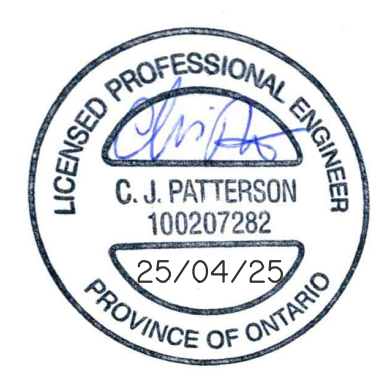
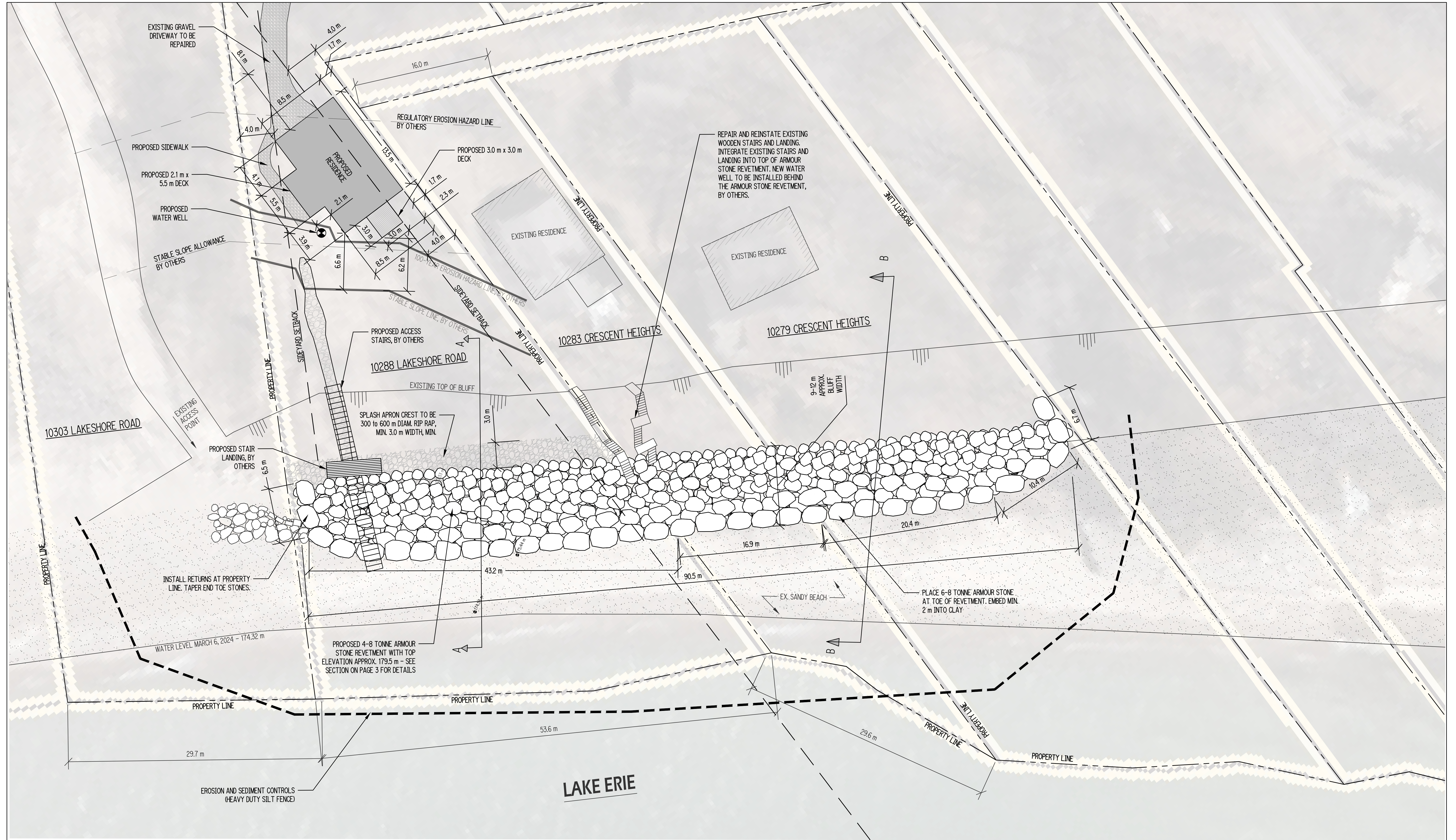


**EXISTING SITE PLAN**  
SCALE: 1/16" = 1'-0"

NOTES:  
ALL PROPERTY LINES APPROXIMATE - OBTAINED FROM NIAGARA NAVIGATOR  
GEOCORTEX MAPPING  
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IMPORTED TO THE SITE AND NOT SOURCED ON SITE. NO SAND OR ROCKS ARE TO  
BE REMOVED FROM THE BEACH DURING CONSTRUCTION OF ANY PROPOSED SHORE  
PROTECTION WORKS UNLESS AUTHORIZED BY THE NPCA



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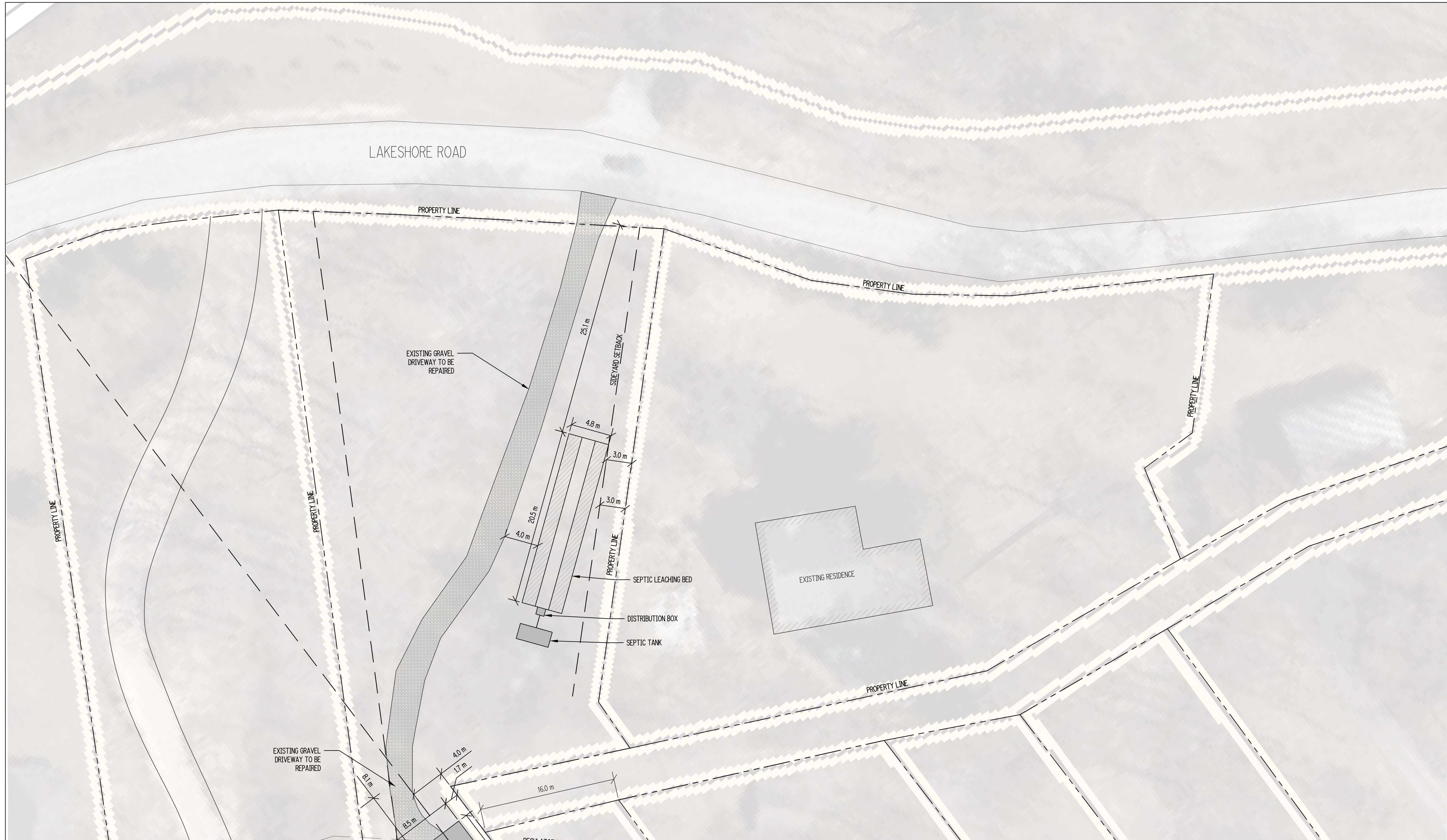


**PROPOSED SITE PLAN - 1**  
SCALE: 1/16" = 1'-0"

NOTES:  
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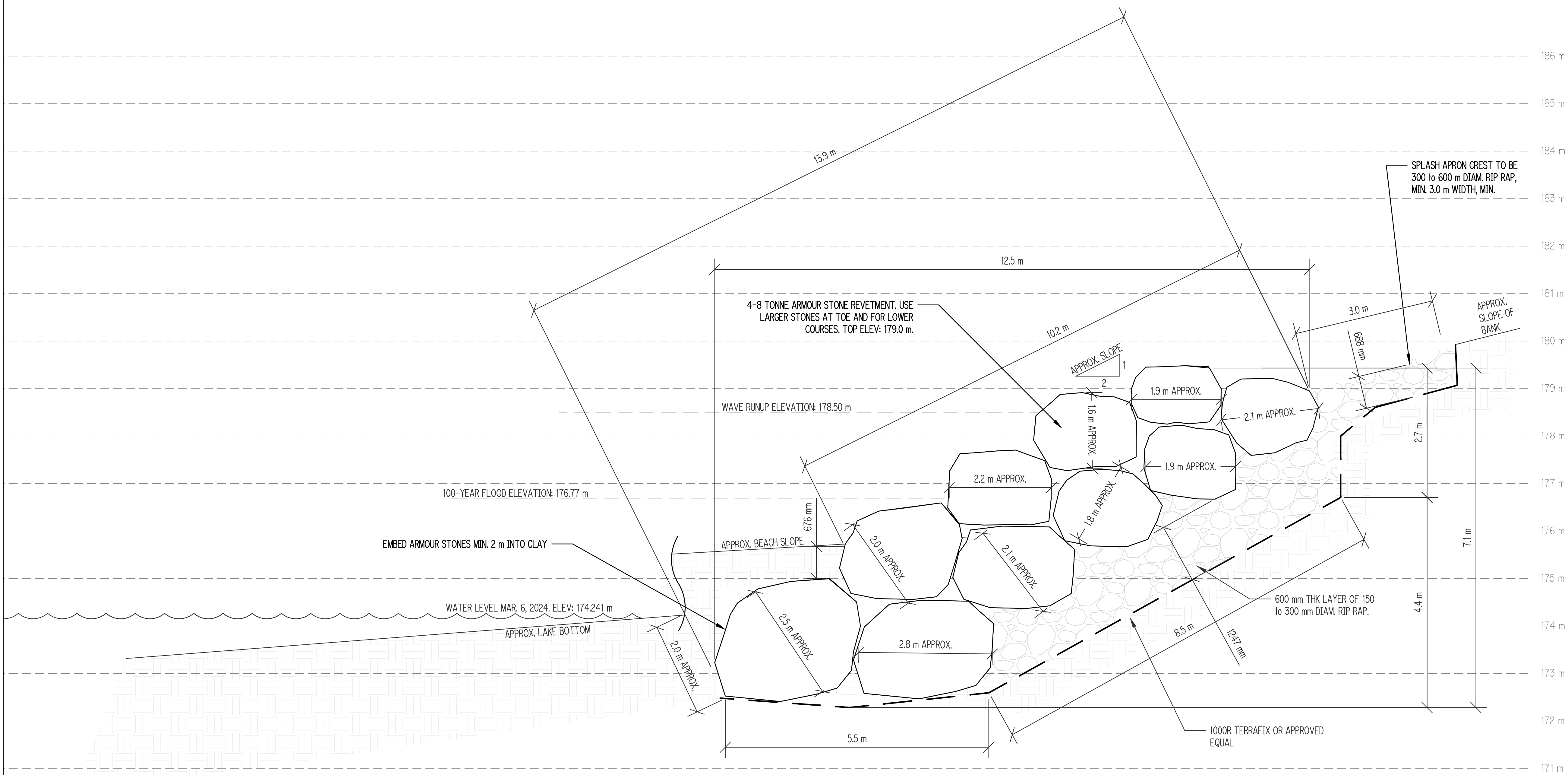
**PROPOSED SITE PLAN - 2**

SCALE: 1/16" = 1'-0"

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**PROPOSED SECTION A-A**  
SCALE: 1/4" = 1'-0"

**SHORELINE GENERAL NOTES**

- 1) THESE GENERAL NOTES REFER TO ALL PAGES
- 2) DO NOT SCALE DRAWINGS. FOR DIMENSIONS, CONFIRM ALL DIMENSIONS WITH ENGINEER.
- 3) SITE VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS AS REQUIRED, PRIOR TO COMMENCEMENT OF WORK.
- 4) ALL PROPERTY LINES ARE APPROXIMATE AND SHOULD NOT BE TREATED AS, OR USED IN PLACE OF, AN O.L.S. SURVEY.
- 5) ALL UNITS IN METRIC (mm) UNLESS SPECIFIED OTHERWISE.
- 6) PROTECTION WORKS TO BE INSTALLED BY QUEST MARINE OR APPROVED AND QUALIFIED MARINE CONTRACTOR.
- 7) NO CLIMATE CHANGE MODELING OR CALCULATIONS HAVE BEEN INCLUDED AS PART OF THIS DESIGN. THE ENGINEER AND CONTRACTOR ARE NOT RESPONSIBLE FOR CONDITIONS DUE TO CLIMATE CHANGE.
- 8) UNFORESEEN WAVE OVERTOPPING DUE TO INCREASED CLIMATE CONDITIONS ARE NOT INCLUDED IN THIS DESIGN AND THIS DESIGN IS NOT RESPONSIBLE TO PROTECT FROM FORCE MAJEURE. IN ADDITION, THE ENGINEER AND CONTRACTOR ARE NOT RESPONSIBLE FOR ANY DAMAGES ABOVE AND BEYOND DESIGN GUIDELINES SET OUT IN THESE DRAWINGS.
- 9) ALL SHOREWALLS REQUIRE CONTINUAL MAINTENANCE. ENGINEER AND CONTRACTOR ARE NOT RESPONSIBLE FOR DAMAGES DUE TO DELINQUENT AND/OR NEGLIGENT MAINTENANCE. CONTINUAL MAINTENANCE ON SHOREWALLS ARE SUGGESTED EVERY 2-3 YEARS, MINIMUM.
- 10) THESE DRAWINGS ARE FOR PERMIT AND CONTRACT ONLY. NOT FOR CONSTRUCTION.
- 11) ANY AND ALL RETURN/DRAINAGE WALLS FOR PROTECTION ARE MINIMUM REQUIRED PROTECTION ONLY.
- 12) ENGINEER AND CONTRACTOR NOT RESPONSIBLE FOR UNFAVOURABLE SOIL OR LAKEBED CONDITIONS.
- 13) ENGINEER AND CONTRACTOR NOT RESPONSIBLE FOR FAULTY WORK DONE BY PREVIOUS CONTRACTOR AT PROJECT ADDRESS.
- 14) SURVEY ELEVATIONS FROM GOVERNMENT OF CANADA TIDAL OBSERVATIONS STATION USING CVD28. ALL SURVEY POINTS ARE EXISTING EXCEPT THOSE OCCURRING ON PROPOSED WORK. THIS NOTE APPLIES TO ALL ELEVATIONS ON EVERY SHEET ENCLOSED WITHIN THIS DRAWING PACKAGE.
- 15) THE NATURAL COASTAL PROCESSES OF THE SUBJECT COASTAL REACH HAVE BEEN REVIEWED FOR POTENTIAL IMPACT FROM PROPOSED SHORELINE PROTECTION.

**EROSION AND SEDIMENT CONTROL**

- 1) ALL ACTIVITIES, INCLUDING MAINTENANCE PROCEDURE SHALL BE CONTROLLED TO PREVENT THE ENTRY OF PETROLEUM PRODUCTS, DEBRIS, RUBBLE, CONCRETE OR OTHER DELETERIOUS SUBSTANCES INTO WATER. VEHICULAR MAINTENANCE SHALL BE CONDUCTED 30 M FROM THE WATER.
- 2) ANY OPERATION THAT CREATES DUST, SUCH AS STONE CUTTING, CONCRETE CUTTING, SHALL BE CARRIED OUT AWAY FROM THE WATER.
- 3) MAINTAIN TEMPORARY EROSION CONTROL AND POLLUTION CONTROL FEATURES INSTALLED UNDER THIS CONTRACT. EROSION AND SEDIMENT CONTROL METHODS ARE TO BE CONTINUOUSLY EVALUATED; AND UPGRADES ARE TO BE IMPLEMENTED, WHEN NECESSARY.
- 4) ALL TEMPORARY OIL OR DIRT STOCKPILES ARE TO BE PROVIDED WITH NECESSARY SEDIMENT AND EROSION CONTROL FEATURES, INCLUDING SEEDING IF ANTICIPATED TO BE STORED MORE THAN ONE MONTH.

**STONES**

- 1) CLEAR STONE TO MEET OPSS 1004 - MATERIAL SPECIFICATION FOR AGGREGATES - MISCELLANEOUS, GRANULAR A TO MEET OPSS 1010 - AGGREGATES, BASE, SUBBASE, SELECT SUBGRADE AND BACKFILL MATERIAL.
- 2) ALL GABION AND ALL RIP-RAP TO BE QUARRY STONE OF A CLEAN, RESILIENT, CRACK-FREE, DEFECT-FREE NATURE. SPECIFIC GRAVITY TO BE 2.65 (2.50 MIN) GRADATION REQUIREMENTS AND MATERIAL CHARACTERISTICS TO MEET OPSS 1004. ANY DISPUTE REGARDING THE MATERIAL GRADATION OR CHARACTERISTICS WILL BE RECTIFIED AT THE COST OF THE CONTRACTOR. ALL GABION, RIP RAP, AND ROCK PROTECTION SHALL BE PRODUCED FROM CRUSHED OR FRACTURED BEDROCK FRAGMENTS W/ 100% FRAGMENTED FACES, OR COBBLES/BOULDERS OF AT LEAST 300 mm DIAMETER. THEY SHALL NOT DETERIORATE WHEN EXPOSED TO AIR OR WATER AND SHALL BE RESISTANT TO CYCLES OF WETTING, FREEZING, THAWING, AND DRYING.
- 3) ALL ARMOR STONE TO BE QUARRY STONE OF A CLEAN, RESILIENT, CRACK-FREE, DEFECT-FREE NATURE. STONES TO BE CUT WITH ROUGH ANGULAR EDGES. SPECIFIC GRAVITY TO BE 2.65 (2.5 MIN), SMALLEST DIMENSION TO BE MIN. 65% OF LARGEST DIMENSION.
- 4) ALL CUT SLABS TO BE QUARRY LIMESTONE (OR APPROVED EQUAL) OF CLEAN, RESILIENT, CRACK-FREE, DEFECT-FREE NATURE. TOP SURFACE SHOULD BE SLIP-FREE THROUGH SANDBLASTING (OR APPROVED EQUAL) AND SIZES SHALL MATCH THE DRAWINGS WITHIN +/- 25mm. SPECIFIC GRAVITY TO BE 2.65 (2.5 MIN).

**STRUCTURAL STEEL**

- 1) STEEL SHEET PILES TO BE IN ACCORDANCE WITH CAN3-G40.21-M21 GRADE 350W.
- 2) STEEL TIE RODS TO BE IN ACCORDANCE WITH CAN3-G40.21-M81 AND HAVE UPSET ROOT ENDS WITH 25% EXCESS ROOT AREA OVER GROSS AREA OF TIE ROD. SLEEVE NUTS TO HAVE CAPACITY IN EXCESS OF TIE ROD.
- 3) HEXAGON NUTS, BOLTS, AND WASHERS TO BE IN ACCORDANCE WITH ASTM A307-82a.
- 4) STRUCTURAL STEEL SHALL MEET CSA G40.20/G40.21, GRADE 350W.

- 5) BOLT THREADS SHALL BE EXCLUDED FROM THE SHEAR ZONE.
- 6) WELDING SHALL BE IN ACCORDANCE WITH CSA W59-M.
- 7) WELDING PROCEDURES TO BE IN ACCORDANCE WITH CSA W47.1 AND CSA W117.2. WELDING ELECTRODES TO BE TYPE 49XX, AND ALL WELDS TO BE 6mm CONTINUOUS FILLET UNLESS NOTED OTHERWISE.

**CONCRETE**

- 1) CONCRETE MATERIALS AND CONSTRUCTION METHODS TO BE IN ACCORDANCE WITH CSA A23.3-14.
- 2) CONCRETE ADMIXTURES ARE TO BE APPROVED BY THE ENGINEER, OTHER THAN AIR ENTRAINMENT.
- 3) AIR ENTRAINMENT TO BE NON-DETERGENT TYPE (CAN3-A266.1)
- 4) ALL REINFORCEMENT BARS ARE TO BE DEFORMED, WITH A YIELD STRENGTH OF 400 MPa, AND SHALL CONFORM TO CSA G30.12.
- 5) ALL REINFORCEMENT SPLICE LENGTHS ARE TO BE 30 TIMES THE BAR DIAMETER, MIN.
- 6) ALL CONCRETE SHALL MAINTAIN 75mm COVER UNLESS NOTED OTHERWISE, MIN.
- 7) LOCATE AND AVOID EXISTING FOOTING REINFORCEMENT. NO EXISTING REBAR TO BE CUT OR DAMAGED.
- 8) CONCRETE STRENGTH SHALL BE 32 MPa @ 28 DAYS, MIN.
- 9) CONCRETE EXPOSURE CLASS TO BE F-1, MIN.
- 10) CONCRETE SLUMP SHALL BE 75 +/- 20 mm.
- 11) MAXIMUM AGGREGATE SIZE TO BE 20mm.
- 12) AIR ENTRAINMENT TO BE 5-7%.
- 13) ANY DEVIATION FROM THESE OUTLINES REQUIRE THE APPROVAL OF THE ENGINEER.

**SOILS**

- 1) NEW ARMOUR STONES MUST BE EMBEDDED INTO STIFF CLAY OR PLACED ON BEDROCK. ADDITIONAL STONES MAY BE REQUIRED TO MEET THESE CONDITIONS. CONSULT ENGINEER IF UNFAVOURABLE CONDITIONS ARE ENCOUNTERED. ALL PROPOSED WORKS TO BEAR ON UNDISTURBED SOILS.
- 2) THE BEARING CAPACITY OF ALL BEARING SOILS ASSUMED TO BE AT LEAST 190 kPa.
- 3) ANY NEW MATERIALS (SOILS, BACKFILL, ETC.) THAT SERVE AS STRUCTURAL ELEMENTS MUST REACH A MINIMUM IN PLACE DENSITY OF 98% OF THE STANDARD PROCTOR VALUE.
- 4) IF ANY AREAS OF SOIL OR BLUFF ARE DISTURBED AS A RESULT OF THESE WORKS, PLEASE INSTALL NATIVE SEED MIX BEST SUITED FOR DUNES. APPLY TO ALL DISTURBED AREAS AND INSTALL EROSION CONTROL BLANKET PRIOR TO INSTALLATION TO STABILIZED EXPOSED SOILS.

**MISCELLANEOUS**

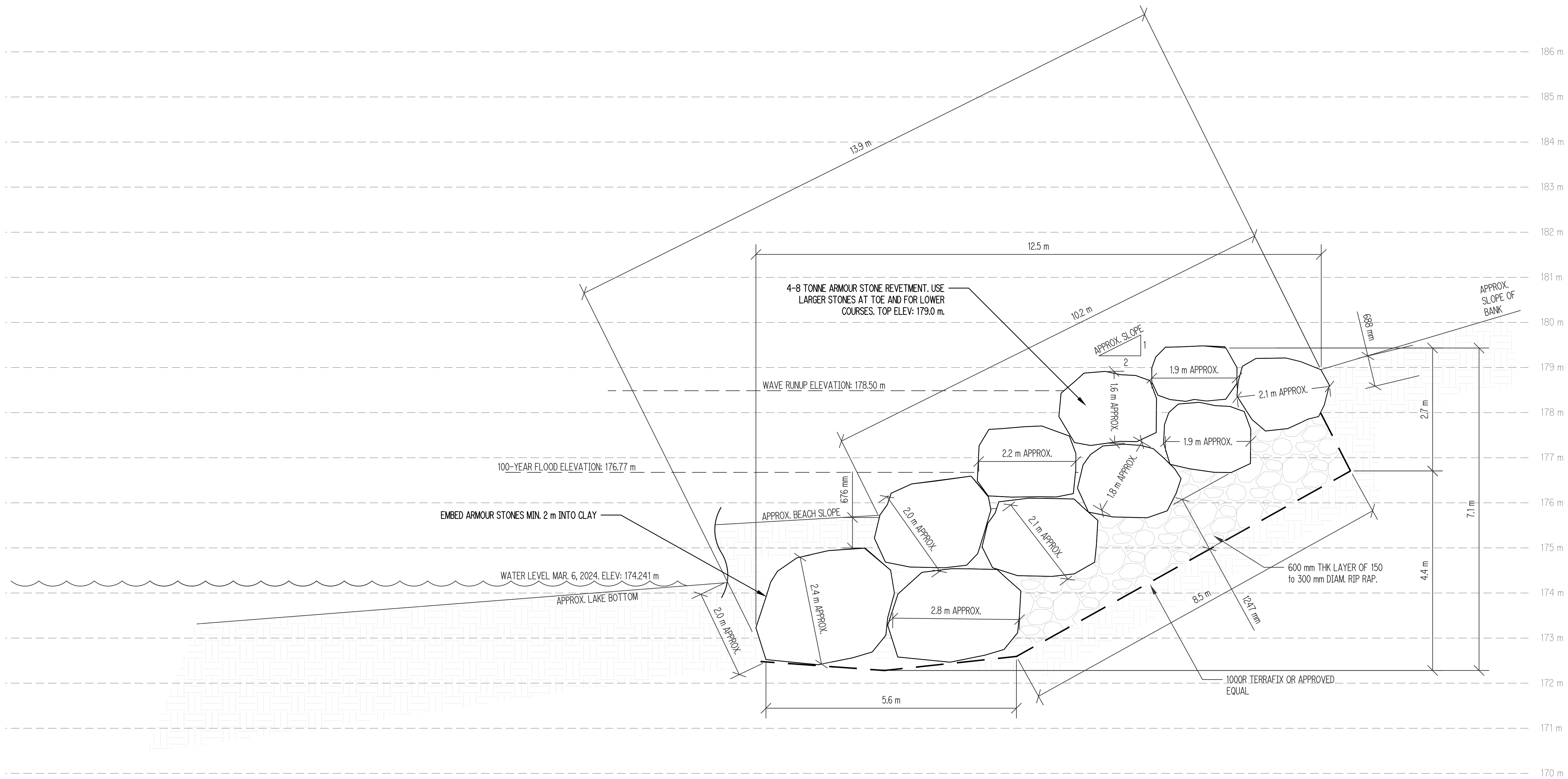
- 1) ALL REBAR EPOXY TO BE SIMPSON STRONG TIE AT-XP, DEWALT AC108+ GOLD OR APPROVED EQUIVALENT.
- 2) ALL EMBEDDED REBAR TO USE 45 DEGREE BEVELED END TO PREVENT DE-THREADING.
- 3) ALL HARDWARE IN CONTACT WITH PRESSURE TREATED WOOD TO BE GALVANIZED OR STAINLESS STEEL.
- 4) GROUT TO BE APPROVED NON-SHRINK PRE-MIXED DRY-PACK GROUT WITH A MINIMUM COMPRESSIVE STRENGTH OF 35 MPa @ 28 DAYS, OR APPROVED EQUIVALENT.
- 5) FILTER FABRIC TO BE TERRAFIX 420R FOR UP TO 600 mm RIP RAP, TERRAFIX 600R MIN. FOR ARMOR STONES THAT WEIGH LESS THAN 3 TONNES, TERRAFIX 1000R MIN. FOR ARMOR STONES THAT WEIGH OVER 3 TONNES. MATERIAL TO BE OVERLAPPED AS PER MANUFACTURER SPECIFICATIONS AND EXTEND UNDER FULL LENGTH OF REVETMENT (CREST TO TOE).

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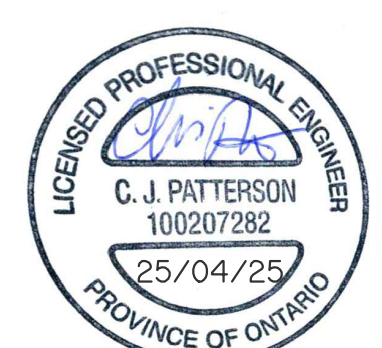


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**PROPOSED SECTION B-B**  
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