Technicon Design Group

Date: 10/14/2024
Project Number: 42-2899-23
Project Name: American Township Fire Department - New Station No. 1
Intent:

This Addendum provides modifications and clarifications To the Bid Documents dated **September 18, 2024**, Bidder shall ascertain prior to submitting its Bid Form that it has received all Addenda issued and shall acknowledge receipt of each Addendum on the Bid Form.

In the event of a conflict between the terms and provisions of this Addendum and the terms and provisions of the Bidding Documents, the terms and provisions of this Addendum shall control. In all other respects, the Bidding Documents shall remain unchanged and in full force and effect.

Item	Additional Document	Cons. Doc. Reference	Description
Specifications:			
1		**Spec Section 033000**	**REVISED SECTION 033000:** Added spec section 2.12 (see attached).
Plumbing:			
2		**Sheet P501 Detail #3**	**CLARIFICATION:** See attached revised detail for oil interceptor approximate inverts.
Site:			
3		**Sheet C102 Site Utilities**	**CLARIFICATION:** See item #2 under plumbing above.
4		**Sheet C103 Grading Plan**	**CLARIFICATION:** Site contractor will be permitted to over excavate and/or enlarge the detention pond to generate additional clay earth material needed for the site. The pond can be expanded up to 40 feet South and 50 feet East. The final pond configuration, side slopes, depth, and forebay/micropool configuration will be subject to the approval of the owner. If the contract elects to enlarge the pond, all costs for storm sewer utility adjustments are to be included in the bid price. Any additional needed material, after pond over-excavation is completed, to construct the site will need to be imported off site.
5		**Sheet C300 & SWP3-5**	**CLARIFICATION:** The 4 inch underdrain invert in the Detention Pond Water Quality Structure requires a valve. Bidder is to include a 4 inch Valterra PVC Gate Valve with stainless steel paddle, stem, stem extension, and hardware, or approved equal. The valve will be located inside the proposed Water Quality Unit.

Item	Additional Document	Cons. Doc. Reference	Description
6		**Sheet C102 Utility Plan**	**CLARIFICATION:** Proposed Sanitary Sewer to have a minimum of 4 feet of cover and a minimum slope of 1 percent. The flowline of the new 6 inch sewer lateral heading North at the connection to the existing sewer main is 800.50. The existing 12 inch sewer main is at elevation 93.0± and will require at vertical tap and Tee as per the approval of the Allen County Sanitary Engineer.
End of Addendum #03			

SECTION 033000 - CAST-IN-PLACE CONCRETE (REVISED)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract, including General, Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

B. Related Sections:

1. Section 312000 "Earth Moving."
2. Section 033500 “Polished Concrete.”
3. Section 079200 “Joint Sealants.”

C. Proposed Substitutions: See Section 016000 “Product Requirements.”

1.3 ACTION SUBMITTALS

A. Submittal Procedures: See Section 013300 “Submittal Procedures.”

B. Product Data: For each type of product indicated.

C. Design Mixtures: For each concrete mixture.

D. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement.

1.4 INFORMATIONAL SUBMITTALS

A. Welding certificates.

B. Material certificates.

C. Material test reports.

D. Floor surface flatness and levelness measurements.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

B. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D 1.4M, "Structural Welding Code - Reinforcing Steel."

C. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301, "Specifications for Structural Concrete" (if applicable).

2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials" (if applicable).

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

C. Form Release Agent: Colorless mineral oil which will not stain concrete, absorb moisture, or impair natural bonding or color characteristics of coating intended for use on concrete.

1. VOC Content: Maximum 340 gm/liter.

2. Manufacturers:

a. W. R. Meadows; Duogard
b. L & M Construction Chemicals, Inc.; Debond Form Coating
c. BASF Corporation; MasterFinish RL 100

D. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as require, of sufficient strength and character to maintain formwork in place while placing concrete.

2.2 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.

B. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, plain, fabricated from as-drawn steel wire into flat sheets.

C. Deformed-Steel Welded Wire Reinforcement: ASTM A 497/A 497M, flat sheet.

D. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice."

2.3 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type I, gray. Supplement with the following:

a. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.
b. Fly Ash: ASTM C618, Class C.

B. Normal-Weight Aggregates: ASTM C 33, graded.

1. Maximum Coarse-Aggregate Size: 1 inch (25 mm).

2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement. Provide natural sand that meets ASTM C33. No manufactured sand permitted.

C. Water: ASTM C 94/C 94M and potable.

2.4 ADMIXTURES

A. Air-Entraining Admixture: ASTM C 260.

B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.

2. Mid-Range Water Reducing Admixture: ASTM C494/C494M, Type A/F.

3. Retarding Admixture: ASTM C 494/C 494M, Type B.

4. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.

5. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.

6. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.

7. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

2.5 WATERSTOPS (if any indicated)

A. Self-Expanding Butyl Strip Waterstops: Manufactured rectangular or trapezoidal strip, butyl rubber with sodium bentonite or other hydrophilic polymers, for adhesive bonding to concrete, 3/4 by 1 inch (19 by 25 mm).

B. Self-Expanding Rubber Strip Waterstops: Manufactured rectangular or trapezoidal strip, bentonite-free hydrophilic polymer modified chloroprene rubber, for adhesive bonding to concrete, 3/8 by 3/4 inch (10 by 19 mm).

2.6 VAPOR RETARDERS

A. 10 Mil Sheet Vapor Retarder: ASTM E 1745, Class A. Include manufacturer's recommended adhesive or pressure-sensitive tape.

1. Basis-of-Design: STEGO® Wrap 10-mil Class A vapor barrier as manufactured by Stego Industries, LLC or comparable equal by one of the following:

a. Permeator® as manufactured by Meadows W.R., Inc.
b. VaporBlock® as manufactured by Raven Industries, Inc.
d. Griffolyn® as manufactured by Reef Industries, Inc.

2.7 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) when dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

F. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, nondissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.

G. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

1. VOC Content: Curing and sealing compounds shall have a VOC content of 200 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

H. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

1. VOC Content: Curing and sealing compounds shall have a VOC content of 200 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.8 RELATED MATERIALS

A. Expansion and Isolation-Joint-Filler Strips: ½-inch thick: ASTM D 4819; closed cell polyethylene or ASTM D 3575 closed cell foam.

B. Bond Breaker No. 15 asphalt saturated felt.

C. Non-Shrink Grout for Structural Steel Base Plates and Bearing Plates: Corps of Engineers Specification CRC-C 621 Type D; ASTM C-827 and ASTM C 1104; non catalyzed, multipurpose construction type containing mineral aggregate; Portland Cement-based; flowable, stiff, or plastic consistency.

D. Bonding Agent for Concrete Topping: Re-wettable ethylene vinyl copolymer emulsion bonding agent for concrete complying with ASTM C 1059, Type 1.

1. Tammsweld Latex Bonding Agent for concrete.

2.9 CONCRETE MIXTURES

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

1. See concrete mix design matrix on drawings.

B. Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.

2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.

2.10 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.11 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and ASTM C1116/C 1116M and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

2.12 SYNTHETIC MICRO-FIBER

A. 100% Virgin multifilament polypropylene fibers complying with ASTM C 1116/C 1116M. Available in ¼ inch (6 mm), ½ inch (13 mm), ¾ inch (19 mm), and multi-length blend (ML).

1. Product:

a. Euclid Chemical Company (The); PSI Fiberstrand 100; www.euclidchemical.com.
b. Sika; Fibermesh – 150; www.usa.sika.com.
c. Full Force Engineered Solutions; Fiberforce 100; www.fullforcesolutions.us.

2. Fiber manufacturer shall have ISO 9001 certification.

B. The application rate is 1.0 to 1.50 pounds per cubic yard of concrete although lower rates may be acceptable depending on local building codes.

C. Synthetic Micro-Fiber: Add to concrete and mix for 3-5 minutes to provide uniform distribution.

D. For broomed surfaces, broom once in one direction only.

PART 3 - EXECUTION

3.1 FORMWORK

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Do not chamfer exterior corners and edges of permanently exposed concrete. Treat these corners as indicated on drawings.

3.2 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.3 VAPOR RETARDERS

A. Sheet Vapor Retarders: (10 MIL) Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions.

1. Lap joints 6 inches (150 mm) and seal with manufacturers recommended tape.

3.4 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

3.5 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch (3.2 mm). Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.

2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3.2-mm-) wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

E. Waterstops (if any indicated on drawings): Install in construction joints and at other joints indicated according to manufacturer's written instructions.

3.6 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or

planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.

C. Cold-Weather Placement: Comply with ACI 306.1.

D. Hot-Weather Placement: Comply with ACI 301.

3.7 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, to be covered with a coating or covering material applied directly to concrete.

C. Rubbed Finish (Exposed Concrete Walls): Apply the following to smooth-formed finished as-cast concrete where indicated:

1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.

D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.8 FINISHING FLOORS AND SLABS

A. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces to receive trowel finish.

B. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free

of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces exposed to view or to be covered with epoxy – resin flooring, resilient flooring, carpet, ceramic, or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.

2. Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.- (3.05-m-) long straightedge resting on two high spots and placed anywhere on the surface does not exceed 3/16 inch (4.8 mm) 1/8 inch (3.2 mm).

C. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom.

1. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.

D. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.

3.9 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
   a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.

4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial

application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.10 APPLICATION OF BONDING AGENT

A. Surface Preparation: Apply latex bonding agent to a clean, dry and structurally sound surface. The substrate must be free of all curing compounds and other contaminants. Preferred method of surface preparation is mechanical abrasion. Concrete substrate must be dry before applying bonding agent.

B. Application of Bonding Agent: Apply the bonding agent according to the manufacturer's recommendations. Allow the bonding agent to dry completely before placement of concrete topping.

C. Clean-Up: Clean tools and equipment with detergent and water immediately following use. Clean drips and over-spray with water while still wet. Dried bonding agent may require mechanical abrasion for removal.

3.11 CONCRETE SURFACE REPAIRS

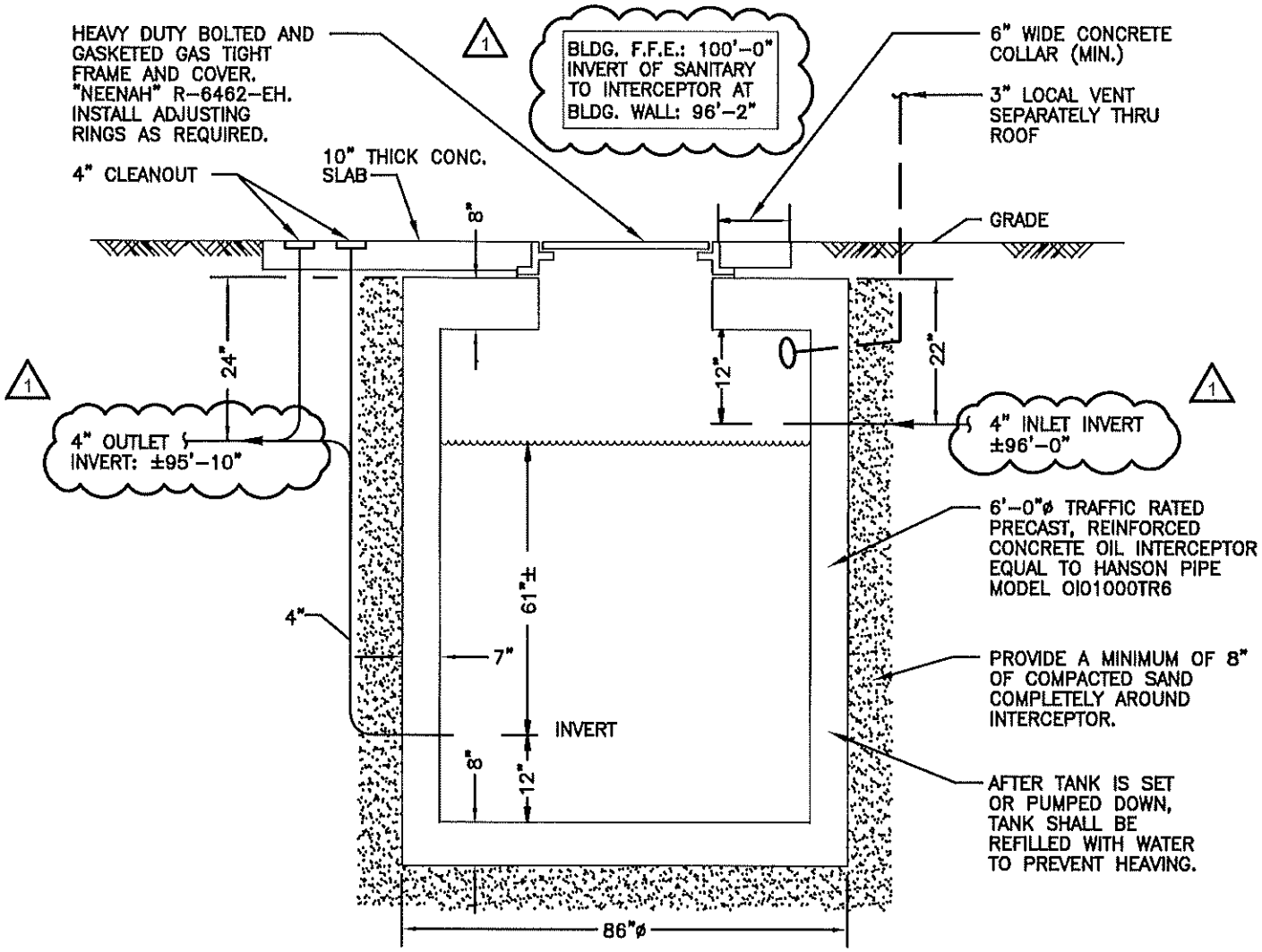
A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

3.12 FIELD QUALITY CONTROL

A. Testing and Inspecting: General Contractor shall engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.

1. See Section 014000 "Quality Requirements.

END OF SECTION 033000



CALCULATIONS

ROOM	AREA
301 – APPARATUS	11,506 FT^2
403 – MAINTENANCE	857 FT^2
TOTAL =	12,363 FT^2

6 FT^3 FOR FIRST 100 FT^2
1 FT^3 FOR EACH ADDITIONAL 100 FT^2
6 FT^3 + 12,363 FT^2 (1 FT^3 /100 FT^2) = 128.63 FT^3 (MINIMUM)
128.63 FT^3 * 7.5 GAL/FT^3 = 964.7 GAL (MINIMUM)

3 / P501 OIL INTERCEPTOR DETAIL
SCALE: NONE

NEW FIRE STATION #1
AMERICAN TWP. F.D.
4239 ELIDA RD.
LIMA, OH 45807

DRAWN BY	KW
CHECKED	SB
DATE	05-23
SCALE	N.T.S.
JOB NO.	1:1

PAGE	ISSUE DATE
P501	10-14-24
ADDENDUM 3	

Technicon Design Group

THIS IS NOT A SEALED DOCUMENT.
SEE REVIEWED DRAWINGS ON FILE WITH THE AUTHORITY HAVING JURISDICTION.
GILLIAN STECHSCHULTE
OHIO REGISTERED ARCHITECT NO.
LICENSE #ARC1516394
EXPIRATION DATE 12-31-25