

LEGEND

- TOWN/VILLAGE
- LOW FLOW STATION
- CVC FLOW GAUGE
- EC FLOW GAUGE
- ROAD
- RAILWAY
- WATERCOURSE
- WATERBODY
- UNEVALUATED WETLAND
- OTHER EVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND
- LICENCE BOUNDARY
- LIMIT OF EXTRACTION

0 500 1,000 1,500

1:30,000 METRES

REFERENCE(S)

1. BASEDATA MNRF LIO OBTAINED APRIL 2020
2. WATERCOURSES OBTAINED FROM CREDIT VALLEY CONSERVATION AUTHORITY OPEN DATA PORTAL, NOVEMBER 2022 IN COMBINATION WITH SITE WATERCOURSE SURVEY PROVIDED BY FIRST BASE SOLUTIONS NOVEMBER 2021
3. IMAGERY FIRSTBASE SOLUTIONS SPRING 2019 (15CM RESOLUTION) AND SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY
4. LICENSE AND EXTRACTION LIMIT PROVIDED BY MHBC IN JUNE 2023.
5. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17N

CLIENT

CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA)

PROJECT

CALEDON PIT/ QUARRY

TITLE

SURFACE WATER LOW FLOW STATION LOCATIONS

CONSULTANT

GOLDER
MEMBER OF WSP

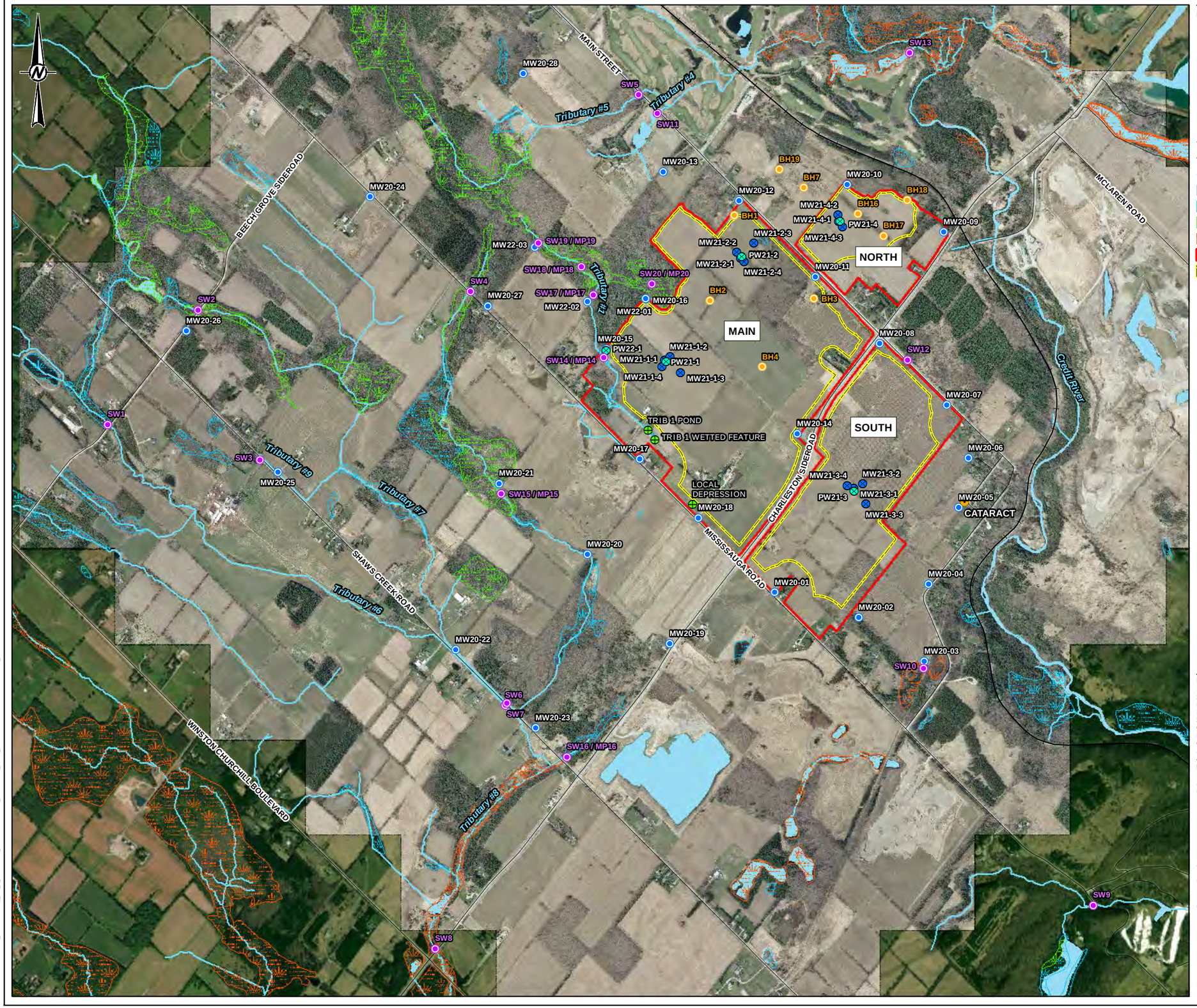
YYYY-MM-DD	2023-07-19
DESIGNED	SO
PREPARED	SO
REVIEWED	MR
APPROVED	HM

PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0036	0.0	6-3

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

0 25mm

PATH: S:\Clients\Votorantim_Cementos\Long_Pat_5_Caledon\99_PRO\19129150\40_PROD\0036_Water_Resources\19129150-0036-CH-0006_3.mxd PRINTED ON: 2023-07-19 AT: 1:42:58 PM



LEGEND

- TOWN/VILLAGE
- MONITORING WELL
- MONITORING WELL (PUMPING TEST)
- TEST WELL
- HISTORICAL MONITORING WELL
- SURFACE WATER STATION
- TRIBUTARY #1 ANNOTATION
- ROAD
- RAILWAY
- WATERCOURSE
- WATERBODY
- UNEVALUATED WETLAND
- OTHER EVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND
- LICENCE BOUNDARY
- LIMIT OF EXTRACTION

0 500 1,000

1:20,000 METRES

REFERENCE(S)

1. BASE DATA MNRF LIO OBTAINED 2020
2. WATERCOURSES OBTAINED FROM CREDIT VALLEY CONSERVATION AUTHORITY OPEN DATA PORTAL, NOVEMBER 2022 IN COMBINATION WITH SITE WATERCOURSE SURVEY PROVIDED BY FIRST BASE SOLUTIONS NOVEMBER 2021.
3. IMAGERY FIRSTBASE SOLUTIONS SPRING 2019 (15CM RESOLUTION) AND SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY
4. LICENSE AND EXTRACTION LIMIT PROVIDED BY MHBC IN JUNE 2023.
5. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17N

CLIENT

CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT

CALEDON PIT / QUARRY

TITLE

GROUNDWATER SURFACE WATER MONITORING NETWORK

CONSULTANT

GOLDER
MEMBER OF WSP

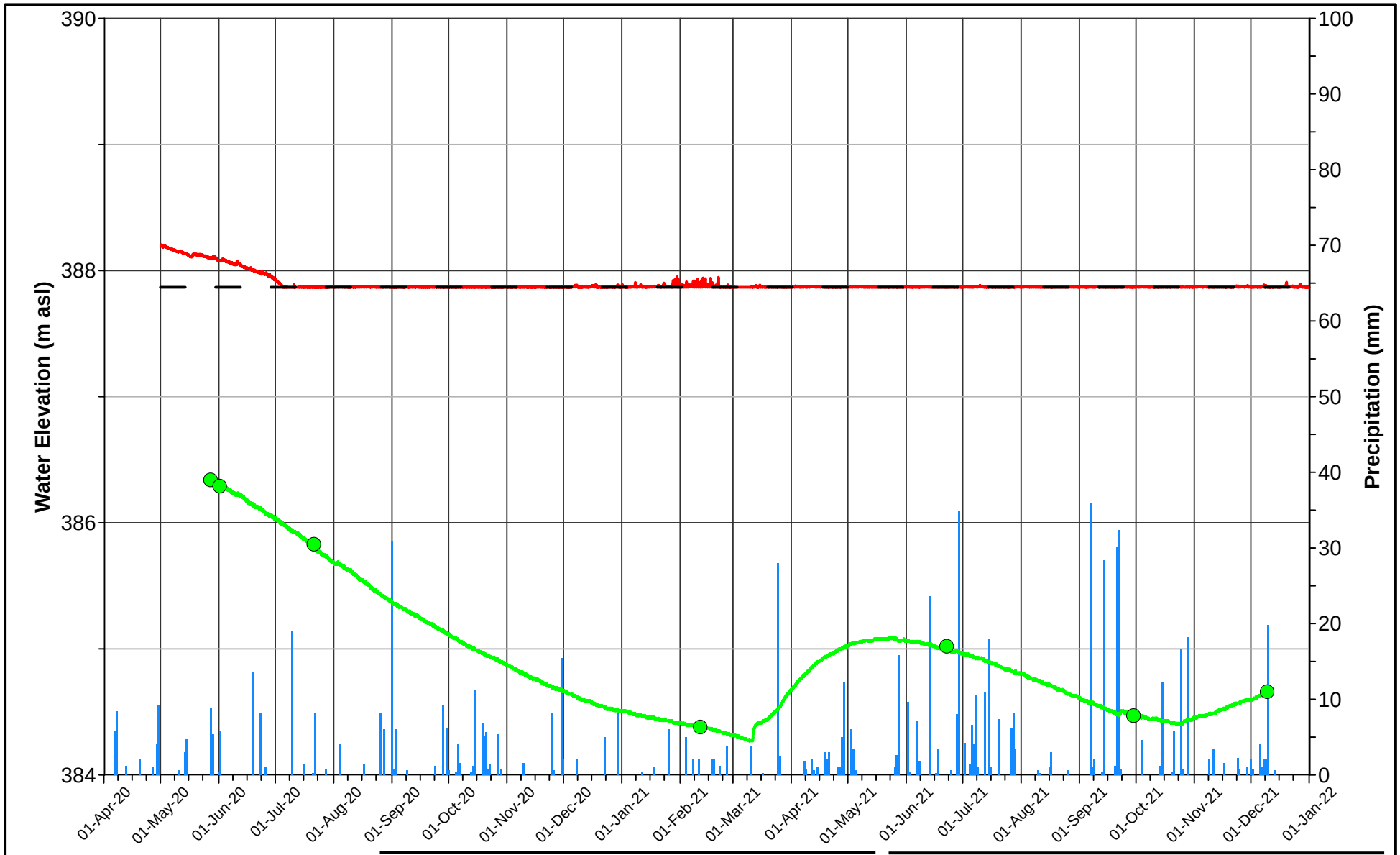
YYYY-MM-DD	2023-07-19
DESIGNED	CGE
PREPARED	SO
REVIEWED	GWS
APPROVED	HM

PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0036	0.0	6-4

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

0 25mm

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SW-10
MW20-02
MW20-03
Surface Water Logger Elevation

Note:
1) To be read with accompanying report.
2) Precipitation data from Environment and Climate Change Canada (Georgetown WWTP Station)

GOLDER
MEMBER OF WSP

DATE	December 2022
DESIGN	VRP
REVIEW	PGM
APPROVED	GWS

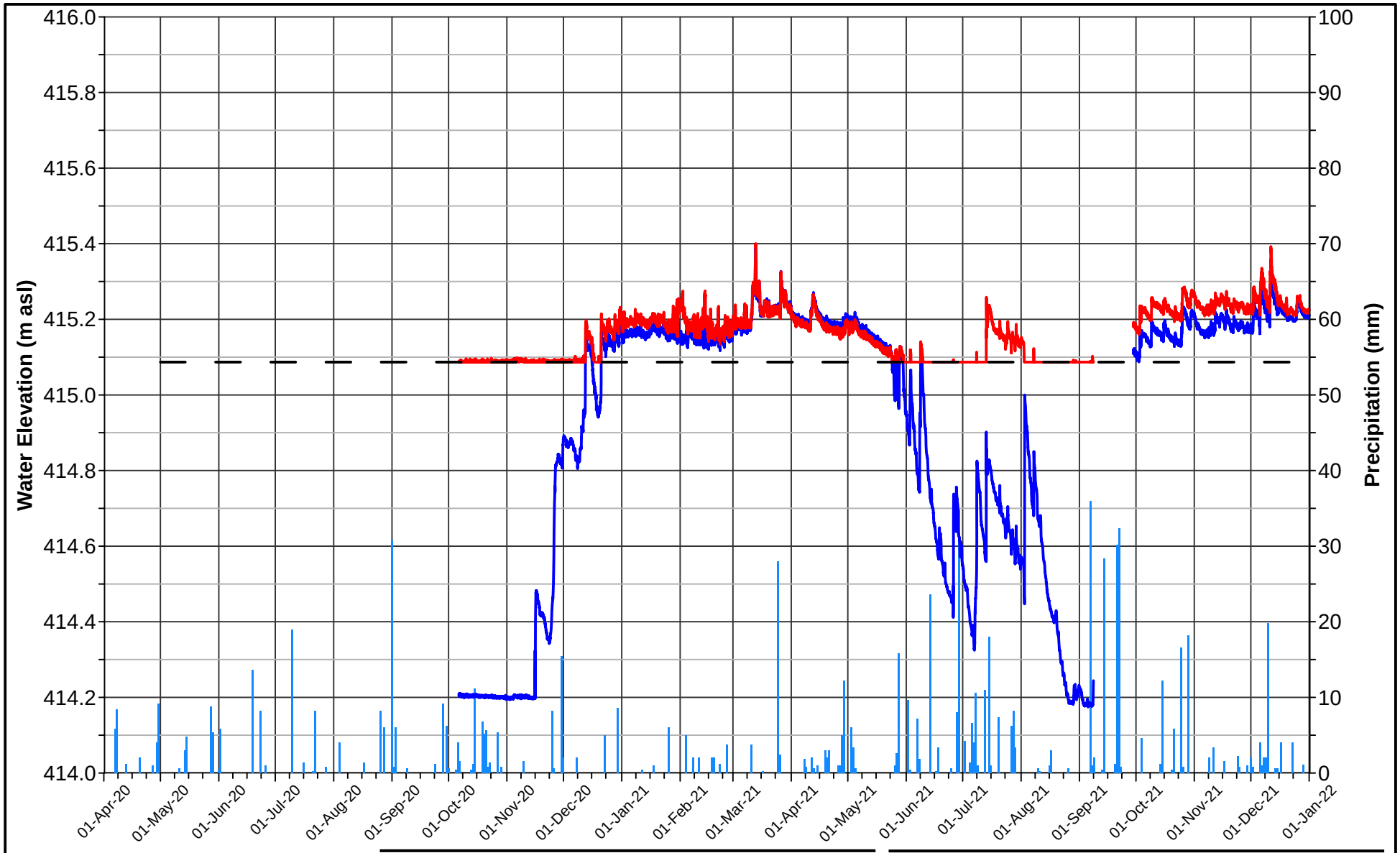
PROJECT

CBM CALEDON QUARRY

TITLE

SW10 GROUNDWATER-SURFACE WATER INTERACTION ELEVATION HYDROGRAPHS

PROJECT NO.	REV	FIGURE
19129150	A	6-5



Note:
1) To be read with accompanying report.
2) Precipitation data from Environment and Climate Change Canada (Georgetown WWTP Station)

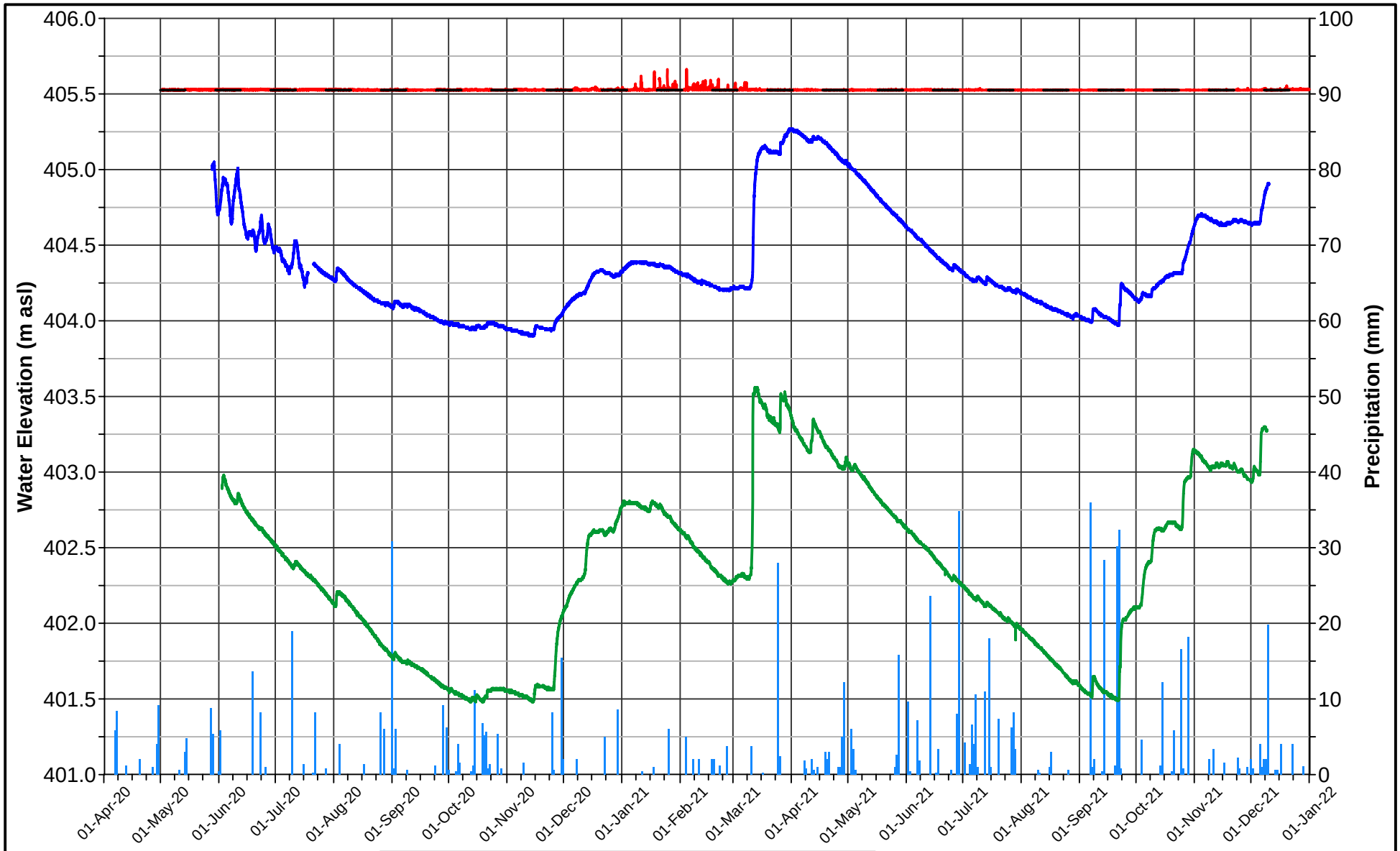
GOLDER
MEMBER OF WSP

DATE	December 2022
DESIGN	VRP
REVIEW	PGM
APPROVED	GWS

PROJECT
CBM CALEDON QUARRY

TITLE
SW14 GROUNDWATER-SURFACE WATER INTERACTION ELEVATION HYDROGRAPHS

PROJECT NO.	REV	FIGURE
19129150	A	6-6



Note:
1) To be read with accompanying report.
2) Precipitation data from Environment and Climate Change Canada (Georgetown WWTP Station)

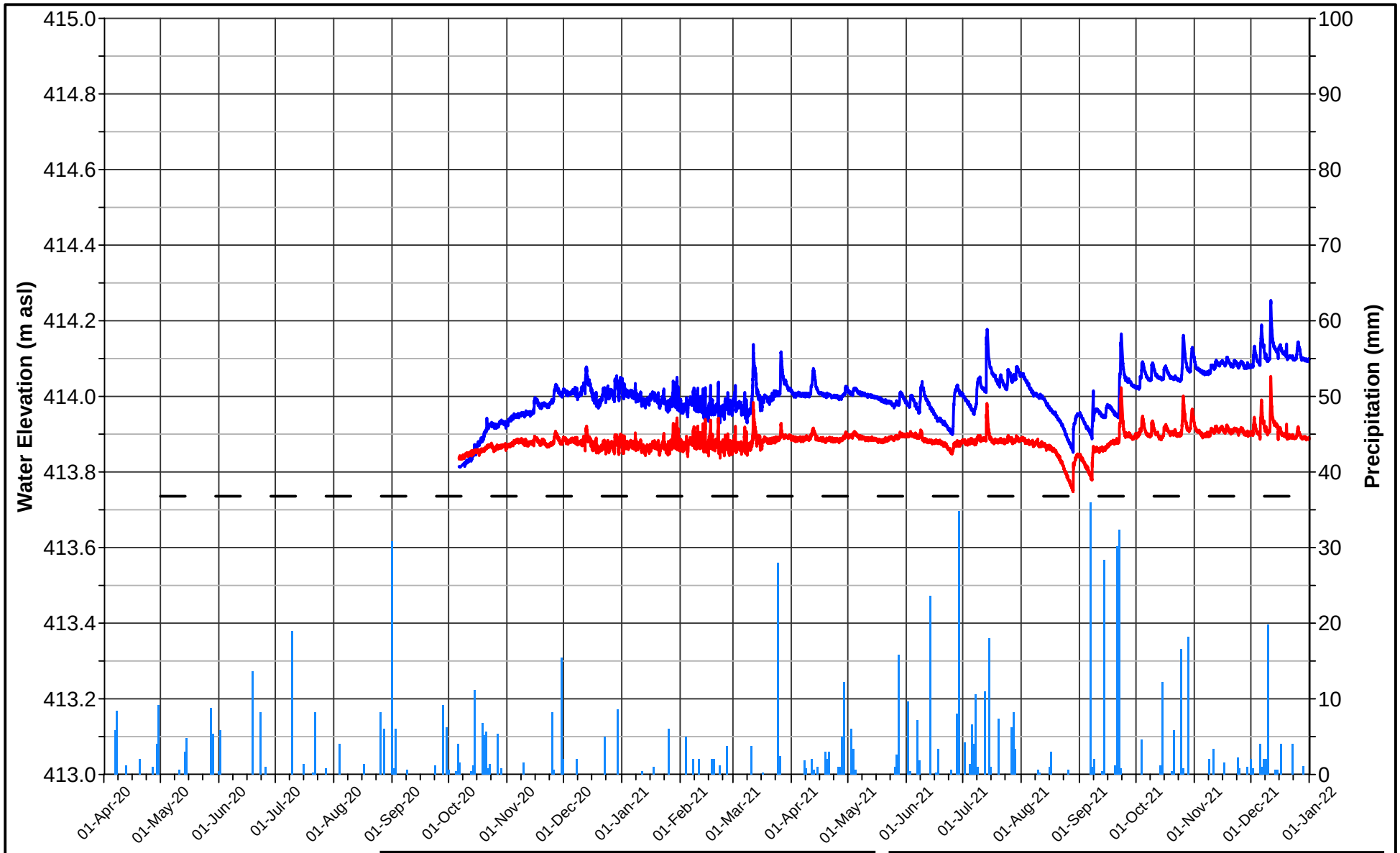
GOLDER
MEMBER OF WSP

DATE	December 2022
DESIGN	PGM
REVIEW	GWS
APPROVED	GWS

PROJECT
CBM CALEDON QUARRY

TITLE
SW12 GROUNDWATER-SURFACE WATER INTERACTION ELEVATION HYDROGRAPHS

PROJECT NO.	REV	FIGURE
19129150	A	6-7



Note:
1) To be read with accompanying report.
2) Precipitation data from Environment and Climate Change Canada (Georgetown WWTP Station)

GOLDER
MEMBER OF WSP

DATE	December 2022
DESIGN	VRP
REVIEW	PGM
APPROVED	GWS

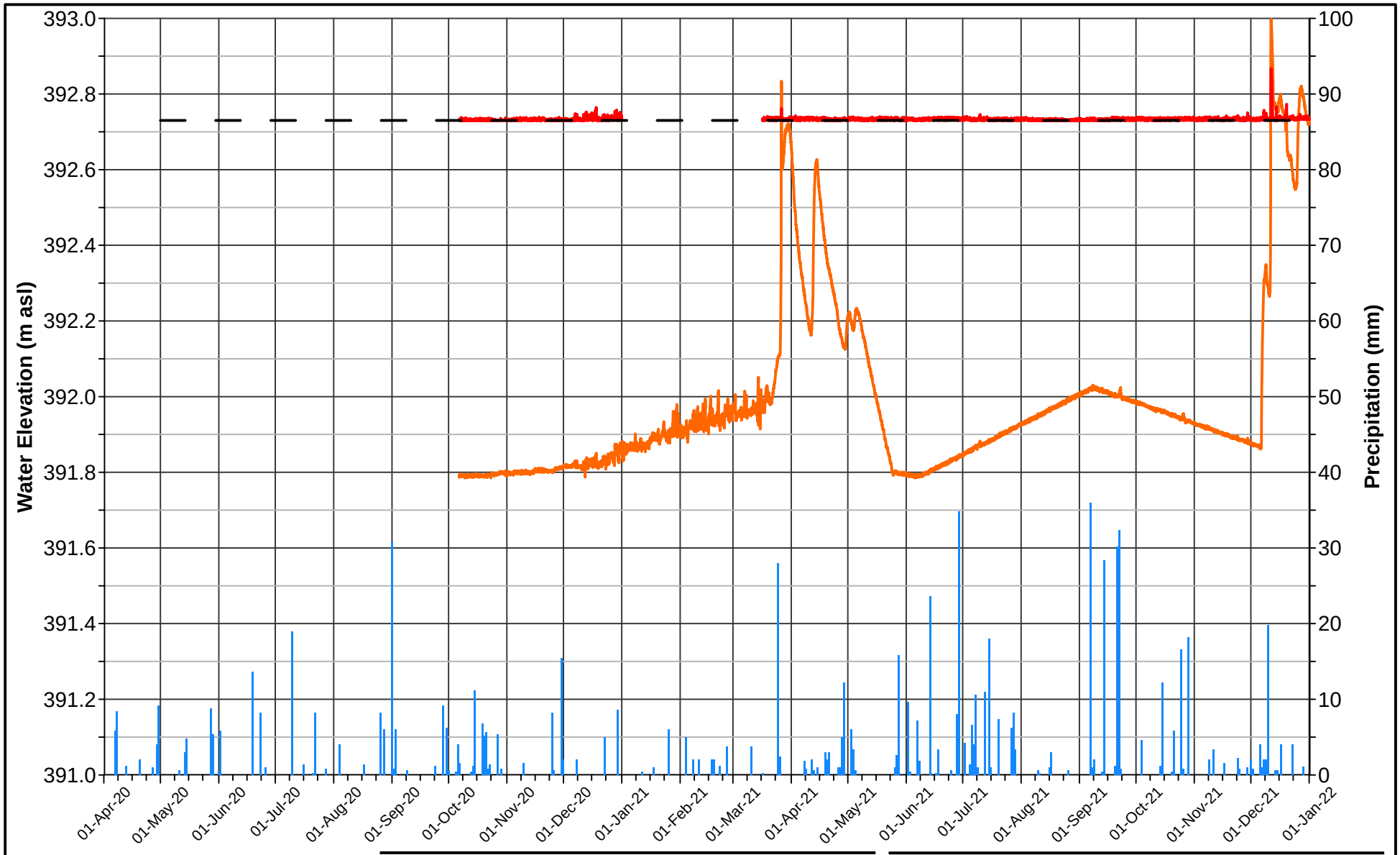
PROJECT

CBM CALEDON QUARRY

TITLE

SW15 GROUNDWATER-SURFACE WATER INTERACTION ELEVATION HYDROGRAPHS

PROJECT NO.	REV	FIGURE
19129150	A	6-8



Note:
1) To be read with accompanying report.
2) Precipitation data from Environment and Climate Change Canada (Georgetown WWTP Station)

GOLDER
MEMBER OF WSP

DATE	December 2022
DESIGN	VRP
REVIEW	PGM
APPROVED	GWS

PROJECT
CBM CALEDON QUARRY

TITLE
SW16 GROUNDWATER-SURFACE WATER INTERACTION ELEVATION HYDROGRAPHS

PROJECT NO.	REV	FIGURE
19129150	A	6-9



LEGEND

NOTES

Traverse #1 completed on March 5, 2020
Traverse #2 completed on December 12, 2022

CLIENT
CBM AGGREGATES (CBM), A DIVISION OF ST. MARYS CEMENT INC. (CANADA)

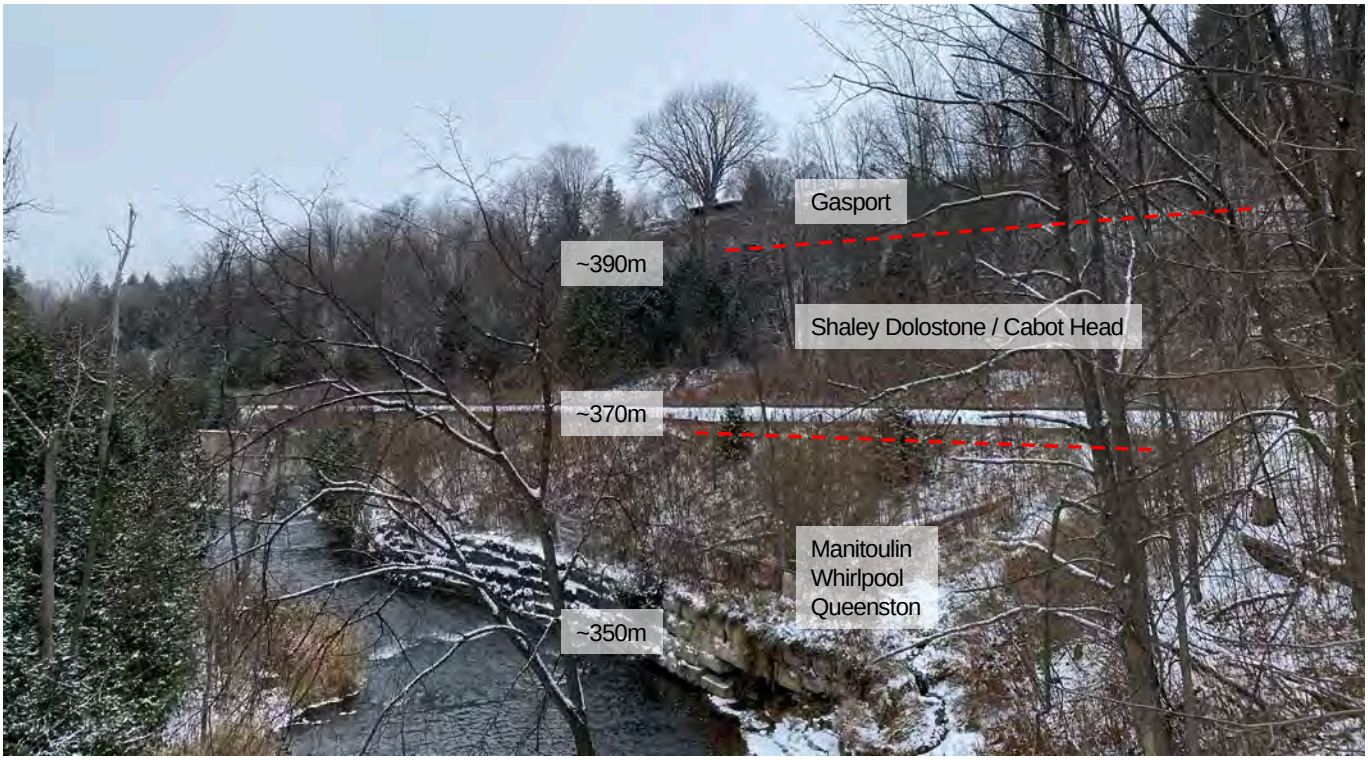
CONSULTANT
GOLDER
MEMBER OF WSP

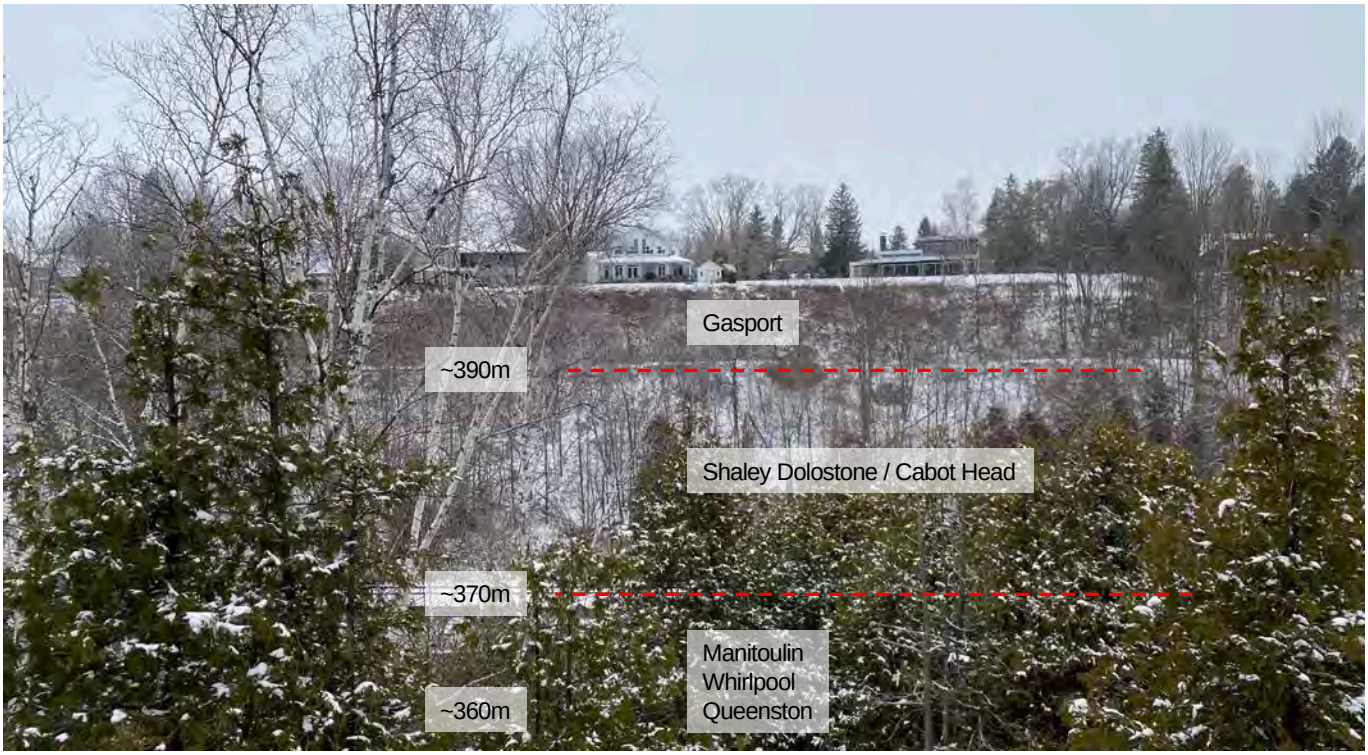
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PREPARED	GWS
DESIGN	GWS
REVIEW	PGM
APPROVED	GRP

PROJECT
CALEDON PIT AND QUARRY

TITLE
CATARACT SEEP RECONNAISSANCE - TRAVERSE ROUTE AND WAYPOINTS

PROJECT No.	Rev.	FIGURE
19129150	0	6-10





LEGEND

Approximate Geologic Contact

NOTE

Approximate geologic contacts are projected from borehole drilling and water well record data from the Site and Cataract area

CLIENT

CBM Aggregates, a division of St. Marys Cement Inc. (Canada)

PROJECT

Caledon Pit / Quarry

Water Report Level 1 / 2

CONSULTANT

GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-12-12
PREPARED	GWS
DESIGN	GWS
REVIEW	GRP
APPROVED	GRP

TITLE

Cataract Seep Reconnaissance

Bedrock Geology

PROJECT No. **19129150**

Rev. **0**

FIG. **6-11**





LEGEND

Approximate Geologic Contact

NOTE

CLIENT
CBM Aggregates, a division of St. Marys Cement Inc. (Canada)

PROJECT
Caledon Pit / Quarry
Water Report Level 1 / 2

CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-12-12
PREPARED	GWS
DESIGN	GWS
REVIEW	GRP
APPROVED	GRP

TITLE
Cataract Seep Reconnaissance
Seepage from base of Gasport at Waypoint #263

PROJECT No. **19129150**
Rev. **0**
FIG. **6-12**





LEGEND

Approximate Geologic Contact

NOTE

Approximate geologic contacts are projected from borehole drilling and water well record data from the Site and Cataract area

CLIENT

CBM Aggregates, a division of St. Marys Cement Inc. (Canada)

PROJECT

Caledon Pit / Quarry

Water Report Level 1 / 2

CONSULTANT

GOLDER
MEMBER OF WSP

YYYY-MM-DD	2022-12-12
PREPARED	GWS
DESIGN	GWS
REVIEW	GRP
APPROVED	GRP

TITLE

Cataract Seep Reconnaissance

Pipe Observed at Waypoint #259 and Culvert at Waypoint #266

PROJECT No. **19129150**

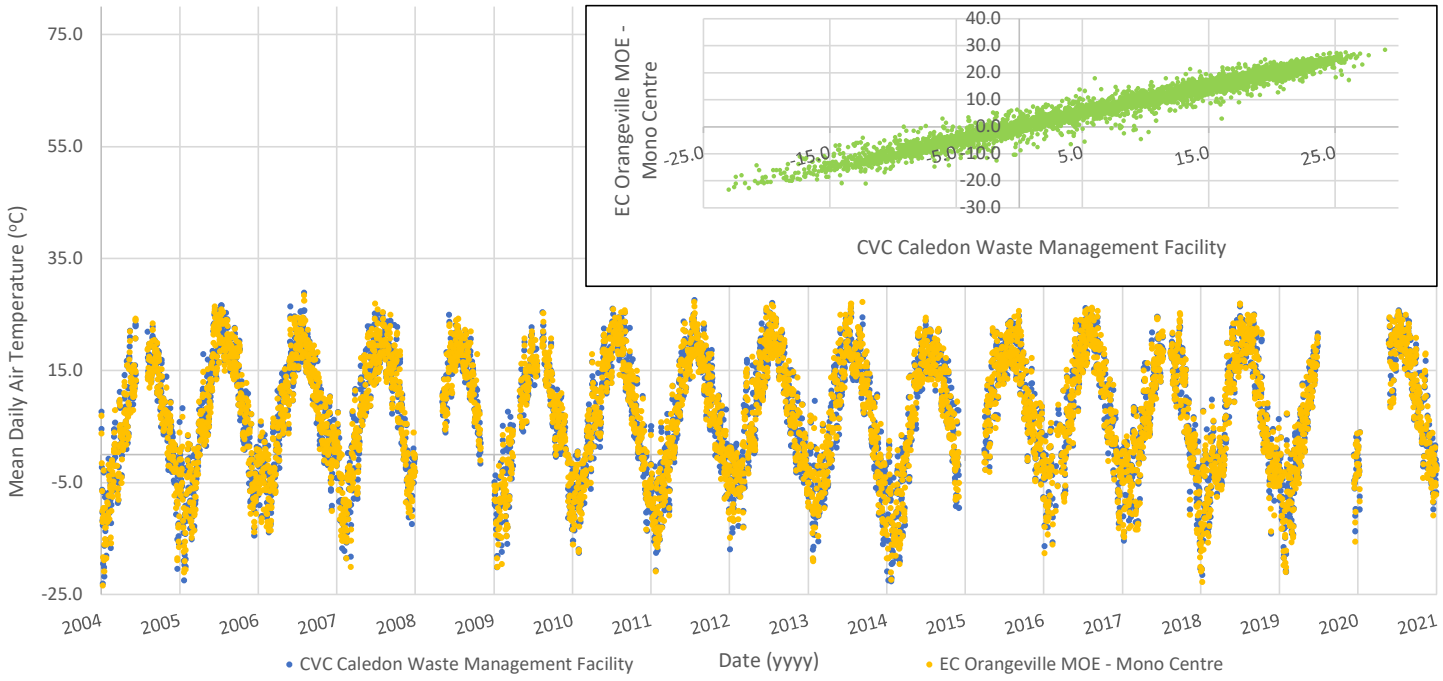
Rev. **0**

FIG. **6-13**

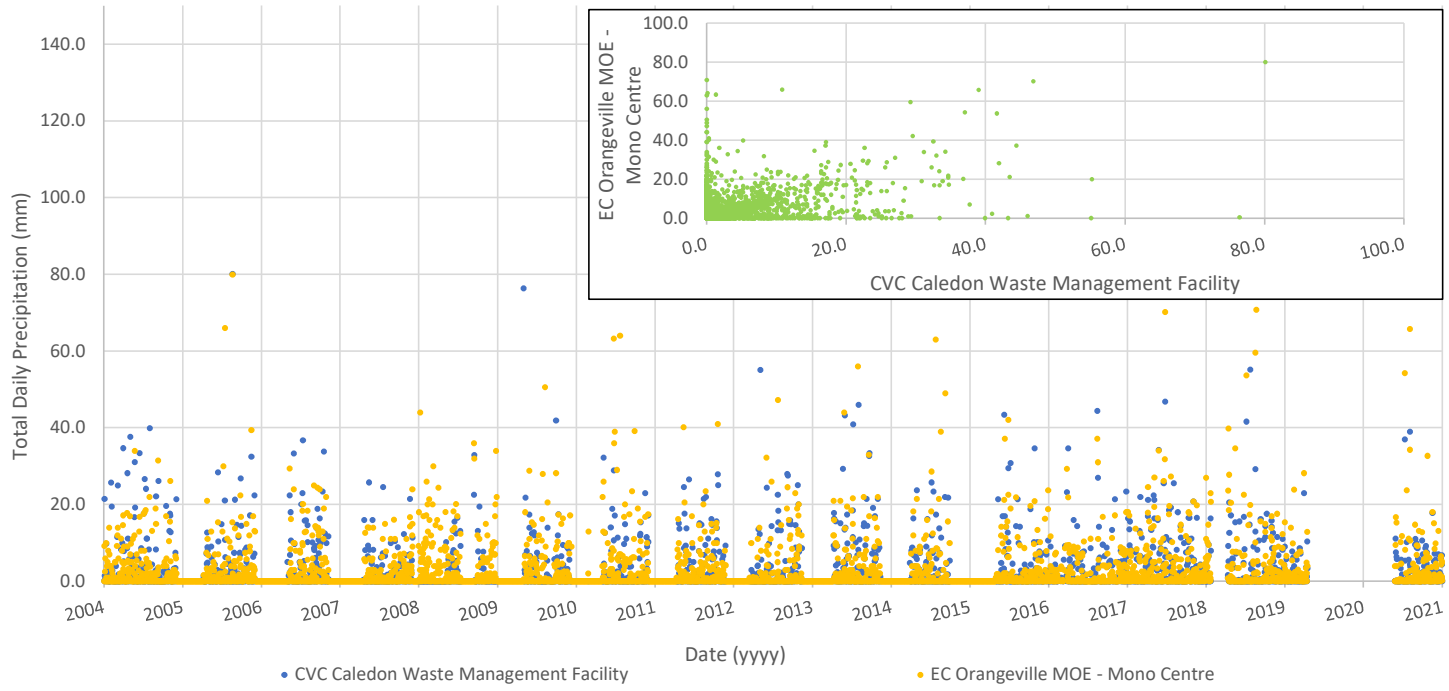
Meterological Correlation Plot Between the CVC Caledon Waste Management Facility and EC Orangeville MOE / Mono Centre MET Stations (2004 - 2020)

FIGURE 7-1

B



C

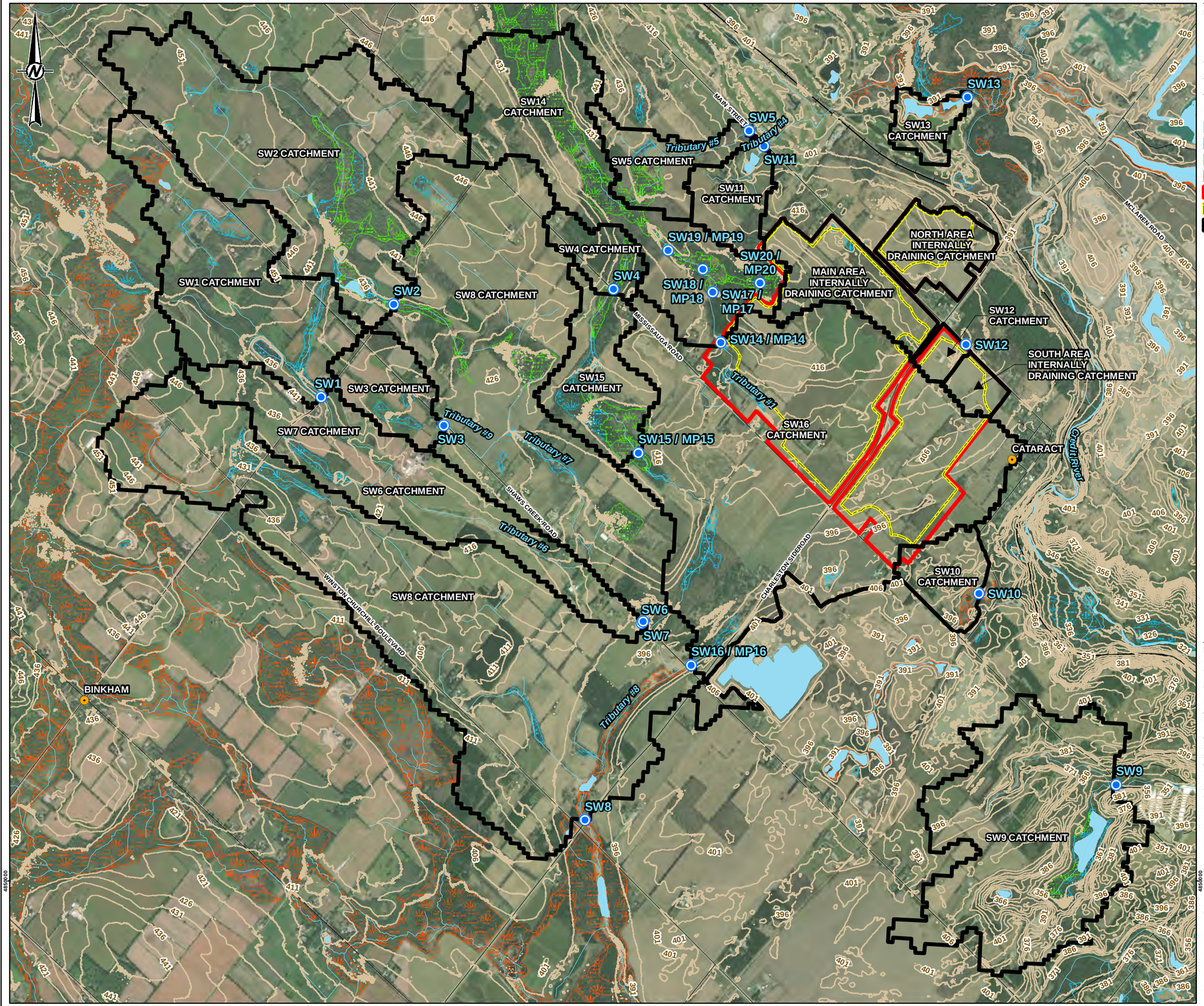


A. Mean Daily Air Temperature **B. Total Daily Precipitation**

PROJECT: 19129150
DATE: April 2023

GOLDER
MEMBER OF WSP

DRAWN: MR
CHECK: CDV / GWS



LEGEND

- TOWN/VILLAGE
- SURFACE WATER STATION
- CONTOURS (5 m INTERVAL)
- ROAD
- RAILWAY
- WATERCOURSE
- WATERBODY
- UNEVALUATED WETLAND
- OTHER EVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND
- LICENCE BOUNDARY
- LIMIT OF EXTRACTION
- CATCHMENT AREA

0 500 1,000 1,500

1:25,000 METRES

REFERENCE(S)

1. BASEDATA OBTAINED FROM THE MRNF LIO APRIL 2020
2. TOPOGRAPHY OBTAINED FROM THE MNRF LIO ONTARIO DIGITAL TERRAIN MODEL (LIDAR-DERIVED), GTA-PEEL ACQUISITION PROJECT SPRING 2016.
3. WATERCOURSES OBTAINED FROM CREDIT VALLEY CONSERVATION AUTHORITY OPEN DATA PORTAL, NOVEMBER 2022 IN COMBINATION WITH SITE WATERCOURSE SURVEY PROVIDED BY FIRST BASE SOLUTIONS NOVEMBER 2021
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SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY
5. LICENSE AND EXTRACTION LIMIT PROVIDED BY MHBC IN JUNE 2023.
6. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17N

CLIENT

CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA)

PROJECT

CALEDON PIT / QUARRY

TITLE

SURFACE WATER STATION CATCHMENTS AND TOPOGRAPHY - EXISTING

CONSULTANT

GOLDER
MEMBER OF WSP

YYYY-MM-DD	2023-07-19
DESIGNED	SO
PREPARED	SO
REVIEWED	MR
APPROVED	HM

PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0036	0.0	7-2

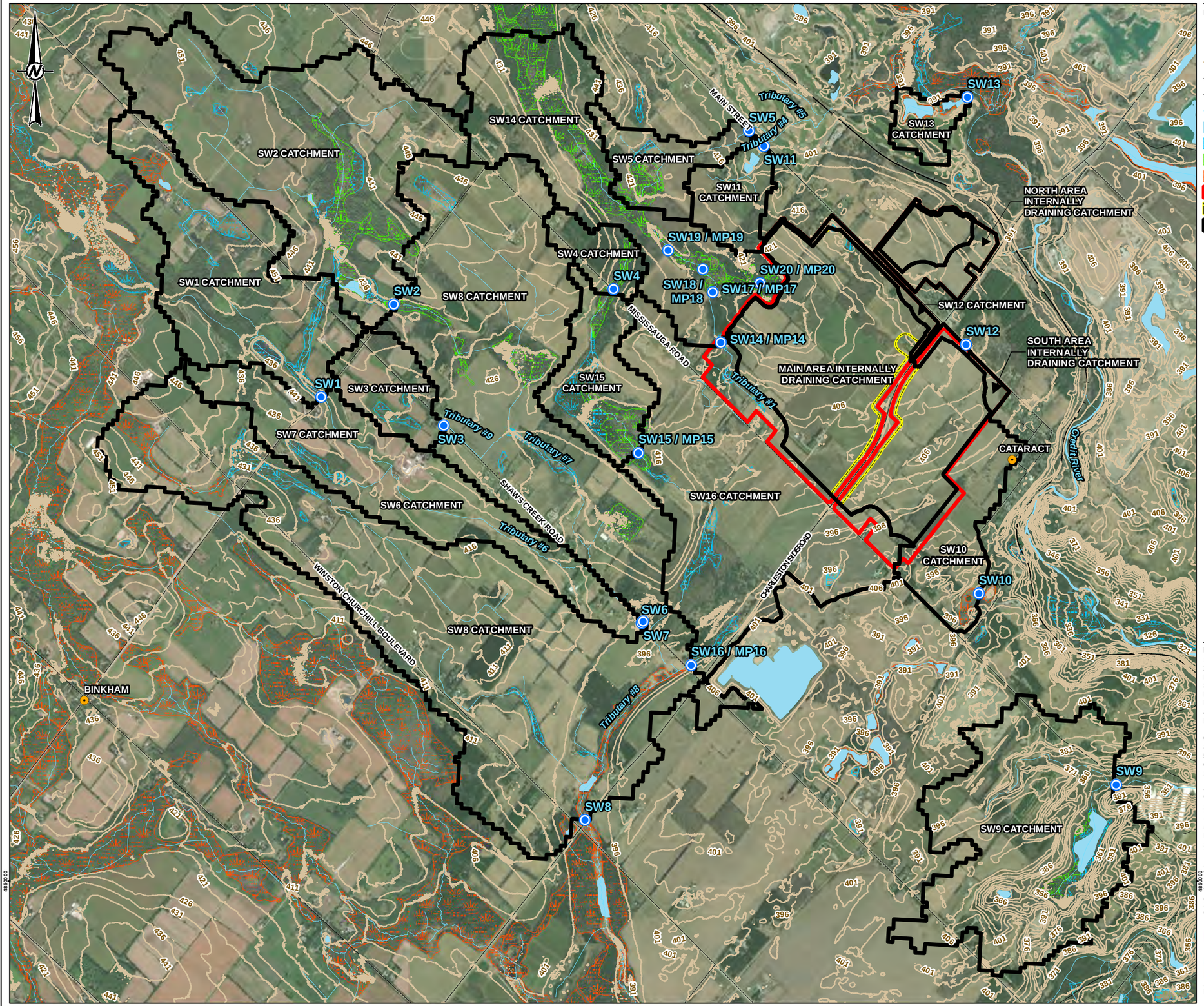
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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25mm

0



LEGEND

- TOWN/VILLAGE
- SURFACE WATER STATION
- CONTOURS (5 m INTERVAL)
- ROAD
- RAILWAY
- WATERCOURSE
- WATERBODY
- UNEVALUATED WETLAND
- OTHER EVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND
- LICENCE BOUNDARY
- LIMIT OF EXTRACTION
- CATCHMENT AREA

0 500 1,000 1,500

1:25,000 METRES

REFERENCE(S)

1. BASEDATA OBTAINED FROM THE MRNF LIO APRIL 2020
2. TOPOGRAPHY OBTAINED FROM THE MNRF LIO ONTARIO DIGITAL TERRAIN MODEL (LIDAR-DERIVED), GTA-PEEL ACQUISITION PROJECT SPRING 2016.
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SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY
5. LICENSE AND EXTRACTION LIMIT PROVIDED BY MHBC IN JUNE 2023.
6. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17N

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA)

PROJECT
CALEDON PIT / QUARRY

TITLE
SURFACE WATER STATION CATCHMENTS AND TOPOGRAPHY - OPERATIONAL

CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2023-07-19
DESIGNED	SO
PREPARED	SO
REVIEWED	MR
APPROVED	HM

PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0036	0.0	7-3

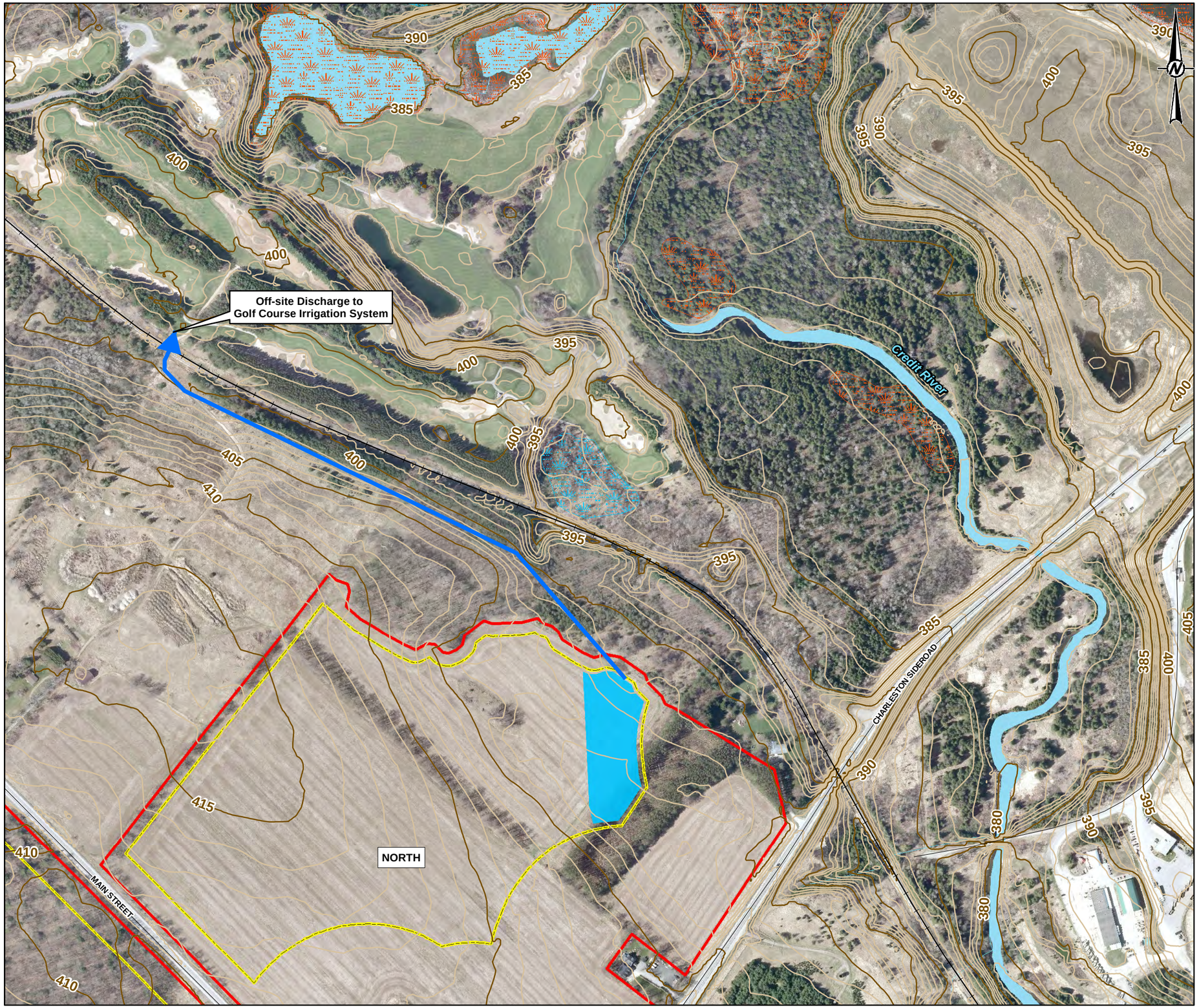
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IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25mm

0



LEGEND

- ROAD
- RAILWAY
- CONTOUR 5 m INTERVAL
- CONTOUR 1 m INTERVAL
- WATERCOURSE
- WATERBODY
- UNEVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND
- LICENCE BOUNDARY
- LIMIT OF EXTRACTION

0 100 200

1:4,500 METRES

REFERENCE(S)

1. BASE DATA MNRF LIO OBTAINED 2020
2. WATERCOURSES OBTAINED FROM CREDIT VALLEY CONSERVATION AUTHORITY OPEN DATA PORTAL, NOVEMBER 2022 IN COMBINATION WITH SITE WATERCOURSE SURVEY PROVIDED BY FIRST BASE SOLUTIONS NOVEMBER 2021
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4. LICENSE AND EXTRACTION LIMIT PROVIDED BY MHBC IN JUNE 2023.
5. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17N

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT
CALEDON PIT / QUARRY

TITLE
PROPOSED OFF-SITE DISCHARGE LOCATION

CONSULTANT
GOLDER
MEMBER OF WSP

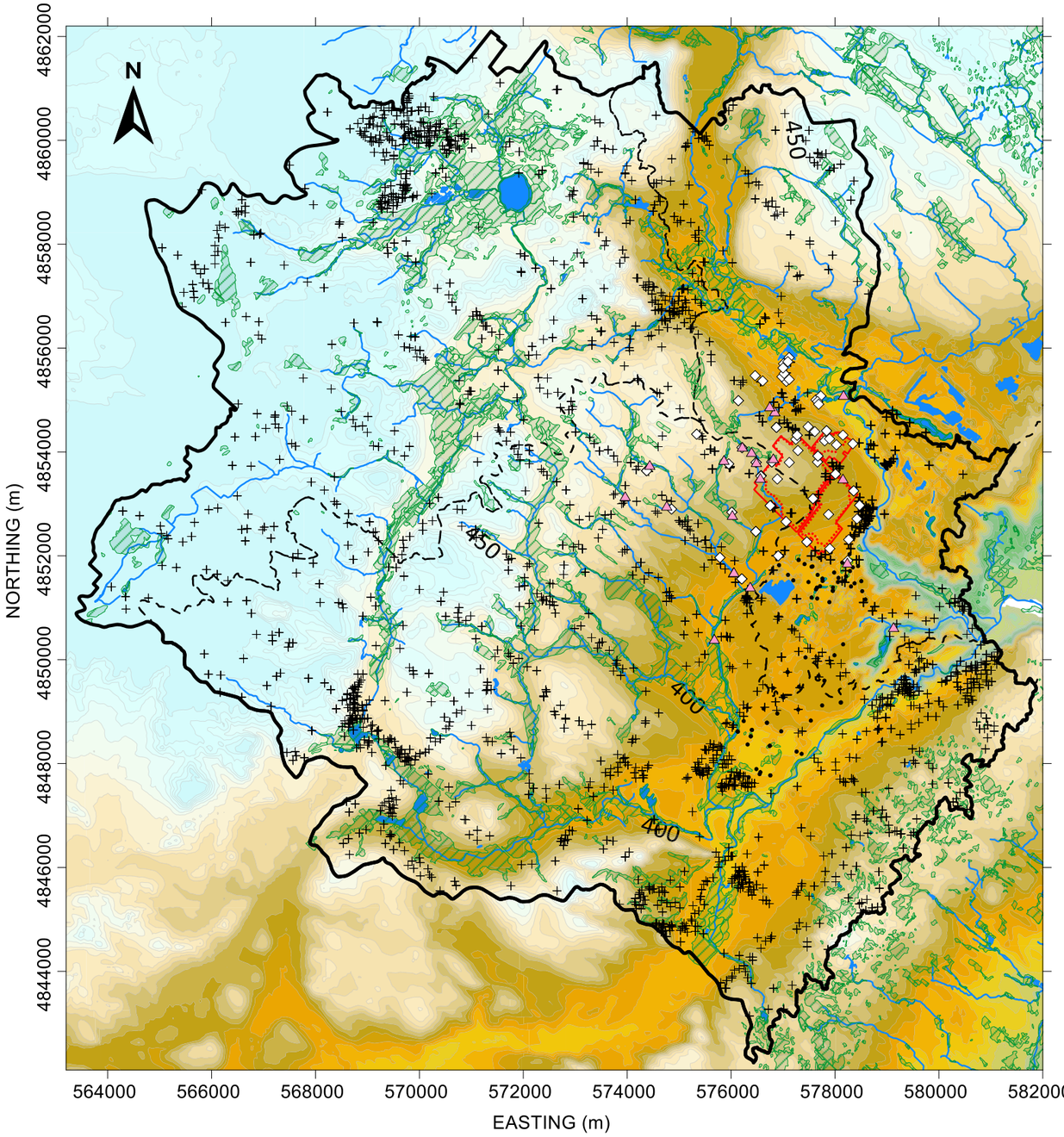
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DESIGNED	CGE
PREPARED	SO
REVIEWED	PM
APPROVED	HM

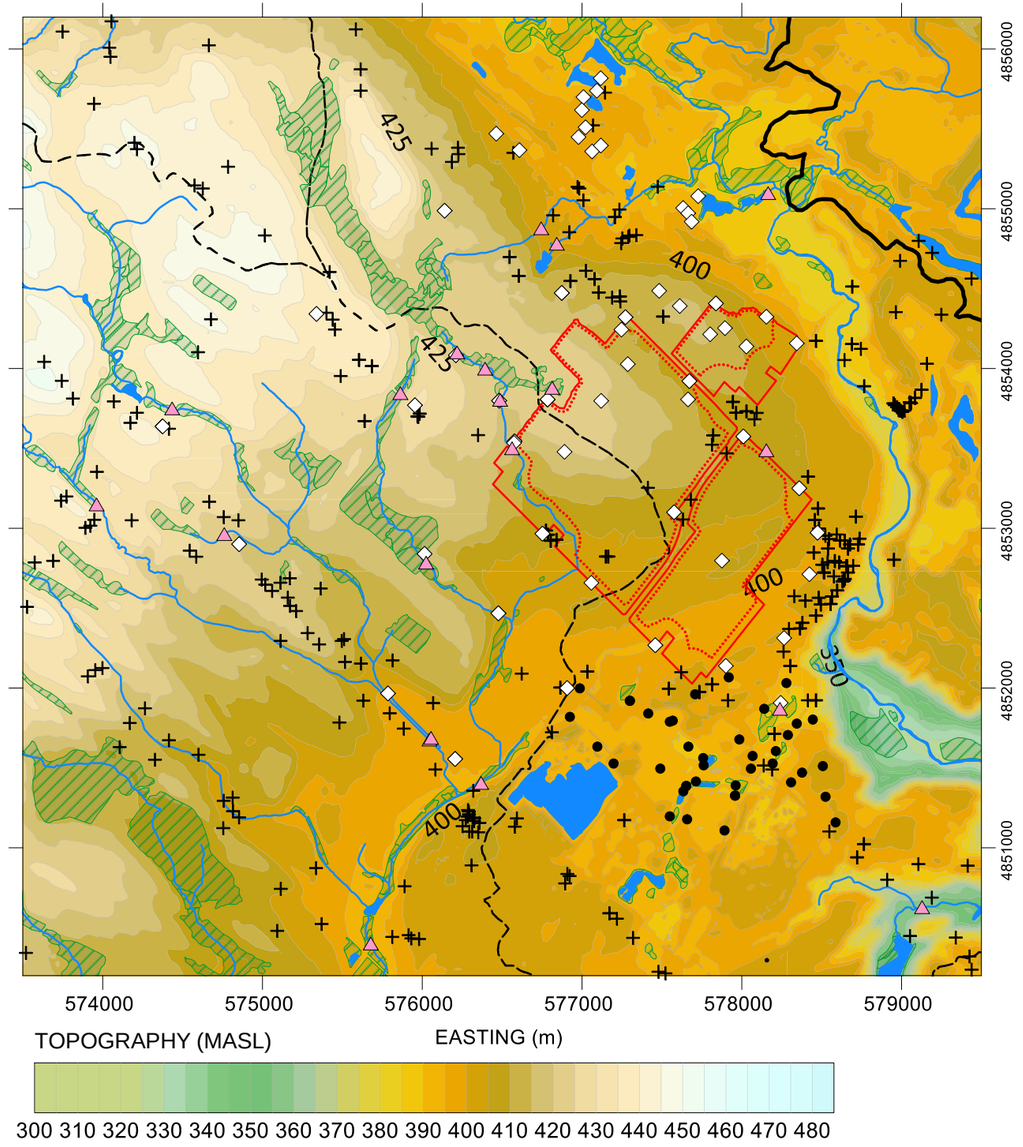
PROJECT NO.	CONTROL	REV.	FIGURE
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LEGEND

- LAKES
- RIVERS/ STREAMS
- WETLAND
- MODEL DOMAIN
- CVC SUBWATERSHED
- SITE PROPERTY BOUNDARY
- EXTRACTION EXTENTS
- MECP WWR WELL LOCATION
- SITE GROUNDWATER MONITORING LOCATION
- SITE SURFACE WATER MONITORING LOCATION
- ADDITIONAL GROUNDWATER MONITORING LOCATION[6]

NOTES

1. Source of spatial mapping of watercourses, waterbodies, and wetlands: Land Information Ontario (MNRF, 2018)
2. Source of Regional Topography dataset Ontario Ministry of Natural Resources and Forestry (MNRF) Southwestern Ontario Orthophotography (SWOOP) 2019
3. Source of Site Topography dataset provided by Firstbase Solutions (Spring 2021)
4. Ministry of Environment Conservation and Parks (MECP) Water Well Information System Database (MECP, 2020).
5. Quarry license and limit of extraction provided by MHBC (2022)
6. Additional groundwater monitoring points from CRA (2012) and Harden (2016) reports

CLIENT
CBM AGGREGATES (CBM), A DIVISION OF ST. MARYS CEMENT INC. (CANADA)

CONSULTANT
GOLDER
MEMBER OF WSP

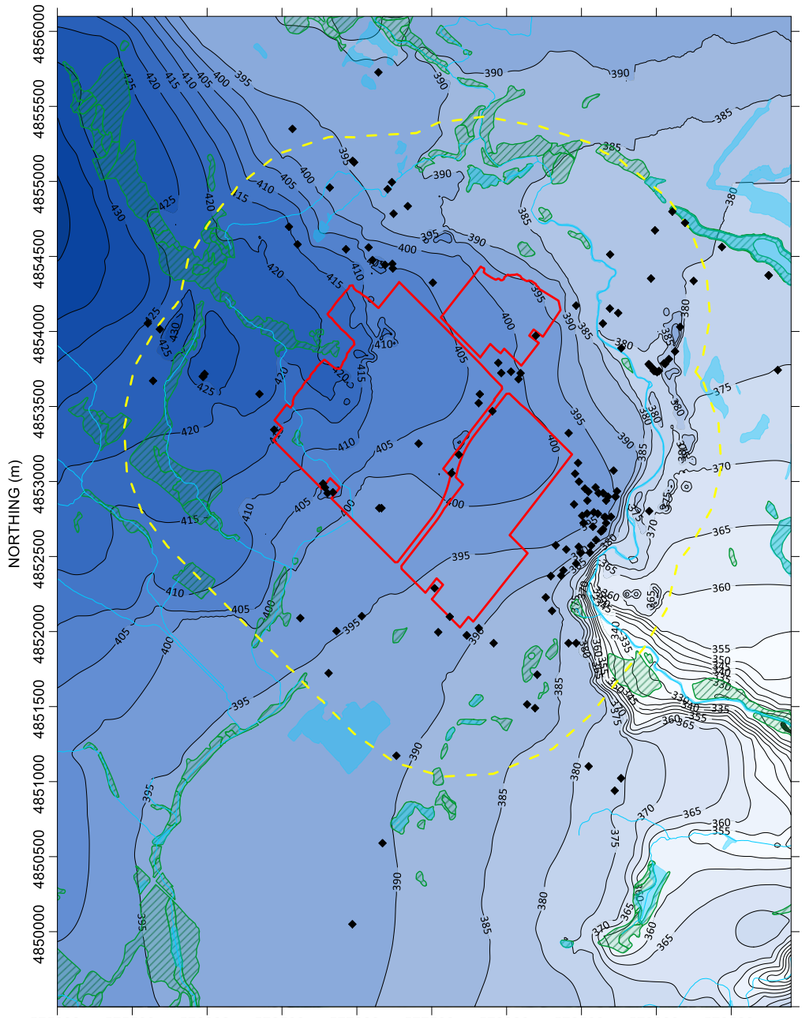
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DESIGN	HW
REVIEW	SD
APPROVED	GS

PROJECT
CALEDON PIT AND QUARRY NUMERICAL MODELLING

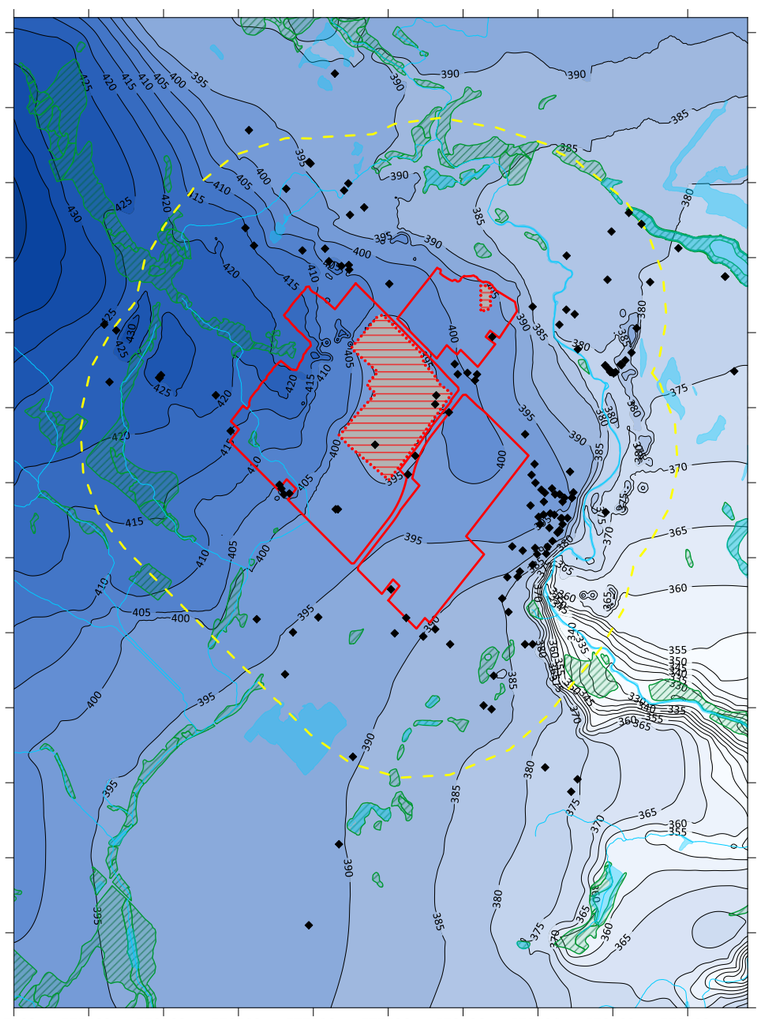
TITLE
STUDY AREA AND MODEL DOMAIN

PROJECT No. 19129150 | Rev. 0 | FIGURE 8-1

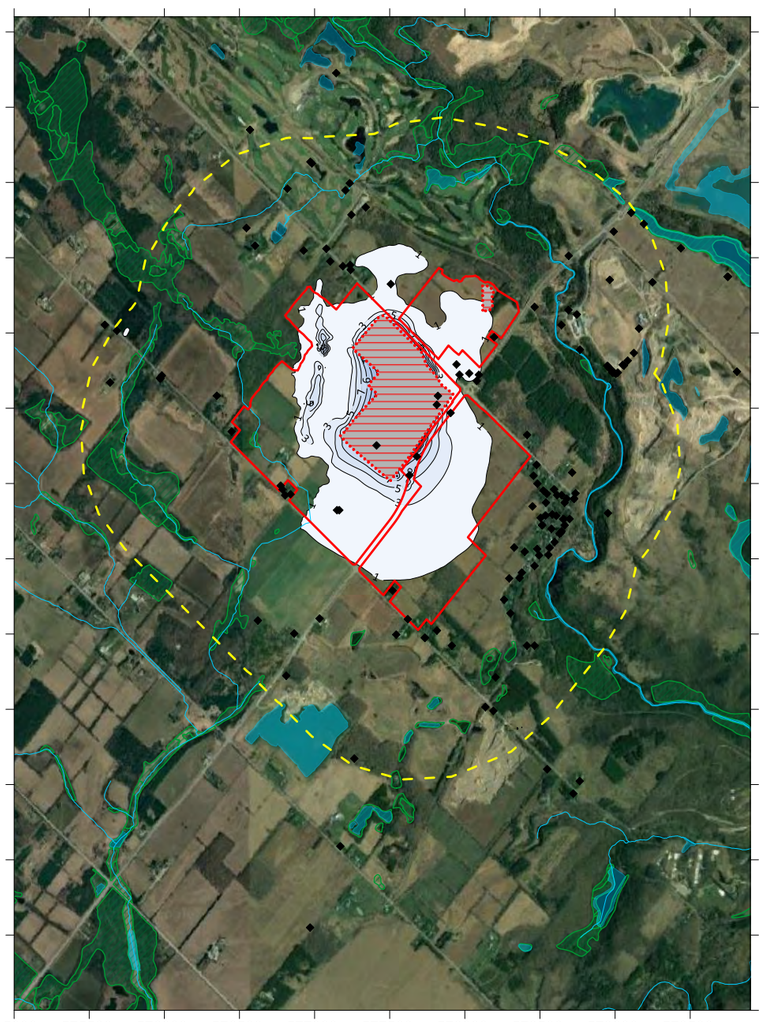
CURRENT CONDITIONS SIMULATED WATER TABLE (masl)



PHASE 1 SIMULATED WATER TABLE (masl)



PHASE 1 SIMULATED WATER TABLE DRAWDOWN (m)



SIMULATED WATER TABLE ELEVATION (masl)

310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490

SIMULATED WATER TABLE DRAWDOWN (m)

1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31

LEGEND

- LAKES
- RIVERS/ STREAMS
- SITE PROPERTY BOUNDARY
- EXTRACTION EXTENTS
- WETLAND
- 1KM BUFFER AROUND PROPERTY
- MECP PRIVATE WELL LOCATION

Phase of Operation	Years
1	1 to 8
2	9 to 13
3	14 to 17
4	18 to 22
5	23 to 26
6	27 to 32
7	33 to 38

NOTES

1. Simulated hydraulic water table elevation is shown at a contour interval of 5m
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4. Private wells shown are from the Ministry of Environment Conservation and Parks (MECP) Water Well Information System Database (MECP, 2021).

CLIENT
CBM AGGREGATES (CBM), A DIVISION OF ST. MARYS CEMENT INC. (CANADA)

CONSULTANT
GOLDER
MEMBER OF WSP

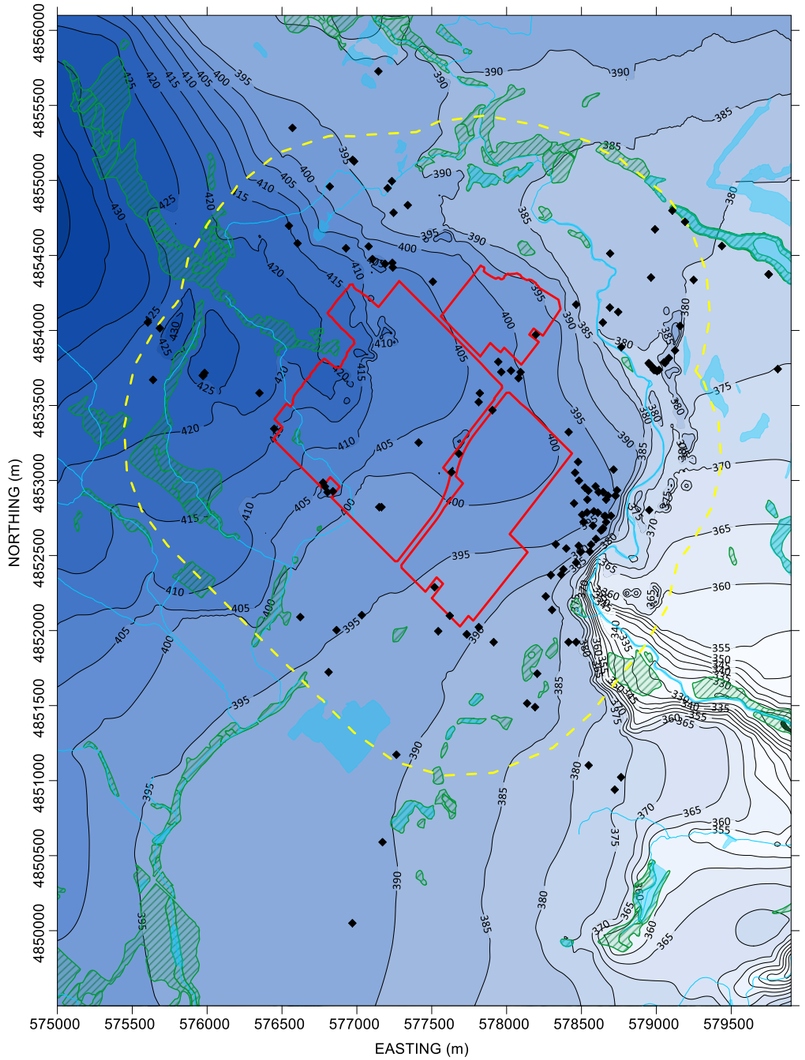
YYYY-MM-DD	2023-03-24
PREPARED	HW
DESIGN	HW
REVIEW	SD
APPROVED	GS

PROJECT
CALEDON PIT AND QUARRY NUMERICAL MODELLING

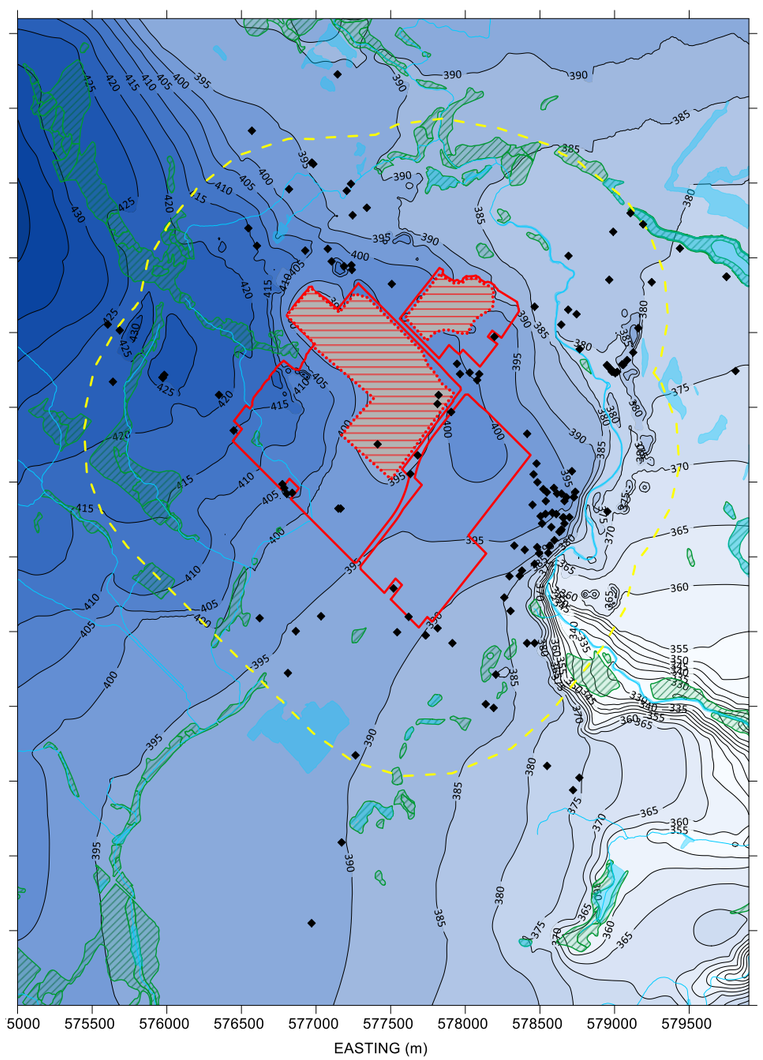
TITLE
PHASE 1 SIMULATED WATER TABLE ELEVATION AND DRAWDOWN

PROJECT No. 19129150 | Rev. 0 | FIGURE 8-2A

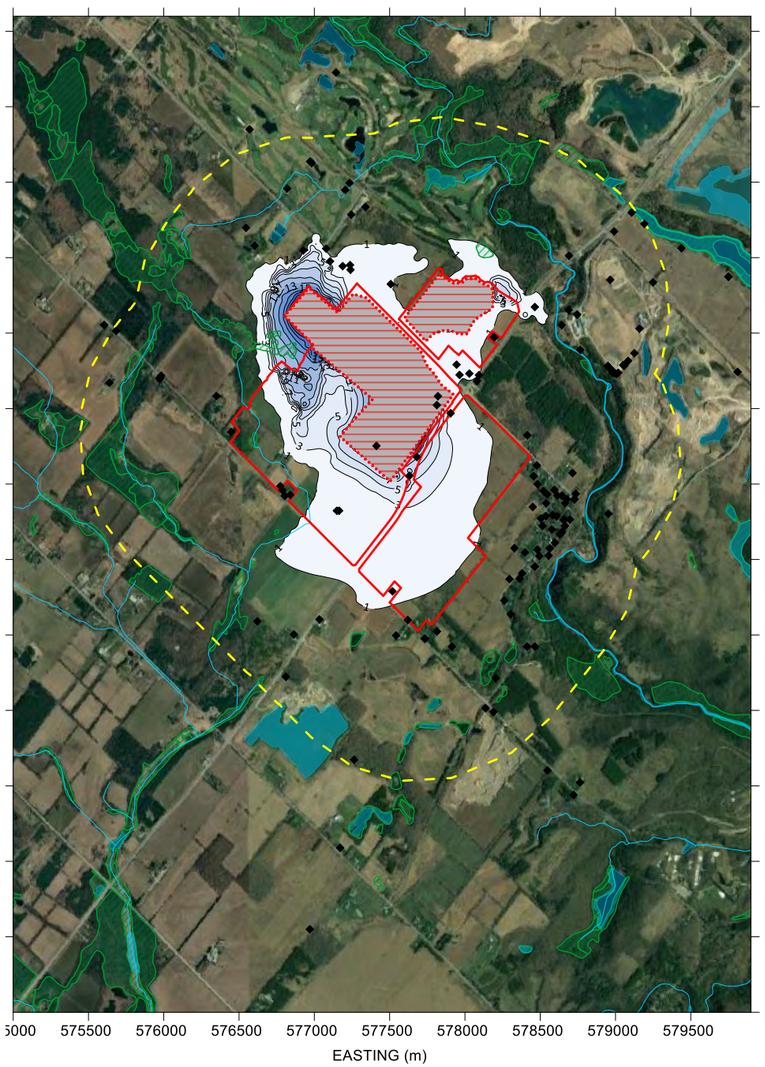
CURRENT CONDITIONS SIMULATED WATER TABLE (masl)



PHASE 2 SIMULATED WATER TABLE (masl)



PHASE 2 SIMULATED WATER TABLE DRAWDOWN (m)



SIMULATED WATER TABLE ELEVATION (masl)

310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490

SIMULATED WATER TABLE DRAWDOWN (m)

1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31

LEGEND

- LAKES
- RIVERS/ STREAMS
- SITE PROPERTY BOUNDARY
- EXTRACTION EXTENTS
- WETLAND
- 1KM BUFFER AROUND PROPERTY
- MECP PRIVATE WELL LOCATION

Phase of Operation	Years
1	1 to 8
2	9 to 13
3	14 to 17
4	18 to 22
5	23 to 26
6	27 to 32
7	33 to 38

NOTES

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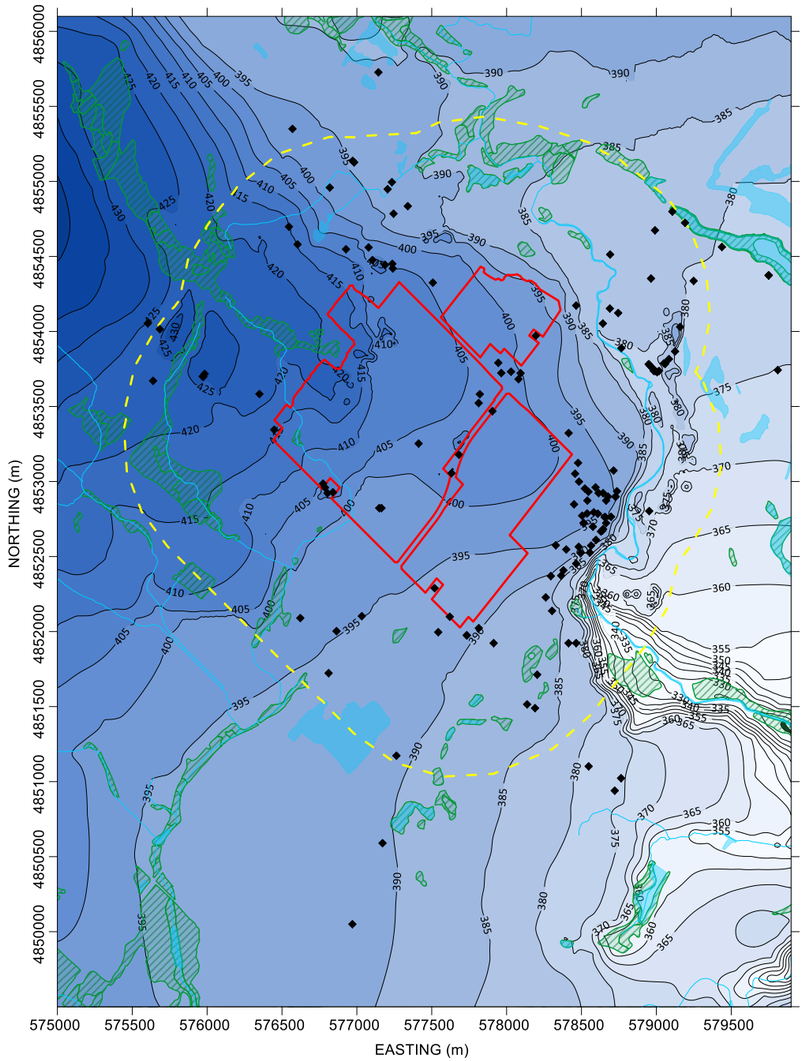
YYYY-MM-DD	2023-03-24
PREPARED	HW
DESIGN	HW
REVIEW	SD
APPROVED	GS

PROJECT
CALEDON PIT AND QUARRY NUMERICAL MODELLING

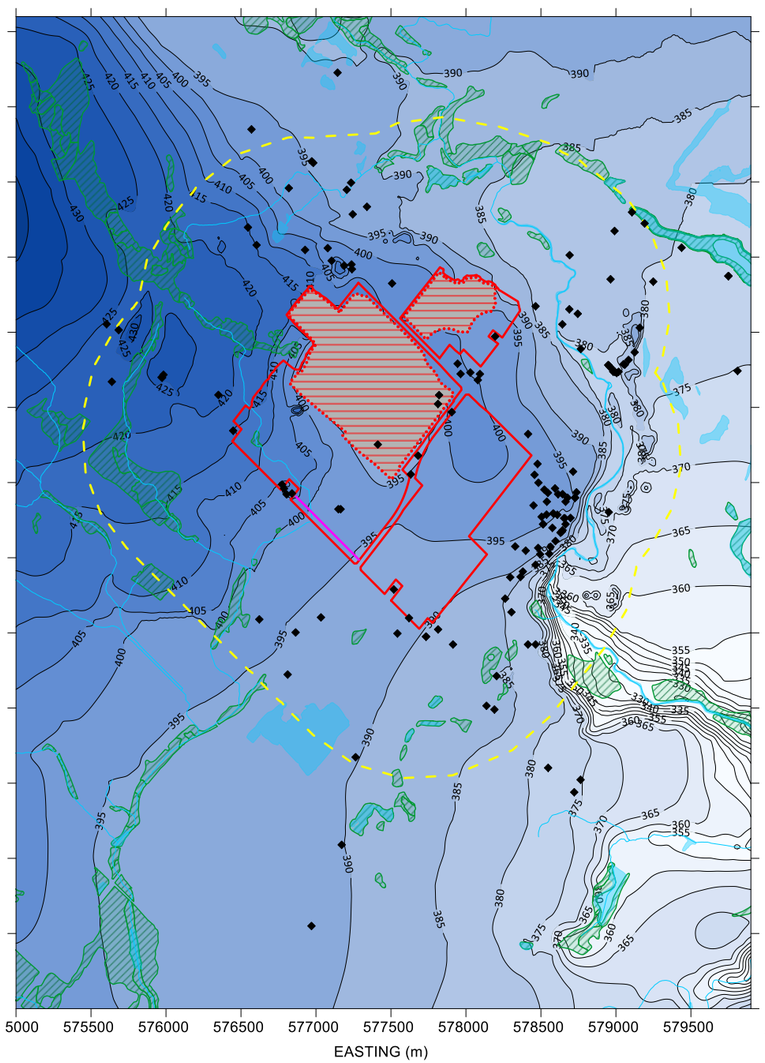
TITLE
PHASE 2 SIMULATED WATER TABLE ELEVATION AND DRAWDOWN

PROJECT No. 19129150 | Rev. 0 | FIGURE 8-2B

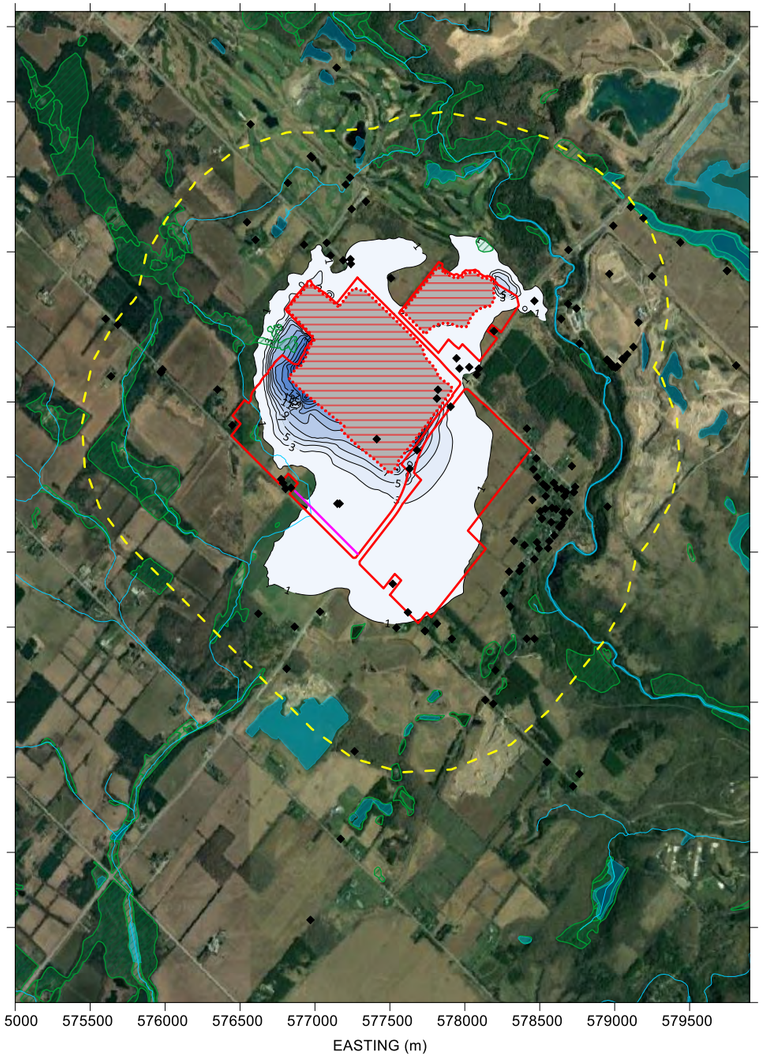
CURRENT CONDITIONS SIMULATED WATER TABLE (masl)



PHASE 3 SIMULATED WATER TABLE (masl)



PHASE 3 SIMULATED WATER TABLE DRAWDOWN (m)



SIMULATED WATER TABLE ELEVATION (masl)

310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490

SIMULATED WATER TABLE DRAWDOWN (m)

1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31

LEGEND

- LAKES
- RIVERS/ STREAMS
- SITE PROPERTY BOUNDARY
- EXTRACTION EXTENTS
- WETLAND
- 1KM BUFFER AROUND PROPERTY
- MECP PRIVATE WELL LOCATION
- SLURRY WALL/ GROUT ALIGNMENT
- INFILTRATION TRENCH

Phase of Operation	Years
1	1 to 8
2	9 to 13
3	14 to 17
4	18 to 22
5	23 to 26
6	27 to 32
7	33 to 38

NOTES

1. Simulated hydraulic water table elevation is shown at a contour interval of 5m
2. Simulated water table drawdown is shown at a contour interval of 2m.
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CONSULTANT
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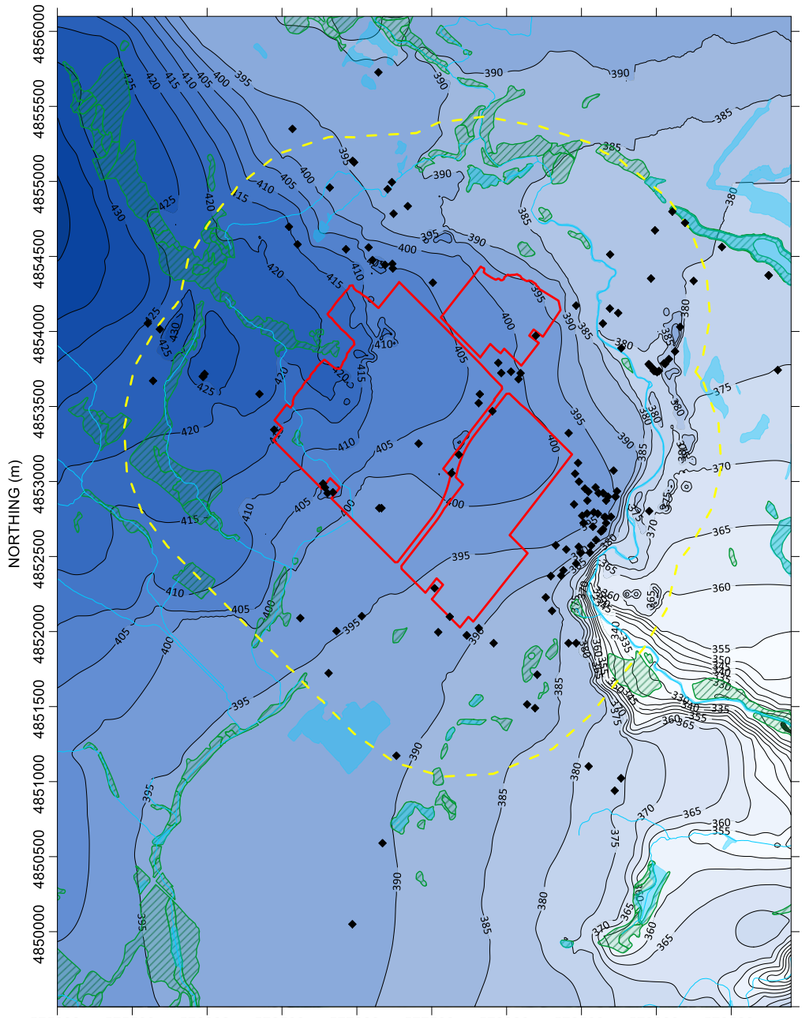
YYYY-MM-DD	2023-03-24
PREPARED	HW
DESIGN	HW
REVIEW	SD
APPROVED	GS

PROJECT
CALEDON PIT AND QUARRY NUMERICAL MODELLING

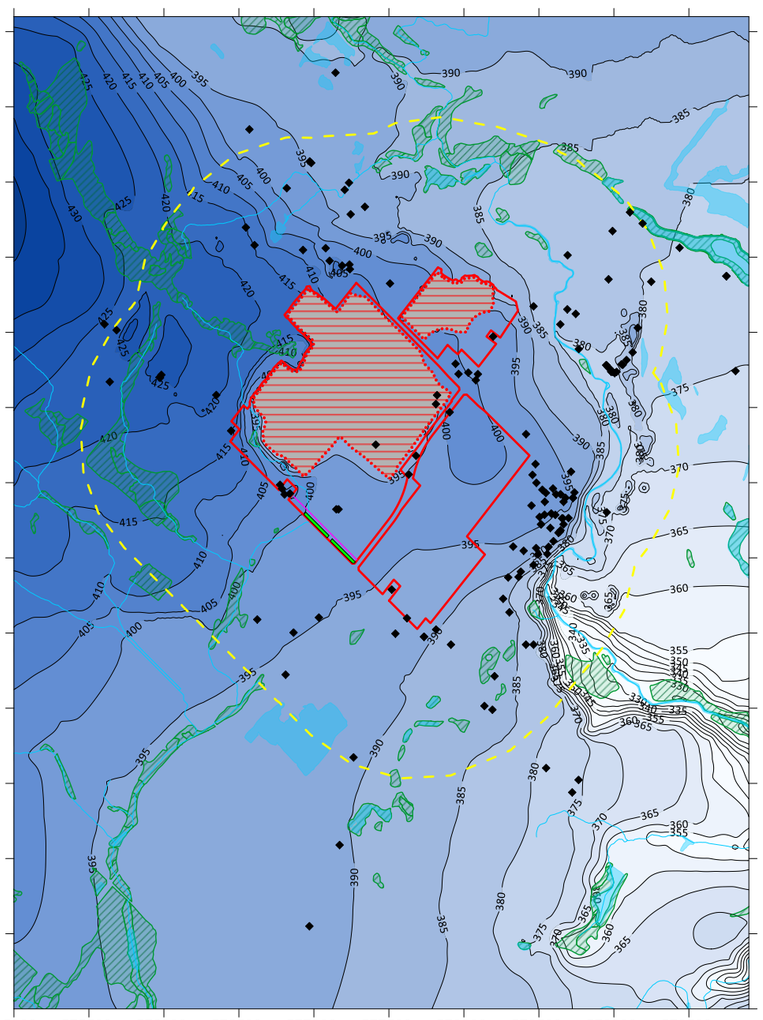
TITLE
PHASE 3 SIMULATED WATER TABLE ELEVATION AND DRAWDOWN

PROJECT No. 19129150 | Rev. 0 | FIGURE 8-2C

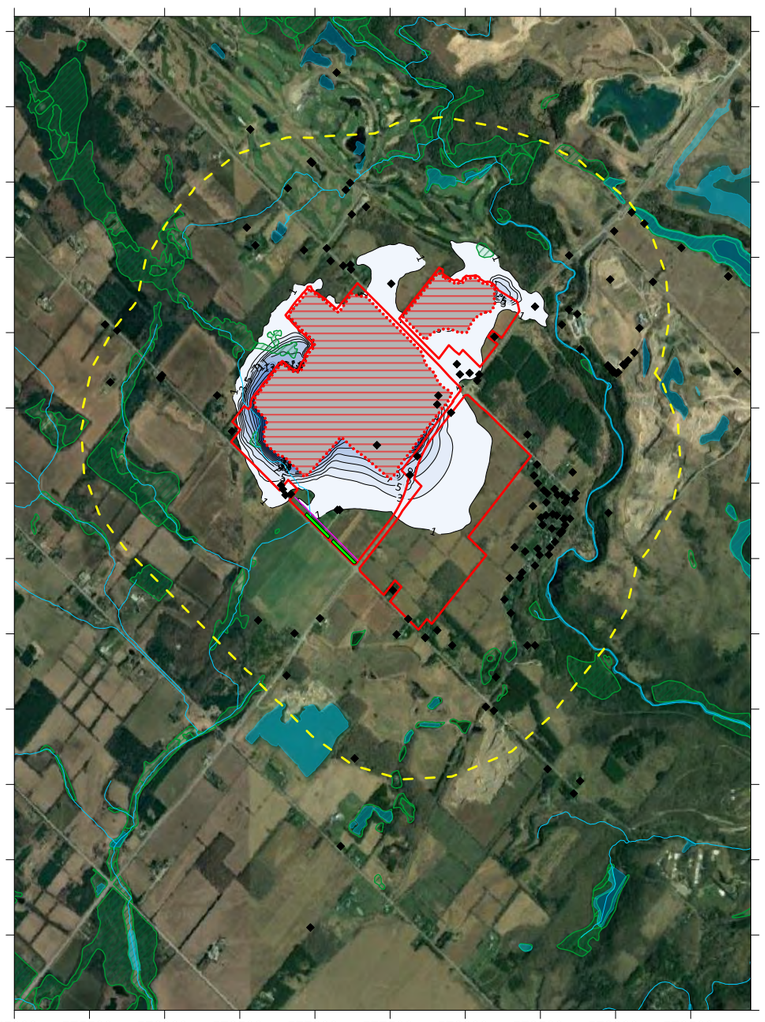
CURRENT CONDITIONS SIMULATED WATER TABLE (masl)



PHASE 4 SIMULATED WATER TABLE (masl)



PHASE 4 SIMULATED WATER TABLE DRAWDOWN (m)



SIMULATED WATER TABLE ELEVATION (masl)

310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490

SIMULATED WATER TABLE DRAWDOWN (m)

1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31

LEGEND

- LAKES
- RIVERS/ STREAMS
- SITE PROPERTY BOUNDARY
- EXTRACTION EXTENTS
- WETLAND
- 1KM BUFFER AROUND PROPERTY
- MECP PRIVATE WELL LOCATION
- SLURRY WALL/ GROUT ALIGNMENT
- INFILTRATION TRENCH

Phase of Operation	Years
1	1 to 8
2	9 to 13
3	14 to 17
4	18 to 22
5	23 to 26
6	27 to 32
7	33 to 38

NOTES

1. Simulated hydraulic water table elevation is shown at a contour interval of 5m
2. Simulated water table drawdown is shown at a contour interval of 2m.
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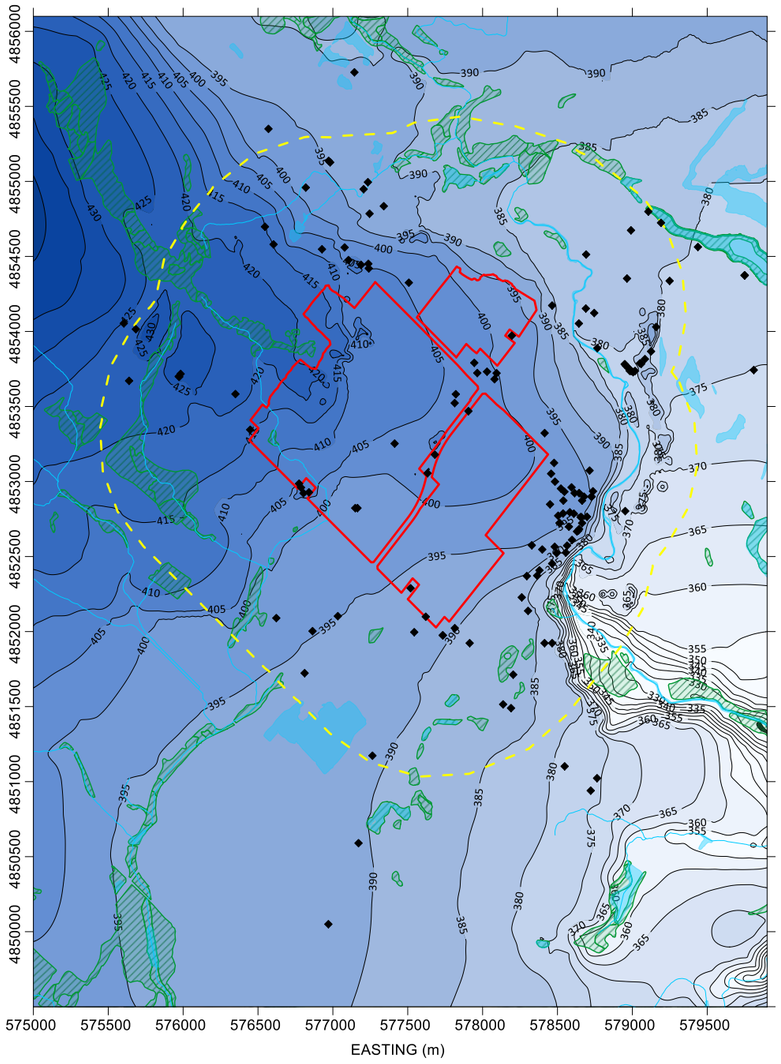
YYYY-MM-DD	2023-03-24
PREPARED	HW
DESIGN	HW
REVIEW	SD
APPROVED	GS

PROJECT
CALEDON PIT AND QUARRY NUMERICAL MODELLING

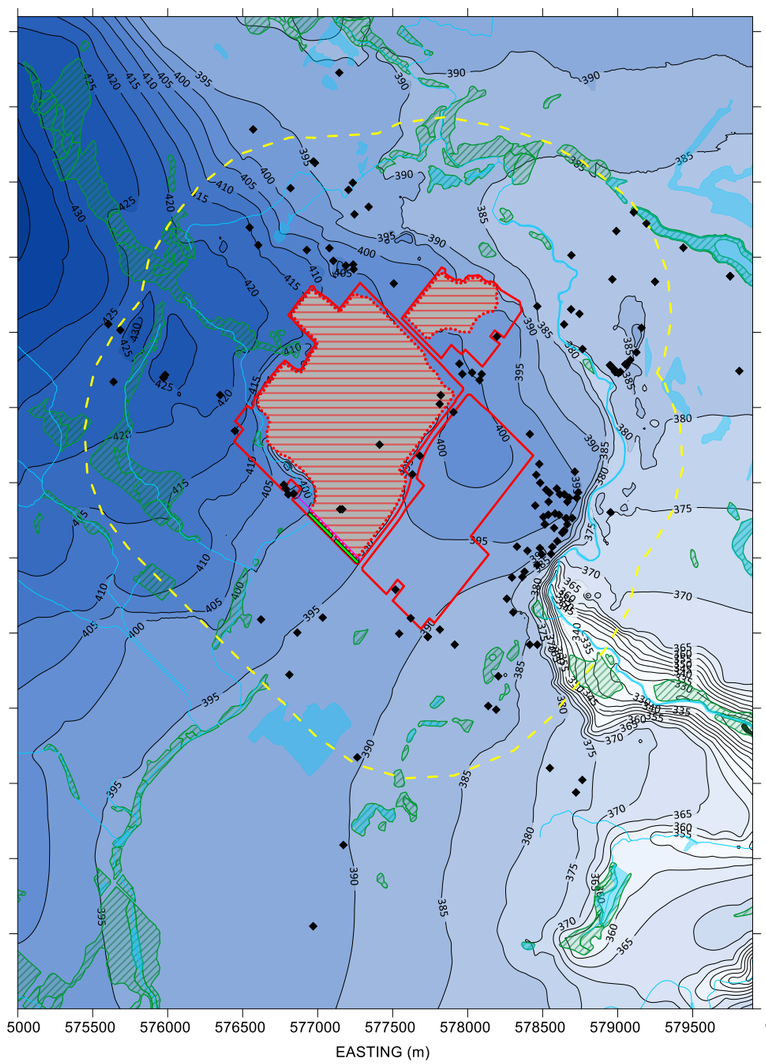
TITLE
PHASE 4 SIMULATED WATER TABLE ELEVATION AND DRAWDOWN

PROJECT No. 19129150 | Rev. 0 | FIGURE 8-2D

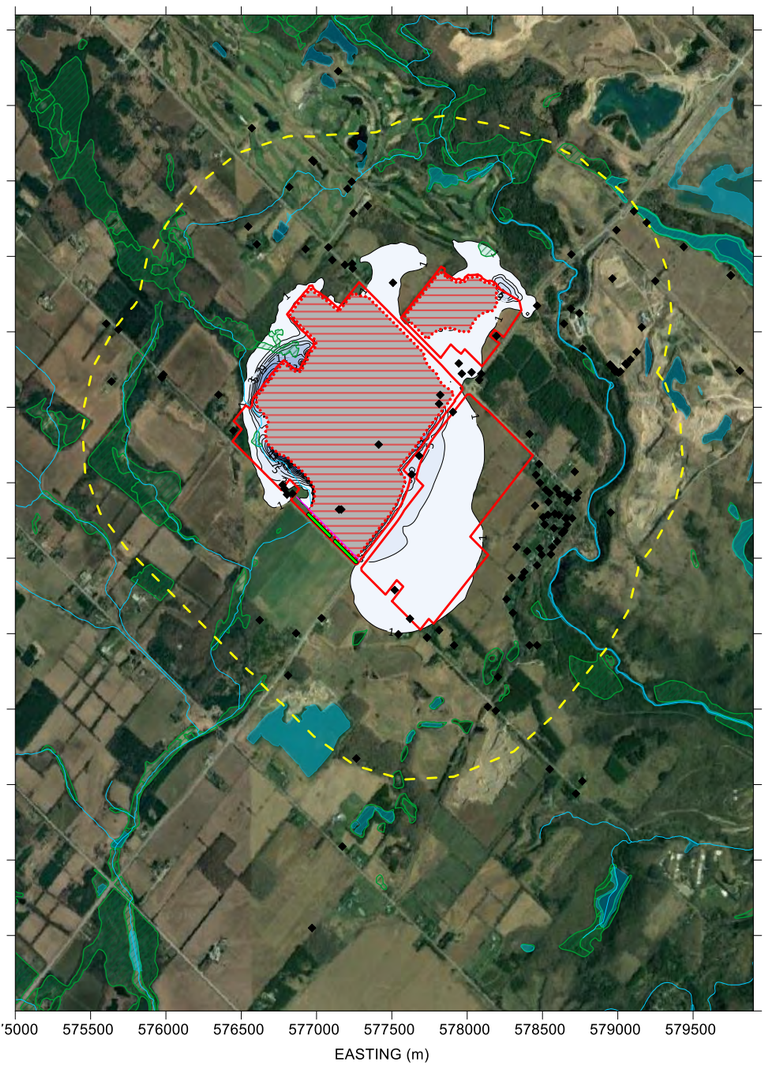
CURRENT CONDITIONS SIMULATED WATER TABLE (masl)



PHASE 5 SIMULATED WATER TABLE (masl)



PHASE 5 SIMULATED WATER TABLE DRAWDOWN (m)



SIMULATED WATER TABLE ELEVATION (masl)

310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490

SIMULATED WATER TABLE DRAWDOWN (m)

1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31

LEGEND

- LAKES
- RIVERS/ STREAMS
- SITE PROPERTY BOUNDARY
- EXTRACTION EXTENTS
- WETLAND
- 1KM BUFFER AROUND PROPERTY
- MECP PRIVATE WELL LOCATION
- SLURRY WALL/ GROUT ALIGNMENT
- INFILTRATION TRENCH

Phase of Operation	Years
1	1 to 8
2	9 to 13
3	14 to 17
4	18 to 22
5	23 to 26
6	27 to 32
7	33 to 38

NOTES

1. Simulated hydraulic water table elevation is shown at a contour interval of 5m
2. Simulated water table drawdown is shown at a contour interval of 2m.
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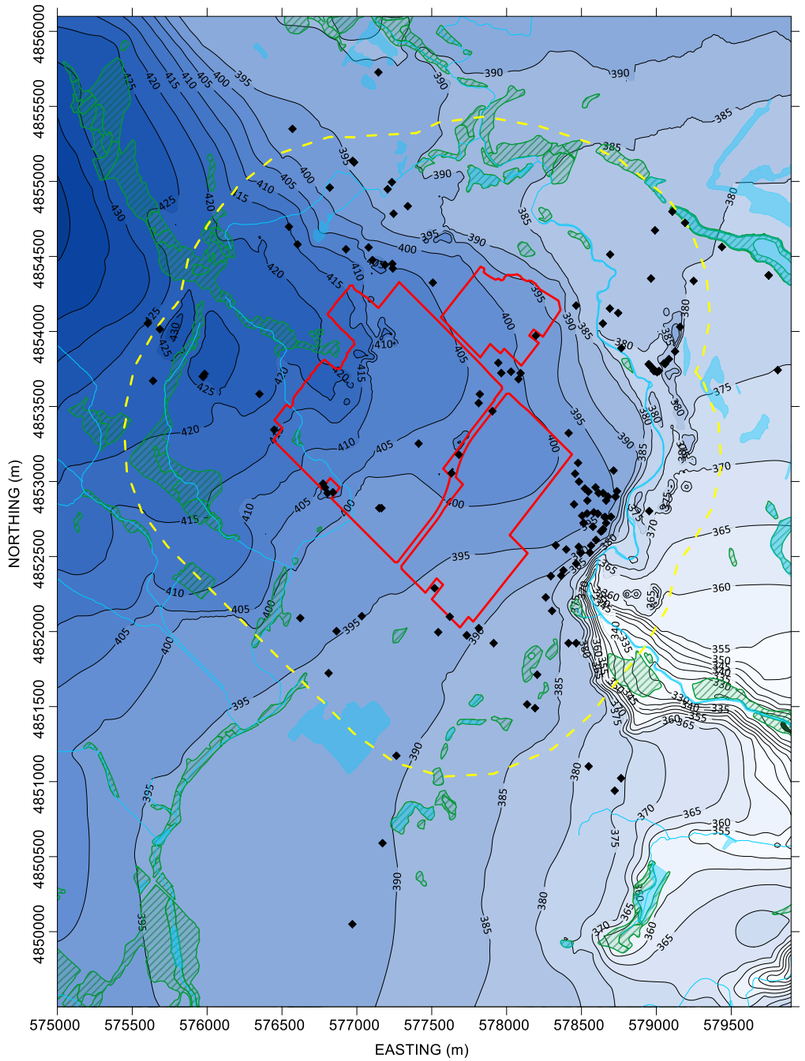
YYYY-MM-DD	2023-03-24
PREPARED	HW
DESIGN	HW
REVIEW	SD
APPROVED	GS

PROJECT
CALEDON PIT AND QUARRY NUMERICAL MODELLING

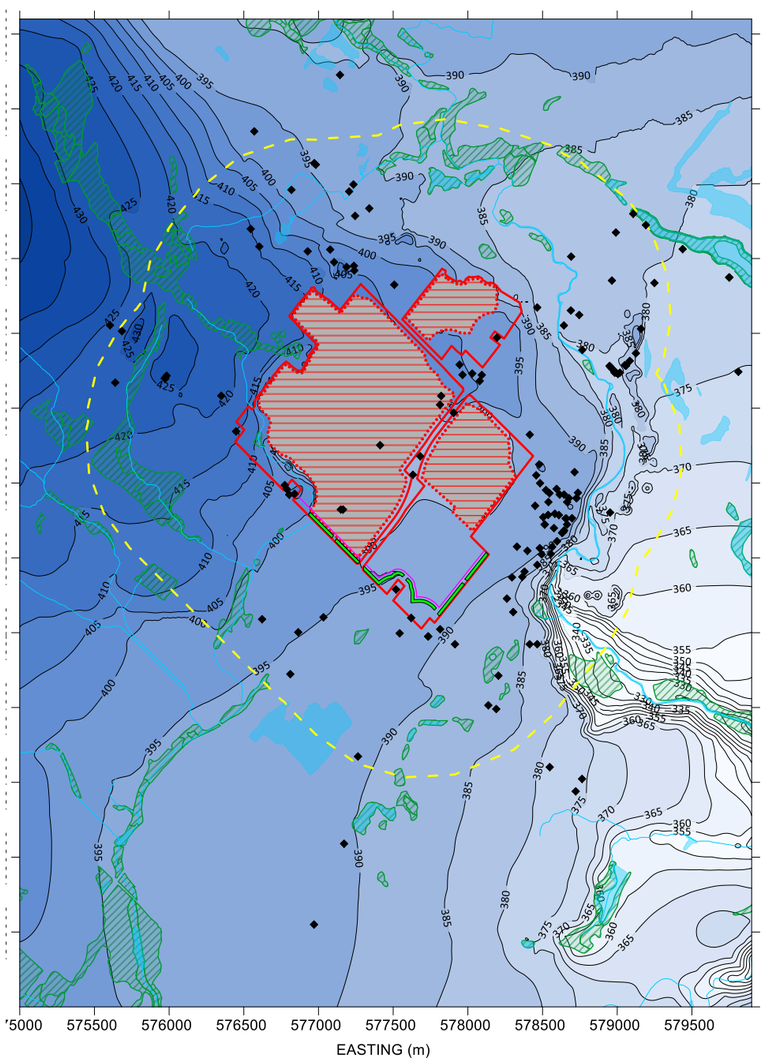
TITLE
PHASE 5 SIMULATED WATER TABLE ELEVATION AND DRAWDOWN

PROJECT No. 19129150 | Rev. 0 | FIGURE 8-2E

CURRENT CONDITIONS SIMULATED WATER TABLE (masl)



PHASE 6 SIMULATED WATER TABLE (masl)



PHASE 6 SIMULATED WATER TABLE DRAWDOWN (m)



SIMULATED WATER TABLE ELEVATION (masl)

310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490

SIMULATED WATER TABLE DRAWDOWN (m)

1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31

LEGEND

- LAKES
- RIVERS/ STREAMS
- SITE PROPERTY BOUNDARY
- EXTRACTION EXTENTS
- WETLAND
- 1KM BUFFER AROUND PROPERTY
- MECP PRIVATE WELL LOCATION
- SLURRY WALL/ GROUT ALIGNMENT
- INFILTRATION TRENCH

Phase of Operation	Years
1	1 to 8
2	9 to 13
3	14 to 17
4	18 to 22
5	23 to 26
6	27 to 32
7	33 to 38

NOTES

1. Simulated hydraulic water table elevation is shown at a contour interval of 5m
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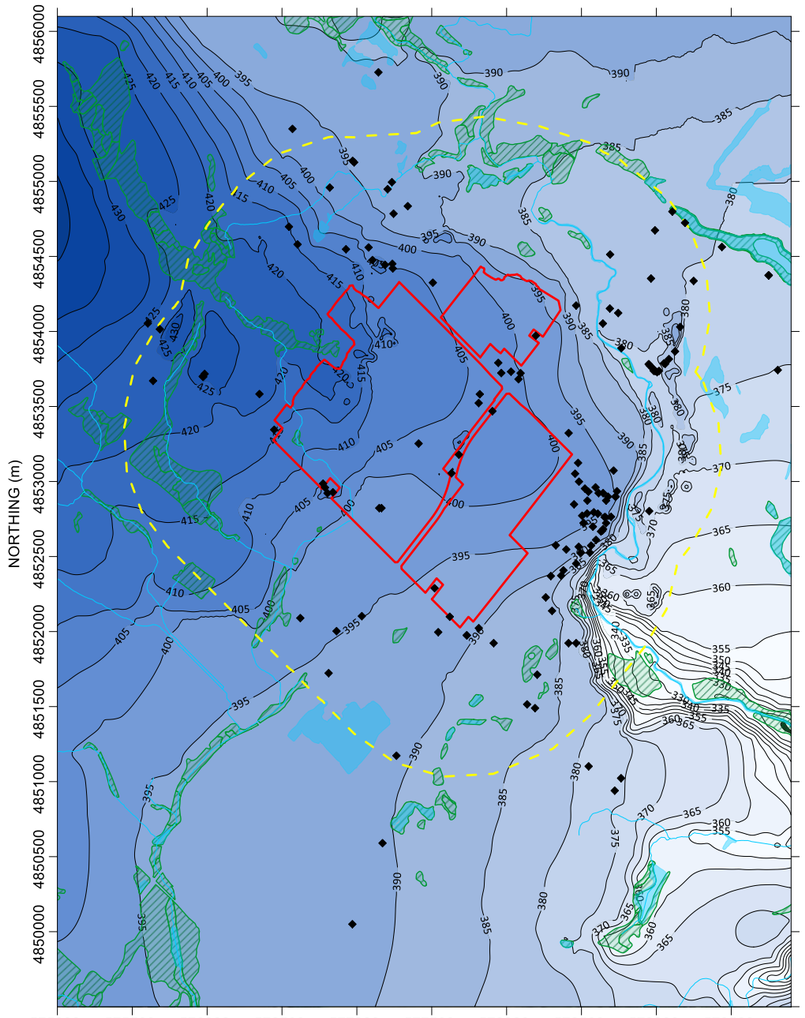
YYYY-MM-DD	2023-03-24
PREPARED	HW
DESIGN	HW
REVIEW	SD
APPROVED	GS

PROJECT
CALEDON PIT AND QUARRY NUMERICAL MODELLING

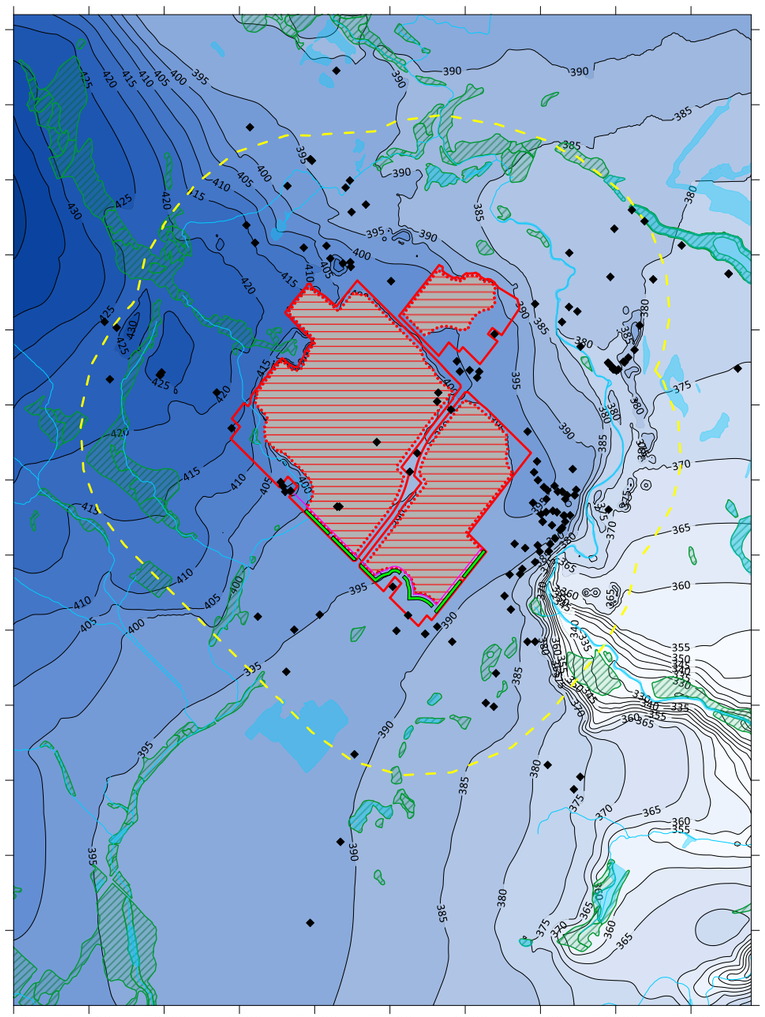
TITLE
PHASE 6 SIMULATED WATER TABLE ELEVATION AND DRAWDOWN

PROJECT No. 19129150 | Rev. 0 | FIGURE 8-2F

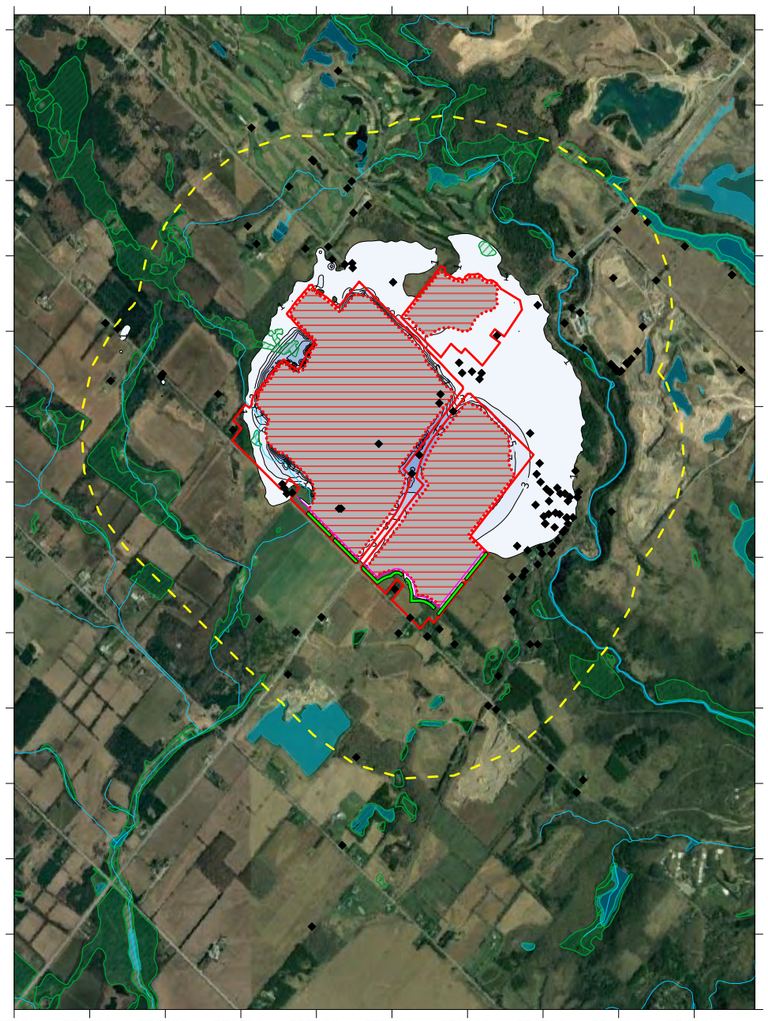
CURRENT CONDITIONS SIMULATED WATER TABLE (masl)



PHASE 7 SIMULATED WATER TABLE (masl)



PHASE 7 SIMULATED WATER TABLE DRAWDOWN (m)



SIMULATED WATER TABLE ELEVATION (masl)

310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490

SIMULATED WATER TABLE DRAWDOWN (m)

1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31

LEGEND

- LAKES
- RIVERS/ STREAMS
- SITE PROPERTY BOUNDARY
- EXTRACTION EXTENTS
- WETLAND
- 1KM BUFFER AROUND PROPERTY
- MECP PRIVATE WELL LOCATION
- SLURRY WALL/ GROUT ALIGNMENT
- INFILTRATION TRENCH

Phase of Operation	Years
1	1 to 8
2	9 to 13
3	14 to 17
4	18 to 22
5	23 to 26
6	27 to 32
7	33 to 38

NOTES

1. Simulated hydraulic water table elevation is shown at a contour interval of 5m
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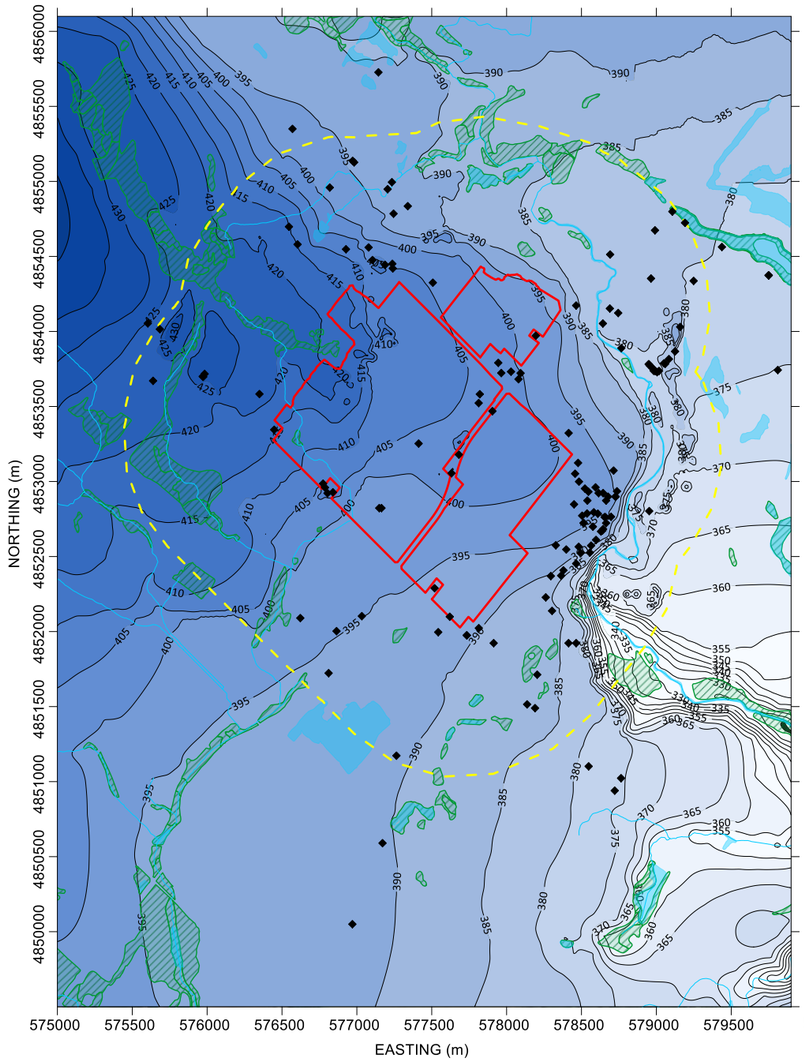
YYYY-MM-DD	2023-05-10
PREPARED	HW
DESIGN	HW
REVIEW	SD
APPROVED	GS

PROJECT
CALEDON PIT AND QUARRY NUMERICAL MODELLING

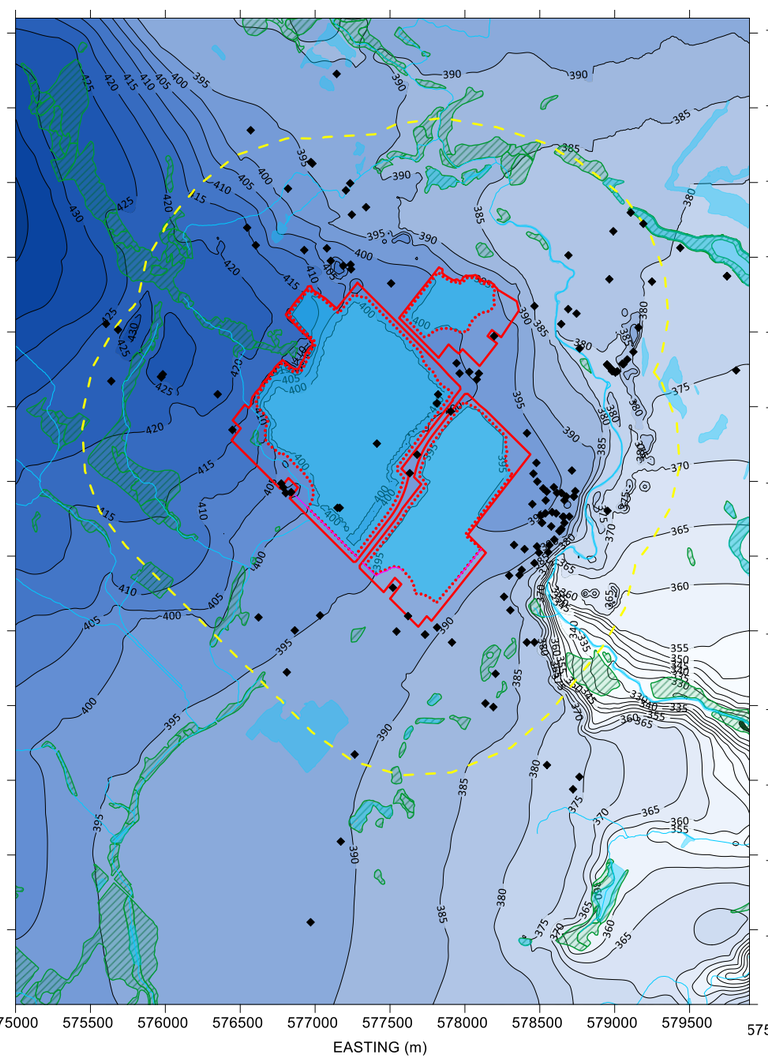
TITLE
PHASE 7 SIMULATED WATER TABLE ELEVATION AND DRAWDOWN

PROJECT No. 19129150 | Rev. 0 | FIGURE 8-2G

CURRENT CONDITIONS SIMULATED WATER TABLE (masl)



REHABILITATION SIMULATED WATER TABLE (masl)



REHABILITATION SIMULATED WATER TABLE DRAWDOWN (m)



SIMULATED WATER TABLE ELEVATION (masl)

310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490

SIMULATED WATER TABLE DRAWDOWN (m)

-17 -15 -13 -11 -9 -7 -5 -3 -1 1 3 5 7 9 11 13 15 17

LEGEND

- LAKES
- RIVERS/ STREAMS
- SITE PROPERTY BOUNDARY
- EXTRACTION EXTENTS
- WETLAND
- 1KM BUFFER AROUND PROPERTY
- MECP PRIVATE WELL LOCATION
- SLURRY WALL/ GROUT ALIGNMENT
- INFILTRATION TRENCH

Phase of Operation	Years
1	1 to 8
2	9 to 13
3	14 to 17
4	18 to 22
5	23 to 26
6	27 to 32
7	33 to 38

NOTES

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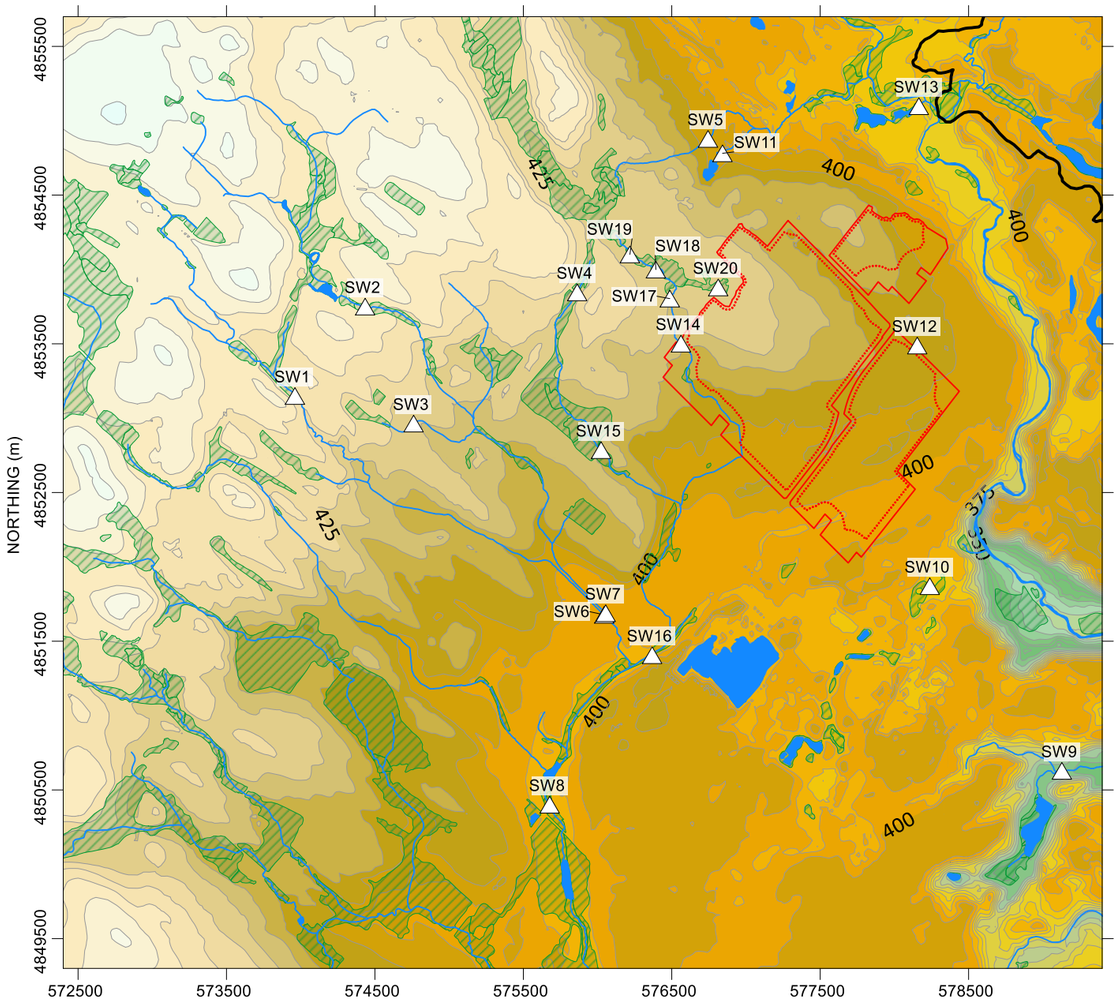
YYYY-MM-DD	2023-05-10
PREPARED	HW
DESIGN	HW
REVIEW	SD
APPROVED	GS

PROJECT
CALEDON PIT AND QUARRY NUMERICAL MODELLING

TITLE
REHABILITATION SIMULATED WATER TABLE ELEVATION AND DRAWDOWN

PROJECT No. 19129150 | Rev. 0 | FIGURE 8-2G

SURFACE WATER MONITORING STATIONS



CURRENT CONDITIONS TOPOGRAPHY (MASL)

300 315 330 345 360 375 390 405 420 435 450 465 480

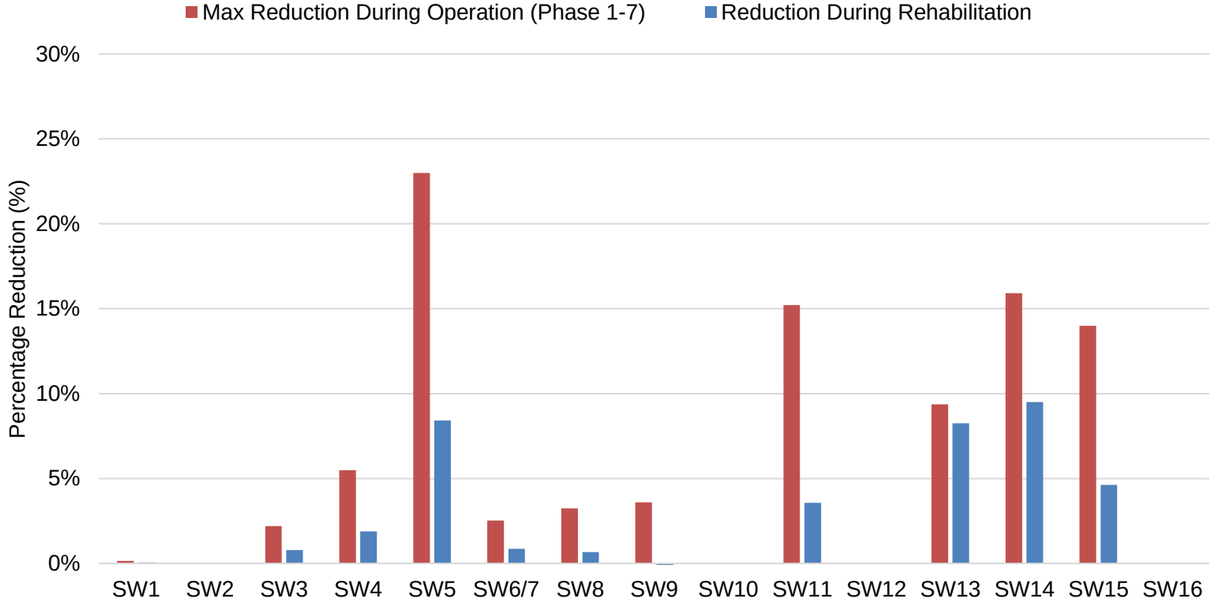
NOTES:

1. Simulated surface water flows for phases 1-7 and rehabilitation represent long term average (steady state) values
2. Several surface water stations have a current conditions simulated flow of 0.00 L/s (SW2, SW10, SW12 and SW16), and continue to have a simulated flow of 0.00 L/s throughout quarry operation and rehabilitation

SIMULATED REDUCTION IN SURFACE WATER FLOW THROUGH VARIOUS QUARRY PHASES AND AT REHABILITATION

Station	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Rehab
SW1	0%	0%	0%	0%	0%	0%	0%	0%
SW2	0%	0%	0%	0%	0%	0%	0%	0%
SW3	0%	-1%	-1%	-2%	-2%	-2%	-1%	-1%
SW4	0%	-2%	-2%	-5%	-4%	-4%	-3%	-2%
SW5	-2%	-18%	-12%	-23%	-16%	-16%	-14%	-8%
SW6/7	0%	-1%	-1%	-3%	-2%	-2%	-1%	-1%
SW8	-2%	-3%	-3%	-2%	-3%	-1%	-1%	-1%
SW9	-2%	-3%	-3%	0%	-4%	1%	0%	0%
SW10	0%	0%	0%	0%	0%	0%	0%	0%
SW11	-1%	-15%	-6%	-7%	-6%	-6%	-6%	-4%
SW12	0%	0%	0%	0%	0%	0%	0%	0%
SW13	-6%	-9%	-8%	-7%	-7%	-7%	-9%	-8%
SW14	-1%	-8%	-16%	-16%	-14%	-14%	-12%	-10%
SW15	-1%	-5%	-5%	-14%	-9%	-9%	-8%	-5%
SW16	0%	0%	0%	0%	0%	0%	0%	0%

SIMULATED PERCENT REDUCTION IN SURFACE WATER FLOW: MAXIMUM DURING OPERATION, AND REHABILITION PHASES



LEGEND

- LAKES
- RIVERS/ STREAMS
- WETLAND
- SITE PROPERTY BOUNDARY
- EXTRACTION EXTENTS
- SURFACE WATER MONITORING STATION

ADDITIONAL MAP NOTES

4. Source of spatial mapping of watercourses, waterbodies, and wetlands: Land Information Ontario (MNRF, 2018)
5. Source of Regional Topography dataset Ontario Ministry of Natural Resources and Forestry (MNRF) Southwestern Ontario Orthophotography (SWOOP) 2019
6. Source of Site Topography dataset provided by Firstbase Solutions (Spring 2021)
7. Quarry license and limit of extraction provided by MHBC (2022)

CLIENT
CBM AGGREGATES (CBM), A DIVISION OF ST. MARYS CEMENT INC. (CANADA)

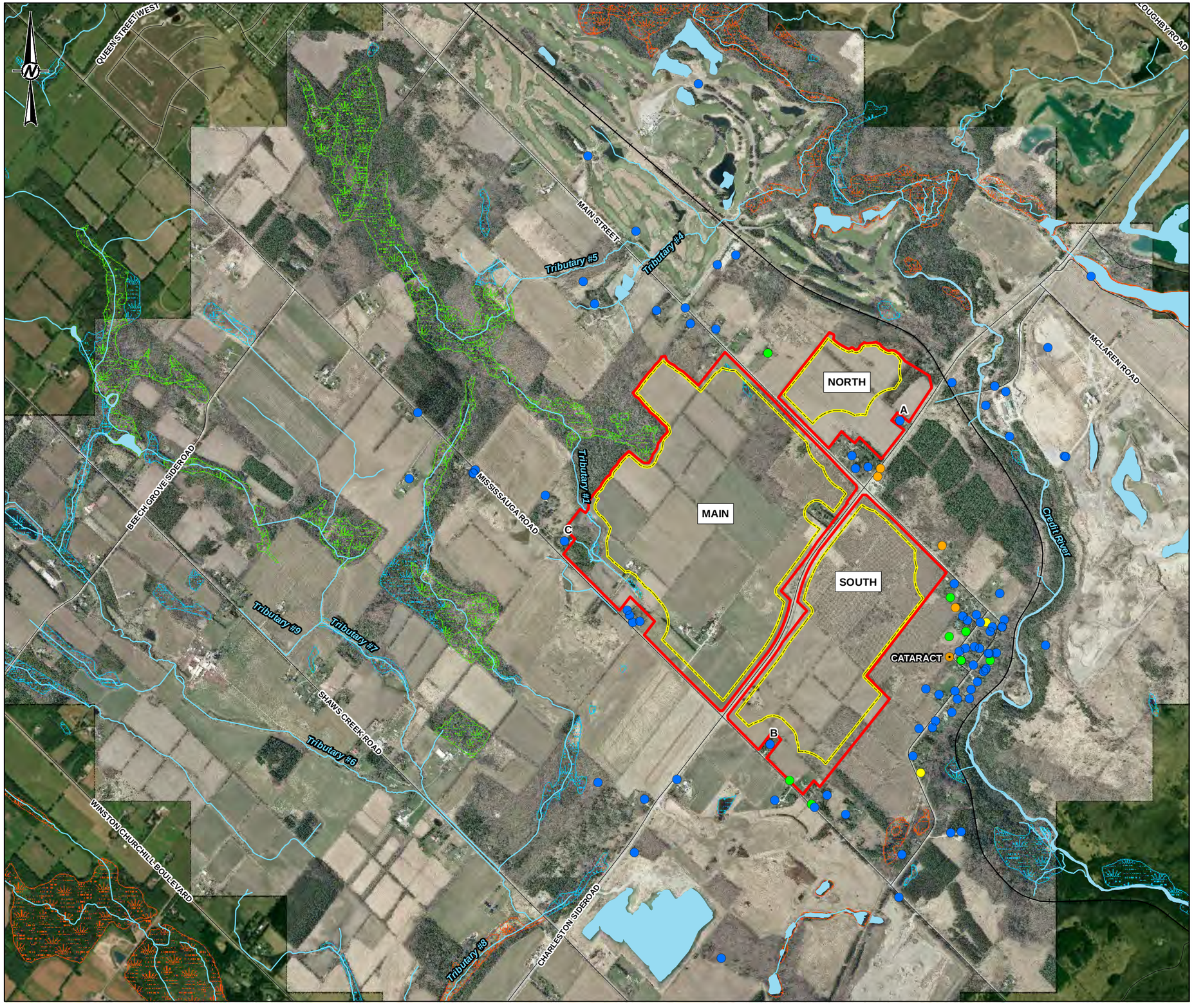
CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2024-05-10
PREPARED	HW
DESIGN	HW
REVIEW	SD
APPROVED	GS

PROJECT
CALEDON PIT AND QUARRY

TITLE
SIMULATED CHANGE IN SURFACE WATER FLOW AT MONITORING STATIONS

PROJECT No. 19129150 | Rev. 0 | FIGURE 8-3



LEGEND

- TOWN/VILLAGE

POTENTIAL FOR IMPACT TO WATER USER

- NEGLIGIBLE POTENTIAL
- LOW POTENTIAL
- MODERATE POTENTIAL
- SIGNIFICANT POTENTIAL
- NON-WATER SUPPLY WELL
- ROAD
- RAILWAY
- WATERCOURSE
- WATERBODY
- UNEVALUATED WETLAND
- OTHER EVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND
- LICENCE BOUNDARY
- LIMIT OF EXTRACTION

0 500 1,000

1:20,000 METRES

REFERENCE(S)

1. BASEDATA MNRF LIO OBTAINED APRIL 2020
2. WATERCOURSES OBTAINED FROM CREDIT VALLEY CONSERVATION AUTHORITY OPEN DATA PORTAL, NOVEMBER 2022 IN COMBINATION WITH SITE WATERCOURSE SURVEY PROVIDED BY FIRST BASE SOLUTIONS NOVEMBER 2021.
3. IMAGERY FIRSTBASE SOLUTIONS SPRING 2019 (15CM RESOLUTION) AND SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY
4. LICENSE AND EXTRACTION LIMIT PROVIDED BY MHBC IN JUNE 2023.
5. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17N

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA)

PROJECT
CALEDON PIT / QUARRY

TITLE
WATER SUPPLY WELL IMPACT ASSESSMENT

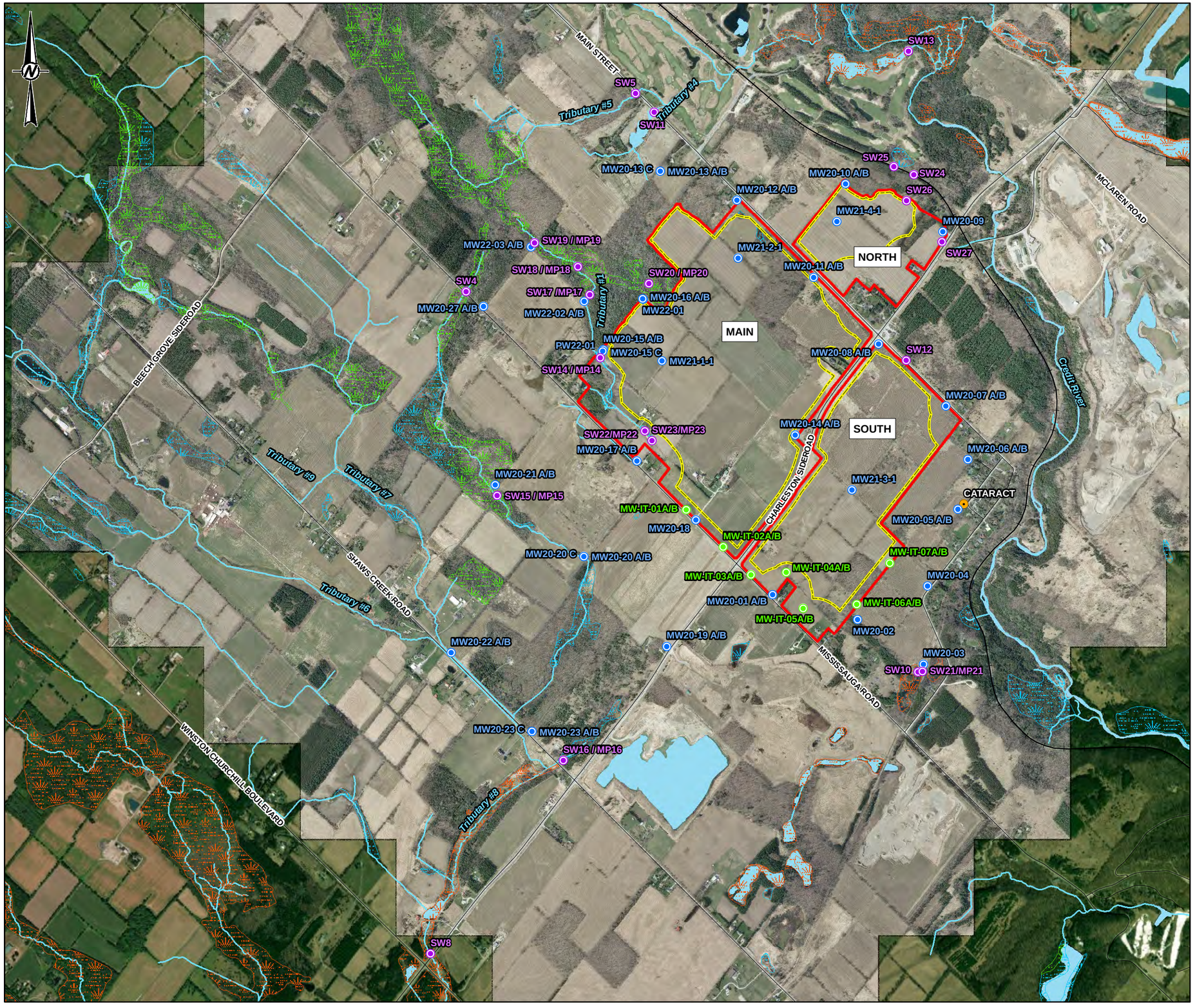
CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2023-07-19
DESIGNED	SO
PREPARED	SO
REVIEWED	GWS
APPROVED	HM

PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0036	0.0	9-1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
0 25mm

PATH: S:\Clients\Votorantim_Cimentos\Long_Par_5_Caledon\99_PROJ\19129150\40_PROD\0036_Water_Resources\19129150-0036-CH-0009_1.mxd PRINTED ON: 2023-07-19 AT: 3:04:26 PM



LEGEND

- TOWN
- INFILTRATION TRENCH MONITORING WELL
- MONITORING WELL
- SURFACE WATER STATION
- ROAD
- RAILWAY
- WATERBODY
- UNEVALUATED WETLAND
- OTHER EVALUATED WETLAND
- PROVINCIALLY SIGNIFICANT WETLAND
- LICENCE BOUNDARY
- LIMIT OF EXTRACTION

0 500 1,000

1:20,000 METRES

REFERENCE(S)

1. BASE DATA MNRF LIO OBTAINED 2020
2. WATERCOURSES OBTAINED FROM CREDIT VALLEY CONSERVATION AUTHORITY OPEN DATA PORTAL, NOVEMBER 2022 IN COMBINATION WITH SITE WATERCOURSE SURVEY PROVIDED BY FIRST BASE SOLUTIONS NOVEMBER 2021.
3. IMAGERY FIRSTBASE SOLUTIONS SPRING 2019 (15CM RESOLUTION) AND SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY
4. LICENSE AND EXTRACTION LIMIT PROVIDED BY MHBC IN JUNE 2023.
5. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 17N

CLIENT
CBM AGGREGATES, A DIVISION OF ST. MARYS CEMENT INC. (CANADA).

PROJECT
CALEDON PIT / QUARRY

TITLE
PROPOSED MONITORING PROGRAM

CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2023-07-24
DESIGNED	CGE
PREPARED	SO
REVIEWED	GWS
APPROVED	HM

PROJECT NO.	CONTROL	REV.	FIGURE
19129150	0036	0.0	9-2

PATH: S:\Clients\Vorarantim_Cimentos\Long_Par_5_Caledon\99_PRO\19129150\40_PROD\0036_Water_Resources\19129150-0036-CH-0009_2.mxd PRINTED ON: 2023-07-24 AT 11:50:43 PM
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
0 25mm