1 GENERAL

1.1 ALL MATERIALS, WORKMANSHIP, AND DETAILS SHALL CONFORM TO THE NEW HAMPSHIRE STATE BUILDING CODE, THE 2009 INTERNATIONAL BUILDING CODE AND THE REFERENCE STANDARDS INCLUDED THEREIN THAT ARE APPLICABLE TO THIS PROJECT.

1.2 THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE CONTRACT DRAWINGS. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER BEFORE PROCEEDING WITH THE AFFECTED WORK. ANY VARIATIONS OR SUBSTITUTIONS OF MATERIALS OR DETAILS FROM THOSE INDICATED ON THE DRAWINGS MAY ONLY BE MADE WITH PRIOR APPROVAL OF THE STRUCTURAL ENGINEER. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY AND ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, SHORING AND SAFETY PROGRAMS REQUIRED TO COMPLETE THE WORK OF THIS CONTRACT.

1.3 VERIFY AND COORDINATE ALL DIMENSIONS RELATED TO THIS PROJECT.

1.4 SHOP DRAWINGS ARE REQUIRED TO BE SUBMITTED FOR THE FOLLOWING STRUCTURAL COMPONENTS. SEE INDIVIDUAL MATERIAL SECTIONS FOR ADDITIONAL SUBMITTAL REQUIREMENTS.

STRUCTURAL FILL SIEVE ANALYSIS AND PROCTOR RESULTS
REINFORCING STEEL (INCLUDING ALL ACCESSORIES)
CONCRETE MIX DESIGNS INCLUDING ALL ADDITIVES

SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER AND A STAMPED APPROVAL RECEIVED BEFORE FABRICATION CAN PROCEED. THE CONTRACTOR SHALL REVIEW AND STAMP ALL SHOP DRAWINGS PRIOR TO SUBMITTAL FOR ENGINEERING REVIEW. SUBMITTED SHOP DRAWINGS WHICH HAVE NOT BEEN REVIEWED AND APPROVED BY THE CONTRACTOR SHALL BE RETURNED UNCHECKED TO THE CONTRACTOR FOR THEIR REVIEW AND APPROVAL. FAILURE TO SUBMIT SHOP DRAWINGS FOR THE REQUIRED MATERIALS SHALL RELIEVE THE ENGINEER OF RESPONSIBILITY AND LIABILITY FOR THOSE PARTS OF THE STRUCTURE AND ANY OTHER PART AFFECTED BY THE UNSUBMITTED PARTS. STRUCTURAL DESIGN DRAWINGS MAY NOT BE USED AS THE SHOP DRAWINGS AND WILL BE IMMEDIATELY REJECTED AND RETURNED IF SO SUBMITTED.

1.5 UNLESS OTHERWISE INDICATED, DETAILS SHOWN ON ANY DRAWING ARE TO BE CONSIDERED TYPICAL FOR ALL SIMILAR CONDITIONS.

1.6 NO MAIN FRAMING OR STRUCTURAL MEMBERS ARE TO BE MODIFIED, ALTERED, OR CUT WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER.

1.7 THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY SHORING REQUIRED TO COMPLETE THE WORK OF THIS CONTRACT.

1.8 THESE DRAWINGS HAVE BEEN COMPILED FROM THE BEST AVAILABLE INFORMATION AND ARE NOT INTENDED TO LIMIT THE SCOPE OF THE WORK. THE CONTRACTOR MAY ENCOUNTER HIDDEN OR UNCOVERED CONDITIONS, NOT SHOWN ON THESE DRAWINGS, REQUIRING ADDITIONAL WORK FOR THE COMPLETION OF THIS CONTRACT. IT WILL BE ASSUMED THAT THE CONTRACTOR HAS INSPECTED THE SITE PRIOR TO BIDDING AND VERIFIED THE INFORMATION HEREIN SUPPLIED.

2 DESIGN LIVE LOADS

2.1 ALL DESIGN LOADS FOR THE SUPERSTRUCTURE HAVE BEEN DETERMINED BY THE METAL BUILDING MANUFACTURER. THE FOUNDATION DESIGN RELIES ON THE CORRECTNESS AND ACCURACY OF THE DESIGN LOADS DETERMINED BY THE METAL BUILDING MANUFACTURER.

3 FOUNDATIONS

3.1 FOUNDATIONS SHALL BEAR ON PROOF ROLLED NATURAL MATERIAL HAVING AN ALLOWABLE BEARING PRESSURE OF 4000 PSF.

3.2 CONTROLLED STRUCTURAL FILL SHALL CONSIST OF CLEAN GRANULAR MATERIAL FREE OF ORGANIC OR OTHER DELETERIOUS MATTER AND CONFORM TO A SIEVE ANALYSIS WHICH PRODUCES A GRAIN SIZE DISTRIBUTION CURVE FALLING ENTIRELY WITHIN THE FOLLOWING LIMITS, AS DETERMINED BY LABORATORY ANALYSIS:

SCREEN OR SIEVE SIZE	PERCENT PASSING BY WEIGHT
4"	100%
3"	90–99%
NO. 4	35–70%
NO. 40	5–35%
NO. 200	0–5%

FILL MATERIAL SHOULD BE PLACED IN LIFTS NOT EXCEEDING 12" IN LOOSE DEPTH FOR MATERIAL TO BE COMPACTED BY HEAVY COMPACTION EQUIPMENT, AND NOT MORE THAN 6" IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HAND OPERATED TAMPERS. PRIOR TO COMPACTION, EACH LAYER SHOULD BE MOISTENED OR AERATED AS NECESSARY TO PROVIDE OPTIMUM MOISTURE CONTENT. EACH LAYER SHALL BE COMPACTED TO 95% OF OPTIMUM DRY DENSITY AS DETERMINED BY A LABORATORY PERFORMED MODIFIED PROCTOR DENSITY TEST, ASTM D–1557. EACH LAYER OF COMPACTED STRUCTURAL FILL SHALL BE FIELD TESTED WITH A MINIMUM OF THREE (3) COMPACTION TESTS PER LAYER.

3.3 EXCAVATE TO LINES AND GRADES REQUIRED TO PROPERLY INSTALL THE FOUNDATIONS ON PROOF ROLLED NATURAL SOIL. REMOVE ALL TOPSOIL AND ORGANIC MATERIAL FROM UNDER SLABS ON GRADE. ALL EXCAVATIONS SHALL BE DRY BEFORE PLACING ANY CONCRETE. PROOF ROLL THE BOTTOM OF ALL EXCAVATIONS WITH A HAND OPERATED VIBRATORY ROLLER COMPACTOR.

3.4 EXTERIOR WALL FOOTINGS ARE TO BE PLACED ON NATURAL SOIL AT A MINIMUM DEPTH OF 4'–0" BELOW THE LOWEST ADJACENT GROUND SURFACE EXPOSED TO FREEZING. ANY ADJUSTMENT OF ELEVATIONS OF FOOTINGS DUE TO FIELD CONDITIONS MUST HAVE THE EXPRESSED APPROVAL OF THE STRUCTURAL ENGINEER.

3.5 BACKFILLING AGAINST FOUNDATION WALLS SHALL BE DONE ONLY AFTER WALLS ARE BRACED TO PREVENT MOVEMENT OR SHALL BE DONE EQUALLY ON BOTH SIDES OF THE WALL.

3.6 BACKFILL INSIDE THE FOUNDATION WALLS WITH APPROVED STRUCTURAL FILL PLACED IN 12–INCH OR 6 INCH LAYERS AND COMPACTED TO 95% DENSITY AT OPTIMUM MOISTURE CONTENT AS DEFINED BY ASTM D1557, METHOD D.

3.7 WHERE NEW FOUNDATIONS ARE BUILT IN THE SAME LOCATION AS REMOVED EXISTING FOUNDATIONS, THEY SHALL BEAR ON UNDISTURBED SOIL AT OR BELOW THE ELEVATION OF THE EXISTING FOUNDATIONS UNLESS OTHERWISE INDICATED.

3.8 [XXX'–X"] INDICATES BOTTOM OF FOOTING ELEVATION. {XX'–X"} INDICATES TOP OF PIER ELEVATION.

4 CAST–IN–PLACE CONCRETE

4.1 CONCRETE WORK SHALL CONFORM TO THE LATEST EDITIONS OF: BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318), SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS (ACI 301), AND STANDARD SPECIFICATION FOR COLD WEATHER CONCRETING (ACI 306.1).

4.2 CONCRETE SHALL BE NORMAL WEIGHT, APPROVED, READY–MIXED CONCRETE HAVING AN ULTIMATE COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS FOR EXTERIOR SLABS AND WALKWAYS AND 3000 PSI AT 28 DAYS FOR ALL OTHER CONCRETE UNLESS NOTED OTHERWISE. SLUMP SHALL BE 2–4 INCHES AND SHALL BE MEASURED AT THE POINT OF DISCHARGE FROM PUMP OR TRUCK CLOSEST TO THE PLACEMENT LOCATION.

4.3 CONCRETE WHICH WILL BE EXPOSED AND/OR SUBJECT TO FREEZING AND THAWING SHALL BE AIR ENTRAINED WITH 4–6% AIR BY VOLUME. INTERIOR SLABS NOT SUBJECT TO FREEZE – THAW CYCLES DURING CONSTRUCTION OR SERVICE LIFE NEED NOT BE AIR ENTRAINED.

4.4 ABSOLUTELY NO CALCIUM CHLORIDE MAY BE USED IN ANY CONCRETE.

4.5 REINFORCING SHALL BE DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60.

4.6 FIBER REINFORCEMENT FOR CONCRETE SLAB CRACK CONTROL SHALL BE "GRACE FIBERS" CONFORMING TO ASTM C1116, TYPE 3. FIBERS SHALL BE ADDED AT A DOSAGE RATE OF 1.5 LBS PER CUBIC YARD OF CONCRETE FOR ALL SLABS.

4.7 DETAILING, FABRICATION, AND ERECTION OF REINFORCEMENT, UNLESS OTHERWISE NOTED, SHALL CONFORM TO ACI DETAILING MANUAL (SP–66) IN ADDITION TO THE ABOVE CODES AND SPECIFICATIONS.

4.8 PLACE CONCRETE BY APPROVED METHODS OF ACI 304, RECOMMENDED PRACTICE FOR MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE. CONSOLIDATE CONCRETE BY MECHANICAL VIBRATION. DO NOT USE VIBRATORS FOR MOVING CONCRETE IN FORMS.

4.9 PLACE REINFORCING USING STANDARD BAR SUPPORTS TO PROVIDE PROPER CLEARANCE AND PREVENT DISPLACEMENT DURING CONCRETE OPERATIONS.

4.10 MINIMUM CONCRETE COVER FOR REINFORCEMENT SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE:

* UNFORMED SURFACES IN CONTACT WITH GROUND OR EXPOSED TO WEATHER ..... 3 INCHES
* FORMED SURFACES IN CONTACT WITH GROUND OR EXPOSED TO WEATHER ..... 2 INCHES
* SLABS ON GRADE ..... 1 1/2 INCHES
* OTHER CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND ..... 1 1/2 INCHES

4.11 PROPERLY BRACE AND SHORE FORMWORK TO MAINTAIN ALIGNMENT AND TOLERANCES IN ACCORDANCE WITH ACI 347.

4.12 LAP ALL REINFORCING BARS 48 BAR DIAMETERS UNLESS NOTED OTHERWISE.

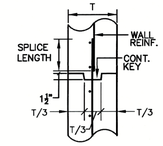
4.13 INSTALLATION OF REINFORCEMENT SHALL BE COMPLETED AT LEAST 24 HOURS PRIOR TO SCHEDULED CONCRETE PLACEMENT. NOTIFY ENGINEER OF COMPLETION AT LEAST 24 HOURS PRIOR TO SCHEDULED REINFORCEMENT PLACEMENT COMPLETION.

4.14 CONTROL JOINTS IN FOUNDATION WALLS SHALL NOT EXCEED 30 FT.

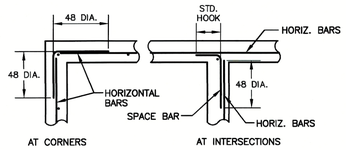
4.15 ALL CONCRETE SLABS SHALL BE MOIST (WATER) CURED FOR A PERIOD OF NO LESS THAN 7 DAYS FOLLOWING PLACEMENT OF THE CONCRETE. CURING COMPOUNDS SHALL BE APPLIED TO THE SLABS FOLLOWING THE INITIAL 7 DAY WATER CURING PERIOD.

5 ABBREVIATIONS

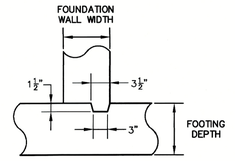
ALT.	ALTERNATE
B.E.W.	BOTTOM EACH WAY
B.L.L.	BOTTOM LOWER LONG
B.U.S.	BOTTOM UPPER SHORT
BOT	BOTTOM
COL	COLUMN
CONC	CONCRETE
CONT.	CONTINUOUS
CJ	CONTROL JOINT
DWLS.	DOWELS
EA.	EACH WAY
FD	FLOOR DRAIN
FLR	FLOOR
FND.	FOUNDATION
F.T.F.	FACE TO FACE
FTG	FOOTING
MAX	MAXIMUM
MIN	MINIMUM
NOM.	NOMINAL
O/C	ON CENTER
PL	PLATE
REINF	REINFORCING
S.O.G.	SLAB ON GRADE
T.O.S.	TOP OF SLAB
T.O.W.	TOP OF WALL
TYP	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
V.I.F.	VERIFY IN FIELD
W/	WITH
W.C.J.	WALL CONTROL JOINT



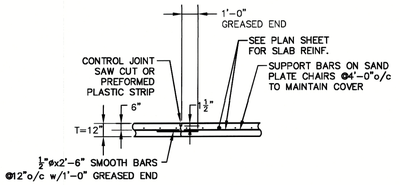
8" CONCRETE WALL CONSTRUCTION JOINT



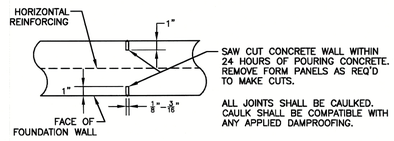
PLAN OF 8" CONCRETE WALL HORIZONTAL REINF.



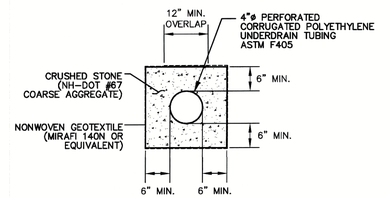
8" FOUNDATION WALL BEVELED SHEAR KEY



SLAB ON GRADE DETAIL



PLAN OF CONTROL JOINT AT 8" FOUNDATION WALL



TYPICAL SLAB & FOOTING SUBDRAIN DETAIL

REVISIONS

NO.	DATE	REMARKS

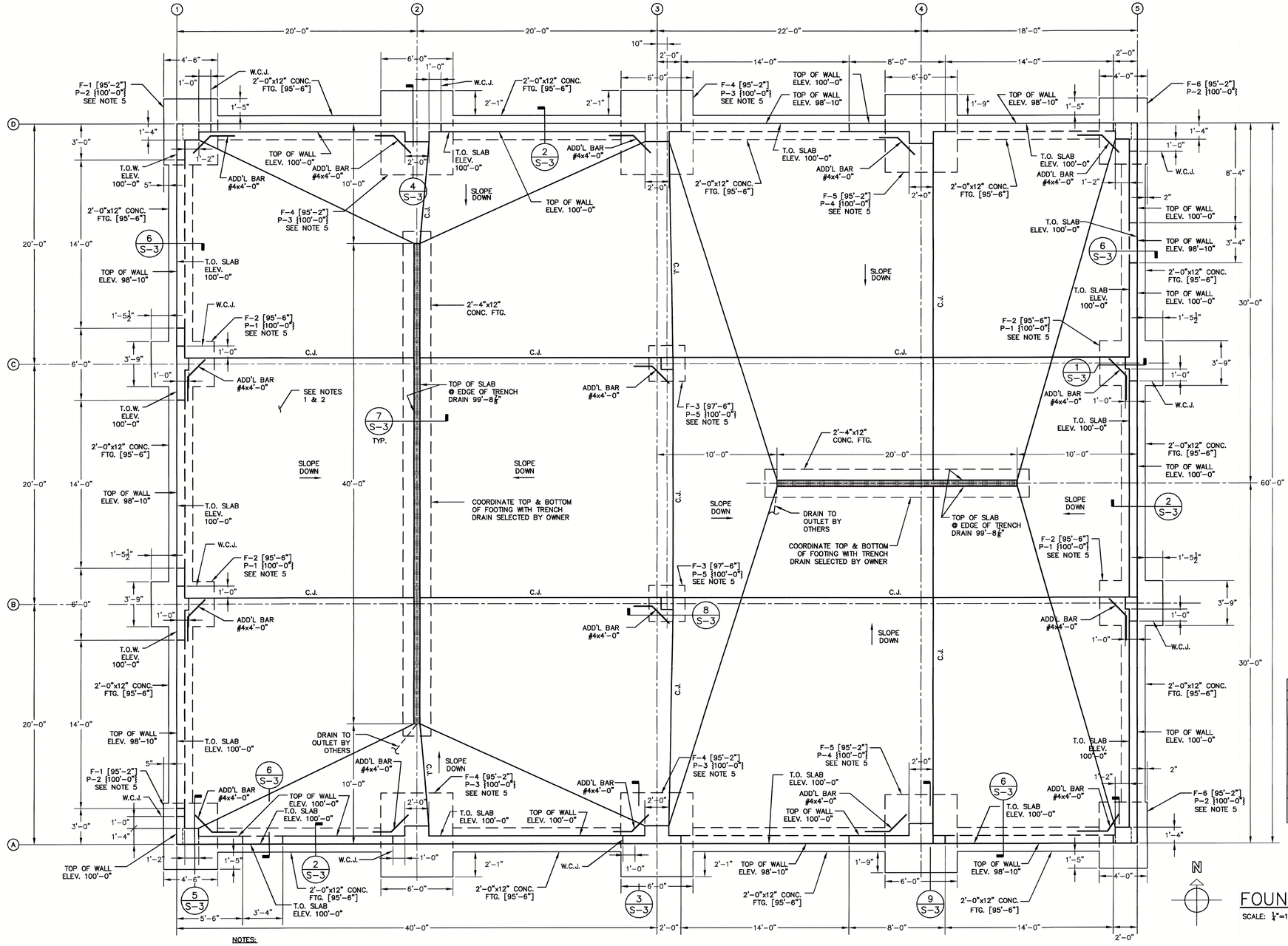
TIREY & ASSOCIATES, P.C.
CONSULTING STRUCTURAL ENGINEERS
P.O. BOX 639, LITTLETON, NH 03561
Telephone: (603) 444–6211
E–mail: tirey@treyondassociates.com

TOWN OF DERRY
NEW GARAGE FOUNDATION
DERRY, NEW HAMPSHIRE

TITLE: GENERAL NOTES & TYPICAL DEATILS
DATE: 7–17–2018
SCALE: AS NOTED JOB # 218.032.1

SHEET NUMBER: S–1

218.032.1



FOOTING SCHEDULE

MARK	SIZE	REINFORCING
F-1	5'-6"x4'-6"x1'-4"	5-#7 BLL, 6-#7 BUS
F-2	5'-3"x3'-9"x12"	5-#4 BLL, 6-#4 BUS
F-3	3'-0"x3'-0"x12"	4-#4 BEW
F-4	7'-0"x6'-0"x1'-4"	7-#7 BLL, 8-#7 BUS
F-5	6'-6"x6'-0"x1'-4"	7-#7 BEW
F-6	5'-6"x4'-0"x1'-4"	5-#7 BLL, 6-#7 BUS

PIER SCHEDULE

MARK	SIZE	REINFORCING	TIES
P-1	12"x12"	8-#6	#3@12"o/c w/ 3-#3@3"o/c TOP
P-2	16"x16"*	8-#7	#3@12"o/c w/ 3-#3@3"o/c TOP
P-3	18"x24"	12-#7	#3@12"o/c w/ 3-#3@3"o/c TOP
P-4	20"x24"	12-#7	#3@12"o/c w/ 3-#3@3"o/c TOP
P-5	12"x12"	4-#6	#3@12"o/c w/ 3-#3@3"o/c TOP

* EFFECTIVE PIER SIZE, REINFORCING SHALL BE BASED ON THE EFFECTIVE PIER SIZE.

FOUNDATION PLAN

SCALE: ¼"=1'-0"

NOTES:

1. THE TOP OF NEW FLOOR SLAB IS CALLED REFERENCE ELEVATION 100'-0". ALL OTHER ELEVATIONS ARE CALLED OUT WITH RESPECT TO THE REFERENCE ELEVATION.
2. 12" CONCRETE SLAB ON GRADE WITH #5 @ 12" O/C EACH WAY AT MID-DEPTH OF THE SLAB. SEE PLAN SHEET FOR TOP OF SLAB ELEVATIONS.
3. ALL FOUNDATION WALLS ARE 8" THICK UNLESS NOTED OTHERWISE. SEE PLAN SHEET FOR TOP OF FOUNDATION WALL ELEVATIONS.
4. F-1 INDICATES FOOTING. SEE FOOTING SCHEDULE FOR SIZE AND REINFORCING. P-1 INDICATES A PIER. SEE PIER SCHEDULE FOR SIZE AND REINFORCING.
5. THE TOP OF CONCRETE PIERS SHALL HAVE A SMOOTH STEEL TROWEL FINISH.
6. TRENCH DRAIN SHALL BE ACO DRAIN S200K POWERDRAIN CLASS C OR APPROVED EQUAL. IF A SUBSTITUTION IS MADE, TRENCH DRAIN LENGTH, ELEVATIONS AND DETAILS ARE SUBJECT TO CHANGE.

REVISIONS

NO.	DATE	REMARKS

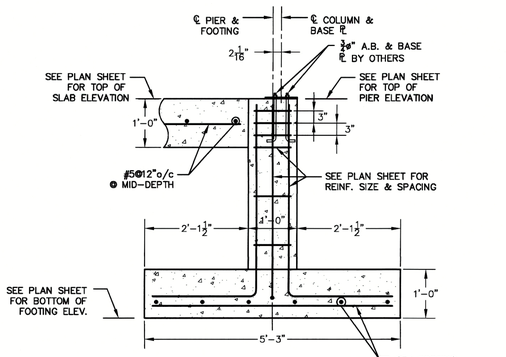
TIREY & ASSOCIATES, P.C.
CONSULTING STRUCTURAL ENGINEERS
P.O. BOX 639, LITTLETON, NH 03561
Telephone: (603) 444-6211
E-mail: trey@treyandassociates.com

TOWN OF DERRY
NEW GARAGE FOUNDATION
DERRY, NEW HAMPSHIRE

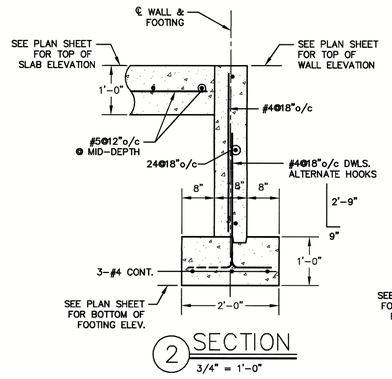
TITLE: FOUNDATION PLAN
DATE: 7-17-2018
SCALE: AS NOTED JOB # 218.032.1

SHEET NUMBER: S-2

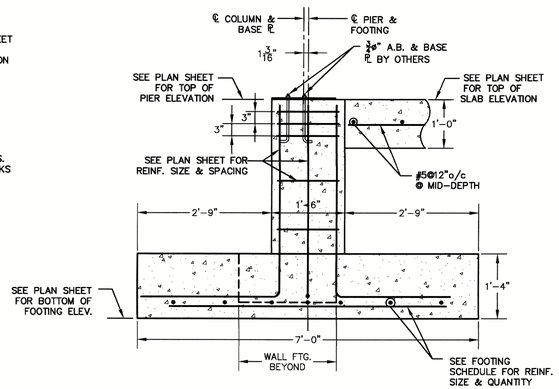
218.032.1



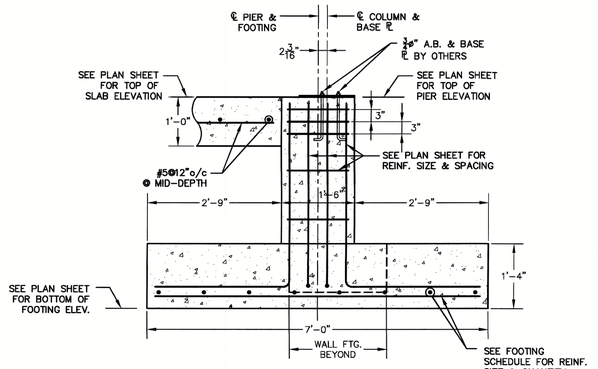
1 SECTION
3/4" = 1'-0"



2 SECTION
3/4" = 1'-0"



3 SECTION
3/4" = 1'-0"



4 SECTION
3/4" = 1'-0"

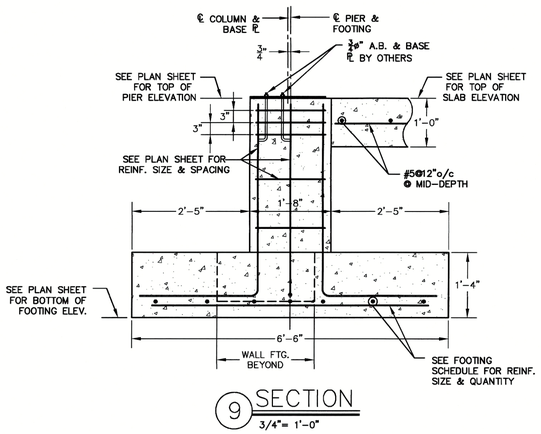
5 SECTION
3/4" = 1'-0"

6 SECTION
3/4" = 1'-0"

7 SECTION
3/4"= 1'-0"

**TRENCH DRAIN NOTE
TRENCH DRAIN BY OWNER. COORDINATE TOP AND BOTTOM OF FOOTING WITH TRENCH DRAIN MANUFACTURER.

8 SECTION
3/4"= 1'-0"



9 SECTION
3/4"= 1'-0"

REVISIONS

NO.	DATE	REMARKS

TIREY & ASSOCIATES, P.C.
CONSULTING STRUCTURAL ENGINEERS
P.O. BOX 639, LITTLETON, NH 03561
Telephone: (603) 444-6211
E-mail: tirey@tireyandassociates.com

TOWN OF DERRY
NEW GARAGE FOUNDATION
DERRY, NEW HAMPSHIRE

TITLE: SECTIONS
DATE: 7-17-2018
SCALE: AS NOTED JOB # 218.032.1

SHEET NUMBER:
S-3
218.032.1