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Strada Shelburne Pit/Quarry

MAXIMUM PREDICTED WATER TABLE REPORT

Strada Aggregates Inc.

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1 Introduction

Tatham Engineering Limited (Tatham) was retained by Strada Aggregates Inc. (Strada) to prepare this Maximum Predicted Water Table report in support of a Class A aggregate license for the proposed Strada Pit/Quarry.

The site is located at 437159 4th Line, in Shelburne and currently operates as an above water pit comprised of three ARA licences (#626199, #625155 and #129167). The site is bound by County Road 17 on the south, 4th Line on the west, the Bonnefield agricultural property and Sideroad 15 to the north and the CBM property and 13th Line to the east. Strada is proposing to combine the three existing licences to allow the pit operations to continue and permit below water quarry extraction within the northern 2/3rds of the site (existing licences #626199 and #129167).

The purpose of this report is to identify the maximum predicted water table elevation, in metres above sea level (m asl), relative to the proposed depth of excavation at the site.

This letter outlines the field program conducted at the site used to determine the maximum predicted water table elevation. Additional details and results from the field monitoring program are summarized in the Strada Pit/Quarry Level 1 and 2 Hydrogeological Assessment (Tatham and Earthfx, 2024).

2 Proposed Site Development

At the time quarry operations commence, it is expected the available sand and gravel resource will have been extracted from all portions of the site except for the northern portion of existing License #626199. The proposed phasing sequence is shown on Figure 1 through 7.

Quarry operations will commence in Phase 1A which is located in the southern portion of existing License #129167 and will operate concurrently with pit operations in Phase 2C which is located in the northern portion of existing License #626199.

The quarry floor elevation is expected to vary between 438 m asl and 442 m asl based upon the geological formations. The quarry is anticipated to be extracted in three lifts with lifts varying in height as each follows the geological formations across the site. Lift 1 is approximately 11 to 24 m deep, lift 2 is approximately 11 to 17 m deep, and lift 3 is approximately 14 to 23 m deep.

Quarry extraction will occur in a phased manner divided between four phases with each phase containing multiple sub-phases. Quarry operations will occur sequentially. Phases 1A, 1B, 2A, 2B, and 2C will extract lift 1 and 2. Phase 3A includes extraction of lift 3. Phase 3B, 4A and 4B include extraction of lifts 1, 2 and 3.

All material will be processed by portable plants within close proximity to the active pit and quarry working faces. A portion of the material will also be transported to the wash plant within existing License #626155 where it will be washed.

The new license is proposed to ship a maximum of 2 million tonnes per annum and will utilize both of the existing pit entrance/exits until Phase 3B is extracted. After which only the south entrance/exit will be used.

2.1 WATER CONTROL FEATURES

2.1.1 Benches

Three benches will be used to reach the full extraction depth of the proposed quarry extraction area. The first bench coincides with the Guelph formation; the second bench with the Ancaster/Niagara Falls formation, and the third bench with the Gasport formation. Gravel extraction in the remaining northern pit area will be extracted in conjunction with Phase 1 quarry development, along with simultaneous extraction of Bench 1 and 2.

2.1.2 Water Control Barriers

Groundwater inflow control barriers will be constructed along the overburden and bedrock benches as pit/quarry development progresses, thus restricting groundwater inflow to a limited

active extraction face. Barriers will be constructed on Bench 1 (Guelph) and Bench 3 (Gasport), while no barriers are needed in the Ancaster/Niagara Falls bench because permeability and pump testing indicate it is a significant aquitard.

The design of the barriers will meet all standards for site closure, grading and rehabilitation. Geotechnical analysis indicates the on-site Tavistock till may be suitable for water control barriers if confirmed to be sufficiently impermeable by a geotechnical consultant prior to construction of the barriers. If the on-site Tavistock Till is not considered to be sufficiently impermeable, off-site soil may need to be imported for the construction of the barriers.

A limited portion of the final deep Gasport bench face will be left open to allow long-term drainage of the quarry lake into the Gasport aquifer. The Rehabilitation scenario, presented below, demonstrates this will ensure the lake elevation never rises high enough to result in off-site overland discharge.

2.1.3 Injection Wells

Four injection wells will be constructed along the eastern property boundary prior to Phase 1. Two of the injection wells will be installed in the Guelph Formation and the remaining two will be installed in the Gasport unit. The combined capacity of the injection wells is assumed to be at least 12 L/s. Water captured from the buried tile drain constructed along the western property limit will be diverted directly to the injection wells ensuring water being infiltrated via the injection wells is non-contact water collected upgradient of the on-going aggregate activities.

2.1.4 On-Site Infiltration Systems

Groundwater and surface water (including stormwater and precipitation) will be captured and infiltrated on-site. Three on-site infiltration systems will be constructed, including two infiltration ponds in the south portion of the site and a two-part infiltration trench along the northeast portion of the site. The infiltration systems will be constructed in peripheral areas of sand and gravel materials, thus locally recharging the overburden aquifers with no off-site overland surface water flow.

A buried tile drain will be constructed along the western property boundary to collect groundwater and reduce groundwater mounding to the west of the property. The clean water from the drains will be injected directly into two Guelph and two Gasport injection wells along the eastern property boundary.

The combination of bench barriers (to restrict inflow), and on-site re-infiltration ensures no off-site surface water discharge will occur, and groundwater drawdowns will be minimal.

The proposed infiltration systems are shown on Figure 8.

2.2 PHASE ONE

Phase 1 represents the final extraction of sand and gravel from the north portion of the pit, (in the area labeled Phase 2C/Phase 3A in Figure 1, which refers to later phases of bedrock removal); and extraction of bedrock from Bench 1 and 2 in the central portion of the site, labeled as Phase 1A and Phase 1B. The open extraction faces are shown as dotted lines in Figure 1. A cross section showing the extraction conditions is shown in Figure 2.

The start of bedrock extraction will be a sinking cut located in the Phase 1A area. Groundwater levels in the Phase 1A area are near the lowest recorded on site, and extraction from this initial location will have the minimal impact on the overburden water table.

Overburden water control barriers have been constructed on three sides of the overburden (green line). Progressive barriers have been constructed along the south and east face of Bench 1 (dark blue line), and an open face exists in Bench 1 and 2 along the west and northern faces (dashed red lines).

Quarry floor drains have been constructed to distribute inflow to both the infiltration trenches in the northeast portion of the site and the southern infiltration galleries.

2.3 PHASE TWO

Phase 2 represents the complete extraction of aggregate from Bench 1 and 2 under Phases 1 and 2 and the ongoing extraction of Phase 2C. The open extraction face is shown as dotted lines in Figure 3. A cross section showing the extraction conditions is shown in Figure 4.

Overburden water control barriers have been constructed on four sides of the overburden (green line). Progressive barriers have been constructed along three sides of Bench 1 (dark blue line), and an open face exists in Bench 1 and 2 along the northern face (dashed red line).

Quarry floor drains are constructed to distribute inflow to both the infiltration trenches in the northeast portion of the site and the southern infiltration galleries.

During this phase a buried tile drain constructed along the north western property boundary will collect groundwater so as to reduce groundwater mounding to the west of the property. This water is collected and directly injected into the Guelph and Gasport injection wells along the eastern property boundary. Any excess is added to the eastern infiltration system trenches. The combined injection capacity of these wells is 12 L/s, and a minimum length of 570 m of drain is estimated to generate this flow.

2.4 PHASE THREE

Phase 3 represents the continued extraction of Bench 2 and initial extraction of Bench 3. Phase 3 only includes a partial removal of Bench 3 with the remaining portion of Bench 3 to be removed

in Phase 4. The analysis and presentation of potential impacts were limited to Phase 4 (discussed below) which is considered to be a "worst case scenario" when comparing Phase 3 and Phase 4 conditions.

2.5 PHASE FOUR

Phase 4A represents extraction of bedrock from the second to final Phase 4A cell (Figure 5). In this scenario Benches 1, 2 and 3 are all open along the active face in the south east portion of the excavation. The location of the open extraction faces is shown as a dotted red line in Figure 5. A cross section showing the extraction conditions is shown in Figure 6.

Overburden water control barriers have been constructed on four sides of the overburden (green line). Barriers have been constructed along the majority of Bench 1, with the exception of the south face (dark blue line). As noted, an open face exists in Bench 1, 2 and 3 in the Phase 4A cell (dashed red line). Quarry floor drains are constructed to distribute inflow to both the infiltration trenches at the northeast portion of the site and the southern infiltration ponds.

During this phase a buried tile drain constructed along the north western property boundary will collect groundwater so as to reduce groundwater mounding to the west of the property. This water is collected and conveyed to the Guelph and Gasport injection wells along the eastern property boundary and any excess is added to the eastern infiltration trenches. The combined injection rate is 12 L/s. The drain is subdivided into three segments to provide flexibility in diverting and controlling flow, as needed. In the model representation, the north and central segment divert 12 L/s directly to the injection wells (with any seasonal excess going to the northern infiltration trench), and the southern segment discharges into the central infiltration site.

2.6 REHABILITATION

The Rehabilitation scenario represents conditions after final rehabilitation and closure of the pit and quarry.

At this time, all on-site water control and infiltration systems will be modified and/or removed so as to allow groundwater and surface water conditions to return to near baseline conditions without any active long-term water management.

Water control barriers constructed on all four sides of the pit/quarry in the overburden and Bench 1 will remain in place for the purpose of slope rehabilitation (Figure 7). The exception to this is a 365-m portion of the eastern overburden barrier will be opened to allow lateral seepage into the shallow groundwater system east of the property. The area of barrier opening is shown as a thick orange line in Figure 7. Seepage from this opening will eliminate drawdowns and support streamflow in the tributary flowing into NAT-18.

The barriers constructed on Bench 3 will remain in place; however, a small portion of the Gasport formation along the western face of Phase 4 will remain open to the quarry lake to ensure the lake does not overtop and discharge as surface water.

Water from the western tile drain will no longer be infiltrated into the bedrock injection wells. The wells will be sealed and decommissioned. The northern segment of the tile drain will be opened to freely drain into the quarry lake. This will prevent long-term groundwater mounding west of the quarry.

All the infiltration ponds and trenches will be re-graded and converted into appropriate future land uses, as outlined on the closure site plans. The southern portion of the site, west of the constructed wetland and Wetland NAT-19, will be re-graded so runoff and interflow can enter and support the constructed wetland. Any excess water in the constructed wetlands will be allowed to overflow into Wetland NAT-18.

In summary, the site will be returned to a condition restoring local and regional surface and groundwater conditions, with no need for any form of active water management.

3 Field Program

3.1 DRILLING AND MONITORING WELL INSTALLATION

The development of the Shelburne property has evolved since the licensing of the North Pit in 2001. Several groundwater monitoring well drilling and coring programs have been conducted since 2001. The drilling programs were designed to allow for a detailed characterization of the groundwater regimes and to enhance the understanding of the water level responses in the overburden and bedrock aquifer and aquitard systems to rainfall and snowmelt events as well as to overburden removal and pumping. The network has been upgraded and expanded to specifically support the ARA pit/quarry license application.

There is an extensive network of drilling and monitoring wells at the site, including monitor nests, core holes and pumping wells which are summarized in Table 1. The monitoring network is shown in Figure 9. Due to extraction activities, several of these wells are not active at the current time (either destroyed, pulled/decommissioned, or no longer accessible). There are currently 22 active groundwater well nest locations monitoring 30 discrete aquifer/aquitard intervals in the overburden and bedrock aquifers at the property.

In general, monitors labelled with an “A” suffix are screened at the base of the sand and gravel unit (water table aquifer). Monitors labelled with a “B” suffix are screened at the base of the Tavistock Till (just above the bedrock contact). Monitors labelled with a “C” suffix are constructed within the bedrock aquifer. Borehole logs for all the monitoring wells are included in Appendix A.

Key well data (Well ID, depth, screen setting, etc.) are presented in Table 1.

3.2 WATER LEVEL MEASUREMENTS

Groundwater monitoring on-site began in 2002. Over the course of the monitoring period, each monitoring well has been equipped with an automatic pressure transducer datalogger and is monitored continuously. The pressure transducer data is calibrated using manual groundwater measurements and corrected for barometric pressure.

A summary of the water levels for the A, B and C series monitoring wells are provided in Figures 10 to 12, and individual hydrographs are provided in Appendix B.

In general, the groundwater monitoring history shows a strong degree of seasonal response but a few monitors show a very muted response. The response is likely affected by changes in storage properties (i.e. specific yield) when the water table is mainly within the overlying till (as it is on the western boundary), within the weathered bedrock (center of the site), or deeper within the

bedrock (eastern boundary). Water levels and the local response to recharge events are also affected to some extent by soil stripping and gravel extraction operations

The groundwater levels in the A and B series wells are very similar with respect to measured water levels and trends. The groundwater levels in the C series wells tend to be about 0 to 4.0 m higher than those measured in the A and B series wells, with the exception of several monitors along the western site limit where the groundwater levels in the C series wells were about 3 to 15 m lower than those measured in the A and B series wells.

Table 1: Groundwater Monitoring Well Network

Current Well Nest ID	Current Well Monitor ID	2016 Pit Name	Status[2]	Well Tag Number	MECP ID	Easting	Northing	Survey Elevation (masl)[1]	Stick up (m)	Top of Casing (masl)	Borehole Depth (m)	Borehole Bottom Elevation (masl)	Top Monitor Depth (m)	Bottom Monitor Depth (m)	Top Monitor Elevation (masl)	Bottom Monitor Elevation (masl)
PW1	PW1	PW1	Inactive	A006812	17-06267	561425	4888246	503.37	0.48	503.85	48.76	454.61	20.11	48.76	483.26	454.61
OW1	OW1	OW1	Inactive	A006830	17-06269	561395	4888238	504.12	0.21	504.33	48.76	455.36	18.28	48.76	485.84	455.36
OW2	OW2A-08		Destroyed	A047161	71-06056	561215	4887224	509.69	0.55	510.24	25.60	484.09	7.05	10.10	502.64	499.59
OW2	OW2B-08		Destroyed	A047161	71-06056	561215	4887224	509.69	0.55	510.24	25.60	484.09	22.55	25.60	487.14	484.09
OW2-07	OW2C-07		Destroyed	A049591	70-43351	561218	4887224	509.48	0.64	510.12	72.24	437.24	26.52	72.24	482.96	437.24
OW3	OW3A-08		Dry	A047166	71-06057	561273	4886844	504.47	1.41	505.88	12.80	491.67	2.44	3.96	502.03	500.51
OW3	OW3B-08		Active	A047166	71-06057	561273	4886844	504.47	1.41	505.88	12.80	491.67	9.75	12.80	494.72	491.67
OW3-C	OW3C-07		Active	A049601	70-45010	561271	4886844	504.04	0.37	504.41	15.54	488.50	12.49	15.54	491.55	488.50
OW4	OW4A-08		Active	A047165	71-06048	561355	4886425	505.52	0.63	506.15	13.72	491.80	5.14	7.92	500.38	497.60
OW4	OW4B-08		Active	A047165	71-06048	561355	4886425	505.52	0.63	506.15	13.72	491.80	10.54	13.72	494.98	491.80
OW4-C	OW4C-07		Active	A049604	70-45013	561359	4886425	505.38	0.56	505.94	17.06	488.32	13.41	16.46	491.97	488.92
OW5	OW5A-08		Active	A047164	71-06047	561738	4886523	493.51	0.65	494.16	10.67	482.84	2.50	5.70	491.01	487.81
OW5	OW5B-08		Active	A047164	71-06047	561738	4886523	493.51	0.65	494.16	10.67	482.84	7.00	10.05	486.51	483.46
OW5-C	OW5-C		Active	A049603	70-45012	561738	4886520	493.61	0.69	494.30	13.10	480.51	10.00	13.10	483.61	480.51
OW6	OW6-A		Active	A146152	72-21960	561663	4886939	494.13	0.62	494.75	7.90	486.23	1.80	7.80	492.33	486.33
OW7-A	OW7-A		Active	A146161	72-21961	561771	4886674	497.18	0.64	497.82	10.15	487.03	2.13	10.05	495.05	487.13
OW7-C	OW7-C		Active	A133144	72-21962	561773	4886668	496.98	0.78	497.76	30.60	466.38	18.00	30.60	478.98	466.38
OW8	OW8-A		Active	A172376	72-39322	561282	4887057	504.93	0.94	505.87	12.60	492.33	4.00	12.00	500.93	492.93
OW9	OW9A-08		Dry	A047160	71-06055	561798	4887451	496.51	0.42	496.93	18.59	477.92	3.40	6.40	493.11	490.11
OW9	OW9B-08		Active	A047160	71-06055	561798	4887451	496.51	0.42	496.93	18.59	477.92	15.20	18.20	481.31	478.31
OW10	OW10A-08		Dry	A047162	71-06053	561632	4887297	495.45	0.57	496.02	19.51	475.94	2.00	3.00	493.45	492.45
OW10	OW10B-08		Active	A047162	71-06053	561632	4887297	495.45	0.57	496.02	19.51	475.94	16.00	19.20	479.45	476.25
OW11-A	OW11-A		Destroyed	A133145	72-21963	561574	4886478	494.70	1.20	495.90	16.50	478.20	2.90	8.60	491.80	486.10
OW11-C	OW11-C		Destroyed	A133145	72-21964	561578	4886480	494.80	1.20	496.00	16.50	478.30	13.50	16.50	481.30	478.30
OW12-A	OW12A-08		Active	A047149	71-06054	561882	4887192	495.70	0.87	496.57	7.62	488.08	4.57	7.62	491.13	488.08
OW12-B	OW12B-08		Active	A047149	71-06054	561882	4887190	495.13	0.53	495.66	21.64	473.49	17.98	21.03	477.15	474.10
OW13	OW13-A	MW1A	Active	--	--	561140	4887598	506.78	0.75	507.53	19.00	487.78	11.34	14.34	495.44	492.44
OW13	OW13-C	MW1B	Active	--	--	561140	4887598	506.78	0.75	507.53	19.00	487.78	15.94	18.94	490.84	487.84
OW14	OW14-A	MW2A	Dry	A006815	17-06268	561763	4887841	496.82	1.01	497.83	20.10	476.72	9.60	12.40	487.22	484.42
OW14	OW14-C	MW2B	Active	A006815	17-06268	561763	4887841	496.82	1.01	497.83	20.10	476.72	17.00	20.00	479.82	476.82
OW15	OW15-A	MW5A	Destroyed	A006826	17-06274	561431	4887669	510.48	1.13	511.61	30.80	479.68	18.00	20.50	492.48	489.98
OW15	OW15-C	MW5B	Destroyed	A006826	17-06274	561431	4887669	510.48	1.13	511.61	30.80	479.68	26.87	29.87	483.61	480.61
OW16-A	OW16-A		Active	A115091	71-85600	561726	4887994	497.06	0.56	497.62	11.81	485.25	10.29	11.81	486.77	485.25
OW16-C	OW16-C	MW8B	Active	A115091	71-85600	561726	4887993	497.11	0.56	497.67	27.30	469.81	8.00	27.30	489.11	469.81
OW17	OW17-B		Destroyed	A193020	72-79229	561472	4887382	502.61	1.00	503.61	27.50	475.11	20.40	23.60	482.21	479.01
OW17	OW17-C		Destroyed	A193020	72-79229	561472	4887382	502.61	1.00	503.61	27.50	475.11	24.30	27.50	478.31	475.11
OW18	OW18-A		Active	A193021	72-79230	561653	4887685	501.21	0.66	501.87	23.70	477.51	17.00	19.80	484.21	481.41
OW18	OW18-C		Active	A193021	72-79230	561653	4887685	501.21	0.66	501.87	23.70	477.51	20.40	23.70	480.81	477.51
OW19	OW19-A		Active	A218812	72-88078	561036	4888192	510.32	1.12	511.44	35.50	474.82	11.20	14.40	499.12	495.92
OW19	OW19-C		Active	A218813	72-88079	561036	4888192	510.32	1.12	511.44	35.50	474.82	34.00	35.50	476.32	474.82

Current Well Nest ID	Current Well Monitor ID	2016 Pit Name	Status	Well Tag Number	MECP ID	Easting	Northing	Survey Elevation (masl)[1]	Stick up (m)	Top of Casing (masl)	Borehole Depth (m)	Borehole Bottom Elevation (masl)	Top Monitor Depth (m)	Bottom Monitor Depth (m)	Top Monitor Elevation (masl)	Bottom Monitor Elevation (masl)
OW20	OW20-A		Dry	A218820	72-88077	561544	4888333	509.30	1.18	510.48	26.40	482.90	20.12	21.64	489.18	487.66
OW20	OW20-C		Active	A218819		561544	4888333	509.30	1.18	510.48	26.40	482.90	25.00	26.40	484.30	482.90
OW21	OW21-A		Dry	A218822	72-88038	561593	4888680	511.41	0.95	512.36	25.30	486.11	20.80	22.20	490.61	489.21
OW21	OW21-C		Active	A218823	72-88076	561593	4888680	511.41	0.95	512.36	25.30	486.11	23.60	25.30	487.81	486.11
OW22	OW22-A		Dry	A218821	A-218821	561384	4888890	513.66	1.01	514.67	27.50	486.16	22.80	24.30	490.86	489.36
OW22	OW22-C		Active	A218818	A-218818	561384	4888890	513.66	1.01	514.67	27.50	486.16	26.00	27.50	487.66	486.16
OW23	OW23-A		Dry	A218815	72-88037	560938	4888787	510.31	0.75	511.06	29.50	480.81	18.90	20.40	491.41	489.91
OW23	OW23-C		Active	A218816	72-88036	560938	4888787	510.31	0.75	511.06	29.50	480.81	27.90	29.50	482.41	480.81
Core #3	OW24-H		Inactive	A353622	A-353622	560965	4888558	508.90	0.41	509.31	71.02	437.88	25.00	71.02	483.90	437.88
Core #3	OW24-A		Active	A353622	A-353622	560965	4888558	508.90	0.41	509.31	71.02	437.88	27.52	30.57	481.38	478.33
Core #3	OW24-C		Active	A353622	A-353622	560965	4888558	508.90	0.41	509.31	71.02	437.88	63.64	66.69	445.26	442.21
Core #1	OW25-H		Inactive	A266920	17-04295	561648	4888161	490.62	0.68	491.30	50.47	440.15	4.00	50.47	486.62	440.15
Core #1	OW25-A		Active	A266920	17-04295	561648	4888161	490.62	0.68	491.30	50.47	440.15	16.18	19.23	474.44	471.39
Core #1	OW25-C		Active	A266920	17-04295	561648	4888161	490.62	0.68	491.30	50.47	440.15	43.03	46.08	447.59	444.54
Core #2	OW26-H		Inactive	A353621	A-353621	561231	4887427	499.22	0.40	499.62	62.41	436.81	25.00	62.41	474.22	436.81
Core #2	OW26-A		Active	A353621	A-353621	561231	4887427	499.22	0.40	499.62	62.41	436.81	27.36	30.41	471.86	468.81
Core #2	OW26-C		Active	A353621	A-353621	561231	4887427	499.22	0.40	499.62	62.41	436.81	51.83	54.88	447.39	444.34
OW27-C	OW27-C		Active	A391976	A-391976	560927	4888785	510.26	0.61	510.87	71.88	438.38	68.83	71.88	441.43	438.38
OW28-A	OW28-A		Active	A391975	A-391975	561602	4888675	511.51	1.05	512.56	37.18	474.33	34.13	37.18	477.38	474.33
OW28-C	OW28-C		Active	A391972	A-391972	561602	4888678	510.98	0.35	511.33	67.59	443.39	64.54	67.59	446.44	443.39
OW29-A	OW29-A		Active	A391974	A-391974	561413	4886532	499.80	0.98	500.78	25.96	473.84	22.91	25.96	476.89	473.84
OW29-C	OW29-C		Active	A391973	A-391973	561412	4886533	499.90	0.93	500.83	62.76	437.14	59.71	62.76	440.19	437.14
OW30	OW30-C		Active	A374686	A-374686	561634	4886901	494.35	0.60	494.95	56.62	437.73	53.57	56.62	440.78	437.73
Legacy wells included in compliance reports dating back to 2007. Ground elevation does not correspond to LiDAR nor to the most current survey but to elevations taken from compliance reports.																
MW3	MW3A-04	MW3A	Dry	A006796	17-06273	561740	4887987	508.33	0.70	509.03	22.86	485.47	23.39	26.43	484.94	481.90
MW3	MW3B-04	MW3B	Dry	A006796	17-06273	561740	4887987	508.33	0.70	509.03	22.86	485.47	29.18	32.23	479.15	476.10
MW4	MW4A-04	MW4A	Destroyed	A006827	17-06272	561230	4888243	510.28	0.91	511.19	24.07	486.21	13.64	16.40	496.64	493.88
MW4	MW4B-04	MW4B	Dry	A006827	17-06272	561230	4888243	510.28	0.91	511.19	24.07	486.21	18.53	21.58	491.75	488.70
MW7	MW7A-07		Destroyed	A047147	71-06065	561284	4887645	507.00	--	--	18.28	--	4.20	7.25	502.80	499.75
MW7	MW7B-07		Destroyed	A047147	71-06065	561284	4887645	507.00	--	--	18.28	--	14.26	17.31	492.74	489.69
MW9	MW9-A	MW9A	Destroyed	A115096	71-85598	561634	4887857	498.35	--	--	8.23	--	1.46	4.51	496.89	493.84
MW9	MW9-B	MW9B	Destroyed	A115096	71-85598	561634	4887857	498.35	--	--	8.23	--	4.81	7.86	493.54	490.49
MW10	MW10-A	MW10A	Destroyed	A115117	71-78110	561271	4887681	500.63	0.80	501.43	10.80	489.83	4.13	6.13	496.50	494.50
MW10	MW10-B	MW10B	Destroyed	A115117	71-78110	561271	4887681	500.63	0.80	501.43	10.80	489.83	7.63	10.43	493.00	490.20
Domestic wells currently involved in the Target Participation Area (TPA) for long-term monitoring. Elevation obtained from Provincial LiDAR coverage.																
DW1	DW1		Active	A000438	17-06362	562951	4886286	479.67	--	--	11.60	--	--	--	--	--
DW2	DW2		Active	A104771	71-99024	562704	4888248	482.36	--	--	44.80	--	--	--	--	--
DW3	DW3		Active	--	--	562373	4887677	493.92	--	--	--	--	--	--	--	--
DW4	DW4		Active	A051672	71-22047	562197	4890008	486.02	--	--	24.40	--	--	--	--	--
DW5	DW5		Active	--	--	559538	4889095	517.26	--	--	--	--	--	--	--	--

Notes: [1] Originally surveyed on the vertical datum CGVD28, then converted to CGVD13 using the Canada Geoid Model HT2_2010v70 (CGVD28), and the NAD83 Canada Molodensky Transformation.

[2] The ground elevations of destroyed monitoring locations were assumed to be in the CGVD28 datum and a gross conversion factor of (0.37m) was applied to the original elevations.

[3] (-H) Suffix refers to initial open hole condition at the borehole. A water level timeseries was measured during this period and labeled -H as well.

4 Maximum Predicted Water Table Elevation

A Predicted Maximum Groundwater Level map was prepared utilizing the highest groundwater elevations measured on-site to date. The highest groundwater elevations are shown on Figure 13.

The high groundwater in both the A/B and C Series wells range from 500.0 m asl towards the western limits of the property to 483.0 m asl towards the eastern limits of the property.

The quarry floor will be graded in a generally westerly direction with a maximum elevation 441.5 m asl to the west and 437.9 m asl to the east.

Figure 1: Proposed Strad Pit/Quarry Phase 1 Extraction Scenario

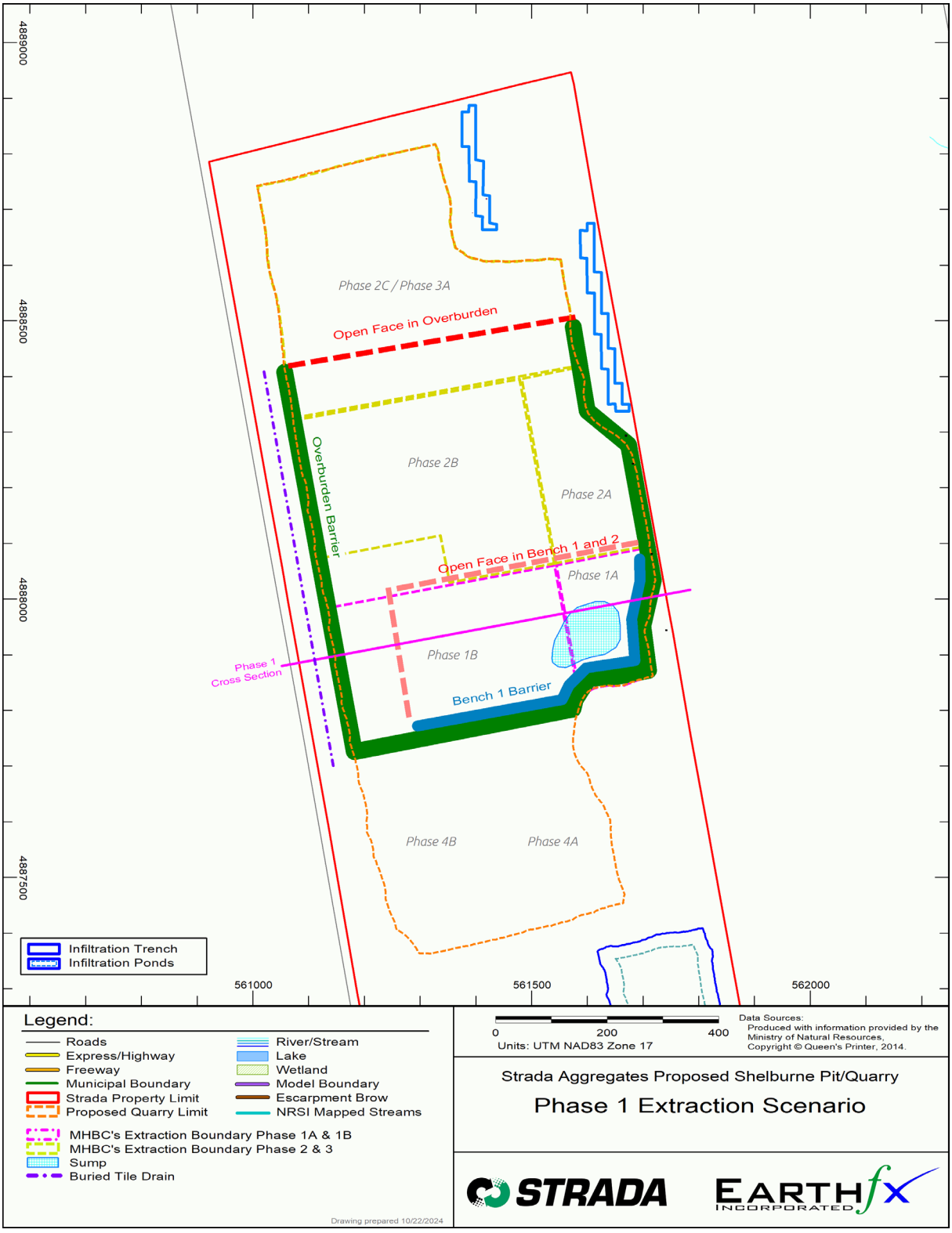


Figure 2: Proposed Strada Pit/Quarry Phase 1 Extraction Scenar-W Section

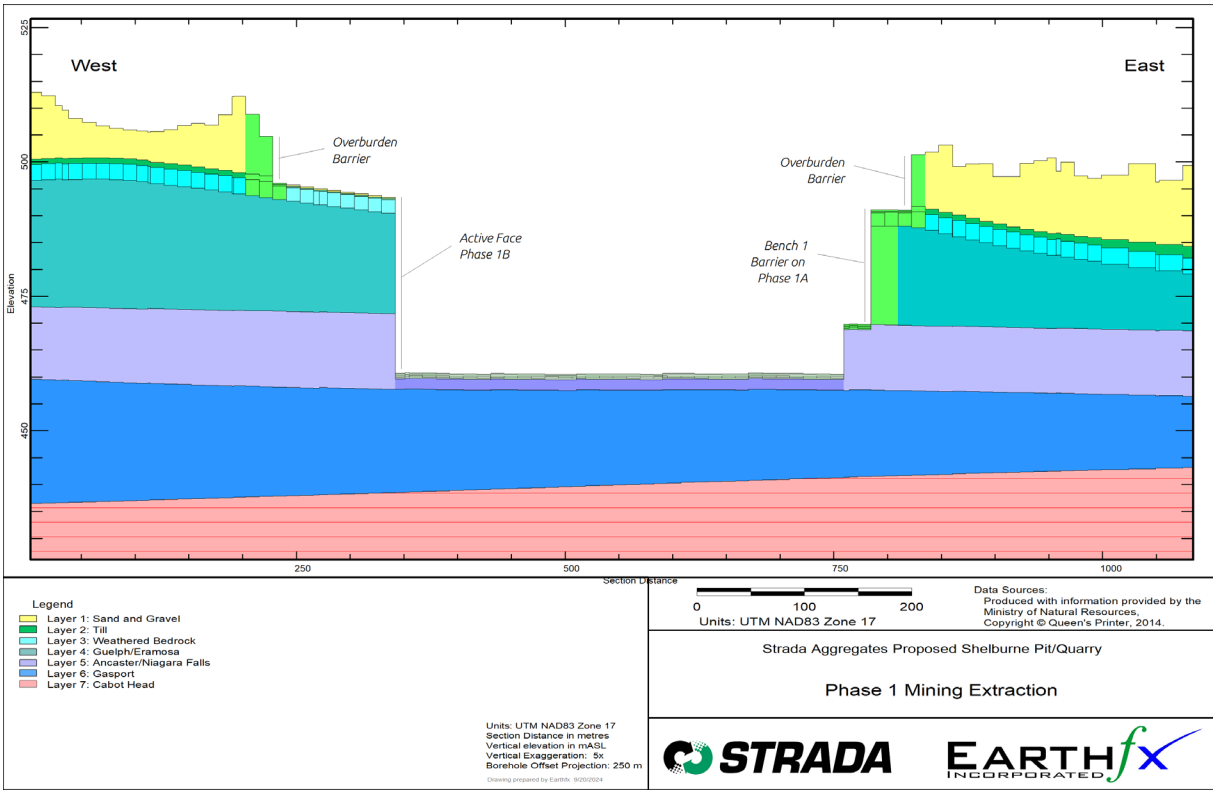


Figure 3: Proposed Strada Pit/Quarry Phase 2C Extraction Scenario

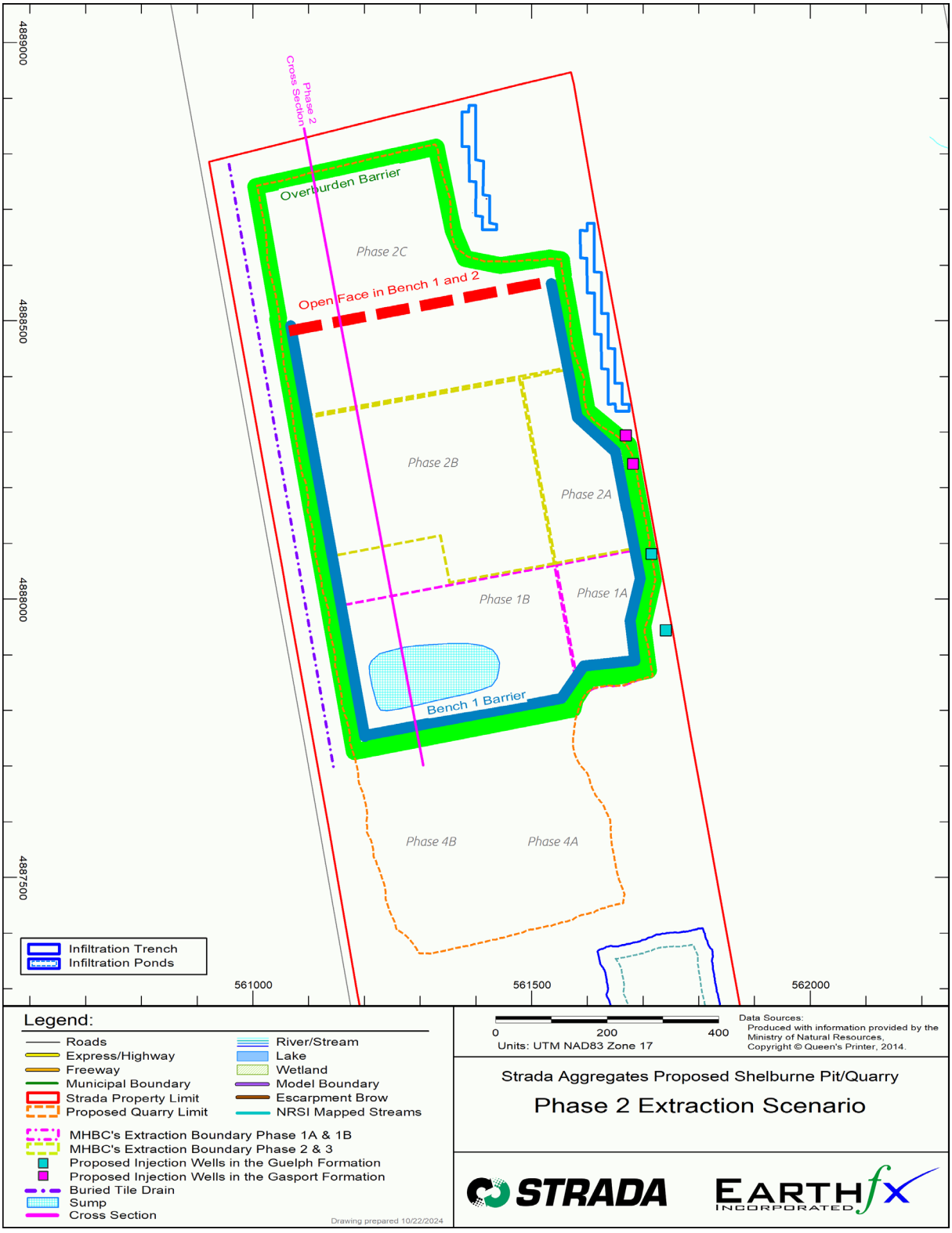


Figure 4: Proposed Strada Pit/Quarry Phase 2C Extraction Scenario N-S Section

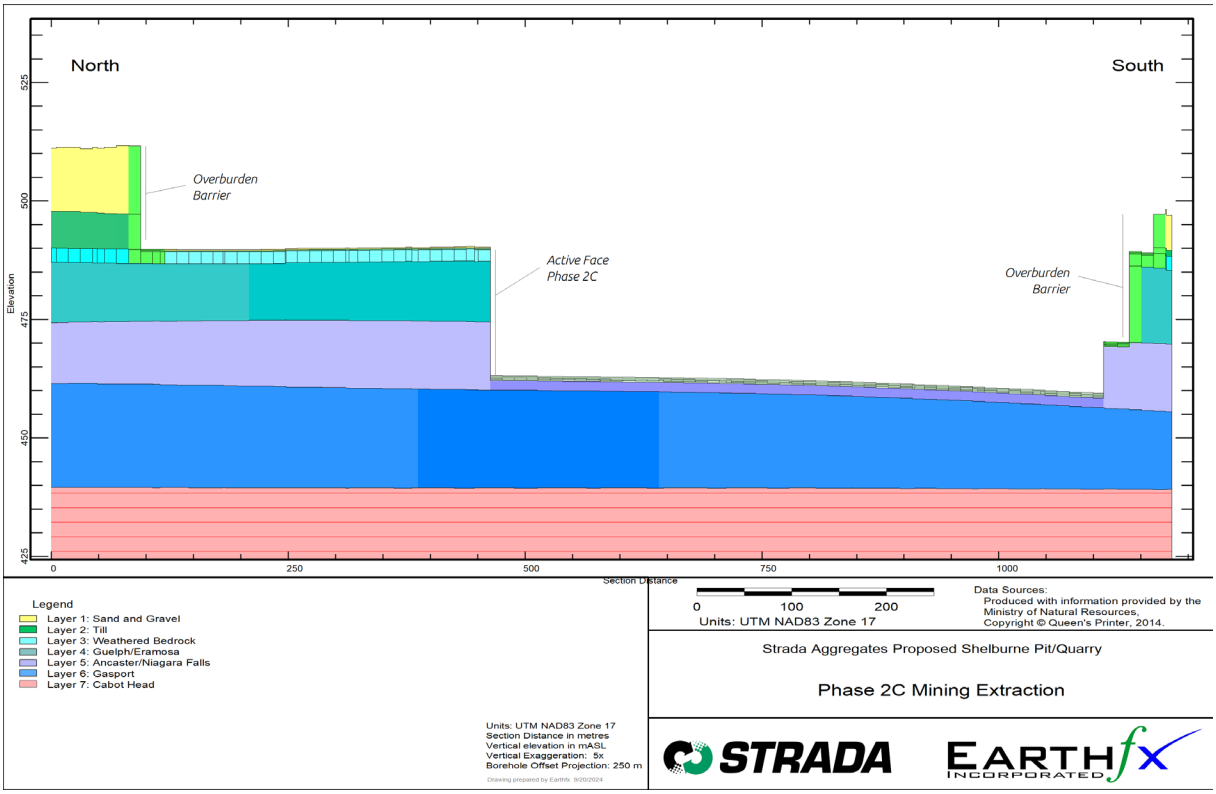


Figure 5: Proposed Strada Pit/Quarry Phase 4A Extraction Scenario

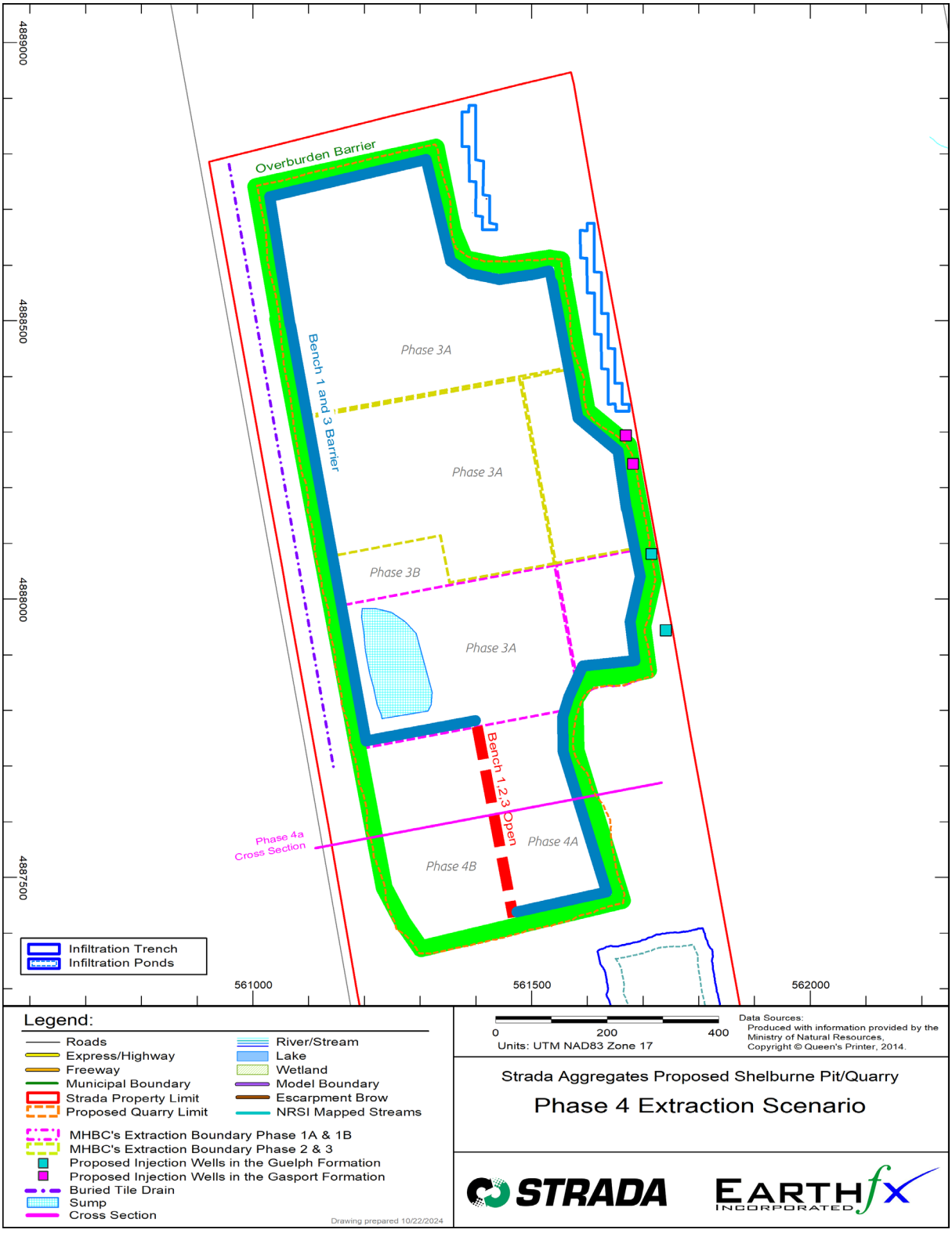


Figure 6: Proposed Strada Pit/Quarry Phase 4A Extraction Scenario N-S Section

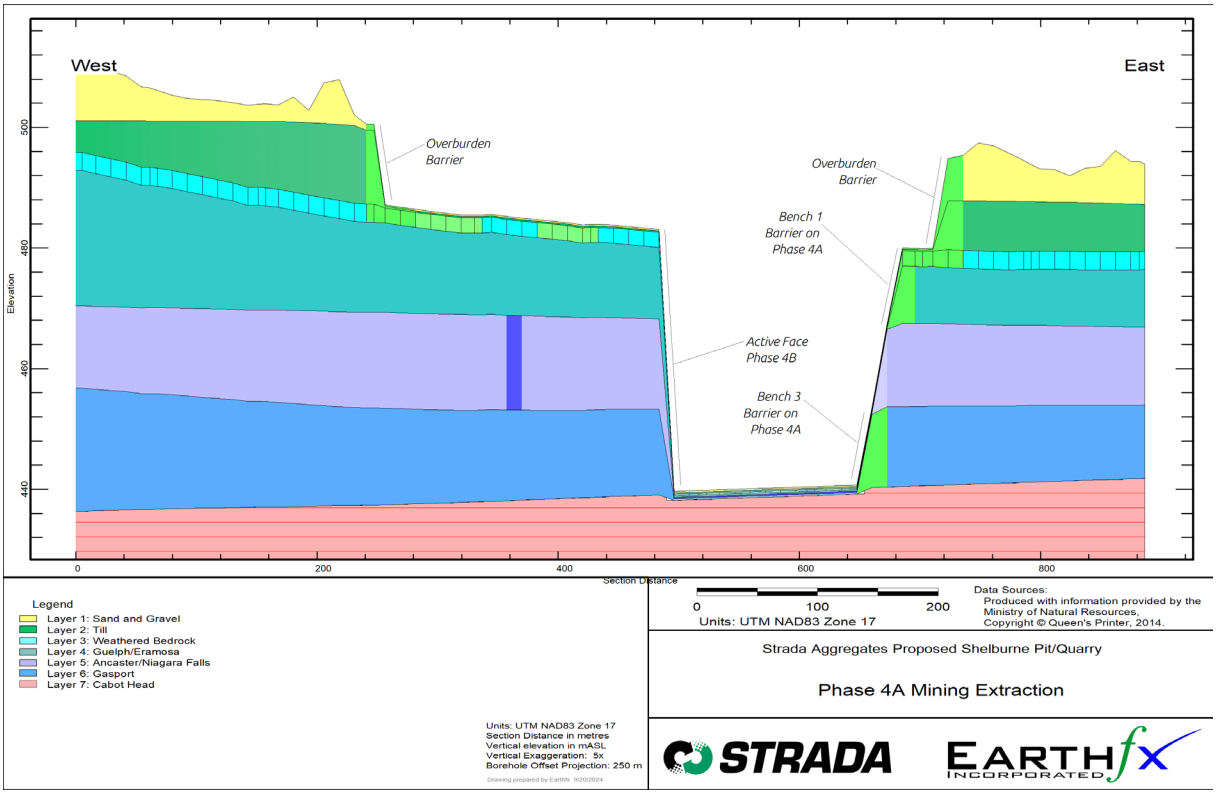


Figure 7: Proposed Strada Pit/Quarry Rehabilitation (Rehab) Scenario

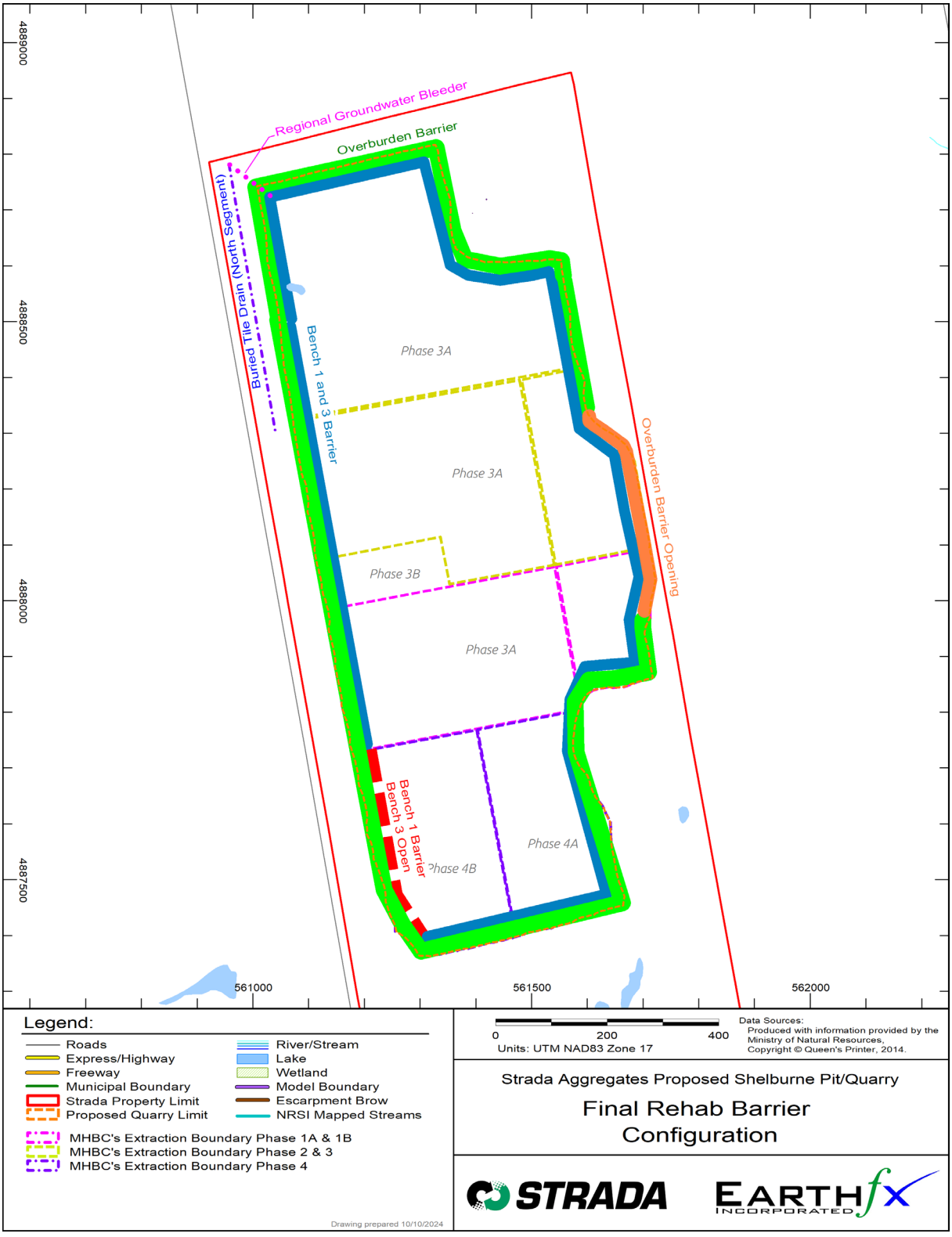


Figure 8: Proposed Strada Pit/Quarry Infiltration Features

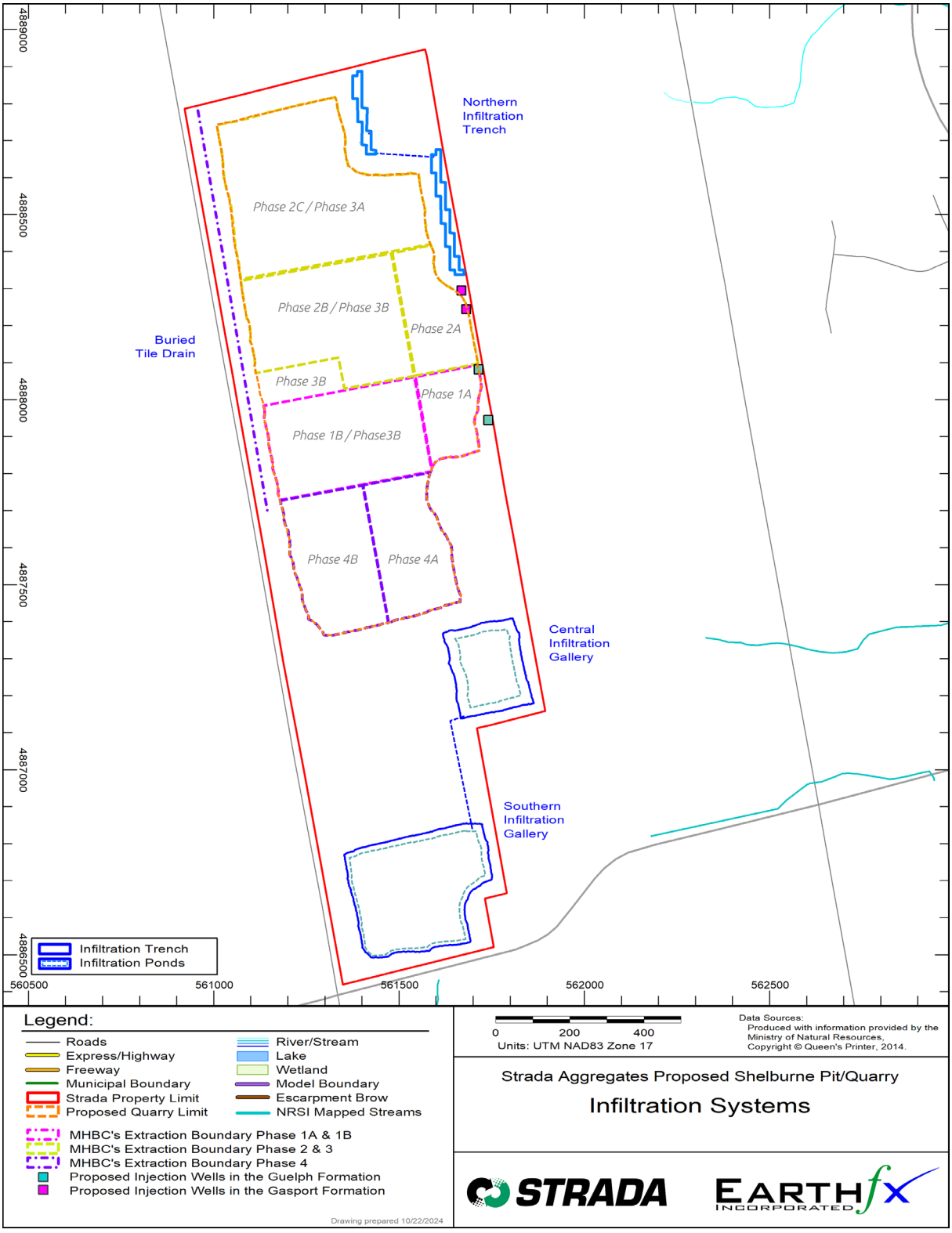


Figure 9: On-Site Groundwater Monitoring Wells

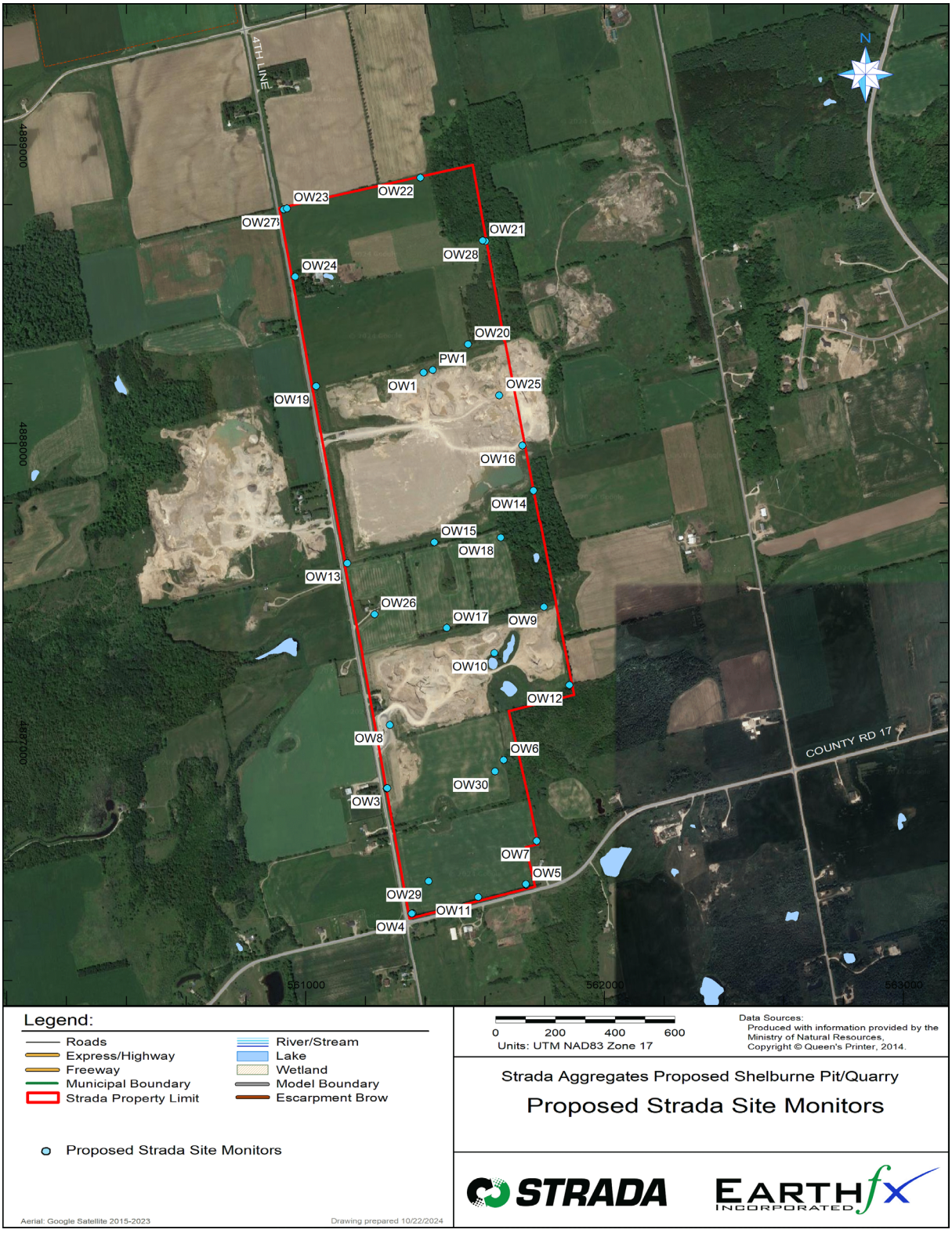


Figure 10: Hydrograph of Bedrock Water Levels (C Series) Across the Site

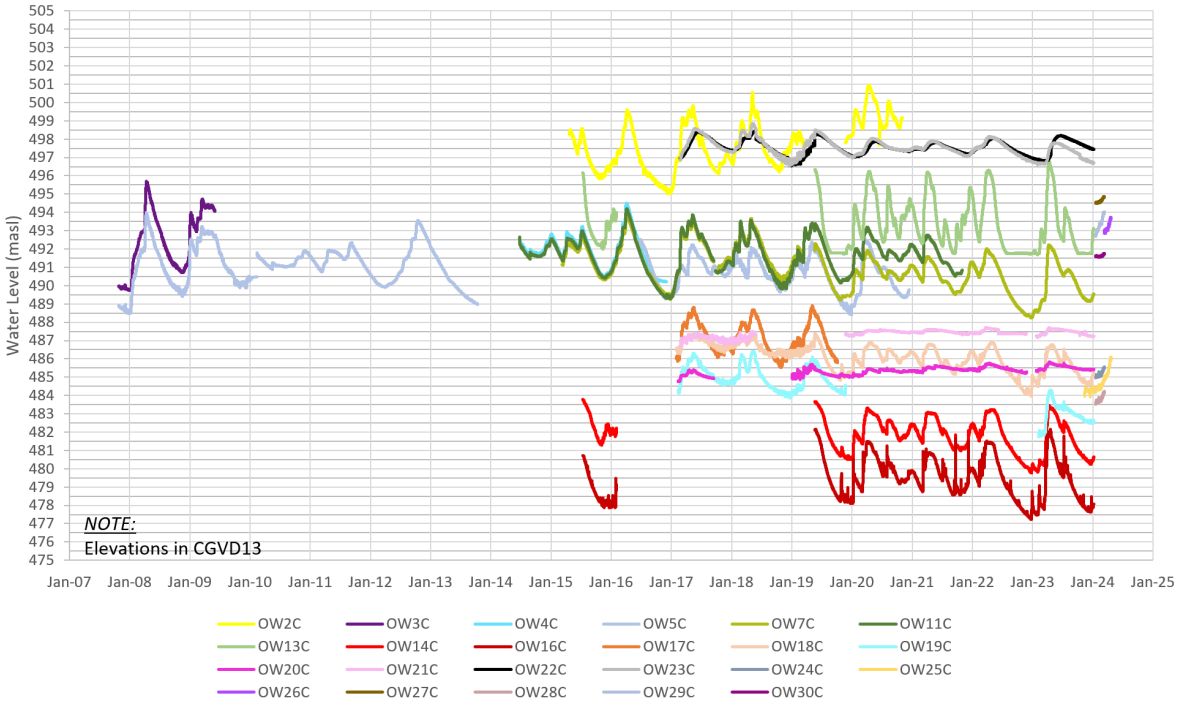


Figure 11: Hydrograph of Intermediate Series "B" Wells Across the Site

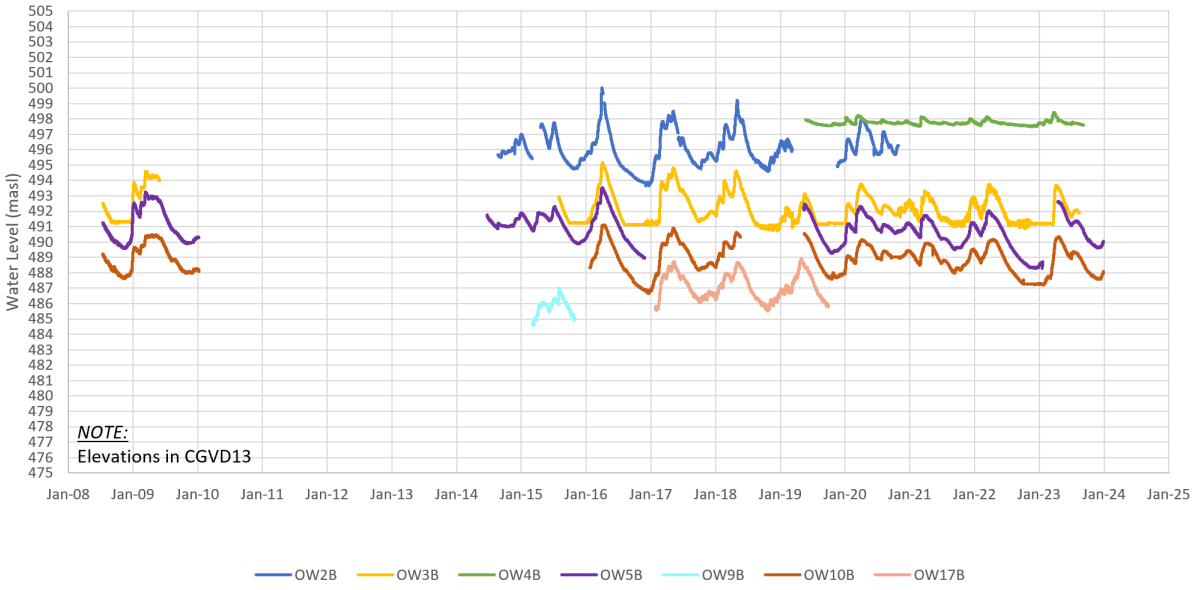
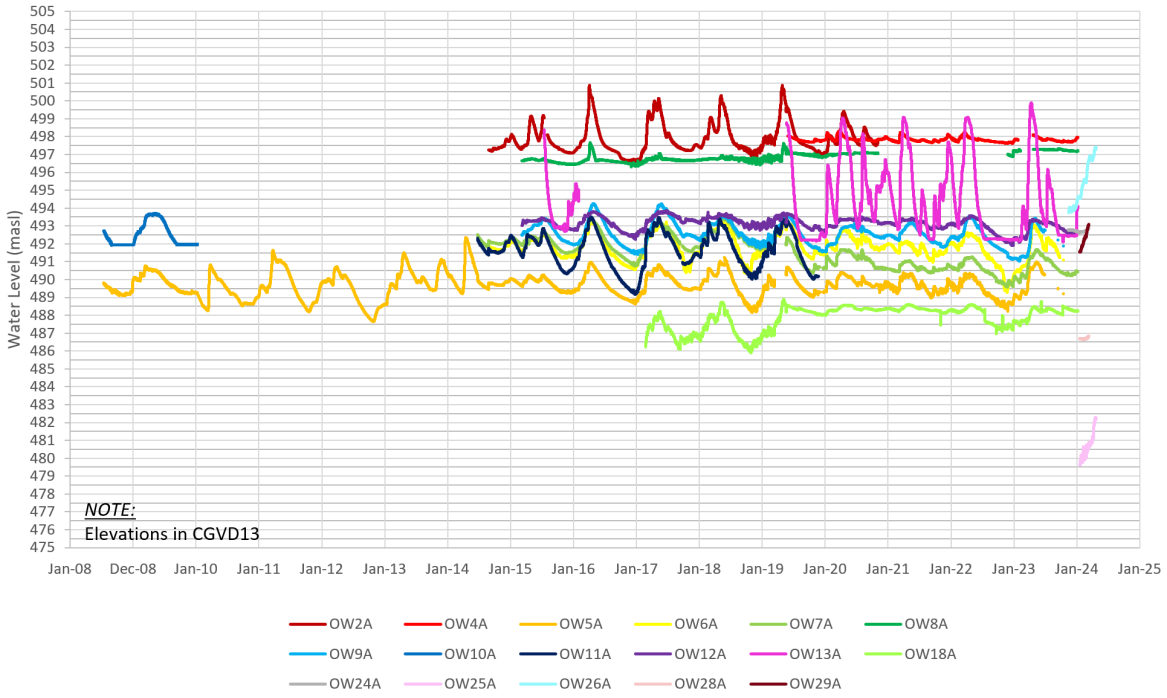


Figure 12: Hydrograph of Intermediate Series "A" Wells Across the Site



N

15th Sideroad

5th Line

4th Line

3rd Line

Rutledge Hts

County Road 17

PRINCE PROPERTY

MELANCTHON PIT #1

BONNEFIELD PROPERTY

MELANCTHON PIT #2

OW1 OW2 OW3 OW4 OW5 OW6 OW7 OW8 OW9 OW10 OW11 OW12 OW13 OW14 OW16 OW18 OW19 OW20 OW21 OW22 OW23 OW24 OW25 OW26 OW27 OW28 OW29 OW30

498 494 495 492 490 489 487 488 486 487 488 484 483 494 497 490 491 489 499 498 492 493 494 500 496 495 496 497

LEGEND

- SITE
- MONITORING WELLS
- PREDICTED GROUNDWATER COMBINED

NOTES:

1. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N
2. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENSE – ONTARIO.

0 250 500 1,000 METERS

TATHAM ENGINEERING

STRADA AGGREGATES PROPOSED SHELBURNE PIT/QUARRY
PREDICTED MAXIMUM GROUNDWATER LEVEL

DWG. No. **FIG-13**

SCALE: 1:12,000 | DRAWN: AO | DATE: JAN. 2025 | JOB NO. 123016

I:\2023 Projects\123016 - Strada - Shelburne\GIS\GIS Models\123016 - Strada - Shelburne\123016 - Strada - Shelburne.aprx

Appendix A:
Borehole Logs

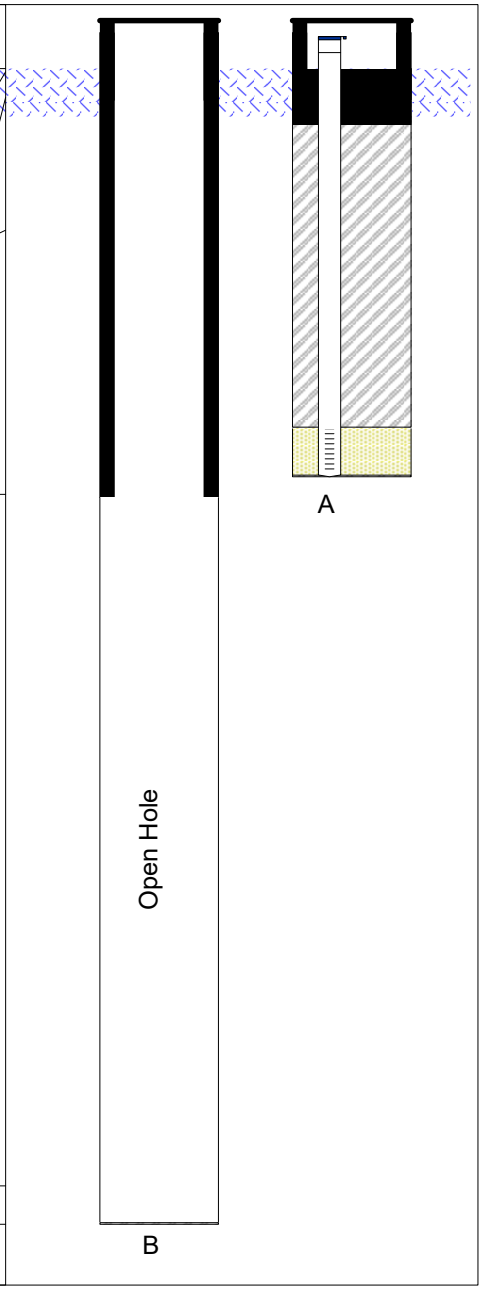
TATHAM ENGINEERING

Project Name: Melancthon Pit #2

Well ID: OW2

Depth (m)	Elevation (masl)	Lithology	Lithology Description
0	508		TOP SOIL
4	504		SILTY SAND: Brown, occassional stone, loose, dry
8	500		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet
12	496		
16	492		TAVISTOCK TILL: Grey, clay with stones, dense to soft, damp
20	488		
24	484		
28	480		
32	476		
36	472		
40	468		
44	464		
48	460		GUELPH FORMATION: Dolostone, buff to white, fossiliferous
52	456		
56	452		
60	448		
64	444		
68	440		
72	436		CABOT HEAD SHALE: Green, soft, damp
76	432		

Well Construction Diagram



Drilling Date: March 2007 / April 2008

Drilling Company: Keith Lang Drilling

STRADA AGGREGATES

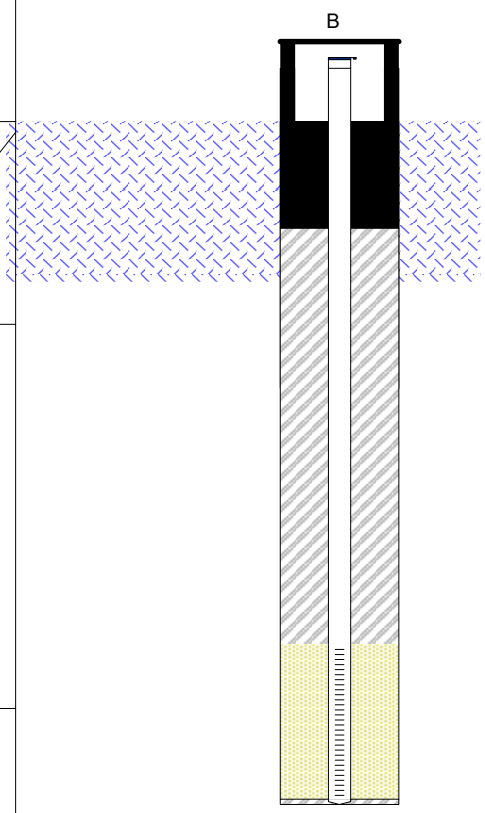
Location: Township of Melancthon
Easting: 561,689
Northing: 4,887,097

TATHAM ENGINEERING

Project Name: Melancthon Pit #2

Well ID: OW3

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
-2	506			
0	504		TOP SOIL	
2	502		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet	
4	500			
6	498		TAVISTOCK TILL: Grey, clay with stones, dense to soft, damp	
8	496			
10	494			
12	492		GUELPH FORMATION: Dolostone, buff to white, fossiliferous, weathered upper surface of bedrock	
14	490			
16	488			
18	486			
20				



Drilling Date: March 2007 / April 2008

Drilling Company: Keith Lang Drilling

Location: Township of Melancthon
Easting: 561,272
Northing: 4,886,849

STRADA AGGREGATES

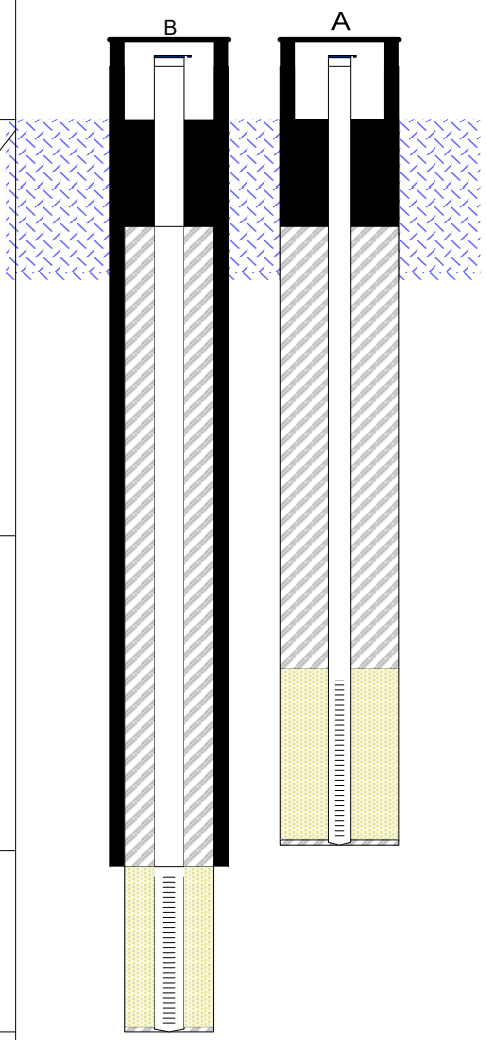
TATHAM ENGINEERING

Project Name: Melancthon Pit #2

Well ID: OW4

Depth (m)	Elevation (masl)	Lithology	Lithology Description
-2	508		
0	506		TOP SOIL
2	504		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet
4	502		
6	500		
8	498		SILTY SAND: Brown, occassional stone, loose, dry
10	496		
12	494		
14	492		GUELPH FORMATION: Dolostone, buff to white, fossiliferous, weathered upper surface of bedrock
16	490		
18	488		
20	486		

Well Construction Diagram



Drilling Date: March 2007 / April 2008

Drilling Company: Keith Lang Drilling

STRADA AGGREGATES

Location: Township of Melancthon
Easting: 561,313
Northing: 4,886,400

TATHAM ENGINEERING

Project Name: Melancthon Pit #2

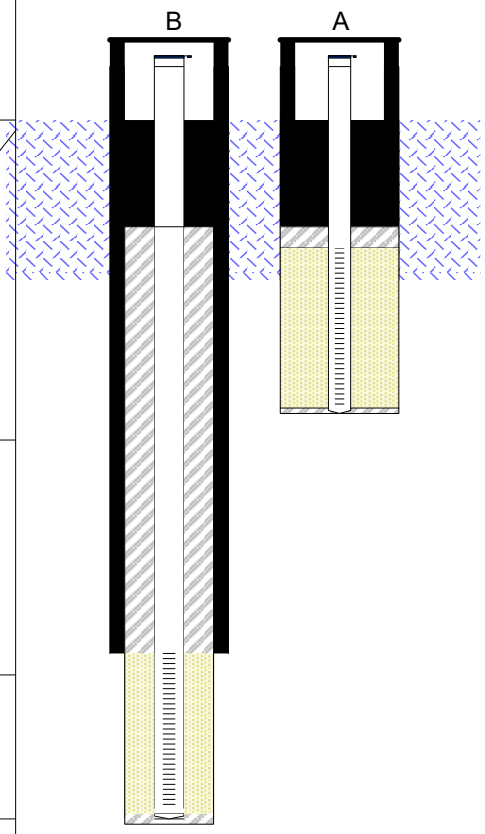
Well ID: OW5

Depth (m)	Elevation (masl)	Lithology	Lithology Description
0	494		TOP SOIL
2	492		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet
6	488		TAVISTOCK TILL: Grey, clay with stones, dense to soft, damp
10	484		GUELPH FORMATION: Dolostone, buff to white, fossiliferous, weathered upper surface of bedrock

-4, -2, 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20

496, 494, 492, 490, 488, 486, 484, 482, 480, 478, 476, 474

Well Construction Diagram



Drilling Date: March 2007 / April 2008

Drilling Company: Keith Lang Drilling

STRADA AGGREGATES

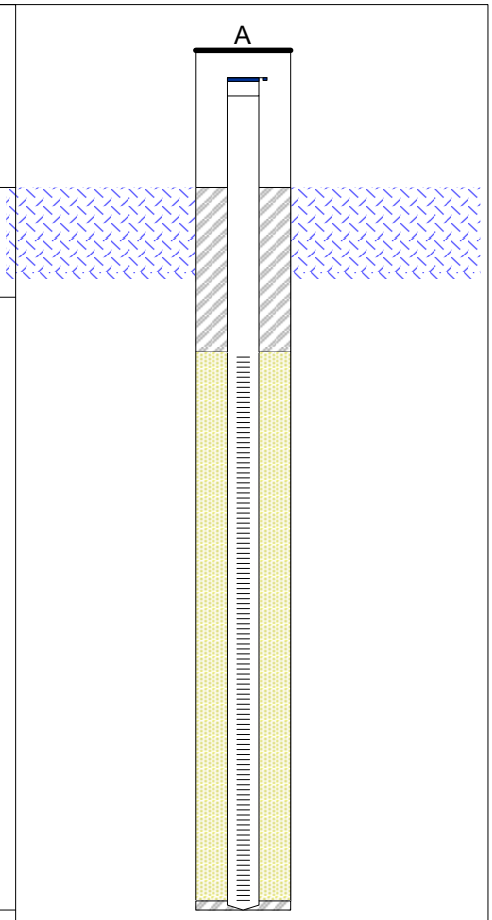
Location: Township of Melancthon
Easting: 561,742
Northing: 4,886,523

TATHAM ENGINEERING

Project Name: Melancthon Pit #2

Well ID: OW6

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
-2	497			
-1	496			
0	495			
1	494		SILTY SAND: Brown, occassional stone, loose, dry	
2	493			
3	492			
4	491		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet	
5	490			
6	489			
7	488			
8	487			
9	486			
10	485			
11	484			
12	483			



Drilling Date: Jun-15

Drilling Company: Keith Lang Drilling

Location: Township of Melancthon

Easting: 561,660

Northing: 4,886,939

STRADA AGGREGATES

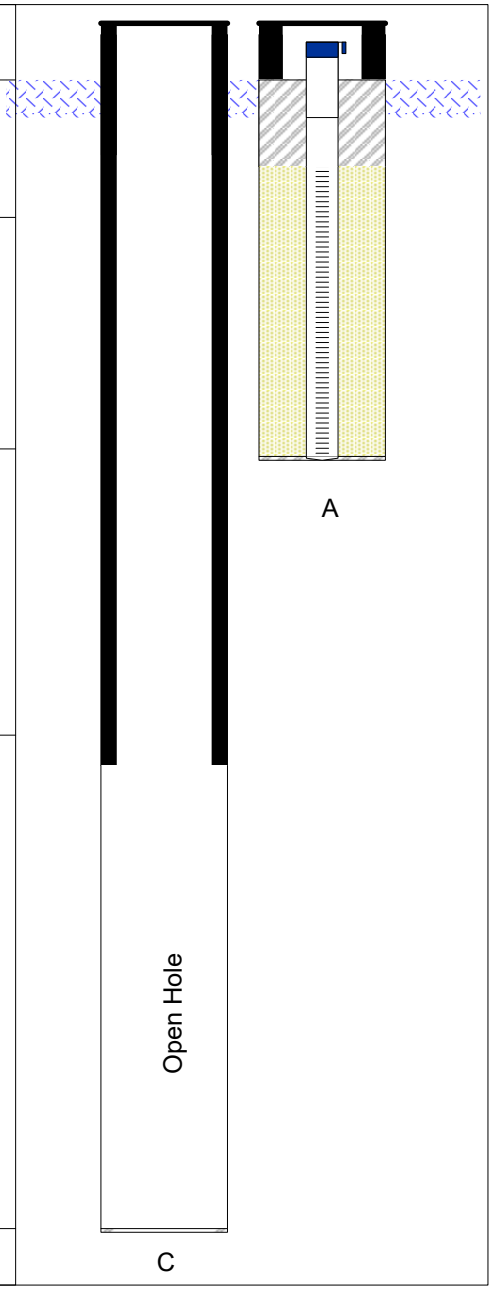
TATHAM ENGINEERING

Project Name: Melancthon Pit #2

Well ID: OW7

Depth (m)	Elevation (masl)	Lithology	Lithology Description
-2	498		
0	496		SILTY SAND: Brown, occassional stone, loose, dry
2	494		
4	492		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet
6	490		
8	488		
10	486		TAVISTOCK TILL: Grey, clay with stones, dense to soft, damp
12	484		
14	482		
16	480		
18	478		GUELPH FORMATION: Dolostone, buff to white, fossiliferous, weathered upper surface of bedrock
20	476		
22	474		
24	472		
26	470		
28	468		
30	466		
32			

Well Construction Diagram



Drilling Date: Jun-15

Drilling Company: Keith Lang Drilling

Location: Township of Melancthon

Easting:

Northing:

STRADA AGGREGATES

TATHAM ENGINEERING

Project Name: Melancthon Pit #2

Well ID: OW8

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
-2 to 14	497 to 482		SILTY SAND: Brown, occassional stone, loose, dry	A
			SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet	

Drilling Date: Jun-15

Drilling Company: Lantech Drilling Services

Location: Township of Melancthon
Easting: 561,881
Northing: 4,887,192

STRADA AGGREGATES

TATHAM ENGINEERING

Project Name: Melancthon Pit #2

Well ID: OW9

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
-2	498			
0	496		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet	A
2	494			
4	492			
6	490			
8	488		TAVISTOCK TILL: Grey, clay with stones, dense to soft, damp	
10	486			
12	484			
14	482			
16	480			
18	478		GUELPH FORMATION: Dolostone, buff to white, fossiliferous, weathered upper surface of bedrock	
20	476			
22				

Drilling Date: March 2007 / April 2008

Drilling Company: Keith Lang Drilling

STRADA AGGREGATES

Location: Township of Melancthon
Easting: 561,806
Northing: 4,887,468

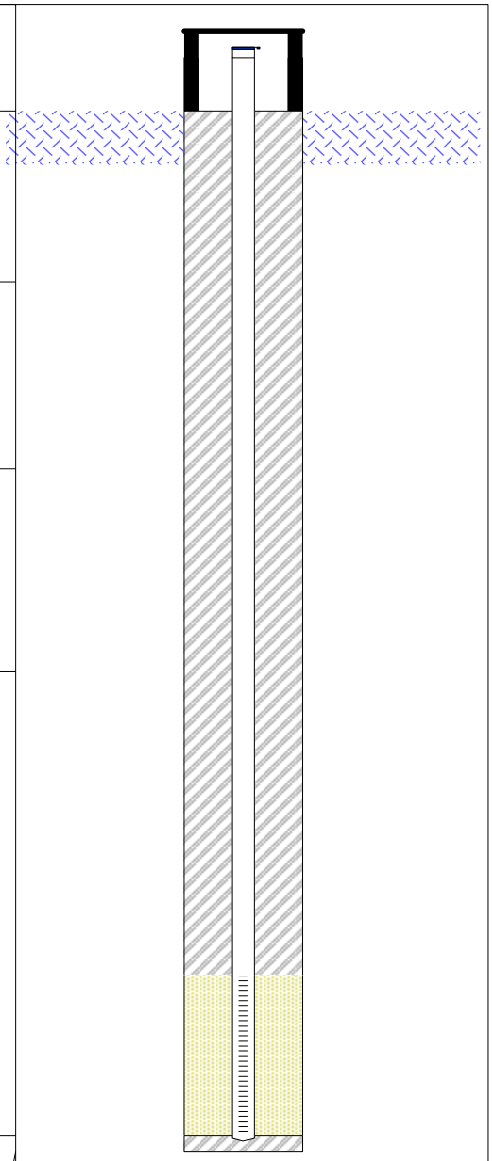
TATHAM ENGINEERING

Project Name: Melancthon Pit #2

Well ID: OW10

Depth (m)	Elevation (masl)	Lithology	Lithology Description
0	496		
2	494		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet
4	492		SILTY CLAY: Brown, compact, moist
6	490		
8	488		SILTY SAND: Brown, occassional stone, loose, dry
10	486		
12	484		TAVISTOCK TILL: Grey, clay with stones, dense to soft, damp
14	482		
16	480		
18	478		
20	476		GUELPH FORMATION: Dolostone, buff to white, fossiliferous, weathered upper surface of bedrock
22	474		

Well Construction Diagram



Drilling Date: March 2007 / April 2008

Drilling Company: Keith Lang Drilling

STRADA AGGREGATES

Location: Township of Melancthon
Easting: 561,628
Northing: 4,887,239

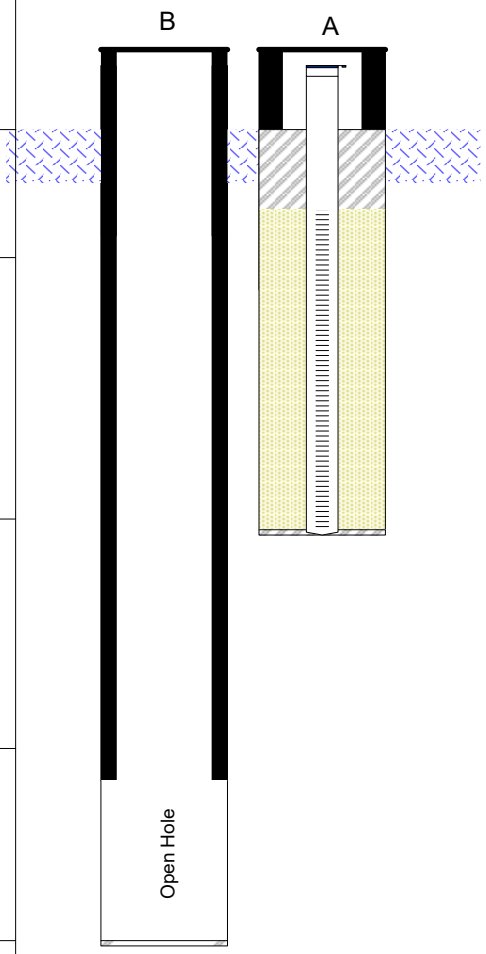
TATHAM ENGINEERING

Project Name: Melancthon Pit #2

Well ID: OW11

Depth (m)	Elevation (masl)	Lithology	Lithology Description
0	498		
2	496		
4	494		SILTY SAND: Brown, occassional stone, loose, dry
6	492		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet
8	490		
10	488		
12	486		TAVISTOCK TILL: Grey, clay with stones, dense to soft, damp
14	484		
16	482		GUELPH FORMATION: Dolostone, buff to white, fossiliferous, weathered upper surface of bedrock
18	480		
20	478		
22	476		

Well Construction Diagram



Drilling Date: Jun-15

Drilling Company: Keith Lang Drilling

STRADA AGGREGATES

Location: Township of Melancthon

Easting: 561,571

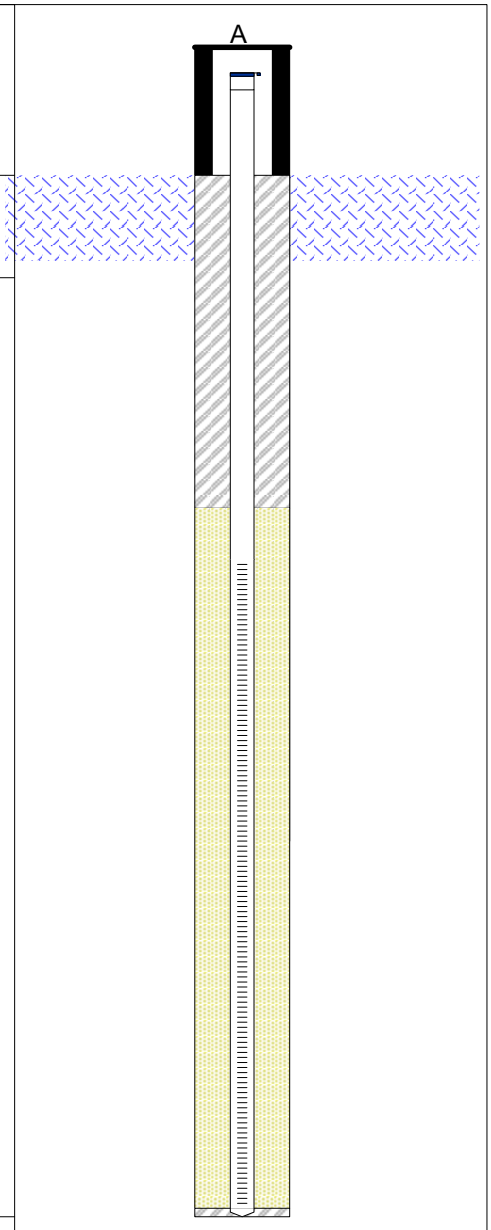
Northing: 488,477

TATHAM ENGINEERING

Project Name: Melancthon Pit #2

Well ID: OW12

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
-2				
-1	507			
0	506		SILTY SAND: Brown, occassional stone, loose, dry	
1	505			
2	504		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet	
3	503			
4	502			
5	501			
6	500			
7	499			
8	498			
9	497			
10	496			
11	495			
12	494			
13	493			



Drilling Date: Jun-15

Drilling Company: Lantech Drilling Services

STRADA AGGREGATES

Location: Township of Melancthon

Easting: 561,282

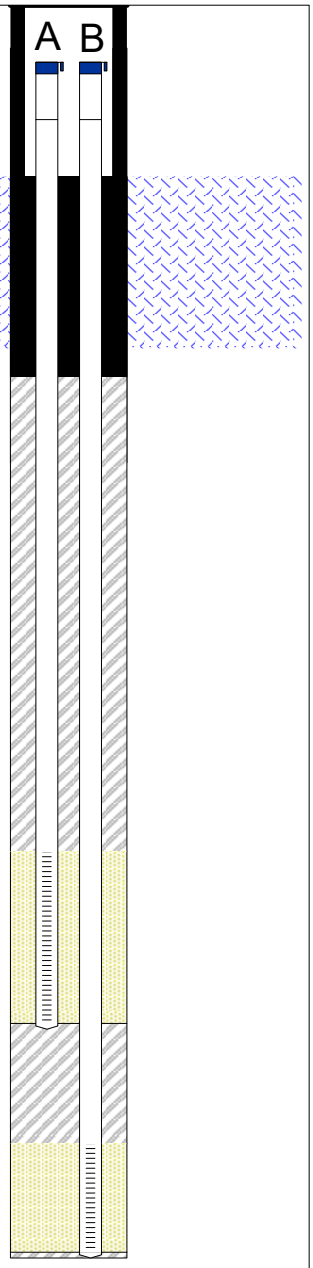
Northing: 4,887,057

TATHAM ENGINEERING

Project Name: Melancthon Pit #1

Well ID: OW13

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
0	506		TOP SOIL	
2	504		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet	
6	500		TAVISTOCK TILL: Grey, clay with stones, dense to soft, damp	
14	492		GUELPH FORMATION: Dolostone, buff to white, fossiliferous	
20	488			



Drilling Date: Dec-01

Drilling Company: Keith Lang Drilling

STRADA AGGREGATES

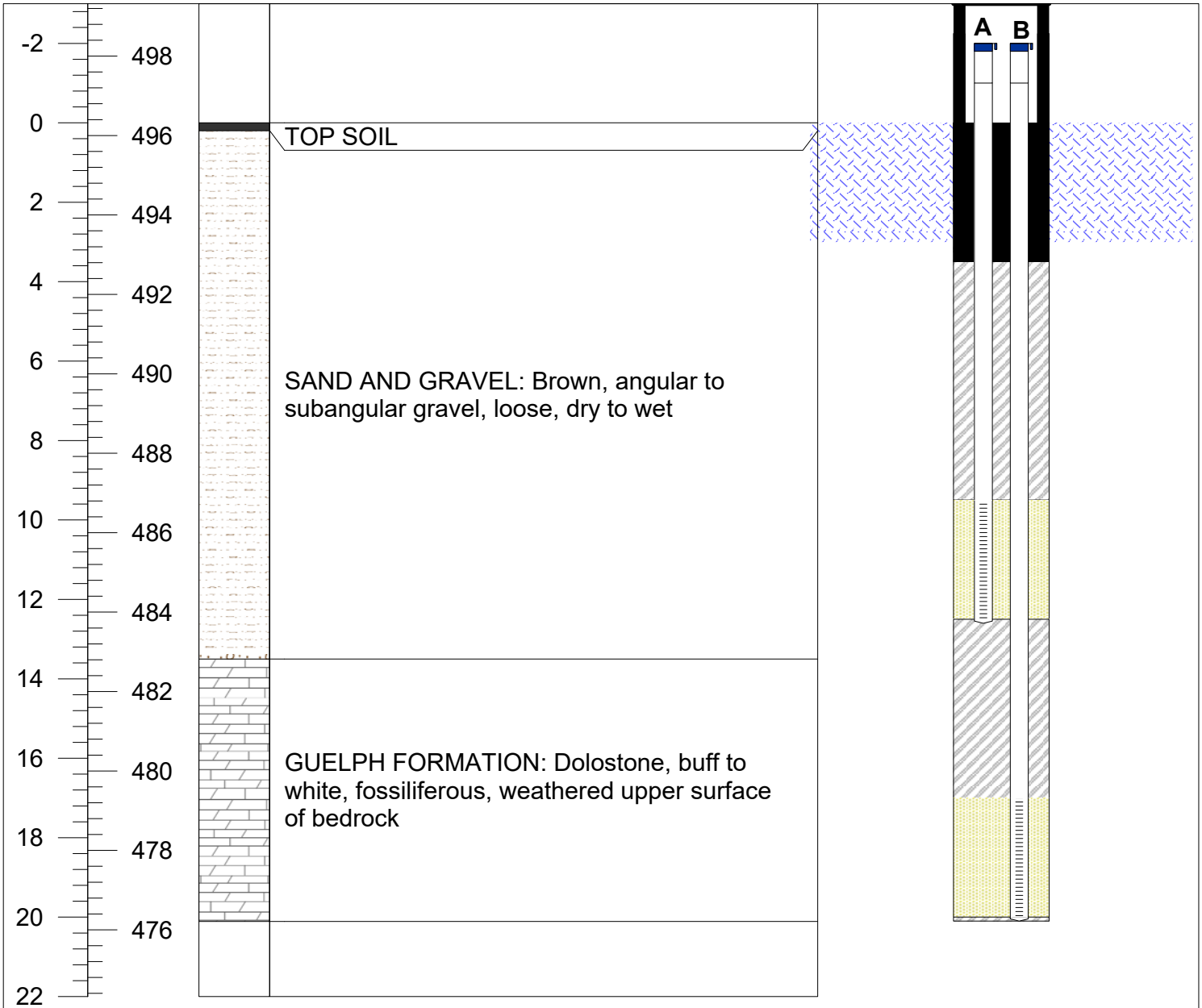
Location: Township of Melancthon
Easting: 561,145
Northing: 4,887,604

TATHAM ENGINEERING

Project Name: Melancthon Pit #1

Well ID: OW14

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
0	496		TOP SOIL	
6	490		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet	
14	482		GUELPH FORMATION: Dolostone, buff to white, fossiliferous, weathered upper surface of bedrock	



Drilling Date: Aug-04

Drilling Company: Keith Lang Drilling

Location: Township of Melancthon

Easting: 561,769

Northing: 4,887,847

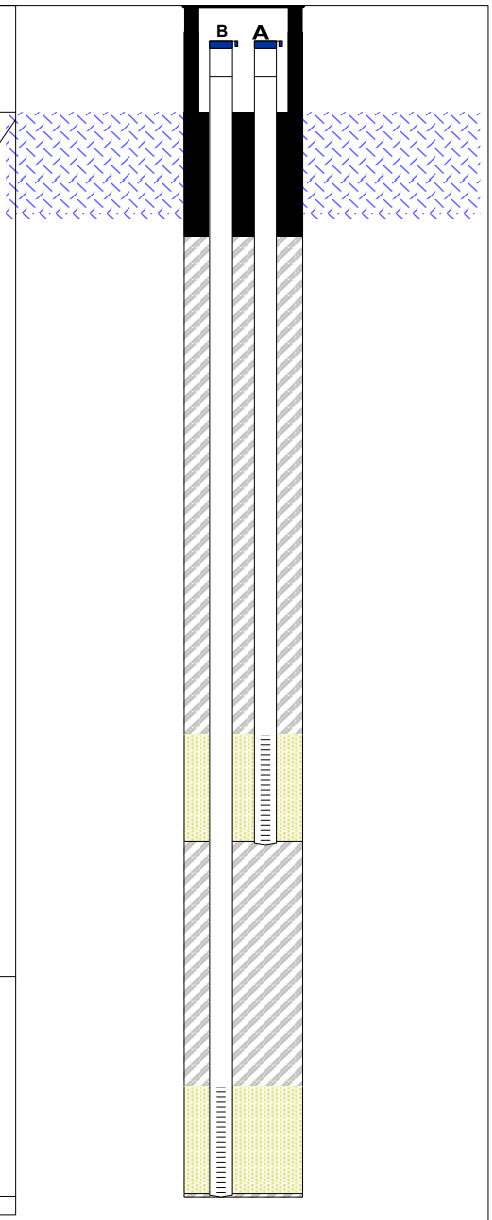
STRADA AGGREGATES

TATHAM ENGINEERING

Project Name: Melancthon Pit #1

Well ID: OW15

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
-2	512			
0	510		TOP SOIL	
2	508			
4	506			
6	504			
8	502			
10	500			
12	498		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet	
14	496			
16	494			
18	492			
20	490			
22	488			
24	486			
26	484		GUELPH FORMATION: Dolostone, buff to white, fossiliferous, weathered upper surface of bedrock	
28	482			
30	480			



Drilling Date: Aug-04

Drilling Company: Keith Lang Drilling

STRADA AGGREGATES

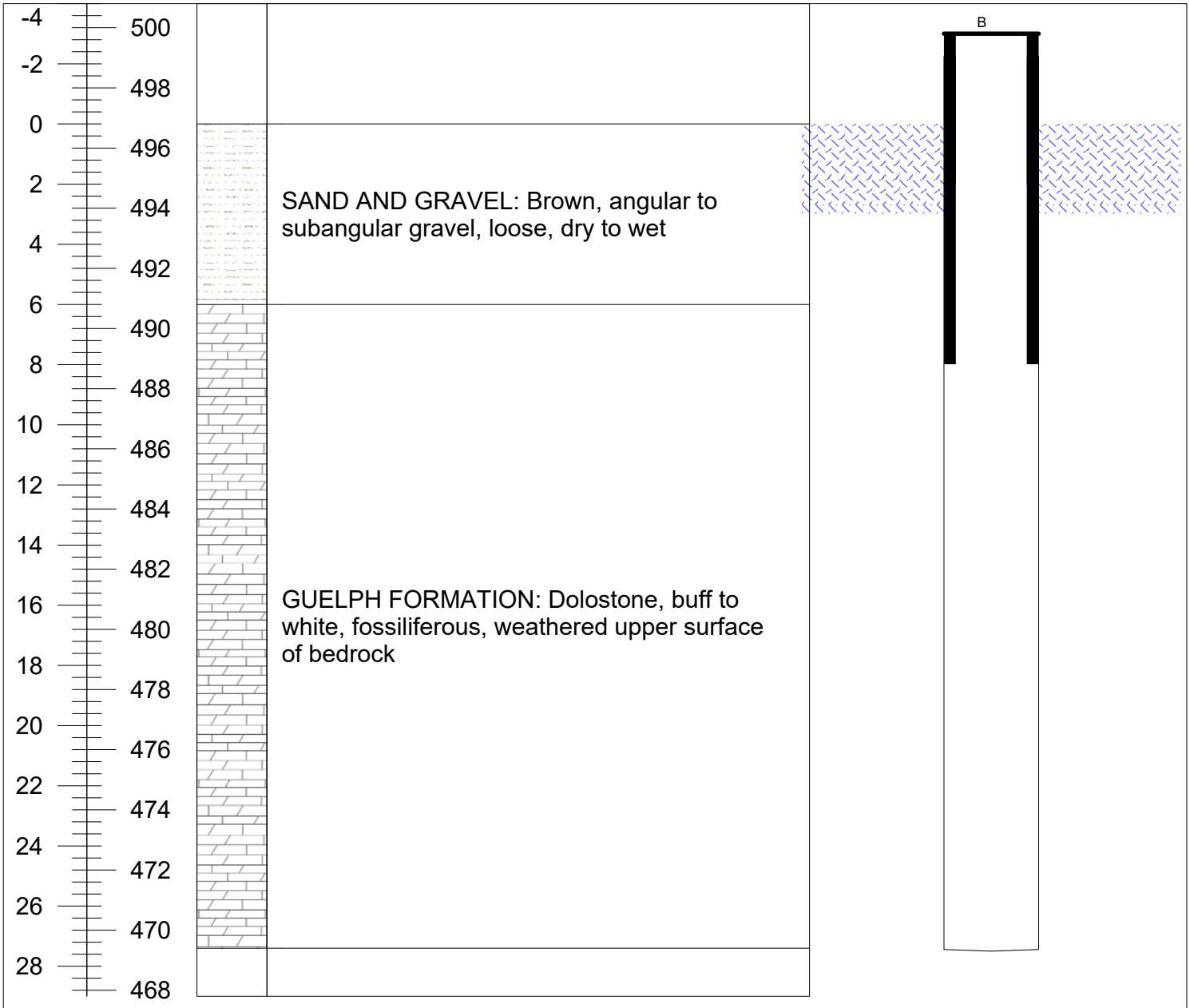
Location: Township of Melancthon
Easting: 561,431
Northing: 4,887,669

TATHAM ENGINEERING

Project Name: Melancthon Pit #1

Well ID: OW16

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
-4 to 28	500 to 468		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet	B
			GUELPH FORMATION: Dolostone, buff to white, fossiliferous, weathered upper surface of bedrock	



Drilling Date: Jun-12

Drilling Company: Keith Lang Drilling

STRADA AGGREGATES

Location: Township of Melancthon

Easting:

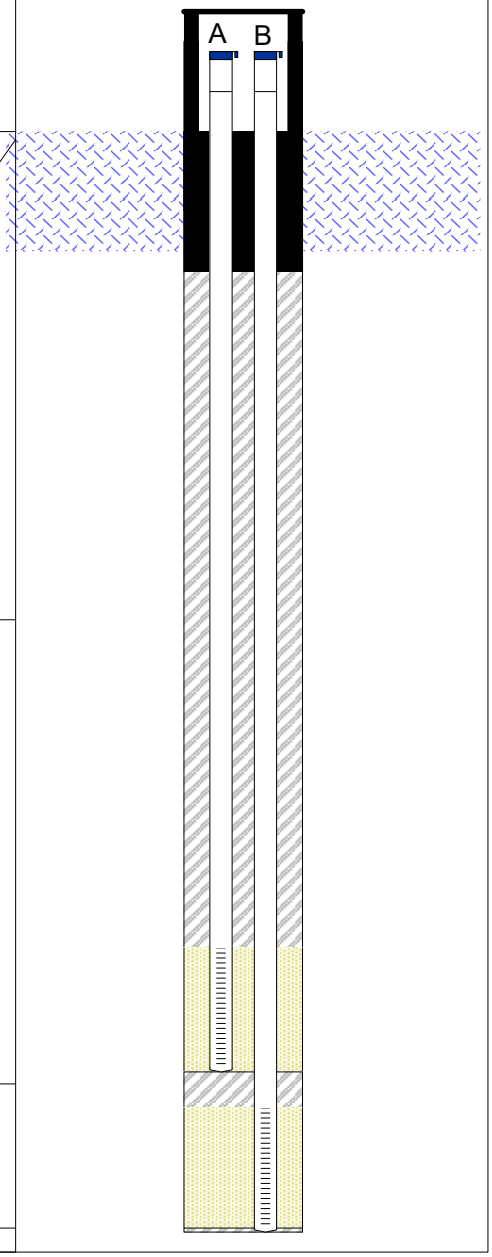
Northing:

TATHAM ENGINEERING

Project Name: Bonnefiel Pit #3

Well ID: OW17

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
-4 to 0	506 to 502		TOP SOIL	
0 to 12	502 to 490		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet	
12 to 24	490 to 478		TAVISTOCK TILL: Grey, clay with stones, dense to soft, damp	
24 to 28	478 to 476		GUELPH FORMATION: Dolostone, buff to white, fossiliferous	



Drilling Date: 28-Sep

Drilling Company: Keith Lang Drilling

STRADA AGGREGATES

Location: Township of Melancthon
Easting: 561,472
Northing: 4,887,382

TATHAM ENGINEERING

Project Name: Bonnefiel Pit #3

Well ID: OW18

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
-4 to 24	504 to 478		TOP SOIL SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet TAVISTOCK TILL: Grey, clay with stones, dense to soft, damp GUELPH FORMATION: Dolostone, buff to white, fossiliferous	A, B

Drilling Date: 28-Sep

Drilling Company: Keith Lang Drilling

Location: Township of Melancthon

Easting: 561,653

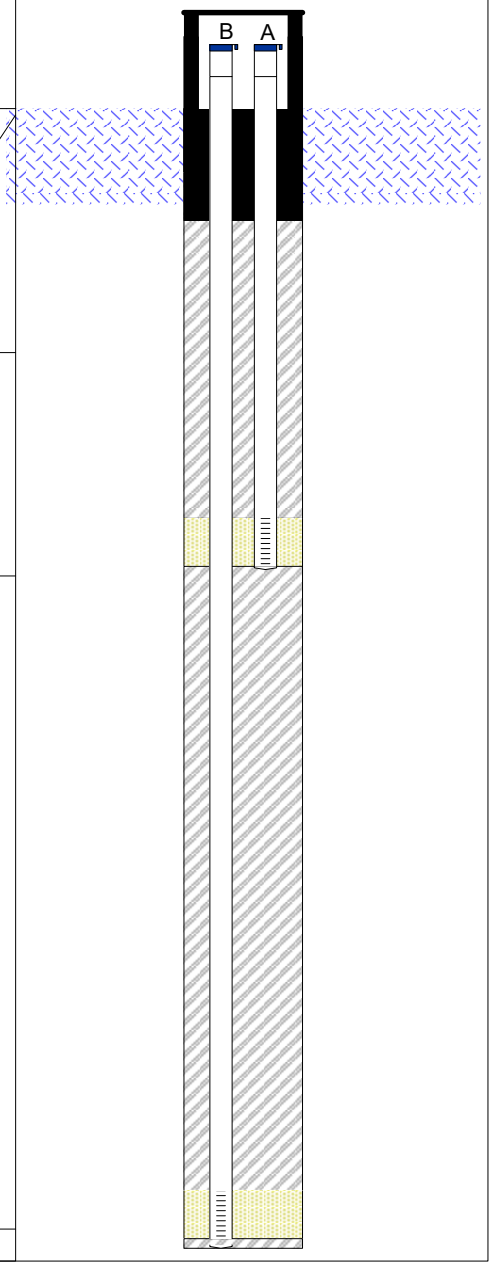
Northing: 4,887,686

STRADA AGGREGATES

TATHAM ENGINEERING

Project Name: Prince Pit #4

Well ID: OW19

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
-4 to 36	512 to 474		TOP SOIL SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet TAVISTOCK TILL: Grey, clay and silt with stones, dense to soft, damp GUELPH FORMATION: Dolostone, buff to white, fossiliferous	

Drilling Date: Feb-17

Drilling Company: Highland Water Well Drilling

STRADA AGGREGATES

Location: Township of Melancthon

Easting: 561,035

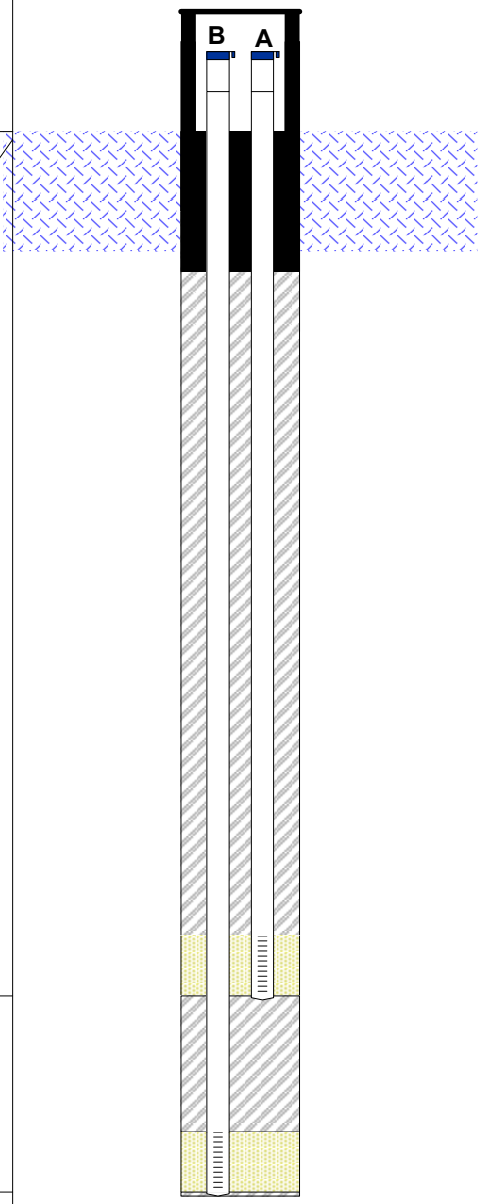
Northing: 4,888,193

TATHAM ENGINEERING

Project Name: Prince Pit #4

Well ID: OW20

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
-4	512			
-2	510			
0	508		TOP SOIL	
2	506			
4	504			
6	502			
8	500			
10	498		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet	
12	496			
14	494			
16	492			
18	490			
20	488			
22	486		GUELPH FORMATION: Dolostone, buff to white, fossiliferous	
24	484			
26	482			
28				



Drilling Date: Feb-17

Drilling Company: Highland Water Well Drilling

Location: Township of Melancthon
Easting: 561,544
Northing: 4,888,334

STRADA AGGREGATES

TATHAM ENGINEERING

Project Name: Prince Pit #4

Well ID: OW21

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
-4 to 26	514 to 486		TOP SOIL SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet, some silt GUELPH FORMATION: Dolostone, buff to white, fossiliferous	A B

Drilling Date: Feb-17
Drilling Company: Highland Water Well Drilling

STRADA AGGREGATES

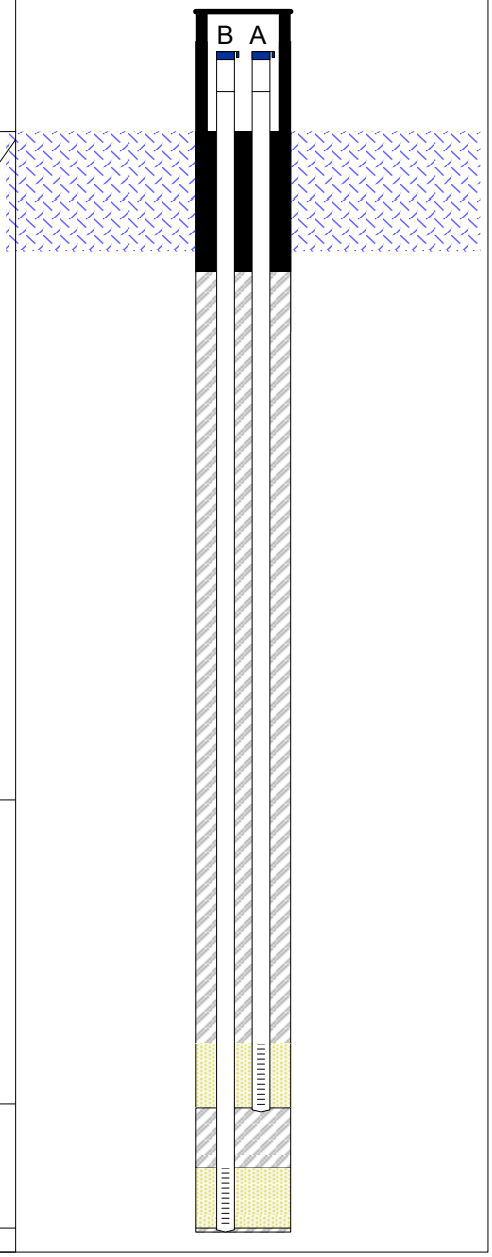
Location: Township of Melancthon
Easting: 561,593
Northing: 4,888,681

TATHAM ENGINEERING

Project Name: Prince Pit #4

Well ID: OW22

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
0	512		TOP SOIL	
0 – 16	512 – 496		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet, some silt	
16 – 24	496 – 488		TAVISTOCK TILL: Grey, clay and silt with stones, dense to soft, damp, silt and gravel layer at base	
24 – 28	488 – 484		GUELPH FORMATION: Dolostone, buff to white, fossiliferous	



Drilling Date: Feb-17

Drilling Company: Highland Water Well Drilling

STRADA AGGREGATES

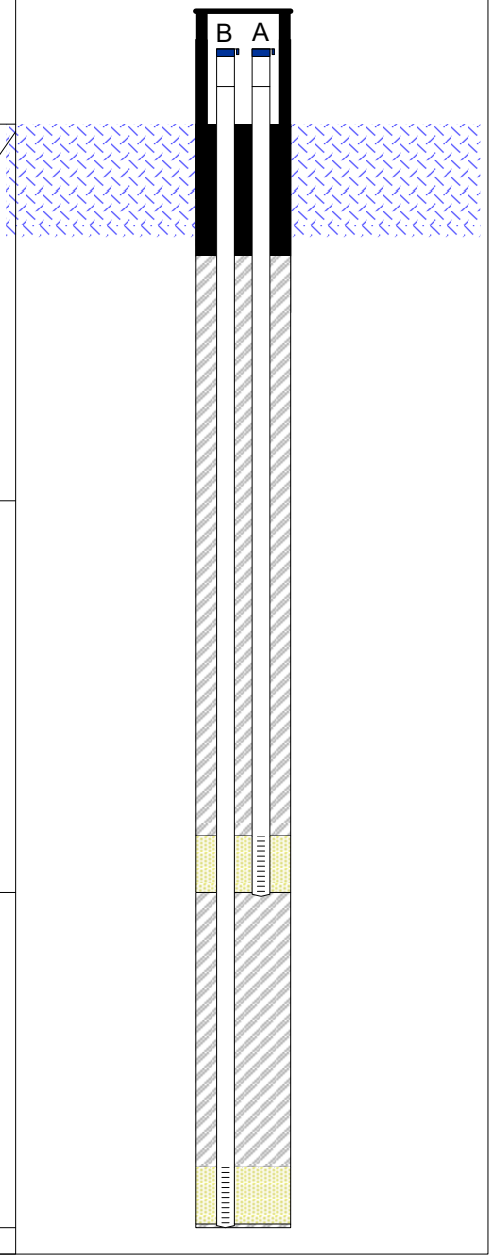
Location: Township of Melancthon
Easting: 561,384
Northing: 4,888,891

TATHAM ENGINEERING

Project Name: Prince Pit #4

Well ID: OW23

Depth (m)	Elevation (masl)	Lithology	Lithology Description	Well Construction Diagram
0	512			
2	510		TOP SOIL	
4	508		SAND AND GRAVEL: Brown, angular to subangular gravel, loose, dry to wet, some silt	
6	506			
8	504			
10	502			
12	500		TAVISTOCK TILL: Grey, clay and silt with stones, dense to soft, damp,	
14	498			
16	496			
18	494			
20	492			
22	490		GUELPH FORMATION: Dolostone, buff to white, fossiliferous	
24	488			
26	486			
28	484			
30	482			
	480			



Drilling Date: Feb-17

Drilling Company: Highland Water Well Drilling

STRADA AGGREGATES

Location: Township of Melancthon

Easting: 560,938

Northing: 4,888,788

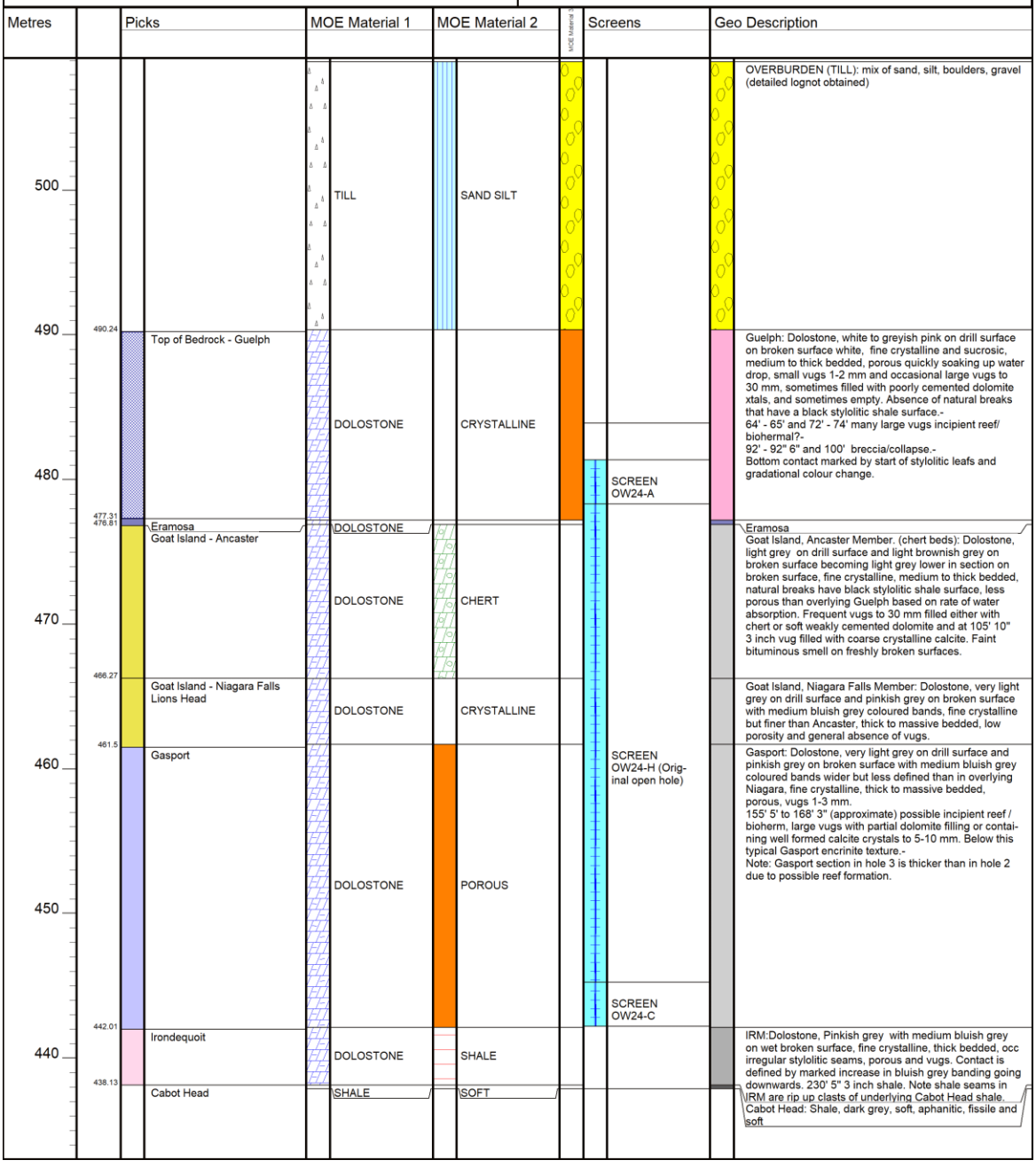
Earthfx Incorporated

Location Name: OW24

Location ID: -2147483403
Master ID: -2147483403
Original Name/ID:
Alt Name: Core #3
Location: E: 560965.02 N: 4888558.315 QA: 1

Lot: Con:
Rgn/Cnty:
Muni.
Gnd Elev: 508.9 masl Elev. QA Code:
Depth: 71.02 m Drill Date:

Pump test rate:
Test Start: to
Recommended Rate: at Depth m
Purpose: ,
BH Diameter: Drill Method:



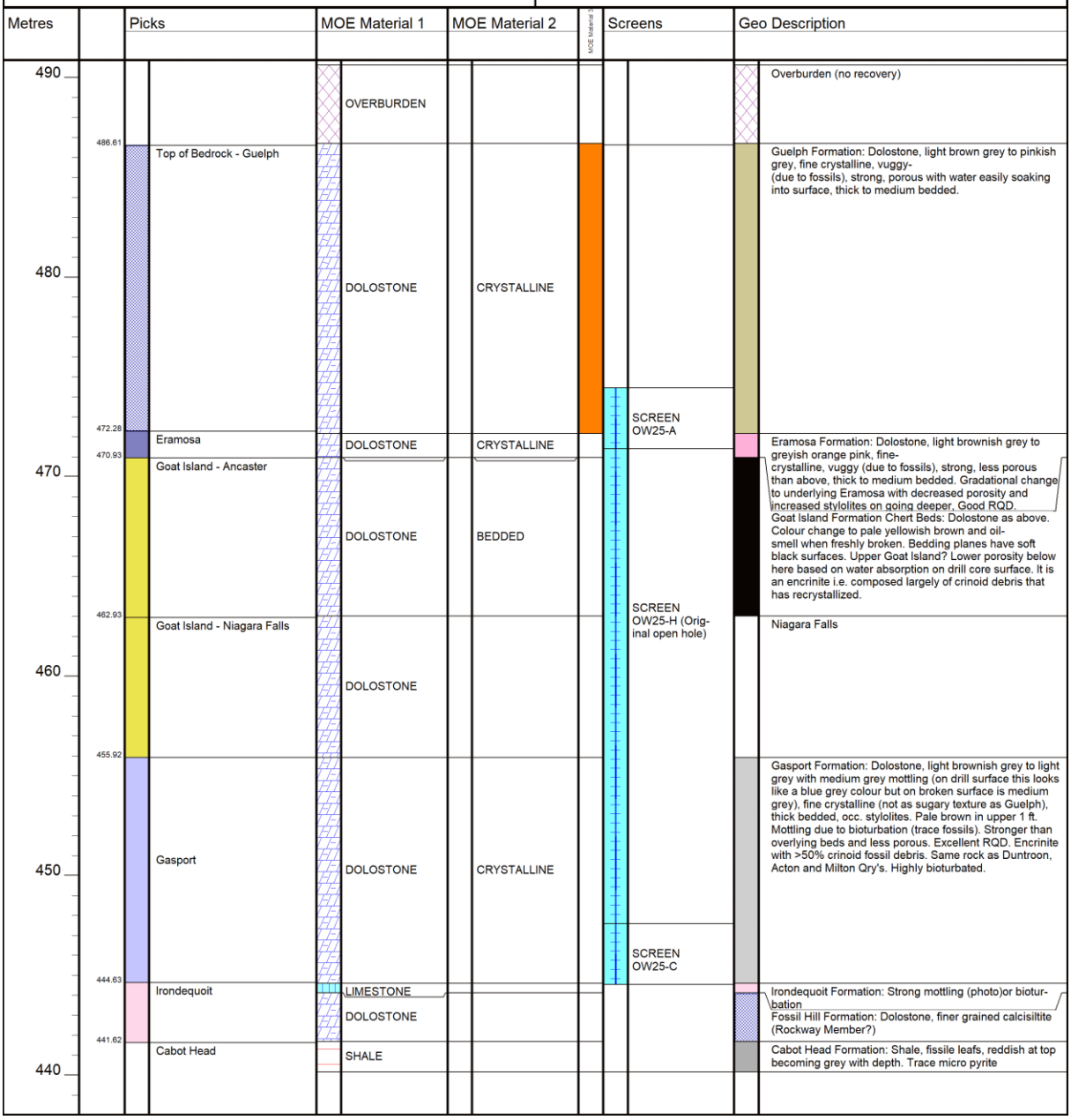
Earthfx Incorporated

Location Name: OW25

Location ID: -2147483405
Master ID: -2147483405
Original Name/ID:
Alt Name: Core #1
Location: E: 561647.683 N: 4888161.257 QA: 1

Lot: Con:
Rgn/Cnty:
Muni.
Gnd Elev: 490.62 masl Elev. QA Code:
Depth: 50.47 m Drill Date:

Pump test rate:
Test Start: to
Recommended Rate: at Depth m
Purpose: ,
BH Diameter: Drill Method:



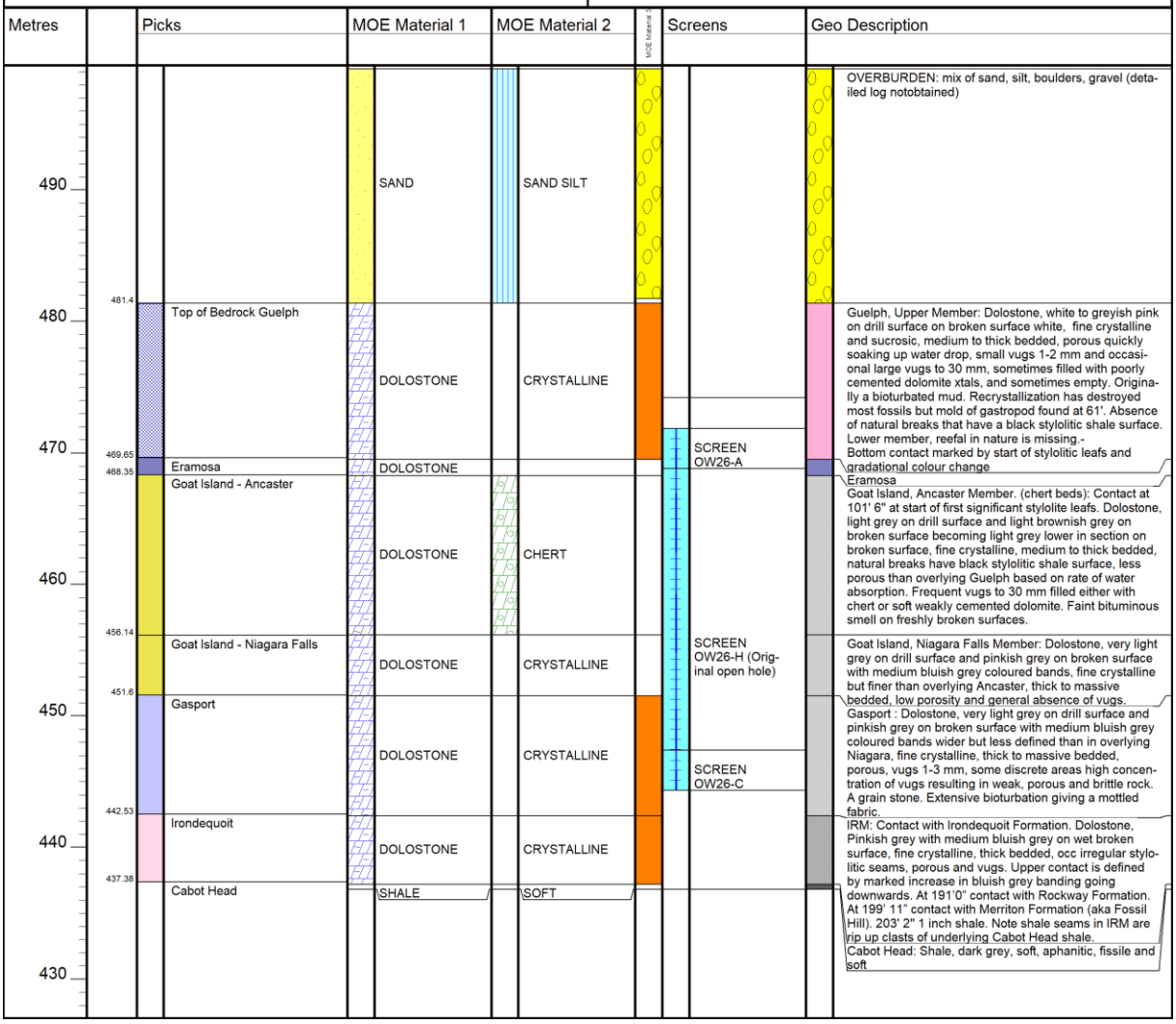
Earthfx Incorporated

Location Name: OW26

Location ID: -2147483404
Master ID: -2147483404
Original Name/ID:
Alt Name: Core #2
Location: E: 561230.697 N: 4887427.22 QA: 1

Lot: Con:
Rgn/Cnty:
Muni.
Gnd Elev: 499.22 masl Elev. QA Code:
Depth: 62.41 m Drill Date:

Pump test rate:
Test Start: to
Recommended Rate: at Depth m
Purpose: ,
BH Diameter: Drill Method:



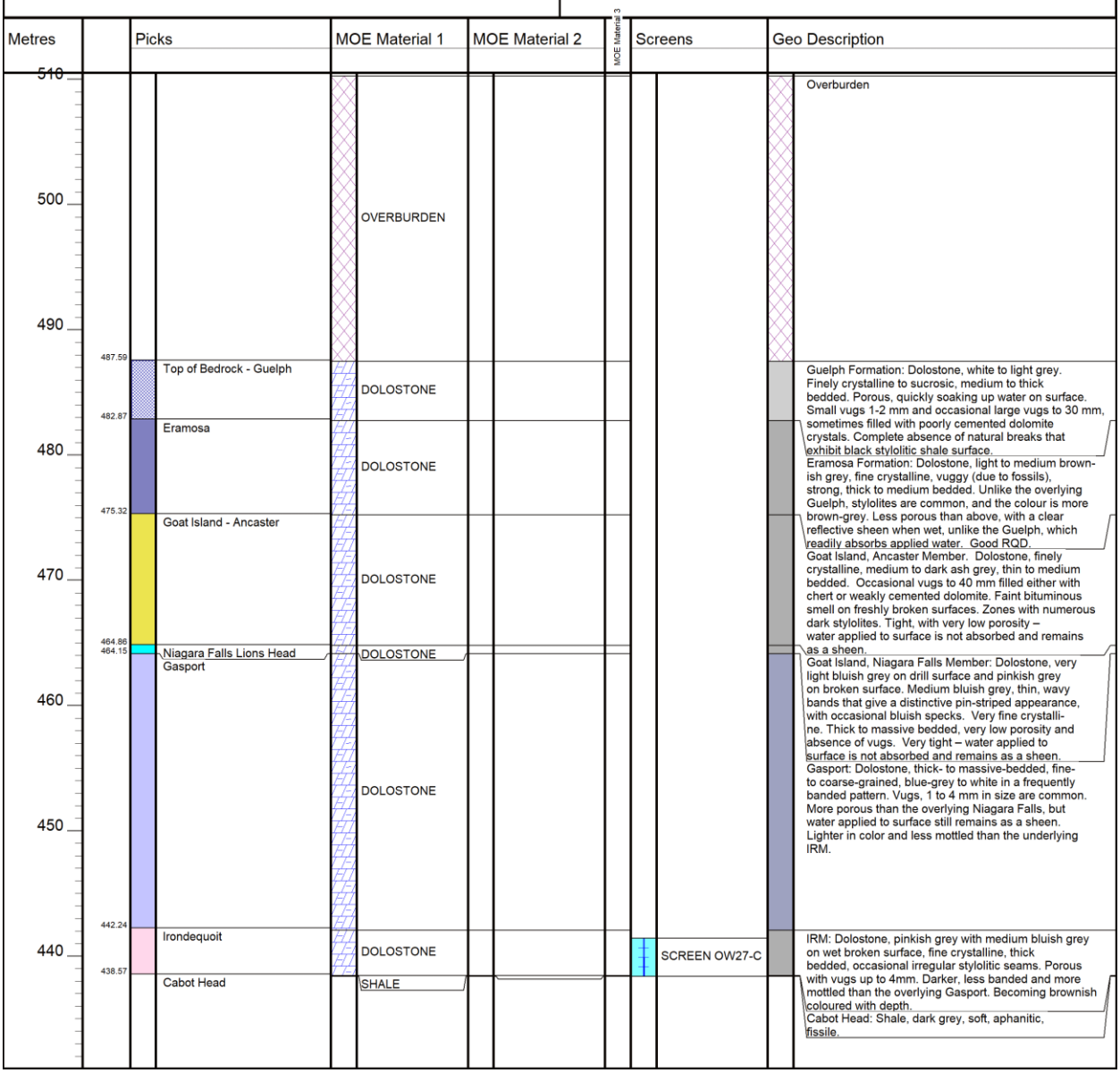
Earthfx Incorporated

Location Name: OW27-C

Location ID: -902854379
Master ID: -902854379
Original Name/ID:
Alt Name: A391976
Location: E: 560927.286 N: 4888784.544 QA:

Lot: Con:
Rgn/Cnty:
Muni.
Gnd Elev: 510.26 masl Elev. QA Code:
Depth: 71.88 m Drill Date:

Pump test rate:
Test Start: to
Recommended Rate: at Depth m
Purpose: ,
BH Diameter: Drill Method:

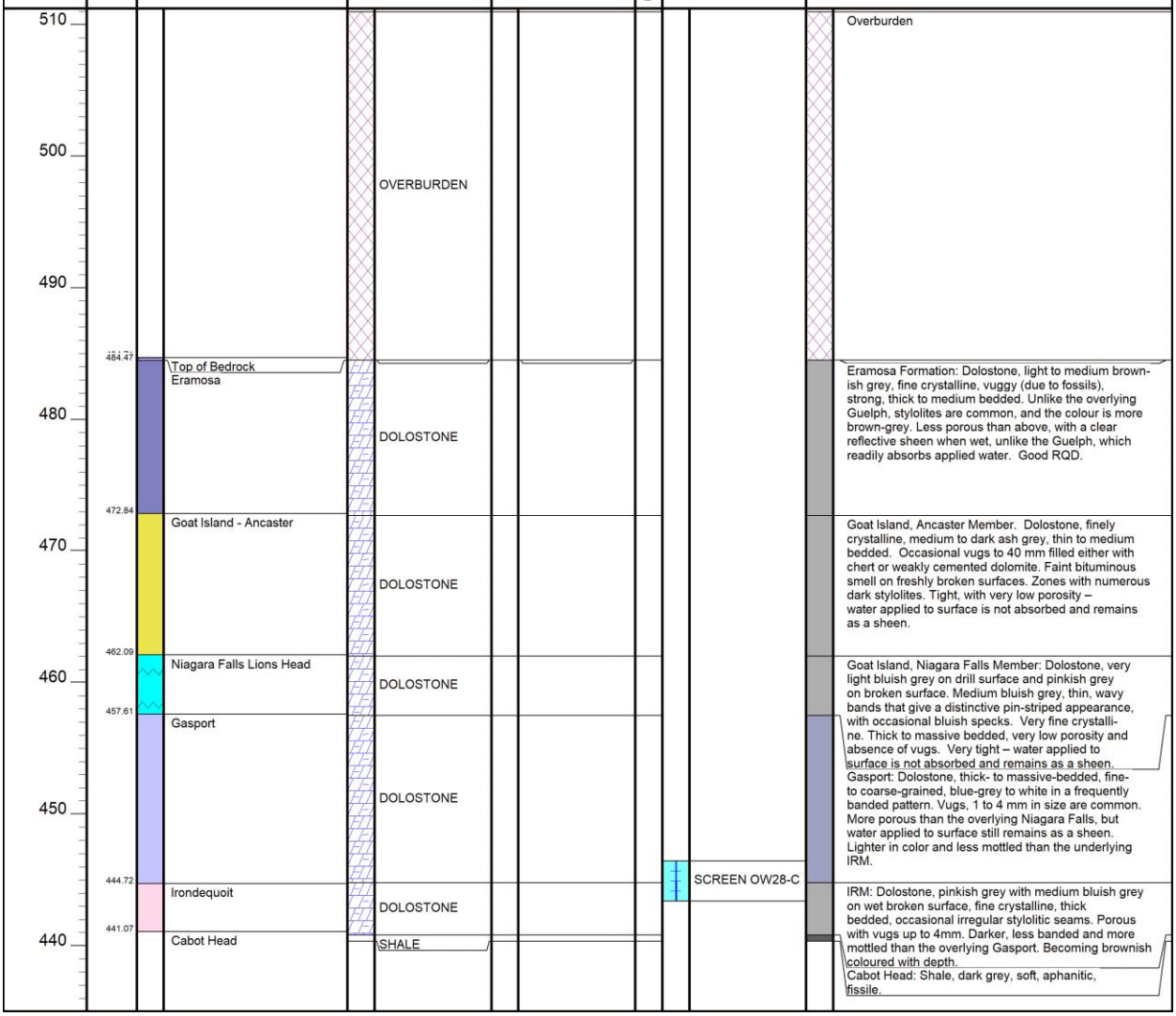


Location Name: OW28-C

Location ID: 1602548740
Master ID: 1602548740
Original Name/ID:
Alt Name:
Location: E: 561602 N: 4888678 QA: 1

Lot: Con:
Rgn/Cnty:
Muni.
Gnd Elev: 510.98 masl Elev. QA Code:
Depth: 67.59 m Drill Date:

Pump test rate:
Test Start: to
Recommended Rate: at Depth m
Purpose: ,
BH Diameter: Drill Method:



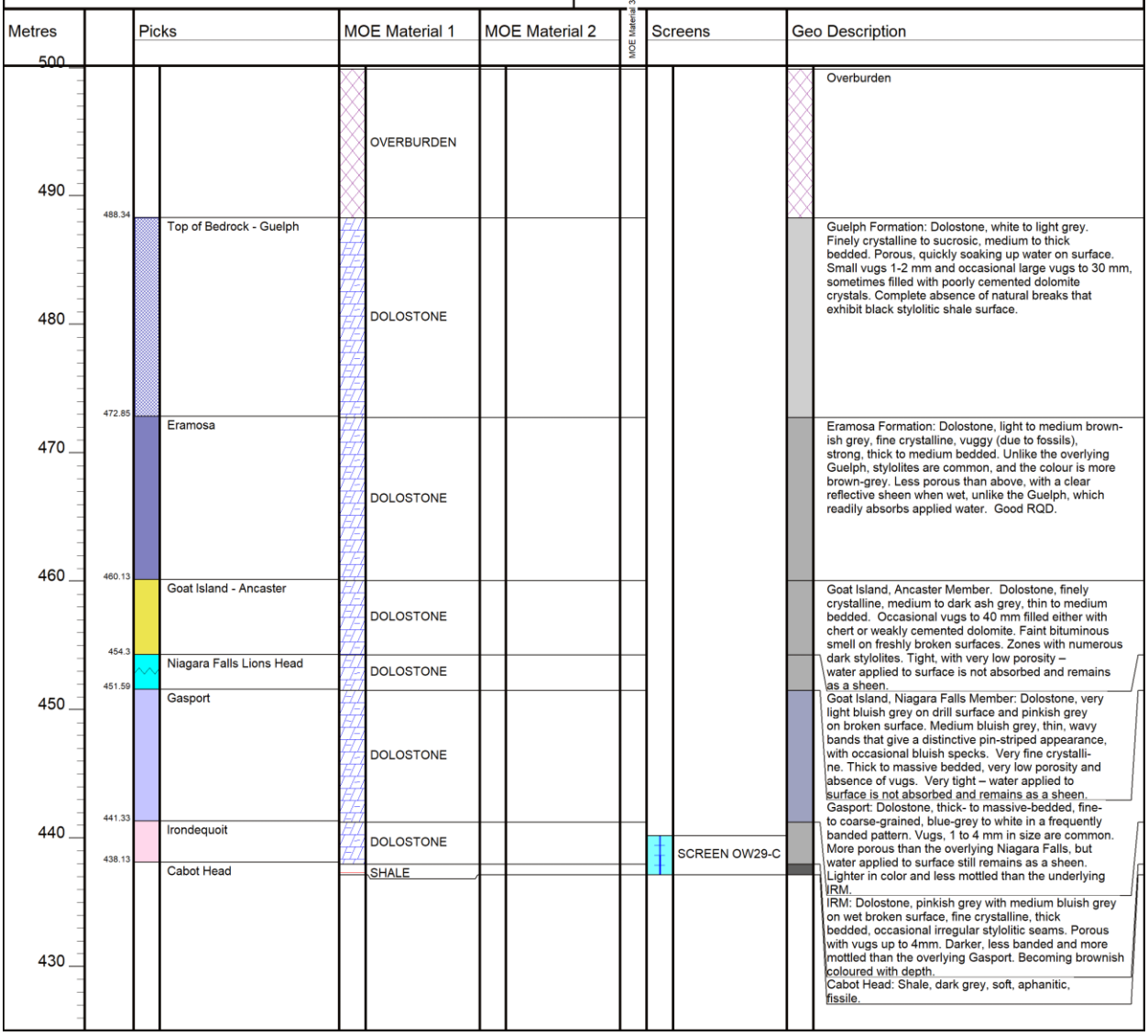
Earthfx Incorporated

Location Name: OW29-C

Location ID: 1369143902
Master ID: 1369143902
Original Name/ID:
Alt Name:
Location: E: 561411.76 N: 4886532.7 QA: 1

Lot: Con:
Rgn/Cnty:
Muni.
Gnd Elev: 499.9 masl Elev. QA Code:
Depth: 62.76 m Drill Date:

Pump test rate:
Test Start: to
Recommended Rate: at Depth m
Purpose: ,
BH Diameter: Drill Method:



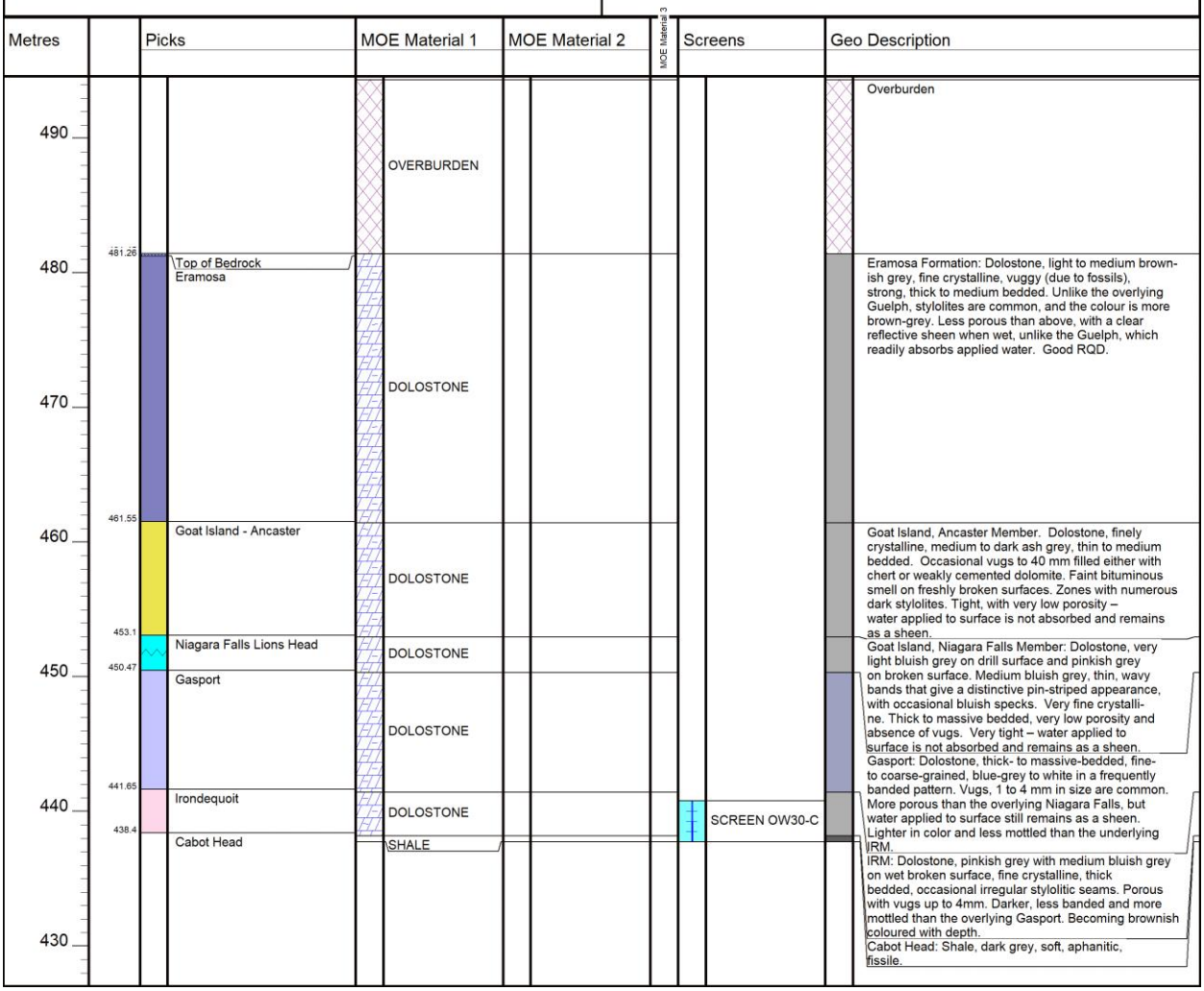
Earthfx Incorporated

Location Name: OW30

Location ID: -1130319958
Master ID: -1130319958
Original Name/ID: A374686
Alt Name:
Location: E: 561634.341 N: 4886900.777 QA: 1

Lot: Con:
Rgn/Cnty:
Muni.
Gnd Elev: 494.35 masl Elev. QA Code:
Depth: 56.62 m Drill Date:

Pump test rate:
Test Start: to
Recommended Rate: at Depth m
Purpose: ,
BH Diameter: Drill Method:



Appendix B: Hydrographs

TATHAM ENGINEERING
115 Sandford Fleming Drive, Suite 200
Collingwood, Ontario L9Y 5A6
T 705-444-2565
E info@tathameng.com
tathameng.com

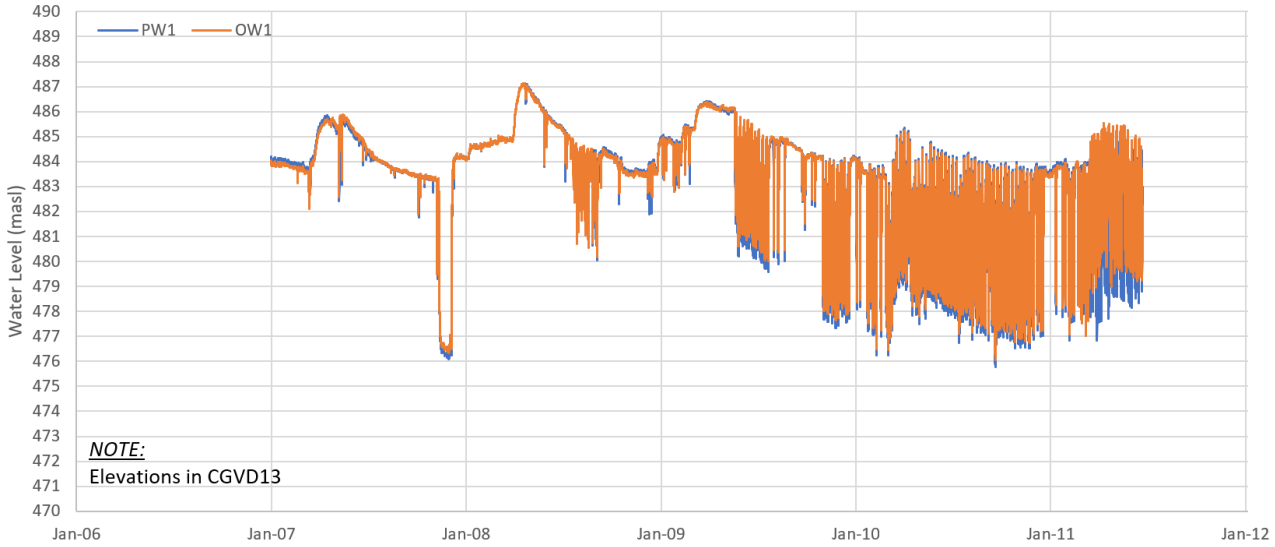


Figure B.1: Hydrograph of water levels at PW1 and OW1, in masl

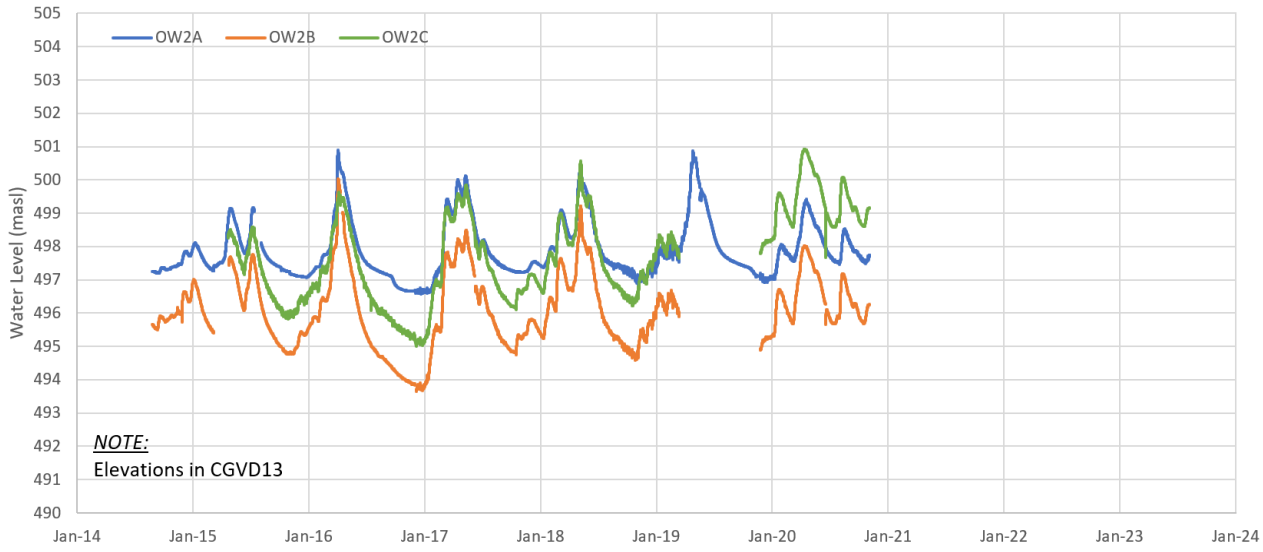


Figure B.2: Hydrograph of water levels at Well Nest OW2, in masl.

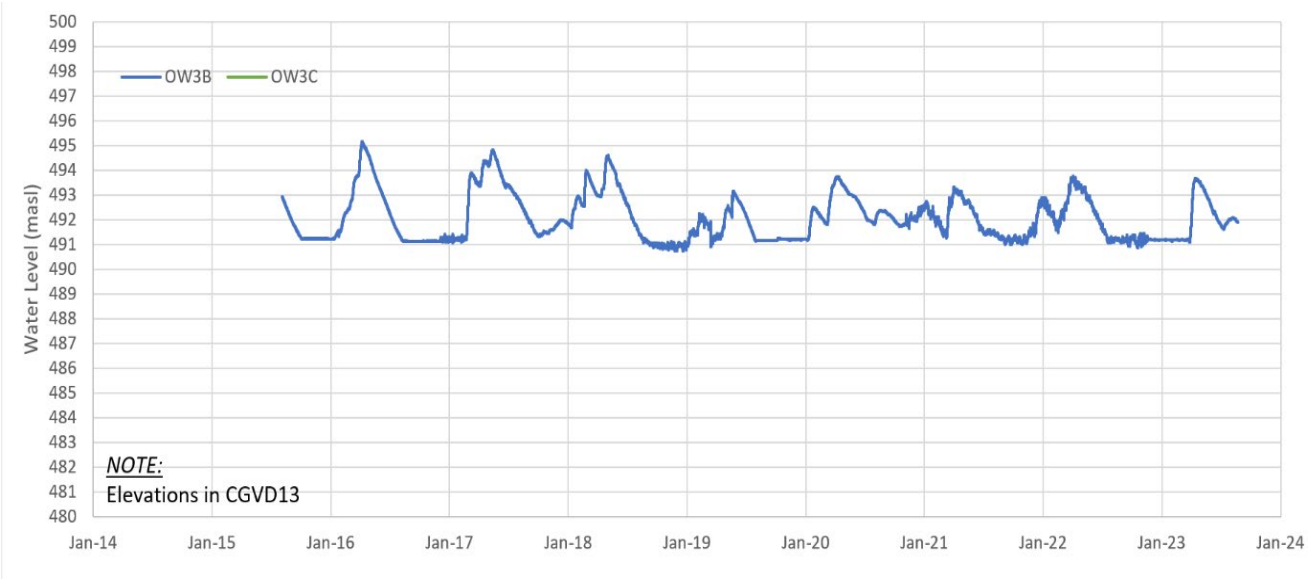


Figure B.3: Hydrograph of water levels at Well Nest OW3, in masl, 2008 to 2009.

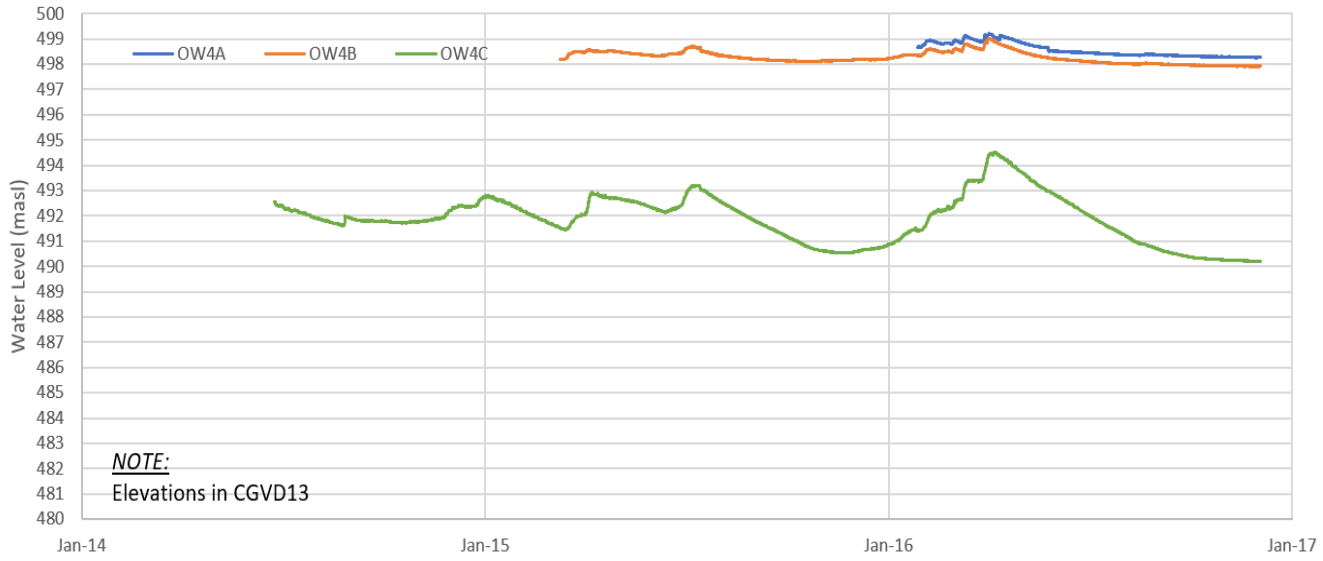


Figure B.4: Hydrograph of water levels at Well Nest OW4, in masl., 2014 to 2016

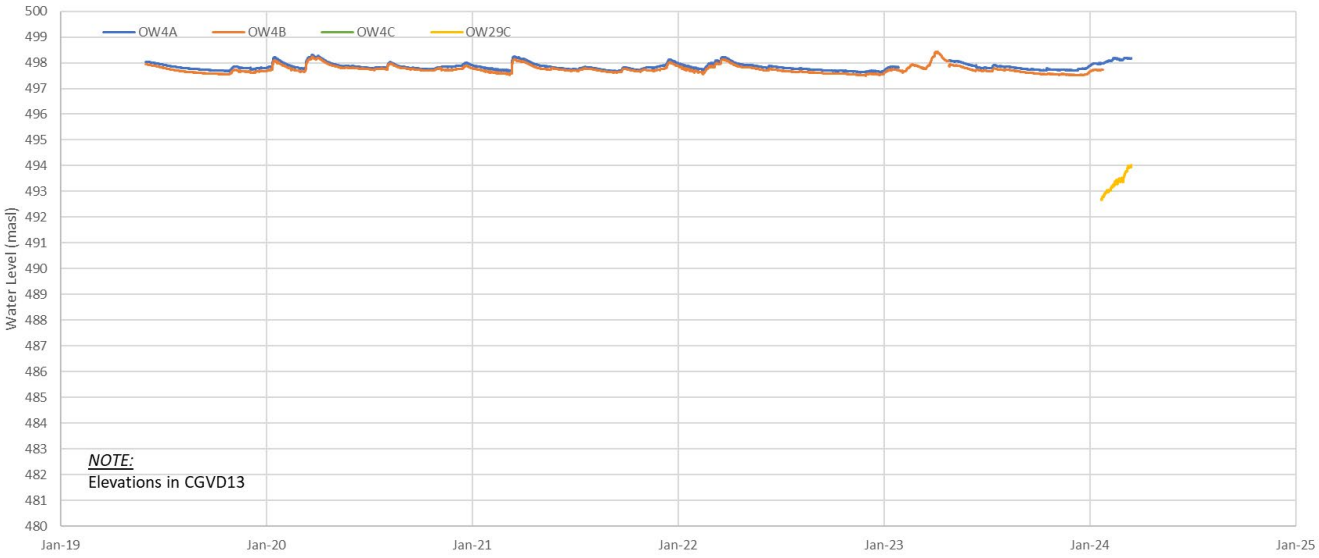


Figure B.5: Hydrograph of water levels at Well Nest OW4 and OW29C, in masl.

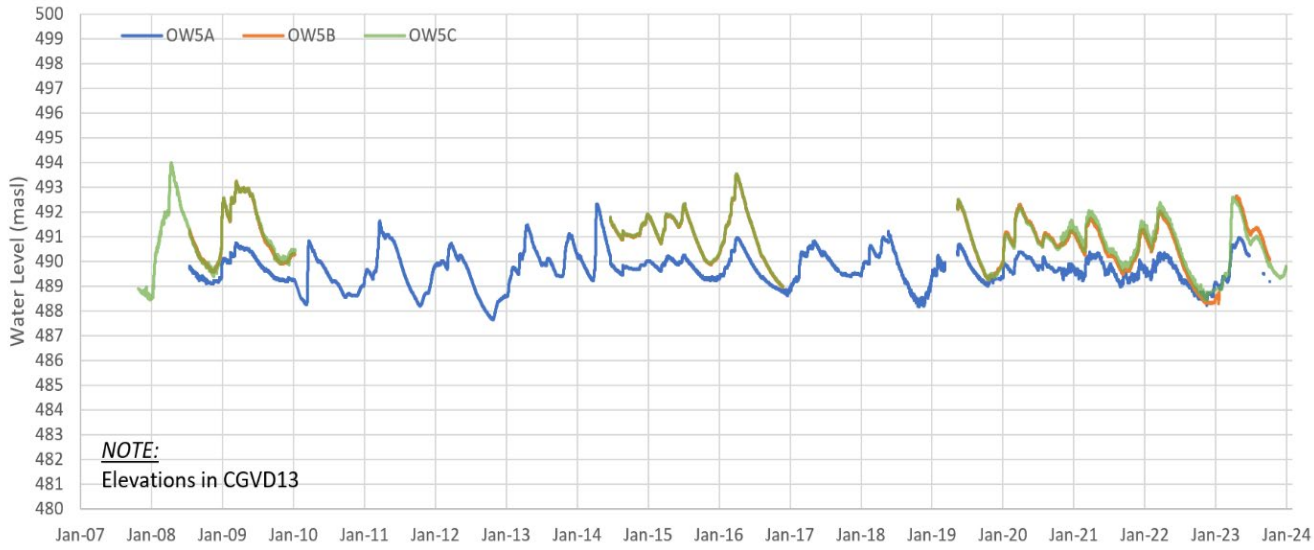


Figure B.6: Hydrograph of water levels at Well Nest OW5, in masl.

Figure B.7: Hydrograph of water levels at OW6A, in masl, 2014 to 2024.

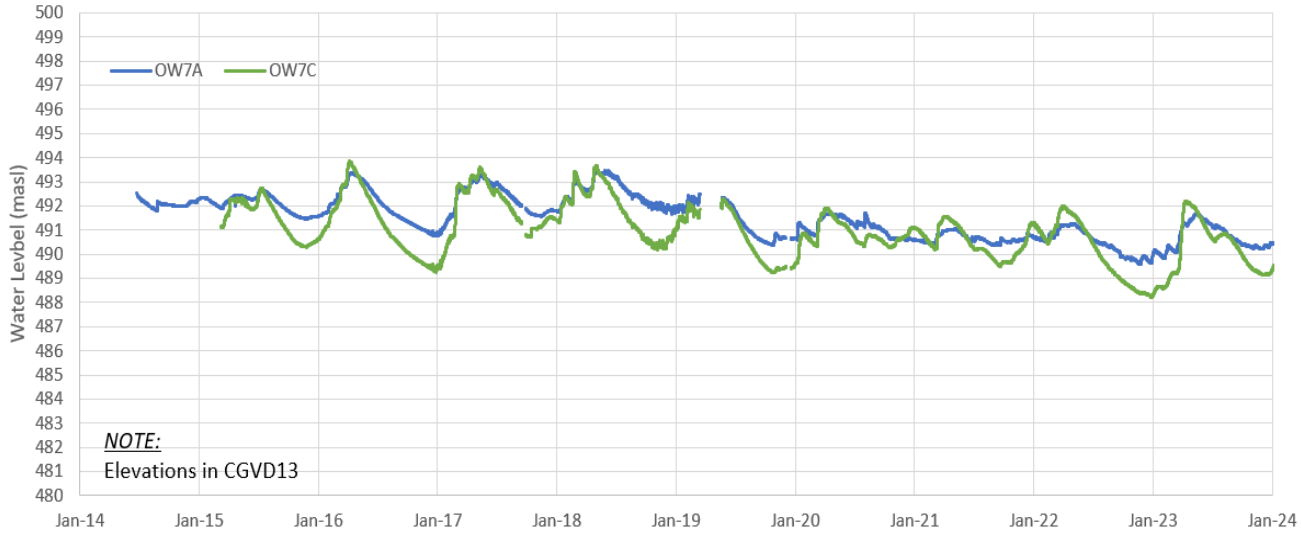


Figure B.8: Hydrograph of water levels at Well Nest OW7, in masl.

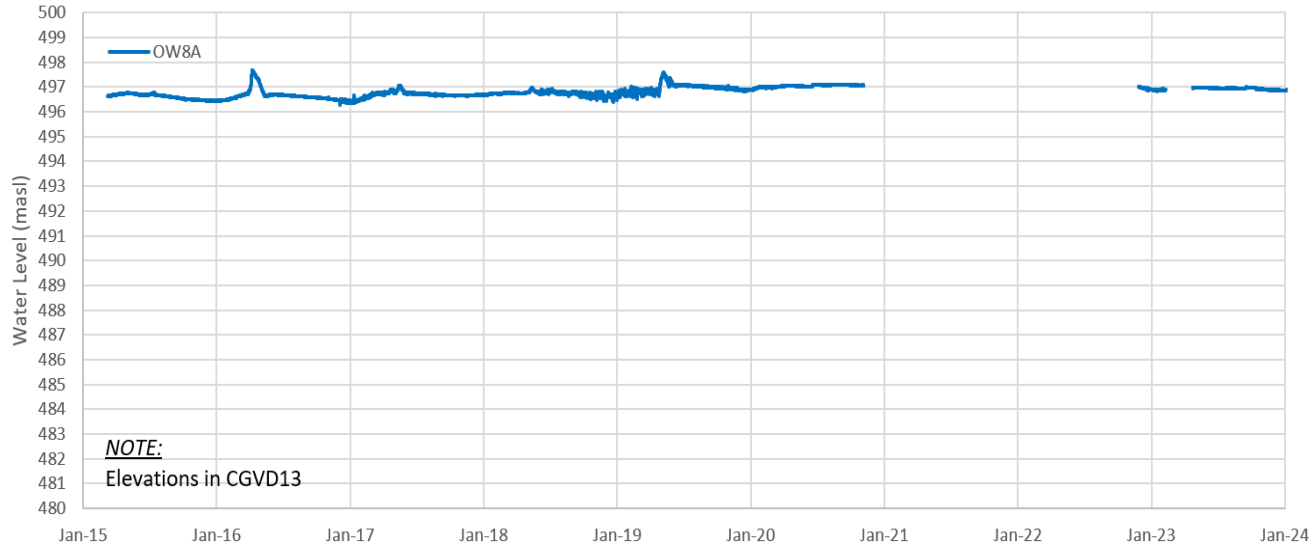


Figure B.9: Hydrograph of water levels at OW8A, in masl.

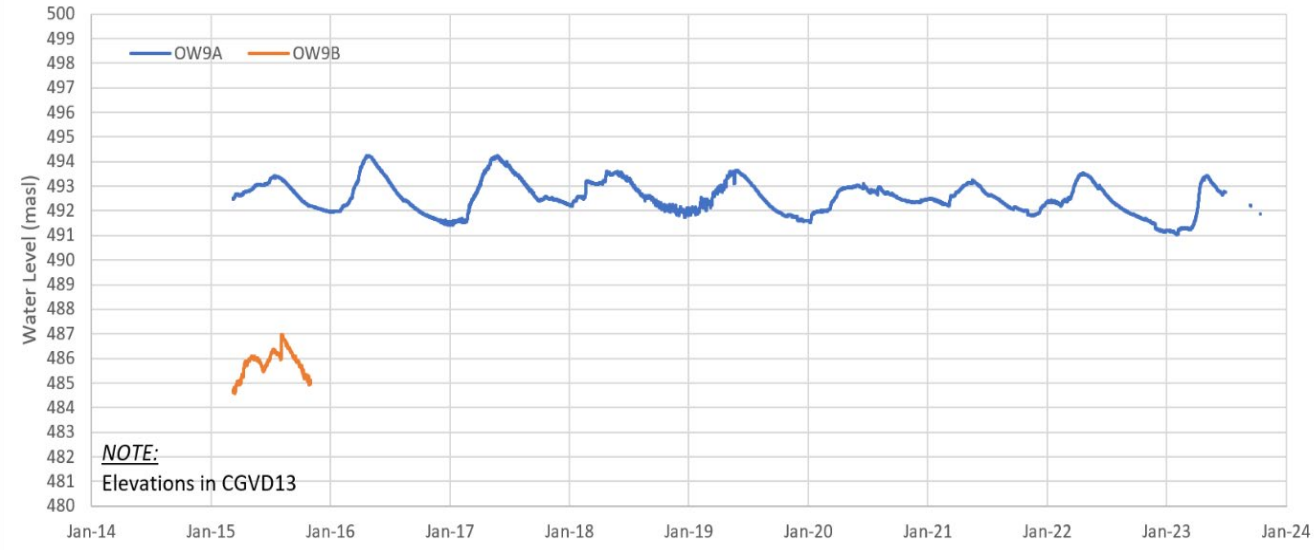


Figure B.10: Hydrograph of water levels at Well Nest OW9, in masl.

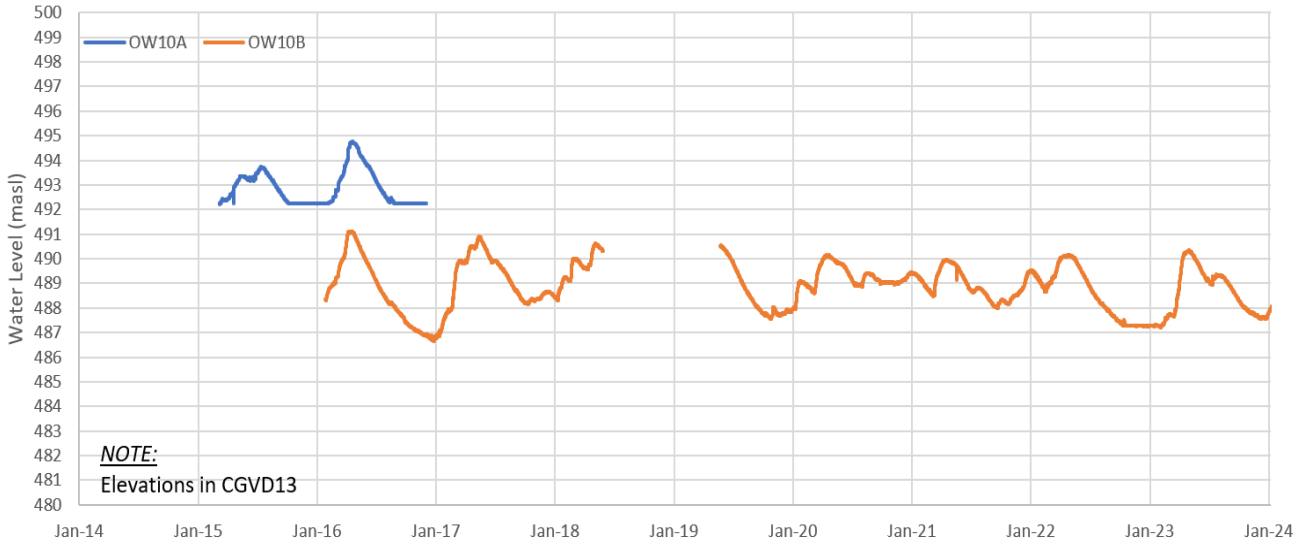


Figure B.11: Hydrograph of water levels at Well Nest OW10, in masl.

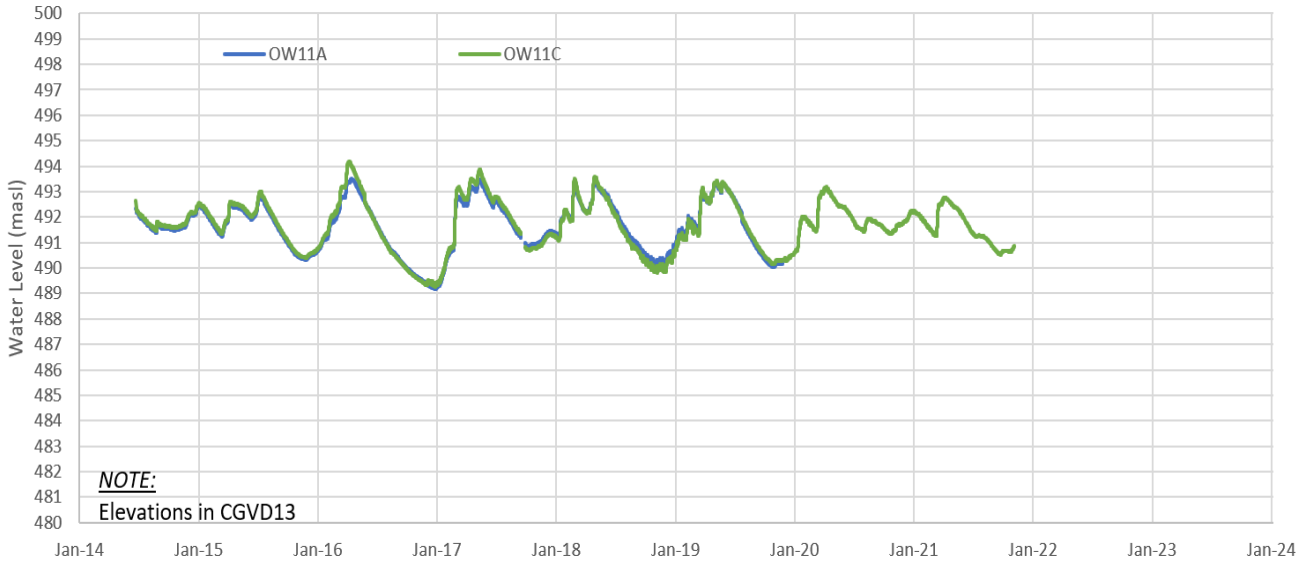


Figure B.12: Hydrograph of water levels at Well Nest OW11, in masl.

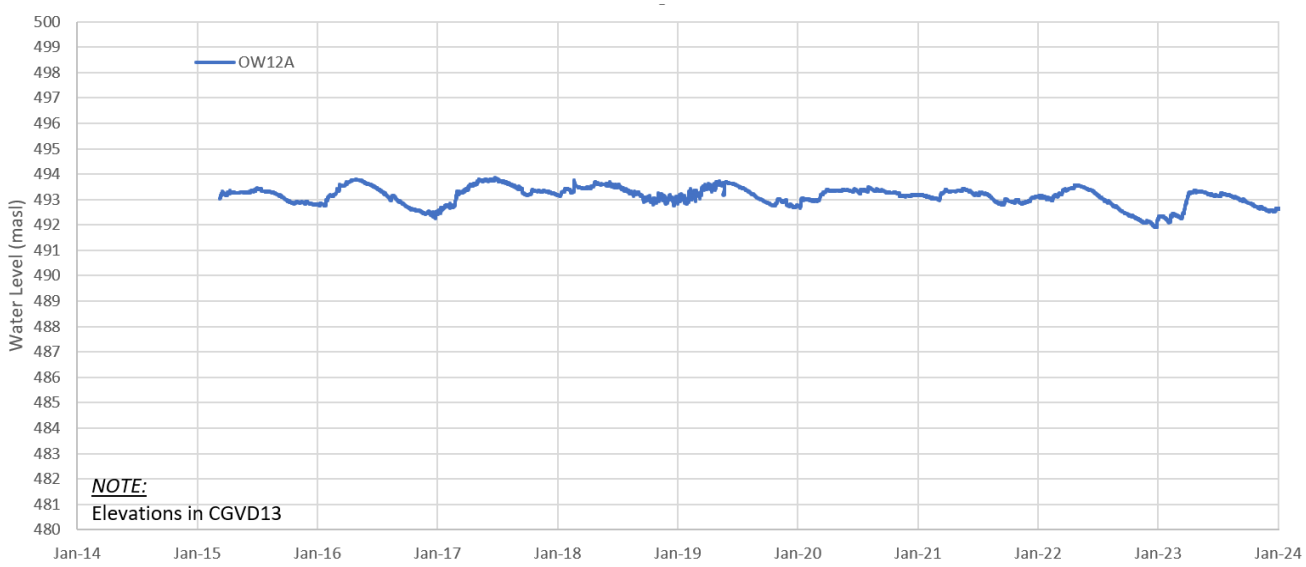


Figure B.13: Hydrograph of water levels at Well OW12A, in masl.

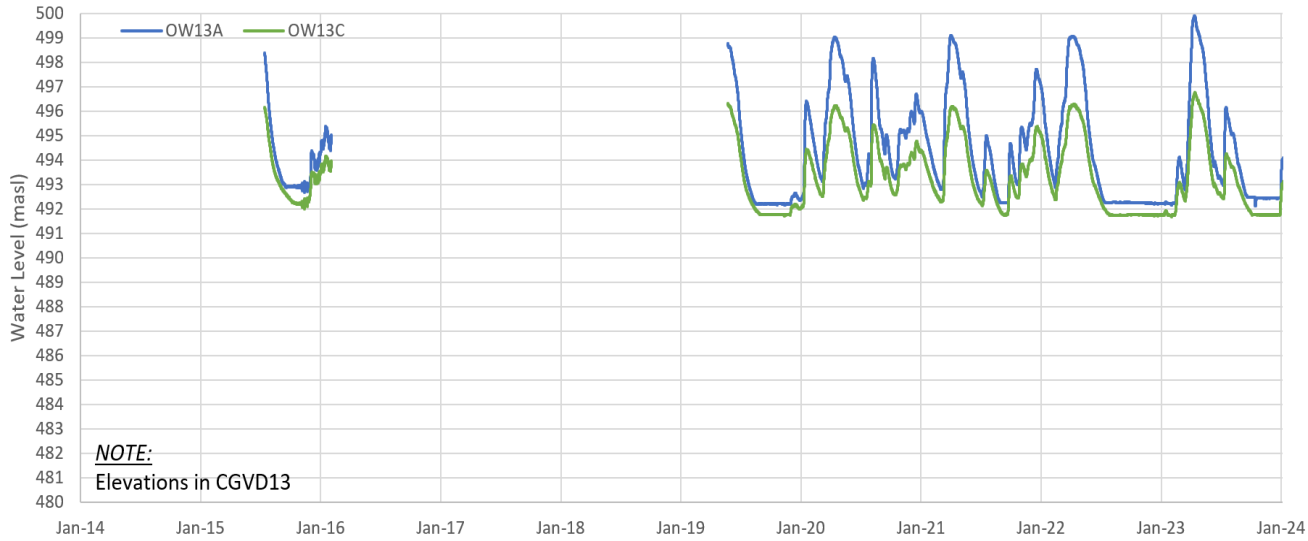


Figure B.14: Hydrograph of water levels at Well Nest OW13, in masl.

Figure B.15: Hydrograph of water levels at Well OW14C, in masl.

Figure B.16: Hydrograph of water levels at Well OW16C, in masl.

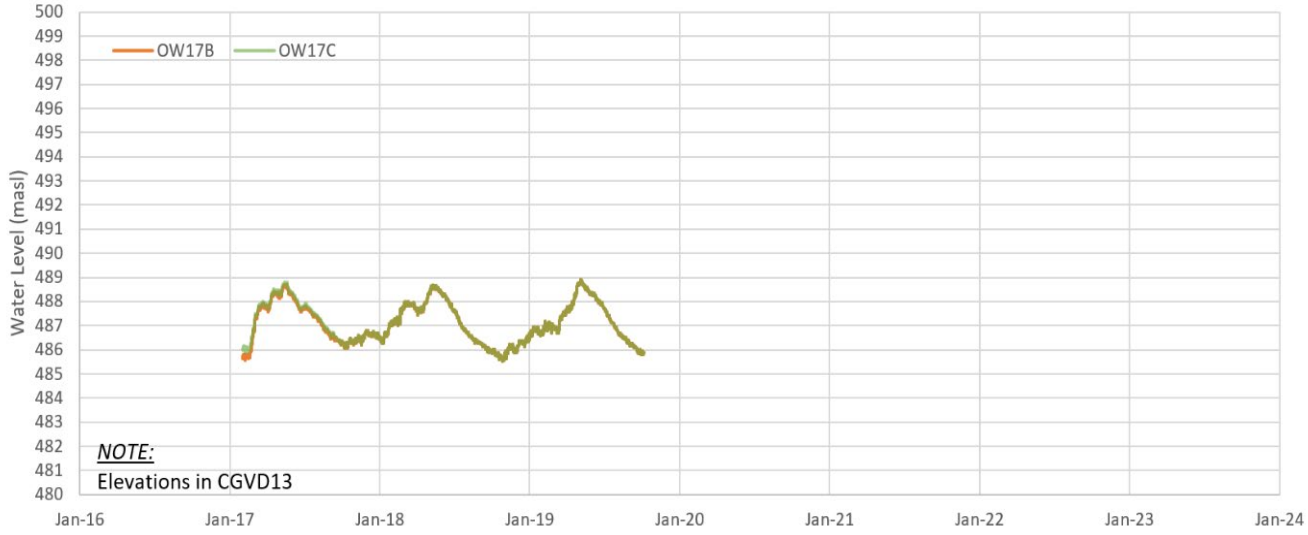


Figure B.17: Hydrograph of water levels at Well Nest OW17, in masl.

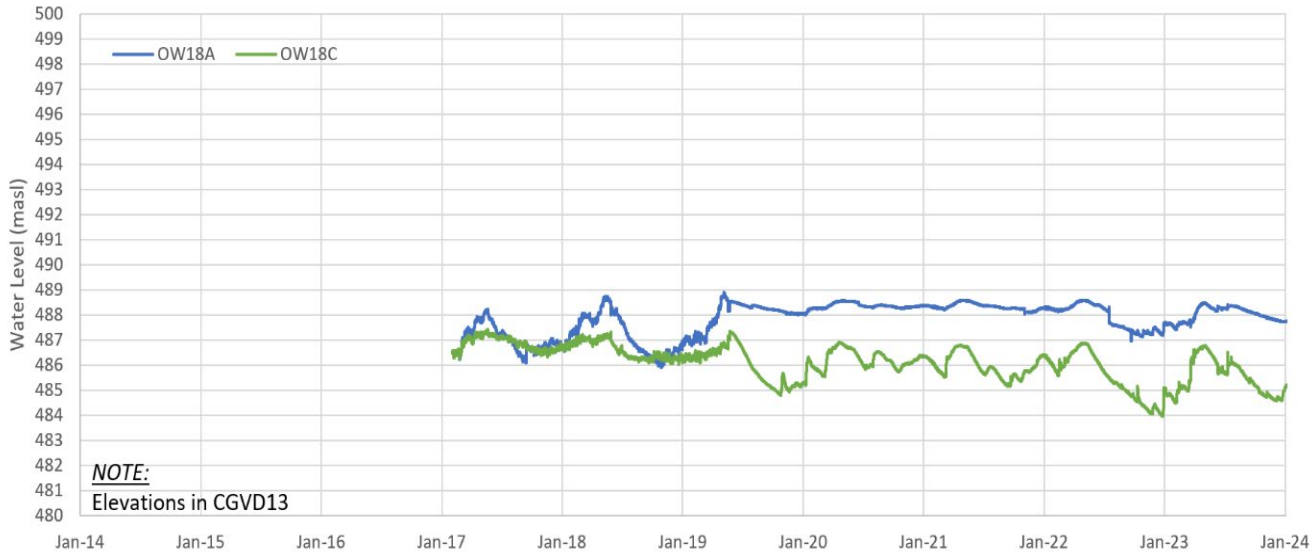


Figure B.18: Hydrograph of water levels at Well Nest OW18, in masl.

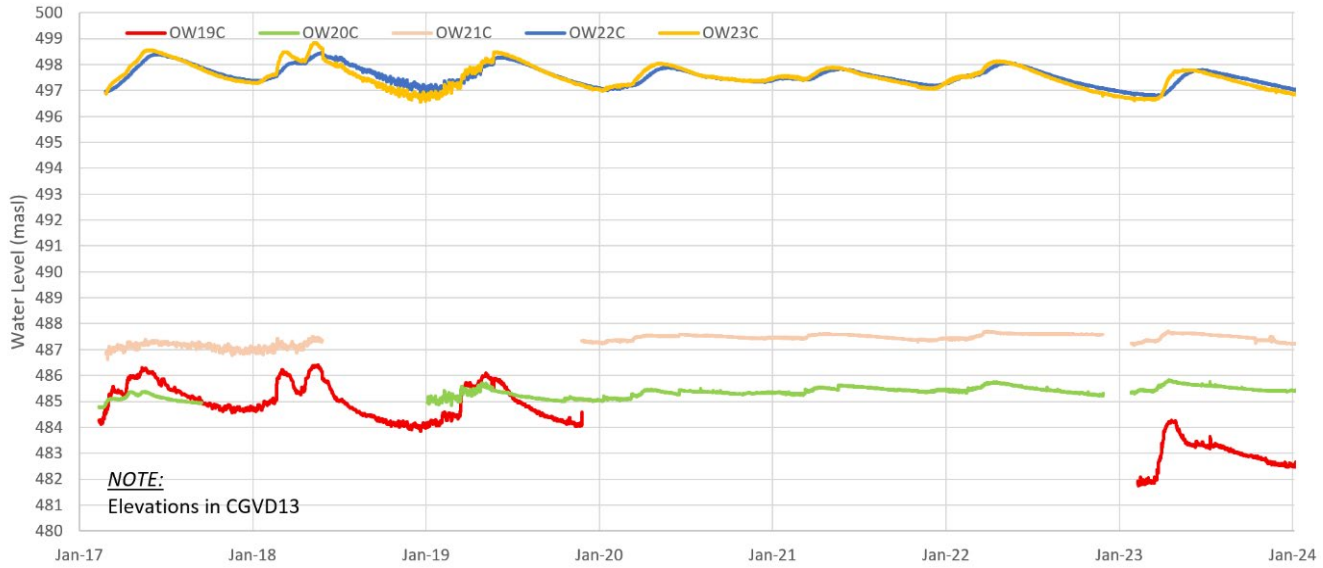


Figure B.19: Hydrograph of water levels at Well Nests OW19, OW20, OW21, OW22, and OW23.

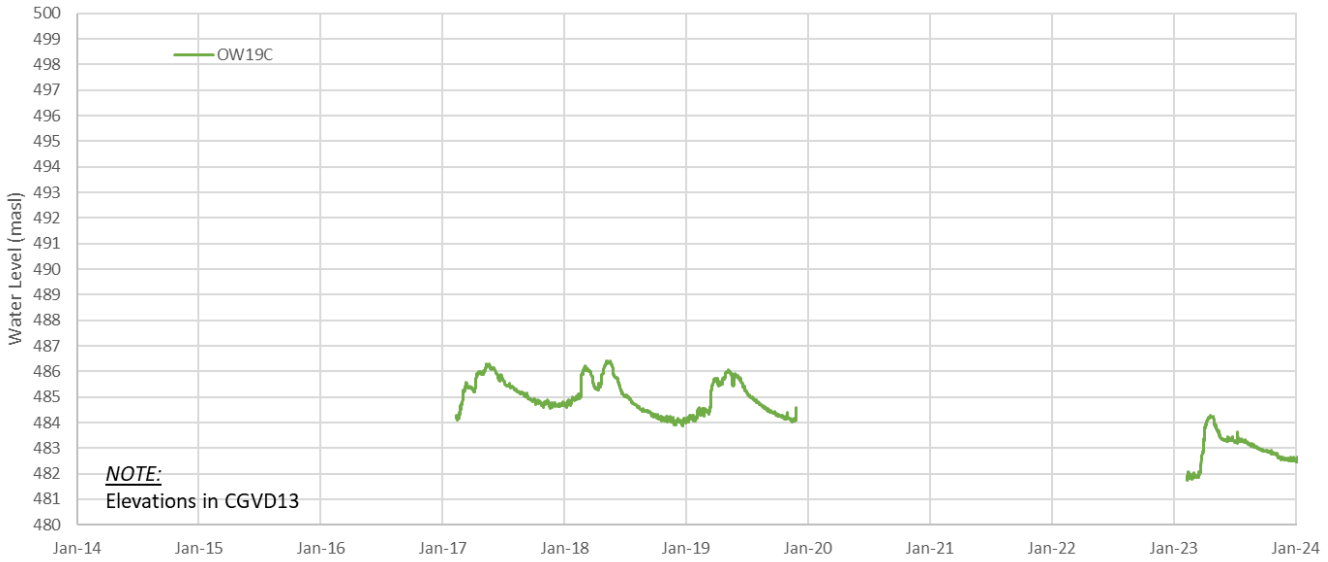


Figure B.20: Hydrograph of water levels at Well Nest OW19C, in masl

Figure B.21: Hydrograph of water levels at Well Nest OW20C, in masl.

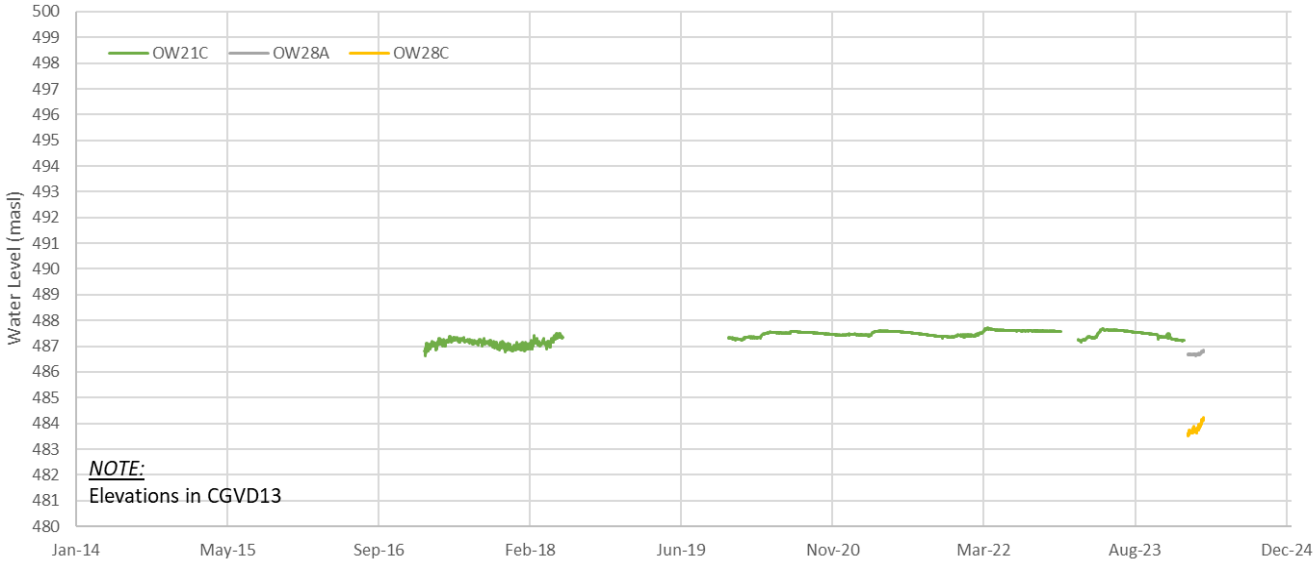


Figure B.22: Hydrograph of water levels at Well Nests OW21 and OW28, in masl.

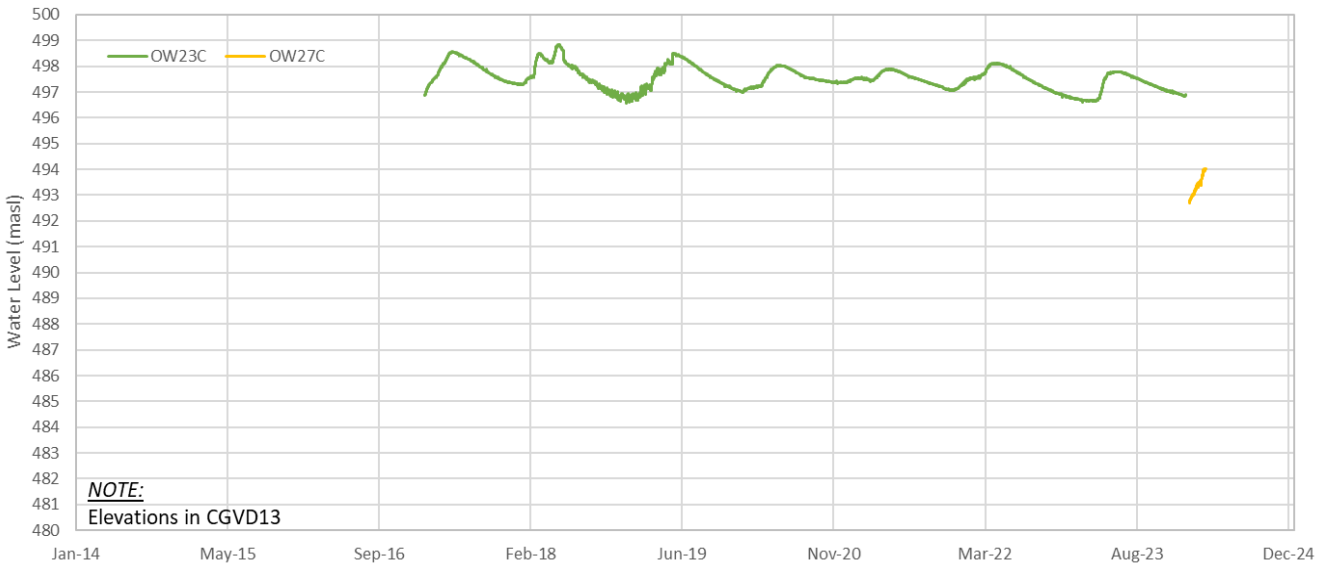


Figure B.23: Hydrograph of water levels at Well Nests OW23 and OW27, in masl.

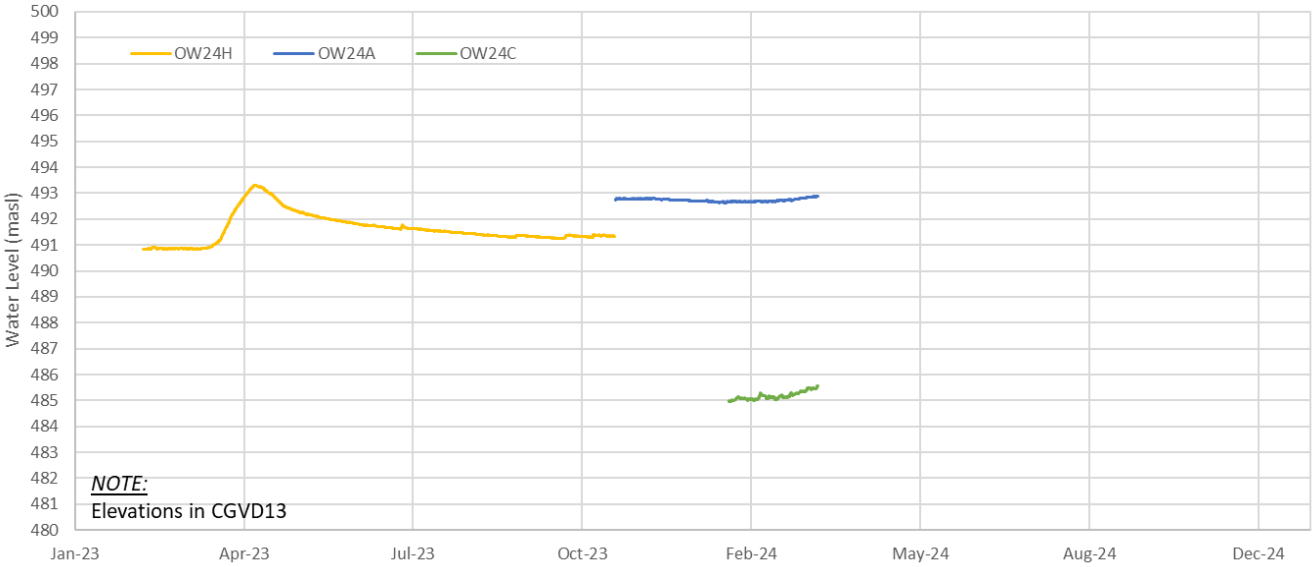


Figure B.24: Hydrograph of water levels at Well Nest OW24, in masl.

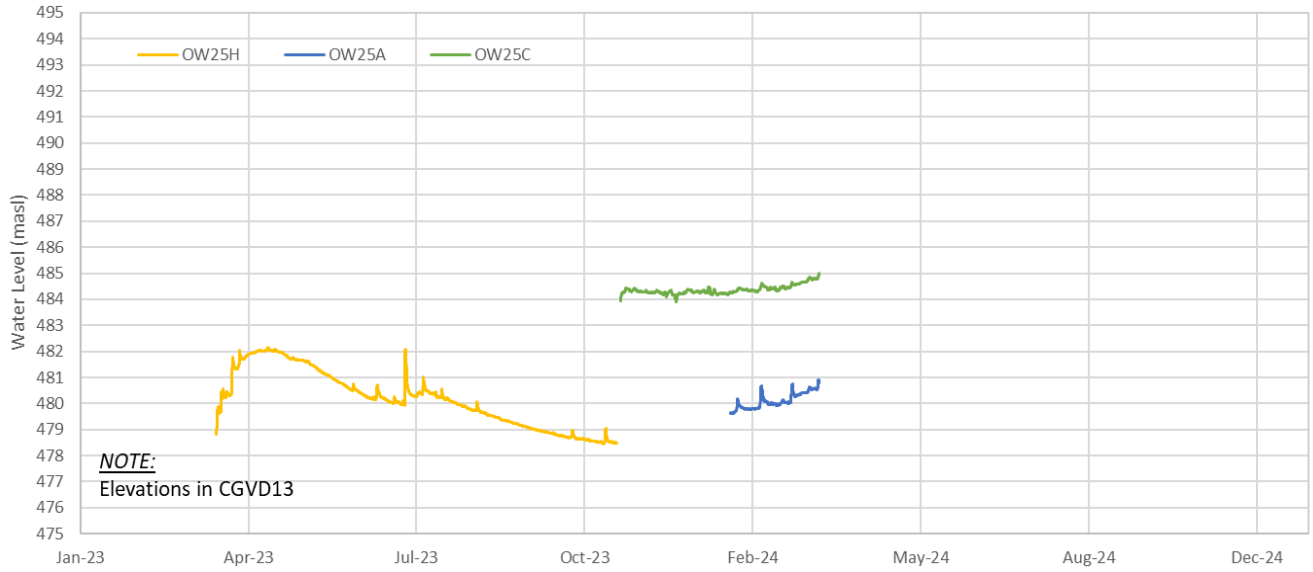


Figure B.25: Hydrograph of water levels at Well Nest OW25, in masl.

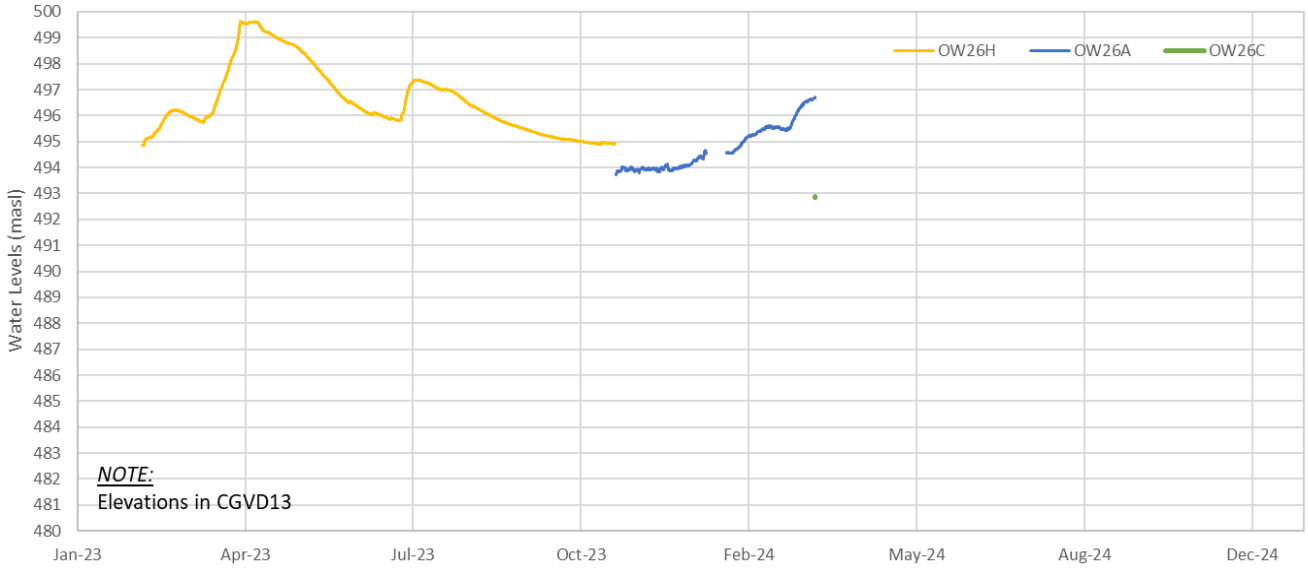


Figure B.26: Hydrograph of water levels at Well Nest OW26, in masl.

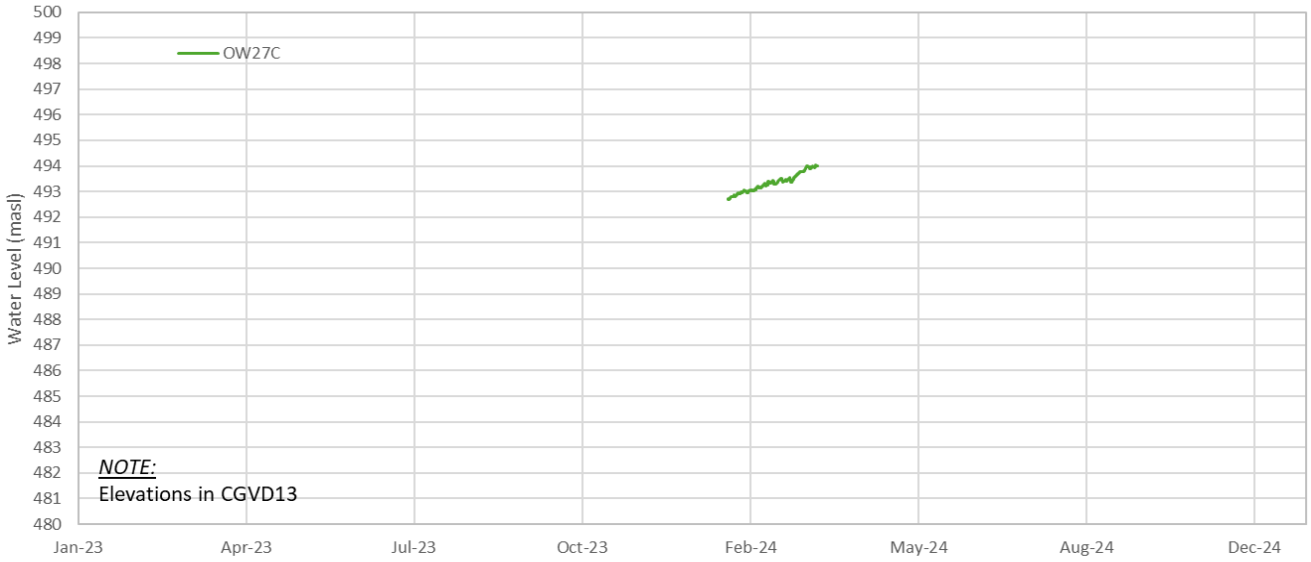


Figure B.27: Hydrograph of water levels at Well Nest OW27, in masl.

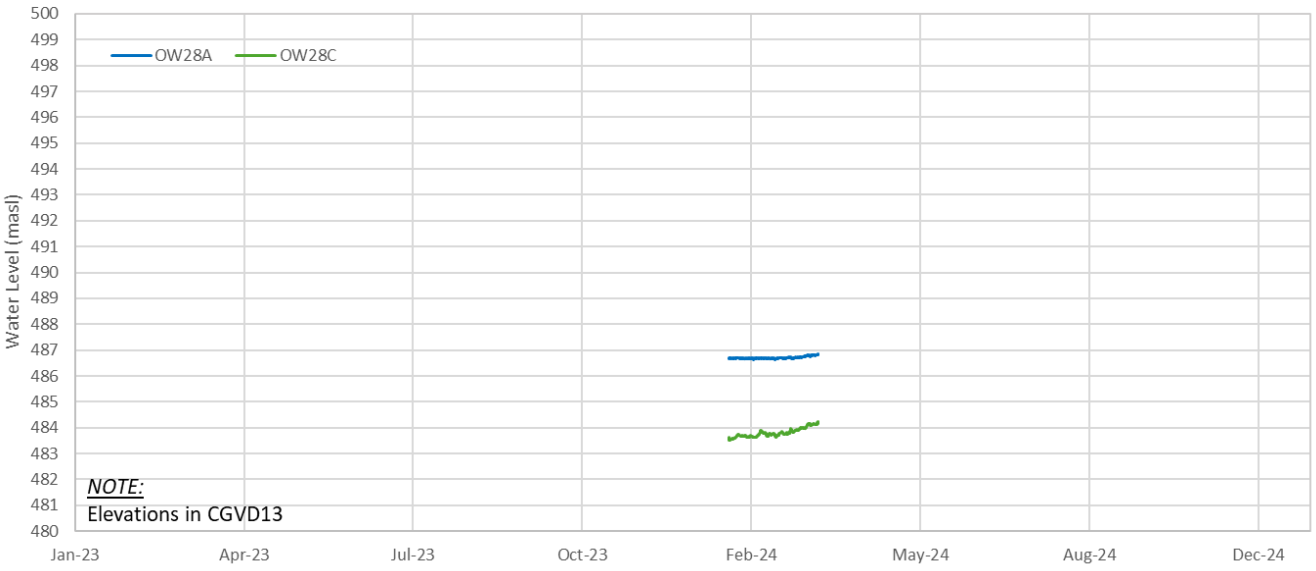


Figure B.28: Hydrograph of water levels at Well Nest OW28, in masl.

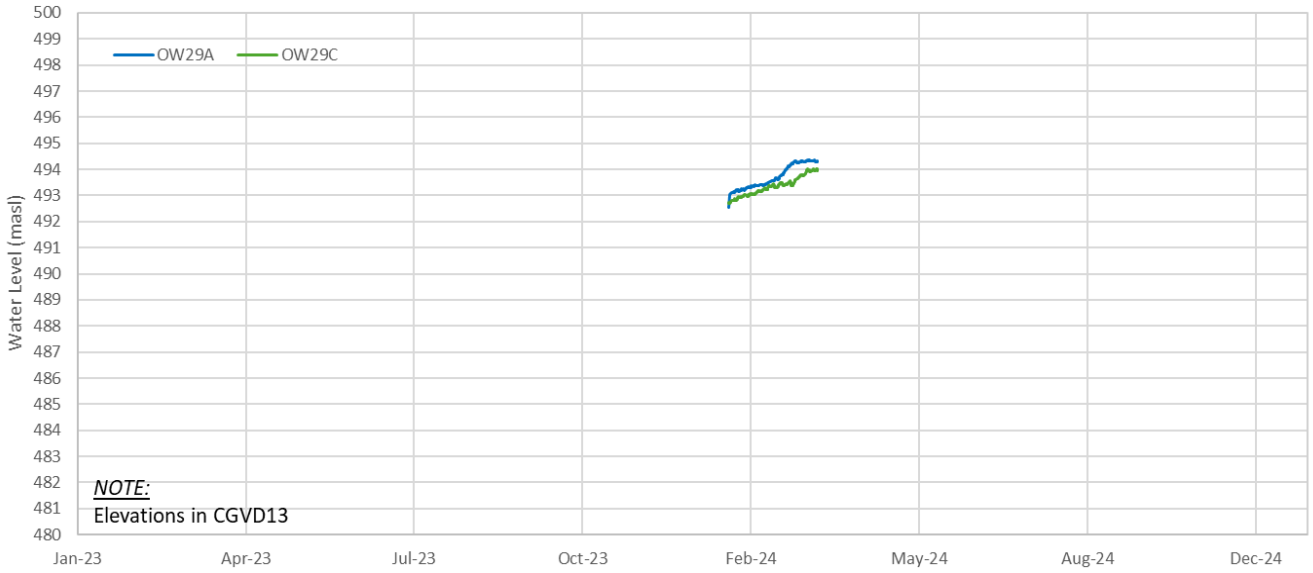


Figure B.29: Hydrograph of water levels at Well Nest OW29, in masl.

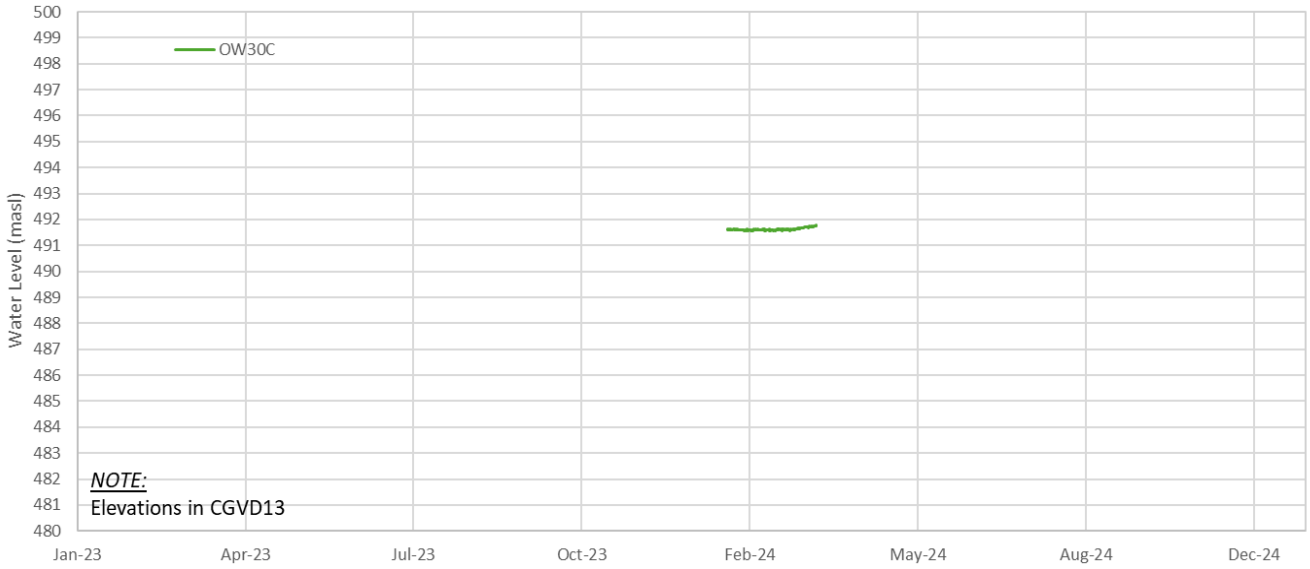


Figure B.30: Hydrograph of water levels at Well Nest OW30, in masl.