PROFILE VIEW (SS1):

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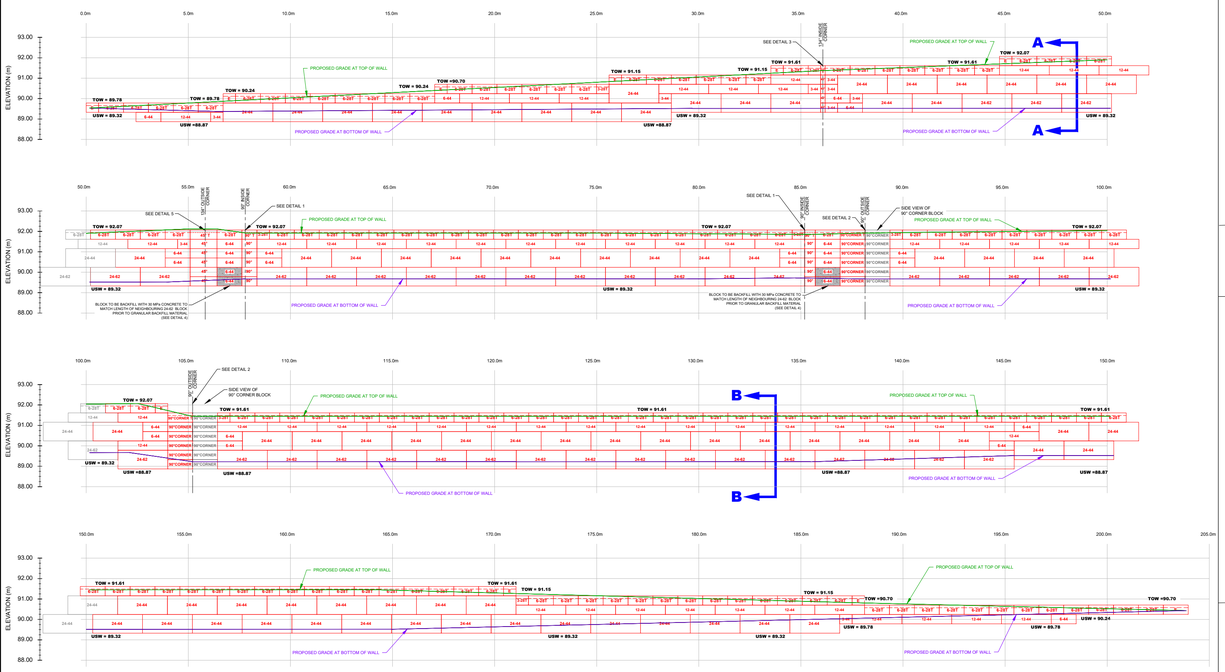

CROSS SECTION A-A:

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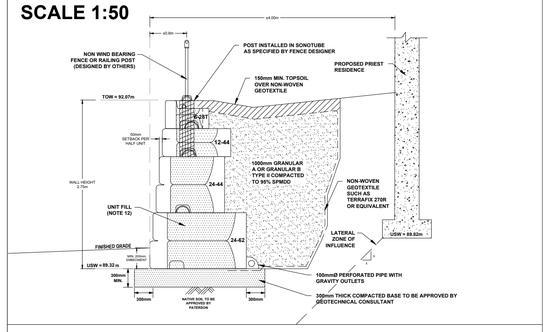

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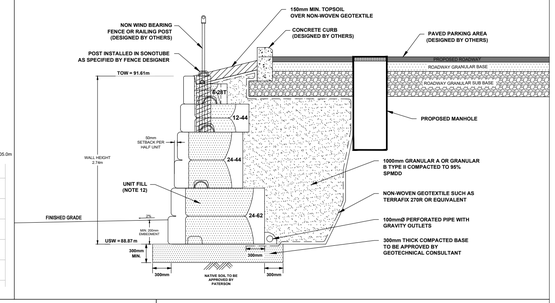


NOTES:

1. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR UTILITY CLEARANCE AND CONSTRUCTION SITE SAFETY. PATERSON GROUP SHALL NOT BE RESPONSIBLE FOR MEANS OR METHODS OF CONSTRUCTION OR FOR SAFETY OF WORKERS OR OF THE PUBLIC. THE LOCATION OF EXISTING OR PROPOSED UTILITIES MUST BE VERIFIED PRIOR TO CONSTRUCTION. IT IS RECOMMENDED THAT UTILITIES BE OFFSET FROM THE WALL TO PREVENT ADDITIONAL LOADING ON ANY CONDUIT UNLESS ACCOUNTED FOR IN DESIGN OF THE UTILITY, AS WELL AS TO ENSURE FUTURE ACCESS TO THE UTILITY WITHOUT UNDERMINING THE WALL.

2. THIS DESIGN IS BASED ON THE FOLLOWING SOIL PROPERTIES:

PROPERTY	RETAINED FILL	FOUNDATION MEDIUM
SOIL TYPE	GRANULAR B TYPE II	SILTY SAND
FRICTION ANGLE - ϕ	36°	30°
UNIT WEIGHT - γ	22 kN/m³	19 kN/m³
COHESION - C	0 kPa	0 kPa

MATERIAL PROPERTIES ARE BASED ON SITE EVALUATION BY PATERSON GROUP, SEISMIC LOADING WAS EVALUATED ACCORDING TO THE CHBDC 2015 CSA-S6:19, WITH A PEAK GROUND ACCELERATION VALUE OF 0.274. A SURCHARGE OF 17 kPa WAS CONSIDERED FOR THE DESIGN.

3. THE DESIGN ELEVATIONS USED WERE BASED ON A GRADING PLAN DRAWN BY P2 CONCEPTS., JOB No. 0399, DRAWING No. SP01, REV.8 (DATE: APR 09-2025). THE WALL BASE DESIGN ASSUMES A BEARING RESISTANCE AT SLS OF 100 kPa ON SILTY SAND. PATERSON GROUP ENGINEER SHOULD OBSERVE THE BEARING CONDITIONS AND ADJUST THE THICKNESS OF THE GRANULAR BASE TO ACCOMMODATE THE SITE CONDITIONS, IF NECESSARY.

4. THE DESIGN HAS BEEN REVIEWED FOR THE STABILITY OF THE PRECAST MODULAR RETAINING WALL SYSTEM AND GLOBAL STABILITY WITH A FACTOR OF SAFETY OF 1.5 FOR STATIC CONDITIONS AND 1.1 UNDER SEISMIC CONDITIONS. WALL GEOMETRY AND GRADE ELEVATIONS ABOVE AND BELOW THE WALL SHOULD CONFORM WITH THE GRADING PLAN PROVIDED HEREIN. IF ACTUAL SITE GRADES VARY SIGNIFICANTLY FROM THOSE SHOWN OR IF THE BACK SLOPE DOES NOT CONFORM, INSTALLATION SHALL NOT PROCEED UNTIL THE DESIGN IS VERIFIED OR MODIFIED IN THE APPLICABLE AREA.

5. HORIZONTAL LAYOUT DIMENSIONS ARE MEASURED ALONG THE FACE OF THE WALL.

6. PRECAST UNITS SHALL BE STONE STRONG RETAINING WALL UNITS MANUFACTURED UNDER LICENSE FROM STONE STRONG SYSTEMS.

7. THE WALL BASE SHALL CONSIST OF A MINIMUM OF 300mm OF OPSS GRANULAR A OR GRANULAR B TYPE II ON NATIVE SOIL. A MINIMUM OF 200mm OF GRANULAR MATERIAL CAN BE USED WHERE BEDROCK IS ENCOUNTERED ALONG THE BASE OF THE WALL. THE BASE SHALL BE COMPACTED AS TO PROVIDE A LEVEL AND HARD SURFACE ON WHICH TO PLACE THE FIRST COURSE OF UNITS. GRANULAR BASE MATERIAL SHALL BE COMPACTED TO A MINIMUM 98% OF STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD). THE BASE SHALL BE SMOOTHED TO ENSURE COMPLETE CONTACT OF RETAINING WALL UNITS WITH BASE. THE SURFACE OF GRANULAR BASE MAY BE DRESSED WITH FINER AGGREGATE TO AID LEVELING. ENSURE GRADATION OF DRESSING MATERIAL IS SUCH AS TO PRECLUDE LOSS OF FINES INTO BASE. THE THICKNESS OF DRESSING LAYER SHOULD NOT EXCEED 3 TIMES THE MAXIMUM PARTICLE SIZE USED. THE CONTRACTOR MAY SUBSTITUTE CONCRETE WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 20MPa AND AIR ENTRAINMENT FOR THE GRANULAR BASE MATERIAL.

8. INSTALL 100mm DIAMETER PERFORATED PIPE DRAIN WRAPPED IN GEOTEXTILE BEHIND HEEL OF WALL (OR ALTERNATIVELY UNDER LOWER COURSE OF WALL). PROVIDE CLEAR STONE SURROUNDING THE DRAIN TO PROTECT PIPE FROM CLOGGING AND DAMAGE. PROVIDE OUTLETS THROUGH WALL BASE LAYER AT LOW AREAS AND CORNERS. IF OUTLET NOT AVAILABLE, RAISE DRAINAGE PIPE TO FINISHED GRADE AND DRAIN AT THE ENDS OF THE WALL AND OUTLET THROUGH THE FACE OF THE WALL (WITH RODENT GUARD) NO FURTHER APART THAN 30m CENTRES.

9. PATERSON SHOULD REVIEW THE BEARING SURFACE DURING THE CONSTRUCTION. IF FILL MATERIAL IS ENCOUNTERED, A REVIEW OF THE BEARING CONDITIONS SHOULD BE CONDUCTED BY PATERSON PERSONNEL PRIOR TO THE PLACEMENT OF THE GRANULAR BASE. PROOF ROLLING OF THE BEARING SURFACE WILL ALSO BE REQUIRED UNDER THE SUPERVISION OF PATERSON PERSONNEL TO REHABILITATE THE BEARING MEDIUM AND TO ACHIEVE THE DESIGN BEARING CAPACITIES. A BIAXIAL GEOGRID SUCH AS TBX 2500 MAY BE REQUIRED TO BE PLACED ON THE BEARING SURFACE AND WRAP AROUND THE EDGES OF THE GRANULAR BASE. ALTERNATIVELY, FILL MATERIAL CAN BE REMOVED AND REPLACED WITH ENGINEERED FILL SUCH AS GRANULAR B TYPE II PLACED IN MIN. 300mm THICK LIFTS COMPACTED TO A MINIMUM 98% OF THE MATERIAL'S SPMDD EXTENDING TO THE UNDERLYING NATIVE SOIL. A REVIEW OF THE BEARING SURFACE SHOULD BE CONDUCTED ON SITE AT THE TIME OF EXCAVATION.

10. WALL IS DESIGNED FOR A MINIMUM OF 300mm TOE EMBEDMENT WITH A MINIMUM HORIZONTAL LEDGE OF 300mm BEYOND THE FACE AND REAR OF BASE BLOCK. WHERE GRANULAR BEDDING WILL NOT BE SUFFICIENT, THE USE OF CONCRETE BEDDING MAY BE REQUIRED. EXTRA PRECAUTIONS MUST BE TAKEN TO PROVIDE TOE EMBEDMENT IN AREAS WHERE BASE OF WALL STEPS.

11. THE RETAINING WALL IS A BATTERED WALL. ALIGNMENT OF THE BOTTOM WALL UNIT COURSE SHOULD BE PLANNED TO CONSIDER THAT A NOMINAL 50 mm AUTOMATIC SETBACK WILL OCCUR WITH EACH 0.45 m HIGH UNIT.

12. UNIT FILL SHALL BE A CLEAN, COURSE GRANULAR MATERIAL. UNIT FILL SHALL BE 19mmØ CLEAR STONE MEETING THE SATISFACTION OF THE GEOTECHNICAL ENGINEER. UNIT FILL SHALL FILL CAVITIES WITHIN AND BETWEEN THE UNITS AND MAY EXTEND BEHIND THE FACING UNITS FOR THE CONTRACTOR'S CONVENIENCE.

13. BACKFILL MATERIAL SHALL BE APPROVED BY THE SITE GEOTECHNICAL ENGINEER PRIOR TO USE AND SHOULD CONSIST OF OPSS GRANULAR B TYPE II BUFFER OF 1000mm (AS SHOWN) WIDTH. ALL FILL WITHIN A 1H:1V ZONE UP AND BACK FROM THE HEEL SHOULD ALSO BE COMPACTED. BACKFILL SHALL BE PLACED IN MAXIMUM 300 mm LOOSE LIFTS AND COMPACTED TO A MINIMUM OF 95% OF THE MATERIAL'S SPMDD. MOISTURE CONTENT SHOULD BE CONTROLLED AND MAINTAINED WITHIN -3 TO +4 PERCENT OF OPTIMUM. ONLY WHERE WALL PASSES DIRECTLY AGAINST A FENCE POST SHOULD CLEAR STONE BE USED.

14. ENSURE EACH COARSE IS COMPLETELY FILLED AND BACKFILL IS PLACED TO THE SAME LEVEL PRIOR TO PROCEEDING TO THE NEXT COURSE. ENSURE ADJACENT UNITS ARE IN CONTACT SO THAT UNIT FILL MAY NOT ESCAPE THROUGH THE JOINT BETWEEN UNITS. STRIPS OF GEOTEXTILE CAN BE PLACED ON THE INSIDE OF THE BLOCK AT THE JOINTS TO RETAIN FILL. GAPS GREATER THAN 6 mm BETWEEN UNITS (AT THE FACE) SHALL NOT BE ALLOWED. AT THE INTERSECTIONS WITH STRUCTURES, CUT UNITS TO OBTAIN A NEAT FIT. PULL BLOCK UNITS FORWARD TO ENGAGE THE ALIGNMENT LOOPS ON THE UNIT BELOW BEFORE INFILLING IN ALL CASES.

15. MAINTAIN TEMPORARY GRADES TO DIVERT SURFACE WATER AWAY FROM THE RETAINING WALL EXCAVATION. SLOPE FINAL BACKFILL TO PROVIDE POSITIVE DRAINAGE AND TO ELIMINATE PONDING.

16. IF WINTER CONSTRUCTION IS CONSIDERED, HEAT MUST BE MAINTAINED WHEN THE BASE IS EXPOSED. THE WALL BASE MUST BE COVERED WITH INSULATION TARPS TO MAINTAIN HEAT AND PROTECT THE BASE FROM POTENTIAL FROSTHEAVE. ONCE THE BASE IS BACKFILLED, THE TOP OF WALL MUST BE COVERED WITH INSULATION TARPS OVERNIGHT UNTIL THE WALL CONSTRUCTION IS COMPLETED.

17. THE GEOTECHNICAL CONSULTANT SHOULD BE NOTIFIED AT THE BEGINNING OF THE WALL CONSTRUCTION TO COMPLETE PERIODIC INSPECTIONS AND PROVIDE GEOTECHNICAL RECOMMENDATIONS AS THE WALL CONSTRUCTION PROGRESSES.

18. DURING THE CONSTRUCTION OF THE RETAINING WALL, THE CONTRACTOR MUST ENSURE THAT A SAFE SLOPE IS PROVIDED BEHIND THE RETAINING WALL. THE GEOTECHNICAL CONSULTANT SHOULD COMPLETE PERIODIC INSPECTIONS TO ENSURE A PROPER SLOPE IS PROVIDED AS PER THE SITE GEOTECHNICAL RECOMMENDATIONS.

19. ANY INADEQUATE PERFORMING SUBGRADE SHOULD BE SUB-EXCAVATED AND REPLACED WITH OPSS GRANULAR B TYPE II, COMPACTED TO 98% OF THE MATERIALS SPMDD.

20. ANY CUTTING OF BLOCKS TO SUIT SITE CONDITIONS OR WALL DESIGN WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. REMOVAL/CUTTING OF LIFTING LOOPS ON THE FINAL ROW OF BLOCKS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

21. LEVELING OF THE BASE COURSE BLOCKS IS CRITICAL TO PROPER CONSTRUCTION OF THE WALL. THE USE OF SHIMS TO LEVEL THE BLOCKS IS NOT PERMITTED UNLESS REVIEWED ON SITE PRIOR TO THEIR USE. SHOULD SHIMS BE APPROVED FOR USE BY PATERSON, THE SPECIFICATIONS AND DETAILS OF THE SHIMS USED TO SUPPORT THE BLOCKS SHOULD BE PROVIDED TO PATERSON'S DESIGNER TO CONFIRM THAT NO LONG-TERM ISSUES MAY OCCUR AS A RESULT OF THE USE OF NON-SUITABLE SHIMS IN RELATION TO THE LOAD EXPECTED FROM THE BLOCKS ABOVE.

22. THE DESIGN ASSUMES THE FOLLOWING: THE MAXIMUM GROUNDWATER ELEVATION IS BELOW THE BASE OF THE WALL, THERE WILL BE NO HYDROSTATIC PRESSURE WITHIN OR BEHIND THE WALL, THE SURROUNDING STRUCTURES WILL NOT EXERT ANY ADDITIONAL LOADING ON THE WALL, THERE ARE NO STRUCTURES (UTILITIES SUCH AS GAS/WATER MAINS, STORM SEWERS, ELECTRICAL/COMMUNICATIONS CABLES, ETC) TO BE PLACED WITHIN OR BELOW THE REINFORCED FILL DURING OR AFTER CONSTRUCTION. ALTERNATIVELY, SEE DETAILS.

23. THE CONTRACTOR SHOULD REFER TO THE INSTALLATION MANUAL PROVIDED FOR THE RETAINING WALL BLOCK TYPE PROVIDED HEREIN FOR ADDITIONAL DETAILS ON ACCEPTABLE INSTALLATION PRACTICES.

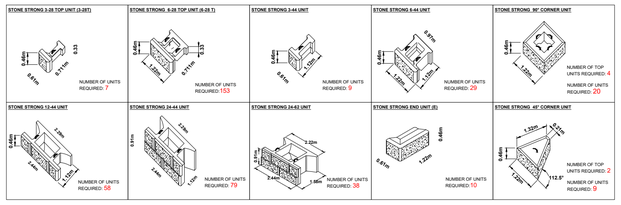
24. RETAINING WALL CONSTRUCTION SHOULD BEGIN AT LOW POINTS, CORNERS OF THE WALL, OR KNOWN PROVIDED WORKING POINTS TO ENSURE WALL DIMENSIONS ARE FOLLOWED. DIMENSIONS PROVIDED MIGHT REQUIRE FIELD CUTTING TO ADJUST FOR FIELD CONDITIONS BASED ON BLOCK TOLERANCES.

25. SETBACK FROM PROPERTY LINE SHOULD CONSIDER COURSE SETBACK (WALL BATTER) BASED ON THE POSITION OF THE LOWER COURSE. EACH SUBSEQUENT COURSE OF 0.9m WILL HAVE A SUPPLEMENTAL SETBACK OF 100mm.

24. THE FENCING DETAIL PROVIDED IN THE CURRENT DESIGN ASSUMES NON-WIND RESISTING FENCES. IF DIFFERENT FENCING SUCH AS PRIVACY, NOISE BARRIER AND/OR VEHICLE GUIDERAILS ARE PROPOSED, PATERSON MUST BE CONTACTED IMMEDIATELY PRIOR TO CONSTRUCTION AS ADDITIONAL RECOMMENDATIONS AND POSSIBLE CHANGES MAY APPLY TO THE SELECTED RETAINING WALL BLOCKS AT THESE SPECIFIC AREAS.

BLOCK COUNT:

N.T.S.



GRADING PLAN:

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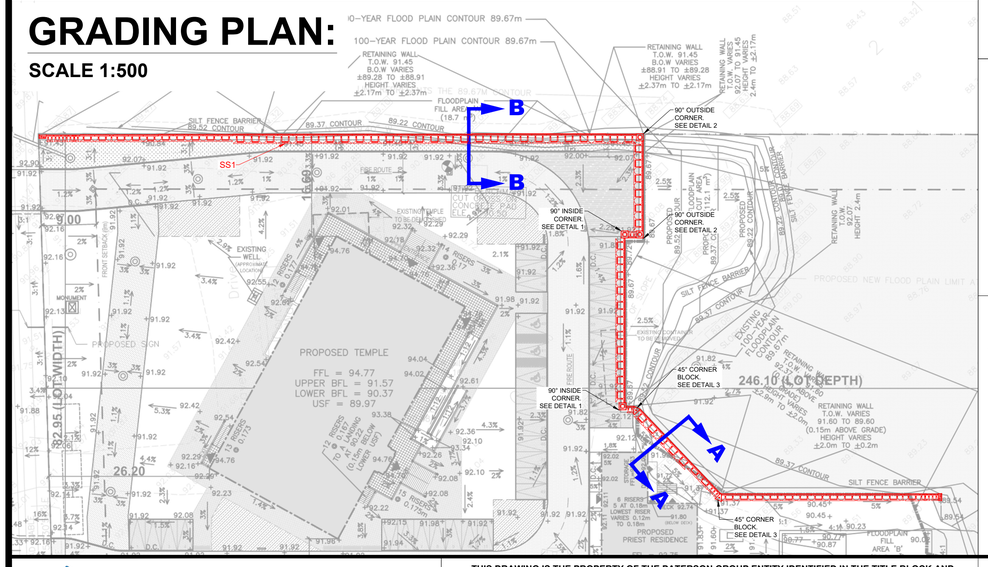

DETAIL 1:

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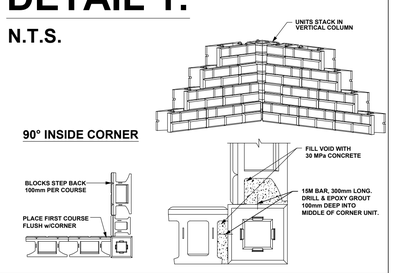

DETAIL 2:

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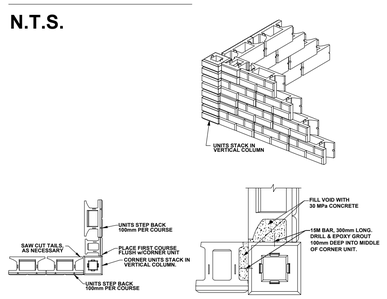

DETAIL 3:

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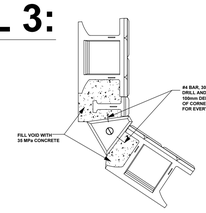

DETAIL 4:

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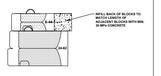

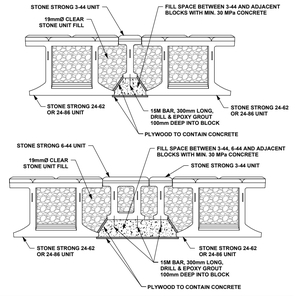

DETAIL 5:

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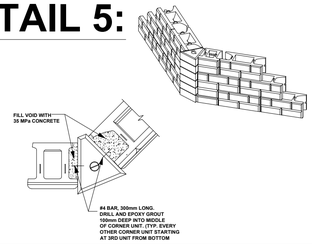

ADAM BROWN
MANAGER, DEVELOPMENT REVIEW - RURAL
PLANNING, REAL ESTATE & ECONOMIC DEVELOPMENT DEPARTMENT, CITY OF OTTAWA

APPROVED
By Adam Brown at 1:00 pm, Nov 24, 2025

ISSUED FOR REVIEW

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9 AURIGA DRIVE
OTTAWA, ON
K2E 7T9
TEL: (613) 226-7381

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NO.	REVISIONS	DATE	INITIAL
2	ADDRESS CORRECT AND STRUCTURAL STAMP ADDED	06/05/2025	SD
1	UPDATED GRADING PLAN	11/04/2025	SD

P-SQUARED CONCEPTS INC.

PROPOSED HINDU TEMPLE
2104 ROGER STEVENS DRIVE

NORTH GOWER, ONTARIO

Title:

STONE STRONG RETAINING WALL DESIGN SS1

Stamp: LICENSED PROFESSIONAL ENGINEER 06/05/2025 S. S. DENNIS 100519516 PROVINCE OF ONTARIO

Stamp: LICENSED PROFESSIONAL ENGINEER 06/05/2025 J. R. VILLENEUVE 100504344 PROVINCE OF ONTARIO

Scale: AS SHOWN	File No.: PG7429
Drawn by: MLB	Drawing No.: PG7429-1
Checked by: CT	
Approved by: SD	
Date: 01/2025	Revision No.: 2

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