump. The cracks have not widened since the last inspection and there was no sign of instability.

2.2 Recommendations

2.2.1 Transverse Drains

The drains should be inspected monthly for any signs of instability around the outlet and deterioration of the steel v-notch weirs. The inspection should include recording of any flow or seepage.

2.2.2 Till Covers and Berms

In the upper reaches of the seepage collection channel at the location of the till cover, DTI should continue to monitor any sediment build-up and periodically remove the sediment that accumulates in the channel.

2.2.3 Instrumentation

Water level readings should continue to be taken from standpipe piezometers in the till berm around the rock pile. These readings should be taken at least twice a year. SRK understands that Gartner Lee monitors the water level readings and samples water quality from the original groundwater wells GW94-01 to -05.

As the till dyke in the vicinity of P94 04A has been regraded to a flatter configuration, replacement of this piezometer is not a high priority. However, if a drillrig is in the area for other reasons, then a replacement piezometer(s) could be installed.

2.2.4 Rock pile

DTI should continue to inspect, monthly, the surface of the Vangorda rock fill for any signs of widening of these cracks.

3 Little Creek Dam

3.1 Observations

Water level in the pond (Photo 10) during our inspection on June 18, 2007 was recorded at about 1110m. No cracks or major settlement of the dam were observed and no seepage was observed along the downstream toe. Erosion rills are evident on both the upstream and downstream slopes of the dam. An erosion gully caused by runoff was observed on the upstream face of the approach road to Little Creek Dam (Photo 11).

The upstream and downstream faces of the dam show no evidence of surficial movement, bulging or instability.

In 1994, six pneumatic piezometers and three thermistors were installed along the crest of the Little Creek dam. The six piezometers are located at three separate locations; two piezometers, one deep and one shallow, at each location. The location of the piezometers and thermistors are shown on Figure 6 and the 2007 piezometric levels are shown in section on Figures 7, 8 & 9. Actual readings are presented in Appendix B. The levels are normally taken twice year in May and August. In the last 2 years the levels in piezometers LCD 2 and 3 have shown an increase which seems to be linked to the fluctuating pond levels shown on the water plot in Appendix B.

The 900mm CMP emergency spillway (Photo 12) was inspected and is in good condition.

The culvert plunge pool and outlet are shown on Photo 13

3.2 Recommendations

DTI should continue to regularly monitor the crest of the dam for any cracks, settlement or surficial movement of the slope.

Despite the increase in water levels in LCD 2 and 3 and the linkage with pond water levels, the factors of safety associated with the stability of the dam remain acceptable. However, SRK recommends that the frequency of readings of the pneumatic piezometers be increased to establish a better correlation with the water level. The details of the additional monitoring will be discussed with DTI. Monitoring of the thermistors can remain on a semi-annual basis and the results compiled and forwarded to SRK.

DTI should also continue to remove any build-up of debris at the inlet end of the culvert spillway.

If the Little Creek pond is to become a long-term structure to collect seepage from the Vangorda Dump or to function as a polishing pond for the treatment plant, the spillway would need to be modified to accommodate a larger flood event and should possibly be relocated to the north end of the dam in an open channel.

4 Vangorda Creek Diversion

4.1 Observations

In accordance with a recommendation from SRK, an emergency overflow spillway (2x1m diameter CSP's) was installed at the headworks of the diversion in August 2005 (Photo 14). DTI continues to maintain the 2.4m diameter flume to ensure safe passage of flow in Vangorda Creek. Boulders that fall into the flume (Photo 15) are periodically removed. There are no signs of instability or settlement of the embankment at the headworks of the diversion.

DTI continues to pump water from a small seepage collection pond in the old Vangorda Creek ditch back into the flume. This is part of an overall plan to reduce flow of clean water into the Vangorda Pit.

The 2m diameter CMP culvert in the plunge pool shows signs of wear and tear around the entrance to the pipe (Photo 16). A trash rack has been installed at the entrance.

The exit culvert and the drop box structure remain intact and functioning satisfactorily.

4.2 Recommendations

DTI should continue to monitor the sideslopes above the flume for sloughing and areas of instability and should top-up riprap along the flume where the material has settled below the rim of the culvert sections. Any debris or rocks that accumulate in the flume, at the entrance to the 2m CMP or at the headwork's trashrack should be removed. SRK should be notified of any excessive seepage from the flume and increase of discharge into the pit. If any damage to the cross braces and if the structural integrity of any of the flume sections is compromised by ice formation or slides, DTI should replace the impacted sections.

5 Sludge Pond Embankment-Vangorda Water Treatment Plant

5.1 Observations

At the time of our inspection, the sludge pond was dry (Photo 17). SRK inspected the downstream slopes and crests of the four embankments that make up the sludge pond. Neither subsidence of the slopes, nor settlement of the crest and no tension cracks were observed (Photo 18). However as shown in Photo 19, there was an area of subsidence on the inside slope of the northern end of the pond.

5.2 Recommendations

- Ensure that the pond level does not exceed 2m. below crest;
- Continue to monitor on a monthly basis, the crest and sideslopes for cracking or any signs of sloughing;
- Repair the subsidence by excavating out the loose material, placing geotextile filter fabric over the exposed material and placing compacted granular fill over the filter fabric. SRK understands that DTI completed this work in September 2007 (See Photos 28, 29 and 30).

6 Grum Settling Pond

6.1 Observations

SRK inspected the riprapped open channel spillway, which conveys flow from the Grum settling pond to the Grum Interceptor Ditch (GID). The spillway is functioning normally. There was no sign or any instability or cracking in the surrounding dyke. No seepage was observed along the toe of the dyke.

6.2 Recommendations

The crest of the embankment around the pond should be monitored monthly for cracks and any seepage into and out of the pond.

7 Grum Interceptor Ditch and Sheep Pad Settling Pond

7.1 Observations

In the upper reaches of the GID, the ditch slopes remain stable and the vegetation continues to provide effective erosion control of the ditch sideslopes (Photo 20). However, debris and the odd boulder are beginning to partly block culvert outlets and entrances along the route (Photo 21) including the culvert at the entrance to the Sheep Pad Pond (Photo 22).

SRK inspected the pond dyke and found no sign of slope instability, settlement or cracking.

7.2 Recommendations

- Monitor monthly the crest of the settling pond dykes for any cracks
- Monitor monthly the toe of the dykes for any seeps
- Clear any debris that accumulates at either end of the GID culverts and the settling pond spillway.

8 Grum Dump

8.1 Observations

The slopes of the lower benches of the Grum Dump were inspected and showed no signs of further erosion. SRK also inspected the diversion ditch along the main haul road adjacent to the Grum Dump, which was constructed to divert runoff away from the dump and into the Vangorda Pit. Since the construction of the haul road ditch, erosion on the dump slopes has diminished and significantly less sediment has accumulated in the sediment trap at V15. The ditch is performing satisfactorily.

Flow from the main stem of Grum Creek and from Tributary B is directed to the temporary sedimentation holding area located just above Vangorda Creek called Moose Pond (See Figure 2) The mine also installed a siphon pipeline from the pond to the V2 sampling station, which was intended to drain any water that may accumulate in the pond. The siphon pipe has never been used because there has not been any significant accumulation of water in the pond. DTI plans to maintain the Moose Pond sediment basin for drainage from the Main stem of Grum Creek until final closure planning is complete.

Four monitoring wells were installed in the 2005 season, southeast of the Grum Dump as part of investigations arising from the 2004 trigger of Adaptive Management Plan (AMP) Event #4. A summary of the AMP Event #4 response investigations, carried out in 2006, is included in the Faro Mine Complex AMP Annual Review for 2007.

In 2006, increasing concentrations of zinc were observed at the outlet of the V15 sedimentation pond upstream of Tributary A. In response to this finding, DTI installed an interim collection system to pump seepage collecting in the pond (Photo 23) into the existing ditch below the V-Notch weir on Grum Creek, which routes water from Grum Creek to Moose Pond at Station V2A. The interim system consisted of a pump and pipeline to convey water from the sedimentation pond into the existing ditch.

This system was upgraded to a Bentomat lined diversion ditch in August, 2007. A conceptual design for the diversion ditch is presented in Appendix C. Photos of the new ditch are provided in Appendix A (see Photos 24 to 26).

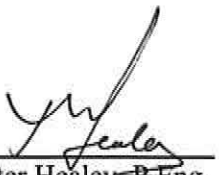
8.2 Recommendations

DTI should continue to monitor any sediment build-up in the V15 pond and clean it out when necessary.

The culverts and pipes should be inspected monthly to ensure there are no blockages or restrictions to the flow.

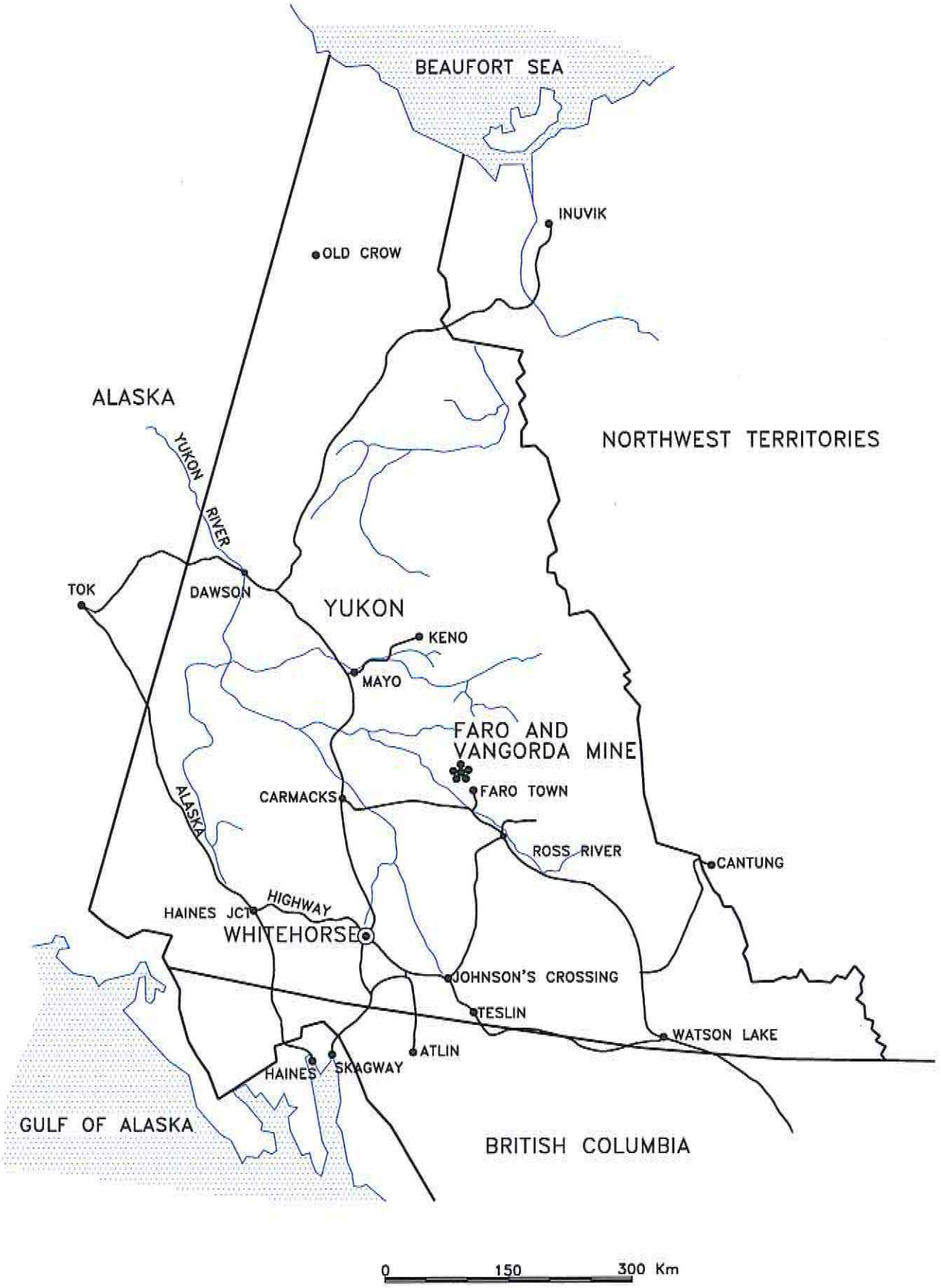
This report, **"2007 Annual Inspection Waste and Water Management Facilities – Vangorda Mine"**, has been prepared by SRK Consulting (Canada) Inc.

Prepared by



Peter Healey, ~~P.Eng.~~

Figures



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LOCATION MAP

SRK JOB NO.: 1CD003.098

FILE NAME: yukon.dwg

Vangorda Plateau Mine

DATE:	APPROVED:	FIGURE:
Jan. 2008		1

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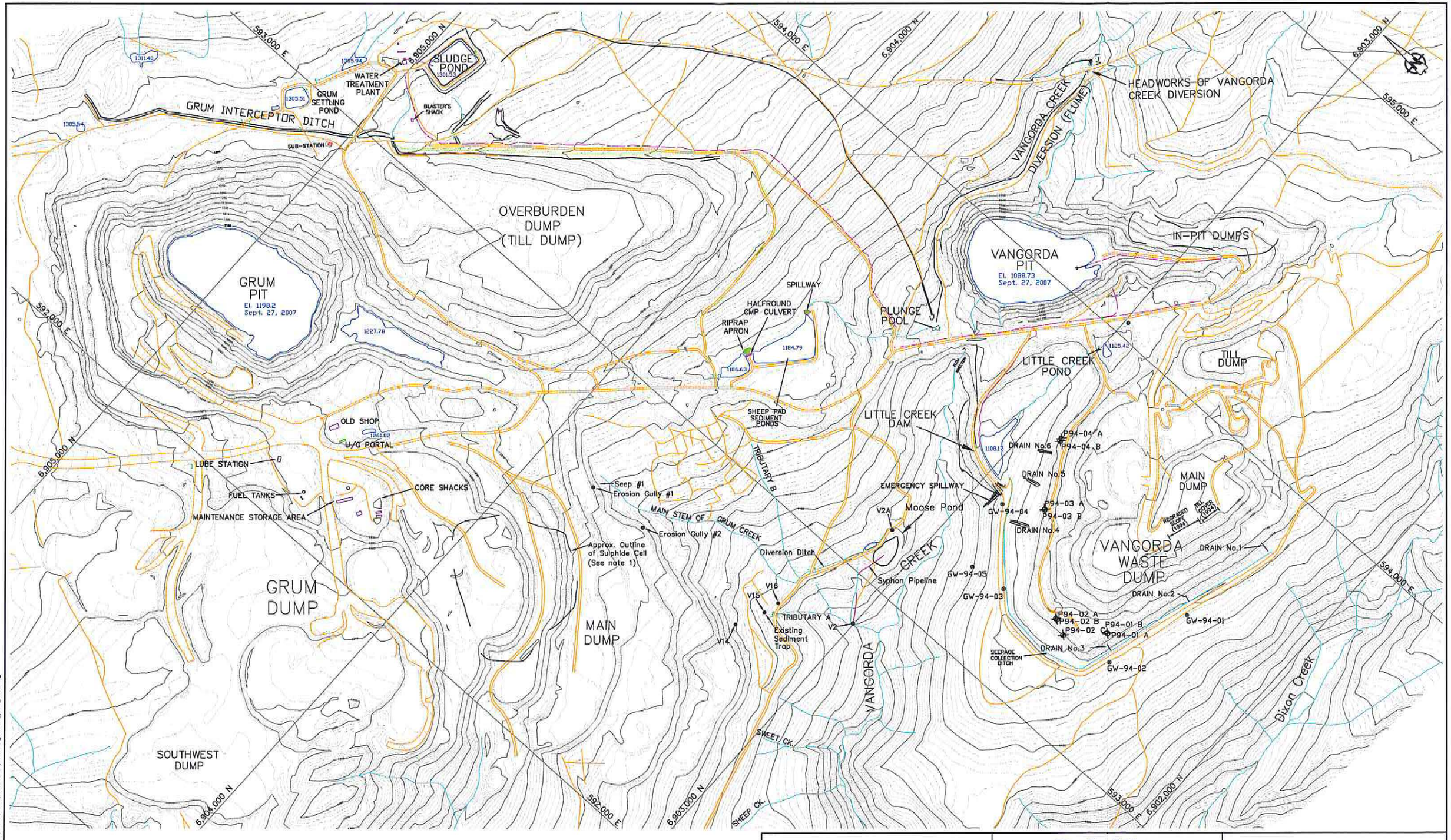

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Survey control based on: UTM Projection, NAD27
Compiled by The ORTHOSHOP, Calgary, September 2003
WO 8856

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Scale 1: 10,000

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SRK JOB NO.: 1CD003.098
FILE NAME: elte_plan_2003.dwg

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Vangorda Plateau Mine

GENERAL ARRANGEMENT PLAN

DATE:	APPROVED:	FIGURE:
Jan. 2008		2

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Scale 1:10,000

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SRK JOB NO.: 1CD003.098
FILE NAME: site_plan_2003-photo.dwg

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Vangorda Plateau Mine

ORTHO-RECTIFIED MOSAIC, WITH CONTOURS, OF VANGORDA PLATEAU AREA

DATE:	APPROVED:	FIGURE:
Jan. 2008		3

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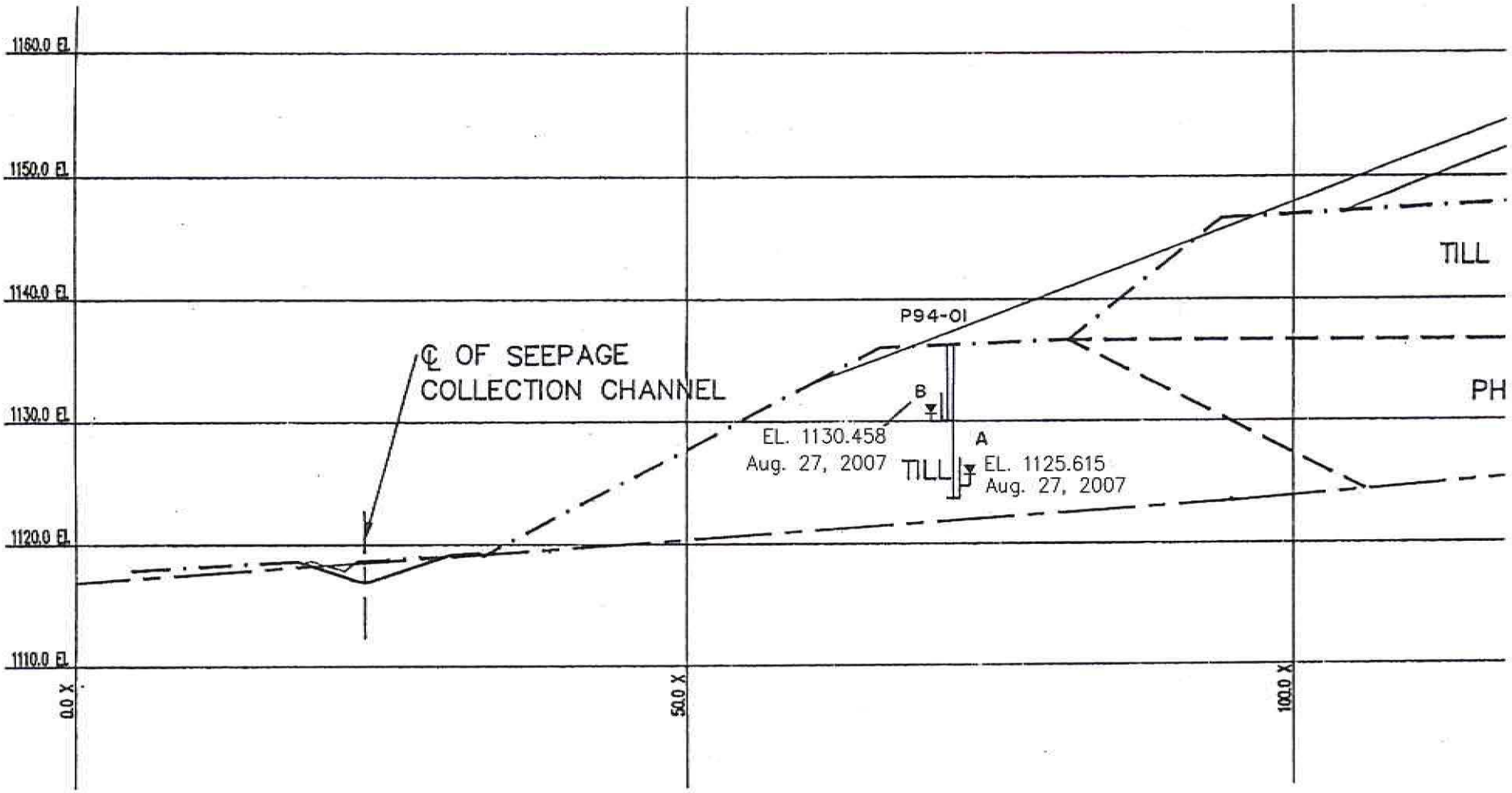
J:\01_SITES\FAR0\020_Base_Files\2007 Inspection Report dwgs\FIG-4.dwg



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SRK JOB NO.: 1CD003.098

FILE NAME: FIG-4.dwg

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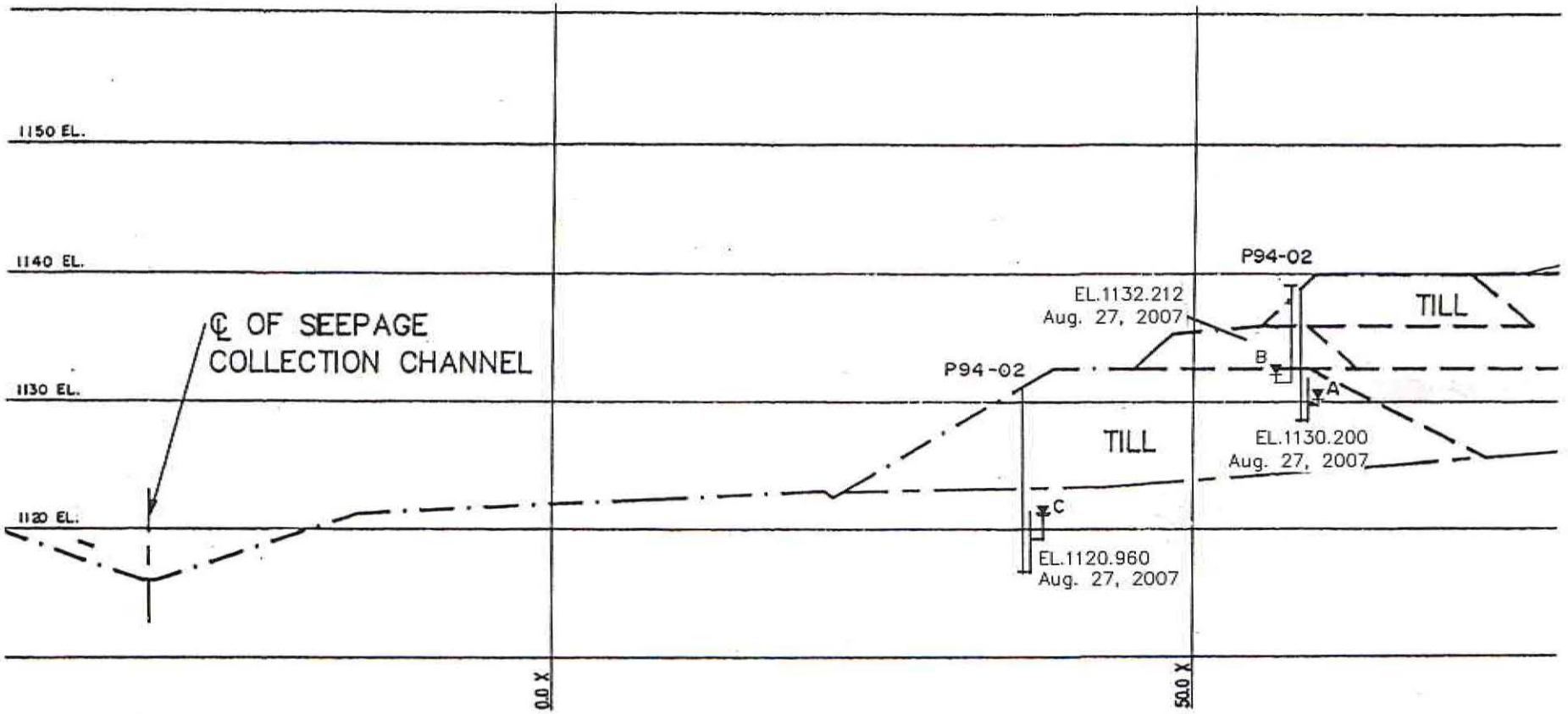
Vangorda Plateau Mine

SECTION D-3
CHANNEL STA. 4+80

DATE:	APPROVED:	FIGURE:
Jan. 2008		4

J:\01_SITES\FARO\020_Base_Files\2007 Inspection Report dwgs\FIG-5.dwg



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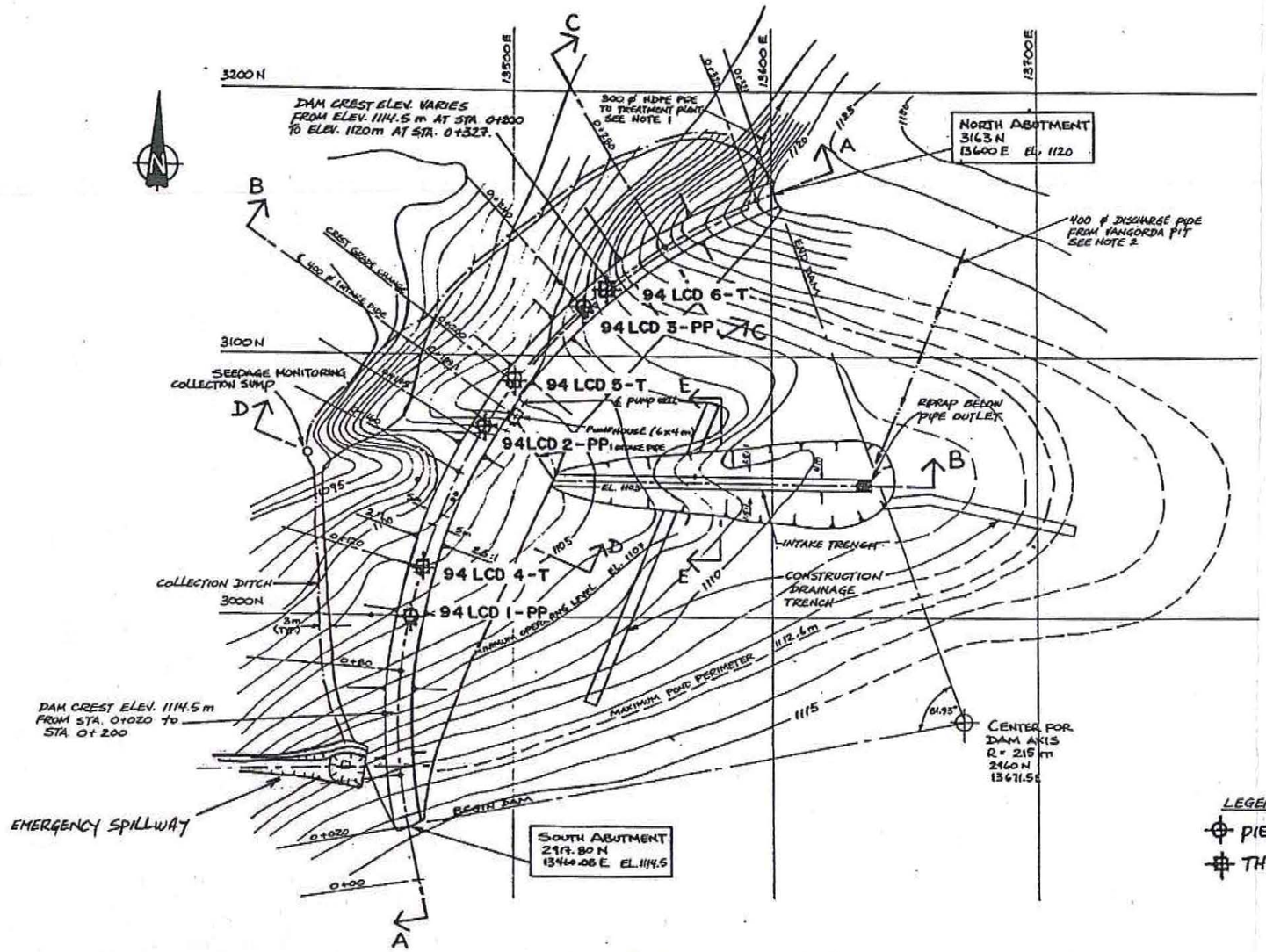
SECTION D-4
CHANNEL STA. 9+00

SRK JOB NO.: 1CD003.098	Vangorda Plateau Mine	DATE: Jan. 2008	APPROVED:
FILE NAME: FIG-5.dwg			FIGURE: 5



GENERAL ARRANGEMENT PLAN

SCALE - 1:2000

SRK Consulting Engineers and Scientists Vancouver	Deloitte & Touche	LITTLE CREEK DAM GENERAL ARRANGEMENT PLAN	
SRK JOB NO.: 1CD003.098	Vangorda Plateau Mine	DATE: Jan. 2008	APPROVED:
FILE NAME: FIG-6.dwg			FIGURE: 6

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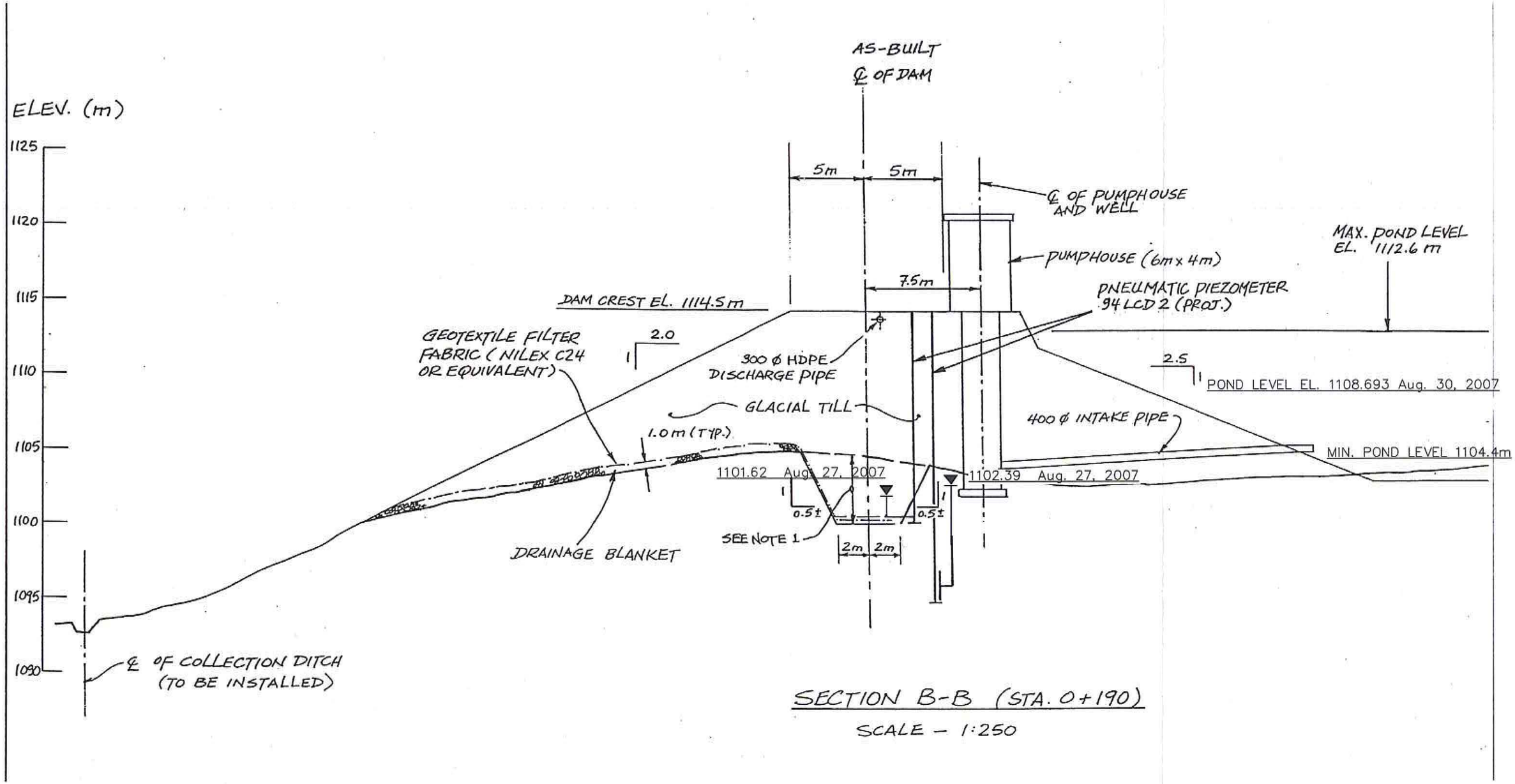


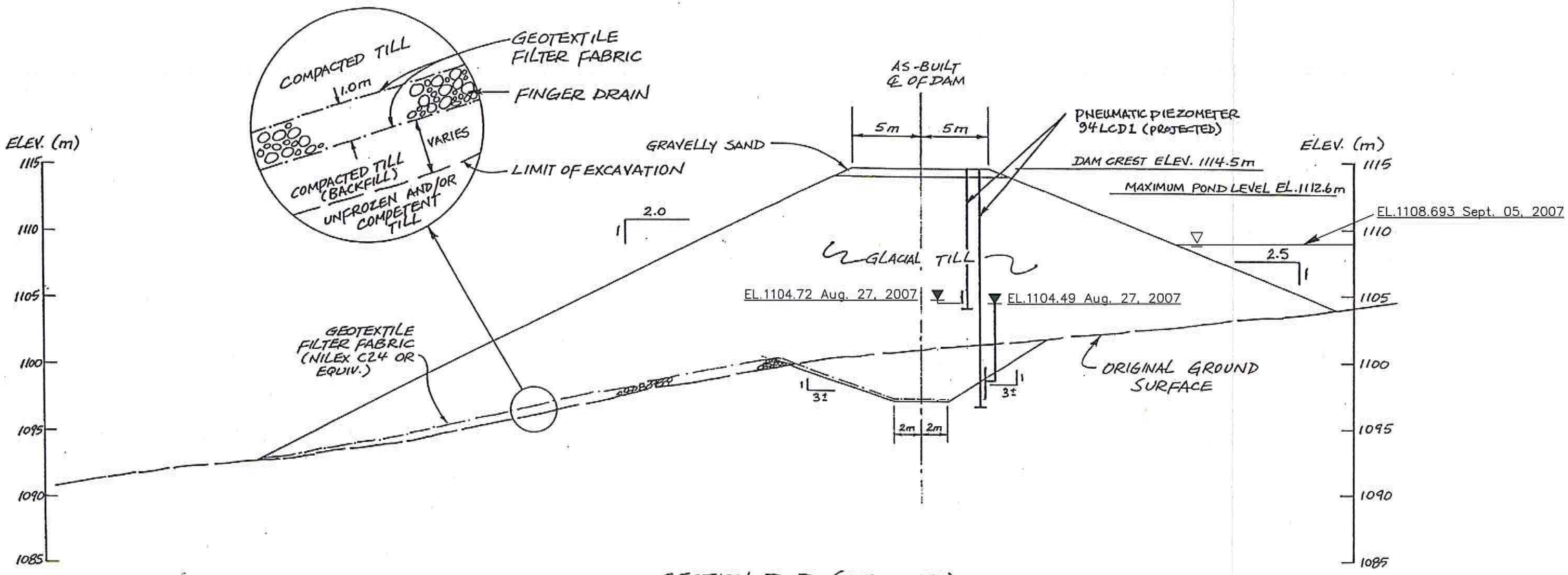
SECTION B-B (STA. 0+190)

SCALE – 1:250

0 2 4 6 8 10 METRES
1:250

SRK Consulting Engineers and Scientists Vancouver	Deloitte & Touche	LITTLE CREEK DAM SECTION B-B
SRK JOB NO.: 1CD003.098 FILE NAME: FIG-7.dwg	Vangorda Plateau Mine	DATE: Jan. 2008 · APPROVED: · FIGURE: 7

e:\01_SITES\YKRO\020_Base_Files\2007 Inspection Report dwgs\FIG-7.dwg

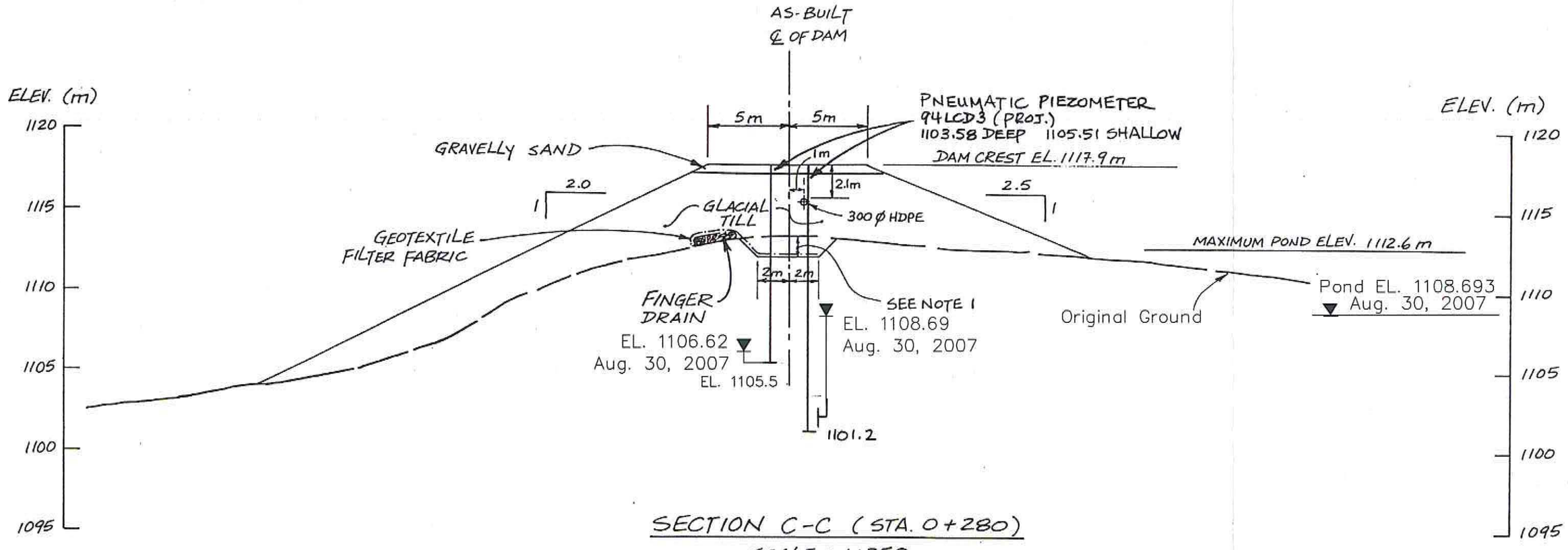


SECTION D-D (STA. 0+144)

SCALE - 1:300

SRK Consulting Engineers and Scientists Vancouver	Deloitte & Touche	LITTLE CREEK DAM SECTION D-D
SRK JOB NO.: 1CD003.098	Vangorda Plateau Mine	DATE: Jan. 2008 / APPROVED: / FIGURE: 8
FILE NAME: FIG-8.dwg		

J:\01_SITES\FARO\020_Base_Files\2007 Inspection Report dwgs\FIG-8.dwg



SECTION C-C (STA. 0+280)

SCALE - 1:250

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1:250

SRK Consulting Engineers and Scientists Vancouver	Deloitte & Touche	LITTLE CREEK DAM SECTION C-C	
SRK JOB NO.: 1CD003.098	Vangorda Plateau Mine	DATE: Jan. 2008	APPROVED:
FILE NAME: FIG-9.dwg			FIGURE: 9

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Appendix A
Photos

Photo 1: Vangorda Waste Dump, Weir #6

Photo 2: Weir #5

Photo 3: Weir 3

Photo 4: Till Slope above Weirs #5 and #6

Photo 5: Seep Collection Channel along toe of Vangorda Waste Dump

Photo 6: Drain 4 at toe of Vangorda Waste Dump

Photo 7: Drain #2 at toe of Vangorda Waste Rock Dump

Photo 8: Close-up of Drain #2

Photo 9: Erosion Gullies in the till cover on Vangorda Dump

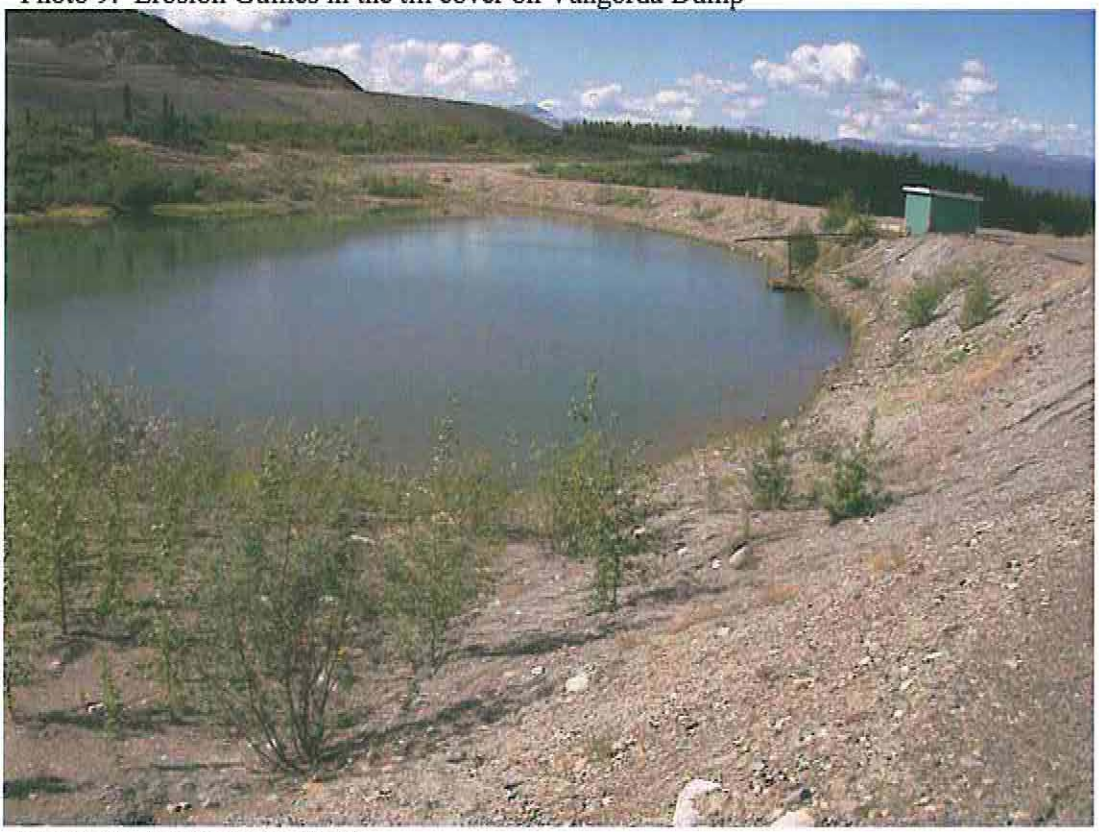


Photo 10: Little Creek Pond

Photo 11: Erosion gully in approach road to Little Creek Dam

Photo 12: Emergency culvert (inlet) at Little Creek Pond

Photo 13: Outlet to plunge pool of emergency spillway at Little Creek Dam

Photo 14: Emergency Spillway at the headworks of Vangorda Creek Diversion

Photo 15: Vangorda Creek Diversion (lower reaches)

Photo 16: Inlet to the 2m dia CMP at the Vangorda diversion plunge pool

Photo 17: Sludge Pond at Water Treatment Plant

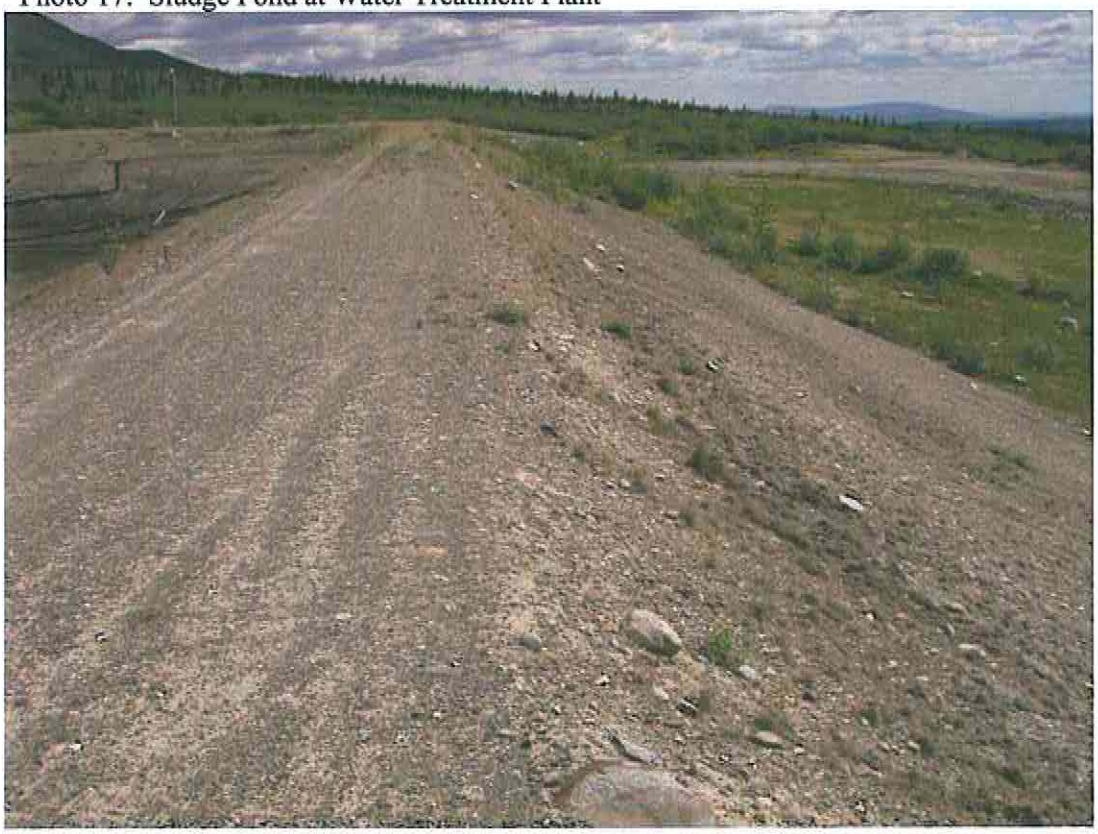


Photo 18: Till Embankment around the Sludge Pond

Photo 19: Instability on the upstream slope inside the Sludge Pond

Photo 20: Grum Interceptor Ditch

Photo 21: Debris accumulation at culvert entrances along Grum Interceptor Ditch

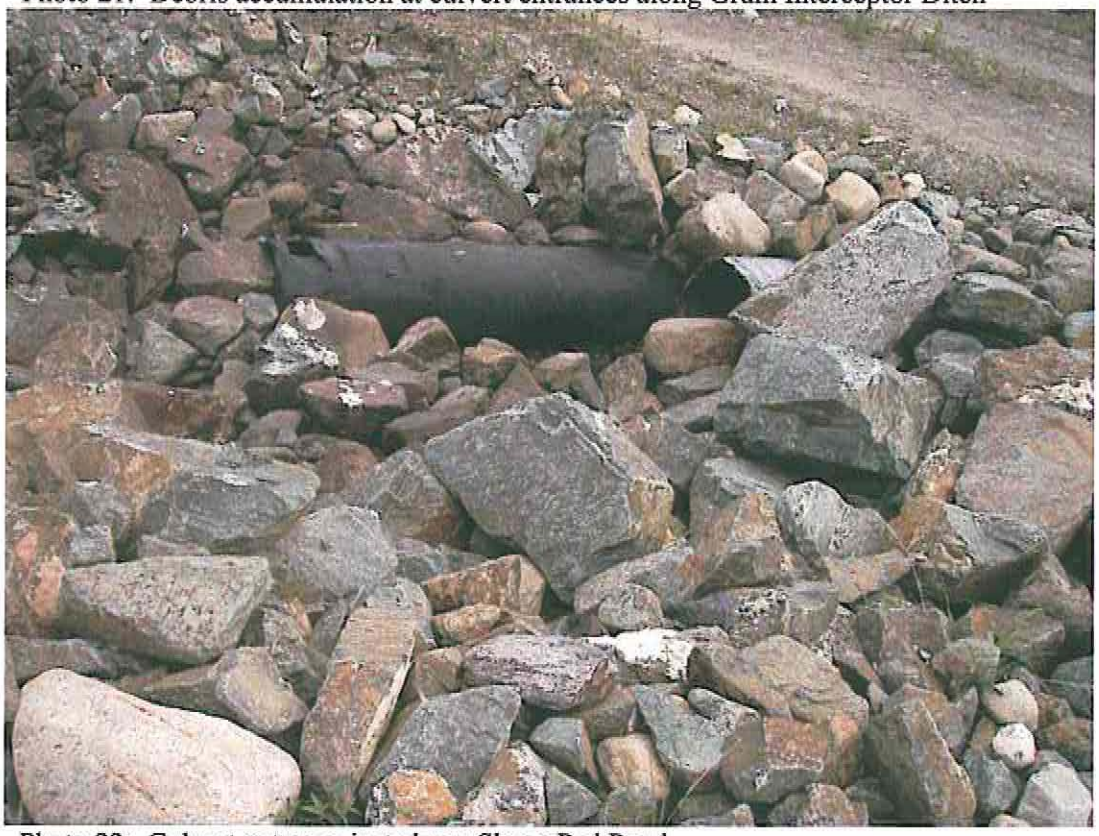


Photo 22: Culvert entrance just above Sheep Pad Pond

Photo 23: V-15 Sedimentation Pond prior to construction of diversion ditch

Photo 24: V-15 Sedminentation Pond after construction

Photo 25: Runoff diversion ditch along haul road from V-15 constructed in August 2007

Photo 26: New culvert (2007) below V-notch Weir on Grum Creek and new diversion

Photo 27: Runoff diversion ditch along haul road during construction showing the Bentamat Liner and course granular cover

Photo 28: Repair to subsidence in Sludge Pond at Vangorda

Photo 29: Repair to subsidence in Sludge Pond at Vangorda

Photo 30: Completed remediation to subsidence in Sludge Pond at Vangorda

SRK Consulting
Engineers and Scientists

SRK Consulting (Canada) Inc.
Suite 2200 – 1066 West Hastings Street
Vancouver, B.C. V6E 3X2
Canada

vancouver@srk.com
www.srk.com

Tel: 604.681.4196
Fax: 604.687.5532

Technical Memo

To:	Dana Haggar, Deloitte and Touche	**Date:**	July 13, 2007
cc:	Glen Craig, Deloitte and Touche	**From:**	Peter Healey P.Eng
Subject:	**Conceptual Design for V-15 Seepage Diversion to V2A**	**Project #:**	1CD003.091

1 Introduction

SRK Consulting (Canada) Inc. (SRK) has prepared this technical memorandum as a follow-up to a letter sent to Yukon Territorial Government (YTG Water Resources Branch) dated January 2007 regarding short-term measures to mitigate increased zinc levels that periodically occur at V-15. SRK understands from the letter that YTG supports the proposal to divert seepage entering the V-15 pond to the existing ditch that carries flow from the Grum Creek V notch weir to V2A (see Figure 1).

As discussed below, last year Deloitte and Touche (DT) installed an interim measure to mitigate the increase in zinc levels. However, it was felt that a more manageable system is required that would remain in place until the final reclamation measures are implemented.

This technical memorandum provides recommendations for the construction of a lined open channel diversion from the V-15 sediment pond to the existing ditch below the V-notch weir on Grum Creek. SRK's observations and the recommendations in the following sections are based on a recent inspection of the site, which was carried out during SRK's 2007 Annual Geotechnical inspection of the Vangorda Plateau mine site.

1.1 Observations

As shown on Photo 1, DT has built a soil berm around the southern perimeter of the pond to restrict outflow to V2. A small gas powered pump has been installed in the pond to periodically divert the seepage to V2A via the existing ditch below the V-Notch weir on Grum Creek (Photo 2). It was also noted that a small ditch located below the groundwater wells (SRK 04-5A/B and 05-5C) collects seepage from the catchment above the wells and directs the flow over to the existing Grum Creek ditch below the weir (Photo 3). A survey completed by DT on Wednesday June 20, 2007 confirmed that there is sufficient grade for the proposed ditch.

1.2 Design Concept

The objective of the proposed ditch would be to divert any seepage that currently enters the existing sediment collection pond over to the existing ditch below the Grum Creek V-Notch weir. The ditch would be lined with a bentonite Geomembrane (GCL) to limit leakage and would have a trapezoidal configuration with sideslopes no steeper than 1.5:1 (H:V). The existing sediment collection pond would be retained to collect any sediment.

Ground preparation for the ditch would involve clearing and grubbing the area along the proposed alignment shown on Figure 1. Earthworks would involve a cut and fill operation to provide a stable foundation for the ditch. The existing bank along the road would be moved out to establish a

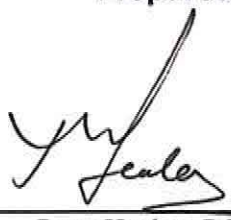
compacted berm with a sideslope no steeper than 1.5 to 1. All fill would be compacted with a suitably sized mechanical compactor prior to excavation of the ditch.

1.3 Recommendations

The final grade of the ditch should be no less than one (1) percent. The depth of the ditch from the finished base to the top of the sideslopes should be 1m minimum. The alignment of the ditch must avoid any impact on the existing groundwater wells. While SRK recognizes that construction of the ditch will be field fit, the invert of the ditch at the outlet from the sediment pond should be established to ensure sufficient storage capacity to allow for any sediment to settle.

SRK also recommends that a compacted 30cm soil cover be placed over the GCL.

Prepared by



Peter Healey, P.Eng.

Figures

Date of Photography: 03/07/25
Scale of Photography: 1:20000
Survey control derived from existing 1:20000 photography
Survey control based on: UTM Projection, NAD27
Compiled by The ORTHOSHOP, Calgary, September 2003
wo 8856

0 10 20 30 40 50 60 70 80 90 100m
Scale 1:1500

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Acad-Vangorda-Grum\Acad-2006\ site_plan_2006-Photo.dwg

Deloitte & Touche

Anvil Range Mining Complex

V15 Seepage Diversion Ditch

Site Location Map

DATE:	APPROVED:	FIGURE:
June 2007	PMH	1

Photos

Photo 1: V-15 Sedimentation Pond looking east towards location of V-notch weir on Grum Creek.

Photo 2: V-notch weir on Grum Creek.

Photo 3: Seepage collection ditch below groundwater wells.

Photo 4: Bank along proposed ditch alignment.