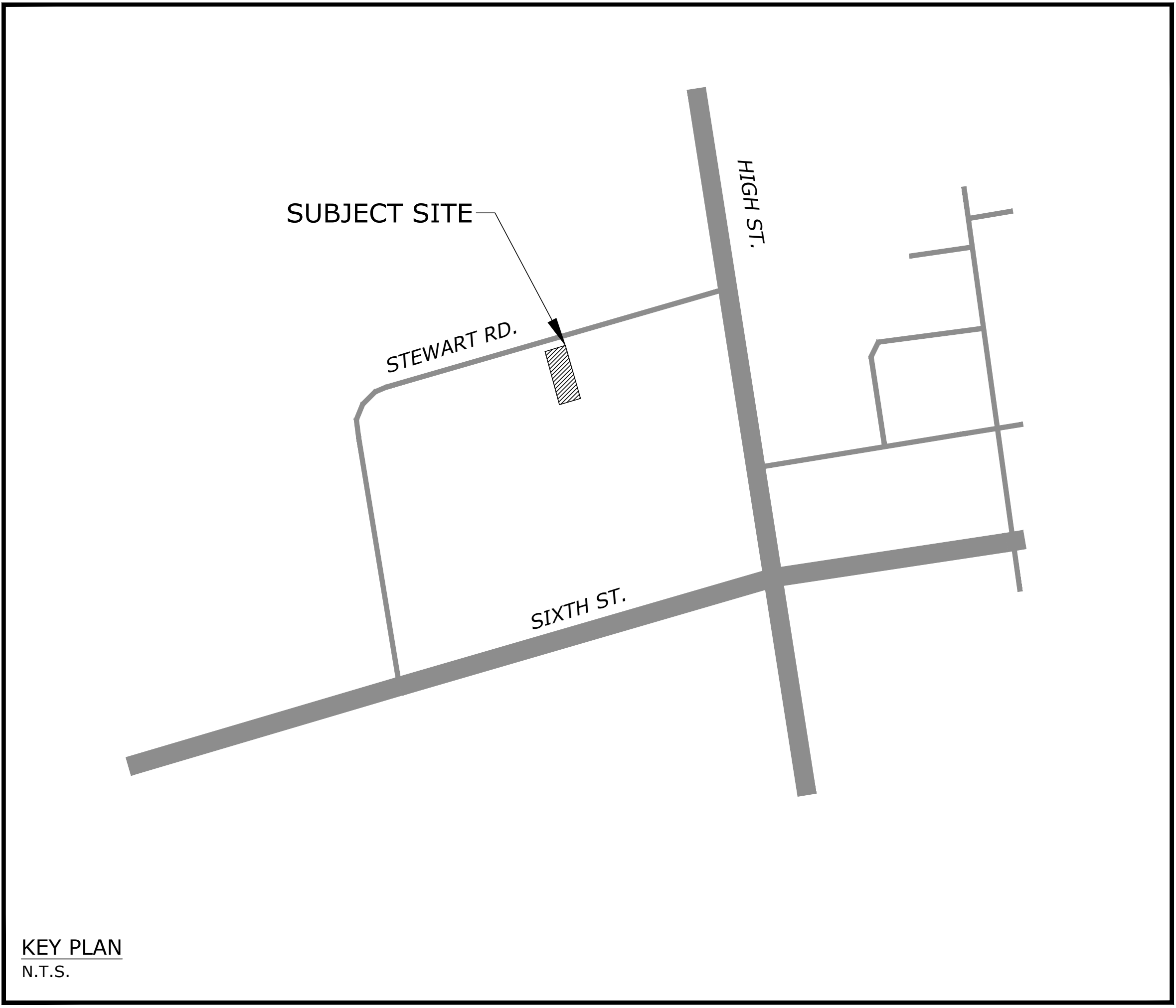


12 STEWART ROAD SITE PLAN TOWN OF COLLINGWOOD

DRAWING INDEX

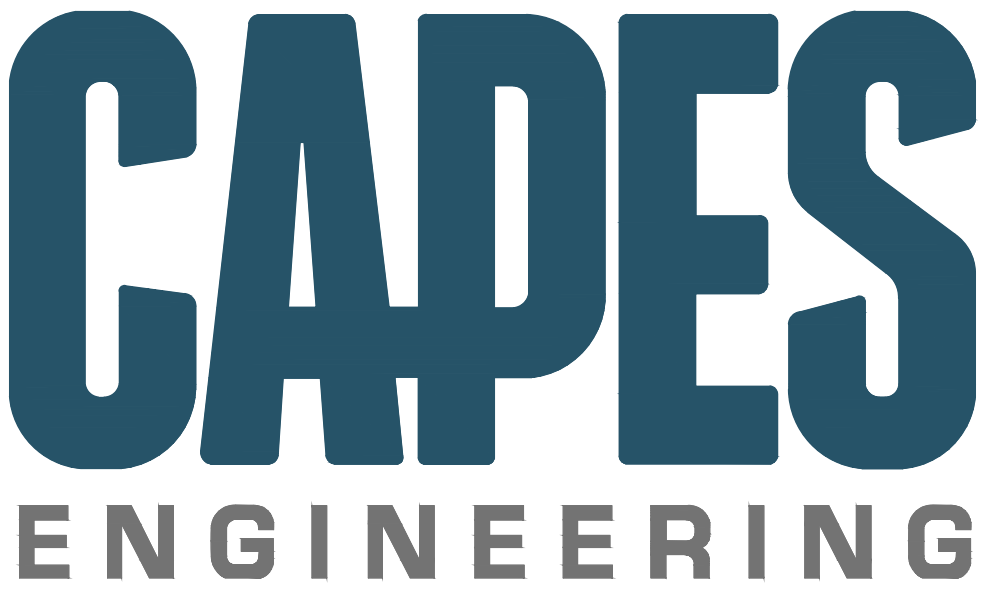
C1	SITE PLAN
C2	GRADING AND SERVICING PLAN
C3	EROSION & SEDIMENT CONTROL PLAN
C4	STANDARD DETAILS
C5	GEOTECHNICAL SPECIFICATIONS
C6	TOWN APPROVED WATERMAIN MATERIALS

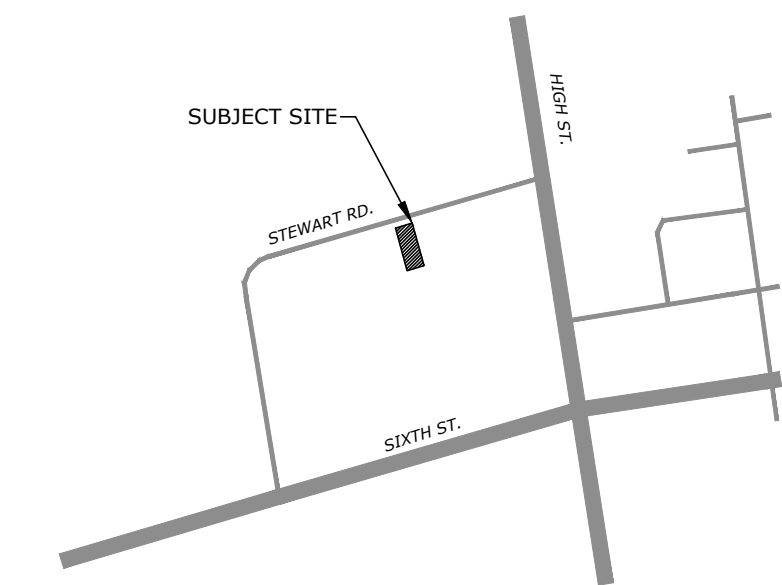
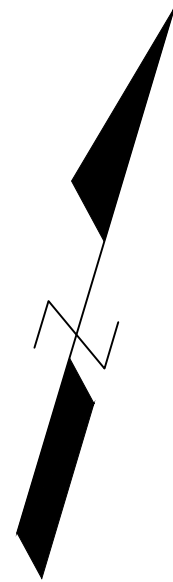


ALEX CARTER

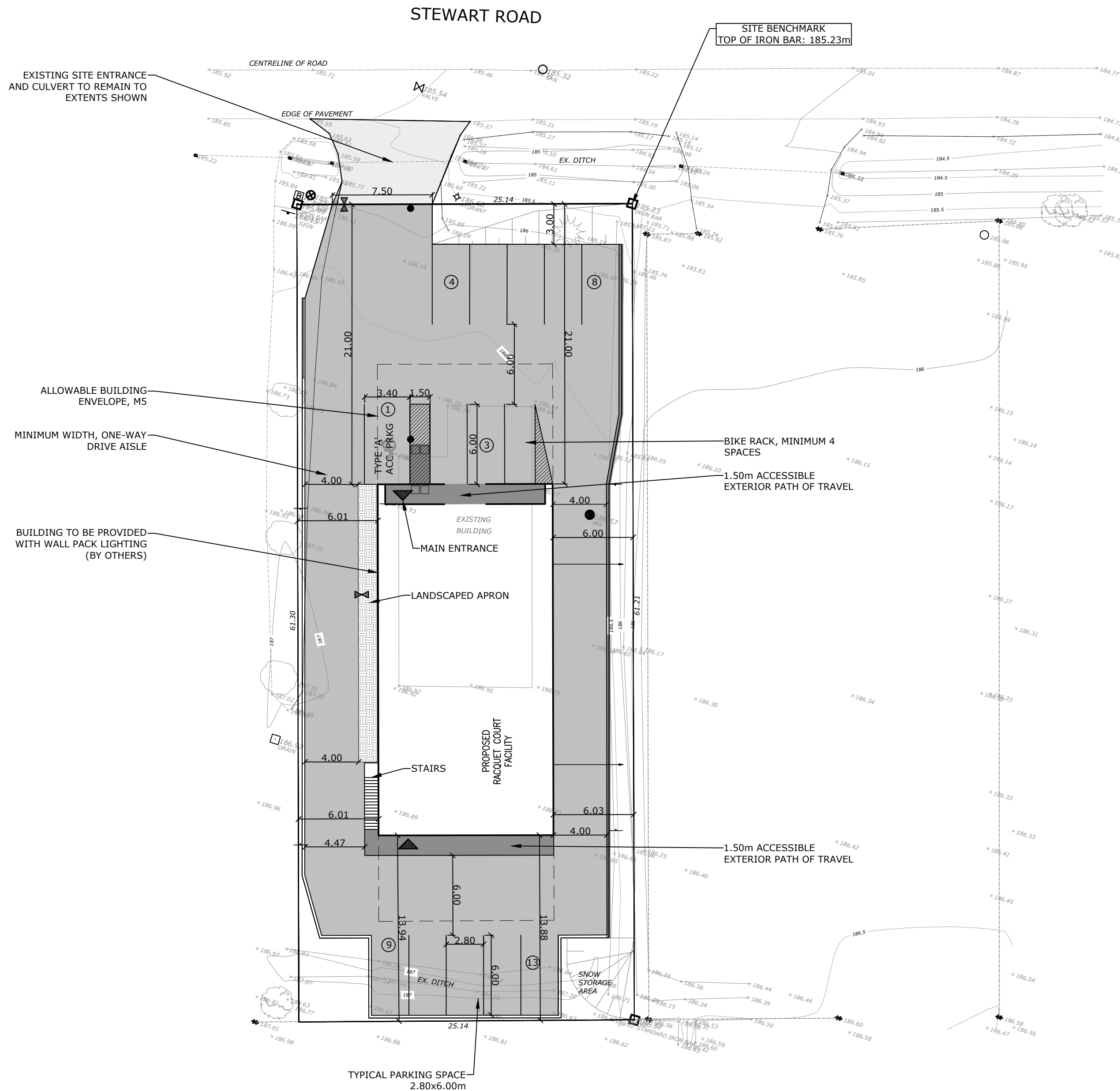
Project No. 2025-054

REVISED FOR APPROVALS - 26/09/04





KEY PLAN



TOWN OF COLLINGWOOD ZONING BY-LAW, M5 ZONING			TOTAL BUILDING AREA (NO EXCLUSIONS) = 489.40sq.m GROUND FLOOR AREA (NO EXCLUSIONS) = 327.27sq.m GROSS FLOOR AREA, 2 STOREY = 416.54sq.m APPROX. BUILDING FOOTPRINT = 345.86sq.m		
PROVISIONS	REQUIRED (M5)	PROVIDED			
MINIMUM LOT AREA (sq.m)	2,000	1540			
MINIMUM LOT FRONTAGE (m)	30.0	25.14			
MINIMUM FRONT YARD (m)	12.0	21.00			
MINIMUM INTERIOR SIDE YARD (m)	6.0	6.00			
MINIMUM REAR YARD (m)	7.5	13.88			
MAXIMUM HEIGHT (m)	15.0	15.0			
MAXIMUM LOT COVERAGE (%)	50	22.4			
MINIMUM LANDSCAPED OPEN SPACE (%)	15	15			
PARKING SETBACK FROM STREET (m)	3.0	3.0			
ENTRANCE WIDTH (m)	7.5 - 15.0	EX. 7.50			
PARKING REQUIREMENTS					
PARKING SPACES	3/100sq.m GFA	13			
DELIVERY SPACES	SEE BELOW	0			
LOADING SPACES	SEE BELOW	0			
ACCESSIBLE PARKING SPACES	SEE BELOW	1, TYPE 'A'			
BICYCLE SPACES	10% OF REQ'D PARKING (NO LESS THAN 4)	4			

Table 5.9.1.1 Required Number of Delivery Spaces	
Uses	Number of Delivery Spaces Required
Hotel or Motel	1 space per 150 suites
Hospital or School	1 space
Any other main building in a Commercial, Industrial or Community Services Zone	1 space for any building between 460 m ² of GFA and 2500 m ² of GFA. Any building larger than 2500 m ² of GFA is automatically subject to Section 5.10 entitled Loading Space Regulations

Table 5.10.1.1 Required Number of Loading Spaces	
Gross Floor Area	Number of Loading Spaces Required
From 2,501 m ² GFA to 7,000 m ² GFA	1 space
From 7,001 m ² GFA to 10,000 m ² GFA	2 spaces
For every additional 2,500 m ² GFA beyond 10,000 m ² GFA	1 additional space

5.11 Accessible Parking	
5.11.1	The minimum number of required accessible parking spaces shall be in accordance with Table 5.11.1.1 entitled Required Number of Accessible Spaces.
Table 5.11.1.1 Required Number of Accessible Parking Spaces	
Total Number of Parking Spaces Required	Number of Accessible Parking Spaces Required
1 to 25 spaces	Minimum of 1 space
26 to 50 spaces	Minimum of 2 spaces
51 to 100 spaces	Minimum of 3 spaces
Over 100 spaces	2% of the total required parking spaces
5.11.2	Parking spaces for the disabled shall be included as part of the total calculation of required parking spaces for any lot, building or use.

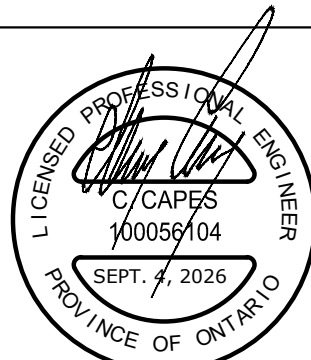
ACCEPTED FOR
CONSTRUCTION
TOWN OF COLLINGWOOD

PER
DATE:

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 - This is not a plan of survey. Any and all representation of property boundaries are approximate only.

No	Revision	Date
1	FOR CLIENT REVIEW	2025-07-14
2	REVISED FOR APPROVALS	2026-04-29
3	REVISED FOR APPROVALS	2026-06-22
4	REVISED FOR APPROVALS	2026-09-04

THIS IS NOT A PLAN OF SURVEY. ALL BOUNDARIES SHOWN ARE APPROXIMATE ONLY, AND SHALL BE CONFIRMED BY LICENSED ONTARIO LAND SURVEYOR (OLS).
ELEVATIONS SHOWN HEREON ARE GEODETIC DERIVED FROM GPS REAL TIME NETWORK OBSERVATIONS USING THE 'CAN-NET' VRS NETWORK.
DATUM: CGVD 2028:78
ALL COORDINATES AND ARE IN "GRID" DISTANCES, NAD83 - UTM 17N (CANADA)
SITE BENCHMARK:
TOP OF IRON BAR, NORTHEAST LOT CORNER
ELEV. 185.23m
FIELD WORK COMPLETED: 08-MAY-2025 JoeTOPO SURVEYS AND CADD INC.



Client
ALEX CARTER

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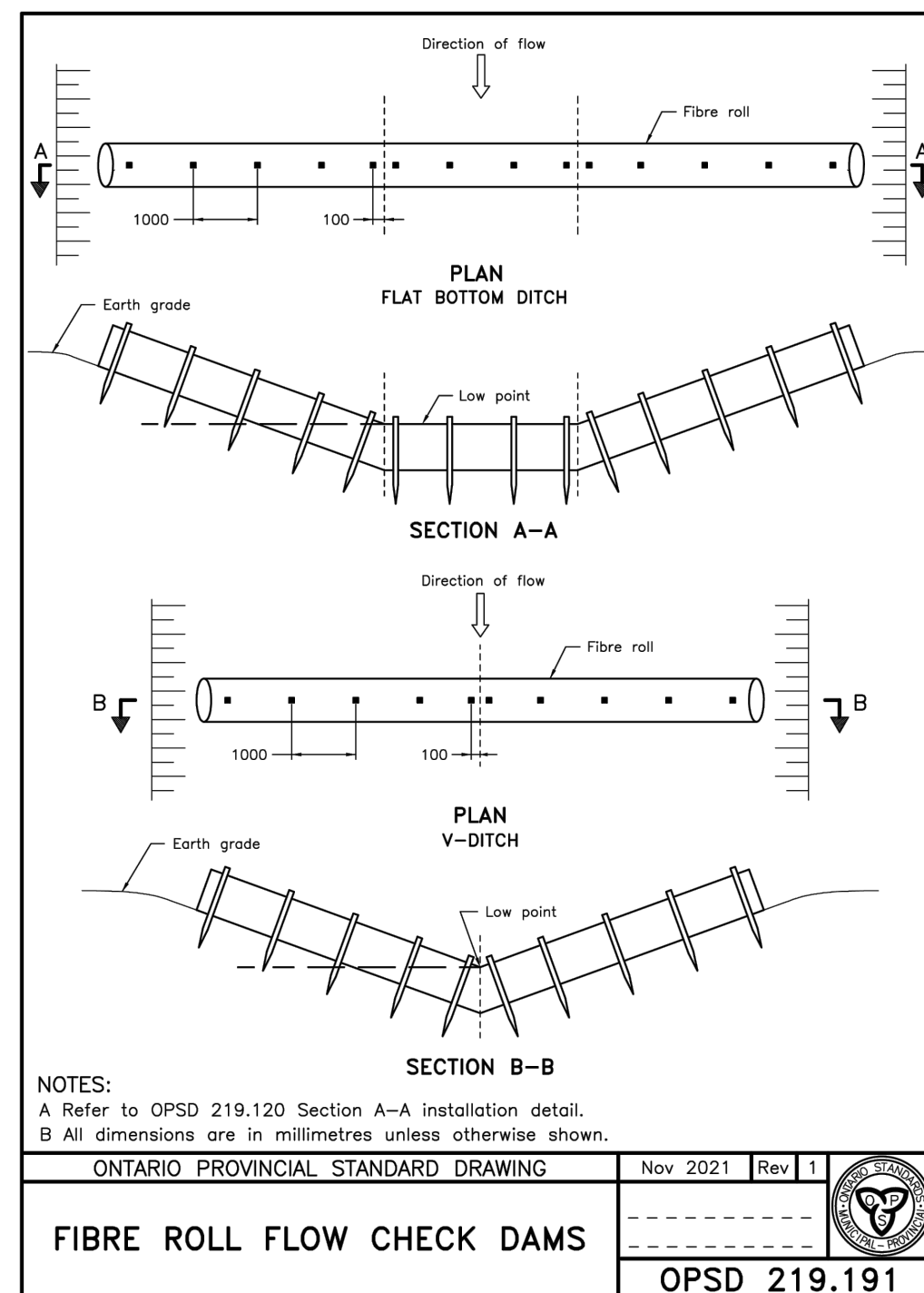
12 STEWART ROAD SITE PLAN

SITE PLAN

Designed K. GRIFFIN	Checked C. CAPES	Date 25/10/31	Drawing No.
Project No. 2025-054	Rev No. 1		
Scale 1:250	0 5.0 10.0 15.0m		

C1

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SEEDING

1. AREAS OF SITE LEFT UNSTABLE FOR MORE THAN 30 DAYS TO BE STABILIZED WITH ACCEPTABLE GROUND COVER
 OPTIONS: BLOWER TRUCK APPLICATION OF MEDIA/SEED/MULCH MIX, HYDROSEEDING, MECHANICAL OR BROADCAST; SPECIES TO BE APPROVED BY TOWN OF SANGER THINGS, IN ACCORDANCE WITH LANDSCAPING PLANS
3. SEEDING IDEALLY APPLIED BETWEEN APRIL 15 & MAY 30 OR AUGUST 15 & SEPTEMBER 15
4. BARE SOIL TO BE PROPERLY SCARIFIED TO PREPARE FOR PLANTING IF SOIL HAS BEEN CRUSTED OVER OR COMPACTED.
5. MINIMUM 75mm OF TOPSOIL APPLIED TO ALL AREAS SUBJECT TO PERMANENT LANDSCAPING.
6. TREED TRACKING/CAT TRACKING METHOD TO BE USED FOR SEEDING ON SLOPES > 3:1.
7. SEED COVERED WITH EROSION CONTROL MATS/BLANKETS/MATTING AS NEEDED FOR SLOPES > 2:1.
8. AREAS THAT DO NOT SHOW GROWTH WITHIN 14 DAYS TO BE RE-SEED. SEED, MULCH APPLIED AFTER OR WITH SEED.

SODDING

10. SOD TO BE LAID IN STRAIGHT LINES, PERPENDICULAR TO SLOPING.
11. PIECES OF SOD TIGHTLY BUTTED TOGETHER BUT WITHOUT OVERLAPPING OR STRETCHING.
12. INSTALLED IN A BRICK-WORK TYPE PATTERN WITH STAGGERING OF JOINTS IN ADJACENT ROWS.
13. SOD TO BE NOTCHED INTO EXISTING GRASS.
14. SOD TO BE ANCHORED IN PLACE IF INSTALLED ON SLOPES $>3:1$.
15. SOD TO BE ADEQUATELY IRRIGATED POST INSTALLATION.
16. SOD TO BE INSTALLED DURING PROPER WEATHER CONDITIONS.

RIP-RAP

17. GEOTEXTILE FABRIC LINER TO BE INSTALLED UNDER RIP RAP

ROLLED EROSION CONTROL PRODUCTS

18. STRIPS INSTALLED PARALLEL TO FLOW IN SWALES OR CONVEYANCE CHANNELS.
19. STRIPS INSTALLED UP AND DOWN A HILL (VERTICALLY) FOR LONG SLOPES (DOES NOT INCLUDE WATERCOURSE BANKS).
20. BLANKETS OVERLAPPING 20cm ON SIDES, TOPS AND BOTTOMS.
21. BLANKETS NOT TO BE STRETCHED.
22. MAXIMUM SLOPE ON WHICH PRODUCT IS USED BASED ON MANUFACTURER'S SPECIFICATIONS.
23. CONTINUOUS CONTACT WITH SOIL SURFACE AND NO TENTING.
24. ANCHORED WITH SUFFICIENT QUANTITY OF WOODEN OR BIODEGRADABLE STAKES OR METAL STAPLES, SPACED AS SPECIFIED IN MANUFACTURER RECOMMENDATIONS.
25. FIRMLY ANCHORED AT TOP AND BOTTOM, WITH ANCHOR TRENCHE AT THE BOTTOM.

GROWTH MEDIA EROSION CONTROL BLANKETS

26. APPLIED AT A DEPTH OF 25-100mm.
27. >50mm THICKNESS APPLIED FOR SLOPES >2:1.
28. 75-100mm APPLIED FOR SLOPES 1:1 OR GREATER.
29. OVERLAPPED 1-3m AT THE TOP OF THE SLOPE TO WHICH THE BLANKET IS APPLIED.

VEGETATIVE BUFFER STRIPS

30. >30m WIDE AND ADJACENT TO WATERCOURSES.

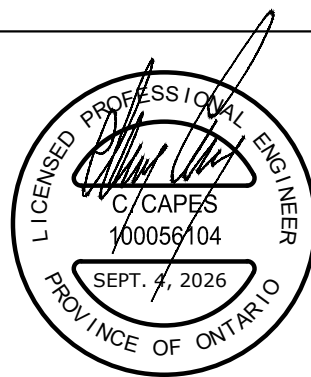
INTERCEPTOR SWALE AND DIVERSION DIKE

31. SWALE MINIMUM 300mm DEEP AND 600mm WIDE.
32. BOTH SWALES AND DIKE SIDE SLOPES CONSTRUCTED TO BE 3:1 OR LESS.
33. STABILIZED BY SEEDING OR RIP RAP, ESPECIALLY AT INLET AND OUTLET.
34. IMMEDIATE STABILIZATION MANDATORY FOR SWALES/DIKES AND IMMEDIATELY FOLLOWING A STORM EVENT. SWALES TO BE STABILIZED WITH SEEDING OPERATIONS AND RIP-RAP TREATMENT AS REQUIRED.
35. FLOW VELOCITIES IN THE SWALE REDUCED WITH FLOW INTERRUPTION DEVICES.

CHECK DAMS

36. CENTRE HEIGHT < 1.0m; CENTRE NOTCHED APPROXIMATELY 150mm, INCLUDING SPILLWAY.
37. ROCK PILED WITH A MAXIMUM UPSTREAM SLOPE OF 2:1 AND MAXIMUM DOWNSTREAM SLOPE OF 4:1.
38. SIDES OF DAM PILED UP THE DITCH SLOPE AT LEAST 0.5m HIGHER THAN THE CENTRE OF THE DAM.
39. FOR DAMS USED IN SERIES IN A SWALE OR CHANNEL, HEIGHT OF SUCCESSIVE CHECK DAMS MUST BE EQUAL TO THE ELEVATION OF THE BASE OF THE PREVIOUS DAM.
40. CONSTRUCTED WITH 3 LAYERS; BOTTOM LAYER CONSISTING OF 450mm OF

No	Revision	Date
1	ISSUED FOR APPROVALS	25/11/12
2	REVISED FOR APPROVALS	26/04/29
3	REVISED FOR APPROVALS	26/06/22
4	REVISED FOR APPROVALS	26/09/04



Client
ALEX CARTER



KEY PLAN

LEGEND

- | | |
|---|---|
|  | PROPOSED ELEVATION |
|  | EXISTING ELEVATION |
|  | MAXIMUM 3:1 SLOPE
UNLESS OTHERWISE NOTED |
|  | CURB DEPRESSION |
|  | HYDRANT & VALVE |
|  | SEDIMENT FENCING |

5cm DIA. STONE, MIDDLE LAYER NON-WOVEN GEOTEXTILE FABRIC, AND

41. CHECK DAM SPILLWAY WIDTH APPROXIMATELY THE SAME WIDTH AS THE DITCH BOTTOM.
42. STONES PLACED UP THE SIDES OF THE DITCH ABOVE THE ELEVATION ON THE SPILLWAY TO PREVENT WASHOUTS.
43. STONE SIZE OF 5-10cm FOR DITCH GRADES LESS THAN 2% AND 7-30cm FOR DITCH GRADES 2% AND GREATER.
44. INSTALLED DOWNSTREAM OF SEDIMENT TRAPS.

SILT FENCING

45. TRENCHED IN AT LEAST 150mm.
46. STAKES INSTALLED ON DOWNSLOPE SIDE.
47. MAXIMUM 2.0m BETWEEN POSTS FOR HEAVY-DUTY FENCES AND 2.3m For LIGHT-DUTY.
48. ENDS TURNED UP SLOPE WHERE POSSIBLE.
49. FABRIC IS NON-WOVEN SYNTHETIC FABRIC MATERIAL (WITH A WEAVE DENSITY OF 270R OR EQUIVALENT) STRETCHED ACROSS AND ATTACHED TO SUPPORTING POST AND WIRE FENCE.
50. FABRIC TAUGHT BETWEEN POSTS.
51. STRUCTURAL FENCING USED TO BACK THE SILT FENCE.
52. POSITIONED ON A LEVEL CONTOUR RATHER THAN UP AND DOWN SLOPES.
53. GAPS, 2.0m MAXIMUM OVERLAP OF NEW CLOTH SECTIONS.
54. POSITIONED TO RECEIVE ONLY SURFACE FLOW SHEET FLOWS, NOT CONCENTRATED FLOWS.

55. TOE COMPACT
PLACEMENT.

- SEDIMENT TRAPS
56. 125m³ STORAGE PER HECTARE OF DRAINAGE AREA MINIMUM.
57. SEDIMENT TRAPS CAN BE USED TO TREAT UP TO 2 HECTARES OF DISTURBED AREA.
58. STABILIZED EMBANKMENTS.
59. LOCATED IN A FLAT LAND AREA, AWAY FROM WATERCOURSES AND WETLANDS.

MUD MAT/CONSTRUCTION ENTRANCE

60. STONE PAD TO BE MINIMUM 450mm THICK, 30m LONG AND 6.0m WIDE.
61. THE FIRST 15m FROM THE ENTRANCE SHALL BE CONSTRUCTED OF 50mm CLEAR STONE.
62. THE REMAINING 15m SHALL BE CONSTRUCTED WITH 150mm RIP RAP.
63. PAD UNDERLAIN WITH A GEOTEXTILE (OR GRADED AGGREGATE FILTER).
64. CLEAR/REPLACE/MAINTAIN AS REQUIRED DURING CONSTRUCTION.

ACCEPTED FOR
CONSTRUCTION
TOWN OF COLLINGWOOD

PER

DATE:

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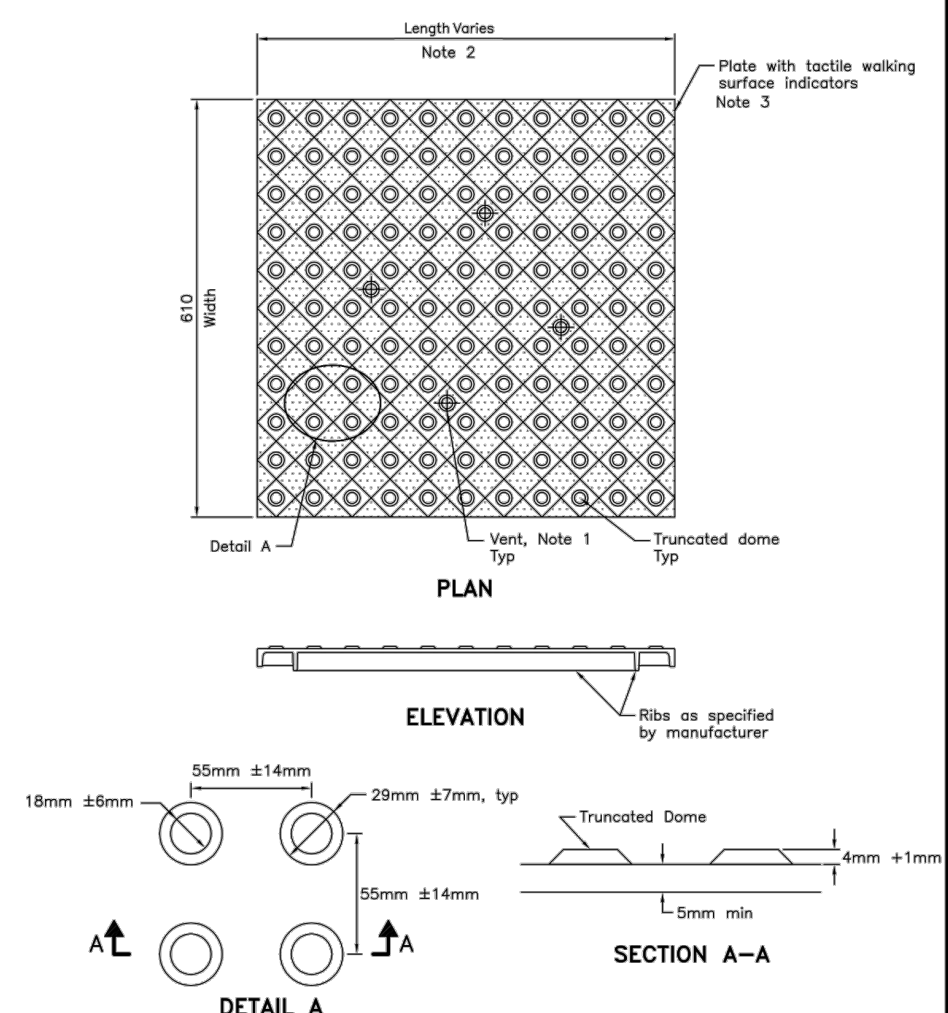
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DATUM: CGVD 2028:78.
ALL COORDINATES AND ARE IN "GRID" DISTANCES, NAD83 - UTM 17N (CANADA)

SITE BENCHMARK:
TOP OF IRON BAR, NORTHEAST LOT CORNER
ELEV: 185.23m

FIELD WORK COMPLETED: 08-MAY-2025 JoeTOPO SURVEYS AND CADD INC.

GENERAL – CONSTRUCTION									
A) ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH TOWN OF COLLINGWOOD STANDARDS, O.P.S.D. AND O.P.S.S. WHERE CONFLICT OCCURS, TOWN OF COLLINGWOOD STANDARD TO GOVERN.									
B) TRENCH BACKFILL (OPSD 802.XXX AS APPLICABLE) TO BE SELECT NATIVE MATERIAL OR IMPORTED SELECT SUBGRADE TO OPSD 1010. BACKFILL TO BE PLACED IN MAXIMUM 200 mm THICK LIFTS AND COMPACTED TO 95% OF THE MATERIAL'S STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMD).									
C) PIPE BEDDING TO BE GRANULAR 'A' PIPE COVER TO BE GRANULAR 'B' MAX. AGGREGATE SIZE 25mm FOR RIGID PIPE AND GRANULAR 'A' FOR FLEXIBLE PIPE. (MINIMUM BEDDING DEPTH 150 mm, MINIMUM COVER 300mm, COMPACTED TO A MINIMUM 95% SPMD).									
D) CLEAR STONE WRAPPED IN FILTER FABRIC CAN BE SUBSTITUTED FOR BEDDING MATERIAL IF APPROVED BY THE ENGINEER.									
E) ALL MAINTENANCE HOLES ARE 1200 mm DIAMETER UNLESS OTHERWISE SPECIFIED.									
F) ALL TOPSOIL AND EARTH EXCAVATION TO BE STOCK PILED OR REMOVED TO AN APPROVED SITE AS DIRECTED BY ENGINEER.									
G) THE OWNER'S ENGINEER SHALL PROVIDE BENCH MARK ELEVATIONS AND HORIZONTAL ALIGNMENT REFERENCE FOR THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DETAILED LAYOUT OF THE WORK.									
H) ALL PROPERTY BARS TO BE PRESERVED AND REPLACED BY O.L.S. AT CONTRACTOR'S EXPENSE IF REMOVED DURING CONSTRUCTION.									
I) ALL MAINTENANCE HOLE AND CATCH-BASIN FRAMES AND COVERS TO BE SET TO BASE COURSE HLB ASPHALT ELEVATION AND RAISED PRIOR TO PLACEMENT OF FINAL COURSE HLB ASPHALT TO THE SATISFACTION OF THE TOWN.									
J) THE CONTRACTOR SHALL MAKE HIS OWN ARRANGEMENTS FOR THE SUPPLY OF TEMPORARY WATER AND POWER.									
K) Dewatering TO BE CARRIED OUT IN ACCORDANCE WITH OPS5-517 AND 518 TO MAINTAIN ALL TRENCHES IN A DRY CONDITION. CONTRACTOR RESPONSIBLE FOR OBTAINING M.O.E. PERMIT IF REQUIRED.									
L) ALL ENGINE DRIVEN PUMPS TO BE ADEQUATELY SILENCED, SUITABLE FOR OPERATION IN A RESIDENTIAL DISTRICT.									
M) DISTURBED AREAS TO BE REINSTATED TO PREVIOUS CONDITION OR BETTER.									
N) THE CONTRACTOR IS RESPONSIBLE FOR PRESERVATION OF ALL EXISTING FACILITIES AS WELL AS ALL UTILITY COMPANIES PRIOR TO COMMENCING WORK AND CO-ORDINATE CONSTRUCTION ACCORDINGLY.									
NO.	REVISION	APPROVED BY	DATE	TOWN OF COLLINGWOOD		APPROVED BY	DATE	JAN/03	
1.	REVISED BASE ASPHALT TYPE	EDH	JUL/04	GENERAL – CONSTRUCTION NOTES		DRAWN:	SCALE:	N/A	
								STD. No. 122	

WATER MAINS									
A) BEDDING AND COVER TO OPSD-802.010, GRANULAR 'A' EMBEDMENT MATERIAL OR OTHER APPROVED HOMOGENEOUS GRANULAR MATERIAL.									
B) TRENCH BACKFILL TO BE SELECT NATIVE MATERIAL AS APPROVED BY ENGINEER OR IMPORTED GRANULAR MATERIAL.									
C) THRUST BLOCKS TO OPSD-1103.010 AND 1103.020 WHERE SUITABLE SOILS ARE ENCOUNTERED.									
D) SERVICE CONNECTIONS TO OPSD-1104.010, 100 mm GRANULAR 'A' EMBEDMENT AND COVER OVER PIPE. TERMINATE AT PROPERTY LINE AT CENTER OF LOT C/W CURB STOP AND BOX, TESTING TAIL TO SURFACE ATTACHED TO A 38mm x 89mm MARKER POST PAINTED BLUE.									
E) HYDRANTS TO OPSD-1105.010, DRAIN PLUGS SHALL BE INSTALLED WHERE HIGH WATER TABLE IS ENCOUNTERED.									
F) BACKFILL AND EMBEDMENT MATERIAL TO BE COMPACTED TO A DRY DENSITY OF AT LEAST 95% OF THE MATERIAL'S STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMD).									
G) MINIMUM COVER ON WATER MAIN AND SERVICES TO BE ~~minimum~~ 1.0m									
H) GATE VALVES, BONDS AND HYDRANT LEADS AND FITTINGS TO BE CONNECTED WITH ROMAX GRP RING RESTRAINING CLAMP.									
I) CLEARANCE BETWEEN WATER MAINS AND SEWERS TO BE A MINIMUM OF 0.5m VERTICAL, WHERE WATER MAIN IS BELOW SEWER OR 2.5 m MINIMUM HORIZONTAL SEPARATION, WHERE WATER MAIN IS ABOVE SEWER, THE MINIMUM SEPARATION TO BE 150 mm (BEDDING MATERIAL).									
J) SERVICE TO OPSD – 1104.010 AND SHALL BE DIRECT TAP.									
K) FOLLOWING TESTING, CONTRACTOR SHALL OPERATE EACH WATER SERVICE TO VERIFY FULL FLOW AND PRESSURE AT THE CURB STOP TO THE SATISFACTION OF THE ENGINEER.									
L) GENERAL INSTALLATION AND TESTING OF WATER MAIN AND APPURTENANCES TO BE IN ACCORDANCE WITH O.P.S.S. 701 AND ALL SPECIFICATIONS REFERENCED WITHIN THESE SECTIONS.									
~~ALL WATER MAIN TESTING AND WATER MAINS SHALL BE CONDUCTED BY ONE OF THE DEVELOPER'S QUALIFIED ENGINEERS. IT SHOULD BE NOTED THAT WATER MAINS ARE NOT TO BE SUBMITTED TO EXISTING WATER MAINS WITH BASED ELECTRICAL TRENCH HAS BEEN SUBMITTED TO CONSTRUCTION.~~									
ALL HYDRANTS SHALL BE, CANADA VALVE, CENTURY No. 1 OPEN LEFT WITH 2 CSA HOSE PORTS, ONE STORZ 4" PUMPER PORT, AND A BREAK AWAY TYPE 6" M BASE									
ALL WATERMAIN TESTING SHALL BE COMPLETED BY THE DEVELOPER'S QUALIFIED THIRD PARTY CONTRACTOR IN ACCORDANCE WITH THE MCP WATERMAIN DISINFECTION PROCEDURE AT THE DEVELOPER'S COST TO THE SATISFACTION OF THE TOWN. THE TOWN WILL COLLECT THE REQUIRED MICROBIOLOGICAL WATER QUALITY SAMPLES, AT THE DEVELOPER'S COST, PRIOR TO PLACING THE WATERMAIN INTO SERVICE.									
NO.	REVISION	APPROVED BY	DATE	TOWN OF COLLINGWOOD		APPROVED BY	DATE	JAN/03	
1.	REVISED SERVICE LOCATION	EDH	JUL/04	NOTES – WATER MAINS		DRAWN:	SCALE:	N/A	
2.	REVISED WATERMAIN TESTING	EDH	APR/07					STD. No. 125	

									
DETAIL A TRUNCATED DOMES PLAN									
NOTES: 1 Vents shall be as specified by the manufacturer. 2 Length of plate may be increased to suit the curb depression width. 3 Material of plate shall be as specified in Contract Documents. A Adjacent cast iron plates shall be permanently connected using a locking mechanism and any hardware shall be hot dipped galvanized. B All dimensions are in millimetres unless otherwise shown.									
ONTARIO PROVINCIAL STANDARD DRAWING									
CONCRETE SIDEWALK RAMPS TACTILE WALKING SURFACE INDICATORS COMPONENT									
Nov 2019 Rev 1									
OPSD 310.039									

ACCEPTED FOR CONSTRUCTION
TOWN OF COLLINGWOOD

PER
DATE:

STORM SEWERS									
A) M.H.'S TO OPSD-701.XXX (AS APPROPRIATE) C/W SUMP UNLESS NOTED OTHERWISE.									
B) STEPS TO OPSD 405.010.									
C) M.H. FRAMES AND GRATES TO OPSD-401.01 OPEN COVER.									
D) C.B.'S TO OPSD – 705.010, 705.020									
E) DICB'S TO OPSD – 705.030, 705.040, 706.010, 706.020, 706.030, 706.040									
F) C.B. AND CBMH FRAMES AND GRATES TO OPSD – 400.020 AND REAR LOT 400.120.									
G) PIPE SUPPORT AT M.H.'S, CB'S AND CBMH'S TO OPSD – 708.020.									
H) C.B. LEADS – 250mm DIA SINGLE AND 300mm DIA DOUBLE TO OPSD – 708.010, 708.030.									
I) PROTECTION DURING CONSTRUCTION TO OPSD – 808.010.									
J) BEDDING AND COVER TO OPSD – 802.010. (FLEXIBLE PIPE) GRANULAR 'A' EMBEDMENT MATERIAL OR OTHER APPROVED HOMOGENEOUS GRANULAR MATERIAL OR OPSD – 802.030, 802.031 AND 802.032 (RIGID PIPE) GRANULAR 'A' BEDDING AND GRANULAR 'B' (MAXIMUM AGGREGATE SIZE 25mm) COVER.									
K) TRENCH BACKFILL TO BE SELECT NATIVE MATERIAL AS APPROVED BY ENGINEER OR IMPORTED GRANULAR MATERIAL.									
L) BACKFILL AND EMBEDMENT MATERIAL TO BE COMPACTED TO A DRY DENSITY OF AT LEAST 95% OF THE MATERIAL'S SPMD.									
M) WHERE RESIDENTIAL STORM SEWER CONNECTIONS ARE REQUIRED, THE STORM SEWER SHALL BE OVERSIZED.									
N) SERVICE CONNECTION TO TOWN STD. 530 100mm, GRANULAR 'A' EMBEDMENT, TERMINATE AT PROPERTY LINE 1.0m RIGHT OF SANITARY SERVICE (FACING LOT) c/w A CAP/PLUG AND A 38mm x 89mm MARKER STAKE PAINTED WHITE.									
NO.	REVISION	APPROVED BY	DATE	TOWN OF COLLINGWOOD		APPROVED BY	DATE	JAN/03	
1.	ADDED RESIDENTIAL STORM CONNECTION	EDH	JUL/04	NOTES – STORM SEWERS		DRAWN:	SCALE:	N/A	
								STD. No. 123	

ROADS									
A) SUBGRADE AND BOULEVARD MATERIAL TO BE COMPACTED TO A MINIMUM DRY DENSITY OF AT LEAST 95% SPMD. SUBGRADE TO BE PROF ROLLED AND CERTIFIED PRIOR TO PLACING GRANULAR 'B'.									
B) GRANULAR 'A' AND 'B' BASE TO BE COMPACTED TO 100% OF THE MATERIAL'S RESPECTIVE SPMD.									
C) ROADWAYS TO BE CONSTRUCTED WITH MIN. 300MM GRANULAR 'B' TYPE 1, 150 MM HLB BASE 40 MM HLB SURFACE COURSE ASPHALT. ALL SUBGRANS TO BE CONSTRUCTED IN ACCORDANCE WITH OPSD 405.									
D) 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.									
E) ALL GRANULARS AND ASPHALT MATERIALS AND PLACEMENT TO BE IN ACCORDANCE WITH OPSD 314 AND OPSD 310									
F) JOINTS WITH EXISTING ASPHALT TO BE SAW CUT STRAIGHT PRIOR TO PLACING NEW ASPHALT AND TACK COAT APPLIED TO EXISTING ASPHALT.									
G) STOP SIGNS AND STREET SIGNS TO TOWN STANDARDS.									
H) REINSTATEMENT OF ALL DISTURBED BOULEVARDS TO INCLUDE REGRADING, 400mm TOPSOIL AND 500 TO OPSD 670 AND 671									
I) CONCRETE CURB AND GUTTER TO OPSD 600.040 OR OPSD 600.070 AND OPSD 353									
J) CONCRETE SIDEWALK TO OPSD 310.010, 310.030 AND OPSD 351. SUBBASE TO CONSIST OF MINIMUM 150 mm OF GRANULAR 'A'.									
K) 100 mm DIAMETER PIPE SUBGRANS SHALL BE PROVIDED AS PER STANDARD 210 ON BOTH SIDES OF THE ROAD.									
L) SUBURBAN TO BE INSTALLED 200 mm BELOW CURB IN GRANULAR 'A' TRENCH AND CONNECTED TO EACH CB OR CBMH.									
M) SUBGRANS TO BE PERFORATED OTHER THAN THE 2 m SECTION IMMEDIATELY UPSTREAM OF ALL STRUCTURES WHICH SHALL BE NON-PERFORATED.									
NO.	REVISION	APPROVED BY	DATE	TOWN OF COLLINGWOOD		APPROVED BY	DATE	JAN/03	
1.	ADDED RESIDENTIAL STORM CONNECTION	EDH	JUL/04	NOTES – ROADS		DRAWN:	SCALE:	N/A	
								STD. No. 126	

SANITARY SEWERS									
A) M.H.'S TO OPSD-701.XXX AS APPROPRIATE.									
B) BENCHING TO OPSD – 701.021. NOTE: MINIMUM HOLE SIZE 1 WALL IF PRE-CAST RISER SECTION SHALL CONFORM WITH MANUFACTURER'S SPECIFICATIONS.									
C) STEPS TO OPSD – 405.010.									
D) FROST STRAPS SHALL BE INSTALLED ON ALL MAINTENANCE HOLE AS PER OPSD – 701.100									
E) BEDDING AND COVER TO OPSD – 802.010 (FLEXIBLE PIPE), GRANULAR 'A' EMBEDMENT MATERIAL OR OTHER APPROVED HOMOGENEOUS GRANULAR MATERIAL.									
F) TRENCH BACKFILL TO BE SELECT NATIVE MATERIAL AS APPROVED BY ENGINEER OR IMPORTED GRANULAR MATERIAL.									
G) FRAMES AND COVERS TO OPSD – 401.01 TYPE 'A' (CLOSED COVER).									
H) SERVICE CONNECTIONS TO OPSD-1006.020 (125 mm), GRANULAR 'A' EMBEDMENT, TERMINATE AT THE PROPERTY LINE 2.5m RIGHT OF WATER SERVICE (FACING LOT) WITH A 125 X 100 REDUCER C/W PLUG AND 38mm x 89mm MARKER POST PAINTED GREEN. MINIMUM GRADE TO BE 2.0%.									
I) RADIUS BENDS TO BE USED ON SANITARY SEWER CONNECTIONS WHERE THE ANGLE OF CONNECTION BETWEEN THE SERVICE AND SEWER EXCEEDS 90°.									
J) BACKFILL AND EMBEDMENT MATERIAL TO BE COMPACTED TO A DRY DENSITY OF AT LEAST 95% OF THE MATERIAL'S STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMD).									
K) CLEAR STONE WRAPPED WITH FILTER FABRIC CAN BE SUBSTITUTED FOR EMBEDMENT MATERIAL IF APPROVED BY THE ENGINEER.									
L) MAINTENANCE HOLE FRAMES TO BE SET TO BASE COURSE ASPHALT ELEVATION AND RAISED PRIOR TO PLACING SURFACE COURSE ASPHALT TO THE SATISFACTION OF THE TOWN.									
M) PIPE SUPPORT AT MAINTENANCE HOLES AS PER OPSD 708.020.									
N) ALL MAINTENANCE HOLES, UNLESS EXPRESSLY IDENTIFIED ARE 1200 mm DIAMETER.									
O) GENERAL INSTALLATION AND TESTING OF SEWERS AND APPURTENANCES TO BE IN ACCORDANCE WITH O.P.S.S. 407, 408, 409 (CCTV), 410, 421 AND ALL SPECIFICATIONS REFERENCED WITHIN THESE SECTIONS.									
NO.	REVISION	APRD	DATE	TOWN OF COLLINGWOOD				APRD: EDH	DATE: JAN/23
1.	REVISED SERVICE LOCATION	EDH	JUL/04					DRAWN:	SCALE: N/A
2.	REMOVED TEST FITTING	EDH	APR/07						
				NOTES – SANITARY SEWERS				STD. No.	124



5.1 Site Grading

The proposed building will have a finished floor at elevation 187.23 m with one full basement level. Based on current site grades, some upfilling will likely be required to achieve the finished exterior grades. The following general procedures are recommended for preparation of the site for fill placement. Reference is made to Appendix B for Engineered Fill Placement Guidelines.

- Pre-existing loose fill and loose native soil should be removed . Based on the borehole information, it is envisaged that subexcavation to a depth of approximately 0.6 m will be required to reach competent subgrade. Pre-existing fill below about 0.6 m depth can likely remain in place below exterior pavements subject to adequate proof rolling.
- The subgrade should be inspected and any deleterious materials found during subgrade inspection, should be removed/excavated.
- The exposed subgrade surface should be proof rolled with a tandem truck or equivalent and inspected by geotechnical personnel from PML. Any soft/loose spots encountered during the process should be sub-excavated and replaced with approved on-site or imported material, compacted to at least 98% of the Standard Proctor Maximum Dry Density (SPMDD).
- Fill placement should be conducted with approved on site or imported material placed in lifts not exceeding 200 mm and compacted to at least 98% of the SPMDD.
- All backfilling and compaction operations should be supervised on a full-time basis by geotechnical personnel from PML to examine and approve backfill materials, evaluate placement operations and verify that the specified degree of compaction is achieved uniformly throughout the fill.



Basement wall backfill should be placed in thin lifts compacted to a minimum 95% SPMDD. Over compaction close to the walls should be avoided as this could generate excessive pressure on the walls.

Reference is made to appended Figure 2, for general recommendations regarding drainage and backfill requirements for basement walls and floor slabs.

5.6 Slab-on-Grade Floors

Construction of the floor slab as a conventional slab-on-grade on the native undisturbed sily sand/sandy silt or adequately prepared fill is considered feasible.

Preparation of the floor slab subgrade should include stripping of all unsuitable loose or otherwise deleterious material followed by proofrolling of the exposed subgrade with a heavy roller to ensure uniform adequate support. Excessively loose, soft or compressible materials revealed during the proofrolling operations should be subexcavated and replaced with well compacted approved material.

Fill placed under the floor slab to achieve finished subgrade levels or as foundation excavation backfill should comprise approved inorganic material having a moisture content within 3% of the optimum value, placed in maximum 200 mm thick lifts and compacted to at least 95% SPMDD. A minimum of 150 mm thick layer of well compacted clear stone or 20 mm crusher run limestone is recommended directly beneath the slab-on-grade. Where clear stone is used, a geotextile filter is recommended between the subgrade soil and the clear stone to prevent soil migration into the open void space of the clear stone. A polyethylene vapour barrier should be placed at the surface of the stone if a moisture sensitive finish is to be placed on the floor.



5.2 Building Foundations

Given the planned finished floor elevation of 187.23 m and a full basement level, it is anticipated that footings will be founded on the compact to dense native sily sand/sandy silt.

Boreholes 2, 3, 5 and 6 were drilled just outside of the proposed building footprint. In general, the building can be supported on spread footings bearing below the existing fill deposits at about 1.5 to 2.0 m below existing ground level on native undisturbed sily sand/sandy silt. Footings founded at these depths may be designed for a Serviceability Limit State (SLS) bearing resistance of 150 kPa with a corresponding factored bearing resistance at Ultimate Limit State (ULS) of 225 kPa.

Alternatively, footings may be supported on adequately placed and well compacted engineered fill, provided the upper loose fill, native soils or deleterious material is removed prior to engineered fill placement. Footings founded on engineered fill may be designed for an SLS bearing resistance of 100 kPa with a corresponding factored bearing resistance at ULS of 150 kPa.

The Geotechnical bearing resistance at SLS is based on 25 mm of settlement in the bearing stratum with differential settlement not exceeding 75% of the value.

Footings subject to frost action must be provided with a minimum of 1.5 m of earth cover or equivalent insulation.

Geotechnical foundation design and construction recommendations should be reviewed by PML once building locations and elevations are finalized, and a provision should be made for supplementary investigations, recommendations and reporting, as needed.

5.3 Seismic Site Classification

Design provisions for earthquake loading should also be applied. Based on characteristics of the subsols encountered in the boreholes at the site and considering deeper subsurface information in the vicinity of the site from other available sources, the subject property should be classified as Site Class C or Site Designation X_c for footings bearing on native undisturbed compact to dense



sily sand/sandy silt or engineered fill as per the 2025 National Building Code of Canada (NBCC 2025) Section 4.1.8.4. It is possible that the site designation could be improved by carrying out a site-specific geophysical survey such as by a Multi-Channel Analysis of Shear Wave velocity (MASW) testing.

5.4 Excavations and Ground Water Control

Basement and servicing depths were not provided at the time of this report, however it is expected that excavations will extend as deep as 2 to 3 m below the existing ground surface.

Provided that adequate ground water control is achieved, the soils encountered in the investigated boreholes at the site should be considered as Type 3 soil requiring excavation sidewalls to be constructed at no steeper than one horizontal to one vertical (1H:1V) from the base of the excavation in accordance with the Occupational Health and Safety Act. If an excavation contains more than one soil type, the excavation slope geometry shall be governed by the highest soil type.

Foundations of heavily loaded / settlement sensitive structures and/or utilities located within close proximity to the excavation may require underpinning to preserve the integrity of these structures. Further comments and general recommendations in this regard are presented on Figure 1.

All work should be carried out in accordance with the Occupational Health and Safety Act, 1990 and Ontario Regulation 213/91 for construction projects and with local regulations.

It is recommended that trench excavations be supervised on a full-time basis by experienced geotechnical personnel from Peto MacCallum Ltd. to examine actual in-situ soil conditions and verify that proper trenching procedures are implemented.

No surcharge loads should be placed in close proximity of excavation and trenches.

Based on borehole data, the ground water table was encountered between elevations 184.5 to 185.1 m. The ground water table is expected to be encountered during excavation of the utility installation, building footings and basement. Excavations above or slightly below the ground water table can be managed with conventional sump pumping. However, deeper excavations below the ground water table will require more aggressive dewatering methods.



The bedding material should be carried up as backfill for at least 300 mm above the pipe invert, and should be placed in 150 mm lifts compacted to 95% SPMDD.

5.7.2 Utility Trench Backfill

The trenches should be backfilled with approved material comprising inorganic, debris free material that is within 3% of its optimum moisture. The backfill should be compacted to 95% SPMDD. The upper 600 mm zone of the trench backfill under pavement areas should be compacted to at least 100% of the SPMDD. Trench backfilling should be carried out as soon as possible following trench excavation and pipe installation to avoid excessive wetting of the subgrade.

The inorganic in-situ native sily sand/sandy silt will generally be suitable for reuse as trench backfill on a selective basis.

5.8 Pavement Design and Reconstruction

Minor grade changes are anticipated for the site. Based on the strength and low frost susceptibility of the anticipated subgrade materials, the minimum parking lot pavement structure thickness is provided in below table.

RECOMMENDED PARKING LOT PAVEMENT STRUCTURE THICKNESS	
MATERIAL	THICKNESS (mm)
Asphaltic Concrete HL-3	40
Asphaltic Concrete HL-6	50
Granular A Base Course	150
Granular B Subbase Course (Type I)	300
TOTAL THICKNESS	540



The actual dewatering methods should be established at the contractor's discretion within the context of a performance specification for the project. Regardless of the dewatering method chosen, the hydraulic head and ground water inflow must be properly controlled to ensure a stable and safe excavation and to facilitate construction. The design of the dewatering system should be specified to maintain and control ground water at least 0.3 m below the excavation base level, in order to provide a stable excavation base throughout construction.

It is recommended that construction work be scheduled following periods of prolonged dry weather, and when the ground water table is usually at its lowest, in order to minimize the quantity of water to be handled.

Construction dewatering, like other water takings in Ontario, is governed by the Ontario Water Resources Act (OWRA) and the Water Taking and Transfer Regulation 387/04, a regulation under the OWRA. In accordance with these regulatory requirements, if the dewatering discharge during construction is expected to be greater than 50,000 L/d and meets the requirements of Ontario Regulation 83/16, the water taking can be registered with the Ministry of Environment, Conservation and Parks's (MECP's) Environmental Activity and Sector Registry (EASR). If the conditions of EASR registration are not met and the dewatering discharge is expected to be greater than 50,000 L/d an application for a Permit-To-Take-Water (PTTW) must be filed with the MECP. Note that the 50,000 L/d threshold is during normal operations (i.e., extreme weather events are not included).A PTTW or registry on the EASR system may be required for the excavations that extend more than 0.3 m below the ground water level. When design and construction details are finalized, the project should be reviewed and a Hydrogeological Site Assessment may be required to assess the MECP requirements, and in support of registry on the EASR system or possibly a PTTW.

Once final foundation excavation levels are known, it is recommended that ground water level monitoring and trial excavations be conducted in advance of construction to assess the dewatering requirements. Where practical, it is recommended that excavations be carried out in the drier time of year.



The granular base and subbase material shall conform to OPSS MUNI 1010 requirements. Base and subbase material shall be compacted to a degree of 100% SPMDD, at moisture content levels within 2 % of OMC.

Preparation of the subgrade for pavement construction should involve removing obvious deleterious materials followed by proofrolling of the subgrade with a heavy roller. Excessively wet or deleterious material revealed by the proofrolling operations should be sub-excavated and replaced. The subgrade surface should be compacted to at least 95% SPMDD.

It is recommended that the parking lot be constructed during the drier time of the year. The pavement design assumes that a stable subgrade under construction equipment/traffic. If the subgrade is wet and unstable, additional thicknesses of the subbase course material may be required.

For the pavement to function properly, provision must be made for water to drain out of, and not collect in, the granular courses. In this regard, the pavement subgrade should be sloped to promote drainage towards catch basins or manholes.

The excavation around catch-basins and manholes should be backfilled with free-draining granular material to minimize differential movements between the pavement and structures due to frost action. The structures should be perforated and screened just above the drain level to permit drainage.

6. GEOTECHNICAL DESIGN AND CONSTRUCTION REVIEWS

Earthworks operations should be carried out under the supervision of PML to approve subgrade preparation, backfill materials, placement and compaction procedures, and verify that the specified compaction standards are achieved throughout fill materials.

Prior to placement of structural concrete, all founding surfaces must be inspected by PML to verify the design bearing capacity is available, or to reassess the design parameters based on the actual conditions.



5.5 Below Grade Walls

A basement has been proposed for the building. Perimeter walls must be designed to resist the unbalanced horizontal earth pressure imposed by the backfill adjacent to the walls. The lateral earth pressure, P, may be computed using the following equation and assuming a triangular pressure distribution:

$$P = K (y \cdot q) + C_o$$

Where

- P = lateral pressure at depth h (m) below ground surface (kPa)
- K = lateral earth pressure coefficient of granular backfill = 0.5
- h = depth below grade (m) at which lateral pressure is calculated
- y = unit weight of compacted granular backfill = 21.0 kN/m³
- q = surcharge loads (kPa)
- C_o = compaction pressure

The above equation assumes that drainage measures will be incorporated to prevent the buildup of hydrostatic pressure. In this regard, foundation wall backfill should comprise free draining granular material conforming to OPSS Granular B in conjunction with a weeping tile system. The weeping tiles should be protected by a properly designed granular filter or geotextile to prevent migration of fines into the system. The drainage pipe should be placed on a positive grade and lead to a frost-free outlet. The basement walls should be damp proofed. Alternatively, the native soil can be utilized with a proprietary drainage board product.

As per the building code the weeping tile should comprise a perforated pipe bedded in clear stone. Given the predominantly sand soil found at the site we recommend that the clear stone be wrapped in a geotextile filter fabric to avoid siltation of the drainage system and possible erosion of the backfill with time. An equivalent alternative weeping tile design would comprise a perforated pipe, fitted with geotextile sleeve, and bedded in concrete sand.

The footing walls should be backfilled in lifts and compacted to at least 95% SPMDD. The use of heavy compaction equipment should be prohibited near the wall to avoid potential damage. This area should be compacted using smaller compaction equipment such as a diesel plate packer or jumping jack.



The comments and recommendations provided in the report are based on the information revealed in the boreholes. Conditions away from and between boreholes may vary, considering

Geotechnical Investigation previous activity at the site. Geotechnical review during construction should be on going to confirm that the subsurface conditions are substantially similar to those encountered in the boreholes. Significant changes in the ground conditions revealed during construction may require modification to the geotechnical engineering recommendations provided in this report.



7. CLOSURE

The discussions and recommendations in this report have been made based on the findings in the boreholes. Soil and ground water conditions may vary between and beyond the boreholes. These variations may necessitate modifications to our recommendations and design considerations.

We trust that the information presented in this report is sufficient for your present purposes. Please do not hesitate to contact our office should you have any questions.

Sincerely,

Peto MacCallum Ltd.

N. Gardlund

Niklas Gardlund, EIT
Project Supervisor, Geotechnical Services



Scott Jeffrey, P.Eng., QPESA, LEED®
Director
Regional Manager, Geotechnical and Geoenvironmental Services

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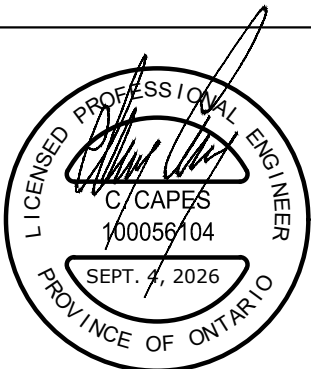
ACCEPTED FOR
CONSTRUCTION
TOWN OF COLLINGWOOD

PER

DATE:

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1. This drawing is the exclusive property of CAPES Engineering Ltd. The reproduction of any part without express written consent of this Corporation is strictly prohibited.
 2. The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to CAPES Engineering Ltd. prior to construction.
 3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.
 4. CAPES Engineering Ltd. accepts no responsibility for interpretation of third party information, contractor to verify all third party information prior to construction.
 5. This is not a plan of survey. Any and all representation of property boundaries are approximate only.

No	Revision	Date
1	ISSUED FOR APPROVALS	25/11/12
2	REVISED FOR APPROVALS	26/04/29
3	REVISED FOR APPROVALS	26/06/22
4	REVISED FOR APPROVALS	26/09/04



Client
ALEX CARTER

CAPES
ENGINEERING

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12 STEWART ROAD SITE PLAN
GEOTECHNICAL SPECIFICATIONS

Designed K. GRIFFIN	Checked C. CAPES	Date 26/04/29	Drawing No.
Project No. 2025-054	Rev No. 4		
Scale AS NOTED			

C5



Materials Specifications

Water Distribution			March 2026		
Product/Use	Type	Standards/Specifications	Approved Manufacturer	Description/Model	Requirements/Comments
Water Main	Polyvinyl Chloride (PVC) 100 mm to 300 mm	Minimum DR 18 (Class 235) AWWA C900 CSA B137.3 ASTM D3139 NSF/ANSI 61 Certification OPSS.MUNI.441	IPEX	Blue Brute®	Must be blue in colour Supplied with gaskets C/D
			Westlake	C/D PVC Pressure Pipe	
	Polyvinyl Chloride (PVC) 350 mm to 450 mm	Minimum DR 18 (Class 235) AWWA C900 CSA B137.3 ASTM D3139 NSF/ANSI 61 Certification OPSS.MUNI.441	IPEX	Certurion®	Must be blue in colour Supplied with gaskets C/D
			Westlake	C/D PVC Pressure Pipe	*Materials for pipes over 450 mm must be selected in consultation with the Town
	High Density Polyethylene (HDPE)	Minimum DR 11 CSA B137.1 AWWA C905 NSF/ANSI 61 Certification OPSS.MUNI.441	KWH Pipe Ltd		Thermal butt fusion joints *Only to be used in specialized installations with approval by Town
Fittings	Ductile Iron	AWWA C153/ANSI A21.53 AWWA C110/ANSI A21.10 AWWA C104/ANSI A21.4 Minimum Pressure Class 350 OPSS.MUNI.441 NSF/ANSI 61/372 Certification	Tyler Union/Bibby		Epoxy coated Cement lined Mechanical joint restrainer ends
			SIGMA Corporation		
			STAR® Pipe Products		



Product/Use	Type	Standards/Specifications	Approved Manufacturer	Description/Model	Requirements/Comments
Warning Tape	For Non-Potable Water Main		Supplied by Seton Canada or approved equal		3.5 mm polyethylene underground warning tape 75mm wide, blue in colour with 50mm black lettering "CAUTION: BURIED NON-POTABLE WATER LINE BELOW"
Valve Box	For watermain <400 mm	ASTM A48	Bibby-Ste-Croix STAR® Pipe Products SIGMA Corporation	VB-2200 Slide Type 1.65 to 2.15 Cat VB-0003 Item VB666A	Cast iron 350 mm diameter slide type (Cover 185 mm diameter) Valve box cover must be stamped "WATER"
Water Service Connections	Crosslinked Polyethylene 25mm to 50mm	SDR 9 AWWA C904 ASTM F876, F877 & F2023 NSF/ANSI 14 and 61 Certification	REHAU	MUNICIPEN®	
			IPEX	Blue 904®	
	Copper 25mm to 50mm	ASTM B88 AWWA C800 NSF/ANSI 61 & 372 Certification	Great Lakes Copper Ltd	Seamless copper water tube type "K"	
Service Saddle	For services 25-50mm on PVC and Ductile Iron pipe	NSF/ANSI 61 & 372 Certification	Robar Industries Ltd Cambridge Brass	Series 2606 product #2626 403 Teck Saddle Series B403	Stainless Steel Double Bolt



Product/Use	Type	Standards/Specifications	Approved Manufacturer	Description/Model	Requirements/Comments
Hydrants		AWWA C502 OPSS.MUNI.441 NSF/ANSI 61/372 Certification	Mueller Canada	Century	Hydrant painted chrome yellow 100mm ULC Storz pumper connection (painted black) Two 63.5 mm side ports (CSA thread) 25 mm operating nut - open left Self-draining 1.8 m cover minimum Breakaway flange
Hydrant Leads		Minimum DR 18 (Class 235) AWWA C900-16 CSA B137.3 ASTM D3139 OPSS.MUNI.441 NSF/ANSI 61 Certification	IPEX	Blue Brute®	350 mm diameter lead Fully restrained No bends permitted
			Westlake	C/D PVC Pressure Pipe	
Hydrant Flex Marker			Flexstake	CB04	1.2 m yellow post with red hydrant graphic on white reflective background at top of post (both sides)
Hydrant Sign					Red hydrant graphic on white reflective background 250 mm x 350 mm Aluminum, engineer grade



Product/Use	Type	Standards/Specifications	Approved Manufacturer	Description/Model	Requirements/Comments
Corporation (Main) Stops	25mm to 50mm	AWWA C800 NSF/ANSI 61 & 372 Certification ASTM B62 & B584	Mueller	300 B-2500BN	Ball valve AWWA CC Taper Thread Inlet x Compression outlet No Lead
			Cambridge Brass	301NL-AH44 (25 mm) 301NL-AH45 (31 mm) 301NL-AH46 (38 mm) 301NL-AH47 (50 mm)	
Curb Stops	25mm to 50mm	AWWA C800 NSF 61 & 372 Certification ASTM B62 & B584	Mueller Canada	300 B-25209N	Ball valve Compression Joints Non draining No Lead
			Cambridge Brass	202NL-H4H4 (25 mm) 202NL-H4H5 (31 mm) 202NL-H4H6 (38 mm) 202NL-H7H7 (50 mm)	
Service Couplings	25mm to 50mm	AWWA C800 ASTM B62 & B584 NSF/ANSI 61 & 372 Certification	Mueller Canada	H-15403N	Compression joints Couplings not permitted in new construction
			Philmac	UTC-Universal Transition Coupling	between main stop and curb stop (property line)
			Cambridge Brass	118NL-H4H4 (25 mm) 118NL-H4H5 (31 mm) 118NL-H4H6 (38 mm) 118NL-H7H7 (50 mm)	or services <20m in length
Product/Use	Type	Standards/Specifications	Approved Manufacturer	Description/Model	Requirements/Comments



Product/Use	Type	Standards/Specifications	Approved Manufacturer	Description/Model	Requirements/Comments
Valves	Resilient Wedge Gate Valves	AWWA C509 & C515 AWWA C550 ASTM A536 & A126 OPSS.MUNI.441 NSF/ANSI 61/372 Certification	Mueller Canada	A-2361 M1 by M1	Open left (counterclockwise)
			Clow Canada	A2639 or A2640	Epoxy coated, Ductile Iron Mechanical joint ends Stainless steel hardware
Tapping Sleeve	Ductile Iron	ASTM D2000 & ASTM A3 AWWA C223 NSF/ANSI 61 & 372 Certification	Robar Industries Ltd	6906	Epoxy Coated Stainless steel hardware Mechanical joint outlet
			Smith-Blair	622	
			Mueller	H-304 M1 or flange outlet	
	Polyvinyl Chloride (PVC)	ASTM D2000 AWWA C223 & C213 & 207 NSF/ANSI 61 & 372 Certification	Robar Industries Ltd	6606BB	Stainless steel Stainless steel hardware Mechanical joint outlet
			Smith-Blair	663	
Tapping Valve	Resilient Wedge Gate Valves	AWWA C509 & C515 ASTM A536 NSF/ANSI 61 & 372 Certification	Mueller	H-687	Resilient seat tapping valve
			Clow Canada	F-6114	Open left (counterclockwise)
					Epoxy coated ductile iron Flange X mechanical joint end Stainless steel hardware
Air Release	Combination Air & Vacuum Release Valves	AWWA C512 ASTM A536 NSF/ANSI 61 & 372 Certification	Clu-Val	36 Series	Epoxy coated Single Body Housing Sized to manufacturer's specification
			Val-Matic	VM201C or VM202C	
Pressure Reducing	Pressure Reducing Valves	ASTM A536 NSF/ANSI 61 & 372 Certification	Mueller (Singer Valve)	Series 106/206 PR	Flanged ends To be installed in a chamber
			Clu-Val	Model 90-01	
					To be approved by Town



Service Boxes			Mueller Canada	801(25mm) 802 (31-50mm)	Epoxy coated cast iron Box top must be stamped "WATER" Standard pentagon screw type brass plug 13mm Type 304 stainless steel nut (DN) with SS cotter pin Minimum depth of bury 1.7 m Adjustable
			Clow Canada	D1 (25mm) or D2 (31-50 mm)	
Anodes	All metallic pipe, fittings, and appurtenances	ASTM B-418 Type II or ASTM B-483 Type M1 OPSS.MUNI.442			Magnesium or Zinc
Sacrificial Nuts	On all bolts	ASTM B-418 Type II	Brentech		
			Duratron	DSN0750	
Insulation	For direct buried water pipes with <1.7m cover		Dow Chemical Co.	Styrofoam Highload 100	Extruded polystyrene Minimum 50mm thick
			Owens Corning	Formular NGX 400	
Tracer Wire	For all non-metallic water main, hydrant laterals and service pipe (direct buried)				#10 Gauge TWU single stranded copper White plastic coating Splices made with DryConn waterproof connectors For Horizontal Direction Drilling applications additional requirements apply including a minimum of 3 wires
Product/Use	Type	Standards/Specifications	Approved Manufacturer	Description/Model	Requirements/Comments



Product/Use	Type	Standards/Specifications	Approved Manufacturer	Description/Model	Requirements/Comments	
Joint Restraints	For PVC pipe to Mechanical Joint Fitting 100 mm to 400 mm	ASTM F1674 AWWA C900 AWWA C111/A21.11 UNI-B-13-94	STAR® Pipe Products	PVC Stargrip Series 4000		
			Romac Industries Inc	Grip Ring (100 to 300mm only)		
	For Ductile Iron Pipe to Mechanical Joint Fitting 100 mm to 400 mm	ASTM F1674 AWWA C151/A21.51 AWWA C111/A21.11	Romac Industries Inc	Grip Ring (100 to 300mm only)		
			SIGMA Corporation	ONE-LOK Series SLDE for DI		
	For PVC Pipe Bell and Spigot Joint	ASTM F1674 & A536 AWWA C900 UNI-B-13-94	SIGMA Corporation	PV-Lok for C900 PVC Pipe		
			STAR® Pipe Products	Pipe restrainers series 1100		
	For Ductile Iron Pipe Bell and Spigot Joint	AWWA C151/A21.51	STAR® Pipe Products	Pipe restrainers series 1100C	For connections and repairs	
			Couplings			Dresser Style Epoxy coated Stainless steel hardware
	For PVC, Ductile Iron, Cast Iron Pipe	ASTM A536 NSF/ANSI 61 & 372 Certification	Romac Industries Inc	Macro HP (Two Bolt) 4-12" ALPHA (TWO BOLT) 4-12"		
			Krausz	Hymax Grip Hymax		
	For HDPE Pipe	ASTM A536 NSF/ANSI 61 & 372 Certification	Krausz	Hymax	Dresser Style	
			Romac Industries Inc	ALPHA	Epoxy coated Stainless steel hardware	



Automatic Flushing Station Meter Pit		NSF/ANSI 61 & 372 Certification AWWA C800 NSF/ANSI 61 & 372 Certification AWWA C800	Kupferle	Eclipse 9800A (25 mm)	209-CS-18-72-F-B-B-5 nonfreezing
			Mueller Canada	THERMAL-COIL®	
Meter					Meter to be specified in consultation with the Town

IMPORTANT:
*All chemicals and materials used in the alteration or operation of the drinking water system that come into contact with water within the system shall meet all applicable standards set by both the American Water Works Association ("AWWA") and the American National Standards Institute ("ANSI") safety criteria standards NSF/60, NSF/61 and NSF/372."

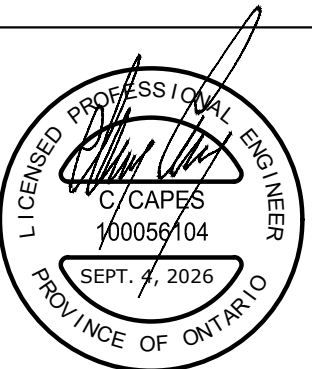
ACCEPTED FOR
CONSTRUCTION
TOWN OF COLLINGWOOD

PER

DATE:

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No	Revision	Date
1	ISSUED FOR APPROVALS	25/11/12
2	REVISED FOR APPROVALS	26/04/29
3	REVISED FOR APPROVALS	26/06/22
4	REVISED FOR APPROVALS	26/09/04



Client
ALEX CARTER



12 STEWART ROAD SITE PLAN
TOWN APPROVED WATERMAIN MATERIALS

Designed K. GRIFFIN	Checked C. CAPES	Date 26/06/22	Drawing No.
Project No. 2025-054	Rev No. 4		C6
Scale AS NOTED			

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