

TECHNICAL SPECIFICATIONS

IRESA “BUILDING TRADES”

RESIDENTIAL FOUNDATION

27 N. REMPERT ROAD

TAWAS CITY, MI

Prepared by

RUSSO ENGINEERING, INC.

PO Box 187

Tawas City, MI 48764

March 2023

. GENERAL:

This project is to construct a new poured concrete foundation to support a single story residence and attached garage with a total estimated footprint of 2,368+/- SF. The building is to be constructed west of the IRESA school and north of Highway M-55 on property owned and utilized by IRESA as part of their "Building Trades" program; recognized hereinafter as the Owner. As with the previous residential structure on the same site that is now nearing completion, the Owner is soliciting competitive sealed bids from Contractors to install a poured concrete foundation. Additional work includes site excavation, installation of a footing drain system, sand backfill and compaction activities to provide a complete foundation system that the Owner will then utilize for instruction purposes to complete all follow-on aspects of the building's construction. These specifications, per the 2015 Michigan Residential Building Code, provide additional information to the Contractor with regards to the foundation construction only. In addition to these specifications and as part of the bid package, also included are plans prepared by Bernard Lumber of Hale and various details and bid form prepared by Russo Engineering, Inc. It is noted here that the Bid Form identifies the sequencing and division of work between the Contractor and Owner with regard to the site development and foundation construction. All construction activities following those identified to be completed by the Contractor shall be the responsibility of the Owner with regards to permitting, design, construction and interfacing with any/all agencies having jurisdiction to include the local Building Authority and Health Department. The responsibility of this Engineer in these documents is for the limited site and foundation structural design of the project, as well as providing competitive bidding assistance as necessary. Any site plan approval process shall be administered by the Owner, as applicable. Building site and foundation details are based upon site visits by this Engineer, discussions with the Owner and review of the residential plans prepared by Bernard's. It is the Contractor's responsibility to field verify and review all plans and details, or in other words perform their due diligence, prior to submitting any sealed bid and before eventually ordering materials.

Since this is currently an operating school district and may be through a portion of the construction period, the Contractor shall coordinate equipment staging, material storage, vehicle parking, etc. with the Owner to ensure an interference problems do not develop that could result in the delays associated the existing residential structure that is still under construction; albeit nearly complete.

a. General Contractor solely controls workplace safety; the Engineer has no authority to direct/supervise construction methods/procedures/safety, so Contractor shall provide barriers, signage, supervision, etc. to ensure safety continuously, not limited to normal working hours. Contractor further agrees to defend, indemnify and hold the Engineer harmless from any and all liability, real or alleged, in connection with the performance of work on this project.

b. Contractor shall conform to applicable nat'l & state codes, Michigan Residential Building Code 2015, the International Energy Conservation Code (IECC), OSHA, the current Michigan-adopted edition of the NEC (2017), zoning ordinances, fire codes, etc., these specs notwithstanding. The APA "Design/Construction Guide for Residential /Commercial Construction" in its entirety is referenced here as a req'd performance spec.

c. Brand names establish standard of quality. Drawing scale prevents detailing all anchors, connections, etc, and it is intended Contractor employ standard trade practices for a complete/usable facility IAW codes. "Common trade practices" and "accepted standards of the industry" shall be the expectation on all of the work on this project. Also, see any "or equal" requirements hereinafter.

d. Contractor shall carry minimum state required liability insurance, as well as Builder's Risk Insurance, with evidence of same presented to the Owner as a requirement of award.

e. All permits, layout of the work, locating utility lines as applicable, etc. shall be Contractor responsibility. Setting up inspections with the agencies that have jurisdiction is also the responsibility of the Contractor.

f. General Contractor is responsible for coordinating work of all trades. All work shall be guaranteed by the Contractor to be free from defects in workmanship and materials and in conformance with the plans and specs, and that the Contractor shall repair or replace any work or material found to be defective for a period of the manufacturer's warranty, but not less than one year or however listed.

g. The Owner, as his option, shall be responsible for purchasing and maintaining his own liability insurance covering the perils of fire, wind, extended coverage, vandalism and malicious mischief, and at his option, may purchase and maintain such insurance as will protect him against claims which may arise from operations under the contract.

h. The Contractor and each Subcontractor shall be responsible for the protection of his work and materials against loss from weather or theft and shall hold the Owner harmless from such a loss. The Contractors shall also protect the Owner's property and adjacent properties from injury or loss arising in connection with the project, making good any such damage, injury or loss. The areas adjacent to the work zone will be used by plant employees during the course of construction, and thus all barricades, signs, temporary walls and other protective/harm preventive measures will be taken by the Contractor at all times. It is the Contractor's responsibility to phase his work activities and not that of this designer.

i. Each subcontractor is responsible for unloading and for proper storage and protection of his materials delivered to the site. Storage location will be as designated by the Owner. Each subcontractor shall at all times keep the project site free from waste material and rubbish caused by them.

j. Specifications/drawings:

1. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of differences between the specifications and the drawings, the specifications shall govern, unless directed otherwise by the Owner after contacting the Engineer.

2. Wherever in the specifications or upon the drawings the words "directed", "required", "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the "direction", "requirement", "order", "designation", or "prescription" is intended, and similarly the words "approved", "acceptable", "satisfactory", or words of like import shall mean "approved by", or "acceptable to", or "satisfactory to" the Owner, unless otherwise expressly stated.

3. Where "as shown", "as indicated", "as detailed", or words of similar import are used, it shall be understood that the reference is made to the drawings accompanying this contract, unless stated otherwise. The word "provided" as used herein shall be understood to mean "provide complete in place", i.e. "furnished and installed".

4. Omissions from the drawings and/or specifications or the misdescription of details of work which are manifestly necessary to carry out the intent of the drawings and specifications, or which are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the work. They shall be performed as if fully/correctly set forth and described in the drawings and/or specs.

5. The Contractor shall check all drawings furnished by this Engineer or others prior to starting work and shall promptly notify this Engineer or the Owner of any discrepancies. Figures marked on drawings shall in general be followed in preference to scale measurements. Large scale drawings shall in general govern over small scale drawings. The Contractor shall compare all drawings and verify the figures before laying out the work, and will be responsible for any errors which might have been avoided thereby.

6. Shop drawings means drawings, submitted to Owner's Representative or the Owner by the Contractor, Subcontractor, or any lower tier subcontractor pursuant to a construction contract, showing in detail (a) the proposed fabrication and assembly of structural or other elements and (b) the installation (i.e., form, fit and attachment details) of materials or equipment. It includes drawings,

diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the Contractor to explain in details specific portions of the work required by the contract. The Owner or Engineer may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

7. If this contract requires material submittals (e.g. shop drawings, catalog cuts, certificates of conformance, delivery tickets, etc.), the Contractor shall coordinate all such submittals, and when from subcontractors and suppliers, review them for accuracy, completeness, and compliance with contract requirements, and shall indicate its approval thereon as evidence of such coordination and review. Submittals sent in without evidence of the Contractor's approval may be returned for resubmission. The Owner's representative or the Owner will indicate an approval or disapproval of the submittal, and if not approved as submitted, shall indicate the reasons therefor. Any work done before such approval shall be at the Contractor's risk. Approval by the Owner's representative or the Owner shall not relieve the Contractor from responsibility for any errors or omissions in such submittals, nor from responsibility for complying with the requirements of this contract, except with respect to variations described and approved in accordance with the next paragraph.

8. If submittals show variations from contract requirements, the Contractor shall describe such variations in writing, separate from the submittal, at the time of submission. The variation description, a copy of the respective submittal and a proposal for its incorporation into the contract shall be sent directly to the Owner or the Owner's representative. If the variation receives approval, an appropriate contract modification shall be issued, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued. If submitted as an "or equal", then the salient features of the specified brand name are to be matched by the proposed substitute, as evidenced in writing on a submittal.

9. The Contractor shall submit to the Owner or the Owner's representative for approval, three copies (unless otherwise indicated) of all submittals as called for under the various headings of these specs or proposed by the Contractor as a substitute. Two sets (unless otherwise indicated) of all submittals will be retained by the Owner, and one set will be returned to the Contractor.

10. These and other pertinent clauses shall be included in all subcontracts at any tier. k. There may be Contractor or Owner options or alternates depicted or listed in the documents. These may be addressed in greater detail in the specs, the Bid Form, by addendum or by the Owner in the field, as applicable.

2. SITE WORK, DEMOLITION/EXCAVATION/FILL:

Sitework is to allow the building and the site to naturally drain. Excavation shall include the clearing of the site and transporting of all materials necessary to construct all work to the lines shown on drawings. A majority of the site contains primarily clayey soils and is the reason excavation, undercutting, sand fill and compaction activities are made part of this project. Ensure all clay, any found rubble or other deleterious material is removed from the foundation building site and replace as necessary with sand fill. Where fill is required, bearing soil shall be clean sand placed in max 6" to 8" max. lifts, compacted to 95% optimum, see subparagraph 2 e. below. Excavated/undercut clay soils shall be staged elsewhere on the site as directed by the Owner. There is currently no project requirement that these spoils be trucked off site, nor should the Contractor include costs in their bid associated with this work activity.

a. Clearing and grubbing shall include but not be limited to, grubbing for and removal of roots (larger than 1 1/2" in diameter), topsoil stripping and stockpiling on site, and removing whatever may not be reused, disposing of it in an environmentally approved manner.

b. Protection is to be provided for all items that are to remain on site, as identified by the Owner. Any nearby sidewalks, greenbelts, pavement and storm drainage/ditch system shall be protected by controlling the spilling of fuels, oils and other harmful substances.

c. Dust/erosion control. The Contractor shall maintain all excavations, stockpiles, access roads and other work areas free from dust to a reasonable degree by using temporary measures as necessary, like sprinkling. Drainage from cuts/fills shall be graded to control erosion.

d. Demolition/Contamination: Removed materials that cannot be re-used shall be disposed of in an environmentally approved manner and location. Protection is to be provided for all other components of the site that are to remain.

e. Fill. Prior to any reuse or spreading of fill, it is to be graded, free from lumps larger than 3" and rocks larger than 2" and debris. Imported material shall be graded, free of lumps and debris. Topsoil (by Owner), as well as excavated and reused material (by Owner) shall be graded, free of roots, rocks larger than 1/2", debris, large weeds and foreign matter.

(1) Backfilling: Backfill area to elevations matching existing with unfrozen materials. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces. Place and compact sand fill materials in continuous layers not exceeding 6 inches compacted depth. Maintain optimum moisture content of backfill materials to attain required compaction density. Install backfill only against supported foundation walls. Do not backfill against unsupported foundation walls. Slope grade away from the building a minimum of 6 inches in 10 ft, unless noted otherwise. Make gradual grade changes. Blend slope into level areas.

(2) Tolerances: Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.

Compaction testing of site area(s) will be required only if it is determined by the Owner that the Contractor does not appear to be obtaining optimum compaction or if they are not applying fill in lifts. Test results, as applicable, will become submittals. If tests indicate work does not meet specified requirements, remove work, replace and retest. All testing, as applicable, shall be performed in accordance with ANSI/ASTM D698 by a testing facility recognized by MDOT will be paid for by the Contractor.

(3) Schedule:

(a) Slab-On-Grade (apron slab, etc):

Fill sand 6 inches thick, compacted to 95 percent.

(b) Exterior Side of Foundation Walls:

Fill sand to subgrade elevation, each lift, compacted to 95%.

(c) Fill Under Grass Areas, as applicable:

Fill Type Sand to 4 inches below finish grade, compact to 90%.

(d) Fill under building concrete floor and foundation/footings.

Fill sand 6 inches thick, compacted to 95 percent.

(e) Fill under asphalt pavement as applicable

Fill sand 12 inches thick, compacted to 95% of optimum, and 8" of stabilized aggregate.

(f) General:

(1) Obstructions or other problems encountered that could not have been foreseen by visual inspection of the site prior to bidding should immediately be brought to the attention of the Owner.

(2) Vehicular traffic routes shall be maintained at all locations to the greatest extent possible to minimize disruptions and rerouting of traffic. Contractor shall not block roadways or access paths with materials, vehicles, delivery trucks, etc. Should Contractor's operations necessitate rerouting of traffic, Contractor shall be responsible for providing signs, barricades and, if necessary, flaggers to alert drivers and divert traffic in a safe manner, from roads and sidewalks.

(g) Landscaping (by Owner). This work shall consist of all labor, equipment, and materials required to provide topsoil (4"), fertilizer, seed, and mulch on disturbed areas and on newly graded surfaces of the project. Topsoil may be that material that has been skimmed from the site and properly saved, providing that it meets quality requirements for material acceptable under governing MDOT specifications. The areas to be planted shall be prepared as follows: with seeding, fertilizer and

mulching as required. The work shall consist of preparing the foundation, machine or hand grading to place the topsoil, fertilizing, seeding and mulching areas as required. Unless otherwise specified herein or shown on the drawings, all work shall be in accordance with Section 816 and 917 of the Michigan Department of Transportation Standard Specifications for Construction. Application rates for the various materials shall be as follows:

Topsoil Surface, Furnished 4 inches
Seeding Mixture, TDS 220 lbs/Acre
Fertilizer, Chemical Nutrient, CI A 228 lbs/Acre
Mulch 2 Ton/Acre

Hay mulch is not be recommended due to the higher occurrence of winds in this open area that might otherwise blow the mulch offsite. All waste generated shall be disposed of in accordance with Subsection 205.03 of MDOT Standard Specs for Construction. Hydroseeding is preferred.

(h) Footing Drains: Piping installation associated with this requirement shall be accomplished by the Contractor using commonly accepted practices, and skill-of-the-trade, and as per the details and plans provided.

3. CONCRETE AND STABILIZED AGGREGATE:

a. Concrete: Shall be 3" - 5" slump, min., 4000 psi comp strength @ 28 days, air-entrained (5% to 8% air content). ACI 301 governs. Rebar shall be intermediate grade steel (ASTM A 615, grade 60) and installed with minimum 3" cover, ACI 315 governing. All forms must remain at least 24 hrs after pour and, upon stripping, honeycombs shall be pointed-up. Exterior concreting shall be placed using cold weather precautions if necessary (temps below 40 degrees F for extended periods) as published by the ACI.

(1) Subgrade shall be brought to an even plane/compacted solid. The surfaces of all exterior concrete slabs shall be broom finished. WWF (ASTM A 185) will be used, all slabs. (2) Curing: Shall be accomplished by preventing moisture loss, rapid temperature change and mechanical or flowing water injury for a period of 7 days.

(3) Control joints: Shall be cut into slabs in green concrete when it has cured enough to prevent raveling. Joints shall be longitudinally at the same distance as the width, or as nearly as possible, to avoid differential stresses and cracking. Sawed joints will be 1/8" to 1/4" wide, 3/4" deep minimum and no deeper than 1/4 the slab thickness, filled with material that is compatible with petroleum products or any solvents that may be spilled within the building. Construction joints shall also be filled with the same material.

(4) Care shall be taken in placing building floor, walks and aprons so foot or wheeled traffic does not disturb underlying welded wire fabric.

(5) Slope: The slope of the building floor to drain(s) shall be such that it is not severe enough to excessively slant a vehicle. On the other hand, the slopes are critical to direct surface runoff to the drain(s) and thus the Contractor shall take exceptional care when placing the floor, to insure there are no "birdbaths". The typical skill-of-the-trade slope for concrete slabs where surface runoff is required is 0.5% minimum.

b. Accessories:

(1) Bonding Agent (as applicable): ANCHOR P.V.A. BONDER (Anti-Hydro Company), POLYWELD (Chem-Masters Corporation), EUCO WELD (Euclid Chemical Company), EVERBOND (L & M Construction Chemical, Inc.) or THOROBOND (Thoro System Products). Use bonding agent at all cold joints.

(2) Curing compound (as applicable): SUPER REZ SEAL (Euclid Chemical Company), KURE-N-SEAL 30 (Sonneborn Building Products), or equal, with 30 percent solids, acrylic polymer curing and sealing compound.

(3) Joint Filler Type B (as applicable): ASTM D1752; Closed cell polyvinyl chloride foam, resiliency recovery of 95 percent if not compressed more than 50 percent of original thickness, or equal.

(4) Sealant (as applicable): Cold applied, two part liquid neoprene, or equal.

c. Placing Concrete: Place concrete in accordance with ACI 304 and ACI 318. Notify Owner minimum 24 hours prior to commencement of operations in order for Owner to arrange that someone observe form work and reinforcement before pouring concrete if they desire to do so. Finish concrete surfaces in accordance with ACI 301. Allow Owner's representative to inspect concrete surfaces immediately upon removal of forms, if they so desire to do so.

d. Driveways or parking areas on the parcel that are to be paved with asphalt (as applicable and as per Owner, none proposed in this contract) shall have 8" min. stabilized aggregate (21A or 22A) placed on prepared subgrade (excavation to proper depth for sub-base or sand fill compacted to 95% optimum) and the entire area shown shall be finish graded in accordance with the standard County or State plans published for subdivision grading. The aggregate shall be crushed material for angularity and thus for a better compacted end result. Recycled concrete aggregate is not to be used in lieu of natural limestone aggregate.

e. Where concrete aprons abut the building, and where those aprons will be supporting vehicle loads, and wherever else shown, load-transfer dowels will be used to pin the apron(s) to the building. The dowels shall be #4 rebar, 12" long, embedded 6" in each the apron and the concrete of the building, at 4' o.c. The bars may be cast into both slabs or may be drilled 6" into one and anchored in place with epoxy, and then the protruding 6" cast into the other slab. It is noted that any aprons that may be installed in the future shall be the responsibility of the Owner and not part of this contract.

f. For each daily concrete batch mixture or each daily 50 CY, whichever is lesser, collect 4 cylinders according to ASTM C-31. One specimen shall be tested at 7 days, two tested at 28 days, and one kept for later testing if required. Testing shall be IAW ASTM C-39 by a laboratory recognized as acceptable by MDOT. The test specimens will be obtained and transported by the lab personnel. The cylinder collection and testing process will be paid for by the Contractor and test results shall be provided the Owner immediately after the tests are made, with the same for soil compaction tests. It is the Owner's option to rely on cylinder collection and testing by the concrete supplier in lieu of independent collection and testing. The Contractor shall confirm this with the Owner prior to construction.

4. MASONRY – NOT USED

Masonry work is limited only to the few crawlspace piers and porch/deck piers (as applicable) that are proposed on this project as identified in the plan. The Contractor is responsible for the installation of the poured concrete footings / foundations that support the masonry piers. The Owner (Building Trades program) is responsible for the masonry pier construction as part of the education process. This specification section is provided as additional information, primarily for the Owner.

Concrete masonry units (CMU) shall be class B-4 retardant in accordance with UL Std & of modular dimensions. Any exposed block and mortar shall match or otherwise complement the type and coloring of the building. The mortar shall also be tinted, as necessary. Mortar shall comply with ASTM STD C 270, Type S per Michigan International Building Code 2015, mixed by proportion. Mortar sand shall conform to C144, well graded & angular. Type I CMU, as applicable, are to be protected from moisture both as stored & installed units. Do not wet CMU before placing. Per ACI 530-92/ASCE 5-92/TMS 402-92: f'm compressive strength of block is min 1500 psi as avg. of 3 units per ASTM C 90-90. Masonry construction/materials shall conform to requirements of "Specs for Masonry Structures (ACI 530.1/ASCE 6/TMS 602)", published by ACI, Detroit. Grout in CMU cells shall conform to ASTM C476 placed as low-lift material, with a slump of at least 8". Grout to be "fine": one part Portland Cement (PC), no hydrated lime, and loose/damp sand aggregate in proportion of 2 1/2 to 3 times the volume of PC. Job mix kept to a minimum. Grout may be

consolidated/reconsolidated when placed, but do not shake rebar, as applicable, within the few min of setup, as it breaks the bond.

5. METALS:

a. Anchor bolts shall be ASTM A-305 or A-432. Bolts anchoring any treated sill plate to concrete shall be two 1/2" bolts min 7" min. in concrete, 6' o.c., 2 min per piece a min 12" from ea. board end. If powder-driven, the spacing may change, per powder driver manufacturer instructions, but meeting Michigan Residential Code 2015. Per Mich DoL code rule, fasteners for treated wood shall be of hot-dipped (not electro-plated) zinc coat, galvanized, stainless steel or other corrosion resistant material.

Bolts, nuts and washers for superstructure and foundation shall be in conformance with AISC specification "Structural Joints Using ASTM A325 or A490 Bolts", i.e. heavy hex structural bolts. Carriage bolts shall not be allowed in the construction of any structural aspects of the building or roof truss systems.

b. Structural steel fabrication/erection, as applicable, shall conform to ANSI/AISC 360 "Specification for Structural Steel for Buildings". Welding electrodes shall conform to E-70 of "Specification for Carbon Steel Electrodes for Shielded Metal Arc Welding, AWS A5.1/A5.1M. Welded connections shall comply with requirements of AISC "Framed Beam Connections". Welding shall be by shielded metal arc process, using coated electrodes in accordance with Structural Welding Code D1.1 of the AWS, or equal. Contractor shall have fire extinguishing equipment available at all times when welding, and shall use precautions, insulated fireproof blankets, etc for safety. Shop paint of steel that is burred, torched or otherwise disrupted shall have primer applied, Sherwin Williams B66A00310 Pro-Cryl Universal Acrylic Primer or the more recently product update B66A01320, or equal. Any finish painting, as per Owner, shall be Sherwin Williams B66-350 Sher-Cryl High Performance Acrylic, or equal, color by Owner. All structural steel shall have their sizes, heights and lengths verified by the Contractor prior to any cutting, or ordering / fabrication. Shop drawing review and/or approval, or not, by Owner will not relieve the Contractor from any errors in fabrication or erection.

c. All structural steel used in this project shall be of 36 KSI fabricated steel (min. tensile strength) with erection conforming to "Specifications for Design, Fabrication and Erection of Structural Steel for Buildings" by AISC.

6. WOOD/CARPENTRY

a. General: All lumber shall comply with US Dept. of Commerce Product Std PS 20, "American Softwood Lumber Std". Each piece of structural lumber is to bear the grade mark of the inspection bureau or each shipment to be accompanied by certificate of inspection, then provided as a submittal. Pieces of lumber within 18" of grade and not otherwise protected shall be of pressure preservative treated lumber. Treated lumber shall be treated with code-approved mat'l to a net retention of min 0.40 lbs per cu ft, with certification from the supplier stating the treated wood is approved for "ground" or "grade" contact, thus meeting MIBC requirements. Treated sill plates will be adhered to the masonry wall with a mastic or equivalent waterproofing material such as Dow Sill Sealer in addition to bolts. Framing shall be in conformance with the 2015 Michigan Residential Building. Plywood and OSB shall be Exposure 1 pine or fir, APA span rated. It is noted herein that furnishing and installing foundation wall anchor bolts are part of the Contractor's responsibility but the installation of all sill plates (and walls/constructions above) are the responsibility of the Owner.

7. THERMAL & MOISTURE PROTECTION:

Requirements for the building envelope as related to concrete foundation construction shall be as per all applicable portions of the 2015 Michigan Residential Code and current IECC. Compliance with this and ASHRAE 90.1 is hereby included as a requirement, by reference, whether or not

specifically called out elsewhere in the plans and specifications. Protection of the interior from creatures, water and other elements shall be a concern at all times.

a. Flashing: Differential movements shall be accommodated by the flashing. Comply with the recommendations of “Architectural Sheet Metal Manual” by SMACNA (as applicable) as well as mfr printed recommendations. All penetrations shall be done using methods and materials that do not void any warranties.

b. Caulking: shall be installed in exterior joints around bldg where there are frames in exterior walls and wherever else as common trade practice. Caulk shall only be one part urethane or butyl for sealants, all color matching. Some of the reasons for this choice are that there is a fairly large color range, butyl does not dirty easily, high adhesion is required that is otherwise not afforded by latex or silicone, and there is less bleeding of plasticizer.

c. Insulation: Design conforms to the ASHRAE 90.1 Energy Code, so if fiberglass insulation is used (none proposed), fiberglass is to meet FS HH-I-521. Type II non-reflective VB will be installed on the warm, high vapor pressure side of insulation. Kraft paper-surfaced insulation is acceptable as long as there is a noncombustible surface adjacent thereto. Perimeter insulation will be required, and will be R-10, i.e. 1.5” DOW foam board, min., installed by the Owner over the entire crawlspace interior perimeter wall for the full 4 feet height.

d. Crawlspace Ventilation: Per section R408.1, the under-floor space between the bottom of the floor joists and the earth under any building shall have ventilation opening through foundation walls. The minimum net area of ventilation openings shall be not be less than 1 SF for each 150 SF of under-floor space area, unless the ground surface is covered by a Class 1 vapor retarder material. Where vapor retarder is used, the minimum net area of ventilation openings shall be not less than 1 SF for each 1,500 SF of under-floor space area. One such ventilating opening shall be with 3 feet of each corner of the building. The Contractor is responsible to install a minimum of four (4) vent openings and covers. The covers shall be perforated sheet metal plates (0.070” thick, min.) or expanded sheet metal plates (0.047” thick, min.).

e. Moisture Barrier: A continuous Class 1 vapor retarder shall be installed along the crawlspace “floor” by the Owner. Joints of the vapor retarder shall overlap by 6 inches and shall be sealed or taped. The edges of the vapor retarder shall extend not less than 6 inches up the stem wall and shall be attached and sealed to the stem wall or insulation. Acceptable is a 6-mil thick polyethylene film such as “Visqueen”.

8. – 16. NOT USED

These specification sections would otherwise describe aspects of building construction above the foundation and outside the requirements of this project’s scope. The Owner will provide any code required information, as necessary and at a later date, with regards to the balance of the building’s construction in accordance with the 2015 Michigan Residential Building Code and as per the requirements of those agencies having jurisdiction.

IOSCO REGIONAL EDUCATIONAL SERVICE AGENCY (I.R.E.S.A.)
BUILDING TRADES RESIDENTIAL FOUNDATION PROJECT
BID FORM

Sealed proposals will be received by the office of the Superintendent (hereinafter called the “Owner”) at 27 N. Rempert Rd., Tawas City, Michigan 48763 until **March 24, 2023 at 1:00 PM**, at which time the bids will be opened; after which, at a regularly-scheduled School Board meeting, the proposals will be reviewed for award for providing the following:

Furnish labor, materials and equipment necessary to construct a poured concrete residential foundation for the IRESA Building Trade program’s next house project. Furnish labor, materials and equipment necessary to excavate the site and install compacted backfill. Cut/fill and foundation installation pricing shall be provided by the bidders as two separate line items on the bid form, in accordance with the foundation plan sheet A0 prepared by Bernard Lumber of Hale, and the (4) detail sheets, (9) pages of specifications and this bid form prepared by Russo Engineering, Inc. dated March 2023. It is noted that award and eventual payment will be made for each of the two bid line items whether awarded to a single Contractor for both work activities or two separate Contractors for each individual work activity.

INSTRUCTION TO BIDDERS

1. **PREPARATION OF BID:** Execute bid fully and properly. Submit bid in **duplicate** on page 6 of this form in a sealed envelope prior to the time when bids are due. Address envelope to the Superintendent of Schools, with “IRESA Residential Foundation Bid” listed as a subject on the outside of the envelope. Questions during the bid will be directed to Jack Flory, IRESA Construction Trades Instructor, on behalf of the Owner at 27 N. Rempert Rd., Tawas City, Michigan 48763; phone (989) 860-0987.

2. **BIDDER SIGNATURES:** All bids, notifications, claims and statements must be signed as follows:

- a. **Corporations:** Signature of officials shall be accompanied by a certified copy of the resolution of the Board of Directors authorizing the individual signing to bind the company.
- b. **Partnerships:** Signature of one partner shall be accompanied by a certified copy of the power of attorney authorizing the individual signing to bind all partners. If a bid is signed by all partners, no authorization is required.
- c. **Individual:** No authorization is needed. Each signature must be witnessed.

3. **BID GUARANTEES:**

a. **Bid Security:** All proposals shall be required to be accompanied by a surety (bid bond) drawn in the standard format and amount (5%), pledging that the bidder will enter into a Contract with the Owner on the terms stated in the bid, and will furnish bonds covering the faithful performance of the Contract. In lieu of a surety bond from a bonding company, a Certified or Cashier’s Check may be used if dated not more than 10 days prior to the letting date, with the purpose of that check the same as described above.

b. **Insurance:** Proof of the insurances, see paragraph 7 hereinafter, shall be an award requirement and shall either accompany the bid or be provided within ten days of being notified that the bidder is being considered for award.

c. **Payment & Performance Bond:** The successful Bidder shall, within 10 days of being notified he is selected, furnish bonds covering the faithful performance of the contract and payment of all obligations arising thereunder. Bonds may be secured through the Bidder’s usual sources, payable to the Owner as a guarantee of good faith. If the apparent successful bidder fails to furnish a bid bond with the bid, or satisfactory proof of insurance and the performance bond within 10 days after notice of successful bid, this shall constitute breach of bid guarantee and the Owner will pursue award to another bidder.

4. **REJECTION OR WITHDRAWAL:** The Owner reserves the right to reject any or all bids, to waive any informalities or defects in bids and to accept any bid or bids which are in the best interests of the Owner. Note: Late bids are automatically rejected. The unopened bid will be returned to the company that sent it.

5. **CONTRACT:** Upon acceptance by the Owner, page 6 of this document signed by both parties (or some other form of contract is signed) and returned to the Contractor, will constitute award. The contract, however, shall not be in force until the Contractor has complied with all the requirements of insurance and bonding evidence.

6. **PROTECTION:** Contractor shall properly protect all existing and new work from damage. Proper safety provisions shall be made at all times for the protection of all persons.

7. **INSURANCE:** No work connected with this contract shall be started until the Contractor has submitted evidence to the Owner that (a) under General Liability all workmen are insured to protect him from claims for damages for personal injury, death, and/or property damage which may arise from operations under this contract in the amount of \$1,000,000.00 for each occurrence and that (b) a Comprehensive Automobile Liability coverage in the amount of \$1,000,000.00 each for each occurrence of bodily injury or property damage and that (c) Worker's Compensation meets statutory limits. (d) Builder's Risk Insurance is also a requirement. All of the above insurance shall be maintained during the life of this contract. Partial payments shall not relieve the Contractor from full responsibility for any damage, which may result from any cause until completion of the contract & final payment. Casualties shall not relieve the Contractor from performing the contract.

Contractor shall endorse their required insurance policies to add Russo Engineering, the Owner, their officers, agents, servants, volunteers, and employees as "additional insured's" with respect to liability arising out of (1) operations performed for the Engineer & Owner by Contractor or Subcontractor, (2) acts or omissions of the Engineer & Owner, and (3) claims for bodily injury or death brought against the Engineer & Owner by Contractors or Subcontractor's employees, or the employees of the Subcontractor's subcontractors of any tier, however caused, related to the performance of operations under the Contract Documents. Such insurance afforded to the Owner as additional insured under Contractor's policies shall be primary insurance and not excess over, or contributing with, any insurance purchased or maintained by the Owner.

8. **CHANGES:** Contractor shall make changes in the contracted work only as ordered in writing by the Owner or the Owner's authorized representative. If there are revisions, those will be handled by change order. The Owner has reviewed the plans and specifications. The bidder is to bid the documents as they stand.

9. **INSPECTION:** Contractor shall at all times permit and facilitate inspection of the work by the Owner or its authorized representative, and by any other agencies having jurisdictional authority such as the Iosco County Dept of Building & Safety.

10. **TERMINATION FOR BREACH:** The Owner may terminate this contract when violations are not stopped immediately and corrected within a reasonable length of time after notification by the Owner. In the event of such termination, the Owner may complete the contracted work and the Contractor will be liable for any excess cost occasioned by the Owner thereby and in such case the Owner may take possession of and utilize in completing the work such materials and equipment as may be on the site and necessary therefore.

11. **CLEAN-UP:** Contractor shall at all times keep the premises free from accumulations of waste material or rubbish caused by his employees and at the completion of the work he shall remove all his waste, tools, equipment, staging and surplus materials from the grounds and leave his work clean and ready for use.

12. **GUARANTEE:** Contractor shall furnish the Owner with a written guarantee to remedy any defects due to faulty materials or workmanship which appear in the work within one year from the date of final acceptance by the Owner.

13. **INFORMATION FOR BID PREPARATION:** Access to the site is available at any time by bidders. No formally organized site visit by bidding participants on a preset date has been, or will be, scheduled. A mandatory site visit is required of the prospective bidders at a date and time of their choosing and prior to the established bid receipt date to familiarize them with the site. Upon viewing the site, if there are questions related to the bid

process or construction, please direct them to the Jack Flory, IRESA Construction Trades Instructor.

14. CONTRACT PERIOD: The work may commence as soon after project award is made, and includes submittal of all necessary insurance and bonding paperwork by the Contractor. The Contractor shall put on as much labor and plant as may be required to install the poured concrete crawl space footing and foundation walls, garage footing and foundation walls and garage slab floor by August 30, 2023 and as delineated in the sequence and division of work further clarified later in this document. Should inclement weather prevent completion in that time, proof shall be presented to the Owner that conditions beyond the seasonal average have been experienced, based upon national weather data. Liquidated Damages will not be assessed, however the project shall be finished before school staff and students return to resume the Building Trades curriculum for the 2023-2024 school year (August 30, 2023).

15. PAYMENT: Payment for the work will be made periodically upon an agreement between the Contractor and the Owner as to the percent complete. Prior to commencement of work, the contractor shall provide a schedule of values, i.e. a breakdown of all portions of the project, with the associated bid costs for each. Description of work individual line items will be required, such as bonds/insurance, mobilization/surveys, excavation, spoils relocation, concreting, piping installation, etc. Copies of a schedule of values form and the payment request form are attached. These documents will be the only tool used to determine percent complete and amount owed. If Contractor expects to request partial payments he shall submit a schedule of costs and quantities of the various parts of the work shown on the schedule of values, aggregating the total contract sum, itemized and supported as the Owner may require. The entire draw request shall be on the attached AIA Document G702, "Application & Certificate For Payment", with the G703 (Schedule of Values form) attached to it, and will be numbered consecutively for each draw. A retainage of up to 10% may be withheld by the Owner from each payment for the duration of the project, reducing this to 5% at the 50% completion stage, as long as there is acceptable progress. Release of the retention monies will be made upon final acceptance by the Owner and all paperwork being in order.

Contract will not be considered complete until the work has been finally accepted by the Owner and the following have been furnished:

- a. The required guarantees, all submittals and test results, and
- b. Satisfactory evidence that all payrolls, material bills and other indebtedness connected with the work have been paid. The Owner shall in no event be required to make final payment upon completion of work unless and until waivers of lien or discharge of liens have been executed by all subcontractors and material suppliers employed by the Contractor under this contract, and such waivers or discharges have been presented to the Owner; but the Contractor may, if any subcontractor or material supplier refuses to furnish a receipt or release in full, furnish a bond satisfactory to the Owner, to indemnify him against any lien. If any lien remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all monies that the latter may be compelled to pay in discharging such a lien, including all costs and reasonable attorney fees.

16. MISCELLANEOUS PROJECT REQUIREMENTS:

- a. A source for potable water shall be the Contractor's responsibility. Contractor shall provide water jugs, cups, ice, and distribution for its crews.
- b. Contractor shall be required to provide his own electrical power, if required. Contractor shall provide all extension cords and ground fault protection required to complete its work.
- c. Contractor shall provide site sanitary facilities (portable toilets) and wash stations.
- d. The Owner and Contractor will work together to designate parking areas for Contractor's equipment and vehicles and for vehicles of its employees. Staging areas will be determined via the same format. The Contractor will obtain whatever permits from those agencies having jurisdiction. This includes any needed to close off or otherwise encumber traffic flow on adjacent streets, if applicable.
- e. Vehicular traffic routes shall be maintained at all locations to the greatest extent possible to minimize disruptions and rerouting of traffic. Contractor shall not block roadways or access paths with materials, vehicles, delivery trucks, etc. Should Contractor's operations necessitate rerouting of traffic, Contractor shall be responsible for providing signs, barricades and, if necessary, flaggers to alert drivers and divert traffic in a safe manner, from

roads and sidewalks.

f. Project hours are from 7:00A.M. to 7:00P.M. on Weekdays. Project hours beyond the Weekday limits, Weekend hours, and/or holiday hours shall be by permission only from the Owner.

g. There are estimated unit quantities listed on the details to assist the bidders, however not all items may be listed, and it is the bidder's/contractor's responsibility to identify all work items and to verify all quantities of each, shown or not, through field visit(s), plan review, etc. prior to bidding (i.e. perform pre-bid due diligence).

h. A clear understanding of the work to be accomplished by the Owner and by the Contractor is required. Since this construction project is part of the IRESA Building Trades program, student instruction takes precedence and thus may impact how the project proceeds and ultimately how it differs from other "typical" residential foundation work. It is recognized that two separate Contractors may be involved with the project as previously noted, i.e. cut/fill activities and foundation/slab construction, or both activities could be undertaken by the same Contractor depending upon the individual submitted bid amounts. Assuming the two construction activities are conducted by two separate Contractors, cut/fill and foundation activities are identified as "Contractor A" and "Contractor B", respectively. It is noted that if two separate Contractors perform each work item, they must coordinate as necessary to complete the project by the required date. The following identifies the sequencing and division of work:

(1.) Contractor "A" shall excavate/undercut the site as per the details and specifications provided. All removed spoils shall be staged elsewhere on the site as per the Owner. This Contractor is not responsible to haul excavated spoil materials off IRESA property.

(2.) Contractor "A" shall furnish, place (in lifts) and compact all sand backfill necessary to install all crawlspace and garage area footings and foundation walls to the elevations noted on the respective detail provided. It is noted here that this same Contractor is responsible to furnish all sand backfill quantities necessary to complete the job in its entirety regardless if sand backfill and compaction activities are by this Contractor or the Owner. The Owner shall designate where all sand materials shall be staged on the site.

(3.) Contractor "B" shall furnish all materials and labor necessary to install the new building's poured concrete footings, footing drain system, foundation walls, as well as porch and crawl space pier footings. This shall include the installation of all reinforcing steel, as well as all anchor bolt hardware to secure the eventual wall sole plates (by Owner). The Contractor shall also furnish and install all crawlspace vent covers.

(4.) Contractor "B" is responsible to place all sand backfill, in lifts with compaction, necessary for the installation of the new concrete slab garage floor.

(5.) Contractor "B" shall install the new garage area concrete floor slab only after the surrounding poured concrete foundation walls are of sufficient structural ilk to support sand backfill and compaction activities and the subsequent concrete floor pour. A french drain shall be installed in the garage floor by this Contractor as identified in the foundation plan or as otherwise dictated by skill-of-the-trade practices.

(6.) The Owner is responsible to backfill and compact, as necessary, around the exterior perimeter of all crawlspace foundation walls, only after the vapor barrier, crawlspace insulating board and wood joist floor deck has been installed by the Owner. The Owner is responsible to backfill and compact, as necessary, around the exterior perimeter of the garage foundation walls, only after the concrete slab floor has been installed and structurally set to sufficiently support backfill operations. It is noted here that the backfill sand material used for these activities will be the same previously furnished and staged on the site by Contractor "A", noted earlier as part of his contract. Installation of a clay lens/cap, topsoil, site finish grading and seeding is the Owner's responsibility.

17. SAFETY AND ENVIRONMENT

a. Contractor is responsible for the safety and health of its employees and for not endangering other workers, the public, and property.

b. Contractor shall provide its own safety equipment and first aid supplies including fire extinguishers, safety glasses and goggles, air monitors, safety belts and lanyards, eye wash stations, and all other personal protective equipment or devices required to protect its employees.

c. Contractor is required to have one employee for every five who has a valid, effective first aid card. d. Contractor shall ensure that all of its employees who signal operators of equipment be properly trained to do so.

e. Contractor shall ensure that its personnel be made aware of and observe proper safety precautions when

working near electrical lines, etc.

f. Contractor shall ensure that the construction vehicles and equipment under its control are cleaned sufficiently prior to leaving the project site to ensure that no dirt, aggregate or other debris will fall on local paved roadways where other vehicles may carry the debris elsewhere. If there is debris on the adjacent public streets, these shall be swept by the Contractor.

g. Contractor shall perform its cleanup work daily or at other times deemed necessary by the Owner. h. Contractor shall properly dispose of all hazardous materials, (if encountered), in a manner conforming to Federal, State, and Local regulatory requirements.

i. Solvents, petroleum products, chemicals, or any other toxic or deleterious materials shall be properly stored and carefully handled to prevent entry of contaminants into storm drains, surface waters, soils, or any structures. Contractor shall be responsible for proper prevention measures and the containment and cleanup of any such products used in its operations.

j. Noise levels shall not exceed those as mandated by Federal, State or Local regulations or ordinances. k. Contractor shall be responsible for controlling dust, smoke, and other contaminants that are a result of its operations as required by Federal, State, or Local regulations.

18. ADDITIONAL WORK: None proposed. Any project scope modifications will be managed using accepted change order processes.

WITNESSED

Witness

Signature of bidder

Title

Bidder's company name

Printed name of bidder signatory

“Cut/Fill” Basic Bid: Provide all labor, materials, equipment, supplies and expertise to perform the work as described in the bid form, plans, details and specifications regarding site work associated with excavation, fill and compaction prior to placement of a residential foundation footing (by others) at the site. See also section 16.h. “Division of work” in this bid form identifying Contractor “A” work requirements.

Lump Sum Basic Bid Price \$ _____

“Foundation” Basic Bid: Provide all labor, materials, equipment, supplies and expertise to perform the work as described in the bid form, plans, details and specifications for a complete and usable residential foundation at the site after excavation, fill and compaction activities are completed (by Contractor “A” noted above). See also section 16.h. “Division of work” in this bid form identifying Contractor “B” work requirements.

Lump Sum Basic Bid Price \$ _____

The bidder acknowledges receipt of any addenda that have been issued during the bid process:

Addendum #1 _____, Addendum #2 _____, Addendum #3 _____, Addendum #4 _____, Addendum #5 _____

IRESA REPRESENTATIVE,

BID DATE ACCEPTED: _____

DATE CONTRACT AWARDED: _____

Witness

Owner representative signature

Printed name of Owner signatory

Attachments (as part of the contract documents):

1. Foundation Plan sheet A1, 1 sheet, 1 cy
2. Specifications, 9 pgs, 1 cy
3. Details, 4 pgs, 1 cy
4. Document G702, “Application & Certificate for Payment, 1 pg, 1 cy
5. Document G703, continuation sheet (Schedule of Values), 1 pg, 1 cy