



NOTES:

- GENERAL:**
 - THE DESIGN, FABRICATION AND INSTALLATION OF PILES SHALL BE GOVERNED BY THE FOLLOWING CODES, STANDARD AND REGULATIONS:
 - CSA G40.21 STRUCTURAL QUALITY STEEL. (A36 STEEL WITH 44KSI MINIMUM YIELD STRENGTH)
 - CSA W48-18 FILLER METALS AND ALLIED MATERIAL FOR METAL ARC WELDING. (AWS A5.28)
 - CSA W47.1 CERTIFICATION OF COMPANIES FOR FUSION WELDING OF STEEL STRUCTURES. (COMPANY WELDERS CERTIFICATION)
 - ASTM A252 WELDED AND SEAMLESS STEEL PIPE PILES.
 - ASTM A53 WELDED AND SEAMLESS STEEL PIPE.
 - PROVINCIAL HEALTH AND SAFETY REGULATIONS.
 - PILE SHAFT DIAMETER, WALL THICKNESS AND HELIX PLATE THICKNESS SHALL NOT BE LESS THAN MINIMUM SPECIFIED IN PILE SCHEDULE.
- MATERIALS:**
 - STEEL PIPE PILE MATERIALS SHALL CONFORM TO ASTM A500, GRADE B OR ASTM A252 (GRADE 3) MINIMUM.
 - HELICES SHALL CONFORM TO CSA-G40.21. GRADE 300W. (A36 STEEL WITH 44KSI MINIMUM YIELD STRENGTH)
 - HELICES SHALL BE WELDED TO THE PIPE SECTION USING A CONTINUOUS FILLET WELD ON BOTH SIDES OF THE HELIX-PIPE CONNECTION. HELICES SHALL HAVE MINIMUM THICKNESS AS SPECIFIED.
 - SACRIFICIAL STEEL THICKNESS HAS BEEN PROVIDED TO ACCOUNT FOR CORROSION. AS PER ONTARIO BUILDING CODE SECTION 4.2.3.10.
 - ALL WELDS SHALL BE MIN. 6MM FILLET WELDS, UNLESS NOTED OTHERWISE.
 - WELD TENSILE STRENGTH = 480MPA (69.6KSI).
 - WELDING ELECTRODES SHALL CONFORM TO CSA W48.1. (AWS CLASS E7018 AWS 5.1, 69.6KSI YIELD, 78KSI TENSILE STRENGTH)
- DESIGN:**
 - PILES CAPACITY GIVEN IN THIS SHEET SHOULD BE USED FOR THE PRELIMINARY GUIDE AND ESTIMATION ONLY.
 - PILE MUST BE INSTALLED BY A PROFESSIONAL CONTRACTOR.
 - PILES MUST HAVE SUFFICIENT EMBEDMENT DEPTH TO RESIST FROST ACTION.
- CONSTRUCTION:**
 - PILES SHALL BE INSTALLED OPEN ENDED; AND ENDS SHALL BE CUT AS 45 DEGREES.
 - PILES SHALL BE INSTALLED CONTINUOUSLY WITHOUT INTERRUPTION TO THE MINIMUM EMBEDMENT DEPTH AND MINIMUM INSTALLATION TORQUE INDICATED ON THE PILE SCHEDULE.
 - PILE INSTALLATION RECORDS SHALL BE DOCUMENTED BY A QUALIFIED PILING INSPECTOR REPRESENTING THE GEOTECHNICAL ENGINEER.
 - FABRICATION SHALL BE CARRIED OUT IN ACCORDANCE WITH STANDARD PRACTICES AND APPLICABLE CODES.
 - PILE EMBEDMENT DEPTHS INDICATED IN THE PILE SCHEDULE ARE HELIX DEPTH FROM THE EXISTING GRADE. STICKUP AND TIP PROJECTION LENGTHS SHALL BE ADDED TO THE PILE LENGTH AS REQUIRED.
 - INSTALL PILES VERTICALLY AND ENSURE THE RATE OF ADVANCEMENT INTO THE SOIL PER REVOLUTION IS EQUAL TO THE HELIX PITCH.
- TOLERANCES:**
 - PILE SHALL BE INSTALLED TO THE FOLLOWING TOLERANCES:
 - TOP OF PILE WITHIN 75MM OUT OF ALIGNMENT.
 - NOT MORE THAN 2% INCLINATION FROM VERTICAL.
 - ANY GAP AROUND INSTALLED PILE MUST BE BACKFILLED WITH CRUSHED STONES OR APPROVED EQUIVALENT.
 - WHERE PILES DEViate FROM ABOVE TOLERANCE AND DESIGN REQUIREMENTS, THE CONDITION OF THE FOUNDATION SHALL BE ASSESSED BY THE ENGINEER AND WHERE REQUIRED, CORRECTIONS SHALL BE MADE.
- ACCEPTANCE:**
 - BOTH MINIMUM TOP HELIX EMBEDMENT DEPTH AND MINIMUM INSTALLATION TORQUE MUST BE ACHIEVED FOR PILE ACCEPTANCE.

HELICAL PILE SCHEDULE (FOR PRELIMINARY GUIDE ONLY) ¹						
PILE TYPE	FACTORED ULTIMATE AXIAL CAPACITY KN (KIP) ²		AXIAL STRUCTURAL CAPACITY KN (KIP) ⁴	SHAFT SIZE MM (INCH)	HELIX SIZE MM (INCH)	TOP HELIX MIN. EMBEDMENT
	COMPRESSION	TENSION ³				
M1	31 (7)	20 (4.5)	220 (49)	60.3X3.91 (2 3/8 X 3/8)	203 X 9.53 (8 X 3/8)	SEE NOTE 5
M2	67 (15)	56 (12.5)	280 (63)	76.2X4.76 (3 X 3/8)	254 X 9.53 (10 X 3/8)	SEE NOTE 5
M3	94 (21)	58 (13)	430 (97)	88.9X6.35 (3.5 X 1/2)	305 X 9.53 (12 X 3/8)	SEE NOTE 5

- NOTES:
- THIS SHEET MUST BE USED AS A PRELIMINARY GUIDE ONLY. ENGINEERED SHOP DRAWINGS SHOULD BE PREPARED BY A PROFESSIONAL ENGINEER FOR ANY PROJECT USING THESE MATERIALS.
 - FACTORED ULTIMATE COMPRESSION CAPACITY INCLUDES RESISTANCE FACTOR OF 0.4. ACTUAL PILE CAPACITY MUST BE DETERMINED BY A PROFESSIONAL ENGINEER BASED ON SOIL CONDITIONS, FINAL EMBEDMENT DEPTH AND FINAL INSTALLATION TORQUE.
 - TENSIONAL CAPACITY PROVIDED IN THIS TABLE SHOULD BE USED FOR PRELIMINARY ESTIMATION ONLY. FINAL TENSIONAL CAPACITY OF A PILE DEPENDS ON EMBEDMENT DEPTH AND SOIL CONDITIONS AND MUST BE DETERMINED BY A PROFESSIONAL ENGINEER.
 - AXIAL STRUCTURAL CAPACITY INCLUDES A RESISTANCE FACTOR OF 0.85 AND DOES NOT INCLUDE STRENGTH REDUCTION FACTOR TO ACCOUNT FOR STEEL CORROSION.
 - MINIMUM HELIX EMBEDMENT DEPTH SHOULD BE DETERMINED BASED ON THE FROST DEPTH. IF PILE IS SUBJECTED TO TENSIONAL LOAD, A HIGHER EMBEDMENT DEPTH MIGHT BE REQUIRED.

FOR INFORMATION ONLY



MASCORE INC.
BRANTFORD, ON

DRAWING TITLE

MASCORE HELICAL PILE
SPECIFICATIONS

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