C.C. Tatham & Associates Ltd.
Consulting Engineers

MEDIBUDZ COLLINGWOOD

Town of Collingwood

Functional Servicing Report

prepared by:

C.C. Tatham & Associates Ltd.
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Collingwood, ON L9Y 5A6
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info@cctatham.com

prepared for:

Medibudz Canada Ltd.

August 9, 2018

CCTA File 118076

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1 Introduction

C.C. Tatham & Associates Ltd. (CCTA) has been retained by Medibudz Canada Ltd. to prepare a Functional Servicing Report in support of the proposed medical cannabis indoor production facility at 135 Sandford Fleming Drive in the Town of Collingwood, County of Simcoe. This report has been prepared to address the internal and external servicing requirements associated with this project. Specifically, this report will address the stormwater management, potable water supply, sanitary sewage collection and conveyance and utility distribution for the proposed development.

1.1 Site Description

The proposed development site has an area of 1.93 ha with approximately 61 m of frontage on Sandford Fleming Drive. Legally described as Part 3 of Lot 41, Concession 7 and zoned M5 – Industrial Park, the property is currently vacant and mainly comprised of gravel and small to medium rocks with some vegetation on the east side.

The property is bounded by Habitat for Humanity ReStore to the north, C.C. Tatham & Associates Ltd., CrossFit Mozomo and Head Over Heels Gymnastics Club to the south, Pilkington Glass of Canada to the east and Sandford Fleming Drive to the west. Figure 1.0 – Site Location Plan is enclosed for reference.

A topographic survey of the property was completed by C.C. Tatham & Associated Ltd. in June, 2018. The topography of the site was observed to slope from south to north towards a drainage channel that runs along the north property line and conveys stormwater to an existing stormwater management (SWM) pond north of the site. Additional drainage channels along the south, west and east property boundaries convey stormwater around the site to the aforementioned SWM pond.

1.2 Geotechnical Investigation

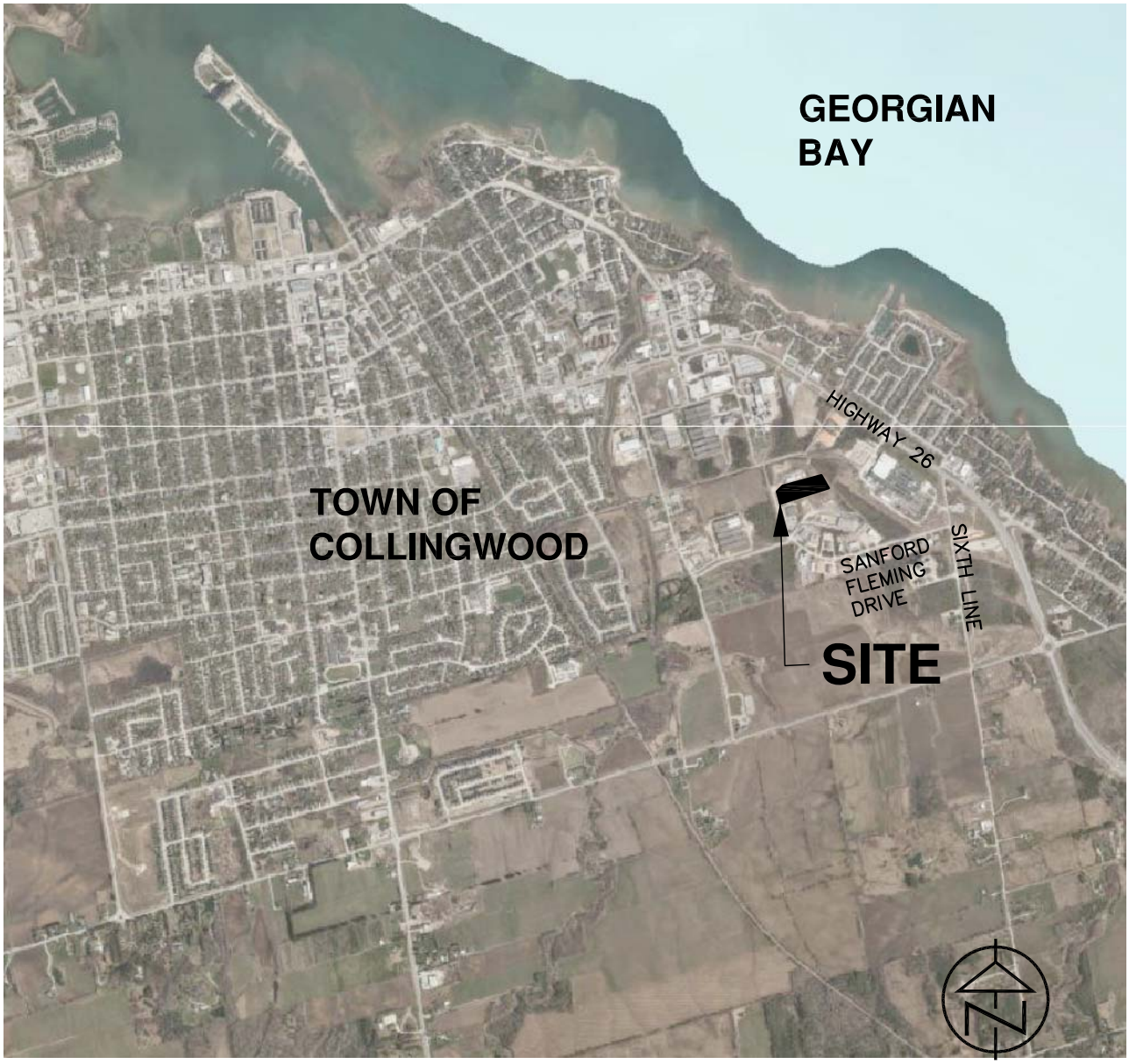
Geotechnical investigations were completed by Cambium Inc. at the subject property in July, 2018 to assess the subsurface conditions. The field work consisted of 8 boreholes extended to a termination depth of 1.9 meters below ground surface (mbgs) to 5.2 mbgs at various locations across the site.

All boreholes encountered a surficial layer of imported fill ranging in depth between 0.6 mbgs to 2.4 mbgs. The fill generally consisted of brown gravelly sand to sand with gravel. Underlying the layer of fill was native soils consisting of glaciolacustrine deposits generally consisting of sand overlying sand and gravel to the termination depths of 1.9 mbgs to 5.1 mbgs. The native soils were predominantly brown to grey sand with some silt and trace to some gravel overlying grey sand and gravel with some silt. Bedrock was not encountered during the investigation. Upon completion of drilling and prior to backfill, groundwater was encountered in seven of the boreholes while caving (sloughing) was encountered in six of the boreholes.

The geotechnical report includes recommendations for the construction of the proposed building, driveway and parking area and earthworks. There do not appear to be any significant geotechnical concerns which would adversely impact the proposed development. The geotechnical report will be provided under separate cover.

1.3 Proposed Land Use

The proposed development will include the construction of a 4,645 sq.m (50,000 sq.ft) medical marijuana grow operation facility. The remainder of the site will consist of an asphalt and gravel parking lot and vacant land slated for future expansion.



C.C. Tatham & Associates Ltd.
Consulting Engineers
Collingwood Bracebridge Orillia Barrie Ottawa

MEDIBUDZ COLLINGWOOD LTD.
135 SANFORD FLEMING DR.
SITE LOCATION PLAN

DWG. No.
FIG. 1

SCALE: NTS | DATE: JULY 2018 | JOB NO. 118076

2 Servicing Requirements

Municipal servicing is located on the west side of Sandford Fleming Drive in the form of a 300 mm diameter DI watermain and a 300 mm diameter PVC sanitary sewer. An existing 150 mm diameter PVC sanitary service at a slope of approximately 3.5% and a 50 mm diameter copper water service extend to the property line along Sandford Fleming Drive. The location of the sanitary sewer and watermain along with existing services was confirmed by reviewing As-Built drawings of Sandford Fleming Drive provided by the Town of Collingwood. The Site Servicing Plan (SS-1) has been appended to this report for reference.

2.1 Sanitary Sewer Servicing

A detailed analysis of the expected sanitary flows to be generated by the development was prepared by HL Engineering Ltd. and is provided in Appendix A.

Considering future expansion, HL Engineering Ltd. estimate the total proposed and future domestic and process discharge to be equivalent to 360 fixture units. They confirmed that the existing 150 mm diameter sanitary service will have adequate capacity to service the property.

2.2 Potable Water Servicing

A detailed analysis of the expected potable water requirements for the development was prepared by HL Engineering Ltd. and is provided in Appendix A.

Considering future expansion, HL Engineering Ltd. recommended that a 100 mm diameter water service be installed to provide the expected 270 gallons per minute of domestic and process water for the site. A separate 150 mm diameter fire service was also recommended to provide the required fire protection. Both water services will include backflow prevention devices in accordance with Town and CSA Standards. It will be the Owner's responsibility to ensure these devices are tested annually.

It is expected that the 300 mm diameter watermain will have adequate flow and pressure to service the property, however, the proposed water system will need to be added to the Town's overall water model to ensure the demands can be provided.

An existing fire hydrant is located on the west side of the cul-de-sac, approximately 75 m from the proposed indoor production facility. An additional fire hydrant on the property will not be required.

4 Stormwater Management

The stormwater management (SWM) strategy for the proposed development site was prepared recognizing the pertinent Conservation Authority, Municipal and Provincial guidelines on water resources including the following:

- Stormwater Management Planning and Design Manual, Ministry of the Environment (March 2003);
- Collingwood East End Drainage Study, C.C. Tatham & Associates Ltd. (March 2014);
- NVCA Stormwater Technical Guide, Nottawasaga Valley Conservation Authority (December 2013); and,
- Development Standards, Corporation of the Town of Collingwood (July 2007).

4.1 Stormwater Management Criteria

Several environmental factors and site conditions govern the design of the stormwater management plan for the development. In keeping with the recommendations provided in the East End Study, the SWM criteria to be adhered to are as follows:

- safely convey all storms up to and including the regional storm event to the existing SWM pond; and
- promote groundwater recharge and infiltration where possible.

The site is located within a portion of the Sandford Fleming Industrial Park (Catchment 200 of Fig. 2, attached) which has existing drainage infrastructure in the form of ditches that surround the site and convey runoff to an existing SWM pond north east of the Habitat for Humanity ReStore. The proposed Medibudz site is consistent with the Overall Drainage Plan (Fig. 2), and will continue to direct runoff to the existing drainage infrastructure, ultimately discharging to the existing SWM pond. The existing Stormwater Management Pond Improvements Plan (PND-1) has been attached for reference.

4.3.1 Existing SWM Pond

In accordance with recommendations provided in the Collingwood East End Drainage Study (March 2014), the existing SWM pond was subjected to the following improvements to ensure the required quantity and quality treatment can be provided:

- a sediment forebay was constructed to facilitate sediment settling and provide an isolated area for future sediment removal;
- the bottom of the pond was excavated approximately 1.0 m deeper to increase the volume of storage provided;

- the primary outlet was removed and replaced with a perforated vertical riser outlet and low flow control pipe. The perforated vertical riser was encased in rip rap to filter sediment from the surface runoff prior to being discharged downstream;

- the low flow control outlet was sized to optimize the peak flow attenuation provided in the pond during minor storm events;

- the wetland cell was seeded with wetland plantings to improve sediment filtration and phosphorous uptake;

- the overflow spillway was removed and a proper overflow spillway was constructed to control the release of major storm peak flows downstream while preventing the pond banks for being overtopped; and,

- the pond banks above the permanent pool water level were planted with upland and buffer vegetation to improve shading, lover pond water temperatures and create upland habitat around the perimeter of the pond.

Based on the conclusions from the Collingwood East End Drainage Study (March 2014), it is expected that the existing SWM pond will accommodate the runoff from the Medibudz site.

4.3.2 Siltation and Erosion Controls

Siltation and erosion controls will be implemented for all construction activities, including topsoil stripping, material stockpiling and grading operations. The following sediment and erosion control measures are to be implemented during construction:

- heavy duty silt fence will be erected before the commencement of any grading operations to control sediment movement;

- a construction vehicle entrance will be constructed and maintained consisting of a stone mud mat to reduce off-site tracking of material;

- regular inspection of control measures will be instituted and repairs will be made as necessary; and

- temporary swales and check dams will be constructed to prevent transportation of sediment off-site or into the existing SWM pond.

The Siltation & Erosion Control Plan (SC-1) has been attached to this report for reference.

5 Utility Network

It has been acknowledged that the following utility providers have services along Sandford Fleming:

- Bell Canada;
- Rogers Cable;
- Collus Powerstream; and
- Enbridge Gas.

The specific servicing requirements will be established by formally submitting connection requests to each utility provider.

6 Conclusions and Recommendations

The proposed Functional Servicing Report demonstrates that the development has adequate services available to meet the established criteria with regards to general servicing and stormwater management and can proceed without negatively impacting the existing infrastructure.

Stormwater will be conveyed to the existing SWM pond as outlined in the Collingwood East End Drainage Study (March 2014). A 150 mm diameter sanitary service, 100 mm diameter water service and 150 mm diameter fire service will be connected to the existing infrastructure along Sandford Fleming Drive and hydro, gas and telecommunications companies all have existing services in the immediate area.

Authored by: Andrew Schoof, MASc., EIT.
Intern Engineer

Reviewed by: Randy Simpson, B.A.Sc., P.Eng.
Senior Engineer, Group Leader

APPENDIX A:
SERVICING INFORMATION

Andrew Schoof - Fwd: Medibudz facility Site Service

From: Randy Simpson
To: Schoof, Andrew; Rob Durance
Date: 7/18/2018 5:21 PM
Subject: Fwd: Medibudz facility Site Service

>>> Ming Jia Li <mjli@hlengineering.ca> 7/12/2018 11:23 AM >>>
Hi Dan & Randy,

Please review our design estimation on water services:

- domestic water and sanitary flows and daily volumes.
  - DCW: 80gpm
  - SAN: 80FU

- process water flow and volume required
  - DCW (grow): 10gpm (2,600G per day)
  - DCW (hose bibs): 4 hose bibs at same time: 25gpm.
  - DCW (lab): 20gpm

- process discharge flow and volume expected
  - SAN (lab): 15FU
  - SAN: Grow discharge 260 gallons per day, 4hr, 1.2gpm;
  - SAN: dehumidification: 10gpm

- water supply requirements for fire protection (sprinklers?)
  - **6" fire main, 850gpm**

For DCW, considering future extension, our recommended main supply to be: 270gpm, 4"Ø

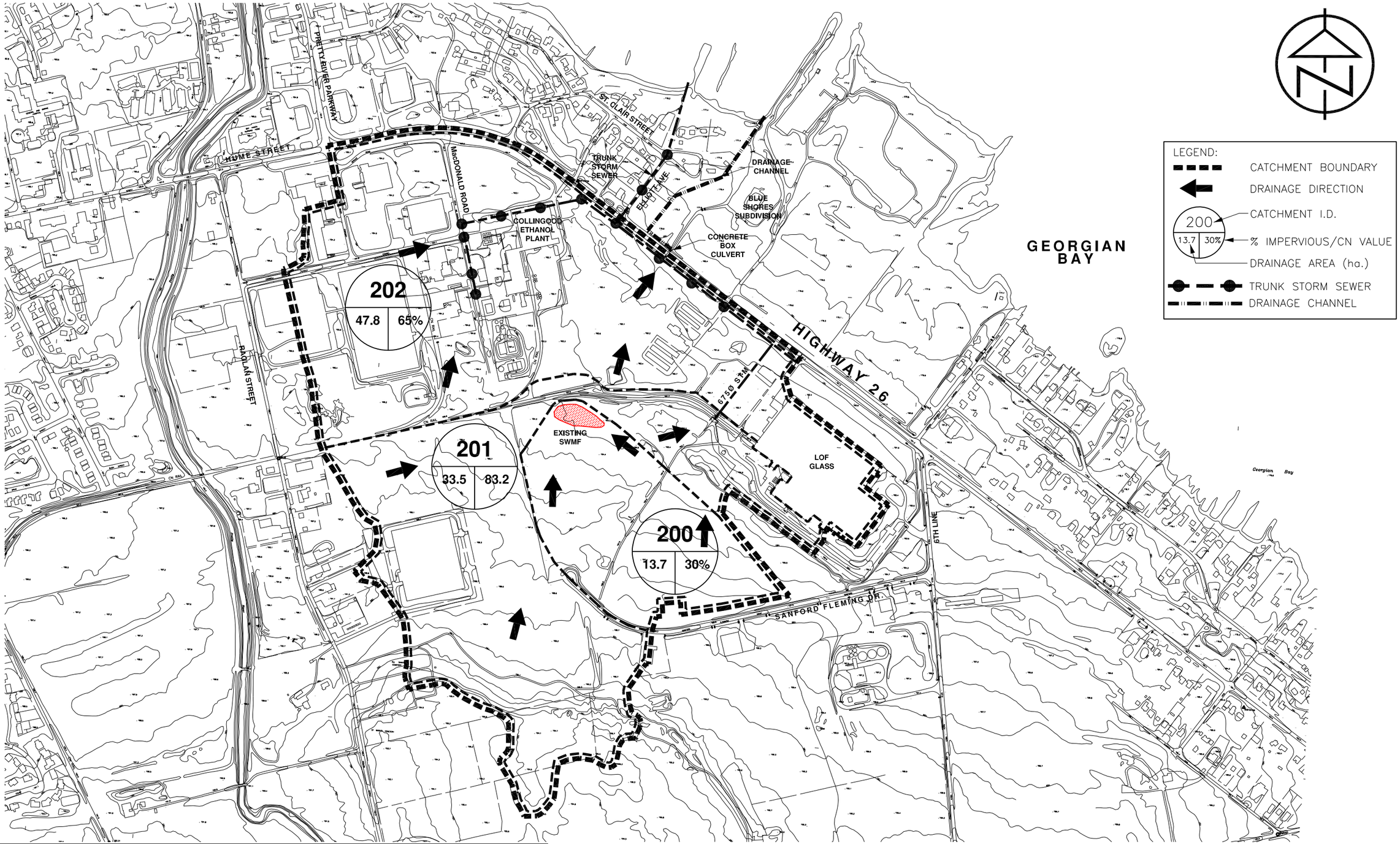
For SAN, considering future extension, our recommended main service to be: 360FU, 6"Ø

Please let me know if you have any questions.

Regards,

Ming Jia Li, P.Eng.

HL Engineering Ltd.
14721 Woodbine Ave
Stouffville, ON Canada
L4A 2G7
Tel: 905-713-0003
Cel: 647-998-1162
E-mail: mjli@hlengineering.ca



CONTRACT DRAWINGS

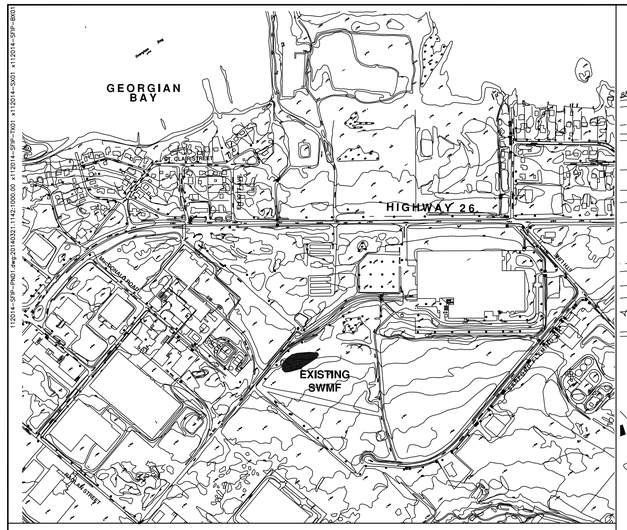
CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE COMMENCING WORK. DRAWINGS ARE NOT TO BE SCALED.

C.C. Tatham & Associates Ltd.
Consulting Engineers
Collingwood Bracebridge Orillia Barrie

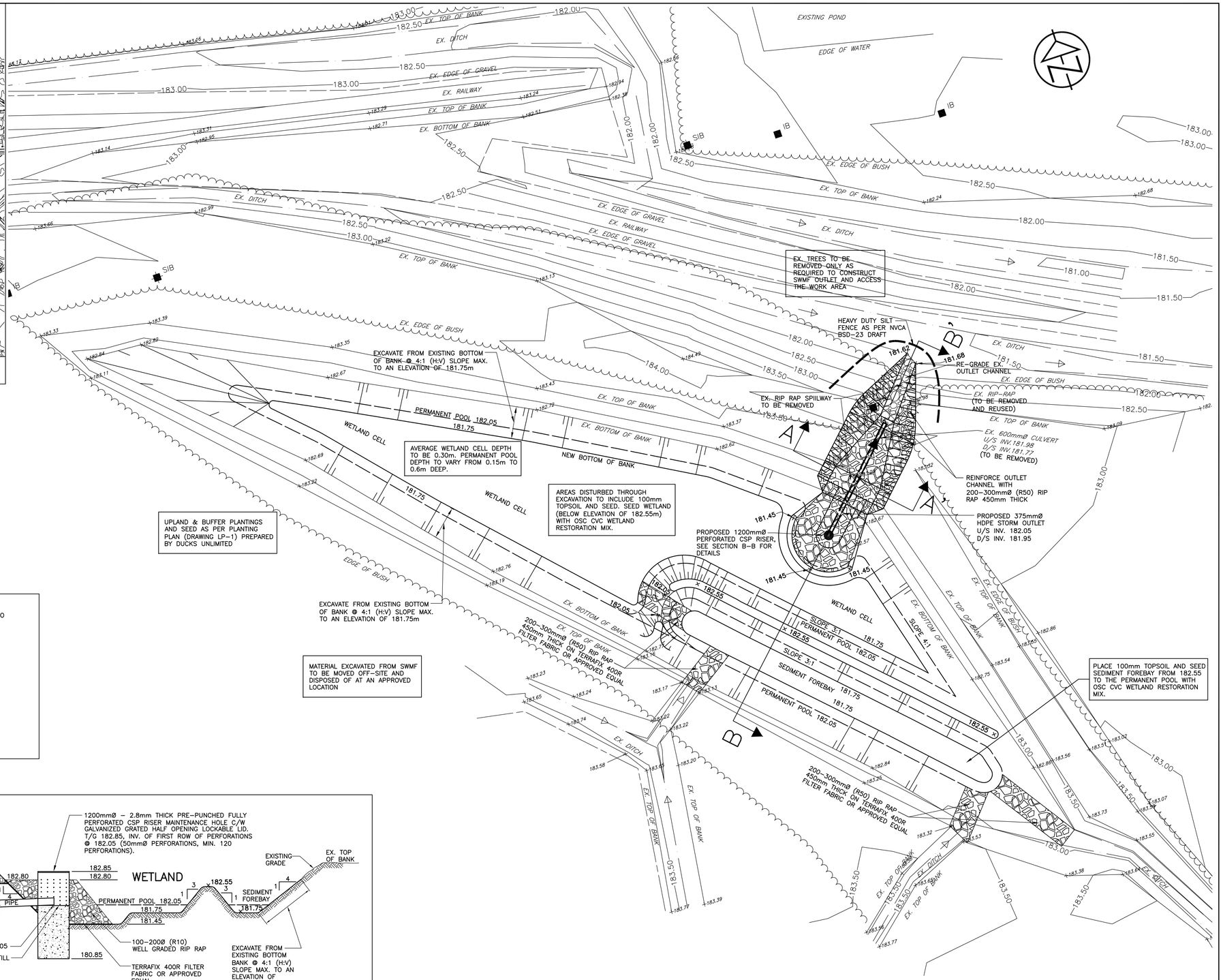
INDUSTRIAL SWMF IMPROVEMENTS
TOWN OF COLLINGWOOD
EXISTING OVERALL DRAINAGE PLAN

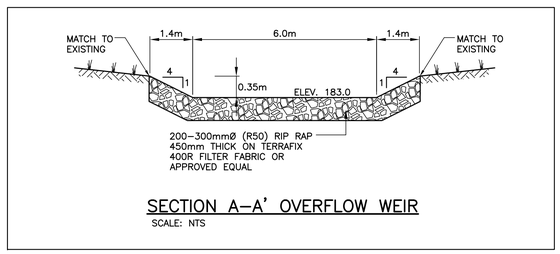
DWG. No. **FIG. 2**

SCALE: 1:7500 | DATE: MAR/14 | JOB NO. 112014



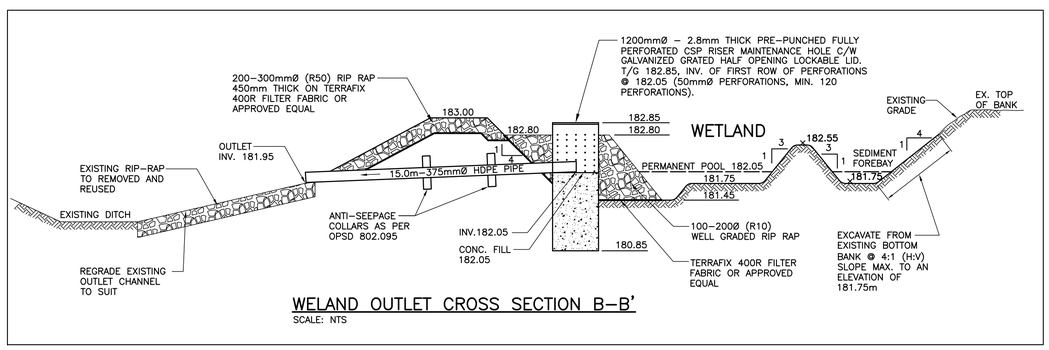
KEY PLAN





SECTION A-A' OVERFLOW WEIR

SCALE: NTS



WELAND OUTLET CROSS SECTION B-B'

SCALE: NTS

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NO.	REVISIONS	DATE	INITIAL

APPROVED

LICENSED PROFESSIONAL ENGINEER
D.R.W. TWIGGER
100147999
March 21/14
PROVINCE OF ONTARIO

COLLINGWOOD EAST END DRAINAGE STUDY
COLLINGWOOD, ONTARIO

STORMWATER MANAGEMENT POND IMPROVEMENTS PLAN

C.C. Tatham & Associates Ltd.
Consulting Engineers
Collingwood | Bracebridge | Orillia | Barrie

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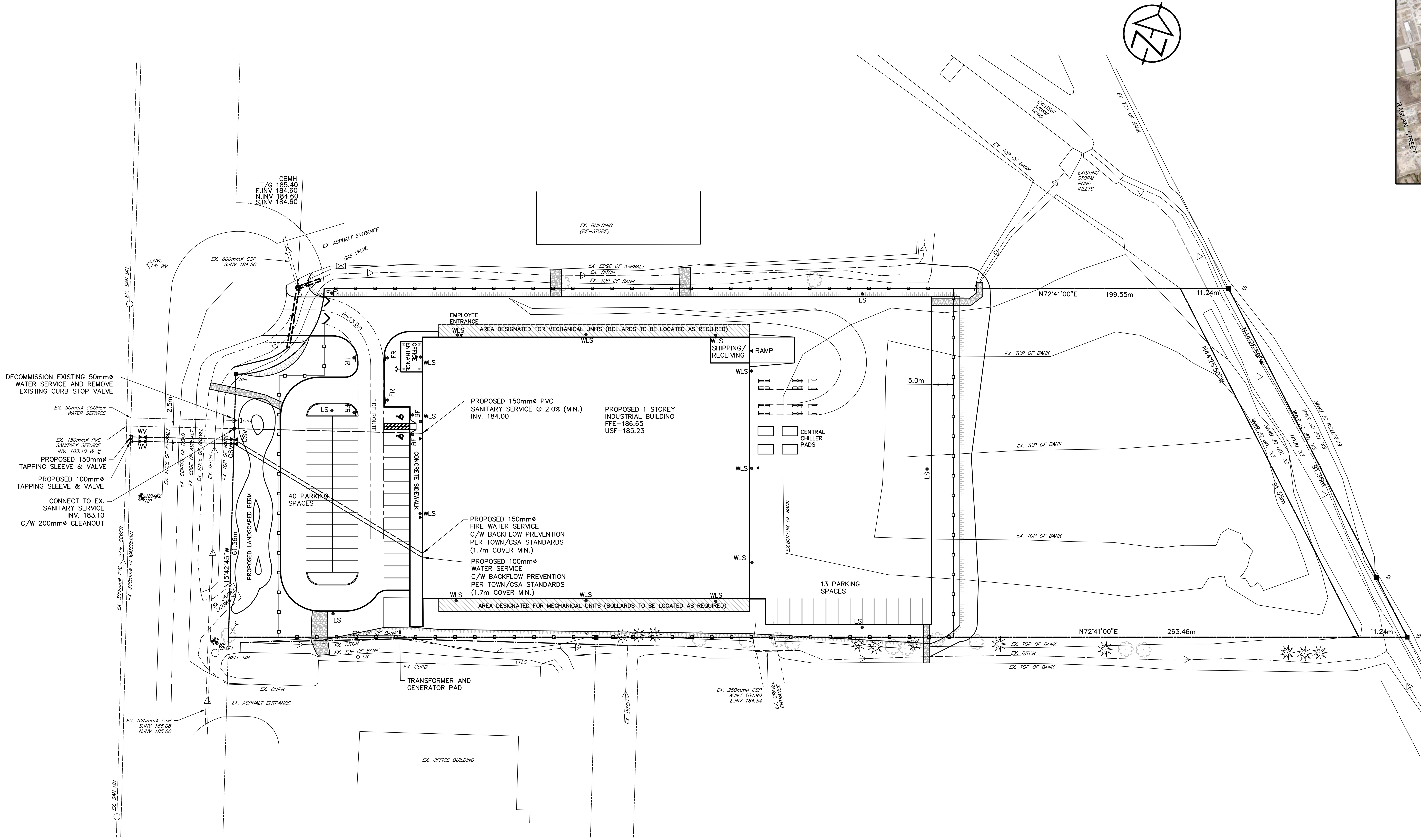
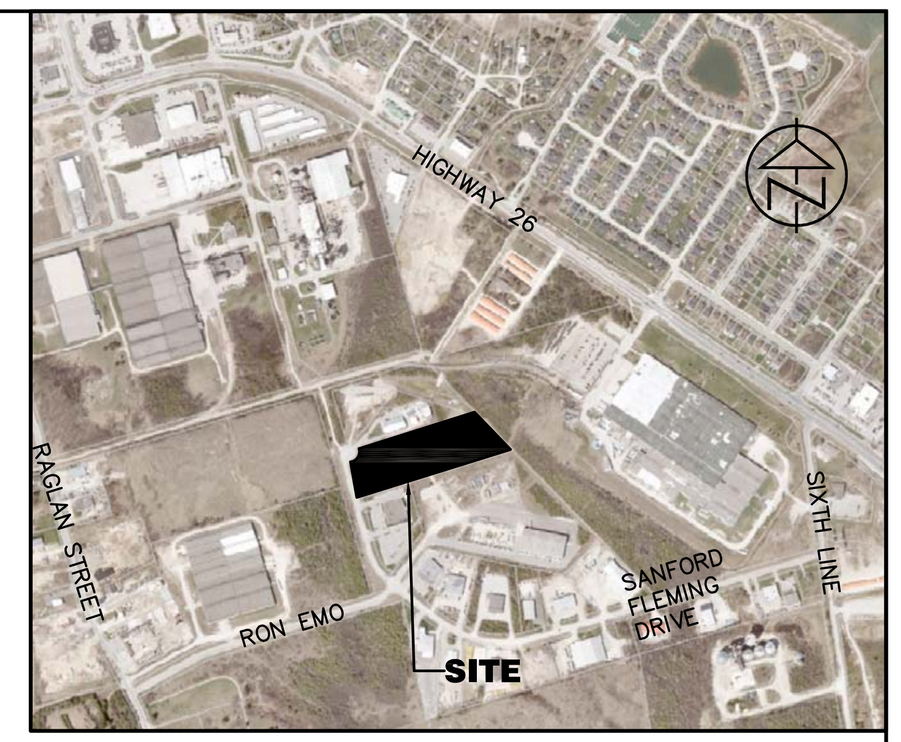
DESIGN: DRT	CHECKED: DJH	DWG.	**PND-1**
DRAWN: DEP	DATE: APRIL/2012		





KEY PLAN
N.T.S.

LEGEND
FFE = FIRST FLOOR ELEVATION
TFW = TOP OF FOUNDATION WALL
USF = UNDER SIDE OF FOOTINGS

WLS ● PROPOSED WALL LIGHT (SEE LIGHTING PLANS)
LS ● PROPOSED LIGHT STANDARD (SEE LIGHTING PLANS)
CSV PROPOSED CURB STOP VALVE
WV PROPOSED WATER VALVE
CSV EXISTING CURB STOP VALVE TO BE FLUSH WITH GRADE.
SAN. C/O EX. SANITARY CLEANOUT
TEMPORARY BENCHMARK
HYD & WV EX. FIRE HYDRANT
HP EX. HYDRO POLE
BUILDING ENTRANCE

ACCEPTED FOR CONSTRUCTION
Town of Collingwood
per ....
Date: ....

LEGEND

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CONTRACT DRAWINGS
LEGAL SURVEY INFORMATION AND LOT DIMENSIONS SHOWN ON THIS PLAN ARE TAKEN FROM A SURVEY PLAN PREPARED BY ZUBEK, EMO, PATTEN & THOMSEN LTD, DATED Sept 23, 2002 WHICH MAY NOT BE FINAL AND ARE NOT GUARANTEED. THE FINAL REGISTERED PLAN OF SUBDIVISION SHALL BE REFERRED TO FOR CONFIRMATION OF THE DATA.

TBM #1 ELEV. = 186.750
ELEVATIONS HEREON ARE GEODETIC AND REFER TO THE NAIL & WASHER IN HYDRO POLE ON EAST SIDE OF SANFORD FLEMING DRIVE AT SOUTH WEST CORNER OF SITE.

TBM #1 ELEV. = 186.031
ELEVATIONS HEREON ARE GEODETIC AND REFER TO THE NAIL & WASHER IN HYDRO POLE ON WEST SIDE OF SANFORD FLEMING DRIVE, ACROSS FROM SITE.

NO.	REVISIONS	DATE	INITIAL
1.	ISSUED FOR SITE PLAN	AUG/18	RS

APPROVED

LICENSED PROFESSIONAL ENGINEER
1889
R. S. SIMPSON
PROVINCE OF ONTARIO

MEDIBUDZ COLLINGWOOD LTD.
135 SANFORD FLEMING DRIVE
TOWN OF COLLINGWOOD

SITE SERVICING PLAN

C.C. Tatham & Associates Ltd.
Consulting Engineers
Collingwood Bracebridge Orillia Barrie Ottawa

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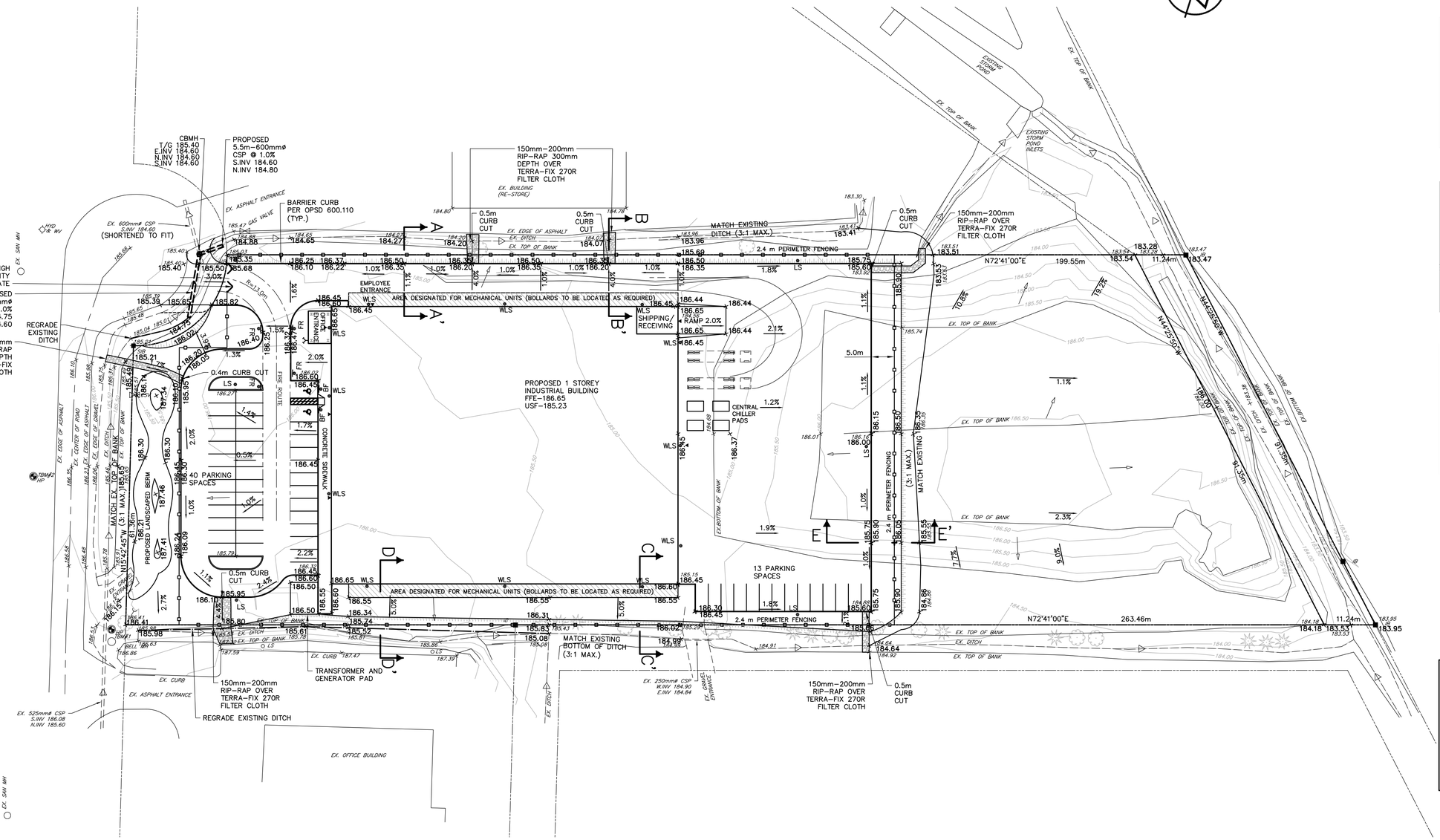

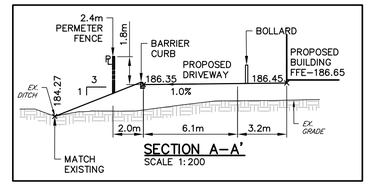

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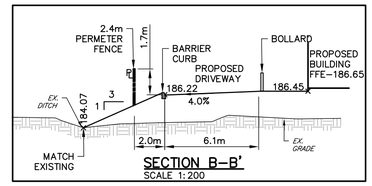

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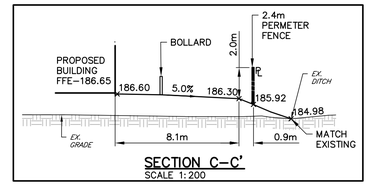

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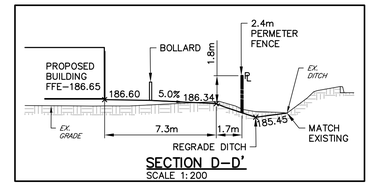

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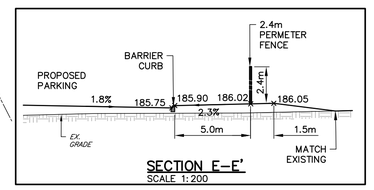

SECTION E-E'
SCALE 1:200

LEGEND

FFE = FIRST FLOOR ELEVATION
TFW = TOP OF FOUNDATION WALL
USF = UNDER SIDE OF FOOTINGS

- WLS ● PROPOSED WALL LIGHT (SEE LIGHTING PLANS)
- LS ● PROPOSED LIGHT STANDARD (SEE LIGHTING PLANS)
- × 192.51 EXISTING ELEVATION
- × 191.28 PROPOSED GROUND ELEVATION
- 2.0% PROPOSED DRAINAGE DIRECTION
- EXISTING DRAINAGE DIRECTION
- PROPOSED DRAINAGE SWALE
- CSV EXISTING CURB STOP VALVE TO BE FLUSH WITH GRADE.
- TEMPORARY BENCHMARK
- HYD & MV EX. FIRE HYDRANT
- HP ○ EX. HYDRO POLE
- ▶ BUILDING ENTRANCE

ACCEPTED FOR CONSTRUCTION
Town of Collingwood

per .....

Date: .....

LEGEND

CONTRACT DRAWINGS

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ELEVATIONS HEREON ARE GEODETIC AND REFER TO THE NAIL & WASHER IN HYDRO POLE ON EAST SIDE OF SANFORD FLEMING DRIVE AT SOUTH WEST CORNER OF SITE.

TBM #1 ELEV. = 186.031

ELEVATIONS HEREON ARE GEODETIC AND REFER TO THE NAIL & WASHER IN HYDRO POLE ON WEST SIDE OF SANFORD FLEMING DRIVE, ACROSS FROM SITE.

NO.	REVISIONS	DATE	INITIAL
1.	ISSUED FOR SITE PLAN	AUG/18	RS

APPROVED

LICENSED PROFESSIONAL ENGINEER 1889 R. S. SIMPSON PROVINCE OF ONTARIO

MEDIBUDZ COLLINGWOOD LTD.

135 SANFORD FLEMING DRIVE
TOWN OF COLLINGWOOD

SITE GRADING PLAN

C.C. Tatham & Associates Ltd.
Consulting Engineers
Collingwood Bracebridge Orillia Barrie Ottawa

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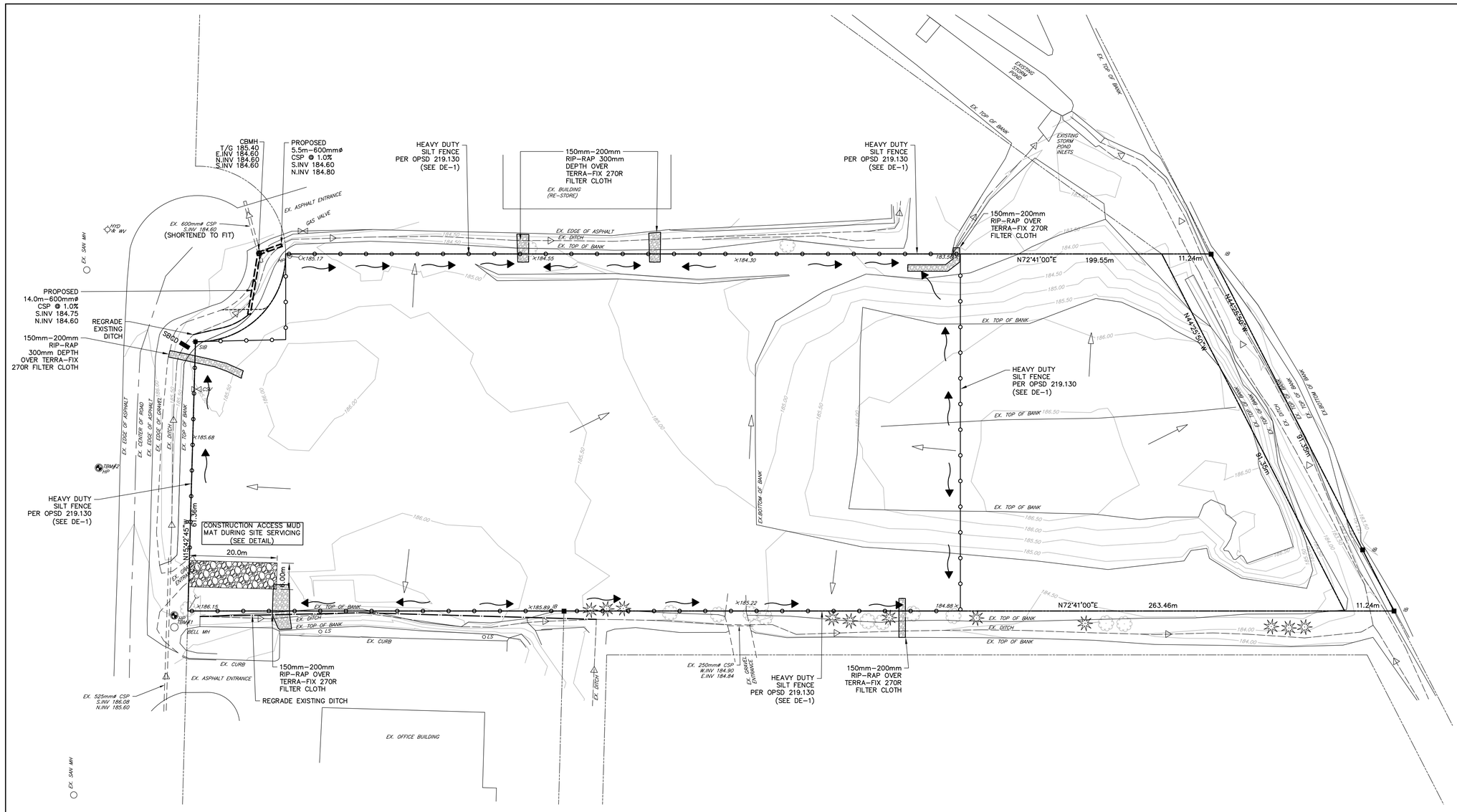

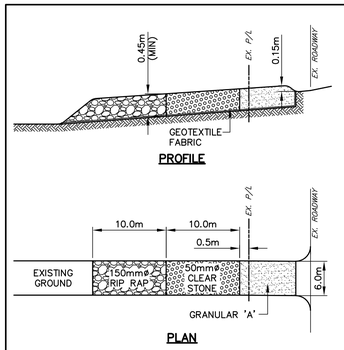

CONSTRUCTION ACCESS MUD MAT DETAIL
NTS

STONE SIZE: THE STONE PAD SHALL BE A MIN. 450 mm THICK. USE GRANULAR 'A' WITHIN PUBLIC RIGHT OF WAY, 50 mm ø CLEAR STONE FOR NEXT 10 m AND 150 mm ø RIP RAP FOR THE REMAINING 10 m.

LENGTH: AS REQUIRED BUT NOT LESS THAN 20 m.

WIDTH: 6 m MIN. BUT NOT LESS THAN THE WIDTH AT POINTS WHERE INGRESS AND EGRESS OCCURS.

GEOTEXTILE FABRIC: TERRAFIX 270R OR APPROVED EQUAL TO BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.

SURFACE WATER: ALL SURFACE WATER FLOWING OR DIRECTED TOWARD CONSTRUCTION ENTRANCES SHALL BE DIRECTED ACROSS THE ENTRANCE THROUGH A TEMPORARY CULVERT,

MAINTENANCE: THE CONTRACTOR SHALL MAINTAIN THE ENTRANCE IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO THE PUBLIC RIGHT–OF–WAY. THIS MAY REQUIRE PERIODIC DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO THE PUBLIC RIGHT–OF–WAY MUST BE REMOVED IMMEDIATELY BY THE CONTRACTOR. UPON OBSERVATION OF CONTINUOUS MUD TRACKING ONTO ADJACENT STREETS, THE STONE MAT IS TO BE FULLY REPLACED.

WASHING: WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO THE PUBLIC RIGHT–OF–WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

INSPECTION & MAINTENANCE: REQUIRED MAINTENANCE AFTER EACH RAIN EVENT SHALL BE PROVIDED BY THE CONTRACTOR.

CONSTRUCTION ACCESS MUD MAT TO BE REMOVED UPON COMPLETION OF SITE SERVICING AND ROADWORKS.

NOTES

A. ALL SEDIMENT AND EROSION CONTROL MEASURES MUST BE INSTALLED, INSPECTED AND APPROVED BY THE TOWN PRIOR TO THE START OF ANY OTHER CONSTRUCTION ACTIVITIES ON SITE. THESE DEVICES SHALL REMAIN IN PLACE UNTIL ALL DISTURBED AREAS HAVE BEEN STABILIZED OR AS OTHERWISE APPROVED BY THE TOWN. SEDIMENT AND EROSION CONTROL DEVICES THAT ARE DESIGNED TO CONTROL RUNOFF FROM SPECIFIC AREAS MUST BE INSTALLED PRIOR TO ANY DISTURBANCE OF THAT PART OF THE SITE. THE LOCATION OF ALL SILTATION AND EROSION CONTROL DEVICES TO BE REVIEWED ON SITE BY THE ENGINEER. THE LOCATION OF SILTATION AND EROSION CONTROL DEVICES MAY BE REVISED AS DIRECTED BY THE ENGINEER.

B. THE CONTRACTOR MAY CONSIDER ALTERNATIVE SEDIMENT AND EROSION CONTROL MEASURES. SUCH MEASURES MUST BE PRESENTED IN WRITING TO THE ENGINEER FOR APPROVAL OF THE TOWN AND CREDIT VALLEY CONSERVATION AUTHORITY (CVCA).

C. THE CONTRACTOR SHALL HAVE MATERIALS AVAILABLE ON–SITE TO REPAIR SEDIMENT AND EROSION CONTROL DEVICES IN THE EVENT OF UNFORESEEN CONDITIONS: HIGH WATER, EXTREME RAINFALL EVENTS, ETC.

D. ALL EROSION AND SEDIMENT CONTROL DEVICES MUST BE INSPECTED, CLEANED AND MAINTAINED BY THE CONTRACTOR AFTER EACH STORM EVENT. ALL WORKS WILL BE INSPECTED BY THE ENGINEER BI–WEEKLY AND AFTER EACH MAJOR STORM EVENT.

E. CONSTRUCTION OF ALL SILTATION AND EROSION CONTROL WORKS ARE TO BE IN ACCORDANCE WITH THE FOLLOWING STEPS:

1. INSTALL STONE MUD MAT AS PER DETAIL.
2. INSTALL SILT FENCE AS PER OPSD 219.130.
3. INSTALL STRAW BALE FLOW CHECKS AS PER OPSD 219.180.

F. ALL CONSTRUCTION VEHICLES TO ACCESS SITE USING THE DESIGNATED CONSTRUCTION ENTRANCES.

G. EROSION AND SEDIMENT CONTROL DEVICES TO BE REMOVED BY THE CONTRACTOR ONCE GROUND COVER IS ESTABLISHED AND LANDSCAPING IS COMPLETE AND APPROVED BY THE ENGINEER.

H. STOCKPILE LOCATIONS ARE TO BE APPROVED BY THE ENGINEER.

I. PROVIDE SNOW FENCE OR APPROVED EQUAL ACROSS ALL CONSTRUCTION ENTRANCES DURING PERIODS OF INACTIVITY.

J. CONSTRUCTION AREAS THAT EXCEED 30 DAYS OF INACTIVITY SHALL BE STABILIZED BY SEEDING.

ACCEPTED FOR CONSTRUCTION
Town of Collingwood

per .....

Date: .....

LEGEND

- ×192.51 EXISTING ELEVATION
- EXISTING DRAINAGE DIRECTION
- SBCD PROPOSED STRAW BALE CHECK DAM
- TEMPORARY BENCHMARK
- HYD & WV EX. FIRE HYDRANT
- HP EX. HYDRO POLE
- TEMPORARY SWALE

LEGEND

CONTRACT DRAWINGS

CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE COMMENCING WORK. DRAWINGS ARE NOT TO BE SCALED.

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CONTRACT DRAWINGS

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TBM #1 ELEV. = 186.750

ELEVATIONS HEREON ARE GEODETIC AND REFER TO THE NAIL & WASHER IN HYDRO POLE ON EAST SIDE OF SANFORD FLEMING DRIVE AT SOUTH WEST CORNER OF SITE.

TBM #1 ELEV. = 186.031

ELEVATIONS HEREON ARE GEODETIC AND REFER TO THE NAIL & WASHER IN HYDRO POLE ON WEST SIDE OF SANFORD FLEMING DRIVE, ACROSS FROM SITE.

NO.	REVISIONS	DATE	INITIAL
1.	ISSUED FOR SITE PLAN	AUG/18	RS

APPROVED

LICENSED PROFESSIONAL ENGINEER 1889 R. S. SIMPSON PROVINCE OF ONTARIO

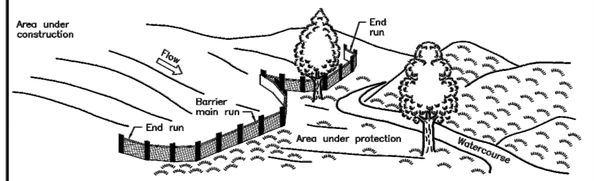
MEDIBUDZ COLLINGWOOD LTD.
135 SANFORD FLEMING DRIVE
TOWN OF COLLINGWOOD

SITATION & EROSION CONTROL PLAN

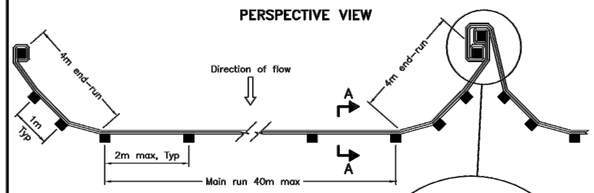
C.C. Tatham & Associates Ltd.
Consulting Engineers
Collingwood Bracebridge Orillia Barrie Ottawa

SCALE: 1:500		JOB NO. 118076	
DESIGN: AS/RD	CHECKED: RS	DWG.	SC-1
DRAWN: RD	DATE: JULY/18		

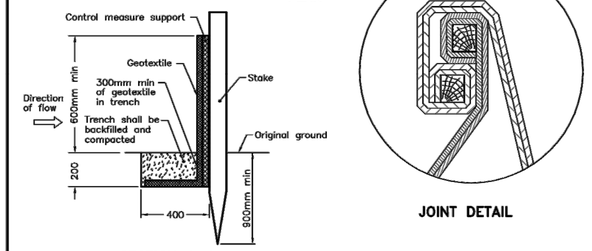
Drawing Name: 118076–SC01.dwg, Plotted: Aug 09, 2018



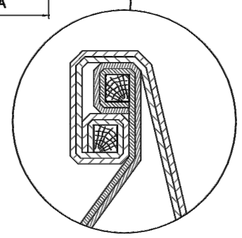
PERSPECTIVE VIEW



PLAN



SECTION A–A



JOINT DETAIL

NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev	2
HEAVY–DUTY SILT FENCE BARRIER			OPSD 219.130

GENERAL

A. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH TOWN OF COLLINGWOOD STANDARDS AND OPS STANDARDS. WHERE CONFLICT OCCURS, TOWN STANDARDS TO GOVERN.
B. THE ENGINEER SHALL PROVIDE BENCHMARK ELEVATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DETAILED LAYOUT OF THE WORK.
C. LEGAL SURVEY BOUNDARIES SHOWN ON DRAWING ARE APPROXIMATE, CONTRACTOR SHALL CONFIRM ALL BOUNDARIES AS REQUIRED TO COMPLETE THE WORK.
D. ALL PROPERTY BARS TO BE PRESERVED AND REPLACED BY OLS AT CONTRACTORS EXPENSE IF DISTURBED DURING CONSTRUCTION.
E. THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THE SUPPLY OF TEMPORARY WATER AND POWER.
F. DEWATERING TO BE CARRIED OUT IN ACCORDANCE WITH OPSS 517 AND OPSS 518. MAINTAIN ALL TRENCHES IN A DRY CONDITION. A MOECC PERMIT TO TAKE WATER (PTTW) HAS NOT BEEN OBTAINED FOR THIS PROJECT. IF THE CONTRACTOR CANNOT MAINTAIN DRY TRENCH CONDITIONS WITH CONVENTIONAL PUMP TECHNIQUES WHILE TAKING LESS THAN 50,000 L/DAY, THEN A PTTW MUST BE OBTAINED FROM THE MINISTRY OF ENVIRONMENT AND CLIMATE CHANGE.
G. ALL ENGINE DRIVEN PUMPS TO BE ADEQUATELY SILENCED, SUITABLE FOR OPERATION IN A RESIDENTIAL DISTRICT.
H. GENERAL INSTALLATION AND TESTING OF SEWERS, WATERMAIN AND APPURTENANCES TO BE IN ACCORDANCE WITH OPSS.MUNI 407, 408, 409 (CCTV), OPSS.MUNI 410, OPSS.MUNI 421, AND 441 AND ALL SPECIFICATIONS REFERENCED WITHIN THESE SECTIONS.
I. EXCAVATION AND GRADING TO BE IN ACCORDANCE WITH OPSS.MUNI 206 AND OPSS.MUNI 510.
J. TRENCH BACKFILL TO BE SELECT NATIVE MATERIAL OR IMPORTED SELECT SUBGRADE MATERIAL IN ACCORDANCE WITH OPSS.MUNI 1010. BACKFILL TO BE PLACED IN MAXIMUM 200 mm THICK LIFTS (OR AS OTHERWISE DIRECTED BY THE GEOTECHNICAL ENGINEER) AND COMPACTED TO A DRY DENSITY OF AT LEAST 95% OF THE MATERIAL'S STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD).
K. PIPE EMBEDMENT TO BE COMPACTED TO A DRY DENSITY OF AT LEAST 95% OF THE MATERIAL'S SPMDD. BACKFILL AND EMBEDMENT IN ACCORDANCE WITH OPSD 802.010 (FLEXIBLE PIPE), GRANULAR 'A' EMBEDMENT OR OPSD 802.031 (RIGID PIPE) CLASS "B", GRANULAR 'A' BEDDING, GRANULAR 'B' COVER (MAX. AGGREGATE SIZE 25 mm). MINIMUM BEDDING DEPTH 150 mm, MINIMUM COVER DEPTH 300 mm ON ALL PIPES. WHERE EXCESSIVELY WET OR POOR SUBGRADE IS ENCOUNTERED AT THE INVERT LEVEL, IT MAY BE NECESSARY TO INCREASE THE BEDDING THICKNESS.
L. CLEAR STONE COMPLETELY WRAPPED IN FILTER FABRIC CAN BE SUBSTITUTED FOR EMBEDMENT MATERIAL IF APPROVED BY THE ENGINEER.
M. DISTURBED AREAS TO BE REINSTATED TO PREVIOUS CONDITION OR BETTER.
N. REINSTATEMENT OF ALL DISTURBED AREAS TO INCLUDE REGRADING, PLACEMENT OF MIN. 150 mm TOPSOIL, SEED AND MULCH IN ACCORDANCE WITH OPSS 802 AND OPSS.MUNI 804.
O. LOCATION OF EXISTING INFRASTRUCTURE BASED ON A TOPOGRAPHICAL SURVEY COMPLETED BY C.C. TATHAM & ASSOCIATES LTD., AS–BUILT DRAWINGS AND/OR GIS INFORMATION PROVIDED BY THE TOWN.
P. LOCATIONS OF EXISTING UTILITIES ARE NOT GUARANTEED. THE CONTRACTOR SHALL OBTAIN LOCATES FROM ALL RELEVANT UTILITY COMPANIES, 48 HOURS PRIOR TO THE COMMENCEMENT OF ANY WORK AND IF NECESSARY LOCATE UTILITIES BY HAND DIGGING.
Q. THE CONTRACTOR IS RESPONSIBLE FOR THE PRESERVATION OF ALL EXISTING INFRASTRUCTURE/FACILITIES AS WELL AS NOTIFYING ALL UTILITY COMPANIES PRIOR TO COMMENCING WORK AND CO–ORDINATE CONSTRUCTION ACCORDINGLY.
R. ALL ON–SITE MATERIAL SHALL BE PROPERLY STORED, SECURED, MONITORED AND COVERED AS REQUIRED. SPECIFICALLY, ALL PVC PIPE SHALL BE COVERED WHILE STORED ON–SITE.
S. ALL SILTATION & EROSION CONTROL PROTECTION DEVICES ARE TO BE INSTALLED PRIOR TO COMMENCEMENT OF CONSTRUCTION. CONTRACTOR SHALL MAINTAIN CONTROL DEVICES THROUGHOUT CONSTRUCTION AND REMOVE THE CONTROL DEVICES ONCE GROUND COVER IS ESTABLISHED IN ALL DISTURBED AREAS.
T. ALL CONSTRUCTION MATERIALS SHALL BE REMOVED FROM THE SITE PRIOR TO RESTORATION OF DISTURBED AREAS.
U. ALL SIGNAGE TO BE LAWFULLY ERECTED AND MAINTAINED IN ACCORDANCE TO THE TOWN SIGN BY–LAW.
V. ALL FENCING TO BE LAWFULLY ERECTED AND MAINTAINED IN ACCORDANCE TO THE TOWN FENCE BYLAW.
W. CLEARING, GRUBBING AND REMOVAL OF SURFACE BOULDERS TO OPSS 201.
X. GRADING TO OPSS.MUNI 206.
Y. COMPACTING TO OPSS.MUNI 501.

ROADS/PARKING AREAS

A. SUBGRADE AND BOULEVARD MATERIAL TO BE COMPACTED TO A DRY DENSITY OF AT LEAST 95% OF THE MATERIAL'S SPMDD. SUBGRADE TO BE PROOF ROLLED AND CERTIFIED PRIOR TO PLACING GRANULAR 'B'. FILL PLACED WITHIN 3.0 m OF AND WITHIN THE BUILDING ENVELOPE TO BE COMPACTED TO A DRY DENSITY OF AT LEAST 98% OF THE MATERIAL'S SPMDD, UNDER FULL TIME SUPERVISION OF THE GEOTECHNICAL CONSULTANT.
B. GRANULAR 'A' AND 'B' TO BE COMPACTED TO A DRY DENSITY OF AT LEAST 100% OF THE MATERIAL'S RESPECTIVE SPMDD.
C. ALL GRANULARS AND ASPHALT MATERIAL TO BE PLACED IN ACCORDANCE WITH OPSS 310 AND OPSS.MUNI 314.
D. ASPHALT TO BE COMPACTED TO A MINIMUM OF 92% OF THE MATERIAL'S MAXIMUM RELATIVE DENSITY.
E. FRONT PARKING AREA TO BE CONSTRUCTED WITH MIN. 300 mm GRANULAR 'B', 150 mm GRANULAR 'A', 50mm HL8 AND 40mm HL3.
F. ENTRANCE THROUGH TO REAR PARKING AREA TO BE CONSTRUCTED WITH MIN. 400mm GRANULAR 'B', 200mm GRANULAR 'A', 90mm HL8 AND 40mm HL13.
G. JOINTS WITH EXISTING ASPHALT TO BE SAW CUT STRAIGHT PRIOR TO PLACING NEW ASPHALT AND TACK COAT SHALL BE APPLIED TO EXISTING ASPHALT. WHERE EXISTING ASPHALT IS GREATER THAN 75 mm DEPTH, A 300 mm WIDE BY 40 mm DEEP LAP JOINT SHALL BE GROUND INTO EXISTING ASPHALT, OTHERWISE A BUTT JOINT SHALL BE USED.
H. SELECT SUBGRADE MATERIAL, OR IMPORTED GRANULAR MATERIAL APPROVED BY THE ENGINEER, COMPACTED TO 98% S.P.M.D.D. TO BE USED AS FILL IN ALL AREAS WHERE PROPOSED PIPE INVERTS ARE HIGHER THAN EXISTING GRADE OR AS INSTRUCTED BY THE ENGINEER.
I. TACK COAT TO BE APPLIED AT THE DIRECTION OF THE ENGINEER.
J. CONCRETE BARRIER CURB IN ACCORDANCE WITH OPSD 600.110 AND OPSS 353. CONCRETE SIDEWALK IN ACCORDANCE WITH OPSD 310.020 AND OPSS 351. SUBBASE TO CONSIST OF 150 mm DEPTH GRANULAR 'A'.
K. ALL FIRE ROUTE SIGNAGE TO BE AS PER TOWN OF COLLINGWOOD BY–LAW 96–37.
L. BOLLARDS TO BE 100 mm DIA. SCH 40 (RAW PIPE) AND FILLED WITH CONCRETE. BASE TO BE SET AT A MINIMUM OF 1.22 m BELOW GRADE. TOP TO BE SET MIN. 1.2 m ABOVE GRADE. PLASTIC BOLLARD COVER TO BE PROVIDED, YELLOW IN COLOUR.
M. RIP–RAP AT CURB CUTS IN ACCORDANCE WITH OPSD 810.010

SANITARY SERVICE

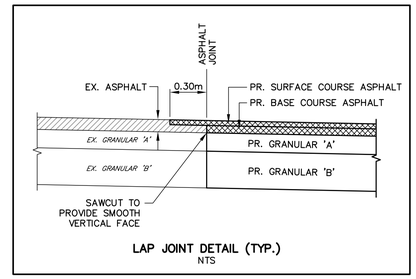
A. SERVICE CONNECTION IN ACCORDANCE WITH OPSD 1006.020, 150 mm DIAMETER, TERMINATED WHERE SPECIFIED ON THE DRAWING COMPLETE WITH PLUG AND MARKED WITH A 38mm X 89mm POST PAINTED GREEN FROM THE INVERT OF THE SERVICE TO 600 mm ABOVE GRADE. , GRANULAR 'A' EMBEDMENT (MIN. 150 mm BEDDING AND 300 mm COVER).

WATERMAIN

A. ALL WATERMAINS AND SERVICES ARE TO BE CONSTRUCTED IN ACCORDANCE WITH TOWN WATER DEPARTMENT STANDARDS.
B. ALL WORK ON TOWN PROPERTY AND ON CPU WATER MAINS MUST BE UNDERTAKEN BY THE TOWNS WATER DEPARTMENT OR BY AN APPROVED CONTRACTOR WITH THE TOWNS WATER DEPARTMENT APPROVAL, ALL AT THE DEVELOPER'S COST.
C. ALL SERVICES ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE TOWNS WATER DEPARTMENT STANDARDS. SERVICE CONNECTIONS TO OPSD 1104.010 DIRECT TAP, GRANULAR 'A' EMBEDMENT (150 mm BEDDING AND 300 mm COVER).
D. ALL SERVICES ARE TO BE CONSTRUCTED IN ACCORDANCE WITH TOWN AND CPU STANDARDS.
E. MINIMUM COVER ON WATER SERVICE TO BE 1.7 m.
F. BACKFLOW PREVENTION DEVICES AS PER CSA B64.10–11/B64.10.1–11, OBC AND TOWN WATER BY–LAW TO BE INSTALLED INTERNAL TO THE BUILDING AND CERTIFIED BY THE CONTRACTOR AND A COPY OF THE CERTIFICATE OF PASSING PROVIDED TO THE TOWN. TESTING OF THE BACKFLOW PREVENTION DEVICES IS AN ANNUAL REQUIREMENT.
G. NO WATER VALVES SHALL BE OPERATED WITH THE APPROVAL OF THE TOWN WATER DEPARTMENT.

MATERIALS

A. ALL MATERIAL TO COMPLY WITH CSA, OPSS AND TOWN STANDARDS.
B. SANITARY SERVICE CONNECTIONS – PVC SDR 28 (GREEN).
C. AGGREGATES IN ACCORDANCE WITH OPSS.MUNI 1010.
D. FILTER FABRIC – TERRAFIX 270R OR APPROVED EQUAL.
E. WATER SERVICES TO BE PVC DR18.
F. MAIN STOPS 301NL–A4H4, (NO LEAD–LIFETIME GUARANTEED AGAINST LEAD LEACHATE FROM THE CASTING) BALL STYLE C/W S/S STEM, AWWA THREAD BY COMPRESSION CAMBRIDGE BRASS.
G. CURB STOPS 203NL–H4H4, (NO LEAD–LIFETIME GUARANTEED AGAINST LEAD LEACHATE FROM THE CASTING) BALL STYLE WITH DRAIN C/W S/S STEM, COMPRESSION JOINT BY CAMBRIDGE BRASS.
H. SERVICE BOXES NUMBER 7 D–1 CLOW OR MUELLER ¾" TO 1", 24" BLACK RODS STRAIGHT OR NUMBER 7 D–2 CLOW OR MUELLER 1 ¼" TO 2", 35" BLACK RODS STRAIGHT.
I. LIVE TAP SADDLES – EPOXY COATED C/W STAINLESS STEEL BOLTS.
J. LIVE TAP VALVE – RESILIENT SEATED RSGV, LIVE TAP VALVE, OPEN LEFT CLOW OR MUELLER.
K. CULVERTS – SMOOTH WALL HDPE (MIN. PIPE STIFFNESS = 320 kPa) OR CORRUGATED METAL PIPE (MIN. THICKNESS = 2.0 mm)
L. RIP RAP TO OPSD 1004.05.06



LAP JOINT DETAIL (TYP.)
NTS

ACCEPTED FOR CONSTRUCTION
Town of Collingwood
per .....
Date: .....

LEGEND

CONTRACT DRAWINGS

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1.	ISSUED FOR SITE PLAN	AUG/18	RS

APPROVED

LICENSED PROFESSIONAL ENGINEER 1889 R. S. SIMPSON PROVINCE OF ONTARIO

MEDIBUDZ COLLINGWOOD LTD.
135 SANFORD FLEMING DRIVE
TOWN OF COLLINGWOOD

DETAILS & NOTES

C.C. Tatham & Associates Ltd.
Consulting Engineers
Collingwood Bracebridge Orillia Barrie Ottawa

SCALE: AS SHOWN		JOB NO. 118076	
DESIGN: AS/RD	CHECKED: RS	DWG.	DE-1
DRAWN: RD	DATE: JULY/18		

Drawing Name: 118076–DE01.dwg, Plotted: Aug 09, 2018