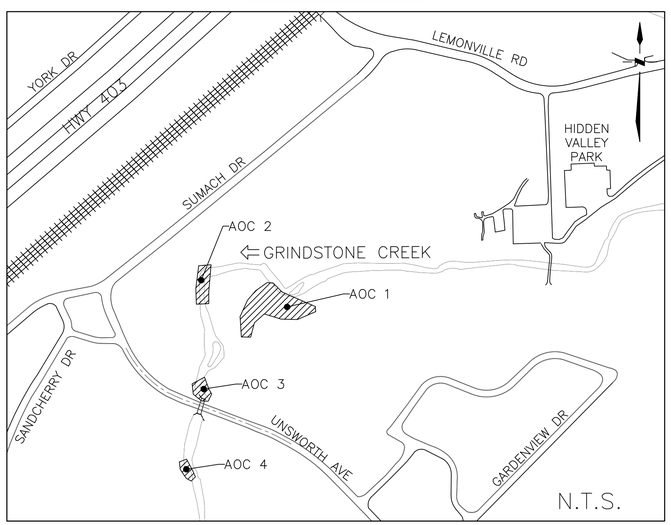
GRINDSTONE CREEK EROSION CONTROL MITIGATION

UNSWORTH AVE TO SUMACH DR

ISSUED FOR REVIEW- 2022/05/11
CONTRACT NUMBER - XXXXXXXX

KEY MAP



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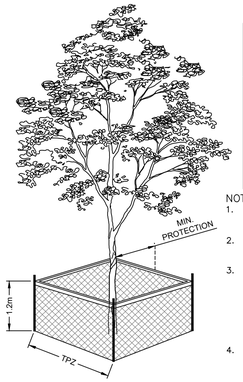
ecosystem recovery inc.
PROFESSIONAL ENGINEERS



TRUNK DIAMETER (DBH) *2	MINIMUM TREE PROTECTION ZONE (MTPZ) DISTANCES REQUIRED *3	CRITICAL ROOT ZONE (CRZ) DISTANCES REQUIRED *3&4
<10 cm	1.8 m	1.8 m
11–40 cm	2.4 m	4.0 m
41–50 cm	3.0 m	5.0 m
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NOTES:
1. THE ROOTS OF A TREE CAN EXTEND FROM THE TRUNK TO APPROXIMATE 2–3 TIMES THE DISTANCE OF THE DRIP LINE.
2. DIAMETER AT BREAST HEIGHT (DBH) IS THE MEASUREMENT OF TREE TRUNK TAKEN AT 1.4 METRES ABOVE GROUND.
3. MINIMUM TREE PROTECTION ZONE AND CRITICAL ROOT ZONE DISTANCES ARE TO BE MEASURED FROM THE OUTSIDE EDGES OF THE TREE BASE TOWARDS THE DRIP LINE AND MAY BE LIMITED BY AN EXISTING PAVED SURFACE, PROVIDED THE EXISTING PAVED SURFACE REMAINS INTACT THROUGHOUT THE CONSTRUCTION WORK AND IS SUBJECT TO SECTION 8 OF THIS SPECIFICATION.
4. WHERE WORK IS BEING PERFORMED BEYOND THE MINIMUM TREE PROTECTION ZONE BUT WITHIN THE CRITICAL ROOT ZONE THE WORKS ARE SUBJECT TO SECTION 8 OF THIS SPECIFICATION.

DETAIL TREE PROTECTION DETAIL (BURLINGTON) 1

TREE REMOVALS

Tree ID #	*CommonName*	*Size (cm)*	*Location*
3	SUGAR MAPLE	27.5	AOC 4
143	BLACK WALNUT	19	AOC 1
150	BLACK WALNUT	65	AOC 1
152	DEAD	100	AOC 1
166	EUROPEAN BUCKTHORN	14	AOC 1
167	DEAD	10	AOC 1
168	BLACK WALNUT	38	AOC 1
169	AMERICAN BASSWOOD	13.5	AOC 1
171	BLACK WALNUT	20	AOC 1
172	GREEN ASH	14	AOC 1
173	BLACK WALNUT	41	AOC 1
175	BLACK WALNUT	23	AOC 1
182	MANITOBA MAPLE	27.3	AOC 3
183	BLACK WALNUT	33	AOC3
198	BLACK ALDER	23	AOC 3
199	BLACK ALDER	25.5	AOC3
200	MANITOBA MAPLE	17.5	AOC3
234	MANITOBA MAPLE	15	AOC 2
228	BLACK WALNUT	54	AOC 1

CONSTRUCTION PHASING:
1. ESTABLISH ACCESS TO SITE AND STAGING AREAS AS NOTED ON THE CONSTRUCTION DRAWINGS.
2. INSTALL SILT, CONSTRUCTION AND TREE PROTECTION FENCING AS WELL AS SITE SIGNAGE AS REQUIRED TO THE SATISFACTION OF THE ENGINEER AND THE CITY OF BURLINGTON PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITY.
3. ALL IN–STREAM CONSTRUCTION TO BE COMPLETED DURING LOW FLOW CONDITIONS.
4. CONSTRUCTION WORKS ARE TO COMMENCE AT THE UPSTREAM END OF THE SITE.

DETAIL TYPICAL DEWATERING AND BYPASS DETAIL 2

DETAIL HEAVY DUTY SILT FENCE OPSD 219.130 (2015) 3

EROSION, SEDIMENT CONTROL AND DEWATERING NOTES:
1. BE ADVISED THAT CONSERVATION HALTON MAY, AT ANY TIME, WITHDRAW THIS PERMISSION, IF, IN THE OPINION OF THE AUTHORITY, THE CONDITIONS OF THE PERMIT ARE NOT BEING COMPLIED WITH. THIS APPROVAL DOES NOT EXEMPT THE PROPERTY OWNER/APPLICANT/AGENT FROM THE PROVISIONS OF ANY OTHER FEDERAL, PROVINCIAL OR MUNICIPAL STATUES, REGULATIONS OR BY–LAW, OR ANY RIGHTS UNDER COMMON LAW.
2. FOLLOWING INSTALLATION OF THE PROPOSED ESC MEASURES, A QUALIFIED AGENT OF THE PROPONENT, PREFERABLY AN ENVIRONMENTAL MONITOR, WILL CONDUCT REGULAR SITE VISITS TO MONITOR ALL WORKS, PARTICULARLY THE CONDITION OF THE ESC MEASURES, DEWATERING, AND IN– OR NEAR–WATER WORKS. SHOULD CONCERNS ARISE; THE ENVIRONMENTAL MONITOR WILL CONTACT THE PROPONENT, CONSERVATION HALTON, AND ANY OTHER APPROPRIATE PARTIES.
3. THE EROSION AND SEDIMENT CONTROL (ESC) PLAN IS A DYNAMIC DOCUMENT, WHICH MAY BE SUBJECT TO CHANGE OR MODIFICATIONS AS A RESULT OF SITE DEVELOPMENTS OR CHANGES ON SITE. ANY DEVIATION FROM APPROVED PLANS BE DESIGNED BY A QUALIFIED PROFESSIONAL.
4. IF EXCESSIVE SILTATION RESULTS FROM THE CONSTRUCTION ACTIVITIES, THE ONSITE SUPERVISOR/INSPECTOR AND/OR CONSERVATION HALTON RESERVE THE RIGHT TO REQUEST ADDITIONAL ESC MEASURES WHICH WOULD BE INSTALLED PRIOR TO FURTHER CONSTRUCTION ACTIVITIES.
5. ALL ACTIVITIES, INCLUDING MAINTENANCE PROCEDURES, SHALL BE CONTROLLED TO PREVENT THE ENTRY OF PETROLEUM PRODUCTS, DEBRIS, RUBBLE, CONCRETE OR OTHER DELETERIOUS SUBSTANCES INTO THE WATER. VEHICULAR REFUELING AND MAINTENANCE WILL BE CONDUCTED A MINIMUM OF 30m FROM THE WATER.
6. THE CONTRACTOR SHALL MONITOR THE FIVE–DAY WEATHER FORECAST ON A DAILY BASIS TO ANTICIPATE WEATHER CONDITIONS AND SHALL BE PREPARED TO LEAVE THE SITE IN A STABLE AND SECURE CONDITION SHOULD WATER LEVELS RISE. PRIOR TO AN ANTICIPATED LARGE WEATHER EVENT, THE CONTRACTOR SHALL INSPECT ALL EROSION AND SEDIMENT CONTROLS AND ENSURE THE SITE AND EROSION AND SEDIMENT CONTROL MEASURES ARE SECURE TO MITIGATE AGAINST WEATHER RELATED CONDITIONS. ALL WORKS SHALL BE PERFORMED DURING FAVORABLE WEATHER CONDITIONS.
7. ALL DEWATERING SHALL BE DISCHARGED AT LEAST 15M FROM THE CREEK INTO A SEDIMENT TRAP. NO DEWATERING SHALL BE SENT DIRECTLY TO ANY WATERCOURSE OR SEWER. THESE CONTROL MEASURES SHALL BE MONITORED FOR EFFECTIVENESS AND MAINTAINED OR REVISED TO MEET THE OBJECTIVE OF PREVENTING SEDIMENT FROM ENTERING THE WATERCOURSE.
8. THE INLET PUMP HEAD MUST BE COVERED WITH FILTER FABRIC OR CLEAR STONE AND HAVE AN APPROVED FISH SCREEN; THE OUTLET PUMP MUST DISCHARGE TO SEDIMENT BAG OR BASIN. DISCHARGE FROM THE BAG IS TO BE RELEASED TO A VEGETATED LOCATION OR IF VEGETATED LOCATION IS NOT AVAILABLE, A FLOW DISSIPATING STRUCTURE SHOULD BE PROVIDED. THE SEDIMENT BAG MUST BE LOCATED AT LEAST 15M AWAY FROM THE RECEIVING WATER BODY. THE MESH SIZE OF THE FISH SCREEN PLACED ON THE INTAKE PIPE WILL BE NO LARGER THAN 2.54 MM AS PER DFO INTERIM CODE OF PRACTICE.

CONSTRUCTION WORK RESTRICTIONS:
1. CONSTRUCTION WITHIN THE CREEK IS NOT PERMITTED DURING/FOLLOWING A RAINFALL EVENT. DURING THIS TIME, THE CONTRACTOR IS TO STABILIZE THE SITE AND ALLOW FLOWS THROUGH THE WORK AREA. THIS APPROACH IS TO BE UTILIZED WHEN FLOW RATES IN THE CREEK EXCEED BASEFLOW/LOW FLOW CONDITIONS.
2. DURING THE DEWATERING, IF THE SIZE OF SEDIMENT PARTICLE IS LESS THAN OPENING OF THE FILTER BAG, THAN A SEDIMENT TANK SHOULD BE USED FOR SILTATION PURPOSES.
3. DURING CLOSURE OF THE PERMANENT WATERCOURSE CHANNEL, OR THE TEMPORARY WATER PASSAGE SYSTEM, ANY STRANDED FISH SHALL BE RELEASED OUTSIDE OF THE DISTURBED AREAS BY A QUALIFIED BIOLOGIST. THIS WORK WILL BE CONDUCTED UNDER LICENCE FROM THE MINISTRY OF NATURAL RESOURCES AND FORESTRY. THE CONTRACTOR IS RESPONSIBLE FOR SUPPLYING ALL MATERIALS, OBTAINING ASSOCIATED PERMITS, AND ANY ADDITIONAL COSTS INCURRED BY COMPLETING A FISH RESCUE BY A QUALIFIED BIOLOGIST.
4. ALL DISTURBED AREAS ARE TO BE STABILIZED DAILY OR PROTECTED WITH EROSION AND SEDIMENT CONTROL.
5. SILT CONTROL FENCE SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND SHALL REMAIN IN PLACE DURING AND AFTER CONSTRUCTION UNTIL THE VEGETATION HAS BEEN ESTABLISHED AND THE SITE HAS BEEN STABILIZED.
6. ALL STOCKPILE AREAS ARE TO BE ENCLOSED WITH HEAVY DUTY SILT CONTROL FENCING. ALL TEMPORARY SOIL OR DIRT STOCKPILES ARE TO BE PROVIDED WITH THE NECESSARY SEDIMENT AND EROSION CONTROL FEATURES, INCLUDING SEEDING IF ANTICIPATED TO BE STORED MORE THAN ONE MONTH. STOCKPILES MUST NOT BE LOCATED IN AREAS OF CONCENTRATED FLOW AND MINIMUM OF 15m FROM THE TOP OF BANK OR WATERCOURSE. NO FILL WILL BE PERMANENTLY LEFT ON SITE. ALL LEFTOVER FILL WILL BE TRUCKED OFF SITE AND FINAL FILL DESTINATION WILL BE PROVIDED TO CONSERVATION AUTHORITY.
7. ADDITIONAL EROSION AND SEDIMENT CONTROL MATERIALS (SILT FENCE, STRAW BALES, CLEAR STONE) ARE TO BE KEPT ON SITE FOR EMERGENCIES AND REPAIRS.
8. EROSION AND SEDIMENT CONTROLS METHODS ARE TO BE CONTINUOUSLY EVALUATED AND UPGRADES ARE TO BE IMPLEMENTED, WHEN NECESSARY OR AS DIRECTED BY THE ENGINEER.
9. THE CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR CONTROLLING SEDIMENT AND EROSION WITHIN THE CONSTRUCTION SITE FOR THE TOTAL PERIOD OF THE CONSTRUCTION. ANY SEDIMENT LADEN WATER WILL NOT BE ALLOWED TO DISCHARGE TO THE CREEK.
10. SHOULD THERE BE CONTINUOUS PUMPING PROPOSED, AN AFTER HOURS TECHNICAL IS TO BE ASSIGNED TO ENSURE THAT THE APPROPRIATE TREATMENT SYSTEM (PUMPING EQUIPMENT, SETTLEMENT PONDS, SEDIMENTATION TANK, ETC.) IS FUNCTIONING PROPERLY.
11. AN AFTER–HOURS CONTACT NUMBER IS TO BE VISIBLY POSTED ON–SITE FOR EMERGENCIES.
12. ANY SEDIMENT SPILL FROM THE SITE MUST BE REPORTED TO MINISTRY OF ENVIRONMENT AND CLIMATE CHANGE (CALL SPILL ACTION CENTER AT 1–800–268–6060)
13. EROSION AND SEDIMENT CONTROL METHODS ARE TO BE INSPECTED, MAINTAINED AND CONTINUOUSLY EVALUATED WEEKLY, AFTER ANY RAIN EVENT, ANY SNOW MELT EVENT. IF A SITE IS LEFT ALONE FOR 30 DAYS OR LONGER, A MONTHLY INSPECTION IS REQUIRED. UPGRADES ARE TO BE IMPLEMENTED WHEN NECESSARY OR AS DIRECTED BY ENGINEER.
14. ALL MAINTENANCE AND REPAIRS AS DIRECTED BY ENGINEER OR NOTICED DURING INSPECTION OF EROSION AND SEDIMENT CONTROLS SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF INSPECTION.
15. SEDIMENT SHOULD BE REMOVED FROM THE SEDIMENT CONTROL FENCING ONCE SEDIMENT HAS ACCUMULATED TO A LEVEL OF ONE–THIRD THE HEIGHT OF THE FENCING OR TO A HEIGHT OF 30cm. ALL ACCUMULATED SEDIMENT IS REQUIRED TO BE REMOVED PRIOR TO THE REMOVAL OF THE CONTROL MEASURES.

GENERAL NOTES:
1. ALL AQUATIC WORK IS TO BE COMPLETED BETWEEN JULY 1ST AND SEPTEMBER 14TH.
2. ALL UNSUITABLE AND/OR EXCESS MATERIAL IS TO BE DISPOSED OF AT AN OFF–SITE LOCATION TO BE ARRANGED FOR BY THE CONTRACTOR.
3. ALL MEASUREMENTS FOR THIS PROJECT ARE IN MILLIMETRES UNLESS OTHERWISE INDICATED.
4. PRIOR TO COMMENCING CONSTRUCTION WORKS, THE CONTRACTOR SHALL WALK THE SITE WITH THE ECOLOGIST TO IDENTIFY AREAS WITH INVASIVE SPECIES. THESE AREAS WILL BE ADDRESSED APPROPRIATELY FOLLOWING THE INVASIVE SPECIES MANAGEMENT DOCUMENT AND DIRECTION FROM THE ECOLOGIST. THIS MAY INCLUDE REMOVAL, AVOIDANCE OF THIS AREA, OR OTHER DIRECTION AS GIVEN BY SITE ENGINEER.
5. DURING CONSTRUCTION ALL VEGETATION AND STRUCTURES ON PRIVATE PROPERTY ADJACENT TO THE WORK IS TO BE PROTECTED OR RESTORED TO ORIGINAL CONDITION IF REMOVAL IS REQUIRED.
6. NON–WOVEN GEOTEXTILE IS TO BE TERRAFIX 270R OR APPROVED EQUIVALENT.
7. ALL WORKS AND MATERIALS ARE TO BE IN ACCORDANCE WITH APPLICABLE ONTARIO PROVINCIAL STANDARD SPECIFICATIONS AND/OR CITY OF BURLINGTON STANDARDS.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL LAYOUT, SURVEY AND LOCATION OF UTILITIES.
9. ALL CONSTRUCTION AND TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION, AFTER LAYOUT, AND SHALL BE INSPECTED AND APPROVED BY THE ENGINEER.
10. PRIOR TO TREE REMOVAL, THE CONTRACTOR SHALL MAKE THEMSELVES AWARE OF THE MIGRATORY BIRD CONVENTION ACT, 1994, AND THE POTENTIAL IMPACT NESTING BIRDS MAY HAVE ON THE ANTICIPATED START DATE AND CONSTRUCTION SCHEDULE. TREE REMOVALS AND VEGETATION CLEARING SHALL BE AVOIDED BETWEEN THE TERRESTRIAL TIMING WINDOW APRIL 1ST AND OCTOBER 15TH.
11. CROSSING AN ACTIVE WATERCOURSE OR WETLAND BY EQUIPMENT, VEHICLES, PERSONNEL, ETC. IS NOT PERMITTED UNLESS APPROVED BY CONSERVATION HALTON. ALL ACCESS TO WORK SITES SHALL BE FROM EITHER SIDE OF THE WATERCOURSE OR WETLAND.
12. ALL IN–WATER AND NEAR WATER WORKS WILL BE CONDUCTED IN THE DRY AND MUST BE STAGED WITH APPROPRIATE EROSION AND SEDIMENT CONTROLS. PLAN THE WORK ACCORDINGLY WITH THE WEATHER FORECAST.
13. ALL DISTURBED SLOPES WITHIN THE VALLEY SYSTEM SHALL BE STABILIZED WITH EROSION CONTROL BLANKET.
14. TEMPORARY ACCESS ROADS AND DISTURBED AREAS WILL BE LINED WITH WOOD CHIPS AND/OR, MUD MATS TO AVOID COMPACTION FROM MACHINERY AND EQUIPMENT.
15. AT NO TIMES WILL CONSTRUCTION EQUIPMENT BE PERMITTED TO OPERATE ON THE EXPOSED SHALE CHANNEL BED WITHOUT APPROVAL FROM THE ENGINEER. THE CONTRACTOR SHALL USE THE APPROPRIATE CONSTRUCTION MACHINERY TO OPERATE WITHIN THIS CONSTRAINT (E.G., EXCAVATOR WITH EXTENDED REACH). WHERE ACCESS TO THE SHALE CHANNEL BED IS REQUIRED TO INSTALL THE WORKS, ACCESS SHALL BE LIMITED AS MUCH AS POSSIBLE, LOAD DISTRIBUTION MECHANISMS SHALL BE EMPLOYED, AND MACHINERY USED SHALL BE AS SMALL AS POSSIBLE TO EFFECTIVELY COMPLETE THE WORK. MACHINERY SHALL NOT BE PERMITTED TO BE MOVED ALONG THE CREEK BED FOR ANY REASON.
16. AFTER THE END OF THE TWO–YEAR PLANTING WARRANTY, AN INSPECTION OF ALL PLANTED MATERIAL WILL BE COMPLETED BETWEEN CONTRACTOR AND CONTRACT ADMINISTRATOR TO IDENTIFY AII PLANT MATERIAL WARRANTY ISSUES WHICH REQUIRE REPLACEMENT OR ADDITIONAL MEASURES TO COMPLY WITH THE CONTRACT. ADDITIONALLY ALL TREE SUPPORT SYSTEMS (WIRE AND T–BARS/WOOD POSTS) WILL REQUIRE REMOVAL BY CONTRACTOR AT THIS TIME.
17. SNOW FENCING OR OTHER BARRIER SHOULD BE INSTALLED DURING THE FIRST GROWING SEASON TO PROTECT PLANTS FROM TRAMPLING (I.E., PEDESTRIANS, DOGS), AND TO ALSO DISCOURAGE THE USE OF THE OLD TRAIL AND ACCESS TRAILS FOLLOWING CONSTRUCTION OF THE NEW TRAIL.

DETAIL SILT SOCKS 4
SCALE: N.T.S.

DETAIL METER BAG COFFER DAM 5
SCALE: N.T.S.

LEGEND

EXISTING
- 0+200 — CHANNEL CENTRELINE
- PROPERTY LIMIT
- EX. CONTOURS
- BOTTOM OF BANK
- TOP OF BANK
- WATER LINE
- EX. RIFFLE ROCK
- EX. TREE
- TREE/BRUSH LINE
- TREE REMOVAL
- × BAT — IDENTIFIED BAT TREES

CONSTRUCTION
- CONSTRUCTION FENCE
- SILT FENCE
- SILT SOCKS
- TREE HOARDING FENCE
- COFFER DAM
- SILT ISOLATION CURTAIN (TURBIDITY CURTAIN)
- CONSTRUCTION ACCESS ROUTE
- EX. 2YR FLOODLINE

NO.	DATE	DESCRIPTION	APP'D.
2.	2022/05/11	ISSUED FOR APPROVAL	MP
1.	2022/01/25	ISSUED FOR APPROVAL	MP

REVISIONS

CITY OF Burlington

ecosystem recovery inc. PROFESSIONAL ENGINEERS

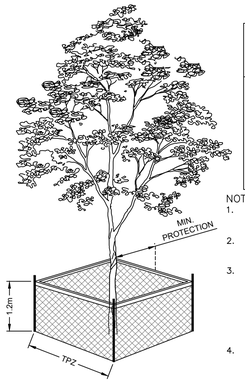
EROSION CONTROL MITIGATION GRINDSTONE CREEK

UNSWORTH AVE TO SUMACH DR

SEDIMENT AND EROSION CONTROL AND STAGING PLAN AOC 1, 2, 3

LICENSED PROFESSIONAL ENGINEER J. PRINCE 100115043 May 10/22 PROVINCE OF ONTARIO

DRN: KV	DSN: MP	CHK/APP: MP
DATE: 2022/05/11		DRAWING NUMBER
SCALE: 1:500		C101
PRO. No: 2116		



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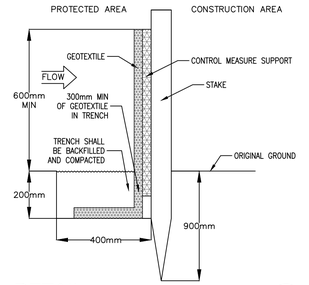
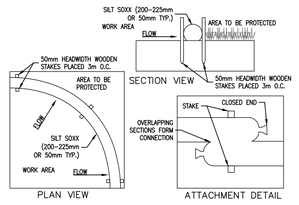


DETAIL HEAVY DUTY SILT FENCE
OPSD 219.130 (2015) 3



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SCALE: N.T.S. 4

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4. IF EXCESSIVE SILTATION RESULTS FROM THE CONSTRUCTION ACTIVITIES, THE ONSITE SUPERVISOR/INSPECTOR AND/OR CONSERVATION HALTON RESERVE THE RIGHT TO REQUEST ADDITIONAL ESC MEASURES WHICH WOULD BE INSTALLED PRIOR TO FURTHER CONSTRUCTION ACTIVITIES.
5. ALL ACTIVITIES, INCLUDING MAINTENANCE PROCEDURES, SHALL BE CONTROLLED TO PREVENT THE ENTRY OF PETROLEUM PRODUCTS, DEBRIS, RUBBLE, CONCRETE OR OTHER DELETERIOUS SUBSTANCES INTO THE WATER. VEHICULAR REFUELING AND MAINTENANCE WILL BE CONDUCTED A MINIMUM OF 30m FROM THE WATER.
6. THE CONTRACTOR SHALL MONITOR THE FIVE–DAY WEATHER FORECAST ON A DAILY BASIS TO ANTICIPATE WEATHER CONDITIONS AND SHALL BE PREPARED TO LEAVE THE SITE IN A STABLE AND SECURE CONDITION SHOULD WATER LEVELS RISE. PRIOR TO AN ANTICIPATED LARGE WEATHER EVENT, THE CONTRACTOR SHALL INSPECT ALL EROSION AND SEDIMENT CONTROLS AND ENSURE THE SITE AND EROSION AND SEDIMENT CONTROL MEASURES ARE SECURE TO MITIGATE AGAINST WEATHER RELATED CONDITIONS. ALL WORKS SHALL BE PERFORMED DURING FAVORABLE WEATHER CONDITIONS.
7. ALL DEWATERING SHALL BE DISCHARGED AT LEAST 15M FROM THE CREEK INTO A SEDIMENT TRAP. NO DEWATERING SHALL BE SENT DIRECTLY TO ANY WATERCOURSE OR SEWER. THESE CONTROL MEASURES SHALL BE MONITORED FOR EFFECTIVENESS AND MAINTAINED OR REVISED TO MEET THE OBJECTIVE OF PREVENTING SEDIMENT FROM ENTERING THE WATERCOURSE.
8. THE INLET PUMP HEAD MUST BE COVERED WITH FILTER FABRIC OR CLEAR STONE AND HAVE AN APPROVED FISH SCREEN; THE OUTLET PUMP MUST DISCHARGE TO SEDIMENT BAG OR BASIN. DISCHARGE FROM THE BAG IS TO BE RELEASED TO A VEGETATED LOCATION OR IF VEGETATED LOCATION IS NOT AVAILABLE, A FLOW DISSIPATING STRUCTURE SHOULD BE PROVIDED. THE SEDIMENT BAG MUST BE LOCATED AT LEAST 15M AWAY FROM THE RECEIVING WATER BODY. THE MESH SIZE OF THE FISH SCREEN PLACED ON THE INTAKE PIPE WILL BE NO LARGER THAN 2.54 MM AS PER DFO INTERIM CODE OF PRACTICE.

CONSTRUCTION PHASING AOC 4:

1. ESTABLISH ACCESS TO SITE AND STAGING AREAS AS NOTED ON THE CONSTRUCTION DRAWINGS.
2. INSTALL SILT, CONSTRUCTION AND TREE PROTECTION FENCING AS WELL AS SITE SIGNAGE AS REQUIRED TO THE SATISFACTION OF THE ENGINEER AND THE CITY OF BURLINGTON PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITY.
3. ALL IN–STREAM CONSTRUCTION TO BE COMPLETED DURING A PERIOD OF DRY WEATHER TO ENSURE EFFECTIVENESS AND STABILITY OF THE SILT CURTAIN.

CONSTRUCTION WORK RESTRICTIONS:

1. CONSTRUCTION WITHIN THE CREEK IS NOT PERMITTED DURING/FOLLOWING A RAINFALL EVENT. DURING THIS TIME, THE CONTRACTOR IS TO STABILIZE THE SITE AND ALLOW FLOWS THROUGH THE WORK AREA. THIS APPROACH IS TO BE UTILIZED WHEN FLOW RATES IN THE CREEK EXCEED BASEFLOW/LOW FLOW CONDITIONS.
2. DURING THE DEWATERING, IF THE SIZE OF SEDIMENT PARTICLE IS LESS THAN OPENING OF THE FILTER BAG, THAN A SEDIMENT TANK SHOULD BE USED FOR SILTATION PURPOSES.
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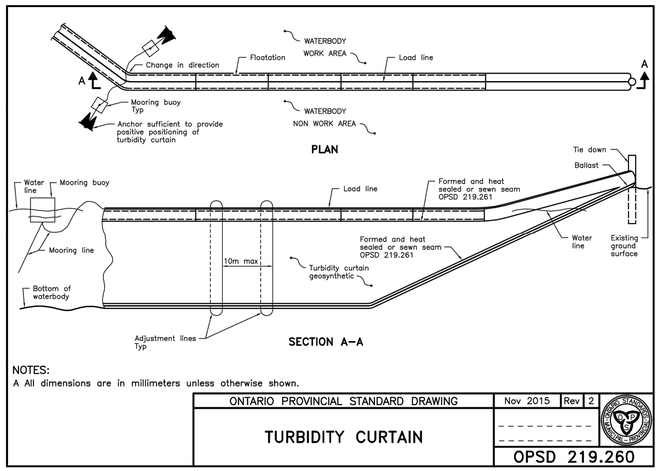
6. ALL STOCKPILE AREAS ARE TO BE ENCLOSED WITH HEAVY DUTY SILT CONTROL FENCING. ALL TEMPORARY SOIL OR DIRT STOCKPILES ARE TO BE PROVIDED WITH THE NECESSARY SEDIMENT AND EROSION CONTROL FEATURES, INCLUDING SEEDING IF ANTICIPATED TO BE STORED MORE THAN ONE MONTH. STOCKPILES MUST NOT BE LOCATED IN AREAS OF CONCENTRATED FLOW AND MINIMUM OF 15m FROM THE TOP OF BANK OR WATERCOURSE. NO FILL WILL BE PERMANENTLY LEFT ON SITE. ALL LEFTOVER FILL WILL BE TRUCKED OFF SITE AND FINAL FILL DESTINATION WILL BE PROVIDED TO CONSERVATION AUTHORITY.
7. ADDITIONAL EROSION AND SEDIMENT CONTROL MATERIALS (SILT FENCE, STRAW BALES, CLEAR STONE) ARE TO BE KEPT ON SITE FOR EMERGENCIES AND REPAIRS.
8. EROSION AND SEDIMENT CONTROLS METHODS ARE TO BE CONTINUOUSLY EVALUATED AND UPGRADES ARE TO BE IMPLEMENTED, WHEN NECESSARY OR AS DIRECTED BY THE ENGINEER.
9. THE CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR CONTROLLING SEDIMENT AND EROSION WITHIN THE CONSTRUCTION SITE FOR THE TOTAL PERIOD OF THE CONSTRUCTION. ANY SEDIMENT LADEN WATER WILL NOT BE ALLOWED TO DISCHARGE TO THE CREEK.
10. SHOULD THERE BE CONTINUOUS PUMPING PROPOSED, AN AFTER HOURS TECHNICAL IS TO BE ASSIGNED TO ENSURE THAT THE APPROPRIATE TREATMENT SYSTEM (PUMPING EQUIPMENT, SETTLEMENT PONDS, SEDIMENTATION TANK, ETC.) IS FUNCTIONING PROPERLY.
11. AN AFTER–HOURS CONTACT NUMBER IS TO BE VISIBLY POSTED ON–SITE FOR EMERGENCIES.
12. ANY SEDIMENT SPILL FROM THE SITE MUST BE REPORTED TO MINISTRY OF ENVIRONMENT AND CLIMATE CHANGE (CALL SPILL ACTION CENTER AT 1–800–268–6060)
13. EROSION AND SEDIMENT CONTROL METHODS ARE TO BE INSPECTED, MAINTAINED AND CONTINUOUSLY EVALUATED WEEKLY, AFTER ANY RAIN EVENT, ANY SNOW MELT EVENT. IF A SITE IS LEFT ALONE FOR 30 DAYS OR LONGER, A MONTHLY INSPECTION IS REQUIRED. UPGRADES ARE TO BE IMPLEMENTED WHEN NECESSARY OR AS DIRECTED BY ENGINEER.
14. ALL MAINTENANCE AND REPAIRS AS DIRECTED BY ENGINEER OR NOTICED DURING INSPECTION OF EROSION AND SEDIMENT CONTROLS SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF INSPECTION.
15. SEDIMENT SHOULD BE REMOVED FROM THE SEDIMENT CONTROL FENCING ONCE SEDIMENT HAS ACCUMULATED TO A LEVEL OF ONE–THIRD THE HEIGHT OF THE FENCING OR TO A HEIGHT OF 30cm. ALL ACCUMULATED SEDIMENT IS REQUIRED TO BE REMOVED PRIOR TO THE REMOVAL OF THE CONTROL MEASURES.

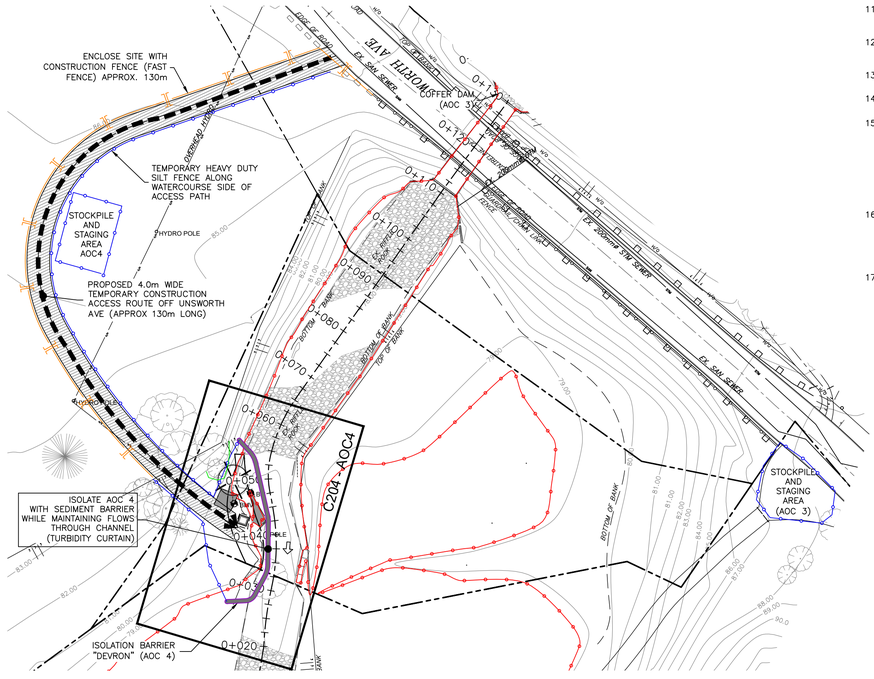
GENERAL NOTES:

1. ALL WORK IS TO BE COMPLETED BETWEEN JULY 1ST AND SEPTEMBER 14TH.
2. ALL UNSUITABLE AND/OR EXCESS MATERIAL IS TO BE DISPOSED OF AT AN OFF–SITE LOCATION TO BE ARRANGED FOR BY THE CONTRACTOR.
3. ALL MEASUREMENTS FOR THIS PROJECT ARE IN MILLIMETRES UNLESS OTHERWISE INDICATED.
4. PRIOR TO COMMENCING CONSTRUCTION WORKS, THE CONTRACTOR SHALL WALK THE SITE WITH THE ECOLOGIST TO IDENTIFY AREAS WITH INVASIVE SPECIES. THESE AREAS WILL BE ADDRESSED APPROPRIATELY FOLLOWING THE INVASIVE SPECIES MANAGEMENT DOCUMENT AND DIRECTION FROM THE ECOLOGIST. THIS MAY INCLUDE REMOVAL, AVOIDANCE OF THIS AREA, OR OTHER DIRECTION AS GIVEN BY SITE ENGINEER.
5. DURING CONSTRUCTION ALL VEGETATION AND STRUCTURES ON PRIVATE PROPERTY ADJACENT TO THE WORK IS TO BE PROTECTED OR RESTORED TO ORIGINAL CONDITION IF REMOVAL IS REQUIRED.
6. NON–WOVEN GEOTEXTILE IS TO BE TERRAFIX 270R OR APPROVED EQUIVALENT.
7. ALL WORKS AND MATERIALS ARE TO BE IN ACCORDANCE WITH APPLICABLE ONTARIO PROVINCIAL STANDARD SPECIFICATIONS AND/OR CITY OF BURLINGTON STANDARDS.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL LAYOUT, SURVEY AND LOCATION OF UTILITIES.
9. ALL CONSTRUCTION AND TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION, AFTER LAYOUT, AND SHALL BE INSPECTED AND APPROVED BY THE ENGINEER.
10. PRIOR TO TREE REMOVAL, THE CONTRACTOR SHALL MAKE THEMSELVES AWARE OF THE MIGRATORY BIRD CONVENTION ACT, 1994, AND THE POTENTIAL IMPACT NESTING BIRDS MAY HAVE ON THE ANTICIPATED START DATE AND CONSTRUCTION SCHEDULE. TREE REMOVALS AND VEGETATION CLEARING SHALL BE AVOIDED BETWEEN THE TERRESTRIAL TIMING WINDOW APRIL 1ST AND OCTOBER 15TH.
11. CROSSING AN ACTIVE WATERCOURSE OR WETLAND BY EQUIPMENT, VEHICLES, PERSONNEL, ETC. IS NOT PERMITTED UNLESS APPROVED BY CONSERVATION HALTON. ALL ACCESS TO WORK SITES SHALL BE FROM EITHER SIDE OF THE WATERCOURSE OR WETLAND.
12. ALL IN–WATER AND NEAR WATER WORKS WILL BE CONDUCTED IN THE DRY AND MUST BE STAGED WITH APPROPRIATE EROSION AND SEDIMENT CONTROLS. PLAN THE WORK ACCORDINGLY WITH THE WEATHER FORECAST.
13. ALL DISTURBED SLOPES WITHIN THE VALLEY SYSTEM SHALL BE STABILIZED WITH EROSION CONTROL BLANKET.
14. TEMPORARY ACCESS ROADS AND DISTURBED AREAS WILL BE LINED WITH WOOD CHIPS AND/OR, MUD MATS TO AVOID COMPACTION FROM MACHINERY AND EQUIPMENT.
15. AT NO TIMES WILL CONSTRUCTION EQUIPMENT BE PERMITTED TO OPERATE ON THE EXPOSED SHALE CHANNEL BED WITHOUT APPROVAL FROM THE ENGINEER. THE CONTRACTOR SHALL USE THE APPROPRIATE CONSTRUCTION MACHINERY TO OPERATE WITHIN THIS CONSTRAINT (E.G., EXCAVATOR WITH EXTENDED REACH). WHERE ACCESS TO THE SHALE CHANNEL BED IS REQUIRED TO INSTALL THE WORKS, ACCESS SHALL BE LIMITED AS MUCH AS POSSIBLE, LOAD DISTRIBUTION MECHANISMS SHALL BE EMPLOYED, AND MACHINERY USED SHALL BE AS SMALL AS POSSIBLE TO EFFECTIVELY COMPLETE THE WORK. MACHINERY SHALL NOT BE PERMITTED TO BE MOVED ALONG THE CREEK BED FOR ANY REASON.
16. AFTER THE END OF THE TWO–YEAR PLANTING WARRANTY, AN INSPECTION OF ALL PLANTED MATERIAL WILL BE COMPLETED BETWEEN CONTRACTOR AND CONTRACT ADMINISTRATOR TO IDENTIFY All PLANT MATERIAL WARRANTY ISSUES WHICH REQUIRE REPLACEMENT OR ADDITIONAL MEASURES TO COMPLY WITH THE CONTRACT. ADDITIONALLY ALL TREE SUPPORT SYSTEMS (WIRE AND T–BARS/WOOD POSTS) WILL REQUIRE REMOVAL BY CONTRACTOR AT THIS TIME.
17. SNOW FENCING OR OTHER BARRIER SHOULD BE INSTALLED DURING THE FIRST GROWING SEASON TO PROTECT PLANTS FROM TRAMPLING (I.E., PEDESTRIANS, DOGS), AND TO ALSO DISCOURAGE THE USE OF THE OLD TRAIL AND ACCESS TRAILS FOLLOWING CONSTRUCTION OF THE NEW TRAIL.



NOTES:
A All dimensions are in millimeters unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
TURBIDITY CURTAIN		
	OPSD 219.260	



LEGEND

EXISTING

- 99.200 — CHANNEL CENTRELINE
- PROPERTY LIMIT
- EX. CONTOURS
- BOTTOM OF BANK
- TOP OF BANK
- WATER LINE
- EX. RIFFLE ROCK
- EX. TREE
- TREE/BRUSH LINE
- TREE REMOVAL
- × BAT — IDENTIFIED BAT TREES

CONSTRUCTION

- CONSTRUCTION FENCE
- SILT FENCE
- SILT SOCKS
- TREE HOARDING FENCE
- COFFER DAM
- SILT ISOLATION CURTAIN (TURBIDITY CURTAIN)
- CONSTRUCTION ACCESS ROUTE
- EX. 2YR FLOODLINE

NO.	DATE	DESCRIPTION	APP'D.
2.	2022/05/11	ISSUED FOR APPROVAL	MP
1.	2022/01/25	ISSUED FOR APPROVAL	MP

REVISIONS

CITY OF Burlington

ecosystem recovery inc. PROFESSIONAL ENGINEERS

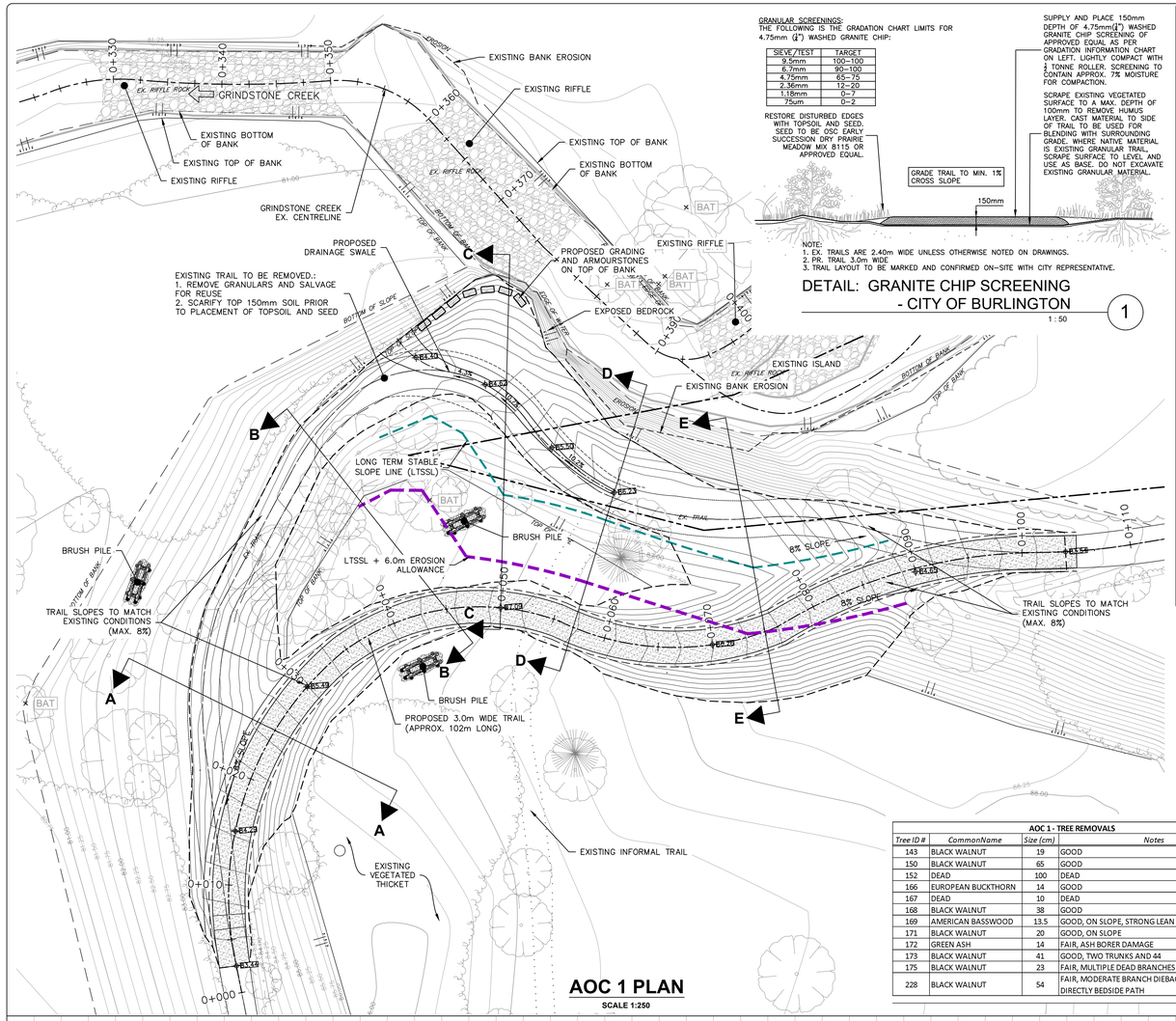
EROSION CONTROL MITIGATION GRINDSTONE CREEK

UNSWORTH AVE TO SUMACH DR

SEDIMENT AND EROSION CONTROL AND STAGING PLAN AOC 4

LICENCED PROFESSIONAL ENGINEER J. J. PRINCE 100112949 May 10/22 PROVINCE OF ONTARIO

DRN: KV	DSN: MP	CHK/APP: MP
DATE: 2022/05/11		DRAWING NUMBER C102
SCALE: 1:500		
PRO. No: 2116		



AOC 1 PLAN

SCALE 1:250

GRANULAR SCREENINGS:
THE FOLLOWING IS THE GRADATION CHART LIMITS FOR 4.75mm (#) WASHED GRANITE CHIP:

SIEVE/TEST	TARGET
9.5mm	100–100
6.7mm	90–100
4.75mm	65–75
2.36mm	12–20
1.18mm	0–7
75um	0–2

RESTORE DISTURBED EDGES WITH TOPSOIL AND SEED. SEED TO BE OSC EARLY SUCCESSION DRY PRAIRIE MEADOW MIX 8115 OR APPROVED EQUAL.

SUPPLY AND PLACE 150mm DEPTH OF 4.75mm(#) WASHED GRANITE CHIP SCREENING OF APPROVED EQUAL AS PER GRADATION INFORMATION CHART ON LEFT, LIGHTLY COMPACT WITH 1 TONNE ROLLER. SCREENING TO CONTAIN APPROX. 7% MOISTURE FOR COMPACTION.

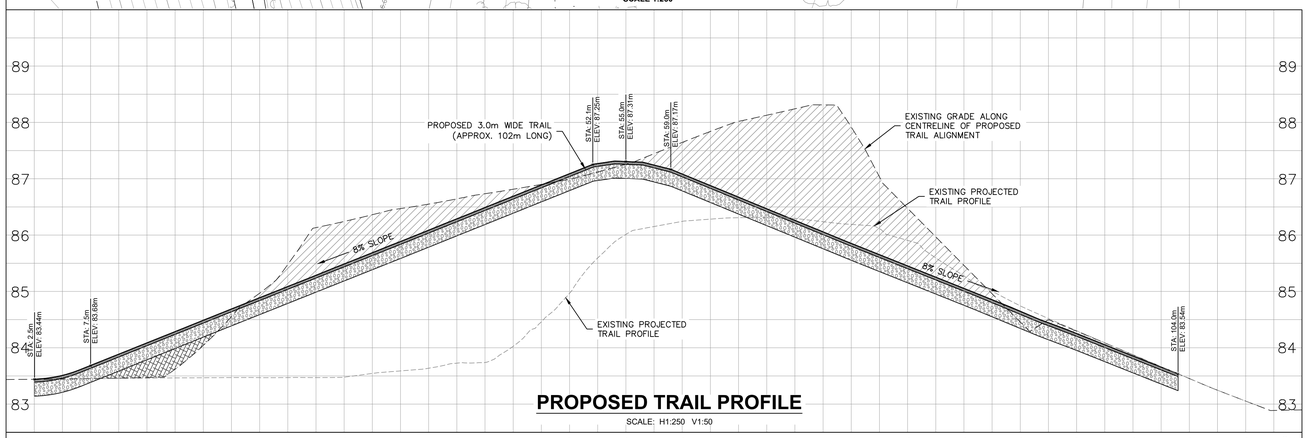
SCRAPE EXISTING VEGETATED SURFACE TO A MAX. DEPTH OF 100mm TO REMOVE HUMUS LAYER. CAST MATERIAL TO SIDE OF TRAIL TO BE USED FOR BLENDING WITH SURROUNDING GRADE. WHERE NATIVE MATERIAL IS EXISTING GRANULAR TRAIL, SCRAPE SURFACE TO LEVEL AND USE AS BASE. DO NOT EXCAVATE EXISTING GRANULAR MATERIAL.

NOTE:
1. EX. TRAILS ARE 2.40m WIDE UNLESS OTHERWISE NOTED ON DRAWINGS.
2. PR. TRAIL 3.0m WIDE
3. TRAIL LAYOUT TO BE MARKED AND CONFIRMED ON-SITE WITH CITY REPRESENTATIVE.

DETAIL: GRANITE CHIP SCREENING - CITY OF BURLINGTON

1 : 50 (1)

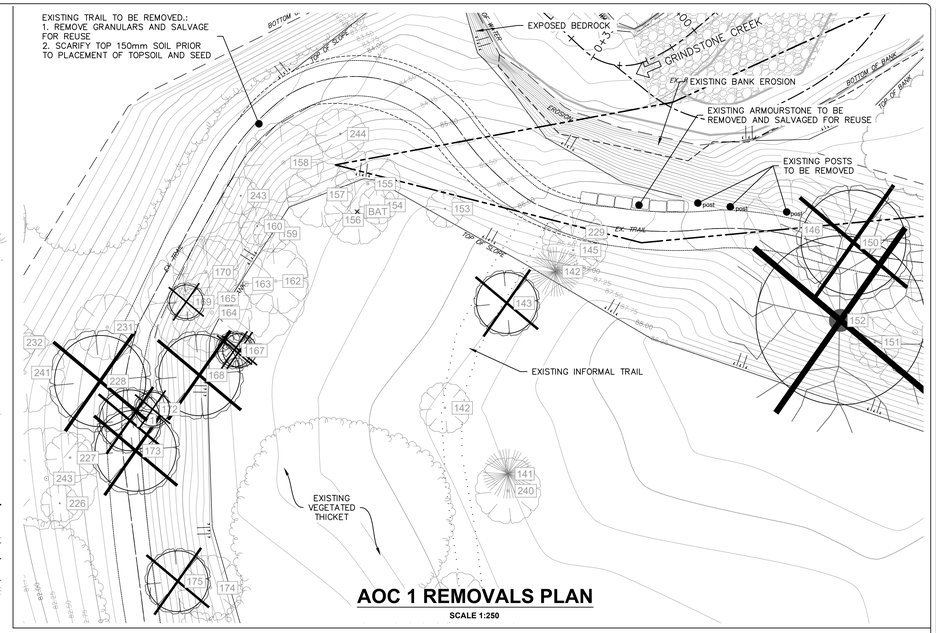
Tree ID #	CommonName	Size (cm)	Notes
143	BLACK WALNUT	19	GOOD
150	BLACK WALNUT	65	GOOD
152	DEAD	100	DEAD
166	EUROPEAN BUCKTHORN	14	GOOD
167	DEAD	10	DEAD
168	BLACK WALNUT	38	GOOD
169	AMERICAN BASSWOOD	13.5	GOOD, ON SLOPE, STRONG LEAN
171	BLACK WALNUT	20	GOOD, ON SLOPE
172	GREEN ASH	14	FAIR, ASH BORER DAMAGE
173	BLACK WALNUT	41	GOOD, TWO TRUNKS AND 44
175	BLACK WALNUT	23	FAIR, MULTIPLE DEAD BRANCHES
228	BLACK WALNUT	54	FAIR, MODERATE BRANCH DIEBACK, LOCATED DIRECTLY BEDSIDE PATH



PROPOSED TRAIL PROFILE

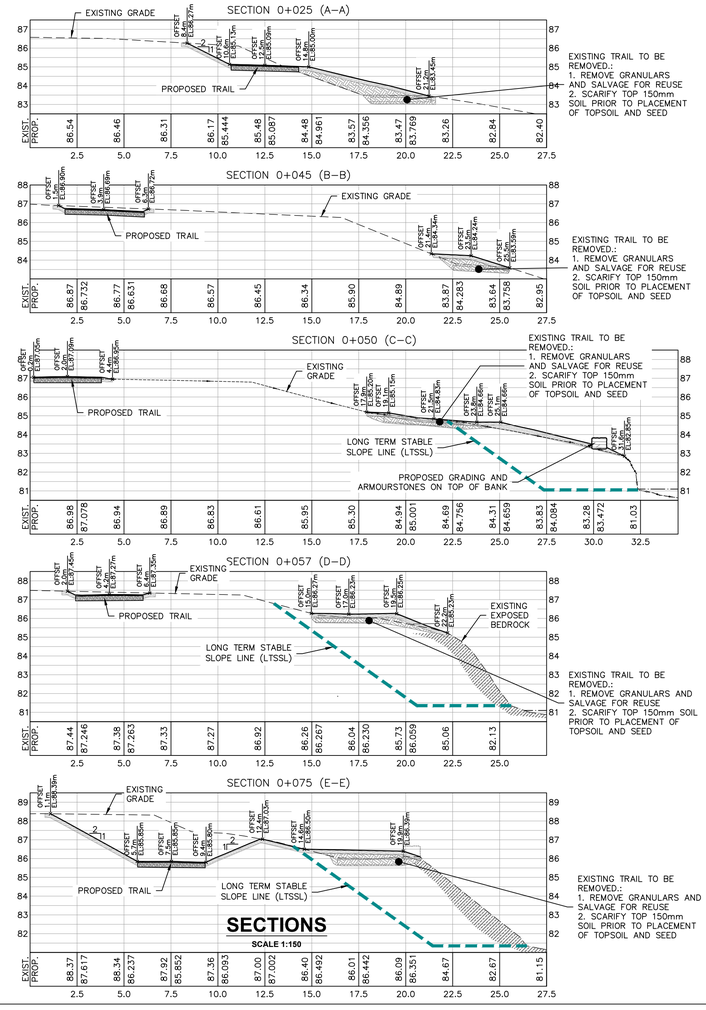
SCALE: H1:250 V1:50

STATION	0+005	0+010	0+015	0+020	0+025	0+030	0+035	0+040	0+045	0+050	0+055	0+060	0+065	0+070	0+075	0+080	0+085	0+090	0+095	0+100	0+105	0+110
O/A PROFILE	83.45	83.46	83.62	84.55	85.48	86.24	86.47	86.64	86.81	86.99	87.26	87.65	88.02	88.24	87.92	86.48	85.46	84.46	84.29	83.88	83.45	83.05
O/A EXISTING TRAIL PROFILE		83.46	83.47	83.47	83.47	83.48	83.59	83.73	84.03	84.97	86.01	86.24	86.31	86.30	86.19	85.91	85.28	84.74	84.30	83.88	83.45	83.05
O/A PROPOSED TRAIL PROFILE	83.51	83.89	84.29	84.69	85.09	85.49	85.89	86.29	86.69	87.09	87.31	87.08	86.67	86.26	85.85	85.45	85.05	84.65	84.25	83.85		



AOC 1 REMOVALS PLAN

SCALE 1:250



SECTIONS

SCALE 1:150

N

LEGEND

EXISTING

- CHANNEL CENTRELINE
- PROPERTY LIMIT
- EX. CONTOURS
- BOTTOM OF BANK
- TOP OF BANK
- WATER LINE
- EX. RIFFLE ROCK
- EX. TREE
- TREE/BRUSH LINE
- TREE REMOVAL
- × BAT — IDENTIFIED BAT TREES

PROPOSED

- PR. CONTOURS
- ARMOUR STONE
- BRUSH LAYER
- PR. ROCK
- LOG
- CONSTRUCTION ACCESS
- LIMIT OF GRADING
- PROPOSED TRAIL
- LONG TERM STABLE SLOPE LINE (LTSSL)
- LTSSL + 6.0m EROSION ALLOWANCE

NO.	DATE	DESCRIPTION	APP'D.
2.	2022/05/11	ISSUED FOR APPROVAL	MP
1.	2022/01/25	ISSUED FOR APPROVAL	MP

REVISIONS

CITY OF Burlington

ecosystem recovery inc. PROFESSIONAL ENGINEERS

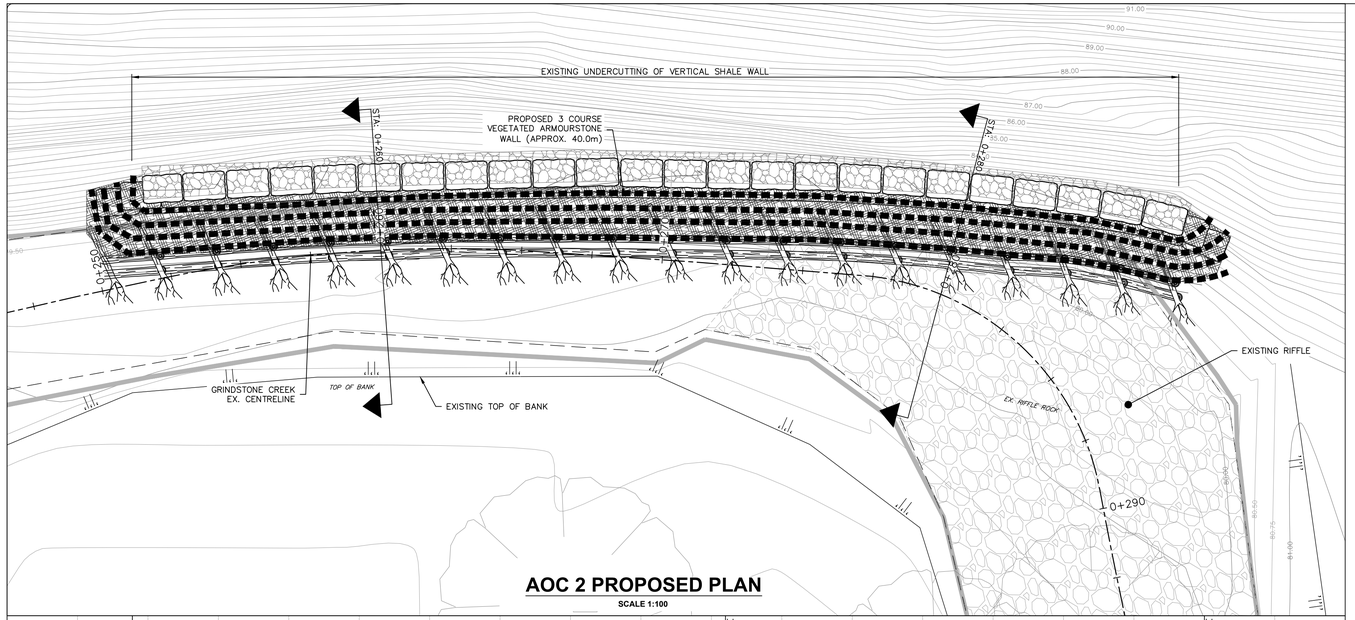
EROSION CONTROL MITIGATION GRINDSTONE CREEK

UNSWORTH AVE TO SUMACH DR

AREA OF CONCERN 1 PROPOSED PLAN STA: 0+320 TO 0+440

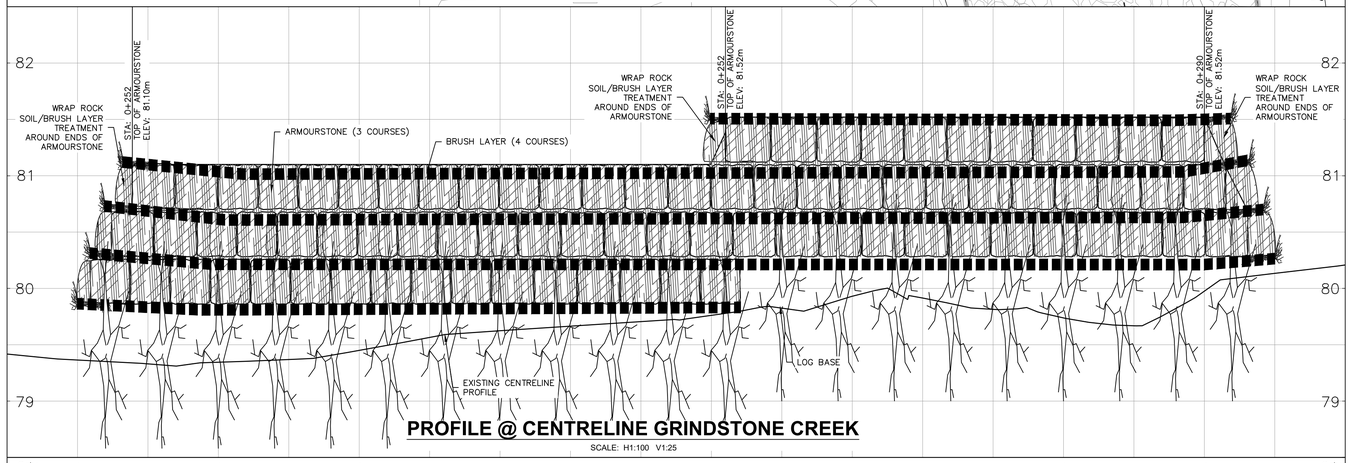
LICENSED PROFESSIONAL ENGINEER J. J. PRINCE 100115049 May 10/22 PROVINCE OF ONTARIO

DRN: KV	DSN: MP
CHK/APP: MP	
DATE: 2022/05/11	DRAWING NUMBER
SCALE: H 1:250 V 1:50	C201
PRO. No: 2116	



AOC 2 PROPOSED PLAN

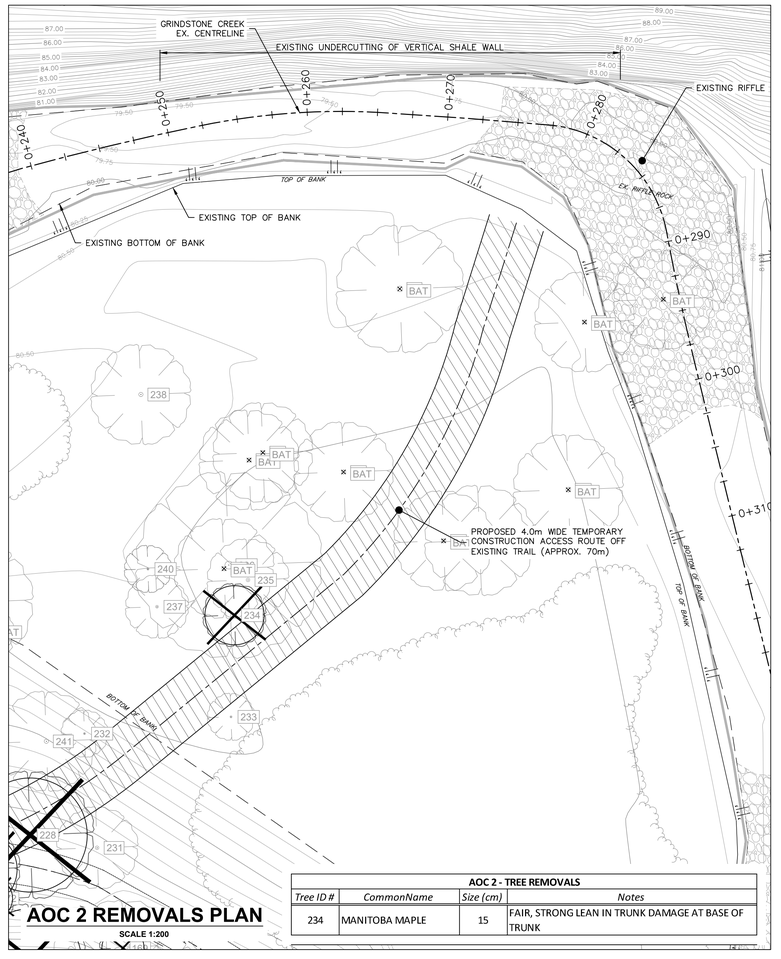
SCALE 1:100



PROFILE @ CENTRELINE GRINDSTONE CREEK

SCALE: H1:100 V1:25

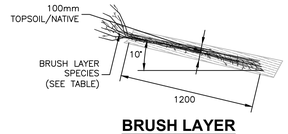
STATION	0+250	0+255	0+260	0+265	0+270	0+275	0+280	0+285	0+290
C/L EXISTING GROUND PROFILE	79.36	79.34	79.45	79.62	79.71	79.82	79.91	79.74	79.98
PROPOSED TOP OF STONE	81.10	81.10	81.10	81.10	81.10	81.52	81.52	81.52	81.52



AOC 2 REMOVALS PLAN

SCALE 1:200

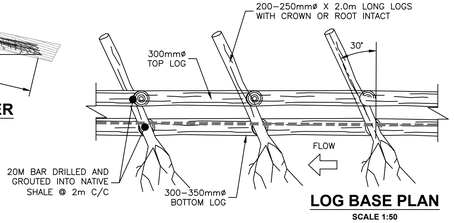
AOC 2 - TREE REMOVALS			
Tree ID #	*CommonName*	*Size (cm)*	*Notes*
234	MANITOBA MAPLE	15	FAIR, STRONG LEAN IN TRUNK DAMAGE AT BASE OF TRUNK



BRUSH LAYER

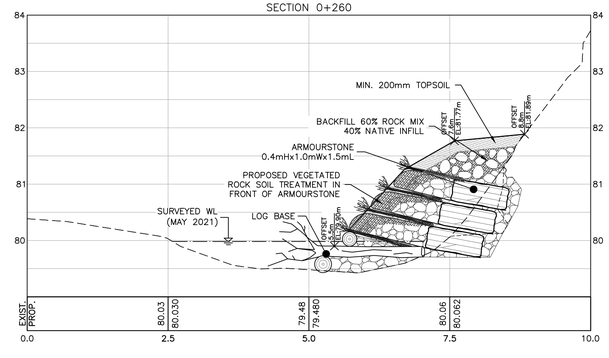
SCALE 1:20

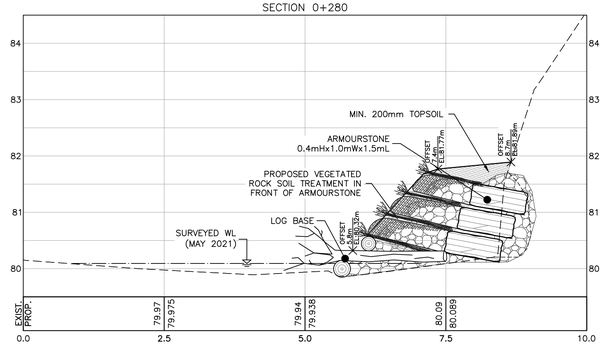
BRUSH LAYER		
COMMON NAME	SCIENTIFIC NAME	% OF MIX
RED OSIER DOGWOOD	CORNUS SERICEA	10%
PUSSY WILLOW	SALIX DISCOLOR	30%
SANDBAR WILLOW	SALIX EXIGUA	30%
SLENDER WILLOW	SALIX PETIOLARIS	30%



LOG BASE PLAN

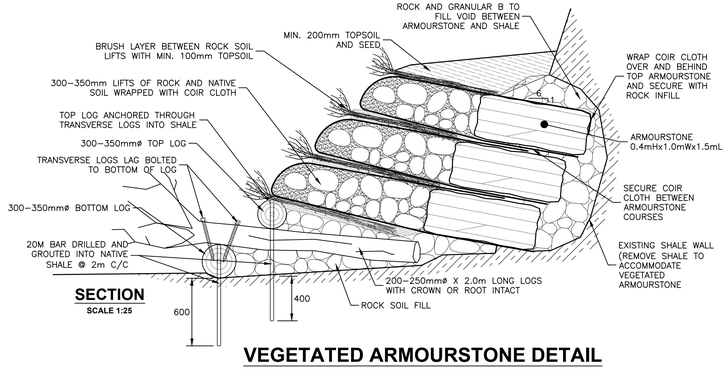
SCALE 1:50





SECTIONS

SCALE 1:50



SECTION

SCALE 1:25

VEGETATED ARMOURSTONE DETAIL

LEGEND

EXISTING

- 0+200 — CHANNEL CENTRELINE
- PROPERTY LIMIT
- EX. CONTOURS
- BOTTOM OF BANK
- TOP OF BANK
- WATER LINE
- EX. RIFFLE ROCK
- EX. TREE
- TREE/BRUSH LINE
- TREE REMOVAL
- × BAT — IDENTIFIED BAT TREES

PROPOSED

- PR. CONTOURS
- ARMOUR STONE
- BRUSH LAYER
- WRAPPED SOIL/ROCK TREATMENT
- PR. ROCK
- LOG
- CONSTRUCTION ACCESS
- LIMIT OF GRADING

AOC 2 - ROCK TABLE 1	
Recommended B-Axis Size of Substrate (mm)	Portion by Volume (%)
Angular Stone	Vegetated Revetment
Granular B/ Native material	10
50-100	30
100-200	40
200-300	20

NO.	DATE	DESCRIPTION	APP'D.
2.	2022/05/11	ISSUED FOR APPROVAL	MP
1.	2022/01/25	ISSUED FOR APPROVAL	MP

REVISIONS

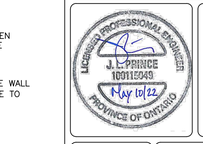
CITY OF Burlington

ecosystem recovery inc. PROFESSIONAL ENGINEERS

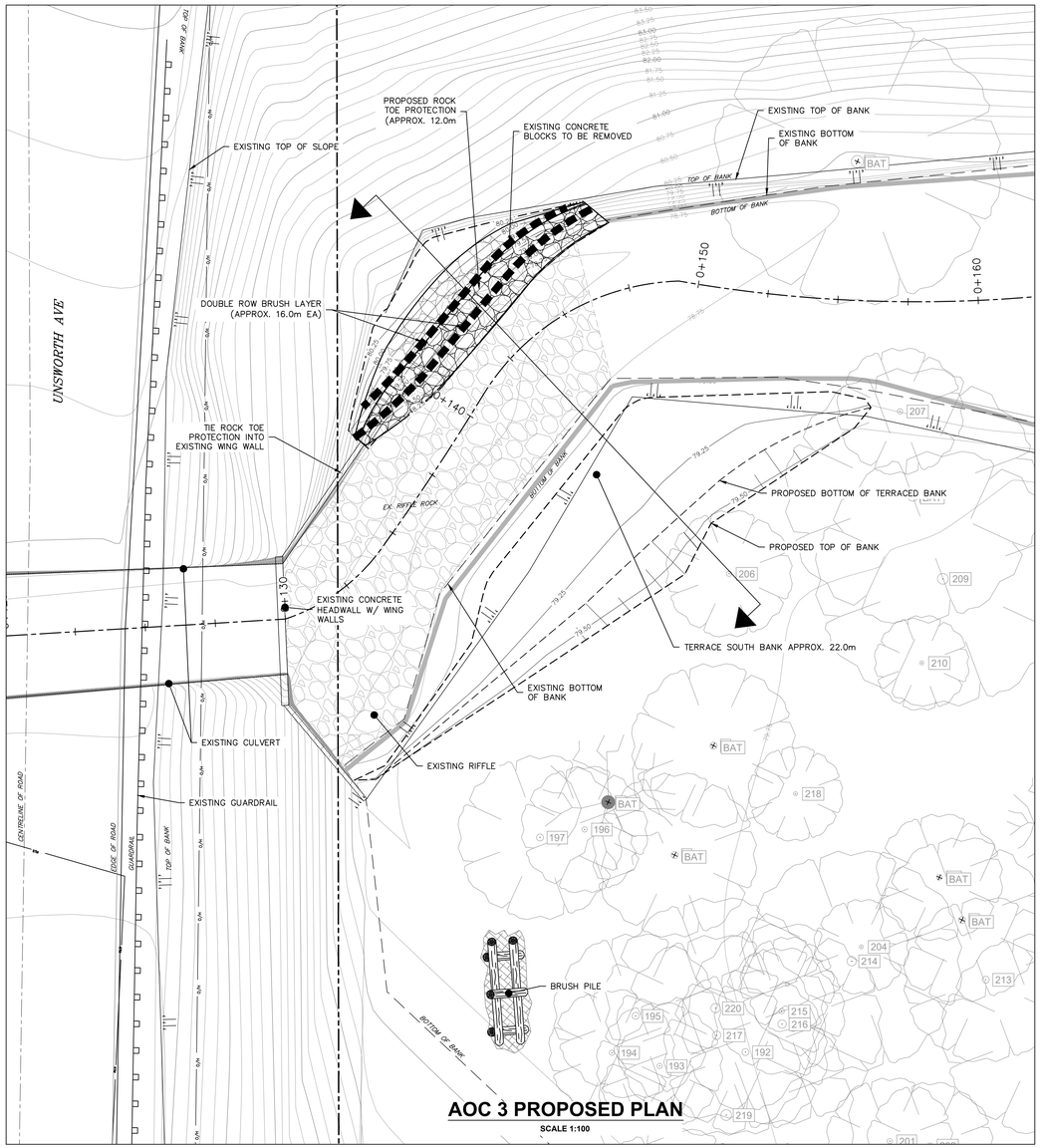
EROSION CONTROL MITIGATION GRINDSTONE CREEK

UNSWORTH AVE TO SUMACH DR

AREA OF CONCERN 2
PROPOSED PLAN
STA: 0+190 TO 0+310



DRN: KV	DSN: MP	CHK/APP: MP	
DATE: 2022/04/29		DRAWING NUMBER	
SCALE: 1:200		C202	
PRO. No: 2116			

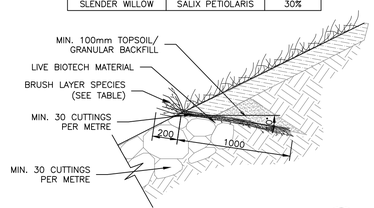


AOC 3 PROPOSED PLAN

SCALE 1:100

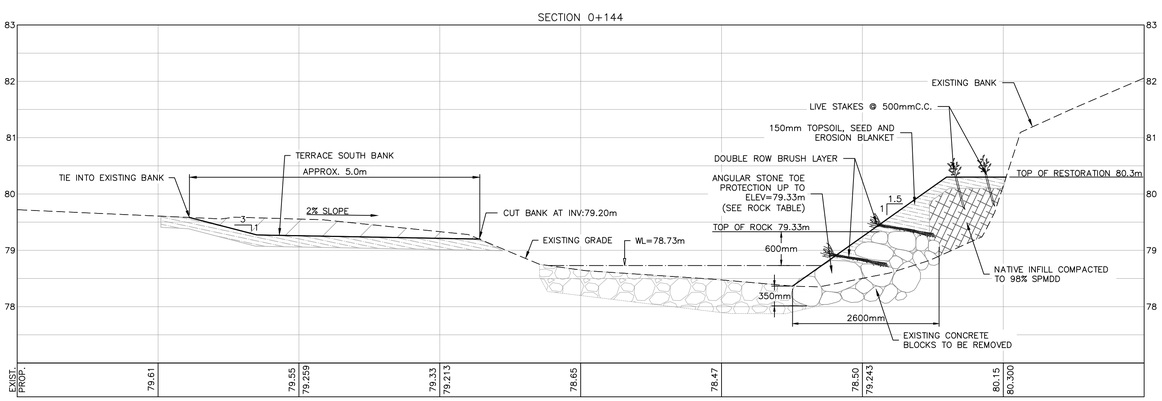
AOC 3 - TREE REMOVALS			
Tree ID #	*CommonName*	*Size (cm)*	*Notes*
182	MANITOBA MAPLE	27.3	POOR, STRONG LEAN, MANY DEAD BRANCHES
183	BLACK WALNUT	33	GOOD
198	BLACK ALDER	23	GOOD, ON LEAN
199	BLACK ALDER	25.5	GOOD
200	MANITOBA MAPLE	17.5	FAIR

BRUSH LAYER		
COMMON NAME	SCIENTIFIC NAME	% OF MIX
RED OSIER DOGWOOD	CORNUS SERICEA	10%
PUSSY WILLOW	SALIX DISCOLOR	30%
SANDBAR WILLOW	SALIX EXIGUA	30%
SLENDER WILLOW	SALIX PETIOLARIS	30%



DETAIL: BRUSH LAYER 1

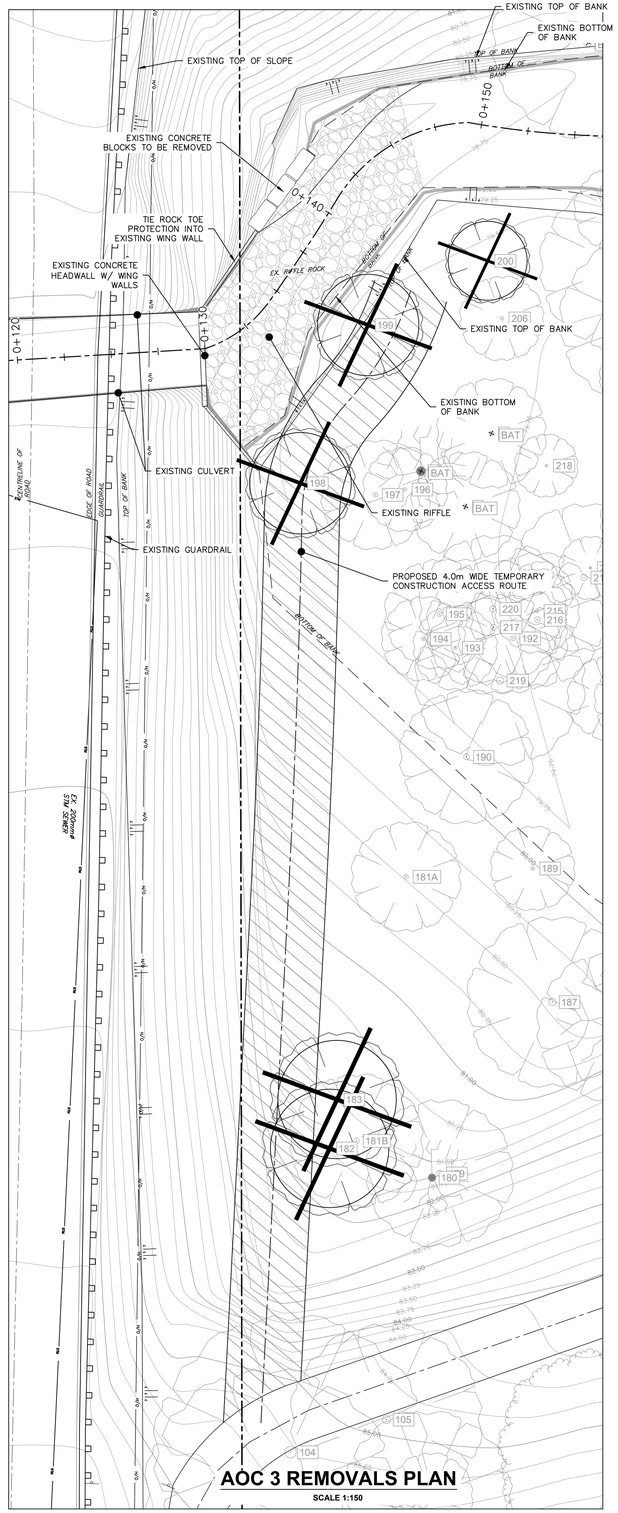
1 : 25



SECTION

SCALE 1:50

AOC 3 - ROCK TABLE 1	
Recommended B-Axis Size of Substrate (mm)	Portion by Volume (%)
Angular Stone	Vegetated Revetment
Granular B/ Native material	10
50-100	10
100-200	10
200-300	20
400-500	25
600	25
Sum	100
Depth	1000



AOC 3 REMOVALS PLAN

SCALE 1:150

LEGEND

EXISTING

- CHANNEL CENTRELINE
- PROPERTY LIMIT
- EX. CONTOURS
- BOTTOM OF BANK
- TOP OF BANK
- WATER LINE
- EX. RIFFLE ROCK
- EX. TREE
- TREE/BRUSH LINE
- TREE REMOVAL
- IDENTIFIED BAT TREES

PROPOSED

- PR. CONTOURS
- ARMOUR STONE
- BRUSH LAYER
- PR. ROCK
- LOG
- CONSTRUCTION ACCESS
- LIMIT OF GRADING

NO.	DATE	DESCRIPTION	APP'D.
2.	2022/05/11	ISSUED FOR APPROVAL	MP
1.	2022/01/25	ISSUED FOR APPROVAL	MP

REVISIONS

CITY OF Burlington

ecosystem recovery inc. PROFESSIONAL ENGINEERS

EROSION CONTROL MITIGATION GRINDSTONE CREEK

UNSWORTH AVE TO SUMACH DR

AREA OF CONCERN 3
PROPOSED PLAN
STA: 0+125 TO 0+160

LICENCED PROFESSIONAL ENGINEER J. J. PRINCE 100112949 PROVINCE OF ONTARIO May 10/22

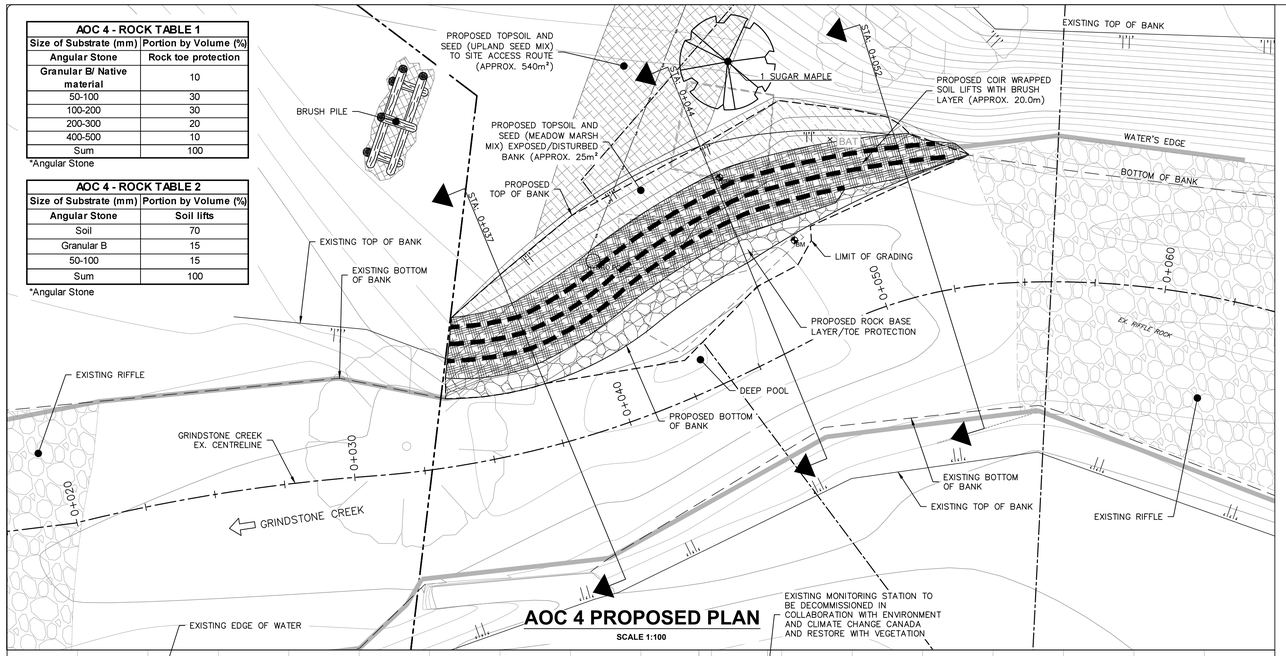
DRN: KV	DSN: MP	CHK/APP: MP
DATE: 2022/05/11		DRAWING NUMBER C203
SCALE: 1:100		
PRO. No: 2116		

AOC 4 - ROCK TABLE 1	
Size of Substrate (mm)	**Portion by Volume (%)**
Angular Stone	**Rock toe protection**
Granular B/ Native material	10
50-100	30
100-200	30
200-300	20
400-500	10
Sum	100

*Angular Stone

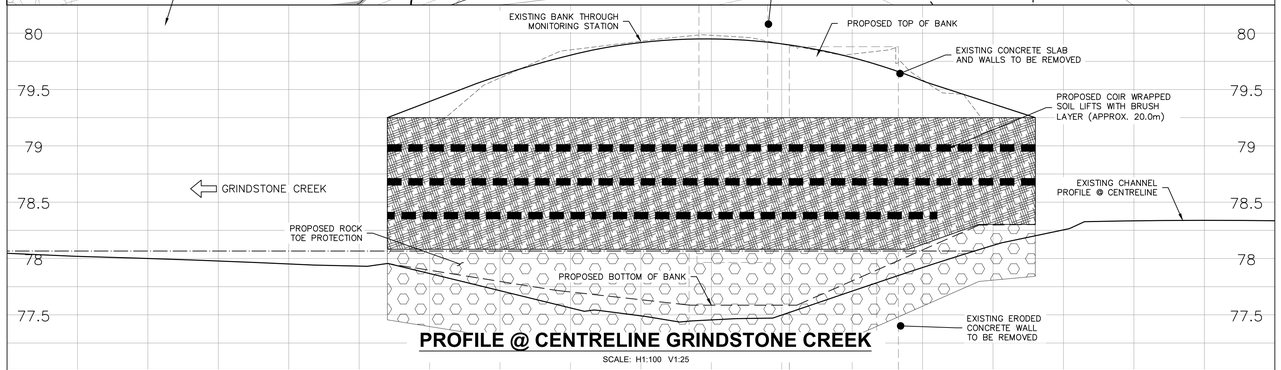
AOC 4 - ROCK TABLE 2	
Size of Substrate (mm)	**Portion by Volume (%)**
Angular Stone	**Soil lifts**
Soil	70
Granular B	15
50-100	15
Sum	100

*Angular Stone



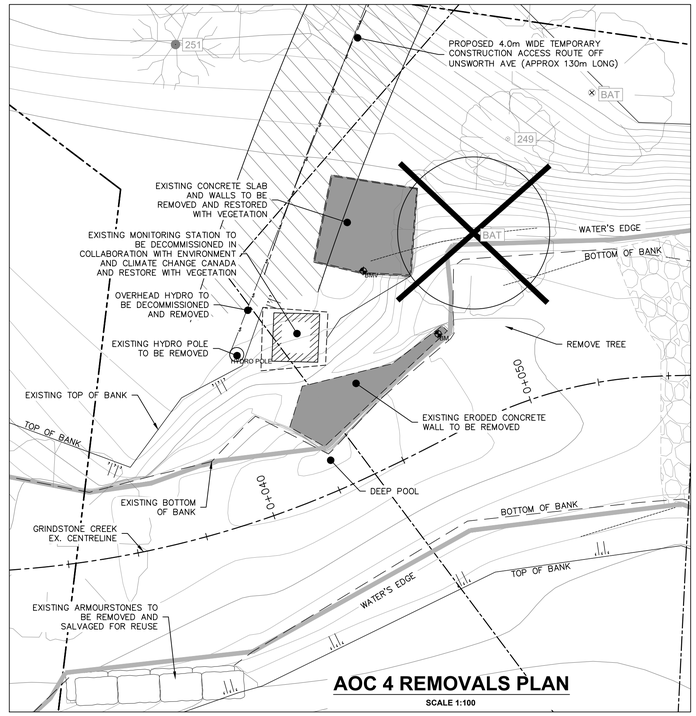
AOC 4 PROPOSED PLAN

SCALE 1:100



PROFILE @ CENTRELINE GRINDSTONE CREEK

SCALE: H1:100 V1:25



AOC 4 REMOVALS PLAN

SCALE 1:100

LEGEND

EXISTING

- 0+200 CHANNEL CENTRELINE
- PROPERTY LIMIT
- EX. CONTOURS
- BOTTOM OF BANK
- TOP OF BANK
- WATER LINE
- EX. RIFFLE ROCK
- EX. TREE
- TREE/BRUSH LINE
- TREE REMOVAL
- × BAT IDENTIFIED BAT TREES

PROPOSED

- PR. CONTOURS
- ARMOUR STONE
- BRUSH LAYER
- WRAPPED SOIL/ROCK TREATMENT
- PR. ROCK
- LOG
- CONSTRUCTION ACCESS
- LIMIT OF GRADING

SEED MIX TABLES

CONSERVATION HALTON UPLAND DRY MEADOW MIX		
SCIENTIFIC NAME	**COMMON NAME**	**% OF MIX**
Rudbeckia hirta	BLACK EYED SUSAN	15
Andropogon gerardii	BLUE BLUESTEM	30
Symphyotrichum cordifolius	BLUE WOOD ASTER	1
Solidago canadensis var. canadensis	CANADA GOLDENROD	2
Anemone canadensis	CANADA ANEMONE	1
Asclepias syriaca	COMMON MILKWEED	5
Oenothera biennis	EVENING PRIMROSE	2
Euthamia graminifolia	GRASS-LEAVED GOLDENROD	1
Schizachyrium scoparium	LITTLE BLUESTEM	20
Carex granularis	MEADOW/OPEN FILED SEDGE	12
Symphyotrichum novae-angliae	NEW ENGLAND ASTER	1
Clematis virginiana	VIRGINS BOWER	5
Monarda fistulosa var. fistulosa	WILD BERGAMOT	5

SOW AT 25KG/HA

CONSERVATION HALTON MEADOW MARSH MIX		
SCIENTIFIC NAME	**COMMON NAME**	**% OF MIX**
Carex bebbi	BEBBS SEGDE	1
Lobelia siphilitica	BLUE LOBELIA	1
Verbena hastata	BLUE VERVAIN	15
Eupatorium perfoliatum	BONESET	2
Scirpus atrovirens	DARK-GREEN BULRUSH	5
Carex vulpinoidea	FOX SEDGE	25
Euthamia graminifolia	GRASS-LEAVED GOLDENROD	1
Carex granularis	MEADOW/OPEN FILED SEDGE	10
Symphyotrichum puniceum	PURPLE STEMMED ASTER	1
Juncus effusus ssp. Solutus	SOFT RUSH	5
Eutrochium maculatum var. maculatu	SPOTTED JOE PYE WEED	2
Mimulus ringens	MONKEY FLOWER	1
Carex stipata	STALK GRAIN SEDGE	2
Glyceria grandis	TALL MANNA GRASS	2
Scirpus cyperinus	WOOLGRASS	2
Poa palustris	FOWL BLUEGRASS	25

SOW AT 25KG/HA

CONSERVATION HALTON NURSE CROP MIX (FALL) - 6824m²	
SCIENTIFIC NAME	**COMMON NAME**	**% OF MIX**
Elymus canadensis	CANADA WILD RYE	35
Avena sativa	ANNUAL OATS	25
Agrostis stolonifera	CREEPING BENT GRASS	20
Festuca rubra	RED FESCUE	20

***WATERING MAY BE REQUIRED TO PROMOTE SUCCESSFUL ESTABLISHMENT** OR JULY)**

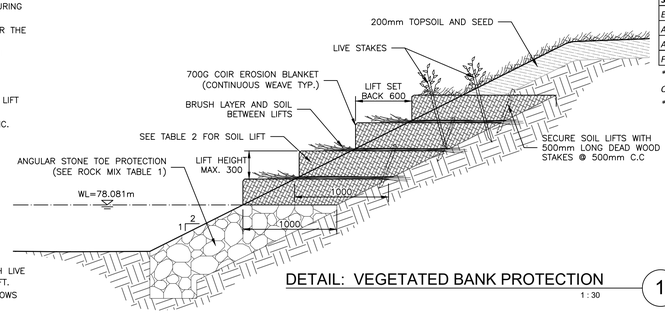
SOW AT 25KG/HA

AOC 4 - TREE REMOVALS

Tree ID #	*CommonName*	*Size (cm)*	
3	SUGAR MAPLE	27.5	

TREE REPLACEMENT - AOC 4

QTY	BOTANICAL NAME	COMMON NAME	CAL (MM)	ROOT	COMMENTS
1	*Acer saccharum*	SUGAR MAPLE	45	BALLED AND BURLAPPED	SINGLE LEADER, FULL BRANCHING



DETAIL: VEGETATED BANK PROTECTION

1 : 30

1

COIR BLANKET WRAPPED LIFTS:

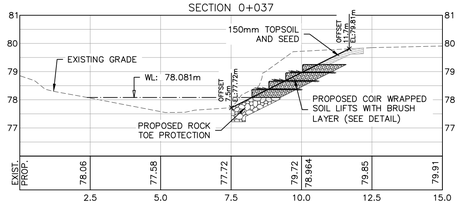
1. COIR BLANKET TO BE 700G EROSION CONTROL BLANKET, OR EQUIVALENT
2. THE SOIL BACKFILL USED FOR LIFTS AND TOPSOIL USED FOR LAYERING WITH THE LIVE BRANCHES SHALL BE FREE FROM ANY GRAVEL OR COBBLE MATERIAL.
3. SOIL BACKFILL SHALL BE COMPACTED SUCH THAT FUTURE SETTLING WILL BE KEPT TO A MINIMUM, YET NOT SUCH THAT THE UNDERLYING BRUSH IS DISPLACED OR DAMAGED.
4. THE TOP OF THE BACKFILL FOR THE FIRST LIFT SHALL BE SLOPED AT APPROXIMATELY 5% AWAY FROM THE STREAM.
5. PLACE A LAYER OF 2.0m WIDE COIR 700G EROSION CONTROL BLANKET, OR EQUIVALENT, ON TOP OF THE TOPSOIL AND LIVE BRANCHES SUCH THAT 0.75m OF THE BLANKET WILL BE BURIED BELOW THE NEXT SOIL LIFT. ALLOW THE REMAINING 1.25m OF BLANKET TO HANG OVER THE PRECEDING SOIL LIFT OR COIR FIBRE LOGS.
6. PLACE A SECOND LAYER OF 2.0m WIDE NON-WOVEN COIR MATTING OVER THE EROSION CONTROL BLANKET TO THE SAME LIMITS.
7. SOIL CAN BE COMPACTED BY STACKING A PIECE OF SAWN LUMBER BOARD EDGEWAYS UP TO THE LIFT HEIGHT SPECIFIED AND SECURING WITH WOODEN STAKES TO PROVIDED A RIGID BACKSTOP FOR COMPACTING SOIL LIFT.
8. PLACE SOIL BACKFILL UP TO THE LIFT HEIGHT SPECIFIED OF NO GREATER THAN 0.3m BEING CAREFUL NOT TO PUSH/PULL OR TEAR THE FABRIC PREVIOUSLY PLACED.
9. THE TOP OF THE SOIL BACKFILL SHALL BE FLAT WITHIN THE LIFT SETBACK DISTANCE. THE SOIL BACKFILL SHALL BE SLOPED AT AN APPROXIMATE 5% SLOPE AWAY FROM THE STREAM.
10. TOP DRESS THE SOIL LIFT WITH THE APPROVED SEED MIX (DRAWING C-500) FROM THE FACE OF THE SOIL LIFT BACK INTO THE FLOODPLAIN AT LEAST 1.2m.
11. REMOVE THE SAWN LUMBER AND WOODEN STAKES FROM THE FACE OF THE SOIL LIFT AND WRAP THE FACE AND TOP OF THE SOIL LIFT USING THE WOVEN AND NON-WOVEN COIR MATTING HANGING OVER THE PREVIOUS LIFT/COIR FIBRE LIFTS.
12. THE EROSION CONTROL FABRIC SHALL BE PULLED AS TIGHT AS POSSIBLE WITHOUT TEARING OR EXCESSIVELY DISTORTING THE FABRIC.

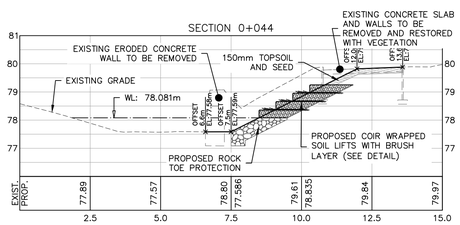
LIVE STAKES AND BRUSH LAYER

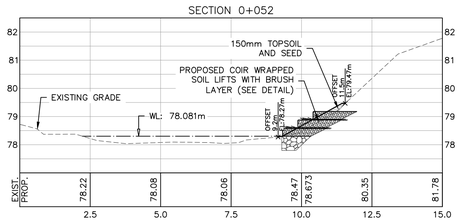
1. LIVE STAKES TO CONSIST OF DOGWOODS AND WILLOWS

LIVESTAKES/BRUSH LAYER MIX		
COMMON NAME	SCIENTIFIC NAME	% OF MIX
RED OSIER DOGWOOD	CORNUS SERICEA	10%
PUSSY WILLOW	SALIX DISCOLOR	30%
SANDBAR WILLOW	SALIX EXIGUA	30%
SLENDER WILLOW	SALIX PETIOLARIS	30%

2. PLACE A LAYER OF TOPSOIL AND LIVE BRANCHES ON TOP OF EACH SOIL LIFT SUCH THAT APPROXIMATELY 0.15 TO 0.30m OF EACH LIVE BRANCH WILL BE EXPOSED AND THE REMAINDER (0.60 TO 1.20m) OF EACH LIVE BRANCH WILL BE COVERED BY THE NEXT SOIL LIFT.
3. LIVE STAKES TO BE A MINIMUM 0.75m LONG AND EMBEDDED INTO THE SOIL LIFT MIN. 0.6m. LIVE STAKES TO BE SPACED IN 2 ROWS 0.5m ON CENTRE.







SECTION

SCALE 1:100

NO.	DATE	DESCRIPTION	APP'D.
2.	2022/05/11	ISSUED FOR APPROVAL	MP
1.	2022/01/25	ISSUED FOR APPROVAL	MP

REVISIONS

CITY OF Burlington

ecosystem recovery inc. PROFESSIONAL ENGINEERS

EROSION CONTROL MITIGATION GRINDSTONE CREEK

UNSWORTH AVE TO SUMACH DR

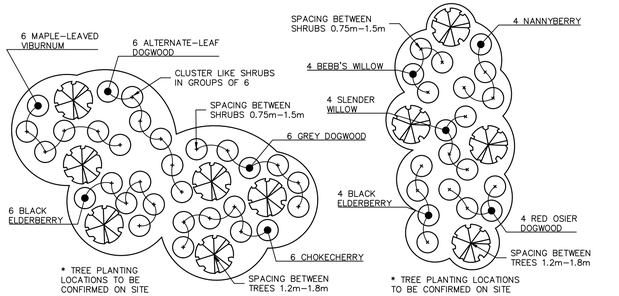
AREA OF CONCERN 4
PROPOSED PLAN
STA: 0+020 TO 0+080

LICENSED PROFESSIONAL ENGINEER J. L. PRINCE 100115049 MAY 10/22 PROVINCE OF ONTARIO

DRN: KV	DSN: MP	CHK/APP: MP
DATE: 2022/05/11		DRAWING NUMBER
SCALE: 1:100		C204
PRO. No: 2116		

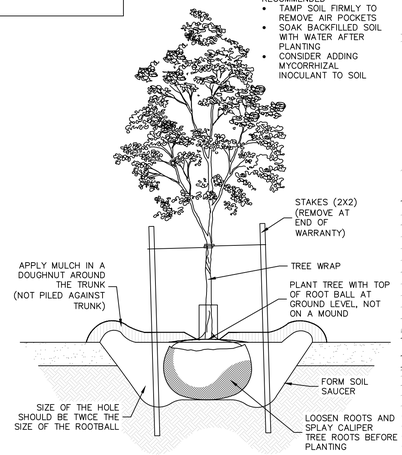
CELL A - PLANTING AREA (11 CELLS)							
TREES	QTY	BOTANICAL NAME	COMMON NAME	CAL (MM)	HT (cm)	ROOT	COMMENTS
DECIDUOUS	13	*Populus tremuloides*	TREMBLING ASPEN	45		BALLED AND BURLAPPED	SINGLE LEADER, FULL BRANCHING
	13	*Quercus rubra*	RED OAK	45		BALLED AND BURLAPPED	SINGLE LEADER, FULL BRANCHING
	14	*Acer saccharum*	SUGAR MAPLE	45		BALLED AND BURLAPPED	SINGLE LEADER, FULL BRANCHING
CONIFEROUS	13	*Thuja Occidentalis*	WHITE CEDAR		150	BALLED AND BURLAPPED	
	13	*Tsuga Occidentalis*	EASTERN HEMLOCK		150	BALLED AND BURLAPPED	
SHRUBS	66	*Prunus virginiana*	CHOKECHERRY	60	1 GAL.	MIN. 3 STEMS	
	66	*Cornus racemosa*	GREY DOGWOOD	60	3 GAL.	MIN. 3 STEMS	
	66	*Sambucus canadensis*	BLACK ELDERBERRY	60	3 GAL.	MIN. 3 STEMS	
	66	*Viburnum acerifolium*	MAPLE-LEAVED VIBURNUM	60	3 GAL.	MIN. 3 STEMS	
	66	*Cornus alternifolia*	ALTERNATE-LEAF DOGWOOD	60	3 GAL.	MIN. 3 STEMS	

CELL B - PLANTING AREA (4 CELLS)							
	QTY	BOTANICAL NAME	COMMON NAME	CAL (MM)	HT (cm)	ROOT	COMMENTS
TREES	3	*Salix nigra*	BLACK WILLOW	45		BALLED AND BURLAPPED	SINGLE LEADER, FULL BRANCHING
	3	*Populus balsamifera*	BALSUM POPLAS	45		BALLED AND BURLAPPED	SINGLE LEADER, FULL BRANCHING
	3	*Populus deltoides*	COTTONWOOD	45		BALLED AND BURLAPPED	SINGLE LEADER, FULL BRANCHING
	4	*Quercus macrocarpa*	BUR OAK	45		BALLED AND BURLAPPED	SINGLE LEADER, FULL BRANCHING
	3	*Acer saccharinum*	SILVER MAPLE	45		BALLED AND BURLAPPED	SINGLE LEADER, FULL BRANCHING
SHRUBS	16	*Cornus stolonifera*	RED OSIER DOGWOOD	60	3 GAL.	MIN. 3 STEMS	
	16	*Sambucus canadensis*	BLACK ELDERBERRY	60	3 GAL.	MIN. 3 STEMS	
	16	*Viburnum lentago*	NANNYBERRY	60	3 GAL.	SINGLE LEADER, FULL BRANCHING	
	16	*Salix petiolaris*	SLENDER WILLOW	60	3 GAL.	MIN. 3 STEMS	
	16	*Salix bebbiana*	BEBB'S WILLOW	60	3 GAL.	MIN. 3 STEMS	

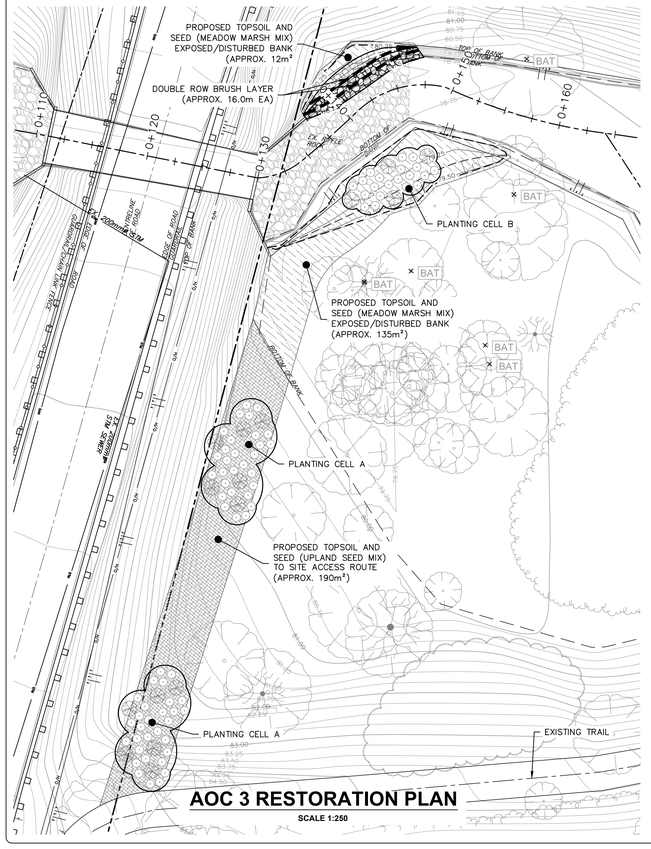


PLANTING CELL A - DRY
SCALE 1:100

PLANTING CELL B - FLOODPLAIN
SCALE 1:100



TREE PLANTING DETAIL
SCALE N.T.S.



AOC 3 RESTORATION PLAN
SCALE 1:250

SEED MIX TABLES

CONSERVATION HALTON UPLAND DRY MEADOW MIX		
SCIENTIFIC NAME	**COMMON NAME**	**% OF MIX**
Rudbeckia hirta	BLACK EYED SUSAN	15
Andropogon gerardii	BLUE BLUESTEM	30
Symphyotrichum cordifolius	BLUE WOOD ASTER	1
Solidago canadensis var. canadensis	CANADA GOLDENROD	2
Anemone canadensis	CANADA ANEMONE	1
Asclepias syriaca	COMMON MILKWEED	5
Oenothera biennis	EVENING PRIMROSE	2
Euthamia graminifolia	GRASS-LEAVED GOLDENROD	1
Schizachyrium scoparium	LITTLE BLUESTEM	20
Carex granularis	MEADOW/OPEN FILED SEDGE	12
Symphyotrichum novae-angliae	NEW ENGLAND ASTER	1
Clematis virginiana	VIRGINS BOWER	5
Monarda fistulosa var. fistulosa	WILD BERGAMOT	5

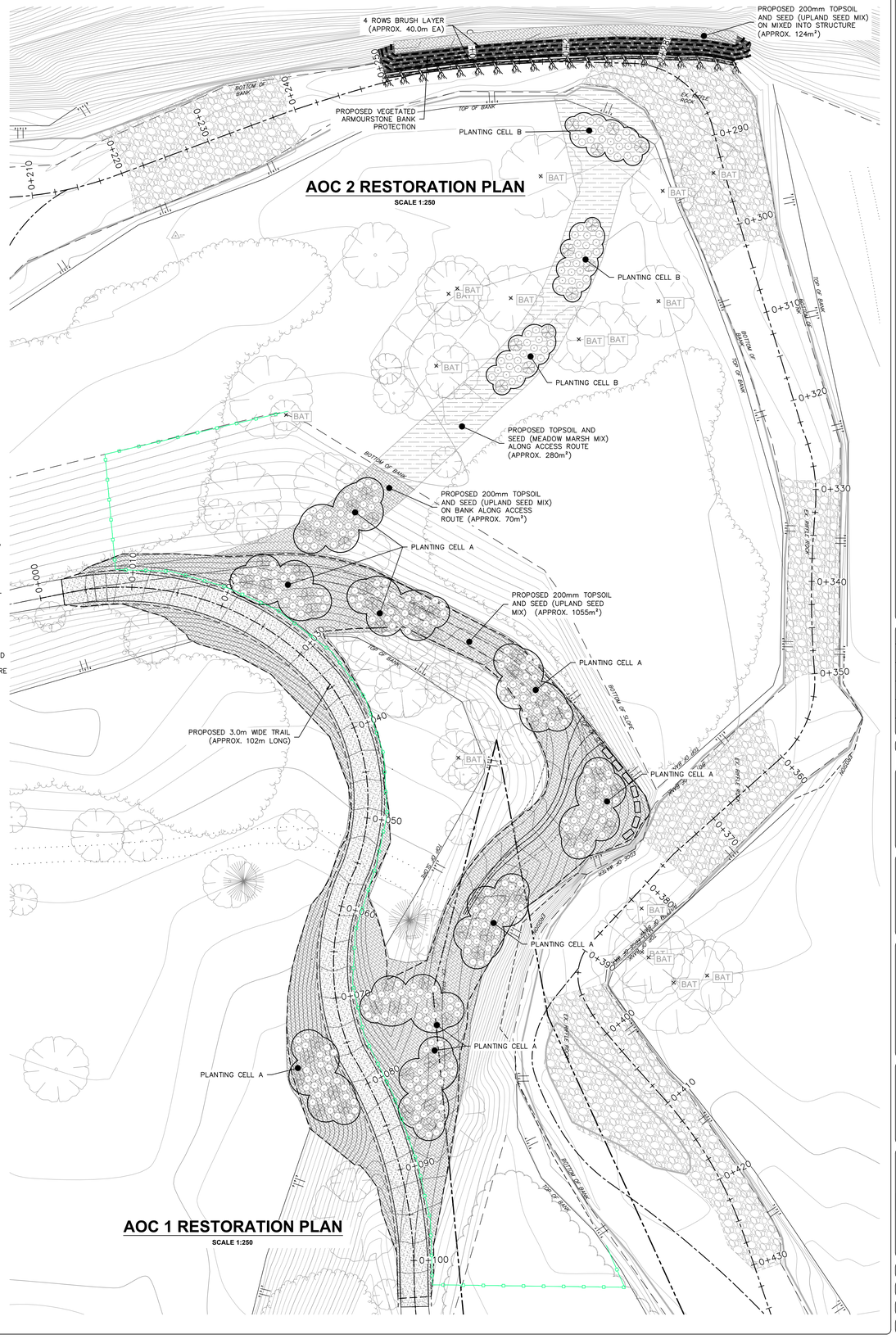
SOW AT 25KG/HA

CONSERVATION HALTON MEADOW MARSH MIX		
SCIENTIFIC NAME	**COMMON NAME**	**% OF MIX**
Carex bebbi	BEBBS SEGDE	1
Lobelia siphilitica	BLUE LOBELIA	1
Verbena hastata	BLUE VERVAIN	15
Eupatorium perfoliatum	BONESET	2
Scirpus atrovirens	DARK-GREEN BULRUSH	5
Carex vulpinoidea	FOX SEDGE	25
Euthamia graminifolia	GRASS-LEAVED GOLDENROD	1
Carex granularis	MEADOW/OPEN FILED SEDGE	10
Symphyotrichum puniceum	PURPLE STEMMED ASTER	1
Juncus effusus ssp. Solutus	SOFT RUSH	5
Eutrochium maculatum var. maculatu	SPOTTED JOE PYE WEED	2
Mimulus ringens	MONKEY FLOWER	1
Carex stipata	STALK GRAIN SEDGE	2
Glyceria grandis	TALL MANNA GRASS	2
Scirpus cyperinus	WOOLGRASS	2
Poa palustris	FOWL BLUEGRASS	25

SOW AT 25KG/HA

CONSERVATION HALTON NURSE CROP MIX (FALL) - 6824mm²		
SCIENTIFIC NAME	**COMMON NAME**	**% OF MIX**
Elymus canadensis	CANADA WILD RYE	35
Avena sativa	ANNUAL OATS	25
Agrostis stolonifera	CREEPING BENT GRASS	20
Festuca rubra	RED FESCUE	20

WATERING MAY BE REQUIRED TO PROMOTE SUCCESSFUL ESTABLISHMENT
*OR JULY)***
SOW AT 25KG/HA



AOC 2 RESTORATION PLAN
SCALE 1:250

AOC 1 RESTORATION PLAN
SCALE 1:250

LEGEND

RESTORATION PLANTINGS

- UPLAND DRY MEADOW MIX
- MEADOW MARSH MIX
- PLANTING CELL A
- PLANTING CELL B
- TEMPORARY SNOW FENCE

NO.	DATE	DESCRIPTION	APP'D.
2.	2022/05/11	ISSUED FOR APPROVAL	MP
1.	2022/01/25	ISSUED FOR APPROVAL	MP

REVISIONS

CITY OF Burlington

ecosystem recovery inc. PROFESSIONAL ENGINEERS

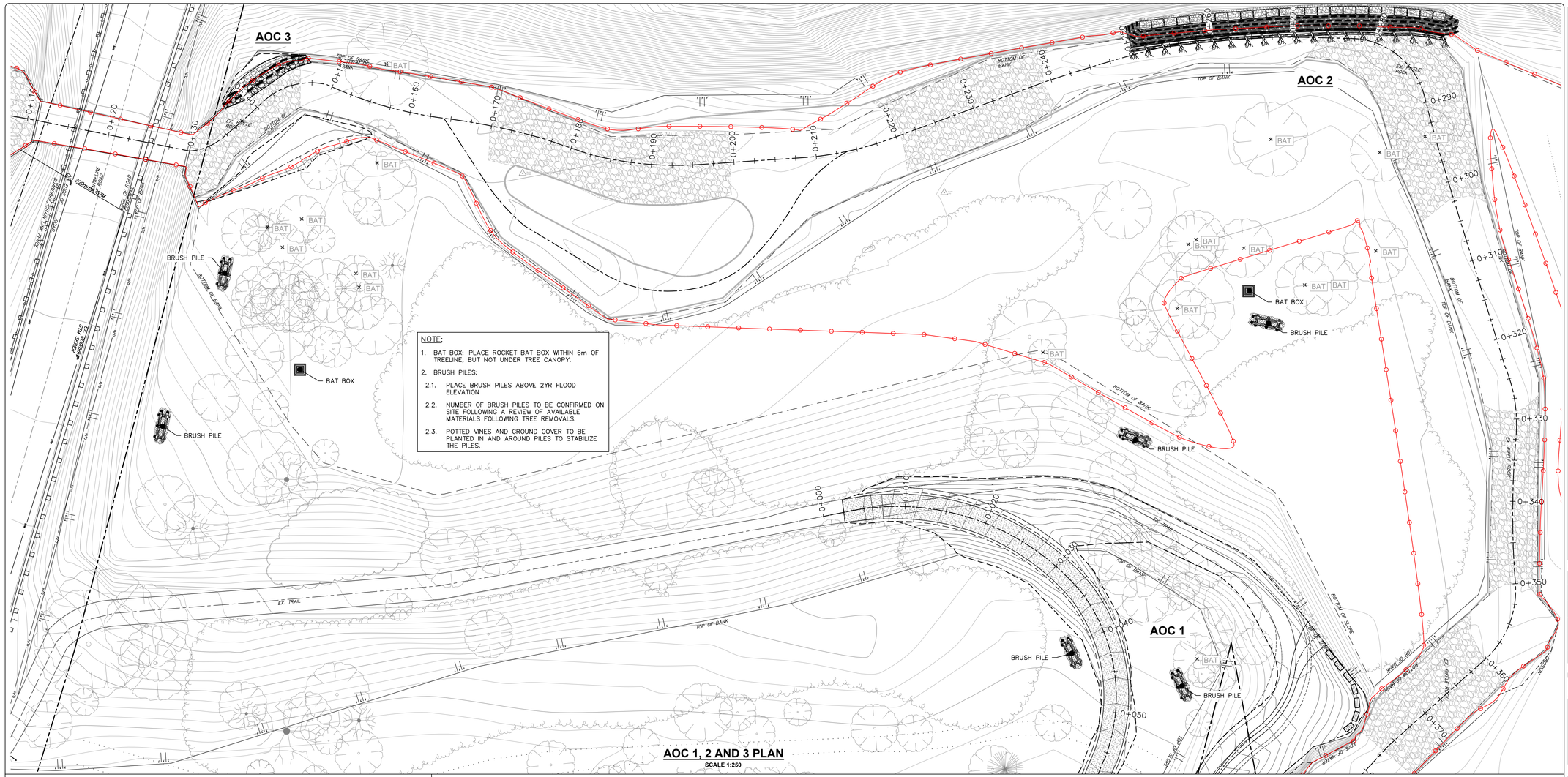
EROSION CONTROL MITIGATION GRINDSTONE CREEK

UNSWORTH AVE TO SUMACH DR

AOC 1, 2 AND 3 RESTORATION PLAN STA: 0+125 TO 0+440

LICENSED PROFESSIONAL ENGINEER J. PRINCE 100115049 May 10/22 PROVINCE OF ONTARIO

DRN: KV	DSN: MP	CHK/APP: MP
DATE: 2022/05/11		DRAWING NUMBER
SCALE: 1:250		C301
PRO. No: 2116		

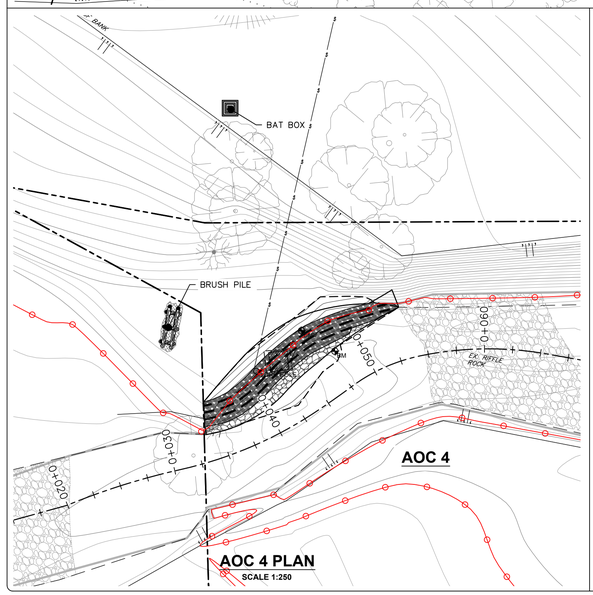


NOTE:

1. BAT BOX: PLACE ROCKET BAT BOX WITHIN 6m OF TREELINE, BUT NOT UNDER TREE CANOPY.
2. BRUSH PILES:
   - 2.1. PLACE BRUSH PILES ABOVE 2YR FLOOD ELEVATION
   - 2.2. NUMBER OF BRUSH PILES TO BE CONFIRMED ON SITE FOLLOWING A REVIEW OF AVAILABLE MATERIALS FOLLOWING TREE REMOVALS.
   - 2.3. POTTED VINES AND GROUND COVER TO BE PLANTED IN AND AROUND PILES TO STABILIZE THE PILES.

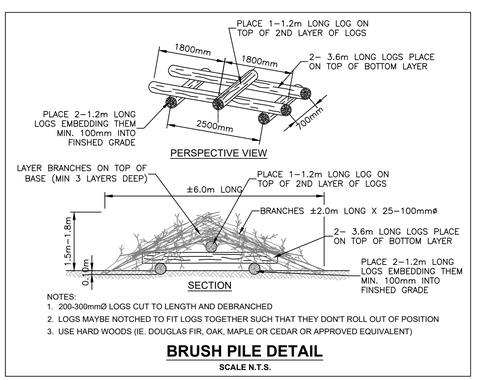
AOC 1, 2 AND 3 PLAN

SCALE 1:250



AOC 4 PLAN

SCALE 1:250

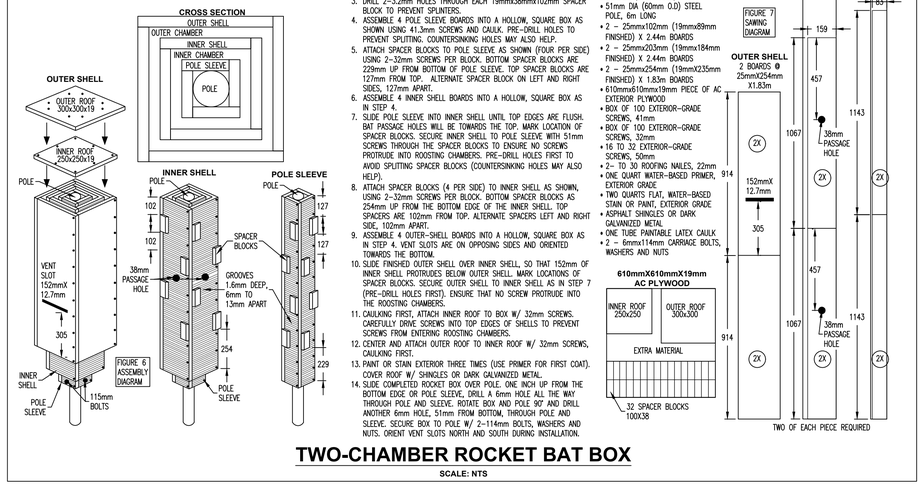


NOTES:

1. 200-300mmØ LOGS CUT TO LENGTH AND DEBRANCHED
2. LOGS MAYBE NOTCHED TO FIT LOGS TOGETHER SUCH THAT THEY DON'T ROLL OUT OF POSITION
3. USE HARD WOODS (IE. DOUGLAS FIR, OAK, MAPLE OR CEDAR OR APPROVED EQUIVALENT)

BRUSH PILE DETAIL

SCALE N.T.S.



CONSTRUCTION:

1. MEASURE, MARK AND CUT OUT PARTS ACCORDING TO FIGURE 7. DIMENSIONS MUST BE EXACT FOR CORRECT FIT. CUT OUT TWO VENTS SLOTS AND FOUR PASSAGE HOLES AS SHOWN.
2. CUT 1.6mm – DEEP HORIZONTAL GROOVES 6.3mm TO 12.7mm APART ON ONE SIDE OF ALL 914mm AND 1143mm BOARDS AND ON BOTH SIDES OF ALL 1067mm BOARDS. SAND TO REMOVE SPLINTERS.
3. DRILL 2–3.2mm HOLES THROUGH EACH 19mmx38mmx102mm SPACER BLOCK TO PREVENT SPLINTERS.
4. ASSEMBLE 4 POLE SLEEVE BOARDS INTO A HOLLOW, SQUARE BOX AS SHOWN USING 41.3mm SCREWS AND CAULK. PRE–DRILL HOLES TO PREVENT SPLITTING. COUNTERSINKING HOLES MAY ALSO HELP.
5. ATTACH SPACER BLOCKS TO POLE SLEEVE AS SHOWN (FOUR PER SIDE) USING 2–32mm SCREWS PER BLOCK. BOTTOM SPACER BLOCKS ARE 229mm UP FROM BOTTOM OF POLE SLEEVE. TOP SPACER BLOCKS ARE 127mm FROM TOP. ALTERNATE SPACER BLOCK ON LEFT AND RIGHT SIDES, 127mm APART.
6. ASSEMBLE 4 INNER SHELL BOARDS INTO A HOLLOW, SQUARE BOX AS IN STEP 4.
7. SLIDE POLE SLEEVE INTO INNER SHELL UNTIL TOP EDGES ARE FLUSH. BAT PASSAGE HOLES WILL BE TOWARDS THE TOP. MARK LOCATION OF SPACER BLOCKS. SECURE INNER SHELL TO POLE SLEEVE WITH 51mm SCREWS THROUGH THE SPACER BLOCKS TO ENSURE NO SCREWS PROTRUDE INTO ROOSTING CHAMBERS. PRE–DRILL HOLES FIRST TO AVOID SPLITING SPACER BLOCKS (COUNTERSINKING HOLES MAY ALSO HELP).
8. ATTACH SPACER BLOCKS (4 PER SIDE) TO INNER SHELL AS SHOWN, USING 2–32mm SCREWS PER BLOCK. BOTTOM SPACER BLOCKS AS 254mm UP FROM THE BOTTOM EDGE OF THE INNER SHELL. TOP SPACERS ARE 102mm FROM TOP. ALTERNATE SPACERS LEFT AND RIGHT SIDE, 102mm APART.
9. ASSEMBLE 4 OUTER–SHELL BOARDS INTO A HOLLOW, SQUARE BOX AS IN STEP 4. VENT SLOTS ARE ON OPPOSING SIDES AND ORIENTED TOWARDS THE BOTTOM.
10. SLIDE FINISHED OUTER SHELL OVER INNER SHELL, SO THAT 152mm OF INNER SHELL PROTRUDES BELOW OUTER SHELL. MARK LOCATIONS OF SPACER BLOCKS. SECURE OUTER SHELL TO INNER SHELL AS IN STEP 7 (PRE–DRILL HOLES FIRST). ENSURE THAT NO SCREW PROTRUDE INTO THE ROOSTING CHAMBERS.
11. CAULKING FIRST, ATTACH INNER ROOF TO BOX W/ 32mm SCREWS. CAREFULLY DRIVE SCREWS INTO TOP EDGES OF SHELLS TO PREVENT SCREWS FROM ENTERING ROOSTING CHAMBERS.
12. CENTER AND ATTACH OUTER ROOF TO INNER ROOF W/ 32mm SCREWS, CAULKING FIRST.
13. PAINT OR STAIN EXTERIOR THREE TIMES (USE PRIMER FOR FIRST COAT). COVER ROOF W/ SHINGLES OR DARK GALVANIZED METAL.
14. SLIDE COMPLETED ROCKET BOX OVER POLE. ONE INCH UP FROM THE BOTTOM EDGE OF POLE SLEEVE, DRILL A 6mm HOLE ALL THE WAY THROUGH POLE AND SLEEVE. ROTATE BOX AND POLE 90° AND DRILL ANOTHER 6mm HOLE, 51mm FROM BOTTOM, THROUGH POLE AND SLEEVE. SECURE BOX TO POLE W/ 2–114mm BOLTS, WASHERS AND NUTS. ORIENT VENT SLOTS NORTH AND SOUTH DURING INSTALLATION.

MATERIALS (ONE HOUSE)

- 51mm DIA (60mm O.D) STEEL POLE, 6m LONG
- 2 – 25mmx102mm (19mmx89mm FINISHED) X 2.44m BOARDS
- 2 – 25mmx203mm (19mmx184mm FINISHED) X 2.44m BOARDS
- 2 – 25mmx254mm (19mmX235mm FINISHED) X 1.83m BOARDS
- 610mmx610mmx19mm PIECE OF AC EXTERIOR PLYWOOD
- BOX OF 100 EXTERIOR–GRADE SCREWS, 32mm
- 16 TO 32 EXTERIOR–GRADE SCREWS, 50mm
- 2– TO 30 ROOFING NAILS, 22mm
- ONE QUART WATER–BASED PRIMER, EXTERIOR GRADE
- TWO QUARTS FLAT, WATER–BASED STAIN OR PAINT, EXTERIOR GRADE
- ASPHALT SHINGLES OR DARK GALVANIZED METAL
- ONE TUBE PAINTABLE LATEX CAULK
- 2 – 6mmx114mm CARRIAGE BOLTS, WASHERS AND NUTS

610mmX610mmX19mm AC PLYWOOD

TWO-CHAMBER ROCKET BAT BOX

SCALE: NTS

LEGEND

EXISTING

- CHANNEL CENTRELINE
- PROPERTY LIMIT
- EX. CONTOURS
- BOTTOM OF BANK
- TOP OF BANK
- WATER LINE
- EX. RIFFLE ROCK
- EX. TREE
- TREE/BRUSH LINE
- TREE REMOVAL
- IDENTIFIED BAT TREES

PROPOSED

- PR. CONTOURS
- ARMOUR STONE
- BRUSH LAYER
- WRAPPED SOIL/ROCK TREATMENT
- PR. ROCK
- LOG
- PR. 2YR FLOODLINE
- BRUSH PILE
- BAT BOX

NO.	DATE	DESCRIPTION	APP'D.
2.	2022/05/11	ISSUED FOR APPROVAL	MP
1.	2022/01/25	ISSUED FOR APPROVAL	MP

REVISIONS

CITY OF Burlington

ecosystem recovery inc. PROFESSIONAL ENGINEERS

EROSION CONTROL MITIGATION GRINDSTONE CREEK

UNSWORTH AVE TO SUMACH DR

HABITAT STRUCTURES PLAN AND DETAILS

DRN: KV		DSN: MP	CHK/APP: MP
DATE:	2022/05/11	DRAWING NUMBER	
SCALE:	1:250	C401	
PRO. No:	2116		